July 24, 2020

Mr. Mark Reno
Quincy Engineering
11017 Cobblerock Drive, Suite 100
Rancho Cordova, CA 95670

Aerially Deposited Lead Assessment Report
Santa Margarita Creek Bridge on El Camino Real
San Luis Obispo County, California

Dear Mr. Reno:

Haro Environmental, Inc. is pleased to present this letter report presenting the findings of a limited soil investigation performed to assess the potential for Aerially Deposited Lead (ADL) to be encountered during construction of the Santa Margarita Creek Bridge on El Camino Real project in San Luis Obispo County, California. The services performed by Haro Environmental have been performed at the request of Quincy Engineering who we understand has been contracted to complete replacement of the Santa Margarita Creek Bridge on El Camino Real, which includes soil work along both bridge approaches along El Camino Real. A Site Vicinity Map is provided on Plate 1 and an ADL Sampling Locations Map is provided on Plate 2. The primary objective of the limited ADL assessment was to screen soils within the project area that will be disturbed during construction of the project, and evaluate whether or not ADL is present in soils at concentrations that could require special handling and disposal.

The project description and objective, potential for ADL, scope of work, analytical results and discussion, statistical analysis, conclusions and recommendations, worker safety, and limitations are presented below.

PROJECT DESCRIPTION AND OBJECTIVE

Quincy Engineering, Inc., in cooperation with the California Department of Transportation (Caltrans) and San Luis Obispo County Public Works Department, proposes to replace the existing bridge over Santa Margarita Creek. The proposed projects includes improvement of roadways and intersections along El Camino Real extending approximately 1,050 feet northwest of the bridge (near the Sandoval Road intersection) and approximately 1,550 feet southeast of the bridge (near the Walnut Avenue intersection). Copies of the 95-percent project plans are provided in Attachment A.

The objective of this ADL assessment was to collect soil samples from areas within the project limits that will be disturbed, and to determine if lead concentrations exceed state and/or federal hazardous waste criteria, which could require special handling and disposal.

POTENTIAL FOR AERIALLY DEPOSTED LEAD

Based on the historical use of leaded gasoline prior to 1987, there is a potential for elevated concentrations of lead to be present in shallow soils along roads and highways constructed prior to this date. Lead concentrations in soils near highways are often attributed to emissions from vehicles powered by internal-

combustion engines that previously used leaded gasoline. At roads where the adjacent subgrade has not been disturbed, the presence of ADL is generally limited to the upper 3 feet of soil and typically does not extend farther than 30 feet from the roadway.

Historic aerial photographs indicate El Camino Real has been present since at least 1937, and remained a main arterial highway until Highway 101 was constructed in the 1960s. As such, there is a potential that shallow soils adjacent to El Camino Real may contain concentrations of ADL.

SCOPE OF WORK

On October 11, 2019, Haro Environmental collected 16 soil samples from 8 locations within the project area. The GPS coordinates of the soil sample locations are provided on Table B-1 in Attachment B. Soil samples were collected from two depth intervals, 0-0.5 and 1.5-2 feet below ground surface (bgs), to assess the vertical limits of impacts, if detected. The sampling depths were adjusted in the field at two locations, ADL-5 and ADL-6, due to hand auger refusal and the samples were therefore collected from 0.5-1 foot bgs. The soil sampling locations were selected to assess representative soils potentially disturbed during construction of the project. The soil samples were collected using a stainless steel hand auger, transferred into laboratory-recommended plastic bags, placed into a cooler, and transferred under chain-of-custody protocol to Eurofins/Calscience Laboratories of Garden Grove, California, a State-certified analytical laboratory, for analysis of total lead using USEPA Test Method 6010B.

Based on the analytical results, total lead was detected in three samples at concentrations exceeding 50 milligrams per kilogram (mg/kg) and were further tested for soluble lead using the modified California Title 22 Waste Extraction Test (CA-WET) using citric acid as the extractant. In addition, one sample exceeded 100 mg/kg total lead and was further tested for soluble lead using the Toxicity Leaching Characteristic Procedure (TCLP; USEPA Test Method 1311).

During sampling, the equipment was decontaminated between each sampling location using the 3-bucket method, which consisted of an initial wash using an Alconox solution, followed by a rinse with potable water and then a final rinse with deionized water. Sampling locations were backfilled with soil cuttings, and wash and rinse water was discharged to the soil surface at the sampling locations.

ANALYTICAL RESULTS AND DISCUSSION

Title 22 of California Code of Regulations (CCR) states solid wastes with total lead concentrations equal to or exceeding 1,000 mg/kg [referred to as the Total Threshold Limit Concentration (TTLC)] are classified as California hazardous waste. Solid wastes with soluble lead concentrations as measured using the CA-WET extraction equal to or exceeding 5.0 milligrams per liter (mg/L), also referred to as the Soluble Threshold Limit Concentration (STLC), are classified as California hazardous waste under Title 22. Per California law, hazardous materials must be transported under a hazardous waste manifest and disposed of at an appropriately permitted facility. Wastes with lead concentrations less than both the TTLC and the STLC are not a California hazardous waste, and may be disposed of at a Class II or III facility, provided that site-specific disposal facility requirements are satisfied. Furthermore, according to federal law, as stipulated in the Resource Conservation and Recovery Act (RCRA), wastes that exceed 5.0 mg/L soluble lead, extracted using the federal TCLP, are classified as RCRA hazardous waste. Testing for TCLP is triggered when the total lead concentration exceeds 100 mg/kg. If the TCLP exceeds 5 mg/L, this material must be disposed of as RCRA hazardous waste if transported offsite.

Total lead was detected in all 14 of the 16 soil samples ranging from 0.598 mg/kg to 289 mg/kg. Total lead exceeded 50 mg/kg (i.e., ten times higher than the STLC limit of 5.0 mg/L) in three samples and were; therefore, further tested for soluble lead using the CA-WET method. Soluble lead results ranged from 0.693 mg/L to 4.31 mg/L; less than the STLC limit for lead of 5.0 mg/L.

Only one sample exceeded the 100 mg/kg threshold for total lead; therefore, this sample was further tested using the TCLP extraction and soluble lead was not detected above the laboratory reporting limit of 0.500 mg/L; less than the TCLP threshold of 5.0 mg/L for RCRA hazardous waste. Total lead, STLC lead, and TCLP lead results are summarized on Table 1, and a copies of the laboratory analytical reports are provided in Attachment C.

STATISTICAL ANALYSIS

A statistical analysis of the ADL sample data was performed using ProUCL 5.1 software to calculate the sample statistics as well as the 95 percent Upper Confidence Limit (UCL) on the mean[1]. UCLs were calculated using standard bootstrap methodology and the data evaluated for goodness-of-fit against normal, gamma, and log normal distributions. Statistical outputs from the ProUCL software are summarized on Table 2 and provided in Attachment D. Based on the results of the statistical analysis, the data for all samples were assumed to follow a gamma distribution, for the 0-0.5 foot depth the data did not follow a normal, gamma, or log normal distribution and were analyzed using a normal distribution for nonparametric data per the recommendation of the ProUCL 5.0 users guide, and the 1.5-2 foot data appeared to follow a normal distribution.

Total Lead

The 95 percent UCL for total lead was calculated at 201 mg/kg for the 0.5-foot depth, 45.8 mg/kg for the 2-foot depth, and 116 mg/kg for all depths (Table 2). At all depth ranges, the 95 percent UCL for total lead was less than the TTLC threshold of 1,000 mg/kg.

Soluble Lead

Because of the limited size of the dataset available for the soluble lead results, a regression analysis was performed to predict the 95 percent UCL on the mean for CA-WET solubility. Excel software was used to perform the regression calculations by comparing the total lead and corresponding CA-WET data. A coefficient of determination (R^2) of -1.023 was calculated for the data set, indicating the regression line is a less efficient predictor than the mean, and; therefore, the mean of the STLC data was used.

The results presented in Table 2 indicate that the mean CA-WET results for soluble lead for all depths returned a lead level of 2.40 mg/L, below the 5.0 mg/L regulatory threshold and mainly driven by the soluble lead concentration detected in sample ADL-7-2 (4.31 mg/L).

CONCLUSIONS AND RECOMMENDATIONS

Near-surface soil within the project limits returned low levels of ADL. The results indicate total lead concentrations at or below 289 mg/kg, with the highest concentration detected along the eastern alignment of El Camino Real, closer to Walnut Avenue. Based on the mean and 95 percent UCL values shown in Table 2, the total lead concentrations in all depths are well below the TTLC of 1,000 mg/kg that defines the lower limit for hazardous waste.

Soluble lead was detected in three samples and the results ranged from 0.693 mg/L to 4.31 mg/L. None of the three samples analyzed returned soluble lead levels exceeding the individual STLC for lead of 5.0 mg/L. The regression analysis to predict soluble lead levels (CA-WET) returned a negative coefficient of determination; therefore, the mean of the STLC results of 2.40 mg/L was evaluated and is below the STLC threshold of 5.0 mg/L.

Regulatory criteria to classify a waste as "California Hazardous" for handling and disposal purposes are contained in CCR, Title 22, Division 4.5, Chapter 11, Article 3, subsection 66261.24. Federal criteria to

[1] United States Environmental Protection Agency (USEPA). 2016. *Statistical Software ProUCL 5.1.00 for Environmental Applications for Data Sets with and without Nondetect Observations*. Last updated June 20, 2016

classify a waste as "RCRA Hazardous Waste" are contained in Chapter 40 of the Code of Federal Regulations (40 CFR), Section 261. For a waste containing lead, the waste is classified as California Hazardous (non-RCRA) when:

- Total lead exceeds the TTLC of 1,000 mg/kg; or
- Soluble lead exceeds the STLC of 5.0 mg/L based on the standard CA-WET method.

Based on the analytical results, total and soluble lead concentrations did not exceed the waste criteria for non-RCRA or RCRA hazardous waste. Therefore, no additional testing appears warranted, and no special handling or disposal of soil encountered during the project appears warranted.

WORKER SAFETY

Because lead was detected at most locations within the project limits, we recommend that the contractor perform all grading operations in accordance with applicable Cal-OSHA requirements, including but not limited to, a project-specific worker Health & Safety Plan (HASP) as well as a project-specific Lead Compliance Plan (LCP) to prevent or minimize worker exposure to lead-impacted soil during construction. The LCP should include protocols for environmental and personnel monitoring, requirements for personal protective equipment, and other appropriate health and safety protocols and procedures for the handling of lead-impacted soil.

LIMITATIONS

This report has been prepared for and is intended for the exclusive use of Quincy Engineering. The services performed by Haro Environmental have been conducted in a manner consistent with the level of care and skill ordinarily exercised by members of our profession currently practicing under similar conditions in the site vicinity. No other warranty, express or implied, is offered.

Quincy Engineering can convey this report to an affiliate, related entity, subsidiary, lender, title insurer, regulatory/city agency or current property owner(s) and their agents, but further dissemination requires prior written approval from Haro Environmental.

Our conclusions regarding the Site are based on the results of a limited soil sampling program. The results of this evaluation are qualified by the fact that only limited sampling and analytical testing was conducted during this assessment. Haro Environmental offers no assurances and assumes no responsibility for site conditions or activities that were outside the scope of services outlined in this document.

The concentrations of chemicals detected at any given location may not be representative of conditions at other locations. Further, conditions may change at any particular location as a function of time in response to natural conditions, chemical reactions and other events. Conclusions regarding the condition of the Site do not represent a warranty that all areas within the Site are similar to those sampled.

During the course of the performance of Haro Environmental's services, hazardous materials may have been discovered. Haro Environmental assumes no responsibility or liability whatsoever for any claim, loss of property value, damage, or injury that results from pre-existing hazardous materials being encountered or present on the project site, or from the discovery of such hazardous materials. Nothing contained in this report should be construed or interpreted as requiring Haro Environmental to assume the status of an owner, operator, or generator, or person who arranges for disposal, transport, storage or treatment of hazardous materials within the meaning of any governmental statute, regulation or order. Quincy Engineering is solely responsible for directing notification of all governmental agencies, and the public at large, of the existence, release, treatment or disposal of any hazardous materials observed at the project site, either before or during performance of Haro Environmental's services. Quincy Engineering is responsible for directing all arrangements to lawfully store, treat, recycle, dispose, or otherwise handle hazardous materials, including cuttings and samples resulting from Haro Environmental's services.

If you have any questions regarding the information presented in this report, please contact Elliot Haro at 805.204.4483.

Sincerely,

HARO ENVIRONMENTAL, INC.

Elliot R Haro,
Principal Scientist

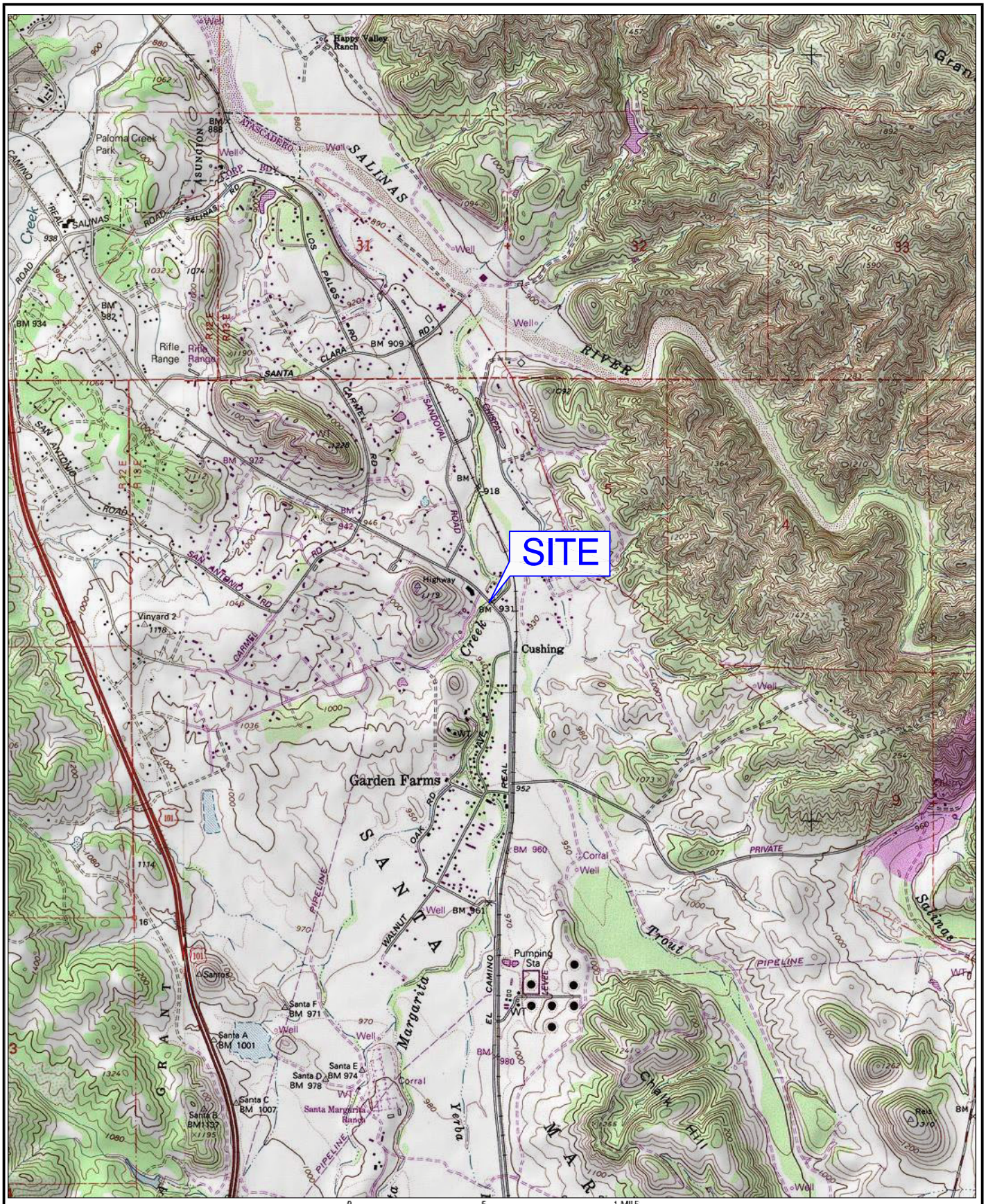
Steve Elliott
Professional Geologist #9060

Plates: Plate 1 Site Vicinity Map
Plate 2 ADL Sampling Locations Map

Tables: Table 1 Soil Analytical Testing Summary – Total Lead, STLC, TCLP
Table 2 Statistical Analysis Results – Total Lead and STLC

Attachments: Attachment A – Preliminary Project Plans
Attachment B – Sample Location Coordinates
Attachment C – Laboratory Analytical Reports
Attachment D – Statistical Analysis Output

Plates



Map created with TOPO!® ©2003 National Geographic (www.nationalgeographic.com/topo)

HARO ENVIRONMENTAL
872 Higuera Street
San Luis Obispo, CA 93401
Phone: 805 204 4483
Fax: 805 831 6081

FILE NAME: *SITE VICINITY MAP.DWG*

SITE VICINITY MAP

Santa Margarita Creek Bridge on El Camino Real
San Luis Obispo County, California

PLATE: 1
SHEET: of
REVISION NO: 0
DATE: 10/19

HARO ENVIRONMENTAL
872 Higuera Street
San Luis Obispo, California 93401
Phone: 805.204.4483
Fax: 805.832.6081

SALU MAP.dwg

SAMPLING LOCATIONS MAP

Santa Margarita Creek Bridge at El Camino Real
San Luis Obispo County, California

PLATE: 2

REVISION NO:

DATE: 11/19

Tables

Table 1
Soil Analytical Testing Summary - Total Lead, STLC, TCLP
Santa Margarita Creek Bridge at El Camino Real

		Chemical name	Lead	Lead	Lead
		Analysis Name	Total Lead (TTLC)	STLC	TCLP
		Analysis Method	USEPA 6010B	USEPA 6010B	USEPA 6010B
		Leachate Method	--	CA-WET	TCLP
		Units	mg/kg	mg/L	mg/L
Sample ID	Date Collected	Sample Depth (feet bgs)			
ADL-1-0.5	10/11/2019	0.5	18.8	--	--
ADL-1-2	10/11/2019	2	62.2	0.693	--
ADL-2-0.5	10/11/2019	0.5	18.7	--	--
ADL-2-2	10/11/2019	2	3.30	--	--
ADL-3-0.5	10/11/2019	0.5	6.55	--	--
ADL-3-2	10/11/2019	2	2.98	--	--
ADL-4-0.5	10/11/2019	0.5	9.84	--	--
ADL-4-2	10/11/2019	2	46.4	--	--
ADL-5-0.5	10/11/2019	0.5	<0.503	--	--
ADL-5-1	10/11/2019	1	0.598	--	--
ADL-6-0.5	10/11/2019	0.5	<0.495	--	--
ADL-6-1	10/11/2019	1	1.26	--	--
ADL-7-0.5	10/11/2019	0.5	289	2.20	<0.500
ADL-7-2	10/11/2019	2	71.6	4.31	--
ADL-8-0.5	10/11/2019	0.5	14.6	--	--
ADL-8-2	10/11/2019	2	18.9	--	--
		State Waste Criteria	1,000	5	--
		Federal Waste Criteria	--	--	5

Notes:
mg/kg = milligrams per kilogram
mg/L = milligrams per liter
STLC = Soluble Limit Threshold Concentration
CA-WET = California Waste Extraction Test
TCLP = Toxicity Characteristic Leaching Procedure
2-foot samples from locations ADL-5 and ADL-6 collected from 1 foot below ground surface due to hand auger refusal

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Table 2
Statistical Analysis Results - Total Lead
Santa Margarita Creek Bridge at El Camino Real

Total Lead (mg/kg)							
Depth	No. of Samples	Min	Max	Mean	Median	Standard Deviation	95% UCL
0.5	8	6.55	289	59.6	16.7	112.5	201
2*	8	0.598	71.6	25.9	11.1	29.7	45.8
All Depths	16	0.598	289	40.3	16.7	75.1	116

CA-WET Lead (mg/L)							
Depth	No. of Samples	Min	Max	Mean	Median	Standard Deviation	95% UCL**
All Depths	3	0.693	4.31	2.40	2.20	1.48	1.28

Notes:
mg/kg = milligrams per kilogram
mg/L = milligrams per liter
Analysis: USEPA Test Method 6010B
CA-WET = California Waste Extraction Test
95% UCL = 95 percent upper confidence limit
* = 2-foot samples from locations ADL-5 and ADL-6 collected from 1 foot below ground surface due to hand auger refusal
** = 95% UCL calculated based on the slope of the regression line and the 95% UCL of the mean for total lead
1) Min, Max, Mean, Median, and Standard Deviation calculated using the detected data
= coefficient of determination (e.g., R^2) was negative; use mean instead

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Attachment A

Dist	COUNTY	PROJECT	SHEET No.	TOTAL SHEETS
5	SLO	SANTA MARGARITA CREEK BRIDGE ON EL CAMINO REAL	1	69

SAN LUIS OBISPO COUNTY

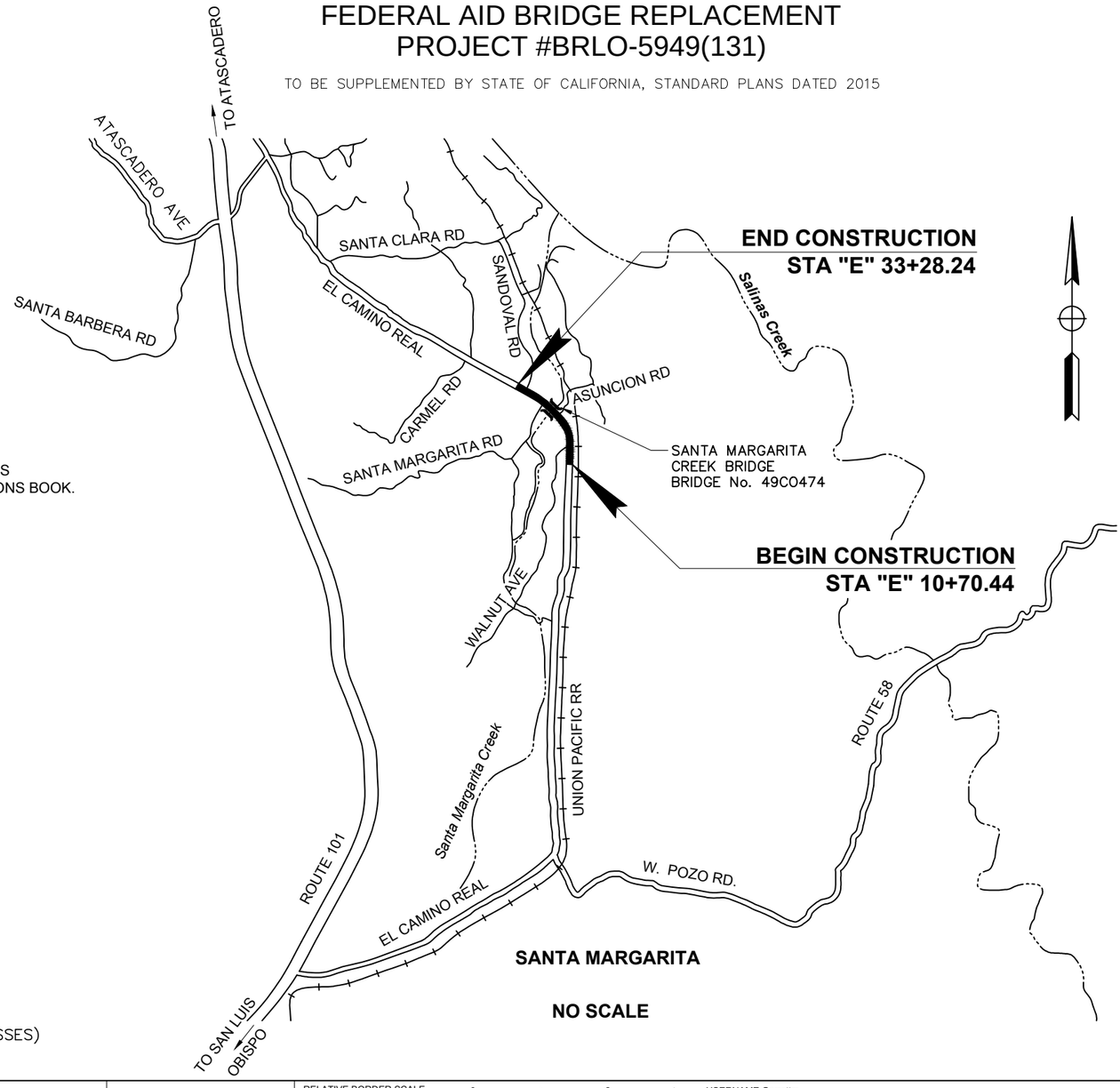
DEPARTMENT OF PUBLIC WORKS TRANSPORTATION

PROJECT PLANS FOR CONSTRUCTION OF SANTA MARGARITA CREEK BRIDGE ON EL CAMINO REAL

LOCATED 2.6 MILES NORTH OF SANTA MARGARITA

BRIDGE 49CO474
EXISTING BRIDGE 49CO310
FEDERAL AID BRIDGE REPLACEMENT
PROJECT #BRLO-5949(131)

TO BE SUPPLEMENTED BY STATE OF CALIFORNIA, STANDARD PLANS DATED 2015



SANTA MARGARITA

NO SCALE

LOCATION MAP

95% SUBMITTAL

INDEX OF PLANS

SHEET No.	ROADWAY PLANS
1	TITLE SHEET
2-4	TYPICAL CROSS SECTIONS
5-6	LAYOUT
7-8	PROFILE AND SUPERELEVATION DIAGRAM
9	PROFILE
10-19	CONSTRUCTION DETAILS
20-22	RIGHT OF WAY MAP
23	TEMPORARY STREAM DIVERSION PLAN
24-25	EROSION CONTROL PLAN
26-27	TREE REMOVAL AND IMPACTS
28-29	UTILITY PLAN
30	UTILITY DETAIL
31-37	STAGE CONSTRUCTION
38-46	TRAFFIC HANDLING PLAN
47-48	DETOUR PLAN
49-50	PAVEMENT DELINEATION PLAN
51-52	SIGN PLAN

	STRUCTURE PLANS
53	GENERAL PLAN
54	GENERAL NOTES
55	DECK CONTOURS
56	FOUNDATION PLAN
57	ABUTMENT 1 LAYOUT
58	ABUTMENT 4 LAYOUT
59	ABUTMENT DETAILS No. 1
60	ABUTMENT DETAILS No. 2
61	ABUTMENT DETAILS No. 3
62	PIER DETAILS No. 1
63	PIER DETAILS No. 2
64	TYPICAL SECTION
65	SUPERSTRUCTURE DETAILS No. 1
66	SUPERSTRUCTURE DETAILS No. 2
67	SUPERSTRUCTURE DETAILS No. 3
68	TUBULAR BICYCLE RAILING
69	LOG OF TEST BORINGS No. 1
70	LOG OF TEST BORINGS No. 2

THE STANDARD PLANS LIST APPLICABLE TO THIS CONTRACT IS INCLUDED IN THE NOTICE TO BIDDERS AND SPECIAL PROVISIONS BOOK.

THE CONTRACTOR SHALL POSSESS THE CLASS (OR CLASSES) OF LICENSE AS SPECIFIED IN THE "NOTICE TO BIDDERS."

65% SUBMITTAL

DIRECTOR OF PUBLIC WORKS

PROJECT MANAGER
REGISTERED CIVIL ENGINEER — DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
MARK L. RENO
No. C47756
CIVIL
STATE OF CALIFORNIA

THE COUNTY OF SAN LUIS OBISPO OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

QUINCY ENGINEERING
11017 COBBLEROCK DRIVE, SUITE 100
RANCHO CORDOVA, CA 95670
P: 916.368.9181

COUNTY OF SAN LUIS OBISPO
DEPARTMENT OF PUBLIC WORKS
1050 MONTEREY STREET
SAN LUIS OBISPO, CA 93408
PHONE: (805)781-5252

CONTRACT No. --

COUNTY PROJECT ENGINEER: KIDD C. IMMEL

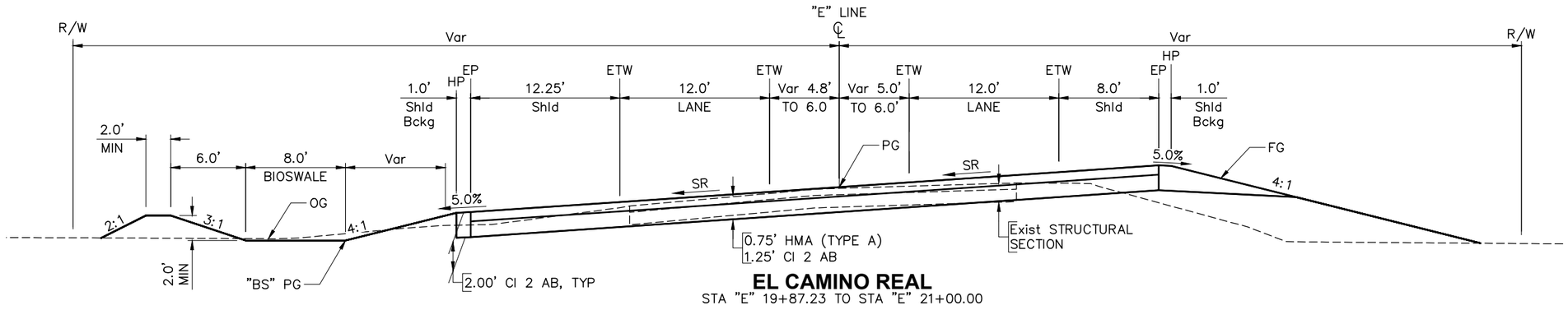
COUNTY PROJECT ENGINEER APPROVAL

DIRECTOR OF PUBLIC WORKS

TIME PLOTTED: 3:20:33 PM, Garrett McLaughlin

DATE PLOTTED: Friday, February 16, 2018

LAST REVISION



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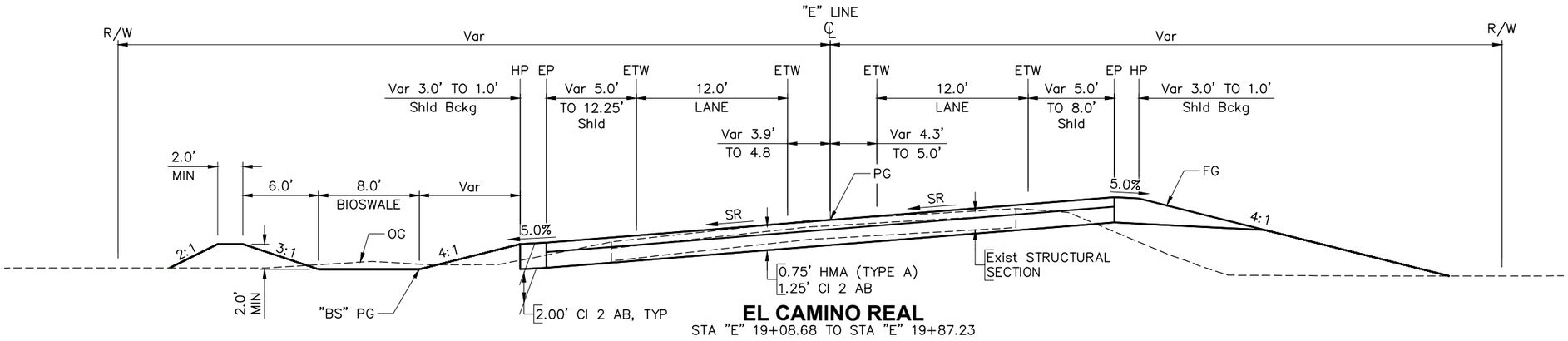

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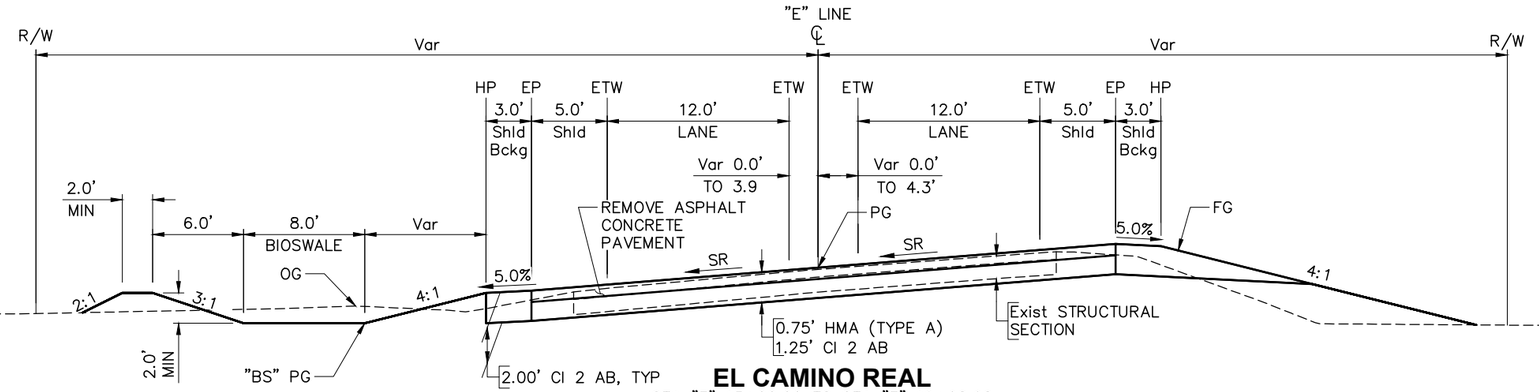

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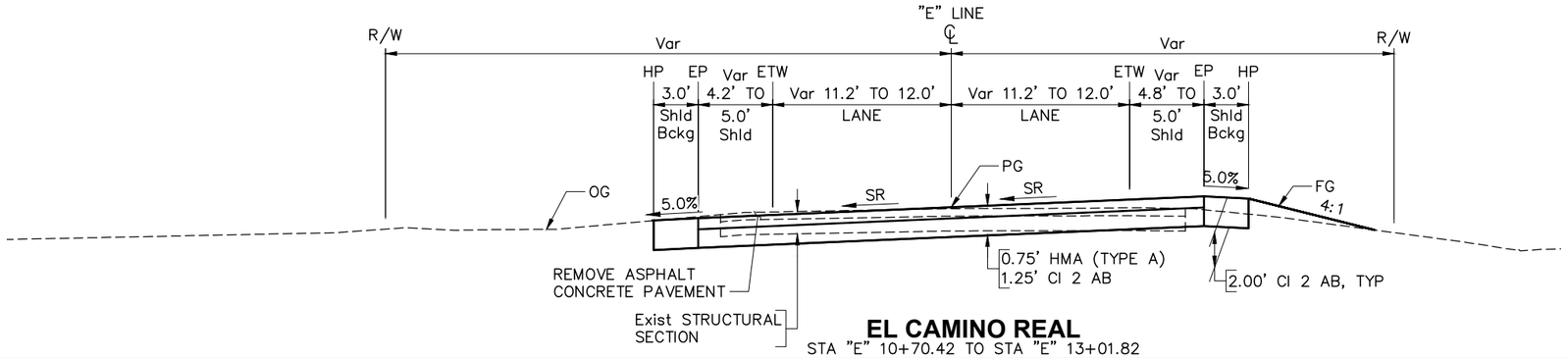

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Dist	COUNTY	PROJECT	SHEET No.	TOTAL SHEETS
5	SLO	SANTA MARGARITA CREEK BRIDGE ON EL CAMINO REAL	2	69

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — Garrett McLaughlin — No. C67687 — CIVIL — STATE OF CALIFORNIA

THE COUNTY OF SAN LUIS OBISPO OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

QUINCY ENGINEERING
11017 COBBLEROCK DRIVE, SUITE 100
RANCHO CORDOVA, CA 95670
P: 916.368.9181

65% SUBMITTAL

DESIGN DATA:

V	=	60 MPH
ADT (2006)	=	5046
ADT (2026)	=	7500
R	=	TBD
TI	=	8.5

LEGEND:

Bckg	=	BACKING
SR	=	SUPERELEVATION RATE

NOTES:

1. DIMENSIONS OF THE STRUCTURAL SECTION ARE SUBJECT TO THE TOLERANCES SPECIFIED IN THE STANDARD SPECIFICATIONS.
2. SUPERELEVATION RATE IS SHOWN ON THE SUPERELEVATION DIAGRAMS.

TYPICAL CROSS SECTIONS

NO SCALE

X-1

SAN LUIS OBISPO – DEPARTMENT OF PUBLIC WORKS
SANTA MARGARITA CREEK BRIDGE REPLACEMENT

CONSULTANT PROJECT MANAGER: MARK RENO

CALCULATED-DESIGNED BY: E. MCPHERSON
CHECKED BY: G. MCLAUGHLIN

REVISED BY | DATE REVISED

TIME PLOTTED: 3:22:18 PM, Garrett McLaughlin
DATE PLOTTED: Friday, February 16, 2018
LAST REVISION

BORDER LAST REVISED 7/2/2010

USERNAME Garrettm
DWG FILE S:\Client\SLO-County\S13-201-El Camino Real\CAD\roadway\AutoCad Civil 3D 2015\S13201rca001.dwg

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT UNIT

PROJECT NUMBER & PHASE S13201 – 65% SUBMITTAL

Dist	COUNTY	PROJECT	SHEET No.	TOTAL SHEETS
5	SLO	SANTA MARGARITA CREEK BRIDGE ON EL CAMINO REAL	3	69

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

THE COUNTY OF SAN LUIS OBISPO OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

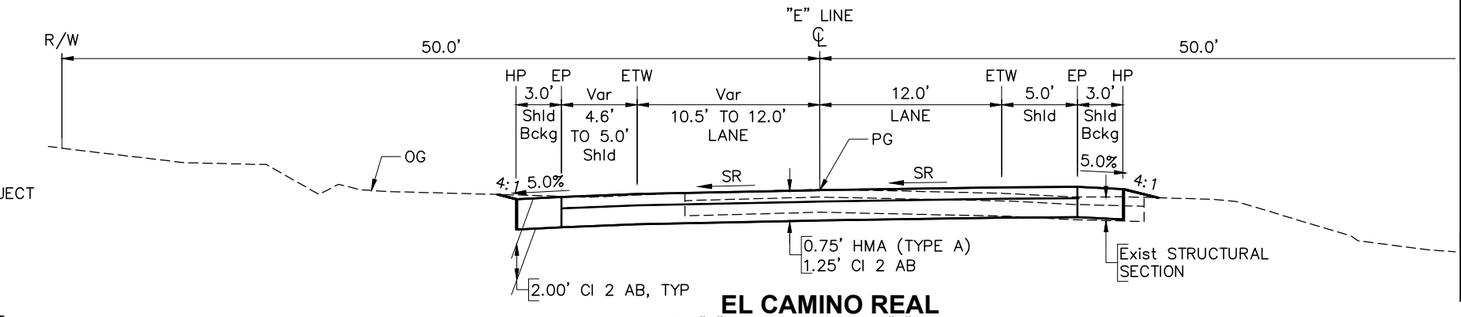
REGISTERED PROFESSIONAL ENGINEER — Garrett McLaughlin — No. C67687 — CIVIL — STATE OF CALIFORNIA

QUINCY ENGINEERING
11017 COBBLEROCK DRIVE, SUITE 100
RANCHO CORDOVA, CA 95670
P: 916.368.9181

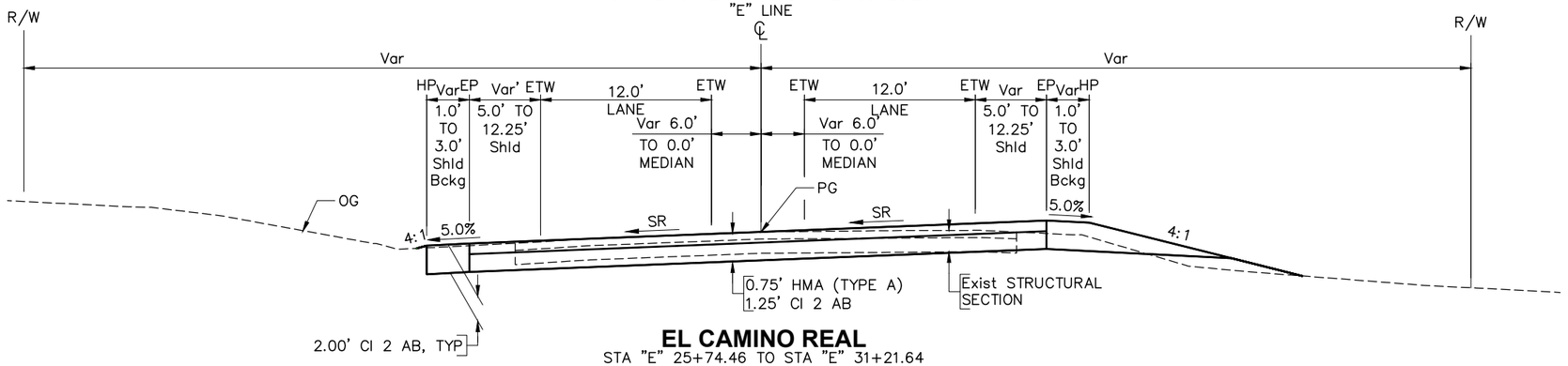
65% SUBMITTAL

NOTES:

1. DIMENSIONS OF THE STRUCTURAL SECTION ARE SUBJECT TO THE TOLERANCES SPECIFIED IN THE STANDARD SPECIFICATIONS.
2. SUPERELEVATION RATE IS SHOWN ON THE SUPERELEVATION DIAGRAMS.
3. FOR LEGEND, SEE "TYPICAL CROSS SECTIONS" SHEET X–1.
4. CLASS 2 AB TO EXTEND AT SAME DEPTH UNDER APPROACH SLAB.



EL CAMINO REAL
STA "E" 31+21.64 TO STA "E" 33+28.24



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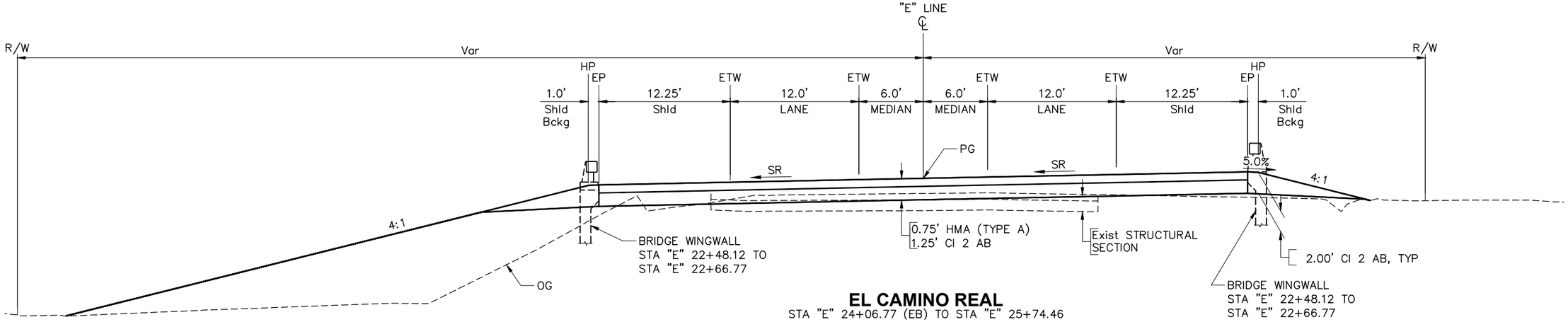

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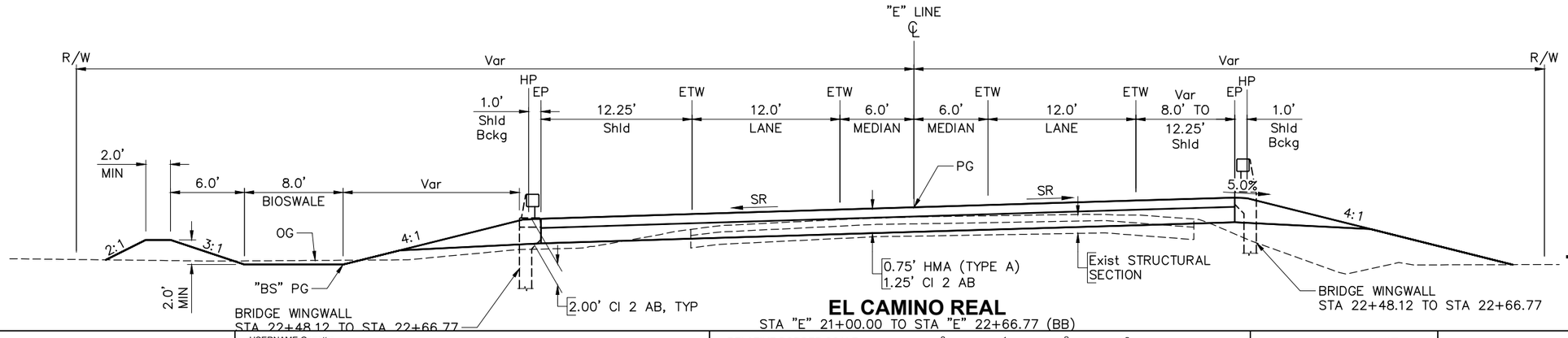

EL CAMINO REAL
STA "E" 21+00.00 TO STA "E" 22+66.77 (BB)

TYPICAL CROSS SECTIONS

NO SCALE

X-2

REVISED BY	DATE REVISED
E. MCPHERSON	G. MCLAUGHLIN

CALCULATED-DESIGNED BY

CHECKED BY

CONSULTANT PROJECT MANAGER
MARK RENO

SAN LUIS OBISPO – DEPARTMENT OF PUBLIC WORKS

SANTA MARGARITA CREEK BRIDGE REPLACEMENT

LAST REVISION

DATE PLOTTED: Friday, February 16, 2018

TIME PLOTTED: 3:24:50 PM, Garrett McLaughlin

BORDER LAST REVISED 7/2/2010

USERNAME Garrettm
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RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT UNIT

PROJECT NUMBER & PHASE S13201 – 65% SUBMITTAL

Dist	COUNTY	PROJECT	SHEET No.	TOTAL SHEETS
5	SLO	SANTA MARGARITA CREEK BRIDGE ON EL CAMINO REAL	4	69

REGISTERED CIVIL ENGINEER DATE

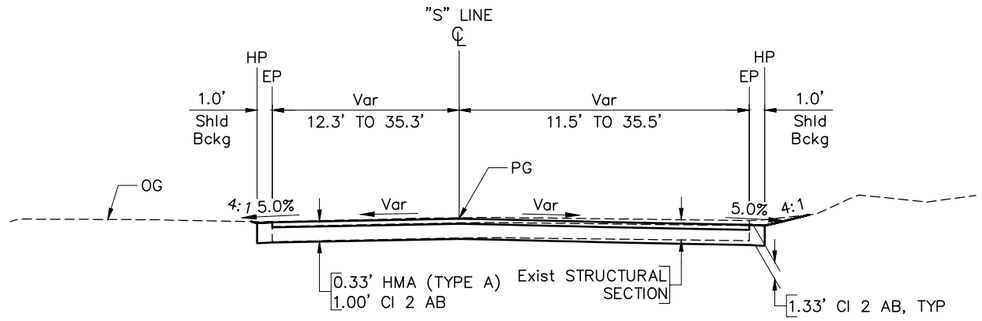
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — Garrett McLaughlin — No. C67687 — CIVIL — STATE OF CALIFORNIA

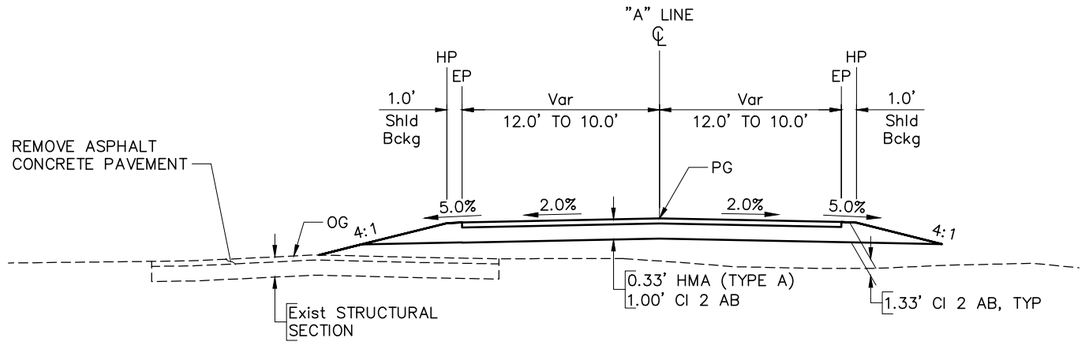
THE COUNTY OF SAN LUIS OBISPO OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

QUINCY ENGINEERING
11017 COBBLEROCK DRIVE, SUITE 100
RANCHO CORDOVA, CA 95670
P: 916.368.9181

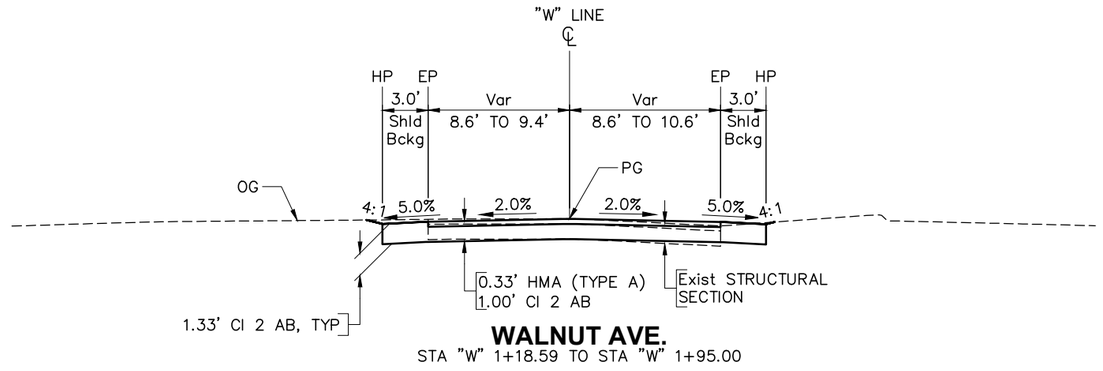
65% SUBMITTAL



SANTA MARGARITA RD
STA "S" 0+30.37 TO STA "S" 0+86.64



ASUNCION RD
STA "A" 0+28.00 TO STA "A" 1+70.50



WALNUT AVE.
STA "W" 1+18.59 TO STA "W" 1+95.00

NOTES:

1. DIMENSIONS OF THE STRUCTURAL SECTION ARE SUBJECT TO THE TOERANCES SPECIFIED IN THE STANDARD SPECIFICATIONS.
2. SUPERELEVATION RATE IS SHOWN ON THE SUPERELEVATION DIAGRAMS.
3. FOR LEGEND, SEE "TYPICAL CROSS SECTIONS" SHEET X–1.

TYPICAL CROSS SECTIONS

NO SCALE

X-3

REVISED BY	DATE REVISED
E. MCPHERSON	G. MCLAUGHLIN

CALCULATED-DESIGNED BY
CHECKED BY

CONSULTANT PROJECT MANAGER
MARK RENO

SAN LUIS OBISPO – DEPARTMENT OF PUBLIC WORKS

SANTA MARGARITA CREEK BRIDGE REPLACEMENT

LAST REVISION | DATE PLOTTED: Friday, February 16, 2018 | TIME PLOTTED: 3:25:23 PM, Garrett McLaughlin

Dist	COUNTY	PROJECT	SHEET No.	TOTAL SHEETS
5	SLO	SANTA MARGARITA CREEK BRIDGE ON EL CAMINO REAL	5	69

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — Garrett McLaughlin — No. C67687 — CIVIL — STATE OF CALIFORNIA

THE COUNTY OF SAN LUIS OBISPO OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

QUINCY ENGINEERING
11017 COBBLEROCK DRIVE, SUITE 100
RANCHO CORDOVA, CA 95670
P: 916.368.9181

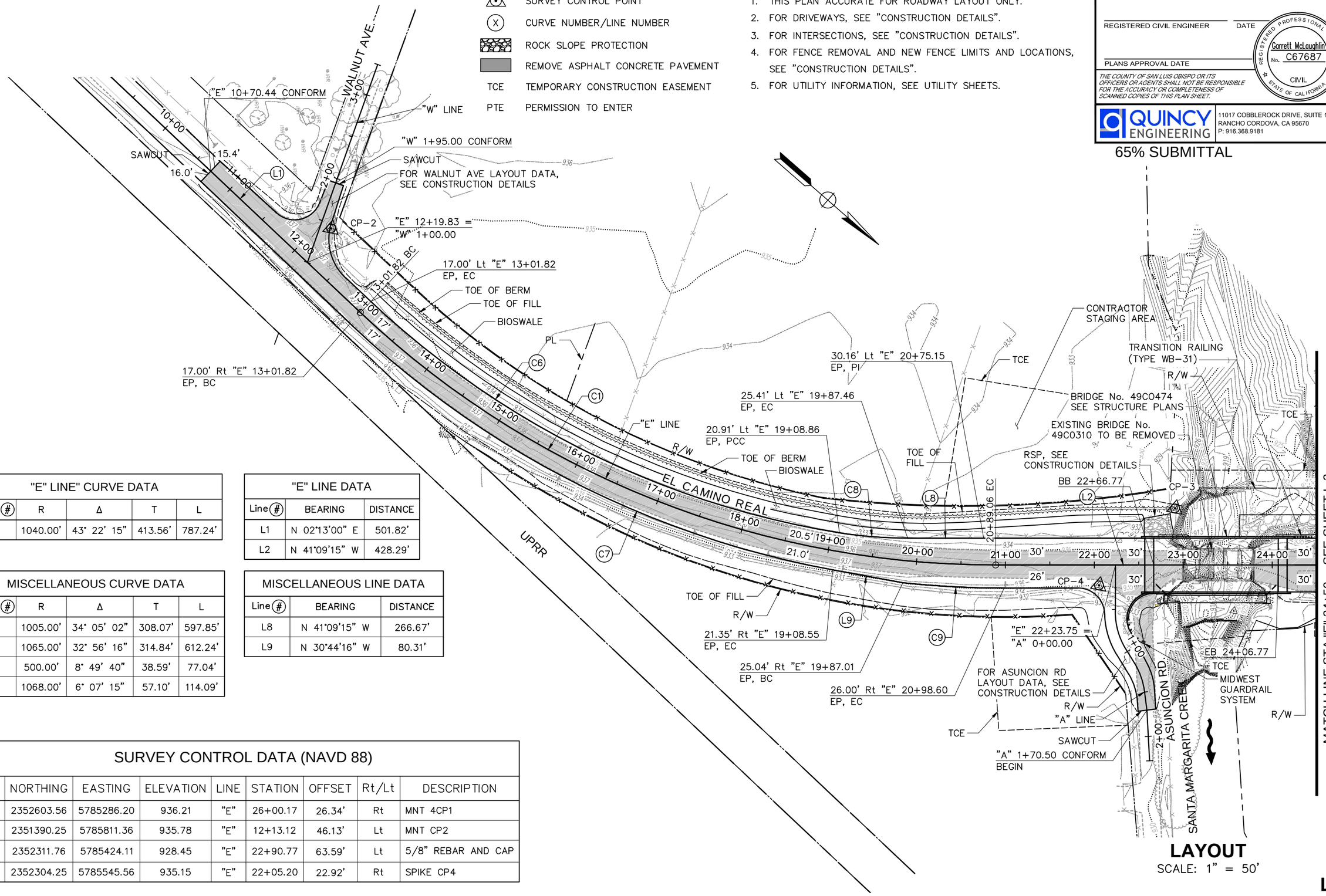
65% SUBMITTAL

LEGEND:

- SURVEY CONTROL POINT
- (X) CURVE NUMBER/LINE NUMBER
- ROCK SLOPE PROTECTION
- REMOVE ASPHALT CONCRETE PAVEMENT
- TCE TEMPORARY CONSTRUCTION EASEMENT
- PTE PERMISSION TO ENTER

NOTE:

1. THIS PLAN ACCURATE FOR ROADWAY LAYOUT ONLY.
2. FOR DRIVEWAYS, SEE "CONSTRUCTION DETAILS".
3. FOR INTERSECTIONS, SEE "CONSTRUCTION DETAILS".
4. FOR FENCE REMOVAL AND NEW FENCE LIMITS AND LOCATIONS, SEE "CONSTRUCTION DETAILS".
5. FOR UTILITY INFORMATION, SEE UTILITY SHEETS.



LAYOUT
SCALE: 1" = 50'

L-1

"E" LINE" CURVE DATA				
Curve (#)	R	Δ	T	L
C1	1040.00'	43° 22' 15"	413.56'	787.24'

"E" LINE DATA		
Line (#)	BEARING	DISTANCE
L1	N 02°13'00" E	501.82'
L2	N 41°09'15" W	428.29'

MISCELLANEOUS CURVE DATA				
Curve (#)	R	Δ	T	L
C6	1005.00'	34° 05' 02"	308.07'	597.85'
C7	1065.00'	32° 56' 16"	314.84'	612.24'
C8	500.00'	8° 49' 40"	38.59'	77.04'
C9	1068.00'	6° 07' 15"	57.10'	114.09'

MISCELLANEOUS LINE DATA		
Line (#)	BEARING	DISTANCE
L8	N 41°09'15" W	266.67'
L9	N 30°44'16" W	80.31'

SURVEY CONTROL DATA (NAVD 88)

No.	NORTHING	EASTING	ELEVATION	LINE	STATION	OFFSET	Rt/Lt	DESCRIPTION
CP-1	2352603.56	5785286.20	936.21	"E"	26+00.17	26.34'	Rt	MNT 4CP1
CP-2	2351390.25	5785811.36	935.78	"E"	12+13.12	46.13'	Lt	MNT CP2
CP-3	2352311.76	5785424.11	928.45	"E"	22+90.77	63.59'	Lt	5/8" REBAR AND CAP
CP-4	2352304.25	5785545.56	935.15	"E"	22+05.20	22.92'	Rt	SPIKE CP4

CALCULATED-DESIGNED BY | CHECKED BY
E. MCPHERSON | G. MCLAUGHLIN
REVISED BY | DATE REVISED
CONSULTANT PROJECT MANAGER
MARK RENO
SAN LUIS OBISPO – DEPARTMENT OF PUBLIC WORKS
SANTA MARGARITA CREEK BRIDGE REPLACEMENT

TIME PLOTTED: 3:25:47 PM, Garrett McLaughlin
DATE PLOTTED: Friday, February 16, 2018
LAST REVISION

NOTE:

1. THIS PLAN ACCURATE FOR ROADWAY LAYOUT ONLY.
2. FOR NOTES AND LEGEND, SEE "LAYOUT" L–1.

Dist	COUNTY	PROJECT	SHEET No.	TOTAL SHEETS
5	SLO	SANTA MARGARITA CREEK BRIDGE ON EL CAMINO REAL	6	69

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — Garrett McLaughlin — No. C67687 — CIVIL — STATE OF CALIFORNIA

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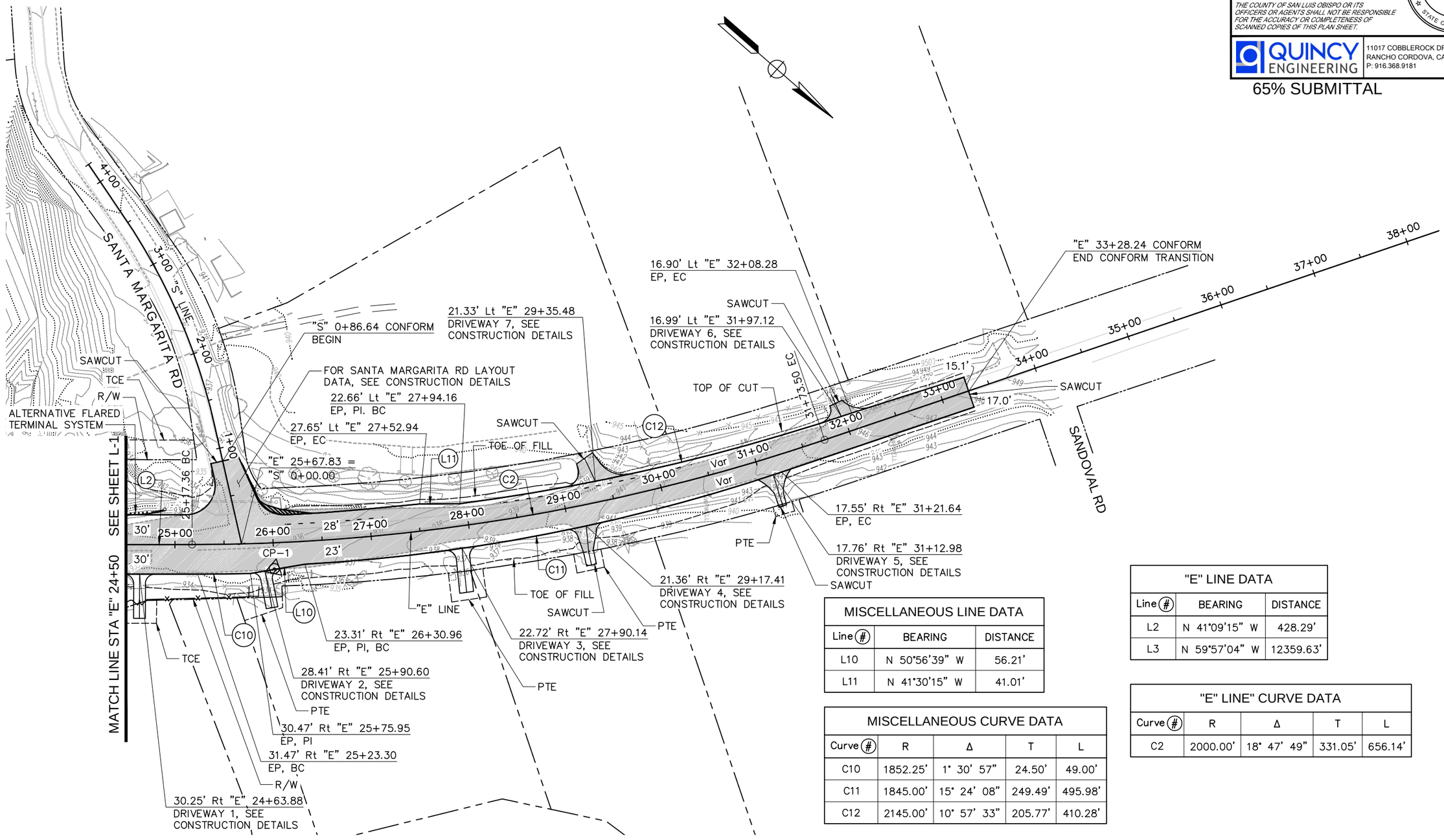
QUINCY ENGINEERING
11017 COBBLEROCK DRIVE, SUITE 100
RANCHO CORDOVA, CA 95670
P: 916.368.9181

65% SUBMITTAL



MISCELLANEOUS LINE DATA		
Line (#)	BEARING	DISTANCE
L10	N 50°56'39" W	56.21'
L11	N 41°30'15" W	41.01'

MISCELLANEOUS CURVE DATA				
Curve (#)	R	Δ	T	L
C10	1852.25'	1° 30' 57"	24.50'	49.00'
C11	1845.00'	15° 24' 08"	249.49'	495.98'
C12	2145.00'	10° 57' 33"	205.77'	410.28'

"E" LINE DATA		
Line (#)	BEARING	DISTANCE
L2	N 41°09'15" W	428.29'
L3	N 59°57'04" W	12359.63'

"E" LINE" CURVE DATA				
Curve (#)	R	Δ	T	L
C2	2000.00'	18° 47' 49"	331.05'	656.14'

LAYOUT

SCALE: 1" = 50'

L-2

SAN LUIS OBISPO – DEPARTMENT OF PUBLIC WORKS
SANTA MARGARITA CREEK BRIDGE REPLACEMENT
CONSULTANT PROJECT MANAGER: MARK RENO
CALCULATED-DESIGNED BY: E. MCPHERSON
CHECKED BY: G. MCLAUGHLIN
REVISED BY
DATE REVISED
LAST REVISION
DATE PLOTTED: Friday, February 16, 2018
TIME PLOTTED: 3:26:08 PM, Garrett McLaughlin

BORDER LAST REVISED 7/2/2010

USERNAME Garrettm
DWG FILE S:\Client\SLO-County\S13-201-El Camino Real\CAD\roadway\AutoCad Civil 3D 2015\S13201rea002.dwg

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT UNIT

PROJECT NUMBER & PHASE S13201 – 65% SUBMITTAL

Dist	COUNTY	PROJECT	SHEET No.	TOTAL SHEETS
5	SLO	SANTA MARGARITA CREEK BRIDGE ON EL CAMINO REAL	7	69

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
Garrett McLaughlin
No. C67687
CIVIL
STATE OF CALIFORNIA

THE COUNTY OF SAN LUIS OBISPO OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

QUINCY ENGINEERING
11017 COBBLEROCK DRIVE, SUITE 100
RANCHO CORDOVA, CA 95670
P: 916.368.9181

65% SUBMITTAL

REVISED BY | DATE REVISED

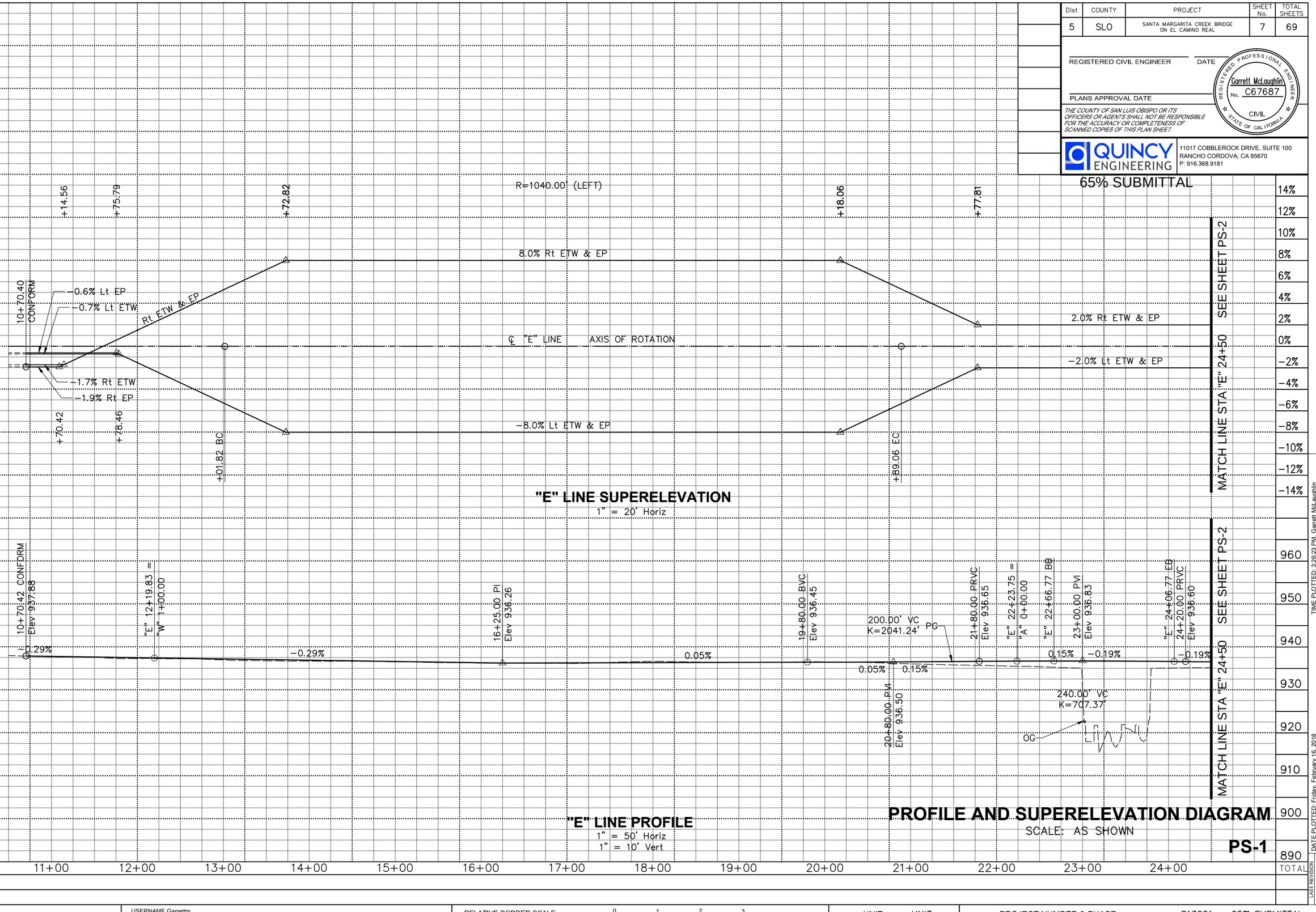
R. KOTEY | G. MCLAUGHLIN

CALCULATED-DESIGNED BY | CHECKED BY

CONSULTANT PROJECT MANAGER
MARK RENO

SAN LUIS OBISPO – DEPARTMENT OF PUBLIC WORKS

SANTA MARGARITA CREEK BRIDGE REPLACEMENT



TIME PLOTTED: 3:26:23 PM, Garrett McLaughlin
DATE PLOTTED: Friday, February 16, 2018
LAST REVISION

BORDER LAST REVISED 7/2/2010

USERNAME Garrettm
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RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT UNIT

PROJECT NUMBER & PHASE S13201 – 65% SUBMITTAL

Dist	COUNTY	PROJECT	SHEET No.	TOTAL SHEETS
5	SLO	SANTA MARGARITA CREEK BRIDGE ON EL CAMINO REAL	8	69

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — Garrett McLaughlin — No. C67687 — CIVIL — STATE OF CALIFORNIA

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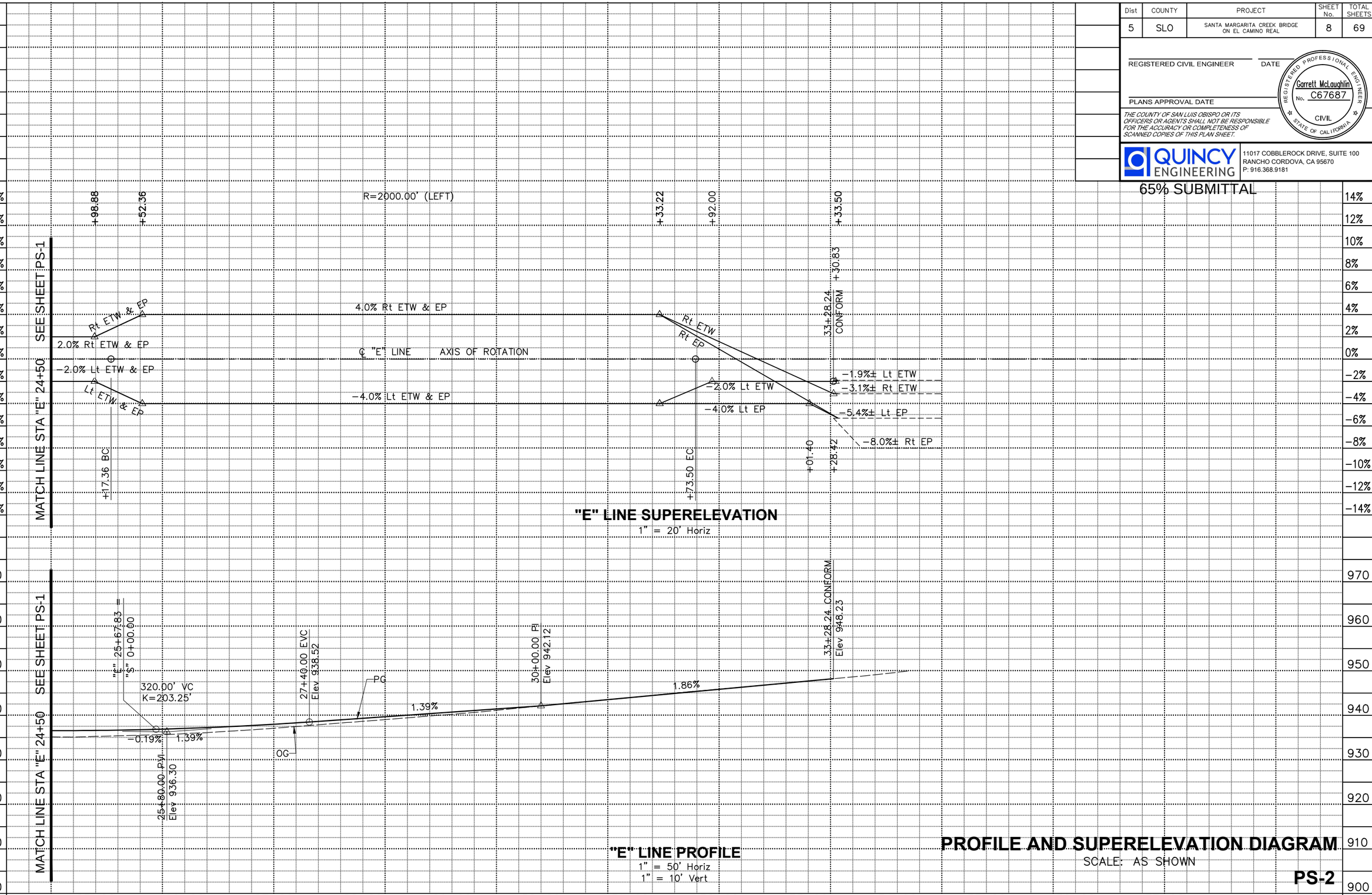
QUINCY ENGINEERING
11017 COBBLEROCK DRIVE, SUITE 100
RANCHO CORDOVA, CA 95670
P: 916.368.9181

65% SUBMITTAL

REVISED BY | DATE REVISED
E. MCPHERSON | G. MCLAUGHLIN
CALCULATED-DESIGNED BY | CHECKED BY
CONSULTANT PROJECT MANAGER
MARK RENO

SAN LUIS OBISPO – DEPARTMENT OF PUBLIC WORKS

SANTA MARGARITA CREEK BRIDGE REPLACEMENT



STATION: 25+00 26+00 27+00 28+00 29+00 30+00 31+00 32+00 33+00 34+00 35+00 36+00 37+00 TOTAL

CY Exc
CY Emb

TIME PLOTTED: 3:26:38 PM, Garrett McLaughlin
DATE PLOTTED: Friday, February 16, 2018
LAST REVISION

BORDER LAST REVISED 7/2/2010

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RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT UNIT

PROJECT NUMBER & PHASE S13201 – 65% SUBMITTAL

Dist	COUNTY	PROJECT	SHEET No.	TOTAL SHEETS
5	SLO	SANTA MARGARITA CREEK BRIDGE ON EL CAMINO REAL	9	69

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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REGISTERED PROFESSIONAL ENGINEER — Garrett McLaughlin — No. C67687 — CIVIL — STATE OF CALIFORNIA

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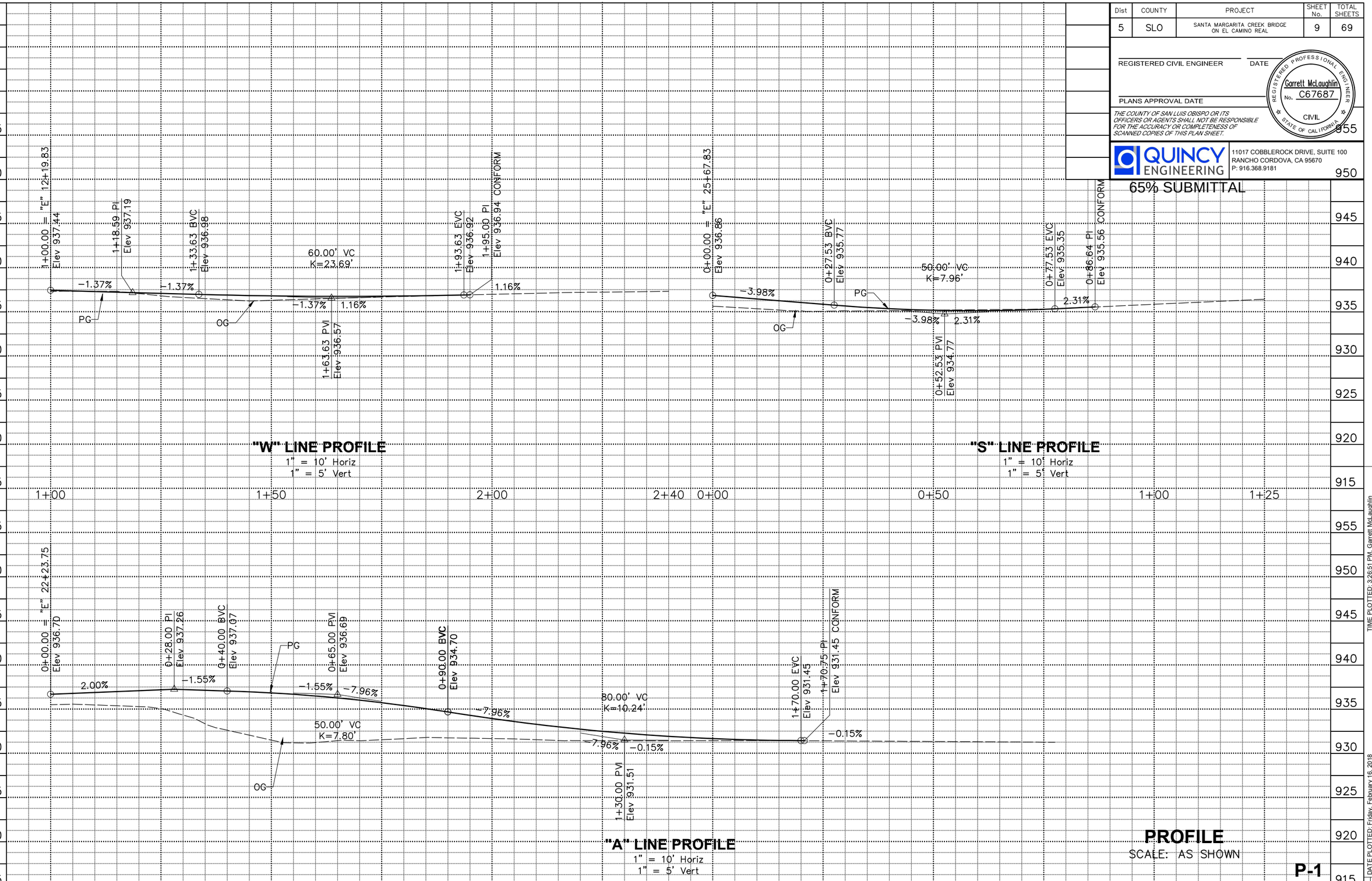
11017 COBBLEROCK DRIVE, SUITE 100
RANCHO CORDOVA, CA 95670
P: 916.368.9181

65% SUBMITTAL



SAN LUIS OBISPO – DEPARTMENT OF PUBLIC WORKS
SANTA MARGARITA CREEK BRIDGE REPLACEMENT

CONSULTANT PROJECT MANAGER: MARK RENO

CALCULATED-DESIGNED BY: R. KOTEY
CHECKED BY: G. MCLAUGHLIN

REVISED BY	DATE REVISED

TIME PLOTTED: 3:26:51 PM, Garrett McLaughlin
DATE PLOTTED: Friday, February 16, 2018
LAST REVISION

BORDER LAST REVISED 7/2/2010

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RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT UNIT

PROJECT NUMBER & PHASE S13201 – 65% SUBMITTAL

Dist	COUNTY	PROJECT	SHEET No.	TOTAL SHEETS
5	SLO	SANTA MARGARITA CREEK BRIDGE ON EL CAMINO REAL	10	69

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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REGISTERED PROFESSIONAL ENGINEER — Garrett McLaughlin — No. C67687 — CIVIL — STATE OF CALIFORNIA

QUINCY ENGINEERING
11017 COBBLEROCK DRIVE, SUITE 100
RANCHO CORDOVA, CA 95670
P: 916.368.9181

65% SUBMITTAL

NOTE:

SEE TYPICAL SECTIONS FOR HMA AND AB SECTION.

LEGEND:

RP = RADIUS POINT

(XX) = CURVE DATA TAG

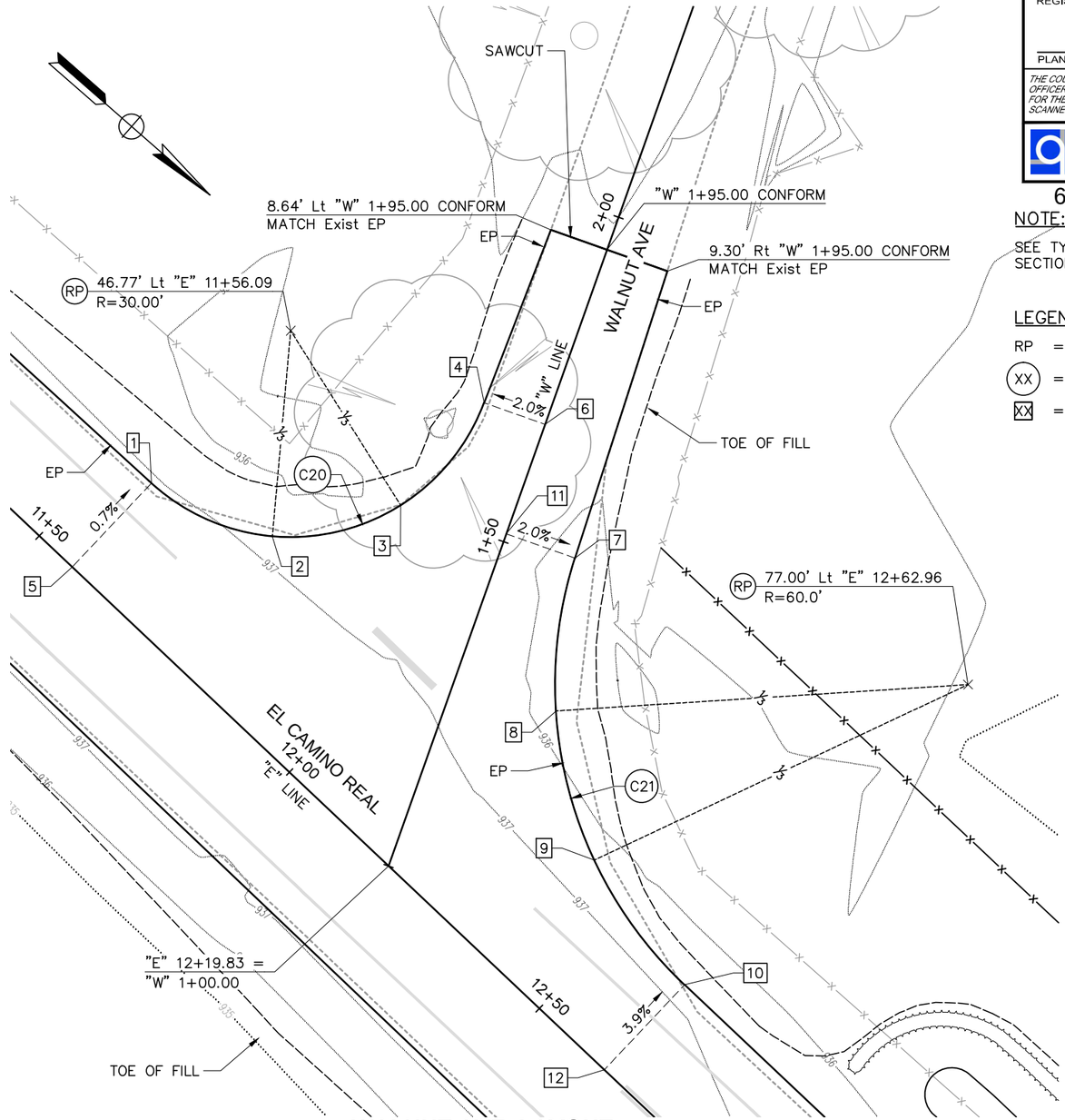
[XX] = ELEVATION DATA TAG

MISCELLANEOUS CURVE DATA				
Curve (#)	R	Δ	T	L
C21	60.00'	64° 27' 20"	37.82'	67.50'

"W" LINE DATA		
Line (#)	BEARING	DISTANCE
L4	S 68°22'28" W	236.17'

WALNUT AVE ELEVATION DATA TABLE

Point [#]	LINE	STATION	OFFSET	Rt/Lt	ELEVATION	DESCRIPTION
1	"E"	11+56.59	16.77'	Lt	937.52	BC, EP
2	"E"	11+74.67	23.22'	Lt	937.35	EP
3	"W"	1+49.98	15.83'	Lt	936.71	EP
4	"W"	1+68.07	9.40'	Lt	936.57	EC, EP
5	"E"	11+56.59	0.00'		937.63	PG
6	"W"	1+68.07	0.00'		936.76	PG
7	"W"	1+51.21	10.61'	Rt	936.60	BC, EP
8	"W"	1+29.37	15.43'	Rt	936.62	EP
9	"E"	12+40.99	21.17'	Lt	936.64	EP
10	"E"	12+62.96	17.00'	Lt	936.66	EC, EP
11	"W"	1+51.21	0.00'		936.81	PG
12	"E"	12+62.96	0.00'		937.32	PG



WALNUT AVE. LAYOUT
1" = 10'

CONSTRUCTION DETAILS

SCALE: AS SHOWN

C-1

SAN LUIS OBISPO – DEPARTMENT OF PUBLIC WORKS
SANTA MARGARITA CREEK BRIDGE REPLACEMENT
CONSULTANT PROJECT MANAGER: MARK RENO
CALCULATED-DESIGNED BY: C. POLGLASE
CHECKED BY: G. MCLAUGHLIN
REVISED BY
DATE REVISED
LAST REVISION
DATE PLOTTED: Friday, February 16, 2018
TIME PLOTTED: 3:27:14 PM, Garrett McLaughlin

BORDER LAST REVISED 7/2/2010 | USERNAME Garrettm | DWG FILE S:\Client\SLO-County\S13-201-El Camino Real\CAD\roadway\AutoCad Civil 3D 2015\S13201rga001.dwg | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT UNIT | PROJECT NUMBER & PHASE S13201 – 65% SUBMITTAL

Dist	COUNTY	PROJECT	SHEET No.	TOTAL SHEETS
5	SLO	SANTA MARGARITA CREEK BRIDGE ON EL CAMINO REAL	11	69

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — Garrett McLaughlin — No. C67687 — CIVIL — STATE OF CALIFORNIA

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QUINCY ENGINEERING
11017 COBBLEROCK DRIVE, SUITE 100
RANCHO CORDOVA, CA 95670
P: 916.368.9181

65% SUBMITTAL

NOTE:

SEE TYPICAL SECTIONS FOR HMA AND AB SECTION.

LEGEND:

RP = RADIUS POINT

XX = ELEVATION DATA TAG

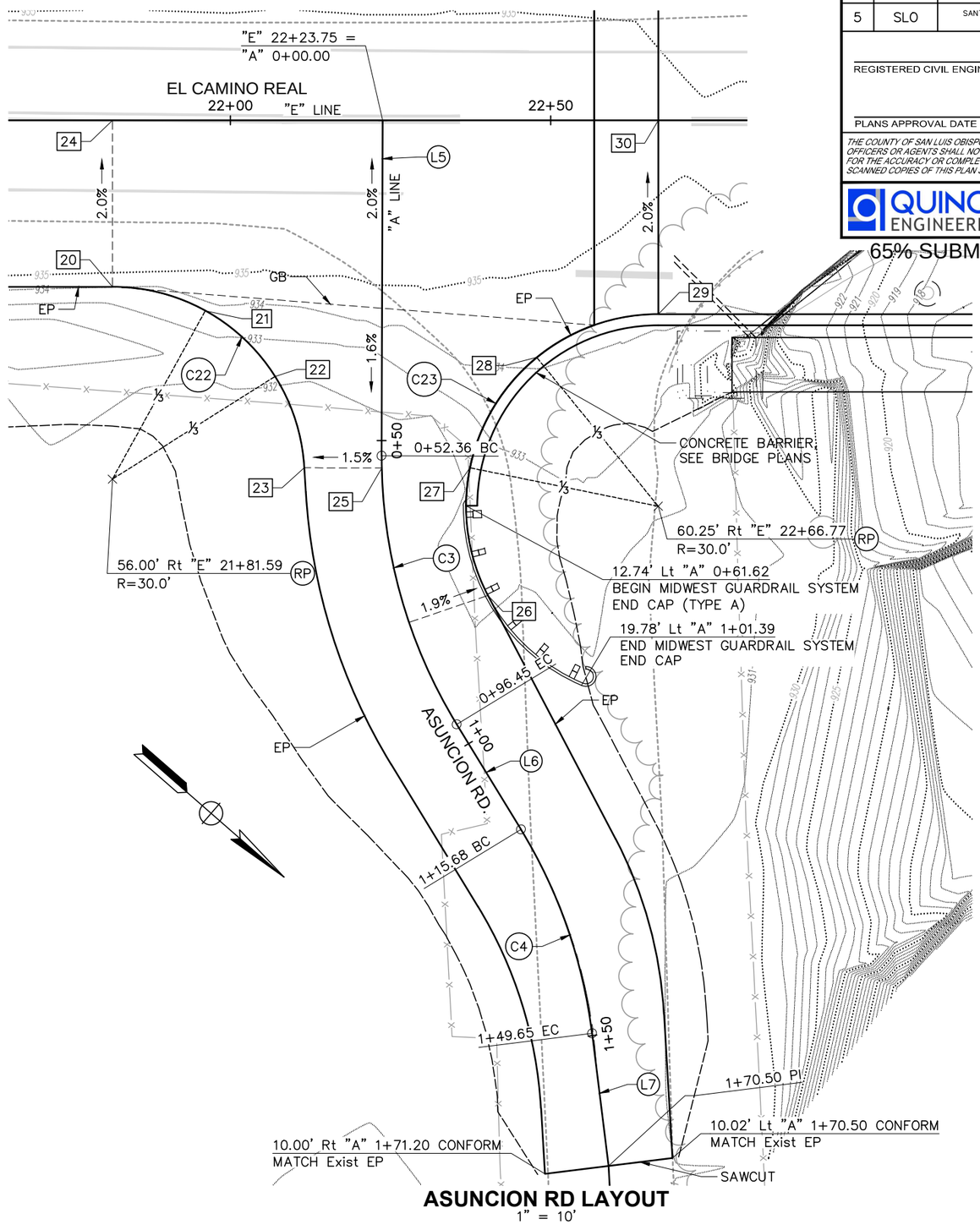
(XX) = CURVE DATA TAG

"A" LINE CURVE DATA				
Curve (#)	R	Δ	T	L
C3	80.00'	31° 34' 19"	22.62'	44.08'
C4	80.00'	24° 19' 46"	17.25'	33.97'

"A" LINE DATA		
Line (#)	BEARING	DISTANCE
L5	N 49°00'38" E	52.36'
L6	N 17°26'20" E	19.23'
L7	N 41°46'06" E	20.86'

MISCELLANEOUS CURVE DATA				
Curve (#)	R	Δ	T	L
C23	30.00'	117° 39' 48"	49.60'	61.61'
C22	30.00'	86° 38' 13"	28.29'	45.36'

ASUNCION RD ELEVATION DATA TABLE						
Point #	LINE	STATION	OFFSET	Rt/Lt	ELEVATION	DESCRIPTION
20	"E"	21+81.59	26.00'	Rt	937.17	BC, EP
21	"E"	21+96.08	29.73'	Rt	936.94	EP
22	"A"	0+40.04	16.67'	Rt	936.72	EP
23	"A"	0+54.02	12.08'	Rt	936.49	EC, EP
24	"E"	21+81.59	0.00'		936.65	PG
25	"A"	0+54.28	0.00'		936.72	PG
26	"A"	0+78.85	13.03'	Lt	935.24	BC, EP
27	"A"	0+54.58	13.76'	Lt	936.45	EP
28	"E"	22+47.80	37.01'	Rt	936.89	EP
29	"E"	22+66.77	30.25'	Rt	937.33	EC
30	"E"	22+66.77	0.00'		936.73	PG, BB



ASUNCION RD LAYOUT
1" = 10'

CONSTRUCTION DETAILS

SCALE: AS SHOWN

C-2

CALCULATED-DESIGNED BY: C. POLGLASE
CHECKED BY: G. MCLAUGHLIN
CONSULTANT PROJECT MANAGER: MARK RENO
SAN LUIS OBISPO – DEPARTMENT OF PUBLIC WORKS
SANTA MARGARITA CREEK BRIDGE REPLACEMENT
REVISED BY | DATE REVISED

TIME PLOTTED: 3:27:35 PM, Garrett McLaughlin
DATE PLOTTED: Friday, February 16, 2018
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BORDER LAST REVISED 7/2/2010

USERNAME Garrettm
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RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT UNIT

PROJECT NUMBER & PHASE S13201 – 65% SUBMITTAL

Dist	COUNTY	PROJECT	SHEET No.	TOTAL SHEETS
5	SLO	SANTA MARGARITA CREEK BRIDGE ON EL CAMINO REAL	12	69

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — Garrett McLaughlin — No. C67687 — CIVIL — STATE OF CALIFORNIA

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QUINCY ENGINEERING
11017 COBBLEROCK DRIVE, SUITE 100
RANCHO CORDOVA, CA 95670
P: 916.368.9181

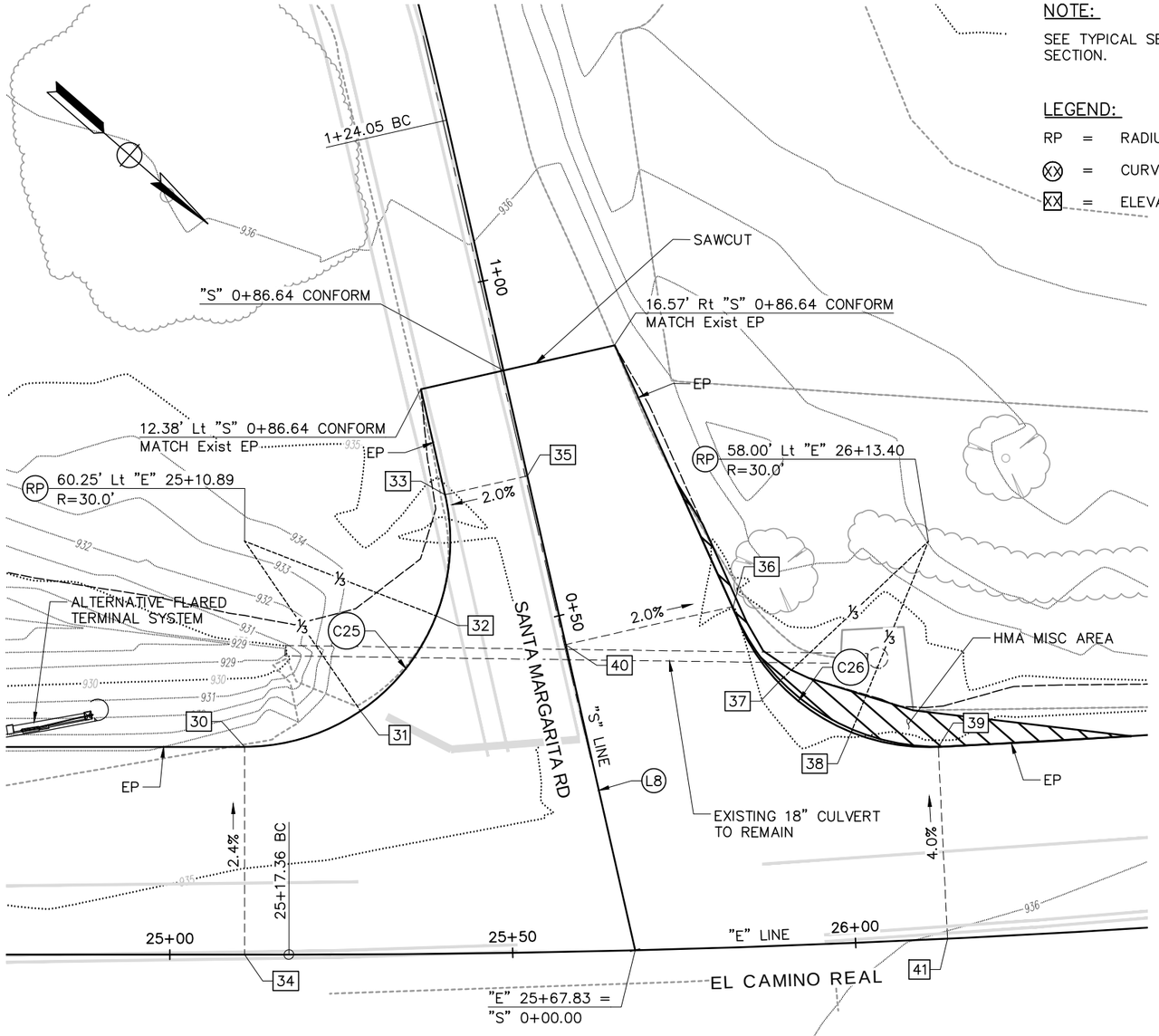
65% SUBMITTAL

"S" LINE DATA		
Line #	BEARING	DISTANCE
L8	S 36°02'39" W	124.05'
L9	S 15°01'29" W	39.91'

MISCELLANEOUS CURVE DATA				
Curve #	R	Δ	T	L
C25	30.00'	103° 03' 04"	37.75'	53.96'
C26	30.00'	71° 04' 42"	21.43'	37.22'

SANTA MARGARITA DATA TABLE

Point #	LINE	STATION	OFFSET	Rt/Lt	ELEVATION	DESCRIPTION
30	"E"	25+10.89	30.25'	Lt	935.90	BC, EP
31	"E"	25+28.01	35.45'	Lt	935.63	EP
32	"S"	0+53.93	17.47'	Lt	935.28	EP
33	"S"	0+70.88	12.31'	Lt	934.93	EC, EP
34	"E"	25+10.89	0.00'		936.63	PG
35	"S"	0+70.88	0.00'		935.18	PG
36	"S"	0+45.68	25.05'	Rt	934.75	BC, EP
37	"S"	0+33.45	29.03'	Rt	935.29	EP
38	"E"	26+00.64	30.72'	Lt	935.83	EP
39	"E"	26+13.40	28.00'	Lt	936.04	EC, EP
40	"S"	0+45.67	0.00'		935.25	PG
41	"E"	26+13.40	0.00'		937.16	PG



SANTA MARGARITA RD LAYOUT
1" = 10'

NOTE:

SEE TYPICAL SECTIONS FOR HMA AND AB SECTION.

LEGEND:

RP = RADIUS POINT

(XX) = CURVE DATA TAG

[XX] = ELEVATION DATA TAG

CONSTRUCTION DETAILS

SCALE: AS SHOWN

C-3

REVISED BY | DATE REVISED
C. POLGLASE | G. MCLAUGHLIN
CALCULATED-DESIGNED BY | CHECKED BY
CONSULTANT PROJECT MANAGER
MARK RENO
SAN LUIS OBISPO – DEPARTMENT OF PUBLIC WORKS
SANTA MARGARITA CREEK BRIDGE REPLACEMENT

TIME PLOTTED: 3:28:01 PM, Garrett McLaughlin
DATE PLOTTED: Friday, February 16, 2018
LAST REVISION

BORDER LAST REVISED 7/2/2010

USERNAME Garrettm
DWG FILE S:\Client\SLO-County\S13-201-El Camino Real\CAD\roadway\AutoCad Civil 3D 2015\S13201rga003.dwg

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT UNIT

PROJECT NUMBER & PHASE S13201 – 65% SUBMITTAL

Dist	COUNTY	PROJECT	SHEET No.	TOTAL SHEETS
5	SLO	SANTA MARGARITA CREEK BRIDGE ON EL CAMINO REAL	13	69

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

THE COUNTY OF SAN LUIS OBISPO OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

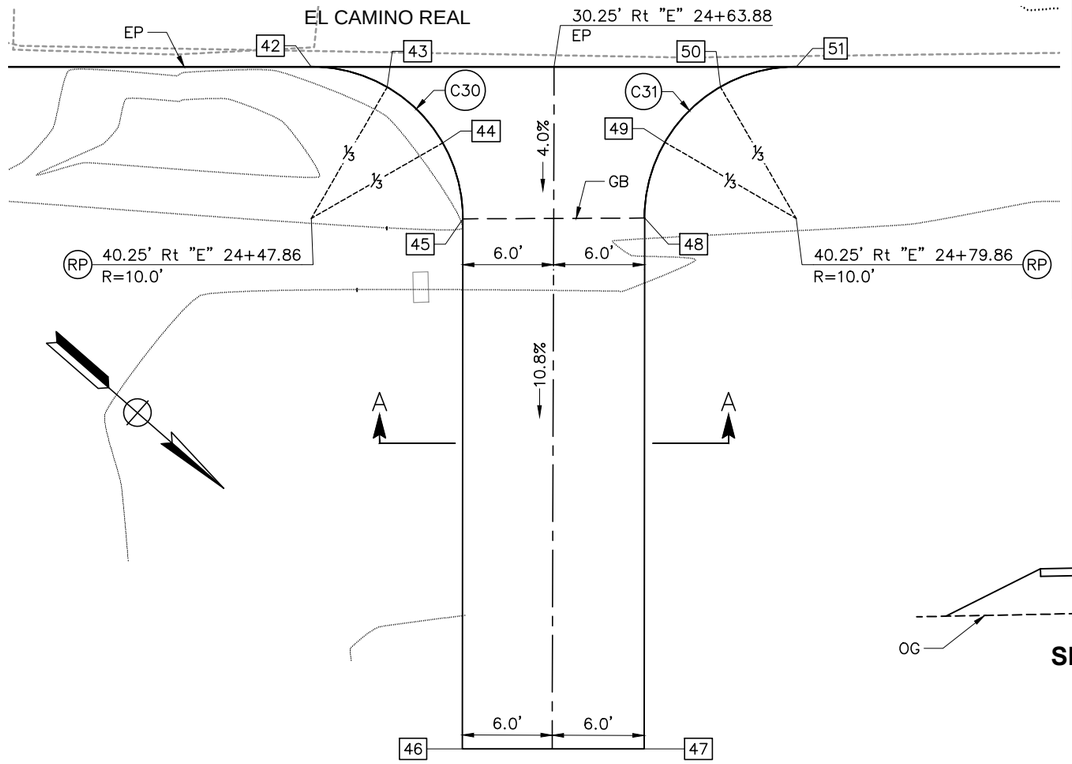
REGISTERED PROFESSIONAL ENGINEER — Garrett McLaughlin — No. C67687 — CIVIL — STATE OF CALIFORNIA

QUINCY ENGINEERING
11017 COBBLEROCK DRIVE, SUITE 100
RANCHO CORDOVA, CA 95670
P: 916.368.9181

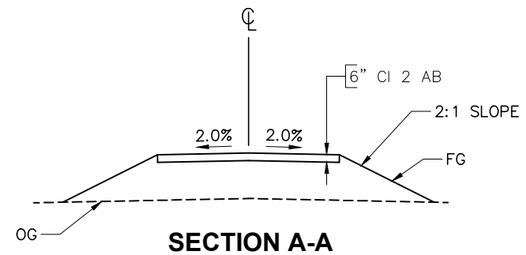
65% SUBMITTAL

DRIVEWAY 1 CURVE TABLE				
Curve #	R	Δ	T	L
C30	10.00'	90° 09' 49"	10.03'	15.74'
C31	10.00'	89° 50' 11"	9.97'	15.68'

DRIVEWAY-1						
Point #	LINE	STATION	OFFSET	Rt/Lt	ELEVATION	DESCRIPTION
42	"E"	24+47.86	30.25'	Rt	937.18	EP, BC
43	"E"	24+52.86	31.59'	Rt	937.13	GB
44	"E"	24+56.53	35.27'	Rt	936.98	GB
45	"E"	24+57.86	40.28'	Rt	936.78	GB, EC
46	"E"	24+57.82	75.25'	Rt	933.00	CONFORM, MATCH EXISTING
47	"E"	24+69.82	75.25'	Rt	933.00	CONFORM, MATCH EXISTING
48	"E"	24+69.86	40.22'	Rt	936.78	GB, BC
49	"E"	24+71.21	35.23'	Rt	936.98	GB
50	"E"	24+74.86	31.58'	Rt	937.13	GB
51	"E"	24+79.86	30.25'	Rt	937.18	EP, EC



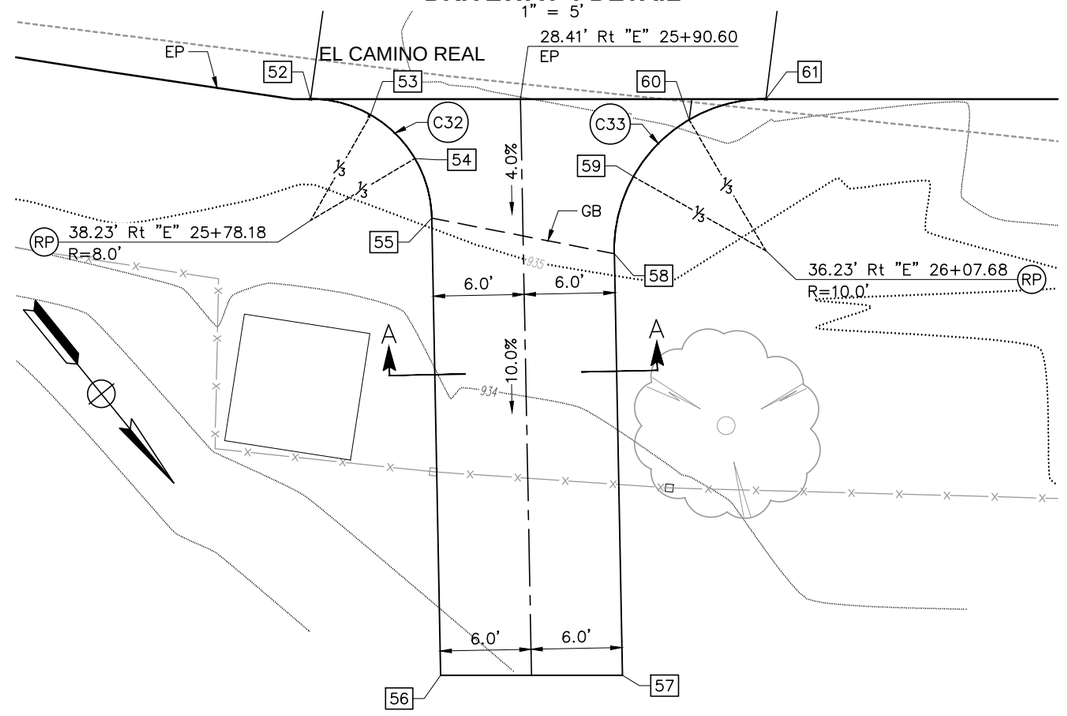
DRIVEWAY 1 DETAIL
1" = 5'



SECTION A-A
NO SCALE

DRIVEWAY 1 CURVE TABLE				
Curve #	R	Δ	T	L
C32	8.00'	88° 53' 44"	7.85'	12.41'
C33	10.00'	91° 06' 16"	10.19'	15.90'

DRIVEWAY-2						
Point #	LINE	STATION	OFFSET	Rt/Lt	ELEVATION	DESCRIPTION
52	"E"	25+77.08	30.31'	Rt	938.12	EP, BC
53	"E"	25+81.08	30.79'	Rt	938.09	GB
54	"E"	25+84.32	33.23'	Rt	937.97	GB
55	"E"	25+85.94	36.97'	Rt	937.81	GB, EC
56	"E"	25+90.47	66.77'	Rt	935.00	CONFROM, MATCH EXISTING
57	"E"	26+01.99	65.20'	Rt	935.00	CONFORM, MATCH EXISTING
58	"E"	25+97.97	37.69'	Rt	937.74	GB, BC
59	"E"	25+98.56	32.49'	Rt	937.93	GB
60	"E"	26+01.67	28.31'	Rt	938.09	GB
61	"E"	26+06.44	26.30'	Rt	938.16	EP, EC



DRIVEWAY 2 DETAIL
1" = 5'

CONSTRUCTION DETAILS

SCALE: AS AHOWN

C-4

REVISED BY | DATE REVISED
C. POLGLASE | G. MCLAUGHLIN
CALCULATED-DESIGNED BY | CHECKED BY
CONSULTANT PROJECT MANAGER: Mark Reno
SAN LUIS OBISPO – DEPARTMENT OF PUBLIC WORKS
SANTA MARGARITA CREEK BRIDGE REPLACEMENT

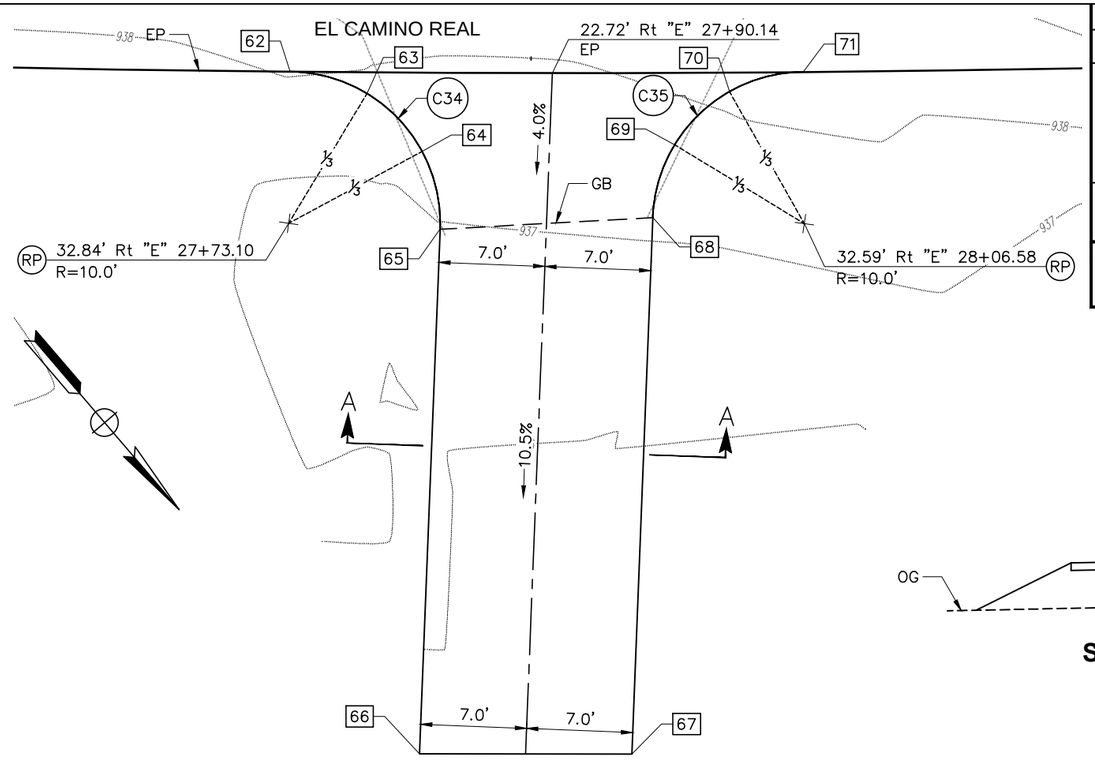
LAST REVISION | DATE PLOTTED: Friday, February 16, 2018 | TIME PLOTTED: 3:28:28 PM, Garrett McLaughlin

BORDER LAST REVISED 7/2/2010 | USERNAME Garrettm | DWG FILE S:\Client\SLO-County\S13-201-El Camino Real\CAD\roadway\AutoCad Civil 3D 2015\S13201rga004.dwg | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT UNIT | PROJECT NUMBER & PHASE S13201 – 65% SUBMITTAL

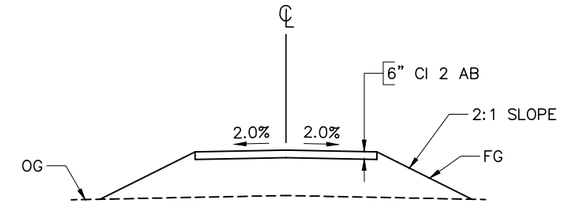
DRIVEWAY 3 CURVE TABLE				
Curve (#)	R	Δ	T	L
C34	10.00'	91° 41' 22"	10.30'	16.00'
C35	10.00'	87° 15' 35"	9.53'	15.23'

DRIVEWAY 3 ELEVATION DATA TABLE

Point #	LINE	STATION	OFFSET	Rt/Lt	ELEVATION	DESCRIPTION
62	"E"	27+73.04	22.85'	Rt	939.88	EP, BC
63	"E"	27+78.06	24.21'	Rt	939.89	GB
64	"E"	27+81.70	27.97'	Rt	939.79	GB
65	"E"	27+82.93	33.09'	Rt	939.64	EP, EC
66	"E"	27+82.01	67.72'	Rt	936.00	CONFORM, MATCH EXISTING
67	"E"	27+95.56	67.61'	Rt	936.00	CONFORM, MATCH EXISTING
68	"E"	27+96.74	32.21'	Rt	939.82	GB, BC
69	"E"	27+98.15	27.40'	Rt	940.04	GB
70	"E"	28+01.70	23.89'	Rt	940.23	GB
71	"E"	28+06.50	22.59'	Rt	940.34	EP, EC



DRIVEWAY 3 DETAIL
1" = 5'

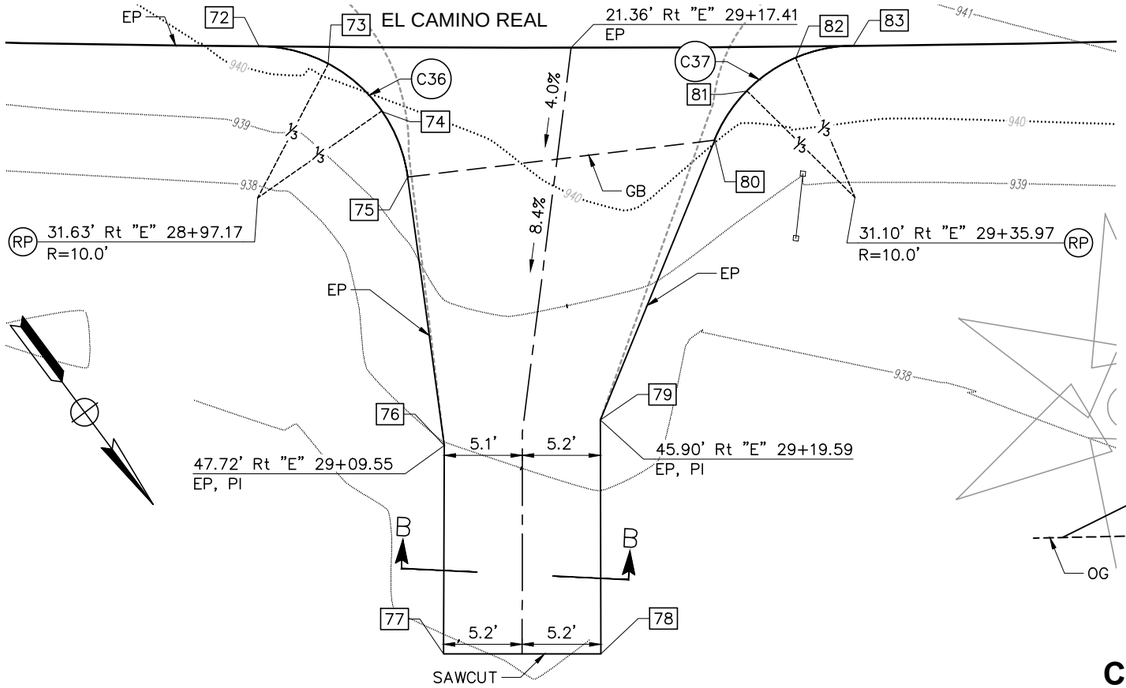


SECTION A-A
NO SCALE

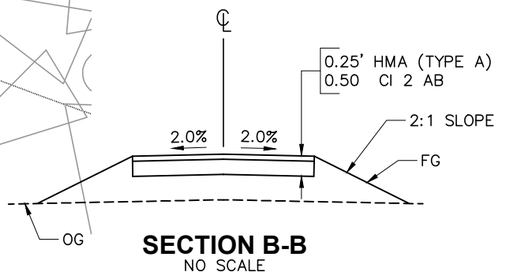
DRIVEWAY 4 CURVE TABLE				
Curve (#)	R	Δ	T	L
C36	10.00'	81° 40' 35"	8.64'	14.26'
C37	10.00'	67° 06' 55"	6.63'	11.71'

DRIVEWAY 4 ELEVATION DATA TABLE

Point #	LINE	STATION	OFFSET	Rt/Lt	ELEVATION	DESCRIPTION
72	"E"	28+97.04	21.63'	Rt	939.82	EP, BC
73	"E"	29+01.57	22.70'	Rt	939.85	EP
74	"E"	29+05.11	25.74'	Rt	939.77	EP
75	"E"	29+06.87	30.08'	Rt	939.63	EP, EC
76	"E"	29+09.55	47.72'	Rt	938.14	EP, PI
77	"E"	29+09.72	61.47'	Rt	936.92	CONFORM, MATCH EXISTING
78	"E"	29+19.79	61.33'	Rt	936.90	CONFROM, MATCH EXISTING
79	"E"	29+19.59	45.89'	Rt	938.40	EP, PI
80	"E"	29+26.83	27.36'	Rt	940.00	EP, BC
81	"E"	29+28.92	24.11'	Rt	940.16	EP
82	"E"	29+32.08	21.91'	Rt	940.30	EP
83	"E"	29+35.83	21.10'	Rt	940.39	EP, EC



DRIVEWAY 4 DETAIL
1" = 5'



SECTION B-B
NO SCALE

CONSTRUCTION DETAILS
SCALE: AS SHOWN

C-5

Dist	COUNTY	PROJECT	SHEET No.	TOTAL SHEETS
5	SLO	SANTA MARGARITA CREEK BRIDGE ON EL CAMINO REAL	14	69

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — Garrett McLaughlin — No. C67687 — CIVIL — STATE OF CALIFORNIA

THE COUNTY OF SAN LUIS OBISPO OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

QUINCY ENGINEERING
11017 COBBLEROCK DRIVE, SUITE 100
RANCHO CORDOVA, CA 95670
P: 916.368.9181

65% SUBMITTAL

REVISED BY	DATE REVISED
C. POLGLASE	G. MCLAUGHLIN

CALCULATED-DESIGNED BY | CHECKED BY

CONSULTANT PROJECT MANAGER: MARK RENO

SAN LUIS OBISPO – DEPARTMENT OF PUBLIC WORKS

SANTA MARGARITA CREEK BRIDGE REPLACEMENT

TIME PLOTTED: 3:28:55 PM, Garrett McLaughlin

DATE PLOTTED: Friday, February 16, 2018

LAST REVISION

Dist	COUNTY	PROJECT	SHEET No.	TOTAL SHEETS
5	SLO	SANTA MARGARITA CREEK BRIDGE ON EL CAMINO REAL	15	69

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

THE COUNTY OF SAN LUIS OBISPO OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

REGISTERED PROFESSIONAL ENGINEER — Garrett McLaughlin — No. C67687 — CIVIL — STATE OF CALIFORNIA

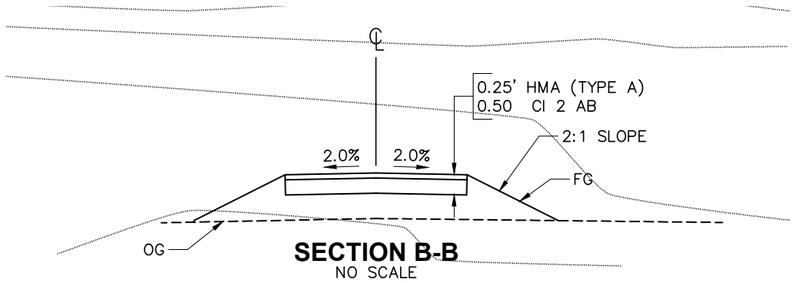
QUINCY ENGINEERING
11017 COBBLEROCK DRIVE, SUITE 100
RANCHO CORDOVA, CA 95670
P: 916.368.9181

DRIVEWAY 5 CURVE TABLE				
Curve #	R	Δ	T	L
C38	47.68'	27° 23' 59"	11.62'	22.80'
C39	36.06'	43° 54' 06"	14.53'	27.63'

DRIVEWAY-5						
Point #	LINE	STATION	OFFSET	Rt/Lt	ELEVATION	DESCRIPTION
84	"E"	30+96.51	18.12'	Rt	943.19	EP, BC
85	"E"	31+01.57	23.73'	Rt	943.06	EP
86	"E"	31+05.65	30.10'	Rt	942.87	EP
87	"E"	31+08.66	37.04'	Rt	942.17	EP, EC
88	"E"	31+09.04	51.09'	Rt	940.92	CONFORM, MATCH EXISTING
89	"E"	31+16.78	50.89'	Rt	940.95	CONFORM, MATCH EXISTING
90	"E"	31+17.22	39.69'	Rt	942.10	EP, BC
91	"E"	31+20.19	31.01'	Rt	943.11	EP
92	"E"	31+25.24	23.39'	Rt	943.51	EP
93	"E"	31+32.08	17.33'	Rt	943.89	EP, EC

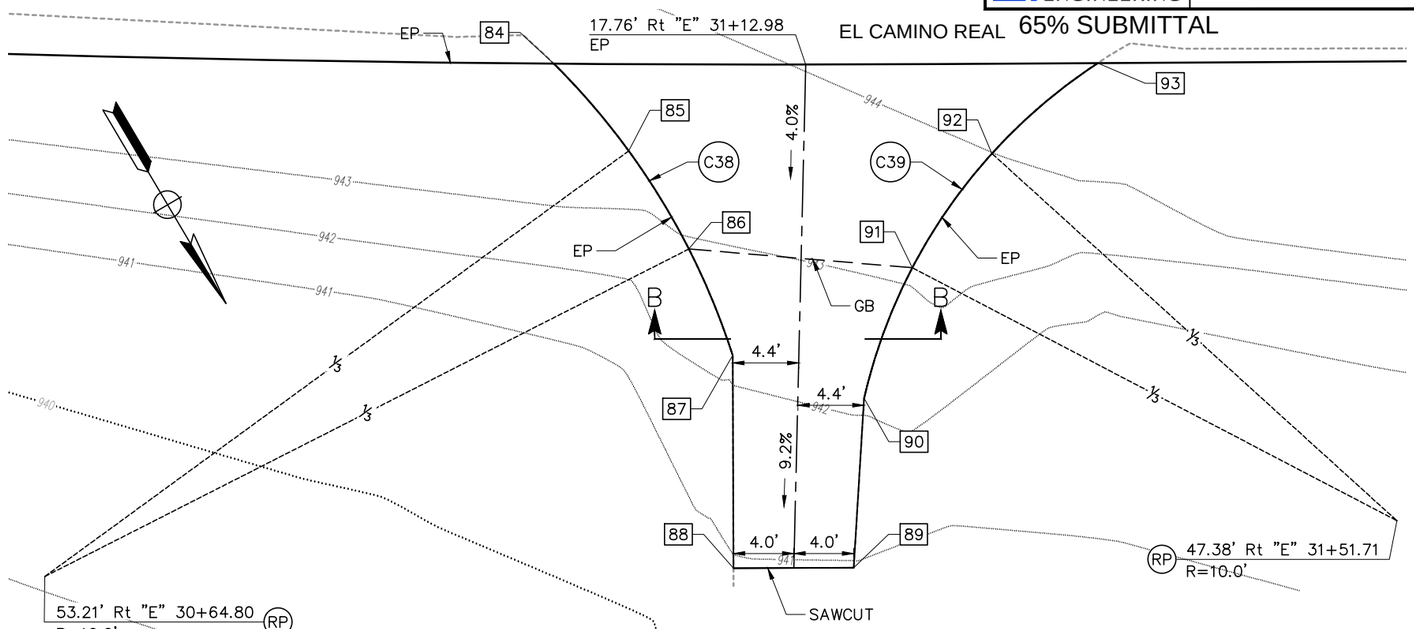
DRIVEWAY 6 CURVE TABLE				
Curve #	R	Δ	T	L
C41	10.00'	52° 27' 29"	4.93'	9.16'
C42	29.76'	61° 20' 25"	17.65'	31.86'

DRIVEWAY-6						
Point #	LINE	STATION	OFFSET	Rt/Lt	ELEVATION	DESCRIPTION
94	"E"	31+74.99	17.35'	Lt	944.87	EP, BC
95	"E"	31+79.08	17.84'	Lt	944.99	EP
96	"E"	31+82.88	19.42'	Lt	944.14	EP
97	"E"	31+86.11	21.98'	Lt	945.32	EP, EC
98	"E"	31+86.70	22.60'	Lt	945.37	EP, BC
99	"E"	31+88.45	25.10'	Lt	945.50	EP
100	"E"	31+89.36	27.99'	Lt	945.64	EP
101	"E"	31+89.36	31.03'	Lt	945.76	CONFORM, MATCH EXISTING, EC
102	"E"	32+03.26	32.48'	Lt	946.48	CONFORM, MATCH EXISTING, BC
103	"E"	32+09.81	24.20'	Lt	946.05	EP
104	"E"	32+18.84	18.70'	Lt	945.88	EP
105	"E"	32+29.21	16.67'	Lt	945.95	EP, EC

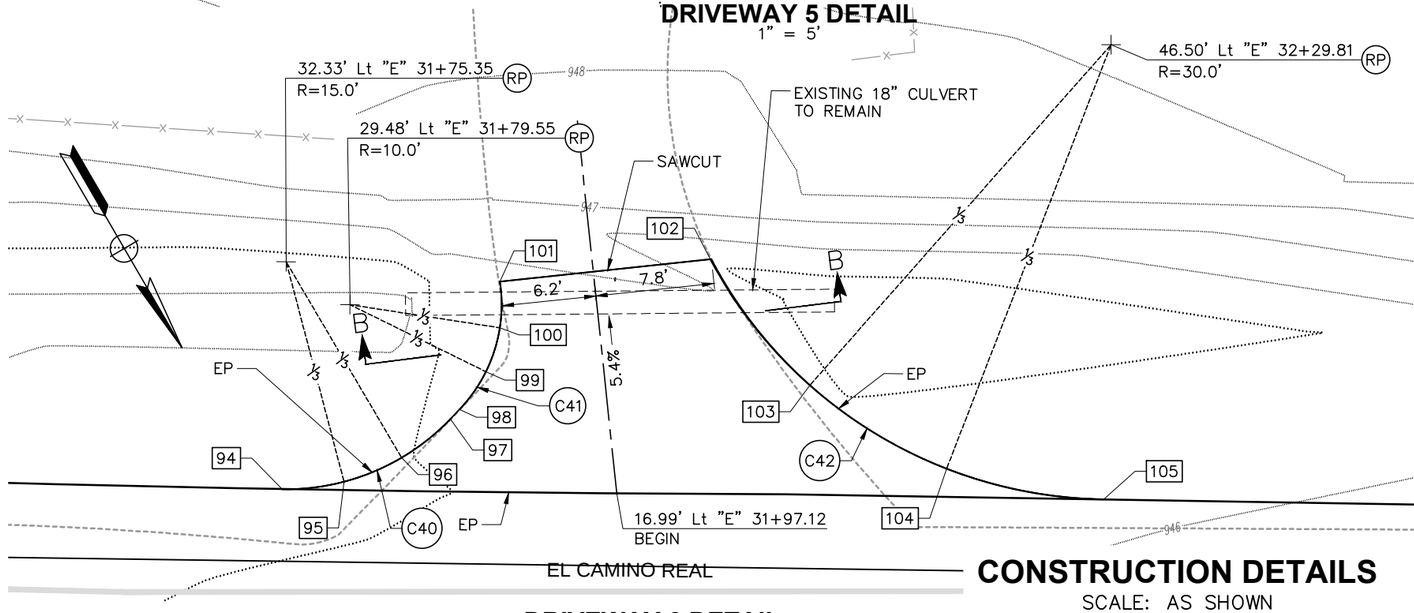


SECTION B-B
NO SCALE

EL CAMINO REAL 65% SUBMITTAL



DRIVEWAY 5 DETAIL
1" = 5'



DRIVEWAY 6 DETAIL
1" = 5'

CONSTRUCTION DETAILS
SCALE: AS SHOWN

C-6

REVISED BY | DATE REVISED
C. POLGLASE | G. MCLAUGHLIN
CALCULATED-DESIGNED BY | CHECKED BY
CONSULTANT PROJECT MANAGER
MARK RENO

SAN LUIS OBISPO – DEPARTMENT OF PUBLIC WORKS
SANTA MARGARITA CREEK BRIDGE REPLACEMENT

LAST REVISION | DATE PLOTTED: Friday, February 16, 2018
TIME PLOTTED: 3:29:24 PM, Garrett McLaughlin

BORDER LAST REVISED 7/2/2010

USERNAME Garrettm
DWG FILE S:\Client\SLO-County\S13-201-El Camino Real\CAD\roadway\AutoCad Civil 3D 2015\S13201rga006.dwg

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT UNIT

PROJECT NUMBER & PHASE S13201 – 65% SUBMITTAL

Dist	COUNTY	PROJECT	SHEET No.	TOTAL SHEETS
5	SLO	SANTA MARGARITA CREEK BRIDGE ON EL CAMINO REAL	16	69

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — Garrett McLaughlin — No. C67687 — CIVIL — STATE OF CALIFORNIA

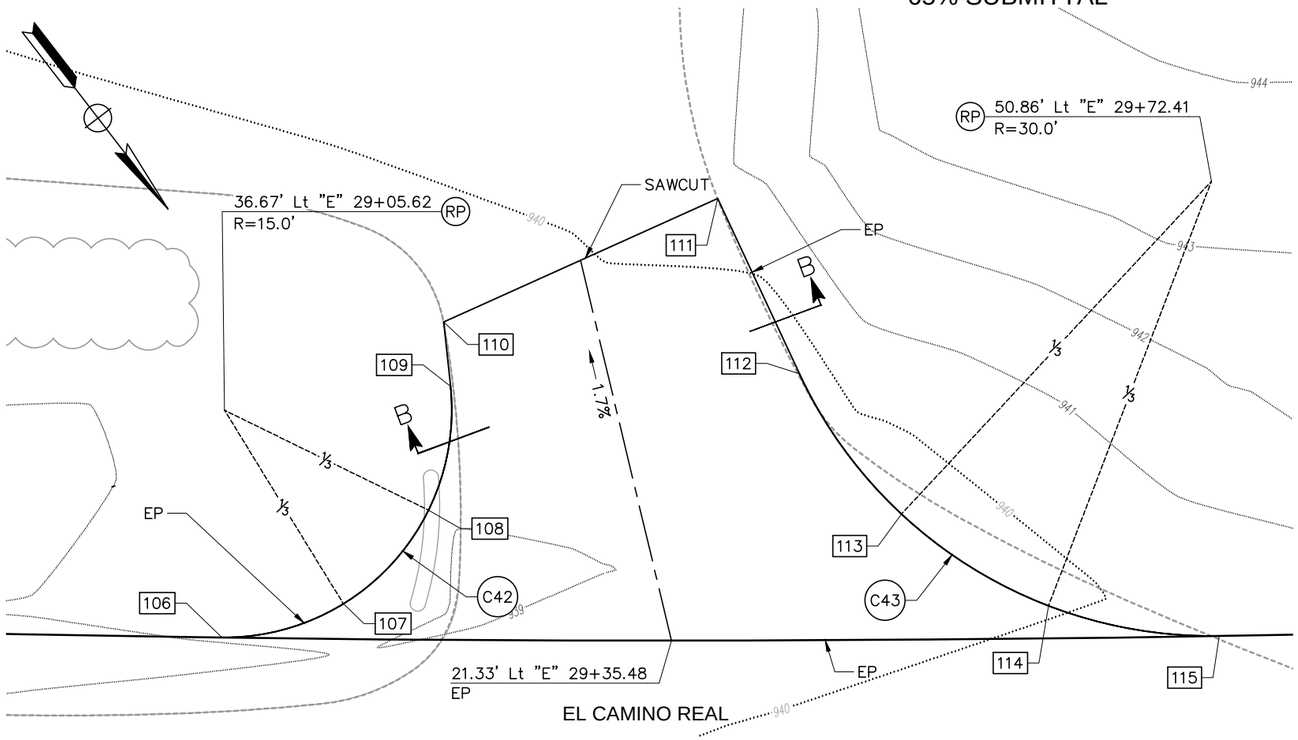
THE COUNTY OF SAN LUIS OBISPO OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

QUINCY ENGINEERING
11017 COBBLEROCK DRIVE, SUITE 100
RANCHO CORDOVA, CA 95670
P: 916.368.9181

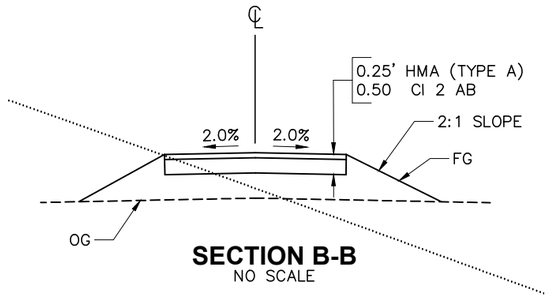
65% SUBMITTAL

DRIVEWAY 7 CURVE TABLE				
Curve #	R	Δ	T	L
C42	15.00'	97° 02' 06"	16.96'	25.40'
C43	30.00'	65° 55' 26"	19.45'	34.52'

DRIVEWAY-7						
Point #	LINE	STATION	OFFSET	Rt/Lt	ELEVATION	DESCRIPTION
106	"E"	29+05.46	21.72'	Lt	939.94	EP, BC
107	"E"	29+13.58	23.94'	Lt	940.02	EP
108	"E"	29+19.28	30.09'	Lt	940.01	EP
109	"E"	29+20.78	38.29'	Lt	939.89	EP, EC
110	"E"	29+20.38	42.48'	Lt	939.83	CONFORM, MATCH EXISTING
111	"E"	29+38.97	50.45'	Lt	939.84	CONFORM, MATCH EXISTING
112	"E"	29+44.31	38.81'	Lt	940.15	EP, BC
113	"E"	29+50.98	29.44'	Lt	940.43	EP
114	"E"	29+60.67	23.17'	Lt	940.69	EP
115	"E"	29+71.99	20.86'	Lt	940.90	EP, EC



DRIVEWAY 7 DETAIL
1" = 5'



SECTION B-B
NO SCALE

CONSTRUCTION DETAILS

SCALE: AS SHOWN

C-7

SAN LUIS OBISPO – DEPARTMENT OF PUBLIC WORKS
SANTA MARGARITA CREEK BRIDGE REPLACEMENT

CONSULTANT PROJECT MANAGER: MARK RENO

CALCULATED-DESIGNED BY: C. POLGLASE
CHECKED BY: G. MCLAUGHLIN

REVISED BY	DATE REVISED

LAST REVISION | DATE PLOTTED: Friday, February 16, 2018
TIME PLOTTED: 3:29:45 PM, Garrett McLaughlin

BORDER LAST REVISED 7/2/2010

USERNAME Garrettm
DWG FILE S:\Client\SLO-County\S13-201-El Camino Real\CAD\roadway\AutoCad Civil 3D 2015\S13201rga007.dwg

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT UNIT

PROJECT NUMBER & PHASE S13201 – 65% SUBMITTAL

NOTE:

1. THIS PLAN ACCURATE FOR FENCE LAYOUT ONLY.

Dist	COUNTY	PROJECT	SHEET No.	TOTAL SHEETS
5	SLO	SANTA MARGARITA CREEK BRIDGE ON EL CAMINO REAL	17	69

REGISTERED CIVIL ENGINEER DATE

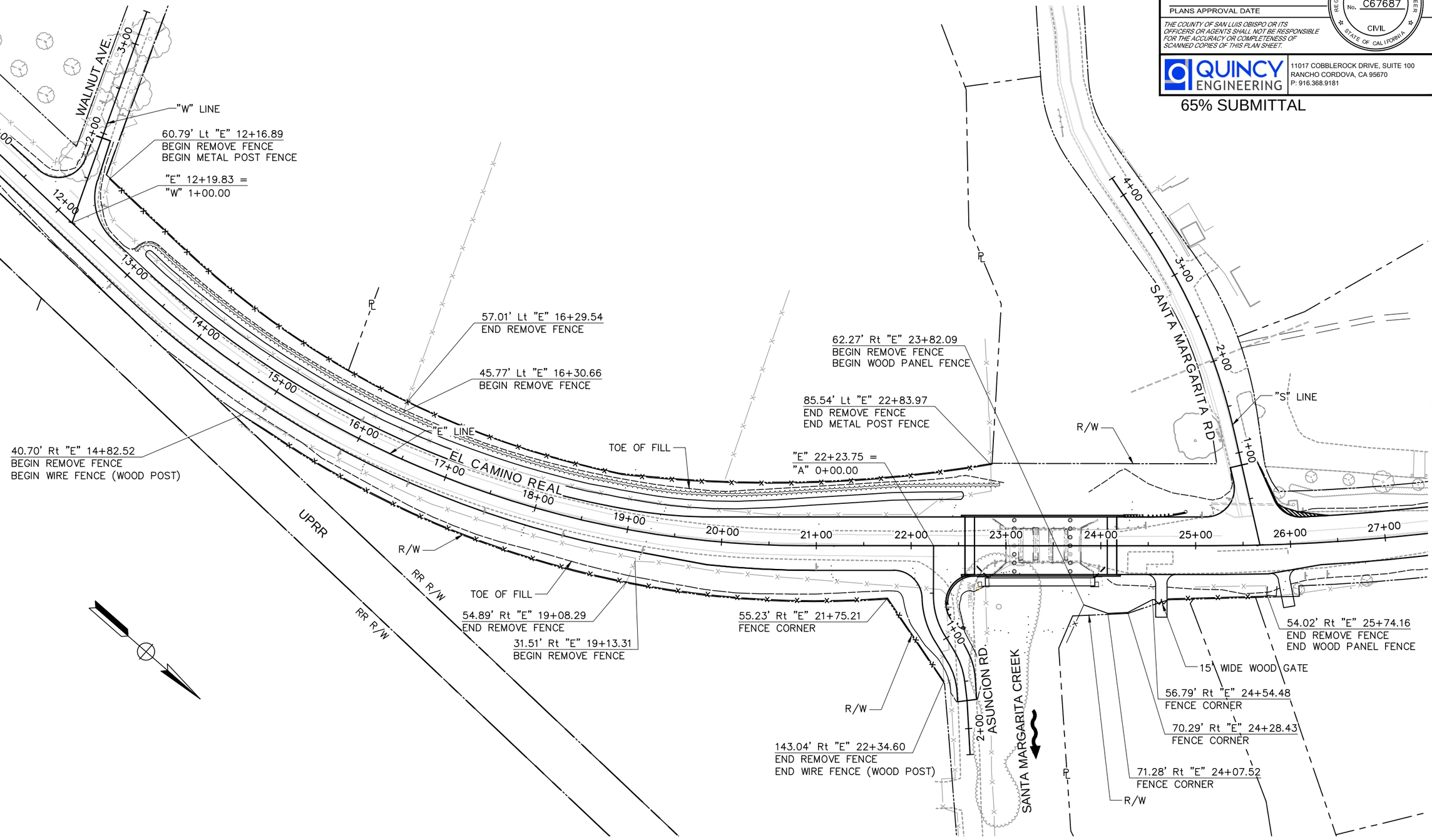
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — Garrett McLaughlin — No. C67687 — CIVIL — STATE OF CALIFORNIA

THE COUNTY OF SAN LUIS OBISPO OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

QUINCY ENGINEERING
11017 COBBLEROCK DRIVE, SUITE 100
RANCHO CORDOVA, CA 95670
P: 916.368.9181

65% SUBMITTAL



CONSTRUCTION DETAILS

SCALE: 1"=50'

C-8

REVISED BY	DATE REVISED
C. POLGLASE	G. MCLAUGHLIN
CALCULATED-DESIGNED BY	CHECKED BY
CONSULTANT PROJECT MANAGER	MARK RENO

SAN LUIS OBISPO – DEPARTMENT OF PUBLIC WORKS

SANTA MARGARITA CREEK BRIDGE REPLACEMENT

TIME PLOTTED: 3:30:07 PM, Garrett McLaughlin

DATE PLOTTED: Friday, February 16, 2018

LAST REVISION

BORDER LAST REVISED 7/2/2010

USERNAME Garrettm
DWG FILE S:\Client\SLO-County\S13-201-El Camino Real\CAD\roadway\AutoCad Civil 3D 2015\S13201rga008.dwg

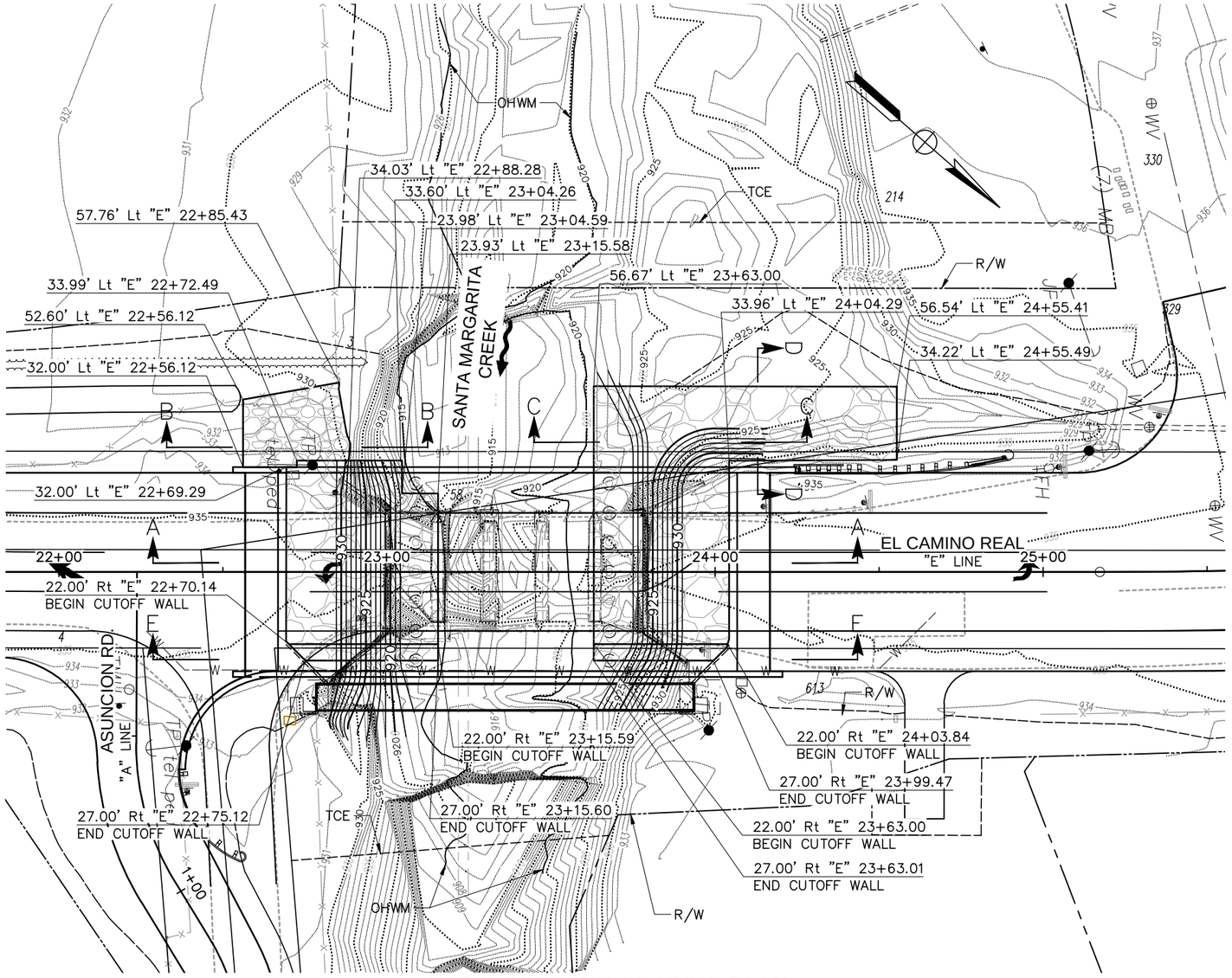
RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT UNIT

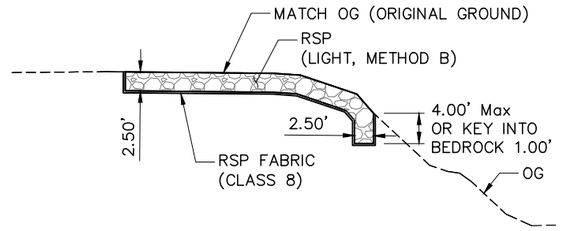
PROJECT NUMBER & PHASE S13201 – 65% SUBMITTAL

NOTES:

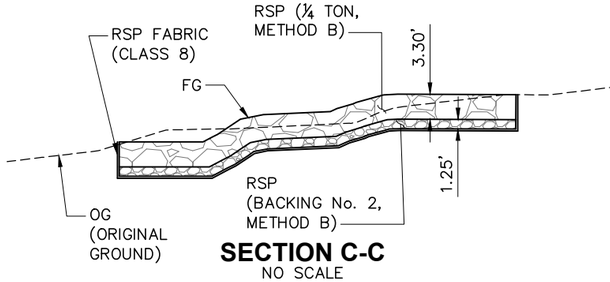
1. THIS PLAN ACCURATE FOR CONTOUR GRADING WORK AND RSP PLACEMENT ONLY.
2. PLACE RSP AT SPECIFIED LOCATIONS. ENGINEER TO DETERMINE EXCAVATION LIMITS AND IF RSP IS NOT NEEDED.
3. PLACE RSP FABRIC AROUND ALL SIDES OF RSP INTERFACE TO NATIVE SOIL.
4. RSP IS NOT TO BE PLACED ON SLOPES STEEPER THAN 1:1.
5. CONTRACTOR SHALL PROTECT BRIDGE PIER COLUMNS AND SHAFTS. PLACE RSP BY BY HAND WITHIN THESE LOCATIONS.



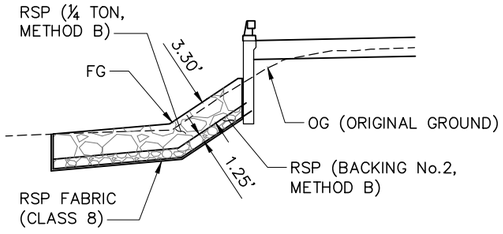
RSP & CONTOUR GRADING PLAN
Scale 1"=20'



SECTION B-B
NO SCALE



SECTION C-C
NO SCALE



SECTION D-D
NO SCALE

Dist	COUNTY	PROJECT	SHEET No.	TOTAL SHEETS
5	SLO	SANTA MARGARITA CREEK BRIDGE ON EL CAMINO REAL	18	69

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — Garrett McLaughlin — No. C67687 — CIVIL — STATE OF CALIFORNIA

THE COUNTY OF SAN LUIS OBISPO OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

QUINCY ENGINEERING
11017 COBBLEROCK DRIVE, SUITE 100
RANCHO CORDOVA, CA 95670
P: 916.368.9181

65% SUBMITTAL

REVISED BY	DATE REVISED

CALCULATED-DESIGNED BY: E. MCPHERSON
CHECKED BY: G. MCLAUGHLIN
CONSULTANT PROJECT MANAGER: MARK RENO

SAN LUIS OBISPO – DEPARTMENT OF PUBLIC WORKS

SANTA MARGARITA CREEK BRIDGE REPLACEMENT

CONSTRUCTION DETAILS

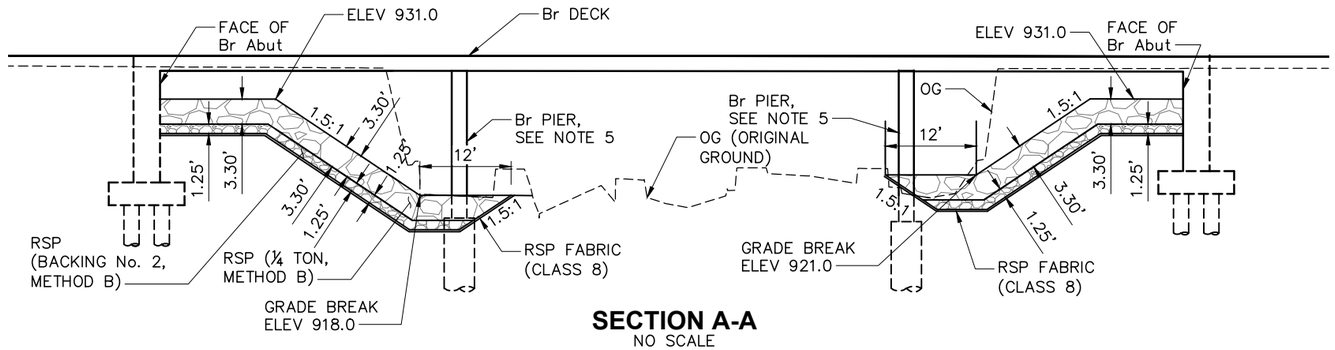
SCALE: AS SHOWN

C-9

LAST REVISION | DATE PLOTTED: Friday, February 16, 2018 | TIME PLOTTED: 3:30:57 PM, Garrett McLaughlin

NOTES:

1. THIS PLAN ACCURATE FOR CONTOUR GRADING WORK AND RSP PLACEMENT ONLY.
2. PLACE RSP AT SPECIFIED LOCATIONS. ENGINEER TO DETERMINE EXCAVATION LIMITS AND IF RSP IS NOT NEEDED.
3. PLACE RSP FABRIC AROUND ALL SIDES OF RSP INTERFACE TO NATIVE SOIL.
4. RSP IS NOT TO BE PLACED ON SLOPES STEEPER THAN 1:1.
5. CONTRACTOR SHALL PROTECT BRIDGE PIER COLUMNS AND SHAFTS. PLACE RSP BY BY HAND WITHIN THESE LOCATIONS.



SECTION A-A
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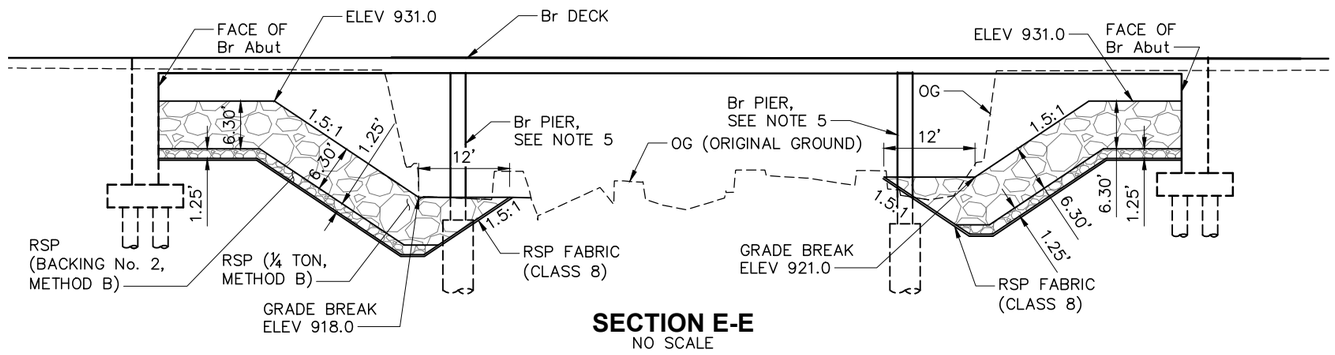


SECTION E-E
NO SCALE

Dist	COUNTY	PROJECT	SHEET No.	TOTAL SHEETS
5	SLO	SANTA MARGARITA CREEK BRIDGE ON EL CAMINO REAL	19	69

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — Garrett McLaughlin — No. C67687 — CIVIL — STATE OF CALIFORNIA

THE COUNTY OF SAN LUIS OBISPO OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

QUINCY ENGINEERING
11017 COBBLEROCK DRIVE, SUITE 100
RANCHO CORDOVA, CA 95670
P: 916.368.9181

65% SUBMITTAL

REVISED BY | DATE REVISED
G. MCLAUGHLIN | DES CHK
CALCULATED-DESIGNED BY | CHECKED BY
CONSULTANT PROJECT MANAGER: MARK RENO

SAN LUIS OBISPO – DEPARTMENT OF PUBLIC WORKS

SANTA MARGARITA CREEK BRIDGE REPLACEMENT

CONSTRUCTION DETAILS

SCALE: AS SHOWN

C-10

LAST REVISION | DATE PLOTTED: Friday, February 16, 2018 | TIME PLOTTED: 3:31:32 PM, Garrett McLaughlin

Dist	COUNTY	PROJECT	SHEET No.	TOTAL SHEETS
5	SLO	SANTA MARGARITA CREEK BRIDGE ON EL CAMINO REAL	20	69

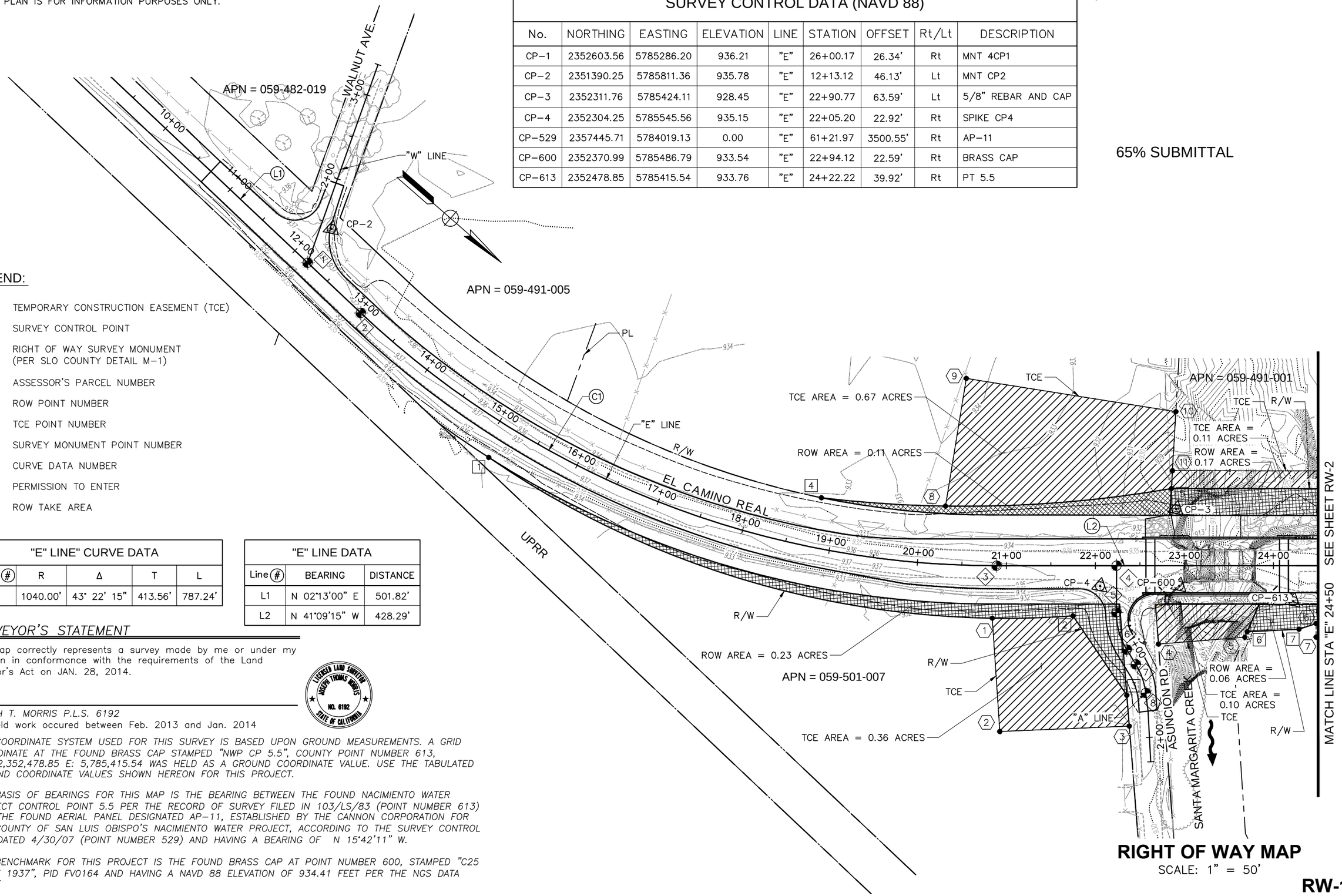
NOTE:

1. THIS PLAN IS FOR INFORMATION PURPOSES ONLY.

SURVEY CONTROL DATA (NAVD 88)

No.	NORTHING	EASTING	ELEVATION	LINE	STATION	OFFSET	Rt/Lt	DESCRIPTION
CP–1	2352603.56	5785286.20	936.21	"E"	26+00.17	26.34'	Rt	MNT 4CP1
CP–2	2351390.25	5785811.36	935.78	"E"	12+13.12	46.13'	Lt	MNT CP2
CP–3	2352311.76	5785424.11	928.45	"E"	22+90.77	63.59'	Lt	5/8" REBAR AND CAP
CP–4	2352304.25	5785545.56	935.15	"E"	22+05.20	22.92'	Rt	SPIKE CP4
CP–529	2357445.71	5784019.13	0.00	"E"	61+21.97	3500.55'	Rt	AP–11
CP–600	2352370.99	5785486.79	933.54	"E"	22+94.12	22.59'	Rt	BRASS CAP
CP–613	2352478.85	5785415.54	933.76	"E"	24+22.22	39.92'	Rt	PT 5.5

65% SUBMITTAL



LEGEND:

- TEMPORARY CONSTRUCTION EASEMENT (TCE)
- SURVEY CONTROL POINT
- RIGHT OF WAY SURVEY MONUMENT (PER SLO COUNTY DETAIL M–1)
- APN — ASSESSOR'S PARCEL NUMBER
- [X] — ROW POINT NUMBER
- (X) — TCE POINT NUMBER
- ◇X◇ — SURVEY MONUMENT POINT NUMBER
- (X) — CURVE DATA NUMBER
- PTE — PERMISSION TO ENTER
- ROW TAKE AREA

"E" LINE" CURVE DATA				
Curve (#)	R	Δ	T	L
C1	1040.00'	43° 22' 15"	413.56'	787.24'

"E" LINE DATA		
Line (#)	BEARING	DISTANCE
L1	N 02°13'00" E	501.82'
L2	N 41°09'15" W	428.29'

SURVEYOR'S STATEMENT

This map correctly represents a survey made by me or under my direction in conformance with the requirements of the Land Surveyor's Act on JAN. 28, 2014.

LICENSED LAND SURVEYOR JOSEPH THOMAS MORRIS NO. 6192 STATE OF CALIFORNIA

JOSEPH T. MORRIS P.L.S. 6192
The field work occured between Feb. 2013 and Jan. 2014

THE COORDINATE SYSTEM USED FOR THIS SURVEY IS BASED UPON GROUND MEASUREMENTS. A GRID COORDINATE AT THE FOUND BRASS CAP STAMPED "NWP CP 5.5", COUNTY POINT NUMBER 613, N: 2,352,478.85 E: 5,785,415.54 WAS HELD AS A GROUND COORDINATE VALUE. USE THE TABULATED GROUND COORDINATE VALUES SHOWN HEREON FOR THIS PROJECT.

THE BASIS OF BEARINGS FOR THIS MAP IS THE BEARING BETWEEN THE FOUND NACIMIENTO WATER PROJECT CONTROL POINT 5.5 PER THE RECORD OF SURVEY FILED IN 103/LS/83 (POINT NUMBER 613) AND THE FOUND AERIAL PANEL DESIGNATED AP–11, ESTABLISHED BY THE CANNON CORPORATION FOR THE COUNTY OF SAN LUIS OBISPO'S NACIMIENTO WATER PROJECT, ACCORDING TO THE SURVEY CONTROL MAP DATED 4/30/07 (POINT NUMBER 529) AND HAVING A BEARING OF N 15°42'11" W.

THE BENCHMARK FOR THIS PROJECT IS THE FOUND BRASS CAP AT POINT NUMBER 600, STAMPED "C25 RESET 1937", PID FV0164 AND HAVING A NAVD 88 ELEVATION OF 934.41 FEET PER THE NGS DATA SHEET

RIGHT OF WAY MAP

SCALE: 1" = 50'

RW-1

CALCULATED-DESIGNED BY	CHECKED BY	REVISED BY	DATE REVISED
E. MCPHERSON	G. MCLAUGHLIN	GM	2/13/2018

CONSULTANT PROJECT MANAGER: MARK RENO

SAN LUIS OBISPO – DEPARTMENT OF PUBLIC WORKS

SANTA MARGARITA CREEK BRIDGE REPLACEMENT

TIME PLOTTED: 3:32:00 PM, Garrett McLaughlin

DATE PLOTTED: Friday, February 16, 2018

LAST REVISION

BORDER LAST REVISED 7/2/2010

USERNAME Garrettm
DWG FILE S:\Client\SLO-County\S13-201-El Camino Real\CAD\roadway\AutoCad Civil 3D 2015\S13201rbe001.dwg

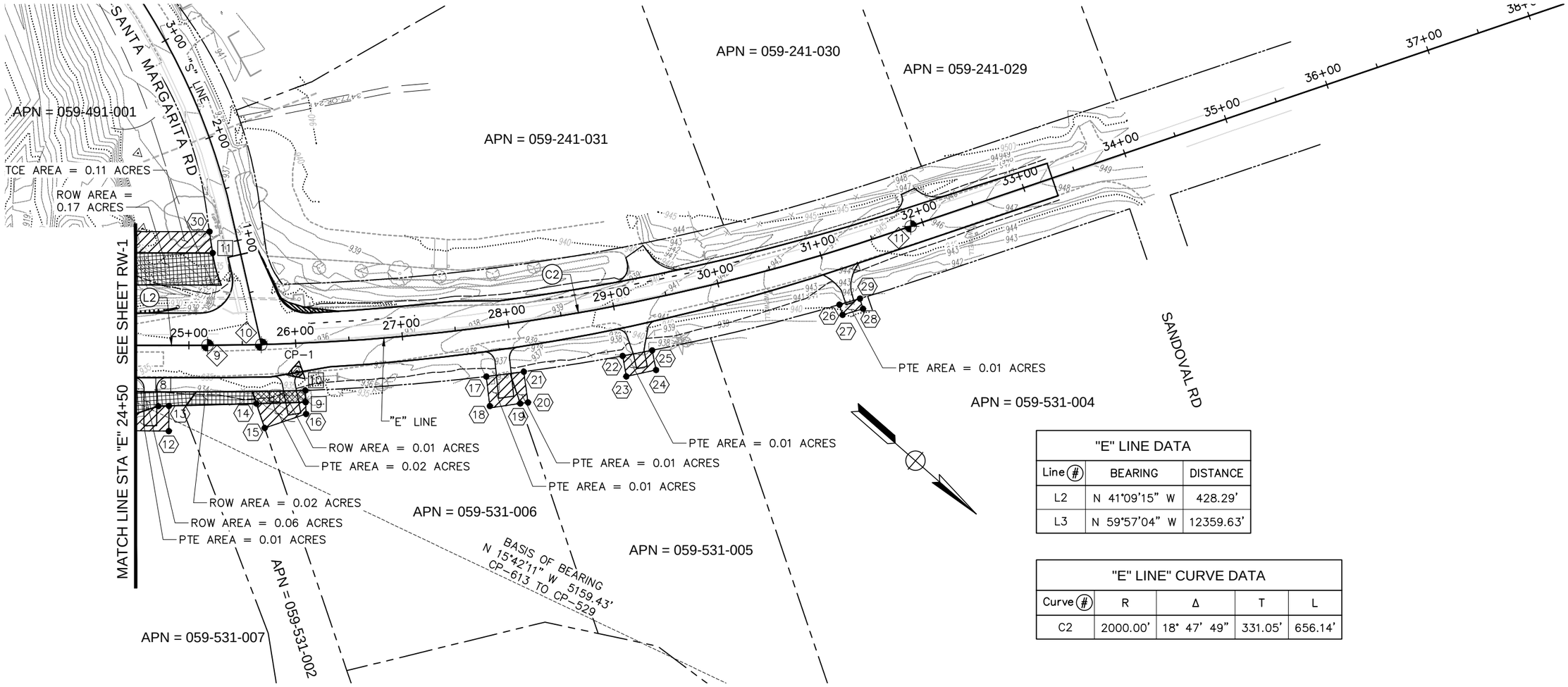
RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT UNIT

PROJECT NUMBER & PHASE S13201 – 65% SUBMITTAL

Dist	COUNTY	PROJECT	SHEET No.	TOTAL SHEETS
5	SLO	SANTA MARGARITA CREEK BRIDGE ON EL CAMINO REAL	21	69

65% SUBMITTAL



"E" LINE DATA		
Line (#)	BEARING	DISTANCE
L2	N 41°09'15" W	428.29'
L3	N 59°57'04" W	12359.63'

"E" LINE" CURVE DATA				
Curve (#)	R	Δ	T	L
C2	2000.00'	18° 47' 49"	331.05'	656.14'

NOTE:

1. THIS PLAN IS FOR INFORMATION PURPOSES ONLY.

RIGHT OF WAY MAP

SCALE: 1" = 50'

RW-2

SAN LUIS OBISPO – DEPARTMENT OF PUBLIC WORKS

SANTA MARGARITA CREEK BRIDGE REPLACEMENT

CONSULTANT PROJECT MANAGER: MARK RENO

CALCULATED-DESIGNED BY: E. MCPHERSON

CHECKED BY: G. MCLAUGHLIN

REVISED BY: GM

DATE REVISED: 2/13/2018

LAST REVISION

DATE PLOTTED: Friday, February 16, 2018

TIME PLOTTED: 3:32:23 PM, Garrett McLaughlin

BORDER LAST REVISED 7/2/2010

USERNAME Garrettm
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RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT UNIT

PROJECT NUMBER & PHASE S13201 – 65% SUBMITTAL

Dist	COUNTY	PROJECT	SHEET No.	TOTAL SHEETS
5	SLO	SANTA MARGARITA CREEK BRIDGE ON EL CAMINO REAL	22	69

65% SUBMITTAL

ROW POINTS

NO.	LINE	STATION	OFFSET	NORTHING	EASTING
1	E	15+10.89	41.09	2351692.0523	5785888.5481
2	E	21+74.70	56.27	2352303.2384	5785590.7411
3	E	22+35.24	145.41	2352407.4818	5785618.0157
4	E	18+79.52	−56.52	2352003.2477	5785676.7219
5	E	22+85.36	−86.78	2352292.4272	5785410.2090
6	E	23+70.42	74.04	2352462.3006	5785475.3221
7	E	24+28.61	71.29	2352504.3023	5785434.9523
8	E	24+71.33	56.99	2352527.0587	5785396.0774
9	E	26+06.84	55.35	2352628.4977	5785302.5021
10	E	26+06.94	44.34	2352620.9672	5785294.4774
11	E	25+22.40	−86.44	2352470.9543	5785254.6129

SURVEY MONUMENT POINTS

NO.	LINE	STATION	OFFSET	NORTHING	EASTING	DESCRIPTION
1	E	12+19.83	0.00	2351395.1618	5785857.7201	"E" LINE = "W" LINE
2	E	13+01.82	0.00	2351477.0919	5785860.8916	BC
3	E	20+89.06	0.00	2352201.7304	5785604.7295	EC
4	E	22+23.75	0.00	2352303.1443	5785516.0916	"E" LINE = "A" LINE
5	E	22+23.60	52.36	2352337.4906	5785555.6175	BC
6	E	22+35.32	94.28	2352373.9022	5785579.4670	EC
7	E	22+45.56	111.05	2352392.6451	5785585.3546	BC
8	E	22+56.46	142.53	2352421.5618	5785601.8850	EC
9	E	25+17.38	0.00	2352524.2273	5785322.8605	BC
10	E	25+67.83	0.00	2352561.7922	5785289.1828	"E" LINE = "S" LINE
11	E	31+68.24	0.00	2352936.5978	5784823.0189	EC

TCE POINTS

NO.	LINE	STATION	OFFSET	NORTHING	EASTING
1	E	20+84.35	57.86	2352236.0531	5785651.5593
2	E	20+92.63	186.12	2352326.8964	5785742.5245
3	E	22+38.00	180.12	2352432.4012	5785642.3397
4	E	22+70.81	87.97	2352396.4634	5785551.3637
5	E	23+67.70	80.28	2352464.3591	5785481.8060
6	E	24+47.83	64.85	2352514.5423	5785417.4592
7	E	24+47.82	80.11	2352524.5719	5785428.9559
8	E	20+27.71	−65.31	2352114.3619	5785592.0934
9	E	20+46.37	−209.77	2352037.5708	5785468.6817
10	E	22+90.34	−173.06	2352239.3868	5785341.9691
11	E	22+86.52	−106.77	2352280.1341	5785394.3931
12	E	24+81.12	80.32	2352549.7864	5785407.1986
13	E	24+81.27	56.72	2352534.3701	5785389.3327
14	E	25+61.93	55.04	2352594.5755	5785333.7946
15	E	25+68.90	78.11	2352615.4764	5785345.9283
16	E	26+06.75	65.42	2352635.3898	5785309.8465
17	E	27+73.30	45.96	2352740.0503	5785173.0540
18	E	27+73.03	75.51	2352761.9828	5785192.8472
19	E	28+00.54	75.25	2352780.5712	5785171.1702
20	E	28+07.60	75.25	2352785.3374	5785165.6121
21	E	28+07.87	46.31	2352763.5185	5785146.5940
22	E	28+99.43	47.21	2352823.4551	5785074.5719
23	E	28+99.25	66.67	2352838.6900	5785086.6718
24	E	29+26.81	66.27	2352855.7110	5785063.8409
25	E	29+26.98	47.49	2352840.8453	5785052.3641
26	E	31+03.28	49.26	2352944.7547	5784904.7675
27	E	31+03.27	59.29	2352953.2547	5784910.0920
28	E	31+22.65	59.51	2352963.9546	5784893.2526
29	E	31+22.79	49.45	2352955.4546	5784887.8701
30	E	25+19.35	−106.45	2352455.5772	5785241.4848

NOTE:

1. THIS PLAN IS FOR INFORMATION PURPOSES ONLY.

RIGHT OF WAY MAP

NO SCALE

RW-3

REVISED BY | DATE REVISED

E. MCPHERSON | G. MCLAUGHLIN

CALCULATED-DESIGNED BY | CHECKED BY

CONSULTANT PROJECT MANAGER

MARK RENO

SAN LUIS OBISPO – DEPARTMENT OF PUBLIC WORKS

SANTA MARGARITA CREEK BRIDGE REPLACEMENT

LAST REVISION | DATE PLOTTED: Friday, February 16, 2018 | TIME PLOTTED: 3:32:43 PM, Garrett McLaughlin

Dist	COUNTY	PROJECT	SHEET No.	TOTAL SHEETS
5	SLO	SANTA MARGARITA CREEK BRIDGE ON EL CAMINO REAL	23	69

65% SUBMITTAL

NOTES:

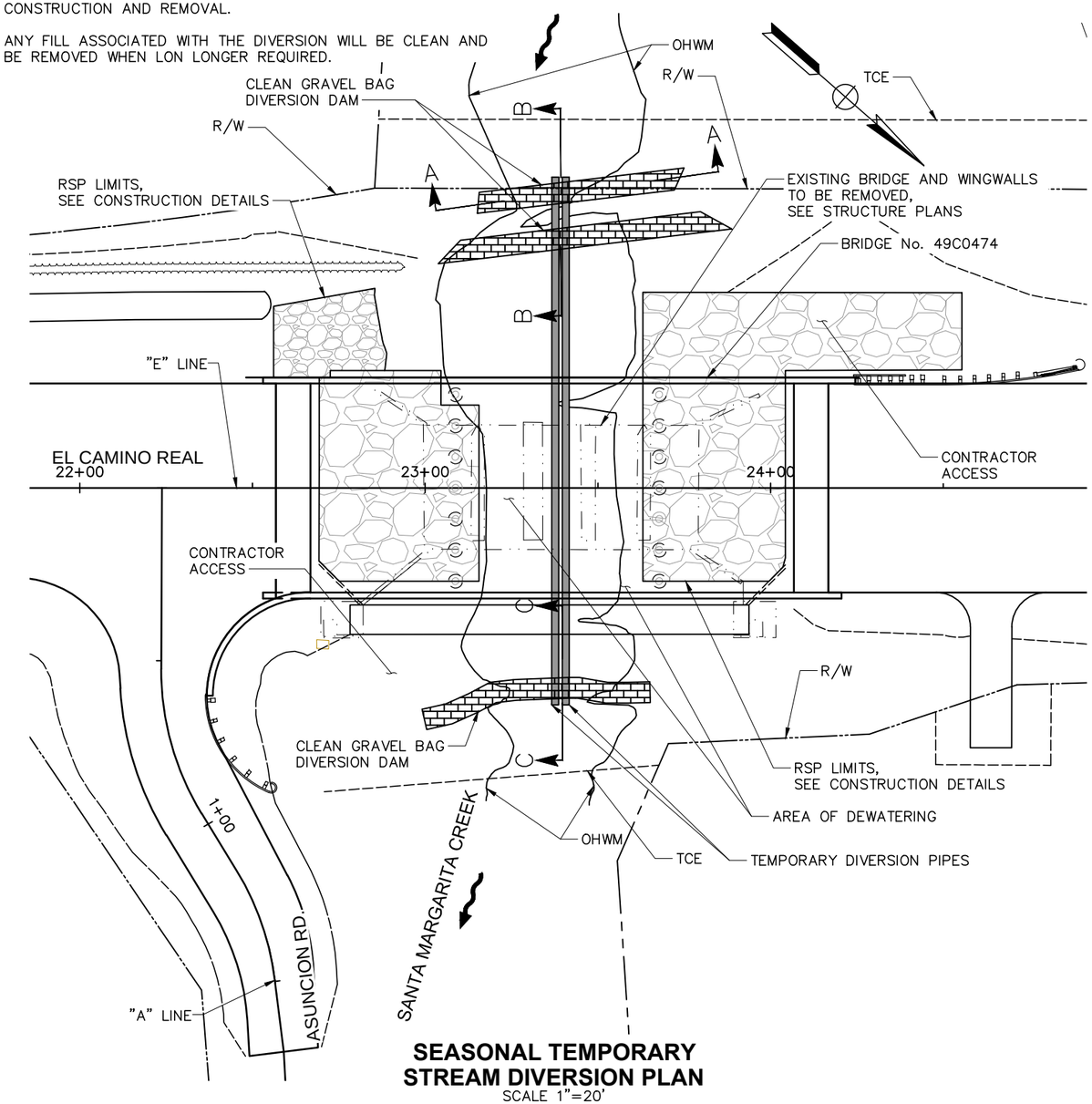
1. THIS PLAN ACCURATE FOR TEMPORARY STREAM DIVERSION ONLY.
2. EXACT LENGTH AND LOCATION OF PIPES TO BE DETERMINED IN THE FIELD BY THE ENGINEER.
3. EXACT LOCATION OF DIVERSION DAMS TO BE APPROVED IN THE FIELD BY THE ENGINEER.
4. CONTRACTOR TO SUBMIT STREAM DIVERSION PLAN THAT SHALL BE APPROVED BY THE ENGINEER.
5. STREAM DIVERSION SHALL BE REMOVED DURING WINTER SUSPENSION.
6. DIVERSION SYSTEM SHALL BE PROTECTED DURING ALL BRIDGE CONSTRUCTION AND REMOVAL.
7. ANY FILL ASSOCIATED WITH THE DIVERSION WILL BE CLEAN AND BE REMOVED WHEN LON LONGER REQUIRED.

TEMPORARY DIVERSION PIPES		
MIN PIPE DIAMETER	QUANTITY OF PIPES	DESIGN FLOW
18 INCHES	2	100 CFS

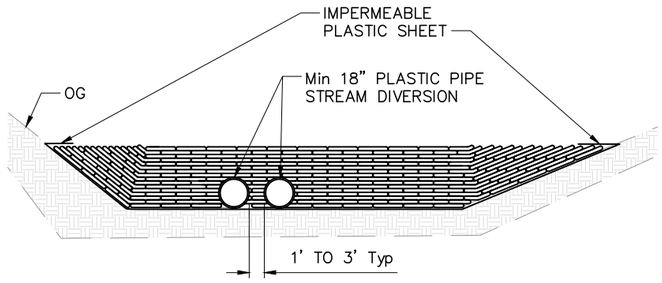
LEGEND:

INDICATES 48" CIDH PILE

INDICATES EXISTING FOOTINGS TO BE REMOVED



SEASONAL TEMPORARY STREAM DIVERSION PLAN
SCALE 1"=20'



SECTION A-A
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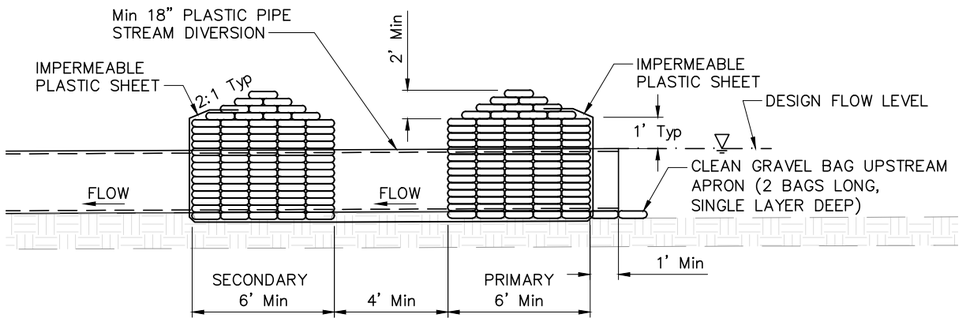
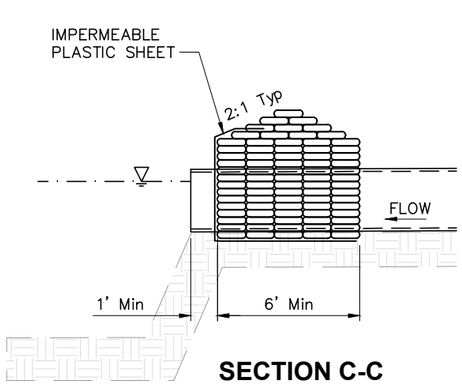
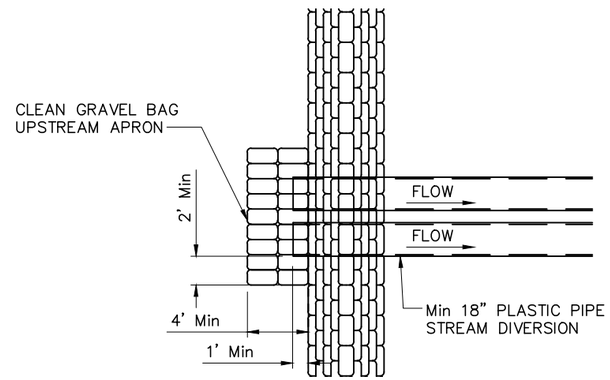


SECTION B-B
NO SCALE



SECTION C-C
NO SCALE



PRIMARY UPSTREAM GRAVEL BAG DIVERSION DAM END DETAIL
NO SCALE

SEASONAL TEMPORARY STREAM DIVERSION

SCALE: AS SHOWN

TSD-1

THIS SHEET IS FOR INFORMATION PURPOSES ONLY

REVISED BY	DATE REVISED
GM	2/13/2018

CALCULATED-DESIGNED BY: E. MCPHERSON
CHECKED BY: G. MCLAUGHLIN
CONSULTANT PROJECT MANAGER: MARK RENO
SAN LUIS OBISPO – DEPARTMENT OF PUBLIC WORKS
SANTA MARGARITA CREEK BRIDGE REPLACEMENT

LAST REVISION
DATE PLOTTED: Friday, February 16, 2018
TIME PLOTTED: 3:33:05 PM, Garrett McLaughlin

Dist	COUNTY	PROJECT	SHEET No.	TOTAL SHEETS
5	SLO	SANTA MARGARITA CREEK BRIDGE ON EL CAMINO REAL	24	69

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

THE COUNTY OF SAN LUIS OBISPO OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

REGISTERED PROFESSIONAL ENGINEER — Garrett McLaughlin — No. C67687 — CIVIL — STATE OF CALIFORNIA

QUINCY ENGINEERING
11017 COBBLEROCK DRIVE, SUITE 100
RANCHO CORDOVA, CA 95670
P: 916.368.9181

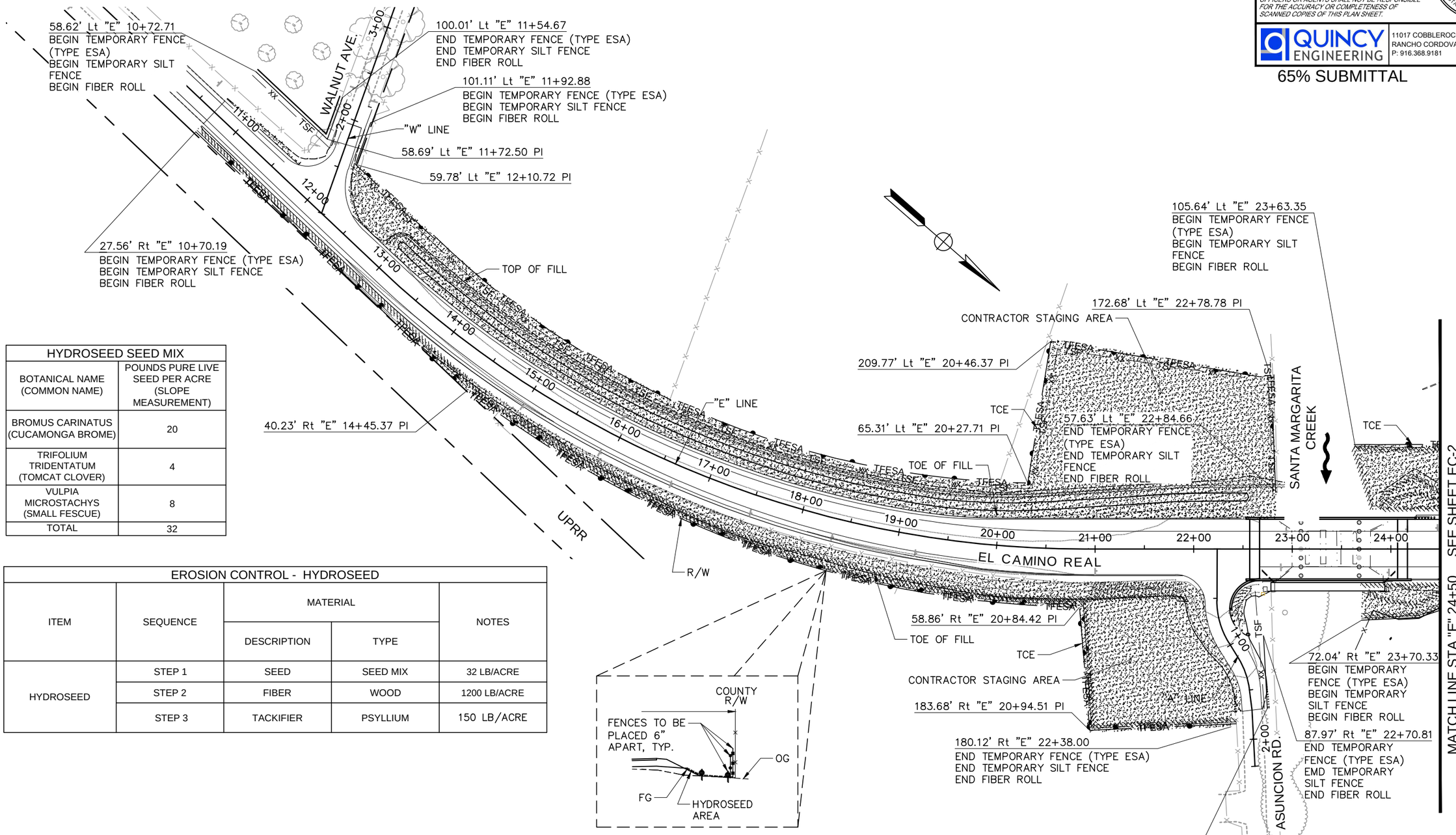
65% SUBMITTAL

NOTE:

1. THIS PLANS ACCURATE FOR EROSION CONTROL WORK ONLY.
2. FOR COMPLETE RIGHT OF WAY AND ACCURATE ACCESS DATA, SEE RIGHT OF WAY RECORD MAPS AT THE COUNTY OFFICE.
3. LOCATION OF FIBER ROLLS ARE SCHEMATIC. ACTUAL PLACEMENT LOCATIONS OF FIBER ROLLS SHALL BE IN ACCORDANCE WITH SPECIAL PROVISIONS.
4. EROSION CONTROL (HYDROSEED) SHALL NOT BE PLACED WITHIN ACTIVE CREEK.
5. NO COMPOST OR MANURE TO BE USED ON THIS PROJECT.

LEGEND:

- FIBER ROLL
- xx TSF TEMPORARY SILT FENCE
- TFESA TEMPORARY FENCE (TYPE ESA)
- EROSION CONTROL (HYDROSEED)



HYDROSEED SEED MIX	
BOTANICAL NAME (COMMON NAME)	POUNDS PURE LIVE SEED PER ACRE (SLOPE MEASUREMENT)
BROMUS CARINATUS (CUCAMONGA BROME)	20
TRIFOLIUM TRIDENTATUM (TOMCAT CLOVER)	4
VULPIA MICROSTACHYS (SMALL FESCUE)	8
TOTAL	32

EROSION CONTROL - HYDROSEED				
ITEM	SEQUENCE	MATERIAL		NOTES
		DESCRIPTION	TYPE	
HYDROSEED	STEP 1	SEED	SEED MIX	32 LB/ACRE
	STEP 2	FIBER	WOOD	1200 LB/ACRE
	STEP 3	TACKIFIER	PSYLLIUM	150 LB/ACRE

EROSION CONTROL PLAN

SCALE: 1" = 50'

EC-1

CALCULATED-DESIGNED BY | CHECKED BY

CONSULTANT PROJECT MANAGER: MARK RENO

SAN LUIS OBISPO – DEPARTMENT OF PUBLIC WORKS

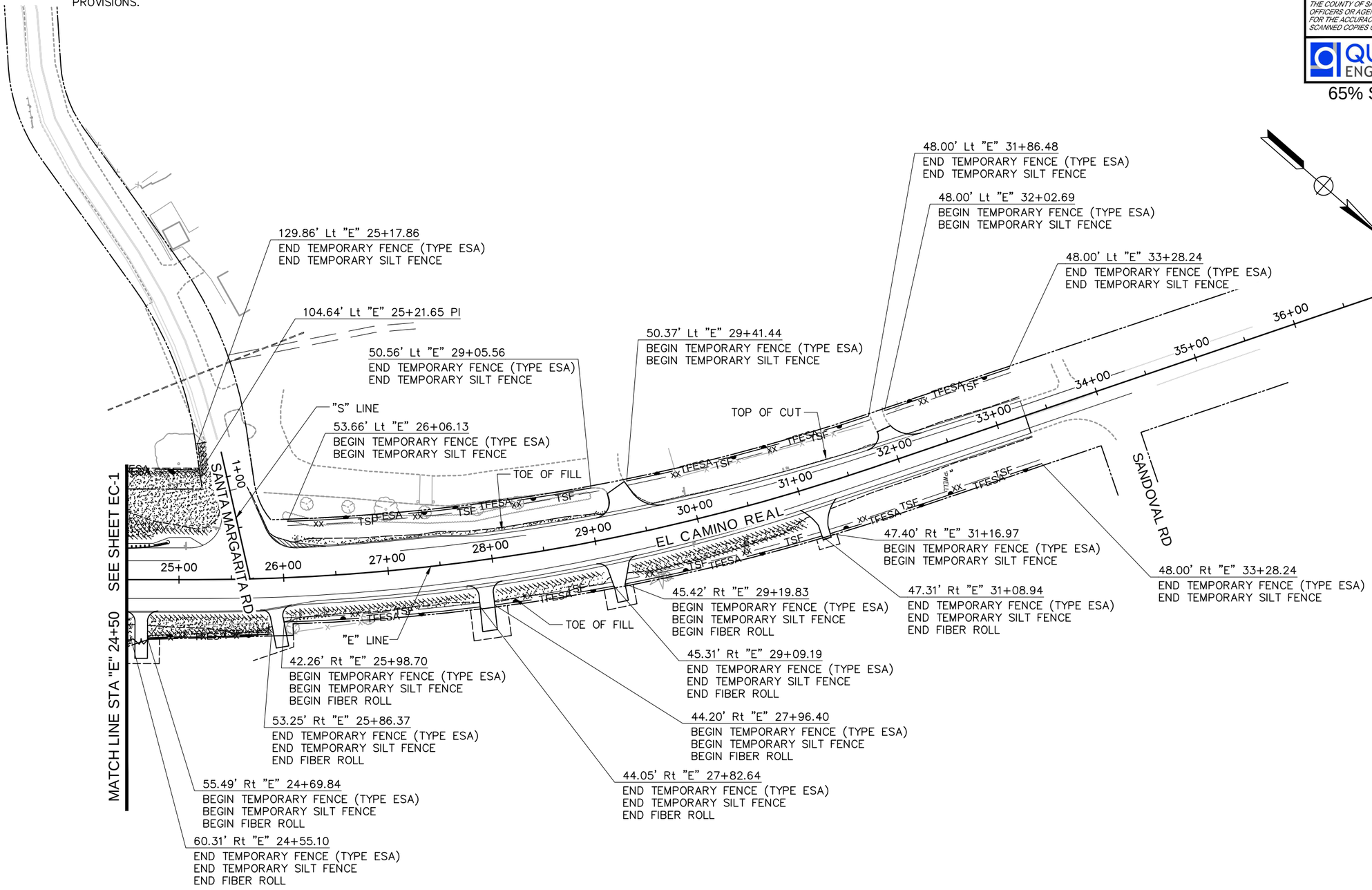
SANTA MARGARITA CREEK BRIDGE REPLACEMENT

REVISED BY	DATE REVISED
E. MCPHERSON	X

LAST REVISION | DATE PLOTTED: Friday, February 16, 2018 | TIME PLOTTED: 3:33:31 PM, Garrett McLaughlin

NOTE:

1. THIS PLANS ACCURATE FOR EROSION CONTROL WORK ONLY.
2. FOR COMPLETE RIGHT OF WAY AND ACCURATE ACCESS DATA, SEE RIGHT OF WAY RECORD MAPS AT THE COUNTY OFFICE.
3. LOCATION OF FIBER ROLLS ARE SCHEMATIC. ACTUAL PLACEMENT LOCATIONS OF FIBER ROLLS SHALL BE IN ACCORDANCE WITH SPECIAL PROVISIONS.
4. EROSION CONTROL (HYDROSEED) SHALL NOT BE PLACED WITHIN ACTIVE CREEK.
5. NO COMPOST OR MANURE TO BE USED.



Dist	COUNTY	PROJECT	SHEET No.	TOTAL SHEETS
5	SLO	SANTA MARGARITA CREEK BRIDGE ON EL CAMINO REAL	25	69

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — Garrett McLaughlin — No. C67687 — CIVIL — STATE OF CALIFORNIA

THE COUNTY OF SAN LUIS OBISPO OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

QUINCY ENGINEERING
11017 COBBLEROCK DRIVE, SUITE 100
RANCHO CORDOVA, CA 95670
P: 916.368.9181

65% SUBMITTAL

EROSION CONTROL PLAN

SCALE: 1" = 50'

EC-2

REVISED BY	DATE REVISED
E. MCPHERSON	X

CALCULATED-DESIGNED BY | CHECKED BY

CONSULTANT PROJECT MANAGER: MARK RENO

SAN LUIS OBISPO – DEPARTMENT OF PUBLIC WORKS

SANTA MARGARITA CREEK BRIDGE REPLACEMENT

TIME PLOTTED: 3:33:55 PM, Garrett McLaughlin

DATE PLOTTED: Friday, February 16, 2018

LAST REVISION

Dist	COUNTY	PROJECT	SHEET No.	TOTAL SHEETS
5	SLO	SANTA MARGARITA CREEK BRIDGE ON EL CAMINO REAL	26	69

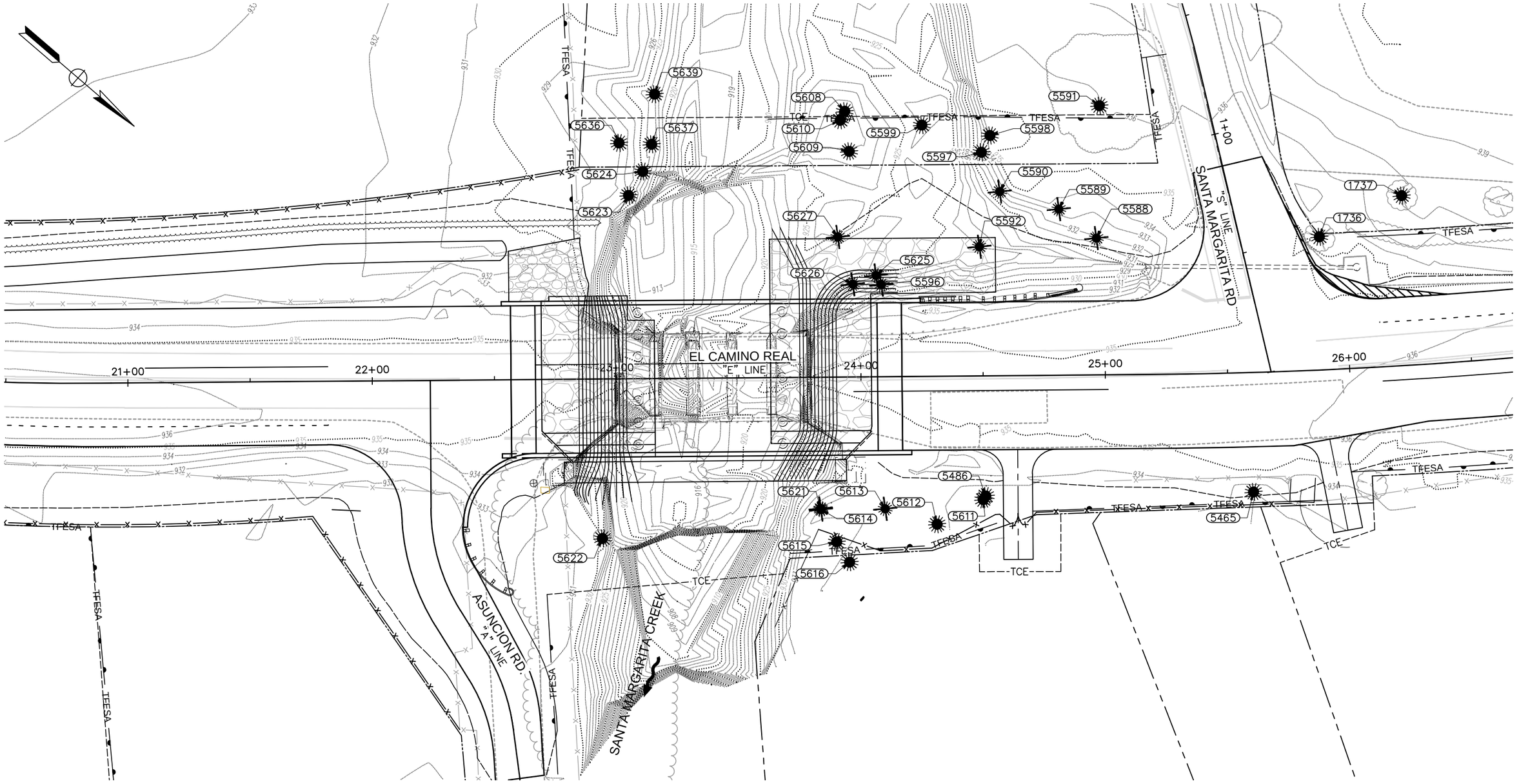
65% SUBMITTAL

NOTES:

1. THIS PLAN ACCURATE FOR TREE REMOVAL WORK ONLY.
2. (N) – NOT A SEPARATE PAY ITEM, FOR INFORMATION ONLY.
3. TREES TO BE IMPACTED SHALL BE TRIMMED UNDER THE DIRECTION OF THE RESIDENT ENGINEER.
4. ADDITIONAL TREE REMOVAL AND TREE TRIMMING MAY BE REQUIRED FOR PROJECT CONSTRUCTION AND SHALL BE INCLUDED AS CLEARING AND GRUBBING.
5. FOR TREE DATA TABLES, SEE DRAWING EC–4

LEGEND:

- TFESA — TEMPORARY HIGH VISIBILITY FENCE (TYPE ESA)
- MT — MULTI TRUNK
- TREE SYMBOL
- TREE TO BE REMOVED
- (No.) — TREE NUMBER



TREE REMOVAL AND IMPACTS

SCALE: 1" = 20'

TI-1

REVISED BY | DATE REVISED
E. MCPHERSON | G. MCLAUGHLIN
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CONSULTANT PROJECT MANAGER: MARK RENO
SAN LUIS OBISPO – DEPARTMENT OF PUBLIC WORKS
SANTA MARGARITA CREEK BRIDGE REPLACEMENT

TIME PLOTTED: 3:34:25 PM, Garrett McLaughlin
DATE PLOTTED: Friday, February 16, 2018
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USERNAME Garrettm
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RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3
UNIT UNIT
PROJECT NUMBER & PHASE S13201 – 65% SUBMITTAL

Dist	COUNTY	PROJECT	SHEET No.	TOTAL SHEETS
5	SLO	SANTA MARGARITA CREEK BRIDGE ON EL CAMINO REAL	27	69

65% SUBMITTAL

NOTES:

1. THIS PLAN ACCURATE FOR TREE REMOVAL WORK ONLY.
2. FOR TREE LOCATIONS, SEE DRAWING EC–3.

PROJECTED TREES TO BE IMPACTED (N)

No.	TYPE	STATION	OFFSET	COMMENTS
1736	TREE TYPE AND SIZE UNKNOWN	"E" 25+90.02	54.47' Lt	TEMPORARY IMPACTS
1737	TREE TYPE AND SIZE UNKNOWN	"E" 26+25.68	69.50' Lt	NO ANTICIPATED IMPACTS
5465	MT BLACK OAK	"E" 25+59.22	48.89' Rt	TEMPORARY IMPACTS
5486	14" BLACK OAK	"E" 24+50.66	49.17' Rt	TEMPORARY IMPACTS
5588	MT 16", 14", 13", 8", 5" & 4" COTTONWOOD	"E" 24+96.79	55.99' Lt	TREE TO BE REMOVED
5589	32" COTTONWOOD	"E" 24+81.51	68.00' Lt	TREE TO BE REMOVED
5590	36" COTTONWOOD	"E" 24+57.40	75.38' Lt	TREE TO BE REMOVED
5591	25" LIVE OAK	"E" 24+98.43	110.19' Lt	NO ANTICIPATED IMPACTS
5592	MT 2" & 4" BOX ELDER	"E" 24+48.88	52.89' Lt	TREE TO BE REMOVED
5596	13" LIVE OAK	"E" 24+08.62	37.71' Lt	TREE TO BE REMOVED
5597	34" COTTONWOOD	"E" 24+50.02	91.53' Lt	TEMPORARY IMPACTS
5598	4" COTTONWOOD	"E" 24+53.60	98.37' Lt	TEMPORARY IMPACTS
5599	11" BOX ELDER	"E" 24+25.76	102.86' Lt	TEMPORARY IMPACTS
5608	MT 24", 8", 8" & 5" SYCAMORE	"E" 23+94.25	108.75' Lt	NO ANTICIPATED IMPACTS
5609	MT 24", 18" & 7" COTTONWOOD	"E" 23+95.90	92.33' Lt	TEMPORARY IMPACTS
5610	28" LIVE OAK	"E" 23+92.38	105.11' Lt	TEMPORARY IMPACTS
5611	14" VALLEY OAK	"E" 24+49.60	50.63' Rt	TEMPORARY IMPACTS
5612	TREE TYPE AND SIZE UNKNOWN	"E" 24+30.63	60.55' Rt	TEMPORARY IMPACTS
5613	9" LIVE OAK	"E" 24+09.46	54.03' Rt	TEMPORARY IMPACTS
5614	TREE TYPE AND SIZE UNKNOWN	"E" 23+83.18	54.18' Rt	TREE TO BE REMOVED
5615	TREE TYPE AND SIZE UNKNOWN	"E" 23+89.49	67.44' Rt	TEMPORARY IMPACTS
5616	TREE TYPE AND SIZE UNKNOWN	"E" 23+94.70	75.78' Rt	NO ANTICIPATED IMPACTS
5621	TREE TYPE AND SIZE UNKNOWN	"E" 23+83.07	53.72' Rt	TREE TO BE REMOVED
5622	80" VALLEY OAK	"E" 22+93.64	65.23' Rt	TEMPORARTY IMPACTS
5623	MT 32", 18" & 10" LIVE OAK	"E" 23+05.49	75.08' Lt	TEMPORARY IMPACTS
5624	24" COTTONWOOD	"E" 23+11.40	84.83' Lt	TEMPORARY IMPACTS
5625	4" LIVE OAK	"E" 24+06.49	41.49' Lt	TREE TO BE REMOVED
5626	23" DIGGER PINE	"E" 23+96.98	37.95' Lt	TREE TO BE REMOVED
5627	MT 4" WILLOW	"E" 23+91.01	57.37' Lt	TREE TO BE REMOVED
5636	56" LIVE OAK	"E" 23+01.78	96.58' Lt	TEMPORARY IMPACTS
5637	MT 17", 6" & 5" WILLOW	"E" 23+15.10	95.91' Lt	TEMPORARY IMPACTS
5639	38" WILLOW	"E" 23+16.49	116.43' Lt	NO ANTICIPATED IMPACTS

TREE REMOVAL AND IMPACTS

NO SCALE

TI-2

REVISED BY | DATE REVISED

E. MCPHERSON | G. MCLAUGHLIN

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CONSULTANT PROJECT MANAGER: MARK RENO

SAN LUIS OBISPO – DEPARTMENT OF PUBLIC WORKS

SANTA MARGARITA CREEK BRIDGE REPLACEMENT

LAST REVISION | DATE PLOTTED: Friday, February 16, 2018 | TIME PLOTTED: 3:34:35 PM, Garrett McLaughlin

BORDER LAST REVISED 7/2/2010 | USERNAME Garrettm | DWG FILE S:\Client\SLO-County\S13-201-El Camino Real\CAD\roadway\AutoCad Civil 3D 2015\S13201rge001.dwg | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT UNIT | PROJECT NUMBER & PHASE S13201 – 65% SUBMITTAL

Dist	COUNTY	PROJECT	SHEET No.	TOTAL SHEETS
5	SLO	SANTA MARGARITA CREEK BRIDGE ON EL CAMINO REAL	28	69

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — Garrett McLaughlin — No. C67687 — CIVIL — STATE OF CALIFORNIA

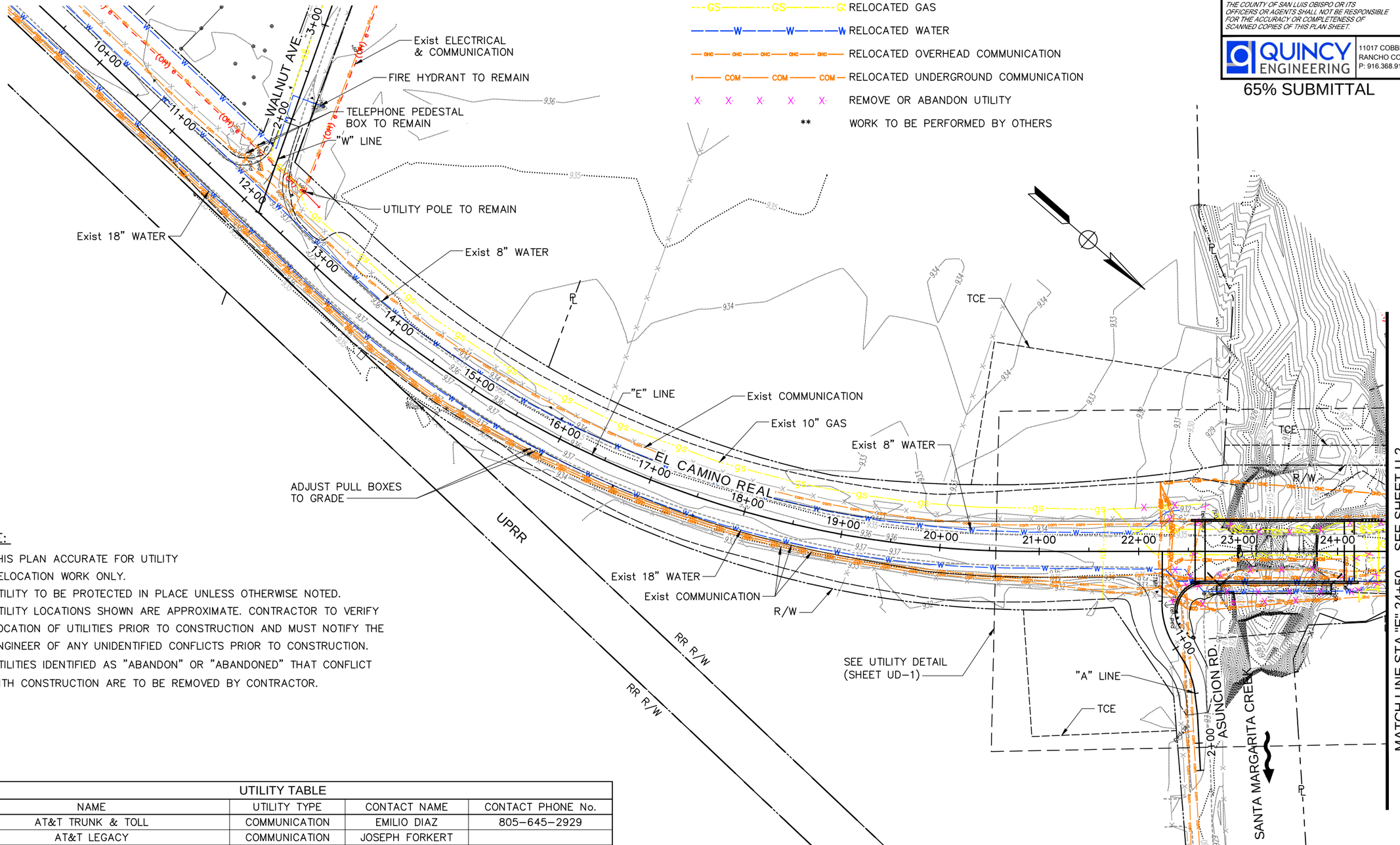
THE COUNTY OF SAN LUIS OBISPO OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

QUINCY ENGINEERING
11017 COBBLEROCK DRIVE, SUITE 100
RANCHO CORDOVA, CA 95670
P: 916.368.9181

65% SUBMITTAL

LEGEND:

- EXISTING UNDERGROUND GAS
- EXISTING UNDERGROUND COMMUNICATION
- EXISTING OVERHEAD ELECTRICAL
- EXISTING OVERHEAD COMMUNICATION
- RELOCATED GAS
- RELOCATED WATER
- RELOCATED OVERHEAD COMMUNICATION
- RELOCATED UNDERGROUND COMMUNICATION
- REMOVE OR ABANDON UTILITY
- ** WORK TO BE PERFORMED BY OTHERS



NOTE:

1. THIS PLAN ACCURATE FOR UTILITY RELOCATION WORK ONLY.
2. UTILITY TO BE PROTECTED IN PLACE UNLESS OTHERWISE NOTED.
3. UTILITY LOCATIONS SHOWN ARE APPROXIMATE. CONTRACTOR TO VERIFY LOCATION OF UTILITIES PRIOR TO CONSTRUCTION AND MUST NOTIFY THE ENGINEER OF ANY UNIDENTIFIED CONFLICTS PRIOR TO CONSTRUCTION.
4. UTILITIES IDENTIFIED AS "ABANDON" OR "ABANDONED" THAT CONFLICT WITH CONSTRUCTION ARE TO BE REMOVED BY CONTRACTOR.

UTILITY TABLE

NAME	UTILITY TYPE	CONTACT NAME	CONTACT PHONE No.
AT&T TRUNK & TOLL	COMMUNICATION	EMILIO DIAZ	805-645-2929
AT&T LEGACY	COMMUNICATION	JOSEPH FORKERT	
ATASCADERO MUTUAL WATER	POTABLE WATER	JOHN NEIL	805-464-5351
PG&E	ELECTRIC	CLAIRE MASTIN	805-546-3888
THE GAS COMPANY	NATURAL GAS	CLAUDIA TURNER	
GARDEN FARMS COMMUNITY WATER DISTRICT		JANICE MAXWELL	805-434-8564

UTILITY PLAN

SCALE: 1" = 50'

U-1

CALCULATED-DESIGNED BY	CHECKED BY	CONSULTANT PROJECT MANAGER	REVISED BY	DATE REVISED
E. MCPHERSON	G. MCLAUGHLIN	MARK RENO	GM	2/13/2018

SAN LUIS OBISPO - DEPARTMENT OF PUBLIC WORKS

SANTA MARGARITA CREEK BRIDGE REPLACEMENT

LAST REVISION — DATE PLOTTED: Friday, February 16, 2018 — TIME PLOTTED: 3:35:00 PM, Garrett McLaughlin

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UNIT UNIT

PROJECT NUMBER & PHASE S13201 – 65% SUBMITTAL

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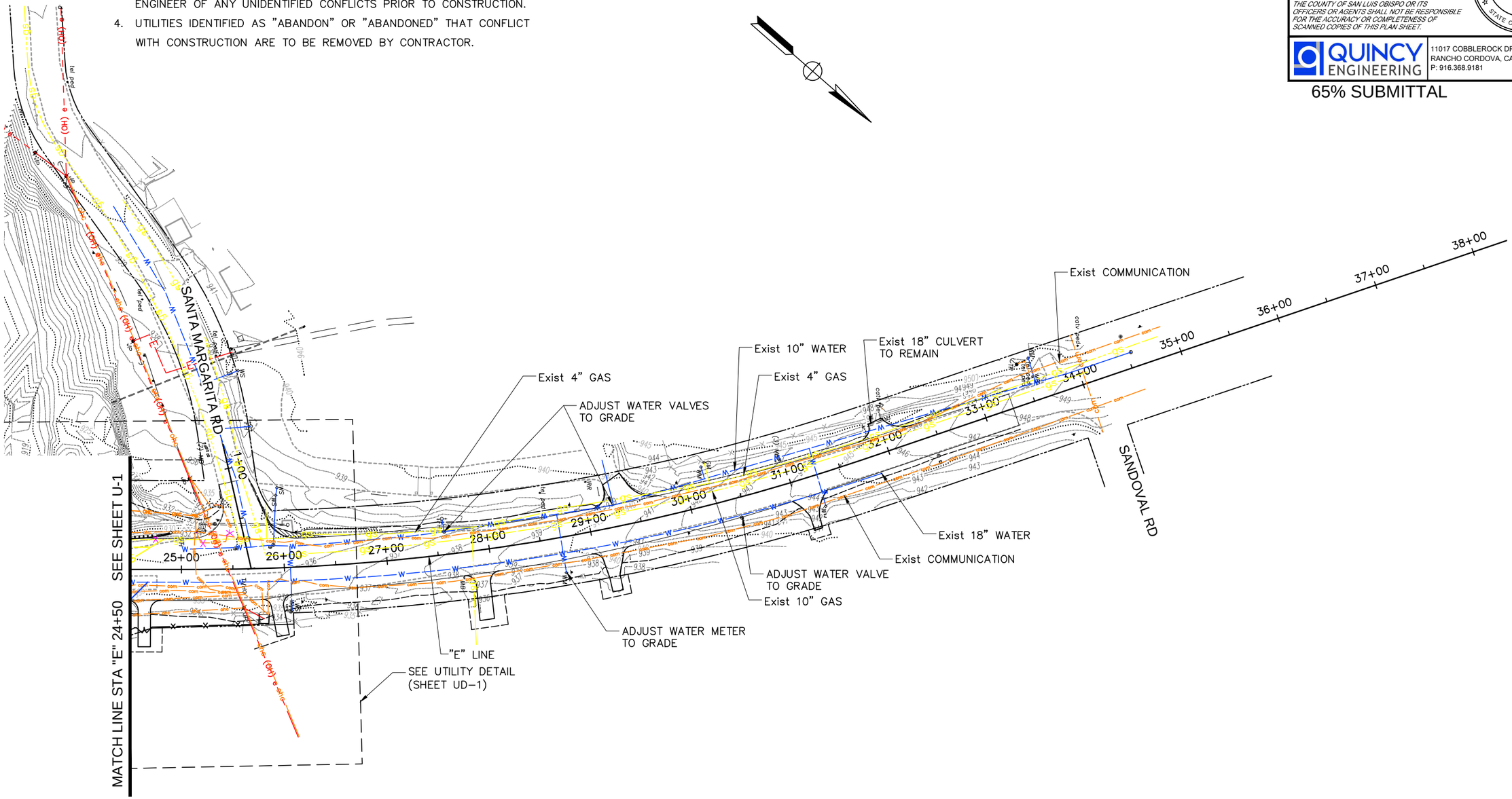

Dist	COUNTY	PROJECT	SHEET No.	TOTAL SHEETS
5	SLO	SANTA MARGARITA CREEK BRIDGE ON EL CAMINO REAL	29	69

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — Garrett McLaughlin — No. C67687 — CIVIL — STATE OF CALIFORNIA

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65% SUBMITTAL

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E. MCPHERSON	G. MCLAUGHLIN	GM	2/13/2018

CONSULTANT PROJECT MANAGER: MARK RENO

SAN LUIS OBISPO – DEPARTMENT OF PUBLIC WORKS

SANTA MARGARITA CREEK BRIDGE REPLACEMENT

UTILITY PLAN

SCALE: 1" = 50'

U-2

TIME PLOTTED: 3:35:24 PM, Garrett McLaughlin

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UNIT UNIT

PROJECT NUMBER & PHASE S13201 – 65% SUBMITTAL

NOTE:

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Dist	COUNTY	PROJECT	SHEET No.	TOTAL SHEETS
5	SLO	SANTA MARGARITA CREEK BRIDGE ON EL CAMINO REAL	30	69

REGISTERED CIVIL ENGINEER DATE

REGISTERED PROFESSIONAL ENGINEER — Garrett McLaughlin — No. C67687 — CIVIL — STATE OF CALIFORNIA

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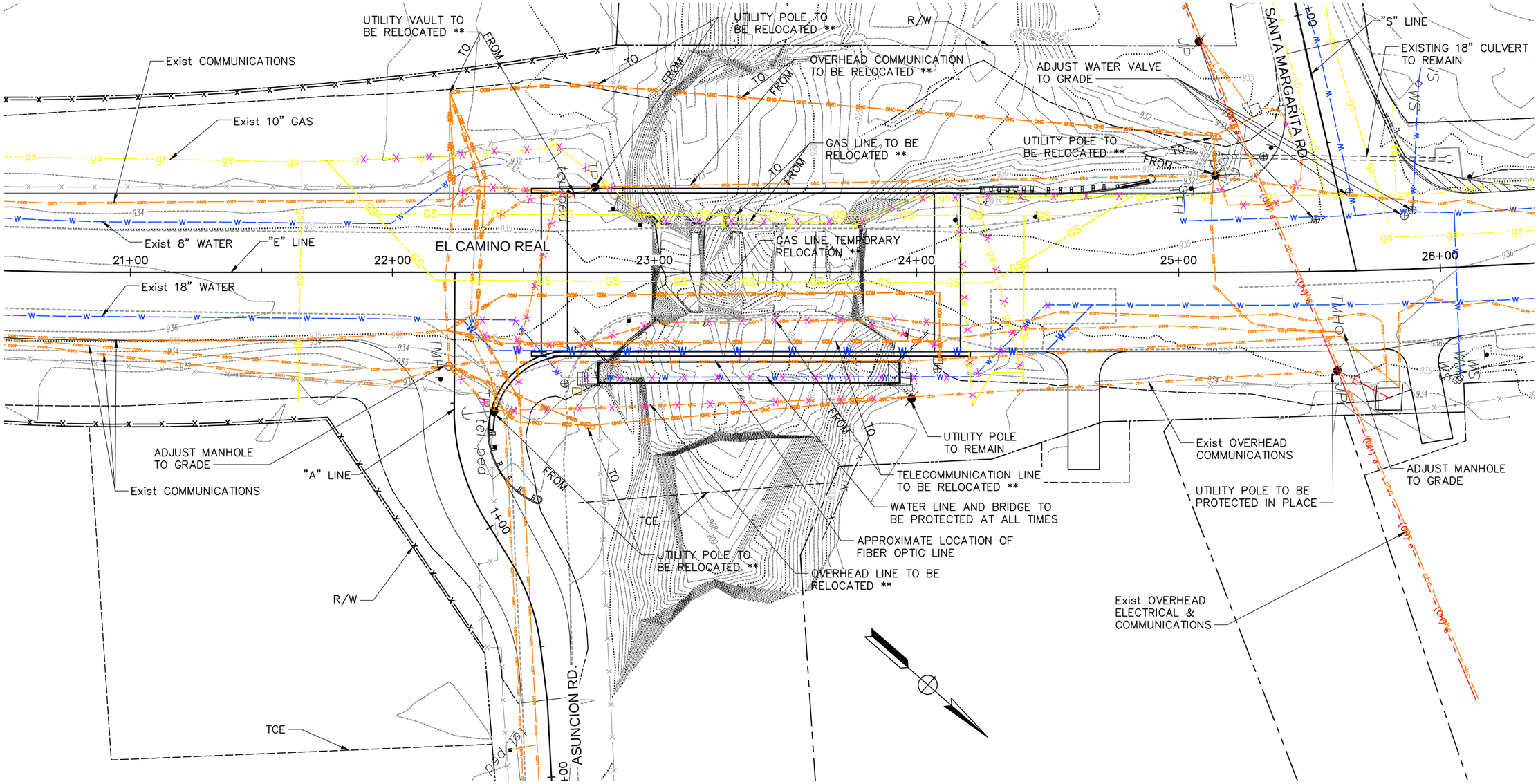

UTILITY DETAIL

SCALE: 1" = 20'

UD-1

CALCULATED-DESIGNED BY | CHECKED BY
E. MCPHERSON | DES CHK
REVISED BY | DATE REVISED
GM | 2/13/2018
CONSULTANT PROJECT MANAGER
MARK RENO
SAN LUIS OBISPO – DEPARTMENT OF PUBLIC WORKS
SANTA MARGARITA CREEK BRIDGE REPLACEMENT

TIME PLOTTED: 3:35:44 PM, Garrett McLaughlin
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Dist	COUNTY	PROJECT	SHEET No.	TOTAL SHEETS
5	SLO	SANTA MARGARITA CREEK BRIDGE ON EL CAMINO REAL	31	69

REGISTERED CIVIL ENGINEER — DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — Garrett McLaughlin — No. C67687 — CIVIL — STATE OF CALIFORNIA

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RANCHO CORDOVA, CA 95670
P: 916.368.9181

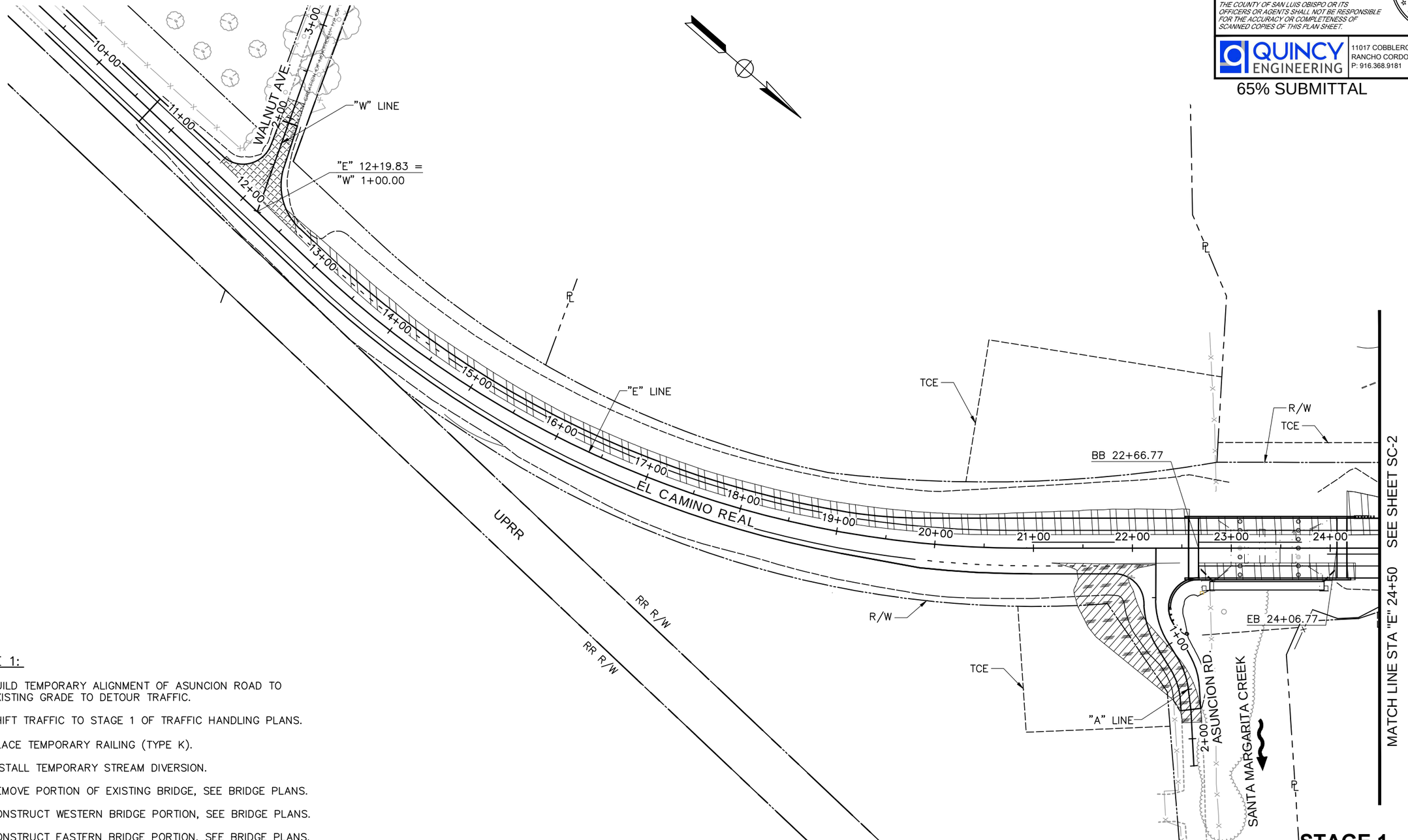
65% SUBMITTAL

LEGEND:

- STAGE 1, PHASE 1
- STAGE 1, PHASE 2
- STAGE 1, PHASE 3

NOTE:

1. THIS PLAN IS ACCURATE FOR STAGE CONSTRUCTION WORK ONLY.



STAGE 1:

1. BUILD TEMPORARY ALIGNMENT OF ASUNCION ROAD TO EXISTING GRADE TO DETOUR TRAFFIC.
2. SHIFT TRAFFIC TO STAGE 1 OF TRAFFIC HANDLING PLANS.
3. PLACE TEMPORARY RAILING (TYPE K).
4. INSTALL TEMPORARY STREAM DIVERSION.
5. REMOVE PORTION OF EXISTING BRIDGE, SEE BRIDGE PLANS.
6. CONSTRUCT WESTERN BRIDGE PORTION, SEE BRIDGE PLANS.
7. CONSTRUCT EASTERN BRIDGE PORTION, SEE BRIDGE PLANS.
8. CONSTRUCT APPROACHES FOR SOUTHBOUND TRAFFIC.
9. CONSTRUCT INTERSECTION FOR WALNUT AVE. AND SANTA MARGARITA ROAD. CONSTRUCT DRIVEWAYS #6 AND #7.

STAGE 1
STAGE CONSTRUCTION

SCALE: 1"= 50'

SC-1

CALCULATED-DESIGNED BY
CHECKED BY
CONSULTANT PROJECT MANAGER: MARK RENO
REVISED BY: E. MCPHERSON
DATE REVISED: G. MCLAUGHLIN

SAN LUIS OBISPO – DEPARTMENT OF PUBLIC WORKS
SANTA MARGARITA CREEK BRIDGE REPLACEMENT

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UNIT UNIT
PROJECT NUMBER & PHASE S13201 – 65% SUBMITTAL

Dist	COUNTY	PROJECT	SHEET No.	TOTAL SHEETS
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REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
Garrett McLaughlin
No. C67687
CIVIL
STATE OF CALIFORNIA

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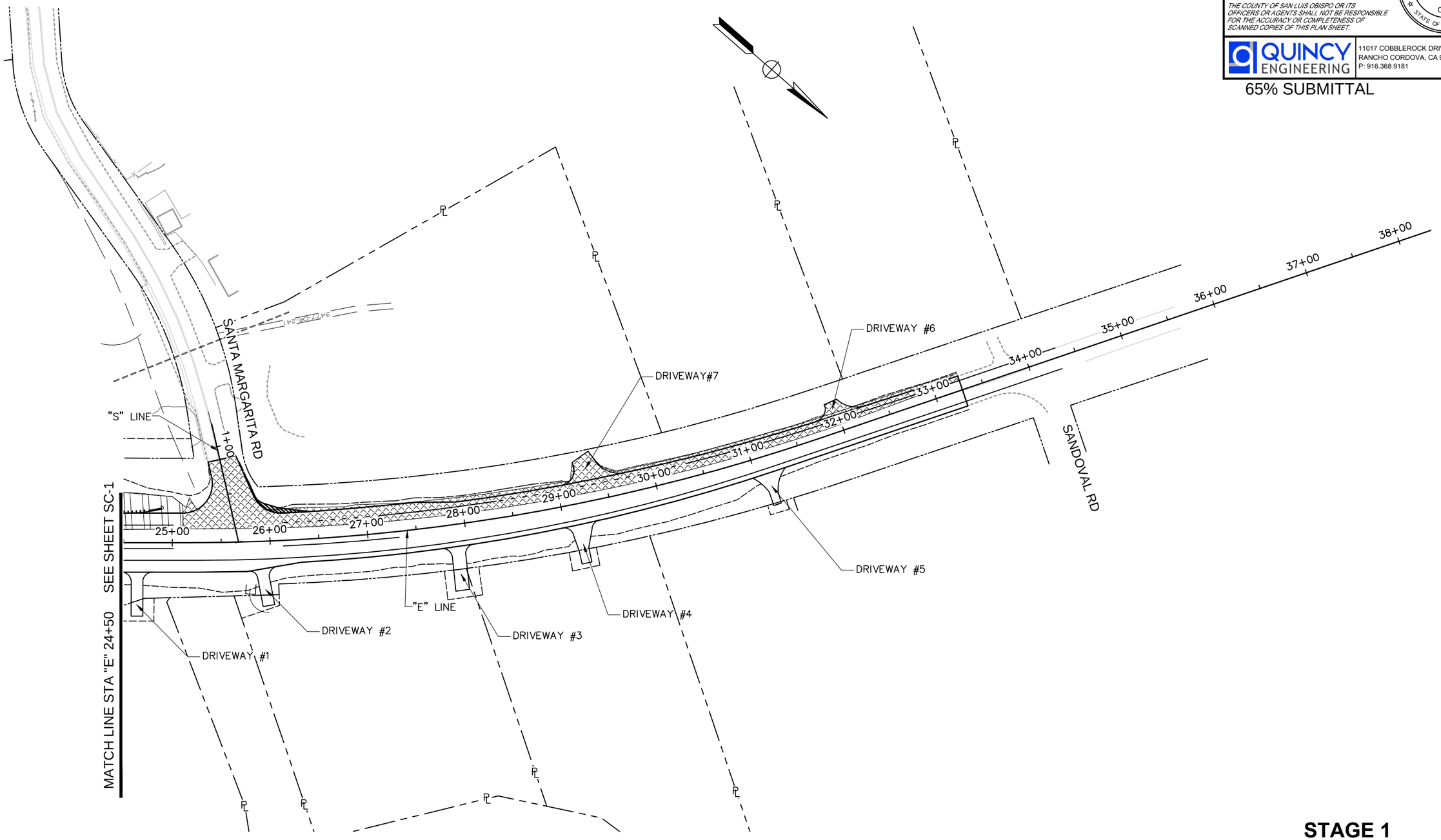

STAGE 1
STAGE CONSTRUCTION
SCALE: 1"= 50'

SC-2

SAN LUIS OBISPO – DEPARTMENT OF PUBLIC WORKS
SANTA MARGARITA CREEK BRIDGE REPLACEMENT

CONSULTANT PROJECT MANAGER: MARK RENO

CALCULATED-DESIGNED BY: E. MCPHERSON
CHECKED BY: G. MCLAUGHLIN

REVISED BY	DATE REVISED

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UNIT UNIT

PROJECT NUMBER & PHASE S13201 – 65% SUBMITTAL

Dist	COUNTY	PROJECT	SHEET No.	TOTAL SHEETS
5	SLO	SANTA MARGARITA CREEK BRIDGE ON EL CAMINO REAL	33	69

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — Garrett McLaughlin — No. C67687 — CIVIL — STATE OF CALIFORNIA

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RANCHO CORDOVA, CA 95670
P: 916.368.9181

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LEGEND:

STAGE 2A PHASE 1

STAGE 2A PHASE 2

NOTE:

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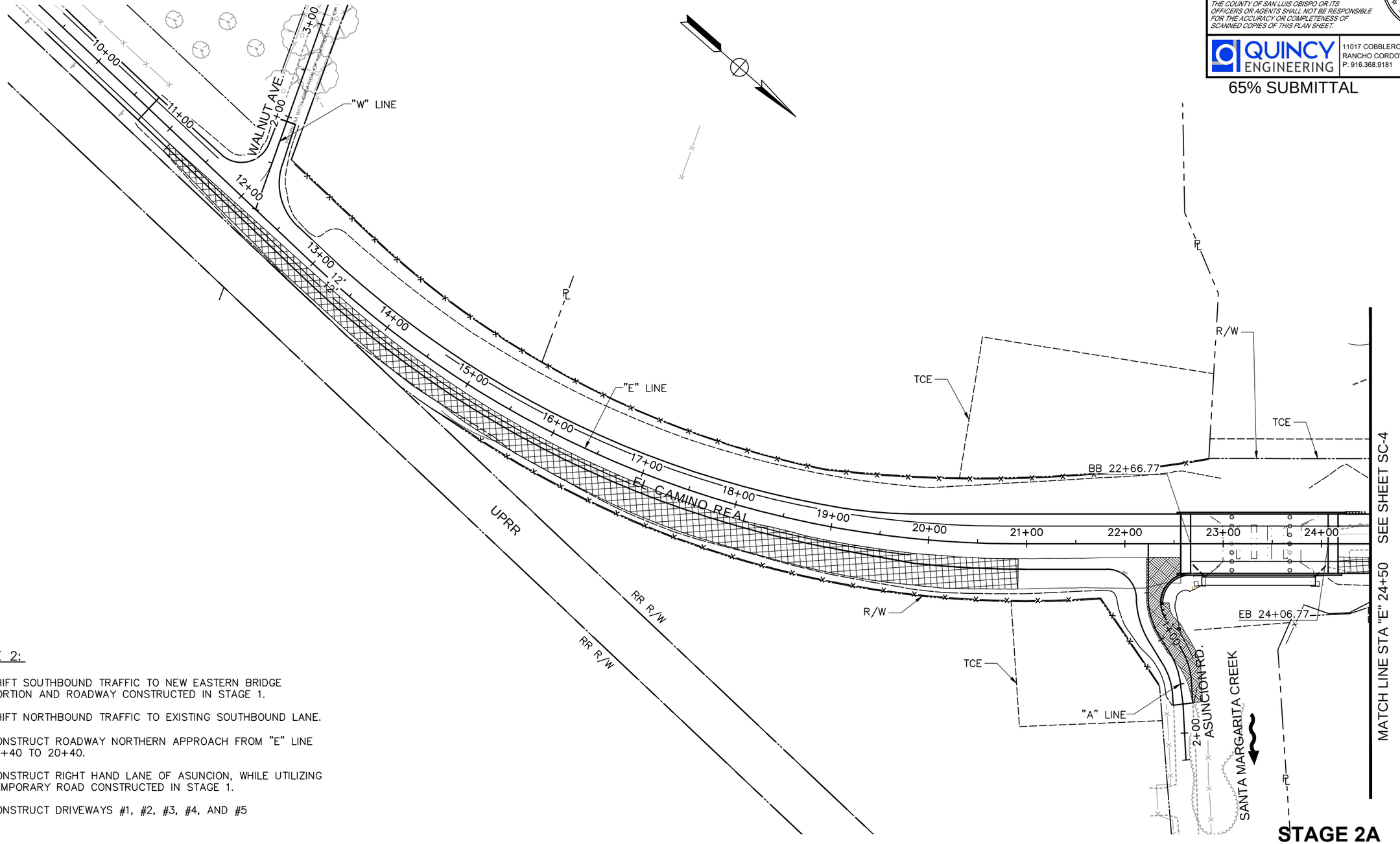

STAGE 2:

1. SHIFT SOUTHBOUND TRAFFIC TO NEW EASTERN BRIDGE PORTION AND ROADWAY CONSTRUCTED IN STAGE 1.
2. SHIFT NORTHBOUND TRAFFIC TO EXISTING SOUTHBOUND LANE.
3. CONSTRUCT ROADWAY NORTHERN APPROACH FROM "E" LINE 10+40 TO 20+40.
4. CONSTRUCT RIGHT HAND LANE OF ASUNCION, WHILE UTILIZING TEMPORARY ROAD CONSTRUCTED IN STAGE 1.
5. CONSTRUCT DRIVEWAYS #1, #2, #3, #4, AND #5

STAGE 2A
STAGE CONSTRUCTION
SCALE: 1"= 50'

SC-3

REVISED BY	DATE REVISED
E. MCPHERSON	G. MCLAUGHLIN

CALCULATED-DESIGNED BY

CHECKED BY

CONSULTANT PROJECT MANAGER
MARK RENO

SAN LUIS OBISPO – DEPARTMENT OF PUBLIC WORKS

SANTA MARGARITA CREEK BRIDGE REPLACEMENT

LAST REVISION | DATE PLOTTED: Friday, February 16, 2018 | TIME PLOTTED: 3:36:47 PM, Garrett McLaughlin

Dist	COUNTY	PROJECT	SHEET No.	TOTAL SHEETS
5	SLO	SANTA MARGARITA CREEK BRIDGE ON EL CAMINO REAL	31	69

REGISTERED CIVIL ENGINEER — DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — Garrett McLaughlin — No. C67687 — CIVIL — STATE OF CALIFORNIA

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RANCHO CORDOVA, CA 95670
P: 916.368.9181

65% SUBMITTAL

NOTE:

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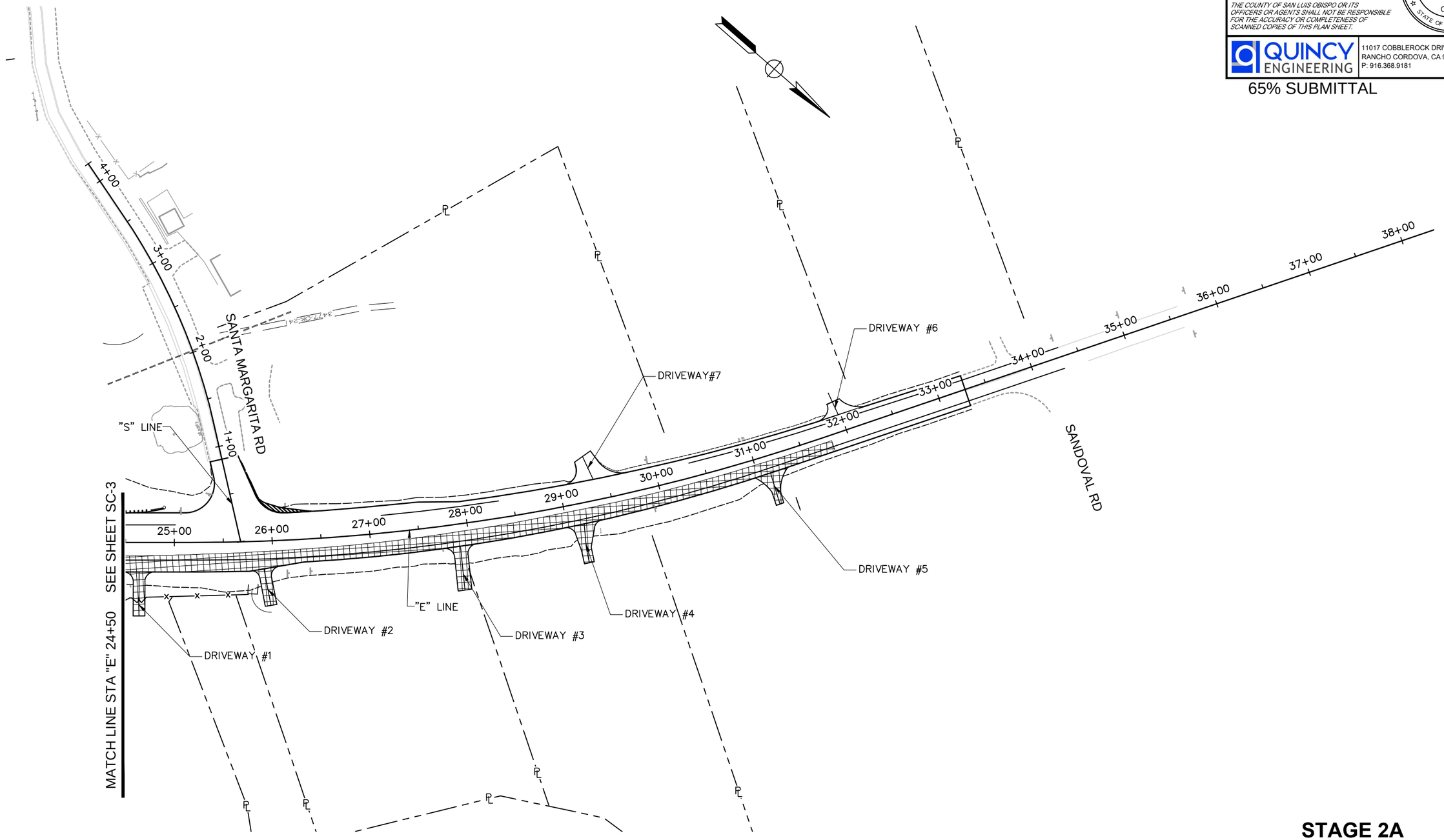

STAGE 2A
STAGE CONSTRUCTION

SCALE: 1"= 50'

SC-4

SAN LUIS OBISPO – DEPARTMENT OF PUBLIC WORKS
SANTA MARGARITA CREEK BRIDGE REPLACEMENT

CONSULTANT PROJECT MANAGER: MARK RENO

CALCULATED-DESIGNED BY: E. MCPHERSON
CHECKED BY: G. MCLAUGHLIN

REVISED BY	DATE REVISED

DATE PLOTTED: Friday, February 16, 2018
LAST REVISION
TIME PLOTTED: 3:37:11 PM, Garrett McLaughlin

BORDER LAST REVISED 7/2/2010

USERNAME Garrettm
DWG FILE S:\Client\SLO-County\S13-201-El Camino Real\CAD\roadway\AutoCad Civil 3D 2015\S13201rma004.dwg

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT UNIT

PROJECT NUMBER & PHASE S13201 – 65% SUBMITTAL

Dist	COUNTY	PROJECT	SHEET No.	TOTAL SHEETS
5	SLO	SANTA MARGARITA CREEK BRIDGE ON EL CAMINO REAL	32	69

REGISTERED CIVIL ENGINEER — DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — Garrett McLaughlin — No. C67687 — CIVIL — STATE OF CALIFORNIA

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QUINCY ENGINEERING
11017 COBBLEROCK DRIVE, SUITE 100
RANCHO CORDOVA, CA 95670
P: 916.368.9181

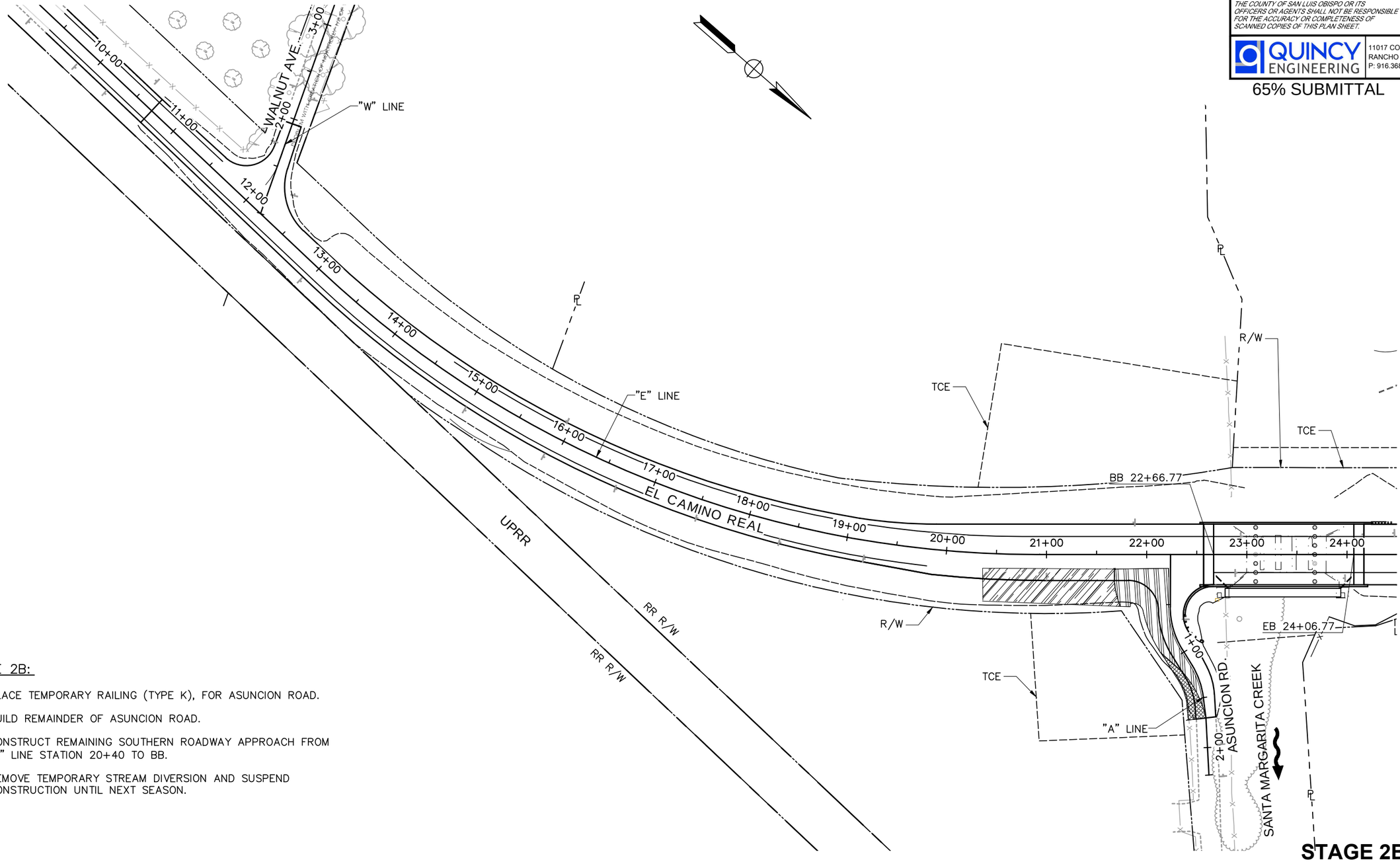
65% SUBMITTAL

LEGEND:

- STAGE 2B, PHASE 1
- STAGE 2B, PHASE 2
- STAGE 2B, PHASE 3

NOTE:

1. THIS PLAN IS ACCURATE FOR STAGE CONSTRUCTION WORK ONLY.



STAGE 2B:

1. PLACE TEMPORARY RAILING (TYPE K), FOR ASUNCION ROAD.
2. BUILD REMAINDER OF ASUNCION ROAD.
3. CONSTRUCT REMAINING SOUTHERN ROADWAY APPROACH FROM "E" LINE STATION 20+40 TO BB.
4. REMOVE TEMPORARY STREAM DIVERSION AND SUSPEND CONSTRUCTION UNTIL NEXT SEASON.

STAGE 2B
STAGE CONSTRUCTION
SCALE: 1"= 50'

SC-5

SAN LUIS OBISPO – DEPARTMENT OF PUBLIC WORKS
SANTA MARGARITA CREEK BRIDGE REPLACEMENT

CONSULTANT PROJECT MANAGER: MARK RENO

CALCULATED-DESIGNED BY: E. MCPHERSON
CHECKED BY: G. MCLAUGHLIN

REVISED BY | DATE REVISED

TIME PLOTTED: 3:37:33 PM, Garrett McLaughlin
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BORDER LAST REVISED 7/2/2010

USERNAME Garrettm
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UNIT UNIT

PROJECT NUMBER & PHASE S13201 – 65% SUBMITTAL

Dist	COUNTY	PROJECT	SHEET No.	TOTAL SHEETS
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PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — Garrett McLaughlin — No. C67687 — CIVIL — STATE OF CALIFORNIA

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QUINCY ENGINEERING
11017 COBBLEROCK DRIVE, SUITE 100
RANCHO CORDOVA, CA 95670
P: 916.368.9181

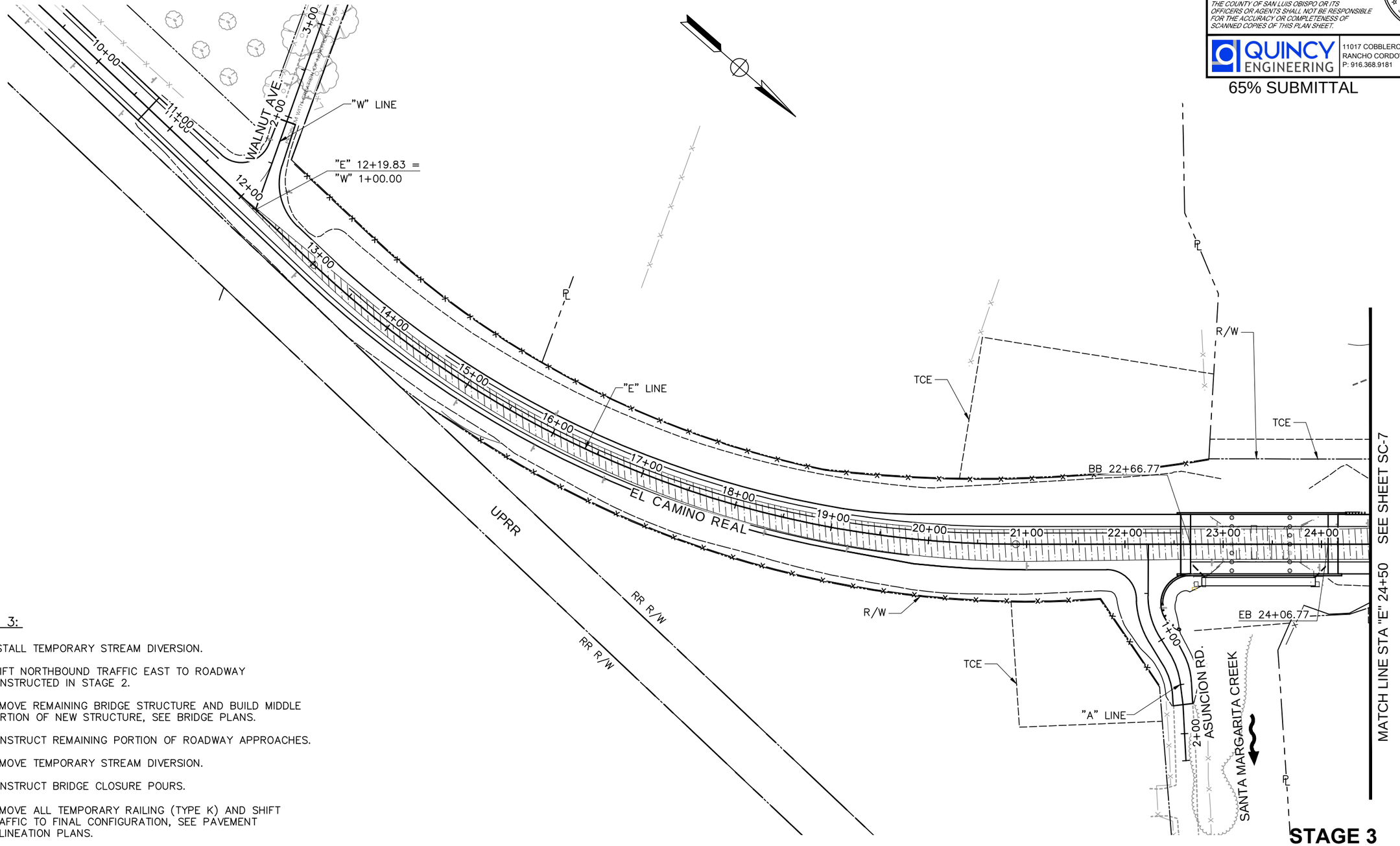
65% SUBMITTAL

LEGEND:

STAGE 3

NOTE:

1. THIS PLAN IS ACCURATE FOR STAGE CONSTRUCTION WORK ONLY.



STAGE 3:

1. INSTALL TEMPORARY STREAM DIVERSION.
2. SHIFT NORTHBOUND TRAFFIC EAST TO ROADWAY CONSTRUCTED IN STAGE 2.
3. REMOVE REMAINING BRIDGE STRUCTURE AND BUILD MIDDLE PORTION OF NEW STRUCTURE, SEE BRIDGE PLANS.
4. CONSTRUCT REMAINING PORTION OF ROADWAY APPROACHES.
5. REMOVE TEMPORARY STREAM DIVERSION.
6. CONSTRUCT BRIDGE CLOSURE POURS.
7. REMOVE ALL TEMPORARY RAILING (TYPE K) AND SHIFT TRAFFIC TO FINAL CONFIGURATION, SEE PAVEMENT DELINEATION PLANS.
8. PLACE FINAL LIFT OF HMA FOR PROJECT LIMITS UNDER DAILY TRAFFIC CONTROL.
9. PLACE FINAL PAVEMENT DELINEATION.

STAGE 3
STAGE CONSTRUCTION

SCALE: 1"= 50'

SC-6

CALCULATED-DESIGNED BY | CHECKED BY

CONSULTANT PROJECT MANAGER: MARK RENO

REVISED BY	DATE REVISED
E. MCPHERSON	G. MCLAUGHLIN

SAN LUIS OBISPO – DEPARTMENT OF PUBLIC WORKS

SANTA MARGARITA CREEK BRIDGE REPLACEMENT

LAST REVISION | DATE PLOTTED: Friday, February 16, 2018 | TIME PLOTTED: 3:37:55 PM, Garrett McLaughlin

Dist	COUNTY	PROJECT	SHEET No.	TOTAL SHEETS
5	SLO	SANTA MARGARITA CREEK BRIDGE ON EL CAMINO REAL	34	69

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
Garrett McLaughlin
No. C67687
CIVIL
STATE OF CALIFORNIA

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RANCHO CORDOVA, CA 95670
P: 916.368.9181

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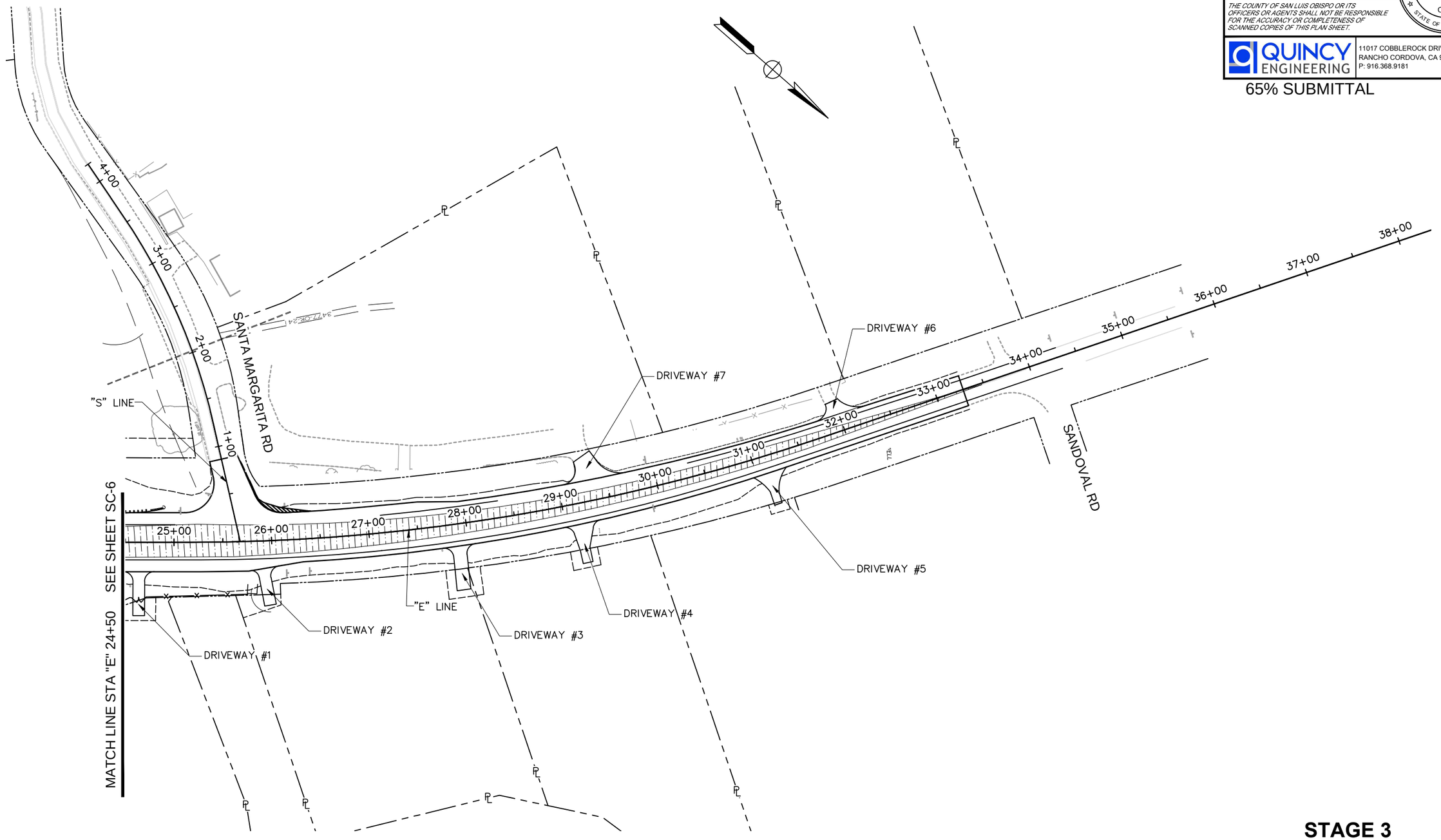
NOTE:

1. THIS PLAN IS ACCURATE FOR STAGE CONSTRUCTION WORK ONLY.



STAGE 3
STAGE CONSTRUCTION
SCALE: 1"=50'

SC-7

CALCULATED-DESIGNED BY	CHECKED BY	REVISED BY	DATE REVISED
E. MCPHERSON	G. MCLAUGHLIN		

CONSULTANT PROJECT MANAGER: MARK RENO

SAN LUIS OBISPO – DEPARTMENT OF PUBLIC WORKS
SANTA MARGARITA CREEK BRIDGE REPLACEMENT

LAST REVISION | DATE PLOTTED: Friday, February 16, 2018 | TIME PLOTTED: 3:38:18 PM, Garrett McLaughlin

Dist	COUNTY	PROJECT	SHEET No.	TOTAL SHEETS
5	SLO	SANTA MARGARITA CREEK BRIDGE ON EL CAMINO REAL	35	69

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — Garrett McLaughlin — No. C67687 — CIVIL — STATE OF CALIFORNIA

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RANCHO CORDOVA, CA 95670
P: 916.368.9181

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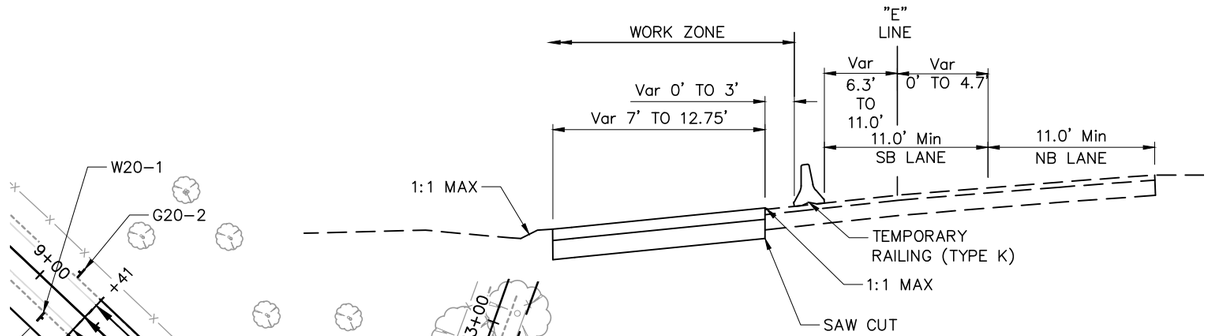
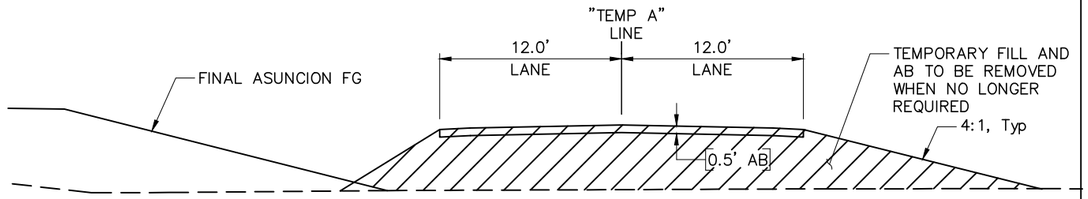
GENERAL NOTES:

1. THIS PLAN ACCURATE FOR TRAFFIC HANDLING WORK ONLY.
2. ALL SIGNS AND DEVICES SHOWN AS PART OF STANDARD PLANS.
3. FROM STATION EB TO CONFORM, BUILD ROADWAY SECTION SO LONGITUDINAL GRADE DIFFERENCE IS NO GREATER THAN 2".
4. SEE CONSTRUCTION DETAILS FOR ASUNCION RD STRUCTURAL SECTION.
5. SEE STAGE CONSTRUCTION FOR WORK AREA LOCATIONS.
6. SIGN LOCATIONS SHOWN ARE APPROXIMATE. EXACT LOCATIONS TO BE DETERMINED BY THE ENGINEER.



SECTION A-A

NO SCALE



SECTION B-B

NO SCALE

CURVE DATA				
NO.	R	Δ	T	L
C1	80.00	48° 37' 35"	36.14'	67.90'
C2	80.00	46° 11' 08"	34.11'	64.49'

LINE DATA		
NO.	BEARING	DISTANCE
L1	N 48°50'45" E	39.70'
L2	N 00°13'10" E	53.44'
L3	N 46°24'18" E	46.04'

ABBREVIATIONS:
PPS PLACED IN PREVIOUS STAGE
TL-3 TEST LEVEL 3

LEGEND:
- DIRECTION OF TRAFFIC
- CHANNELIZER (SURFACE MOUNTED) @ 20' O.C.
- XX TEMPORARY TRAFFIC STRIPE (PAINT) LINE DETAIL No.
- TEMPORARY RAILING (TYPE K)- 20'
- TEMPORARY RAILING (TYPE K)- 10'
- ROADSIDE SIGN - ONE POST
- TYPE III BARRICADE
- TEMPORARY CRASH CUSHION (ABSORB 350, TL-3)

STAGE 1 - PHASE 1 & 2 TRAFFIC HANDLING

1"= 50'

MATCH LINE STA "E" 24+50 SEE SHEET TH-2

TH-1

CALCULATED-DESIGNED BY: E. MCPHERSON
CHECKED BY: G. MCLAUGHLIN
CONSULTANT PROJECT MANAGER: MARK RENO
SAN LUIS OBISPO - DEPARTMENT OF PUBLIC WORKS
SANTA MARGARITA CREEK BRIDGE REPLACEMENT
REVISED BY
DATE REVISED
LAST REVISION
DATE PLOTTED: Friday, February 16, 2018
TIME PLOTTED: 3:38:39 PM, Garrett McLaughlin

BORDER LAST REVISED 7/2/2010
USERNAME Garrettm
DWG FILE S:\Client\SLO-County\S13-201-El Camino Real\CAD\roadway\AutoCad Civil 3D 2015\S13201rmd001.dwg
RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3
UNIT UNIT
PROJECT NUMBER & PHASE
S13201 - 65% SUBMITTAL

NOTE:

1. THIS PLAN ACCURATE FOR TRAFFIC HANDLING WORK ONLY.
2. ACCESS TO DRIVEWAY # 6 SHALL BE MAINTAINED AT ALL TIMES.

Dist	COUNTY	PROJECT	SHEET No.	TOTAL SHEETS
5	SLO	SANTA MARGARITA CREEK BRIDGE ON EL CAMINO REAL	36	69

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — Garrett McLaughlin — No. C67687 — CIVIL — STATE OF CALIFORNIA

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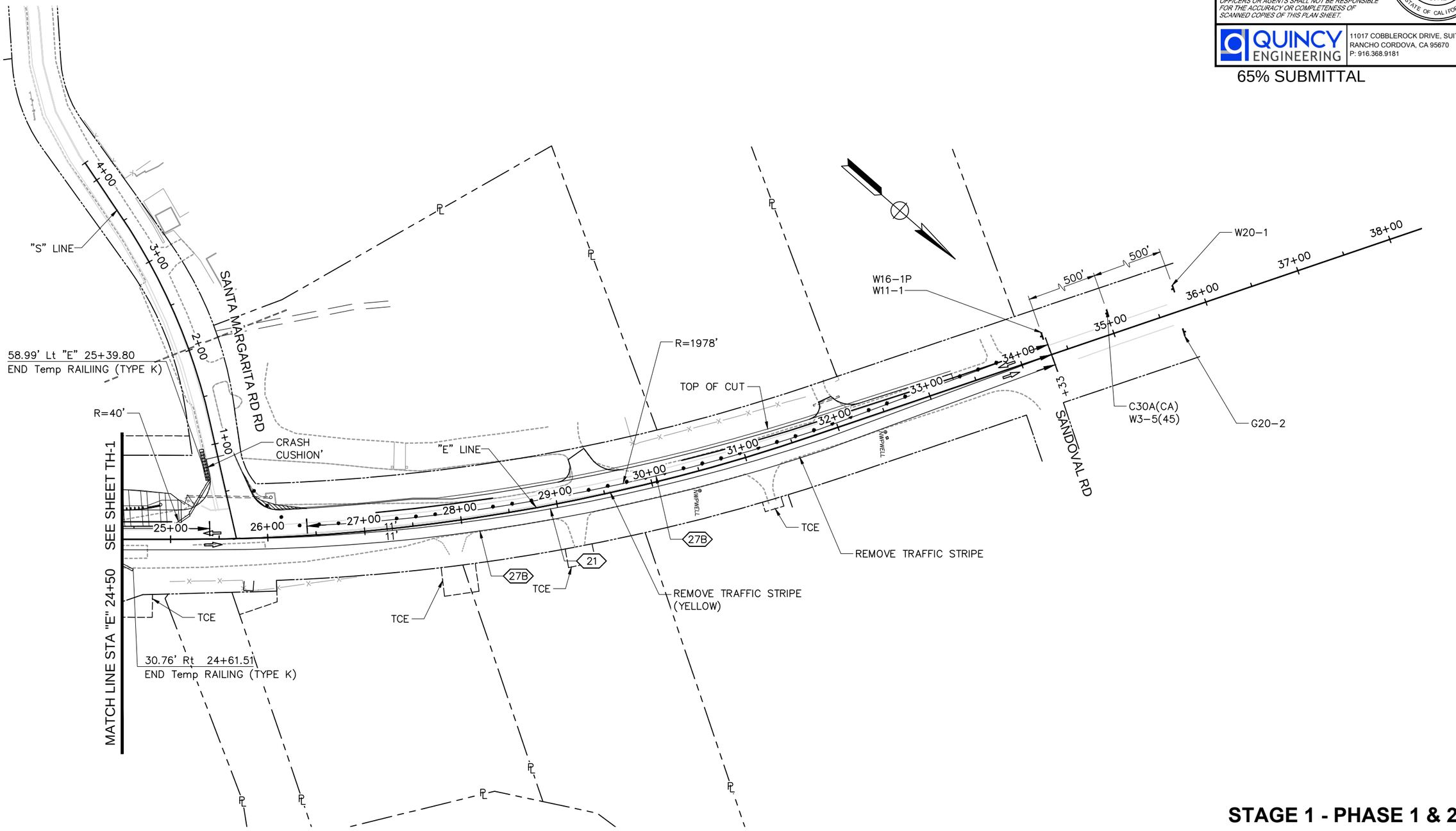
RANCHO CORDOVA, CA 95670
P: 916.368.9181

65% SUBMITTAL



STAGE 1 - PHASE 1 & 2
TRAFFIC HANDLING
1"= 50'

TH-2

SAN LUIS OBISPO – DEPARTMENT OF PUBLIC WORKS
SANTA MARGARITA CREEK BRIDGE REPLACEMENT

CONSULTANT PROJECT MANAGER: MARK RENO

REVISED BY	DATE REVISED

CALCULATED-DESIGNED BY: E. MCPHERSON
CHECKED BY: G. MCLAUGHLIN

TIME PLOTTED: 3:39:02 PM, Garrett McLaughlin
DATE PLOTTED: Friday, February 16, 2018
LAST REVISION

BORDER LAST REVISED 7/2/2010

USERNAME Garrettm
DWG FILE S:\Client\SLO-County\S13-201-El Camino Real\CAD\roadway\AutoCad Civil 3D 2015\S13201rmd002.dwg

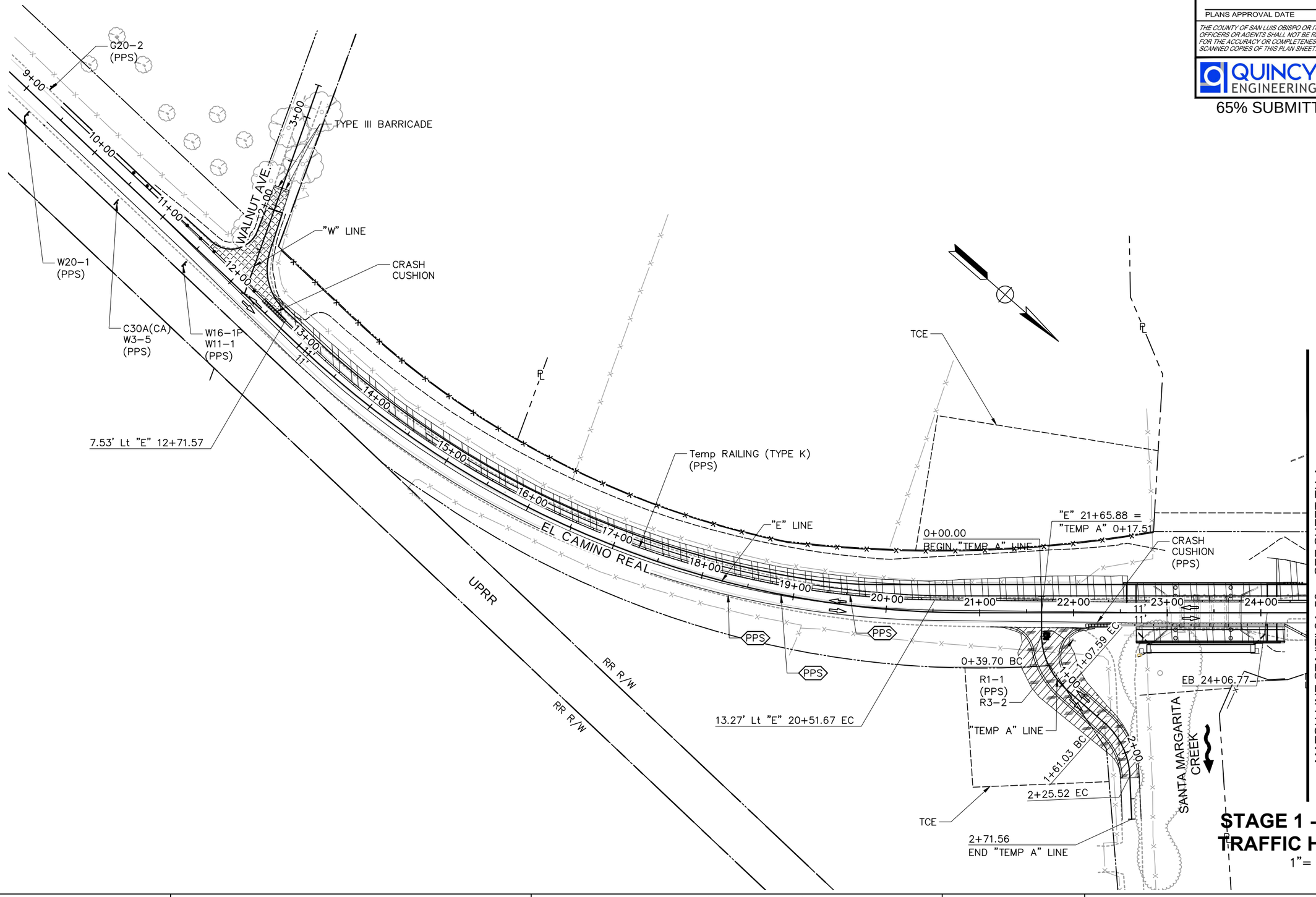
RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT UNIT

PROJECT NUMBER & PHASE S13201 – 65% SUBMITTAL

NOTES:

1. THIS PLAN ACCURATE FOR TRAFFIC HANDLING WORK ONLY.



STAGE 1 - PHASE 3
TRAFFIC HANDLING
1"= 50'

TH-3

Dist	COUNTY	PROJECT	SHEET No.	TOTAL SHEETS
5	SLO	SANTA MARGARITA CREEK BRIDGE ON EL CAMINO REAL	37	69

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
Garrett McLaughlin
No. C67687
CIVIL
STATE OF CALIFORNIA

THE COUNTY OF SAN LUIS OBISPO OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

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RANCHO CORDOVA, CA 95670
P: 916.368.9181

65% SUBMITTAL

REVISED BY	DATE REVISED

CALCULATED-DESIGNED BY: E. MCPHERSON
CHECKED BY: G. MCLAUGHLIN

CONSULTANT PROJECT MANAGER: MARK RENO

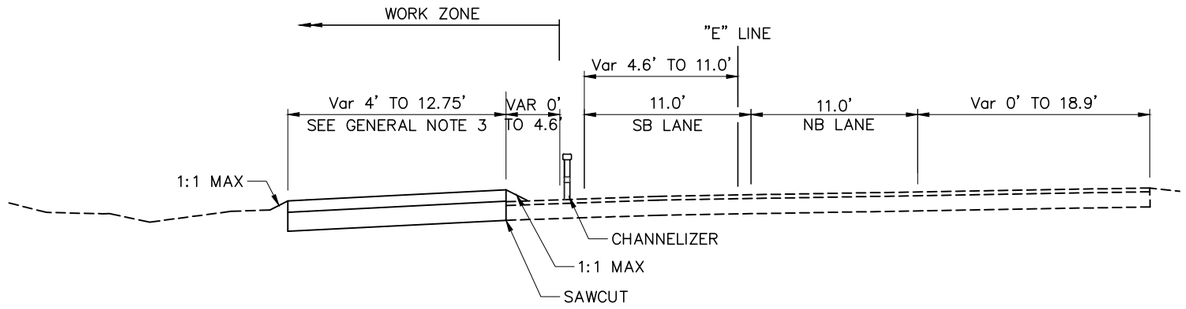
SAN LUIS OBISPO - DEPARTMENT OF PUBLIC WORKS

SANTA MARGARITA CREEK BRIDGE REPLACEMENT

LAST REVISION | DATE PLOTTED: Friday, February 16, 2018 | TIME PLOTTED: 3:39:24 PM, Garrett McLaughlin

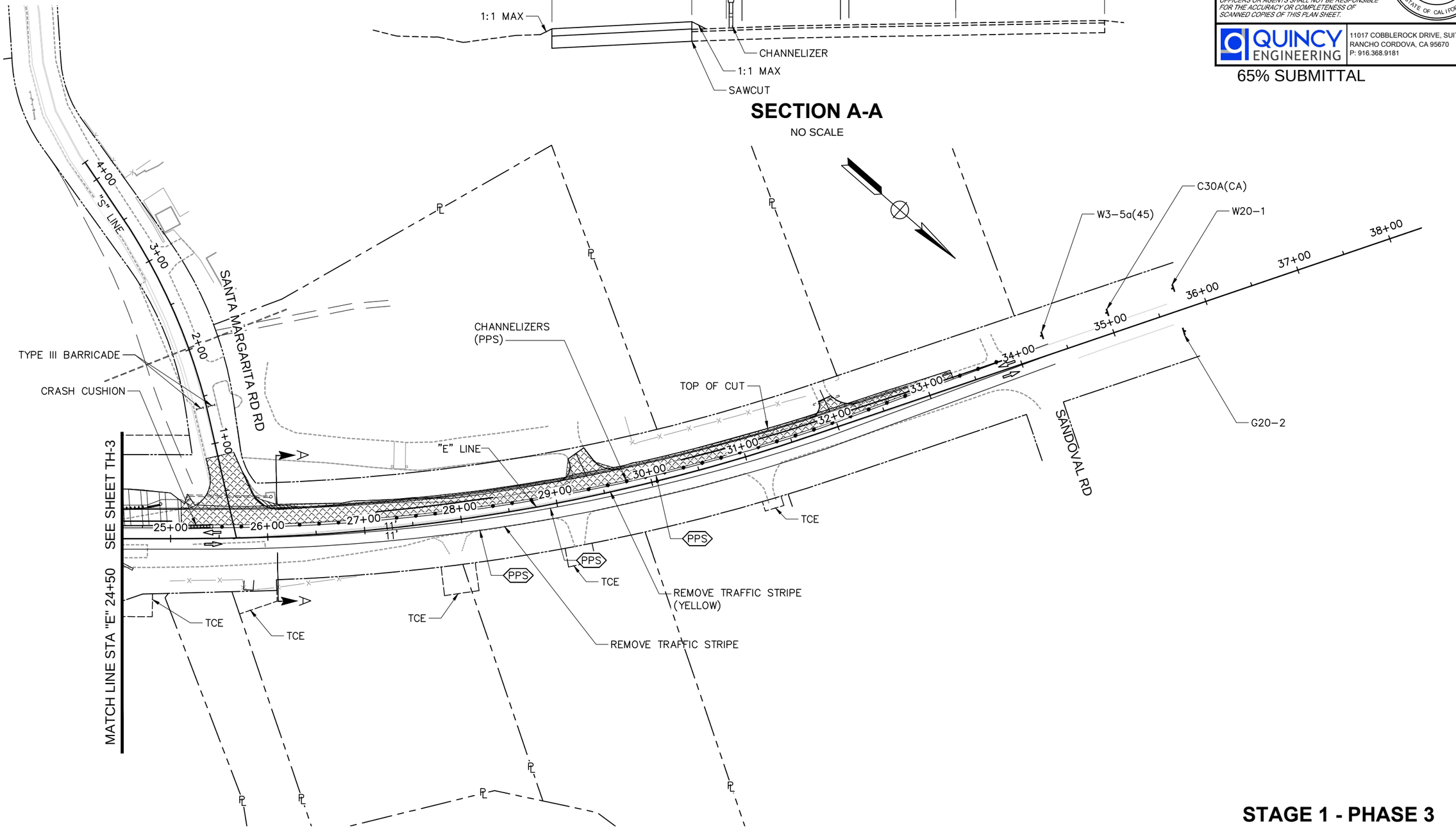
NOTE:

1. THIS PLAN ACCURATE FOR TRAFFIC HANDLING WORK ONLY.
2. ACCESS TO DRIVEWAY # 6 SHALL BE MAINTAINED AT ALL TIMES.



SECTION A-A

NO SCALE



STAGE 1 - PHASE 3 TRAFFIC HANDLING

1"= 50'

TH-4

Dist	COUNTY	PROJECT	SHEET No.	TOTAL SHEETS
5	SLO	SANTA MARGARITA CREEK BRIDGE ON EL CAMINO REAL	38	69

REGISTERED CIVIL ENGINEER — DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — Garrett McLaughlin — No. C67687 — CIVIL — STATE OF CALIFORNIA

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P: 916.368.9181

65% SUBMITTAL

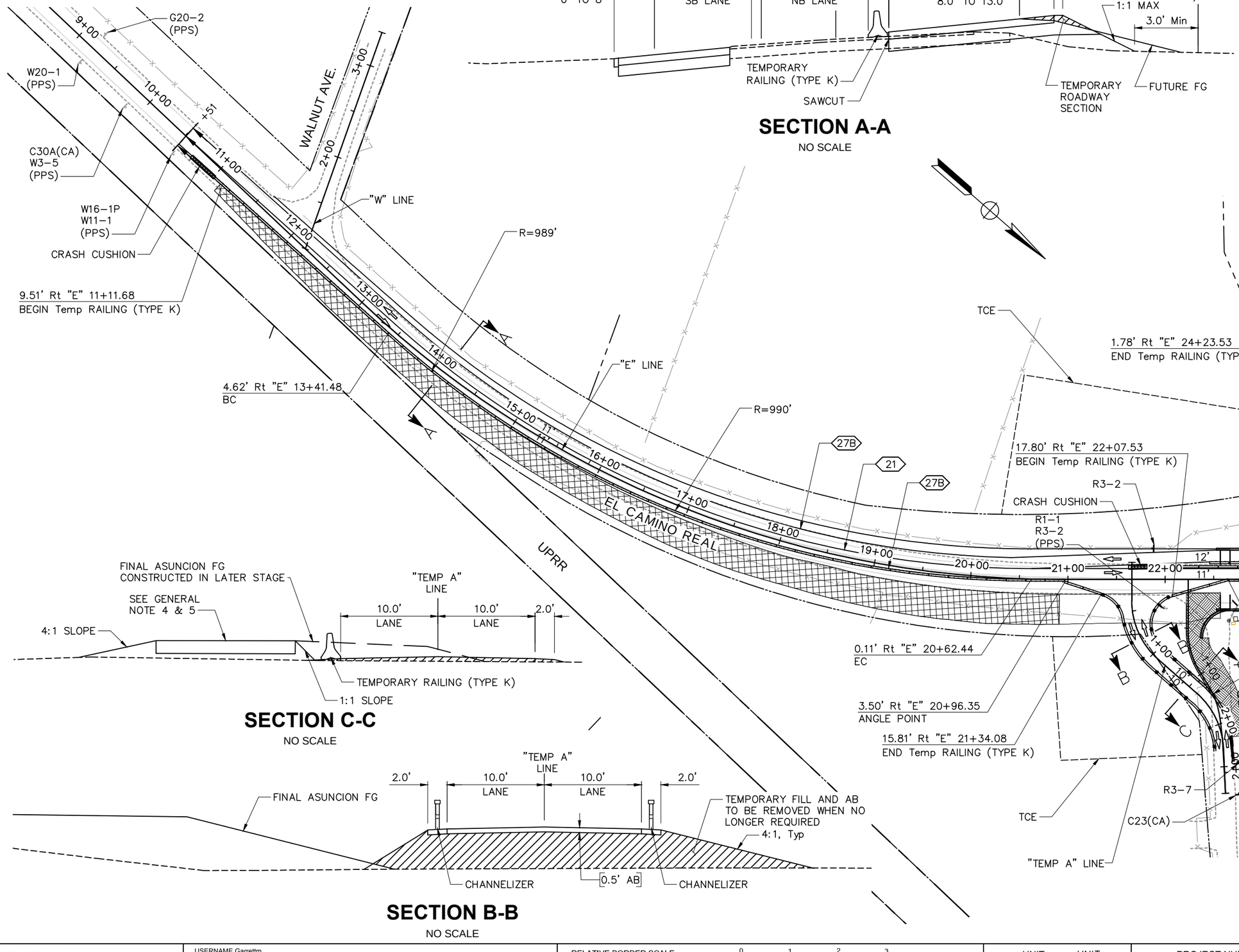
CALCULATED-DESIGNED BY: E. MCPHERSON
CHECKED BY: G. MCLAUGHLIN
REVISED BY
DATE REVISED
CONSULTANT PROJECT MANAGER: MARK RENO
SAN LUIS OBISPO – DEPARTMENT OF PUBLIC WORKS
SANTA MARGARITA CREEK BRIDGE REPLACEMENT

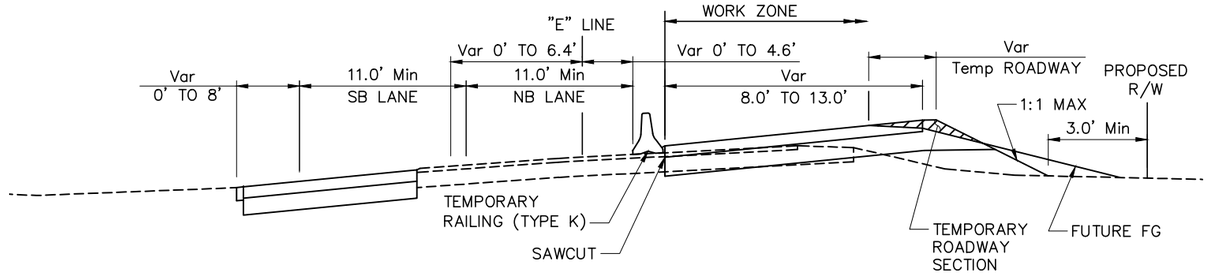
TIME PLOTTED: 3:39:47 PM, Garrett McLaughlin
DATE PLOTTED: Friday, February 16, 2018
LAST REVISION

BORDER LAST REVISED 7/2/2010
USERNAME Garrettm
DWG FILE S:\Client\SLO-County\S13-201-El Camino Real\CAD\roadway\AutoCad Civil 3D 2015\S13201rmd004.dwg
RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3
UNIT UNIT
PROJECT NUMBER & PHASE S13201 – 65% SUBMITTAL

NOTES:

1. THIS PLAN ACCURATE FOR TRAFFIC HANDLING WORK ONLY.





SECTION A-A

NO SCALE

SECTION C-C

NO SCALE

SECTION B-B

NO SCALE

STAGE 2A TRAFFIC HANDLING

1"= 50'

TH-5

Dist	COUNTY	PROJECT	SHEET No.	TOTAL SHEETS
5	SLO	SANTA MARGARITA CREEK BRIDGE ON EL CAMINO REAL	39	69

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

Garrett McLaughlin No. C67687 CIVIL — REGISTERED PROFESSIONAL ENGINEER — STATE OF CALIFORNIA

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RANCHO CORDOVA, CA 95670
P: 916.368.9181

65% SUBMITTAL

SAN LUIS OBISPO – DEPARTMENT OF PUBLIC WORKS

SANTA MARGARITA CREEK BRIDGE REPLACEMENT

CONSULTANT PROJECT MANAGER: MARK RENO

CALCULATED-DESIGNED BY: E. MCPHERSON

CHECKED BY: G. MCLAUGHLIN

REVISED BY | DATE REVISED

LAST REVISION | DATE PLOTTED: Friday, February 16, 2018 | TIME PLOTTED: 3:40:19 PM, Garrett McLaughlin

BORDER LAST REVISED 7/2/2010

USERNAME Garrettm
DWG FILE S:\Client\SLO-County\S13-201-El Camino Real\CAD\roadway\AutoCad Civil 3D 2015\S13201rmd005.dwg

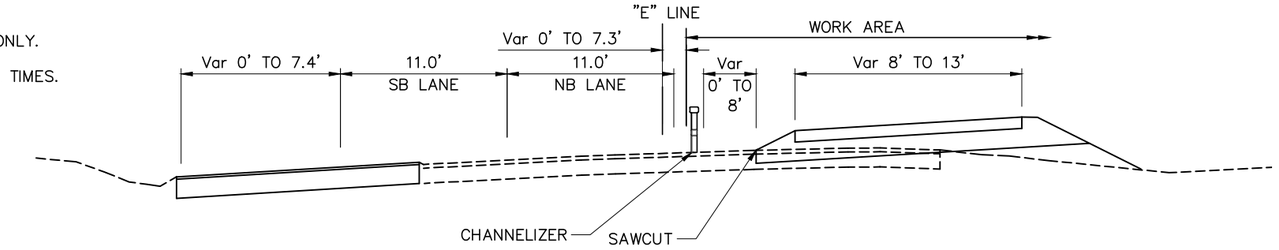
RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT UNIT

PROJECT NUMBER & PHASE S13201 – 65% SUBMITTAL

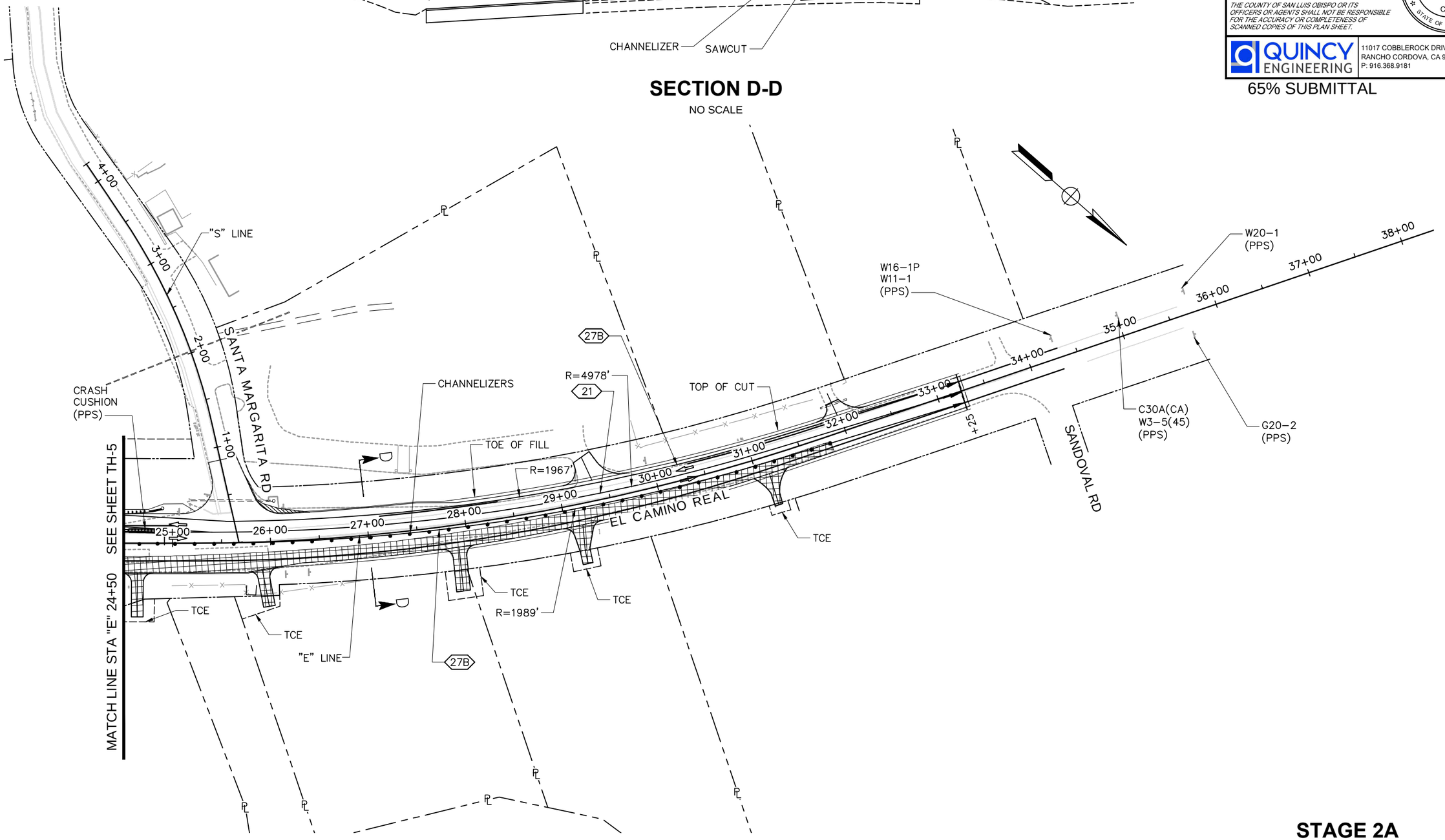
NOTE:

1. THIS PLAN ACCURATE FOR TRAFFIC HANDLING WORK ONLY.
2. ACCESS TO DRIVEWAYS SHALL BE MAINTAINED AT ALL TIMES.



SECTION D-D

NO SCALE



Dist	COUNTY	PROJECT	SHEET No.	TOTAL SHEETS
5	SLO	SANTA MARGARITA CREEK BRIDGE ON EL CAMINO REAL	40	69

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — Garrett McLaughlin — No. C67687 — CIVIL — STATE OF CALIFORNIA

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P: 916.368.9181

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STAGE 2A
TRAFFIC HANDLING

1"= 50'

TH-6

CALCULATED-DESIGNED BY: E. MCPHERSON
CHECKED BY: G. MCLAUGHLIN
REVISED BY
DATE REVISED

CONSULTANT PROJECT MANAGER: MARK RENO

SAN LUIS OBISPO – DEPARTMENT OF PUBLIC WORKS

SANTA MARGARITA CREEK BRIDGE REPLACEMENT

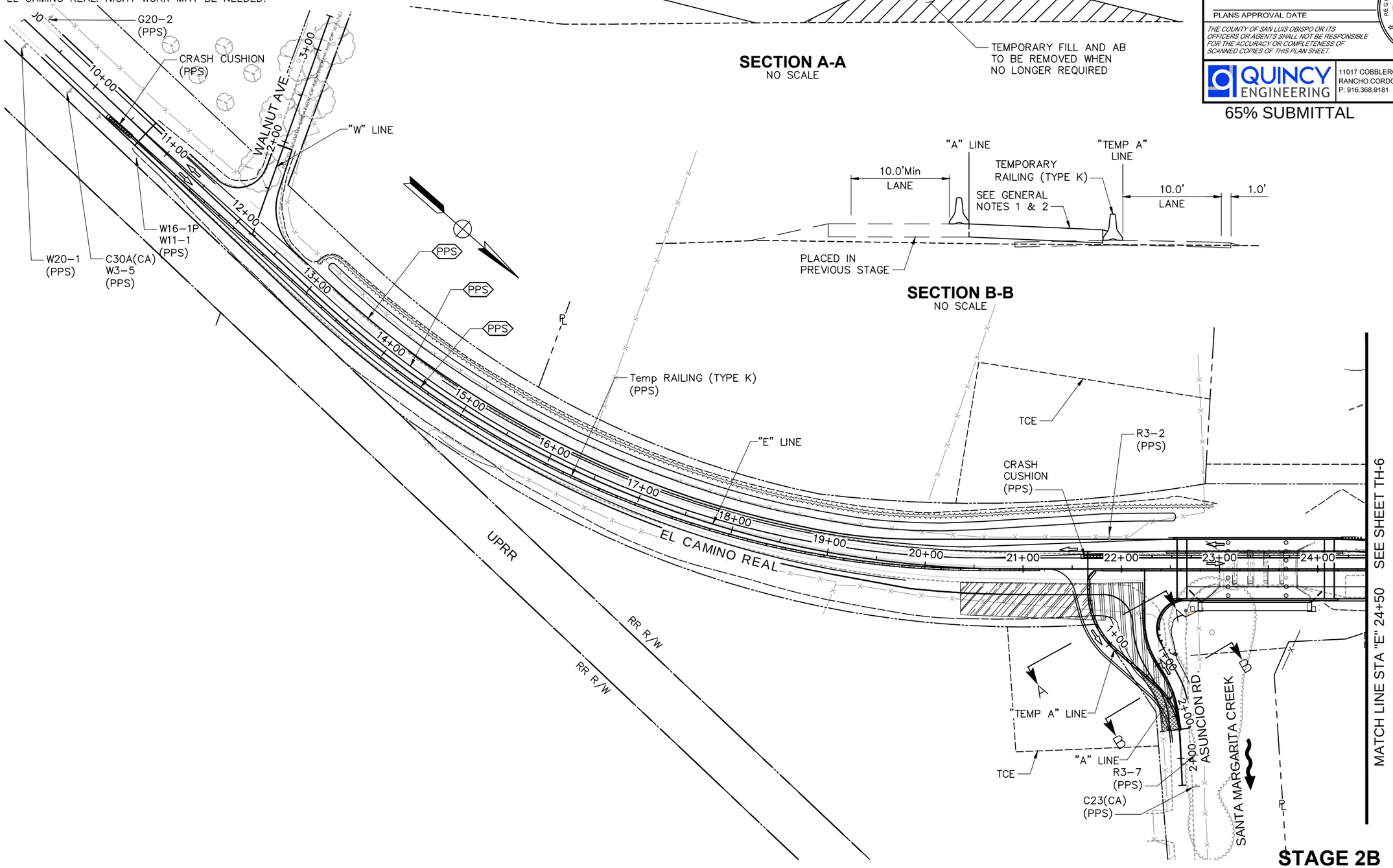
TIME PLOTTED: 3:40:45 PM, Garrett McLaughlin

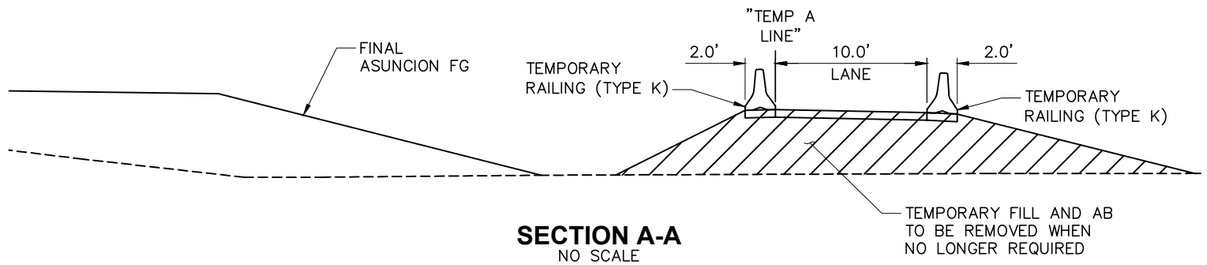
DATE PLOTTED: Friday, February 16, 2018

LAST REVISION

NOTE:

1. THIS PLAN ACCURATE FOR TRAFFIC HANDLING WORK ONLY.
2. FOR STAGE 2B PHASE 3, ONE WAY TRAFFIC CONTROL WITH FLAGGING WILL BE NEEDED UNTIL GRADE AT ASUNCION ROAD IS ACCEPTABLE TO FACILITATE LEFT HAND TURN ONTO EL CAMINO REAL. NIGHT WORK MAY BE NEEDED.





SECTION A-A
NO SCALE

SECTION B-B
NO SCALE

Dist	COUNTY	PROJECT	SHEET No.	TOTAL SHEETS
5	SLO	SANTA MARGARITA CREEK BRIDGE ON EL CAMINO REAL	41	69

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — Garrett McLaughlin — No. C67687 — CIVIL — STATE OF CALIFORNIA

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RANCHO CORDOVA, CA 95670
P: 916.368.9181

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STAGE 2B TRAFFIC HANDLING

1"=50'

TH-7

REVISED BY	DATE REVISED
E. MCPHERSON	DES CHK
CALCULATED-DESIGNED BY	CHECKED BY
CONSULTANT PROJECT MANAGER	Mark Reno

SAN LUIS OBISPO – DEPARTMENT OF PUBLIC WORKS

SANTA MARGARITA CREEK BRIDGE REPLACEMENT

LAST REVISION DATE PLOTTED: Friday, February 16, 2018 TIME PLOTTED: 3:41:10 PM, Garrett McLaughlin

NOTE:

1. THIS PLAN ACCURATE FOR TRAFFIC HANDLING WORK ONLY.

Dist	COUNTY	PROJECT	SHEET No.	TOTAL SHEETS
5	SLO	SANTA MARGARITA CREEK BRIDGE ON EL CAMINO REAL	42	69

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — Garrett McLaughlin — No. C67687 — CIVIL — STATE OF CALIFORNIA

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RANCHO CORDOVA, CA 95670
P: 916.368.9181

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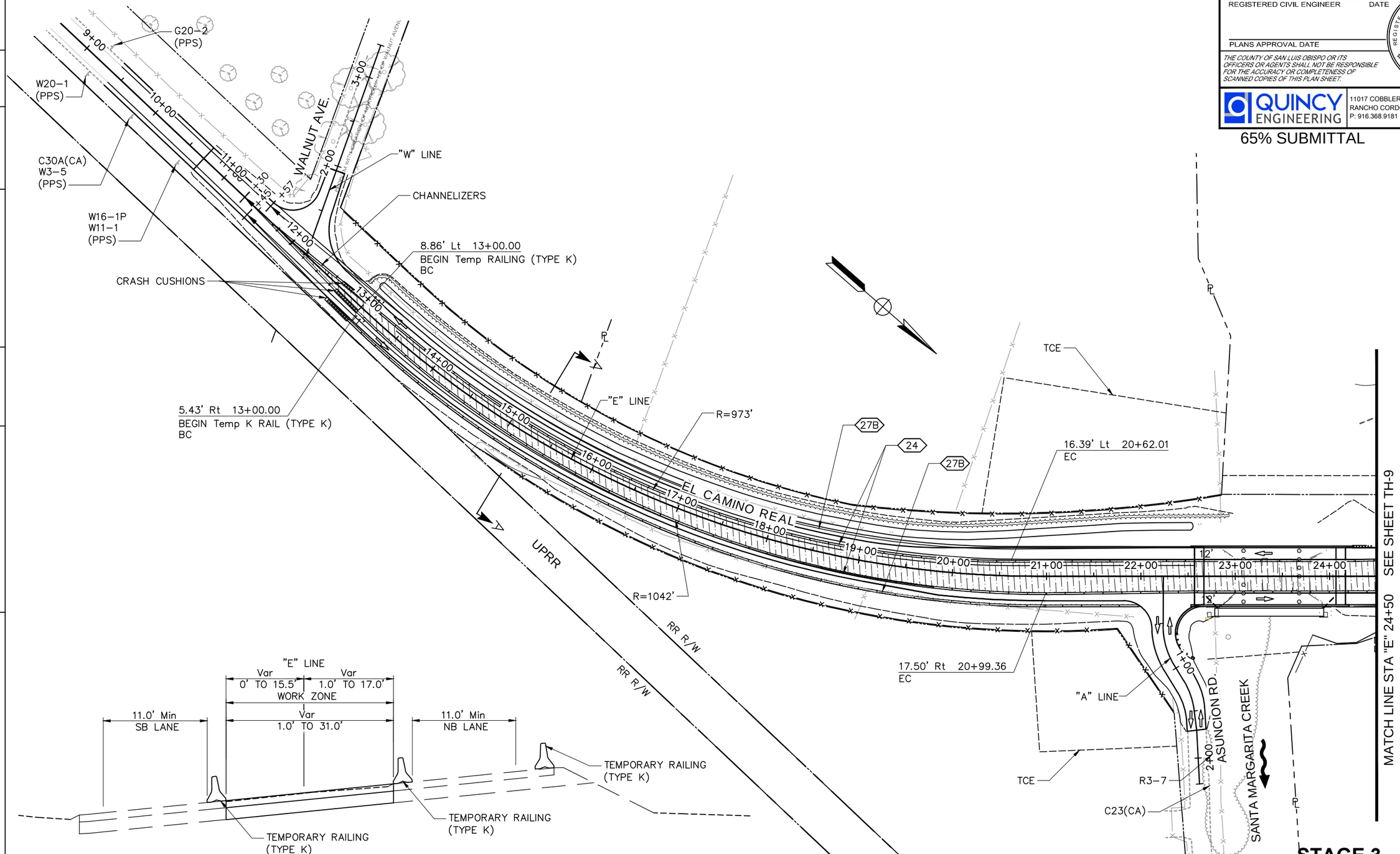


SECTION A-A
NO SCALE

STAGE 3
TRAFFIC HANDLING
1"=50'

TH-8

SAN LUIS OBISPO – DEPARTMENT OF PUBLIC WORKS
SANTA MARGARITA CREEK BRIDGE REPLACEMENT

CONSULTANT PROJECT MANAGER: MARK RENO

CALCULATED-DESIGNED BY: E. MCPHERSON
CHECKED BY: G. MCLAUGHLIN

REVISED BY | DATE REVISED

LAST REVISION | DATE PLOTTED: Friday, February 16, 2018 | TIME PLOTTED: 3:41:43 PM, Garrett McLaughlin

BORDER LAST REVISED 7/2/2010

USERNAME Garrettm
DWG FILE S:\Client\SLO-County\S13-201-El Camino Real\CAD\roadway\AutoCad Civil 3D 2015\S13201rmd008.dwg

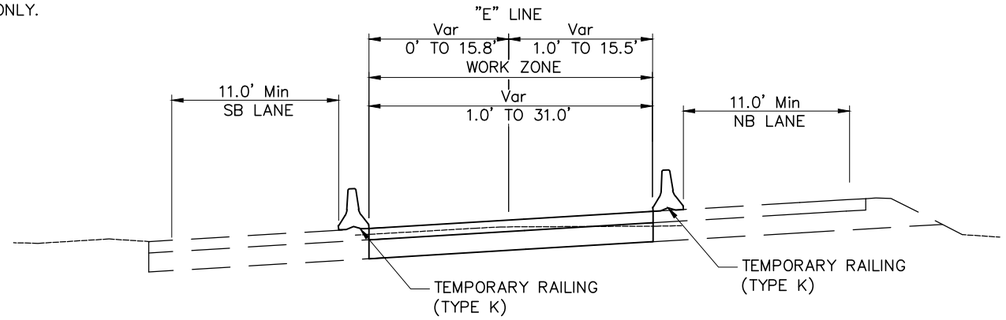
RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT UNIT

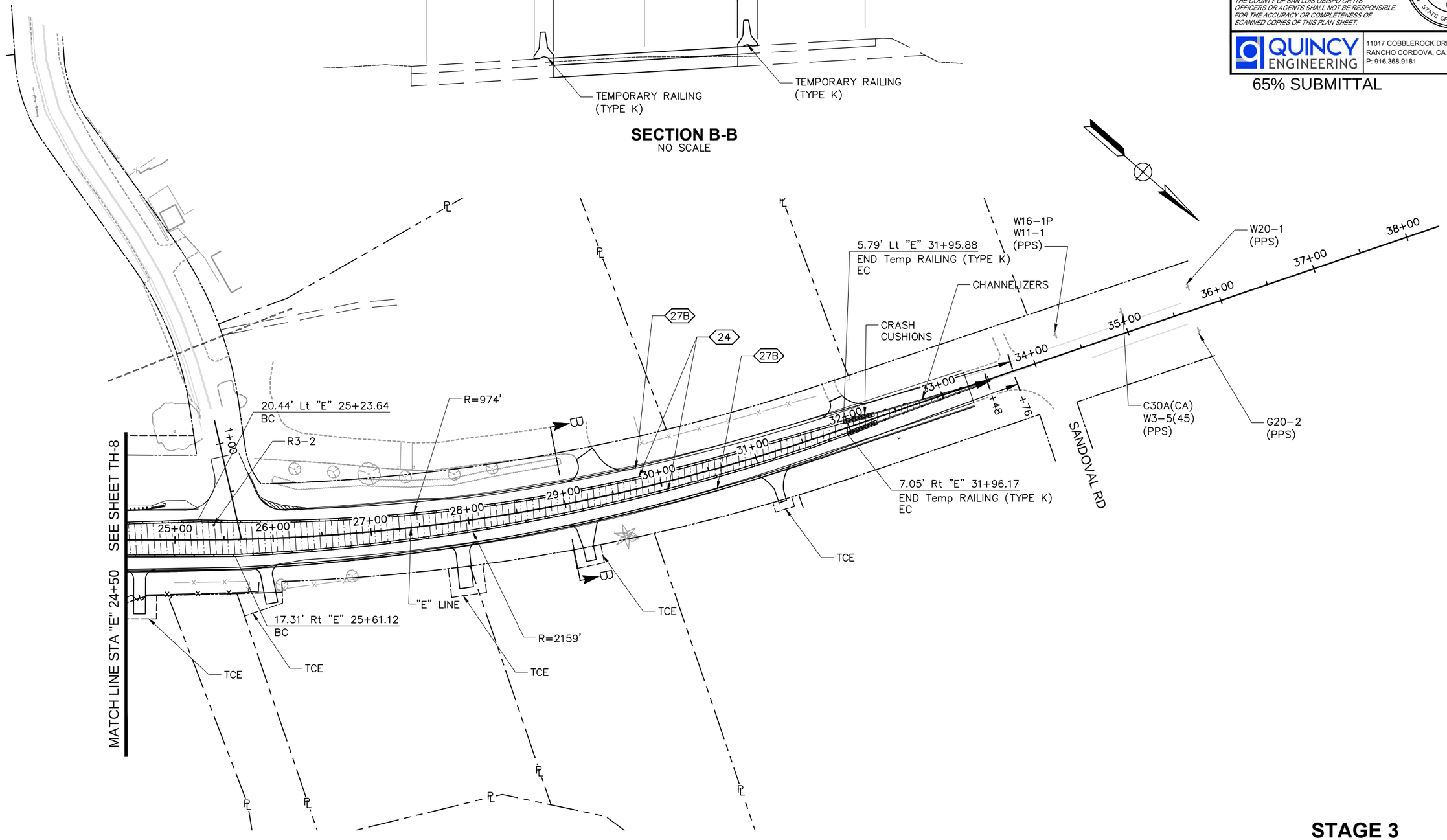
PROJECT NUMBER & PHASE S13201 – 65% SUBMITTAL

NOTE:

1. THIS PLAN ACCURATE FOR TRAFFIC HANDLING WORK ONLY.



SECTION B-B
NO SCALE



STAGE 3
TRAFFIC HANDLING
1"=50'

TH-9

Dist	COUNTY	PROJECT	SHEET No.	TOTAL SHEETS
5	SLO	SANTA MARGARITA CREEK BRIDGE ON EL CAMINO REAL	43	69

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — Garrett McLaughlin — No. C67687 — CIVIL — STATE OF CALIFORNIA

QUINCY ENGINEERING
11017 COBBLEROCK DRIVE, SUITE 100
RANCHO CORDOVA, CA 95670
P: 916.368.9181

65% SUBMITTAL

REVISED BY	DATE REVISED
E.MCPHERSON	G.MCLAUGHLIN
CALCULATED-DESIGNED BY	CHECKED BY

CONSULTANT PROJECT MANAGER: MARK RENO

SAN LUIS OBISPO – DEPARTMENT OF PUBLIC WORKS

SANTA MARGARITA CREEK BRIDGE REPLACEMENT

LAST REVISION | DATE PLOTTED: Friday, February 16, 2018 | TIME PLOTTED: 3:42:12 PM, Garrett McLaughlin

NOTE:

1. SIGN LOCATIONS SHOWN ARE APPROXIMATE. EXACT LOCATIONS TO BE DETERMINED BY THE ENGINEER.

LEGEND:

- DIRECTION OF DETOUR TRAFFIC
- STATIONARY MOUNTED CAS – ONE POST
- WORK AREA (CLOSED TO TRAFFIC)
- (X) CONSTRUCTION AREA SIGN NUMBER

Dist	COUNTY	PROJECT	SHEET No.	TOTAL SHEETS
5	SLO	SANTA MARGARITA CREEK BRIDGE ON EL CAMINO REAL	44	69

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — Garrett McLaughlin — No. C67687 — CIVIL — STATE OF CALIFORNIA

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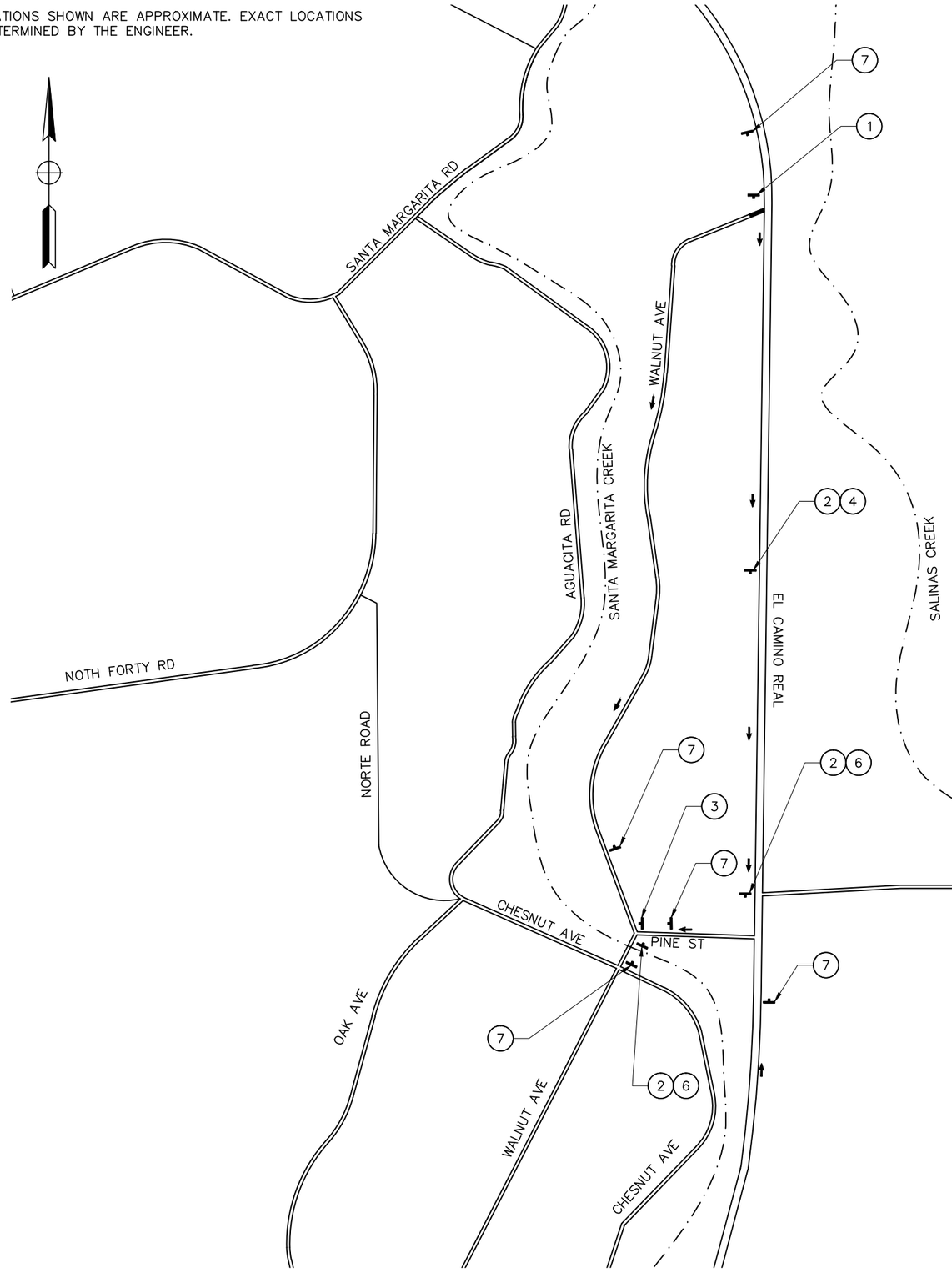
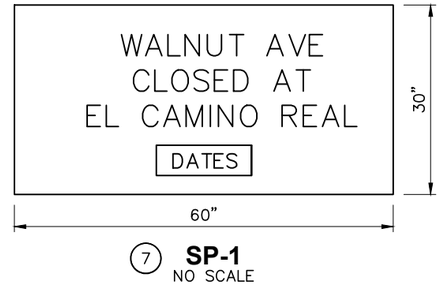
QUINCY ENGINEERING
11017 COBBLEROCK DRIVE, SUITE 100
RANCHO CORDOVA, CA 95670
P: 916.368.9181

65% SUBMITTAL

CONSTRUCTION AREA SIGN (STATIONARY MOUNTED)

SIGN No.	SIGN CODE	PANEL SIZE (IN X IN)	SIGN MESSAGE	POST SIZE (IN X IN)	No. OF POSTS (EA)	No. OF SIGNS (EA)	DESCRIPTION
1	W20-2	48 X 48	DETOUR AHEAD	4 x 4	1	1	BLACK ON ORANGE
2	M4-8	30 X 15	DETOUR	4 x 4	1	3	BLACK ON ORANGE
3	M4-8a	24 X 18	END DETOUR	4 x 4	1	1	BLACK ON ORANGE
4	M6-3	21 X 15	STRAIGHT ARROW			1	BLACK ON ORANGE
5	M6-1 (LT)	21 X 15	LEFT ARROW				BLACK ON ORANGE
6	M6-1 (RT)	21 X 15	RIGHT ARROW			2	BLACK ON ORANGE
7	SP-1		WALNUT AVE CLOSED AT EL CAMINO REAL	4 x 6	2	4	BLACK ON ORANGE
				SUBTOTAL			
				TOTAL			





7 **SP-1**
NO SCALE

DETOUR PLAN
NO SCALE

DE-1

REVISED BY	DATE REVISED
E.MCPHERSON	G.MCLAUGHLIN
CALCULATED-DESIGNED BY	CHECKED BY

CONSULTANT PROJECT MANAGER: MARK RENO

SAN LUIS OBISPO – DEPARTMENT OF PUBLIC WORKS

SANTA MARGARITA CREEK BRIDGE REPLACEMENT

TIME PLOTTED: 3:42:35 PM, Garrett McLaughlin

DATE PLOTTED: Friday, February 16, 2018

LAST REVISION

BORDER LAST REVISED 7/2/2010

USERNAME Andrewm
DWG FILE S:\Client\SLO-County\S13-201-El Camino Real\CAD\roadway\AutoCad Civil 3D 2015\S13201rmg001.dwg

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT UNIT

PROJECT NUMBER & PHASE S13201 – 65% SUBMITTAL

NOTE:

1. SIGN LOCATIONS SHOWN ARE APPROXIMATE. EXACT LOCATIONS ARE TO BE DETERMINED BY THE ENGINEER.

CONSTRUCTION AREA SIGN (STATIONARY MOUNTED)							
SIGN No.	SIGN CODE	PANEL SIZE (IN X IN)	SIGN MESSAGE	POST SIZE (IN X IN)	No. OF POSTS (EA)	No. OF SIGNS (EA)	DESCRIPTION
1	W20-2	48 X 48	DETOUR AHEAD	4 x 4	1	3	BLACK ON ORANGE
2	M4-8	30 X 15	DETOUR	4 x 4	1	9	BLACK ON ORANGE
3	M4-8a	24 X 18	END DETOUR	4 x 4	1	2	BLACK ON ORANGE
4	M6-3	21 X 15	STRAIGHT ARROW			2	BLACK ON ORANGE
5	M6-1 (LT)	21 X 15	LEFT ARROW			5	BLACK ON ORANGE
6	M6-1 (RT)	21 X 15	RIGHT ARROW			2	BLACK ON ORANGE
8	W20-3	48 X 48	ROAD CLOSED AHEAD	4 x 4	1	1	BLACK ON ORANGE
9	SP-2		SANTA MARGARITA RD CLOSED AT AT EL CAMINO REAL	4 x 6	2	2	BLACK ON ORANGE
				SUBTOTAL			
				TOTAL			

8

ROAD CLOSED AHEAD

W20-3

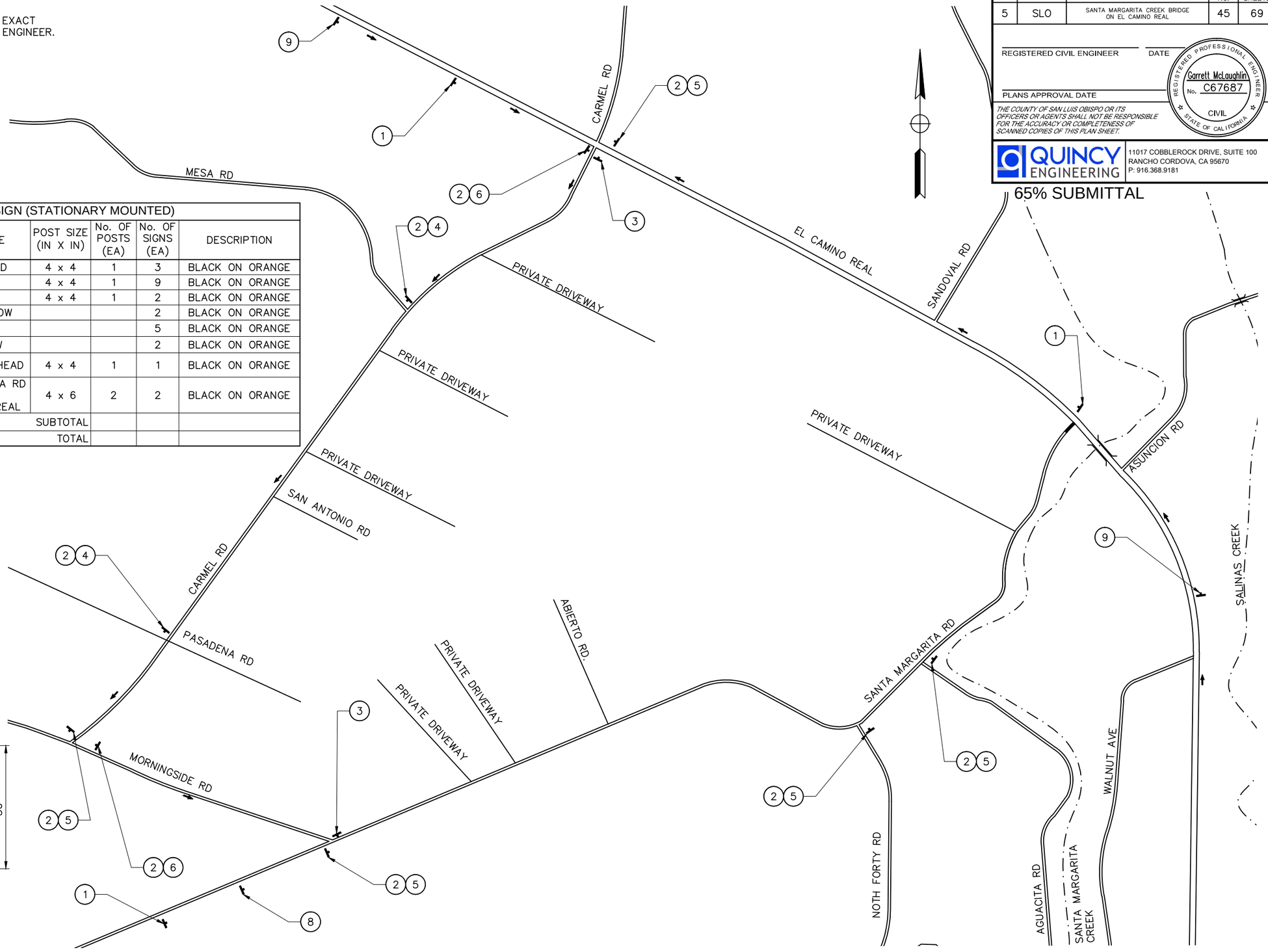
SANTA MARGARITA ROAD CLOSED AT EL CAMINO REAL

DATES

30"

60"

9 **SP-2**
NO SCALE



DETOUR PLAN
SCALE

DE-2

Dist	COUNTY	PROJECT	SHEET No.	TOTAL SHEETS
5	SLO	SANTA MARGARITA CREEK BRIDGE ON EL CAMINO REAL	45	69

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — Garrett McLaughlin — No. C67687 — CIVIL — STATE OF CALIFORNIA

THE COUNTY OF SAN LUIS OBISPO OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

QUINCY ENGINEERING
11017 COBBLEROCK DRIVE, SUITE 100
RANCHO CORDOVA, CA 95670
P: 916.368.9181

65% SUBMITTAL

REVISED BY: E. MCPHERSON
DATE REVISED: G. MCLAUGHLIN
CALCULATED-DESIGNED BY:
CHECKED BY:
CONSULTANT PROJECT MANAGER: MARK RENO

SAN LUIS OBISPO – DEPARTMENT OF PUBLIC WORKS
SANTA MARGARITA CREEK BRIDGE REPLACEMENT

LAST REVISION
DATE PLOTTED: Friday, February 16, 2018
TIME PLOTTED: 3:42:56 PM, Garrett McLaughlin

Dist	COUNTY	PROJECT	SHEET No.	TOTAL SHEETS
5	SLO	SANTA MARGARITA CREEK BRIDGE ON EL CAMINO REAL	46	69

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — Garrett McLaughlin — No. C67687 — CIVIL — STATE OF CALIFORNIA

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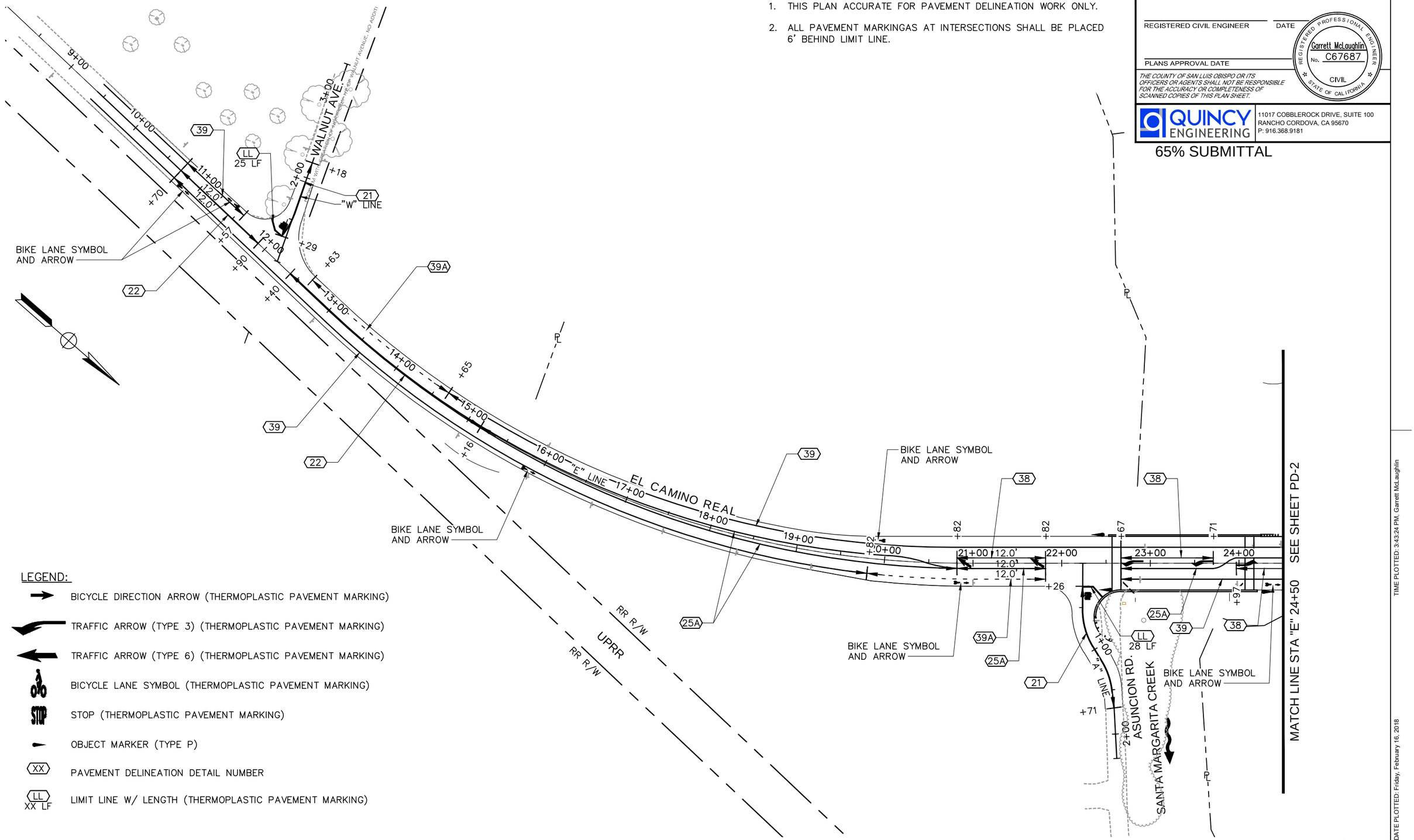
RANCHO CORDOVA, CA 95670
P: 916.368.9181

65% SUBMITTAL

NOTES:

1. THIS PLAN ACCURATE FOR PAVEMENT DELINEATION WORK ONLY.
2. ALL PAVEMENT MARKINGAS AT INTERSECTIONS SHALL BE PLACED 6' BEHIND LIMIT LINE.



LEGEND:

- BICYCLE DIRECTION ARROW (THERMOPLASTIC PAVEMENT MARKING)
- TRAFFIC ARROW (TYPE 3) (THERMOPLASTIC PAVEMENT MARKING)
- TRAFFIC ARROW (TYPE 6) (THERMOPLASTIC PAVEMENT MARKING)
- BICYCLE LANE SYMBOL (THERMOPLASTIC PAVEMENT MARKING)
- STOP (THERMOPLASTIC PAVEMENT MARKING)
- OBJECT MARKER (TYPE P)
- XX — PAVEMENT DELINEATION DETAIL NUMBER
- LL XX LF — LIMIT LINE W/ LENGTH (THERMOPLASTIC PAVEMENT MARKING)

PAVEMENT DELINEATION

SCALE: 1" = 50'

PD-1

REVISED BY	DATE REVISED
E. MCPHERSON	G. MCLAUGHLIN

CALCULATED-DESIGNED BY

CHECKED BY

CONSULTANT PROJECT MANAGER: MARK RENO

SAN LUIS OBISPO – DEPARTMENT OF PUBLIC WORKS

SANTA MARGARITA CREEK BRIDGE REPLACEMENT

LAST REVISION

DATE PLOTTED: Friday, February 16, 2018

TIME PLOTTED: 3:43:24 PM, Garrett McLaughlin

NOTES:

1. THIS PLAN ACCURATE FOR PAVEMENT DELINEATION WORK ONLY.
2. FOR NOTES AND LEGEND, SEE DRAWING PD–1.

Dist	COUNTY	PROJECT	SHEET No.	TOTAL SHEETS
5	SLO	SANTA MARGARITA CREEK BRIDGE ON EL CAMINO REAL	47	69

REGISTERED CIVIL ENGINEER _____ DATE _____

PLANS APPROVAL DATE _____

REGISTERED PROFESSIONAL ENGINEER — Garrett McLaughlin — No. C67687 — CIVIL — STATE OF CALIFORNIA

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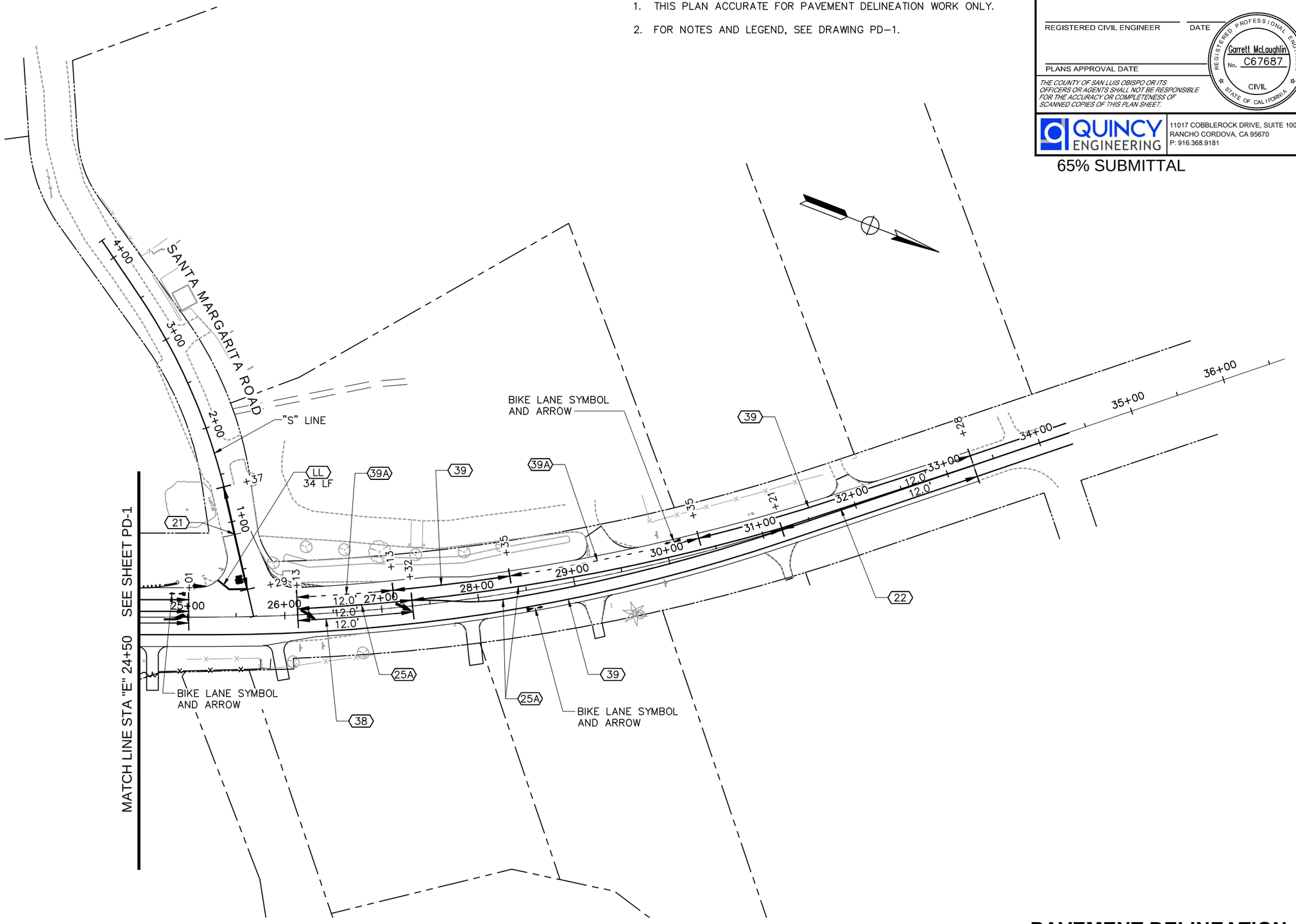

PAVEMENT DELINEATION

SCALE: 1" = 50'

PD-2

CALCULATED-DESIGNED BY
CHECKED BY

REVISED BY	DATE REVISED
E. MCPHERSON	G. MCLAUGHLIN

CONSULTANT PROJECT MANAGER
MARK RENO

SAN LUIS OBISPO – DEPARTMENT OF PUBLIC WORKS
SANTA MARGARITA CREEK BRIDGE REPLACEMENT

TIME PLOTTED: 3:43:48 PM, Garrett McLaughlin
DATE PLOTTED: Friday, February 16, 2018
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BORDER LAST REVISED 7/2/2010

USERNAME Garrettm
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RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT UNIT

PROJECT NUMBER & PHASE S13201 – 65% SUBMITTAL

NOTES:

1. THIS PLAN ACCURATE FOR SIGN WORK ONLY.

Dist	COUNTY	PROJECT	SHEET No.	TOTAL SHEETS
5	SLO	SANTA MARGARITA CREEK BRIDGE ON EL CAMINO REAL	48	69

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — Garrett McLaughlin — No. C67687 — CIVIL — STATE OF CALIFORNIA

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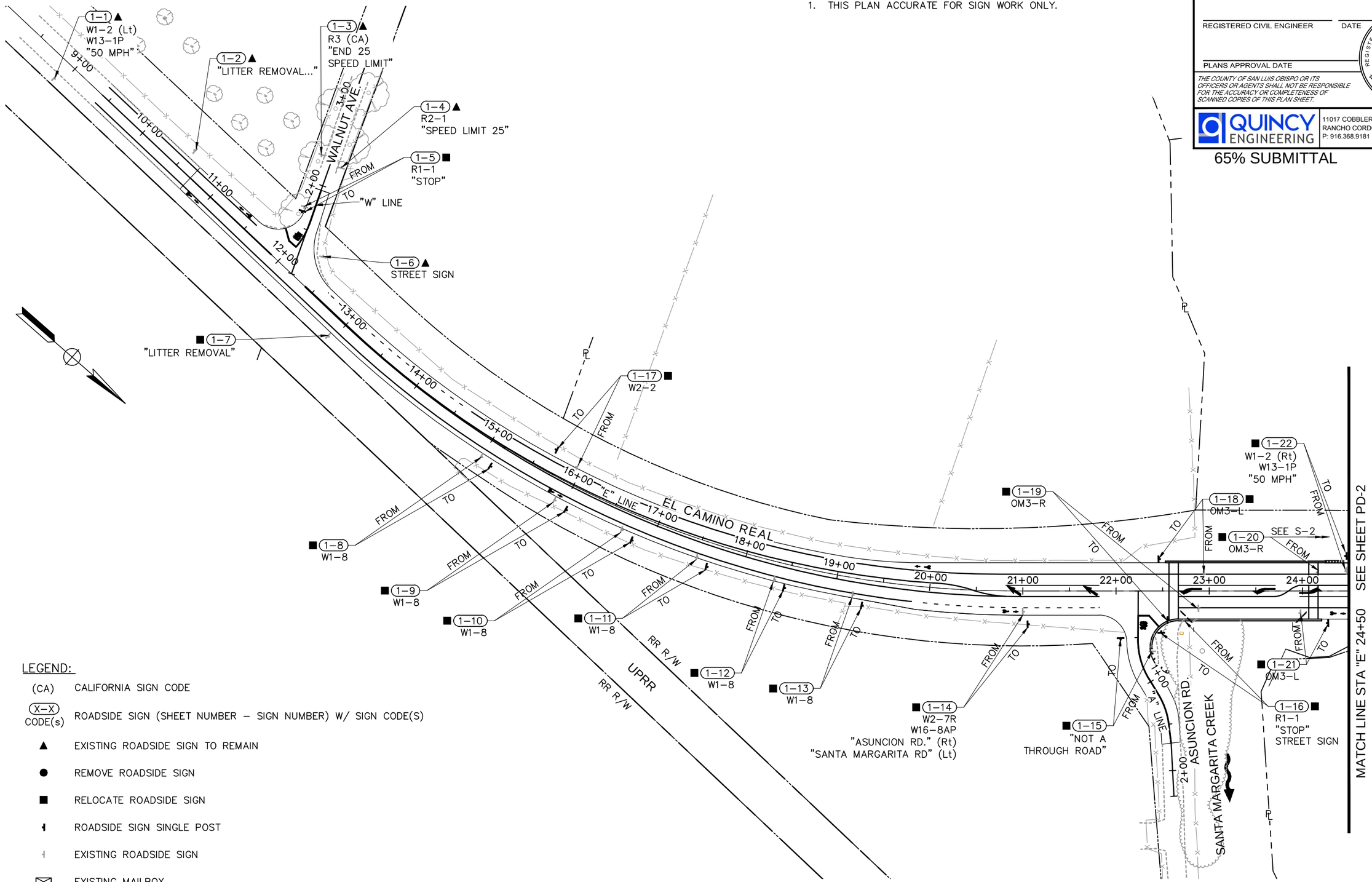

LEGEND:

(CA)	CALIFORNIA SIGN CODE
X-X CODE(s)	ROADSIDE SIGN (SHEET NUMBER – SIGN NUMBER) W/ SIGN CODE(S)
▲	EXISTING ROADSIDE SIGN TO REMAIN
●	REMOVE ROADSIDE SIGN
■	RELOCATE ROADSIDE SIGN
	ROADSIDE SIGN SINGLE POST
	EXISTING ROADSIDE SIGN
⊠	EXISTING MAILBOX
MB	MAILBOX

SIGN PLAN
SCALE: 1" = 50'

S-1

SAN LUIS OBISPO – DEPARTMENT OF PUBLIC WORKS
SANTA MARGARITA CREEK BRIDGE REPLACEMENT

CONSULTANT PROJECT MANAGER: MARK RENO

CALCULATED-DESIGNED BY: C. POLGLASE
CHECKED BY: G. MCLAUGHLIN

REVISED BY | DATE REVISED

LAST REVISION | DATE PLOTTED: Friday, February 16, 2018 | TIME PLOTTED: 3:44:13 PM, Garrett McLaughlin

BORDER LAST REVISED 7/2/2010

USERNAME Garrettm
DWG FILE S:\Client\SLO-County\S13-201-El Camino Real\CAD\roadway\AutoCad Civil 3D 2015\S13201roa001.dwg

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT UNIT

PROJECT NUMBER & PHASE S13201 – 65% SUBMITTAL

NOTES:

1. THIS PLAN ACCURATE FOR SIGN WORK ONLY.
2. FOR NOTES AND LEGEND, SEE DRAWING S–1.

Dist	COUNTY	PROJECT	SHEET No.	TOTAL SHEETS
5	SLO	SANTA MARGARITA CREEK BRIDGE ON EL CAMINO REAL	49	69

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — Garrett McLaughlin — No. C67687 — CIVIL — STATE OF CALIFORNIA

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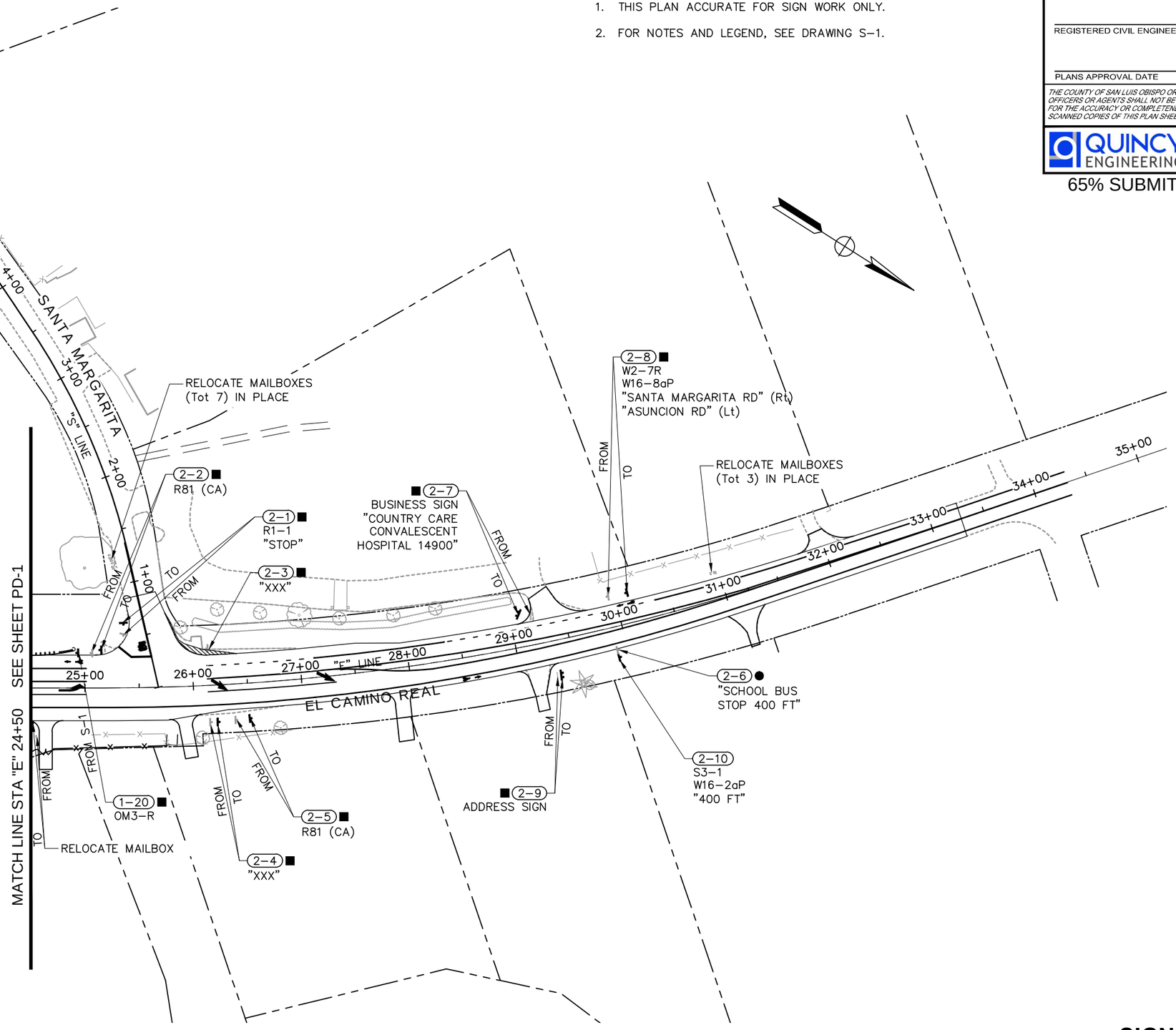
RANCHO CORDOVA, CA 95670
P: 916.368.9181

65% SUBMITTAL



SIGN PLAN

SCALE: 1" = 50'

S-2

SAN LUIS OBISPO – DEPARTMENT OF PUBLIC WORKS
SANTA MARGARITA CREEK BRIDGE REPLACEMENT

CONSULTANT PROJECT MANAGER: MARK RENO

CALCULATED-DESIGNED BY: C. POLGLASE
CHECKED BY: MCLAUGHLIN

REVISED BY	DATE REVISED

LAST REVISION
DATE PLOTTED: Friday, February 16, 2018
TIME PLOTTED: 3:44:37 PM, Garrett McLaughlin

BORDER LAST REVISED 7/2/2010

USERNAME Garrettm
DWG FILE S:\Client\SLO-County\S13-201-El Camino Real\CAD\roadway\AutoCad Civil 3D 2015\S13201roa002.dwg

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT UNIT

PROJECT NUMBER & PHASE S13201 – 65% SUBMITTAL

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
5	SLO	CR	---- ----	50	68

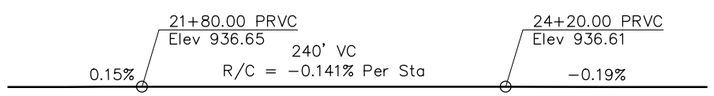
65% SUBMITTAL

REGISTERED CIVIL ENGINEER DATE

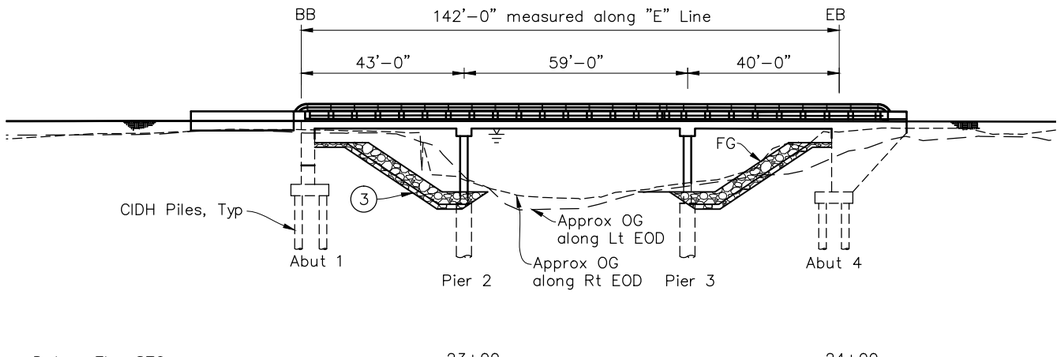
PLANS APPROVAL DATE

Jason H Chou No. C74835 Exp. 12/31/19 CIVIL — REGISTERED PROFESSIONAL ENGINEER — STATE OF CALIFORNIA

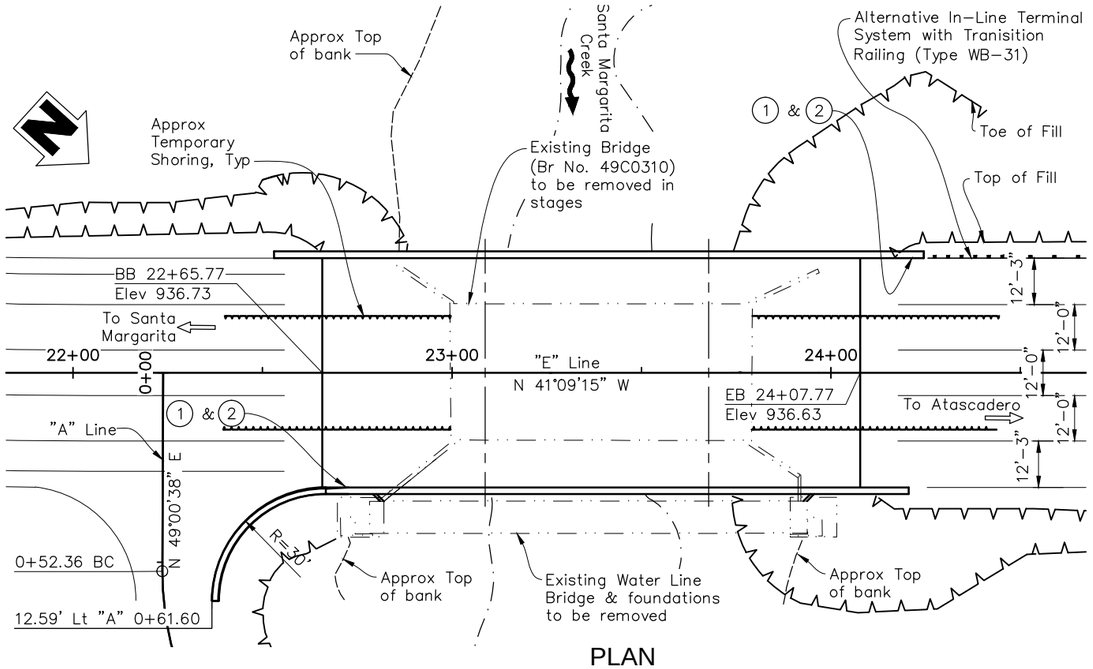
QUINCY ENGINEERING
11017 COBBLEROCK DRIVE, SUITE 100
RANCHO CORDOVA, CA 95670
P: 916.368.9181



PROFILE GRADE
NO SCALE



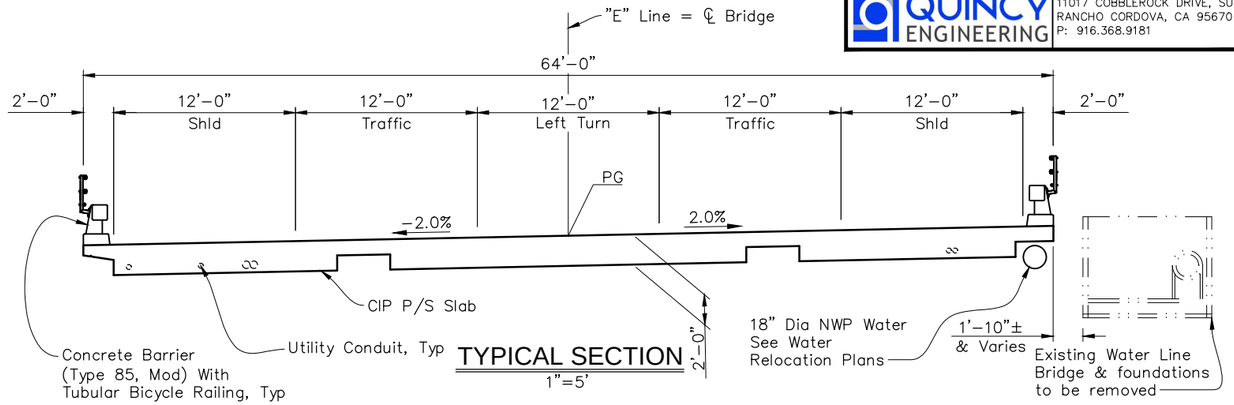
ELEVATION
1"=20'



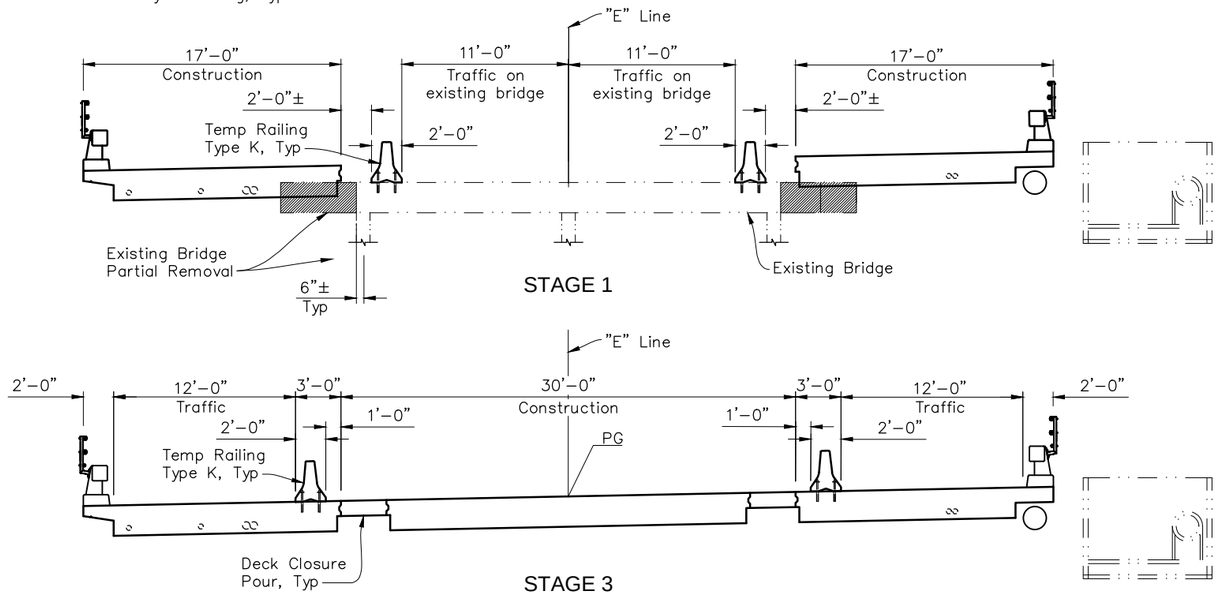
PLAN
1"=20'

LEGEND

- Indicates direction of travel
- Indicates direction of flow
- Indicates 100 Year Water Surface Elev
- Indicates existing structure
- (1) Paint "Br. No. 49C0474"
- (2) Paint "Santa Margarita Creek Bridge"
- (3) RSP, see Road Plans



TYPICAL SECTION
1"=5'



STAGE CONSTRUCTION
1"=5'

NOTES:

1. For Index to Plans, General Notes, Hydraulic Summary, and Quantities, see "General Notes" sheets.
2. For Pile Data Tables, and Utilities not shown, see "Foundation Plan" sheet.
3. For Stage 2 traffic handling, see Road Plans.

DESIGN OVERSIGHT	DESIGN	BY J. Chou	CHECKED DES CHK	LOAD & RESISTANCE FACTOR DESIGN	LIVE LOADING: HL93 W/"LOW−BOY" AND PERMIT DESIGN VEHICLE		PREPARED FOR THE SAN LUIS OBISPO DEPARTMENT OF PUBLIC WORKS	BRIDGE NO. 49C0474
SIGN OFF DATE	DETAILS	BY R. Kotey	CHECKED DET CHK	LAYOUT	BY LAYOUT BY	CHECKED LAYOUT CHECK	Mario Quest PROJECT ENGINEER	POST MILE ----
	QUANTITIES	BY QTY BY	CHECKED QTY CHK	SPECIFICATIONS	BY SPECS BY	PLANS AND SPECS COMPARED SPEC CHECK		

SANTA MARGARITA CREEK BRIDGE REPLACEMENT
GENERAL PLAN

DESIGN DETAIL SHEET (ENGLISH) (REV.7/16/10)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: UNIT
PROJECT NUMBER & PHASE: S13201 CONTRACT NO.: CONTRACT

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES				SHEET	OF
				1	19

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USERNAME Saiimb
DATE PLOTTED 11/1/2018 4:05:15 PM
TIME PLOTTED 4:05:15 PM

GENERAL NOTES
LOAD AND RESISTANCE FACTOR DESIGN

DESIGN: AASHTO LRFD Bridge Design Specifications 6th edition with interims through 2013 and the Caltrans Amendments V13 except that Standard Plans dated 2010 and Standard Bridge Details XS sheets are designed using Bridge Design Specifications ('96 AASHTO w/Revisions by Caltrans).

SEISMIC DESIGN: Caltrans Seismic Design Criteria (SDC), Version 1.7 dated April 2013.

DEAD LOAD: Includes 35 psf for future wearing surface.

LIVE LOADING: HL93 and Permit design load.

SEISMIC LOADING: Soil Profile D = 328 m/s
Moment Magnitude Mmax = 7.4
Peak Ground Acceleration = 0.59 g

REINFORCED CONCRETE: f_y = 60 ksi

f'_c = 3.6 ksi, unless otherwise noted

n = 8

Transverse Deck Slabs (Working Stress Design)
f_s = 20,000 psi

f_c = 1,200 psi

n = 10

PRESTRESSED CONCRETE: See "Prestressing Notes" on "Superstructure Details No.1" sheet.

QUANTITIES

Bridge Removal	LS
Structure Excavation (Bridge)	CY
Structure Excavation (Bridge)	CY
Structure Backfill (Bridge)	CY
24" Cast-In-Drilled-Hole Concrete Piling	LF
48" Cast-In-Drilled-Hole Concrete Piling	LF
Structural Concrete, Bridge Footing	CY
Structural Concrete, Bridge	CY
Structural Concrete, Approach Slab (Type EQ)	CY
Joint Seal (MR 2")	LF
Bar Reinforcing Steel (Bridge)	LB
Tubular Bicycle Railing	LF
6" Welded Steel Pipe Casing (Bridge)	LF
Concrete Barrier (Type 80, Mod)	LF

STANDARD PLANS DATED 2015

	A3A	Abbreviations (Sheet 1 of 3)
	A3B	Abbreviations (Sheet 2 of 3)
	A3C	Abbreviations (Sheet 3 of 3)
	A10A	Legend - Lines and Symbols (Sheet 1 of 5)
RSP	A10B	Legend - Lines and Symbols (Sheet 2 of 5)
	A10C	Legend - Lines and Symbols (Sheet 3 of 5)
	A10D	Legend - Lines and Symbols (Sheet 4 of 5)
	A10E	Legend - Lines and Symbols (Sheet 5 of 5)
	A10F	Legend - Soil (Sheet 1 of 2)
	A10G	Legend - Soil (Sheet 2 of 2)
	A10H	Legend - Rock
	A62C	Limits of Payment for Excavation and Backfill- Bridge
	B0-1	Bridge Details
RSP	B0-3	Bridge Details
	B0-5	Bridge Details
	B0-13	Bridge Details
	B6-21	Joint Seals (Max Movement R=2")
	B7-10	Utility Opening - Box Girder
RSP	B8-5	Cast-in-Place Post-Tensioned Girder Details
	B11-60	Concrete Barrier Type 80 (Sheet 1 of 2)
	B11-61	Concrete Barrier Type 80 (Sheet 1 of 2)
	T3A	Temporary Railing (Type K)

Standard Plan Sheet No. / Detail No.

RSP Revised Standard Plan Sheet No. / Detail No.

INDEX TO PLANS

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
5	SLO	CR	____ ____	51	68

65% SUBMITTAL

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — JASON H CHOU — No. C74835 — Exp. 12/31/19 — CIVIL — STATE OF CALIFORNIA

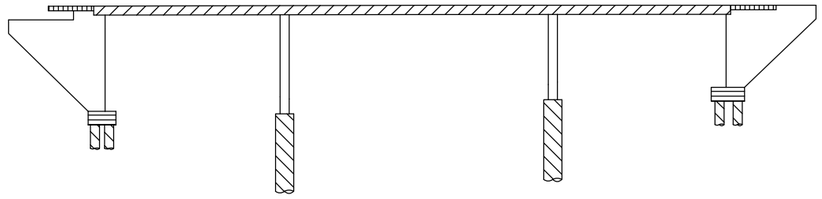
QUINCY ENGINEERING
11017 COBBLEROCK DRIVE, SUITE 100
RANCHO CORDOVA, CA 95670
P: 916.368.9181

SCOUR DATA TABLE

SUPPORT No.	LONG TERM (DEGRADATION AND CONTRACTION) SCOUR ELEVATION (ft)	SHORT TERM (LOCAL) SCOUR DEPTH (ft)
Abut 1	921.0*	*
Pier 2	903.0	2.0
Pier 3	903.0	2.0
Abut 4	919.0**	**

* Scour resistant material is present at elevation 924; the abutment footing has been set 3 ft below the top of scour resistant material.

* Scour resistant material is present at elevation 922; the abutment footing has been set 3 ft below the top of scour resistant material.



Structural Concrete, Bridge (f'c = 4.0 ksi at 28 days)

Structural Concrete, Bridge (f'c = 5.0 ksi at 28 days)

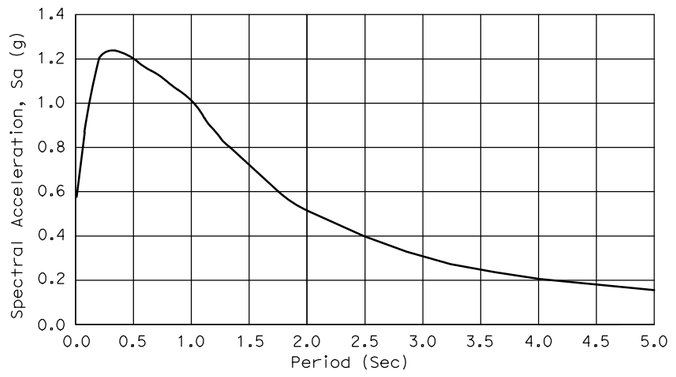
Structural Concrete, Bridge Footing

Structural Concrete, Approach Slab Type EQ(10)

Cast-In-Drilled-Hole Concrete Piling (f'c = 4.0 ksi at 28 days)

CONCRETE STRENGTH AND TYPE LIMITS

No Scale



ACCELERATION RESPONSE SPECTRA CURVE

No Scale

HYDROLOGIC SUMMARY

Drainage area: 22.4 Square Miles

	Design Flood	Base Flood
Frequency (years)	50	100
Discharge (cubic feet per second)	7,850	9,435
Water Surface Elev at Bridge (ft)	931.8	933.2

Flood plain data based upon information available when the plans were prepared and are shown to meet Federal requirements. The accuracy of said information is not warranted by the County and interested or affected parties should make their own investigations.

DESIGN OVERSIGHT

SIGN OFF DATE

DESIGN BY J. CHOU CHECKED DES CHK

DETAILS BY R. KOTEY CHECKED DET CHK

QUANTITIES BY QTY BY CHECKED QTY CHK

PREPARED FOR THE SAN LUIS OBISPO DEPARTMENT OF PUBLIC WORKS

MARIO QUEST
PROJECT ENGINEER

BRIDGE NO. 49C0474
POST MILE ____

SANTA MARGARITA CREEK BRIDGE REPLACEMENT

GENERAL NOTES

DESIGN DETAIL SHEET (ENGLISH) (REV.7/16/10)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: UNIT
PROJECT NUMBER & PHASE: S13201 CONTRACT NO.: CONTRACT

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES				SHEET	OF
10/28/15				2	19

FILE S:\Client\SLO-County\S13-201-El Camino Real\CAD\bridge\S13201a-b-gnote01.dwg

TIME PLOTTED 4:05:24 PM
DATE PLOTTED 11/1/2018 4:05:24 PM
USERNAME Salimb

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
5	SLO	CR	---- ----	52	68

65% SUBMITTAL

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
Jason H Chou
No. C74835
Exp. 12/31/19
CIVIL
STATE OF CALIFORNIA

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QUINCY ENGINEERING
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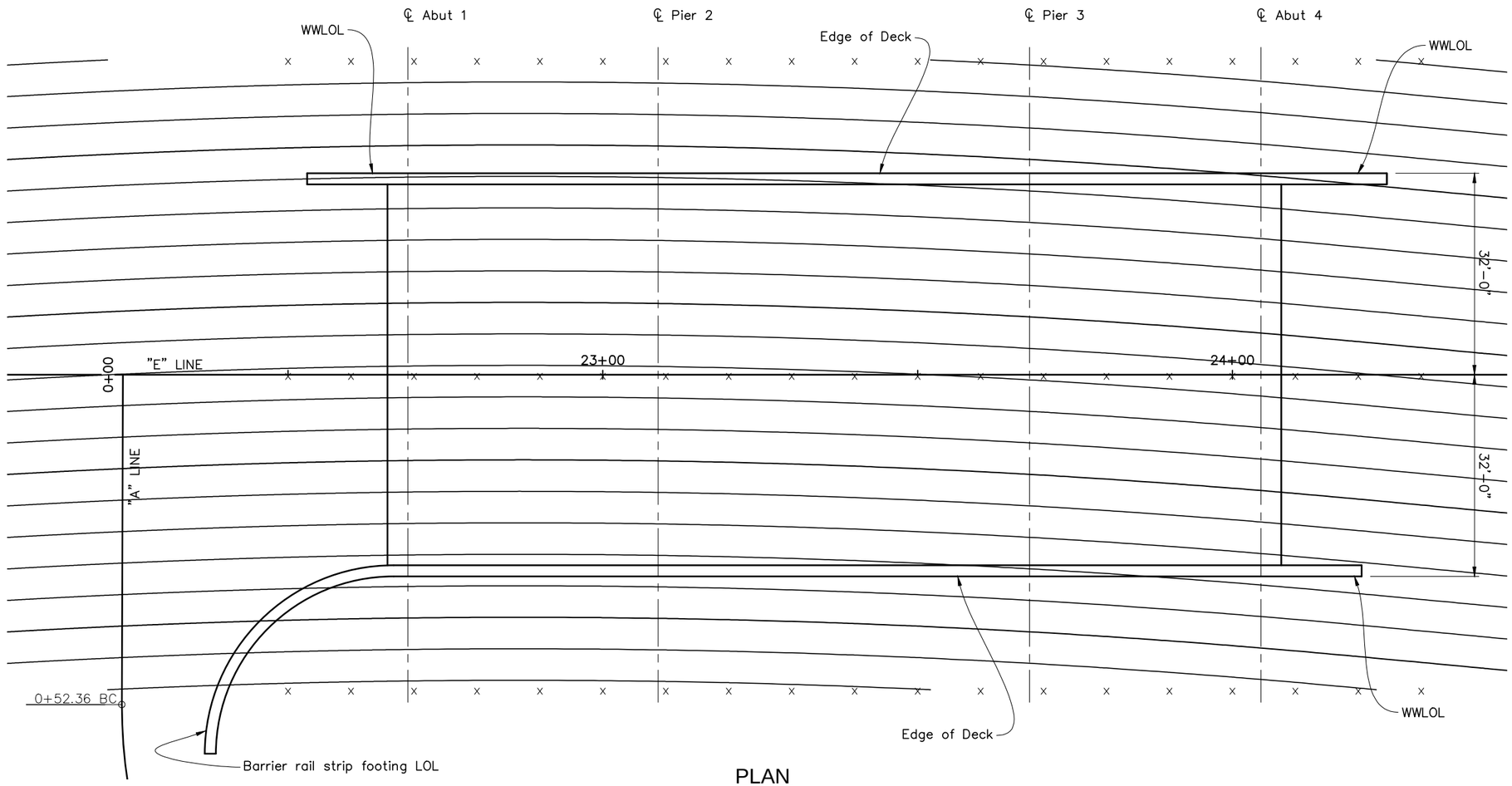
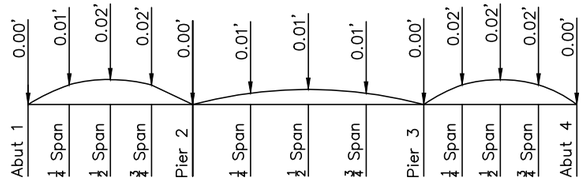
RANCHO CORDOVA, CA 95670
P: 916.368.9181



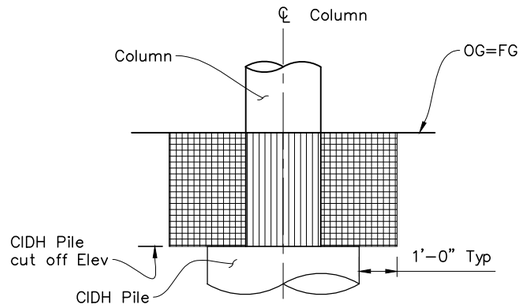
PLAN
1"=10'

Notes:
X = 0.10' intervals along station line
Contour Intervals = 0.10'
Contours do not include camber



Note: Does not include allowance for falsework settlement

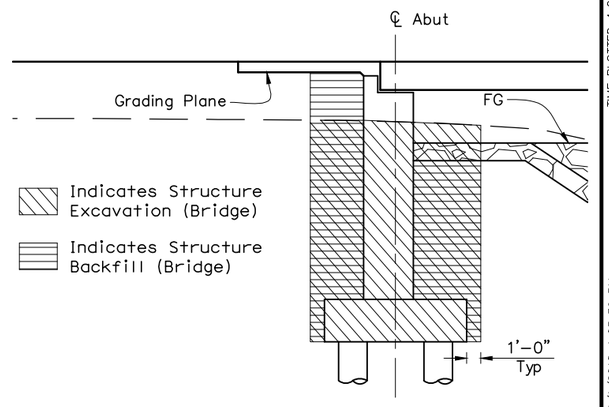
CAMBER DIAGRAM
NO SCALE



Indicates Structure Excavation (Bridge)

Indicates Backfill (Compaction not required)

LIMITS OF PAYMENT FOR EARTHWORK AT PIERS
No Scale



Indicates Structure Excavation (Bridge)

Indicates Structure Backfill (Bridge)

LIMITS OF PAYMENT FOR EARTHWORK AT ABUTMENTS
No Scale

DESIGN OVERSIGHT / SIGN OFF DATE		DESIGN	BY J. CHOU	CHECKED DES CHK	PREPARED FOR THE SAN LUIS OBISPO DEPARTMENT OF PUBLIC WORKS
		DETAILS	BY R. KOTEY	CHECKED DET CHK	
		QUANTITIES	BY QTY BY	CHECKED QTY CHK	

Mario Quest
PROJECT ENGINEER

BRIDGE NO. 49C0474
POST MILE ----

SANTA MARGARITA CREEK BRIDGE REPLACEMENT

DECK CONTOURS

DESIGN DETAIL SHEET (ENGLISH) (REV.7/16/10)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: UNIT
PROJECT NUMBER & PHASE: S13201 CONTRACT NO.: CONTRACT

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES				SHEET	OF
10/28/15				3	19

FILE S:\Client\SLO-County\S13-201-El Camino Real\CAD\bridge\s13201a-d-dc01.dwg

TIME PLOTTED 4:05:39 PM
DATE PLOTTED 11/1/2018 4:05:39 PM
USERNAME Garrettm

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
5	SLO	CR	____ ____	53	68

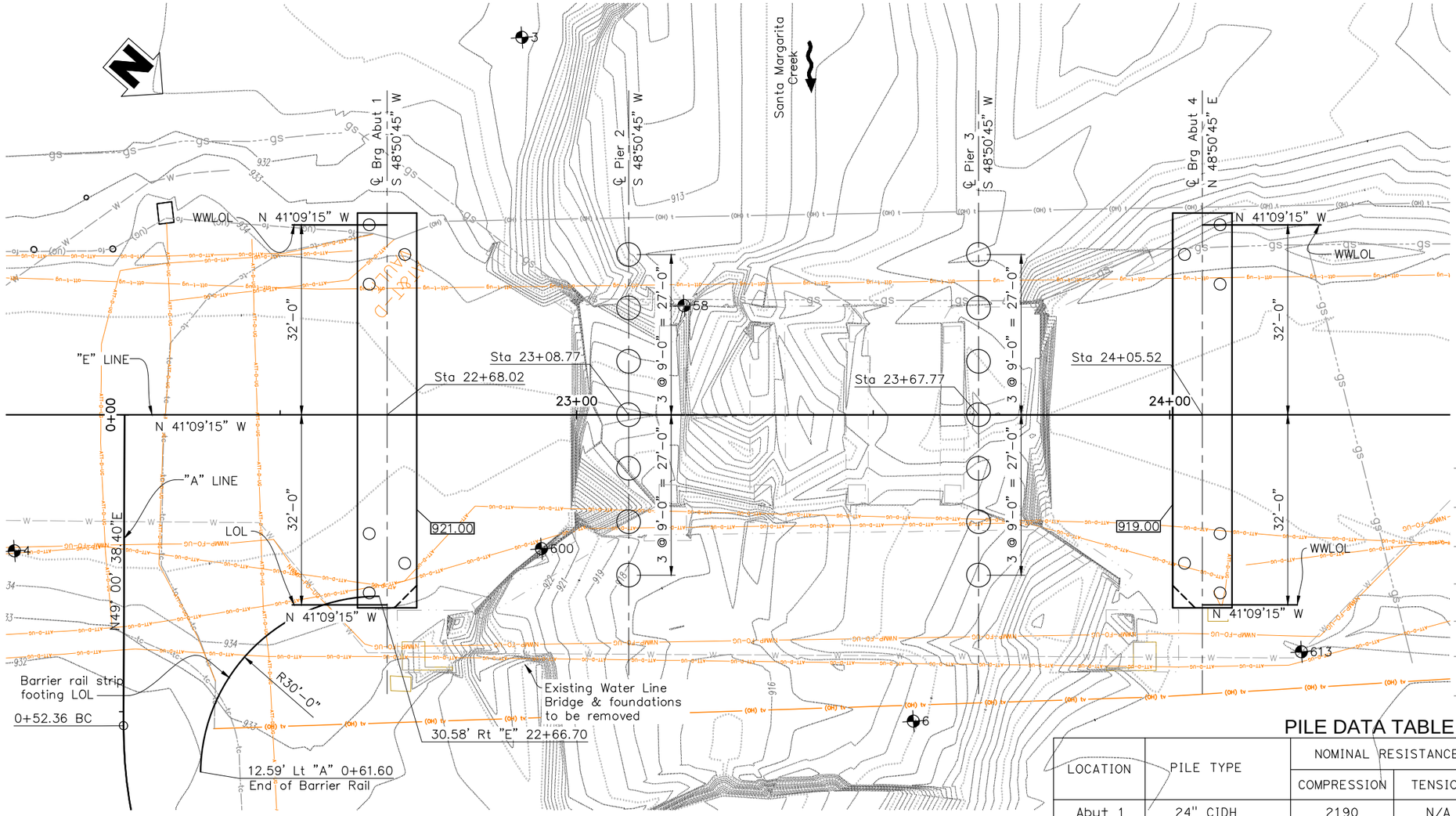
65% SUBMITTAL

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — JASON H CHOU — No. C74835 — Exp. 12/31/19 — CIVIL — STATE OF CALIFORNIA

QUINCY ENGINEERING
11017 COBBLEROCK DRIVE, SUITE 100
RANCHO CORDOVA, CA 95670
P: 916.368.9181



PLAN
1"=10'

Legend:

X.XX	Indicates bottom of footing elevation
○	Indicate 24" CIDH Concrete Piling, no all piles shown
◯	Indicate 48" CIDH Concrete Piling
~~→	Indicate direction of flow
—w—w—	Indicates existing potable waterline
—tc—tc—	Indicates existing AT&T
—(OH) t—	Indicates existing AT&T
—fo—(UG)—	Indicates existing fiber optic
—FO—(OH)—	Indicates relocated fiber optic
—gs—gs—	Indicates existing gas
—GS—	Indicates relocated gas

PILE DATA TABLE

LOCATION	PILE TYPE	NOMINAL RESISTANCE		DESIGN TIP ELEVATION (ft)	SPECIFIED TIP ELEVATION (ft)
		COMPRESSION	TENSION		
Abut 1	24" CIDH	2190	N/A	887(a), 886(a-I), 902(a-II), 889(c)	886
Pier 2	48" CIDH	3120	N/A	872(a), 861(a-I), 881(a-II), 872(c)	860
Pier 3	48" CIDH	3030	N/A	873(a), 861(a-I), 881(a-II), 873(c)	860
Abut 4	24" CIDH	2110	N/A	887(a), 884(a-I), 900(a-II), 887(c)	884

Notes: 1. Design tip elevations are controlled by: (a) Compression (Service Limit), (b) Tension (Service Limit), (a-I) Compression (Strength Limit), (b-I) Tension (Strength Limit), (a-II) Compression (Extreme Event), (b-II) Tension (Extreme Event), (c) Settlement, (d) Lateral Load - to be determined by designer.

2. The design tip elevations assume long term channel degradation elevation of 903 feet.

PROJECT CONTROL COORDINATE TABLE

No.	NORTHING	EASTING	ELEVATION	LINE	STATION	OFFSET	DESCRIPTION
600	2,352,370.9302	5,785,486.7945	934.51	"E"	22+94.07	22.55' Rt	FDBM (C-25) Reset 1937
613	2,352,478.8500	5,785,415.5400	933.86	"E"	24+22.22	39.92' Rt	FDBCNWPCP5.5
3	2,352,311.7582	5,785,424.1119	928.55	"E"	22+90.77	63.59' Lt	set-5/8-rbar-cp3
4	2,352,304.2516	5,785,545.5594	935.25	"E"	22+05.20	22.22' Rt	set-spk-cp4
6	2,352,437.2806	5,785,467.4013	919.78	"E"	23+56.79	51.61' Rt	rbar4cp6
58	2,352,262.0903	5,785,440.1649	918.04	"E"	23+18.12	18.40' Lt	fdn

Curve Table

Curve #	R	Δ	T	L
C23B	30.00	89° 21' 56"	29.67	46.79

DESIGN OVERSIGHT

SIGN OFF DATE

DESIGN	BY J. CHOU	CHECKED DES CHK	
DETAILS	BY R. KOTEY	CHECKED DET CHK	
QUANTITIES	BY QTY BY	CHECKED QTY CHK	

PREPARED FOR THE SAN LUIS OBISPO DEPARTMENT OF PUBLIC WORKS

MARIO QUEST
PROJECT ENGINEER

BRIDGE NO. 49C0474
POST MILE ____

SANTA MARGARITA CREEK BRIDGE REPLACEMENT

FOUNDATION PLAN

DESIGN DETAIL SHEET (ENGLISH) (REV.7/16/10)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: UNIT
PROJECT NUMBER & PHASE: S13201 CONTRACT NO.: CONTRACT

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES				SHEET	OF
10/26/15				4	19

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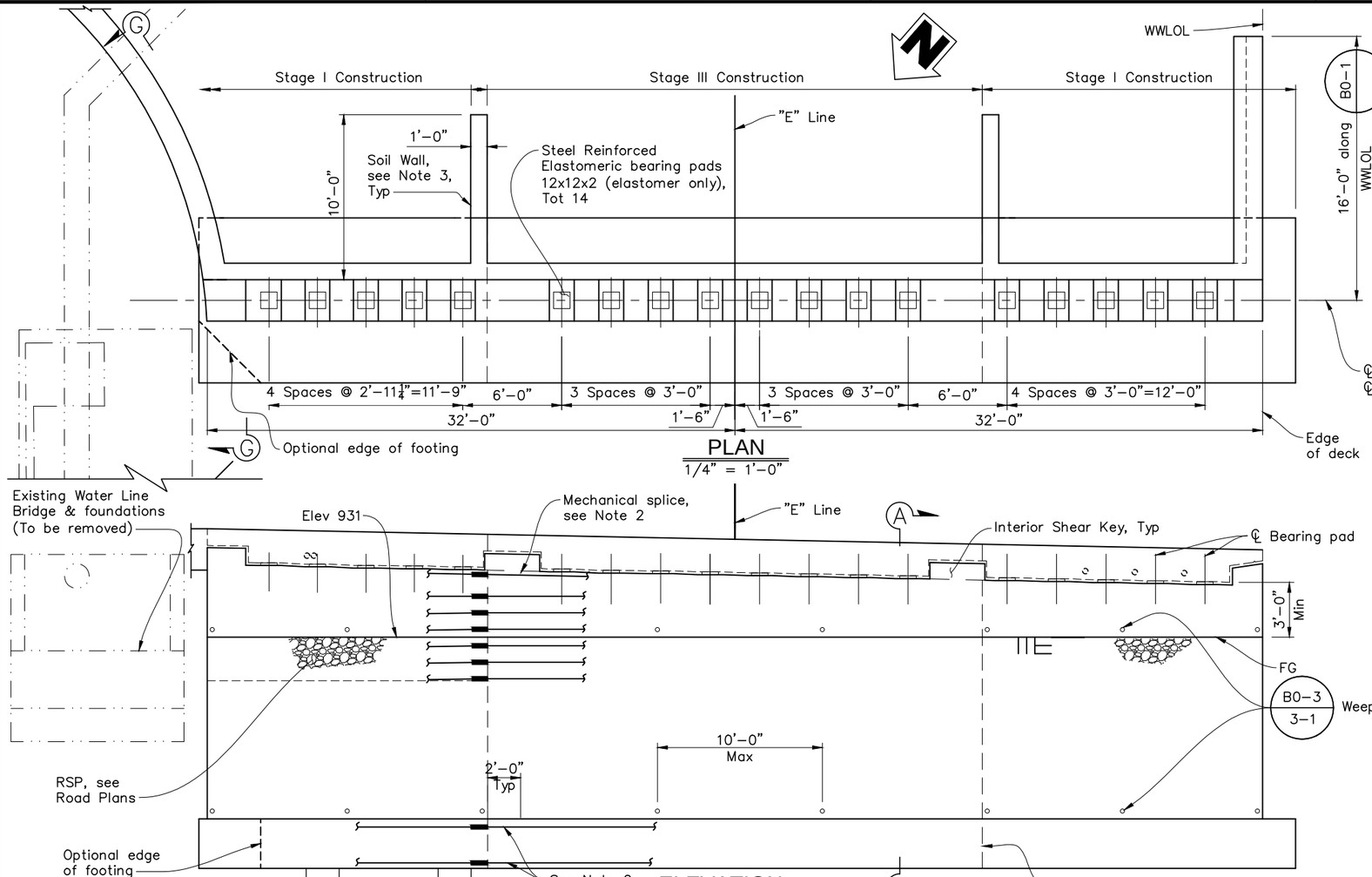
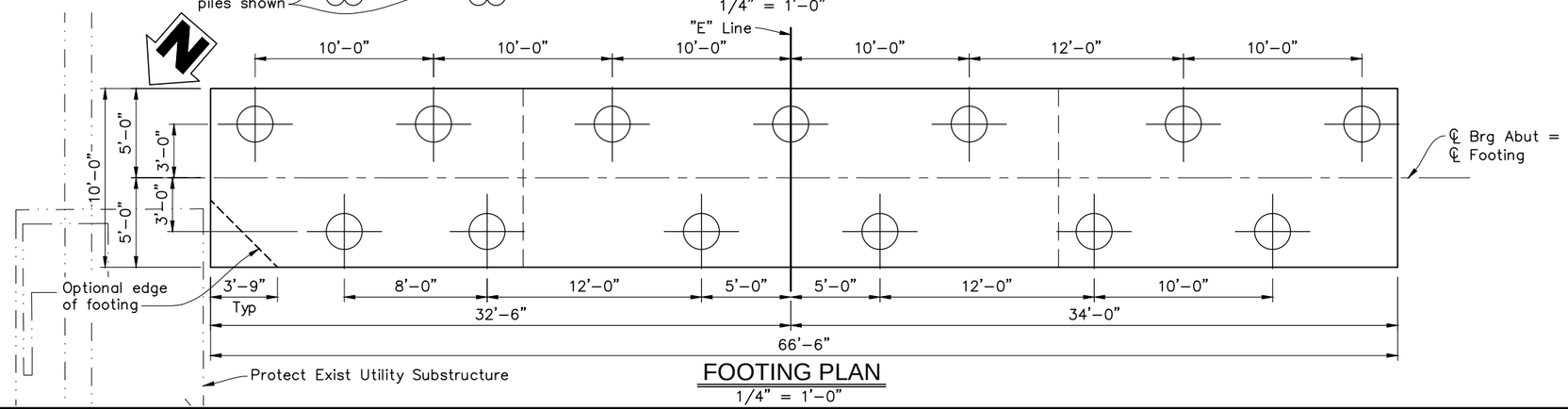
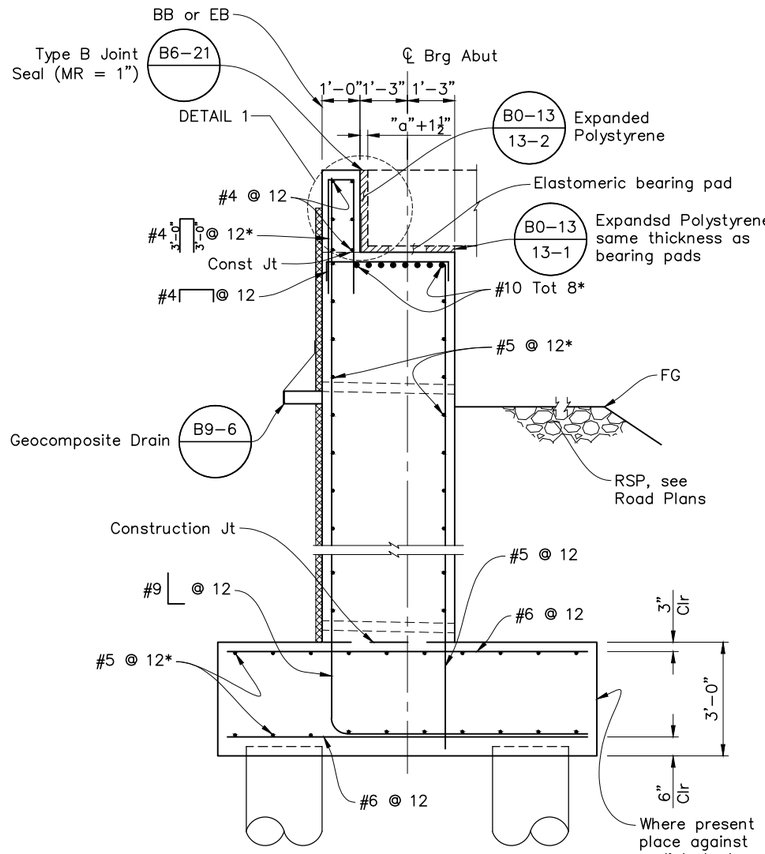


PLAN
1/4" = 1'-0"

ELEVATION
1/4" = 1'-0"



FOOTING PLAN
1/4" = 1'-0"



SECTION A-A
1/2" = 1'-0"

Note: Abut 1 shown, Abut 4 similar.

NOTES:

1. For sections and details not shown, see "Abutment 4 Layout" and Abutment Details sheets.
2. All abutment and footing reinforcement through construction joint shall be joined by mechanical couplers.
3. For soil nail details, see "Abutment Details No. 2" sheet.

* Denotes bars to be extended beyond construction joint to be lap spliced with Stage II.

Legend:

⊕ Indicates vertical pile

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
5	SLO	CR	---- ----	54	68

65% SUBMITTAL

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — Jason H Chou — No. C74835 — Exp. 12/31/19 — CIVIL — STATE OF CALIFORNIA

QUINCY ENGINEERING
11017 COBBLEROCK DRIVE, SUITE 100
RANCHO CORDOVA, CA 95670
P: 916.368.9181

DESIGN OVERSIGHT

SIGN OFF DATE

	BY	CHECKED
DESIGN	J. Chou	DES CHK
DETAILS	R. Kotey	DET CHK
QUANTITIES	QTY BY	QTY CHK

PREPARED FOR THE
SAN LUIS OBISPO
DEPARTMENT OF PUBLIC WORKS

Mario Quest
PROJECT ENGINEER

BRIDGE NO. 49C0474
POST MILE ----

SANTA MARGARITA CREEK BRIDGE REPLACEMENT

ABUTMENT 1 LAYOUT

DESIGN DETAIL SHEET (ENGLISH) (REV.7/16/10)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: UNIT
PROJECT NUMBER & PHASE: S13201 CONTRACT NO.: CONTRACT

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES				SHEET	OF
10/28/15				5	19

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USERNAME Salimb

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
5	SLO	CR	---- ----	55	68

65% SUBMITTAL

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

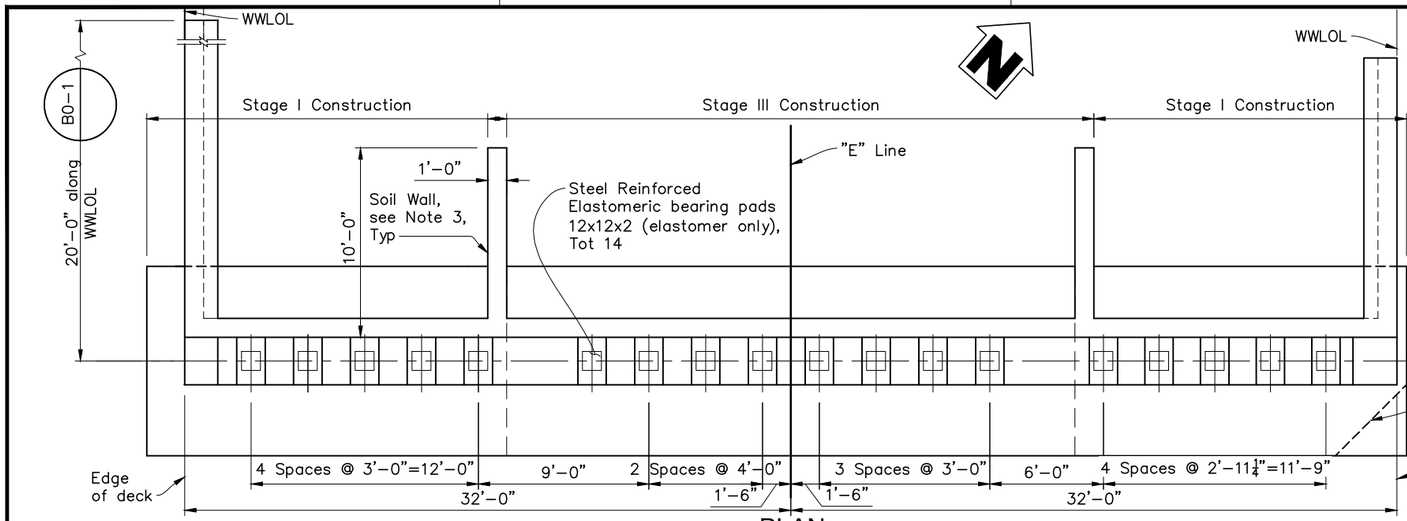
Jason H Chou No. C74835 Exp. 12/31/19 CIVIL — REGISTERED PROFESSIONAL ENGINEER — STATE OF CALIFORNIA

QUINCY ENGINEERING
11017 COBBLEROCK DRIVE, SUITE 100
RANCHO CORDOVA, CA 95670
P: 916.368.9181

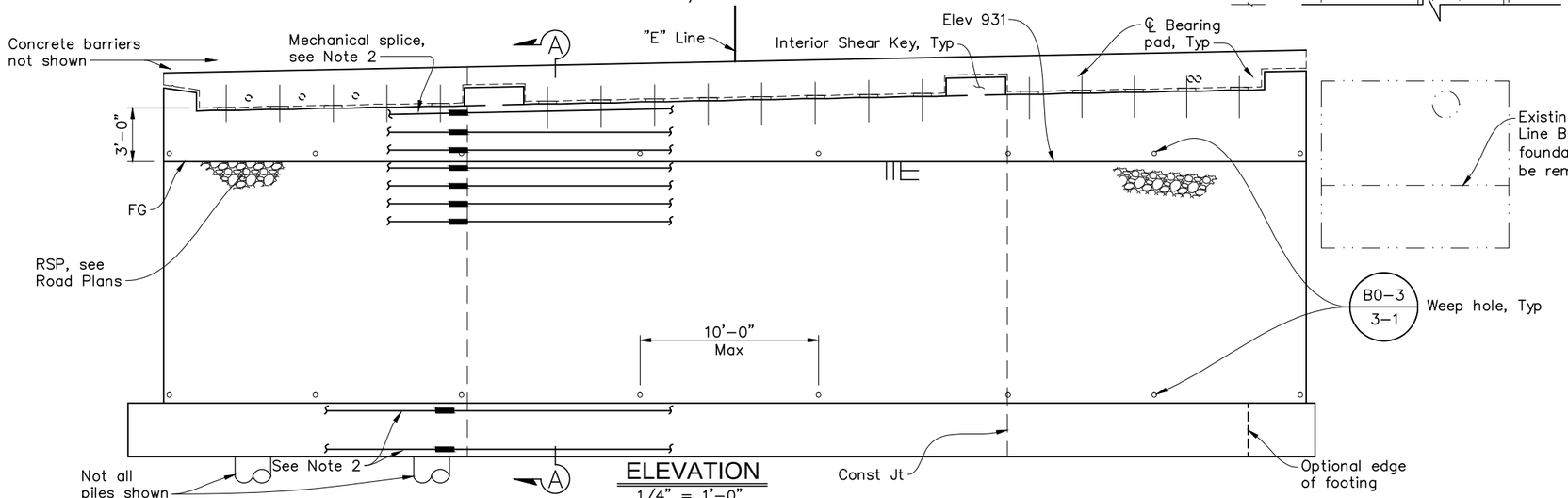
NOTES:

1. For sections and details not shown, see "Abutment 1 Layout" and Abutment Details sheets.
2. All abutment and footing reinforcement through construction joint shall be joined by mechanical couplers.
3. For soil nail details, see "Abutment Details No. 2" sheet.

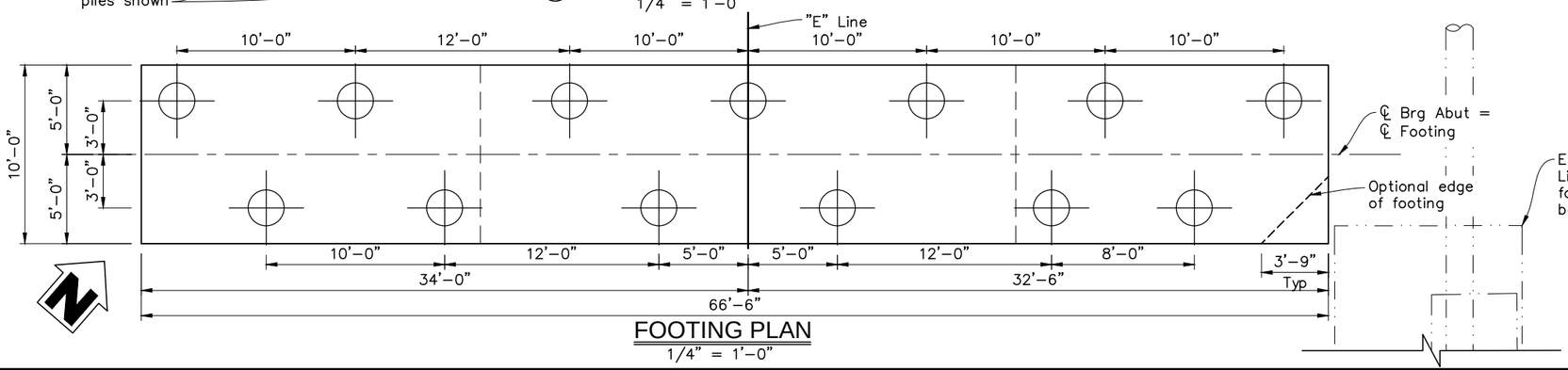
* Denotes bars to be extended beyond construction joint to be lap spliced with Stage II.



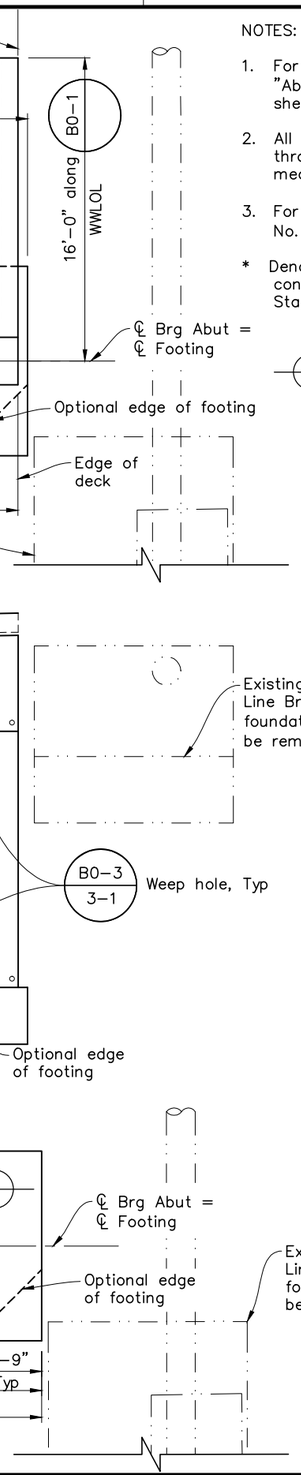
PLAN
1/4" = 1'-0"



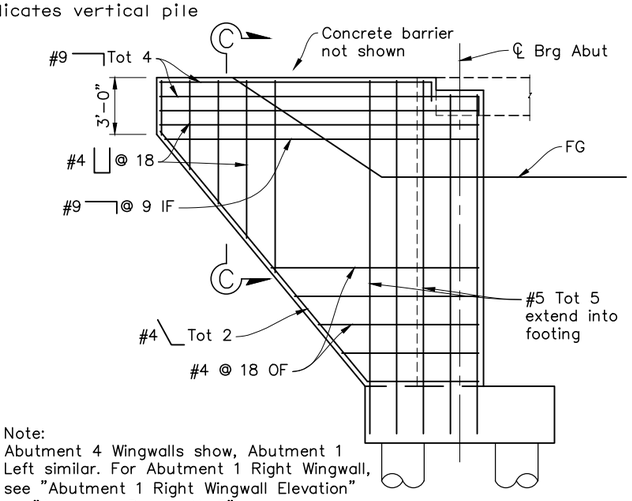
ELEVATION
1/4" = 1'-0"



FOOTING PLAN
1/4" = 1'-0"

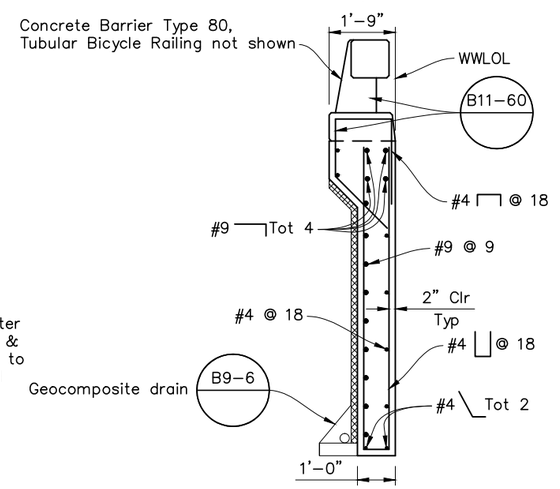


Legend:
Indicates vertical pile



Note:
Abutment 4 Wingwalls show, Abutment 1 Left similar. For Abutment 1 Right Wingwall, see "Abutment 1 Right Wingwall Elevation" on "Abutment Details No.2" sheet.

TYPICAL WINGWALL ELEVATION
1/4" = 1'-0"



SECTION C-C
1/2" = 1'-0"

DESIGN OVERSIGHT		DESIGN	BY J. Chou	CHECKED DES CHK	PREPARED FOR THE SAN LUIS OBISPO DEPARTMENT OF PUBLIC WORKS
SIGN OFF DATE		DETAILS	BY R. Kotey	CHECKED DET CHK	Mario Quest, PROJECT ENGINEER
		QUANTITIES	BY QTY BY	CHECKED QTY CHK	BRIDGE NO. 49C0474; POST MILE ----

SANTA MARGARITA CREEK BRIDGE REPLACEMENT

ABUTMENT 4 LAYOUT

DESIGN DETAIL SHEET (ENGLISH) (REV.7/16/10)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: UNIT
PROJECT NUMBER & PHASE: S13201 CONTRACT NO.: CONTRACT

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES				SHEET	OF
10/28/15				6	19

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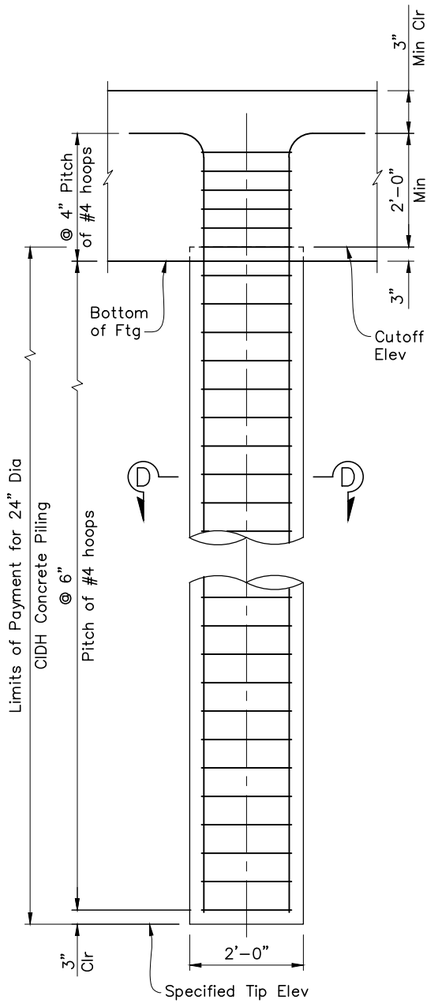
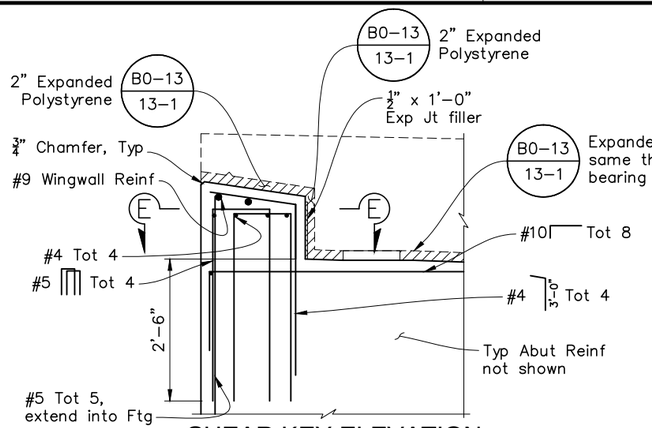
DATE PLOTTED 11/1/2018 4:06:10 PM
USERNAME Salimb



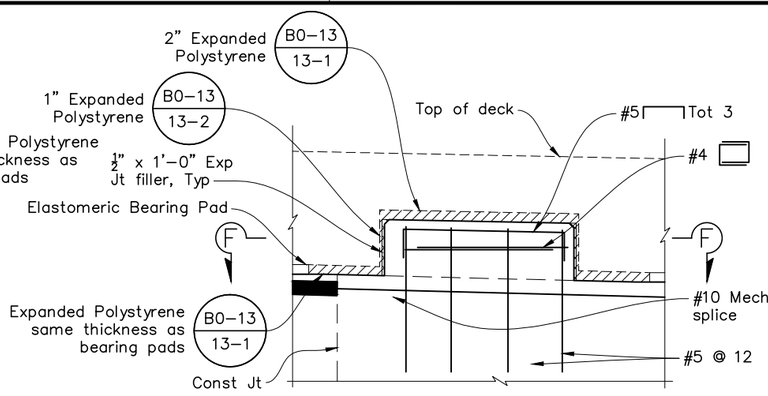
24" Dia CIDH PILE DETAIL

3/4" = 1'-0"



SHEAR KEY ELEVATION

3/4" = 1'-0"

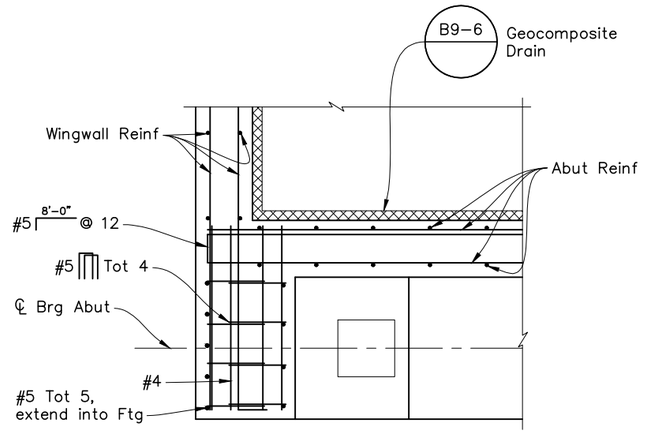


INTERIOR SHEAR KEY ELEVATION

3/4" = 1'-0"

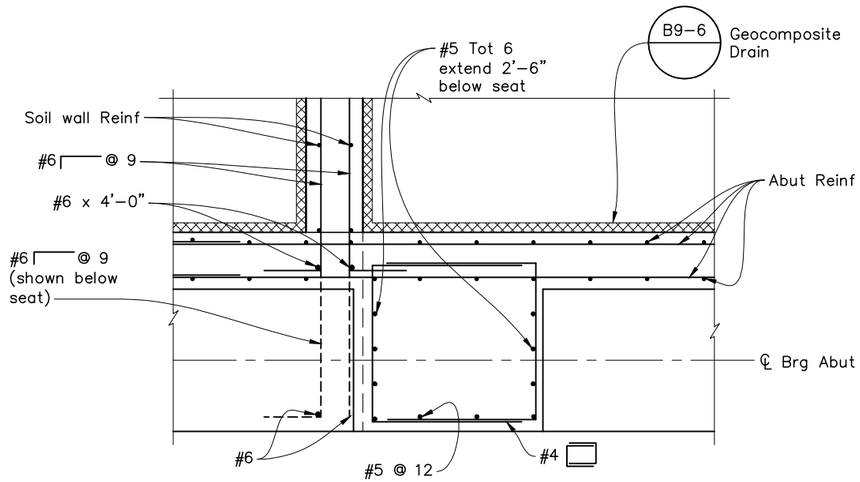
NOTES:

1. Inspection tubes must be no more than 1" clear of outermost hoop.



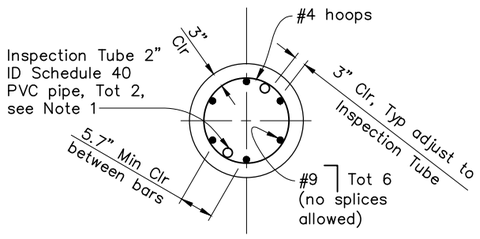
SECTION E-E

3/4" = 1'-0"



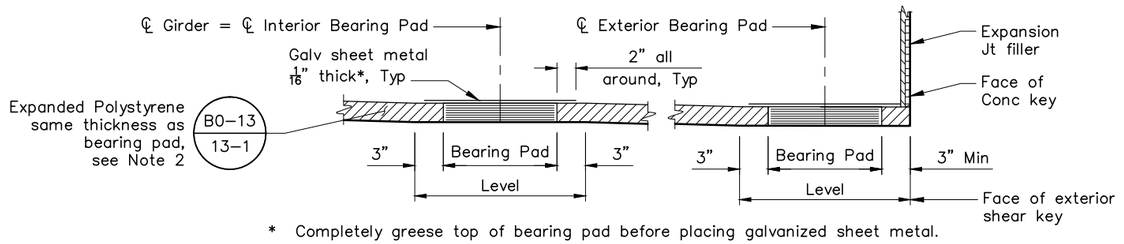
SECTION F-F

3/4" = 1'-0"



SECTION D-D

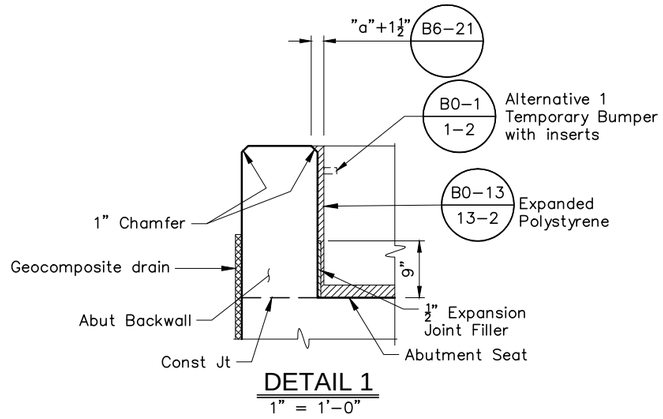
3/4" = 1'-0"



* Completely greese top of bearing pad before placing galvanized sheet metal.

BEARING PAD DETAIL

No Scale



DETAIL 1

1" = 1'-0"

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
5	SLO	CR	---- ----	56	68

65% SUBMITTAL

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

REGISTERED PROFESSIONAL ENGINEER — Jason H Chou — No. C74835 — Exp. 12/31/19 — CIVIL — STATE OF CALIFORNIA

QUINCY ENGINEERING
11017 COBBLEROCK DRIVE, SUITE 100
RANCHO CORDOVA, CA 95670
P: 916.368.9181

DESIGN OVERSIGHT

SIGN OFF DATE

DESIGN DETAIL SHEET (ENGLISH) (REV.7/16/10)

	BY	CHECKED
DESIGN	J. CHOU	DES CHK
DETAILS	R. KOTEY	DET CHK
QUANTITIES	QTY BY	QTY CHK

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

PREPARED FOR THE SAN LUIS OBISPO DEPARTMENT OF PUBLIC WORKS

Mario Quest
PROJECT ENGINEER

BRIDGE NO. 49C0474
POST MILE ----

SANTA MARGARITA CREEK BRIDGE REPLACEMENT

ABUTMENT DETAILS NO.1

UNIT: UNIT
PROJECT NUMBER & PHASE: S13201 CONTRACT NO.: CONTRACT

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES				SHEET	OF
10/28/15				7	19

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USERNAME Salimb

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
5	SLO	CR	---- ----	57	68

65% SUBMITTAL

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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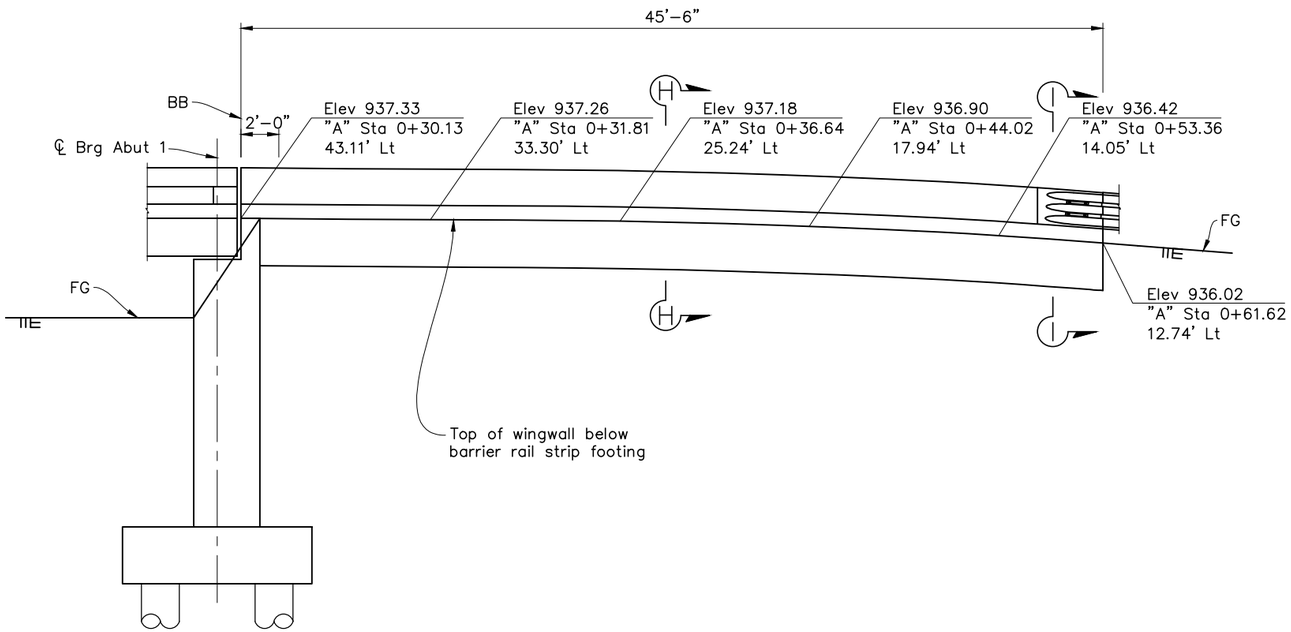
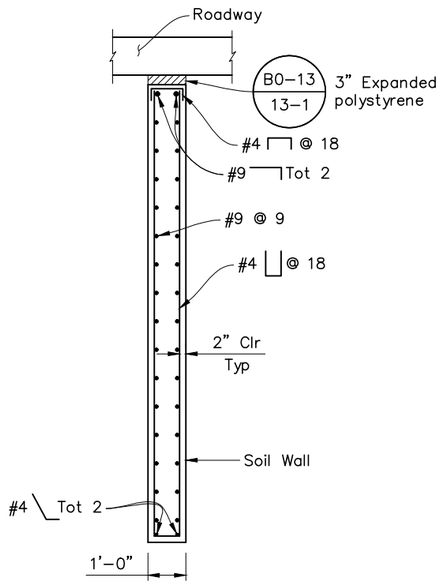
REGISTERED PROFESSIONAL ENGINEER — Jason H Chou — No. C74835 — Exp. 12/31/19 CIVIL — STATE OF CALIFORNIA

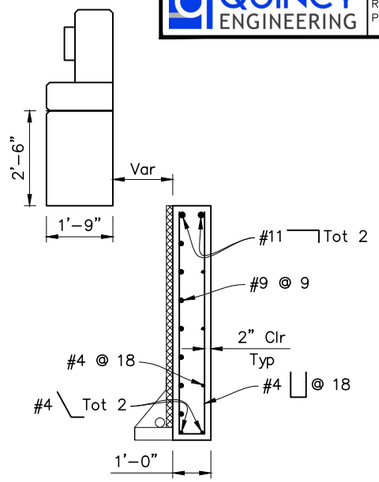
QUINCY ENGINEERING
11017 COBBLEROCK DRIVE, SUITE 100
RANCHO CORDOVA, CA 95670
P: 916.368.9181



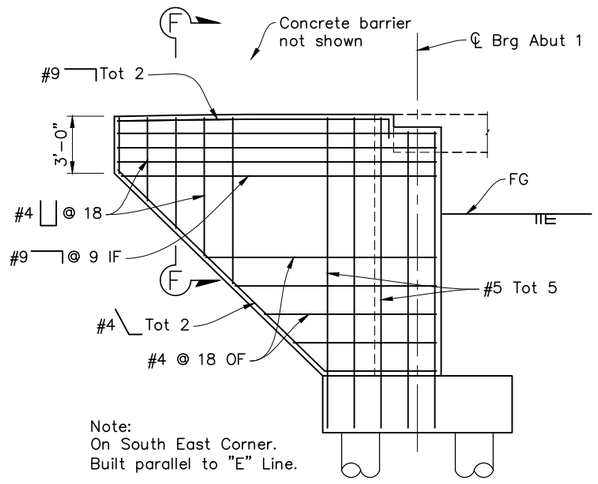
DEVELOPED VIEW G-G
1/4" = 1'-0"



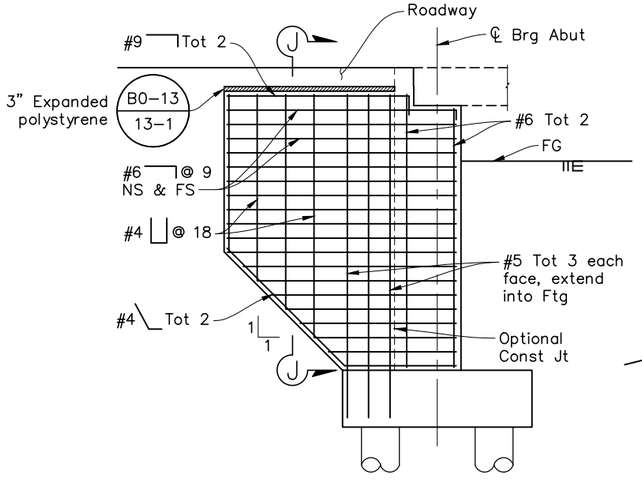
SECTION J-J
1/2" = 1'-0"



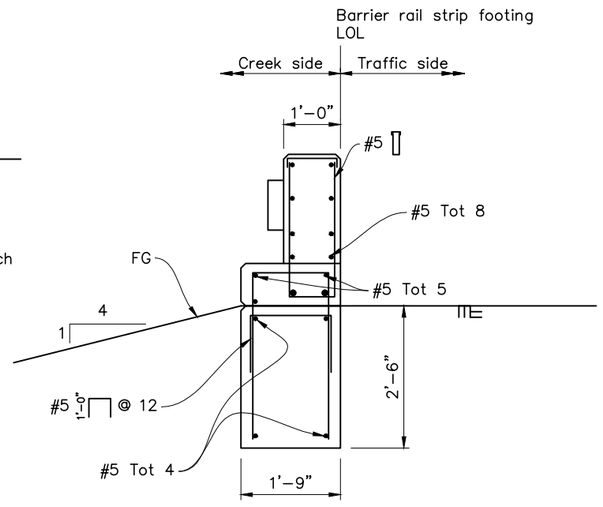
SECTION F-F
1/2" = 1'-0"



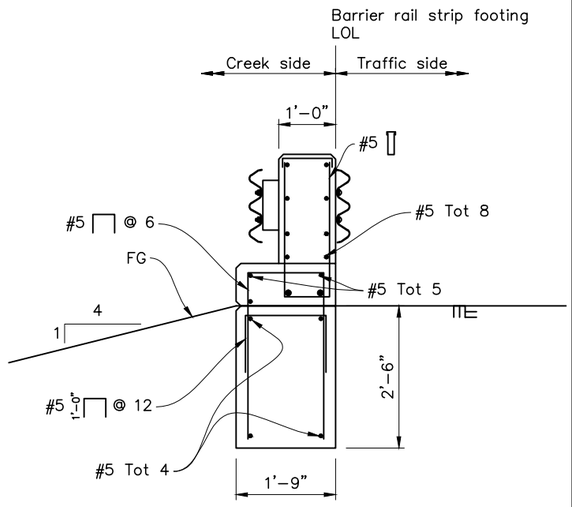
ABUTMENT 1 LEFT & ABUTMENT 4 WINGWALL ELEVATION
1/4" = 1'-0"



SOIL WALL ELEVATION
1/4" = 1'-0"



SECTION H-H
3/4" = 1'-0"



SECTION I-I
3/4" = 1'-0"

DESIGN OVERSIGHT		DESIGN	BY J. CHOU	CHECKED DES CHK	PREPARED FOR THE SAN LUIS OBISPO DEPARTMENT OF PUBLIC WORKS	Mario Quest PROJECT ENGINEER	BRIDGE NO. 49C0474
SIGN OFF DATE		DETAILS	BY R. KOTEY	CHECKED DET CHK			POST MILE ----
		QUANTITIES	BY QTY BY	CHECKED QTY CHK			

SANTA MARGARITA CREEK BRIDGE REPLACEMENT

ABUTMENT DETAILS NO.2

DESIGN DETAIL SHEET (ENGLISH) (REV.7/16/10)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: UNIT
PROJECT NUMBER & PHASE: S13201 CONTRACT NO.: CONTRACT

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES				SHEET	OF
10/28/15				8	19

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TIME PLOTTED 4:06:30 PM
DATE PLOTTED 11/1/2018 4:06:30 PM
USERNAME Salmb

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
5	SLO	CR	---- ----	58	68

65% SUBMITTAL

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
Jason H Chou
No. C74835
Exp. 12/31/19
CIVIL
STATE OF CALIFORNIA

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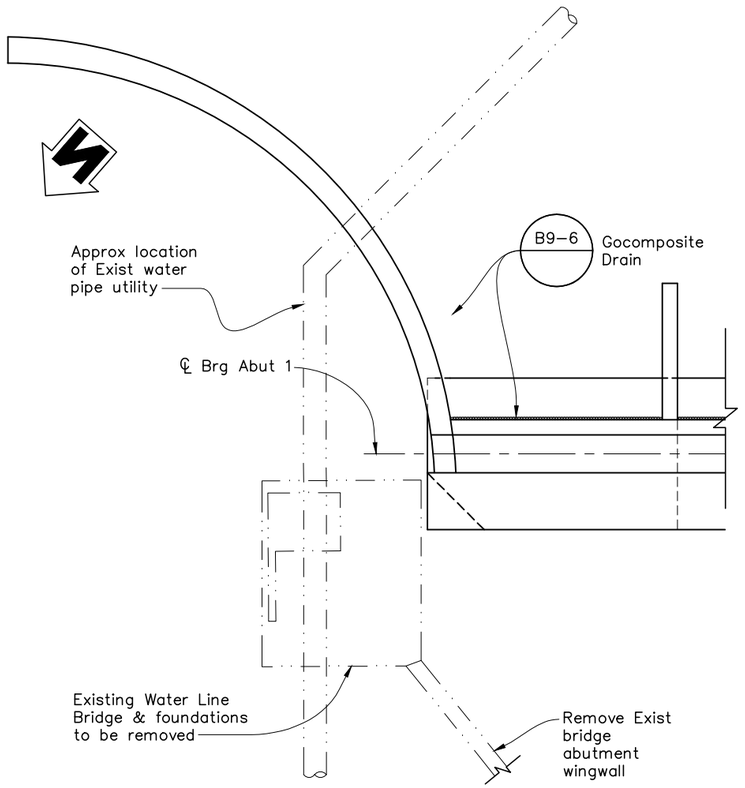
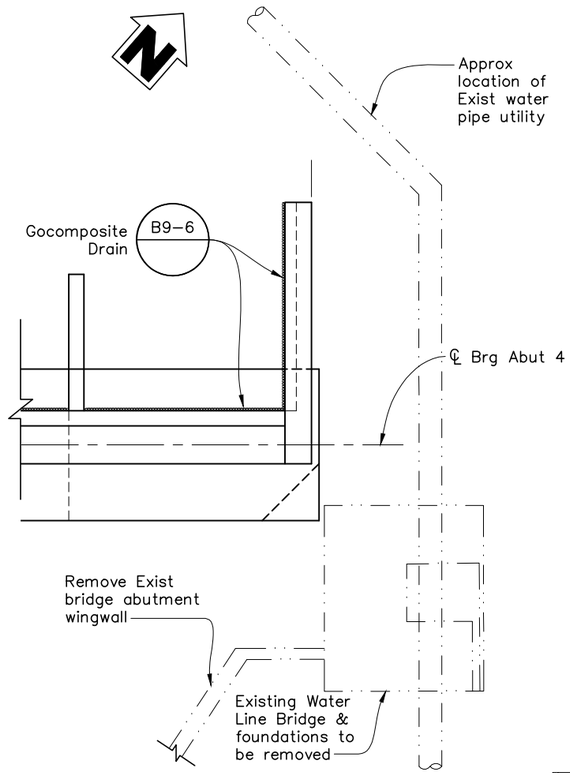
RANCHO CORDOVA, CA 95670
P: 916.368.9181



RETAINING WALL AT ABUT 1
3/4" = 1'–0"



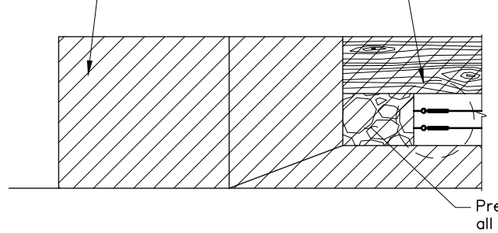
RETAINING WALL AT ABUT 4
3/4" = 1'–0"

Rock Texture

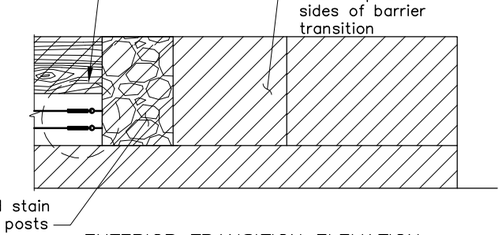
Timber Beam Texture

Prepare and Stain Concrete

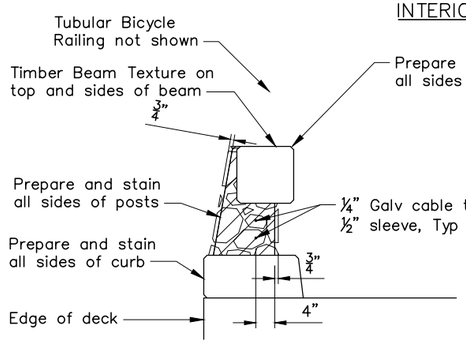
Exclude stain and texture on inside faces of joint posts



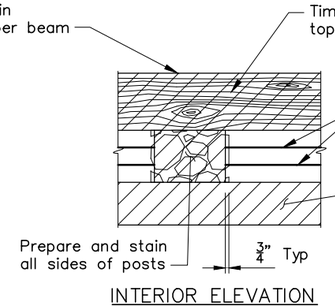
INTERIOR TRANSITION ELEVATION



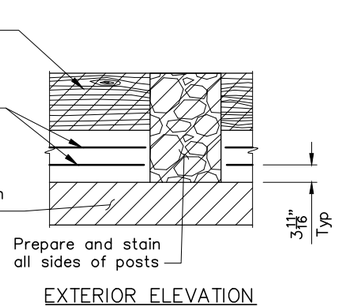
EXTERIOR TRANSITION ELEVATION



SECTION VIEW



INTERIOR ELEVATION



EXTERIOR ELEVATION

CONCRETE BARRIER (TYPE 80) (MOD) ARCHITECTURAL TREATMENT DETAILS

3/4" = 1'–0"

DESIGN OVERSIGHT		DESIGN	BY J. CHOU	CHECKED DES CHK	PREPARED FOR THE SAN LUIS OBISPO DEPARTMENT OF PUBLIC WORKS	BRIDGE NO. 49C0474
SIGN OFF DATE		DETAILS	BY R. Kotey	CHECKED DET CHK	Mario Quest PROJECT ENGINEER	POST MILE ----
		QUANTITIES	BY QTY BY	CHECKED QTY CHK		

SANTA MARGARITA CREEK BRIDGE REPLACEMENT

ABUTMENT DETAILS NO.3

DESIGN DETAIL SHEET (ENGLISH) (REV.7/16/10)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: UNIT
PROJECT NUMBER & PHASE: S13201 CONTRACT NO.: CONTRACT

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES				SHEET	OF
10/28/15				9	19

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USERNAME Salimb

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
5	SLO	CR	---- ----	59	68

65% SUBMITTAL

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
Jason H Chou
No. C74835
Exp. 12/31/19
CIVIL
STATE OF CALIFORNIA

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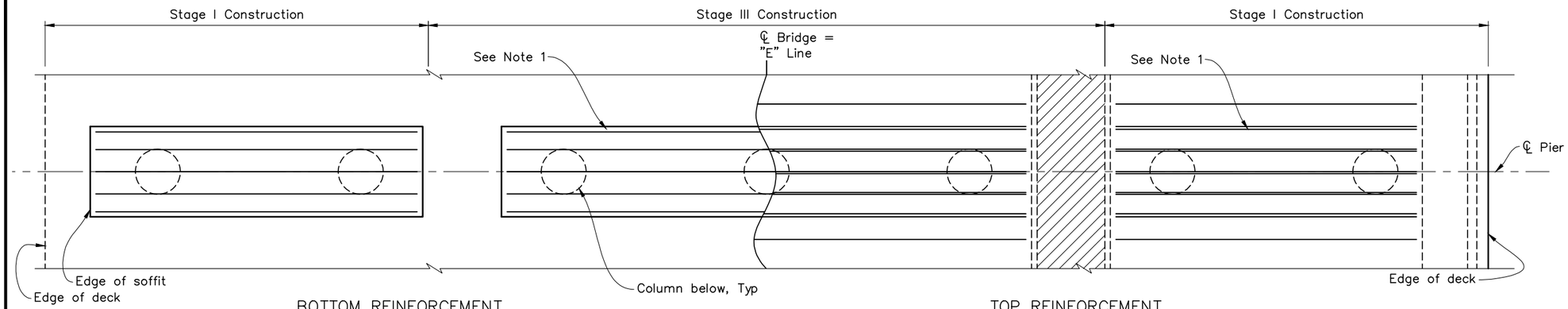
NOTES:

1. No splice allowed in #8 top and bottom cap reinforcement within each construction stage.

Denotes closure pour

PS Ducts

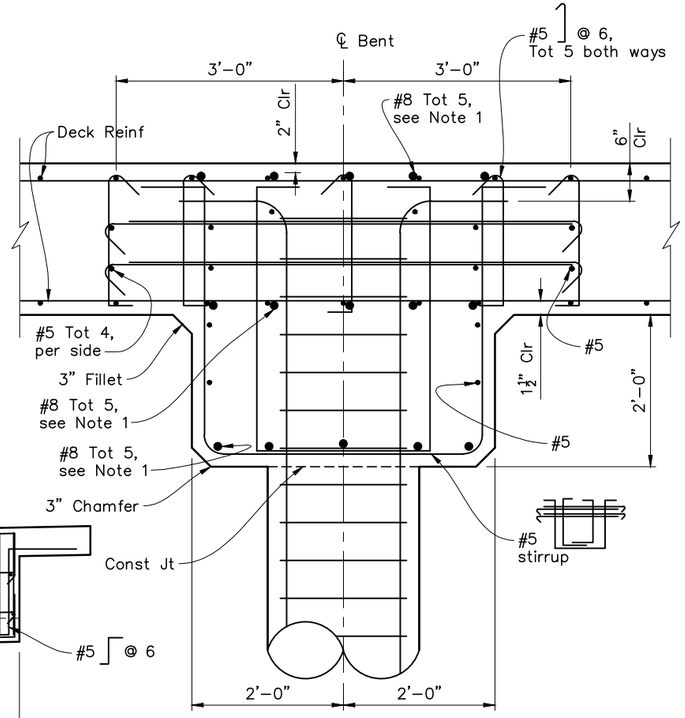
Utilities



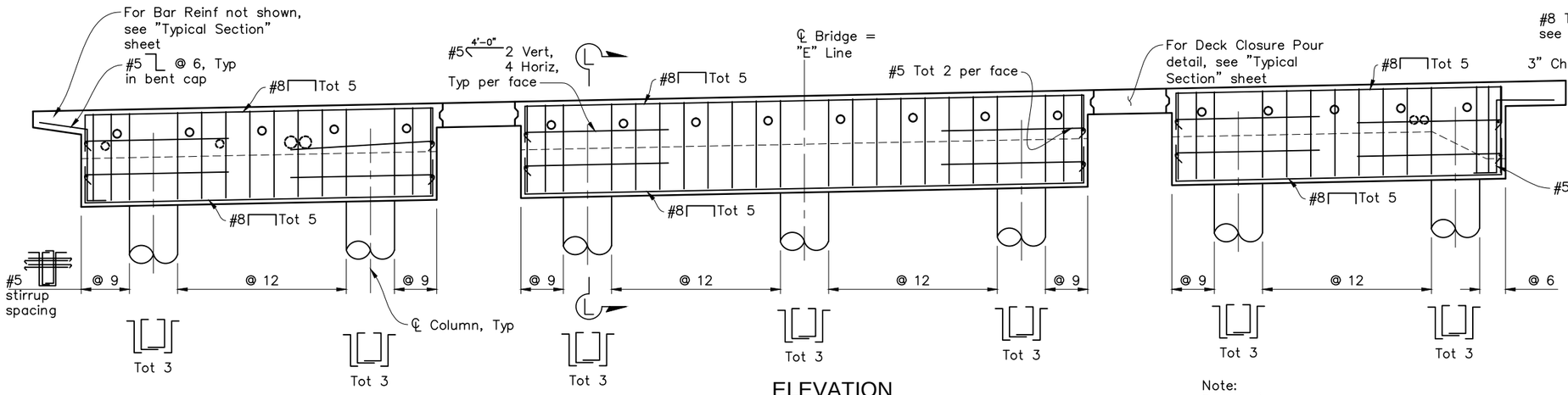
BOTTOM REINFORCEMENT

TOP REINFORCEMENT

PLAN
3/8" = 1'-0"



SECTION L-L
1" = 1'-0"



ELEVATION
3/8" = 1'-0"

Note:
For reinforcement not shown, see "Typical Section" sheet.

DESIGN OVERSIGHT		DESIGN	BY G. MCLAUGHLIN	CHECKED DES CHK	PREPARED FOR THE SAN LUIS OBISPO DEPARTMENT OF PUBLIC WORKS
SIGN OFF DATE		DETAILS	BY R. KOTEY	CHECKED DET CHK	Mario Quest PROJECT ENGINEER
		QUANTITIES	BY QTY BY	CHECKED QTY CHK	BRIDGE NO. 49C0474 POST MILE ----

SANTA MARGARITA CREEK BRIDGE REPLACEMENT

PIER DETAILS No.1

DESIGN DETAIL SHEET (ENGLISH) (REV.7/16/10)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: UNIT
PROJECT NUMBER & PHASE: S13201 CONTRACT NO.: CONTRACT

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES				SHEET	OF
10/28/15				10	19

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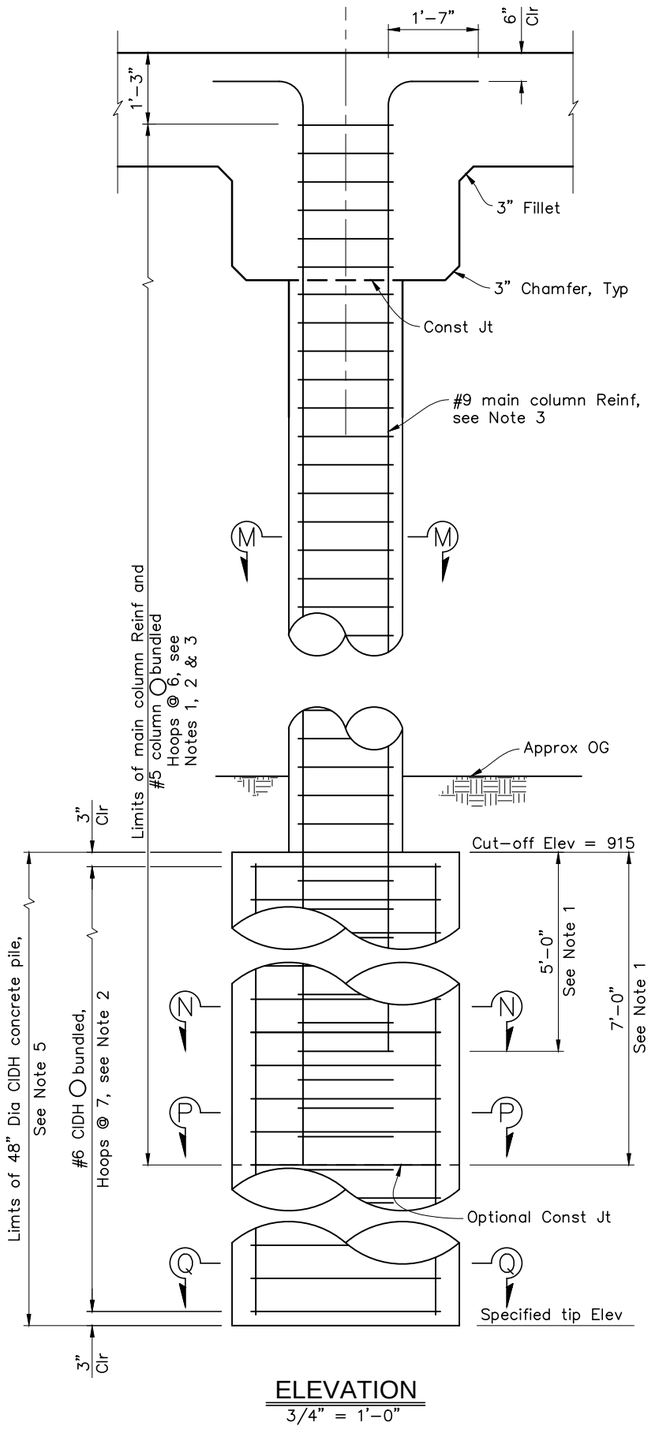
DATE PLOTTED 11/1/2018 4:06:45 PM
USERNAME Salmb



ELEVATION
3/4" = 1'-0"

NOTES:

1. Terminate 5 bars of the 10 main column bars at the location show.
2. All hoops shall be "Ultimate" butt splice continuous.
3. No splices allowed in any region of main column reinforcement.
4. Inspection tube must be no more than 1" clear of outer most hoop.
5. Splices in main CIDH reinforcement shall be "Ultimate" butt splices and in the lower $\frac{1}{3}$" of the shaft.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
5	SLO	CR	---- ----	60	68

65% SUBMITTAL

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
Jason H Chou
No. C74835
Exp. 12/31/19
CIVIL
STATE OF CALIFORNIA

QUINCY ENGINEERING
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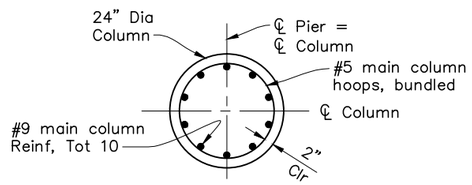
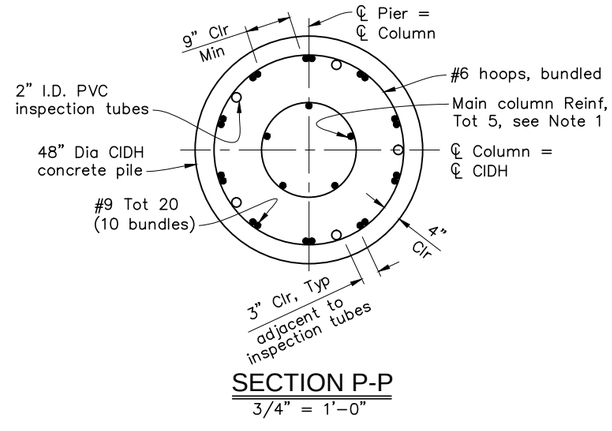
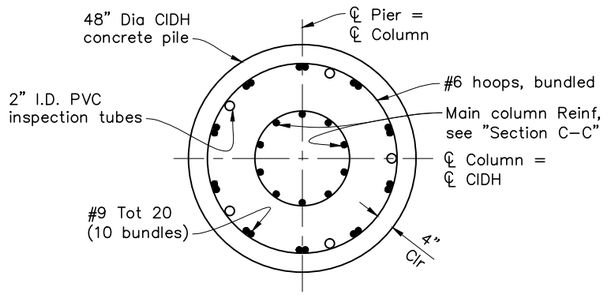


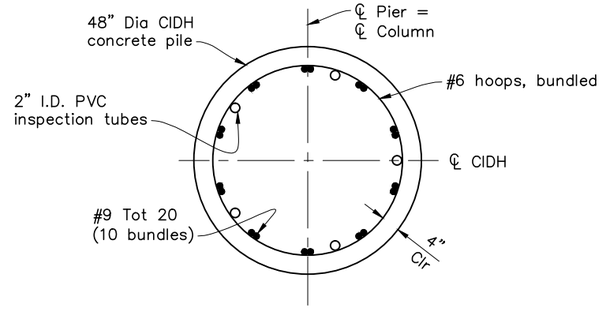
SECTION M-M
3/4" = 1'-0"



SECTION P-P
3/4" = 1'-0"



SECTION N-N
3/4" = 1'-0"



SECTION Q-Q
3/4" = 1'-0"

DESIGN OVERSIGHT		DESIGN	BY J. CHOU	CHECKED DES CHK	PREPARED FOR THE SAN LUIS OBISPO DEPARTMENT OF PUBLIC WORKS
SIGN OFF DATE		DETAILS	BY R. KOTEY	CHECKED DET CHK	Mario Quest, PROJECT ENGINEER
DESIGN DETAIL SHEET (ENGLISH) (REV.7/16/10)		QUANTITIES	BY QTY BY	CHECKED QTY CHK	BRIDGE NO. 49C0474, POST MILE ----

SANTA MARGARITA CREEK BRIDGE REPLACEMENT

PIER DETAILS No.2

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: UNIT
PROJECT NUMBER & PHASE: S13201 CONTRACT NO.: CONTRACT

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES				SHEET	OF
10/28/15				11	19

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
5	SLO	CR	---- ----	61	68

65% SUBMITTAL

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — Jason H Chou — No. C74835 — Exp. 12/31/19 — CIVIL — STATE OF CALIFORNIA

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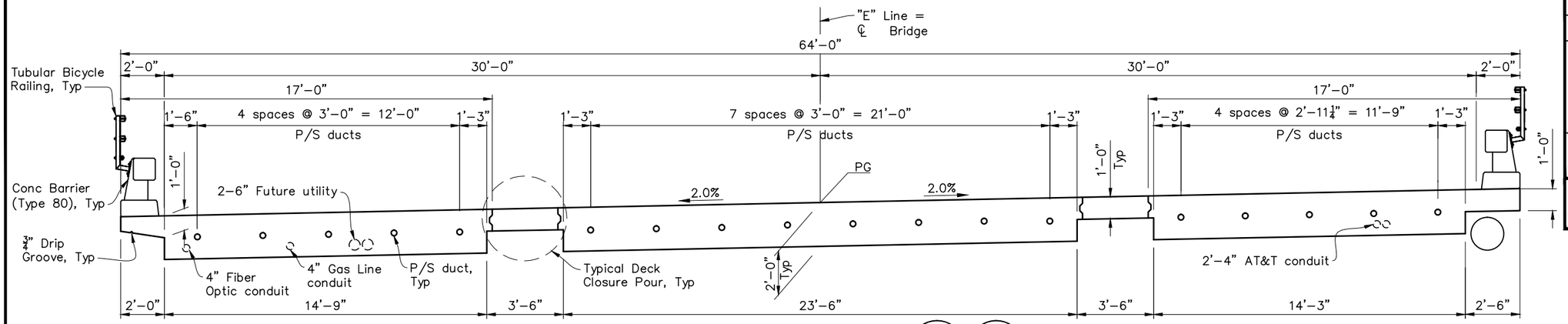


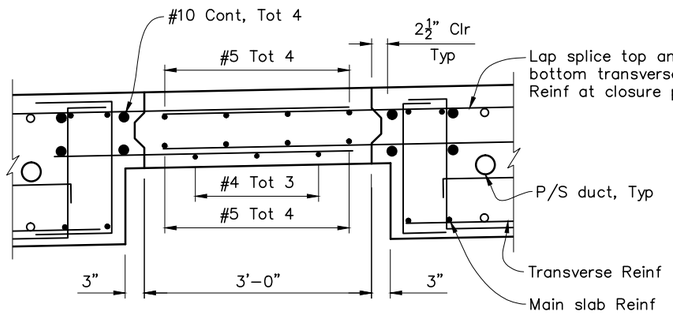
TYPICAL SECTION

3/8"=1'-0"

B7-1 / B-1 — B11-60

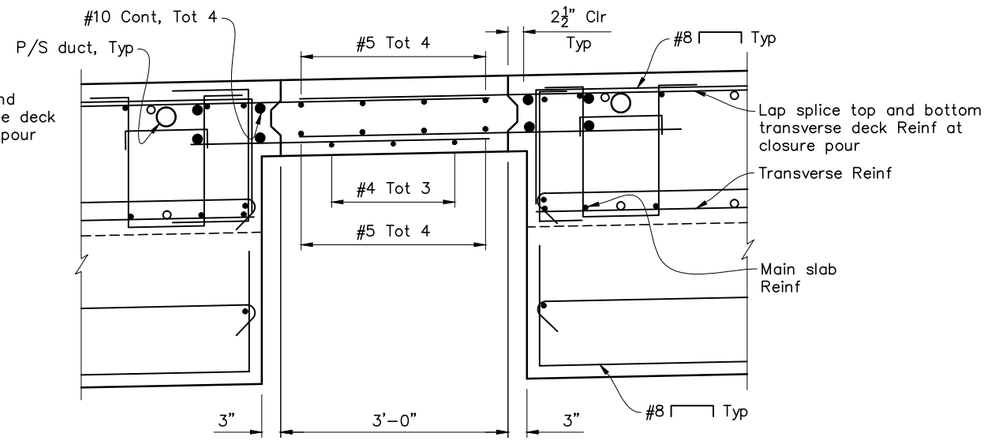
NOTES:

1. For Prestressing Notes, see "Superstructure Details No.1" sheet.
2. For addition reinforcement, see "Super Structure Details No.2" sheet.



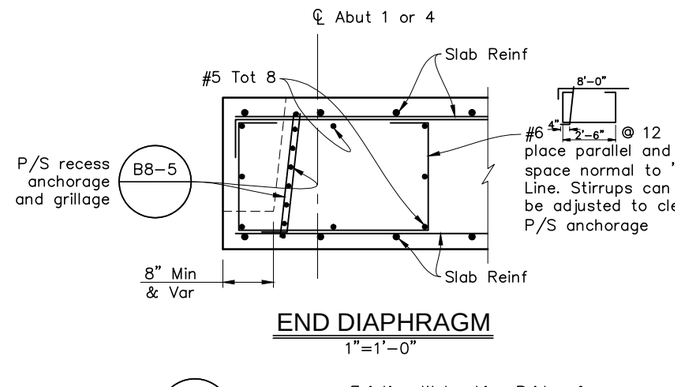
TYPICAL DECK CLOSURE POUR

1"=1'-0"



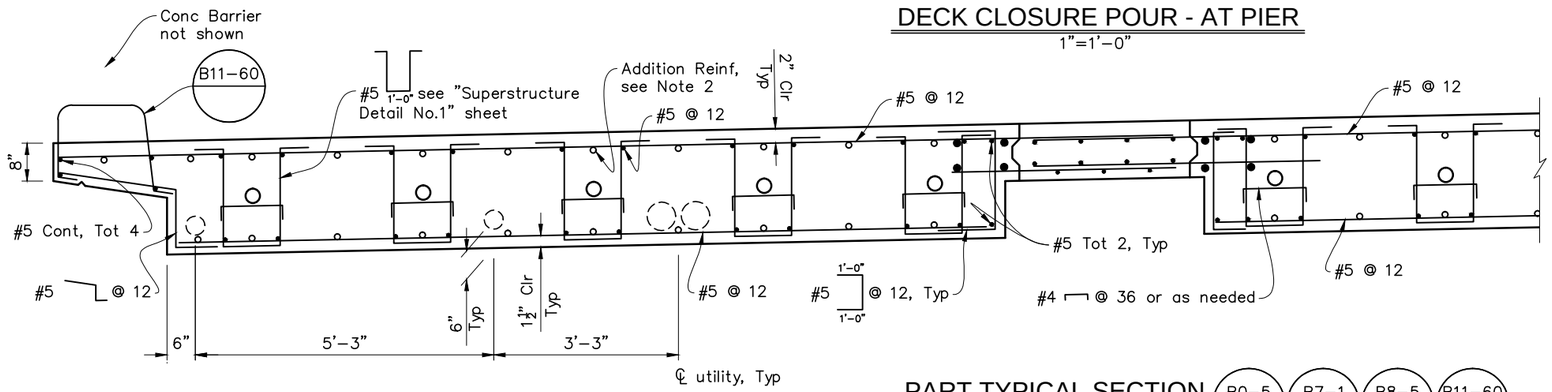
DECK CLOSURE POUR - AT PIER

1"=1'-0"



END DIAPHRAGM

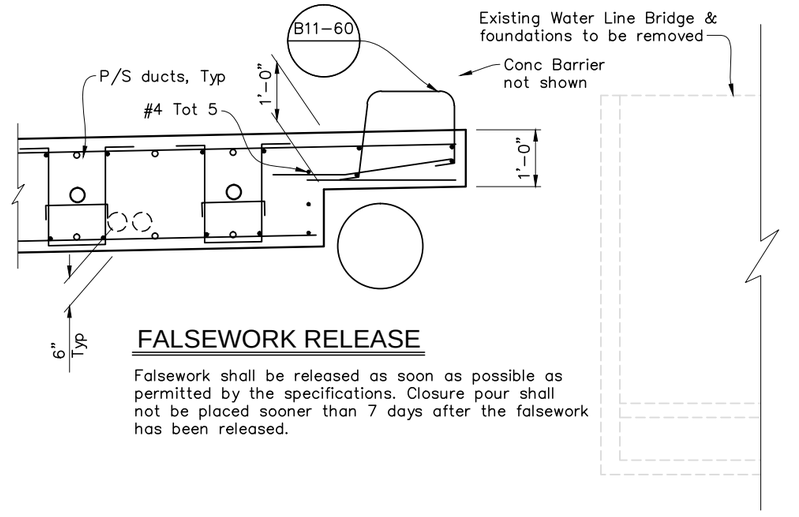
1"=1'-0"



PART TYPICAL SECTION

3/4"=1'-0"

B0-5 / B7-1 / B8-5 / B11-60



FALSEWORK RELEASE

Falsework shall be released as soon as possible as permitted by the specifications. Closure pour shall not be placed sooner than 7 days after the falsework has been released.

DESIGN OVERSIGHT / SIGN OFF DATE		DESIGN	BY J. CHOU	CHECKED DES CHK	PREPARED FOR THE SAN LUIS OBISPO DEPARTMENT OF PUBLIC WORKS	Mario Quest PROJECT ENGINEER	BRIDGE NO. 49C0474 / POST MILE ----	SANTA MARGARITA CREEK BRIDGE REPLACEMENT
		DETAILS	BY R. KOTEY	CHECKED DET CHK				TYPICAL SECTION
		QUANTITIES	BY QTY BY	CHECKED QTY CHK				

DESIGN DETAIL SHEET (ENGLISH) (REV.7/16/10)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: UNIT
PROJECT NUMBER & PHASE: S13201 CONTRACT NO.: CONTRACT

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES				SHEET	OF
10/28/15				12	19

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
5	SLO	CR	---- ----	62	68

65% SUBMITTAL

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — Jason H Chou — No. C74835 — Exp. 12/31/19 — CIVIL — STATE OF CALIFORNIA

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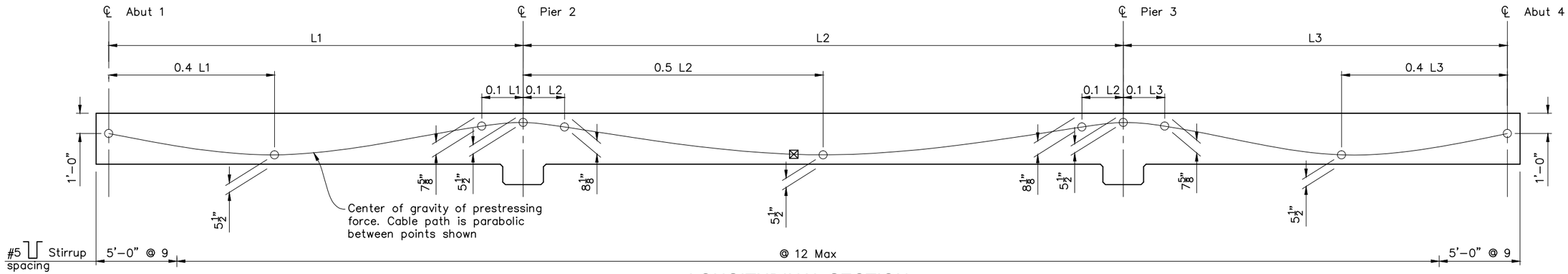
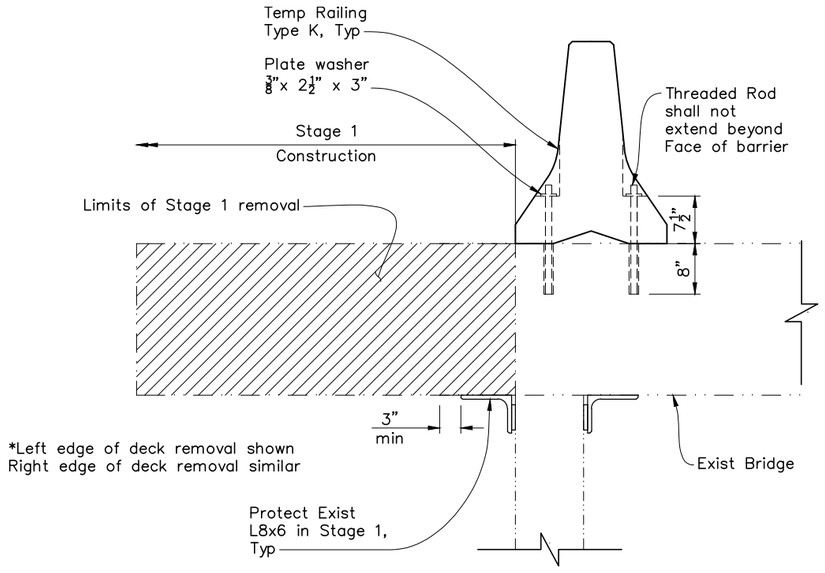


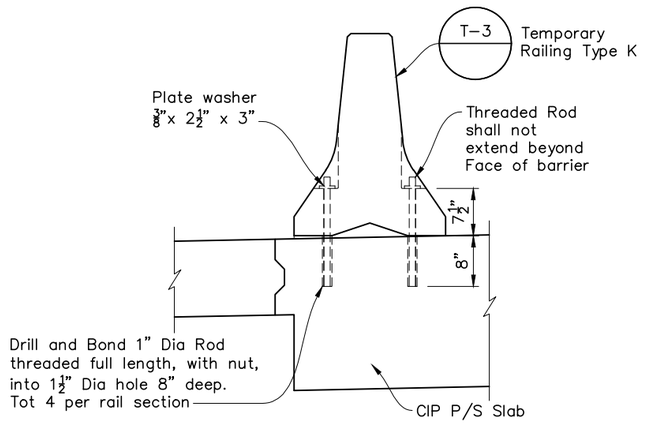
LONGITUDINAL SECTION

No Scale



EXISTING BRIDGE REMOVAL PORTION

NO SCALE



TEMPORARY RAILING

1"=1'-0"

PRESTRESSING NOTES

270 KSI Low Relaxation Strand:

	Stage 1 Left Structure	Stage 1 Right Structure	Stage 3
P_{jack}	= 2,390 kips	= 2,390 kips	= 3,820 kips
Anchor set	= ⅜ in	= ⅜ in	= ⅜ in
Total Number of P/S ducts	= 5	= 5	= 8

Distribution of prestress force (P_{jack}) between ducts shall not exceed the ratio of 10:9.
Maximum final force variation between ducts shall not exceed 300 kips.
Concrete: f'_c =4500 psi @ 28 days

f'_{ci} =4000 psi @ time of stressing

Contractor shall submit elongation calculations based on initial stress at

☒ =0.93 times jacking stress.

μ =15 K=0.0002

Jacking shall be performed from both ends.

DESIGN OVERSIGHT

SIGN OFF DATE

	BY	CHECKED
DESIGN	J. CHOU	DES CHK
DETAILS	R. KOTEY	DET CHK
QUANTITIES	QTY BY	QTY CHK

PREPARED FOR THE
SAN LUIS OBISPO
DEPARTMENT OF PUBLIC WORKS

Mario Quest
PROJECT ENGINEER

BRIDGE NO. 49C0474
POST MILE ----

SANTA MARGARITA CREEK BRIDGE REPLACEMENT

SUPERSTRUCTURE DETAILS NO.1

DESIGN DETAIL SHEET (ENGLISH) (REV.7/16/10)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: UNIT
PROJECT NUMBER & PHASE: S13201 CONTRACT NO.: CONTRACT

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES				SHEET	OF
10/28/15				13	19

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NOTES:

1. No splices permitted in additional slab reinforcement.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
5	SLO	CR	---- ----	63	68

65% SUBMITTAL

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No. C74835
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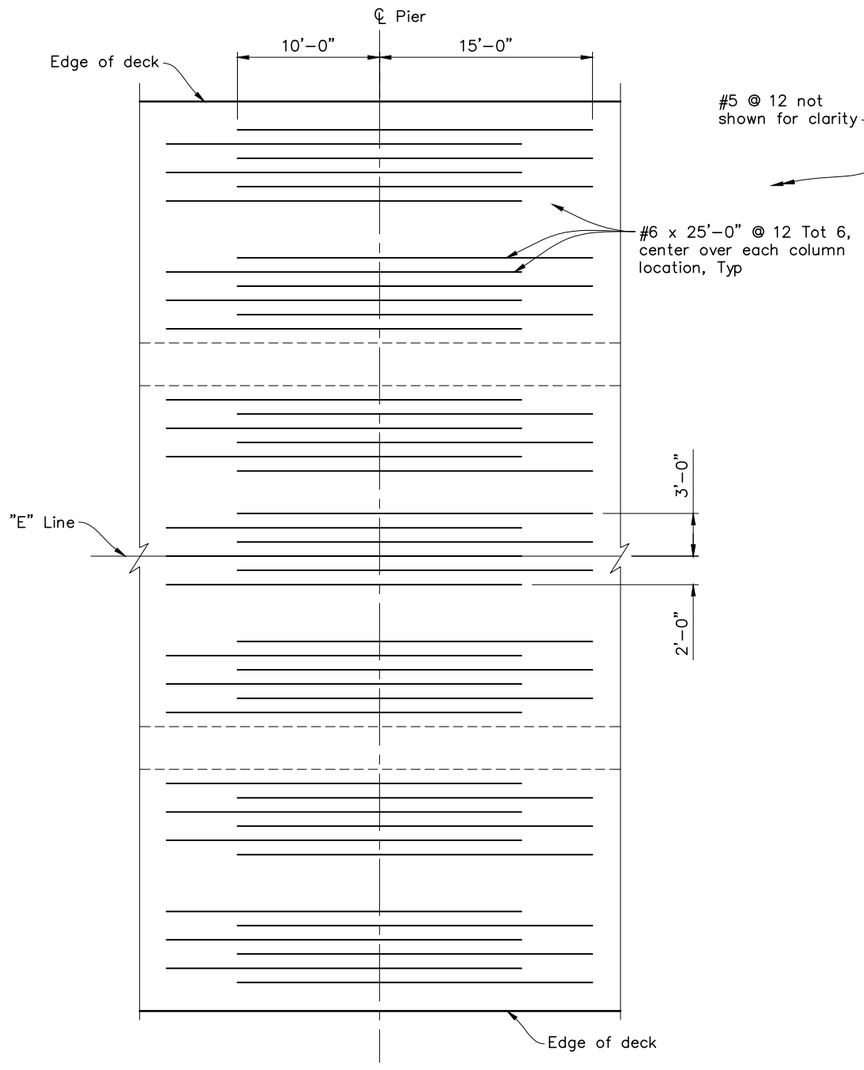
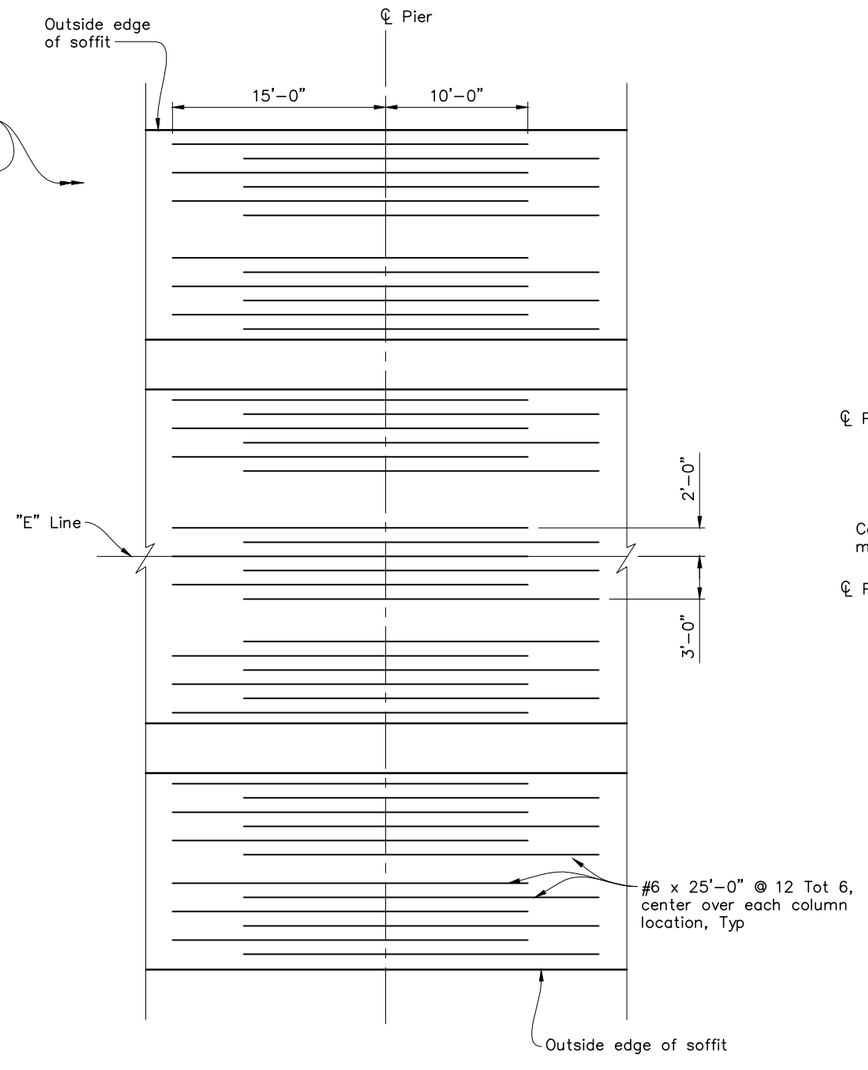


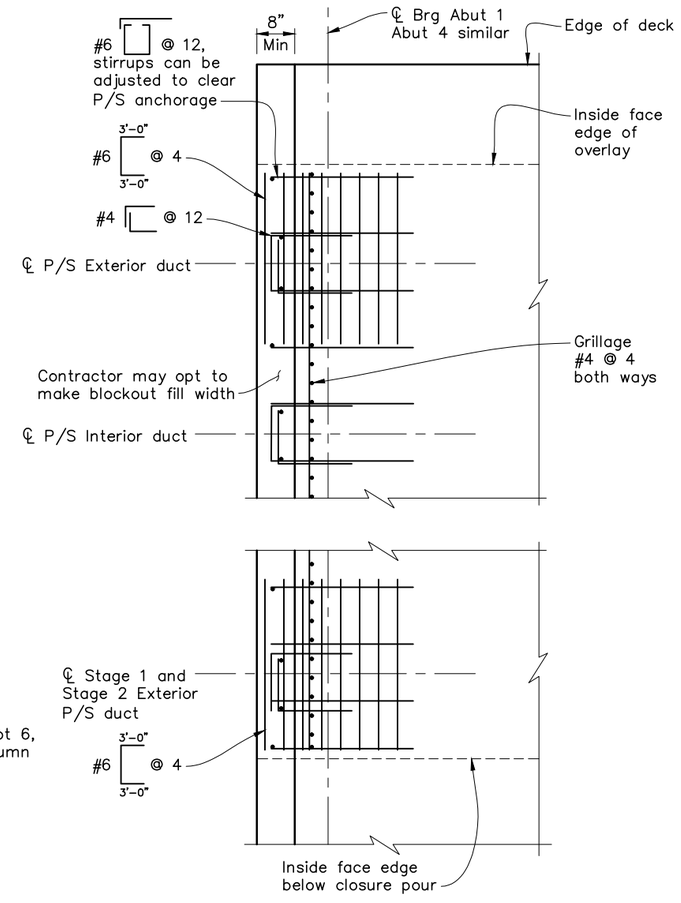
TOP SLAB ADDITIONAL REINFORCMENT (PIERS 2 & 3)
3/16" = 1'–0"

PLAN



BOTTOM SLAB ADDITIONAL REINFORCMENT (PIERS 2 & 3)
3/16" = 1'–0"

PLAN



ANCHORAGE REINFORCEMENT DETAIL B8–5
NO SCALE

DESIGN OVERSIGHT SIGN OFF DATE		DESIGN	BY J. CHOU	CHECKED DES CHK	PREPARED FOR THE SAN LUIS OBISPO DEPARTMENT OF PUBLIC WORKS	Mario Quest PROJECT ENGINEER	BRIDGE NO. 49C0474 POST MILE ----
		DETAILS	BY R. KOTEY	CHECKED DET CHK			SANTA MARGARITA CREEK BRIDGE REPLACEMENT
		QUANTITIES	BY QTY BY	CHECKED QTY CHK			SUPERSTRUCTURE DETAILS NO.2

DESIGN DETAIL SHEET (ENGLISH) (REV.7/16/10)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: UNIT
PROJECT NUMBER & PHASE: S13201 CONTRACT NO.: CONTRACT

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES				SHEET	OF
10/28/15				14	19

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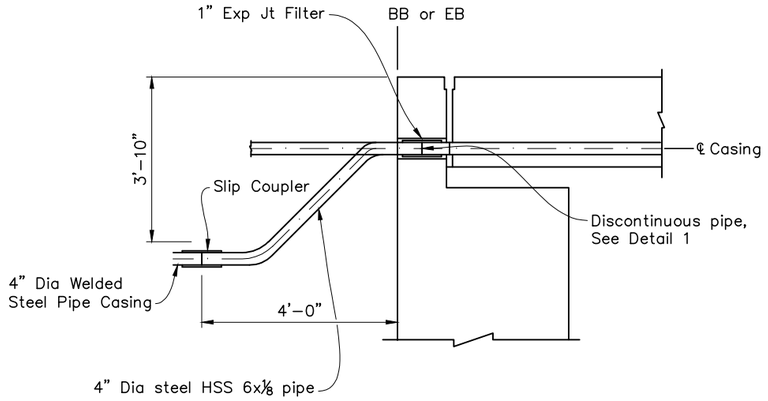
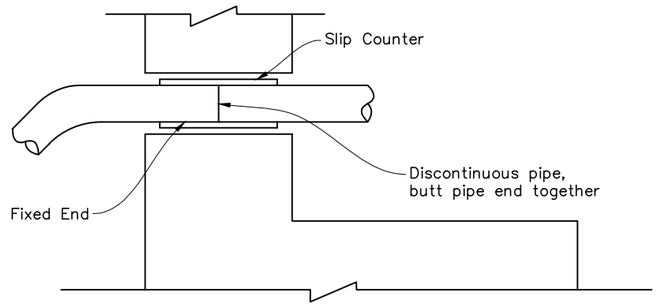
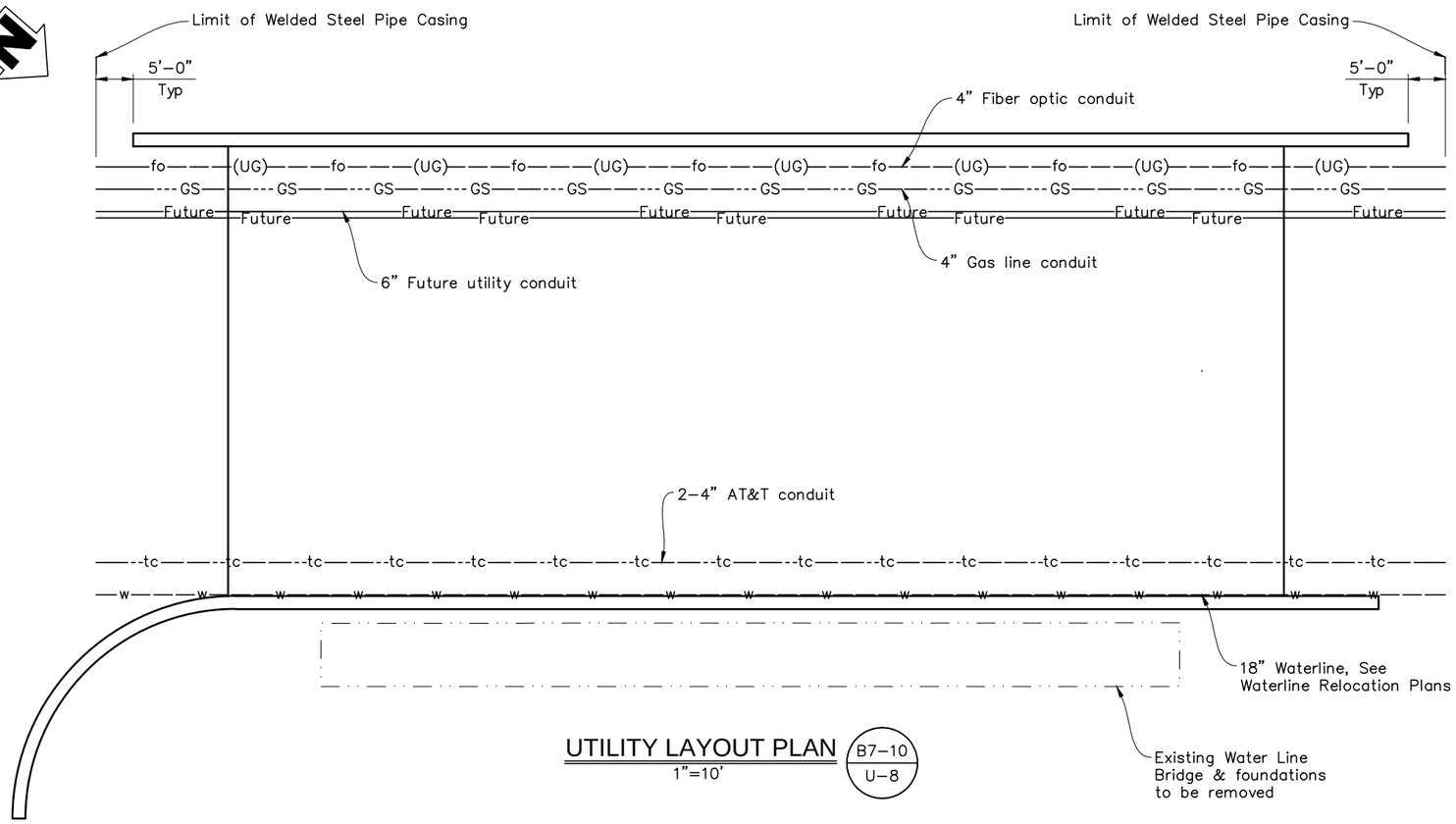
DATE PLOTTED 11/1/2018 4:07:11 PM
USERNAME Patrickk



UTILITY OPENING DETAIL
NO SCALE



DETAIL 1
NO SCALE



UTILITY LAYOUT PLAN
1"=10'

B7-10
U-8

Legend:

——--tc———--tc——— Indicates AT&T

—fo———(UG)——— Indicates fiber optic

————Future———— Indicates future utility

————---GS—————— Indicates gas line

——w———w——— Indicates 18" waterline

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
5	SLO	CR	____ ____	64	68

65% SUBMITTAL

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
Jason H Chou
No. C74835
Exp. 12/31/19
CIVIL
STATE OF CALIFORNIA

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QUINCY ENGINEERING
11017 COBBLEROCK DRIVE, SUITE 100
RANCHO CORDOVA, CA 95670
P: 916.368.9181

DESIGN	BY J. CHOU	CHECKED DES CHK	PREPARED FOR THE SAN LUIS OBISPO DEPARTMENT OF PUBLIC WORKS	Mario Quest, PROJECT ENGINEER
DETAILS	BY R. Kotey	CHECKED DET CHK		
QUANTITIES	BY QTY BY	CHECKED QTY CHK		

DESIGN OVERSIGHT

SIGN OFF DATE

BRIDGE NO. 49C0474

POST MILE ____

SANTA MARGARITA CREEK BRIDGE REPLACEMENT

SUPERSTRUCTURE DETAILS NO.3

DESIGN DETAIL SHEET (ENGLISH) (REV.7/16/10)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: UNIT
PROJECT NUMBER & PHASE: S13201 CONTRACT NO.: CONTRACT

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES				SHEET	OF
10/28/19				15	19

FILE S:\Client\SLO-County\S13-201-El Camino Real\CAD\bridge\S13201a-l-g_lo03.dwg

TIME PLOTTED 4:07:22 PM
DATE PLOTTED 11/1/2018 4:07:22 PM
USERNAME Salimb

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
5	SLO	CR	-----	65	68

65% SUBMITTAL X

REGISTERED CIVIL ENGINEER DATE

Jason H Chou
No. C74835
Exp. 12/31/19
CIVIL
REGISTERED PROFESSIONAL ENGINEER
STATE OF CALIFORNIA

PLANS APPROVAL DATE

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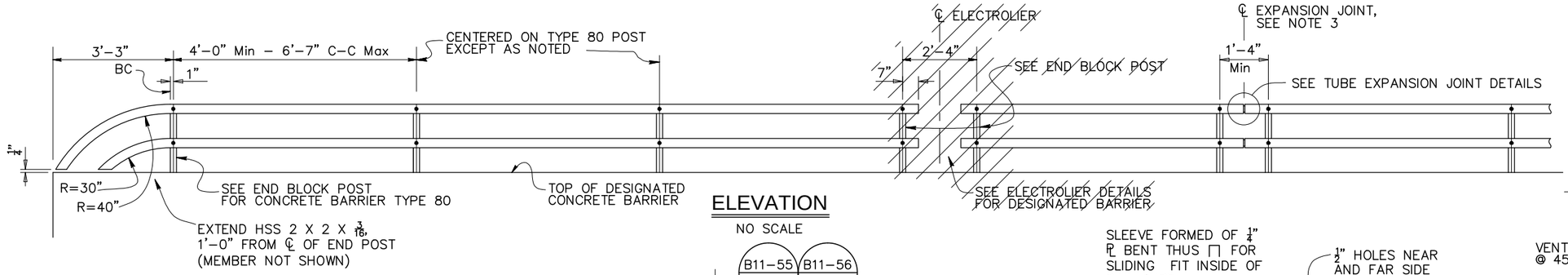
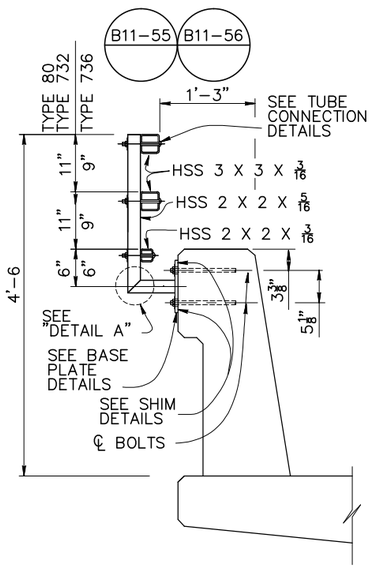
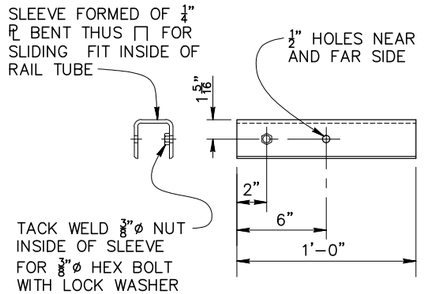


ELEVATION

NO SCALE





SLEEVE DETAIL

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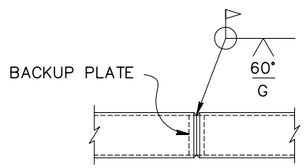
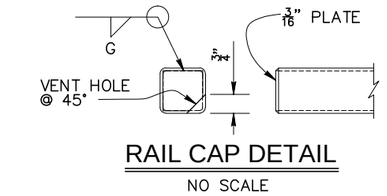


WELDED SPLICE DETAIL

NO SCALE



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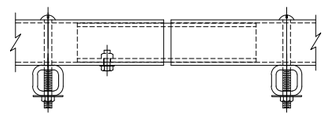
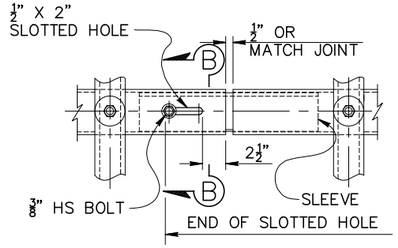


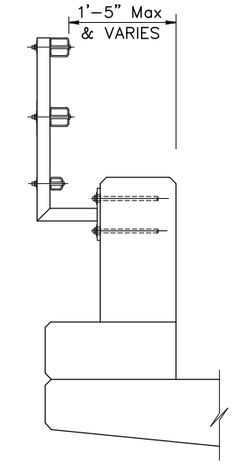


TUBE EXPANSION JOINT DETAILS

NO SCALE

SECTION B-B

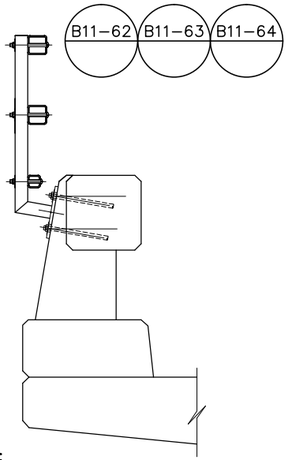
NO SCALE



NOTE:
For details not shown, see "TYPE 732 OR 736"

TYPE 80 END BLOCK POST

1" = 1'-0"



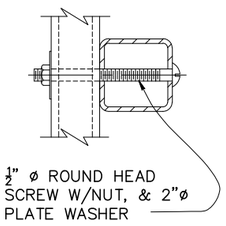
NOTE:
For details not shown, see "TYPE 732 OR 736"

TYPE 80

1" = 1'-0"

TYPE 732 OR 736

1" = 1'-0"



TUBE CONNECTION DETAIL

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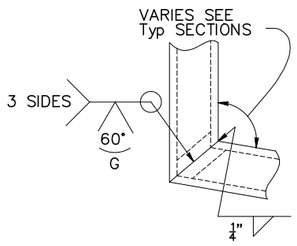
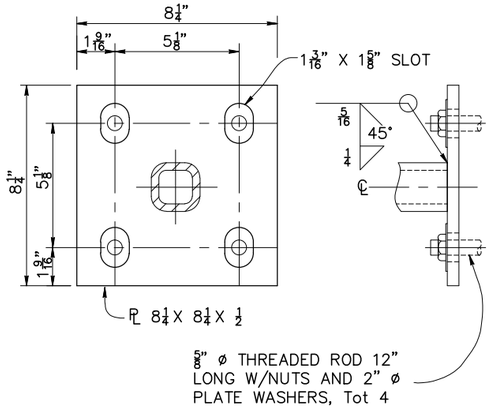


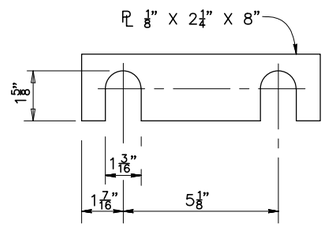
DETAIL A

NO SCALE



BASE PLATE DETAIL

NO SCALE



SHIM DETAILS

NO SCALE

NOTES:

1. Post must be normal to railing.
2. Rail tubes must be shop bent or fabricated to fit horizontal curve when radius is less than 950'.
3. Tube expansion joints must be located in the tubes spanning deck or wall joints. Increase joint width in tubes to match expansion joint width and increase sleeve length correspondingly.
4. Top rail tube must be continuous over not less than two posts except a short post spacing is permitted near deck or wall joints, electroliers, or other rail discontinuities as noted.
5. See Project Plans for limits of tubular bicycle railing.

STANDARD DRAWING		STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES
FILE NO. xs16-035	APPROVAL DATE October 2014		

BRIDGE NO. 49C0474
POST MILE -----

SANTA MARGARITA CREEK BRIDGE REPLACEMENT
CONCRETE BARRIER TYPE 80, 732 & 736
TUBULAR BICYCLE RAILING DETAILS

DS OSD 2147A (ENGLISH STANDARD DRAWING "XS" BORDER REV. (02-02-11)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: UNIT
PROJECT NUMBER & PHASE: S13201
CONTRACT NO.: CONTRACT

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES				SHEET	OF
10/28/15				16	19

FILE => $REQUEST

USERNAME => $USER DATE PLOTTED => $DATE TIME PLOTTED => $TIME

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
X	X	X			

REGISTERED CIVIL ENGINEER X DATE

PLANS APPROVAL DATE

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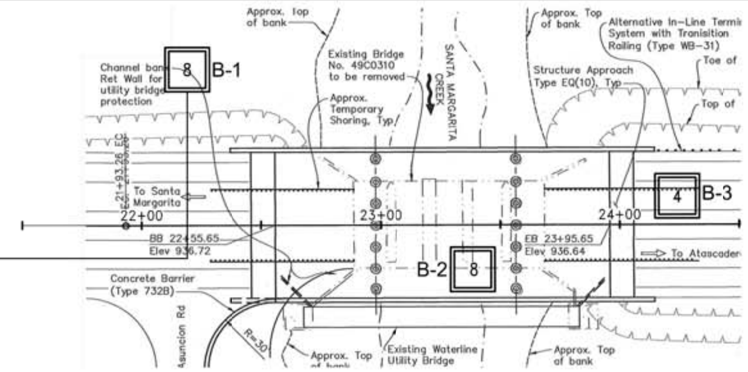
REGISTERED PROFESSIONAL ENGINEER — David L. Pearson — No. 674 — Exp. 12/31/15 — GEOTECHNICAL — STATE OF CALIFORNIA

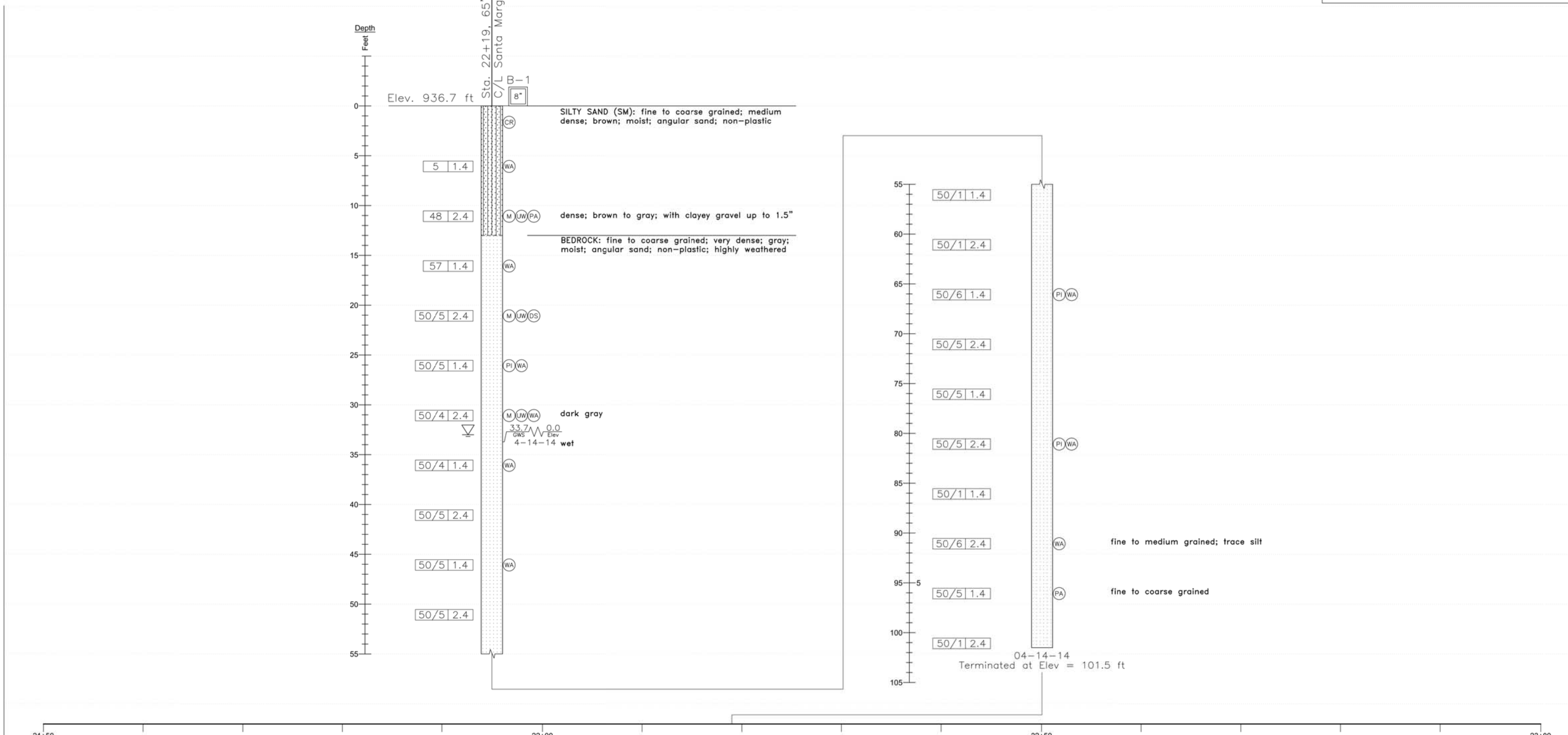
NOTES:

1. 1.4-INCH DIAMETER SAMPLES WERE TAKEN USING A STANDARD PENETRATION TEST (SPT) SPLIT BARREL SAMPLER WITH AN INSIDE DIAMETER (ID) OF 1.4 INCHES AND AN OUTSIDE DIAMETER (OD) OF 2.0 INCHES.
2. 2.4-INCH DIAMETER RING SAMPLES WERE TAKEN USING A CALIFORNIA SPLIT BARREL SAMPLER WITH AN ID OF 2.4 INCHES AND AN OD OF 3.0 INCHES.
3. ALL DRIVE SAMPLES WERE DRIVEN WITH 140 LB HAMMER WITH A FALLING HEIGHT OF 30 INCHES.



PLAN

SCALE: 1"=40'



SANTA MARGARITA STREET

PROFILE

SCALE: 1"=10' HORIZONTAL
SCALE: 1"=5' VERTICAL

PLOTTED: 28 Sep 2015, 11:38pm, MGriffin

CAD FILE: C:\CADD2015\20143900\SantaMargaritaCrk-Bridge_9-2015\ LAYOUT: 2

ATTACHED IMAGES: Images: Draft_PlanBridgeView_9-28-15.png
ATTACHED XREFS:
RIVERSIDE_CA

KLEINFELDER — *Bright People. Right Solutions.*
3880 Lemon Street, Suite 300
Riverside, CA 92501
www.kleinfelder.com PH. 951.801.3681 FAX. 951.682.0192

PROJECT NO.	20143900
DRAWN:	9/2015
DRAWN BY:	MRG
CHECKED BY:	TD
FILE NAME:	20143900p2-3_LOTB-SM.dwg

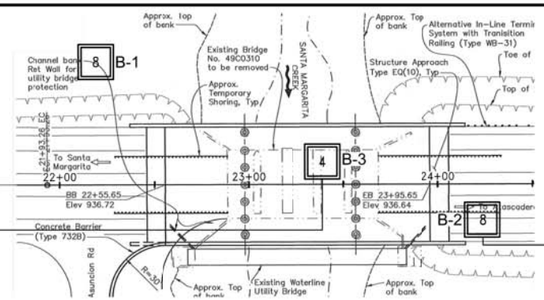
LOG OF TEST BORINGS

SANTA MARGARITA CREEK BRIDGE
EL CAMINO REAL
ATACADERO, CALIFORNIA

PLATE 2

NOTES:

1. 1.4–INCH DIAMETER SAMPLES WERE TAKEN USING A STANDARD PENETRATION TEST (SPT) SPLIT BARREL SAMPLER WITH AN INSIDE DIAMETER (ID) OF 1.4 INCHES AND AN OUTSIDE DIAMETER (OD) OF 2.0 INCHES.
2. 2.4–INCH DIAMETER RING SAMPLES WERE TAKEN USING A CALIFORNIA SPLIT BARREL SAMPLER WITH AN ID OF 2.4 INCHES AND AN OD OF 3.0 INCHES.
3. ALL DRIVE SAMPLES WERE DRIVEN WITH 140 LB HAMMER WITH A FALLING HEIGHT OF 30 INCHES.



PLAN
SCALE: 1"=40'

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
X	X	X			

REGISTERED CIVIL ENGINEER — DATE X

PLANS APPROVAL DATE

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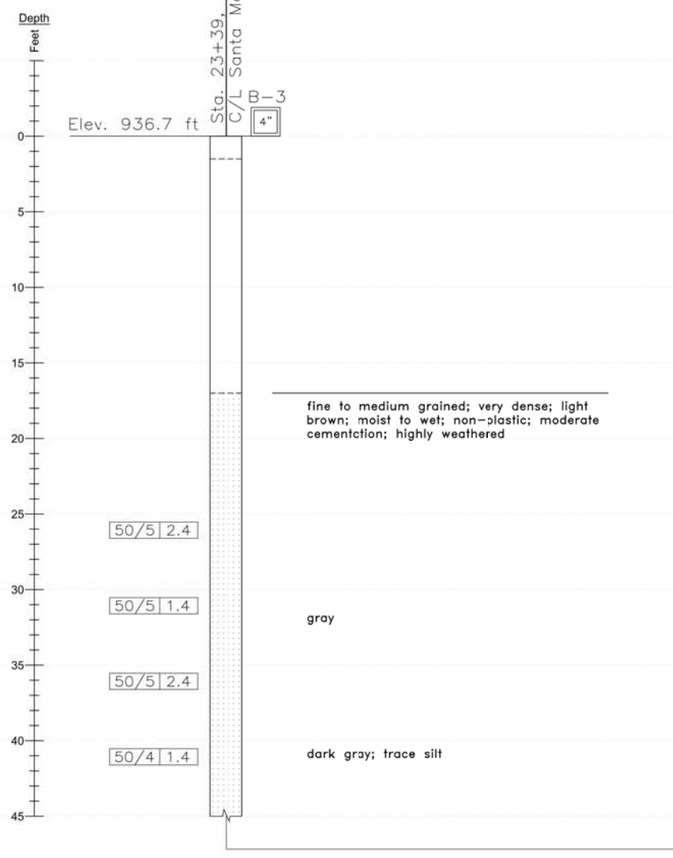
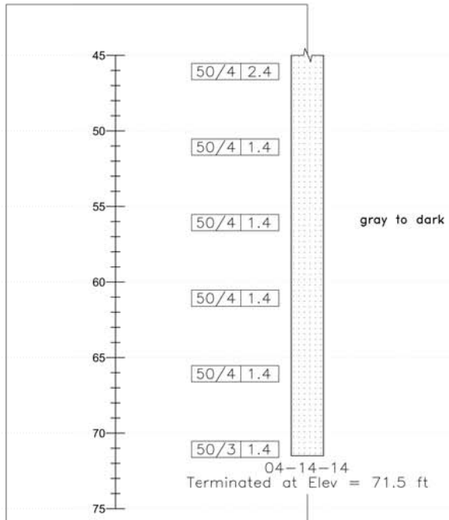
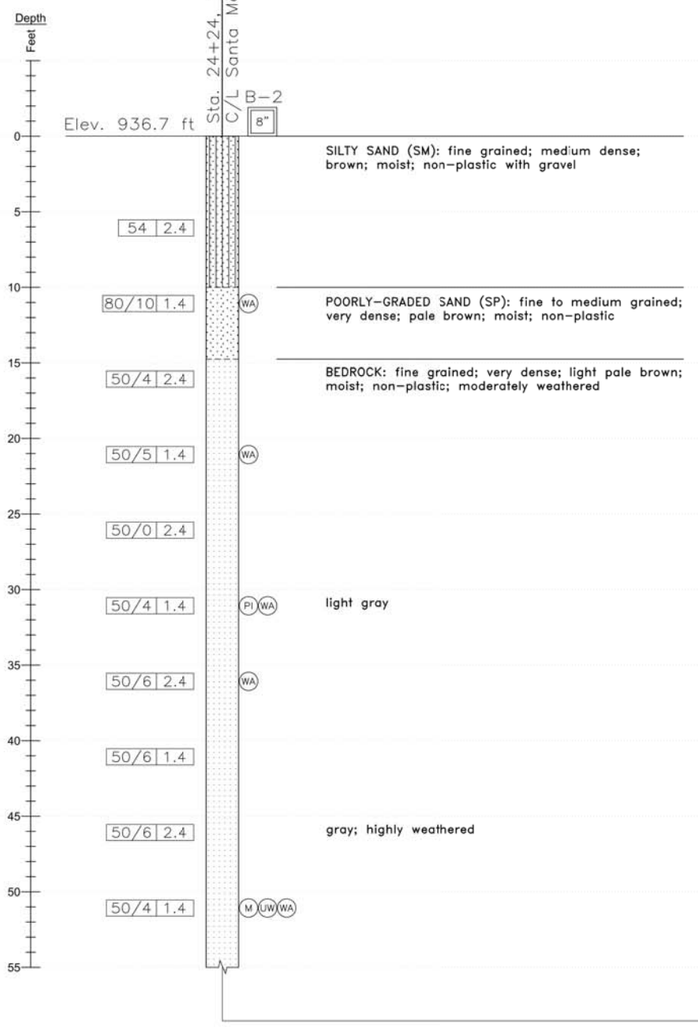
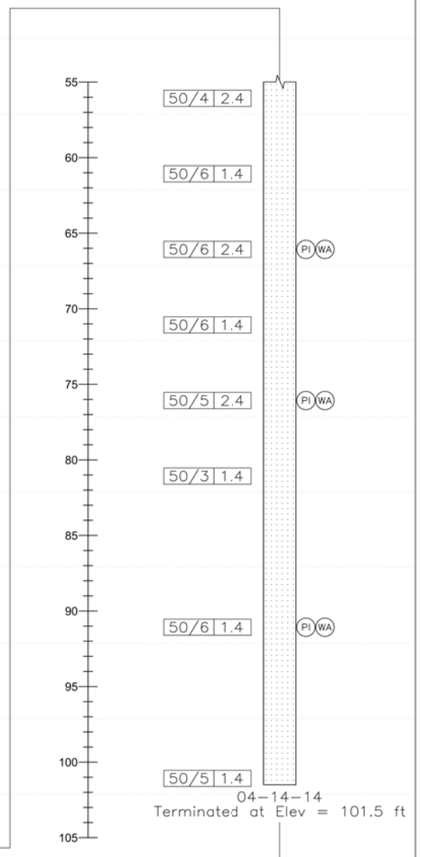
REGISTERED PROFESSIONAL ENGINEER — David L. Pearson — No. 674 — Exp. 12/31/15 — GEOTECHNICAL — STATE OF CALIFORNIA









23+00 — 23+50 — 24+00 — 24+50

SANTA MARGARITA STREET

PROFILE
SCALE: 1"=10' HORIZONTAL
SCALE: 1"=5' VERTICAL

KLEINFELDER
Bright People. Right Solutions.
3880 Lemon Street, Suite 300
Riverside, CA 92501
PH. 951.801.3681 FAX. 951.682.0192
www.kleinfelder.com

PROJECT NO.	20143900
DRAWN:	9/2015
DRAWN BY:	MRG
CHECKED BY:	TD
FILE NAME:	20143900p2-3_LOTB-SM.dwg

LOG OF TEST BORINGS

SANTA MARGARITA CREEK BRIDGE
EL CAMINO REAL
ATACADERO, CALIFORNIA

PLATE **3**

PLOTTED: 29 Sep 2015, 8:55am, MGriffin
CAD FILE: C:\CADD\2015\20143900\SantaMargaritaCrk-Bridge_9-2015\ LAYOUT: 3
ATTACHED IMAGES: Images: Draft_PlanBridgeView_9-28-15.png
ATTACHED XREFS:
REVISED: CA

Attachment B

Table B-1
Sample Location Coordinates
Santa Margarita Creek Bridge at El Camino Real

Sample ID	Latitude	Longitude
ADL-1	35.428955	-120.606147
ADL-2	35.429466	-120.606763
ADL-3	35.430306	-120.608031
ADL-4	35.428488	-120.605317
ADL-5	35.427927	-120.604961
ADL-6	35.427524	-120.604655
ADL-7	35.426210	-120.604273
ADL-8	35.426675	-120.604144

Attachment C

ANALYTICAL REPORT

Eurofins Calscience LLC
7440 Lincoln Way
Garden Grove, CA 92841
Tel: (714)895-5494

Laboratory Job ID: 570-9994-1
Client Project/Site: Santa Margarita Creek Bridge

For:
HARO Environmental
PO BOX 7002
Los Osos, California 93412

Attn: Mr. Elliot Haro

Authorized for release by:
10/23/2019 7:30:35 AM

Don Burley, Senior Project Manager
(714)895-5494
donaldburley@eurofinsus.com

Table of Contents

Definitions/Glossary

Client: HARO Environmental
Job ID: 570-9994-1
Project/Site: Santa Margarita Creek Bridge

Qualifiers

Metals

Qualifier	Qualifier Description
L	A negative instrument reading had an absolute value greater than the reporting limit

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: HARO Environmental
Project/Site: Santa Margarita Creek Bridge

Job ID: 570-9994-1

Job ID: 570-9994-1

Laboratory: Eurofins Calscience LLC

Narrative

Job Narrative
570-9994-1

Comments
No additional comments.

Receipt
The samples were received on 10/12/2019 9:30 AM; the samples arrived in good condition. The temperature of the cooler at receipt was 20.1º C.

Metals
Method 6010B: The absolute response for Lead was greater than the method reporting limit (RL) in the following samples: ADL-5-0.5 (570-9994-9) and ADL-6-0.5 (570-9994-11). The instrument raw data has been manually reviewed and the result can be reported as ND.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: HARO Environmental
Project/Site: Santa Margarita Creek Bridge

Job ID: 570-9994-1

Client Sample ID: ADL-1-0.5 — Lab Sample ID: 570-9994-1

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Lead	18.8		0.490		mg/Kg	1		6010B	Total/NA

Client Sample ID: ADL-1-2 — Lab Sample ID: 570-9994-2

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Lead	62.2		0.503		mg/Kg	1		6010B	Total/NA

Client Sample ID: ADL-2-0.5 — Lab Sample ID: 570-9994-3

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Lead	18.7		0.500		mg/Kg	1		6010B	Total/NA

Client Sample ID: ADL-2-2 — Lab Sample ID: 570-9994-4

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Lead	3.30		0.498		mg/Kg	1		6010B	Total/NA

Client Sample ID: ADL-3-0.5 — Lab Sample ID: 570-9994-5

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Lead	6.55		0.500		mg/Kg	1		6010B	Total/NA

Client Sample ID: ADL-3-2 — Lab Sample ID: 570-9994-6

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Lead	2.98		0.505		mg/Kg	1		6010B	Total/NA

Client Sample ID: ADL-4-0.5 — Lab Sample ID: 570-9994-7

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Lead	9.84		0.505		mg/Kg	1		6010B	Total/NA

Client Sample ID: ADL-4-2 — Lab Sample ID: 570-9994-8

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Lead	46.4		0.498		mg/Kg	1		6010B	Total/NA

Client Sample ID: ADL-5-0.5 — Lab Sample ID: 570-9994-9

No Detections.

Client Sample ID: ADL-5-1 — Lab Sample ID: 570-9994-10

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Lead	0.598		0.500		mg/Kg	1		6010B	Total/NA

Client Sample ID: ADL-6-0.5 — Lab Sample ID: 570-9994-11

No Detections.

Client Sample ID: ADL-6-1 — Lab Sample ID: 570-9994-12

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Lead	1.26		0.498		mg/Kg	1		6010B	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: HARO Environmental
Project/Site: Santa Margarita Creek Bridge

Job ID: 570-9994-1

Client Sample ID: ADL-7-0.5 — Lab Sample ID: 570-9994-13

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Lead	289		0.498		mg/Kg	1		6010B	Total/NA

Client Sample ID: ADL-7-2 — Lab Sample ID: 570-9994-14

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Lead	71.6		0.498		mg/Kg	1		6010B	Total/NA

Client Sample ID: ADL-8-0.5 — Lab Sample ID: 570-9994-15

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Lead	14.6		0.505		mg/Kg	1		6010B	Total/NA

Client Sample ID: ADL-8-2 — Lab Sample ID: 570-9994-16

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Lead	18.9		0.500		mg/Kg	1		6010B	Total/NA

This Detection Summary does not include radiochemical test results.

Method: 6010B - Metals (ICP)

Client Sample ID: ADL-1-0.5
Date Collected: 10/11/19 10:45
Date Received: 10/12/19 09:30
Lab Sample ID: 570-9994-1
Matrix: Solid

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Lead	18.8		0.490		mg/Kg		10/16/19 19:34	10/19/19 00:45	1

Client Sample ID: ADL-1-2
Date Collected: 10/11/19 10:55
Date Received: 10/12/19 09:30
Lab Sample ID: 570-9994-2
Matrix: Solid

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Lead	62.2		0.503		mg/Kg		10/16/19 19:34	10/19/19 01:34	1

Client Sample ID: ADL-2-0.5
Date Collected: 10/11/19 11:05
Date Received: 10/12/19 09:30
Lab Sample ID: 570-9994-3
Matrix: Solid

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Lead	18.7		0.500		mg/Kg		10/16/19 19:34	10/19/19 01:36	1

Client Sample ID: ADL-2-2
Date Collected: 10/11/19 11:15
Date Received: 10/12/19 09:30
Lab Sample ID: 570-9994-4
Matrix: Solid

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Lead	3.30		0.498		mg/Kg		10/16/19 19:34	10/19/19 00:51	1

Client Sample ID: ADL-3-0.5
Date Collected: 10/11/19 11:25
Date Received: 10/12/19 09:30
Lab Sample ID: 570-9994-5
Matrix: Solid

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Lead	6.55		0.500		mg/Kg		10/16/19 19:34	10/19/19 01:01	1

Client Sample ID: ADL-3-2
Date Collected: 10/11/19 11:28
Date Received: 10/12/19 09:30
Lab Sample ID: 570-9994-6
Matrix: Solid

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Lead	2.98		0.505		mg/Kg		10/16/19 19:34	10/19/19 01:03	1

Client Sample ID: ADL-4-0.5
Date Collected: 10/11/19 11:33
Date Received: 10/12/19 09:30
Lab Sample ID: 570-9994-7
Matrix: Solid

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Lead	9.84		0.505		mg/Kg		10/16/19 19:34	10/19/19 01:05	1

Client Sample ID: ADL-4-2
Date Collected: 10/11/19 11:37
Date Received: 10/12/19 09:30
Lab Sample ID: 570-9994-8
Matrix: Solid

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Lead	46.4		0.498		mg/Kg		10/16/19 19:34	10/19/19 01:07	1

Client Sample ID: ADL-5-0.5
Date Collected: 10/11/19 11:44
Date Received: 10/12/19 09:30
Lab Sample ID: 570-9994-9
Matrix: Solid

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND	L	0.503		mg/Kg		10/16/19 19:34	10/19/19 01:09	1

Method: 6010B - Metals (ICP)

Client Sample ID: ADL-5-1
Date Collected: 10/11/19 11:55
Date Received: 10/12/19 09:30
Lab Sample ID: 570-9994-10
Matrix: Solid

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Lead	**0.598**		0.500		mg/Kg		10/16/19 19:34	10/19/19 01:11	1

Client Sample ID: ADL-6-0.5
Date Collected: 10/11/19 12:08
Date Received: 10/12/19 09:30
Lab Sample ID: 570-9994-11
Matrix: Solid

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND	L	0.495		mg/Kg		10/16/19 19:34	10/19/19 01:13	1

Client Sample ID: ADL-6-1
Date Collected: 10/11/19 12:16
Date Received: 10/12/19 09:30
Lab Sample ID: 570-9994-12
Matrix: Solid

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Lead	**1.26**		0.498		mg/Kg		10/16/19 19:34	10/19/19 01:16	1

Client Sample ID: ADL-7-0.5
Date Collected: 10/11/19 12:37
Date Received: 10/12/19 09:30
Lab Sample ID: 570-9994-13
Matrix: Solid

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Lead	**289**		0.498		mg/Kg		10/16/19 19:34	10/19/19 01:18	1

Client Sample ID: ADL-7-2
Date Collected: 10/11/19 12:44
Date Received: 10/12/19 09:30
Lab Sample ID: 570-9994-14
Matrix: Solid

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Lead	**71.6**		0.498		mg/Kg		10/16/19 19:34	10/19/19 01:20	1

Client Sample ID: ADL-8-0.5
Date Collected: 10/11/19 12:23
Date Received: 10/12/19 09:30
Lab Sample ID: 570-9994-15
Matrix: Solid

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Lead	**14.6**		0.505		mg/Kg		10/16/19 19:34	10/19/19 01:29	1

Client Sample ID: ADL-8-2
Date Collected: 10/11/19 12:30
Date Received: 10/12/19 09:30
Lab Sample ID: 570-9994-16
Matrix: Solid

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Lead	**18.9**		0.500		mg/Kg		10/16/19 19:34	10/19/19 01:32	1

Method: 6010B - Metals (ICP)

Lab Sample ID: MB 570-26499/1-A
Matrix: Solid
Analysis Batch: 26686

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 26499

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.505		mg/Kg		10/16/19 19:34	10/17/19 13:20	1

Lab Sample ID: LCS 570-26499/2-A
Matrix: Solid
Analysis Batch: 26686

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 26499

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Lead			24.4	27.40		mg/Kg		112	80 - 120		

Lab Sample ID: LCSD 570-26499/3-A
Matrix: Solid
Analysis Batch: 26686

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 26499

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Lead			25.0	28.04		mg/Kg		112	80 - 120	2	20

Lab Sample ID: 570-9994-1 MS
Matrix: Solid
Analysis Batch: 27150

Client Sample ID: ADL-1-0.5
Prep Type: Total/NA
Prep Batch: 26499

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Lead	18.8		24.6	39.39		mg/Kg		83	75 - 125		

Lab Sample ID: 570-9994-1 MSD
Matrix: Solid
Analysis Batch: 27150

Client Sample ID: ADL-1-0.5
Prep Type: Total/NA
Prep Batch: 26499

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Lead	18.8		25.6	40.85		mg/Kg		86	75 - 125	4	20

Metals

Prep Batch: 26499

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-9994-1	ADL-1-0.5	Total/NA	Solid	3050B	
570-9994-2	ADL-1-2	Total/NA	Solid	3050B	
570-9994-3	ADL-2-0.5	Total/NA	Solid	3050B	
570-9994-4	ADL-2-2	Total/NA	Solid	3050B	
570-9994-5	ADL-3-0.5	Total/NA	Solid	3050B	
570-9994-6	ADL-3-2	Total/NA	Solid	3050B	
570-9994-7	ADL-4-0.5	Total/NA	Solid	3050B	
570-9994-8	ADL-4-2	Total/NA	Solid	3050B	
570-9994-9	ADL-5-0.5	Total/NA	Solid	3050B	
570-9994-10	ADL-5-1	Total/NA	Solid	3050B	
570-9994-11	ADL-6-0.5	Total/NA	Solid	3050B	
570-9994-12	ADL-6-1	Total/NA	Solid	3050B	
570-9994-13	ADL-7-0.5	Total/NA	Solid	3050B	
570-9994-14	ADL-7-2	Total/NA	Solid	3050B	
570-9994-15	ADL-8-0.5	Total/NA	Solid	3050B	
570-9994-16	ADL-8-2	Total/NA	Solid	3050B	
MB 570-26499/1-A	Method Blank	Total/NA	Solid	3050B	
LCS 570-26499/2-A	Lab Control Sample	Total/NA	Solid	3050B	
LCSD 570-26499/3-A	Lab Control Sample Dup	Total/NA	Solid	3050B	
570-9994-1 MS	ADL-1-0.5	Total/NA	Solid	3050B	
570-9994-1 MSD	ADL-1-0.5	Total/NA	Solid	3050B	

Analysis Batch: 26686

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 570-26499/1-A	Method Blank	Total/NA	Solid	6010B	26499
LCS 570-26499/2-A	Lab Control Sample	Total/NA	Solid	6010B	26499
LCSD 570-26499/3-A	Lab Control Sample Dup	Total/NA	Solid	6010B	26499

Analysis Batch: 27150

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-9994-1	ADL-1-0.5	Total/NA	Solid	6010B	26499
570-9994-2	ADL-1-2	Total/NA	Solid	6010B	26499
570-9994-3	ADL-2-0.5	Total/NA	Solid	6010B	26499
570-9994-4	ADL-2-2	Total/NA	Solid	6010B	26499
570-9994-5	ADL-3-0.5	Total/NA	Solid	6010B	26499
570-9994-6	ADL-3-2	Total/NA	Solid	6010B	26499
570-9994-7	ADL-4-0.5	Total/NA	Solid	6010B	26499
570-9994-8	ADL-4-2	Total/NA	Solid	6010B	26499
570-9994-9	ADL-5-0.5	Total/NA	Solid	6010B	26499
570-9994-10	ADL-5-1	Total/NA	Solid	6010B	26499
570-9994-11	ADL-6-0.5	Total/NA	Solid	6010B	26499
570-9994-12	ADL-6-1	Total/NA	Solid	6010B	26499
570-9994-13	ADL-7-0.5	Total/NA	Solid	6010B	26499
570-9994-14	ADL-7-2	Total/NA	Solid	6010B	26499
570-9994-15	ADL-8-0.5	Total/NA	Solid	6010B	26499
570-9994-16	ADL-8-2	Total/NA	Solid	6010B	26499
570-9994-1 MS	ADL-1-0.5	Total/NA	Solid	6010B	26499
570-9994-1 MSD	ADL-1-0.5	Total/NA	Solid	6010B	26499

Lab Chronicle

Client: HARO Environmental
Project/Site: Santa Margarita Creek Bridge

Job ID: 570-9994-1

Client Sample ID: ADL-1-0.5
Date Collected: 10/11/19 10:45
Date Received: 10/12/19 09:30

Lab Sample ID: 570-9994-1
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			2.04 g	100 mL	26499	10/16/19 19:34	MD3A	ECL 1
Total/NA	Analysis	6010B		1			27150	10/19/19 00:45	OYW3	ECL 1
	Instrument ID: ICP8									

Client Sample ID: ADL-1-2
Date Collected: 10/11/19 10:55
Date Received: 10/12/19 09:30

Lab Sample ID: 570-9994-2
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.99 g	100 mL	26499	10/16/19 19:34	MD3A	ECL 1
Total/NA	Analysis	6010B		1			27150	10/19/19 01:34	OYW3	ECL 1
	Instrument ID: ICP8									

Client Sample ID: ADL-2-0.5
Date Collected: 10/11/19 11:05
Date Received: 10/12/19 09:30

Lab Sample ID: 570-9994-3
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			2.00 g	100 mL	26499	10/16/19 19:34	MD3A	ECL 1
Total/NA	Analysis	6010B		1			27150	10/19/19 01:36	OYW3	ECL 1
	Instrument ID: ICP8									

Client Sample ID: ADL-2-2
Date Collected: 10/11/19 11:15
Date Received: 10/12/19 09:30

Lab Sample ID: 570-9994-4
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			2.01 g	100 mL	26499	10/16/19 19:34	MD3A	ECL 1
Total/NA	Analysis	6010B		1			27150	10/19/19 00:51	OYW3	ECL 1
	Instrument ID: ICP8									

Client Sample ID: ADL-3-0.5
Date Collected: 10/11/19 11:25
Date Received: 10/12/19 09:30

Lab Sample ID: 570-9994-5
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			2.00 g	100 mL	26499	10/16/19 19:34	MD3A	ECL 1
Total/NA	Analysis	6010B		1			27150	10/19/19 01:01	OYW3	ECL 1
	Instrument ID: ICP8									

Lab Chronicle

Client: HARO Environmental
Project/Site: Santa Margarita Creek Bridge

Job ID: 570-9994-1

Client Sample ID: ADL-3-2
Date Collected: 10/11/19 11:28
Date Received: 10/12/19 09:30

Lab Sample ID: 570-9994-6
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.98 g	100 mL	26499	10/16/19 19:34	MD3A	ECL 1
Total/NA	Analysis	6010B		1			27150	10/19/19 01:03	OYW3	ECL 1
	Instrument ID: ICP8									

Client Sample ID: ADL-4-0.5
Date Collected: 10/11/19 11:33
Date Received: 10/12/19 09:30

Lab Sample ID: 570-9994-7
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.98 g	100 mL	26499	10/16/19 19:34	MD3A	ECL 1
Total/NA	Analysis	6010B		1			27150	10/19/19 01:05	OYW3	ECL 1
	Instrument ID: ICP8									

Client Sample ID: ADL-4-2
Date Collected: 10/11/19 11:37
Date Received: 10/12/19 09:30

Lab Sample ID: 570-9994-8
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			2.01 g	100 mL	26499	10/16/19 19:34	MD3A	ECL 1
Total/NA	Analysis	6010B		1			27150	10/19/19 01:07	OYW3	ECL 1
	Instrument ID: ICP8									

Client Sample ID: ADL-5-0.5
Date Collected: 10/11/19 11:44
Date Received: 10/12/19 09:30

Lab Sample ID: 570-9994-9
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.99 g	100 mL	26499	10/16/19 19:34	MD3A	ECL 1
Total/NA	Analysis	6010B		1			27150	10/19/19 01:09	OYW3	ECL 1
	Instrument ID: ICP8									

Client Sample ID: ADL-5-1
Date Collected: 10/11/19 11:55
Date Received: 10/12/19 09:30

Lab Sample ID: 570-9994-10
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			2.00 g	100 mL	26499	10/16/19 19:34	MD3A	ECL 1
Total/NA	Analysis	6010B		1			27150	10/19/19 01:11	OYW3	ECL 1
	Instrument ID: ICP8									

Lab Chronicle

Client: HARO Environmental
Project/Site: Santa Margarita Creek Bridge

Job ID: 570-9994-1

Client Sample ID: ADL-6-0.5
Date Collected: 10/11/19 12:08
Date Received: 10/12/19 09:30

Lab Sample ID: 570-9994-11
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			2.02 g	100 mL	26499	10/16/19 19:34	MD3A	ECL 1
Total/NA	Analysis	6010B		1			27150	10/19/19 01:13	OYW3	ECL 1
	Instrument ID: ICP8									

Client Sample ID: ADL-6-1
Date Collected: 10/11/19 12:16
Date Received: 10/12/19 09:30

Lab Sample ID: 570-9994-12
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			2.01 g	100 mL	26499	10/16/19 19:34	MD3A	ECL 1
Total/NA	Analysis	6010B		1			27150	10/19/19 01:16	OYW3	ECL 1
	Instrument ID: ICP8									

Client Sample ID: ADL-7-0.5
Date Collected: 10/11/19 12:37
Date Received: 10/12/19 09:30

Lab Sample ID: 570-9994-13
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			2.01 g	100 mL	26499	10/16/19 19:34	MD3A	ECL 1
Total/NA	Analysis	6010B		1			27150	10/19/19 01:18	OYW3	ECL 1
	Instrument ID: ICP8									

Client Sample ID: ADL-7-2
Date Collected: 10/11/19 12:44
Date Received: 10/12/19 09:30

Lab Sample ID: 570-9994-14
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			2.01 g	100 mL	26499	10/16/19 19:34	MD3A	ECL 1
Total/NA	Analysis	6010B		1			27150	10/19/19 01:20	OYW3	ECL 1
	Instrument ID: ICP8									

Client Sample ID: ADL-8-0.5
Date Collected: 10/11/19 12:23
Date Received: 10/12/19 09:30

Lab Sample ID: 570-9994-15
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.98 g	100 mL	26499	10/16/19 19:34	MD3A	ECL 1
Total/NA	Analysis	6010B		1			27150	10/19/19 01:29	OYW3	ECL 1
	Instrument ID: ICP8									

Lab Chronicle

Client: HARO Environmental
Job ID: 570-9994-1
Project/Site: Santa Margarita Creek Bridge

Client Sample ID: ADL-8-2
Lab Sample ID: 570-9994-16
Date Collected: 10/11/19 12:30
Matrix: Solid
Date Received: 10/12/19 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			2.00 g	100 mL	26499	10/16/19 19:34	MD3A	ECL 1
Total/NA	Analysis	6010B		1			27150	10/19/19 01:32	OYW3	ECL 1
	Instrument ID: ICP8									

Laboratory References:

ECL 1 = Eurofins Calscience LLC Lincoln, 7440 Lincoln Way, Garden Grove, CA 92841, TEL (714)895-5494

Accreditation/Certification Summary

Client: HARO Environmental
Job ID: 570-9994-1
Project/Site: Santa Margarita Creek Bridge

Laboratory: Eurofins Calscience LLC

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arizona	State	AZ0781	03-13-20
California	SCAQMD LAP	17LA0919	11-30-19
California	State	2944	09-29-20
Guam	State	19-004R	10-31-19
Hawaii	State	<cert No.>	07-02-20
Nevada	State	CA00111	07-31-20
Oregon	NELAP	CA300001	01-29-20

Method Summary

Client: HARO Environmental
Project/Site: Santa Margarita Creek Bridge

Job ID: 570-9994-1

Method	Method Description	Protocol	Laboratory
6010B	Metals (ICP)	SW846	ECL 1
3050B	Preparation, Metals	SW846	ECL 1

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

ECL 1 = Eurofins Calscience LLC Lincoln, 7440 Lincoln Way, Garden Grove, CA 92841, TEL (714)895-5494

Sample Summary

Client: HARO Environmental
Project/Site: Santa Margarita Creek Bridge

Job ID: 570-9994-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
570-9994-1	ADL-1-0.5	Solid	10/11/19 10:45	10/12/19 09:30	
570-9994-2	ADL-1-2	Solid	10/11/19 10:55	10/12/19 09:30	
570-9994-3	ADL-2-0.5	Solid	10/11/19 11:05	10/12/19 09:30	
570-9994-4	ADL-2-2	Solid	10/11/19 11:15	10/12/19 09:30	
570-9994-5	ADL-3-0.5	Solid	10/11/19 11:25	10/12/19 09:30	
570-9994-6	ADL-3-2	Solid	10/11/19 11:28	10/12/19 09:30	
570-9994-7	ADL-4-0.5	Solid	10/11/19 11:33	10/12/19 09:30	
570-9994-8	ADL-4-2	Solid	10/11/19 11:37	10/12/19 09:30	
570-9994-9	ADL-5-0.5	Solid	10/11/19 11:44	10/12/19 09:30	
570-9994-10	ADL-5-1	Solid	10/11/19 11:55	10/12/19 09:30	
570-9994-11	ADL-6-0.5	Solid	10/11/19 12:08	10/12/19 09:30	
570-9994-12	ADL-6-1	Solid	10/11/19 12:16	10/12/19 09:30	
570-9994-13	ADL-7-0.5	Solid	10/11/19 12:37	10/12/19 09:30	
570-9994-14	ADL-7-2	Solid	10/11/19 12:44	10/12/19 09:30	
570-9994-15	ADL-8-0.5	Solid	10/11/19 12:23	10/12/19 09:30	
570-9994-16	ADL-8-2	Solid	10/11/19 12:30	10/12/19 09:30	

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For courier service / sample drop off information, contact us26_sales@eurofinsus.com or call us.

570-9994 Chain of Custody

CHAIN OF CUSTODY RECORD

DATE: 10/11/19

PAGE: 1 OF 2

LABORATORY CLIENT: HARO ENVIRONMENTAL, INC.

ADDRESS: PO BOX 7007

CITY: LOS OSOS STATE: CA ZIP: 93402

TEL: 805.204.4483 E-MAIL: elliot.haro@haroenvironmental.com

CLIENT PROJECT NAME / NUMBER: SANTA MARGARITA CREEK BRIDGE

P.O. NO.:

PROJECT CONTACT: ELLIOT HARO

SAMPLER(S): (PRINT) ELLIOT HARO

TURNAROUND TIME (Rush surcharges may apply to any TAT not "STANDARD"):

☐ SAME DAY ☐ 24 HR ☐ 48 HR ☐ 72 HR ☐ 5 DAYS ☒ STANDARD

☐ COELT EDF GLOBAL ID: LOG CODE:

SPECIAL INSTRUCTIONS:

HOLD STLC / TCLP PENDING TOTAL LEAD RESULTS

REQUESTED ANALYSES

Please check box or fill in blank as needed.

LAB USE ONLY	SAMPLE ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	Unpreserved	Preserved	Field Filtered	☐ TPH(g) ☐ GRO	☐ TPH(d) ☐ DRO	TPH ☐ C6-C36 ☐ C6-C44	TPH ____	BTEX / MTBE ☐ 8260 ☐ ____	VOCs (8260)	Oxygenates (8260)	Prep (5035) ☐ En Core ☐ Terra Core	SVOCs (8270)	Pesticides (8081)	PCBs (8082)	PAHs ☐ 8270 ☐ 8270 SIM	T22 Metals ☐ 6010/747X ☐ 6020/747X	Cr(VI) ☐ 7196 ☐ 7199 ☐ 218.6	LEAD - 6010 13	STLC Pb	TCLP Pb	
1	ADL-1-0.5	10/11/19	1045	SL	1	X																X			
2	ADL-1-2		1055																						
3	ADL-2-0.5		1105																						
4	ADL-2-2		1115																						
5	ADL-3-0.5		1125																						
6	ADL-3-2		1128																						
7	ADL-4-0.5		1133																						
8	ADL-4-2		1137																						
9	ADL-5-0.5		1144																						
10	ADL-5-1		1155																						

Relinquished by: (Signature)	Received by: (Signature/Affiliation)	Date: 10/11/19	Time: 1530
Relinquished by: (Signature) (OSO)	Received by: (Signature/Affiliation) Marshall EC	Date: 10/12/19	Time: 9:30
Relinquished by: (Signature)	Received by: (Signature/Affiliation)	Date:	Time:

06/02/14 Revision

19.0/20.1 SCO

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For courier service / sample drop off information, contact us26_sales@eurofinsus.com or call us.

CHAIN OF CUSTODY RECORD

WO # / LAB USE ONLY:

DATE: 10/11/19

PAGE: 2 OF 2

LABORATORY CLIENT: HAGO ENVIRONMENTAL, INC.

ADDRESS:

CITY: STATE: ZIP:

TEL: E-MAIL:

CLIENT PROJECT NAME / NUMBER: SANTA MARGARITA CREEK BRIDGE

P.O. NO.:

PROJECT CONTACT: ELIOT HAGO

SAMPLER(S): (PRINT) ELIOT HAGO

TURNAROUND TIME (Rush surcharges may apply to any TAT not "STANDARD"):

☐ SAME DAY ☐ 24 HR ☐ 48 HR ☐ 72 HR ☐ 5 DAYS ☒ STANDARD

☐ COELT EDF GLOBAL ID: LOG CODE:

SPECIAL INSTRUCTIONS:

HOLD STLC/TCLP RANGE

TOTAL LEAD RESULTS

REQUESTED ANALYSES

Please check box or fill in blank as needed.

LAB USE ONLY	SAMPLE ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	Unpreserved	Preserved	Field Filtered	☐ TPH(g) ☐ GRO	☐ TPH(d) ☐ DRO	TPH ☐ C6-C36 ☐ C6-C44	TPH ____	BTEX / MTBE ☐ 8260 ☐ ____	VOCs (8260)	Oxygenates (8260)	Prep (5035) ☐ En Core ☐ Terra Core	SVOCs (8270)	Pesticides (8081)	PCBs (8082)	PAHs ☐ 8270 ☐ 8270 SIM	T22 Metals ☐ 6010/747X ☐ 6020/747X	Cr(VI) ☐ 7196 ☐ 7199 ☐ 218.6	LEAD - 6010B	STLC Pb	TCLP Pb
11	ADL-6-0.5	10/11/19	1208	SL	1	X																	X		
12	ADL-6-1		1216																						
13	ADL-7-0.5		1237																						
14	ADL-7-2		1244																						
15	ADL-8-0.5		1223																						
16	ADL-8-2		1230																						

Relinquished by: (Signature)	Received by: (Signature/Affiliation)	Date: 10/11/19	Time: 1530
Relinquished by: (Signature) GSO	Received by: (Signature/Affiliation) Marked	Date: 10/12/19	Time: 9:30
Relinquished by: (Signature)	Received by: (Signature/Affiliation)	Date:	Time:

06/02/14 Revision

Login Sample Receipt Checklist

Client: HARO Environmental

Job Number: 570-9994-1

Login Number: 9994
List Number: 1
Creator: Ramos, Maribel

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	False	Thermal preservation not required.
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

ANALYTICAL REPORT

Eurofins Calscience LLC
7440 Lincoln Way
Garden Grove, CA 92841
Tel: (714)895-5494

Laboratory Job ID: 570-9994-2
Client Project/Site: Santa Margarita Creek Bridge

For:
HARO Environmental
PO BOX 7002
Los Osos, California 93412

Attn: Mr. Elliot Haro

Authorized for release by:
10/29/2019 2:33:42 PM

Don Burley, Senior Project Manager
(714)895-5494
donaldburley@eurofinsus.com

Table of Contents

Definitions/Glossary

Client: HARO Environmental
Job ID: 570-9994-2
Project/Site: Santa Margarita Creek Bridge

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: HARO Environmental
Project/Site: Santa Margarita Creek Bridge

Job ID: 570-9994-2

Job ID: 570-9994-2

Laboratory: Eurofins Calscience LLC

Narrative

Job Narrative
570-9994-2

Comments
No additional comments.

Receipt
The samples were received on 10/12/2019 9:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 20.1º C.

Metals
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Detection Summary

Client: HARO Environmental
Project/Site: Santa Margarita Creek Bridge

Job ID: 570-9994-2

Client Sample ID: ADL-1-2 — Lab Sample ID: 570-9994-2

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Lead	0.693		0.500		mg/L	1		6010B	STLC Citrate

Client Sample ID: ADL-7-0.5 — Lab Sample ID: 570-9994-13

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Lead	2.20		0.500		mg/L	1		6010B	STLC Citrate

Client Sample ID: ADL-7-2 — Lab Sample ID: 570-9994-14

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Lead	4.31		0.500		mg/L	1		6010B	STLC Citrate

This Detection Summary does not include radiochemical test results.

Client: HARO Environmental
Job ID: 570-9994-2
Project/Site: Santa Margarita Creek Bridge

Method: 6010B - Metals (ICP) - TCLP

Client Sample ID: ADL-7-0.5
Lab Sample ID: 570-9994-13
Date Collected: 10/11/19 12:37
Matrix: Solid
Date Received: 10/12/19 09:30

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.500		mg/L		10/24/19 14:30	10/25/19 22:14	1

Client Sample Results

Client: HARO Environmental
Project/Site: Santa Margarita Creek Bridge

Job ID: 570-9994-2

Method: 6010B - Metals (ICP) - STLC Citrate

Client Sample ID: ADL-1-2
Date Collected: 10/11/19 10:55
Date Received: 10/12/19 09:30

Lab Sample ID: 570-9994-2
Matrix: Solid

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Lead	0.693		0.500		mg/L		10/25/19 17:30	10/28/19 14:15	1

Client Sample ID: ADL-7-0.5
Date Collected: 10/11/19 12:37
Date Received: 10/12/19 09:30

Lab Sample ID: 570-9994-13
Matrix: Solid

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Lead	2.20		0.500		mg/L		10/25/19 17:30	10/26/19 21:58	1

Client Sample ID: ADL-7-2
Date Collected: 10/11/19 12:44
Date Received: 10/12/19 09:30

Lab Sample ID: 570-9994-14
Matrix: Solid

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Lead	4.31		0.500		mg/L		10/25/19 17:30	10/28/19 13:45	1

Method: 6010B - Metals (ICP)

Lab Sample ID: LB 570-28164/1-B
Matrix: Solid
Analysis Batch: 28800

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 28381

Analyte	LB Result	LB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.500		mg/L		10/24/19 14:30	10/25/19 21:58	1

Lab Sample ID: LCS 570-28164/2-B
Matrix: Solid
Analysis Batch: 28800

Client Sample ID: Lab Control Sample
Prep Type: TCLP
Prep Batch: 28381

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Lead			5.00	5.098		mg/L		102	80 - 120		

Lab Sample ID: LCSD 570-28164/3-B
Matrix: Solid
Analysis Batch: 28800

Client Sample ID: Lab Control Sample Dup
Prep Type: TCLP
Prep Batch: 28381

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Lead			5.00	5.150		mg/L		103	80 - 120	1	20

Lab Sample ID: 570-9994-13 MS
Matrix: Solid
Analysis Batch: 28800

Client Sample ID: ADL-7-0.5
Prep Type: TCLP
Prep Batch: 28381

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Lead	ND		5.00	5.398		mg/L		108	84 - 120		

Lab Sample ID: 570-9994-13 MSD
Matrix: Solid
Analysis Batch: 28800

Client Sample ID: ADL-7-0.5
Prep Type: TCLP
Prep Batch: 28381

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Lead	ND		5.00	5.452		mg/L		109	84 - 120	1	7

Lab Sample ID: LB4 570-28135/1-B
Matrix: Solid
Analysis Batch: 29060

Client Sample ID: Method Blank
Prep Type: STLC Citrate
Prep Batch: 28709

Analyte	LB4 Result	LB4 Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.500		mg/L		10/25/19 17:30	10/28/19 12:59	1

Lab Sample ID: LCS 570-28135/2-B
Matrix: Solid
Analysis Batch: 29060

Client Sample ID: Lab Control Sample
Prep Type: STLC Citrate
Prep Batch: 28709

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Lead			5.00	5.117		mg/L		102	80 - 120		

Lab Sample ID: LCSD 570-28135/3-B
Matrix: Solid
Analysis Batch: 29060

Client Sample ID: Lab Control Sample Dup
Prep Type: STLC Citrate
Prep Batch: 28709

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Lead			5.00	5.101		mg/L		102	80 - 120	0	20

Method: 6010B - Metals (ICP)

Lab Sample ID: 570-9223-A-8-F MS
Client Sample ID: Matrix Spike
Matrix: Solid
Prep Type: STLC Citrate
Analysis Batch: 29060
Prep Batch: 28709

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Lead	ND		5.00	5.651		mg/L		104	84 - 120

Lab Sample ID: 570-9223-A-8-G MSD
Client Sample ID: Matrix Spike Duplicate
Matrix: Solid
Prep Type: STLC Citrate
Analysis Batch: 29060
Prep Batch: 28709

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Lead	ND		5.00	5.818		mg/L		107	84 - 120	3	7

Lab Sample ID: LB4 570-28135/1-C
Client Sample ID: Method Blank
Matrix: Solid
Prep Type: STLC Citrate
Analysis Batch: 29038
Prep Batch: 28722

Analyte	LB4 Result	LB4 Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.500		mg/L		10/25/19 17:30	10/26/19 21:27	1

Lab Sample ID: LCS 570-28135/2-C
Client Sample ID: Lab Control Sample
Matrix: Solid
Prep Type: STLC Citrate
Analysis Batch: 29038
Prep Batch: 28722

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Lead			5.00	5.211		mg/L		104	80 - 120

Lab Sample ID: LCSD 570-28135/3-C
Client Sample ID: Lab Control Sample Dup
Matrix: Solid
Prep Type: STLC Citrate
Analysis Batch: 29038
Prep Batch: 28722

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Lead			5.00	5.017		mg/L		100	80 - 120	4	20

Lab Sample ID: 570-9696-A-37-F MS
Client Sample ID: Matrix Spike
Matrix: Solid
Prep Type: STLC Citrate
Analysis Batch: 29038
Prep Batch: 28722

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Lead	7.74		5.00	13.04		mg/L		106	84 - 120

Lab Sample ID: 570-9696-A-37-G MSD
Client Sample ID: Matrix Spike Duplicate
Matrix: Solid
Prep Type: STLC Citrate
Analysis Batch: 29038
Prep Batch: 28722

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Lead	7.74		5.00	13.07		mg/L		107	84 - 120	0	7

Metals

Leach Batch: 28135

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-9994-2	ADL-1-2	STLC Citrate	Solid	CA WET Citrate	
570-9994-13	ADL-7-0.5	STLC Citrate	Solid	CA WET Citrate	
570-9994-14	ADL-7-2	STLC Citrate	Solid	CA WET Citrate	
LB4 570-28135/1-B	Method Blank	STLC Citrate	Solid	CA WET Citrate	
LB4 570-28135/1-C	Method Blank	STLC Citrate	Solid	CA WET Citrate	
LCS 570-28135/2-B	Lab Control Sample	STLC Citrate	Solid	CA WET Citrate	
LCS 570-28135/2-C	Lab Control Sample	STLC Citrate	Solid	CA WET Citrate	
LCSD 570-28135/3-B	Lab Control Sample Dup	STLC Citrate	Solid	CA WET Citrate	
LCSD 570-28135/3-C	Lab Control Sample Dup	STLC Citrate	Solid	CA WET Citrate	
570-9223-A-8-F MS	Matrix Spike	STLC Citrate	Solid	CA WET Citrate	
570-9223-A-8-G MSD	Matrix Spike Duplicate	STLC Citrate	Solid	CA WET Citrate	
570-9696-A-37-F MS	Matrix Spike	STLC Citrate	Solid	CA WET Citrate	
570-9696-A-37-G MSD	Matrix Spike Duplicate	STLC Citrate	Solid	CA WET Citrate	

Leach Batch: 28164

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-9994-13	ADL-7-0.5	TCLP	Solid	1311	
LB 570-28164/1-B	Method Blank	TCLP	Solid	1311	
LCS 570-28164/2-B	Lab Control Sample	TCLP	Solid	1311	
LCSD 570-28164/3-B	Lab Control Sample Dup	TCLP	Solid	1311	
570-9994-13 MS	ADL-7-0.5	TCLP	Solid	1311	
570-9994-13 MSD	ADL-7-0.5	TCLP	Solid	1311	

Prep Batch: 28381

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-9994-13	ADL-7-0.5	TCLP	Solid	3010A	28164
LB 570-28164/1-B	Method Blank	TCLP	Solid	3010A	28164
LCS 570-28164/2-B	Lab Control Sample	TCLP	Solid	3010A	28164
LCSD 570-28164/3-B	Lab Control Sample Dup	TCLP	Solid	3010A	28164
570-9994-13 MS	ADL-7-0.5	TCLP	Solid	3010A	28164
570-9994-13 MSD	ADL-7-0.5	TCLP	Solid	3010A	28164

Prep Batch: 28709

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-9994-2	ADL-1-2	STLC Citrate	Solid	Dilution	28135
570-9994-14	ADL-7-2	STLC Citrate	Solid	Dilution	28135
LB4 570-28135/1-B	Method Blank	STLC Citrate	Solid	Dilution	28135
LCS 570-28135/2-B	Lab Control Sample	STLC Citrate	Solid	Dilution	28135
LCSD 570-28135/3-B	Lab Control Sample Dup	STLC Citrate	Solid	Dilution	28135
570-9223-A-8-F MS	Matrix Spike	STLC Citrate	Solid	Dilution	28135
570-9223-A-8-G MSD	Matrix Spike Duplicate	STLC Citrate	Solid	Dilution	28135

Prep Batch: 28722

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-9994-13	ADL-7-0.5	STLC Citrate	Solid	Dilution	28135
LB4 570-28135/1-C	Method Blank	STLC Citrate	Solid	Dilution	28135
LCS 570-28135/2-C	Lab Control Sample	STLC Citrate	Solid	Dilution	28135
LCSD 570-28135/3-C	Lab Control Sample Dup	STLC Citrate	Solid	Dilution	28135
570-9696-A-37-F MS	Matrix Spike	STLC Citrate	Solid	Dilution	28135
570-9696-A-37-G MSD	Matrix Spike Duplicate	STLC Citrate	Solid	Dilution	28135

QC Association Summary

Client: HARO Environmental
Project/Site: Santa Margarita Creek Bridge

Job ID: 570-9994-2

Metals

Analysis Batch: 28800

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-9994-13	ADL-7-0.5	TCLP	Solid	6010B	28381
LB 570-28164/1-B	Method Blank	TCLP	Solid	6010B	28381
LCS 570-28164/2-B	Lab Control Sample	TCLP	Solid	6010B	28381
LCSD 570-28164/3-B	Lab Control Sample Dup	TCLP	Solid	6010B	28381
570-9994-13 MS	ADL-7-0.5	TCLP	Solid	6010B	28381
570-9994-13 MSD	ADL-7-0.5	TCLP	Solid	6010B	28381

Analysis Batch: 29038

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-9994-13	ADL-7-0.5	STLC Citrate	Solid	6010B	28722
LB4 570-28135/1-C	Method Blank	STLC Citrate	Solid	6010B	28722
LCS 570-28135/2-C	Lab Control Sample	STLC Citrate	Solid	6010B	28722
LCSD 570-28135/3-C	Lab Control Sample Dup	STLC Citrate	Solid	6010B	28722
570-9696-A-37-F MS	Matrix Spike	STLC Citrate	Solid	6010B	28722
570-9696-A-37-G MSD	Matrix Spike Duplicate	STLC Citrate	Solid	6010B	28722

Analysis Batch: 29060

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-9994-2	ADL-1-2	STLC Citrate	Solid	6010B	28709
570-9994-14	ADL-7-2	STLC Citrate	Solid	6010B	28709
LB4 570-28135/1-B	Method Blank	STLC Citrate	Solid	6010B	28709
LCS 570-28135/2-B	Lab Control Sample	STLC Citrate	Solid	6010B	28709
LCSD 570-28135/3-B	Lab Control Sample Dup	STLC Citrate	Solid	6010B	28709
570-9223-A-8-F MS	Matrix Spike	STLC Citrate	Solid	6010B	28709
570-9223-A-8-G MSD	Matrix Spike Duplicate	STLC Citrate	Solid	6010B	28709

Lab Chronicle

Client: HARO Environmental
Project/Site: Santa Margarita Creek Bridge

Job ID: 570-9994-2

Client Sample ID: ADL-1-2

Date Collected: 10/11/19 10:55
Date Received: 10/12/19 09:30

Lab Sample ID: 570-9994-2

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
STLC Citrate	Leach	CA WET Citrate			50.01 g	500 mL	28135	10/23/19 17:00	UY73	ECL 3
STLC Citrate	Prep	Dilution			5 mL	50 mL	28709	10/25/19 17:30	UY73	ECL 1
STLC Citrate	Analysis	6010B		1			29060	10/28/19 14:15	ULPF	ECL 1
	Instrument ID:	ICP8								

Client Sample ID: ADL-7-0.5

Date Collected: 10/11/19 12:37
Date Received: 10/12/19 09:30

Lab Sample ID: 570-9994-13

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
STLC Citrate	Leach	CA WET Citrate			50.05 g	500 mL	28135	10/23/19 17:00	UY73	ECL 3
STLC Citrate	Prep	Dilution			5 mL	50 mL	28722	10/25/19 17:30	UY73	ECL 1
STLC Citrate	Analysis	6010B		1			29038	10/26/19 21:58	ULPF	ECL 1
	Instrument ID:	ICP8								
TCLP	Leach	1311			100.05 g	2000 mL	28164	10/23/19 19:00	UY73	ECL 3
TCLP	Prep	3010A			5 mL	50 mL	28381	10/24/19 14:30	UY73	ECL 1
TCLP	Analysis	6010B		1			28800	10/25/19 22:14	OYW3	ECL 1
	Instrument ID:	ICP8								

Client Sample ID: ADL-7-2

Date Collected: 10/11/19 12:44
Date Received: 10/12/19 09:30

Lab Sample ID: 570-9994-14

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
STLC Citrate	Leach	CA WET Citrate			50.02 g	500 mL	28135	10/23/19 17:00	UY73	ECL 3
STLC Citrate	Prep	Dilution			5 mL	50 mL	28709	10/25/19 17:30	UY73	ECL 1
STLC Citrate	Analysis	6010B		1			29060	10/28/19 13:45	ULPF	ECL 1
	Instrument ID:	ICP8								

Laboratory References:

ECL 1 = Eurofins Calscience LLC Lincoln, 7440 Lincoln Way, Garden Grove, CA 92841, TEL (714)895-5494

ECL 3 = Eurofins Calscience LLC Knott, 11380 Knott Street, Garden Grove, CA 92841, TEL (714)895-5494

Accreditation/Certification Summary

Client: HARO Environmental
Job ID: 570-9994-2
Project/Site: Santa Margarita Creek Bridge

Laboratory: Eurofins Calscience LLC

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arizona	State	AZ0781	03-13-20
California	SCAQMD LAP	17LA0919	11-30-19
California	State	2944	09-29-20
Guam	State	19-004R	10-31-19
Hawaii	State	<cert No.>	07-02-20
Nevada	State	CA00111	07-31-20
Oregon	NELAP	CA300001	01-29-20

Method Summary

Client: HARO Environmental
Project/Site: Santa Margarita Creek Bridge

Job ID: 570-9994-2

Method	Method Description	Protocol	Laboratory
6010B	Metals (ICP)	SW846	ECL 1
1311	TCLP Extraction	SW846	ECL 3
3010A	Preparation, Total Metals	SW846	ECL 1
CA WET Citrate	California - Waste Extraction Test with Citrate Leach	CA-WET	ECL 3
Dilution	Preparation / Dilution Process	None	ECL 1

Protocol References:

CA-WET = California Waste Extraction Test, from Title 22

None = None

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

ECL 1 = Eurofins Calscience LLC Lincoln, 7440 Lincoln Way, Garden Grove, CA 92841, TEL (714)895-5494

ECL 3 = Eurofins Calscience LLC Knott, 11380 Knott Street, Garden Grove, CA 92841, TEL (714)895-5494

Sample Summary

Client: HARO Environmental
Project/Site: Santa Margarita Creek Bridge

Job ID: 570-9994-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
570-9994-2	ADL-1-2	Solid	10/11/19 10:55	10/12/19 09:30	
570-9994-13	ADL-7-0.5	Solid	10/11/19 12:37	10/12/19 09:30	
570-9994-14	ADL-7-2	Solid	10/11/19 12:44	10/12/19 09:30	

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570-9994 Chain of Custody

CHAIN OF CUSTODY RECORD

DATE: 10/11/19

PAGE: 1 OF 2

LABORATORY CLIENT: HARO ENVIRONMENTAL, INC.

ADDRESS: PO BOX 7007

CITY: LOS OSOS STATE: CA ZIP: 93402

TEL: 805.204.4483 E-MAIL: ELLIOT.HARO@HAROENVIRONMENTAL.COM

CLIENT PROJECT NAME / NUMBER: SANTA MARGARITA CREEK BRIDGE

P.O. NO.:

PROJECT CONTACT: ELLIOT HARO

SAMPLER(S): (PRINT) ELIOT HARO

TURNAROUND TIME (Rush surcharges may apply to any TAT not "STANDARD"):

☐ SAME DAY ☐ 24 HR ☐ 48 HR ☐ 72 HR ☐ 5 DAYS ☒ STANDARD

☐ COELT EDF GLOBAL ID: LOG CODE:

SPECIAL INSTRUCTIONS:

HOLD STLC / TCLP PENDING TOTAL LEAD RESULTS

REQUESTED ANALYSES

Please check box or fill in blank as needed.

LAB USE ONLY	SAMPLE ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	Unpreserved	Preserved	Field Filtered	☐ TPH(g) ☐ GRO	☐ TPH(d) ☐ DRO	TPH ☐ C6-C36 ☐ C6-C44	TPH _____	BTEX / MTBE ☐ 8260 ☐ _____	VOCs (8260)	Oxygenates (8260)	Prep (5035) ☐ En Core ☐ Terra Core	SVOCs (8270)	Pesticides (8081)	PCBs (8082)	PAHs ☐ 8270 ☐ 8270 SIM	T22 Metals ☐ 6010/747X ☐ 6020/747X	Cr(VI) ☐ 7196 ☐ 7199 ☐ 218.6	LEAD - 6010 13	STLC Pb	TCLP Pb	
1	ADL-1-0.5	10/11/19	1045	SL	1	X																	X			
2	ADL-1-2		1055																							
3	ADL-2-0.5		1105																							
4	ADL-2-2		1115																							
5	ADL-3-0.5		1125																							
6	ADL-3-2		1128																							
7	ADL-4-0.5		1133																							
8	ADL-4-2		1137																							
9	ADL-5-0.5		1144																							
10	ADL-5-1		1155																							

Relinquished by: (Signature)	Received by: (Signature/Affiliation)	Date: 10/11/19	Time: 1530
Relinquished by: (Signature) (OSO)	Received by: (Signature/Affiliation) Marshall EC	Date: 10/12/19	Time: 9:30
Relinquished by: (Signature)	Received by: (Signature/Affiliation)	Date:	Time:

06/02/14 Revision

19.0/20.1 SCO

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WO # / LAB USE ONLY:

CHAIN OF CUSTODY RECORD

DATE: 10/11/19

PAGE: 2 OF 2

LABORATORY CLIENT: HALO ENVIRONMENTAL, INC.

ADDRESS:

CITY: STATE: ZIP:

TEL: E-MAIL:

CLIENT PROJECT NAME / NUMBER: SANTA MARGARITA CREEK BRIDGE

P.O. NO.:

PROJECT CONTACT: ELIOT HARO

SAMPLER(S): (PRINT) ELIOT HARO

TURNAROUND TIME (Rush surcharges may apply to any TAT not "STANDARD"):

☐ SAME DAY ☐ 24 HR ☐ 48 HR ☐ 72 HR ☐ 5 DAYS ☒ STANDARD

☐ COELT EDF

GLOBAL ID:

LOG CODE:

SPECIAL INSTRUCTIONS:

HOLD STLC/TCLP RANDM TOTAL LEAD RESULTS

REQUESTED ANALYSES

Please check box or fill in blank as needed.

LAB USE ONLY	SAMPLE ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	Unpreserved	Preserved	Field Filtered	☐ TPH(g) ☐ GRO	☐ TPH(d) ☐ DRO	TPH ☐ C6-C36 ☐ C6-C44	TPH ____	BTEX / MTBE ☐ 8260 ☐ ____	VOCs (8260)	Oxygenates (8260)	Prep (5035) ☐ En Core ☐ Terra Core	SVOCs (8270)	Pesticides (8081)	PCBs (8082)	PAHs ☐ 8270 ☐ 8270 SIM	T22 Metals ☐ 6010/747X ☐ 6020/747X	Cr(VI) ☐ 7196 ☐ 7199 ☐ 218.6	LEAD - 6010B	STLC Pb	TCLP Pb
11	ADL-6-0.5	10/11/19	1208	SL	1	X																	X		
12	ADL-6-1		1216																						
13	ADL-7-0.5		1237																						
14	ADL-7-2		1244																						
15	ADL-8-0.5		1223																						
16	ADL-8-2		1230																						

Relinquished by: (Signature)	Received by: (Signature/Affiliation)	Date: 10/11/19	Time: 1530
Relinquished by: (Signature) GSO	Received by: (Signature/Affiliation) Marked	Date: 10/12/19	Time: 9:30
Relinquished by: (Signature)	Received by: (Signature/Affiliation)	Date:	Time:

06/02/14 Revision

Login Sample Receipt Checklist

Client: HARO Environmental

Job Number: 570-9994-2

Login Number: 9994
List Number: 1
Creator: Ramos, Maribel

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	False	Thermal preservation not required.
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Attachment D

UCL Statistics for Data Sets with Non-Detects

User Selected Options	
Date/Time of Computation	ProUCL 5.111/13/2019 1:37:32 PM
From File	Santa Margarita Creek Bridge Data Tables_c.xls
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

lead - 0.5

General Statistics

Total Number of Observations	8	Number of Distinct Observations	8
Number of Detects	6	Number of Non-Detects	2
Number of Distinct Detects	6	Number of Distinct Non-Detects	2
Minimum Detect	6.55	Minimum Non-Detect	0.495
Maximum Detect	289	Maximum Non-Detect	0.503
Variance Detects	12655	Percent Non-Detects	25%
Mean Detects	59.58	SD Detects	112.5
Median Detects	16.65	CV Detects	1.888
Skewness Detects	2.439	Kurtosis Detects	5.961
Mean of Logged Detects	3.063	SD of Logged Detects	1.339

Note: Sample size is small (e.g., <10), if data are collected using ISM approach, you should use guidance provided in ITRC Tech Reg Guide on ISM (ITRC, 2012) to compute statistics of interest. For example, you may want to use Chebyshev UCL to estimate EPC (ITRC, 2012). Chebyshev UCL can be computed using the Nonparametric and All UCL Options of ProUCL 5.1

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.538	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.788	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.475	Lilliefors GOF Test
5% Lilliefors Critical Value	0.325	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

KM Mean	44.81	KM Standard Error of Mean	35.84
KM SD	92.54	95% KM (BCA) UCL	115.8
95% KM (t) UCL	112.7	95% KM (Percentile Bootstrap) UCL	113.9
95% KM (z) UCL	103.8	95% KM Bootstrap t UCL	630.9
90% KM Chebyshev UCL	152.3	95% KM Chebyshev UCL	201
97.5% KM Chebyshev UCL	268.6	99% KM Chebyshev UCL	401.4

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	1.093	Anderson-Darling GOF Test
5% A-D Critical Value	0.73	Detected Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.45	Kolmogorov-Smirnov GOF
5% K-S Critical Value	0.346	Detected Data Not Gamma Distributed at 5% Significance Level

Detected Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.603	k star (bias corrected MLE)	0.412
Theta hat (MLE)	98.88	Theta star (bias corrected MLE)	144.5

54				nu hat (MLE)	7.231			nu star (bias corrected)			4.949
55				Mean (detects)	59.58						
56											
57				Gamma ROS Statistics using Imputed Non-Detects							
58				GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs							
59				GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)							
60				For such situations, GROS method may yield incorrect values of UCLs and BTVs							
61				This is especially true when the sample size is small.							
62				For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates							
63				Minimum	0.01			Mean			44.69
64				Maximum	289			Median			12.22
65				SD	99			CV			2.215
66				k hat (MLE)	0.265			k star (bias corrected MLE)			0.249
67				Theta hat (MLE)	168.6			Theta star (bias corrected MLE)			179.5
68				nu hat (MLE)	4.242			nu star (bias corrected)			3.984
69				Adjusted Level of Significance (β)	0.0195						
70				Approximate Chi Square Value (3.98, α)	0.716			Adjusted Chi Square Value (3.98, β)			0.438
71				95% Gamma Approximate UCL (use when n>=50)	248.8			95% Gamma Adjusted UCL (use when n<50)			406.8
72											
73				Estimates of Gamma Parameters using KM Estimates							
74				Mean (KM)	44.81			SD (KM)			92.54
75				Variance (KM)	8564			SE of Mean (KM)			35.84
76				k hat (KM)	0.234			k star (KM)			0.23
77				nu hat (KM)	3.751			nu star (KM)			3.678
78				theta hat (KM)	191.1			theta star (KM)			194.9
79				80% gamma percentile (KM)	63.02			90% gamma percentile (KM)			135.2
80				95% gamma percentile (KM)	222.3			99% gamma percentile (KM)			457
81											
82				Gamma Kaplan-Meier (KM) Statistics							
83				Approximate Chi Square Value (3.68, α)	0.599			Adjusted Chi Square Value (3.68, β)			0.358
84				95% Gamma Approximate KM-UCL (use when n>=50)	275.3			95% Gamma Adjusted KM-UCL (use when n<50)			460.3
85											
86				Lognormal GOF Test on Detected Observations Only							
87				Shapiro Wilk Test Statistic	0.777			Shapiro Wilk GOF Test			
88				5% Shapiro Wilk Critical Value	0.788			Detected Data Not Lognormal at 5% Significance Level			
89				Lilliefors Test Statistic	0.372			Lilliefors GOF Test			
90				5% Lilliefors Critical Value	0.325			Detected Data Not Lognormal at 5% Significance Level			
91				Detected Data Not Lognormal at 5% Significance Level							
92											
93				Lognormal ROS Statistics Using Imputed Non-Detects							
94				Mean in Original Scale	44.93			Mean in Log Scale			2.295
95				SD in Original Scale	98.87			SD in Log Scale			1.816
96				95% t UCL (assumes normality of ROS data)	111.2			95% Percentile Bootstrap UCL			114.1
97				95% BCA Bootstrap UCL	146.4			95% Bootstrap t UCL			642.6
98				95% H-UCL (Log ROS)	2442						
99											
100				Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution							
101				KM Mean (logged)	2.121			KM Geo Mean			8.341
102				KM SD (logged)	1.944			95% Critical H Value (KM-Log)			5.977
103				KM Standard Error of Mean (logged)	0.753			95% H-UCL (KM -Log)			4457
104				KM SD (logged)	1.944			95% Critical H Value (KM-Log)			5.977
105				KM Standard Error of Mean (logged)	0.753						
106											

	A	B	C	D	E	F	G	H	I	J	K	L
107	DL/2 Statistics											
108	DL/2 Normal						DL/2 Log-Transformed					
109	Mean in Original Scale					44.75	Mean in Log Scale					1.95
110	SD in Original Scale					98.96	SD in Log Scale					2.351
111	95% t UCL (Assumes normality)					111	95% H-Stat UCL					62969
112	DL/2 is not a recommended method, provided for comparisons and historical reasons											
113												
114	Nonparametric Distribution Free UCL Statistics											
115	Data do not follow a Discernible Distribution at 5% Significance Level											
116												
117	Suggested UCL to Use											
118	95% KM (Chebyshev) UCL					201						
119												
120	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
121	Recommendations are based upon data size, data distribution, and skewness.											
122	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).											
123	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.											
124												

	A	B	C	D	E	F	G	H	I	J	K	L
1	UCL Statistics for Uncensored Full Data Sets											
2												
3	User Selected Options											
4	Date/Time of Computation	ProUCL 5.111/13/2019 1:42:54 PM										
5	From File	Santa Margarita Creek Bridge Data Tables_d.xls										
6	Full Precision	OFF										
7	Confidence Coefficient	95%										
8	Number of Bootstrap Operations	2000										
9												
10												
11	lead - 2											
12												
13	General Statistics											
14	Total Number of Observations					8			Number of Distinct Observations			8
15									Number of Missing Observations			0
16	Minimum					0.598			Mean			25.9
17	Maximum					71.6			Median			11.1
18	SD					29.66			Std. Error of Mean			10.49
19	Coefficient of Variation					1.145			Skewness			0.706
20												
21	Note: Sample size is small (e.g., <10), if data are collected using ISM approach, you should use											
22	guidance provided in ITRC Tech Reg Guide on ISM (ITRC, 2012) to compute statistics of interest.											
23	For example, you may want to use Chebyshev UCL to estimate EPC (ITRC, 2012).											
24	Chebyshev UCL can be computed using the Nonparametric and All UCL Options of ProUCL 5.1											
25												
26	Normal GOF Test											
27	Shapiro Wilk Test Statistic					0.811			Shapiro Wilk GOF Test			
28	5% Shapiro Wilk Critical Value					0.818			Data Not Normal at 5% Significance Level			
29	Lilliefors Test Statistic					0.277			Lilliefors GOF Test			
30	5% Lilliefors Critical Value					0.283			Data appear Normal at 5% Significance Level			
31	Data appear Approximate Normal at 5% Significance Level											
32												
33	Assuming Normal Distribution											
34	95% Normal UCL								95% UCLs (Adjusted for Skewness)			
35	95% Student's-t UCL					45.77			95% Adjusted-CLT UCL (Chen-1995)			45.95
36									95% Modified-t UCL (Johnson-1978)			46.21
37												
38	Gamma GOF Test											
39	A-D Test Statistic					0.477			Anderson-Darling Gamma GOF Test			
40	5% A-D Critical Value					0.758			Detected data appear Gamma Distributed at 5% Significance Level			
41	K-S Test Statistic					0.252			Kolmogorov-Smirnov Gamma GOF Test			
42	5% K-S Critical Value					0.308			Detected data appear Gamma Distributed at 5% Significance Level			
43	Detected data appear Gamma Distributed at 5% Significance Level											
44												
45	Gamma Statistics											
46	k hat (MLE)					0.563			k star (bias corrected MLE)			0.436
47	Theta hat (MLE)					45.97			Theta star (bias corrected MLE)			59.48
48	nu hat (MLE)					9.016			nu star (bias corrected)			6.968
49	MLE Mean (bias corrected)					25.9			MLE Sd (bias corrected)			39.25
50									Approximate Chi Square Value (0.05)			2.153
51	Adjusted Level of Significance					0.0195			Adjusted Chi Square Value			1.542
52												
53	Assuming Gamma Distribution											

54				95% Approximate Gamma UCL (use when n>=50))		83.84			95% Adjusted Gamma UCL (use when n<50)			117.1
55												
56						Lognormal GOF Test						
57					Shapiro Wilk Test Statistic	0.897			Shapiro Wilk Lognormal GOF Test			
58					5% Shapiro Wilk Critical Value	0.818			Data appear Lognormal at 5% Significance Level			
59					Lilliefors Test Statistic	0.194			Lilliefors Lognormal GOF Test			
60					5% Lilliefors Critical Value	0.283			Data appear Lognormal at 5% Significance Level			
61						Data appear Lognormal at 5% Significance Level						
62												
63						Lognormal Statistics						
64					Minimum of Logged Data	-0.514			Mean of logged Data			2.148
65					Maximum of Logged Data	4.271			SD of logged Data			1.879
66												
67						Assuming Lognormal Distribution						
68					95% H-UCL	3056			90% Chebyshev (MVUE) UCL			96.92
69					95% Chebyshev (MVUE) UCL	125.9			97.5% Chebyshev (MVUE) UCL			166.1
70					99% Chebyshev (MVUE) UCL	245.1						
71												
72						Nonparametric Distribution Free UCL Statistics						
73						Data appear to follow a Discernible Distribution at 5% Significance Level						
74												
75						Nonparametric Distribution Free UCLs						
76					95% CLT UCL	43.15			95% Jackknife UCL			45.77
77					95% Standard Bootstrap UCL	42.12			95% Bootstrap-t UCL			51.83
78					95% Hall's Bootstrap UCL	39.69			95% Percentile Bootstrap UCL			42.17
79					95% BCA Bootstrap UCL	43.23						
80					90% Chebyshev(Mean, Sd) UCL	57.37			95% Chebyshev(Mean, Sd) UCL			71.62
81					97.5% Chebyshev(Mean, Sd) UCL	91.4			99% Chebyshev(Mean, Sd) UCL			130.3
82												
83						Suggested UCL to Use						
84					95% Student's-t UCL	45.77						
85												
86						When a data set follows an approximate (e.g., normal) distribution passing one of the GOF test						
87						When applicable, it is suggested to use a UCL based upon a distribution (e.g., gamma) passing both GOF tests in ProUCL						
88												
89						Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.						
90						Recommendations are based upon data size, data distribution, and skewness.						
91						These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).						
92						However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.						
93												

	A	B	C	D	E	F	G	H	I	J	K	L
1	UCL Statistics for Data Sets with Non-Detects											
2												
3	User Selected Options											
4	Date/Time of Computation	ProUCL 5.111/13/2019 1:22:48 PM										
5	From File	Santa Margarita Creek Bridge Data Tables_b.xls										
6	Full Precision	OFF										
7	Confidence Coefficient	95%										
8	Number of Bootstrap Operations	2000										
9												
10	lead											
11												
12	General Statistics											
13	Total Number of Observations	16				Number of Distinct Observations	16					
14	Number of Detects	14				Number of Non-Detects	2					
15	Number of Distinct Detects	14				Number of Distinct Non-Detects	2					
16	Minimum Detect	0.598				Minimum Non-Detect	0.495					
17	Maximum Detect	289				Maximum Non-Detect	0.503					
18	Variance Detects	5640				Percent Non-Detects	12.5%					
19	Mean Detects	40.34				SD Detects	75.1					
20	Median Detects	16.65				CV Detects	1.862					
21	Skewness Detects	3.194				Kurtosis Detects	10.92					
22	Mean of Logged Detects	2.54				SD of Logged Detects	1.676					
23												
24	Normal GOF Test on Detects Only											
25	Shapiro Wilk Test Statistic	0.542				Shapiro Wilk GOF Test						
26	5% Shapiro Wilk Critical Value	0.874				Detected Data Not Normal at 5% Significance Level						
27	Lilliefors Test Statistic	0.327				Lilliefors GOF Test						
28	5% Lilliefors Critical Value	0.226				Detected Data Not Normal at 5% Significance Level						
29	Detected Data Not Normal at 5% Significance Level											
30												
31	Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs											
32	KM Mean	35.36				KM Standard Error of Mean	17.89					
33	KM SD	68.97				95% KM (BCA) UCL	71.13					
34	95% KM (t) UCL	66.72				95% KM (Percentile Bootstrap) UCL	68.3					
35	95% KM (z) UCL	64.79				95% KM Bootstrap t UCL	128.3					
36	90% KM Chebyshev UCL	89.03				95% KM Chebyshev UCL	113.3					
37	97.5% KM Chebyshev UCL	147.1				99% KM Chebyshev UCL	213.4					
38												
39	Gamma GOF Tests on Detected Observations Only											
40	A-D Test Statistic	0.456				Anderson-Darling GOF Test						
41	5% A-D Critical Value	0.789				Detected data appear Gamma Distributed at 5% Significance Level						
42	K-S Test Statistic	0.223				Kolmogorov-Smirnov GOF						
43	5% K-S Critical Value	0.241				Detected data appear Gamma Distributed at 5% Significance Level						
44	Detected data appear Gamma Distributed at 5% Significance Level											
45												
46	Gamma Statistics on Detected Data Only											
47	k hat (MLE)	0.542				k star (bias corrected MLE)	0.473					
48	Theta hat (MLE)	74.43				Theta star (bias corrected MLE)	85.2					
49	nu hat (MLE)	15.18				nu star (bias corrected)	13.26					
50	Mean (detects)	40.34										
51												
52	Gamma ROS Statistics using Imputed Non-Detects											
53	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs											

54	GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)										
55	For such situations, GROS method may yield incorrect values of UCLs and BTVs										
56	This is especially true when the sample size is small.										
57	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates										
58					Minimum	0.01			Mean	35.3	
59					Maximum	289			Median	12.22	
60					SD	71.26			CV	2.019	
61					k hat (MLE)	0.351			k star (bias corrected MLE)	0.327	
62					Theta hat (MLE)	100.7			Theta star (bias corrected MLE)	108.1	
63					nu hat (MLE)	11.22			nu star (bias corrected)	10.45	
64					Adjusted Level of Significance (β)	0.0335					
65					Approximate Chi Square Value (10.45, α)	4.225			Adjusted Chi Square Value (10.45, β)	3.784	
66					95% Gamma Approximate UCL (use when n>=50)	87.3			95% Gamma Adjusted UCL (use when n<50)	97.47	
67											
68	Estimates of Gamma Parameters using KM Estimates										
69					Mean (KM)	35.36			SD (KM)	68.97	
70					Variance (KM)	4756			SE of Mean (KM)	17.89	
71					k hat (KM)	0.263			k star (KM)	0.255	
72					nu hat (KM)	8.411			nu star (KM)	8.167	
73					theta hat (KM)	134.5			theta star (KM)	138.5	
74					80% gamma percentile (KM)	51.72			90% gamma percentile (KM)	106	
75					95% gamma percentile (KM)	170.1			99% gamma percentile (KM)	340.3	
76											
77	Gamma Kaplan-Meier (KM) Statistics										
78					Approximate Chi Square Value (8.17, α)	2.832			Adjusted Chi Square Value (8.17, β)	2.486	
79					95% Gamma Approximate KM-UCL (use when n>=50)	102			95% Gamma Adjusted KM-UCL (use when n<50)	116.1	
80											
81	Lognormal GOF Test on Detected Observations Only										
82					Shapiro Wilk Test Statistic	0.983			Shapiro Wilk GOF Test		
83					5% Shapiro Wilk Critical Value	0.874			Detected Data appear Lognormal at 5% Significance Level		
84					Lilliefors Test Statistic	0.12			Lilliefors GOF Test		
85					5% Lilliefors Critical Value	0.226			Detected Data appear Lognormal at 5% Significance Level		
86	Detected Data appear Lognormal at 5% Significance Level										
87											
88	Lognormal ROS Statistics Using Imputed Non-Detects										
89					Mean in Original Scale	35.33			Mean in Log Scale	2.05	
90					SD in Original Scale	71.24			SD in Log Scale	2.057	
91					95% t UCL (assumes normality of ROS data)	66.55			95% Percentile Bootstrap UCL	66.22	
92					95% BCA Bootstrap UCL	85.83			95% Bootstrap t UCL	139.1	
93					95% H-UCL (Log ROS)	731.5					
94											
95	Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution										
96					KM Mean (logged)	2.134			KM Geo Mean	8.452	
97					KM SD (logged)	1.853			95% Critical H Value (KM-Log)	4.192	
98					KM Standard Error of Mean (logged)	0.481			95% H-UCL (KM -Log)	349.7	
99					KM SD (logged)	1.853			95% Critical H Value (KM-Log)	4.192	
100					KM Standard Error of Mean (logged)	0.481					
101											
102	DL/2 Statistics										
103					DL/2 Normal				DL/2 Log-Transformed		
104					Mean in Original Scale	35.33			Mean in Log Scale	2.049	
105					SD in Original Scale	71.24			SD in Log Scale	2.058	
106					95% t UCL (Assumes normality)	66.55			95% H-Stat UCL	735.7	

	A	B	C	D	E	F	G	H	I	J	K	L
107	DL/2 is not a recommended method, provided for comparisons and historical reasons											
108												
109	Nonparametric Distribution Free UCL Statistics											
110	Detected Data appear Gamma Distributed at 5% Significance Level											
111												
112	Suggested UCL to Use											
113	ljusted KM-UCL (use when k<=1 and 15 < n < 50 but k<=1)					116.1						
114												
115	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
116	Recommendations are based upon data size, data distribution, and skewness.											
117	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).											
118	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.											
119												