Drainage Report

Parcel H

Sereno Canyon

EXPIRES 12/31/21

Prepared for:

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July 2021

DRAINAGE REPORT

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Registered Professional Engineer (Civil)
CERTIFICATE NO.
28638
JORGE R.
GARRE
Date Signed 7/26/2021
ARIZONA, U.S.A.
EXPIRES 12/31/21

LIST OF EXHIBITS

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1.0 INTRODUCTION

The purpose of this report is to provide drainage data analyses to support the construction of improvements for Sereno Canyon Phase 4 Parcel H project in Scottsdale, Arizona.

The project site is located within portions of Section 11 (T4N, R5E), of the Gila and Salt River Base and Meridian. Parcel H is bounded on the east by 128th Street, on the west by Parcel I, on the north by Sereno Canyon Parkway and on the south by the City of Scottsdale Preserve land. Exhibit A shows a vicinity map.

Parcel H is proposed as a residential subdivision and will consist of constructing lot grading, retaining walls, roadway improvements, drainage infrastructure and. City of Scottsdale Case No. 16-PP-2017 established the stipulations for this project. The Case Drainage Report for Sereno Canyon Phase 4 Preliminary Plan submitted by Slater-Hannifan, and accepted by the City of Scottsdale, set the guidelines for the overall master drainage plan on the property.

The Federal Emergency Management Agency (FEMA) under the National Flood Insurance Program (NFIP) has issued on November 4, 2015, Flood Insurance Rate Maps (Map Number: 04013C1335M) indicating that **Parcel H** is within designated 'Other Flood Areas' Zones D. Zone D is defined as *"Area of Undetermined Flood Hazard"*. Exhibit B shows the flood insurance rate map.

2.0 HYDROLOGY

The site is currently undeveloped with the majority of the site flowing northeast. Vegetation is typical Sonoran Desert.

It is important to note that the study presented in this report utilizes information previously approved by the City of Scottsdale for Sereno Canyon, as listed following:

- Sereno Canyon Master Drainage Plan (*MDP*) – November 15, 2006
- Sereno Canyon Master Drainage Plan Amendment I (*Amendment I*) – January 9, 2012
- Sereno Canyon Master Drainage Plan Amendment II (*Amendment II*) – September 18, 2012
- Preliminary Drainage Report for Sereno Canyon Phase 4 (*PDR*) – May 7, 2018

Existing Conditions hydrologic runoff models (input & output) and maps from the *Amendment I* report are included in Appendix B for reference. Proposed Conditions hydrologic runoff models (2-, 10-, and 100-Yr) and maps are included in Appendix C. Results from the HEC-1 model represent the revised proposed land use and the stormwater management conditions of the project. Peak flows exiting the Sereno property at 128th Street presented in the *PDR* by Slater-Haniffan remain valid.

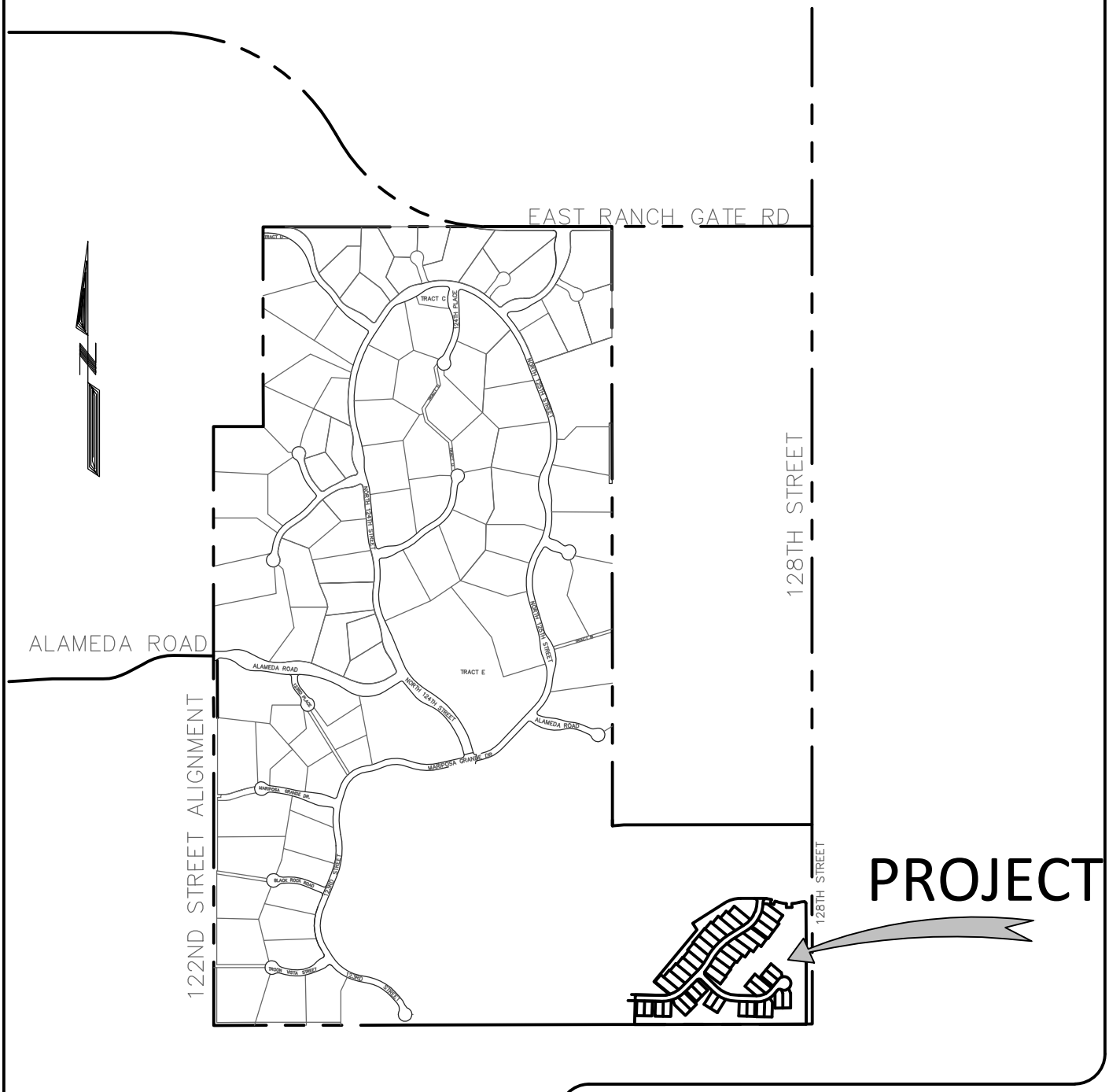


EXHIBIT A
Vicinity Map

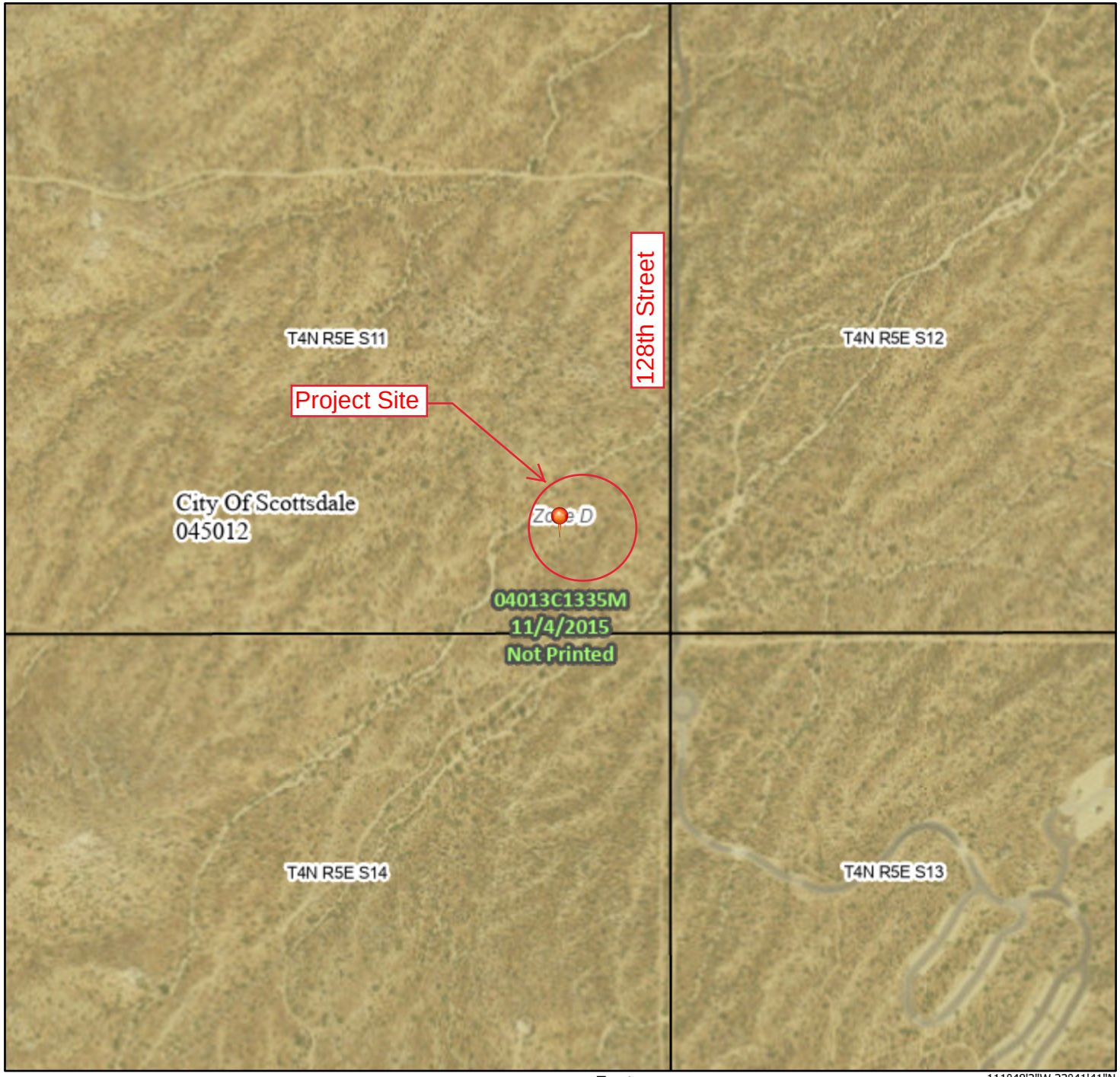
PARCEL H
SERENO CANYON
Scottsdale – Arizona

FILE NAME:
MACHINE NUMBER:
DATE PLOTTED:

National Flood Hazard Layer FIRMette

FEMA

111°48'40"W 33°42'11"N



111°48'2"W 33°41'41"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS

- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD

- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS

- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES

- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES

- B 20.2 17.5 Cross Sections with 1% Annual Chance Water Surface Elevation
- 8 Coastal Transect
- 513 Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS

- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 7/26/2021 at 3:29 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

EXHIBIT B

3.0 HYDRAULICS

Runoff generated within the proposed pavement areas will be removed by curb openings. The locations of proposed curb openings can be seen in the Improvement Plans. Per City's DS&PM Section 4-1.204 (Street Drainage), proposed streets must contain runoff within street curbs for the 10-Yr peak discharge rate. Street hydraulic capacity calculations were prepared and the results indicate hydraulic capacity that will exceed the 10-Yr peak discharge rate. Results can be found in Appendix D.

One culverted crossing is proposed at Casitas del Rio Drive. Hydraulic calculations can be found in Appendix D.

4.0 EROSION AND SEDIMENTATION

The soil classification for the site is Gran-Wickenburg Complex. Field investigation revealed a surface covered with pebbles, cobbles and rock outcrops, which are indicators of surface armoring (erosion hazard slight). Erosion protection components are proposed to prevent scour by using rock riprap, concrete, and slope compaction/revegetation. Riprap Aprons are proposed for stormdrain outlets, and inlets into existing detention basin.

Following the guidelines and recommendations by the Flood Control District of Maricopa County, the sediment discharge rate was calculated using the Zeller-Fullerton equation.

$$q_s = 0.0064 \frac{n^{1.77} V^{4.32} G^{0.45}}{Y_h^{0.30} D_{50}^{0.61}}$$

This equation is based on a regression analysis of hydraulic and sediment transport data for sand-bed streams in Pima County, Arizona. The listed regression limits for D_{50} are 0.5 to 10.0 mm.

Drainage Area SB01A was not evaluated due to bypassing Parcel H site. This analysis was prepared for Drainage Area SB05B2 that contributes runoff to SD A and SB02A1 that contributes runoff to SD B (MAP A). This quantitative analysis was developed to determine the sediment inflow rates impacting both culverts.

The sediment inflows computed in this analysis are based on the following assumptions:

- Upstream washes are in the state of equilibrium, that is, the sediment supply to all existing washes is assumed to be equal to the sediment transport capacity of the washes studied in this report. This assumption simplifies the calculation of sediment inflow because allows the use of the existing watercourse slope to compute the hydraulic parameters and sediment transport rates of all incoming washes.
- All sediment transport calculations are based on normal depth hydraulic assumptions and constant channel bed and bank geometry, that is, bank erosion and vertical bed movement are ignored.

The process begins with selecting a representative reach within the upstream drainage area, in both slope and typical cross section. Using this cross section, water depths and average velocity were computed for estimated flows within the drainage area up to the 100-Yr peak flow. Sediment flows were then calculated and a graph was developed showing the relationship between the “water discharge” and the “sediment discharge”. The "water discharges" associated with each of the discretized hydrograph intervals (HEC-1 model: Future Conditions 100-Yr/6-Hr) were applied to the sediment transport-rating curve in order to compute the "sediment transport rate" ($Q_{s\ Inflow}$) of each hydrograph time step.

Then, the sediment transport capacity ($Q_{s\ max}$) for the proposed stormdrain was evaluated using the Federal Highway Administration (FHWA) equation (Graf and Acaroglu), because it was developed from data that included large range of pipe flow and open channel conditions. The results of the analysis will indicate if the stormdrain is large enough to convey both water and sediment without causing hazardous backwater upstream, or if the stormdrain will fill with sediment.

$Q_{s\ Inflow} < Q_{s\ max}$ will indicate that the maximum sediment transport capacity of the stormdrain structure ‘exceeds’ the estimated channel sediment discharge therefore indicating that the structure is large enough to convey both water and sediment without causing deposition of sediment and/or hazardous backwater upstream.

Based on the results presented in Appendix E, the proposed culverts have the necessary sediment transport carrying capacity for the estimated 100-Yr storm event.

Finally, a sediment gage as shown in Detail FCD120-3 from the Flood Control District, will be installed at SD B inlet to help the responsible H.O.A. in the maintenance for sediment removal. Inspections and repair work should be conducted biennially as well as after each 5-year or greater flood to remove any significant sediment deposition and/or fix any scour damage.

5.0 CONCLUSIONS

- The proposed land use has no conflicts with any local/regional drainage issues and follows the guidelines set forth by approved Case Drainage report (16-PP-2017).

- The proposed project complies with City Revised Code requirements for stormwater storage.

- All buildings and structures within the development are accessible from the boundary of that development during the period of peak flow of runoff from a 100-year storm event.

- Home Owners Association (HOA) is responsible for maintenance of drainage structures, detention basins, and drainage easements within the subdivision.

Appendix A

APPENDIX A: REFERENCES

1. Wood, Patel & Associates, Inc. *Master Drainage Report for McDowell Mountain Back Bowl.* Revised May 12, 2005.
2. Wood, Patel & Associates, Inc. *Master Drainage Report for Sereno Canyon.* November 15, 2006.
3. JE Fuller/Hydrology & Geomorphology, Inc. *Master Drainage Plan for Sereno Canyon (Amendment I).* January 9, 2012.
4. JE Fuller/Hydrology & Geomorphology, Inc. *Master Drainage Plan for Sereno Canyon (Amendment II).* September 18, 2012
5. City of Scottsdale. *Design Standards & Policies Manual (2017).*
6. Flood Control District of Maricopa County. *Drainage Design Manual for Maricopa County – Hydrology*. December 14, 2018.
7. Flood Control District of Maricopa County. *Drainage Design Manual for Maricopa County – Hydraulics*. December 14, 2018.
8. Arizona Department of Water Resources. *State Standard for Watercourse System Sediment Balance (SS 5-96).* September 1996.
9. U.S. Army Corps of Engineers. *HEC-RAS River Analysis System, Version 6.0.0*. December, 2020.
10. Flood Control District of Maricopa County. *Drainage Design Management System for Windows (DDMS), Version 5.6.0.*

Appendix B

Map Unit Soil ID	Book Number	Soil Description	XKSAT	Rock Outcrop %
61	645	Gran-Wickenburg complex, 1 to 10 percent slopes	0.15	0%
63	645	Gran-Wickenburg-Rock outcrop complex, 1 to 7 percent slopes	0.14	25%

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400 200 0 400
Feet

Sheet 1 of 1

CITY OF SCOTTSDALE

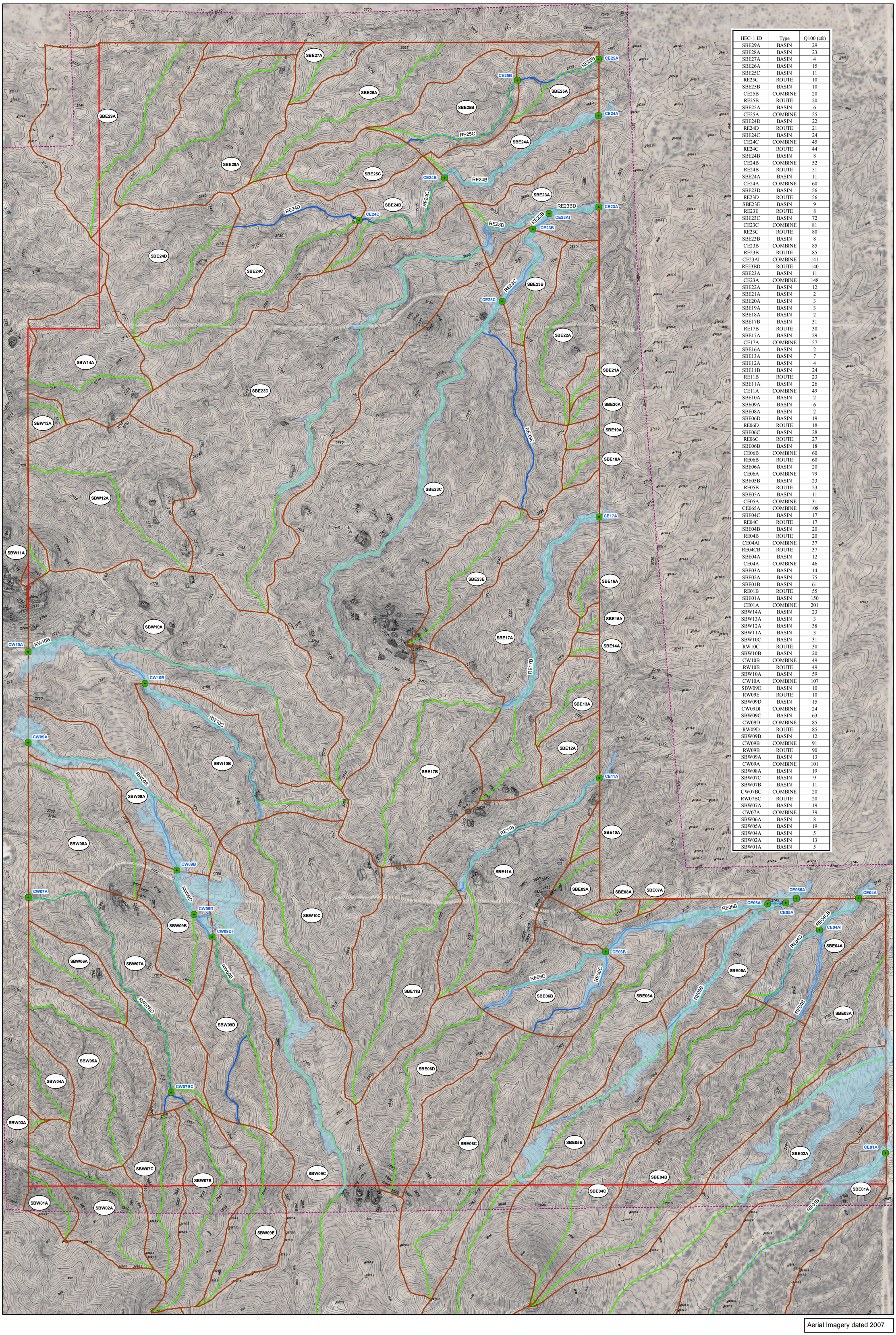
SERENO CANYON
SOILS DATA

SCOTTSDALE, ARIZONA

JANUARY 2012

Legend

- Sereno Canyon Project Boundary
- Sub-Basins
- Roads



HEC-1 ID	Type	Q100 (cfs)
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SBE28A	BASIN	23
SBE27A	BASIN	4
SBE26A	BASIN	15
SBE25C	BASIN	11
RE25C	ROUTE	10
SBE25B	BASIN	10
CE25B	COMBINE	20
RE25B	ROUTE	20
SBE25A	BASIN	6
CE25A	COMBINE	25
SBE24D	BASIN	22
RE24D	ROUTE	21
SBE24C	BASIN	24
CE24C	COMBINE	45
RE24C	ROUTE	44
SBE24B	BASIN	8
CE24B	COMBINE	52
RE24B	ROUTE	51
SBE24A	BASIN	11
CE24A	COMBINE	60
SBE23D	BASIN	56
RE23D	ROUTE	56
SBE23E	BASIN	9
RE23E	ROUTE	8
SBE23C	BASIN	72
CE23C	COMBINE	81
RE23C	ROUTE	80
SBE23B	BASIN	8
CE23B	COMBINE	85
RE23B	ROUTE	85
CE23AI	COMBINE	141
RE23BD	ROUTE	140
SBE23A	BASIN	11
CE23A	COMBINE	148
SBE22A	BASIN	12
SBE21A	BASIN	2
SBE20A	BASIN	3
SBE19A	BASIN	3
SBE18A	BASIN	2
SBE17B	BASIN	31
RE17B	ROUTE	30
SBE17A	BASIN	29
CE17A	COMBINE	57
SBE16A	BASIN	2
SBE13A	BASIN	7
SBE12A	BASIN	4
SBE11B	BASIN	24
RE11B	ROUTE	23
SBE11A	BASIN	26
CE11A	COMBINE	49
SBE10A	BASIN	2
SBE09A	BASIN	6
SBE08A	BASIN	2
SBE06D	BASIN	19
RE06D	ROUTE	18
SBE06C	BASIN	28
RE06C	ROUTE	27
SBE06B	BASIN	18
CE06B	COMBINE	60
RE06B	ROUTE	60
SBE06A	BASIN	20
CE06A	COMBINE	79
SBE05B	BASIN	23
RE05B	ROUTE	23
SBE05A	BASIN	11
CE05A	COMBINE	31
CE065A	COMBINE	108
SBE04C	BASIN	17
RE04C	ROUTE	17
SBE04B	BASIN	20
RE04B	ROUTE	20
CE04AI	COMBINE	37
RE04CB	ROUTE	37
SBE04A	BASIN	12
CE04A	COMBINE	46
SBE03A	BASIN	14
SBE02A	BASIN	75
SBE01B	BASIN	61
RE01B	ROUTE	55
SBE01A	BASIN	150
CE01A	COMBINE	201
SBW14A	BASIN	23
SBW13A	BASIN	3
SBW12A	BASIN	38
SBW11A	BASIN	3
SBW10C	BASIN	31
RW10C	ROUTE	30
SBW10B	BASIN	20
CW10B	COMBINE	49
RW10B	ROUTE	49
SBW10A	BASIN	59
CW10A	COMBINE	107
SBW09E	BASIN	10
RW09E	ROUTE	10
SBW09D	BASIN	15
CW09DI	COMBINE	24
SBW09C	BASIN	63
CW09D	COMBINE	85
RW09D	ROUTE	85
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CW07A	COMBINE	39
SBW06A	BASIN	8
SBW05A	BASIN	19
SBW04A	BASIN	5
SBW02A	BASIN	13
SBW01A	BASIN	5

Aerial Imagery dated 2007

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200 100 0 200
Feet

Sheet 1 of 1

CITY OF SCOTTSDALE

SERENO CANYON
EXISTING CONDITION DRAINAGE EXHIBIT

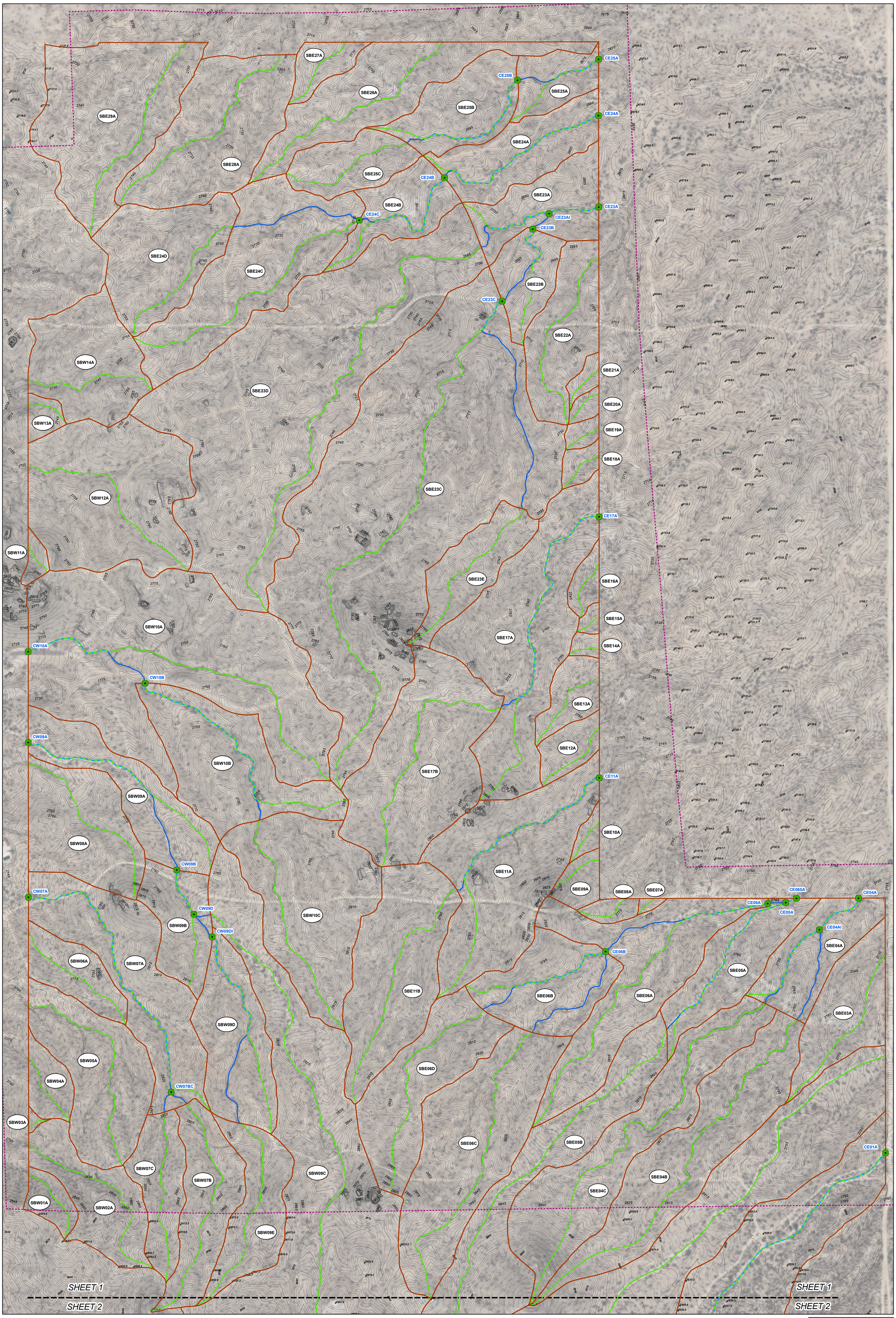
SCOTTSDALE, ARIZONA

JANUARY 2012

Legend

- Concentration Points
- Existing Floodplains
- Sub-Basins
- 1-Foot Contour Interval Limits
- Sereno_Canyon_Project_Boundary

Sub-Basin Flowline
Type
- Route
- TC
- TC and Route



Aerial Imagery dated 2007

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Feet

Sheet 1 of 2

CITY OF SCOTTSDALE

SERENO CANYON
SUBBASINS AND FLOWPATHS

SCOTTSDALE, ARIZONA

JANUARY 2012

Legend

- Concentration Points
- Sub-Basins
- Matchline

Flowpaths
Type
- Route
- TC
- TC and Route

Existing Condition HEC-1 Model

100-Year, 6-Hour Storm

HEC-1 Model: Existing Condition 100-Year, 6-Hour
HEC-1 File Name: SERENO_EX_100_6.OUT

HEC-ID	Routing	Peak Q (cfs)
SBE29A	BASIN	29
SBE28A	BASIN	23
SBE27A	BASIN	4
SBE26A	BASIN	15
SBE25C	BASIN	11
RE25C	ROUTE	10
SBE25B	BASIN	10
CE25B	COMBINE	20
RE25B	ROUTE	20
SBE25A	BASIN	6
CE25A	COMBINE	25
CLEAR	COMBINE	96
SBE24D	BASIN	22
RE24D	ROUTE	21
SBE24C	BASIN	24
CE24C	COMBINE	45
RE24C	ROUTE	44
SBE24B	BASIN	8
CE24B	COMBINE	52
RE24B	ROUTE	51
SBE24A	BASIN	11
CE24A	COMBINE	60
SBE23D	BASIN	56
RE23D	ROUTE	56
SBE23E	BASIN	9
RE23E	ROUTE	8
SBE23C	BASIN	72
CE23C	COMBINE	81
RE23C	ROUTE	80
SBE23B	BASIN	8
CE23B	COMBINE	85
RE23B	ROUTE	85
CE23AI	COMBINE	141
RE23BD	ROUTE	140
SBE23A	BASIN	11
CE23A	COMBINE	148
CLEAR	COMBINE	286
SBE22A	BASIN	12
SBE21A	BASIN	2
SBE20A	BASIN	3
SBE19A	BASIN	3
SBE18A	BASIN	2
CLEAR	COMBINE	300
SBE17B	BASIN	31
RE17B	ROUTE	30
SBE17A	BASIN	29
CE17A	COMBINE	57
SBE16A	BASIN	2
SBE13A	BASIN	7
SBE12A	BASIN	4
SBE11B	BASIN	24
RE11B	ROUTE	23
SBE11A	BASIN	26
CE11A	COMBINE	49
CLEAR	COMBINE	412
SBE10A	BASIN	2
SBE09A	BASIN	6
SBE08A	BASIN	2
CLEAR	COMBINE	417
SBE06D	BASIN	19
RE06D	ROUTE	18
SBE06C	BASIN	28
RE06C	ROUTE	27

HEC-ID	Routing	Peak Q (cfs)
SBE06B	BASIN	18
CE06B	COMBINE	60
RE06B	ROUTE	60
SBE06A	BASIN	20
CE06A	COMBINE	79
SBE05B	BASIN	23
RE05B	ROUTE	23
SBE05A	BASIN	11
CE05A	COMBINE	31
CE065A	COMBINE	108
SBE04C	BASIN	17
RE04C	ROUTE	17
SBE04B	BASIN	20
RE04B	ROUTE	20
CE04AI	COMBINE	37
RE04CB	ROUTE	37
SBE04A	BASIN	12
CE04A	COMBINE	46
SBE03A	BASIN	14
SBE02A	BASIN	75
SBE01B	BASIN	61
RE01B	ROUTE	55
SBE01A	BASIN	150
CE01A	COMBINE	201
CLEAR	COMBINE	798
SBW14A	BASIN	23
SBW13A	BASIN	3
SBW12A	BASIN	38
SBW11A	BASIN	3
CLEAR	COMBINE	825
SBW10C	BASIN	31
RW10C	ROUTE	30
SBW10B	BASIN	20
CW10B	COMBINE	49
RW10B	ROUTE	49
SBW10A	BASIN	59
CW10A	COMBINE	107
SBW09E	BASIN	10
RW09E	ROUTE	10
SBW09D	BASIN	15
CW09DI	COMBINE	24
SBW09C	BASIN	63
CW09D	COMBINE	85
RW09D	ROUTE	85
SBW09B	BASIN	12
CW09B	COMBINE	91
RW09B	ROUTE	90
SBW09A	BASIN	13
CW09A	COMBINE	101
SBW08A	BASIN	19
SBW07C	BASIN	9
SBW07B	BASIN	11
CW07BC	COMBINE	20
RW07BC	ROUTE	20
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CW07A	COMBINE	39
CLEAR	COMBINE	1010
SBW06A	BASIN	8
SBW05A	BASIN	19
SBW04A	BASIN	5
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SBW01A	BASIN	5
CLEAR	COMBINE	1035

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                                        X     X  X        X     X        X
                                        X     X  XXXXXXX   XXXXX        XXX


          THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

          THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
          THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
          NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
          DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL   LOSS RATE:GREEN AND AMPT INFILTRATION
          KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

1                                                   HEC-1 INPUT                                                    PAGE  1

         LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

           1           ID        Flood Control District of Maricopa County
           2           ID        Sereno Canyon Existing Conditions
           3           ID        100 YEAR
           4           ID        6 Hour  Storm
           5           ID        Unit Hydrograph: Clark
           6           ID        12/30/2011
           7           ID        Sereno Canyon-Existing Conditions
           8           ID        100-Year, 6-Hour Storm Event
           9           ID        Prepared By: JE Fuller Hydrology and Geomorphology
          10           ID        Modeled By: Brian Schalk P.E., CFM and Nathan Logan P.E., CFM
          11           ID        Submitted To: City of Scottsdale
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          13           IN      15
          14           IO       5
                       *DIAGRAM
                       *
          15           JD   3.178  0.0001
          16           PC   0.000   0.008   0.016   0.025   0.033   0.041   0.050   0.058   0.066   0.074
          17           PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931   0.950
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          24           PC   0.000   0.009   0.016   0.025   0.034   0.042   0.051   0.059   0.068   0.077
          25           PC   0.088   0.101   0.121   0.164   0.253   0.451   0.694   0.836   0.900   0.938
          26           PC   0.950   0.963   0.975   0.988   1.000

          27           KK  SBE29A   BASIN
          28           KM        SBE29A Basin Runoff
          29           BA   0.015
          30           LG    0.10    0.25    6.00    0.28       0
          31           UC   0.268   0.269
          32           UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
          33           UA     100
                       *
          34           ZW   A=SERENO C=FLOW F=CALC

          35           KK  SBE28A   BASIN
          36           KM        SBE28A Basin Runoff
          37           BA   0.013
          38           LG    0.10    0.25    6.00    0.28       0
          39           UC   0.277   0.314
          40           UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
          41           UA     100
                       *
          42           ZW   A=SERENO C=FLOW F=CALC

          43           KK  SBE27A   BASIN
          44           KM        SBE27A Basin Runoff
          45           BA   0.002
          46           LG    0.10    0.25    6.00    0.28       0
          47           UC   0.166   0.230
          48           UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
1                                                   HEC-1 INPUT                                                    PAGE  2

         LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

          49           UA     100
                       *
          50           ZW   A=SERENO C=FLOW F=CALC

          51           KK  SBE26A   BASIN
          52           KM        SBE26A Basin Runoff
          53           BA   0.010
          54           LG    0.10    0.25    6.00    0.28       0
          55           UC   0.288   0.409
          56           UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
          57           UA     100
                       *
          58           ZW   A=SERENO C=FLOW F=CALC

          59           KK  SBE25C   BASIN
          60           KM        SBE25C Basin Runoff
          61           BA   0.005
          62           LG    0.10    0.25    6.00    0.28       0
          63           UC   0.203   0.237
          64           UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
```

```
  65          UA     100
              *
  66          ZW   A=SERENO C=FLOW F=CALC

  67          KK   RE25C   ROUTE
  68          KM        Route runoff from SBE25C through Basin SBE25B
  69          RS       3    FLOW
  70          RC   0.060   0.060   0.060     709  0.0268 2694.40
  71          RX    0.00   21.00   53.00   58.00   63.00   70.00   90.00   99.00
  72          RY  2694.3 2691.90 2688.00 2687.00 2687.00 2689.00 2693.30 2694.40
              *
  73          ZW   A=SERENO C=FLOW F=CALC

  74          KK  SBE25B   BASIN
  75          KM        SBE25B Basin Runoff
  76          BA   0.006
  77          LG    0.10    0.25    6.00    0.28       0
  78          UC   0.258   0.368
  79          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
  80          UA     100
              *
  81          ZW   A=SERENO C=FLOW F=CALC

  82          KK   CE25B COMBINE
  83          KM        Combine Route RE25C and Basin SBE25B
  84          HC       2
              *
  85          ZW   A=SERENO C=FLOW F=CALC

  86          KK   RE25B   ROUTE
  87          KM        Route runoff from CE25B through Basin SBE25A
  88          RS       2    FLOW
  89          RC   0.060   0.060   0.060     412  0.0279 2680.70
  90          RX    0.00   16.00   29.00   32.00   32.10   36.00   47.00   67.00
  91          RY  2680.3 2678.70 2677.10 2676.00 2676.00 2676.90 2678.00 2680.70
              *
1                                          HEC-1 INPUT                                          PAGE  3

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

  92          ZW   A=SERENO C=FLOW F=CALC

  93          KK  SBE25A   BASIN
  94          KM        SBE25A Basin Runoff
  95          BA   0.003
  96          LG    0.10    0.25    6.00    0.28       0
  97          UC   0.185   0.248
  98          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
  99          UA     100
              *
 100          ZW   A=SERENO C=FLOW F=CALC

 101          KK   CE25A COMBINE
 102          KM        Combine Route RE25B and Basin SBE25A
 103          HC       2
              *
 104          ZW   A=SERENO C=FLOW F=CALC

 105          KK   CLEAR COMBINE
 106          KM        Clear Hydrograph Stack
 107          HC       5
              *
 108          ZW   A=SERENO C=FLOW F=CALC

 109          KK  SBE24D   BASIN
 110          KM        SBE254D Basin Runoff
 111          BA   0.010
 112          LG    0.10    0.25    6.00    0.28       0
 113          UC   0.230   0.219
 114          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 115          UA     100
              *
 116          ZW   A=SERENO C=FLOW F=CALC

 117          KK   RE24D   ROUTE
 118          KM        Route runoff from basin SBE24D through Basin SBE24C
 119          RS       2    FLOW
 120          RC   0.060   0.060   0.060     634  0.0252 2725.50
 121          RX    0.00   16.00   24.00   27.00   31.00   34.00   44.00   60.00
 122          RY  2725.5 2723.20 2721.80 2721.00 2721.00 2722.00 2723.00 2726.10
              *
 123          ZW   A=SERENO C=FLOW F=CALC

 124          KK  SBE24C   BASIN
 125          KM        SBE24C Basin Runoff
 126          BA   0.015
 127          LG    0.10    0.25    6.00    0.28       0
 128          UC   0.308   0.373
 129          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 130          UA     100
              *
 131          ZW   A=SERENO C=FLOW F=CALC
1                                          HEC-1 INPUT                                          PAGE  4

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


 132          KK   CE24C COMBINE
 133          KM        Combine RE24D and SBE24C
 134          HC       2
              *
 135          ZW   A=SERENO C=FLOW F=CALC

 136          KK   RE24C   ROUTE
 137          KM        Route flow from CE24C through Basin SBE24B
 138          RS       2    FLOW
 139          RC   0.060   0.060   0.060     624  0.0232 2706.80
 140          RX   10.00   25.00   45.00   49.00   55.00   62.00   75.00  103.00
 141          RY  2706.8 2705.20 2702.10 2701.00 2701.00 2702.00 2703.30 2706.70
              *
 142          ZW   A=SERENO C=FLOW F=CALC

 143          KK  SBE24B   BASIN
 144          KM        SBE24B Basin Runoff
 145          BA   0.005
 146          LG    0.10    0.25    6.00    0.28       0
 147          UC   0.254   0.402
```

```
 148          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 149          UA     100
              *
 150          ZW   A=SERENO C=FLOW F=CALC

 151          KK   CE24B COMBINE
 152          KM        Combine RE24C and SBE24B
 153          HC       2
              *
 154          ZW   A=SERENO C=FLOW F=CALC

 155          KK   RE24B   ROUTE
 156          KM        Route flow from CE24B through Basin SBE24A
 157          RS       3    FLOW
 158          RC   0.060   0.060   0.060     873  0.0229 2690.20
 159          RX    0.00   10.00   16.00   23.00   27.00   35.00   49.00   67.00
 160          RY  2689.8 2688.70 2687.90 2687.00 2687.00 2687.90 2688.80 2690.20
              *
 161          ZW   A=SERENO C=FLOW F=CALC

 162          KK  SBE24A   BASIN
 163          KM        SBE24A Basin Runoff
 164          BA   0.007
 165          LG    0.10    0.25    6.00    0.28       0
 166          UC   0.274   0.395
 167          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 168          UA     100
              *
 169          ZW   A=SERENO C=FLOW F=CALC
1                                          HEC-1 INPUT                                          PAGE  5

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


 170          KK   CE24A COMBINE
 171          KM        Combine RE24B and SBE24A
 172          HC       2
              *
 173          ZW   A=SERENO C=FLOW F=CALC

 174          KK  SBE23D   BASIN
 175          KM        SBE23D Basin Runoff
 176          BA   0.041
 177          LG    0.10    0.25    6.00    0.28       0
 178          UC   0.408   0.462
 179          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 180          UA     100
              *
 181          ZW   A=SERENO C=FLOW F=CALC

 182          KK   RE23D   ROUTE
 183          KM        Route flow from SBE23D through Basin SBE23A
 184          RS       2    FLOW
 185          RC   0.060   0.060   0.060     465  0.0269 2688.30
 186          RX    0.00   14.00   27.00   32.00   40.00   44.00   55.00   68.00
 187          RY  2688.3 2687.30 2685.00 2684.10 2684.00 2685.00 2686.10 2686.70
              *
 188          ZW   A=SERENO C=FLOW F=CALC

 189          KK  SBE23E   BASIN
 190          KM        SBE23E Basin Runoff
 191          BA   0.005
 192          LG    0.10    0.25    6.00    0.28       0
 193          UC   0.218   0.339
 194          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 195          UA     100
              *
 196          ZW   A=SERENO C=FLOW F=CALC

 197          KK   RE23E   ROUTE
 198          KM        Route flow from SBE23E through Basin SBE23C
 199          RS       6    FLOW
 200          RC   0.060   0.060   0.060    1112  0.0261 2720.00
 201          RX    0.00   20.00   57.00   64.00   65.00   70.00   90.00  114.00
 202          RY  2720.0 2716.50 2712.10 2711.00 2711.00 2713.20 2716.60 2719.90
              *
 203          ZW   A=SERENO C=FLOW F=CALC

 204          KK  SBE23C   BASIN
 205          KM        SBE23C Basin Runoff
 206          BA   0.053
 207          LG    0.10    0.25    6.00    0.28       0
 208          UC   0.416   0.462
 209          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 210          UA     100
              *
 211          ZW   A=SERENO C=FLOW F=CALC
1                                          HEC-1 INPUT                                          PAGE  6

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


 212          KK   CE23C COMBINE
 213          KM        Combine RE23E and SBE23C
 214          HC       2
              *
 215          ZW   A=SERENO C=FLOW F=CALC

 216          KK   RE23C   ROUTE
 217          KM        Route flow from CE23C through SBE23B
 218          RS       2    FLOW
 219          RC   0.060   0.060   0.060     457  0.0235 2693.90
 220          RX    0.00   15.00   28.00   35.00   35.10   45.00   86.00  114.00
 221          RY  2693.8 2692.20 2691.00 2690.00 2690.00 2690.90 2692.90 2693.90
              *
 222          ZW   A=SERENO C=FLOW F=CALC

 223          KK  SBE23B   BASIN
 224          KM        SBE23B Basin Runoff
 225          BA   0.004
 226          LG    0.10    0.25    6.00    0.28       0
 227          UC   0.205   0.272
 228          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 229          UA     100
              *
 230          ZW   A=SERENO C=FLOW F=CALC
```

```
 231          KK   CE23B COMBINE
 232          KM        Combine flow from RE23C and SBE23B
 233          HC       2
              *
 234          ZW   A=SERENO C=FLOW F=CALC

 235          KK   RE23B   ROUTE
 236          KM        Route flow from CE23B into SBE23A to intermediate combine
 237          RS       1    FLOW
 238          RC   0.060   0.060   0.060     112  0.0267 2685.90
 239          RX    0.00    8.00   12.00   14.00   24.00   30.00   32.00   49.00
 240          RY  2685.6 2684.80 2684.20 2684.00 2684.00 2684.70 2685.00 2685.90
              *
 241          ZW   A=SERENO C=FLOW F=CALC

 242          KK  CE23AI COMBINE
 243          KM        Intermediate combine of RE23D and RE23B to route through SBE23A
 244          HC       2
              *
 245          ZW   A=SERENO C=FLOW F=CALC

 246          KK  RE23BD   ROUTE
 247          KM        Route Intermediate combined flow from CE23AI through SBE23A
 248          RS       1    FLOW
 249          RC   0.060   0.060   0.060     238  0.0242 2685.00
 250          RX    0.00   21.00   62.00   74.00   82.00   86.00  101.00  141.00
 251          RY  2684.9 2682.70 2681.00 2679.00 2679.00 2680.10 2681.90 2685.00
              *
 252          ZW   A=SERENO C=FLOW F=CALC
1                                          HEC-1 INPUT                                          PAGE  7

            LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


 253          KK  SBE23A   BASIN
 254          KM        SBE23A Basin Runoff
 255          BA   0.006
 256          LG    0.10    0.25    6.00    0.28       0
 257          UC   0.249   0.303
 258          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 259          UA     100
              *
 260          ZW   A=SERENO C=FLOW F=CALC

 261          KK   CE23A COMBINE
 262          KM        Combine flow from SBE23A and RE23BD
 263          HC       2
              *
 264          ZW   A=SERENO C=FLOW F=CALC

 265          KK   CLEAR COMBINE
 266          HC       3
              *
 267          ZW   A=SERENO C=FLOW F=CALC

 268          KK  SBE22A   BASIN
 269          KM        SBE22A Basin Runoff
 270          BA   0.007
 271          LG    0.10    0.25    6.00    0.28       0
 272          UC   0.239   0.324
 273          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 274          UA     100
              *
 275          ZW   A=SERENO C=FLOW F=CALC

 276          KK  SBE21A   BASIN
 277          KM        SBE21A Basin Runoff
 278          BA   0.001
 279          LG    0.10    0.25    6.00    0.28       0
 280          UC   0.129   0.179
 281          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 282          UA     100
              *
 283          ZW   A=SERENO C=FLOW F=CALC

 284          KK  SBE20A   BASIN
 285          KM        SBE20A Basin Runoff
 286          BA   0.001
 287          LG    0.10    0.25    6.00    0.28       0
 288          UC   0.115   0.131
 289          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 290          UA     100
              *
 291          ZW   A=SERENO C=FLOW F=CALC
1                                          HEC-1 INPUT                                          PAGE  8

            LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


 292          KK  SBE19A   BASIN
 293          KM        SBE19A Basin Runoff
 294          BA   0.001
 295          LG    0.10    0.25    6.00    0.28       0
 296          UC   0.116   0.132
 297          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 298          UA     100
              *
 299          ZW   A=SERENO C=FLOW F=CALC

 300          KK  SBE18A   BASIN
 301          KM        SBE18A Basin Runoff
 302          BA   0.001
 303          LG    0.10    0.25    6.00    0.28       0
 304          UC   0.133   0.185
 305          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 306          UA     100
              *
 307          ZW   A=SERENO C=FLOW F=CALC

 308          KK   CLEAR COMBINE
 309          KM        Clear Hydrograph Stack
 310          HC       6
              *
 311          ZW   A=SERENO C=FLOW F=CALC

 312          KK  SBE17B   BASIN
 313          KM        SBE17B Basin Runoff
```

```
 314          BA   0.016
 315          LG    0.10    0.25    6.00    0.28       0
 316          UC   0.266   0.277
 317          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 318          UA     100
              *
 319          ZW   A=SERENO C=FLOW F=CALC

 320          KK   RE17B   ROUTE
 321          KM        Route flow from SBE17B through SBE 17A
 322          RS       5    FLOW
 323          RC   0.060   0.060   0.060    1169  0.0265 2740.10
 324          RX    0.00    9.00   22.00   33.00   44.00   54.00   62.00   69.00
 325          RY  2740.1 2738.60 2737.00 2736.10 2736.00 2737.00 2738.40 2740.10
              *
 326          ZW   A=SERENO C=FLOW F=CALC

 327          KK  SBE17A   BASIN
 328          KM        SBE17A Basin Runoff
 329          BA   0.018
 330          LG    0.10    0.25    6.00    0.28       0
 331          UC   0.294   0.368
 332          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 333          UA     100
              *
 334          ZW   A=SERENO C=FLOW F=CALC
1                                          HEC-1 INPUT                                          PAGE  9

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


 335          KK   CE17A COMBINE
 336          KM        Combine flow from RE17B and SBE17A
 337          HC       2
              *
 338          ZW   A=SERENO C=FLOW F=CALC

 339          KK  SBE16A   BASIN
 340          KM        SBE16A Basin Runoff
 341          BA   0.001
 342          LG    0.10    0.25    6.00    0.28       0
 343          UC   0.141   0.227
 344          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 345          UA     100
              *
 346          ZW   A=SERENO C=FLOW F=CALC

 347          KK  SBE13A   BASIN
 348          KM        SBE13A Basin Runoff
 349          BA   0.003
 350          LG    0.10    0.25    6.00    0.28       0
 351          UC   0.167   0.203
 352          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 353          UA     100
              *
 354          ZW   A=SERENO C=FLOW F=CALC

 355          KK  SBE12A   BASIN
 356          KM        SBE12A Basin Runoff
 357          BA   0.002
 358          LG    0.10    0.25    6.00    0.28       0
 359          UC   0.161   0.223
 360          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 361          UA     100
              *
 362          ZW   A=SERENO C=FLOW F=CALC

 363          KK  SBE11B   BASIN
 364          KM        SBE11B Basin Runoff
 365          BA   0.013
 366          LG    0.10    0.25    6.00    0.28       0
 367          UC   0.262   0.307
 368          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 369          UA     100
              *
 370          ZW   A=SERENO C=FLOW F=CALC

 371          KK   RE11B   ROUTE
 372          KM        Route flow from SBE11B through SBE11A
 373          RS       3    FLOW
 374          RC   0.060   0.060   0.060     914  0.0334 2770.20
 375          RX    0.00   10.00   16.00   23.00   25.00   34.00   48.00   64.00
 376          RY  2770.2 2767.10 2765.30 2762.00 2762.00 2765.00 2766.60 2768.30
              *
 377          ZW   A=SERENO C=FLOW F=CALC
1                                          HEC-1 INPUT                                          PAGE 10

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


 378          KK  SBE11A   BASIN
 379          KM        SBE11A Basin Runoff
 380          BA   0.016
 381          LG    0.10    0.25    6.00    0.28       0
 382          UC   0.293   0.361
 383          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 384          UA     100
              *
 385          ZW   A=SERENO C=FLOW F=CALC

 386          KK   CE11A COMBINE
 387          KM        Combine flow from RE11B and SBE11A
 388          HC       2
              *
 389          ZW   A=SERENO C=FLOW F=CALC

 390          KK   CLEAR COMBINE
 391          KM        Clear Hydrograph Stack
 392          HC       6
              *
 393          ZW   A=SERENO C=FLOW F=CALC

 394          KK  SBE10A   BASIN
 395          KM        SBE10A Basin Runoff
 396          BA   0.001
 397          LG    0.10    0.25    6.00    0.28       0
 398          UC   0.127   0.175
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```
 399          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 400          UA     100
              *
 401          ZW   A=SERENO C=FLOW F=CALC

 402          KK  SBE09A   BASIN
 403          KM        SBE09A Basin Runoff
 404          BA   0.002
 405          LG    0.10    0.25    6.00    0.28       0
 406          UC   0.123   0.113
 407          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 408          UA     100
              *
 409          ZW   A=SERENO C=FLOW F=CALC

 410          KK  SBE08A   BASIN
 411          KM        SBE08A Basin Runoff
 412          BA   0.001
 413          LG    0.10    0.25    6.00    0.28       0
 414          UC   0.130   0.179
 415          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 416          UA     100
              *
 417          ZW   A=SERENO C=FLOW F=CALC
1                                          HEC-1 INPUT                                          PAGE 11

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


 418          KK   CLEAR COMBINE
 419          KM        Clear Hydrograph Stack
 420          HC       4
              *
 421          ZW   A=SERENO C=FLOW F=CALC

 422          KK  SBE06D   BASIN
 423          KM        SBE06D Basin Runoff
 424          BA   0.010
 425          LG    0.10    0.25    6.00    0.28       0
 426          UC   0.239   0.300
 427          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 428          UA     100
              *
 429          ZW   A=SERENO C=FLOW F=CALC

 430          KK   RE06D   ROUTE
 431          KM        Route flow from SBE06D through Basin SBE06B
 432          RS       3    FLOW
 433          RC   0.060   0.060   0.060     677  0.0369 2785.90
 434          RX    0.00   15.00   27.00   34.00   41.00   45.00   52.00   59.00
 435          RY  2785.8 2784.00 2783.00 2782.00 2782.00 2782.70 2784.20 2785.90
              *
 436          ZW   A=SERENO C=FLOW F=CALC

 437          KK  SBE06C   BASIN
 438          KM        SBE06C Basin Runoff
 439          BA   0.016
 440          LG    0.10    0.25    6.00    0.28       0
 441          UC   0.272   0.333
 442          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 443          UA     100
              *
 444          ZW   A=SERENO C=FLOW F=CALC

 445          KK   RE06C   ROUTE
 446          KM        Route flow from SBE06C through Basin SBE06B
 447          RS       2    FLOW
 448          RC   0.060   0.060   0.060     591  0.0431 2786.60
 449          RX    0.00    6.00   16.00   26.00   36.00   40.00   41.00   44.00
 450          RY  2786.6 2786.00 2785.00 2784.00 2784.00 2785.00 2785.50 2786.40
              *
 451          ZW   A=SERENO C=FLOW F=CALC

 452          KK  SBE06B   BASIN
 453          KM        SBE06B Basin Runoff
 454          BA   0.008
 455          LG    0.10    0.25    6.00    0.28       0
 456          UC   0.209   0.212
 457          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 458          UA     100
              *
 459          ZW   A=SERENO C=FLOW F=CALC
1                                          HEC-1 INPUT                                          PAGE 12

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


 460          KK   CE06B COMBINE
 461          KM        Combine RE06D, RE06C and SBE06B
 462          HC       3
              *
 463          ZW   A=SERENO C=FLOW F=CALC

 464          KK   RE06B   ROUTE
 465          KM        Route flow from CE06B through Basin SBE06A
 466          RS       4    FLOW
 467          RC   0.060   0.060   0.060     814  0.0319 2761.00
 468          RX    0.00   21.00   55.00   63.00   82.00   92.00  104.00  113.00
 469          RY  2761.0 2758.90 2758.50 2758.00 2758.00 2758.50 2759.70 2760.80
              *
 470          ZW   A=SERENO C=FLOW F=CALC

 471          KK  SBE06A   BASIN
 472          KM        SBE06A Basin Runoff
 473          BA   0.014
 474          LG    0.10    0.25    6.00    0.28       0
 475          UC   0.311   0.463
 476          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 477          UA     100
              *
 478          ZW   A=SERENO C=FLOW F=CALC

 479          KK   CE06A COMBINE
 480          KM        Combine flow from RE06B and Basin SBE 06A
 481          HC       2
              *
 482          ZW   A=SERENO C=FLOW F=CALC
```

```
483          KK  SBE05B   BASIN
484          KM        SBE05B Basin Runoff
485          BA   0.022
486          LG    0.10    0.25    6.00    0.28       0
487          UC   0.385   0.700
488          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
489          UA     100
             *
490          ZW   A=SERENO C=FLOW F=CALC

491          KK   RE05B   ROUTE
492          KM        Route flow from SBE05B through SBE05A
493          RS       5    FLOW
494          RC   0.060   0.060   0.060     907  0.0435 2760.30
495          RX    0.00   11.00   26.00   40.00   47.00   56.00   76.00   89.00
496          RY  2760.1 2759.00 2757.70 2757.00 2757.00 2757.40 2758.80 2760.30
             *
497          ZW   A=SERENO C=FLOW F=CALC
```



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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


498          KK  SBE05A   BASIN
499          KM        SBE05A Basin Runoff
500          BA   0.007
501          LG    0.10    0.25    6.00    0.28       0
502          UC   0.253   0.375
503          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
504          UA     100
             *
505          ZW   A=SERENO C=FLOW F=CALC

506          KK   CE05A COMBINE
507          KM        Combine flow from RE05B and SBE05A
508          HC       2
             *
509          ZW   A=SERENO C=FLOW F=CALC

510          KK  CE065A COMBINE
511          KM        Combine flow from CE06A and CE05A
512          HC       2
             *
513          ZW   A=SERENO C=FLOW F=CALC

514          KK  SBE04C   BASIN
515          KM        SBE04C Basin Runoff
516          BA   0.014
517          LG    0.10    0.25    6.00    0.28       0
518          UC   0.316   0.554
519          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
520          UA     100
             *
521          ZW   A=SERENO C=FLOW F=CALC

522          KK   RE04C   ROUTE
523          KM        Route flow from SBE04C into SBE04A
524          RS       2    FLOW
525          RC   0.060   0.060   0.060     455  0.0363 2755.00
526          RX    0.00   17.00   22.00   27.00   32.00   44.00   61.00   88.00
527          RY  2755.0 2753.00 2751.90 2750.00 2750.00 2751.90 2753.20 2754.90
             *
528          ZW   A=SERENO C=FLOW F=CALC

529          KK  SBE04B   BASIN
530          KM        SBE04B Basin Runoff
531          BA   0.015
532          LG    0.10    0.25    6.00    0.28       0
533          UC   0.311   0.511
534          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
535          UA     100
             *
536          ZW   A=SERENO C=FLOW F=CALC
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


537          KK   RE04B   ROUTE
538          KM        Route flow from SBE04B into SBE04A
539          RS       2    FLOW
540          RC   0.060   0.060   0.060     449  0.0367 2755.00
541          RX    0.00   15.00   24.00   28.00   30.00   33.00   46.00   62.00
542          RY  2754.9 2752.60 2750.80 2750.00 2750.00 2751.00 2752.90 2755.00
             *
543          ZW   A=SERENO C=FLOW F=CALC

544          KK  CE04AI COMBINE
545          KM        Intermediate Combine flows from RE04C and RE04B
546          HC       2
             *
547          ZW   A=SERENO C=FLOW F=CALC

548          KK  RE04CB   ROUTE
549          KM        Route flow from CE04AI through rest of Basin SBE04A
550          RS       1    FLOW
551          RC   0.060   0.060   0.060     247  0.0344 2744.90
552          RX    0.00   11.00   21.00   31.00   34.00   50.00   69.00   88.00
553          RY  2744.9 2742.70 2741.40 2740.00 2740.00 2741.80 2743.00 2743.90
             *
554          ZW   A=SERENO C=FLOW F=CALC

555          KK  SBE04A   BASIN
556          KM        SBE04A Basin Runoff
557          BA   0.006
558          LG    0.10    0.25    6.00    0.28       0
559          UC   0.218   0.276
560          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
561          UA     100
             *
562          ZW   A=SERENO C=FLOW F=CALC

563          KK   CE04A COMBINE
564          KM        Combine Flows from RE04CB and SBE04A
565          HC       2
             *
```

```
 566          ZW   A=SERENO C=FLOW F=CALC

 567          KK  SBE03A   BASIN
 568          KM        SBE03A Basin Runoff
 569          BA   0.007
 570          LG    0.10    0.25    6.00    0.28       0
 571          UC   0.219   0.268
 572          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 573          UA     100
              *
 574          ZW   A=SERENO C=FLOW F=CALC
1                                          HEC-1 INPUT                                                PAGE 15

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


 575          KK  SBE02A   BASIN
 576          KM        SBE02A Basin Runoff
 577          BA   0.068
 578          LG    0.10    0.25    6.00    0.28       0
 579          UC   0.450   0.631
 580          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 581          UA     100
              *
 582          ZW   A=SERENO C=FLOW F=CALC

 583          KK  SBE01B   BASIN
 584          KM        SBE01B Basin Runoff
 585          BA   0.024
 586          LG    0.10    0.23    6.20    0.26      25
 587          UC   0.222   0.173
 588          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 589          UA     100
              *
 590          ZW   A=SERENO C=FLOW F=CALC

 591          KK   RE01B   ROUTE
 592          KM        Route flow from SBE01B through Basin SBE01A
 593          RS      17    FLOW
 594          RC   0.060   0.060   0.060    5189  0.0788 2910.00
 595          RX    0.00   23.00   87.00  103.00  111.00  119.00  158.00  178.00
 596          RY  2910.0 2908.00 2906.00 2905.50 2904.40 2905.50 2907.00 2910.00
              *
 597          ZW   A=SERENO C=FLOW F=CALC

 598          KK  SBE01A   BASIN
 599          KM        SBE01A Basin Runoff
 600          BA   0.119
 601          LG    0.10    0.25    6.00    0.28       1
 602          UC   0.460   0.513
 603          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 604          UA     100
              *
 605          ZW   A=SERENO C=FLOW F=CALC

 606          KK   CE01A COMBINE
 607          HC       2
              *
 608          ZW   A=SERENO C=FLOW F=CALC

 609          KK   CLEAR COMBINE
 610          KM        Clear Hydrograph Stack
 611          HC       6
              *
 612          ZW   A=SERENO C=FLOW F=CALC
1                                          HEC-1 INPUT                                                PAGE 16

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


 613          KK  SBW14A   BASIN
 614          KM        SBW14A Basin Runoff
 615          BA   0.009
 616          LG    0.10    0.25    6.00    0.28       0
 617          UC   0.190   0.158
 618          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 619          UA     100
              *
 620          ZW   A=SERENO C=FLOW F=CALC

 621          KK  SBW13A   BASIN
 622          KM        SBW13A Basin Runoff
 623          BA   0.001
 624          LG    0.10    0.25    6.00    0.28       0
 625          UC   0.113   0.128
 626          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 627          UA     100
              *
 628          ZW   A=SERENO C=FLOW F=CALC

 629          KK  SBW12A   BASIN
 630          KM        SBW12A Basin Runoff
 631          BA   0.017
 632          LG    0.10    0.25    6.00    0.28       0
 633          UC   0.234   0.199
 634          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 635          UA     100
              *
 636          ZW   A=SERENO C=FLOW F=CALC

 637          KK  SBW11A   BASIN
 638          KM        SBW11A Basin Runoff
 639          BA   0.001
 640          LG    0.10    0.25    6.00    0.28       0
 641          UC   0.098   0.087
 642          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 643          UA     100
              *
 644          ZW   A=SERENO C=FLOW F=CALC

 645          KK   CLEAR COMBINE
 646          KM        Clear Hydrograph Stack
 647          HC       5
              *
 648          ZW   A=SERENO C=FLOW F=CALC

 649          KK  SBW10C   BASIN
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```
 650          KM        SBW10C Basin Runoff
 651          BA   0.015
 652          LG    0.10    0.25    6.00    0.28       0
 653          UC   0.246   0.245
 654          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 655          UA     100
              *
1                                          HEC-1 INPUT                                          PAGE 17

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 656          ZW   A=SERENO C=FLOW F=CALC

 657          KK   RW10C   ROUTE
 658          KM        Route flow from SBW10C through Basin SBW10B
 659          RS       3    FLOW
 660          RC   0.060   0.060   0.060     952  0.0310 2757.80
 661          RX    0.00   34.00   47.00   62.00   62.10   68.00   73.00   78.00
 662          RY  2757.8 2754.40 2754.00 2752.10 2752.00 2753.70 2755.70 2757.50
              *
 663          ZW   A=SERENO C=FLOW F=CALC

 664          KK  SBW10B   BASIN
 665          KM        SBW10B Basin Runoff
 666          BA   0.012
 667          LG    0.10    0.25    6.00    0.28       0
 668          UC   0.280   0.369
 669          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 670          UA     100
              *
 671          ZW   A=SERENO C=FLOW F=CALC

 672          KK   CW10B COMBINE
 673          KM        Combine flow from RW10C and SBW10B
 674          HC       2
              *
 675          ZW   A=SERENO C=FLOW F=CALC

 676          KK   RW10B   ROUTE
 677          KM        Route flow from CW10B through Basin SBW10A
 678          RS       2    FLOW
 679          RC   0.060   0.060   0.060     653  0.0276 2732.00
 680          RX    0.00   68.00   75.00   79.00   86.00   92.00  106.00  150.00
 681          RY  2732.0 2728.10 2721.10 2726.10 2726.00 2726.60 2727.00 2732.00
              *
 682          ZW   A=SERENO C=FLOW F=CALC

 683          KK  SBW10A   BASIN
 684          KM        SBW10A Basin Runoff
 685          BA   0.033
 686          LG    0.10    0.25    6.00    0.28       0
 687          UC   0.318   0.305
 688          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 689          UA     100
              *
 690          ZW   A=SERENO C=FLOW F=CALC

 691          KK   CW10A COMBINE
 692          KM        Combine flow from RW10B and SBW10A
 693          HC       2
              *
 694          ZW   A=SERENO C=FLOW F=CALC
1                                          HEC-1 INPUT                                          PAGE 18

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


 695          KK  SBW09E   BASIN
 696          KM        SBW09E Basin Runoff
 697          BA   0.006
 698          LG    0.10    0.25    6.00    0.28       0
 699          UC   0.235   0.362
 700          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 701          UA     100
              *
 702          ZW   A=SERENO C=FLOW F=CALC

 703          KK   RW09E   ROUTE
 704          KM        Route flow from SBW09E through Basin SBW09D
 705          RS       4    FLOW
 706          RC   0.060   0.060   0.060     985  0.0442 2805.10
 707          RX    0.00   10.00   12.00   14.00   17.00   23.00   29.00   48.00
 708          RY  2805.3 2803.10 2802.10 2800.70 2800.70 2802.00 2802.90 2805.10
              *
 709          ZW   A=SERENO C=FLOW F=CALC

 710          KK  SBW09D   BASIN
 711          KM        SBW09D Basin Runoff
 712          BA   0.008
 713          LG    0.10    0.25    6.00    0.28       0
 714          UC   0.237   0.310
 715          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 716          UA     100
              *
 717          ZW   A=SERENO C=FLOW F=CALC

 718          KK  CW09DI COMBINE
 719          HC       2
              *
 720          ZW   A=SERENO C=FLOW F=CALC

 721          KK  SBW09C   BASIN
 722          KM        SBW09C Basin Runoff
 723          BA   0.044
 724          LG    0.10    0.25    6.00    0.28       0
 725          UC   0.368   0.435
 726          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 727          UA     100
              *
 728          ZW   A=SERENO C=FLOW F=CALC

 729          KK   CW09D COMBINE
 730          KM        Combine flow from CW09DI and SBW09C
 731          HC       2
              *
 732          ZW   A=SERENO C=FLOW F=CALC
1                                          HEC-1 INPUT                                          PAGE 19
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 733          KK   RW09D   ROUTE
 734          KM        Route flow from CW09D through Basin SBW09B
 735          RS       1    FLOW
 736          RC   0.060   0.060   0.060     367  0.0368 2782.10
 737          RX    0.00   11.00   27.00   31.00   38.00   42.00   73.00   90.00
 738          RY  2782.1 2780.10 2780.00 2779.00 2779.00 2779.50 2780.90 2781.30
              *
 739          ZW   A=SERENO C=FLOW F=CALC

 740          KK  SBW09B   BASIN
 741          KM        SBW09B Basin Runoff
 742          BA   0.005
 743          LG    0.10    0.25    6.00    0.28       0
 744          UC   0.181   0.195
 745          UA      0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 746          UA    100
              *
 747          ZW   A=SERENO C=FLOW F=CALC

 748          KK   CW09B COMBINE
 749          KM        Combine flow from RW09D and SBW09B
 750          HC       2
              *
 751          ZW   A=SERENO C=FLOW F=CALC

 752          KK   RW09B   ROUTE
 753          KM        Route flow from CW09B through Basin SBW09A
 754          RS       3    FLOW
 755          RC   0.060   0.060   0.060    1036  0.0415 2765.60
 756          RX    0.00    8.00   49.00   58.00   67.00   72.00   85.00  104.00
 757          RY  2764.9 2764.80 2764.00 2763.00 2763.00 2764.00 2765.10 2765.60
              *
 758          ZW   A=SERENO C=FLOW F=CALC

 759          KK  SBW09A   BASIN
 760          KM        SBW09A Basin Runoff
 761          BA   0.008
 762          LG    0.10    0.25    6.00    0.28       0
 763          UC   0.263   0.393
 764          UA      0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 765          UA    100
              *
 766          ZW   A=SERENO C=FLOW F=CALC

 767          KK   CW09A COMBINE
 768          KM        Combine flow from RW09B and SBW09A
 769          HC       2
              *
 770          ZW   A=SERENO C=FLOW F=CALC
1                                          HEC-1 INPUT                                          PAGE 20

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 771          KK  SBW08A   BASIN
 772          KM        SBW08A Basin Runoff
 773          BA   0.009
 774          LG    0.10    0.25    6.00    0.28       0
 775          UC   0.215   0.239
 776          UA      0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 777          UA    100
              *
 778          ZW   A=SERENO C=FLOW F=CALC

 779          KK  SBW07C   BASIN
 780          KM        SBW07C Basin Runoff
 781          BA   0.005
 782          LG    0.10    0.25    6.00    0.28       0
 783          UC   0.212   0.312
 784          UA      0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 785          UA    100
              *
 786          ZW   A=SERENO C=FLOW F=CALC

 787          KK  SBW07B   BASIN
 788          KM        SBW07B Basin Runoff
 789          BA   0.007
 790          LG    0.10    0.25    6.00    0.28       0
 791          UC   0.246   0.393
 792          UA      0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 793          UA    100
              *
 794          ZW   A=SERENO C=FLOW F=CALC

 795          KK  CW07BC COMBINE
 796          KM        Combine flow from SBW07C andSBW07B
 797          HC       2
              *
 798          ZW   A=SERENO C=FLOW F=CALC

 799          KK  RW07BC   ROUTE
 800          KM        Route flow from CW07BC through SBW07A
 801          RS       4    FLOW
 802          RC   0.060   0.060   0.060    1452  0.0465 2800.10
 803          RX    0.00    6.00   20.00   26.00   29.00   38.00   50.00   68.00
 804          RY  2800.1 2799.00 2796.00 2793.00 2793.00 2796.00 2797.00 2798.40
              *
 805          ZW   A=SERENO C=FLOW F=CALC

 806          KK  SBW07A   BASIN
 807          KM        SBW07A Basin Runoff
 808          BA   0.013
 809          LG    0.10    0.25    6.00    0.28       0
 810          UC   0.295   0.433
 811          UA      0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 812          UA    100
              *
 813          ZW   A=SERENO C=FLOW F=CALC
1                                          HEC-1 INPUT                                          PAGE 21

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
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```
          814          KK   CW07A COMBINE
          815          KM        Combine flow from RW07BC and SBW07A
          816          HC       2
                       *
          817          ZW   A=SERENO C=FLOW F=CALC

          818          KK   CLEAR COMBINE
          819          HC       5
                       *
          820          ZW   A=SERENO C=FLOW F=CALC

          821          KK  SBW06A   BASIN
          822          KM        SBW06A Basin Runoff
          823          BA   0.004
          824          LG    0.10    0.25    6.00    0.28       0
          825          UC   0.189   0.248
          826          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
          827          UA     100
                       *
          828          ZW   A=SERENO C=FLOW F=CALC

          829          KK  SBW05A   BASIN
          830          KM        SBW05A Basin Runoff
          831          BA   0.010
          832          LG    0.10    0.25    6.00    0.28       0
          833          UC   0.235   0.282
          834          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
          835          UA     100
                       *
          836          ZW   A=SERENO C=FLOW F=CALC

          837          KK  SBW04A   BASIN
          838          KM        SBW04A Basin Runoff
          839          BA   0.002
          840          LG    0.10    0.25    6.00    0.28       0
          841          UC   0.145   0.179
          842          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
          843          UA     100
                       *
          844          ZW   A=SERENO C=FLOW F=CALC

          845          KK  SBW02A   BASIN
          846          KM        SBW02A Basin Runoff
          847          BA   0.007
          848          LG    0.10    0.25    6.00    0.28       0
          849          UC   0.222   0.299
          850          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
          851          UA     100
                       *
          852          ZW   A=SERENO C=FLOW F=CALC
1                                                HEC-1 INPUT                                                PAGE 22

         LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


          853          KK  SBW01A   BASIN
          854          KM        SBW01A Basin Runoff
          855          BA   0.002
          856          LG    0.10    0.25    6.00    0.28       0
          857          UC   0.145   0.179
          858          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
          859          UA     100
                       *
          860          ZW   A=SERENO C=FLOW F=CALC

          861          KK   CLEAR COMBINE
          862          KM        Clear Hydrograph Stack
          863          HC       6
                       *
          864          ZZ
1
                 SCHEMATIC DIAGRAM OF STREAM NETWORK
 INPUT
  LINE     (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

   NO.     (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

    27     SBE29A
                .
                .
    35          .      SBE28A
                .           .
                .           .
    43          .           .      SBE27A
                .           .           .
                .           .           .
    51          .           .           .      SBE26A
                .           .           .         .
                .           .           .         .
    59          .           .           .         .      SBE25C
                .           .           .         .           V
                .           .           .         .           V
    67          .           .           .         .       RE25C
                .           .           .         .           .
                .           .           .         .           .
    74          .           .           .         .           .      SBE25B
                .           .           .         .           .           .
                .           .           .         .           .           .
    82          .           .           .         .       CE25B............
                .           .           .         .           V
                .           .           .         .           V
    86          .           .           .         .       RE25B
                .           .           .         .           .
                .           .           .         .           .
    93          .           .           .         .           .      SBE25A
                .           .           .         .           .           .
                .           .           .         .           .           .
   101          .           .           .         .       CE25A............
                .           .           .         .           .
                .           .           .         .           .
   105       CLEAR.............................................
                .
                .
   109          .      SBE24D
                .           V
                .           V
   117          .       RE24D
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            .           .
            .           .
124         .           .      SBE24C
            .           .           .
            .           .           .
132         .       CE24C............
            .           V
            .           V
136         .       RE24C
            .           .
            .           .
143         .           .      SBE24B
            .           .           .
            .           .           .
151         .       CE24B............
            .           V
            .           V
155         .       RE24B
            .           .
            .           .
162         .           .      SBE24A
            .           .           .
            .           .           .
170         .       CE24A............
            .           .
            .           .
174         .           .      SBE23D
            .           .           V
            .           .           V
182         .           .       RE23D
            .           .           .
            .           .           .
189         .           .           .      SBE23E
            .           .           .           V
            .           .           .           V
197         .           .           .       RE23E
            .           .           .           .
            .           .           .           .
204         .           .           .           .      SBE23C
            .           .           .           .           .
            .           .           .           .           .
212         .           .           .       CE23C............
            .           .           .           V
            .           .           .           V
216         .           .           .       RE23C
            .           .           .           .
            .           .           .           .
223         .           .           .           .      SBE23B
            .           .           .           .           .
            .           .           .           .           .
231         .           .           .       CE23B............
            .           .           .           V
            .           .           .           V
235         .           .           .       RE23B
            .           .           .           .
            .           .           .           .
242         .           .      CE23AI............
            .           .           V
            .           .           V
246         .           .      RE23BD
            .           .           .
            .           .           .
253         .           .           .      SBE23A
            .           .           .           .
            .           .           .           .
261         .           .       CE23A............
            .           .           .
            .           .           .
265     CLEAR........................
            .
            .
268         .      SBE22A
            .           .
            .           .
276         .           .      SBE21A
            .           .           .
            .           .           .
284         .           .           .      SBE20A
            .           .           .           .
            .           .           .           .
292         .           .           .           .      SBE19A
            .           .           .           .           .
            .           .           .           .           .
300         .           .           .           .           .      SBE18A
            .           .           .           .           .           .
            .           .           .           .           .           .
308     CLEAR............................................................
            .
            .
312         .      SBE17B
            .           V
            .           V
320         .       RE17B
            .           .
            .           .
327         .           .      SBE17A
            .           .           .
            .           .           .
335         .       CE17A............
            .           .
            .           .
339         .           .      SBE16A
            .           .           .
            .           .           .
347         .           .           .      SBE13A
            .           .           .           .
            .           .           .           .
355         .           .           .           .      SBE12A
            .           .           .           .           .
            .           .           .           .           .
363         .           .           .           .           .      SBE11B
            .           .           .           .           .           V
            .           .           .           .           .           V
371         .           .           .           .           .       RE11B
            .           .           .           .           .           .
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378         .           .           .           .           .           .      SBE11A
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386         .          .          .          .          .      CE11A...........
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390     CLEAR.......................................................
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            .
394         .     SBE10A
            .          .
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402         .          .     SBE09A
            .          .          .
            .          .          .
410         .          .          .     SBE08A
            .          .          .          .
            .          .          .          .
418     CLEAR...................................
            .
            .
422         .     SBE06D
            .         V
            .         V
430         .      RE06D
            .          .
            .          .
437         .          .     SBE06C
            .          .          V
            .          .          V
445         .          .      RE06C
            .          .          .
            .          .          .
452         .          .          .     SBE06B
            .          .          .          .
            .          .          .          .
460         .      CE06B......................
            .         V
            .         V
464         .      RE06B
            .          .
            .          .
471         .          .     SBE06A
            .          .          .
            .          .          .
479         .      CE06A...........
            .          .
            .          .
483         .          .     SBE05B
            .          .          V
            .          .          V
491         .          .      RE05B
            .          .          .
            .          .          .
498         .          .          .     SBE05A
            .          .          .          .
            .          .          .          .
506         .          .      CE05A...........
            .          .          .
            .          .          .
510         .     CE065A...........
            .          .
            .          .
514         .          .     SBE04C
            .          .          V
            .          .          V
522         .          .      RE04C
            .          .          .
            .          .          .
529         .          .          .     SBE04B
            .          .          .          V
            .          .          .          V
537         .          .          .      RE04B
            .          .          .          .
            .          .          .          .
544         .          .     CE04AI...........
            .          .          V
            .          .          V
548         .          .     RE04CB
            .          .          .
            .          .          .
555         .          .          .     SBE04A
            .          .          .          .
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563         .          .      CE04A...........
            .          .          .
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567         .          .          .     SBE03A
            .          .          .          .
            .          .          .          .
575         .          .          .          .     SBE02A
            .          .          .          .          .
            .          .          .          .          .
583         .          .          .          .     SBE01B
            .          .          .          .          V
            .          .          .          .          V
591         .          .          .          .      RE01B
            .          .          .          .          .
            .          .          .          .          .
598         .          .          .          .          .     SBE01A
            .          .          .          .          .          .
            .          .          .          .          .          .
606         .          .          .          .      CE01A...........
            .          .          .          .          .
            .          .          .          .          .
609     CLEAR.......................................................
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            .
613         .     SBW14A
            .          .
            .          .
621         .          .     SBW13A
            .          .          .
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629         .          .          .     SBW12A
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637         .          .          .          .     SBW11A
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   645       CLEAR.............................................
                .
                .
   649          .      SBW10C
                .          V
                .          V
   657          .       RW10C
                .          .
                .          .
   664          .          .      SBW10B
                .          .          .
                .          .          .
   672          .       CW10B...........
                .          V
                .          V
   676          .       RW10B
                .          .
                .          .
   683          .          .      SBW10A
                .          .          .
                .          .          .
   691          .       CW10A...........
                .          .
                .          .
   695          .          .      SBW09E
                .          .          V
                .          .          V
   703          .          .       RW09E
                .          .          .
                .          .          .
   710          .          .          .      SBW09D
                .          .          .          .
                .          .          .          .
   718          .          .      CW09DI..........
                .          .          .
                .          .          .
   721          .          .          .      SBW09C
                .          .          .          .
                .          .          .          .
   729          .          .       CW09D...........
                .          .          V
                .          .          V
   733          .          .       RW09D
                .          .          .
                .          .          .
   740          .          .          .      SBW09B
                .          .          .          .
                .          .          .          .
   748          .          .       CW09B...........
                .          .          V
                .          .          V
   752          .          .       RW09B
                .          .          .
                .          .          .
   759          .          .          .      SBW09A
                .          .          .          .
                .          .          .          .
   767          .          .       CW09A...........
                .          .          .
                .          .          .
   771          .          .          .      SBW08A
                .          .          .          .
                .          .          .          .
   779          .          .          .          .      SBW07C
                .          .          .          .          .
                .          .          .          .          .
   787          .          .          .          .          .      SBW07B
                .          .          .          .          .          .
                .          .          .          .          .          .
   795          .          .          .          .      CW07BC...........
                .          .          .          .          V
                .          .          .          .          V
   799          .          .          .          .      RW07BC
                .          .          .          .          .
                .          .          .          .          .
   806          .          .          .          .          .      SBW07A
                .          .          .          .          .          .
                .          .          .          .          .          .
   814          .          .          .          .       CW07A...........
                .          .          .          .          .
                .          .          .          .          .
   818       CLEAR.............................................
                .
                .
   821          .      SBW06A
                .          .
                .          .
   829          .          .      SBW05A
                .          .          .
                .          .          .
   837          .          .          .      SBW04A
                .          .          .          .
                .          .          .          .
   845          .          .          .          .      SBW02A
                .          .          .          .          .
                .          .          .          .          .
   853          .          .          .          .          .      SBW01A
                .          .          .          .          .          .
                .          .          .          .          .          .
   861       CLEAR...........................................................
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
1****************************************                                    ****************************************
 *                                      *                                    *                                      *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                                    *    U.S. ARMY CORPS OF ENGINEERS      *
 *             JUN   1998               *                                    *    HYDROLOGIC ENGINEERING CENTER     *
 *            VERSION 4.1               *                                    *          609 SECOND STREET           *
 *                                      *                                    *       DAVIS, CALIFORNIA 95616        *
 *  RUN DATE   05JAN12  TIME  15:34:15  *                                    *           (916) 756-1104             *
 *                                      *                                    *                                      *
 ****************************************                                    ****************************************
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                    Flood Control District of Maricopa County
                    Sereno Canyon Existing Conditions
                    100 YEAR
                    6 Hour  Storm
                    Unit Hydrograph: Clark
                    12/30/2011
                    Sereno Canyon-Existing Conditions
                    100-Year, 6-Hour Storm Event
                    Prepared By: JE Fuller Hydrology and Geomorphology
                    Modeled By: Brian Schalk P.E., CFM and Nathan Logan P.E., CFM
                    Submitted To: City of Scottsdale

14 IO        OUTPUT CONTROL VARIABLES
                IPRNT           5  PRINT CONTROL
                IPLOT           0  PLOT CONTROL
                QSCAL          0.  HYDROGRAPH PLOT SCALE

   IT        HYDROGRAPH TIME DATA
                 NMIN           1  MINUTES IN COMPUTATION INTERVAL
                IDATE      1DEC11  STARTING DATE
                ITIME        0000  STARTING TIME
                   NQ        2000  NUMBER OF HYDROGRAPH ORDINATES
              NDDATE      2DEC11  ENDING DATE
              NDTIME        0919  ENDING TIME
              ICENT           19  CENTURY MARK

          COMPUTATION INTERVAL    0.02 HOURS
               TOTAL TIME BASE   33.32 HOURS

     ENGLISH UNITS
          DRAINAGE AREA         SQUARE MILES
          PRECIPITATION DEPTH   INCHES
          LENGTH, ELEVATION     FEET
          FLOW                  CUBIC FEET PER SECOND
          STORAGE VOLUME        ACRE-FEET
          SURFACE AREA          ACRES
          TEMPERATURE           DEGREES FAHRENHEIT

15 JD        INDEX STORM NO. 1
                STRM        3.18  PRECIPITATION DEPTH
                TRDA        0.00  TRANSPOSITION DRAINAGE AREA

16 PI          PRECIPITATION PATTERN
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.01      0.01      0.01      0.01      0.01
                0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01
                0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01
                0.01      0.01      0.01      0.01      0.01      0.03      0.03      0.03      0.03      0.03
                0.03      0.03      0.03      0.03      0.03      0.03      0.03      0.03      0.03      0.03
                0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01
                0.01      0.01      0.01      0.01      0.01      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00

19 JD        INDEX STORM NO. 2
                STRM        3.16  PRECIPITATION DEPTH
                TRDA        0.50  TRANSPOSITION DRAINAGE AREA

20 PI          PRECIPITATION PATTERN
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.01      0.01      0.01      0.01      0.01
                0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01
                0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01
                0.01      0.01      0.01      0.01      0.01      0.03      0.03      0.03      0.03      0.03
                0.03      0.03      0.03      0.03      0.03      0.03      0.03      0.03      0.03      0.03
                0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01
                0.01      0.01      0.01      0.01      0.01      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
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                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00

 23 JD          INDEX STORM NO. 3
                       STRM        3.10  PRECIPITATION DEPTH
                       TRDA        2.80  TRANSPOSITION DRAINAGE AREA

 24 PI            PRECIPITATION PATTERN
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.01      0.01      0.01      0.01      0.01
                    0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01
                    0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01
                    0.01      0.01      0.01      0.01      0.01      0.02      0.02      0.02      0.02      0.02
                    0.02      0.02      0.02      0.02      0.02      0.02      0.02      0.02      0.02      0.02
                    0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01
                    0.01      0.01      0.01      0.01      0.01      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
   -----DSS---ZOPEN:  Existing File Opened,  File: X:\Shared\projects\consult\LVA_UDS\SerenoCanyon\HEC-1\SERENO_EX_100_6.DSS
                      Unit: 71;  DSS Versions - Software: 6-LD, File: 6-LD
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE29A/FLOW/30NOV1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE29A/FLOW/01DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE29A/FLOW/02DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE28A/FLOW/30NOV1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE28A/FLOW/01DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE28A/FLOW/02DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE27A/FLOW/30NOV1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE27A/FLOW/01DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE27A/FLOW/02DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE26A/FLOW/30NOV1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE26A/FLOW/01DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE26A/FLOW/02DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE25C/FLOW/30NOV1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE25C/FLOW/01DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE25C/FLOW/02DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/RE25C/FLOW/30NOV1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/RE25C/FLOW/01DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/RE25C/FLOW/02DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE25B/FLOW/30NOV1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE25B/FLOW/01DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE25B/FLOW/02DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/CE25B/FLOW/30NOV1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/CE25B/FLOW/01DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/CE25B/FLOW/02DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/RE25B/FLOW/30NOV1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/RE25B/FLOW/01DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/RE25B/FLOW/02DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE25A/FLOW/30NOV1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE25A/FLOW/01DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE25A/FLOW/02DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/CE25A/FLOW/30NOV1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/CE25A/FLOW/01DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/CE25A/FLOW/02DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    9:  /SERENO/CLEAR/FLOW/30NOV1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    9:  /SERENO/CLEAR/FLOW/01DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    9:  /SERENO/CLEAR/FLOW/02DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE24D/FLOW/30NOV1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE24D/FLOW/01DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE24D/FLOW/02DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/RE24D/FLOW/30NOV1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/RE24D/FLOW/01DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/RE24D/FLOW/02DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE24C/FLOW/30NOV1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE24C/FLOW/01DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE24C/FLOW/02DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/CE24C/FLOW/30NOV1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/CE24C/FLOW/01DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/CE24C/FLOW/02DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/RE24C/FLOW/30NOV1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/RE24C/FLOW/01DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/RE24C/FLOW/02DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE24B/FLOW/30NOV1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE24B/FLOW/01DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE24B/FLOW/02DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/CE24B/FLOW/30NOV1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/CE24B/FLOW/01DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/CE24B/FLOW/02DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/RE24B/FLOW/30NOV1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/RE24B/FLOW/01DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/RE24B/FLOW/02DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE24A/FLOW/30NOV1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE24A/FLOW/01DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE24A/FLOW/02DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/CE24A/FLOW/30NOV1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/CE24A/FLOW/01DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/CE24A/FLOW/02DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE23D/FLOW/30NOV1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE23D/FLOW/01DEC1911/1MIN/CALC/
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-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE23D/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/RE23D/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/RE23D/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/RE23D/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE23E/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE23E/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE23E/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/RE23E/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/RE23E/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/RE23E/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE23C/FLOW/30NOV1911/1MIN/CALC/
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-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE23C/FLOW/02DEC1911/1MIN/CALC/
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-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/CE23C/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/CE23C/FLOW/02DEC1911/1MIN/CALC/
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-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/RE23C/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/RE23C/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE23B/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE23B/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE23B/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/CE23B/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/CE23B/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/CE23B/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/RE23B/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/RE23B/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/RE23B/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/CE23AI/FLOW/30NOV1911/1MIN/CALC/
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-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/RE23BD/FLOW/30NOV1911/1MIN/CALC/
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-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE23A/FLOW/01DEC1911/1MIN/CALC/
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-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/CE23A/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/CE23A/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/CE23A/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.   10:  /SERENO/CLEAR/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.   10:  /SERENO/CLEAR/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.   10:  /SERENO/CLEAR/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE22A/FLOW/30NOV1911/1MIN/CALC/
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-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE19A/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE19A/FLOW/01DEC1911/1MIN/CALC/
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-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE18A/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE18A/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE18A/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.   11:  /SERENO/CLEAR/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.   11:  /SERENO/CLEAR/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.   11:  /SERENO/CLEAR/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE17B/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE17B/FLOW/01DEC1911/1MIN/CALC/
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-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/RE17B/FLOW/02DEC1911/1MIN/CALC/
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-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/CE17A/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/CE17A/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE16A/FLOW/30NOV1911/1MIN/CALC/
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-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE13A/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE13A/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE12A/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE12A/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE12A/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE11B/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE11B/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE11B/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/RE11B/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/RE11B/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/RE11B/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE11A/FLOW/30NOV1911/1MIN/CALC/
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-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/CE11A/FLOW/30NOV1911/1MIN/CALC/
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-----DSS---ZWRITE Unit  71; Vers.   12:  /SERENO/CLEAR/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.   12:  /SERENO/CLEAR/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.   12:  /SERENO/CLEAR/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE10A/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE10A/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE10A/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE09A/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE09A/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE09A/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE08A/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE08A/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE08A/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.   13:  /SERENO/CLEAR/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.   13:  /SERENO/CLEAR/FLOW/01DEC1911/1MIN/CALC/
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-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE06D/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE06D/FLOW/01DEC1911/1MIN/CALC/
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-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/RE06D/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/RE06D/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/RE06D/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE06C/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE06C/FLOW/01DEC1911/1MIN/CALC/
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-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/RE06B/FLOW/30NOV1911/1MIN/CALC/
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-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/RE04B/FLOW/30NOV1911/1MIN/CALC/
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-----DSS---ZWRITE Unit  71; Vers.   14:  /SERENO/CLEAR/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.   14:  /SERENO/CLEAR/FLOW/02DEC1911/1MIN/CALC/
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-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBW09E/FLOW/30NOV1911/1MIN/CALC/
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 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/CW07BC/FLOW/01DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/CW07BC/FLOW/02DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/RW07BC/FLOW/30NOV1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/RW07BC/FLOW/01DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/RW07BC/FLOW/02DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBW07A/FLOW/30NOV1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBW07A/FLOW/01DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBW07A/FLOW/02DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/CW07A/FLOW/30NOV1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/CW07A/FLOW/01DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/CW07A/FLOW/02DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.   16:  /SERENO/CLEAR/FLOW/30NOV1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.   16:  /SERENO/CLEAR/FLOW/01DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.   16:  /SERENO/CLEAR/FLOW/02DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBW06A/FLOW/30NOV1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBW06A/FLOW/01DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBW06A/FLOW/02DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBW05A/FLOW/30NOV1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBW05A/FLOW/01DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBW05A/FLOW/02DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBW04A/FLOW/30NOV1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBW04A/FLOW/01DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBW04A/FLOW/02DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBW02A/FLOW/30NOV1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBW02A/FLOW/01DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBW02A/FLOW/02DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBW01A/FLOW/30NOV1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBW01A/FLOW/01DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBW01A/FLOW/02DEC1911/1MIN/CALC/
1
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RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

	OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
+	HYDROGRAPH AT	SBE29A	29.	4.17	3.	1.	0.	0.01		
+	HYDROGRAPH AT	SBE28A	23.	4.17	2.	1.	0.	0.01		
+	HYDROGRAPH AT	SBE27A	4.	4.10	0.	0.	0.	0.00		
+	HYDROGRAPH AT	SBE26A	15.	4.18	2.	0.	0.	0.01		
+	HYDROGRAPH AT	SBE25C	11.	4.12	1.	0.	0.	0.00		
+	ROUTED TO	RE25C	10.	4.17	1.	0.	0.	0.00		
+	HYDROGRAPH AT	SBE25B	10.	4.17	1.	0.	0.	0.01		
+	2 COMBINED AT	CE25B	20.	4.17	2.	0.	0.	0.01		
+	ROUTED TO	RE25B	20.	4.20	2.	0.	0.	0.01		
+	HYDROGRAPH AT	SBE25A	6.	4.10	1.	0.	0.	0.00		
+	2 COMBINED AT	CE25A	25.	4.17	2.	1.	0.	0.01		
+	5 COMBINED AT	CLEAR	96.	4.17	9.	2.	2.	0.05		

+	HYDROGRAPH AT	SBE24D	22.	4.13	2.	0.	0.	0.01
+	ROUTED TO	RE24D	21.	4.17	2.	0.	0.	0.01
+	HYDROGRAPH AT	SBE24C	24.	4.20	3.	1.	0.	0.01
+	2 COMBINED AT	CE24C	45.	4.18	4.	1.	1.	0.02
+	ROUTED TO	RE24C	44.	4.22	4.	1.	1.	0.02
+	HYDROGRAPH AT	SBE24B	8.	4.17	1.	0.	0.	0.00
+	2 COMBINED AT	CE24B	52.	4.22	5.	1.	1.	0.03
+	ROUTED TO	RE24B	51.	4.27	5.	1.	1.	0.03
+	HYDROGRAPH AT	SBE24A	11.	4.17	1.	0.	0.	0.01
+	2 COMBINED AT	CE24A	60.	4.25	6.	2.	1.	0.04
+	HYDROGRAPH AT	SBE23D	56.	4.27	7.	2.	1.	0.04
+	ROUTED TO	RE23D	56.	4.30	7.	2.	1.	0.04
+	HYDROGRAPH AT	SBE23E	9.	4.13	1.	0.	0.	0.00
+	ROUTED TO	RE23E	8.	4.23	1.	0.	0.	0.00
+	HYDROGRAPH AT	SBE23C	72.	4.27	9.	2.	2.	0.05
+	2 COMBINED AT	CE23C	81.	4.27	10.	3.	2.	0.06
+	ROUTED TO	RE23C	80.	4.30	10.	3.	2.	0.06
+	HYDROGRAPH AT	SBE23B	8.	4.12	1.	0.	0.	0.00
+	2 COMBINED AT	CE23B	85.	4.30	11.	3.	2.	0.06
+	ROUTED TO	RE23B	85.	4.30	11.	3.	2.	0.06
+	2 COMBINED AT	CE23AI	141.	4.30	18.	4.	3.	0.10
+	ROUTED TO	RE23BD	140.	4.32	18.	4.	3.	0.10
+	HYDROGRAPH AT	SBE23A	11.	4.15	1.	0.	0.	0.01
+	2 COMBINED AT	CE23A	148.	4.30	19.	5.	3.	0.11
+	3 COMBINED AT	CLEAR	286.	4.25	35.	9.	6.	0.20
+	HYDROGRAPH AT	SBE22A	12.	4.15	1.	0.	0.	0.01
+	HYDROGRAPH AT	SBE21A	2.	4.07	0.	0.	0.	0.00
+	HYDROGRAPH AT	SBE20A	3.	4.05	0.	0.	0.	0.00
+	HYDROGRAPH AT	SBE19A	3.	4.05	0.	0.	0.	0.00
+	HYDROGRAPH AT	SBE18A	2.	4.07	0.	0.	0.	0.00
+	6 COMBINED AT	CLEAR	300.	4.25	37.	9.	7.	0.21
+	HYDROGRAPH AT	SBE17B	31.	4.17	3.	1.	1.	0.02
+	ROUTED TO	RE17B	30.	4.25	3.	1.	1.	0.02
+	HYDROGRAPH AT	SBE17A	29.	4.18	3.	1.	1.	0.02
+	2 COMBINED AT	CE17A	57.	4.22	6.	1.	1.	0.03
+	HYDROGRAPH AT	SBE16A	2.	4.08	0.	0.	0.	0.00
+	HYDROGRAPH AT	SBE13A	7.	4.10	1.	0.	0.	0.00
+	HYDROGRAPH AT	SBE12A	4.	4.08	0.	0.	0.	0.00
+	HYDROGRAPH AT	SBE11B	24.	4.17	2.	1.	0.	0.01

+	ROUTED TO	RE11B	23.	4.22	2.	1.	0.	0.01
+	HYDROGRAPH AT	SBE11A	26.	4.18	3.	1.	1.	0.02
+	2 COMBINED AT	CE11A	49.	4.20	5.	1.	1.	0.03
+	6 COMBINED AT	CLEAR	412.	4.23	49.	12.	9.	0.28
+	HYDROGRAPH AT	SBE10A	2.	4.07	0.	0.	0.	0.00
+	HYDROGRAPH AT	SBE09A	6.	4.05	0.	0.	0.	0.00
+	HYDROGRAPH AT	SBE08A	2.	4.07	0.	0.	0.	0.00
+	4 COMBINED AT	CLEAR	417.	4.22	49.	12.	9.	0.28
+	HYDROGRAPH AT	SBE06D	19.	4.15	2.	0.	0.	0.01
+	ROUTED TO	RE06D	18.	4.20	2.	0.	0.	0.01
+	HYDROGRAPH AT	SBE06C	28.	4.17	3.	1.	1.	0.02
+	ROUTED TO	RE06C	27.	4.20	3.	1.	1.	0.02
+	HYDROGRAPH AT	SBE06B	18.	4.12	1.	0.	0.	0.01
+	3 COMBINED AT	CE06B	60.	4.17	6.	1.	1.	0.03
+	ROUTED TO	RE06B	60.	4.23	6.	1.	1.	0.03
+	HYDROGRAPH AT	SBE06A	20.	4.20	2.	1.	0.	0.01
+	2 COMBINED AT	CE06A	79.	4.22	8.	2.	2.	0.05
+	HYDROGRAPH AT	SBE05B	23.	4.27	4.	1.	1.	0.02
+	ROUTED TO	RE05B	23.	4.35	4.	1.	1.	0.02
+	HYDROGRAPH AT	SBE05A	11.	4.17	1.	0.	0.	0.01
+	2 COMBINED AT	CE05A	31.	4.32	5.	1.	1.	0.03
+	2 COMBINED AT	CE065A	108.	4.23	13.	3.	2.	0.08
+	HYDROGRAPH AT	SBE04C	17.	4.22	2.	1.	0.	0.01
+	ROUTED TO	RE04C	17.	4.25	2.	1.	0.	0.01
+	HYDROGRAPH AT	SBE04B	20.	4.20	3.	1.	0.	0.01
+	ROUTED TO	RE04B	20.	4.23	3.	1.	0.	0.01
+	2 COMBINED AT	CE04AI	37.	4.23	5.	1.	1.	0.03
+	ROUTED TO	RE04CB	37.	4.25	5.	1.	1.	0.03
+	HYDROGRAPH AT	SBE04A	12.	4.13	1.	0.	0.	0.01
+	2 COMBINED AT	CE04A	46.	4.23	6.	2.	1.	0.04
+	HYDROGRAPH AT	SBE03A	14.	4.13	1.	0.	0.	0.01
+	HYDROGRAPH AT	SBE02A	75.	4.32	12.	3.	2.	0.07
+	HYDROGRAPH AT	SBE01B	61.	4.12	5.	1.	1.	0.02
+	ROUTED TO	RE01B	55.	4.40	5.	1.	1.	0.02
+	HYDROGRAPH AT	SBE01A	150.	4.30	21.	5.	4.	0.12
+	2 COMBINED AT	CE01A	201.	4.33	26.	7.	5.	0.14
+	6 COMBINED AT	CLEAR	798.	4.27	105.	26.	19.	0.61
+	HYDROGRAPH AT	SBW14A	23.	4.10	2.	0.	0.	0.01
+	HYDROGRAPH AT	SBW13A	3.	4.05	0.	0.	0.	0.00

+	HYDROGRAPH AT	SBW12A	38.	4.13	3.	1.	1.	0.02
+	HYDROGRAPH AT	SBW11A	3.	4.03	0.	0.	0.	0.00
+	5 COMBINED AT	CLEAR	825.	4.25	110.	27.	20.	0.64
+	HYDROGRAPH AT	SBW10C	31.	4.15	3.	1.	0.	0.01
+	ROUTED TO	RW10C	30.	4.20	3.	1.	0.	0.01
+	HYDROGRAPH AT	SBW10B	20.	4.18	2.	1.	0.	0.01
+	2 COMBINED AT	CW10B	49.	4.18	5.	1.	1.	0.03
+	ROUTED TO	RW10B	49.	4.22	5.	1.	1.	0.03
+	HYDROGRAPH AT	SBW10A	59.	4.20	6.	1.	1.	0.03
+	2 COMBINED AT	CW10A	107.	4.20	10.	3.	2.	0.06
+	HYDROGRAPH AT	SBW09E	10.	4.15	1.	0.	0.	0.01
+	ROUTED TO	RW09E	10.	4.22	1.	0.	0.	0.01
+	HYDROGRAPH AT	SBW09D	15.	4.15	1.	0.	0.	0.01
+	2 COMBINED AT	CW09DI	24.	4.17	2.	1.	0.	0.01
+	HYDROGRAPH AT	SBW09C	63.	4.23	8.	2.	1.	0.04
+	2 COMBINED AT	CW09D	85.	4.23	10.	3.	2.	0.06
+	ROUTED TO	RW09D	85.	4.25	10.	3.	2.	0.06
+	HYDROGRAPH AT	SBW09B	12.	4.10	1.	0.	0.	0.00
+	2 COMBINED AT	CW09B	91.	4.23	11.	3.	2.	0.06
+	ROUTED TO	RW09B	90.	4.28	11.	3.	2.	0.06
+	HYDROGRAPH AT	SBW09A	13.	4.17	1.	0.	0.	0.01
+	2 COMBINED AT	CW09A	101.	4.28	12.	3.	2.	0.07
+	HYDROGRAPH AT	SBW08A	19.	4.12	2.	0.	0.	0.01
+	HYDROGRAPH AT	SBW07C	9.	4.13	1.	0.	0.	0.00
+	HYDROGRAPH AT	SBW07B	11.	4.15	1.	0.	0.	0.01
+	2 COMBINED AT	CW07BC	20.	4.15	2.	1.	0.	0.01
+	ROUTED TO	RW07BC	20.	4.22	2.	1.	0.	0.01
+	HYDROGRAPH AT	SBW07A	19.	4.18	2.	1.	0.	0.01
+	2 COMBINED AT	CW07A	39.	4.20	4.	1.	1.	0.03
+	5 COMBINED AT	CLEAR	1010.	4.25	134.	33.	24.	0.81
+	HYDROGRAPH AT	SBW06A	8.	4.12	1.	0.	0.	0.00
+	HYDROGRAPH AT	SBW05A	19.	4.13	2.	0.	0.	0.01
+	HYDROGRAPH AT	SBW04A	5.	4.07	0.	0.	0.	0.00
+	HYDROGRAPH AT	SBW02A	13.	4.13	1.	0.	0.	0.01
+	HYDROGRAPH AT	SBW01A	5.	4.07	0.	0.	0.	0.00
+	6 COMBINED AT	CLEAR	1035.	4.25	138.	34.	25.	0.83

*** NORMAL END OF HEC-1 ***

-----DSS---ZCLOSE Unit: 71, File: X:\Shared\projects\consult\LVA_UDS\SerenoCanyon\HEC-1\SERENO_EX_
Pointer Utilization: 0.67

Number of Records: 354
File Size: 2202.4 Kbytes
Percent Inactive: 0.0

Existing Condition HEC-1 Model

10-Year, 6-Hour Storm

HEC-1 Model: Existing Condition 10-Year, 6-Hour
HEC-1 File Name: SERENO_EX_10_6.OUT

HEC-ID	Routing	Peak Q (cfs)
SBE29A	BASIN	13
SBE28A	BASIN	10
SBE27A	BASIN	2
SBE26A	BASIN	7
SBE25C	BASIN	5
RE25C	ROUTE	5
SBE25B	BASIN	4
CE25B	COMBINE	9
RE25B	ROUTE	9
SBE25A	BASIN	3
CE25A	COMBINE	11
CLEAR	COMBINE	42
SBE24D	BASIN	10
RE24D	ROUTE	10
SBE24C	BASIN	10
CE24C	COMBINE	20
RE24C	ROUTE	20
SBE24B	BASIN	3
CE24B	COMBINE	23
RE24B	ROUTE	22
SBE24A	BASIN	5
CE24A	COMBINE	26
SBE23D	BASIN	24
RE23D	ROUTE	24
SBE23E	BASIN	4
RE23E	ROUTE	4
SBE23C	BASIN	31
CE23C	COMBINE	34
RE23C	ROUTE	34
SBE23B	BASIN	4
CE23B	COMBINE	36
RE23B	ROUTE	36
CE23AI	COMBINE	59
RE23BD	ROUTE	59
SBE23A	BASIN	5
CE23A	COMBINE	62
CLEAR	COMBINE	122
SBE22A	BASIN	6
SBE21A	BASIN	1
SBE20A	BASIN	1
SBE19A	BASIN	1
SBE18A	BASIN	1
CLEAR	COMBINE	127
SBE17B	BASIN	14
RE17B	ROUTE	13
SBE17A	BASIN	13
CE17A	COMBINE	25
SBE16A	BASIN	1
SBE13A	BASIN	3
SBE12A	BASIN	2
SBE11B	BASIN	11
RE11B	ROUTE	10
SBE11A	BASIN	12
CE11A	COMBINE	22
CLEAR	COMBINE	176
SBE10A	BASIN	1
SBE09A	BASIN	3
SBE08A	BASIN	1
CLEAR	COMBINE	177
SBE06D	BASIN	8
RE06D	ROUTE	8
SBE06C	BASIN	12

HEC-ID	Routing	Peak Q (cfs)
RE06C	ROUTE	12
SBE06B	BASIN	8
CE06B	COMBINE	27
RE06B	ROUTE	26
SBE06A	BASIN	8
CE06A	COMBINE	34
SBE05B	BASIN	9
RE05B	ROUTE	9
SBE05A	BASIN	5
CE05A	COMBINE	13
CE065A	COMBINE	46
SBE04C	BASIN	7
RE04C	ROUTE	7
SBE04B	BASIN	8
RE04B	ROUTE	8
CE04AI	COMBINE	16
RE04CB	ROUTE	15
SBE04A	BASIN	5
CE04A	COMBINE	19
SBE03A	BASIN	6
SBE02A	BASIN	31
SBE01B	BASIN	32
RE01B	ROUTE	29
SBE01A	BASIN	63
CE01A	COMBINE	92
CLEAR	COMBINE	343
SBW14A	BASIN	11
SBW13A	BASIN	1
SBW12A	BASIN	18
SBW11A	BASIN	2
CLEAR	COMBINE	354
SBW10C	BASIN	14
RW10C	ROUTE	14
SBW10B	BASIN	9
CW10B	COMBINE	22
RW10B	ROUTE	22
SBW10A	BASIN	26
CW10A	COMBINE	48
SBW09E	BASIN	4
RW09E	ROUTE	4
SBW09D	BASIN	7
CW09DI	COMBINE	10
SBW09C	BASIN	27
CW09D	COMBINE	37
RW09D	ROUTE	36
SBW09B	BASIN	6
CW09B	COMBINE	39
RW09B	ROUTE	39
SBW09A	BASIN	6
CW09A	COMBINE	43
SBW08A	BASIN	9
SBW07C	BASIN	4
SBW07B	BASIN	5
CW07BC	COMBINE	9
RW07BC	ROUTE	9
SBW07A	BASIN	8
CW07A	COMBINE	17
CLEAR	COMBINE	427
SBW06A	BASIN	4
SBW05A	BASIN	9
SBW04A	BASIN	2
SBW02A	BASIN	6
SBW01A	BASIN	2
CLEAR	COMBINE	437

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1****************************************                                                    ****************************************
 *                                      *                                                    *                                      *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                                                    *    U.S. ARMY CORPS OF ENGINEERS      *
 *              JUN   1998              *                                                    *    HYDROLOGIC ENGINEERING CENTER     *
 *           VERSION 4.1                *                                                    *          609 SECOND STREET           *
 *                                      *                                                    *       DAVIS, CALIFORNIA 95616        *
 *  RUN DATE   05JAN12  TIME  15:34:14  *                                                    *          (916) 756-1104              *
 *                                      *                                                    *                                      *
 ****************************************                                                    ****************************************


                                        X     X  XXXXXXX   XXXXX          X
                                        X     X  X        X     X        XX
                                        X     X  X        X              X
                                        XXXXXXX  XXXX     X        XXXXX  X
                                        X     X  X        X              X
                                        X     X  X        X     X        X
                                        X     X  XXXXXXX   XXXXX        XXX


          THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

          THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
          THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
          NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
          DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL   LOSS RATE:GREEN AND AMPT INFILTRATION
          KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

1                                                   HEC-1 INPUT                                                    PAGE  1

         LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

           1           ID        Flood Control District of Maricopa County
           2           ID        Sereno Canyon Existing Conditions
           3           ID        10 YEAR
           4           ID        6 Hour  Storm
           5           ID        Unit Hydrograph: Clark
           6           ID        01/04/2012
           7           ID        Sereno Canyon-Existing Conditions
           8           ID        10-Year, 6-Hour Storm Event
           9           ID        Prepared By: JE Fuller Hydrology and Geomorphology
          10           ID        Modeled By: Brian Schalk P.E., CFM and Nathan Logan P.E., CFM
          11           ID        Submitted To: City of Scottsdale
          12           IT       1 01DEC11       0    2000
          13           IN      15
          14           IO       5
                       *DIAGRAM
                       *
          15           JD   2.108  0.0001
          16           PC   0.000   0.008   0.016   0.025   0.033   0.041   0.050   0.058   0.066   0.074
          17           PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931   0.950
          18           PC   0.962   0.972   0.983   0.991   1.000
          19           JD   2.095  0.5000
          20           PC   0.000   0.008   0.016   0.025   0.033   0.041   0.050   0.058   0.066   0.074
          21           PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931   0.950
          22           PC   0.962   0.972   0.983   0.991   1.000
          23           JD   2.055     2.8
          24           PC   0.000   0.009   0.016   0.025   0.034   0.042   0.051   0.059   0.068   0.077
          25           PC   0.088   0.101   0.121   0.164   0.253   0.451   0.694   0.836   0.900   0.938
          26           PC   0.950   0.963   0.975   0.988   1.000

          27           KK  SBE29A   BASIN
          28           KM        SBE29A Basin Runoff
          29           BA   0.015
          30           LG    0.10    0.25    6.00    0.28       0
          31           UC   0.349   0.362
          32           UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
          33           UA     100
                       *
          34           ZW   A=SERENO C=FLOW F=CALC

          35           KK  SBE28A   BASIN
          36           KM        SBE28A Basin Runoff
          37           BA   0.013
          38           LG    0.10    0.25    6.00    0.28       0
          39           UC   0.361   0.422
          40           UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
          41           UA     100
                       *
          42           ZW   A=SERENO C=FLOW F=CALC

          43           KK  SBE27A   BASIN
          44           KM        SBE27A Basin Runoff
          45           BA   0.002
          46           LG    0.10    0.25    6.00    0.28       0
          47           UC   0.216   0.310
          48           UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
1                                                   HEC-1 INPUT                                                    PAGE  2

         LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

          49           UA     100
                       *
          50           ZW   A=SERENO C=FLOW F=CALC

          51           KK  SBE26A   BASIN
          52           KM        SBE26A Basin Runoff
          53           BA   0.010
          54           LG    0.10    0.25    6.00    0.28       0
          55           UC   0.375   0.549
          56           UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
          57           UA     100
                       *
          58           ZW   A=SERENO C=FLOW F=CALC

          59           KK  SBE25C   BASIN
          60           KM        SBE25C Basin Runoff
          61           BA   0.005
          62           LG    0.10    0.25    6.00    0.28       0
          63           UC   0.265   0.318
          64           UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
```

```
  65          UA     100
              *
  66          ZW   A=SERENO C=FLOW F=CALC

  67          KK   RE25C   ROUTE
  68          KM        Route runoff from SBE25C through Basin SBE25B
  69          RS       6    FLOW
  70          RC   0.060   0.060   0.060     709  0.0268 2694.40
  71          RX    0.00   21.00   53.00   58.00   63.00   70.00   90.00   99.00
  72          RY  2694.3 2691.90 2688.00 2687.00 2687.00 2689.00 2693.30 2694.40
              *
  73          ZW   A=SERENO C=FLOW F=CALC

  74          KK  SBE25B   BASIN
  75          KM        SBE25B Basin Runoff
  76          BA   0.006
  77          LG    0.10    0.25    6.00    0.28       0
  78          UC   0.336   0.494
  79          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
  80          UA     100
              *
  81          ZW   A=SERENO C=FLOW F=CALC

  82          KK   CE25B COMBINE
  83          KM        Combine Route RE25C and Basin SBE25B
  84          HC       2
              *
  85          ZW   A=SERENO C=FLOW F=CALC

  86          KK   RE25B   ROUTE
  87          KM        Route runoff from CE25B through Basin SBE25A
  88          RS       2    FLOW
  89          RC   0.060   0.060   0.060     412  0.0279 2680.70
  90          RX    0.00   16.00   29.00   32.00   32.10   36.00   47.00   67.00
  91          RY  2680.3 2678.70 2677.10 2676.00 2676.00 2676.90 2678.00 2680.70
              *
1                                          HEC-1 INPUT                                          PAGE  3

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

  92          ZW   A=SERENO C=FLOW F=CALC

  93          KK  SBE25A   BASIN
  94          KM        SBE25A Basin Runoff
  95          BA   0.003
  96          LG    0.10    0.25    6.00    0.28       0
  97          UC   0.242   0.333
  98          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
  99          UA     100
              *
 100          ZW   A=SERENO C=FLOW F=CALC

 101          KK   CE25A COMBINE
 102          KM        Combine Route RE25B and Basin SBE25A
 103          HC       2
              *
 104          ZW   A=SERENO C=FLOW F=CALC

 105          KK   CLEAR COMBINE
 106          KM        Clear Hydrograph Stack
 107          HC       5
              *
 108          ZW   A=SERENO C=FLOW F=CALC

 109          KK  SBE24D   BASIN
 110          KM        SBE254D Basin Runoff
 111          BA   0.010
 112          LG    0.10    0.25    6.00    0.28       0
 113          UC   0.300   0.294
 114          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 115          UA     100
              *
 116          ZW   A=SERENO C=FLOW F=CALC

 117          KK   RE24D   ROUTE
 118          KM        Route runoff from basin SBE24D through Basin SBE24C
 119          RS       3    FLOW
 120          RC   0.060   0.060   0.060     634  0.0252 2725.50
 121          RX    0.00   16.00   24.00   27.00   31.00   34.00   44.00   60.00
 122          RY  2725.5 2723.20 2721.80 2721.00 2721.00 2722.00 2723.00 2726.10
              *
 123          ZW   A=SERENO C=FLOW F=CALC

 124          KK  SBE24C   BASIN
 125          KM        SBE24C Basin Runoff
 126          BA   0.015
 127          LG    0.10    0.25    6.00    0.28       0
 128          UC   0.402   0.502
 129          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 130          UA     100
              *
 131          ZW   A=SERENO C=FLOW F=CALC
1                                          HEC-1 INPUT                                          PAGE  4

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


 132          KK   CE24C COMBINE
 133          KM        Combine RE24D and SBE24C
 134          HC       2
              *
 135          ZW   A=SERENO C=FLOW F=CALC

 136          KK   RE24C   ROUTE
 137          KM        Route flow from CE24C through Basin SBE24B
 138          RS       3    FLOW
 139          RC   0.060   0.060   0.060     624  0.0232 2706.80
 140          RX   10.00   25.00   45.00   49.00   55.00   62.00   75.00  103.00
 141          RY  2706.8 2705.20 2702.10 2701.00 2701.00 2702.00 2703.30 2706.70
              *
 142          ZW   A=SERENO C=FLOW F=CALC

 143          KK  SBE24B   BASIN
 144          KM        SBE24B Basin Runoff
 145          BA   0.005
 146          LG    0.10    0.25    6.00    0.28       0
 147          UC   0.332   0.540
```

```
 148          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 149          UA     100
              *
 150          ZW   A=SERENO C=FLOW F=CALC

 151          KK   CE24B COMBINE
 152          KM        Combine RE24C and SBE24B
 153          HC       2
              *
 154          ZW   A=SERENO C=FLOW F=CALC

 155          KK   RE24B   ROUTE
 156          KM        Route flow from CE24B through Basin SBE24A
 157          RS       4    FLOW
 158          RC   0.060   0.060   0.060     873  0.0229 2690.20
 159          RX    0.00   10.00   16.00   23.00   27.00   35.00   49.00   67.00
 160          RY  2689.8 2688.70 2687.90 2687.00 2687.00 2687.90 2688.80 2690.20
              *
 161          ZW   A=SERENO C=FLOW F=CALC

 162          KK  SBE24A   BASIN
 163          KM        SBE24A Basin Runoff
 164          BA   0.007
 165          LG    0.10    0.25    6.00    0.28       0
 166          UC   0.358   0.530
 167          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 168          UA     100
              *
 169          ZW   A=SERENO C=FLOW F=CALC
1                                          HEC-1 INPUT                                          PAGE  5

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


 170          KK   CE24A COMBINE
 171          KM        Combine RE24B and SBE24A
 172          HC       2
              *
 173          ZW   A=SERENO C=FLOW F=CALC

 174          KK  SBE23D   BASIN
 175          KM        SBE23D Basin Runoff
 176          BA   0.041
 177          LG    0.10    0.25    6.00    0.28       0
 178          UC   0.533   0.621
 179          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 180          UA     100
              *
 181          ZW   A=SERENO C=FLOW F=CALC

 182          KK   RE23D   ROUTE
 183          KM        Route flow from SBE23D through Basin SBE23A
 184          RS       2    FLOW
 185          RC   0.060   0.060   0.060     465  0.0269 2688.30
 186          RX    0.00   14.00   27.00   32.00   40.00   44.00   55.00   68.00
 187          RY  2688.3 2687.30 2685.00 2684.10 2684.00 2685.00 2686.10 2686.70
              *
 188          ZW   A=SERENO C=FLOW F=CALC

 189          KK  SBE23E   BASIN
 190          KM        SBE23E Basin Runoff
 191          BA   0.005
 192          LG    0.10    0.25    6.00    0.28       0
 193          UC   0.285   0.455
 194          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 195          UA     100
              *
 196          ZW   A=SERENO C=FLOW F=CALC

 197          KK   RE23E   ROUTE
 198          KM        Route flow from SBE23E through Basin SBE23C
 199          RS       7    FLOW
 200          RC   0.060   0.060   0.060    1112  0.0261 2720.00
 201          RX    0.00   20.00   57.00   64.00   65.00   70.00   90.00  114.00
 202          RY  2720.0 2716.50 2712.10 2711.00 2711.00 2713.20 2716.60 2719.90
              *
 203          ZW   A=SERENO C=FLOW F=CALC

 204          KK  SBE23C   BASIN
 205          KM        SBE23C Basin Runoff
 206          BA   0.053
 207          LG    0.10    0.25    6.00    0.28       0
 208          UC   0.542   0.620
 209          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 210          UA     100
              *
 211          ZW   A=SERENO C=FLOW F=CALC
1                                          HEC-1 INPUT                                          PAGE  6

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


 212          KK   CE23C COMBINE
 213          KM        Combine RE23E and SBE23C
 214          HC       2
              *
 215          ZW   A=SERENO C=FLOW F=CALC

 216          KK   RE23C   ROUTE
 217          KM        Route flow from CE23C through SBE23B
 218          RS       2    FLOW
 219          RC   0.060   0.060   0.060     457  0.0235 2693.90
 220          RX    0.00   15.00   28.00   35.00   35.10   45.00   86.00  114.00
 221          RY  2693.8 2692.20 2691.00 2690.00 2690.00 2690.90 2692.90 2693.90
              *
 222          ZW   A=SERENO C=FLOW F=CALC

 223          KK  SBE23B   BASIN
 224          KM        SBE23B Basin Runoff
 225          BA   0.004
 226          LG    0.10    0.25    6.00    0.28       0
 227          UC   0.267   0.365
 228          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 229          UA     100
              *
 230          ZW   A=SERENO C=FLOW F=CALC
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```
 231          KK   CE23B COMBINE
 232          KM        Combine flow from RE23C and SBE23B
 233          HC       2
              *
 234          ZW   A=SERENO C=FLOW F=CALC

 235          KK   RE23B   ROUTE
 236          KM        Route flow from CE23B into SBE23A to intermediate combine
 237          RS       1    FLOW
 238          RC   0.060   0.060   0.060     112  0.0267 2685.90
 239          RX    0.00    8.00   12.00   14.00   24.00   30.00   32.00   49.00
 240          RY  2685.6 2684.80 2684.20 2684.00 2684.00 2684.70 2685.00 2685.90
              *
 241          ZW   A=SERENO C=FLOW F=CALC

 242          KK  CE23AI COMBINE
 243          KM        Intermediate combine of RE23D and RE23B to route through SBE23A
 244          HC       2
              *
 245          ZW   A=SERENO C=FLOW F=CALC

 246          KK  RE23BD   ROUTE
 247          KM        Route Intermediate combined flow from CE23AI through SBE23A
 248          RS       1    FLOW
 249          RC   0.060   0.060   0.060     238  0.0242 2685.00
 250          RX    0.00   21.00   62.00   74.00   82.00   86.00  101.00  141.00
 251          RY  2684.9 2682.70 2681.00 2679.00 2679.00 2680.10 2681.90 2685.00
              *
 252          ZW   A=SERENO C=FLOW F=CALC
1                                          HEC-1 INPUT                                          PAGE  7

            LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


 253          KK  SBE23A   BASIN
 254          KM        SBE23A Basin Runoff
 255          BA   0.006
 256          LG    0.10    0.25    6.00    0.28       0
 257          UC   0.325   0.407
 258          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 259          UA     100
              *
 260          ZW   A=SERENO C=FLOW F=CALC

 261          KK   CE23A COMBINE
 262          KM        Combine flow from SBE23A and RE23BD
 263          HC       2
              *
 264          ZW   A=SERENO C=FLOW F=CALC

 265          KK   CLEAR COMBINE
 266          HC       3
              *
 267          ZW   A=SERENO C=FLOW F=CALC

 268          KK  SBE22A   BASIN
 269          KM        SBE22A Basin Runoff
 270          BA   0.007
 271          LG    0.10    0.25    6.00    0.28       0
 272          UC   0.311   0.435
 273          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 274          UA     100
              *
 275          ZW   A=SERENO C=FLOW F=CALC

 276          KK  SBE21A   BASIN
 277          KM        SBE21A Basin Runoff
 278          BA   0.001
 279          LG    0.10    0.25    6.00    0.28       0
 280          UC   0.169   0.240
 281          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 282          UA     100
              *
 283          ZW   A=SERENO C=FLOW F=CALC

 284          KK  SBE20A   BASIN
 285          KM        SBE20A Basin Runoff
 286          BA   0.001
 287          LG    0.10    0.25    6.00    0.28       0
 288          UC   0.150   0.176
 289          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 290          UA     100
              *
 291          ZW   A=SERENO C=FLOW F=CALC
1                                          HEC-1 INPUT                                          PAGE  8

            LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


 292          KK  SBE19A   BASIN
 293          KM        SBE19A Basin Runoff
 294          BA   0.001
 295          LG    0.10    0.25    6.00    0.28       0
 296          UC   0.151   0.178
 297          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 298          UA     100
              *
 299          ZW   A=SERENO C=FLOW F=CALC

 300          KK  SBE18A   BASIN
 301          KM        SBE18A Basin Runoff
 302          BA   0.001
 303          LG    0.10    0.25    6.00    0.28       0
 304          UC   0.174   0.248
 305          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 306          UA     100
              *
 307          ZW   A=SERENO C=FLOW F=CALC

 308          KK   CLEAR COMBINE
 309          KM        Clear Hydrograph Stack
 310          HC       6
              *
 311          ZW   A=SERENO C=FLOW F=CALC

 312          KK  SBE17B   BASIN
 313          KM        SBE17B Basin Runoff
```

```
 314          BA   0.016
 315          LG    0.10    0.25    6.00    0.28       0
 316          UC   0.347   0.372
 317          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 318          UA     100
              *
 319          ZW   A=SERENO C=FLOW F=CALC

 320          KK   RE17B   ROUTE
 321          KM        Route flow from SBE17B through SBE 17A
 322          RS       7    FLOW
 323          RC   0.060   0.060   0.060    1169  0.0265 2740.10
 324          RX    0.00    9.00   22.00   33.00   44.00   54.00   62.00   69.00
 325          RY  2740.1 2738.60 2737.00 2736.10 2736.00 2737.00 2738.40 2740.10
              *
 326          ZW   A=SERENO C=FLOW F=CALC

 327          KK  SBE17A   BASIN
 328          KM        SBE17A Basin Runoff
 329          BA   0.018
 330          LG    0.10    0.25    6.00    0.28       0
 331          UC   0.384   0.495
 332          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 333          UA     100
              *
 334          ZW   A=SERENO C=FLOW F=CALC
1                                          HEC-1 INPUT                                          PAGE  9

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


 335          KK   CE17A COMBINE
 336          KM        Combine flow from RE17B and SBE17A
 337          HC       2
              *
 338          ZW   A=SERENO C=FLOW F=CALC

 339          KK  SBE16A   BASIN
 340          KM        SBE16A Basin Runoff
 341          BA   0.001
 342          LG    0.10    0.25    6.00    0.28       0
 343          UC   0.184   0.305
 344          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 345          UA     100
              *
 346          ZW   A=SERENO C=FLOW F=CALC

 347          KK  SBE13A   BASIN
 348          KM        SBE13A Basin Runoff
 349          BA   0.003
 350          LG    0.10    0.25    6.00    0.28       0
 351          UC   0.218   0.273
 352          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 353          UA     100
              *
 354          ZW   A=SERENO C=FLOW F=CALC

 355          KK  SBE12A   BASIN
 356          KM        SBE12A Basin Runoff
 357          BA   0.002
 358          LG    0.10    0.25    6.00    0.28       0
 359          UC   0.210   0.300
 360          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 361          UA     100
              *
 362          ZW   A=SERENO C=FLOW F=CALC

 363          KK  SBE11B   BASIN
 364          KM        SBE11B Basin Runoff
 365          BA   0.013
 366          LG    0.10    0.25    6.00    0.28       0
 367          UC   0.342   0.412
 368          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 369          UA     100
              *
 370          ZW   A=SERENO C=FLOW F=CALC

 371          KK   RE11B   ROUTE
 372          KM        Route flow from SBE11B through SBE11A
 373          RS       5    FLOW
 374          RC   0.060   0.060   0.060     914  0.0334 2770.20
 375          RX    0.00   10.00   16.00   23.00   25.00   34.00   48.00   64.00
 376          RY  2770.2 2767.10 2765.30 2762.00 2762.00 2765.00 2766.60 2768.30
              *
 377          ZW   A=SERENO C=FLOW F=CALC
1                                          HEC-1 INPUT                                          PAGE 10

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


 378          KK  SBE11A   BASIN
 379          KM        SBE11A Basin Runoff
 380          BA   0.016
 381          LG    0.10    0.25    6.00    0.28       0
 382          UC   0.382   0.485
 383          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 384          UA     100
              *
 385          ZW   A=SERENO C=FLOW F=CALC

 386          KK   CE11A COMBINE
 387          KM        Combine flow from RE11B and SBE11A
 388          HC       2
              *
 389          ZW   A=SERENO C=FLOW F=CALC

 390          KK   CLEAR COMBINE
 391          KM        Clear Hydrograph Stack
 392          HC       6
              *
 393          ZW   A=SERENO C=FLOW F=CALC

 394          KK  SBE10A   BASIN
 395          KM        SBE10A Basin Runoff
 396          BA   0.001
 397          LG    0.10    0.25    6.00    0.28       0
 398          UC   0.166   0.235
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```
 399          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 400          UA     100
              *
 401          ZW   A=SERENO C=FLOW F=CALC

 402          KK  SBE09A   BASIN
 403          KM        SBE09A Basin Runoff
 404          BA   0.002
 405          LG    0.10    0.25    6.00    0.28       0
 406          UC   0.160   0.152
 407          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 408          UA     100
              *
 409          ZW   A=SERENO C=FLOW F=CALC

 410          KK  SBE08A   BASIN
 411          KM        SBE08A Basin Runoff
 412          BA   0.001
 413          LG    0.10    0.25    6.00    0.28       0
 414          UC   0.169   0.240
 415          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 416          UA     100
              *
 417          ZW   A=SERENO C=FLOW F=CALC
1                                          HEC-1 INPUT                                          PAGE 11

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


 418          KK   CLEAR COMBINE
 419          KM        Clear Hydrograph Stack
 420          HC       4
              *
 421          ZW   A=SERENO C=FLOW F=CALC

 422          KK  SBE06D   BASIN
 423          KM        SBE06D Basin Runoff
 424          BA   0.010
 425          LG    0.10    0.25    6.00    0.28       0
 426          UC   0.312   0.403
 427          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 428          UA     100
              *
 429          ZW   A=SERENO C=FLOW F=CALC

 430          KK   RE06D   ROUTE
 431          KM        Route flow from SBE06D through Basin SBE06B
 432          RS       4    FLOW
 433          RC   0.060   0.060   0.060     677  0.0369 2785.90
 434          RX    0.00   15.00   27.00   34.00   41.00   45.00   52.00   59.00
 435          RY  2785.8 2784.00 2783.00 2782.00 2782.00 2782.70 2784.20 2785.90
              *
 436          ZW   A=SERENO C=FLOW F=CALC

 437          KK  SBE06C   BASIN
 438          KM        SBE06C Basin Runoff
 439          BA   0.016
 440          LG    0.10    0.25    6.00    0.28       0
 441          UC   0.355   0.448
 442          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 443          UA     100
              *
 444          ZW   A=SERENO C=FLOW F=CALC

 445          KK   RE06C   ROUTE
 446          KM        Route flow from SBE06C through Basin SBE06B
 447          RS       3    FLOW
 448          RC   0.060   0.060   0.060     591  0.0431 2786.60
 449          RX    0.00    6.00   16.00   26.00   36.00   40.00   41.00   44.00
 450          RY  2786.6 2786.00 2785.00 2784.00 2784.00 2785.00 2785.50 2786.40
              *
 451          ZW   A=SERENO C=FLOW F=CALC

 452          KK  SBE06B   BASIN
 453          KM        SBE06B Basin Runoff
 454          BA   0.008
 455          LG    0.10    0.25    6.00    0.28       0
 456          UC   0.273   0.285
 457          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 458          UA     100
              *
 459          ZW   A=SERENO C=FLOW F=CALC
1                                          HEC-1 INPUT                                          PAGE 12

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


 460          KK   CE06B COMBINE
 461          KM        Combine RE06D, RE06C and SBE06B
 462          HC       3
              *
 463          ZW   A=SERENO C=FLOW F=CALC

 464          KK   RE06B   ROUTE
 465          KM        Route flow from CE06B through Basin SBE06A
 466          RS       5    FLOW
 467          RC   0.060   0.060   0.060     814  0.0319 2761.00
 468          RX    0.00   21.00   55.00   63.00   82.00   92.00  104.00  113.00
 469          RY  2761.0 2758.90 2758.50 2758.00 2758.00 2758.50 2759.70 2760.80
              *
 470          ZW   A=SERENO C=FLOW F=CALC

 471          KK  SBE06A   BASIN
 472          KM        SBE06A Basin Runoff
 473          BA   0.014
 474          LG    0.10    0.25    6.00    0.28       0
 475          UC   0.406   0.623
 476          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 477          UA     100
              *
 478          ZW   A=SERENO C=FLOW F=CALC

 479          KK   CE06A COMBINE
 480          KM        Combine flow from RE06B and Basin SBE 06A
 481          HC       2
              *
 482          ZW   A=SERENO C=FLOW F=CALC
```

```
 483          KK  SBE05B   BASIN
 484          KM        SBE05B Basin Runoff
 485          BA   0.022
 486          LG    0.10    0.25    6.00    0.28       0
 487          UC   0.502   0.941
 488          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 489          UA     100
              *
 490          ZW   A=SERENO C=FLOW F=CALC

 491          KK   RE05B   ROUTE
 492          KM        Route flow from SBE05B through SBE05A
 493          RS       7    FLOW
 494          RC   0.060   0.060   0.060     907  0.0435 2760.30
 495          RX    0.00   11.00   26.00   40.00   47.00   56.00   76.00   89.00
 496          RY  2760.1 2759.00 2757.70 2757.00 2757.00 2757.40 2758.80 2760.30
              *
 497          ZW   A=SERENO C=FLOW F=CALC
1                                          HEC-1 INPUT                                          PAGE 13

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


 498          KK  SBE05A   BASIN
 499          KM        SBE05A Basin Runoff
 500          BA   0.007
 501          LG    0.10    0.25    6.00    0.28       0
 502          UC   0.330   0.504
 503          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 504          UA     100
              *
 505          ZW   A=SERENO C=FLOW F=CALC

 506          KK   CE05A COMBINE
 507          KM        Combine flow from RE05B and SBE05A
 508          HC       2
              *
 509          ZW   A=SERENO C=FLOW F=CALC

 510          KK  CE065A COMBINE
 511          KM        Combine flow from CE06A and CE05A
 512          HC       2
              *
 513          ZW   A=SERENO C=FLOW F=CALC

 514          KK  SBE04C   BASIN
 515          KM        SBE04C Basin Runoff
 516          BA   0.014
 517          LG    0.10    0.25    6.00    0.28       0
 518          UC   0.413   0.744
 519          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 520          UA     100
              *
 521          ZW   A=SERENO C=FLOW F=CALC

 522          KK   RE04C   ROUTE
 523          KM        Route flow from SBE04C into SBE04A
 524          RS       3    FLOW
 525          RC   0.060   0.060   0.060     455  0.0363 2755.00
 526          RX    0.00   17.00   22.00   27.00   32.00   44.00   61.00   88.00
 527          RY  2755.0 2753.00 2751.90 2750.00 2750.00 2751.90 2753.20 2754.90
              *
 528          ZW   A=SERENO C=FLOW F=CALC

 529          KK  SBE04B   BASIN
 530          KM        SBE04B Basin Runoff
 531          BA   0.015
 532          LG    0.10    0.25    6.00    0.28       0
 533          UC   0.406   0.687
 534          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 535          UA     100
              *
 536          ZW   A=SERENO C=FLOW F=CALC
1                                          HEC-1 INPUT                                          PAGE 14

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


 537          KK   RE04B   ROUTE
 538          KM        Route flow from SBE04B into SBE04A
 539          RS       2    FLOW
 540          RC   0.060   0.060   0.060     449  0.0367 2755.00
 541          RX    0.00   15.00   24.00   28.00   30.00   33.00   46.00   62.00
 542          RY  2754.9 2752.60 2750.80 2750.00 2750.00 2751.00 2752.90 2755.00
              *
 543          ZW   A=SERENO C=FLOW F=CALC

 544          KK  CE04AI COMBINE
 545          KM        Intermediate Combine flows from RE04C and RE04B
 546          HC       2
              *
 547          ZW   A=SERENO C=FLOW F=CALC

 548          KK  RE04CB   ROUTE
 549          KM        Route flow from CE04AI through rest of Basin SBE04A
 550          RS       1    FLOW
 551          RC   0.060   0.060   0.060     247  0.0344 2744.90
 552          RX    0.00   11.00   21.00   31.00   34.00   50.00   69.00   88.00
 553          RY  2744.9 2742.70 2741.40 2740.00 2740.00 2741.80 2743.00 2743.90
              *
 554          ZW   A=SERENO C=FLOW F=CALC

 555          KK  SBE04A   BASIN
 556          KM        SBE04A Basin Runoff
 557          BA   0.006
 558          LG    0.10    0.25    6.00    0.28       0
 559          UC   0.284   0.371
 560          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 561          UA     100
              *
 562          ZW   A=SERENO C=FLOW F=CALC

 563          KK   CE04A COMBINE
 564          KM        Combine Flows from RE04CB and SBE04A
 565          HC       2
              *
```

```
 566          ZW   A=SERENO C=FLOW F=CALC

 567          KK  SBE03A   BASIN
 568          KM        SBE03A Basin Runoff
 569          BA   0.007
 570          LG    0.10    0.25    6.00    0.28       0
 571          UC   0.286   0.359
 572          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 573          UA     100
              *
 574          ZW   A=SERENO C=FLOW F=CALC
1                                          HEC-1 INPUT                                                PAGE 15

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


 575          KK  SBE02A   BASIN
 576          KM        SBE02A Basin Runoff
 577          BA   0.068
 578          LG    0.10    0.25    6.00    0.28       0
 579          UC   0.587   0.848
 580          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 581          UA     100
              *
 582          ZW   A=SERENO C=FLOW F=CALC

 583          KK  SBE01B   BASIN
 584          KM        SBE01B Basin Runoff
 585          BA   0.024
 586          LG    0.10    0.23    6.20    0.26      25
 587          UC   0.277   0.222
 588          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 589          UA     100
              *
 590          ZW   A=SERENO C=FLOW F=CALC

 591          KK   RE01B   ROUTE
 592          KM        Route flow from SBE01B through Basin SBE01A
 593          RS      16    FLOW
 594          RC   0.060   0.060   0.060    5189  0.0788 2910.00
 595          RX    0.00   23.00   87.00  103.00  111.00  119.00  158.00  178.00
 596          RY  2910.0 2908.00 2906.00 2905.50 2904.40 2905.50 2907.00 2910.00
              *
 597          ZW   A=SERENO C=FLOW F=CALC

 598          KK  SBE01A   BASIN
 599          KM        SBE01A Basin Runoff
 600          BA   0.119
 601          LG    0.10    0.25    6.00    0.28       1
 602          UC   0.599   0.687
 603          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 604          UA     100
              *
 605          ZW   A=SERENO C=FLOW F=CALC

 606          KK   CE01A COMBINE
 607          HC       2
              *
 608          ZW   A=SERENO C=FLOW F=CALC

 609          KK   CLEAR COMBINE
 610          KM        Clear Hydrograph Stack
 611          HC       6
              *
 612          ZW   A=SERENO C=FLOW F=CALC
1                                          HEC-1 INPUT                                                PAGE 16

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


 613          KK  SBW14A   BASIN
 614          KM        SBW14A Basin Runoff
 615          BA   0.009
 616          LG    0.10    0.25    6.00    0.28       0
 617          UC   0.248   0.212
 618          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 619          UA     100
              *
 620          ZW   A=SERENO C=FLOW F=CALC

 621          KK  SBW13A   BASIN
 622          KM        SBW13A Basin Runoff
 623          BA   0.001
 624          LG    0.10    0.25    6.00    0.28       0
 625          UC   0.147   0.172
 626          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 627          UA     100
              *
 628          ZW   A=SERENO C=FLOW F=CALC

 629          KK  SBW12A   BASIN
 630          KM        SBW12A Basin Runoff
 631          BA   0.017
 632          LG    0.10    0.25    6.00    0.28       0
 633          UC   0.305   0.268
 634          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 635          UA     100
              *
 636          ZW   A=SERENO C=FLOW F=CALC

 637          KK  SBW11A   BASIN
 638          KM        SBW11A Basin Runoff
 639          BA   0.001
 640          LG    0.10    0.25    6.00    0.28       0
 641          UC   0.127   0.117
 642          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 643          UA     100
              *
 644          ZW   A=SERENO C=FLOW F=CALC

 645          KK   CLEAR COMBINE
 646          KM        Clear Hydrograph Stack
 647          HC       5
              *
 648          ZW   A=SERENO C=FLOW F=CALC

 649          KK  SBW10C   BASIN
```

```
 650          KM        SBW10C Basin Runoff
 651          BA   0.015
 652          LG    0.10    0.25    6.00    0.28       0
 653          UC   0.321   0.329
 654          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 655          UA     100
              *
1                                          HEC-1 INPUT                                          PAGE 17

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 656          ZW   A=SERENO C=FLOW F=CALC

 657          KK   RW10C   ROUTE
 658          KM        Route flow from SBW10C through Basin SBW10B
 659          RS       4    FLOW
 660          RC   0.060   0.060   0.060     952  0.0310 2757.80
 661          RX    0.00   34.00   47.00   62.00   62.10   68.00   73.00   78.00
 662          RY  2757.8 2754.40 2754.00 2752.10 2752.00 2753.70 2755.70 2757.50
              *
 663          ZW   A=SERENO C=FLOW F=CALC

 664          KK  SBW10B   BASIN
 665          KM        SBW10B Basin Runoff
 666          BA   0.012
 667          LG    0.10    0.25    6.00    0.28       0
 668          UC   0.365   0.496
 669          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 670          UA     100
              *
 671          ZW   A=SERENO C=FLOW F=CALC

 672          KK   CW10B COMBINE
 673          KM        Combine flow from RW10C and SBW10B
 674          HC       2
              *
 675          ZW   A=SERENO C=FLOW F=CALC

 676          KK   RW10B   ROUTE
 677          KM        Route flow from CW10B through Basin SBW10A
 678          RS       2    FLOW
 679          RC   0.060   0.060   0.060     653  0.0276 2732.00
 680          RX    0.00   68.00   75.00   79.00   86.00   92.00  106.00  150.00
 681          RY  2732.0 2728.10 2721.10 2726.10 2726.00 2726.60 2727.00 2732.00
              *
 682          ZW   A=SERENO C=FLOW F=CALC

 683          KK  SBW10A   BASIN
 684          KM        SBW10A Basin Runoff
 685          BA   0.033
 686          LG    0.10    0.25    6.00    0.28       0
 687          UC   0.414   0.410
 688          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 689          UA     100
              *
 690          ZW   A=SERENO C=FLOW F=CALC

 691          KK   CW10A COMBINE
 692          KM        Combine flow from RW10B and SBW10A
 693          HC       2
              *
 694          ZW   A=SERENO C=FLOW F=CALC
1                                          HEC-1 INPUT                                          PAGE 18

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


 695          KK  SBW09E   BASIN
 696          KM        SBW09E Basin Runoff
 697          BA   0.006
 698          LG    0.10    0.25    6.00    0.28       0
 699          UC   0.306   0.486
 700          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 701          UA     100
              *
 702          ZW   A=SERENO C=FLOW F=CALC

 703          KK   RW09E   ROUTE
 704          KM        Route flow from SBW09E through Basin SBW09D
 705          RS       6    FLOW
 706          RC   0.060   0.060   0.060     985  0.0442 2805.10
 707          RX    0.00   10.00   12.00   14.00   17.00   23.00   29.00   48.00
 708          RY  2805.3 2803.10 2802.10 2800.70 2800.70 2802.00 2802.90 2805.10
              *
 709          ZW   A=SERENO C=FLOW F=CALC

 710          KK  SBW09D   BASIN
 711          KM        SBW09D Basin Runoff
 712          BA   0.008
 713          LG    0.10    0.25    6.00    0.28       0
 714          UC   0.309   0.417
 715          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 716          UA     100
              *
 717          ZW   A=SERENO C=FLOW F=CALC

 718          KK  CW09DI COMBINE
 719          HC       2
              *
 720          ZW   A=SERENO C=FLOW F=CALC

 721          KK  SBW09C   BASIN
 722          KM        SBW09C Basin Runoff
 723          BA   0.044
 724          LG    0.10    0.25    6.00    0.28       0
 725          UC   0.480   0.585
 726          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 727          UA     100
              *
 728          ZW   A=SERENO C=FLOW F=CALC

 729          KK   CW09D COMBINE
 730          KM        Combine flow from CW09DI and SBW09C
 731          HC       2
              *
 732          ZW   A=SERENO C=FLOW F=CALC
1                                          HEC-1 INPUT                                          PAGE 19
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 733          KK   RW09D   ROUTE
 734          KM        Route flow from CW09D through Basin SBW09B
 735          RS       1    FLOW
 736          RC   0.060   0.060   0.060     367  0.0368 2782.10
 737          RX    0.00   11.00   27.00   31.00   38.00   42.00   73.00   90.00
 738          RY  2782.1 2780.10 2780.00 2779.00 2779.00 2779.50 2780.90 2781.30
              *
 739          ZW   A=SERENO C=FLOW F=CALC

 740          KK  SBW09B   BASIN
 741          KM        SBW09B Basin Runoff
 742          BA   0.005
 743          LG    0.10    0.25    6.00    0.28       0
 744          UC   0.237   0.262
 745          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 746          UA     100
              *
 747          ZW   A=SERENO C=FLOW F=CALC

 748          KK   CW09B COMBINE
 749          KM        Combine flow from RW09D and SBW09B
 750          HC       2
              *
 751          ZW   A=SERENO C=FLOW F=CALC

 752          KK   RW09B   ROUTE
 753          KM        Route flow from CW09B through Basin SBW09A
 754          RS       4    FLOW
 755          RC   0.060   0.060   0.060    1036  0.0415 2765.60
 756          RX    0.00    8.00   49.00   58.00   67.00   72.00   85.00  104.00
 757          RY  2764.9 2764.80 2764.00 2763.00 2763.00 2764.00 2765.10 2765.60
              *
 758          ZW   A=SERENO C=FLOW F=CALC

 759          KK  SBW09A   BASIN
 760          KM        SBW09A Basin Runoff
 761          BA   0.008
 762          LG    0.10    0.25    6.00    0.28       0
 763          UC   0.343   0.527
 764          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 765          UA     100
              *
 766          ZW   A=SERENO C=FLOW F=CALC

 767          KK   CW09A COMBINE
 768          KM        Combine flow from RW09B and SBW09A
 769          HC       2
              *
 770          ZW   A=SERENO C=FLOW F=CALC
1                                          HEC-1 INPUT                                          PAGE 20

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 771          KK  SBW08A   BASIN
 772          KM        SBW08A Basin Runoff
 773          BA   0.009
 774          LG    0.10    0.25    6.00    0.28       0
 775          UC   0.281   0.321
 776          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 777          UA     100
              *
 778          ZW   A=SERENO C=FLOW F=CALC

 779          KK  SBW07C   BASIN
 780          KM        SBW07C Basin Runoff
 781          BA   0.005
 782          LG    0.10    0.25    6.00    0.28       0
 783          UC   0.276   0.419
 784          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 785          UA     100
              *
 786          ZW   A=SERENO C=FLOW F=CALC

 787          KK  SBW07B   BASIN
 788          KM        SBW07B Basin Runoff
 789          BA   0.007
 790          LG    0.10    0.25    6.00    0.28       0
 791          UC   0.321   0.528
 792          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 793          UA     100
              *
 794          ZW   A=SERENO C=FLOW F=CALC

 795          KK  CW07BC COMBINE
 796          KM        Combine flow from SBW07C andSBW07B
 797          HC       2
              *
 798          ZW   A=SERENO C=FLOW F=CALC

 799          KK  RW07BC   ROUTE
 800          KM        Route flow from CW07BC through SBW07A
 801          RS       6    FLOW
 802          RC   0.060   0.060   0.060    1452  0.0465 2800.10
 803          RX    0.00    6.00   20.00   26.00   29.00   38.00   50.00   68.00
 804          RY  2800.1 2799.00 2796.00 2793.00 2793.00 2796.00 2797.00 2798.40
              *
 805          ZW   A=SERENO C=FLOW F=CALC

 806          KK  SBW07A   BASIN
 807          KM        SBW07A Basin Runoff
 808          BA   0.013
 809          LG    0.10    0.25    6.00    0.28       0
 810          UC   0.385   0.582
 811          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 812          UA     100
              *
 813          ZW   A=SERENO C=FLOW F=CALC
1                                          HEC-1 INPUT                                          PAGE 21

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
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```
          814          KK   CW07A COMBINE
          815          KM        Combine flow from RW07BC and SBW07A
          816          HC       2
                       *
          817          ZW   A=SERENO C=FLOW F=CALC

          818          KK   CLEAR COMBINE
          819          HC       5
                       *
          820          ZW   A=SERENO C=FLOW F=CALC

          821          KK  SBW06A   BASIN
          822          KM        SBW06A Basin Runoff
          823          BA   0.004
          824          LG    0.10    0.25    6.00    0.28       0
          825          UC   0.246   0.333
          826          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
          827          UA     100
                       *
          828          ZW   A=SERENO C=FLOW F=CALC

          829          KK  SBW05A   BASIN
          830          KM        SBW05A Basin Runoff
          831          BA   0.010
          832          LG    0.10    0.25    6.00    0.28       0
          833          UC   0.306   0.379
          834          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
          835          UA     100
                       *
          836          ZW   A=SERENO C=FLOW F=CALC

          837          KK  SBW04A   BASIN
          838          KM        SBW04A Basin Runoff
          839          BA   0.002
          840          LG    0.10    0.25    6.00    0.28       0
          841          UC   0.189   0.240
          842          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
          843          UA     100
                       *
          844          ZW   A=SERENO C=FLOW F=CALC

          845          KK  SBW02A   BASIN
          846          KM        SBW02A Basin Runoff
          847          BA   0.007
          848          LG    0.10    0.25    6.00    0.28       0
          849          UC   0.290   0.402
          850          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
          851          UA     100
                       *
          852          ZW   A=SERENO C=FLOW F=CALC
1                                                HEC-1 INPUT                                                PAGE 22

         LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


          853          KK  SBW01A   BASIN
          854          KM        SBW01A Basin Runoff
          855          BA   0.002
          856          LG    0.10    0.25    6.00    0.28       0
          857          UC   0.189   0.240
          858          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
          859          UA     100
                       *
          860          ZW   A=SERENO C=FLOW F=CALC

          861          KK   CLEAR COMBINE
          862          KM        Clear Hydrograph Stack
          863          HC       6
                       *
          864          ZZ
1
                 SCHEMATIC DIAGRAM OF STREAM NETWORK
 INPUT
  LINE     (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

   NO.     (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

    27     SBE29A
                .
                .
    35          .      SBE28A
                .           .
                .           .
    43          .           .      SBE27A
                .           .           .
                .           .           .
    51          .           .           .      SBE26A
                .           .           .         .
                .           .           .         .
    59          .           .           .         .      SBE25C
                .           .           .         .           V
                .           .           .         .           V
    67          .           .           .         .       RE25C
                .           .           .         .           .
                .           .           .         .           .
    74          .           .           .         .           .      SBE25B
                .           .           .         .           .           .
                .           .           .         .           .           .
    82          .           .           .         .       CE25B............
                .           .           .         .           V
                .           .           .         .           V
    86          .           .           .         .       RE25B
                .           .           .         .           .
                .           .           .         .           .
    93          .           .           .         .           .      SBE25A
                .           .           .         .           .           .
                .           .           .         .           .           .
   101          .           .           .         .       CE25A............
                .           .           .         .           .
                .           .           .         .           .
   105       CLEAR.............................................
                .
                .
   109          .      SBE24D
                .           V
                .           V
   117          .       RE24D
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            .           .
            .           .
124         .           .      SBE24C
            .           .           .
            .           .           .
132         .       CE24C............
            .           V
            .           V
136         .       RE24C
            .           .
            .           .
143         .           .      SBE24B
            .           .           .
            .           .           .
151         .       CE24B............
            .           V
            .           V
155         .       RE24B
            .           .
            .           .
162         .           .      SBE24A
            .           .           .
            .           .           .
170         .       CE24A............
            .           .
            .           .
174         .           .      SBE23D
            .           .           V
            .           .           V
182         .           .       RE23D
            .           .           .
            .           .           .
189         .           .           .      SBE23E
            .           .           .           V
            .           .           .           V
197         .           .           .       RE23E
            .           .           .           .
            .           .           .           .
204         .           .           .           .      SBE23C
            .           .           .           .           .
            .           .           .           .           .
212         .           .           .       CE23C............
            .           .           .           V
            .           .           .           V
216         .           .           .       RE23C
            .           .           .           .
            .           .           .           .
223         .           .           .           .      SBE23B
            .           .           .           .           .
            .           .           .           .           .
231         .           .           .       CE23B............
            .           .           .           V
            .           .           .           V
235         .           .           .       RE23B
            .           .           .           .
            .           .           .           .
242         .           .      CE23AI............
            .           .           V
            .           .           V
246         .           .      RE23BD
            .           .           .
            .           .           .
253         .           .           .      SBE23A
            .           .           .           .
            .           .           .           .
261         .           .       CE23A............
            .           .           .
            .           .           .
265     CLEAR........................
            .
            .
268         .      SBE22A
            .           .
            .           .
276         .           .      SBE21A
            .           .           .
            .           .           .
284         .           .           .      SBE20A
            .           .           .           .
            .           .           .           .
292         .           .           .           .      SBE19A
            .           .           .           .           .
            .           .           .           .           .
300         .           .           .           .           .      SBE18A
            .           .           .           .           .           .
            .           .           .           .           .           .
308     CLEAR............................................................
            .
            .
312         .      SBE17B
            .           V
            .           V
320         .       RE17B
            .           .
            .           .
327         .           .      SBE17A
            .           .           .
            .           .           .
335         .       CE17A............
            .           .
            .           .
339         .           .      SBE16A
            .           .           .
            .           .           .
347         .           .           .      SBE13A
            .           .           .           .
            .           .           .           .
355         .           .           .           .      SBE12A
            .           .           .           .           .
            .           .           .           .           .
363         .           .           .           .           .      SBE11B
            .           .           .           .           .           V
            .           .           .           .           .           V
371         .           .           .           .           .       RE11B
            .           .           .           .           .           .
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378         .           .           .           .           .           .      SBE11A
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386         .          .          .          .          .      CE11A...........
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390     CLEAR.......................................................
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            .
394         .     SBE10A
            .          .
            .          .
402         .          .     SBE09A
            .          .          .
            .          .          .
410         .          .          .     SBE08A
            .          .          .          .
            .          .          .          .
418     CLEAR...................................
            .
            .
422         .     SBE06D
            .         V
            .         V
430         .      RE06D
            .          .
            .          .
437         .          .     SBE06C
            .          .          V
            .          .          V
445         .          .      RE06C
            .          .          .
            .          .          .
452         .          .          .     SBE06B
            .          .          .          .
            .          .          .          .
460         .      CE06B......................
            .         V
            .         V
464         .      RE06B
            .          .
            .          .
471         .          .     SBE06A
            .          .          .
            .          .          .
479         .      CE06A...........
            .          .
            .          .
483         .          .     SBE05B
            .          .          V
            .          .          V
491         .          .      RE05B
            .          .          .
            .          .          .
498         .          .          .     SBE05A
            .          .          .          .
            .          .          .          .
506         .          .      CE05A...........
            .          .          .
            .          .          .
510         .     CE065A...........
            .          .
            .          .
514         .          .     SBE04C
            .          .          V
            .          .          V
522         .          .      RE04C
            .          .          .
            .          .          .
529         .          .          .     SBE04B
            .          .          .          V
            .          .          .          V
537         .          .          .      RE04B
            .          .          .          .
            .          .          .          .
544         .          .     CE04AI...........
            .          .          V
            .          .          V
548         .          .     RE04CB
            .          .          .
            .          .          .
555         .          .          .     SBE04A
            .          .          .          .
            .          .          .          .
563         .          .      CE04A...........
            .          .          .
            .          .          .
567         .          .          .     SBE03A
            .          .          .          .
            .          .          .          .
575         .          .          .          .     SBE02A
            .          .          .          .          .
            .          .          .          .          .
583         .          .          .          .     SBE01B
            .          .          .          .          V
            .          .          .          .          V
591         .          .          .          .      RE01B
            .          .          .          .          .
            .          .          .          .          .
598         .          .          .          .          .     SBE01A
            .          .          .          .          .          .
            .          .          .          .          .          .
606         .          .          .          .      CE01A...........
            .          .          .          .          .
            .          .          .          .          .
609     CLEAR.......................................................
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            .
613         .     SBW14A
            .          .
            .          .
621         .          .     SBW13A
            .          .          .
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629         .          .          .     SBW12A
            .          .          .          .
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637         .          .          .          .     SBW11A
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  645       CLEAR.............................................
                .
                .
  649           .      SBW10C
                .          V
                .          V
  657           .       RW10C
                .          .
                .          .
  664           .          .      SBW10B
                .          .          .
                .          .          .
  672           .       CW10B...........
                .          V
                .          V
  676           .       RW10B
                .          .
                .          .
  683           .          .      SBW10A
                .          .          .
                .          .          .
  691           .       CW10A...........
                .          .
                .          .
  695           .          .      SBW09E
                .          .          V
                .          .          V
  703           .          .       RW09E
                .          .          .
                .          .          .
  710           .          .          .      SBW09D
                .          .          .          .
                .          .          .          .
  718           .          .      CW09DI..........
                .          .          .
                .          .          .
  721           .          .          .      SBW09C
                .          .          .          .
                .          .          .          .
  729           .          .       CW09D..........
                .          .          V
                .          .          V
  733           .          .       RW09D
                .          .          .
                .          .          .
  740           .          .          .      SBW09B
                .          .          .          .
                .          .          .          .
  748           .          .       CW09B..........
                .          .          V
                .          .          V
  752           .          .       RW09B
                .          .          .
                .          .          .
  759           .          .          .      SBW09A
                .          .          .          .
                .          .          .          .
  767           .          .       CW09A..........
                .          .          .
                .          .          .
  771           .          .          .      SBW08A
                .          .          .          .
                .          .          .          .
  779           .          .          .          .      SBW07C
                .          .          .          .          .
                .          .          .          .          .
  787           .          .          .          .          .      SBW07B
                .          .          .          .          .          .
                .          .          .          .          .          .
  795           .          .          .          .      CW07BC..........
                .          .          .          .          V
                .          .          .          .          V
  799           .          .          .          .      RW07BC
                .          .          .          .          .
                .          .          .          .          .
  806           .          .          .          .          .      SBW07A
                .          .          .          .          .          .
                .          .          .          .          .          .
  814           .          .          .          .       CW07A..........
                .          .          .          .          .
                .          .          .          .          .
  818       CLEAR.............................................
                .
                .
  821           .      SBW06A
                .          .
                .          .
  829           .          .      SBW05A
                .          .          .
                .          .          .
  837           .          .          .      SBW04A
                .          .          .          .
                .          .          .          .
  845           .          .          .          .      SBW02A
                .          .          .          .          .
                .          .          .          .          .
  853           .          .          .          .          .      SBW01A
                .          .          .          .          .          .
                .          .          .          .          .          .
  861       CLEAR...........................................................
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
1****************************************                    ****************************************
*                                        *                    *                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)    *                    *    U.S. ARMY CORPS OF ENGINEERS      *
*             JUN   1998                 *                    *    HYDROLOGIC ENGINEERING CENTER     *
*            VERSION 4.1                 *                    *          609 SECOND STREET           *
*                                        *                    *       DAVIS, CALIFORNIA 95616        *
*  RUN DATE   05JAN12  TIME  15:34:14    *                    *           (916) 756-1104             *
*                                        *                    *                                      *
****************************************                    ****************************************
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                    Flood Control District of Maricopa County
                    Sereno Canyon Existing Conditions
                    10 YEAR
                    6 Hour  Storm
                    Unit Hydrograph: Clark
                    01/04/2012
                    Sereno Canyon-Existing Conditions
                    10-Year, 6-Hour Storm Event
                    Prepared By: JE Fuller Hydrology and Geomorphology
                    Modeled By: Brian Schalk P.E., CFM and Nathan Logan P.E., CFM
                    Submitted To: City of Scottsdale

14 IO        OUTPUT CONTROL VARIABLES
                IPRNT          5  PRINT CONTROL
                IPLOT          0  PLOT CONTROL
                QSCAL         0.  HYDROGRAPH PLOT SCALE

   IT        HYDROGRAPH TIME DATA
                 NMIN          1  MINUTES IN COMPUTATION INTERVAL
                IDATE     1DEC11  STARTING DATE
                ITIME       0000  STARTING TIME
                   NQ       2000  NUMBER OF HYDROGRAPH ORDINATES
              NDDATE     2DEC11  ENDING DATE
              NDTIME       0919  ENDING TIME
              ICENT          19  CENTURY MARK

          COMPUTATION INTERVAL    0.02 HOURS
               TOTAL TIME BASE   33.32 HOURS

      ENGLISH UNITS
           DRAINAGE AREA         SQUARE MILES
           PRECIPITATION DEPTH   INCHES
           LENGTH, ELEVATION     FEET
           FLOW                  CUBIC FEET PER SECOND
           STORAGE VOLUME        ACRE-FEET
           SURFACE AREA          ACRES
           TEMPERATURE           DEGREES FAHRENHEIT

15 JD        INDEX STORM NO. 1
                 STRM       2.11  PRECIPITATION DEPTH
                 TRDA       0.00  TRANSPOSITION DRAINAGE AREA

16 PI          PRECIPITATION PATTERN
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.01      0.01      0.01      0.01      0.01
                0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01
                0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01
                0.01      0.01      0.01      0.01      0.01      0.03      0.03      0.03      0.03      0.03
                0.03      0.03      0.03      0.03      0.03      0.03      0.03      0.03      0.03      0.03
                0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01
                0.01      0.01      0.01      0.01      0.01      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00

19 JD        INDEX STORM NO. 2
                 STRM       2.10  PRECIPITATION DEPTH
                 TRDA       0.50  TRANSPOSITION DRAINAGE AREA

20 PI          PRECIPITATION PATTERN
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.01      0.01      0.01      0.01      0.01
                0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01
                0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01
                0.01      0.01      0.01      0.01      0.01      0.03      0.03      0.03      0.03      0.03
                0.03      0.03      0.03      0.03      0.03      0.03      0.03      0.03      0.03      0.03
                0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01
                0.01      0.01      0.01      0.01      0.01      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
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                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00

 23 JD          INDEX STORM NO. 3
                      STRM        2.06  PRECIPITATION DEPTH
                      TRDA        2.80  TRANSPOSITION DRAINAGE AREA

 24 PI            PRECIPITATION PATTERN
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.01      0.01      0.01      0.01      0.01
                    0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01
                    0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01
                    0.01      0.01      0.01      0.01      0.01      0.02      0.02      0.02      0.02      0.02
                    0.02      0.02      0.02      0.02      0.02      0.02      0.02      0.02      0.02      0.02
                    0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01
                    0.01      0.01      0.01      0.01      0.01      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
   -----DSS---ZOPEN:  Existing File Opened,  File: X:\Shared\projects\consult\LVA_UDS\SerenoCanyon\HEC-1\SERENO_EX_10_6.DSS
                      Unit: 71;  DSS Versions - Software: 6-LD, File: 6-LD
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE29A/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE29A/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE29A/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE28A/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE28A/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE28A/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE27A/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE27A/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE27A/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE26A/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE26A/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE26A/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE25C/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE25C/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE25C/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/RE25C/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/RE25C/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/RE25C/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE25B/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE25B/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE25B/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/CE25B/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/CE25B/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/CE25B/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/RE25B/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/RE25B/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/RE25B/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE25A/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE25A/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE25A/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/CE25A/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/CE25A/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/CE25A/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    9:  /SERENO/CLEAR/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    9:  /SERENO/CLEAR/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    9:  /SERENO/CLEAR/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE24D/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE24D/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE24D/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/RE24D/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/RE24D/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/RE24D/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE24C/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE24C/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE24C/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/CE24C/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/CE24C/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/CE24C/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/RE24C/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/RE24C/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/RE24C/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE24B/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE24B/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE24B/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/CE24B/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/CE24B/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/CE24B/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/RE24B/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/RE24B/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/RE24B/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE24A/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE24A/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE24A/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/CE24A/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/CE24A/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/CE24A/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE23D/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE23D/FLOW/01DEC1911/1MIN/CALC/
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-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE23D/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/RE23D/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/RE23D/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/RE23D/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE23E/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE23E/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE23E/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/RE23E/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/RE23E/FLOW/01DEC1911/1MIN/CALC/
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-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE23C/FLOW/02DEC1911/1MIN/CALC/
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-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/CE23C/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/CE23C/FLOW/02DEC1911/1MIN/CALC/
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-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/RE23C/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/RE23C/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE23B/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE23B/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE23B/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/CE23B/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/CE23B/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/CE23B/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/RE23B/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/RE23B/FLOW/01DEC1911/1MIN/CALC/
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-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/CE23AI/FLOW/30NOV1911/1MIN/CALC/
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-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/RE23BD/FLOW/30NOV1911/1MIN/CALC/
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-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE23A/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE23A/FLOW/01DEC1911/1MIN/CALC/
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-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/CE23A/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/CE23A/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/CE23A/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.   10:  /SERENO/CLEAR/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.   10:  /SERENO/CLEAR/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.   10:  /SERENO/CLEAR/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE22A/FLOW/30NOV1911/1MIN/CALC/
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-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE19A/FLOW/01DEC1911/1MIN/CALC/
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-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE18A/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE18A/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE18A/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.   11:  /SERENO/CLEAR/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.   11:  /SERENO/CLEAR/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.   11:  /SERENO/CLEAR/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE17B/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE17B/FLOW/01DEC1911/1MIN/CALC/
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-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/CE17A/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE16A/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE16A/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE16A/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE13A/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE13A/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE13A/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE12A/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE12A/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE12A/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE11B/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE11B/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE11B/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/RE11B/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/RE11B/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/RE11B/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE11A/FLOW/30NOV1911/1MIN/CALC/
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-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/CE11A/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/CE11A/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/CE11A/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.   12:  /SERENO/CLEAR/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.   12:  /SERENO/CLEAR/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.   12:  /SERENO/CLEAR/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE10A/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE10A/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE10A/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE09A/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE09A/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE09A/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE08A/FLOW/30NOV1911/1MIN/CALC/
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-----DSS---ZWRITE Unit  71; Vers.   13:  /SERENO/CLEAR/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.   13:  /SERENO/CLEAR/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.   13:  /SERENO/CLEAR/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE06D/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE06D/FLOW/01DEC1911/1MIN/CALC/
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-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/RE06D/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/RE06D/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/RE06D/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE06C/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBE06C/FLOW/01DEC1911/1MIN/CALC/
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-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/RE06C/FLOW/01DEC1911/1MIN/CALC/
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-----DSS---ZWRITE Unit  71; Vers.   14:  /SERENO/CLEAR/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.   14:  /SERENO/CLEAR/FLOW/02DEC1911/1MIN/CALC/
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-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBW14A/FLOW/01DEC1911/1MIN/CALC/
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-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/RW10B/FLOW/30NOV1911/1MIN/CALC/
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-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/CW10A/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBW09E/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBW09E/FLOW/01DEC1911/1MIN/CALC/
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 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBW09E/FLOW/02DEC1911/1MIN/CALC/
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 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBW07B/FLOW/30NOV1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBW07B/FLOW/01DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBW07B/FLOW/02DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/CW07BC/FLOW/30NOV1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/CW07BC/FLOW/01DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/CW07BC/FLOW/02DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/RW07BC/FLOW/30NOV1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/RW07BC/FLOW/01DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/RW07BC/FLOW/02DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBW07A/FLOW/30NOV1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBW07A/FLOW/01DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBW07A/FLOW/02DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/CW07A/FLOW/30NOV1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/CW07A/FLOW/01DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/CW07A/FLOW/02DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.   16:  /SERENO/CLEAR/FLOW/30NOV1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.   16:  /SERENO/CLEAR/FLOW/01DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.   16:  /SERENO/CLEAR/FLOW/02DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBW06A/FLOW/30NOV1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBW06A/FLOW/01DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBW06A/FLOW/02DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBW05A/FLOW/30NOV1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBW05A/FLOW/01DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBW05A/FLOW/02DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBW04A/FLOW/30NOV1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBW04A/FLOW/01DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBW04A/FLOW/02DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBW02A/FLOW/30NOV1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBW02A/FLOW/01DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBW02A/FLOW/02DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBW01A/FLOW/30NOV1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBW01A/FLOW/01DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    2:  /SERENO/SBW01A/FLOW/02DEC1911/1MIN/CALC/
1
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RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

	OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
+	HYDROGRAPH AT	SBE29A	13.	4.22	1.	0.	0.	0.01		
+	HYDROGRAPH AT	SBE28A	10.	4.23	1.	0.	0.	0.01		
+	HYDROGRAPH AT	SBE27A	2.	4.13	0.	0.	0.	0.00		
+	HYDROGRAPH AT	SBE26A	7.	4.25	1.	0.	0.	0.01		
+	HYDROGRAPH AT	SBE25C	5.	4.17	0.	0.	0.	0.00		
+	ROUTED TO	RE25C	5.	4.27	0.	0.	0.	0.00		
+	HYDROGRAPH AT	SBE25B	4.	4.22	1.	0.	0.	0.01		
+	2 COMBINED AT	CE25B	9.	4.25	1.	0.	0.	0.01		
+	ROUTED TO	RE25B	9.	4.28	1.	0.	0.	0.01		
+	HYDROGRAPH AT	SBE25A	3.	4.15	0.	0.	0.	0.00		
+	2 COMBINED AT	CE25A	11.	4.27	1.	0.	0.	0.01		
+	5 COMBINED AT	CLEAR	42.	4.23	5.	1.	1.	0.05		

+	HYDROGRAPH AT	SBE24D	10.	4.18	1.	0.	0.	0.01
+	ROUTED TO	RE24D	10.	4.23	1.	0.	0.	0.01
+	HYDROGRAPH AT	SBE24C	10.	4.27	1.	0.	0.	0.01
+	2 COMBINED AT	CE24C	20.	4.25	2.	1.	0.	0.02
+	ROUTED TO	RE24C	20.	4.30	2.	1.	0.	0.02
+	HYDROGRAPH AT	SBE24B	3.	4.22	0.	0.	0.	0.00
+	2 COMBINED AT	CE24B	23.	4.30	3.	1.	0.	0.03
+	ROUTED TO	RE24B	22.	4.37	3.	1.	0.	0.03
+	HYDROGRAPH AT	SBE24A	5.	4.23	1.	0.	0.	0.01
+	2 COMBINED AT	CE24A	26.	4.37	3.	1.	1.	0.04
+	HYDROGRAPH AT	SBE23D	24.	4.37	4.	1.	1.	0.04
+	ROUTED TO	RE23D	24.	4.40	4.	1.	1.	0.04
+	HYDROGRAPH AT	SBE23E	4.	4.18	0.	0.	0.	0.00
+	ROUTED TO	RE23E	4.	4.30	0.	0.	0.	0.00
+	HYDROGRAPH AT	SBE23C	31.	4.37	5.	1.	1.	0.05
+	2 COMBINED AT	CE23C	34.	4.37	5.	1.	1.	0.06
+	ROUTED TO	RE23C	34.	4.40	5.	1.	1.	0.06
+	HYDROGRAPH AT	SBE23B	4.	4.17	0.	0.	0.	0.00
+	2 COMBINED AT	CE23B	36.	4.40	5.	1.	1.	0.06
+	ROUTED TO	RE23B	36.	4.40	5.	1.	1.	0.06
+	2 COMBINED AT	CE23AI	59.	4.40	9.	2.	2.	0.10
+	ROUTED TO	RE23BD	59.	4.42	9.	2.	2.	0.10
+	HYDROGRAPH AT	SBE23A	5.	4.22	1.	0.	0.	0.01
+	2 COMBINED AT	CE23A	62.	4.42	9.	2.	2.	0.11
+	3 COMBINED AT	CLEAR	122.	4.37	17.	4.	3.	0.20
+	HYDROGRAPH AT	SBE22A	6.	4.20	1.	0.	0.	0.01
+	HYDROGRAPH AT	SBE21A	1.	4.10	0.	0.	0.	0.00
+	HYDROGRAPH AT	SBE20A	1.	4.08	0.	0.	0.	0.00
+	HYDROGRAPH AT	SBE19A	1.	4.08	0.	0.	0.	0.00
+	HYDROGRAPH AT	SBE18A	1.	4.10	0.	0.	0.	0.00
+	6 COMBINED AT	CLEAR	127.	4.35	18.	5.	3.	0.21
+	HYDROGRAPH AT	SBE17B	14.	4.22	1.	0.	0.	0.02
+	ROUTED TO	RE17B	13.	4.33	1.	0.	0.	0.02
+	HYDROGRAPH AT	SBE17A	13.	4.25	2.	0.	0.	0.02
+	2 COMBINED AT	CE17A	25.	4.32	3.	1.	1.	0.03
+	HYDROGRAPH AT	SBE16A	1.	4.12	0.	0.	0.	0.00
+	HYDROGRAPH AT	SBE13A	3.	4.13	0.	0.	0.	0.00
+	HYDROGRAPH AT	SBE12A	2.	4.13	0.	0.	0.	0.00
+	HYDROGRAPH AT	SBE11B	11.	4.22	1.	0.	0.	0.01

+	ROUTED TO	RE11B	10.	4.30	1.	0.	0.	0.01
+	HYDROGRAPH AT	SBE11A	12.	4.25	1.	0.	0.	0.02
+	2 COMBINED AT	CE11A	22.	4.27	2.	1.	0.	0.03
+	6 COMBINED AT	CLEAR	176.	4.33	24.	6.	4.	0.28
+	HYDROGRAPH AT	SBE10A	1.	4.10	0.	0.	0.	0.00
+	HYDROGRAPH AT	SBE09A	3.	4.08	0.	0.	0.	0.00
+	HYDROGRAPH AT	SBE08A	1.	4.10	0.	0.	0.	0.00
+	4 COMBINED AT	CLEAR	177.	4.33	24.	6.	4.	0.28
+	HYDROGRAPH AT	SBE06D	8.	4.20	1.	0.	0.	0.01
+	ROUTED TO	RE06D	8.	4.27	1.	0.	0.	0.01
+	HYDROGRAPH AT	SBE06C	12.	4.23	1.	0.	0.	0.02
+	ROUTED TO	RE06C	12.	4.28	1.	0.	0.	0.02
+	HYDROGRAPH AT	SBE06B	8.	4.17	1.	0.	0.	0.01
+	3 COMBINED AT	CE06B	27.	4.25	3.	1.	1.	0.03
+	ROUTED TO	RE06B	26.	4.33	3.	1.	1.	0.03
+	HYDROGRAPH AT	SBE06A	8.	4.28	1.	0.	0.	0.01
+	2 COMBINED AT	CE06A	34.	4.32	4.	1.	1.	0.05
+	HYDROGRAPH AT	SBE05B	9.	4.37	2.	0.	0.	0.02
+	ROUTED TO	RE05B	9.	4.48	2.	0.	0.	0.02
+	HYDROGRAPH AT	SBE05A	5.	4.22	1.	0.	0.	0.01
+	2 COMBINED AT	CE05A	13.	4.45	2.	1.	0.	0.03
+	2 COMBINED AT	CE065A	46.	4.35	7.	2.	1.	0.08
+	HYDROGRAPH AT	SBE04C	7.	4.28	1.	0.	0.	0.01
+	ROUTED TO	RE04C	7.	4.33	1.	0.	0.	0.01
+	HYDROGRAPH AT	SBE04B	8.	4.28	1.	0.	0.	0.01
+	ROUTED TO	RE04B	8.	4.32	1.	0.	0.	0.01
+	2 COMBINED AT	CE04AI	16.	4.33	2.	1.	0.	0.03
+	ROUTED TO	RE04CB	15.	4.35	2.	1.	0.	0.03
+	HYDROGRAPH AT	SBE04A	5.	4.18	1.	0.	0.	0.01
+	2 COMBINED AT	CE04A	19.	4.33	3.	1.	1.	0.04
+	HYDROGRAPH AT	SBE03A	6.	4.18	1.	0.	0.	0.01
+	HYDROGRAPH AT	SBE02A	31.	4.42	6.	1.	1.	0.07
+	HYDROGRAPH AT	SBE01B	32.	4.17	3.	1.	1.	0.02
+	ROUTED TO	RE01B	29.	4.43	3.	1.	1.	0.02
+	HYDROGRAPH AT	SBE01A	63.	4.42	10.	3.	2.	0.12
+	2 COMBINED AT	CE01A	92.	4.42	13.	3.	2.	0.14
+	6 COMBINED AT	CLEAR	343.	4.37	52.	13.	9.	0.61
+	HYDROGRAPH AT	SBW14A	11.	4.15	1.	0.	0.	0.01
+	HYDROGRAPH AT	SBW13A	1.	4.08	0.	0.	0.	0.00

+	HYDROGRAPH AT	SBW12A	18.	4.18	1.	0.	0.	0.02
+	HYDROGRAPH AT	SBW11A	2.	4.05	0.	0.	0.	0.00
+	5 COMBINED AT	CLEAR	354.	4.37	54.	13.	10.	0.64
+	HYDROGRAPH AT	SBW10C	14.	4.20	1.	0.	0.	0.01
+	ROUTED TO	RW10C	14.	4.27	1.	0.	0.	0.01
+	HYDROGRAPH AT	SBW10B	9.	4.25	1.	0.	0.	0.01
+	2 COMBINED AT	CW10B	22.	4.27	2.	1.	0.	0.03
+	ROUTED TO	RW10B	22.	4.30	2.	1.	0.	0.03
+	HYDROGRAPH AT	SBW10A	26.	4.27	3.	1.	1.	0.03
+	2 COMBINED AT	CW10A	48.	4.28	5.	1.	1.	0.06
+	HYDROGRAPH AT	SBW09E	4.	4.20	1.	0.	0.	0.01
+	ROUTED TO	RW09E	4.	4.30	1.	0.	0.	0.01
+	HYDROGRAPH AT	SBW09D	7.	4.20	1.	0.	0.	0.01
+	2 COMBINED AT	CW09DI	10.	4.23	1.	0.	0.	0.01
+	HYDROGRAPH AT	SBW09C	27.	4.33	4.	1.	1.	0.04
+	2 COMBINED AT	CW09D	37.	4.32	5.	1.	1.	0.06
+	ROUTED TO	RW09D	36.	4.33	5.	1.	1.	0.06
+	HYDROGRAPH AT	SBW09B	6.	4.13	0.	0.	0.	0.00
+	2 COMBINED AT	CW09B	39.	4.32	5.	1.	1.	0.06
+	ROUTED TO	RW09B	39.	4.38	5.	1.	1.	0.06
+	HYDROGRAPH AT	SBW09A	6.	4.23	1.	0.	0.	0.01
+	2 COMBINED AT	CW09A	43.	4.38	6.	2.	1.	0.07
+	HYDROGRAPH AT	SBW08A	9.	4.17	1.	0.	0.	0.01
+	HYDROGRAPH AT	SBW07C	4.	4.18	0.	0.	0.	0.00
+	HYDROGRAPH AT	SBW07B	5.	4.22	1.	0.	0.	0.01
+	2 COMBINED AT	CW07BC	9.	4.20	1.	0.	0.	0.01
+	ROUTED TO	RW07BC	9.	4.30	1.	0.	0.	0.01
+	HYDROGRAPH AT	SBW07A	8.	4.27	1.	0.	0.	0.01
+	2 COMBINED AT	CW07A	17.	4.28	2.	1.	0.	0.03
+	5 COMBINED AT	CLEAR	427.	4.35	64.	16.	12.	0.81
+	HYDROGRAPH AT	SBW06A	4.	4.15	0.	0.	0.	0.00
+	HYDROGRAPH AT	SBW05A	9.	4.20	1.	0.	0.	0.01
+	HYDROGRAPH AT	SBW04A	2.	4.12	0.	0.	0.	0.00
+	HYDROGRAPH AT	SBW02A	6.	4.18	1.	0.	0.	0.01
+	HYDROGRAPH AT	SBW01A	2.	4.12	0.	0.	0.	0.00
+	6 COMBINED AT	CLEAR	437.	4.35	66.	16.	12.	0.83

*** NORMAL END OF HEC-1 ***

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-----DSS---ZCLOSE Unit:  71,   File: X:\Shared\projects\consult\LVA_UDS\SerenoCanyon\HEC-1\SERENO_EX_
            Pointer Utilization:  0.67
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Number of Records: 354
File Size: 2202.4 Kbytes
Percent Inactive: 0.0

Existing Condition HEC-1 Model

2-Year, 6-Hour Storm

HEC-1 Model: Existing Condition 2-Year, 6-Hour
HEC-1 File Name: SERENO_EX_2_6.OUT

HEC-ID	Routing	Peak Q (cfs)
SBE29A	BASIN	6
SBE28A	BASIN	4
SBE27A	BASIN	1
SBE26A	BASIN	3
SBE25C	BASIN	2
RE25C	ROUTE	2
SBE25B	BASIN	2
CE25B	COMBINE	4
RE25B	ROUTE	4
SBE25A	BASIN	1
CE25A	COMBINE	5
CLEAR	COMBINE	18
SBE24D	BASIN	4
RE24D	ROUTE	4
SBE24C	BASIN	4
CE24C	COMBINE	9
RE24C	ROUTE	9
SBE24B	BASIN	1
CE24B	COMBINE	10
RE24B	ROUTE	10
SBE24A	BASIN	2
CE24A	COMBINE	11
SBE23D	BASIN	10
RE23D	ROUTE	10
SBE23E	BASIN	2
RE23E	ROUTE	2
SBE23C	BASIN	13
CE23C	COMBINE	14
RE23C	ROUTE	14
SBE23B	BASIN	2
CE23B	COMBINE	15
RE23B	ROUTE	15
CE23AI	COMBINE	25
RE23BD	ROUTE	25
SBE23A	BASIN	2
CE23A	COMBINE	26
CLEAR	COMBINE	51
SBE22A	BASIN	2
SBE21A	BASIN	1
SBE20A	BASIN	1
SBE19A	BASIN	1
SBE18A	BASIN	1
CLEAR	COMBINE	53
SBE17B	BASIN	6
RE17B	ROUTE	6
SBE17A	BASIN	5
CE17A	COMBINE	11
SBE16A	BASIN	0
SBE13A	BASIN	1
SBE12A	BASIN	1
SBE11B	BASIN	5
RE11B	ROUTE	4
SBE11A	BASIN	5
CE11A	COMBINE	9
CLEAR	COMBINE	73
SBE10A	BASIN	1
SBE09A	BASIN	1
SBE08A	BASIN	1

HEC-ID	Routing	Peak Q (cfs)
CLEAR	COMBINE	74
SBE06D	BASIN	4
RE06D	ROUTE	4
SBE06C	BASIN	5
RE06C	ROUTE	5
SBE06B	BASIN	4
CE06B	COMBINE	11
RE06B	ROUTE	11
SBE06A	BASIN	4
CE06A	COMBINE	15
SBE05B	BASIN	4
RE05B	ROUTE	4
SBE05A	BASIN	2
CE05A	COMBINE	5
CE065A	COMBINE	19
SBE04C	BASIN	3
RE04C	ROUTE	3
SBE04B	BASIN	3
RE04B	ROUTE	3
CE04AI	COMBINE	6
RE04CB	ROUTE	6
SBE04A	BASIN	2
CE04A	COMBINE	8
SBE03A	BASIN	3
SBE02A	BASIN	13
SBE01B	BASIN	17
RE01B	ROUTE	15
SBE01A	BASIN	26
CE01A	COMBINE	42
CLEAR	COMBINE	141
SBW14A	BASIN	5
SBW13A	BASIN	1
SBW12A	BASIN	8
SBW11A	BASIN	1
CLEAR	COMBINE	144
SBW10C	BASIN	6
RW10C	ROUTE	6
SBW10B	BASIN	4
CW10B	COMBINE	10
RW10B	ROUTE	9
SBW10A	BASIN	11
CW10A	COMBINE	20
SBW09E	BASIN	2
RW09E	ROUTE	2
SBW09D	BASIN	3
CW09DI	COMBINE	4
SBW09C	BASIN	11
CW09D	COMBINE	15
RW09D	ROUTE	15
SBW09B	BASIN	2
CW09B	COMBINE	17
RW09B	ROUTE	16
SBW09A	BASIN	2
CW09A	COMBINE	18
SBW08A	BASIN	4
SBW07C	BASIN	2
SBW07B	BASIN	2
CW07BC	COMBINE	4

HEC-ID	Routing	Peak Q (cfs)
RW07BC	ROUTE	4
SBW07A	BASIN	3
CW07A	COMBINE	7
CLEAR	COMBINE	164
SBW06A	BASIN	2
SBW05A	BASIN	4
SBW04A	BASIN	1
SBW02A	BASIN	3
SBW01A	BASIN	1
CLEAR	COMBINE	166

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1****************************************                                                    ****************************************
 *                                      *                                                    *                                      *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                                                    *    U.S. ARMY CORPS OF ENGINEERS      *
 *              JUN   1998              *                                                    *    HYDROLOGIC ENGINEERING CENTER     *
 *           VERSION 4.1                *                                                    *          609 SECOND STREET           *
 *                                      *                                                    *       DAVIS, CALIFORNIA 95616        *
 *  RUN DATE   05JAN12  TIME  15:34:13  *                                                    *          (916) 756-1104              *
 *                                      *                                                    *                                      *
 ****************************************                                                    ****************************************


                                        X     X  XXXXXXX   XXXXX          X
                                        X     X  X        X     X        XX
                                        X     X  X        X              X
                                        XXXXXXX  XXXX     X        XXXXX  X
                                        X     X  X        X              X
                                        X     X  X        X     X        X
                                        X     X  XXXXXXX   XXXXX        XXX


          THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

          THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
          THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
          NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
          DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL   LOSS RATE:GREEN AND AMPT INFILTRATION
          KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

1                                                   HEC-1 INPUT                                                    PAGE  1

        LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

          1           ID        Flood Control District of Maricopa County
          2           ID        Sereno Canyon Existing Conditions
          3           ID        2 YEAR
          4           ID        6 Hour  Storm
          5           ID        Unit Hydrograph: Clark
          6           ID        01/04/2012
          7           ID        Sereno Canyon-Existing Conditions
          8           ID        2-Year, 6-Hour Storm Event
          9           ID        Prepared By: JE Fuller Hydrology and Geomorphology
         10           ID        Modeled By: Brian Schalk P.E., CFM and Nathan Logan P.E., CFM
         11           ID        Submitted To: City of Scottsdale
         12           IT       1 01DEC11       0    2000
         13           IN      15
         14           IO       5
                      *DIAGRAM
                      *
         15           JD   1.421  0.0001
         16           PC   0.000   0.008   0.016   0.025   0.033   0.041   0.050   0.058   0.066   0.074
         17           PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931   0.950
         18           PC   0.962   0.972   0.983   0.991   1.000
         19           JD   1.412  0.5000
         20           PC   0.000   0.008   0.016   0.025   0.033   0.041   0.050   0.058   0.066   0.074
         21           PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931   0.950
         22           PC   0.962   0.972   0.983   0.991   1.000
         23           JD   1.385     2.8
         24           PC   0.000   0.009   0.016   0.025   0.034   0.042   0.051   0.059   0.068   0.077
         25           PC   0.088   0.101   0.121   0.164   0.253   0.451   0.694   0.836   0.900   0.938
         26           PC   0.950   0.963   0.975   0.988   1.000

         27           KK  SBE29A   BASIN
         28           KM        SBE29A Basin Runoff
         29           BA   0.015
         30           LG    0.10    0.25    6.00    0.28       0
         31           UC   0.413   0.436
         32           UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
         33           UA     100
                      *
         34           ZW   A=SERENO C=FLOW F=CALC

         35           KK  SBE28A   BASIN
         36           KM        SBE28A Basin Runoff
         37           BA   0.013
         38           LG    0.10    0.25    6.00    0.28       0
         39           UC   0.427   0.510
         40           UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
         41           UA     100
                      *
         42           ZW   A=SERENO C=FLOW F=CALC

         43           KK  SBE27A   BASIN
         44           KM        SBE27A Basin Runoff
         45           BA   0.002
         46           LG    0.10    0.25    6.00    0.28       0
         47           UC   0.256   0.373
         48           UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
1                                                   HEC-1 INPUT                                                    PAGE  2

        LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

         49           UA     100
                      *
         50           ZW   A=SERENO C=FLOW F=CALC

         51           KK  SBE26A   BASIN
         52           KM        SBE26A Basin Runoff
         53           BA   0.010
         54           LG    0.10    0.25    6.00    0.28       0
         55           UC   0.444   0.662
         56           UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
         57           UA     100
                      *
         58           ZW   A=SERENO C=FLOW F=CALC

         59           KK  SBE25C   BASIN
         60           KM        SBE25C Basin Runoff
         61           BA   0.005
         62           LG    0.10    0.25    6.00    0.28       0
         63           UC   0.313   0.383
         64           UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
```

```
  65          UA     100
              *
  66          ZW   A=SERENO C=FLOW F=CALC

  67          KK   RE25C   ROUTE
  68          KM        Route runoff from SBE25C through Basin SBE25B
  69          RS       7    FLOW
  70          RC   0.060   0.060   0.060     709  0.0268 2694.40
  71          RX    0.00   21.00   53.00   58.00   63.00   70.00   90.00   99.00
  72          RY  2694.3 2691.90 2688.00 2687.00 2687.00 2689.00 2693.30 2694.40
              *
  73          ZW   A=SERENO C=FLOW F=CALC

  74          KK  SBE25B   BASIN
  75          KM        SBE25B Basin Runoff
  76          BA   0.006
  77          LG    0.10    0.25    6.00    0.28       0
  78          UC   0.398   0.596
  79          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
  80          UA     100
              *
  81          ZW   A=SERENO C=FLOW F=CALC

  82          KK   CE25B COMBINE
  83          KM        Combine Route RE25C and Basin SBE25B
  84          HC       2
              *
  85          ZW   A=SERENO C=FLOW F=CALC

  86          KK   RE25B   ROUTE
  87          KM        Route runoff from CE25B through Basin SBE25A
  88          RS       3    FLOW
  89          RC   0.060   0.060   0.060     412  0.0279 2680.70
  90          RX    0.00   16.00   29.00   32.00   32.10   36.00   47.00   67.00
  91          RY  2680.3 2678.70 2677.10 2676.00 2676.00 2676.90 2678.00 2680.70
              *
1                                          HEC-1 INPUT                                          PAGE  3

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

  92          ZW   A=SERENO C=FLOW F=CALC

  93          KK  SBE25A   BASIN
  94          KM        SBE25A Basin Runoff
  95          BA   0.003
  96          LG    0.10    0.25    6.00    0.28       0
  97          UC   0.286   0.401
  98          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
  99          UA     100
              *
 100          ZW   A=SERENO C=FLOW F=CALC

 101          KK   CE25A COMBINE
 102          KM        Combine Route RE25B and Basin SBE25A
 103          HC       2
              *
 104          ZW   A=SERENO C=FLOW F=CALC

 105          KK   CLEAR COMBINE
 106          KM        Clear Hydrograph Stack
 107          HC       5
              *
 108          ZW   A=SERENO C=FLOW F=CALC

 109          KK  SBE24D   BASIN
 110          KM        SBE254D Basin Runoff
 111          BA   0.010
 112          LG    0.10    0.25    6.00    0.28       0
 113          UC   0.355   0.354
 114          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 115          UA     100
              *
 116          ZW   A=SERENO C=FLOW F=CALC

 117          KK   RE24D   ROUTE
 118          KM        Route runoff from basin SBE24D through Basin SBE24C
 119          RS       4    FLOW
 120          RC   0.060   0.060   0.060     634  0.0252 2725.50
 121          RX    0.00   16.00   24.00   27.00   31.00   34.00   44.00   60.00
 122          RY  2725.5 2723.20 2721.80 2721.00 2721.00 2722.00 2723.00 2726.10
              *
 123          ZW   A=SERENO C=FLOW F=CALC

 124          KK  SBE24C   BASIN
 125          KM        SBE24C Basin Runoff
 126          BA   0.015
 127          LG    0.10    0.25    6.00    0.28       0
 128          UC   0.476   0.605
 129          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 130          UA     100
              *
 131          ZW   A=SERENO C=FLOW F=CALC
1                                          HEC-1 INPUT                                          PAGE  4

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


 132          KK   CE24C COMBINE
 133          KM        Combine RE24D and SBE24C
 134          HC       2
              *
 135          ZW   A=SERENO C=FLOW F=CALC

 136          KK   RE24C   ROUTE
 137          KM        Route flow from CE24C through Basin SBE24B
 138          RS       4    FLOW
 139          RC   0.060   0.060   0.060     624  0.0232 2706.80
 140          RX   10.00   25.00   45.00   49.00   55.00   62.00   75.00  103.00
 141          RY  2706.8 2705.20 2702.10 2701.00 2701.00 2702.00 2703.30 2706.70
              *
 142          ZW   A=SERENO C=FLOW F=CALC

 143          KK  SBE24B   BASIN
 144          KM        SBE24B Basin Runoff
 145          BA   0.005
 146          LG    0.10    0.25    6.00    0.28       0
 147          UC   0.393   0.651
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```
 148          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 149          UA     100
              *
 150          ZW   A=SERENO C=FLOW F=CALC

 151          KK   CE24B COMBINE
 152          KM        Combine RE24C and SBE24B
 153          HC       2
              *
 154          ZW   A=SERENO C=FLOW F=CALC

 155          KK   RE24B   ROUTE
 156          KM        Route flow from CE24B through Basin SBE24A
 157          RS       6    FLOW
 158          RC   0.060   0.060   0.060     873  0.0229 2690.20
 159          RX    0.00   10.00   16.00   23.00   27.00   35.00   49.00   67.00
 160          RY  2689.8 2688.70 2687.90 2687.00 2687.00 2687.90 2688.80 2690.20
              *
 161          ZW   A=SERENO C=FLOW F=CALC

 162          KK  SBE24A   BASIN
 163          KM        SBE24A Basin Runoff
 164          BA   0.007
 165          LG    0.10    0.25    6.00    0.28       0
 166          UC   0.424   0.640
 167          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 168          UA     100
              *
 169          ZW   A=SERENO C=FLOW F=CALC
1                                          HEC-1 INPUT                                          PAGE  5

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


 170          KK   CE24A COMBINE
 171          KM        Combine RE24B and SBE24A
 172          HC       2
              *
 173          ZW   A=SERENO C=FLOW F=CALC

 174          KK  SBE23D   BASIN
 175          KM        SBE23D Basin Runoff
 176          BA   0.041
 177          LG    0.10    0.25    6.00    0.28       0
 178          UC   0.631   0.749
 179          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 180          UA     100
              *
 181          ZW   A=SERENO C=FLOW F=CALC

 182          KK   RE23D   ROUTE
 183          KM        Route flow from SBE23D through Basin SBE23A
 184          RS       3    FLOW
 185          RC   0.060   0.060   0.060     465  0.0269 2688.30
 186          RX    0.00   14.00   27.00   32.00   40.00   44.00   55.00   68.00
 187          RY  2688.3 2687.30 2685.00 2684.10 2684.00 2685.00 2686.10 2686.70
              *
 188          ZW   A=SERENO C=FLOW F=CALC

 189          KK  SBE23E   BASIN
 190          KM        SBE23E Basin Runoff
 191          BA   0.005
 192          LG    0.10    0.25    6.00    0.28       0
 193          UC   0.337   0.549
 194          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 195          UA     100
              *
 196          ZW   A=SERENO C=FLOW F=CALC

 197          KK   RE23E   ROUTE
 198          KM        Route flow from SBE23E through Basin SBE23C
 199          RS      12    FLOW
 200          RC   0.060   0.060   0.060    1112  0.0261 2720.00
 201          RX    0.00   20.00   57.00   64.00   65.00   70.00   90.00  114.00
 202          RY  2720.0 2716.50 2712.10 2711.00 2711.00 2713.20 2716.60 2719.90
              *
 203          ZW   A=SERENO C=FLOW F=CALC

 204          KK  SBE23C   BASIN
 205          KM        SBE23C Basin Runoff
 206          BA   0.053
 207          LG    0.10    0.25    6.00    0.28       0
 208          UC   0.642   0.748
 209          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 210          UA     100
              *
 211          ZW   A=SERENO C=FLOW F=CALC
1                                          HEC-1 INPUT                                          PAGE  6

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


 212          KK   CE23C COMBINE
 213          KM        Combine RE23E and SBE23C
 214          HC       2
              *
 215          ZW   A=SERENO C=FLOW F=CALC

 216          KK   RE23C   ROUTE
 217          KM        Route flow from CE23C through SBE23B
 218          RS       3    FLOW
 219          RC   0.060   0.060   0.060     457  0.0235 2693.90
 220          RX    0.00   15.00   28.00   35.00   35.10   45.00   86.00  114.00
 221          RY  2693.8 2692.20 2691.00 2690.00 2690.00 2690.90 2692.90 2693.90
              *
 222          ZW   A=SERENO C=FLOW F=CALC

 223          KK  SBE23B   BASIN
 224          KM        SBE23B Basin Runoff
 225          BA   0.004
 226          LG    0.10    0.25    6.00    0.28       0
 227          UC   0.316   0.440
 228          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 229          UA     100
              *
 230          ZW   A=SERENO C=FLOW F=CALC
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```
 231          KK   CE23B COMBINE
 232          KM        Combine flow from RE23C and SBE23B
 233          HC       2
              *
 234          ZW   A=SERENO C=FLOW F=CALC

 235          KK   RE23B   ROUTE
 236          KM        Route flow from CE23B into SBE23A to intermediate combine
 237          RS       1    FLOW
 238          RC   0.060   0.060   0.060     112  0.0267 2685.90
 239          RX    0.00    8.00   12.00   14.00   24.00   30.00   32.00   49.00
 240          RY  2685.6 2684.80 2684.20 2684.00 2684.00 2684.70 2685.00 2685.90
              *
 241          ZW   A=SERENO C=FLOW F=CALC

 242          KK  CE23AI COMBINE
 243          KM        Intermediate combine of RE23D and RE23B to route through SBE23A
 244          HC       2
              *
 245          ZW   A=SERENO C=FLOW F=CALC

 246          KK  RE23BD   ROUTE
 247          KM        Route Intermediate combined flow from CE23AI through SBE23A
 248          RS       1    FLOW
 249          RC   0.060   0.060   0.060     238  0.0242 2685.00
 250          RX    0.00   21.00   62.00   74.00   82.00   86.00  101.00  141.00
 251          RY  2684.9 2682.70 2681.00 2679.00 2679.00 2680.10 2681.90 2685.00
              *
 252          ZW   A=SERENO C=FLOW F=CALC
1                                          HEC-1 INPUT                                          PAGE  7

            LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


 253          KK  SBE23A   BASIN
 254          KM        SBE23A Basin Runoff
 255          BA   0.006
 256          LG    0.10    0.25    6.00    0.28       0
 257          UC   0.384   0.491
 258          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 259          UA     100
              *
 260          ZW   A=SERENO C=FLOW F=CALC

 261          KK   CE23A COMBINE
 262          KM        Combine flow from SBE23A and RE23BD
 263          HC       2
              *
 264          ZW   A=SERENO C=FLOW F=CALC

 265          KK   CLEAR COMBINE
 266          HC       3
              *
 267          ZW   A=SERENO C=FLOW F=CALC

 268          KK  SBE22A   BASIN
 269          KM        SBE22A Basin Runoff
 270          BA   0.007
 271          LG    0.10    0.25    6.00    0.28       0
 272          UC   0.369   0.524
 273          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 274          UA     100
              *
 275          ZW   A=SERENO C=FLOW F=CALC

 276          KK  SBE21A   BASIN
 277          KM        SBE21A Basin Runoff
 278          BA   0.001
 279          LG    0.10    0.25    6.00    0.28       0
 280          UC   0.200   0.289
 281          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 282          UA     100
              *
 283          ZW   A=SERENO C=FLOW F=CALC

 284          KK  SBE20A   BASIN
 285          KM        SBE20A Basin Runoff
 286          BA   0.001
 287          LG    0.10    0.25    6.00    0.28       0
 288          UC   0.178   0.213
 289          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 290          UA     100
              *
 291          ZW   A=SERENO C=FLOW F=CALC
1                                          HEC-1 INPUT                                          PAGE  8

            LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


 292          KK  SBE19A   BASIN
 293          KM        SBE19A Basin Runoff
 294          BA   0.001
 295          LG    0.10    0.25    6.00    0.28       0
 296          UC   0.179   0.214
 297          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 298          UA     100
              *
 299          ZW   A=SERENO C=FLOW F=CALC

 300          KK  SBE18A   BASIN
 301          KM        SBE18A Basin Runoff
 302          BA   0.001
 303          LG    0.10    0.25    6.00    0.28       0
 304          UC   0.206   0.299
 305          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 306          UA     100
              *
 307          ZW   A=SERENO C=FLOW F=CALC

 308          KK   CLEAR COMBINE
 309          KM        Clear Hydrograph Stack
 310          HC       6
              *
 311          ZW   A=SERENO C=FLOW F=CALC

 312          KK  SBE17B   BASIN
 313          KM        SBE17B Basin Runoff
```

```
 314          BA   0.016
 315          LG    0.10    0.25    6.00    0.28       0
 316          UC   0.410   0.449
 317          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 318          UA     100
              *
 319          ZW   A=SERENO C=FLOW F=CALC

 320          KK   RE17B   ROUTE
 321          KM        Route flow from SBE17B through SBE 17A
 322          RS      10    FLOW
 323          RC   0.060   0.060   0.060    1169  0.0265 2740.10
 324          RX    0.00    9.00   22.00   33.00   44.00   54.00   62.00   69.00
 325          RY  2740.1 2738.60 2737.00 2736.10 2736.00 2737.00 2738.40 2740.10
              *
 326          ZW   A=SERENO C=FLOW F=CALC

 327          KK  SBE17A   BASIN
 328          KM        SBE17A Basin Runoff
 329          BA   0.018
 330          LG    0.10    0.25    6.00    0.28       0
 331          UC   0.455   0.597
 332          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 333          UA     100
              *
 334          ZW   A=SERENO C=FLOW F=CALC
1                                          HEC-1 INPUT                                          PAGE  9

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


 335          KK   CE17A COMBINE
 336          KM        Combine flow from RE17B and SBE17A
 337          HC       2
              *
 338          ZW   A=SERENO C=FLOW F=CALC

 339          KK  SBE16A   BASIN
 340          KM        SBE16A Basin Runoff
 341          BA   0.001
 342          LG    0.10    0.25    6.00    0.28       0
 343          UC   0.218   0.368
 344          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 345          UA     100
              *
 346          ZW   A=SERENO C=FLOW F=CALC

 347          KK  SBE13A   BASIN
 348          KM        SBE13A Basin Runoff
 349          BA   0.003
 350          LG    0.10    0.25    6.00    0.28       0
 351          UC   0.258   0.329
 352          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 353          UA     100
              *
 354          ZW   A=SERENO C=FLOW F=CALC

 355          KK  SBE12A   BASIN
 356          KM        SBE12A Basin Runoff
 357          BA   0.002
 358          LG    0.10    0.25    6.00    0.28       0
 359          UC   0.249   0.362
 360          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 361          UA     100
              *
 362          ZW   A=SERENO C=FLOW F=CALC

 363          KK  SBE11B   BASIN
 364          KM        SBE11B Basin Runoff
 365          BA   0.013
 366          LG    0.10    0.25    6.00    0.28       0
 367          UC   0.404   0.497
 368          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 369          UA     100
              *
 370          ZW   A=SERENO C=FLOW F=CALC

 371          KK   RE11B   ROUTE
 372          KM        Route flow from SBE11B through SBE11A
 373          RS       5    FLOW
 374          RC   0.060   0.060   0.060     914  0.0334 2770.20
 375          RX    0.00   10.00   16.00   23.00   25.00   34.00   48.00   64.00
 376          RY  2770.2 2767.10 2765.30 2762.00 2762.00 2765.00 2766.60 2768.30
              *
 377          ZW   A=SERENO C=FLOW F=CALC
1                                          HEC-1 INPUT                                          PAGE 10

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


 378          KK  SBE11A   BASIN
 379          KM        SBE11A Basin Runoff
 380          BA   0.016
 381          LG    0.10    0.25    6.00    0.28       0
 382          UC   0.452   0.584
 383          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 384          UA     100
              *
 385          ZW   A=SERENO C=FLOW F=CALC

 386          KK   CE11A COMBINE
 387          KM        Combine flow from RE11B and SBE11A
 388          HC       2
              *
 389          ZW   A=SERENO C=FLOW F=CALC

 390          KK   CLEAR COMBINE
 391          KM        Clear Hydrograph Stack
 392          HC       6
              *
 393          ZW   A=SERENO C=FLOW F=CALC

 394          KK  SBE10A   BASIN
 395          KM        SBE10A Basin Runoff
 396          BA   0.001
 397          LG    0.10    0.25    6.00    0.28       0
 398          UC   0.196   0.283
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 399          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 400          UA     100
              *
 401          ZW   A=SERENO C=FLOW F=CALC

 402          KK  SBE09A   BASIN
 403          KM        SBE09A Basin Runoff
 404          BA   0.002
 405          LG    0.10    0.25    6.00    0.28       0
 406          UC   0.190   0.184
 407          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 408          UA     100
              *
 409          ZW   A=SERENO C=FLOW F=CALC

 410          KK  SBE08A   BASIN
 411          KM        SBE08A Basin Runoff
 412          BA   0.001
 413          LG    0.10    0.25    6.00    0.28       0
 414          UC   0.200   0.290
 415          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 416          UA     100
              *
 417          ZW   A=SERENO C=FLOW F=CALC
1                                          HEC-1 INPUT                                          PAGE 11

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


 418          KK   CLEAR COMBINE
 419          KM        Clear Hydrograph Stack
 420          HC       4
              *
 421          ZW   A=SERENO C=FLOW F=CALC

 422          KK  SBE06D   BASIN
 423          KM        SBE06D Basin Runoff
 424          BA   0.010
 425          LG    0.10    0.25    6.00    0.28       0
 426          UC   0.370   0.485
 427          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 428          UA     100
              *
 429          ZW   A=SERENO C=FLOW F=CALC

 430          KK   RE06D   ROUTE
 431          KM        Route flow from SBE06D through Basin SBE06B
 432          RS       5    FLOW
 433          RC   0.060   0.060   0.060     677  0.0369 2785.90
 434          RX    0.00   15.00   27.00   34.00   41.00   45.00   52.00   59.00
 435          RY  2785.8 2784.00 2783.00 2782.00 2782.00 2782.70 2784.20 2785.90
              *
 436          ZW   A=SERENO C=FLOW F=CALC

 437          KK  SBE06C   BASIN
 438          KM        SBE06C Basin Runoff
 439          BA   0.016
 440          LG    0.10    0.25    6.00    0.28       0
 441          UC   0.421   0.540
 442          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 443          UA     100
              *
 444          ZW   A=SERENO C=FLOW F=CALC

 445          KK   RE06C   ROUTE
 446          KM        Route flow from SBE06C through Basin SBE06B
 447          RS       5    FLOW
 448          RC   0.060   0.060   0.060     591  0.0431 2786.60
 449          RX    0.00    6.00   16.00   26.00   36.00   40.00   41.00   44.00
 450          RY  2786.6 2786.00 2785.00 2784.00 2784.00 2785.00 2785.50 2786.40
              *
 451          ZW   A=SERENO C=FLOW F=CALC

 452          KK  SBE06B   BASIN
 453          KM        SBE06B Basin Runoff
 454          BA   0.008
 455          LG    0.10    0.25    6.00    0.28       0
 456          UC   0.323   0.343
 457          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 458          UA     100
              *
 459          ZW   A=SERENO C=FLOW F=CALC
1                                          HEC-1 INPUT                                          PAGE 12

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


 460          KK   CE06B COMBINE
 461          KM        Combine RE06D, RE06C and SBE06B
 462          HC       3
              *
 463          ZW   A=SERENO C=FLOW F=CALC

 464          KK   RE06B   ROUTE
 465          KM        Route flow from CE06B through Basin SBE06A
 466          RS       7    FLOW
 467          RC   0.060   0.060   0.060     814  0.0319 2761.00
 468          RX    0.00   21.00   55.00   63.00   82.00   92.00  104.00  113.00
 469          RY  2761.0 2758.90 2758.50 2758.00 2758.00 2758.50 2759.70 2760.80
              *
 470          ZW   A=SERENO C=FLOW F=CALC

 471          KK  SBE06A   BASIN
 472          KM        SBE06A Basin Runoff
 473          BA   0.014
 474          LG    0.10    0.25    6.00    0.28       0
 475          UC   0.480   0.751
 476          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 477          UA     100
              *
 478          ZW   A=SERENO C=FLOW F=CALC

 479          KK   CE06A COMBINE
 480          KM        Combine flow from RE06B and Basin SBE 06A
 481          HC       2
              *
 482          ZW   A=SERENO C=FLOW F=CALC
```

```
 483          KK  SBE05B   BASIN
 484          KM        SBE05B Basin Runoff
 485          BA   0.022
 486          LG    0.10    0.25    6.00    0.28       0
 487          UC   0.595   1.135
 488          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 489          UA     100
              *
 490          ZW   A=SERENO C=FLOW F=CALC

 491          KK   RE05B   ROUTE
 492          KM        Route flow from SBE05B through SBE05A
 493          RS       7    FLOW
 494          RC   0.060   0.060   0.060     907  0.0435 2760.30
 495          RX    0.00   11.00   26.00   40.00   47.00   56.00   76.00   89.00
 496          RY  2760.1 2759.00 2757.70 2757.00 2757.00 2757.40 2758.80 2760.30
              *
 497          ZW   A=SERENO C=FLOW F=CALC
1                                          HEC-1 INPUT                                          PAGE 13

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


 498          KK  SBE05A   BASIN
 499          KM        SBE05A Basin Runoff
 500          BA   0.007
 501          LG    0.10    0.25    6.00    0.28       0
 502          UC   0.390   0.608
 503          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 504          UA     100
              *
 505          ZW   A=SERENO C=FLOW F=CALC

 506          KK   CE05A COMBINE
 507          KM        Combine flow from RE05B and SBE05A
 508          HC       2
              *
 509          ZW   A=SERENO C=FLOW F=CALC

 510          KK  CE065A COMBINE
 511          KM        Combine flow from CE06A and CE05A
 512          HC       2
              *
 513          ZW   A=SERENO C=FLOW F=CALC

 514          KK  SBE04C   BASIN
 515          KM        SBE04C Basin Runoff
 516          BA   0.014
 517          LG    0.10    0.25    6.00    0.28       0
 518          UC   0.489   0.897
 519          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 520          UA     100
              *
 521          ZW   A=SERENO C=FLOW F=CALC

 522          KK   RE04C   ROUTE
 523          KM        Route flow from SBE04C into SBE04A
 524          RS       4    FLOW
 525          RC   0.060   0.060   0.060     455  0.0363 2755.00
 526          RX    0.00   17.00   22.00   27.00   32.00   44.00   61.00   88.00
 527          RY  2755.0 2753.00 2751.90 2750.00 2750.00 2751.90 2753.20 2754.90
              *
 528          ZW   A=SERENO C=FLOW F=CALC

 529          KK  SBE04B   BASIN
 530          KM        SBE04B Basin Runoff
 531          BA   0.015
 532          LG    0.10    0.25    6.00    0.28       0
 533          UC   0.480   0.828
 534          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 535          UA     100
              *
 536          ZW   A=SERENO C=FLOW F=CALC
1                                          HEC-1 INPUT                                          PAGE 14

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


 537          KK   RE04B   ROUTE
 538          KM        Route flow from SBE04B into SBE04A
 539          RS       3    FLOW
 540          RC   0.060   0.060   0.060     449  0.0367 2755.00
 541          RX    0.00   15.00   24.00   28.00   30.00   33.00   46.00   62.00
 542          RY  2754.9 2752.60 2750.80 2750.00 2750.00 2751.00 2752.90 2755.00
              *
 543          ZW   A=SERENO C=FLOW F=CALC

 544          KK  CE04AI COMBINE
 545          KM        Intermediate Combine flows from RE04C and RE04B
 546          HC       2
              *
 547          ZW   A=SERENO C=FLOW F=CALC

 548          KK  RE04CB   ROUTE
 549          KM        Route flow from CE04AI through rest of Basin SBE04A
 550          RS       2    FLOW
 551          RC   0.060   0.060   0.060     247  0.0344 2744.90
 552          RX    0.00   11.00   21.00   31.00   34.00   50.00   69.00   88.00
 553          RY  2744.9 2742.70 2741.40 2740.00 2740.00 2741.80 2743.00 2743.90
              *
 554          ZW   A=SERENO C=FLOW F=CALC

 555          KK  SBE04A   BASIN
 556          KM        SBE04A Basin Runoff
 557          BA   0.006
 558          LG    0.10    0.25    6.00    0.28       0
 559          UC   0.337   0.447
 560          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 561          UA     100
              *
 562          ZW   A=SERENO C=FLOW F=CALC

 563          KK   CE04A COMBINE
 564          KM        Combine Flows from RE04CB and SBE04A
 565          HC       2
              *
```

```
 566          ZW   A=SERENO C=FLOW F=CALC

 567          KK  SBE03A   BASIN
 568          KM        SBE03A Basin Runoff
 569          BA   0.007
 570          LG    0.10    0.25    6.00    0.28       0
 571          UC   0.338   0.434
 572          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 573          UA     100
              *
 574          ZW   A=SERENO C=FLOW F=CALC
1                                          HEC-1 INPUT                                                PAGE 15

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


 575          KK  SBE02A   BASIN
 576          KM        SBE02A Basin Runoff
 577          BA   0.068
 578          LG    0.10    0.25    6.00    0.28       0
 579          UC   0.695   1.023
 580          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 581          UA     100
              *
 582          ZW   A=SERENO C=FLOW F=CALC

 583          KK  SBE01B   BASIN
 584          KM        SBE01B Basin Runoff
 585          BA   0.024
 586          LG    0.10    0.23    6.20    0.26      25
 587          UC   0.318   0.259
 588          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 589          UA     100
              *
 590          ZW   A=SERENO C=FLOW F=CALC

 591          KK   RE01B   ROUTE
 592          KM        Route flow from SBE01B through Basin SBE01A
 593          RS      18    FLOW
 594          RC   0.060   0.060   0.060    5189  0.0788 2910.00
 595          RX    0.00   23.00   87.00  103.00  111.00  119.00  158.00  178.00
 596          RY  2910.0 2908.00 2906.00 2905.50 2904.40 2905.50 2907.00 2910.00
              *
 597          ZW   A=SERENO C=FLOW F=CALC

 598          KK  SBE01A   BASIN
 599          KM        SBE01A Basin Runoff
 600          BA   0.119
 601          LG    0.10    0.25    6.00    0.28       1
 602          UC   0.708   0.828
 603          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 604          UA     100
              *
 605          ZW   A=SERENO C=FLOW F=CALC

 606          KK   CE01A COMBINE
 607          HC       2
              *
 608          ZW   A=SERENO C=FLOW F=CALC

 609          KK   CLEAR COMBINE
 610          KM        Clear Hydrograph Stack
 611          HC       6
              *
 612          ZW   A=SERENO C=FLOW F=CALC
1                                          HEC-1 INPUT                                                PAGE 16

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


 613          KK  SBW14A   BASIN
 614          KM        SBW14A Basin Runoff
 615          BA   0.009
 616          LG    0.10    0.25    6.00    0.28       0
 617          UC   0.294   0.255
 618          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 619          UA     100
              *
 620          ZW   A=SERENO C=FLOW F=CALC

 621          KK  SBW13A   BASIN
 622          KM        SBW13A Basin Runoff
 623          BA   0.001
 624          LG    0.10    0.25    6.00    0.28       0
 625          UC   0.174   0.208
 626          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 627          UA     100
              *
 628          ZW   A=SERENO C=FLOW F=CALC

 629          KK  SBW12A   BASIN
 630          KM        SBW12A Basin Runoff
 631          BA   0.017
 632          LG    0.10    0.25    6.00    0.28       0
 633          UC   0.361   0.323
 634          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 635          UA     100
              *
 636          ZW   A=SERENO C=FLOW F=CALC

 637          KK  SBW11A   BASIN
 638          KM        SBW11A Basin Runoff
 639          BA   0.001
 640          LG    0.10    0.25    6.00    0.28       0
 641          UC   0.151   0.141
 642          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 643          UA     100
              *
 644          ZW   A=SERENO C=FLOW F=CALC

 645          KK   CLEAR COMBINE
 646          KM        Clear Hydrograph Stack
 647          HC       5
              *
 648          ZW   A=SERENO C=FLOW F=CALC

 649          KK  SBW10C   BASIN
```

```
 650          KM        SBW10C Basin Runoff
 651          BA   0.015
 652          LG    0.10    0.25    6.00    0.28       0
 653          UC   0.380   0.397
 654          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 655          UA     100
              *
1                                          HEC-1 INPUT                                          PAGE 17

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 656          ZW   A=SERENO C=FLOW F=CALC

 657          KK   RW10C   ROUTE
 658          KM        Route flow from SBW10C through Basin SBW10B
 659          RS       6    FLOW
 660          RC   0.060   0.060   0.060     952  0.0310 2757.80
 661          RX    0.00   34.00   47.00   62.00   62.10   68.00   73.00   78.00
 662          RY  2757.8 2754.40 2754.00 2752.10 2752.00 2753.70 2755.70 2757.50
              *
 663          ZW   A=SERENO C=FLOW F=CALC

 664          KK  SBW10B   BASIN
 665          KM        SBW10B Basin Runoff
 666          BA   0.012
 667          LG    0.10    0.25    6.00    0.28       0
 668          UC   0.432   0.598
 669          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 670          UA     100
              *
 671          ZW   A=SERENO C=FLOW F=CALC

 672          KK   CW10B COMBINE
 673          KM        Combine flow from RW10C and SBW10B
 674          HC       2
              *
 675          ZW   A=SERENO C=FLOW F=CALC

 676          KK   RW10B   ROUTE
 677          KM        Route flow from CW10B through Basin SBW10A
 678          RS       3    FLOW
 679          RC   0.060   0.060   0.060     653  0.0276 2732.00
 680          RX    0.00   68.00   75.00   79.00   86.00   92.00  106.00  150.00
 681          RY  2732.0 2728.10 2721.10 2726.10 2726.00 2726.60 2727.00 2732.00
              *
 682          ZW   A=SERENO C=FLOW F=CALC

 683          KK  SBW10A   BASIN
 684          KM        SBW10A Basin Runoff
 685          BA   0.033
 686          LG    0.10    0.25    6.00    0.28       0
 687          UC   0.491   0.495
 688          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 689          UA     100
              *
 690          ZW   A=SERENO C=FLOW F=CALC

 691          KK   CW10A COMBINE
 692          KM        Combine flow from RW10B and SBW10A
 693          HC       2
              *
 694          ZW   A=SERENO C=FLOW F=CALC
1                                          HEC-1 INPUT                                          PAGE 18

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


 695          KK  SBW09E   BASIN
 696          KM        SBW09E Basin Runoff
 697          BA   0.006
 698          LG    0.10    0.25    6.00    0.28       0
 699          UC   0.362   0.587
 700          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 701          UA     100
              *
 702          ZW   A=SERENO C=FLOW F=CALC

 703          KK   RW09E   ROUTE
 704          KM        Route flow from SBW09E through Basin SBW09D
 705          RS       6    FLOW
 706          RC   0.060   0.060   0.060     985  0.0442 2805.10
 707          RX    0.00   10.00   12.00   14.00   17.00   23.00   29.00   48.00
 708          RY  2805.3 2803.10 2802.10 2800.70 2800.70 2802.00 2802.90 2805.10
              *
 709          ZW   A=SERENO C=FLOW F=CALC

 710          KK  SBW09D   BASIN
 711          KM        SBW09D Basin Runoff
 712          BA   0.008
 713          LG    0.10    0.25    6.00    0.28       0
 714          UC   0.366   0.503
 715          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 716          UA     100
              *
 717          ZW   A=SERENO C=FLOW F=CALC

 718          KK  CW09DI COMBINE
 719          HC       2
              *
 720          ZW   A=SERENO C=FLOW F=CALC

 721          KK  SBW09C   BASIN
 722          KM        SBW09C Basin Runoff
 723          BA   0.044
 724          LG    0.10    0.25    6.00    0.28       0
 725          UC   0.568   0.705
 726          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 727          UA     100
              *
 728          ZW   A=SERENO C=FLOW F=CALC

 729          KK   CW09D COMBINE
 730          KM        Combine flow from CW09DI and SBW09C
 731          HC       2
              *
 732          ZW   A=SERENO C=FLOW F=CALC
1                                          HEC-1 INPUT                                          PAGE 19
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 733          KK   RW09D   ROUTE
 734          KM        Route flow from CW09D through Basin SBW09B
 735          RS       2    FLOW
 736          RC   0.060   0.060   0.060     367  0.0368 2782.10
 737          RX    0.00   11.00   27.00   31.00   38.00   42.00   73.00   90.00
 738          RY  2782.1 2780.10 2780.00 2779.00 2779.00 2779.50 2780.90 2781.30
              *
 739          ZW   A=SERENO C=FLOW F=CALC

 740          KK  SBW09B   BASIN
 741          KM        SBW09B Basin Runoff
 742          BA   0.005
 743          LG    0.10    0.25    6.00    0.28       0
 744          UC   0.280   0.316
 745          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 746          UA     100
              *
 747          ZW   A=SERENO C=FLOW F=CALC

 748          KK   CW09B COMBINE
 749          KM        Combine flow from RW09D and SBW09B
 750          HC       2
              *
 751          ZW   A=SERENO C=FLOW F=CALC

 752          KK   RW09B   ROUTE
 753          KM        Route flow from CW09B through Basin SBW09A
 754          RS       5    FLOW
 755          RC   0.060   0.060   0.060    1036  0.0415 2765.60
 756          RX    0.00    8.00   49.00   58.00   67.00   72.00   85.00  104.00
 757          RY  2764.9 2764.80 2764.00 2763.00 2763.00 2764.00 2765.10 2765.60
              *
 758          ZW   A=SERENO C=FLOW F=CALC

 759          KK  SBW09A   BASIN
 760          KM        SBW09A Basin Runoff
 761          BA   0.008
 762          LG    0.10    0.25    6.00    0.28       0
 763          UC   0.407   0.636
 764          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 765          UA     100
              *
 766          ZW   A=SERENO C=FLOW F=CALC

 767          KK   CW09A COMBINE
 768          KM        Combine flow from RW09B and SBW09A
 769          HC       2
              *
 770          ZW   A=SERENO C=FLOW F=CALC
1                                          HEC-1 INPUT                                          PAGE 20

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 771          KK  SBW08A   BASIN
 772          KM        SBW08A Basin Runoff
 773          BA   0.009
 774          LG    0.10    0.25    6.00    0.28       0
 775          UC   0.332   0.387
 776          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 777          UA     100
              *
 778          ZW   A=SERENO C=FLOW F=CALC

 779          KK  SBW07C   BASIN
 780          KM        SBW07C Basin Runoff
 781          BA   0.005
 782          LG    0.10    0.25    6.00    0.28       0
 783          UC   0.327   0.506
 784          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 785          UA     100
              *
 786          ZW   A=SERENO C=FLOW F=CALC

 787          KK  SBW07B   BASIN
 788          KM        SBW07B Basin Runoff
 789          BA   0.007
 790          LG    0.10    0.25    6.00    0.28       0
 791          UC   0.380   0.637
 792          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 793          UA     100
              *
 794          ZW   A=SERENO C=FLOW F=CALC

 795          KK  CW07BC COMBINE
 796          KM        Combine flow from SBW07C andSBW07B
 797          HC       2
              *
 798          ZW   A=SERENO C=FLOW F=CALC

 799          KK  RW07BC   ROUTE
 800          KM        Route flow from CW07BC through SBW07A
 801          RS       8    FLOW
 802          RC   0.060   0.060   0.060    1452  0.0465 2800.10
 803          RX    0.00    6.00   20.00   26.00   29.00   38.00   50.00   68.00
 804          RY  2800.1 2799.00 2796.00 2793.00 2793.00 2796.00 2797.00 2798.40
              *
 805          ZW   A=SERENO C=FLOW F=CALC

 806          KK  SBW07A   BASIN
 807          KM        SBW07A Basin Runoff
 808          BA   0.013
 809          LG    0.10    0.25    6.00    0.28       0
 810          UC   0.456   0.702
 811          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
 812          UA     100
              *
 813          ZW   A=SERENO C=FLOW F=CALC
1                                          HEC-1 INPUT                                          PAGE 21

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
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          814          KK   CW07A COMBINE
          815          KM        Combine flow from RW07BC and SBW07A
          816          HC       2
                       *
          817          ZW   A=SERENO C=FLOW F=CALC

          818          KK   CLEAR COMBINE
          819          HC       5
                       *
          820          ZW   A=SERENO C=FLOW F=CALC

          821          KK  SBW06A   BASIN
          822          KM        SBW06A Basin Runoff
          823          BA   0.004
          824          LG    0.10    0.25    6.00    0.28       0
          825          UC   0.292   0.402
          826          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
          827          UA     100
                       *
          828          ZW   A=SERENO C=FLOW F=CALC

          829          KK  SBW05A   BASIN
          830          KM        SBW05A Basin Runoff
          831          BA   0.010
          832          LG    0.10    0.25    6.00    0.28       0
          833          UC   0.363   0.457
          834          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
          835          UA     100
                       *
          836          ZW   A=SERENO C=FLOW F=CALC

          837          KK  SBW04A   BASIN
          838          KM        SBW04A Basin Runoff
          839          BA   0.002
          840          LG    0.10    0.25    6.00    0.28       0
          841          UC   0.224   0.290
          842          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
          843          UA     100
                       *
          844          ZW   A=SERENO C=FLOW F=CALC

          845          KK  SBW02A   BASIN
          846          KM        SBW02A Basin Runoff
          847          BA   0.007
          848          LG    0.10    0.25    6.00    0.28       0
          849          UC   0.344   0.485
          850          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
          851          UA     100
                       *
          852          ZW   A=SERENO C=FLOW F=CALC
1                                                HEC-1 INPUT                                                PAGE 22

         LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


          853          KK  SBW01A   BASIN
          854          KM        SBW01A Basin Runoff
          855          BA   0.002
          856          LG    0.10    0.25    6.00    0.28       0
          857          UC   0.224   0.290
          858          UA       0     3.0     5.0     8.0    12.0    20.0    43.0    75.0    90.0    96.0
          859          UA     100
                       *
          860          ZW   A=SERENO C=FLOW F=CALC

          861          KK   CLEAR COMBINE
          862          KM        Clear Hydrograph Stack
          863          HC       6
                       *
          864          ZZ
1
                 SCHEMATIC DIAGRAM OF STREAM NETWORK
 INPUT
  LINE     (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

   NO.     (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

    27     SBE29A
                .
                .
    35          .      SBE28A
                .           .
                .           .
    43          .           .      SBE27A
                .           .           .
                .           .           .
    51          .           .           .      SBE26A
                .           .           .         .
                .           .           .         .
    59          .           .           .         .      SBE25C
                .           .           .         .           V
                .           .           .         .           V
    67          .           .           .         .       RE25C
                .           .           .         .           .
                .           .           .         .           .
    74          .           .           .         .           .      SBE25B
                .           .           .         .           .           .
                .           .           .         .           .           .
    82          .           .           .         .       CE25B............
                .           .           .         .           V
                .           .           .         .           V
    86          .           .           .         .       RE25B
                .           .           .         .           .
                .           .           .         .           .
    93          .           .           .         .           .      SBE25A
                .           .           .         .           .           .
                .           .           .         .           .           .
   101          .           .           .         .       CE25A............
                .           .           .         .           .
                .           .           .         .           .
   105       CLEAR..............................................
                .
                .
   109          .      SBE24D
                .           V
                .           V
   117          .       RE24D
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            .           .
            .           .
124         .           .      SBE24C
            .           .           .
            .           .           .
132         .       CE24C............
            .           V
            .           V
136         .       RE24C
            .           .
            .           .
143         .           .      SBE24B
            .           .           .
            .           .           .
151         .       CE24B............
            .           V
            .           V
155         .       RE24B
            .           .
            .           .
162         .           .      SBE24A
            .           .           .
            .           .           .
170         .       CE24A............
            .           .
            .           .
174         .           .      SBE23D
            .           .           V
            .           .           V
182         .           .       RE23D
            .           .           .
            .           .           .
189         .           .           .      SBE23E
            .           .           .           V
            .           .           .           V
197         .           .           .       RE23E
            .           .           .           .
            .           .           .           .
204         .           .           .           .      SBE23C
            .           .           .           .           .
            .           .           .           .           .
212         .           .           .       CE23C............
            .           .           .           V
            .           .           .           V
216         .           .           .       RE23C
            .           .           .           .
            .           .           .           .
223         .           .           .           .      SBE23B
            .           .           .           .           .
            .           .           .           .           .
231         .           .           .       CE23B............
            .           .           .           V
            .           .           .           V
235         .           .           .       RE23B
            .           .           .           .
            .           .           .           .
242         .           .      CE23AI............
            .           .           V
            .           .           V
246         .           .      RE23BD
            .           .           .
            .           .           .
253         .           .           .      SBE23A
            .           .           .           .
            .           .           .           .
261         .           .       CE23A............
            .           .           .
            .           .           .
265     CLEAR........................
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            .
268         .      SBE22A
            .           .
            .           .
276         .           .      SBE21A
            .           .           .
            .           .           .
284         .           .           .      SBE20A
            .           .           .           .
            .           .           .           .
292         .           .           .           .      SBE19A
            .           .           .           .           .
            .           .           .           .           .
300         .           .           .           .           .      SBE18A
            .           .           .           .           .           .
            .           .           .           .           .           .
308     CLEAR............................................................
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            .
312         .      SBE17B
            .           V
            .           V
320         .       RE17B
            .           .
            .           .
327         .           .      SBE17A
            .           .           .
            .           .           .
335         .       CE17A............
            .           .
            .           .
339         .           .      SBE16A
            .           .           .
            .           .           .
347         .           .           .      SBE13A
            .           .           .           .
            .           .           .           .
355         .           .           .           .      SBE12A
            .           .           .           .           .
            .           .           .           .           .
363         .           .           .           .           .      SBE11B
            .           .           .           .           .           V
            .           .           .           .           .           V
371         .           .           .           .           .       RE11B
            .           .           .           .           .           .
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378         .           .           .           .           .           .      SBE11A
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386         .          .          .          .          .      CE11A...........
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390     CLEAR.......................................................
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394         .     SBE10A
            .          .
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402         .          .     SBE09A
            .          .          .
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410         .          .          .     SBE08A
            .          .          .          .
            .          .          .          .
418     CLEAR...................................
            .
            .
422         .     SBE06D
            .         V
            .         V
430         .      RE06D
            .          .
            .          .
437         .          .     SBE06C
            .          .          V
            .          .          V
445         .          .      RE06C
            .          .          .
            .          .          .
452         .          .          .     SBE06B
            .          .          .          .
            .          .          .          .
460         .      CE06B......................
            .         V
            .         V
464         .      RE06B
            .          .
            .          .
471         .          .     SBE06A
            .          .          .
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479         .      CE06A...........
            .          .
            .          .
483         .          .     SBE05B
            .          .          V
            .          .          V
491         .          .      RE05B
            .          .          .
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498         .          .          .     SBE05A
            .          .          .          .
            .          .          .          .
506         .          .      CE05A...........
            .          .          .
            .          .          .
510         .     CE065A...........
            .          .
            .          .
514         .          .     SBE04C
            .          .          V
            .          .          V
522         .          .      RE04C
            .          .          .
            .          .          .
529         .          .          .     SBE04B
            .          .          .          V
            .          .          .          V
537         .          .          .      RE04B
            .          .          .          .
            .          .          .          .
544         .          .     CE04AI...........
            .          .          V
            .          .          V
548         .          .     RE04CB
            .          .          .
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555         .          .          .     SBE04A
            .          .          .          .
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563         .          .      CE04A...........
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567         .          .          .     SBE03A
            .          .          .          .
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575         .          .          .          .     SBE02A
            .          .          .          .          .
            .          .          .          .          .
583         .          .          .          .     SBE01B
            .          .          .          .          V
            .          .          .          .          V
591         .          .          .          .      RE01B
            .          .          .          .          .
            .          .          .          .          .
598         .          .          .          .          .     SBE01A
            .          .          .          .          .          .
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606         .          .          .          .      CE01A...........
            .          .          .          .          .
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609     CLEAR.......................................................
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613         .     SBW14A
            .          .
            .          .
621         .          .     SBW13A
            .          .          .
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629         .          .          .     SBW12A
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637         .          .          .          .     SBW11A
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   645       CLEAR.............................................
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                .
   649          .      SBW10C
                .          V
                .          V
   657          .       RW10C
                .          .
                .          .
   664          .          .      SBW10B
                .          .          .
                .          .          .
   672          .       CW10B...........
                .          V
                .          V
   676          .       RW10B
                .          .
                .          .
   683          .          .      SBW10A
                .          .          .
                .          .          .
   691          .       CW10A...........
                .          .
                .          .
   695          .          .      SBW09E
                .          .          V
                .          .          V
   703          .          .       RW09E
                .          .          .
                .          .          .
   710          .          .          .      SBW09D
                .          .          .          .
                .          .          .          .
   718          .          .      CW09DI..........
                .          .          .
                .          .          .
   721          .          .          .      SBW09C
                .          .          .          .
                .          .          .          .
   729          .          .       CW09D...........
                .          .          V
                .          .          V
   733          .          .       RW09D
                .          .          .
                .          .          .
   740          .          .          .      SBW09B
                .          .          .          .
                .          .          .          .
   748          .          .       CW09B...........
                .          .          V
                .          .          V
   752          .          .       RW09B
                .          .          .
                .          .          .
   759          .          .          .      SBW09A
                .          .          .          .
                .          .          .          .
   767          .          .       CW09A...........
                .          .          .
                .          .          .
   771          .          .          .      SBW08A
                .          .          .          .
                .          .          .          .
   779          .          .          .          .      SBW07C
                .          .          .          .          .
                .          .          .          .          .
   787          .          .          .          .          .      SBW07B
                .          .          .          .          .          .
                .          .          .          .          .          .
   795          .          .          .          .      CW07BC...........
                .          .          .          .          V
                .          .          .          .          V
   799          .          .          .          .      RW07BC
                .          .          .          .          .
                .          .          .          .          .
   806          .          .          .          .          .      SBW07A
                .          .          .          .          .          .
                .          .          .          .          .          .
   814          .          .          .          .       CW07A...........
                .          .          .          .          .
                .          .          .          .          .
   818       CLEAR.............................................
                .
                .
   821          .      SBW06A
                .          .
                .          .
   829          .          .      SBW05A
                .          .          .
                .          .          .
   837          .          .          .      SBW04A
                .          .          .          .
                .          .          .          .
   845          .          .          .          .      SBW02A
                .          .          .          .          .
                .          .          .          .          .
   853          .          .          .          .          .      SBW01A
                .          .          .          .          .          .
                .          .          .          .          .          .
   861       CLEAR...........................................................
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
1****************************************                    ****************************************
 *                                      *                    *                                      *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                    *    U.S. ARMY CORPS OF ENGINEERS      *
 *             JUN   1998               *                    *    HYDROLOGIC ENGINEERING CENTER     *
 *            VERSION 4.1               *                    *          609 SECOND STREET           *
 *                                      *                    *       DAVIS, CALIFORNIA 95616        *
 *  RUN DATE   05JAN12  TIME  15:34:13  *                    *           (916) 756-1104             *
 *                                      *                    *                                      *
 ****************************************                    ****************************************
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                    Flood Control District of Maricopa County
                    Sereno Canyon Existing Conditions
                    2 YEAR
                    6 Hour  Storm
                    Unit Hydrograph: Clark
                    01/04/2012
                    Sereno Canyon-Existing Conditions
                    2-Year, 6-Hour Storm Event
                    Prepared By: JE Fuller Hydrology and Geomorphology
                    Modeled By: Brian Schalk P.E., CFM and Nathan Logan P.E., CFM
                    Submitted To: City of Scottsdale

14 IO        OUTPUT CONTROL VARIABLES
                IPRNT           5  PRINT CONTROL
                IPLOT           0  PLOT CONTROL
                QSCAL          0.  HYDROGRAPH PLOT SCALE

   IT        HYDROGRAPH TIME DATA
                 NMIN           1  MINUTES IN COMPUTATION INTERVAL
                IDATE      1DEC11  STARTING DATE
                ITIME        0000  STARTING TIME
                   NQ        2000  NUMBER OF HYDROGRAPH ORDINATES
              NDDATE      2DEC11  ENDING DATE
              NDTIME        0919  ENDING TIME
              ICENT           19  CENTURY MARK

          COMPUTATION INTERVAL    0.02 HOURS
               TOTAL TIME BASE   33.32 HOURS

      ENGLISH UNITS
           DRAINAGE AREA         SQUARE MILES
           PRECIPITATION DEPTH   INCHES
           LENGTH, ELEVATION     FEET
           FLOW                  CUBIC FEET PER SECOND
           STORAGE VOLUME        ACRE-FEET
           SURFACE AREA          ACRES
           TEMPERATURE           DEGREES FAHRENHEIT

15 JD        INDEX STORM NO. 1
                 STRM        1.42  PRECIPITATION DEPTH
                 TRDA        0.00  TRANSPOSITION DRAINAGE AREA

16 PI          PRECIPITATION PATTERN
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.01      0.01      0.01      0.01      0.01
                0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01
                0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01
                0.01      0.01      0.01      0.01      0.01      0.03      0.03      0.03      0.03      0.03
                0.03      0.03      0.03      0.03      0.03      0.03      0.03      0.03      0.03      0.03
                0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01
                0.01      0.01      0.01      0.01      0.01      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00

19 JD        INDEX STORM NO. 2
                 STRM        1.41  PRECIPITATION DEPTH
                 TRDA        0.50  TRANSPOSITION DRAINAGE AREA

20 PI          PRECIPITATION PATTERN
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.01      0.01      0.01      0.01      0.01
                0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01
                0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01
                0.01      0.01      0.01      0.01      0.01      0.03      0.03      0.03      0.03      0.03
                0.03      0.03      0.03      0.03      0.03      0.03      0.03      0.03      0.03      0.03
                0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01
                0.01      0.01      0.01      0.01      0.01      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
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                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00

 23 JD          INDEX STORM NO. 3
                      STRM        1.38  PRECIPITATION DEPTH
                      TRDA        2.80  TRANSPOSITION DRAINAGE AREA

 24 PI            PRECIPITATION PATTERN
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.01      0.01      0.01      0.01      0.01
                    0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01
                    0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01
                    0.01      0.01      0.01      0.01      0.01      0.02      0.02      0.02      0.02      0.02
                    0.02      0.02      0.02      0.02      0.02      0.02      0.02      0.02      0.02      0.02
                    0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01
                    0.01      0.01      0.01      0.01      0.01      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
   -----DSS---ZOPEN:  Existing File Opened,  File: X:\Shared\projects\consult\LVA_UDS\SerenoCanyon\HEC-1\SERENO_EX_2_6.DSS
                      Unit: 71;  DSS Versions - Software: 6-LD, File: 6-LD
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE29A/FLOW/30NOV1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE29A/FLOW/01DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE29A/FLOW/02DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE28A/FLOW/30NOV1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE28A/FLOW/01DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE28A/FLOW/02DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE27A/FLOW/30NOV1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE27A/FLOW/01DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE27A/FLOW/02DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE26A/FLOW/30NOV1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE26A/FLOW/01DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE26A/FLOW/02DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE25C/FLOW/30NOV1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE25C/FLOW/01DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE25C/FLOW/02DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/RE25C/FLOW/30NOV1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/RE25C/FLOW/01DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/RE25C/FLOW/02DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE25B/FLOW/30NOV1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE25B/FLOW/01DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE25B/FLOW/02DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/CE25B/FLOW/30NOV1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/CE25B/FLOW/01DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/CE25B/FLOW/02DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/RE25B/FLOW/30NOV1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/RE25B/FLOW/01DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/RE25B/FLOW/02DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE25A/FLOW/30NOV1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE25A/FLOW/01DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE25A/FLOW/02DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/CE25A/FLOW/30NOV1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/CE25A/FLOW/01DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/CE25A/FLOW/02DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.   25:  /SERENO/CLEAR/FLOW/30NOV1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.   25:  /SERENO/CLEAR/FLOW/01DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.   25:  /SERENO/CLEAR/FLOW/02DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE24D/FLOW/30NOV1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE24D/FLOW/01DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE24D/FLOW/02DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/RE24D/FLOW/30NOV1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/RE24D/FLOW/01DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/RE24D/FLOW/02DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE24C/FLOW/30NOV1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE24C/FLOW/01DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE24C/FLOW/02DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/CE24C/FLOW/30NOV1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/CE24C/FLOW/01DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/CE24C/FLOW/02DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/RE24C/FLOW/30NOV1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/RE24C/FLOW/01DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/RE24C/FLOW/02DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE24B/FLOW/30NOV1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE24B/FLOW/01DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE24B/FLOW/02DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/CE24B/FLOW/30NOV1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/CE24B/FLOW/01DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/CE24B/FLOW/02DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/RE24B/FLOW/30NOV1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/RE24B/FLOW/01DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/RE24B/FLOW/02DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE24A/FLOW/30NOV1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE24A/FLOW/01DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE24A/FLOW/02DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/CE24A/FLOW/30NOV1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/CE24A/FLOW/01DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/CE24A/FLOW/02DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE23D/FLOW/30NOV1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE23D/FLOW/01DEC1911/1MIN/CALC/
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-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE23D/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/RE23D/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/RE23D/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/RE23D/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE23E/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE23E/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE23E/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/RE23E/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/RE23E/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/RE23E/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE23C/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE23C/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE23C/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/CE23C/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/CE23C/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/CE23C/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/RE23C/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/RE23C/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/RE23C/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE23B/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE23B/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE23B/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/CE23B/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/CE23B/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/CE23B/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/RE23B/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/RE23B/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/RE23B/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/CE23AI/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/CE23AI/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/CE23AI/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/RE23BD/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/RE23BD/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/RE23BD/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE23A/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE23A/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE23A/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/CE23A/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/CE23A/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/CE23A/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.   26:  /SERENO/CLEAR/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.   26:  /SERENO/CLEAR/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.   26:  /SERENO/CLEAR/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE22A/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE22A/FLOW/01DEC1911/1MIN/CALC/
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-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE21A/FLOW/01DEC1911/1MIN/CALC/
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-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE20A/FLOW/30NOV1911/1MIN/CALC/
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-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE19A/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE19A/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE19A/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE18A/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE18A/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE18A/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.   27:  /SERENO/CLEAR/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.   27:  /SERENO/CLEAR/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.   27:  /SERENO/CLEAR/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE17B/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE17B/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE17B/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/RE17B/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/RE17B/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/RE17B/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE17A/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE17A/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE17A/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/CE17A/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/CE17A/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/CE17A/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE16A/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE16A/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE16A/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE13A/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE13A/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE13A/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE12A/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE12A/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE12A/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE11B/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE11B/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE11B/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/RE11B/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/RE11B/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/RE11B/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE11A/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE11A/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE11A/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/CE11A/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/CE11A/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/CE11A/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.   28:  /SERENO/CLEAR/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.   28:  /SERENO/CLEAR/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.   28:  /SERENO/CLEAR/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE10A/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE10A/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE10A/FLOW/02DEC1911/1MIN/CALC/
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-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE09A/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE09A/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE08A/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE08A/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE08A/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.   29:  /SERENO/CLEAR/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.   29:  /SERENO/CLEAR/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.   29:  /SERENO/CLEAR/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE06D/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE06D/FLOW/01DEC1911/1MIN/CALC/
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-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/RE06D/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/RE06D/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/RE06D/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE06C/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE06C/FLOW/01DEC1911/1MIN/CALC/
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-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/CE06B/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/RE06B/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/RE06B/FLOW/01DEC1911/1MIN/CALC/
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-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/RE04C/FLOW/01DEC1911/1MIN/CALC/
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-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/RE04B/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/RE04B/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/RE04B/FLOW/02DEC1911/1MIN/CALC/
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-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE04A/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE04A/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE04A/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/CE04A/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/CE04A/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/CE04A/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE03A/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE03A/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE03A/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE02A/FLOW/30NOV1911/1MIN/CALC/
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-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE01B/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE01B/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE01B/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/RE01B/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/RE01B/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/RE01B/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE01A/FLOW/30NOV1911/1MIN/CALC/
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-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBE01A/FLOW/02DEC1911/1MIN/CALC/
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-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/CE01A/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/CE01A/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.   30:  /SERENO/CLEAR/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.   30:  /SERENO/CLEAR/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.   30:  /SERENO/CLEAR/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBW14A/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBW14A/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBW14A/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBW13A/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBW13A/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBW13A/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBW12A/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBW12A/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBW12A/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBW11A/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBW11A/FLOW/01DEC1911/1MIN/CALC/
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-----DSS---ZWRITE Unit  71; Vers.   31:  /SERENO/CLEAR/FLOW/02DEC1911/1MIN/CALC/
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-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/RW10C/FLOW/30NOV1911/1MIN/CALC/
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-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/RW10C/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBW10B/FLOW/30NOV1911/1MIN/CALC/
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-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBW10B/FLOW/02DEC1911/1MIN/CALC/
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-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/CW10B/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/RW10B/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/RW10B/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/RW10B/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBW10A/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBW10A/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBW10A/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/CW10A/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/CW10A/FLOW/01DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/CW10A/FLOW/02DEC1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBW09E/FLOW/30NOV1911/1MIN/CALC/
-----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBW09E/FLOW/01DEC1911/1MIN/CALC/
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 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBW09E/FLOW/02DEC1911/1MIN/CALC/
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 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/RW09E/FLOW/02DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBW09D/FLOW/30NOV1911/1MIN/CALC/
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 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBW08A/FLOW/02DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBW07C/FLOW/30NOV1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBW07C/FLOW/01DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBW07C/FLOW/02DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBW07B/FLOW/30NOV1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBW07B/FLOW/01DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBW07B/FLOW/02DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/CW07BC/FLOW/30NOV1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/CW07BC/FLOW/01DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/CW07BC/FLOW/02DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/RW07BC/FLOW/30NOV1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/RW07BC/FLOW/01DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/RW07BC/FLOW/02DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBW07A/FLOW/30NOV1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBW07A/FLOW/01DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBW07A/FLOW/02DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/CW07A/FLOW/30NOV1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/CW07A/FLOW/01DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/CW07A/FLOW/02DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.   32:  /SERENO/CLEAR/FLOW/30NOV1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.   32:  /SERENO/CLEAR/FLOW/01DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.   32:  /SERENO/CLEAR/FLOW/02DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBW06A/FLOW/30NOV1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBW06A/FLOW/01DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBW06A/FLOW/02DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBW05A/FLOW/30NOV1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBW05A/FLOW/01DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBW05A/FLOW/02DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBW04A/FLOW/30NOV1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBW04A/FLOW/01DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBW04A/FLOW/02DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBW02A/FLOW/30NOV1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBW02A/FLOW/01DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBW02A/FLOW/02DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBW01A/FLOW/30NOV1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBW01A/FLOW/01DEC1911/1MIN/CALC/
 -----DSS---ZWRITE Unit  71; Vers.    4:  /SERENO/SBW01A/FLOW/02DEC1911/1MIN/CALC/
1
```

RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

	OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
+	HYDROGRAPH AT	SBE29A	6.	4.28	1.	0.	0.	0.01		
+	HYDROGRAPH AT	SBE28A	4.	4.28	1.	0.	0.	0.01		
+	HYDROGRAPH AT	SBE27A	1.	4.17	0.	0.	0.	0.00		
+	HYDROGRAPH AT	SBE26A	3.	4.32	0.	0.	0.	0.01		
+	HYDROGRAPH AT	SBE25C	2.	4.20	0.	0.	0.	0.00		
+	ROUTED TO	RE25C	2.	4.32	0.	0.	0.	0.00		
+	HYDROGRAPH AT	SBE25B	2.	4.27	0.	0.	0.	0.01		
+	2 COMBINED AT	CE25B	4.	4.30	0.	0.	0.	0.01		
+	ROUTED TO	RE25B	4.	4.35	0.	0.	0.	0.01		
+	HYDROGRAPH AT	SBE25A	1.	4.18	0.	0.	0.	0.00		
+	2 COMBINED AT	CE25A	5.	4.33	1.	0.	0.	0.01		
+	5 COMBINED AT	CLEAR	18.	4.30	2.	1.	0.	0.05		

+	HYDROGRAPH AT	SBE24D	4.	4.23	0.	0.	0.	0.01
+	ROUTED TO	RE24D	4.	4.30	0.	0.	0.	0.01
+	HYDROGRAPH AT	SBE24C	4.	4.33	1.	0.	0.	0.01
+	2 COMBINED AT	CE24C	9.	4.32	1.	0.	0.	0.02
+	ROUTED TO	RE24C	9.	4.38	1.	0.	0.	0.02
+	HYDROGRAPH AT	SBE24B	1.	4.27	0.	0.	0.	0.00
+	2 COMBINED AT	CE24B	10.	4.38	1.	0.	0.	0.03
+	ROUTED TO	RE24B	10.	4.47	1.	0.	0.	0.03
+	HYDROGRAPH AT	SBE24A	2.	4.30	0.	0.	0.	0.01
+	2 COMBINED AT	CE24A	11.	4.47	2.	0.	0.	0.04
+	HYDROGRAPH AT	SBE23D	10.	4.45	2.	0.	0.	0.04
+	ROUTED TO	RE23D	10.	4.50	2.	0.	0.	0.04
+	HYDROGRAPH AT	SBE23E	2.	4.23	0.	0.	0.	0.00
+	ROUTED TO	RE23E	2.	4.43	0.	0.	0.	0.00
+	HYDROGRAPH AT	SBE23C	13.	4.47	2.	1.	0.	0.05
+	2 COMBINED AT	CE23C	14.	4.45	2.	1.	0.	0.06
+	ROUTED TO	RE23C	14.	4.50	2.	1.	0.	0.06
+	HYDROGRAPH AT	SBE23B	2.	4.22	0.	0.	0.	0.00
+	2 COMBINED AT	CE23B	15.	4.48	3.	1.	0.	0.06
+	ROUTED TO	RE23B	15.	4.50	3.	1.	0.	0.06
+	2 COMBINED AT	CE23AI	25.	4.50	4.	1.	1.	0.10
+	ROUTED TO	RE23BD	25.	4.52	4.	1.	1.	0.10
+	HYDROGRAPH AT	SBE23A	2.	4.27	0.	0.	0.	0.01
+	2 COMBINED AT	CE23A	26.	4.52	5.	1.	1.	0.11
+	3 COMBINED AT	CLEAR	51.	4.47	8.	2.	1.	0.20
+	HYDROGRAPH AT	SBE22A	2.	4.25	0.	0.	0.	0.01
+	HYDROGRAPH AT	SBE21A	1.	4.12	0.	0.	0.	0.00
+	HYDROGRAPH AT	SBE20A	1.	4.10	0.	0.	0.	0.00
+	HYDROGRAPH AT	SBE19A	1.	4.10	0.	0.	0.	0.00
+	HYDROGRAPH AT	SBE18A	1.	4.13	0.	0.	0.	0.00
+	6 COMBINED AT	CLEAR	53.	4.47	9.	2.	2.	0.21
+	HYDROGRAPH AT	SBE17B	6.	4.27	1.	0.	0.	0.02
+	ROUTED TO	RE17B	6.	4.43	1.	0.	0.	0.02
+	HYDROGRAPH AT	SBE17A	5.	4.32	1.	0.	0.	0.02
+	2 COMBINED AT	CE17A	11.	4.40	1.	0.	0.	0.03
+	HYDROGRAPH AT	SBE16A	0.	4.13	0.	0.	0.	0.00
+	HYDROGRAPH AT	SBE13A	1.	4.17	0.	0.	0.	0.00
+	HYDROGRAPH AT	SBE12A	1.	4.17	0.	0.	0.	0.00
+	HYDROGRAPH AT	SBE11B	5.	4.27	1.	0.	0.	0.01

+	ROUTED TO	RE11B	4.	4.35	1.	0.	0.	0.01
+	HYDROGRAPH AT	SBE11A	5.	4.32	1.	0.	0.	0.02
+	2 COMBINED AT	CE11A	9.	4.33	1.	0.	0.	0.03
+	6 COMBINED AT	CLEAR	73.	4.43	12.	3.	2.	0.28
+	HYDROGRAPH AT	SBE10A	1.	4.12	0.	0.	0.	0.00
+	HYDROGRAPH AT	SBE09A	1.	4.10	0.	0.	0.	0.00
+	HYDROGRAPH AT	SBE08A	1.	4.12	0.	0.	0.	0.00
+	4 COMBINED AT	CLEAR	74.	4.43	12.	3.	2.	0.28
+	HYDROGRAPH AT	SBE06D	4.	4.25	0.	0.	0.	0.01
+	ROUTED TO	RE06D	4.	4.32	0.	0.	0.	0.01
+	HYDROGRAPH AT	SBE06C	5.	4.28	1.	0.	0.	0.02
+	ROUTED TO	RE06C	5.	4.35	1.	0.	0.	0.02
+	HYDROGRAPH AT	SBE06B	4.	4.20	0.	0.	0.	0.01
+	3 COMBINED AT	CE06B	11.	4.32	1.	0.	0.	0.03
+	ROUTED TO	RE06B	11.	4.43	1.	0.	0.	0.03
+	HYDROGRAPH AT	SBE06A	4.	4.33	1.	0.	0.	0.01
+	2 COMBINED AT	CE06A	15.	4.42	2.	0.	0.	0.05
+	HYDROGRAPH AT	SBE05B	4.	4.45	1.	0.	0.	0.02
+	ROUTED TO	RE05B	4.	4.57	1.	0.	0.	0.02
+	HYDROGRAPH AT	SBE05A	2.	4.27	0.	0.	0.	0.01
+	2 COMBINED AT	CE05A	5.	4.53	1.	0.	0.	0.03
+	2 COMBINED AT	CE065A	19.	4.47	3.	1.	1.	0.08
+	HYDROGRAPH AT	SBE04C	3.	4.35	1.	0.	0.	0.01
+	ROUTED TO	RE04C	3.	4.40	1.	0.	0.	0.01
+	HYDROGRAPH AT	SBE04B	3.	4.35	1.	0.	0.	0.01
+	ROUTED TO	RE04B	3.	4.40	1.	0.	0.	0.01
+	2 COMBINED AT	CE04AI	6.	4.40	1.	0.	0.	0.03
+	ROUTED TO	RE04CB	6.	4.43	1.	0.	0.	0.03
+	HYDROGRAPH AT	SBE04A	2.	4.22	0.	0.	0.	0.01
+	2 COMBINED AT	CE04A	8.	4.42	1.	0.	0.	0.04
+	HYDROGRAPH AT	SBE03A	3.	4.22	0.	0.	0.	0.01
+	HYDROGRAPH AT	SBE02A	13.	4.52	3.	1.	1.	0.07
+	HYDROGRAPH AT	SBE01B	17.	4.20	2.	0.	0.	0.02
+	ROUTED TO	RE01B	15.	4.50	2.	0.	0.	0.02
+	HYDROGRAPH AT	SBE01A	26.	4.52	5.	1.	1.	0.12
+	2 COMBINED AT	CE01A	42.	4.50	7.	2.	1.	0.14
+	6 COMBINED AT	CLEAR	141.	4.47	24.	6.	4.	0.61
+	HYDROGRAPH AT	SBW14A	5.	4.18	0.	0.	0.	0.01
+	HYDROGRAPH AT	SBW13A	1.	4.10	0.	0.	0.	0.00

+	HYDROGRAPH AT	SBW12A	8.	4.23	1.	0.	0.	0.02
+	HYDROGRAPH AT	SBW11A	1.	4.08	0.	0.	0.	0.00
+	5 COMBINED AT	CLEAR	144.	4.47	25.	6.	4.	0.64
+	HYDROGRAPH AT	SBW10C	6.	4.25	1.	0.	0.	0.01
+	ROUTED TO	RW10C	6.	4.35	1.	0.	0.	0.01
+	HYDROGRAPH AT	SBW10B	4.	4.30	1.	0.	0.	0.01
+	2 COMBINED AT	CW10B	10.	4.33	1.	0.	0.	0.03
+	ROUTED TO	RW10B	9.	4.38	1.	0.	0.	0.03
+	HYDROGRAPH AT	SBW10A	11.	4.33	1.	0.	0.	0.03
+	2 COMBINED AT	CW10A	20.	4.35	2.	1.	0.	0.06
+	HYDROGRAPH AT	SBW09E	2.	4.25	0.	0.	0.	0.01
+	ROUTED TO	RW09E	2.	4.35	0.	0.	0.	0.01
+	HYDROGRAPH AT	SBW09D	3.	4.25	0.	0.	0.	0.01
+	2 COMBINED AT	CW09DI	4.	4.33	1.	0.	0.	0.01
+	HYDROGRAPH AT	SBW09C	11.	4.40	2.	0.	0.	0.04
+	2 COMBINED AT	CW09D	15.	4.38	2.	1.	0.	0.06
+	ROUTED TO	RW09D	15.	4.42	2.	1.	0.	0.06
+	HYDROGRAPH AT	SBW09B	2.	4.18	0.	0.	0.	0.00
+	2 COMBINED AT	CW09B	17.	4.40	3.	1.	0.	0.06
+	ROUTED TO	RW09B	16.	4.48	3.	1.	0.	0.06
+	HYDROGRAPH AT	SBW09A	2.	4.28	0.	0.	0.	0.01
+	2 COMBINED AT	CW09A	18.	4.47	3.	1.	1.	0.07
+	HYDROGRAPH AT	SBW08A	4.	4.22	0.	0.	0.	0.01
+	HYDROGRAPH AT	SBW07C	2.	4.22	0.	0.	0.	0.00
+	HYDROGRAPH AT	SBW07B	2.	4.27	0.	0.	0.	0.01
+	2 COMBINED AT	CW07BC	4.	4.25	1.	0.	0.	0.01
+	ROUTED TO	RW07BC	4.	4.38	1.	0.	0.	0.01
+	HYDROGRAPH AT	SBW07A	3.	4.32	1.	0.	0.	0.01
+	2 COMBINED AT	CW07A	7.	4.38	1.	0.	0.	0.03
+	5 COMBINED AT	CLEAR	164.	4.45	28.	7.	5.	0.81
+	HYDROGRAPH AT	SBW06A	2.	4.18	0.	0.	0.	0.00
+	HYDROGRAPH AT	SBW05A	4.	4.25	0.	0.	0.	0.01
+	HYDROGRAPH AT	SBW04A	1.	4.13	0.	0.	0.	0.00
+	HYDROGRAPH AT	SBW02A	3.	4.23	0.	0.	0.	0.01
+	HYDROGRAPH AT	SBW01A	1.	4.13	0.	0.	0.	0.00
+	6 COMBINED AT	CLEAR	166.	4.45	28.	7.	5.	0.83

*** NORMAL END OF HEC-1 ***

-----DSS---ZCLOSE Unit: 71, File: X:\Shared\projects\consult\LVA_UDS\SerenoCanyon\HEC-1\SERENO_EX_
Pointer Utilization: 0.67

Number of Records: 354
File Size: 2202.4 Kbytes
Percent Inactive: 0.0

Appendix C

LEGEND

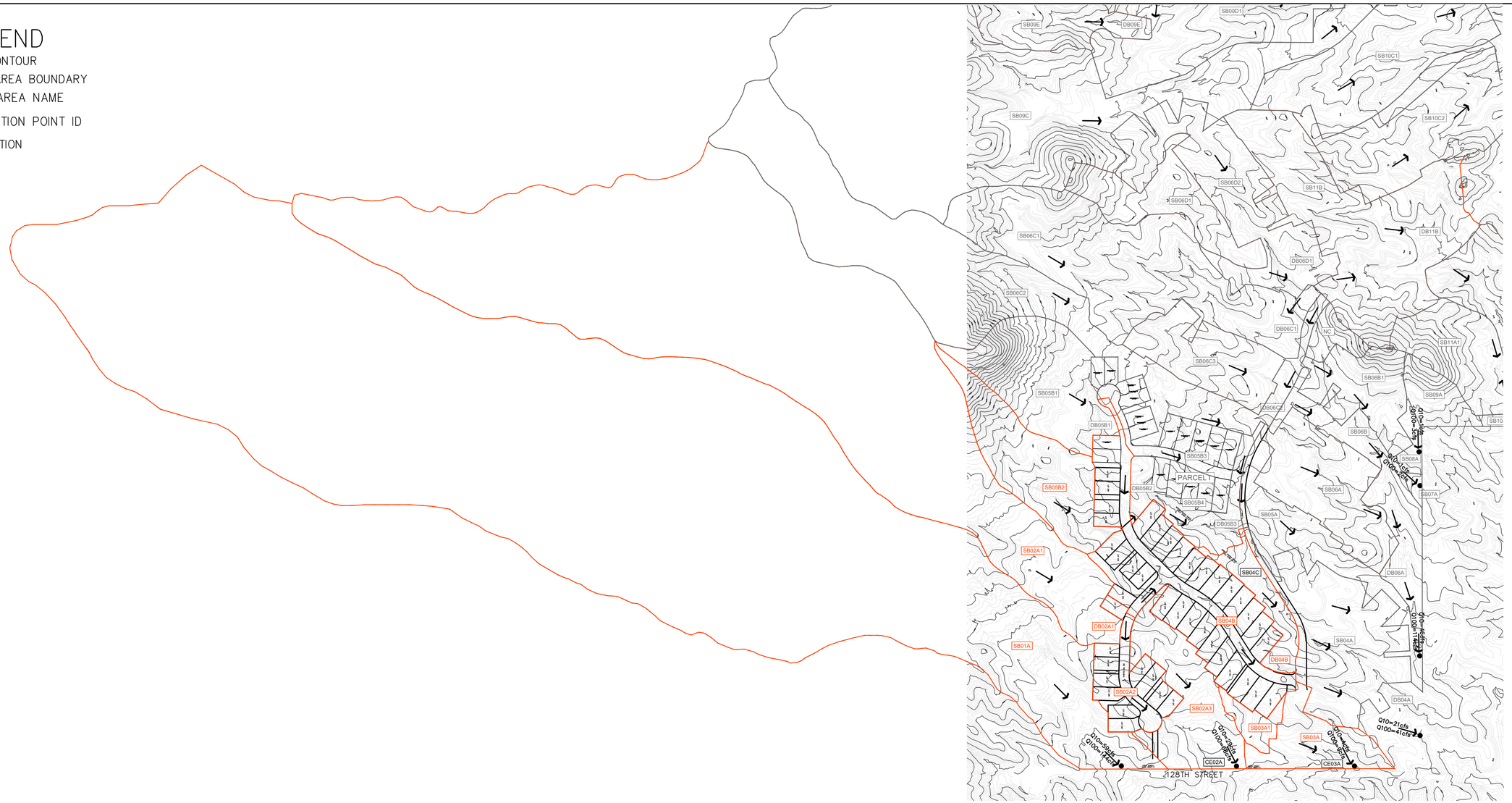
2685 EXISTING CONTOUR

DRAINAGE AREA BOUNDARY

SBE23D DRAINAGE AREA NAME

CE02A CONCENTRATION POINT ID

FLOW DIRECTION



SCALE: 1" = 200'

0' 200' 400' 600'

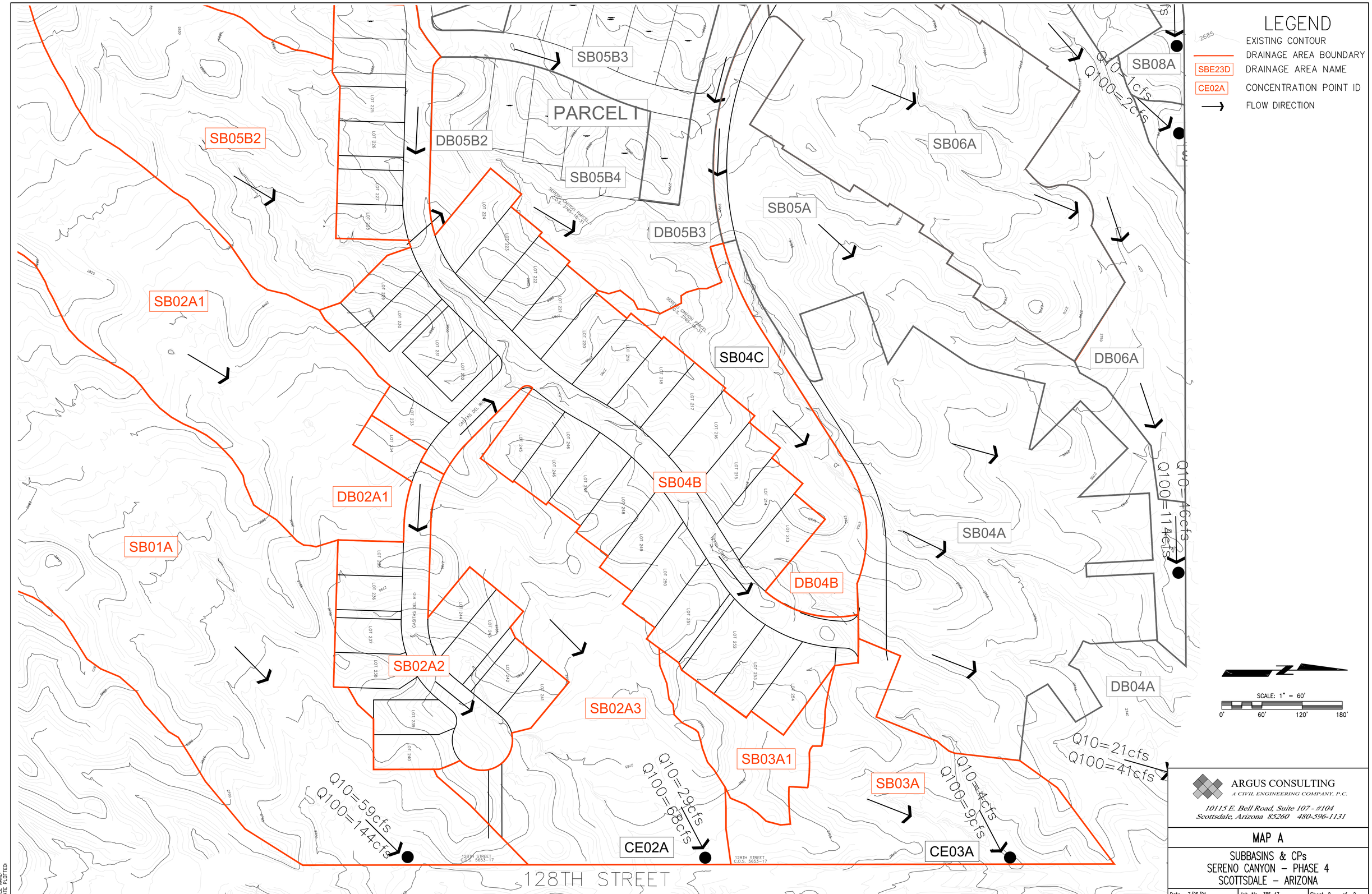
ARGUS CONSULTING
A CIVIL ENGINEERING COMPANY, P.C.
10115 E. Bell Road, Suite 107 - #104
Scottsdale, Arizona 85260 480-596-1131

MAP A

SUBBASINS & CPs
SERENO CANYON – PHASE 4
SCOTTSDALE – ARIZONA

Date 7/25/21	Job No. 385-17	Sheet 1 of 2

FILE NAME:
DATE PLOTTED:


LEGEND
EXISTING CONTOUR
DRAINAGE AREA BOUNDARY
SBE23D DRAINAGE AREA NAME
CE02A CONCENTRATION POINT ID
FLOW DIRECTION
SB05B3
PARCEL I
SB05B2
DB05B2
SB05B4
DB05B3
SB05A
SB06A
SB08A
Q10=1cfs
Q100=2cfs
SB02A1
SB04C
DB06A
SB04B
DB02A1
SB01A
SB04A
Q10=46cfs
Q100=114cfs
DB04B
SB02A2
SB02A3
DB04A
SB03A1
SB03A
Q10=21cfs
Q100=41cfs
Q10=59cfs
Q100=144cfs
Q10=29cfs
Q100=68cfs
Q10=4cfs
Q100=9cfs
CE02A
CE03A
128TH STREET
SCALE: 1" = 60'
0' 60' 120' 180'
ARGUS CONSULTING
A CIVIL ENGINEERING COMPANY, P.C.
10115 E. Bell Road, Suite 107 - #104
Scottsdale, Arizona 85260 480-596-1131
MAP A
SUBBASINS & CPs
SERENO CANYON – PHASE 4
SCOTTSDALE – ARIZONA
Date 7/25/21
Job No. 385-17
Sheet 2 of 2
FILE NAME:
DATE PLOTTED:

Proposed Condition HEC-1 Model

2-Year, 6-Hour Storm

```
1****************************************                                                    ****************************************
 *                                      *                                                    *                                      *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                                                    *    U.S. ARMY CORPS OF ENGINEERS      *
 *               JUN   1998             *                                                    *    HYDROLOGIC ENGINEERING CENTER     *
 *            VERSION 4.1               *                                                    *          609 SECOND STREET           *
 *                                      *                                                    *       DAVIS, CALIFORNIA 95616        *
 *  RUN DATE   31JUL21  TIME  10:15:31  *                                                    *           (916) 756-1104             *
 *                                      *                                                    *                                      *
 ****************************************                                                    ****************************************


                                                X     X  XXXXXXX   XXXXX           X
                                                X     X  X        X     X         XX
                                                X     X  X        X                X
                                                XXXXXXX  XXXX     X        XXXXX   X
                                                X     X  X        X                X
                                                X     X  X        X     X          X
                                                X     X  XXXXXXX   XXXXX          XXX


          THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

          THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
          THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
          NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
          DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL   LOSS RATE:GREEN AND AMPT INFILTRATION
          KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

1                                                   HEC-1 INPUT                                                   PAGE  1

         LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

            1          ID        SERENO CANYON PHASE 4 - DEVELOPED CONDITIONS - PARCEL H
            2          ID        2 YEAR
            3          ID        6 Hour  Storm
            4          ID        Unit Hydrograph: Clark
            5          ID        7/6/21
                       *DIAGRAM
            6          IT       1 17MAR97    1645    2000
            7          IO       5
            8          IN      15
                       *
            9          JD   1.421   .0001
           10          PC   0.000   0.008   0.016   0.025   0.033   0.041   0.050   0.058   0.066   0.074
           11          PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931   0.950
           12          PC   0.962   0.972   0.983   0.991   1.000
                       *

           13          KK  SB05B2
           14          KM        SBO5B2 Basin Runoff
           15          BA   0.006
           16          LG    0.10    0.25    6.00   0.284
           17          UC   0.373   0.655
           18          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
           19          UA     100
                       *

           20          KK   SB04C
           21          KM        SB04C Basin Runoff
           22          BA   0.002
           23          LG    0.10    0.25    6.00   0.269      10
           24          UC   0.298   0.652
           25          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
           26          UA     100
                       *

           27          KK   SB04B
           28          KM        SB04B Basin Runoff
           29          BA   0.011
           30          LG    0.25    0.25    6.00   0.216      30
           31          UC   0.196   0.270
           32          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
           33          UA     100
                       *

           34          KK   CE04B
           35          KM        Combine flows from SB04C and SB04B
           36          HC       2
                       *

           37          KK   DB04B
           38          KM        Retention Basin Storage/Outflow rating curve for Basin DBE04C
           39          RS       1    STOR       0
           40          SA   0.063   0.086   0.108   0.132   0.160
           41          SQ    0.01       2      10      22      32
           42          SE    2752    2753    2754    2755    2756
           43          ST    2756      30     2.7     1.5
                       *
1                                                   HEC-1 INPUT                                                   PAGE  2

         LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

           44          KK  SB03A1
           45          KM        SB03A1 Basin Runoff
```

```
  46          BA   0.002
  47          LG    0.10    0.25    6.00   0.284
  48          UC   0.394   1.048
  49          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
  50          UA     100
              *

  51          KK   SB03A   BASIN
  52          KM        SB03A Basin Runoff
  53          BA   0.003
  54          LG    0.10    0.25    6.00   0.284
  55          UC   0.266   0.340
  56          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
  57          UA     100
              *

  58          KK   CE03A COMBINE
  59          KM        Combine Flows from DB03A and SB03A
  60          HC       2
              *

  61          KK  SB02A1   BASIN
  62          KM        SB02A1 Basin Runoff
  63          BA   0.059
  64          LG    0.10    0.25    6.00   0.284
  65          UC   0.641   0.881
  66          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
  67          UA     100
              *

  68          KK  DB02A1 STORAGE
  69          KM    Retention Basin Storage/Outflow rating curve for Basin DBE02A1
  70          RS       1    STOR       0
  71          SA   0.134   0.162   0.192   0.225
  72          SQ    0.01      12      39      60
  73          SE    2791    2792    2793    2794
  74          ST  2794.8      30     2.7     1.5
              *

  75          KK   R02A1   ROUTE
  76          KM        Route flow from SB02A1 into SB02A3
  77          RS       1    FLOW
  78          RC   0.060   0.060   0.060     455  0.0363 2755.00
  79          RX    0.00   17.00   22.00   27.00   32.00   44.00   61.00   88.00
  80          RY  2755.0 2753.00 2751.90 2750.00 2750.00 2751.90 2753.20 2754.90
              *
1                                                HEC-1 INPUT                                                PAGE  3

 LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


  81          KK  SB02A2   BASIN
  82          KM        SB02A2 Basin Runoff
  83          BA   0.003
  84          LG    0.25    0.25    6.00   0.216      30
  85          UC   0.154   0.265
  86          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
  87          UA     100
              *

  88          KK  SB02A3   BASIN
  89          KM        SB02A3 Basin Runoff
  90          BA   0.003
  91          LG    0.10    0.25    6.00   0.284
  92          UC   0.337   0.629
  93          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
  94          UA     100
              *

  95          KK   CE02A COMBINE
  96          KM        Combine Flows from R02A1, DB02A2 and SB02A3
  97          HC       3
              *

  98          KK   SB01A   BASIN
  99          KM        SB01A Basin Runoff
 100          BA   0.119
 101          LG    0.10    0.25    6.00    0.28       1
 102          UC   0.709   0.830
 103          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 104          UA     100
              *
 105          ZZ
1
                 SCHEMATIC DIAGRAM OF STREAM NETWORK
 INPUT
  LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

   NO.      (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

    13      SB05B2
                 .
                 .
    20           .       SB04C
                 .           .
                 .           .
    27           .           .       SB04B
                 .           .           .
                 .           .           .
    34           .       CE04B............
                 .           V
```

```
                .          V
   37           .       DB04B
                .          .
                .          .
   44           .          .      SB03A1
                .          .          .
                .          .          .
   51           .          .          .       SB03A
                .          .          .          .
                .          .          .          .
   58           .          .       CE03A............
                .          .          .
                .          .          .
   61           .          .          .      SB02A1
                .          .          .          V
                .          .          .          V
   68           .          .          .      DB02A1
                .          .          .          V
                .          .          .          V
   75           .          .          .       R02A1
                .          .          .          .
                .          .          .          .
   81           .          .          .          .      SB02A2
                .          .          .          .          .
                .          .          .          .          .
   88           .          .          .          .          .      SB02A3
                .          .          .          .          .           .
                .          .          .          .          .           .
   95           .          .          .       CE02A........................
                .          .          .          .
                .          .          .          .
   98           .          .          .          .       SB01A
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
1****************************************                                          ****************************************
 *                                      *                                          *                                      *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                                          *    U.S. ARMY CORPS OF ENGINEERS      *
 *               JUN   1998             *                                          *    HYDROLOGIC ENGINEERING CENTER     *
 *            VERSION 4.1               *                                          *          609 SECOND STREET           *
 *                                      *                                          *       DAVIS, CALIFORNIA 95616        *
 *  RUN DATE   31JUL21  TIME  10:15:31  *                                          *           (916) 756-1104             *
 *                                      *                                          *                                      *
 ****************************************                                          ****************************************
```

```
                                SERENO CANYON PHASE 4 - DEVELOPED CONDITIONS - PARCEL H
                                2 YEAR
                                6 Hour  Storm
                                Unit Hydrograph: Clark
                                7/6/21

   7 IO          OUTPUT CONTROL VARIABLES
                       IPRNT           5  PRINT CONTROL
                       IPLOT           0  PLOT CONTROL
                       QSCAL          0.  HYDROGRAPH PLOT SCALE

     IT          HYDROGRAPH TIME DATA
                        NMIN           1  MINUTES IN COMPUTATION INTERVAL
                       IDATE     17MAR97  STARTING DATE
                       ITIME        1645  STARTING TIME
                          NQ        2000  NUMBER OF HYDROGRAPH ORDINATES
                      NDDATE     19MAR97  ENDING DATE
                      NDTIME        0204  ENDING TIME
                      ICENT           19  CENTURY MARK

                  COMPUTATION INTERVAL     .02 HOURS
                       TOTAL TIME BASE   33.32 HOURS

         ENGLISH UNITS
              DRAINAGE AREA         SQUARE MILES
              PRECIPITATION DEPTH   INCHES
              LENGTH, ELEVATION     FEET
              FLOW                  CUBIC FEET PER SECOND
              STORAGE VOLUME        ACRE-FEET
              SURFACE AREA          ACRES
              TEMPERATURE           DEGREES FAHRENHEIT

   9 JD          INDEX STORM NO. 1
                        STRM        1.42  PRECIPITATION DEPTH
                        TRDA         .00  TRANSPOSITION DRAINAGE AREA

  10 PI            PRECIPITATION PATTERN
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
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.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.03	.03	.03	.03	.03
.03	.03	.03	.03	.03	.03	.03	.03	.03	.03
.01	.01	.01	.01	.01	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00

1

RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

	OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
+	HYDROGRAPH AT	SB05B2	2.	4.18	0.	0.	0.	.01		
+	HYDROGRAPH AT	SB04C	1.	4.13	0.	0.	0.	.00		
+	HYDROGRAPH AT	SB04B	8.	4.07	1.	0.	0.	.01		
+	2 COMBINED AT	CE04B	9.	4.07	1.	0.	0.	.01		
+	ROUTED TO	DB04B	6.	4.22	1.	0.	0.	.01		
+									2753.52	4.22
+	HYDROGRAPH AT	SB03A1	0.	4.22	0.	0.	0.	.00		
+	HYDROGRAPH AT	SB03A	1.	4.10	0.	0.	0.	.00		
+	2 COMBINED AT	CE03A	2.	4.12	0.	0.	0.	.00		
+	HYDROGRAPH AT	SB02A1	12.	4.33	2.	1.	0.	.06		
+	ROUTED TO	DB02A1	10.	4.55	2.	1.	0.	.06		
+									2791.87	4.55
+	ROUTED TO	R02A1	10.	4.58	2.	1.	0.	.06		
+									2750.54	4.58
+	HYDROGRAPH AT	SB02A2	2.	4.05	0.	0.	0.	.00		
+	HYDROGRAPH AT	SB02A3	1.	4.15	0.	0.	0.	.00		
+	3 COMBINED AT	CE02A	11.	4.55	3.	1.	1.	.06		
+	HYDROGRAPH AT	SB01A	24.	4.35	5.	1.	1.	.12		

1 SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION DB04B
(PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED DURING BREACH FORMATION)

PLAN 1 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	2752.00	2756.00	2756.00
STORAGE	0.	0.	0.
OUTFLOW	0.	32.	32.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	2753.52	.00	0.	6.	.00	4.22	.00

1 SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION DB02A1
(PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED DURING BREACH FORMATION)

PLAN 1 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	2791.00	2794.80	2794.80
STORAGE	0.	1.	1.
OUTFLOW	0.	77.	77.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	2791.87	.00	0.	10.	.00	4.55	.00

*** NORMAL END OF HEC-1 ***

Proposed Condition HEC-1 Model

10-Year, 6-Hour Storm

```
1****************************************                                                    ****************************************
 *                                      *                                                    *                                      *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                                                    *    U.S. ARMY CORPS OF ENGINEERS      *
 *               JUN   1998             *                                                    *    HYDROLOGIC ENGINEERING CENTER     *
 *            VERSION 4.1               *                                                    *          609 SECOND STREET           *
 *                                      *                                                    *       DAVIS, CALIFORNIA 95616        *
 *  RUN DATE   31JUL21  TIME  10:14:10  *                                                    *           (916) 756-1104             *
 *                                      *                                                    *                                      *
 ****************************************                                                    ****************************************


                                                X     X  XXXXXXX   XXXXX           X
                                                X     X  X        X     X         XX
                                                X     X  X        X                X
                                                XXXXXXX  XXXX     X        XXXXX   X
                                                X     X  X        X                X
                                                X     X  X        X     X          X
                                                X     X  XXXXXXX   XXXXX          XXX


          THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

          THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
          THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
          NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
          DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL   LOSS RATE:GREEN AND AMPT INFILTRATION
          KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

1                                                   HEC-1 INPUT                                                   PAGE  1

         LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

            1          ID        SERENO CANYON PHASE 4 - DEVELOPED CONDITIONS - PARCEL H
            2          ID        10 YEAR
            3          ID        6 Hour  Storm
            4          ID        Unit Hydrograph: Clark
            5          ID        7/6/21
                       *DIAGRAM
            6          IT       1 17MAR97    1645    2000
            7          IO       5
            8          IN      15
                       *
            9          JD   2.108   .0001
           10          PC   0.000   0.008   0.016   0.025   0.033   0.041   0.050   0.058   0.066   0.074
           11          PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931   0.950
           12          PC   0.962   0.972   0.983   0.991   1.000
                       *

           13          KK  SB05B2
           14          KM        SBO5B2 Basin Runoff
           15          BA   0.006
           16          LG    0.10    0.25    6.00   0.284
           17          UC   0.315   0.543
           18          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
           19          UA     100
                       *

           20          KK   SB04C
           21          KM        SB04C Basin Runoff
           22          BA   0.002
           23          LG    0.10    0.25    6.00   0.269      10
           24          UC   0.256   0.550
           25          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
           26          UA     100
                       *

           27          KK   SB04B
           28          KM        SB04B Basin Runoff
           29          BA   0.011
           30          LG    0.25    0.25    6.00   0.216      30
           31          UC   0.172   0.233
           32          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
           33          UA     100
                       *

           34          KK   CE04B
           35          KM        Combine flows from SB04C and SB04B
           36          HC       2
                       *

           37          KK   DB04B
           38          KM        Retention Basin Storage/Outflow rating curve for Basin DBE04C
           39          RS       1    STOR       0
           40          SA   0.063   0.086   0.108   0.132   0.163
           41          SQ    0.01       2      10      22      32
           42          SE    2752    2753    2754    2755    2756
           43          ST    2756      30     2.7     1.5
                       *
1                                                   HEC-1 INPUT                                                   PAGE  2

         LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


           44          KK  SB03A1
           45          KM        SB03A1 Basin Runoff
```

```
  46          BA   0.002
  47          LG    0.10    0.25    6.00   0.284
  48          UC   0.332   0.869
  49          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
  50          UA     100
              *

  51          KK   SB03A   BASIN
  52          KM        SB03A Basin Runoff
  53          BA   0.003
  54          LG    0.10    0.25    6.00   0.284
  55          UC   0.225   0.282
  56          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
  57          UA     100
              *

  58          KK   CE03A COMBINE
  59          KM        Combine Flows from DB03A and SB03A
  60          HC       2
              *

  61          KK  SB02A1   BASIN
  62          KM        SB02A1 Basin Runoff
  63          BA   0.059
  64          LG    0.10    0.25    6.00   0.284
  65          UC   0.541   0.730
  66          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
  67          UA     100
              *

  68          KK  DB02A1 STORAGE
  69          KM    Retention Basin Storage/Outflow rating curve for Basin DBE02A1
  70          RS       1    STOR       0
  71          SA   0.134   0.162   0.192   0.225
  72          SQ    0.01      12      39      60
  73          SE    2791    2792    2793    2794
  74          ST  2794.8      30     2.7     1.5
              *

  75          KK   R02A1   ROUTE
  76          KM        Route flow from SB02A1 into SB02A3
  77          RS       1    FLOW
  78          RC   0.060   0.060   0.060     455  0.0363 2755.00
  79          RX    0.00   17.00   22.00   27.00   32.00   44.00   61.00   88.00
  80          RY  2755.0 2753.00 2751.90 2750.00 2750.00 2751.90 2753.20 2754.90
              *
1                                                HEC-1 INPUT                                                PAGE  3

 LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


  81          KK  SB02A2   BASIN
  82          KM        SB02A2 Basin Runoff
  83          BA   0.003
  84          LG    0.25    0.25    6.00   0.216      30
  85          UC   0.135   0.228
  86          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
  87          UA     100
              *

  88          KK  SB02A3   BASIN
  89          KM        SB02A3 Basin Runoff
  90          BA   0.003
  91          LG    0.10    0.25    6.00   0.284
  92          UC   0.284   0.521
  93          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
  94          UA     100
              *

  95          KK   CE02A COMBINE
  96          KM        Combine Flows from R02A1, DB02A2 and SB02A3
  97          HC       3
              *

  98          KK   SB01A   BASIN
  99          KM        SB01A Basin Runoff
 100          BA   0.119
 101          LG    0.10    0.25    6.00    0.28       1
 102          UC   0.600   0.689
 103          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 104          UA     100
              *
 105          ZZ
1
                 SCHEMATIC DIAGRAM OF STREAM NETWORK
 INPUT
  LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

   NO.      (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

    13      SB05B2
                 .
                 .
    20           .       SB04C
                 .           .
                 .           .
    27           .           .       SB04B
                 .           .           .
                 .           .           .
    34           .       CE04B............
                 .           V
```

```
                .          V
   37           .       DB04B
                .          .
                .          .
   44           .          .      SB03A1
                .          .          .
                .          .          .
   51           .          .          .       SB03A
                .          .          .          .
                .          .          .          .
   58           .          .       CE03A............
                .          .          .
                .          .          .
   61           .          .          .      SB02A1
                .          .          .          V
                .          .          .          V
   68           .          .          .      DB02A1
                .          .          .          V
                .          .          .          V
   75           .          .          .       R02A1
                .          .          .          .
                .          .          .          .
   81           .          .          .          .      SB02A2
                .          .          .          .          .
                .          .          .          .          .
   88           .          .          .          .          .      SB02A3
                .          .          .          .          .           .
                .          .          .          .          .           .
   95           .          .          .       CE02A........................
                .          .          .          .
                .          .          .          .
   98           .          .          .          .       SB01A
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
1****************************************                                          ****************************************
 *                                      *                                          *                                      *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                                          *    U.S. ARMY CORPS OF ENGINEERS      *
 *               JUN   1998             *                                          *    HYDROLOGIC ENGINEERING CENTER     *
 *            VERSION 4.1               *                                          *          609 SECOND STREET           *
 *                                      *                                          *       DAVIS, CALIFORNIA 95616        *
 *  RUN DATE   31JUL21  TIME  10:14:10  *                                          *           (916) 756-1104             *
 *                                      *                                          *                                      *
 ****************************************                                          ****************************************
```

SERENO CANYON PHASE 4 - DEVELOPED CONDITIONS - PARCEL H
10 YEAR
6 Hour Storm
Unit Hydrograph: Clark
7/6/21

```
   7 IO          OUTPUT CONTROL VARIABLES
                      IPRNT           5  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE

     IT          HYDROGRAPH TIME DATA
                       NMIN           1  MINUTES IN COMPUTATION INTERVAL
                      IDATE     17MAR97  STARTING DATE
                      ITIME        1645  STARTING TIME
                         NQ        2000  NUMBER OF HYDROGRAPH ORDINATES
                     NDDATE     19MAR97  ENDING DATE
                     NDTIME        0204  ENDING TIME
                      ICENT          19  CENTURY MARK

                  COMPUTATION INTERVAL     .02 HOURS
                       TOTAL TIME BASE   33.32 HOURS

         ENGLISH UNITS
              DRAINAGE AREA         SQUARE MILES
              PRECIPITATION DEPTH   INCHES
              LENGTH, ELEVATION     FEET
              FLOW                  CUBIC FEET PER SECOND
              STORAGE VOLUME        ACRE-FEET
              SURFACE AREA          ACRES
              TEMPERATURE           DEGREES FAHRENHEIT

   9 JD          INDEX STORM NO. 1
                       STRM        2.11  PRECIPITATION DEPTH
                       TRDA         .00  TRANSPOSITION DRAINAGE AREA

  10 PI            PRECIPITATION PATTERN
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
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.03	.03	.03	.03	.03	.03	.03	.03	.03	.03
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RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

	OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
+	HYDROGRAPH AT	SB05B2	4.	4.13	1.	0.	0.	.01		
+	HYDROGRAPH AT	SB04C	1.	4.10	0.	0.	0.	.00		
+	HYDROGRAPH AT	SB04B	15.	4.05	1.	0.	0.	.01		
+	2 COMBINED AT	CE04B	17.	4.05	2.	0.	0.	.01		
+	ROUTED TO	DB04B	13.	4.17	2.	0.	0.	.01		
+									2754.24	4.17
+	HYDROGRAPH AT	SB03A1	1.	4.17	0.	0.	0.	.00		
+	HYDROGRAPH AT	SB03A	3.	4.08	0.	0.	0.	.00		
+	2 COMBINED AT	CE03A	4.	4.08	0.	0.	0.	.00		
+	HYDROGRAPH AT	SB02A1	28.	4.25	5.	1.	1.	.06		
+	ROUTED TO	DB02A1	27.	4.38	5.	1.	1.	.06		
+									2792.55	4.38
+	ROUTED TO	R02A1	27.	4.40	5.	1.	1.	.06		
+									2750.88	4.40
+	HYDROGRAPH AT	SB02A2	4.	4.03	0.	0.	0.	.00		
+	HYDROGRAPH AT	SB02A3	2.	4.12	0.	0.	0.	.00		
+	3 COMBINED AT	CE02A	29.	4.38	6.	1.	1.	.06		
+	HYDROGRAPH AT	SB01A	59.	4.27	10.	3.	2.	.12		

1 SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION DB04B
(PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED DURING BREACH FORMATION)

PLAN 1 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	2752.00	2756.00	2756.00
STORAGE	0.	0.	0.
OUTFLOW	0.	32.	32.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	2754.24	.00	0.	13.	.00	4.17	.00

1 SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION DB02A1
(PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED DURING BREACH FORMATION)

PLAN 1 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	2791.00	2794.80	2794.80
STORAGE	0.	1.	1.
OUTFLOW	0.	77.	77.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	2792.55	.00	0.	27.	.00	4.38	.00

*** NORMAL END OF HEC-1 ***

Proposed Condition HEC-1 Model

100-Year, 6-Hour Storm

```
1****************************************                                                    ****************************************
 *                                      *                                                    *                                      *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                                                    *    U.S. ARMY CORPS OF ENGINEERS      *
 *               JUN   1998             *                                                    *    HYDROLOGIC ENGINEERING CENTER     *
 *            VERSION 4.1               *                                                    *          609 SECOND STREET           *
 *                                      *                                                    *       DAVIS, CALIFORNIA 95616        *
 *  RUN DATE   31JUL21  TIME  10:12:09  *                                                    *           (916) 756-1104             *
 *                                      *                                                    *                                      *
 ****************************************                                                    ****************************************


                                                X     X  XXXXXXX   XXXXX           X
                                                X     X  X        X     X         XX
                                                X     X  X        X                X
                                                XXXXXXX  XXXX     X        XXXXX   X
                                                X     X  X        X                X
                                                X     X  X        X     X          X
                                                X     X  XXXXXXX   XXXXX          XXX


          THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

          THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
          THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
          NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
          DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL   LOSS RATE:GREEN AND AMPT INFILTRATION
          KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

1                                                   HEC-1 INPUT                                                   PAGE  1

          LINE           ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

             1           ID        SERENO CANYON PHASE 4 - DEVELOPED CONDITIONS - PARCEL H
             2           ID        100 YEAR
             3           ID        6 Hour  Storm
             4           ID        Unit Hydrograph: Clark
             5           ID        7/6/21
                         *DIAGRAM
             6           IT       1 17MAR97    1645    2000
             7           IO       5
             8           IN      15
                         *
             9           JD   3.178   .0001
            10           PC   0.000   0.008   0.016   0.025   0.033   0.041   0.050   0.058   0.066   0.074
            11           PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931   0.950
            12           PC   0.962   0.972   0.983   0.991   1.000
                         *

            13           KK  SB05B2
            14           KM        SBO5B2 Basin Runoff
            15           BA   0.006
            16           LG    0.10    0.25    6.00   0.284
            17           UC   0.241   0.404
            18           UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
            19           UA     100
                         *

            20           KK   SB04C
            21           KM        SB04C Basin Runoff
            22           BA   0.002
            23           LG    0.10    0.25    6.00   0.269      10
            24           UC   0.200   0.418
            25           UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
            26           UA     100
                         *

            27           KK   SB04B
            28           KM        SB04B Basin Runoff
            29           BA   0.011
            30           LG    0.25    0.25    6.00   0.216      30
            31           UC   0.137   0.182
            32           UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
            33           UA     100
                         *

            34           KK   CE04B
            35           KM        Combine flows from SB04C and SB04B
            36           HC       2
                         *

            37           KK   DB04B
            38           KM        Retention Basin Storage/Outflow rating curve for Basin DBE04C
            39           RS       1    STOR       0
            40           SA   0.063   0.086   0.108   0.132   0.160
            41           SQ    0.01       2      10      22      32
            42           SE    2752    2753    2754    2755    2756
            43           ST    2756      30     2.7     1.5
                         *
1                                                   HEC-1 INPUT                                                   PAGE  2

          LINE           ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


            44           KK  SB03A1
            45           KM        SB03A1 Basin Runoff
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 46          BA   0.002
 47          LG    0.10    0.25    6.00   0.284
 48          UC   0.255   0.646
 49          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 50          UA     100
             *

 51          KK   SB03A   BASIN
 52          KM        SB03A Basin Runoff
 53          BA   0.003
 54          LG    0.10    0.25    6.00   0.284
 55          UC   0.172   0.210
 56          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 57          UA     100
             *

 58          KK   CE03A COMBINE
 59          KM        Combine Flows from DB03A and SB03A
 60          HC       2
             *

 61          KK  SB02A1   BASIN
 62          KM        SB02A1 Basin Runoff
 63          BA   0.059
 64          LG    0.10    0.25    6.00   0.284
 65          UC   0.414   0.543
 66          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 67          UA     100
             *

 68          KK  DB02A1 STORAGE
 69          KM    Retention Basin Storage/Outflow rating curve for Basin DBE02A1
 70          RS       1    STOR       0
 71          SA   0.134   0.162   0.192   0.225
 72          SQ    0.01      12      39      60
 73          SE    2791    2792    2793    2794
 74          ST  2794.8      30     2.7     1.5
             *

 75          KK   R02A1   ROUTE
 76          KM        Route flow from SB02A1 into SB02A3
 77          RS       1    FLOW
 78          RC   0.060   0.060   0.060     455  0.0363 2755.00
 79          RX    0.00   17.00   22.00   27.00   32.00   44.00   61.00   88.00
 80          RY  2755.0 2753.00 2751.90 2750.00 2750.00 2751.90 2753.20 2754.90
             *
1                                                HEC-1 INPUT                                                PAGE  3

        LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


 81          KK  SB02A2   BASIN
 82          KM        SB02A2 Basin Runoff
 83          BA   0.003
 84          LG    0.25    0.25    6.00   0.216      30
 85          UC   0.108   0.178
 86          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 87          UA     100
             *

 88          KK  SB02A3   BASIN
 89          KM        SB02A3 Basin Runoff
 90          BA   0.003
 91          LG    0.10    0.25    6.00   0.284
 92          UC   0.218   0.388
 93          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
 94          UA     100
             *

 95          KK   CE02A COMBINE
 96          KM        Combine Flows from R02A1, DB02A2 and SB02A3
 97          HC       3
             *

 98          KK   SB01A   BASIN
 99          KM        SB01A Basin Runoff
100          BA   0.119
101          LG    0.10    0.25    6.00    0.28       1
102          UC   0.460   0.513
103          UA       0     5.0    16.0    30.0    65.0    77.0    84.0    90.0    94.0    97.0
104          UA     100
             *
105          ZZ
1
                 SCHEMATIC DIAGRAM OF STREAM NETWORK
 INPUT
  LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

   NO.      (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

    13      SB05B2
                 .
                 .
    20           .       SB04C
                 .           .
                 .           .
    27           .           .       SB04B
                 .           .           .
                 .           .           .
    34           .       CE04B............
                 .           V
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                .          V
   37           .       DB04B
                .          .
                .          .
   44           .          .      SB03A1
                .          .          .
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   51           .          .          .       SB03A
                .          .          .          .
                .          .          .          .
   58           .          .       CE03A............
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   61           .          .          .      SB02A1
                .          .          .          V
                .          .          .          V
   68           .          .          .      DB02A1
                .          .          .          V
                .          .          .          V
   75           .          .          .       R02A1
                .          .          .          .
                .          .          .          .
   81           .          .          .          .      SB02A2
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                .          .          .          .          .
   88           .          .          .          .          .      SB02A3
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                .          .          .          .          .           .
   95           .          .          .       CE02A........................
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                .          .          .          .
   98           .          .          .          .       SB01A
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(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

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1****************************************                                          ****************************************
 *                                      *                                          *                                      *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                                          *    U.S. ARMY CORPS OF ENGINEERS      *
 *               JUN   1998             *                                          *    HYDROLOGIC ENGINEERING CENTER     *
 *            VERSION 4.1               *                                          *          609 SECOND STREET           *
 *                                      *                                          *       DAVIS, CALIFORNIA 95616        *
 *  RUN DATE   31JUL21  TIME  10:12:09  *                                          *           (916) 756-1104             *
 *                                      *                                          *                                      *
 ****************************************                                          ****************************************
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SERENO CANYON PHASE 4 - DEVELOPED CONDITIONS - PARCEL H
100 YEAR
6 Hour Storm
Unit Hydrograph: Clark
7/6/21

```
   7 IO          OUTPUT CONTROL VARIABLES
                      IPRNT           5  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE

     IT          HYDROGRAPH TIME DATA
                       NMIN           1  MINUTES IN COMPUTATION INTERVAL
                      IDATE     17MAR97  STARTING DATE
                      ITIME        1645  STARTING TIME
                         NQ        2000  NUMBER OF HYDROGRAPH ORDINATES
                     NDDATE     19MAR97  ENDING DATE
                     NDTIME        0204  ENDING TIME
                      ICENT          19  CENTURY MARK

                  COMPUTATION INTERVAL     .02 HOURS
                       TOTAL TIME BASE   33.32 HOURS

         ENGLISH UNITS
              DRAINAGE AREA         SQUARE MILES
              PRECIPITATION DEPTH   INCHES
              LENGTH, ELEVATION     FEET
              FLOW                  CUBIC FEET PER SECOND
              STORAGE VOLUME        ACRE-FEET
              SURFACE AREA          ACRES
              TEMPERATURE           DEGREES FAHRENHEIT

   9 JD          INDEX STORM NO. 1
                       STRM        3.18  PRECIPITATION DEPTH
                       TRDA         .00  TRANSPOSITION DRAINAGE AREA

  10 PI            PRECIPITATION PATTERN
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RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

	OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
+	HYDROGRAPH AT	SB05B2	9.	4.08	1.	0.	0.	.01		
+	HYDROGRAPH AT	SB04C	3.	4.08	0.	0.	0.	.00		
+	HYDROGRAPH AT	SB04B	29.	4.03	3.	1.	0.	.01		
+	2 COMBINED AT	CE04B	32.	4.03	3.	1.	1.	.01		
+	ROUTED TO	DB04B	25.	4.13	3.	1.	1.	.01		
+									2755.30	4.13
+	HYDROGRAPH AT	SB03A1	2.	4.12	0.	0.	0.	.00		
+	HYDROGRAPH AT	SB03A	7.	4.05	1.	0.	0.	.00		
+	2 COMBINED AT	CE03A	9.	4.05	1.	0.	0.	.00		
+	HYDROGRAPH AT	SB02A1	70.	4.17	10.	3.	2.	.06		
+	ROUTED TO	DB02A1	63.	4.32	10.	3.	2.	.06		
+									2794.14	4.32
+	ROUTED TO	R02A1	63.	4.35	10.	3.	2.	.06		
+									2751.34	4.33
+	HYDROGRAPH AT	SB02A2	8.	4.03	1.	0.	0.	.00		
+	HYDROGRAPH AT	SB02A3	5.	4.08	1.	0.	0.	.00		
+	3 COMBINED AT	CE02A	68.	4.32	11.	3.	2.	.06		
+	HYDROGRAPH AT	SB01A	144.	4.18	21.	5.	4.	.12		

1 SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION DB04B
(PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED DURING BREACH FORMATION)

PLAN 1 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	2752.00	2756.00	2756.00
STORAGE	0.	0.	0.
OUTFLOW	0.	32.	32.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	2755.30	.00	0.	25.	.00	4.13	.00

1 SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION DB02A1
(PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED DURING BREACH FORMATION)

PLAN 1 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	2791.00	2794.80	2794.80
STORAGE	0.	1.	1.
OUTFLOW	0.	77.	77.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	2794.14	.00	1.	63.	.00	4.32	.00

*** NORMAL END OF HEC-1 ***

Appendix D

Worksheet for 127TH ST (STA.15+55 - 20+85) E 1/2

Project Description

Friction Method	Manning Formula
Solve For	Discharge

Input Data

Channel Slope	0.01000	ft/ft
Normal Depth	0.33	ft

Q10=5.5cfs @ Sta.20+85

Section Definitions

Station (ft)	Elevation (ft)
0+12	0.24
0+22	0.00
0+23	0.08
0+23	0.24
0+24	0.33

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+12, 0.24)	(0+22, 0.00)	0.014
(0+22, 0.00)	(0+24, 0.33)	0.012

Results

Discharge	9.01	ft³/s
Elevation Range	0.00 to 0.33 ft	
Flow Area	2.44	ft²
Wetted Perimeter	12.26	ft
Top Width	12.00	ft
Normal Depth	0.33	ft
Critical Depth	0.39	ft
Critical Slope	0.00444	ft/ft
Velocity	3.70	ft/s
Velocity Head	0.21	ft
Specific Energy	0.54	ft
Froude Number	1.45	

Street capacity @ TC

Worksheet for 127TH ST (STA.15+55 - 20+85) W 1/2

Project Description

Friction Method	Manning Formula
Solve For	Discharge

Input Data

Channel Slope	0.01000	ft/ft
Normal Depth	0.33	ft

Q10=5.5cfs @ Sta.20+85

Section Definitions

Station (ft)	Elevation (ft)
0+00	0.33
0+01	0.24
0+01	0.08
0+02	0.00
0+12	0.24

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00, 0.33)	(0+02, 0.00)	0.012
(0+02, 0.00)	(0+12, 0.24)	0.014

Results

Discharge	9.01	ft^3/s
Elevation Range	0.00 to 0.33 ft	
Flow Area	2.44	ft^2
Wetted Perimeter	12.26	ft
Top Width	12.00	ft
Normal Depth	0.33	ft
Critical Depth	0.39	ft
Critical Slope	0.00444	ft/ft
Velocity	3.70	ft/s
Velocity Head	0.21	ft
Specific Energy	0.54	ft
Froude Number	1.45	

Street capacity @ TC

Worksheet for 127TH ST (STA.20+85 - 22+60) E 1/2

Project Description

Friction Method	Manning Formula
Solve For	Discharge

Input Data

Channel Slope	0.11700	ft/ft
Normal Depth	0.33	ft

Q10=7.5cfs @ Sta.22+60

Section Definitions

Station (ft)	Elevation (ft)
0+12	0.24
0+22	0.00
0+23	0.08
0+23	0.24
0+24	0.33

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+12, 0.24)	(0+22, 0.00)	0.014
(0+22, 0.00)	(0+24, 0.33)	0.012

Results

Discharge	30.82	ft³/s
Elevation Range	0.00 to 0.33 ft	
Flow Area	2.44	ft²
Wetted Perimeter	12.26	ft
Top Width	12.00	ft
Normal Depth	0.33	ft
Critical Depth	0.72	ft
Critical Slope	0.00362	ft/ft
Velocity	12.66	ft/s
Velocity Head	2.49	ft
Specific Energy	2.82	ft
Froude Number	4.95	

Street capacity @ TC

Worksheet for 127TH ST (STA.20+85 - 22+60) W 1/2

Project Description

Friction Method	Manning Formula
Solve For	Discharge

Input Data

Channel Slope	0.11700	ft/ft
Normal Depth	0.33	ft

Q10=7.5cfs @ Sta.22+60

Section Definitions

Station (ft)	Elevation (ft)
0+00	0.33
0+01	0.24
0+01	0.08
0+02	0.00
0+12	0.24

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00, 0.33)	(0+02, 0.00)	0.012
(0+02, 0.00)	(0+12, 0.24)	0.014

Results

Discharge	30.82	ft³/s
Elevation Range	0.00 to 0.33 ft	
Flow Area	2.44	ft²
Wetted Perimeter	12.26	ft
Top Width	12.00	ft
Normal Depth	0.33	ft
Critical Depth	0.72	ft
Critical Slope	0.00362	ft/ft
Velocity	12.66	ft/s
Velocity Head	2.49	ft
Specific Energy	2.82	ft
Froude Number	4.95	

Street capacity @ TC

Worksheet for CASA DEL RIO (STA.12+73 - 15+55)

Project Description

Friction Method	Manning Formula
Solve For	Discharge

Input Data

Channel Slope	0.01000	ft/ft
Normal Depth	0.33	ft

Q10=2cfs @ Sta.15+55

Section Definitions

Station (ft)	Elevation (ft)
0+00	0.33
0+01	0.24
0+01	0.08
0+02	0.00
0+12	0.24

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00, 0.33)	(0+02, 0.00)	0.012
(0+02, 0.00)	(0+12, 0.24)	0.014

Results

Discharge	9.01	ft³/s
Elevation Range	0.00 to 0.33 ft	
Flow Area	2.44	ft²
Wetted Perimeter	12.26	ft
Top Width	12.00	ft
Normal Depth	0.33	ft
Critical Depth	0.39	ft
Critical Slope	0.00444	ft/ft
Velocity	3.70	ft/s
Velocity Head	0.21	ft
Specific Energy	0.54	ft
Froude Number	1.45	

Street capacity @ TC

Worksheet for CASA DEL RIO (STA.51+95 - 56+00) E 1/2

Project Description

Friction Method	Manning Formula
Solve For	Discharge

Input Data

Channel Slope	0.03870	ft/ft
Normal Depth	0.33	ft

Q10=2cfs @ Sta.56+00

Section Definitions

Station (ft)	Elevation (ft)
0+12	0.24
0+22	0.00
0+23	0.08
0+23	0.24
0+24	0.33

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+12, 0.24)	(0+22, 0.00)	0.014
(0+22, 0.00)	(0+24, 0.33)	0.012

Results

Discharge	17.73	ft³/s
Elevation Range	0.00 to 0.33 ft	
Flow Area	2.44	ft²
Wetted Perimeter	12.26	ft
Top Width	12.00	ft
Normal Depth	0.33	ft
Critical Depth	0.53	ft
Critical Slope	0.00395	ft/ft
Velocity	7.28	ft/s
Velocity Head	0.82	ft
Specific Energy	1.15	ft
Froude Number	2.85	

Street capacity @ TC

Worksheet for CASA DEL RIO (STA.51+95 - 56+00) W 1/2

Project Description

Friction Method	Manning Formula
Solve For	Discharge

Input Data

Channel Slope	0.03870	ft/ft
Normal Depth	0.33	ft

Q10=2cfs @ Sta.56+00

Section Definitions

Station (ft)	Elevation (ft)
0+00	0.33
0+01	0.24
0+01	0.08
0+02	0.00
0+12	0.24

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00, 0.33)	(0+02, 0.00)	0.012
(0+02, 0.00)	(0+12, 0.24)	0.014

Results

Discharge	17.73	ft³/s
Elevation Range	0.00 to 0.33 ft	
Flow Area	2.44	ft²
Wetted Perimeter	12.26	ft
Top Width	12.00	ft
Normal Depth	0.33	ft
Critical Depth	0.53	ft
Critical Slope	0.00395	ft/ft
Velocity	7.28	ft/s
Velocity Head	0.82	ft
Specific Energy	1.15	ft
Froude Number	2.85	

Street capacity @ TC

Worksheet for CB1 @ 127TH ST

Project Description

Solve For	Spread

Input Data

Discharge		14.50	ft^3/s
Gutter Width		2.00	ft
Gutter Cross Slope		0.04	ft/ft
Road Cross Slope		0.02	ft/ft
Curb Opening Length		23.00	ft
Opening Height		0.50	ft
Curb Throat Type	Horizontal		
Local Depression		4.00	in
Local Depression Width		23.00	ft
Throat Incline Angle		90.00	degrees

Results

Spread	10.75	ft
Depth	0.25	ft
Gutter Depression	0.04	ft
Total Depression	0.37	ft

Messages

Notes	COP Catch Basin Type "M2" (L=10')

Worksheet for CB2 @ 127TH ST

Project Description

Solve For	Spread		

Input Data

Discharge		14.50	ft^3/s
Gutter Width		2.00	ft
Gutter Cross Slope		0.04	ft/ft
Road Cross Slope		0.02	ft/ft
Curb Opening Length		23.00	ft
Opening Height		0.50	ft
Curb Throat Type	Horizontal		
Local Depression		4.00	in
Local Depression Width		23.00	ft
Throat Incline Angle		90.00	degrees

Results

Spread		10.75	ft
Depth		0.25	ft
Gutter Depression		0.04	ft
Total Depression		0.37	ft

Messages

Notes	COP Catch Basin Type "M2" (L=10')

Worksheet for CB3 @ CASA DEL RIO

Project Description

Solve For	Spread

Input Data

Discharge		8.00	ft^3/s
Gutter Width		2.00	ft
Gutter Cross Slope		0.04	ft/ft
Road Cross Slope		0.02	ft/ft
Curb Opening Length		9.00	ft
Opening Height		0.50	ft
Curb Throat Type	Horizontal		
Local Depression		4.00	in
Local Depression Width		9.00	ft
Throat Incline Angle		90.00	degrees

Results

Spread	8.31	ft
Depth	0.31	ft
Gutter Depression	0.04	ft
Total Depression	0.37	ft

Messages

Notes	COP Catch Basin Type "M1" (L=6')

Table 1 - Summary of Culvert Flows at Crossing: DB02A1

Headwater Elevation (ft)	Total Discharge (cfs)	Culvert 1 Discharge (cfs)	Roadway Discharge (cfs)	Iterations
2791.00	0.00	0.00	0.00	1
2791.67	6.30	6.30	0.00	1
2791.97	12.60	12.60	0.00	1
2792.26	18.90	18.90	0.00	1
2792.50	25.20	25.20	0.00	1
2792.73	31.50	31.50	0.00	1
2792.96	37.80	37.80	0.00	1
2793.19	44.10	44.10	0.00	1
2793.45	50.40	50.40	0.00	1
2793.75	56.70	56.70	0.00	1
2794.07	63.00	63.00	0.00	1
2794.88	76.07	76.07	0.00	Overtopping

Rating Curve Plot for Crossing: DB02A1

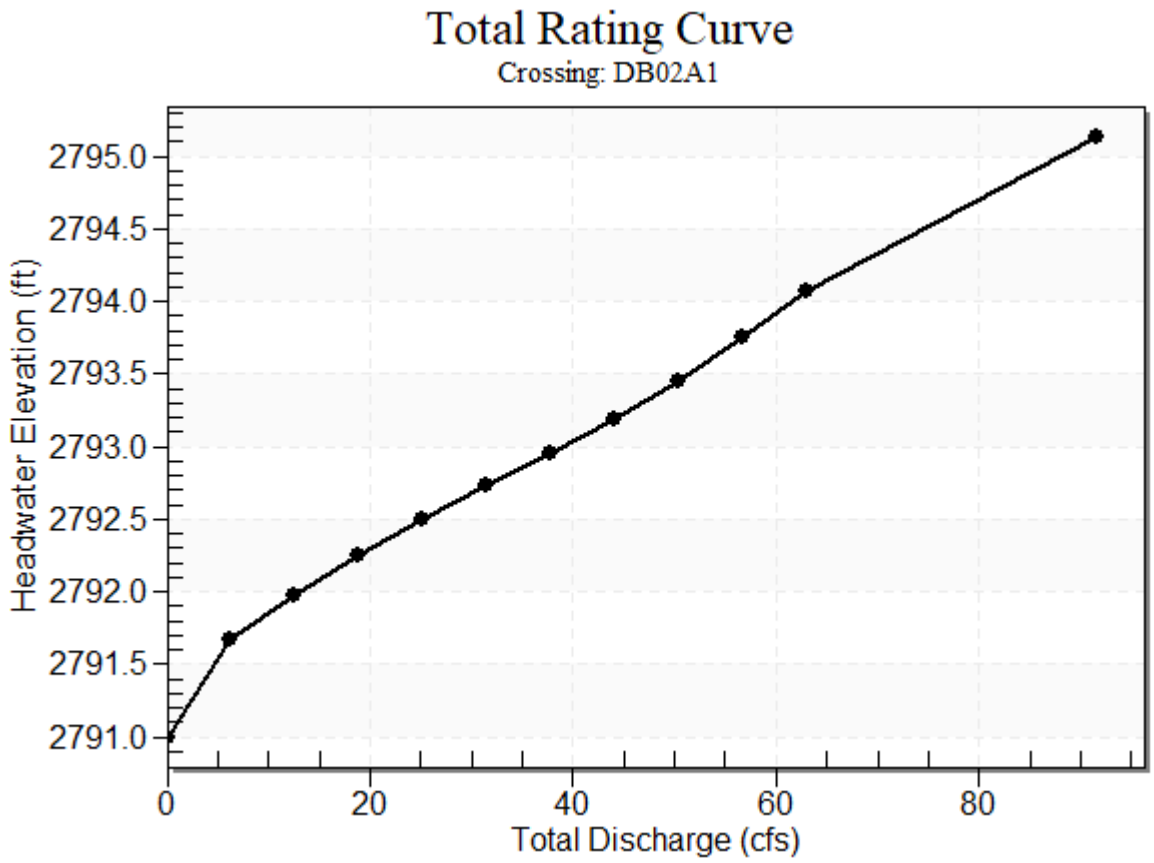
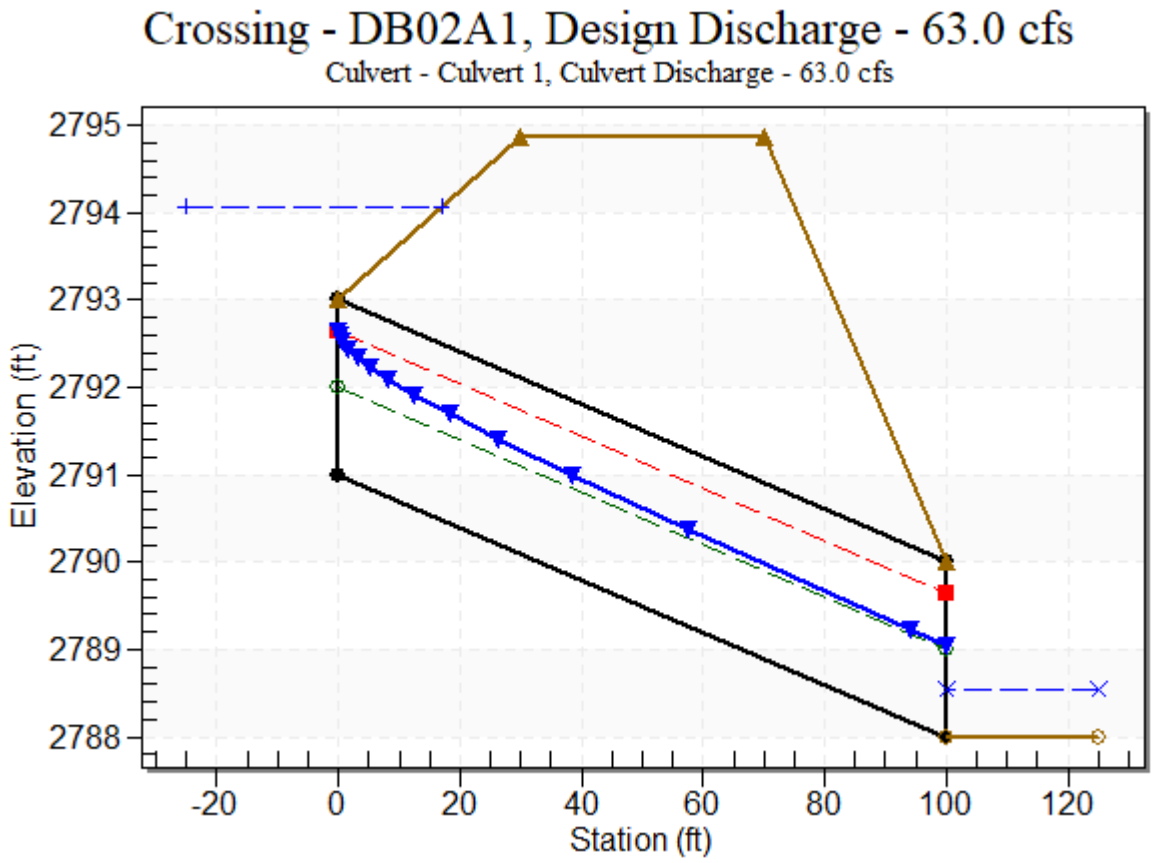


Table 2 - Culvert Summary Table: Culvert 1

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
0.00	0.00	2791.00	0.000	0.000	0-NF	0.000	0.000	0.000	0.000	0.000	0.000
6.30	6.30	2791.67	0.673	0.0*	1-S2n	0.302	0.503	0.302	0.145	7.038	2.360
12.60	12.60	2791.97	0.972	0.0*	1-S2n	0.424	0.719	0.424	0.217	8.635	3.026
18.90	18.90	2792.26	1.255	0.0*	1-S2n	0.520	0.888	0.520	0.275	9.707	3.486
25.20	25.20	2792.50	1.502	0.0*	1-S2n	0.602	1.033	0.630	0.324	9.895	3.844
31.50	31.50	2792.73	1.730	0.0*	1-S2n	0.677	1.161	0.706	0.368	10.598	4.141
37.80	37.80	2792.96	1.955	0.0*	1-S2n	0.746	1.276	0.775	0.408	11.200	4.396
44.10	44.10	2793.19	2.193	0.0*	5-S2n	0.811	1.382	0.838	0.445	11.781	4.622
50.40	50.40	2793.45	2.454	0.0*	5-S2n	0.873	1.477	0.914	0.479	12.013	4.826
56.70	56.70	2793.75	2.746	0.217	5-S2n	0.934	1.564	0.975	0.512	12.433	5.009
63.00	63.00	2794.07	3.075	0.592	5-S2n	0.993	1.642	1.039	0.542	12.731	5.179

Water Surface Profile Plot for Culvert: Culvert 1



Site Data - Culvert 1

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 2791.00 ft

Outlet Station: 100.00 ft

Outlet Elevation: 2788.00 ft

Number of Barrels: 3

Culvert Data Summary - Culvert 1

Barrel Shape: Circular

Barrel Diameter: 2.00 ft

Barrel Material: Smooth HDPE

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: Square Edge with Headwall

Inlet Depression: None

Table 3 - Downstream Channel Rating Curve (Crossing: DB02A1)

Flow (cfs)	Water Surface Elev (ft)	Depth (ft)	Velocity (ft/s)	Shear (psf)	Froude Number
0.00	2788.00	0.00	0.00	0.00	0.00
6.30	2788.14	0.14	2.36	0.41	1.14
12.60	2788.22	0.22	3.03	0.61	1.21
18.90	2788.27	0.27	3.49	0.77	1.25
25.20	2788.32	0.32	3.84	0.91	1.28
31.50	2788.37	0.37	4.14	1.03	1.31
37.80	2788.41	0.41	4.40	1.15	1.33
44.10	2788.44	0.44	4.62	1.25	1.34
50.40	2788.48	0.48	4.83	1.35	1.36
56.70	2788.51	0.51	5.01	1.44	1.37
63.00	2788.54	0.54	5.18	1.52	1.38

Table 1 - Summary of Culvert Flows at Crossing: DB05B2

Headwater Elevation (ft)	Total Discharge (cfs)	Culvert 1 Discharge (cfs)	Roadway Discharge (cfs)	Iterations
99.00	0.00	0.00	0.00	1
99.44	0.90	0.90	0.00	1
99.63	1.80	1.80	0.00	1
99.78	2.70	2.70	0.00	1
99.91	3.60	3.60	0.00	1
100.03	4.50	4.50	0.00	1
100.16	5.40	5.40	0.00	1
100.27	6.30	6.30	0.00	1
100.38	7.20	7.20	0.00	1
100.49	8.10	8.10	0.00	1
100.59	9.00	9.00	0.00	1
105.00	33.78	33.78	0.00	Overtopping

Rating Curve Plot for Crossing: DB05B2

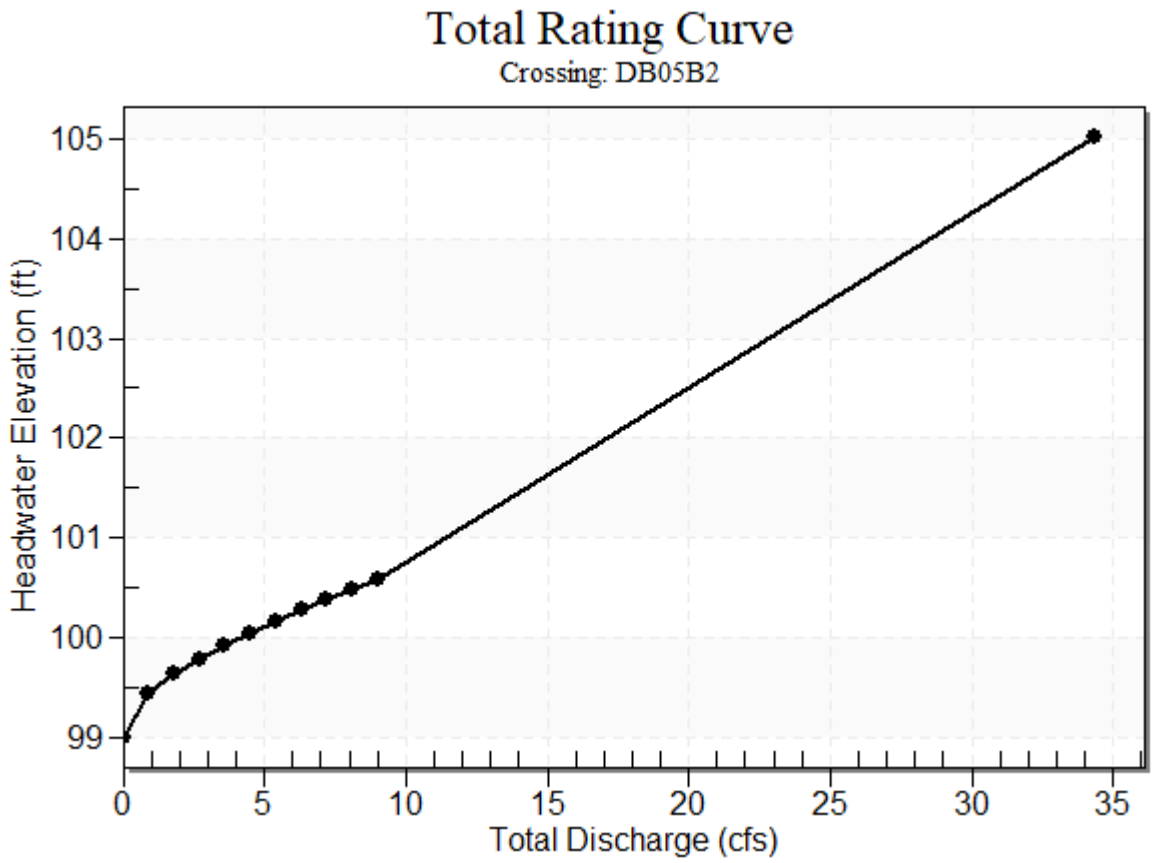
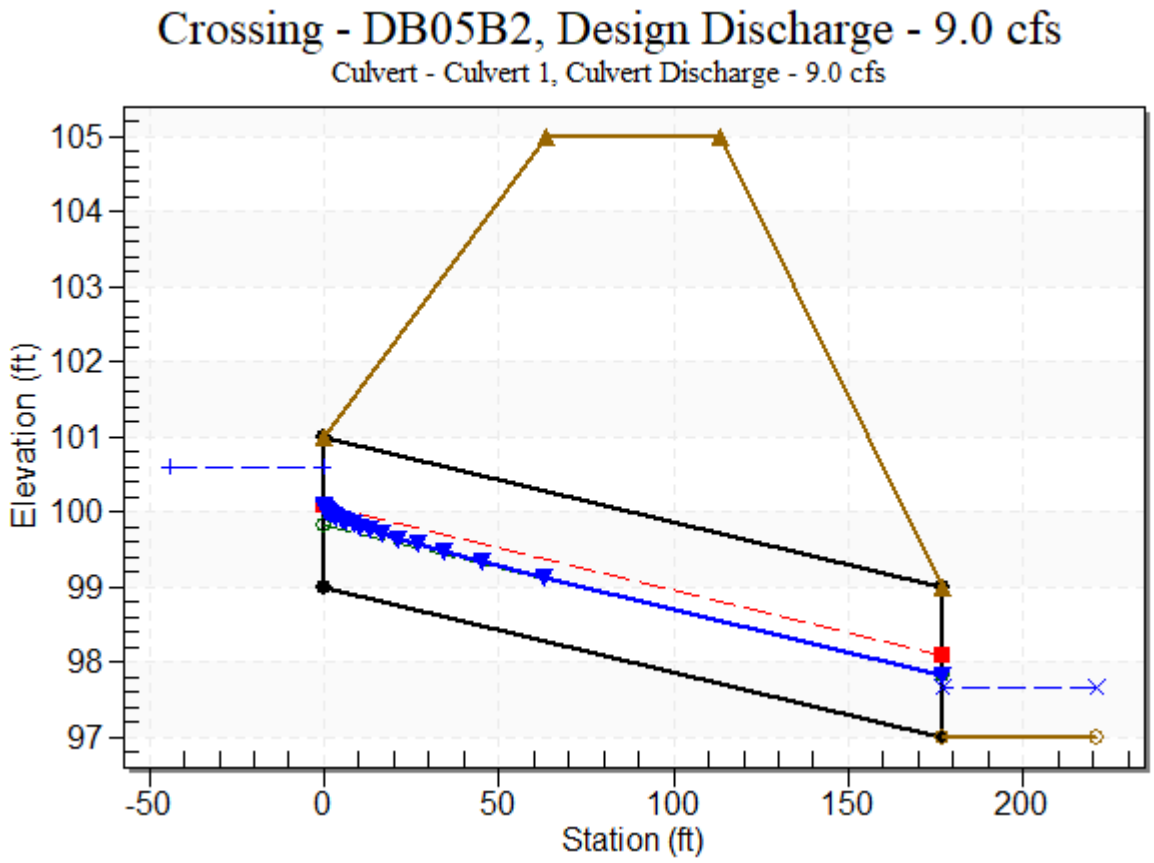


Table 2 - Culvert Summary Table: Culvert 1

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
0.00	0.00	99.00	0.000	0.000	0-NF	0.000	0.000	0.000	0.000	0.000	0.000
0.90	0.90	99.44	0.440	0.0*	1-S2n	0.254	0.326	0.254	0.154	3.879	1.171
1.80	1.80	99.63	0.630	0.0*	1-S2n	0.355	0.465	0.355	0.236	4.766	1.526
2.70	2.70	99.78	0.780	0.0*	1-S2n	0.434	0.572	0.434	0.304	5.373	1.777
3.60	3.60	99.91	0.909	0.0*	1-S2n	0.501	0.664	0.501	0.364	5.837	1.977
4.50	4.50	100.03	1.029	0.0*	1-S2n	0.562	0.746	0.562	0.419	6.220	2.146
5.40	5.40	100.16	1.156	0.0*	1-S2n	0.617	0.820	0.617	0.471	6.550	2.291
6.30	6.30	100.27	1.274	0.0*	1-S2n	0.669	0.888	0.669	0.520	6.840	2.422
7.20	7.20	100.38	1.384	0.0*	1-S2n	0.718	0.953	0.718	0.567	7.100	2.539
8.10	8.10	100.49	1.488	0.0*	1-S2n	0.765	1.013	0.765	0.612	7.331	2.646
9.00	9.00	100.59	1.587	0.0*	1-S2n	0.810	1.071	0.810	0.656	7.544	2.744

Water Surface Profile Plot for Culvert: Culvert 1



Site Data - Culvert 1

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 99.00 ft

Outlet Station: 177.00 ft

Outlet Elevation: 97.00 ft

Number of Barrels: 1

Culvert Data Summary - Culvert 1

Barrel Shape: Circular

Barrel Diameter: 2.00 ft

Barrel Material: Smooth HDPE

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: Square Edge with Headwall

Inlet Depression: None

Table 3 - Downstream Channel Rating Curve (Crossing: DB05B2)

Flow (cfs)	Water Surface Elev (ft)	Depth (ft)	Velocity (ft/s)	Shear (psf)	Froude Number
0.00	97.00	0.00	0.00	0.00	0.00
0.90	97.15	0.15	1.17	0.10	0.53
1.80	97.24	0.24	1.53	0.15	0.55
2.70	97.30	0.30	1.78	0.19	0.57
3.60	97.36	0.36	1.98	0.23	0.58
4.50	97.42	0.42	2.15	0.26	0.58
5.40	97.47	0.47	2.29	0.29	0.59
6.30	97.52	0.52	2.42	0.32	0.59
7.20	97.57	0.57	2.54	0.35	0.59
8.10	97.61	0.61	2.65	0.38	0.60
9.00	97.66	0.66	2.74	0.41	0.60

Appendix E

Sediment Flow Analysis
Parcel H - Sereno Canyon

1. Sediment Inflow to Drainage Area SB01A1

$$q_s = 0.0064 \frac{n^{1.77} V^{4.32} G^{0.45}}{Y_h^{0.30} D_{50}^{0.61}}$$ (Zeller and Fullerton)

where:

q_s = Unit Transport Rate of Bed-Material Load per unit width [cfs/ft]
n = Manning's "n" Value
V = Average Channel Velocity [ft/s]
G = Gradation Coefficient of Bed-Material
Y_h = Hydraulic Depth of Flow [ft]
D_{50} = Median Diameter of Bed-Material [mm]

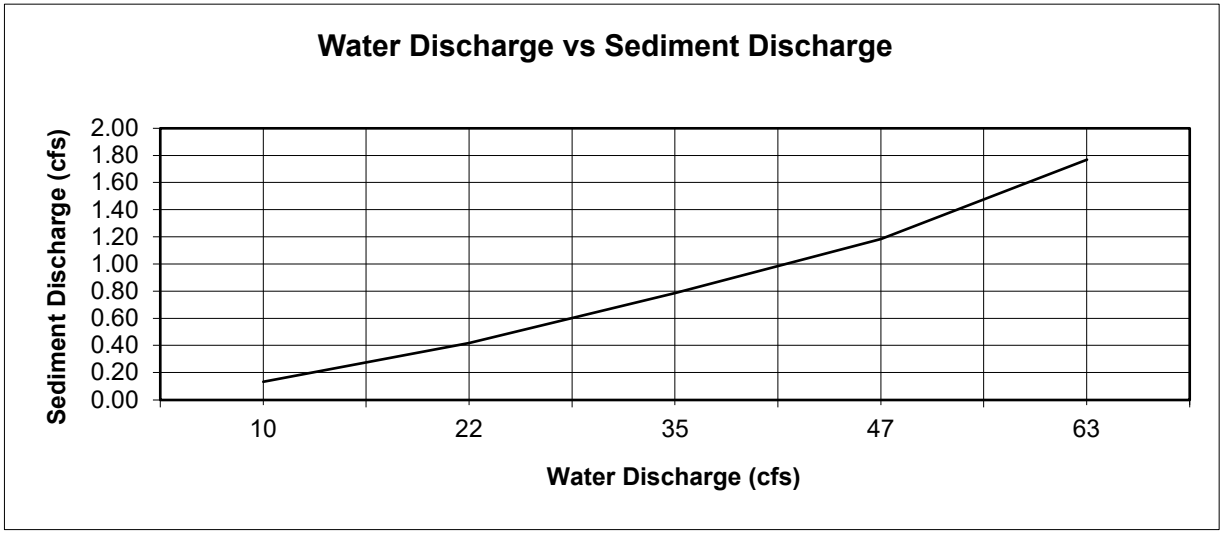
n =	0.045	
$D_{15.9}$ =	0.23	mm
D_{50} =	2	mm
$D_{84.1}$ =	10.7	mm
G =	7.0	$G = 0.5 \{(D_{84.1}/D_{50}) + (D_{50}/D_{15.9})\}$

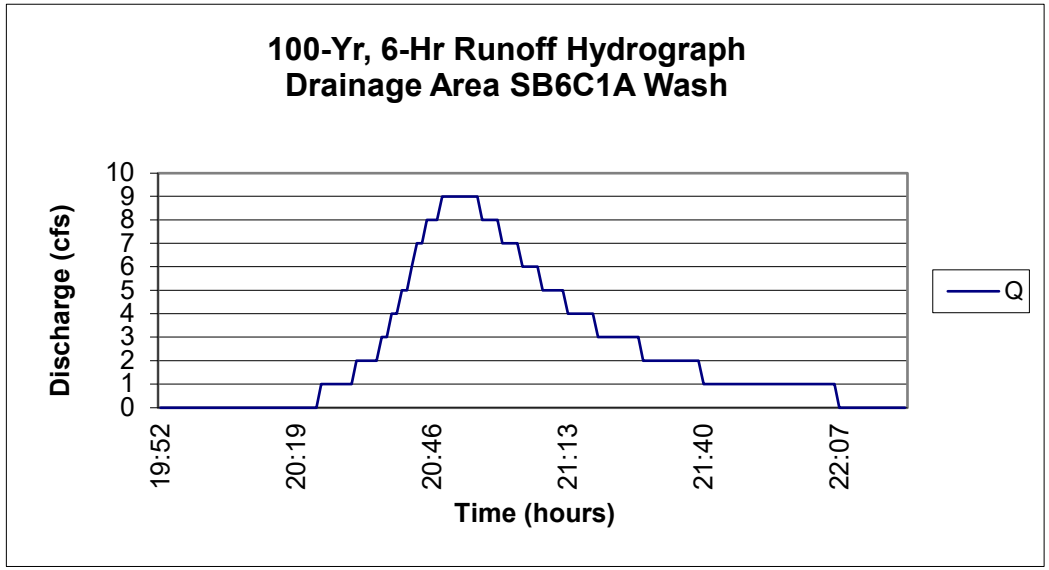
Reach 1 (this reach is representative of the Drainage Area SB02A1 Wash upstream)

Y_h (ft)	0.23	0.36	0.46	0.54	0.63
Width (ft)	16.6	19.5	21.3	22.8	24.6
Q (cfs)	10	22	35	47	63
V (fps)	3.05	3.95	4.56	4.99	5.44
Q_s (cfs)	0.13	0.42	0.79	1.18	1.77

The following graph shows the relationship between the "water discharge" and the "sediment discharge" for the wash reach.

Sediment Flow Analysis
Parcel H - Sereno Canyon





Sediment Flow Analysis
Parcel H - Sereno Canyon

The "water discharges" associated with each of the discretized hydrograph intervals were applied to the sediment transport-rating curve in order to compute the "sediment transport rate" of each hydrograph time step. The following table shows the results of this analysis:

Time Step	Water Discharge (cfs)	Sediment Transport (cfs)	Flow Duration (min)	
1	0	0.00	5	
2	0	0.00	10	
3	0	0.00	15	
4	0	0.00	20	
5	0	0.00	25	
6	0	0.00	30	
7	2	0.03	35	
8	7	0.09	40	
9	13	0.20	45	
10	25	0.49	50	
11	44	0.94	55	
12	61	1.34	60	
13	70	1.55	65	**Max.**
14	68	1.50	70	
15	62	1.36	75	
16	55	1.20	80	
17	48	1.03	85	
18	41	0.87	90	
19	35	0.72	95	
20	30	0.40	100	
21	26	0.34	105	
22	22	0.29	110	
23	19	0.25	115	
24	16	0.21	120	
25	14	0.19	125	
26	12	0.16	130	
27	10	0.13	135	
28	9	0.12	140	
29	8	0.11	145	
30	7	0.09	150	

Time Step	Water Discharge (cfs)	Sediment Transport (cfs)	Flow Duration (min)
31	6	0.08	155
32	5	0.07	160
33	4	0.05	165
34	4	0.05	170
35	3	0.04	175
36	3	0.04	180
37	2	0.03	185
38	2	0.03	190
39	2	0.03	195
40	1	0.01	200
41	1	0.01	205
42	1	0.01	210
43	1	0.01	215
44	1	0.01	220
45	1	0.01	225
46	0	0.00	230
47	0	0.00	235

Sediment Flow Analysis
Parcel H - Sereno Canyon

The estimated 'sediment inflow' rate (Q_s) at Drainage Area SB02A1 Wash is:

Q_s = 1.34 cfs

2. Sediment Transport in Culverts

$Q_{s\,max} = 3.78\, g^{0.5}\, D_s^{-1.02}\, S_f^{2.52}\, R^{1.52}\, A$ (Graf and Acaroglu)(FHWA-HI-90-016)

where:

$Q_{s\,max}$ = Maximun Sediment Discharge Rate [cfs]
g = Gravitational Accelaration [ft^2/s]
D_s = Mean Gran Size of Bed Material [ft]
S_f = Friction Slope (slope of the energy grade line)
R = Hydraulic Radius (A/P when flowing full)
A = Area

a) Stormdrain Section No.1:

Circular= 3-24" HDPE

Q =	70	cfs	
L =	85	ft	Culvert Length
A =	3.1	ft^2	
P =	6.3	ft	
R =	0.5	ft	
HW =	5.0	ft	Headwater at Culvert
S_f =	0.035	ft/ft	
D_s =	0.007	ft	(D_{50}= 2 mm)

Sediment Flow Analysis
Parcel H - Sereno Canyon

$Q_{s\ max} = 3\ [3.78\ (32.2)^{0.5}\ (0.007)^{-1.02}\ (0.035)^{2.52}\ (0.5)^{1.52}\ (3.1)]$

$Q_{s\ max}$ =	2.51 cfs	(3-24" HDPE)	(Total Sediment Discharge Capacity for stormdrain)

Q_s = 1.34 cfs (sediment inflow rate for 100-Yr, 6-Hr peak storm event at Drainage Area SB02A1 Wash)

Therefore, the proposed pipes have a sediment transport capacity greater than the sediment flow rate impacting the structure.

Sediment Flow Analysis
Parcel H - Sereno Canyon

1. Sediment Inflow to Drainage Area 01

$$q_s = 0.0064 \frac{n^{1.77} V^{4.32} G^{0.45}}{Y_h^{0.30} D_{50}^{0.61}}$$ (Zeller and Fullerton)

where:

q_s = Unit Transport Rate of Bed-Material Load per unit width [cfs/ft]
n = Manning's "n" Value
V = Average Channel Velocity [ft/s]
G = Gradation Coefficient of Bed-Material
Y_h = Hydraulic Depth of Flow [ft]
D_{50} = Median Diameter of Bed-Material [mm]

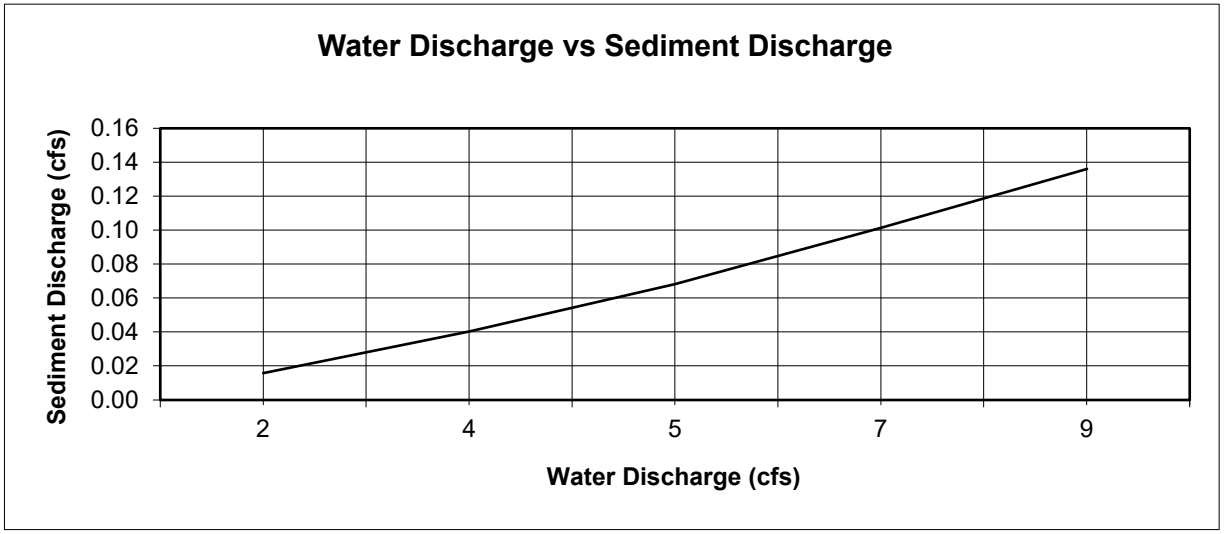
n =	0.045	
$D_{15.9}$ =	0.23	mm
D_{50} =	2	mm
$D_{84.1}$ =	10.7	mm
G =	7.0	$G = 0.5 \{(D_{84.1}/D_{50}) + (D_{50}/D_{15.9})\}$

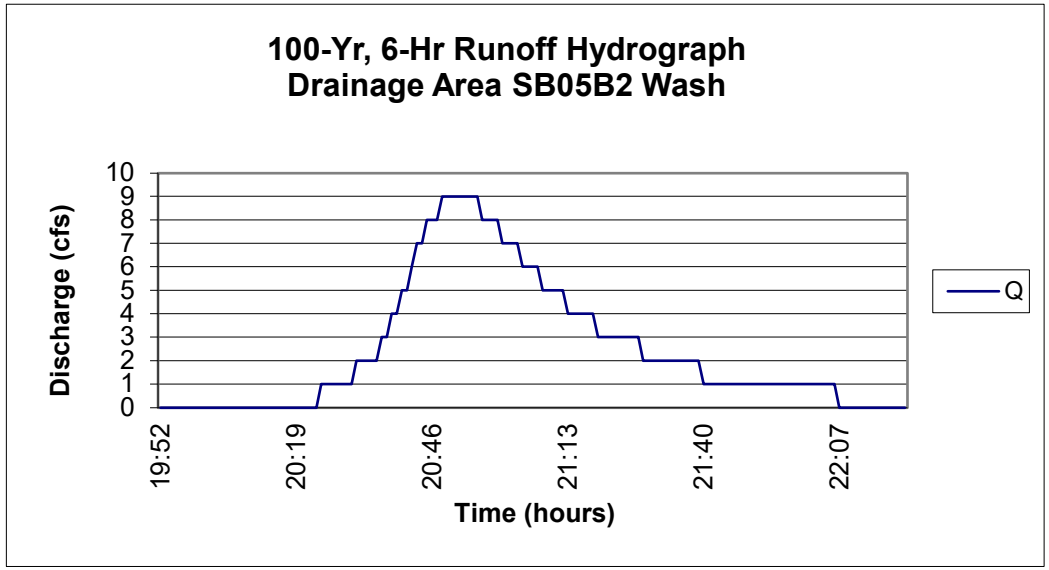
Reach 1 (this reach is representative of the Drainage Area SB05B2 Wash upstream)

Y_h (ft)	0.26	0.37	0.45	0.52	0.58
Width (ft)	3.5	4.3	4.8	5.3	5.7
Q (cfs)	1.8	3.6	5.4	7.2	9.0
V (fps)	2.69	3.27	3.65	3.95	4.19
Q_s (cfs)	0.02	0.04	0.07	0.10	0.14

The following graph shows the relationship between the "water discharge" and the "sediment discharge" for the wash reach.

Sediment Flow Analysis
Parcel H - Sereno Canyon





Sediment Flow Analysis
Parcel H - Sereno Canyon

The "water discharges" associated with each of the discretized hydrograph intervals were applied to the sediment transport-rating curve in order to compute the "sediment transport rate" of each hydrograph time step. The following table shows the results of this analysis:

Time Step	Water Discharge (cfs)	Sediment Transport (cfs)	Flow Duration (min)	
1	0	0.00	5	
2	0	0.00	10	
3	0	0.00	15	
4	0	0.00	20	
5	0	0.00	25	
6	0	0.00	30	
7	1	0.01	35	
8	1	0.01	40	
9	2	0.02	45	
10	5	0.06	50	
11	8	0.10	55	
12	9	0.11	60	**Max.**
13	9	0.11	65	
14	7	0.09	70	
15	6	0.07	75	
16	5	0.06	80	
17	4	0.05	85	
18	3	0.03	90	
19	3	0.03	95	
20	2	0.02	100	
21	2	0.02	105	
22	1	0.01	110	
23	1	0.01	115	
24	1	0.01	120	
25	1	0.01	125	
26	1	0.01	130	
27	1	0.01	135	
28	0	0.00	140	
29	0	0.00	145	
30	0	0.00	150	

Sediment Flow Analysis
Parcel H - Sereno Canyon

The estimated 'sediment inflow' rate (Q_s) at Drainage Area SB05B2 Wash is:

Q_s = 0.11 cfs

2. Sediment Transport in Culverts

$Q_{s\,max} = 3.78\, g^{0.5}\, D_s^{-1.02}\, S_f^{2.52}\, R^{1.52}\, A$ (Graf and Acaroglu)(FHWA-HI-90-016)

where:

$Q_{s\,max}$ = Maximun Sediment Discharge Rate [cfs]
g = Gravitational Accelaration [ft^2/s]
D_s = Mean Gran Size of Bed Material [ft]
S_f = Friction Slope (slope of the energy grade line)
R = Hydraulic Radius (A/P when flowing full)
A = Area

a) Stormdrain Section No.1:

Circular= 30" HDPE

Q =	9	cfs	
L =	177	ft	Culvert Length
A =	4.9	ft^2	
P =	7.9	ft	
R =	0.6	ft	
HW =	6.0	ft	Headwater at Culvert
S_f =	0.011	ft/ft	
D_s =	0.007	ft	(D_{50}= 2 mm)

Sediment Flow Analysis
Parcel H - Sereno Canyon

$Q_{s\ max} = 3.78\ (32.2)^{0.5}\ (0.007)^{-1.02}\ (0.011)^{2.52}\ (0.5)^{1.52}\ (3.1)$

$Q_{s\ max}$ =	0.1 cfs	(30" HDPE)	(Total Sediment Discharge Capacity for stormdrain)

Q_s = 0.1 cfs (sediment inflow rate for 100-Yr, 6-Hr peak storm event at Drainage Area SB05B2 Wash)

Therefore, the proposed pipe has adequate sediment transport capacity.

IMPROVEMENT PLANS
SERENO CANYON
PARCEL H, PHASE 4

A PORTION OF SECTION 11, TOWNSHIP 4 NORTH, RANGE 5 EAST,
OF THE GILA AND SALT RIVER BASE AND MERIDIAN, MARICOPA COUNTY, ARIZONA

DEVELOPER
TOLL BROTHERS ARIZONA CONSTRUCTION COMPANY
8767 E VIA DE VENTURA, SUITE 390
SCOTTSDALE, ARIZONA 85258
(480) 951-0782

ENGINEER
ARGUS CONSULTING, P.C.
10115 E. BELL ROAD, SUITE 107 - #104
SCOTTSDALE, ARIZONA 85260
(480) 596-1131

PROJECT INFO
EXISTING ZONING: R4-R (ESL)

RELATED CASE NO.
19-PP-2013 10-GP-2011 16-ZN-2011

BENCHMARK
GDACS POINT 43555-1 (MCDOT)
FD 1" I.P WITH GLO BRASS CAP UP 1.20' STAMPED
"1/4 CORNER S10/S11 1919"
NAVD88 ELEVATION = 2673.236

I HEREBY CERTIFY THAT ALL ELEVATIONS REPRESENTED ON THIS PLAN ARE BASED ON THE NORTH AMERICA VERTICAL DATUM 1988 (NAVD 1988) BY USING THE MARICOPA COUNTY DEPARTMENT OF TRANSPORTATION (MCDOT) BENCHMARK SYSTEM.

UTILITY PROVIDERS

WATER	CITY OF SCOTTSDALE
SEWER	CITY OF SCOTTSDALE
ELECTRICITY	ARIZONA PUBLIC SERVICE
TELEPHONE	CENTURY LINK
GAS	SOUTHWEST GAS COMPANY
CABLE TV	COX COMMUNICATIONS

SPECIFICATIONS
ALL SITE WORK SHALL CONFORM TO THE LATEST EDITION OF MARICOPA ASSOCIATION OF GOVERNMENTS (MAG) UNIFORM STANDARD SPECIFICATIONS AND UNIFORM STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION, AS AMENDED BY PROJECT SPECIFICATIONS, PLANS AND PROJECT GEOTECHNICAL REPORT.

NATIVE PLANT SUBMITTAL
2901-18-2

QUARTER SECTIONS
45-58

ASSESSORS PARCEL NOS.
217-01-284D

UNDERGROUND UTILITY STATEMENT
The underground utilities shown have been located from field survey information and existing drawings. The surveyor makes no guarantee that the underground utilities shown comprise all such utilities in the area, either in service or abandoned. The engineer further does not warrant that the underground utilities shown are in the exact location indicated although he does certify that they are located as accurately as possible from information available. The engineer has not physically located the underground utilities.

NATURAL AREA OPEN SPACE (NAOS) AND LIMITS OF CONSTRUCTION (LOC) PROTECTION PROGRAM:
1. NO BUILDING, GRADING OR CONSTRUCTION ACTIVITY SHALL ENCROACH INTO THE AREAS DESIGNATED AS NAOS, OR OUTSIDE THE DESIGNATED LIMITS OF CONSTRUCTION ENVELOPE.
2. ALL NAOS AND AREA OUTSIDE OF THE LOC SHALL BE PROTECTED FROM DAMAGE PRIOR TO AND DURING CONSTRUCTION BY THE FOLLOWING METHOD:
   - A REGISTERED LAND SURVEYOR SHALL STAKE ALL NAOS AND LOC DISTURBANCE BASED ON THIS EXHIBIT.
   - ±3 FOOT TALL STEEL REBAR, OR CITY OF SCOTTSDALE INSPECTION SERVICES APPROVED SIMILAR, SHALL BE SET ALONG THE NAOS AND LOC, CONNECTED WITH GOLD ROPING BY THE CONTRACTOR PRIOR TO ANY CLEARING OR GRADING.
   - ALL CACTUS SUBJECT TO THE CITY OF SCOTTSDALE'S NATIVE PLANT ORDINANCE DIRECTLY ADJACENT, WITHIN 2 FEET, OF THE NAOS AND LOC LINE SHALL BE FENCED WITH WIRE FENCING TO PREVENT DAMAGE.
   - THE STAKING, ROPING, AND FENCING SHALL BE MAINTAINED INTACTED BY THE CONTRACTOR DURING THE DURATION OF THE CONSTRUCTION ACTIVITY.
3. THE CONTRACTOR SHALL REMOVE STAKING, ROPING, AND FENCING AFTER RECEIPT OF THE LETTER OF ACCEPTANCE/CERTIFICATION OF OCCUPANCY FROM THE CITY OF SCOTTSDALE FOR ALL CONSTRUCTION WORK.

NO CONFLICT SIGNATURE BLOCK

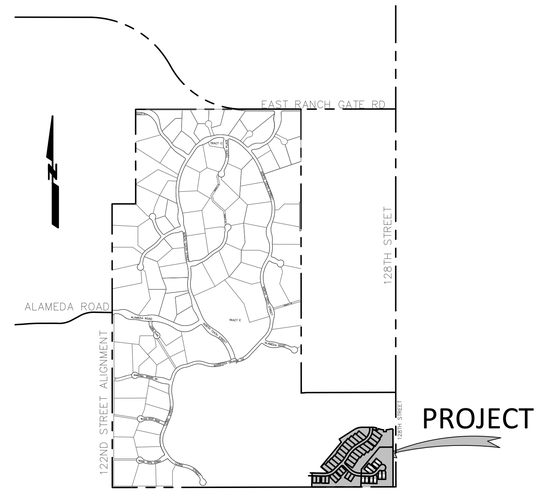
UTILITY	UTILITY COMPANY	COMPANY REP.	TEL.. NO.	DATE SUBMITTED	DATE RETURNED
ELECTRIC	APS	SCOTT TIMAR	602-493-4421	7-26-21	
TELEPHONE	CENTURY LINK	CHRIS (MARIA) LERTIQUE	602-630-0492	7-26-21	
NATURAL GAS	S.W. GAS	GREG COOPER	602-484-5276	7-26-21	
CABLE TV	COX	TRAFFIC MGMT CENTER	623-328-2190	7-26-21	
ELECTRIC					
OTHER					

ENGINEERS CERTIFICATION
I JORGE GARRE, BEING RESPONSIBLE FOR DESIGNING THE FACILITIES NECESSARY TO SERVE THIS DEVELOPMENT, HEREBY CERTIFY THAT ALL OF THE UTILITY COMPANIES LISTED ABOVE HAVE BEEN CONTACTED. PLANS AND 'NO CONFLICT' FORMS HAVE BEEN SUBMITTED FOR REVIEW AND COMMENT BY EACH COMPANY.

SIGNATURE 7/23/21
DATE

LEGEND

	A.C. PAVEMENT ON A.B.C. MATERIAL
	DECORATIVE PAVEMENT
	EXISTING EDGE OF PAVEMENT
	TOP OF SLOPE BANK
	TOE OF SLOPE BANK
G.B.	GRADE BREAK
	FLOW DIRECTION
8"W	EXISTING UTILITY (SIZE & TYPE NOTED)
	PROPOSED UTILITY LINE (SIZE & TYPE AS NOTED)
	PROPERTY LINE OR RIGHT OF WAY LINE
	EASEMENT LINE
	NATURAL AREA OPEN SPACE LINE (N.A.O.S.)
	BUILDING SETBACK LINE (BSL)
	STORM DRAIN
	AIR RELEASE VALVE
51.0	PROPOSED GROUND ELEVATION
P 05.00	PAVEMENT ELEVATION
TC 05.00	TOP OF CURB ELEVATION
05.00	TOP OF CURB ELEVATION
G 05.00	GUTTER ELEVATION
C 05.00	CONCRETE ELEVATION
FG 05.0	FINISH GRADE ELEVATION
TB 05.0	TOP OF BANK ELEVATION
LG 05.00	LIP OF GUTTER
FL 05.0	FLOW LINE ELEVATION
TG 05.0	TOP OF GUNITE
TS 05.0	TOP OF SCOUR
BG 05.0	BOTTOM OF GUNITE
TRW 05.0	TOP OF RETAINING WALL
TF 05.0	TOP OF FOOTING
TFN 05.0	TOP OF FENCE
TW 05.0	TOP OF WALL
O.F. 05.0	OVER FLOW ELEVATION
P.A.E.	PEDESTRIAN ACCESS EASEMENT
W.L.E.	WATER LINE EASEMENT
S.L.E.	SEWER LINE EASEMENT
S.D.E.	SIGHT DISTANCE EASEMENT
P.U.E.	PUBLIC UTILITY EASEMENT
SW	SIDEWALK
P.V.I.	POINT OF VERTICAL INTERSECTION
PC	POINT OF CURVE
PCC	POINT OF COMPOUND CURVE
PT	POINT OF TANGENCY
G.B.	GRADE BREAK
N.A.O.S.	NATURAL AREA OPEN SPACE
W.S.E.	WATER SURFACE ELEVATION
EX.	EXISTING
PUB.	PUBLIC
	EXISTING CONTOUR
	PROPOSED CONTOUR
BSL	BUILDING SETBACK LINE
B.E.	BOULDER EASEMENT
D.F.C.	DRAINAGE FLOOD CONTROL EASEMENT
E.P.V.D.E.	EXISTING PRIVATE DRAINAGE EASEMENT
E.P.U.D.E.	EXISTING PUBLIC DRAINAGE EASEMENT
E.P.U.E.	EXISTING PUBLIC UTILITY EASEMENT
E.W.E.	EXISTING WALL EASEMENT
E.S.D.E.	EXISTING SIGHT DISTANCE EASEMENT
E.B.E.	EXISTING BOULDER EASEMENT
E.V.N.A.E.	EXISTING VEHICULAR NON-ACCESS EASEMENT
E.P.V.D.E.1.	EXISTING PRIVATE DRAINAGE EASEMENT
E.W.E.1.	EXISTING PRIVATE DRAINAGE EASEMENT
E.S.D.E.1.	EXISTING SIGHT DISTANCE EASEMENT
E.P.U.E.1.	EXISTING PUBLIC UTILITY EASEMENT
R/W	RIGHT-OF-WAY
C	CUT CONDITION
F	FILL CONDITION
SLPE	SLOPE EASEMENT
TCE	TEMPORARY CONSTRUCTION EASEMENT
Q_{2} =8cfs, Q_{10} =13cfs, Q_{100}=25cfs	EXISTING CONDITIONS FLOWS
Q_{2} =8cfs, Q_{10} =13cfs, Q_{100}=25cfs	FUTURE CONDITIONS FLOWS



VICINITY MAP
N.T.S.

SEE SHEET 2 FOR SHEET INDEX MAP

APPROVAL

MARICOPA COUNTY ENVIRONMENTAL SERVICES DATE

XXX

THE ENGINEER OF RECORD ON THESE PLANS HAS RECEIVED A COPY OF THE APPROVED STIPULATIONS FOR THIS PROJECT AND HAS DESIGNED THESE PLANS IN CONFORMANCE WITH THE APPROVED STIPULATIONS.

GENERAL CONSTRUCTION NOTES FOR PUBLIC WORKS CONSTRUCTION
1. ALL CONSTRUCTION IN THE PUBLIC RIGHTS-OF-WAY OR IN EASEMENTS GRANTED FOR PUBLIC USE MUST CONFORM TO THE LATEST MARICOPA ASSOCIATION OF GOVERNMENT (MAG) UNIFORM STANDARD SPECIFICATIONS AND UNIFORM STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION AS AMENDED BY THE LATEST VERSION OF THE CITY OF SCOTTSDALE SUPPLEMENTAL STANDARD SPECIFICATIONS AND SUPPLEMENTAL STANDARD DETAILS. IF THERE IS A CONFLICT, THE CITY'S SUPPLEMENTAL STANDARD DETAILS WILL GOVERN.
2. THE CITY ONLY APPROVES THE SCOPE, NOT THE DETAIL, OF ENGINEERING DESIGNS: THEREFORE, IF CONSTRUCTION QUANTITIES ARE SHOWN ON THESE PLANS, THEY ARE NOT VERIFIED BY THE CITY.
3. THE APPROVAL OF PLANS IS VALID FOR SIX (6) MONTHS. IF ASSOCIATED PERMIT HAS NOT BEEN ISSUED WITHIN THIS TIME FRAME, THE PLANS MUST BE RESUBMITTED TO THE CITY FOR RE-APPROVAL.
4. A CITY INSPECTOR WILL INSPECT ALL WORKS WITHIN THE CITY OF SCOTTSDALE. NOTIFY INSPECTION SERVICES 72 HOURS BEFORE BEGINNING WORK.
5. WHENEVER EXCAVATION IS NECESSARY, CALL BLUE STAKE CENTER, 811, TWO WORKING DAYS BEFORE EXCAVATION BEGINS.
6. PERMISSION TO WORK IN THE (PWR) PERMITS ARE REQUIRED FOR ALL WORKS WITHIN THE RIGHTS-OF-WAY AND EASEMENTS GRANTED FOR PUBLIC PURPOSES. COPIES OF ALL PERMITS MUST BE RETAINED ON-SITE AND BE AVAILABLE FOR INSPECTION AT ALL TIMES. FAILURE TO PRODUCE THE REQUIRED PERMITS WILL RESULT IN IMMEDIATE SUSPENSION OF ALL WORK UNTIL THE PROPER PERMIT DOCUMENTATION IS OBTAINED.

GENERAL NOTES:
1. GRADING AND DRAINAGE PLAN APPROVAL INCLUDES THE CONSTRUCTION OF ALL SURFACE IMPROVEMENTS SHOWN ON THE APPROVED PLANS, INCLUDING, BUT NOT LIMITED TO, RETENTION AREAS, SEDIMENTATION BASINS, AND/OR OTHER DRAINAGE FACILITIES, DRAINAGE PATTERNS, WALLS, CURBS, ASPHALT PAVEMENT, AND BUILDING PAD ELEVATIONS.
2. ANY EXSTING LANDSCAPE WHICH IS DISRTUBED OR DESTROYED AS A RESULT OF CONSTRUCTION SHALL BE RELOCATED OR REPLACED ON THE SITE WITH MATERIAL OF LIKE SIZE, TYPE AND QUANTITY.
3. AREA WITHIN TEH SAFETY TRIANGLE IS TO BE CLEAR OF LANDSCAPING, SIGNS, OR OTHER VISIBILITY OBSTRUCTIONS WITH A HEIGHT OF 2'-0". PLANT MATERIAL MUST HAVE A CANOPY THAT BEGINS AT 7'-0" UPON INSTALLATION. ALL HEIGHTS ARE MEASURED FROM THE NEAREST STREET LINE ELEVATION.
4. HAUL ROUTE PERMIT. IF IMPORT OR EXPORT IN EXCESS OF 5,000 CUBIC YARDS IS REQUIRED DURING THE COURSE OF CONSTRUCTION A HAUL ROUTE PERMIT WILL BE OBTAINED FOR THIS WORK.
5. ONSITE DRAINAGE STRUCTURES ARE PRIVATE AND MAINTENANCE IS THE RESPONSIBILITY OF THE OWNER.
6. CITY OF SCOTTSDALE WATERLINE EASEMENT IS TO BE FREE OF OBSTRUCTIONS AND ACCESSIBLE TO CITY FORCES AT ALL TIMES.
7. IN ACCORDANCE WITH ARIZONA ADMINISTRATIVE CODE (A.A.C.) R18-4-213 ALL MATERIALS ADDED AFTER JANUARY 1, 1993, WHICH MAY COME INTO CONTACT WITH DRINKING WATER, SHALL CONFORM TO NATIONAL SANITATION FOUNDATION (NSF) STANDARDS 60 AND 61.
8. ALL WASH CROSSINGS SHALL BE DESIGNED FOR A MIN. 100-YEAR STORM ACCESS AND TO A MIN. LOADING DESIGN OF 83,000 POUNDS G.V.W.
9. ALL DRAINAGE STRUCTURES SHALL BE IN ACCORDANCE WITH STIPULATIONS FOR ATALON APPROVED UNDER CASE 22-PP-2011.
10. ALL STREETS AND PRIVATE DRIVEWAYS SHALL BE DESIGNED FOR A MIN. 100-YEAR STORM AND EMERGENCY ACCESS.
11. ALL RIP-RAP SHALL BE INDIGENOUS/NATIVE STONE.
12. WATER METER BOXES MAY NOT BE LOCATED WITHIN DRIVEWAYS.
13. ALL DRAINAGE STRUCTURES SHALL BE INTEGRALLY COLORED.
14. IN ACCORDANCE WITH NOTE 1 OF CITY OF SCOTTSDALE GENERAL CONSTRUCTION NOTES FOR PUBLIC WORKS CONSTRUCTION ABOVE. ALL WATER AND SEWER LINE, CONSTRUCTION, TESTING, AND DISINFECTION MUST CONFORM TO THE LATEST MARICOPA ASSOCIATION OF GOVERMENTS (MAG) UNIFORM STANDARD SPECIFICATIONS AND UNIFORM STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION, AS AMENDED BY THE LATEST VERSION OF THE CITY OF SCOTTSDALE (COS) SUPPLEMENTAL STANDARD SPECIFICATIONS AND SUPPLEMENTAL STANDARD DETAILS AND CITY OF SCOTTSDALE'S DESIGN STANDARDS & POLICIES MANUAL (DS&PM).
15. IN ACCORDANCE WITH CHAPTER 6-1.407 OF THE CITY OF SCOTTSDALE DS&PM ALL METERED SERVICES ARE TO HAVE A PRESSURE REGULATING VALVE INSTALLED ON THE PRIVATE SERVICE LINE.
16. ALL HEADWALLS AND DRAINAGE STRUCTURES SHALL BE INTEGRALLY COLORED CONCRETE TO BLEND WITH THE COLOR OF THE SURROUNDING NATURAL DESERT. SIDEWALK SHALL BE SAN DIEGO BUFF COLORED CONCRETE.

ADDITIONAL REQUIREMENTS TO M.A.G. SPECIFICATIONS

M.A.G. SECTION 301 - SUB GRADE PREPARATION

301.3 RELATIVE COMPACTION
1. SPECIFIED DENSITY SHALL BE ACHIEVED IMMEDIATELY PRIOR TO PLACEMENT OF BASE MATERIAL. MOISTURE CONTENT SHALL BE WITHIN ±2% OF OPTIMUM MOISTURE CONTENT DURING COMPACTION.

M.A.G. SECTION 321 - ASPHALT CONCRETE

321.5.5 PRESERVATIVE SEAL
1. PRESERVATIVE SEAL SHALL NOT BE APPLIED.

M.A.G. SECTION 710 - ASPHALT CONCRETE

A. THE USE OF RECLAIMED ASPHALT PAVEMENT (RAP) SHALL BE IN ACCORDANCE WITH SECTION 409 OF THE M.A.G. SPECIFICATIONS. IN NO CASE WILL THE PERCENTAGE OF RAP BE ALLOWED TO EXCEED 15 PERCENT OF THE TOTAL WEIGHT OF THE TOTAL MIX.

B. ASPHALT CEMENT SHALL BE PG70-10 ACCORDING TO THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS MP1-93, SPECIFICATION FOR PERFORMANCE GRADED ASPHALT BINDER.

C. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING THE MIX DESIGN, OWNER SHALL APPROVE TESTING LABORATORY SELECTED BY CONTRACTOR.

THE ASPHALT MIX DESIGN SHALL FOLLOW PROCEDURES FOR (LOW) TRAFFIC VOLUME.

ASPHALT CONCRETE MIX DESIGNS FOR LOW VOLUME TRAFFIC SHALL BE PERFORMED ACCORDING TO THE MARSHALL METHOD AND SHALL HAVE GRADATION ABOVE THE RESTRICTED ZONE.

ASPHALT CONCRETE MIX DESIGNS FOR MEDIUM OR HIGH VOLUME TRAFFIC SHALL BE PERFORMED ACCORDING TO THE SUPERPAVE (TM) METHOD AND SHALL HAVE GRADATION BELOW THE RESTRICTED ZONE.

D. ALL ASPHALT MIXES SHALL CONTAIN A MINIMUM 0.75 PERCENT HYDRATED LIME OR 1.00 PERCENT PORTLAND CEMENT AS ANTI STRIPPING AGENT.

FLOOD INSURANCE RATE MAP (FIRM) INFORMATION

COMMUNITY NUMBER	PANEL # PANEL DATE	SUFFIX	DATE OF FIRM	FIRM ZONE	BASE FLOOD ELEVATION (In AO Zone, Use Depth)
045012	04013C1335	M	11/04/15	D	N/A
	10/16/13				

ENGINEER'S CERTIFICATION: The lowest floor elevation(s) and/or flood proofing elevation(s) on this plan are sufficiently high to provide protection from flooding caused by a one-hundred year flood, and are in accordance with City of Scottsdale Revised Code, Chapter 37-Floodways & Flood plains Ordinance.

Registered Professional Engineer (Civil) CERTIFICATE NO. 28638 JORGE R. GARRE Date Signed 7 July 2021 ARIZONA, U.S.A.
EXPIRES 12/31/21

CITY OF SCOTTSDALE
REVIEW & RECOMMENDED APPROVAL BY:

PAVING		TRAFFIC	
G & D		PLANNING	
W & S		FIRE	
RET. WALLS			

ENGINEERNG COORDINATION MANAGER (OR DESIGNEE) DATE

ARGUS CONSULTING
A CIVIL ENGINEERING COMPANY, P.C.
10115 E. Bell Road, Suite 107 - #104
Scottsdale, Arizona 85260 480-596-1131

COVER SHEET

IMPROVEMENT PLANS
SERENO CANYON PARCEL H, PHASE 4
SCOTTSDALE - ARIZONA

Date 7/23/2021 | Job No. 385-17 | Sheet 1 of 20

1-ZN-2005#2 16-ZN-2011 51-DR-2017 1-ZN-2017 16-PP-2017

FILE NAME:
DATE PLOTTED:

SHEET INDEX

SHEET 01 – COVER
SHEET 02 – SHEET INDEX MAP & DETAILS
SHEET 03–07 – PAVING SHEETS
SHEET 08–12 – SEWER & WATER SHEETS
SHEET 13–16 – GRADING SHEETS
SHEET 17 – STORM DRAIN PROFILES
SHEET 18–19 – DETAILS
SHEET 20 – NAOS & CONSTRUCTION ENVELOPE PLAN
SHEET SD.1–SD.5 – STRUCTURAL PLAN DETAILS

NOTES

1. THE QUANTITIES LISTED ARE APPROXIMATE. CONTRACTOR SHALL MAKE HIS OWN DETERMINATION OF THE QUANTITIES AND BASE HIS BID ON HIS ESTIMATES.
2. TRAFFIC ACCESS TO FUTURE PHASES SHALL BE PROPERLY BARRICADED.
3. DISTURBED AREAS OF FUTURE PHASES SHALL BE WATERED AS NECESSARY FOR DUST CONTROL.
4. LANDSCAPING AND IRRIGATION SHALL BE COMPLETED WITH PAVING IMPROVEMENTS.
5. STORM DRAIN MATERIAL MAY BE REINFORCED CONCRETE, CAST IN PLACE CONCRETE, OR HIGH DENSITY POLYETHYLENE (H.D.P.E.).

ESTIMATED PAVING QUANTITIES

PAVING, ASPHALT CONCRETE	4,997	SY
2' ROLL CURB & GUTTER	3,775	LF
CURB TRANSITIONS	6	EA
CONCRETE APRON	12	SY
CONCRETE VALLEY GUTTER	571	SF
SURVEY MARKER	13	EA
ADJUST VALVE BOX TO GRADE	8	EA
ADJUST MANHOLE FRAME TO GRADE	20	EA
PAVEMENT SAWCUT REMOVAL & REPLACEMENT	10	SY
FIRE HYDRANT MARKER	4	EA
COMPACTED NATIVE GRANITE ACCESS WAY	117	SY

ESTIMATED EARTHWORK QUANTITIES

CUT (RAW)		**CY**
FILL (RAW)		**CY**
2.7'–6.7' RETAINING WALL	5,244	**LF**

ESTIMATED STORM DRAIN QUANTITIES

30" HDPE STORM DRAIN	15	LF
24" HDPE STORM DRAIN	456	LF
18" HDPE STORM DRAIN	15	LF
U–SHAPE HEADWALL 3–24" PIPE	2	EA
U–SHAPE HEADWALL 30" PIPE	1	EA
U–SHAPE HEADWALL 24" PIPE	2	EA
U–SHAPE HEADWALL 18" PIPE	2	EA
TYPE M–1 CATCH BASIN	1	EA
TYPE M–2 CATCH BASIN	2	EA
RIP–RAP EROSION PROTECTION	138	SY
CONNECT TO EXISTING CATCH BASIN	1	EA
CONCRETE INLET APRON	36	SF
IRRIGATION SLEEVE	90	LF
STORM DRAIN MANHOLE	1	EA

ESTIMATED WATER QUANTITIES

8" D.I.P. WATER LINE (CLASS 350)	1,836	LF
6" D.I.P. WATER LINE (CLASS 350)	45	LF
8" V.B. & C.	6	EA
6" V.B. & C.	3	EA
1" WATER SERVICE LINE	843	LF
1" WATER SERVICE CONNECTION	43	EA
6" FIRE HYDRANT	3	EA
8" VERTICAL REALIGNMENT	3	EA
2" AIR RELEASE VALVES	7	EA
CONNECT TO EXISTING WATER LINE	2	EA
CURB STOP WITH FLUSHING IPE	1	EA

ESTIMATED SEWER QUANTITIES

8" PVC SEWER LINE	1,664	LF
4" SEWER SERVICE LINE	1,225	LF
4" SEWER SERVICE CONNECTIONS	42	EA
48" MANHOLE	19	EA
60" MANHOLE	1	EA
CONNECT TO EXISTING LINE	2	EA
PAVEMENT REMOVAL & REPLACEMENT	10	SY

Registered Professional Engineer (Civil)
CERTIFICATE NO. 28638
JORGE R. GARRE
Date Signed 1/15/2021
ARIZONA, U.S.A.
EXPIRES 12/31/21

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A CIVIL ENGINEERING COMPANY, P.C.
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Scottsdale, Arizona 85260 480-596-1131

SHEET INDEX AND QUANTITIES

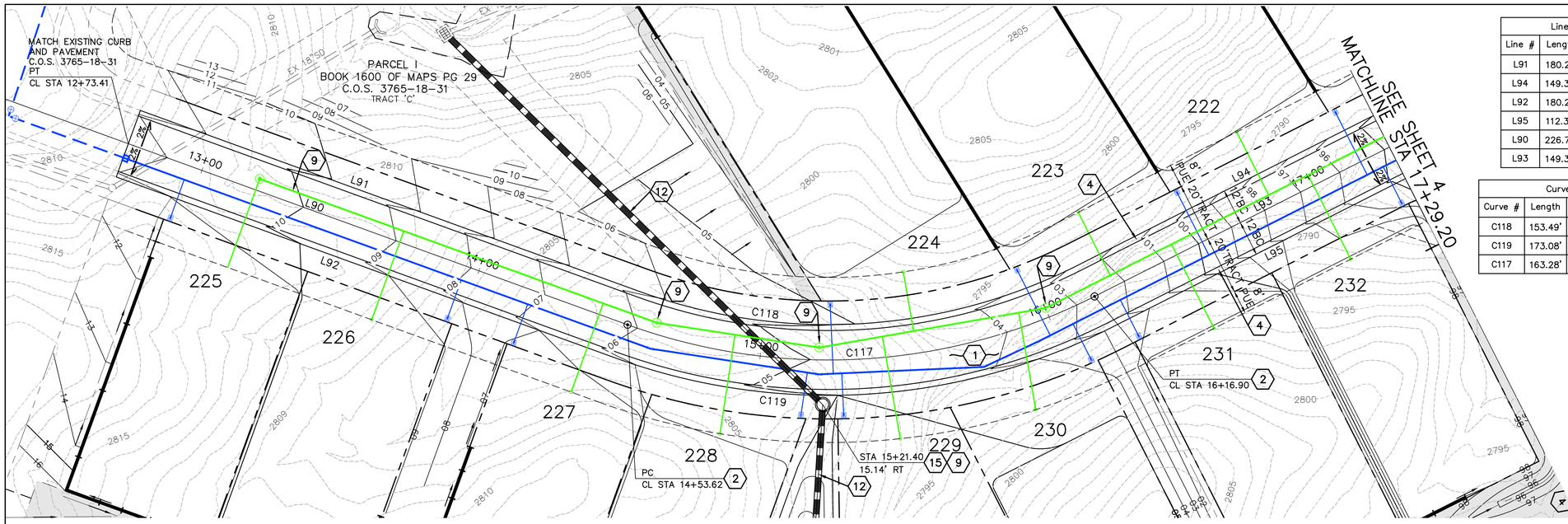
IMPROVEMENT PLANS
SERENO CANYON PARCEL H, PHASE 4
SCOTTSDALE – ARIZONA

Date 1/23/21 | Job No. 385–17 | Sheet 2 of 20

Call at least two full working days before you begin excavation:
ARIZONA 811
Arizona Blue Stake, Inc.
Dial 8-1-1 or 1-800-STAKE-IT (782-5348)
In Maricopa County: (602) 263-1100

1–ZN–2005#2 16–ZN–2011 51–DR–2017 16–PP–2017

FILE NAME:
DATE PLOTTED:



Line Table		
Line #	Length	Direction
L91	180.21'	S88°26'25"E
L94	149.30'	N44°46'58"E
L92	180.21'	S88°26'25"E
L95	112.30'	N44°46'58"E
L90	226.73'	S88°26'25"E
L93	149.30'	N44°46'58"E

Curve Table			
Curve #	Length	Delta	Radius
C118	153.49'	046°46'37"	153.49'
C119	173.08'	046°46'37"	173.08'
C117	163.28'	046°46'37"	163.28'

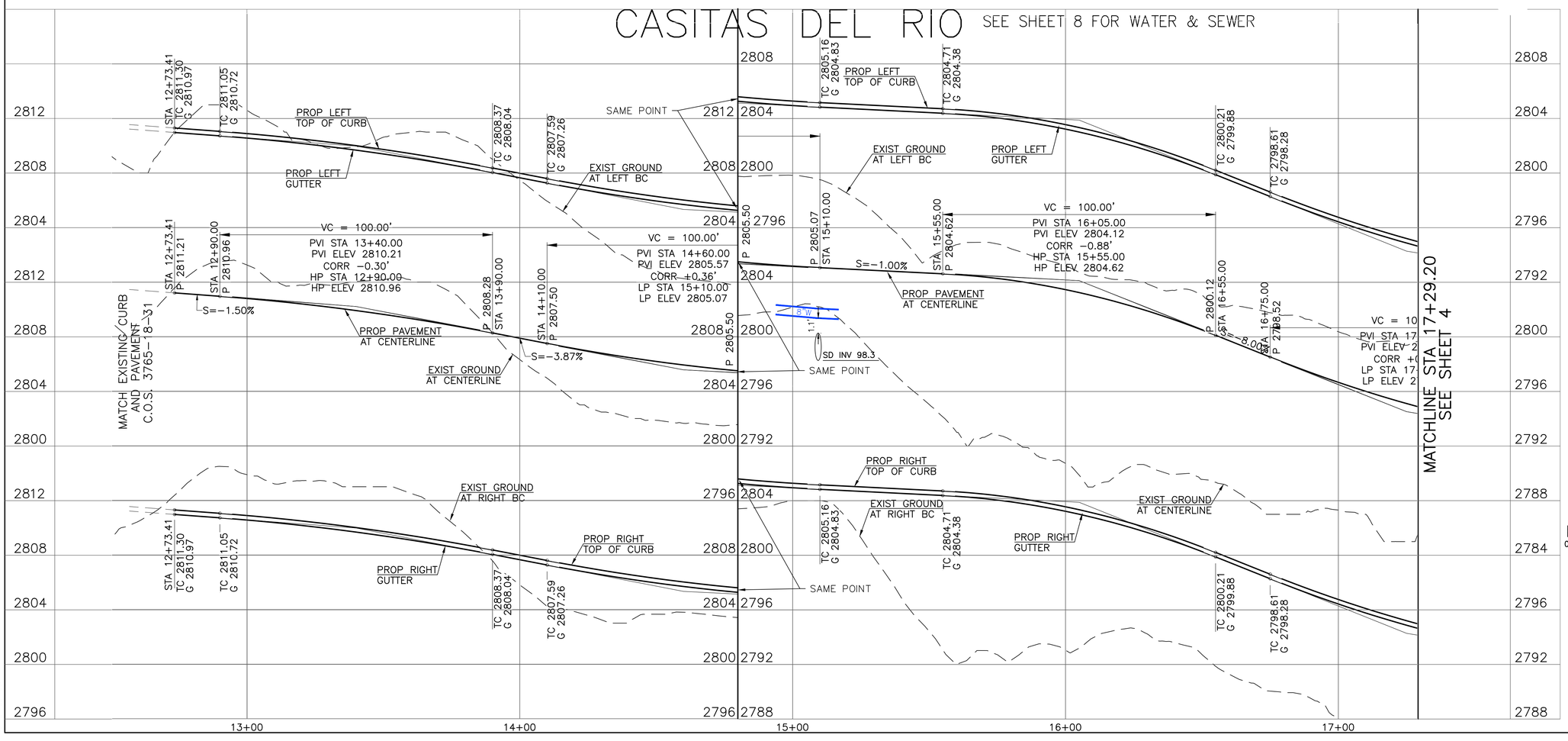
CONSTRUCTION NOTES:

PAVING

1. CONSTRUCT 3" OF R-19 MM A.C. OVER 6" ABC ON 95% COMPACTED SUBGRADE PER M.A.G. SPEC. 301, 310, 321 PER ROADWAY SECTION ON SHT 18.
2. INSTALL SURVEY MONUMENT TYPE 'B' PER M.A.G. STD. DETAIL 120.
4. CONSTRUCT TYPE 'C' ROLL CURB & GUTTER PER M.A.G. STD. DETAIL 220-1.
9. ADJUST FRAME AND COVER TO GRADE PER M.A.G. STD. DETAIL 422.
12. 24" HDPE STORM DRAIN PIPE. SEE SHEET 15 FOR CONSTRUCTION. SEE SHEET 17 FOR PROFILE.
14. U-SHAPED HEADWALL. SEE SHEET 15 FOR CONSTRUCTION.
15. STORM DRAIN MANHOLE. SEE SHEET 15 FOR CONSTRUCTION.

CASITAS DEL RIO

SEE SHEET 8 FOR WATER & SEWER



SCALE: 1" = 20' HORIZONTAL
1" = 4' VERTICAL
0' 20' 40' 60'

Registered Professional Engineer (Civil) CERTIFICATE NO. 28638 JORGE R. GARRE Date Signed 7/23/2021 ARIZONA, U.S.A.

EXPIRES 12/31/21

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IMPROVEMENT PLANS

PAVING PLAN
SERENO CANYON PARCEL H, PHASE 4
SCOTTSDALE - ARIZONA

Date 7/23/2021	Job No. 385-17	Sheet 3 of 20

1-ZN-2005#2 16-ZN-2011 51-DR-2017 16-PP-2017

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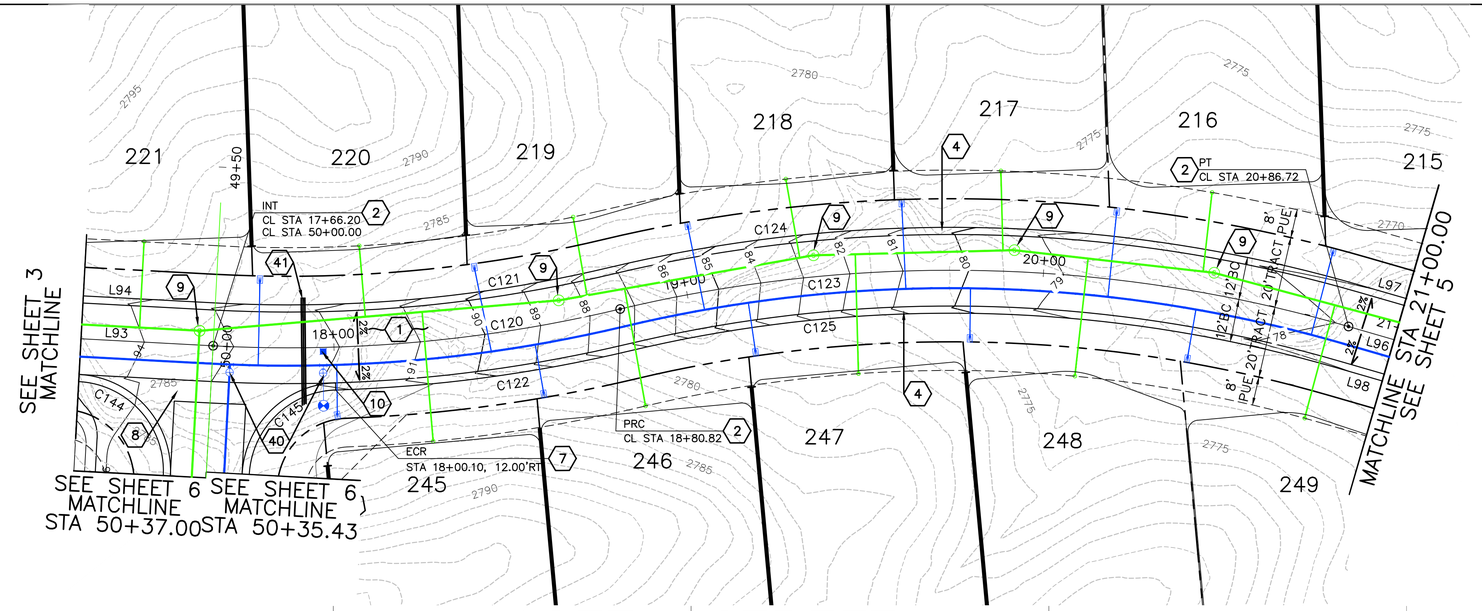


Curve Table			
Curve #	Length	Delta	Radius
C121	111.19'	016°25'07"	111.19'
C124	212.08'	029°29'35"	212.08'
C122	83.14'	011°33'42"	83.14'
C125	199.72'	029°29'35"	199.72'
C120	114.62'	016°25'07"	114.62'
C123	205.90'	029°29'35"	205.90'

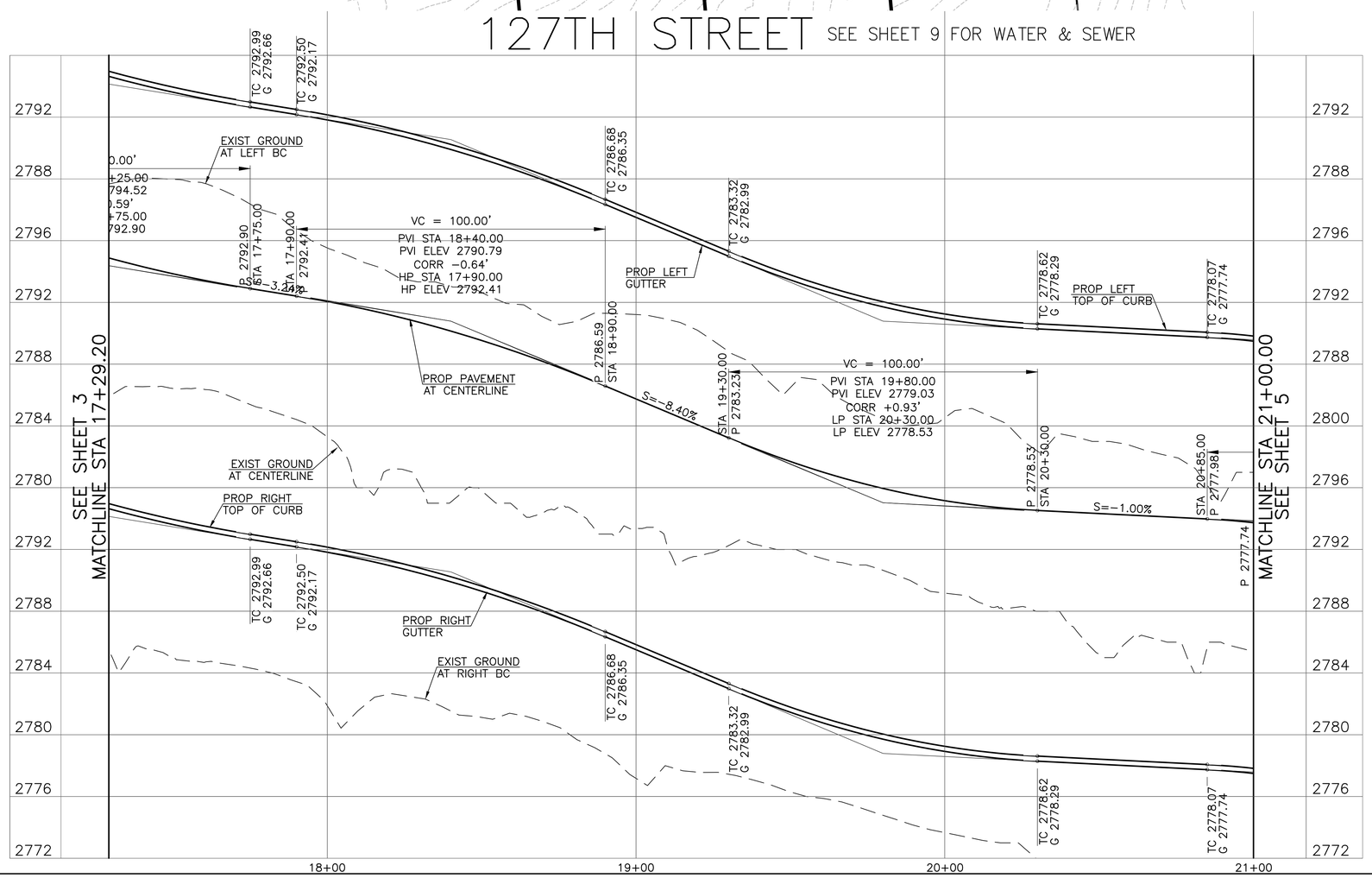
Curve Table			
Curve #	Length	Delta	Radius
C145	37.15'	085°08'35"	37.15'
C144	39.27'	090°00'00"	39.27'

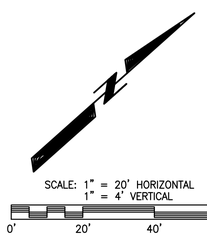
Line Table		
Line #	Length	Direction
L94	149.30'	N44°46'58"E
L97	119.79'	N57°51'26"E
L98	119.79'	N57°51'26"E
L93	149.30'	N44°46'58"E
L96	119.79'	N57°51'26"E

CONSTRUCTION NOTES:

PAVING

1. CONSTRUCT 3" OF R-19 MM A.C. OVER 6" ABC ON 95% COMPACTED SUBGRADE PER M.A.G. SPEC. 301, 310, 321 PER ROADWAY SECTION ON SHT 18.
2. INSTALL SURVEY MONUMENT TYPE 'B' PER M.A.G. STD. DETAIL 120.
4. CONSTRUCT TYPE 'C' ROLL CURB & GUTTER PER M.A.G. STD. DETAIL 220-1.
8. CONSTRUCT 6' VALLEY GUTTER AND APRON PER C.O.S. STD. DETAIL 2240.
9. ADJUST FRAME AND COVER TO GRADE PER M.A.G. STD. DETAIL 422.
10. INSTALL FIRE HYDRANT PAVEMENT MARKER PER C.O.S. STD. DETAIL 2363.
40. ADJUST FRAME AND COVER TO GRADE PER M.A.G. STD. DETAIL 270.
41. INSTALL LANDSCAPE IRRIGATION SLEEVES PER DETAILS ON SHEET 18.





SCALE: 1" = 20' HORIZONTAL
1" = 4' VERTICAL
0' 20' 40' 60'

Registered Professional Engineer (Civil)
CERTIFICATE NO. 28638
JORGE R. GARRE
Date Signed 7/23/2021
ARIZONA, U.S.A.
EXPIRES 12/31/21

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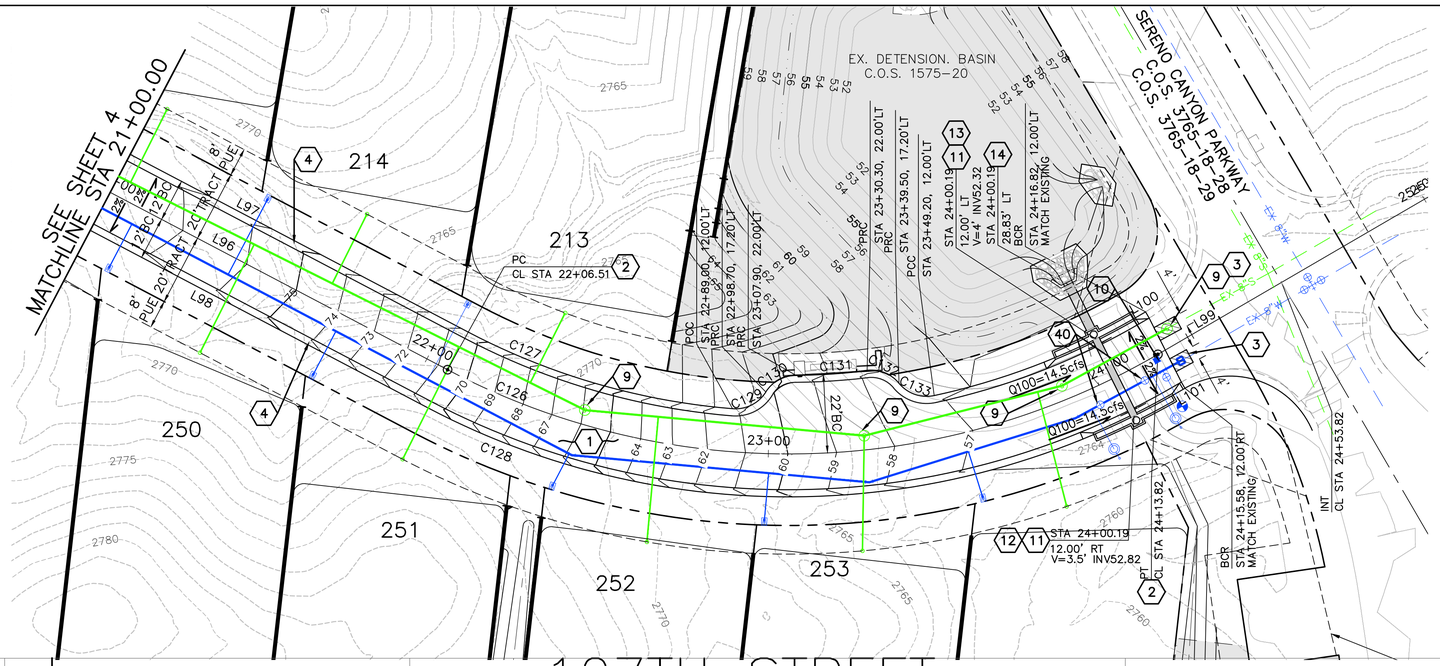
IMPROVEMENT PLANS

PAVING PLAN
SERENO CANYON PARCEL H, PHASE 4
SCOTTSDALE - ARIZONA

Date 7/23/2021	Job No. 385-17	Sheet 4 of 20

1-ZN-2005#2 16-ZN-2011 51-DR-2017 16-PP-2017

FILE NAME:
DATE PLOTTED:



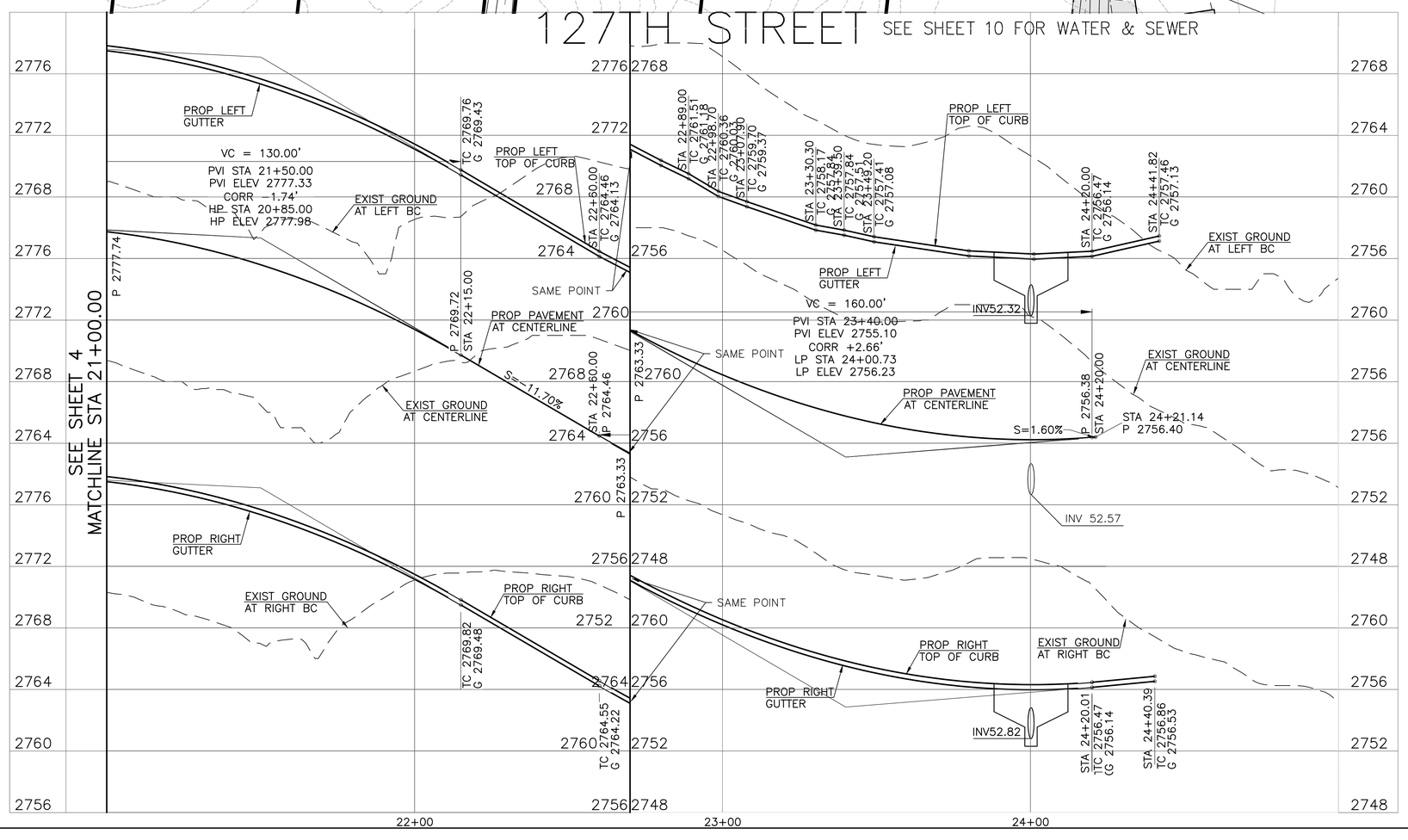
Curve Table			
Curve #	Length	Delta	Radius
C127	77.66'	023°03'13"	77.66'
C129	10.94'	062°40'35"	10.94'
C130	10.02'	057°23'38"	10.02'
C131	20.00'	006°15'43"	20.00'
C132	10.02'	057°23'38"	10.02'
C133	10.94'	062°40'35"	10.94'
C128	219.44'	057°56'21"	219.44'
C126	207.30'	057°56'21"	207.30'

Line Table		
Line #	Length	Direction
L97	119.79'	N57°51'26"E
L100	3.00'	N00°04'54"W
L98	119.79'	N57°51'26"E
L101	1.76'	N00°04'54"W
L96	119.79'	N57°51'26"E
L99	90.00'	N00°04'54"W

CONSTRUCTION NOTES:

PAVING

1. CONSTRUCT 3" OF R-19 MM A.C. OVER 6" ABC ON 95% COMPACTED SUBGRADE PER M.A.G. SPEC. 301, 310, 321 PER ROADWAY SECTION ON SHT 18.
2. INSTALL SURVEY MONUMENT TYPE 'B' PER M.A.G. STD. DETAIL 120.
3. SAWCUT, REMOVE & REPLACE EXISTING PAVEMENT PER C.O.S. 2201 & 2202.
4. CONSTRUCT TYPE 'C' ROLL CURB & GUTTER PER M.A.G. STD. DETAIL 220-1.
9. ADJUST FRAME AND COVER TO GRADE PER M.A.G. STD. DETAIL 422.
10. INSTALL FIRE HYDRANT PAVEMENT MARKER PER C.O.S. STD. DETAIL 2363.
11. CATCH BASIN. SEE SHEET 13 FOR CONSTRUCTION. SEE SHEET 17 FOR PROFILE.
12. 24" HDPE STORM DRAIN PIPE. SEE SHEET 13 FOR CONSTRUCTION. SEE SHEET 17 FOR PROFILE.
13. 30" HDPE STORM DRAIN PIPE. SEE SHEET 13 FOR CONSTRUCTION. SEE SHEET 17 FOR PROFILE.
14. U-SHAPED HEADWALL. SEE SHEET 13 FOR CONSTRUCTION.
40. ADJUST FRAME AND COVER TO GRADE PER M.A.G. STD. DETAIL 270.



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IMPROVEMENT PLANS

PAVING PLAN
SERENO CANYON PARCEL H, PHASE 4
SCOTTSDALE - ARIZONA

Date 7/23/2021	Job No. 385-17	Sheet 5 of 20

1-ZN-2005#2 16-ZN-2011 51-DR-2017 16-PP-2017

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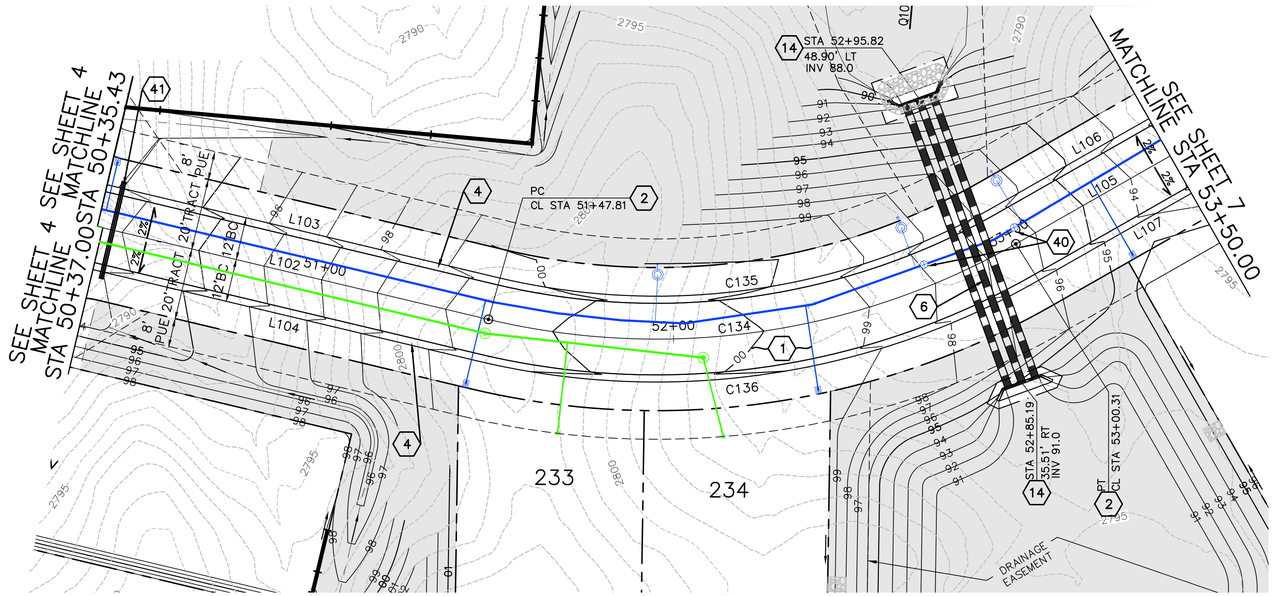
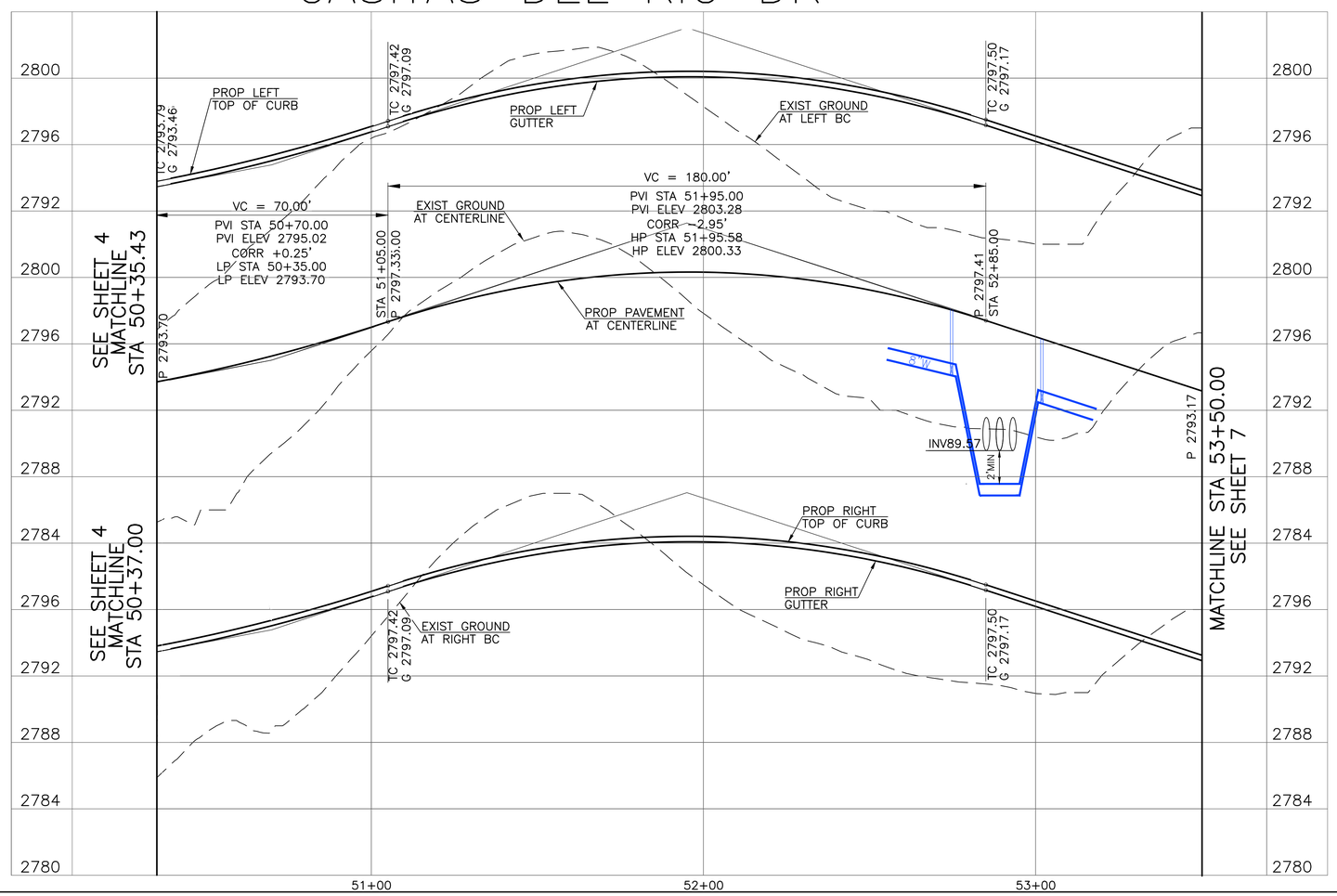


CASITAS DEL RIO DR

SEE SHEET 11 FOR WATER & SEWER



Line Table		
Line #	Length	Direction
L102	147.81'	S45°13'02"E
L105	140.85'	S88°15'35"E
L103	112.38'	S45°13'02"E
L106	140.85'	S88°15'35"E
L104	110.81'	S45°13'02"E
L107	140.85'	S88°15'35"E

Curve Table			
Curve #	Length	Delta	Radius
C134	152.50'	043°02'33"	152.50'
C135	143.49'	043°02'33"	143.49'
C136	161.52'	043°02'33"	161.52'

CONSTRUCTION NOTES:

PAVING

1. CONSTRUCT 3" OF R-19 MM A.C. OVER 6" ABC ON 95% COMPACTED SUBGRADE PER M.A.G. SPEC. 301, 310, 321 PER ROADWAY SECTION ON SHT 18.
2. INSTALL SURVEY MONUMENT TYPE 'B' PER M.A.G. STD. DETAIL 120.
4. CONSTRUCT TYPE 'C' ROLL CURB & GUTTER PER M.A.G. STD. DETAIL 220-1.
9. ADJUST FRAME AND COVER TO GRADE PER M.A.G. STD. DETAIL 422.
14. U-SHAPED HEADWALL. SEE SHEET 16 FOR CONSTRUCTION.
18. 3-24" HDPE STORM DRAIN PIPES. SEE SHEET 16 FOR CONSTRUCTION. SEE SHEET 17 FOR PROFILE.
40. ADJUST FRAME AND COVER TO GRADE PER M.A.G. STD. DETAIL 270.
41. INSTALL LANDSCAPE IRRIGATION SLEEVES PER DETAILS ON SHEET 18.

SCALE: 1" = 20' HORIZONTAL
1" = 4' VERTICAL
0' 20' 40' 60'

Registered Professional Engineer (Civil)
CERTIFICATE NO. 28638
JORGE R. GARRE
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IMPROVEMENT PLANS

PAVING PLAN
SERENO CANYON PARCEL H, PHASE 4
SCOTTSDALE - ARIZONA

Date 7/23/2021	Job No. 385-17	Sheet 6 of 20

1-ZN-2005#2 16-ZN-2011 51-DR-2017 16-PP-2017

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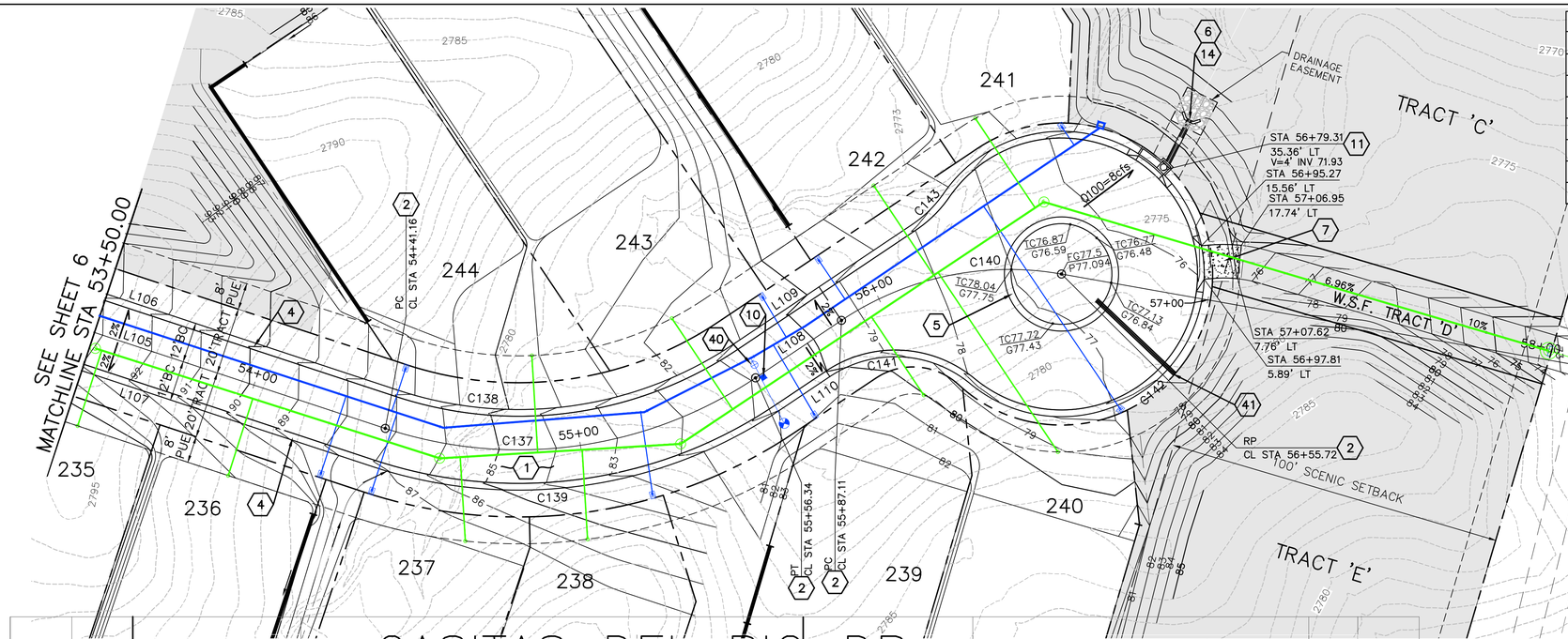


Curve Table			
Curve #	Length	Delta	Radius
C137	115.18'	052°05'50"	115.18'
C140	68.61'	043°51'10"	68.61'
C138	104.27'	052°05'50"	104.27'
C143	13.27'	021°42'56"	13.27'
C139	126.09'	052°05'50"	126.09'
C141	44.90'	073°30'31"	44.90'
C142	88.76'	119°39'21"	88.76'

Line Table		
Line #	Length	Direction
L105	140.85'	S88°15'35"E
L108	30.77'	N39°38'35"E
L106	140.85'	S88°15'35"E
L109	64.20'	N39°38'35"E
L107	140.85'	S88°15'35"E
L110	18.56'	N39°38'35"E

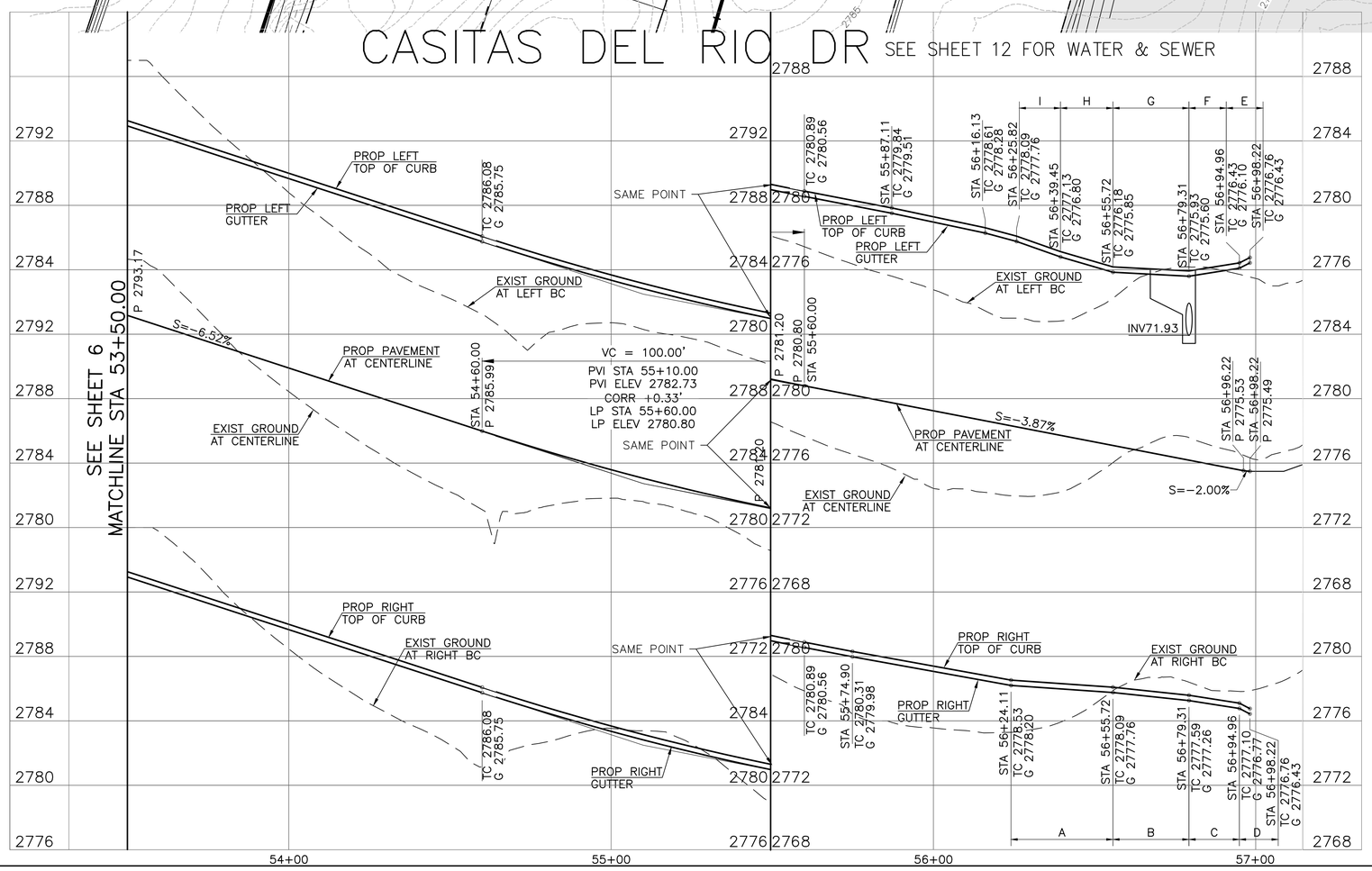
CONSTRUCTION NOTES:

PAVING

1. CONSTRUCT 3" OF R-19 MM A.C. OVER 6" ABC ON 95% COMPACTED SUBGRADE PER M.A.G. SPEC. 301, 310, 321 PER ROADWAY SECTION ON SHT 18.
2. INSTALL SURVEY MONUMENT TYPE 'B' PER M.A.G. STD. DETAIL 120.
4. CONSTRUCT TYPE 'C' ROLL CURB & GUTTER PER M.A.G. STD. DETAIL 220-1.
5. CONSTRUCT TYPE 'D' ROLL CURB & GUTTER PER M.A.G. STD. DETAIL 220-1.
6. 18" HDPE STORM DRAIN PIPE. SEE SHEET 16 FOR CONSTRUCTION. SEE SHEET 17 FOR PROFILE.
7. CONSTRUCT CONCRETE APRON PER DETAIL ON SHEET 18.
9. ADJUST FRAME AND COVER TO GRADE PER M.A.G. STD. DETAIL 422.
10. INSTALL FIRE HYDRANT PAVEMENT MARKER PER C.O.S. STD. DETAIL 2363.
11. CATCH BASIN. SEE SHEET 16 FOR CONSTRUCTION. SEE SHEET 17 FOR PROFILE.
14. U-SHAPED HEADWALL. SEE SHEET 15 FOR CONSTRUCTION.
40. ADJUST FRAME AND COVER TO GRADE PER M.A.G. STD. DETAIL 270.
41. INSTALL LANDSCAPE IRRIGATION SLEEVES PER DETAILS ON SHEET 18.

CASITAS DEL RIO DR

SEE SHEET 12 FOR WATER & SEWER



CURB SLOPES		
LINE	LENGTH	SLOPE
A	22.00'	-1.99%
B	25.00'	-1.99%
C	25.00'	-1.99%
D	16.78'	-1.99%
E	16.76'	1.99%
F	25.00'	1.99%
G	25.00'	-1.00%
H	24.32'	-3.93%
I	24.32'	-3.93%

SCALE: 1" = 20' HORIZONTAL
1" = 4' VERTICAL
0' 20' 40' 60'

Registered Professional Engineer (Civil) CERTIFICATE NO. 28638 JORGE R. GARRE Date Signed 7/23/2021 ARIZONA, U.S.A.
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IMPROVEMENT PLANS

PAVING PLAN
SERENO CANYON PARCEL H, PHASE 4
SCOTTSDALE - ARIZONA

Date 7/23/2021	Job No. 385-17	Sheet 7 of 20

1-ZN-2005#2 16-ZN-2011 51-DR-2017 16-PP-2017

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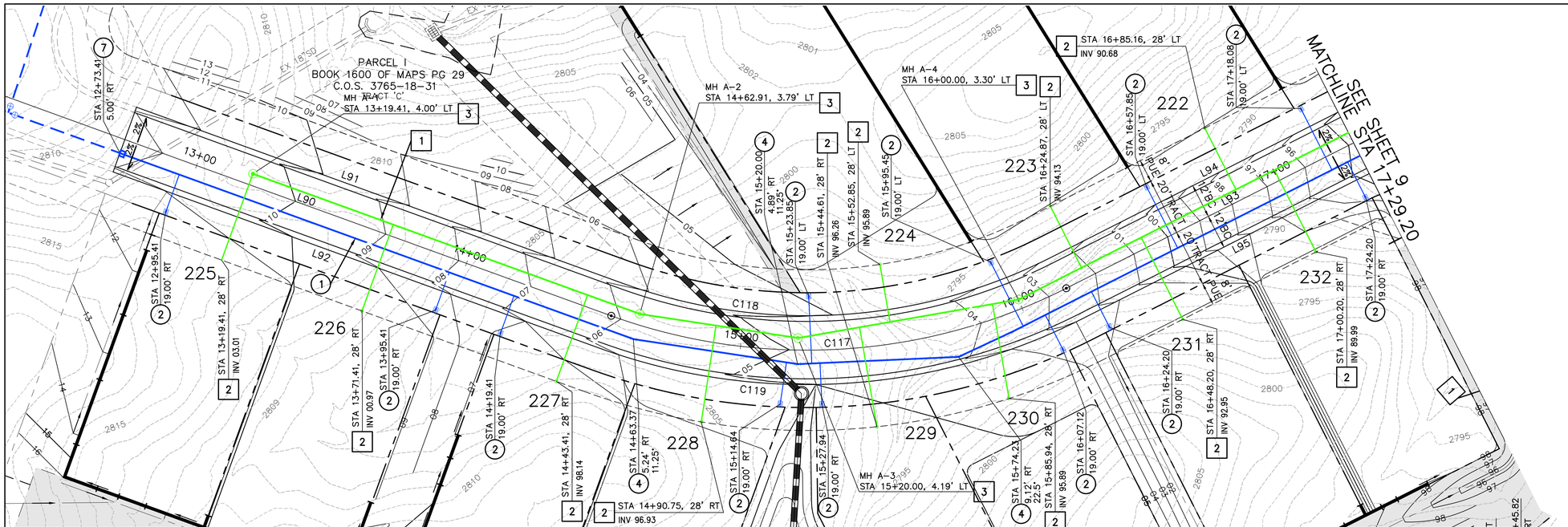
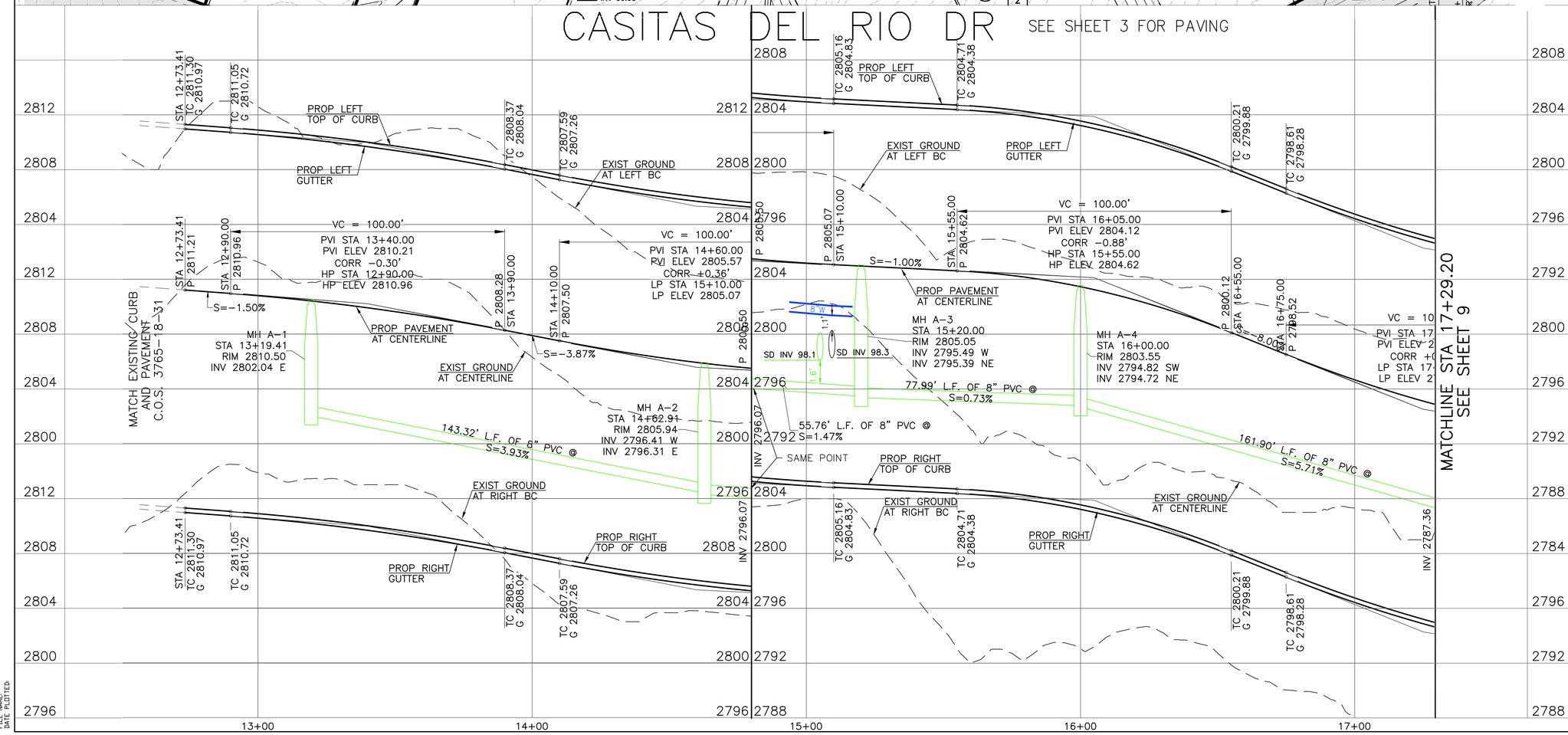


CASITAS DEL RIO DR

SEE SHEET 3 FOR PAVING



CONSTRUCTION NOTES:

WATER

1. INSTALL 8" D.I.P. CLASS 350 WATER PIPE (3' MIN. COVER BELOW PAVEMENT).
2. INSTALL 1" WATER SERVICE & METER BOX PER C.O.S. STD. DETAIL 2330 & M.A.G. STD. DETAIL 320.
3. INSTALL CURB STOP AND FLUSHING PIPE PER M.A.G. STD. DETAIL 390.
4. INSTALL BEND, TEE, CROSS OR REDUCER WITH ELECTRONIC MARKER PER C.O.S. SUPPLEMENTAL SPEC. 610. JOINT RESTRAINTS PER & M.A.G. STD. DETAILS 303-1 & 303-2.
7. REMOVE TAPPED CAP AND CONNECT TO EXISTING 8" WATERLINE. CONTRACTOR TO VERIFY LOCATION.

SEWER

1. INSTALL 8" SDR 35 PVC, ASTM D 3034, SEWER PIPE PER M.A.G. SPEC. 745.
2. INSTALL 4" TAP & LATERAL CONNECTION PER. M.A.G. STD. DETAIL 440-3.
3. CONSTRUCT 48" MANHOLE TYPE 'A' TOP WITH WATERTIGHT 24" COVER C.O.S. STD. DETAIL 2421 & PER M.A.G. STD. DETAIL 420 AND 422.

Registered Professional Engineer (Civil) CERTIFICATE NO. 28638 JORGE R. GARRE Date Signed 7/23/2021 ARIZONA, U.S.A.

EXPIRES 12/31/21

SCALE: 1" = 20' HORIZONTAL
1" = 4' VERTICAL
0' 20' 40' 60'

Call at least two full working days before you begin excavation. ARIZONA 811 Arizona Blue Stake, Inc. Dial 8-1-1 or 1-800-STAKE-IT (782-5348) In Maricopa County: (602) 263-1100

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Scottsdale, Arizona 85260 480-596-1131

IMPROVEMENT PLANS

WATER & SEWER PLAN
SERENO CANYON PARCEL H, PHASE 4
SCOTTSDALE - ARIZONA

Date 7/23/21	Job No. 385-17	Sheet 8 of 20

1-ZN-2005#2 16-ZN-2011 51-DR-2017 16-PP-2017

FILE NAME:
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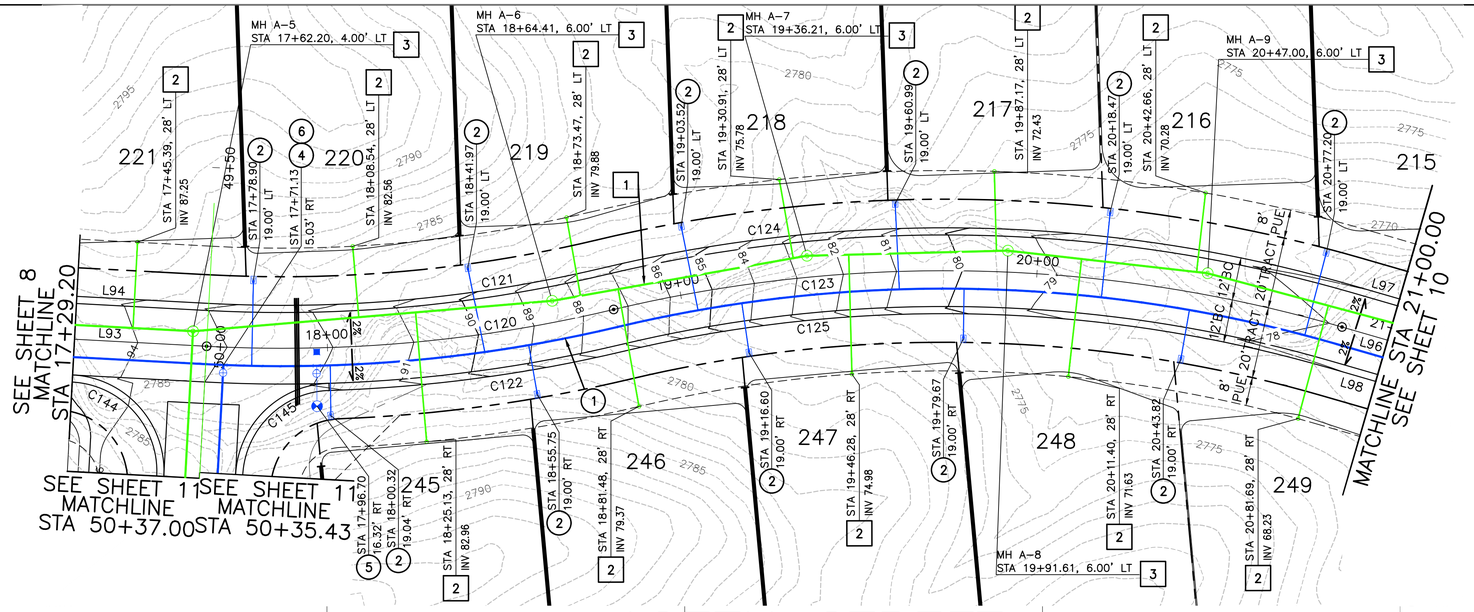

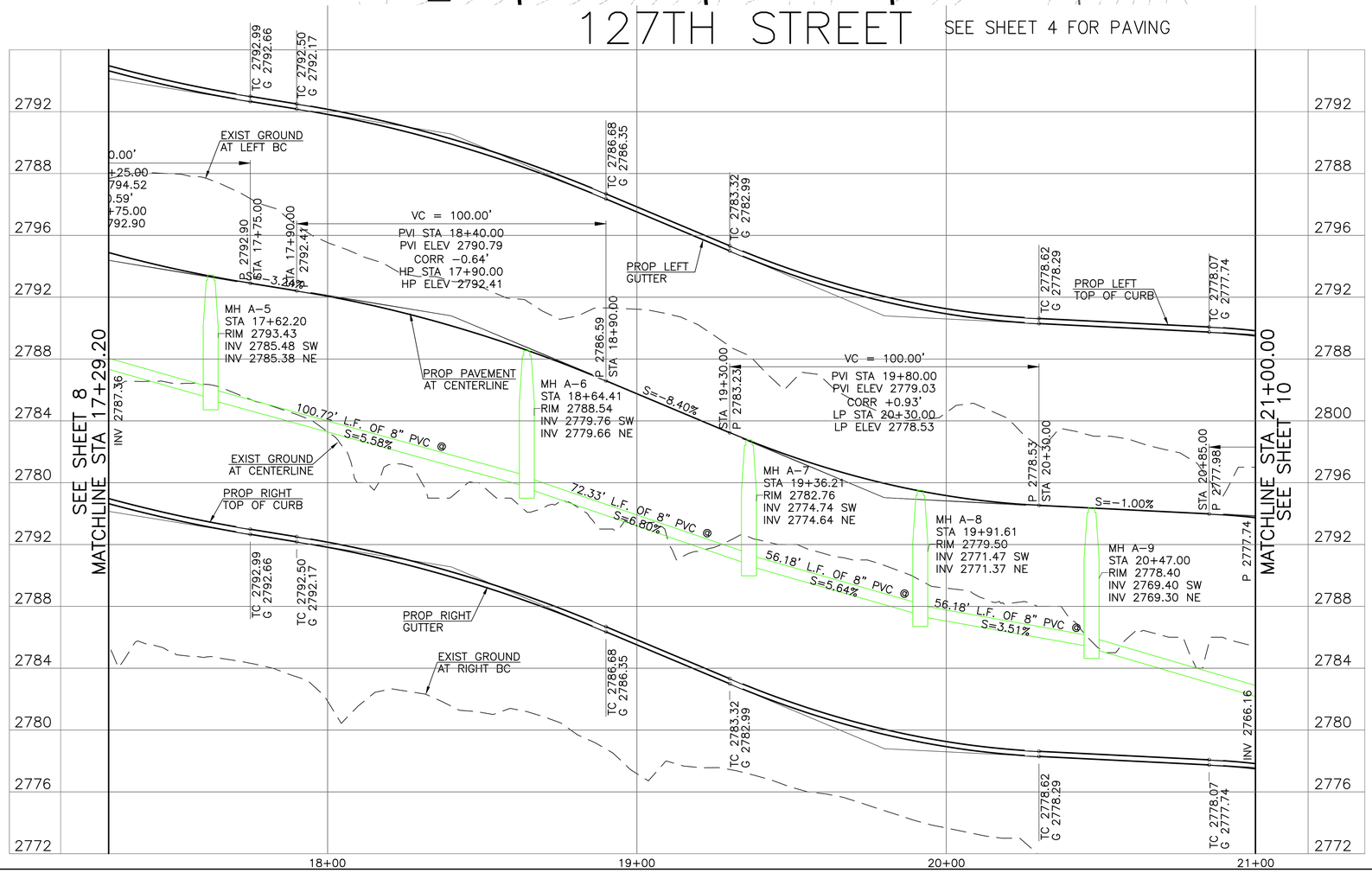

CONSTRUCTION NOTES:

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4. INSTALL BEND, TEE, CROSS OR REDUCER WITH ELECTRONIC MARKER PER C.O.S. SUPPLEMENTAL SPEC. 610. JOINT RESTRAINTS PER & M.A.G. STD. DETAILS 303-1 & 303-2.
5. INSTALL 6" FIRE HYDRANT COMPLETE WITH VALVE PER M.A.G. STD. DETAIL 360.
6. INSTALL 8" GATE VALVE BOX AND COVER PER M.A.G. STD. 391-1 TYPE 'C'.

SEWER

1. INSTALL 8" SDR 35 PVC, ASTM D 3034, SEWER PIPE PER M.A.G. SPEC. 745.
2. INSTALL 4" TAP & LATERAL CONNECTION PER. M.A.G. STD. DETAIL 440-3.
3. CONSTRUCT 48" MANHOLE TYPE 'A' TOP WITH WATERTIGHT 24" COVER C.O.S. STD. DETAIL 2421 & PER M.A.G. STD. DETAIL 420 AND 422.

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IMPROVEMENT PLANS

WATER & SEWER PLAN
SERENO CANYON PARCEL H, PHASE 4
SCOTTSDALE - ARIZONA

Date 7/23/2021	Job No. 385-17	Sheet 9 of 20

1-ZN-2005#2 16-ZN-2011 51-DR-2017 16-PP-2017

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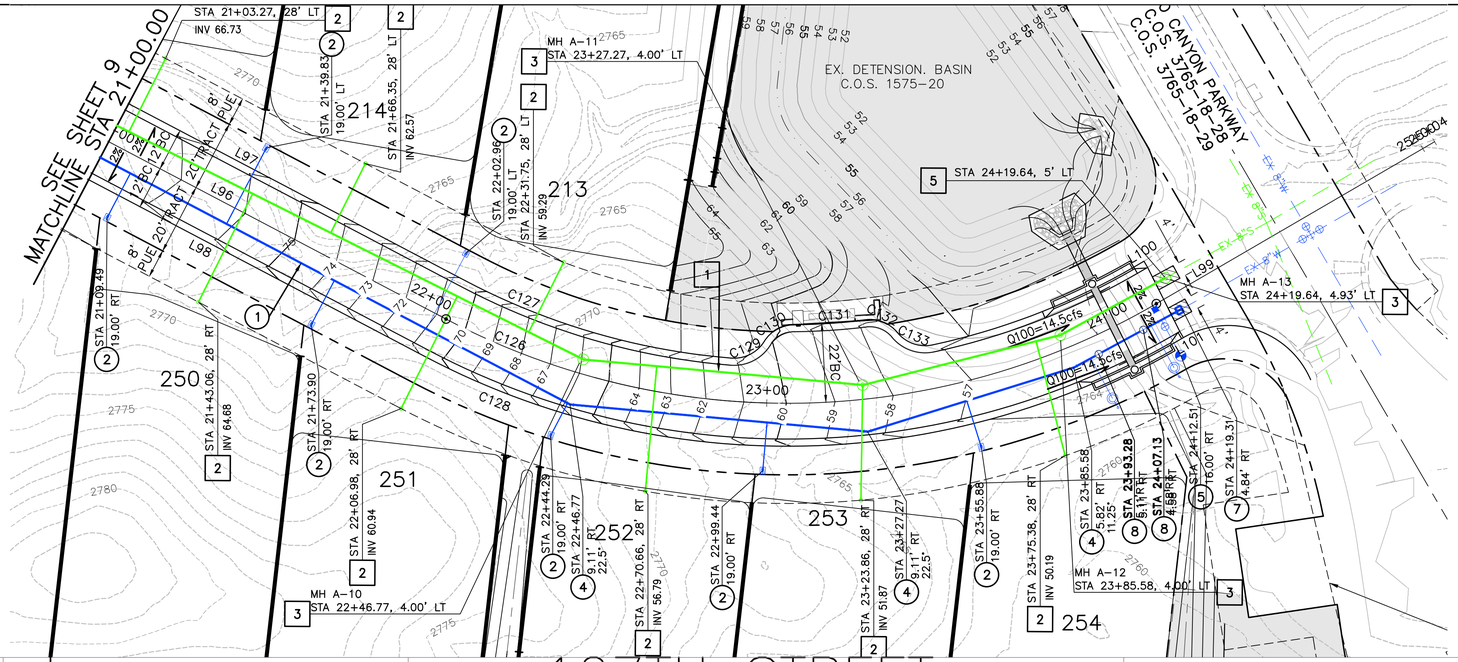
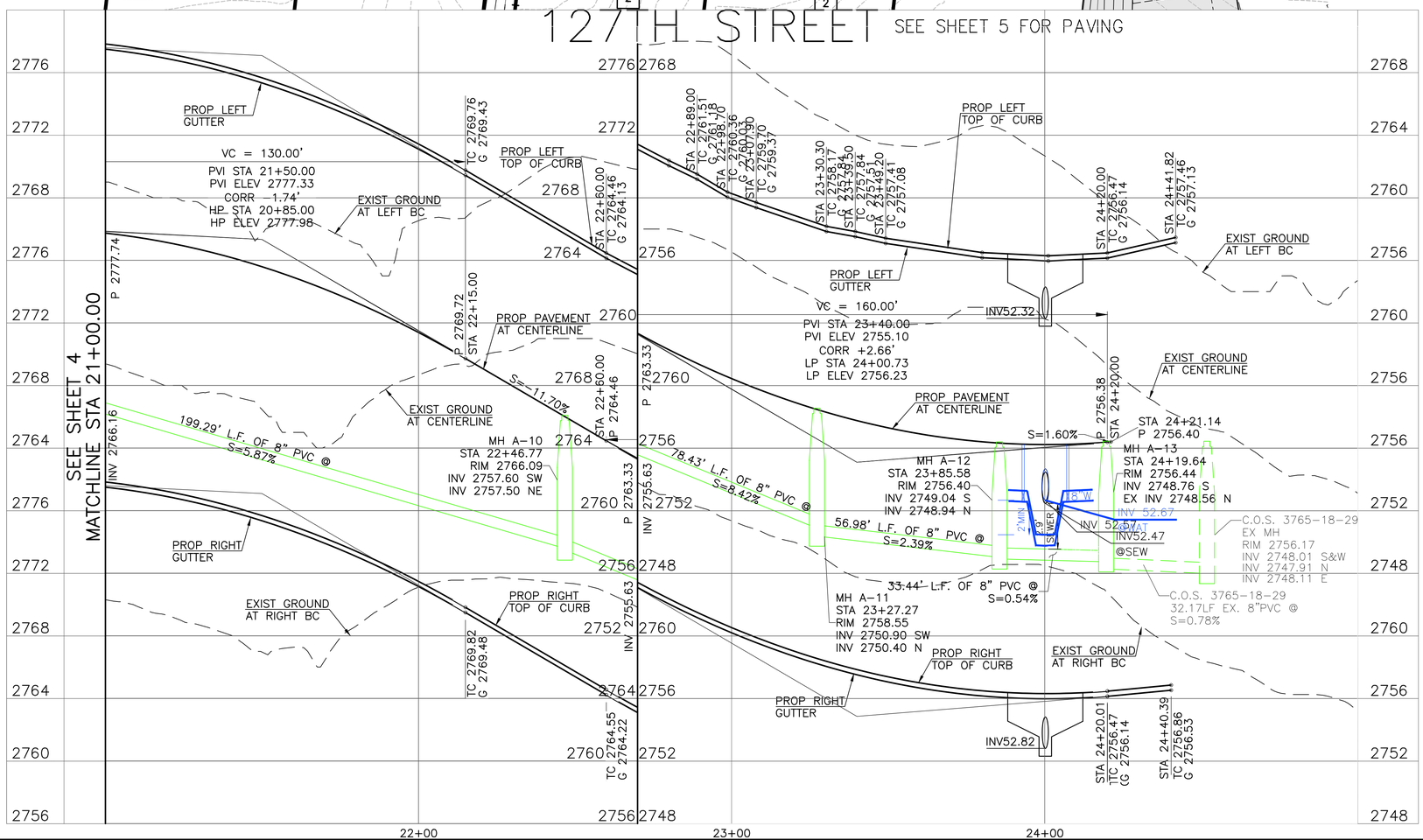


127TH STREET SEE SHEET 5 FOR PAVING



CONSTRUCTION NOTES:

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4. INSTALL BEND, TEE, CROSS OR REDUCER WITH ELECTRONIC MARKER PER C.O.S. SUPPLEMENTAL SPEC. 610. JOINT RESTRAINTS PER & M.A.G. STD. DETAILS 303-1 & 303-2.
5. INSTALL 6" FIRE HYDRANT COMPLETE WITH VALVE PER M.A.G. STD. DETAIL 360.
6. INSTALL 8" GATE VALVE BOX AND COVER PER M.A.G. STD. 391-1 TYPE 'C'.
7. REMOVE TAPPED CAP AND CONNECT TO EXISTING 8" WATERLINE. CONTRACTOR TO VERIFY LOCATION.
8. INSTALL VERTICAL REALIGNMENT OF 8" WATER LINE PER C.O.S. STD. DETAIL 2370, WITH 2-8" VALVES & AIR RELEASE ASSEMBLY DETAIL 2348.

SEWER

1. INSTALL 8" SDR 35 PVC, ASTM D 3034, SEWER PIPE PER M.A.G. SPEC. 745.
2. INSTALL 4" TAP & LATERAL CONNECTION PER. M.A.G. STD. DETAIL 440-3.
3. CONSTRUCT 48" MANHOLE TYPE 'A' TOP WITH WATERTIGHT 24" COVER C.O.S. STD. DETAIL 2421 & PER M.A.G. STD. DETAIL 420 AND 422.
5. CONNECT TO EXISTING SEWERLINE. CONTRACTOR TO VERIFY LOCATION.

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IMPROVEMENT PLANS

WATER & SEWER PLAN
SERENO CANYON PARCEL H, PHASE 4
SCOTTSDALE - ARIZONA

Date 7/23/2021	Job No. 385-17	Sheet 10 of 20

1-ZN-2005#2 16-ZN-2011 51-DR-2017 16-PP-2017

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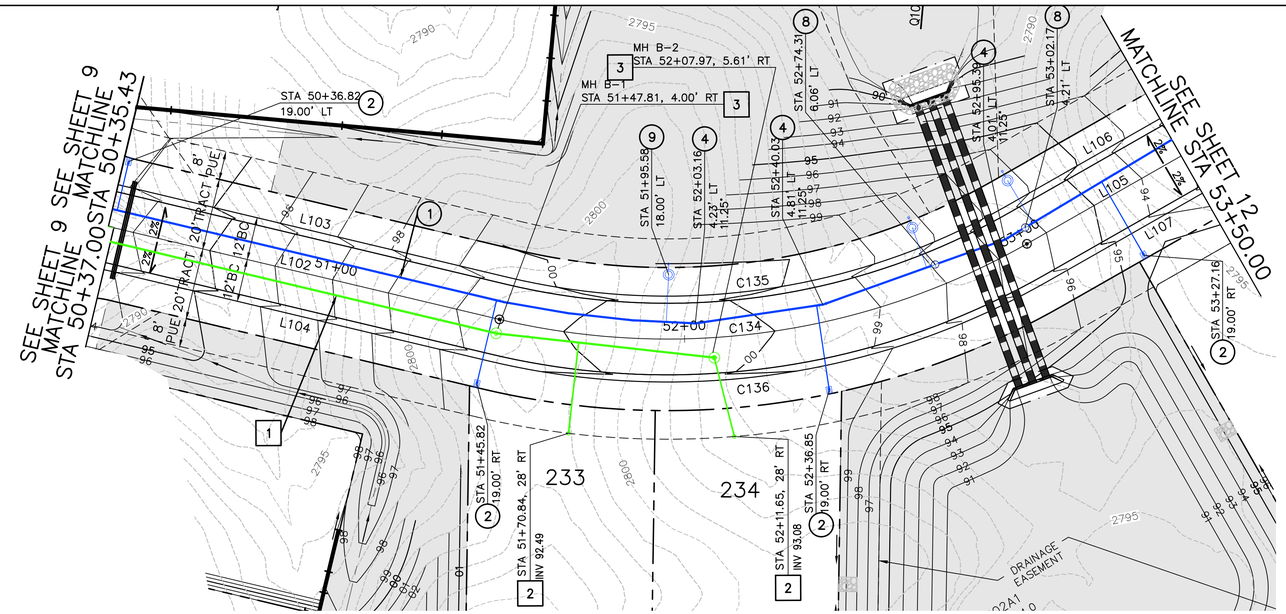
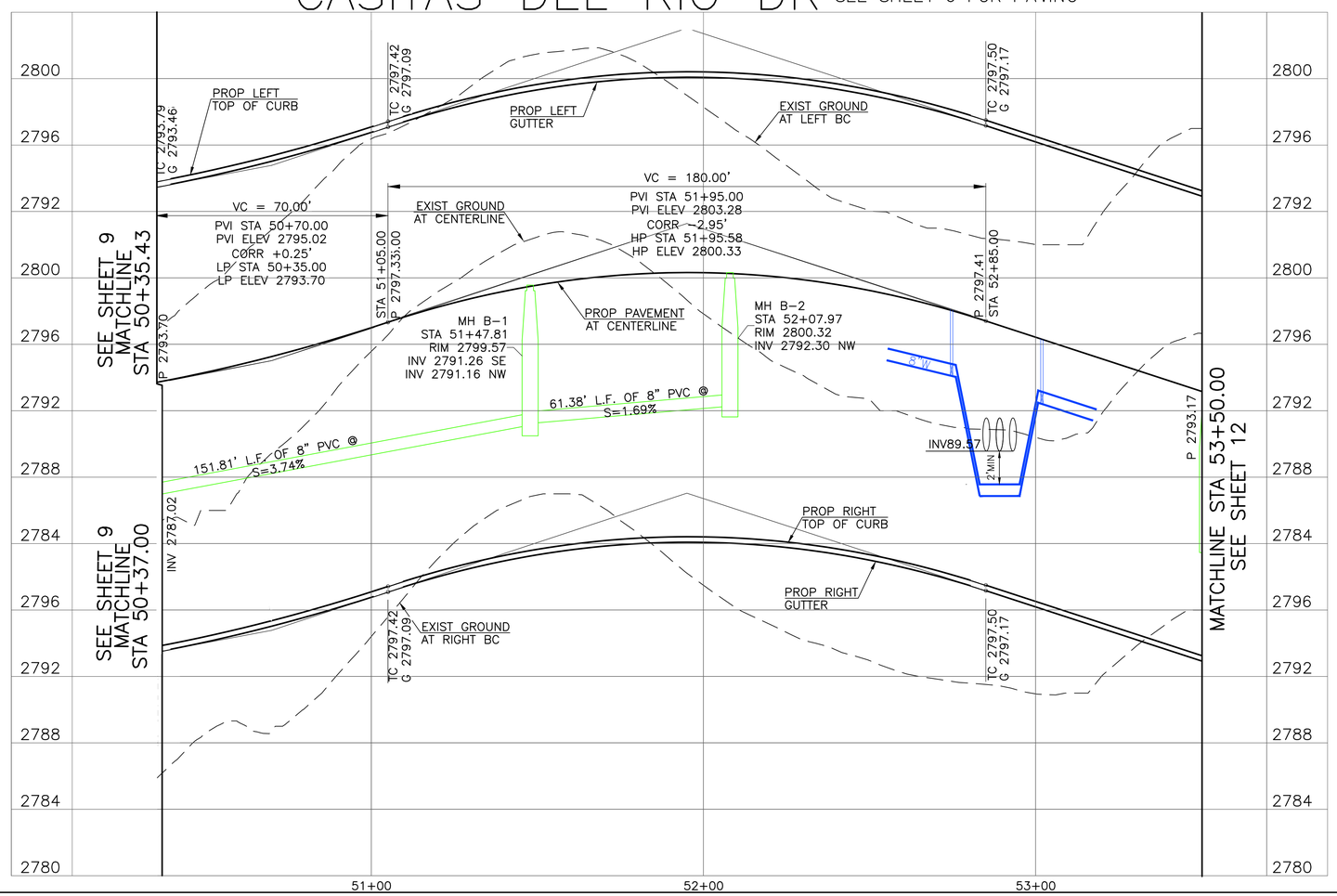


CASITAS DEL RIO DR

SEE SHEET 6 FOR PAVING



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6. INSTALL 8" GATE VALVE BOX AND COVER PER M.A.G. STD. 391-1 TYPE 'C'.
8. INSTALL VERTICAL REALIGNMENT OF 8" WATER LINE PER C.O.S. STD. DETAIL 2370, WITH 2-8" VALVES & AIR RELEASE ASSEMBLY DETAIL 2348.
9. INSTALL AIR RELEASE VALVE PER C.O.S. STD. DETAIL 2348.

SEWER

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2. INSTALL 4" TAP & LATERAL CONNECTION PER. M.A.G. STD. DETAIL 440-3.
3. CONSTRUCT 48" MANHOLE TYPE 'A' TOP WITH WATERTIGHT 24" COVER C.O.S. STD. DETAIL 2421 & PER M.A.G. STD. DETAIL 420 AND 422.

SCALE: 1" = 20' HORIZONTAL
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0' 20' 40' 60'

Registered Professional Engineer (Civil)
CERTIFICATE NO. 28638
JORGE R. GARRE
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ARIZONA, U.S.A.
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IMPROVEMENT PLANS

WATER & SEWER PLAN
SERENO CANYON PARCEL H, PHASE 4
SCOTTSDALE - ARIZONA

Date 7/23/2021	Job No. 385-17	Sheet 11 of 20

1-ZN-2005#2 16-ZN-2011 51-DR-2017 16-PP-2017

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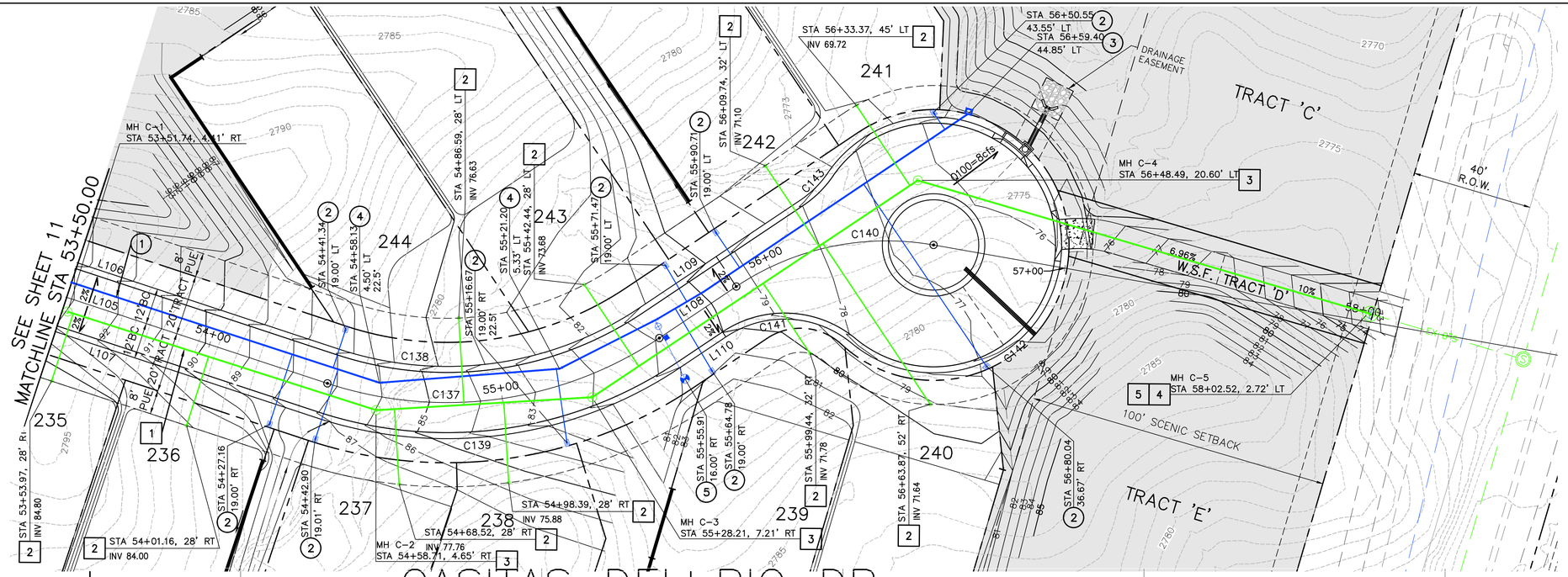

CONSTRUCTION NOTES:

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3. INSTALL CURB STOP WITH FLUSHING PIPE PER M.A.G. STD. DETAIL 390, TYPE B.
4. INSTALL BEND, TEE, CROSS OR REDUCER WITH ELECTRONIC MARKER PER C.O.S. SUPPLEMENTAL SPEC. 610. JOINT RESTRAINTS PER & M.A.G. STD. DETAILS 303-1 & 303-2.
5. INSTALL 6" FIRE HYDRANT COMPLETE WITH VALVE PER M.A.G. STD. DETAIL 360.
6. INSTALL 8" GATE VALVE BOX AND COVER PER M.A.G. STD. 391-1 TYPE 'C'.

SEWER

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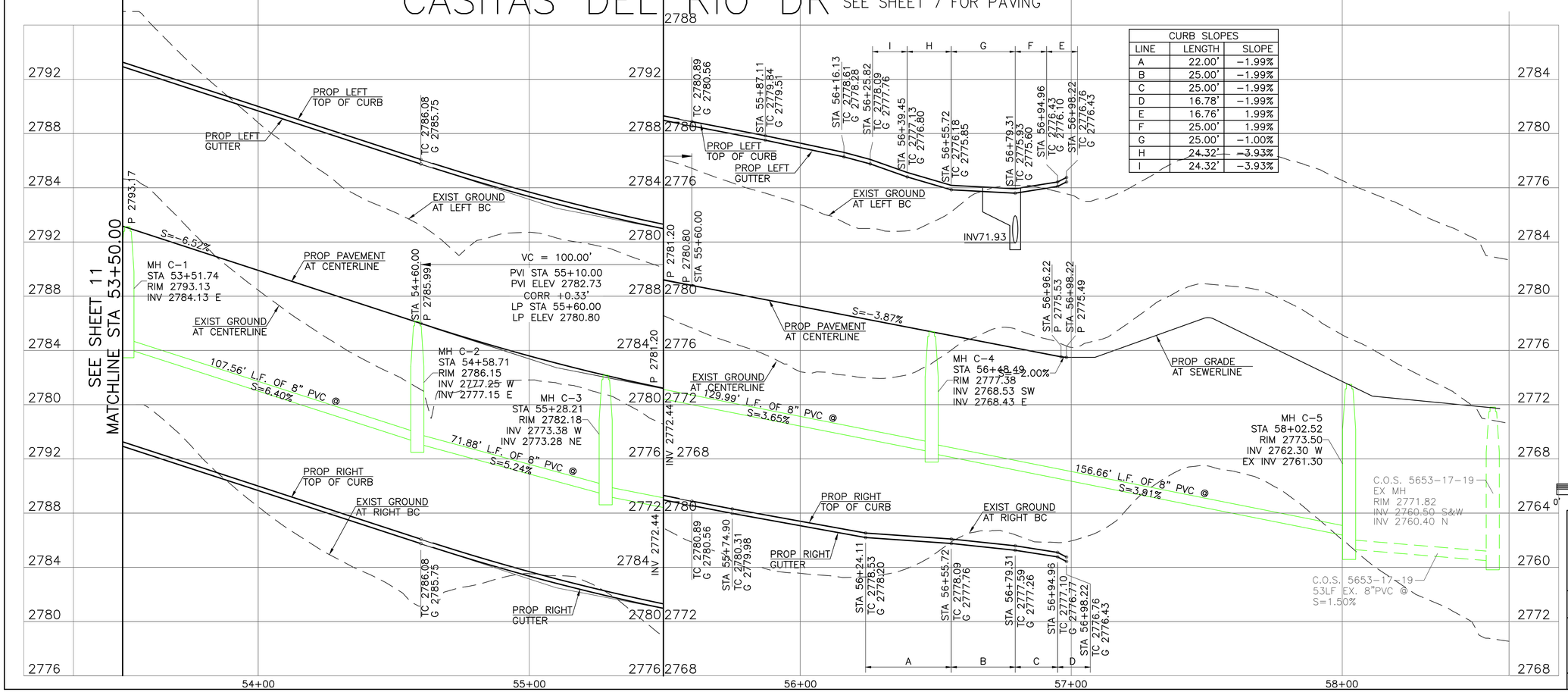
2. INSTALL 4" TAP & LATERAL CONNECTION PER. M.A.G. STD. DETAIL 440-3.
3. CONSTRUCT 48" MANHOLE TYPE 'A' TOP WITH WATERTIGHT 24" COVER C.O.S. STD. DETAIL 2421 & PER M.A.G. STD. DETAIL 420 AND 422.
4. CONSTRUCT 60" MANHOLE TYPE 'A' TOP WITH WATERTIGHT 24" COVER C.O.S. STD. DETAIL 2421 & PER M.A.G. STD. DETAIL 424.
5. CONNECT TO EXISTING SEWERLINE. CONTRACTOR TO VERIFY LOCATION.

CURB SLOPES		
LINE	LENGTH	SLOPE
A	22.00'	-1.99%
B	25.00'	-1.99%
C	25.00'	-1.99%
D	16.78'	-1.99%
E	16.76'	1.99%
F	25.00'	1.99%
G	25.00'	-1.00%
H	24.32'	-3.93%
I	24.32'	-3.93%



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IMPROVEMENT PLANS

WATER & SEWER PLAN
SERENO CANYON PARCEL H, PHASE 4
SCOTTSDALE - ARIZONA

Date 7/23/2021	Job No. 385-17	Sheet 12 of 20

1-ZN-2005#2 16-ZN-2011 51-DR-2017

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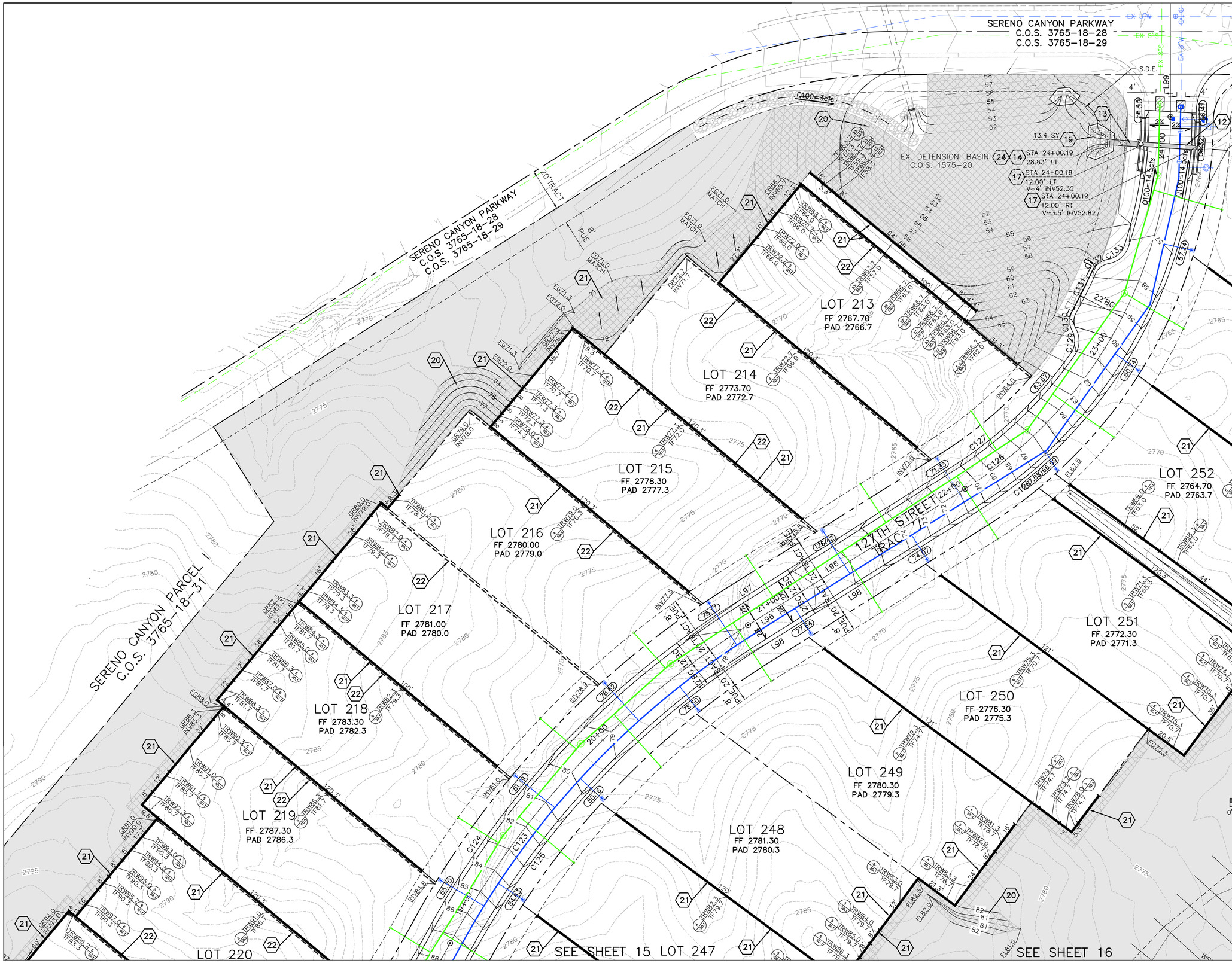

GRADING CONSTRUCTION NOTES

12. CONSTRUCT 24" HDPE STORM DRAIN PIPE. SEE SHEET 17 FOR PROFILE.
13. CONSTRUCT 30" HDPE STORM DRAIN PIPE. SEE SHEET 17 FOR PROFILE.
14. CONSTRUCT TYPE "U" HEADWALL PER M.A.G. STD. DETAIL 501-1, 501-2 AND C.O.S. DETAIL 2508, 2560-1 & 2560-2. SEE PLAN FOR PIPE SIZE.
17. CONSTRUCT CATCH BASIN PER C.O.P. STD. DETAIL P-1569, TYPE "M-2" ON SHEET 19, L=10'.
19. INSTALL LOOSE RIP RAP D50=6", 18" THICK, SY= PER PLAN.
20. DISTURBED AREAS TO BE HYDRO SEEDED WITH SEED MIXTURE SHOWN ON SHEET 2. ONLY TEMPORARY IRRIGATION TO BE USED IN THESE AREAS.
21. CONSTRUCT RETAINING WALL PER STRUCTURAL DETAIL AND SHEETS SHOWN.
22. INSTALL 6" INLINE DRAIN PER DETAIL ON SHEET 18.
24. CONSTRUCT HANDRAIL PER C.O.S. STD. DETAIL 2508 ON TOP OF RETAINING WALL.

Registered Professional Engineer (Civil) CERTIFICATE NO. 28638 JORGE R. GARRE Date Signed 7/23/2021 ARIZONA, U.S.A.

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GRADING & DRAINAGE PLAN

IMPROVEMENT PLANS
SERENO CANYON PARCEL H, PHASE 4
SCOTTSDALE – ARIZONA

Date 7/23/2021	Job No. 385-17	Sheet 13 of 20

1-ZN-2005#2 16-ZN-2011 51-DR-2017 16-PP-2017

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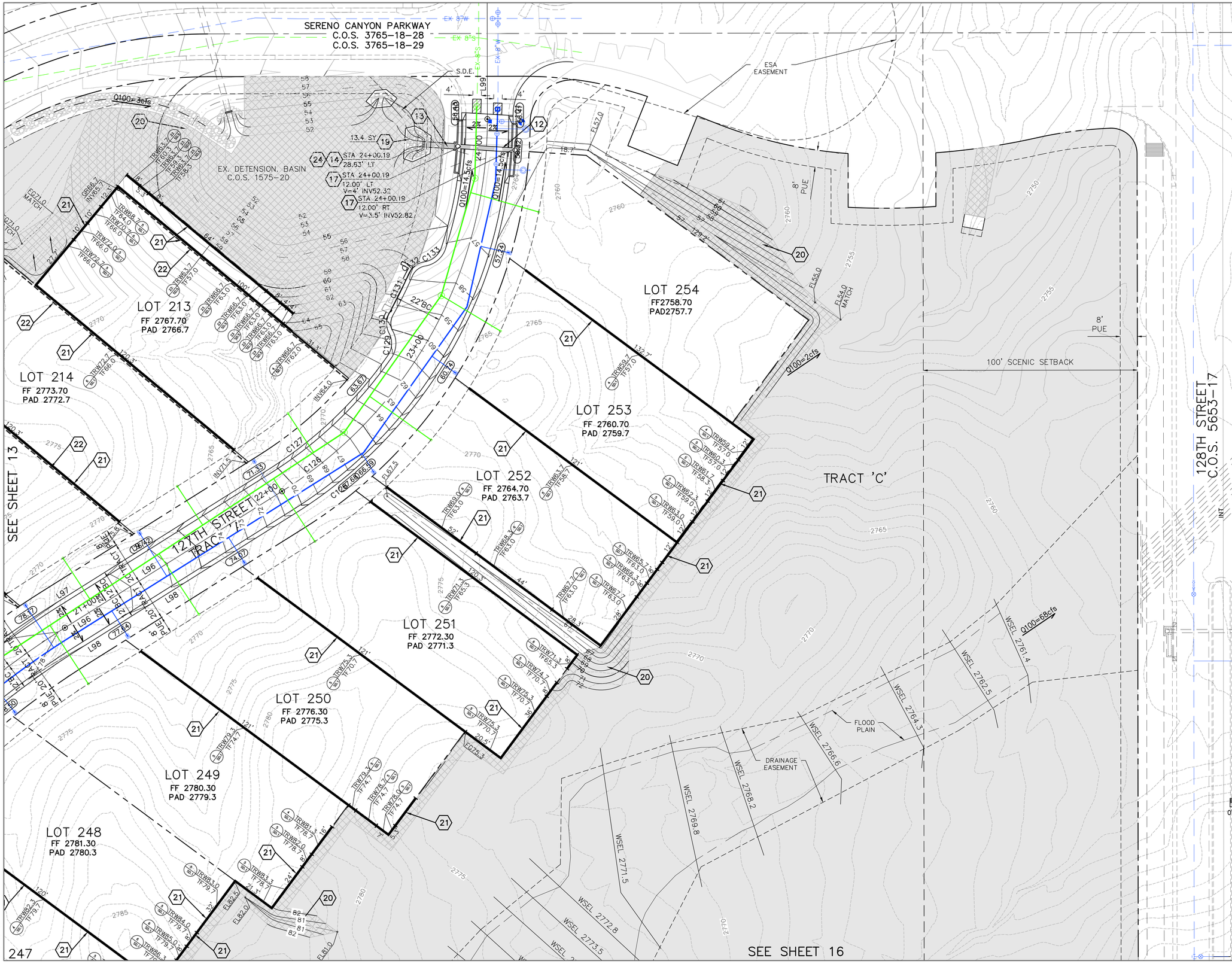

GRADING CONSTRUCTION NOTES

(12) CONSTRUCT 24" HDPE STORM DRAIN PIPE. SEE SHEET 17 FOR PROFILE.

(13) CONSTRUCT 30" HDPE STORM DRAIN PIPE. SEE SHEET 17 FOR PROFILE.

(14) CONSTRUCT TYPE "U" HEADWALL PER M.A.G. STD. DETAIL 501-1, 501-2 AND C.O.S. DETAIL 2508, 2560-1 & 2560-2. SEE PLAN FOR PIPE SIZE.

(17) CONSTRUCT CATCH BASIN PER C.O.P. STD. DETAIL P-1569, TYPE "M-2" ON SHEET 19, L=10'.

(19) INSTALL LOOSE RIP RAP D50=6", 18" THICK, SY= PER PLAN.

(20) DISTURBED AREAS TO BE HYDRO SEEDED WITH SEED MIXTURE SHOWN ON SHEET 2. ONLY TEMPORARY IRRIGATION TO BE USED IN THESE AREAS.

(21) CONSTRUCT RETAINING WALL PER STRUCTURAL DETAIL AND SHEETS SHOWN.

(22) INSTALL 6" INLINE DRAIN PER DETAIL ON SHEET 18.

(24) CONSTRUCT HANDRAIL PER C.O.S. STD. DETAIL 2508 ON TOP OF RETAINING WALL.

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0' 20' 40' 60'

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IMPROVEMENT PLANS
SERENO CANYON PARCEL H, PHASE 4
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Date 7/23/2021	Job No. 385-17	Sheet 14 of 20

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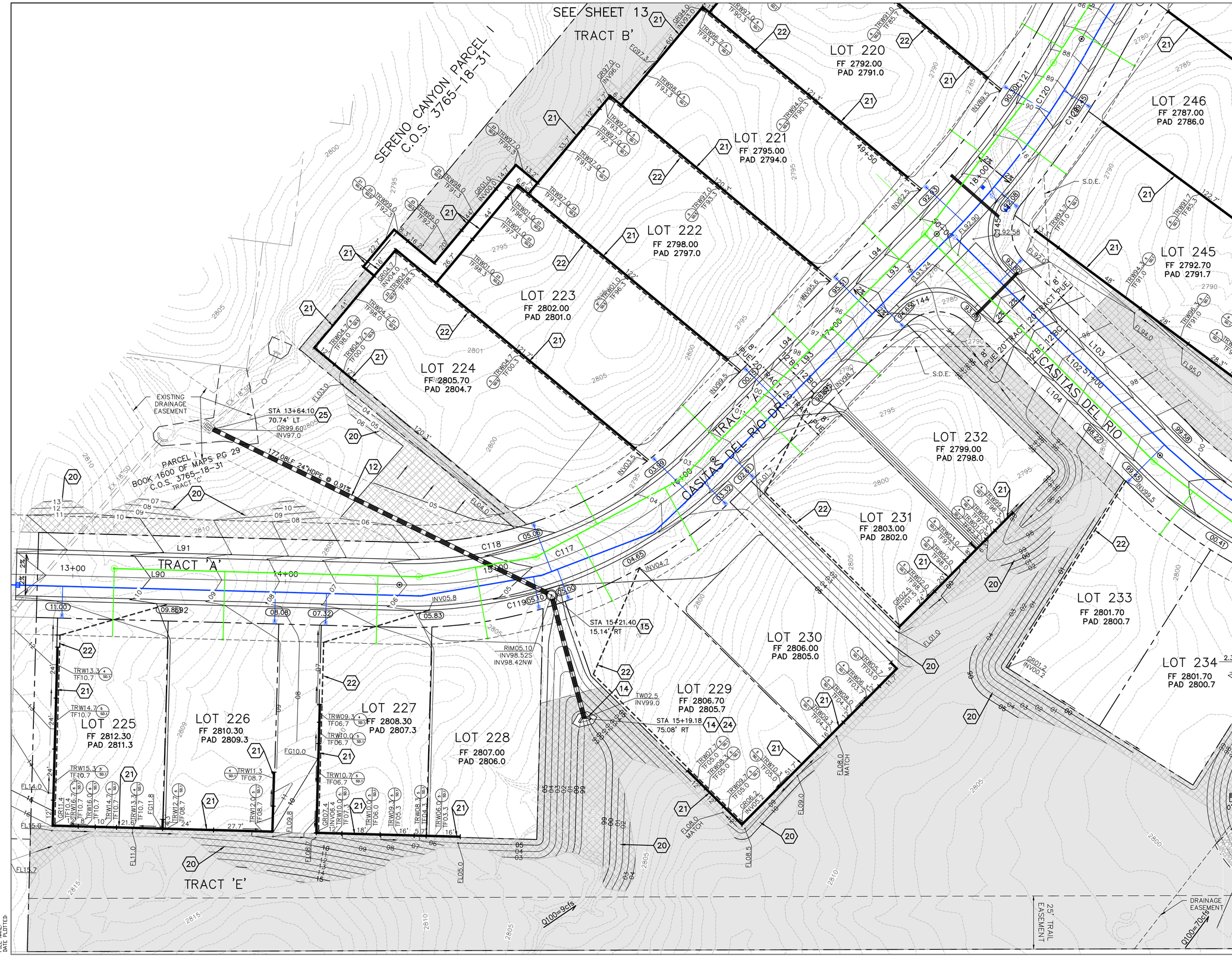

GRADING CONSTRUCTION NOTES

12. CONSTRUCT 24" HDPE STORM DRAIN PIPE. SEE SHEET 17 FOR PROFILE.
14. CONSTRUCT TYPE "U" HEADWALL PER M.A.G. STD. DETAIL 501-1, 501-2 AND C.O.S. DETAIL 2508, 2560-1 & 2560-2. SEE PLAN FOR PIPE SIZE.
15. CONSTRUCT STORM DRAIN MANHOLE PER M.A.G. STD. DETAIL 520.
19. INSTALL LOOSE RIP RAP D50=6", 18" THICK, SY= PER PLAN.
20. DISTURBED AREAS TO BE HYDRO SEEDED WITH SEED MIXTURE SHOWN ON SHEET 2. ONLY TEMPORARY IRRIGATION TO BE USED IN THESE AREAS.
21. CONSTRUCT RETAINING WALL PER STRUCTURAL DETAIL AND SHEETS SHOWN.
22. INSTALL 6" INLINE DRAIN PER DETAIL ON SHEET 18.
24. CONSTRUCT HANDRAIL PER C.O.S. STD. DETAIL 2508 ON TOP OF RETAINING WALL.
25. CONNECT PIPE TO EXISTING CATCH BASIN. CONTRACTOR TO VERIFY LOCATION.

SCALE: 1" = 20' HORIZONTAL
1" = 4' VERTICAL

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FILE NAME
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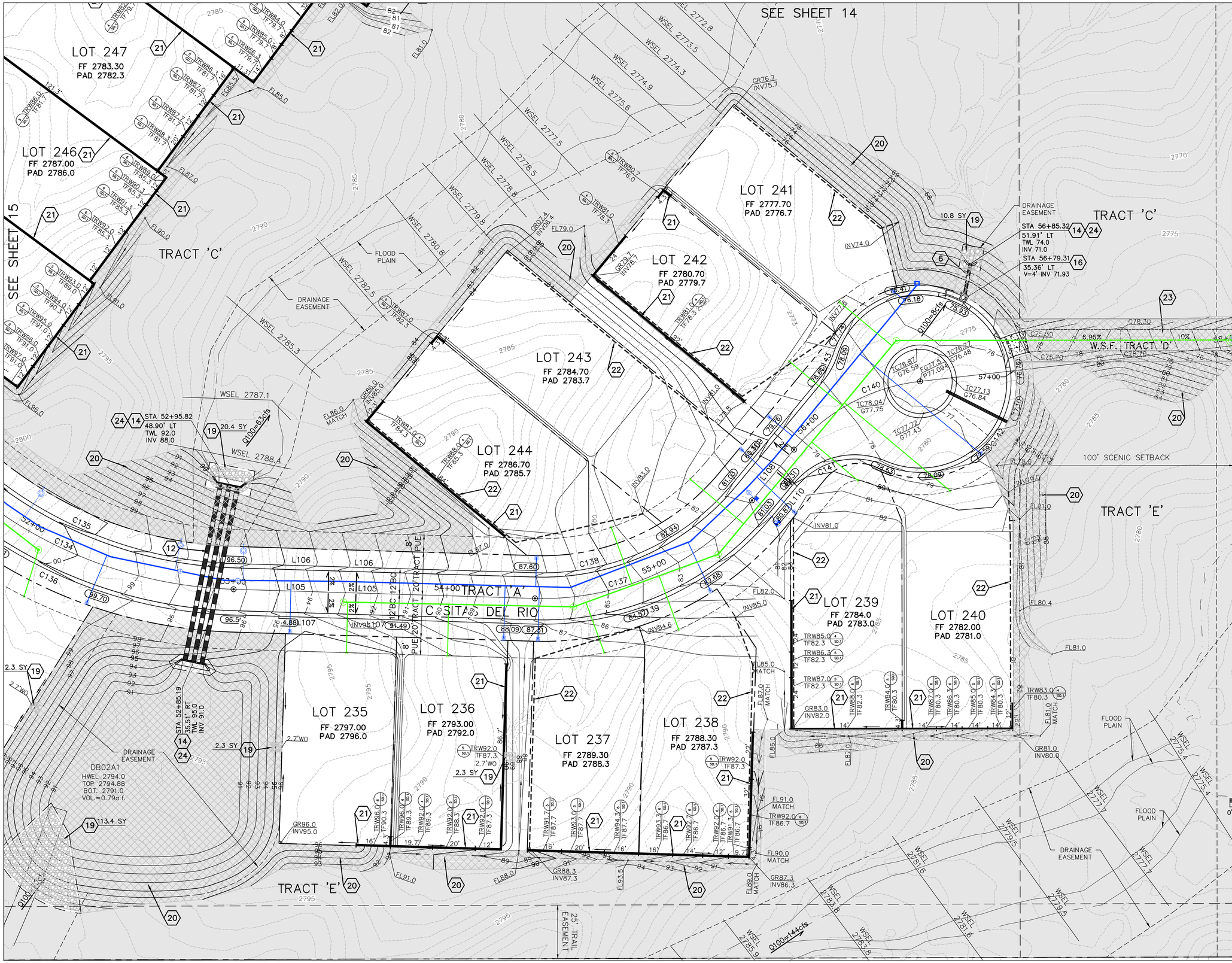

GRADING CONSTRUCTION NOTES

6. CONSTRUCT 18" HDPE STORM DRAIN PIPE. SEE SHEET 17 FOR PROFILE.
12. CONSTRUCT 24" HDPE STORM DRAIN PIPE. SEE SHEET 17 FOR PROFILE.
14. CONSTRUCT TYPE "U" HEADWALL PER M.A.G. STD. DETAIL 501–1, 501–2 AND C.O.S. DETAIL 2508, 2560–1 & 2560–2. SEE PLAN FOR PIPE SIZE.
16. CONSTRUCT CATCH BASIN PER C.O.P. STD. DETAIL P–1569, TYPE "M–1" ON SHEET 19, L=6'.
18. CONSTRUCT 3–24" HDPE STORM DRAIN PIPES. SEE SHEET 17 FOR PROFILE.
19. INSTALL LOOSE RIP RAP D50=6", 18" THICK, SY= PER PLAN.
20. DISTURBED AREAS TO BE HYDRO SEEDED WITH SEED MIXTURE SHOWN ON SHEET 2. ONLY TEMPORARY IRRIGATION TO BE USED IN THESE AREAS.
21. CONSTRUCT RETAINING WALL PER STRUCTURAL DETAIL AND SHEETS SHOWN.
22. INSTALL 6" INLINE DRAIN PER DETAIL ON SHEET 18.
23. CONSTRUCT 10' TRAIL AND/OR UTILITY ACCESS PER DETAIL, SHEET 18.
24. CONSTRUCT HANDRAIL PER C.O.S. STD. DETAIL 2508 ON TOP OF RETAINING WALL.

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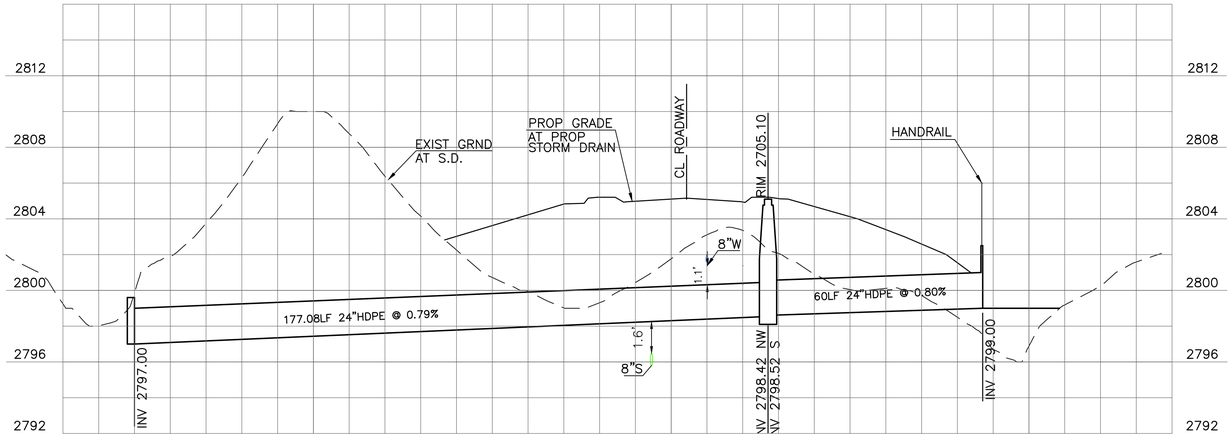
GRADING & DRAINAGE PLAN

IMPROVEMENT PLANS
SERENO CANYON PARCEL H, PHASE 4
SCOTTSDALE – ARIZONA

Date 7/23/2021	Job No. 385–17	Sheet 13 of 20

1–ZN–2005#2 16–ZN–2011 51–DR–2017

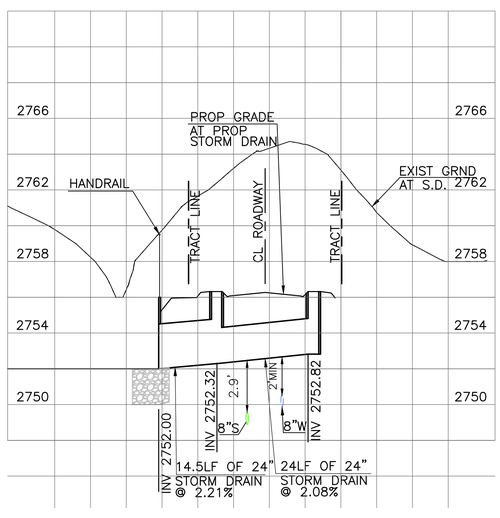
FILE NAME
DATE PLOTTED



STORM DRAIN "A"

127TH STREET

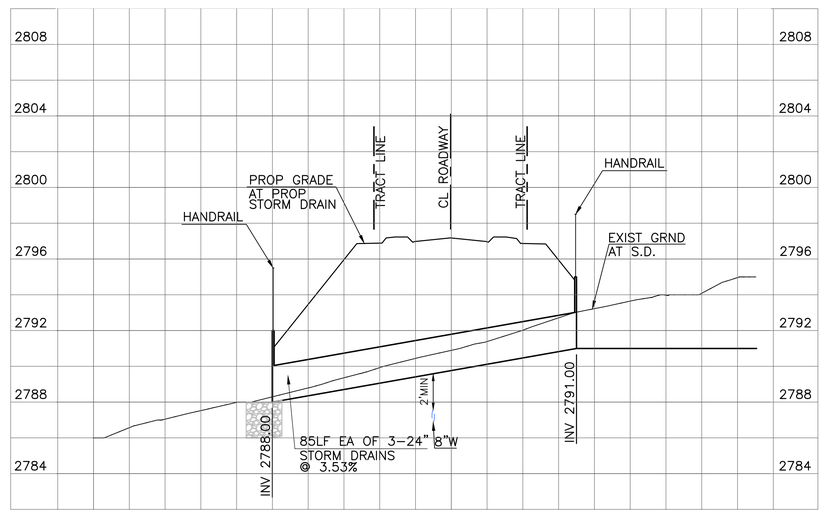
SEE SHEET 15



STORM DRAIN "B"

127TH STREET STA 24+00.19

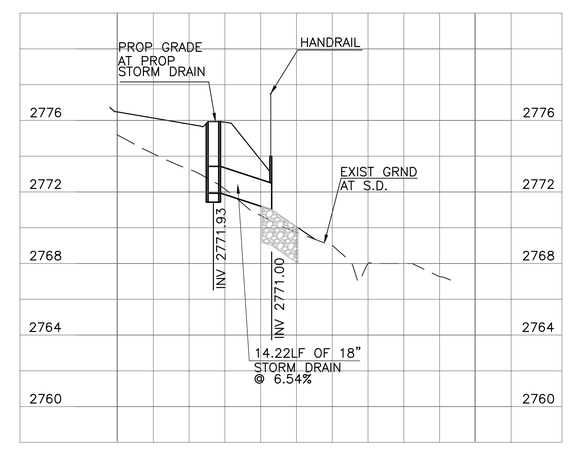
SEE SHEET 13 & 14



STORM DRAIN "C"

CASITAS DEL RIO

SEE SHEET 16



STORM DRAIN "D"

SEE SHEET 16

SCALE: 1" = 20' HORIZONTAL
1" = 4' VERTICAL

0' 20' 40' 60'

Registered Professional Engineer (Civil) CERTIFICATE NO. 28638 JORGE R. GARRE Date Signed 7/23/2021 ARIZONA, U.S.A.

EXPIRES 12/31/21

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Scottsdale, Arizona 85260 480-596-1131

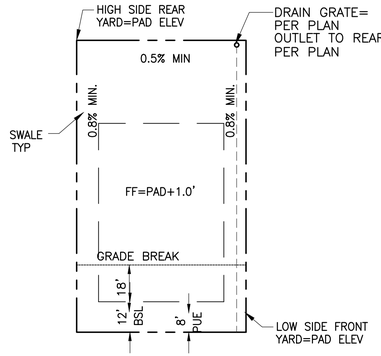
STORM DRAIN PROFILES

IMPROVEMENT PLANS
SERENO CANYON PARCEL H, PHASE 4
SCOTTSDALE – ARIZONA

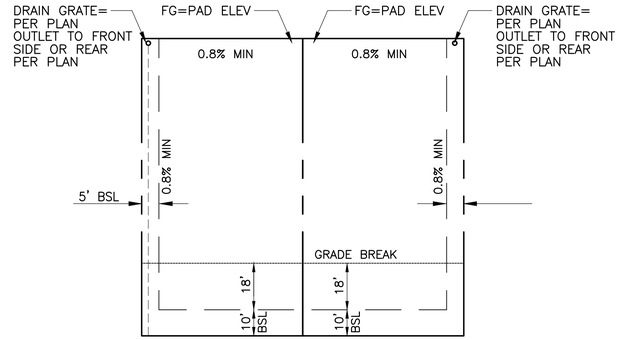
Date 7/23/2021	Job No. 385-17	Sheet 17 of 20

1-ZN-2005#2 16-ZN-2011 51-DR-2017 16-PP-2017

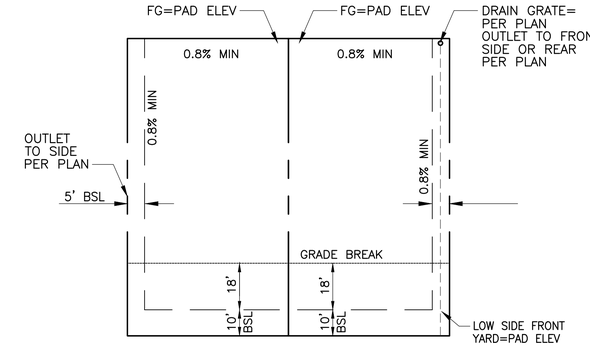
FILE NAME
DATE PLOTTED



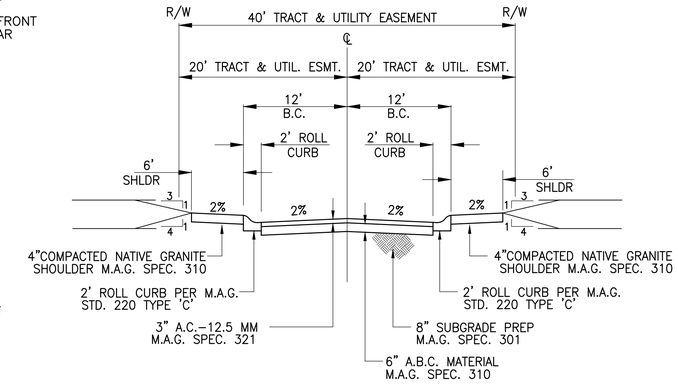
TYPICAL SINGLE FAMILY LOT FORWARD DRAINAGE
N.T.S.



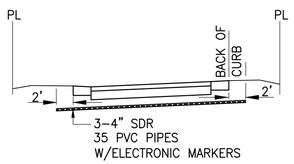
TYPICAL DUPLEX LOTS FORWARD DRAINAGE
DRAINAGE TO THE FRONT AND REAR



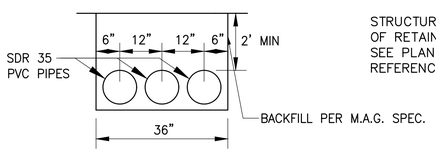
TYPICAL DUPLEX LOTS SIDE DRAINAGE
DRAINAGE TO THE FRONT AND REAR



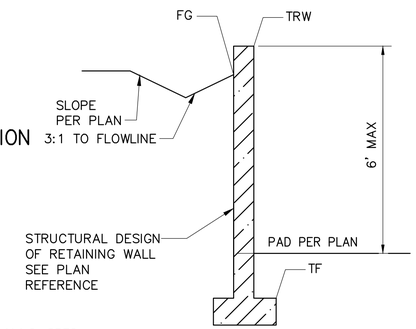
LOCAL RESIDENTIAL STREET (ELSO)
LOCAL RESIDENTIAL (PRIVATE)
N.T.S.



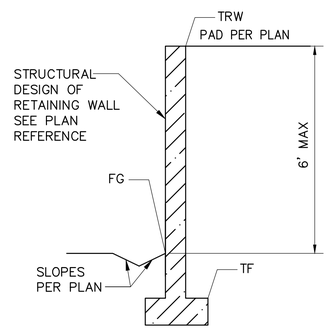
ROADWAY CROSS SECTION
TYPICAL IRRIGATION SLEEVE INSTALLATION
NTS



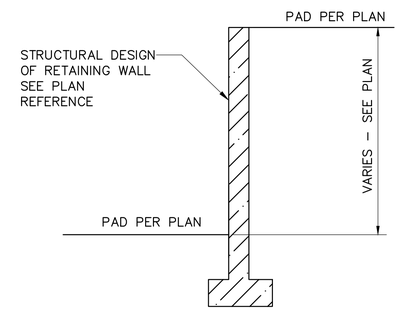
SECTION A-A
TYPICAL IRRIGATION SLEEVE INSTALLATION
NTS



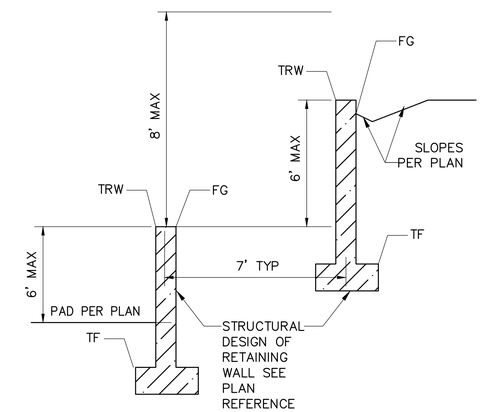
RETAINING WALL SECTION A
TYPICAL CUT LOT
N.T.S.



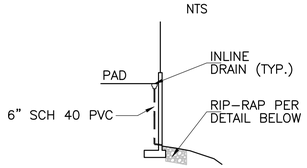
RETAINING WALL SECTION B
TYPICAL FILL LOT
N.T.S.



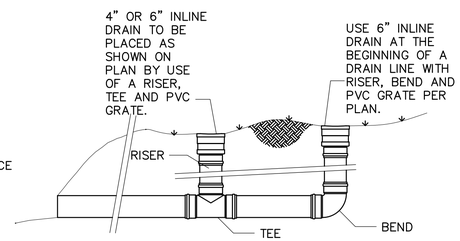
RETAINING WALL BETWEEN LOTS TYPICAL
N.T.S.



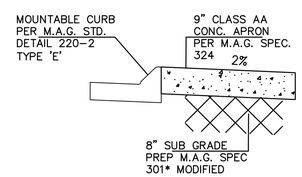
2 TIER RETAINING WALL TYPICAL
N.T.S.



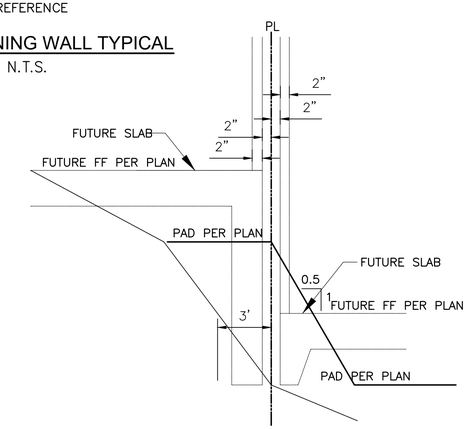
WALL DRAINAGE DETAIL 'B'
N.T.S.



INLINE DRAIN DETAIL
N.T.S.

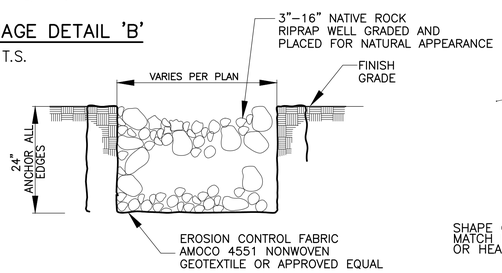


CONCRETE APRON SECTION

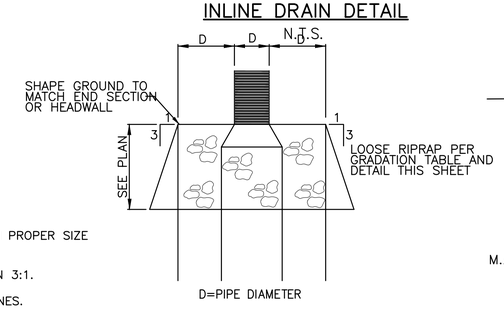


COMMON WALL TEMPORARY GRADING
N.T.S.

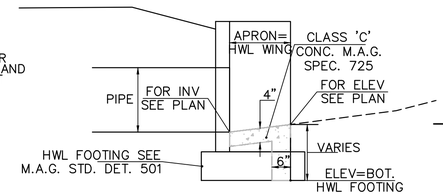
SIZE	% PASSING
16"	D100
12"	D85
8"	D50
3"	D15



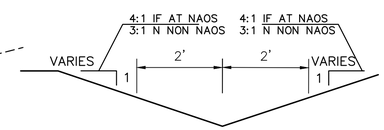
LOOSE RIPRAP WITH FABRIC DETAIL
N.T.S.



RIPRAP OUTLET PROTECTION
N.T.S.



CONCRETE INLET APRON
N.T.S.



SWALE DETAIL
N.T.S.

RIPRAP NOTES

1. THE STONE SHOULD BE REASONABLY WELL GRADED THROUGHOUT THE IN-PLACE LAYER THICKNESS.
2. OVERSIZE STONE, EVEN IN ISOLATED SPOTS, SHOULD BE REMOVED INDIVIDUALLY AND REPLACED WITH PROPER SIZE STONES.
3. SIDE SLOPES ON WHICH STONE IS PLACED BY MACHINE OR DUMPED SHOULD NOT BE STEEPER THAN 3:1.
4. THE STONE SHALL BE PLACED TO FORM AN INTERLOCKED, DENSE, UNIFORM MASS OF DURABLE STONES.
5. MINIMUM SPECIFIC WEIGHT OF STONE SHOULD BE 165 LB/C.F.
6. ALL RIPRAP SHALL BE INDIGENOUS TO SITE.

Registered Professional Engineer (Civil) CERTIFICATE NO. 28638 JORGE R. GARRE Date Signed 7/23/2021 ARIZONA, U.S.A.
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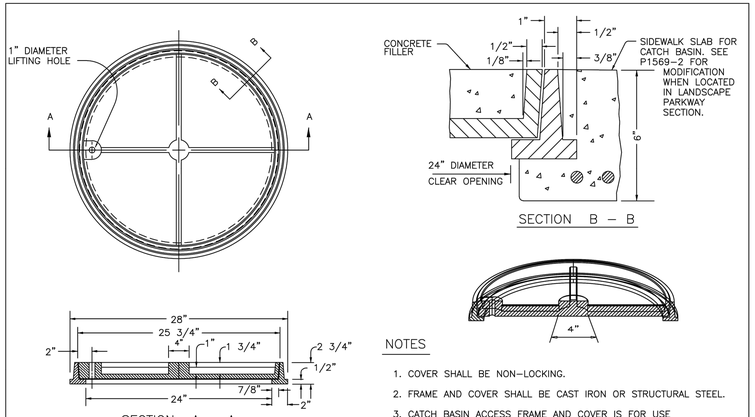
DETAILS

IMPROVEMENT PLANS
SERENO CANYON PARCEL H, PHASE 4
SCOTTSDALE - ARIZONA

Date 7/23/2021	Job No. 385-17	Sheet 18 of 20

1-ZN-2005#2 16-ZN-2011 51-DR-2017 16-PP-2017

FILE NAME:
DATE PLOTTED:

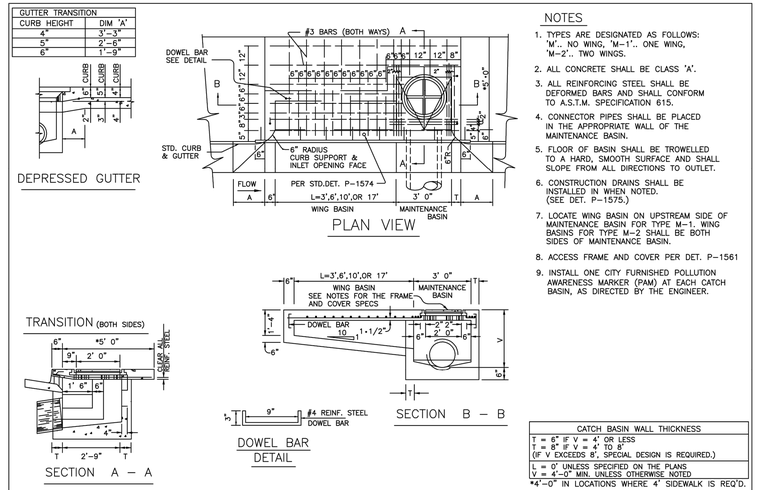


NOTES

1. COVER SHALL BE NON–LOCKING.
2. FRAME AND COVER SHALL BE CAST IRON OR STRUCTURAL STEEL.
3. CATCH BASIN ACCESS FRAME AND COVER IS FOR USE ON NON VEHICULAR TRAFFIC AREAS ONLY.
4. COVER SHALL BE FILLED WITH CONCRETE AND BROOM FINISHED.
5. SMALL VARIATIONS IN DIMENSIONS OR FEATURES OF A MINOR NATURE THAT ARE PART OF THE FOUNDRY'S STANDARD CASTING ARE PERMISSIBLE.

DETAIL NO.			APPROVED	DETAIL NO.
P1561	City of Phoenix STANDARD DETAIL	FRAME AND COVER CATCH BASIN ACCESS	ACTING CITY ENGINEER 7/31/08 DATE	P1561

GUTTER TRANSITION	
CURB HEIGHT	DIM 'A'
4"	3'–3"
5"	2'–9"
6"	1'–9"

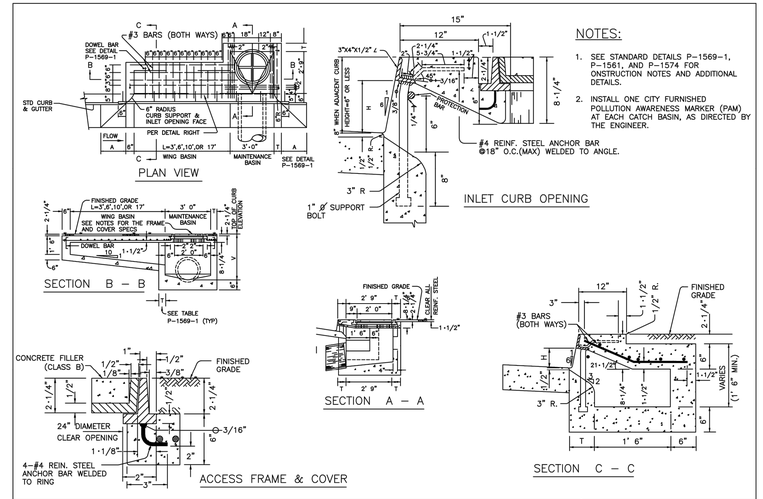


NOTES

1. TYPES ARE DESIGNATED AS FOLLOWS: 'M'.. NO WING, 'M–1'.. ONE WING, 'M–2'.. TWO WINGS.
2. ALL CONCRETE SHALL BE CLASS 'A'.
3. ALL REINFORCING STEEL SHALL BE DEFORMED BARS AND SHALL CONFORM TO A.S.T.M. SPECIFICATION 615.
4. CONNECTOR PIPES SHALL BE PLACED IN THE APPROPRIATE WALL OF THE MAINTENANCE BASIN.
5. FLOOR OF BASIN SHALL BE TROWELLED TO A HARD, SMOOTH SURFACE AND SHALL SLOPE FROM ALL DIRECTIONS TO OUTLET.
6. CONSTRUCTION DRAINS SHALL BE INSTALLED IN WHEN NOTED. (SEE DET. P–1575.)
7. LOCATE WING BASIN ON UPSTREAM SIDE OF MAINTENANCE BASIN FOR TYPE M–1. WING BASINS FOR TYPE M–2 SHALL BE BOTH SIDES OF MAINTENANCE BASIN.
8. ACCESS FRAME AND COVER PER DET. P–1561
9. INSTALL ONE CITY FURNISHED POLLUTION AWARENESS MARKER (PAM) AT EACH CATCH BASIN, AS DIRECTED BY THE ENGINEER.

CATCH BASIN WALL THICKNESS
T = 6" IF V = 4' OR LESS T = 8" IF V = 4' TO 8' (IF V EXCEEDS 8', SPECIAL DESIGN IS REQUIRED.)
L = 0' UNLESS SPECIFIED ON THE PLANS V = 4'–0" MIN. UNLESS OTHERWISE NOTED
*4'–0" IN LOCATIONS WHERE 4' SIDEWALK IS REQ'D.

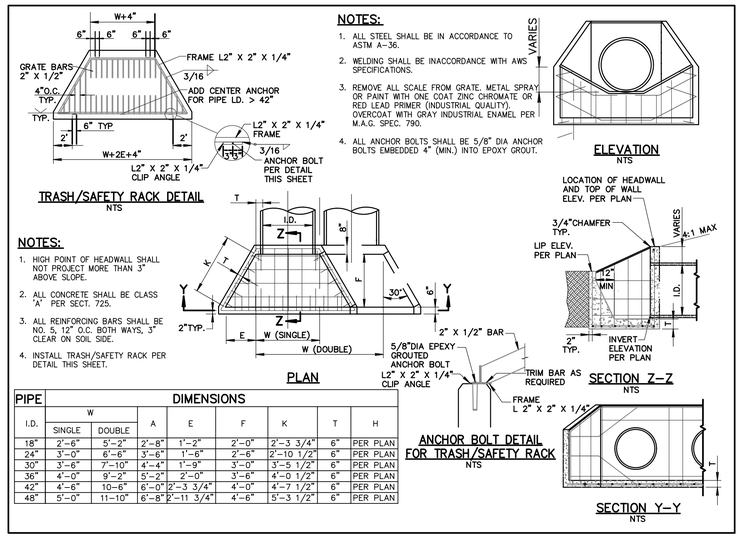
DETAIL NO.			APPROVED	DETAIL NO.
P1569–1	City of Phoenix STANDARD DETAIL	CATCH BASIN TYPE "M"	CITY ENGINEER 12/10/2012 DATE	P1569–1



NOTES:

1. SEE STANDARD DETAILS P–1569–1, P–1561, AND P–1574 FOR ONSTRUCTION NOTES AND ADDITIONAL DETAILS.
2. INSTALL ONE CITY FURNISHED POLLUTION AWARENESS MARKER (PAM) AT EACH CATCH BASIN, AS DIRECTED BY THE ENGINEER.

DETAIL NO.			APPROVED	DETAIL NO.
P1569–2	City of Phoenix STANDARD DETAIL	CATCH BASIN – TYPE "M" TOP MODIFICATION IN LANDSCAPE PARKWAY	CITY ENGINEER 12/10/2012 DATE	P1569–2



NOTES:

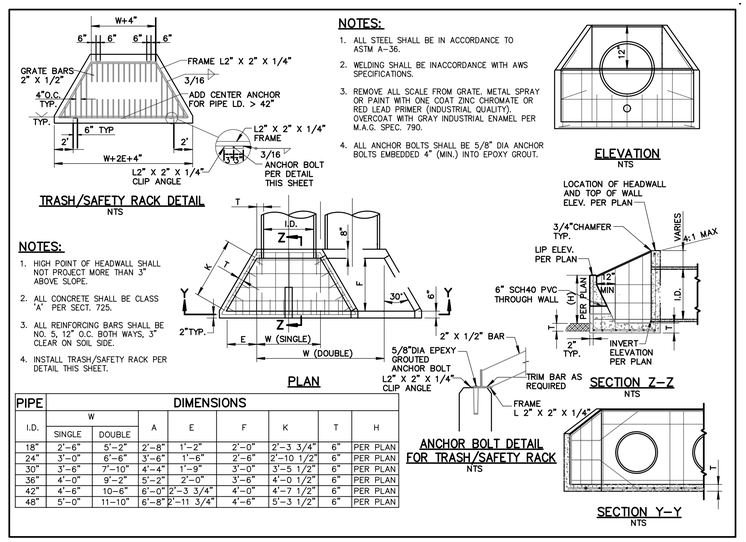
1. ALL STEEL SHALL BE IN ACCORDANCE TO ASTM A–36.
2. WELDING SHALL BE INACCORDANCE WITH AWS SPECIFICATIONS.
3. REMOVE ALL SCALE FROM GRATE, METAL SPRAY OR PAINT WITH ONE COAT ZINC CHROMATE OR RED LEAD PRIMER (INDUSTRIAL QUALITY). OVERCOAT WITH GRAY INDUSTRIAL ENAMEL PER M.A.G. SPEC. 790.
4. ALL ANCHOR BOLTS SHALL BE 5/8" DIA ANCHOR BOLTS EMBEDDED 4" (MIN.) INTO EPOXY GROUT.

NOTES:

1. HIGH POINT OF HEADWALL SHALL NOT PROJECT MORE THAN 3" ABOVE SLOPE.
2. ALL CONCRETE SHALL BE CLASS 'A' PER SECT. 725.
3. ALL REINFORCING BARS SHALL BE NO. 5, 12" O.C. BOTH WAYS, 3" CLEAR ON SOIL SIDE.
4. INSTALL TRASH/SAFETY RACK PER DETAIL THIS SHEET.

PIPE	DIMENSIONS							
I.D.	W SINGLE	W DOUBLE	A	E	F	K	T	H
18"	2'–6"	5'–2"	2'–8"	1'–2"	2'–0"	2'–3 3/4"	6"	PER PLAN
24"	3'–0"	6'–6"	3'–6"	1'–6"	2'–6"	2'–10 1/2"	6"	PER PLAN
30"	3'–6"	7'–10"	4'–4"	1'–9"	3'–0"	3'–5 1/2"	6"	PER PLAN
36"	4'–0"	9'–2"	5'–2"	2'–0"	3'–6"	4'–0 1/2"	6"	PER PLAN
42"	4'–6"	10–6"	6'–0"	2'–3 3/4"	4'–0"	4'–7 1/2"	6"	PER PLAN
48"	5'–0"	11–10"	6'–8"	2'–11 3/4"	4'–6"	5'–3 1/2"	6"	PER PLAN

HEADWALL DROP INLET 'A' (MODIFIED M.A.G. 501–5)



NOTES:

1. ALL STEEL SHALL BE IN ACCORDANCE TO ASTM A–36.
2. WELDING SHALL BE INACCORDANCE WITH AWS SPECIFICATIONS.
3. REMOVE ALL SCALE FROM GRATE, METAL SPRAY OR PAINT WITH ONE COAT ZINC CHROMATE OR RED LEAD PRIMER (INDUSTRIAL QUALITY). OVERCOAT WITH GRAY INDUSTRIAL ENAMEL PER M.A.G. SPEC. 790.
4. ALL ANCHOR BOLTS SHALL BE 5/8" DIA ANCHOR BOLTS EMBEDDED 4" (MIN.) INTO EPOXY GROUT.

NOTES:

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3. ALL REINFORCING BARS SHALL BE NO. 5, 12" O.C. BOTH WAYS, 3" CLEAR ON SOIL SIDE.
4. INSTALL TRASH/SAFETY RACK PER DETAIL THIS SHEET.

PIPE	DIMENSIONS							
I.D.	W SINGLE	W DOUBLE	A	E	F	K	T	H
18"	2'–6"	5'–2"	2'–8"	1'–2"	2'–0"	2'–3 3/4"	6"	PER PLAN
24"	3'–0"	6'–6"	3'–6"	1'–6"	2'–6"	2'–10 1/2"	6"	PER PLAN
30"	3'–6"	7'–10"	4'–4"	1'–9"	3'–0"	3'–5 1/2"	6"	PER PLAN
36"	4'–0"	9'–2"	5'–2"	2'–0"	3'–6"	4'–0 1/2"	6"	PER PLAN
42"	4'–6"	10–6"	6'–0"	2'–3 3/4"	4'–0"	4'–7 1/2"	6"	PER PLAN
48"	5'–0"	11–10"	6'–8"	2'–11 3/4"	4'–6"	5'–3 1/2"	6"	PER PLAN

HEADWALL DROP INLET 'B' (MODIFIED M.A.G. 501–5)

SCALE: 1" = 20' HORIZONTAL
1" = 4' VERTICAL
0' 20' 40' 60'

Registered Professional Engineer (Civil) CERTIFICATE NO. 28638 JORGE R. GARRE Date Signed 7/23/2021 ARIZONA, U.S.A.
EXPIRES 12/31/21

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DETAILS

IMPROVEMENT PLANS
SERENO CANYON PARCEL H, PHASE 4
SCOTTSDALE – ARIZONA

Date 7/23/2021	Job No. 385–17	Sheet 19 of 20

1–ZN–2005#2 16–ZN–2011 51–DR–2017 16–PP–2017

FILE NAME:
DATE PLOTTED:

(THIS PLAN)

TOTAL NAOS AREA:
340,034 SQ. FT.

UNDISTURBED NAOS AREA: 78.92%
268,350 SQ. FT.

REVEGETATED NAOS AREA: 21.08%
71,684 SQ. FT.

DISTURBED AREA:
369,244 SQ FT.

OPEN SPACE LANDSCAPED:

SCALE: 1" = 50' HORIZONTAL

0' 50' 100' 150'

Registered Professional Engineer (Civil)
CERTIFICATE NO. 28638
JORGE R. GARRE
Date Signed 7/23/2021
ARIZONA, U.S.A.
EXPIRES 12/31/21

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NAOS & CONSTRUCTION ENVELOPE PLAN

IMPROVEMENT PLANS
SERENO CANYON PARCEL H, PHASE 4
SCOTTSDALE – ARIZONA

Date 7/23/2021	Job No. 385-17	Sheet 20 of 20

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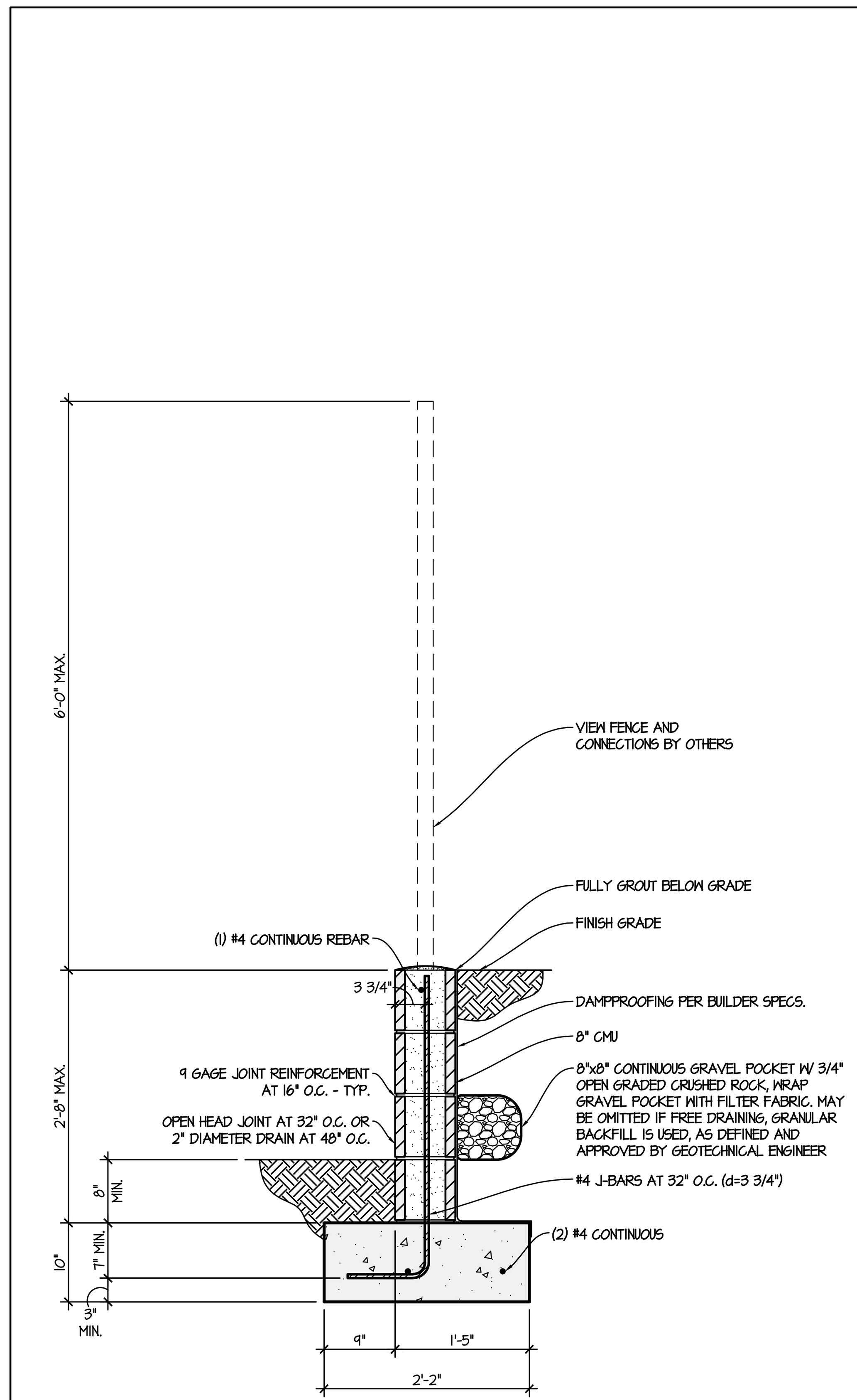
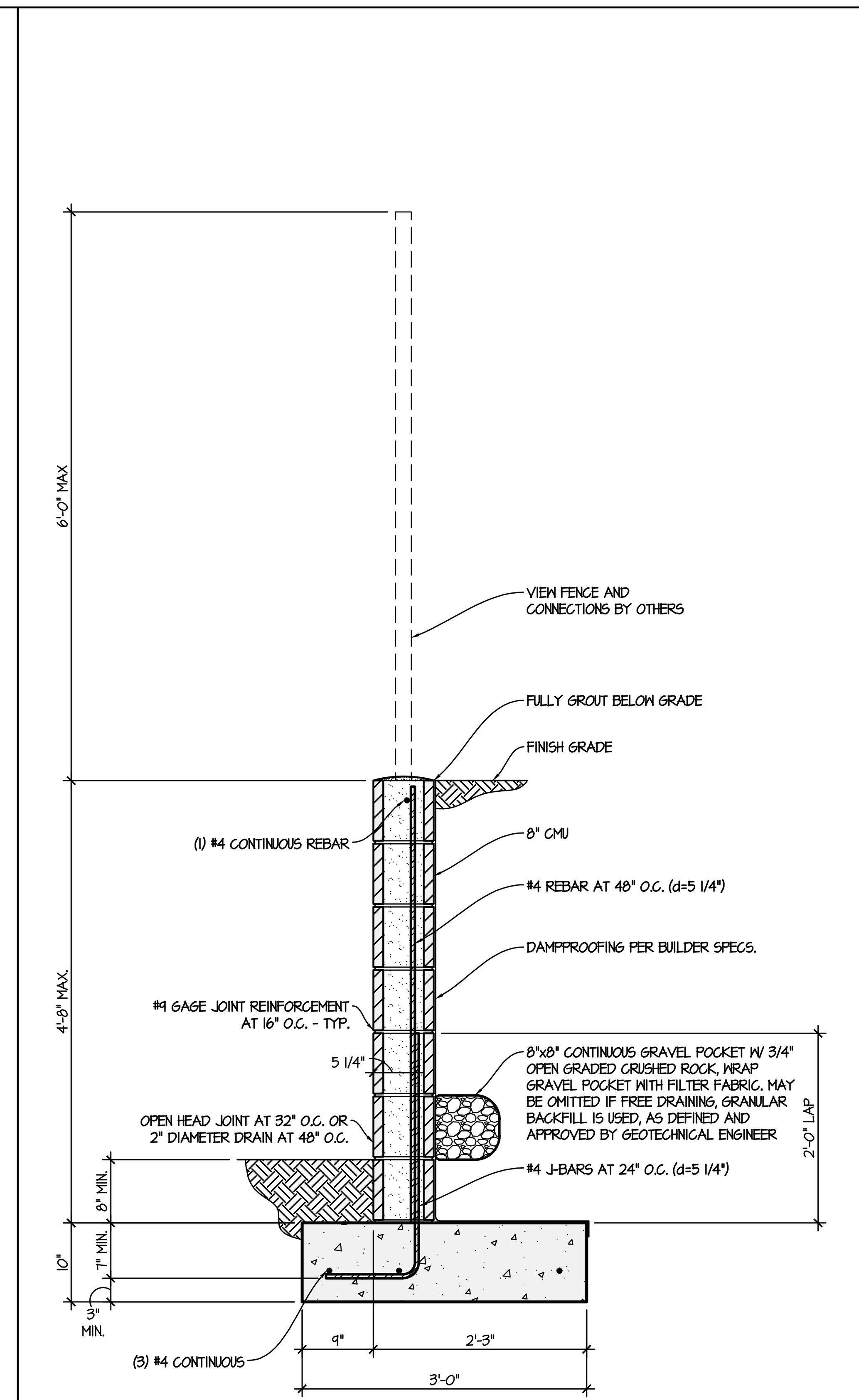
FILE NAME:
DATE PLOTTED:

Joe.Freye Jan 26, 2021 - 8:36am M:\Toll Brothers\AZ\Sereno Canyon\Retaining Wall Calculations\Structural Drawings\2021-01-26 Client Submittal (Trench Scour Walls)\Sereno-Structural Walls.dwg



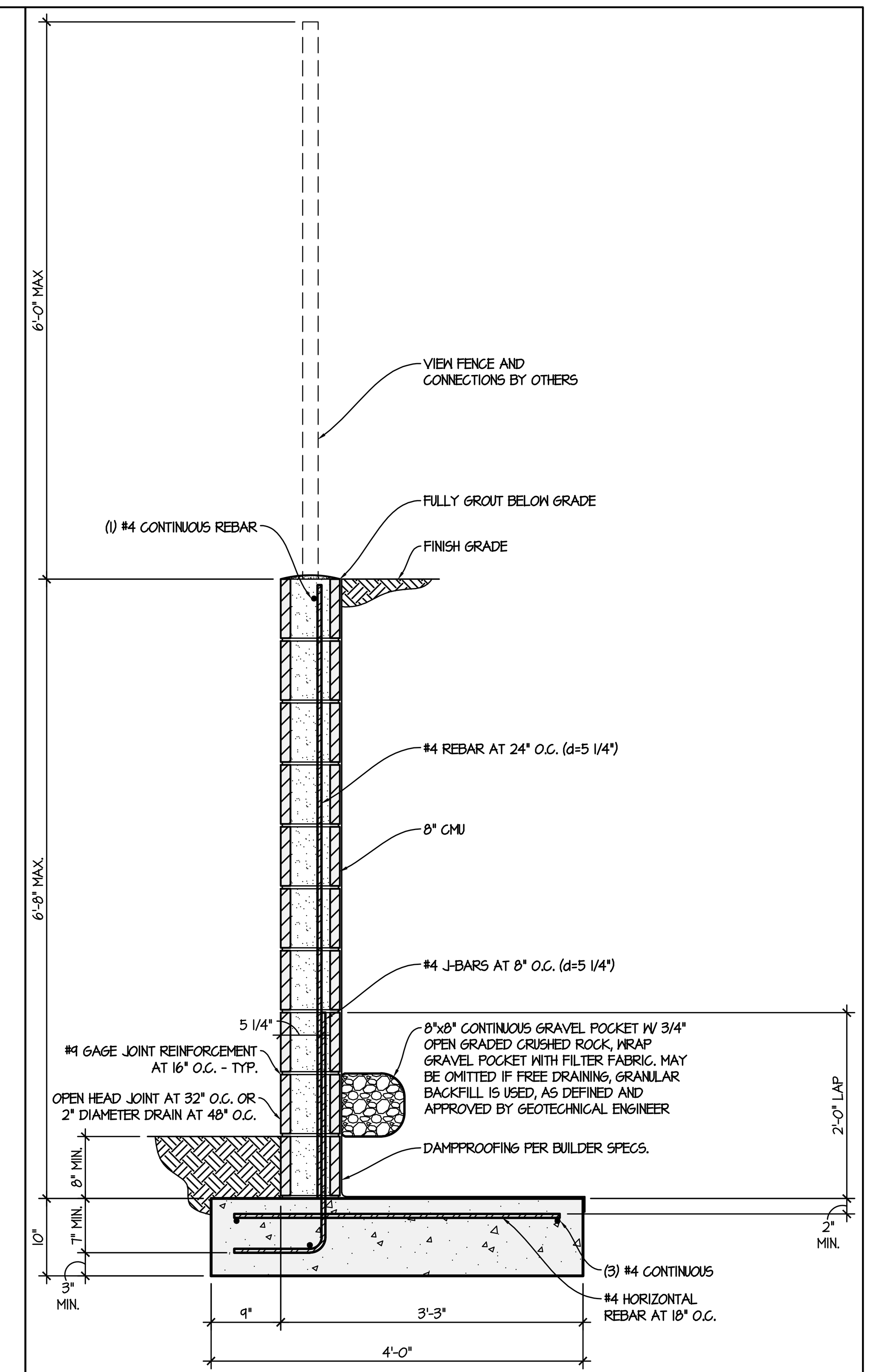
1 2'-8" RETAINING WALL & VIEW FENCE

SCALE: 3/4" = 1'-0"



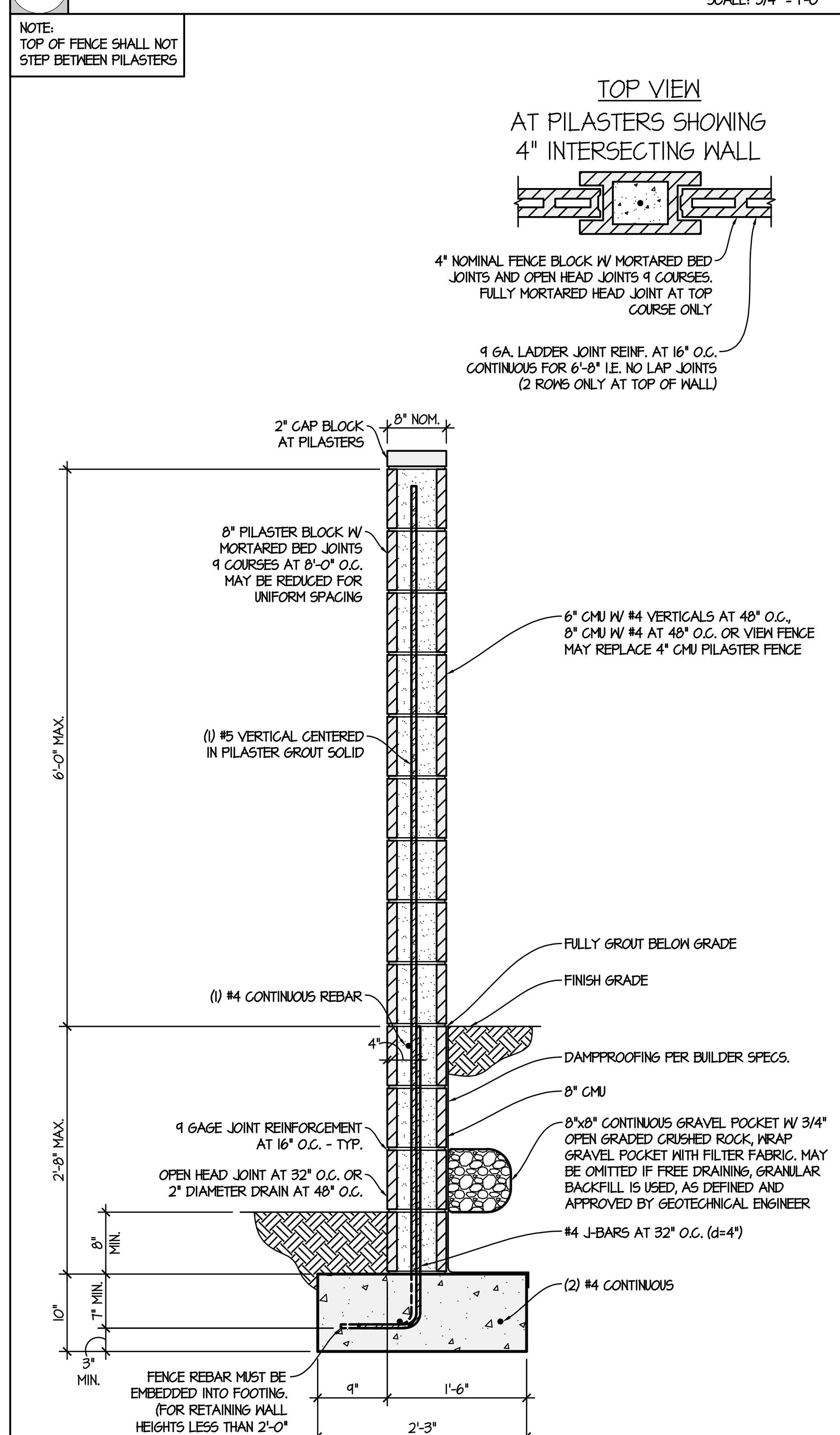
2 4'-8" RETAINING WALL & VIEW FENCE

SCALE: 3/4" = 1'-0"



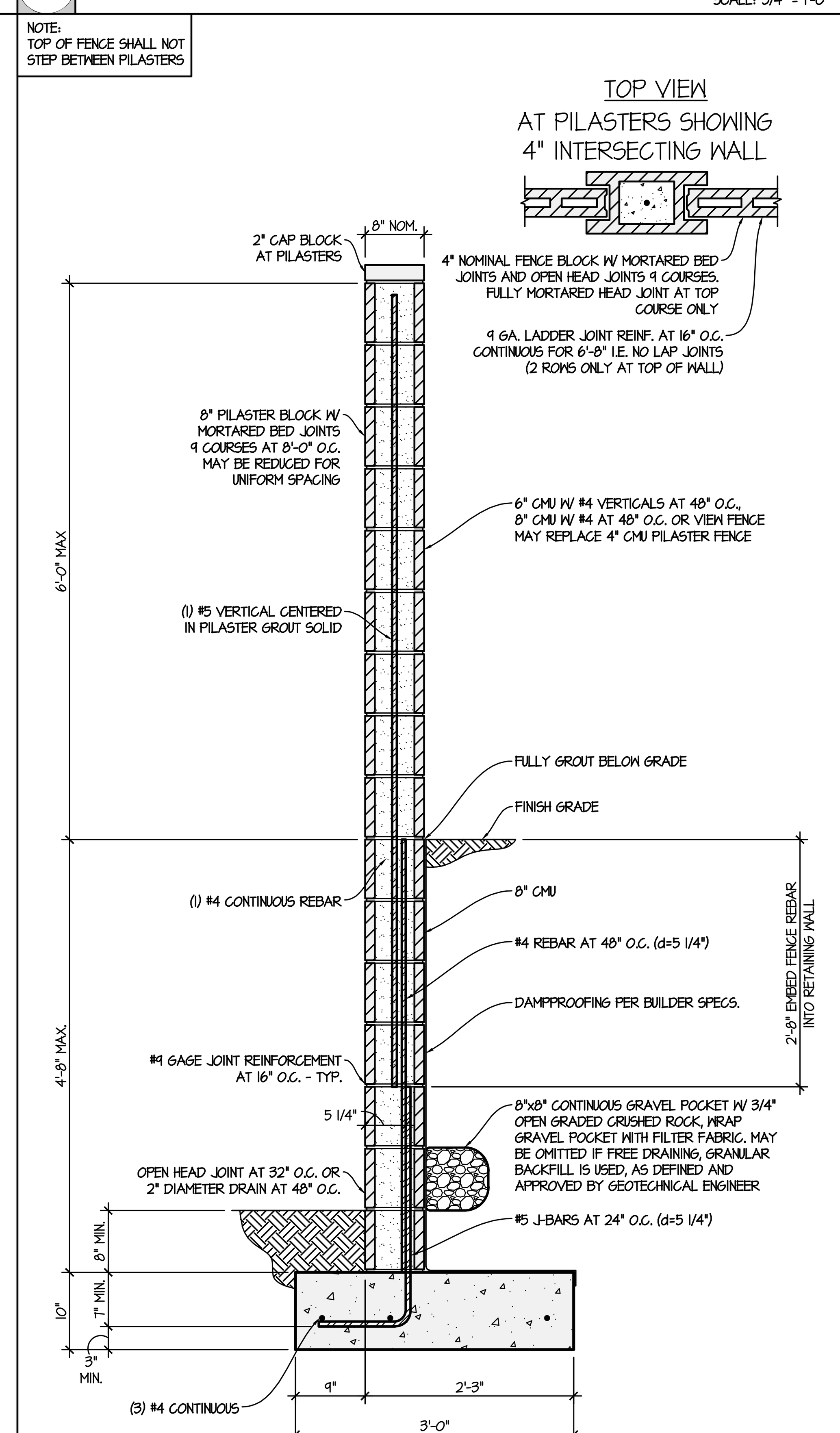
3 6'-8" RETAINING WALL & VIEW FENCE

SCALE: 3/4" = 1'-0"



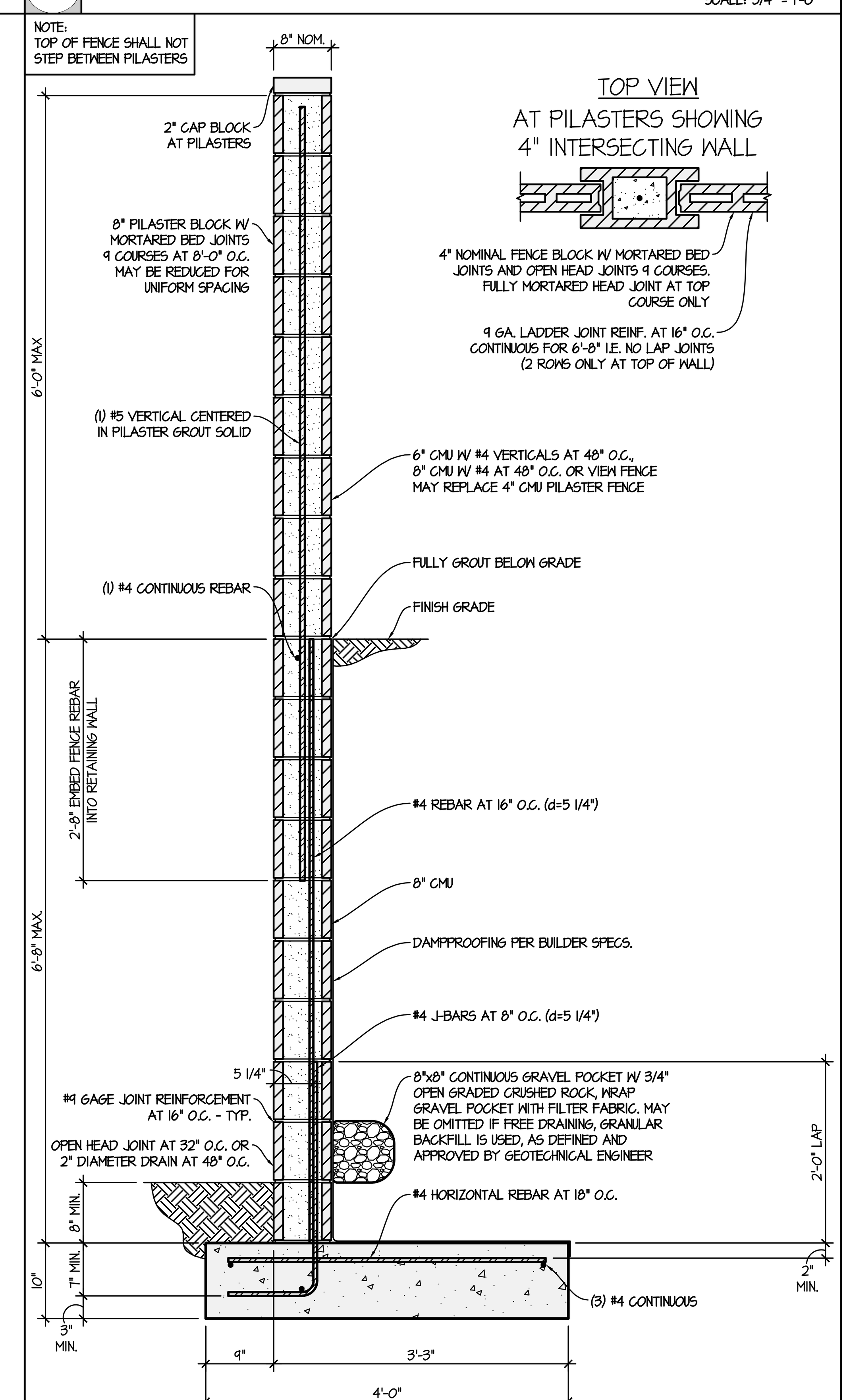
4 2'-8" RETAINING WALL & 6'-0" FENCE

SCALE: 3/4" = 1'-0"



5 4'-8" RETAINING WALL & 6'-0" FENCE

SCALE: 3/4" = 1'-0"



6 6'-8" RETAINING WALL & 6'-0" FENCE

SCALE: 3/4" = 1'-0"

CONCRETE

1. ALL MATERIALS, PROCEDURES, PLACEMENT, FORMWORK, LAPS, ETC. TO CONFORM TO THE LATEST ACI STANDARDS.
2. SHALL MEET ALL THE REQUIREMENTS OF ACI 301, TYPE II CEMENT U.N.O. MINIMUM STRENGTHS AT 28 DAYS SHALL BE AS FOLLOWS, U.N.O.:CONCRETE FOOTINGS - 2500 PSI ; CONCRETE WALLS 3000 PSI
3. MAXIMUM SIZE OF AGGREGATE SHALL BE 1 INCH. AGGREGATE PER ASTM C57 OR C33.
4. MAXIMUM SLUMP TO BE 8 INCHES.
5. CALCIUM CHLORIDE OR ADMIXTURES CONTAINING CALCIUM CHLORIDE SHALL NOT BE USED AS ADDITIVES.
6. FLYASH MAY BE USED PROVIDED IT MEETS ASTM C618 TYPE F AND DOES NOT EXCEED 20% OF THE WEIGHT OF TOTAL CEMENTITIOUS MATERIAL FOR CONCRETE STRENGTH UP TO AND INCLUDING 3000 PSI.
7. PROTECT CONCRETE FROM DAMAGE OR REDUCED STRENGTH FROM COLD OR HOT WEATHER IN COMPLIANCE WITH ACI 305 AND ACI 306.
8. THE CONTRACTOR SHALL PROVIDE PROPER CURING TO MINIMIZE SHRINKAGE CRACKING AND ENSURE PROPER STRENGTH GAIN.
9. EVALUATION AND ACCEPTANCE OF CONCRETE SHALL BE BASED ON CYLINDER STRENGTH TESTS AS OUTLINED IN THE APPLICABLE BUILDING CODE.

MASONRY

1. ALL MATERIALS, PROCEDURES, PLACEMENT, LAPS, ETC. TO CONFORM TO THE LATEST ACI STANDARDS.
2. CONCRETE MASONRY UNITS - NET AREA COMPRESSIVE STRENGTH OF CMU = 1900 PSI, ASTM C90, GRADE N: F'm = 1500 PSI
3. GROUT - 2000 PSI CONFORMING TO ASTM C476.
4. MORTAR - TYPE S - 1800 PSI PORTLAND CEMENT / LIME OR MORTAR CEMENT CONFORMING TO ASTM C270. MORTAR MAY BE USED IN LIEU OF GROUT IN THE PILASTER CELL PROVIDED THAT THE MORTAR IS PLACED IN 8 INCH LIFTS AS THE FENCE IS BUILT.
5. JOINT REINFORCING f_y = 70000 PSI CONFORMING TO ASTM A951.
6. IN 4" FENCE BLOCK: JOINT REINFORCING TO BE CONTINUOUS (NO SPLICES) AT THE BOTTOM OF THE FIRST AND THIRD COURSE FROM THE TOP OF THE WALL AS SHOWN IN THE DRAWINGS. AS AN ALTERNATE, JOINT REINFORCING MAY BE SPLICED WITH NO LAP, PROVIDED THAT AN ADDITIONAL ROW OF JOINT REINFORCING IS PLACED AT THE BOTTOM OF THE SECOND AND FOURTH COURSE FROM THE TOP OF THE WALL AND PROVIDED THAT THE SPLICES BETWEEN ADJACENT ROWS OF JOINT REINFORCEMENT ARE STAGGERED BY A MINIMUM OF 4 FEET.
7. ALL REINFORCED CELLS OR PILASTERS SHALL BE SOLID GROUTED.
8. MASONRY UNITS AND MORTAR THAT ARE IN DIRECT CONTACT WITH NATIVE SOILS CONTAINING WATER SOLUBLE SULFATES SHALL BE ADDRESSED BY THE CONTRACTOR.
9. CMU EXPOSURE TO WATER (BOTH ABOVE AND BELOW GRADE) IS NOT ADDRESSED IN THIS DESIGN AND SHALL BE ADDRESSED BY THE CONTRACTOR.
10. PROVIDE VERTICAL CONTROL JOINTS IN WALL AT APPROXIMATELY 24' SPACING.
11. MAXIMUM VERTICAL GROUT LIFT IS 4'-0" WITHOUT CLEAN OUTS AND 8'-0" WITH CLEANOUTS - U.N.O. CLEANOUTS: PROVIDE CLEANOUTS IN THE BOTTOM COURSE OF MASONRY FOR EACH GROUT POUR WHEN THE GROUT POUR HEIGHT EXCEEDS 4'-0". CONSTRUCT CLEANOUTS SO THAT THE SPACE TO BE GROUTED CAN BE CLEANED AND INSPECTED. IN SOLID GROUTED MASONRY, SPACE CLEANOUTS HORIZONTALLY A MAXIMUM OF 32" O.C.. CONSTRUCT CLEANOUTS WITH AN OPENING OF SUFFICIENT SIZE TO PERMIT REMOVAL OF DEBRIS. THE MINIMUM OPENING DIMENSION SHALL BE 3". AFTER CLEANING, CLOSE CLEANOUTS WITH CLOSURES BRACED TO RESIST GROUT PRESSURE.
12. MASONRY VENEERS SHALL BE ANCHORED PER ONE OF THE METHODS SPECIFIED IN THE CURRENT ADOPTED CODE WITH A MINIMUM OF ONE 22 GAUGE GALVANIZED METAL ANCHOR FOR EACH TWO SQUARE FEET OF WALL AREA.
13. STEEL LINTELS OVER MASONRY OPENINGS SHALL BE MANUFACTURED BY POWERS STEEL, PS8 L2, ER-9597E.

STEEL REINFORCEMENT

1. SHALL BE SUPPLIED AND INSTALLED PER THE LATEST ACI STANDARDS.
2. USE ASTM A615 GRADE 60
3. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCEMENT.
   CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH 3"
   EXPOSED TO EARTH OR WEATHER 1 1/2"
   NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND 3/4"
4. UNLESS NOTED OTHERWISE, LAP SPLICES SHALL BE 48 BAR DIAMETERS MINIMUM. STAGGER ALTERNATE SPLICES A MINIMUM OF 1 LAP LENGTH. PROVIDE BENT CORNER BARS TO MATCH AND LAP WITH HORIZONTAL BARS AT CORNERS AND INTERSECTIONS OF FOOTINGS AND WALLS.
5. SECURELY TIE ALL BARS IN LOCATION BEFORE PLACING CONCRETE.
6. IN ADDITION TO TYPICAL REINFORCEMENT USE (1) #4 VERTICAL REBAR AT ALL WALL INTERSECTIONS, CORNERS, EACH SIDE OF OPENINGS, ENDS OF WALLS AND CONTROL JOINTS, AND AT ALL LOCATIONS INDICATED ON PLANS.

GRADING AND DRAINAGE

1. PROPER GRADING SHALL BE PROVIDED DURING CONSTRUCTION AS WELL AS THROUGHOUT THE LIFE OF THE STRUCTURE.
2. LANDSCAPE WATERING SHOULD NOT LEAD TO MOISTURE INFILTRATION OR MOISTURE CONTENT FLUCTUATION IN THE SOILS UNDER THE FOUNDATION. IT IS RECOMMENDED THAT VEGETATION BE KEPT A MINIMUM OF 3 FEET FROM THE STRUCTURE AND THAT THE VEGETATION BE DESERT TYPE. (SHALLOW WATERING, MOISTURE NOT TO PENETRATE INTO THE SOIL MORE THAN 8 INCHES).
3. IT IS RECOMMENDED THAT TREES BE KEPT AWAY FROM THE STRUCTURE SUCH THAT THE DRIP LINE OF THE MATURE TREE DOES NOT OVERLAP THE FOUNDATION.

SULFATES

SULFATE EXPOSURE = NOT REPORTED

CONCRETE THAT IS IN DIRECT CONTACT WITH NATIVE SOILS CONTAINING WATER-SOLUBLE SULFATES SHALL CONFORM TO THE FOLLOWING:

NEGLIGIBLE: SO < 0.10%
NO SPECIAL REQUIREMENTS.

MODERATE: 0.10% < SO < 0.20%
CONCRETE SHALL BE MADE WITH ASTM C 150 TYPE II CEMENT, OR AN ASTM C 595 OR C 1157 HYDRAULIC CEMENT MEETING MODERATE SULFATE-RESISTANT HYDRAULIC CEMENT (MS) DESIGNATION.

SEVERE: 0.20% < SO < 2.00%
CONCRETE SHALL BE MADE WITH ASTM C 150 TYPE V CEMENT, OR AN ASTM C 595 OR C 1157 HYDRAULIC CEMENT MEETING HIGH SULFATE-RESISTANT HYDRAULIC CEMENT (HS) DESIGNATION.

VERY SEVERE: SO > 2.00%
CONCRETE SHALL BE MADE WITH ASTM C 150 TYPE V CEMENT, OR AN ASTM C 595 OR C 1157 HYDRAULIC CEMENT MEETING HIGH SULFATE-RESISTANT HYDRAULIC CEMENT (HS) DESIGNATION AND POZZOLAN OR SLAG DETERMINED BY SERVICE RECORD.

WIND

1. 13.5 PSF LATERAL WIND PRESSURE. 2015 IBC, 105 MPH, EXP. C ASCE 7-10 : A NET FORCE COEFFICIENT OF 1.3 MAY BE USED

DISCREPANCIES

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF ALL DIMENSIONS AND CONDITIONS WITH THE DRAWINGS PRIOR TO START OF CONSTRUCTION. THE CONTRACTOR SHALL INFORM THE ARCHITECT OR ENGINEER OF ANY DISCREPANCIES OR OMISSIONS NOTED ON THE DRAWINGS. ANY SUCH DISCREPANCIES, OMISSIONS, OR VARIATION NOT REPORTED SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
2. NOTED DIMENSIONS TAKE PRECEDENT OVER SCALED.

DAMPPROOFING

1. DAMPPROOFING OF THOSE PORTIONS OF FENCES BELOW GRADE IS NOT REQUIRED PER CODE, BUT MAY BE USED BY CONTRACTOR AT THEIR DISCRETION.
2. AS AN ALTERNATE TO DAMPPROOFING, INTEGRAL WATER REPELLANT UNITS AND WATER REPELLANT MORTAR MAY BE USED.

METHOD OF CONSTRUCTION

1. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURE.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF THE STRUCTURE DURING CONSTRUCTION AND SHALL PROVIDE ADEQUATE SHORING AND BRACING DURING CONSTRUCTION. CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE SAFETY REGULATIONS.
3. THE CONTRACTOR SHALL COORDINATE THE WORK OF ALL TRADES AND SHALL CHECK ALL DIMENSIONS. ANY DISCREPANCIES SHALL BE CALLED TO THE ATTENTION OF THE ARCHITECT OR ENGINEER AND SHALL BE RESOLVED BEFORE PRECEDING WITH THE WORK AFFECTED.

GENERAL

1. ALL WORK SHALL COMPLY WITH THE GENERAL NOTES, DRAWINGS, APPLICABLE BUILDING CODES AND ALL LOCAL ORDINANCES, LAWS, REGULATIONS, AND PROTECTIVE COVENANTS GOVERNING THE SITE OF WORK.
2. IN CASE OF CONFLICT, THE MORE STRINGENT REQUIREMENTS SHALL GOVERN
3. TYPICAL DETAILS SHALL APPLY UNLESS SHOWN OTHERWISE IN THE DRAWINGS.
4. NO STRUCTURAL MEMBERS SHALL BE CUT, NOTCHED OR OTHERWISE PENETRATED UNLESS SPECIFICALLY APPROVED BY THE STRUCTURAL ENGINEER IN ADVANCE OR AS SHOWN ON THESE DRAWINGS.
5. THE STANDARD OF CARE FOR ALL PROFESSIONAL ENGINEERING, AND RELATED SERVICES PERFORMED OR FURNISHED BY FELTEN GROUP, WILL BE THE CARE AND SKILL ORDINARILY USED BY MEMBERS OF THE SUBJECT PROFESSION PRACTICING UNDER SIMILAR CIRCUMSTANCES AT THE SAME TIME AND IN THE SAME LOCALITY. FELTEN GROUP MAKES NO WARRANTIES, EXPRESS OR IMPLIED, OR OTHERWISE, IN CONNECTION WITH FELTEN GROUP'S SERVICES. FELTEN GROUP AND ITS CONSULTANTS MAY USE OR RELY UPON THE DESIGN SERVICES OF OTHERS, INCLUDING, BUT NOT LIMITED TO, ENGINEERS, ARCHITECTS, DESIGNERS, CONTRACTORS, MANUFACTURERS, AND SUPPLIERS.
6. ALL DESIGN DOCUMENTS PREPARED OR FURNISHED BY FELTEN GROUP ARE INSTRUMENTS OF SERVICE, AND FELTEN GROUP RETAINS OWNERSHIP AND PROPERTY INTEREST (INCLUDING THE COPYRIGHT) IN SUCH DOCUMENTS, WHETHER OR NOT THE PROJECT IS COMPLETED. CLIENT SHALL NOT REUSE THE DOCUMENTS WITHOUT WRITTEN PERMISSION FROM FELTEN GROUP.
7. THE CONTRACTOR, NOT FELTEN GROUP, IS RESPONSIBLE FOR THE CONSTRUCTION OF THE PROJECT, AND FELTEN GROUP IS NOT RESPONSIBLE FOR THE ACTS OR OMISSIONS OF ANY CONTRACTOR, SUBCONTRACTOR OR MATERIAL SUPPLIER: FOR SAFETY PRECAUTIONS, PROGRAMS OR ENFORCEMENT; OR FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES EMPLOYED BY THE CONTRACTOR. FELTEN GROUP SHALL NOT AT ANY TIME SUPERVISE, DIRECT, OR HAVE CONTROL OVER ANY CONTRACTORS WORK
8. FELTEN GROUP NEITHER GUARANTEES THE PERFORMANCE OF ANY CONTRACTOR NOR ASSUMES RESPONSIBILITY FOR ANY CONTRACTOR'S FAILURE TO FURNISH AND PERFORM ITS WORK IN ACCORDANCE WITH THE CONTRACT BETWEEN CLIENT AND SUCH CONTRACTOR.
9. FELTEN GROUP WILL NOT HAVE CONTROL OVER NOR BE NEITHER RESPONSIBLE NOR LIABLE IN ANY WAY FOR SAFETY PROCEDURES, SAFETY TRAINING AND PROGRAMS OR OTHER SAFETY RELATED ASPECTS OF THE WORK OF THE PROJECT SINCE THESE ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
10. WALL HEIGHT SHOWN BASED ON ACTUAL 8" TALL BLOCK HEIGHT
11. TOP OF FENCE SHALL NOT STEP BETWEEN PILASTERS
12. IBC SECTION 1013 WHERE REQUIRED. GUARDS SHALL BE LOCATED ALONG OPEN-SIDED WALKING SURFACES THAT ARE LOCATED MORE THAN 30 INCHES (762 MM) MEASURED VERTICALLY TO THE FLOOR OR GRADE BELOW AT ANY POINT WITHIN 36 INCHES (914 MM) HORIZONTALLY TO THE EDGE OF THE OPEN SIDE. GUARDS SHALL BE ADEQUATE IN STRENGTH AND ATTACHMENT IN ACCORDANCE WITH SECTION 1607.8. REQUIRED GUARDS SHALL NOT BE LESS THAN 42 INCHES (1067 MM) HIGH, MEASURED VERTICALLY. REQUIRED GUARDS SHALL NOT HAVE OPENINGS WHICH ALLOW PASSAGE OF A SPHERE 4 INCHES (102 MM) IN DIAMETER FROM THE WALKING SURFACE TO THE REQUIRED GUARD HEIGHT.

SUBSTITUTIONS

1. ALL PRODUCT SUBSTITUTIONS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW PRIOR TO CONSTRUCTION. CONTRACTOR TO SUBMIT DOCUMENTATION TO DEMONSTRATE THAT THE PROPOSED SUBSTITUTION IS EQUAL TO THE SPECIFIED PRODUCT. PRODUCT SUBSTITUTIONS MAY BE USED PROVIDED THEY ARE APPROVED BY THE ENGINEER OF RECORD IN WRITING.

SPECIAL INSPECTION

1. SPECIAL INSPECTION SHALL BE PROVIDED AS REQUIRED BY THE LOCAL BUILDING OFFICIAL

SOILS INFORMATION

GEOTECHNICAL REPORT BY:	PROTEX
GEOTECHNICAL REPORT #:	8288
GEOTECHNICAL REPORT DATE:	10/02/2018

ALL EXCAVATION, FILL, COMPACTION AND SOIL RELATED OPERATIONS SHALL BE PERFORMED ACCORDING TO GEOTECHNICAL REPORT RECOMMENDATIONS.

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TOLL BROTHERS

TITLE: GENERAL STRUCTURAL NOTES
RETAINING WALL DETAILS

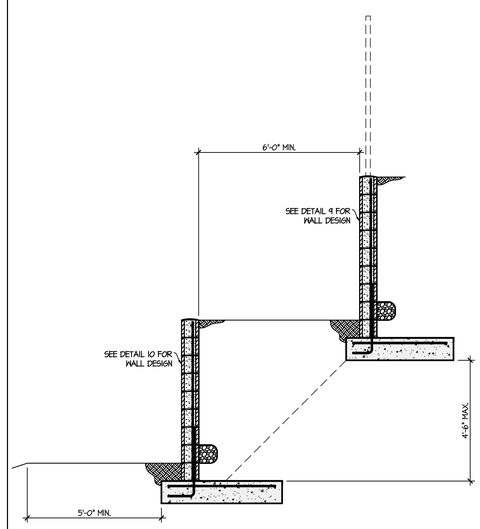
27867 GREG N. FELTEN
Date Signed 1/26/21
ARIZONA, U.S.A.

PROJECT MANAGER:	J. FREYE
JOB NUMBER:	AZ-FE18-008320
DATE:	08/22/2018
1	MUNICIPAL COMMENTS 01/21/2020
2	BUILDER REVISION 01/26/2021
3	

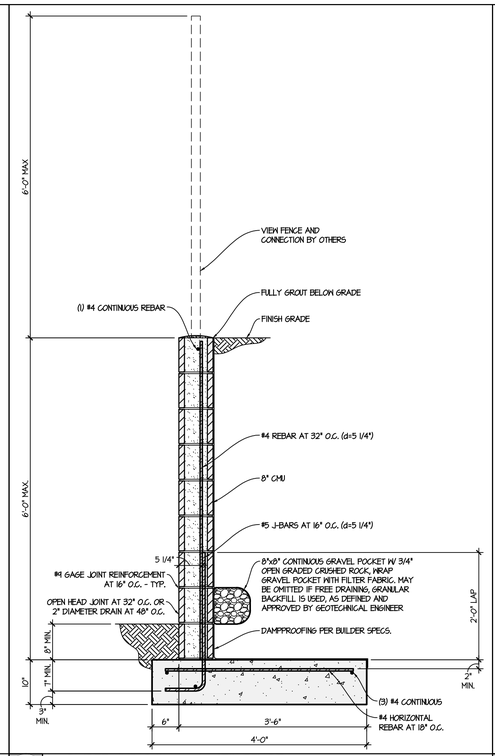
SUBDIVISION
SERENO

STRUCTURAL WALLS

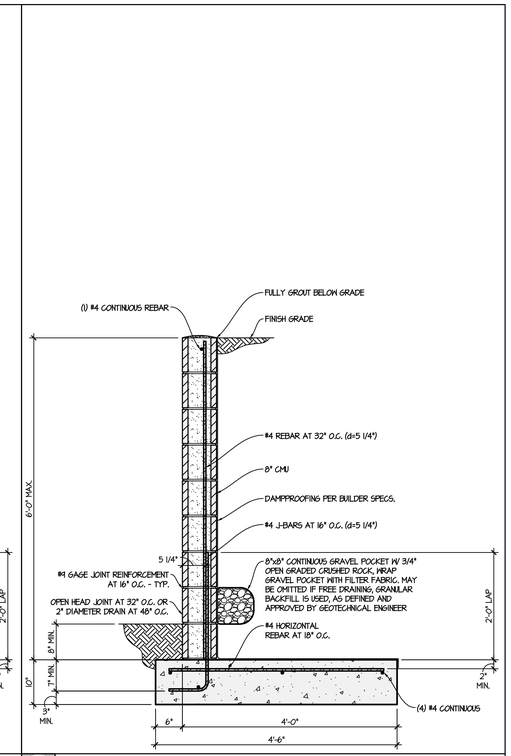
SHEET NUMBER
SD.1



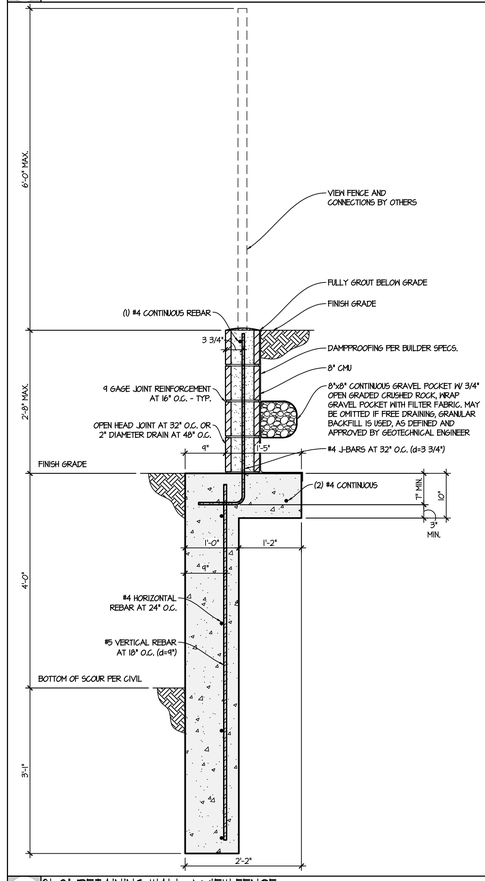
8 TIERED WALLS
SCALE: 3/8" = 1'-0"



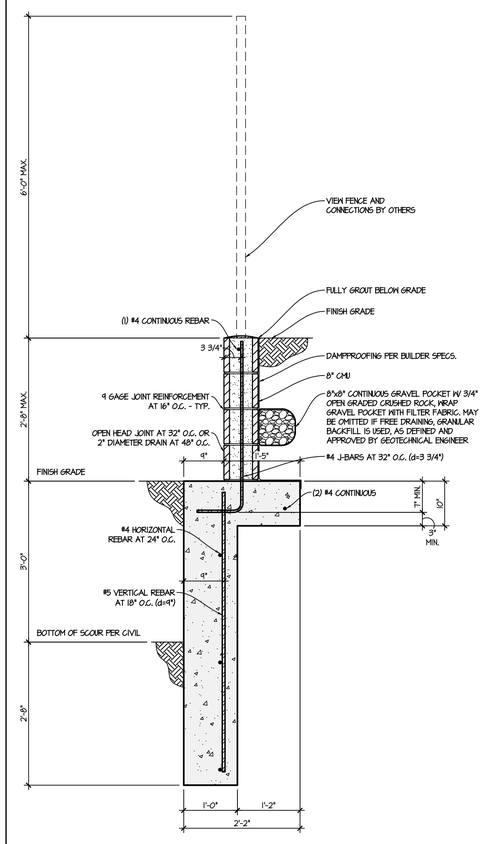
9 6'-0" RETAINING WALL & VIEW FENCE
UPPER TIER
SCALE: 3/4" = 1'-0"



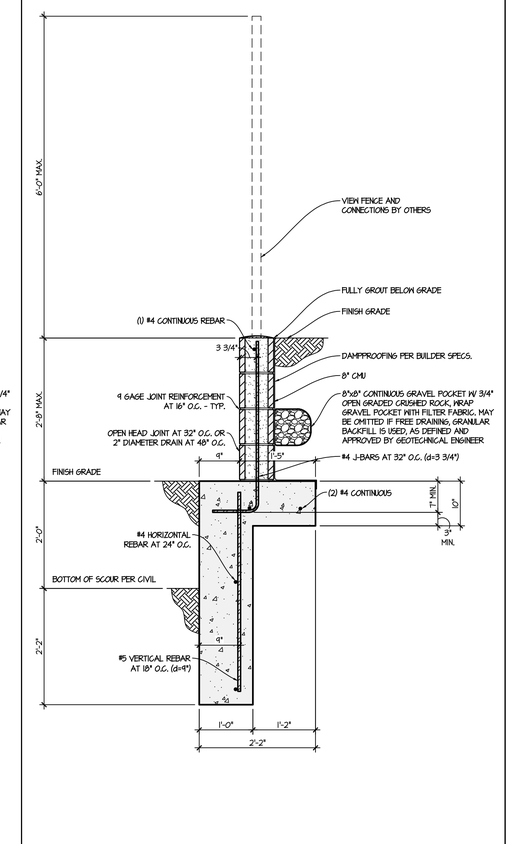
10 6'-0" RETAINING WALL
LOWER TIER
SCALE: 3/4" = 1'-0"



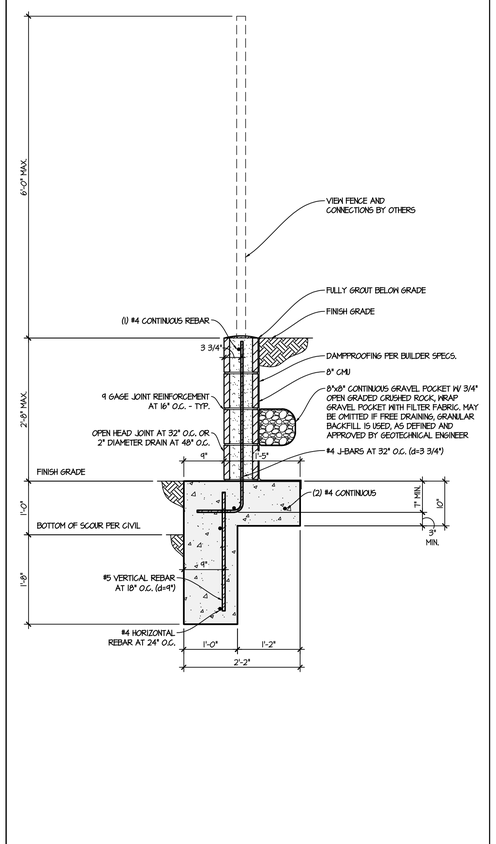
11 2'-8" RETAINING WALL & VIEW FENCE
4' SCOUR
SCALE: 3/4" = 1'-0"



12 2'-8" RETAINING WALL & VIEW FENCE
3' SCOUR
SCALE: 3/4" = 1'-0"



13 2'-8" RETAINING WALL & VIEW FENCE
2' SCOUR
SCALE: 3/4" = 1'-0"



14 2'-8" RETAINING WALL & VIEW FENCE
1' SCOUR
SCALE: 3/4" = 1'-0"

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TOLL BROTHERS

TITLE: RETAINING WALL DETAILS
SCOUR WALL DETAILS

Registered Professional Engineer (Civil)
CERTIFICATE NO. 27867
GREG N. FELTEN
Date Signed 1/26/21
ARIZONA, U.S.A.

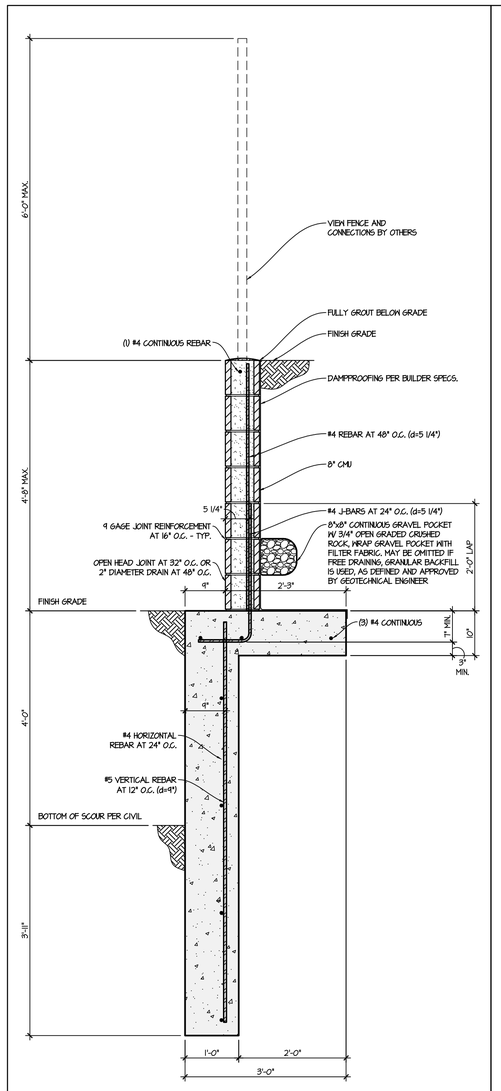
PROJECT MANAGER: J. FREYE
JOB NUMBER: AZ-FE18-008320
DATE: 08/22/2018
1 MUNICIPAL COMMENTS 01/21/2020
2 BUILDER REVISION 01/26/2021
3

SUBDIVISION: SERENO

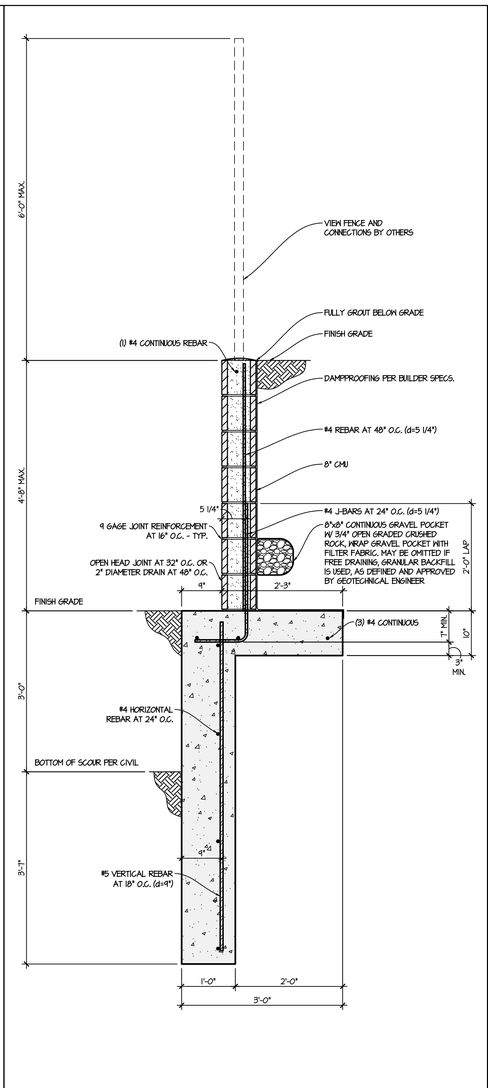
STRUCTURAL WALLS

SHEET NUMBER: SD.2

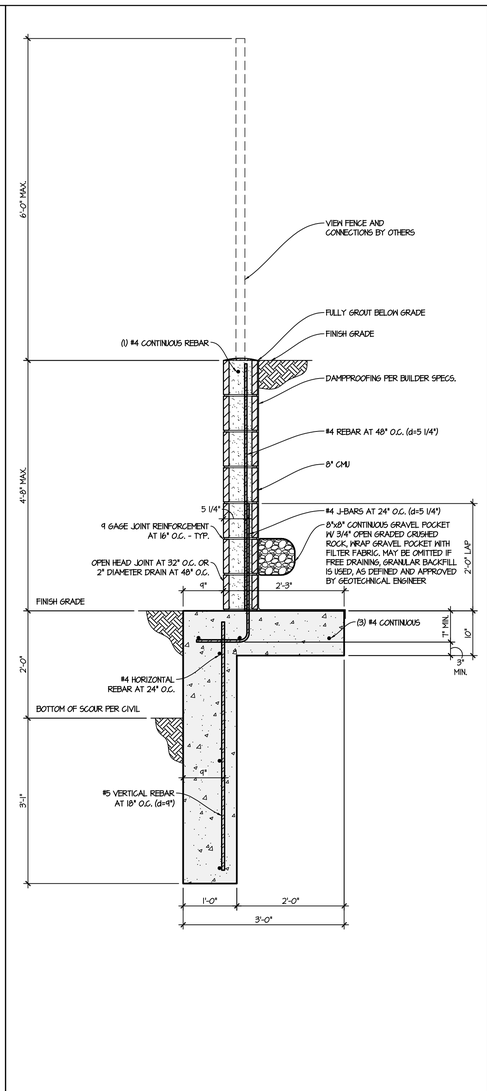
joe.freye Jan 26, 2021 - 8:36am M:\Toll Brothers\AZ\Sereno Canyon\Retaining Wall Calculations\Structural Drawings\2020-01-26 Client Submittal (French Scour Walls)\Sereno-Structural Walls.dwg



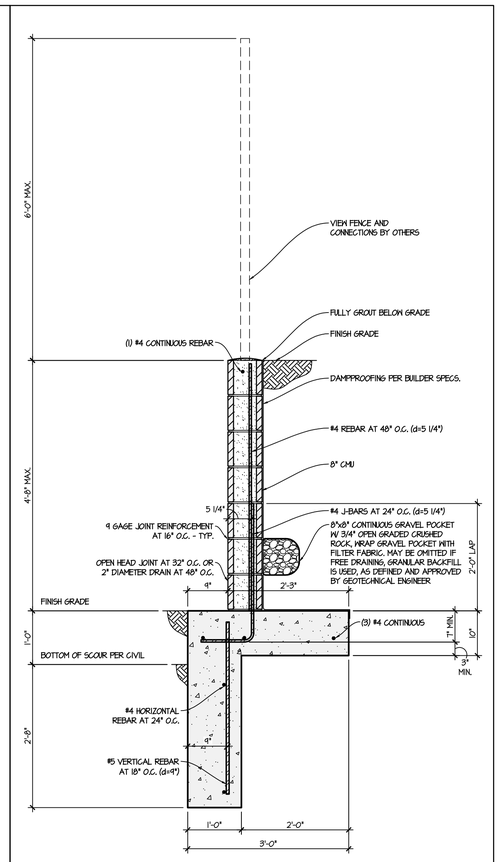
15 4'-8' RETAINING WALL & VIEW FENCE
4' SCOUR
SCALE: 3/4" = 1'-0"



16 4'-8' RETAINING WALL & VIEW FENCE
3' SCOUR
SCALE: 3/4" = 1'-0"



17 4'-8' RETAINING WALL & VIEW FENCE
2' SCOUR
SCALE: 3/4" = 1'-0"



18 4'-8' RETAINING WALL & VIEW FENCE
1' SCOUR
SCALE: 3/4" = 1'-0"

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TOLL BROTHERS

TITLE: SCOUR WALL DETAILS

Registered Professional Engineer
Certificate No. 27867
GREG N. FELTEN
Date Signed 1/26/21
ARIZONA, U.S.A.

PROJECT MANAGER: J. FREYE
JOB NUMBER: AZ-FE18-008320
DATE: 08/22/2018

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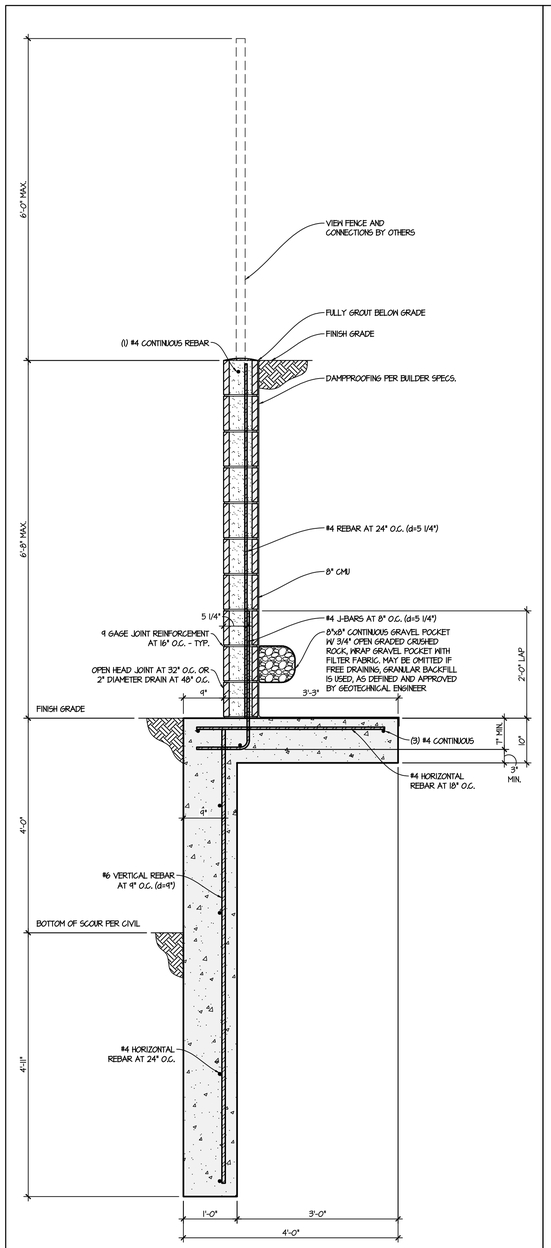
SUBDIVISION
SERENO

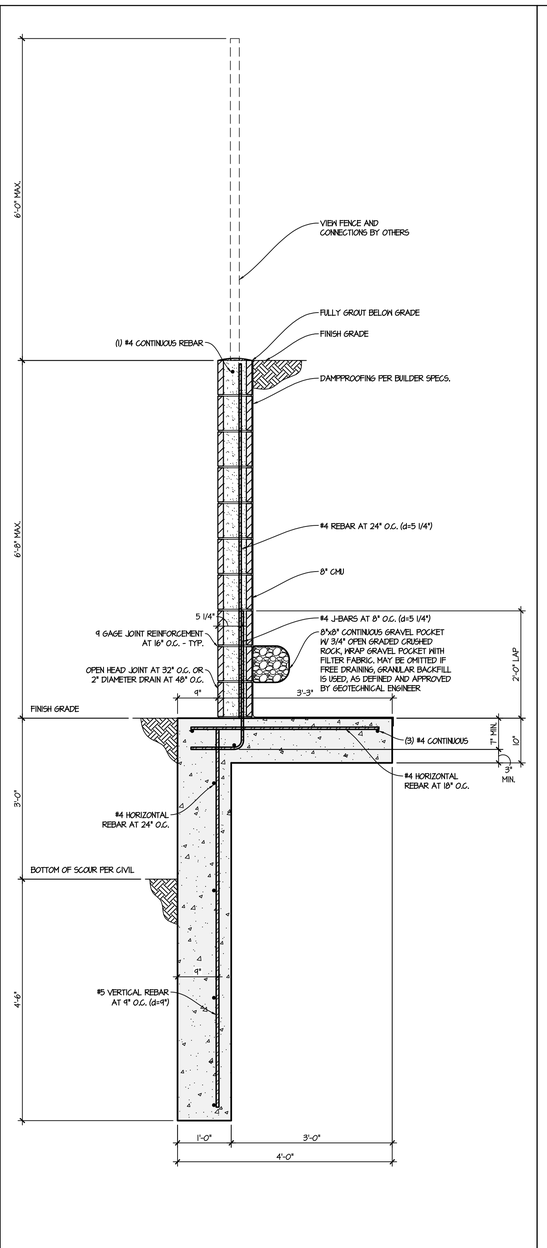
STRUCTURAL WALLS

SHEET NUMBER
SD.3

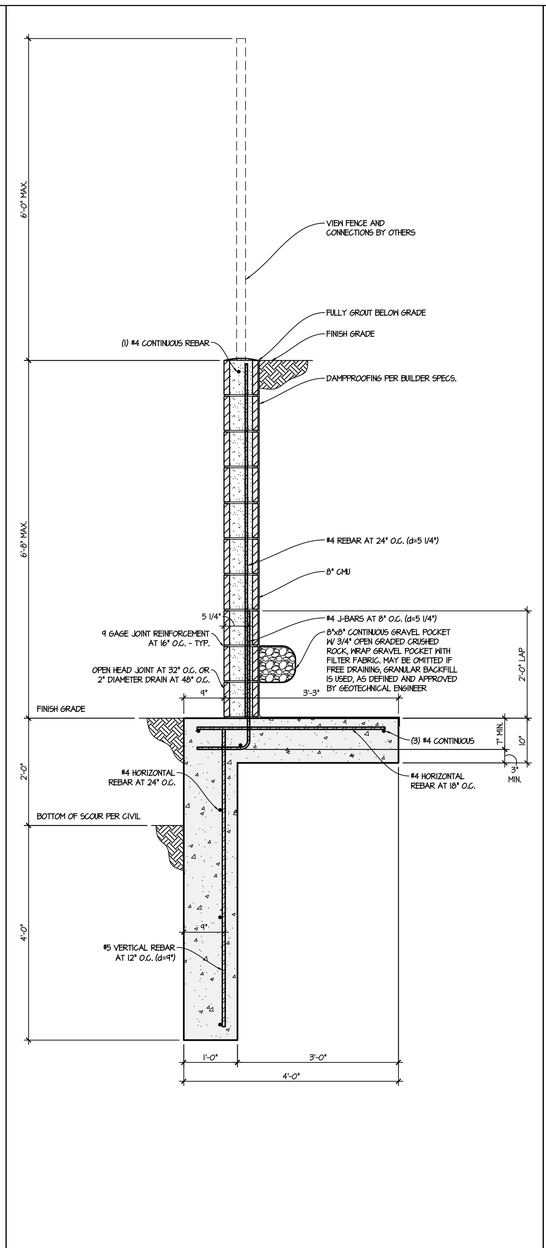
joe.freye Jan 26, 2021 - 8:38am M:\Toll Brothers\AZ\Sereno Canyon\Retaining Wall Calculations\Structural Drawings\2021-01-26 Client Submittal (French Scour Walls)\Sereno-Structural Walls.dwg



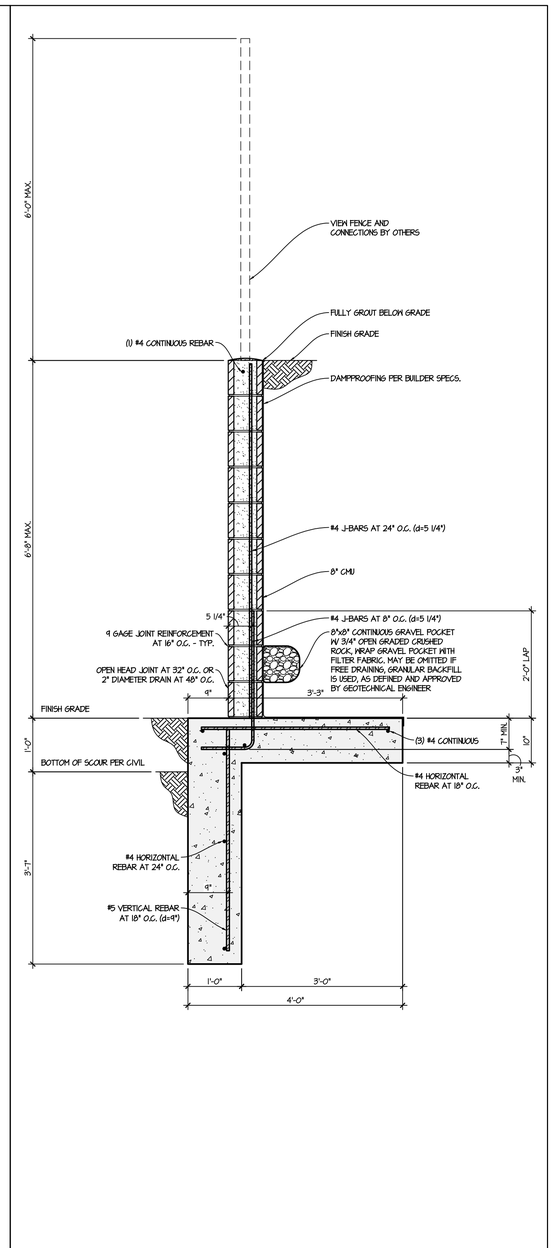
19 6'-8' RETAINING WALL & VIEW FENCE
4' SCOUR
SCALE: 3/4" = 1'-0"



20 6'-8' RETAINING WALL & VIEW FENCE
3' SCOUR
SCALE: 3/4" = 1'-0"



21 6'-8' RETAINING WALL & VIEW FENCE
2' SCOUR
SCALE: 3/4" = 1'-0"



22 6'-8' RETAINING WALL & VIEW FENCE
1' SCOUR
SCALE: 3/4" = 1'-0"

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TOLL BROTHERS

TITLE: SCOUR WALL DETAILS

Registered Professional Engineer (Civil)
27867
GREG N. FELTEN
Date Signed 1/28/19
ARIZONA, U.S.A.

PROJECT MANAGER: J. FREYE
JOB NUMBER: AZ-FE18-008320
DATE: 08/22/2018

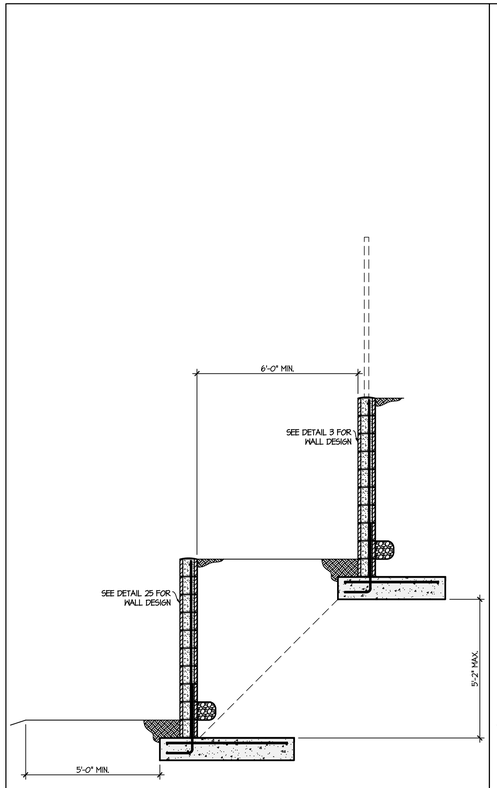
1	MUNICIPAL COMMENTS 01/21/2020
2	BUILDER REVISION 01/26/2021
3	

SUBDIVISION
SERENO

STRUCTURAL WALLS

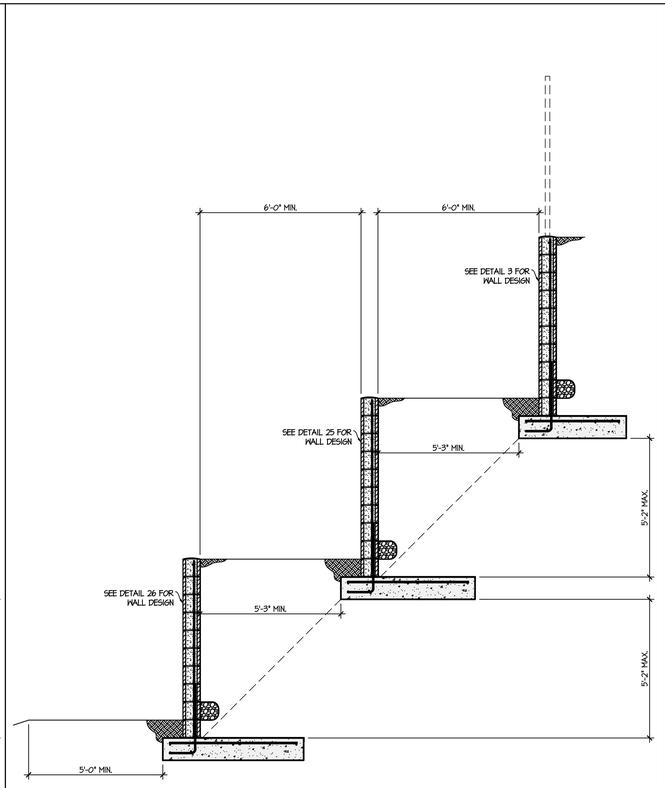
SHEET NUMBER
SD.4

jpeg.image Jan 26, 2021 - 8:36am M:\Toll Brothers\AZ\Sereno Canyon\Retaining Wall Calculations\Structural Drawings\2021-01-26 Client Submittal (Trench Scour Walls)\Sereno-Structural Walls.dwg



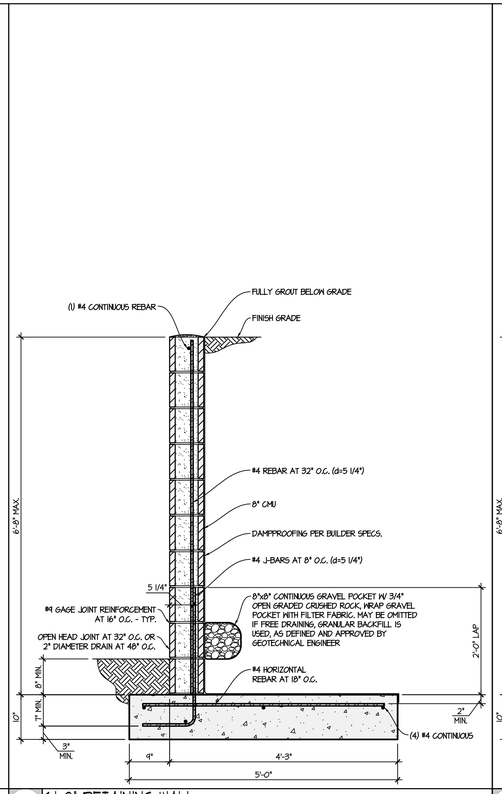
23 TIERED WALLS

SCALE: 3/8" = 1'-0"



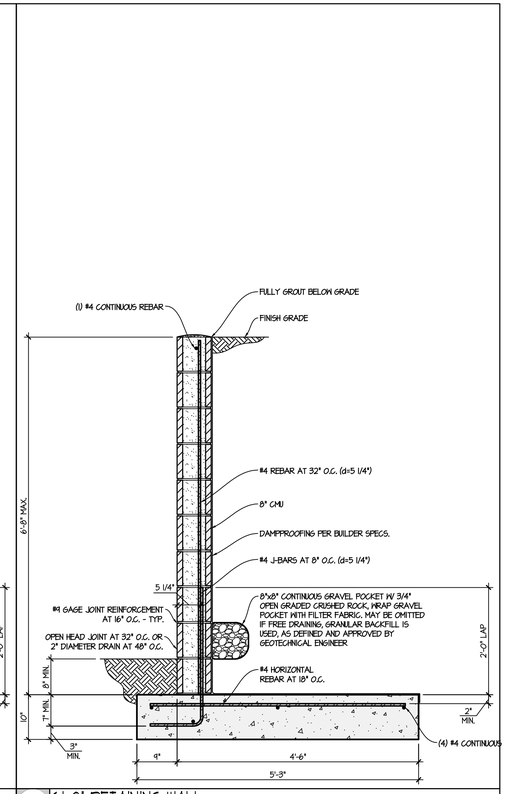
24 TIERED WALLS

SCALE: 3/8" = 1'-0"



25 6'-8" RETAINING WALL LOWER/ MID TIER

SCALE: 3/4" = 1'-0"



26 6'-8" RETAINING WALL LOWER TIER

SCALE: 3/4" = 1'-0"

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TOLL BROTHERS

TITLE: RETAINING WALL DETAILS

Registered Professional Engineer (Civil)
CERTIFICATE NO. 27867
GREG N. FELTEN
Date Signed 1/26/21
ARIZONA, U.S.A.

PROJECT MANAGER: J. FREYE
JOB NUMBER: AZ-FE18-008320
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1	MUNICIPAL COMMENTS 01/21/2020
2	BUILDER REVISION 01/26/2021
3	

SUBDIVISION: SERENO

STRUCTURAL WALLS

SHEET NUMBER: SD.5

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