Drainage Report

Town Center at Moreno Valley Specific Plan
Tentative Tract Map 38421
Moreno Valley, California

Prepared for

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1156 N. Mountain Ave.
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Prepared by

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June 13, 2022
Revised: August 15 2022
October 3, 2022
January 29 2025

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1. Introduction

This hydrologic analysis has been prepared for Lewis Management to support the proposed Town Center at Moreno Valley (TCMV) Specific Plan and associated proposed Tentative Tract Map (TTM) 38421. The TCMV Specific Plan involves development of the currently undeveloped Project site with residential, commercial/civic, and park uses. Proposed TTM 38421 would subdivide the Project site into 6 residential-use lots, 1 commercial-use lot, 2 open space lots, and associated infrastructure. The proposed developed area is split between far eastern areas that drain to Nason Street (17.94 acres), and western areas that drain towards Bay Avenue (23.37 acres) and Alessandro Boulevard (24.75 acres). The proposed north-south street and the east-west extension of Bay Avenue would divide the project into four quadrants. Future development phases would provide lot-specific development plans and reports that conform to the TCMV Specific Plan and TTM documents.

Project area note: The Project site consists of two lots on the north and south side of the currently-dedicated Bay Avenue. As part of the project, Bay will be vacated, and existing road easements along Alessandro, Cottonwood, and Nason will be dedicated. The hydrologic analysis presented in this report includes 66.06 acres (8 lots + Bay Avenue +Street "A" +affected offsite areas). The Tract limits (approximately 69.6 gross acres) includes already improved areas of Nason and Cottonwood which are not included in this hydrologic analysis.

2. Purpose

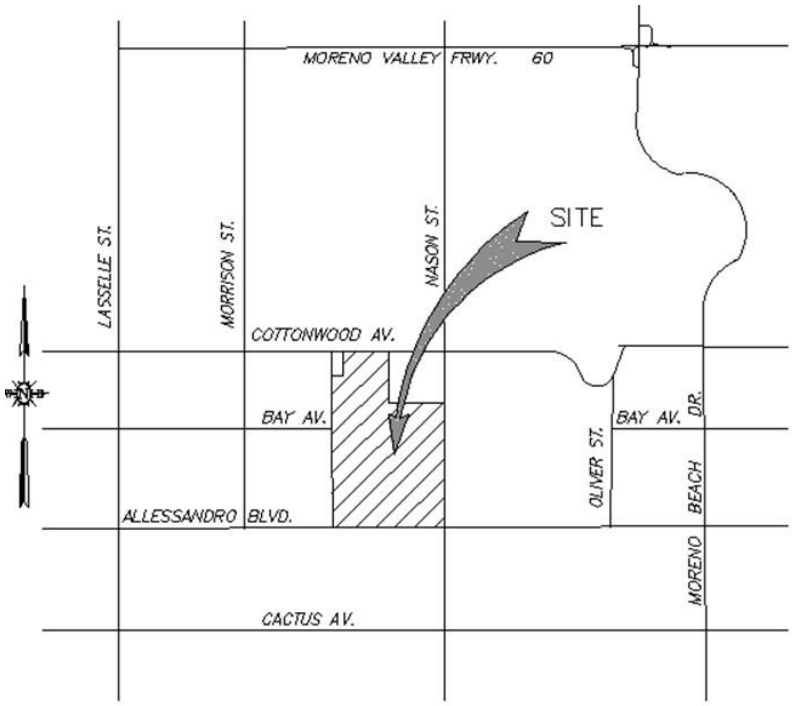
The purpose of this report is to identify the change in hydrology and determine the 100-year storm flow rates for the project site, on a lot-by-lot basis.

This drainage report, and corresponding WQMP, is being prepared to support a non-development-specific tentative tract map. While the infrastructure for the development is proposed, such as roads water, sewer, and improvements to adjacent rights of way, the project proposes to subdivide the land from two parcels to eight proposed lots (inclusive of parks). The lot-specific development plans have not been prepared. Once said lot plans are developed, the developer would, consistent with City guidance, prepare lot-specific WQMP and drainage plans. Based on the findings contained herein, infiltration appears to be feasible, and latter plans/report are anticipated to be consistent within the overall findings and recommendations of the tentative map reports.

3. Location

The project is bound by Cottonwood Avenue on the north, Alessandro Boulevard on the south, Nason Street on the east and existing residential development and vacant land on the west. There is a 'carve' out in the northwest corner containing the existing Letterman Booster Station, and in the northeast corner (SWC of Nason and Cottonwood), which is currently undeveloped – both areas are not a part of the proposed Tract.

Figure 3-1 Vicinity Map

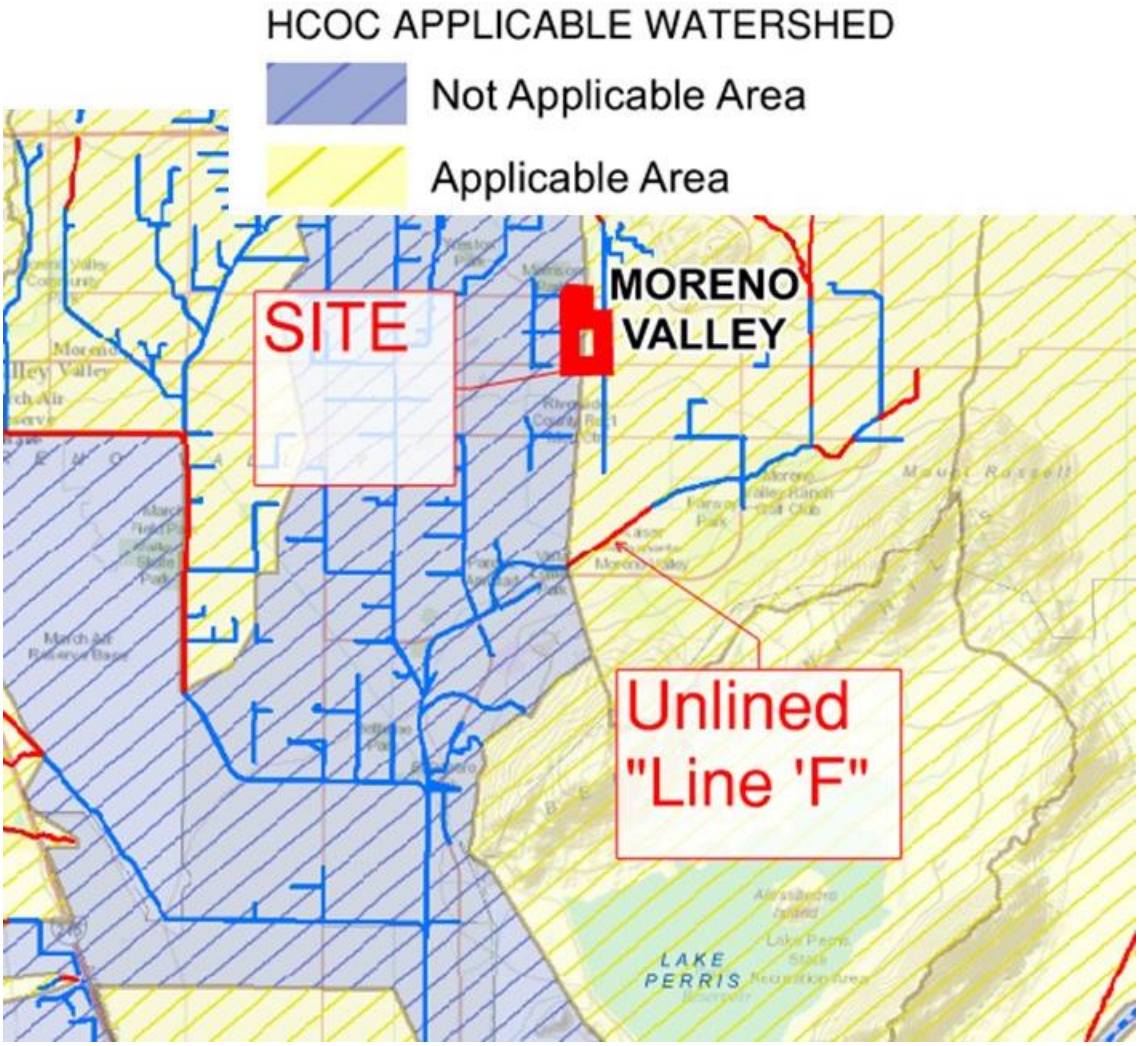


4. Existing Condition

Hydromodification Applicability

Eastern areas of the site drain to Nason Street (17.94 acres). The 2012 Hydromodification Applicability Map (published by Riverside County Flood Control) identifies this area as draining towards a non-exempt, unlined channel, identified in other documents as “Line ‘F’”. This map is included in the attachments, and a portion thereof can be seen in Figure 4-1. The portion of “Line ‘F’” is located north of Iris, between Oliver St. to the East and a realigned Nason Street to the west. The unlined channel can be see in historical aerial photography such as Figure 4-2.

Figure 4-1 Portion of the 2012 Hydromodification Applicability Map



The 2015 Master Drainage Plan (Figure 4-3) update indicates the Unlined section of unlined channel has been improved, and thus should no longer be subject to hydromodification The post-construction condition of the channel can be seen in current aerial photography and Figure 4-4.

Figure 4-2 2009 Aerial Showing Unlined Channel "F"

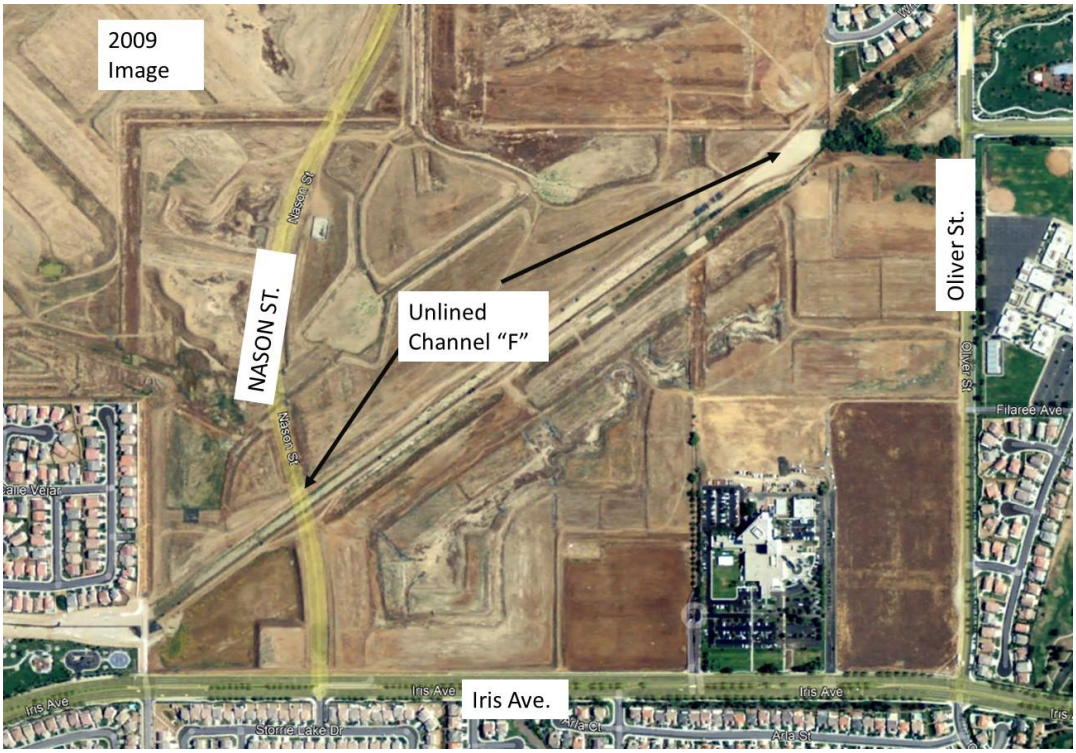


Figure 4-3 2015 MDP Map

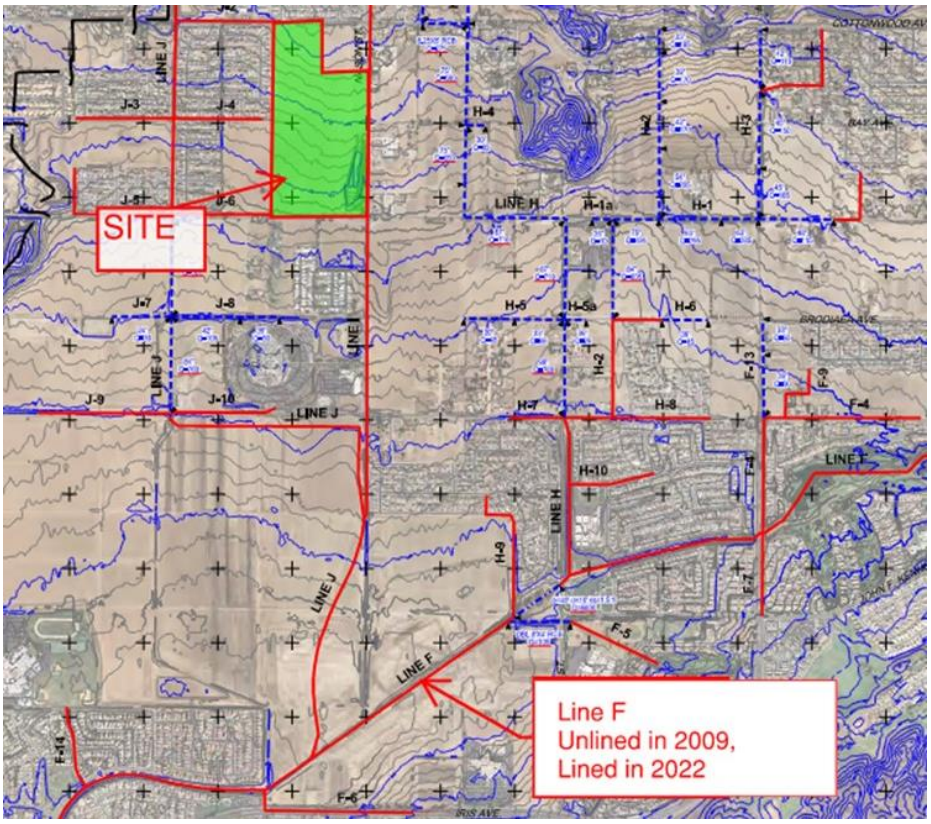


Figure 4-4 2022 Aerial Showing Lined Channel "F"

The western portion of the site drain towards Bay Avenue and Alessandro Boulevard. The hydrology exhibits define this divide consistent with existing hydrology as well as the 2012 Hydromodification maps. The 2012 map (see also Figure 4-1) clearly defines the western portion as exempt from hydromodification.

Existing Facilities

Draining East towards Nason Street:

There is an existing storm drain in Nason St, with several stubs to the property. These stubs have been located from existing drawings, and can be graphically seen, in summary, in the Existing Utility Plan, in the attachments. At the northwest corner of Alessandro and Nason is a field inlet and 36" drain which appears to drain the entirety of the Project site's eastern are a that drains to Nason, and as-builts have identified this line as receiving 38.9 cfs. This line discharges into the 78" and 84" RCP within Nason. The allowable discharge was determined from review of the "City of Moreno Valley Street Improvement Plans for Nason Street" (Cactus to Fir), project 801 0001 70 77; and specifically the 2017 as built thereof.

The existing area draining towards Nason St. is 17.9 acres (from onsite) and 8.2 acres from the undeveloped portion of land northeast of the Project site and immediately southwest of the intersection of Nason and Cottonwood. The allowable flow/acre (100-year) is 1.56 cfs/ac. Please refer to the existing hydrology exhibit for a graphic depiction of these areas.

Table 4-1 Table Nason - Allowable Release

Existing Drainage to Nason		
Onsite Area "1"	17.90	ac
Offsite Area "5"	8.20	ac
Sum	26.10	ac
Max Q	38.90	cfs
Q/Ac.	1.49	cfs/ac
	Allowable Q	
Onsite Area "1"	26.68	cfs

Draining west towards Alessandro:

There is existing 36" storm drain in Alessandro Blvd., west of the site. This drain accepts flow from the western portion of the Project site and approximately 18.6 acres immediately west of the site. The drain accepts 94.6 cfs according to the "Moreno Master Drainage Plan" as built for Line J-6, dated 2011. The 36" drain stubbed to the roadside discharges into the 48" RCP storm drain within Alessandro and directed further west. Please refer to the existing hydrology exhibit for a graphic depiction of these areas.

The table below summarizes the allowable flow from the site and offsite areas draining towards the referenced Alessandro storm drain.

Table 4-2 Alessandro – Allowable Release

Existing Drainage to Allessandro		
Onsite Area "2"	24.60	ac
Offsite Area "4"	18.60	ac
Sum	43.20	ac
Max Q	94.60	cfs
Q/Ac.	2.19	cfs/ac
	Allowable Q	
Onsite Area "2"	53.87	cfs
Offsite Area "3"	40.73	cfs

Draining west towards Bay:

The Bay Avenue drain accepts 62.5 cfs from the north portion from the Project according to the "Moreno Master Drainage Plan" as built for Line J-4, dated 2011.

The table below summarizes the allowable flow from the site and offsite areas draining towards the referenced Bay storm drain.

Figure 4-5 Bay – Allowable Release

Existing Drainage to Bay		
Onsite Area "3"	23.50	ac
Sum	23.50	ac
Max Q	62.50	cfs
Q/Ac.	2.66	cfs/ac
	Allowable Q	
Onsite Area "3"	62.50	cfs

5. Proposed condition

The proposed development is expected to add approximately 40 acres (63%± of gross) of impervious surfaces and rooftops to the Project site across the development. When comparing the existing and proposed hydrology exhibit, please note that the drainage divide (flows directed to east vs west) is consistent. Please also note that the proposed DMA designations align with the proposed parcels: Lots 1,2,3,5,& 6 are residential lots containing approximately 70% land cover; Lots 4 and 8 are parks containing approximately 20% impervious land cover; and lot 7 is a lot designated for commercial land use with, and would contain approximately 85% impervious land cover. The Right of Way improvements are also included as "ROW" in the tables.

Methodology

AES software, utilizing Rational Methodology per the Riverside County Hydrology Manual) was utilized to determine expected full-build-out and peak flows and projected attenuation values. Rainfall intensity, provided by the Manual's Plat D-4.1 (6 of 6) was utilized in the analysis.

Modeled Results

As noted in the attached model results, an initial analysis of the anticipated flow (full-build out) is expected to be 54 cfs towards Alessandro, which will require no attenuation.

Additionally, as noted in the attached Rational Method spreadsheet, an initial analysis of the anticipated flow (full-build out) is expected to be 53 cfs towards Bay, which will require no attenuation.

Finally, as noted in the attached Rational Method spreadsheet, an initial analysis of the anticipated flow (full-build out) is expected to be 39 cfs towards Nason, which will require 11± cfs of attenuation (simple addition of the peak flows of the sub areas).

The Best Management Practices, as required by the lot-specific Water Quality Management Plans, will be utilized to provide peak flow attenuation. Please note, that lot specific WQMPs may alter the size, shape, and even type of BMP, and specific sizing and placement are not within the scope of this analysis – as site plans may vary along with BMP selection, each lot is expected to provide confirming drainage and water quality reports upon submittal for site plan approval.

Tables 5-1 and 5-2 summarize the allowable release rates and expected attenuation that the development of the Tract will be expected to conform to.

Table 5-1 Allowable Proposed Drainage to Alessandro

Allowable Proposed Drainage to Allesandro				
	Area	Allowable Q	Unmitigated	
DMA 5	7.45	16.31	16.91	No Mitigation Anticipated
DMA 6	7.84	17.17	16.08	
DMA 7a	4.77	10.45	11.47	
DMA 8	1.37	3.00	2.45	
DMA ROW South	3.32	7.27	6.92	
Sum	24.75	54.20	53.83	

Table 5-2 Allowable Proposed Drainage to Nason

Allowable Proposed Drainage to Nason				
	Area	Allowable Q	Unmitigated	Mitigated
DMA 3b	3.38	5.04	8.84	6.31
DMA 4b	1.77	2.64	3.48	2.17
DMA 7b	11.14	16.60	23.05	14.78
DMA ROW East	1.65	2.46	3.47	3.47
Sum	17.94	26.74	38.84	26.73

Table 5-3 Allowable Proposed Drainage to Bay

Allowable Proposed Drainage to Bay				
	Area	Allowable Q	Unmitigated	
DMA 1	6.91	18.67	16.41	No Mitigation Anticipated
DMA 2	8.61	23.27	18.14	
DMA 3a	2.36	6.38	6.31	
DMA 4a	1.73	4.68	3.54	
DMA ROW North	3.76	10.16	8.40	
Sum	23.37	63.15	52.80	

6. Discussion

As proposed, the immediate infrastructure work for Tentative Map 38421, Moreno Valley Town Center, is expected to have minimal effect on the existing hydrology of the area as the flow generated by public infrastructure will drain to community facilities not subject to hydromodification. While a lot-by lot analysis was performed to determine look-ahead planning for future lot build out, the ultimate build out of later phased construction (under separate report) will be required to submit separate conforming calculations based on final-BMP selection, and meet the flow tables identified herein.

7. List of Attachments

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Attachment 2. Hydrology Exhibits

Attachment 3. Intensity-Duration Values

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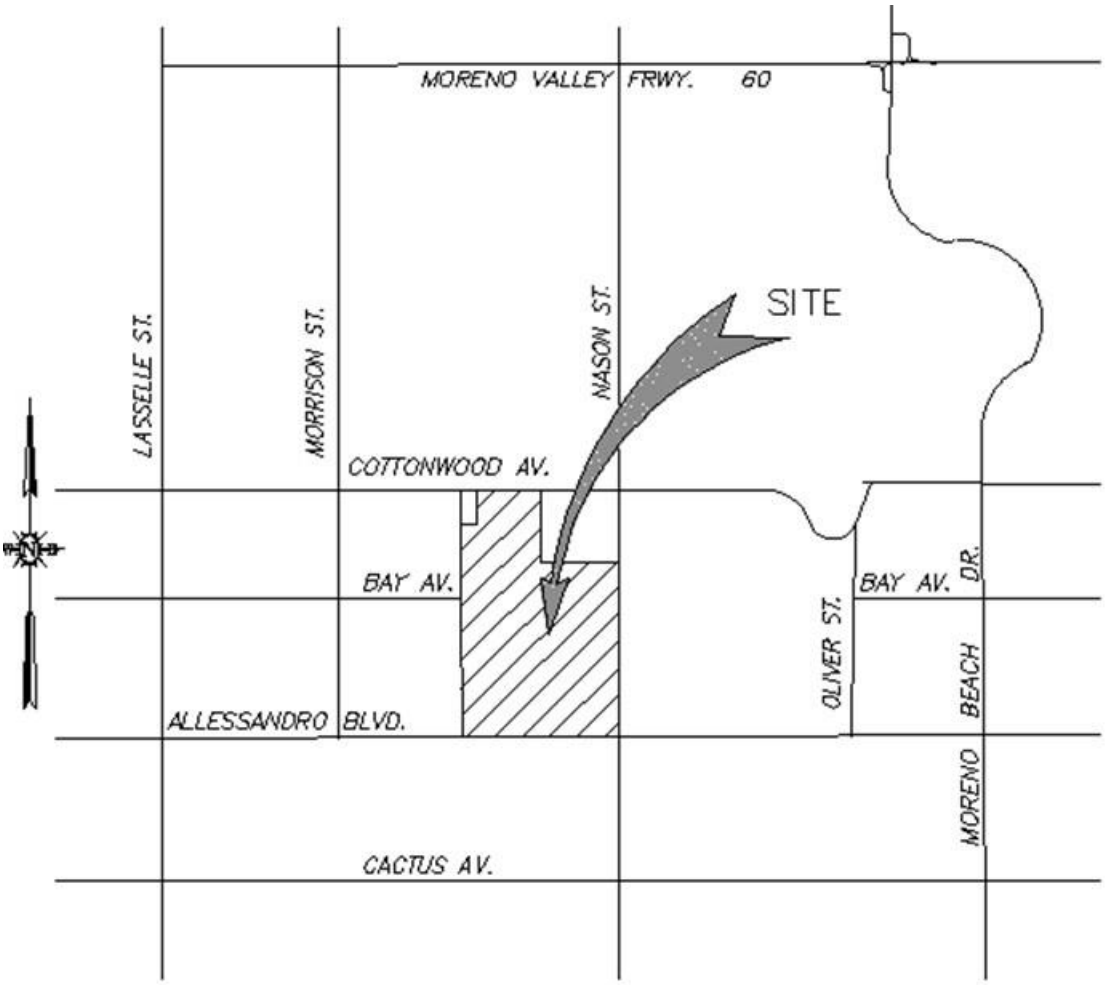
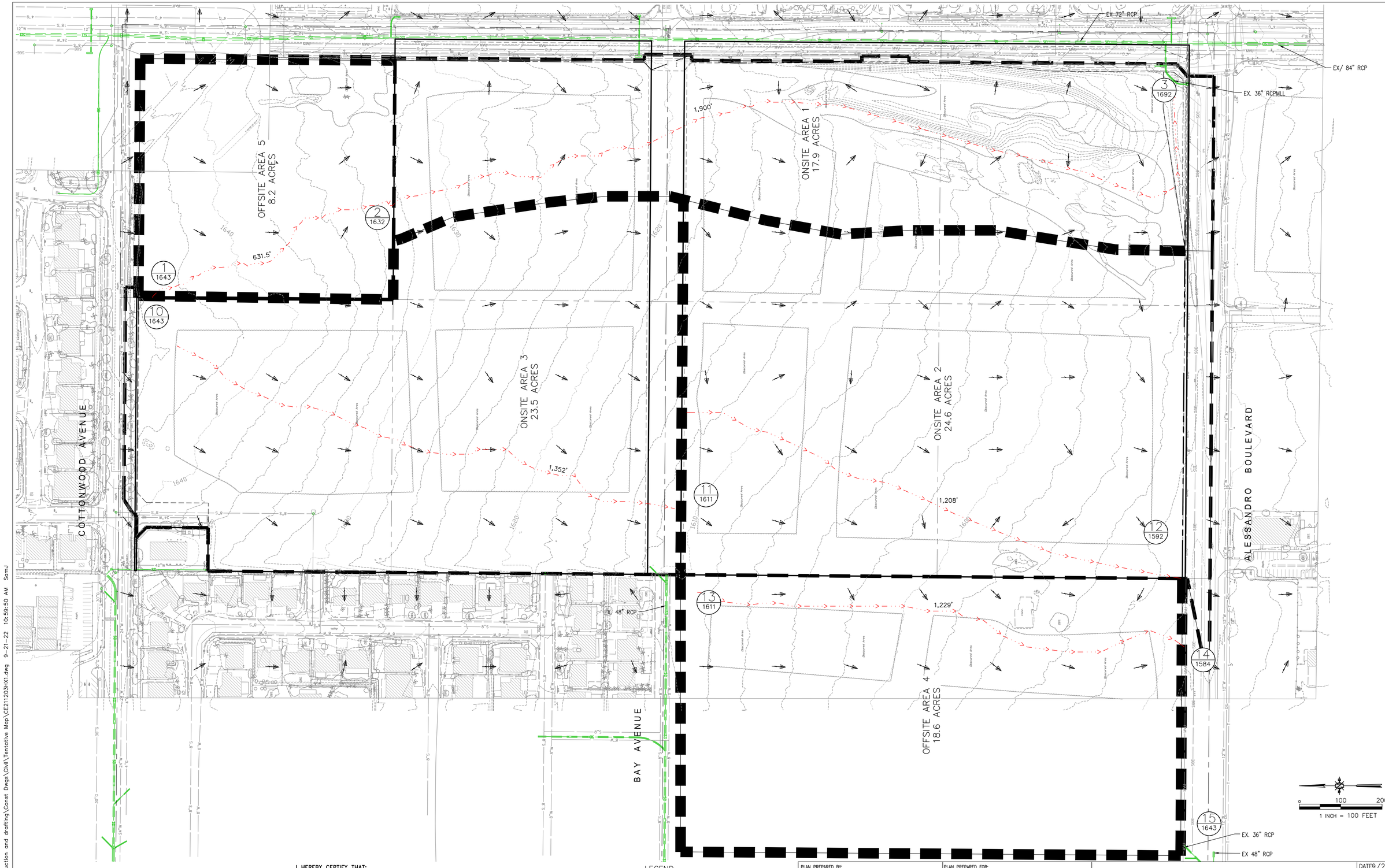
Attachment 1. Site Map



VICINITY MAP

NOT TO SCALE

Attachment 2. Hydrology Exhibits



I HEREBY CERTIFY THAT:
1. THESE PLANS HAVE BEEN PREPARED UNDER MY SUPERVISION;
2. THE GRADING SHOWN HEREON WILL NOT DIVERT DRAINAGE FROM ITS NATURAL DOWNSTREAM COURSE OR OBSTRUCT THE DRAINAGE OF ADJACENT PROPERTIES:

ENGINEER _____ 8/1/2022
WILHELM J. MAUL EXP. DATE

REGISTERED PROFESSIONAL ENGINEER
WILHELM JOHN MAUL
NO. 42549
EXP. 03/31/2024
CIVIL
STATE OF CALIFORNIA

LEGEND

NODE ELEV

TC FLOW PATH

PLAN PREPARED BY:

Cannon

16842 Von Karman Avenue, Suite #150
Irvine, CA 92606
949.668.1683

PLAN PREPARED FOR:

LEWIS MANAGEMENT CORP.

1156 NORTH MOUNTAIN AVENUE
UPLAND, CALIFORNIA 91785-0670
TEL: (909) 985-0971

TOWN CENTER AT MORENO VALLEY
TRACT 38421
EXISTING HYDROLOGY EXHIBIT

CITY OF MORENO VALLEY
CALIFORNIA

DATE	9/21/2022
JOB NO.	211203
CPN:	PEN22-077
TTM:	38421
SHEET	HX1

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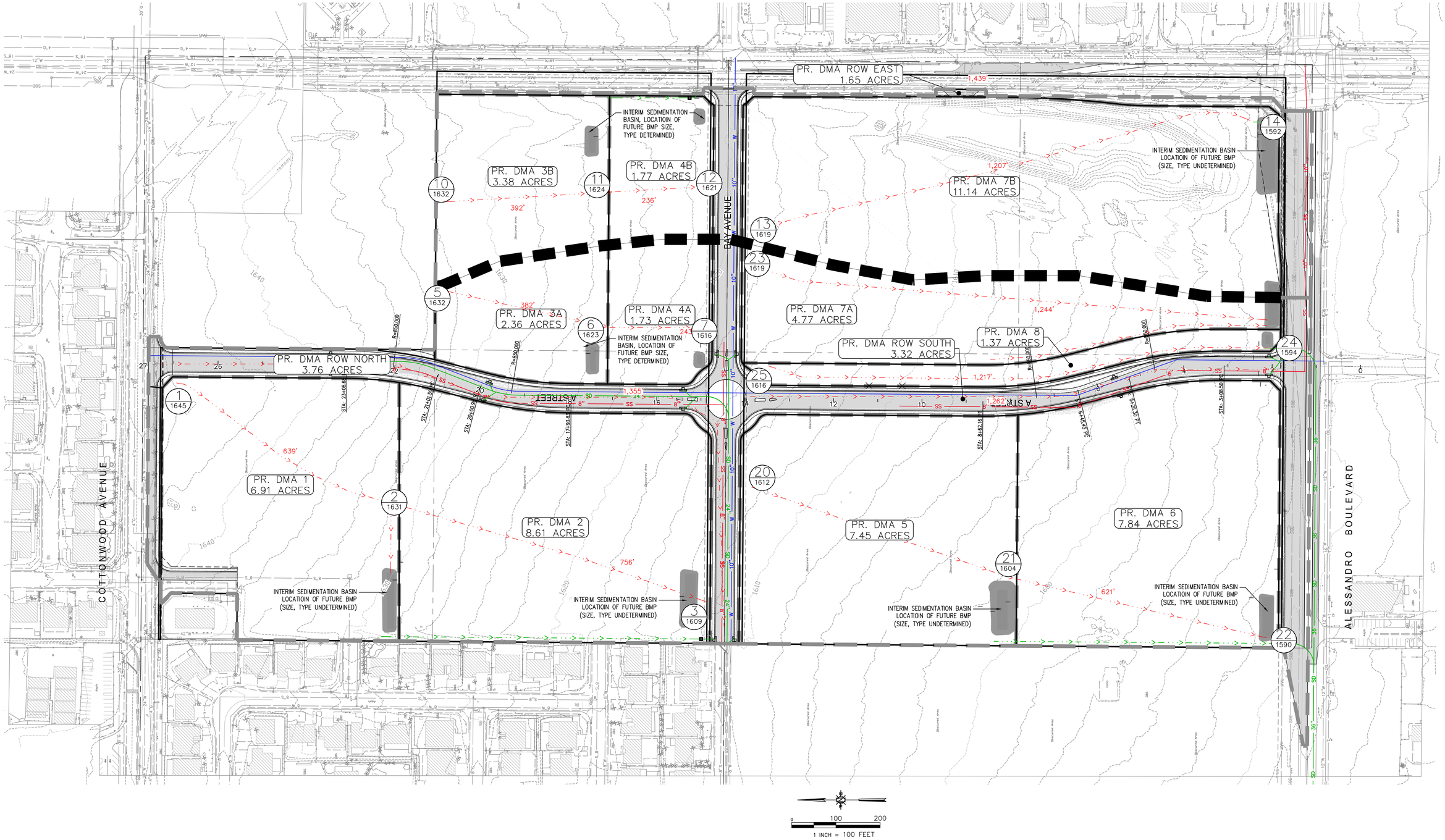

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1. THESE PLANS HAVE BEEN PREPARED UNDER MY SUPERVISION:
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LEGEND

(#) x.xx NODE ELEV

— · · · > — TC FLOW PATH

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TOWN CENTER AT MORENO VALLEY
TRACT 38421
PROPOSED HYDROLOGY EXHIBIT

CITY OF MORENO VALLEY
CALIFORNIA

DATE	9/21/2022
JOB NO.	211203
CPN:	PEN22-077
TTM:	38421
SHEET	
	HX2

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Attachment 3. Intensity-Duration Values

RAINFALL INTENSITY—INCHES PER HOUR

SUNNYMEAD - MORENO			WOODCREST		
DURATION MINUTES	FREQUENCY		DURATION MINUTES	FREQUENCY	
	10 YEAR	100 YEAR		10 YEAR	100 YEAR
5	2.84	4.16	5	3.37	5.30
6	2.59	3.79	6	3.05	4.79
7	2.40	3.51	7	2.80	4.40
8	2.25	3.29	8	2.60	4.09
9	2.12	3.10	9	2.44	3.83
10	2.01	2.94	10	2.30	3.62
11	1.92	2.80	11	2.19	3.43
12	1.83	2.68	12	2.08	3.27
13	1.76	2.58	13	1.99	3.13
14	1.70	2.48	14	1.91	3.01
15	1.64	2.40	15	1.84	2.89
16	1.59	2.32	16	1.78	2.79
17	1.54	2.25	17	1.72	2.70
18	1.50	2.19	18	1.67	2.62
19	1.46	2.13	19	1.62	2.54
20	1.42	2.08	20	1.57	2.47
22	1.35	1.98	22	1.49	2.34
24	1.30	1.90	24	1.42	2.23
26	1.25	1.82	26	1.36	2.14
28	1.20	1.76	28	1.31	2.05
30	1.16	1.70	30	1.26	1.98
32	1.12	1.64	32	1.22	1.91
34	1.09	1.59	34	1.18	1.85
36	1.06	1.55	36	1.14	1.79
38	1.03	1.51	38	1.11	1.74
40	1.00	1.47	40	1.07	1.69
45	.95	1.39	45	1.01	1.58
50	.90	1.31	50	.95	1.49
55	.86	1.25	55	.90	1.42
60	.82	1.20	60	.86	1.35
65	.79	1.15	65	.82	1.29
70	.76	1.11	70	.79	1.24
75	.73	1.07	75	.76	1.19
80	.71	1.04	80	.73	1.15
85	.69	1.01	85	.71	1.11
SLOPE = .500			SLOPE = .550		

STANDARD
INTENSITY-DURATION
CURVES DATA

Attachment 4. AES Existing Rational Method Results

```
************************************************************************
            RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM BASED ON
         RIVERSIDE COUNTY FLOOD CONTROL & WATER CONSERVATION DISTRICT
                      (RCFC&WCD)  1978 HYDROLOGY MANUAL
          (c) Copyright 1982-2013 Advanced Engineering Software (aes)
                      (Rational Tabling Version 20.0)
                  Release Date: 06/01/2013  License ID 1233

                           Analysis prepared by:

                           PENCO a Cannon Company
                            16842 Von Karman Ave
                                  Ste. 150


 ************************** DESCRIPTION OF STUDY **************************
*                                                                          *
*                                                                           *
*                                                                            *
 ************************************************************************

  FILE NAME: MVTC-E.DAT
  TIME/DATE OF STUDY: 17:52 08/05/2022
------------------------------------------------------------------------
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
------------------------------------------------------------------------
  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   4.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.00
  10-YEAR STORM 10-MINUTE INTENSITY(INCH/HOUR) =  2.010
  10-YEAR STORM 60-MINUTE INTENSITY(INCH/HOUR) =  0.820
  100-YEAR STORM 10-MINUTE INTENSITY(INCH/HOUR) =  2.940
  100-YEAR STORM 60-MINUTE INTENSITY(INCH/HOUR) =  1.200
  SLOPE OF 10-YEAR INTENSITY-DURATION CURVE =  0.5003939
  SLOPE OF 100-YEAR INTENSITY-DURATION CURVE =  0.5001161
  COMPUTED RAINFALL INTENSITY DATA:
  STORM EVENT =  100.00   1-HOUR INTENSITY(INCH/HOUR) =   1.200
  SLOPE OF INTENSITY DURATION CURVE = 0.5001
  RCFC&WCD HYDROLOGY MANUAL "C"-VALUES USED FOR RATIONAL METHOD
  NOTE: COMPUTE CONFLUENCE VALUES ACCORDING TO RCFC&WCD HYDROLOGY MANUAL
        AND IGNORE OTHER CONFLUENCE COMBINATIONS FOR DOWNSTREAM ANALYSES
  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

************************************************************************
  FLOW PROCESS FROM NODE      1.00 TO NODE      2.00 IS CODE =  21
------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
```

```
============================================================================
        ASSUMED INITIAL SUBAREA UNIFORM
        DEVELOPMENT IS: UNDEVELOPED WITH FAIR COVER
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   632.00
  UPSTREAM ELEVATION(FEET) =   1643.00
  DOWNSTREAM ELEVATION(FEET) =   1632.00
  ELEVATION DIFFERENCE(FEET) =     11.00
  TC = 0.709*[(  632.00**3)/(    11.00)]**.2 =   21.040
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.027
  UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .5933
  SOIL CLASSIFICATION IS "B"
  SUBAREA RUNOFF(CFS) =      9.84
  TOTAL AREA(ACRES) =      8.18   TOTAL RUNOFF(CFS) =      9.84

****************************************************************************
  FLOW PROCESS FROM NODE      2.00 TO NODE      3.00 IS CODE =  91
----------------------------------------------------------------------------
  >>>>>COMPUTE "V" GUTTER FLOW TRAVEL TIME THRU SUBAREA<<<<<
============================================================================
  UPSTREAM NODE ELEVATION(FEET) =   1632.00
  DOWNSTREAM NODE ELEVATION(FEET) =   1592.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1900.00
  "V" GUTTER WIDTH(FEET) =   5.00   GUTTER HIKE(FEET) =  0.050
  PAVEMENT LIP(FEET) =  0.010   MANNING'S N = .2000
  PAVEMENT CROSSFALL(DECIMAL NOTATION) = 0.00200
  MAXIMUM DEPTH(FEET) =   0.07
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.006
  UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .5912
  SOIL CLASSIFICATION IS "B"
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =     19.77
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =  71.91
  AVERAGE FLOW DEPTH(FEET) =   0.07   FLOOD WIDTH(FEET) =   15.00
  "V" GUTTER FLOW TRAVEL TIME(MIN.) =   0.44   Tc(MIN.) =   21.48
  SUBAREA AREA(ACRES) =   16.76       SUBAREA RUNOFF(CFS) =   19.88
  TOTAL AREA(ACRES) =       24.9         PEAK FLOW RATE(CFS) =      29.71

        ==>>ERROR:FLOW EXCEEDS CAPACITY OF CHANNEL WITH
            NORMAL DEPTH EQUAL TO SPECIFIED MAXIMUM ALLOWABLE DEPTH.
            AS AN APPROXIMATION, TRAVEL TIME CALCULATIONS ARE BASED
            ON FLOW DEPTH EQUAL TO THE SPECIFIED MAXIMUM ALLOWABLE DEPTH.


  END OF SUBAREA "V" GUTTER HYDRAULICS:
  DEPTH(FEET) =  0.07   FLOOD WIDTH(FEET) =   15.00
  FLOW VELOCITY(FEET/SEC.) = 108.04   DEPTH*VELOCITY(FT*FT/SEC) =   7.56
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      3.00 =    2532.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     10.00 TO NODE     11.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
        ASSUMED INITIAL SUBAREA UNIFORM
        DEVELOPMENT IS: UNDEVELOPED WITH FAIR COVER
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =  1352.00
  UPSTREAM ELEVATION(FEET) =   1643.00
  DOWNSTREAM ELEVATION(FEET) =   1611.00
  ELEVATION DIFFERENCE(FEET) =     32.00
```

```
  TC = 0.709*[( 1352.00**3)/(    32.00)]**.2 =   26.819
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  1.795
  UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .5683
  SOIL CLASSIFICATION IS "B"
  SUBAREA RUNOFF(CFS) =     23.60
  TOTAL AREA(ACRES) =     23.13   TOTAL RUNOFF(CFS) =     23.60

****************************************************************************
  FLOW PROCESS FROM NODE     11.00 TO NODE     12.00 IS CODE =  91
----------------------------------------------------------------------------
  >>>>>COMPUTE "V" GUTTER FLOW TRAVEL TIME THRU SUBAREA<<<<<
============================================================================
  UPSTREAM NODE ELEVATION(FEET) =   1611.00
  DOWNSTREAM NODE ELEVATION(FEET) =   1592.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1208.00
  "V" GUTTER WIDTH(FEET) =   1.00   GUTTER HIKE(FEET) =  0.050
  PAVEMENT LIP(FEET) =  0.010   MANNING'S N = .2000
  PAVEMENT CROSSFALL(DECIMAL NOTATION) = 0.00200
  MAXIMUM DEPTH(FEET) =   0.07
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  1.793
  UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .5681
  SOIL CLASSIFICATION IS "B"
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =     35.49
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 373.58
  AVERAGE FLOW DEPTH(FEET) =   0.07   FLOOD WIDTH(FEET) =   11.00
  "V" GUTTER FLOW TRAVEL TIME(MIN.) =   0.05   Tc(MIN.) =   26.87
  SUBAREA AREA(ACRES) =   23.35       SUBAREA RUNOFF(CFS) =   23.79
  TOTAL AREA(ACRES) =       46.5         PEAK FLOW RATE(CFS) =      47.38

         ==>>ERROR:FLOW EXCEEDS CAPACITY OF CHANNEL WITH
             NORMAL DEPTH EQUAL TO SPECIFIED MAXIMUM ALLOWABLE DEPTH.
             AS AN APPROXIMATION, TRAVEL TIME CALCULATIONS ARE BASED
             ON FLOW DEPTH EQUAL TO THE SPECIFIED MAXIMUM ALLOWABLE DEPTH.


  END OF SUBAREA "V" GUTTER HYDRAULICS:
  DEPTH(FEET) =  0.07   FLOOD WIDTH(FEET) =   11.00
  FLOW VELOCITY(FEET/SEC.) = 498.78   DEPTH*VELOCITY(FT*FT/SEC) =  34.91
  LONGEST FLOWPATH FROM NODE     10.00 TO NODE     12.00 =    2560.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     12.00 TO NODE     12.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =   26.87
  RAINFALL INTENSITY(INCH/HR) =   1.79
  TOTAL STREAM AREA(ACRES) =    46.48
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     47.38

****************************************************************************
  FLOW PROCESS FROM NODE     13.00 TO NODE     12.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS: UNDEVELOPED WITH FAIR COVER
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
```

```
  INITIAL SUBAREA FLOW-LENGTH(FEET) =  1230.00
  UPSTREAM ELEVATION(FEET) =   1611.00
  DOWNSTREAM ELEVATION(FEET) =   1592.00
  ELEVATION DIFFERENCE(FEET) =     19.00
  TC = 0.709*[( 1230.00**3)/(    19.00)]**.2 =   28.124
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  1.753
  UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .5633
  SOIL CLASSIFICATION IS "B"
  SUBAREA RUNOFF(CFS) =     18.40
  TOTAL AREA(ACRES) =     18.63   TOTAL RUNOFF(CFS) =     18.40

****************************************************************************
  FLOW PROCESS FROM NODE     12.00 TO NODE     12.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =   28.12
  RAINFALL INTENSITY(INCH/HR) =   1.75
  TOTAL STREAM AREA(ACRES) =    18.63
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     18.40

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1       47.38    26.87        1.793         46.48
      2       18.40    28.12        1.753         18.63

 **********************************WARNING***********************************
  IN THIS COMPUTER PROGRAM, THE CONFLUENCE VALUE USED IS BASED
  ON THE RCFC&WCD FORMULA OF PLATE D-1 AS DEFAULT VALUE. THIS FORMULA
  WILL NOT NECESSARILY RESULT IN THE MAXIMUM VALUE OF PEAK FLOW.
 ****************************************************************************

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  2 STREAMS.

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1       64.96    26.87       1.793
      2       64.71    28.12       1.753

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      64.96   Tc(MIN.) =   26.87
  TOTAL AREA(ACRES) =       65.1
  LONGEST FLOWPATH FROM NODE     10.00 TO NODE     12.00 =    2560.00 FEET.
============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =       65.1  TC(MIN.) =     26.87
  PEAK FLOW RATE(CFS)   =      64.96
============================================================================
============================================================================
  END OF RATIONAL METHOD ANALYSIS
```

Attachment 5. AES Proposed Rational Method Results

```
******************************************************************************
            RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM BASED ON
         RIVERSIDE COUNTY FLOOD CONTROL & WATER CONSERVATION DISTRICT
                      (RCFC&WCD)  1978 HYDROLOGY MANUAL
          (c) Copyright 1982-2013 Advanced Engineering Software (aes)
                      (Rational Tabling Version 20.0)
                  Release Date: 06/01/2013  License ID 1233

                           Analysis prepared by:

                           PENCO a Cannon Company
                            16842 Von Karman Ave
                                  Ste. 150


 ************************** DESCRIPTION OF STUDY **************************
* MORENO VALLEY TOWN CENTER                                               *
* PROPOSED 100-YEAR                                                       *
* CANNONCORP.US | JN 211203                                               *
 ***************************************************************************

  FILE NAME: MVTC-P6.DAT
  TIME/DATE OF STUDY: 11:52 09/21/2022
------------------------------------------------------------------------------
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
------------------------------------------------------------------------------
  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   4.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.00
  10-YEAR STORM 10-MINUTE INTENSITY(INCH/HOUR) =  2.010
  10-YEAR STORM 60-MINUTE INTENSITY(INCH/HOUR) =  0.820
  100-YEAR STORM 10-MINUTE INTENSITY(INCH/HOUR) =  2.940
  100-YEAR STORM 60-MINUTE INTENSITY(INCH/HOUR) =  1.200
  SLOPE OF 10-YEAR INTENSITY-DURATION CURVE =  0.5003939
  SLOPE OF 100-YEAR INTENSITY-DURATION CURVE =  0.5001161
  COMPUTED RAINFALL INTENSITY DATA:
  STORM EVENT =  100.00   1-HOUR INTENSITY(INCH/HOUR) =   1.200
  SLOPE OF INTENSITY DURATION CURVE = 0.5001
  RCFC&WCD HYDROLOGY MANUAL "C"-VALUES USED FOR RATIONAL METHOD
  NOTE: COMPUTE CONFLUENCE VALUES ACCORDING TO RCFC&WCD HYDROLOGY MANUAL
        AND IGNORE OTHER CONFLUENCE COMBINATIONS FOR DOWNSTREAM ANALYSES
  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150
  2   33.0     22.0    0.020/0.020/0.020   0.50    1.50 0.0313 0.125 0.0150
  3   67.0     55.0    0.020/0.020/0.020   0.50    1.50 0.0313 0.125 0.0150
  4   55.0     43.0    0.020/0.020/0.020   0.50    1.50 0.0313 0.125 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.50 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  0.1 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

******************************************************************************
```

```
 FLOW PROCESS FROM NODE      1.00 TO NODE      2.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
        ASSUMED INITIAL SUBAREA UNIFORM
        DEVELOPMENT IS CONDOMINIUM
 TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   639.00
 UPSTREAM ELEVATION(FEET) =   1645.00
 DOWNSTREAM ELEVATION(FEET) =   1631.00
 ELEVATION DIFFERENCE(FEET) =     14.00
 TC = 0.359*[(  639.00**3)/(    14.00)]**.2 =   10.219
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.908
 CONDOMINIUM DEVELOPMENT RUNOFF COEFFICIENT = .8166
 SOIL CLASSIFICATION IS "B"
 SUBAREA RUNOFF(CFS) =     16.41
 TOTAL AREA(ACRES) =      6.91   TOTAL RUNOFF(CFS) =     16.41

****************************************************************************
 FLOW PROCESS FROM NODE      2.00 TO NODE      3.00 IS CODE =  62
----------------------------------------------------------------------------
 >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>(STREET TABLE SECTION #  2 USED)<<<<<
============================================================================
 UPSTREAM ELEVATION(FEET) = 1631.00  DOWNSTREAM ELEVATION(FEET) = 1609.00
 STREET LENGTH(FEET) =   756.00   CURB HEIGHT(INCHES) =  6.0
 STREET HALFWIDTH(FEET) = 33.00

 DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  22.00
 INSIDE STREET CROSSFALL(DECIMAL) =  0.020
 OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

 SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
 STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
 Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
 Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0150

   **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      25.49
   STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
   STREET FLOW DEPTH(FEET) =  0.44
   HALFSTREET FLOOD WIDTH(FEET) =   15.68
   AVERAGE FLOW VELOCITY(FEET/SEC.) =    4.94
   PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    2.18
 STREET FLOW TRAVEL TIME(MIN.) =   2.55   Tc(MIN.) =   12.77
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.602
 CONDOMINIUM DEVELOPMENT RUNOFF COEFFICIENT = .8096
 SOIL CLASSIFICATION IS "B"
 SUBAREA AREA(ACRES) =    8.61      SUBAREA RUNOFF(CFS) =   18.14
 TOTAL AREA(ACRES) =       15.5        PEAK FLOW RATE(CFS) =      34.55

 END OF SUBAREA STREET FLOW HYDRAULICS:
 DEPTH(FEET) = 0.48   HALFSTREET FLOOD WIDTH(FEET) =  17.66
 FLOW VELOCITY(FEET/SEC.) =  5.34   DEPTH*VELOCITY(FT*FT/SEC.) =   2.56
 LONGEST FLOWPATH FROM NODE      1.00 TO NODE      3.00 =    1395.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE      3.00 TO NODE      3.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
```

```
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =   12.77
  RAINFALL INTENSITY(INCH/HR) =   2.60
  TOTAL STREAM AREA(ACRES) =    15.52
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     34.55

****************************************************************************
  FLOW PROCESS FROM NODE      5.00 TO NODE      6.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS CONDOMINIUM
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   382.00
  UPSTREAM ELEVATION(FEET) =   1632.00
  DOWNSTREAM ELEVATION(FEET) =   1623.00
  ELEVATION DIFFERENCE(FEET) =      9.00
  TC = 0.359*[(  382.00**3)/(     9.00)]**.2 =    8.198
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.247
  CONDOMINIUM DEVELOPMENT RUNOFF COEFFICIENT = .8232
  SOIL CLASSIFICATION IS "B"
  SUBAREA RUNOFF(CFS) =      6.31
  TOTAL AREA(ACRES) =      2.36   TOTAL RUNOFF(CFS) =      6.31

****************************************************************************
  FLOW PROCESS FROM NODE      6.00 TO NODE      7.00 IS CODE =  62
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STREET TABLE SECTION #  2 USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) = 1623.00  DOWNSTREAM ELEVATION(FEET) = 1616.00
  STREET LENGTH(FEET) =   243.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 33.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  22.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0150

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       8.08
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.32
    HALFSTREET FLOOD WIDTH(FEET) =    9.78
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    3.76
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.21
  STREET FLOW TRAVEL TIME(MIN.) =   1.08   Tc(MIN.) =    9.27
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.053
  UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .6701
  SOIL CLASSIFICATION IS "B"
  SUBAREA AREA(ACRES) =    1.73      SUBAREA RUNOFF(CFS) =    3.54
  TOTAL AREA(ACRES) =        4.1        PEAK FLOW RATE(CFS) =       9.85

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.34   HALFSTREET FLOOD WIDTH(FEET) =  10.67
```

```
 FLOW VELOCITY(FEET/SEC.) =  3.92   DEPTH*VELOCITY(FT*FT/SEC.) =   1.33
 LONGEST FLOWPATH FROM NODE      5.00 TO NODE      7.00 =     625.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE      7.00 TO NODE      3.00 IS CODE =  62
----------------------------------------------------------------------------
 >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>(STREET TABLE SECTION #  2 USED)<<<<<
============================================================================
 UPSTREAM ELEVATION(FEET) = 1616.00  DOWNSTREAM ELEVATION(FEET) = 1609.00
 STREET LENGTH(FEET) =   730.00   CURB HEIGHT(INCHES) =  6.0
 STREET HALFWIDTH(FEET) = 33.00

 DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  22.00
 INSIDE STREET CROSSFALL(DECIMAL) =  0.020
 OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

 SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
 STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
 Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
 Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0150

   **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      14.06
   STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
   STREET FLOW DEPTH(FEET) =  0.43
   HALFSTREET FLOOD WIDTH(FEET) =   15.43
   AVERAGE FLOW VELOCITY(FEET/SEC.) =    2.81
   PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.22
 STREET FLOW TRAVEL TIME(MIN.) =   4.32   Tc(MIN.) =   13.60
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.521
 COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8865
 SOIL CLASSIFICATION IS "D"
 SUBAREA AREA(ACRES) =    3.76      SUBAREA RUNOFF(CFS) =    8.40
 TOTAL AREA(ACRES) =        7.9        PEAK FLOW RATE(CFS) =      18.25

 END OF SUBAREA STREET FLOW HYDRAULICS:
 DEPTH(FEET) = 0.47   HALFSTREET FLOOD WIDTH(FEET) =  17.06
 FLOW VELOCITY(FEET/SEC.) =  3.01   DEPTH*VELOCITY(FT*FT/SEC.) =   1.41
 LONGEST FLOWPATH FROM NODE      5.00 TO NODE      3.00 =    1355.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE      3.00 TO NODE      3.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
 >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
 TIME OF CONCENTRATION(MIN.) =   13.60
 RAINFALL INTENSITY(INCH/HR) =   2.52
 TOTAL STREAM AREA(ACRES) =     7.85
 PEAK FLOW RATE(CFS) AT CONFLUENCE =     18.25

 ** CONFLUENCE DATA **
 STREAM     RUNOFF       Tc      INTENSITY      AREA
 NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
     1       34.55    12.77        2.602         15.52
     2       18.25    13.60        2.521          7.85

 ********************************WARNING*********************************
```

```
  IN THIS COMPUTER PROGRAM, THE CONFLUENCE VALUE USED IS BASED
  ON THE RCFC&WCD FORMULA OF PLATE D-1 AS DEFAULT VALUE. THIS FORMULA
  WILL NOT NECESSARILY RESULT IN THE MAXIMUM VALUE OF PEAK FLOW.
 ************************************************************************

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  2 STREAMS.

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1       51.68    12.77       2.602
      2       51.72    13.60       2.521

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      51.68   Tc(MIN.) =   12.77
  TOTAL AREA(ACRES) =       23.4
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      3.00 =    1395.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     10.00 TO NODE     11.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS CONDOMINIUM
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   393.00
  UPSTREAM ELEVATION(FEET) =   1632.00
  DOWNSTREAM ELEVATION(FEET) =   1624.00
  ELEVATION DIFFERENCE(FEET) =      8.00
  TC = 0.359*[(  393.00**3)/(     8.00)]**.2 =    8.538
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.182
  CONDOMINIUM DEVELOPMENT RUNOFF COEFFICIENT = .8220
  SOIL CLASSIFICATION IS "B"
  SUBAREA RUNOFF(CFS) =      8.84
  TOTAL AREA(ACRES) =      3.38   TOTAL RUNOFF(CFS) =      8.84

****************************************************************************
  FLOW PROCESS FROM NODE     11.00 TO NODE     12.00 IS CODE =  62
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STREET TABLE SECTION #  2 USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) = 1624.00  DOWNSTREAM ELEVATION(FEET) = 1621.00
  STREET LENGTH(FEET) =   237.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 33.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  22.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0150

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      10.58
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.39
```

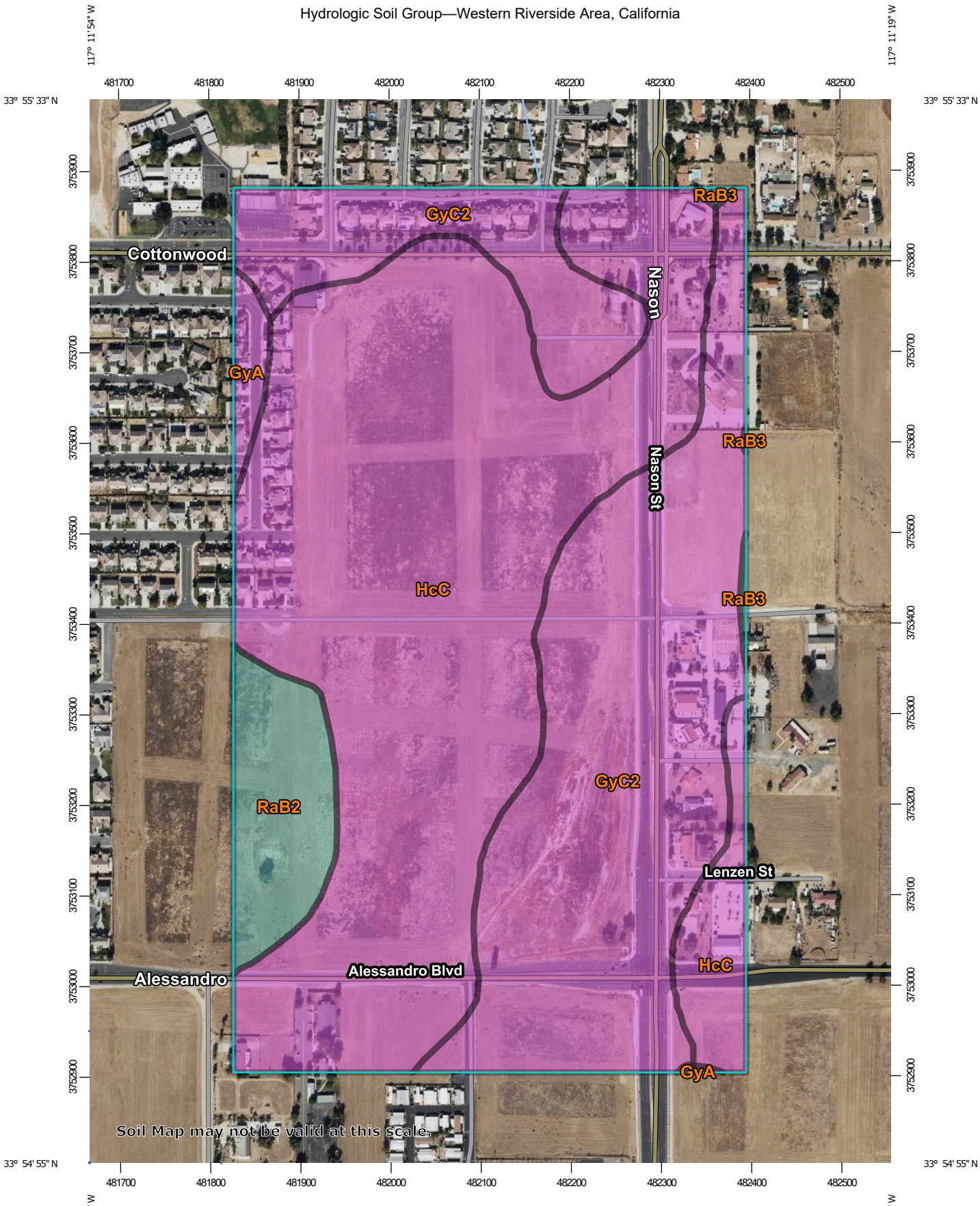
```
    HALFSTREET FLOOD WIDTH(FEET) =   13.02
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    2.92
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.13
  STREET FLOW TRAVEL TIME(MIN.) =   1.35   Tc(MIN.) =    9.89
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.956
  UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .6645
  SOIL CLASSIFICATION IS "B"
  SUBAREA AREA(ACRES) =    1.77      SUBAREA RUNOFF(CFS) =    3.48
  TOTAL AREA(ACRES) =        5.2        PEAK FLOW RATE(CFS) =      12.32

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.40   HALFSTREET FLOOD WIDTH(FEET) =  13.79
  FLOW VELOCITY(FEET/SEC.) =  3.05   DEPTH*VELOCITY(FT*FT/SEC.) =   1.23
  LONGEST FLOWPATH FROM NODE     10.00 TO NODE     12.00 =     630.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     12.00 TO NODE     14.00 IS CODE =  62
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STREET TABLE SECTION #  4 USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) = 1621.00  DOWNSTREAM ELEVATION(FEET) = 1592.00
  STREET LENGTH(FEET) =  1450.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 55.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  43.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0150

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      14.05
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.48
    HALFSTREET FLOOD WIDTH(FEET) =   17.50
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    4.42
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    2.10
  STREET FLOW TRAVEL TIME(MIN.) =   5.47   Tc(MIN.) =   15.36
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.372
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8858
  SOIL CLASSIFICATION IS "D"
  SUBAREA AREA(ACRES) =    1.65      SUBAREA RUNOFF(CFS) =    3.47
  TOTAL AREA(ACRES) =        6.8        PEAK FLOW RATE(CFS) =      15.78

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.49   HALFSTREET FLOOD WIDTH(FEET) =  18.34
  FLOW VELOCITY(FEET/SEC.) =  4.53   DEPTH*VELOCITY(FT*FT/SEC.) =   2.24
  LONGEST FLOWPATH FROM NODE     10.00 TO NODE     14.00 =    2080.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     13.00 TO NODE     14.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.372
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8724
  SOIL CLASSIFICATION IS "B"
```

```
  SUBAREA AREA(ACRES) =   11.14   SUBAREA RUNOFF(CFS) =   23.05
  TOTAL AREA(ACRES) =       17.9   TOTAL RUNOFF(CFS) =      38.83
  TC(MIN.) =   15.36

****************************************************************************
  FLOW PROCESS FROM NODE     23.00 TO NODE     24.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS COMMERCIAL
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =  1244.00
  UPSTREAM ELEVATION(FEET) =   1619.00
  DOWNSTREAM ELEVATION(FEET) =   1594.00
  ELEVATION DIFFERENCE(FEET) =     25.00
  TC = 0.303*[( 1244.00**3)/(    25.00)]**.2 =   11.452
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.747
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8752
  SOIL CLASSIFICATION IS "B"
  SUBAREA RUNOFF(CFS) =     11.47
  TOTAL AREA(ACRES) =      4.77   TOTAL RUNOFF(CFS) =     11.47

****************************************************************************
  FLOW PROCESS FROM NODE     25.00 TO NODE     24.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.747
  UNDEVELOPED WATERSHED RUNOFF COEFFICIENT = .6515
  SOIL CLASSIFICATION IS "B"
  SUBAREA AREA(ACRES) =    1.37   SUBAREA RUNOFF(CFS) =    2.45
  TOTAL AREA(ACRES) =        6.1   TOTAL RUNOFF(CFS) =      13.92
  TC(MIN.) =   11.45

****************************************************************************
  FLOW PROCESS FROM NODE     24.00 TO NODE     22.00 IS CODE =  62
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STREET TABLE SECTION #  3 USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) = 1594.00  DOWNSTREAM ELEVATION(FEET) = 1590.00
  STREET LENGTH(FEET) =   699.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 67.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  55.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0150

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      17.38
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.61
    HALFSTREET FLOOD WIDTH(FEET) =   29.43
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    2.81
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.70
```

```
  STREET FLOW TRAVEL TIME(MIN.) =   4.15   Tc(MIN.) =   15.60
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.353
  COMMERCIAL DEVELOPMENT RUNOFF COEFFICIENT = .8857
  SOIL CLASSIFICATION IS "D"
  SUBAREA AREA(ACRES) =    3.32      SUBAREA RUNOFF(CFS) =    6.92
  TOTAL AREA(ACRES) =        9.5        PEAK FLOW RATE(CFS) =      20.84

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.64   HALFSTREET FLOOD WIDTH(FEET) =  32.65
  FLOW VELOCITY(FEET/SEC.) =  2.90   DEPTH*VELOCITY(FT*FT/SEC.) =   1.85
  LONGEST FLOWPATH FROM NODE     23.00 TO NODE     22.00 =    1943.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     23.00 TO NODE     22.00 IS CODE =  10
----------------------------------------------------------------------------
  >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 1 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE     20.00 TO NODE     21.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
         ASSUMED INITIAL SUBAREA UNIFORM
         DEVELOPMENT IS CONDOMINIUM
  TC = K*[(LENGTH**3)/(ELEVATION CHANGE)]**.2
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   610.00
  UPSTREAM ELEVATION(FEET) =   1612.00
  DOWNSTREAM ELEVATION(FEET) =   1604.00
  ELEVATION DIFFERENCE(FEET) =      8.00
  TC = 0.359*[(  610.00**3)/(     8.00)]**.2 =   11.115
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.789
  CONDOMINIUM DEVELOPMENT RUNOFF COEFFICIENT = .8140
  SOIL CLASSIFICATION IS "B"
  SUBAREA RUNOFF(CFS) =     16.91
  TOTAL AREA(ACRES) =      7.45   TOTAL RUNOFF(CFS) =     16.91

****************************************************************************
  FLOW PROCESS FROM NODE     21.00 TO NODE     22.00 IS CODE =  62
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STREET TABLE SECTION #  2 USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) = 1604.00  DOWNSTREAM ELEVATION(FEET) = 1590.00
  STREET LENGTH(FEET) =   621.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 33.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  22.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0150

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      24.95
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.45
    HALFSTREET FLOOD WIDTH(FEET) =   16.29
```

```
   AVERAGE FLOW VELOCITY(FEET/SEC.) =    4.50
   PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    2.04
 STREET FLOW TRAVEL TIME(MIN.) =   2.30   Tc(MIN.) =   13.41
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.538
 CONDOMINIUM DEVELOPMENT RUNOFF COEFFICIENT = .8080
 SOIL CLASSIFICATION IS "B"
 SUBAREA AREA(ACRES) =    7.84      SUBAREA RUNOFF(CFS) =   16.08
 TOTAL AREA(ACRES) =       15.3        PEAK FLOW RATE(CFS) =      32.99

 END OF SUBAREA STREET FLOW HYDRAULICS:
 DEPTH(FEET) = 0.49   HALFSTREET FLOOD WIDTH(FEET) =  18.18
 FLOW VELOCITY(FEET/SEC.) =  4.82   DEPTH*VELOCITY(FT*FT/SEC.) =   2.36
 LONGEST FLOWPATH FROM NODE     20.00 TO NODE     22.00 =    1231.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     22.00 TO NODE     22.00 IS CODE =  11
----------------------------------------------------------------------------
 >>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<
============================================================================

 ** MAIN STREAM CONFLUENCE DATA **
 STREAM     RUNOFF      Tc      INTENSITY     AREA
 NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
     1       32.99    13.41       2.538       15.29
 LONGEST FLOWPATH FROM NODE     20.00 TO NODE     22.00 =    1231.00 FEET.

 ** MEMORY BANK #  1 CONFLUENCE DATA **
 STREAM     RUNOFF      Tc      INTENSITY     AREA
 NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
     1       20.84    15.60       2.353        9.46
 LONGEST FLOWPATH FROM NODE     23.00 TO NODE     22.00 =    1943.00 FEET.

 ****************************************WARNING*****************************************
 IN THIS COMPUTER PROGRAM, THE CONFLUENCE VALUE USED IS BASED
 ON THE RCFC&WCD FORMULA OF PLATE D-1 AS DEFAULT VALUE. THIS FORMULA
 WILL NOT NECESSARILY RESULT IN THE MAXIMUM VALUE OF PEAK FLOW.
 ****************************************************************************

 ** PEAK FLOW RATE TABLE **
 STREAM    RUNOFF       Tc      INTENSITY
 NUMBER     (CFS)     (MIN.)   (INCH/HOUR)
     1      50.90      13.41        2.538
     2      51.43      15.60        2.353

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =      50.90   Tc(MIN.) =   13.41
 TOTAL AREA(ACRES) =       24.8
============================================================================
 END OF STUDY SUMMARY:
 TOTAL AREA(ACRES)     =       24.8  TC(MIN.) =     13.41
 PEAK FLOW RATE(CFS)   =      50.90
============================================================================
============================================================================
 END OF RATIONAL METHOD ANALYSIS
```

Attachment 6. NRCS Hydrologic Soil Maps



Map Scale: 1:5,730 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 50 100 200 300

Feet
0 250 500 1000 1500

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

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Soil Rating Lines

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Soil Rating Points

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Western Riverside Area, California
Survey Area Data: Version 14, Sep 13, 2021

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

Date(s) aerial images were photographed: Nov 15, 2020—Nov 19, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
GyA	Greenfield sandy loam, 0 to 2 percent slopes	A	1.8	1.3%
GyC2	Greenfield sandy loam, 2 to 8 percent slopes, eroded	A	52.3	38.0%
HcC	Hanford coarse sandy loam, 2 to 8 percent slopes	A	75.5	54.8%
RaB2	Ramona sandy loam, 2 to 5 percent slopes, eroded	C	7.9	5.8%
RaB3	Ramona sandy loam, 0 to 5 percent slopes, severely eroded	C	0.3	0.2%
Totals for Area of Interest			**137.9**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Attachment 7. Reference Downstream System Maps

SITE
Unlined Channel, Since Lined
COTTONWOOD AVE.
BAY AVE.
ALESSANDRO BLVD.
BRODIAEA AVE.
CACTUS AVE.
IRIS AVE.
JOHN F. KENNEDY DR.
DAVIS RD.
REDLANDS BLVD.
CITY LIMITS
LINE J
LINE H
LINE F
LINE G
LINE I
PROPOSED LINE F-2 TO REPLACE EXISTING LINE F-2
CACTUS BASIN
J-2
J-3
J-4
J-5
J-6
J-7
J-8
J-9
J-10
H-1
H-1a
H-2
H-3
H-4
H-5
H-5a
H-6
H-7
H-8
H-9
H-10
H-11
G-8
G-9
G-10
G-11
F-2
F-3
F-4
F-5
F-6
F-7
F-8
F-9
F-11
F-13
F-14
F-18
F-19
E-5
E-6
E-7
E-8
E-10
SCALE 1"=800'
LEGEND
DRAINAGE BOUNDARY
PROPOSED STORM DRAIN
PROPOSED OPEN CHANNEL
EXISTING FACILITY
Q=10 10 YEAR FLOW IN CFS
Q=100 100 YEAR FLOW IN CFS
NOTES
1. ADOPTED IN OCTOBER 1980
2. REVISION #1 IN APRIL 1991
3. REVISION #2 IN PROGRESS
RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
MORENO
MASTER DRAINAGE PLAN
ADOPTED OCTOBER 1980
REVISION NO. 2 APRIL 2015

EMWD HydroMapper

emwd

N W E S

Legend

- Wtr Interagency Tie
- Wtr Main
  - As Built
  - CIP
- Wtr Main Abandoned
- Swr Interagency Tie
- Swr Main
  - As Built, Collection
  - As Built, Distribution
  - As Built, Effluent Force
  - As Built, Influent Force
  - As Built, Transmission
  - CIP, Collection
  - CIP, Effluent Force
  - CIP, Influent Force
  - CIP, Transmission
- Swr Main Abandoned
- Swr Main Murrieta
- Streets
- Wtr Pump Station
- Wtr Pump Station Polygon
- Wtr Service Sampling Static
- Wtr Tank
- Wtr Well
- Wtr Treatment Plant
- Wtr Treatment Plant Polygc
- MWD Connections
- MWD Canals
- Swr Lift Station
- Swr Lift Station Polygon
- Swr Treatment Plant
- EMWD District Boundary
- EMWD Main Office
- EMWD Sites
- Highway
- EMWD Parcel Lines
  - Lot
  - ROW
- EMWD Parcel Polygons

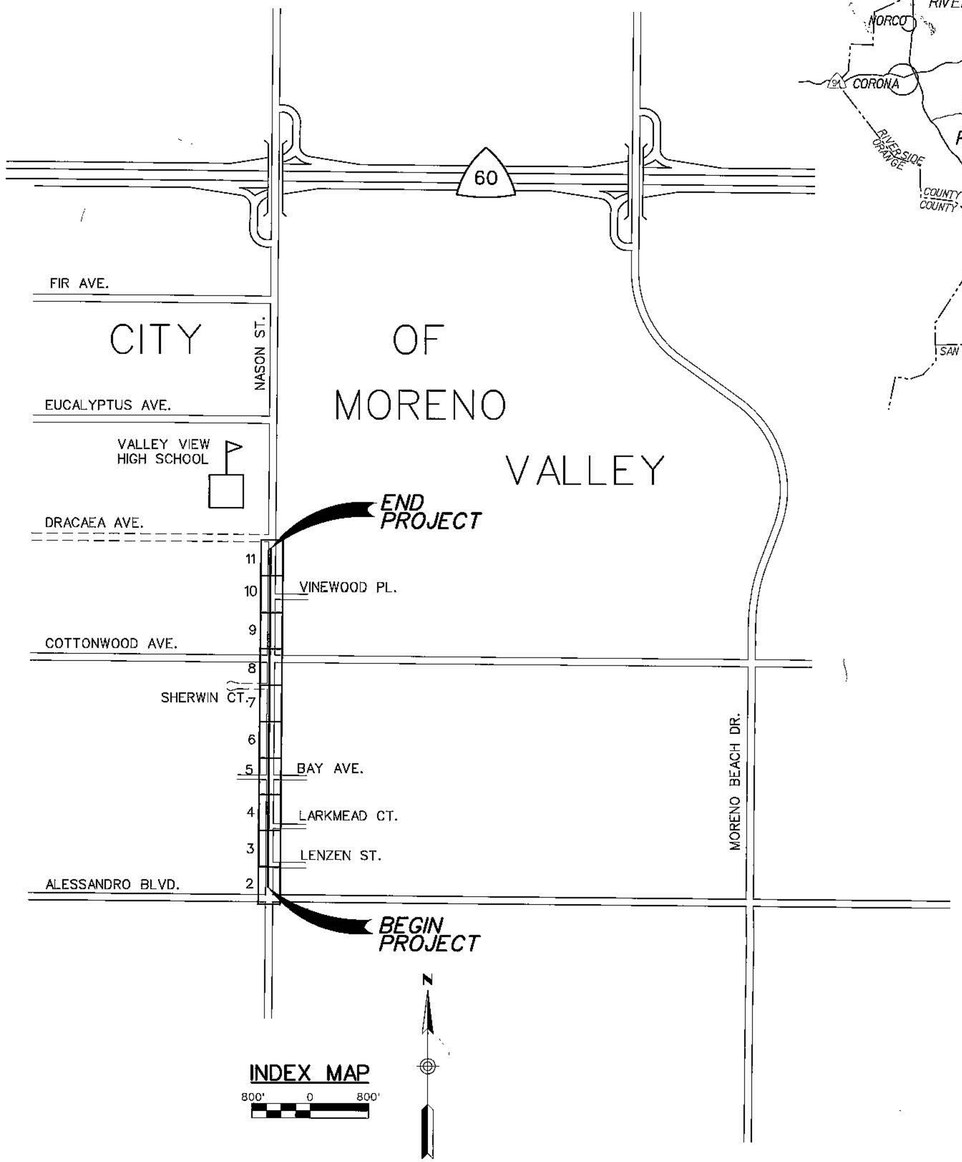
Notes

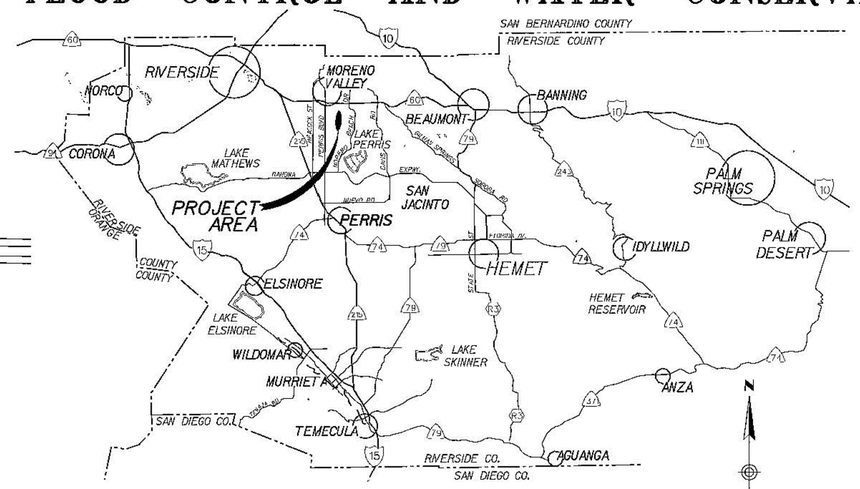
SCALE 1: 1,876

0 0 Miles

Map Produced 05/12/2021 By EMWD Staff © EMWD

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT





VICINITY MAP
NTS

GENERAL NOTES

1. ALL STATIONING REFERS TO CENTERLINE OF CONSTRUCTION.
2. ALL CHANNEL/STORM DRAIN REFERENCES AND CROSS SECTIONS ARE TAKEN LOOKING DOWNSTREAM.
3. TOPOGRAPHY BY DIGITAL PHOTOGRAMMETRIC METHODS. AERIAL PHOTOGRAPHS TAKEN AT AN ALTITUDE NOT TO EXCEED A FLYING HEIGHT TO CONTOUR INTERVAL RATIO OF 1800. PHOTOGRAPHY DATED 1-18-95. THE EXISITING TOPOGRAPHY MAY BE DIFFERENT THAN AS SHOWN ON THE DRAWINGS.
4. THE VERTICAL DATUM IS DERIVED FROM NAVD 88. THE HORIZONTAL DATUM IS DERIVED FROM NAD 83.
5. STANDARD DRAWINGS CALLED FOR ON THE PLAN & PROFILE SHALL CONFORM TO R.C.F.C. & W.C.D. STD. DRAWINGS, OR CALTRANS/CITY/ COUNTY STANDARD PLANS.
6. ELEVATIONS AND LOCATIONS OF UTILITIES WERE OBTAINED FROM AVAILABLE INFORMATION AND ARE SHOWN APPROXIMATELY ON THESE PLANS. 48 HOURS BEFORE EXCAVATION CALL UNDERGROUND SERVICE ALERT AT 1-800-227-2600. ALL UTILITIES SHALL BE PROTECTED IN PLACE EXCEPT AS NOTED ON PLANS AND SPECIFICATIONS..
7. THE CONTRACTOR IS REQUIRED TO CONTACT ALL UTILITY AGENCIES REGARDING TEMPORARY SUPPORT AND SHORING REQUIREMENTS FOR THE VARIOUS UTILITY LINES SHOWN ON THESE PLANS.
8. ALL OPENINGS RESULTING FROM CUTTING OR PARTIAL REMOVAL OF EXIST. CULVERTS, PIPES, OR SIMILAR STRUCTURES TO BE ABANDONED, SHALL BE SEALED AT BOTH ENDS WITH 6" MIN. CLASS "B" CONCRETE.
9. STREET RECONSTRUCTION SHALL BE 0.40' TYPE 'B' ASPHALT CONCRETE OVER COMPACTED NATIVE MATERIAL.
10. ALL RECONSTRUCTION, RESURFACING AND PAVEMENT DELINEATION, CURBS, SIDEWALKS AND OTHER IMPROVEMENTS ARE TO BE RECONSTRUCTED IN KIND AT THE SAME LOCATIONS AND ELEVATIONS AS THE EXISTING IMPROVEMENTS, UNLESS OTHERWISE NOTED.
11. ⊕ INDICATES APPROX. SOIL BORING LOCATION PER SOILS REPORT DATED 03/10/97.
12. FOR COMPLETE RIGHT-OF-WAY AND TEMPORARY EASEMENT REFER TO DRAWING No. 4-736T.
13. TEMPORARY ASPHALT CONCRETE, 3 INCHES THICK, SHALL BE PLACED AND MAINTAINED WHENEVER EXCAVATION IS MADE THROUGH PAVEMENT.

INDEX

	SHEET NO.:
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CONNECTOR PIPE AND MISCELLANEOUS DETAILS	12
TRAFFIC CONTROL PLAN	13

R.C.F.C. & W.C.D. STANDARD DRAWINGS

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MH252	MANHOLE NO. 2	16
MH255	MANHOLE FRAME & COVER NON-ROCKING	17
MH257	MANHOLE SHAFT FOR CAST PIPE	18
MH259	STANDARD DROP STEP	19
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M814	ABBREVIATIONS AND SYMBOLS	21
M815	BEDDING AND PAY LINES	22
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REGISTERED PROFESSIONAL ENGINEER — MICHAEL D. RAWSON — No. 35332 Exp. 9-30-99 — CIVIL — STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER — DAVID P. LAPPE — No. 22035 Exp. 9-30-01 — CIVIL — STATE OF CALIFORNIA

AS BUILT
APPROVED BY:
DATE 2/20/02

CITY OF MORENO VALLEY APPROVED BY: CITY ENGINEER DATE: 9/9/98	Don't Dig...Until You Call U.S.A. Toll Free 1-800-227-2600 for the location of buried utility lines. Don't disrupt vital services. TWO WORKING DAYS BEFORE YOU DIG	BENCH MARK RIV. CO. B.M. M-40-4 (RESET 1976) BRASS DISK IN CONCRETE POST STAMPED M-40-4 AT THE SOUTHEAST CORNER OF NASON ST. AND ALLESSANDRO BLVD. ELEV.-1590.938	REVISIONS REF. / DESCRIPTION / APPR. / DATE	RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT DESIGNED BY: E. RUSSELL DRAWN BY: M. UPTON DATE DRAWN: AUGUST 1998 CHECKED BY: Kang RECOMMENDED FOR APPROVAL BY: Michael D. Rawson, DESIGN ENGINEER R.E. No. 35332, DATE: 9/10/98 APPROVED BY: David Lappe, CHIEF ENGINEER R.E. No. 22035, DATE: 9/14/98	MORENO MDP LINE I STAGE 2 TITLE SHEET	PROJECT NO. 4-0-0762 DRAWING NO. 4-738 SHEET NO. 1 OF 27

NOTE: CONTRACTOR SHALL PROTECT IN PLACE ALL UTILITIES CROSSING OR PARALLELING THE STORM DRAIN UNLESS OTHERWISE NOTED.

68+00 69+00 70+00

STA. 68+73.33 ① ℄ MH NO. 2

EX. GROUND

APPROX ELEVATION OF UNMARKED, NOT ON PLANS GTE XING, 3.5'

MATCH LINE

WS

⑦ 36" RCP STA 68+73.33

S=0.008

S=0.022

S=0.0195

EX. 18" (VCP)

1580.60

1576.20 GB

1576.00 GB

1575.9±

STA. 68+15 GRADE BREAK

STA. 68+71 MEET EXISTING

STA. 68+75.67

STA. 69+00

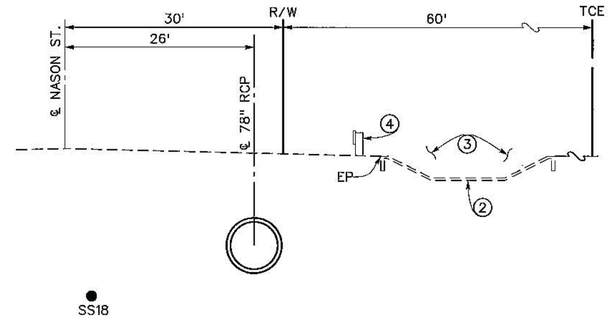
EXISTING 84" RCP 1300D PER RCFC DRAWING NO. 4-647

224.33 L.F. ~ 78" RCP 1500D

STA. 71+00

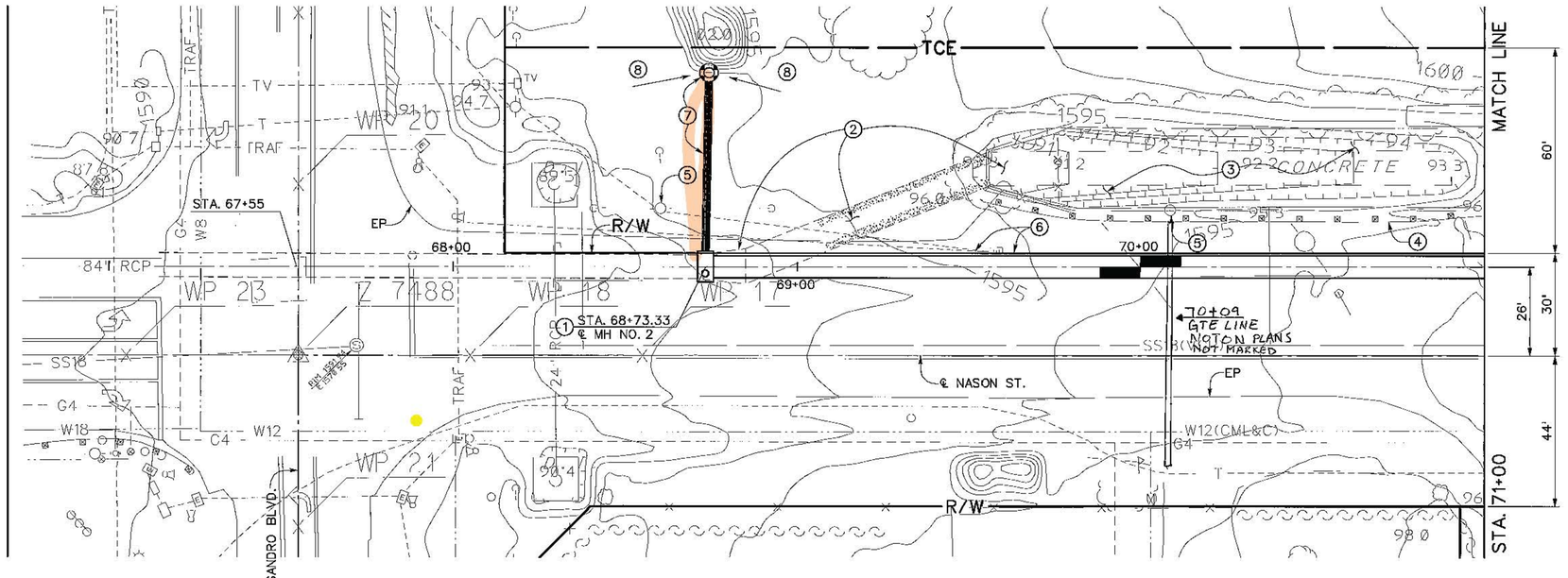
HYDRAULIC DATA
Q_{100} = 650 cfs
V_{100} = 24.6 fps

1595 1590 1585 1580 1575 1570 1565



SECTION AT STA 70+00

10' 0 10'



NOTES

① CONSTRUCT MANHOLE NO. 2 PER STD. MH252.

② REMOVE EXISTING TRANSITION STRUCTURE, 108" CMP, CONCRETE INLET AND CHANNEL.

③ FILL DITCH AND GRADE AS DIRECTED BY THE ENGINEER.

④ REMOVE EXISTING GUARD RAIL.

⑤ PROTECT POWER POLE IN PLACE.

⑥ REMOVE AND REPLACE EXISTING 1.5" CONDUIT AND DLC FOR TRAFFIC SIGNAL. OK TO LEAVE OUT PER CITY MEMO

⑦ INSTALL 36" RCP AND TYPE IX INLET PER DETAIL SHEET 12

⑧ GRADE TO DRAIN

20' 0 20'

REGISTERED PROFESSIONAL ENGINEER MICHAEL D. RAWSON No. 35332 Exp. 9-30-99 CIVIL STATE OF CALIFORNIA

AS BUILT
APPROVED BY:
DATE 9/16/98

BENCH MARK

REVISIONS

REF.	DESCRIPTION	APPR.	DATE

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

DESIGNED BY: E. RUSSELL
DRAWN BY: M. UPTON
DATE DRAWN: AUGUST 1998
CHECKED BY:

RECOMMENDED FOR APPROVAL BY:
DESIGN ENGINEER R.E. No. 35332
DATE:

APPROVED BY:
CHIEF ENGINEER R.E. NO. 22035
DATE: 9/14/98

MORENO MDP LINE I

STAGE 2

STA. 68+71 TO STA. 71+00

PROJECT NO. 4-0-0762
DRAWING NO. 4-738
SHEET NO. 2 OF 27

NOTE: CONTRACTOR SHALL PROTECT IN PLACE ALL UTILITIES CROSSING OR PARALLELING THE STORM DRAIN UNLESS OTHERWISE NOTED.

72+00 73+00 74+00

MATCH LINE — STA. 71+00 — MATCH LINE — STA. 75+00

STA 71+22± ℄ 78" RCP
℄ LENZEN ST.

STA 72+82.00 ①
STA 72+78.00
℄ MH NO. 2

EX. GROUND

APPROX ELEVATION 4'
UNMARKED, NOTON PLANS

WS

S=0.022

EX. 18" (VCP)

1589.40

1584.46

1584.57

1580.60

STA 72+79.67
STA 72+75.67

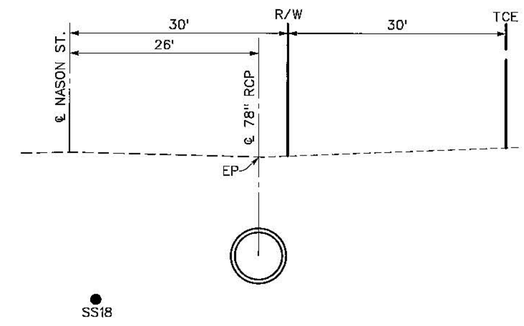
STA 72+80.34
STA 72+91.34

HYDRAULIC DATA
Q_{100} = 650 cfs
V_{100} = 24.6 fps

175.67 L.F. ~ 78" RCP 1500D

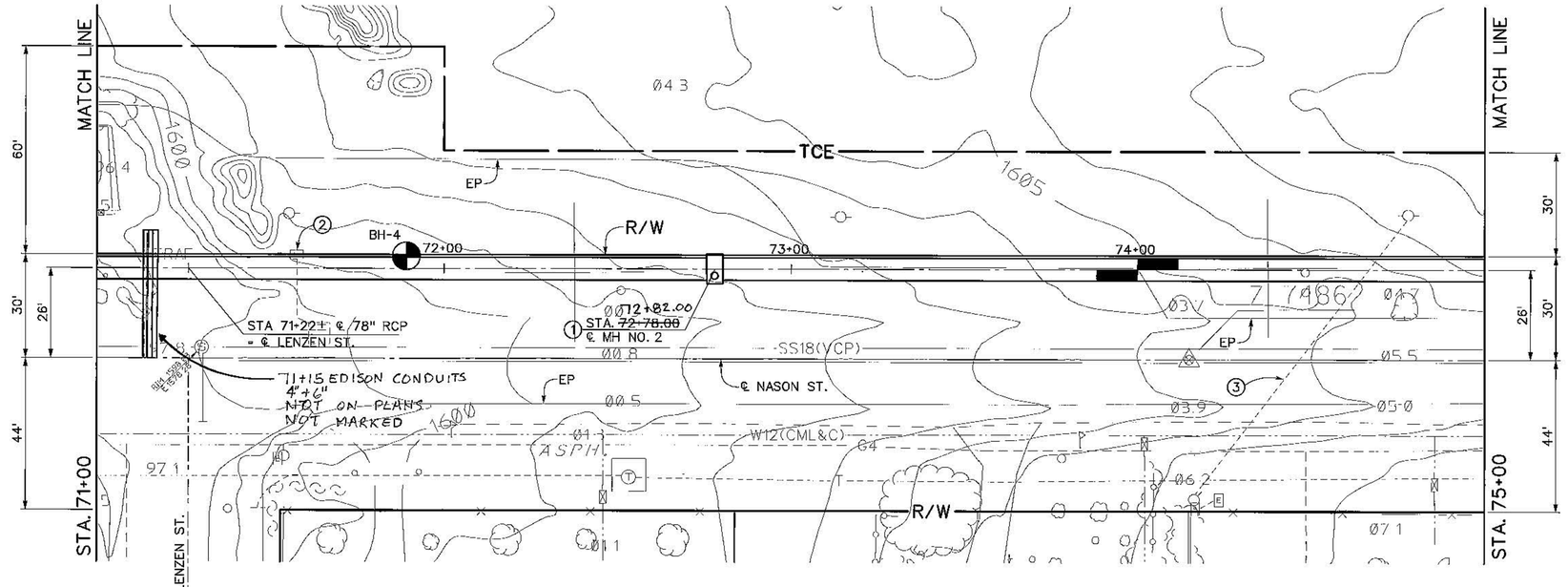
219.66 L.F. ~ 78" RCP 1500D

1605 1600 1595 1590 1585 1580 1575



SECTION AT STA 74+00

10' 0 10'



NOTES

① CONSTRUCT MANHOLE NO. 2 PER STD. MH252.

② REMOVE AND REPLACE EXISTING 1.5" CONDUIT AND DLC FOR TRAFFIC SIGNAL.

③ CAUTION! OVERHEAD LINE

20' 0 20'

REGISTERED PROFESSIONAL ENGINEER — MICHAEL D. RAWSON — No. 35332 Exp. 9-30-99 — CIVIL — STATE OF CALIFORNIA

AS BUILT
APPROVED BY:
DATE 2/22/00

BENCH MARK

REVISIONS			
REF.	DESCRIPTION	APPR.	DATE
⚠	CHANGE STATIONING		

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

DESIGNED BY: E. RUSSELL
DRAWN BY: M. UPTON
DATE DRAWN: AUGUST 1998
CHECKED BY: Kong

RECOMMENDED FOR APPROVAL BY: Michael D Rawson
DESIGN ENGINEER R.E. No. 35332
DATE: 9/14/98

APPROVED BY: David Zapp
CHIEF ENGINEER R.E. NO. 22035
DATE: 9/14/98

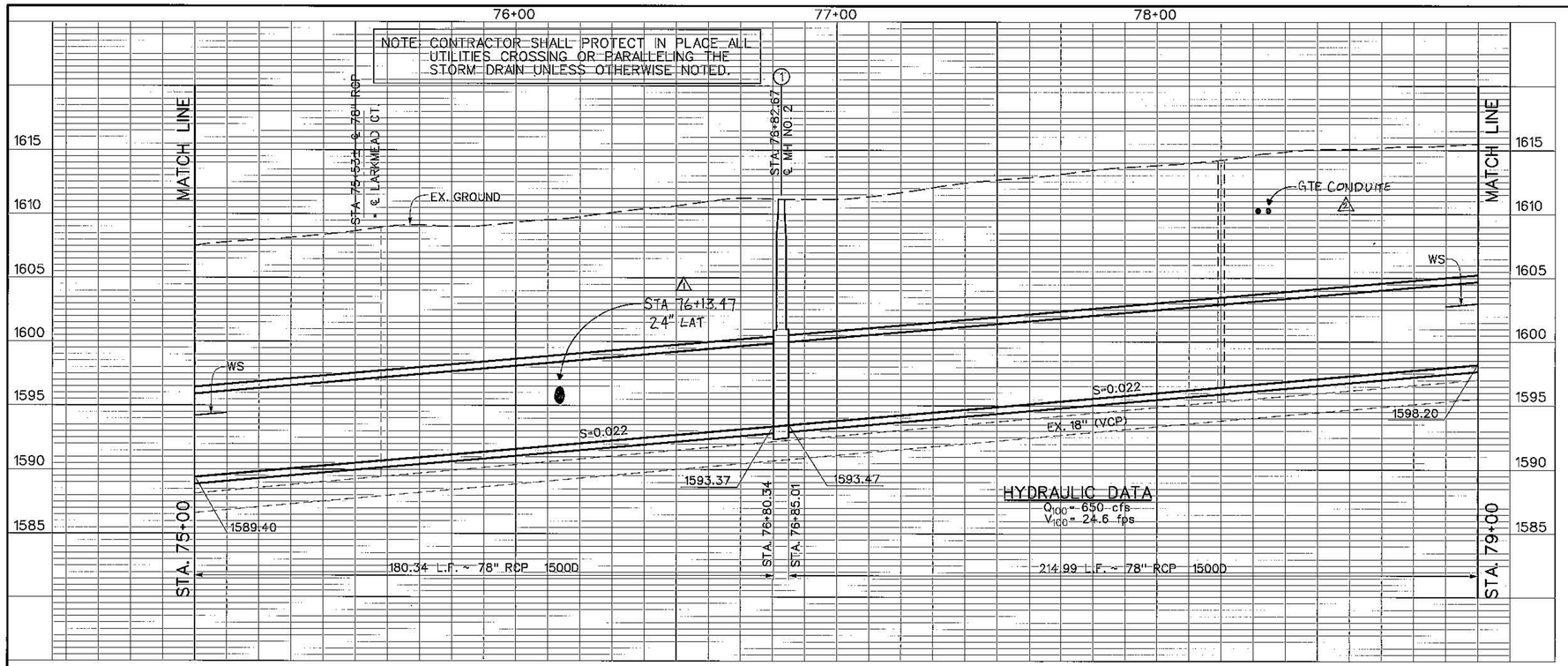
MORENO MDP LINE I

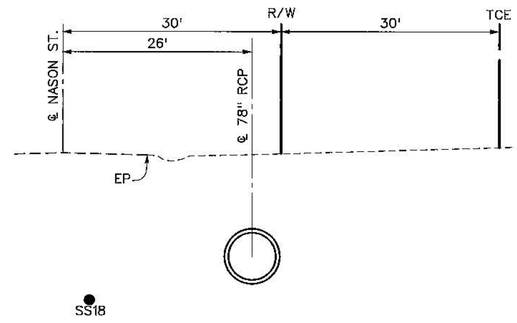
STAGE 2

STA. 71+00 TO STA. 75+00

PROJECT NO. 4-0-0762
DRAWING NO. 4-738
SHEET NO. 3 OF 27

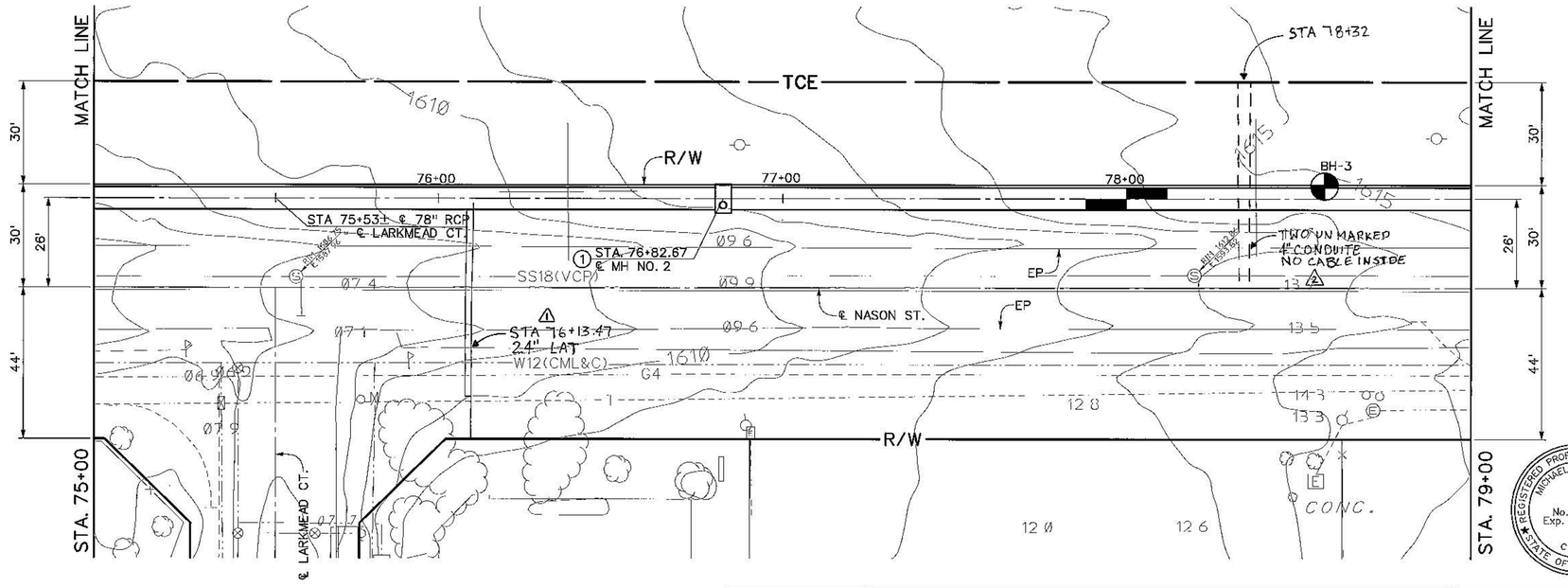
NOTE: CONTRACTOR SHALL PROTECT IN PLACE ALL UTILITIES CROSSING OR PARALLELING THE STORM DRAIN UNLESS OTHERWISE NOTED.





SECTION AT STA 78+00

10' 0 10'



NOTES

① CONSTRUCT MANHOLE NO. 2 PER STD. MH252.

REGISTERED PROFESSIONAL ENGINEER MICHAEL D. RAWSON No. 35332 Exp. 9-30-99 CIVIL STATE OF CALIFORNIA

AS BUILT
APPROVED BY:
DATE 3/20/02

20' 0 20'

BENCH MARK

REVISIONS			
REF.	DESCRIPTION	APPR.	DATE
1	ADD 24" RCP		
2	ADD GTE CABLE		

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

DESIGNED BY: E. RUSSELL
DRAWN BY: M. UPTON
DATE DRAWN: AUGUST 1998
CHECKED BY: Kong

RECOMMENDED FOR APPROVAL BY: DESIGN ENGINEER R.E. No. 35332 DATE: 9/10/98

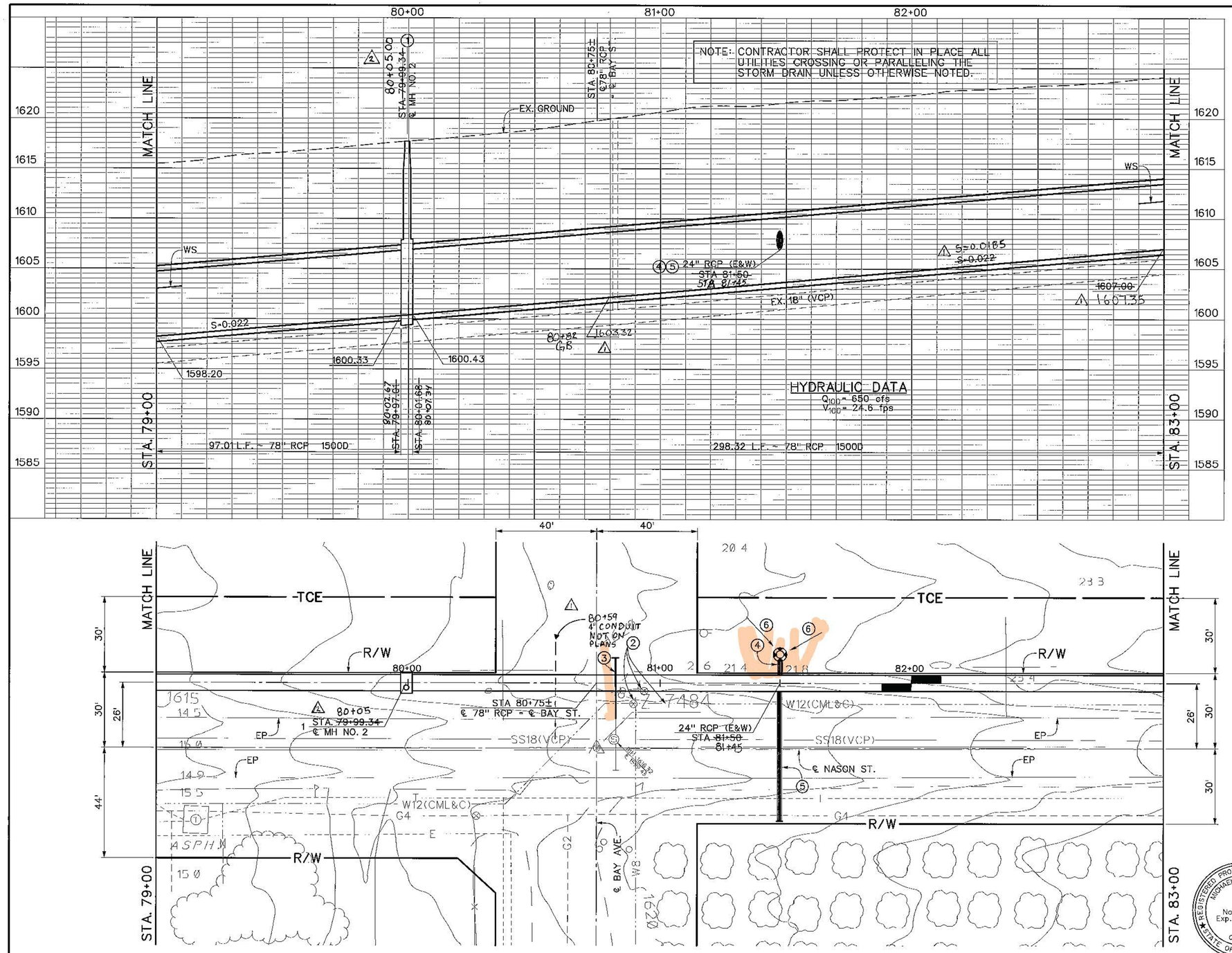
APPROVED BY: CHIEF ENGINEER R.E. NO. 22035 DATE: 9/14/98

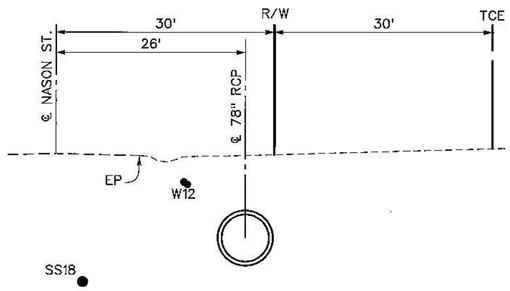
MORENO MDP LINE I

STAGE 2

STA. 75+00 TO STA. 79+00

PROJECT NO. 4-0-0762
DRAWING NO. 4-738
SHEET NO. 4 OF 27





SECTION AT STA 82+00

10' 0 10'

NOTES

1. CONSTRUCT MANHOLE NO. 2 PER STD. MH252.
2. PROTECT VALVES AND WATERLINE.
3. INSTALL 10" SEWER STUB OUT PER DETAIL SHEET 12
4. INSTALL 24" RCP AND TYPE IX INLET PER DETAIL SHEET 12
5. INSTALL 24" RCP AND BULKHEAD PER DETAIL SHEET 12
6. GRADE TO DRAIN

REGISTERED PROFESSIONAL ENGINEER MICHAEL D. RAWSON No. 35332 Exp. 9-30-99 CIVIL STATE OF CALIFORNIA

AS BUILT
APPROVED BY:
DATE 4/6/00

20' 0 20'

BENCH MARK

REVISIONS			
⚠	REVISE S.D. PROFILE		
⚠	REVISE MH LOCATION		
REF.	DESCRIPTION	APPR.	DATE

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

DESIGNED BY: E. RUSSELL
DRAWN BY: M. UPTON
DATE DRAWN: AUGUST 1998
CHECKED BY: Kong

RECOMMENDED FOR APPROVAL BY: Michael D. Rawson
DESIGN ENGINEER R.E. No. 35332
DATE: 9/10/98

APPROVED BY:
CHIEF ENGINEER R.E. No. 22035
DATE: 9/14/98

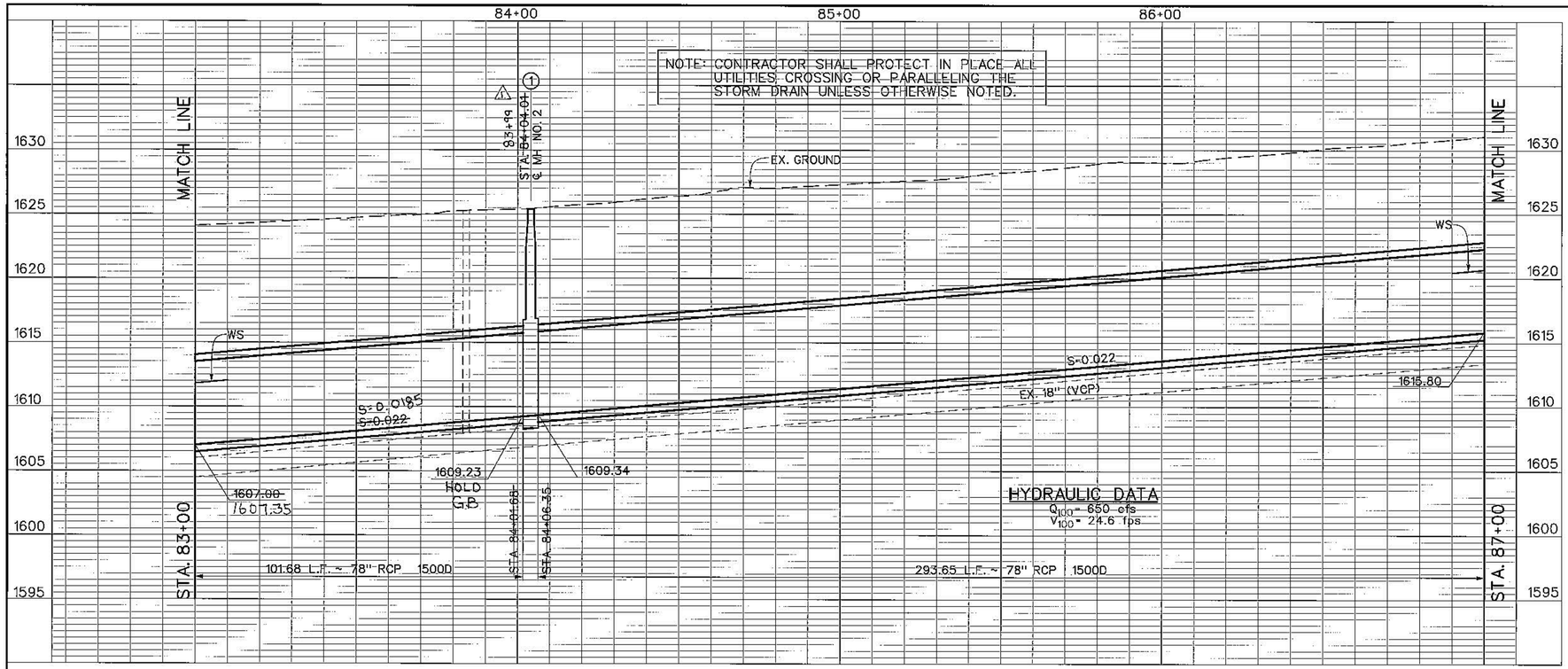
MORENO MDP LINE I

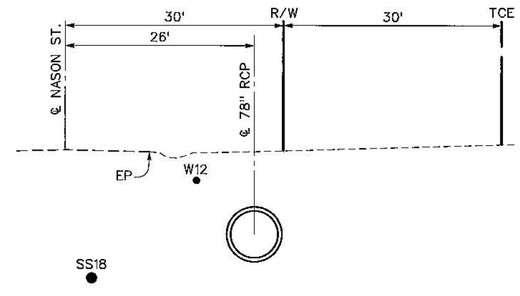
STAGE 2

STA. 79+00 TO STA. 83+00

PROJECT NO. 4-0-0762
DRAWING NO. 4-738
SHEET NO. 5 OF 27

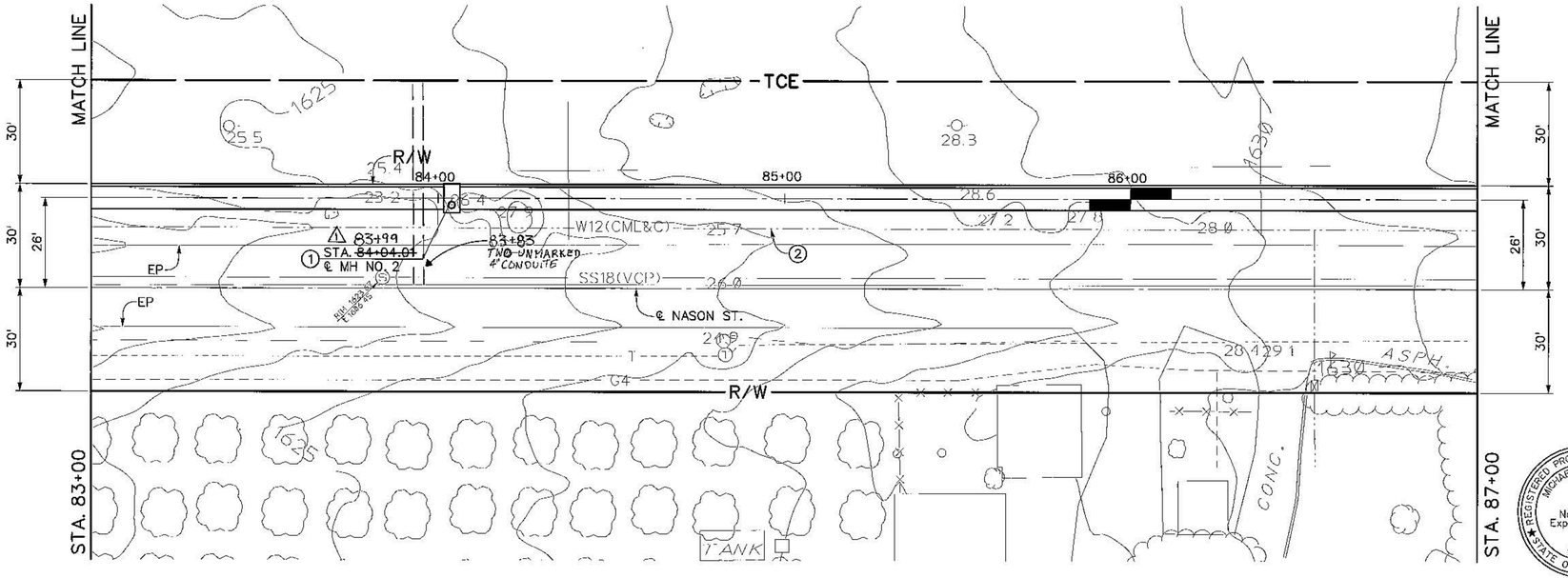
NOTE: CONTRACTOR SHALL PROTECT IN PLACE ALL UTILITIES CROSSING OR PARALLELING THE STORM DRAIN UNLESS OTHERWISE NOTED.





SECTION AT STA 86+00

10' 0 10'



NOTES

1. CONSTRUCT MANHOLE NO. 2 PER STD. MH252.
2. PROTECT WATERLINE

REGISTERED PROFESSIONAL ENGINEER
MICHAEL D. RAWSON
No. 35332
Exp. 9-30-99
CIVIL
STATE OF CALIFORNIA

AS BUILT

APPROVED BY:

DATE 4/16/02

20' 0 20'

BENCH MARK

REVISIONS			
REF.	DESCRIPTION	APPR.	DATE
1	REVISED MH LOCATION		

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

DESIGNED BY: E. RUSSELL
DRAWN BY: M. UPTON
DATE DRAWN: AUGUST 1998
CHECKED BY: Kevg

RECOMMENDED FOR APPROVAL BY: Michael D. Rawson, DESIGN ENGINEER R.E. No. 35332, DATE: 9/10/98

APPROVED BY: David Zeppa, CHIEF ENGINEER R.E. No. 22035, DATE: 9/14/98

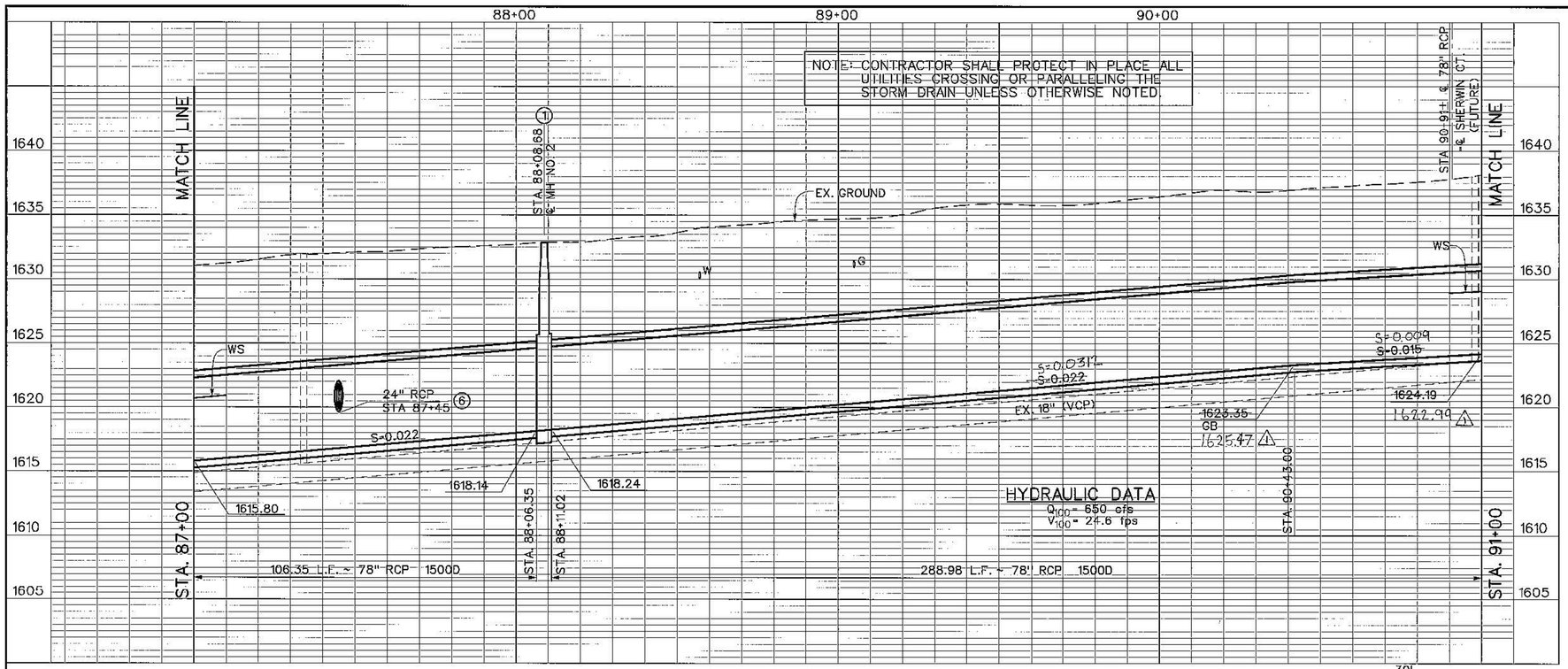
MORENO MDP LINE I

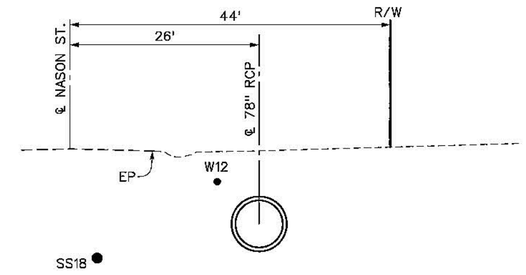
STAGE 2

STA. 83+00 TO STA. 87+00

PROJECT NO. 4-0-0762
DRAWING NO. 4-738
SHEET NO. 6 OF 27

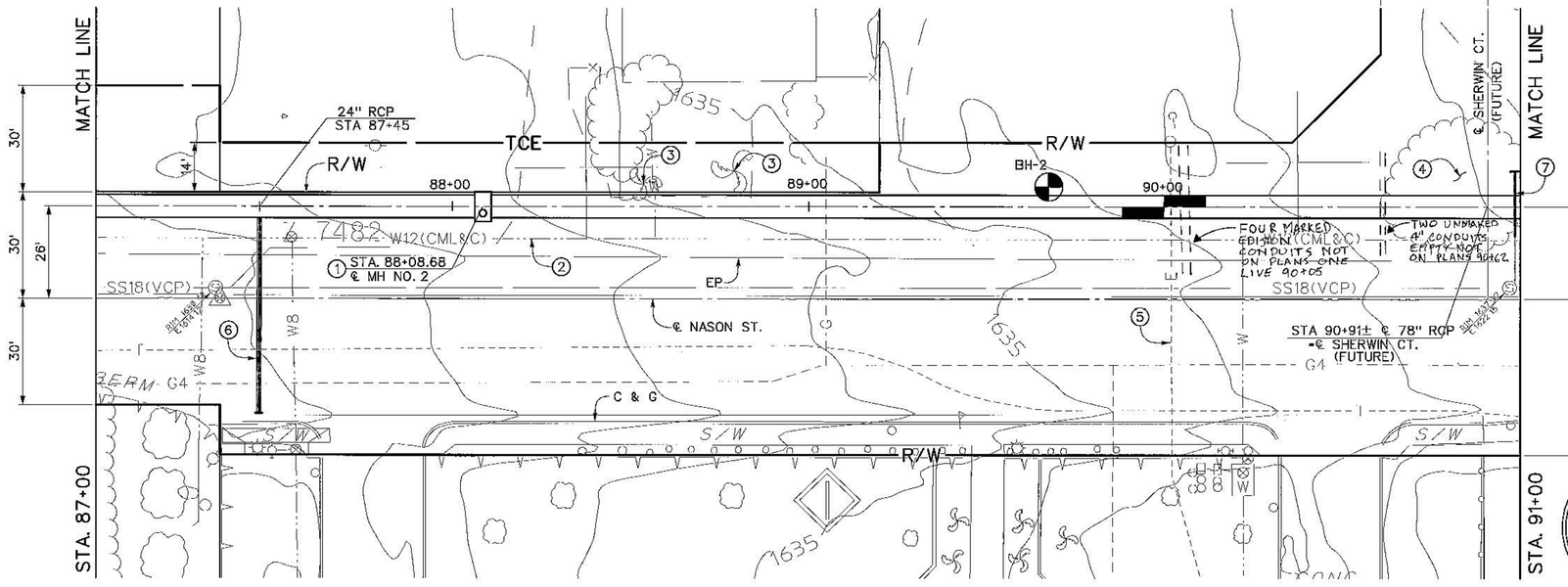
NOTE: CONTRACTOR SHALL PROTECT IN PLACE ALL UTILITIES CROSSING OR PARALLELING THE STORM DRAIN UNLESS OTHERWISE NOTED.





SECTION AT STA 90+00

10' 0 10'



NOTES

1. CONSTRUCT MANHOLE NO. 2 PER STD. MH252.
2. PROTECT WATERLINE.
3. REMOVE PALM TREE.
4. REMOVE TREE.
5. CAUTION ! OVERHEAD LINES
6. INSTALL 24" RCP AND BULKHEAD PER DETAIL SHEET 12
7. INSTALL 8" SEWER STUB OUT PER DETAIL SHEET 12

REGISTERED PROFESSIONAL ENGINEER MICHAEL D. RAWSON No. 35332 Exp. 9-30-99 CIVIL STATE OF CALIFORNIA

AS BUILT

APPROVED BY: _____

DATE 4/20/98

20' 0 20'

BENCH MARK

REVISIONS			
⚠	REVISE S.D. PROFILE		
REF.	DESCRIPTION	APPR.	DATE

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

DESIGNED BY: E. RUSSELL
DRAWN BY: M. UPTON
DATE DRAWN: AUGUST 1998
CHECKED BY: Kong

RECOMMENDED FOR APPROVAL BY: Michael D. Rawson
DESIGN ENGINEER R.E. No. 35332
DATE: 9/10/98

APPROVED BY: David Zepeda
CHIEF ENGINEER R.E. No. 22035
DATE: 9/14/98

MORENO MDP LINE I

STAGE 2

STA. 87+00 TO STA. 91+00

PROJECT NO. 4-0-0762
DRAWING NO. 4-738
SHEET NO. 7 OF 27

NOTE: CONTRACTOR SHALL PROTECT IN PLACE ALL UTILITIES CROSSING OR PARALLELING THE STORM DRAIN UNLESS OTHERWISE NOTED.

WARNING!!!
30" HIGH PRESSURE GAS LINE
EXTREME CAUTION SHOULD BE EXERCISED WHEN WORKING IN THIS AREA. NOTIFY MR. MIKE EDSON (909) 845-0709 OF SOUTHERN CALIFORNIA GAS COMPANY, 48 HOURS IN ADVANCE OF EXCAVATION.

92+00 93+00 94+00

MATCH LINE — STA. 91+00 — MATCH LINE — STA. 95+00

STA 91+97.35 ℄ MH NO. 2

STA 93+95± ℄ 78" RCP - ℄ COTTONWOOD AVE

MH 93+97

94+28 24" LAT

EX. GROUND

TOP 1640.34 (POTHOLED)

G30 G2

W24 WS

24" RCP (E&W) STA 94+70

S=0.021

EX. 18" (VCP) 1634.48

24" RCP STA 93+70

S=0.015

1632.70 GB

1628.70 GB

0.009 S=0.015

1625.62 1625.69 1624.19

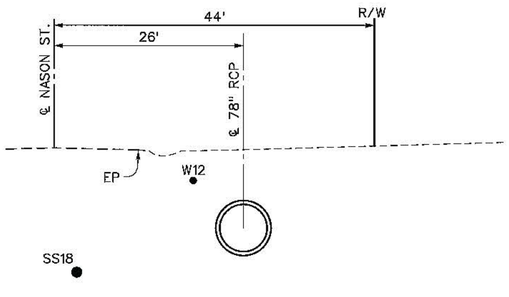
95.02 L.F. ~ 78" RCP 1500D

STA 91+95.02 STA 91+99.69 STA 94+00 STA 94+16

300.31 L.F. ~ 78" RCP 1500D

1650 1645 1640 1635 1630 1625 1620 1615

HYDRAULIC DATA
Q_{100} = 650 cfs
V_{100} = 24.3 fps



SECTION AT STA 93+00

10' 0 10'

WARNING!!!
30" HIGH PRESSURE GAS LINE
EXTREME CAUTION SHOULD BE EXERCISED WHEN WORKING IN THIS AREA. NOTIFY MR. MIKE EDSON (909) 845-0709 OF SOUTHERN CALIFORNIA GAS COMPANY, 48 HOURS IN ADVANCE OF EXCAVATION.

30' 44' 40'

℄ SHERWIN CT. (FUTURE)

MATCH LINE — STA. 91+00 — MATCH LINE — STA. 95+00

R/W R/W TCE

92+00 93+00 94+00

24" RCP STA 93+70 95+67.

MH 93+97 94+28 24" LAT

STA 91+97.35 ℄ MH NO. 2

W12(CML&C) WP 16 WP 15 WP 14 WP 13 WP 10

EP SS18(VCP) 24" RCP STA 94+70

℄ NASON ST. EP

STA 93+94.75 ℄ 78" RCP - ℄ COTTONWOOD AVE.

IRRIGATION VALVE

℄ COTTONWOOD AVE.

26' 44' 20' 26' 30' 44'

NOTES

1. CONSTRUCT MANHOLE NO. 2 PER STD. MH252.
2. PROTECT W24 IN PLACE. POTHOLE TO VERIFY LOCATION PRIOR TO CONSTRUCTION.
3. REMOVE PALM TREE.
4. PROTECT IN PLACE.
5. PROTECT VALVE
6. CONSTRUCT CONCRETE COLLAR PER STD. M803.
7. INSTALL 24" RCP AND BULKHEAD PER DETAIL SHEET 12
8. INSTALL 10" SEWER STUB OUT PER DETAIL SHEET 12
9. PROTECT WATERLINE

REGISTERED PROFESSIONAL ENGINEER MICHAEL D. RAWSON No. 35332 Exp. 9-30-99 CIVIL STATE OF CALIFORNIA

AS BUILT
APPROVED BY:
DATE 9/16/98

20' 0 20'

BENCH MARK

REVISIONS			
1	CHANGE SLOPE		
2	ALCHANGE MH LOCATION		
3	ADDED 24 INCH LATERAL		
REF.	DESCRIPTION	APPR.	DATE

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

DESIGNED BY: E. RUSSELL
DRAWN BY: M. UPTON
DATE DRAWN: AUGUST 1998
CHECKED BY: Kong

RECOMMENDED FOR APPROVAL BY: Michael D Rawson
DESIGN ENGINEER R.E. No. 35332
DATE: 9/10/98

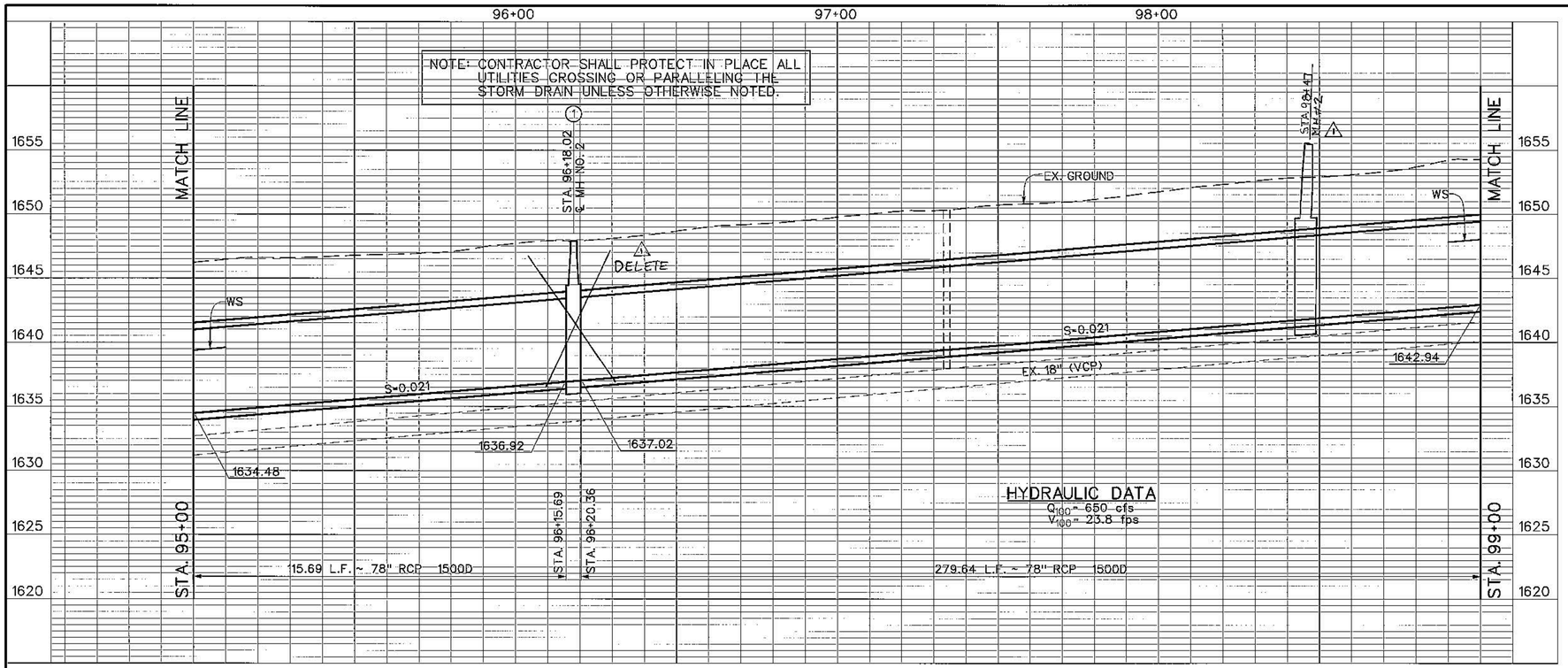
APPROVED BY: David Zapp
CHIEF ENGINEER R.E. No. 22035
DATE: 9/14/98

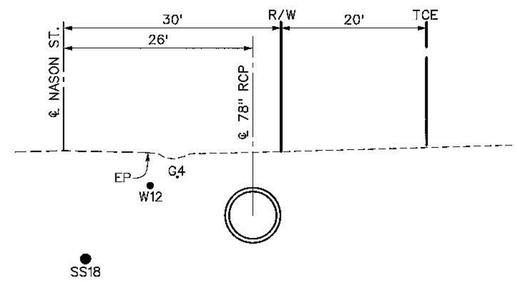
MORENO MDP LINE I

STAGE 2

STA. 91+00 TO STA. 95+00

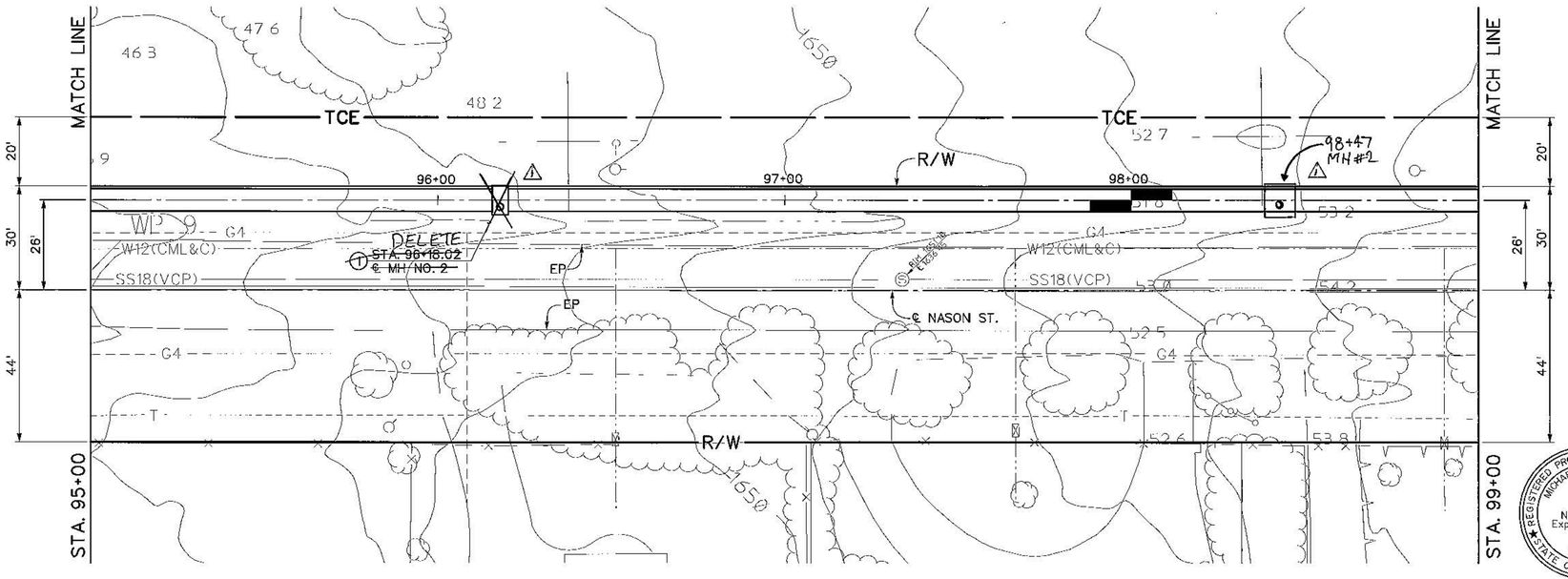
PROJECT NO. 4-0-0762
DRAWING NO. 4-738
SHEET NO. 8 OF 27





SECTION AT STA 98+00

10' 0 10'



NOTES

(1) CONSTRUCT MANHOLE NO. 2 PER STD. MH252.

REGISTERED PROFESSIONAL ENGINEER MICHAEL D. RAWSON No. 35332 Exp. 9-30-99 CIVIL STATE OF CALIFORNIA

AS BUILT
APPROVED BY:
DATE 2-10-02

20' 0 20'

BENCH MARK

REVISIONS			
⚠	CHANGE MH#2 LOCATION		
REF.	DESCRIPTION	APPR.	DATE

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

DESIGNED BY: E. RUSSELL
DRAWN BY: M. UPTON
DATE DRAWN: AUGUST 1998
CHECKED BY: Kong

RECOMMENDED FOR APPROVAL BY: Michael D. Rawson
DESIGN ENGINEER R.E. No. 35332
DATE: 9/14/98

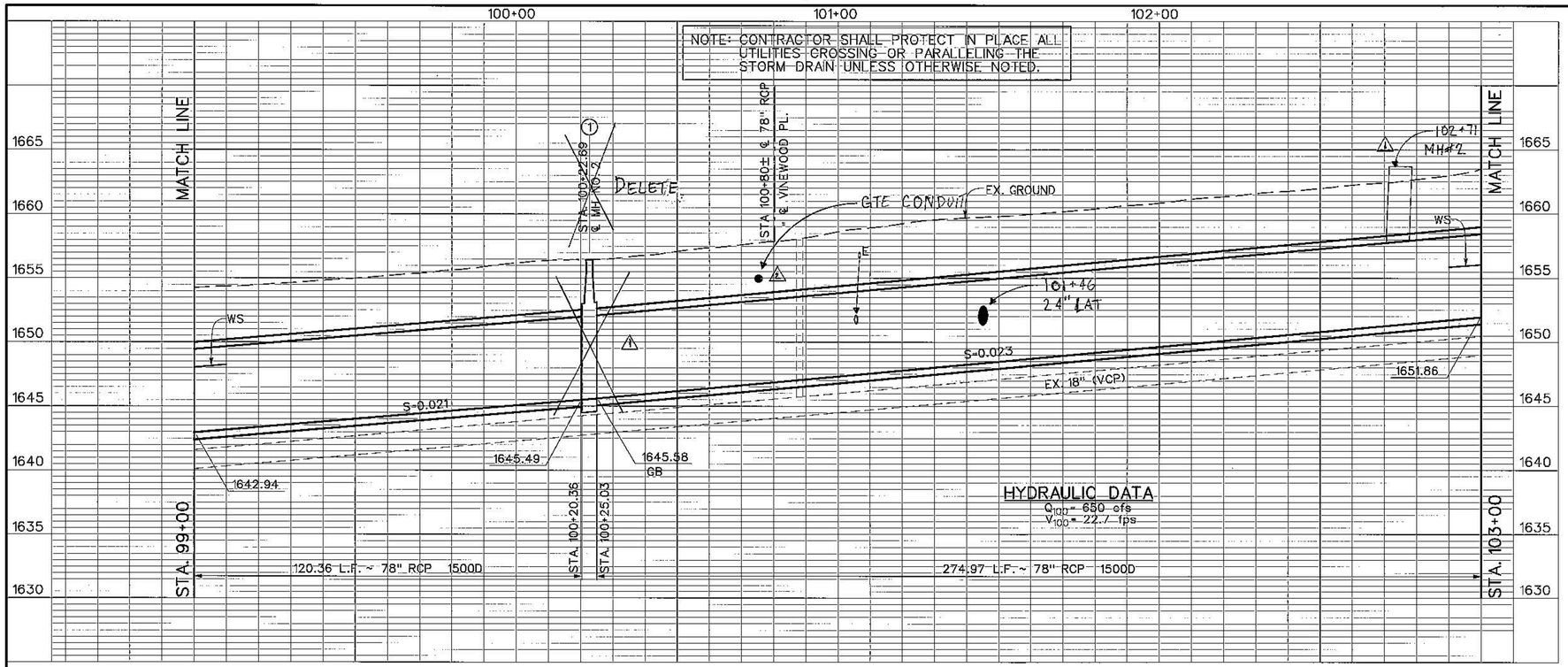
APPROVED BY:
CHIEF ENGINEER R.E. NO. 22035
DATE: 9/14/98

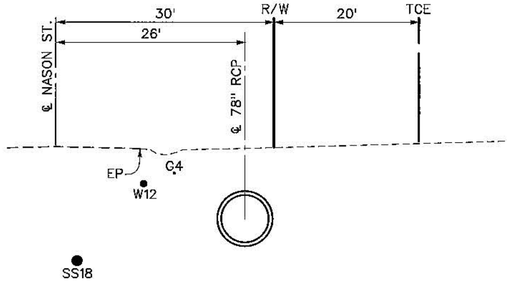
MORENO MDP LINE I

STAGE 2

STA. 95+00 TO STA. 99+00

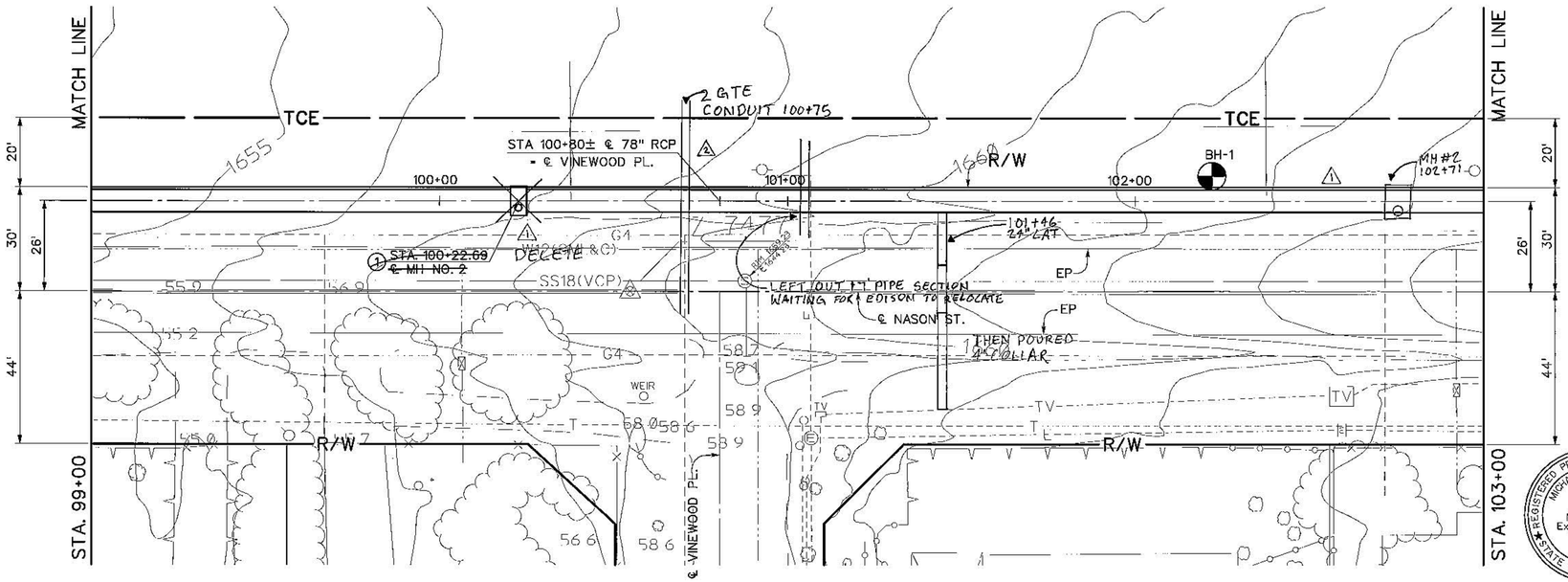
PROJECT NO. 4-0-0762
DRAWING NO. 4-738
SHEET NO. 9 OF 27





SECTION AT STA 102+00

10' 0 10'



NOTES

① CONSTRUCT MANHOLE NO. 2 PER STD. MH252.

REGISTERED PROFESSIONAL ENGINEER MICHAEL D. RAWSON No. 35332 Exp. 9-30-99 CIVIL STATE OF CALIFORNIA

AS BUILT
APPROVED BY: [signature]
DATE 9/14/98

20' 0 20'

BENCH MARK	REVISIONS			RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT			MORENO MDP LINE I	PROJECT NO. 4-0-0762
	⚠ CHANGE MH LOCATION			DESIGNED BY: E. RUSSELL	RECOMMENDED FOR APPROVAL BY: [signature] DESIGN ENGINEER R.E. No. 35332 DATE: 9/14/98	APPROVED BY: [signature] CHIEF ENGINEER R.E. NO. 22035 DATE: 9/14/98	STAGE 2	DRAWING NO. 4-738
	⚠ ADD GTE LINE			DRAWN BY: M. UPTON			STA. 99+00 TO STA. 103+00	SHEET NO. 10 OF 27
				DATE DRAWN: AUGUST 1998				
				CHECKED BY: Kang				
	REF.	DESCRIPTION	APPR. DATE					

104+00 105+00 106+00

NOTE: CONTRACTOR SHALL PROTECT IN PLACE ALL UTILITIES CROSSING OR PARALLELING THE STORM DRAIN UNLESS OTHERWISE NOTED.

MATCH LINE

STA. 103+00

1675 1670 1665 1660 1655 1650 1645 1640

STA. 104+27.36 ℄ MH NO. 2

DELETE

EX. GROUND

WS

S=0.023

EX. 18" (VCP)

1651.86

1654.85

1654.95

STA. 104+25.03

STA. 104+29.70

125.03 L.F. ~ 78" RCP 1500D

HYDRAULIC DATA
Q_{100} = 650 cfs
V_{100} = 22.7 fps

DELETE EAST LAT

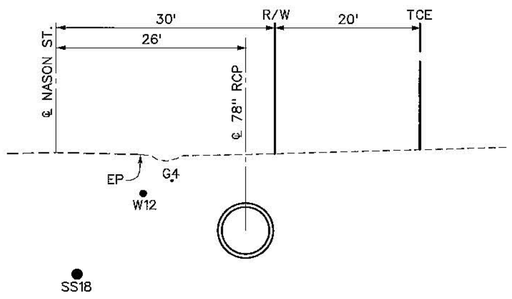
24" RCP (E&W)
STA ~~105+95~~ 105+83

1658.9±

STA 106+00 MEET EXISTING

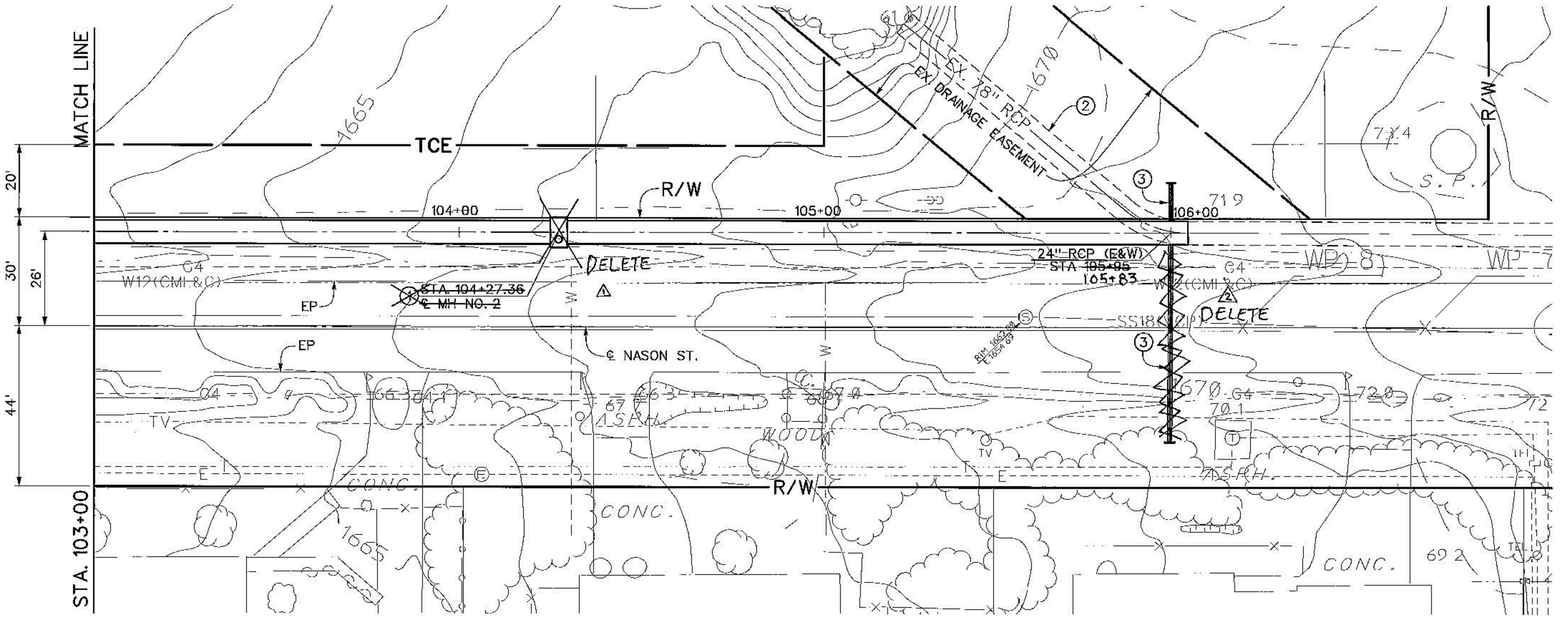
170.30 L.F. ~ 78" RCP 1500D

EXISTING 78" RCP 1200D
PER RCFC DRAWING NO. 4-583



SECTION AT STA 105+00

10' 0 10'



NOTES

1. CONSTRUCT MANHOLE NO. 2 PER STD. MH252.
2. REMOVE EXISTING 78" RCP. FILL TRENCH AND GRADE AS DIRECTED BY THE ENGINEER.
3. INSTALL 24" RCP AND BULKHEAD PER DETAIL SHEET 12
   DELETE EAST LAT

REGISTERED PROFESSIONAL ENGINEER
MICHAEL D. RAWSON
No. 35332
Exp. 9-30-99
CIVIL
STATE OF CALIFORNIA

AS BUILT
APPROVED BY:
DATE 1/6/00

20' 0 20'

BENCH MARK

REVISIONS			
⚠ DELETE MH			
⚠ DELETE EAST LAT			
REF.	DESCRIPTION	APPR.	DATE

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

DESIGNED BY: E. RUSSELL
DRAWN BY: M. UPTON
DATE DRAWN: AUGUST 1998
CHECKED BY: Kong

RECOMMENDED FOR APPROVAL BY: Michael D. Rawson
DESIGN ENGINEER R.E. No. 35332
DATE: 9/19/98

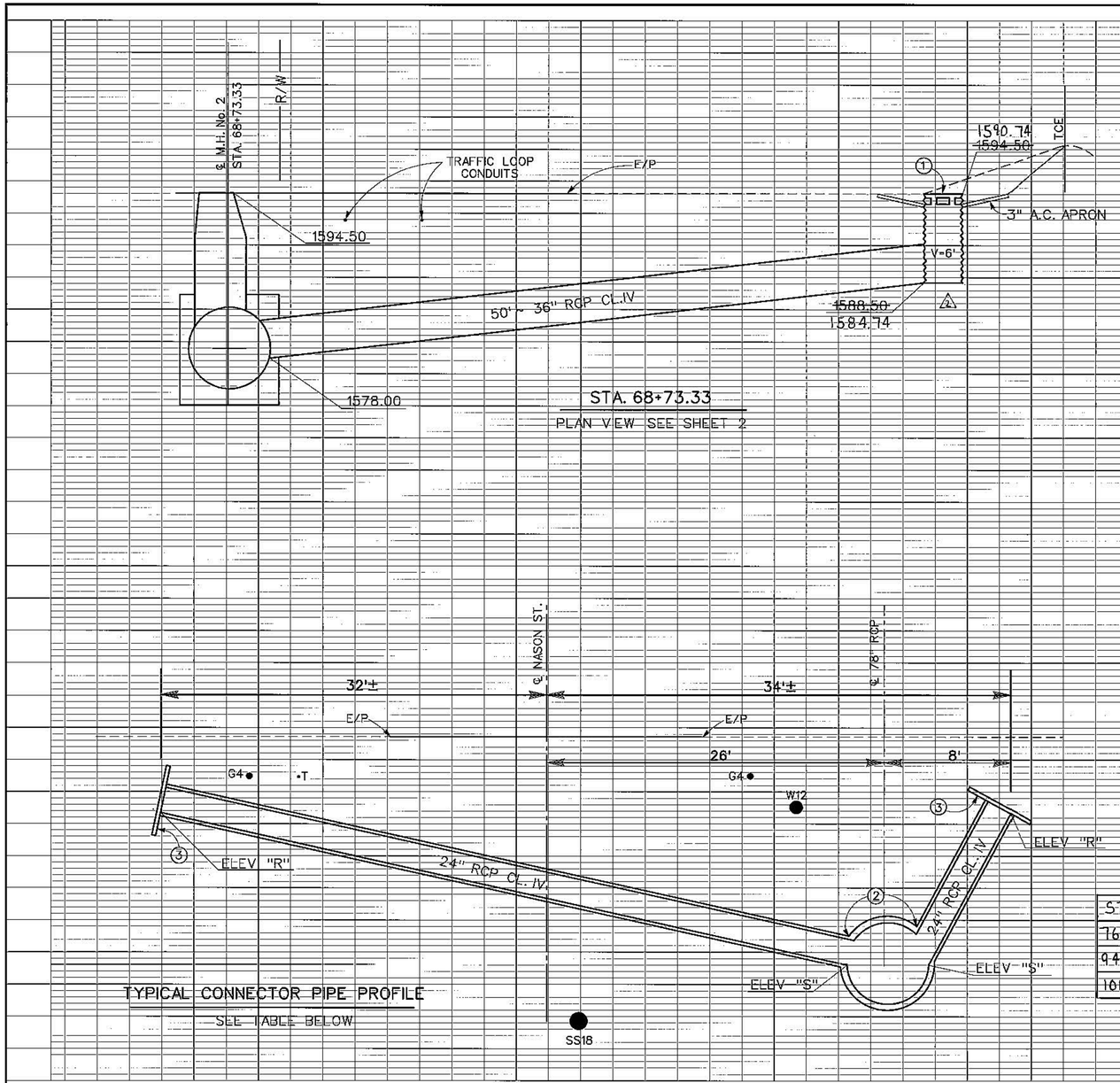
APPROVED BY:
CHIEF ENGINEER R.E. NO. 22035
DATE: 9/19/98

MORENO MDP LINE I

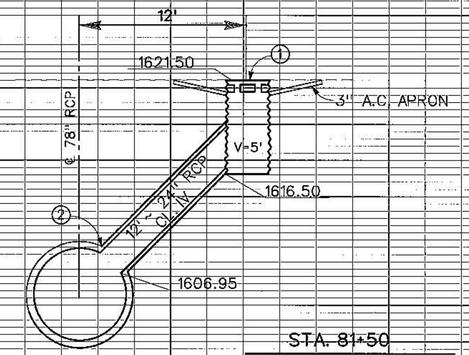
STAGE 2

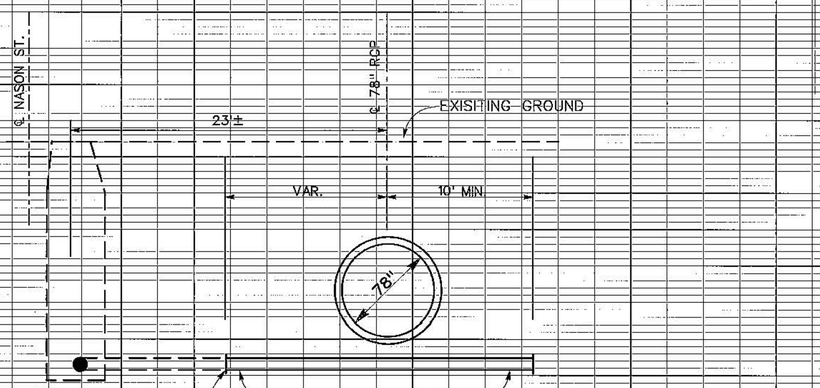
STA. 103+00 TO STA. 106+00

PROJECT NO. 4-0-0762
DRAWING NO. 4-738
SHEET NO. 11 OF 27



TYPICAL CONNECTOR PIPE PROFILE
SEE TABLE BELOW





TYPICAL SEWER STUB OUT EXTENSION
PLAN VIEW SEE SHEET 5, 7 AND 8

STATION	PLAN SHEET	LATERAL PIPE LENGTH	EAST OR WEST	MAINLINE FLOW LINE	ELEV."S"	ELEV."R"	LATERAL SLOPE
76+13.47	4	54'	EAST	1591.90	1595.15	1603.21	0.15
94+28	8	20'	WEST	1632.94	1636.20	1638.90	0.14
101+47	10	54'	EAST	1648.34	1651.59	1653.73	0.04

NOTES

1. INSTALL TYPE IX INLET PER STD CB107.
2. CONSTRUCT JUNCTION STRUCTURE NO. 4 PER STD JS229.
3. CONSTRUCT 42" X 42" X 4" BULKHEAD PER STD M816.
4. REMOVE EXISTING PLUG AND INSTALL SAME SIZE AND MATERIAL TYPE AS EXISTING STUB OUT. MATCH EXSITING SLOPE. INSTALL NEW PLUG

5' 0 5'

STATION	PLAN SHEET	LATERAL PIPE LENGTH	EAST OR WEST	MAINLINE FLOW LINE	ELEV."S"	ELEV."R"	LATERAL SLOPE
81+50	2	52'	EAST	1603.70	1606.95	1615.70	0.16
87+45	7	54'	EAST	1616.79	1620.04	1626.00	0.11
93+70	8	8'	WEST	1628.24	1631.49	1639.00	0.93
94+70	8	8'	WEST	1633.85	1637.10	1641.00	0.48
94+70	8	54'	EAST	1633.85	1637.10	1641.00	0.07
105+95	11	8'	WEST	1658.78	1662.03	1666.50	0.55
105+95	11	54'	EAST	1658.78	1662.03	1664.50	0.04

REGISTERED PROFESSIONAL ENGINEER
MICHAEL D. RAWSON
No. 35332
Exp. 9-30-99
CIVIL
STATE OF CALIFORNIA

AS BUILT
APPROVED BY:
DATE 2/10/00

CITY OF MORENO VALLEY
APPROVED BY:
CITY ENGINEER
DATE: 9/9/98

EASTERN MUNICIPAL WATER DISTRICT
Victor J. Barreto 8/27/98
VICTOR J. BARRETO R.E. NO. 41759 DATE

APPROVALS	INITIAL	DATE
PROJECT ENG		
INSPECTION		
WTR. OPERATIONS		
SWR. OPERATIONS		

BENCH MARK

REVISIONS

REF.	DESCRIPTION	APPR.	DATE
1	ADD TO TABLE		
2	CHANGE ELEVATIONS		

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

DESIGNED BY: E. RUSSELL
DRAWN BY: M. UPTON
DATE DRAWN: Aug, 1998
CHECKED BY: Rong

RECOMMENDED FOR APPROVAL BY:
DESIGN ENGINEER R.E. No. 35332
DATE: 9/14/98

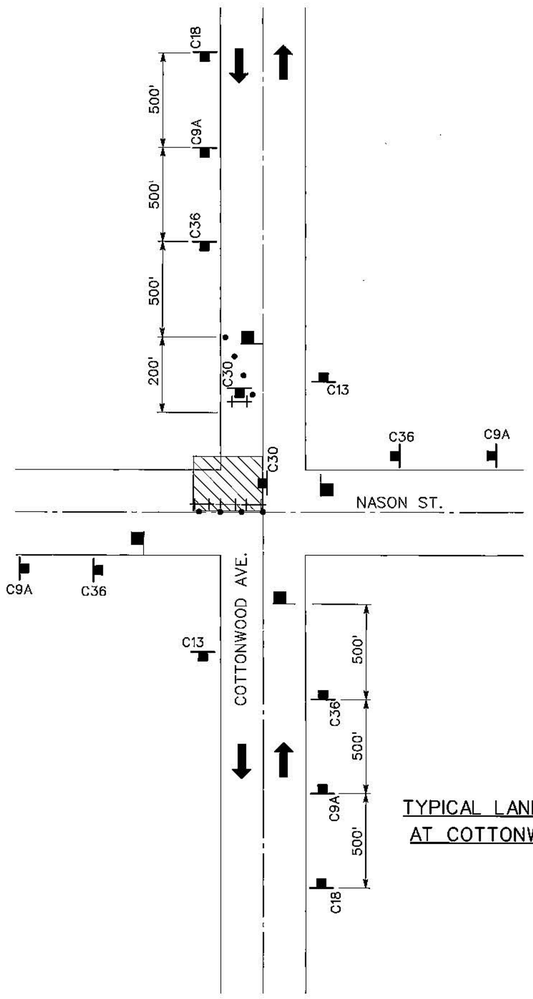
APPROVED BY:
CHIEF ENGINEER R.E. NO. 22035
DATE: 9/14/98

MORENO MDP LINE I

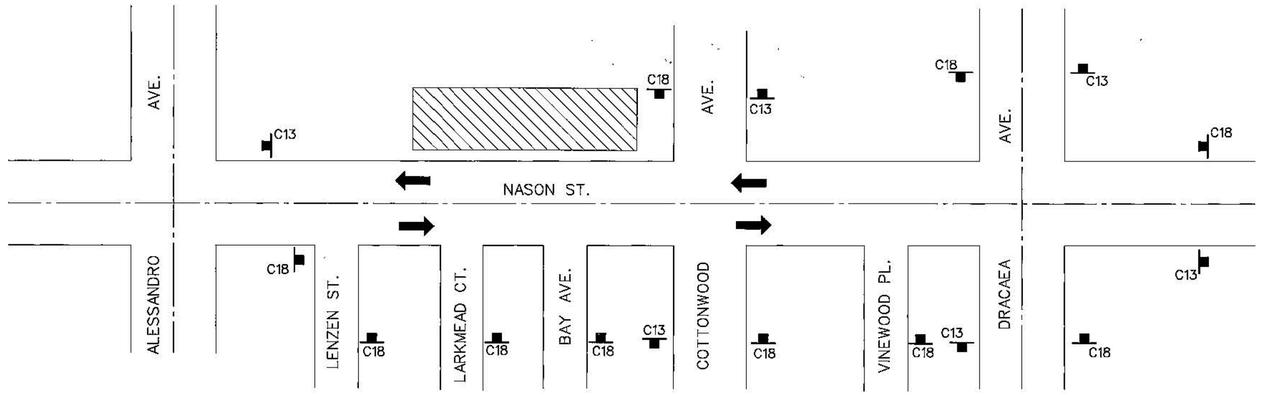
STAGE 2

CONNECTOR PIPE AND MISC. DETAILS

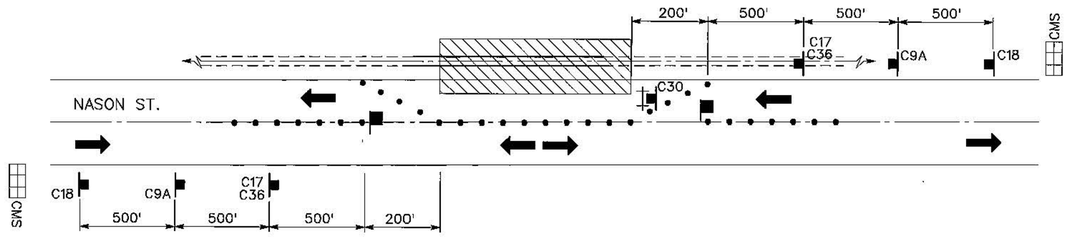
PROJECT NO. 4-0-0762
DRAWING NO. 4-738
SHEET NO. 12 OF 27



TYPICAL LANE CLOSURE
AT COTTONWOOD AVE.



TYPICAL ADVANCE SIGNING



TYPICAL LANE CLOSURE

LEGEND

	CONSTRUCTION SIGNS
	FLAGGER
++	TYPE III BARRICADE
•	CONE OR DELINEATOR
	DIRECTION OF TRAVEL
	CONSTRUCTION AREA
	(CMS) CHANGEABLE MESSAGE SIGN
C9A	FLAGGER (SYMBOL)
C13	END CONSTRUCTION
C18	ROAD CONSTRUCTION AHEAD
C30	LANE CLOSED
C36	PREPARE TO STOP
C17	25MPH SPEED LIMIT

GENERAL NOTES

1. THESE ARE MINIMUM TRAFFIC CONTROL REQUIREMENTS. ADDITIONAL MEASURES SHALL BE TAKEN TO ENSURE PUBLIC SAFETY AND TRAFFIC FLOW IF DEEMED NECESSARY BY THE ENGINEER.
2. ALL SIGNING, STRIPING, PAVEMENT MARKINGS, BARRICADES AND OTHER TRAFFIC CONTROL MEASURES USED ON THE CONSTRUCTION SITE SHALL BE IN COMPLIANCE WITH CAL-TRANS "MANUAL ON TRAFFIC CONTROLS, 1990", "UNIFORM SIGN CHART, 1990" AND WITH ALL OTHER APPLICABLE FEDERAL, STATE, AND LOCAL LAWS.
3. ALL SIGNS, ROADSIDE MARKERS, ELECTROLIERS, ETC., SHALL BE PROTECTED AND/OR REPLACED IN KIND ACCORDING TO THE CURRENT STATE STANDARD PLANS AND THE CURRENT TRAFFIC MANUAL.
4. ALL ADVANCE WARNING SIGNS USED DURING THE HOURS OF DARKNESS SHALL BE ILLUMINATED OR REFLECTORIZED.
5. ALL WORK SHALL BE PERFORMED BETWEEN THE HOURS STATED IN THE ENCROACHMENT PERMIT. ALL TRENCHES SHALL BE BACKFILLED AT THE END OF EACH WORK DAY AND THE STREET OPENED TO TRAFFIC FOR BOTH DIRECTIONS DURING HOURS OF DARKNESS.
6. THROUGHOUT EACH WORK PERIOD, CONTRACTOR SHALL INSPECT TRAFFIC CONTROL (SIGNS, BARRICADES, AND DELINEATORS) AND MAINTAIN SAME IN ACCORDANCE WITH TRAFFIC CONTROL PLANS.
7. ALL FLAGGERS SHALL BE TRAINED AND THEIR SOLE DUTY SHALL BE TRAFFIC CONTROL. ALL FLAGGERS SHALL COMMUNICATE WITH EACH OTHER BY RADIO. ALL FLAGGERS SHALL WEAR REFLECTIVE GEAR.
8. CONTRACTOR SHALL MAINTAIN A 12' MINIMUM LANE WIDTH AT ALL TIMES.
9. ACCESS TO PRIVATE PROPERTY SHALL BE MAINTAINED AT ALL TIMES.
10. THERE SHALL BE A MINIMUM DISTANCE OF 5' BETWEEN ANY OPEN TRENCH AND THE NEAREST TRAFFIC LANE.

REGISTERED PROFESSIONAL ENGINEER
MICHAEL D. RAWSON
No. 35332
Exp. 6-30-99
CIVIL
STATE OF CALIFORNIA

NTS

CITY OF MORENO VALLEY
APPROVED BY:
CITY ENGINEER
DATE: 9/9/98

Don't Dig...Until You Call U.S.A. Toll Free
1-800-227-2600
for the location of buried utility lines.
Don't disrupt vital services.
BURIED CABLE
TWO WORKING DAYS BEFORE YOU DIG

BENCH MARK

REVISIONS			
REF.	DESCRIPTION	APPR.	DATE

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

DESIGNED BY: E. RUSSELL
DRAWN BY: M. UPTON
DATE DRAWN: Aug. 1998
CHECKED BY: Kong

RECOMMENDED FOR APPROVAL BY:
DESIGN ENGINEER R.E. No. 35332
DATE: 9/9/98

APPROVED BY:
CHIEF ENGINEER R.E. NO. 22035
DATE: 9/14/98

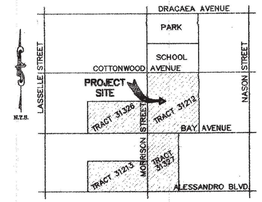
MORENO MDP LINE I

STAGE 2

TRAFFIC CONTROL PLAN

PROJECT NO. 4-0-0762
DRAWING NO. 4-738
SHEET NO. 13 OF 27

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT



VICINITY MAP
N.T.S.

INDEX MAP
N.T.S.

INDEX

	SHEET No.
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LINE J-3 PLAN AND PROFILE	9 – 10
LINE J-4 PLAN AND PROFILE	11 – 12
LINE J-2 AND PROFILE	13 – 14
LINE J-4A & J-4E PLAN AND PROFILE	15
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LATERAL J-3C-1, & J-3C-2	24

UNDERGROUND SERVICE ALERT
CALL TOLL FREE: (800) 422-4133
TWO WORKING DAYS BEFORE YOU DIG

GENERAL NOTES

1. THE CONTRACTOR SHALL CONSTRUCT THE FLOOD CONTROL IMPROVEMENTS SHOWN ON THE DRAWINGS IN CONFORMANCE WITH THE REQUIREMENTS OF THE RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT'S M.O.U. STANDARD SPECIFICATIONS DATED SEPTEMBER, 1984 AND DESIGN MANUAL STANDARD DRAWINGS DATED APRIL, 2004.
2. AN ENCROACHMENT PERMIT MAY BE REQUIRED FROM RIVERSIDE COUNTY FLOOD CONTROL. CONTACT ED LOTZ AT (951) 955–1266. AFTER THE PERMIT IS ISSUED, THE DISTRICT MUST BE NOTIFIED ONE WEEK PRIOR TO CONSTRUCTION.
3. CONSTRUCTION INSPECTION WILL BE PERFORMED BY RIVERSIDE COUNTY FLOOD CONTROL. CONTACT DALE ANDERSON AT (951) 955–1288. THE DISTRICT MUST BE NOTIFIED 20 DAYS PRIOR TO CONSTRUCTION.
4. ALL STATIONING REFERS TO CENTERLINE OF CONSTRUCTION UNLESS OTHERWISE NOTED.
5. STATIONING FOR LATERALS AND CONNECTOR PIPE REFER TO THE CENTERLINE INTERSECTION STATIONS.
6. FORTY–EIGHT HOURS BEFORE EXCAVATION, CALL UNDERGROUND SERVICE ALERT AT 1–800–422–4133.
7. ALL ELEVATIONS SHOWN ARE IN FEET AND DECIMALS THEREOF BASED ON U.S.C. & G.S. DATUM.
8. ALL CROSS SECTIONS ARE TAKEN LOOKING DOWNSTREAM.
9. ELEVATIONS OF UTILITIES ARE APPROXIMATE UNLESS OTHERWISE NOTED.
10. OPENINGS RESULTING FROM THE CUTTING OR PARTIAL REMOVAL OF EXISTING CULVERTS, PIPES OR SIMILAR STRUCTURES TO BE ABANDONED SHALL BE SEALED WITH 6" OF CLASS "B" CONCRETE.
11. PIPE CONNECTED TO THE MAINLINE PIPE SHALL CONFORM TO JUNCTION STRUCTURE NO. 4 (JS 229) UNLESS OTHERWISE NOTED.
12. PIPE BEDDING SHALL CONFORM TO RCFC&WCD STD. DWG. NO. M815, EXCEPT FOR COVER<2 FEET. FOR COVER <2 FEET, CONCRETE SLURRY (2000 PSI–2 SACK) SHALL BE USED. THE ENTIRE TRENCH SHALL BE SLURRY EXTENDING 4 INCHES MINIMUM AND 12 INCHES MAXIMUM ABOVE THE TOP OF THE PIPE.
13. BH–1 INDICATES SOIL BORING LOCATIONS BASED ON THE SOILS REPORT DATED 8/4/2003. LOCATIONS SHOWN ARE APPROXIMATE.
14. "V" IS THE DEPTH OF CATCH BASINS MEASURED FROM THE TOP OF CURB TO INVERT OF CONNECTOR PIPE.
15. CATCH BASINS SHALL BE LOCATED SO THAT LOCAL DEPRESSION SHALL BEGIN AT EXISTING CURB RETURN JOINT, UNLESS OTHERWISE SPECIFIED.
16. ALL CURBS, GUTTERS, SIDEWALKS, DRIVEWAYS AND OTHER EXISTING IMPROVEMENTS TO BE RECONSTRUCTED IN KIND AND AT THE SAME ELEVATION AND LOCATION AS THE EXISTING IMPROVEMENTS UNLESS OTHERWISE NOTED.
17. STANDARD DRAWINGS CALLED FOR ON THE PLAN AND PROFILE SHALL CONFORM TO DISTRICT STANDARD DRAWINGS UNLESS NOTED OTHERWISE.
18. THE CONTRACTOR IS REQUIRED TO CALL ALL UTILITY AGENCIES REGARDING TEMPORARY SHORING AND SUPPORT REQUIRMENTS FOR THE VARIOUS UTILITY LINES SHOWN ON THESE PLANS.
19. DURING ROUGH GRADING OPERATIONS AND PRIOR TO CONSTRUCTION OF PERMANENT DRAINAGE STRUCTURES, TEMPORARY DRAINAGE CONTROL SHOULD BE PROVIDED TO PREVENT PONDING WATER AND DAMAGE TO ADJACENT PROPERTIES.
20. APPROVAL OF THESE PLANS BY THE RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT DOES NOT RELIEVE THE DEVELOPER'S ENGINEER OF RESPONSIBILITY FOR THE ENGINEERING DESIGN. IF FIELD CHANGES ARE REQUIRED, IT WILL BE THE RESPONSIBILITY OF THE DESIGN ENGINEER TO MAKE THE NECESSARY CORRECTIONS.
21. THE CONTRACTOR OR DEVELOPER SHALL SECURE ALL REQUIRED ENCROACHMENT AND/OR STATE AND FEDERAL REGULATORY PERMITS PRIOR TO THE COMMENCEMENT OF ANY WORK.

PRIVATE ENGINEER'S NOTICE

THE EXISTENCE AND LOCATION OF ANY UNDERGROUND UTILITIES OR STRUCTURES SHOWN ON THESE PLANS ARE OBTAINED BY SEARCH OF AVAILABLE RECORDS. TO THE BEST OF OUR KNOWLEDGE, THERE ARE NO EXISTING UTILITIES EXCEPT THOSE SHOWN ON THESE PLANS. THE CONTRACTOR IS REQUIRED TO TAKE ALL PRECAUTIONARY MEASURES TO PROTECT THE UTILITIES SHOWN, AND ANY OTHER LINE OR STRUCTURES NOT SHOWN ON THESE PLANS, AND IS RESPONSIBLE FOR THE PROTECTION OF, AND ANY DAMAGE TO THESE LINES OR STRUCTURES.

CONTRACTOR AGREES THAT HE SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY; THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS; AND THAT THE CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD THE OWNER AND THE ENGINEER HARMLESS FROM ANY OF ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE OWNER OR THE ENGINEER.

CAUTION: THE ENGINEER PREPARING THESE PLANS WILL NOT BE RESPONSIBLE FOR, OR LIABLE FOR, UNAUTHORIZED CHANGES TO OR USES OF THESE PLANS. ALL CHANGES TO THE PLANS MUST BE IN WRITING AND MUST BE APPROVED BY THE PREPARER OF THESE PLANS.

REGISTERED PROFESSIONAL ENGINEER — JOHN DIERKSEN — NO. 43886 EXP. 6–30–05 — CIVIL — STATE OF CALIFORNIA

TOWNSHIP 2 SOUTH, RANGE 7 WEST, SECTION 23

R.C.F.C. & W.C.D. STANDARD DRAWINGS

JS 227	JUNCTION STRUCTURE No. 2
MH 251	MANHOLE No. 1
MH 254	MANHOLE No. 4
TS 303	TRANSITION STRUCTURE No. 3
M 803	CONCRETE COLLAR
M 804	TIMBER BULKHEAD
M 821	REINFORCED CONCRETE PIPE ANCHOR

STORM DRAIN CONSTRUCTION NOTES AND QUANTITIES ESTIMATES

(1)	CONSTRUCT 78" RCP OR 84" CIPP ALTERNATE *	60	LF
(2)	CONSTRUCT 72" RCP OR 78" CIPP ALTERNATE *	560	LF
(2A)	CONSTRUCT 72" RCP OR 78" RCP ALTERNATE IF 78" CIPP IS USED UPSTREAM *	755	LF
(3)	CONSTRUCT 66" RCP OR 72" CIPP ALTERNATE *	730	LF
(3A)	CONSTRUCT 66" RCP OR 72" RCP ALTERNATE IF 72" CIPP IS USED UPSTREAM *	560	LF
(4)	CONSTRUCT 60" RCP *	835	LF
(4A)	CONSTRUCT 60" RCP OR 60" CIPP ALTERNATE*	400	LF
(5)	CONSTRUCT 48" RCP OR 54" CIPP ALTERNATE *	2,445	LF
(5A)	CONSTRUCT 48" RCP *	540	LF
(6)	CONSTRUCT 36" RCP OR CIPP ALTERNATE *	2,367	LF
(7)	CONSTRUCT MANHOLE No. 1 PER R.C.F.C.D. STD. MH 251.	0	EA
(8)	CONSTRUCT MANHOLE No. 4 PER R.C.F.C.D. STD. MH 254	18	EA
(9)	CONSTRUCT JUNCTION STRUCTURE No. 2 PER R.C.F.C.D. STD. JS 227	8	EA
(10)	CONSTRUCT TRANSITION STRUCTURE NO. 3 PER R.C.F.C.D. STD. TS 303.	12	EA
(11)	INSTALL 6' CHAIN LINK FENCE & DOUBLE DRIVE GATE PER R.C.F.C.D. STD. M 801.	200	LF
(12)	CONSTRUCT CONC. COLLAR PER R.C.F.C.D. STD. M 803.	1	EA
(13)	CONSTRUCT CONCRETE BULKHEAD PER R.C.F.C.D. STD. M 816	3	EA
(14)	CONSTRUCT 24" RCP *	2,133	LF
(15)	CONSTRUCT CALTRANS HEADWALL PER STD. PLAN D–90 WITH 6" CONCRETE APRON WITH NO.4 BARS @ 12" O.C. AND 4' CUTOFF WALL WITH NO.4 BARS @ 18" O.C. MAX. (ALSO SEE SHEET 2).	2	EA
(16)	CONSTUCT 1/4–TON GROUTED RIP–RAP.	40	TON
(17)	GRADE EARTHEN CHANNEL TO DAYLIGHT.	550	LF
(18)	CONSTRUCT JUNCTION STRUCTURE No. 4 PER R.C.F.C.D. STD. JS 229	3	EA
(19)	CONSTRUCT CURB INLET CATCH BASIN PER R.C.F.C.D STD. CB 100 AND LOCAL DEPRESSION NO. 2 PER R.C.F.C.D STD. LD 201 (CASE C UNLESS SHOWN ON PLAN), SEE PLAN FOR V & W.	43	EA
(20)	INSTALL CHAIN LINK FENCE PER R.C.F.C.D. STD. M801	100	LF
(21)	INSTALL BARRICADE PER R.C.F.C.D. STD. M809	1	EA
(22)	CONSTRUCT CONCRETE DROP INLET PER R.C.F.C.D. STD. 110	2	EA
(23)	INSTALL TRASH RACK PER AMERICAN PUBLIC WORKS ASSOCIATION (APWA) – SOUTHERN CALIFORNIA CHAPTER STANDARD PLAN 361–0.	2	EA
(24)	CONSTRUCT 30" RCP *	1,235	LF
(25)	CONSTRUCT MANHOLE No. 2 PER R.C.F.C.D. STD. MH 252.	2	EA
(26)	CONSTRUCT 18" RCP CL IV	40	LF
(29)	CONSTRUCT GRATING CATCH BASIN PER APWA STANDARD PLAN 304–1 AND LOCAL DEPRESSION NO. 2 PER R.C.F.C.D STD. LD 201	1	EA
(30)	CONSTRUCT CONCRETE DROP INLET PER R.C.F.C.D. STD. CB 110	1	EA

* D–LOAD PER PROFILE

CAST–IN–PLACE PIPE REQUIREMENTS

1. FOR QUALITY CONTROL DURING PLACEMENT. EMPLOY AN EXPERIENCED R.C.E. OR TECHNICIAN HAVING SUITABLE C.I.P.P. EXPERIENCE.
2. CONTROL CONCRETE BY MEANS OF 6" X 12" TEST CYLINDERS – MINIMUM OR 1 SET OF FOUR (4) CYLINDERS/100 C.Y. AND NOT LESS THAN TWO (2) SETS OF CYLINDERS PER EACH DAY'S POUR.
3. SUPPLYING BATCH PLANT SHALL BE INSPECTED AT THE START OF CONSTRUCTION AND NOT LESS THAN ONCE EACH WEEK THEREAFTER TO OBSERVE PLANT OPERATIONS, BATCH WEIGHTS AND OTHER CONCRETE CONTROL MEASURES.
4. CONCRETE MIXES SHALL NOT HAVE LESS THAN SIX (6) SACKS OF PORTLAND CEMENT/CU.YD. MINIMUM COMPRESSIVE STREGTH OF CONCRETE SHALL BE Fc=4,000 psi AT 28 DAYS
5. CONCRETE MIX DESIGNS SHALL BE SUBMITTED BY CONTRACTOR FOR APPROVAL PRIOR TO START OF CONSTRUCTION.
6. IF AND WHEN FLOW VELOCITY EXCEEDS 10 F.P.S. BUT NOT MORE THAN 20 F.P.S. A 140' SEGMENT OF THE C.I.P.P. INVERT SHALL BE THICKENED 2 INCHES IN WALL THICKNESS AS "SACRIFICIAL CONCRETE" TO RESIST ABRASION.
7. MAXIMUM PERMISSIBLE CONCRETE SLUMP SHALL BE 2–1/2", 1–1/2" MIN. TO 2–1/2 MAX.
8. CONTRACTOR SHALL ALLOW INSPECTOR INTO PIPE WHILE UNDER CONSTRUCTION & "ROD" FOR WALL THICKNESS AT A MIN. OF 25 C.Y. OF THE POUR.
9. AT THE END OF ALL POURS AND AT THE END OF EACH WORKING DAY THE CONTRACTOR SHALL INSTALL #4 DOWELS 24" LONG 12" INTO THE LAST POUR AT 12" CENTERS AROUND THE CIRCUMFERENCE OF CAST–IN–PLACE PIPE:
10. JUNCTION STRUCTURES SHOWN ON THE PLANS ARE FOR REINFORCED CONCRETE PIPE. THE FOLLOWING SUBSTITUTIONS SHALL BE MADE FOR JUNCTION STRUCTURES FOR USE WITH CAST–IN–PLACE PIPE:

A JUNCTION STRUCTURE NO. 2 (J.S. 227) SHALL BE REPLACED WITH A TRANSITION STRUCTURE NO. 3 (T.S.303).

AS BUILT
By:
Date: 3-25-11

DUPLICATE OF ORIGINAL – DO NOT REVISE

BENCHMARK: ELEV. 606.913
RIVERSIDE COUNTY, M.L.
34–1–64, BRASS DISK IN TOP OF CONC. POST AT THE S.E. CORNER OF INT. OF ORANGE ST. AND SUMNER AVE. 2.5' W. OF P.P. #375282 MARKED M.L. 34–1, DATE 5–71.

REVISIONS

MARK	DATE	INITIAL	DESCRIPTION	APP'D
1	7-25-05	JED	MODIFIED CATCH BASIN SHEET 15	
2	8-9-05	JED	MODIFIED LOW FLOW PIPE SHEET 8&13	
3	10/2/15	JED	AS-BUILT LAT J-3-B & J-3-F SHEET 16	

PHB & ASSOCIATES, INC.
CIVIL ENGINEERING · SURVEYING · LAND PLANNING
1620 SOUTH GRAND AVENUE
GLENDORA, CALIFORNIA 91740
(626) 914-6256/FAX (626) 914-5756

PREPARED UNDER THE SUPERVISION OF:
JOHN DIERKSEN
R.C.E. 43886
DATE 5-26-05

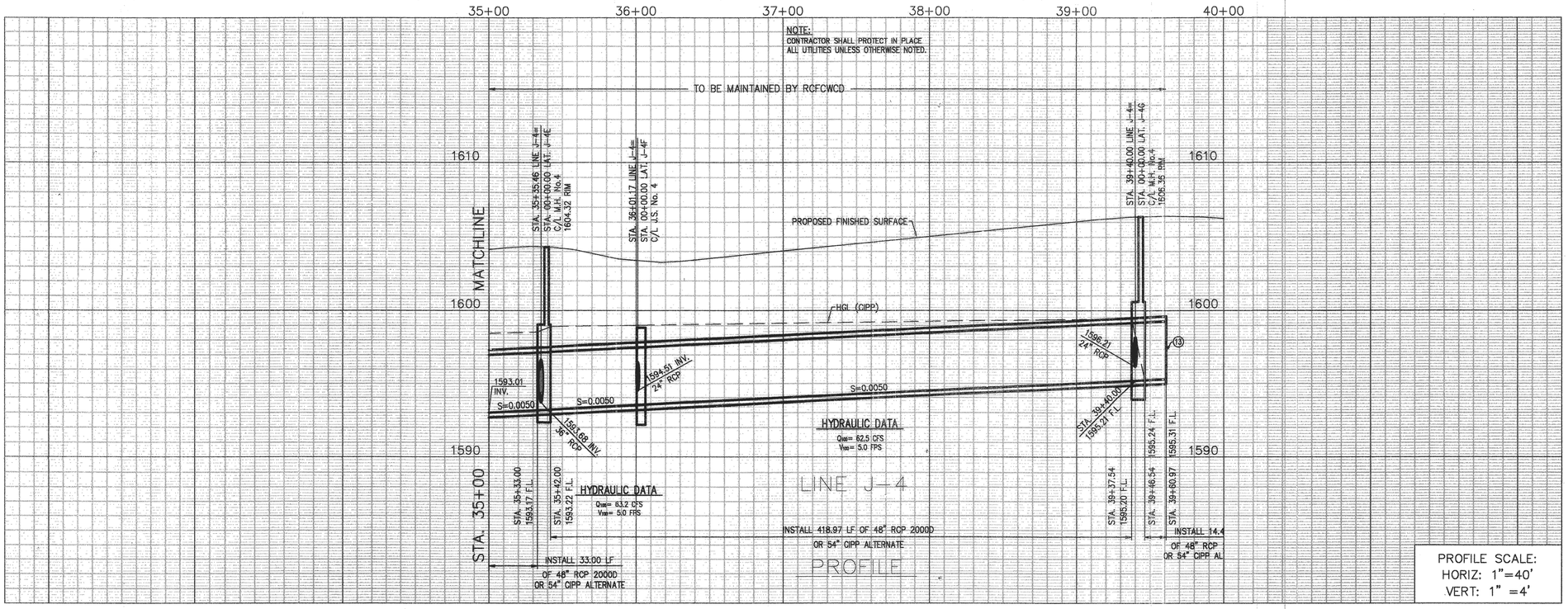
CITY OF MORENO VALLEY
APPROVED BY: Prem Kumar for R.C.E. 52463 Exp. 12/31/06
TRENT D. PULLIAM, CITY ENGINEER
R.C.E. No. 20517 (EXP. 09/30/2005)
DATE 5/31/05

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
RECOMMENDED FOR APPROVAL BY: Stuart E. McKibbin
PLANNING ENGINEER
DATE 6-14-2005
APPROVED BY:
CHIEF ENGINEER
DATE 6-14-05

MORENO MASTER DRAINAGE PLAN
LINE J, STAGE 1; LINE J–2; LINE J–3; LINE J–4; LINE J–5; & LINE J–6

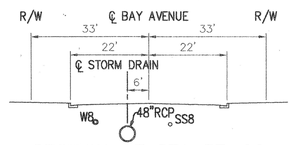
PROJECT No. 4–0–0776–01
DRAWING No. 4–858
SHEET No. 1 OF 27

AB ID # 4713



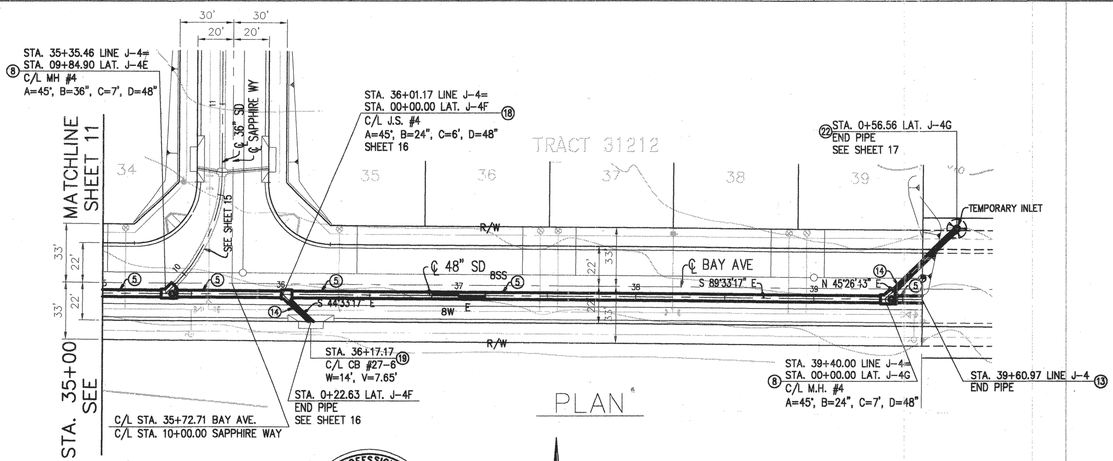
PROFILE SCALE:
HORIZ: 1"=40'
VERT: 1" =4'

INFORMATIONAL NOTE
ALL X-SECTIONS TAKEN LOOKING DOWN STREAM



SECTION AT STA 37+00
TYPICAL FROM STA 35+00 TO STA 39+60.97

10' 0 10'



PLAN

CONSTRUCTION NOTES

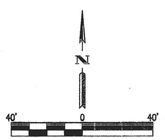
(5) CONSTRUCT 48" RCP OR 54" CIPP ALTERNATE *
(8) CONSTRUCT MANHOLE No. 4 PER R.C.F.C.D. STD. MH 254
(13) CONSTRUCT CONCRETE BULKHEAD PER R.C.F.C.D. STD. M 816
(14) CONSTRUCT 24" RCP *
(18) CONSTRUCT JUNCTION STRUCTURE No. 4 PER R.C.F.C.D. STD. JS 229
(19) CONSTRUCT CURB INLET CATCH BASIN PER R.C.F.C.D STD. CB 100 AND LOCAL DEPRESSION NO. 2 PER R.C.F.C.D STD. LD 201 (CASE C UNLESS SHOWN ON PLAN), SEE PLAN FOR V & W.
(22) CONSTRUCT CONCRETE DROP INLET PER R.C.F.C.D. STD. 110

* D-LOAD PER PROFILE

NOTE TO CONTRACTOR

WHEN USING CIPP AS AN ALTERNATE TO RCP, THE CONTRACTOR SHALL CONSTRUCT TS NO. 3 IN PLACE OF JS NO.2 WHERE APPLICABLE.

REGISTERED PROFESSIONAL ENGINEER
JOHN DIERKSEN
NO. 43886
EXP. 6-30-05
CIVIL
STATE OF CALIFORNIA



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REGISTERED PROFESSIONAL ENGINEER
JOHN DIERKSEN
No. 43886
Exp. 6-30-11
CIVIL
STATE OF CALIFORNIA

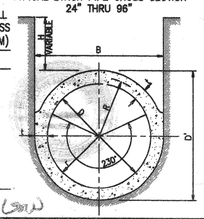
AS-BUILT
By:
Date: 3-25-11

DIMENSIONS OF LYNCH CIP CONCRETE PIPE

NOMINAL DIAMETER (INTERIOR)	OUTER DIAMETER (DEPTH)	WIDTH OF PIPE/TRENCH (NOMINAL)	NOMINAL THICKNESS (MINIMUM)	SIDEWALL THICKNESS (MINIMUM)
D	D'	B	t	t'
36"	43"	44"	3.5"	3.5"
42"	50"	51"	4"	4"
48"	58"	59"	5"	5"
54"	65"	66"	5.5"	5.5"
60"	72"	73"	6"	6"
66"	79"	80"	6.5"	6.5"
72"	86"	87"	7"	7"
84"	100"	101"	8"	8"

28-DAY COMPRESSIVE STRENGTH = 5,000psi

TYPICAL LYNCH PIPE CROSS SECTION
24" THRU 96"



UNDERGROUND SERVICE ALERT
CALL TOLL FREE: (800) 422-4133
DIAL BEFORE YOU DIG
TWO WORKING DAYS BEFORE YOU DIG

BENCHMARK: ELEV. 606.913
RIVERSIDE COUNTY, M.L.
34-1-64, BRASS DISK IN TOP OF CONC. POST AT THE S.E. CORNER OF INT. OF ORANGE ST. AND SUMNER AVE. 2.5' W. OF P.P. #375282 MARKED M.L. 34-1, DATE 5-71.

REVISIONS

MARK	DATE	INITIAL	DESCRIPTION	APP'D

PHB & ASSOCIATES, INC.
CIVIL ENGINEERING · SURVEYING · LAND PLANNING
1620 SOUTH GRAND AVENUE
GLENDORA, CALIFORNIA 91740
(626) 914-6256/FAX (626) 914-5756

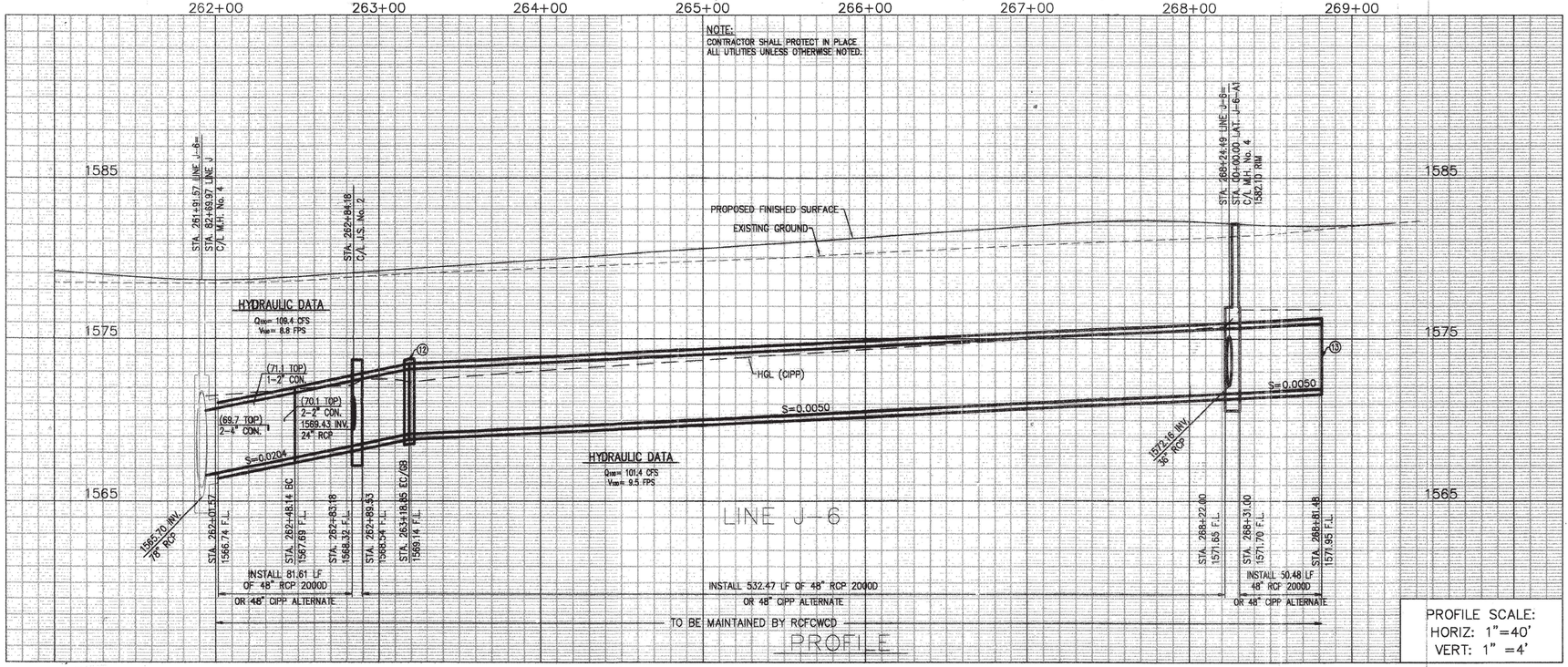
PREPARED UNDER THE SUPERVISION OF:
JOHN DIERKSEN
RCE 43886
DATE 5-26-05

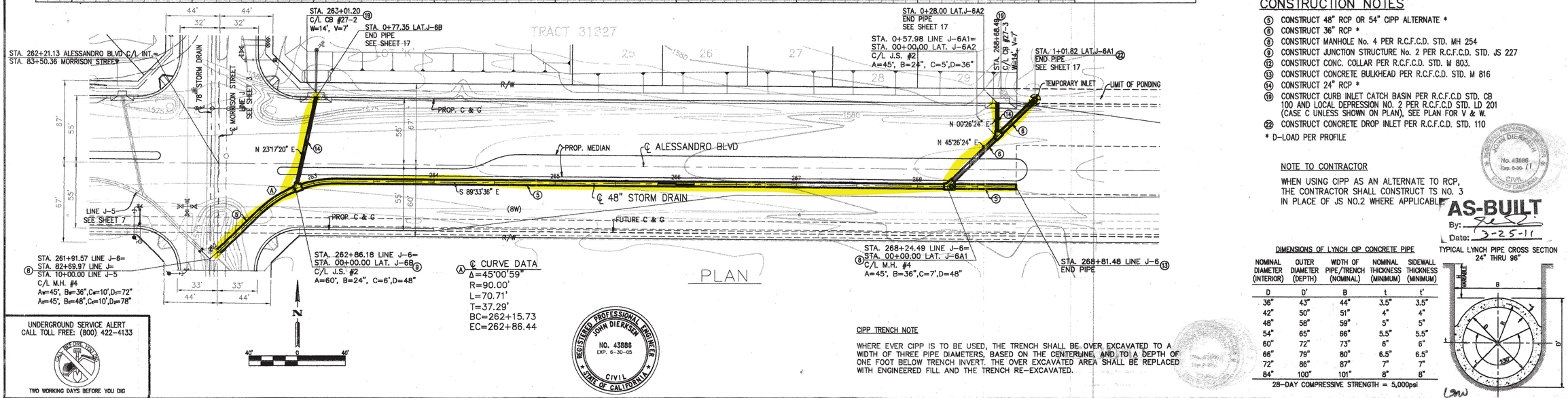
CITY OF MORENO VALLEY
APPROVED BY:
for
TRENT O. PULLIAM, CITY ENGINEER
R.C.E. No. 20517 (EXP. 09/30/2005)
DATE 6/1/05

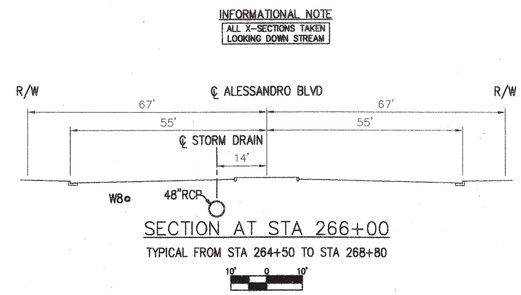
RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
RECOMMENDED FOR APPROVAL BY:
DATE 6/10/05
APPROVED BY:
DATE 6-14-2005

MORENO MASTER DRAINAGE PLAN
LINE J-4
STA.35+00.00 TO STA.39+60.97

PROJECT No. 4-0-0776-01
DRAWING No. 4-858
SHEET No. 12 OF 27







CONSTRUCTION NOTES

- (5) CONSTRUCT 48" RCP OR 54" CIPP ALTERNATE *
- (6) CONSTRUCT 36" RCP *
- (8) CONSTRUCT MANHOLE No. 4 PER R.C.F.C.D. STD. MH 254
- (9) CONSTRUCT JUNCTION STRUCTURE No. 2 PER R.C.F.C.D. STD. JS 227
- (12) CONSTRUCT CONC. COLLAR PER R.C.F.C.D. STD. M 803.
- (13) CONSTRUCT CONCRETE BULKHEAD PER R.C.F.C.D. STD. M 816
- (14) CONSTRUCT 24" RCP *
- (19) CONSTRUCT CURB INLET CATCH BASIN PER R.C.F.C.D STD. CB 100 AND LOCAL DEPRESSION NO. 2 PER R.C.F.C.D STD. LD 201 (CASE C UNLESS SHOWN ON PLAN), SEE PLAN FOR V & W.
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* D-LOAD PER PROFILE

NOTE TO CONTRACTOR

WHEN USING CIPP AS AN ALTERNATE TO RCP, THE CONTRACTOR SHALL CONSTRUCT TS NO. 3 IN PLACE OF JS NO.2 WHERE APPLICABLE.

REGISTERED PROFESSIONAL ENGINEER JOHN DIERKSEN No. 43886 Exp. 6-30-11 CIVIL STATE OF CALIFORNIA

AS-BUILT
By:
Date: 3-25-11

DIMENSIONS OF LYNCH CIP CONCRETE PIPE

NOMINAL DIAMETER (INTERIOR)	OUTER DIAMETER (DEPTH)	WIDTH OF PIPE/TRENCH (NOMINAL)	NOMINAL THICKNESS (MINIMUM)	SIDEWALL THICKNESS (MINIMUM)
D	D'	B	t	t'
36"	43"	44"	3.5"	3.5"
42"	50"	51"	4"	4"
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60"	72"	73"	6"	6"
66"	79"	80"	6.5"	6.5"
72"	86"	87"	7"	7"
84"	100"	101"	8"	8"

28-DAY COMPRESSIVE STRENGTH = 5,000psi

TYPICAL LYNCH PIPE CROSS SECTION 24" THRU 96"

CIPP TRENCH NOTE

WHERE EVER CIPP IS TO BE USED, THE TRENCH SHALL BE OVER EXCAVATED TO A WIDTH OF THREE PIPE DIAMETERS, BASED ON THE CENTERLINE, AND TO A DEPTH OF ONE FOOT BELOW TRENCH INVERT. THE OVER EXCAVATED AREA SHALL BE REPLACED WITH ENGINEERED FILL AND THE TRENCH RE-EXCAVATED.

UNDERGROUND SERVICE ALERT
CALL TOLL FREE: (800) 422-4133
TWO WORKING DAYS BEFORE YOU DIG

BENCHMARK: ELEV. 606.913

RIVERSIDE COUNTY, M.L.
34-1-64, BRASS DISK IN TOP OF CONC. POST AT THE S.E. CORNER OF INT. OF ORANGE ST. AND SUMNER AVE. 2.5' W. OF P.P. #375282 MARKED M.L. 34-1, DATE 5-71.

REVISIONS				
MARK	DATE	INITIAL	DESCRIPTION	APP'D

PHB & ASSOCIATES, INC.
CIVIL ENGINEERING · SURVEYING · LAND PLANNING
1620 SOUTH GRAND AVENUE
GLENDORA, CALIFORNIA 91740
(626) 914-6256/FAX (626) 914-5756

PREPARED UNDER THE SUPERVISION OF:
JOHN DIERKSEN
RCE 43886
DATE 5-26-05

REGISTERED PROFESSIONAL ENGINEER JOHN DIERKSEN NO. 43886 EXP. 6-30-05 CIVIL STATE OF CALIFORNIA

CITY OF MORENO VALLEY
APPROVED BY:
for
TRENT A. PULLIAM, CITY ENGINEER
R.C.E. No. 20517 (EXP. 09/30/2005)
DATE 5/31/05

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
RECOMMENDED FOR APPROVAL BY:
DATE 6/10/05
APPROVED BY:
DATE 6-14-2005

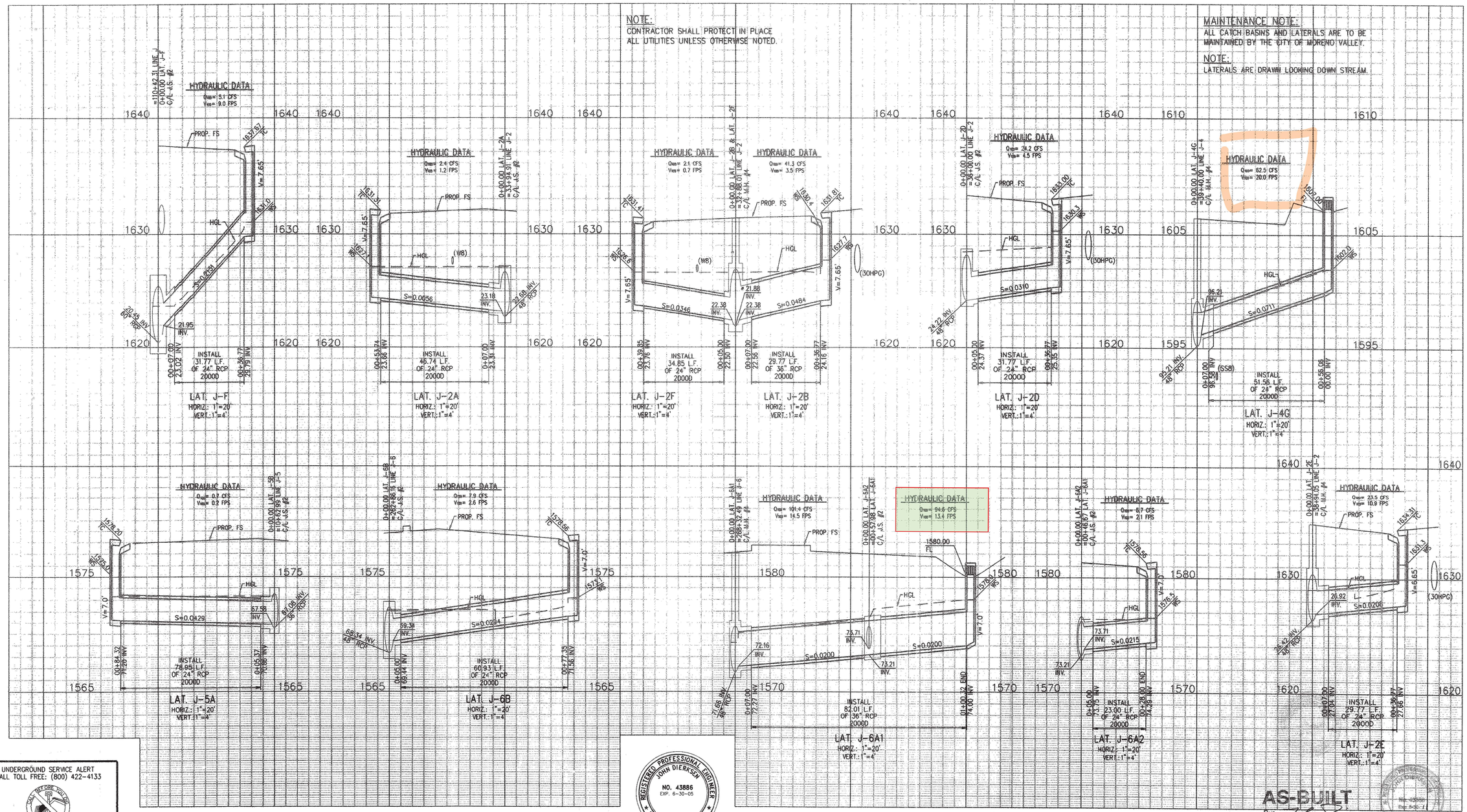
MORENO MASTER DRAINAGE PLAN
LINE J-6
STA.262+15.26 TO STA.268+81.48

PROJECT No. 4-0-0776-01
DRAWING No. 4-858
SHEET No. 8 OF 27

NOTE:
CONTRACTOR SHALL PROTECT IN PLACE
ALL UTILITIES UNLESS OTHERWISE NOTED.

MAINTENANCE NOTE:
ALL CATCH BASINS AND LATERALS ARE TO BE MAINTAINED BY THE CITY OF MORENO VALLEY.

NOTE:
LATERALS ARE DRAWN LOOKING DOWN STREAM.



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CALL TOLL FREE: (800) 422-4133
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REGISTERED PROFESSIONAL ENGINEER
JOHN DIERKSEN
NO. 43886
EXP. 6-30-05
CIVIL
STATE OF CALIFORNIA

AS-BUILT
By:
Date: 3-25-11

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PREPARED UNDER THE SUPERVISION OF:
JOHN DIERKSEN
RCE 43886
DATE 5-23-05

CITY OF MORENO VALLEY
APPROVED BY:
for
TRENT D. PULLIAM, CITY ENGINEER
R.C.E. No. 20517 (EXP. 09/30/2005)
DATE 5/31/05

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

MORENO MASTER DRAINAGE PLAN
LATERALS
STAGE 1
CONNECTOR PIPE PROFILES

PROJECT No. 4-0-0776-01
DRAWING No. 4-858
SHEET No. 17 OF 27

CITY OF MORENO VALLEY
STREET IMPROVEMENT PLANS
NASON STREET
FROM CACTUS AVENUE TO FIR AVENUE

PROJECT NO. 801 0001 70 77

GENERAL STREET IMPROVEMENT NOTES:

1. ALL WORK SHALL CONFORM TO THE CONTRACT DOCUMENTS IN EFFECT AT THE TIME OF BID, STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION "GREENBOOK" (LATEST EDITION), THE CITY OF MORENO VALLEY "STANDARD PLANS" AND CALTRANS "STANDARD PLANS" (LATEST EDITION) AS NOTED ON THE PLANS AND IN THE SPECIAL PROVISIONS.

2. ALL TRAFFIC SIGNAL WORK SHALL CONFORM TO THE CONTRACT DOCUMENTS IN EFFECT AT THE TIME OF BID. SECTION 86 "SIGNALS AND LIGHTING" OF CALTRANS STANDARD SPECIFICATIONS, CALTRANS STANDARD PLANS, AND THE SPECIAL PROVISIONS.

3. TRAFFIC CONTROL SHALL BE IN ACCORDANCE WITH THE CALIFORNIA M.U.T.C.D. PART 6 "TEMPORARY TRAFFIC CONTROL"

4. PRIOR TO CONSTRUCTION, THE CONTRACTOR AND ALL SUBCONTRACTORS SHALL OBTAIN A CITY OF MORENO VALLEY BUSINESS LICENSE AND ENCROACHMENT PERMIT.

5. PRIOR TO START OF CONSTRUCTION, THE CONTRACTOR SHALL CONTACT UNDERGROUND SERVICE ALERT, PROVIDE ALERT NUMBER TO CITY ENGINEER AND ALL NECESSARY UTILITY COMPANIES.

6. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL FILE AN APPLICATION FOR A FIRE HYDRANT METER WITH THE APPROPRIATE WATER AGENCY.

7. REQUEST FOR INSPECTION TO THE CITY OF MORENO VALLEY SHALL BE MADE BY THE CONTRACTOR AT LEAST TWENTY–FOUR (24) HOURS BEFORE THE SERVICES THEREOF WILL BE REQUIRED AT (951) 413–3130.

8. WORK IN PUBLIC STREETS, ONCE BEGUN, SHALL BE WITHOUT DELAY SO AS TO PROVIDE MINIMUM INCONVENIENCE TO ADJACENT PROPERTY OWNERS AND TO THE TRAVELING PUBLIC. FAILURE TO COMPLY WILL BE A VIOLATION OF THE CONTRACT. CONTRACTOR SHALL PROVIDE ACCESS TO RESIDENCES AND BUSINESSES AT ALL TIMES.

9. NO PUBLIC TRAVELED STREET SHALL BE CLOSED TO TRAFFIC WITHOUT PRIOR CITY COUNCIL APPROVAL.

10. PROVISIONS SHALL BE MADE BY THE CONTRACTOR AT ALL TIMES FOR CONTRIBUTORY DRAINAGE.

11. THE EXISTENCE AND LOCATION OF ANY UNDERGROUND UTILITY PIPES, CONDUITS OR STRUCTURES SHOWN ON THESE PLANS WERE OBTAINED BY A SEARCH OF AVAILABLE RECORDS, THESE LOCATIONS ARE APPROXIMATE. THE CONTRACTOR IS REQUIRED TO TAKE DUE PRECAUTIONARY MEASURES TO PROTECT ANY UTILITY LINES SHOWN AND OTHER LINES NOT ON RECORD OR NOT SHOWN ON THESE PLANS.

12. THE CONTRACTOR SHALL EXCAVATE INSPECTION HOLES (POT HOLES) AND DETERMINE THE LOCATION AND DEPTH OF ALL UNDERGROUND STRUCTURES AND UTILITIES WHICH ARE IN THE VICINITY OF, OR WHICH MAY BE AFFECTED BY, THE PROPOSED IMPROVEMENT WORK PRIOR TO ANY CONSTRUCTION WORK WHICH COULD DAMAGE OR CONFLICT WITH SAID STRUCTURES OR UTILITIES.

13. THE CONTRACTOR SHALL PROTECT IN PLACE ALL EXISTING TRAFFIC SIGNAL CONDUIT WITHIN 6" ABOVE PROPOSED SUBGRADE SURFACE AND ALL CONDUIT BELOW PROPOSED SUBGRADE SURFACE. ALL EXISTING CONDUIT THAT IS MORE THAN 6" ABOVE THE PROPOSED SUBGRADE SURFACE SHALL BE RELOCATED TO WITHIN 6" BELOW PROPOSED SUBGRADE SURFACE.

14. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY IF THE IMPROVEMENTS CONFLICT WITH EXISTING FACILITIES AND WORK IN THE CONFLICTING LOCATION SHALL STOP.

15. ANY ALTERATIONS OR VARIANCES FROM THE PLANS, EXCEPT MINOR ADJUSTMENTS IN THE FIELD TO MEET EXISTING CONDITIONS, SHALL BE REQUESTED IN WRITING AND MAY NOT BE INSTITUTED UNTIL APPROVED BY THE CITY ENGINEER OR REPRESENTATIVES ACTING SPECIFICALLY ON THE CITY ENGINEER'S INSTRUCTIONS.

16. INSPECTION BY THE CITY INSPECTOR SHALL NOT, IN ANY WAY, RELIEVE THE CONTRACTOR OF HIS/HER OBLIGATIONS TO COMPLETELY AND DILIGENTLY PERFORM ALL WORK IN COMPLIANCE WITH THE APPROVED PLANS AND SPECIFICATIONS.

17. ALL ELEVATIONS SHOWN ON THE PLANS ARE ESTABLISHED BY LOCAL BENCH MARKS. SURVEY MONUMENTS SHALL BE PROTECTED IN PLACE.

18. ALL A.C. AND P.C.C. SHALL BE SAWCUT UNLESS OTHERWISE SPECIFIED.

19. NO TRENCHES EXCEPT CURB AND GUTTER SHALL BE LEFT OPEN OVERNIGHT UNLESS APPROVED BY THE CITY ENGINEER IN WRITING.

20. ALL UTILITIES SHALL BE INSTALLED, INSPECTED, TESTED AND APPROVED BY THE APPROPRIATE UTILITY COMPANY PRIOR TO PAVING. PROOF OF SUCH, INSPECTION/APPROVAL SHALL BE SUPPLIED TO THE CITY INSPECTOR OR REPRESENTATIVE.

21. IRRIGATION LINES WITHIN ANY CITY STREET SHALL HAVE A 30" MINIMUM COVER FROM FINISH SURFACE, UNLESS SAID IRRIGATION LINE HAS BEEN APPROVED BY THE CITY ENGINEER IN WRITING TO BE ENCASED IN CONCRETE OR BEDDED IN A SPECIAL CONCRETE CRADLE.

22. THE CONTRACTOR SHALL COMPACT THE UPPER SIX INCHES OF SUBGRADE/AGGREGATE BASE TO A MINIMUM RELATIVE DENSITY OF 90/95 PERCENT RESPECTIVELY PER ASTM 1556–82 TESTING METHOD, OR AS DIRECTED BY THE ENGINEER.

23. SUBGRADE MATERIAL PLACED FOR CURB, GUTTER, DRIVEWAY APPROACHES, AND SIDEWALKS SHALL BE TO A RELATIVE COMPACTION OF 90 PERCENT.

24. ALL PORTLAND CEMENT CONCRETE (PCC) REMOVALS, INCLUDING, BUT NOT LIMITED TO CROSS GUTTERS, CURBS, DRIVEWAY APPROACHES, SIDEWALKS AND SPANDRELS SHALL BE MADE BY REMOVING AND REPLACING THE ENTIRE SECTION BETWEEN JOINTS. IF ANY UTILITY CUTS ARE MADE IN PCC IMPROVEMENTS, THE ENTIRE SECTION SHALL BE REMOVED AND REPLACED.

25. CONCRETE SIDEWALKS, CURBS AND GUTTERS, OR OTHER CONCRETE STRUCTURES WHICH WILL NOT BE SUBJECTED TO VEHICULAR TRAFFIC, SHALL BE BARRICADED FOR A PERIOD OF AT LEAST SEVEN (7) DAYS FOLLOWING PLACEMENT OF THE SAID CONCRETE STRUCTURE. FOR DRIVEWAYS, CROSS GUTTERS, SPANDRELS OR OTHER STRUCTURES WHICH WILL BE SUBJECTED TO VEHICULAR TRAFFIC, THE CONTRACTOR SHALL USE CONCRETE CONTAINING EIGHT SACKS OF CEMENT AND ADDITIVES THAT PROVIDE HIGH EARLY STRENGTH IN ORDER TO UTILIZE EARLIER USE OF CONSTRUCTED FACILITIES, AS EARLY AS 24–HOURS AFTER PLACING OF CONCRETE. THE CONTRACTOR SHALL OBTAIN WRITTEN APPROVAL FROM THE CITY ENGINEER FOR TRAFFIC USE TO BE PERMITTED THEREON TWENTY–FOUR HOURS AFTER THE PLACING OF CONCRETE.

26. ALL TRAFFIC CONTROL DEVICES AND SIGNS SHALL BE IN PLACE AND APPROVED BY THE CITY PRIOR TO PAVING. DELINEATION SHALL BE COMPLETED PRIOR TO STREET OPEN.

27. THE (…PECTED AND APPROVED … ENGINEER.

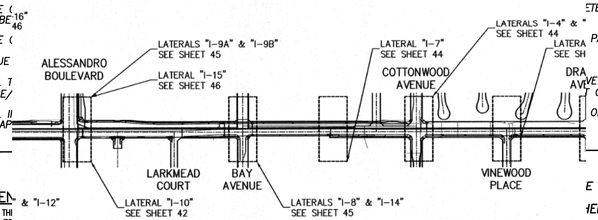
28. THE (…TED. TACK COAT SHALL BE 16" … 46

29. THE (… PAINT BLUE.

30. BLUE …

31. ALL T… SURFACE/…

32. ALL I… LANDSCAP… …OR HIGHER. ALL



INDEX MAP
N.T.S.

DATUM STATEMEN… & "I–12"
COORDINATES ARE BASED ON TH… COORDINATE SYSTEM (CCS83) ZO… 83 (2007.00 EPOCH ADJUSTMENT… RECORDS PUBLISHED BY THE NA… GEODETIC SURVEY. UNLESS OTHERWISE NOTED, ALL … SHOWN ARE GROUND. TO OBTAIN … DISTANCES, MULTIPLY GROUND DISTANCES BY 0.99992857525.

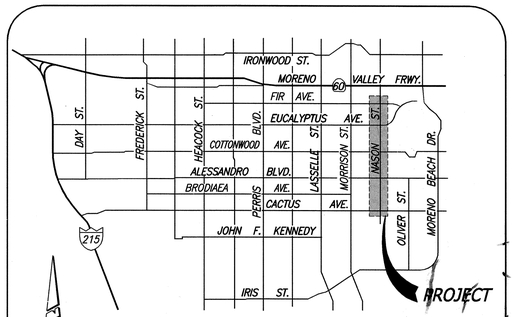
…E SHEETS 34 AND 35
…HEETS 35 THRU 39
…, 48 AND 49
…CTURAL PLANS
…NASON STREET MEDIANS CACTUS AVENUE TO FIR AVENUE"

RECORD DRAWINGS
THESE RECORD DRAWINGS (AS-BUILTS) ARE BASED UPON REVIEW AND RELIANCE ON THE DESIGN REVISIONS DURING CONSTRUCTION, FIELD SURVEY DATA, MARKED UP PRINTS FROM THE CONTRACTOR AND/OR CITY INSPECTOR AND A FINAL SITE INSPECTION.

REGISTERED PROFESSIONAL ENGINEER THOMAS E. BRAUN Expires 3/31/2015 41817 CIVIL STATE OF CALIFORNIA

AS-BUILT BY … DATE 2/21/13

I THOMAS E. BRAUN, HEREBY TAKE THE RESPONSIBILITY FOR THESE AS-BUILT PLANS AS THE ENGINEER OF RECORD FOR THE REVIEW AND APPROVAL OF THESE PLANS.



VICINITY MAP
N.T.S.
SEC. 3, 4, 9, 10, 15 & 16 T. 3 S., R. 3 W. THE THOMAS GUIDE, 2008 EDITION, SAN BERNARDINO AND RIVERSIDE COUNTIES – PAGE 718

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4	TYPICAL STREET SECTIONS
5	TYPICAL STREET SECTIONS
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7	STREET IMPROVEMENT PLANS – NASON STREET STA. 68+00.00 TO STA. 77+00.00
8	STREET IMPROVEMENT PLANS – NASON STREET STA. 77+00.00 TO STA. 87+00.00
9	STREET IMPROVEMENT PLANS – NASON STREET STA. 87+00.00 TO STA. 97+00.00
10	STREET IMPROVEMENT PLANS – NASON STREET STA. 97+00.00 TO STA. 107+00.00
11	STREET IMPROVEMENT PLANS – NASON STREET STA. 107+00.00 TO STA. 116+00.00
12	STREET IMPROVEMENT PLANS – NASON STREET STA. 116+00.00 TO STA. 126+00.00
13	STREET IMPROVEMENT PLANS – NASON STREET STA. 126+00.00 TO STA. 136+00.00
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14	STREET IMPROVEMENT PLANS – NASON STREET STA. 136+00.00 TO STA. 146+00.00
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16	STREET IMPROVEMENT PLANS – NASON STREET STA. 156+00.00 TO STA. 166+00.00
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18	STREET IMPROVEMENT PLANS – PLAN & PROFILE – ALESSANDRO BOULEVARD STA. 22+00.00 TO STA. 27+02.51 AND BAY AVENUE 10+78.00 TO 12+28.38
19	STREET IMPROVEMENT PLANS – PLAN & PROFILE – COTTONWOOD AVENUE STA. 13+28.19 TO STA. 22+00.00
20	STREET IMPROVEMENT PLANS – PLAN & PROFILE – COTTONWOOD AVENUE STA. 22+00.00 TO STA. 25+10.52 AND BRODIAEA AVENUE STA. 7+78.42 TO STA. 9+17.46
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25	CONSTRUCTION DETAILS – BUS TURNOUT / DRIVEWAY DETAILS
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32	SIGNING AND STRIPING PLAN – COTTONWOOD AVE. AT NASON STREET & DRACAEA AVE. AT NASON STREET
33	SIGNING AND STRIPING PLAN – EUCALYPTUS AVE. AT NASON STREET & FIR AVE. AT NASON STREET
34	TRAFFIC SIGNAL AND LIGHTING PLAN– NASON STREET AT HOSPITAL ROAD
35	TRAFFIC SIGNAL AND LIGHTING MODIFICATION PLAN – NASON STREET AT ALESSANDRO BOULEVARD
36	TRAFFIC SIGNAL AND LIGHTING MODIFICATION PLAN – NASON STREET AT COTTONWOOD AVENUE
37	TRAFFIC SIGNAL AND LIGHTING MODIFICATION PLAN – NASON STREET AT DRACAEA AVENUE
* 37A	**(BID ALTERNATE NO. 1) TRAFFIC SIGNAL AND LIGHTING MODIFICATION PLAN – NASON STREET AT DRACAEA AVENUE**
38	TRAFFIC SIGNAL AND LIGHTING MODIFICATION PLAN – NASON STREET AT EUCALYPTUS AVENUE
39	TRAFFIC SIGNAL AND LIGHTING MODIFICATION PLAN – NASON STREET AT FIR AVENUE
40	STORM DRAIN PLANS – MORENO MDP LINE I INDEX SHEET
41	STORM DRAIN PLANS – MORENO MDP LINE I LATERALS "I–1", "I–2" & "I–3"
42	STORM DRAIN PLANS – MORENO MDP LINE I LATERALS "I–10", "I–11" & "I–12"
43	STORM DRAIN PLANS – MORENO MDP LINE I LATERAL "I–17"
44	STORM DRAIN PLANS – MORENO MDP LINE I LATERALS "I–4", "I–5", "I–6" & "I–7"
45	STORM DRAIN PLANS – MORENO MDP LINE I LATERALS "I–8", "I–9A", "I–9B" & "I–14"
46	STORM DRAIN PLANS – MORENO MDP LINE I LATERALS "I–13", "I–15", "I–16" & "I–18"
47–49	STREET IMPROVEMENT PLANS – NASON STREET MEDIAN HARDSCAPE / LANDSCAPE

*BID ALTERNATE NO. 1

UTILITY COMPANIES

EASTERN MUNICIPAL WATER DISTRICT (EMWD)	(951) 928–3777
VERIZON	(951) 478–6656
SOUTHERN CALIFORNIA EDISON COMPANY (SCE)	(951) 928–8234
SOUTHERN CALIFORNIA GAS COMPANY (SCG)	(951) 335–3919
TIME WARNER (TWC)	(951) 549–3977
TRAFFIC SIGNAL MAINTENANCE (CITY)	(951) 413–3140
UNDERGROUND SERVICE ALERT	(800) 227–2600
RIVERSIDE TRANSIT AGENCY (RTA)	(951) 565–5164
RIVERSIDE COUNTY FLOOD CONTROL DISTRICT (RCFCD)	(951) 955–8170
SUNESYS LLC	(951) 278–0400
QUESTAR SOUTHERN TRAILS PIPELINE	(800) 261–0688
MORENO VALLEY UTILITIES ADMINISTRATION	(951) 413–3500
SPECIAL DISTRICTS ADMINISTRATION	(951) 413–3480

DECLARATION OF DESIGN ENGINEER OF RECORD

I HEREBY DECLARE THAT THE DESIGN OF THE IMPROVEMENTS AS SHOWN ON THESE PLANS COMPLIES WITH PROFESSIONAL ENGINEERING STANDARDS AND PRACTICES. AS THE ENGINEER IN RESPONSIBLE CHARGE OF DESIGN OF THESE IMPROVEMENTS, I ASSUME FULL RESPONSIBLE CHARGE FOR SUCH DESIGN. I UNDERSTAND AND ACKNOWLEDGE THAT THE PLAN CHECK OF THESE PLANS BY THE CITY OF MORENO VALLEY IS A REVIEW FOR THE LIMITED PURPOSE OF ENSURING THAT THE PLANS COMPLY WITH CITY PROCEDURES, APPLICABLE POLICIES AND ORDINANCES. THE PLAN CHECK IS NOT A DETERMINATION OF THE TECHNICAL ADEQUACY OF THE DESIGN OF THE IMPROVEMENTS. SUCH PLAN CHECK DOES NOT, THEREFORE, RELIEVE ME OF MY RESPONSIBILITY FOR THE DESIGN OF THESE IMPROVEMENTS. AS ENGINEER OF RECORD (E.O.R.), I AGREE TO INDEMNIFY AND HOLD THE CITY OF MORENO VALLEY, THE COMMUNITY REDEVELOPMENT AGENCY OF THE CITY OF MORENO VALLEY (RDA), AND THE MORENO VALLEY COMMUNITY SERVICE DISTRICT (CSD), ITS OFFICERS, AGENTS AND EMPLOYEES HARMLESS FROM ANY AND ALL LIABILITY OF CLAIMS, DAMAGES OR INJURIES TO ANY PERSON OR PROPERTY WHICH MIGHT ARISE FROM THE NEGLIGENT ACTS, ERRORS OR OMISSIONS OF THE ENGINEER OF RECORD.

I ALSO HEREBY DECLARE THAT I HAVE COMPARED THESE PLANS WITH ALL APPLICABLE A.D.A. AND TITLE 24 REQUIREMENTS FOR DISABILITY ACCESS FOR THIS PUBLIC PROJECT, AND THESE PLANS ARE IN FULL COMPLIANCE WITH THESE REQUIREMENTS.

MICHAEL W. NG — R.C.E. #44875 — DATE 1/17/14

THE CONTRACTOR SHALL POSSESS THE CLASS (OR CLASSES) OF LICENSE AS SPECIFIED IN THE "NOTICE INVITING BIDS" OF THE CONTRACT SPECIFICATIONS.

ENGINEER'S NOTICE TO CONTRACTORS

THE EXISTENCE AND LOCATION OF ANY UNDERGROUND UTILITY PIPES OF STRUCTURES SHOWN ON THESE PLANS WERE OBTAINED BY A SEARCH OF AVAILABLE RECORDS. THESE LOCATIONS ARE APPROXIMATE AND SHALL BE CONFIRMED IN FIELD BY THE CONTRACTOR, SO THAT ANY NECESSARY ADJUSTMENT CAN BE MADE IN ALIGNMENT AND/OR GRADE OF THE PROPOSED IMPROVEMENT. THE CONTRACTOR IS REQUIRED TO TAKE DUE PRECAUTIONARY MEASURES TO PROTECT ANY UTILITY LINES SHOWN AND ANY OTHER LINES NOT OF RECORD OR NOT SHOWN ON THESE PLANS.

DIGALERT
CALL TOLL FREE
1–800–227–2600
2 Working Days Before You Dig

BASIS OF BEARING
THE BEARINGS SHOWN HEREON ARE BASED ON THE GRID BEARING N 53°20'15" W BETWEEN CONTINUOUSLY OPERATING REFERENCE STATIONS (CORS) "PPBF" (PID AJ1911) AND "MLFP" (PID AJ1887) AS PER RECORDS PUBLISHED BY THE NATIONAL GEODETIC SURVEY.

PPBF	MLFP
NORTH: 2248886.85	NORTH: 2279468.00
EAST: 6278618.84	EAST: 6237668.24

SEE SHEET NO. 1 FOR DATUM STATEMENT

BENCH MARK
RIVERSIDE COUNTY DESIGNATION: M–40–4 RESET 11/30/76.
AT THE SW CORNER OF NASON ST. AND ALESSANDRO BLVD; 56' EAST OF CL OF NASON ST; 48' SOUTH OF CL OF ALESSANDRO BLVD; 3' WEST OF TP #GT–70306, 1' NORTH OF A 4"X4" MARKER POST; BRASS DISK SET IN TOP OF A CONCRETE POST, STAMPED M–40–4 RESET 1976.
ELEVATION (FEET): 1590.938 (NAVD 88) AS SHOWN ON RCFC&WCD PLAN "MORENO MDP LINE 1", DRAWING NO. 4–738.

MARK	REVISIONS	APPR.	DATE
		MWN	3/22/17
3	AS-BUILT REVISION SHEETS 3,5,6,8,9,10,11,13,14,15 TO 18, 20, 21, 24, 25, 26, 28, 29, 41 TO 47 AND 49 TO 53 (OF 125)	TB	4/21/16
2	REVISED SHEETS 41 TO 47 (OF 125)	TB	2/6/15
1	REVISED SHEETS 31 TO 47 (OF 125)	TB	2/14/14

DESIGNED BY MWN, CEB — DRAWN BY CEB, PDB — CHECKED BY MWN

CITY OF MORENO VALLEY APPROVALS

APPROVED BY	DATE	BY
CITY TRAFFIC ENGINEER	1/21/14	EL
MAINTENANCE AND OPERATIONS MANAGER	1/22/14	M
SENIOR ENGINEER	1/18/14	AA

RECOMMENDED: PREM KUMAR, DEPUTY PW DIRECTOR / ASSISTANT CITY ENGINEER, R.C.E. #52482 — 1/29/14 DATE
APPROVED: AHMAD R. ANSARI, PUBLIC WORKS DIRECTOR/CITY ENGINEER, R.C.E. #51318 — 1/29/14 DATE

PROACTIVE ENGINEERING CONSULTANTS
WWW.PROACTIVEENGINEERING.NET
1875 CALIFORNIA AVE., CORONA, CA. 92881
951.280.3300

UNDER THE SUPERVISION OF:
MICHAEL W. NG — 1/17/14 DATE
R.C.E. #44875 EXP. 3/31/2014

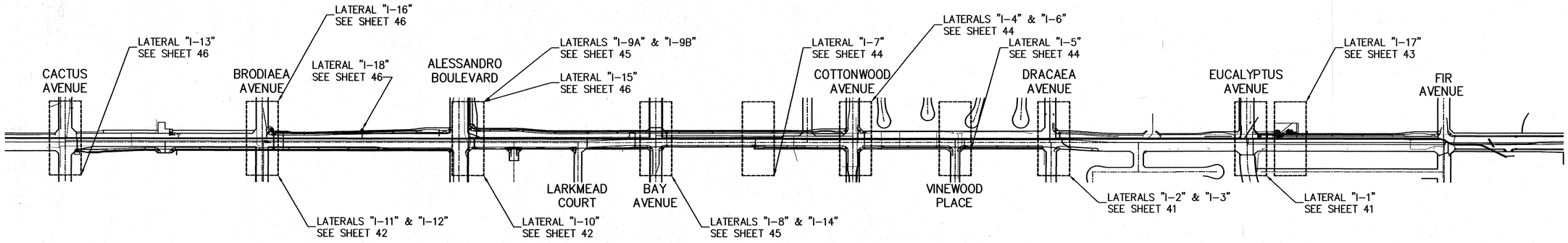
ENGINEER OF RECORD'S SEAL
REGISTERED PROFESSIONAL ENGINEER MICHAEL W. NG No. 44875 Exp. 3/31/2014 CIVIL STATE OF CALIFORNIA

CITY OF MORENO VALLEY
STREET IMPROVEMENT PLANS
NASON STREET
TITLE SHEET

ACCT. NO. 2000–70–77–80001
SHEET 1 OF 49
PROJECT NO. 801 000 70 77

Plotted: Jan 17, 2014 – 10:26am by: J_Vargas Drawing Name: Z:\06170.000_MV_Nason Street\Drawings\Street Improvements\01_NASON_St Imp Sheet_TITLE.dwg

SHT. 1 OF 125



INDEX MAP

N.T.S.

R.C.F.C. & W.C.D. STANDARD DRAWINGS

CB 108	GRATE INLET TYPE X
JS 229	JUNCTION STRUCTURE No. 4
JS 231	JUNCTION STRUCTURE No. 6
MH 252	MANHOLE NO. 2
TS 303	TRANSITION STRUCTURE NO. 3
M 801	CHAIN LINK FENCE
M 803	CONCRETE COLLAR
M 816	CONCRETE BULKHEAD

CITY OF MORENO VALLEY STANDARD DRAWINGS

117	RESIDENTIAL DRIVEWAY APPROACH
302A	CATCH BASIN

CALTRANS STANDARD DRAWINGS

D86B	PIPE CULVERT WARPED WINGWALL.

REGISTERED PROFESSIONAL ENGINEER THOMAS E. BRAUN Expires 3/31/2015 41817 CIVIL STATE OF CALIFORNIA

AS-BUILT BY [signature] DATE 2/3/15 PER ORIGINAL PLAN

DIGALERT CALL TOLL FREE 1-800-227-2600 2 Working Days Before You Dig

BASIS OF BEARING

THE BEARINGS SHOWN HEREON ARE BASED ON THE GRID BEARING N 53°20'18" W BETWEEN CONTINUOUSLY OPERATING REFERENCE STATIONS (CORS) "PPSP" (PID AJ1911) AND "MLFP" (PID AJ1887) AS PER RECORDS PUBLISHED BY THE NATIONAL GEODETIC SURVEY.

PPSP	MLFP
NORTH: 2248986.85	NORTH: 2279468.00
EAST: 6278618.84	EAST: 6237668.24

SEE SHEET NO. 1 FOR DATUM STATEMENT

BENCH MARK

RIVERSIDE COUNTY DESIGNATION: M-40-4 RESET 11/30/76. AT THE SW CORNER OF NASON ST. AND ALESSANDRO BLVD; 56' EAST OF CL OF NASON ST; 46' SOUTH OF CL OF ALESSANDRO BLVD; 3' WEST OF TP ACT-70306, 1' NORTH OF A 4"X4" MARKER POST; BRASS DISK SET IN TOP OF A CONCRETE POST, STAMPED M-40-4 RESET 1976.

ELEVATION (FEET): 1560.938 (NAVD 88) AS SHOWN ON RECOMMENCED PLAN "MORENO MDP LINE I", DRAWING NO. 4-738.

MARK	REVISIONS	APPR.	DATE

DESIGNED BY MWN, CEB DRAWN BY CEB, PDB CHECKED BY MWN

CITY OF MORENO VALLEY APPROVALS

APPROVED BY	DATE	BY
CITY TRAFFIC ENGINEER	1/21/14	EL
MAINTENANCE AND OPERATIONS MANAGER	1/21/14	AK
SENIOR ENGINEER	1/19/14	AA

RECOMMENDED: [signature] 1/29/14 DATE
PREM KUMAR
DEPUTY PW DIRECTOR / ASSISTANT CITY ENGINEER
R.C.E. #50483

APPROVED: [signature] 1/30/14 DATE
AHMAD R. ANSARI
PUBLIC WORKS DIRECTOR/CITY ENGINEER
R.C.E. #51318

PROACTIVE ENGINEERING CONSULTANTS
WWW.PROACTIVEENGINEERING.NET
1875 CALIFORNIA AVE • CORONA, CA • 92881
951-280-3300

UNDER THE SUPERVISION OF: [signature] 1/17/14 DATE
MICHAEL W. NG
R.C.E. #44875 EXP. 3/31/2014

ENGINEER OF RECORD'S SEAL
REGISTERED PROFESSIONAL ENGINEER MICHAEL W. NG No. 44875 Exp. 3/31/2014 CIVIL STATE OF CALIFORNIA

CITY OF MORENO VALLEY

NASON STREET
MORENO MDP
LINE I
STORM DRAIN IMPROVEMENTS
SHEET INDEX

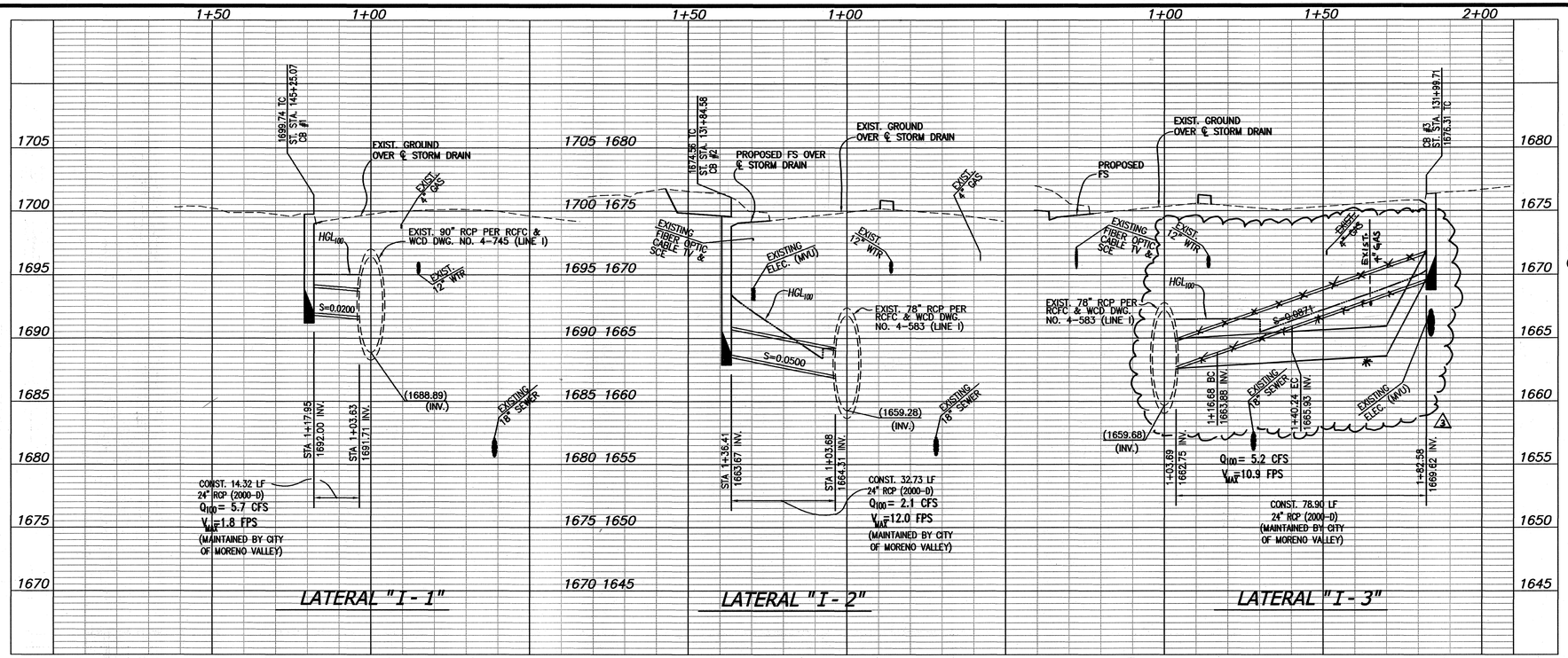
ACCT. NO. 2000-70-77-80001

SHEET 40 OF 49

PROJECT NO. 801 0001 70 77

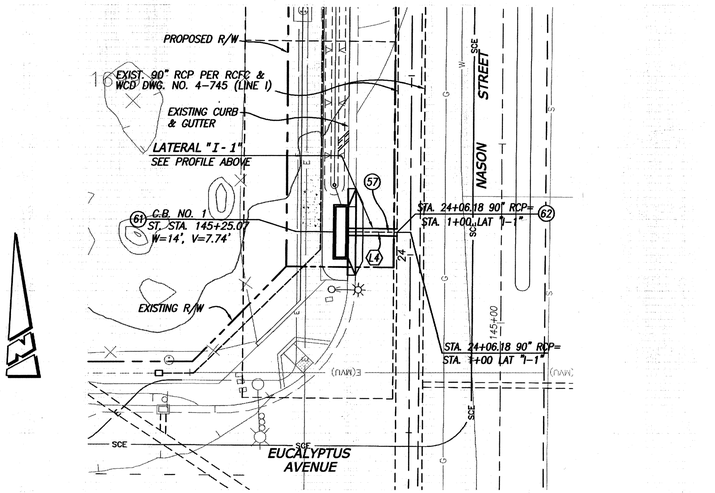
SHT. 48 OF 125

Drawing Name: Z:\06.170.000_MV_Nason Street\Drawings\Street Improvements\40_SD_01_NASON_St Imp Sheet.dwg
Plotted: Jan 17, 2014 - 1:27pm by: J_Vargas

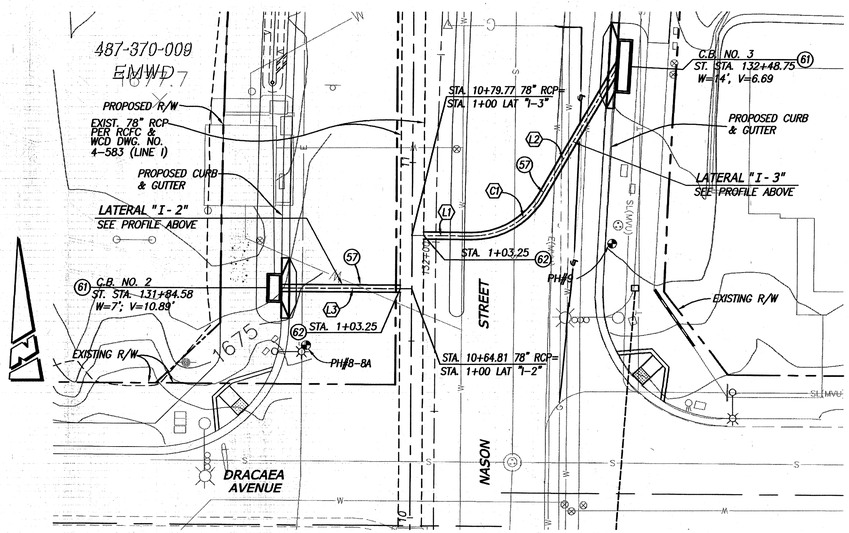


PROFILE

* FINAL ELEVATION OF SD IS NOT EXACT. (2)



LATERAL "I-1"



LATERAL "I-2" & LATERAL "I-3"

SCALE: 1"=20'

POTHOLE DATA TABLE						
NO.	STATION	OFFSET	UTILITY	SIZE/MATERIAL	DEPTH TO TOP	DEPTH TO BOTTOM
8	131+68.46	36.08 LT.	CABLE TV & SIGNAL	2" STL	2.10'	2.27'
8A	131+68.46	36.08 LT.	ELEC. (SCE)	12" DUCT BANK	6.30'	6.96'
9	131+98.01	48.63 RT.	ELEC. (MVU)	26" ENC. STL.	4.20'	6.32'

LINE TABLE		
◇	BEARING	LENGTH
L1	N89°33'34"W	16.68'
L2	N30°26'26"E	42.34'
L3	N89°33'34"W	36.90'
L4	N89°33'34"W	17.95'

CURVE DATA			
◇	DELTA	RADIUS	LENGTH
C1	60°00'00"	22.50'	23.56'

REGISTERED PROFESSIONAL ENGINEER THOMAS E. BRAUN Expires 3/31/2015 41817 CIVIL STATE OF CALIFORNIA

AS-BUILT BY [illegible] DATE 7-21-14

CONSTRUCTION NOTES:

(57) CONSTRUCT 24" RCP (D-LOAD PER PROFILE).
(61) CONSTRUCT CATCH BASIN PER CITY OF MORENO VALLEY STD. 302A.
(62) CONSTRUCT JUNCTION STRUCTURE NO. 4 PER RCFC&WCD DWG. NO. JS229 (CASE PER PLAN).

DIGALERT CALL TOLL FREE 1-800-227-2600 2 Working Days Before You Dig

BASIS OF BEARING

THE BEARINGS SHOWN HEREON ARE BASED ON THE GRID BEARING N 53°20'18" W BETWEEN CONTINUOUSLY OPERATING REFERENCE STATIONS (CORS) "PPSP" (PID AJ1911) AND "MLFP" (PID AJ1887) AS PER RECORDS PUBLISHED BY THE NATIONAL GEODETIC SURVEY.

	PPSP	MLFP
NORTH:	2248986.85	NORTH: 2279468.00
EAST:	6278618.84	EAST: 6237668.24

SEE SHEET NO. 1 FOR DATUM STATEMENT

BENCH MARK

RIVERSIDE COUNTY DESIGNATION: M-40-4 RESET 11/30/76.
AT THE SW CORNER OF NASON ST. AND ALESSANDRO BLVD; 56' EAST OF CL OF NASON ST; 48' SOUTH OF CL OF ALESSANDRO BLVD; 3' WEST OF TP #GT-70306, 1' NORTH OF A 4"X4" MARKER POST; BRASS DISK SET IN TOP OF A CONCRETE POST, STAMPED M-40-4 RESET 1976.
ELEVATION (FEET): 1560.938 (NAVD 88)
AS SHOWN ON RCFC&WCD PLAN "MORENO MDP LINE 1", DRAWING NO. 4-738.

MARK	REVISIONS	APPR.	DATE
2	REVISED STORM DRAIN LATERAL	MWN	7/21/14

DESIGNED BY MWN, CEB DRAWN BY CEB, PDB CHECKED BY MWN

CITY OF MORENO VALLEY APPROVALS

APPROVED BY	DATE	BY
CITY TRAFFIC ENGINEER		
MAINTENANCE AND OPERATIONS MANAGER	1/21/14	
SENIOR ENGINEER	1/18/14	

RECOMMENDED: PREM KUMAR, DEPUTY PW DIRECTOR / ASSISTANT CITY ENGINEER, R.C.E. #52463 — DATE 1/29/14
APPROVED: AHMAD R. ANSARI, PUBLIC WORKS DIRECTOR/CITY ENGINEER, R.C.E. #51318 — DATE 1/29/14

PROACTIVE ENGINEERING CONSULTANTS WWW.PROACTIVEENGINEERING.NET 1875 CALIFORNIA AVE • CORONA, CA • 92881 951•280•3559

UNDER THE SUPERVISION OF: MICHAEL W. NG R.C.E. #44875 EXP. 3/31/2014 — DATE 1/17/14

ENGINEER OF RECORD'S SEAL: REGISTERED PROFESSIONAL ENGINEER MICHAEL W. NG No. 44875 Exp. 3/31/2014 CIVIL STATE OF CALIFORNIA

CITY OF MORENO VALLEY

MORENO MDP
LINE I
STORM DRAIN PLANS
LATERALS "I-1", "I-2" & "I-3"

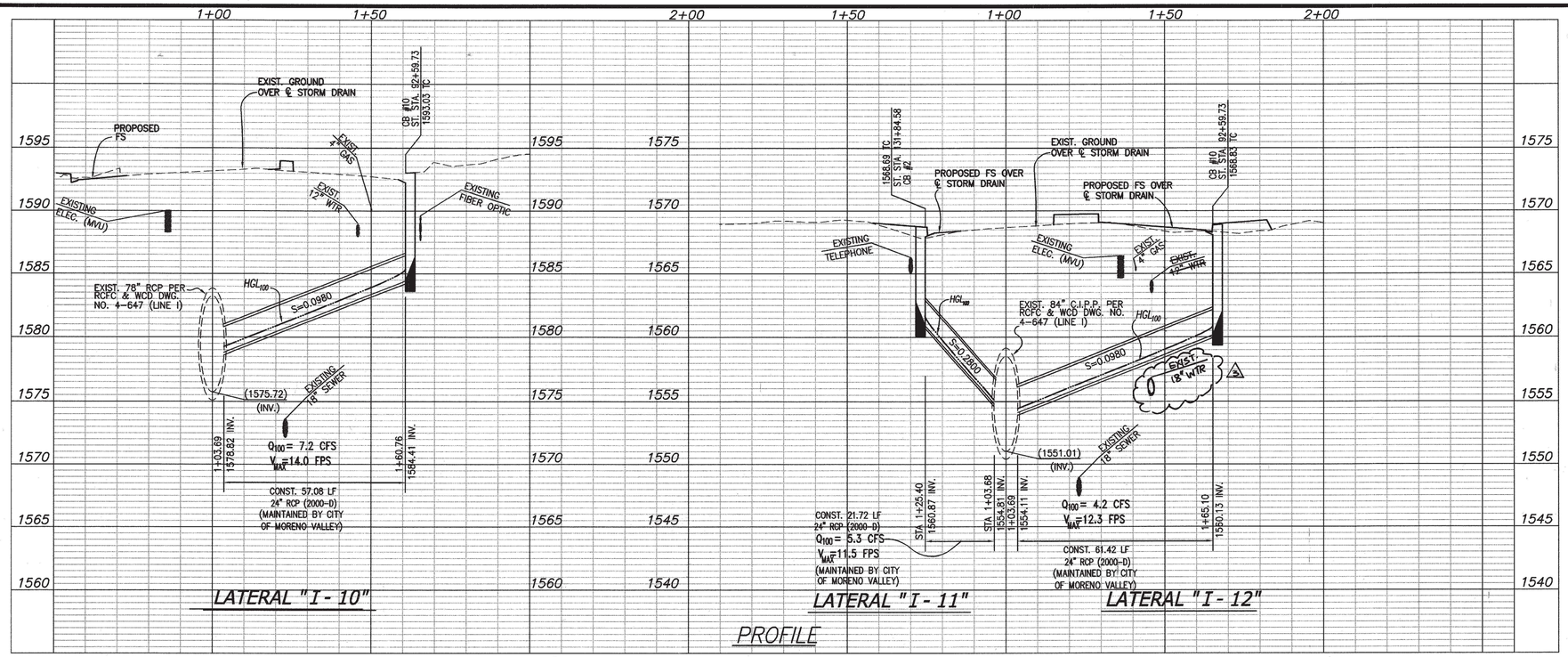
ACCT. NO. 2000-70-77-80001

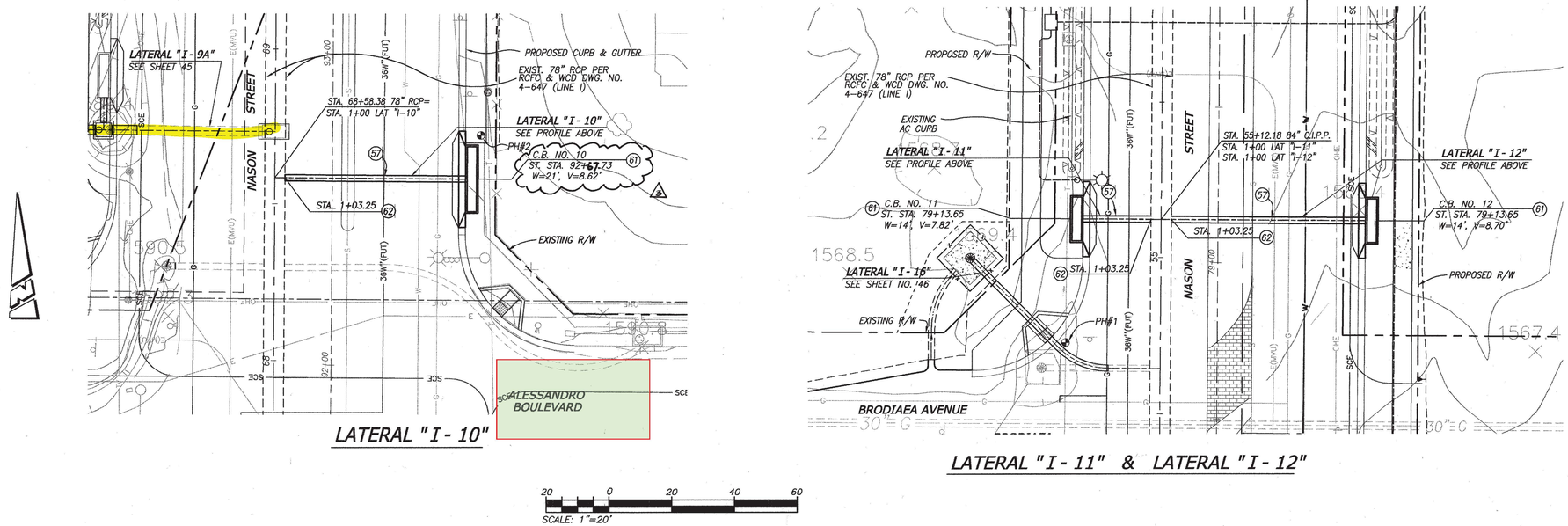
SHEET 41 OF 49

PROJECT NO. 801 0001 70 77

SHT. 49 OF 125

Plotted: Jan 17, 2014 - 1:42pm by: J_Vargas Drawing Name: Z:\06.170.000_MV_Nason Street\Drawings\Street Improvements\41_SD_02_NASON_St Imp Sheet.dwg





POTHOLE DATA TABLE						
NO.	STATION	OFFSET	UTILITY	SIZE/MATERIAL	DEPTH TO TOP	DEPTH TO BOTTOM
1	78+74.32	48.86 LT.	TELEPHONE	15" PVC	1.80'	3.10'
2	92+73.71	47.29 RT.	FIBER OPTIC	6" PVC	3.50'	4.00'

CONSTRUCTION NOTES:

(57) CONSTRUCT 24" RCP (D-LOAD PER PROFILE).
(61) CONSTRUCT CATCH BASIN PER CITY OF MORENO VALLEY STD. 302A.
(62) CONSTRUCT JUNCTION STRUCTURE NO. 4 PER RCFC&WCD DWG. NO. JS229 (CASE PER PLAN).

REGISTERED PROFESSIONAL ENGINEER THOMAS E. BRAUN Expires 3/31/2015 41817 CIVIL STATE OF CALIFORNIA

AS-BUILT BY [illegible] DATE 2/21/15

DIGALERT CALL TOLL FREE 1-800-227-2600 2 Working Days Before You Dig

BASIS OF BEARING

THE BEARINGS SHOWN HEREON ARE BASED ON THE GRID BEARING N 53°20'18" W BETWEEN CONTINUOUSLY OPERATING REFERENCE STATIONS (CORS) "PPBF" (PID AJ1911) AND "MJPP (PID AJ1927) AS PER RECORDS PUBLISHED BY THE NATIONAL GEODETIC SURVEY.

	PPBF	MJPP
NORTH:	2248986.85	NORTH: 2279468.00
EAST:	6278618.84	EAST: 6237668.24

SEE SHEET NO. 1 FOR DATUM STATEMENT

BENCH MARK

RIVERSIDE COUNTY DESIGNATION: M-40-4 RESET 11/30/76. AT THE SW CORNER OF NASON ST. AND ALESSANDRO BLVD; 56' EAST OF CL OF NASON ST; 48' SOUTH OF CL OF ALESSANDRO BLVD; 3' WEST OF TP #GT-70306, 1' NORTH OF A 4"X4" MARKER POST; BRASS DISK SET IN TOP OF A CONCRETE POST, STAMPED M-40-4 RESET 1976.

ELEVATION (FEET): 1590.938 (NAVD 88) AS SHOWN ON RCFC&WCD PLAN "MORENO MDP LINE I", DRAWING NO. 4-738.

MARK	REVISIONS	APPR.	DATE
2	REVISED CATCH BASIN LOCATION AND EXISTING WATER LINE ELEVATION	TB	2/21/15

DESIGNED BY MWN, CEB DRAWN BY CEB, PDB CHECKED BY MWN

CITY OF MORENO VALLEY APPROVALS

APPROVED BY	DATE	BY
CITY TRAFFIC ENGINEER		
MAINTENANCE AND OPERATIONS MANAGER	1/21/14	RL
SENIOR ENGINEER	1/16/14	AS

RECOMMENDED: PBKM KUMAR, DEPUTY PW DIRECTOR/ ASSISTANT CITY ENGINEER, R.C.E. #52483, 1/29/14 DATE

APPROVED: AHMAD R. ANSARI, PUBLIC WORKS DIRECTOR/CITY ENGINEER, R.C.E. #51318, 1/29/14 DATE

PROACTIVE ENGINEERING CONSULTANTS, www.proactiveengineering.net, 1875 California Ave • Corona, CA • 92881, 951•280•3300

UNDER THE SUPERVISION OF: MICHAEL W. NG, R.C.E. #44875 EXP. 3/31/2014, 6/17/14 DATE

ENGINEER OF RECORD'S SEAL: REGISTERED PROFESSIONAL ENGINEER MICHAEL W. NG No. 44875 Exp. 3/31/2014 CIVIL STATE OF CALIFORNIA

CITY OF MORENO VALLEY

MORENO MDP
LINE I
STORM DRAIN PLANS
LATERALS "I-10", "I-11" & "I-12"

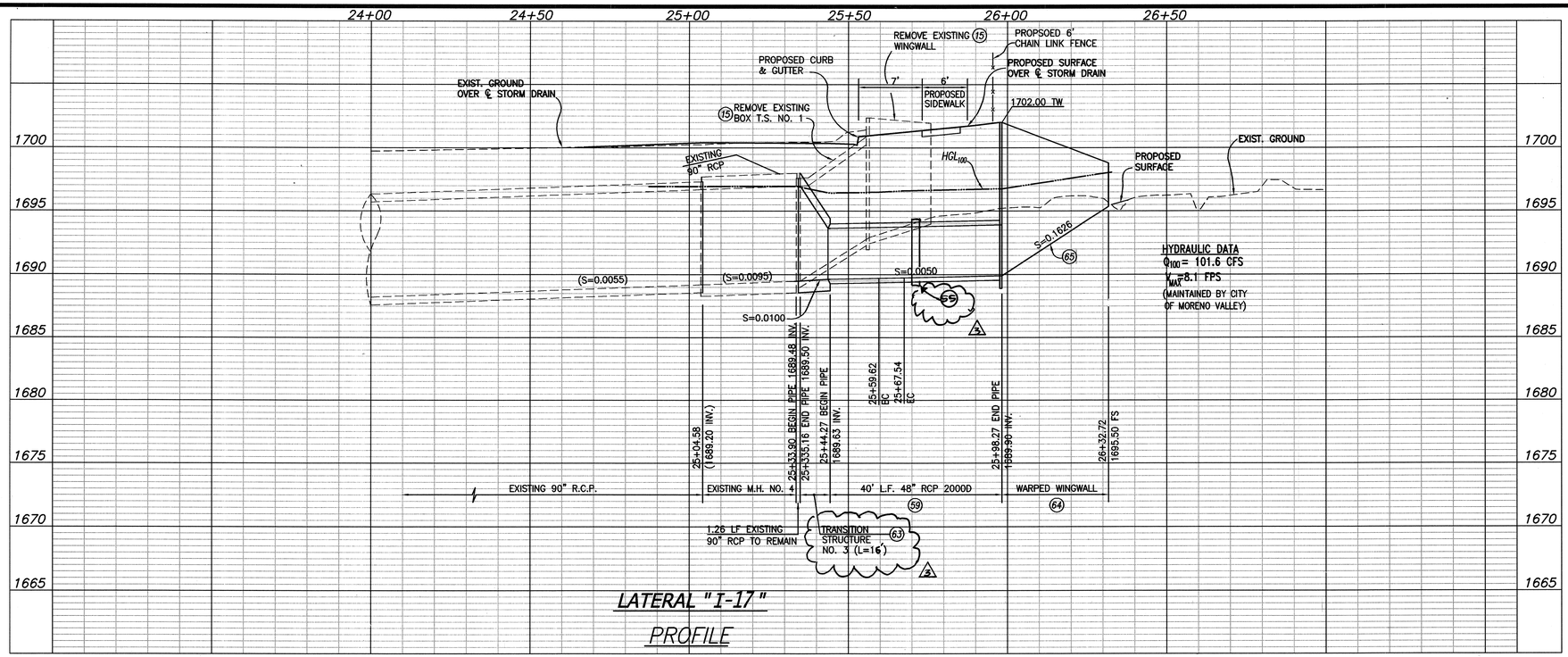
ACCT. NO. 2000-70-77-80001

SHEET 42 OF 49

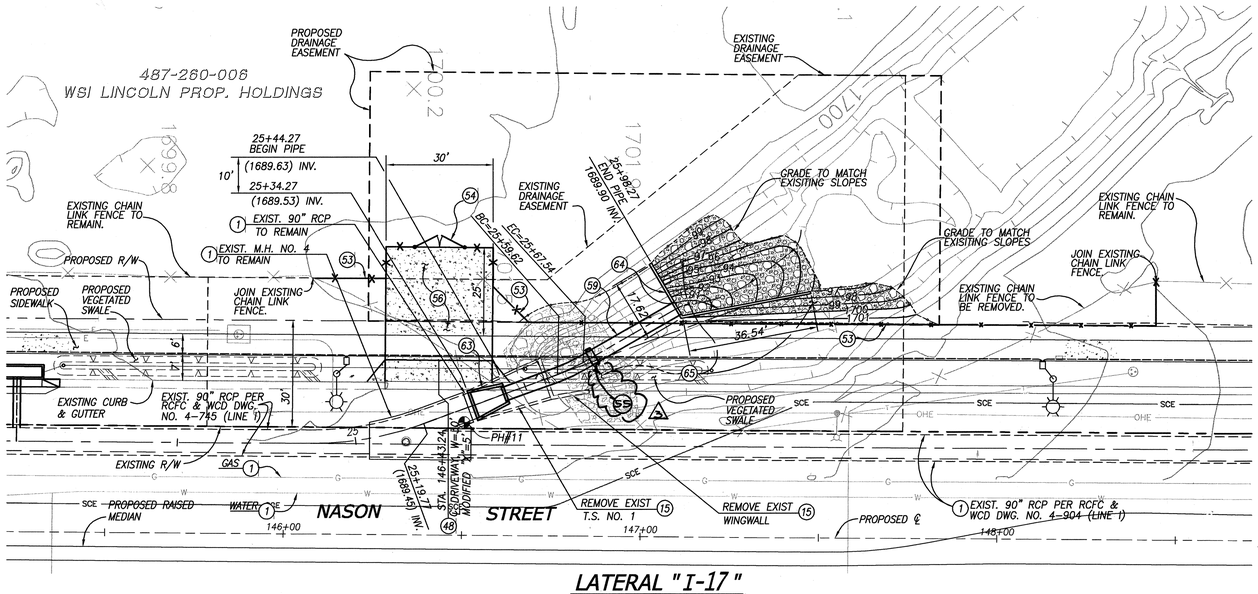
PROJECT NO. 801 0001 70 77

SHT. 50 OF 125

Plotted: Jan 17, 2014 - 1:48pm by: J_Vargas Drawing Name: Z:\06.170.000_MV_Nason Street\Drawings\Street Improvements\V2_SD_03_NASON_St Imp Sheet.dwg



LATERAL "I-17"
PROFILE



LATERAL "I-17"

SCALE: 1"=20'

POTHOLE DATA TABLE						
NO.	STATION	OFFSET	UTILITY	SIZE/MATERIAL	DEPTH TO TOP	DEPTH TO BOTTOM
11	146+50.15	31.53 LT.	90" RCP	90" RCP	4.10'	11.60'

CONSTRUCTION NOTES:

(1) PROTECT IN PLACE (AS SHOWN).
(15) REMOVE EXISTING INLET / OUTLET STRUCTURE / HEADWALL / BULKHEAD / CATCH BASIN, CONCRETE APRON (TYPE PER PLAN).
(46) CONSTRUCT RESIDENTIAL DRIVEWAY PER CITY OF MORENO VALLEY STD. 117A MODIFIED, W=30', X=5' (DRIVEWAY THICKNESS 8" PCC).
(53) INSTALL 6' CHAIN LINK FENCE PER RCFC & WCD DWG. NO. M801.
(54) INSTALL 14' DOUBLE DRIVE GATE PER RCFC & WCD DWG. NO. M801.
(56) CONSTRUCT 3" A.C. DRIVEWAY OVER 12" OF COMPACTED SUBGRADE
(59) CONSTRUCT 48" RCP (D-LOAD PER PROFILE).
(63) CONSTRUCT TRANSITION STRUCTURE NO. 3 PER RCFC & WCD DWG. NO. TS303.
(64) CONSTRUCT PIPE CULVERT WARPED WING WALL PER CALTRANS STD. D86B. (SOFT BOTTOM)
(65) RELOCATE EXISTING ¼ TON RIP-RAP TO LOCATION AS SHOWN ON PLAN, DISPOSE REMAINING UNUSED RIP-RAP.
(55) - CONSTRUCT CONCRETE COLLAR PER RCFC & WCD DWG. NO. M803. (2)

REGISTERED PROFESSIONAL ENGINEER THOMAS E. BRAUN Expires 3/31/2018 41817 CIVIL STATE OF CALIFORNIA

AS-BUILT BY [signature] DATE 2/24/17

DIGALERT
CALL TOLL FREE
1-800-227-2600
2 Working Days Before You Dig

BASIS OF BEARING
THE BEARINGS SHOWN HEREON ARE BASED ON THE GRID BEARING N 53°20'18" W BETWEEN CONTINUOUSLY OPERATING REFERENCE STATIONS (CORS) "PPBS" (PID AJ1911) AND "MLFP" (PID AJ1887) AS PER RECORDS PUBLISHED BY THE NATIONAL GEODETIC SURVEY.
PPBS NORTH: 2248986.85 EAST: 6278618.84
MLFP NORTH: 2279468.00 EAST: 6237668.24
SEE SHEET NO. 1 FOR DATUM STATEMENT

BENCH MARK
RIVERSIDE COUNTY DESIGNATION: M-40-4 RESET 11/30/76, AT THE SW CORNER OF NASON ST. AND ALESSANDRO BLVD; 56' EAST OF CL OF NASON ST; 48' SOUTH OF CL OF ALESSANDRO BLVD; 3' WEST OF TP #CI-70306, 1' NORTH OF A 4"X4" MARKER POST; BRASS DISK SET IN TOP OF A CONCRETE POST, STAMPED M-40-4 RESET 1976.
ELEVATION (FEET): 1590.938 (NAVD 88) AS SHOWN ON RCFC&WCD PLAN "MORENO MDP LINE I", DRAWING NO. 4-738.

MARK	REVISIONS	APPR.	DATE
2	REVISED TRANSITION STRUCTURE LEN LENGTH AND ADDED CONCRETE COLLAR	TB	2/24/17

DESIGNED BY MWN, CEB DRAWN BY CEB, PDB CHECKED BY MWN

CITY OF MORENO VALLEY APPROVALS

APPROVED BY	DATE	BY
CITY TRAFFIC ENGINEER		
MAINTENANCE AND OPERATIONS MANAGER	1/28/14	
SENIOR ENGINEER	1/18/14	

RECOMMENDED: PREM KUMAR, DEPUTY PW DIRECTOR / ASSISTANT CITY ENGINEER R.C.E. #52453 — 1/29/14 DATE
APPROVED: AHMAD R. ANSARI, PUBLIC WORKS DIRECTOR/CITY ENGINEER R.C.E. #51318 — 1/28/14 DATE

PROACTIVE ENGINEERING CONSULTANTS WWW.PROACTIVEENGINEERING.NET 1875 CALIFORNIA AVE • CORONA, CA • 92881 951•280•3300
UNDER THE SUPERVISION OF: MICHAEL W. NG R.C.E. #44875 EXP. 3/31/2014 — 1/27/14 DATE

ENGINEER OF RECORD'S SEAL
REGISTERED PROFESSIONAL ENGINEER MICHAEL W. NG No. 44875 Exp. 3/31/2014 CIVIL STATE OF CALIFORNIA

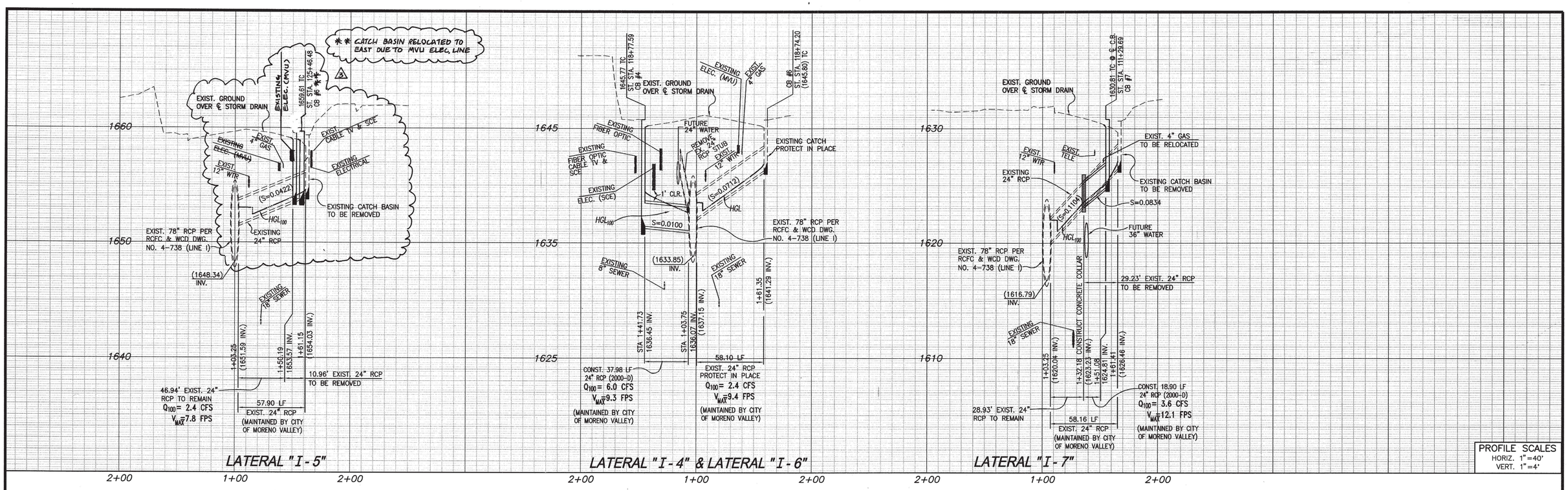
CITY OF MORENO VALLEY

MORENO MDP
LINE I
STORM DRAIN PLANS
LATERALS "I-17"

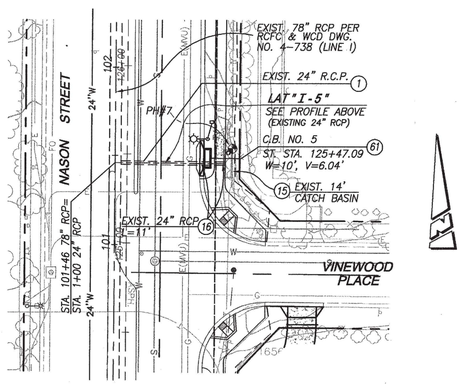
ACCT. NO. 2000-70-77-80001
SHEET 43 OF 49
PROJECT NO. 801 0001 70 77

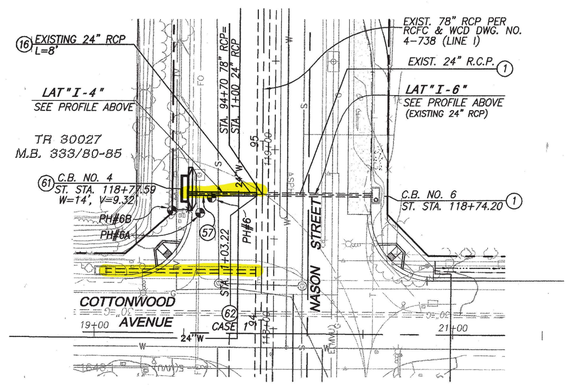
SHT. 51 OF 125

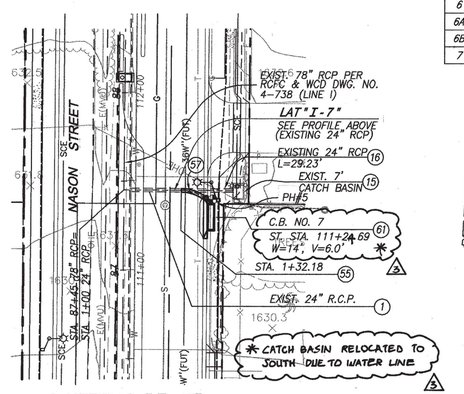
Plotted: Jan 17, 2014 - 1:55pm by: J_Vargas Drawing Name: Z:\06.170.000_MV_Nason Street\Drawings\Street Improvements\43_SD_04_NASON_St Imp Sheet.dwg



POTHOLE DATA TABLE						
NO.	STATION	OFFSET	UTILITY	SIZE/MATERIAL	DEPTH TO TOP	DEPTH TO BOTTOM
5	111+39.59	45.64 RT.	GAS	4" STL	3.00'	3.33'
6	118+72.49	35.14 LT.	FIBER OPTIC	23" ENC. STL.	2.50'	4.10'
6A	118+64.31	41.50 LT.	ELEC. (SCE)	28" ENC. STL.	3.80'	5.73'
6B	118+65.38	56.90 LT.	FIBER OPTIC	18" ENC. STL.	3.20'	4.70'
7	125+53.64	59.06 RT.	ELECTRICAL	18" ENC. CC.	1.64'	5.60'







CONSTRUCTION NOTES:

1. PROTECT IN PLACE (AS SHOWN).
15. REMOVE EXISTING INLET / OUTLET STRUCTURE / HEADWALL / BULKHEAD / CATCH BASIN, CONCRETE APRON (TYPE PER PLAN).
16. REMOVE EXISTING DRAINAGE PIPE. (SIZE AND LENGTH PER PLAN)
55. CONSTRUCT CONCRETE COLLAR PER RCFC&WCD DWG. NO. M803.
57. CONSTRUCT 24" RCP (D-LOAD PER PROFILE).
61. CONSTRUCT CATCH BASIN PER CITY OF MORENO VALLEY STD. 302A.
62. CONSTRUCT JUNCTION STRUCTURE NO. 4 PER RCFC&WCD DWG. NO. JS229 (CASE PER PLAN).

project in SWC

SCALE: 1"=40'

REGISTERED PROFESSIONAL ENGINEER THOMAS E. BRAUN Expires 3/31/2013 41817 CIVIL STATE OF CALIFORNIA

AS-BUILT BY DMS DATE 7/22/13

DIGALERT
CALL TOLL FREE 1-800-227-2600
2 Working Days Before You Dig

BASIS OF BEARING
THE BEARINGS SHOWN HEREON ARE BASED ON THE GRID BEARING N 53°20'18" W BETWEEN CONTINUOUSLY OPERATING REFERENCE STATIONS (CORS) "PPBF" (PID AJ1911) AND "MLFP" (PID AJ1887) AS PER RECORDS PUBLISHED BY THE NATIONAL GEODETIC SURVEY.
PPBF NORTH: 2248986.85 EAST: 8278618.84
MLFP NORTH: 2279468.00 EAST: 6237668.24
SEE SHEET NO. 1 FOR DATUM STATEMENT

BENCH MARK
RIVERSIDE COUNTY DESIGNATION: M-40-4 RESET 11/30/76.
AT THE SW CORNER OF NASON ST. AND ALESSANDRO BLVD; 56' EAST OF CL OF NASON ST; 48' SOUTH OF CL OF ALESSANDRO BLVD; 3' WEST OF TP #GT-70306, 1' NORTH OF A 4"X4" MARKER POST; BRASS DISK SET IN TOP OF A CONCRETE POST, STAMPED M-40-4 RESET 1976.
ELEVATION (FEET): 1590.938 (NAVD 88) AS SHOWN ON RCFC&WCD PLAN "MORENO MDP LINE I", DRAWING NO. 4-738.

MARK	REVISIONS	APPR.	DATE
3	REVISED CATCH BASIN LOCATION	TB	2/21/17

DESIGNED BY MWN, CEB DRAWN BY CEB, PDB CHECKED BY MWN

CITY OF MORENO VALLEY APPROVALS

APPROVED BY	DATE	BY
CITY TRAFFIC ENGINEER		
MAINTENANCE AND OPERATIONS MANAGER	1/21/14	
SENIOR ENGINEER	1/15/14	

RECOMMENDED: PREM KUMAR, DEPUTY PW DIRECTOR / ASSISTANT CITY ENGINEER R.C.E. #52463 — 1/29/14 DATE
APPROVED: AHMAD R. ANSARI, PUBLIC WORKS DIRECTOR/CITY ENGINEER R.C.E. #51318 — 1/29/14 DATE

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951-280-3300
UNDER THE SUPERVISION OF: MICHAEL W. NG R.C.E. #44875 EXP. 3/31/2014 — 1/17/14 DATE

ENGINEER OF RECORD'S SEAL
REGISTERED PROFESSIONAL ENGINEER MICHAEL W. NG No. 44875 Exp. 3/31/2014 CIVIL STATE OF CALIFORNIA

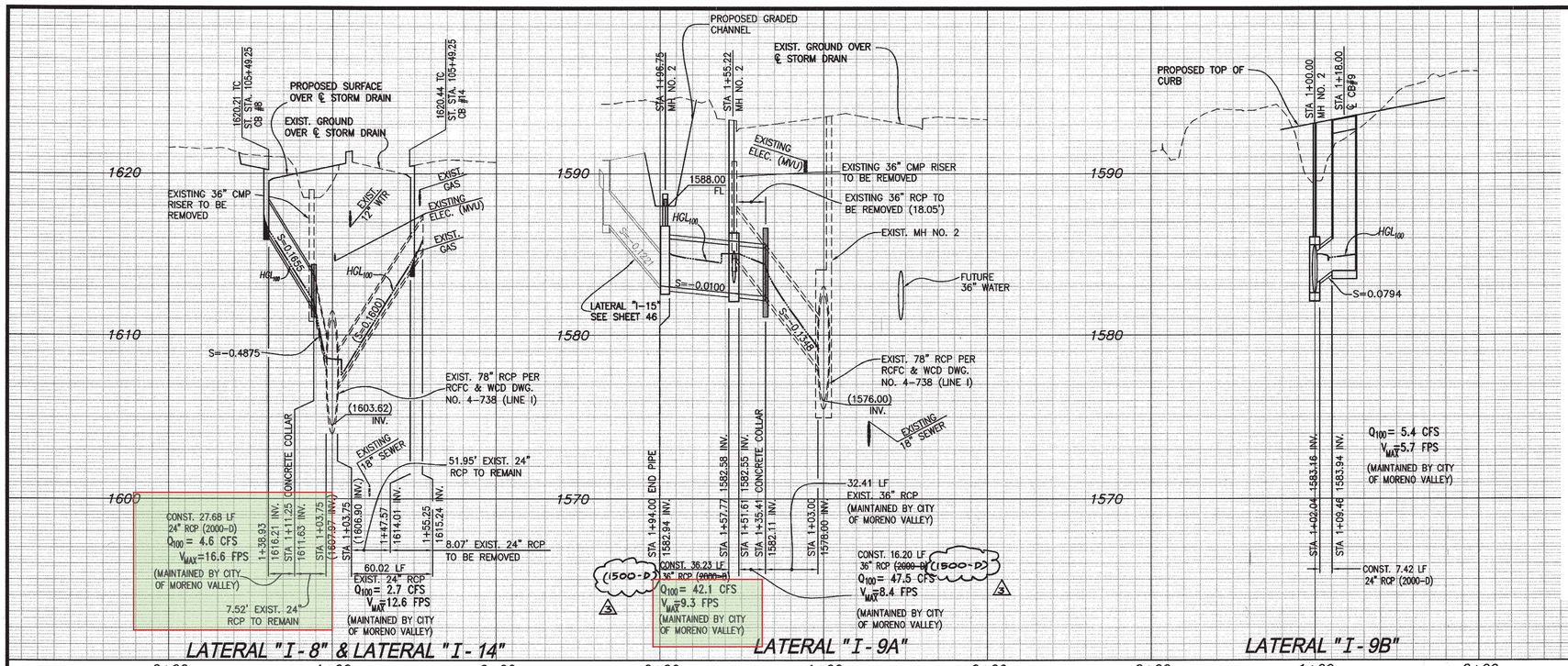
CITY OF MORENO VALLEY

MORENO MDP
LINE I
STORM DRAIN PLANS
LATERALS "I-4", "I-5", "I-6" & "I-7"

ACCT. NO. 2000-70-77-80001
SHEET 44 OF 49
PROJECT NO. 801 0001 70 77

SHT. 52 OF 125

Plotted: Jan 17, 2014 – 2:05pm by: J_Vargas Drawing Name: Z:\06.170.000_MV_Nason Street\Drawings\Street Improvements\V4_SD_05_NASON_St Imp Sheet.dwg

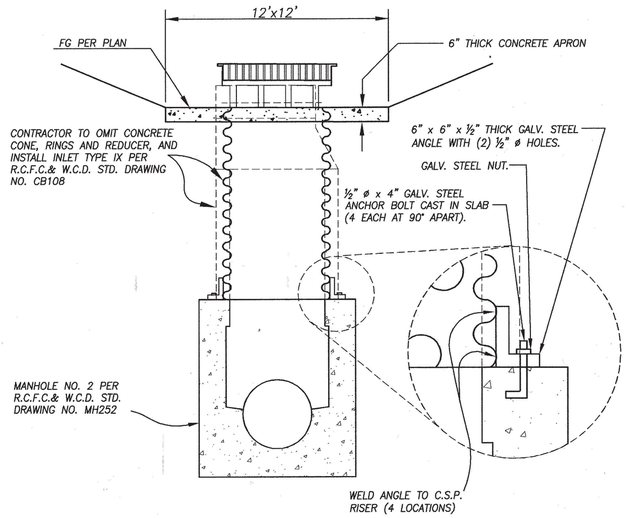


street flow only?

upstream q=3.2

42.1-3.2
38.9 cfs q100

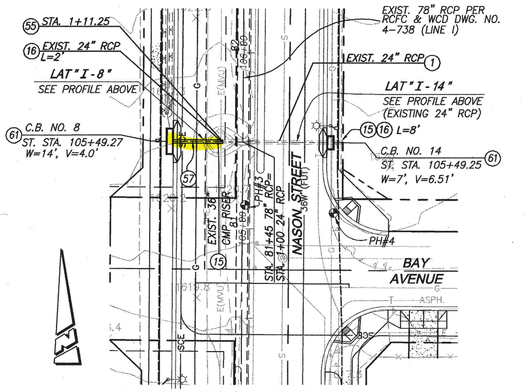
street flow only

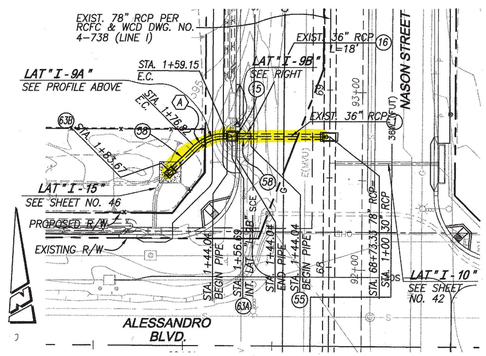


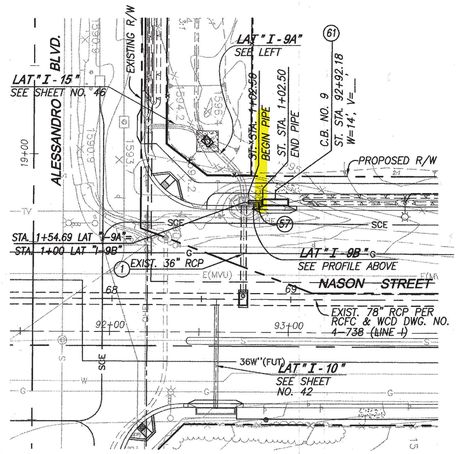
63B **MODIFIED MANHOLE NO. 2**

NOT TO SCALE

PROFILE SCALES
HORIZ. 1"=40'
VERT. 1"=4'







CURVE DATA			
NO.	DELTA	RADIUS	LENGTH
(A)	Δ=45°00'00"	22.50	17.67'

POTHOLE DATA TABLE					
NO.	STATION	OFFSET	UTILITY	SIZE/MATERIAL	DEPTH TO TOP	DEPTH TO BOTTOM
3	105+13.42	2.42 LT.	ELEC. (MVU)	6" PVC	4.70'	5.20'
4	105+09.35	47.05 RT.	GAS	4" STL	5.40'	5.73'

CONSTRUCTION NOTES:

(1) PROTECT IN PLACE (AS SHOWN).
(15) REMOVE EXISTING INLET / OUTLET STRUCTURE / HEADWALL / BULKHEAD / CATCH BASIN, CONCRETE APRON (TYPE PER PLAN).
(16) REMOVE EXISTING DRAINAGE PIPE. (SIZE AND LENGTH PER PLAN)
(55) CONSTRUCT CONCRETE COLLAR PER RCFC&WCD DWG. NO. M803.
(57) CONSTRUCT 24" RCP (D-LOAD PER PROFILE).
(58) CONSTRUCT 36" RCP (D-LOAD 1500) (5)
(61) CONSTRUCT CATCH BASIN PER CITY OF MORENO VALLEY STD. 302A.
(62) CONSTRUCT JUNCTION STRUCTURE NO. 4 PER RCFC&WCD DWG. NO. JS229 (CASE PER PLAN).
(63A) CONSTRUCT MANHOLE NO. 1 PER RCFC & WCD STD. MH251 (W PER PLAN).
(63B) CONSTRUCT MANHOLE NO. 2 PER RCFC & WCD STD. MH252 AND MODIFIED PER DETAIL ON SHEET 45.

REGISTERED PROFESSIONAL ENGINEER THOMAS E. BRAUN Expires 3/31/ 2014 41817 CIVIL STATE OF CALIFORNIA

AS-BUILT BY [illegible] DATE 2/21/14

40' 0 40' 80' 120'
SCALE: 1"=40'

DIGALERT
CALL TOLL FREE 1-800-227-2600
2 Working Days Before You Dig

BASIS OF BEARING
THE BEARINGS SHOWN HEREON ARE BASED ON THE GRID BEARING N 53°20'18" W BETWEEN CONTINUOUSLY OPERATING REFERENCE STATIONS (CORS) "PPBF" (PID AJ1911) AND "MLFP" (PID AJ1887) AS PER RECORDS PUBLISHED BY THE NATIONAL GEODETIC SURVEY.
PPBF NORTH: 2248986.85 EAST: 6278618.84
MLFP NORTH: 2279468.00 EAST: 6237668.24
SEE SHEET NO. 1 FOR DATUM STATEMENT

BENCH MARK
RIVERSIDE COUNTY DESIGNATION: M-40-4 RESET 11/30/76.
AT THE SW CORNER OF NASON ST. AND ALESSANDRO BLVD; 56' EAST OF CL OF NASON ST; 48' SOUTH OF CL OF ALESSANDRO BLVD; 3' WEST OF TP #GT-70306, 1' NORTH OF A 4"X4" MARKER POST; BRASS DISK SET IN TOP OF A CONCRETE POST, STAMPED M-40-4 RESET 1976.
ELEVATION (FEET): 1590.938 (NAVD 88) AS SHOWN ON RCFC&WCD PLAN "MORENO MDP LINE 1", DRAWING NO. 4-738.

MARK	REVISIONS	APPR.	DATE
2	REVISED RCP D-LOAD	TB	1/21/14

DESIGNED BY MWN, CEB DRAWN BY CEB, PDB CHECKED BY MWN

CITY OF MORENO VALLEY APPROVALS

APPROVED BY	DATE	BY
CITY TRAFFIC ENGINEER		
MAINTENANCE AND OPERATIONS MANAGER	1/21/14	
SENIOR ENGINEER	1/18/14	

RECOMMENDED: PREM KUMAR, DEPUTY PW DIRECTOR / ASSISTANT CITY ENGINEER R.C.E. #52463 — 1/29/14 DATE
APPROVED: AHMAD R. ANSARI, PUBLIC WORKS DIRECTOR/CITY ENGINEER R.C.E. #51318 — 1/29/14 DATE

PROACTIVE ENGINEERING CONSULTANTS
WWW.PROACTIVEENGINEERING.NET
1875 CALIFORNIA AVE., CORONA, CA. 92881
951-280-3300
UNDER THE SUPERVISION OF: MICHAEL W. NG R.C.E. #44875 EXP. 3/31/2014 — 1/17/14 DATE

ENGINEER OF RECORD'S SEAL
REGISTERED PROFESSIONAL ENGINEER MICHAEL W. NG No. 44875 Exp. 3/31/2014 CIVIL STATE OF CALIFORNIA

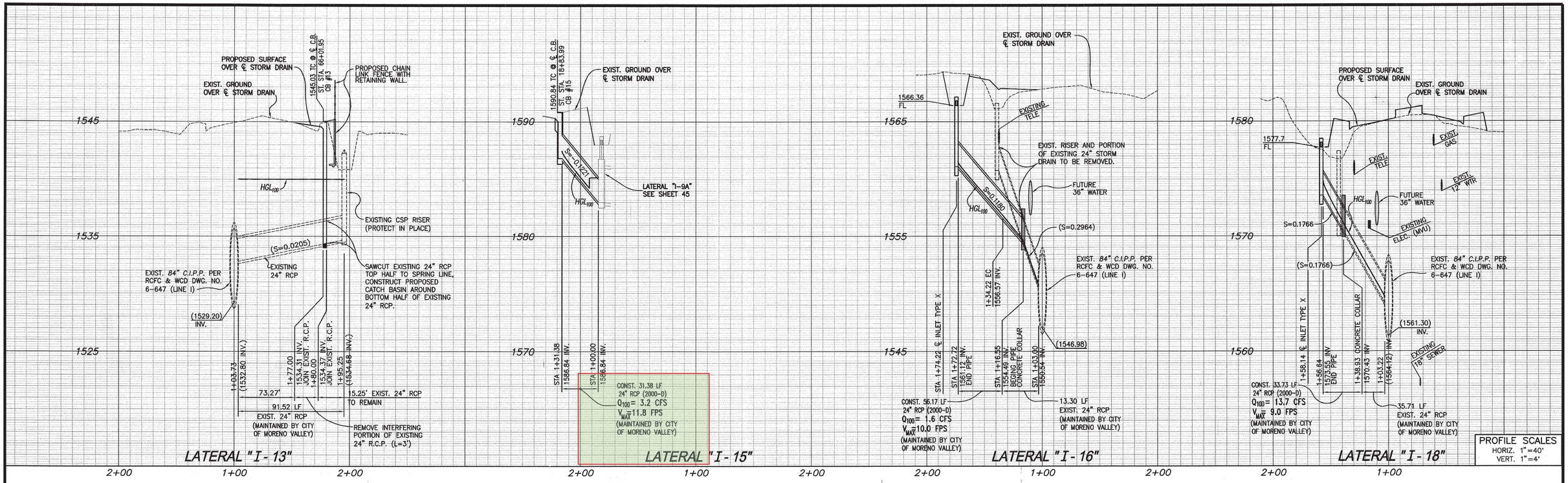
CITY OF MORENO VALLEY

MORENO MDP
LINE I
STORM DRAIN PLANS
LATERALS "I-8", "I-9A", "I-9B" & "I-14"

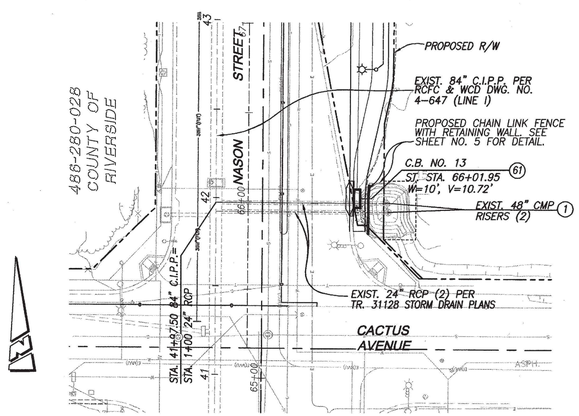
ACCT. NO. 2000-70-77-80001
SHEET 45 OF 49
PROJECT NO. 801 0001 70 77

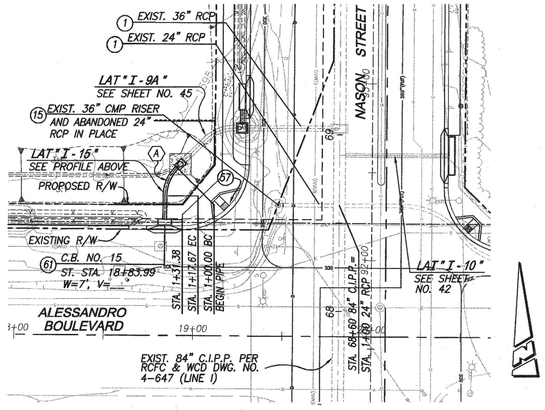
SHT. 53 OF 125

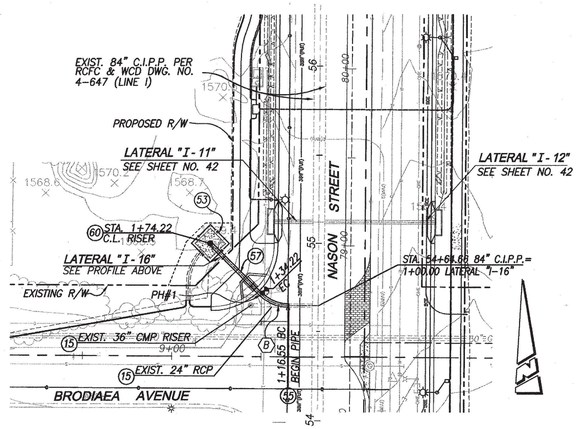
Plotted: Jan 17, 2014 - 2:08pm by: J_Vargas Drawing Name: Z:\06.170.000_MV_Nason Street\Drawings\Street Improvements\45_SD_06_NASON_St Imp Sheet.dwg

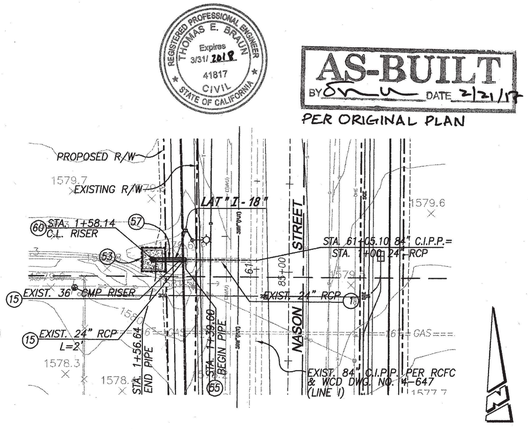


street flow only









REGISTERED PROFESSIONAL ENGINEER THOMAS E. BRAUER Expires 3/31/2018 41817 CIVIL STATE OF CALIFORNIA

AS-BUILT BY DMW DATE: 2/21/14 PER ORIGINAL PLAN

CONSTRUCTION NOTES:

1. PROTECT IN PLACE (AS SHOWN).
15. REMOVE EXISTING INLET / OUTLET STRUCTURE / HEADWALL / BULKHEAD / CATCH BASIN, CONCRETE APRON (TYPE PER PLAN).
53. INSTALL 6' CHAIN LINK FENCE PER RCFC & WCD DWG. NO. M801.
55. CONSTRUCT CONCRETE COLLAR PER RCFC&WCD DWG. NO. M803.
57. CONSTRUCT 24" RCP (D-LOAD PER PROFILE).
60. CONSTRUCT 36" CSP RISER PER RCFC & WCD DWG. NO. CB108 WITH GRATE ASSEMBLY AND 12'x12'x6" PCC APRON.
61. CONSTRUCT CATCH BASIN PER CITY OF MORENO VALLEY STD. 302A.

POTHOLE DATA TABLE						
NO.	STATION	OFFSET	UTILITY	SIZE/MATERIAL	DEPTH TO TOP	DEPTH TO BOTTOM
1	78+74.32	48.86 LT.	TELEPHONE	15" PVC	1.80'	3.10'

CURVE DATA			
NO.	DELTA	RADIUS	LENGTH
A	Δ=45°00'19"	22.50'	17.67'
B	Δ=44°59'22"	22.50'	17.67'

40' 0 40' 80' 120'
SCALE: 1"=40'

DIGALERT
CALL TOLL FREE
1-800-227-2600
2 Working Days Before You Dig

BASIS OF BEARING
THE BEARINGS SHOWN HEREON ARE BASED ON THE GRID BEARING N 53°20'18" W BETWEEN CONTINUOUSLY OPERATING REFERENCE STATIONS (CORS) "P99F" (PID AJ1911) AND "MLFP" (PID AJ1887) AS PER RECORDS PUBLISHED BY THE NATIONAL GEODETIC SURVEY.
P99F NORTH: 2248986.85 EAST: 6278618.84
MLFP NORTH: 2279468.00 EAST: 6237688.24
SEE SHEET NO. 1 FOR DATUM STATEMENT

BENCH MARK
RIVERSIDE COUNTY DESIGNATION: M-40-4 RESET 11/30/76.
AT THE SW CORNER OF NASON ST. AND ALESSANDRO BLVD; 56' EAST OF CL OF NASON ST; 48' SOUTH OF CL OF ALESSANDRO BLVD; 3' WEST OF TP #GT-70306, 1' NORTH OF A 4"X4" MARKER POST; BRASS DISK SET IN TOP OF A CONCRETE POST, STAMPED M-40-4 RESET 1976.
ELEVATION (FEET): 1590.938 (NAVD 88) AS SHOWN ON RCFC&WCD PLAN "MORENO MDP LINE 1", DRAWING NO. 4-738.

MARK	REVISIONS	APPR.	DATE

DESIGNED BY MWN, CEB DRAWN BY CEB, PDB CHECKED BY MWN

CITY OF MORENO VALLEY APPROVALS

APPROVED BY	DATE	BY
CITY TRAFFIC ENGINEER		
MAINTENANCE AND OPERATIONS MANAGER	1/21/14	
SENIOR ENGINEER	1/18/14	

RECOMMENDED: PREM KUMAR, DEPUTY PW DIRECTOR / ASSISTANT CITY ENGINEER R.C.E. #52483 — 1/29/14 DATE
APPROVED: AHMAD R. ANSARI, PUBLIC WORKS DIRECTOR/CITY ENGINEER R.C.E. #51318 — 1/29/14 DATE

PROACTIVE ENGINEERING CONSULTANTS
WWW.PROACTIVEENGINEERING.NET
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951•280•3300
UNDER THE SUPERVISION OF: MICHAEL W. NG R.C.E. #44875 EXP. 3/31/2014 — 1/17/14 DATE

ENGINEER OF RECORD'S SEAL
REGISTERED PROFESSIONAL ENGINEER MICHAEL W. NG No. 44875 Exp. 3/31/2014 CIVIL STATE OF CALIFORNIA

CITY OF MORENO VALLEY

MORENO MDP
LINE I
STORM DRAIN PLANS
LATERAL "I-13", "I-15", "I-16" & "I-18"

ACCT. NO. 2000-70-77-80001
SHEET 46 OF 49
PROJECT NO. 801 0001 70 77

SHT. 54 OF 125

Plotted: Jan 17, 2014 - 1:26pm by: J_Vargas Drawing Name: Z:\06.170.000_MV_Nason Street\Drawings\Street Improvements\46_SD_07_NASON_St Imp Sheet.dwg
Plotted: Jan 17, 2014 - 1:26pm by: J_Vargas Drawing Name: Z:\06.170.000_MV_Nason Street\Drawings\Street Improvements\46_SD_07_NASON_St Imp Sheet.dwg

HCOC Applicability Map

Hydromodification Susceptibility Documentation Report and Mapping
Riverside County Flood Control and Water Conservation District

Map 2