

INDEX OF PLANS

SHEET No.	DESCRIPTION
1	TITLE AND LOCATION MAP
2-3	TYPICAL CROSS SECTIONS
4-5	LAYOUTS
6	PROFILES AND SUPERELEVATION DIAGRAM
7-8	CONSTRUCTION DETAILS
9-16	DRAINAGE PLANS, PROFILES, DETAILS AND QUANTITIES
17-18	UTILITY PLANS
19	CONSTRUCTION AREA SIGNS
20	STAGE CONSTRUCTION PLANS
21-22	TRAFFIC HANDLING PLAN AND SIGN DETAILS, AND QUANTITIES
23	PAVEMENT DELINEATION PLAN, DETAILS AND QUANTITIES
24	SUMMARY OF QUANTITIES
25-29	EROSION CONTROL PLAN, QUANTITIES AND LEGEND
30-34	ELECTRICAL PLANS
35-38	SPECIAL ELECTRICAL STRUCTURES
39-68	REVISED STANDARD PLANS

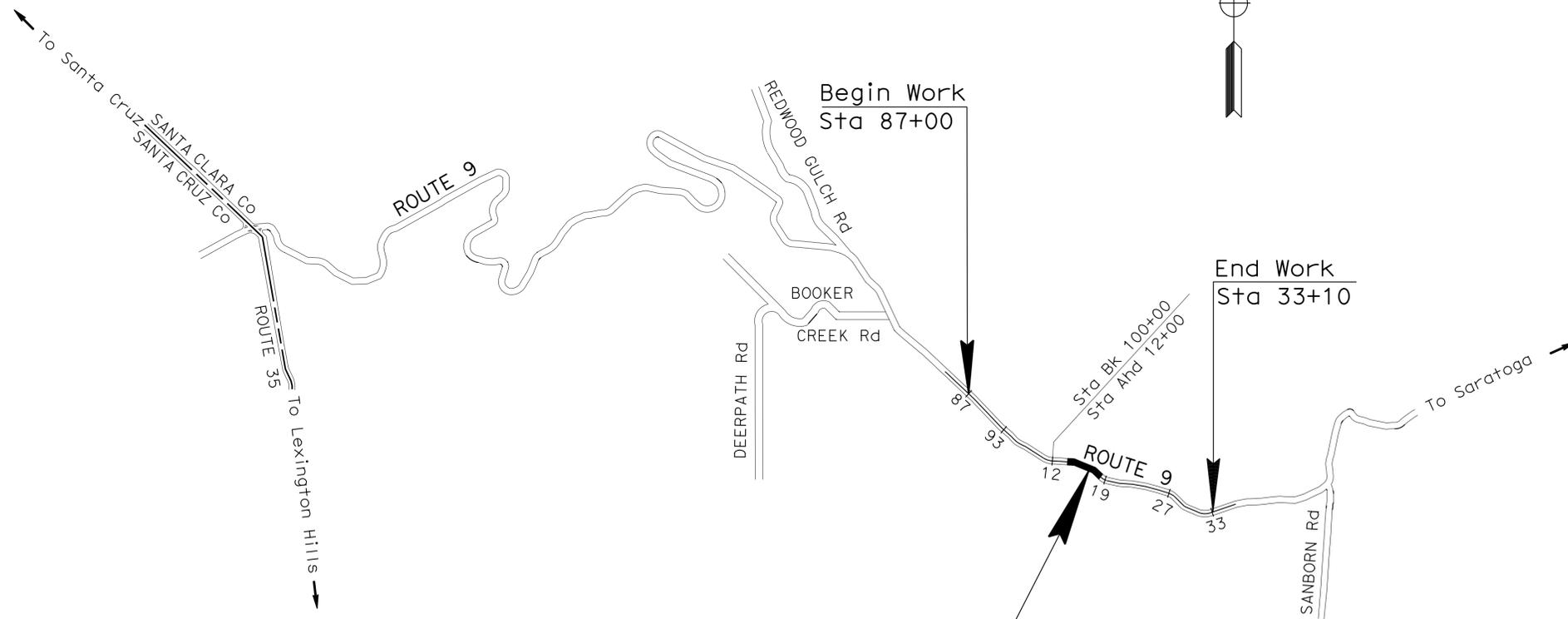
STRUCTURE PLANS

69-83 SARATOGA CREEK WALL

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

STATE OF CALIFORNIA  
**DEPARTMENT OF TRANSPORTATION**  
**PROJECT PLANS FOR CONSTRUCTION ON**  
**STATE HIGHWAY**  
**IN SANTA CLARA COUNTY**  
**NEAR SARATOGA**  
**AT 0.8 MILE WEST OF SANBORN ROAD**

TO BE SUPPLEMENTED BY STANDARD PLANS DATED 2010



**LOCATION OF CONSTRUCTION**  
**PM 4.2**

NO SCALE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	1	83

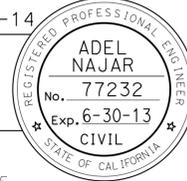
LOCATION MAP

PROJECT MANAGER  
**DINA EL-TAWANSY**  
 DESIGN ENGINEER  
**GETACHEW ESHETE**

06-26-14  
 PROJECT ENGINEER REGISTERED CIVIL ENGINEER

July 28, 2014

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.



CONTRACT No.	<b>04-4S0504</b>
PROJECT ID	<b>0400001202</b>

DATE PLOTTED => 07-AUG-2014    TIME PLOTTED => 11:13

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** 06-DESIGN  
 FUNCTIONAL SUPERVISOR: GETACHEW ESHETE  
 RAJINDER S BRAR  
 DAN MASSA  
 H.S.: 6-26-14  
 REVISIONS: (None shown)

**NOTES:**

1. REMOVE AND PLACEMENT OF HMA DIKE, MBGR AND MGS, SEE LAYOUTS, SUMMARY OF QUANTITIES AND CONSTRUCTION DETAILS SHEETS.
2. FOR DETAILS CONCERNING CONCRETE BARRIER TYPE 732, SEE STRUCTURE PLANS.
3. DIMENSIONS OF THE PAVEMENT STRUCTURAL SECTIONS ARE SUBJECT TO TOLERANCES SPECIFIED IN THE STANDARD SPECIFICATIONS.
4. SUPERELEVATION AS SHOWN OR AS DIRECTED BY ENGINEER.
5. SEE STRUCTURE PLANS FOR EXCAVATION AND BACKFILL DETAILS ASSOCIATED WITH SOLDIER PILE WALL CONSTRUCTION.
6. FOR COLD PLANE LIMITS, SEE LAYOUT SHEETS.

**DESIGN DESIGNATION (ROUTE 9)**

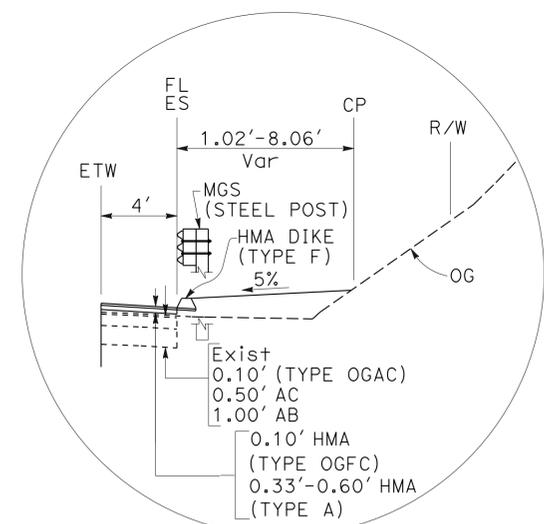
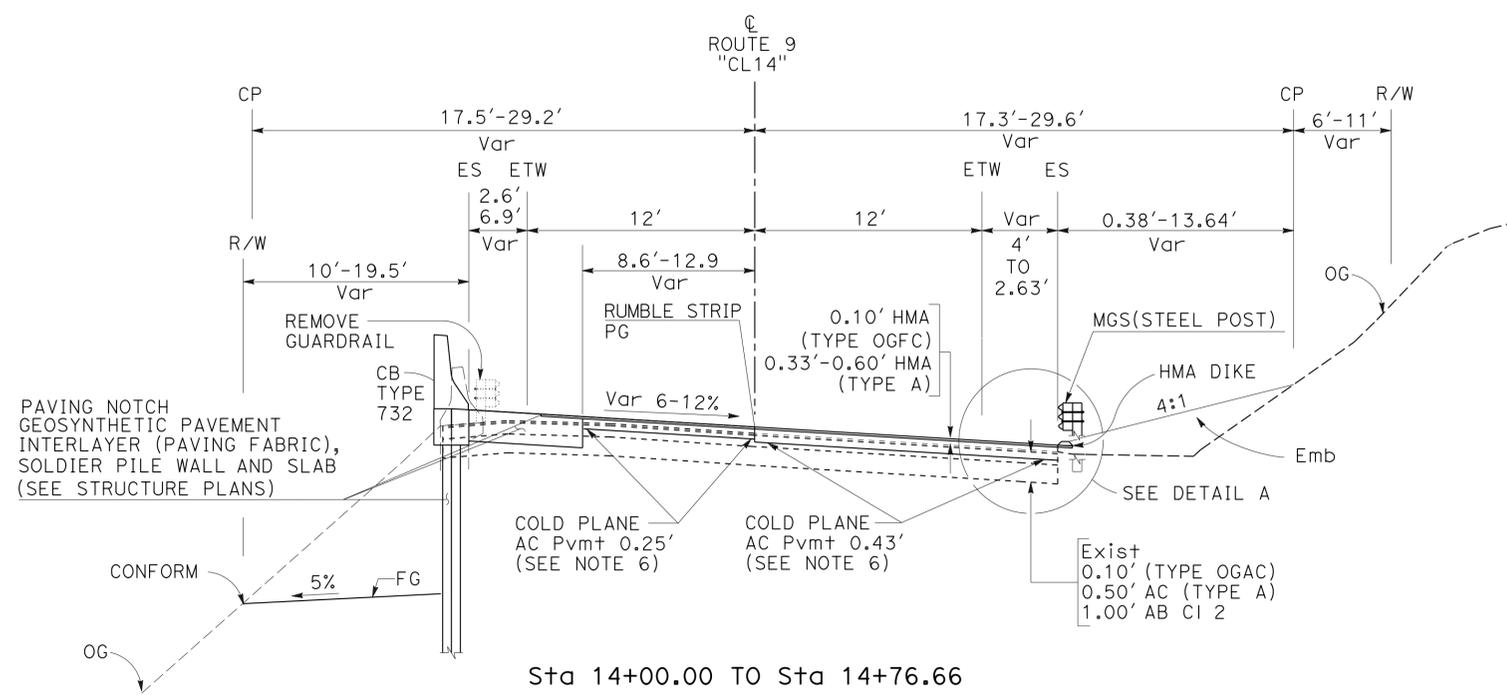
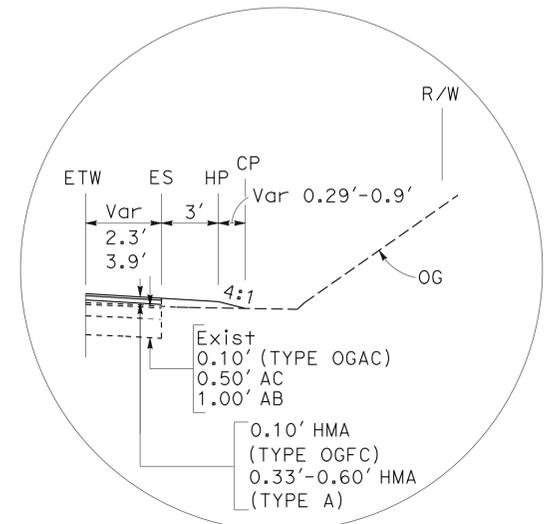
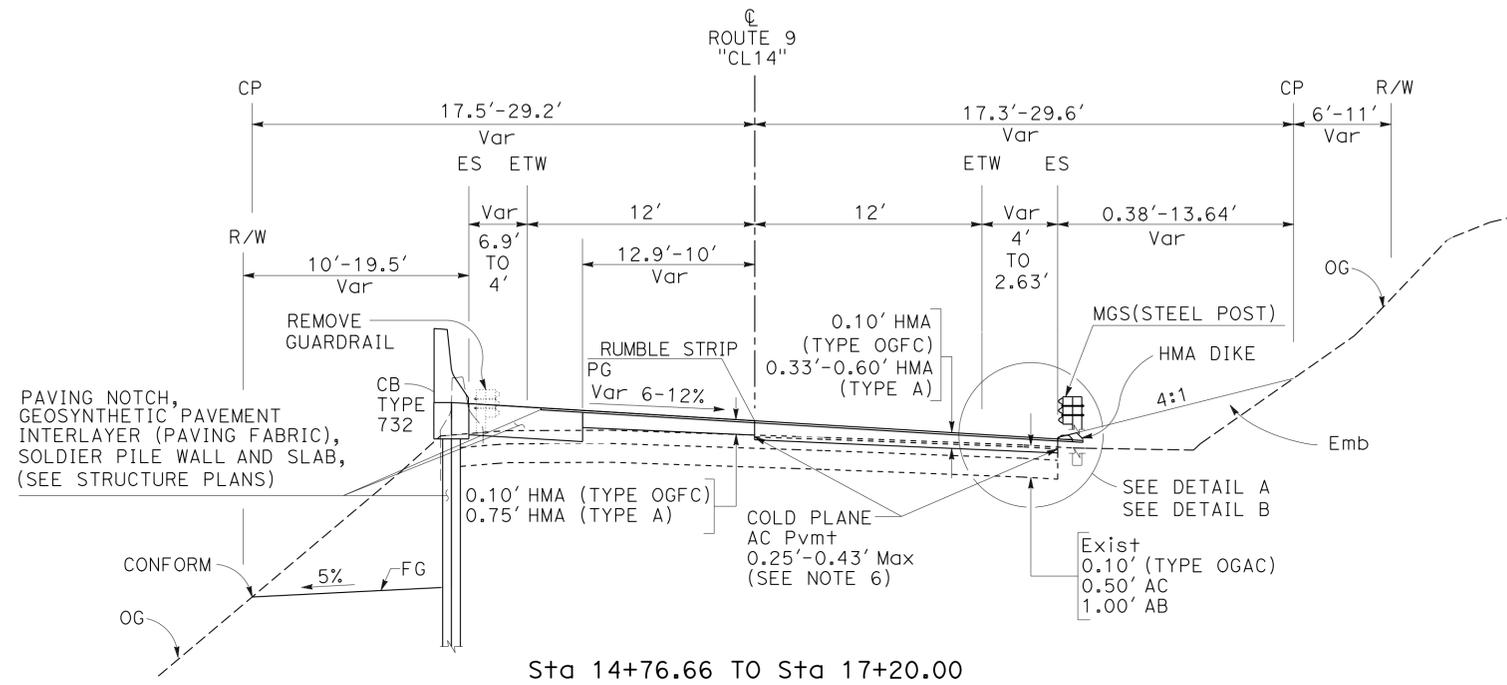
2011 ADT = 5300 D = 55%  
 2031 ADT = 8300 T = 1%  
 DHV = 600

**PAVEMENT CLIMATE REGION**

LOW MOUNTAIN

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	2	83

REGISTERED CIVIL ENGINEER: ADEL NAJAR  
 No. 77232  
 Exp. 6-30-15  
 CIVIL  
 DATE: 6/26/14  
 PLANS APPROVAL DATE: 7-28-14  
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**TYPICAL CROSS SECTIONS**

NO SCALE

X-1





**NOTE:**  
 FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

**CURVE DATA**

No. (X)	R	$\Delta$	T	L
2	550'	19°01'23"	92.15'	182.61'

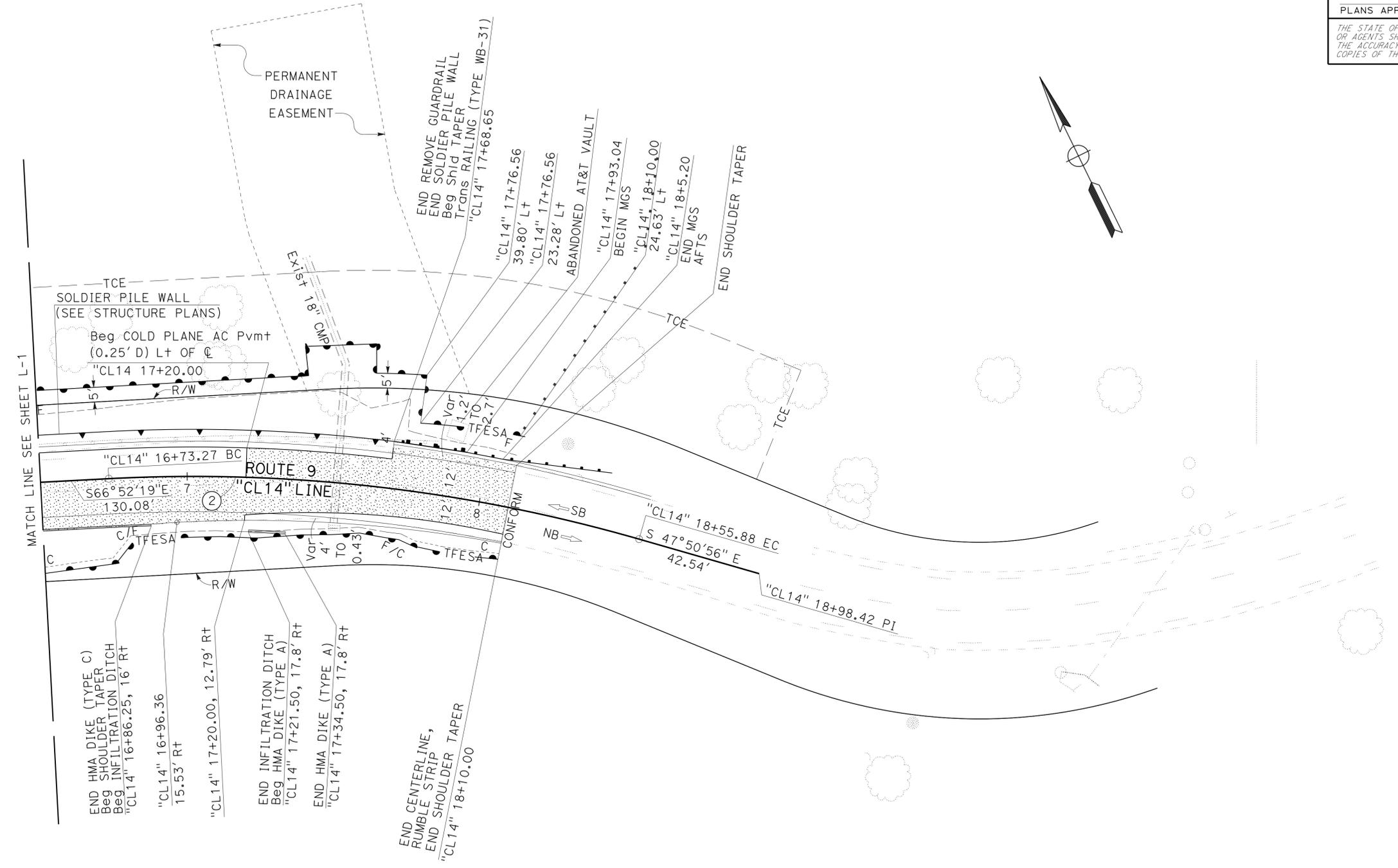
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04	SCI	9	4.2	5	83

6/26/14  
 REGISTERED CIVIL ENGINEER DATE

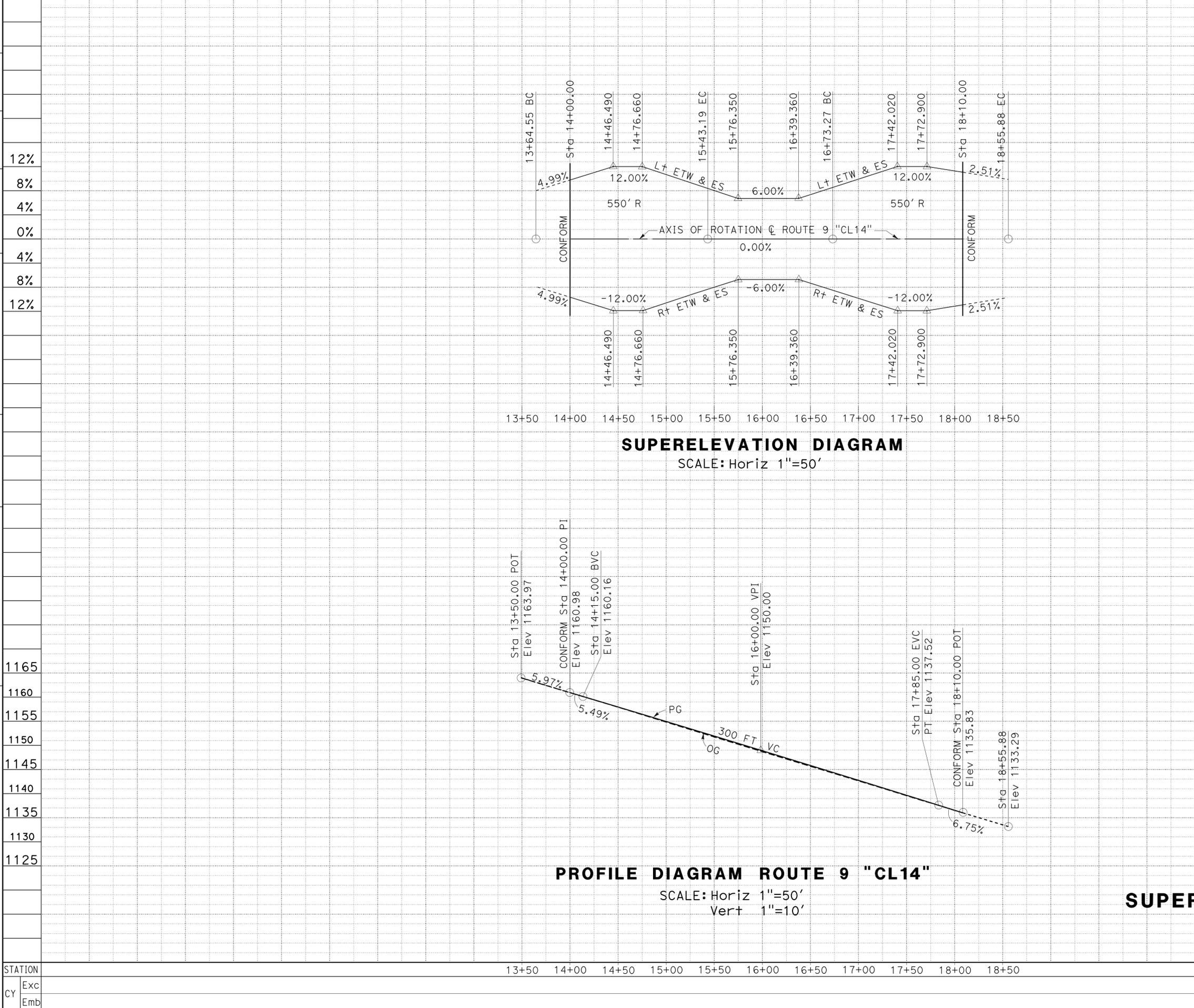
7-28-14  
 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER  
**ADEL NAJAR**  
 No. 77232  
 Exp. 6-30-15  
 CIVIL  
 STATE OF CALIFORNIA

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STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** 06 - DESIGN  
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 RAJINDER S BRAR  
 DAN MASSA  
 CALCULATED-DESIGNED BY  
 CHECKED BY  
 REVISOR BY  
 DATE REVISED



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	6	83
REGISTERED CIVIL ENGINEER			DATE	6/26/14	
7-28-14			PLANS APPROVAL DATE		
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**PROFILE AND SUPERELEVATION DIAGRAM**  
 SCALE AS SHOWN  
**PS-1**

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**Caltrans**  
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 RAJINDER S BRAR  
 DAN MASSA  
 A.S.  
 4-30-12  
 REVISIONS: 4-30-12

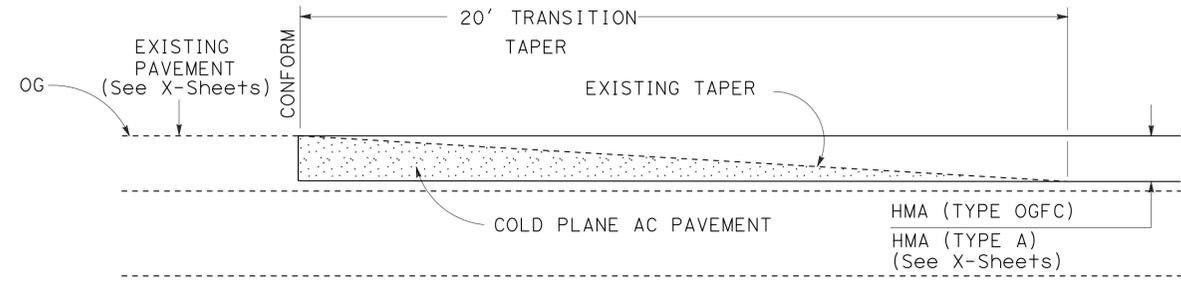
**NOTES:**

- EXISTING UTILITY FACILITIES ARE NOT PLOTTED ON THESE PLANS.
- PLACE FOG SEAL COAT AFTER CONSTRUCTING CENTERLINE RUMBLE STRIP AND PRIOR TO RESTRIPING.
- SEE SHEET PD-1 FOR ADDITIONAL DETAILS ON TRAFFIC STRIPE.

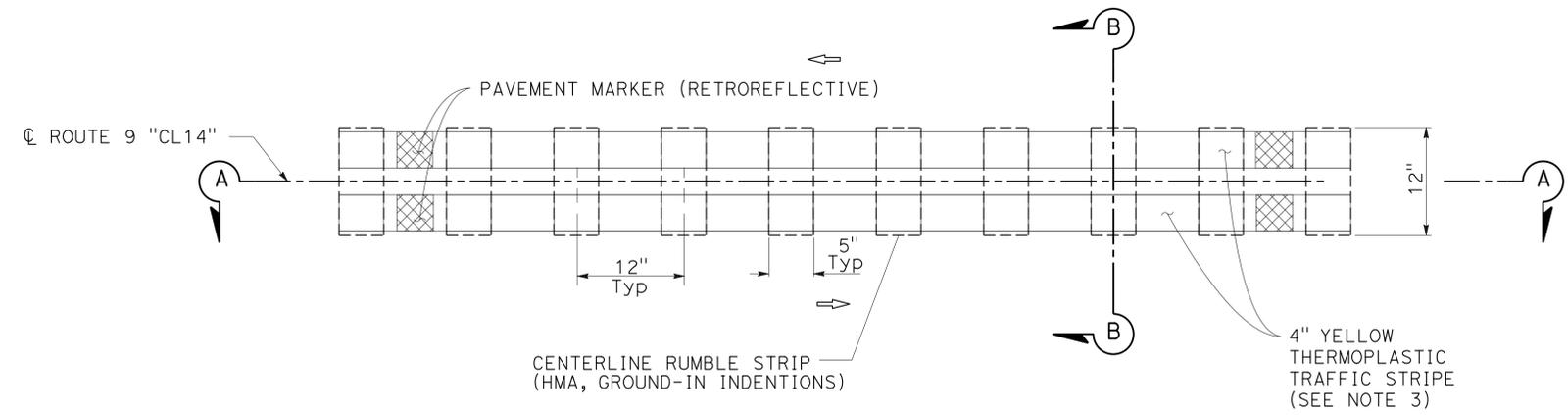
**LEGEND:**

 COLD PLANE Exist AC SURFACE

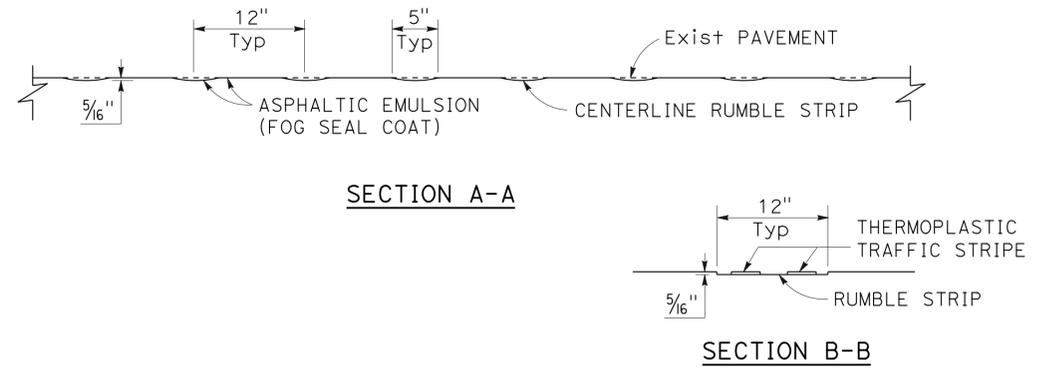
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04	SCI	9	4.2	7	83
REGISTERED CIVIL ENGINEER			DATE	6/26/14	
PLANS APPROVAL DATE			7-28-14		
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.					



**TYPICAL COLD PLANING AT BEGINNING AND END OF JOB**



**CENTERLINE RUMBLE STRIP (HMA, GROUND-IN INDENTATION) DETAIL**



**CONSTRUCTION DETAILS**

NO SCALE

**C-1**

LAST REVISION DATE PLOTTED => 07-AUG-2014 07-23-14 TIME PLOTTED => 16:13

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Sci	9	4.2	8	83

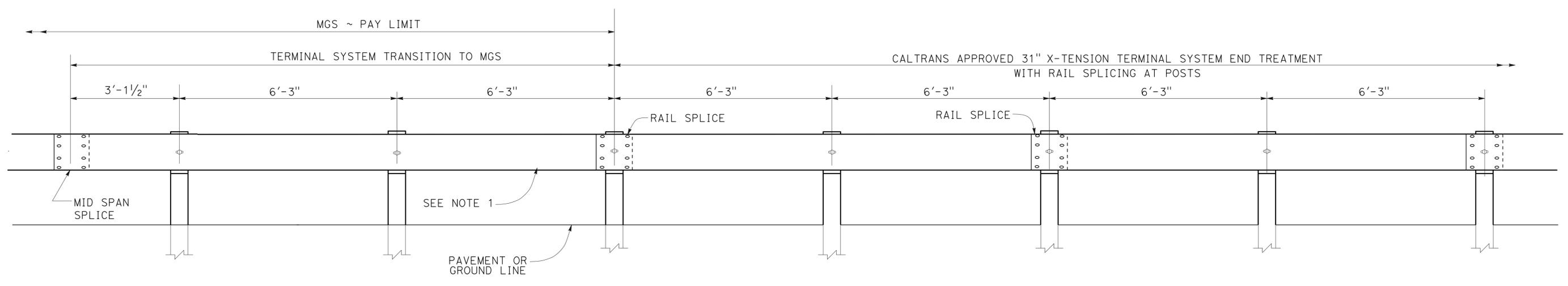
	6/26/14
REGISTERED CIVIL ENGINEER	DATE
7-28-14	
PLANS APPROVAL DATE	

REGISTERED PROFESSIONAL ENGINEER
ADEL NAJJAR
No. 77232
Exp. 6-30-15
CIVIL
STATE OF CALIFORNIA

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**NOTE:**  
USE 15'-7 1/2" LENGTH RAIL.



**TRANSITION DETAIL FOR 31" X-TENSION TERMINAL SYSTEM END TREATMENT  
WITH RAIL SPLICING AT POSTS TO MIDWEST GUARDRAIL SYSTEM**

**CONSTRUCTION DETAILS**  
NO SCALE  
**C-2**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans**  
 06-DESIGN  
 FUNCTIONAL SUPERVISOR  
 GETACHEW ESHETE  
 CALCULATED-DESIGNED BY  
 CHECKED BY  
 HOSS SHOJAI  
 DAN MASSA  
 REVISED BY  
 DATE REVISED

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	9	83

REGISTERED CIVIL ENGINEER	DATE	6/26/14
7-28-14		
PLANS APPROVAL DATE		

REGISTERED PROFESSIONAL ENGINEER	No.	77232
Exp.		6-30-15
CIVIL		

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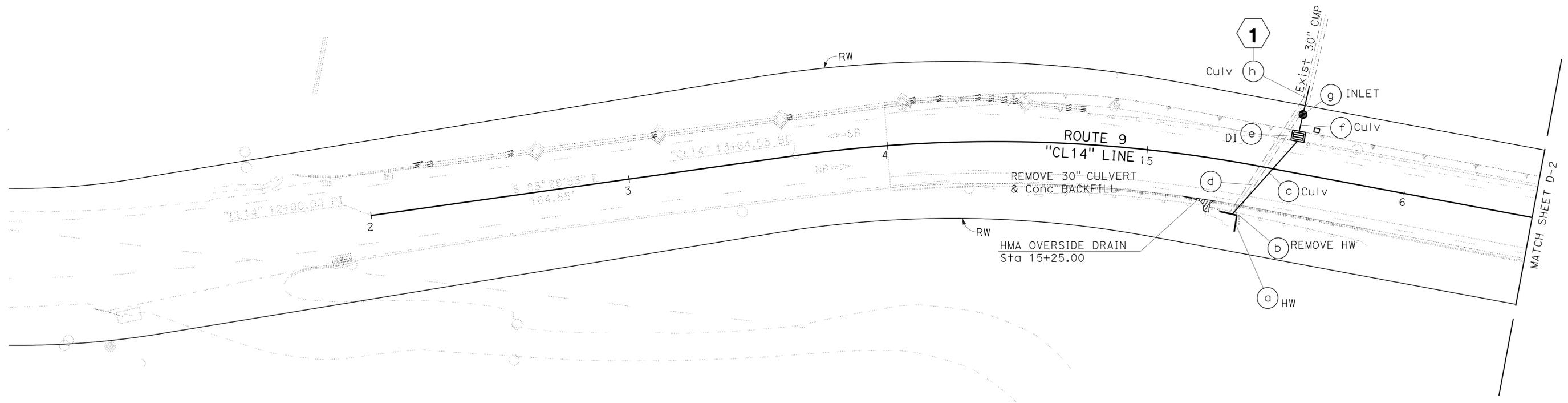
**NOTE:**  
FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE

**ABBREVIATION:**  
GMP STEEL PIPE INLET WITH PLATE

**LEGEND:**  
 HMA OVERSIDE DRAIN  
 GRADE TO DRAIN  
 HMA APRON



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Caltrans	
FUNCTIONAL SUPERVISOR	GETACHEW ESHETE
CALCULATED-DESIGNED BY	CHECKED BY
RAJINDER S BRAR	DAN MASSA
REVISED BY	DATE REVISED



**DRAINAGE PLAN**  
SCALE: 1"=20' **D-1**

APPROVED FOR DRAINAGE WORK ONLY

LAST REVISION    DATE PLOTTED => 07-AUG-2014    07-23-14    TIME PLOTTED => 11:14

**NOTE:**  
FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	10	83

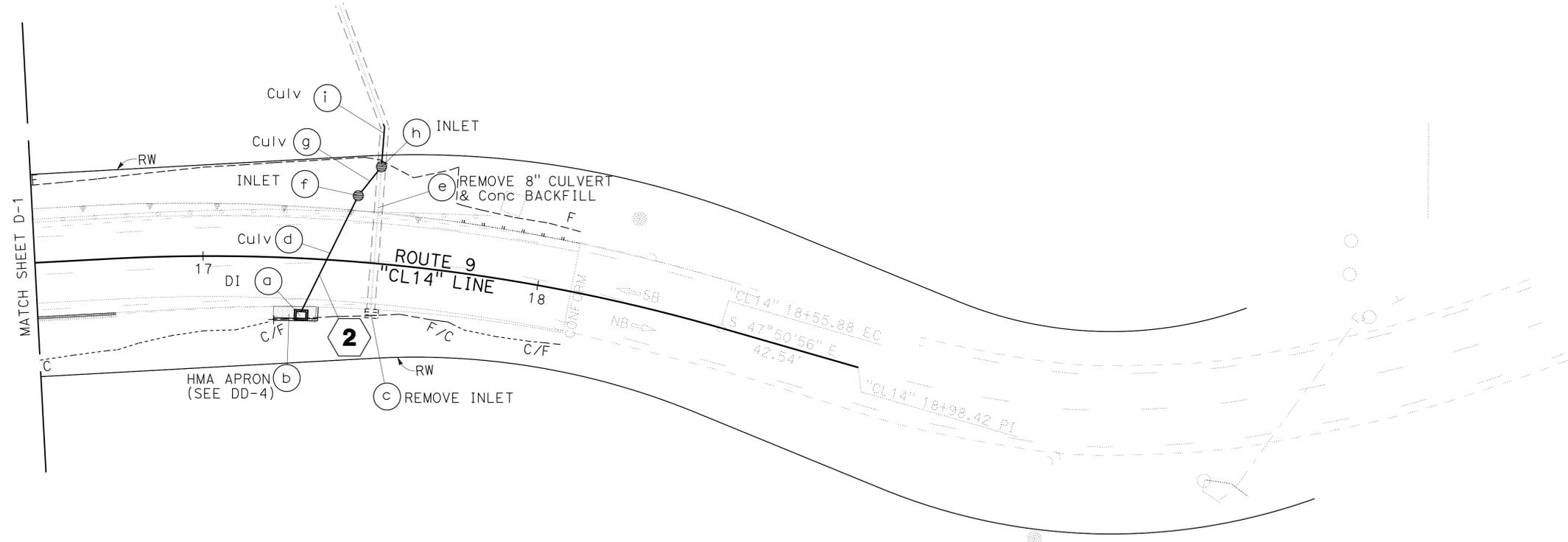
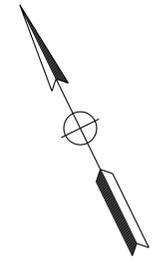
  

REGISTERED CIVIL ENGINEER	DATE	6/26/14
		
PLANS APPROVAL DATE	7-28-14	

REGISTERED PROFESSIONAL ENGINEER <b>ADEL NAJJAR</b> No. 77232 Exp. 6-30-15 CIVIL STATE OF CALIFORNIA
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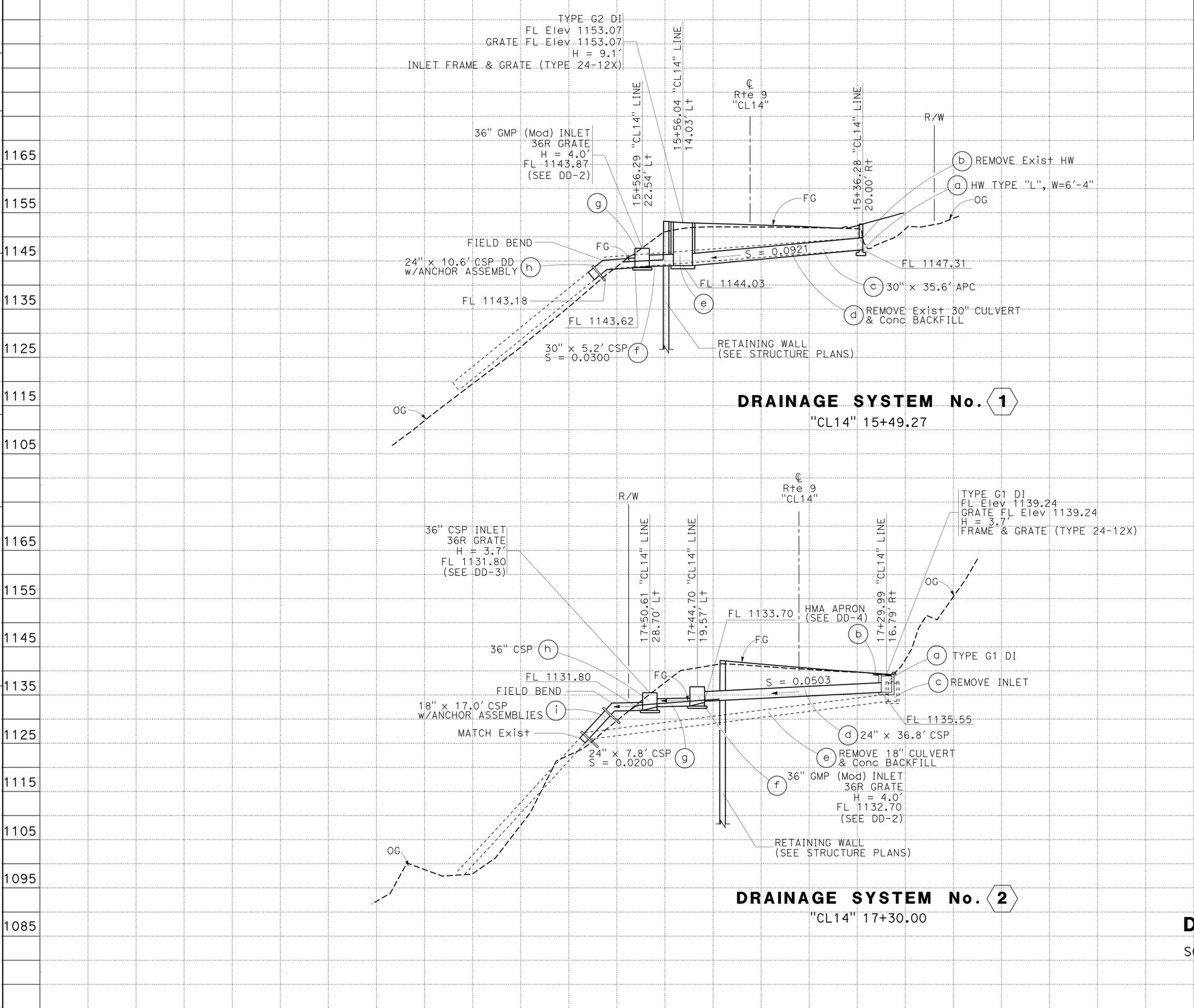
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	FUNCTIONAL SUPERVISOR	CALCULATED-DESIGNED BY	HOSS SHOJAI	REVISED BY	
<b>Caltrans</b> 06-DESIGN	GETACHEW ESHETE	CHECKED BY	ADEL NAJJAR	DATE REVISED	

**DRAINAGE PLAN**  
SCALE: 1"=20'  
**D-2**

APPROVED FOR DRAINAGE WORK ONLY

LAST REVISION DATE PLOTTED => 07-AUG-2014  
07-23-14 TIME PLOTTED => 11:14

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans**  
 06-DESIGN  
 RAJINDER S BRAR  
 DAN MASSA  
 GETACHEW ESHETE  
 H.S.  
 6-27-14



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	11	83

6/26/14  
 REGISTERED CIVIL ENGINEER DATE  
 7-28-14  
 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER  
 ADEL NAJAR  
 No. 77232  
 Exp. 6-30-15  
 CIVIL  
 STATE OF CALIFORNIA

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**DRAINAGE PROFILES**  
 DP-1  
 SCALE: Horiz 1"=10'  
 Vert 1"=10'

LAST REVISION DATE PLOTTED => 07-AUG-2014  
 07-23-14 TIME PLOTTED => 11:14

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** 06-DESIGN

FUNCTIONAL SUPERVISOR  
 GETACHEW ESHETE

CALCULATED-DESIGNED BY  
 CHECKED BY

BILL LEE  
 ADEL NAJAR

REVISOR  
 DATE

H.S.  
 06-26-14

- LEGEND:**
-  HMA
  -  RETAINING WALL
  -  HMA OVERSIDE DRAIN

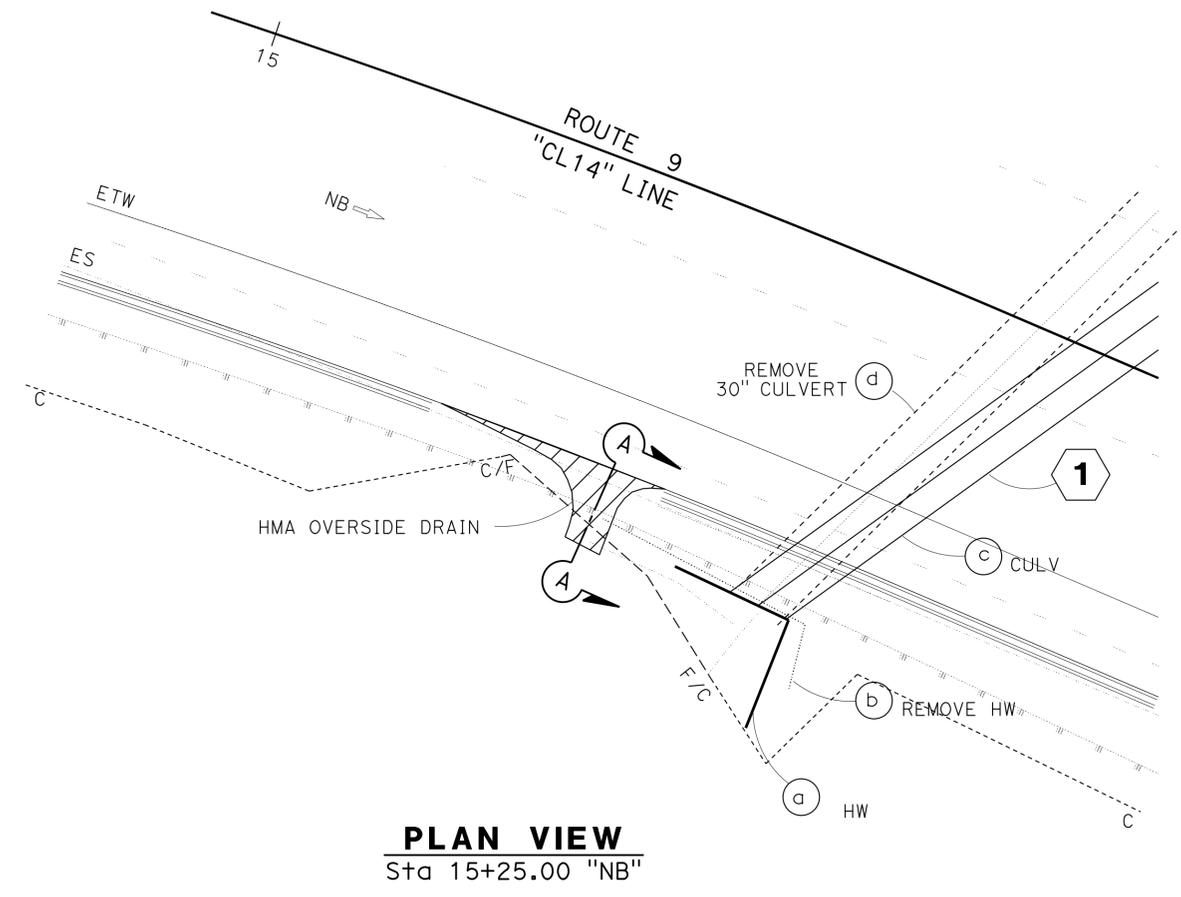
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04	SCI	9	4.2	12	83

REGISTERED CIVIL ENGINEER  
 ADEL NAJAR  
 No. 77232  
 Exp. 6-30-15  
 CIVIL

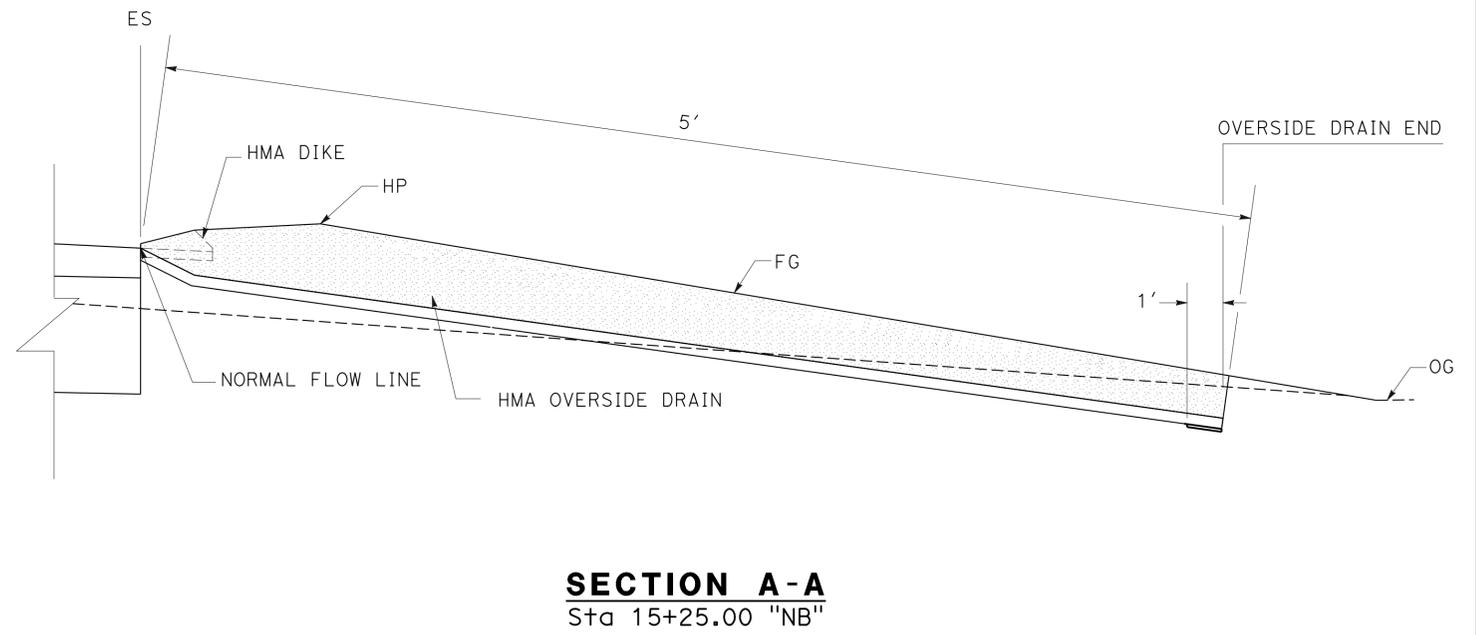
6/26/14  
 DATE

7-28-14  
 PLANS APPROVAL DATE

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**PLAN VIEW**  
 Sta 15+25.00 "NB"



**SECTION A-A**  
 Sta 15+25.00 "NB"

**HMA OVERSIDE DRAIN DETAIL**  
**DRAINAGE SYSTEM No. 1**

**DRAINAGE DETAILS**  
 NO SCALE  
**DD-1**

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	13	83

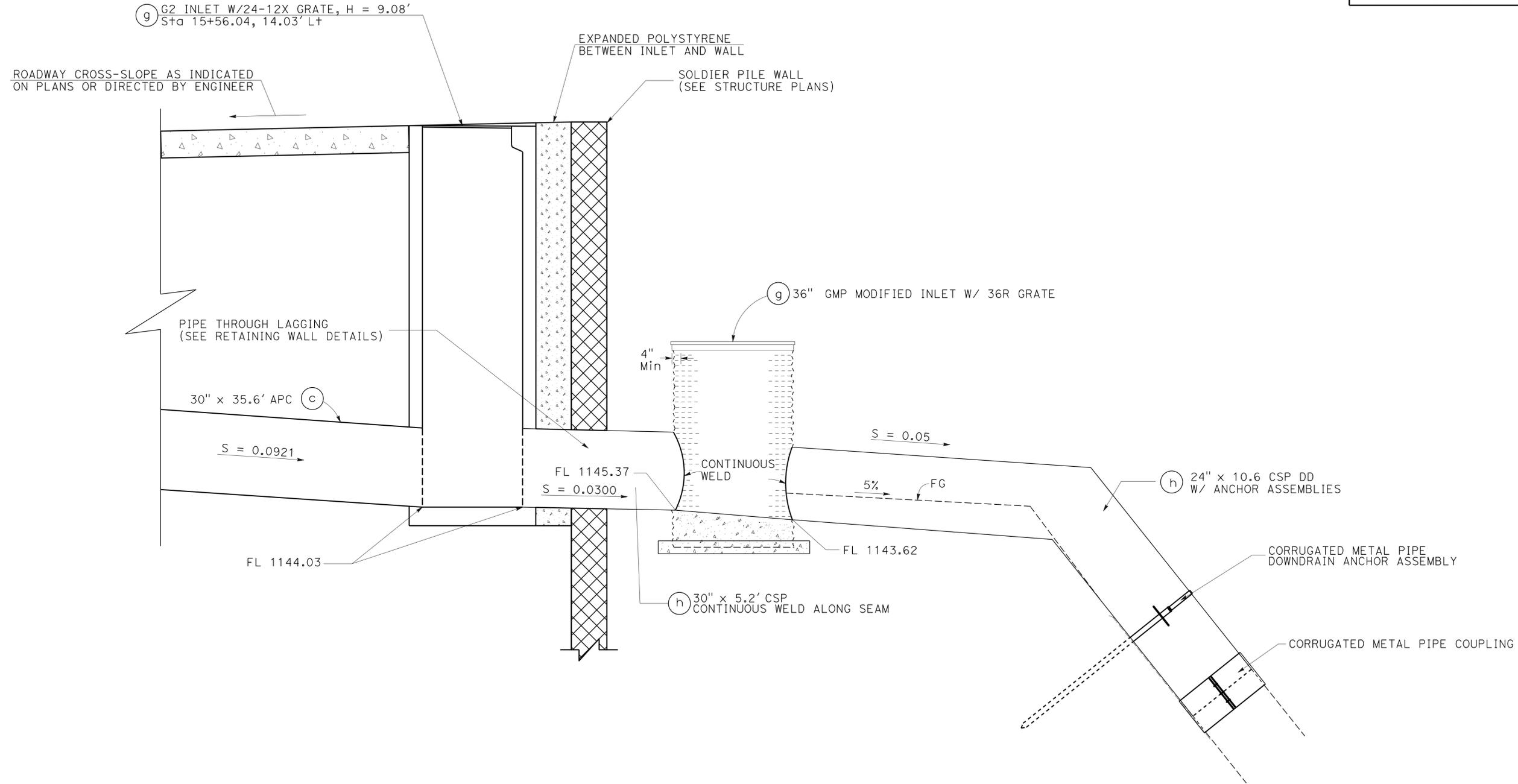
REGISTERED CIVIL ENGINEER	DATE	6/26/14
7-28-14		
PLANS APPROVAL DATE		

REGISTERED PROFESSIONAL ENGINEER  
**ADEL NAJAR**  
 No. 77232  
 Exp. 6-30-15  
 CIVIL  
 STATE OF CALIFORNIA

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.

**NOTE (This Sheet Only):**  
 G2 DRAINAGE INLET SHALL BE ORIENTATED WITH KEY ADJACENT TO SOLDIER PILE WALL AND AT THE SAME CROSS-SLOPE AS ROADWAY.

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans**  
 06-DESIGN  
 06-26-14  
 H.S.  
 RAJINDER S BRAR  
 DAN MASSA  
 CALCULATED-DESIGNED BY  
 CHECKED BY  
 FUNCTIONAL SUPERVISOR  
 GETACHEW ESHETE  
 06-DESIGN



**MODIFIED GMP DRAINAGE INLET DETAIL**  
**DRAINAGE SYSTEM No. 1**

**DRAINAGE DETAILS**  
 NO SCALE  
**DD-2**

LAST REVISION     
 DATE PLOTTED => 07-AUG-2014     
 07-23-14     
 TIME PLOTTED => 11:14



DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	15	83

REGISTERED CIVIL ENGINEER	DATE	6/26/14
PLANS APPROVAL DATE		7-28-14

REGISTERED PROFESSIONAL ENGINEER	STATE OF CALIFORNIA
ADIEL NAJAR	
No. 77232	
Exp. 6-30-15	
CIVIL	

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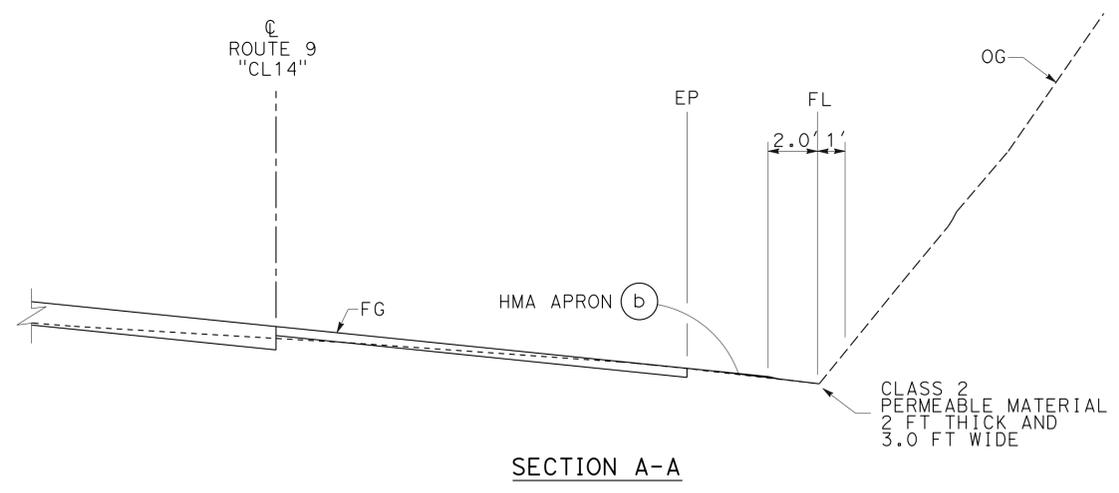
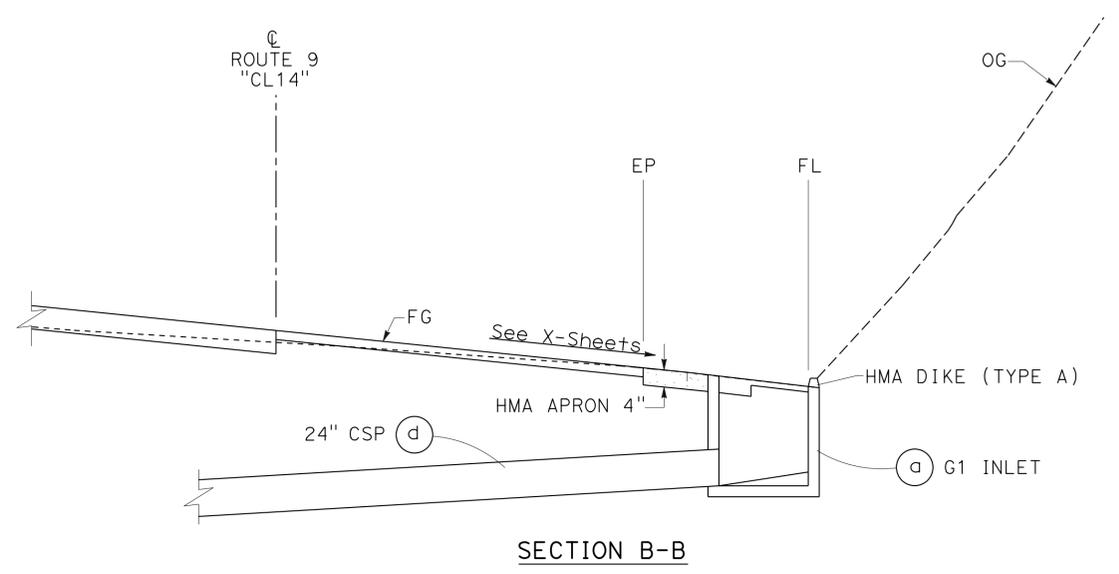
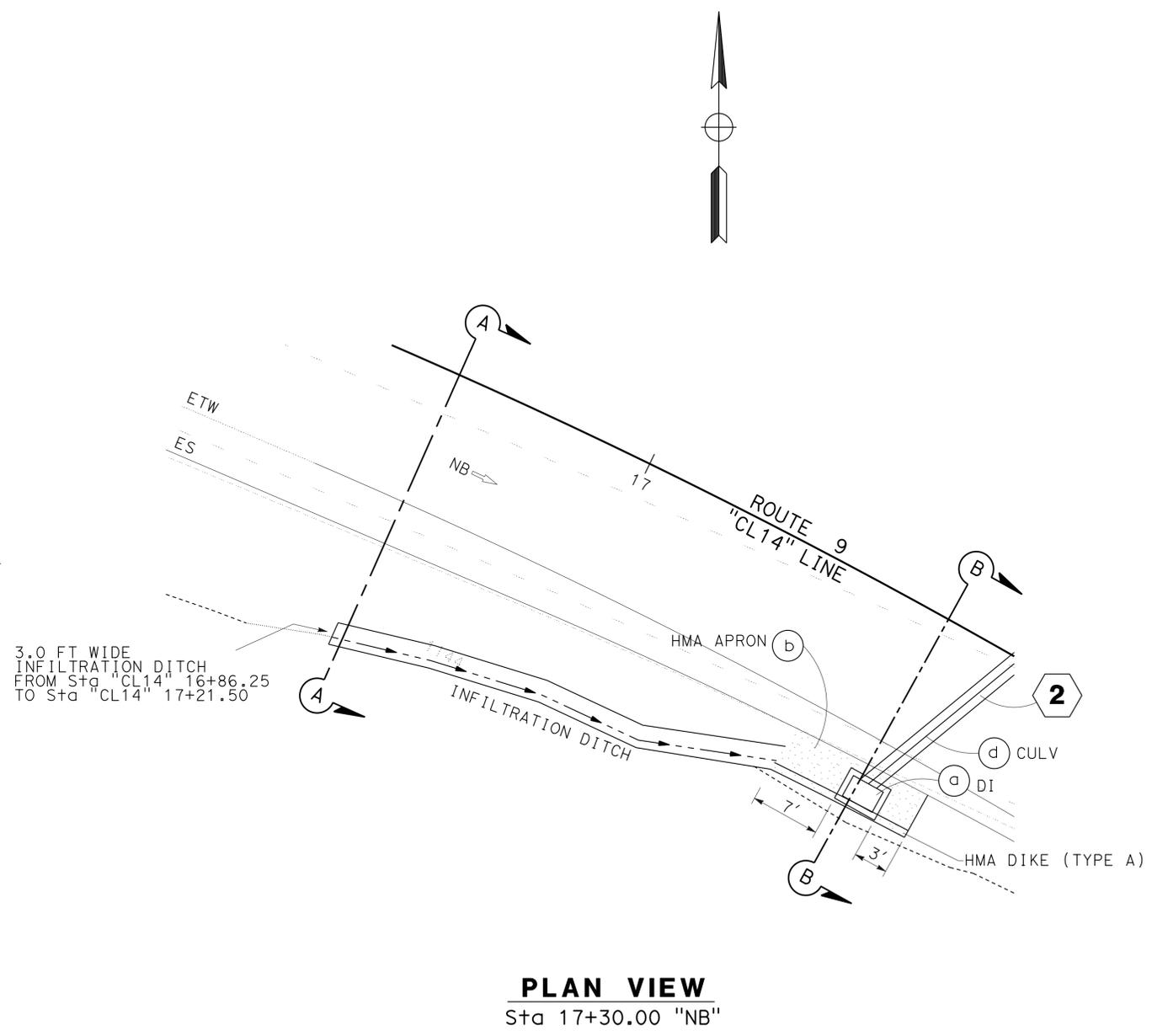
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION - 06 - DESIGN

Caltrans

FUNCTIONAL SUPERVISOR: GETACHEW ESHETE

RAJINDER S BRAR (DESIGNED BY) / DAN MASSA (CHECKED BY)

REVISOR / DATE



**HMA APRON AND INFILTRATION DITCH  
DRAINAGE SYSTEM No. 2**

**DRAINAGE DETAILS**  
NO SCALE  
**DD-4**

LAST REVISION | DATE PLOTTED => 07-AUG-2014 | TIME PLOTTED => 11:14

**NOTES:**

1. ALL GRATES SHALL BE 24-12X EXCEPT AS OTHERWISE SHOWN IN THE DESCRIPTION.
2. ALL CORRUGATED STEEL PIPE SHALL BE POLYMERIC SHEET COATED.
3. ALL PLASTIC PIPES SHALL BE WATERTIGHTNESS JOINTS.

DESIGNATION	APC ALLOWABLE PIPE MATERIAL		
	PP (TYPE S)	CSP (POLYMERIC SHEET COATED)	
	SIZE	SIZE	THICKNESS
30" APC	30"	30"	0.109"

**DRAINAGE QUANTITIES**

DRAINAGE PLAN SHEET No.	DRAINAGE SYSTEM No.	DRAINAGE UNIT	INLET TYPE (N)	DRAINAGE INLETS																	DESCRIPTION	STATION	DRAINAGE UNIT	DRAINAGE SYSTEM No.	DRAINAGE PLAN SHEET No.		
				Misc IRON & STEEL	DESIGN H (N)	MINOR CONCRETE (MINOR STR)	PLACE HMA (Misc AREA)	HMA (YPE A)	30" APC	24" CSP (0.109 THICK)	18" ANCHOR ASSEMBLY	24" ANCHOR ASSEMBLY	36" ANCHOR ASSEMBLY	24" CSP DOWNDRAIN (0.109" THICK)	18" CSP DOWNDRAIN (0.109" THICK)	30" CSP (0.109 THICK)	36" CSP INLET (0.109" THICK)	REMOVE CULVERT	REMOVE INLET	REMOVE HW							
LB	LF	CY	SQYD	TON	LF	LF	EA	EA	EA	LF	LF	LF	LF	EA	EA												
1	1	a				2.05	1.53	0.5														HMA OVERSIDE DRAIN	15+25.39, 16' Rt				
		b																				HW TYPE "L", W = 6'.4"	15+36.32, 20' Rt	a	1	1	
		c																				REMOVE Exist HW	15+36.32, 20' Rt	b			
		d																				30" APC (TYPE STANDARD JOINT)		c			
		e	G2	239	9.1	3.86																REMOVE Exist 30" RCP CULVERT & Conc BACKFILL	15+36.32 TO 15+55.90	d			
		f																				TYPE G2 DI W/ TYPE 24-12X GRATE	15+55.83, 13.5' Lt	e			
		g	GMP	236	4.0	0.45																30" CSP (TYPE STANDARD JOINT)		f			
1	1	h																				36" MODIFIED TYPE GMP INLET W/ 36R GRATE	15+55.83, 22.45' Lt	g			
		i																				24" CSP DD W/ ANCHOR ASSEMBLIES		h	1	1	
2	2	a	G1	239	3.7	1.01																TYPE G1 DI W/ TYPE 24-12X GRATE	17+30.00, 17.8' Rt	a	2	2	
		b					4.70	1.5														HMA APRON	17+30.00, 17.8' Rt	b			
		c																				REMOVE Exist INLET	17+51.60, 15.00' Rt	c			
		d																				24" CSP (TYPE STANDARD JOINT)		d			
		e																				REMOVE Exist 18" CMP CULVERT & Conc BACKFILL	17+51.60 TO 17+40.90	e			
		f	GMP	236	4.0	0.45																36" MODIFIED TYPE GMP INLET W/ 36R GRATE	17+43.38, 19.70' Lt	f			
		g																				24" CSP (TYPE STANDARD JOINT)		g			
		h	GMP	236	3.7	0.45																36" MODIFIED TYPE GMP W/ 36R GRATE	17+40.90, 63.55' Lt	h			
2	2	i																				18" CSP W/ ANCHOR ASSEMBLIES		i	2	2	
TOTAL				1306		8.27	6.23	*2.0	35.6	44.6	2	1	2	10.6	17.0	5.2	17.83	120	1	1							

(N) NOT A SEPARATE PAY ITEM, FOR INFORMATION ONLY.  
 \* TOTAL IS INCLUDED IN ROADWAY QUANTITIES IN Q-1 SHEET.

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** 06-DESIGN  
 RAJINDER S BRAR  
 DAN MASSA  
 CALCULATED/DESIGNED BY  
 CHECKED BY  
 FUNCTIONAL SUPERVISOR  
 GETACHEW ESHETE  
 REVISIONS: 07-23-14 11:14  
 07-23-14 11:14  
 07-23-14 11:14

**DRAINAGE QUANTITIES**  
**DQ-1**

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	17	83

<i>Adel</i>	6/26/14
REGISTERED CIVIL ENGINEER	DATE
7-28-14	
PLANS APPROVAL DATE	

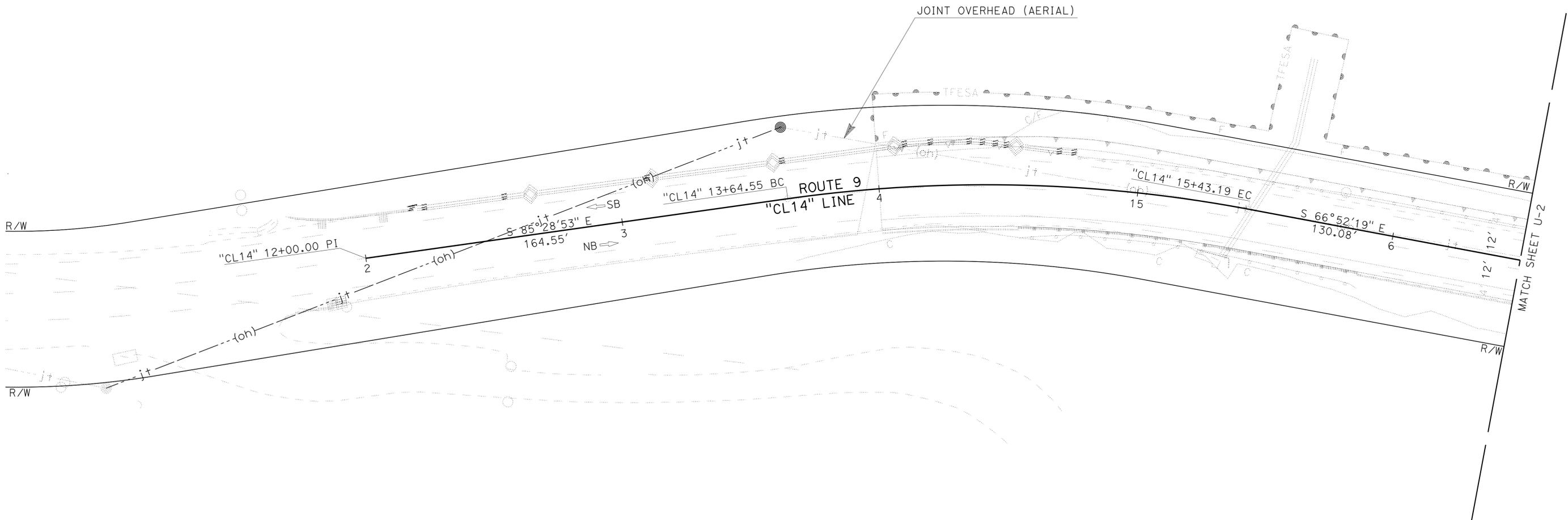
  

REGISTERED PROFESSIONAL ENGINEER
ADEL NAJAR
No. 77232
Exp. 6-30-15
CIVIL
STATE OF CALIFORNIA

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.

**NOTES:**

1. FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.
2. LOCATION OF UTILITY FACILITIES SHOWN ON THESE PLANS ARE APPROXIMATE AND SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION.
3. UTILITY OWNERSHIP ON THIS PROJECT:  
ELECTRICAL - PACIFIC GAS AND ELECTRIC (PG&E)  
TELEPHONE - AMERICAN TELEPHONE & TELEGRAPH (AT&T)



STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
<b>Caltrans</b> 06-DESIGN
FUNCTIONAL SUPERVISOR
GETACHEW ESHEHE
CALCULATED/DESIGNED BY
CHECKED BY
HOSS SHOJAI
ADEL NAJAR
REVISED BY
DATE REVISED

APPROVED FOR UTILITY INFORMATION ONLY

**UTILITY PLAN**  
SCALE: 1"=20'  
**U-1**

**NOTE:**

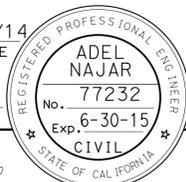
FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	18	83

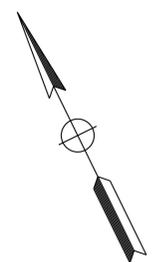
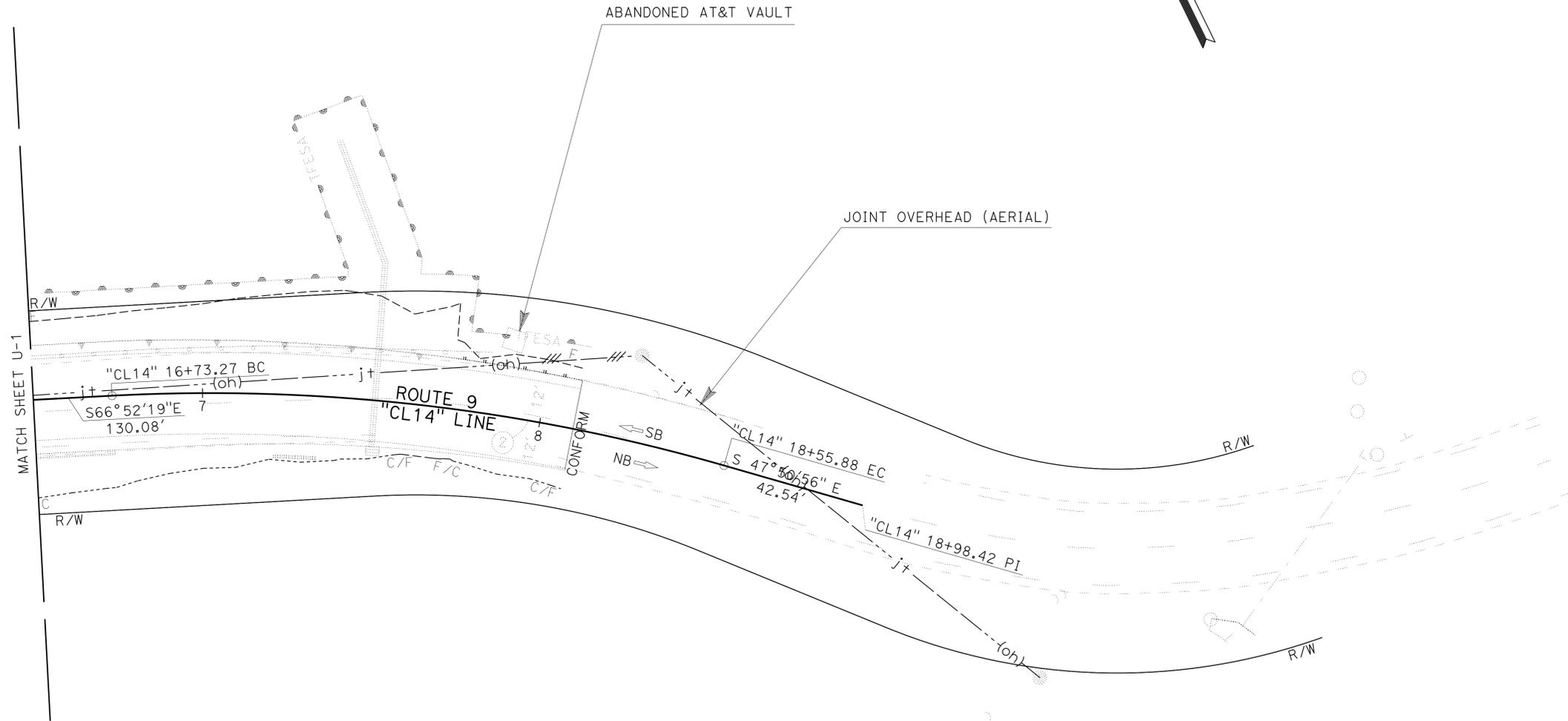
  

		6/26/14
REGISTERED CIVIL ENGINEER	DATE	
7-28-14	PLANS APPROVAL DATE	

	
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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.



STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	FUNCTIONAL SUPERVISOR	DESIGNED BY	REVISOR
<b>Caltrans</b>	GETACHEW ESHETE	HOSS SHOJAI	HOSS SHOJAI
<b>06 - DESIGN</b>	CHECKED BY	ADIL NAJAR	ADIL NAJAR

APPROVED FOR UTILITY INFORMATION ONLY

**UTILITY PLAN**  
SCALE: 1"=20' **U-2**



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCL	9	4.2	19	83

Hassan Cohe 07-25-14  
 REGISTERED CIVIL ENGINEER DATE

7-28-14  
 PLANS APPROVAL DATE

HASSAN M. TAHA  
 No. 60130  
 Exp. 06/30/16  
 CIVIL

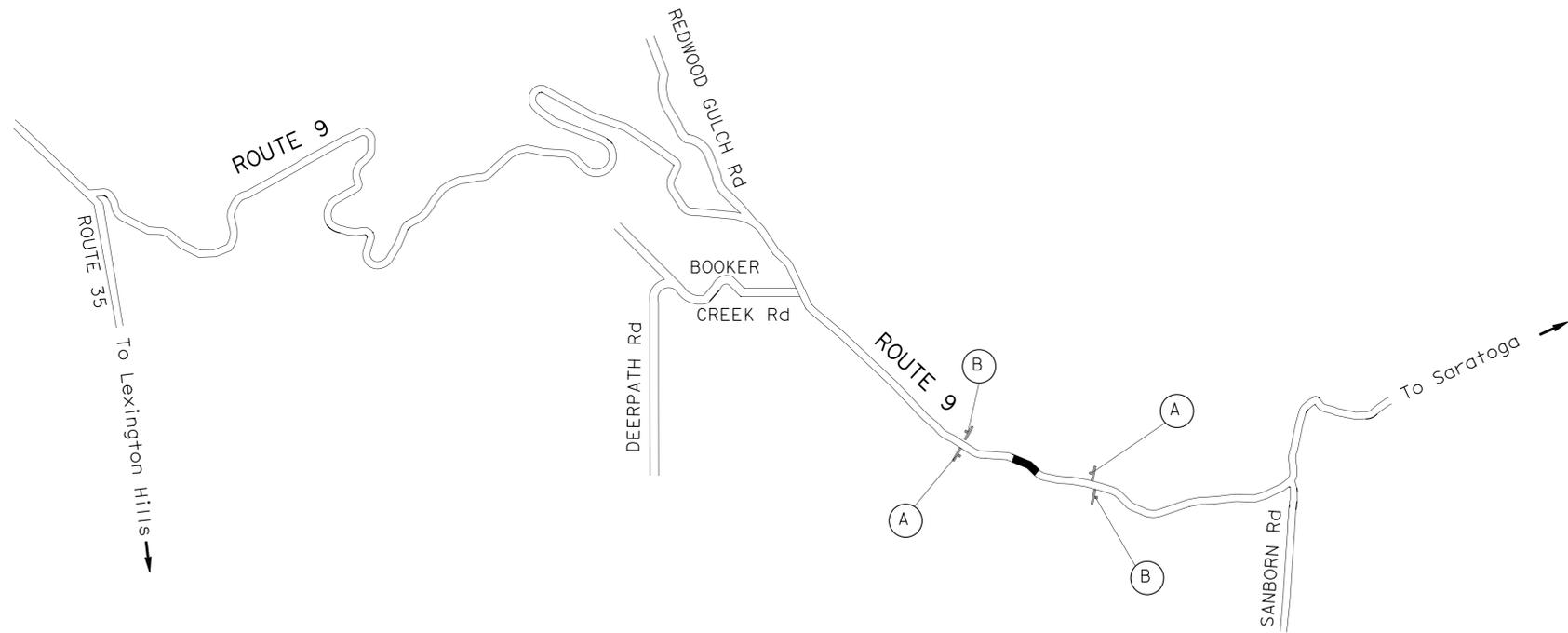
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

### STATIONARY MOUNTED CONSTRUCTION AREA SIGNS

SIGN No.	SIGN CODE	SIGN MESSAGE	PANEL SIZE	No. OF POST AND SIZE	No. OF SIGNS
(A)	W20-1	ROAD WORK AHEAD	48" x 48"	1 - 6" x 6"	2
(B)	G20-2	END ROAD WORK	36" x 18"	1 - 4" x 4"	2

**NOTES:**

1. EXACT SIGN LOCATIONS TO BE DETERMINED BY THE ENGINEER.
2. FOR ADDITIONAL CONSTRUCTION AREA SIGNS, REFER TO TRAFFIC HANDLING PLANS.



### CONSTRUCTION AREA SIGNS

NO SCALE

CS-1

APPROVED FOR CONSTRUCTION AREA SIGN WORK ONLY

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** 06-TRAFFIC DESIGN

FUNCTIONAL SUPERVISOR: MOHAMMED OATAMI  
 CALCULATED-DESIGNED BY: CHECKED BY:  
 VANIK POGOSYAN HASSAN TAHA  
 REVISED BY: DATE REVISED:



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	20	83

REGISTERED CIVIL ENGINEER	DATE	6/26/14
PLANS APPROVAL DATE		7-28-14

REGISTERED PROFESSIONAL ENGINEER	No.	77232
	Exp.	6-30-15
CIVIL		

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.

**NOTE:**

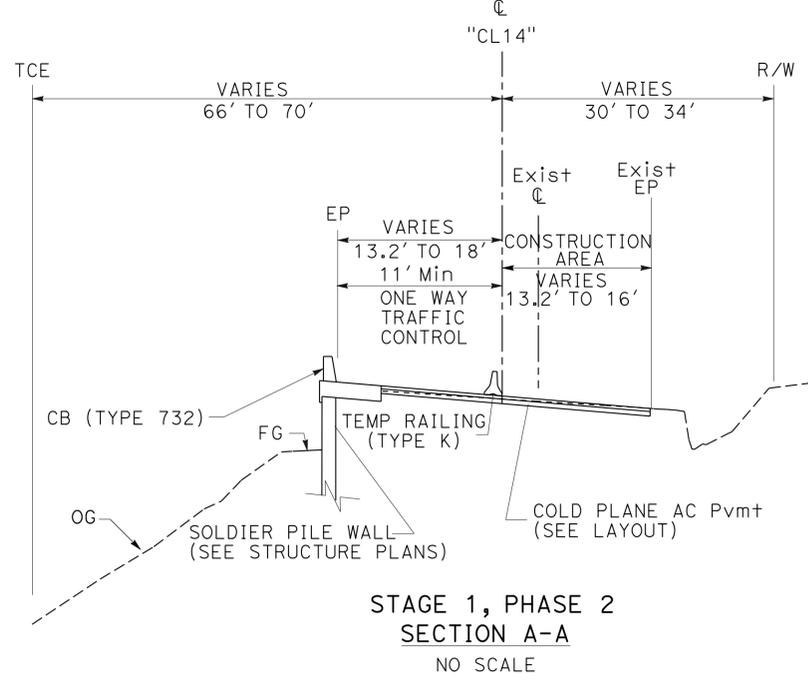
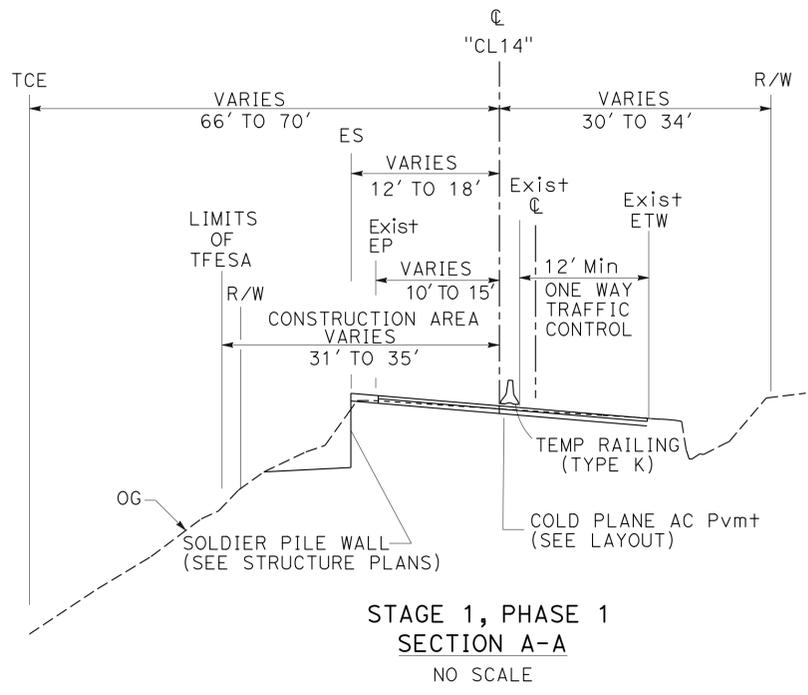
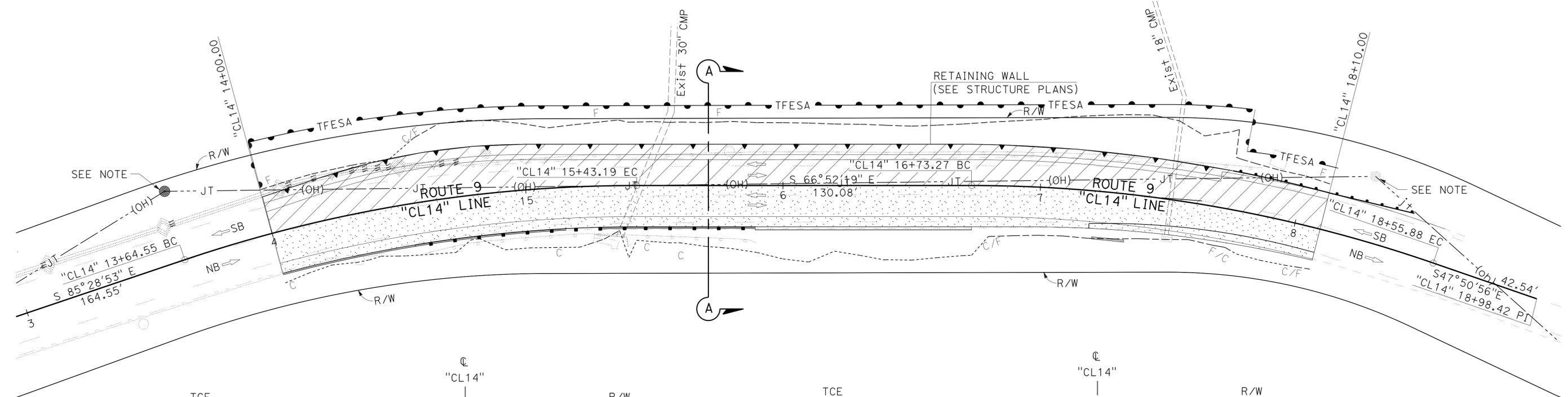
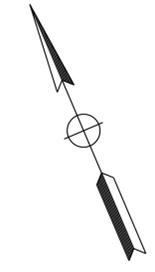
SEE TH-SHEETS FOR K-RAIL LOCATION AND LIMITS.

**STAGE 1, PHASE 1:**

1. UNDER TEMPORARY TRAFFIC CONTROL, PLACE TEMPORARY RAILING (TYPE K), CONSTRUCT TEMPORARY SIGNAL SYSTEM, RE-STRIPE AND OPEN ONE-WAY TRAFFIC CONTROL SYSTEM ALONG ROUTE 9.
2. CONSTRUCT SARATOGA CREEK SOLDIER PILE WALL AND PORTIONS OF DRAINAGE SYSTEMS 1 AND 2, AND COLD PLANE AND/OR RESURFACE AND RE-STRIPE SB PAVEMENT.

**STAGE 1, PHASE 2:**

3. UNDER TEMPORARY TRAFFIC CONTROL, REMOVE TEMPORARY RAILING (TYPE K) AND ONE-WAY TRAFFIC CONTROL SYSTEM, CONSTRUCT REMAINING PORTIONS OF DRAINAGE SYSTEMS 1 AND 2, COLD PLANE EXISTING PAVEMENT R+ OF CENTERLINE, OVERLAY PAVEMENT AND RE-STRIPE NB PAVEMENT.



**STAGE CONSTRUCTION**

SCALE: 1"=20' **SC-1**

APPROVED FOR STAGE CONSTRUCTION WORK ONLY

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** 06-DESIGN  
 FUNCTIONAL SUPERVISOR: GETACHEW ESHETE  
 RAJINDER S BRAR  
 DAN MASSA  
 REVISIONS: [Blank]  
 REVISOR: [Blank]  
 DATE: [Blank]  
 DESIGNED BY: [Blank]  
 CHECKED BY: [Blank]



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCL	9	4.2	22	83

Hassan Cohe 07-25-14  
REGISTERED CIVIL ENGINEER DATE

7-28-14  
PLANS APPROVAL DATE

HASSAN M. TAHA  
No. 60130  
Exp. 06/30/16  
CIVIL

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**CONSTRUCTION AREA SIGNS (TRAFFIC HANDLING)**

SHEET No.	SIGN No.	SIGN CODE	SIGN MESSAGE	PANEL SIZE	No. OF POST AND SIZE	No. OF SIGNS
TH-1	①	W20-4	AS SHOWN ON PLAN	36" x 36"	1-4" x 4"	1
		W13-1	AS SHOWN ON PLAN	36" x 24"		
	②	W3-3	AS SHOWN ON PLAN	36" x 36"	MOUNT ON POLE	1
		SC20M(CA)	AS SHOWN ON PLAN	30" x 30"		
	③	W11-1	AS SHOWN ON PLAN	30" x 30"	1-4" x 4"	1
		W16-1	AS SHOWN ON PLAN	24" x 30"		
	④	R10-6	AS SHOWN ON PLAN	36" x 24"	1-4" x 4"	1
	⑤	W1-4	AS SHOWN ON PLAN	30" x 30"	1-4" x 4"	1
	⑥	R10-6	AS SHOWN ON PLAN	36" x 24"	1-4" x 4"	1
	⑦	W11-1	AS SHOWN ON PLAN	30" x 30"	1-4" x 4"	1
		W16-1	AS SHOWN ON PLAN	24" x 30"		
	⑧	W3-3	AS SHOWN ON PLAN	36" x 36"	MOUNT ON POLE	1
		SC20M(CA)	AS SHOWN ON PLAN	30" x 30"		
	⑨	W20-4	AS SHOWN ON PLAN	36" x 36"	1-4" x 4"	1
		W13-1	AS SHOWN ON PLAN	36" x 24"		

**TEMPORARY CRASH CUSHION MODULE**

SHEET No.	EA
TH-1	22

**CHANNELIZER (SURFACE MOUNTED)**

SHEET No.	EA
TH-1	24

**TEMPORARY PAVEMENT DELINEATION**

SHEET No.	LOCATION STA TO STA	DETAIL No.	REMOVE YELLOW THERMOPLASTIC TRAFFIC STRIPE (HAZARDOUS)	TEMPORARY TRAFFIC STRIPE (TAPE)	PAVEMENT MARKING (TAPE)	
			LF	LF	DESCRIPTION	SQFT
TH-1	99+00 TO 20+50	22	1900		2-LIMIT LINE	24
		27B		950		
TOTAL			1900	950		24

**TEMPORARY RAILING (TYPE K)**

SHEET No.	STA TO STA	LF
TH-1	13+20 to 18+80	560

**TRAFFIC HANDLING QUANTITIES**

**THQ-1**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** 06 - TRAFFIC DESIGN  
FUNCTIONAL SUPERVISOR: MOHAMMED QATAMI  
CALCULATED-DESIGNED BY: CHECKED BY:  
VANIK POGOSYAN HASSAN TAHA  
REVISED BY: DATE REVISED:

LAST REVISION: DATE PLOTTED => 07-AUG-2014  
07-25-14 TIME PLOTTED => 11:15

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCL	9	4.2	23	83

Hassan Cohe 07-25-14  
REGISTERED CIVIL ENGINEER DATE

7-28-14  
PLANS APPROVAL DATE

HASSAN M. TAHA  
No. 60130  
Exp. 06/30/16  
CIVIL

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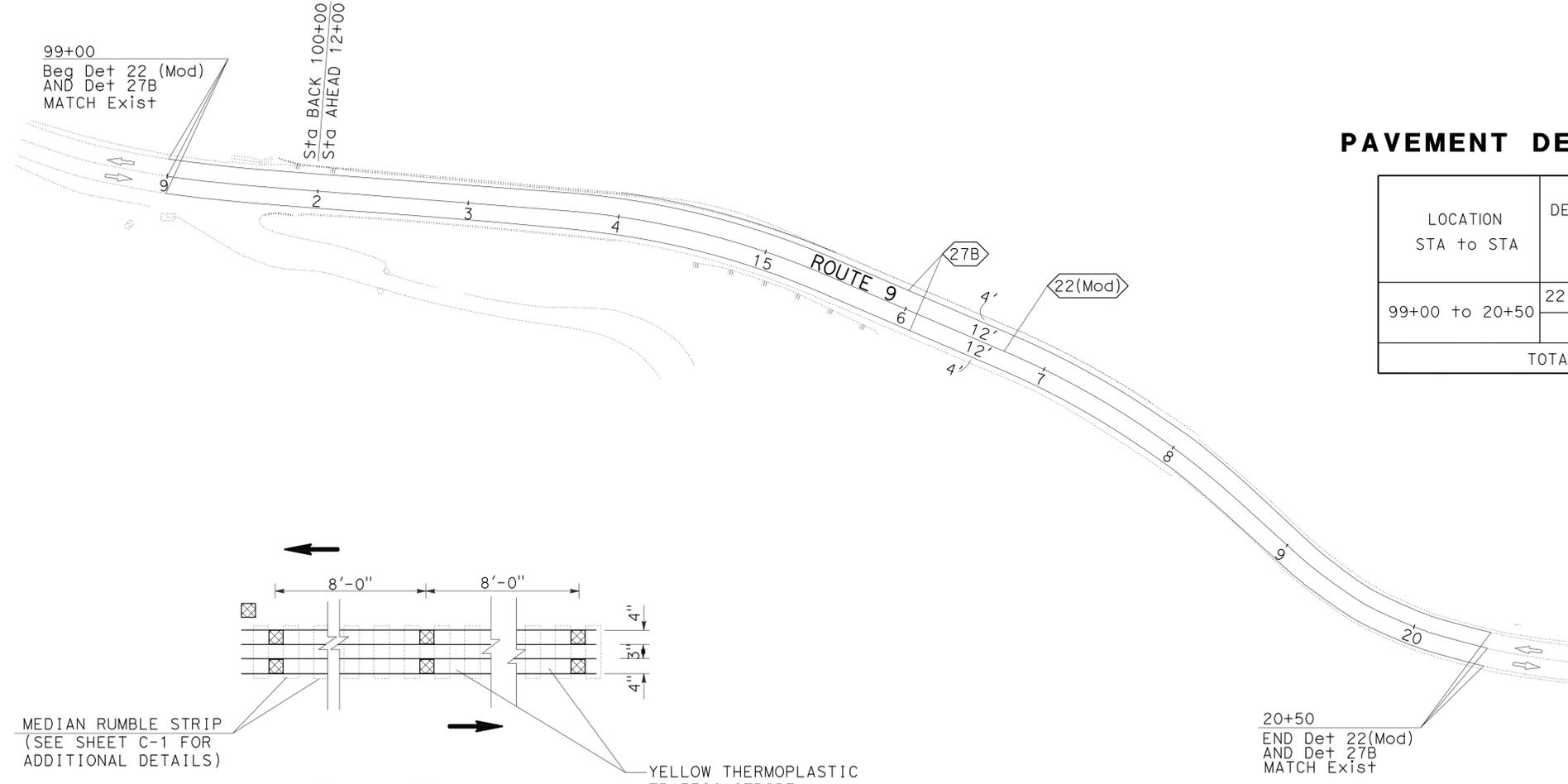
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** 06 - TRAFFIC DESIGN

FUNCTIONAL SUPERVISOR  
MOHAMMED OATAMI

CALCULATED-DESIGNED BY  
CHECKED BY

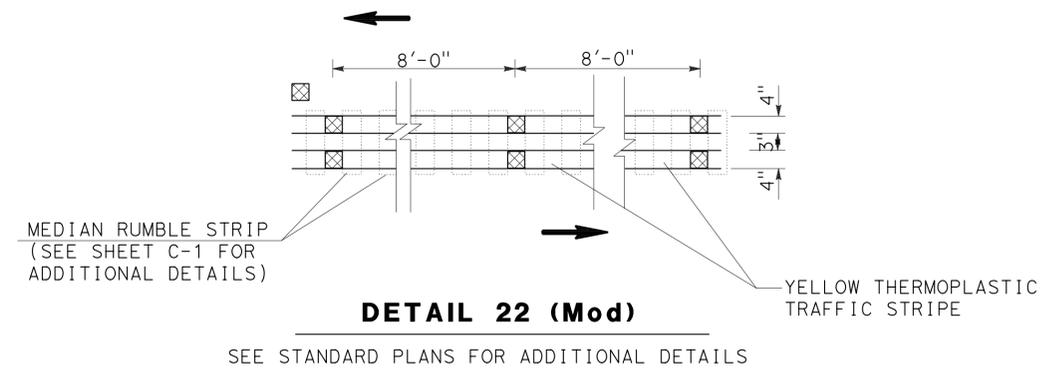
VANIK POGOSYAN  
HASSAN TAHA

REVISED BY  
DATE REVISED



**PAVEMENT DELINEATION QUANTITIES**

LOCATION STA to STA	DETAIL No.	PAVEMENT MARKER (RETRO-REFLECTIVE)		THERMOPLASTIC TRAFFIC STRIPE (4")	
		TYPE D	EA	WHITE	YELLOW
99+00 to 20+50	22 (Mod)		246		1900
	27B			1900	
TOTAL			246		3800



**PAVEMENT DELINEATION PLAN, DETAIL, AND, QUANTITIES**

APPROVED FOR PAVEMENT DELINEATION WORK ONLY

SCALE: 1"=50'

PD-1

LAST REVISION DATE PLOTTED => 07-AUG-2014 07-25-14 TIME PLOTTED => 11:15

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	24	83

6/26/14  
REGISTERED CIVIL ENGINEER DATE  
7-28-14  
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER  
ADEL NAJAR  
No. 77232  
Exp. 6-30-15  
CIVIL  
STATE OF CALIFORNIA

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.

**NOTES:**  
1. (N) = NOT A SEPARATE PAY ITEM, FOR INFORMATION ONLY.  
2. STATIONS ARE APPROXIMATE, EXACT LOCATION TO BE DETERMINED BY THE ENGINEER.

**TEMPORARY WATER POLLUTION CONTROL QUANTITIES**

LOCATION/SHEET NO.	TEMPORARY HYDRAULIC MULCH (BFM)	TEMPORARY SILT FENCE	TEMPORARY FIBER ROLL	TEMPORARY COVER	TEMPORARY DRAINAGE INLET PROTECTION	TEMPORARY CHECK DAM
	SQYD	LF	LF	SQYD	EA	LF
L-1	250	220	250	25		60
L-2	250	180	150	25	1	60
TOTAL	500	400	400	50	1	120

**MIDWEST GUARD RAILING SYSTEMS**

LOCATION	DIRECTION	MGS (STEEL POST)	LAYOUT TYPE (N)	REMOVE GUARDRAIL	REMOVE TERMINAL SYSTEM (TYPE SRT)	ALTERNATIVE IN-LINE TERMINAL SYSTEM	ALTERNATIVE FLARED TERMINAL SYSTEM	TRANSITION RAILING (TYPE WB-31)	TREATED WOOD WASTE
		LF		LF	EA	EA		EA	LB
Sta 14+75.38 TO Sta 17+68.65	SB			293	1***				2318
Sta 18+5.20 TO Sta 18+10.00	SB						1	1	
Sta 14+54.14 TO Sta 15+89.21	NB	137.5	11D	137.5		2			1822
Sta 17+93.04 TO Sta 18+5.20	SB	12.5	12B						
TOTAL		150**		430.5		2	1	1	4140

\*\* EXACT LOCATION TO BE DETERMINED BY THE ENGINEER  
\*\*\* LENGTH INCLUDED IN REMOVE MBGR ITEM

**CENTERLINE RUMBLE STRIP**

LOCATION	CENTERLINE RUMBLE STRIP (HMA, GROUND-IN INDENTATIONS)	ASHPHALTIC EMULSION (FOG SEAL COAT) (N)
	STATION	TON
Sta 14+00 TO Sta 18+10	4.1	0.02

**TEMPORARY FENCE (TYPE ESA)**

LOCATION	DIRECTION	LF
Sta 14+00 TO Sta 18+10	SB, NB	885

**DIKE ITEMS**

LOCATION	DIRECTION	PLACE HOT MIX ASPHALT DIKE				HMA (TYPE A)	REMOVE AC DIKE
		TYPE C	TYPE E	TYPE F	TYPE A		
		LF	LF	LF	LF	TON	LF
Sta 14+00 TO Sta 14+54.14	NB	54.14				0.41	54.14
Sta 14+54.14 TO Sta 15+89.21	NB			135.07		1.79	
Sta 15+89.21 TO Sta 16+34.21	NB	45.00				0.17	
Sta 16+34.21 TO Sta 16+73.27	NB		39.06			0.51	
Sta 17+21.50 TO Sta 17+34.50	NB				13.00	0.36	
TOTAL		99.14	39.06	135.07	13.00	3.24*	54.14

\* INCLUDED IN ROADWAY QUANTITIES TABLE

**ROADWAY QUANTITIES**

LOCATION	DIRECTION	HOT MIX ASPHALT (TYPE A)	HOT MIX ASPHALT (OPEN GRADED)	COLD PLANE ASPHALT CONCRETE PAVEMENT	TACK COAT	ROADWAY EMBANKMENT(N)	ROADWAY EXCAVATION	GEOSYNTHETIC PAVEMENT INTERLAYER (PAVING FABRIC)
		TON	TON	SQYD	TON	CY	CY	SQYD
Sta 14+00 TO Sta 18+10	NB,SB	445.0	99	880	1.70	81	230	
Sta 14+00 TO Sta 17+68.65								246
FROM HMA DIKE TABLE	NB	3.2						
FROM DQ-1 SHEET	NB	2.0						
TOTAL		450.2	99	880	1.70	81	230	246

**SUMMARY OF QUANTITIES**

**Q-1**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**06-DESIGN**  
RAJINDER S BRAR  
DAN MASSA  
CALCULATED-DESIGNED BY  
CHECKED BY  
FUNCTIONAL SUPERVISOR  
GETACHEW ESHETE

LAST REVISION DATE PLOTTED => 07-AUG-2014  
07-25-14 TIME PLOTTED => 11:15

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCL	9	4.2	25	83

*Alex McDonald*  
 LICENSED LANDSCAPE ARCHITECT

7-28-14  
 PLANS APPROVAL DATE

8-31-16  
 Renewal Date  
 7-4-14  
 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.

**SEED MIX**

SEED	BOTANICAL NAME (COMMON NAME)	PERCENT GERMINATION (MINIMUM)	POUNDS PURE LIVE SEED PER ACRE (SLOPE MEASUREMENT)
MIX 1	ACHILLEA MILLEFOLIUM (WHITE YARROW)	55	1
	BROMUS CARINATUS <sup>1</sup> (CALIFORNIA BROME)	75	9
	ELYMUS GLAUCUS <sup>1</sup> (BLUE WILDRYE)	55	9
	HORDEUM BRACHYANTHERUM (MEADOW BARLEY)	50	11
	IRIS DOUGLASIANA (DOUGLAS IRIS)	50	1.5
	LEYMUS TRITICOIDES (CREEPING WILDRYE)	50	5
	LOTUS SCOPARIUS (DEERWEED)	50	5
	MIMULUS CARDINALIS (SCARLET MONKEYFLOWER)	40	0.3
	NASSELLA PULCHRA (PURPLE NEEDLEGRASS)	50	7
	RHAMNUS CALIFORNICA (CALIFORNIA COFFEEBERRY)	45	1.5
	SALVIA SONOMENSIS (SONOMA SAGE)	10	1
	TRIFOLIUM TRIDENTATUM (TOMCAT CLOVER)	50	4
	VULPIA MICROSTACHYS (THREE WEEKS FESCUE)	50	5
	MIX 2	ACHILLEA MILLEFOLIUM (WHITE YARROW)	55
IRIS DOUGLASIANA (DOUGLAS IRIS)		50	1.5
LEYMUS TRITICOIDES (CREEPING WILDRYE)		50	5
MIMULUS CARDINALIS (SCARLET MONKEYFLOWER)		40	0.3
RHAMNUS CALIFORNICA (CALIFORNIA COFFEEBERRY)		45	1.5
SALVIA SONOMENSIS (SONOMA SAGE)		10	1
TRIFOLIUM TRIDENTATUM (TOMCAT CLOVER)		50	4
VULPIA MICROSTACHYS (THREE WEEKS FESCUE)		50	6

<sup>1</sup> SEED PRODUCED IN CALIFORNIA ONLY.

**EROSION CONTROL TYPE 1**

SEQUENCE	ITEM	MATERIAL		APPLICATION RATE	DEPTH	REMARKS
		DESCRIPTION	TYPE			
STEP 1	COMPOST	COMPOST	MEDIUM	135 CY/ACRE	1"	
STEP 2	ROLLED EROSION CONTROL PRODUCT (NETTING)	NETTING	TYPE A			
STEP 3	FIBER ROLLS	FIBER ROLL	8 TO 10 INCHES IN Dia			RICE STRAW FILLED, JUTE COVERED AND INSTALLATION TYPE 2
STEP 4	HYDROSEED	SEED	MIX 1	60.3 LB/ACRE		
		FIBER	WOOD	1,000 LB/ACRE		
		FERTILIZER	ORGANIC	800 LB/ACRE		
STEP 5	HYDROMULCH	FIBER	ALTERNATE	2,500 LB/ACRE		
		TACKIFIER	PSYLLIUM	200 LB/ACRE		

**EROSION CONTROL TYPE 2**

SEQUENCE	ITEM	MATERIAL		APPLICATION RATE	DEPTH	REMARKS
		DESCRIPTION	TYPE			
STEP 1	FIBER ROLLS	FIBER ROLL	8 TO 10 INCHES IN Dia			RICE STRAW FILLED, JUTE COVERED AND INSTALLATION TYPE 1
STEP 2	COMPOST	COMPOST	MEDIUM	135 CY/ACRE	1"	
STEP 3	HYDROSEED	SEED	MIX 1	60.3 LB/ACRE		
		FIBER	WOOD	1,000 LB/ACRE		
STEP 4	HYDROMULCH	FIBER	ALTERNATE	2,500 LB/ACRE		
		TACKIFIER	PSYLLIUM	200 LB/ACRE		

**EROSION CONTROL TYPE 3**

SEQUENCE	ITEM	MATERIAL		APPLICATION RATE	DEPTH	REMARKS
		DESCRIPTION	TYPE			
STEP 1	FIBER ROLLS	FIBER ROLL	8 TO 10 INCHES IN Dia			RICE STRAW FILLED, JUTE COVERED AND INSTALLATION TYPE 1
STEP 2	COMPOST	COMPOST	COARSE	135 CY/ACRE	1"	
STEP 3	DRY SEED	SEED	MIX 2	20.3 LB/ACRE		
		FERTILIZER	ORGANIC	800 LB/ACRE		

**EROSION CONTROL LEGEND  
 ECL-1**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
 WATER QUALITY  
 SENIOR LANDSCAPE ARCHITECT  
 DAVID W. YAM  
 CHECKED BY  
 ALEX McDONALD  
 REVISOR BY  
 AKM  
 DATE REVISED  
 7/3/14

LAST REVISION      DATE PLOTTED => 07-AUG-2014      TIME PLOTTED => 11:15

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCL	9	4.2	26	83

*Alex McDonald*  
 LICENSED LANDSCAPE ARCHITECT

7-28-14  
 PLANS APPROVAL DATE

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**NOTE:**

FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

**LEGEND:**

- EC TYPE 1
- EC TYPE 2
- EC TYPE 3

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION - WATER QUALITY

AKM 7/3/14

LAURIE SMITH 7/3/14

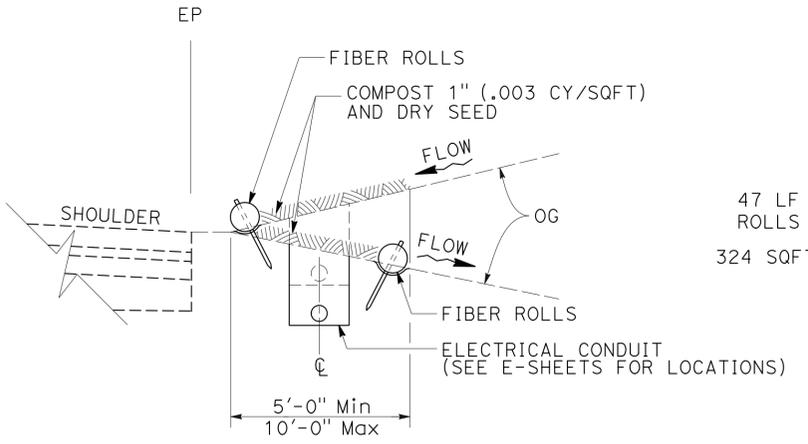
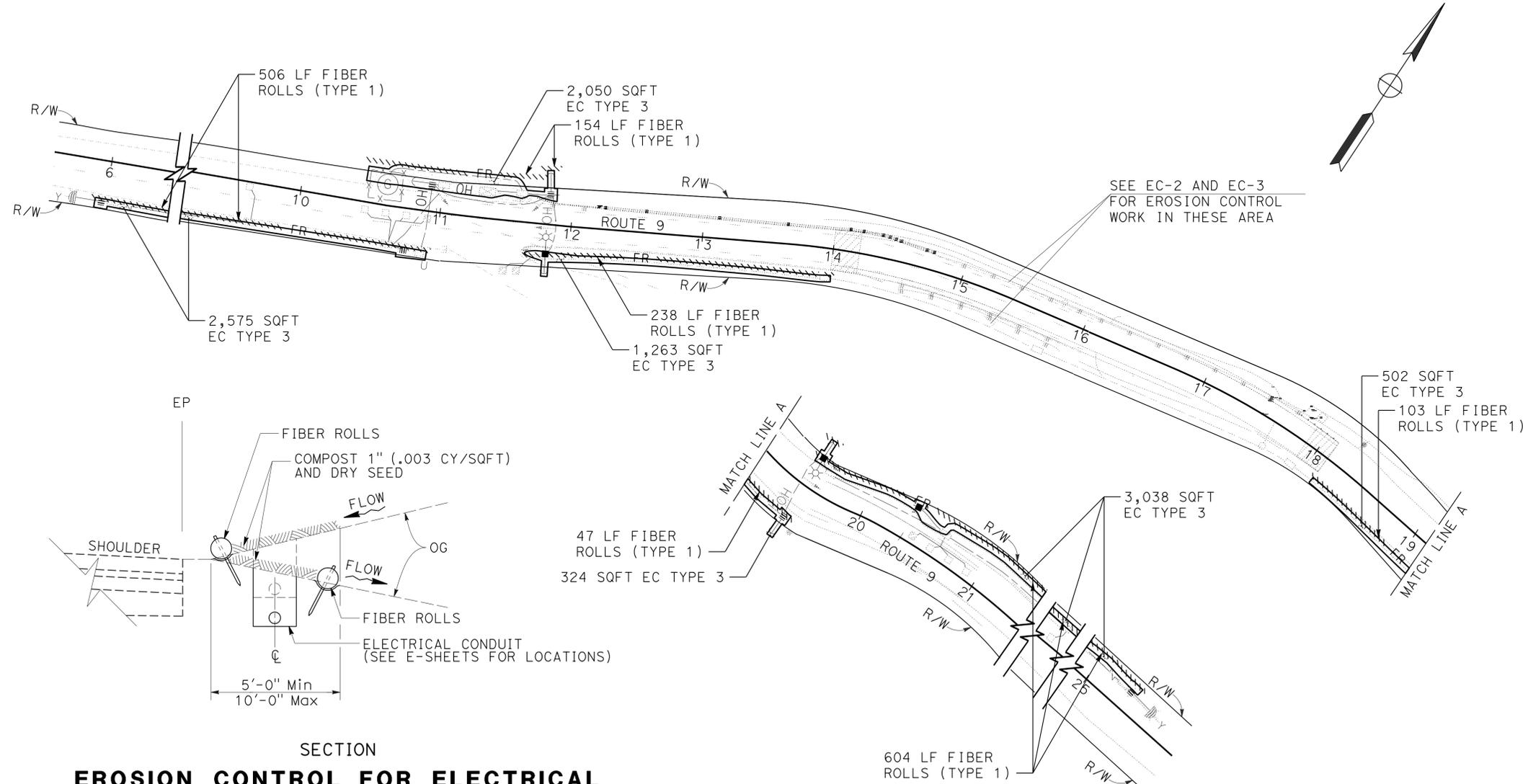
DAVID W. YAM

SENIOR LANDSCAPE ARCHITECT

CHECKED BY

DESIGNED BY

CALCULATED-



SECTION  
**EROSION CONTROL FOR ELECTRICAL CONDUIT LOCATIONS, TYPICAL**

APPROVED FOR EROSION CONTROL WORK ONLY

**EROSION CONTROL PLAN**  
 SCALE: 1"=50'  
**EC-1**

LAST REVISION DATE PLOTTED => 07-AUG-2014 07-23-14 TIME PLOTTED => 11:15

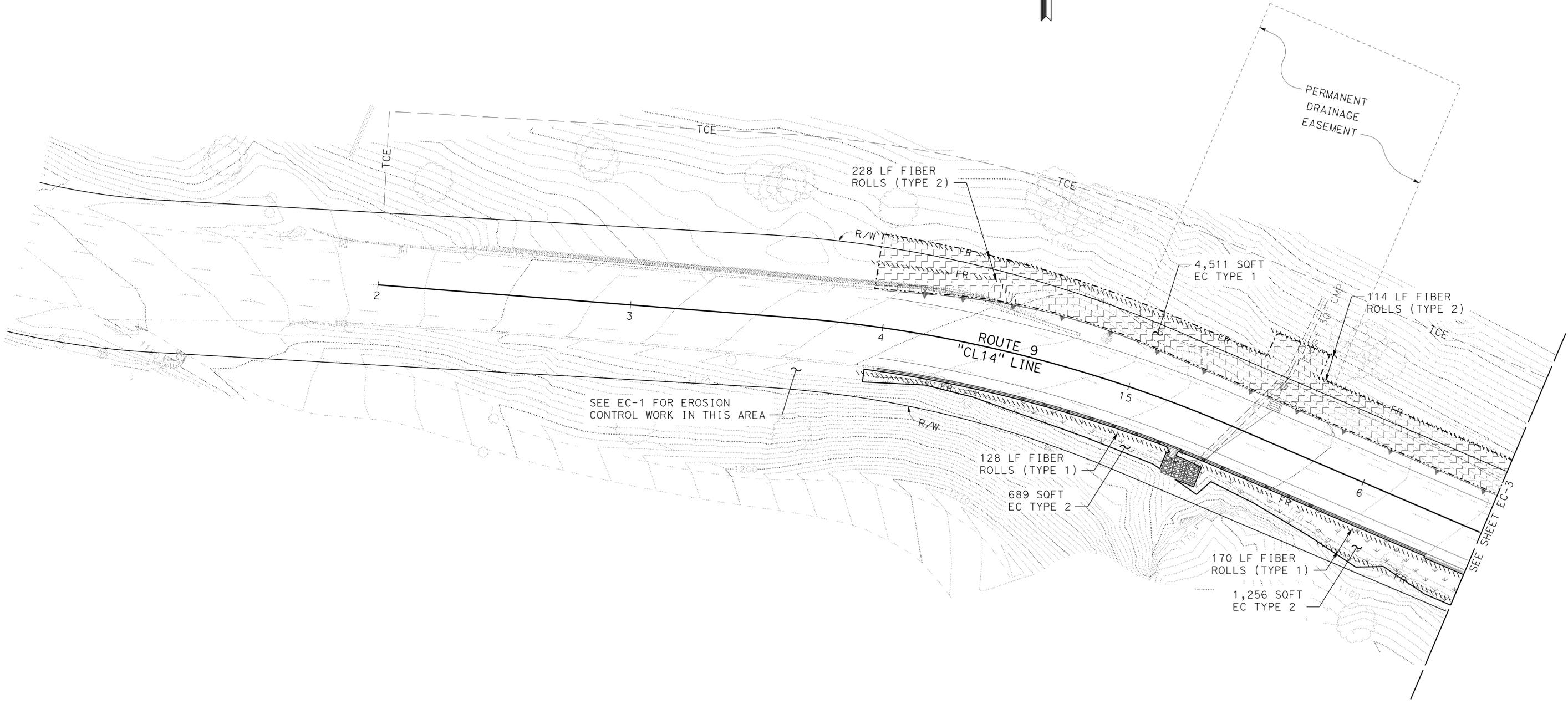
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** WATER QUALITY  
 SENIOR LANDSCAPE ARCHITECT DAVID W. YAM  
 CALCULATED-DESIGNED BY CHECKED BY LAURIE SMITH ALEX MCDONALD  
 REVISED BY AKM DATE REVISED 7/3/14

**NOTE:**  
 FOR ACCURATE RIGHT OF WAY DATA, CONTACT  
 RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCL	9	4.2	27	83

Alex McDonald  
 LICENSED LANDSCAPE ARCHITECT  
 7-28-14  
 PLANS APPROVAL DATE

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**EROSION CONTROL PLAN**  
 EC-2

SCALE: 1"=20'

APPROVED FOR EROSION CONTROL WORK ONLY

LAST REVISION DATE PLOTTED => 07-AUG-2014 07-23-14 TIME PLOTTED => 11:15

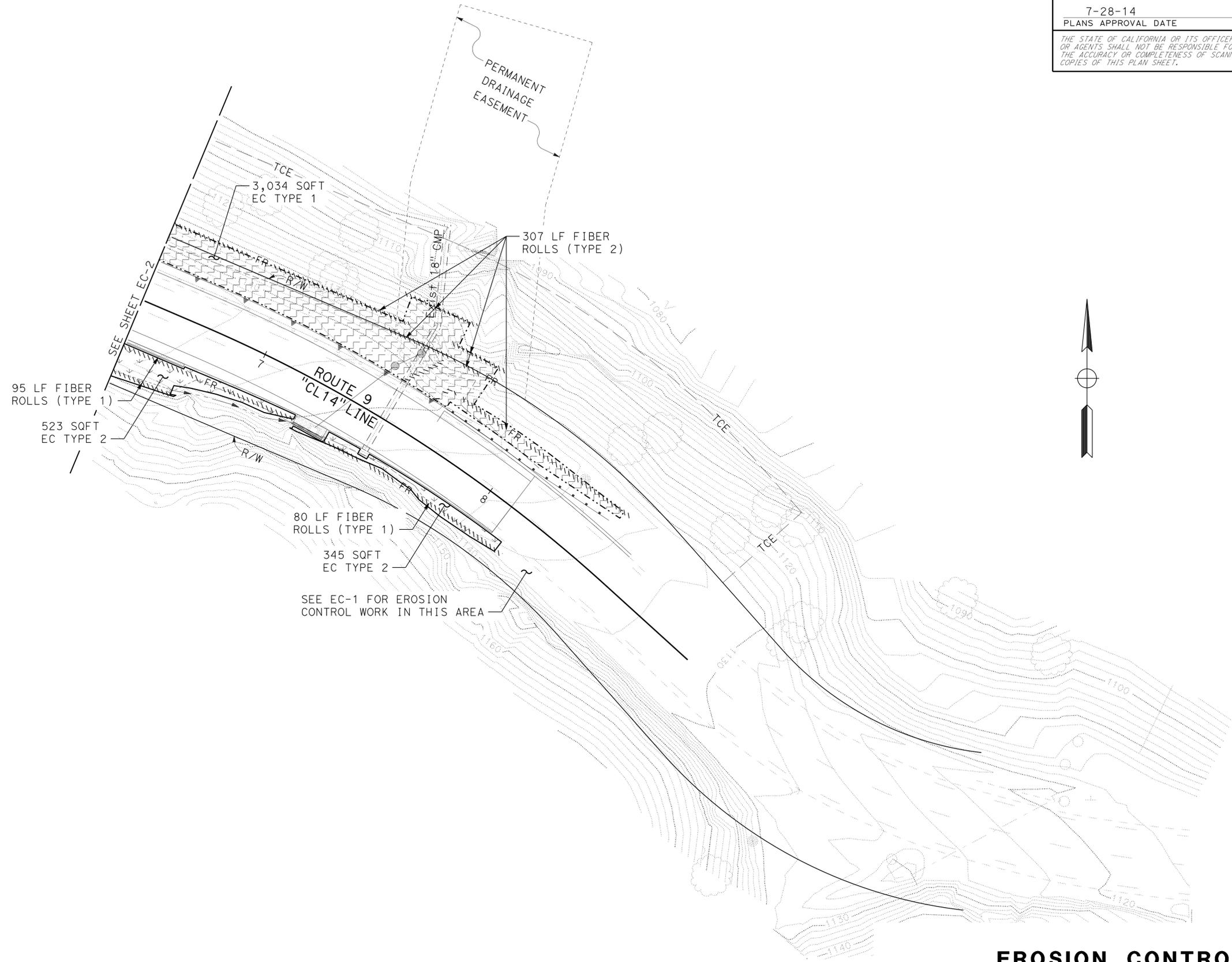
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCL	9	4.2	28	83

*Alex McDonald*  
 LICENSED LANDSCAPE ARCHITECT

7-28-14  
 PLANS APPROVAL DATE

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**NOTE:**  
 FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.



STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	SENIOR LANDSCAPE ARCHITECT	CALCULATED-DESIGNED BY	REVISOR BY	DATE
<b>Water Quality</b>	DAVID W. YAM	CHECKED BY	AKM	7/3/14

**EROSION CONTROL PLAN**  
 SCALE: 1"=20'  
**EC-3**

APPROVED FOR EROSION CONTROL WORK ONLY

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCL	9	4.2	29	83

*Alex McDonald*  
 LICENSED LANDSCAPE ARCHITECT

7-28-14  
 PLANS APPROVAL DATE

8-31-16  
 Renewal Date  
 7-4-14  
 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.

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** WATER QUALITY

SENIOR LANDSCAPE ARCHITECT  
 DAVID W. YAM

CALCULATED-DESIGNED BY  
 CHECKED BY

LAURIE SMITH  
 ALEX McDONALD

REVISED BY  
 DATE REVISED

AKM  
 7/3/14

**EROSION CONTROL QUANTITIES**

SHEET No.	DESCRIPTION	EROSION CONTROL (DRY SEED)	RECP (NETTING)	HYDROMULCH	HYDROSEED	COMPOST	FIBER ROLLS
		SQFT					LF
EC-1	EC TYPE 3	9752	-	-	-	9752	1652
EC-2	EC TYPE 1	-	4511	4511	4511	4511	342
EC-2	EC TYPE 2	-	-	1945	1945	1945	298
EC-3	EC TYPE 1	-	3034	3034	3034	3034	307
EC-3	EC TYPE 2	-	-	868	868	868	175
TOTAL		9752	7545	10358	10358	20110	2774

**EROSION CONTROL QUANTITIES**  
**ECQ-1**

REVISOR: JORGE RAMIREZ  
 DATE: 11/29/12

CALCULATED-DESIGNED BY: JASPAL SINGH  
 CHECKED BY:

FUNCTIONAL SUPERVISOR: ALI BAKHDOUD

**NOTES:**

- MESSENGER CABLE MUST BE 7 STRAND GALVANIZED.
- OVERHEAD CONDUCTORS MUST BE TIED ON MESSENGER WIRE AT EVERY 3' MAXIMUM WITH SELF-CLINGING NYLON TIES.
- OVERHEAD ENTRANCE CONDUIT FITTING MUST BE INSTALLED SO THAT RAINWATER WILL NOT SEEP INTO ELECTRICAL EQUIPMENT THROUGH THE ENTRANCE FITTING. FORM A DRIP LOOP AT ENTRANCE FITTING.
- ESTABLISH CONTINUOUS GROUND WITH SYSTEM GROUND TO ALL METAL PARTS IN SYSTEM BY BONDING JUMPERS AND CONDUITS.
- REFER TO SES SHEETS FOR TEMPORARY WOOD POLES DETAILS.

**LEGEND:**

- TEMPORARY WOOD POLE SERVICE ENCLOSURE. SEE DETAIL A ON SHEET E-3.
- INSTALL DEPARTMENT-FURNISHED MODEL 170E CONTROLLER ASSEMBLY. FURNISH AND INSTALL THE TEMPORARY FOUNDATION PLATFORM PER DETAIL B ON SHEET E-3 AND UPS.
- TEMPORARY WOOD POLE SIGNAL ON SPAN WIRE. SEE DETAIL E ON SHEET E-4.
- TEMPORARY WOOD POLE SIGNAL. SEE DETAIL H ON SHEET E-4.
- TEMPORARY WOOD POLE FLASHING BEACON. SEE DETAIL G ON SHEET E-4 AND TRAFFIC HANDLING PLAN.
- SEE TRAFFIC HANDLING PLANS FOR EXACT LOCATION OF LIMIT LINES.
- TEMPORARY WOOD POST PBA, SEE DETAIL F ON SHEET E-4.
- GENERATOR SYSTEM, SEE DETAIL D ON SHEET E-3.
- 2"C, 2#6 (Sig), 2#8 (Ltg)  
4#6 (FB), 1#8 (G).
- MESSENGER CABLE  
3#14 (SPARE), 3 DLC,  
2#14 (PBA 01), 3#14 (Sig 08),  
2#6 (FB), 1#10 (Sig NEUTRAL),  
1#8 (G).
- 3"C, 9#14 (SPARE), 7 DLC,  
3#14 (Sig 01), 3#14 (Sig 08),  
2#14 (PBA 01), 1#10 (Sig NEUTRAL),  
2#14 (PBA 02), 3#14 (Sig 02), 2#6 (Sig), 1#8 (G).
- 3"C, 9#14 (SPARE), 7 DLC,  
3#14 (Sig 01), 3#14 (Sig 08),  
2#14 (PBA 02), 3#14 (Sig 02),  
2#14 (PBA 01), 4#6 (FB), 2#8 (Ltg), 1#10 (Sig NEUTRAL),  
1#8 (G).
- 1 1/2"C, 3#14 (SPARE), 3 DLC,  
2#14 (PBA 02), 3#14 (Sig 02),  
2#6 (FB), 2#8 (Ltg), 1#10 (Sig NEUTRAL),  
1#8 (G).
- MESSENGER CABLE  
6#14 (SPARE), 4 DLC,  
2#14 (PBA 02), 3#14 (Sig 02),  
3#14 (Sig 01), 2#6 (FB), 2#8 (Ltg), 1#10 (Sig NEUTRAL),  
1#8 (G).
- MESSENGER CABLE  
3#14 (SPARE), 3 DLC,  
2#14 (PBA 02), 3#14 (Sig 02),  
2#6 (FB), 2#8 (Ltg), 1#10 (Sig NEUTRAL),  
1#8 (G).
- MESSENGER CABLE  
3#2 (CONDUCTORS BY PG&E)
- 1 1/2"C, 2#14 (PBA 02), 3 DLC  
2#6 (FB), 1#8 (G).
- 1 1/2"C, 2#14 (PBA 02), 1#8 (G).
- 1 1/2"C, 2#6 (FB), 1 DLC, 1#8 (G).
- 1 1/2"C, 2#6 (FB), 1#8 (G).
- 2"C, 2#14 (PBA 01), 1#8 (G).
- 2"C, 2#14 (PBA 01), 3 DLC  
2#6 (FB), 1#8 (G).
- 2"C, 3#4, 1#8 (G).
- No. 3 1/2 PULL BOXES AS NECESSARY TO MAINTAIN 200' MAX SPACING.
- TEMPORARY WOOD POLE SIGNAL AND SERVICE ENCLOSURE. SEE DETAIL I ON SHEET E-4.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	30	83

REGISTERED ELECTRICAL ENGINEER: *Jaspal Singh*  
 DATE: 07-25-14  
 PLANS APPROVAL DATE: 7-28-14  
 No. E16657  
 Exp. 6/30/16  
 ELECTRICAL  
 STATE OF CALIFORNIA

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.

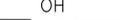
**ABBREVIATIONS:**

PG&E - PACIFIC GAS AND ELECTRIC COMPANY  
 UPS - UNINTERRUPTIBLE POWER SUPPLY  
 ATS - AUTOMATIC TRANSFER SWITCH

**INDEX TO ELECTRICAL PLANS:**

PLAN No.	TITLE
E-1	NOTES, LEGEND AND ABBREVIATIONS
E-2	TEMPORARY SIGNAL SYSTEM
E-3 TO E-4	ELECTRICAL DETAILS
E-5	ELECTRICAL QUANTITIES

**SYMBOLS:**

-  GENERATOR WITH ATS
-  FUEL TANK
-  TEMPORARY CHAIN LINK FENCE (TYPE CL-6) WITH 4' CHAIN LINK GATE (TYPE CL-6)
-  FUEL LINE
-  OVERHEAD MESSENGER WIRE WITH CONDUCTORS AS NOTED

**NOTES, LEGEND, SYMBOLS AND ABBREVIATIONS**

**E-1**

APPROVED FOR ELECTRICAL WORK ONLY

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	31	83

<i>Jaspal Singh</i>	7-25-14
REGISTERED ELECTRICAL ENGINEER	DATE
	7-28-14
PLANS APPROVAL DATE	

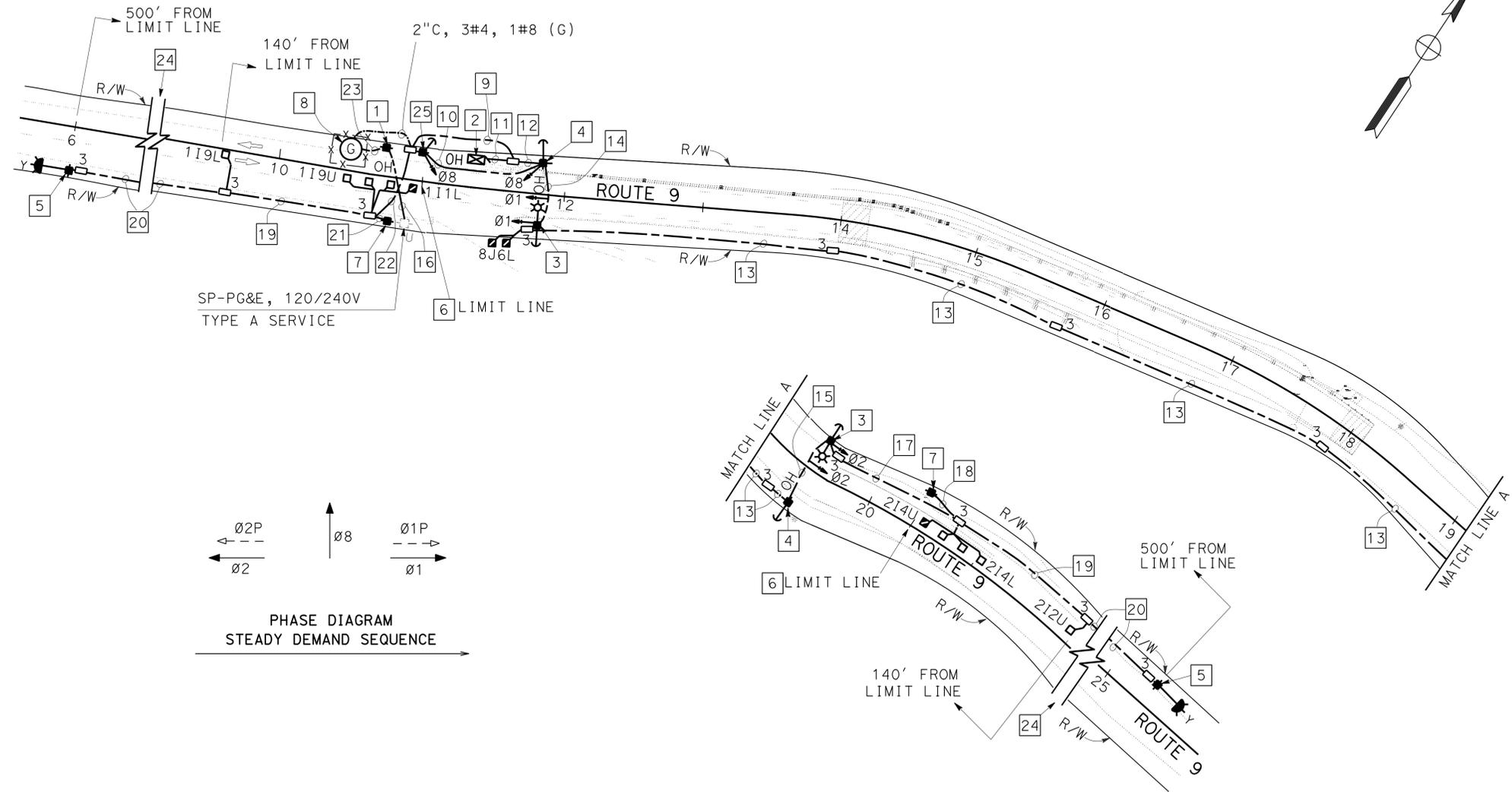
REGISTERED PROFESSIONAL ENGINEER
JASPAL SINGH
No. E16657
Exp. 6/30/16
ELECTRICAL
STATE OF CALIFORNIA

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.

**NOTE:**

FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
<b>Caltrans</b> 10-ELECTRICAL DESIGN
FUNCTIONAL SUPERVISOR
ALI BAKHDOUD
CALCULATED-DESIGNED BY
CHECKED BY
JORGE RAMIREZ
JASPAL SINGH
REVISOR BY
DATE REVISED
11/29/12



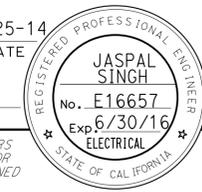
**TEMPORARY SIGNAL SYSTEM**

SCALE: 1"=50'

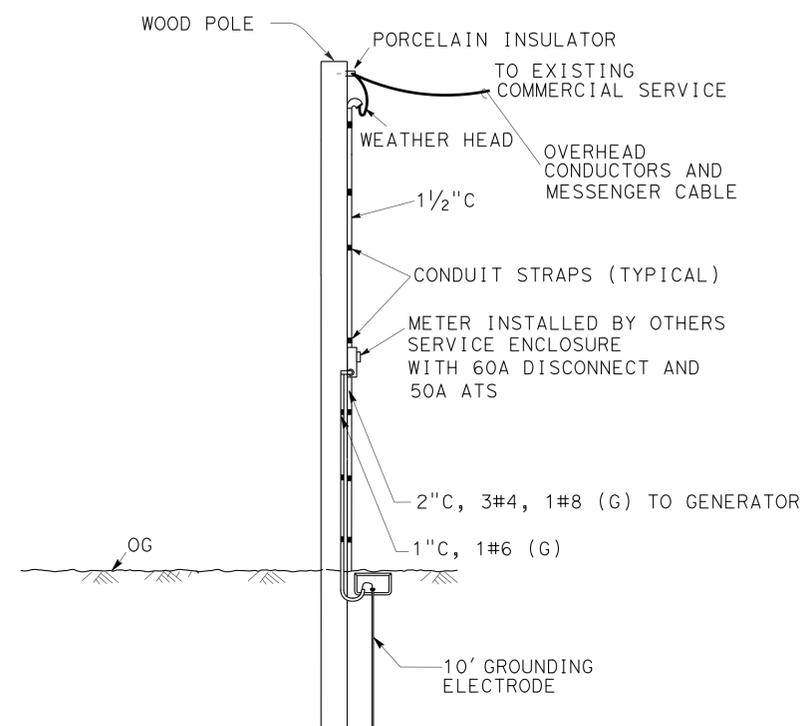
**E-2**

APPROVED FOR ELECTRICAL WORK ONLY

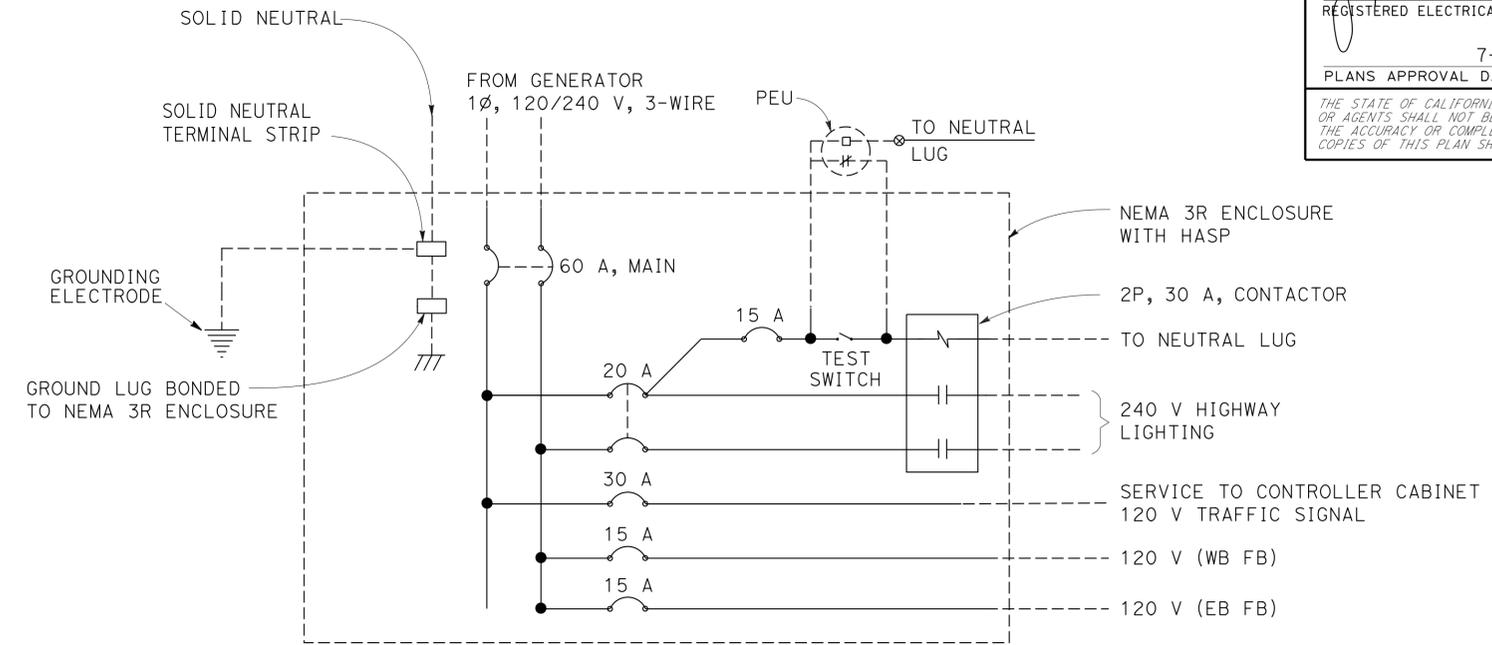


Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	32	83
 REGISTERED ELECTRICAL ENGINEER DATE 7-25-14			7-28-14 PLANS APPROVAL DATE		
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.					

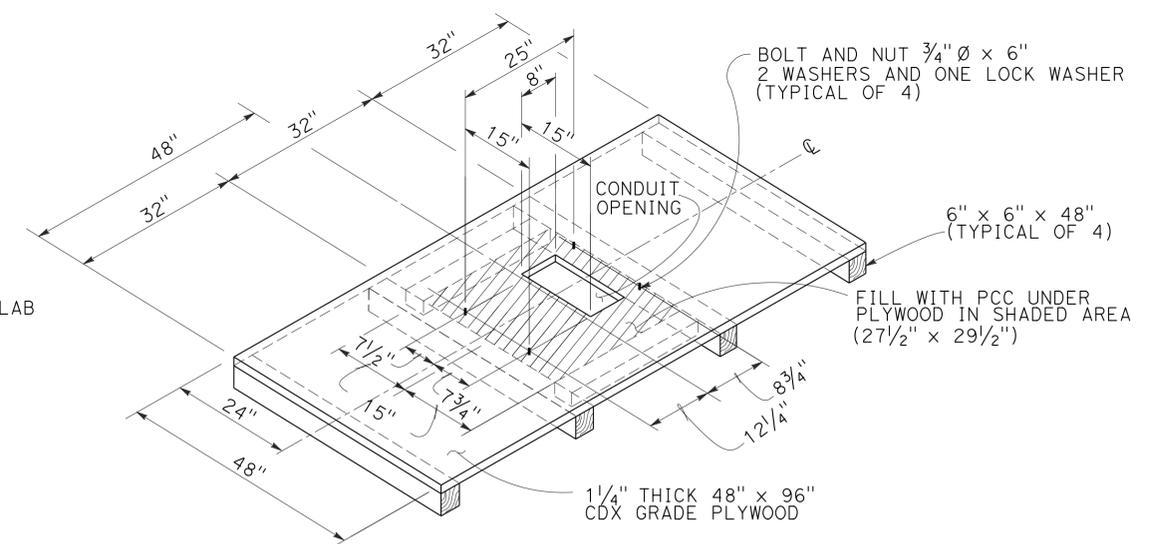
**NOTE:**  
SEE SES SHEETS FOR WOOD POLE DETAILS.



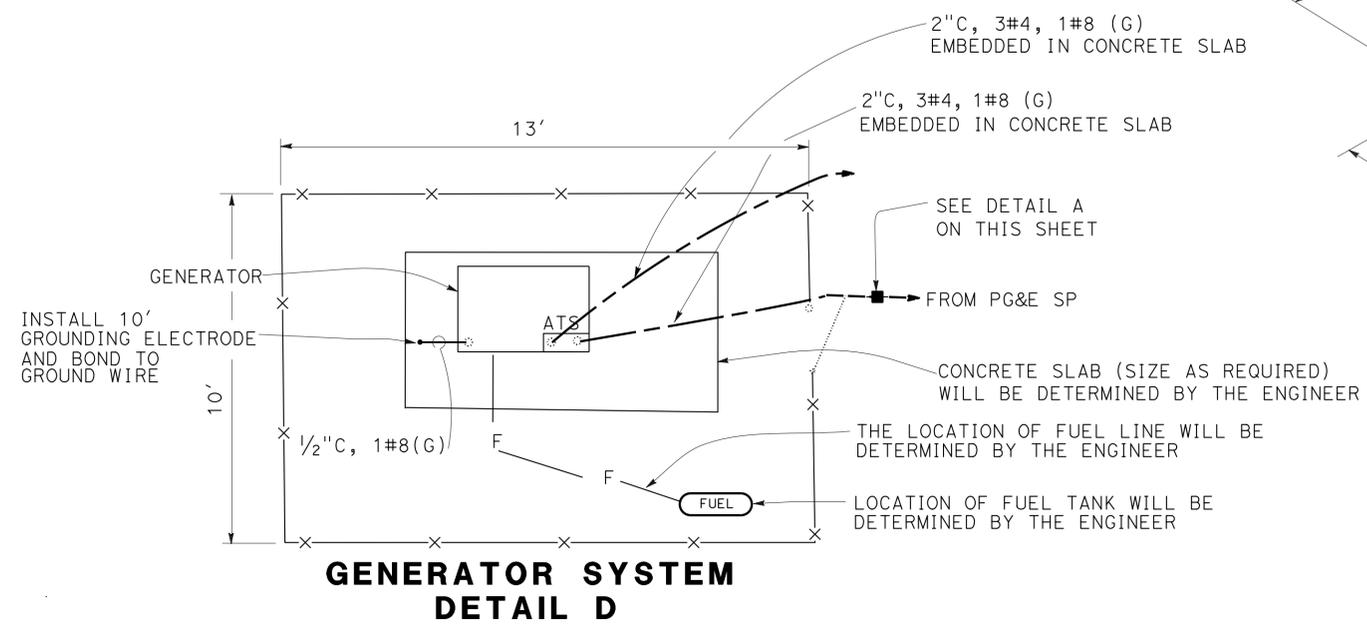
**TEMPORARY WOOD POLE SERVICE ENCLOSURE DETAIL A**



**SERVICE ENCLOSURE WIRING DIAGRAM DETAIL C**



**TEMPORARY FOUNDATION PLATFORM DETAIL B**



**GENERATOR SYSTEM DETAIL D**

**ELECTRICAL DETAILS**  
NO SCALE **E-3**

APPROVED FOR ELECTRICAL WORK ONLY

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** 10-ELECTRICAL DESIGN  
 FUNCTIONAL SUPERVISOR: ALT BAKHDOUD  
 CALCULATED/DESIGNED BY: JORGE RAMIREZ  
 CHECKED BY: JASPAL SINGH  
 REVISED BY: 11/29/12  
 DATE REVISED:

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** 10-ELECTRICAL DESIGN

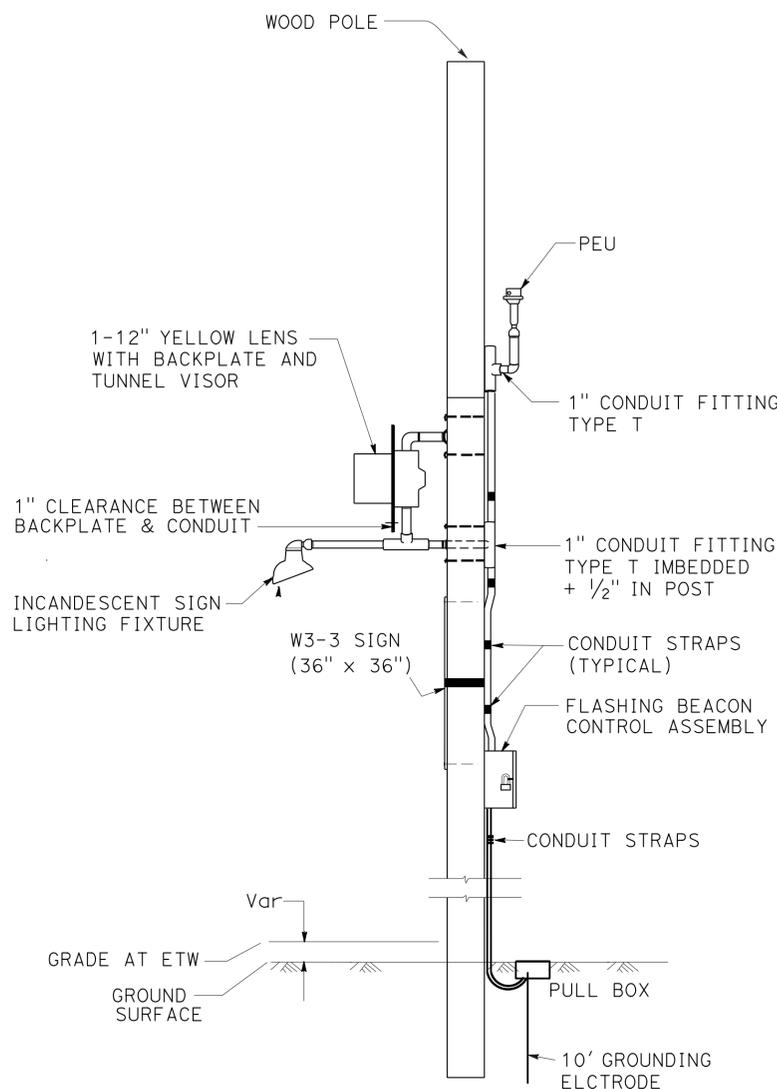
**NOTE:**  
 SEE SES SHEETS FOR TEMPORARY WOOD POLE DETAILS.

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	33	83

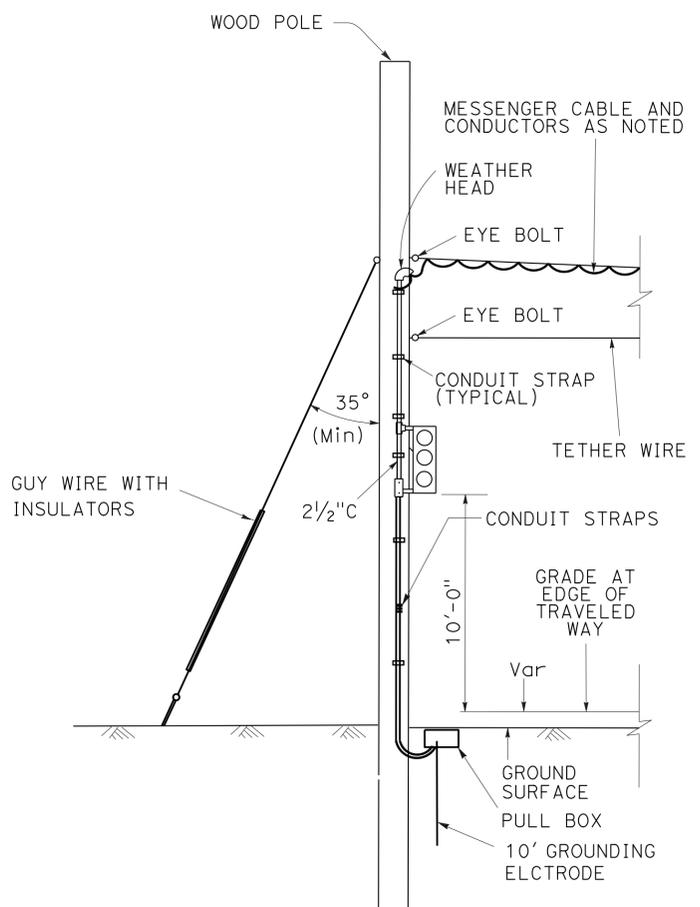
  

REGISTERED ELECTRICAL ENGINEER	DATE
JASPAL SINGH	7-25-14
PLANS APPROVAL DATE	
	7-28-14

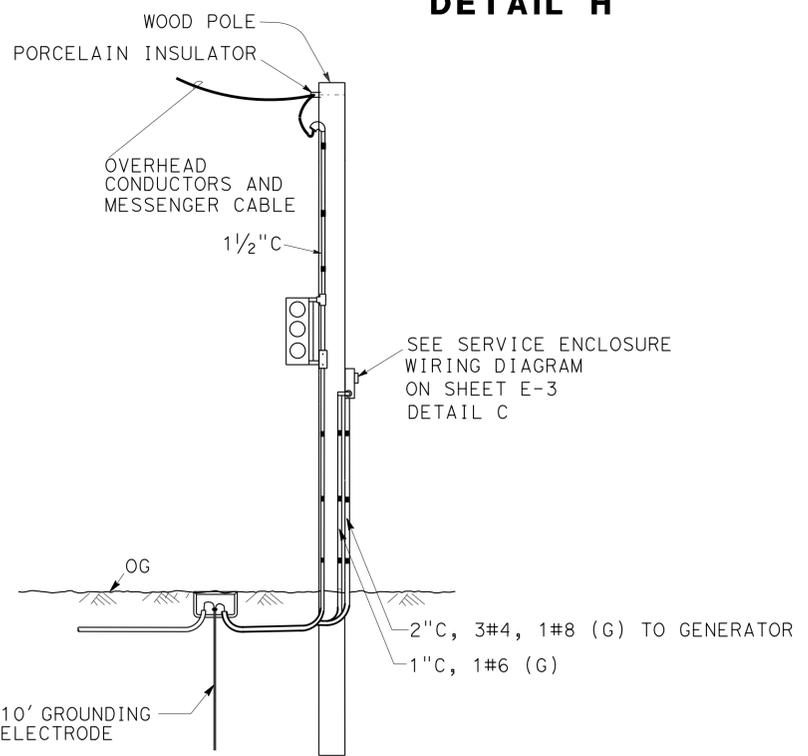
REGISTERED PROFESSIONAL ENGINEER  
 No. E16657  
 Exp. 6/30/16  
 ELECTRICAL  
 STATE OF CALIFORNIA



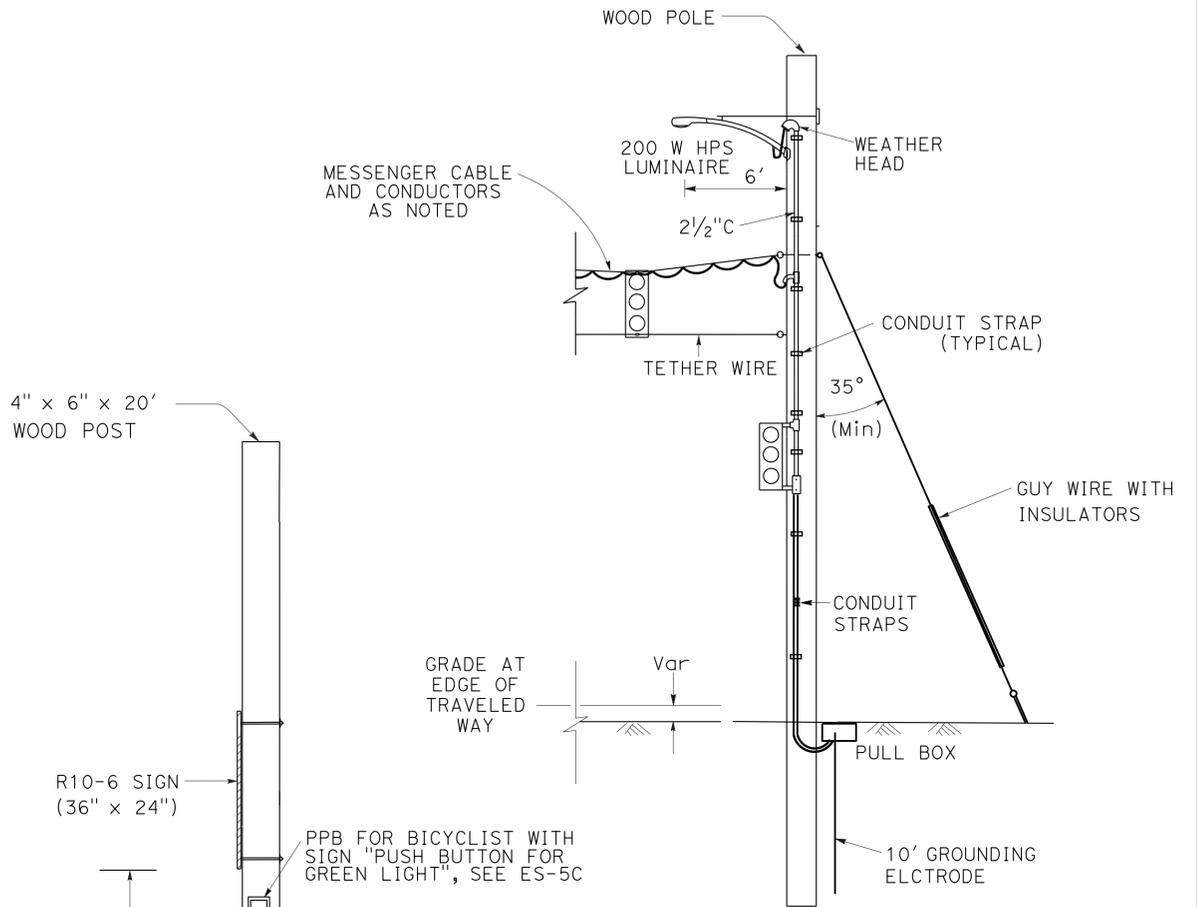
**TEMPORARY WOOD POLE FLASHING BEACON DETAIL G**



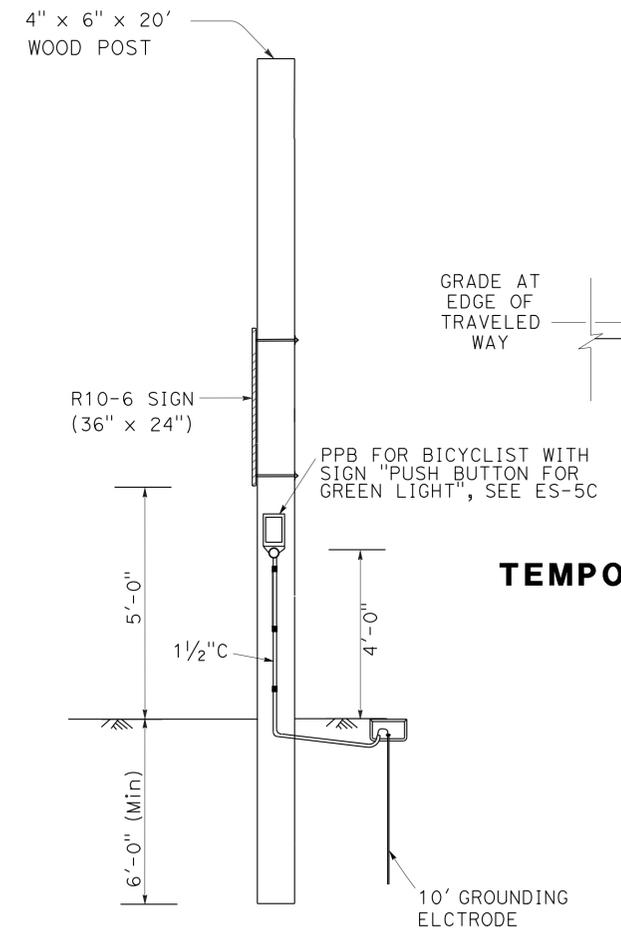
**TEMPORARY WOOD POLE SIGNAL DETAIL H**



**TEMPORARY WOOD POLE SIGNAL AND SERVICE ENCLOSURE DETAIL I**



**TEMPORARY WOOD POLE SIGNAL ON SPAN WIRE DETAIL E**



**TEMPORARY WOOD POST PBA DETAIL F**

**ELECTRICAL DETAILS**

NO SCALE

**E-4**

APPROVED FOR ELECTRICAL WORK ONLY

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	34	83

*Jaspal Singh*  
 REGISTERED ELECTRICAL ENGINEER DATE 7-25-14  
 7-28-14  
 PLANS APPROVAL DATE

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**NOTE:**  
 ITEMS SHOWN IN TABLES ARE NOT A SEPARATE PAY ITEMS.  
 FOR INFORMATION ONLY.

**TEMPORARY SIGNAL SYSTEM**

SHEET No.	No.5 PB	No.3 1/2 PB	TEMPORARY WOOD POLE FLASHING BEACON	GENERATOR SYSTEM	TEMPORARY FOUNDATION PLATFORM	TEMPORARY WOOD POLE SIGNAL	TEMPORARY WOOD POLE SIGNAL ON SPAN WIRE	TEMPORARY WOOD POLE SERVICE ENCLOSURE	UPS	CHAIN LINK GATE (TYPE CL-6)	TYPE A DETECTOR LOOP	TYPE D DETECTOR LOOP	TEMPORARY WOOD POLE SIGNAL AND SERVICE ENCLOSURE
	EA												
E-2	2	14	2	1	1	2	2	1	1	1	8	4	1

**TEMPORARY SIGNAL SYSTEM**

SHEET No.	1 1/2" C TYPE 3	2" C TYPE 3	MESSENGER CABLE	CHAIN LINK FENCE (TYPE CL-6)	No. 2 CONDUCTOR	No. 4 CONDUCTOR	No. 6 CONDUCTOR	No. 8 CONDUCTOR	No. 14 CONDUCTOR	DLC
	LF									
E-2	1840	450	150	42	150	30	4620	2020	8970	3900

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** 10-ELECTRICAL DESIGN

FUNCTIONAL SUPERVISOR: ALI BAKHDOUD  
 CALCULATED-DESIGNED BY: JORGE RAMIREZ  
 CHECKED BY: JASPAL SINGH  
 REVISED BY: 11/29/12  
 DATE REVISED:

**ELECTRICAL QUANTITIES**  
**E-5**

APPROVED FOR ELECTRICAL WORK ONLY

LAST REVISION | DATE PLOTTED => 07-AUG-2014  
 07-25-14 | TIME PLOTTED => 11:15

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	35	83

7/21/14 REGISTERED CIVIL ENGINEER DATE	7-28-14 PLANS APPROVAL DATE

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LUMINAIRE ARM DATA			
Projected Length	N Rise	Min OD At Pole	Thickness
6'-0"	2'-0"	3/4"	0.1196"

Refer to ES-6A for Luminaire arm details

**GENERAL NOTES:**

**SPECIFICATIONS**

Design: AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals dated 2001.

**LOADING**

Wind Loadings: 85 MPH

**UNIT STRESSES**

Timber Poles: Tapered treated round pole ASTM D2899 Standard  
 Fb = 1850 psi  
 Fv = 110 psi  
 E = 1500 x 10<sup>3</sup> psi

**TREATMENT**

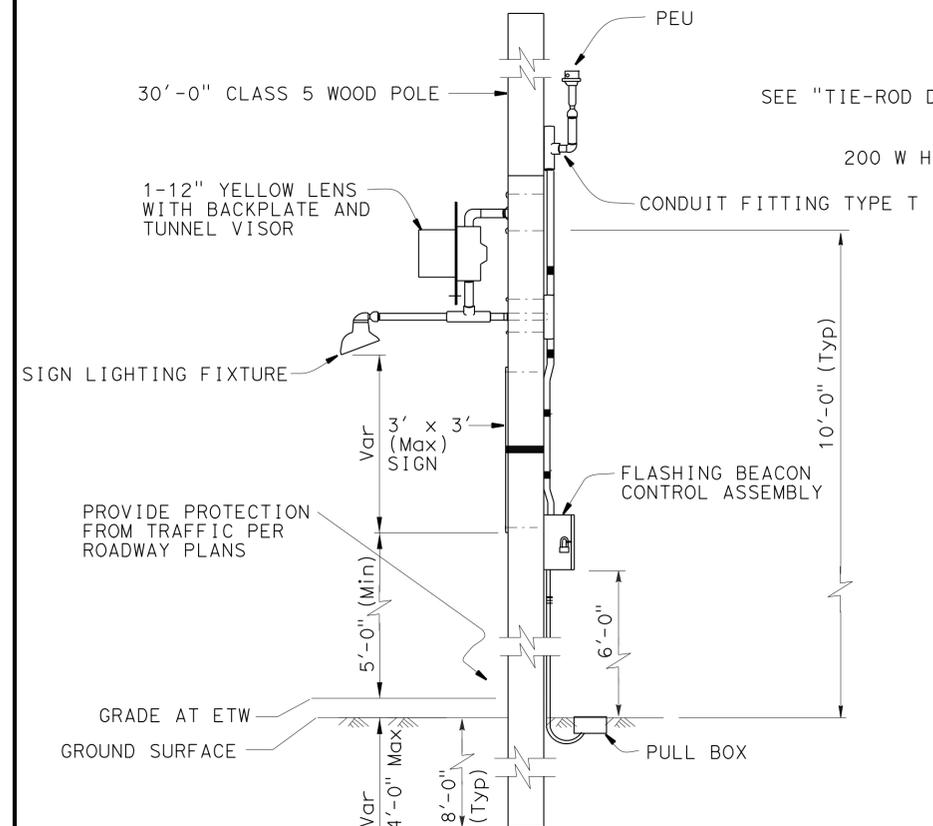
To conform with Section 86 Standard Specifications

**SPECIFICATIONS**

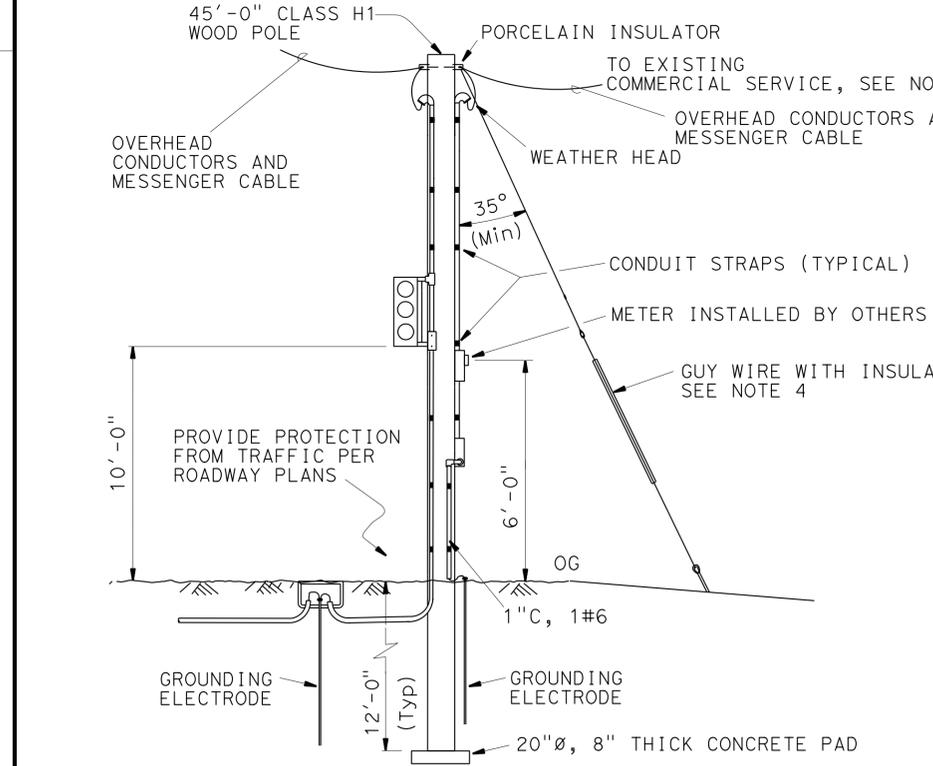
Caltrans Standard Specifications 2010  
 ANSI 05 Wood Poles  
 ASTM A475 Utility Grade Wires

**NOTES:**

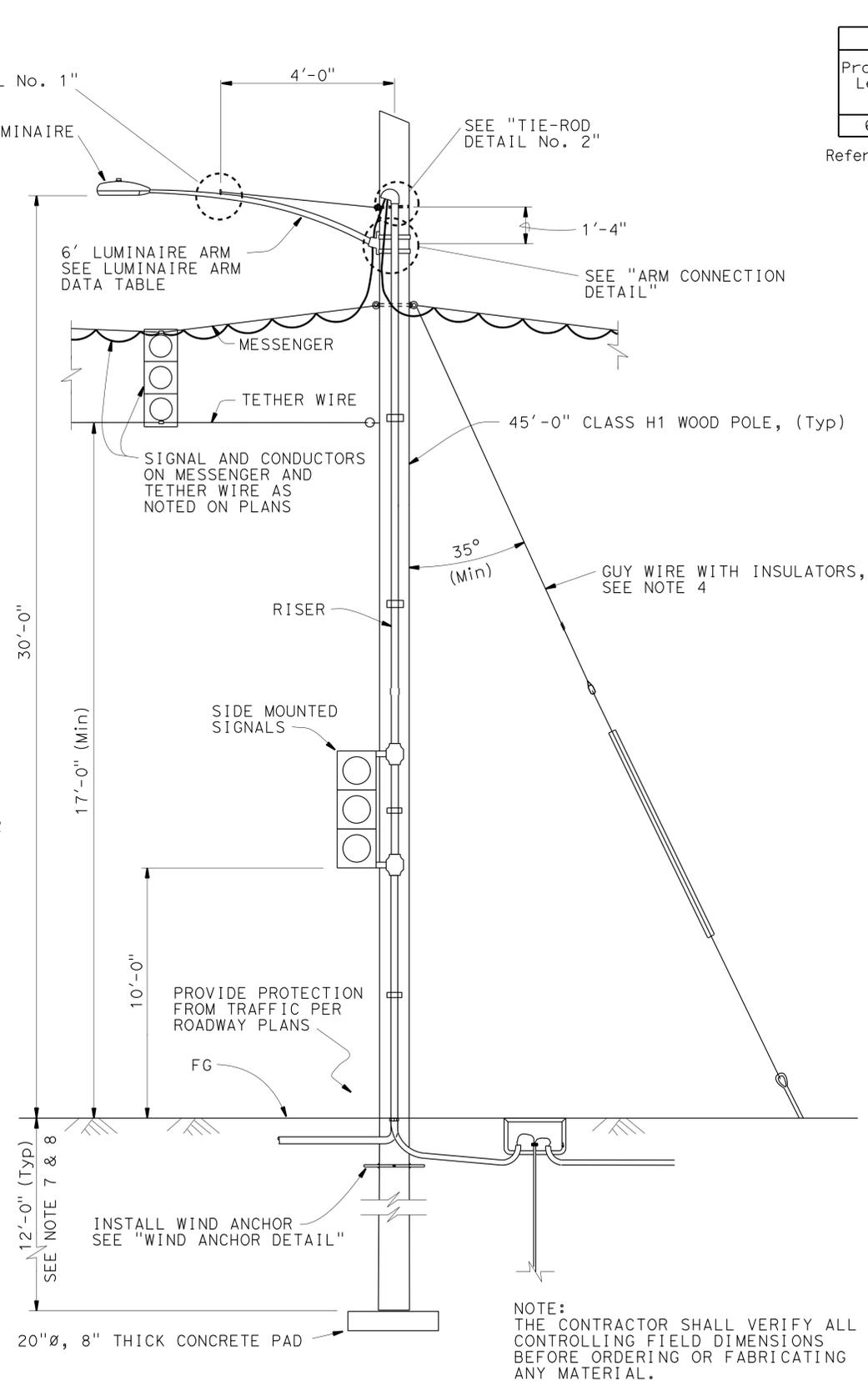
- All overhead cables shall be slack spanned with 18'-0" minimum overhead clearance.
- Conductors shall be suspended from span-wire as follows: Main run 3/8" span-wire with 5% ±0.4% sag and 1/4" tether wire with 5% ±0.4% sag where required. No spare conductors allowed except as noted.
- Overhead line construction not specifically covered here shall conform with the provisions of General Order No. 95 of Public Utilities Commission.
- Wood poles shall be stabilized using guy wires, breast blocks or rakes at each dead end, corner, drop or line deviation more than 15° from straight line. The direction of the guy shall counteract the resultant of unbalanced force applied to pole. Where space or conflict prevent guy installation, a diagonal brace shall be used. The brace shall be wood and shall be connected to the pole by means to satisfy structural and electrical requirements. The direction of the brace shall counteract the resultant of unbalanced horizontal force of 2000 pounds (Min) applied to the pole.
- Guy shall be attached to pole as nearly as practical to the center of conductors load, or 3'-0" Max otherwise, See Note 4.
- All attachments shall be mounted with stainless steel straps or other manufacturers methods without drilling holes in pole, except as shown. Drilling through pole will require the Engineer's approval.
- Foundation design is based on AASHTO 2001 article 13.6 Broms' approximate procedure assuming a cohesionless material. The angle of internal friction used is 30° and unit weight of soil used is 120 lb/ft<sup>3</sup>. Verify actual soil condition.
- If pole is located on a steep slope add 2 feet extra for embedment.
- See Sheets SES-2 through SES-4 for details.
- For details not shown, see "2010 STANDARD PLANS".
- Temporary poles support OH Conductors as noted. Attach luminaire arm or combination of attachments as specified at locations where indicated on the Electrical Sheets.
- PG&E to verify the capacity of existing PG&E wood pole before attaching overhead conductors.



**TEMPORARY WOOD POLE FLASHING BEACON FOR DETAIL G, SHEET E-4**



**TEMPORARY WOOD POLE SERVICE ENCLOSURE FOR DETAIL A, SHEET E-3**



**TYPICAL TEMPORARY WOOD POLE SUPPORT WITH LUMINAIRE**

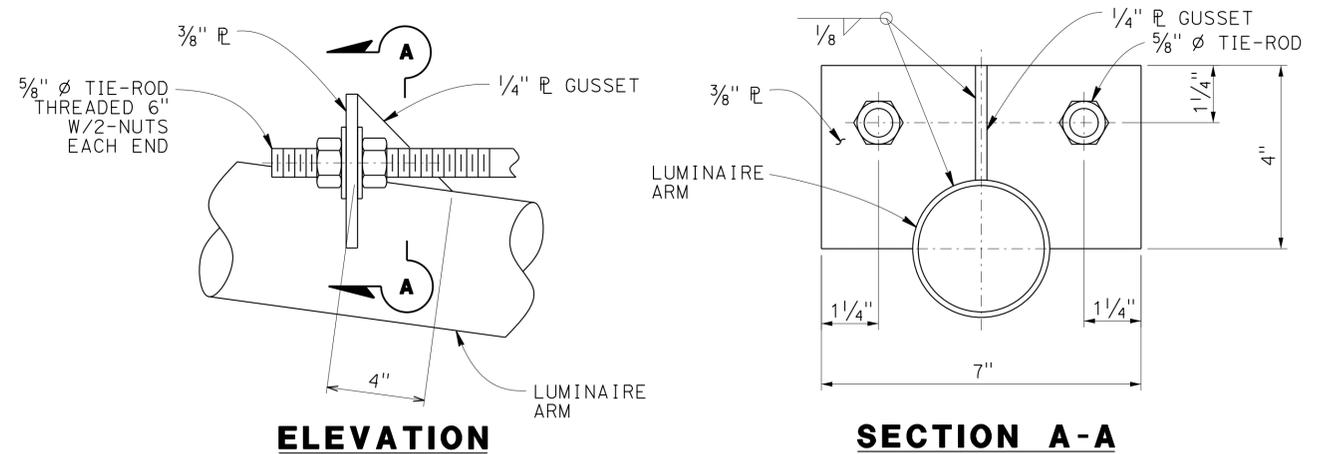
NO SCALE

BRANCH CHIEF <u>JAMES SAGAR</u>	DESIGN	BY A MALAK	CHECKED T MARCHENKO	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN SPECIAL DESIGN BRANCH	BRIDGE NO.	N/A	<b>TEMPORARY SIGNAL SYSTEM</b> <b>TEMPORARY WOOD POLE</b>	<b>SES-1</b>
	DETAILS	BY H NGUYEN	CHECKED A MALAK			POST MILE	4.16		
	QUANTITIES	BY	CHECKED X						

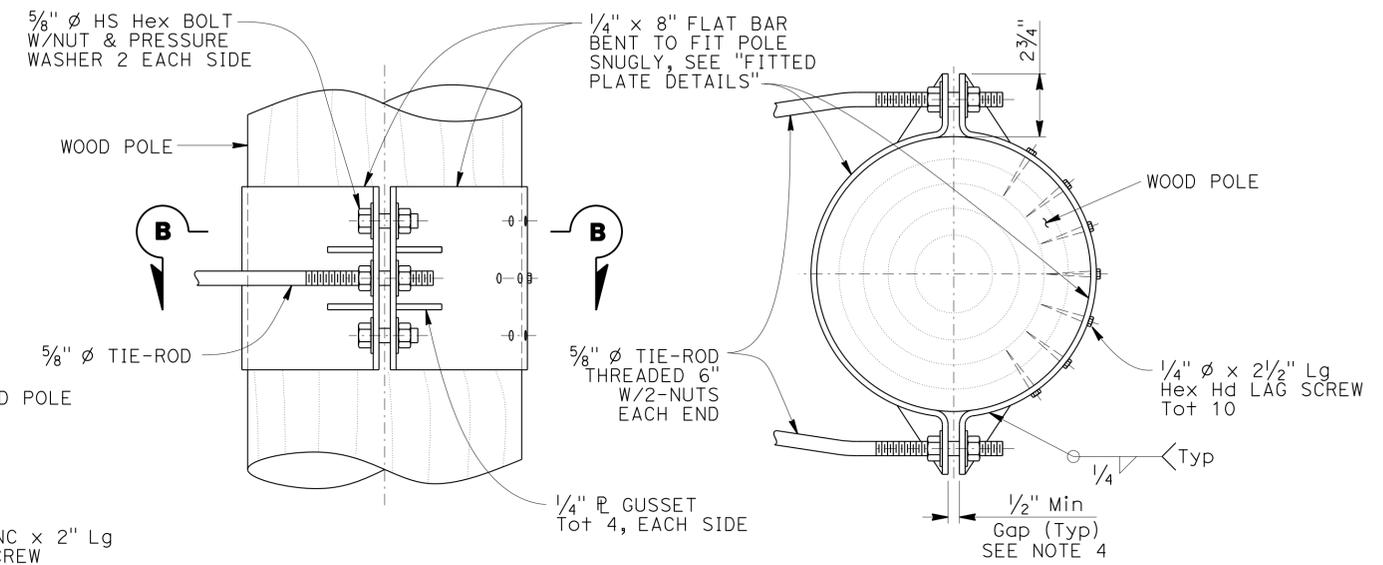
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	36	83
<i>Amman malak</i> REGISTERED CIVIL ENGINEER			7/21/14 DATE		
7-28-14 PLANS APPROVAL DATE					
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**NOTES:**

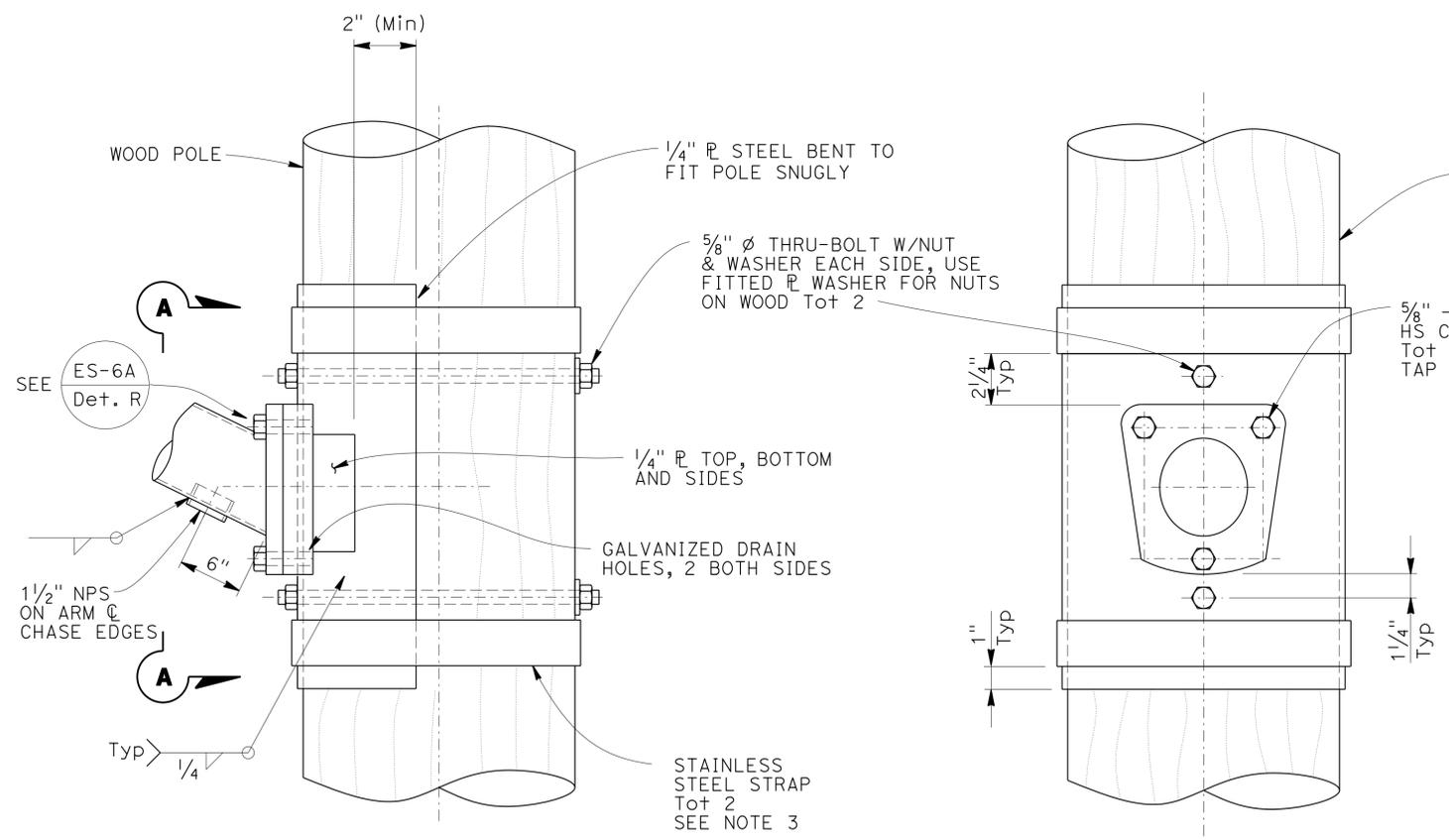
- All hardware and steel shall be galvanized after fabrication.
- Arm base connection details shall be in compliance with Standard Plan Detail Sheet ES-6A with noted modifications.
- 2000 lb Min capacity strap system shall be used for top and bottom of plate.
- Verify pole dimensions at Tie-Rod attachment height. Fabricate 8" flat bar with "L" Dimension to maintain an open gap between flanges in finished installation.



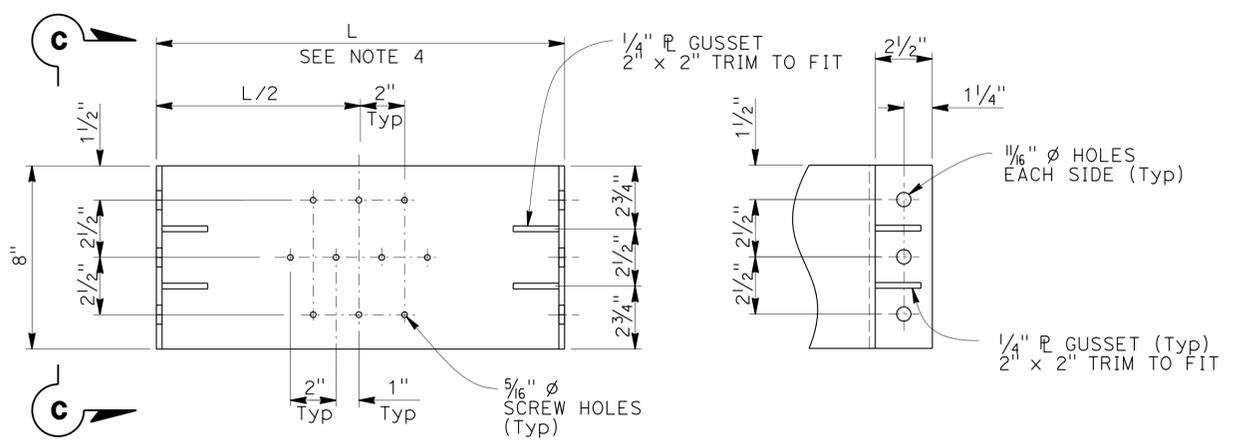
**TIE-ROD DETAIL No. 1**



**TIE-ROD DETAIL No. 2**



**ARM CONNECTION DETAILS**

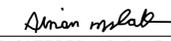
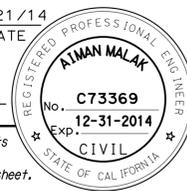


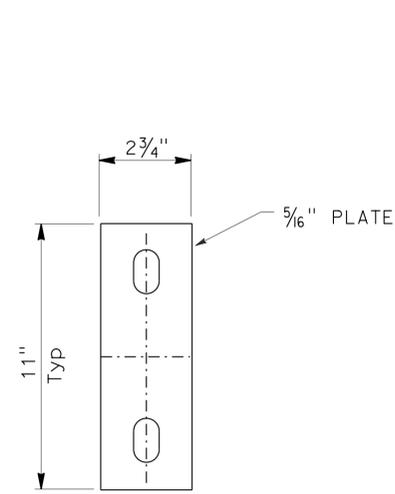
**FITTED PLATE DETAILS**

Note: 2 Required (1 w/screw holes, 1 without)

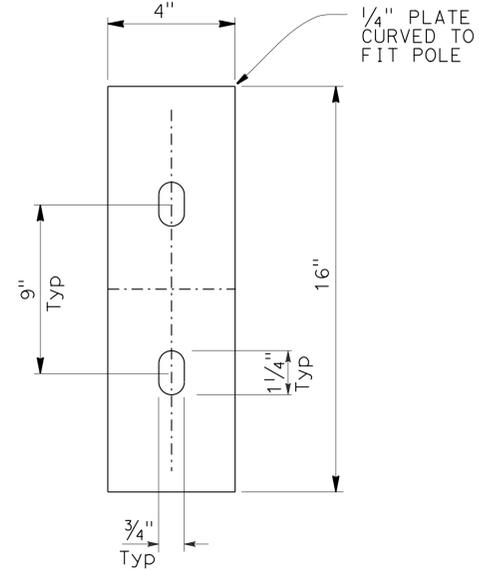
NOTE:  
THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

BRANCH CHIEF <u>JAMES SAGAR</u>	DESIGN	BY A MALAK	CHECKED T MARCHENKO	<b>STATE OF CALIFORNIA</b> DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN <b>SPECIAL DESIGN BRANCH</b>	BRIDGE NO.	<b>TEMPORARY SIGNAL SYSTEM</b> <b>WOOD POLE MOUNTING DETAILS</b>	<b>SES-2</b>
	DETAILS	BY H NGUYEN	CHECKED A MALAK			N/A		
	QUANTITIES	BY	CHECKED X			POST MILE		

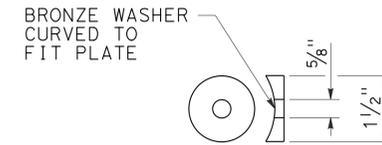
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	37	83
			7/21/14		
REGISTERED CIVIL ENGINEER			DATE		
7-28-14			PLANS APPROVAL DATE		
					
<small>The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.</small>					



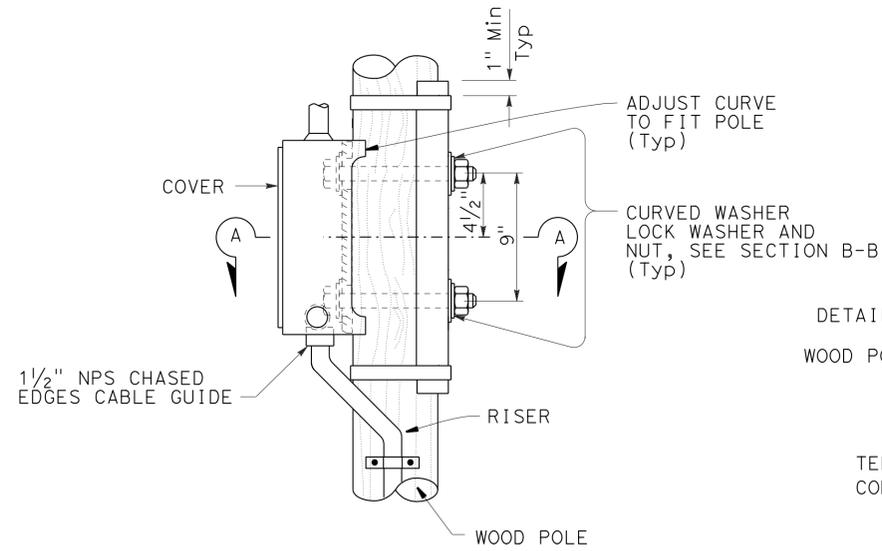
**COMPARTMENT PLATE (Mod)**



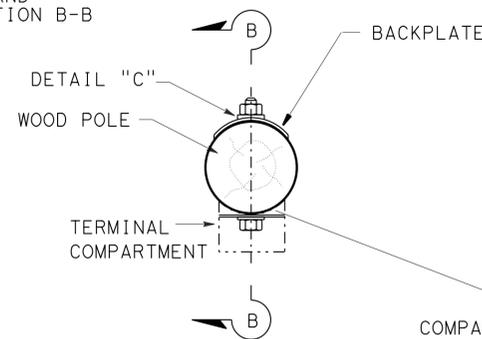
**BACKPLATE**



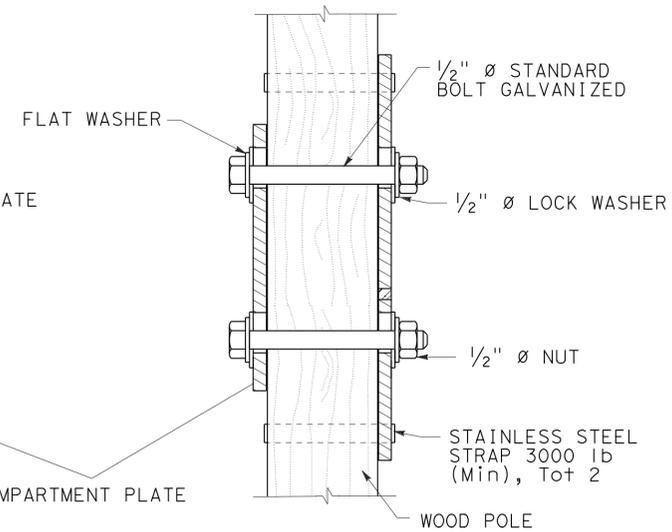
**DETAIL "C"**



**SIDE MOUNTING  
TERMINAL COMPARTMENT**



**SECTION A-A**



**SECTION B-B**

**SIGNAL HEADS AND MOUNTINGS**

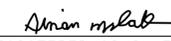
For Details Not Shown See ES-4D Sheet

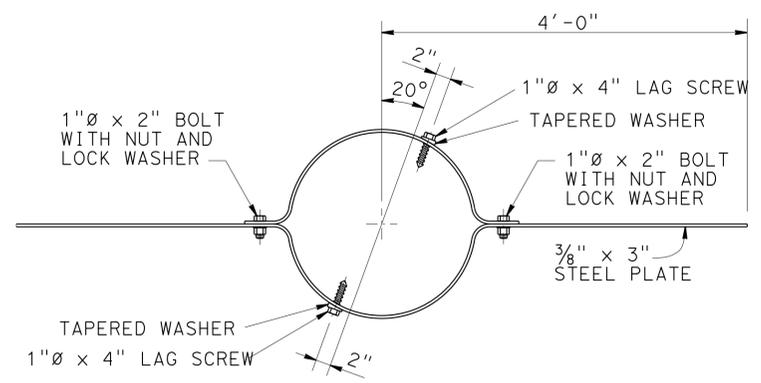
NOTE:  
THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

NO SCALE

BRANCH CHIEF <u>JAMES SAGAR</u>	DESIGN	BY A MALAK	CHECKED T MARCHENKO	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN SPECIAL DESIGN BRANCH	BRIDGE NO.	TEMPORARY SIGNAL SYSTEM WOOD POLE DETAILS	SES-3
	DETAILS	BY H NGUYEN	CHECKED A MALAK			N/A		
	QUANTITIES	BY	CHECKED X			POST MILE		

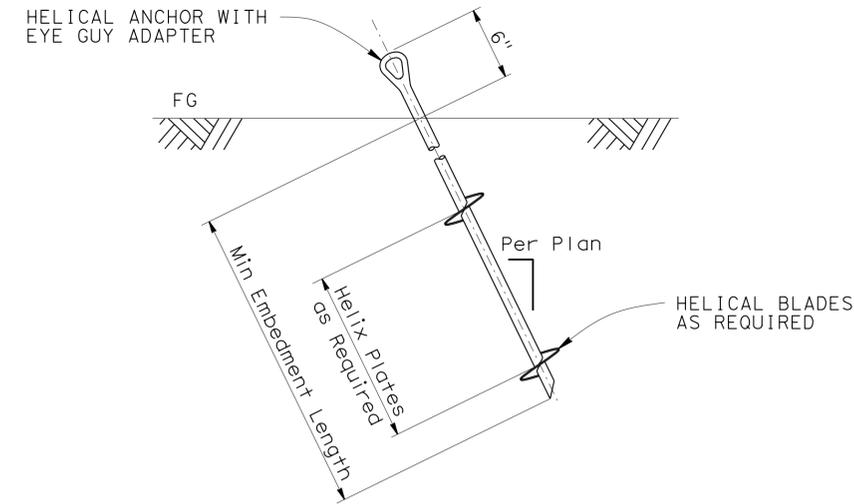
STRUCTURES DESIGN SPECIAL DESIGN SHEET (ENGLISH) (REV. 09-01-10)	ORIGINAL SCALE IN INCHES FOR REDUCED PLANS	0	1	2	3	UNIT: 3619 PROJECT NUMBER & PHASE: 0400001202	CONTRACT NO.: 04-4s0501	DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES	4-9-12	SHEET 3	OF 4
--	--	---	---	---	---	--	-------------------------	---	----------------	--------	---------	------

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	38	83
			7/21/14		
REGISTERED CIVIL ENGINEER			DATE		
			7-28-14		
			PLANS APPROVAL DATE		
			No. C73369		
			Exp. 12-31-2014		
			CIVIL		
<small>The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.</small>					



**WIND ANCHOR**

To be installed perpendicular to mast arms and 2'-0" Min below grade



**ALTERNATIVE GUY WIRE INSTALLATION DETAIL**

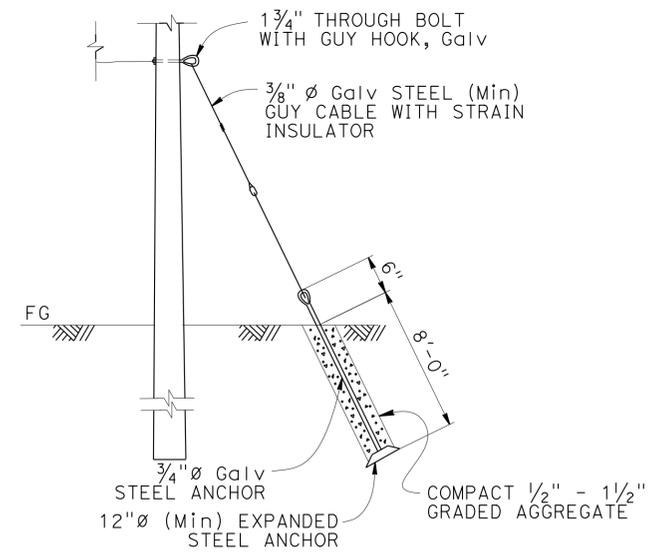
(See Helical Anchor Specifications Table)

HELICAL ANCHOR SPECIFICATIONS					
Anchor Location	Type	Helix Plate Diameter*	Allowable Min Tension Cap., "Q <sub>a</sub> "	Embedment Length (Min)	Installation Torque (Min)**, "T"
Typical	Tension	10"	3700 lb	8'-0"	1100 Ft-lb

SPECIFICATION NOTES:

- During installation the torque will be continuously monitored and recorded. If a drop in torque is recorded, the anchor must then continue to be inserted past the soft soil layer until Minimum Installation Torque is achieved.
- Anchors and Hardware to be installed per the manufacturers specifications.

\* Number of helical plates is not specified; Contractors choice.  
 \*\* Adjust accordingly if required, See Note 3.



**GUY WIRE INSTALLATION DETAIL**

NOTE:  
THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

**NOTES:**

- Verify soil condition, slope, and adjust anchoring to satisfy basic design requirements per Note 7 on SES-1 sheet.
- Use of alternative Guy Wire Installation Detail requires that the soil bearing capacity be verified by the installation Contractor.
- Determine the most appropriate value for k<sub>p</sub> based on soil conditions and shall adjust the Min Installation Torque based on the revised k<sub>p</sub>. A k<sub>p</sub> value of 10 was assumed for the Min Installation Torque shown in the table.  
  
The Helical Installation torque Formula is Q<sub>u</sub> = k<sub>p</sub>\*T where,  

$$Q_u = Q_a * FS = \text{Ultimate Helical Anchor Capacity (LBs)}$$

$$FS = \text{Factor of Safety} = 3.0$$

$$Q_a = \text{Allowable Helical Anchor Capacity (LBs)}$$

$$k_p = \text{Empirical Torque Factor (ft}^{-1}\text{)}$$

$$T = \text{Min Installation Torque (Ft-LBs)}$$
- Requests made by Helical Anchor Installation Contractor to reduce the minimum embedment length or Helix diameter or both require Engineer's approval.
- Locate and mark all of the substructures and utilities. Installation of anchors underneath utilities or subsurface structures is prohibited. Horizontal clearances of anchors shall be determined by the Engineer during construction.

NO SCALE

BRANCH CHIEF <u>JAMES SAGAR</u>	DESIGN	BY A MALAK	CHECKED T MARCHENKO	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN SPECIAL DESIGN BRANCH	BRIDGE NO.	N/A	TEMPORARY SIGNAL SYSTEM WOOD POLE DETAILS	SES-4
	DETAILS	BY H NGUYEN	CHECKED A MALAK			POST MILE	4.16		
	QUANTITIES	BY	CHECKED X						

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	39	83

*Grace M. Tsushima*  
REGISTERED CIVIL ENGINEER

July 19, 2013  
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.

TO ACCOMPANY PLANS DATED 7-28-14

**UNIT OF MEASUREMENT SYMBOLS:**

Some of the symbols used in the project plan quantity tables and in the Bid Item List are:

**TABLE A**

SYMBOL USED	DEFINITIONS
ACRE	ACRE
CF	CUBIC FOOT
CY	CUBIC YARD
EA	EACH
GAL	GALLON
LB	POUND
LF	LINEAR FOOT
SQFT	SQUARE FOOT
SQYD	SQUARE YARD
STA	100 FEET
TAB	TABLET
TON	2,000 POUNDS

Some of the symbols used in the plans other than in the project plan quantity tables are:

**TABLE B**

SYMBOL USED	DEFINITIONS
ksi	KIPS PER SQUARE INCH
ksf	KIPS PER SQUARE FOOT
psi	POUNDS PER SQUARE INCH
psf	POUNDS PER SQUARE FOOT
lb/ft <sup>3</sup> , pcf	POUNDS PER CUBIC FOOT
tsf	TONS PER SQUARE FOOT
mph, MPH *	MILES PER HOUR
∅	NOMINAL DIAMETER
oz	OUNCE
lb	POUND
kíp	1,000 POUNDS
cal	CALORIE
ft	FOOT OR FEET
gal	GALLON

\* For use on a sign panel only

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**ABBREVIATIONS  
(SHEET 2 OF 2)**

NO SCALE

RSP A10B DATED JULY 19, 2013 SUPERSEDES STANDARD PLAN A10B  
DATED MAY 20, 2011 - PAGE 2 OF THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP A10B**

Maint	MAINTENANCE
Max	MAXIMUM
MB	METAL BEAM
MBB	METAL BEAM BARRIER
MBGR	METAL BEAM GUARD RAILING
Med	MEDIAN
MGS	MIDWEST GUARDRAIL SYSTEM
MH	MANHOLE
Min	MINIMUM
Misc	MISCELLANEOUS
Misc I & S	MISCELLANEOUS IRON AND STEEL
Mkr	MARKER
Mod	MODIFIED, MODIFY
Mon	MONUMENT
MP	METAL PLATE
MPGR	METAL PLATE GUARD RAILING
MR	MOVEMENT RATING
MSE	MECHANICALLY STABILIZED EMBANKMENT
Mt	MOUNTAIN, MOUNT
MtI	MATERIAL
MVP	MAINTENANCE VEHICLE PULLOUT
N	NORTH
NB	NORTHBOUND
No.	NUMBER (MUST HAVE PERIOD)
Nos.	NUMBERS (MUST HAVE PERIOD)
NPS	NOMINAL PIPE SIZE
NS	NEAR SIDE
NSP	NEW STANDARD PLAN
NTS	NOT TO SCALE
Obir	OBLITERATE
OC	OVERCROSSING
OD	OUTSIDE DIAMETER
OF	OUTSIDE FACE
OG	ORIGINAL GROUND
OGAC	OPEN GRADED ASPHALT CONCRETE
OGFC	OPEN GRADED FRICTION COURSE
OH	OVERHEAD
OHWM	ORDINARY HIGH WATER MARK
O-O	OUT TO OUT
Opp	OPPOSITE
OSD	OVERSIDE DRAIN
p	PAGE
PAP	PERFORATED ALUMINUM PIPE
PB	PULL BOX
PC	POINT OF CURVATURE, PRECAST
PCC	POINT OF COMPOUND CURVE, PORTLAND CEMENT CONCRETE
PCMS	PORTABLE CHANGEABLE MESSAGE SIGN
PCP	PERFORATED CONCRETE PIPE, PRESTRESSED CONCRETE PIPE
PCVC	POINT OF COMPOUND VERTICAL CURVE
PEC	PERMIT TO ENTER AND CONSTRUCT
Ped	PEDESTRIAN
Ped OC	PEDESTRIAN OVERCROSSING
Ped UC	PEDESTRIAN UNDERCROSSING
Perm MtI	PERMEABLE MATERIAL

**M**

PG	PROFILE GRADE
PI	POINT OF INTERSECTION
PJP	PARTIAL JOINT PENETRATION
Pkwy	PARKWAY
PL, PL	PLATE
P/L	PROPERTY LINE
PM	POST MILE, TIME FROM NOON TO MIDNIGHT
PN	PAVING NOTCH
POC	POINT OF HORIZONTAL CURVE
POT	POINT OF TANGENT
POVC	POINT OF VERTICAL CURVE
PP	PIPE PILE, PLASTIC PIPE, POWER POLE
PPL	PREFORMED PERMEABLE LINER
PPP	PERFORATED PLASTIC PIPE
PRC	POINT OF REVERSE CURVE
PRF	PAVEMENT REINFORCING FABRIC
PRVC	POINT OF REVERSE VERTICAL CURVE
PS&E	PLANS, SPECIFICATIONS AND ESTIMATES
PS, P/S	PRESTRESSED
PSP	PERFORATED STEEL PIPE
PT	POINT OF TANGENCY
PVC	POLYVINYL CHLORIDE
Pvmt	PAVEMENT
Qty	QUANTITY
R	RADIUS
R & D	REMOVE AND DISPOSE
R & S	REMOVE AND SALVAGE
R/C	RATE OF CHANGE
RCA	REINFORCED CONCRETE ARCH
RCB	REINFORCED CONCRETE BOX
RCP	REINFORCED CONCRETE PIPE
RCPA	REINFORCED CONCRETE PIPE ARCH
Rd	ROAD
Reinf	REINFORCED, REINFORCEMENT, REINFORCING
Rel	RELOCATE
Repl	REPLACEMENT
Ret	RETAINING
Rev	REVISED, REVISION
Rdwy	ROADWAY
RHMA	RUBBERIZED HOT MIX ASPHALT
Riv	RIVER
RM	ROAD-MIXED
RP	RADIUS POINT, REFERENCE POINT
RR	RAILROAD
RSP	ROCK SLOPE PROTECTION, REVISED STANDARD PLAN
Rt	RIGHT
Rte	ROUTE
RW	REDWOOD, RETAINING WALL
R/W	RIGHT OF WAY
Rwy	RAILWAY

**P continued**

S	SOUTH, SUPPLEMENT
SAE	STRUCTURE APPROACH EMBANKMENT
Salv	SALVAGE
SAPP	STRUCTURAL ALUMINUM PLATE PIPE
SB	SOUTHBOUND
SC	SAND CUSHION
SCSP	SLOTTED CORRUGATED STEEL PIPE
SD	STORM DRAIN
Sec	SECOND, SECTION
Sep	SEPARATION
SG	SUBGRADE
Shld	SHOULDER
Sht	SHEET
Sim	SIMILAR
SL	STATION LINE
SM	SELECTED MATERIAL
Spec	SPECIAL, SPECIFICATIONS
SPP	SLOTTED PLASTIC PIPE
SS	SLOPE STAKE
SSBM	STRAP AND SADDLE BRACKET METHOD
SSD	STRUCTURAL SECTION DRAIN
SSPA	STRUCTURAL STEEL PLATE ARCH
SSPP	STRUCTURAL STEEL PLATE PIPE
SSPPA	STRUCTURAL STEEL PLATE PIPE ARCH
SSRP	STEEL SPIRAL RIB PIPE
St	STREET
Sta	STATION
STBB	SINGLE THRIE BEAM BARRIER
Std	STANDARD
Str	STRUCTURE
Surf	SURFACING
SW	SIDEWALK, SOUND WALL
Swr	SEWER
Sym	SYMMETRICAL
S4S	SURFACE 4 SIDES
T	SEMI-TANGENT
Tan	TANGENT
TBB	THRIE BEAM BARRIER
Tbr	TIMBER
TC	TOP OF CURB
TCB	TRAFFIC CONTROL BOX
TCE	TEMPORARY CONSTRUCTION EASEMENT
TeI	TELEPHONE
Temp	TEMPORARY
TG	TOP OF GRADE
Tot	TOTAL
TP	TELEPHONE POLE
TPB	TREATED PERMEABLE BASE
TPM	TREATED PERMEABLE MATERIAL
Trans	TRANSITION

**S**

TS	TRANSVERSE, TRAFFIC SIGNAL, TUBULAR STEEL
Typ	TYPICAL
UC	UNDERCROSSING
UD	UNDERDRAIN
UG	UNDERGROUND
UON	UNLESS OTHERWISE NOTED
UP	UNDERPASS
V	VALVE, DESIGN SPEED
Var	VARIABLE, VARIES
VC	VERTICAL CURVE
VCP	VITRIFIED CLAY PIPE
Vert	VERTICAL
Via	VIADUCT
Vol	VOLUME
W	WEST, WIDTH
WB	WESTBOUND
WH	WEEP HOLE
WM	WIRE MESH
WS	WATER SURFACE
WSP	WELDED STEEL PIPE
Wt	WEIGHT
WV	WATER VALVE
WW	WINGWALL
WWLOL	WINGWALL LAYOUT LINE
X Sec	CROSS SECTION
Xing	CROSSING
Yr	YEAR
Yrs	YEARS

**T continued**

**U**

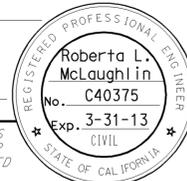
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**W**

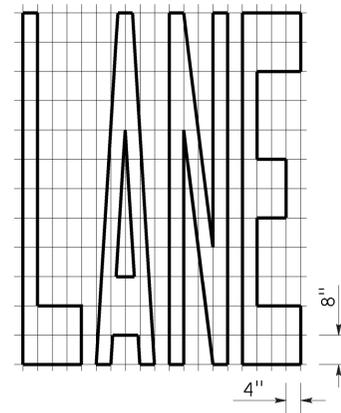
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**Y**

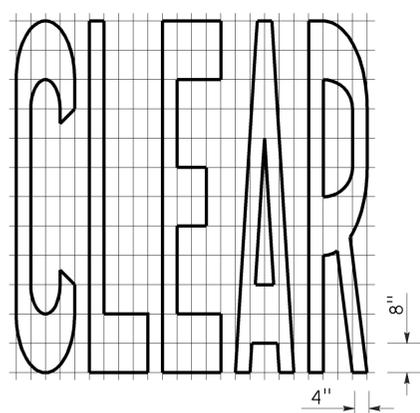
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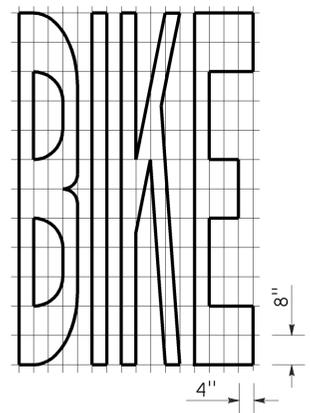
TO ACCOMPANY PLANS DATED 7-28-14



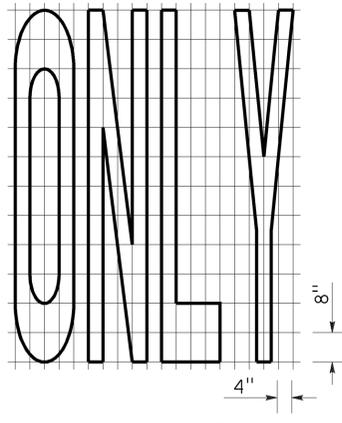
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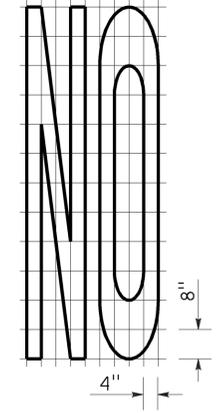
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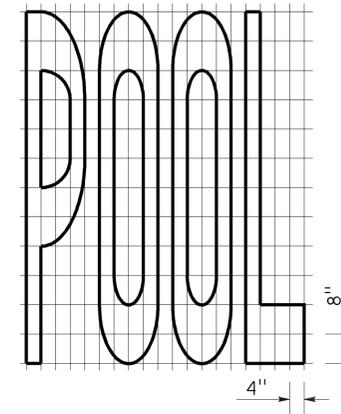
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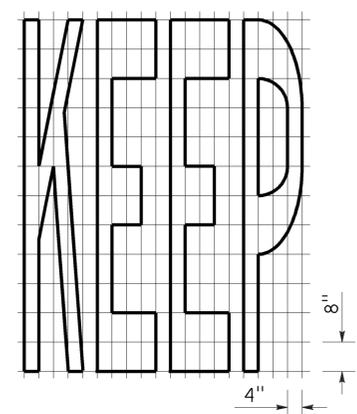
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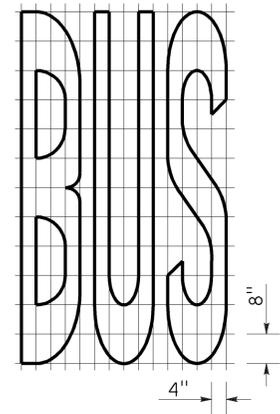
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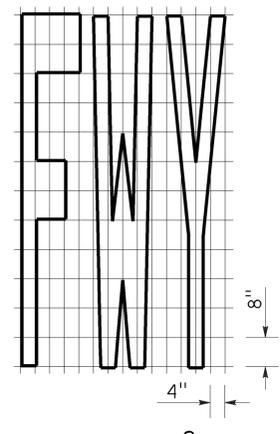
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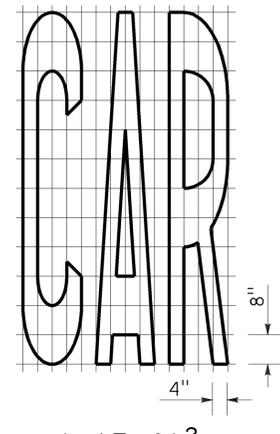
A=24 ft<sup>2</sup>



A=20 ft<sup>2</sup>

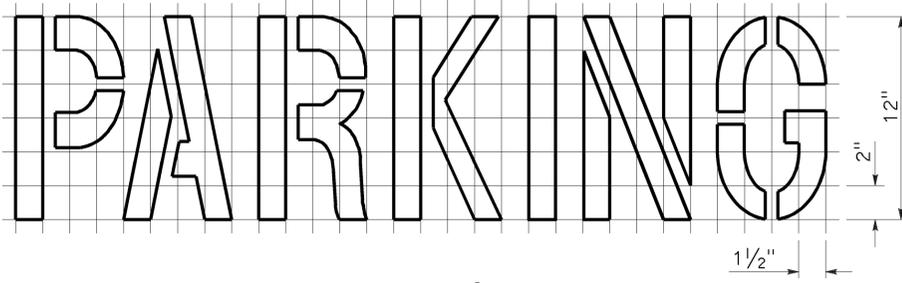
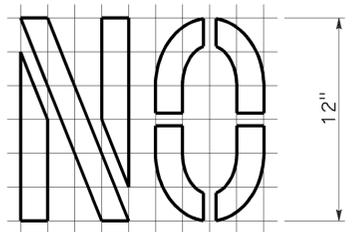


A=16 ft<sup>2</sup>

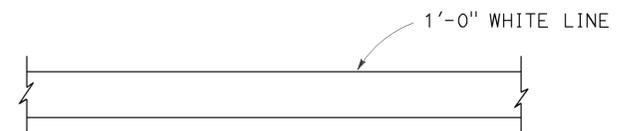


A=17 ft<sup>2</sup>

WORD MARKINGS			
ITEM	ft <sup>2</sup>	ITEM	ft <sup>2</sup>
LANE	24	NO	14
POOL	23	BIKE	21
CAR	17	BUS	20
CLEAR	27	ONLY	22
KEEP	24	FWY	16



A=2 ft<sup>2</sup>  
See Notes 6 and 7



LIMIT LINE (STOP LINE)



YIELD LINE

**NOTES:**

1. If a message consists of more than one word, it should read "UP", i.e., the first word should be nearest the driver.
2. The space between words should be at least four times the height of the characters for low speed roads, but not more than ten times the height of the characters. The space may be reduced appropriately where there is limited space because of local conditions.
3. Minor variations in dimensions may be accepted by the Engineer.
4. Portions of a letter, number or symbol may be separated by connecting segments not to exceed 2" in width.
5. The words "NO PARKING" pavement marking is to be used for parking facilities. For typical locations of markings, see Standard Plans A90A and A90B.
6. The words "NO PARKING", shall be painted in white letters no less than 1'-0" high on a contrasting background and located so that it is visible to traffic enforcement officials.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**PAVEMENT MARKINGS  
WORDS, LIMIT AND YIELD LINES**  
NO SCALE

RSP A24E DATED JULY 20, 2012 SUPERSEDES STANDARD PLAN A24E  
DATED MAY 20, 2011 - PAGE 17 OF THE STANDARD PLANS BOOK DATED 2010.

2010 REVISED STANDARD PLAN RSP A24E

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
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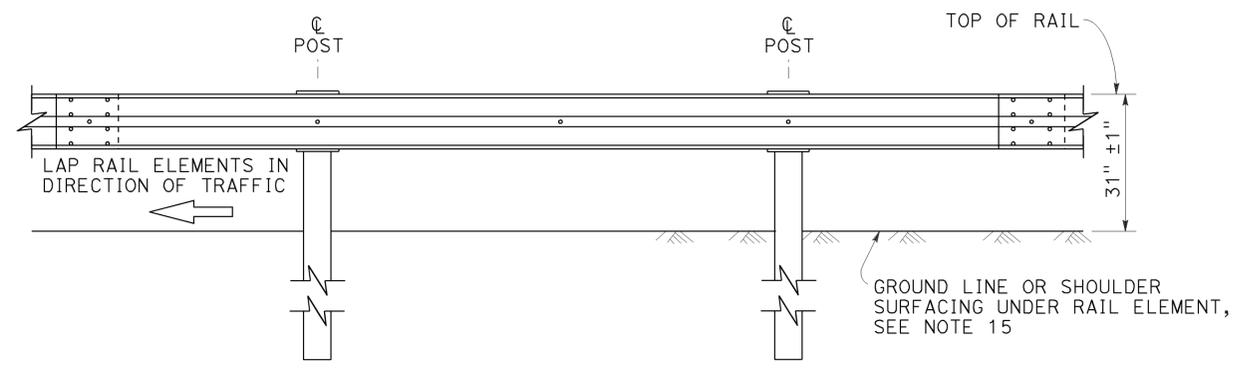
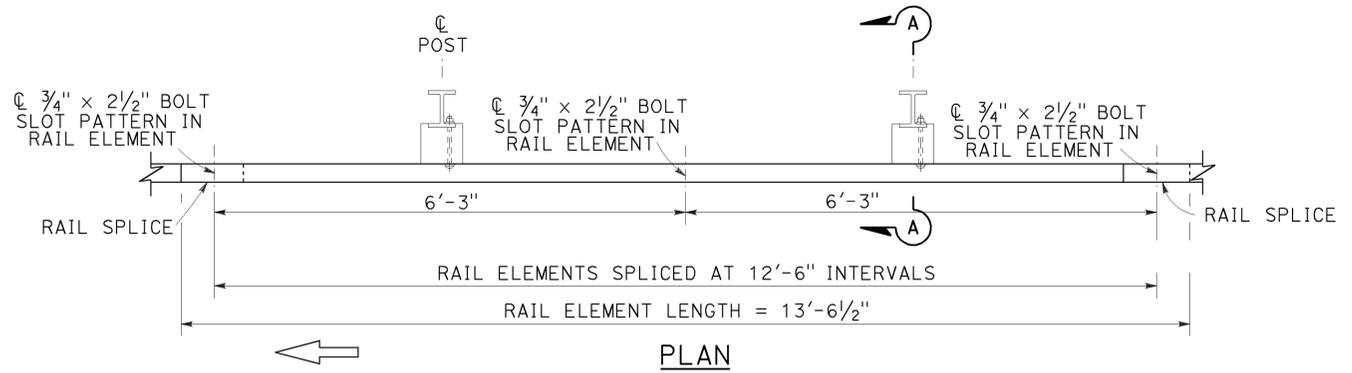
**Randell D. Hiatt**  
REGISTERED CIVIL ENGINEER

July 19, 2013  
PLANS APPROVAL DATE

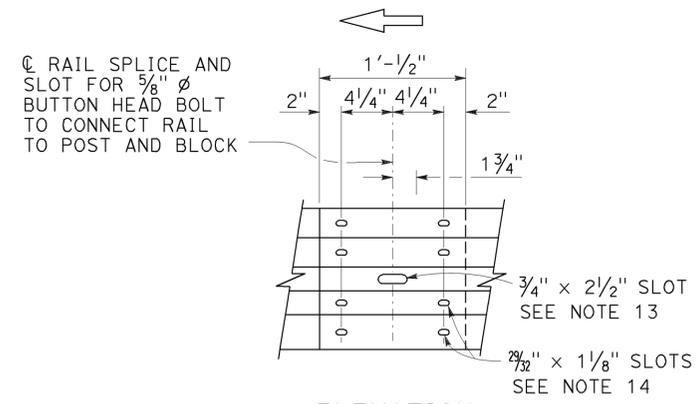
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

TO ACCOMPANY PLANS DATED 7-28-14

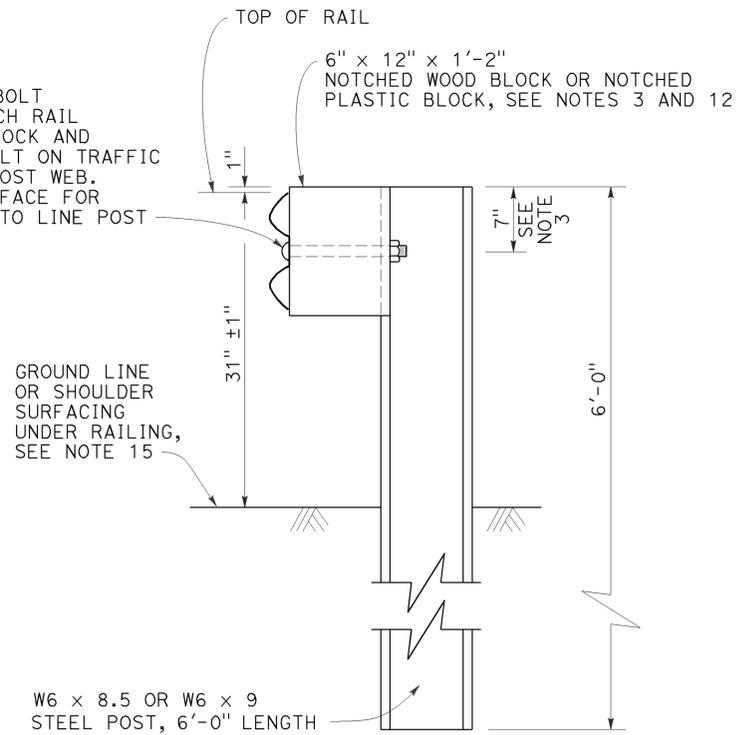
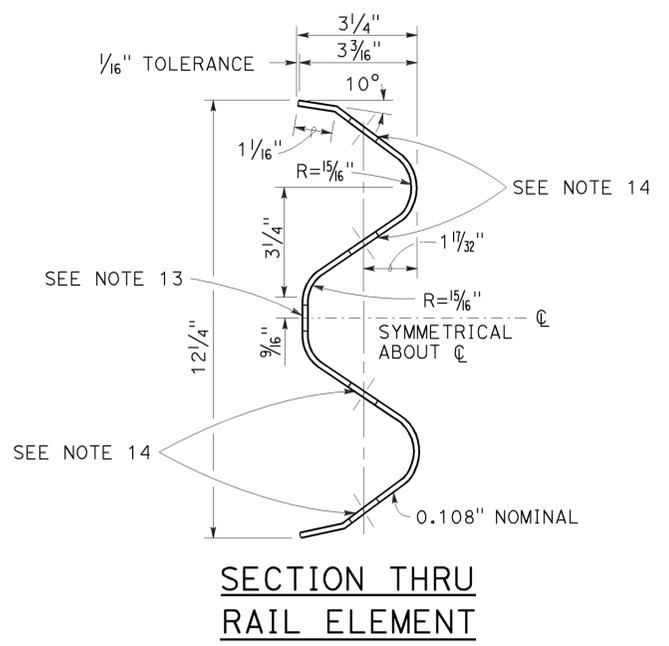
2010 REVISED STANDARD PLAN RSP A77L2



**MIDWEST GUARDRAIL SYSTEM WITH STEEL POSTS AND NOTCHED WOOD OR NOTCHED RECYCLED PLASTIC BLOCKS**



- Connect the overlapped end of the rail elements with 5/8"  $\phi$  x 1 3/8" button head oval shoulder splice bolts inserted into the 7/32" x 1 1/8" slots and bolted together with 5/8"  $\phi$  recessed hex nuts. Recess of hex nut points toward rail element. A total of 8 bolts and nuts are to be used at each rail splice connection.
- The ends of the rail elements are to be overlapped in the direction of traffic (see details).
- Where end cap is to be attached to the end of a rail element, a total of 4 of the above described splice bolts and nuts are to be used.



SECTION A-A  
TYPICAL STEEL LINE POST INSTALLATION  
See Note 4

**NOTES:**

- For details of wood post installations, see Revised Standard Plan RSP A77L1.
- For details of standard hardware used to construct MGS, see Revised Standard Plan RSP A77M1.
- For details of steel posts and notched wood blocks used to construct MGS, see Revised Standard Plan RSP A77N2.
- For additional installation details, see Revised Standard Plan RSP A77N3.
- MGS post spacing to be 6'-3" center to center, except as otherwise noted.
- For MGS typical layouts, see the A77P, A77Q and A77R Series of Standard Plans.
- If railing is connected to terminal system end treatment, use 31" height terminal system end treatment.
- For MGS end anchor details, see Revised Standard Plans RSP A77S1 and RSP A77T2.
- For details of MGS transition to bridge railing, see Revised Standard Plan RSP A77U4.
- For additional details of MGS connection to bridge railings, see Revised Standard Plans RSP A77U1, RSP A77U2 and RSP A77V1.
- For dike positioning and MGS delineation details, see Revised Standard Plan RSP A77N4.
- Notched face of block faces steel post.
- Slotted hole for bolted connection of rail element to block and post. See "Section Thru Rail Element".
- Slotted holes for splice bolts to overlap ends of rail element. See "Section Thru Rail Element".
- Install posts in soil.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

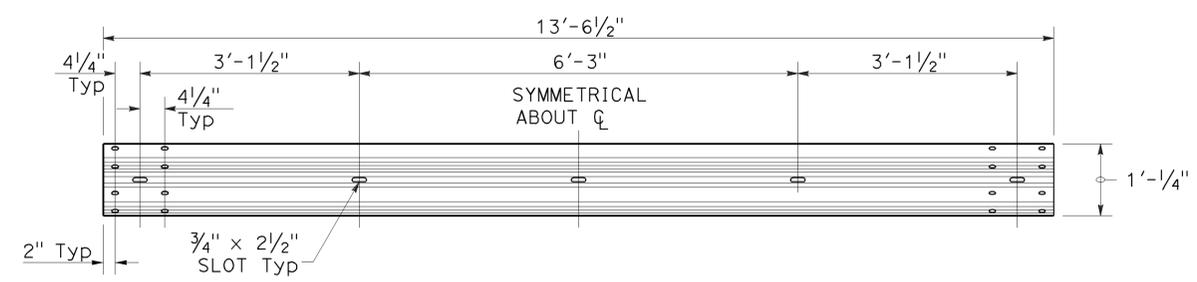
**MIDWEST GUARDRAIL SYSTEM STANDARD RAILING SECTION (STEEL POST WITH NOTCHED WOOD OR NOTCHED RECYCLED PLASTIC BLOCK)**

NO SCALE

RSP A77L2 DATED JULY 19, 2013 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP A77L2**

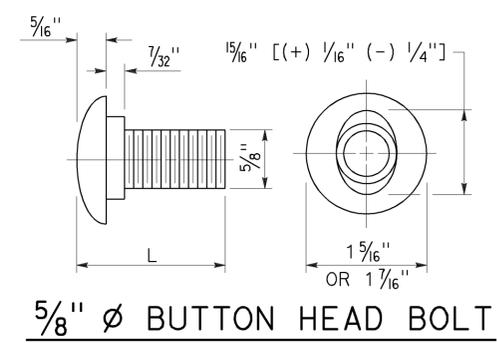
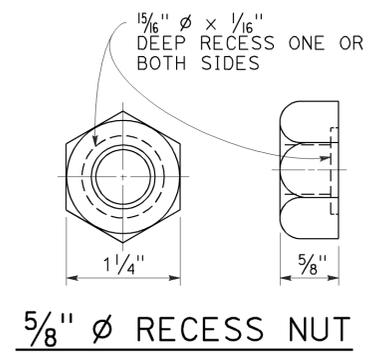
TO ACCOMPANY PLANS DATED 7-28-14



**TYPICAL RAIL ELEMENT**

**NOTE:**

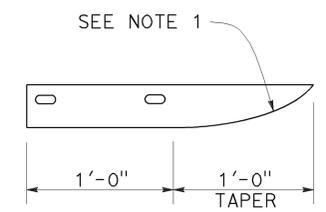
1. Slotted holes for splice bolts to overlap ends of rail element.



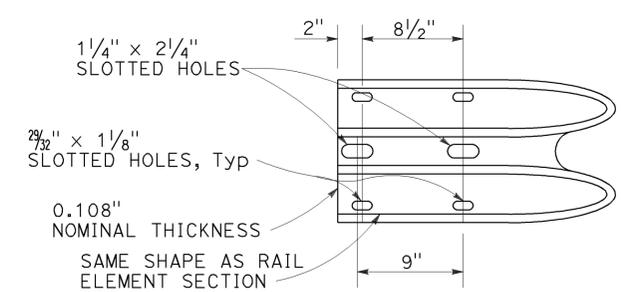
**BUTTON HEAD BOLT**

L	THREAD LENGTH
1 3/8"	FULL THREAD LENGTH
2"	FULL THREAD LENGTH
10"	4" Min THREAD LENGTH
18"	4" Min THREAD LENGTH
20"	4" Min THREAD LENGTH
22"	4" Min THREAD LENGTH
26"	4" Min THREAD LENGTH
36"	4" Min THREAD LENGTH
** 2 3/4"	2" Min THREAD LENGTH
** 19"	4" Min THREAD LENGTH

\*\* For nested rail applications.



**PLAN**



**ELEVATION  
 END CAP  
 (TYPE A)**

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION

**MIDWEST GUARDRAIL SYSTEM  
 STANDARD HARDWARE**

NO SCALE

RSP A77M1 DATED JULY 19, 2013 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP A77M1**

2010 REVISED STANDARD PLAN RSP A77M1

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	43	83

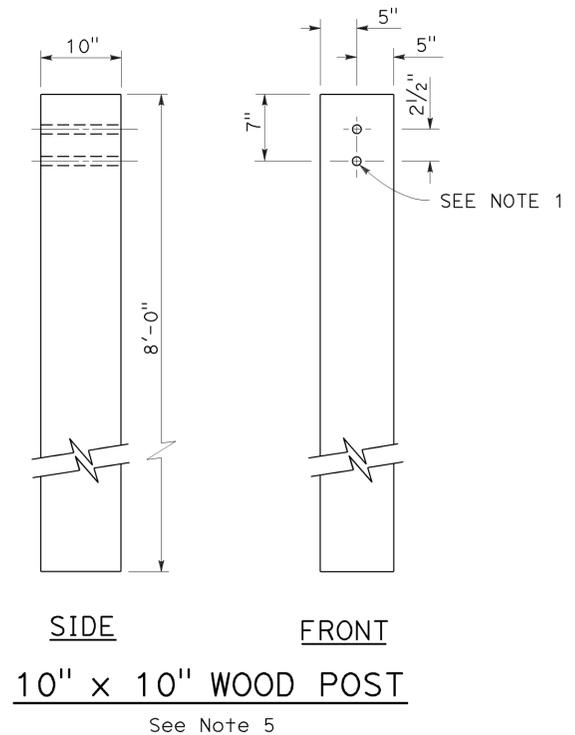
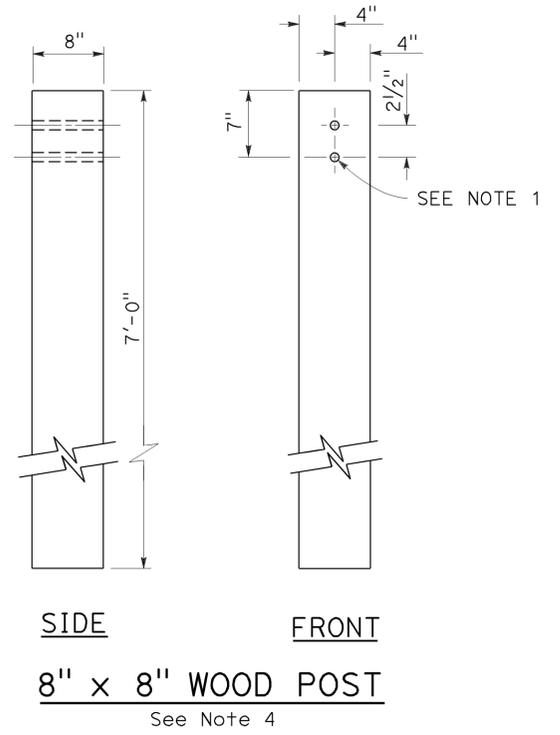
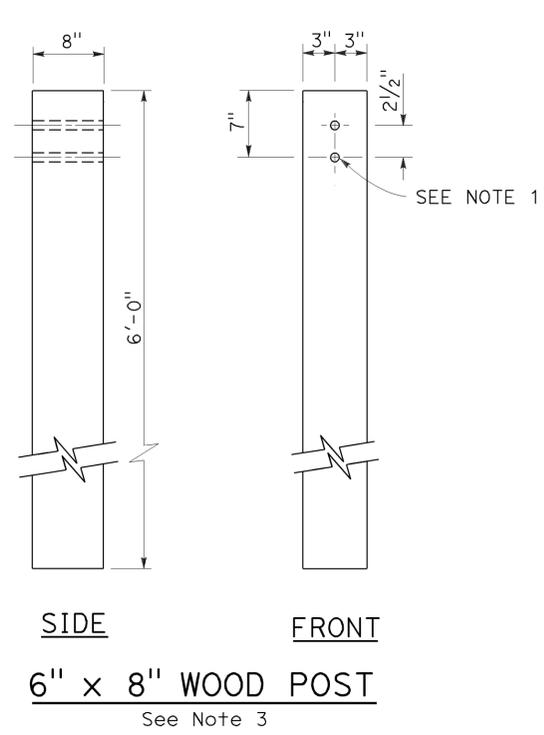
*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

July 19, 2013  
PLANS APPROVAL DATE

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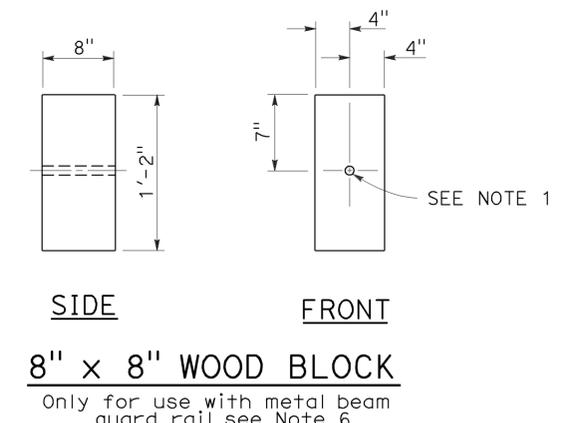
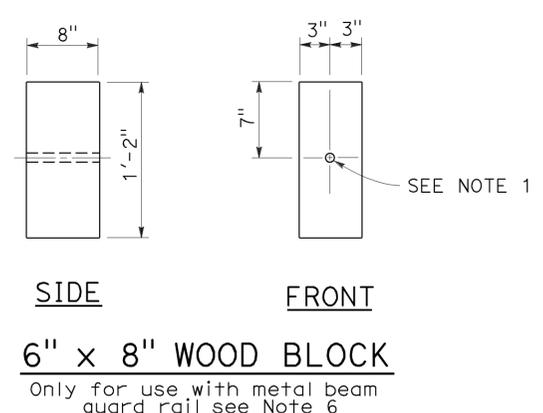
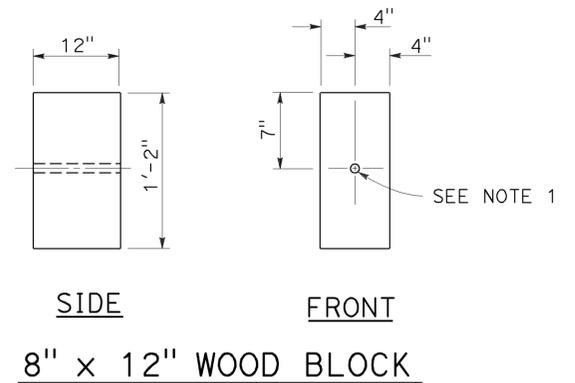
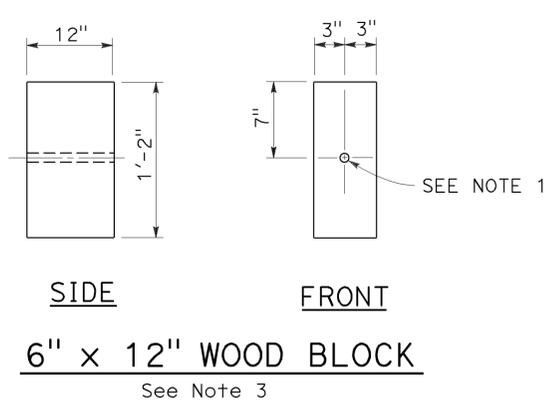
REGISTERED PROFESSIONAL ENGINEER  
Randell D. Hiatt  
No. C50200  
Exp. 6-30-15  
CIVIL  
STATE OF CALIFORNIA

TO ACCOMPANY PLANS DATED 7-28-14



**NOTES:**

1. All holes in wood posts and blocks shall be  $\frac{3}{4}$ " Dia  $\pm$   $\frac{1}{16}$ ".
2. Dimensions shown for wood post are nominal.
3. This post and block combination used for standard line post sections of MGS.
4. This post and 8" x 12" block combination used for line post sections of MGS on narrow roadways.
5. This post and 8" x 12" block combination is typically used where strengthened line post sections of MGS are warranted to shield fixed objects.
6. See Revised Standard Plan RSP A77L3 for use of 6" x 8" and 8" x 8" wood blocks.



STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**MIDWEST GUARDRAIL SYSTEM  
WOOD POST AND  
WOOD BLOCK DETAILS**

NO SCALE

RSP A77N1 DATED JULY 19, 2013 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP A77N1**

2010 REVISED STANDARD PLAN RSP A77N1

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	44	83

*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

November 15, 2013  
PLANS APPROVAL DATE

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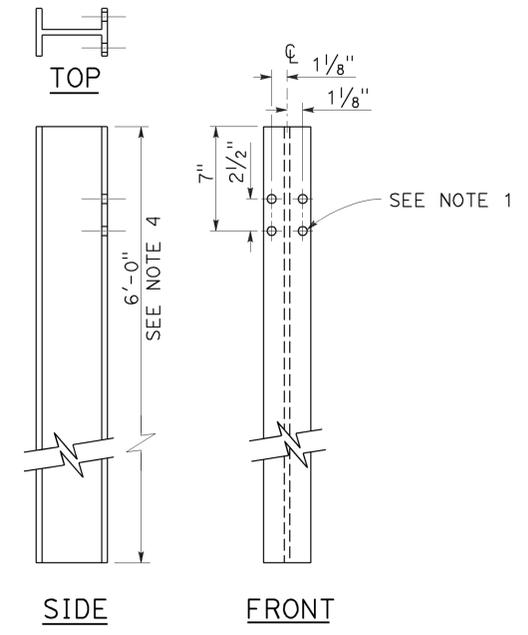
REGISTERED PROFESSIONAL ENGINEER  
Randell D. Hiatt  
No. C50200  
Exp. 6-30-15  
CIVIL  
STATE OF CALIFORNIA

TO ACCOMPANY PLANS DATED 7-28-14

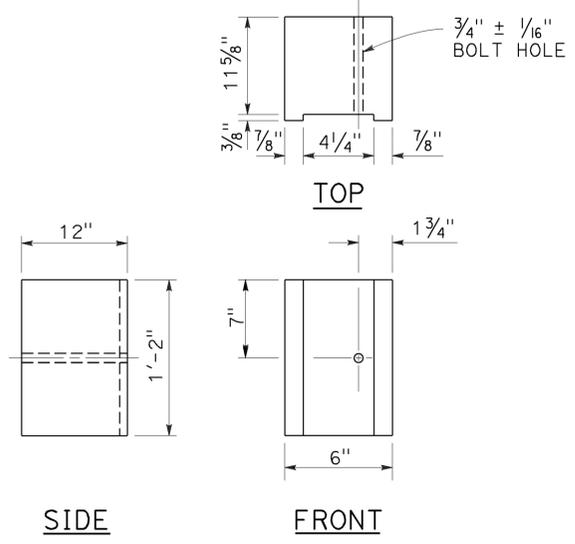
**NOTES:**

1. All holes in steel post shall be  $\frac{13}{16}$ " Dia maximum.
2. Dimensions shown for wood block are nominal.
3. Notched face of block faces steel post.
4. 6'-0" length posts to be used for typical roadway installation. See Revised Standard Plan RSP A77N3.
5. See Revised Standard Plan RSP A77L3 for use of 6" x 8" and 8" x 8" notched wood blocks.
6. This post and 8" x 12" block combination to be used for line post sections of MGS on narrow roadways and where strengthened line post sections of MGS are warranted to shield fixed objects.

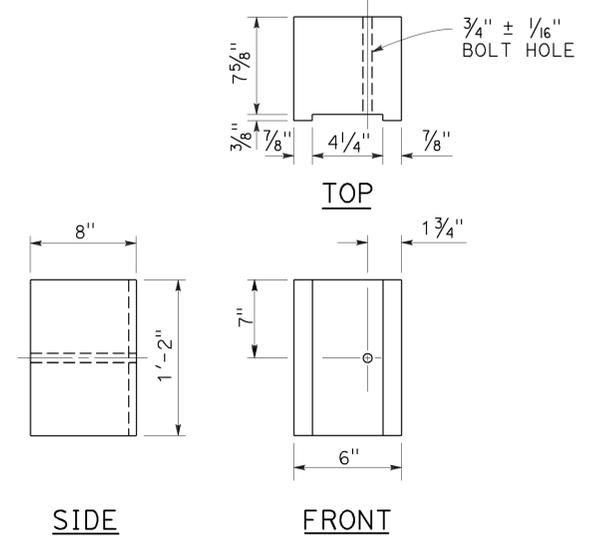
2010 REVISED STANDARD PLAN RSP A77N2



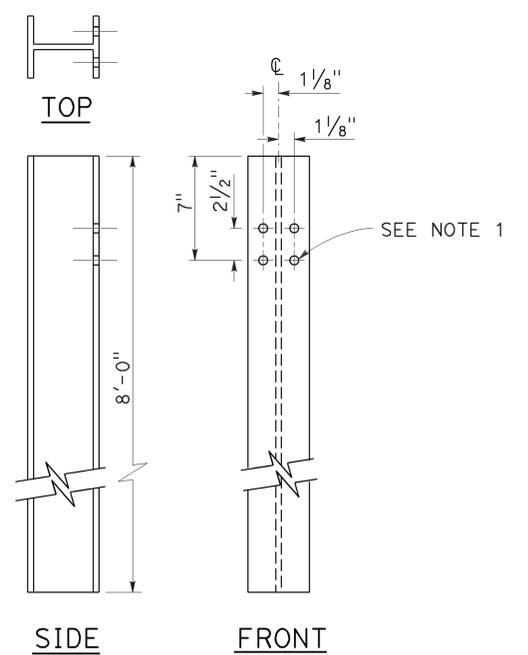
**W6 x 9 OR W6 x 8.5  
STEEL POST**  
See Note 4



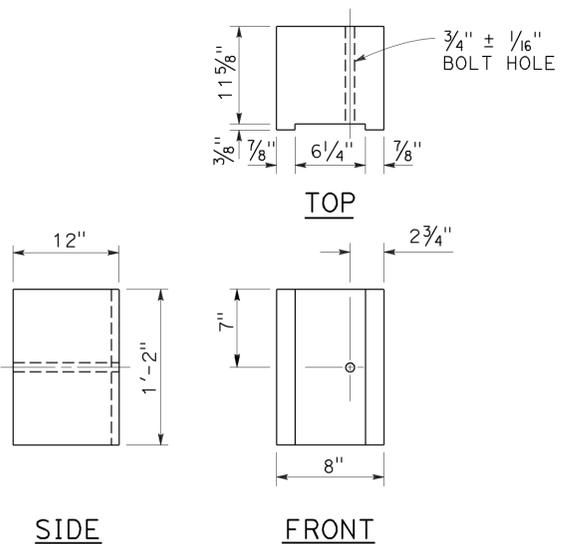
**6" x 12"  
NOTCHED WOOD BLOCK**  
See Notes 2 and 3



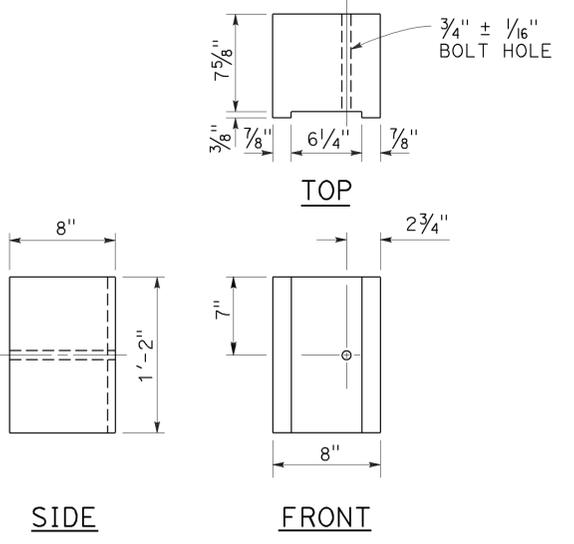
**6" x 8"  
NOTCHED WOOD BLOCK**  
Only for use with metal beam guard railing. See Note 5



**W6 x 15  
STEEL POST**  
See Note 6



**8" x 12"  
NOTCHED WOOD BLOCK**  
See Notes 2 and 3



**8" x 8"  
NOTCHED WOOD BLOCK**  
Only for use with metal beam guard railing. See Note 5

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**MIDWEST GUARDRAIL SYSTEM  
STEEL POST AND  
NOTCHED WOOD BLOCK DETAILS**

NO SCALE

RSP A77N2 DATED NOVEMBER 15, 2013 SUPERSEDES RSP A77N2  
DATED JULY 19, 2013 THAT SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP A77N2**

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	45	83

*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

July 19, 2013  
PLANS APPROVAL DATE

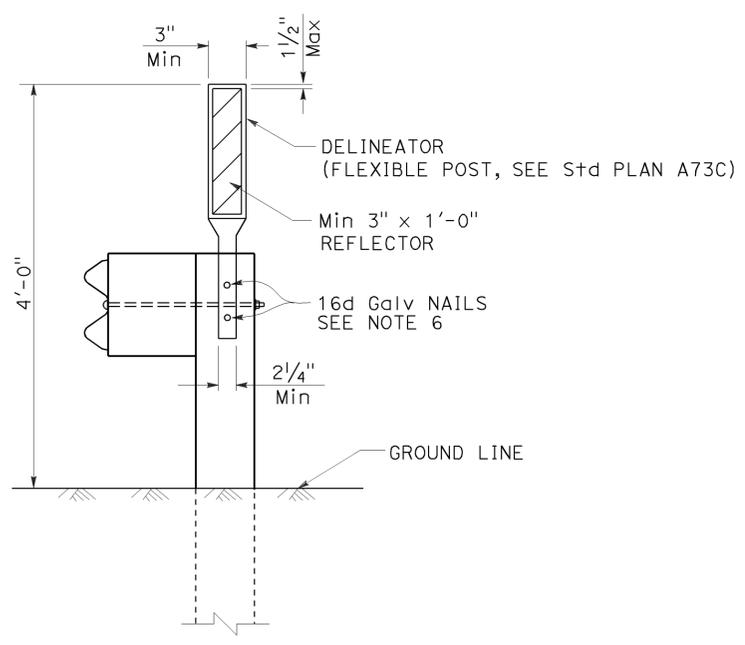
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REGISTERED PROFESSIONAL ENGINEER  
No. C50200  
Exp. 6-30-15  
CIVIL  
STATE OF CALIFORNIA

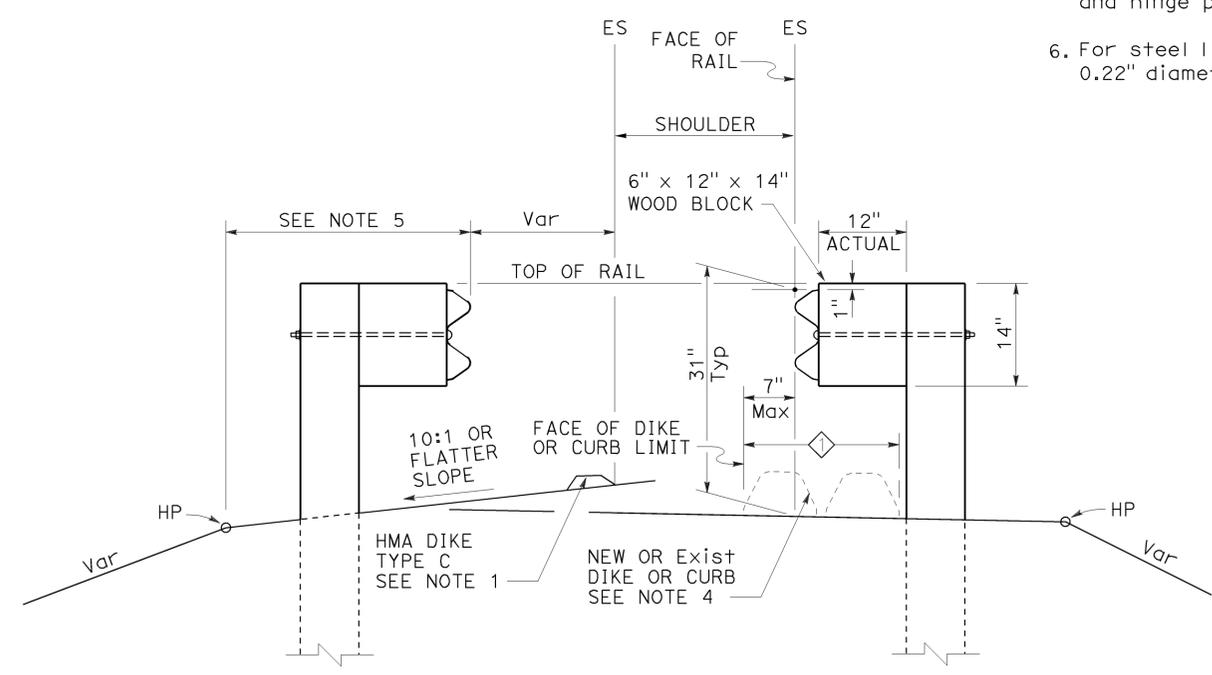
TO ACCOMPANY PLANS DATED 7-28-14

**NOTES:**

1. When necessary to place dike more than 7" in front of face of MGS, only Type C dike may be used. For dike details, see Revised Standard Plan RSP A87B.
2. For standard railing post embedment, see Revised Standard Plan RSP A77N3.
3. MGS delineation to be used where shown on the Project Plans.
4. When dike or curb is placed under MGS, the maximum height of the dike or curb shall be 6". Mountable dike should not be used. For dike and curb details, see Revised Standard Plans RSP A87A and RSP A87B.
5. For details of typical distance between the face of rail and hinge point, see Revised Standard Plan RSP A77N3.
6. For steel line posts, use 1/4" - 20 self-tapping screws in 0.22" diameter holes or 1/4" bolts in 3/32" diameter holes.



**MGS DELINEATION**  
See Note 3



**DIKE POSITIONING**  
See Note 1

◇ PERMISSIBLE DIKE OR CURB  
PLACEMENT AREA

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**MIDWEST GUARDRAIL SYSTEM  
TYPICAL RAILING DELINEATION  
AND DIKE POSITIONING DETAILS**  
NO SCALE

RSP A77N4 DATED JULY 19, 2013 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP A77N4**

2010 REVISED STANDARD PLAN RSP A77N4

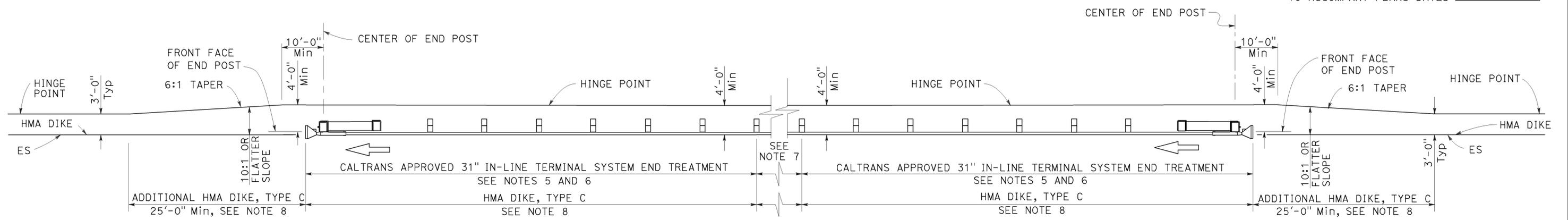
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	46	83

**Randell D. Hiatt**  
REGISTERED CIVIL ENGINEER

July 19, 2013  
PLANS APPROVAL DATE

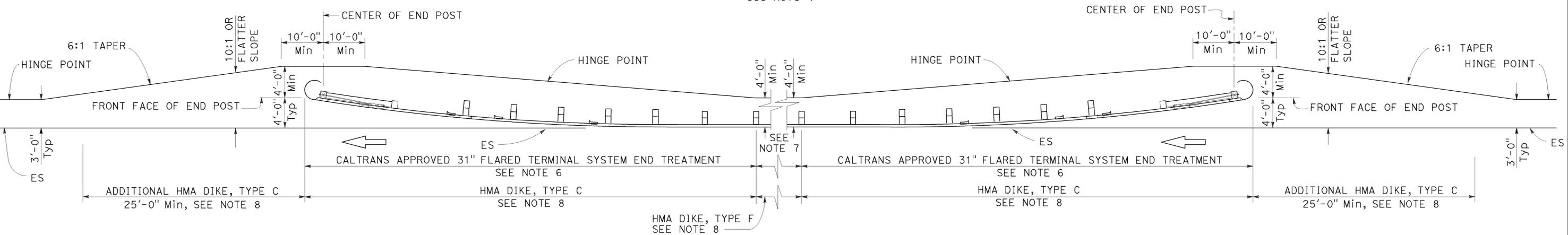
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TO ACCOMPANY PLANS DATED 7-28-14



**TYPE 11D LAYOUT**

(Embankment MGS installation with 31" in-line end treatment at each end of railing)  
See Note 4



**TYPE 11E LAYOUT**

(Embankment MGS installation with 31" flared end treatment at each end of railing)  
See Note 4

**NOTES:**

1. Line post, blocks and hardware to be used are shown on Revised Standard Plans RSP A77L1, RSP A77L2, RSP A77M1, RSP A77N1 and RSP A77N2.
2. MGS post spacing to be 6'-3" center to center, except as otherwise noted.
3. Except as noted, line posts are 6" x 8" x 6'-0" wood with 6" x 12" x 1'-2" wood blocks. W6 x 8.5 or W6 x 9 steel posts, 6'-0" in length, with 6" x 12" x 1'-2" notched wood blocks or plastic blocks may be used for 6" x 8" x 6'-0" wood post with 6" x 12" x 1'-2" wood blocks where applicable and when specified.
4. Layout Types 11D through 11L, shown on the A77P Series of Standard Plans, are typically used where MGS is recommended to shield embankment slopes and a crashworthy 31" end treatment is required for both directions of traffic.
5. 31" in-line terminal system end treatments are used where site conditions will not accommodate a flared end treatment.
6. The type of 31" terminal system end treatment to be used will be shown on the Project Plans.
7. Dependent on site conditions (embankment height and side slope), construction of additional MGS (length equal to multiples of 12'-6" with 6'-3" post spacing) may be advisable.
8. Where placement of dike is required with MGS installations, see Revised Standard Plan RSP A77N4 for dike positioning details.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**MIDWEST GUARDRAIL SYSTEM  
TYPICAL LAYOUTS FOR  
EMBANKMENTS**

NO SCALE

RSP A77P2 DATED JULY 19, 2013 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP A77P2**

2010 REVISED STANDARD PLAN RSP A77P2

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	47	83

Randell D. Hiatt  
REGISTERED CIVIL ENGINEER

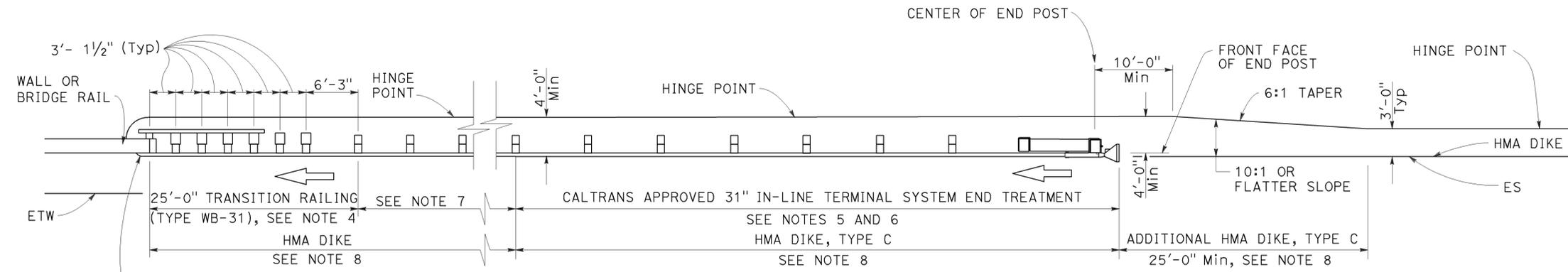
July 19, 2013  
PLANS APPROVAL DATE

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TO ACCOMPANY PLANS DATED 7-28-14

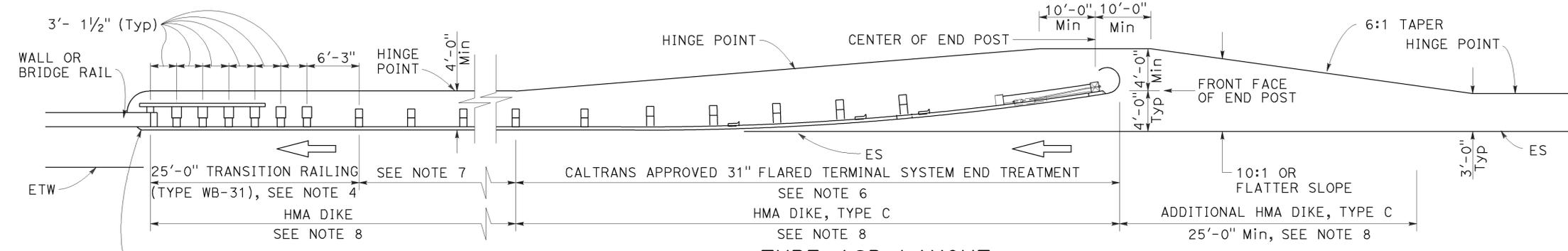


2010 REVISED STANDARD PLAN RSP A77Q1



**TYPE 12A LAYOUT**

(MGS installation at structure approach with 31" in-line end treatment at traffic approach end of railing)  
See Notes 9



**TYPE 12B LAYOUT**

(MGS installation at structure approach with 31" Flared end treatment at traffic approach end of railing)  
See Notes 9

**NOTES:**

- Line post, blocks and hardware to be used are shown on Revised Standard Plans RSP A77L1, RSP A77L2, RSP A77M1, RSP A77N1 and RSP A77N2.
- MGS post spacing to be 6'-3" center to center, except as otherwise noted.
- Except as noted, line posts are 6" x 8" x 6'-0" wood with 6" x 12" x 1'-2" wood blocks. W6 x 8.5 or W6 x 9 steel posts, 6'-0" in length, with 6" x 12" x 1'-2" notched wood blocks or plastic blocks may be used for 6" x 8" x 6'-0" wood posts with 6" x 12" x 1'-2" wood blocks where applicable and when specified.
- For Transition Railing (Type WB-31) details for Types 12A and 12B Layouts, see Revised Standard Plan RSP A77U4.
- 31" in-line terminal system end treatments are used where site conditions will not accommodate a 31" flared end treatment.
- The type 31" of terminal system end treatment to be used will be shown on the Project Plans.
- Dependent on site conditions (embankment height, side slopes, or other fixed objects), it may be advisable to construct additional guard railing (a length equal to multiples of 12'-6" with 6'-3" post spacing) between the transition railing and end treatment. A 12.5 degree angle of departure can be drawn on the Project Plans from the edge of traveled way through the outer most point of the fixed object to determine the additional length of railing needed.
- Where placement of dike is required with guard railing installations, see Revised Standard Plan RSP A77N4 for dike positioning details.
- Type 12A or Type 12B Layouts are typically used:
  - To the right of approaching traffic, at the end of a structure, on two-lane conventional highway where the roadbed width across the structure is less than 40 feet.
  - To the left of approaching traffic, at the end of a structure, on two-lane conventional highway where the roadbed width across the structure is less than 40 feet.
  - To the right of approaching traffic at the end of each structure on multilane freeways or expressways with separate adjacent or parallel bridges.
  - To the right of approaching traffic at the end of the structure on multilane freeways or expressways with decked median on the bridge.
- See Revised Standard Plan RSP A77Q3 for typical layout used left of approaching traffic at the ends of each structure on multilane freeways or expressways with separate adjacent or parallel bridges.
- For additional details of typical connections to bridge rail, see Connection Detail AA on Revised Standard Plans RSP A77U1 and RSP A77U2 and Connection Detail FF on Revised Standard Plans RSP A77V1 and RSP A77V2.
- For additional details of a typical connection to walls or abutments, see Revised Standard Plan RSP A77U3.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**MIDWEST GUARDRAIL SYSTEM  
TYPICAL LAYOUTS FOR  
STRUCTURE APPROACH**

NO SCALE

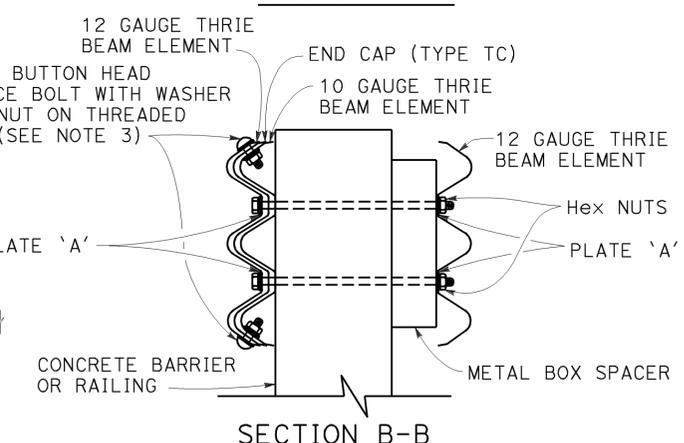
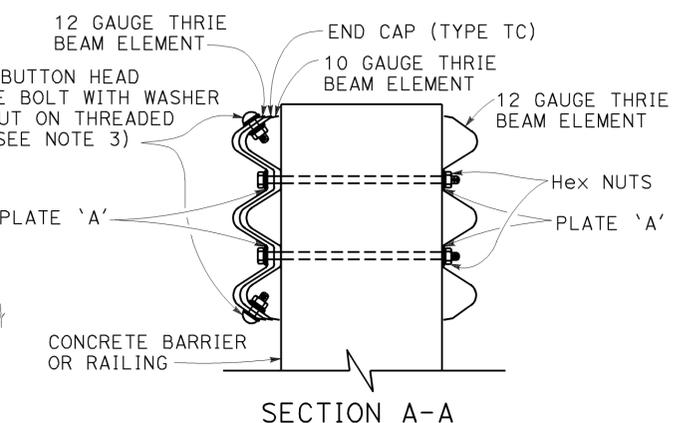
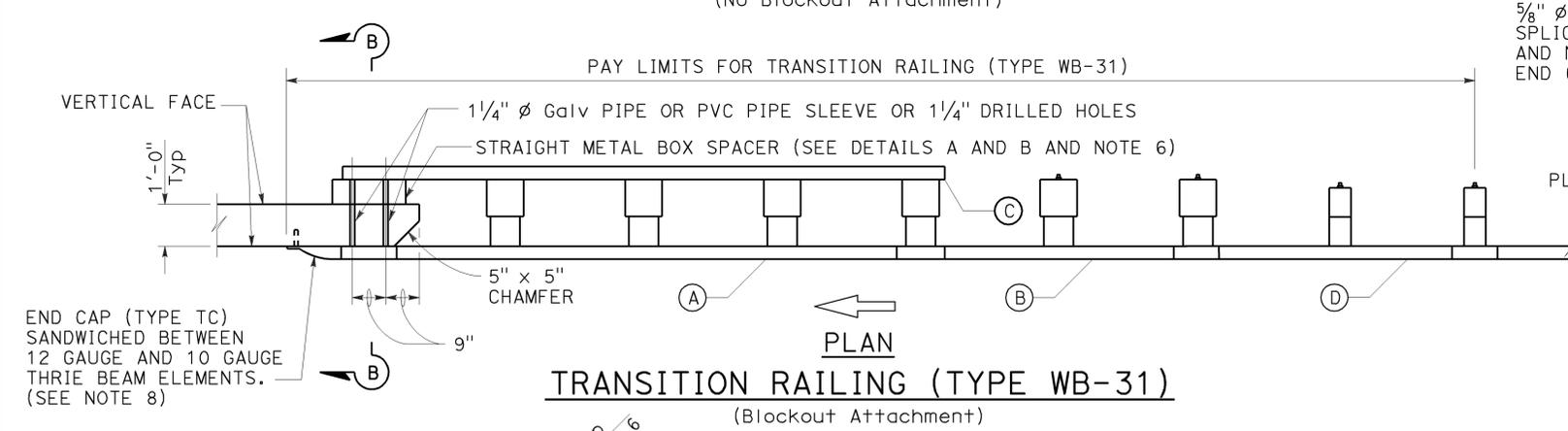
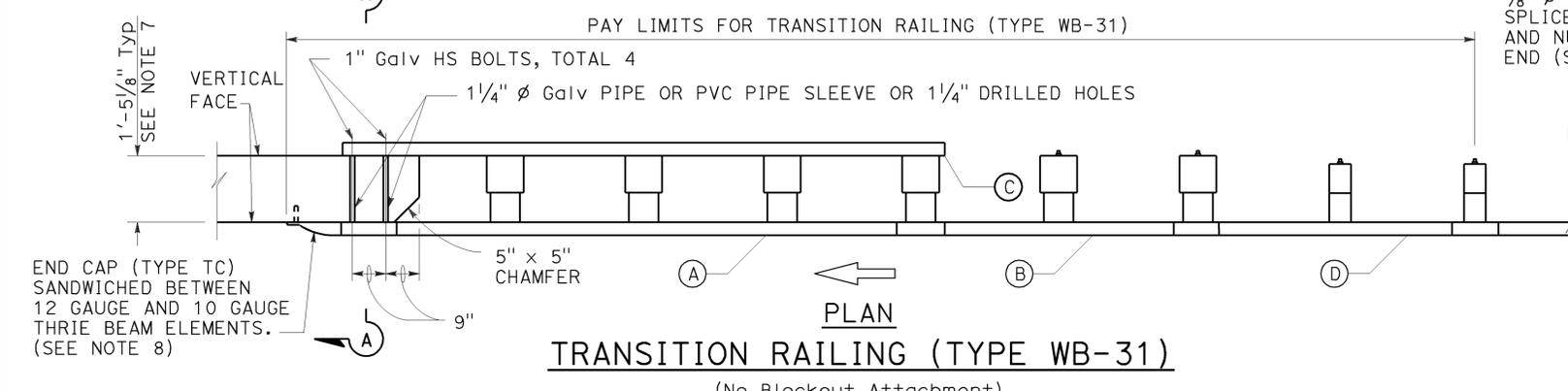
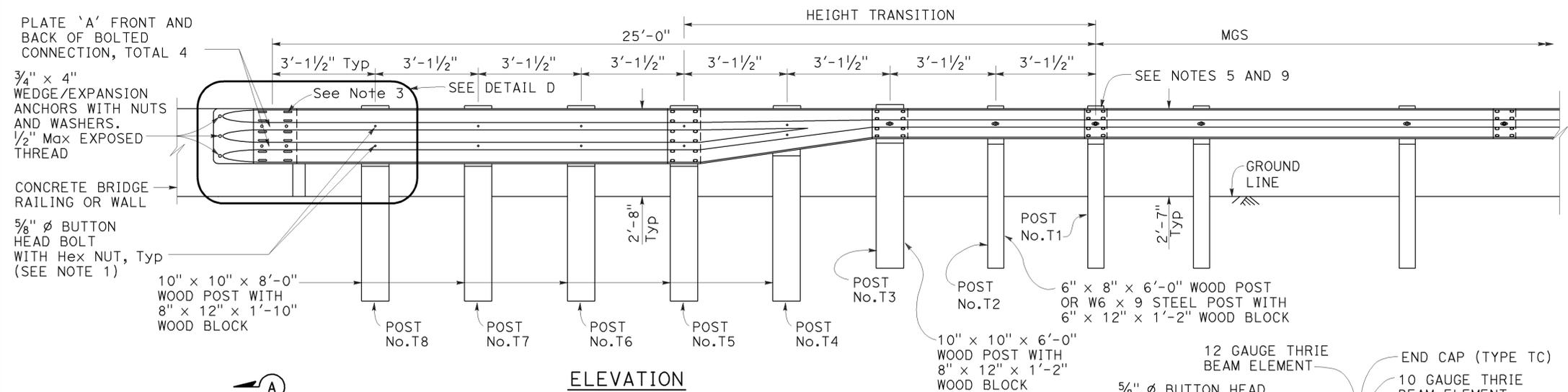
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	48	83

**Randell D. Hiatt**  
REGISTERED CIVIL ENGINEER

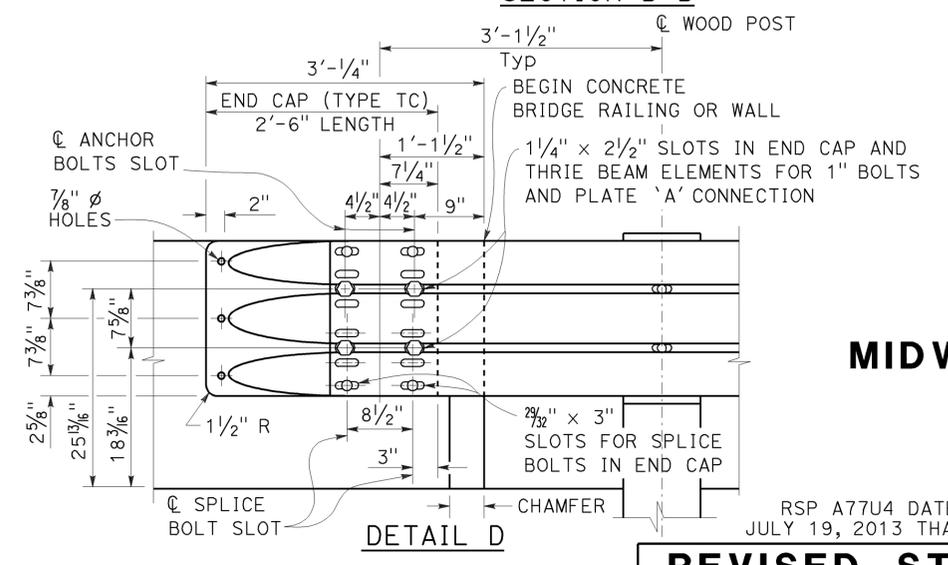
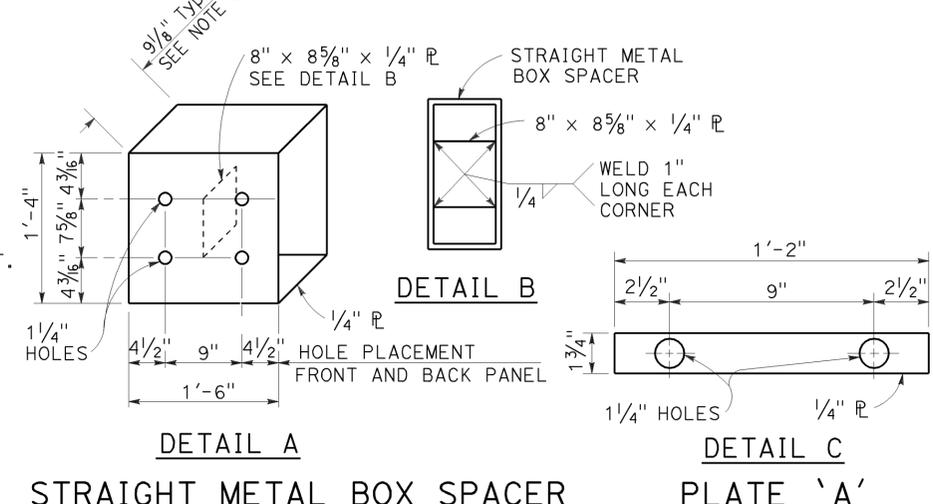
November 15, 2013  
PLANS APPROVAL DATE

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No. C50200  
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- LEGEND:**
- (A) NESTED THRIE BEAM ELEMENTS (ONE 12 GAUGE ELEMENT NESTED OVER ONE 10 GAUGE ELEMENT).
  - (B) ONE ASYMMETRICAL 10 GAUGE "W" BEAM TO THRIE BEAM ELEMENT.
  - (C) ONE 12 GAUGE THRIE BEAM ELEMENT.
  - (D) ONE 10 GAUGE "W" BEAM RAIL ELEMENT (7'-3/2" LENGTH)
- 10 GAUGE = 0.138" THICK  
12 GAUGE = 0.108" THICK



- NOTES:** TO ACCOMPANY PLANS DATED 7-28-14
1. Use 5/8"  $\phi$  Button head bolts and hex nuts for connections to posts. No washer on rail face for bolted connections to post.
  2. The nested rail elements, end cap, and 'W' beam to thrie beam element may be spliced together prior to bolting the elements to the wood post and concrete barrier or railing.
  3. Exterior splice bolt holes for rail element splices at Post No. T5 and the connection to the concrete barrier or railing shall be the standard 7/32" x 1/8" slot size. Interior splice bolt holes at these locations may be increased up to 1/4"  $\phi$ . Only the top 4 and the bottom 4 splice bolts with washers and nuts are required for rail splices at Post No. T5 and the connection to the concrete barrier or railing.
  4. The top elevation of Posts No. T2 through No. T7 shall not project more than 1" above the top elevation of the rail element.
  5. Typically, the railing connected to Transition Railing (Type WB-31) will be either standard railing section of MGS with height transition ratio of 150:1 or a Caltrans approved 31" end treatment attached to Post No. T1.
  6. The depth of the metal box spacer varies from the 9/8" to 1 1/2" and is dependent on the width of the concrete railing or wall. The combined dimension for the depth of the metal box spacer plus the width of railing or wall is typically 21 1/8". Where the space between the backside of the concrete railing or wall and the rear thrie beam element is less than 1 1/2", metal plates similar to Plate 'A' are to be used as spacers.
  7. Where the width of the concrete railing or wall is greater than 17 1/8", wood blocks are to be used to fill the space created between the backside of Posts No. T5 through No. T8 and the rear thrie beam element. These wood blocks shall be 8" in width and 1'-2" in length. The dimension between the front thrie beam element and the rear thrie beam element is to match the width of the concrete railing or wall.
  8. End cap may be installed over 12 gauge and 10 gauge thrie beam elements where transition railing is installed on the departure end of bridge railing.
  9. Conform standard railing section height to 31" at Post No. T1 using height transition ratio of 150:1.

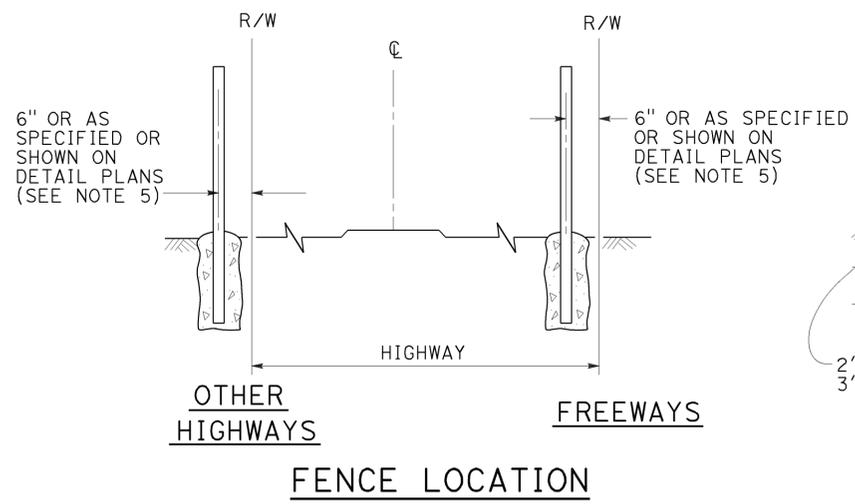
STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**MIDWEST GUARDRAIL SYSTEM  
TRANSITION RAILING  
(TYPE WB-31)**  
NO SCALE

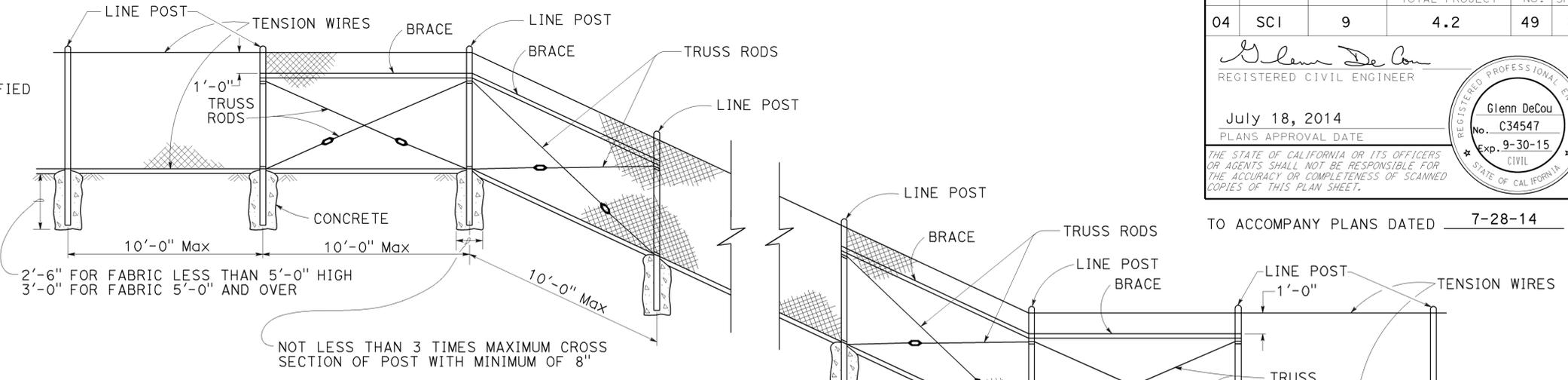
RSP A77U4 DATED NOVEMBER 15, 2013 SUPERSEDES RSP A77U4 DATED JULY 19, 2013 THAT SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP A77U4**

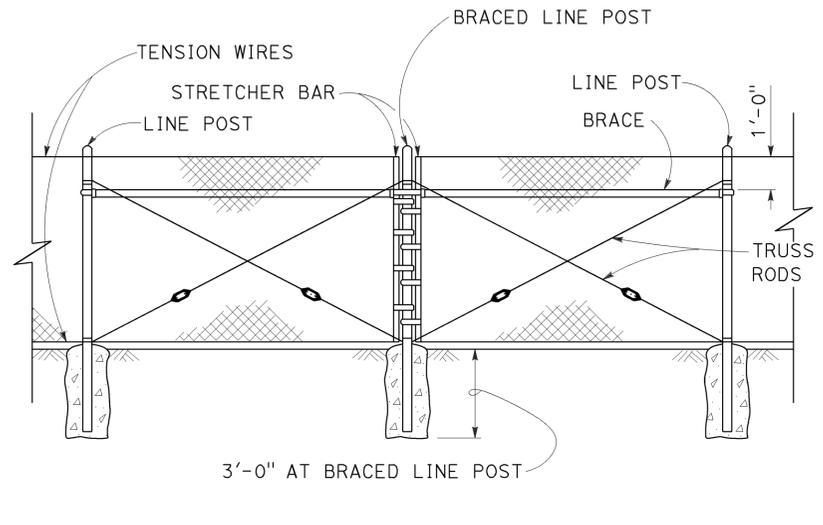
2010 REVISED STANDARD PLAN RSP A77U4



**FENCE LOCATION**

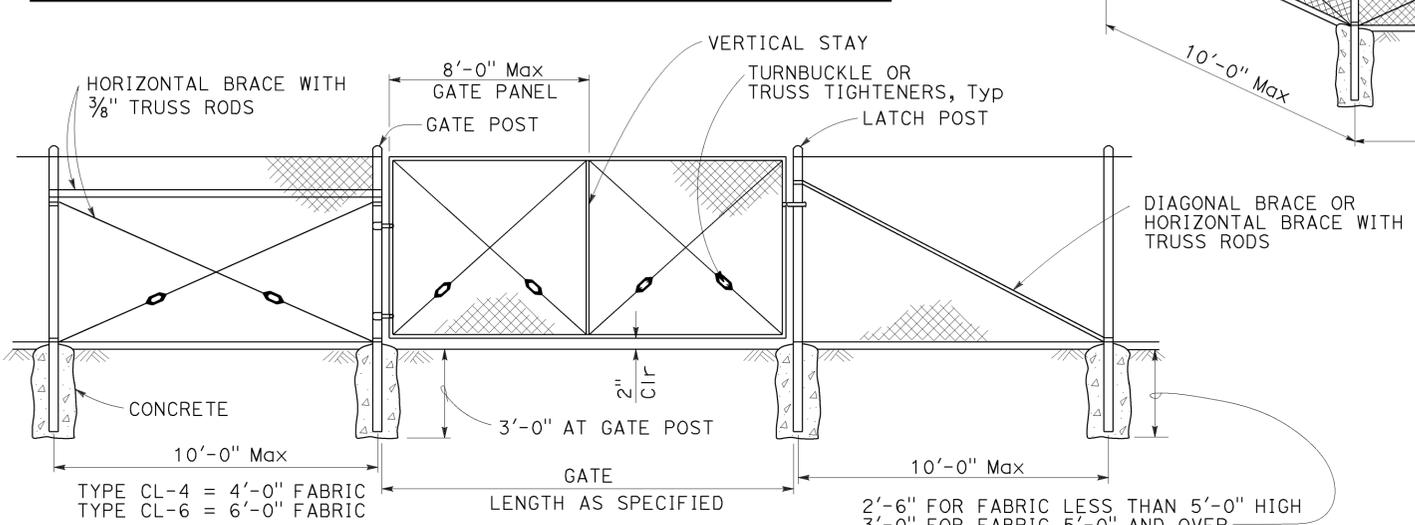


**CHAIN LINK FENCE ON SHARP BREAK IN GRADE**



**BRACED LINE POST INSTALLATION**

Braced line post at intervals not exceeding 1000'



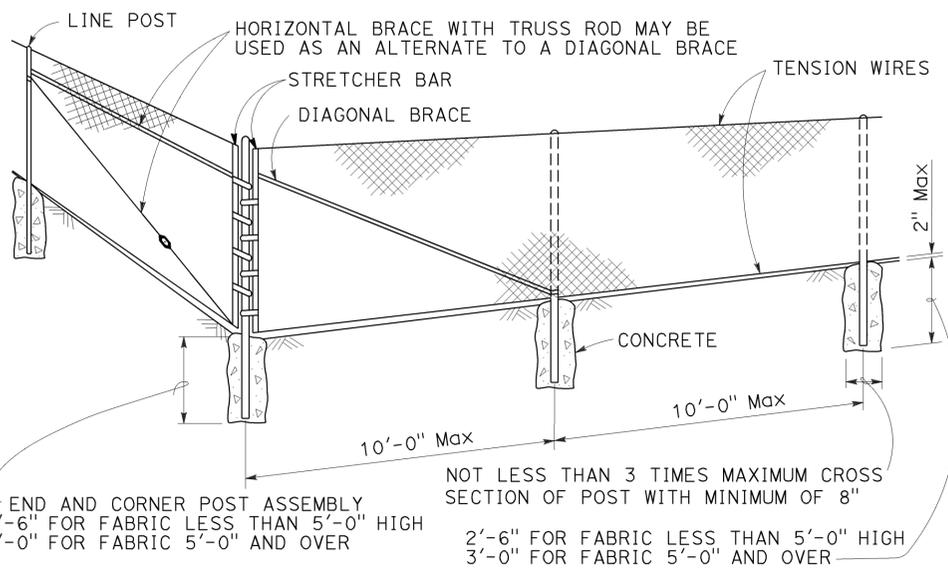
**CHAIN LINK GATE INSTALLATION**

GATE POST			
FENCE HEIGHT	GATE WIDTHS	ROUND OD PIPE	WEIGHT (lb/ft)
6'-0" AND LESS	UP THRU 6'-0"	2.875"	5.80
	OVER 6'-0" THRU 12'-0"	4.500"	10.80
	OVER 12'-0" THRU 18'-0"	5.563"	14.63
OVER 6'-0" TO 8'-0" Max	OVER 18'-0" TO 24'-0" Max	6.625"	18.99
	UP THRU 6'-0"	3.500"	7.58
	OVER 6'-0" THRU 12'-0"	5.563"	14.63
	OVER 12'-0" THRU 18'-0"	6.625"	18.99
	OVER 18'-0" TO 24'-0" Max	8.625"	28.58

Above post dimensions and weights are minimums. Larger sizes may be used upon approval.

**NOTES:**

- The table below shows minimum sized posts and braces complying with the specifications. Larger or heavier post and brace sizes may be used upon approval.
- Sections shown in the tables must also comply with the strength requirements and other provisions of the Specifications.
- Other sections which comply with the strength requirements and other provisions of the Specifications may be used upon approval.
- Options exercised shall be uniform on any one project.
- Offset to be 2'-0" at monument locations, measured at right angles to R/W lines. Taper to achieve offset to be at least 20'-0" long.
- See Revised Standard Plan RSP A85B for Brace, Stretcher Bar, and Truss Tightener Details.



**CORNER POST**

FENCE HEIGHT	TYPICAL MEMBER DIMENSIONS (See Notes)									
	LINE POSTS				END, LATCH AND CORNER POSTS		BRACES			
	ROUND OD PIPE	WEIGHT (lb/ft)	ROLL FORMED		ROUND OD PIPE	WEIGHT (lb/ft)	ROUND OD PIPE	WEIGHT (lb/ft)	ROLL FORMED	
			SECTION	WEIGHT (lb/ft)					SECTION	WEIGHT (lb/ft)
6'-0" AND LESS	1.900"	2.72	1.875" x 1.625"	1.85	2.375"	3.65	1.66"	2.27	1.625" x 1.25"	1.35
OVER 6'-0" TO 8'-0" Max	2.375"	3.65	2.25" x 1.70"	2.78	2.875"	5.80	1.66"	2.27	1.625" x 1.25"	1.35

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**CHAIN LINK FENCE**  
NO SCALE

RSP A85 DATED JULY 18, 2014 SUPERSEDES STANDARD PLAN A85  
DATED MAY 20, 2011 - PAGE 112 OF THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP A85**

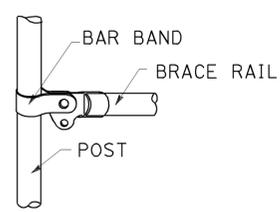
2010 REVISED STANDARD PLAN RSP A85

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	50	83

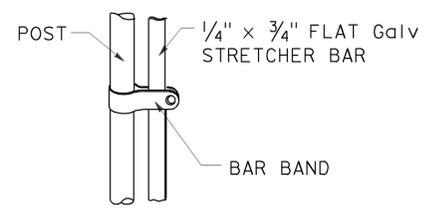
Glenn DeCou  
 REGISTERED CIVIL ENGINEER  
 No. C34547  
 Exp. 9-30-13  
 CIVIL  
 STATE OF CALIFORNIA

October 19, 2012  
 PLANS APPROVAL DATE

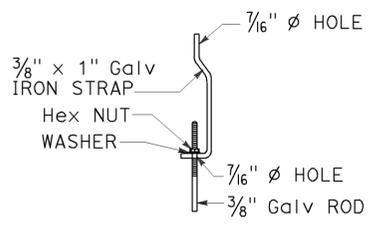
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



**BRACE RAIL**



**STRETCHER BAR**

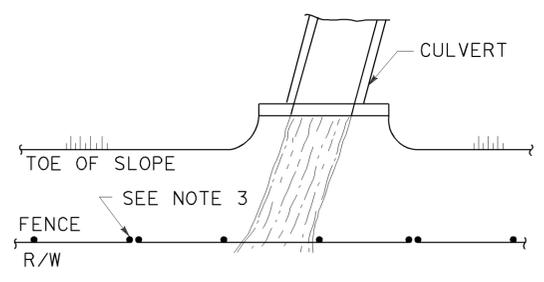


**TRUSS TIGHTENER**

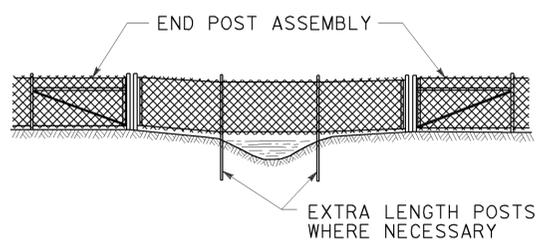
**NOTES:**

1. All material for abutment connection to be galvanized.
2. The chain link fabric shall be replaced by barbed wire strands at 12" maximum centers between the double posts.
3. When the width of the culvert makes it necessary to anchor a post to the top of the culvert, a cast iron shoe or other device approved by the Engineer shall be used.
4. Fencing over stream and around headwall may also use Barbed Wire or Wire Mesh fencing with either wood post or steel post installation.
5. See Standard Plan A85 for Chain Link fence dimensions. See Standard Plan A86 for Barbed Wire and Wire Mesh fence dimensions and for wood post and steel post installation.

TO ACCOMPANY PLANS DATED 7-28-14

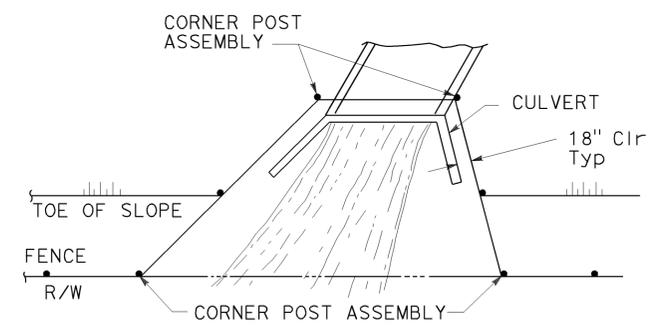


**PLAN**

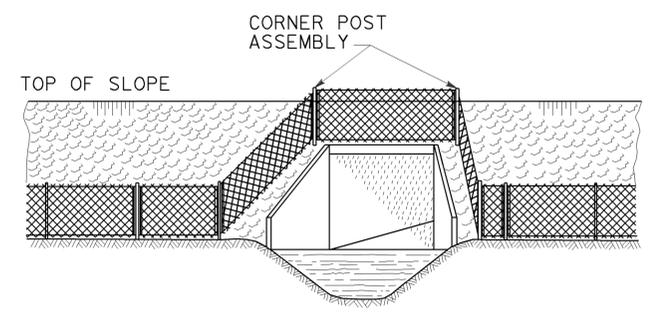


**ELEVATION**

**INSTALLATION OVER STREAM**



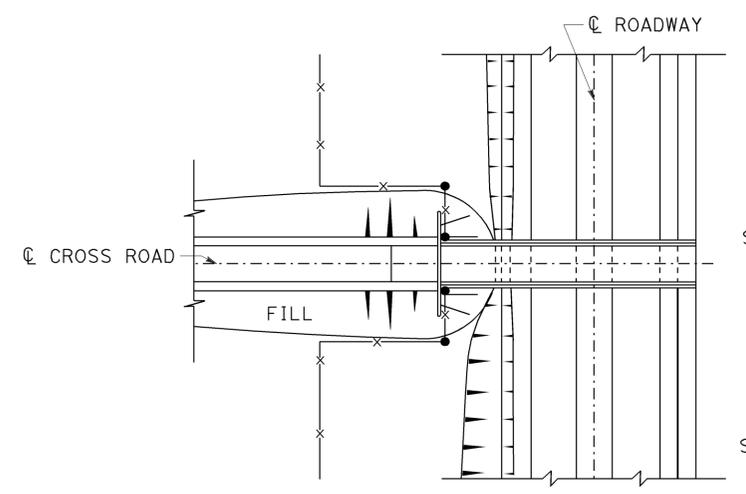
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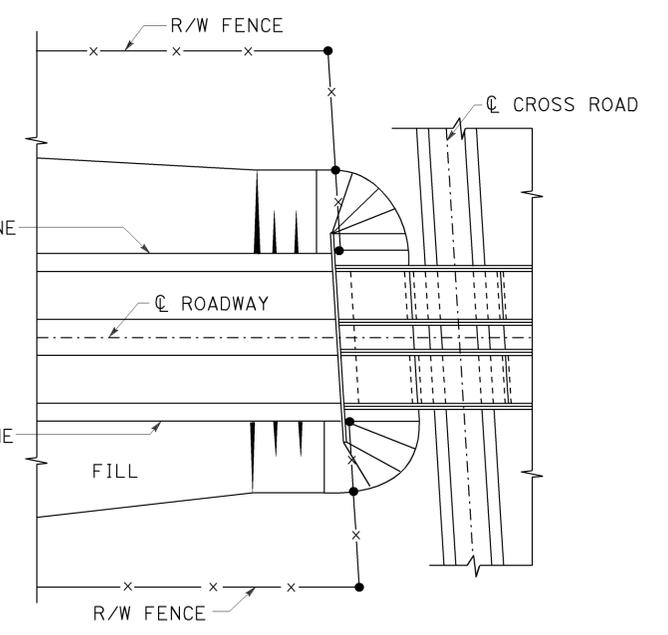
**ELEVATION**

**INSTALLATION AROUND HEADWALL**

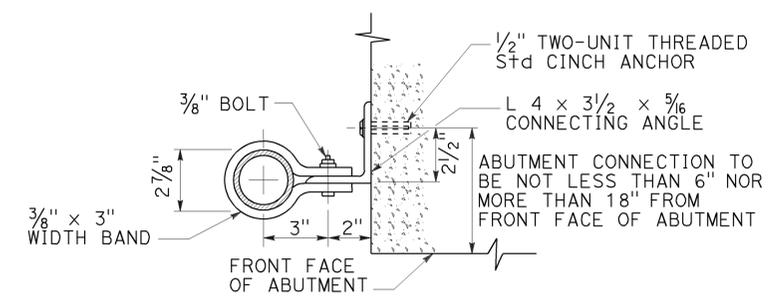
See Note 4



**PLAN OF ROADWAY - OVERCROSSING**



**PLAN OF ROADWAY - UNDERCROSSING**



**ABUTMENT CONNECTION**

**TYPICAL INSTALLATION AT BRIDGES**

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**CHAIN LINK FENCE DETAILS**

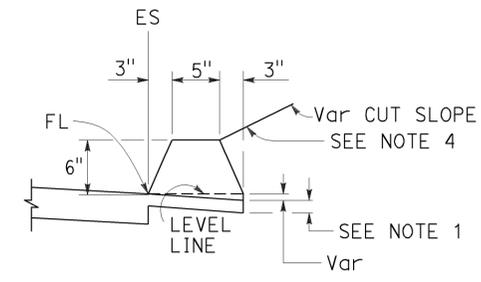
NO SCALE

RSP A85B DATED OCTOBER 19, 2012 SUPERSEDES STANDARD PLAN A85B DATED MAY 20, 2011 - PAGE 114 OF THE STANDARD PLANS BOOK DATED 2010.

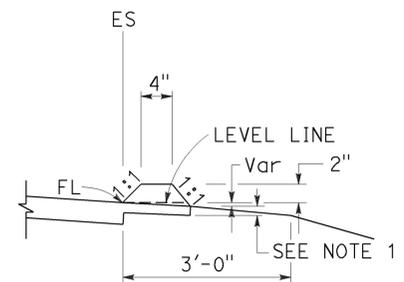
**REVISED STANDARD PLAN RSP A85B**

2010 REVISED STANDARD PLAN RSP A85B

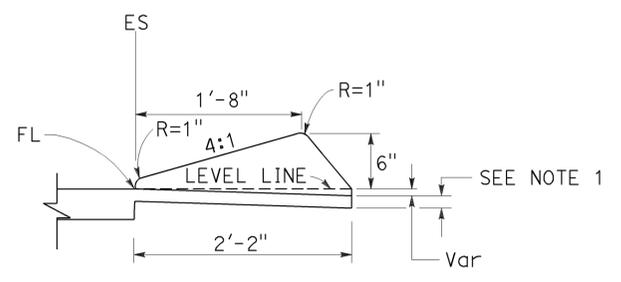
TO ACCOMPANY PLANS DATED 7-28-14



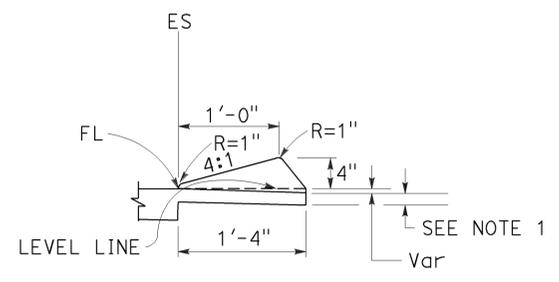
**TYPE A**  
See Note 3



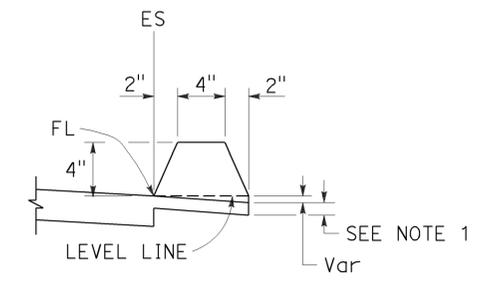
**TYPE C**



**TYPE D**

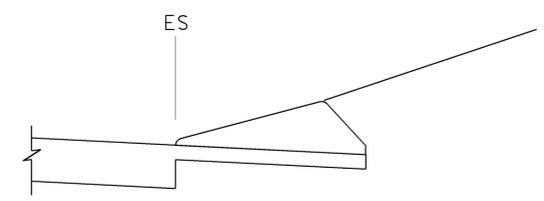


**TYPE E**

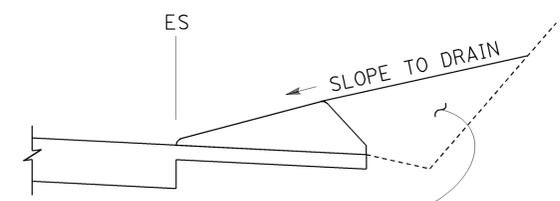


**TYPE F**  
See Note 5

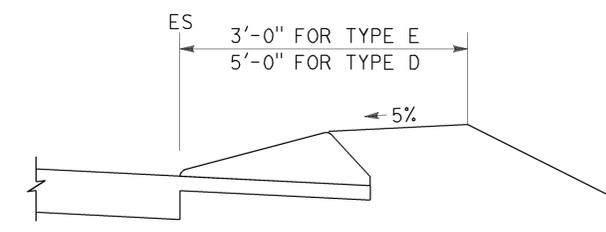
**DIKES**



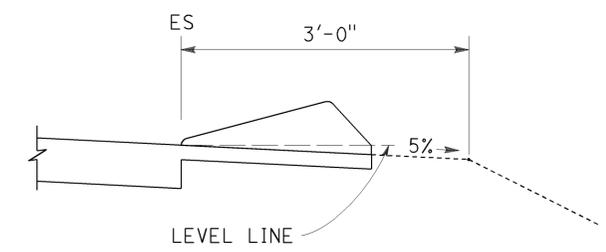
**CASE C-1**  
Cut Slope



**CASE C-2**  
Cut Slope



**CASE F**



**CASE R**  
See Note 2

**TYPE D AND E BACKFILL DETAILS**

**NOTES:**

1. For HMA shoulders only, extend top layer of HMA placed on the shoulder under dike with no joint at the ES. For projects with OGFC shoulders, do not extend OGFC under dike. See project plans for modified dike detail.
2. Case R applies to retrofit only projects where restrictive conditions do not provide enough width for Case F backfill.
3. Type A dike only to be used where restrictive slope conditions do not provide enough width to use Type D or Type E dike.
4. Fill and compact with excavated material to top of dike.
5. Use Type F dike, where dike is required with guard railing installations. See Revised Standard Plan RSP A77N4 for dike positioning details.

**DIKE QUANTITIES**

TYPE	CUBIC YARDS PER LINEAR FOOT
A	0.0135
C	0.0038
D	0.0293
E	0.0130
F	0.0066

Quantities based on 5% cross slope.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**HOT MIX ASPHALT DIKES**

NO SCALE

RSP A87B DATED JULY 19, 2013 SUPERSEDES STANDARD PLAN A87B  
DATED MAY 20, 2011 - PAGE 120 OF THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP A87B**

2010 REVISED STANDARD PLAN RSP A87B

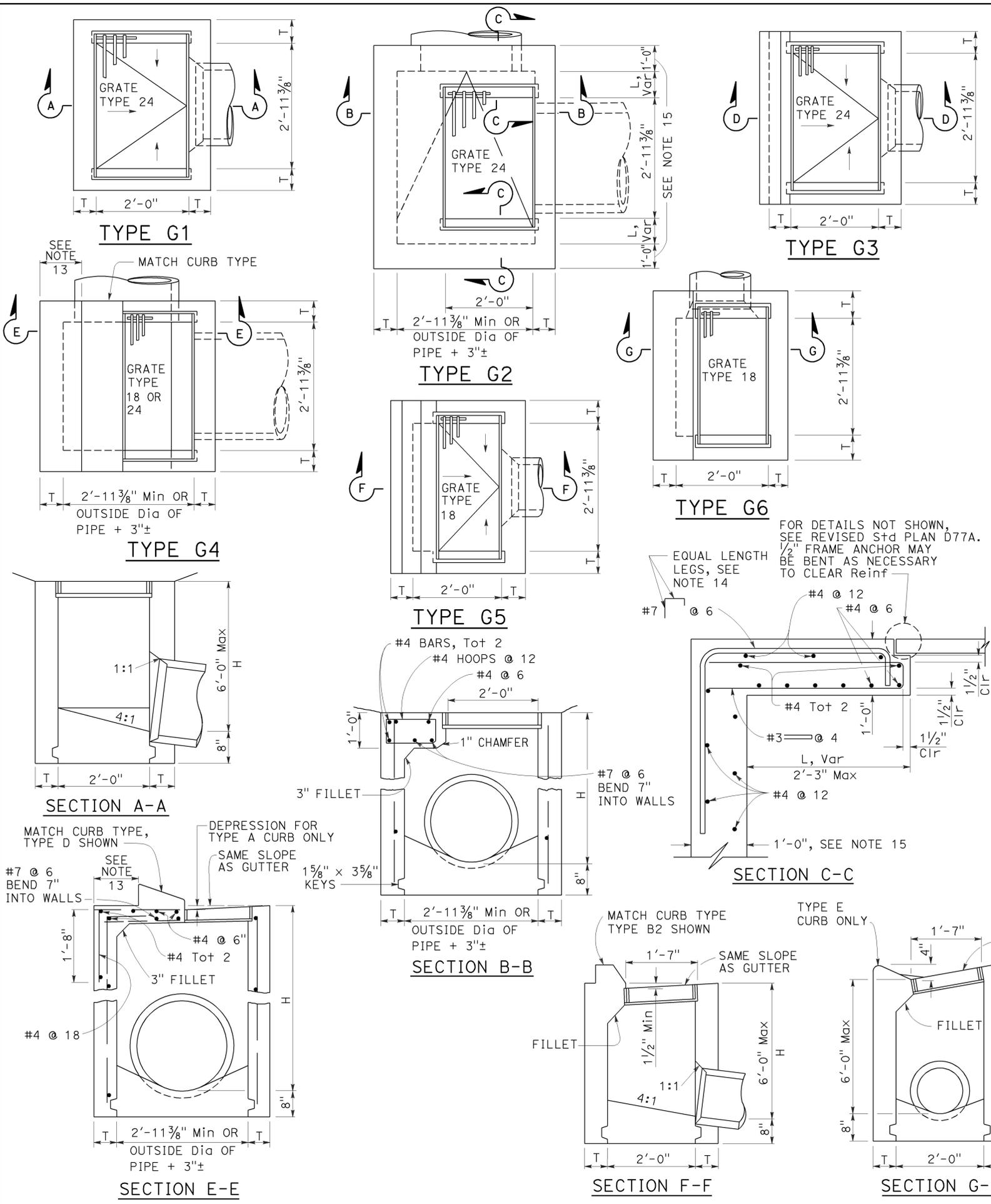
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	52	83

Glenn DeCou  
REGISTERED CIVIL ENGINEER

October 19, 2012  
PLANS APPROVAL DATE

Glenn DeCou  
No. C34547  
Exp. 9-30-13  
CIVIL  
STATE OF CALIFORNIA

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**NOTES:**

- "H" is the difference in elevation between the outlet pipe flow line and the normal gutter grade line undepressed.
- For "T" wall thickness, see Table A below.
- Wall reinforcing not required when "H" is 8'-0" or less and the unsupported width or length is 7'-0" or less. Walls exceeding these limits shall be reinforced with #4 bars @ 1'-6" ± centers placed 1/2" clear to inside of box unless otherwise shown.
- Inlet bottom reinforcing not required. See Standard Plan D74C for alternative reinforced bottom and alternative half round bottom.
- Steps-None required where "H" is less than 2'-6". Where "H" is 2'-6" or more, install steps with lowest rung 1'-0" above the floor and highest rung not more than 6" below top of inlet. The distance between steps shall not exceed 1'-0" and shall be uniform throughout the length of the wall. Place steps in the wall without an opening. Steps inserts may be substituted for the bar steps. Step inserts shall comply with State Industrial Safety requirements. See Standard Plan D74C for step details.
- Details shown apply to both metal and concrete pipe.
- Pipe(s) can be placed in any wall.
- Curb section shall match adjacent curb.
- Basin floors shall have wood trowel finish and a minimum slope of 12:3 from all directions toward outlet pipe.
- Set inlet so that grate bars are parallel to direction of principal surface flow.
- See Revised Standard Plans D77A and D77B for grate and frame details and weights of miscellaneous iron and steel.
- See Standard Plan D78A for gutter depression details.
- This dimension will vary with different grates, curbs types, box width and wall thickness.
- Bar may be rotated as necessary to clear opening. Where "L" is 6" or less, bar may be omitted.
- Where "L" is 6" or less, wall thickness shall be as shown in Table A.
- Cast-in-place inlets to be formed around all pipes/stubs intersecting the inlet, and concrete poured in one continuous operation. Precast inlets shall have mortared connections conforming to details for Type GCP Inlet shown on Standard Plan D75B. See Standard Specifications for mortar composition.

**TABLE A**

TYPE	CONCRETE QUANTITIES		CONCRETE QUANTITIES	
	H=3'-0" TO 8'-0" (T=6")	H=8'-1" TO 20'-0" (T=8")	H=3'-0" (CY)	H=8'-1" (CY)
G-1	0.95	0.220	See Note A	SEE NOTE A
G-2*	1.31	0.255	3.50	0.357
G-3	1.03	0.220	See Note A	SEE NOTE A
G-4* (TYPE 24)	1.27	0.255	3.48	0.357
G-4* (TYPE 18)	1.30	0.255	3.50	0.357
G-5	1.02	0.220	SEE NOTE A	SEE NOTE A
G-6	1.04	0.220	SEE NOTE A	SEE NOTE A

TABLE BASED ON 8" FLOOR SLAB. NO DEDUCTIONS ARE TO BE MADE TO THESE QUANTITIES BECAUSE OF PIPE OPENINGS, DIFFERENT FLOOR ALTERNATIVES OR DIFFERENT CURB TYPES. \* QUANTITIES FOR TYPE G-2 AND G-4 INLETS BASED ON THE MINIMUM INTERIOR DIMENSIONS.

**NOTE A:**

Maximum allowable height 6'-0".

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**DRAINAGE INLETS**  
NO SCALE

RSP D73 DATED OCTOBER 19, 2012 SUPERSEDES STANDARD PLAN D73 DATED MAY 20, 2011 - PAGE 156 OF THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP D73**

2010 REVISED STANDARD PLAN RSP D73



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	54	83

*Gregory A. Balzer*  
LICENSED LANDSCAPE ARCHITECT

July 19, 2013  
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.

TO ACCOMPANY PLANS DATED 7-28-14

**A**

AB AGGREGATE BASE  
 ABS ACRYLONITRILE-BUTADIENE-STYRENE  
 AC ASPHALT CONCRETE  
 ACC ARMOR-CLAD CONDUCTORS  
 Adj ADJACENT/ADJUSTABLE  
 AIC AUXILIARY IRRIGATION CONTROLLER  
 Alt ALTERNATIVE  
 AMEND AMENDMENT  
 ARV AIR RELEASE VALVE  
 AUTO AUTOMATIC  
 AUX AUXILIARY  
 AVB ATMOSPHERIC VACUUM BREAKER

**B**

B&B BALLED AND BURLAPPED  
 B/B BRASS/BRONZE  
 B/B/PL BRASS/BRONZE/PLASTIC  
 B/PL BRASS/PLASTIC  
 BFM BONDED FIBER MATRIX  
 Bit Ctd BITUMINOUS COATED  
 BP BOOSTER PUMP  
 BPA BACKFLOW PREVENTER ASSEMBLY  
 BPE BACKFLOW PREVENTER ENCLOSURE  
 BV BALL VALVE

**C**

C CONDUIT  
 CAP CORRUGATED ALUMINUM PIPE  
 CARV COMBINATION AIR RELEASE VALVE  
 CB COUPLING BAND  
 CCA CAM COUPLER ASSEMBLY  
 CEC CONTROLLER ENCLOSURE CABINET  
 CHDPE CORRUGATED HIGH DENSITY POLYETHYLENE  
 CL CHAIN LINK  
 CNC CONTROL AND NEUTRAL CONDUCTORS  
 Conc CONCRETE  
 CP COPPER PIPE  
 CS COMPOST SOCK  
 CSP CORRUGATED STEEL PIPE  
 CST CENTER STRIP  
 CV CHECK VALVE

**D**

Dia DIAMETER  
 DIP DUCTILE IRON PIPE  
 DIT DRIP IRRIGATION TUBING  
 DG DECOMPOSED GRANITE  
 DN DIAMETER NOMINAL  
 DVA DRIP VALVE ASSEMBLY

**E**

EC EROSION CONTROL  
 ECTC EROSION CONTROL TECHNOLOGY COUNCIL  
 Elect ELECTRIC/ELECTRICAL  
 Elev ELEVATION  
 ELL ELBOW  
 ENCL ENCLOSURE  
 EP EDGE OF PAVEMENT  
 ES EDGE OF SHOULDER  
 EST END STRIP  
 ESTB ESTABLISHMENT  
 ETW EDGE OF TRAVELED WAY

**F**

F FULL CIRCLE  
 F/P FULL/PART CIRCLE  
 FCV FLOW CONTROL VALVE  
 FERT FERTILIZER  
 FG FINISHED GRADE  
 FH FLEXIBLE HOSE  
 FIPT FEMALE IRON PIPE THREAD  
 FIS FERTILIZER INJECTOR SYSTEM  
 FL FLOW LINE  
 FR FIBER ROLL  
 FS FLOW SENSOR  
 FSC FLOW SENSOR CABLE  
 FV FLUSH VALVE

**G**

Galv GALVANIZED  
 GARV GARDEN VALVE  
 GARVA GARDEN VALVE ASSEMBLY  
 GM GRAVEL MULCH  
 GPH GALLONS PER HOUR  
 GPM GALLONS PER MINUTE  
 GSP GALVANIZED STEEL PIPE  
 GV GATE VALVE

**H**

H HALF CIRCLE  
 HDPE HIGH DENSITY POLYETHYLENE  
 HP HORSEPOWER/HINGE POINT  
 HPL HIGH PRESSURE LINE  
 Hwy HIGHWAY

**I**

IC IRRIGATION CONTROLLER  
 ICC IRRIGATION CONTROLLER(S)  
 IN CONTROLLER ENCLOSURE CABINET  
 ID INSIDE DIAMETER  
 IFS IRRIGATION FILTRATION SYSTEM  
 IPS IRON PIPE SIZE  
 IPT IRON PIPE THREAD  
 Irr IRRIGATION

**L**

L LENGTH

**M**

Max MAXIMUM  
 MBGR METAL BEAM GUARD RAILING  
 MCV MANUAL CONTROL VALVE  
 MIC MASTER IRRIGATION CONTROLLER  
 Min MINIMUM  
 MIPT MALE IRON PIPE THREAD  
 Misc MISCELLANEOUS  
 MtI MATERIAL  
 MVP MAINTENANCE VEHICLE PULLOUT

**N**

NCN NO COMMON NAME  
 NL NOZZLE LINE  
 No. NUMBER  
 NPT NATIONAL PIPE THREAD

**O**

O/C ON CENTER  
 OD OUTSIDE DIAMETER  
 OL OVERLAP

**P**

P PART CIRCLE  
 PB PULL BOX  
 PCC PORTLAND CEMENT CONCRETE  
 PE POLYETHYLENE  
 Pkt+ PACKET  
 PL PLASTIC  
 PLS PURE LIVE SEED  
 PLT PLANT/PLANTING  
 PLT ESTB PLANT ESTABLISHMENT  
 PM POST MILE  
 PR PRESSURE RATED  
 PRLV PRESSURE RELIEF VALVE  
 PRV PRESSURE REGULATING VALVE  
 PVC POLYVINYL CHLORIDE  
 Pvm+ PAVEMENT

**Q**

Q QUARTER CIRCLE  
 QCV QUICK COUPLING VALVE

**NOTE:**  
 For additional abbreviations,  
 see Standard Plans A10A and A10B.

**R**

R RADIUS  
 RCP REINFORCED CONCRETE PIPE  
 RCV REMOTE CONTROL VALVE  
 RCVM REMOTE CONTROL VALVE (MASTER)  
 RCVMF REMOTE CONTROL VALVE (MASTER) W/FLOW SENSOR  
 RCVP REMOTE CONTROL VALVE W/PRESSURE REGULATOR  
 RCW RECYCLED WATER  
 RECP ROLLED EROSION CONTROL PRODUCT  
 REQ REQUIRED  
 RICS REMOTE IRRIGATION CONTROL SYSTEM  
 R/W RIGHT OF WAY

**S**

S SLIP  
 SCH SCHEDULE  
 SF STATE-FURNISHED  
 Shld SHOULDER  
 Sq SQUARE  
 SST SIDE STRIP  
 Sta STATION  
 Std STANDARD  
 SW SIDEWALK/SOUND WALL

**T**

T THIRD CIRCLE/THREAD  
 TLS TRUCK LOADING STANDPIPE  
 TQ THREE QUARTER CIRCLE  
 TRM TURF REINFORCEMENT MAT  
 TT TWO-THIRDS CIRCLE  
 TWSA TREE WELL SPRINKLER ASSEMBLY  
 Typ TYPICAL

**U**

UG UNDERGROUND

**W**

W WIDTH  
 W/ WITH  
 WM WATER METER  
 WS WYE STRAINER  
 WSA WYE STRAINER ASSEMBLY  
 WSP WELDED STEEL PIPE  
 WWM WELDED WIRE MESH

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**LANDSCAPE AND  
 EROSION CONTROL ABBREVIATIONS**  
 NO SCALE

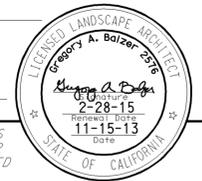
RSP H1 DATED JULY 19, 2013 SUPERSEDES STANDARD PLAN H1  
 DATED MAY 20, 2011 - PAGE 218 OF THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP H1**

2010 REVISED STANDARD PLAN RSP H1

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	55	83

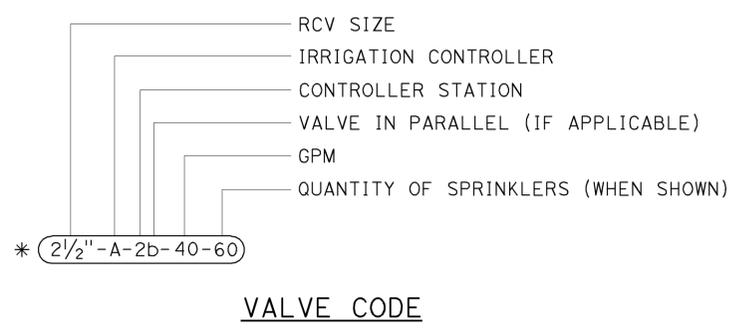
  
 LICENSED LANDSCAPE ARCHITECT  
 November 15, 2013  
 PLANS APPROVAL DATE  
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TO ACCOMPANY PLANS DATED 7-28-14

EXISTING	NEW	ITEM DESCRIPTION
		WATER METER (WM)
		BACKFLOW PREVENTER ASSEMBLY (BPA)
		BACKFLOW PREVENTER ENCLOSURE (BPE)
		BOOSTER PUMP (BP)
		TRUCK LOADING STANDPIPE (TLS)
		FLOW SENSOR (FS)
		MASTER IRRIGATION CONTROLLER (MIC)
		AUXILIARY IRRIGATION CONTROLLER (AIC)
		IRRIGATION CONTROLLER (IC) IRRIGATION CONTROLLER (IC) (BATTERY) IRRIGATION CONTROLLER (IC) (SOLAR) IRRIGATION CONTROLLER (IC) (TWO WIRE) IRRIGATION CONTROLLER(S) IN CONTROLLER ENCLOSURE CABINET (ICC)
		ARMOR-CLAD CONDUCTORS (ACC)
		CONTROL AND NEUTRAL CONDUCTORS (CNC)
		IRRIGATION CONDUIT
		EXTEND IRRIGATION CONDUIT
		DUCTILE IRON PIPE (SUPPLY LINE) (MAIN) (DIP)
		GALVANIZED STEEL PIPE (SUPPLY LINE) (MAIN) (GSP)
		GALVANIZED STEEL PIPE (SUPPLY LINE) (LATERAL) (GSP)
		PLASTIC PIPE (SUPPLY LINE) (MAIN)
		PLASTIC PIPE (SUPPLY LINE) (LATERAL)
		COPPER PIPE (SUPPLY LINE)
		DRIP IRRIGATION TUBING
		REMOTE CONTROL VALVE (RCV) REMOTE CONTROL VALVE (MASTER) (RCVM) REMOTE CONTROL VALVE (MASTER) W/FLOW METER (RCVMF)
		REMOTE CONTROL VALVE W/PRESSURE REGULATOR (RCVP)
		EXISTING MANUAL CONTROL VALVE (MCV)
		DRIP VALVE ASSEMBLY (DVA)
		WYE STRAINER ASSEMBLY (WSA)

EXISTING	NEW	ITEM DESCRIPTION
		GATE VALVE (GV)
		BALL VALVE (BV)
		QUICK COUPLING VALVE (QCV)
		CAM COUPLER ASSEMBLY (CCA)
		GARDEN VALVE ASSEMBLY (GARVA)
		PRESSURE REGULATING VALVE (PRV)
		PRESSURE RELIEF VALVE (PRLV)
		FLOW CONTROL VALVE (FCV)
		COMBINATION AIR RELEASE VALVE (CARV)
		CHECK VALVE (CV)
		FLUSH VALVE (FV)
		EXISTING NOZZLE LINE W/TURNING UNION
		EXISTING IRRIGATION SYSTEM
		EXISTING IRRIGATION SYSTEM TO BE REMOVED
		CHAIN LINK GATE
		QUICK COUPLING VALVE W/SPRINKLER PROTECTOR
		SPRINKLER W/SPRINKLER PROTECTOR
		CONNECT TO EXISTING SYSTEM
		CAP
		CAP EXISTING
		FIBER ROLL
		COMPOST SOCK



\* VALVE CODES FOR EXISTING VALVES ARE SHOWN IN A DASHED ENCLOSURE.

RSP H2 DATED NOVEMBER 15, 2013 SUPERSEDES RSP H2 DATED JULY 19, 2013 AND STANDARD PLAN H2 DATED MAY 20, 2011 - PAGE 219 OF THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP H2**

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**LANDSCAPE AND EROSION CONTROL SYMBOLS**  
NO SCALE

2010 REVISED STANDARD PLAN RSP H2

TO ACCOMPANY PLANS DATED 7-28-14

TABLE 1

TAPER LENGTH CRITERIA AND CHANNELIZING DEVICE SPACING							
SPEED (S)	MINIMUM TAPER LENGTH * FOR WIDTH OF OFFSET 12 FEET (W)				MAXIMUM CHANNELIZING DEVICE SPACING		
	TANGENT 2L	MERGING L	SHIFTING L/2	SHOULDER L/3	X	Y	Z **
					TAPER	TANGENT	CONFLICT
mph	ft	ft	ft	ft	ft	ft	ft
20	160	80	40	27	20	40	10
25	250	125	63	42	25	50	12
30	360	180	90	60	30	60	15
35	490	245	123	82	35	70	17
40	640	320	160	107	40	80	20
45	1080	540	270	180	45	90	22
50	1200	600	300	200	50	100	25
55	1320	660	330	220	55	110	27
60	1440	720	360	240	60	120	30
65	1560	780	390	260	65	130	32
70	1680	840	420	280	70	140	35

\* - For other offsets, use the following merging taper length formula for L:  
 For speed of 40 mph or less,  $L = WS^2/60$   
 For speed of 45 mph or more,  $L = WS$

Where: L = Taper length in feet  
 W = Width of offset in feet  
 S = Posted speed limit, off-peak 85th-percentile speed prior to work starting, or the anticipated operating speed in mph

\*\* - Use for taper and tangent sections where there are no pavement markings or where there is a conflict between existing pavement markings and channelizers (CA).

TABLE 2

LONGITUDINAL BUFFER SPACE AND FLAGGER STATION SPACING				
SPEED *	Min D **	DOWNGRADE Min D ***		
		-3%	-6%	-9%
		ft	ft	ft
20	115	116	120	126
25	155	158	165	173
30	200	205	215	227
35	250	257	271	287
40	305	315	333	354
45	360	378	400	427
50	425	446	474	507
55	495	520	553	593
60	570	598	638	686
65	645	682	728	785
70	730	771	825	891

\* - Speed is posted speed limit, off-peak 85th-percentile speed prior to work starting, or the anticipated operating speed in mph  
 \*\* - Longitudinal buffer space or flagger station spacing  
 \*\*\* - Use on sustained downgrade steeper than -3 percent and longer than 1 mile.

TABLE 3

ADVANCE WARNING SIGN SPACING			
ROAD TYPE	DISTANCE BETWEEN SIGNS *		
	A	B	C
	ft	ft	ft
URBAN - 25 mph OR LESS	100	100	100
URBAN - MORE THAN 25 mph TO 40 mph	250	250	250
URBAN - MORE THAN 40 mph	350	350	350
RURAL	500	500	500
EXPRESSWAY / FREEWAY	1000	1500	2640

\* - The distances are approximate, are intended for guidance purposes only, and should be applied with engineering judgment. These distances should be adjusted by the Engineer for field conditions, if necessary, by increasing or decreasing the recommended distances.

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**TRAFFIC CONTROL SYSTEM TABLES  
 FOR LANE AND RAMP CLOSURES**  
 NO SCALE

RSP T9 DATED JULY 19, 2013 SUPERSEDES RSP T9 DATED APRIL 19, 2013 THAT SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.

2010 REVISED STANDARD PLAN RSP T9

**NOTES:**

See Revised Standard Plan RSP T9 for tables.

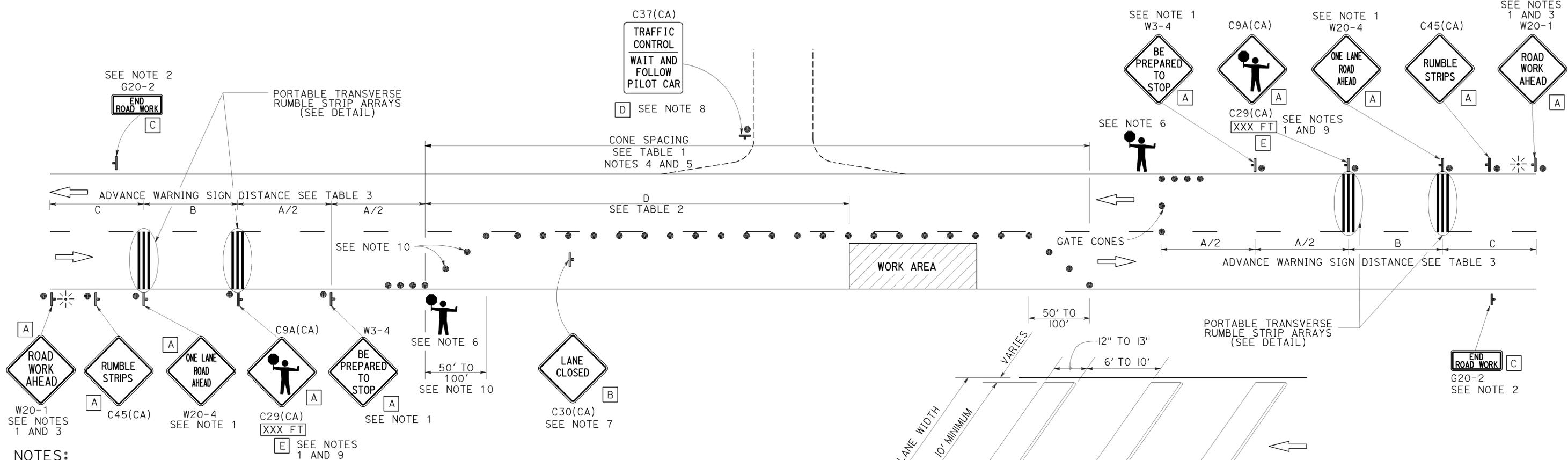
Use cone spacing X for taper segment, Y for tangent segment or Z for conflict situations, as appropriate, per Table 1, unless X, Y, or Z cone spacing is shown on this sheet.

Unless otherwise specified in the special provisions, all temporary warning signs shall have black legend on fluorescent orange background.

California codes are designated by (CA). Otherwise, Federal (MUTCD) codes are shown.

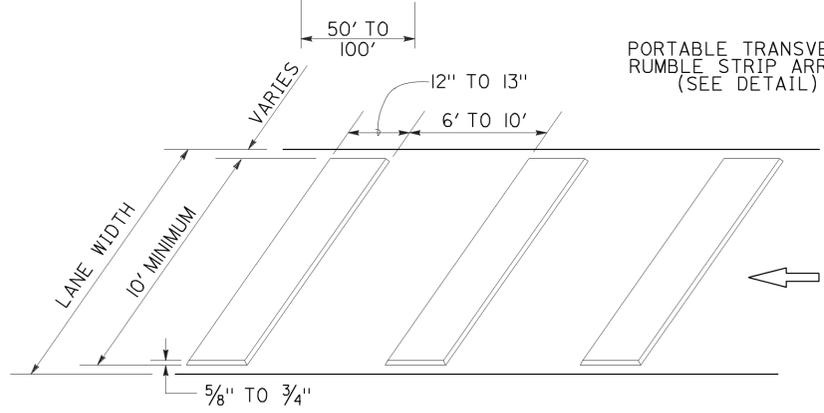
**TYPICAL LANE CLOSURE WITH REVERSIBLE CONTROL**

TO ACCOMPANY PLANS DATED 7-28-14



- NOTES:**
- Each advance warning sign in each direction of travel shall be equipped with at least two flags for daytime closure. Each flag shall be at least 16" x 16" in size and shall be orange or fluorescent red-orange in color. Flashing beacons shall be placed at the locations indicated for lane closure during hours of darkness.
  - A G20-2 "END ROAD WORK" sign, as appropriate, shall be placed at the end of the lane control unless the end of work area is obvious, or ends within a larger project's limits.
  - If the W20-1 sign would follow within 2000' of a stationary W20-1 or G20-1 "ROAD WORK NEXT \_\_\_\_\_ MILES", use a W20-4 sign for the first advance warning sign.
  - All cones used for lane closures during the hours of darkness shall be fitted with retroreflective bands (or sleeves) as specified in the specifications.
  - Portable delineators, placed at one-half the spacing indicated for traffic cones, may be used instead of cones for daytime closures only.
  - Additional advance flaggers may be required. Flagger should stand in a conspicuous place, be visible to approaching traffic as well as approaching vehicles after the first vehicle has stopped. During the hours of darkness, the flagging-station and flagger shall be illuminated and clearly visible to approaching traffic. The illumination footprint of the lighting on the ground shall be at least 20' in diameter. Place a minimum of four cones at 50' intervals in advance of flagger station as shown.

- Place C30(CA) "LANE CLOSED" sign at 500' to 1000' intervals throughout extended work areas. They are optional if the work area is visible from the flagger station.
- When a pilot car is used, place a C37(CA) "TRAFFIC CONTROL-WAIT AND FOLLOW PILOT CAR" sign with black legend on white background at all intersections, driveways and alleys without a flagger within traffic control area. Signs shall be clean and visible at all times. Where traffic can not be effectively self-regulated, at least one flagger shall be used at each intersection within traffic control area.
- An optional C29(CA) sign may be placed below the C9A(CA) sign.
- Either traffic cones or barricades shall be placed on the taper. Barricades shall be Type I, II, or III.
- The color of the portable transverse rumble strips shall be black or orange. Use 2 arrays, each array shall consist of 3 rumble strips.
- Portable transverse rumble strips shall not be placed on sharp horizontal or vertical curves nor shall they be placed through pedestrian crossings.
- If the portable transverse rumble strips become out of alignment (skewed) by more than 6 inches, measured from one end to the other, they shall be readjusted to bring the placement back to the original location.



PORTABLE TRANSVERSE RUMBLE STRIP ARRAY DETAIL

**SIGN PANEL SIZE (Min)**

- A 48" x 48"
- B 30" x 30"
- C 36" x 18"
- D 36" x 42"
- E 20" x 7"

**LEGEND**

- TRAFFIC CONE
- ⊥ TEMPORARY TRAFFIC CONTROL SIGN
- ⚡ PORTABLE FLASHING BEACON
- 🚧 FLAGGER

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**TRAFFIC CONTROL SYSTEM  
FOR LANE CLOSURE ON  
TWO LANE CONVENTIONAL  
HIGHWAYS**

NO SCALE

RSP T13 DATED JULY 18, 2014 SUPERSEDES RSP T13 DATED APRIL 19, 2013 AND STANDARD PLAN T13 DATED MAY 20, 2011 - PAGE 241 OF THE STANDARD PLANS BOOK DATED 2010.

2010 REVISED STANDARD PLAN RSP T13



**LEGEND:**

<b>AB</b>	ABANDON. IF APPLIED TO CONDUIT, REMOVE CONDUCTORS
<b>BC</b>	INSTALL PULL BOX IN EXISTING CONDUIT RUN
<b>BP</b>	PEDESTRIAN BARRICADE, TYPE AS INDICATED ON PLAN
<b>CB</b>	INSTALL CONDUIT INTO EXISTING PULL BOX
<b>CC</b>	CONNECT NEW AND EXISTING CONDUIT. REMOVE EXISTING CONDUCTORS AND INSTALL CONDUCTORS AS INDICATED
<b>CF</b>	CONDUIT TO REMAIN FOR FUTURE USE. REMOVE CONDUCTORS. INSTALL PULL TAPE
<b>DH</b>	DETECTOR HANDHOLE
<b>FA</b>	FOUNDATION TO BE ABANDONED
<b>IS</b>	INSTALL SIGN ON SIGNAL MAST ARM
<b>NS</b>	NO SLIP BASE ON STANDARD
<b>PEC</b>	PHOTOELECTRIC CONTROL
<b>PEU</b>	PHOTOELECTRIC UNIT
<b>RC</b>	EQUIPMENT OR MATERIAL TO BE REMOVED AND BECOME THE PROPERTY OF THE CONTRACTOR
<b>RE</b>	REMOVE ELECTROLIER, FUSES AND BALLAST. TAPE ENDS OF CONDUCTORS
<b>RL</b>	RELOCATE EQUIPMENT
<b>RR</b>	REMOVE AND REUSE EQUIPMENT
<b>RS</b>	REMOVE AND SALVAGE EQUIPMENT
<b>SC</b>	SPLICE NEW TO EXISTING CONDUCTORS
<b>SD</b>	SERVICE DISCONNECT
<b>TSP</b>	TELEPHONE SERVICE POINT

**ABBREVIATIONS**

APS	ACCESSIBLE PEDESTRIAN SIGNAL	M/M	MULTIPLE TO MULTIPLE TRANSFORMER
BBS	BATTERY BACKUP SYSTEM	Mtg	MOUNTING
BC	BOLT CIRCLE	MV	MERCURY VAPOR LIGHTING FIXTURE
BPB	BICYCLE PUSH BUTTON	MVDS	MICROWAVE VEHICLE DETECTION SYSTEM
C	CONDUIT	N	NEUTRAL (GROUNDED CONDUCTOR)
CB	CIRCUIT BREAKER	NB	NEUTRAL BUS
CCTV	CLOSED CIRCUIT TELEVISION	NC	NORMALLY CLOSE
Ck+	CIRCUIT	NO	NORMALLY OPEN
CMS	CHANGEABLE MESSAGE SIGN	P	CIRCUIT BREAKER'S POLE
Ctid	CALTRANS IDENTIFICATION	PB	PULL BOX
Comm	COMMUNICATION	PBA	PUSH BUTTON ASSEMBLY
DLC	LOOP DETECTOR LEAD-IN CABLE	PEC	PHOTOELECTRIC CONTROL
EMS	EXTINGUISHABLE MESSAGE SIGN	Ped	PEDESTRIAN
EVUC	EMERGENCY VEHICLE UNIT CABLE	PEU	PHOTOELECTRIC UNIT
EVUD	EMERGENCY VEHICLE UNIT DETECTOR	PT	CONDUIT WITH PULL TAPE
FB	FLASHING BEACON	RE	RELOCATED EQUIPMENT
FBCA	FLASHING BEACON CONTROL ASSEMBLY	RM	RAMP METERING
FBS	FLASHING BEACON WITH SLIP BASE	RWIS	ROADSIDE WEATHER INFORMATION SYSTEM
FO	FIBER OPTIC	SB	SLIP BASE
G	EQUIPMENT GROUNDING CONDUCTOR	SIC	SIGNAL INTERCONNECT CABLE
GB	GROUND BUS	Sig	SIGNAL
GFCI	GROUND FAULT CIRCUIT INTERRUPTER	SMA	SIGNAL MAST ARM
HAR	HIGHWAY ADVISORY RADIO	SNS	STREET NAME SIGN
Hex	HEXAGONAL	SP	SERVICE POINT
HPS	HIGH PRESSURE SODIUM	TDC	TELEPHONE DEMARCATION CABINET
IISNS	INTERNALLY ILLUMINATED STREET NAME SIGN	TMS	TRAFFIC MONITORING STATION
ISL	INDUCTION SIGN LIGHTING	TOS	TRAFFIC OPERATIONS SYSTEM
LED	LIGHT EMITTING DIODE	Veh	VEHICLE
LMA	LUMINAIRE MAST ARM	VIVDS	VIDEO IMAGE VEHICLE DETECTION SYSTEM
LPS	LOW PRESSURE SODIUM	WIM	WEIGH-IN-MOTION
Ltg	LIGHTING	Xfmr	TRANSFORMER
Lum	LUMINAIRE		
M	METERED		
MAT	MAST ARM MOUNTING TOP ATTACHMENT		
MAS	MAST ARM MOUNTING SIDE ATTACHMENT		

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	59	83

*Theresa Gabriel*  
REGISTERED ELECTRICAL ENGINEER

July 19, 2013  
PLANS APPROVAL DATE

Theresa Aziz Gabriel  
No. E15129  
Exp. 6-30-14  
ELECTRICAL  
STATE OF CALIFORNIA

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.

TO ACCOMPANY PLANS DATED 7-28-14

**SOFFIT AND WALL MOUNTED LUMINAIRES**

- PENDANT, 70 W HPS UNLESS OTHERWISE SPECIFIED
- FLUSH, 70 W HPS UNLESS OTHERWISE SPECIFIED
- WALL SURFACE, 70 W HPS UNLESS OTHERWISE SPECIFIED
- EXISTING SOFFIT OR WALL LUMINAIRE TO REMAIN UNMODIFIED
- EXISTING SOFFIT OR WALL LUMINAIRE TO BE MODIFIED AS SPECIFIED

**NOTE:**  
Arrow indicates "street side" of luminaire.

COMMONLY USED SYMBOLS FOR UNITED STATES CUSTOMARY UNITS OF MEASUREMENT:

SYMBOL USED	DEFINITIONS
$\Omega$	OHMS
min	MINUTE
s	SECOND
bps	BITS PER SECOND
Bps	BYTES PER SECOND
A	AMPERE
V	VOLT
V(dc)	VOLT (DIRECT CURRENT)
V(ac)	VOLT (ALTERNATING CURRENT)
FC	FOOT - CANDLE
W	WATTS
VA	VOLT-AMPERE
M	MEGA
k	KILO
m	MILLI
$\mu$	MICRO
P	PICO
Hz	HERTZ

**MISCELLANEOUS ELECTROLIERS**

NEW	EXISTING	
		LUMINAIRE ON WOOD POLE
		NON-STANDARD ELECTROLIER (SEE PROJECT NOTES OR PROJECT PLANS)
		CITY ELECTROLIER
		ELECTROLIER FOUNDATION (FUTURE INSTALLATION)

- NOTES:**
- HPS luminaires shall be 310 W HPS when installed on Type 21, 21D, 30, 31 and 32 Standards, unless otherwise specified. HPS luminaires shall be 200 W when installed on other type standards or poles, unless otherwise specified.
  - LED luminaires shall be 235 W when installed on Type 21, 21D, 30, 31 and 32 Standards, unless otherwise specified. LED luminaires shall be 165 W when installed on other type standards or poles, unless otherwise specified.
  - Luminaires shall be the cutoff type, ANSI Type III medium cutoff lighting distribution, unless otherwise specified.

**STANDARD ELECTROLIER**

NEW	EXISTING	STANDARD TYPE
		15
		15D
		15 STRUCTURE
		15D STRUCTURE
		21
		21D
		21 STRUCTURE
		21D STRUCTURE
		30
		31
		32

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**ELECTRICAL SYSTEMS  
(LEGEND AND ABBREVIATIONS)**  
NO SCALE

RSP ES-1A DATED JULY 19, 2013 SUPERSEDES STANDARD PLAN ES-1A DATED MAY 20, 2011 - PAGE 425 OF THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP ES-1A**

2010 REVISED STANDARD PLAN RSP ES-1A

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	60	83

*Theresa Gabriel*  
REGISTERED ELECTRICAL ENGINEER

July 19, 2013  
PLANS APPROVAL DATE

Theresa Aziz Gabriel  
No. E15129  
Exp. 6-30-14  
ELECTRICAL  
STATE OF CALIFORNIA

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TO ACCOMPANY PLANS DATED 7-28-14

**CONDUIT**

NEW	EXISTING	
---	---	LIGHTING CONDUIT, UNLESS OTHERWISE INDICATED OR NOTED
---	---	TRAFFIC SIGNAL CONDUIT
---C---	---c---	COMMUNICATION CONDUIT
---T---	---t---	TELEPHONE CONDUIT
---F---	---f---	FIRE ALARM CONDUIT
---FO---	---fo---	FIBER OPTIC CONDUIT
---	---	CONDUIT TERMINATION
		CONDUIT RISER ATTACHED TO THE STRUCTURE OR SERVICE POLE

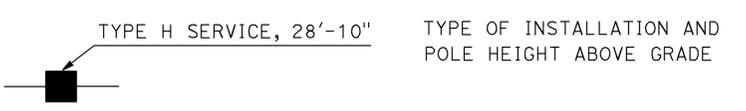
**SIGNAL EQUIPMENT**

NEW	EXISTING	
		PEDESTRIAN SIGNAL HEAD "C" INDICATES COUNTDOWN PEDESTRIAN HEAD
		PUSH BUTTON ASSEMBLY POST
		PEDESTRIAN BARRICADE
		VEHICLE SIGNAL HEAD (WITH BACKPLATE AND 3-SECTIONS: RED, YELLOW AND GREEN)
		VEHICLE SIGNAL HEAD WITH ANGLE VISOR
		MODIFICATIONS OF BASIC SYMBOL: "L" INDICATES ALL NON-ARROW SECTIONS LOUVERED "LG" INDICATES LOUVERED GREEN SECTION ONLY "PV" INDICATES ALL 12" SECTIONS PROGRAMMED VISIBILITY "8" INDICATES ALL 8" SECTIONS (ONLY WHEN SPECIFIED)
		VEHICLE SIGNAL HEAD CONSISTING OF RED, YELLOW AND GREEN LEFT ARROW SECTIONS
		VEHICLE SIGNAL HEAD CONSISTING OF RED AND YELLOW SECTIONS WITH AN UP GREEN ARROW SECTION
		VEHICLE SIGNAL HEAD (5 SECTION) CONSISTING OF RED, YELLOW AND GREEN SECTIONS WITH YELLOW AND GREEN RIGHT ARROW SECTIONS
		TYPE 15TS STANDARD WITH VEHICLE SIGNAL HEAD AND LUMINAIRE
		TYPE 21TS STANDARD WITH VEHICLE SIGNAL HEAD AND LUMINAIRE
		STANDARD WITH LUMINAIRE AND SIGNAL MAST ARMS AND ATTACHED VEHICLE SIGNAL HEADS
		TYPE 1 STANDARD WITH ATTACHED VEHICLE SIGNAL HEADS
		STANDARD WITH A SIGNAL MAST ARM, ATTACHED VEHICLE SIGNAL HEADS AND INTERNALLY ILLUMINATED STREET NAME SIGN
		CONTROLLER ASSEMBLY. DOOR INDICATES FRONT OF CABINET

**SERVICE EQUIPMENT**

NEW	EXISTING	
---OH---	---oh---	OVERHEAD LINES
		WOOD POLE, "U" INDICATES UTILITY OWNED
		POLE GUY WITH ANCHOR
		UTILITY TRANSFORMER - GROUND MOUNTED
		SERVICE EQUIPMENT ENCLOSURE TYPE. DOOR INDICATES FRONT OF ENCLOSURE
		TELEPHONE DEMARCATION CABINET

**POLE-MOUNTED SERVICE DESIGNATION**



**FLASHING BEACON**

NEW	EXISTING	
		FLASHING BEACON (ONE VEHICLE SIGNAL HEAD WITH BACKPLATE AND VISOR) "R" INDICATES RED INDICATION, "Y" INDICATES YELLOW INDICATION
		FLASHING BEACON WITH TYPE 15-FBS STANDARD AND A SIGN.
		FLASHING BEACON WITH TYPES 9, 9A OR 9B SIGN UNLESS OTHERWISE SPECIFIED OR INDICATED

**SIGNAL EQUIPMENT Cont**

NEW	EXISTING	
		GUARD POST
		TYPE 1 STANDARD WITH RAMP METERING SIGN
		OPTICAL DETECTOR FOR THE EMERGENCY VEHICLE DETECTION SYSTEM

**NOTES:**

- All signal sections shall be 12" unless shown otherwise.
- Signal heads shall be provided with backplates unless shown otherwise.

**ILLUMINATED OVERHEAD SIGN**

NEW	EXISTING	
		SINGLE POST, SINGLE ILLUMINATED SIGN, BALANCED BUTTERFLY
		SINGLE POST, DOUBLE ILLUMINATED SIGN, BALANCED BUTTERFLY
		SINGLE POST, SINGLE ILLUMINATED SIGN, FULL CANTILEVER
		DOUBLE POST, SINGLE ILLUMINATED SIGN
		SINGLE ILLUMINATED SIGN MOUNTED ON STRUCTURE
		DOUBLE POST, SINGLE ILLUMINATED SIGN WITH ELECTROLIER

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**ELECTRICAL SYSTEMS  
(LEGEND AND ABBREVIATIONS)**

NO SCALE

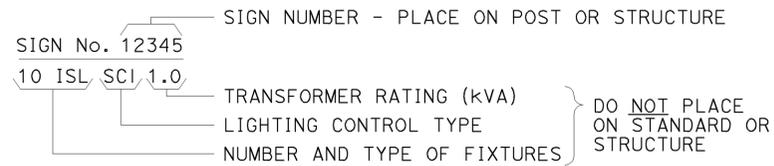
RSP ES-1B DATED JULY 19, 2013 SUPERSEDES STANDARD PLAN ES-1B DATED MAY 20, 2011 - PAGE 426 OF THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP ES-1B**

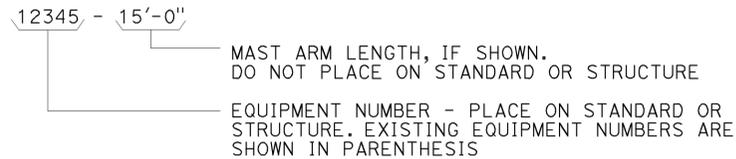
2010 REVISED STANDARD PLAN RSP ES-1B

### EQUIPMENT IDENTIFICATION

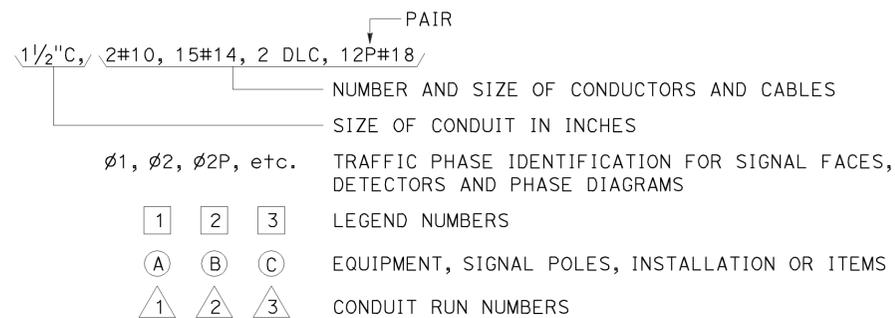
#### ILLUMINATED SIGN IDENTIFICATION NUMBER:



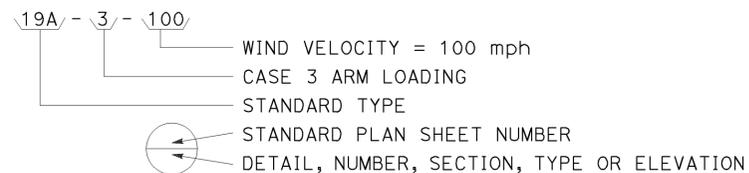
#### ELECTROLIER OR EQUIPMENT IDENTIFICATION NUMBER:



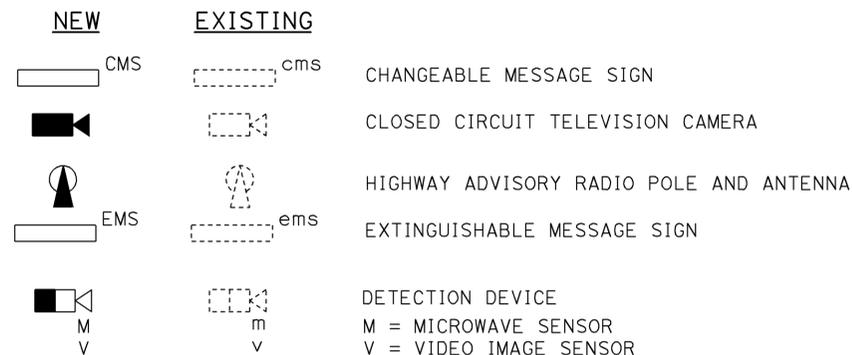
#### CONDUIT AND CONDUCTOR IDENTIFICATION:



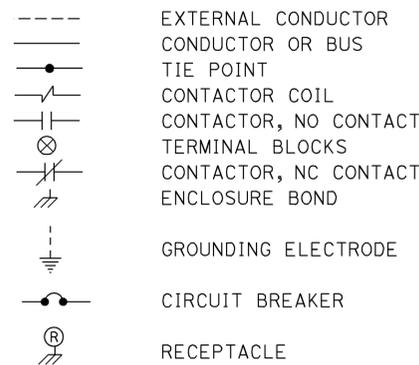
#### SIGNAL AND LIGHTING STANDARD (TYPICAL DESIGNATION):



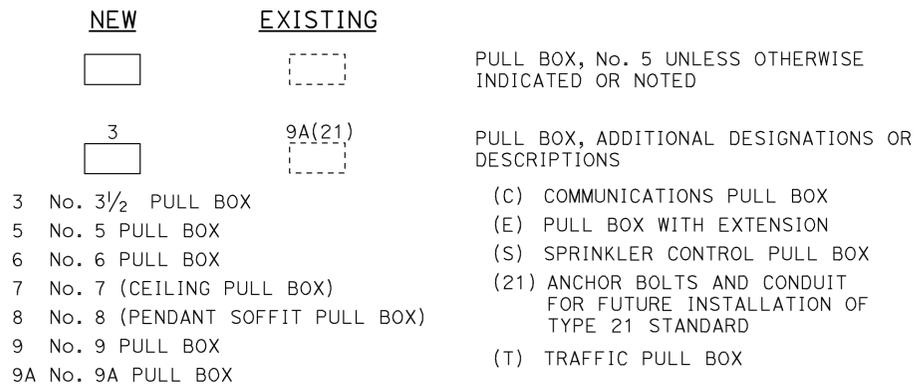
### MISCELLANEOUS EQUIPMENT



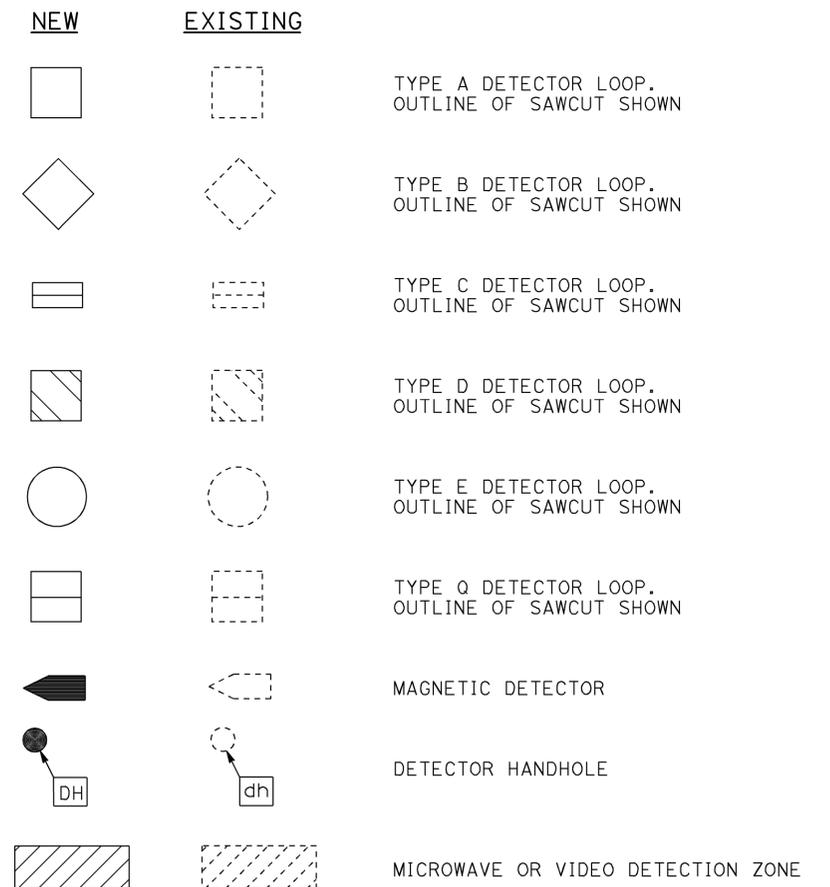
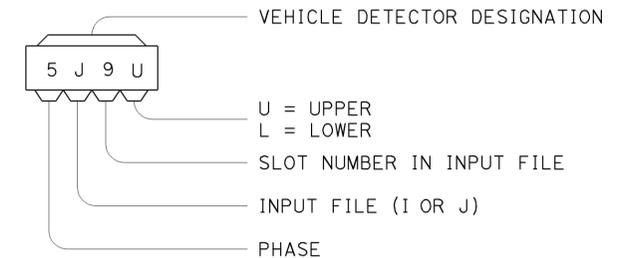
### WIRING DIAGRAM LEGEND



### PULL BOXES



### VEHICLE DETECTORS



STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

## ELECTRICAL SYSTEMS (LEGEND AND ABBREVIATIONS)

NO SCALE

RSP ES-1C DATED JULY 19, 2013 SUPERSEDES STANDARD PLAN ES-1C  
DATED MAY 20, 2011 - PAGE 427 OF THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP ES-1C**

2010 REVISED STANDARD PLAN RSP ES-1C

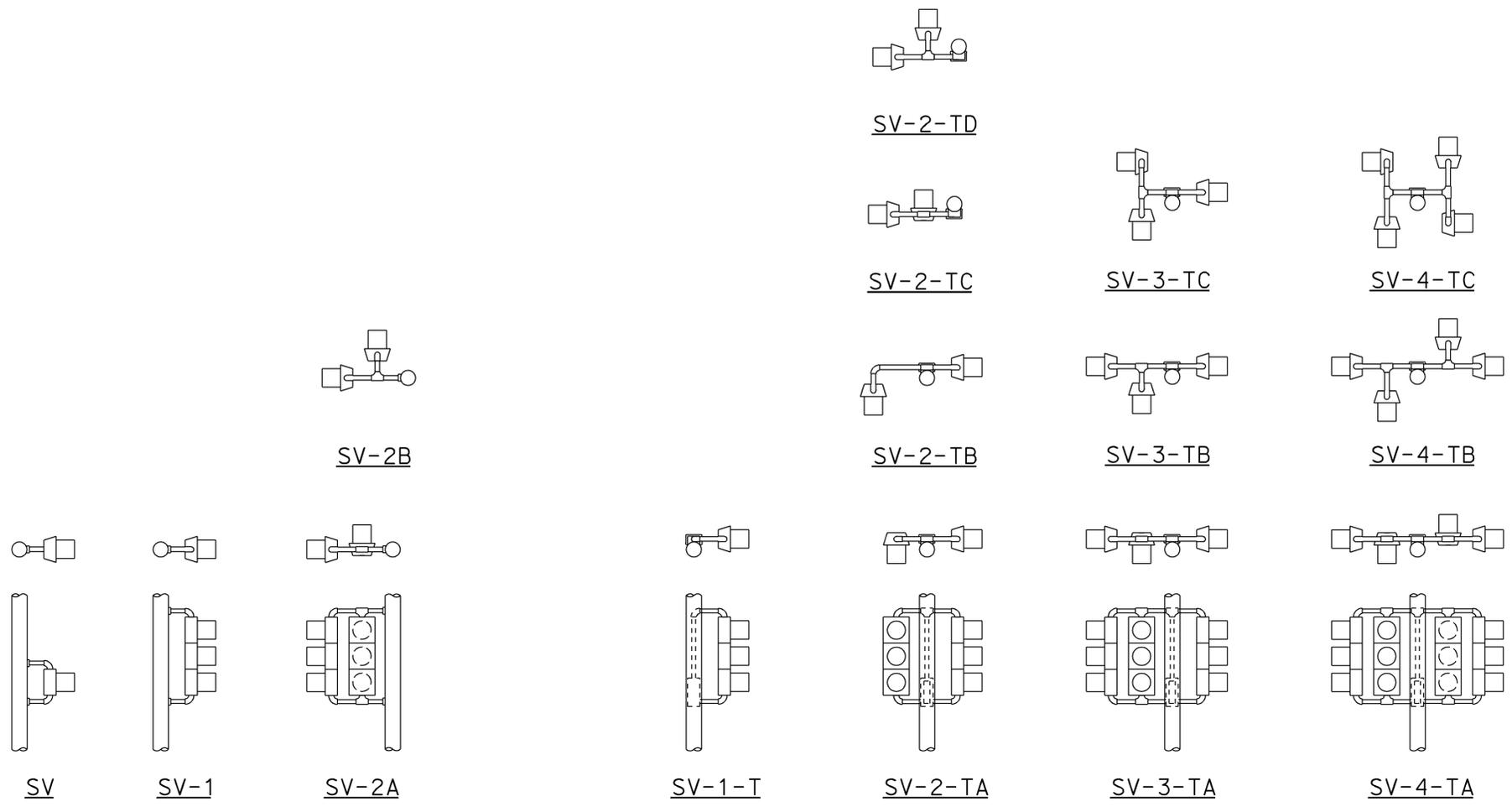
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	62	83

*Theresa Gabriel*  
 REGISTERED ELECTRICAL ENGINEER  
 July 19, 2013  
 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  
 Theresa Aziz Gabriel  
 No. E15129  
 Exp. 6-30-14  
 ELECTRICAL  
 STATE OF CALIFORNIA

TO ACCOMPANY PLANS DATED 7-28-14

PLAN VIEW OF OTHER SIDE MOUNTINGS



SIDE MOUNTINGS

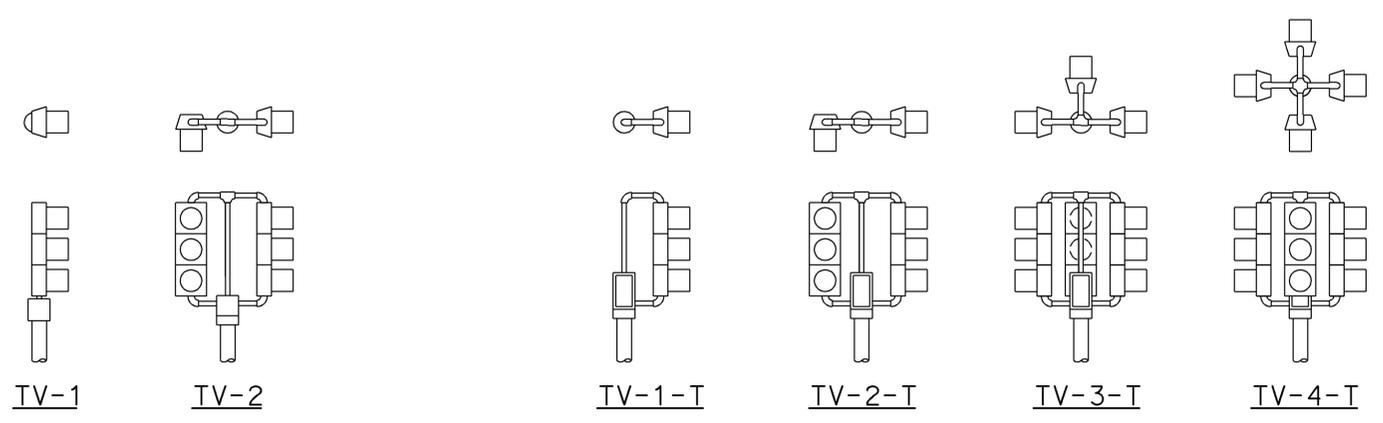
ABBREVIATIONS:

- SV SIDE MOUNTED VEHICLE SIGNALS
- T TERMINAL COMPARTMENT
- TV TOP MOUNTED VEHICLE SIGNALS
- 1, 2, 3, 4 NUMBER OF SIGNAL FACES  
(3 - SECTION, UNLESS OTHERWISE INDICATED)
- A, B, C, D CONFIGURATION OF SIGNALS

NOTES:

1. Mountings shall be oriented to provide maximum horizontal clearance to adjacent roadway.
2. Bracket arms shall be long enough to permit proper alignment of signals and backplate installation.
3. See Standard Plans ES-4D and ES-4E for attachment fitting details.

PLAN VIEW OF TOP MOUNTINGS



TOP MOUNTINGS

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**ELECTRICAL SYSTEMS  
 (VEHICULAR SIGNAL HEADS  
 AND MOUNTINGS)**

NO SCALE

RSP ES-4A DATED JULY 19, 2013 SUPERSEDES STANDARD PLAN ES-4A  
 DATED MAY 20, 2011 - PAGE 443 OF THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP ES-4A**

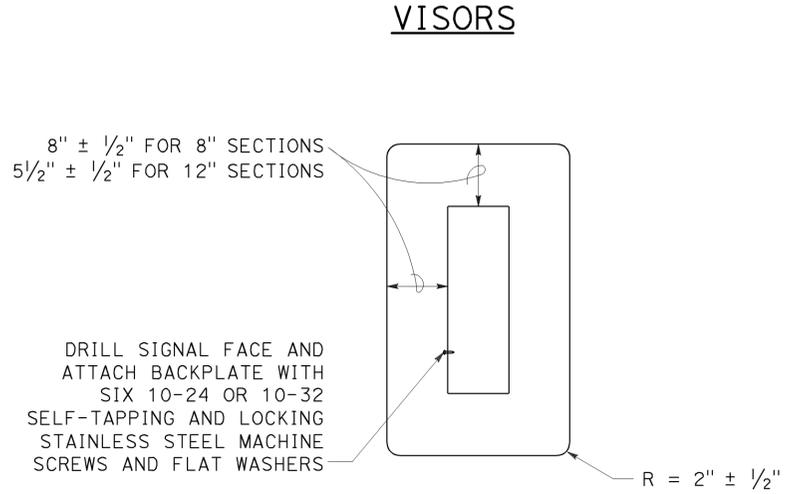
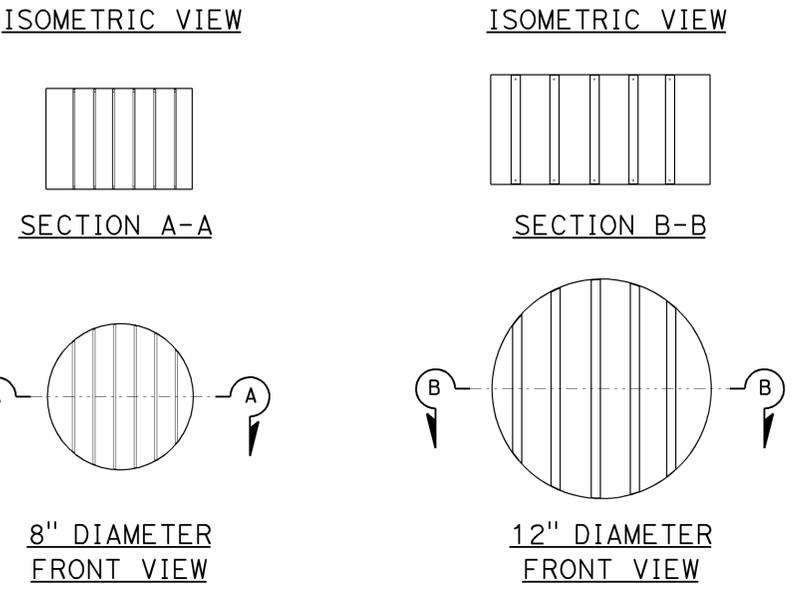
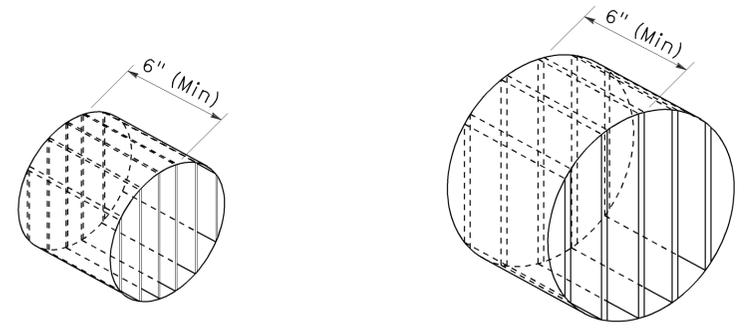
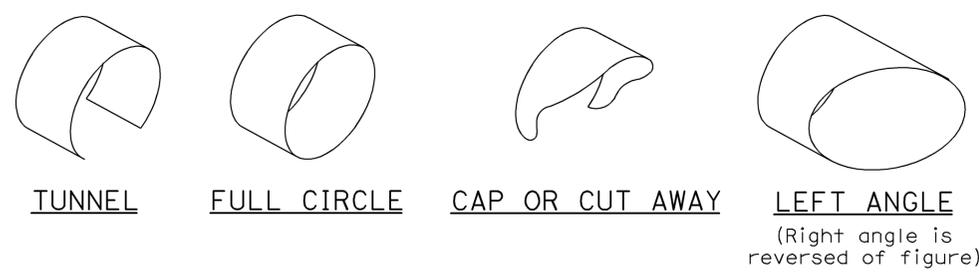
2010 REVISED STANDARD PLAN RSP ES-4A

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	63	83

Theresa Gabriel  
 REGISTERED ELECTRICAL ENGINEER  
 July 19, 2013  
 PLANS APPROVAL DATE  
 Theresa Aziz Gabriel  
 No. E15129  
 Exp. 6-30-14  
 ELECTRICAL  
 STATE OF CALIFORNIA

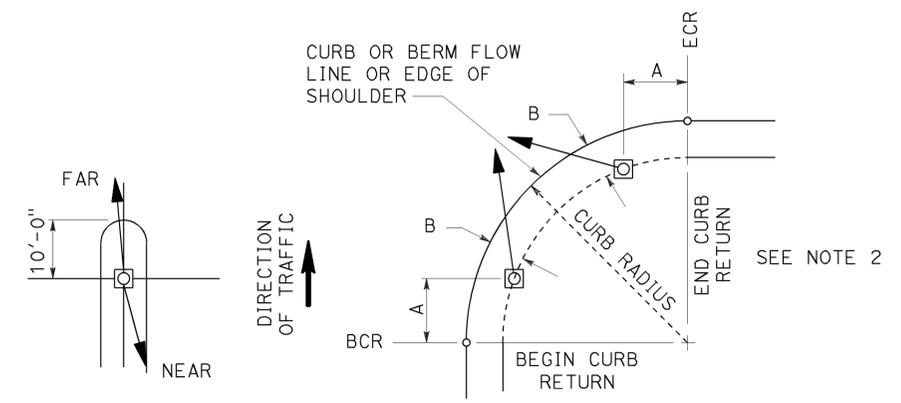
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TO ACCOMPANY PLANS DATED 7-28-14



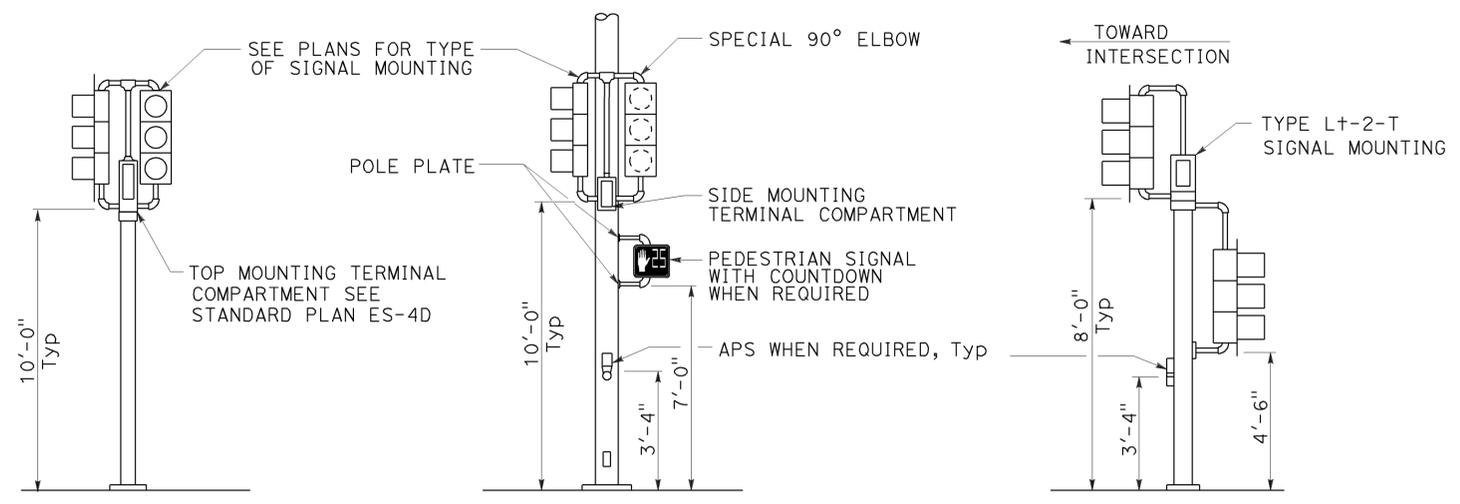
**8" AND 12" SECTIONS**  
**BACKPLATE**  
 1/16" minimum thickness  
 3001-14 aluminum or plastic when specified

**DIRECTIONAL LOUVER**  
 Directional louvers shall be oriented as directed by the Engineer and secured in place with one plated brass machine screw and nut.



- NOTES:**
1. Typical signal pole placement unless dimensioned on plans.
  2. For A and B dimensions, see Pole Schedule, or as directed by the Engineer.

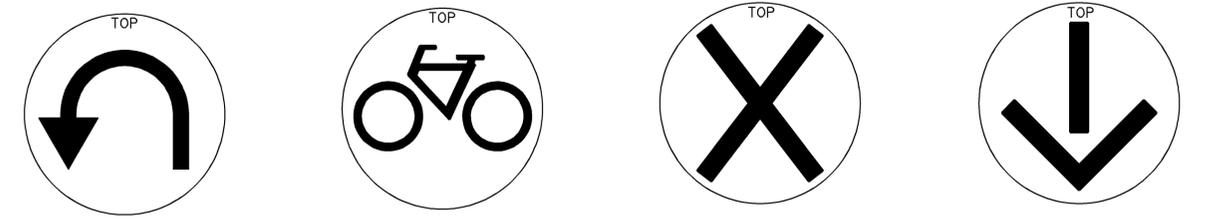
**SIGNAL STANDARD PLACEMENT DIMENSIONS AND EQUIPMENT LOCATIONS**



**TOP MOUNTED SIGNALS (TV)**  
 Type 1-A, 1-B, 1-C and 1-D standard as indicated on the plans

**SIDE MOUNTED SIGNALS (SV AND SP)**  
 Normally used on standards with luminaire or signal mast arm

**LEFT TURN LANE SIGNAL**  
 Type 1-A, 1-B, 1-C and 1-D standard as indicated on plans



**SIGNAL FACES**

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**ELECTRICAL SYSTEMS (VEHICULAR SIGNAL HEADS AND MOUNTINGS)**

**TYPICAL SIGNAL INSTALLATIONS**

NO SCALE  
 RSP ES-4C DATED JULY 19, 2013 SUPERSEDES STANDARD PLAN ES-04C DATED MAY 20, 2011 - PAGE 445 OF THE STANDARD PLANS BOOK DATED 2010.  
**REVISED STANDARD PLAN RSP ES-4C**

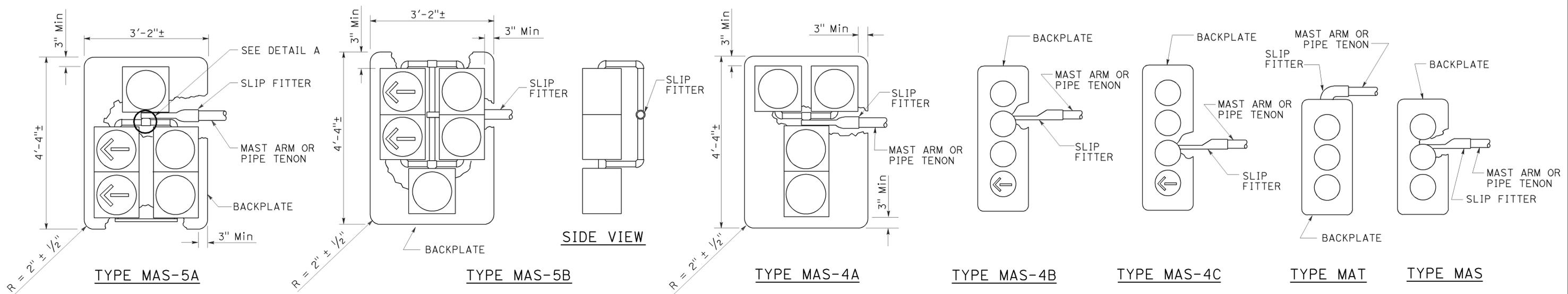
2010 REVISED STANDARD PLAN RSP ES-4C

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	64	83

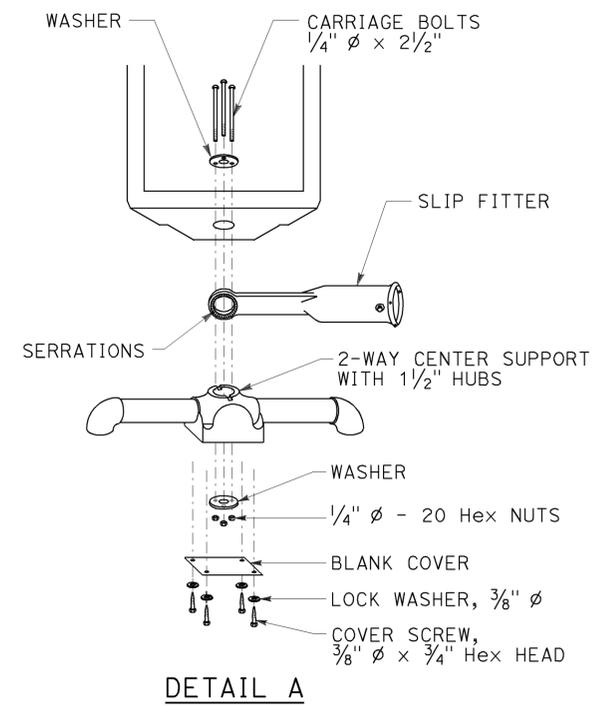
*Theresa Gabriel*  
 REGISTERED ELECTRICAL ENGINEER  
 July 19, 2013  
 PLANS APPROVAL DATE  
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

REGISTERED PROFESSIONAL ENGINEER  
 Theresa Aziz Gabriel  
 No. E15129  
 Exp. 6-30-14  
 ELECTRICAL  
 STATE OF CALIFORNIA

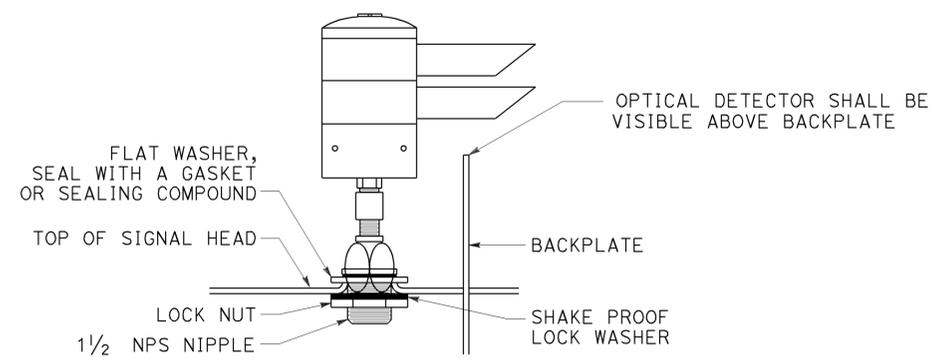
TO ACCOMPANY PLANS DATED 7-28-14



**MAST ARM MOUNTINGS**



**DETAIL A**



**DETAIL B**

**OPTICAL DETECTOR MOUNTING FOR EMERGENCY VEHICLE DETECTION SYSTEM**

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**ELECTRICAL SYSTEMS  
(VEHICULAR SIGNAL HEADS AND  
OPTICAL DETECTOR MOUNTING)**

NO SCALE

RSP ES-4E DATED JULY 19, 2013 SUPERSEDES STANDARD PLAN ES-4E DATED MAY 20, 2011 - 447 OF THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP ES-4E**

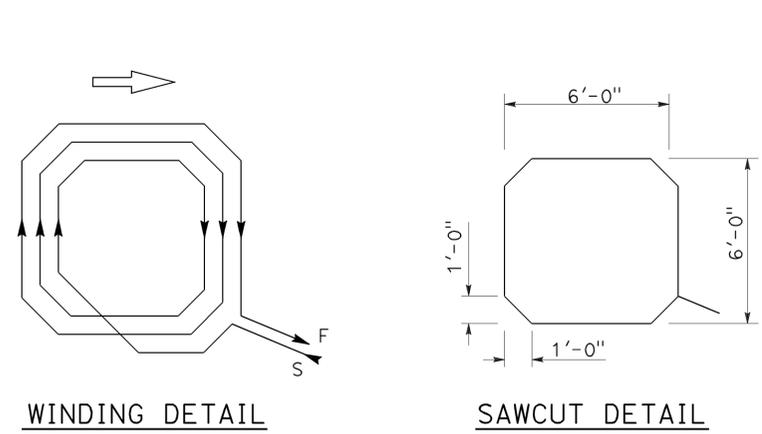
2010 REVISED STANDARD PLAN RSP ES-4E

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	65	83

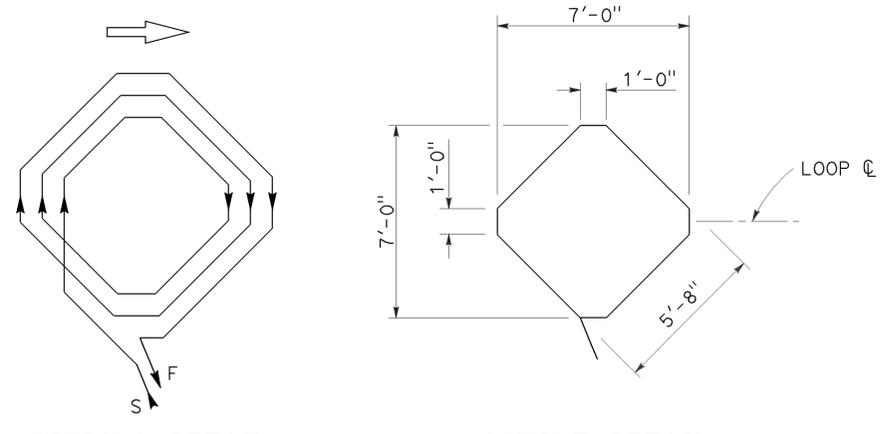
*Theresa Gabriel*  
 REGISTERED ELECTRICAL ENGINEER  
 July 19, 2013  
 PLANS APPROVAL DATE  
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

REGISTERED PROFESSIONAL ENGINEER  
 Theresa Aziz Gabriel  
 No. E15129  
 Exp. 6-30-14  
 ELECTRICAL  
 STATE OF CALIFORNIA

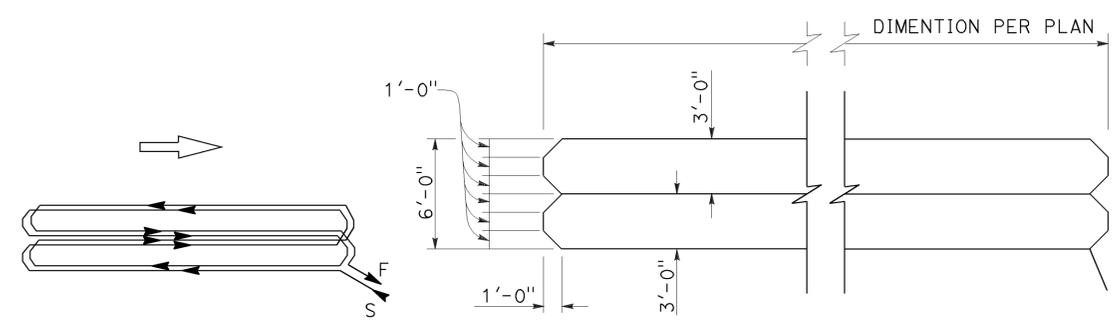
TO ACCOMPANY PLANS DATED 7-28-14



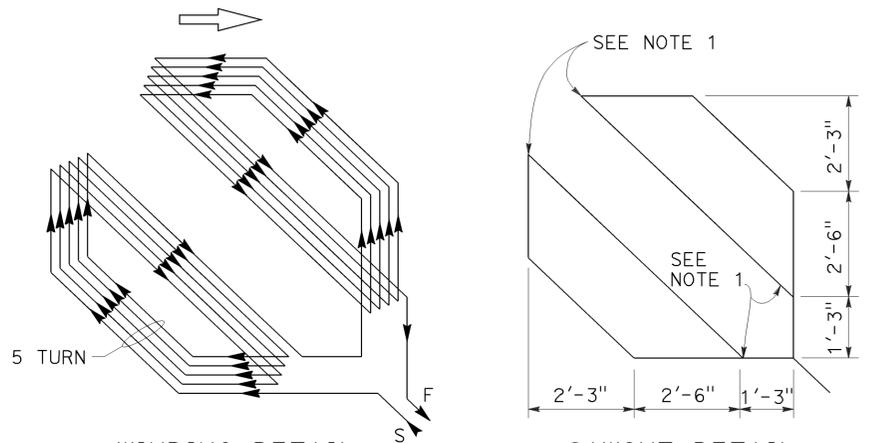
WINDING DETAIL  
SAWCUT DETAIL  
**TYPE A LOOP DETECTOR CONFIGURATION**



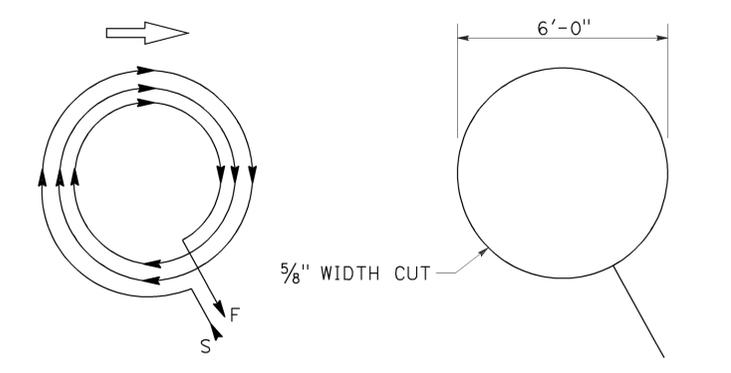
WINDING DETAIL  
SAWCUT DETAIL  
**TYPE B LOOP DETECTOR CONFIGURATION**



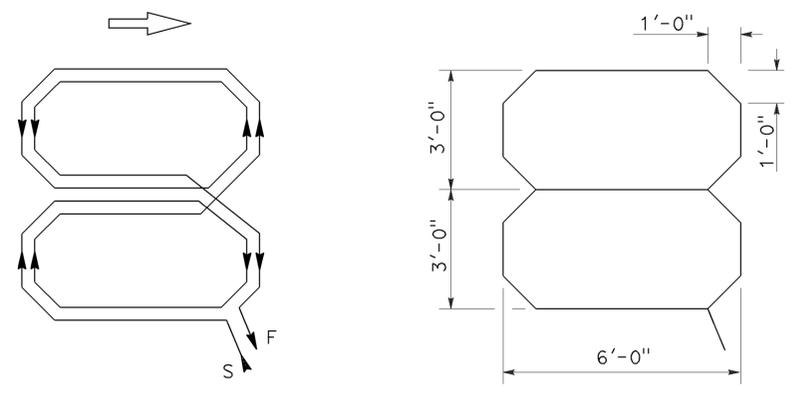
WINDING DETAIL  
SAWCUT DETAIL  
**TYPE C LOOP DETECTOR CONFIGURATION**



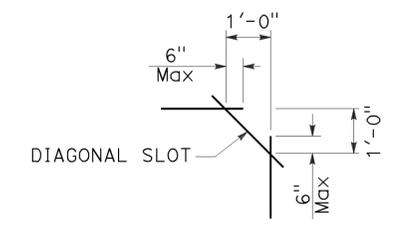
WINDING DETAIL  
SAWCUT DETAIL  
**TYPE D LOOP DETECTOR CONFIGURATION**



WINDING DETAIL  
SAWCUT DETAIL  
**TYPE E LOOP DETECTOR CONFIGURATION**



WINDING DETAIL  
SAWCUT DETAIL  
**TYPE Q LOOP DETECTOR CONFIGURATION**



**PLAN VIEW OF DIAGONAL SLOT AT CORNERS**

- NOTES:**
1. Round corners of acute angle sawcuts to prevent damage to conductors.
  2. Typical distance separating loops from edge to edge is 10' for Type A, B, D and E installation in single lane.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**ELECTRICAL SYSTEMS (DETECTORS)**  
NO SCALE

RSP ES-5B DATED JULY 19, 2013 SUPERSEDES STANDARD PLAN ES-5B DATED MAY 20, 2011 - PAGE 449 OF THE STANDARD PLANS BOOK DATED 2010.

**2010 REVISED STANDARD PLAN RSP ES-5B**

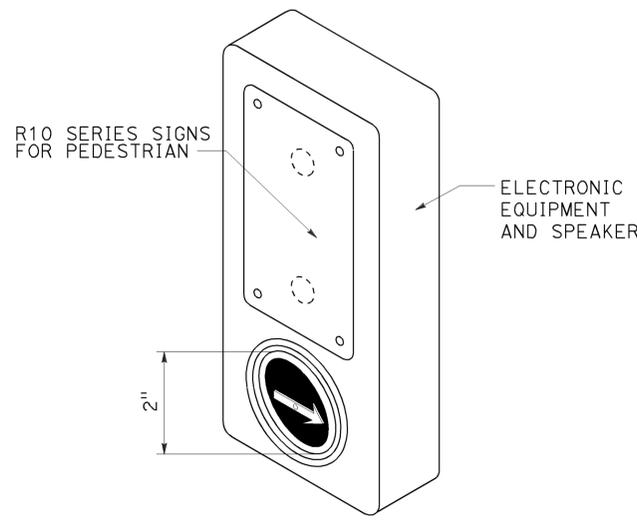
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	66	83

*Theresa Gabriel*  
 REGISTERED ELECTRICAL ENGINEER  
 July 19, 2013  
 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.

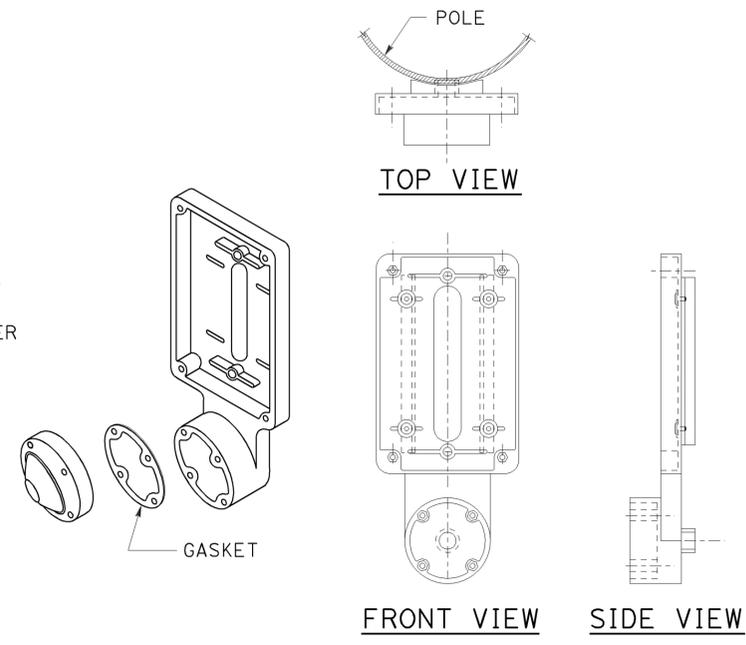
TO ACCOMPANY PLANS DATED 7-28-14

**NOTES:**

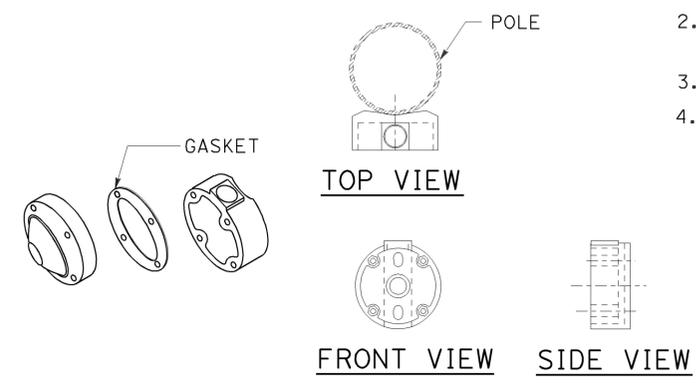
1. Back casting shape to fit curvature of pole.
2. Provide cover fitting for top of post, when PBA is mounted on push button assembly post.
3. Install push button on crosswalk side of standard.
4. Use R10 series regulatory signs and plaques for pedestrian and bicycle facilities.



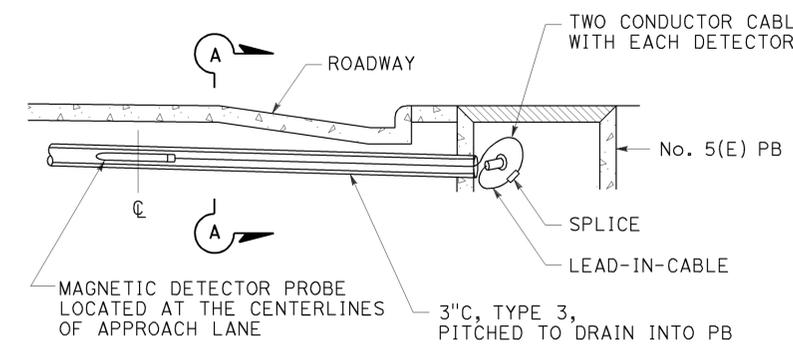
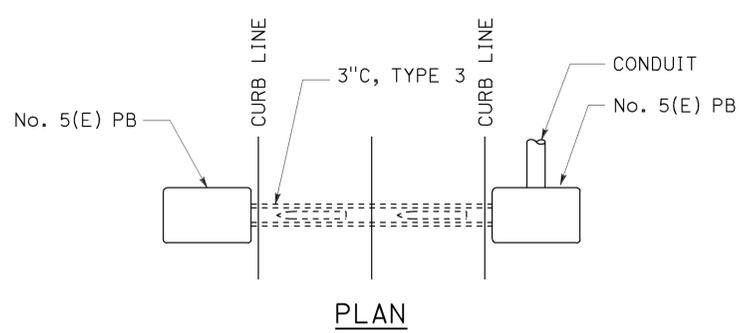
**ACCESSIBLE PEDESTRIAN SIGNAL**  
**DETAIL A**  
 (See note 1 to 4)



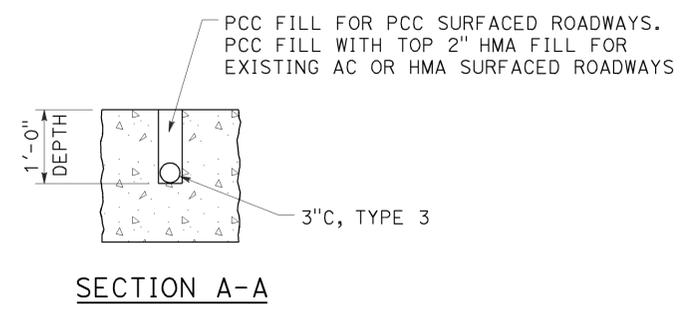
**TYPE B PUSH BUTTON ASSEMBLY**  
**DETAIL B**  
 (See note 1 to 4)



**TYPE C PUSH BUTTON ASSEMBLY**  
**DETAIL C**  
 (See note 1 to 4)



**MAGNETIC VEHICLE DETECTOR**  
**INSTALLATION DETAILS**  
**DETAIL D**



STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**ELECTRICAL SYSTEMS**  
**(ACCESSIBLE PEDESTRIAN SIGNAL,**  
**PUSH BUTTON ASSEMBLIES AND**  
**MAGNETIC VEHICLE DETECTOR)**  
 NO SCALE

RSP ES-5C DATED JULY 19, 2013 SUPERSEDES STANDARD PLAN ES-5C DATED MAY 20, 2011 - PAGE 450 OF THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP ES-5C**

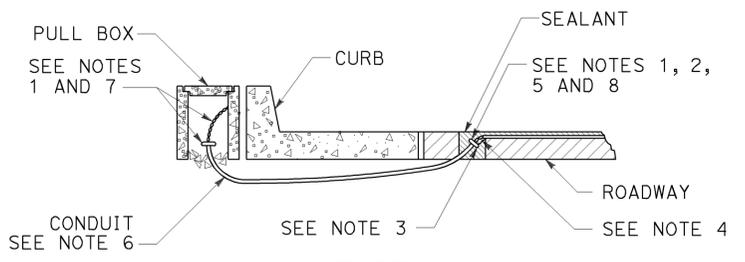
2010 REVISED STANDARD PLAN RSP ES-5C

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	67	83

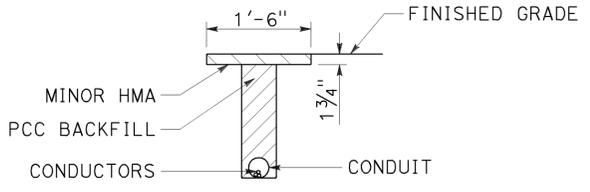
*Theresa Gabriel*  
 REGISTERED ELECTRICAL ENGINEER  
 July 19, 2013  
 PLANS APPROVAL DATE  
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

REGISTERED PROFESSIONAL ENGINEER  
 Theresa Aziz Gabriel  
 No. E15129  
 Exp. 6-30-14  
 ELECTRICAL  
 STATE OF CALIFORNIA

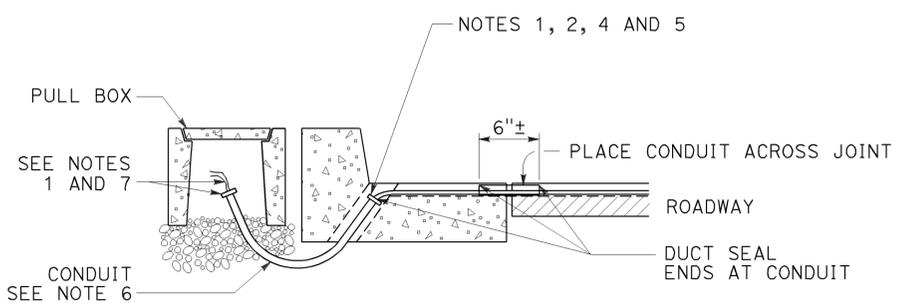
TO ACCOMPANY PLANS DATED 7-28-14



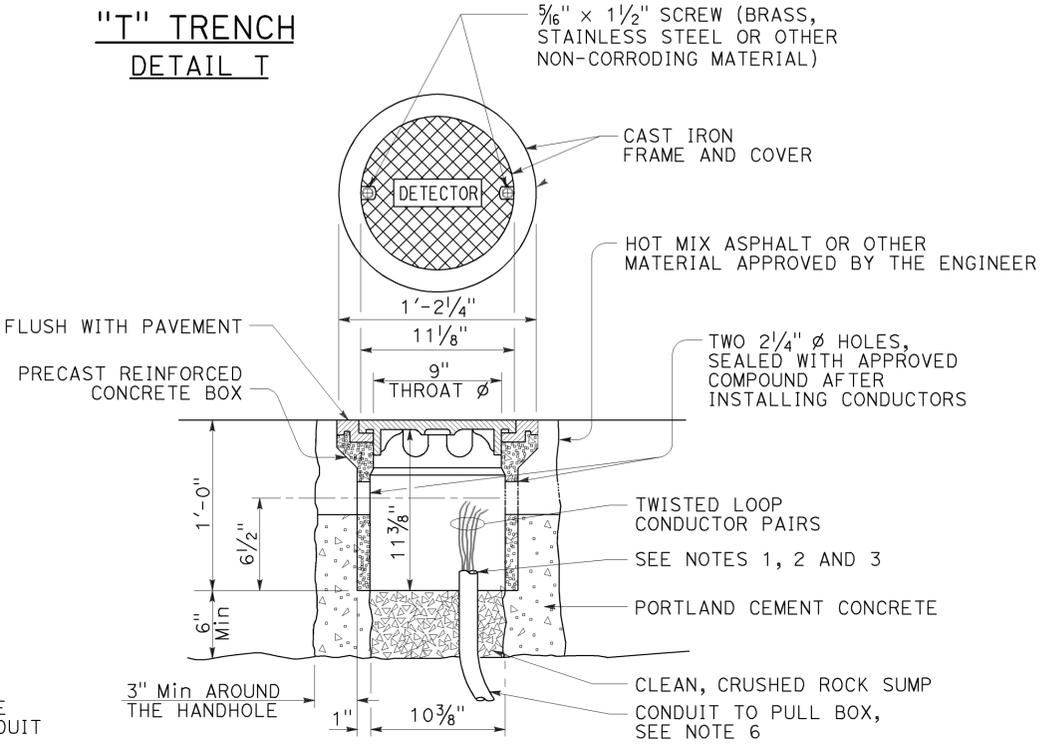
**TYPE A  
CURB TERMINATION DETAIL**



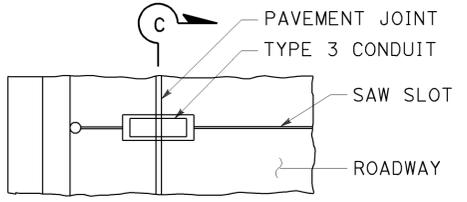
**"T" TRENCH  
DETAIL I**



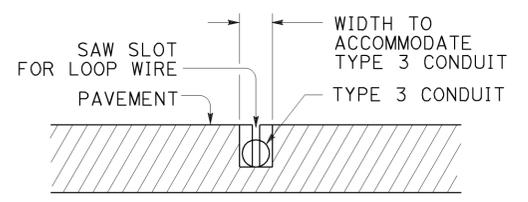
**CROSS SECTION**



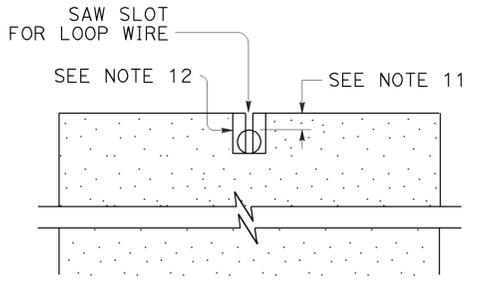
**DETECTOR HANDHOLE DETAIL**



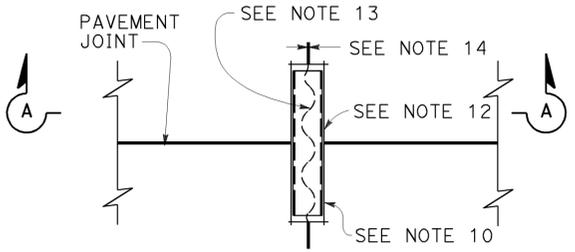
**PLAN VIEW**



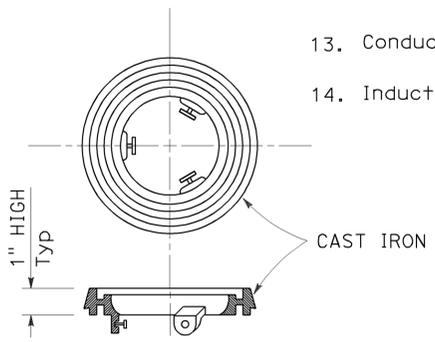
**SECTION C-C**



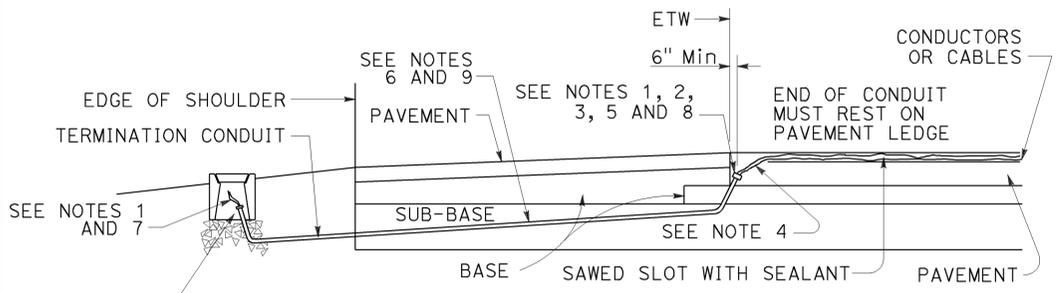
**SECTION A-A**



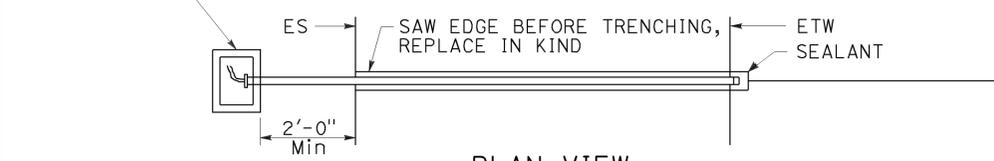
**PLAN VIEW  
TYPICAL LOOP LEAD-IN DETAIL  
AT PAVEMENT JOINT**



**LOCKING GRADE RING**



**CROSS SECTION**



**PLAN VIEW  
SHOULDER TERMINATION DETAILS**

**NOTES:**

- Bushing shall be used at end of conduit.
- Tape detector conductors or cables 3" each side of bushings.
- Install duct seal compound to each end of termination conduit before installing sealant.
- Round all sharp edges where detector conductors or cables have to pass.
- End of conduit shall be 3/8" below roadway surface.
- |                 |                 |
|-----------------|-----------------|
| Conduit size    | Loop conductors |
| 1"C minimum     | 1 to 2 pairs    |
| 1 1/2"C minimum | 3 to 4 pairs    |
| 2"C minimum     | 5 or more pairs |
- Splice detector conductors or cables to detector lead-in-cable.
- Location of detector handhole when shown on plans.
- When the shoulder and traveled way are paved with the same material and there is no joint between them, the conduit shall extend only 2'-0" into the shoulder pavement.
- 3/4"C, Type 3 conduit 6" long minimum, plug both ends with duct compound to keep out sealant.
- 1/2" Minimum between top of conduit and pavement surface.
- Sawcut shall not exceed 1" in width and 1/8" longer than conduit to be installed.
- Conductors with 1/2" minimum slack inside conduit.
- Inductive loop detector saw slot.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**ELECTRICAL SYSTEMS  
(CURB TERMINATION  
AND HANDHOLE)**  
NO SCALE

RSP ES-5D DATED JULY 19, 2013 SUPERSEDES STANDARD PLAN ES-5D DATED MAY 20, 2011 - PAGE 451 OF THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP ES-5D**

2010 REVISED STANDARD PLAN RSP ES-5D

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	68	83

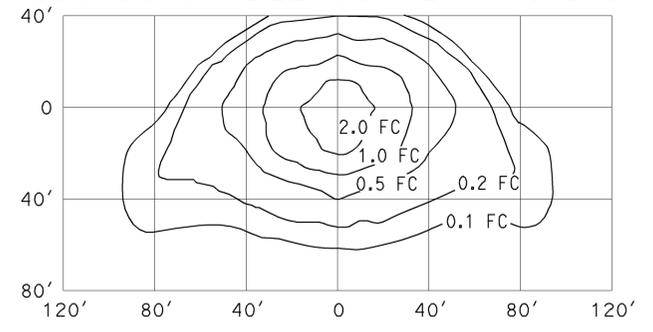
*Theresa Gabriel*  
 REGISTERED ELECTRICAL ENGINEER  
 No. E15129  
 Exp. 6-30-14  
 ELECTRICAL  
 STATE OF CALIFORNIA

July 19, 2013  
 PLANS APPROVAL DATE

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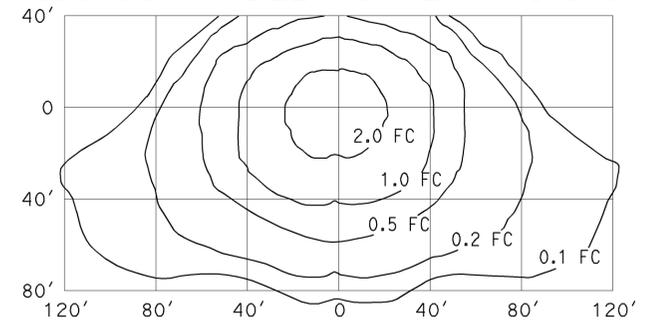
TO ACCOMPANY PLANS DATED 7-28-14

**ISOFOOTCANDLE CURVE - MINIMUM**



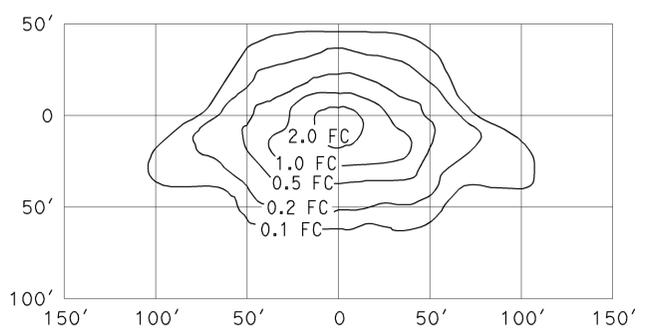
**TYPE III MEDIUM CUTOFF**  
 Cutoff Luminaire  
 34' Mounting Height  
 Lamp operated at 22,000 lm  
 200-W high pressure sodium lamp  
 ANSI Designation S66

**ISOFOOTCANDLE CURVE - MINIMUM**



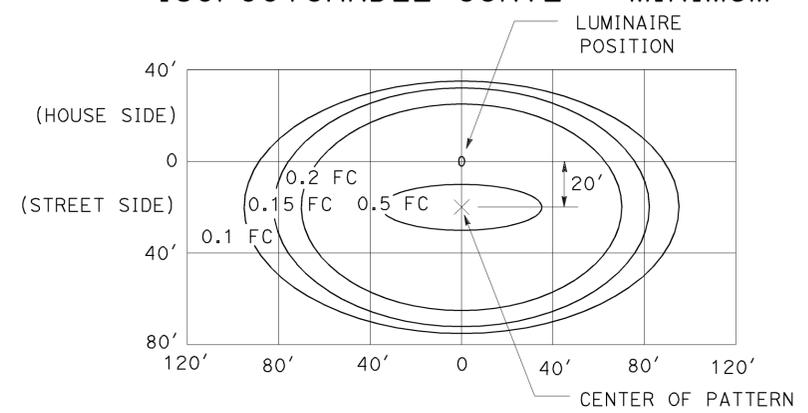
**TYPE III MEDIUM CUTOFF**  
 Cutoff Luminaire  
 40' Mounting Height  
 Lamp operated at 37,000 lm  
 310-W high pressure sodium lamp  
 ANSI Designation S67

**ISOFOOTCANDLE CURVE - MINIMUM**



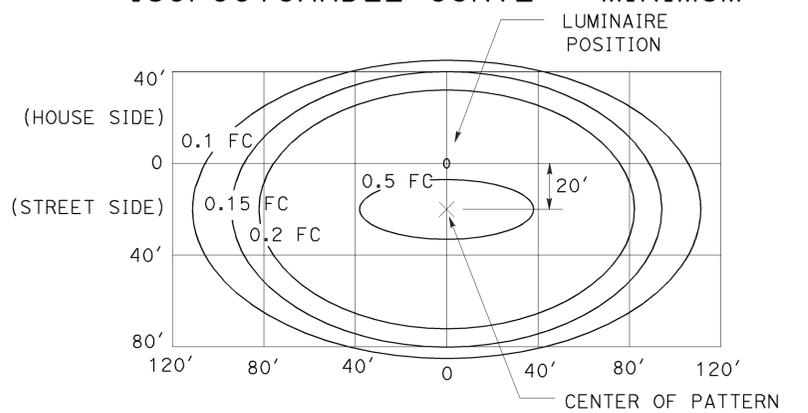
**TYPE III MEDIUM CUTOFF**  
 Cutoff Luminaire  
 30' Mounting Height  
 Lamp operated at 16,000 lm  
 150-W high pressure sodium lamp  
 ANSI Designation S55

**ISOFOOTCANDLE CURVE - MINIMUM**



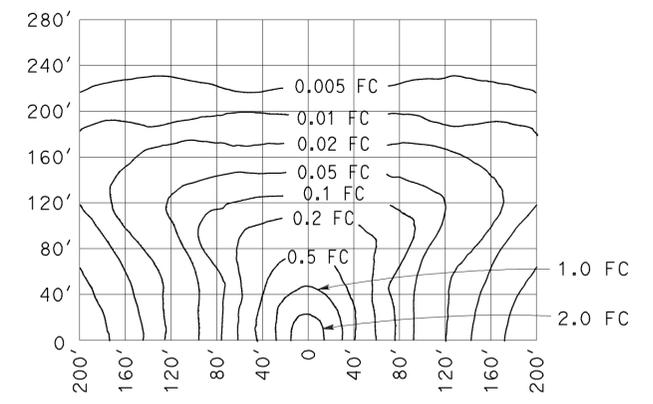
**LED LUMINAIRE ROADWAY 1**  
 165-W at 34' Mounting Height

**ISOFOOTCANDLE CURVE - MINIMUM**



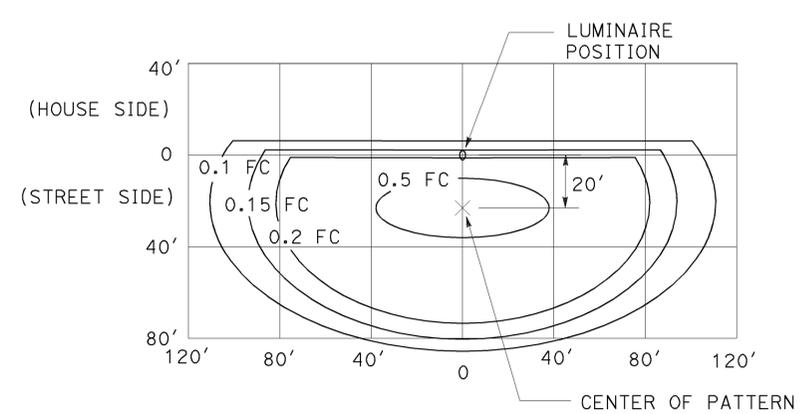
**LED LUMINAIRE ROADWAY 2**  
 235-W at 40' Mounting Height

**ISOFOOTCANDLE CURVE - MINIMUM**



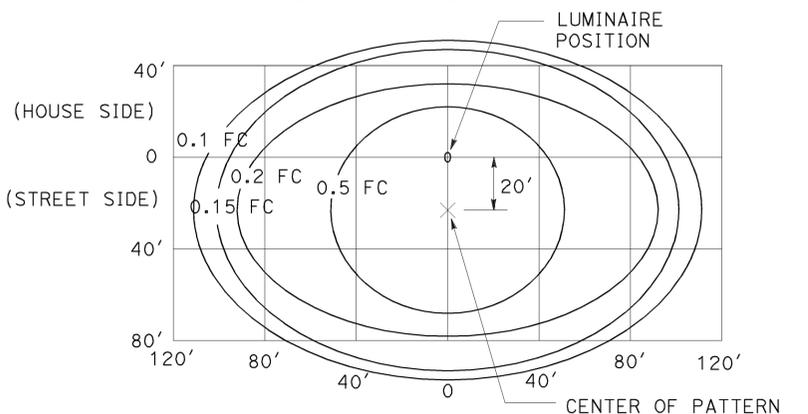
**LOW PRESSURE SODIUM LUMINAIRE**  
 40' Mounting Height  
 Lamp operated at 33,000 lm  
 180-W low pressure sodium lamp

**ISOFOOTCANDLE CURVE - MINIMUM**



**LED LUMINAIRE ROADWAY 3**  
 235-W at 40' Mounting Height  
 with back side control

**ISOFOOTCANDLE CURVE - MINIMUM**

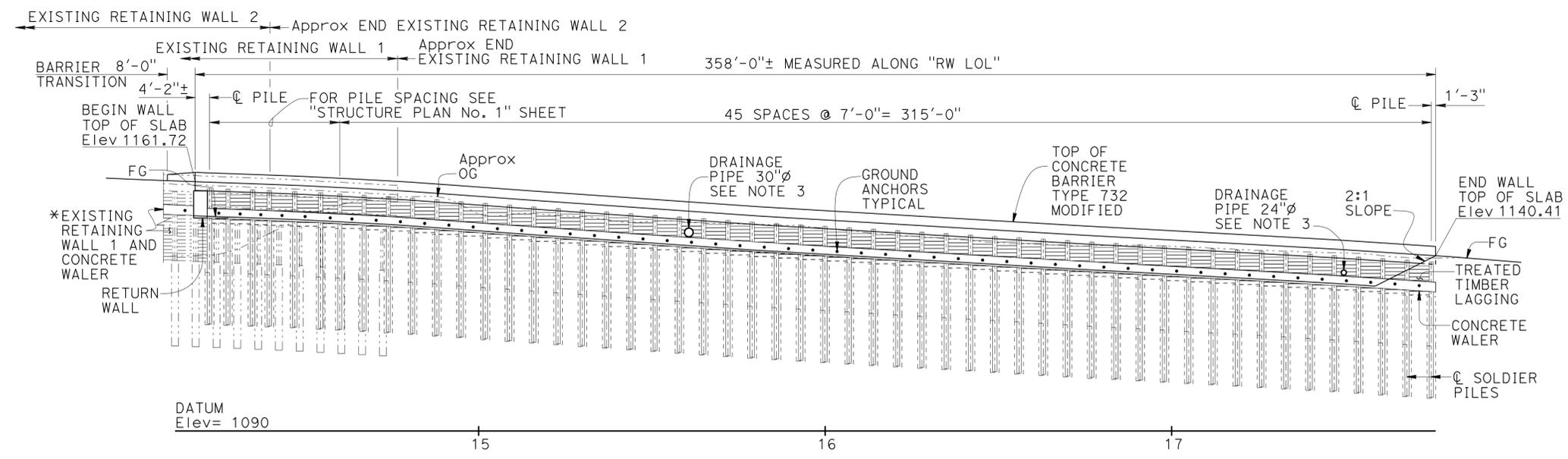


**LED LUMINAIRE ROADWAY 4**  
 300-W at 40' Mounting Height

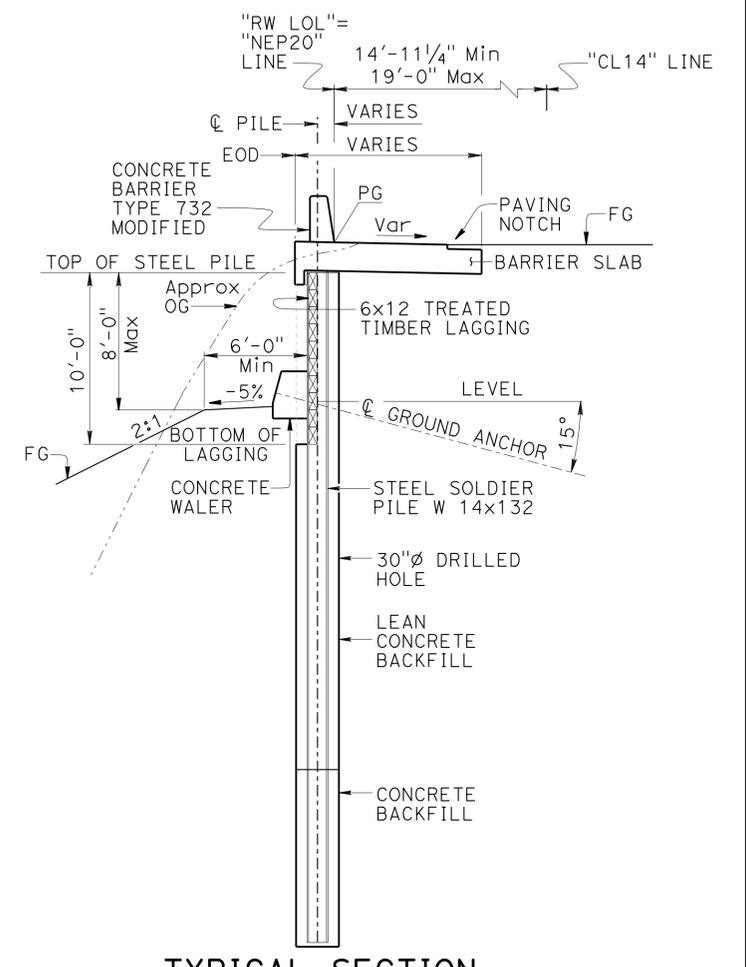
STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**ELECTRICAL SYSTEMS  
 (ISOFOOTCANDLE DIAGRAMS)**

NO SCALE  
 RSP ES-10A DATED JULY 19, 2013 SUPERSEDES RSP ES-10A DATED JULY 20, 2012  
 THAT SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.

2010 REVISED STANDARD PLAN RSP ES-10A



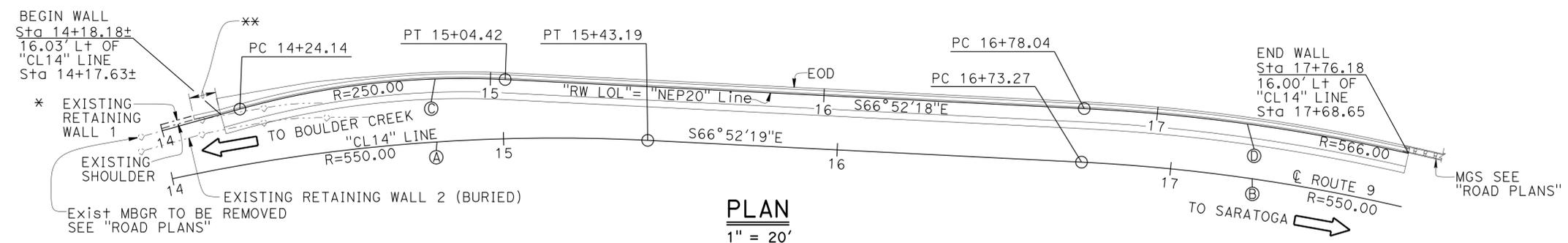
**DEVELOPED MIRRORED ELEVATION**  
1" = 20'



**TYPICAL SECTION**  
3/16" = 1'-0"

QUANTITIES

LEAD COMPLIANCE PLAN	LUMP	SUM
REMOVE RETAINING WALL (PORTION)	LUMP	SUM
REMOVE CONCRETE BARRIER	74	LF
STRUCTURE EXCAVATION (SOLDIER PILE WALL)	320	CY
STRUCTURE BACKFILL (SOLDIER PILE WALL)	70	CY
CONCRETE BACKFILL (SOLDIER PILE WALL)	137	CY
LEAN CONCRETE BACKFILL	212	CY
GROUND ANCHOR (SUBHORIZONTAL)	51	EA
30" DRILLED HOLE	2,045	LF
STEEL SOLDIER PILE (W 14 X 132)	2,045	LF
STRUCTURAL CONCRETE, BARRIER SLAB	175	CY
STRUCTURAL CONCRETE, WALER	69	CY
BAR REINFORCING STEEL (WALER)	20,550	LB
TIMBER LAGGING	21	MFBM
CLEAN AND PAINT STEEL SOLDIER PILING	LUMP	SUM
CONCRETE BARRIER (TYPE 732 MODIFIED)	366	LF



**PLAN**  
1" = 20'

CURVE DATA

No.	R	Δ	T	L
(A)	550.00	18° 36' 33"	90.11	178.64
(B)	550.00	19° 01' 23"	92.15	182.61
(C)	250.00	18° 23' 56"	40.49	80.28
(D)	566.00	19° 01' 23"	94.83	187.92

- LEGEND:
- Indicates Existing
  - Indicates New Construction
  - \* For Existing Barrier, Retaining Wall and Waler removal Details see "REMOVAL DETAILS" Sheet
  - \*\* Barrier Transition, See "CONCRETE BARRIER SLAB DETAILS" Sheet

- NOTES:
- For "INDEX TO PLANS", "PILE AND GROUND ANCHOR DATA TABLE" and "STANDARD PLANS" List see "INDEX TO PLANS" Sheet.
  - For "GENERAL NOTES" see "SOLDIER PILE WALL WITH WALERS-DETAILS NO. 2" Sheet.
  - For Drainage see "ROAD PLANS"

NOTE:  
THE CONTRACTOR MUST VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

DESIGN ENGINEER Gordon Danke	DESIGN	BY R. Candiotti	CHECKED P. Norboe	LOAD & RESISTANCE FACTOR DESIGN	LIVE LOADING: HL93 W/"LOW-BOY"; PERMIT DESIGN VEHICLE	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 9	BRIDGE NO.	SARATOGA CREEK WALL
	DETAILS	BY Tim Fairall	CHECKED P. Norboe	LAYOUT	BY Tim Fairall			CHECKED R. Candiotti	
QUANTITIES	BY R. Candiotti	CHECKED P. Norboe	SPECIFICATIONS	BY Sirisha Nelapatla	PLANS AND SPECS COMPARED	Sirisha Nelapatla	POST MILE	4.16	

UNIT: 3594  
PROJECT NUMBER & PHASE: 04000012021  
CONTRACT NO.: 04-4S0504

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES	SHEET	OF
7-2-14	1	15

STRUCUTRES DESIGN GENERAL PLAN SHEET (ENGLISH) (REV.09-01-10)  
FILE => 37e0104-a-gp01.dgn

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	70	83

Rosa M. Cardiotti 5-14-14  
REGISTERED CIVIL ENGINEER DATE

7-28-14  
PLANS APPROVAL DATE

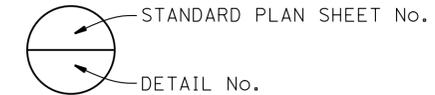
REGISTERED PROFESSIONAL ENGINEER  
ROSA CANDIOTTI  
No. 64626  
Exp. 6-30-15  
CIVIL  
STATE OF CALIFORNIA

The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

PILE AND GROUND ANCHOR DATA TABLE							
Station Along "NEP20"	Pile No.	Profile Grade Elevation	Normal Distance From "EP12" to EOD	Bottom of Drilled Hole Elev (ft)	Pile Section	Ground Anchors	
						(Kips)	Unbonded Length (ft)
14+22.35	1	1161.57	4.47'	1120.59	W14x132	115	50
14+27.68	2	1161.38	3.96'	1120.40	W14x132	115	50
14+34.68	3	1161.13	3.46'	1120.15	W14x132	115	50
14+39.60	4	1160.95	3.23'	1119.97	W14x132	115	50
14+46.93	5	1160.68	3.00'	1119.70	W14x132	115	50
14+54.43	6	1160.31	2.51'	1119.41	W14x132	115	50
14+59.93	7	1160.03	2.21'	1119.05	W14x132	115	50
14+66.93	8	1159.66	2.00'	1118.68	W14x132	115	50
14+73.93	9	1159.28	2.00'	1118.30	W14x132	115	50
14+80.93	10	1158.86	2.00'	1117.88	W14x132	115	50
14+87.93	11	1158.37	2.00'	1117.39	W14x132	115	50
14+94.93	12	1157.87	2.00'	1116.89	W14x132	115	50
15+01.93	13	1157.36	2.00'	1116.38	W14x132	115	50
15+08.93	14	1156.85	2.00'	1115.87	W14x132	115	50
15+15.93	15	1156.34	2.00'	1115.36	W14x132	115	50
15+22.93	16	1155.86	2.00'	1114.88	W14x132	115	50
15+29.93	17	1155.37	2.00'	1114.39	W14x132	115	50
15+36.93	18	1154.88	2.00'	1113.90	W14x132	115	50
15+43.93	19	1154.40	2.00'	1113.42	W14x132	115	50
15+50.93	20	1153.91	2.00'	1112.93	W14x132	115	50
15+57.93	21	1153.43	2.00'	1112.45	W14x132	115	50
15+64.93	22	1152.94	2.00'	1111.96	W14x132	115	50
15+71.93	23	1152.45	2.00'	1111.47	W14x132	115	50
15+78.93	24	1151.95	2.00'	1110.97	W14x132	115	50
15+85.93	25	1151.53	2.00'	1110.55	W14x132	115	50
15+92.93	26	1151.12	2.00'	1110.14	W14x132	115	50
15+99.93	27	1150.71	2.00'	1109.73	W14x132	115	50
16+06.93	28	1150.30	2.00'	1109.32	W14x132	115	50
16+13.93	29	1149.89	2.00'	1108.91	W14x132	115	50
16+20.93	30	1149.47	2.00'	1108.49	W14x132	115	50
16+27.93	31	1149.06	2.00'	1108.08	W14x132	115	50
16+34.93	32	1148.65	2.00'	1107.67	W14x132	115	50
16+41.93	33	1148.24	2.00'	1107.26	W14x132	115	50
16+48.93	34	1147.82	2.00'	1106.84	W14x132	115	50
16+55.93	35	1147.41	2.00'	1106.43	W14x132	115	50
16+62.93	36	1147.00	2.00'	1106.02	W14x132	115	50
16+69.93	37	1146.59	2.00'	1105.61	W14x132	115	50
16+76.93	38	1146.19	2.00'	1105.21	W14x132	115	50
16+83.93	39	1145.81	2.00'	1104.83	W14x132	115	50
16+90.93	40	1145.43	2.00'	1104.45	W14x132	115	50
16+97.93	41	1145.05	2.00'	1104.07	W14x132	115	50
17+04.93	42	1144.67	2.00'	1103.69	W14x132	115	50
17+11.93	43	1144.28	2.00'	1103.30	W14x132	115	50
17+18.93	44	1143.89	2.00'	1102.91	W14x132	115	50
17+25.93	45	1143.50	2.00'	1102.52	W14x132	115	50
17+32.93	46	1143.11	2.00'	1102.13	W14x132	115	50
17+39.93	47	1142.72	2.00'	1101.74	W14x132	115	50
17+46.93	48	1142.32	2.00'	1101.34	W14x132	115	50
17+53.93	49	1141.88	2.00'	1100.90	W14x132	115	50
17+60.93	50	1141.42	2.00'	1100.44	W14x132	115	50
17+67.93	51	1140.95	2.00'	1099.97	W14x132	115	50
17+74.93	52	1140.49	2.00'	1099.51	W14x132	115	50

### STANDARD PLANS 2010

- A10A ABBREVIATIONS (SHEET 1 OF 2)
- RSP A10B ABBREVIATIONS (SHEET 2 OF 2)
- A10C LINES AND SYMBOLS (SHEET 1 OF 3)
- A10D LINES AND SYMBOLS (SHEET 2 OF 3)
- A10E LINES AND SYMBOLS (SHEET 3 OF 3)
- A10F LEGEND - SOIL (SHEET 1 OF 2)
- A10G LEGEND - SOIL (SHEET 2 OF 2)
- A10H LEGEND - ROCK
- A62B LIMITS OF PAYMENT FOR EXCAVATION AND BACKFILL BRIDGE SURCHARGE AND WALL
- RSP B11-55 CONCRETE BARRIER TYPE 732



### INDEX TO PLANS

SHEET No.	TITLE
1	GENERAL PLAN
2	INDEX TO PLANS
3	STRUCTURE PLAN No. 1
4	STRUCTURE PLAN No. 2
5	FOUNDATION PLAN
6	REMOVAL DETAILS
7	EXCAVATION AND BACKFILL DETAILS No. 1
8	EXCAVATION AND BACKFILL DETAILS No. 2
9	SOLDIER PILE WALL WITH WALERS DETAILS No. 1
10	SOLDIER PILE WALL WITH WALERS DETAILS No. 2
11	SOLDIER PILE WALL LAGGING DETAILS
12	SUB HORIZONTAL GROUND ANCHOR DETAILS
13	CONCRETE BARRIER SLAB LAYOUT
14	CONCRETE BARRIER SLAB DETAILS
15	LOG OF TEST BORINGS 1 OF 1

DESIGN	BY	R. Cardiotti	CHECKED	P. Norboe	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 9	BRIDGE NO.	37E0104	SARATOGA CREEK WALL INDEX TO PLANS	
	DETAILS	BY	Tim Fairall	CHECKED			P. Norboe	POST MILE		4.16
	QUANTITIES	BY	R. Cardiotti	CHECKED			P. Norboe			

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 09-01-10)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

0 1 2 3

UNIT: 3594  
PROJECT NUMBER & PHASE: 0400001201 CONTRACT NO.: 04-450504

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES	SHEET	OF
11-28-11	2	15

FILE => 37e0104-a-1+p.dgn

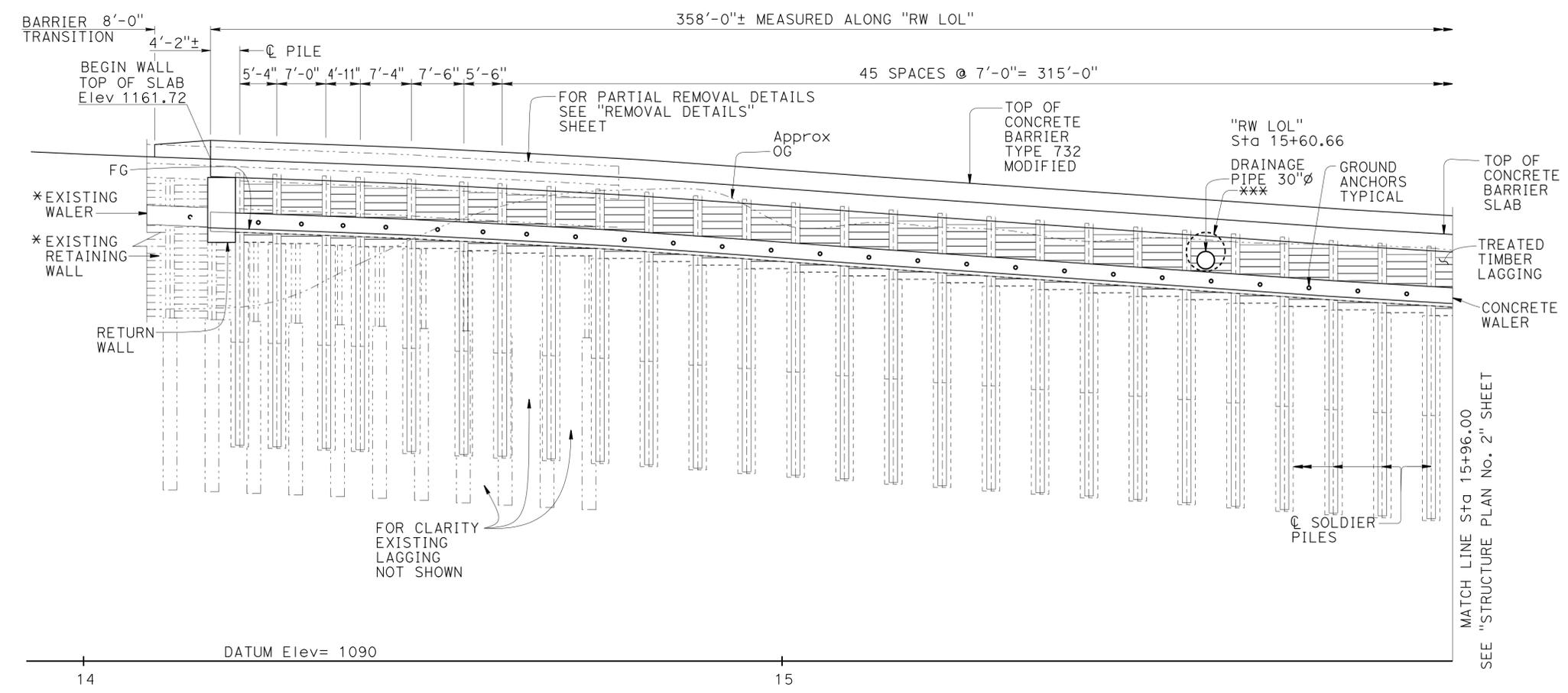
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	71	83

Rosa M Candiotti 7-2-14  
REGISTERED CIVIL ENGINEER DATE

7-28-14  
PLANS APPROVAL DATE

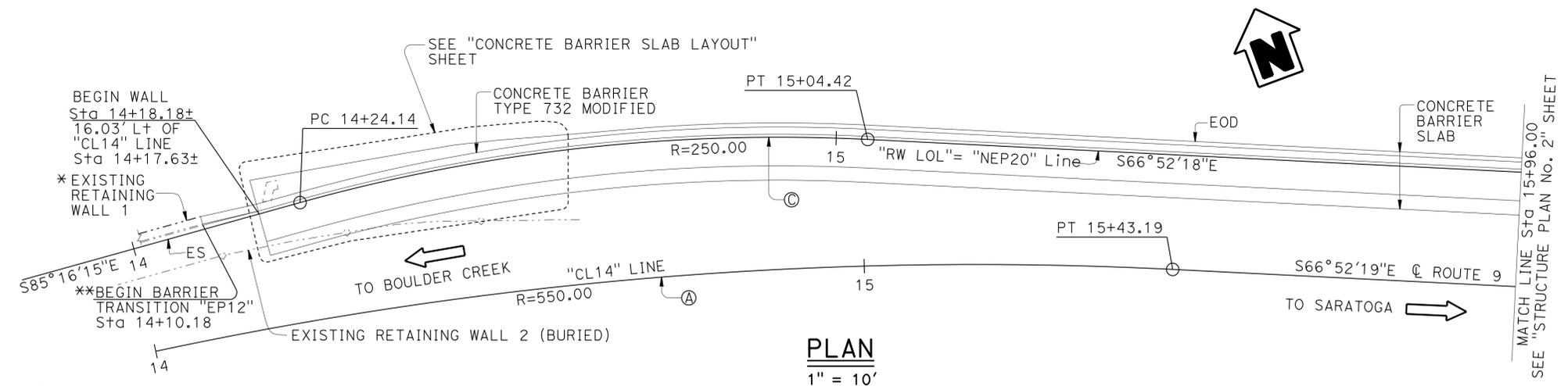
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REGISTERED PROFESSIONAL ENGINEER  
ROSA CANDIOTTI  
No. 64626  
Exp. 6-30-15  
CIVIL  
STATE OF CALIFORNIA



**DEVELOPED MIRRORED ELEVATION**

1" = 10'



**PLAN**

1" = 10'

**CURVE DATA**

No.	R	Δ	T	L
(A)	550.00	18°36'33"	90.11	178.64
(C)	250.00	18°23'56"	40.49	80.28

- LEGEND:**
- Indicates Existing
  - Indicates New Construction
  - \*\* For Barrier Transition Details see "CONCRETE BARRIER SLAB DETAILS" Sheet
  - \*\*\* For Drainage Details see "SOLDIER PILE WALL LAGGING DETAILS" Sheet
  - \* For Existing Barrier, Retaining Wall and Waler removal Details see "REMOVAL DETAILS" Sheet

**NOTE:**  
THE CONTRACTOR MUST VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

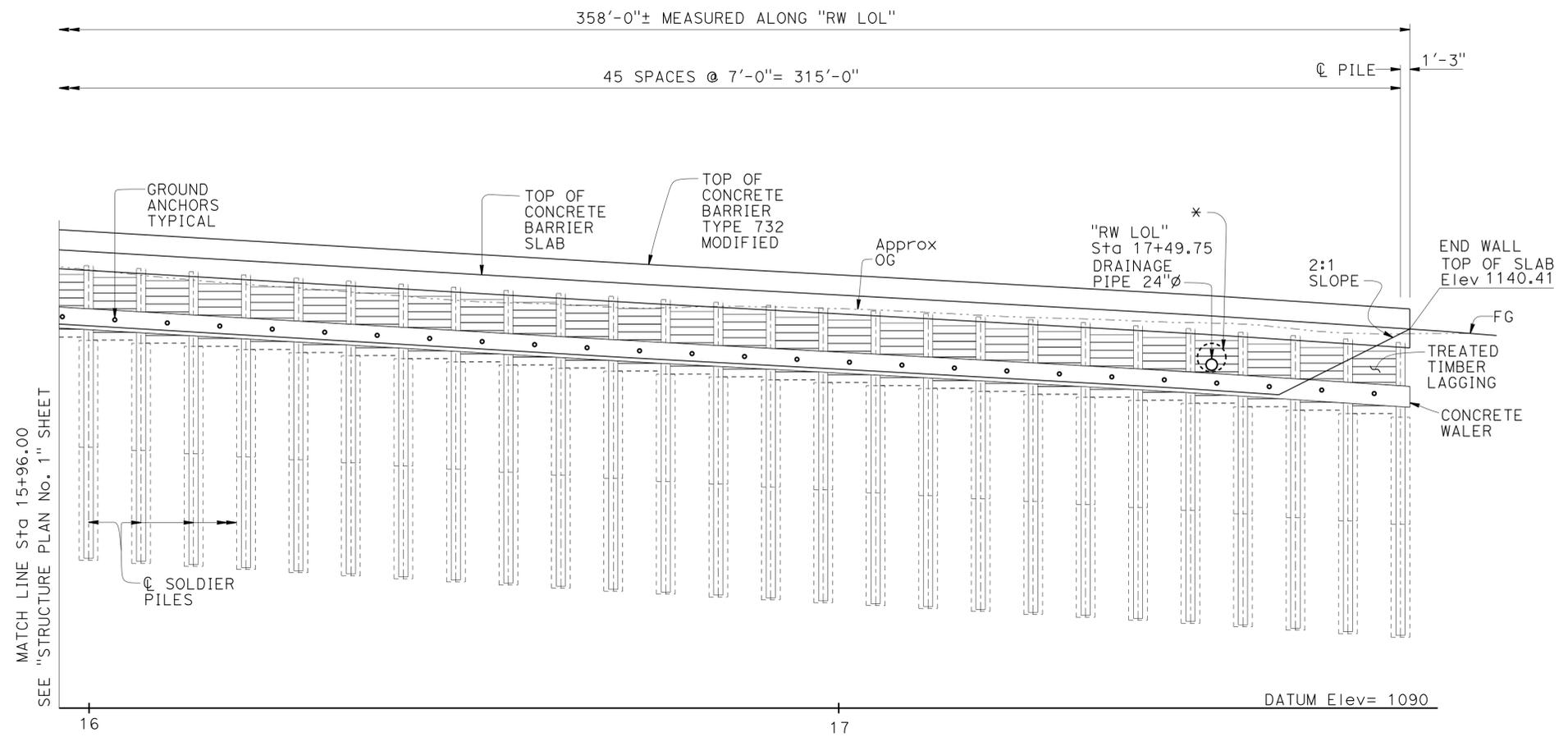
DESIGN	BY R. Candiotti	CHECKED P. Norboe	<b>STATE OF CALIFORNIA</b> DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN <b>DESIGN BRANCH 9</b>	BRIDGE NO.	<b>SARATOGA CREEK WALL</b> <b>STRUCTURE PLAN No. 1</b>				
DETAILS	BY Tim Fairall	CHECKED P. Norboe			37E0104					
QUANTITIES	BY R. Candiotti	CHECKED P. Norboe			POST MILE					
			UNIT: 3594	PROJECT NUMBER & PHASE: 04000012021	CONTRACT NO.: 04-450504	REVISION DATES				
STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 09-01-10)			ORIGINAL SCALE IN INCHES FOR REDUCED PLANS	0 1 2 3	DISREGARD PRINTS BEARING EARLIER REVISION DATES	<table border="1"> <tr> <td>7-28-14</td> <td>7-2-14</td> <td>3</td> <td>15</td> </tr> </table>	7-28-14	7-2-14	3	15
7-28-14	7-2-14	3	15							

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	72	83

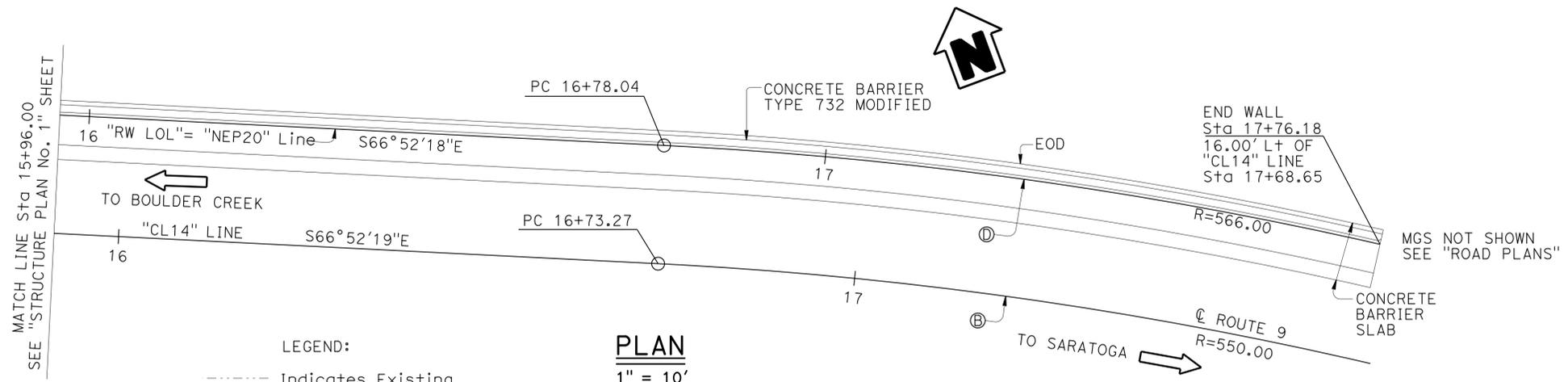
Rosa M. Candiotti 7-2-14  
 REGISTERED CIVIL ENGINEER DATE  
 7-28-14  
 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER  
 ROSA CANDIOTTI  
 No. 64626  
 Exp. 6-30-15  
 CIVIL  
 STATE OF CALIFORNIA

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**DEVELOPED MIRRORED ELEVATION**  
1" = 10'



LEGEND:  
 ----- Indicates Existing  
 ————— Indicates New Construction

**PLAN**  
1" = 10'

CURVE DATA

No.	R	Δ	T	L
ⓑ	550.00	19°01'23"	92.15	182.61
ⓓ	566.00	19°01'23"	94.83	187.92

NOTE:  
 THE CONTRACTOR MUST VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

DESIGN	BY R. Candiotti	CHECKED P. Norboe	<b>STATE OF CALIFORNIA</b> <b>DEPARTMENT OF TRANSPORTATION</b>	<b>DIVISION OF ENGINEERING SERVICES</b> <b>STRUCTURE DESIGN</b> <b>DESIGN BRANCH 9</b>	BRIDGE NO.	<b>SARATOGA CREEK WALL</b> <b>STRUCTURE PLAN No. 2</b>
DETAILS	BY Tim Fairall	CHECKED P. Norboe			37E0104	
QUANTITIES	BY R. Candiotti	CHECKED P. Norboe			4.16	

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 09-01-10) ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3 UNIT: 3594 PROJECT NUMBER & PHASE: 04000012021 CONTRACT NO.: 04-4S0504 DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES	SHEET	OF
7-28-14	4	15

CURVE DATA

No.	R	Δ	T	L
(A)	550.00	18°36'33"	90.11	178.64
(B)	550.00	19°01'23"	92.15	182.61
(C)	250.00	18°23'56"	40.49	80.28
(D)	566.00	19°01'23"	94.83	187.92

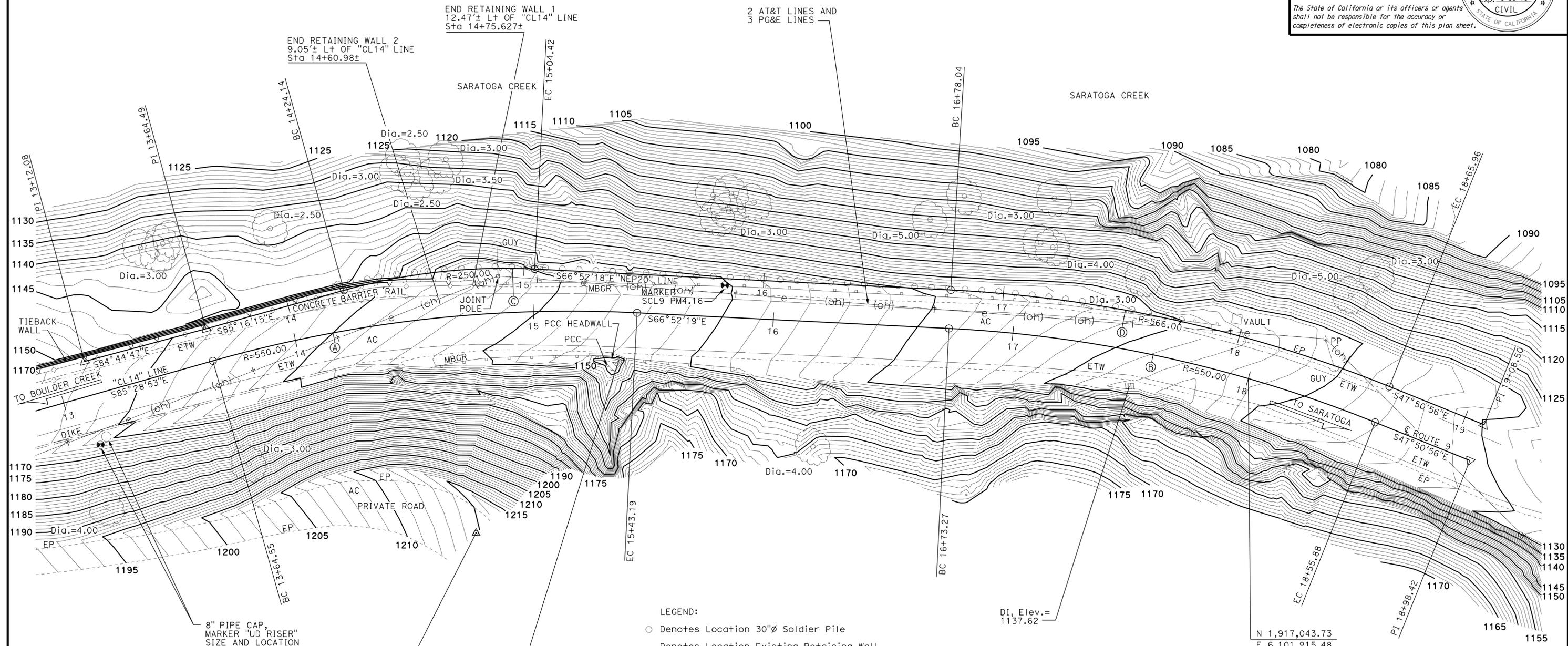
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	73	83

Rosa M Candiotti 5-14-14  
 REGISTERED CIVIL ENGINEER DATE

7-28-14  
 PLANS APPROVAL DATE

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REGISTERED PROFESSIONAL ENGINEER  
 ROSA CANDIOTTI  
 No. 64626  
 Exp. 6-30-15  
 CIVIL  
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- LEGEND:
- Denotes Location 30"Ø Soldier Pile
  - Denotes Location Existing Retaining Wall (Buried)
  - Denotes Location Existing 24"Ø Soldier Pile

**SURVEY CONTROL**  
 MP620  
 Fnd SET PK NAIL  
 90.42 FT Rt. C Rte 9  
 Sta. 14+68.27  
 N 1,917,094.98  
 E 6,101,591.47  
 Elev. = 1214.77

MP617 (NOT SHOWN ON PLAN)  
 Fnd SET PK NAIL  
 109.71 FT S85°26'07"W FROM  
 Sta. 12+00.00 C Rte 9  
 N 1,917,204.26  
 E 6,101,239.94  
 Elev. = 1181.00

**NOTE:**  
 THE CONTRACTOR MUST VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

MP620  
 N 1,917,094.98  
 E 6,101,591.47  
 Elev. = 1214.77

CULVERT, CMP  
 Dia.=2.50  
 Elev.=1147.31

PRELIMINARY INVESTIGATION SECTION			DESIGN BY R. Candiotti	CHECKED P. Norboe	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 9	BRIDGE NO. 37E0104	SARATOGA CREEK WALL FOUNDATION PLAN
SCALE VERT. DATUM NAVD88	PHOTOGRAMMETRY AS OF: X	BY DISTRICT	BY Tim Fairall	CHECKED P. Norboe			POST MILE 4.16	
1"=20'	HORIZ. DATUM NAD83 (1991.35)	CHECKED BY J. BORDEN 08/2011	BY T. ZOLNIKOV 08/2011	CHECKED P. Norboe				
ALIGNMENT TIES Dist. Traverse Sheet			CHECKED BY L. LEW 08/2011		UNIT: 3646	PROJECT NUMBER & PHASE: 04000012021	CONTRACT NO.: 04-4S0504	DISREGARD PRINTS BEARING EARLIER REVISION DATES
STRUCTURES FOUNDATION PLAN SHEET (ENGLISH) (REV. 09-01-10)			ORIGINAL SCALE IN INCHES FOR REDUCED PLANS			REVISION DATES		SHEET 5 OF 15

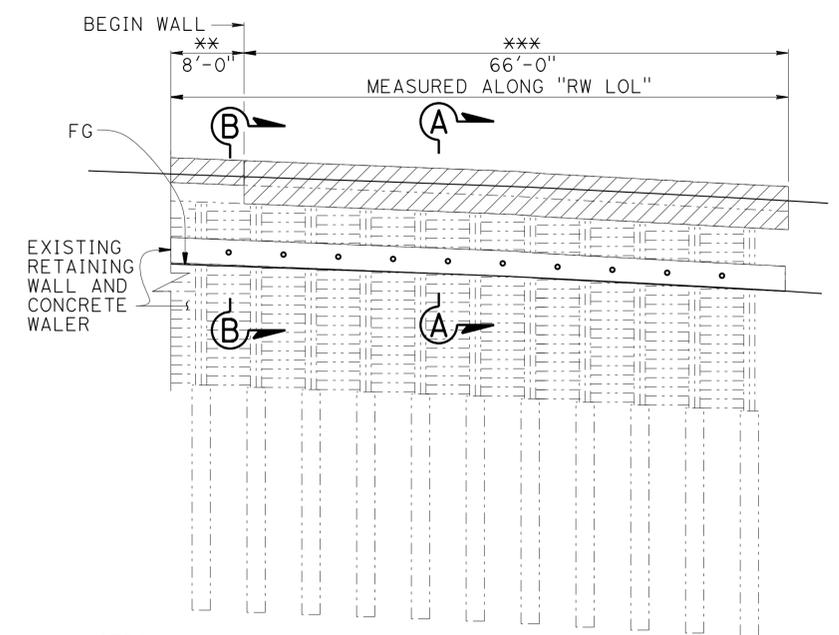
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	74	83

Rosa M. Candiotti 5-14-14  
REGISTERED CIVIL ENGINEER DATE

7-28-14  
PLANS APPROVAL DATE

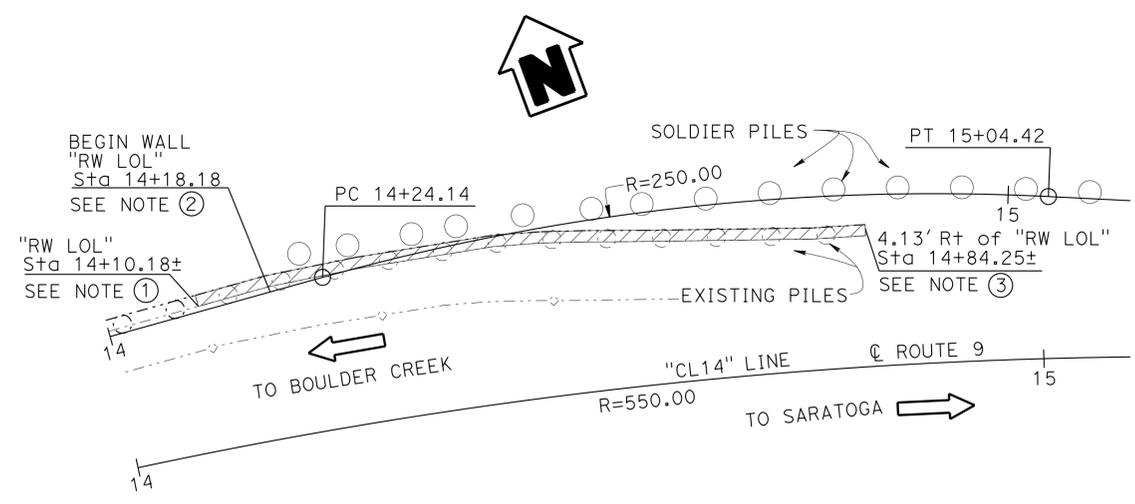
No. 64626  
Exp. 6-30-15  
CIVIL  
STATE OF CALIFORNIA

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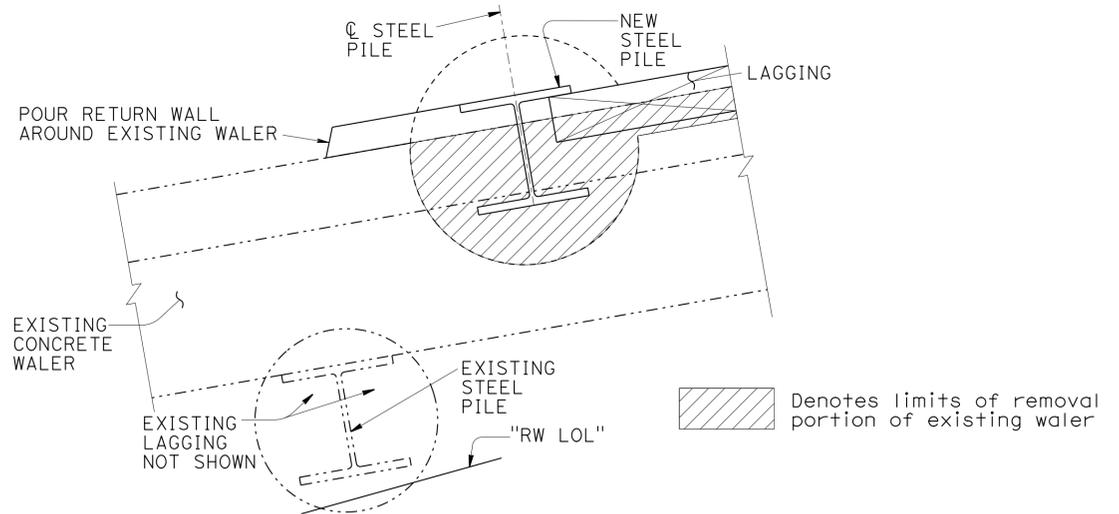
NOTES:  
\*\* Limits of removal of existing concrete barrier only  
\*\*\* Limits of removal of existing concrete barrier, cap beam and reinforcement, top 2'-0" of steel pile, lagging and portion of waler

**DEVELOPED MIRRORED ELEVATION (EXISTING WALL)**  
1" = 10'

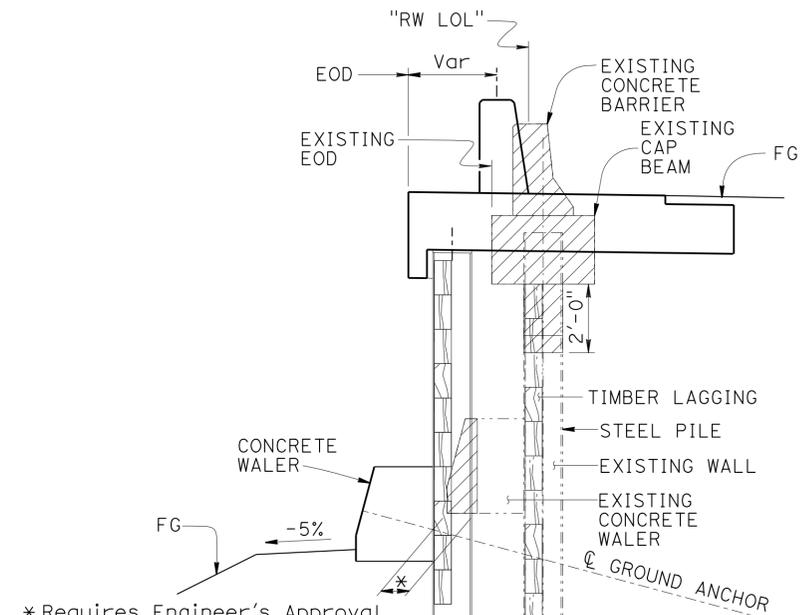


**PART PLAN**  
1" = 10'

NOTE:  
THE CONTRACTOR MUST VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.



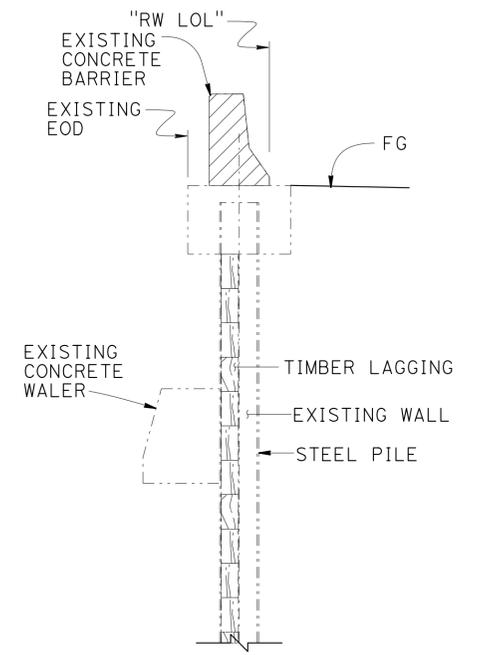
**WALER REMOVAL AT RETURN WALL**  
1" = 1'-0"



\* Requires Engineer's Approval. Only remove portion of waler as necessary to allow installation of steel piles. Existing tiebacks to remain undamaged.

Denotes limits of removal of existing concrete barrier, cap beam, top of steel pile, lagging and portion of waler

**SECTION A-A**  
3/8" = 1'-0"



Denotes limits of removal of existing concrete barrier only

**SECTION B-B**  
3/8" = 1'-0"

NOTES:

- Begin removal of existing concrete barrier only.
- End removal of existing concrete barrier only. Begin removal of existing wall as shown in SECTION A-A.
- End removal of existing wall as shown in SECTION A-A.

LEGEND:

- Indicates Existing
- Indicates New Construction
- Indicates Existing Wall (Buried)
- Indicates Existing Piles

DESIGN	BY R. Candiotti	CHECKED P. Norboe
DETAILS	BY Tim Fairall	CHECKED P. Norboe
QUANTITIES	BY R. Candiotti	CHECKED P. Norboe

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES  
STRUCTURE DESIGN  
**DESIGN BRANCH 9**

BRIDGE NO.	37E0104
POST MILE	4.16

**SARATOGA CREEK WALL  
REMOVAL DETAILS**

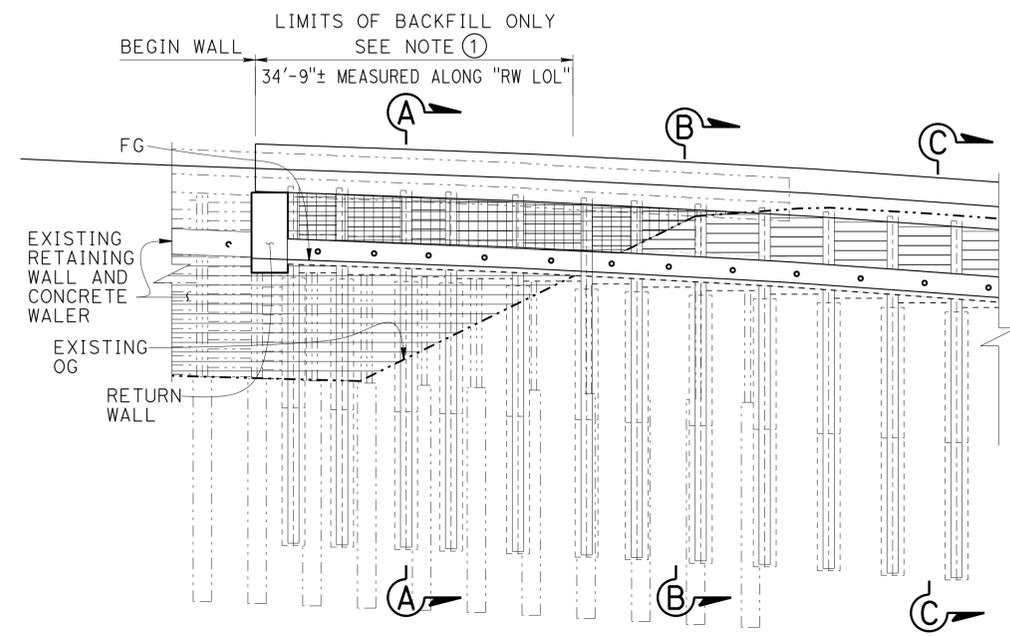
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	75	83

Rosa M Candiotti 5-14-14  
 REGISTERED CIVIL ENGINEER DATE

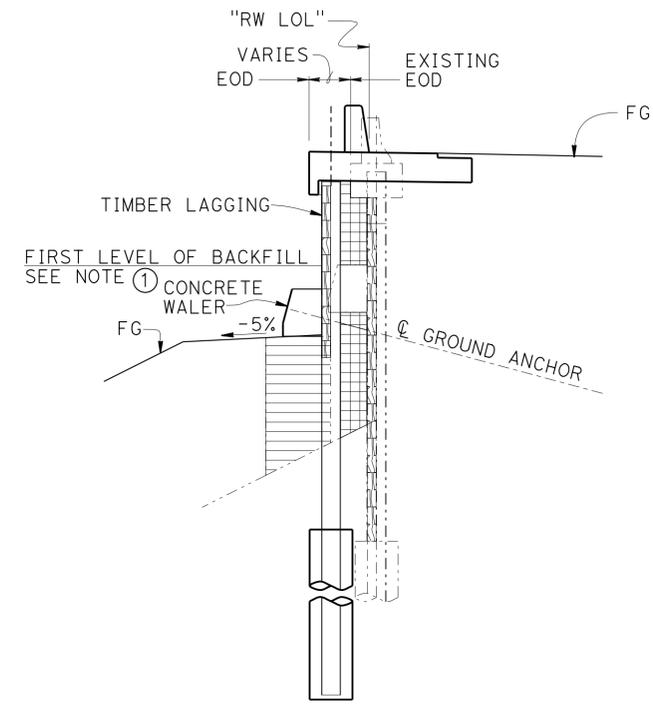
7-28-14  
 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER  
 ROSA CANDIOTTI  
 No. 64626  
 Exp. 6-30-15  
 CIVIL  
 STATE OF CALIFORNIA

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**DEVELOPED MIRRORED ELEVATION**  
 1" = 10'



**SECTION A-A**  
 3/16" = 1'-0"

**NOTES:**

- ① Backfill to no higher than top of existing Waler Beam prior to installation and stressing of Ground Anchors
- 1. For "SECTION B-B" and "SECTION C-C" see "EXCAVATION AND BACKFILL DETAILS No. 2" Sheet

**LEGEND:**

- Indicates Existing
- Indicates New Construction
- Indicates New Pile
- Denotes Permeable Material (Class 2) (To be used only in areas where structure backfill is not achievable)
- Denotes Limits of Structure Backfill

**NOTE:**  
 THE CONTRACTOR MUST VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

DESIGN	BY	R. Candiotti	CHECKED	P. Norboe	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 9	BRIDGE NO.	37E0104	SARATOGA CREEK WALL EXCAVATION AND BACKFILL DETAILS No. 1	
	DETAILS	BY	Tim Fairall	CHECKED			P. Norboe	POST MILE		4.16
	QUANTITIES	BY	R. Candiotti	CHECKED			P. Norboe	UNIT: 3594 PROJECT NUMBER & PHASE: 04000012021		CONTRACT NO.: 04-4S0504

USERNAME => s113541 DATE PLOTTED => 07-AUG-2014 TIME PLOTTED => 10:01

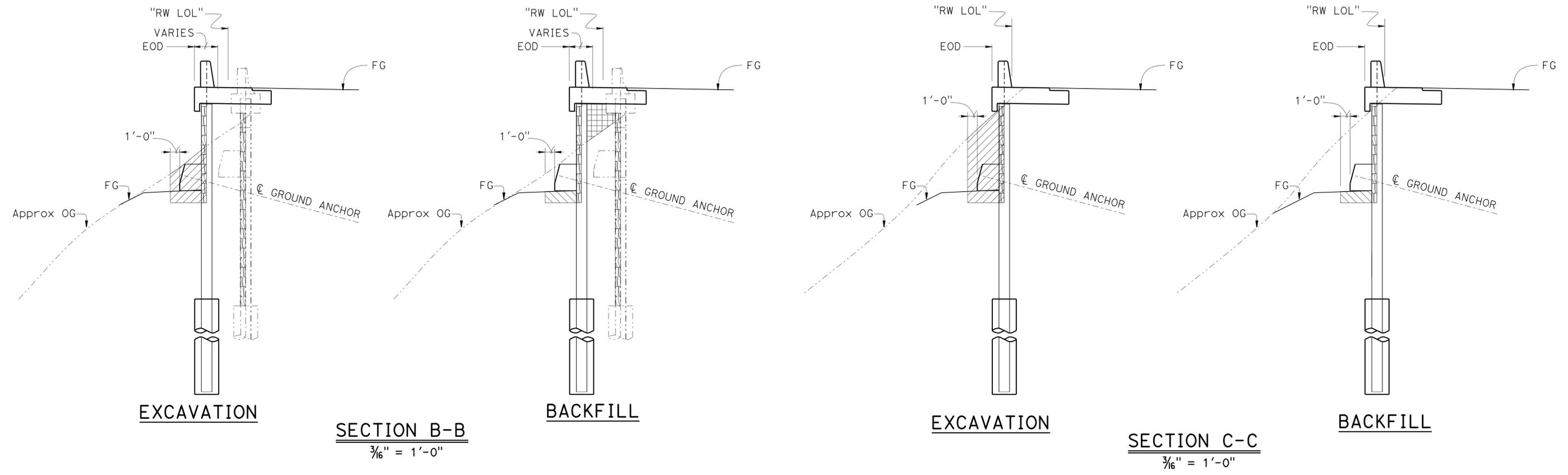
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	76	83

**Rosa M. Candiotti** 5-14-14  
REGISTERED CIVIL ENGINEER DATE

7-28-14  
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER  
**ROSA CANDIOTTI**  
No. 64626  
Exp. 6-30-15  
CIVIL  
STATE OF CALIFORNIA

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- NOTES:**
- For location of "SECTION B-B" and "SECTION C-C" see "EXCAVATION AND BACKFILL DETAILS No. 1" sheet
- LEGEND:**
- Indicates Existing
  - Indicates New Construction
  - Denotes Limits of Structural Excavation
  - Denotes Permeable Material (Class 2)  
(To be used only in areas where structural backfill is not achievable)
  - Denotes Limits of Structural Backfill

**NOTE:**  
THE CONTRACTOR MUST VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

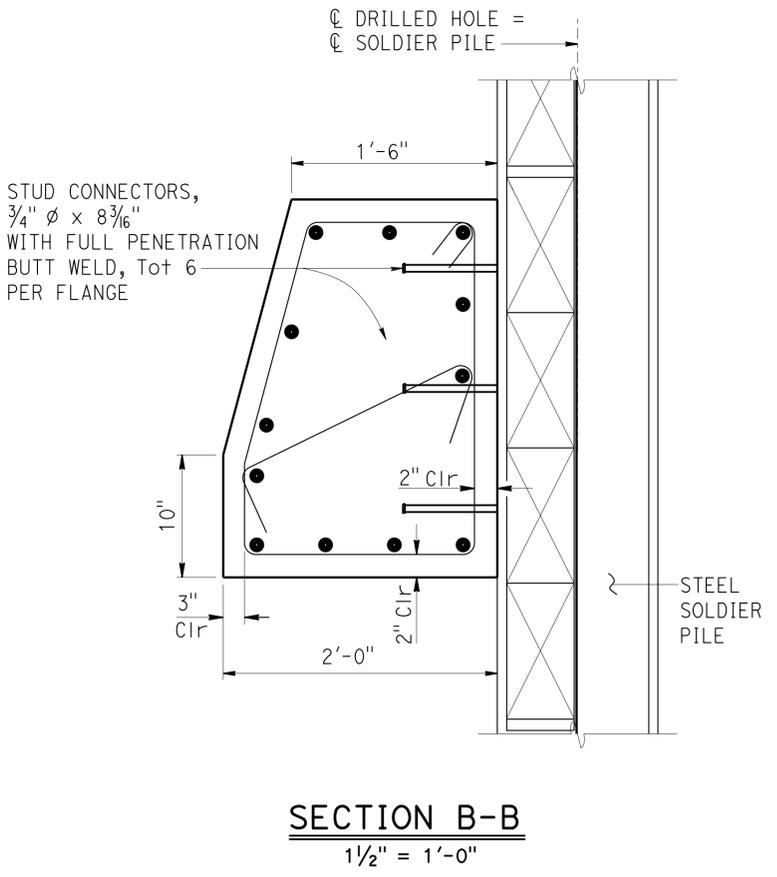
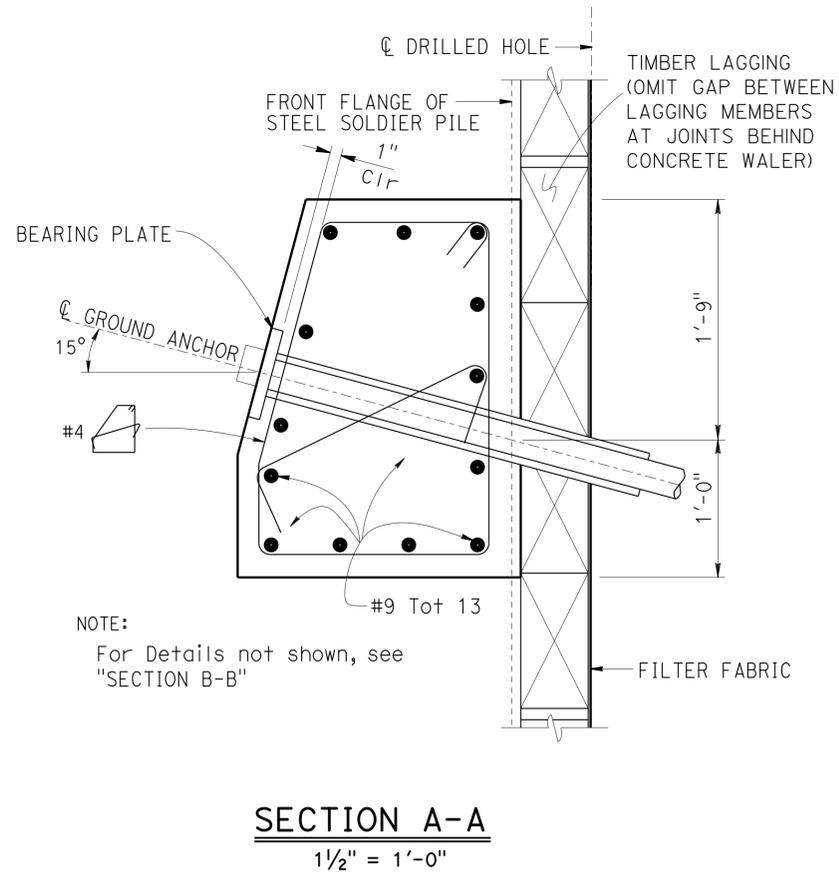
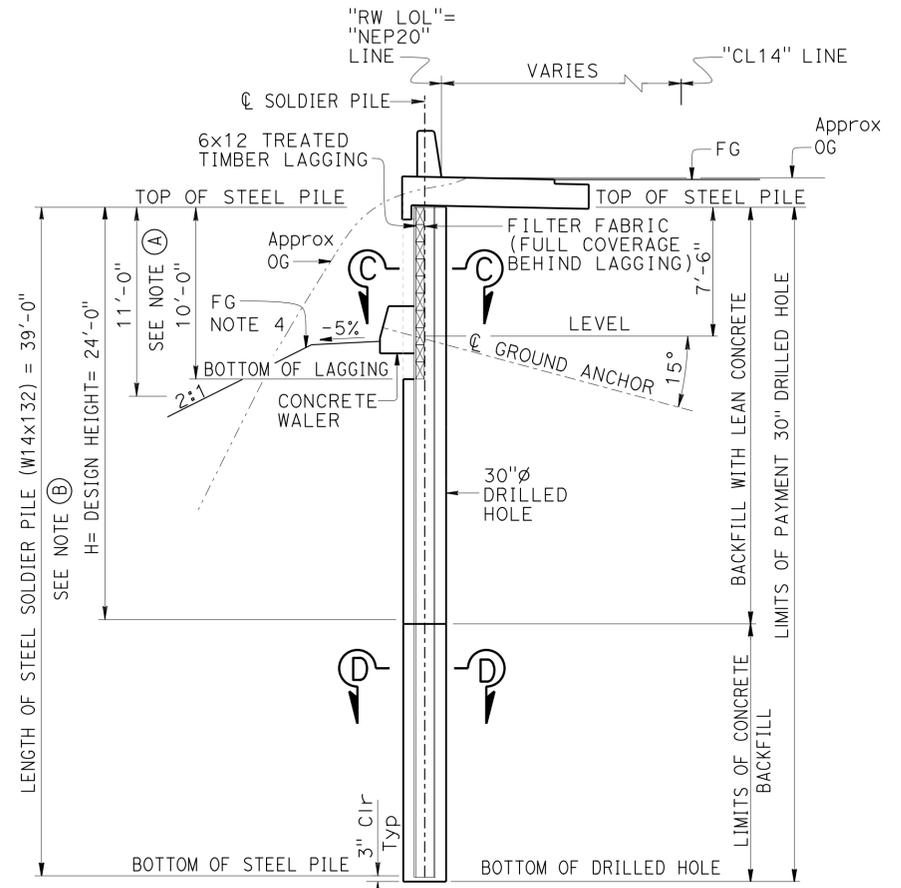
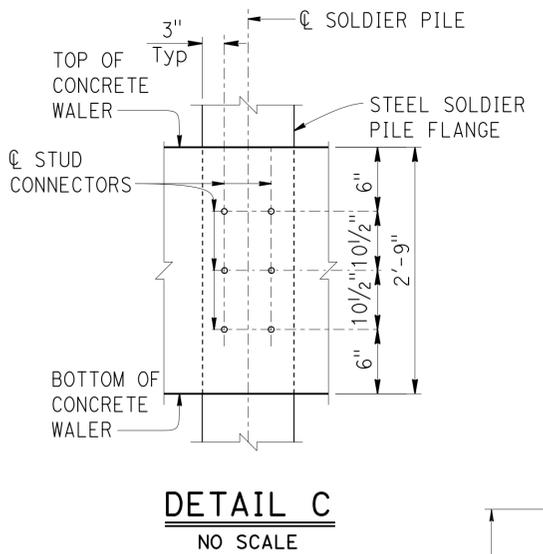
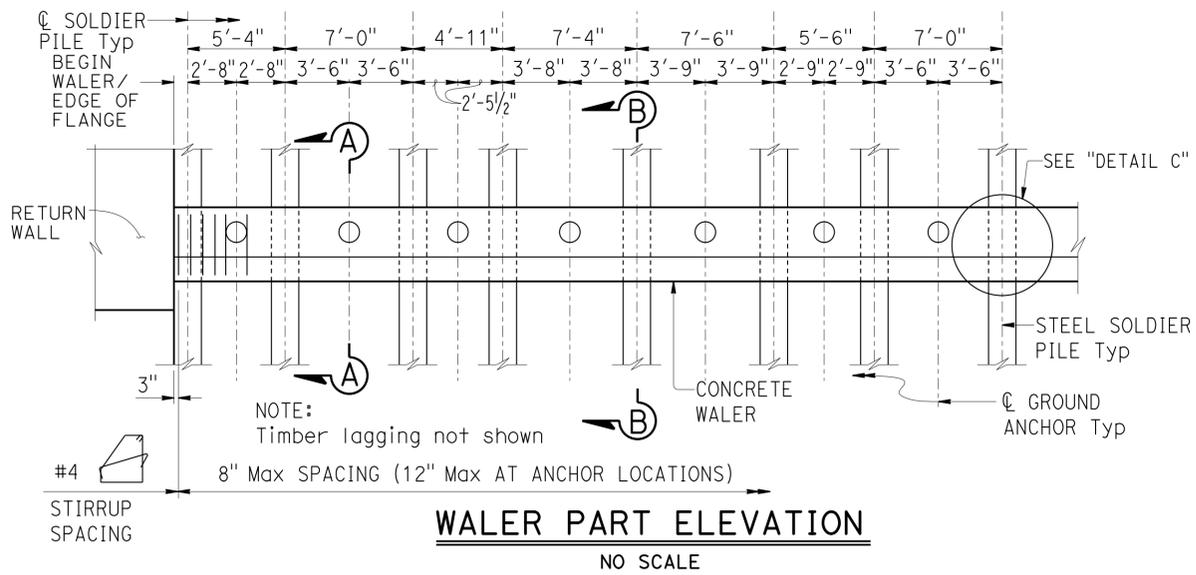
DESIGN	BY	R. Candiotti	CHECKED	P. Norboe	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 9	BRIDGE NO.	37E0104	SARATOGA CREEK WALL EXCAVATION AND BACKFILL DETAILS No. 2						
	DETAILS	BY	Tim Fairall	CHECKED			P. Norboe	POST MILE		4.16					
	QUANTITIES	BY	R. Candiotti	CHECKED			P. Norboe	UNIT: 3594 PROJECT NUMBER & PHASE: 04000012021		CONTRACT NO.: 04-450504	DISREGARD PRINTS BEARING EARLIER REVISION DATES				
STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 09-01-10)						ORIGINAL SCALE IN INCHES FOR REDUCED PLANS	0	1	2	3	REVISION DATES	SHEET	OF		
											7-28-12	4-06-12	5-31-12	8	15

10401  
TIME PLOTTED =>  
07-AUG-2014  
DATE PLOTTED =>  
8:11:35AM

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	77	83

**Rosa M. Candiotti** 5-14-14  
 REGISTERED CIVIL ENGINEER DATE  
 7-28-14  
 PLANS APPROVAL DATE  
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REGISTERED PROFESSIONAL ENGINEER  
 ROSA CANDIOTTI  
 No. 64626  
 Exp. 6-30-15  
 CIVIL  
 STATE OF CALIFORNIA



- NOTES:
- Concrete walers may be poured against face of lagging.
  - Ground anchors must be stressed only after the concrete waler has attained a compressive strength of at least 2,880 psi and the excavation has reached bottom of lagging.
  - For "SECTION C-C" and "SECTION D-D", see "SOLDIER PILE WALL WITH WALERS DETAILS No. 2" sheet.
  - For grading of embankment, see "ROAD PLANS".
- (A) Limits of final coat on new steel soldier pile surfaces  
 (B) Limits of undercoat on new steel soldier pile surfaces

DESIGN	BY R. Candiotti	CHECKED P. Norboe
DETAILS	BY Tim Fairall	CHECKED P. Norboe
QUANTITIES	BY R. Candiotti	CHECKED P. Norboe

**STATE OF CALIFORNIA**  
 DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES  
 STRUCTURE DESIGN  
**DESIGN BRANCH 9**

BRIDGE NO.	37E0104
POST MILE	4.16

**SARATOGA CREEK WALL**  
**SOLDIER PILE WALL WITH WALERS-DETAILS No. 1**

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	78	83

Rosa M. Candiotti 5-14-14  
REGISTERED CIVIL ENGINEER DATE

7-28-14  
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER  
ROSA CANDIOTTI  
No. 64626  
Exp. 6-30-15  
CIVIL  
STATE OF CALIFORNIA

The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

**GENERAL NOTES**

DESIGN:  
AASHTO LRFD Bridge Design Specifications, 4th Edition with California Amendments.

LIVE LOAD:  
240 psf equivalent to 2 feet soil weight

SOIL PARAMETERS:  
(For determination of Design Lateral Earth Pressures)

Backfill soil weight =  $\frac{130}{ft^3}$   
Friction Angle =  $26^\circ$  C = 500  
Active Pressure coefficient,  $K_a = 0.33$   
Bedrock Unit Weight =  $\frac{130}{ft^3}$   
Slope Angle =  $30^\circ$   
C = 0

STRUCTURAL STEEL:  
ASTM A709/A709M Grade 50 or 50W  
 $f_y = 50$  ksi

STRUCTURAL TIMBER:  
Treated Douglas Fir, Grade No. 1 or better.  
Timber to be full sawn

PRESTRESSING STEEL  
(GROUND ANCHORS):

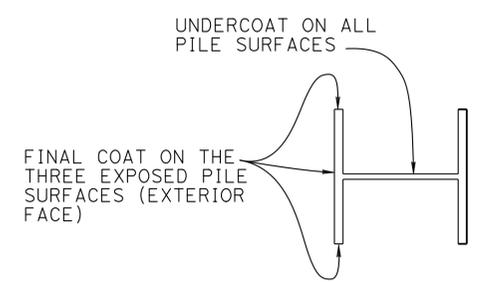
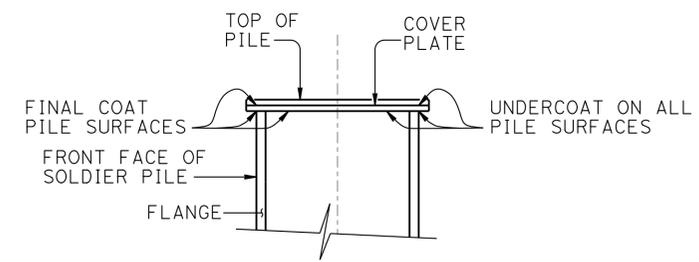
FDL = Factored Design Load on ground anchor (kips)  
FTL = Factored Test Load (kips)  
LL = Lock-Off Load (kips)  
 $f_{pu}$  = Minimum ultimate tensile strength of ground anchor steel (ksi)  
 $A_s$  (Min) = Minimum cross sectional area of steel in ground anchor (square inches)  
Steel = ASTM designation: A416 (High Strength Strands)

$A_s$  (Min) =  $\frac{1.0 FTL}{0.75 f_{pu}}$   
Steel = ASTM designation: A722 (High Strength Bars)

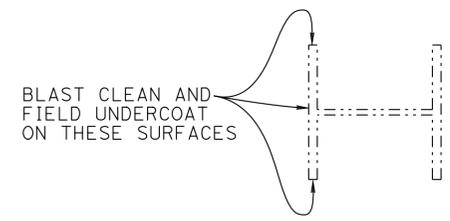
$A_s$  (Min) =  $\frac{1.0 FTL}{0.80 f_{pu}}$   
Steel = ASTM designation: A615 (Mild Steel Bars)

$A_s$  (Min) =  $\frac{1.0 FTL}{0.90 f_{pu}}$   
FDL =  $\frac{86}{Kips}$   
FTL =  $\frac{115}{Kips}$   
LL =  $\frac{86}{Kips}$

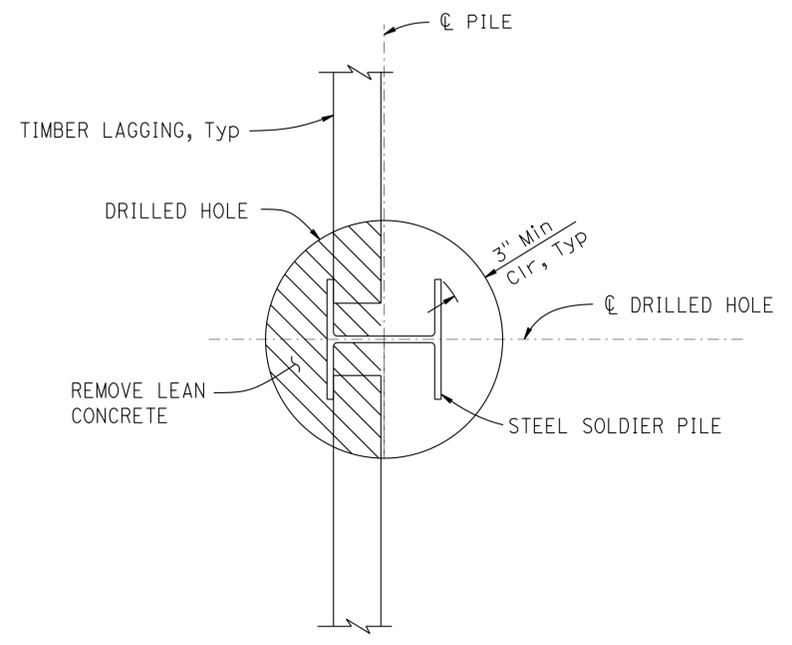
CONCRETE BARRIER SLAB:  
 $F_t = \frac{54}{Kips}$  on Barrier  
EQE: kh 0.2  
kv 0.0  
Reinforced Concrete  
 $f_y = 60$  ksi  
 $f'_c = 3.6$  ksi  
n = 8



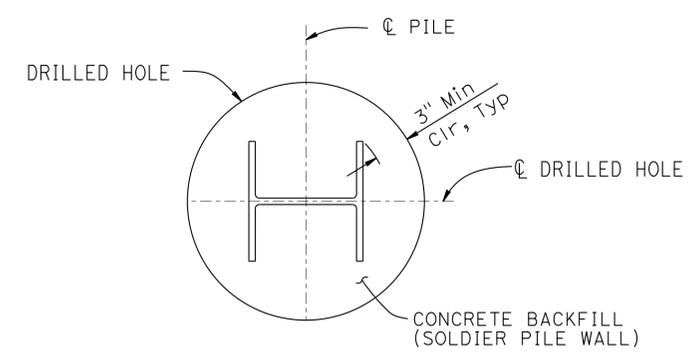
**LIMITS OF CLEAN & PAINT NEW STEEL SOLDIER PILES**  
NO SCALE



**SECTION X-X LIMITS OF CLEAN & PAINT EXISTING STEEL SOLDIER PILE**  
NO SCALE



**SECTION C-C**  
NO SCALE



**SECTION D-D**  
NO SCALE

- NOTES:
- For location of "SECTION C-C" and "SECTION D-D" see "SOLDIER PILE WALL WITH WALERS DETAIL No. 1" Sheet
  - For location "SECTION X-X" see "CONCRETE BARRIER SLAB LAYOUT" sheet

LEGEND:  
 Denotes limits of lean concrete removal  
 Denotes existing steel soldier pile

DESIGN	BY	R. Candiotti	CHECKED	P. Norboe	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 9	BRIDGE NO.	37E0104	SARATOGA CREEK WALL SOLDIER PILE WALL WITH WALERS-DETAILS No. 2	
	DETAILS	BY	Tim Fairall	CHECKED			P. Norboe	POST MILE		4.16
	QUANTITIES	BY	R. Candiotti	CHECKED			P. Norboe			

UNIT: 3594  
PROJECT NUMBER & PHASE: 0400012021  
CONTRACT NO.: 04-450504

REVISION DATES: 11-30-11, 4-06-12, 6-14-12

SHEET 10 OF 15

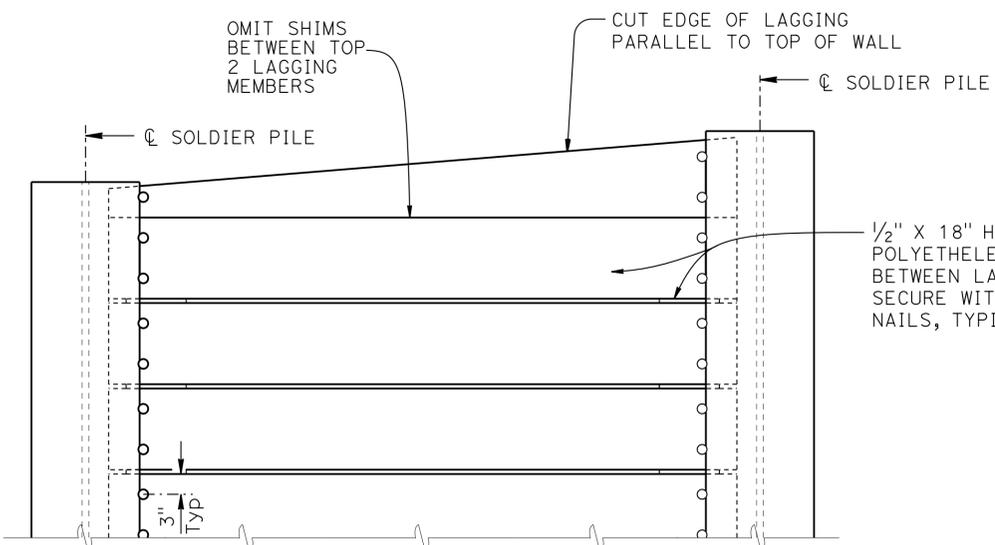
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	79	83

Rosa M Candiotti 5-14-14  
REGISTERED CIVIL ENGINEER DATE

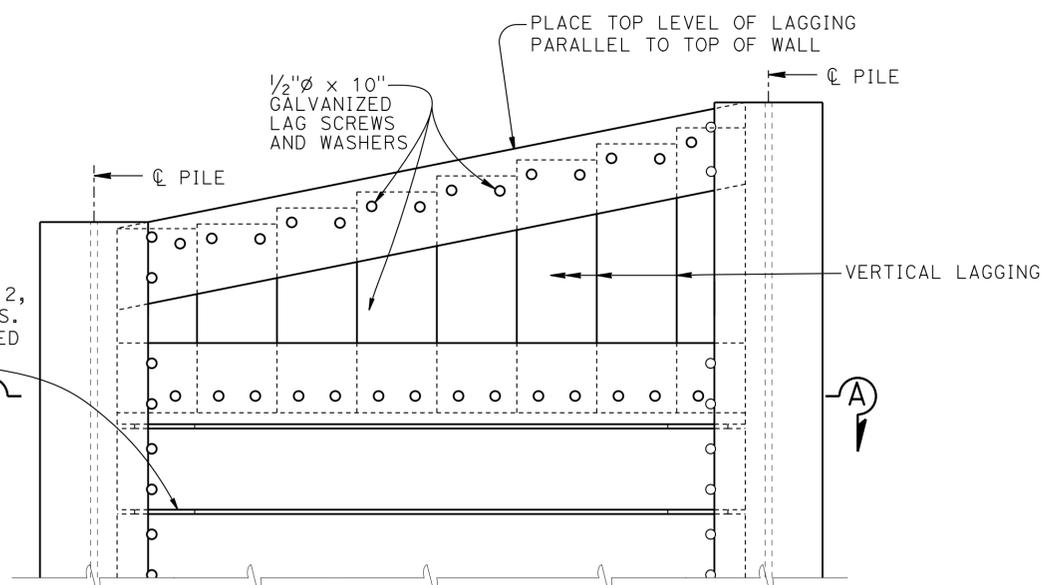
7-28-14  
PLANS APPROVAL DATE

ROSA CANDIOTTI  
No. 64626  
Exp. 6-30-2013  
CIVIL  
STATE OF CALIFORNIA

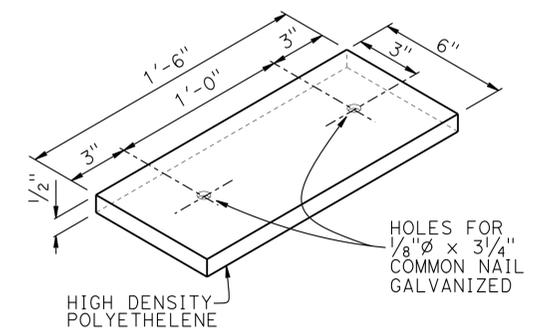
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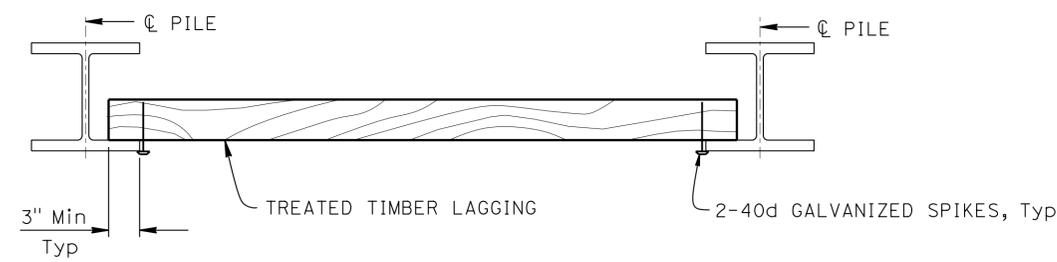
**PART ELEVATION**  
**LAGGING DETAILS (ALTERNATIVE 1)**  
NO SCALE



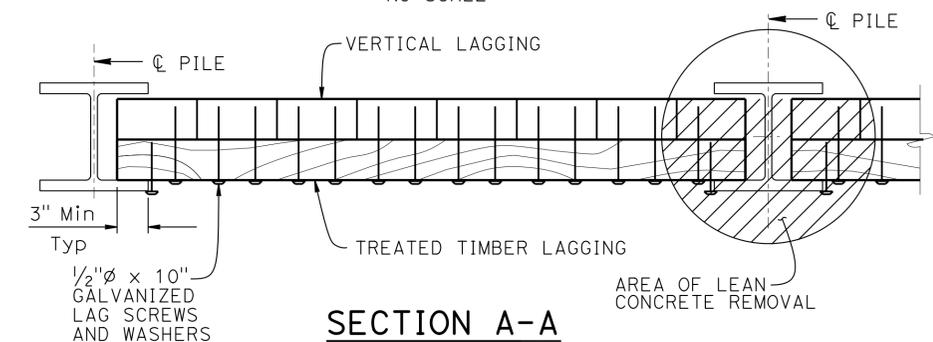
**PART ELEVATION**  
**LAGGING DETAILS (ALTERNATIVE 2)**  
NO SCALE



**SHIM DETAIL**  
NO SCALE

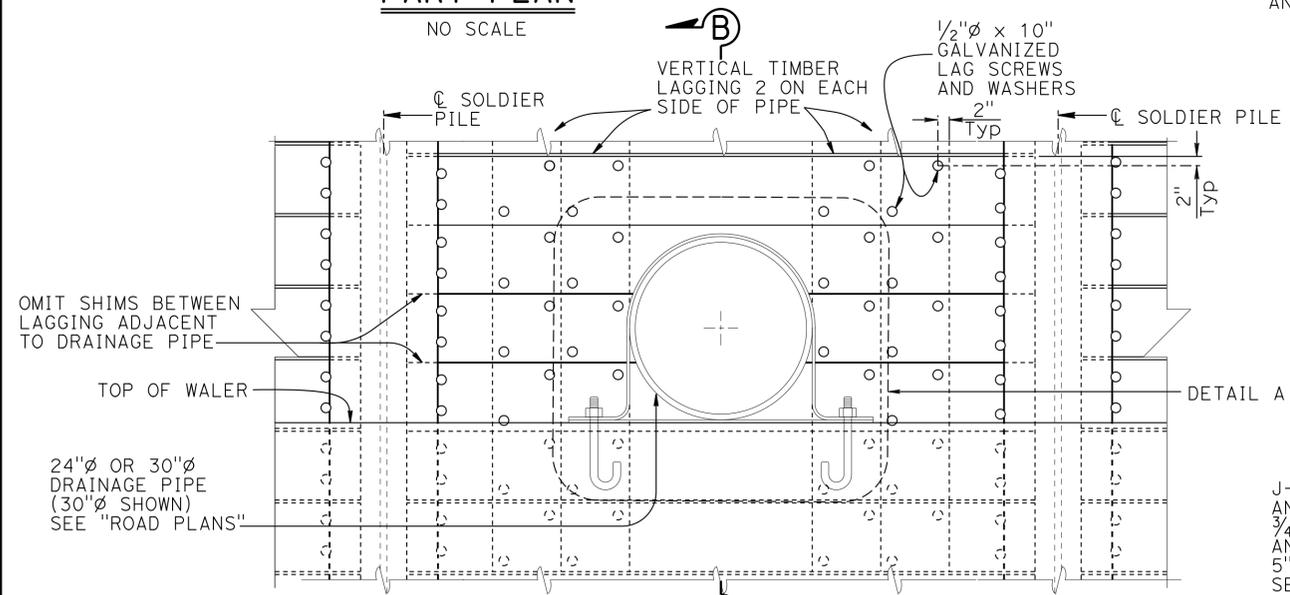


**PART PLAN**  
NO SCALE



**SECTION A-A**  
NO SCALE

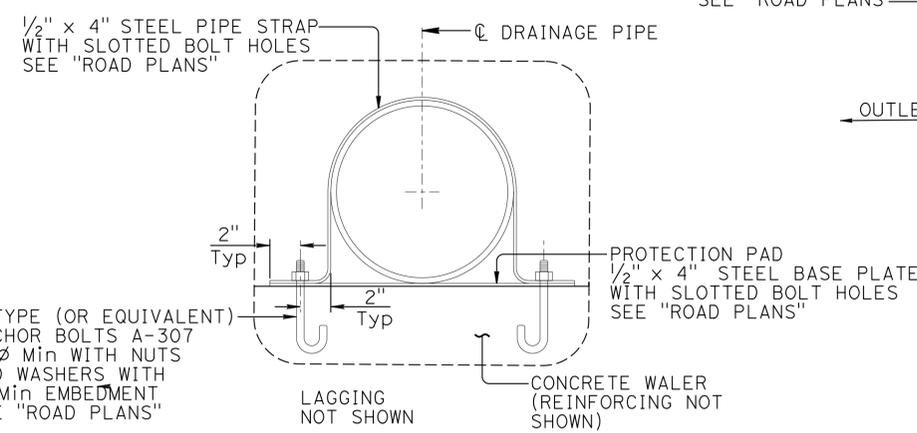
- NOTES:
1. No clipping of timber lagging corners allowed
  2. Spikes must not be bent



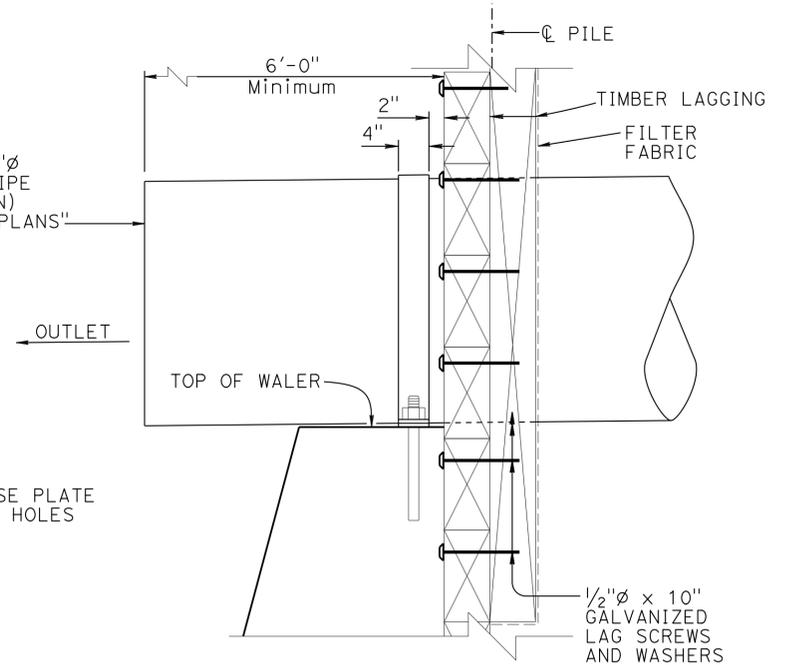
**DRAINAGE DETAIL**  
3/4" = 1'-0"

NOTE:  
THE CONTRACTOR MUST VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

NOTE:  
For location of drainage pipe see "GENERAL PLAN", "STRUCTURE PLAN No. 1" and "STRUCTURE PLAN No. 2" sheets



**DETAIL A**  
3/4" = 1'-0"



**SECTION B-B**  
1" = 1'-0"

DESIGN	BY R. Candiotti	CHECKED P. Norboe
DETAILS	BY Tim Fairall	CHECKED P. Norboe
QUANTITIES	BY R. Candiotti	CHECKED P. Norboe

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES  
STRUCTURE DESIGN  
**DESIGN BRANCH 9**

BRIDGE NO.	37E0104
POST MILE	4.16

**SARATOGA CREEK WALL**  
**SOLDIER PILE WALL LAGGING DETAILS**

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	80	83
Rosa M Candiotti			5-14-14	DATE	
REGISTERED CIVIL ENGINEER			No. 64626		
7-28-14			PLANS APPROVAL DATE		
<small>The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.</small>					

### GENERAL NOTES

**DESIGN:**  
AASHTO LRFD Bridge Design Specifications, 4th Edition with California Amendments.

**PRESTRESSING STEEL:**

Bars - ASTM Designation: A722 Type II (150 ksi)

Strand Tendons - ASTM Designation: A416 (270 ksi Low Relaxation steel)

FTL = Factored Test Load per anchor (Kips)

fpu = Minimum tensile strength of prestressing steel

As = Minimum cross sectional area of prestressing steel in ground anchor (square inch)

$$As(\text{Min}) = \frac{1.0 \text{ FTL}}{0.75 \text{ fpu}} \text{ (Strands)}$$

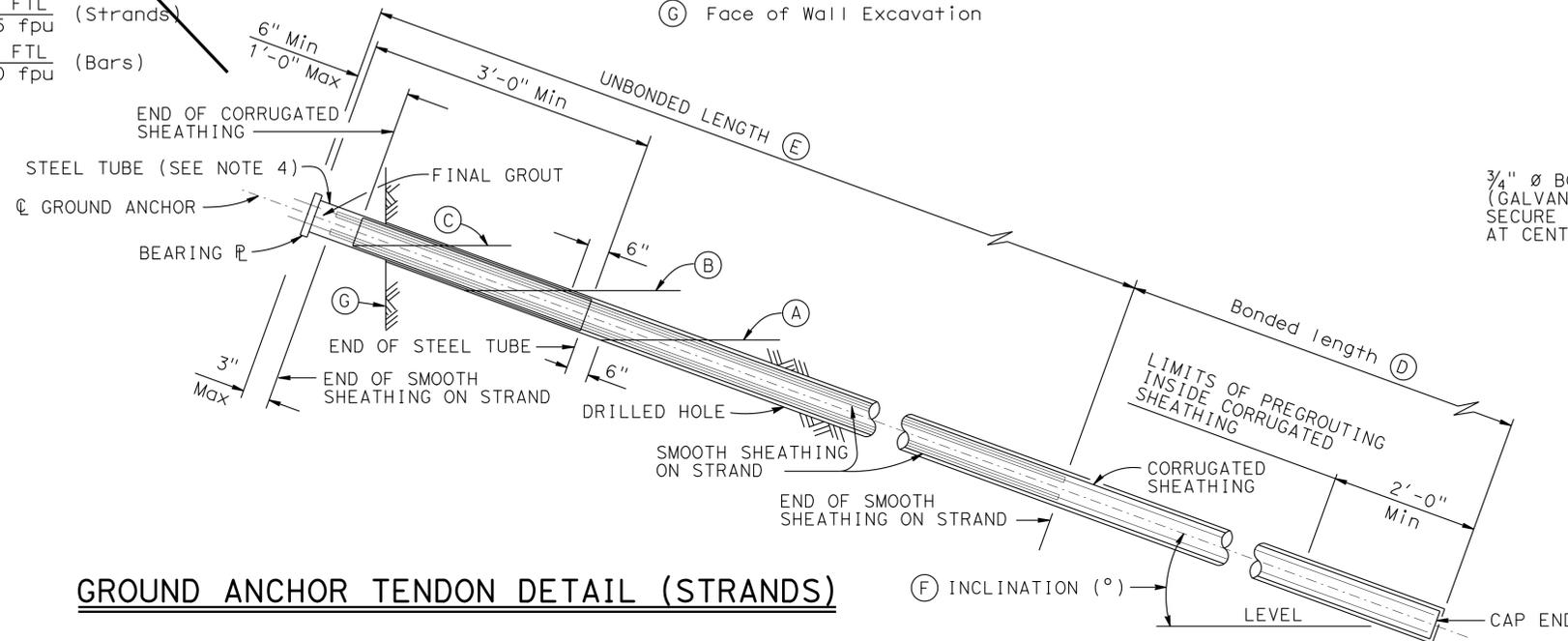
$$As(\text{Min}) = \frac{1.0 \text{ FTL}}{0.80 \text{ fpu}} \text{ (Bars)}$$

**NOTES:**

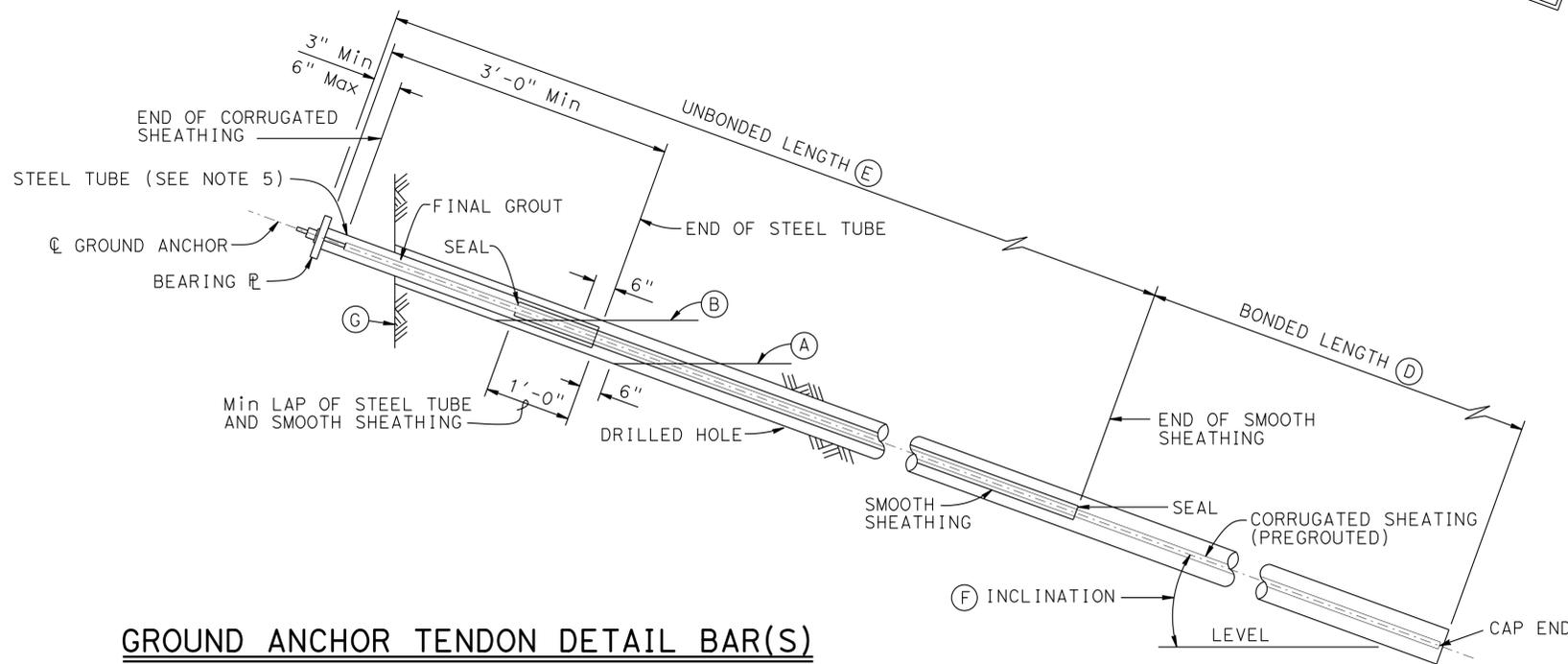
- (A) Level of initial grouting for drilled hole 6" in diameter or smaller
- (B) Level of secondary grouting
- (C) Level of initial grouting inside corrugated sheathing
- (D) Bonded length must be determined by the contractor
- (E) For unbonded length, see PROJECT PLANS
- (F) For inclination, see PROJECT PLANS
- (G) Face of Wall Excavation

**NOTES:**

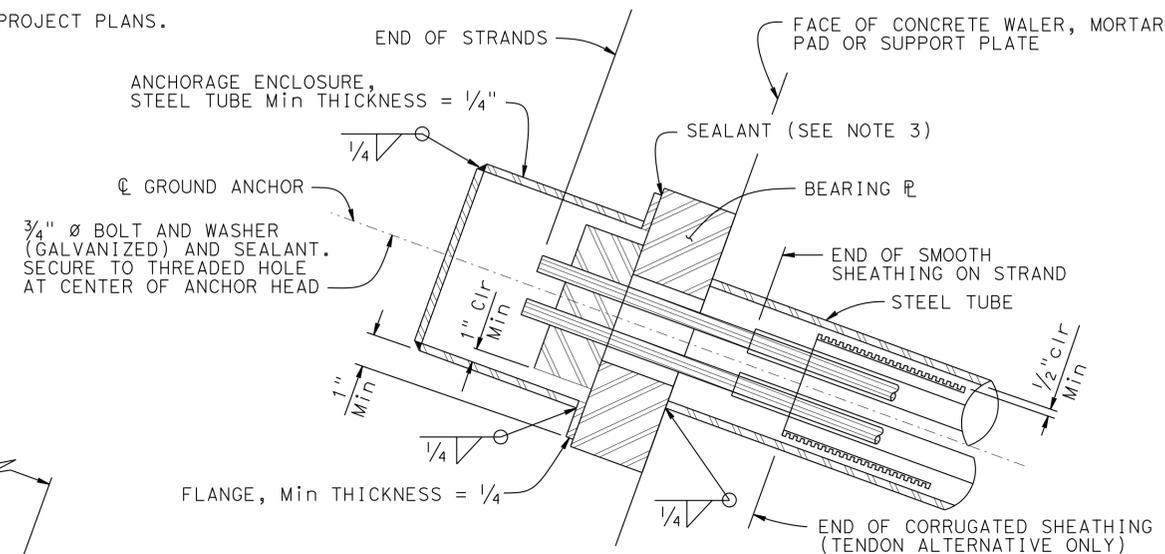
1. Anchorage enclosure must only be used when anchor head assembly is not enclosed in concrete.
2. Anchorage enclosure must have provisions to allow injecting grout at low end and venting at high end. Galvanize after fabrication.
3. Silicone sealant to cover full width of flange.
4. Steel tube (Min thickness = 1/4") welded to bearing plate. Galvanize assembly after fabrication
5. Steel tube welded to bearing plate. Inside diameter of steel tube (Min thickness = 1/4") to be 1" greater than outside diameter of smooth sheathing.
6. Galvanize assembly after fabrication.
7. For other wall details, see PROJECT PLANS.



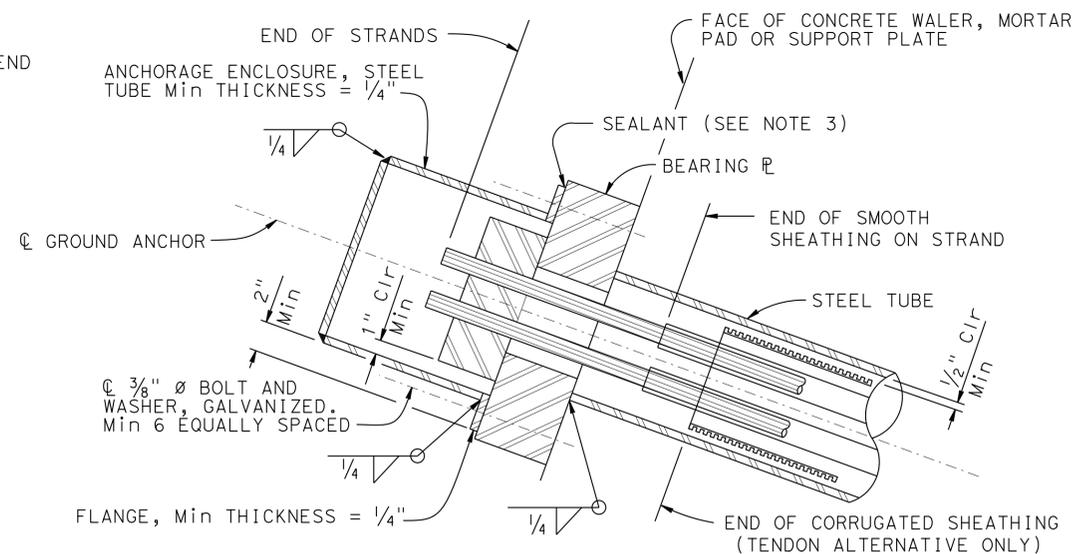
**GROUND ANCHOR TENDON DETAIL (STRANDS)**



**GROUND ANCHOR TENDON DETAIL BAR(S)**



**ALTERNATIVE X**



**ALTERNATIVE Y**

**ANCHORAGE ENCLOSURE DETAILS**

NO SCALE

General Notes not applicable

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES

BRIDGE NO. 37E0104  
POST MILE 4.16

SARATOGA CREEK WALL  
SUB HORIZONTAL GROUND ANCHOR DETAILS

FILE NO. xs12-040

APPROVAL DATE January 2012

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

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

0 1 2 3

UNIT: 3594  
PROJECT NUMBER & PHASE: 04000012021

CONTRACT NO.: 04-4S0504

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES	SHEET	OF
7-28-12 3-26-12	12	15

FILE => 37e0104-1-w011-de+04.dgn

USERNAME => s113541 DATE PLOTTED => 07-AUG-2014 TIME PLOTTED => 10:01

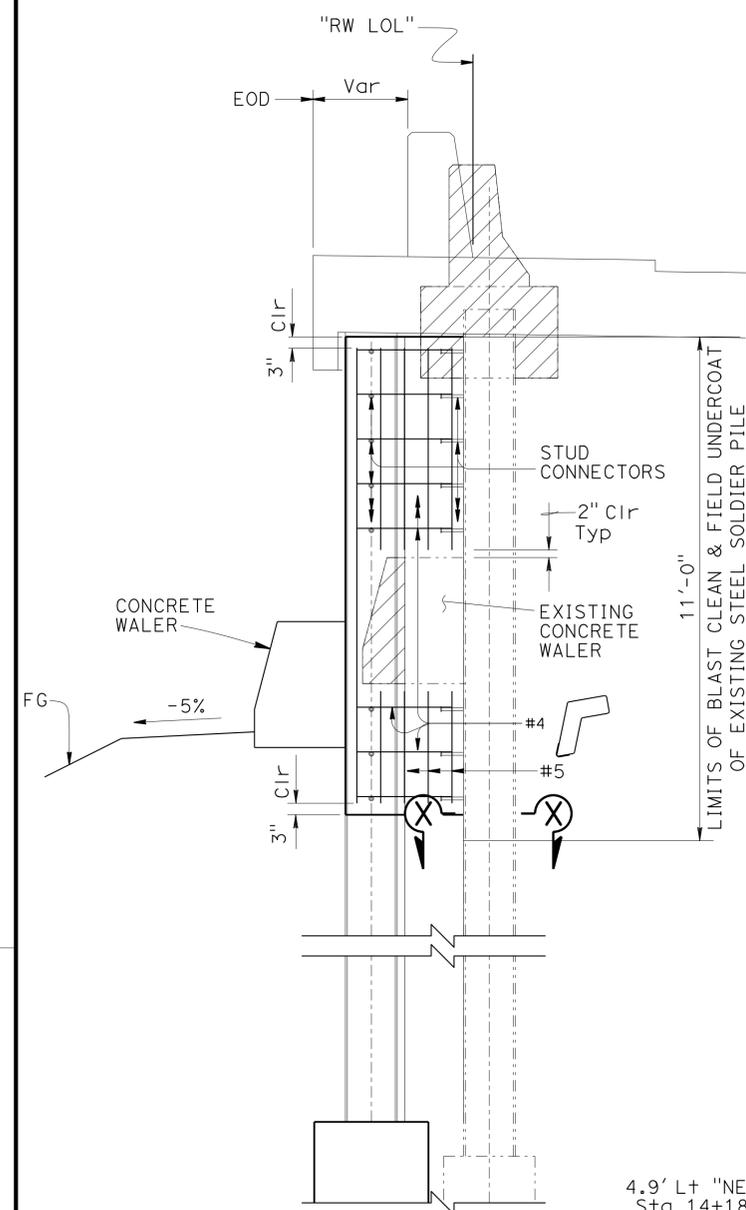
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	9	4.2	81	83

Rosa M Candiotti 5-14-14  
REGISTERED CIVIL ENGINEER DATE

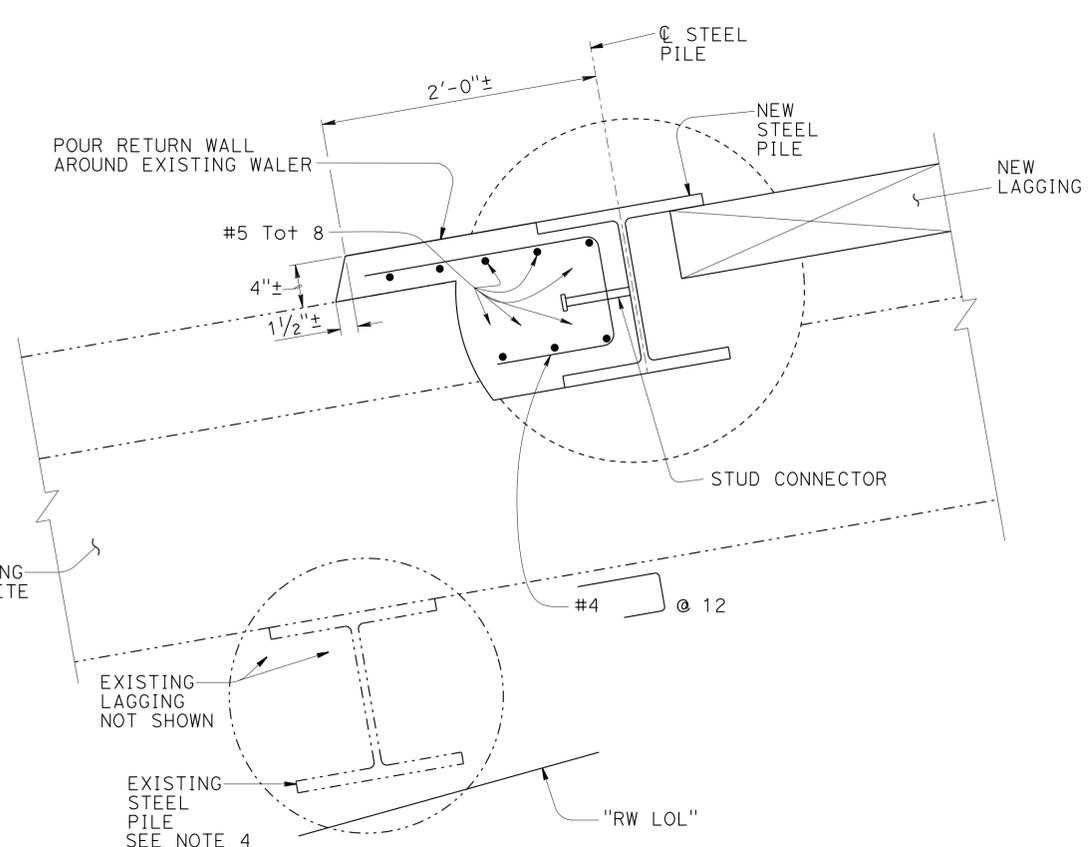
7-28-14  
PLANS APPROVAL DATE

ROSA CANDIOTTI  
No. 64626  
Exp. 6-30-15  
CIVIL  
STATE OF CALIFORNIA

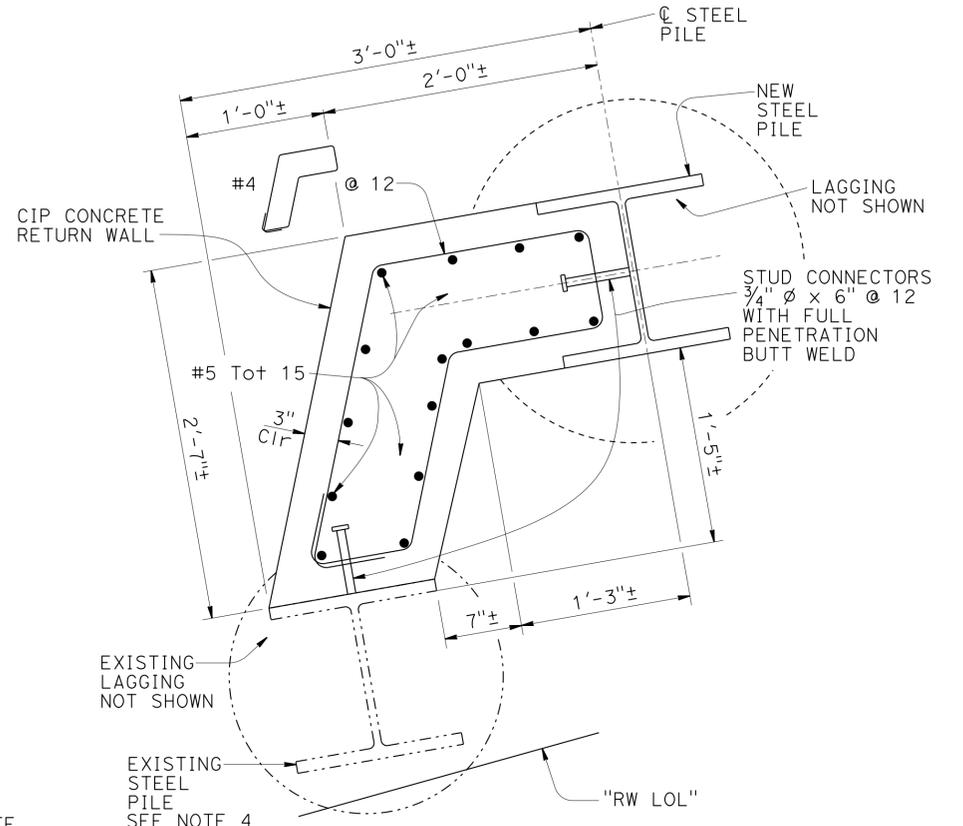
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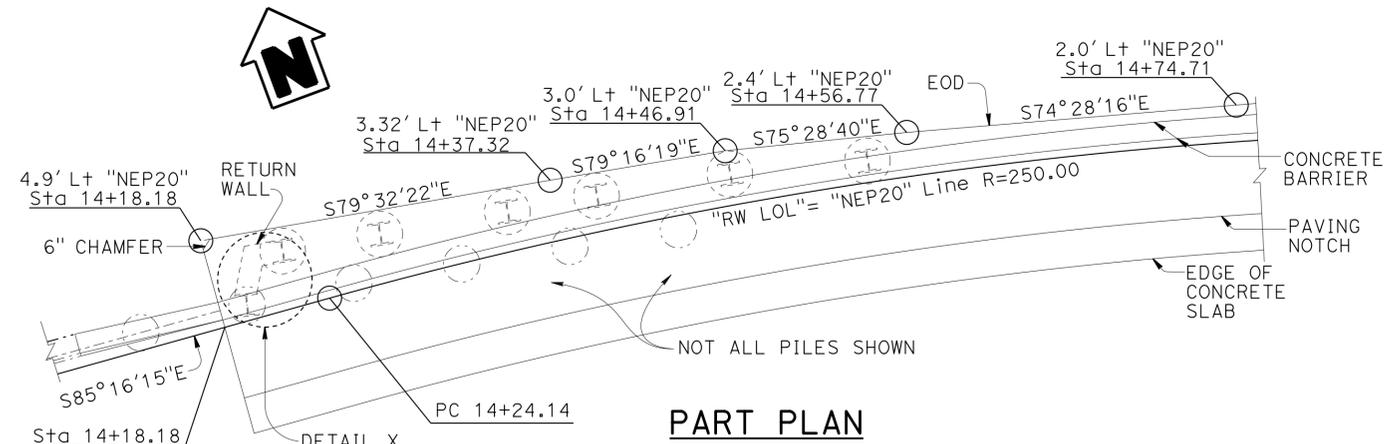
**ELEVATION**  
1/2" = 1'-0"



**DETAIL X AT WALER**  
1/2" = 1'-0"



**DETAIL X**  
1/2" = 1'-0"



**PART PLAN**  
1" = 5'

**NOTES:**

1. Remove existing pile to match top of new pile at this location only. For other locations see "REMOVAL DETAILS" Sheet.
2. For additional layout information refer to "STRUCTURE PLAN No. 1" Sheet
3. For "SECTION X-X" see "SOLDIER PILE WALL WITH WALERS-DETAILS No. 2" Sheet
4. This is the only existing pile to be blast cleaned and field undercoated.

- LEGEND:**
- - - - - Indicates Existing
  - Indicates New Construction
  - ▨ Denotes limits of removal of existing concrete barrier, cap beam, top of steel pile and portion of concrete waler

**NOTE:**  
THE CONTRACTOR MUST VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

DESIGN	BY R. Candiotti	CHECKED P. Norboe	<b>STATE OF CALIFORNIA</b> DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN <b>DESIGN BRANCH 9</b>	BRIDGE NO.	<b>SARATOGA CREEK WALL</b> <b>CONCRETE BARRIER SLAB LAYOUT</b>		
DETAILS	BY Tim Fairall	CHECKED P. Norboe			37E0104			
QUANTITIES	BY R. Candiotti	CHECKED P. Norboe			POST MILE 4.16			
STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 09-01-10)				UNIT: 3594	PROJECT NUMBER & PHASE: 04000012021	CONTRACT NO.: 04-4S0504	REVISION DATES	SHEET 13 OF 15

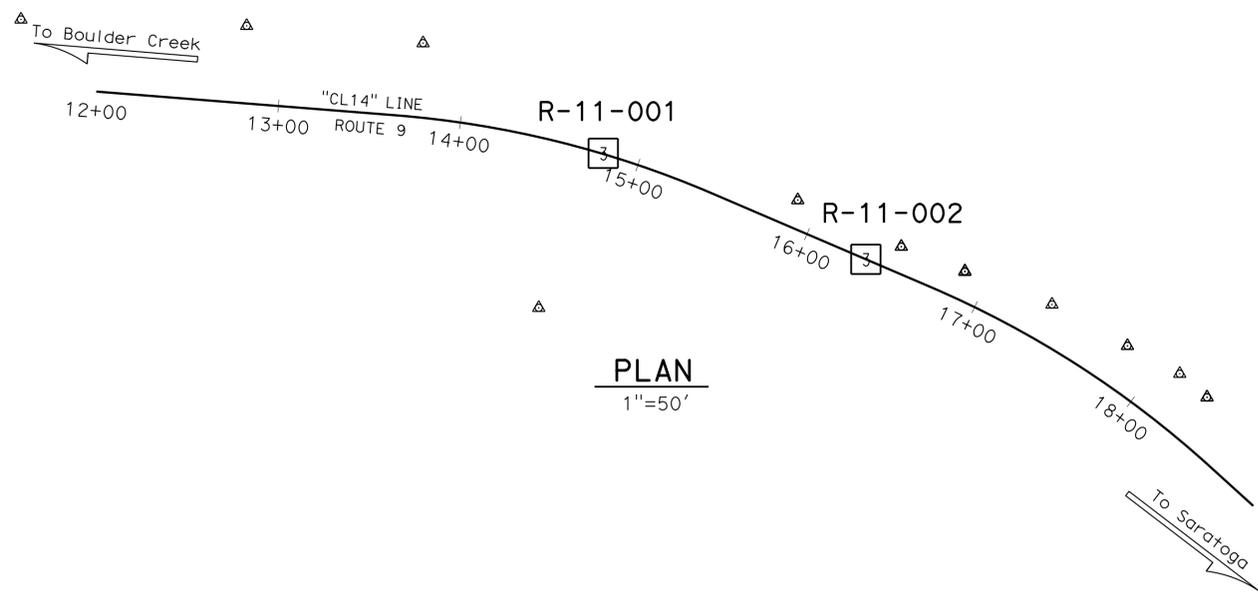


DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	SCI	9	4.2	83	83

03-20-14  
 REGISTERED CIVIL ENGINEER  
 7-28-14  
 PLANS APPROVAL DATE

Samuel Awad  
 No. 64589  
 Exp. 6-30-15  
 CIVIL  
 STATE OF CALIFORNIA

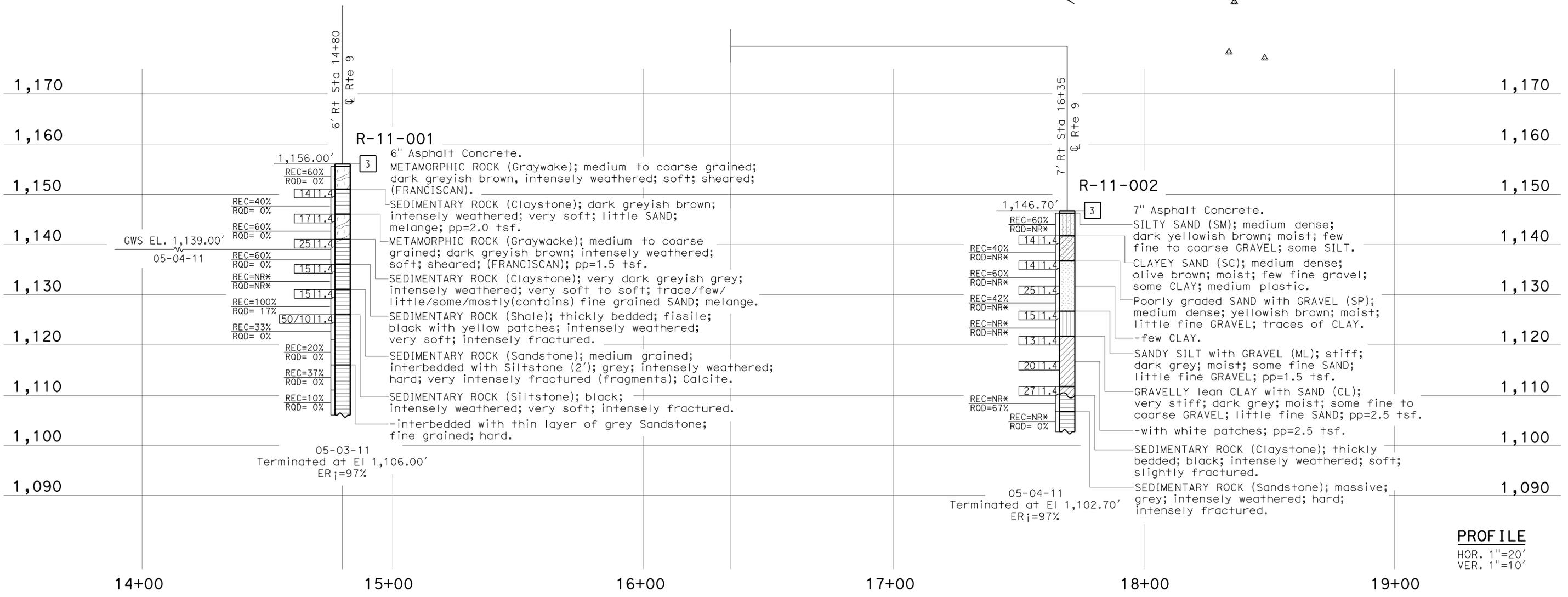
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PLAN  
 1"=50'

This LOTB sheet was prepared in accordance with the Caltrans Soil & Rock Logging, Classification, & Presentation Manual (2010 Edition). See 2010 Standard Plans A10F and A10G for Soil Legend, and A10H for Rock Legend.

NOTE: 1. pp=unconfined compressive strength (tsf) as measured by pocket penetrometer.  
 2. \*NR: Not Recorded.



PROFILE  
 HOR. 1"=20'  
 VER. 1"=10'

<b>ENGINEERING SERVICES</b>		<b>GEOTECHNICAL SERVICES</b>		<b>STATE OF CALIFORNIA</b>		<b>DIVISION OF ENGINEERING SERVICES</b>		<b>BRIDGE NO.</b>		<b>SARATOGA CREEK WALL</b>	
FUNCTIONAL SUPERVISOR		DRAWN BY: M. Reynolds 08-11		DEPARTMENT OF TRANSPORTATION		OFFICE OF GEOTECHNICAL		37E0104		<b>LOG OF TEST BORINGS 1 OF 1</b>	
NAME: H. Nikouli		CHECKED BY: Mo Dehghan		FIELD INVESTIGATION BY: S. Awad		<b>DESIGN BRANCH 9</b>		POST MILES			
								4.16			
								UNIT: 3660		REVISION DATES	
								PROJECT NUMBER & PHASE: 04000012021		SHEET OF	
								CONTRACT NO.: 044S0504		15 15	
								DISREGARD PRINTS BEARING EARLIER REVISION DATES		5-18-12 03-18-14 03-20-14	

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS: 0 1 2 3

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