

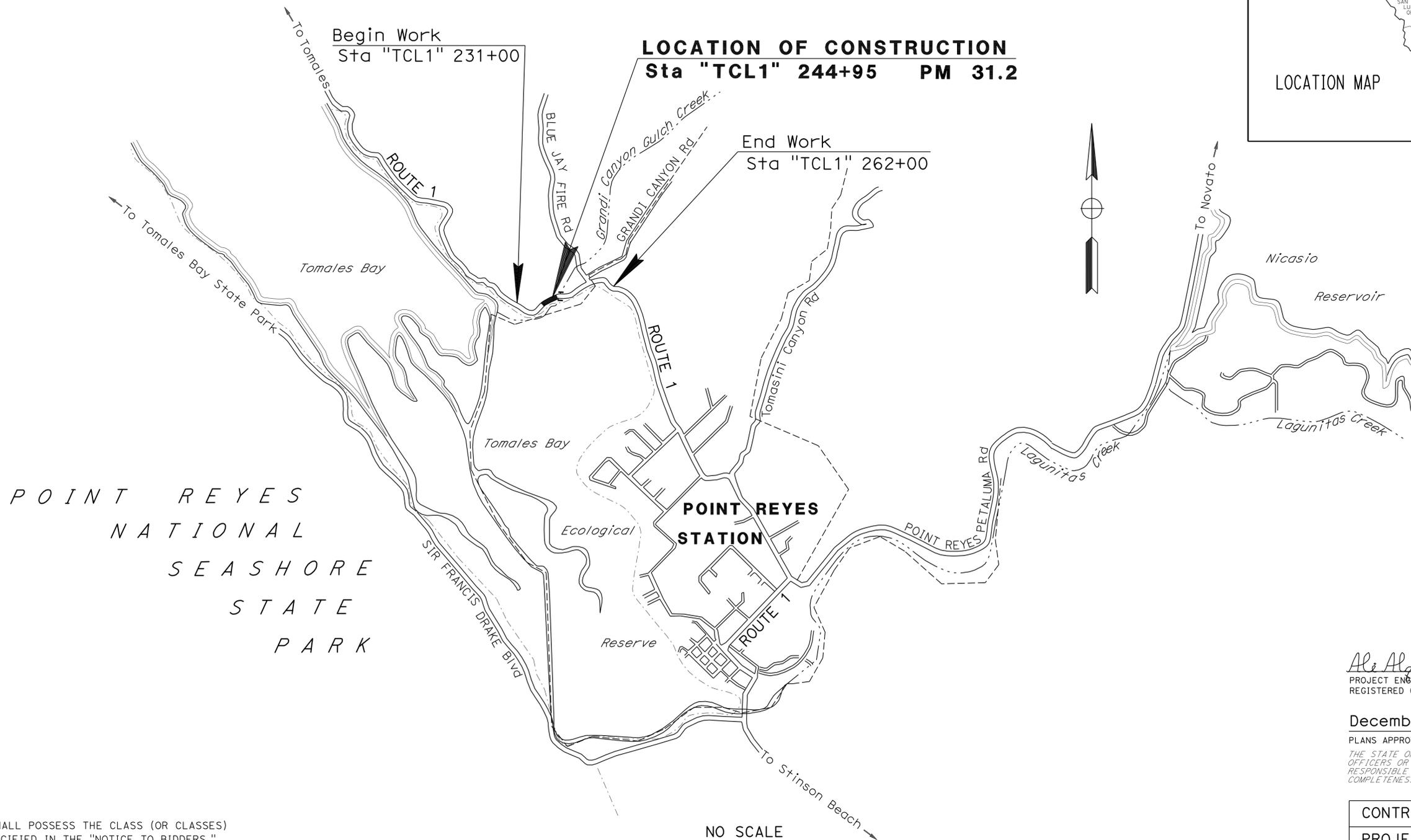
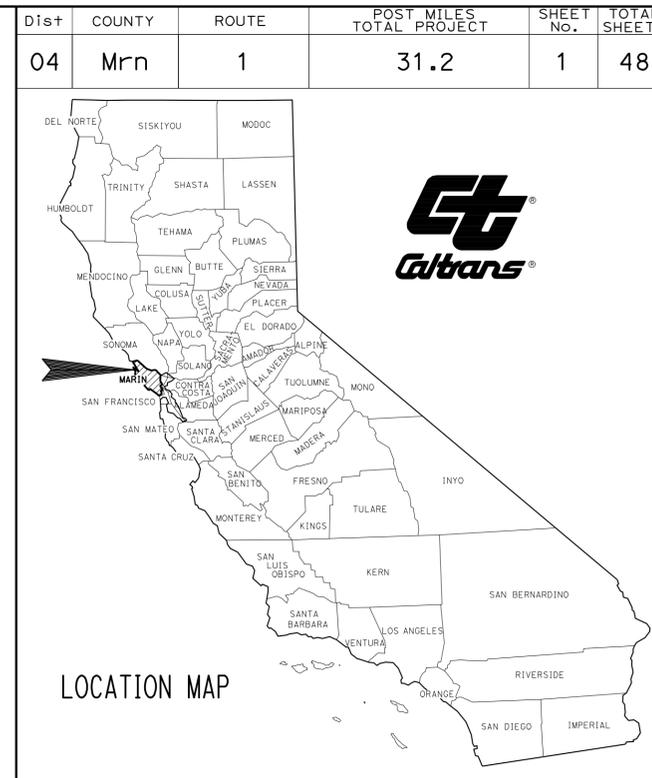
INDEX OF PLANS

SHEET No.	DESCRIPTION
1	TITLE AND LOCATION MAP
2-3	TYPICAL CROSS SECTIONS
4	LAYOUT
5-10	CONSTRUCTION DETAILS
11	CONSTRUCTION AREA SIGNS
12-14	TRAFFIC HANDLING PLAN AND QUANTITIES
15	PAVEMENT DELINEATION PLAN AND QUANTITIES
16	SUMMARY OF QUANTITIES
17	STEEL SOLDIER PILE LOG OF TEST BORING SHEET
18-24	ELECTRICAL PLANS
25-28	SPECIAL ELECTRICAL STRUCTURES
29-48	REVISED STANDARD PLANS

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

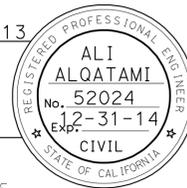
STATE OF CALIFORNIA STP-P001(580)E  
**DEPARTMENT OF TRANSPORTATION**  
**PROJECT PLANS FOR CONSTRUCTION ON**  
**STATE HIGHWAY**  
**IN MARIN COUNTY**  
**NEAR POINT REYES STATION**  
**AT 1.9 MILES NORTH OF**  
**POINT REYES PETALUMA ROAD**

TO BE SUPPLEMENTED BY STANDARD PLANS DATED 2010



PROJECT MANAGER JAY HAGPARAST	DESIGN ENGINEER ALI ALQATAMI
----------------------------------	---------------------------------

Ali Alqatami 02-28-13  
 PROJECT ENGINEER DATE  
 REGISTERED CIVIL ENGINEER



December 30, 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.

CONTRACT No.	<b>04-4S4504</b>
PROJECT ID	<b>0400001238</b>

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

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Mrn	1	31.2	2	48
Ali Alqatami			02-28-13	REGISTERED CIVIL ENGINEER DATE	
12-30-13			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.					

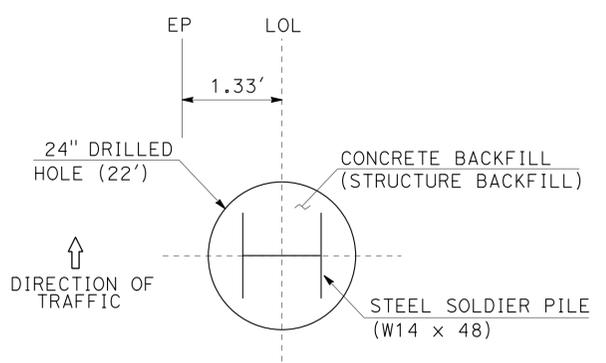
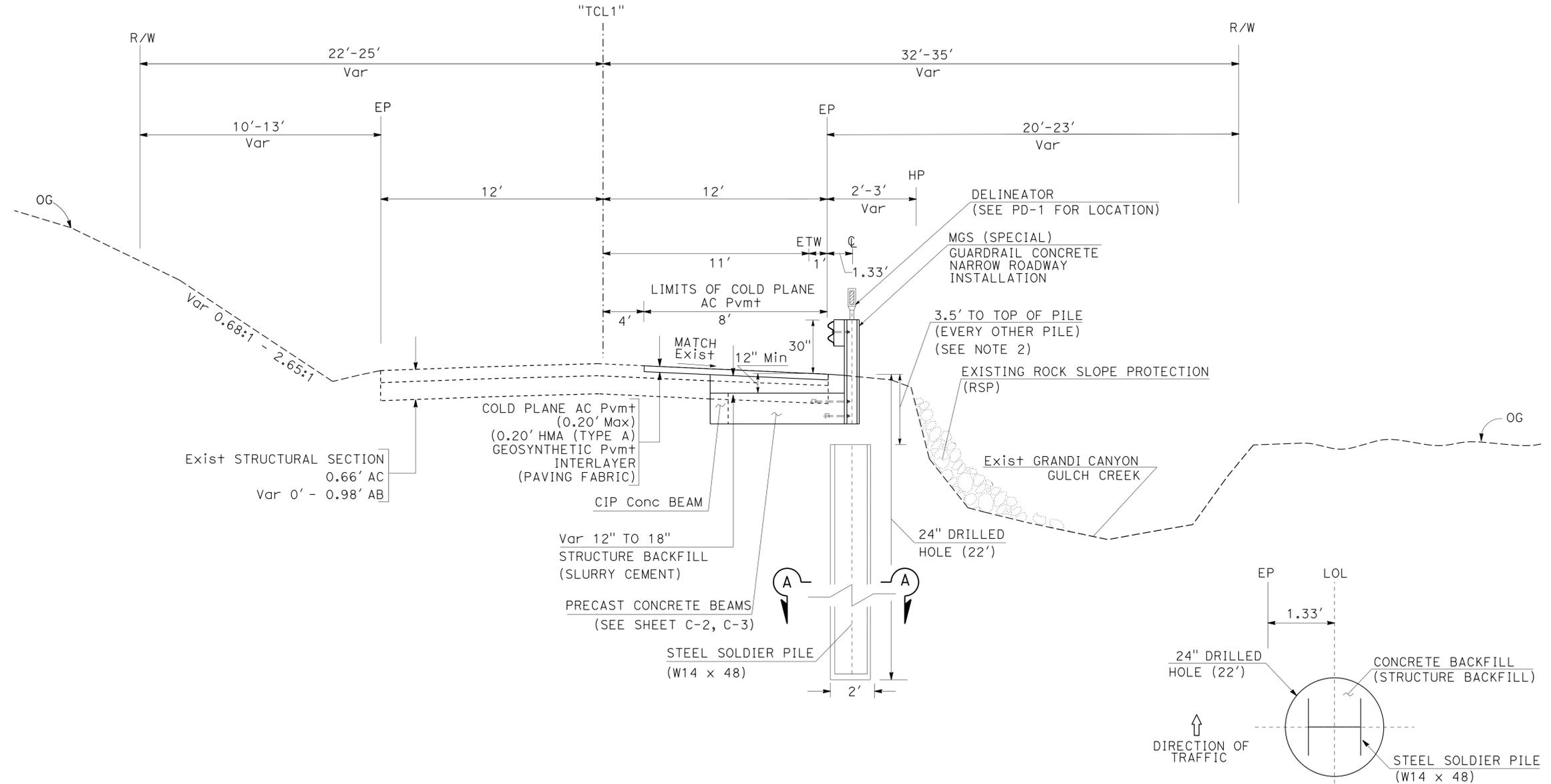


**NOTES:**

- FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT DISTRICT OFFICE.
- OTHER PILES WILL BE POURED FLUSH WITH ORIGINAL GROUND.

**ABBREVIATION:**

MGS - MIDWEST GUARDRAIL SYSTEM



**ROUTE 1**  
 "TCL1" 244+95.00 TO "TCL1" 245+25.00  
 "TCL1" 246+46.00 TO "TCL1" 247+06.00

**TYPICAL CROSS SECTION**  
 NO SCALE  
**X-1**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
 06 - DESIGN  
 Ali Caltrans  
 RORY QUINCE  
 FERNANDO MORALES  
 ALI ALQATAMI  
 REVISIONS: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Mrn	1	31.2	3	48

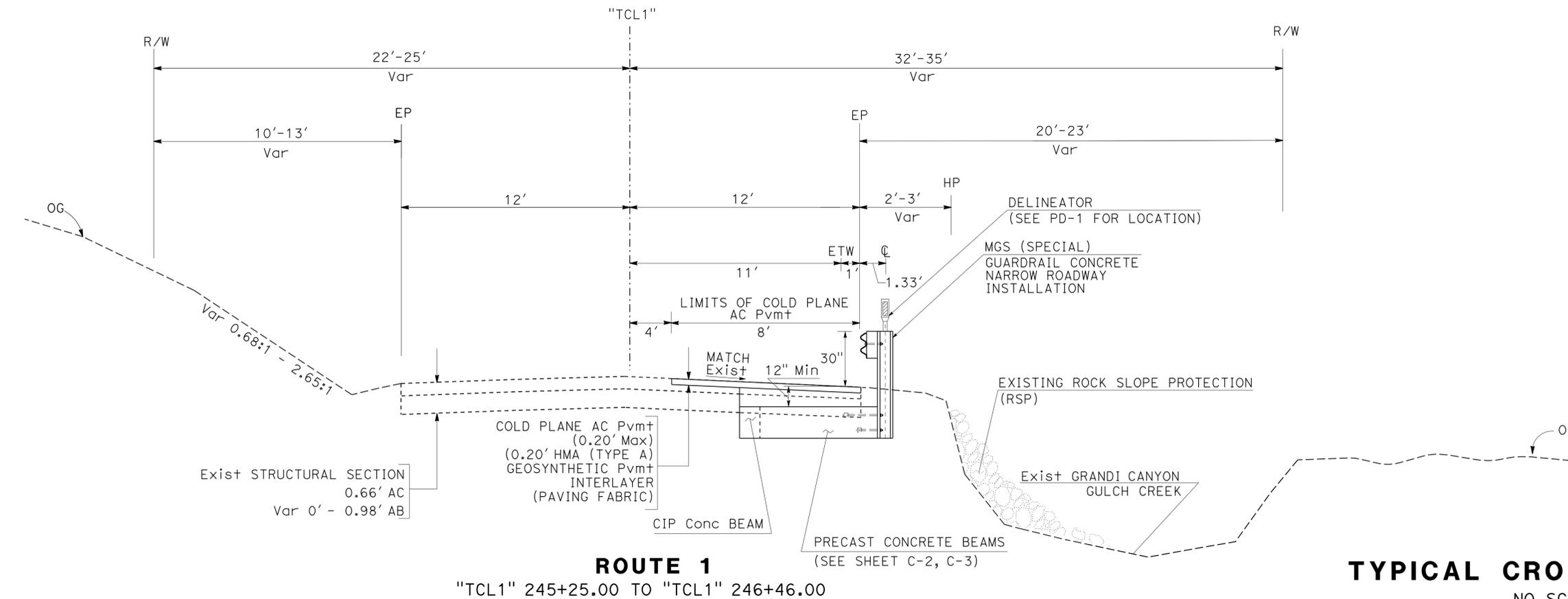
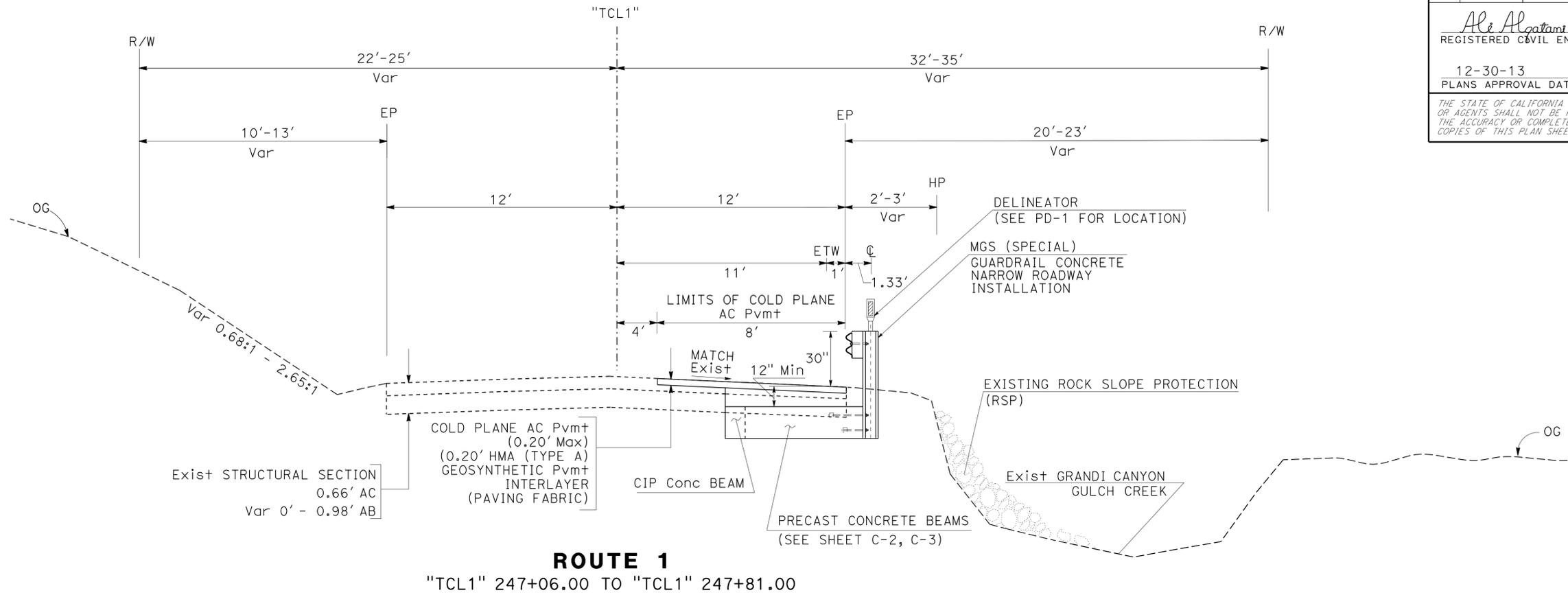
  

Ali Alqatami		02-28-13
REGISTERED CIVIL ENGINEER	DATE	
12-30-13		
PLANS APPROVAL DATE		

REGISTERED PROFESSIONAL ENGINEER	ALI ALQATAMI
No. 52024	Exp. 12-31-14
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.



**TYPICAL CROSS SECTION**  
NO SCALE  
**X-2**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	FUNCTIONAL SUPERVISOR	REVISOR	DATE
<b>Caltrans</b> 06-DESIGN	RORY QUINCE	FERNANDO MORALES	ALI ALQATAMI
		CALCULATED/DESIGNED BY	CHECKED BY
		REVISOR	DATE



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Mrn	1	31.2	5	48

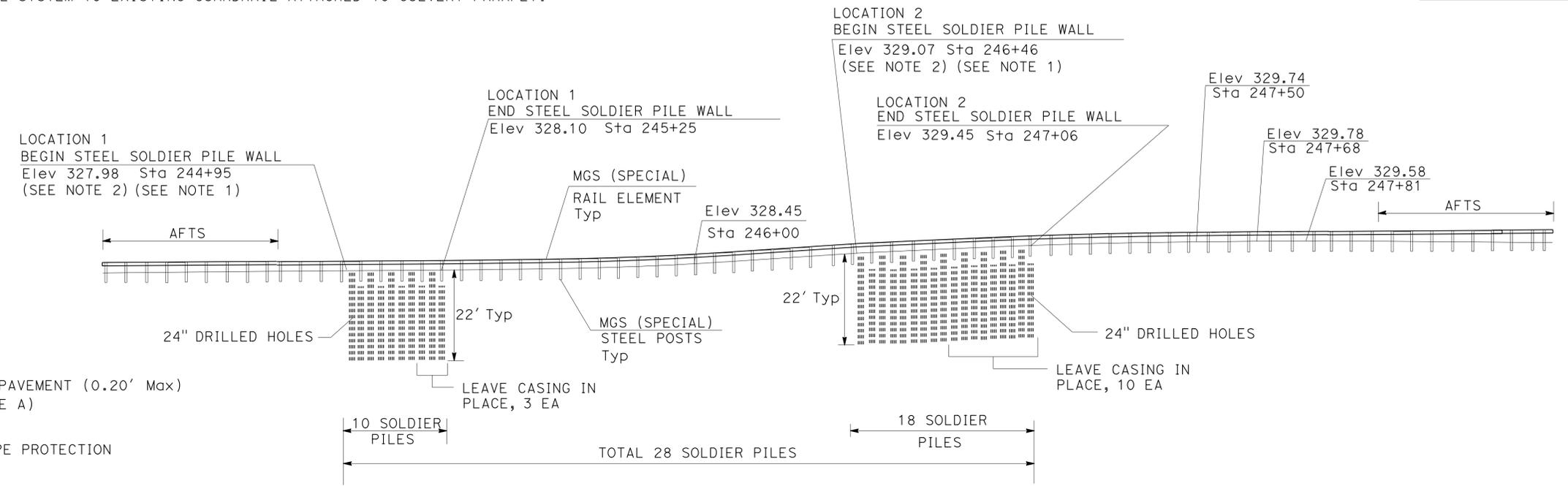
Ali Alqatami	02-28-13
REGISTERED CIVIL ENGINEER	DATE
12-30-13	
PLANS APPROVAL DATE	

REGISTERED PROFESSIONAL ENGINEER  
**ALI ALQATAMI**  
 No. 52024  
 Exp. 12-31-14  
 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. LEAVE Temp CASINGS IN PLACE AS SHOWN OR AS DIRECTED BY THE ENGINEER, Max 13 CASINGS.
2. PILE SPACING WILL BE 3 FEET 1.5 INCHES.
3. FOR DETAIL NOT SHOWN ON SHEET C-2, SEE STANDARD PLAN A77C2.
4. CONNECT MIDWEST GUARDRAIL SYSTEM TO EXISTING GUARDRAIL ATTACHED TO CULVERT PARAPET.



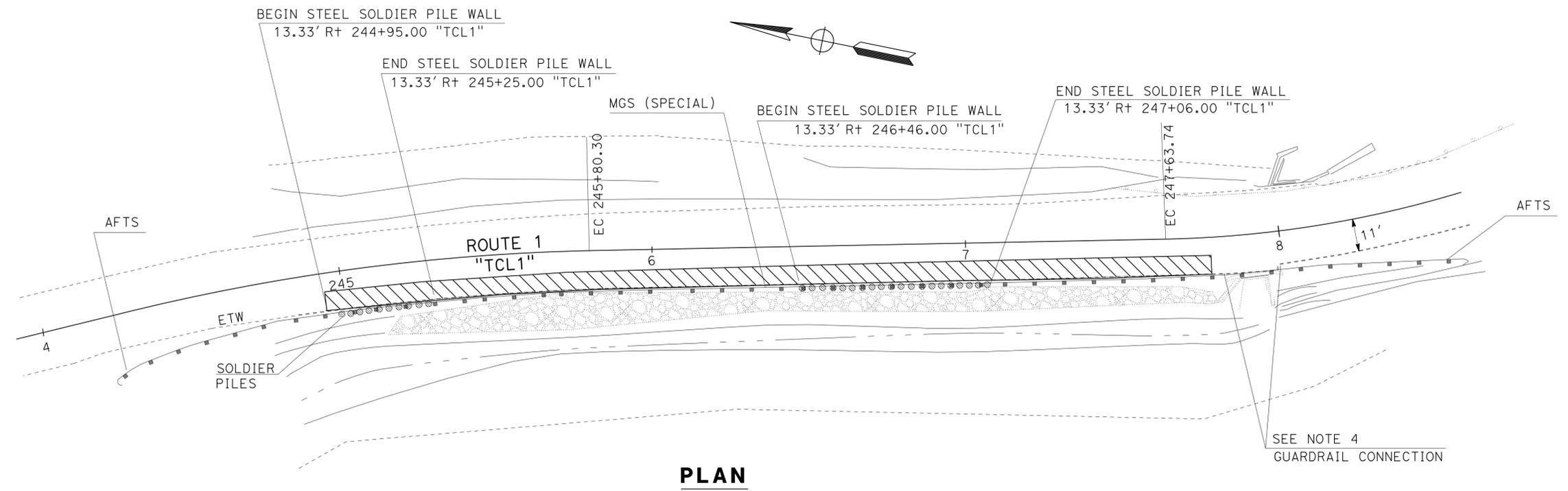
**LEGEND:**

- COLD PLANE AC PAVEMENT (0.20' Max)
- 0.20' HMA (TYPE A)
- Exist ROCK SLOPE PROTECTION

**ABBREVIATIONS:**

- AFTS - ALTERNATE FLARED TERMINAL SYSTEM
- MGS - MIDWEST GUARDRAIL SYSTEM

**ELEVATION**



**PLAN**

**CONSTRUCTION DETAILS**

SCALE: 1" = 20'

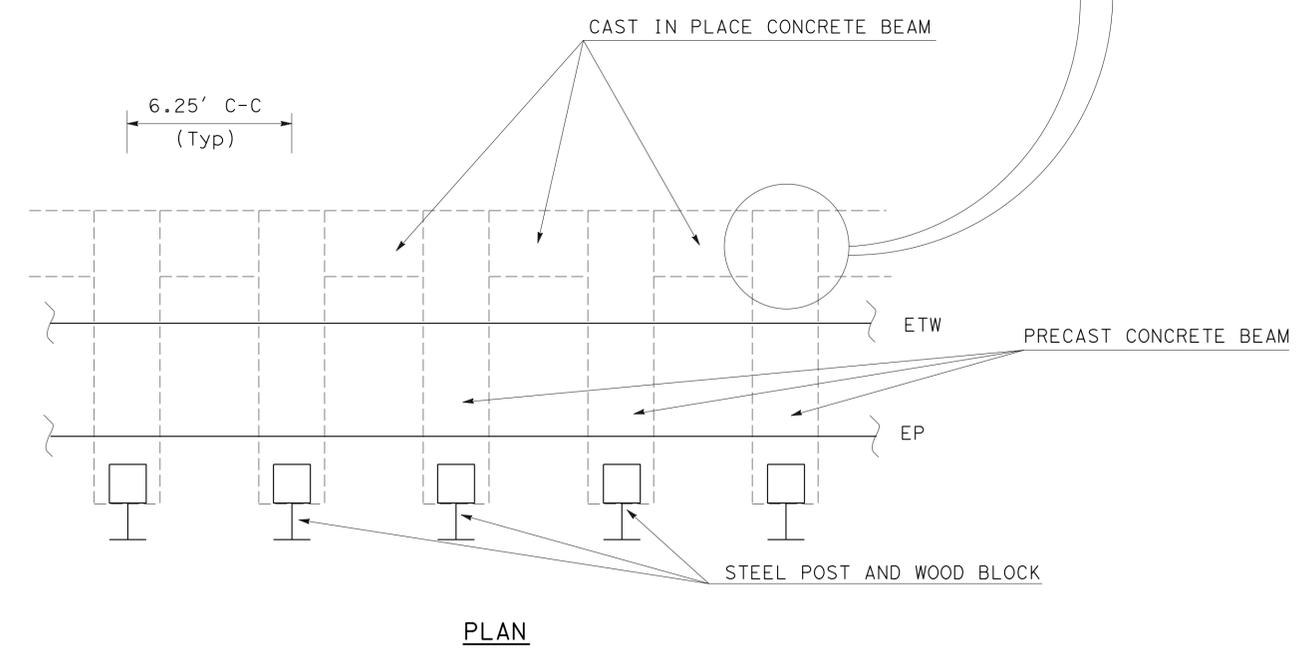
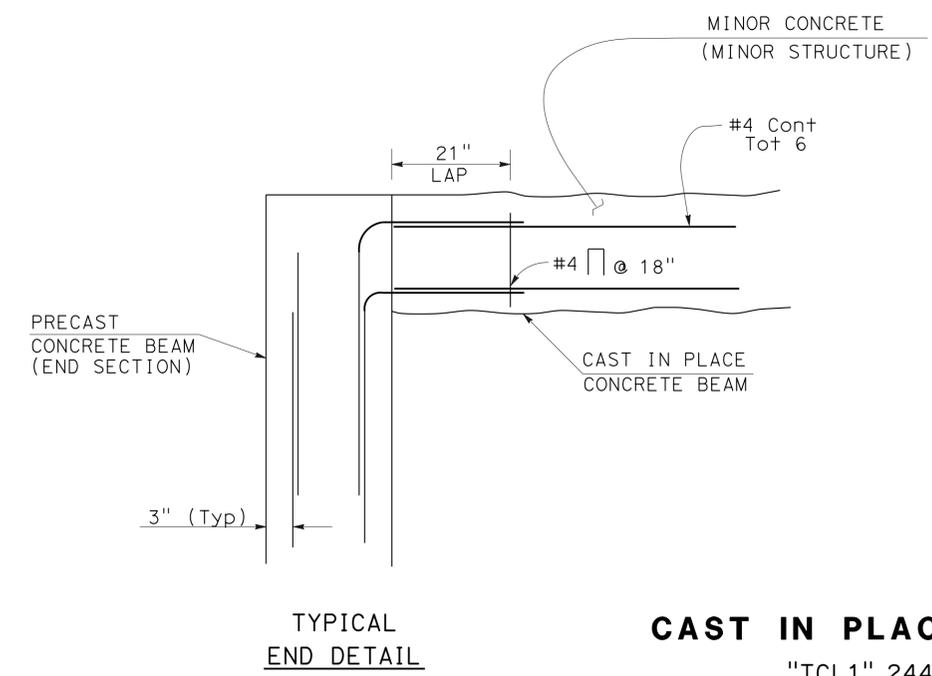
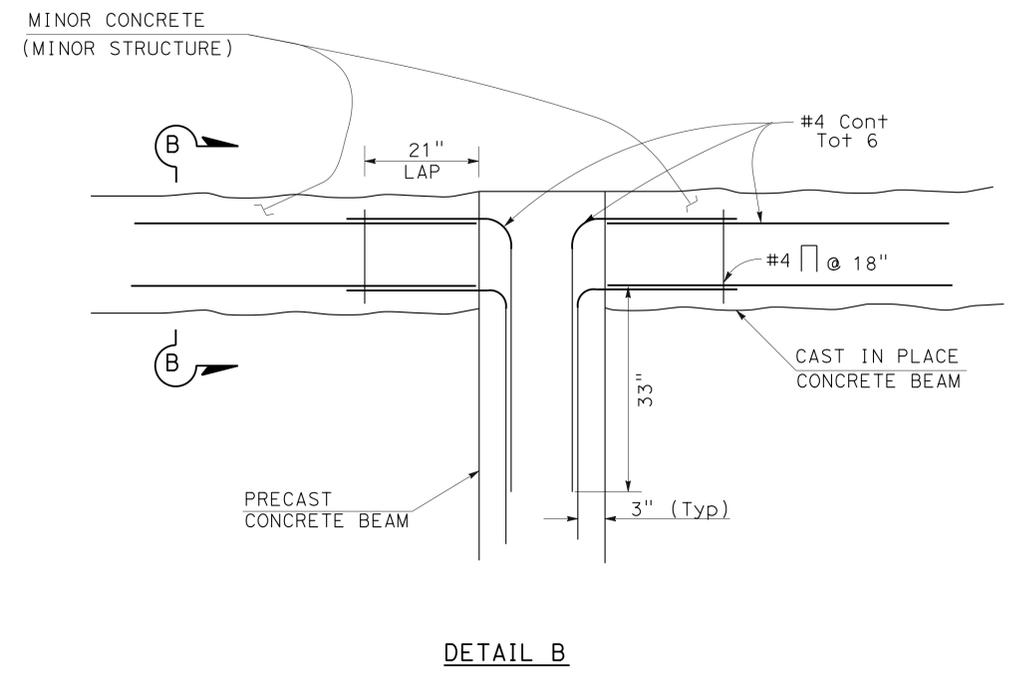
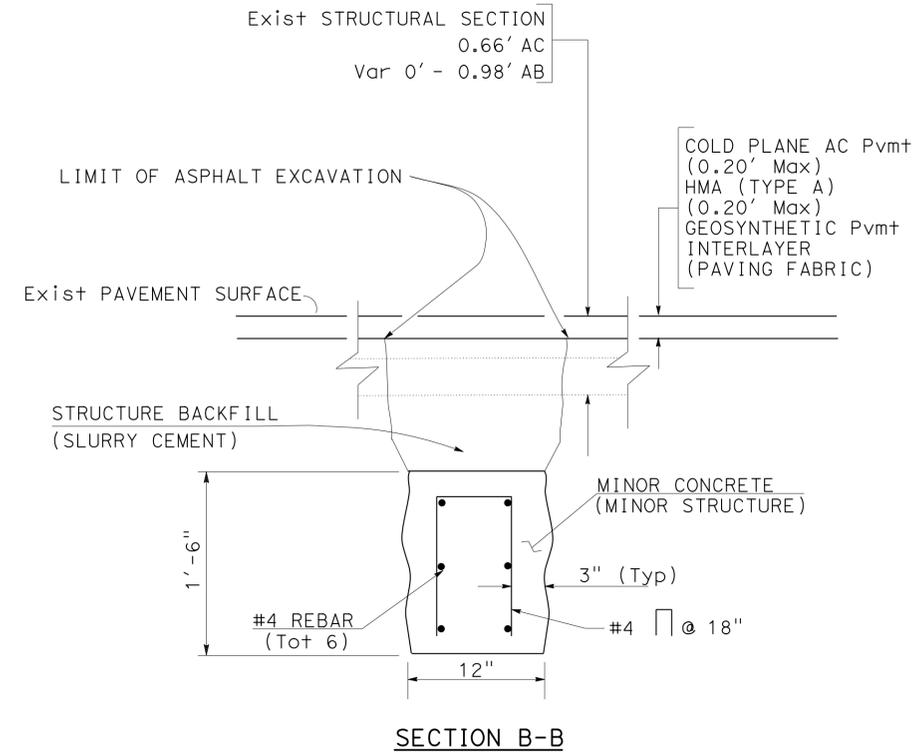
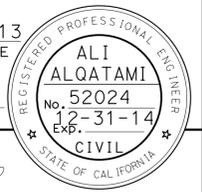
**C-1**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** 06-DESIGN  
 FUNCTIONAL SUPERVISOR: RORY QUINCE  
 CALCULATED/DESIGNED BY: FERNANDO MORALES  
 CHECKED BY: ALI ALQATAMI  
 REVISED BY: DATE  
 REVISIONS:





Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Mrn	1	31.2	7	48
<i>Ali Alqatami</i> 02-28-13 REGISTERED CIVIL ENGINEER DATE					
12-30-13 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.					



**CAST IN PLACE CONCRETE BEAM DETAIL**  
 "TCL1" 244+95.00 TO "TCL1" 247+81.00

**CONSTRUCTION DETAILS**  
 NO SCALE  
**C-3**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	FUNCTIONAL SUPERVISOR	REVISOR	DATE
<b>Caltrans</b> 06-DESIGN	RORY QUINCE	FERNANDO MORALES	02-28-13
		ALI ALQATAMI	

USERNAME => s121614  
 DGN FILE => 0400001238ga003.dgn



UNIT 1458

PROJECT NUMBER & PHASE

04000012381

LAST REVISION DATE PLOTTED => 02-JAN-2014  
 02-28-13 TIME PLOTTED => 14:02

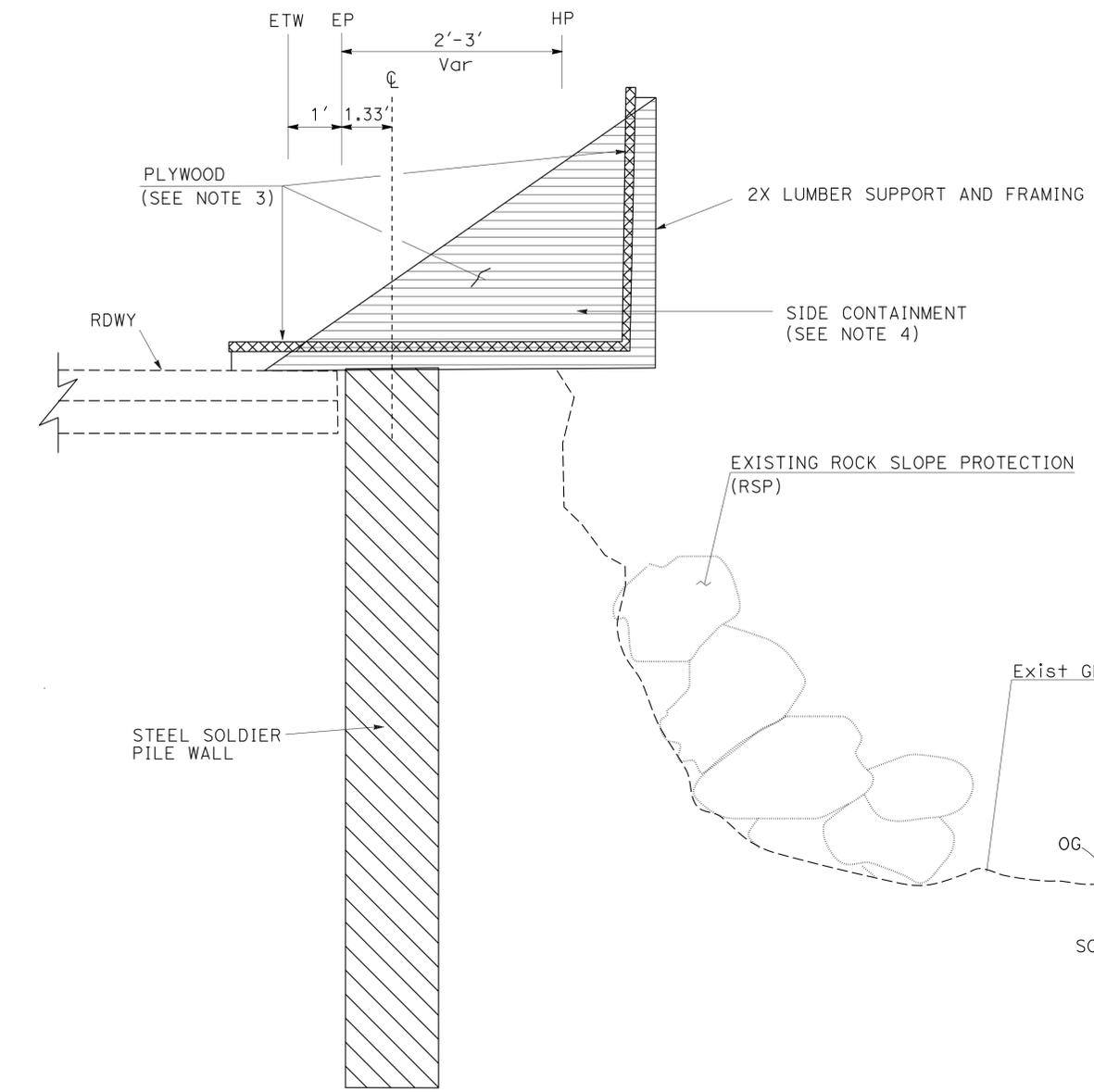
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Mrn	1	31.2	8	48

12-30-13  
 PLANS APPROVAL DATE

LICENSED LANDSCAPE ARCHITECT  
 11-30-13  
 02-20-13

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.

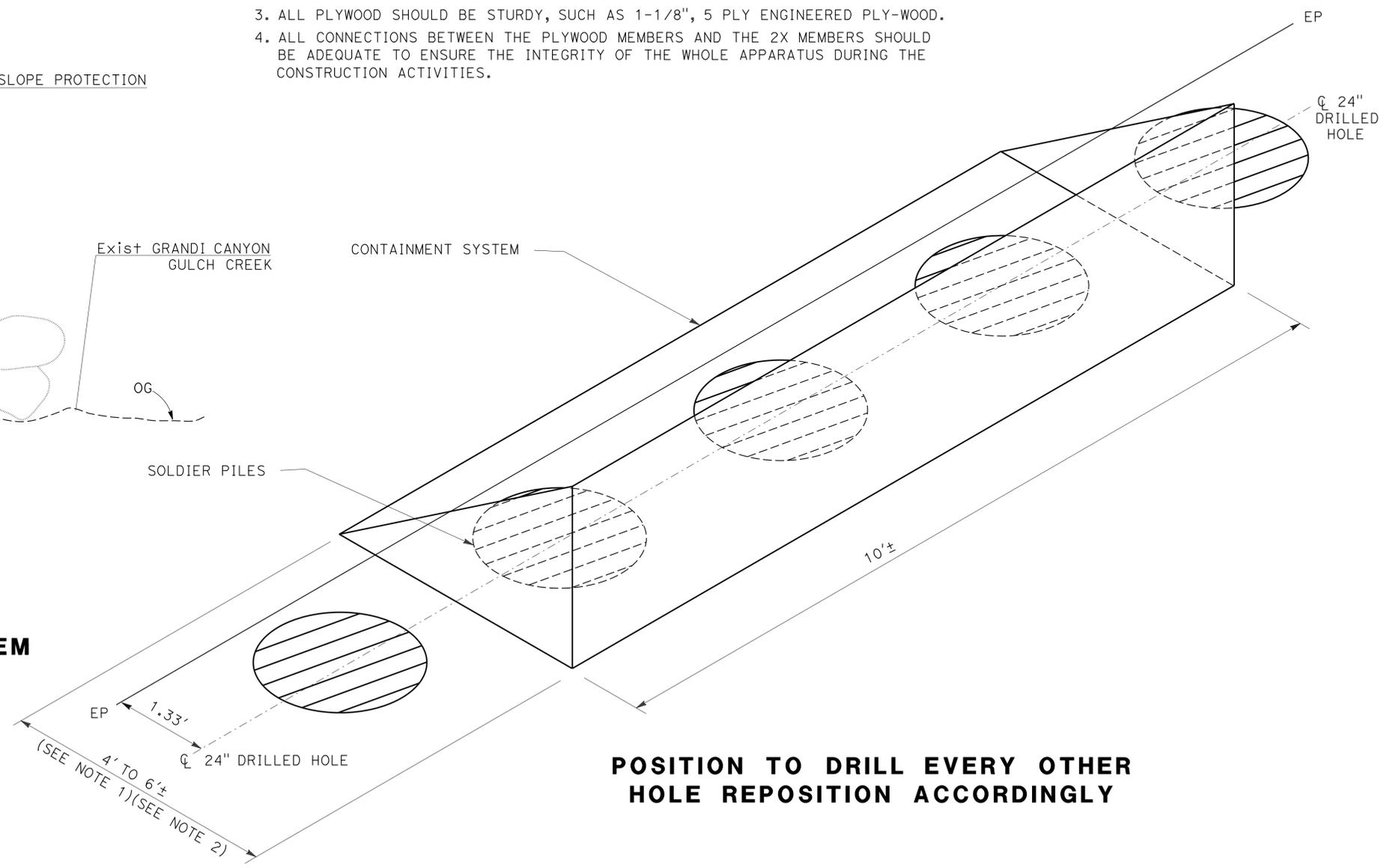
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
 WATER QUALITY  
 SENIOR LANDSCAPE ARCHITECT  
 DAVID YAM  
 CHECKED BY  
 DAVID YAM  
 DESIGNED BY  
 DAVID YAM  
 REVISIONS  
 DATE  
 REVISIONS  
 DATE



**NOTES:**

1. AT LEAST 2/3 OF THE BASE SHOULD BE SUPPORTED ON THE GROUND AND NOT CANTILEVERED.
2. THE BASE PLYWOOD SHOULD BE WEIGHTED DOWN WITH SAND BAGS OR TO OFFSET ANY LOAD ON THE CANTILEVERED SECTION.
3. ALL PLYWOOD SHOULD BE STURDY, SUCH AS 1-1/8", 5 PLY ENGINEERED PLY-WOOD.
4. ALL CONNECTIONS BETWEEN THE PLYWOOD MEMBERS AND THE 2X MEMBERS SHOULD BE ADEQUATE TO ENSURE THE INTEGRITY OF THE WHOLE APPARATUS DURING THE CONSTRUCTION ACTIVITIES.

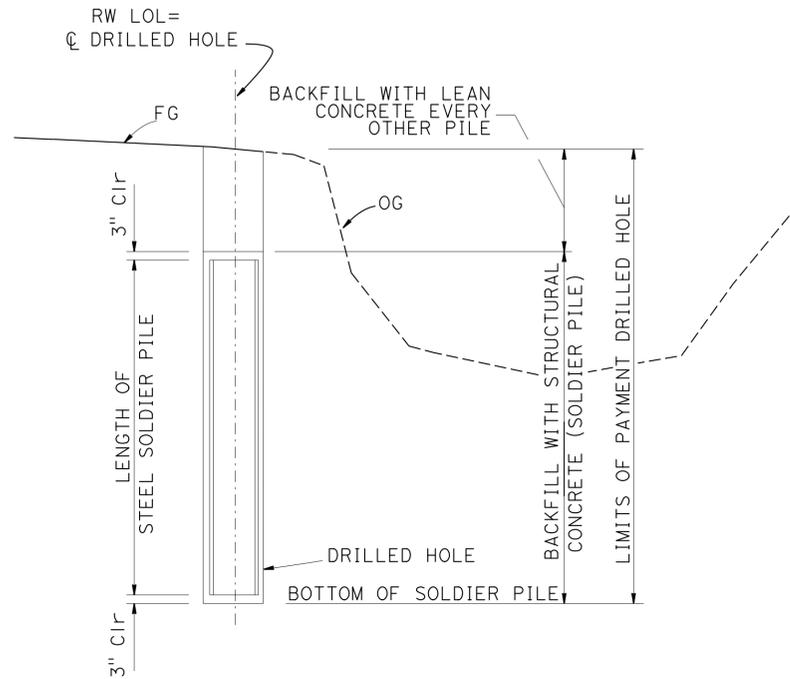
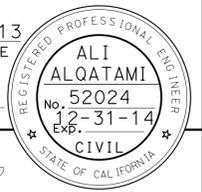
**TYPICAL CROSS SECTION  
CONCEPTUAL TEMPORARY CONTAINMENT SYSTEM**



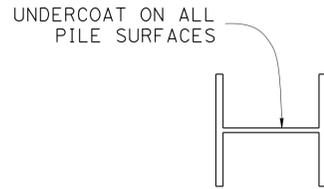
**POSITION TO DRILL EVERY OTHER  
HOLE REPOSITION ACCORDINGLY**

**CONSTRUCTION DETAILS  
NO SCALE  
C-4**

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Mrn	1	31.2	9	48
<i>Ali Alqatami</i> 03-22-13 REGISTERED CIVIL ENGINEER DATE					
12-30-13 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.					



**PAYMENT LIMITS**



**LIMITS OF CLEAN & PAINT  
STEEL SOLDIER PILING**

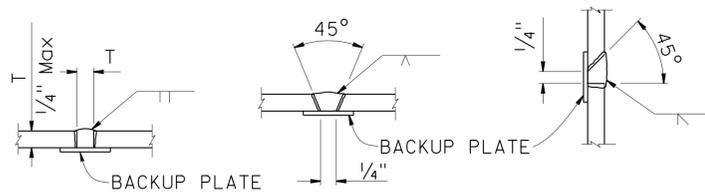
**GENERAL NOTES:**

DESIGN: AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 4TH EDITION WITH CALIFORNIA AMENDMENTS.

LIVE LOAD: 240 LB/FT<sup>2</sup> EQUIVALENT TO 2 FT SOIL WEIGHT

SOIL PARAMETERS: (FOR DETERMINATION OF DESIGN LATERAL EARTH PRESSURES)  
 BACKFILL SOIL WEIGHT = 130 LB/FT<sup>3</sup>  
 FRICTION ANGLE = 30°  
 ACTIVE PRESSURE COEFFICIENT, K<sub>a</sub> = 0.33  
 BEDROCK UNIT WEIGHT = 125 LB/FT<sup>3</sup>

STEEL SOLDIER PILES: ASTM A572/A, ASTM 572M GRADE 50 Min

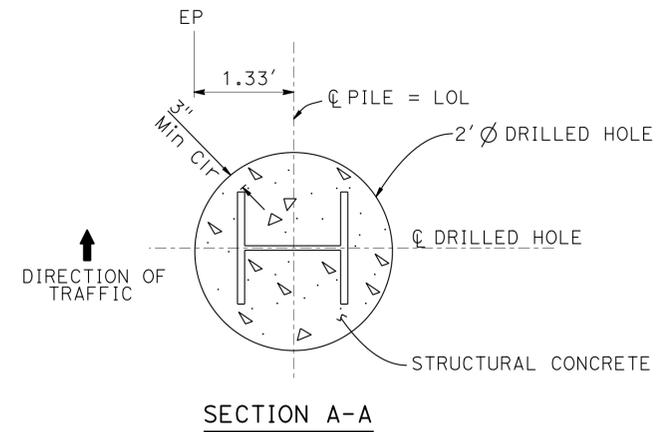


SQUARE GROOVE    SINGLE VEE-GROOVE    SINGLE BEVEL-GROOVE

**PILE WELDING DETAIL - BUTT JOINTS**

**WELDING NOTES:**

1. SINGLE VEE-GROOVE AND SQUARE GROOVE PERMITTED FOR ALL POSITIONS.
2. SINGLE BEVEL-GROOVE PERMITTED FOR HORIZONTAL JOINTS ONLY.



**CONSTRUCTION DETAILS**

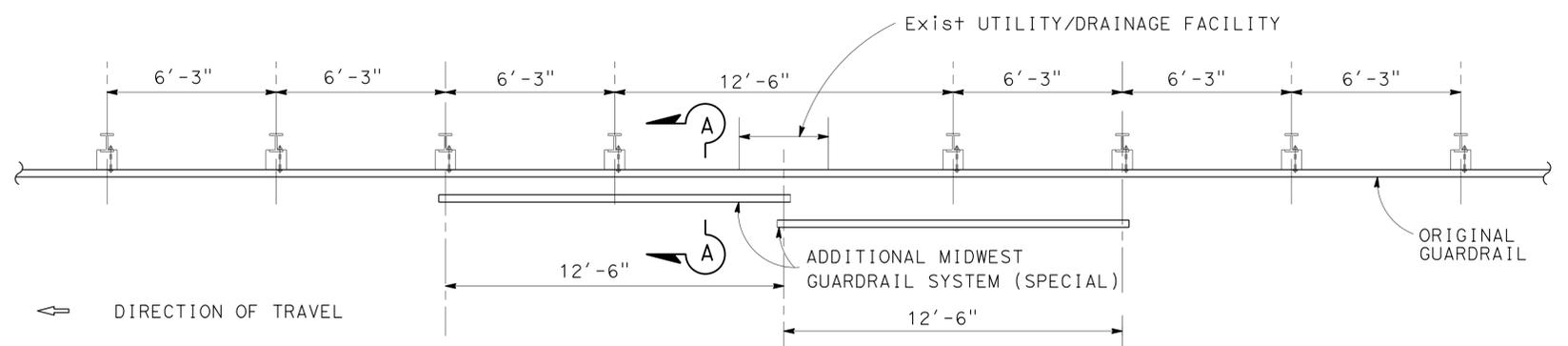
NO SCALE

**C-5**

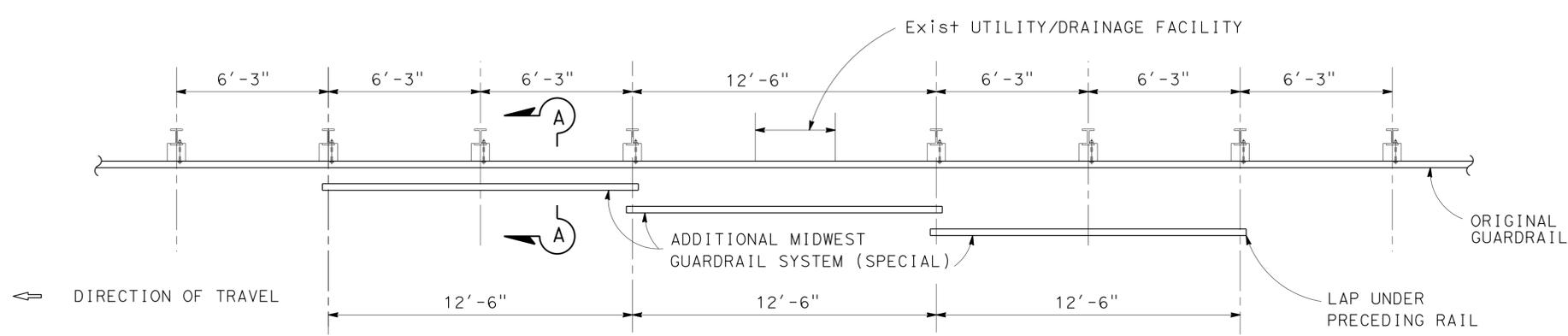
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	FUNCTIONAL SUPERVISOR	REVISOR	DESIGNER
<b>Caltrans</b> 06-DESIGN	RORY QUINCE	FERNANDO MORALES	ALI ALQATAMI
		DESIGNED BY	CHECKED BY
		REVISOR	DATE
		DESIGNED BY	CHECKED BY
		REVISOR	DATE



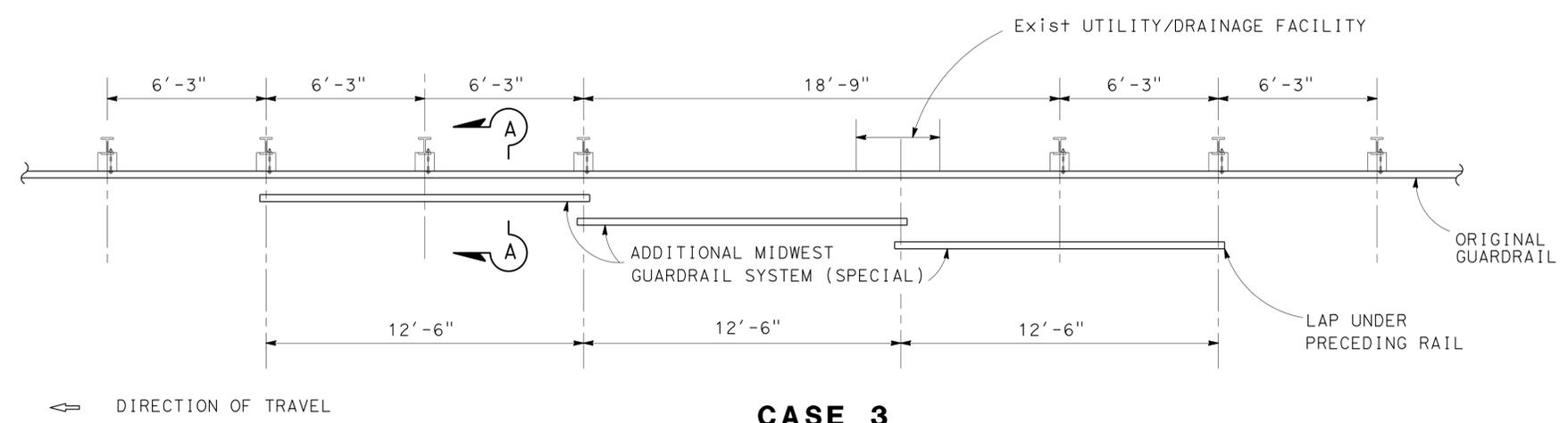
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Mrn	1	31.2	10	48
<i>Ali Alqatami</i> 04-18-13 REGISTERED CIVIL ENGINEER DATE					
12-30-13 PLANS APPROVAL DATE					
<small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small>					



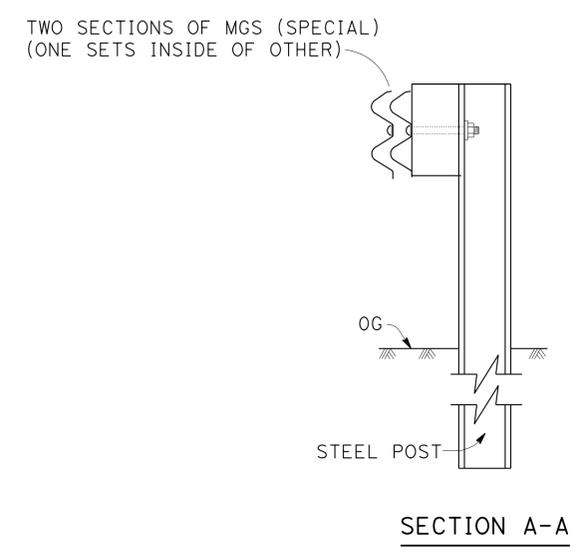
**CASE 1**  
**ONE POST OMITTED (SPLICE IN CENTER)**



**CASE 2**  
**ONE POST OMITTED (SPLICE AT POSTS)**

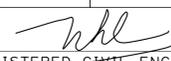
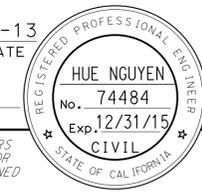


**CASE 3**  
**TWO POSTS OMITTED**



**CONSTRUCTION DETAILS**  
NO SCALE  
**C-6**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** 06-DESIGN  
 FUNCTIONAL SUPERVISOR: RORY QUINCE  
 CALCULATED/DESIGNED BY: [blank] CHECKED BY: [blank]  
 FERNANDO MORALES ALI ALOATAMI  
 REVISED BY: [blank] DATE REVISED: [blank]

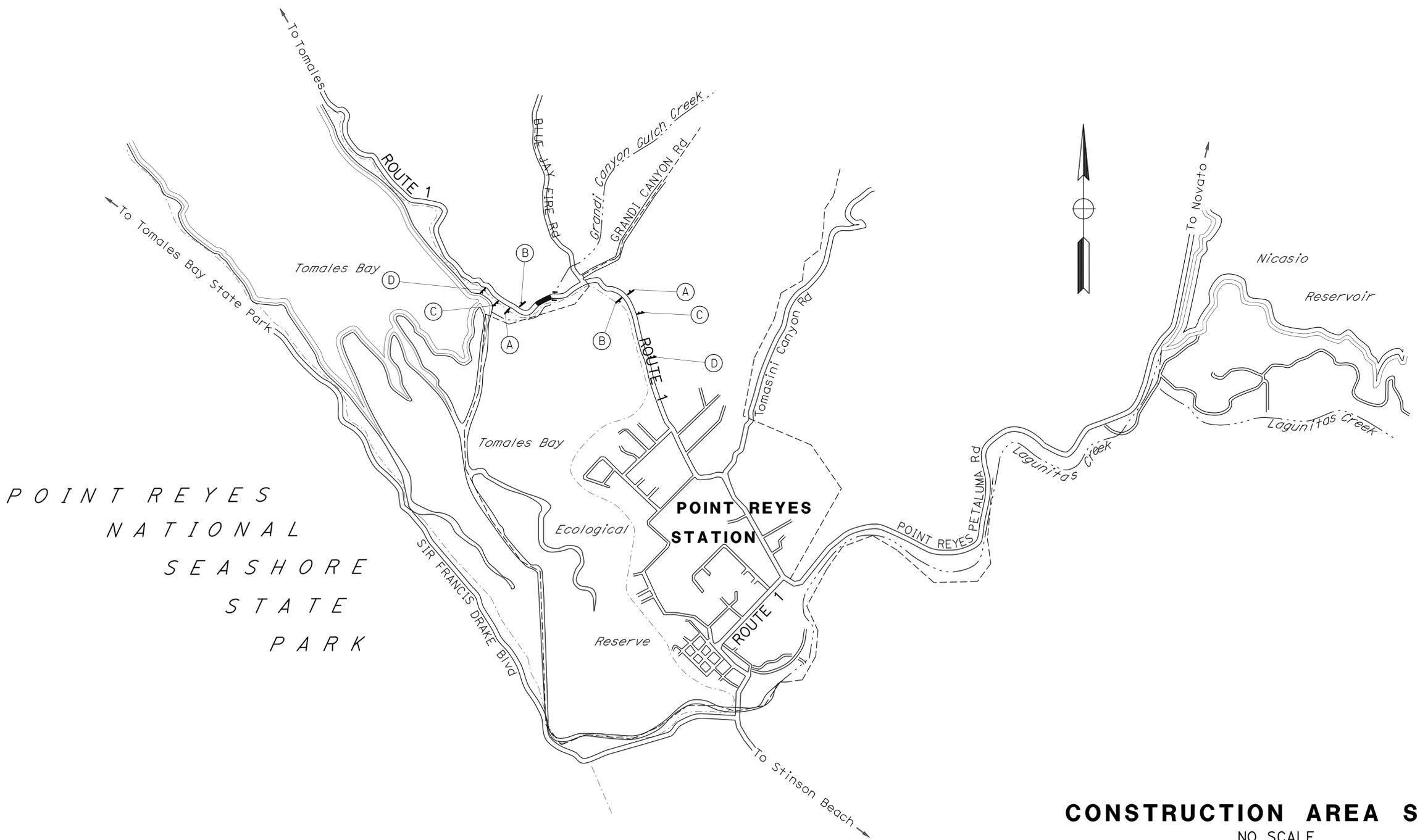
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Mrn	1	31.2	11	48
			 REGISTERED CIVIL ENGINEER DATE 2-27-13		
			12-30-13 PLANS APPROVAL DATE		
					
<small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small>					

### CONSTRUCTION AREA SIGNS (STATIONARY MOUNTED)

SIGN No. (X)	SIGN CODE		PANEL SIZE	SIGN MESSAGE	NUMBER OF POSTS AND SIZE	NUMBER OF SIGNS
	FEDERAL	CALIFORNIA				EA
(A)	W20-1		36" x 36"	ROAD WORK AHEAD	1 - 4" x 4"	2
(B)	G20-2		36" x 18"	END ROAD WORK	1 - 4" x 4"	2
(C)		C40	72" x 36"	TRAFFIC FINES DOUBLED IN CONSTRUCTION ZONES	2 - 4" x 6"	2
(D)		CPFIS	90" x 60"	CONSTRUCTION PROJECT FUNDING IDENTIFICATION SIGN	2 - 6" x 8"	2

**NOTES:**

1. EXACT LOCATION AND POSITION OF SIGNS WILL BE DETERMINED BY THE ENGINEER.
2. FOR ADDITIONAL CONSTRUCTION AREA SIGNS SEE TRAFFIC HANDLING PLAN SHEETS.
3. SIGN POST LENGTH ARE APPROXIMATE, EXACT SIZE AND LENGTH WILL BE DETERMINED BY THE ENGINEER.



POINT REYES  
NATIONAL  
SEASHORE  
STATE  
PARK

### CONSTRUCTION AREA SIGNS NO SCALE CS-1

APPROVED FOR CONSTRUCTION AREA SIGN WORK ONLY

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** 10-TRAFFIC DESIGN  
 FUNCTIONAL SUPERVISOR: MOHAMMED OATAMI  
 CALCULATED/DESIGNED BY: FERNANDO LOPEZ  
 CHECKED BY: HUE NGUYEN  
 REVISED BY: RT  
 DATE REVISED: 06/13/12

LAST REVISION DATE PLOTTED => 02-JAN-2014  
 02-28-13 TIME PLOTTED => 12:55

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Mrn	1	31.2	12	48

<i>nhl</i>	2-27-13
REGISTERED CIVIL ENGINEER	DATE
12-30-13	
PLANS APPROVAL DATE	

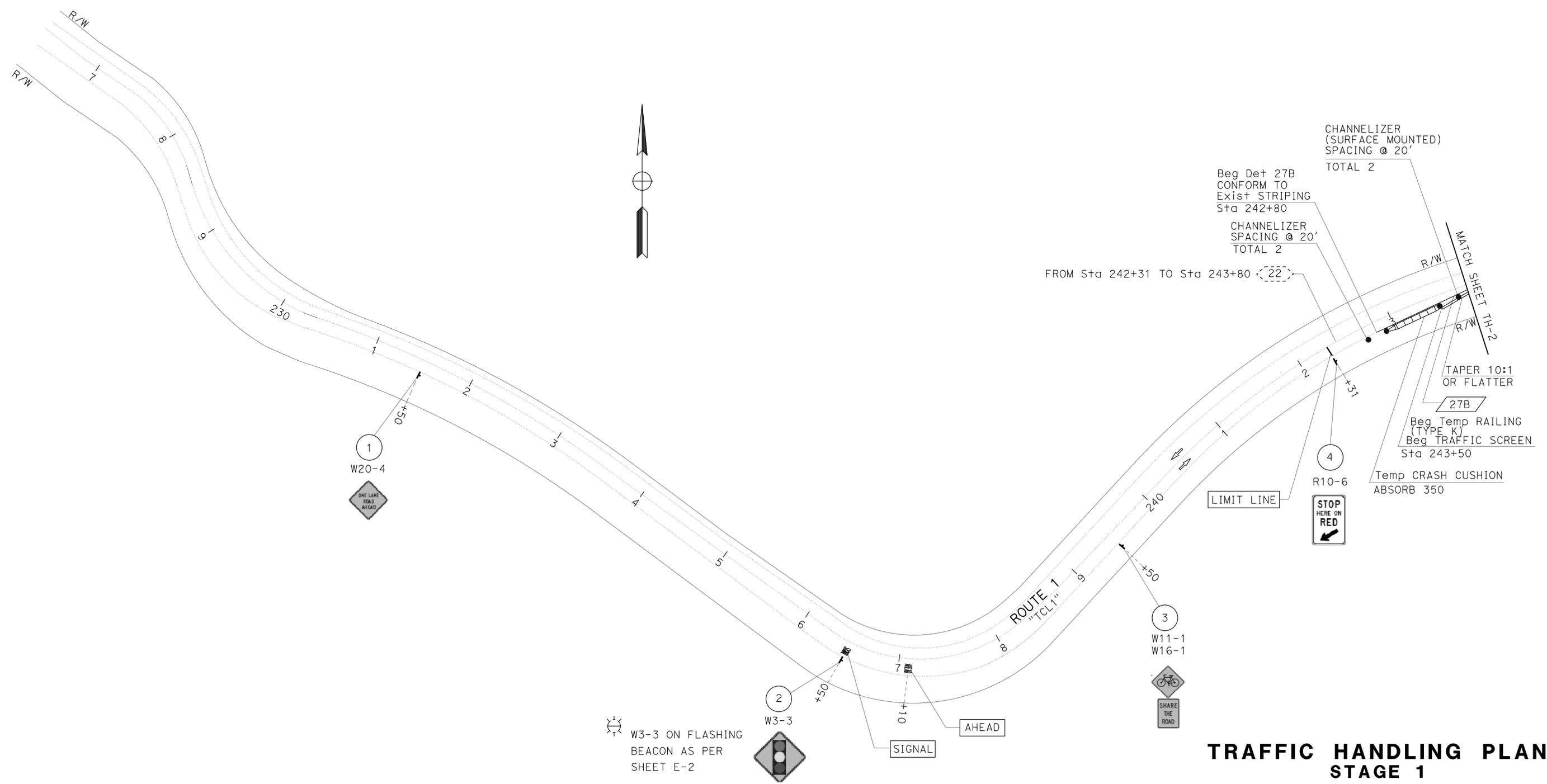
REGISTERED PROFESSIONAL ENGINEER	HUE NGUYEN
No. 74484	
Exp. 12/31/15	
CIVIL	

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.

- LEGEND:**
- X X X - TEMPORARY PAVEMENT MARKING (PAINT)
  - X X X - TEMPORARY TRAFFIC STRIPE (PAINT)
  - - - REMOVE THERMOPLASTIC TRAFFIC STRIPE
  - - CHANNELIZER (SURFACE MOUNTED)
  - ▬ - TEMPORARY CRASH CUSHION (ARRAY AS NOTED)
  - ⚠ - TEMPORARY RAILING (TYPE K)
  - ⊗ - CONSTRUCTION AREA SIGN No.
  - ⇄ - ONE WAY REVERSE TRAFFIC

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

RT	10/15/12
RT	06/12/12
REVISOR	DATE
FERNANDO LOPEZ	HUE NGUYEN
CALCULATED/DESIGNED BY	CHECKED BY
MOHAMMED OATAMI	
FUNCTIONAL SUPERVISOR	
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	<b>10-TRAFFIC DESIGN</b>



APPROVED FOR TRAFFIC HANDLING WORK ONLY

**TRAFFIC HANDLING PLAN  
STAGE 1**  
SCALE: 1" = 50'  
**TH-1**

LAST REVISION DATE PLOTTED => 02-JAN-2014 02-28-13 TIME PLOTTED => 12:55





Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Mrn	1	31.2	15	48

REGISTERED CIVIL ENGINEER DATE 2-27-13  
 HUE NGUYEN  
 No. 74484  
 Exp. 12/31/15  
 CIVIL  
 PLANS APPROVAL DATE 12-30-13  
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.

**LEGEND:**

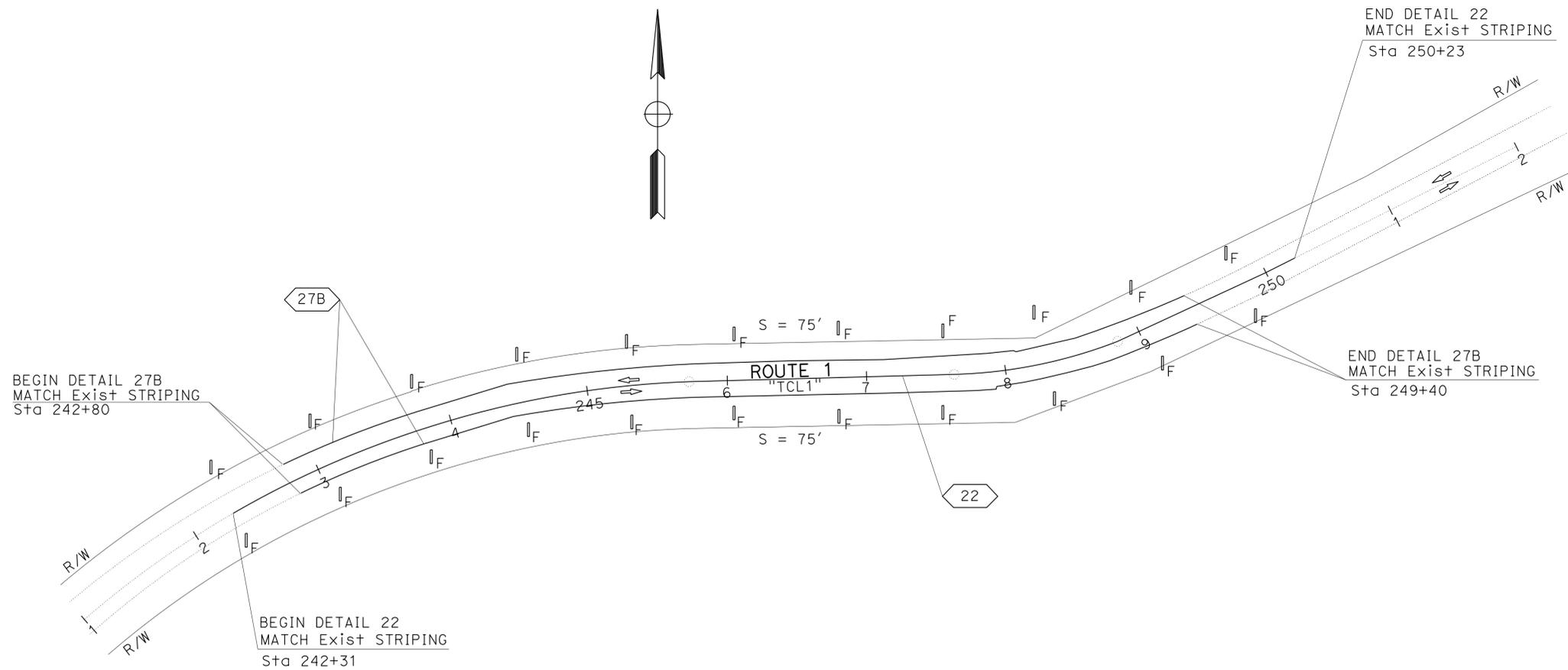
||<sub>F</sub> - DELINEATOR TYPE F  
 S - APPROXIMATE SPACING (S) ON CURVE

**NOTE:**

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

**PAVEMENT DELINEATION QUANTITIES**

SHEET No.	LOCATION	STATION LIMITS	DIRECTION	DETAIL No.	PAVEMENT MARKER (RETROREFLECTIVE)		4" THERMOPLASTIC TRAFFIC STRIPE		DELINEATOR (CLASS 2)
					TYPE D YELLOW (TWO-WAY)	SOLID YELLOW	SOLID WHITE	TYPE F	
					EA	LF	LF	EA	
PD-1	ROUTE 1 "TCL1"	242+80 TO 249+40	SB	27B					11
		242+31 TO 250+23	CL	22	68	1584			
		242+80 TO 249+40	NB	27B				660	11
SUBTOTAL					68	1584	1320		22
TOTAL					68	2904			22



**PAVEMENT DELINEATION PLAN AND QUANTITIES**

SCALE: 1" = 50'

**PD-1**

APPROVED FOR PAVEMENT DELINEATION WORK ONLY

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** 10-TRAFFIC DESIGN  
 FUNCTIONAL SUPERVISOR: MOHAMMED OATAMI  
 CALCULATED/DESIGNED BY: CHECKED BY:  
 FERNANDO LOPEZ: HUE NGUYEN  
 REVISED BY: DATE REVISED:  
 RT: 06/13/12  
 RT: 11/01/12

LAST REVISION | DATE PLOTTED => 02-JAN-2014  
 02-28-13 TIME PLOTTED => 12:56

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** 06-DESIGN  
 FUNCTIONAL SUPERVISOR: RORY QUINCE  
 CALCULATED/DESIGNED BY: CHECKED BY:  
 FERNANDO MORALES ALI ALQATAMI  
 REVISIONS: REVISED BY: DATE REVISED:

ABBREVIATION:  
 MGS - MIDWEST GUARDRAIL SYSTEM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Mrn	1	31.2	16	48

*Ali Alqatami* 02-28-13  
 REGISTERED CIVIL ENGINEER DATE

12-30-13  
 PLANS APPROVAL DATE

No. 52024  
 Exp. 12-31-14  
 CIVIL

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### MIDWEST GUARDRAIL SYSTEM

DIRECTION	STATION	LAYOUT TYPE (N)	MGS (SPECIAL)							
			REMOVE GUARDRAIL	TREATED WOOD WASTE	ALTERNATIVE FLARED TERMINAL SYSTEM	MGS (SPECIAL)	MINOR CONCRETE (MINOR STRUCTURE) (FOR PRECAST BEAM)	MINOR CONCRETE (MINOR STRUCTURE) (FOR CAST IN PLACE BEAM)	STRUCTURE BACKFILL (SLURRY CEMENT)	ROADWAY EXCAVATION
			LF	LB	EA	LF	CY	CY	CY	CY
SB	"TCL1" 244+95.00 TO 247+81.00	11E			2	290	17	12	35	75
SB	"TCL1" 247+10.00 TO 247+81.00		81							
SB	"TCL1" 247+05.00 TO 248+50.00			2100						
SB	"TCL1" 248+00.00 TO 248+49.00		49							
TOTAL			130	2100	2	290				

(N) - NOT A SEPARATE PAY ITEM, FOR INFORMATION ONLY.

### TEMPORARY FENCE (TYPE ESA)

STATION	SIDE	TEMPORARY FENCE (TYPE ESA)
		LF
"TCL1" 243+63.00 TO 248+00.00	LEFT	600
"TCL1" 248+20.00 TO 252+70.00	LEFT	450
"TCL1" 242+80.00 TO 244+80.00	RIGHT	200
"TCL1" 248+00.00 TO 253+50.00	RIGHT	550
TOTAL		1800

### TEMPORARY WATER POLLUTION CONTROL

STATION	SIDE	TEMPORARY COVER	TEMPORARY DRAINAGE INLET PROTECTION	TEMPORARY REINFORCED SILT FENCE	TEMPORARY CONSTRUCTION ENTRANCE
		SQYD	EA	LF	EA
"TCL1" 244+91.40	LEFT		1		
"TCL1" 243+80.00 TO 249+50.00	RIGHT	200			
"TCL1" 244+00.00 TO 245+50.00	RIGHT			150	
"TCL1" 248+00.00 TO 249+50.00	RIGHT			150	
"TCL1" 243+00.00	RIGHT				1
TOTAL		200	1	300	1

### ROADWAY QUANTITIES

DIRECTION	STATION	CONCRETE BACKFILL (SOLDIER PILE WALL)	24" DRILLED HOLE	STEEL SOLDIER PILE (W14x48)	COLD PLANE AC PAVEMENT	HMA (TYPE A)	GEOSYNTHETIC Pvm+ INTERLAYER (PAVING FABRIC)	TACK COAT
		CY	LF	LF	SQYD	TON	SQYD	TON
SB	"TCL1" 244+95.00 TO 245+25.00	25	220	205				
SB	"TCL1" 246+46.00 TO 247+06.00	47	400	370				
SB	"TCL1" 244+95.00 TO 247+81.00				260	60	260	0.4
TOTAL		72	620	575	260	60	260	0.4

## SUMMARY OF QUANTITIES

### Q-1

LAST REVISION | DATE PLOTTED => 02-JAN-2014  
 02-28-13 | TIME PLOTTED => 12:56

**BENCH MARK**

SHUV106  
 Fnd. #4RBC  
 14.63 Lt. "TCL1" Line, C Rte. 01  
 Sta. 245+33.53  
 N 587,805.07  
 E 332,660.43  
 Elev.=327.66

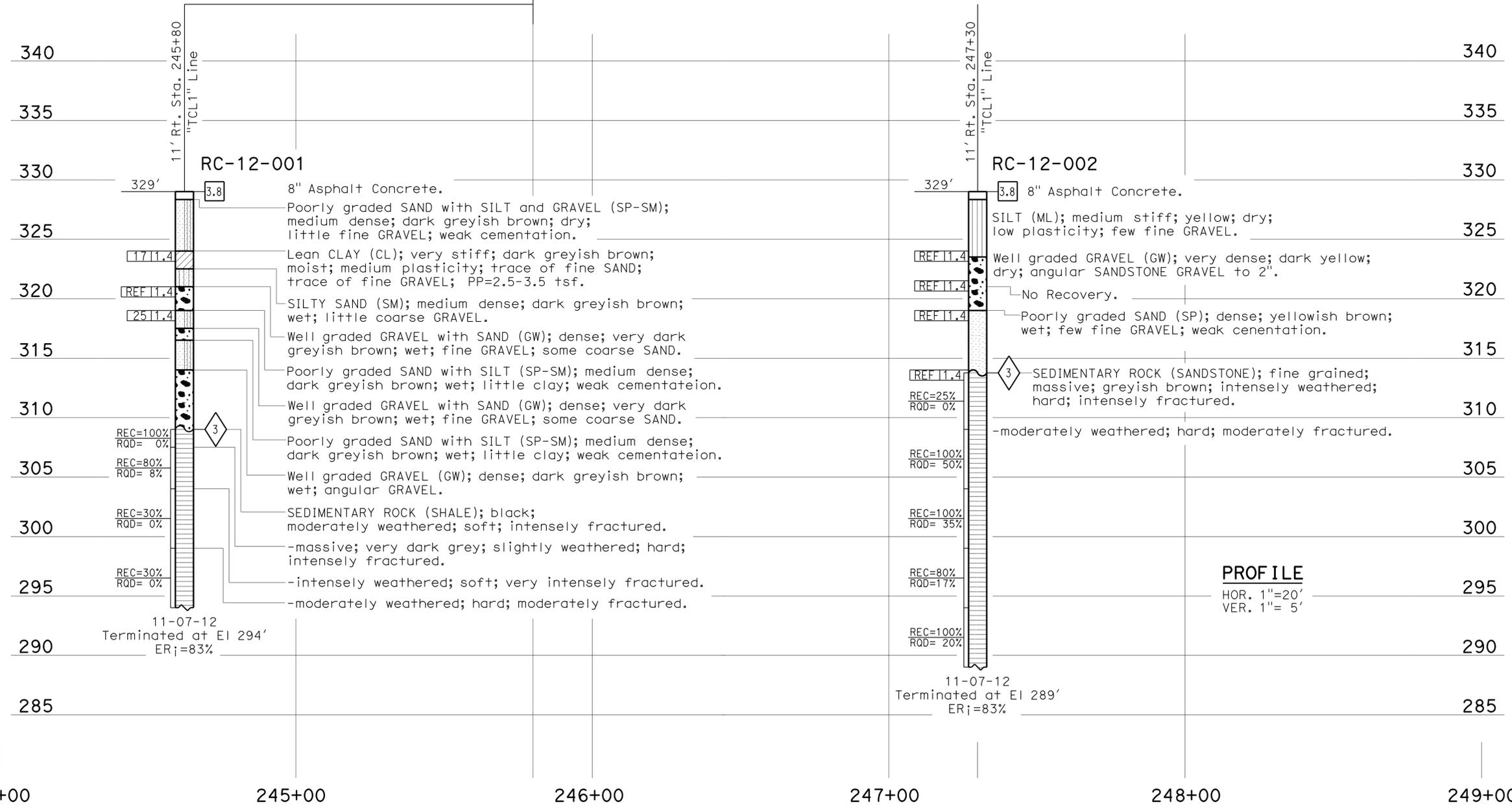
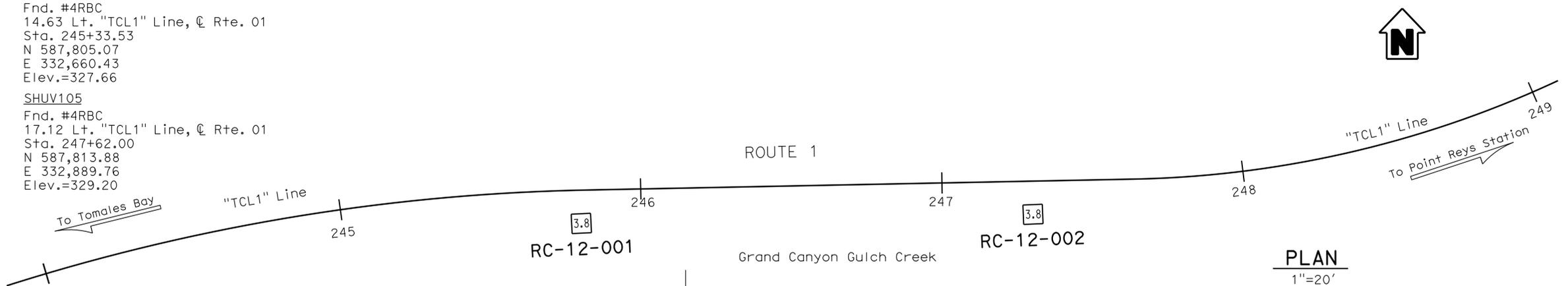
SHUV105  
 Fnd. #4RBC  
 17.12 Lt. "TCL1" Line, C Rte. 01  
 Sta. 247+62.00  
 N 587,813.88  
 E 332,889.76  
 Elev.=329.20

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	Mrn	1	31.2	17	48

01-02-13  
 REGISTERED CIVIL ENGINEER  
 12-30-13  
 PLANS APPROVAL DATE

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

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<b>ENGINEERING SERVICES</b>		<b>GEOTECHNICAL SERVICES</b>		<b>STATE OF CALIFORNIA</b>		<b>DIVISION OF ENGINEERING SERVICES</b>		<b>COLUMN SUPPORTED EMBANKMENT</b>	
FUNCTIONAL SUPERVISOR		DRAWN BY: M. Reynolds 11/12		DEPARTMENT OF TRANSPORTATION		OFFICE OF GEOTECHNICAL		LOG OF TEST BORINGS 1 of 1	
NAME: H. Nikouei		CHECKED BY: M. Gaffney		FIELD INVESTIGATION BY: S. Awad		DESIGN BRANCH		BRIDGE NO.	
								POST MILES	
								31.2	
065 CIVIL LOG OF TEST BORINGS SHEET		ORIGINAL SCALE IN INCHES FOR REDUCED PLANS		UNIT: 3660		PROJECT NUMBER & PHASE: 04000012381		CONTRACT NO.: 04-4s4501	
				DISREGARD PRINTS BEARING EARLIER REVISION DATES		REVISION DATES		SHEET OF	

FILE => 0400001238qa001.dgn

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Mrn	1	31.2	18	48

*Monna Attallah* 03-05-13  
 REGISTERED ELECTRICAL ENGINEER DATE  
 12-30-13  
 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.

**NOTES:**

1. LOWEST SAG POINT OF MESSENGER WIRE MUST BE 25' MINIMUM CLEARANCE FROM FINISHED GRADE OR ROADWAY.
2. OVERHEAD CONDUCTORS MUST BE TIED ON MESSENGER WIRE AT EVERY 3' MAXIMUM WITH SELF-CLINGING NYLON TIES.
3. 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.
4. PROVIDE GUY WIRE, GUY GUARDS AND ANCHOR AS REQUIRED. POLE GUY WIRE MUST BE INSTALLED AS DIRECTED BY THE ENGINEER.
5. ESTABLISH CONTINUOUS GROUND WITH SYSTEM GROUND TO ALL METAL PARTS IN SYSTEM BY BONDING JUMPERS AND CONDUITS.
6. GROUNDING ELECTRODE MUST BE INSTALLED IN PULL BOX ADJACENT TO WOOD POLES AND BONDED TO RIGID METAL CONDUIT, UNLESS OTHERWISE NOTED.
7. REFER TO SES SHEETS FOR TEMPORARY WOOD POLE DETAILS.
8. SIGNS SHOWN ARE "CONSTRUCTION AREA SIGNS". SEE TRAFFIC HANDLING PLANS FOR DETAILS.

**LEGEND:**

- 1 POWER MUST BE PROVIDED BY A GENERATOR WITH A BACKUP GENERATOR. SEE DETAIL 4 ON E-5.
- 2 INSTALL DEPARTMENT FURNISHED MODEL 170E CONTROLLER ASSEMBLY ON TEMPORARY FOUNDATION PLATFORM FOR MODEL 332L CABINET PER DETAIL 5 ON SHEET E-5. INSTALL UPS IN CONTROLLER CABINET.
- 3 2"C, 3#4, 1#8 (G)
- 4 2"C, 2#6 (SIG), 2#8 (LTG), 2#10 (NB FB), 2#10 (SB FB), 1#8 (G)
- 5 2"C, 2#6 (SIG), 6#14 (SPARE), 4 DLC, 2#14 (PPB Ø1), 3#14 (SIG Ø1), 2#14 (PPB Ø2), 3#14 (SIG Ø2), 2#10 (SIG NEUTRAL), 1#8 (G)
- 6 2"C, 6#14 (SPARE), 4 DLC, 2#14 (PPB Ø1), 3#14 (SIG Ø1), 2#14 (PPB Ø2), 3#14 (SIG Ø2), 2#10 (SIG NEUTRAL), 2#8 (LTG), 2#10 (NB FB), 2#10 (SB FB), 1#8 (G)
- 7 2#10 (SB FB), 1#8 (G)
- 8 6#14 (SPARE), 4 DLC, 2#14 (PPB Ø1), 3#14 (SIG Ø1), 2#14 (PPB Ø2), 3#14 (SIG Ø2), 2#10 (SIG NEUTRAL), 2#8 (LTG), 2#10 (NB FB), 1#8 (G)
- 9 6#14 (SPARE), 3 DLC, 2#14 (PPB Ø1), 3#14 (SIG Ø1), 2#14 (PPB Ø2), 3#14 (SIG Ø2), 2#10 (SIG NEUTRAL), 2#8 (LTG), 2#10 (NB FB), 1#8 (G)
- 10 6#14 (SPARE), 2 DLC, 2#14 (PPB Ø1), 3#14 (SIG Ø1), 3#14 (SIG Ø2), 2#10 (SIG NEUTRAL), 2#8 (LTG), 2#10 (NB FB), 1#8 (G)
- 11 3#14 (SIG Ø2), 1#10 (SIG NEUTRAL), 3#14 (SPARE)
- 12 3#14 (SPARE), 2 DLC, 2#14 (PPB Ø1), 3#14 (SIG Ø1), 2#10 (SIG NEUTRAL), 2#8 (LTG), 2#10 (NB FB), 1#8 (G)
- 13 LOOPS MUST HAVE 5 TURNS.
- 14 1 DLC, 2#10 (NB FB), 1#8 (G)
- 15 2#10 (NB FB), 1#8 (G)
- 16 SEE DETAIL 2 ON SHEET E-5.
- 17 SEE DETAIL 3 ON SHEET E-5.
- 18 LOOP DETECTORS MUST BE CONNECTED IN PB AS SHOWN ON SHEET E-6 IN DETAIL 9 FOR 1 TYPE D AND 3 TYPE A LOOPS (ON ONE SENSOR UNIT CHANNEL).
- 19 SEE DETAIL 6 ON SHEET E-5.

**INDEX TO ELECTRICAL PLANS:**

DRAWING No.	TITLE
E-1	NOTES, LEGEND, SYMBOLS, AND ABBREVIATIONS
E-2 TO E-4	TEMPORARY SIGNAL SYSTEM
E-5 TO E-6	ELECTRICAL DETAILS
E-7	ELECTRICAL QUANTITIES

**SYMBOLS:**

- PROPOSED
- ADVANCE FLASHING BEACON WITH A W3-3 SIGN AND SIGN LIGHTING MOUNTED ON A WOOD POLE. SEE DETAIL 1 ON SHEET E-5.
  - WOOD POLE WITH 200 W HPS LUMINAIRE (ON MASTARM), SIGNAL HEAD, PPB, R10-6 SIGN AND CONDUIT RISER. SEE DETAIL 6 ON SHEET E-5.
  - GENERATOR WITH A BACKUP GENERATOR
  - OVERHEAD, 7 STRAND GALVANIZED MESSENGER WIRE WITH CONDUCTORS AS NOTED
  - FUEL TANK
  - TEMPORARY CHAIN LINK FENCE (TYPE CL-6) WITH 4' CHAIN LINK GATE (TYPE CL-6)
  - FUEL LINE

**ABBREVIATION:**

- UPS UNINTERRUPTIBLE POWER SUPPLY

**NOTES, LEGEND, SYMBOLS, AND ABBREVIATIONS**  
**E-1**

APPROVED FOR ELECTRICAL WORK ONLY





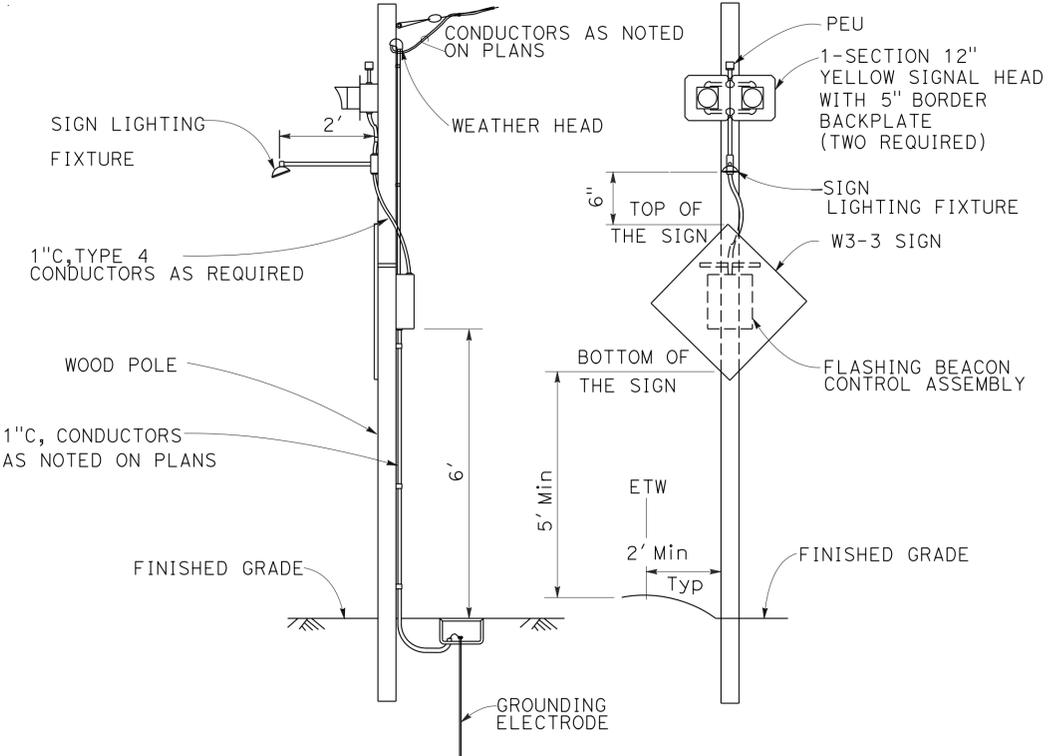


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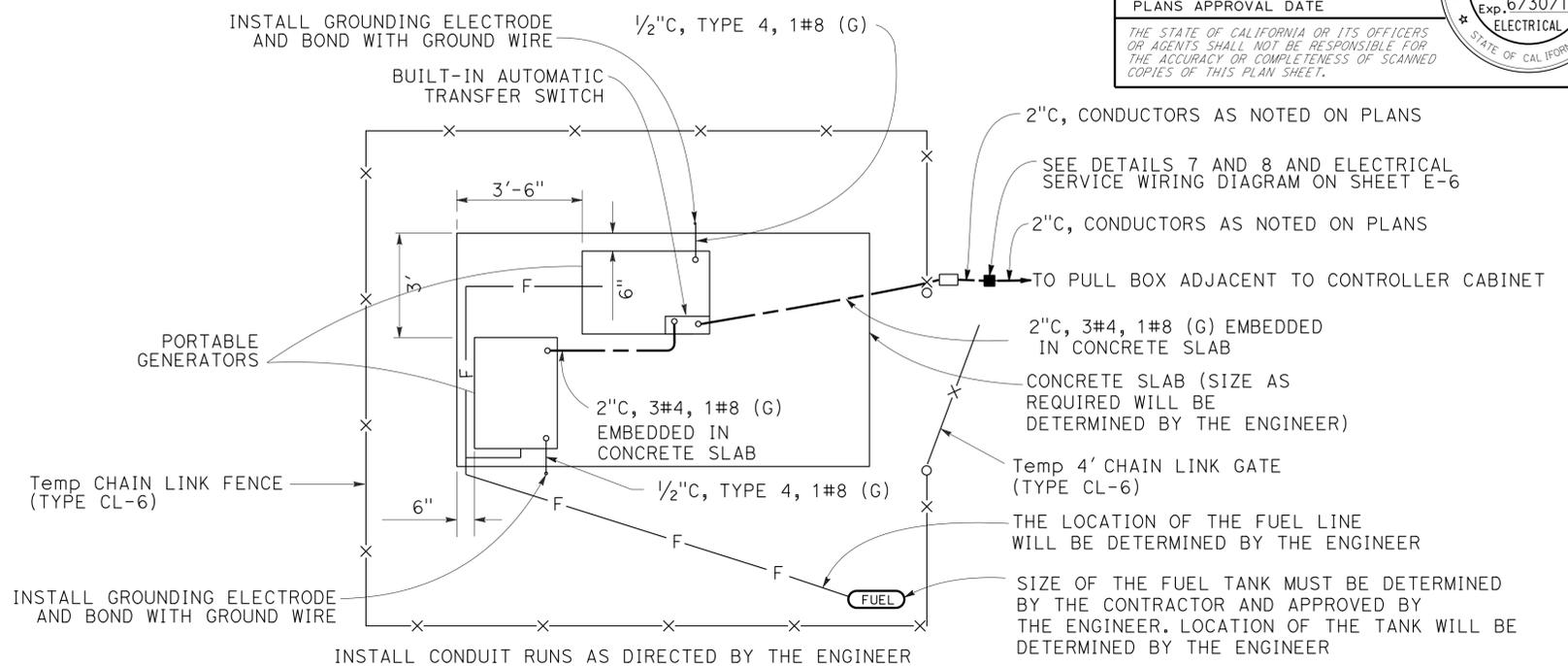
  

<i>Monna Attallah</i> 03-05-13 REGISTERED ELECTRICAL ENGINEER DATE	
12-30-13 PLANS APPROVAL DATE	
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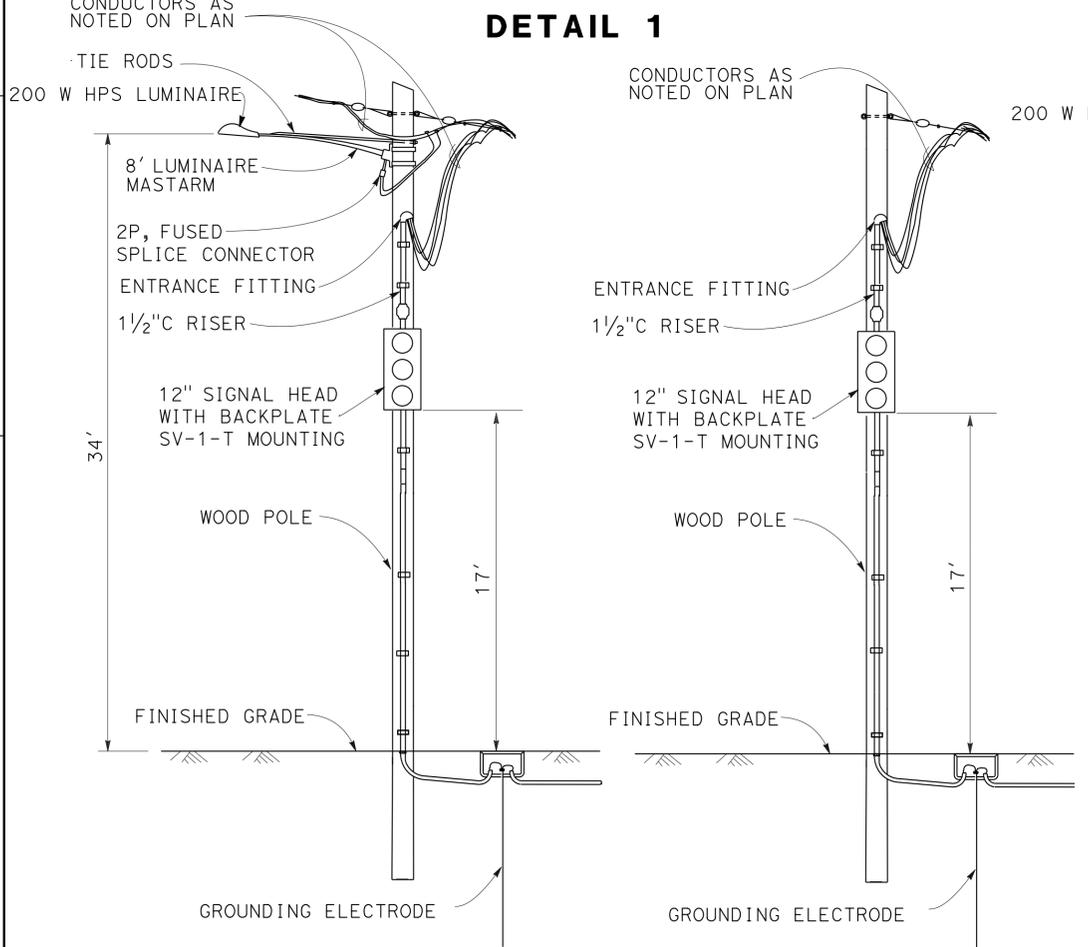
**NOTE:**  
1. FOR POLE DETAILS, SEE SHEETS SES-1 AND SES-2.



**TEMPORARY FLASHING BEACON INSTALLATION  
DETAIL 1**

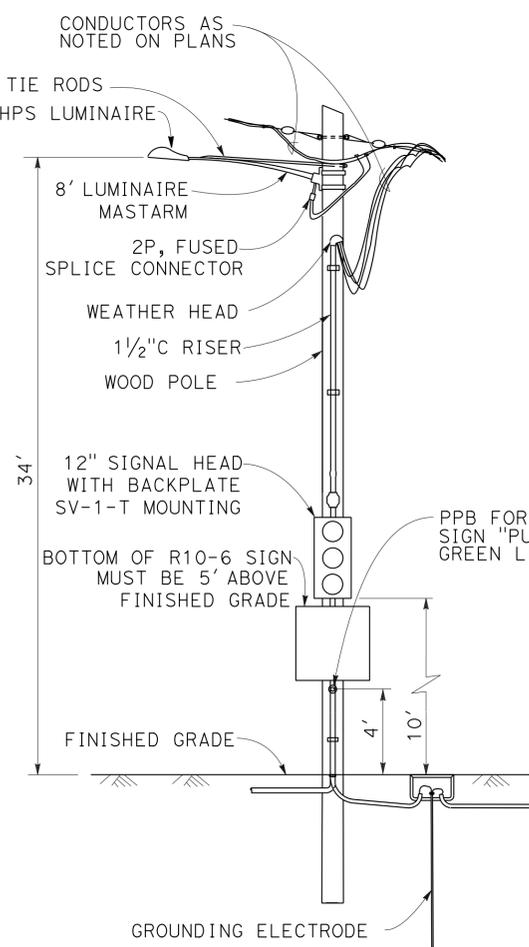


**GENERATOR WITH BACKUP GENERATOR  
DETAIL 4**

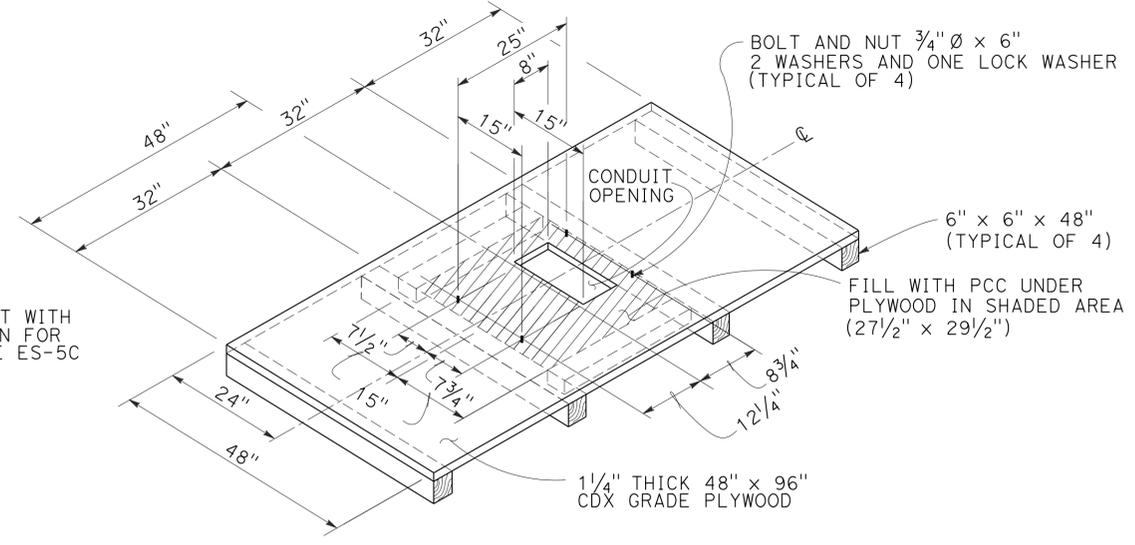


**TEMPORARY SIGNAL AND LIGHTING INSTALLATION  
DETAIL 2**

**DETAIL 3**



**TEMPORARY SIGNAL INSTALLATION  
DETAIL 6**



**TEMPORARY MODEL 332L CABINET FOUNDATION PLATFORM  
DETAIL 5**

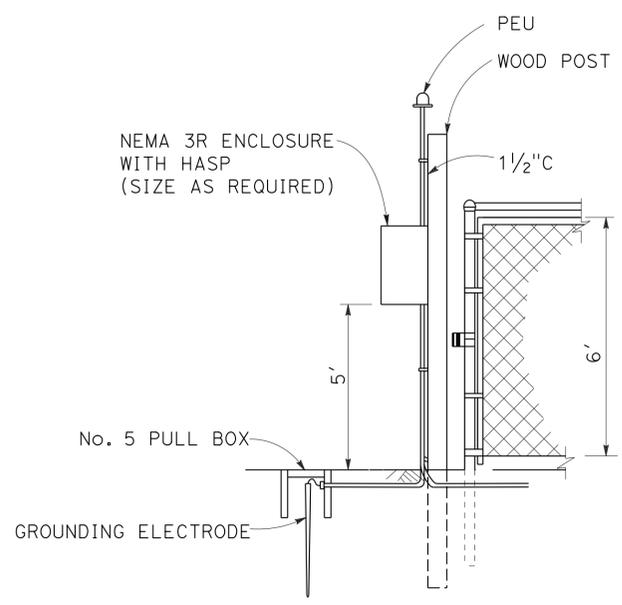
**ELECTRICAL DETAILS**  
NO SCALE  
**E-5**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
 Functional Supervisor: ALI BAKHDOUD  
 Calculated/Designed By: MONA ATTALLAH  
 Checked By: DANIEL VO  
 Revised By: MONA ATTALLAH  
 Date Revised:

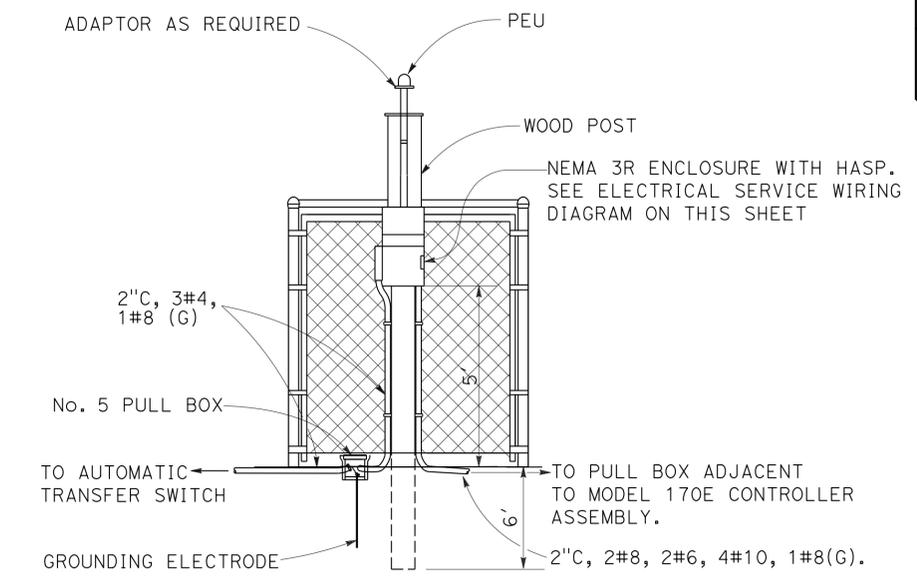
06-ELECTRICAL DESIGN

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Mirn	1	31.2	23	48
<i>Mon N. Attallah</i> 03-05-13 REGISTERED ELECTRICAL ENGINEER DATE			12-30-13 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 MONA N. ATTALLAH No. 18407 Exp. 6/30/14 ELECTRICAL STATE OF CALIFORNIA		

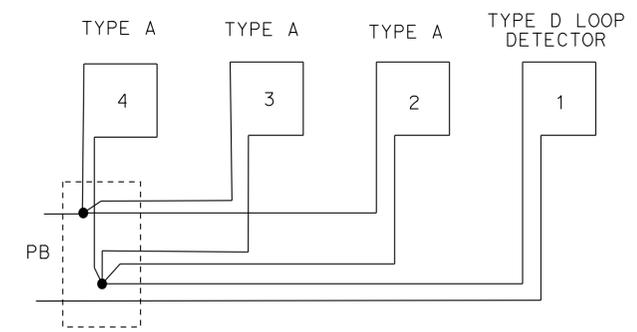
**NOTE:**  
FOR POLE DETAILS, SEE SHEETS SES-1 AND SES-2.



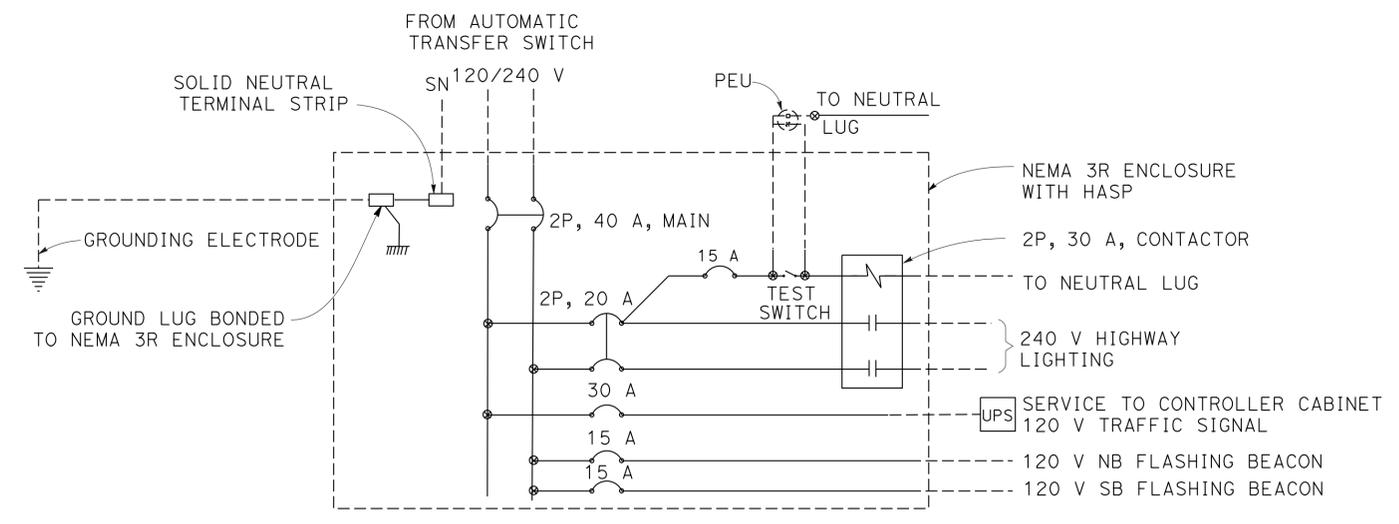
ELECTRICAL SERVICE SIDE VIEW  
**DETAIL 7**



ELECTRICAL SERVICE FRONT VIEW  
**DETAIL 8**



1D + 3A LOOP CONNECTION  
**DETAIL 9**



**ELECTRICAL SERVICE WIRING DIAGRAM**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** 06-ELECTRICAL DESIGN  
 FUNCTIONAL SUPERVISOR: ALI BAKHDOUD  
 DESIGNED BY: DANIEL VO  
 CHECKED BY:  
 REVISIONS: 03-05-13

APPROVED FOR ELECTRICAL WORK ONLY



**ELECTRICAL DETAILS**  
NO SCALE  
**E-6**

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Mrn	1	31.2	24	48

*Mona Attallah* 03-05-13  
 REGISTERED ELECTRICAL ENGINEER DATE

12-30-13  
 PLANS APPROVAL DATE

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**NOTE:**  
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STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** 06-ELECTRICAL DESIGN  
 FUNCTIONAL SUPERVISOR: ALI BAKHDOUD  
 CALCULATED/DESIGNED BY: MONA ATTALLAH  
 CHECKED BY: DANIEL VO  
 REVISIONS: x x x x x

### TEMPORARY SIGNAL SYSTEM

E SHEET NUMBER	WOOD POLE	2" C, TYPE 3	MESSENGER CABLE	No. 5 PULL BOX	No. 3 PULL BOX	3 SECTION SIGNAL HEAD	2 SECTION SIGNAL HEAD	FBCA	SIGN LIGHTING FIXTURE	200 W HPS LUMINAIRE	TYPE D LOOP	TYPE A LOOP	DLC	No. 4 CONDUCTOR	No. 6 CONDUCTOR	No. 8 CONDUCTOR	No. 8(G) CONDUCTOR	No. 10 CONDUCTOR	No. 14 CONDUCTOR	NEMA 3R SERVICE ENCLOSURE	GENERATOR	MODEL 332L CABINET FOUNDATION PLATFORM	PPB	UPS	FUEL TANK	CHAIN LINK FENCE (TYPE CL-6)	4' CHAIN LINK GATE (TYPE CL-6)	
	EA	LF	LF	EA	EA	EA	EA	EA	EA	EA	EA	EA	LF	LF	LF	LF	LF	LF	LF	EA	EA	EA	EA	EA	EA	LF	EA	
E-2	7		605		3	1	1	1	1	1	1	4	110			10	605	1,020	40				1					
E-3	8		665		2	2				1			1,330			1,330	665	2,660	5,320									
E-4	12	27	689	2	5	3	1	1	1	2	1	4	790	30	20	602	1,066	2,758	4,226	1	2	1	1	1	1	80	1	

## ELECTRICAL QUANTITIES E-7

LAST REVISION | DATE PLOTTED => 02-JAN-2014  
 03-05-13 | TIME PLOTTED => 13:18

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	Mrn	1	31.2	25	48
			10/29/12		
			REGISTERED/CIVIL ENGINEER DATE		
			12-30-13		
			PLANS APPROVAL DATE		
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LUMINAIRE ARM DATA			
Projected Length	N Rise	Min OD At Pole	Thickness
8'-0"	2'-6"	3 1/2"	0.1196"

Refer to SP ES-6A for Luminaire arm details

**GENERAL NOTES:**

**SPECIFICATIONS**

Design: AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals dated 2009 and 2010 Interim Revisions.

**LOADING**

Wind Loadings: 85 MPH

**UNIT STRESSES**

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

**TREATMENT**

To conform with Section 86 Standard Specifications

**GALVANIZING**

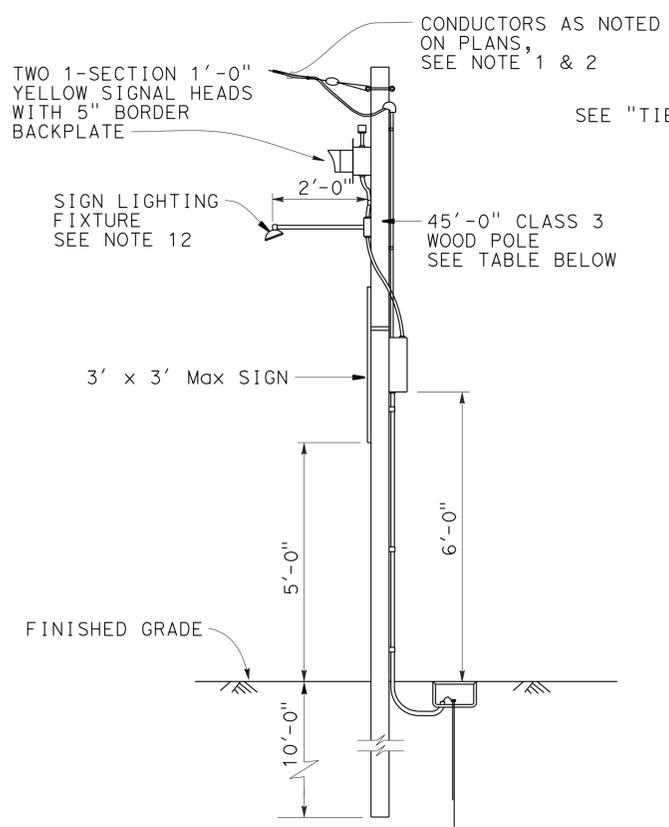
To conform with Section 75 Standard Specifications

**SPECIFICATIONS**

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

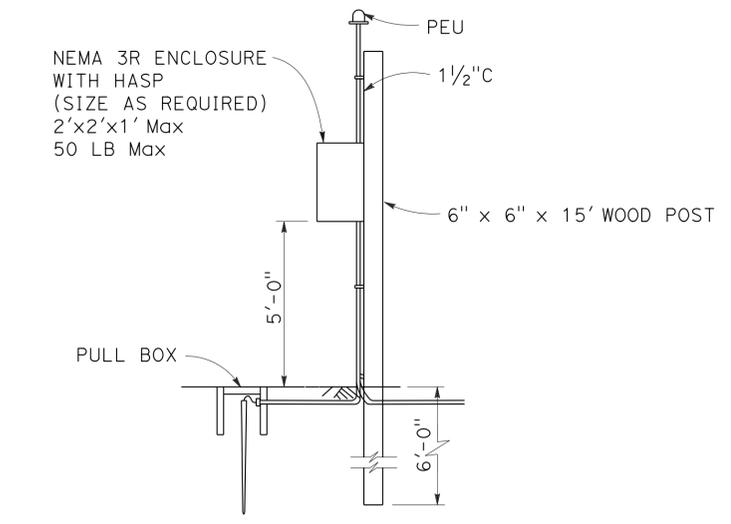
**NOTES:**

- All overhead cables shall be slack spanned with 25'-0" minimum overhead clearance.
- Conductors shall be suspended from span-wire as follows:  
A) Main run 5/16" span-wire with 4.5% ± 0.5% sag.  
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).
- Guy wire 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 2009 and 2010 Interim Revisions 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 1V:4H thru 1V:2H add 2 feet extra for embedment.
- See Sheets SES-2, SES-3 and SES-4 for details.
- For details not shown, see "2010 STANDARD PLANS".
- All temporary poles support OH Conductors. Attach combination of attachments as specified at locations where indicated on the Electrical Sheets.
- 45' class 3 pole allowed without attachments shown or with Max one 3 heads signal on pole, see "Max Span for Class 3 Pole" table, and locations as Noted on sheets E1 through E4.
- All temporary wood poles shall be protected from traffic by means according to California Department of Transportation Highway Manual as required.
- The wood pole located near Sta 251+30 ± Rte 1 line must be guyed. See "Pole at Sta 251+30 layout" for details.



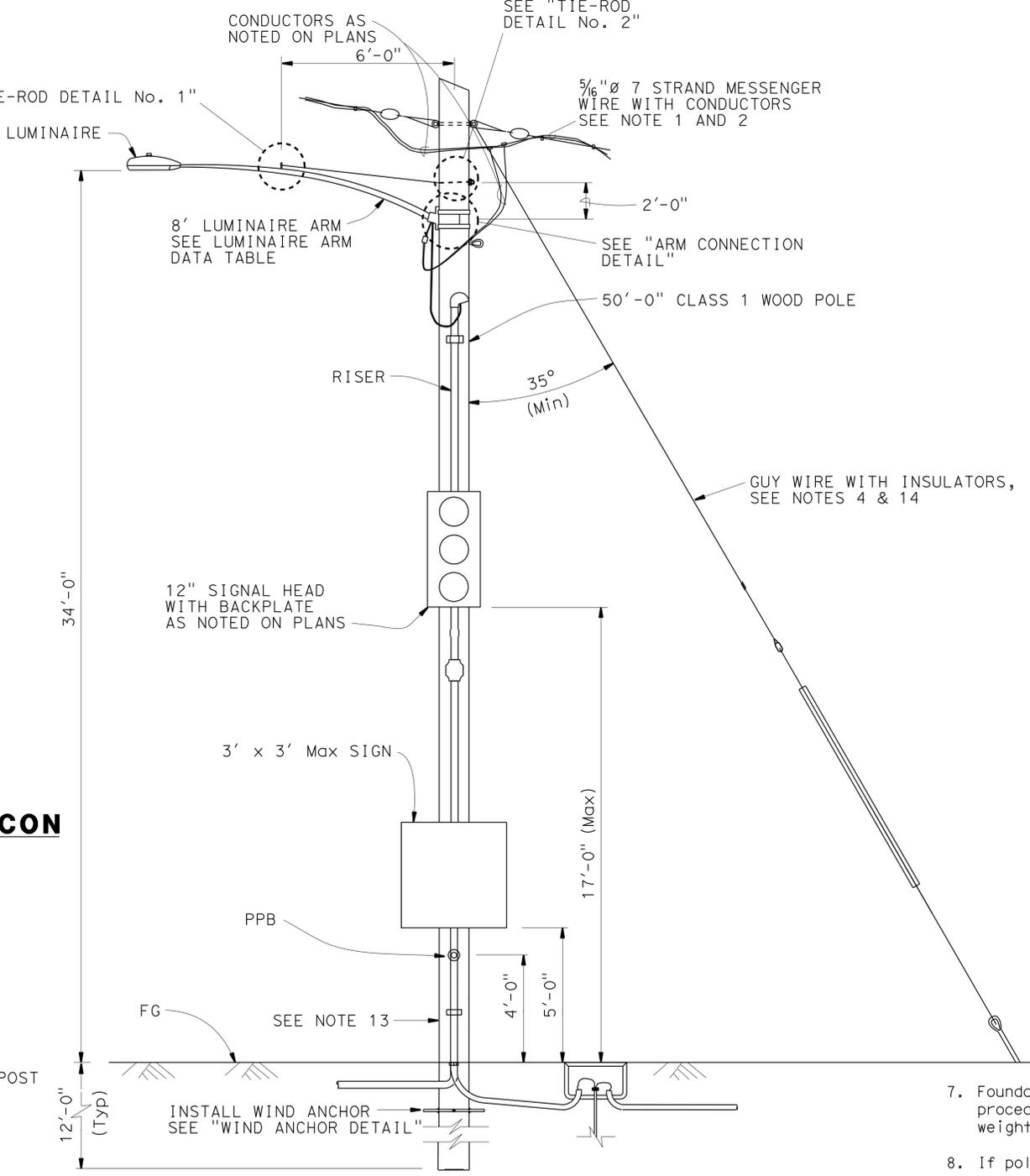
Max Span for Class 3 Pole	
Conductors on 5/16" Messenger	Max Span
2 #10, 1 #8	120'
2 #10, 1 #8, 1 DLC	110'

**WOOD POLE SUPPORT FOR BEACON AND OTHERS SEE NOTE 12**

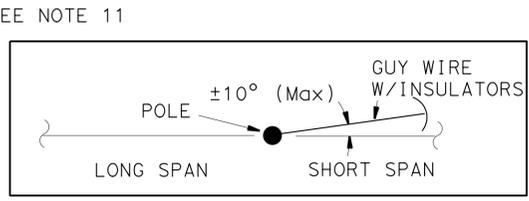


**TEMPORARY WOOD POST DETAIL FOR NEMA**

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



**TYPICAL WOOD POLE SUPPORT**



**POLE LAYOUT AT STA 251+30**

NO SCALE

BRANCH CHIEF	JAMES SAGAR
--------------	-------------

DESIGN	BY T MARCHENKO	CHECKED A MALAK
DETAILS	BY H NGUYEN	CHECKED A MALAK
QUANTITIES	BY	CHECKED

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES  
DESIGN AND TECHNICAL SERVICES  
SPECIAL DESIGNS BRANCH

BRIDGE NO.	N/A
POST MILE	31.25

TEMPORARY SIGNAL SYSTEM  
TEMPORARY WOOD POLE

SES-1

(ENGLISH) SPECIAL DESIGNS BRANCH BORDER SHEET (REV. 7-1-09)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

UNIT: 3619  
PROJECT NUMBER & PHASE: 0400001238

CONTRACT NO.: 04-4S4501

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES	8-9-11
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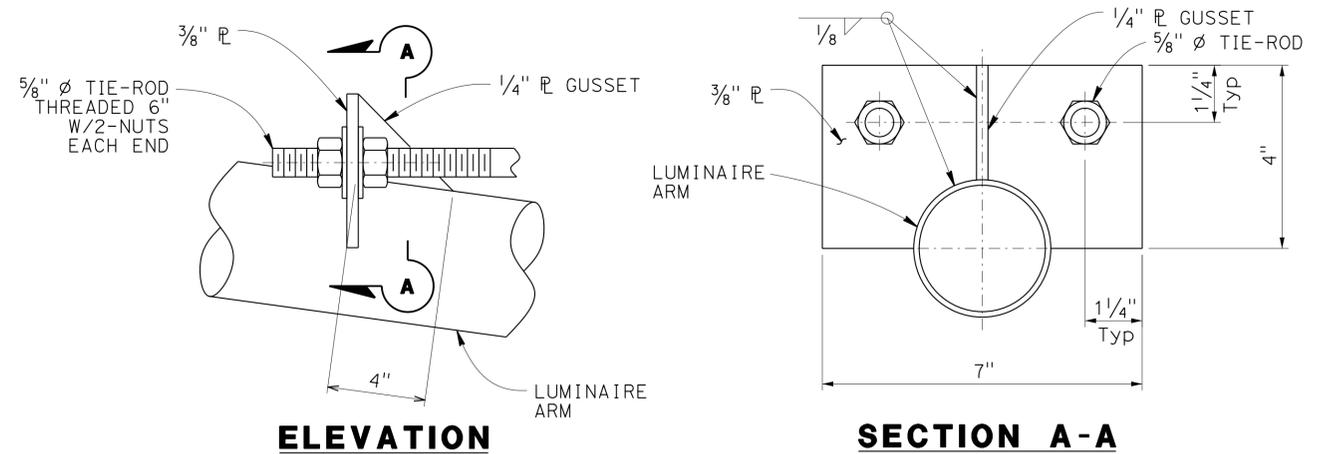
SHEET	1	OF	4
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USERNAME => s113946 DATE PLOTTED => 02-JAN-2014 TIME PLOTTED => 13:20

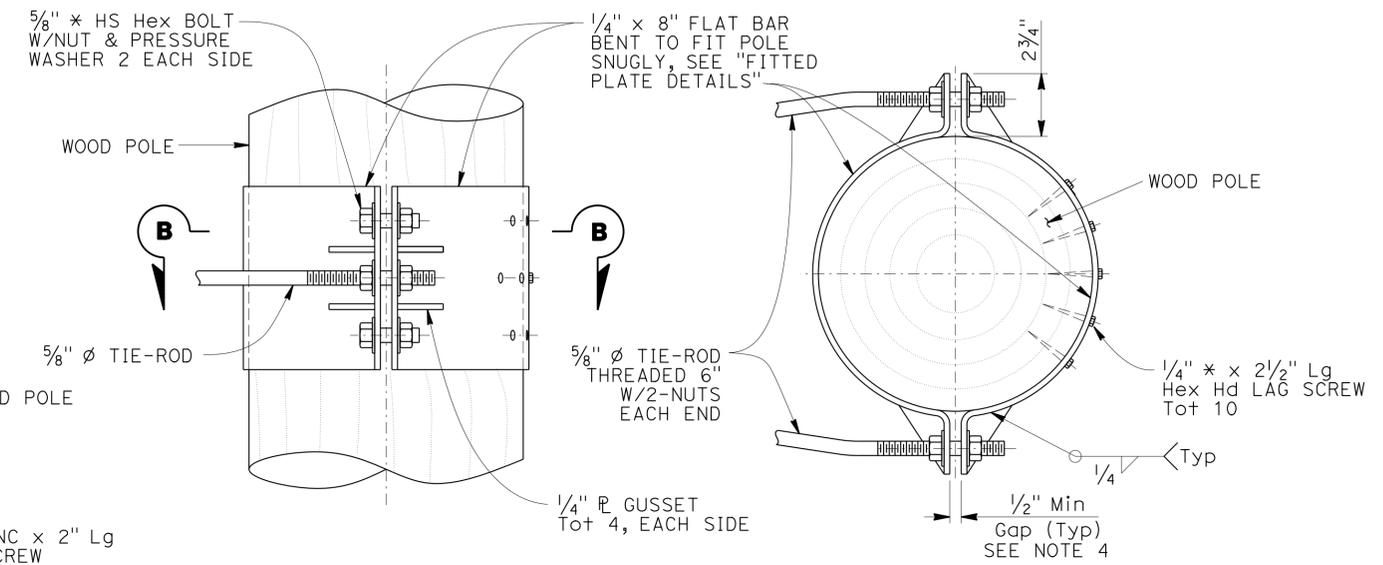
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	Mrn	1	31.2	26	48
			10/29/12		
			REGISTERED/CIVIL ENGINEER DATE		
			12-30-13		
			PLANS APPROVAL DATE		
			REGISTERED PROFESSIONAL ENGINEER TAMARA S. MARCHENKO No. C76837 Exp. 12/31/14 CIVIL STATE OF CALIFORNIA		
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.					

**NOTES:**

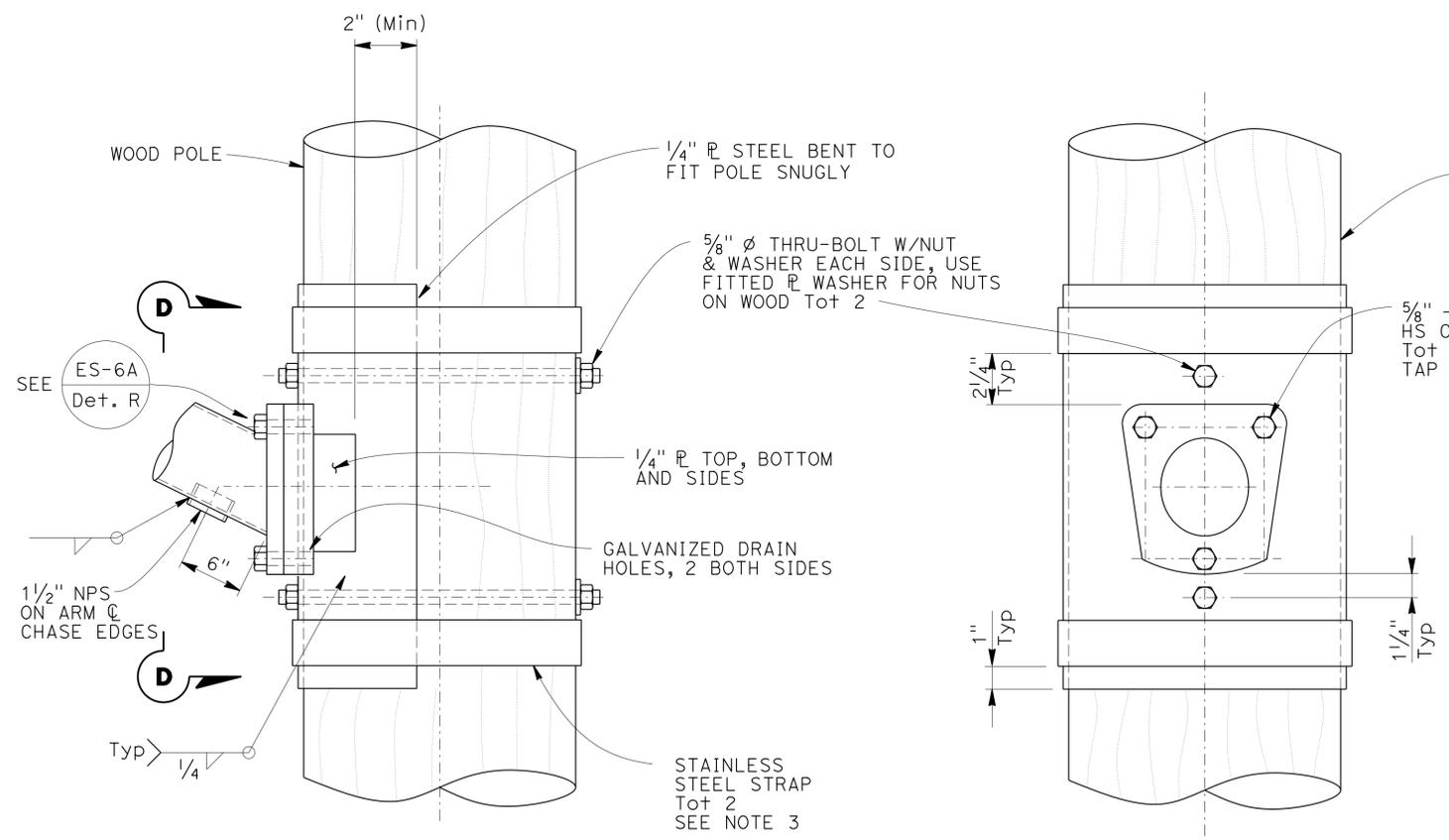
1. All hardware and steel shall be galvanized after fabrication.
2. Arm base connection details shall be in compliance with Standard Plan ES-6A with noted modifications.
3. 2000 lb Min capacity strap system shall be used for top and bottom of plate.
4. Verify pole dimensions at Tie-Rod attachment height. Fabricate 8" flat bar with "L" Dimension to maintain an open gap between Flanges in finished installation.



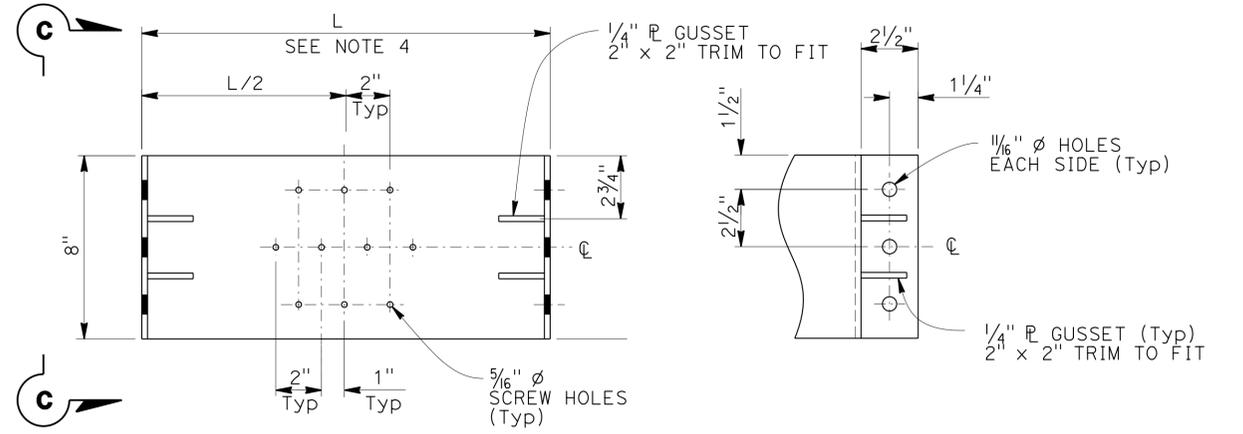
**TIE-ROD DETAIL No. 1**



**TIE-ROD DETAIL No. 2**



**ARM CONNECTION DETAILS**



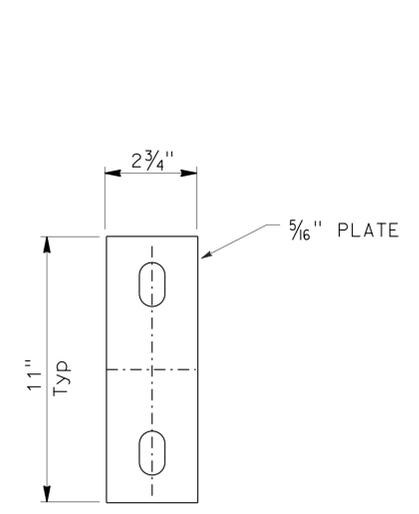
**FITTED PLATE DETAILS**

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

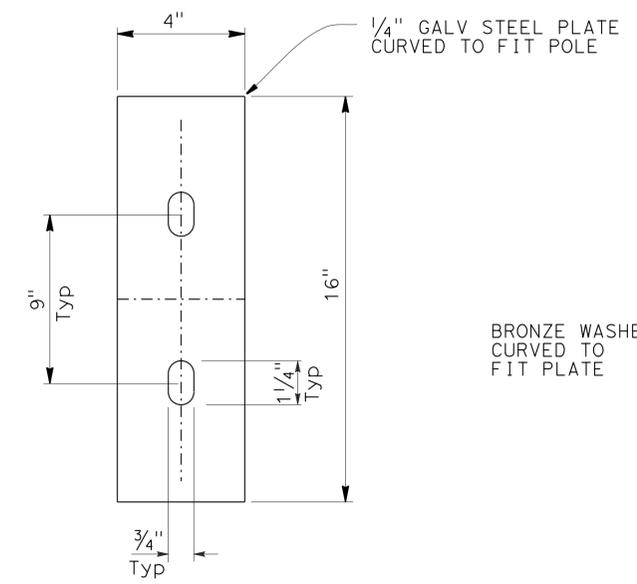
NOTE:  
THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

BRANCH CHIEF JAMES SAGAR	DESIGN	BY T MARCHENKO	CHECKED A MALAK	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES DESIGN AND TECHNICAL SERVICES SPECIAL DESIGNS BRANCH <b>B</b>	BRIDGE NO.	N/A	TEMPORARY SIGNAL SYSTEM WOOD POLE MOUNTING DETAILS	SES-2
	DETAILS	BY H NGUYEN	CHECKED A MALAK			POST MILE	31.25		
	QUANTITIES	BY	CHECKED						

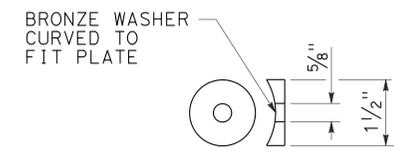
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	Mrn	1	31.2	27	48
			10/29/12	REGISTERED CIVIL ENGINEER DATE	
			12-30-13	PLANS APPROVAL DATE	
<small>The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.</small>					



**COMPARTMENT PLATE (Mod)**

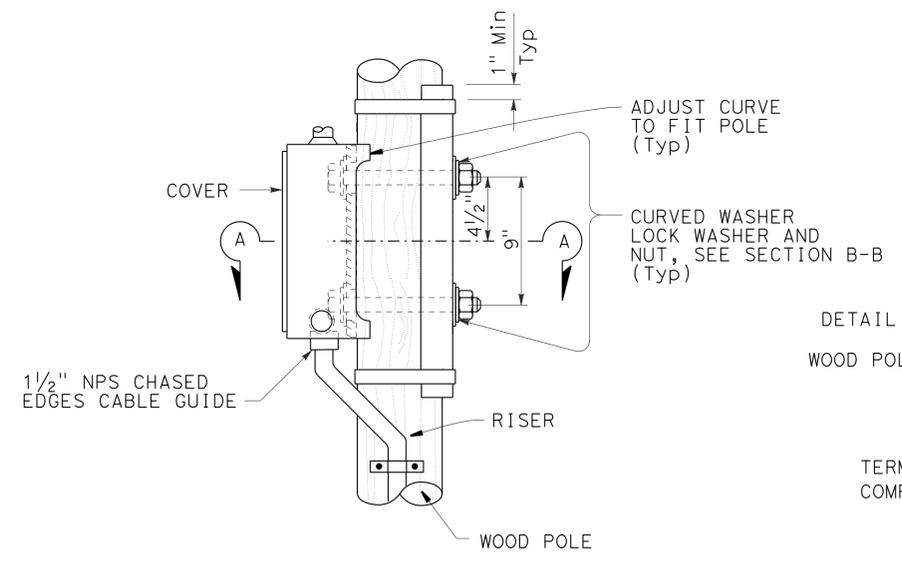


**BACKPLATE**

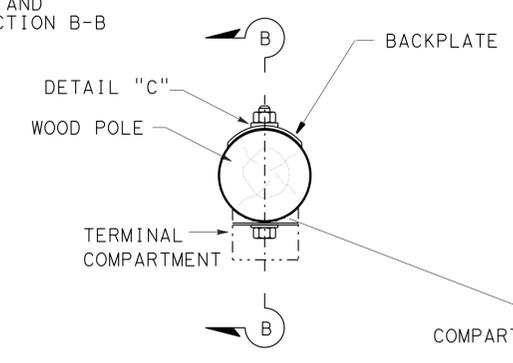


**DETAIL "C"**

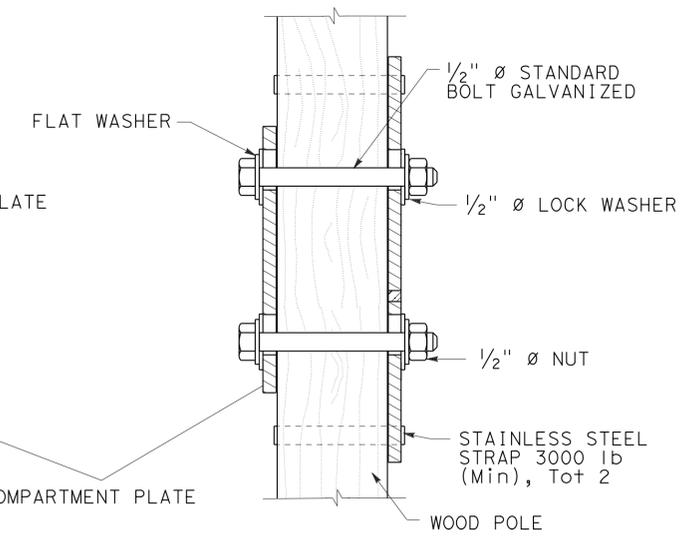
**NOTE:**  
1. The Contractor to verify soil condition, slope, and adjust anchoring to satisfy basic design requirements Note 7 SES-1



**SIDE MOUNTING  
TERMINAL COMPARTMENT**



**SECTION A-A**



**SECTION B-B**

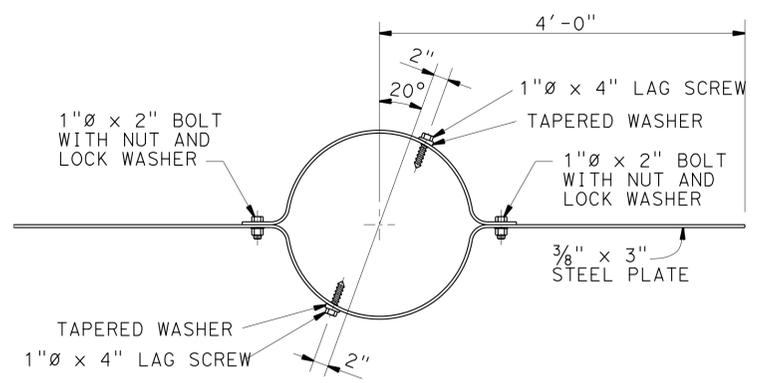
**SIGNAL HEAD MOUNTING**  
For Details Not Shown See ES-4D Sheet

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

NO SCALE

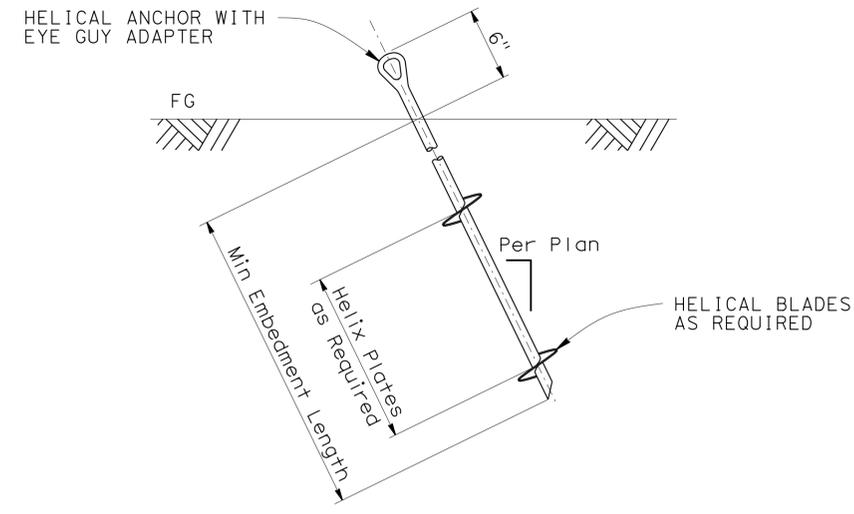
BRANCH CHIEF JAMES SAGAR	DESIGN	BY T MARCHENKO	CHECKED A MALAK	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES DESIGN AND TECHNICAL SERVICES SPECIAL DESIGNS BRANCH <b>B</b>	BRIDGE NO.	N/A	TEMPORARY SIGNAL SYSTEM WOOD POLE DETAILS	SES-3
	DETAILS	BY HUNG NGUYEN	CHECKED A MALAK			POST MILE	31.25		
	QUANTITIES	BY	CHECKED						

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	Mrn	1	31.2	28	48
			10/29/12		
REGISTERED CIVIL ENGINEER			DATE		
12-30-13			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>					



**WIND ANCHOR**

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



**ALTERNATIVE GUY WIRE INSTALLATION DETAIL**

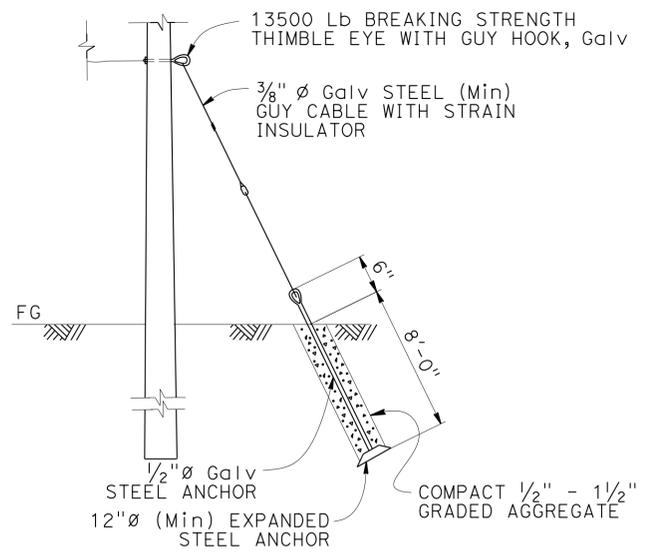
(See Helical Anchor Specifications Table)

HELICAL ANCHOR SPECIFICATIONS					
Anchor Location	Type	Helix Plate Diameter*	Allowable Min Tension Cap., "Q <sub>a</sub> "	Embedment Length (Min)	Installation Torque (Min)**, "T"
Detail	Tension	12"	3800 lb	8'-0"	1150 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 Contractor.
- Determine the most appropriate value for  $k_t$  based on soil conditions and shall adjust the Min Installation Torque based on the revised  $k_t$ . A  $k_t$  value of 10 was assumed for the Min Installation Torque shown in the table.

The Helical Installation torque Formula is  $Q_u = k_t * T$  where,

$Q_u = Q_a * FS$  = Ultimate Helical Anchor Capacity (lb)  
 $FS$  = Factor of Safety = 3.0  
 $Q_a$  = Allowable Helical Anchor Capacity (lb)  
 $k_t$  = Empirical Torque Factor (ft<sup>-1</sup>)  
 $T$  = Min Installation Torque (ft-lb)

- Requests made by Helical Anchor Installation Contractor to reduce the minimum embedment length and Helix  $\phi$  diameter require the 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 T MARCHENKO	CHECKED A MALAK	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES DESIGN AND TECHNICAL SERVICES SPECIAL DESIGNS BRANCH	BRIDGE NO.	N/A	<b>TEMPORARY SIGNAL SYSTEM</b> <b>WOOD POLE ANCHORING DETAILS</b>	<b>SES-4</b>
	DETAILS	BY H NGUYEN	CHECKED A MALAK			POST MILE	31.25		
	QUANTITIES	BY	CHECKED						

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Mrn	1	31.2	29	48

*Grace M. Tsushima*  
REGISTERED CIVIL ENGINEER

July 19, 2013  
PLANS APPROVAL DATE

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TO ACCOMPANY PLANS DATED 12-30-13

**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
ø	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
±	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**

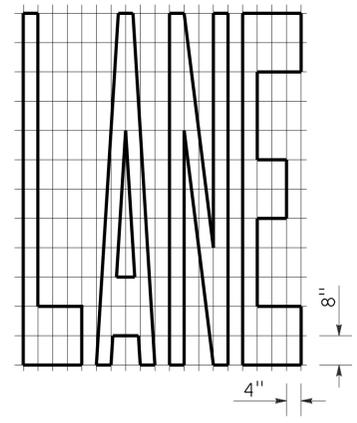
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**W**

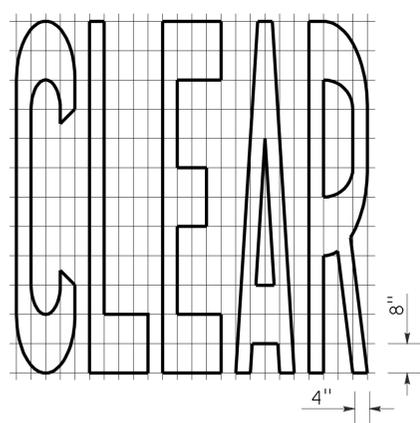
**X**

**Y**

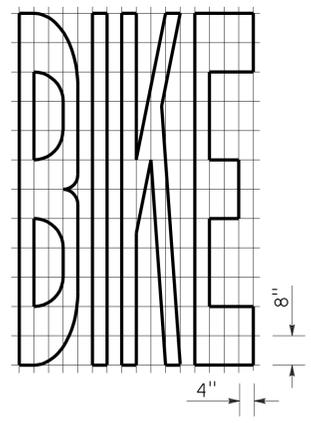
TO ACCOMPANY PLANS DATED 12-30-13



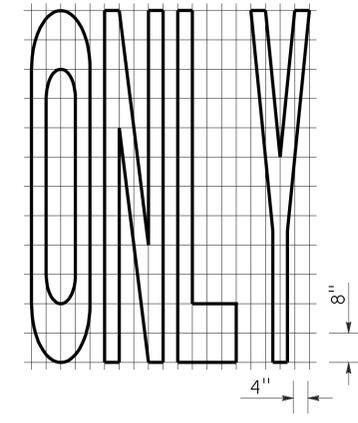
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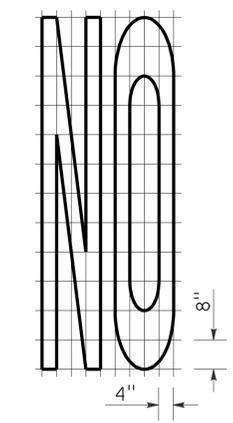
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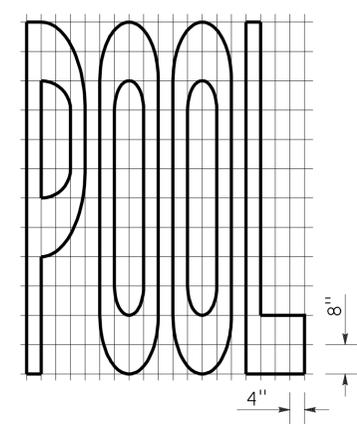
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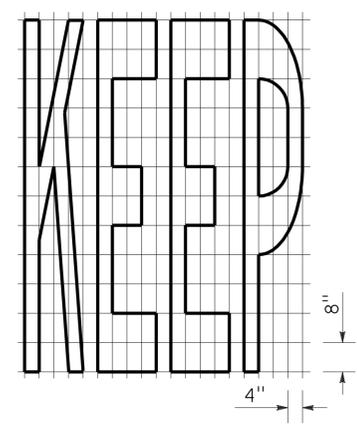
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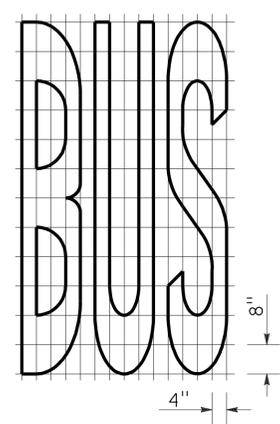
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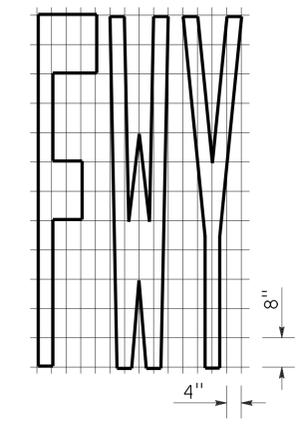
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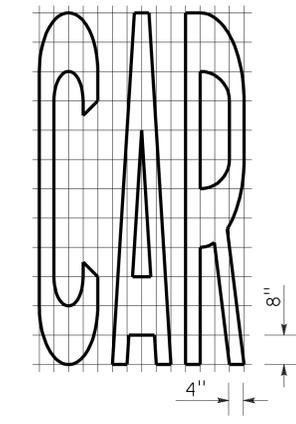
A=24 ft<sup>2</sup>



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

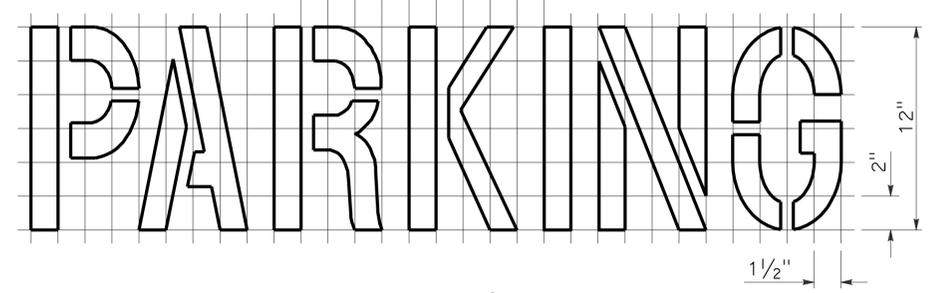
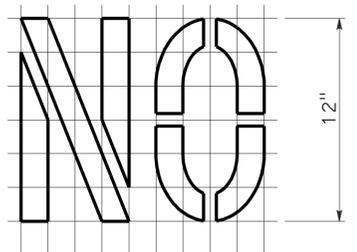


A=16 ft<sup>2</sup>

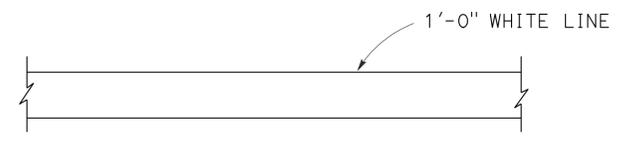


A=17 ft<sup>2</sup>

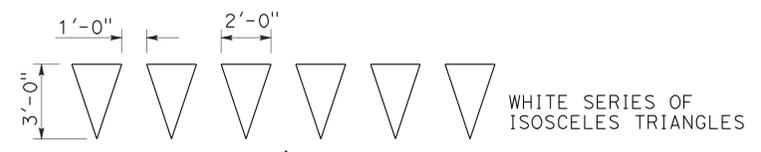
WORD MARKINGS			
ITEM	ft <sup>2</sup>	ITEM	ft <sup>2</sup>
LANE	24	NO	14
POOL	23	BIKE	21
CAR	17	BUS	20
CLEAR	27	ONLY	22
KEEP	24	FWY	16



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.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Mrn	1	31.2	31	48

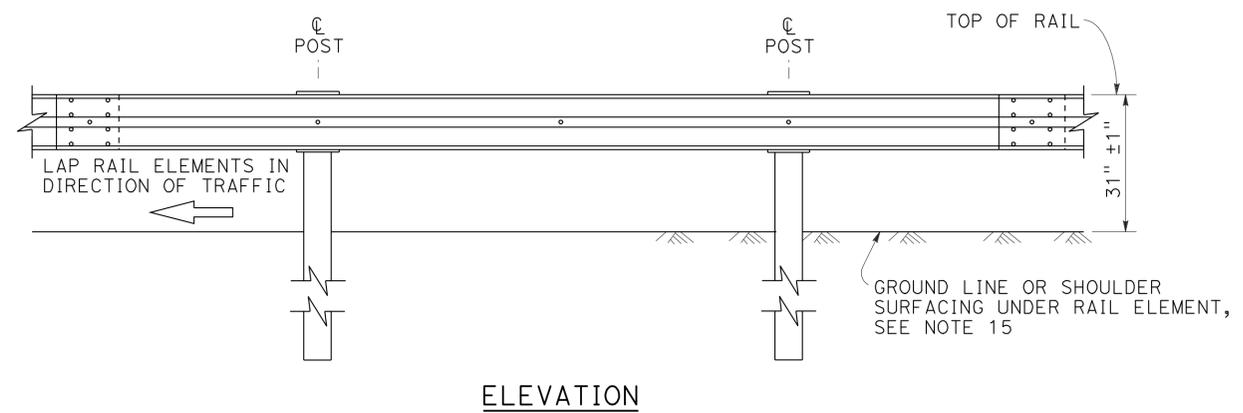
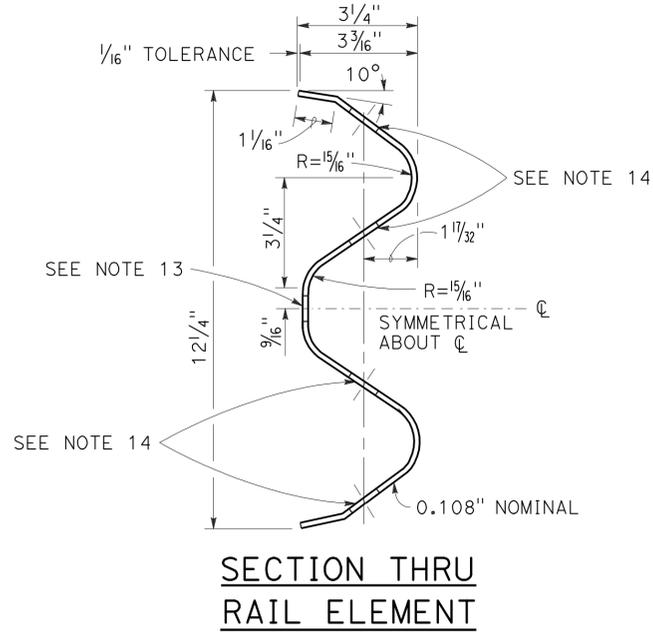
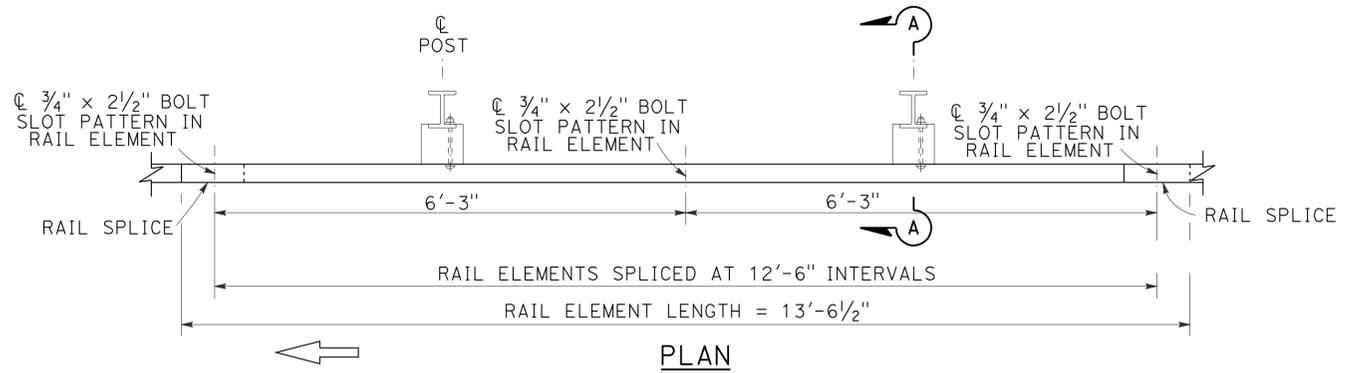
**Randell D. Hiatt**  
REGISTERED CIVIL ENGINEER

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.

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

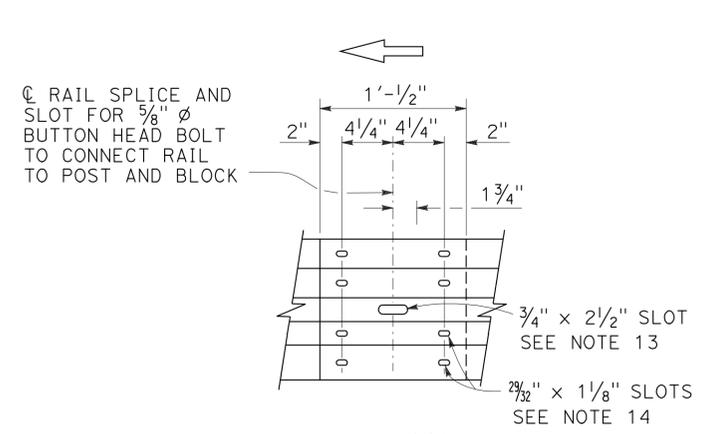
TO ACCOMPANY PLANS DATED 12-30-13



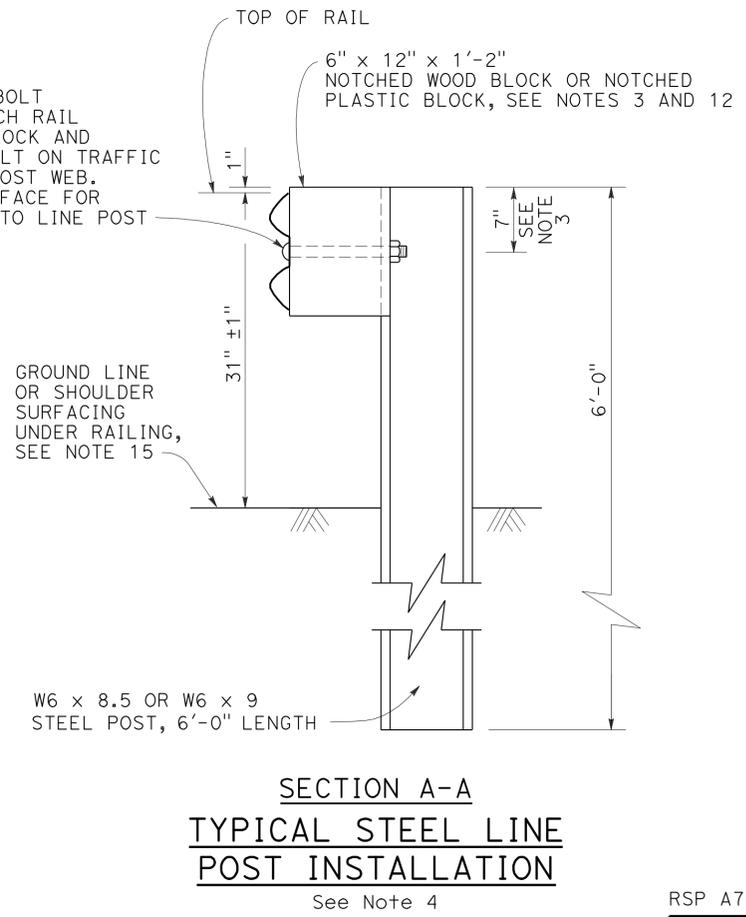
**MIDWEST GUARDRAIL SYSTEM WITH STEEL POSTS AND NOTCHED WOOD OR NOTCHED RECYCLED PLASTIC BLOCKS**

**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.



- Connect the overlapped end of the rail elements with 5/8" ø x 1 3/8" button head oval shoulder splice bolts inserted into the 2 7/32" x 1 1/8" slots and bolted together with 5/8" ø 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.



STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

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

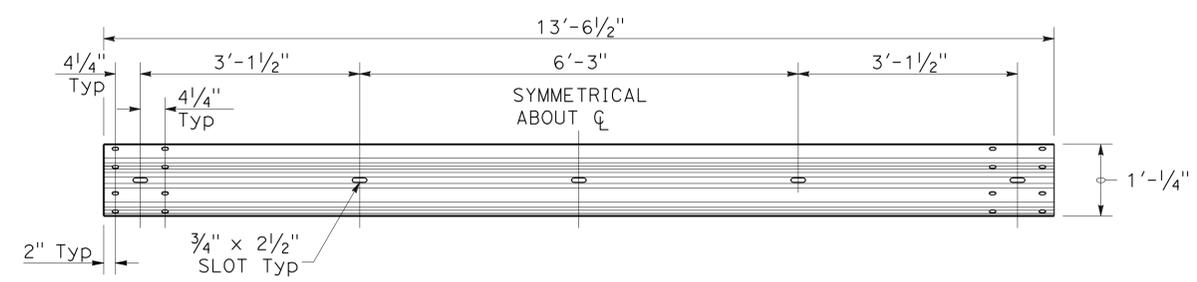
NO SCALE

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

**REVISED STANDARD PLAN RSP A77L2**

2010 REVISED STANDARD PLAN RSP A77L2

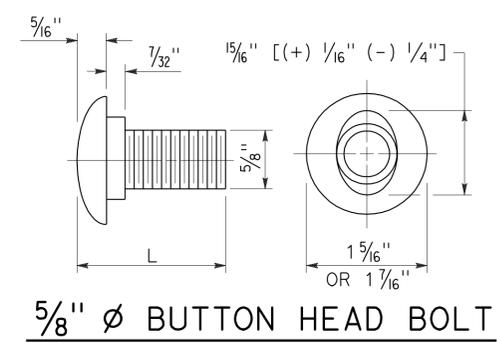
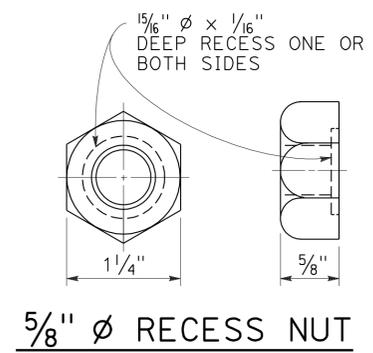
TO ACCOMPANY PLANS DATED 12-30-13



TYPICAL RAIL ELEMENT

**NOTE:**

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

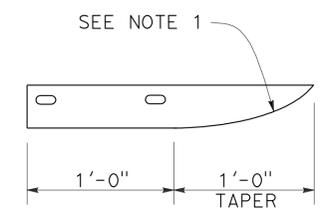


5/8"  $\phi$  RECESS NUT

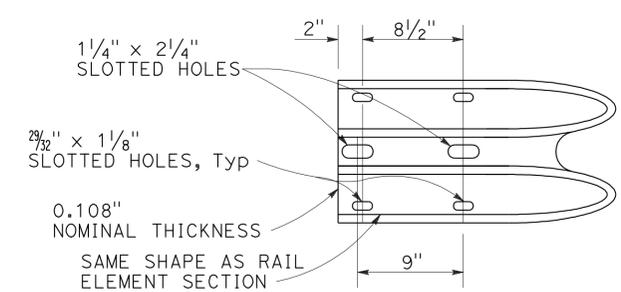
5/8"  $\phi$  BUTTON HEAD BOLT

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	Mrn	1	31.2	33	48

*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

November 15, 2013  
PLANS APPROVAL DATE

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

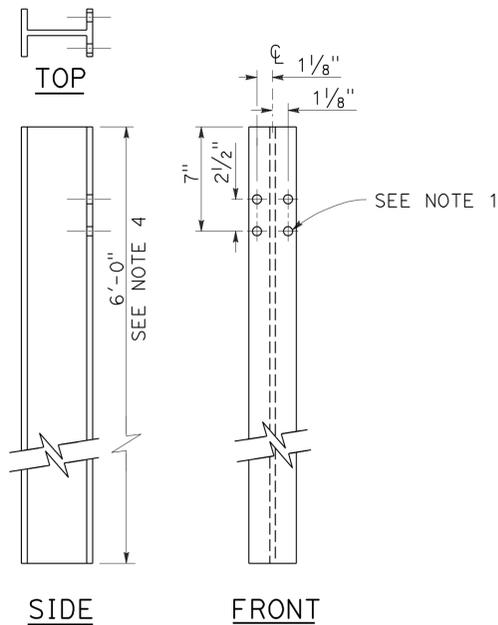
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TO ACCOMPANY PLANS DATED 12-30-13

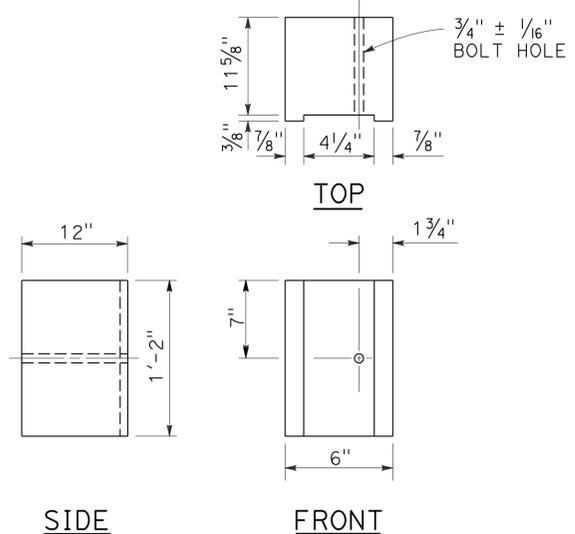
**NOTES:**

1. All holes in steel post shall be 1 3/8" 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.

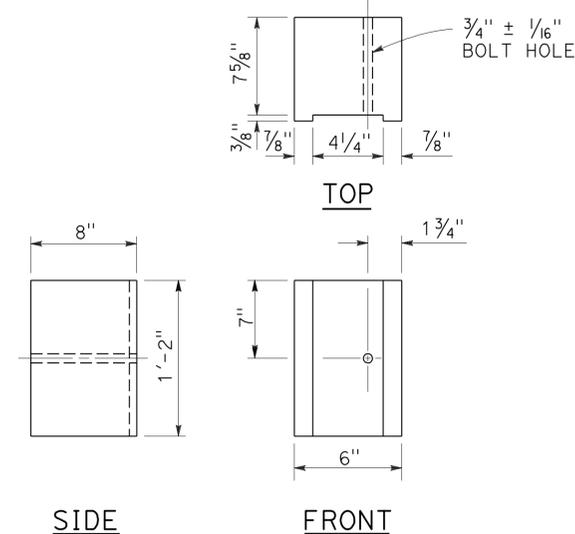
2010 REVISED STANDARD PLAN RSP A77N2



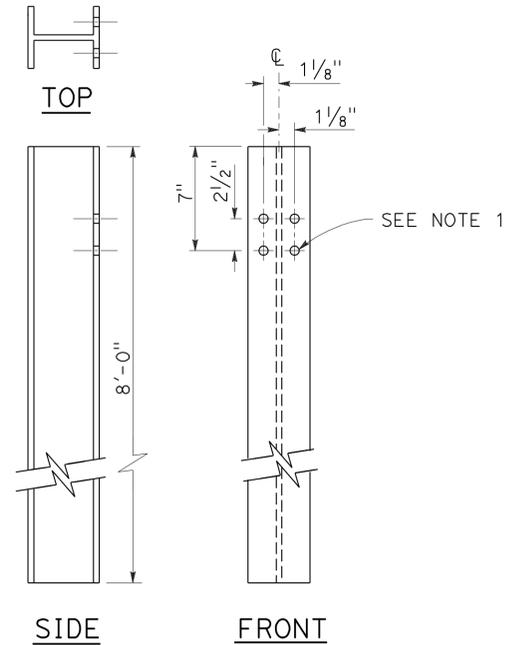
**W6 x 9 OR W6 x 8.5  
STEEL POST**  
See Note 4



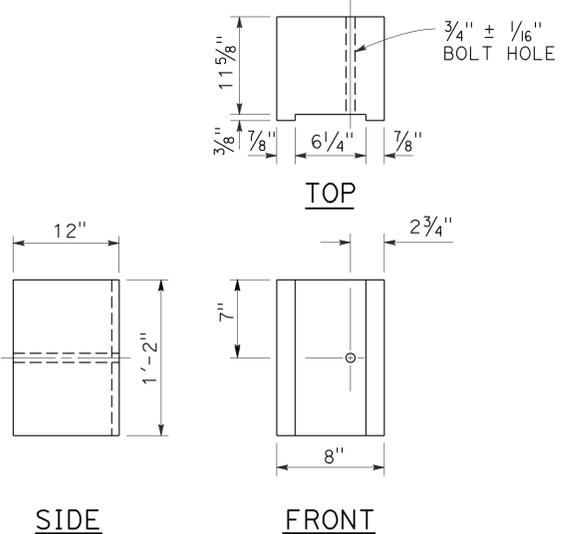
**6" x 12"  
NOTCHED WOOD BLOCK**  
See Notes 2 and 3



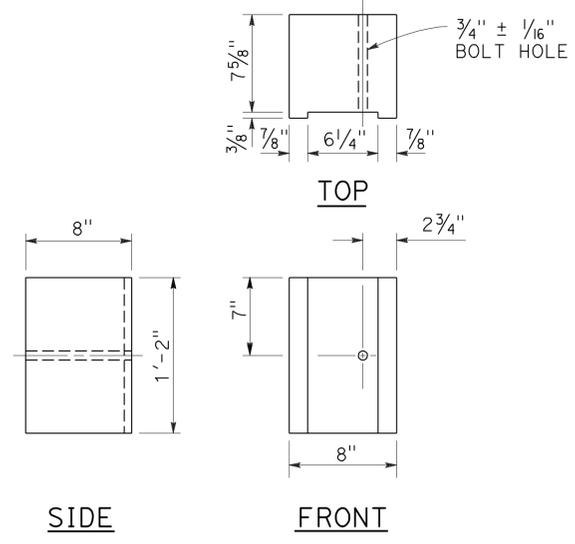
**6" x 8"  
NOTCHED WOOD BLOCK**  
Only for use with metal beam guard railing. See Note 5



**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	Mrn	1	31.2	34	48

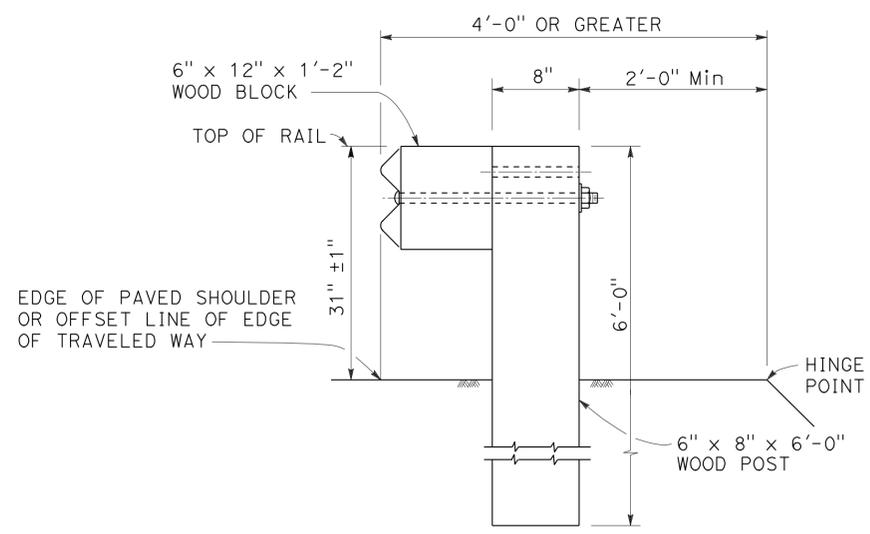
*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

November 15, 2013  
PLANS APPROVAL DATE

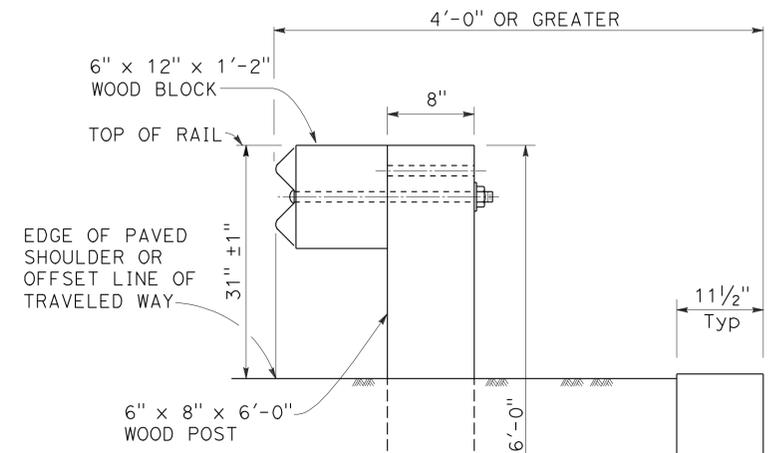
REGISTERED PROFESSIONAL ENGINEER  
Randell D. Hiatt  
No. C50200  
Exp. 6-30-15  
CIVIL  
STATE OF CALIFORNIA

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.

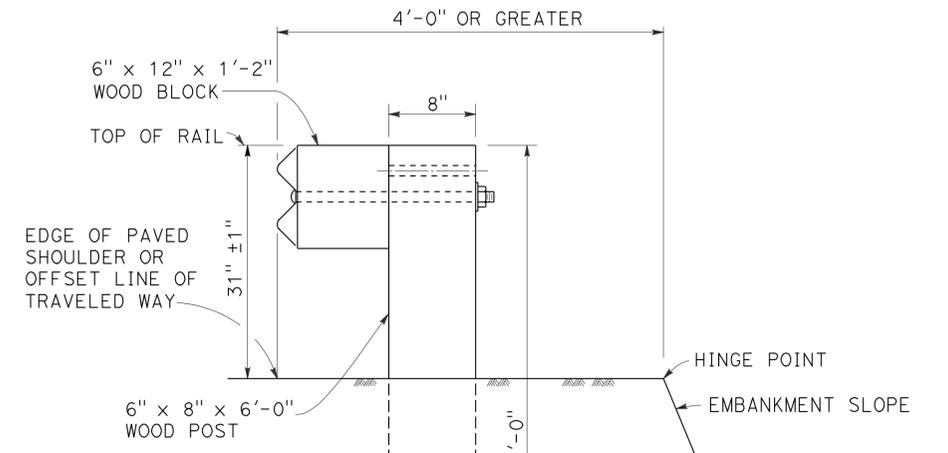
TO ACCOMPANY PLANS DATED 12-30-13



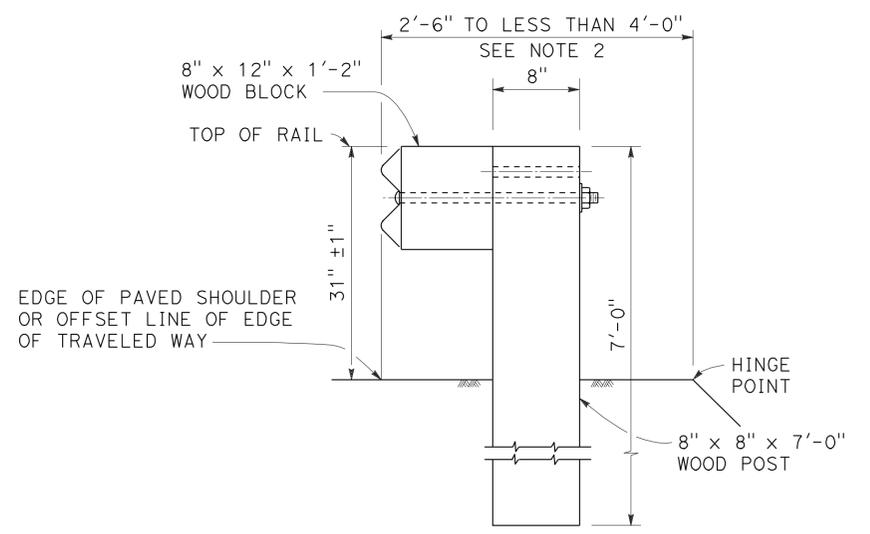
**DETAIL A**  
**TYPICAL ROADWAY**  
**INSTALLATION**  
See Note 1



**DETAIL C**



**DETAIL D**



**DETAIL B**  
**NARROW ROADWAY**  
**INSTALLATION**  
See Note 1

**POST EMBEDMENT**

**INSTALLATION AT EARTH RETAINING WALLS**

**NOTES:**

1. These installation details also applicable to steel line post installations. For Detail A, C, and D, where steel line post installations are constructed, W6 x 8.5 or W6 x 9 steel post, 6'-0" in length, with 6" x 12" x 1'-2" notched wood blocks or notched recycled plastic blocks are to be used in place of the size of wood post and wood block shown. For Detail B, where steel line post installations are constructed, W6 x 15 steel post, 8'-0" in length, with 8" x 12" x 1'-2" notched wood blocks or notched recycled plastic blocks are to be used in place of the size of wood post and wood block shown. For additional installation details, see Revised Standard Plan RSP A77L1 and RSP A77L2.
2. Where the distance between the face of the rail and the hinge point is less than 2'-6", see the Project Plans for special details.
3. For dike positioning with MGS installations, see Revised Standard Plan RSP A77N4.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**MIDWEST GUARDRAIL SYSTEM**  
**TYPICAL LINE POST**  
**EMBEDMENT AND**  
**HINGE POINT OFFSET DETAILS**

NO SCALE

RSP A77N3 DATED NOVEMBER 15, 2013 SUPERSEDES RSP A77N3  
DATED JULY 19, 2013 THAT SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.

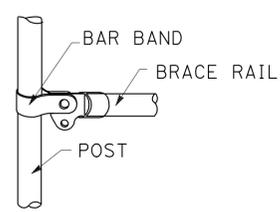
**REVISED STANDARD PLAN RSP A77N3**

2010 REVISED STANDARD PLAN RSP A77N3

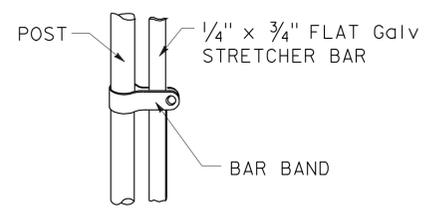
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Mrn	1	31.2	35	48

Glenn DeCou  
 REGISTERED CIVIL ENGINEER  
 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.

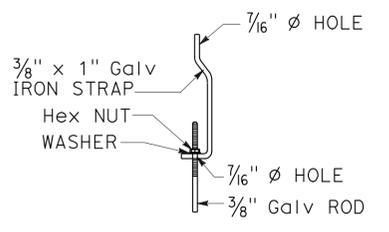
REGISTERED PROFESSIONAL ENGINEER  
 Glenn DeCou  
 No. C34547  
 Exp. 9-30-13  
 CIVIL  
 STATE OF CALIFORNIA



**BRACE RAIL**



**STRETCHER BAR**

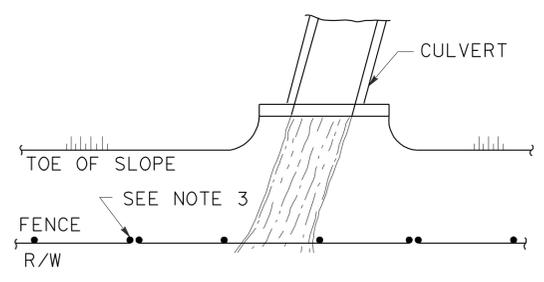


**TRUSS TIGHTENER**

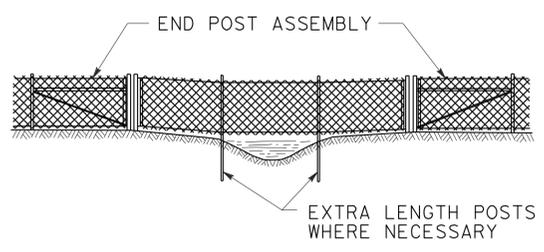
**NOTES:**

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 12-30-13

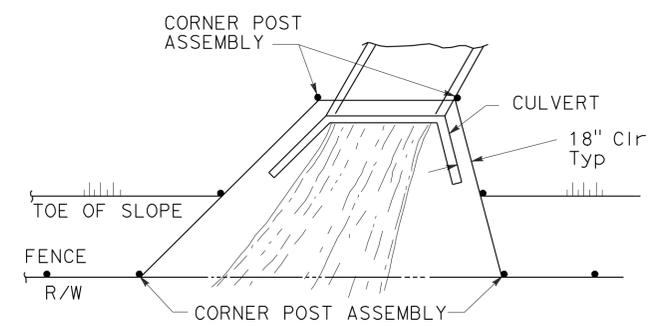


**PLAN**

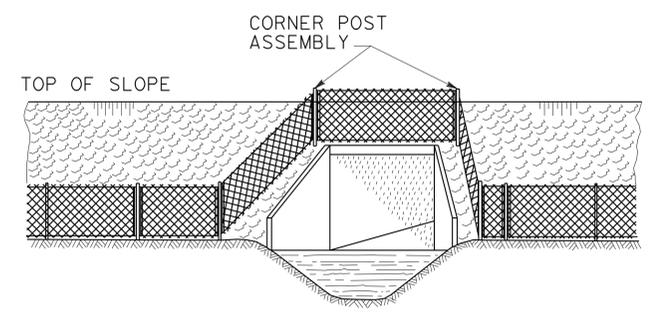


**ELEVATION**

**INSTALLATION OVER STREAM**



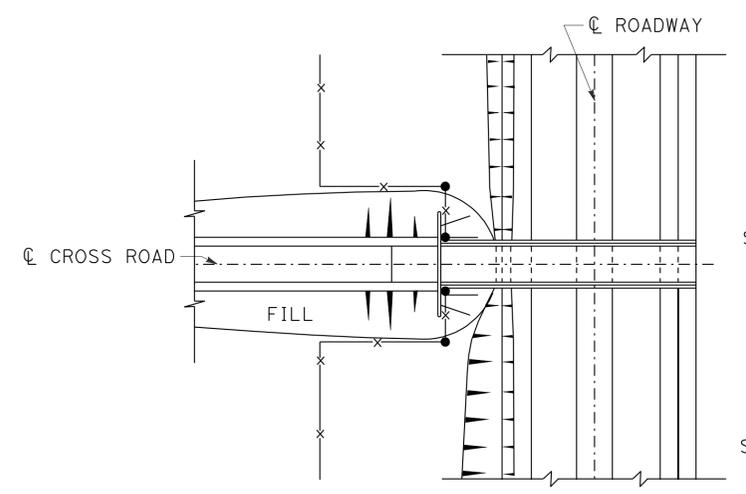
**PLAN**



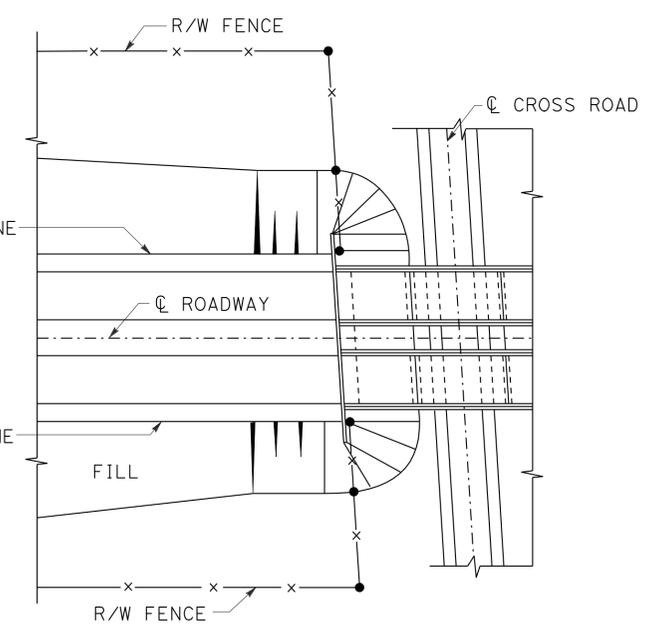
**ELEVATION**

**INSTALLATION AROUND HEADWALL**

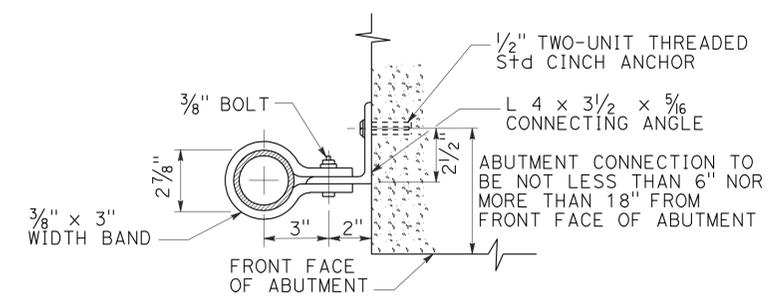
See Note 4



**PLAN OF ROADWAY - OVERCROSSING**



**PLAN OF ROADWAY - UNDERCROSSING**



**ABUTMENT CONNECTION**

**TYPICAL INSTALLATION AT BRIDGES**

ABUTMENT CONNECTION TO BE NOT LESS THAN 6" NOR MORE THAN 18" FROM FRONT FACE OF ABUTMENT

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

**NOTES:**

See Revised Standard Plan RSP T9 for tables.

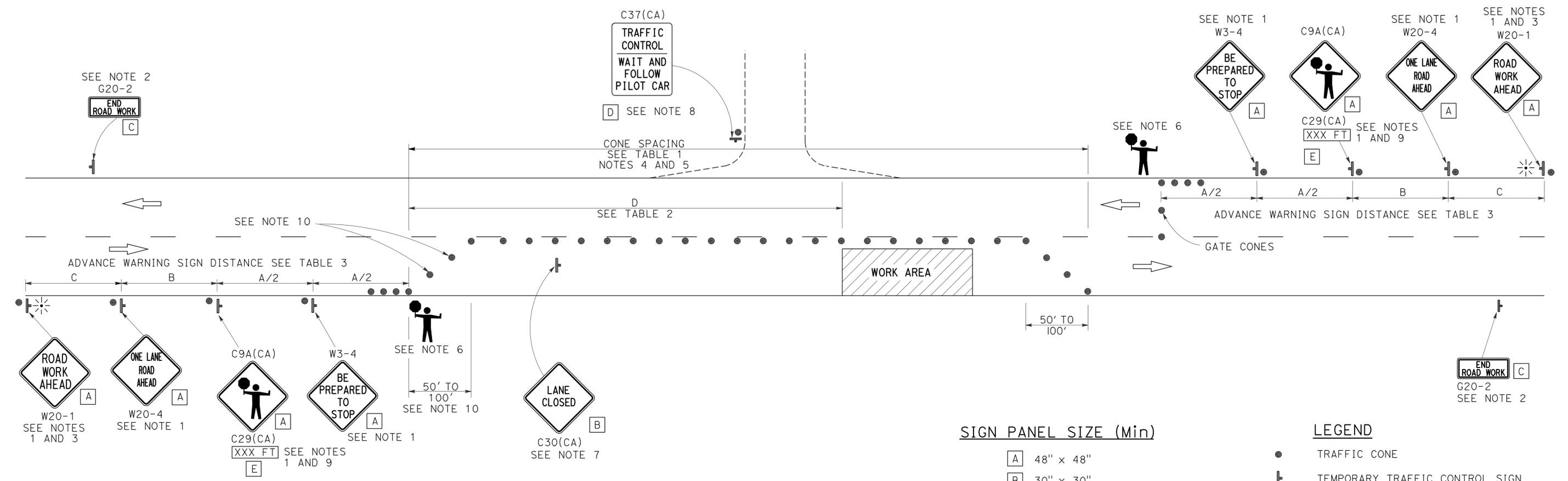
Use cone spacing X for taper segment, Y for tangent segment or Z for conflict situations, as appropriate, per Table 1, unless X, Y, or Z cone spacing is shown on this sheet.

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 12-30-13



**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.

**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 APRIL 19, 2013 SUPERSEDES STANDARD PLAN T13  
DATED MAY 20, 2011 - PAGE 241 OF THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP T13**

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
Ckt	CIRCUIT	NO	NORMALLY OPEN
CMS	CHANGEABLE MESSAGE SIGN	P	CIRCUIT BREAKER'S POLE
C+id	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		

**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

**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
Ω	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
μ	MICRO
P	PICO
Hz	HERTZ

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**

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Mrn	1	31.2	37	48

*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 12-30-13

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Mrn	1	31.2	38	48

Theresa Gabriel  
 REGISTERED ELECTRICAL ENGINEER  
 July 19, 2013  
 PLANS APPROVAL DATE  
 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 12-30-13

### CONDUIT

NEW	EXISTING	
		LIGHTING CONDUIT, UNLESS OTHERWISE INDICATED OR NOTED
		TRAFFIC SIGNAL CONDUIT
		COMMUNICATION CONDUIT
		TELEPHONE CONDUIT
		FIRE ALARM CONDUIT
		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	
		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

	TYPE H SERVICE, 28'-10"	TYPE OF INSTALLATION AND POLE HEIGHT ABOVE GRADE
--	-------------------------	--

### 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.

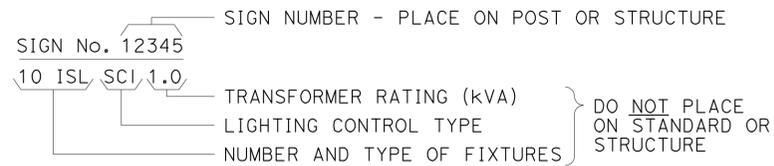
## REVISED STANDARD PLAN RSP ES-1B

2010 REVISED STANDARD PLAN RSP ES-1B

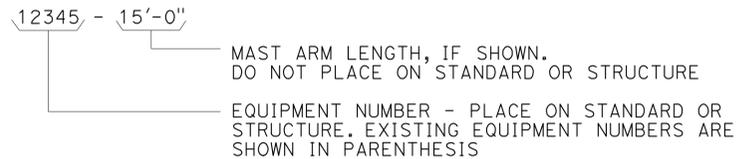
TO ACCOMPANY PLANS DATED 12-30-13

### EQUIPMENT IDENTIFICATION

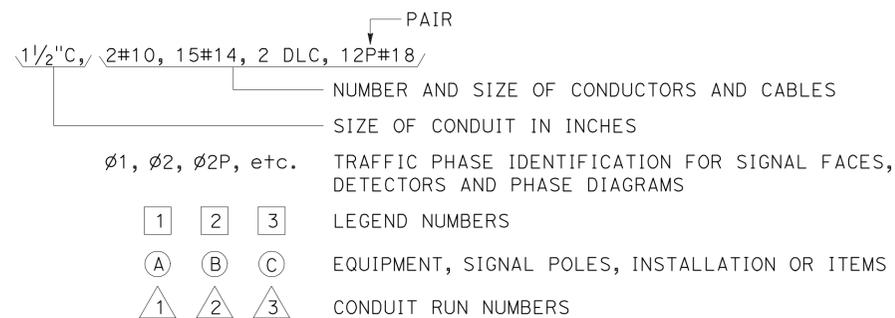
#### ILLUMINATED SIGN IDENTIFICATION NUMBER:



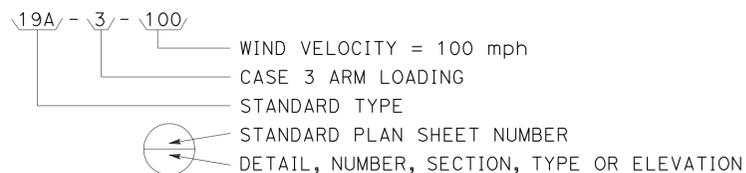
#### ELECTROLIER OR EQUIPMENT IDENTIFICATION NUMBER:



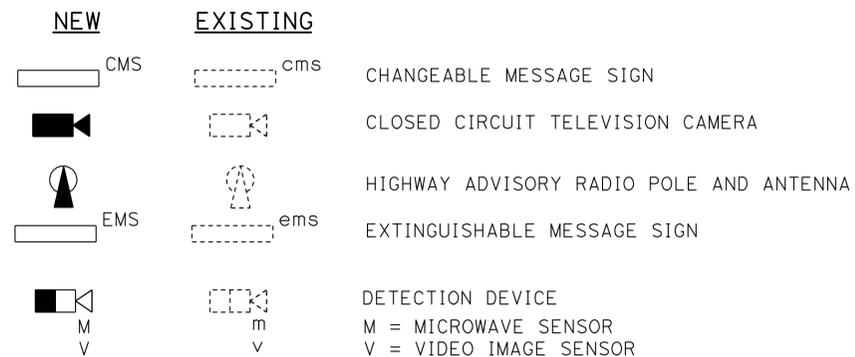
#### CONDUIT AND CONDUCTOR IDENTIFICATION:



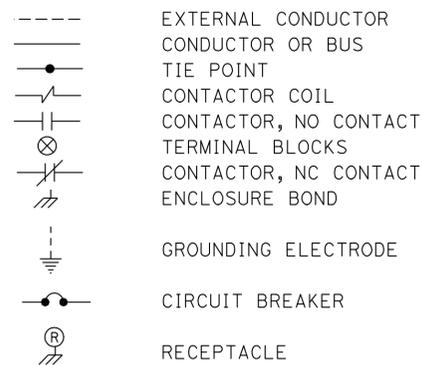
#### SIGNAL AND LIGHTING STANDARD (TYPICAL DESIGNATION):



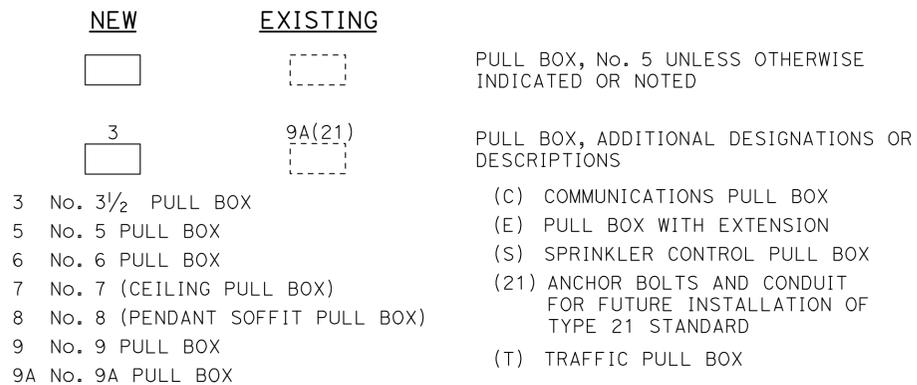
### MISCELLANEOUS EQUIPMENT



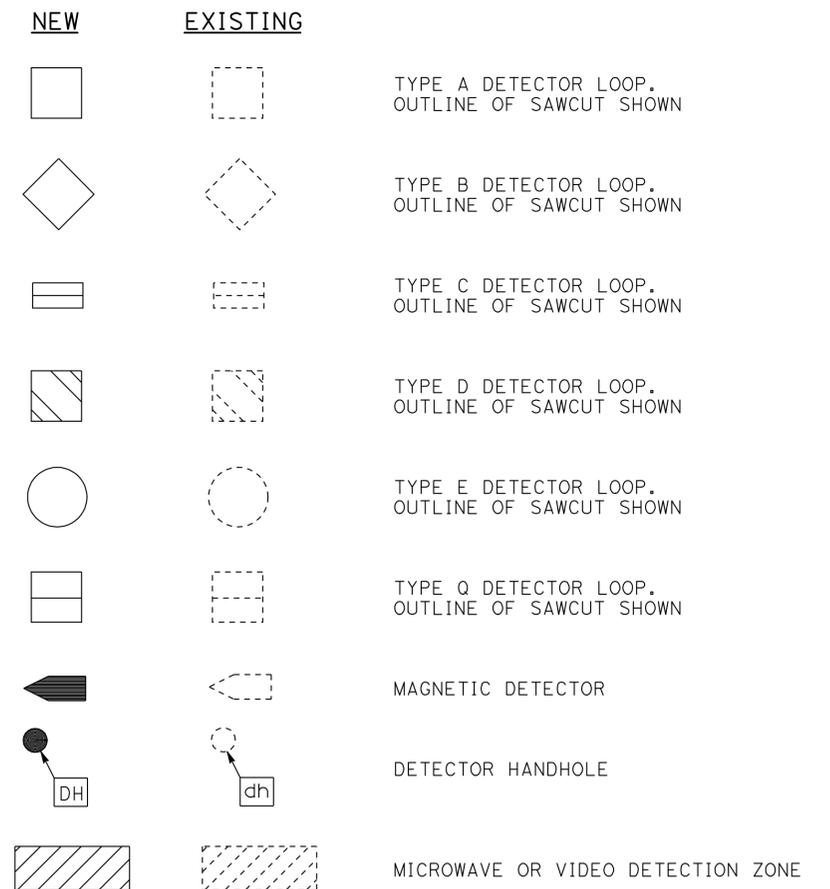
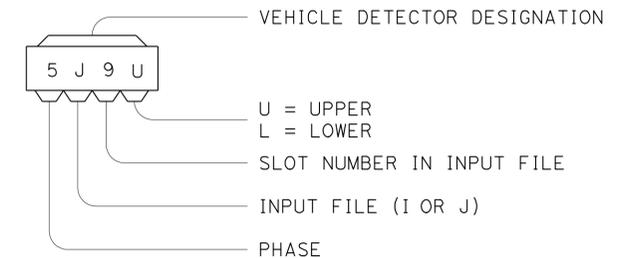
### WIRING DIAGRAM LEGEND



### 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**

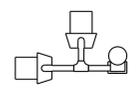
2010 REVISED STANDARD PLAN RSP ES-1C

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Mrn	1	31.2	40	48

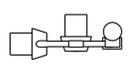
*Theresa Gabriel*  
 REGISTERED ELECTRICAL ENGINEER  
 July 19, 2013  
 PLANS APPROVAL DATE  
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

TO ACCOMPANY PLANS DATED 12-30-13

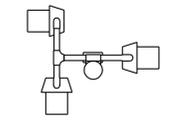
2010 REVISED STANDARD PLAN RSP ES-4A



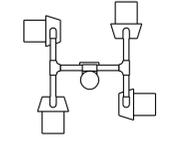
SV-2-TD



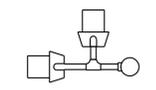
SV-2-TC



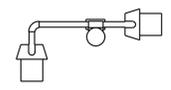
SV-3-TC



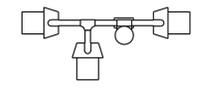
SV-4-TC



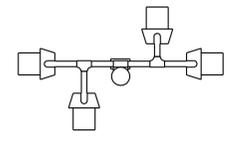
SV-2B



SV-2-TB

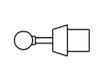


SV-3-TB



SV-4-TB

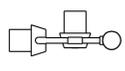
PLAN VIEW OF OTHER SIDE MOUNTINGS



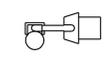
SV



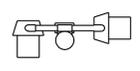
SV-1



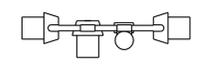
SV-2A



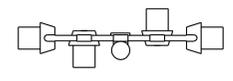
SV-1-T



SV-2-TA



SV-3-TA



SV-4-TA

SIDE MOUNTINGS

ABBREVIATIONS:

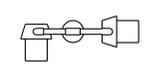
- SV SIDE MOUNTED VEHICLE SIGNALS
- T TERMINAL COMPARTMENT
- TV TOP MOUNTED VEHICLE SIGNALS
- 1, 2, 3, 4 NUMBER OF SIGNAL FACES (3 - SECTION, UNLESS OTHERWISE INDICATED)
- A, B, C, D CONFIGURATION OF SIGNALS

NOTES:

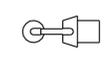
1. Mountings shall be oriented to provide maximum horizontal clearance to adjacent roadway.
2. Bracket arms shall be long enough to permit proper alignment of signals and backplate installation.
3. See Standard Plans ES-4D and ES-4E for attachment fitting details.



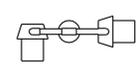
TV-1



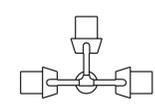
TV-2



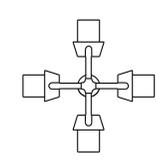
TV-1-T



TV-2-T



TV-3-T



TV-4-T

TOP MOUNTINGS

PLAN VIEW OF 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.

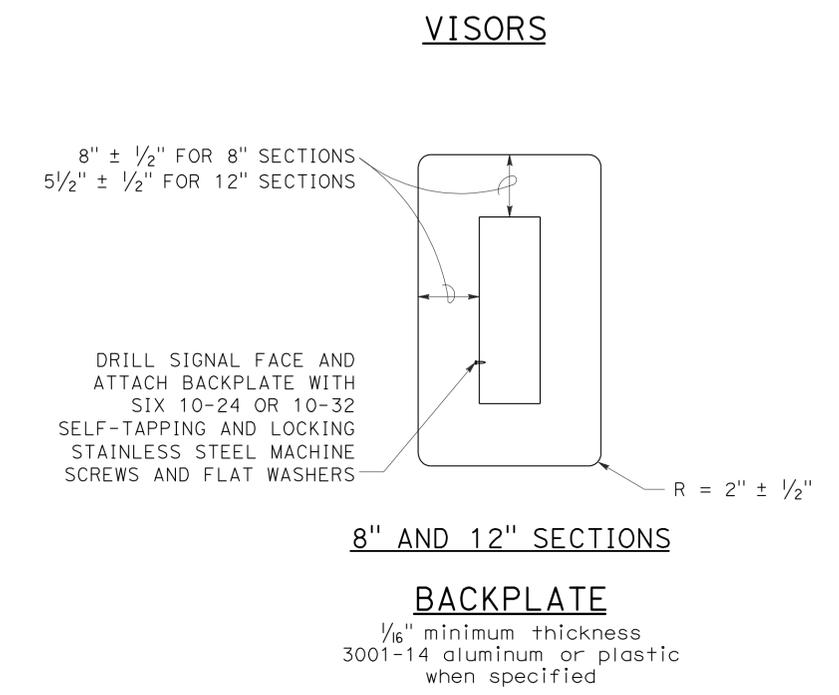
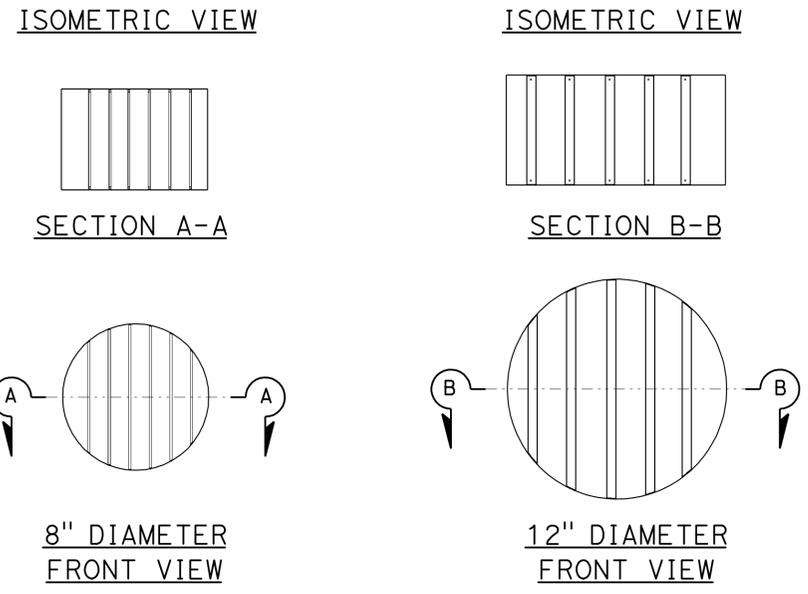
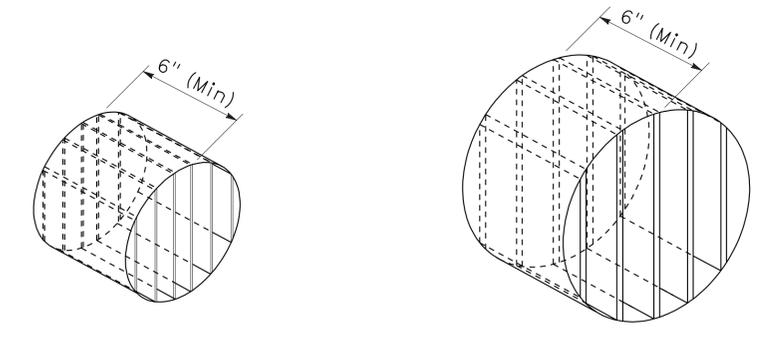
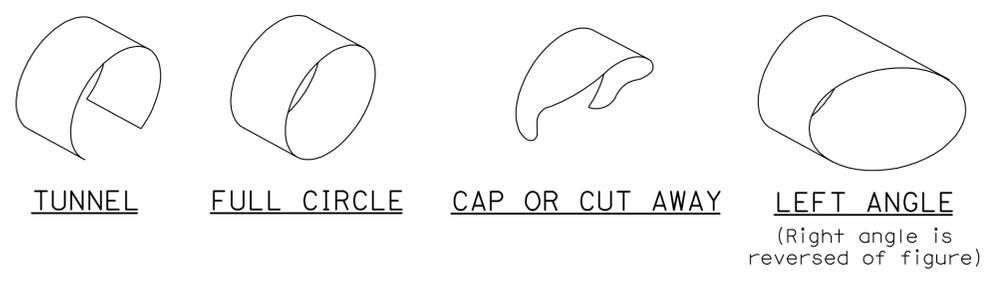
**REVISED STANDARD PLAN RSP ES-4A**

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Mrn	1	31.2	41	48

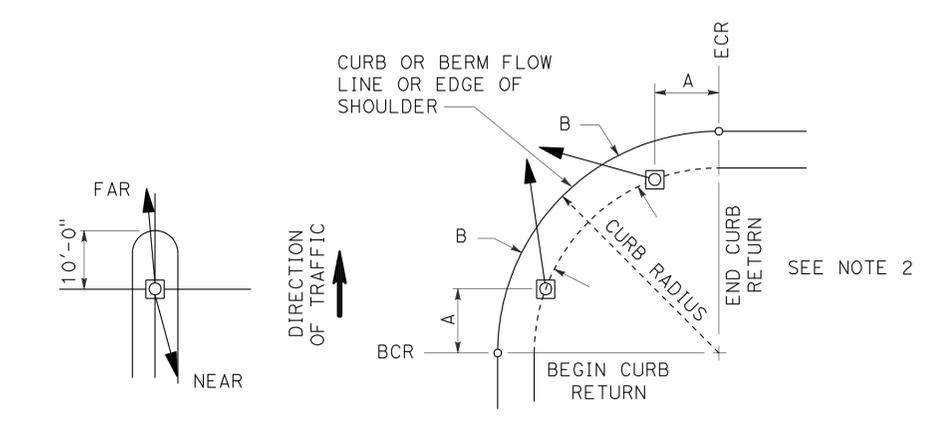
Theresa Gabriel  
 REGISTERED ELECTRICAL ENGINEER  
 July 19, 2013  
 PLANS APPROVAL DATE  
 Theresa Aziz Gabriel  
 No. E15129  
 Exp. 6-30-14  
 ELECTRICAL  
 STATE OF CALIFORNIA

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 12-30-13

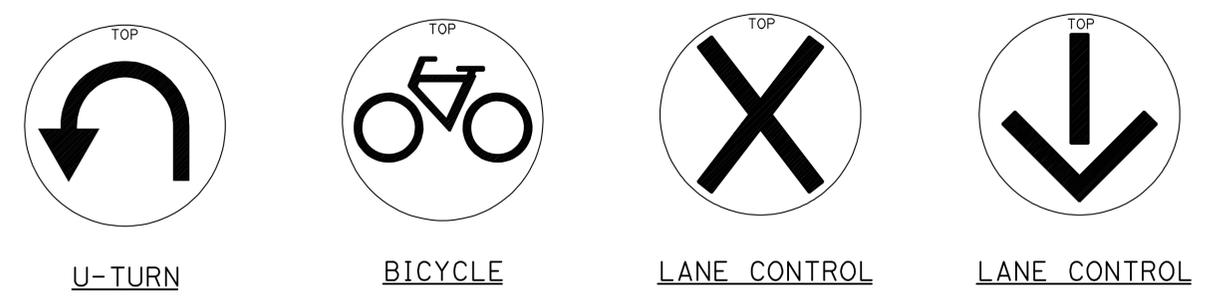
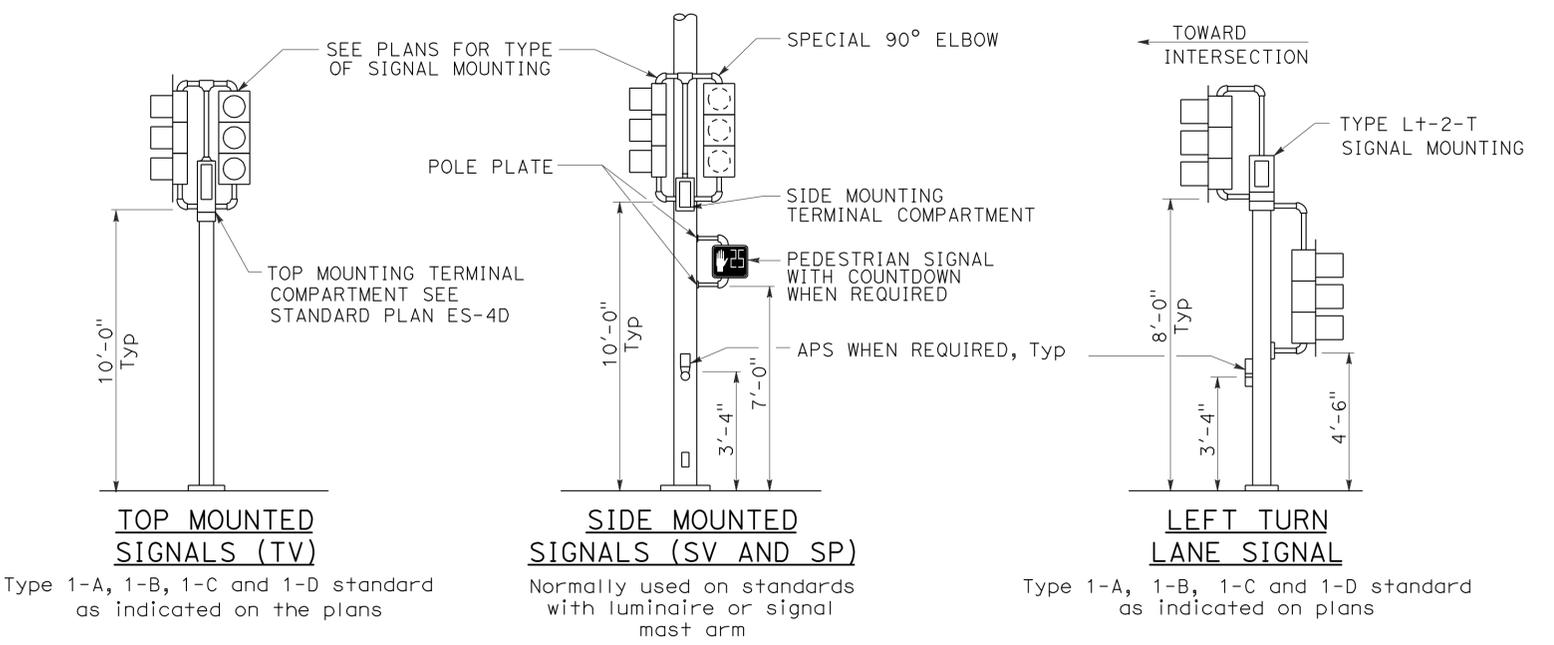


**DIRECTIONAL LOUVER**  
 Directional louvers shall be oriented as directed by the Engineer and secured in place with one plated brass machine screw and nut.



- 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**



**SIGNAL FACES**

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

**TYPICAL SIGNAL INSTALLATIONS**

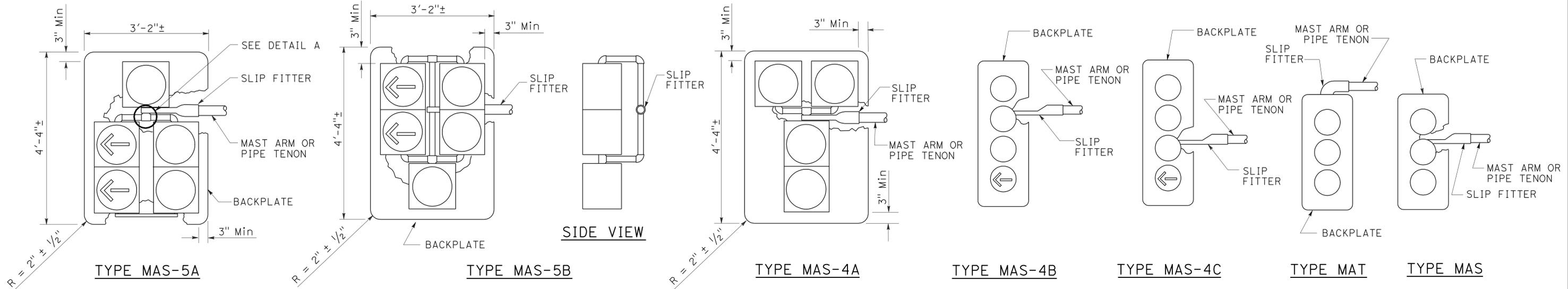
2010 REVISED STANDARD PLAN RSP ES-4C

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Mrn	1	31.2	42	48

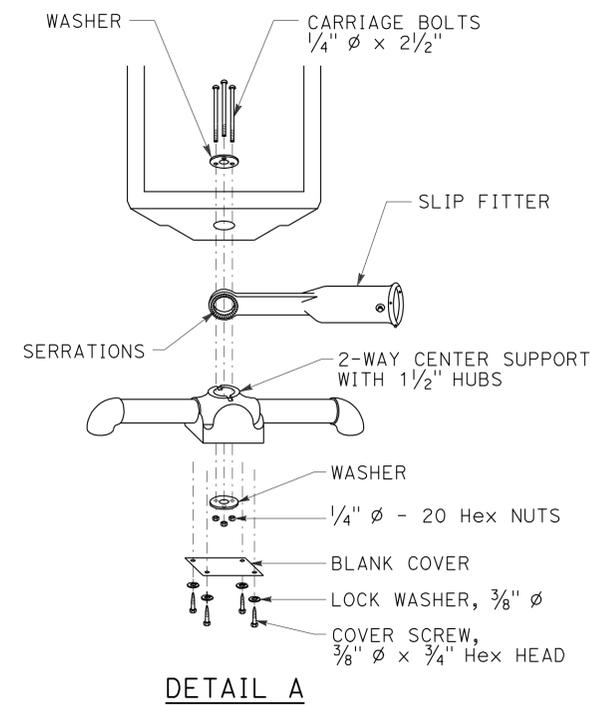
*Theresa Gabriel*  
 REGISTERED ELECTRICAL ENGINEER  
 July 19, 2013  
 PLANS APPROVAL DATE  
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

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

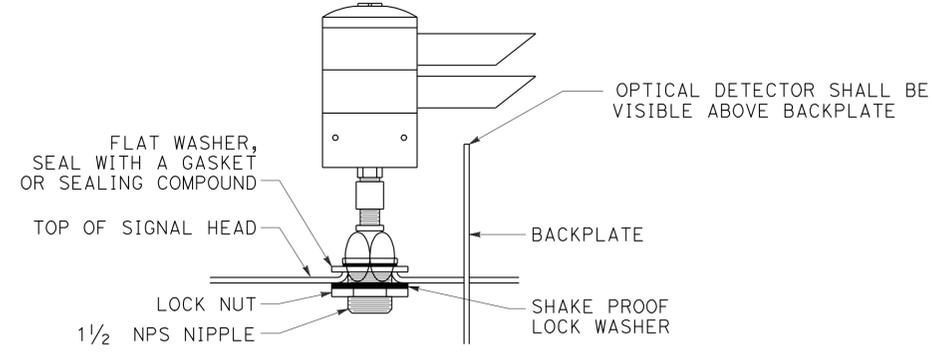
TO ACCOMPANY PLANS DATED 12-30-13



**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

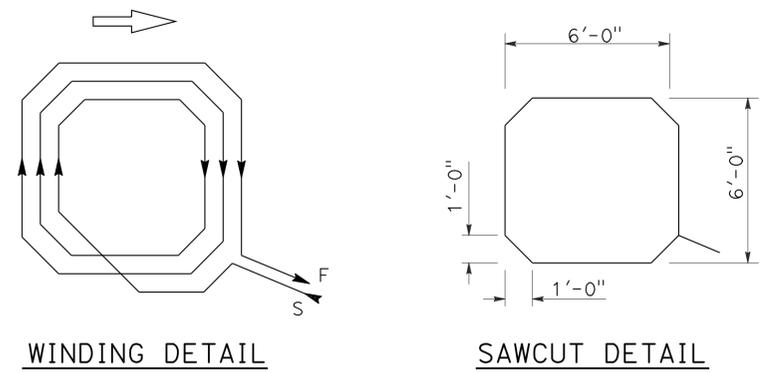
RSP ES-4E DATED JULY 19, 2013 SUPERSEDES STANDARD PLAN ES-4E DATED MAY 20, 2011 - 447 OF THE STANDARD PLANS BOOK DATED 2010.

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

2010 REVISED STANDARD PLAN RSP ES-4E

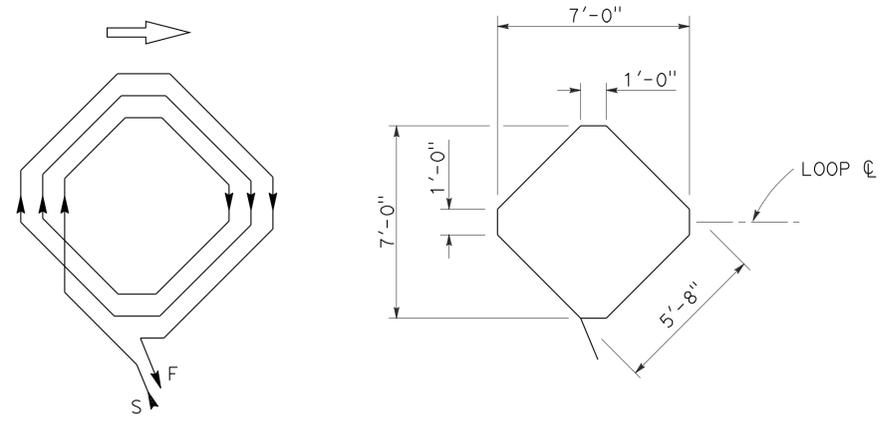
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Mrn	1	31.2	43	48
<i>Theresa Gabriel</i> REGISTERED ELECTRICAL ENGINEER July 19, 2013 PLANS APPROVAL DATE <small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small>					

TO ACCOMPANY PLANS DATED 12-30-13



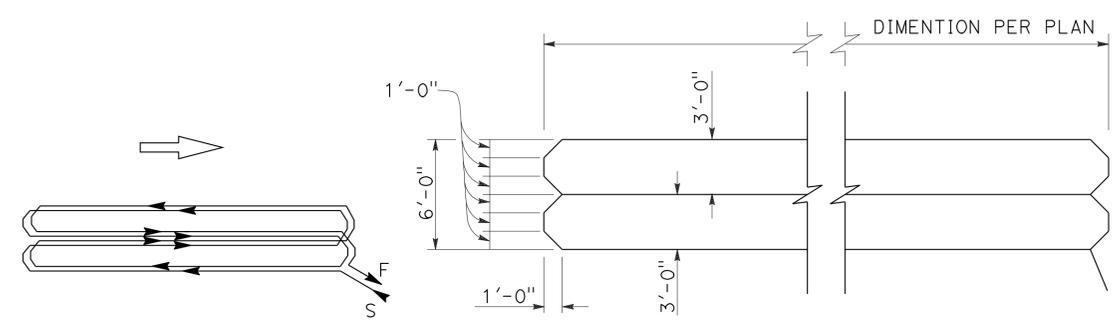
WINDING DETAIL SAWCUT DETAIL

TYPE A LOOP DETECTOR CONFIGURATION



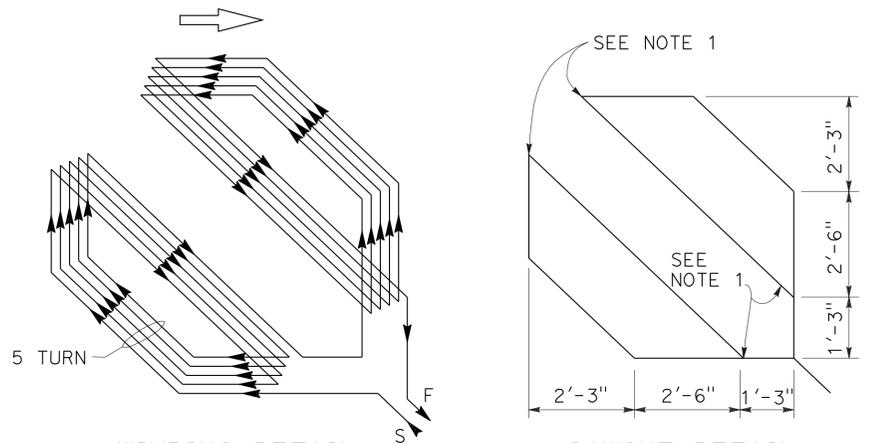
WINDING DETAIL SAWCUT DETAIL

TYPE B LOOP DETECTOR CONFIGURATION



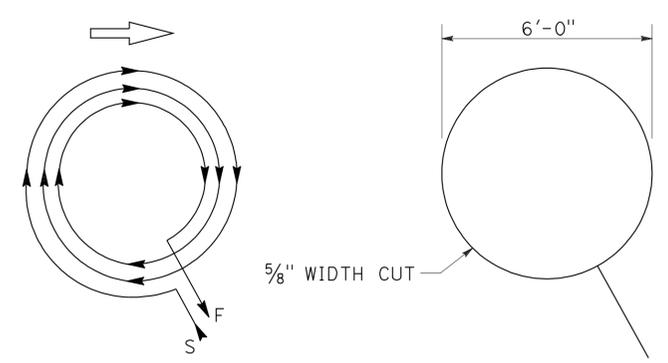
WINDING DETAIL SAWCUT DETAIL

TYPE C LOOP DETECTOR CONFIGURATION



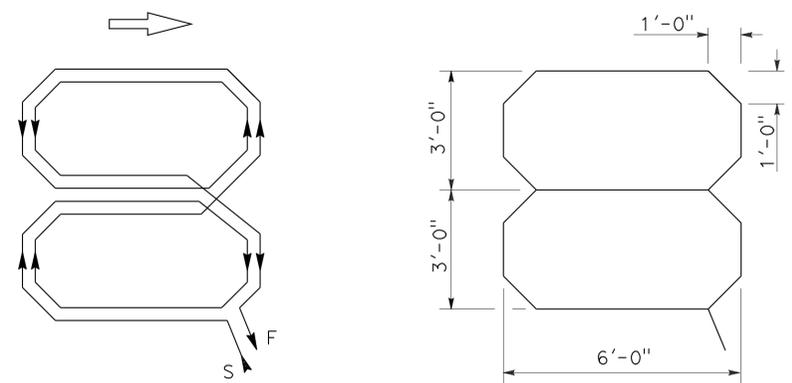
WINDING DETAIL SAWCUT DETAIL

TYPE D LOOP DETECTOR CONFIGURATION



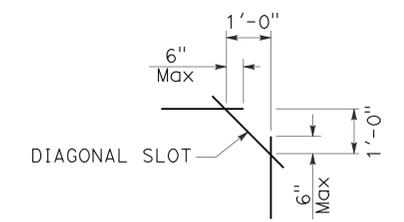
WINDING DETAIL SAWCUT DETAIL

TYPE E LOOP DETECTOR CONFIGURATION



WINDING DETAIL SAWCUT DETAIL

TYPE Q LOOP DETECTOR CONFIGURATION



PLAN VIEW OF DIAGONAL SLOT AT CORNERS

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.

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

- 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.

2010 REVISED STANDARD PLAN RSP ES-5B

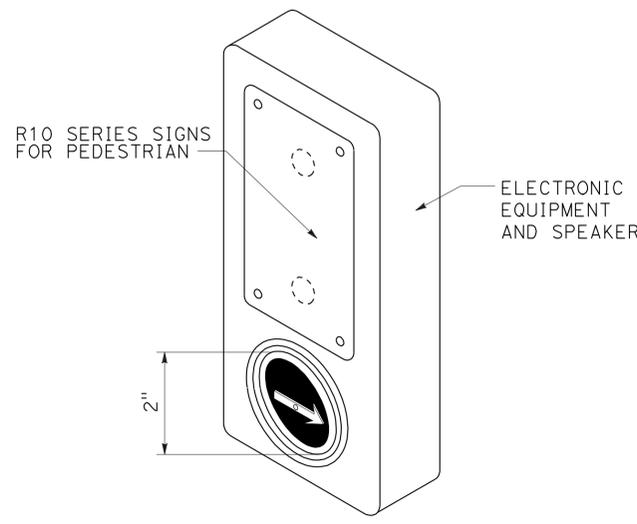
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Mrn	1	31.2	44	48

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.

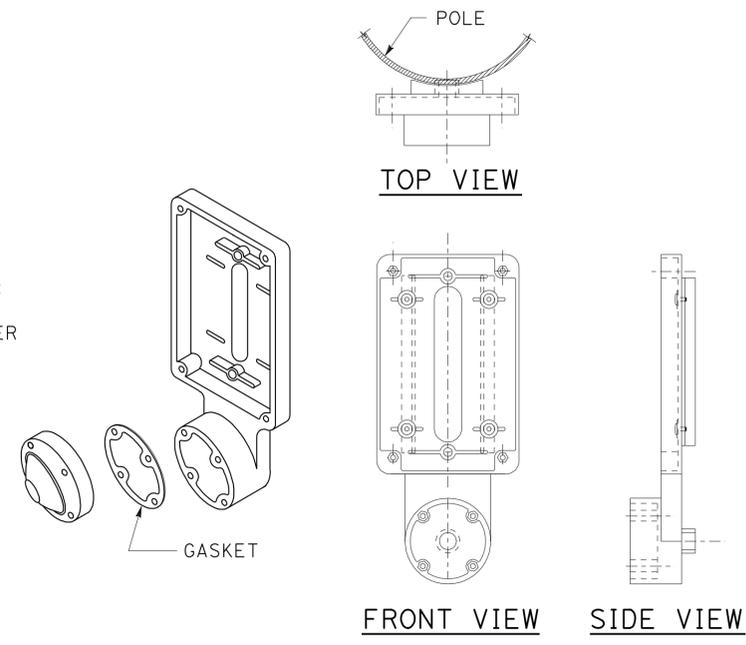
TO ACCOMPANY PLANS DATED 12-30-13

**NOTES:**

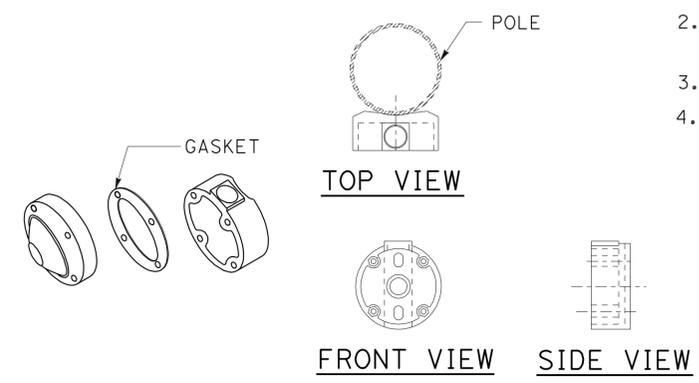
1. Back casting shape to fit curvature of pole.
2. Provide cover fitting for top of post, when PBA is mounted on push button assembly post.
3. Install push button on crosswalk side of standard.
4. Use R10 series regulatory signs and plaques for pedestrian and bicycle facilities.



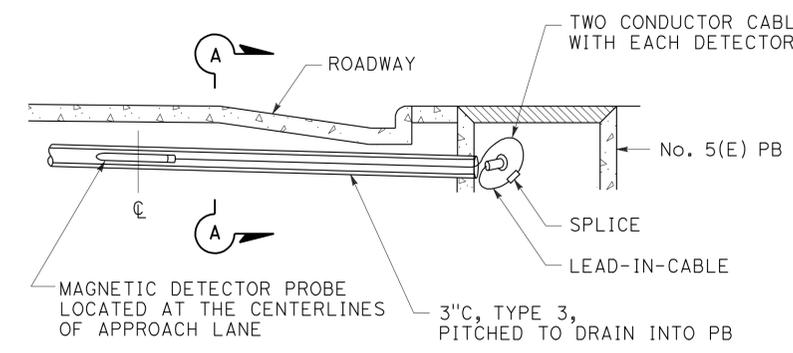
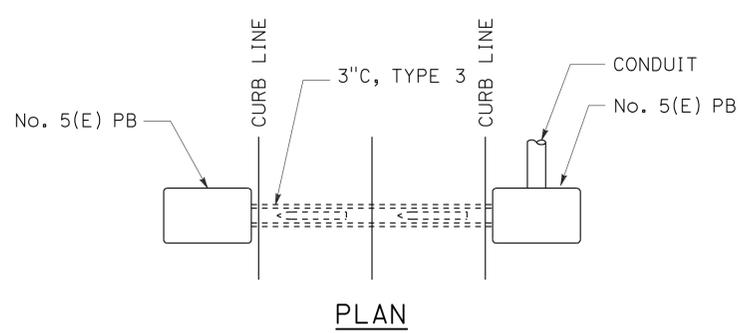
**ACCESSIBLE PEDESTRIAN SIGNAL**  
**DETAIL A**  
 (See note 1 to 4)



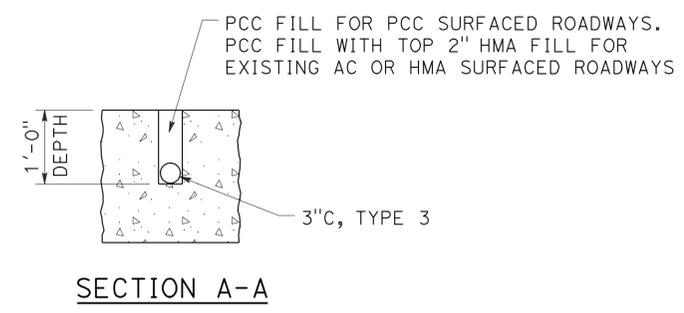
**TYPE B PUSH BUTTON ASSEMBLY**  
**DETAIL B**  
 (See note 1 to 4)



**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**

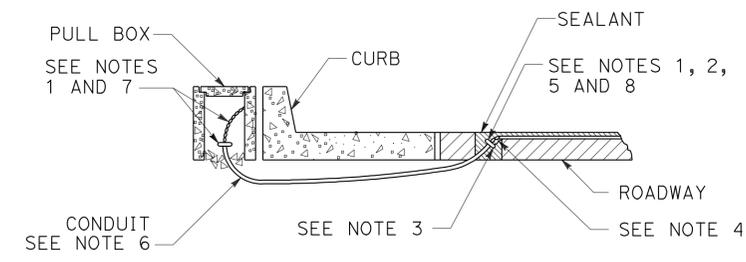
2010 REVISED STANDARD PLAN RSP ES-5C

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Mrn	1	31.2	45	48

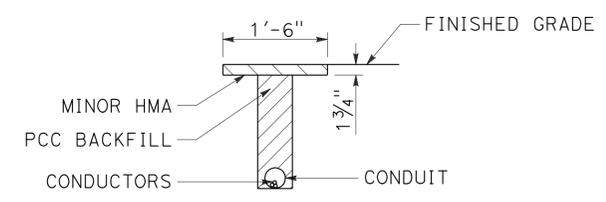
Theresa Gabriel  
 REGISTERED ELECTRICAL ENGINEER  
 July 19, 2013  
 PLANS APPROVAL DATE  
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

TO ACCOMPANY PLANS DATED 12-30-13

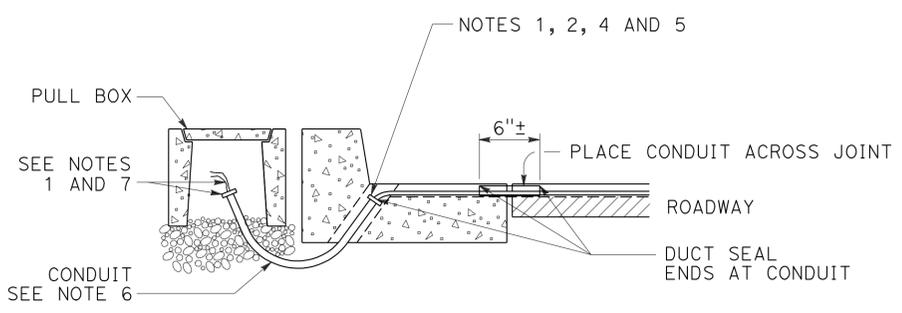
2010 REVISED STANDARD PLAN RSP ES-5D



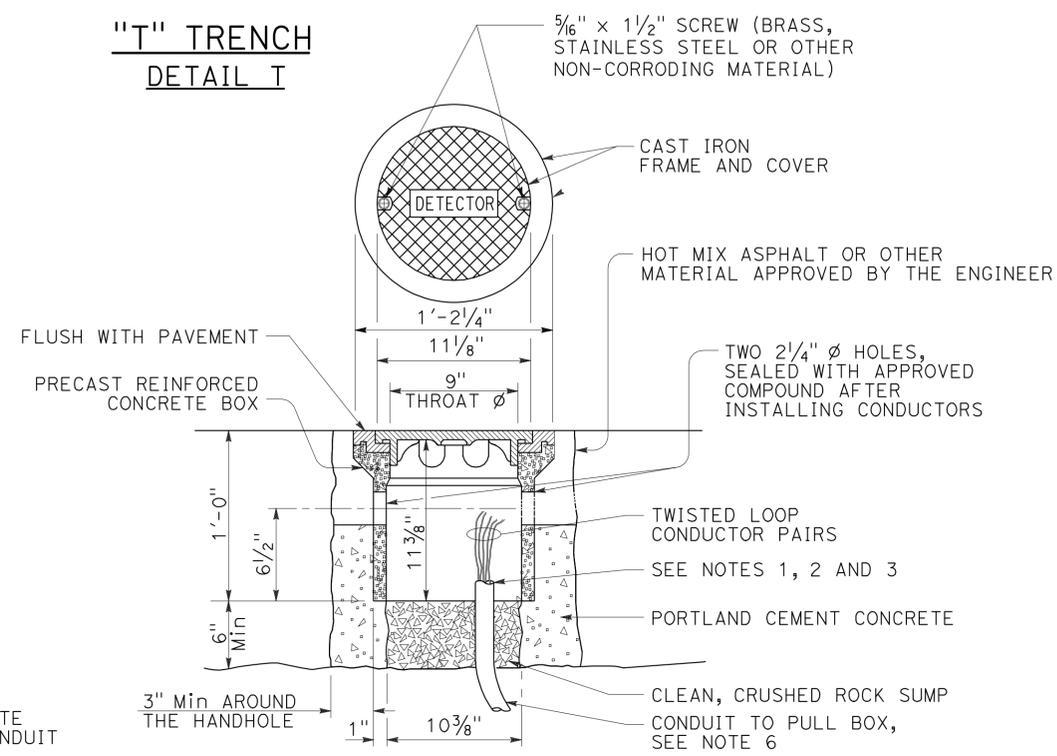
**TYPE A  
CURB TERMINATION DETAIL**



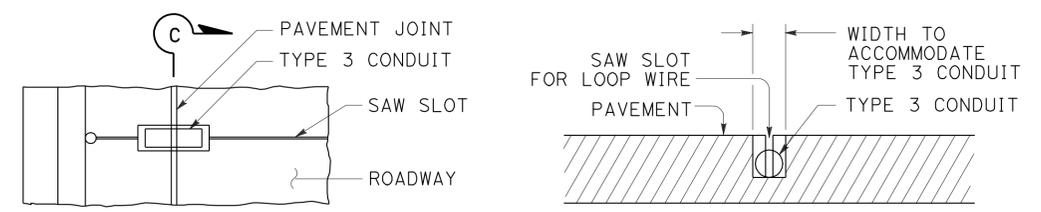
**"T" TRENCH  
DETAIL T**



**CROSS SECTION**



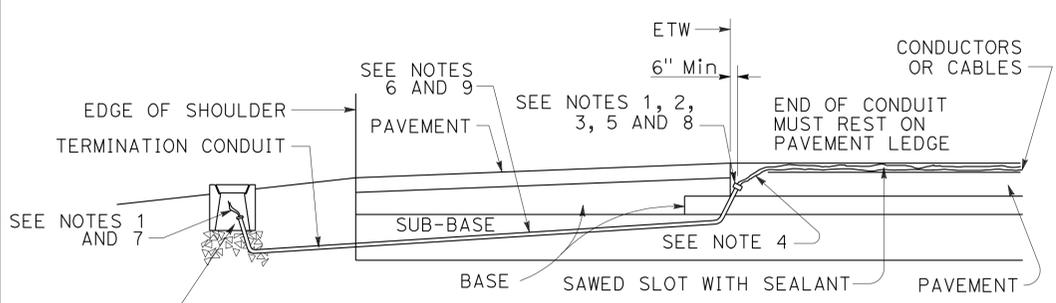
**DETECTOR HANDHOLE DETAIL**



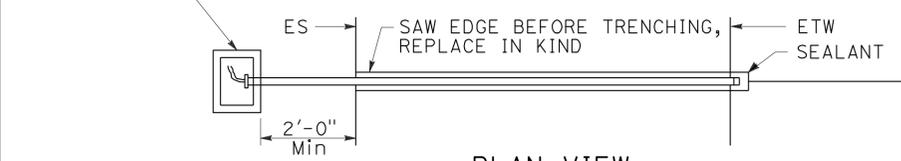
**PLAN VIEW**

**SECTION C-C**

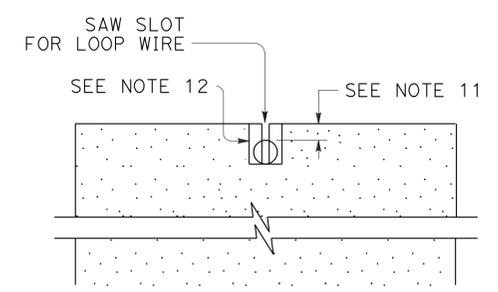
**TYPE B  
CURB TERMINATION DETAIL**



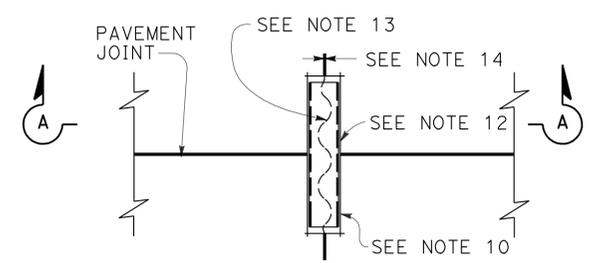
**CROSS SECTION**



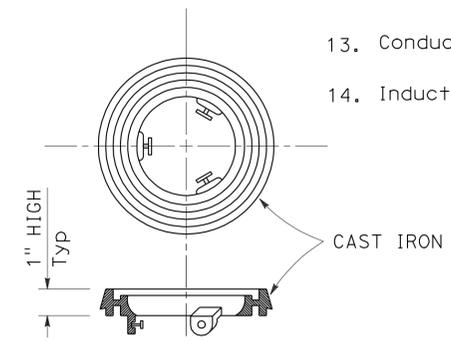
**PLAN VIEW  
SHOULDER TERMINATION DETAILS**



**SECTION A-A**



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



**LOCKING GRADE RING**

**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.
- |                     |                        |
|---------------------|------------------------|
| <u>Conduit size</u> | <u>Loop conductors</u> |
| 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**

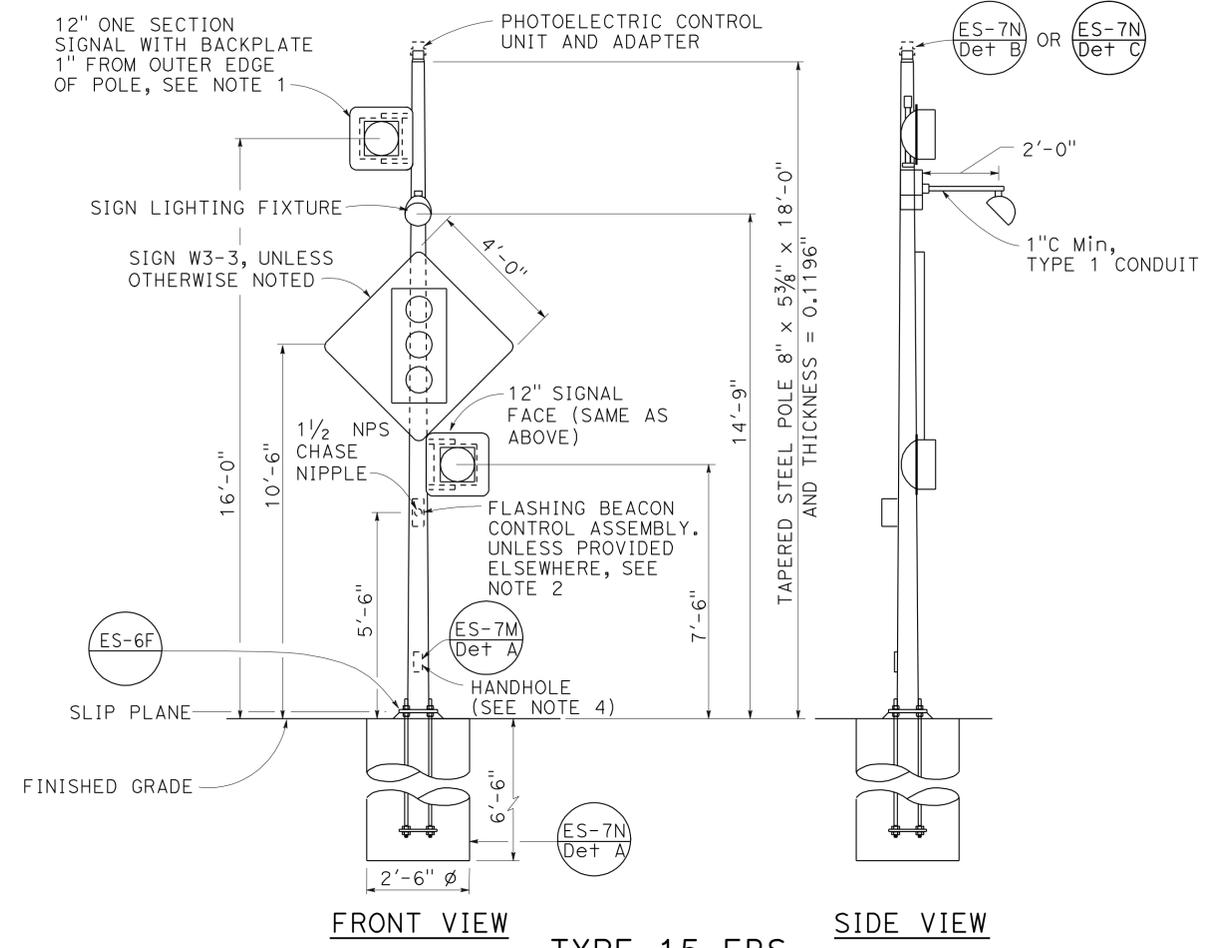
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Mrn	1	31.2	46	48

Stanley P. Johnson  
 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.

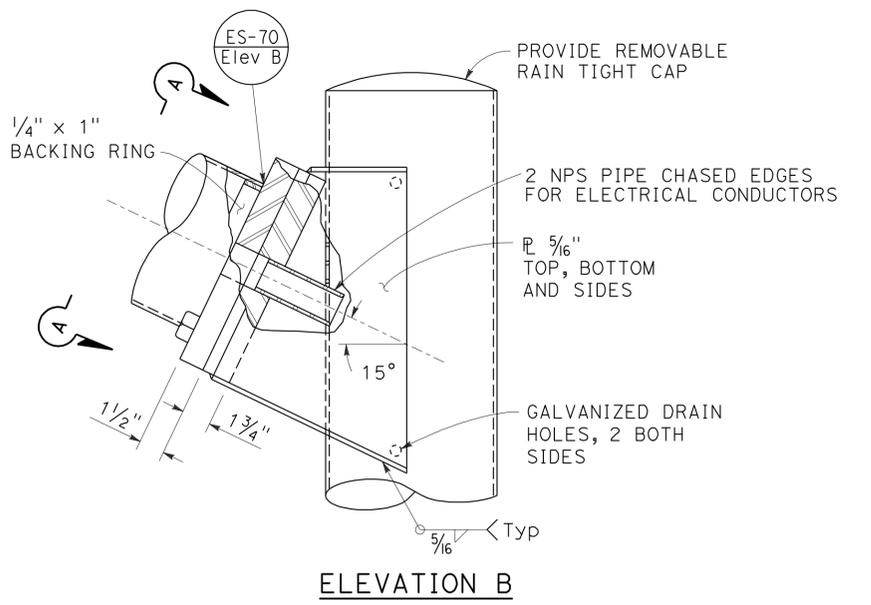
TO ACCOMPANY PLANS DATED 12-30-13

**NOTES:**

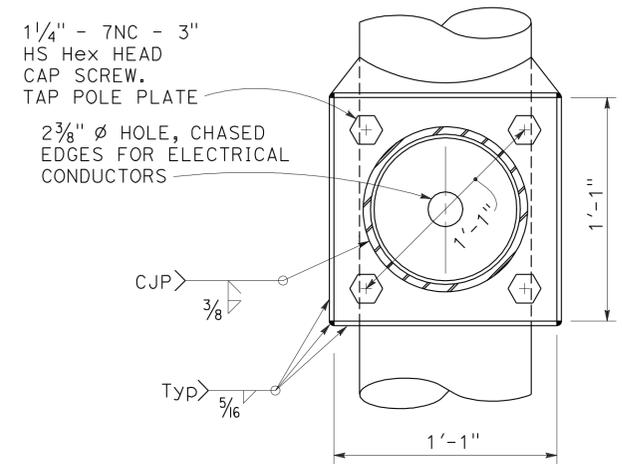
1. See Revised Standard Plan RSP ES-4A and Standard Plan ES-4D for attachment fitting details.
2. For wiring diagram, see Standard Plan ES-14B.
3. For additional notes and details, see Standard Plans ES-7M and ES-7N.
4. Handhole shall be located on the downstream side of traffic.
5. See project plans for type of standard to be installed.



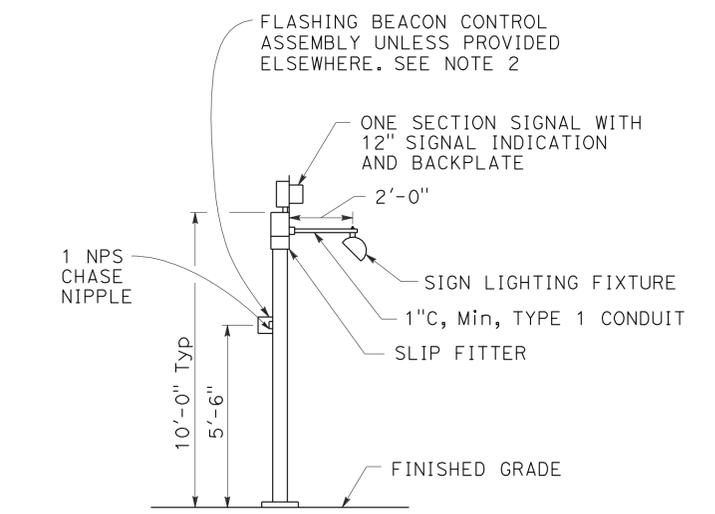
**TYPE 15-FBS**  
**ADVANCE FLASHING BEACON WITH SLIP BASE INSTALLATION**  
**DETAIL A**



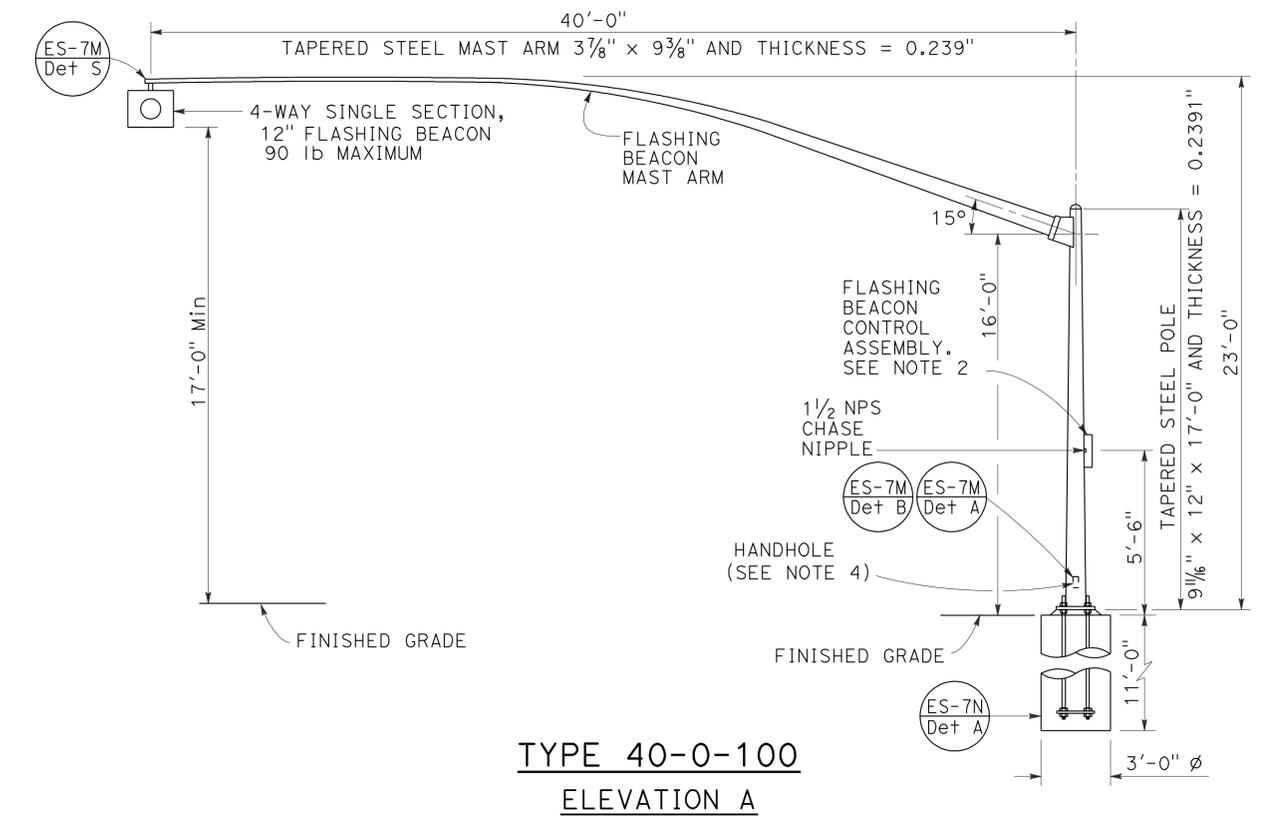
**ELEVATION B**



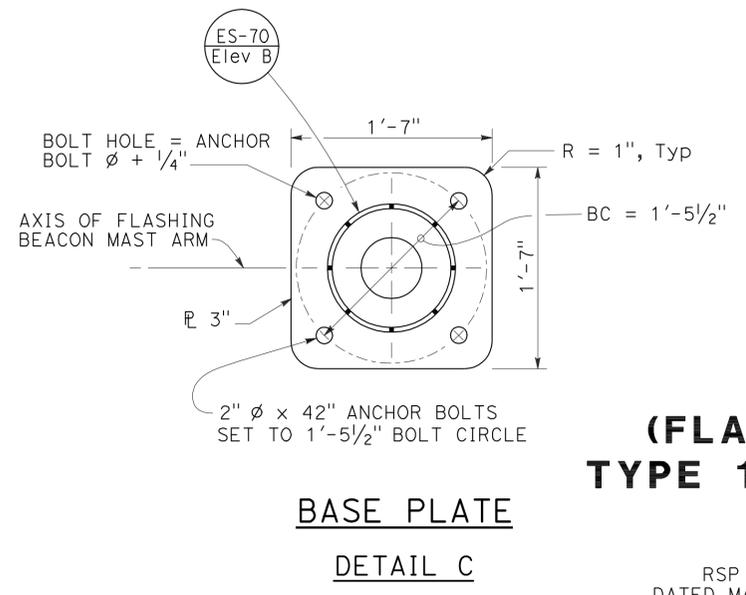
**VIEW A-A**  
**FLASHING BEACON MAST ARM**  
**CONNECTION DETAIL**  
**DETAIL B**



**TYPE 1-A, 1-B, 1-C AND 1-D**  
**ADVANCE FLASHING**  
**BEACON INSTALLATION**  
**DETAIL D**  
 See Note 5



**TYPE 40-0-100**  
**ELEVATION A**



**BASE PLATE**  
**DETAIL C**

**ELECTRICAL SYSTEMS**  
**(FLASHING BEACON ON A TYPE 1, TYPE 15-FBS AND TYPE 40 STANDARD)**  
 NO SCALE

RSP ES-7J DATED JULY 19, 2013 SUPERSEDES STANDARD PLAN ES-7J DATED MAY 20, 2011 - PAGE 471 OF THE STANDARD PLANS BOOK DATED 2010.

2010 REVISED STANDARD PLAN RSP ES-7J

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Mrn	1	31.2	47	48

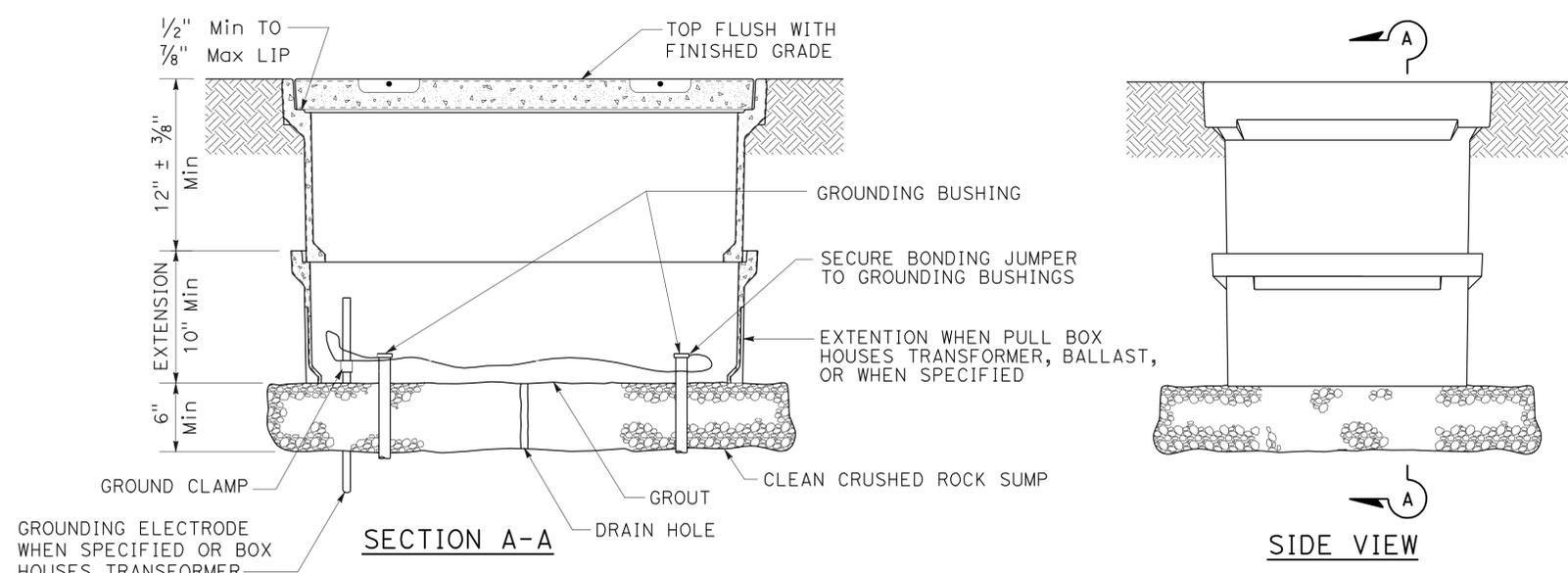
Theresa Gabriel  
REGISTERED ELECTRICAL ENGINEER

July 19, 2013  
PLANS APPROVAL DATE

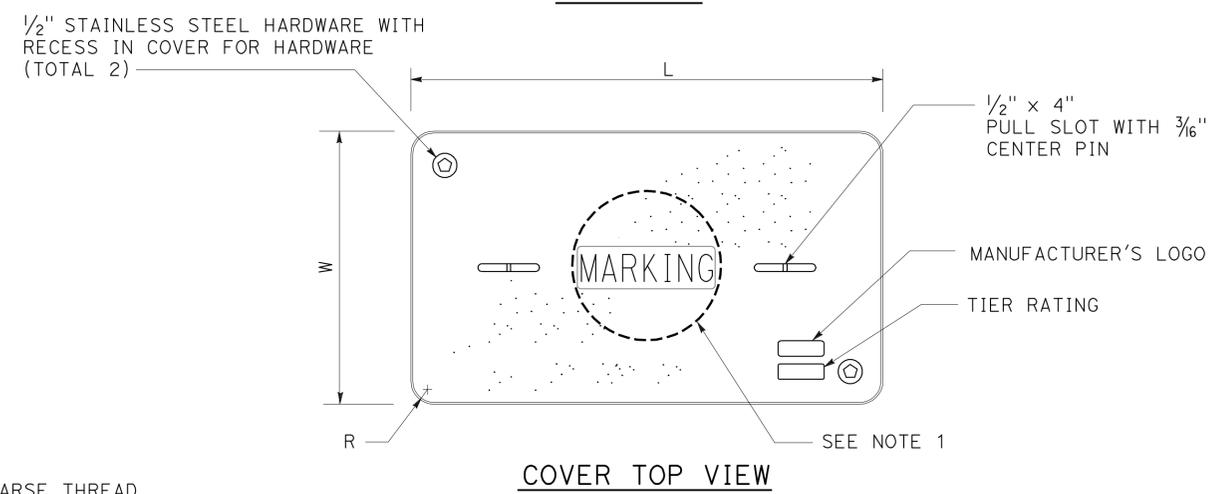
Theresa Aziz Gabriel  
No. E15129  
Exp. 6-30-14  
ELECTRICAL  
STATE OF CALIFORNIA

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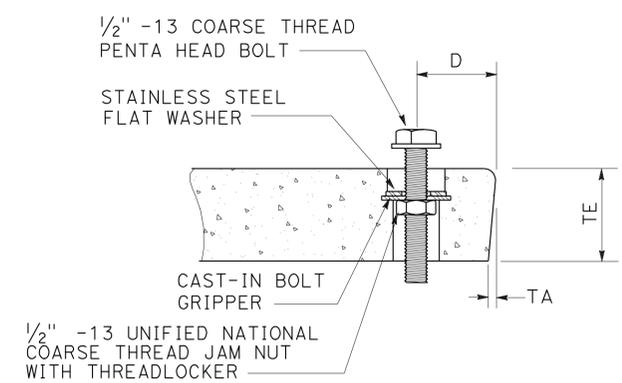
TO ACCOMPANY PLANS DATED 12-30-13



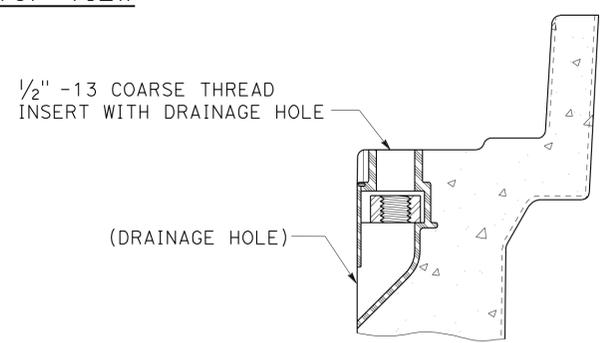
**INSTALLATION DETAILS**  
**DETAIL A**



**COVER TOP VIEW**



**TYPICAL COVER CAPTIVE BOLT**  
**OR SIMILAR**



**TYPICAL THREADED INSERT**  
**OR SIMILAR**

**NOTES:**

- Pull box covers shall be marked as follows: "SERVICE" Service circuits between service point and service disconnect; "SPRINKLER-CONTROL" sprinkler control circuits, 50 V or less; "CALTRANS" on all pull boxes, except pull boxes marked "SPRINKLER-CONTROL"; and "TELEPHONE" Telephone service;
  - No. 3 1/2 pull box.
    - "SIGNAL" - Traffic signal circuits with or without lighting or sign lighting circuits.
    - "LIGHTING" - Lighting or sign lighting circuits where voltage is under 600 V.
  - No. 5, 6, 9 or 9A pull box.
    - "TRAFFIC SIGNAL" - Traffic signal circuits with or without lighting or sign lighting circuits.
    - "LIGHTING" - Lighting or sign lighting circuits where voltage is under 600 V.
    - "LIGHTING-HIGH VOLTAGE" - Lighting or sign lighting circuits where voltage is above 600 V.
    - "IRRIGATION" - Circuits to irrigation controller 120 V or more.
    - "RAMP METER" - Ramp meter circuits.
    - "COUNT STATION" - Count or speed monitor circuits.
    - "COMMUNICATIONS" - Communication circuits.
    - "TOS COMMUNICATIONS" - TOS communication line.
    - "TOS POWER" - TOS power.
    - "TDC POWER" - Telephone demarcation cabinet power.
    - "CCTV" - Closed circuit television circuits.
    - "TMS" - Traffic monitoring station circuits.
    - "CMS" - Changeable message sign circuits.
    - "HAR" - Highway advisory radio circuits.
    - "BOOSTER PUMP" - Booster pump circuit.
- The nominal dimensions of the opening in which the cover sets shall be the same as the cover dimensions except the length and width dimensions shall be 1/8" greater.
- Covers and boxes shall be interchangeable with California standard male and female gages. When interchanged with a standard male or female gage, the top surfaces shall be flush within 1/8". Top outside radius of covers and pull boxes shall have a 1/8" radius.
- Pull box extension may be another pull box as long as the bottom edge of the pull box can fit into the cover opening.
- All dimensions for the cover for non-traffic pull box are nominal values.

DIMENSION TABLE										
PULL BOX	PULL BOX			COVER						
	MINIMUM DEPTH BOX	MINIMUM DEPTH EXTENSION	MAXIMUM WEIGHT	L	W	R	TE	TA	D	MAXIMUM WEIGHT
No. 3 1/2	12"	N/A	40 lb	1' - 3 3/8"	10 1/8"	1 3/8"	2"	1/8"	1 3/4"	30 lb
No. 5	12"	10"	55 lb	1' - 11 1/4"	1' - 1 3/4"	1 3/8"	2"	1/8"	1 3/4"	60 lb
No. 6	12"	10"	70 lb	2' - 6 1/2"	1' - 5 1/2"	1 3/8"	2"	1/8"	2"	85 lb

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**ELECTRICAL SYSTEMS**  
**(NON-TRAFFIC PULL BOX)**  
NO SCALE

RSP ES-8A DATED JULY 19, 2013 SUPERSEDES RSP ES-8A DATED JANUARY 20, 2012 THAT SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP ES-8A**

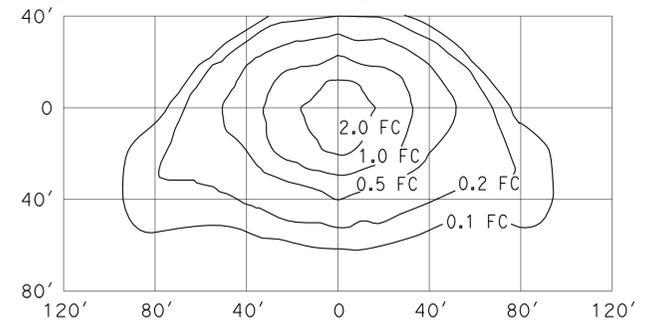
2010 REVISED STANDARD PLAN RSP ES-8A

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Mrn	1	31.2	48	48

*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.

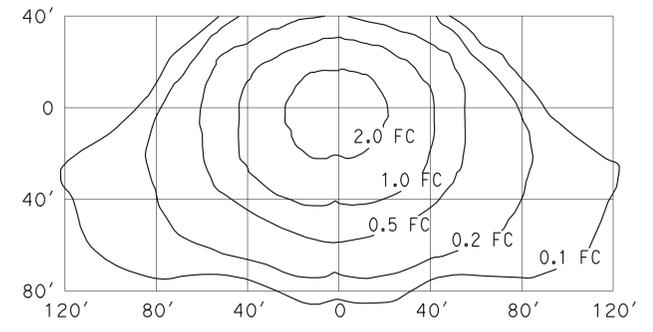
TO ACCOMPANY PLANS DATED 12-30-13

**ISOFOOTCANDLE CURVE - MINIMUM**



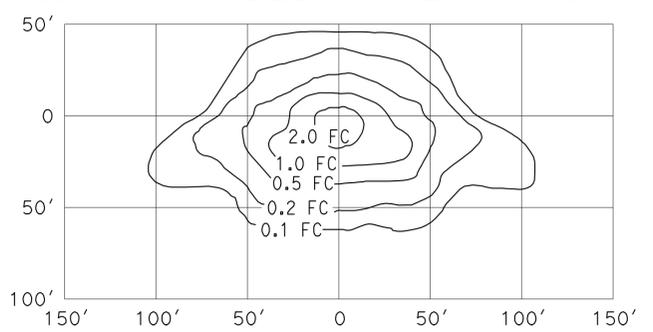
**TYPE III MEDIUM CUTOFF**  
 Cutoff Luminaire  
 34' Mounting Height  
 Lamp operated at 22,000 lm  
 200-W high pressure sodium lamp  
 ANSI Designation S66

**ISOFOOTCANDLE CURVE - MINIMUM**



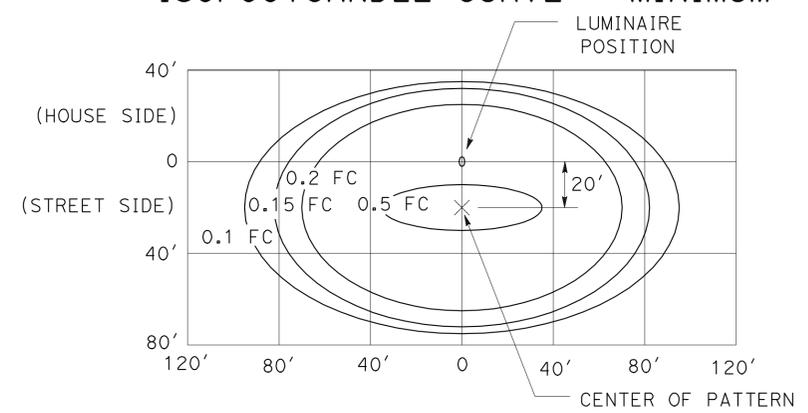
**TYPE III MEDIUM CUTOFF**  
 Cutoff Luminaire  
 40' Mounting Height  
 Lamp operated at 37,000 lm  
 310-W high pressure sodium lamp  
 ANSI Designation S67

**ISOFOOTCANDLE CURVE - MINIMUM**



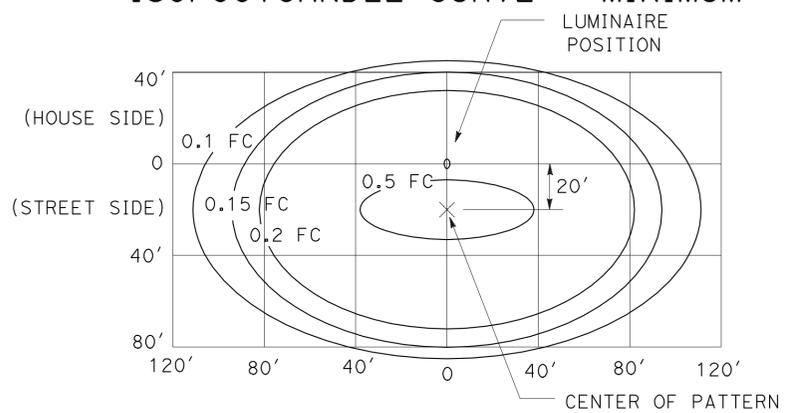
**TYPE III MEDIUM CUTOFF**  
 Cutoff Luminaire  
 30' Mounting Height  
 Lamp operated at 16,000 lm  
 150-W high pressure sodium lamp  
 ANSI Designation S55

**ISOFOOTCANDLE CURVE - MINIMUM**



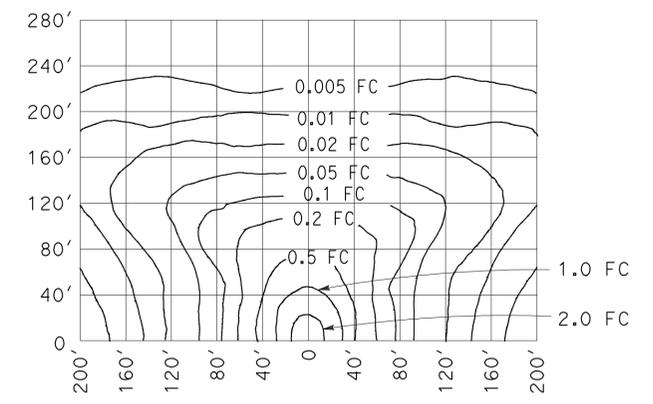
**LED LUMINAIRE ROADWAY 1**  
 165-W at 34' Mounting Height

**ISOFOOTCANDLE CURVE - MINIMUM**



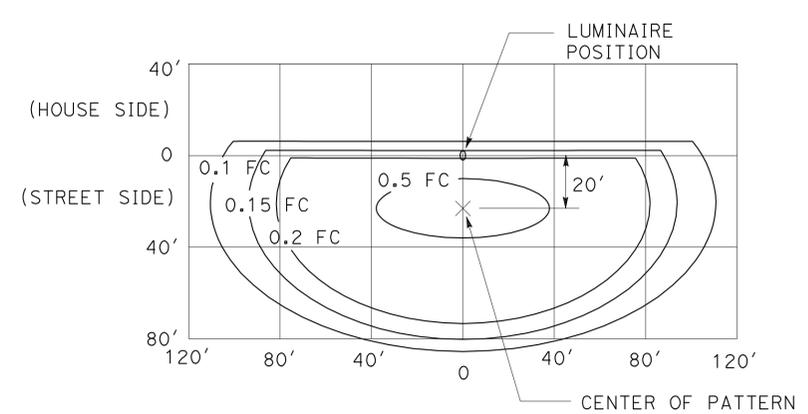
**LED LUMINAIRE ROADWAY 2**  
 235-W at 40' Mounting Height

**ISOFOOTCANDLE CURVE - MINIMUM**



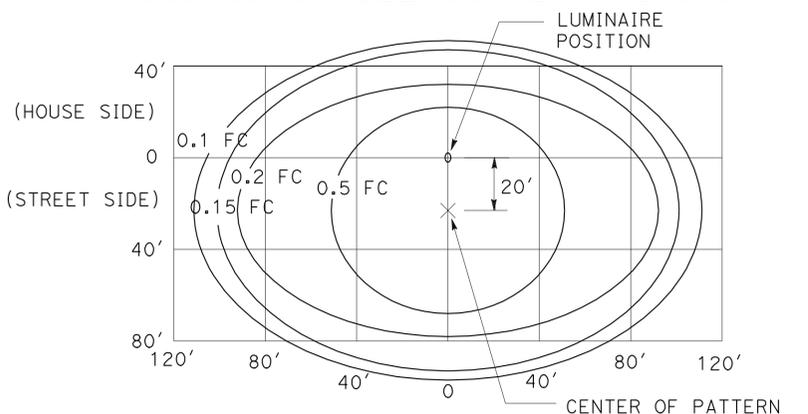
**LOW PRESSURE SODIUM LUMINAIRE**  
 40' Mounting Height  
 Lamp operated at 33,000 lm  
 180-W low pressure sodium lamp

**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**