

INDEX OF PLANS

SHEET No.	DESCRIPTION
1	TITLE AND LOCATION MAP
2	TYPICAL CROSS SECTIONS
3	CONSTRUCTION DETAILS
4	CONSTRUCTION AREA SIGNS
5-7	TRAFFIC HANDLING PLANS
8	SUMMARY OF QUANTITIES
9-16	ELECTRICAL PLANS
17-45	REVISED AND NEW STANDARD PLANS

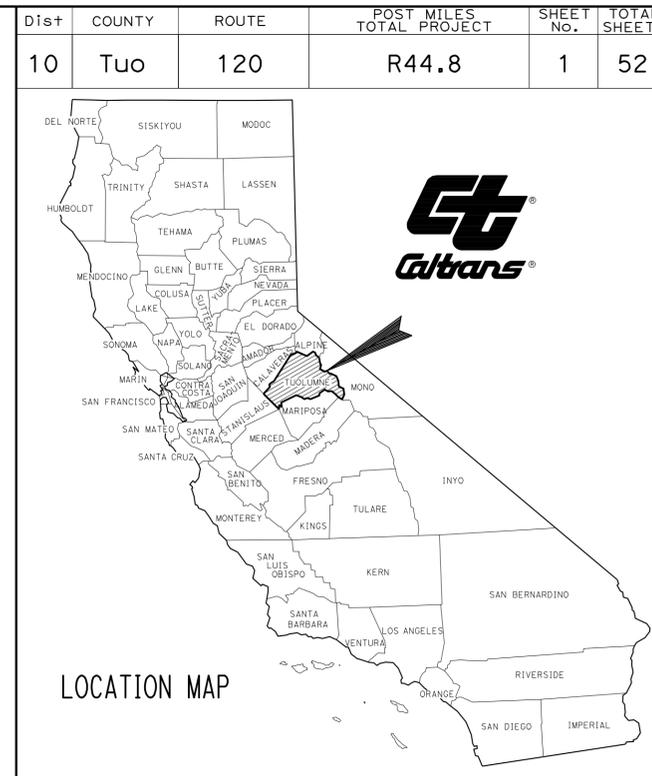
STRUCTURE PLANS

46-52	BIG OAK SIDE HILL VIADUCT
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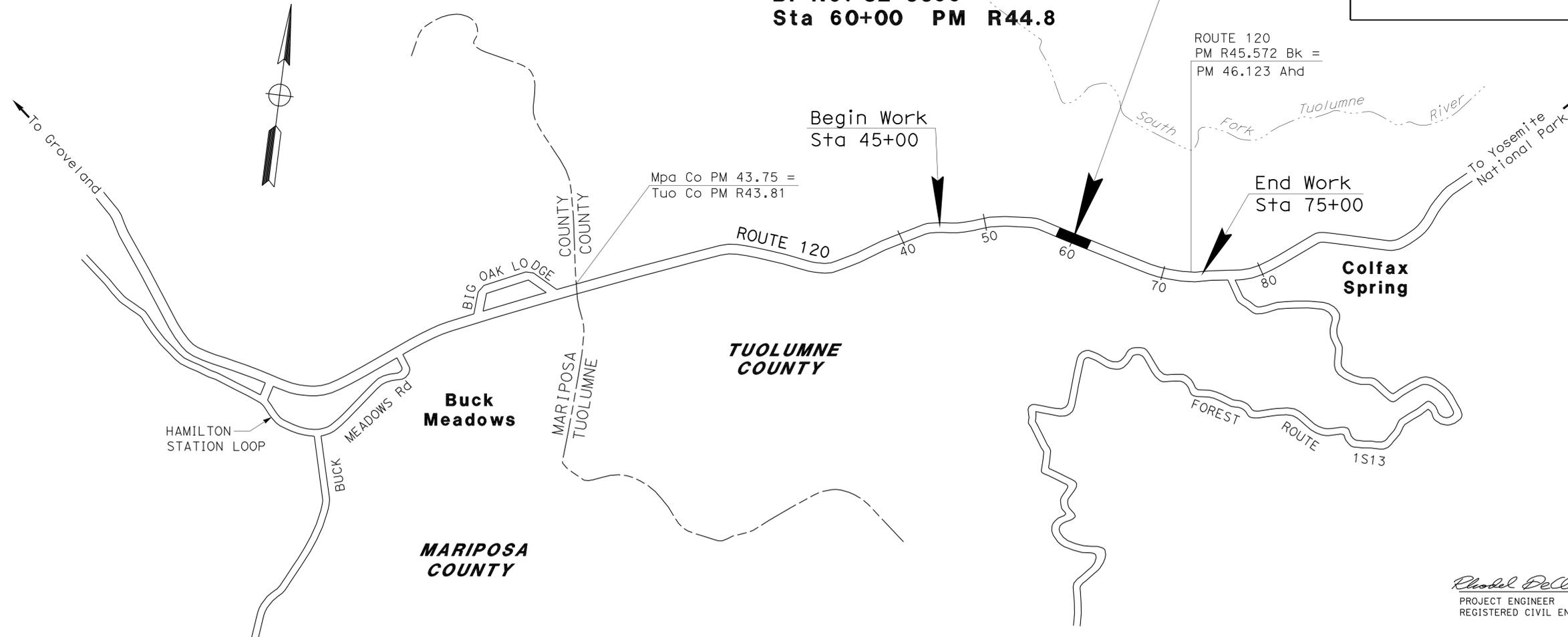
THE STANDARD PLANS LIST APPLICABLE TO THIS CONTRACT IS INCLUDED IN THE NOTICE TO BIDDERS AND SPECIAL PROVISIONS BOOK.

STATE OF CALIFORNIA **ACBHNH-P120(05)E**  
**DEPARTMENT OF TRANSPORTATION**  
**PROJECT PLANS FOR CONSTRUCTION ON**  
**STATE HIGHWAY**  
**IN TUOLUMNE COUNTY**  
**NEAR BUCK MEADOWS**  
**AT BIG OAK SIDEHILL VIADUCT**

TO BE SUPPLEMENTED BY STANDARD PLANS DATED MAY 2006



**LOCATION OF CONSTRUCTION**  
**BIG OAK SIDEHILL VIADUCT**  
**Br No. 32-0055**  
**Sta 60+00 PM R44.8**



ROUTE 120  
 PM R45.572 Bk =  
 PM 46.123 Ahd

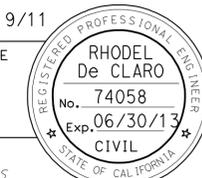
Begin Work  
 Sta 45+00

Mpa Co PM 43.75 =  
 Tuo Co PM R43.81

End Work  
 Sta 75+00

PROJECT MANAGER	TONY SINGH
DESIGN ENGINEER	ALVIN MANGINDIN

*Rhodel DeClaro* 12/19/11  
 PROJECT ENGINEER DATE  
 REGISTERED CIVIL ENGINEER



**March 5, 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.

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

NO SCALE

CONTRACT No.	<b>10-OW0704</b>
PROJECT ID	<b>1000020475</b>

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans**  
 MAINTENANCE

FUNCTIONAL SUPERVISOR  
 ALVIN MANGINDIN

CALCULATED/DESIGNED BY  
 CHECKED BY

RHODEL De CLARO  
 JOSE A. ALICEA II

REVISED BY  
 DATE REVISED

RD  
 12/15/11

**NOTES:**

1. DIMENSIONS OF THE PAVEMENT STRUCTURES (STRUCTURAL SECTIONS) ARE SUBJECT TO TOLERANCES SPECIFIED IN THE STANDARD SPECIFICATIONS.
2. FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.
4. EXISTING UTILITY FACILITIES HAVE NOT BEEN PLOTTED ON THESE PLANS.

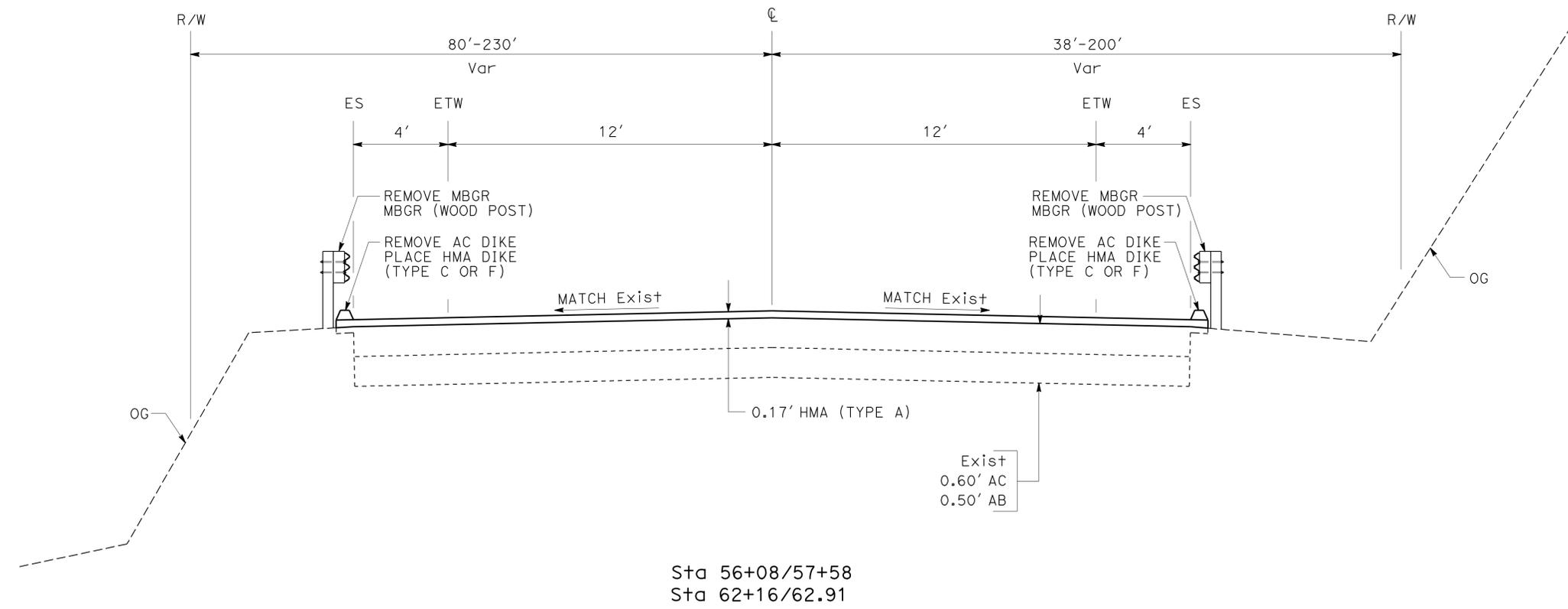
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Tuo	120	R44.8	2	52

Rhodel DeClaro 12/19/11  
 REGISTERED CIVIL ENGINEER DATE

3-5-12  
 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER  
 RHODEL De CLARO  
 No. 74058  
 Exp. 6/30/13  
 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.



Sta 56+08/57+58  
 Sta 62+16/62.91

**ROUTE 120**

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

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Tuo	120	R44.8	3	52

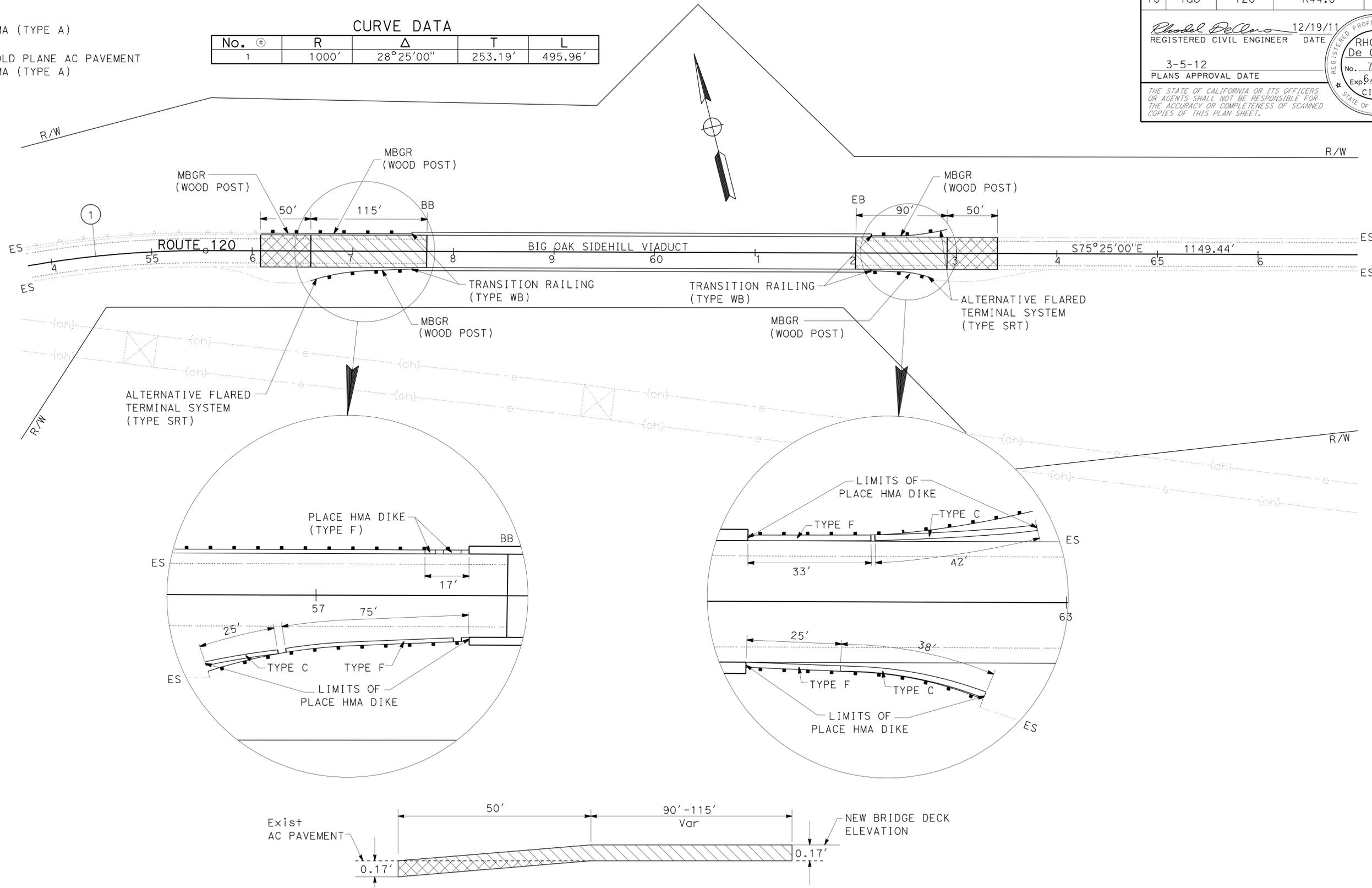
Rhodel DeClaro 12/19/11  
 REGISTERED CIVIL ENGINEER DATE  
 3-5-12  
 PLANS APPROVAL DATE  
 THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

REGISTERED PROFESSIONAL ENGINEER  
 RHODEL De CLARO  
 No. 74058  
 Exp. 6/30/13  
 CIVIL  
 STATE OF CALIFORNIA

**LEGEND:**

-  - HMA (TYPE A)
-  - COLD PLANE AC PAVEMENT HMA (TYPE A)

No.	+	R	Δ	T	L
1		1000'	28°25'00"	253.19'	495.96'



**SECTIONAL OVERLAY  
FOR APPROACH/DEPARTURE BRIDGE DECK  
AND CONFORM TAPER FOR EXISTING PAVEMENT**

**CONSTRUCTION DETAILS  
NO SCALE  
C-1**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans**  
 MAINTENANCE  
 FUNCTIONAL SUPERVISOR: ALVIN MANGINDIN  
 CHECKED BY: JOSE A. ALICEA II  
 DESIGNED BY: RHODEL De CLARO  
 DATE REVISED: 12/15/11  
 REVISED BY: RD  
 12/15/11

USERNAME => s128843  
 DGN FILE => a0w070ga001.dgn

RELATIVE BORDER SCALE IS IN INCHES  
 0 1 2 3

UNIT 2593

PROJECT NUMBER & PHASE

10000204751

LAST REVISION DATE PLOTTED => 07-MAR-2012  
 00-00-00 TIME PLOTTED => 16:24

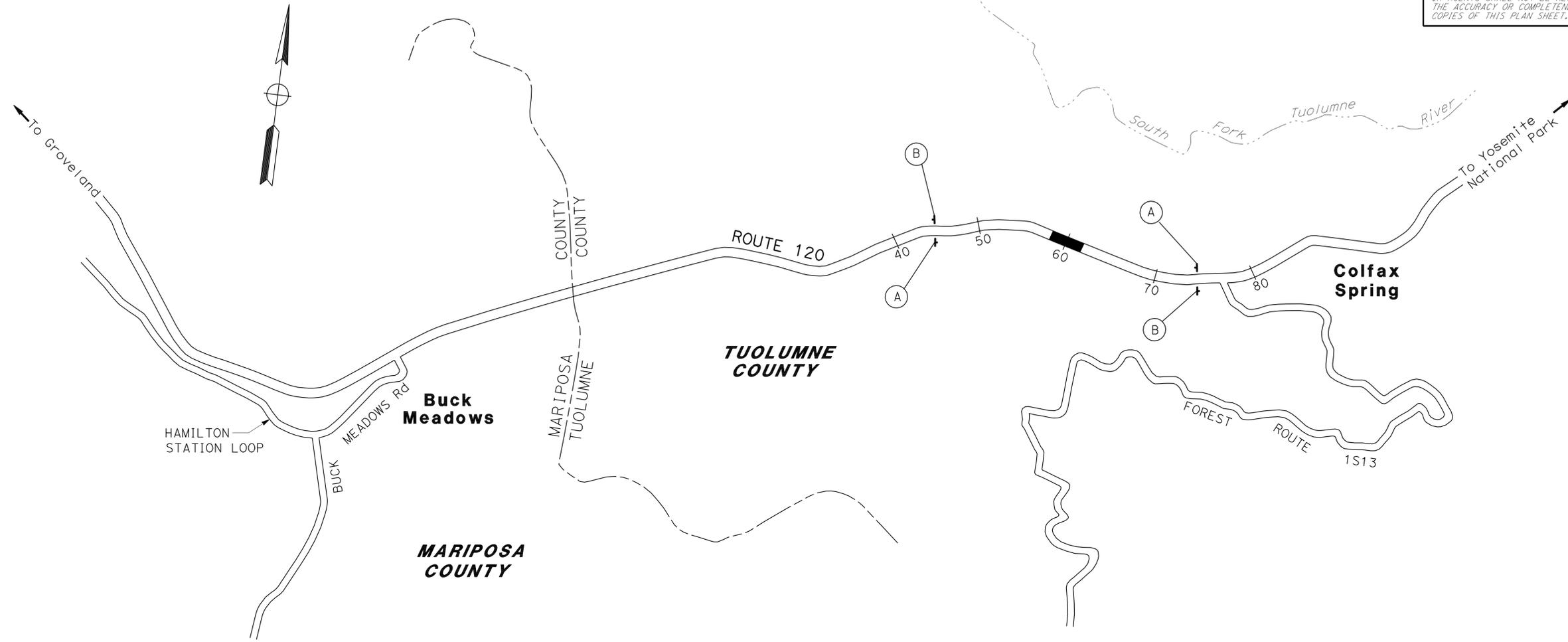
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Tuo	120	R44.8	4	52

Rhodel DeClaro 12/19/11  
REGISTERED CIVIL ENGINEER DATE

3-5-12  
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER  
RHODEL De CLARO  
No. 74058  
Exp. 6/30/13  
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.



**STATIONARY MOUNTED CONSTRUCTION AREA SIGNS**

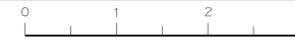
SIGN	SIGN CODE	PANEL SIZE	No. OF POSTS AND SIZE	No. OF SIGNS	SIGN MESSAGE
(A)	W20-1	36" x 36"	1 - 4" x 6"	2	ROAD WORK AHEAD
(B)	G20-2	36" x 18"	1 - 4" x 4"	2	END ROAD WORK

NOTE: EXACT SIGN LOCATIONS TO BE DETERMINED BY THE ENGINEER.

**CONSTRUCTION AREA SIGNS**  
NO SCALE  
**CS-1**

APPROVED FOR CONSTRUCTION AREA SIGN WORK ONLY

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** MAINTENANCE



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Tuo	120	R44.8	5	52

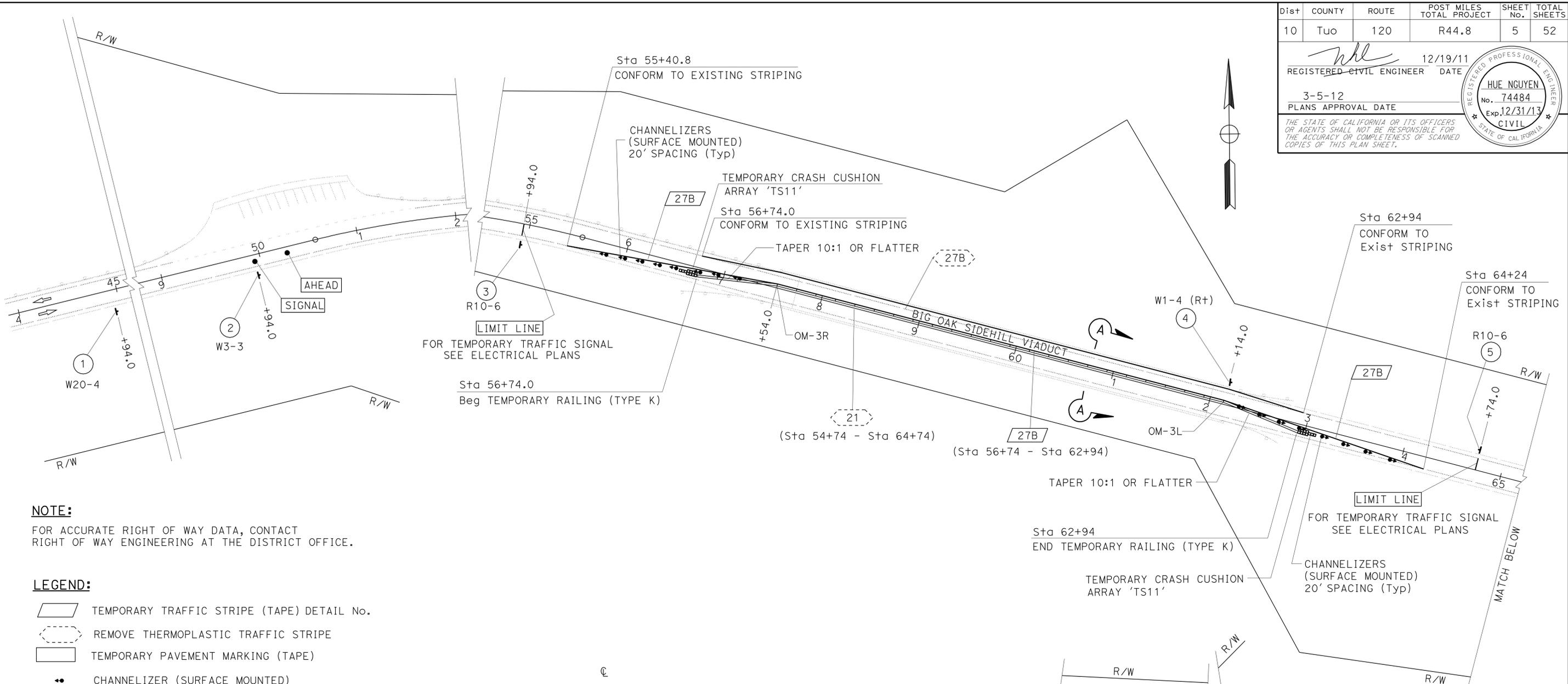
  

<i>nh</i>	12/19/11
REGISTERED CIVIL ENGINEER	DATE
3-5-12	
PLANS APPROVAL DATE	

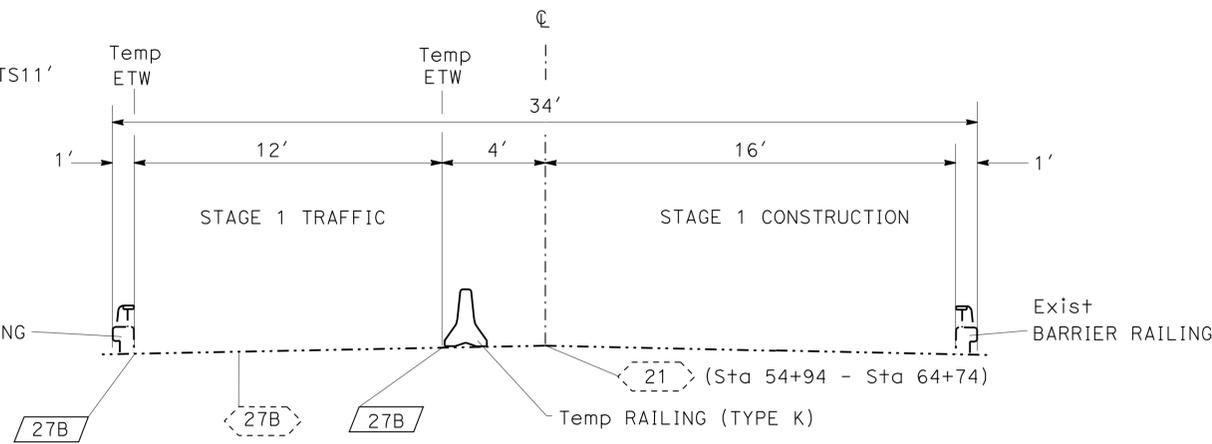
REGISTERED PROFESSIONAL ENGINEER	HUE NGUYEN
No. 74484	
Exp. 12/31/13	
CIVIL	

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

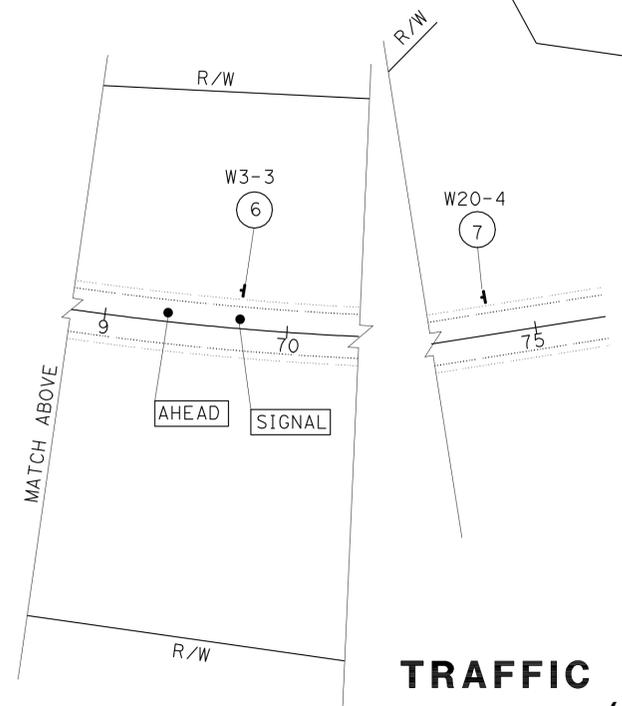


**NOTE:**  
FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

- LEGEND:**
- TEMPORARY TRAFFIC STRIPE (TAPE) DETAIL No.
  - REMOVE THERMOPLASTIC TRAFFIC STRIPE
  - TEMPORARY PAVEMENT MARKING (TAPE)
  - CHANNELIZER (SURFACE MOUNTED)
  - TEMPORARY CRASH CUSHION ARRAY 'TS11'
  - TEMPORARY RAILING (TYPE K)
  - CONSTRUCTION AREA SIGN No.
  - DIRECTION OF TRAVEL



**TEMPORARY RAILING (TYPE K) PLACEMENT (STAGE 1)**  
NO SCALE



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

APPROVED FOR TRAFFIC HANDLING WORK ONLY

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans**  
 FUNCTIONAL SUPERVISOR: MOHAMMED GATAMI  
 HUE NGUYEN  
 FERNANDO LOPEZ  
 REVISIONS: 12/15/11  
 DATE REVISION: 12/15/11  
 CALCULATED/DESIGNED BY: HUE NGUYEN  
 CHECKED BY: FERNANDO LOPEZ

LAST REVISION DATE PLOTTED => 07-MAR-2012  
 00-00-00 TIME PLOTTED => 16:24

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

FUNCTIONAL SUPERVISOR: MOHAMMED GATAMI  
 CALCULATED/DESIGNED BY: HUE NGUYEN  
 CHECKED BY: FERNANDO LOPEZ  
 REVISIONS:  
 12/15/11: HN  
 DATE REVISOR: 12/15/11

USERNAME => s128843  
 DGN FILE => a0w070md002.dgn

RELATIVE BORDER SCALE IS IN INCHES



UNIT 1512

PROJECT NUMBER & PHASE

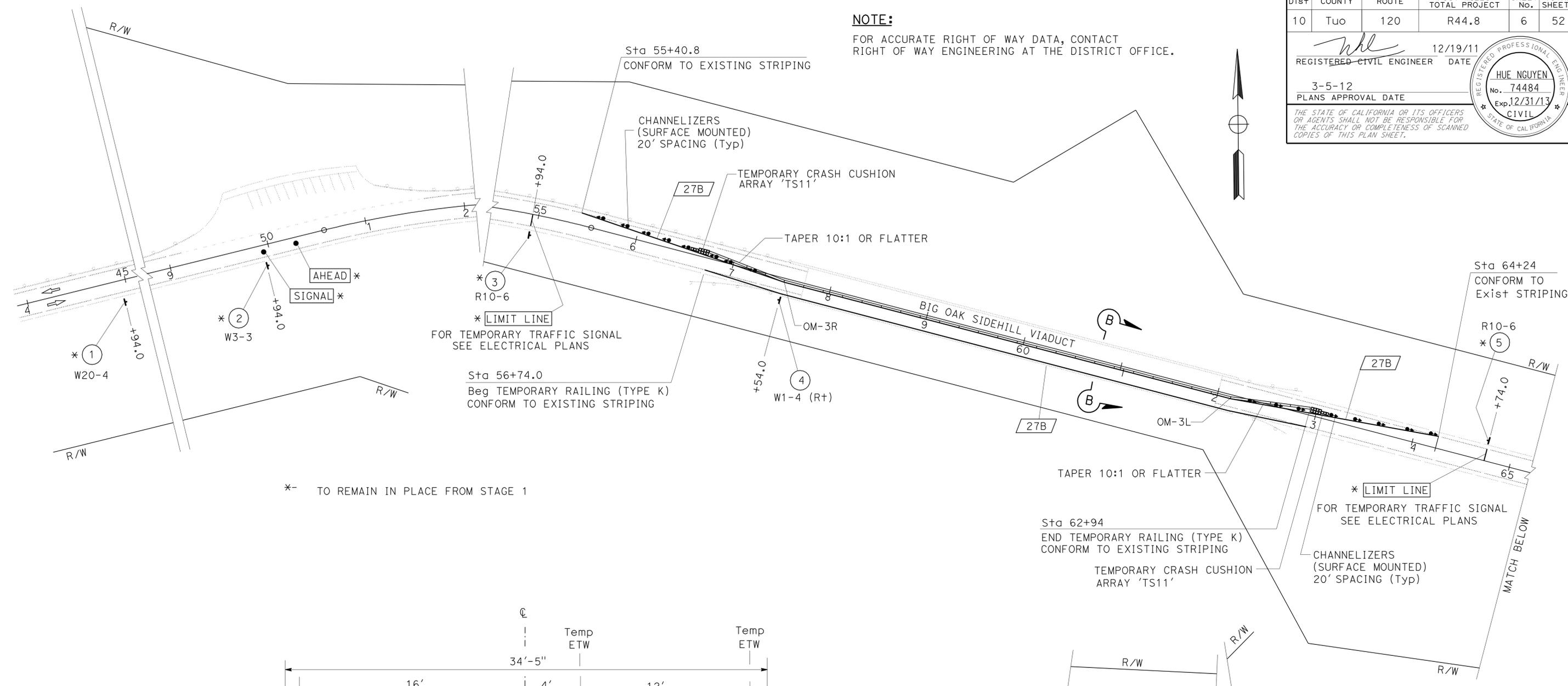
10000204751

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Tuo	120	R44.8	6	52

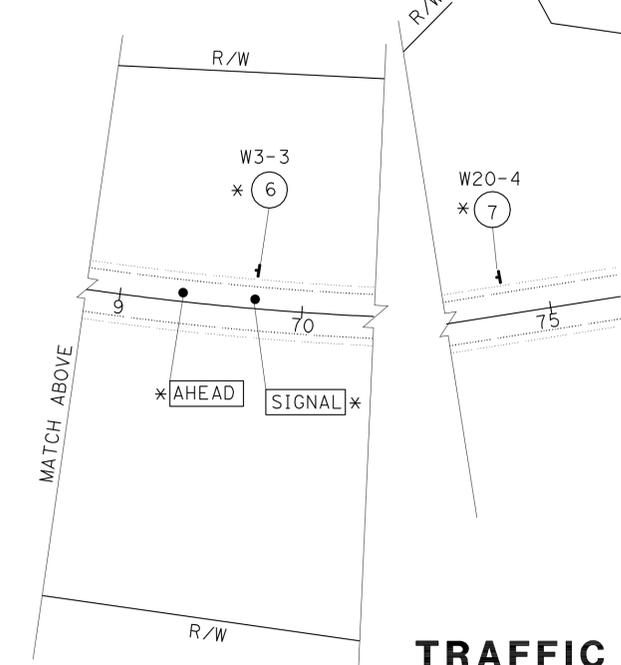
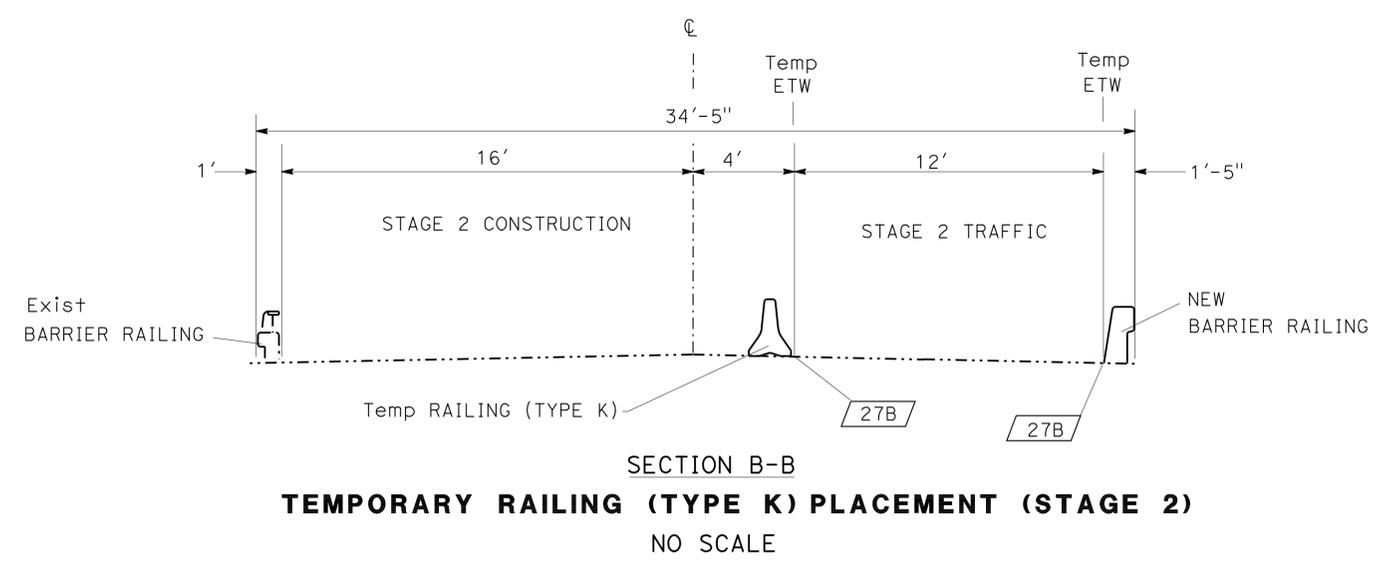
REGISTERED CIVIL ENGINEER: HUE NGUYEN  
 No. 74484  
 Exp. 12/31/13  
 DATE: 12/19/11  
 PLANS APPROVAL DATE: 3-5-12

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

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



\* TO REMAIN IN PLACE FROM STAGE 1



**TRAFFIC HANDLING PLAN (STAGE 1)**  
 SCALE: 1" = 50'  
**TH-2**

APPROVED FOR TRAFFIC HANDLING WORK ONLY

LAST REVISION DATE PLOTTED => 07-MAR-2012  
 00-00-00 TIME PLOTTED => 16:25

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Tuo	120	R44.8	7	52

 12/19/11  
 REGISTERED CIVIL ENGINEER DATE

3-5-12  
 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER  
 HUE NGUYEN  
 No. 74484  
 Exp. 12/31/13  
 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:**

- \* - SIGN No. 4 IN STAGE 1 WILL BE RE-USED IN STAGE 2 CONSTRUCTION AT A DIFFERENT LOCATION.
- (N) - NOT A SEPARATE PAY ITEM, FOR INFORMATION ONLY.
- FOR ADDITIONAL CONSTRUCTION AREA SIGNS SEE CONSTRUCTION AREA SIGN SHEET.

**STATIONARY MOUNTED CONSTRUCTION AREA SIGN**

SHEET No.	SIGN No.	SIGN CODE	PANEL SIZE	No. OF POST AND SIZE	No. OF SIGN	MESSAGE
TH-1	1	W20-4	36" x 36"	1- 4" x 6"	1	ONE LANE ROAD AHEAD
	2	W3-3	36" x 36"	1- 4" x 6"	1	SIGNAL AHEAD
	3	R10-6	24" x 36"	1- 4" x 4"	1	STOP HERE ON RED
	4*	W1-4(R+)	36" x 36"	1- 4" x 6"	1	REVERSE CURVE (RIGHT)
	5	R10-6	24" x 36"	1- 4" x 4"	1	STOP HERE ON RED
	6	W3-3	36" x 36"	1- 4" x 6"	1	SIGNAL AHEAD
	7	W20-4	36" x 36"	1- 4" x 6"	1	ONE LANE ROAD AHEAD
TH-2	4*	W1-4(R+)	36" x 36"	1- 4" x 6"	1	REVERSE CURVE (RIGHT)

**TEMPORARY PAVEMENT DELINEATION**

SHEET No.	TEMPORARY TRAFFIC STRIPE (TAPE)	TEMPORARY PAVEMENT MARKING (TAPE)			TEMPORARY RAILING (TYPE K)	TEMPORARY CRASH CUSHION (TYPE TS11)	REMOVE THERMOPLASTIC TRAFFIC STRIPE	REMOVE YELLOW THERMOPLASTIC STRIPE (HAZARDOUS WASTE)	CHANNELIZER (SURFACE MOUNTED)	(N) OBJECT MARKER (TYPE P)	
	DETAIL 27B	SIGNAL	AHEAD	LIMIT LINE						(OM-3L)	(OM-3R)
	LF	SQFT								LF	EA
TH-1	1503	64	62	32	620	22	620	1960	16	1	1
TH-2	1503				620	22			16	1	1
TOTAL	3006	158			1240	44	620	1960	32		

**TRAFFIC HANDLING QUANTITIES**  
**THQ-1**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans**  
 TRAFFIC DESIGN  
 MOHAMMED QATAMI  
 HUE NGUYEN  
 FERNANDO LOPEZ  
 HN  
 12/15/11

LAST REVISION | DATE PLOTTED => 07-MAR-2012  
 00-00-00 | TIME PLOTTED => 16:25

**NOTES:**

1. \* - TOTAL INCLUDED IN ROADWAY ITEMS TABLE.
2. \*\* - SEE SHEETS THQ-1 FOR QUANTITIES
3. (N) - NOT A SEPARATE PAY ITEM, FOR INFORMATION ONLY.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Tuo	120	R44.8	8	52

12/19/11  
 REGISTERED CIVIL ENGINEER DATE  
 3-5-12  
 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.

**DIKE ITEMS**

LOCATION		REMOVE AC DIKE	PLACE HMA DIKE (TYPE C)	PLACE HMA DIKE (TYPE F)	HMA (TYPE A)
Sta / Sta	SIDE	LF	LF	LF	TON
56+08 / 57+58	BOTH	117	42	75	2
62+16 / 62+91	BOTH	138	80	58	2
<b>TOTAL</b>		<b>255</b>	<b>122</b>	<b>133</b>	<b>4*</b>

**PAVEMENT DELINEATION ITEMS**

Sta / Sta	REMOVE THERMOPLASTIC TRAFFIC STRIPE (HAZARDOUS WASTE)	THERMOPLASTIC TRAFFIC STRIPE (SPRAYABLE)	
		4" YELLOW	4" WHITE
		DETAIL 21	DETAIL 27B
	LF	LF	
56+08 / 62+91	410	731	1462
TH-1 & TH-2	1960**		
<b>TOTAL</b>	<b>2370</b>	<b>2193</b>	

**TEMPORARY DRAINAGE INLET PROTECTION**

LOCATION	SIDE	EA
57+45	LEFT	1
56+86	RIGHT	1
57+55	RIGHT	1
62+49	LEFT	1
62+53	RIGHT	1
<b>TOTAL</b>		<b>5</b>

**MBGR ITEMS**

LOCATION		REMOVE MBGR	REMOVE FLARED END SECTION	MBGR (WOOD POST)	TRANSITION RAILING (TYPE WB)	ALTERNATIVE FLARED TERMINAL SYSTEM (TYPE SRT)
Sta / Sta	SIDE	LF	EA	LF	EA	EA
56+08 / 57+58	LEFT	125		125	1	
56+58 / 57+58	RIGHT	37.5	1	37.5	1	1
62+16 / 62+79	RIGHT		1		1	1
62+16 / 62+91	LEFT	12.5	1	12.5	1	1
<b>TOTAL</b>		<b>175</b>	<b>3</b>	<b>175</b>	<b>4</b>	<b>3</b>

**ROADWAY ITEMS**

LOCATION	COLD PLANE AC PAVEMENT	HOT MIX ASPHALT (TYPE A)	TACK COAT
	SQYD	TON	
56+08 / 62+91	356	122	1
HMA DIKE		4	
<b>TOTAL</b>	<b>356</b>	<b>126</b>	<b>1</b>

**EROSION CONTROL (HYDROSEED)**

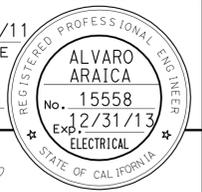
LOCATION STATION TO STATION	EROSION CONTROL (HYDROSEED)	STRAW (N)	FIBER (N)	PURE LIVE SEED (N)	ORGANIC FERTILIZER (N)	TACKIFIER (N)
	SQFT	TON	LB	LB	LB	LB
VARIOUS	8400	0.39	-	-	-	33.8

**FIBER ROLL**

LOCATION STATION TO STATION	FIBER ROLL
VARIOUS	LF
	225

**SUMMARY OF QUANTITIES**  
**Q-1**

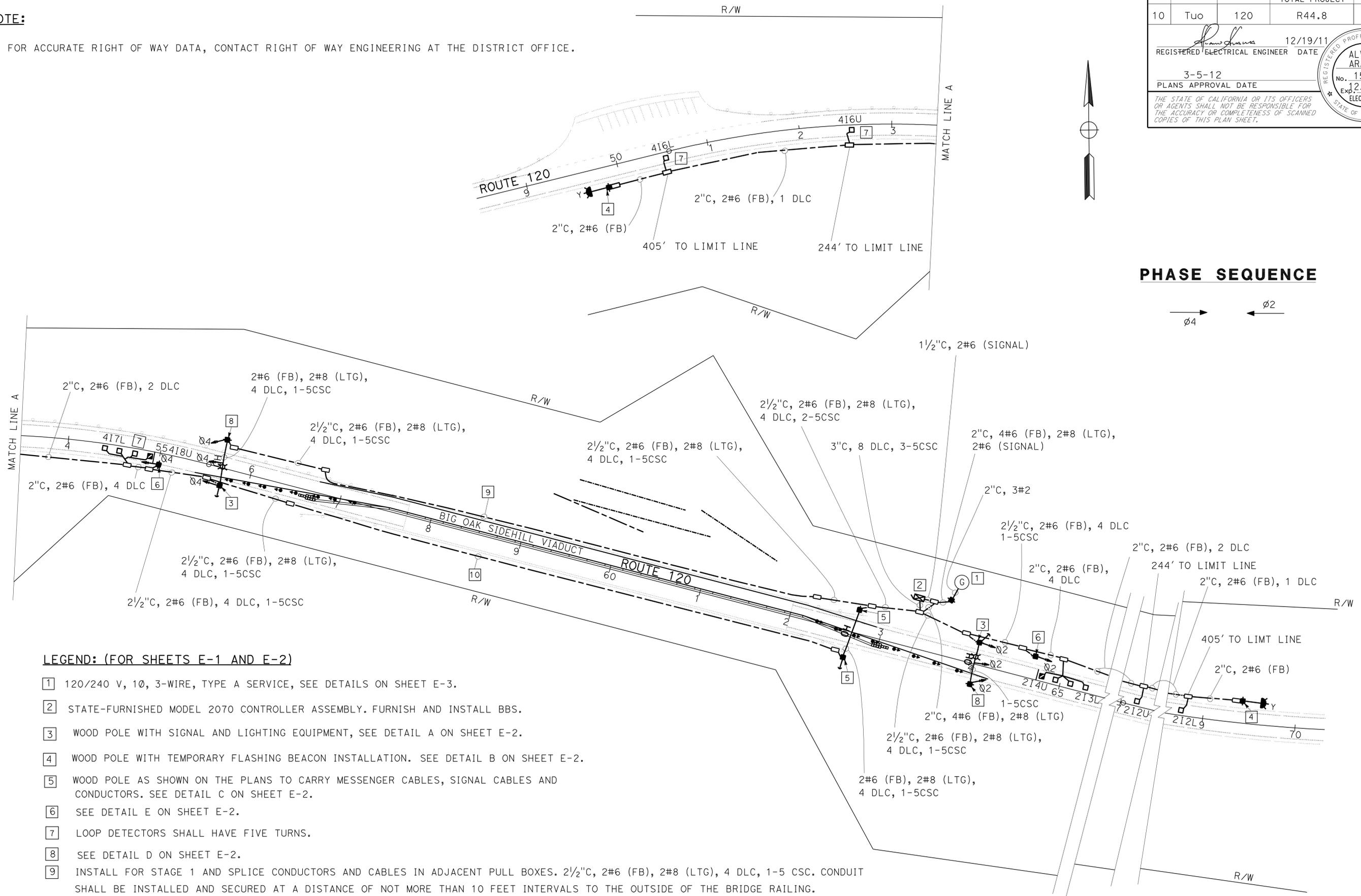
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Tuo	120	R44.8	9	52
			12/19/11	REGISTERED ELECTRICAL ENGINEER DATE	
			3-5-12	PLANS APPROVAL DATE	
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.					



**NOTE:**

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

**PHASE SEQUENCE**



**LEGEND: (FOR SHEETS E-1 AND E-2)**

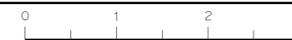
- 1 120/240 V, 10, 3-WIRE, TYPE A SERVICE, SEE DETAILS ON SHEET E-3.
- 2 STATE-FURNISHED MODEL 2070 CONTROLLER ASSEMBLY. FURNISH AND INSTALL BBS.
- 3 WOOD POLE WITH SIGNAL AND LIGHTING EQUIPMENT, SEE DETAIL A ON SHEET E-2.
- 4 WOOD POLE WITH TEMPORARY FLASHING BEACON INSTALLATION. SEE DETAIL B ON SHEET E-2.
- 5 WOOD POLE AS SHOWN ON THE PLANS TO CARRY MESSENGER CABLES, SIGNAL CABLES AND CONDUCTORS. SEE DETAIL C ON SHEET E-2.
- 6 SEE DETAIL E ON SHEET E-2.
- 7 LOOP DETECTORS SHALL HAVE FIVE TURNS.
- 8 SEE DETAIL D ON SHEET E-2.
- 9 INSTALL FOR STAGE 1 AND SPLICE CONDUCTORS AND CABLES IN ADJACENT PULL BOXES. 2 1/2" C, 2#6 (FB), 2#8 (LTG), 4 DLC, 1-5 CSC. CONDUIT SHALL BE INSTALLED AND SECURED AT A DISTANCE OF NOT MORE THAN 10 FEET INTERVALS TO THE OUTSIDE OF THE BRIDGE RAILING.   
 [Symbol] CONDUIT AND CONDUCTORS PRIOR TO STAGE 2.
- 10 INSTALL FOR STAGE 2 AND SPLICE CONDUCTORS AND CABLES IN ADJACENT PULL BOXES. 2 1/2" C, 2#6 (LTG), 2#8 (LTG), 4 DLC AND 1-5CSC. CONDUIT SHALL BE SECURED AT 10 FEET INTERVALS.

**TEMPORARY SIGNAL SYSTEM  
(STAGE 1 AND STAGE 2)**

SCALE: 1" = 50'

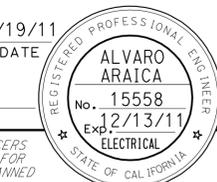
**E-1**

APPROVED FOR ELECTRICAL WORK ONLY

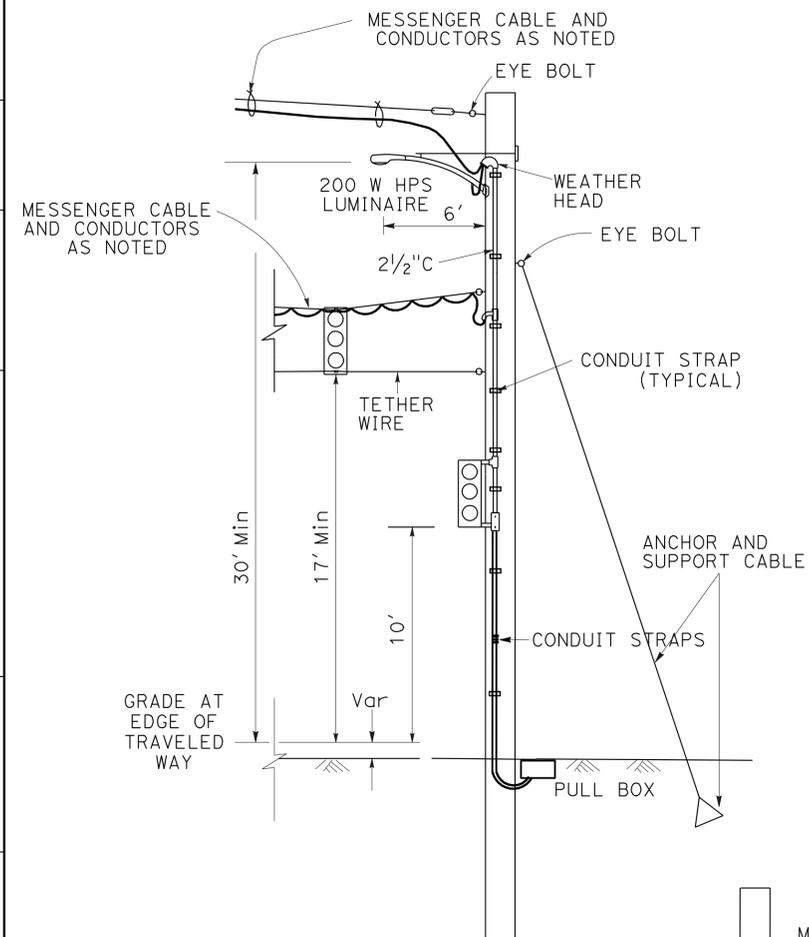


STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	ALVARO ARAICA	REVISOR	AA
ELECTRICAL DESIGN	JASPAL SINGH	DATE	12/15/11
FUNCTIONAL SUPERVISOR	ALI BAKHDOUD	CHECKED BY	
		DESIGNED BY	

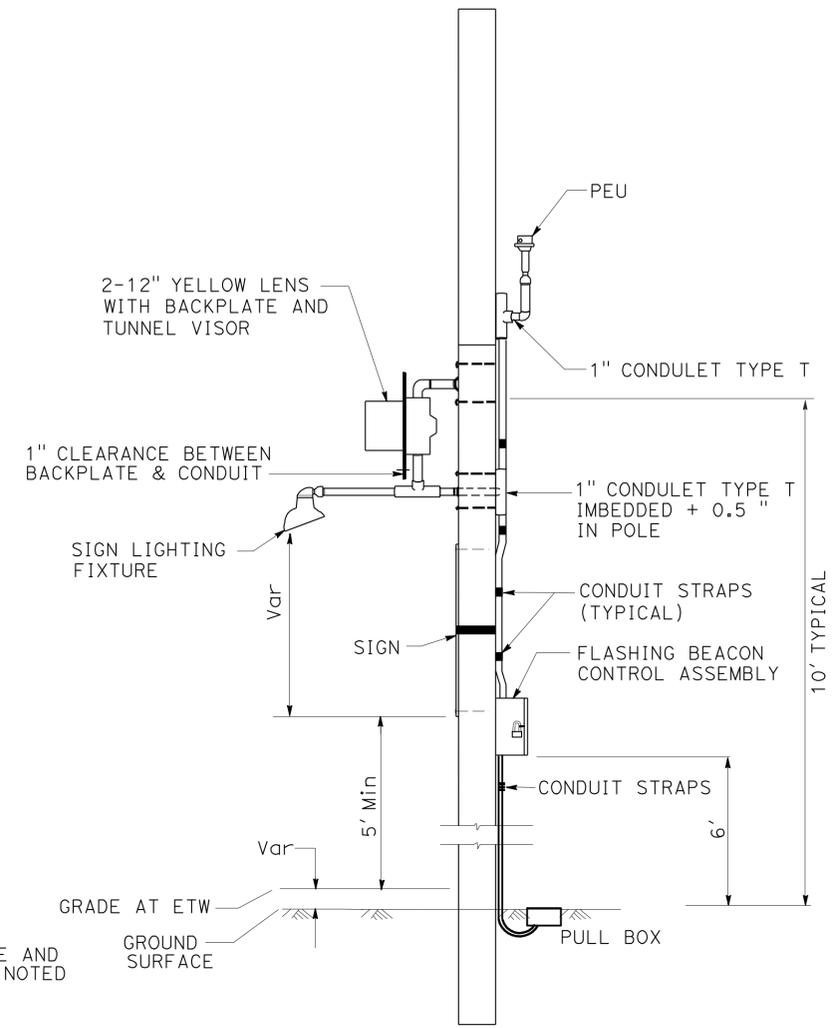
LAST REVISION DATE PLOTTED => 07-MAR-2012  
 12-19-10 TIME PLOTTED => 16:19

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Tuo	120	R44.8	10	52
			12/19/11	DATE	
REGISTERED ELECTRICAL ENGINEER			DATE		
3-5-12			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>					
					

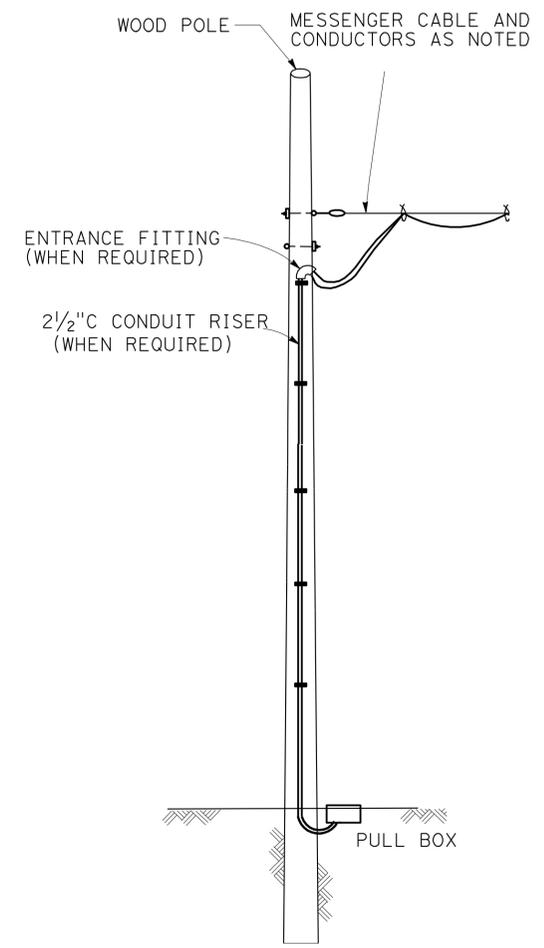
**NOTE:**  
 1. FOR NOTES AND LEGEND SEE SHEET E-1.  
 2. FOR POLE DETAILS, SEE SHEETS SES-1 AND SES-2.



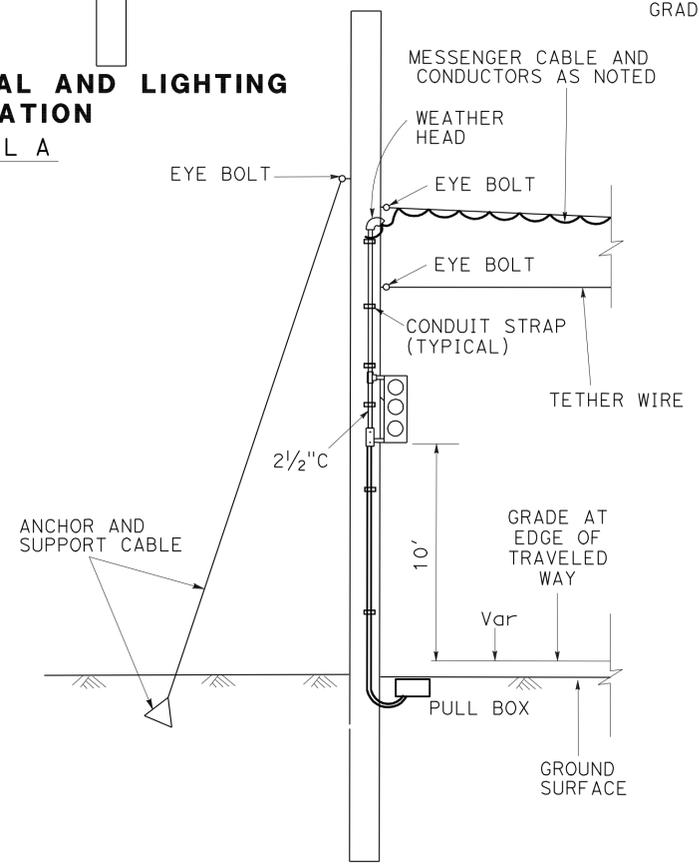
**TEMPORARY SIGNAL AND LIGHTING  
 INSTALLATION  
 DETAIL A**



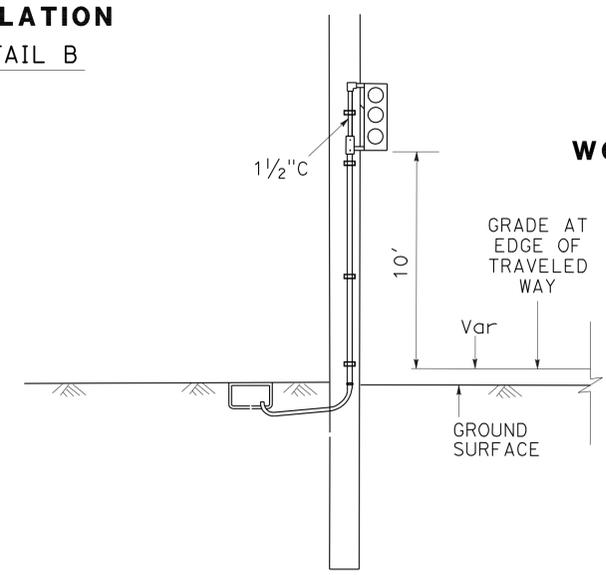
**TEMPORARY FLASHING BEACON  
 INSTALLATION  
 DETAIL B**



**TEMPORARY  
 WOOD POLE INSTALLATION  
 DETAIL C**



**TEMPORARY SIGNAL  
 INSTALLATION  
 DETAIL D**



**TEMPORARY SIGNAL  
 AT LIMIT LINE  
 INSTALLATION  
 DETAIL E**

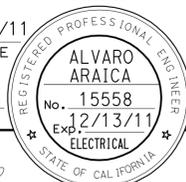
**TEMPORARY SIGNAL SYSTEM  
 NO SCALE  
 E-2**

AA	12/15/11	REVISOR	DATE
AA	12/15/11	REVISOR	DATE
ALVARO ARAICA	JASPAL SINGH	DESIGNED BY	CHECKED BY
ALI BAKHOUD		FUNCTIONAL SUPERVISOR	
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION			
<b>ELECTRICAL DESIGN</b>			

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** ELECTRICAL DESIGN  
 FUNCTIONAL SUPERVISOR: ALI BAKHDOUD  
 REVISIONS: AA 12/15/11  
 DESIGNED BY: ALVARO ARAICA  
 CHECKED BY: JASPAL SINGH

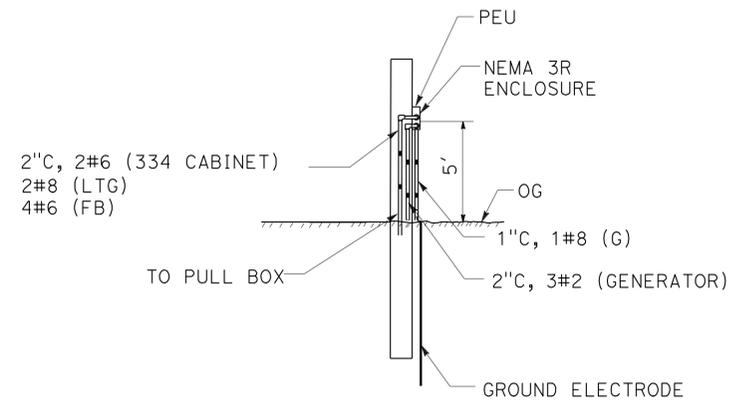
**NOTE:**  
 1. FOR NOTES AND LEGEND SEE SHEET E-1.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Tuo	120	R44.8	11	52
REGISTERED ELECTRICAL ENGINEER			DATE	12/19/11	
PLANS APPROVAL DATE			3-5-12		

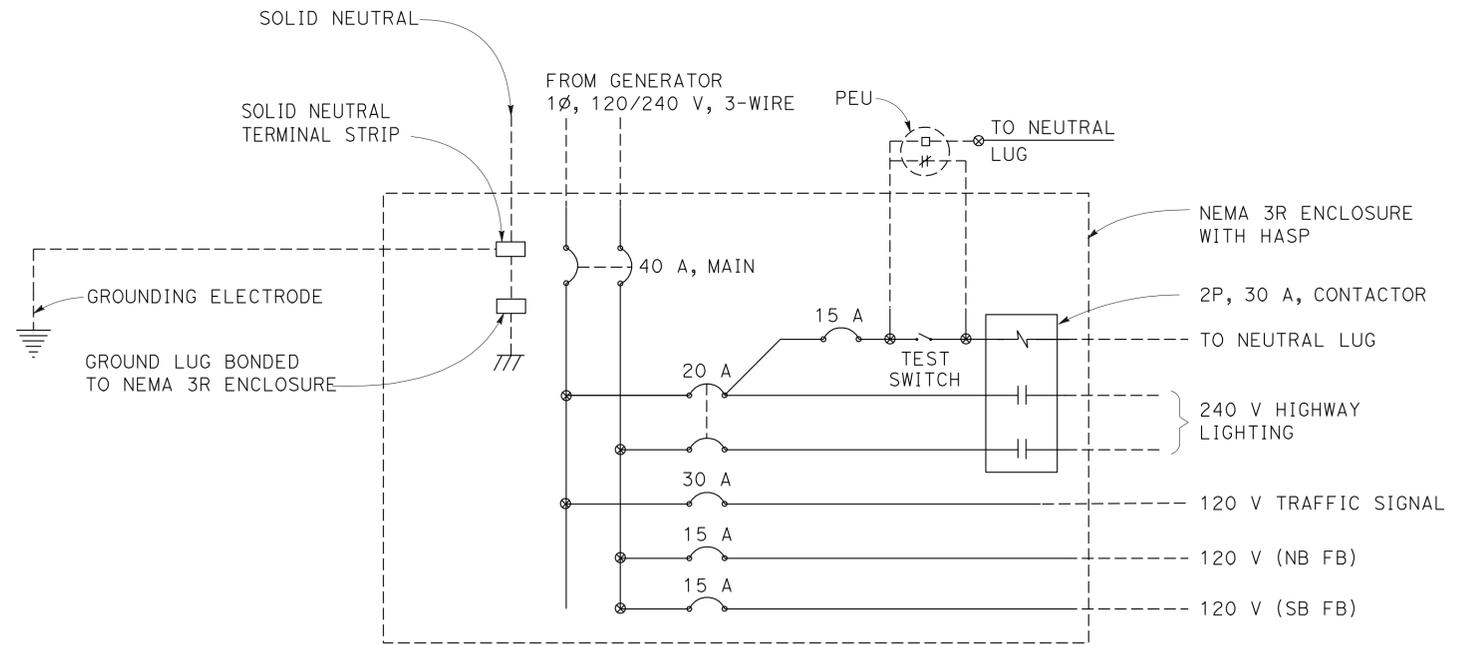


ALVARO ARAICA  
 No. 15558  
 Exp. 12/13/11  
 ELECTRICAL

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**ELECTRICAL SERVICE ON WOOD POLE**



PROVIDE ITEMS SHOWN IN THIS DIAGRAM  
 SEE RSP ES-2C AND RSP ES-2D FOR MORE INFORMATION.

**120/240 V  
 SERVICE WIRING DIAGRAM**

**TEMPORARY SIGNAL SYSTEM**

NO SCALE

**E-3**

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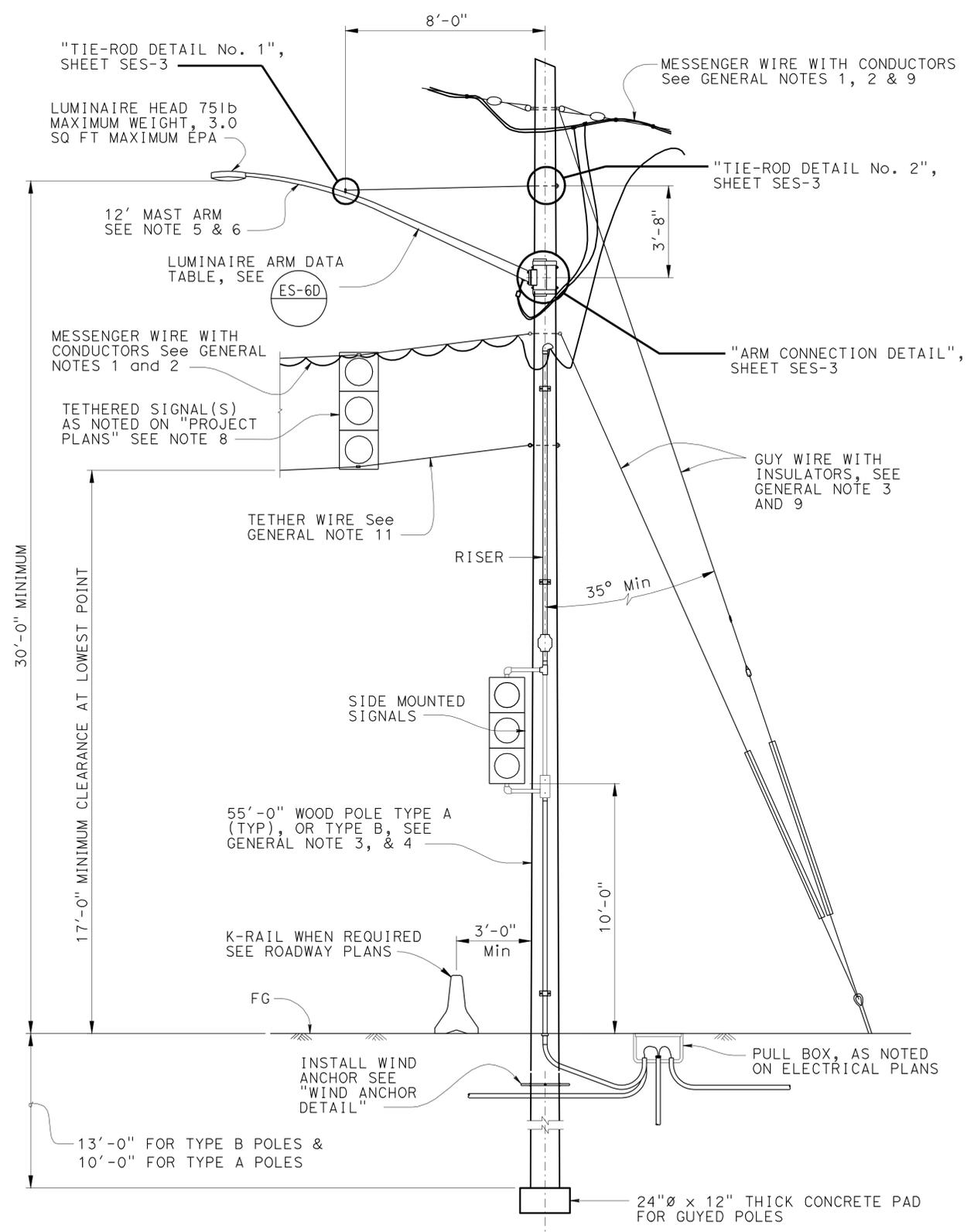
  

<i>Victor Lopez</i>	10-18-2011
REGISTERED CIVIL ENGINEER	DATE
3-5-12	
PLANS APPROVAL DATE	

VICTOR O LOPEZ
No. C61373
Exp. 6-30-2013
CIVIL
STATE OF CALIFORNIA

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**TYPICAL WOOD POLE SUPPORT WITH LUMINAIRE**

NO SCALE

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

**DESIGN NOTES:**

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

**GROUP LOAD COMBINATIONS:**

- I Dead Load
- II Dead Load + Wind Load
- III Dead Load + 0.5 (Wind Load) + Ice Load, Wind Load = 20 psf Max
- IV Fatigue: Nto used

**LOADING**

Wind Loadings: 85 mph (3-second gust)  
Wind Recurrence interval: 10 years  
Combined height, exposure, and elevated terrain factor = 1.36  
(Exposure C, structure is located on or over the top half of a 30' Maximum tall ridge, hill or escarpment)

**BASIC DESIGN VALUES:**

Timber Poles: Fb = 1850 Tapered treated round pole  
Fv = 110 psi ASTM D2899 Standard  
Fcp = 230 psi  
Fc = 950 psi  
E = 1500 x 10<sup>3</sup> psi

**TREATMENT**

To conform with Section 86 Standard Specifications

**SPECIFICATIONS**

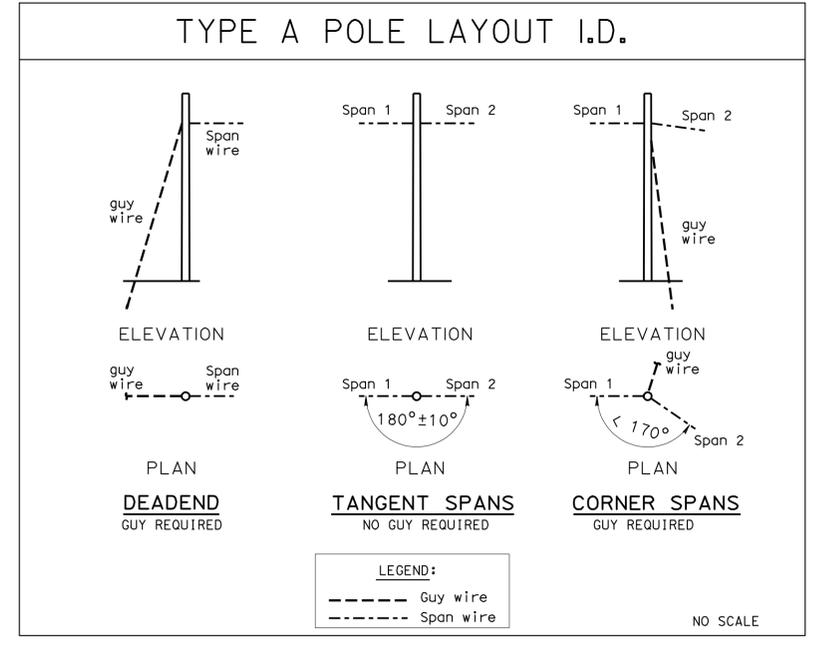
Caltrans Standard Specifications 2010  
ANSI Wood Poles  
ASTM A475, Utility Grade, 7 -strand wires  
Termination efficiency factor 0.80

**FOUNDATION DESIGN NOTES:**

- Pole embedment depth design is based on Broms' approximate procedure as described in Article 13.6 of AASHTO LTS-5.
- Standard embedment depth is calculated based on level ground assumption (up to slope 1V:4H).
- Embedment depth is calculated based on following soil Cohesionless Soil:  
 $\theta = 30 \text{ deg}$ ,  $\ast = 120 \text{ pcf}$ .
- An overload factor of 2.0 and an undercapacity factor of 0.7 were used for safety factor of 2.86.
- If pole is located on or near a steep slope (up to 1H:2V) add 2 feet extra embedment.
- Allowable vertical bearing pressure at the end bearing of poles is 2,200 psf.
- The Contractor is to field verify the soil conditions indicated on FOUNDATION DESIGN NOTES 3 and 6.

**GENERAL NOTES:**

- All overhead cables shall be sagged with 20'±0.5% of span length minimum overhead clearance and sag of 5.5% ± 0.5%.
- Conductors shall be suspended from 3/8" Ø 7 strand messenger span-wire as follows: Continuous lashing wire, No spare wire conductors allowed except at noted. Bundled vertical dimension shall not exceed 2". Maximum OH span shall not exceed 60'-0".
- TYPE A poles shall be stabilized using guy wires, breast blocks or rakes at each dead end, corner, drop or line deviation more than 10° from straight line and shall be attached to pole as nearly as practical to the center of conductors load, 3'-0" maximum. The direction of the guy shall counteract the resultant of unbalanced force applied to pole. See TYPE A POLE LAYOUT I.D., otherwise see note 4.
- Where space or conflict prevent guy installation, TYPE B poles may be used with specified embedment depth. See note 10.
- Attach luminaire arm and combination of attachments as specified at locations where indicated on Electrical Plans.
- All attachments shall be mounted with stainless steel straps or other manufacturers methods without drilling holes in pole, except as shown on this sheet. Any other drilling into pole will require the Engineer's approval.
- Overhead line construction not specifically covered here shall conform to the provisions of General Order No. 95 Of Public Utilities Commission.
- Install attachments shown if indicated on the Electrical Plans. When specific connection detail is not shown, mount attachments per manufacturer recommended methods that do not requiring loss of cross section.
- For additional details, see Sheets SES-3, SES-4, SES-5.
- TYPE A refers to CLASS 1 POLE & TYPE B refers to TYPE H5 POLE.
- 1/4" tether wire with 5.5% ± 0.5% sag where required.



DESIGN	BY VICTOR LOPEZ	CHECKED LANCE WARREN
DETAILS	BY P C WELLS	CHECKED VICTOR LOPEZ
QUANTITIES	BY X	CHECKED X

**STATE OF CALIFORNIA**  
DEPARTMENT OF TRANSPORTATION

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

BRIDGE NO. N/A  
POST MILE Varies

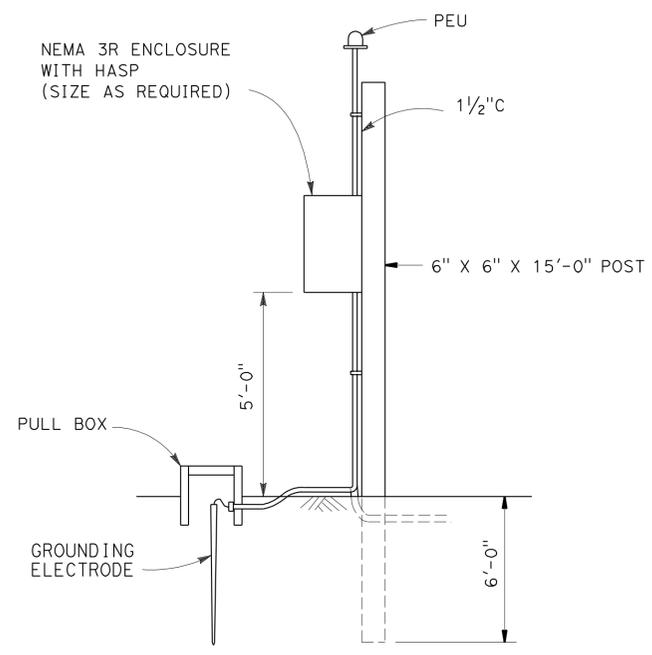
**TEMPORARY WOOD POLE SIGNAL & LIGHTING**

**SES-1**

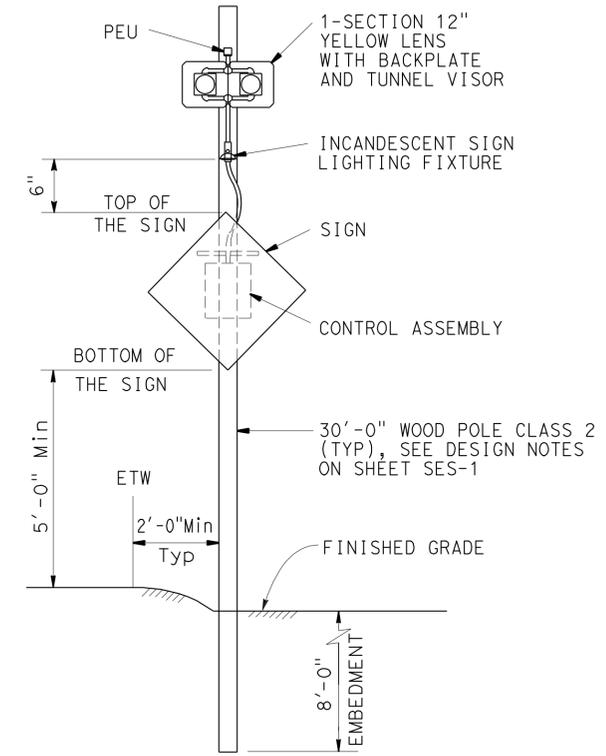
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Tuo	120	R44.8	13	52

REGISTERED CIVIL ENGINEER *Victor Lopez* DATE 10-18-2011  
 PLANS APPROVAL DATE 3-5-12  
 VICTOR O LOPEZ  
 No. C61373  
 Exp. 6-30-2013  
 CIVIL  
 STATE OF CALIFORNIA  
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NOTE:  
 1. Attach electrical components and combination of attachments as specified in Electrical Plans.



**POLE WITH ENCLOSURE(S)**  
 NO SCALE



**ADVANCED FLASHING BEACON WITH SIGN AND SIGN LIGHTING**  
 NO SCALE

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

DESIGN	BY VICTOR LOPEZ	CHECKED LANCE WARREN
DETAILS	BY P C WELLS	CHECKED VICTOR LOPEZ
QUANTITIES	BY X	CHECKED X

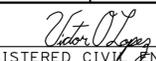
STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES  
 STRUCTURE DESIGN  
 SPECIAL DESIGN BRANCH

BRIDGE NO.	N/A
POST MILE	Varies

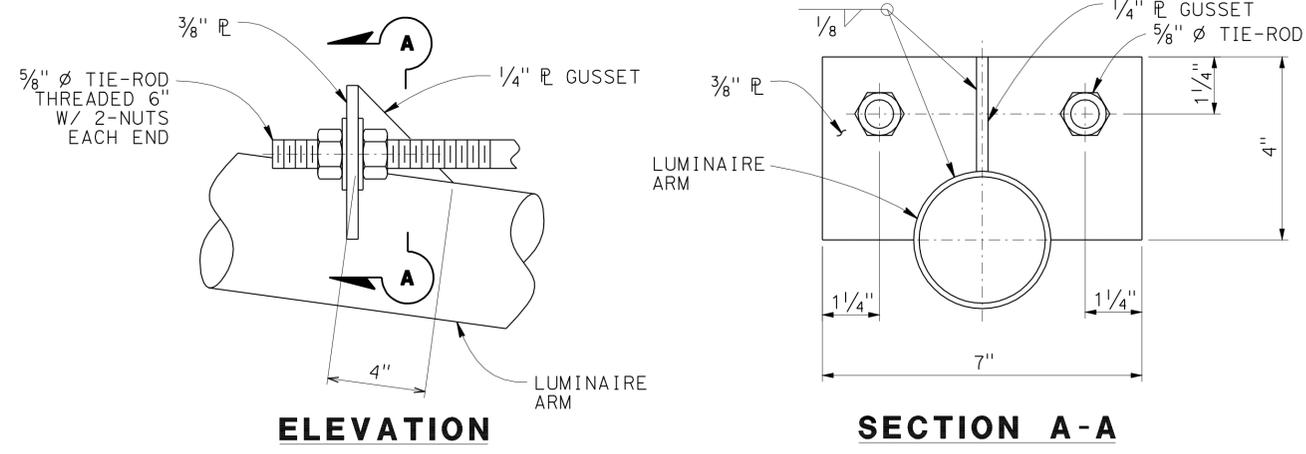
TEMPORARY WOOD POLE  
 MISCELANEOUS POLES

SES-2

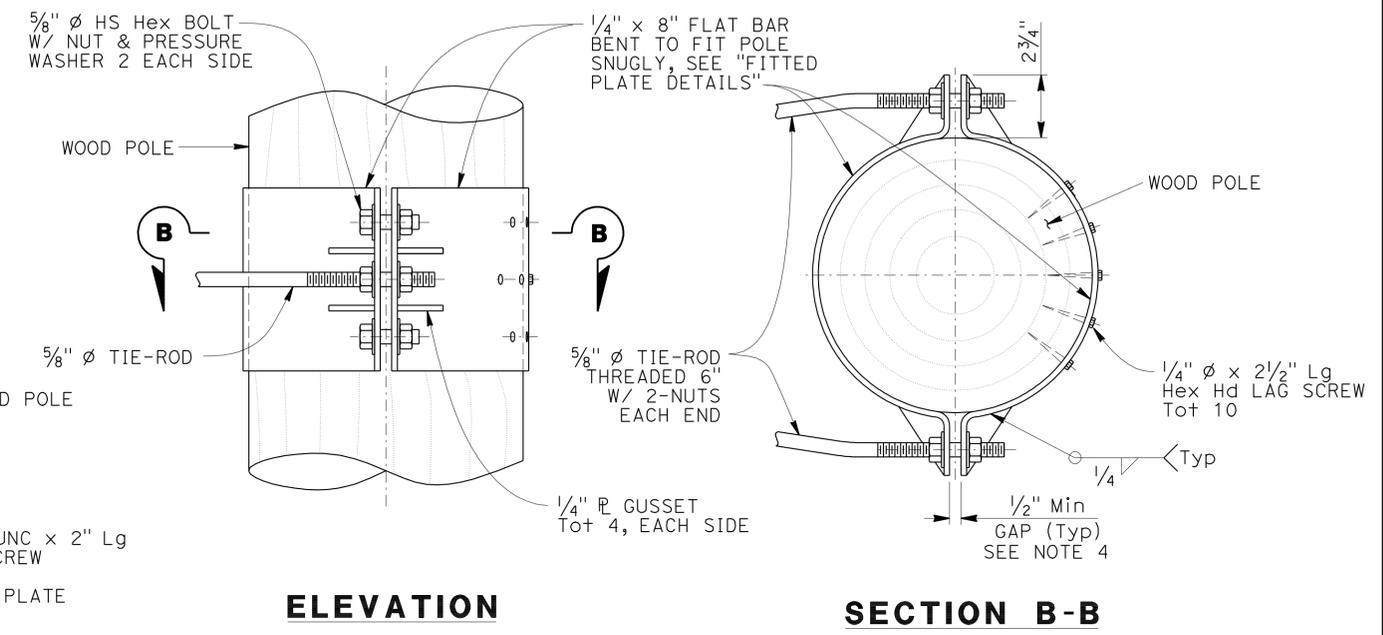
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 REGISTERED CIVIL ENGINEER			10-18-2011	DATE	
3-5-12 PLANS APPROVAL DATE					
<small>The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.</small>					

**NOTES:**

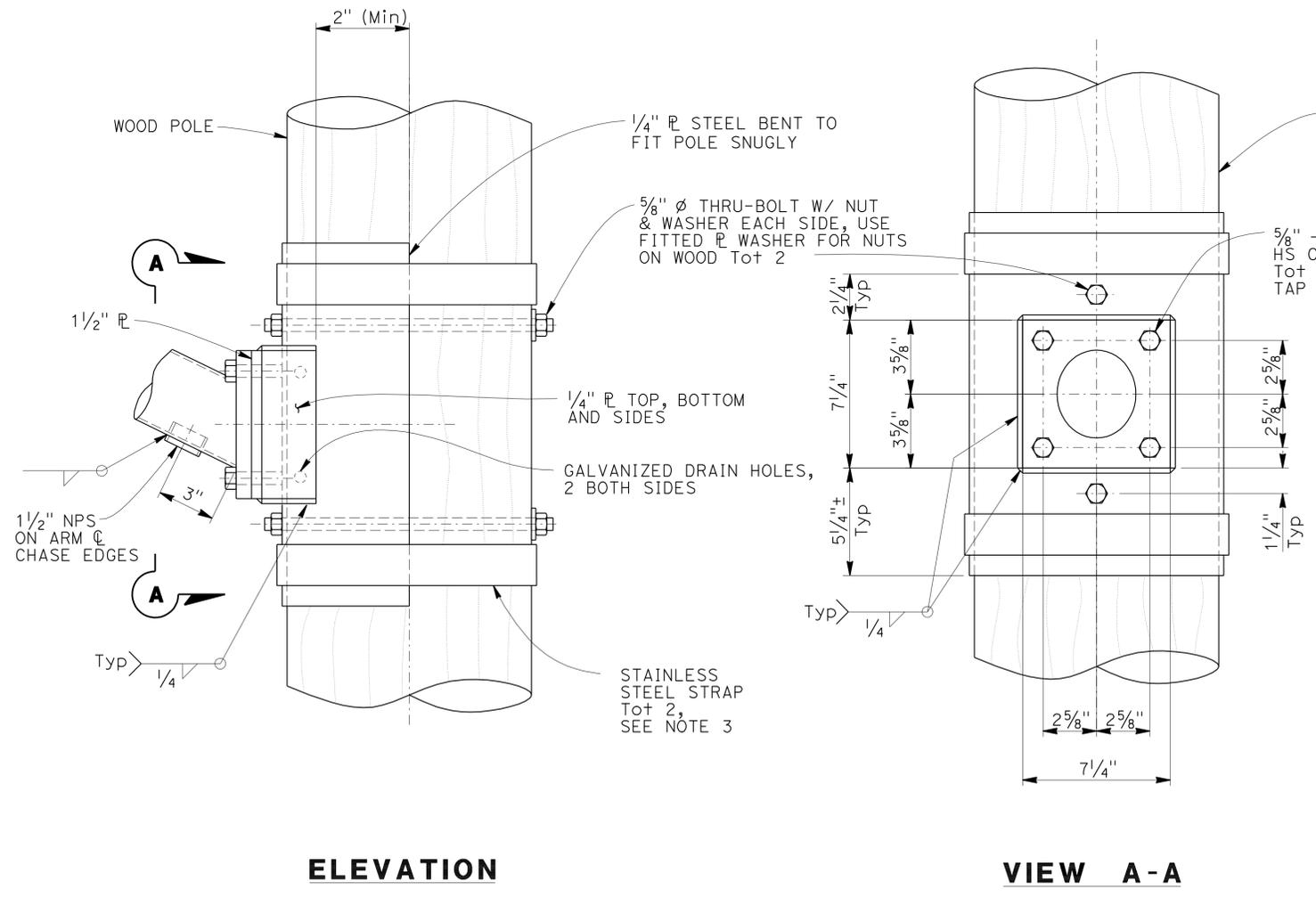
1. All hardware and steel shall be galvanized after fabrication.
2. Arm Base connection details shall be in compliance with Standard Plan Detail, sheet ES-6D with noted modifications.
3. 2000 lb Min capacity strap system shall be used for top and bottom of plate.
4. The Contractor to verify pole dimensions at tie-rod attachment height. Fabricate 8" flat bar with "L" dimension to maintain an open gap between encasement in finished installation.



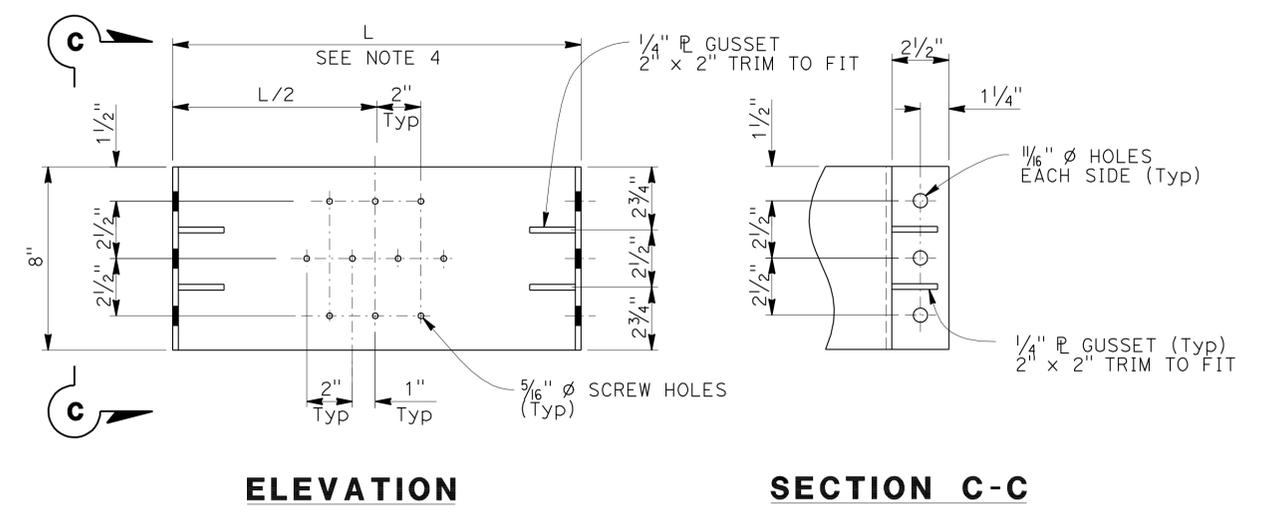
**TIE-ROD DETAIL No. 1**



**TIE-ROD DETAIL No. 2**



**ARM CONNECTION DETAILS**



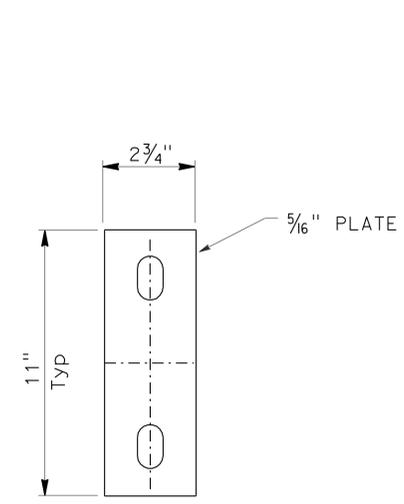
**FITTED PLATE DETAILS**

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

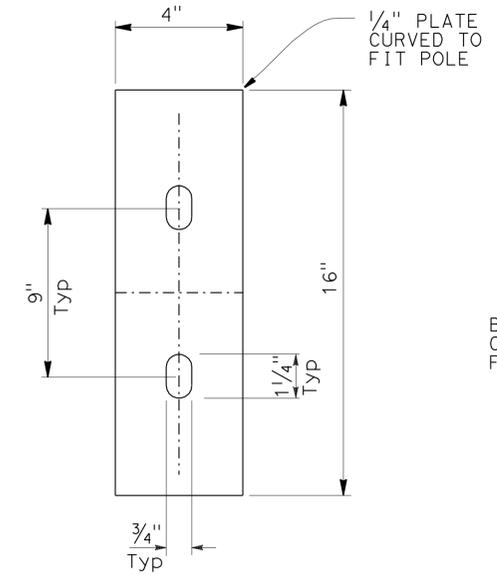
NOTE:  
THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

DESIGN	BY VICTOR LOPEZ	CHECKED LANCE WARREN	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN SPECIAL DESIGN BRANCH	BRIDGE NO.	TEMPORARY WOOD POLE MISCELLANEOUS DETAILS 1	SES-3
DETAILS	BY P C WELLS	CHECKED VICTOR LOPEZ			N/A		
QUANTITIES	BY X	CHECKED X			POST MILE		

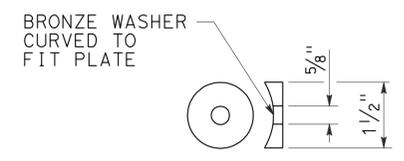
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Tuo	120	R44.8	15	52
REGISTERED CIVIL ENGINEER			DATE	10-18-2011	
PLANS APPROVAL DATE			3-5-12		
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**COMPARTMENT PLATE (MOD)**

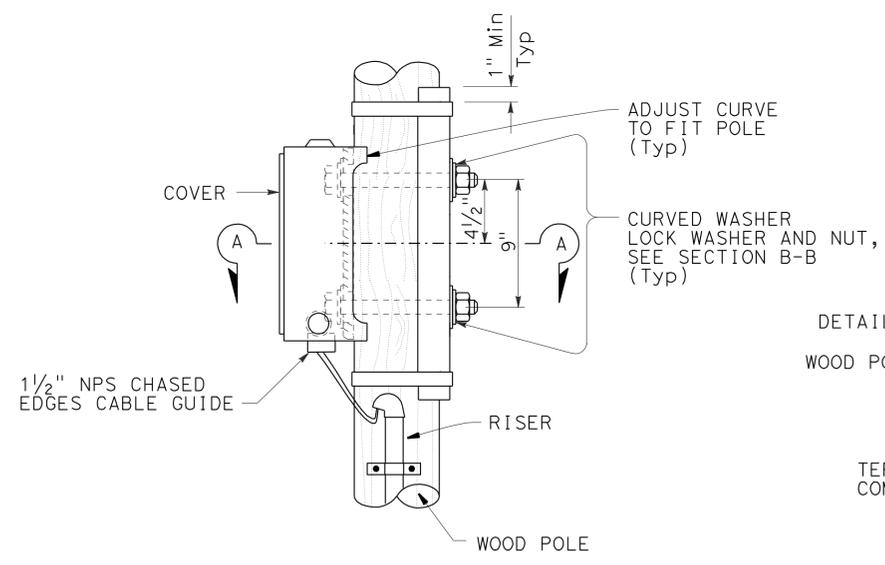


**BACK PLATE**

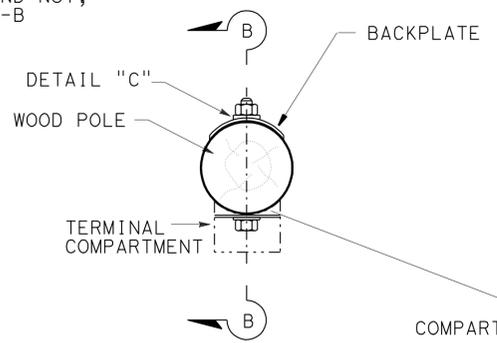


**DETAIL "C"**

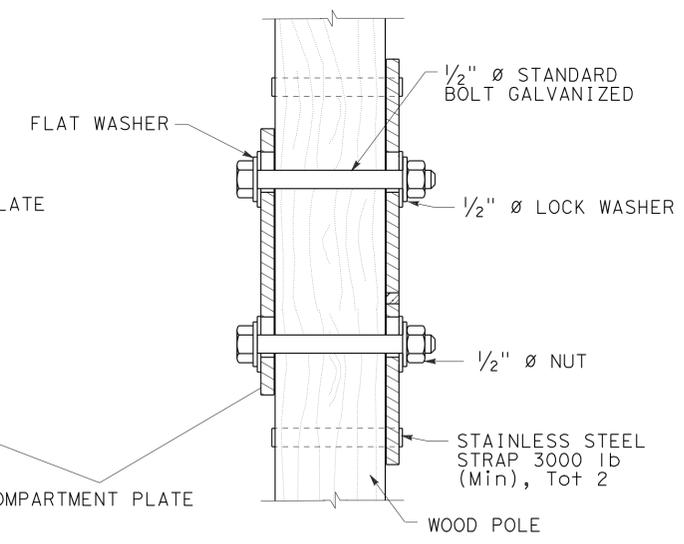
**NOTE:**  
THE CONTRACTOR TO VERIFY SOIL CONDITION, SLOPE, AND ADJUST ANCHORING TO SATISFY BASIC DESIGN REQUIREMENTS NOTE 7 SES-1.



**SIDE MOUNTING  
TERMINAL COMPARTMENT**



**SECTION A-A**



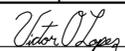
**SECTION B-B**

**SIGNAL HEADS AND MOUNTINGS**  
FOR DETAILS NOT SHOWN, SEE RSP ES-4D SHEET

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

DESIGN	BY VICTOR LOPEZ	CHECKED LANCE WARREN	<b>STATE OF CALIFORNIA</b> DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN <b>SPECIAL DESIGN BRANCH</b>	BRIDGE NO.	<b>TEMPORARY WOOD POLE</b> <b>MISCELLANEOUS DETAILS 2</b>	<b>SES-4</b>
DETAILS	BY P C WELLS	CHECKED VICTOR LOPEZ			N/A		
QUANTITIES	BY X	CHECKED X			POST MILE Varies		

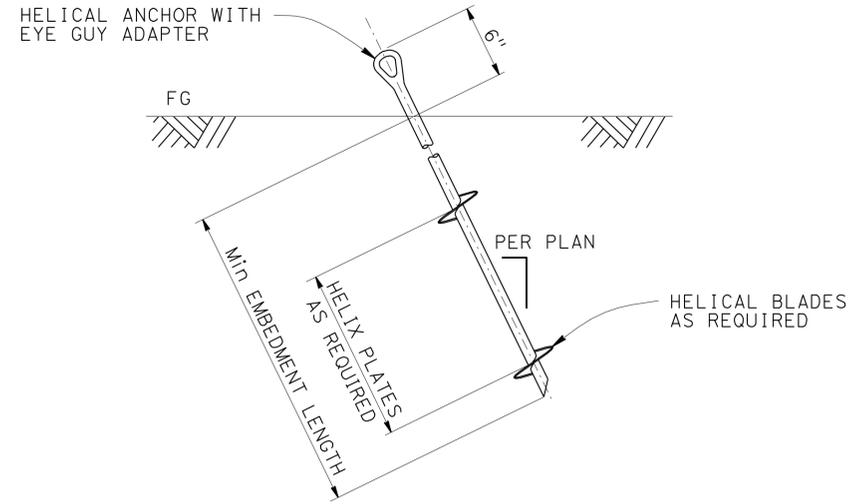
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Tuo	120	R44.8	16	52

 10-18-2011  
 REGISTERED CIVIL ENGINEER DATE

3-5-12  
 PLANS APPROVAL DATE



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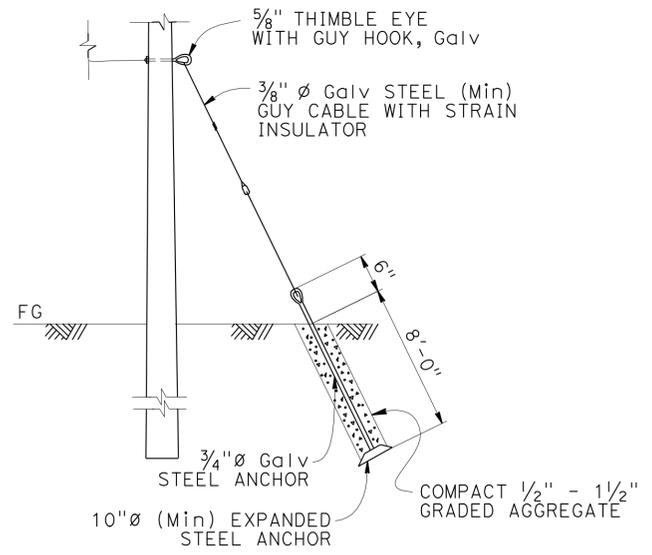
**ALTERNATIVE GUY WIRE INSTALLATION DETAIL**  
(SEE HELICAL ANCHOR SPECIFICATIONS TABLE)

HELICAL ANCHOR SPECIFICATIONS					
ANCHOR LOCATION	TYPE	HELIX PLATE DIAMETER*	ALLOWABLE Min TENSION CAP., "Q <sub>a</sub> "	EMBEDMENT LENGTH (Min)	INSTALLATION TORQUE (Min)**, "T"
TYPICAL	TENSION	12"	4750 lb	11'-0"	1430 ft-lb

SPECIFICATION NOTES:

- 1 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.
- 2 Anchors and hardware to be installed per the manufacturer's specifications.

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



**GUY WIRE INSTALLATION DETAIL**

- NOTES:**
1. Contractor to verify soil condition, slope, and adjust anchoring to satisfy basic design requirements per Note 7 on SES-1 sheet.
  2. Use of alternative Guy Wire Installation Detail requires that the soil bearing capacity be verified by the installation Contractor.
  3. Installation Contractor shall determine the most appropriate value for k<sub>t</sub> based on soil conditions and shall adjust the Min Installation Torque based on the revised k<sub>t</sub>. A k<sub>t</sub> value of 10 was assumed for the Min Installation Torque shown in the table.
- The Helical Installation torque Formula is Q<sub>u</sub> = k<sub>t</sub>\*T where,
- Q<sub>u</sub> = Q<sub>a</sub>\*FS = Ultimate Helical Anchor Capacity (lb)  
 FS = Factor of Safety = 3.0  
 Q<sub>a</sub> = Allowable Helical Anchor Capacity (lb)  
 k<sub>t</sub> = Empirical Torque Factor (ft<sup>-1</sup>)  
 T = Min Installation Torque (ft-lb)
4. Requests made by Helical Anchor Installation Contractor to reduce the minimum embedment length and/or Helix diameter require Engineer's approval.
  5. The Contractor shall 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 Inspector during construction.

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

<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="font-size: x-small;">DESIGN</td> <td style="font-size: x-small;">BY VICTOR LOPEZ</td> <td style="font-size: x-small;">CHECKED LANCE WARREN</td> </tr> <tr> <td style="font-size: x-small;">DETAILS</td> <td style="font-size: x-small;">BY P C WELLS</td> <td style="font-size: x-small;">CHECKED VICTOR LOPEZ</td> </tr> <tr> <td style="font-size: x-small;">QUANTITIES</td> <td style="font-size: x-small;">BY X</td> <td style="font-size: x-small;">CHECKED X</td> </tr> </table>	DESIGN	BY VICTOR LOPEZ	CHECKED LANCE WARREN	DETAILS	BY P C WELLS	CHECKED VICTOR LOPEZ	QUANTITIES	BY X	CHECKED X	<b>STATE OF CALIFORNIA</b> DEPARTMENT OF TRANSPORTATION	<b>DIVISION OF ENGINEERING SERVICES</b> STRUCTURE DESIGN <b>SPECIAL DESIGN BRANCH</b>	BRIDGE NO. N/A	POST MILE Varies	<b>TEMPORARY WOOD POLE</b> <b>GUY WIRE DETAILS</b>	<b>SES-5</b>
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DETAILS	BY P C WELLS	CHECKED VICTOR LOPEZ													
QUANTITIES	BY X	CHECKED X													

USERNAME => s128843 DATE PLOTTED => 07-MAR-2012 TIME PLOTTED => 16:53

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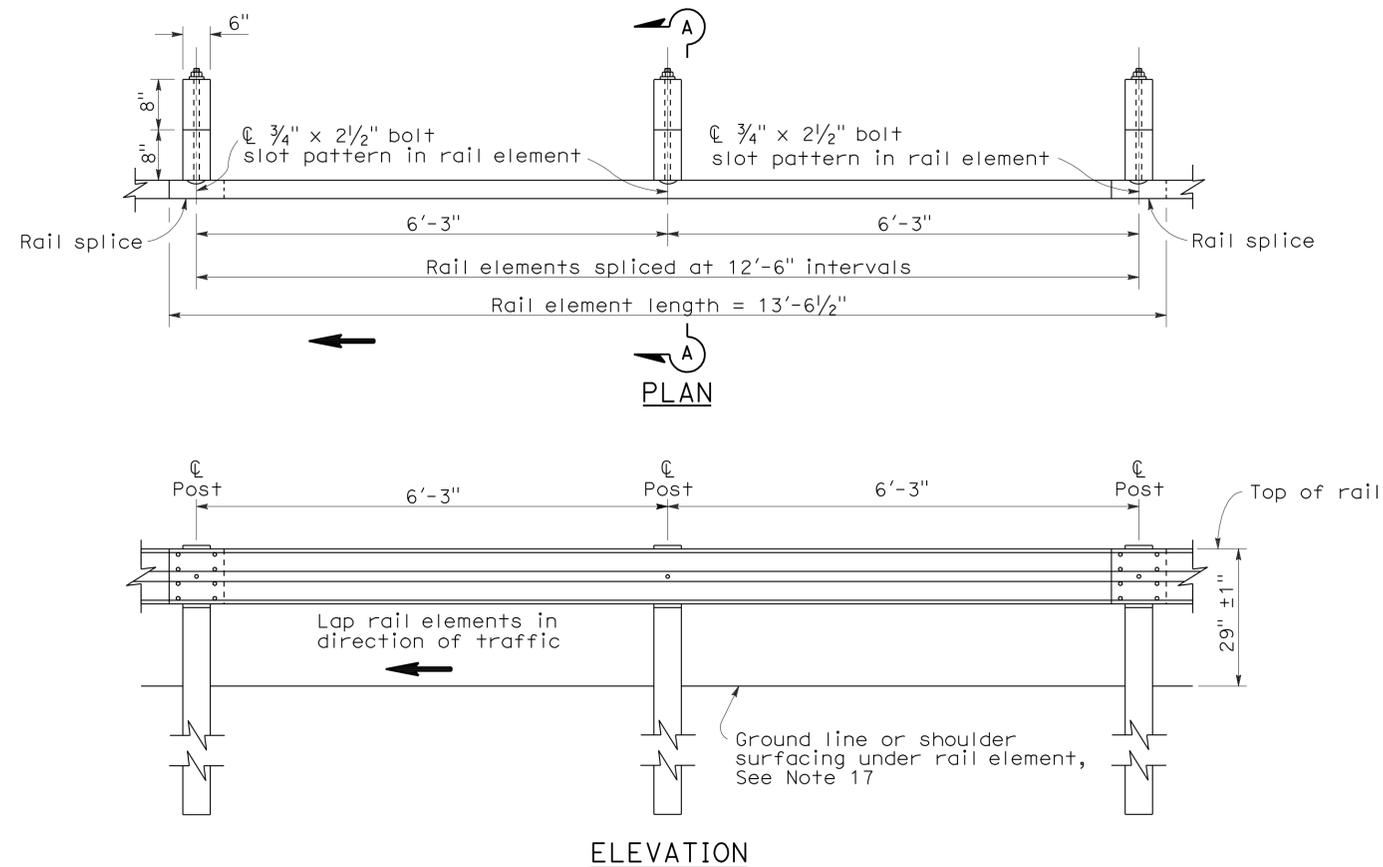
*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

May 20, 2011  
PLANS APPROVAL DATE

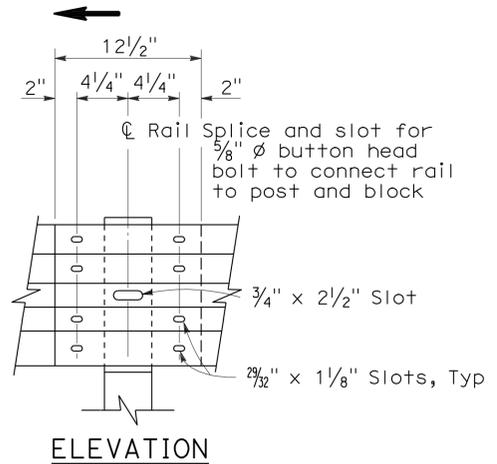
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To accompany plans dated 3-5-12

2006 REVISED STANDARD PLAN RSP A77A1

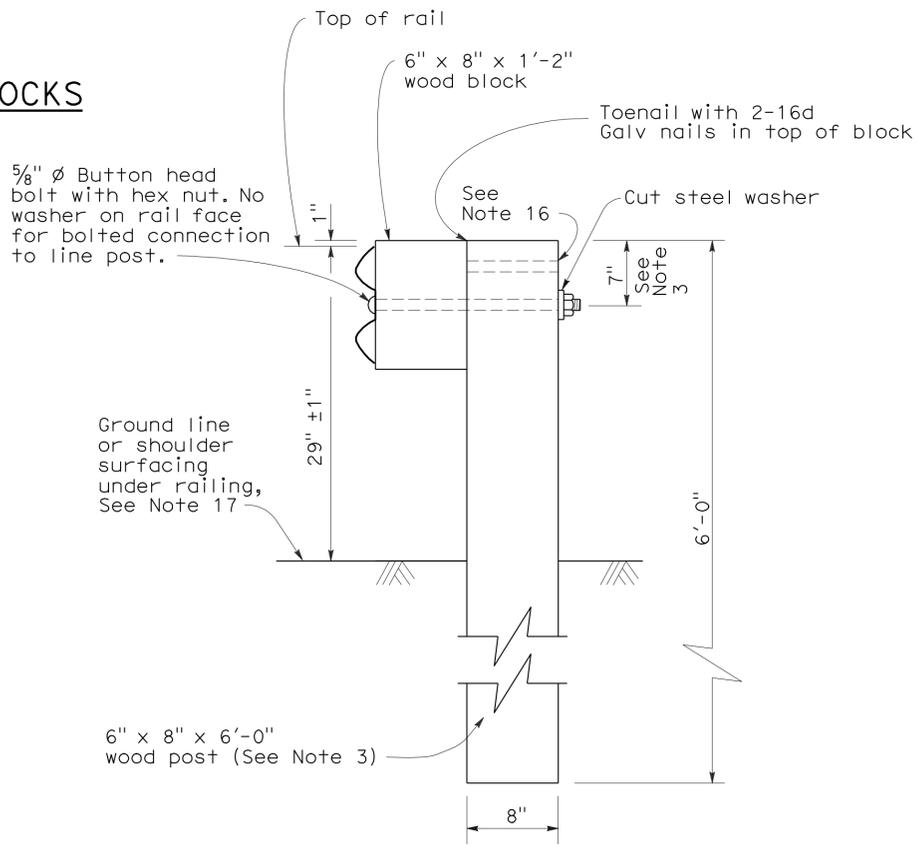
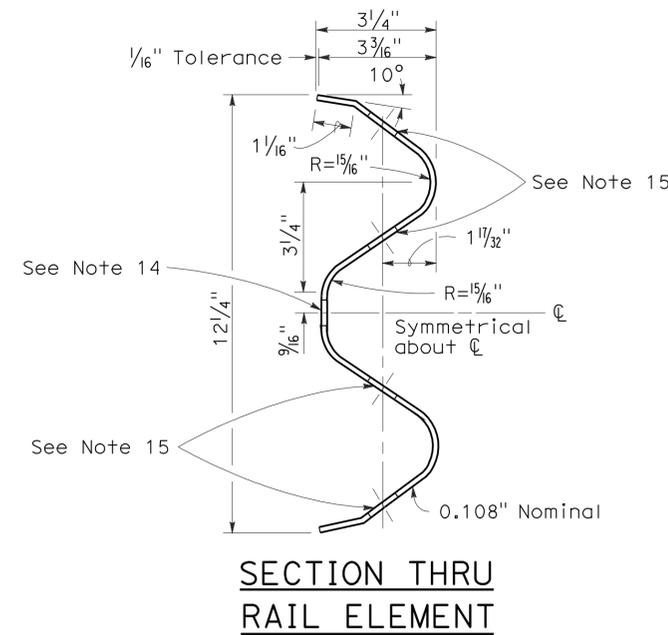


**METAL BEAM GUARD RAILING WITH WOOD POST AND BLOCKS**



**RAIL ELEMENT SPLICE DETAIL**

- Connect the over lapped end of the rail elements with  $\frac{5}{8}$ "  $\phi$  x  $1\frac{3}{8}$ " button head oval shoulder splice bolts inserted into the  $2\frac{3}{32}$ " x  $1\frac{1}{8}$ " slots and bolted together with  $\frac{5}{8}$ "  $\phi$  recessed hex nuts. Recess of hex nut points toward rail element. A total of 8 bolts and nuts are to be used at each rail splice connection.
- The ends of the rail elements are to be overlapped in the direction of traffic (see details).
- Where end cap is to be attached to the end of a rail element, a total of 4 of the above described splice bolts and nuts are to be used.



**SECTION A-A TYPICAL WOOD LINE POST INSTALLATION**

See Note 4

**NOTES:**

- For details of steel post installations, see Standard Plan A77A2.
- For details of standard hardware used to construct guard railing, see Standard Plan A77B1.
- For details of wood posts and wood blocks used to construct guard railing, see Standard Plan A77C1.
- For additional installation details, see Standard Plan A77C3.
- Guard railing post spacing to be 6'-3" center to center, except as otherwise noted.
- For guard railing typical layouts, see the A77E, A77F and A77G Series of Standard Plans.
- For terminal system end treatment details, see the A77L Series of Standard Plans. To connect railing to terminal system end treatment, transition the top of railing height at a ratio of 120:1 to terminal system end treatment height plus one 12'-6" standard railing section at the transitioned height for a horizontal connection to the end treatment.
- For guard railing end anchor details, see Standard Plans A77H1 and A77I2.
- For details of guard railing transition to bridge railing, see Standard Plan A77J4.
- For additional details of guard railing connection to bridge railings, see Standard Plans A77J1, A77J2 and A77K1.
- For guard railing connection details to abutments and walls, see Standard Plan A77J3.
- Direction of adjacent traffic indicated by  $\rightarrow$ .
- For typical guard railing delineation and dike positioning details, see Standard Plan A77C4.
- 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".
- Additional hole in uppermost portion of line post is for potential future adjustments of railing height. See Standard Plan A77C1.
- Install posts in soil.

**METAL BEAM GUARD RAILING STANDARD RAILING SECTION (WOOD POST WITH WOOD BLOCK)**

NO SCALE



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Tuo	120	R44.8	19	52

*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

May 20, 2011  
PLANS APPROVAL DATE

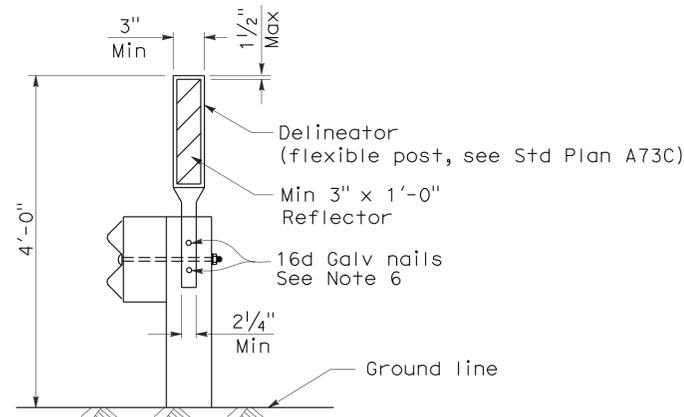
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REGISTERED PROFESSIONAL ENGINEER  
Randell D. Hiatt  
No. C50200  
Exp. 6-30-11  
CIVIL  
STATE OF CALIFORNIA

To accompany plans dated 3-5-12

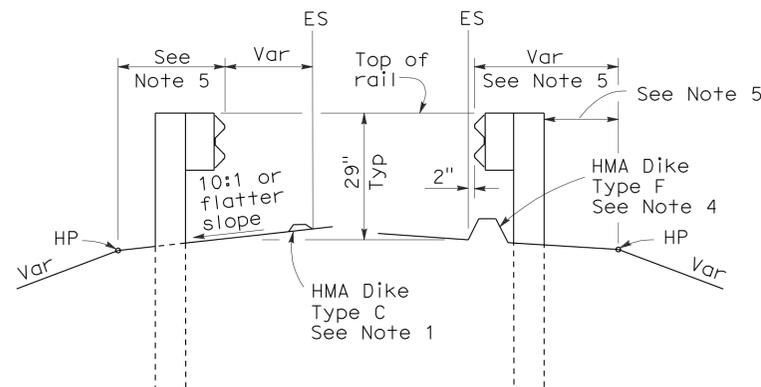
**NOTES:**

1. When necessary to place dike in front of face of guard railing, only Type C dike may be used. For dike details, see Standard Plan A87B.
2. For standard railing post embedment, see Standard Plans A77C3.
3. Guard railing delineation to be used where shown on the Project Plans.
4. When dike or curb is placed under guard railing, the maximum height of the dike or curb shall be 4". Mountable dike should not be used. For dike and curb details, see Standard Plans A87A and A87B.
5. For details of typical distance between the face of rail and hinge point, see Standard Plan A77C3.
6. For steel line posts, use 1/4" - 20 self-tapping screws in 0.22" diameter holes or 1/4" bolts in 3/32" diameter holes.



**GUARD RAILING DELINEATION**

See Note 3



**DIKE POSITIONING**

See Note 1

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**METAL BEAM GUARD RAILING  
TYPICAL RAILING DELINEATION  
AND DIKE POSITIONING DETAILS**

NO SCALE

RSP A77C4 DATED MAY 20, 2011 SUPERSEDES RSP A77C4 DATED JUNE 6, 2008 AND STANDARD PLAN A77C4 DATED MAY 1, 2006 - PAGE 47 OF THE STANDARD PLANS BOOK DATED MAY 2006.

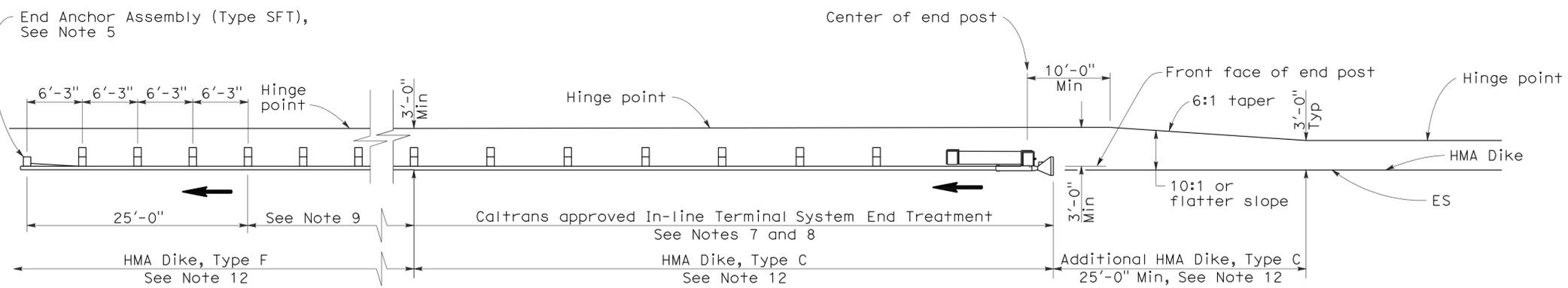
**REVISED STANDARD PLAN RSP A77C4**

2006 REVISED STANDARD PLAN RSP A77C4

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
10	Tuo	120	R44.8	20	52

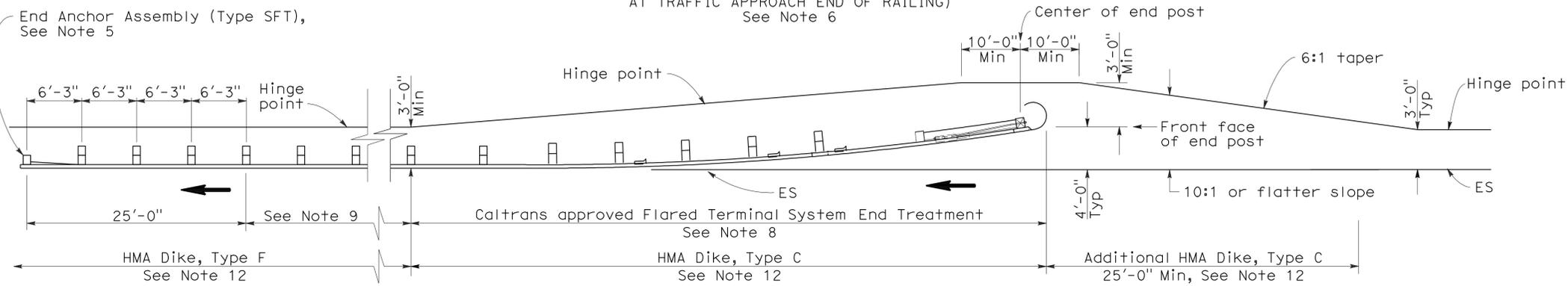
Randell D. Hiatt  
 REGISTERED CIVIL ENGINEER  
 No. C50200  
 Exp. 6-30-09  
 CIVIL  
 STATE OF CALIFORNIA

June 6, 2008  
 PLANS APPROVAL DATE  
 To accompany plans dated 3-5-12



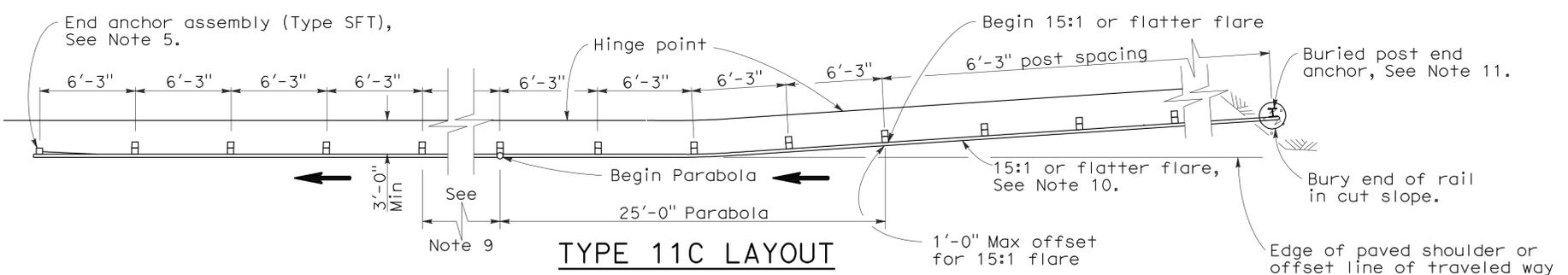
**TYPE 11A LAYOUT**

(EMBANKMENT GUARD INSTALLATION WITH IN-LINE END TREATMENT AT TRAFFIC APPROACH END OF RAILING) See Note 6



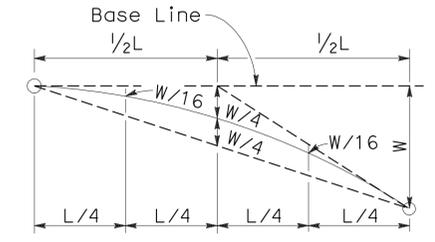
**TYPE 11B LAYOUT**

(EMBANKMENT GUARD RAILING INSTALLATION WITH FLARED END TREATMENT AT TRAFFIC APPROACH END OF RAILING) See Note 6

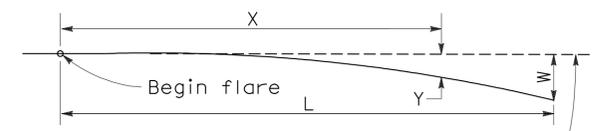


**TYPE 11C LAYOUT**

(EMBANKMENT GUARD RAILING INSTALLATION WITH BURIED END ANCHOR TREATMENT AT TRAFFIC APPROACH END OF RAILING) See Notes 6 and 12



**TYPICAL PARABOLIC LAYOUT**

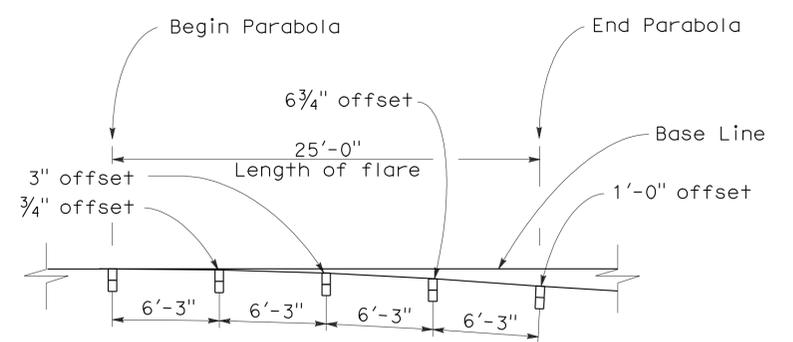


Base Line (Edge of paved shoulder or offset line of edge of traveled way)

$$Y = \frac{WX^2}{L^2}$$

Y = Offset from base line  
 W = Maximum offset  
 X = Distance along base line  
 L = Length of flare

**PARABOLIC FLARE OFFSETS**



**TYPICAL FLARE OFFSETS FOR 1 FOOT MAX END OFFSET**

**NOTES:**

- Line post, blocks and hardware to be used are shown on Standard Plans A77A1, A77A2, A77B1, A77C1, and A77C2.
- Guard rail post spacing to be 6'-3" center to center, except as otherwise noted.
- Except as noted, line posts are 6" x 8" x 6'-0" wood with 6" x 8" x 1'-2" wood blocks. W6 x 9 steel posts, 6'-0" in length, with 6" x 8" x 1'-2" notched wood blocks or recycled plastic blocks may be used for 6" x 8" x 6'-0" wood post with 6" x 8" x 1'-2" wood blocks where applicable and when specified.
- Direction of adjacent traffic indicated by →.
- For End Anchor Assembly (Type SFT) details, see Standard Plan A77H1.
- Layout Types 11A, 11B or 11C are typically used where guard railing is recommended to shield embankment slopes and a crashworthy end treatment is required for only one direction of traffic.
- In-line Terminal System End Treatments are used where site conditions will not accommodate a flared end treatment.
- The type of terminal system end treatment to be used will be shown on the Project Plans.
- Dependent on site conditions (embankment height and side slope), construction of additional guard railing (length equal to multiples of 12'-6" with 6'-3" post spacing) may be advisable.
- The 15:1 or flatter flare used with buried end anchors is based on the edge of the paved shoulder or offset line of edge of the traveled way. The length of guard railing within the 15:1 or flatter flare is based on site conditions and should be a length equal to multiples of 12'-6".
- For details of the buried post end anchor used with Type 11C Layout, see Standard Plan A77I2.
- Where placement of dike is required with guard railing installations, see Revised Standard Plan RSP A77C4 for dike positioning details.

STATE OF CALIFORNIA  
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**METAL BEAM GUARD RAILING**  
**TYPICAL LAYOUTS FOR EMBANKMENTS**  
NO SCALE

RSP A77E1 DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN A77E1  
DATED MAY 1, 2006 - PAGE 48 OF THE STANDARD PLANS BOOK DATED MAY 2006.

**REVISED STANDARD PLAN RSP A77E1**

2006 REVISED STANDARD PLAN RSP A77E1

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
10	Tuo	120	R44.8	21	52

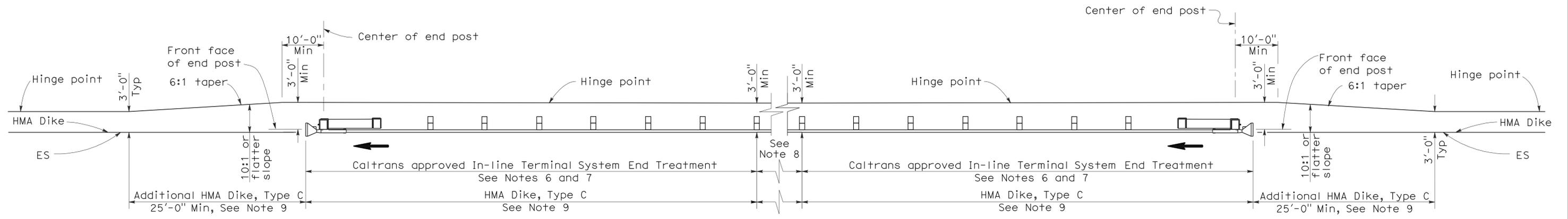
*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

June 6, 2008  
PLANS APPROVAL DATE

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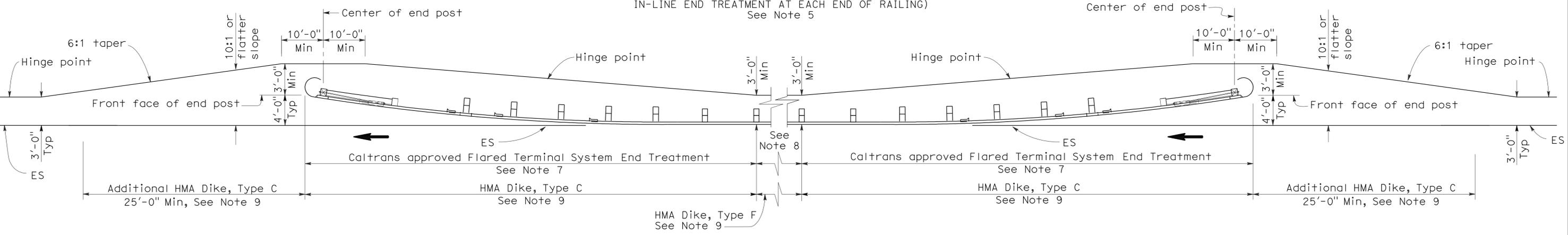
REGISTRED PROFESSIONAL ENGINEER  
Randell D. Hiatt  
No. C50200  
Exp. 6-30-09  
CIVIL  
STATE OF CALIFORNIA

To accompany plans dated 3-5-12



**TYPE 11D LAYOUT**

(EMBANKMENT GUARD RAILING INSTALLATION WITH IN-LINE END TREATMENT AT EACH END OF RAILING)  
See Note 5



**TYPE 11E LAYOUT**

(EMBANKMENT GUARD RAILING INSTALLATION WITH FLARED END TREATMENT AT EACH END OF RAILING)  
See Note 5

**NOTES:**

- Line post, blocks and hardware to be used are shown on Standard Plans A77A1, A77A2, A77B1, A77C1 and A77C2.
- Guard rail post spacing to be 6'-3" center to center, except as otherwise noted.
- Except as noted, line posts are 6" x 8" x 6'-0" wood with 6" x 8" x 1'-2" wood blocks. W6 x 9 steel posts, 6'-0" in length, with 6" x 8" x 1'-2" notched wood blocks or plastic blocks may be used for 6" x 8" x 6'-0" wood post with 6" x 8" x 1'-2" wood blocks where applicable and when specified.
- Direction of adjacent traffic indicated by  $\rightarrow$ .
- Layout Types 11D through 11L, shown on the A77E Series of Revised Standard Plans, are typically used where guard railing is recommended to shield embankment slopes and a crashworthy end treatment is required for both directions of traffic.
- In-line Terminal System End Treatments are used where site conditions will not accommodate a flared end treatment.
- The type of terminal system end treatment to be used will be shown on the Project Plans.
- Dependent on site conditions (embankment height and side slope), construction of additional guard railing (length equal to multiples of 12'-6" with 6'-3" post spacing) may be advisable.
- Where placement of dike is required with guard railing installations, see Revised Standard Plan RSP A77C4 for dike positioning details.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**METAL BEAM GUARD RAILING  
TYPICAL LAYOUTS FOR  
EMBANKMENTS**

NO SCALE  
RSP A77E2 DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN A77E2  
DATED MAY 1, 2006 - PAGE 49 OF THE STANDARD PLANS BOOK DATED MAY 2006.

2006 REVISED STANDARD PLAN RSP A77E2

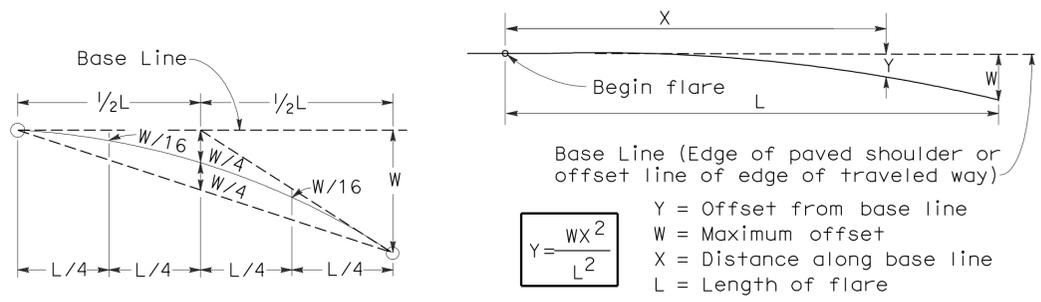
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
10	Tuo	120	R44.8	22	52

*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

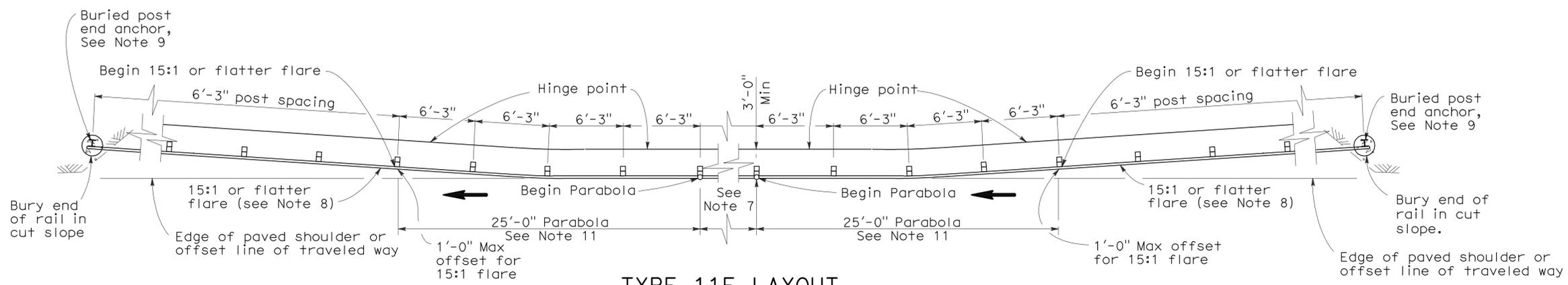
June 6, 2008  
PLANS APPROVAL DATE

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To accompany plans dated 3-5-12

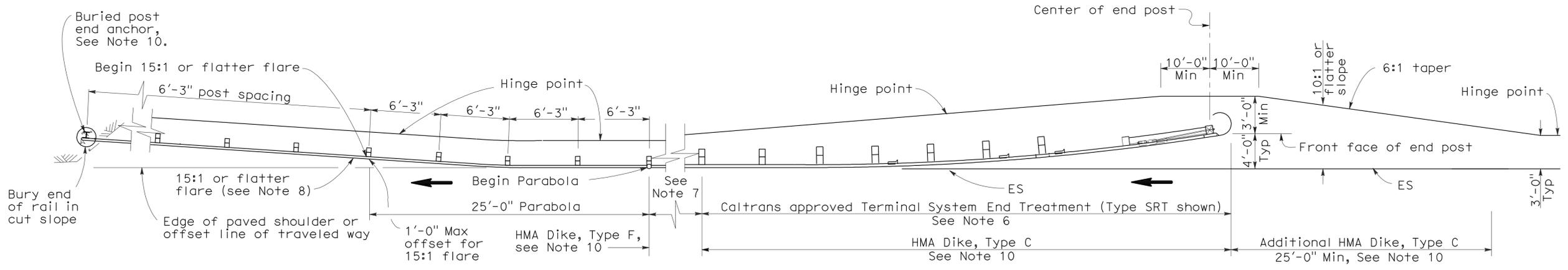


TYPICAL PARABOLIC LAYOUT PARABOLIC FLARE OFFSETS



TYPE 11F LAYOUT

(EMBANKMENT GUARD RAILING INSTALLATION WITH A BURIED END ANCHOR TREATMENT AT EACH END OF RAILING)  
See Notes 5 and 10



TYPE 11G LAYOUT

(EMBANKMENT GUARD RAILING INSTALLATION WITH FLARED END TREATMENT AND A BURIED END ANCHOR TREATMENT AT THE ENDS OF RAILING)  
See Notes 5 and 10

NOTES:

- Line post, blocks and hardware to be used are shown on Standard Plans A77A1, A77A2, A77B1, A77C1 and A77C2.
- Guard rail post spacing to be 6'-3" center to center, except as otherwise noted.
- Except as noted, line posts are 6" x 8" x 6'-0" wood with 6" x 8" x 1'-2" wood blocks. W6 x 9 steel posts, 6'-0" in length, with 6" x 8" x 1'-2" notched wood blocks or plastic blocks may be used for 6" x 8" x 6'-0" wood post with 6" x 8" x 1'-2" wood blocks where applicable and when specified.
- Direction of adjacent traffic indicated by →.
- Layout Types 11D through 11L, shown on the A77E Series of Revised Standard Plans, are typically used where guard railing is recommended to shield embankment slopes and a crashworthy end treatment is required for both directions of traffic.
- The type of terminal system end treatment to be used will be shown on the Project Plans.
- Dependent on site conditions (embankment height and side slope), construction of additional guard railing (length equal to multiples of 12'-6" with 6'-3" post spacing) may be advisable.
- The 15:1 or flatter flare used with buried end anchors is based on the edge of the paved shoulder or offset line of edge of the traveled way. The length of guard railing within the 15:1 or flatter flare is based on site conditions and should be a length equal to multiples of 12'-6".
- For details of the buried post end anchor used with Type 11F and 11G Layouts, see Standard Plan A77I2.
- Where placement of dike is required with guard railing installations, see Revised Standard Plan RSP A77C4 for dike positioning details.
- For typical flare offsets for 25'-0" length parabola with maximum offset of 1'-0", see Revised Standard Plan RSP A77E1.

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DEPARTMENT OF TRANSPORTATION

**METAL BEAM GUARD RAILING  
TYPICAL LAYOUTS FOR  
EMBANKMENTS**

NO SCALE

RSP A77E3 DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN A77E3  
DATED MAY 1, 2006 - PAGE 50 OF THE STANDARD PLANS BOOK DATED MAY 2006.

**REVISED STANDARD PLAN RSP A77E3**

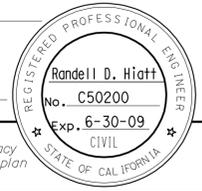
2006 REVISED STANDARD PLAN RSP A77E3

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
10	Tuo	120	R44.8	23	52

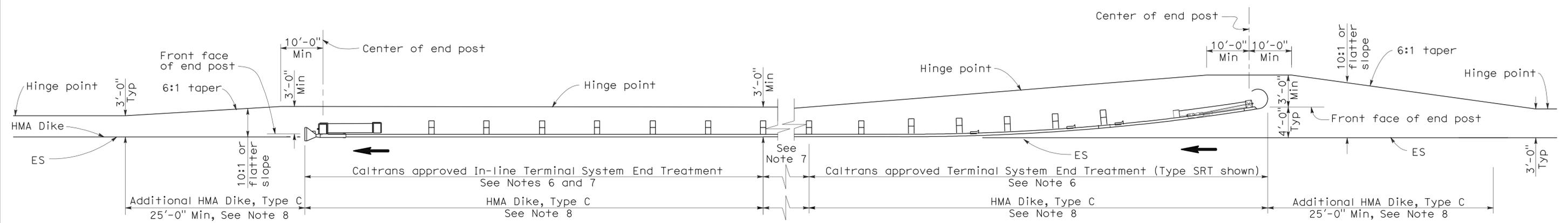
*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

June 6, 2008  
PLANS APPROVAL DATE

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To accompany plans dated 3-5-12



**TYPE 11H LAYOUT**

(EMBANKMENT GUARD RAILING INSTALLATION WITH FLARED END TREATMENT AND AN IN-LINE TREATMENT AT THE ENDS OF RAILING)  
See Notes 5 and 8

**NOTES:**

1. Line post, blocks and hardware to be used are shown on Standard Plans A77A1, A77A2, A77B1, A77C1 and A77C2.
2. Guard rail post spacing to be 6'-3" center to center, except as otherwise noted.
3. Except as noted, line posts are 6" x 8" x 6'-0" wood with 6" x 8" x 1'-2" wood blocks. W6 x 9 steel posts, 6'-0" in length, with 6" x 8" x 1'-2" notched wood blocks or plastic blocks may be used for 6" x 8" x 6'-0" wood post with 6" x 8" x 1'-2" wood blocks where applicable and when specified.
4. Direction of adjacent traffic indicated by →.
5. Layout Types 11D through 11L, shown on the A77E Series of Revised Standard Plans, are typically used where guard railing is recommended to shield embankment slopes and a crashworthy end treatment is required for both directions of traffic.
6. The type of terminal system end treatment to be used will be shown on the Project Plans.
7. Dependent on site conditions (embankment height and side slope), construction of additional guard railing (length equal to multiples of 12'-6" with 6'-3" post spacing) may be advisable.
8. Where placement of dike is required with guard railing installations, see Revised Standard Plan RSP A77C4 for dike positioning details.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**METAL BEAM GUARD RAILING  
TYPICAL LAYOUTS FOR  
EMBANKMENTS**  
NO SCALE

RSP A77E4 DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN A77E4  
DATED MAY 1, 2006 - PAGE 51 OF THE STANDARD PLANS BOOK DATED MAY 2006.

2006 REVISED STANDARD PLAN RSP A77E4

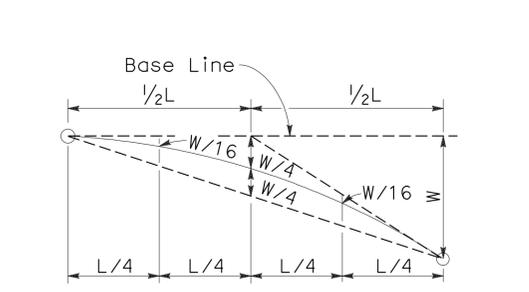
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
10	Tuo	120	R44.8	24	52

*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

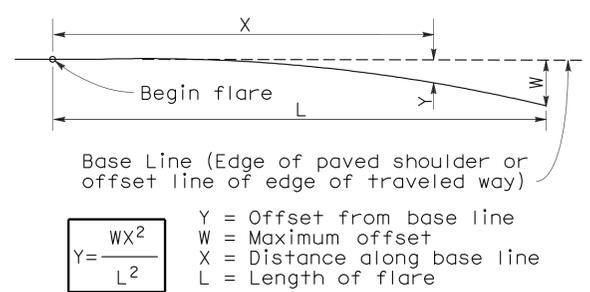
June 6, 2008  
PLANS APPROVAL DATE

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REGISTERED PROFESSIONAL ENGINEER  
No. C50200  
Exp. 6-30-09  
CIVIL  
STATE OF CALIFORNIA

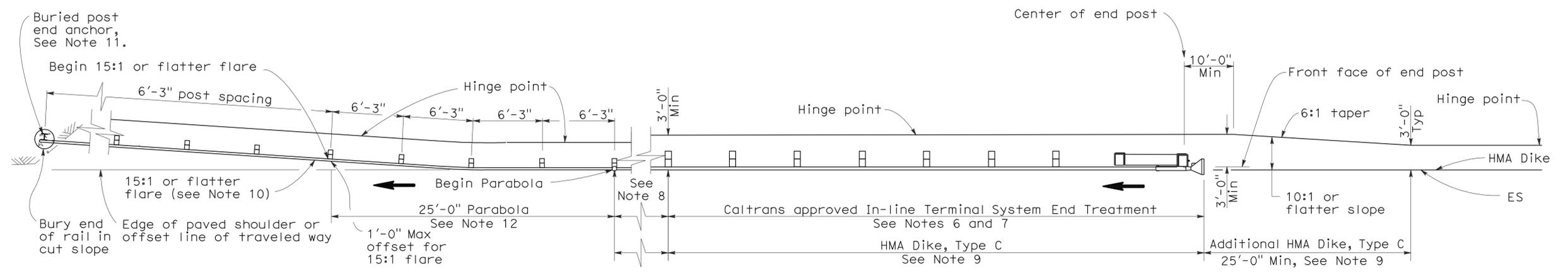


TYPICAL PARABOLIC LAYOUT



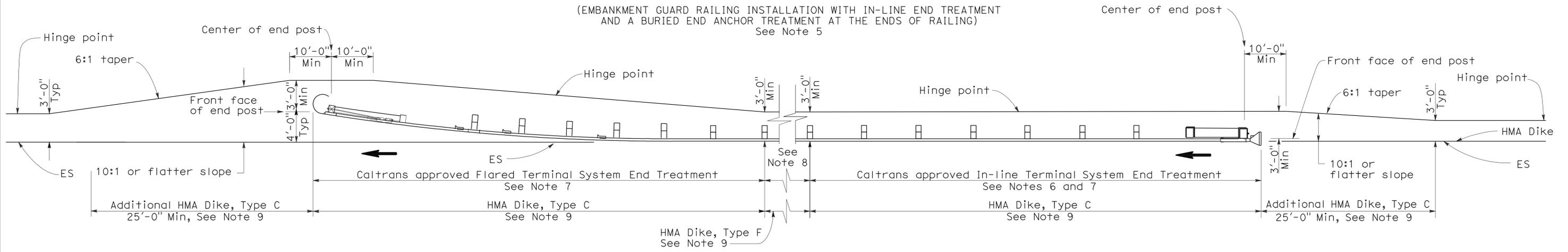
PARABOLIC FLARE OFFSETS

To accompany plans dated 3-5-12



TYPE 11I LAYOUT

(EMBANKMENT GUARD RAILING INSTALLATION WITH IN-LINE END TREATMENT AND A BURIED END ANCHOR TREATMENT AT THE ENDS OF RAILING)  
See Note 5



TYPE 11J LAYOUT

(EMBANKMENT GUARD RAILING INSTALLATION WITH IN-LINE END TREATMENT AND FLARED END TREATMENT AT THE ENDS OF RAILING)  
See Note 5

NOTES:

- Line post, blocks and hardware to be used are shown on Standard Plans A77A1, A77A2, A77B1, A77C1 and A77C2.
- Guard rail post spacing to be 6'-3" center to center, except as otherwise noted.
- Except as noted, line posts are 6" x 8" x 6'-0" wood with 6" x 8" x 1'-2" wood blocks. W6 x 9 steel posts, 6'-0" in length, with 6" x 8" x 1'-2" notched wood blocks or plastic blocks may be used for 6" x 8" x 6'-0" wood post with 6" x 8" x 1'-2" wood blocks where applicable and when specified.
- Direction of adjacent traffic indicated by  $\rightarrow$ .
- Layout Types 11D through 11L, shown on the A77E Series of Revised Standard Plans, are typically used where guard railing is recommended to shield embankment slopes and a crashworthy end treatment is required for both directions of traffic.
- In-line Terminal System End Treatments are used where site conditions will not accommodate a flared end treatment.
- The type of terminal system end treatment to be used will be shown on the Project Plans.
- Dependent on site conditions (embankment height and side slope), construction of additional guard railing (length equal to multiples of 12'-6" with 6'-3" post spacing) may be advisable.
- Where placement of dike is required with guard railing installations, see Revised Standard Plan RSP A77C4 for dike positioning details.
- The 15:1 or flatter flare used with buried end anchors is based on the edge of the paved shoulder or offset line of edge of the traveled way. The length of guard railing within the 15:1 or flatter flare is based on site conditions and should be a length equal to multiples of 12'-6".
- For details of the buried post end anchor used with Type 11I Layout, see Standard Plan A77I2.
- For typical flare offsets for 25'-0" length parabola with maximum offset of 1'-0", see Revised Standard Plan RSP A77E1.

STATE OF CALIFORNIA  
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**METAL BEAM GUARD RAILING  
TYPICAL LAYOUTS FOR  
EMBANKMENTS**

NO SCALE

RSP A77E5 DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN A77E5  
DATED MAY 1, 2006 - PAGE 52 OF THE STANDARD PLANS BOOK DATED MAY 2006.

2006 REVISED STANDARD PLAN RSP A77E5

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
10	Tuo	120	R44.8	25	52

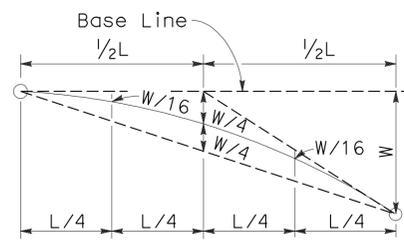
*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

June 6, 2008  
PLANS APPROVAL DATE

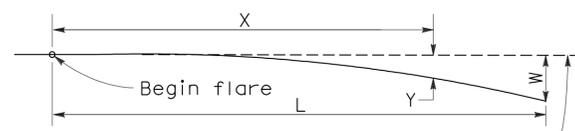
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To accompany plans dated 3-5-12

2006 REVISED STANDARD PLAN RSP A77E6



**TYPICAL PARABOLIC LAYOUT**

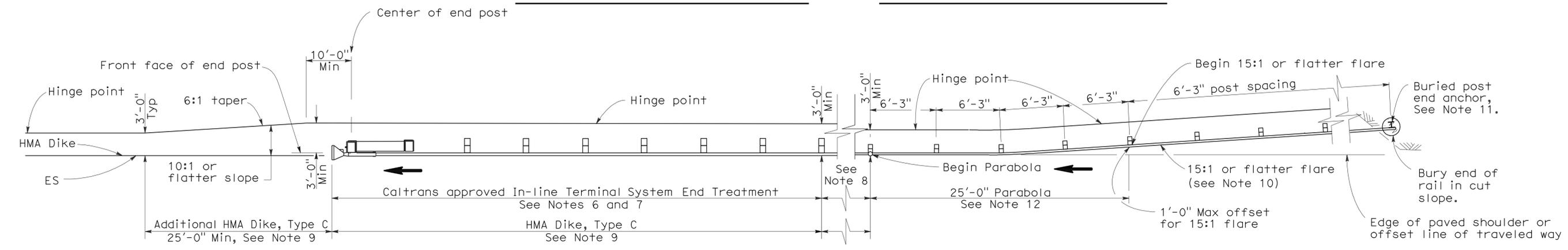


Base Line (Edge of paved shoulder or offset line of edge of traveled way)

$$Y = \frac{WX^2}{L^2}$$

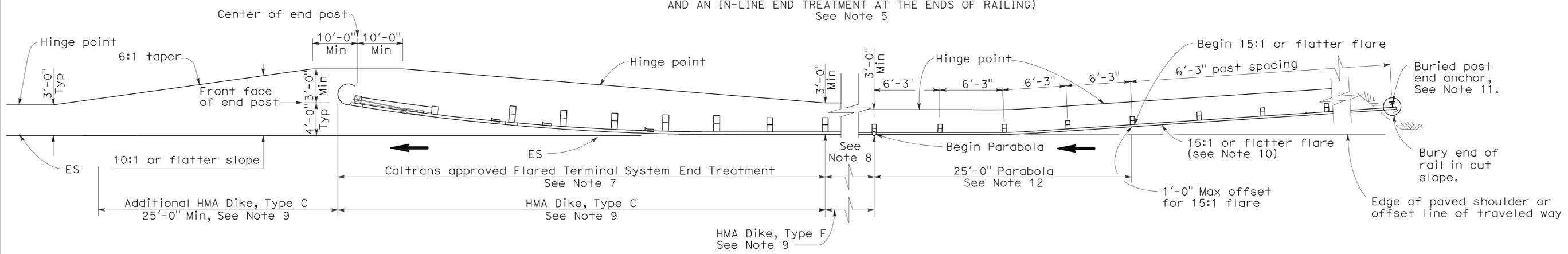
Y = Offset from base line  
W = Maximum offset  
X = Distance along base line  
L = Length of flare

**PARABOLIC FLARE OFFSETS**



**TYPE 11K LAYOUT**

(EMBANKMENT GUARD RAILING INSTALLATION WITH A BURIED END ANCHOR TREATMENT AND AN IN-LINE END TREATMENT AT THE ENDS OF RAILING)  
See Note 5



**TYPE 11L LAYOUT**

(EMBANKMENT GUARD RAILING INSTALLATION WITH A BURIED END ANCHOR TREATMENT AND A FLARED END TREATMENT AT THE ENDS OF RAILING)  
See Note 5

**NOTES:**

- Line post, blocks and hardware to be used are shown on Standard Plans A77A1, A77A2, A77B1, A77C1 and A77C2.
- Guard rail post spacing to be 6'-3" center to center, except as otherwise noted.
- Except as noted, line posts are 6" x 8" x 6'-0" wood with 6" x 8" x 1'-2" wood blocks. W6 x 9 steel posts, 6'-0" in length, with 6" x 8" x 1'-2" notched wood blocks or plastic blocks may be used for 6" x 8" x 6'-0" wood post with 6" x 8" x 1'-2" wood blocks where applicable and when specified.
- Direction of adjacent traffic indicated by  $\rightarrow$ .
- Layout Types 11D through 11L, shown on the A77E Series of Revised Standard Plans, are typically used where guard railing is recommended to shield embankment slopes and a crashworthy end treatment is required for both directions of traffic.
- In-line Terminal System End Treatments are used where site conditions will not accommodate a flared end treatment.
- The type of terminal system end treatment to be used will be shown on the Project Plans.
- Dependent on site conditions (embankment height and side slope), construction of additional guard railing (length equal to multiples of 12'-6" with 6'-3" post spacing) may be advisable.
- Where placement of dike is required with guard railing installations, see Revised Standard Plan RSP A77C4 for dike positioning details.
- The 15:1 or flatter flare used with buried end anchors is based on the edge of the paved shoulder or offset line of edge of the traveled way. The length of guard railing within the 15:1 or flatter flare is based on site conditions and should be a length equal to multiples of 12'-6".
- For details of the buried post end anchor used with Type 11K and 11L Layouts, see Standard Plan A77I2.
- For typical flare offsets for 25'-0" length parabola with maximum offset of 1'-0", see Revised Standard Plan RSP A77E1.

STATE OF CALIFORNIA  
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**METAL BEAM GUARD RAILING  
TYPICAL LAYOUTS FOR  
EMBANKMENTS**

NO SCALE  
RSP A77E6 DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN A77E6  
DATED MAY 1, 2006 - PAGE 53 OF THE STANDARD PLANS BOOK DATED MAY 2006.

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
10	Tuo	120	R44.8	26	52

*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

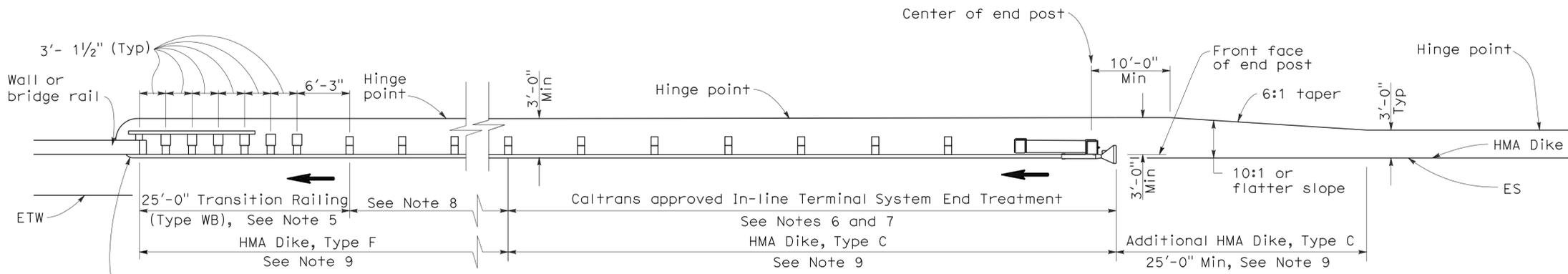
June 6, 2008  
PLANS APPROVAL DATE

*Randell D. Hiatt*  
REGISTERED PROFESSIONAL ENGINEER  
No. C50200  
Exp. 6-30-09  
CIVIL  
STATE OF CALIFORNIA

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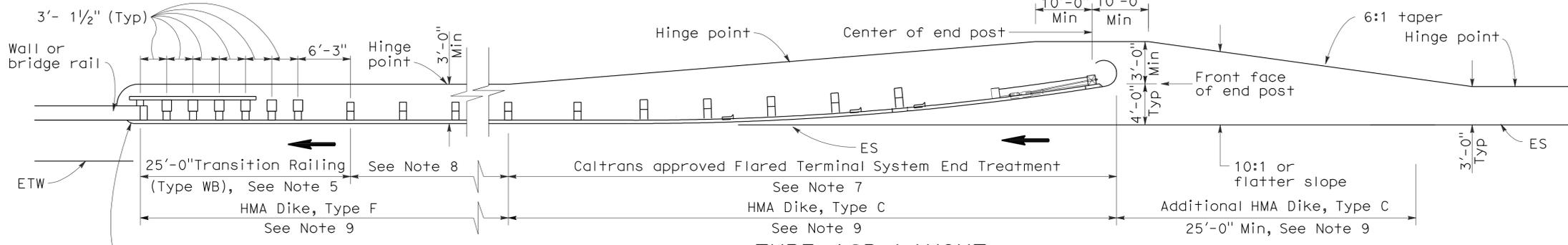
To accompany plans dated 3-5-12

2006 REVISED STANDARD PLAN RSP A77F1



**TYPE 12A LAYOUT**

(GUARD RAILING INSTALLATION AT STRUCTURE APPROACH WITH AN IN-LINE END TREATMENT AT TRAFFIC APPROACH END OF RAILING)  
See Notes 10



**TYPE 12B LAYOUT**

(GUARD RAILING INSTALLATION AT STRUCTURE APPROACH WITH A FLARED END TREATMENT AT TRAFFIC APPROACH END OF RAILING)  
See Notes 10

**NOTES:**

- Line post, blocks and hardware to be used are shown on Standard Plans A77A1, A77A2, A77B1, A77C1 and A77C2.
- Guard rail post spacing to be 6'-3" center to center, except as otherwise noted.
- Except as noted, line posts are 6" x 8" x 6'-0" wood with 6" x 8" x 1'-2" wood blocks. W6 x 9 steel posts, 6'-0" in length, with 6" x 8" x 1'-2" notched wood blocks or plastic blocks may be used for 6" x 8" x 6'-0" wood posts with 6" x 8" x 1'-2" wood blocks where applicable and when specified.
- Direction of adjacent traffic indicated by  $\rightarrow$ .
- For Transition Railing (Type WB) details for Types 12A and 12B Layouts, see Standard Plan A77J4.
- In-line Terminal System End Treatments are used where site conditions will not accommodate a flared end treatment.
- The type of terminal system end treatment to be used will be shown on the Project Plans.
- Dependent on site conditions (embankment height, side slopes, or other fixed objects), it may be advisable to construct additional guard railing (a length equal to multiples of 12'-6" with 6'-3" post spacing) between the transition railing and end treatment.

- Where placement of dike is required with guard railing installations, see Revised Standard Plan RSP A77C4 for dike positioning details.
- Type 12A or Type 12B Layouts are typically used:
  - To the right of approaching traffic, at the end of a structure, on two-lane conventional highway where the roadbed width across the structure is less than 40 feet.
  - To the left of approaching traffic, at the end of a structure, on two-lane conventional highway where the roadbed width across the structure is less than 40 feet.
  - To the right of approaching traffic at the end of each structure on multilane freeways or expressways with separate adjacent or parallel bridges.
  - To the right of approaching traffic at the end of the structure on multilane freeways or expressways with decked median on the bridge.
- See Revised Standard Plan RSP A77F3 for typical layout used left of approaching traffic at the ends of each structure on multilane freeways or expressways with separate adjacent or parallel bridges.

- For additional details of typical connections to bridge rail, see Connection Detail AA on Revised Standard Plans RSP A77J1 and RSP A77J2 and Connection Detail FF on Standard Plans A77K1 and A77K2.
- For additional details of a typical connection to walls or abutments, see Standard Plan A77J3.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**METAL BEAM GUARD RAILING  
TYPICAL LAYOUTS FOR  
STRUCTURE APPROACH**

NO SCALE

RSP A77F1 DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN A77F1  
DATED MAY 1, 2006 - PAGE 54 OF THE STANDARD PLANS BOOK DATED MAY 2006.

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
10	Tuo	120	R44.8	27	52

*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

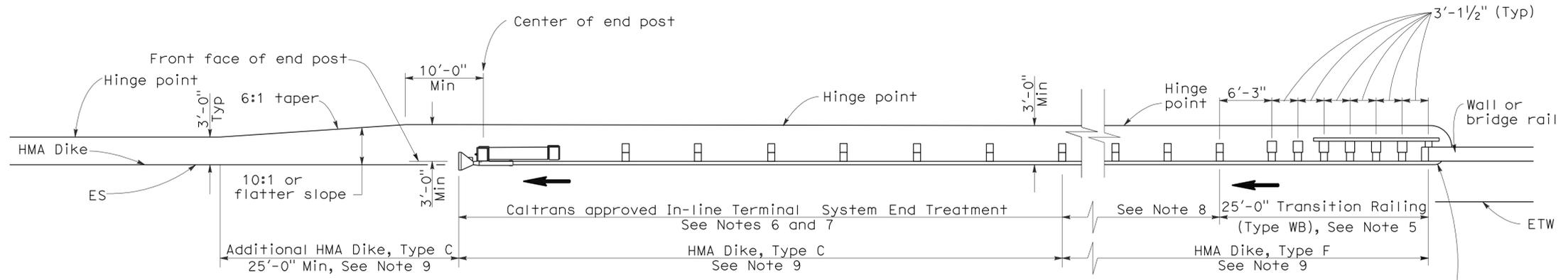
June 6, 2008  
PLANS APPROVAL DATE

*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.*

REGISTERED PROFESSIONAL ENGINEER  
Randell D. Hiatt  
No. C50200  
Exp. 6-30-09  
CIVIL  
STATE OF CALIFORNIA

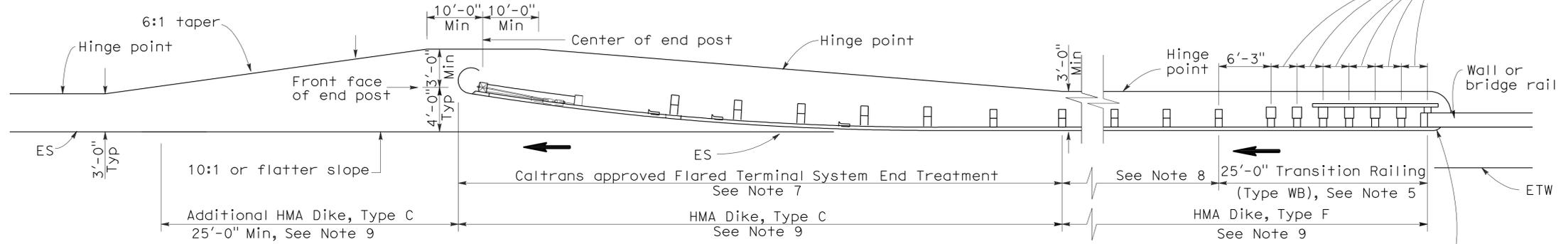
To accompany plans dated 3-5-12

2006 REVISED STANDARD PLAN RSP A77F4



**TYPE 12AA LAYOUT**

(GUARD RAILING INSTALLATION AT STRUCTURE DEPARTURE WITH AN IN-LINE END TREATMENT AT TRAILING END OF RAILING)  
See Notes 9 and 10



**TYPE 12BB LAYOUT**

(GUARD RAILING INSTALLATION AT STRUCTURE DEPARTURE WITH A FLARED END TREATMENT AT TRAILING END OF RAILING)  
See Notes 9 and 10

**NOTES:**

- Line post, blocks and hardware to be used are shown on Standard Plans A77A1, A77A2, A77B1, A77C1 and A77C2.
- Guard rail post spacing to be 6'-3" center to center, except as otherwise noted.
- Except as noted, line posts are 6" x 8" x 6'-0" wood with 6" x 8" x 1'-2" wood blocks. W6 x 9 steel posts, 6'-0" in length, with 6" x 8" x 1'-2" notched wood blocks or notched recycled plastic blocks may be used for 6" x 8" x 6'-0" wood posts with 6" x 8" x 1'-2" wood blocks where applicable and when specified.
- Direction of adjacent traffic indicated by ➡.
- For Transition Railing (Type WB) details for Types 12AA and 12BB Layouts, see Standard Plan A77J4.
- In-line Terminal System Treatments are used where site conditions will not accommodate a flared end treatment.
- The type of terminal system to be used will be shown on the Project Plans.
- Dependent on site conditions (embankment height, side slopes, other fixed objects), it may be advisable to construct additional guard railing (a length equal to multiples of 12'-6" with 6'-3" post spacing) between the transition railing and end treatments.
- Where placement of dike is required with guard railing installations, see Revised Standard Plan RSP A77C4 for dike positioning details.
- Type 12AA or Type 12BB Layouts are typically used to the right of traffic departing a structure on two-way conventional highways where the roadbed width across the structure is less than 40 feet.
- For additional details of typical connections to bridge rail, see Connection Detail CC on Revised Standard Plan RSP A77J2 and Connection Detail HH on Standard Plans A77k2.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

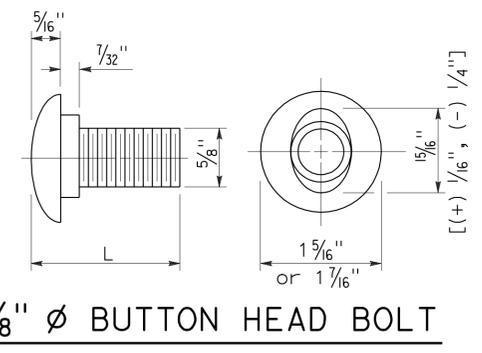
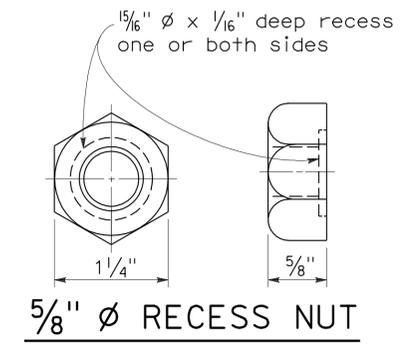
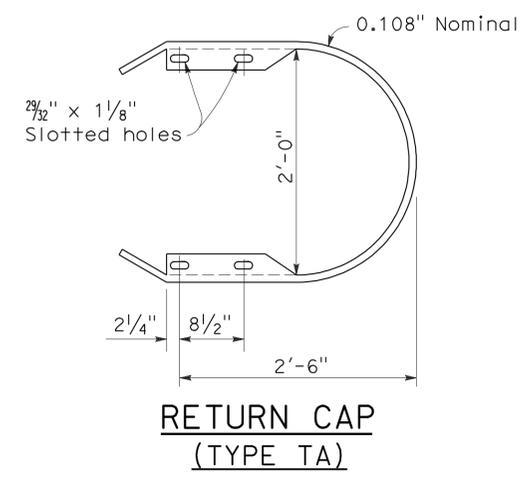
**METAL BEAM GUARD RAILING  
TYPICAL LAYOUTS FOR  
STRUCTURE DEPARTURE**

NO SCALE

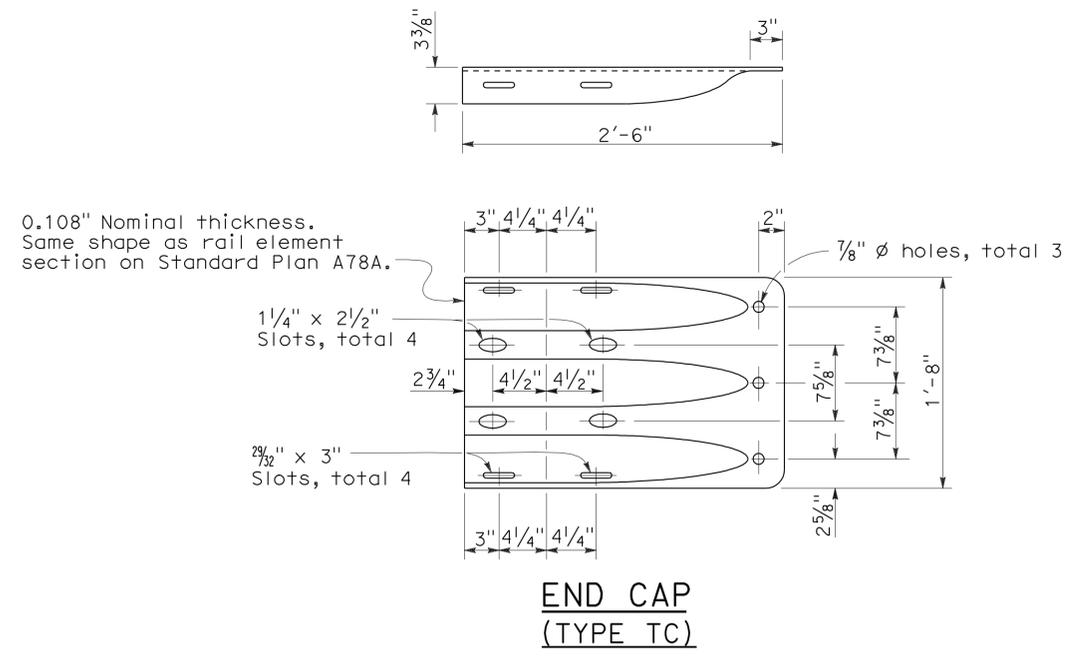
RSP A77F4 DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN A77F4  
DATED MAY 1, 2006 - PAGE 57 OF THE STANDARD PLANS BOOK DATED MAY 2006.

**REVISED STANDARD PLAN RSP A77F4**

To accompany plans dated 3-5-12



L	THREAD LENGTH
1 1/4"	full thread length
2"	full thread length
9/2"	4" Min thread length
18"	4" Min thread length



STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**THRIE BEAM BARRIER  
STANDARD HARDWARE DETAILS**

NO SCALE

RSP A78C1 DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN A78C1  
DATED MAY 1, 2006 - PAGE 85 OF THE STANDARD PLANS BOOK DATED MAY 2006.

2006 REVISED STANDARD PLAN RSP A78C1

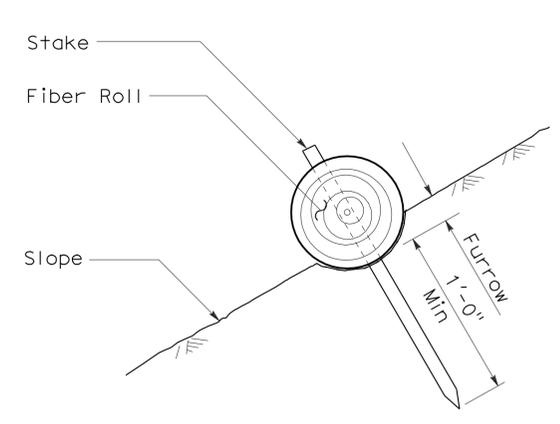
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
10	Tuo	120	R44.8	29	52

*Gregory A. Balzer*  
 LICENSED LANDSCAPE ARCHITECT  
 April 3, 2009  
 PLANS APPROVAL DATE  
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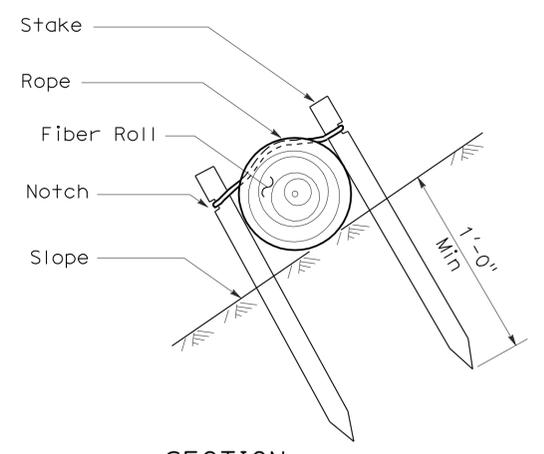
To accompany plans dated 3-5-12

**NOTES:**

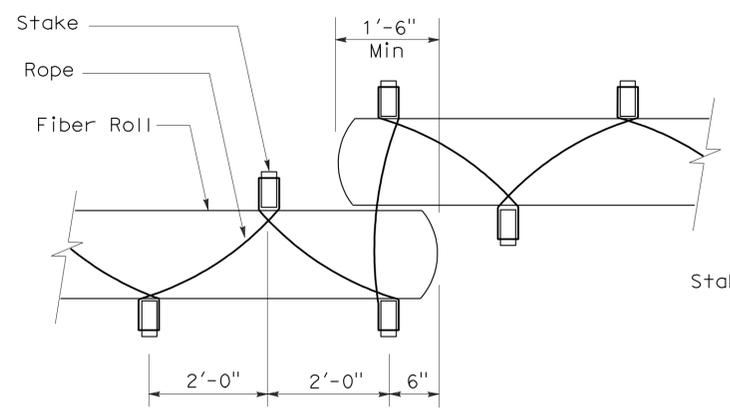
1. Fiber roll spacing varies depending upon slope inclination.
2. Installations shown in the perspectives are for slope inclination of 10:1 and steeper.



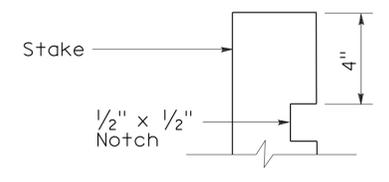
**SECTION**  
**FIBER ROLL**  
**(TYPE 1)**



**SECTION**

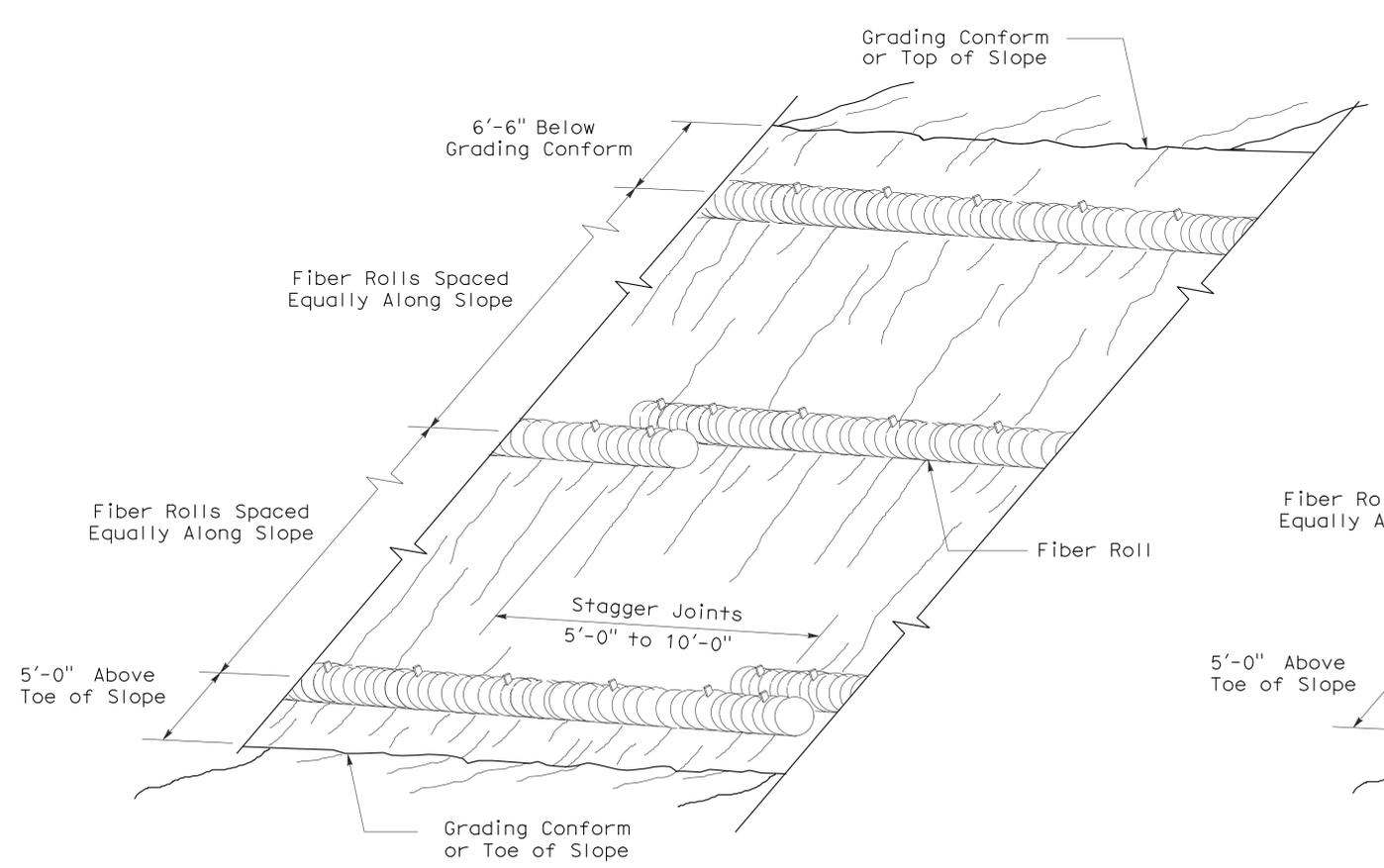


**PLAN**

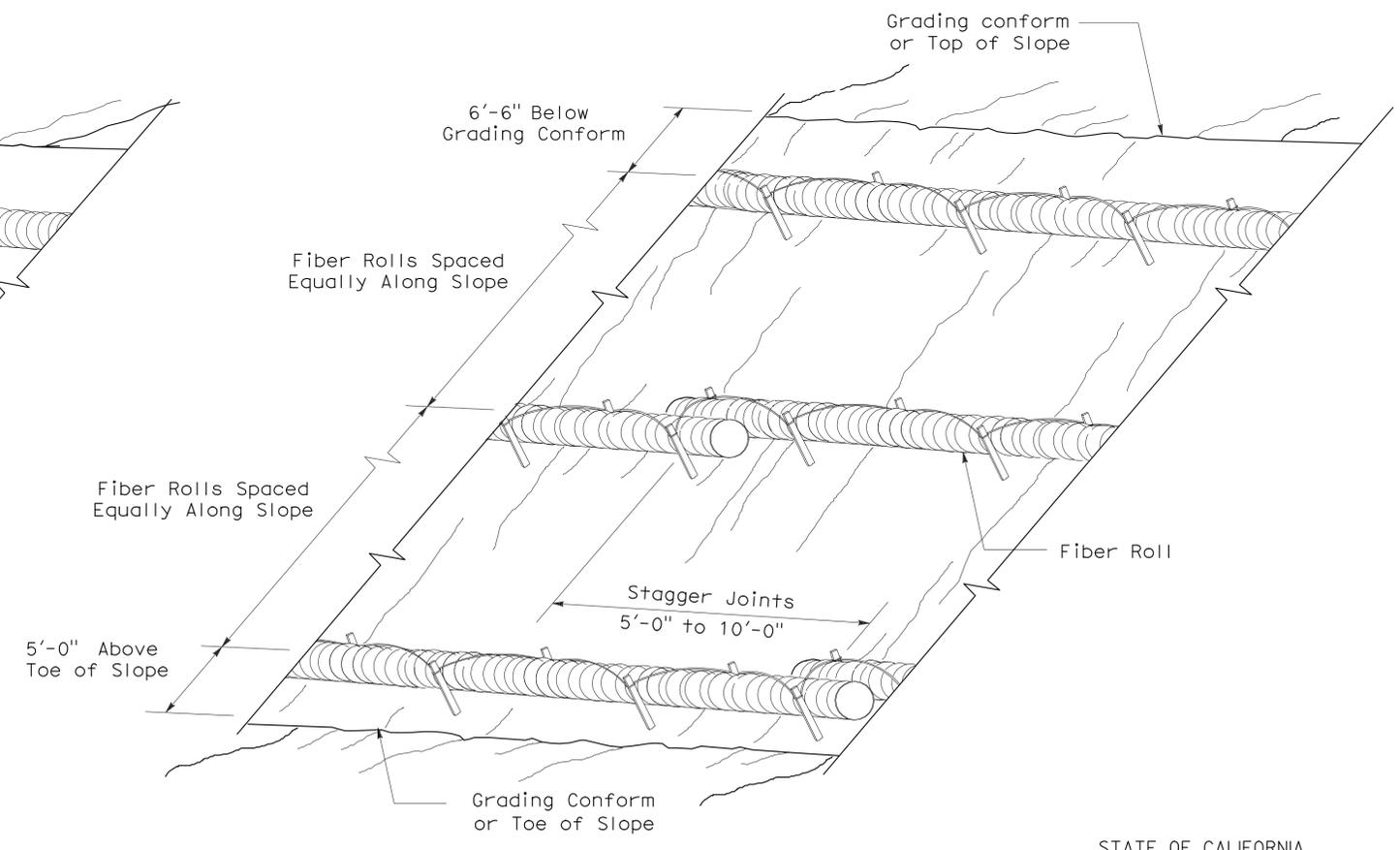


**ELEVATION**  
**STAKE NOTCH DETAIL**

**FIBER ROLL**  
**(TYPE 2)**



**PERSPECTIVE**  
**FIBER ROLL (TYPE 1)**



**PERSPECTIVE**  
**FIBER ROLL (TYPE 2)**

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**EROSION CONTROL DETAILS**  
**(FIBER ROLL)**

NO SCALE  
RNSP H51 DATED APRIL 3, 2009 SUPERSEDES NSP H51 DATED DECEMBER 1, 2006  
THAT SUPPLEMENTS THE STANDARD PLANS BOOK DATED MAY 2006.

2006 REVISED NEW STANDARD PLAN RNSP H51

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
10	Tuo	120	R44.8	30	52

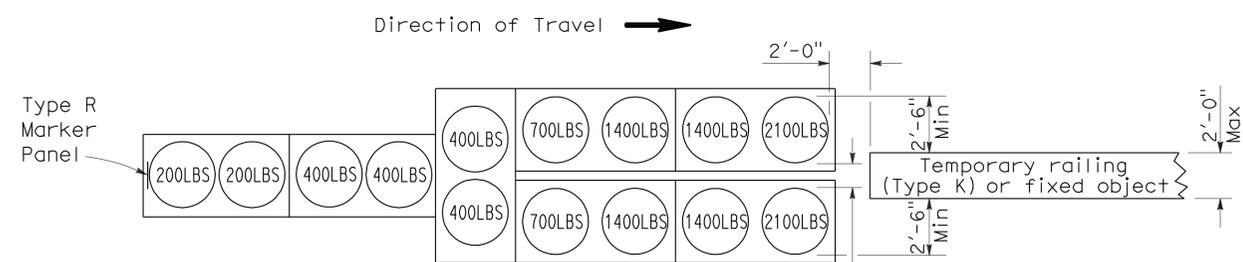
*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

June 6, 2008  
PLANS APPROVAL DATE

*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.*

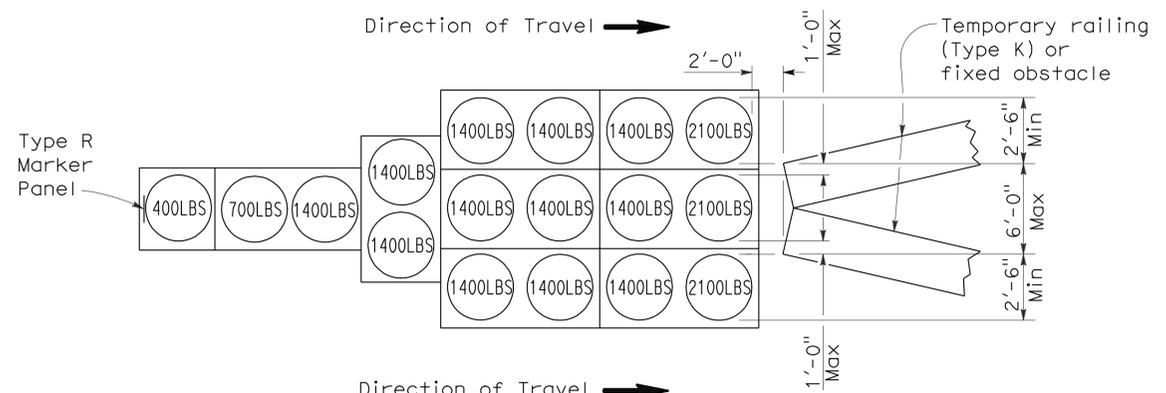
REGISTERED PROFESSIONAL ENGINEER  
Randell D. Hiatt  
No. C50200  
Exp. 6-30-09  
CIVIL  
STATE OF CALIFORNIA

To accompany plans dated 3-5-12



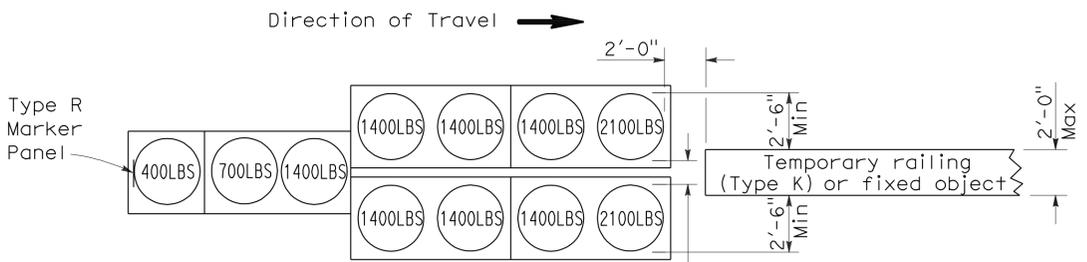
**ARRAY 'TU14'**

Approach speed 45 mph or more



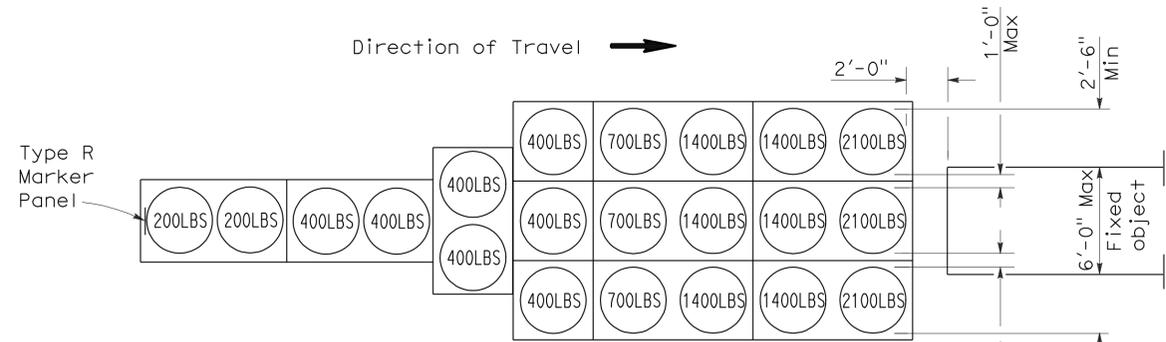
**ARRAY 'TU17'**

Approach speed less than 45 mph



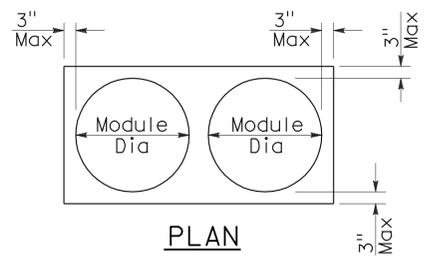
**ARRAY 'TU11'**

Approach speed less than 45 mph

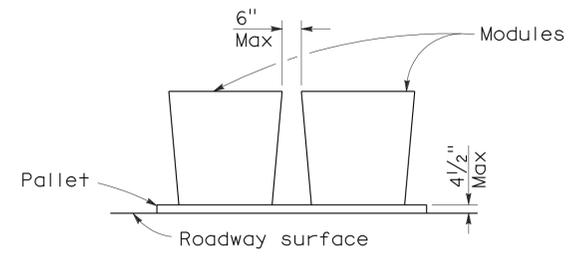


**ARRAY 'TU21'**

Approach speed 45 mph or more



**PLAN**



**ELEVATION**

**CRASH CUSHION PALLET DETAIL**

See Note 7

**NOTES:**

1. (XXX) Indicates sand filled module location and weight of sand in pounds for each module. Module spacing is based on the greater diameter of the module.
2. All sand weights are nominal.
3. Temporary crash cushion arrays shall not encroach on the traveled way.
4. Place the top of Type R marker panel 1" below the module lid.
5. Refer to Standard Plan A73B for marker details.
6. Approach speeds indicated conform to NCHRP 350 Report criteria.
7. Use of pallets is optional.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**TEMPORARY CRASH CUSHION,  
SAND FILLED  
(UNIDIRECTIONAL)**

NO SCALE

RSP T1A DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN T1A  
DATED MAY 1, 2006 - PAGE 211 OF THE STANDARD PLANS BOOK DATED MAY 2006.

**REVISED STANDARD PLAN RSP T1A**

2006 REVISED STANDARD PLAN RSP T1A

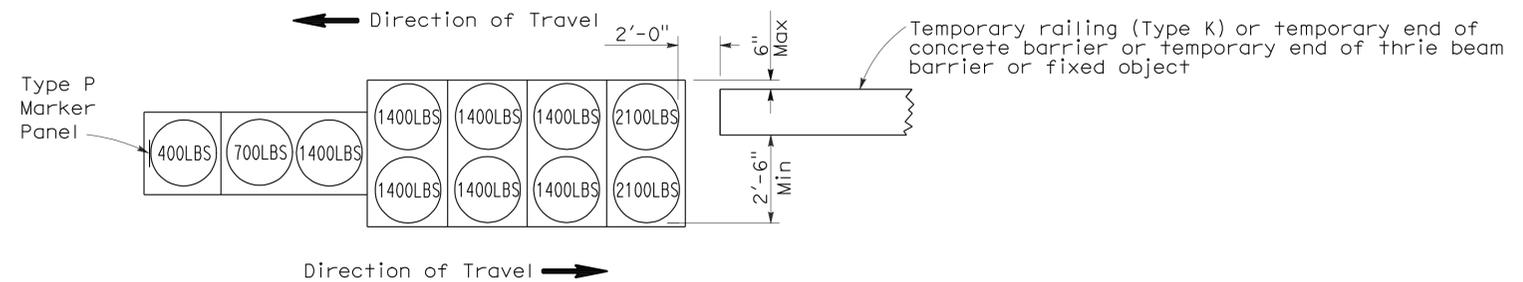
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
10	Tuo	120	R44.8	31	52

*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

June 6, 2008  
PLANS APPROVAL DATE

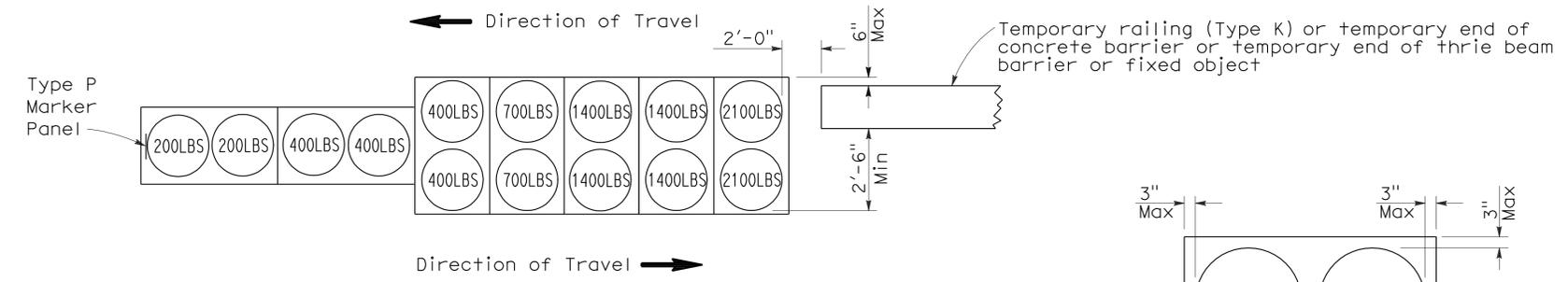
*The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.*

To accompany plans dated 3-5-12



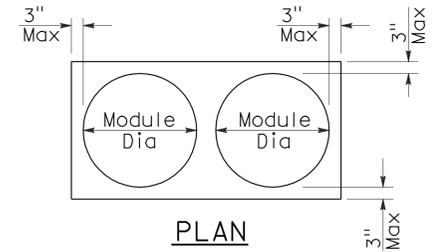
**ARRAY 'TB11'**

Approach speed less than 45 mph

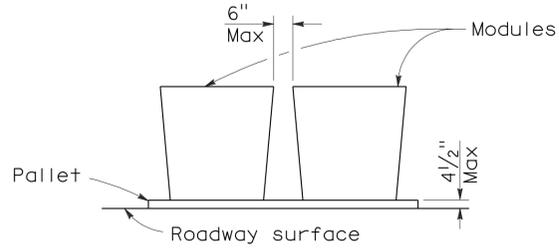


**ARRAY 'TB14'**

Approach speed 45 mph or more



PLAN



ELEVATION

**CRASH CUSHION PALLET DETAIL**

See Note 7

**NOTES:**

1. (XXX) Indicates sand filled module location and weight of sand in pounds for each module. Module spacing is based on the greater diameter of the module.
2. All sand weights are nominal.
3. Temporary crash cushion arrays shall not encroach on the traveled way.
4. Place the Type P marker panel so that the bottom of the panel rests upon the pallet.
5. Refer to Standard Plan A73B for marker details.
6. Approach speeds indicated conform to NCHRP 350 Report criteria.
7. Use of pallets is optional.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**TEMPORARY CRASH CUSHION,  
SAND FILLED  
(BIDIRECTIONAL)**

NO SCALE

RSP T1B DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN T1B  
DATED MAY 1, 2006 - PAGE 212 OF THE STANDARD PLANS BOOK DATED MAY 2006.

**REVISED STANDARD PLAN RSP T1B**

2006 REVISED STANDARD PLAN RSP T1B

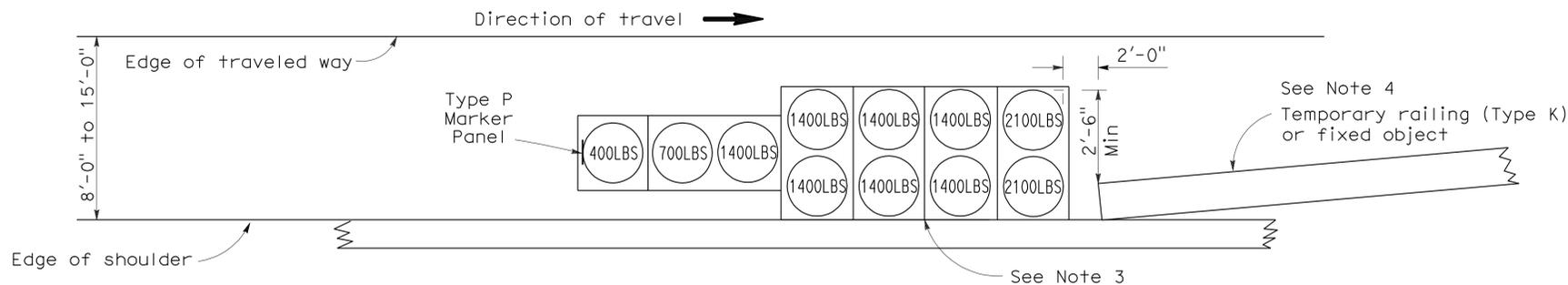
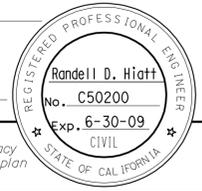
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
10	Tuo	120	R44.8	32	52

*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

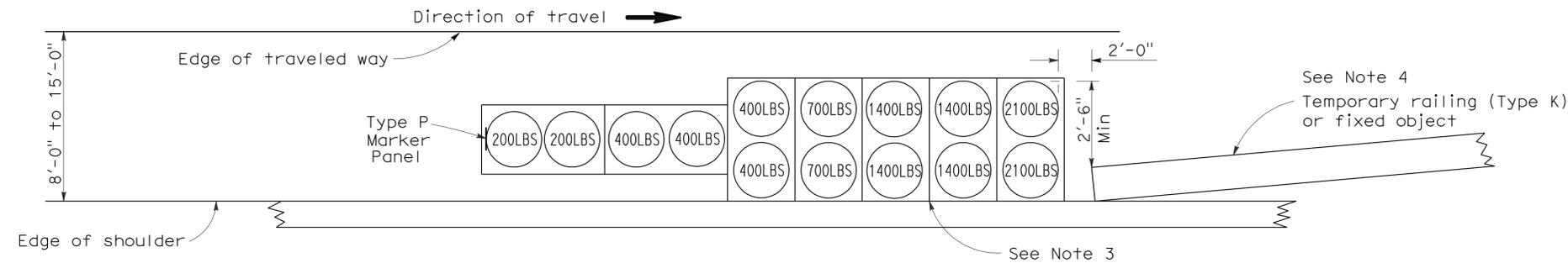
June 6, 2008  
PLANS APPROVAL DATE

*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.*

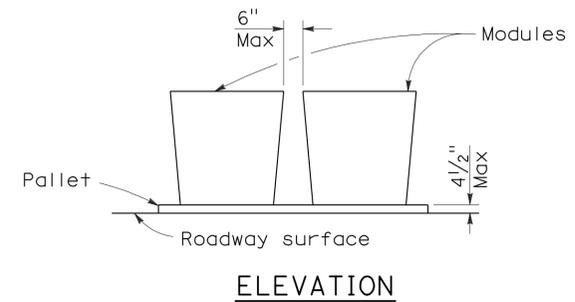
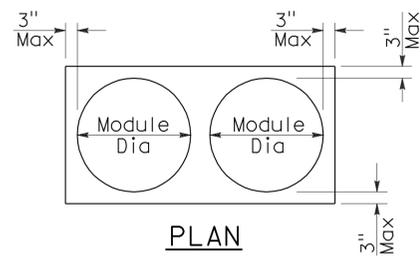
To accompany plans dated 3-5-12



**ARRAY 'TS11'**  
Approach speed less than 45 mph  
See Note 9



**ARRAY 'TS14'**  
Approach speed 45 mph or more  
See Note 9



**CRASH CUSHION PALLET DETAIL**  
See Note 11

**NOTES:**

- (XXX) Indicates sand filled module location and weight of sand in pounds for each module. Module spacing is based on the greater diameter of the module.
- All sand weights are nominal.
- The temporary crash cushion arrays shown on this plan shall be used only in locations where there will be traffic on one side of the temporary crash cushion array.
- If the fixed object or approach end of the temporary railing is less than 15'-0" from the edge of traveled way, a temporary crash cushion is required in a construction or work zone.
- Temporary crash cushion arrays shall not encroach on the traveled way.
- Arrays for median shoulders shall conform to details shown on this plan for outside shoulders.
- Place the Type P marker panel so that the bottom of the panel rests upon the pallet and faces traffic.
- Refer to Standard Plan A73B for marker details.
- For shoulder widths less than 8'-0", appropriate approved crash cushion protection, other than sand filled modules, shall be provided at fixed objects and at approach ends of temporary railing. The specific type of crash cushion shall be as shown on the project plans or as specified in the Special Provisions, or if not shown on the project plans or specified in the Special Provisions, shall be as approved by the Engineer.
- Approach speeds indicated conform to NCHRP 350 Report criteria.
- Use of pallets is optional.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**TEMPORARY CRASH CUSHION,  
SAND FILLED  
(SHOULDER INSTALLATIONS)**

NO SCALE  
RSP T2 DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN T2  
DATED MAY 1, 2006 - PAGE 213 OF THE STANDARD PLANS BOOK DATED MAY 2006.

**REVISED STANDARD PLAN RSP T2**

2006 REVISED STANDARD PLAN RSP T2

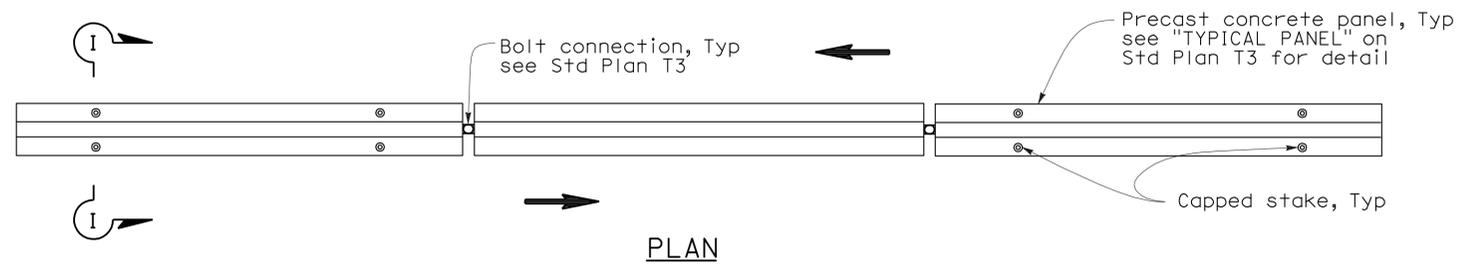
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Tuo	120	R44.8	33	52

*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

May 20, 2011  
PLANS APPROVAL DATE

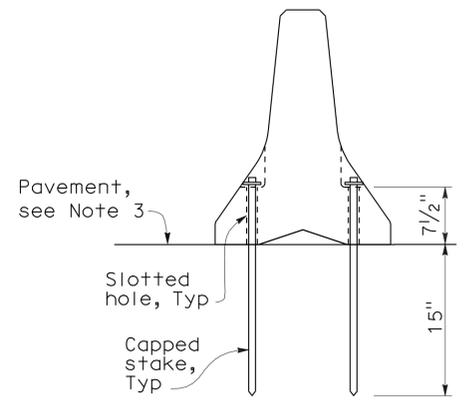
*The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.*

To accompany plans dated 3-5-12



**RAILING STAKING CONFIGURATION FOR TWO-WAY TRAFFIC**

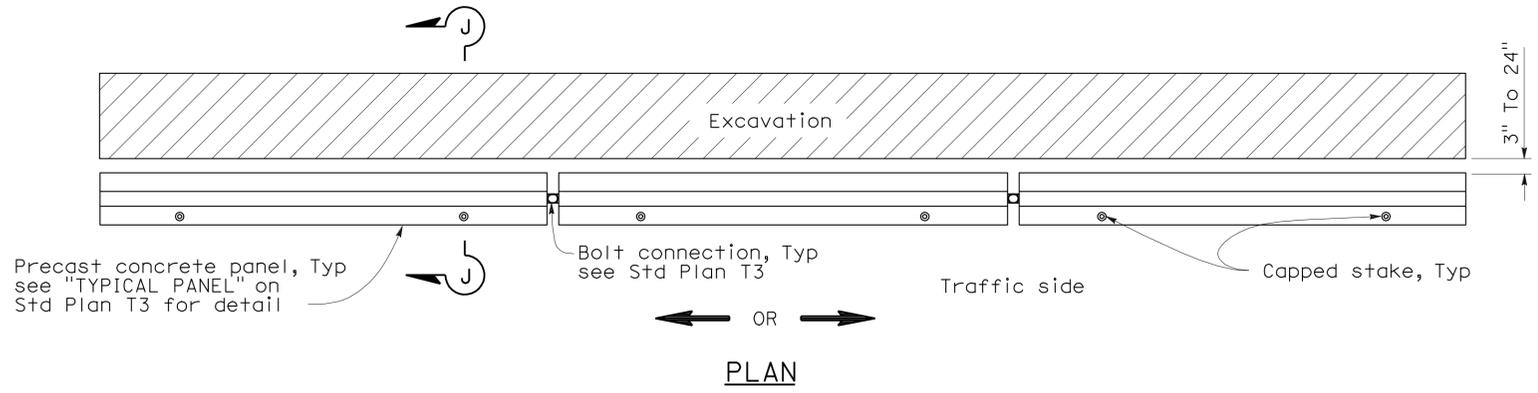
See Note 1



**SECTION I-I**

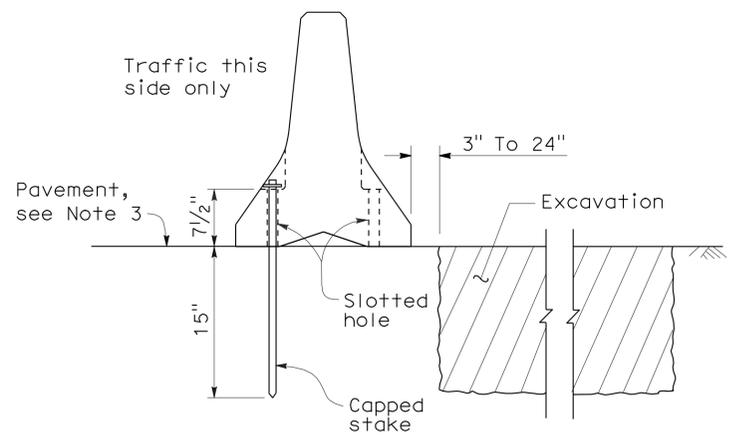
**NOTES:**

1. Where Type K Temporary Railing is placed as a temporary or long term barrier in two-way traffic on highways with less than 24" from the edge of traveled way, use four capped stakes per every other panel with end panels staked.
2. Where Type K Temporary Railing is placed 3" to 24" from the edge of an excavation on highways, use two capped stakes per panel along the traffic side.
3. Staked Type K Temporary Railing must be supported by at least 4" thick concrete, hot mix asphalt or existing asphalt concrete pavement.
4. The minimum yield strength for the washer must be 60,000 psi.
5. Direction of adjacent traffic indicated by  $\Rightarrow$ .

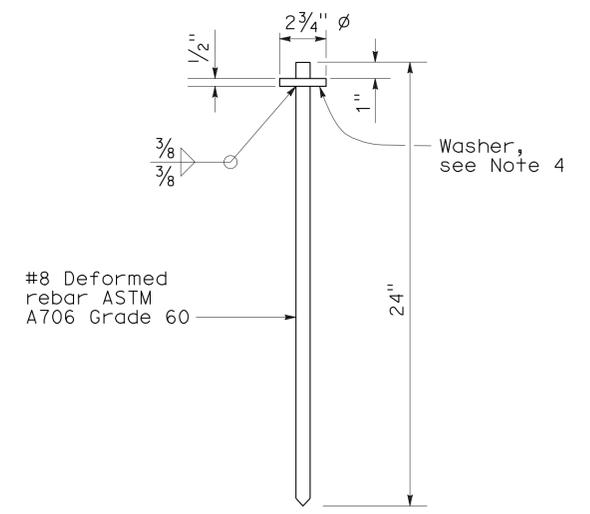


**RAILING STAKING CONFIGURATION ADJACENT TO AN EXCAVATION**

See Note 2



**SECTION J-J**



**CAPPED STAKE DETAIL**

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**TEMPORARY RAILING  
(TYPE K)**

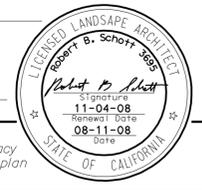
NO SCALE

NSP T3A DATED MAY 20, 2011 SUPPLEMENTS  
THE STANDARD PLANS BOOK DATED MAY 2006.

2006 NEW STANDARD PLAN NSP T3A

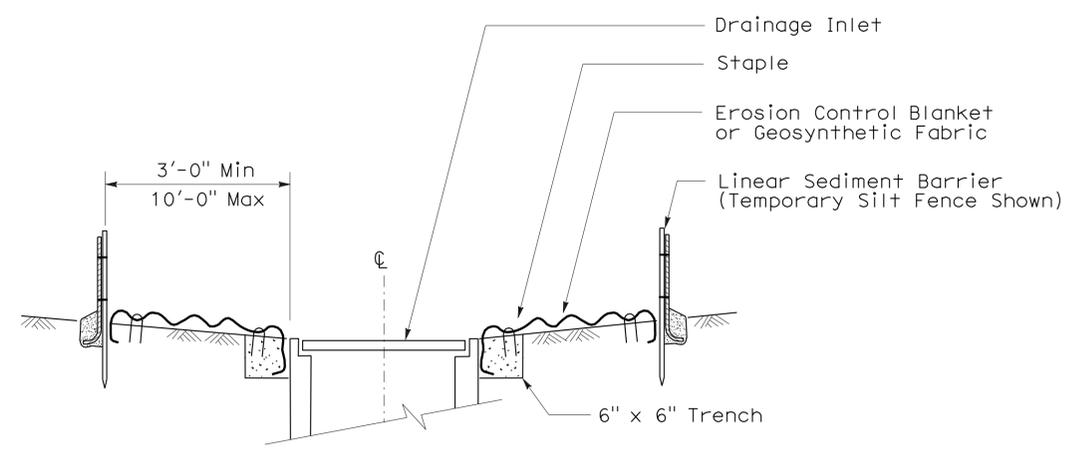
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
10	Tuo	120	R44.8	34	52

*Robert B. Schott*  
 LICENSED LANDSCAPE ARCHITECT  
 August 15, 2008  
 PLANS Approval DATE  
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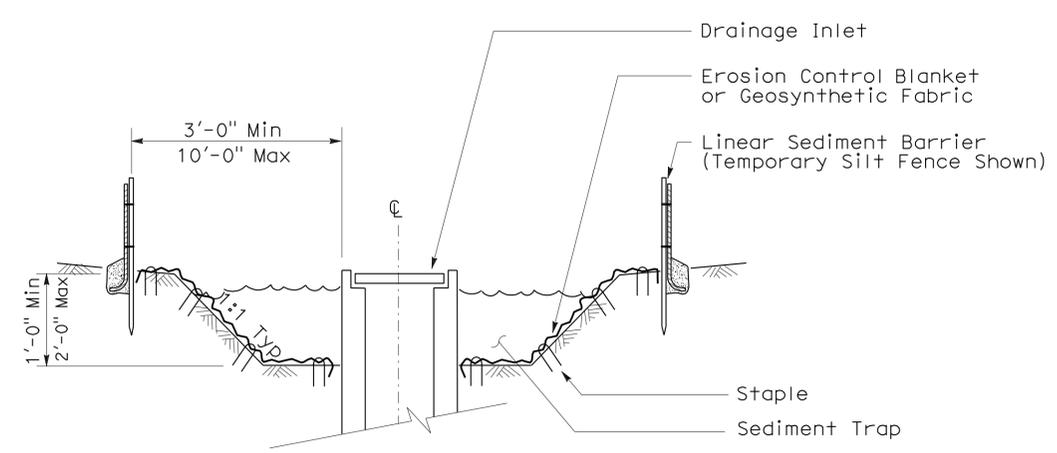


To accompany plans dated 3-5-12

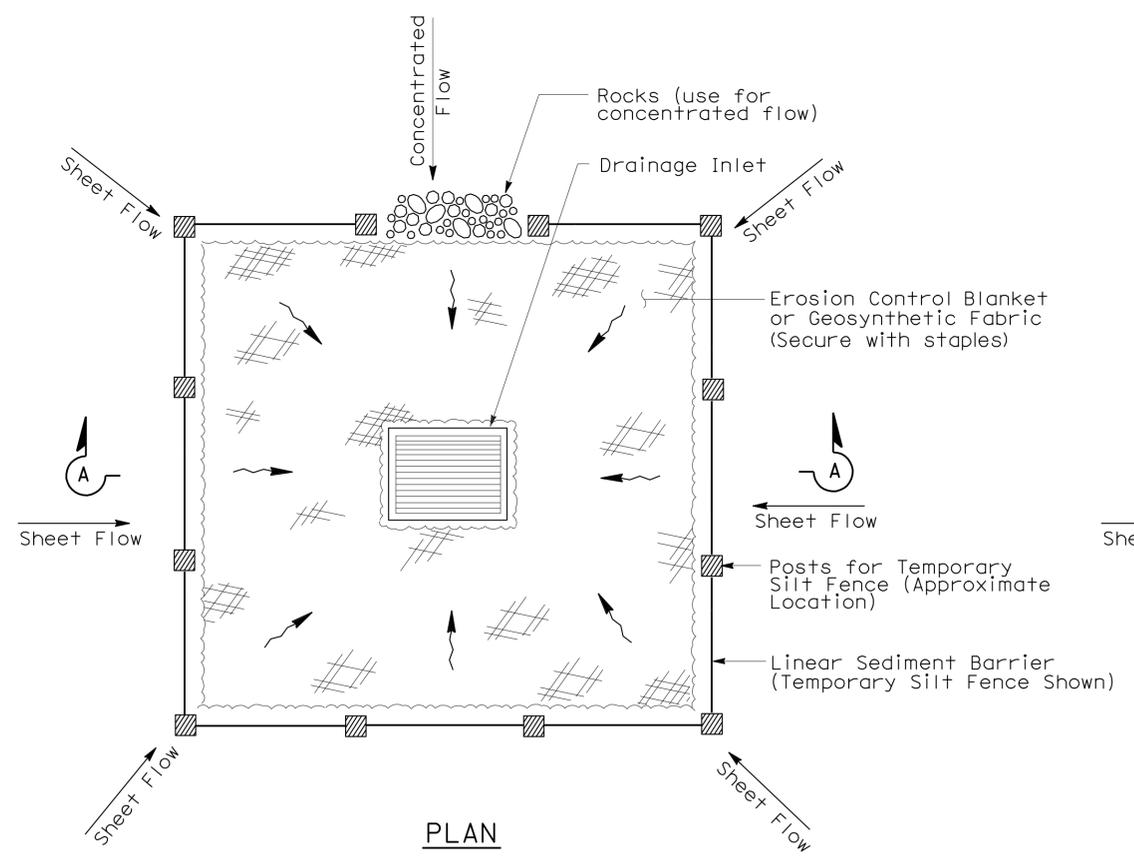
- NOTES:**
- See Standard Plan T51 for Temporary Silt Fence.
  - Dimensions may vary to fit field conditions.



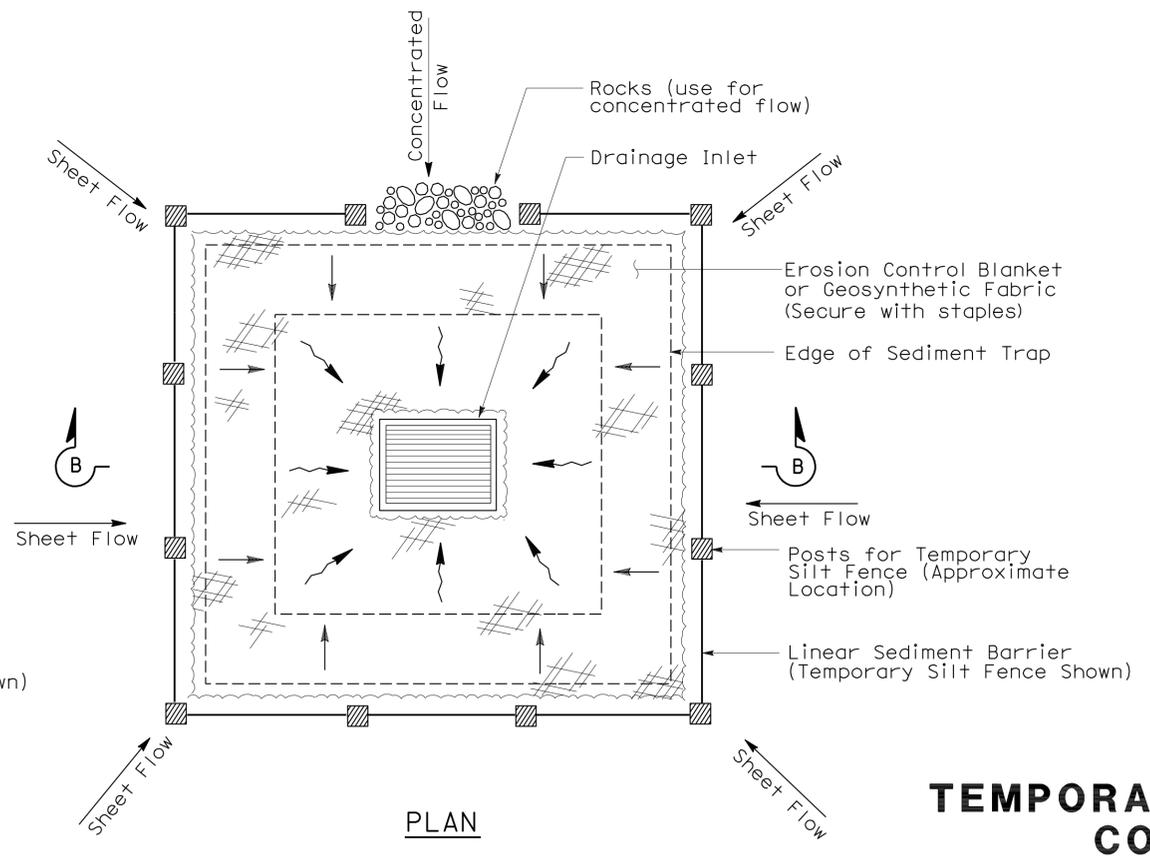
SECTION A-A



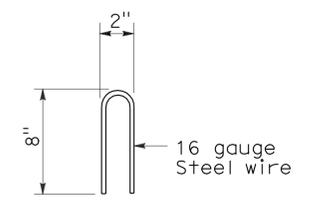
SECTION B-B



TEMPORARY DRAINAGE INLET PROTECTION (TYPE 1)



TEMPORARY DRAINAGE INLET PROTECTION (TYPE 2) (EXCAVATED SEDIMENT TRAP)



STAPLE DETAIL

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**TEMPORARY WATER POLLUTION CONTROL DETAILS**  
**(TEMPORARY DRAINAGE INLET PROTECTION)**  
 NO SCALE

NSP T61 DATED AUGUST 15, 2008 SUPPLEMENTS THE STANDARD PLANS BOOK DATED MAY 2006.

2006 NEW STANDARD PLAN NSP T61

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
10	Tuo	120	R44.8	35	52

*Robert B. Schott*  
 LICENSED LANDSCAPE ARCHITECT  
 August 15, 2008  
 PLANS APPROVAL DATE  
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.

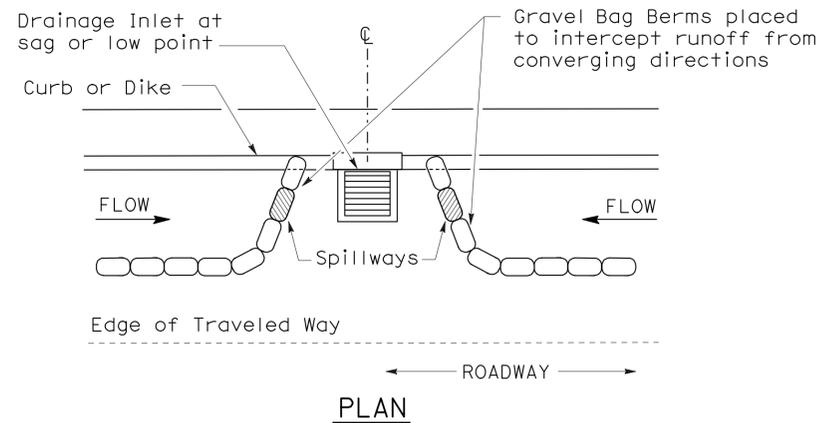
To accompany plans dated 3-5-12

2006 NEW STANDARD PLAN NSP T62

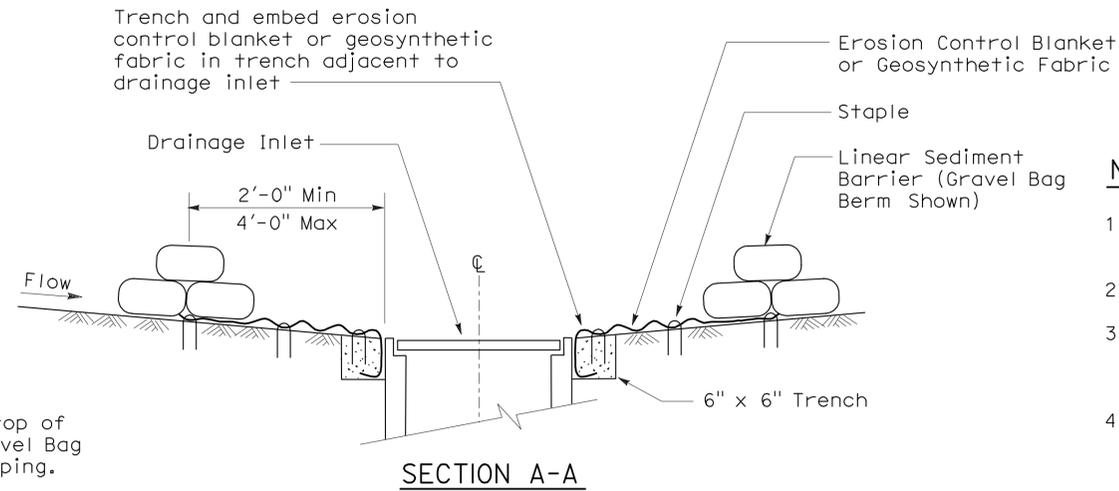
**GRAVEL BAG BERM (TYPE 3A) SPACING TABLE**

SLOPE OF ROADWAY (PERCENT)	1 to 3.9	4 to 5.9	6 to 7.9	8 to 10	10+
INTERVAL BETWEEN BERM	100'	75'	50'	25'	12'

For slope of less than 1%, install barriers only if erosion/sediment is prevalent



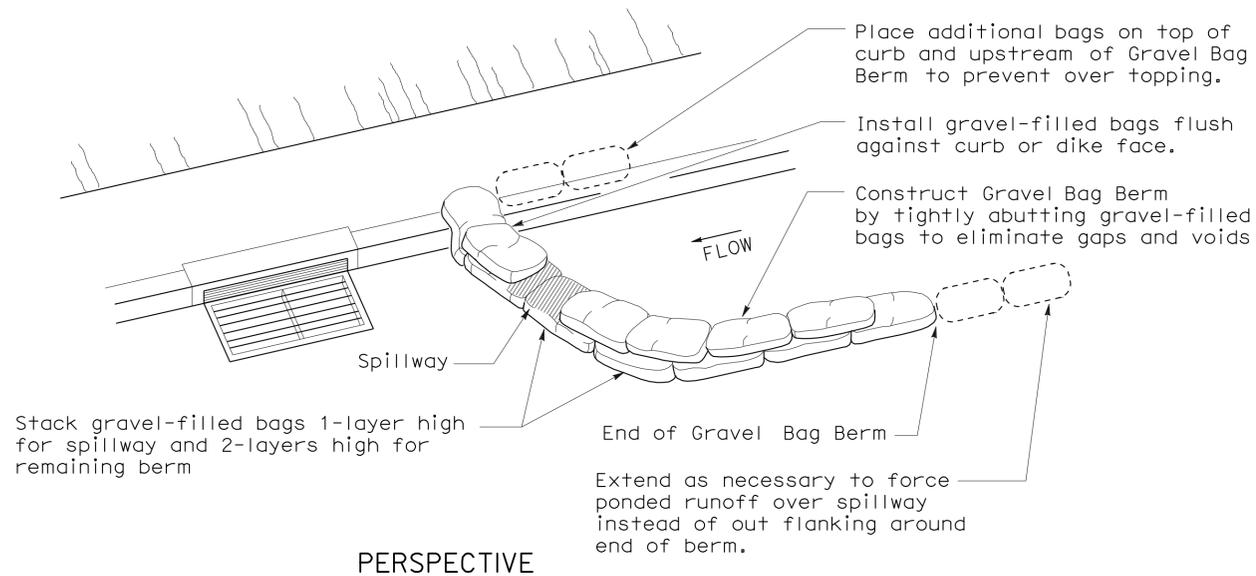
**PLAN**  
**CONFIGURATION FOR SAG POINT INLET**  
**(GRAVEL BAG BERM)**



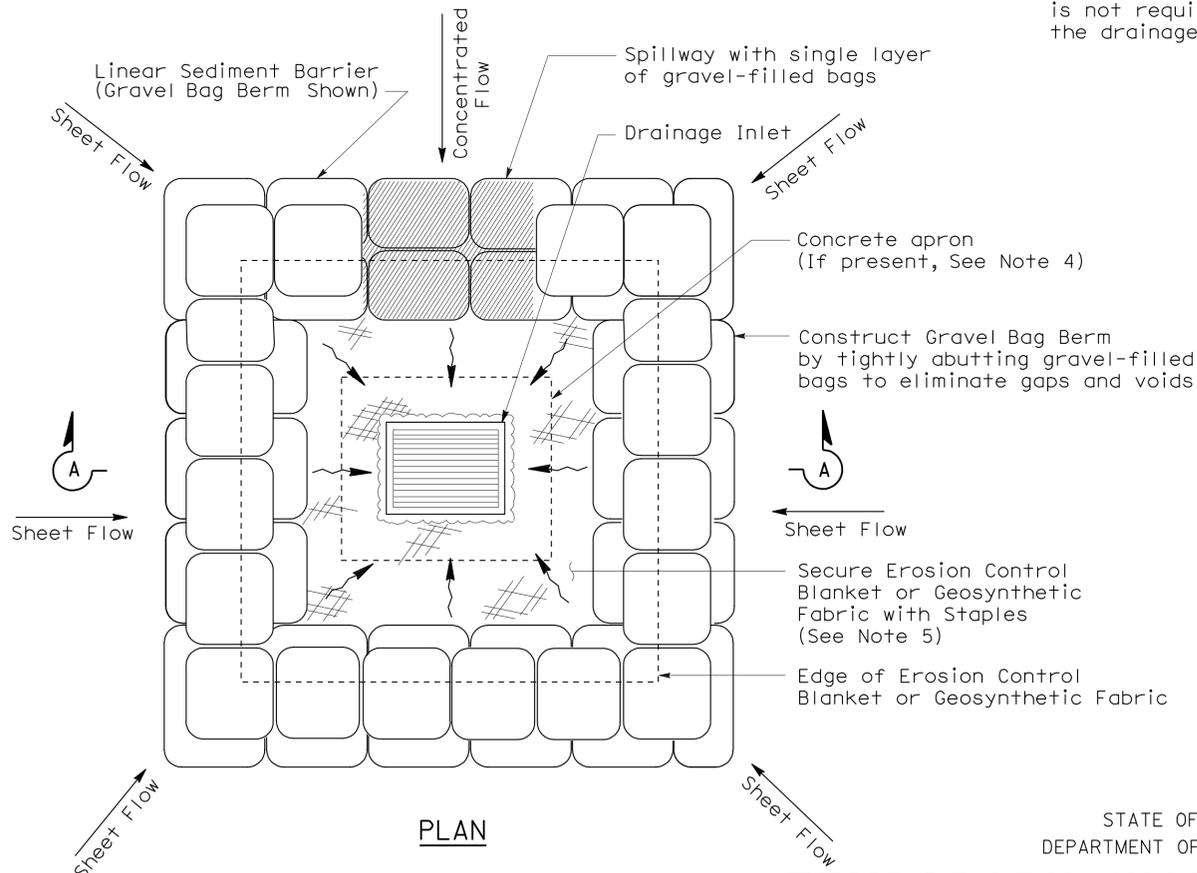
**SECTION A-A**

**NOTES:**

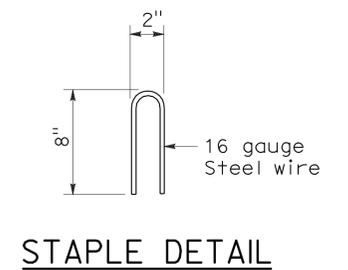
1. Place safety cones adjacent to drainage inlet protection.
2. Dimensions may vary to fit field conditions.
3. Install a minimum of 3 gravel bag berms upstream of each drainage inlet to be protected.
4. Position erosion control blanket or geosynthetic fabric at edge of concrete apron and secure in trench.
5. Erosion control blanket or geosynthetic fabric is not required if the area adjacent to the drainage inlet is vegetated or paved.



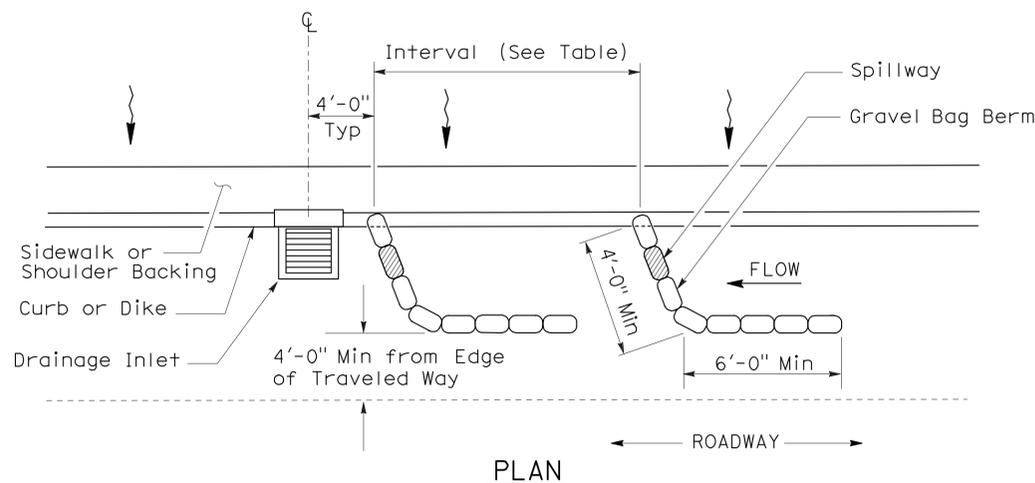
**PERSPECTIVE**



**PLAN**  
**TEMPORARY DRAINAGE**  
**INLET PROTECTION (TYPE 3B)**



**STAPLE DETAIL**



**PLAN**  
**TEMPORARY DRAINAGE**  
**INLET PROTECTION (TYPE 3A)**  
**(GRAVEL BAG BERM)**

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**TEMPORARY WATER POLLUTION CONTROL DETAILS**  
**(TEMPORARY DRAINAGE INLET PROTECTION)**

NO SCALE  
 NSP T62 DATED AUGUST 15, 2008 SUPPLEMENTS  
 THE STANDARD PLANS BOOK DATED MAY 2006.

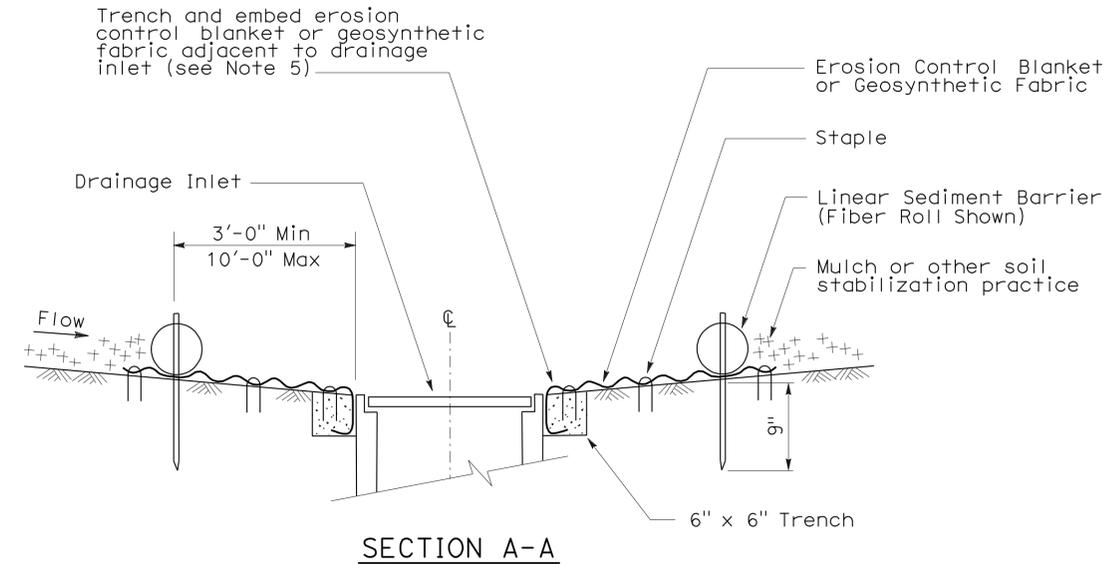
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
10	Tuo	120	R44.8	36	52

Robert B. Schott  
 LICENSED LANDSCAPE ARCHITECT  
 August 15, 2008  
 PLANS APPROVAL DATE  
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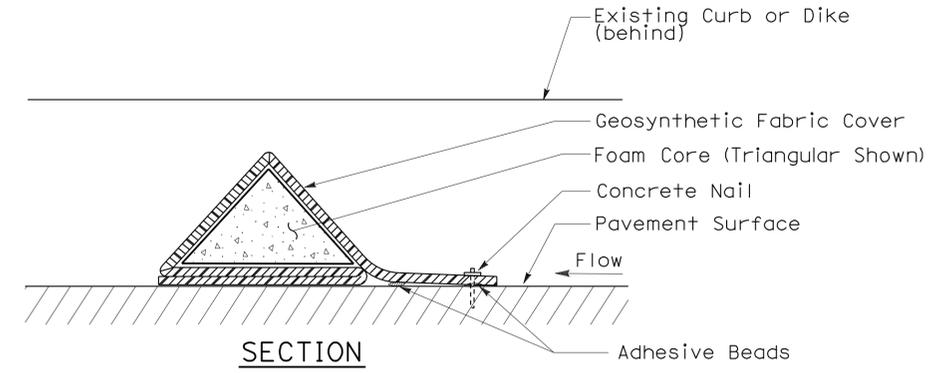
To accompany plans dated 3-5-12

**FLEXIBLE SEDIMENT BARRIER SPACING TABLE**

SLOPE OF ROADWAY (PERCENT)	0 to 0.9	1 to 1.9	2 to 2.9	3 to 4	5+
INTERVAL BETWEEN BARRIERS	50'	35'	30'	25'	20'
ANGLE FROM FACE OF CURB	70°	70°	70°	45°	45°
SUGGESTED BARRIER LENGTH	6'	6'	6'	6'	6'



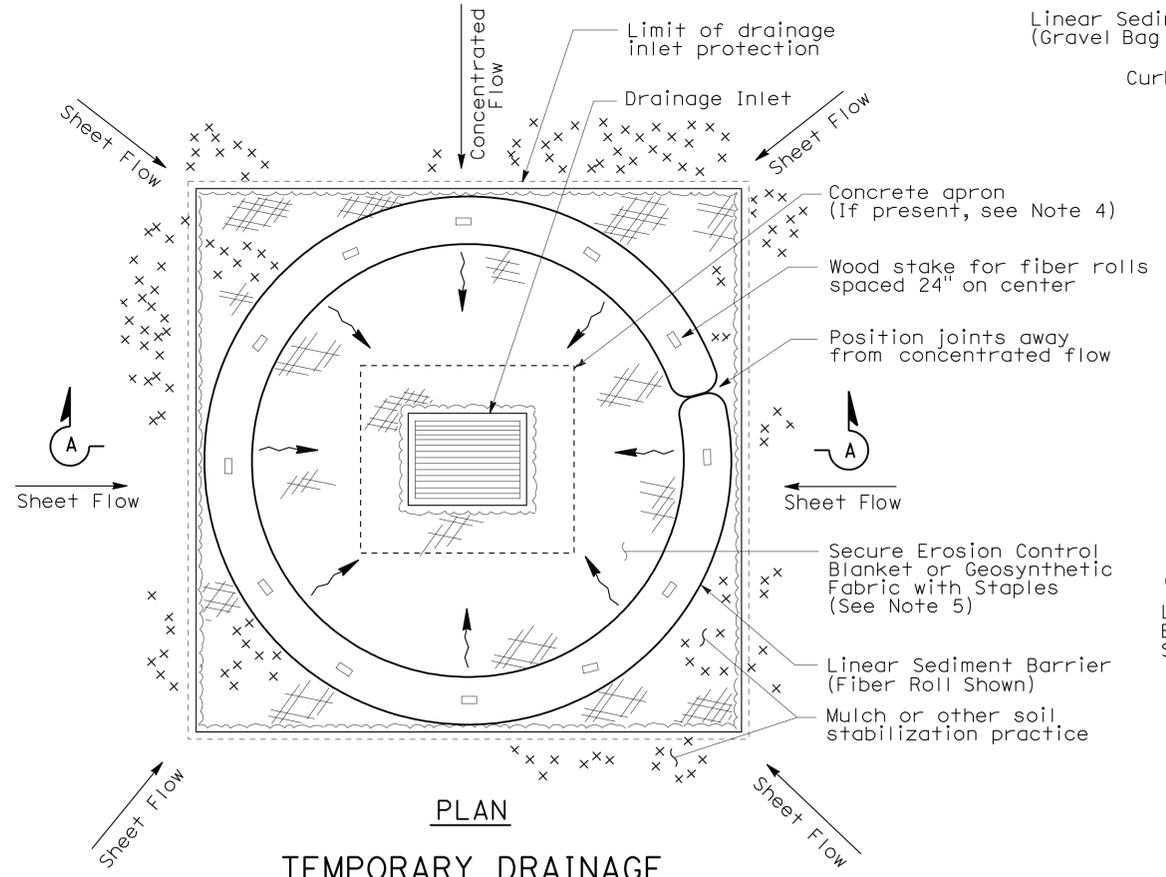
**SECTION A-A**



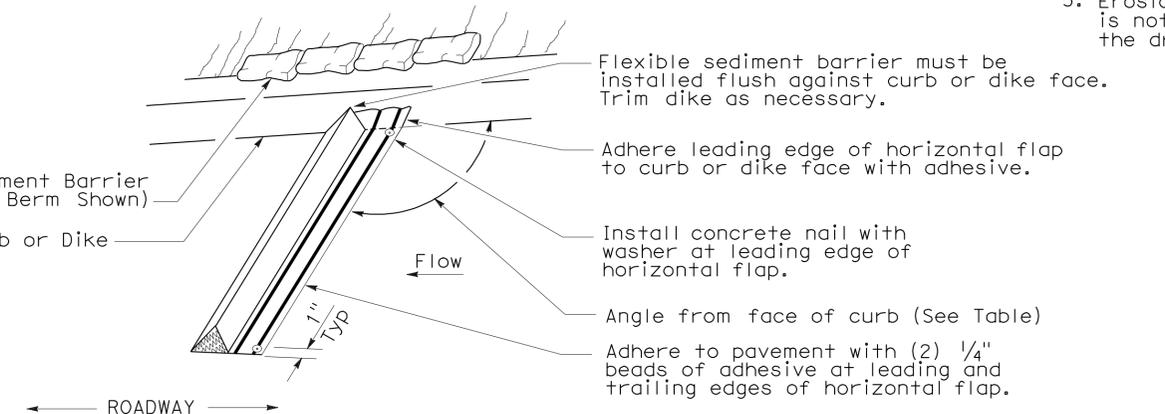
**FLEXIBLE SEDIMENT BARRIER DETAIL (FOAM BARRIER SHOWN)**

**NOTES:**

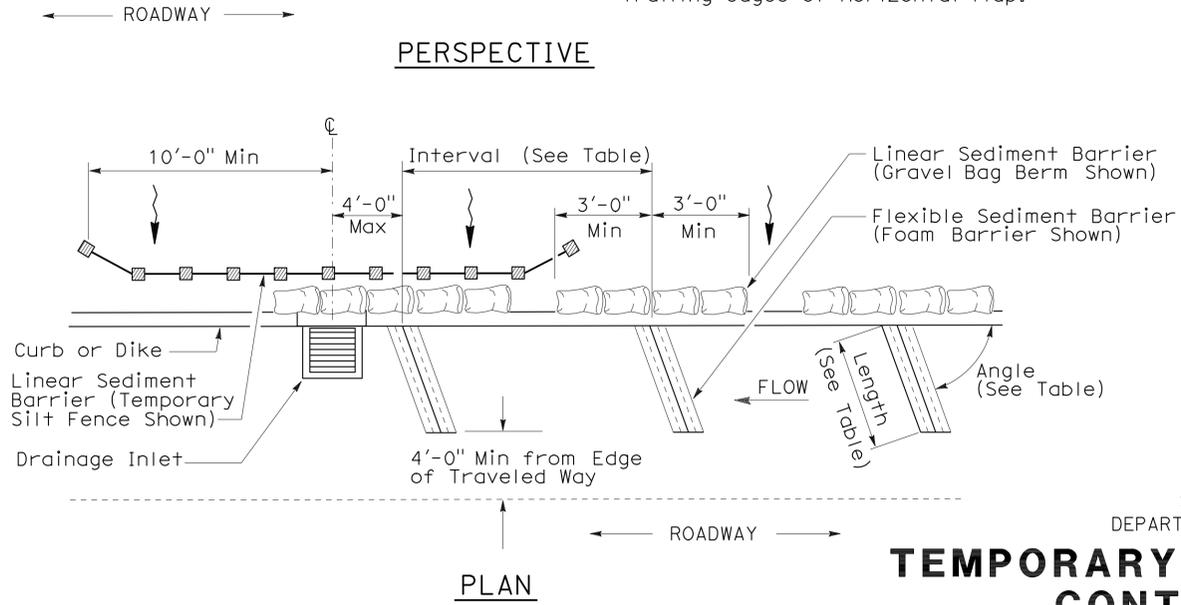
- See Standard Plan T51 for Temporary Silt Fence.
- Dimensions may vary to fit field conditions.
- Install a minimum of 3 flexible sediment barriers upstream of each drainage inlet to be protected.
- Position erosion control blanket or geosynthetic fabric at edge of concrete apron and secure in trench.
- Erosion control blanket or geosynthetic fabric is not required if the area adjacent to the drainage inlet is vegetated.



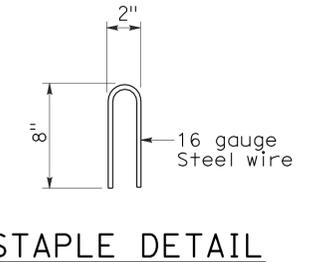
**TEMPORARY DRAINAGE INLET PROTECTION (TYPE 4A)**



**PERSPECTIVE**



**TEMPORARY DRAINAGE INLET PROTECTION (TYPE 4B) FLEXIBLE SEDIMENT BARRIER**



**STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION**  
**TEMPORARY WATER POLLUTION CONTROL DETAILS (TEMPORARY DRAINAGE INLET PROTECTION)**

NO SCALE  
 NSP T63 DATED AUGUST 15, 2008 SUPPLEMENTS THE STANDARD PLANS BOOK DATED MAY 2006.

2006 NEW STANDARD PLAN NSP T63

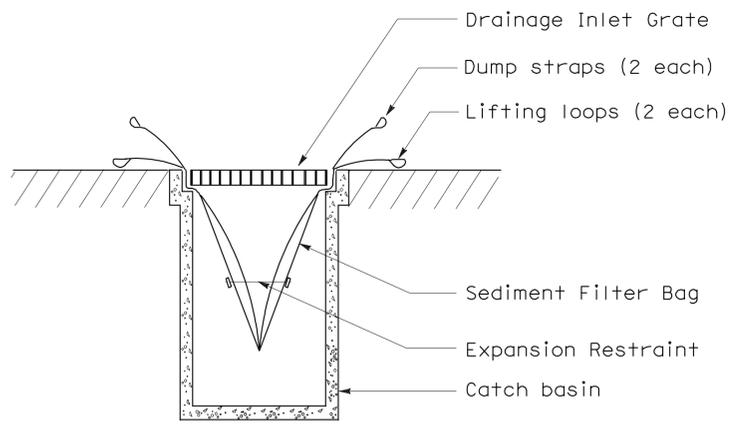
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
10	Tuo	120	R44.8	37	52

*Robert B. Schott*  
 LICENSED LANDSCAPE ARCHITECT

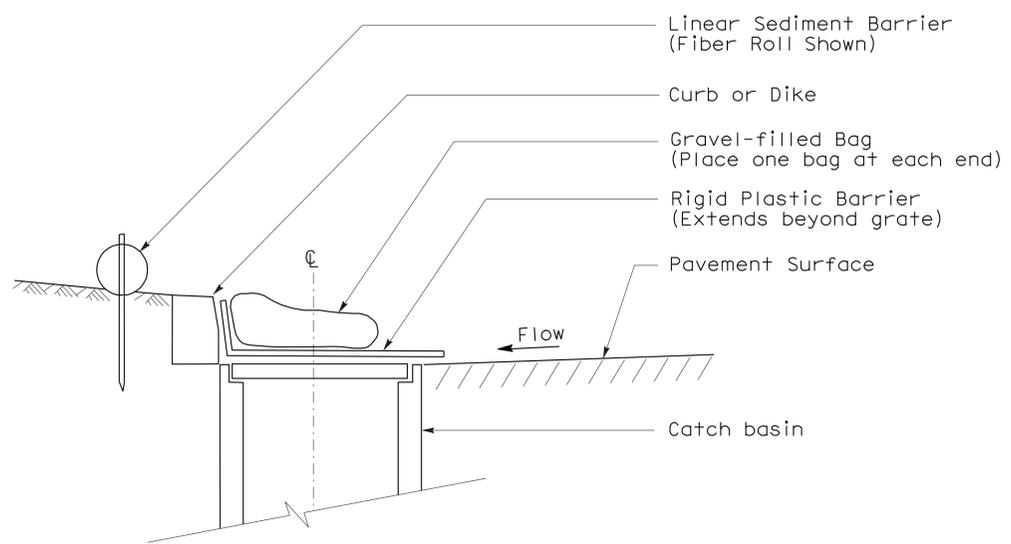
August 15, 2008  
 PLANS APPROVAL DATE

*Robert B. Schott*  
 LICENSED LANDSCAPE ARCHITECT  
 Signature  
 11-04-08  
 Renewal Date  
 08-11-08  
 Date

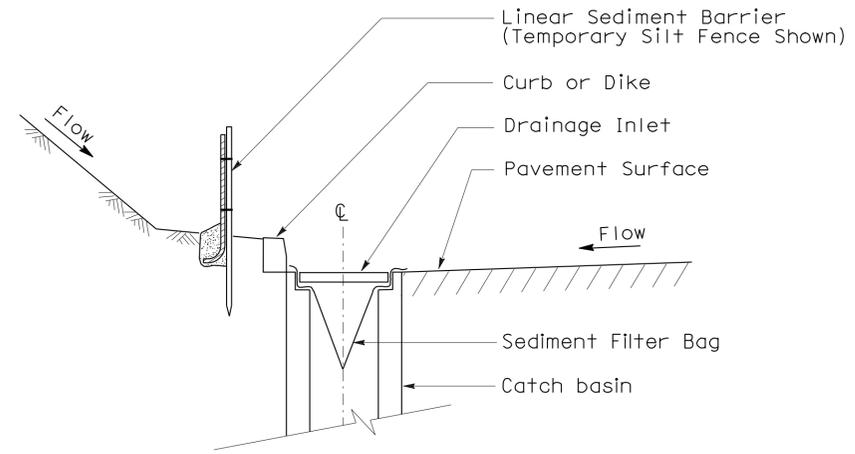
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.



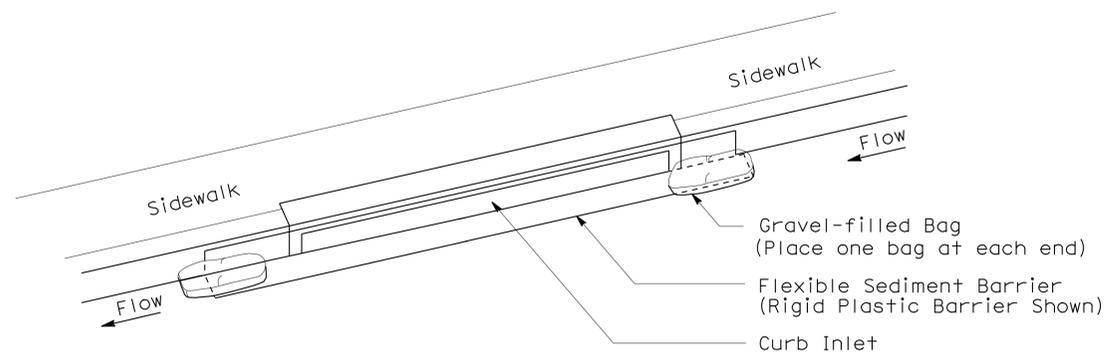
SECTION B-B  
SEDIMENT FILTER BAG DETAIL



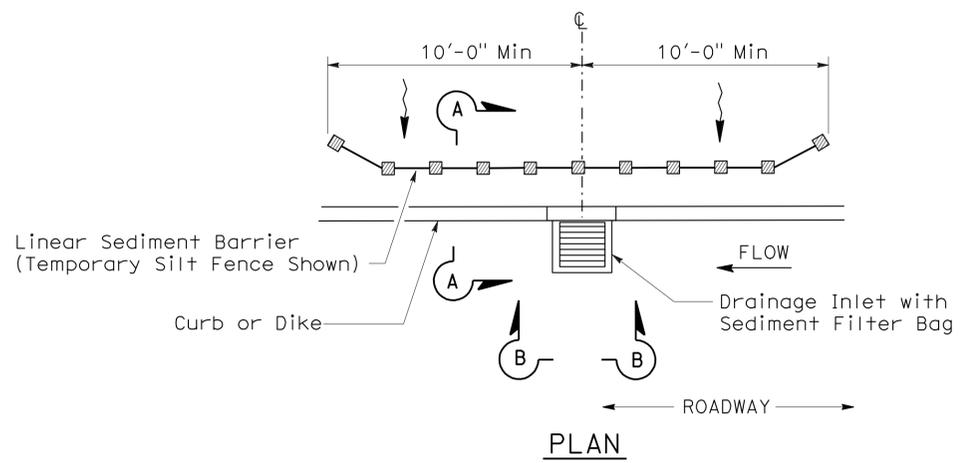
SECTION  
TEMPORARY DRAINAGE  
INLET PROTECTION (TYPE 6A)  
(CATCH BASIN WITH GRATE)



SECTION A-A



PERSPECTIVE  
TEMPORARY DRAINAGE  
INLET PROTECTION (TYPE 6B)  
(CURB INLET WITHOUT GRATE)



PLAN  
TEMPORARY DRAINAGE  
INLET PROTECTION (TYPE 5)  
(SEDIMENT FILTER BAG)

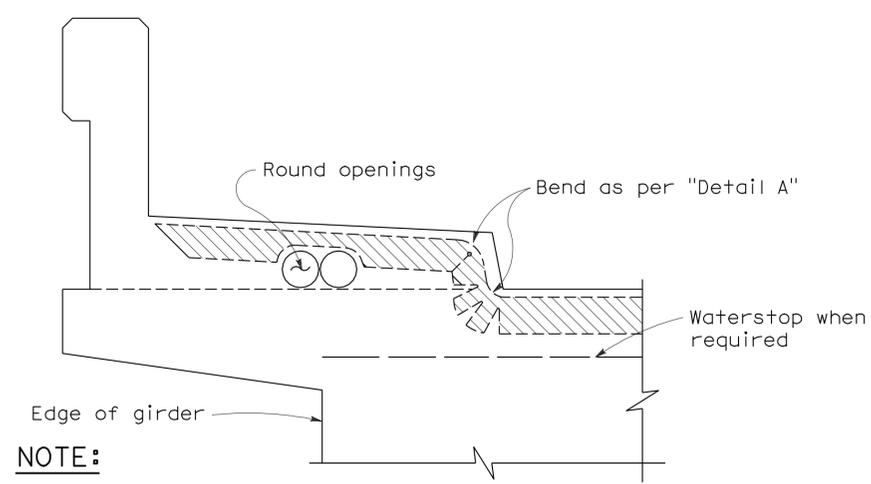
- NOTES:**
1. See Standard Plan T51 for Temporary Silt Fence.
  2. Dimensions may vary to fit field conditions.

To accompany plans dated 3-5-12

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

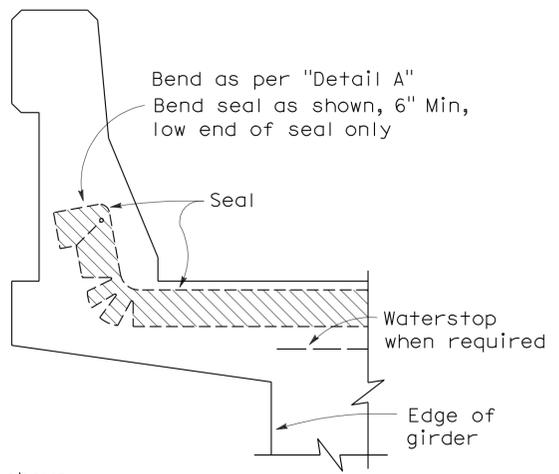
**TEMPORARY WATER POLLUTION  
CONTROL DETAILS  
(TEMPORARY DRAINAGE  
INLET PROTECTION)**

NO SCALE  
NSP T64 DATED AUGUST 15, 2008 SUPPLEMENTS  
THE STANDARD PLANS BOOK DATED MAY 2006.

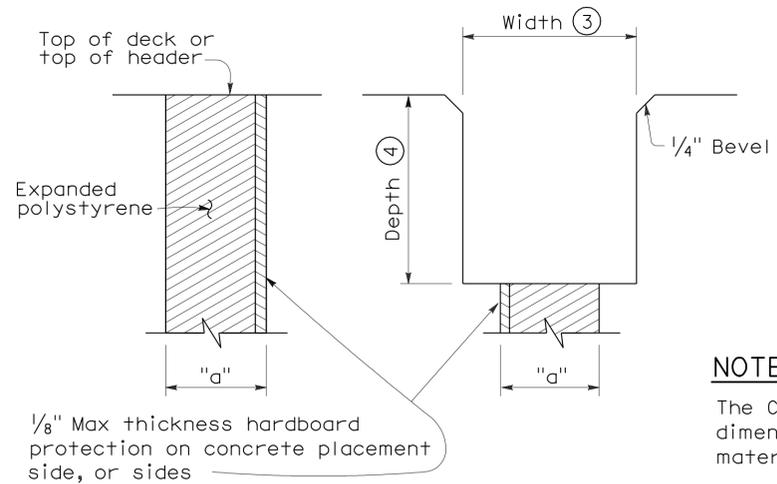


**NOTE:**  
 Type "B" seal shown. Type "A" seals to conform to the general path of seal shown, cuts for bending not required. Bend Type "A" seals 3" up into curb or barrier rail on only the low end of the seal.

**CONCRETE BARRIER AND SIDEWALK**



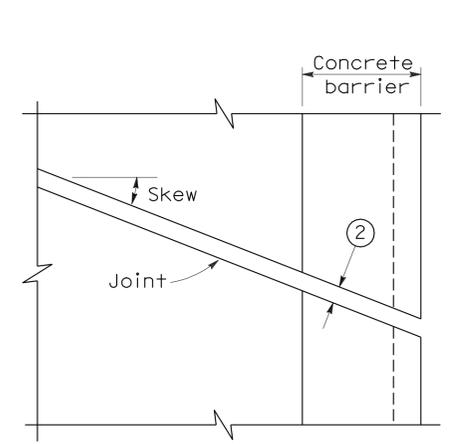
**CONCRETE BARRIER**



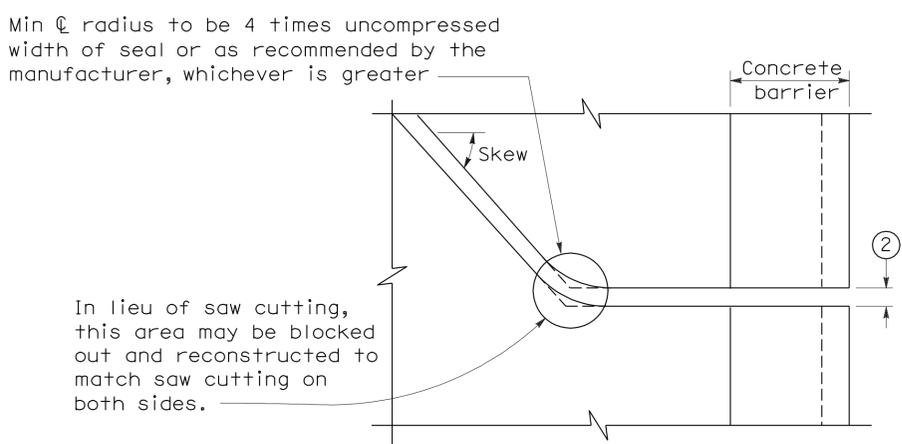
**FORMING DETAIL SAWCUT DETAIL**

**NOTE:**  
 The Contractor shall verify all controlling field dimensions before ordering or fabricating any material.

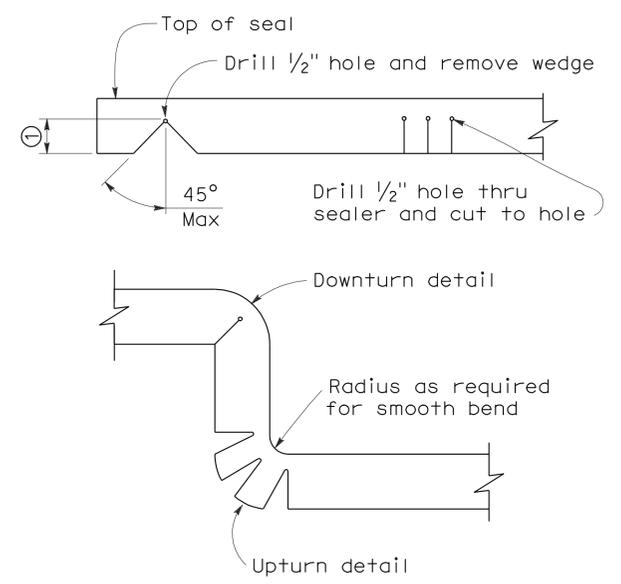
**JOINT SEALS DETAILS**



**PLAN OF JOINT (SKEW  $\leq 20^\circ$ )**



**PLAN OF JOINT (SKEW  $> 20^\circ$ )**



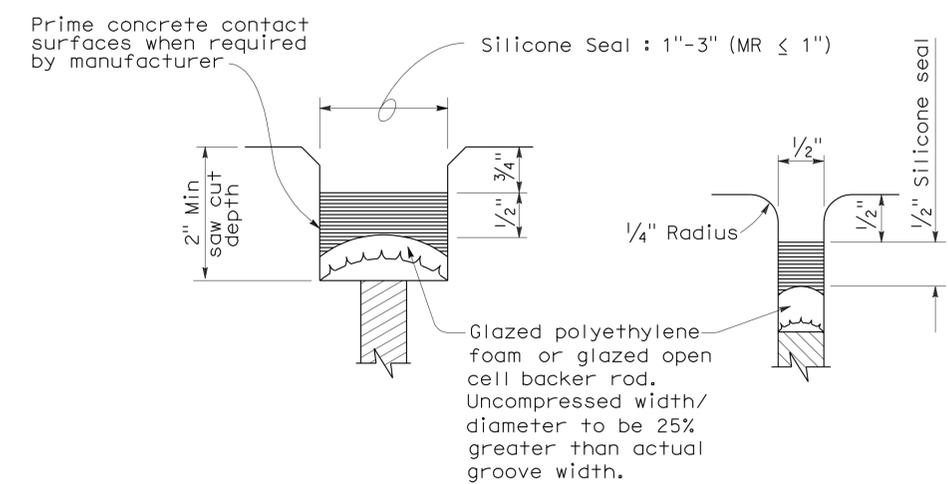
**DETAIL A**

- NOTES:**
- Make smooth cuts from the bottom of seal to 1 1/2" clear of top leaving at least one complete cell between the top of the cut and top of the seal. When necessary cut back of seal to clear conduit and round openings.
  - Opening in barrier to match width of sawn deck joint.
  - Sawcut groove widths shall be as ordered by the Engineer.
  - Depth of sawcut: Type A - Depth to be 2" minimum.  
 Type B - Depth to be equal to or greater than the depth of seal measured along the contact surface, when compressed to minimum width position (W<sub>2</sub>) plus dimensions shown.
  - MR (movement rating) as shown on other plan sheets.
  - Other depths must be approved by the Engineer.

**DIMENSIONS "a" OF JOINT REQUIRED**

Movement Rating (MR) (5)	Bridge Type	"a" Dimension		
		Deck Concrete Placed		
		Winter	Fall-Spring	Summer
2"	All except CIP/PS	1 1/2"	1 1/4"	3/4"
	CIP/PS	1 1/4"	1"	1/2"
1 1/2"	All except CIP/PS	1 1/4"	1"	1/2"
	CIP/PS	1"	3/4"	1/2"
1"	All except CIP/PS	1"	3/4"	1/2"
	CIP/PS	3/4"	1/2"	1/2"
1/2"	All except CIP/PS	3/4"	3/4"	1/2"
	CIP/PS	1/2"	1/2"	1/2"

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**JOINT SEALS**  
**(MAXIMUM MOVEMENT RATING = 2")**  
 NO SCALE

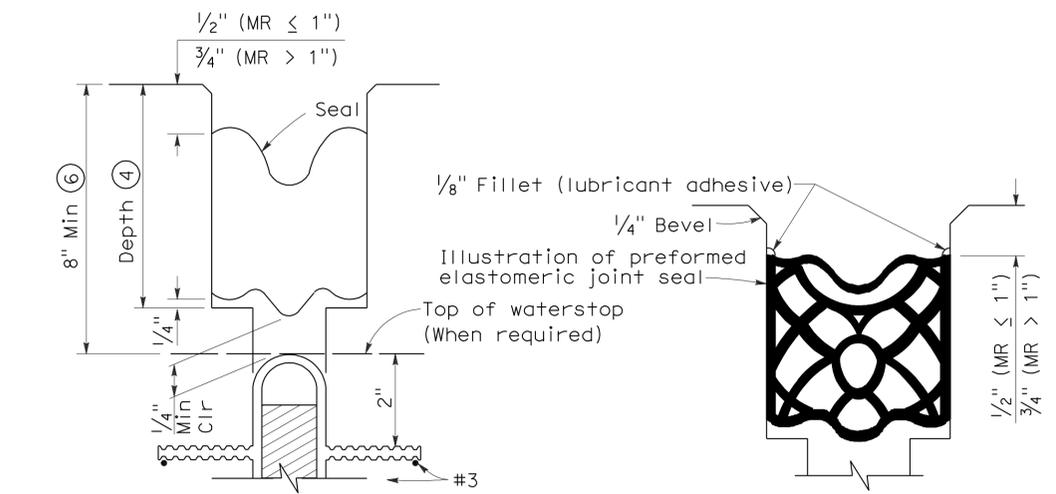


**TYPE A SEAL**

Movement rating : Silicone = 1" Max

**TYPE AL SEAL**

Longitudinal joints only



**TYPE B JOINT SEAL IN MINIMUM WIDTH POSITION (W<sub>2</sub>)**

**TYPE B SEAL**

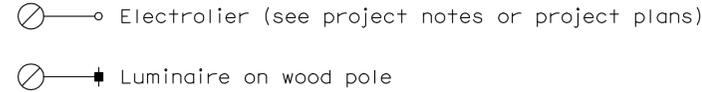
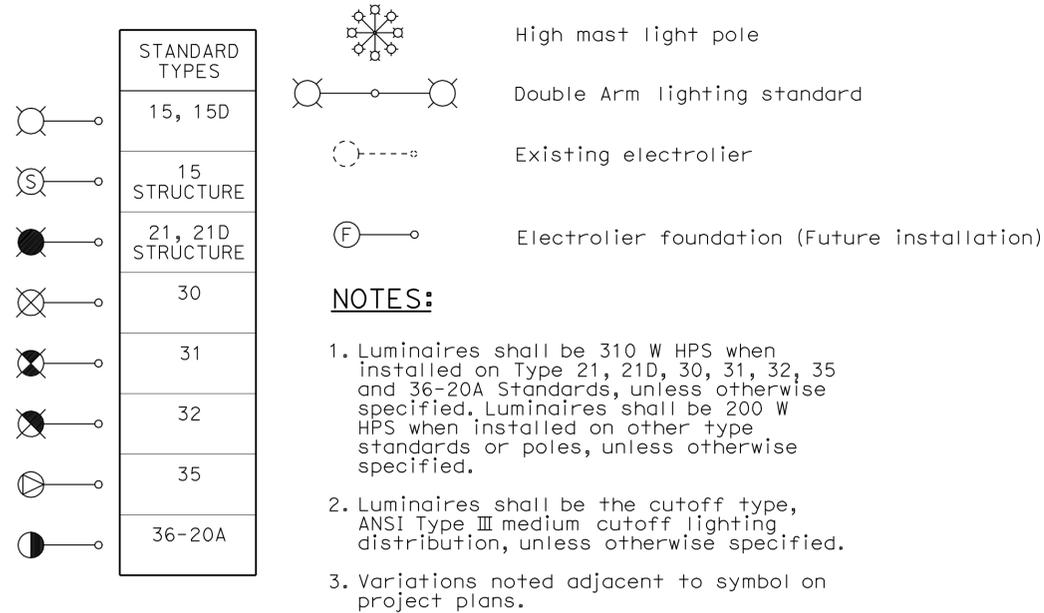
Movement Rating  $\leq 2''$

RSP B6-21 DATED OCTOBER 5, 2007 SUPERSEDES STANDARD PLAN B6-21 DATED MAY 1, 2006 - PAGE 258 OF THE STANDARD PLANS BOOK DATED MAY 2006.

**REVISED STANDARD PLAN RSP B6-21**

2006 REVISED STANDARD PLAN RSP B6-21

# ELECTROLIERS



## STANDARD NOTES:

- AB** Abandon. If applied to conduit, remove conductors.
- BC** Install pull box in existing conduit run.
- BP** Pedestrian barricade, type as indicated on plan.
- CB** Install conduit into existing pull box.
- CC** Connect new and existing conduit. Remove existing conductors and install conductors as indicated.
- CF** Conduit to remain for future use. Remove conductors. Install pull wire or rope.
- DH** Detector handhole.
- FA** Foundation to be abandoned.
- IS** Install sign on signal mast arm.
- NS** No slip base on standard.
- PEC** Photoelectric control.
- PEU** Photoelectric unit.
- RC** Equipment or material to be removed and become the property of the Contractor.
- RE** Remove electrolier, fuses and ballast. Tape ends of conductors.
- RL** Relocate equipment.
- RR** Remove and reuse equipment.
- RS** Remove and salvage equipment.
- SC** Splice new to existing conductors.
- SD** Service disconnect.
- SF** Standard to remain for future use. Remove luminaire, pole conductors, fuses and ballast.
- TSP** Telephone service point.

# ABBREVIATIONS AND EQUIPMENT DESIGNATIONS

## PROPOSED EXISTING

BBS	bbs	Battery backup system
BC	bc	Bolt circle
C	C	Conduit
CCTV	cctv	Closed circuit television
CKT	ckt	Circuit
CMS	cms	Changeable message sign
DLC	dlc	Loop detector lead-in cable
EMS	ems	Extinguishable message sign
EVC	evc	Emergency vehicle cable
EVD	evd	Emergency vehicle detector
FB	fb	Flashing beacon
FBCA	fbca	Flashing beacon control assembly
FBS	fbs	Flashing beacon with slip base
FO	fo	Fiber optic
G	G	Ground (Equipment Grounding Conductor)
GFCI	GFCI	Ground fault circuit interrupt
HAR	har	Highway advisory radio
HEX	hex	Hexagonal
HPS	hps	High pressure sodium
IISNS	iisns	Internally illuminated street name sign
ISL	isl	Induction sign lighting
LED	led	Light emitting diode
LMA	lma	Luminaire mast arm
LPS	lps	Low pressure sodium
LTG	ltg	Lighting
LUM	lum	Luminaire
MAT	mat	Mast arm mounting vehicle signal faces, top attachment
MAS	mas	Mast arm mounting vehicle signal faces, side attachment
MAS-4A	mas-4A	Mast arm mounting vehicle signal faces, top attachment - 4 signal section
MAS-4B	mas-4B	Mast arm mounting vehicle signal faces, side attachment - 4 signal section
MAS-4C	mas-4C	Mast arm mounting vehicle signal faces, side attachment - 4 signal section
MAS-5A	mas-5A	Mast arm mounting vehicle signal faces, top attachment - 5 signal section
MAS-5B	mas-5B	Mast arm mounting vehicle signal faces, side attachment - 5 signal section
MC	mc	Mercury contactor
M/M	m/m	Multiple to multiple transformer
MT	mt	Conduit with pull wire or rope only
MTG	mtg	Mounting
	mv	Mercury vapor lighting fixture
N	N	Neutral (Grounded Conductor)
NC	NC	Normally closed
NO	NO	Normally open
PB	pb	Pull box
PEC	pec	Photoelectric control (Type I, II, III, IV or V as shown)
PED	ped	Pedestrian
PEU	peu	Photoelectric unit
PPB	ppb	Pedestrian push button
RL	rl	Relocated equipment
RM	rm	Ramp metering
SB	sb	Slip base
SIC	sic	Signal interconnect cable
SIG	sig	Signal
SMA	sma	Signal mast arm
SNS	sns	Street name sign
SP	sp	Service point
TDC	tdc	Telephone demarcation cabinet
TMS	tms	Traffic monitoring station
TOS	tos	Traffic Operations System
VEH	veh	Vehicle
XFMR	xfmr	Transformer
COMM	comm	Communication
RWIS	rwis	Roadway weather information system

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
10	Tuo	120	R44.8	39	52

*Jeffery G. McRae*  
REGISTERED ELECTRICAL ENGINEER

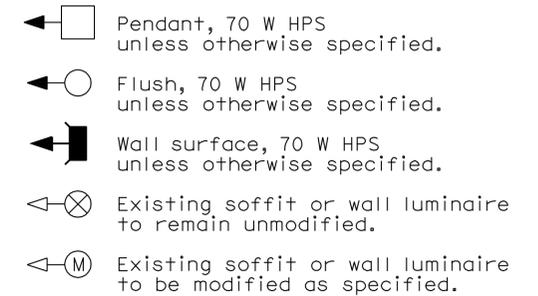
October 5, 2007  
PLANS APPROVAL DATE

Jeffery G. McRae  
No. E14512  
Exp. 6-30-08  
ELECTRICAL  
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.

To accompany plans dated 3-5-12

## SOFFIT AND WALL MOUNTED LUMINAIRES



### NOTE:

Arrow indicates "street side" of luminaire.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

## ELECTRICAL SYSTEMS (SYMBOLS AND ABBREVIATIONS)

NO SCALE

RSP ES-1A DATED OCTOBER 5, 2007 SUPERSEDES STANDARD PLAN ES-1A DATED MAY 1, 2006 - PAGE 400 OF THE STANDARD PLANS BOOK DATED MAY 2006.

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

2006 REVISED STANDARD PLAN RSP ES-1A

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
10	Tuo	120	R44.8	40	52

*Jeffery G. McRae*  
 REGISTERED ELECTRICAL ENGINEER  
 October 5, 2007  
 PLANS APPROVAL DATE  
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REGISTERED PROFESSIONAL ENGINEER  
 Jeffrey G. McRae  
 No. E14512  
 Exp. 6-30-08  
 ELECTRICAL  
 STATE OF CALIFORNIA

To accompany plans dated 3-5-12

### CONDUIT

PROPOSED	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 in/on structure or service pole

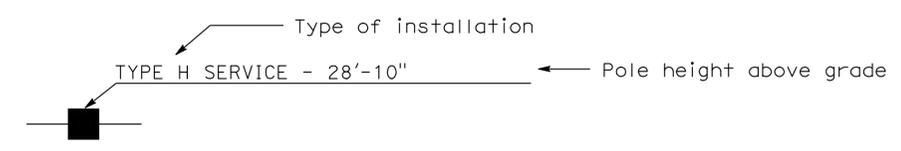
### SIGNAL EQUIPMENT

PROPOSED	EXISTING	
		Pedestrian signal face
		Pedestrian push button post
		Pedestrian barricade
		Vehicle signal face (with backplate, 3-Section: red, yellow and green)
		Vehicle signal face with angle visors
		Modifications of basic symbols: "L" indicates all non-arrow sections louvered "LG" indicates louvered green section only "PV" indicates 12" programmed visibility sections "8" indicates all 8" sections (only when specified)
		Type 15TS and Vehicle signal face
		Vehicle signal face with red, yellow and green left arrow sections
		Vehicle signal face with red and yellow sections and up green arrow
		Vehicle signal face (5 Section) with red, yellow and green sections and yellow and green right arrows
		Type 1 Standard and attached vehicle signal faces
		Standard with signal mast arm only and attached vehicle signal faces and internally illuminated street name sign
		Type 33 Standard, Left-turn vehicle signal face and sign
		Standard with luminaire and signal mast arms and attached vehicle signal faces
		Cantilever flashing beacon Type 9 Frame, with a sign unless otherwise specified or indicated
		Type 15-FBS Standard with two vehicle signal face sections with lens, backplate and visor with a sign
		Flashing beacon. One vehicle signal face section with lens, backplate and visor. "R" indicates red indication, "Y" indicates yellow indication
		Controller assembly. Door indicates front of cabinet

### SERVICE EQUIPMENT

PROPOSED	EXISTING	
		Overhead lines
		Wood pole "U" indicates utility owned
		Pole guy with anchor
		Utility transformer - ground mounted
		Service equipment enclosure type
		Service equipment enclosure door indicates front of enclosure
		Telephone demarcation cabinet

### POLE-MOUNTED SERVICE DESIGNATION



### ILLUMINATED OVERHEAD SIGN

PROPOSED	EXISTING	
		Overhead sign - Single post
		Overhead sign - Two post
		Overhead sign - Mounted on structure
		Overhead sign with electrolier

### SIGNAL EQUIPMENT Cont

PROPOSED	EXISTING	
		Guard post
		Type 1 Standard with "Meter On" sign
		Emergency Vehicle detector

### NOTES:

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

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

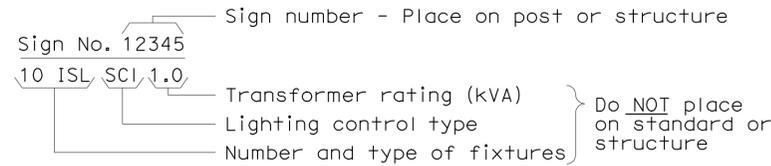
RSP ES-1B DATED OCTOBER 5, 2007 SUPERCEDES STANDARD PLAN ES-1B  
 DATED MAY 1, 2006 - PAGE 401 OF THE STANDARD PLANS BOOK DATED MAY 2006.

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

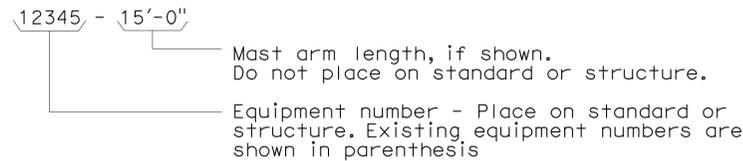
2006 REVISED STANDARD PLAN RSP ES-1B

### EQUIPMENT IDENTIFICATION

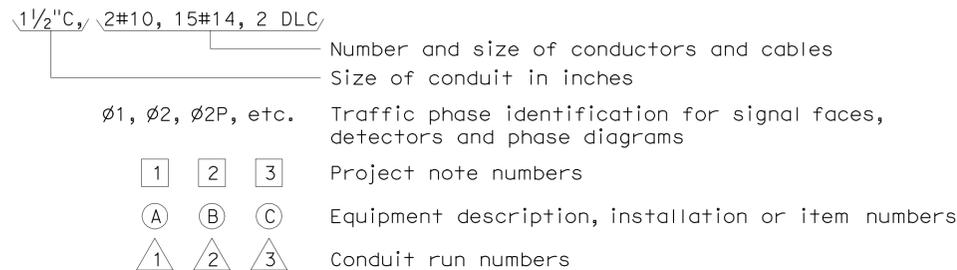
#### ILLUMINATED SIGN IDENTIFICATION NUMBER:



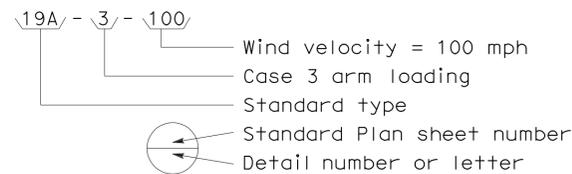
#### ELECTROLIER OR EQUIPMENT IDENTIFICATION NUMBER:



#### CONDUIT AND CONDUCTOR IDENTIFICATION:



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



### MISCELLANEOUS EQUIPMENT

PROPOSED	EXISTING	
CMS	cms	Changeable message sign
		Closed circuit television camera
EMS	ems	Highway advisory radio pole and antenna
		Extinguishable message sign
M V	m v	Detection device M = Microwave sensor V = Video image sensor

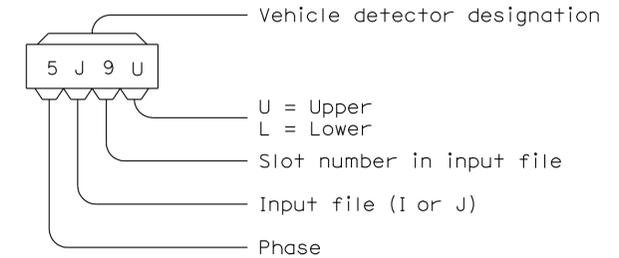
### WIRING DIAGRAM LEGEND

P Pole	---- External conductor
CB Circuit breaker	— Conductor or bus
A Ampere	• Tie point
V Volt	~ Contactor coil
M Metered	— — Contactor, Contact NO
UM Unmetered	⊗ Terminal blocks
NB Neutral bus	— /— Contactor, Contact NC
GB Ground bus	≡ Enclosure bond
G Equipment grounding conductor	⋮ Grounding electrode
N Grounded conductor (Neutral)	⊕ Circuit breaker
	Ⓜ Receptacle

### PULL BOXES

PROPOSED	EXISTING	
		Pull box-No. 5 unless otherwise indicated or noted.
		Pull box-Additional designations or descriptions
3 = No. 3½ pull box		(C) = Communications pull box
5 = No. 5 pull box		(E) = Pull box with extension
6 = No. 6 pull box		(S) = Sprinkler control pull box
7 = No. 7 (Ceiling pull box)		(21) = Anchor bolts and conduit for future installation of Type 21 Standard
8 = No. 8 (Pendant soffit pull box)		(T) = Traffic pull box
9 = No. 9 pull box		
9A = No. 9A pull box		

### VEHICLE DETECTORS



PROPOSED	EXISTING	
		Type A detector loop. Outline of sawcut shown.
		Type B detector loop. Outline of sawcut shown.
		Type C detector loop. Outline of sawcut shown.
		Type D detector loop. Outline of sawcut shown.
		Type E detector loop. Outline of sawcut shown.
		Type Q detector loop. Outline of sawcut shown.
		Magnetic detector
		Detector handhole
		Microwave or video detection zone

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

## ELECTRICAL SYSTEMS (SYMBOLS AND ABBREVIATIONS)

NO SCALE

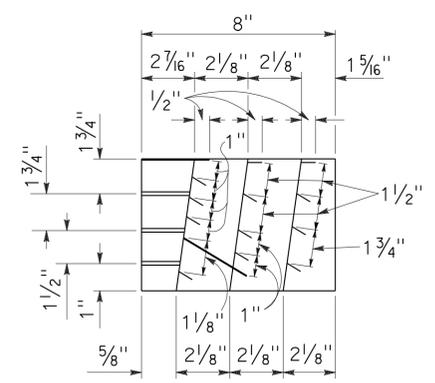
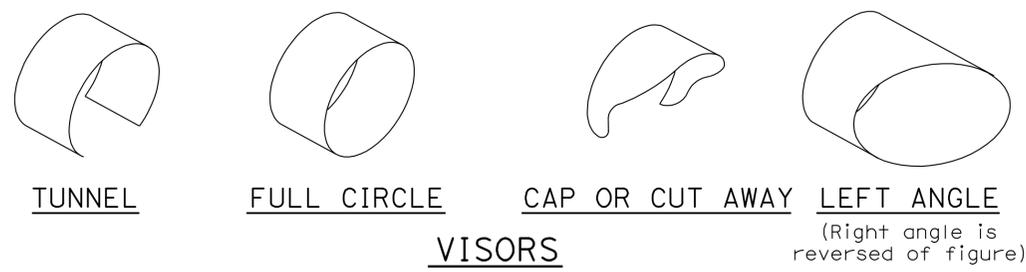
RSP ES-1C DATED OCTOBER 5, 2007 SUPERCEDES STANDARD PLAN ES-1C  
DATED MAY 1, 2006 - PAGE 402 OF THE STANDARD PLANS BOOK DATED MAY 2006.

2006 REVISED STANDARD PLAN RSP ES-1C

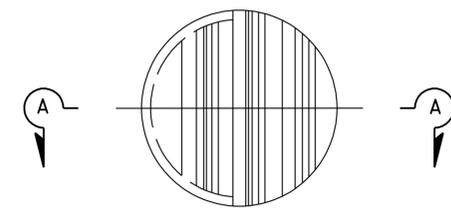
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
10	Tuo	120	R44.8	42	52

Jeffrey G. McRae  
 REGISTERED ELECTRICAL ENGINEER  
 June 6, 2008  
 PLANS APPROVAL DATE  
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 REGISTERED PROFESSIONAL ENGINEER  
 Jeffrey G. McRae  
 No. E14512  
 Exp. 6-30-10  
 ELECTRICAL  
 STATE OF CALIFORNIA

To accompany plans dated 3-5-12



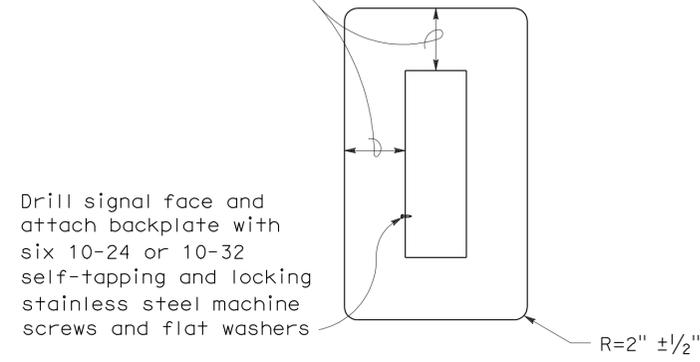
SECTION A-A



FRONT VIEW  
**DIRECTIONAL LOUVER**

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

8" ± 1/2" for 8" sections  
 5 1/2" ± 1/2" for 12" sections

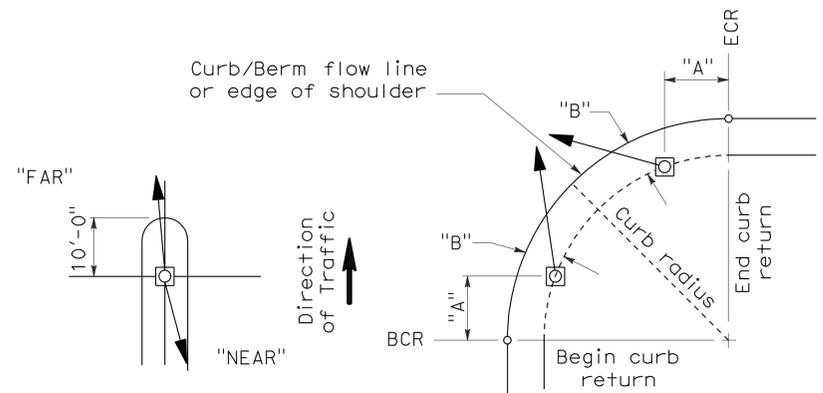


8" AND 12" SECTIONS

**BACKPLATE**

1/16" minimum thickness  
 3001-14 aluminum, or plastic when specified

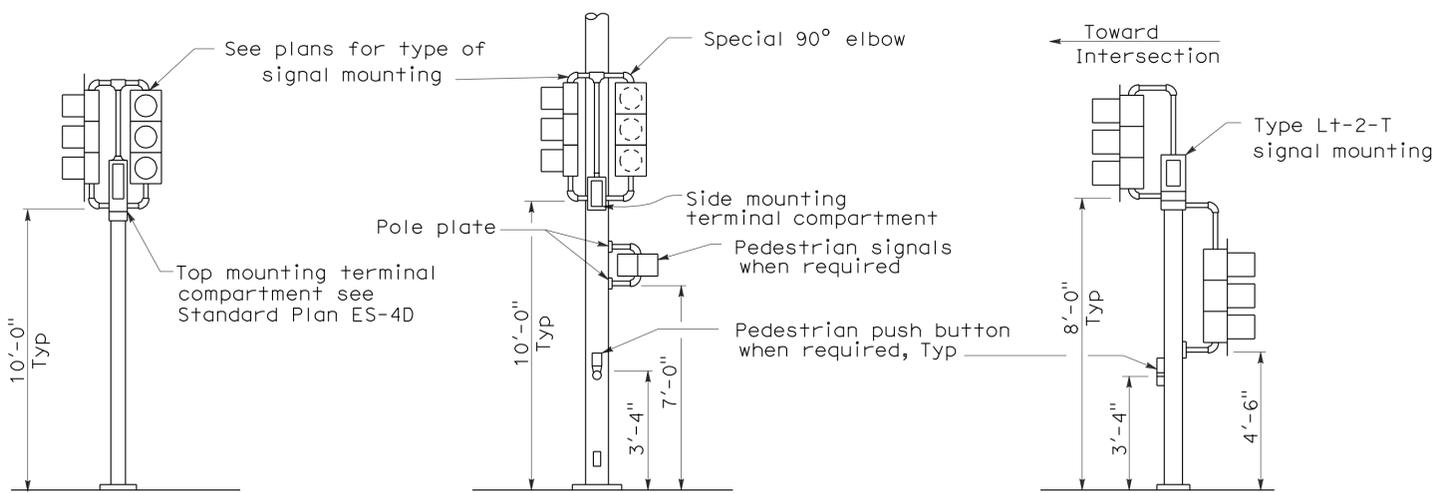
Drill signal face and attach backplate with six 10-24 or 10-32 self-tapping and locking stainless steel machine screws and flat washers



**NOTES:**

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

**SIGNAL STANDARD PLACEMENT DIMENSIONS AND EQUIPMENT LOCATIONS**



**TOP MOUNTED SIGNALS (TV)**

Type 1-A, 1-B, 1-C and 1-D standard as indicated on the plans

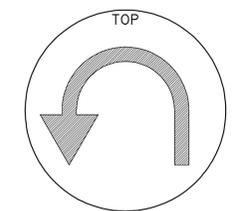
**SIDE MOUNTED SIGNALS (SV AND SP)**

Normally used on standards with luminaire or signal mast arm

**LEFT TURN LANE SIGNAL**

Type 1-A, 1-B, 1-C and 1-D standard as indicated on plans

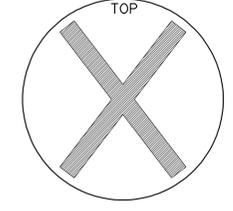
**TYPICAL SIGNAL INSTALLATIONS**



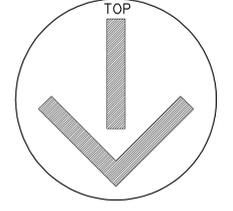
**U-TURN SIGNAL FACE**



**BICYCLE SIGNAL FACE**



**LANE CONTROL SIGNAL FACE**



**LANE CONTROL SIGNAL FACE**

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

NO SCALE

RSP ES-4C DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN ES-4C DATED MAY 1, 2006 - PAGE 420 OF THE STANDARD PLANS BOOK DATED MAY 2006.

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

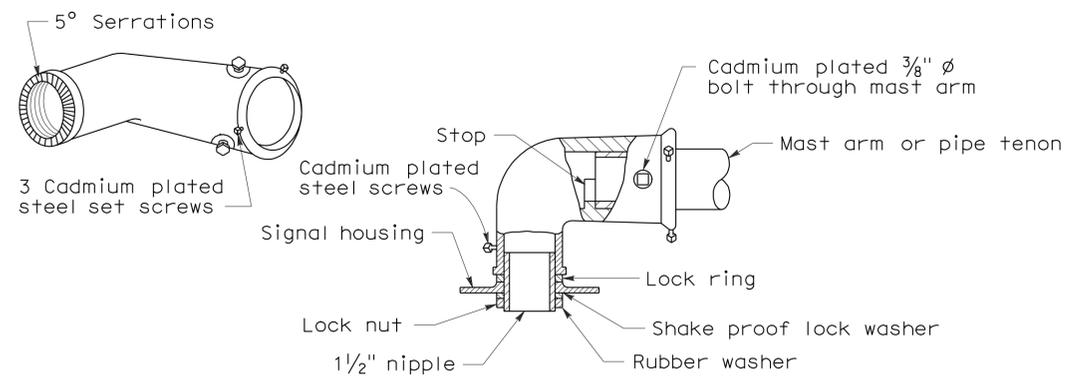
2006 REVISED STANDARD PLAN RSP ES-4C

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
10	Tuo	120	R44.8	43	52

Jeffrey G. McRae  
 REGISTERED ELECTRICAL ENGINEER  
 June 6, 2008  
 PLANS APPROVAL DATE  
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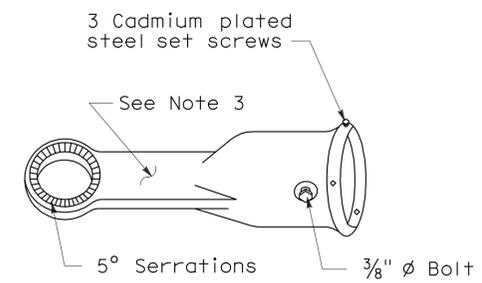
REGISTERED PROFESSIONAL ENGINEER  
 Jeffrey G. McRae  
 No. E14512  
 Exp. 6-30-10  
 ELECTRICAL  
 STATE OF CALIFORNIA

To accompany plans dated 3-5-12



**MAST ARM MOUNTING - TYPE "MAT"**

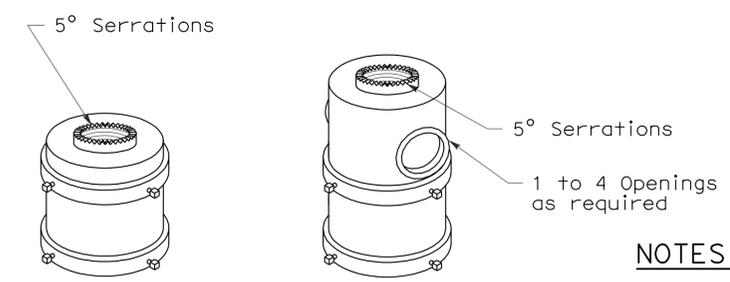
For 2 NPS pipe, see Note 1.



**MAST ARM MOUNTING - TYPE "MAS"**

For 2 NPS pipe. See Note 1.

**SIGNAL SLIP FITTERS**



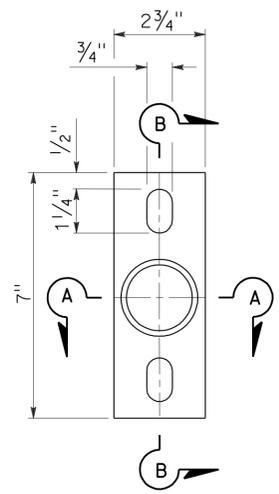
For one mounting For multiple mountings

**TOP MOUNTINGS**

For 4 NPS pipe, see Note 2.

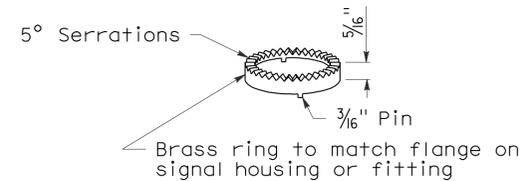
**NOTES:**

- After mast arm signal has been plumbed and secured, drill 7/16" hole through mast arm tenon in line with slip fitter hole. Place a cadmium plated 3/8" Ø galvanized bolt with washer under bolt head through hole and secure with washer, nut, and locknut. Seal openings between mast arm mountings and mast arm with mastic.
- (a) Threaded top mounted slip fitter openings shall be 1/2" NPS.  
(b) Serrations in fittings shall match those on bottom of signal heads or in lock ring.  
(c) Top opening shall be offset when backplate is used.
- Wireway shall have a cross section area of 0.95 square inch minimum. Minimum width of 1/2".



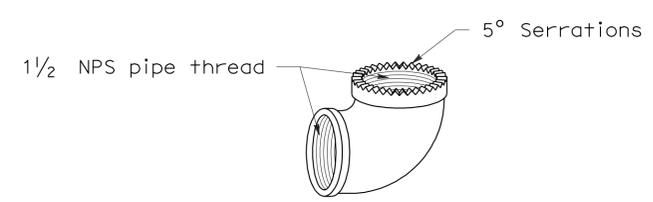
**POLE PLATE**

For side mountings



**LOCK RING**

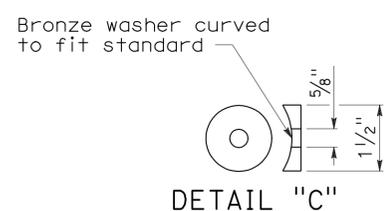
Use where locking ring is not integral with signal housing or fitting.



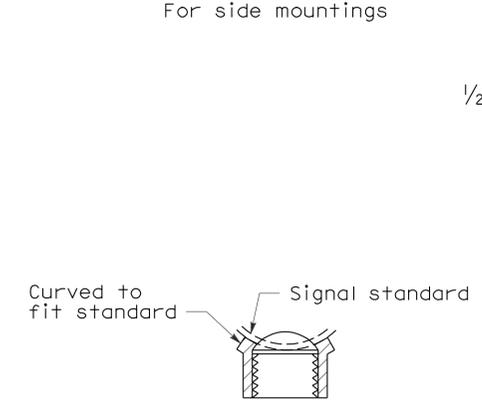
**SPECIAL 90° ELBOW**

One for each signal head, except those with special slip fitter mounting

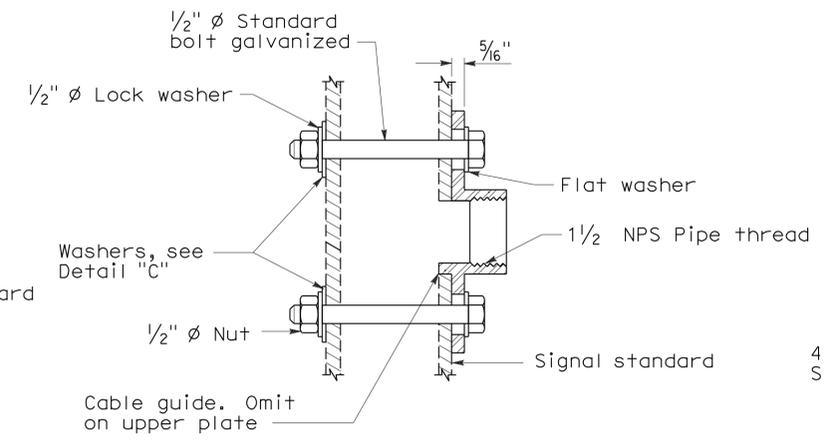
**MISCELLANEOUS MOUNTING HARDWARE**



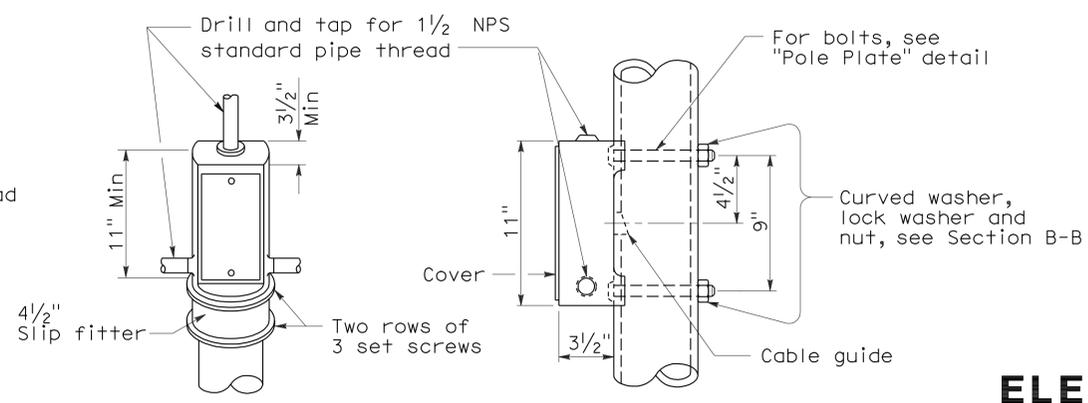
**DETAIL "C"**



**SECTION A-A**



**SECTION B-B**



**TOP MOUNTING**

**SIDE MOUNTING**

**TERMINAL COMPARTMENTS**

**ELECTRICAL SYSTEMS (SIGNAL HEADS AND MOUNTINGS)**

NO SCALE

RSP ES-4D DATED June 6, 2008 SUPERSEDES STANDARD PLAN ES-4D DATED MAY 1, 2006 - PAGE 421 OF THE STANDARD PLANS BOOK DATED MAY 2006.

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

2006 REVISED STANDARD PLAN RSP ES-4D

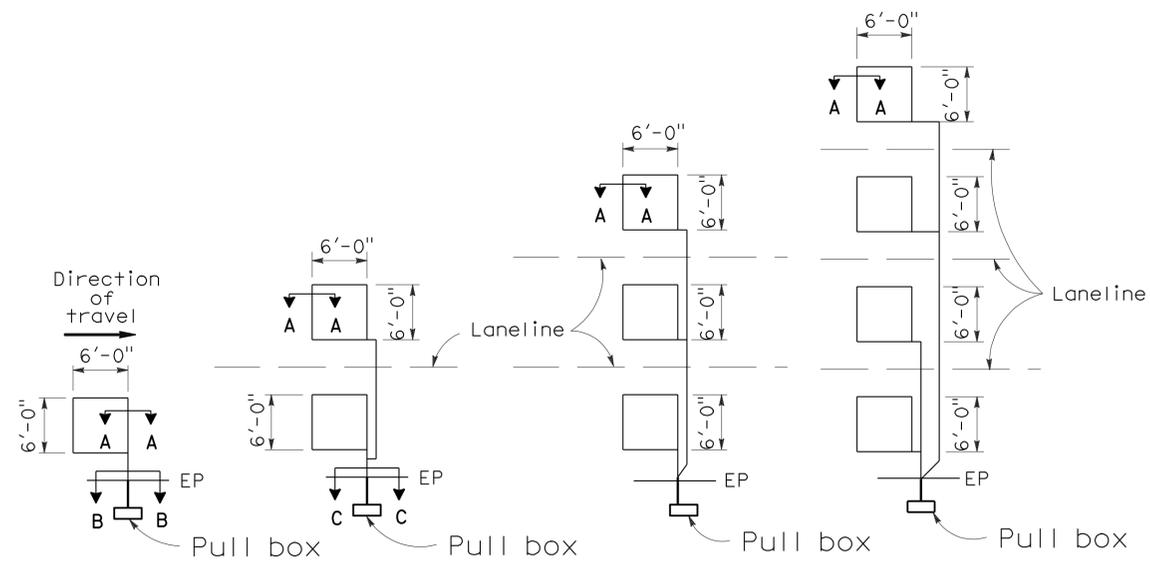
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
10	Tuo	120	R44.8	44	52

*Jeffery G. McRae*  
 REGISTERED ELECTRICAL ENGINEER  
 October 5, 2007  
 PLANS APPROVAL DATE  
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.

To accompany plans dated 3-5-12

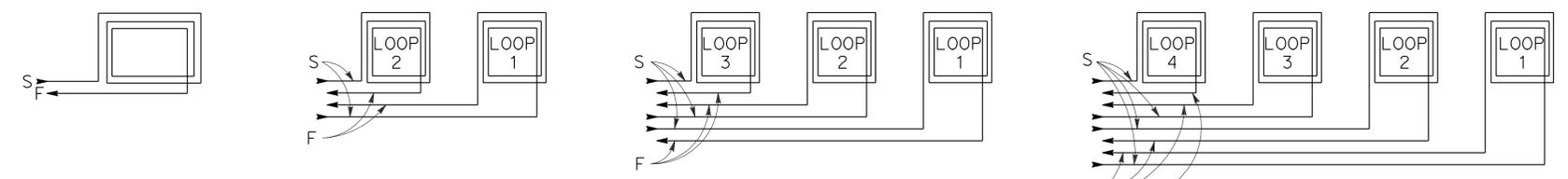
## LOOP INSTALLATION PROCEDURE

- Loops shall be centered in lanes.
- Saw slots in pavement for loop conductors as shown in details.
- Distance between side of loop and a lead-in saw cut from adjacent detectors shall be 2'-0" minimum. Distance between lead-in saw cuts shall be 6" minimum.
- Bottom of saw slot shall be smooth with no sharp edges.
- Slots shall be washed until clean, blown out and thoroughly dried before installing loop conductors.
- Adjacent loops on the same sensor unit channel shall be wound in opposite directions.
- Identify and tag loop circuit pairs in the pull box with loop number, start (S) and finish (F) of conductor. Identify and tag lead-in-cable with sensor number and phase.
- Install loop conductor in slot using a 3/16" to 1/4" thick wood paddle. Hold loop conductors with wood paddles (at the bottom of the sawed slot) during sealant placement.
- No more than 2 twisted pairs shall be installed in one sawed slot.
- Allow additional 5'-0" of slack length of conductor for the lead-in run to pull box.
- The additional length of each conductor for each loop shall be twisted together into a pair (6 turns per 3'-4" minimum) before being placed in the slot and conduit leading to pull box.
- Test each loop circuit for continuity, circuit resistance and insulation resistance at the pull box before filling slots.
- Fill slots as shown in details.
- Splice loop conductors to lead-in-cable. Splices shall be soldered.
- End of lead-in-cable and Type 2 loop conductor shall be waterproofed prior to installing in conduit to prevent moisture from entering the cable.
- Lead-in-cable shall not be spliced between the pull box and the controller cabinet terminals.
- Test each loop circuit for continuity, circuit resistance and insulation resistance at the controller cabinet location.
- Where loop conductors are not to be spliced to a lead-in-cable, the ends of the conductors shall be taped and waterproofed with electrical insulating coating.



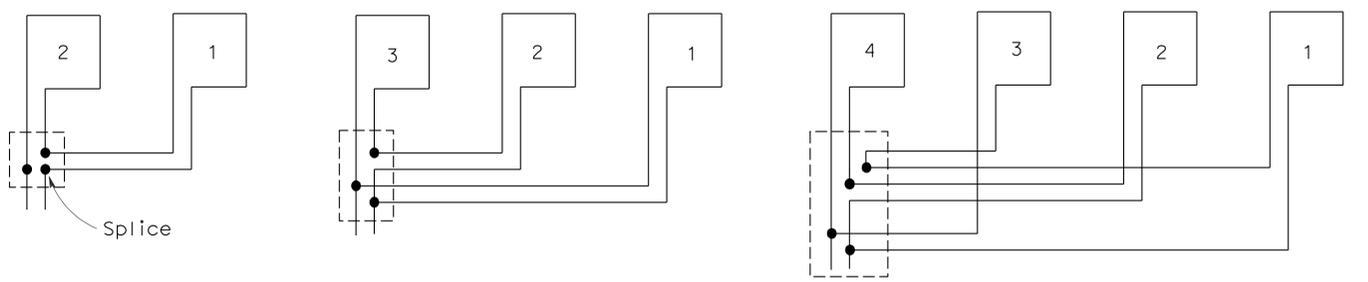
**TYPE 1A INSTALLATION**    **TYPE 2A INSTALLATION**    **TYPE 3A INSTALLATION**    **TYPE 4A INSTALLATION**  
**SAWCUT DETAILS**

- (Type A loop detector configurations illustrated)
- 1A thru 4A = 1 Type A loop configuration in each lane.
  - 1B thru 4B = 1 Type B loop configuration in each lane.
  - 1C = 1 Type C loop configuration entering lanes as required.
  - 1D thru 4D = 1 Type D loop configuration in each lane.
  - 1E thru 4E = 1 Type E loop configuration in each lane.
  - 1Q thru 4Q = 1 Type Q loop configuration in each lane.
- (Use Type A, B, C, D, E or Q loop detector configurations only when specified or shown on plans)



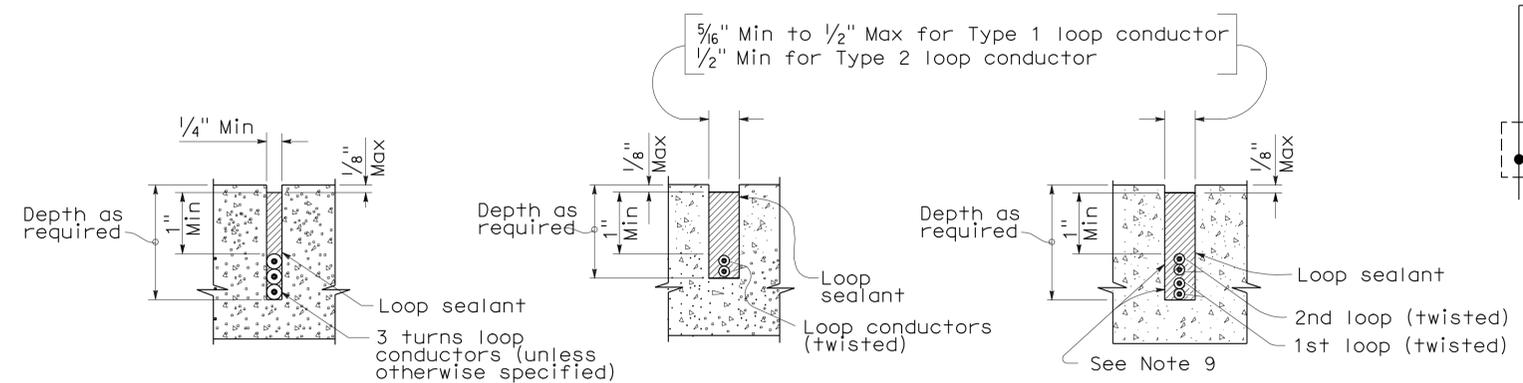
**WINDING DETAILS**

See Notes 6 and 7



**TYPICAL LOOP CONNECTIONS**

(Dashed lines represent the pull box)



**SECTION A-A**    **SECTION B-B**    **SECTION C-C**  
**SLOT DETAILS - TYPE 1 AND TYPE 2 LOOP CONDUCTOR**

## ELECTRICAL SYSTEMS (DETECTORS)

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

NO SCALE

RSP ES-5A DATED OCTOBER 5, 2007 SUPERCEDES STANDARD PLAN ES-5A DATED MAY 1, 2006 - PAGE 423 OF THE STANDARD PLANS BOOK DATED MAY 2006.

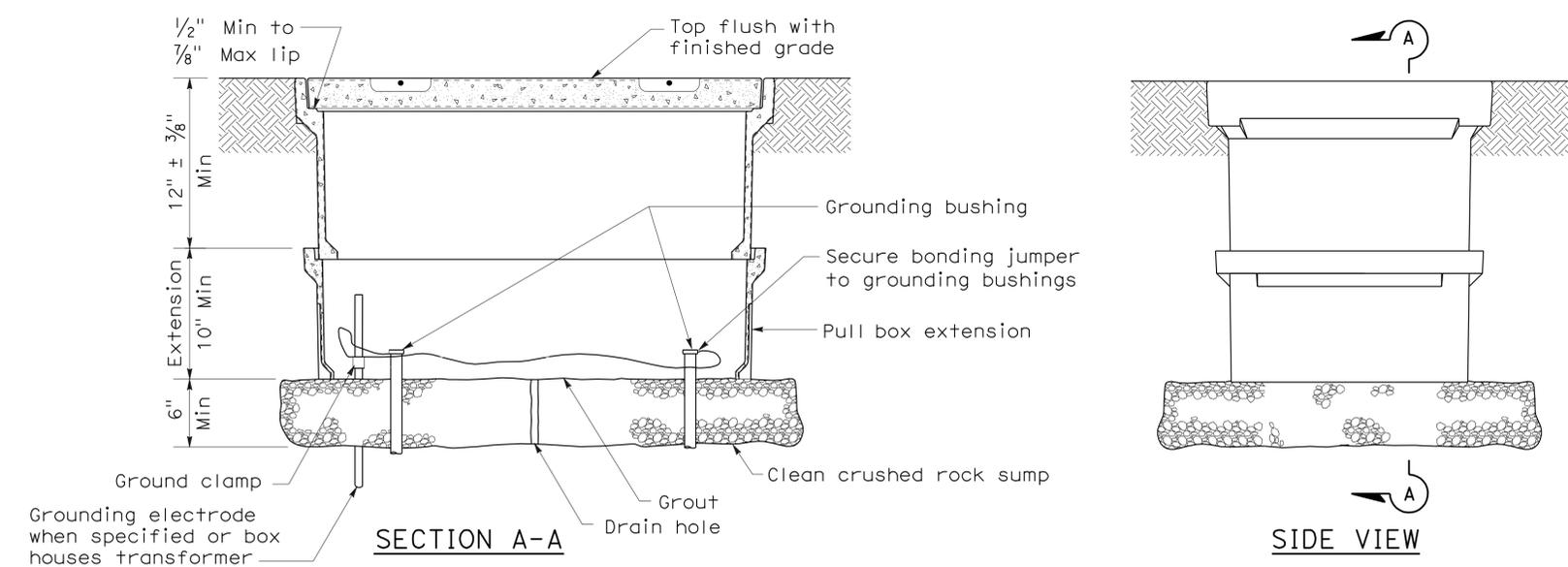
2006 REVISED STANDARD PLAN RSP ES-5A

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
10	Tuo	120	R44.8	45	52

Jeffrey G. McRae  
 REGISTERED ELECTRICAL ENGINEER  
 January 20, 2012  
 PLANS APPROVAL DATE  
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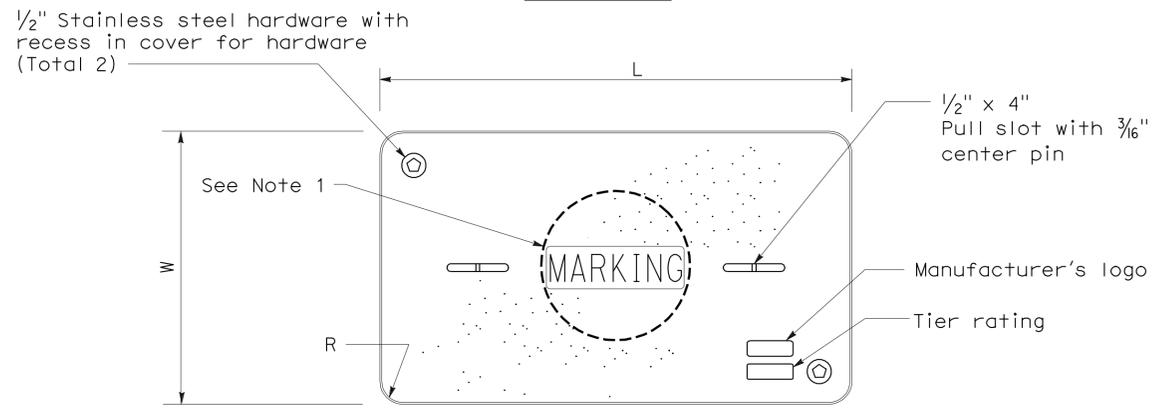
REGISTERED PROFESSIONAL ENGINEER  
 Jeffrey G. McRae  
 No. E14512  
 Exp. 6-30-12  
 ELECTRICAL  
 STATE OF CALIFORNIA

To accompany plans dated 3-5-12

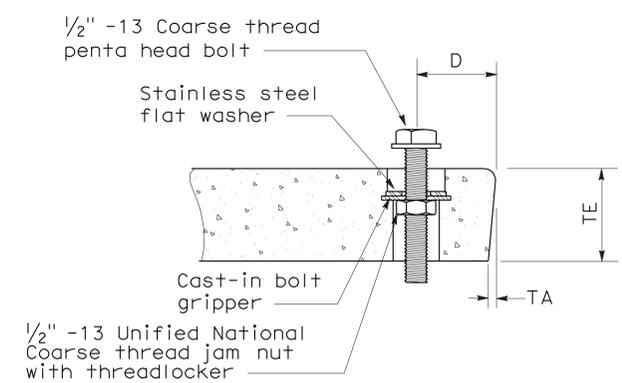


**INSTALLATION DETAILS**

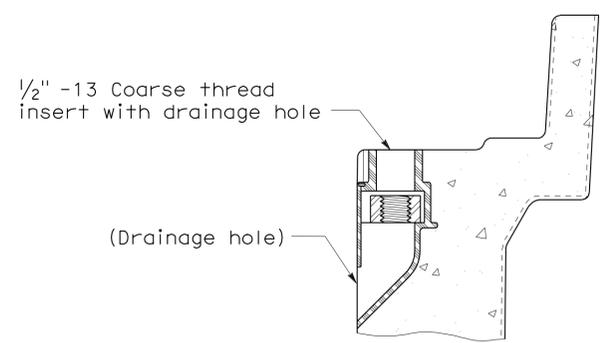
**DETAIL A**



**COVER TOP VIEW**



**TYPICAL COVER CAPTIVE BOLT**  
(Or similar)



**TYPICAL THREADED INSERT**  
(Or similar)

**NOTES ON PULL BOXES:**

- Pull box covers must 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. 3/2 pull box.
    - "SIGNAL" - Traffic signal circuits with or without street or sign lighting circuits.
    - "ST LIGHTING" - Street 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 street or sign lighting circuits.
    - "STREET LIGHTING" - Street or sign lighting circuits where voltage is under 600 V.
    - "STREET LIGHTING-HIGH VOLTAGE" - Street 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.
- The nominal dimensions of the opening in which the cover sets must be the same as the cover dimensions (L and W) plus 1/8" or greater.
- Covers and boxes must be interchangeable with California Standard. When interchanged with a standard, the top surfaces must be flush within 1/8". Top outside radius of covers and pull boxes must 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.

**DIMENSION TABLE**

PULL BOX	PULL BOX			COVER						
	Minimum Depth Box	Minimum Depth Extension	Maximum Weight	L	W	R	TE	TA	D	Maximum Weight
No. 3/2	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**  
**(PULL BOX)**  
NO SCALE

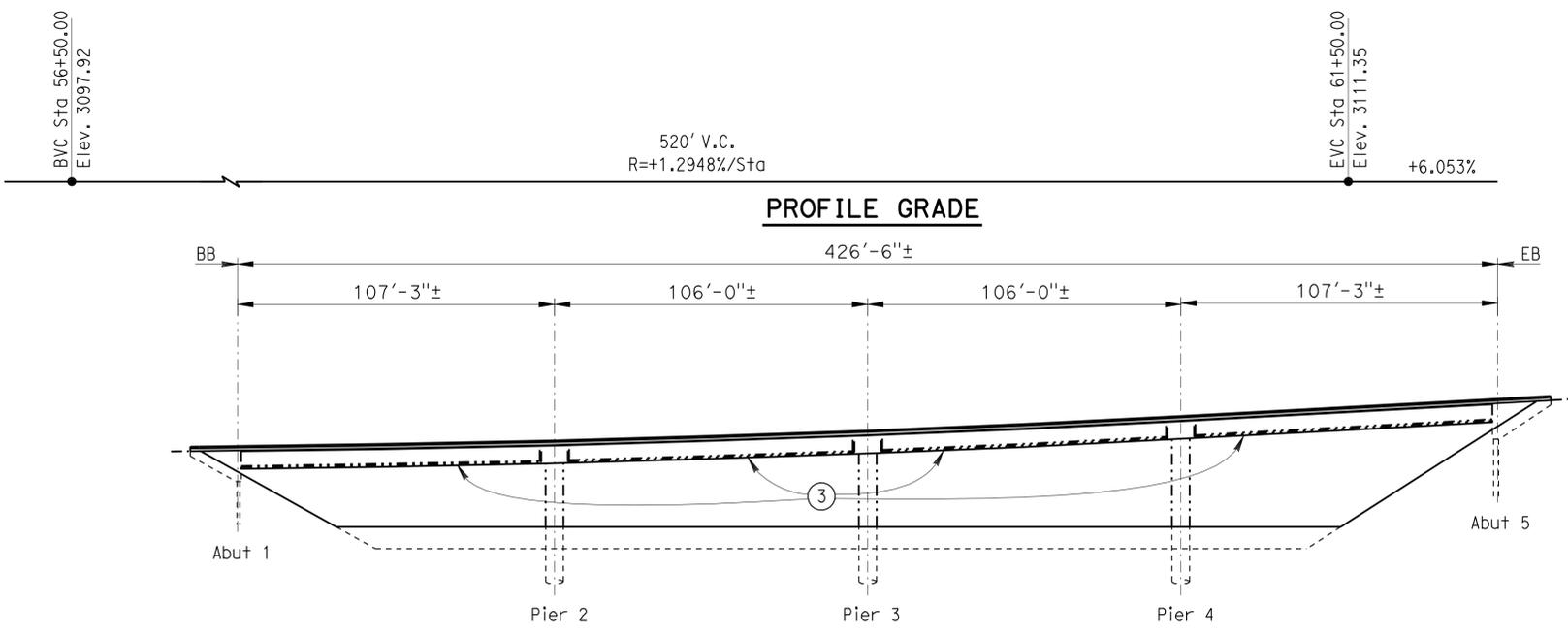
NSP ES-8A DATED JANUARY 20, 2012 SUPPLEMENTS THE STANDARD PLANS BOOK DATED MAY 2006.

2006 NEW STANDARD PLAN NSP ES-8A

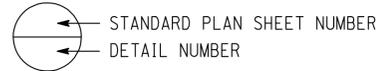
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Tuo	120	R44.8	46	52

REGISTERED CIVIL ENGINEER DATE 10-31-11  
 REGISTERED PROFESSIONAL ENGINEER  
 TIMOTHY J. POWELL  
 No. C 61037  
 Exp. 12-31-12  
 CIVIL  
 STATE OF CALIFORNIA

PLANS APPROVAL DATE 3-5-12  
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**NOTES:** (APPLY TO ALL SHEETS)  
 - - - - - Indicates existing.  
 THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

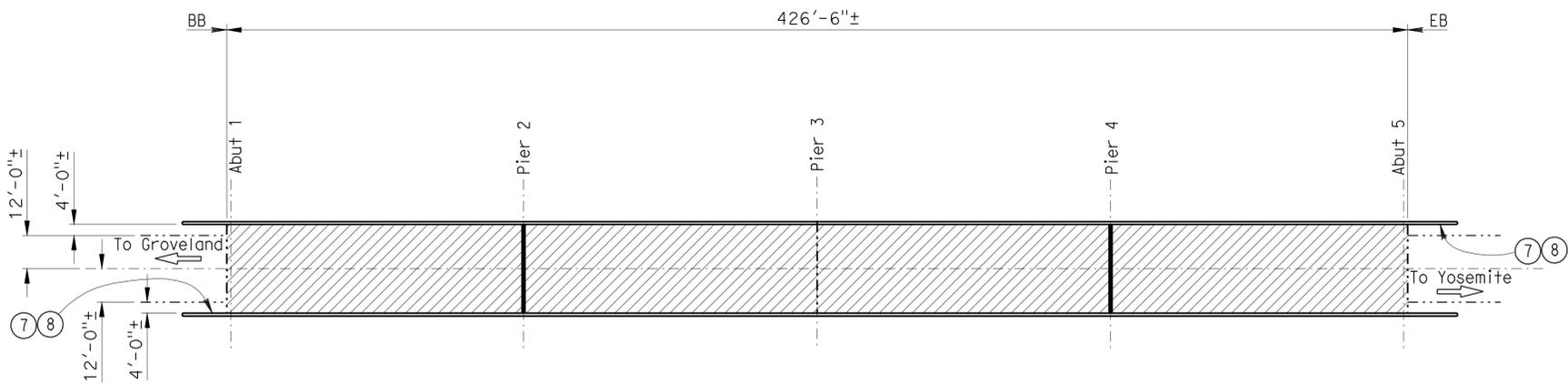


**ELEVATION**

1" = 30'

**QUANTITIES**

TEMPORARY SUPPORT	LUMP SUM	921	LF
SALVAGE METAL BRIDGE RAILING	13,648	SQFT	
PREPARE CONCRETE BRIDGE DECK SURFACE	LUMP SUM	364	CY
BRIDGE REMOVAL (PORTION)	56	LF	
STRUCTURAL CONCRETE, BRIDGE	2,620	SQFT	
DRILL AND BOND DOWEL	1,030	CF	
COMPOSITE GIRDER STRENGTHENING	13,648	SQFT	
FURNISH POLYESTER CONCRETE OVERLAY	70	LF	
PLACE POLYESTER CONCRETE OVERLAY	88,500	LB	
JOINT SEAL (MR 1 1/2")	921	LF	
BAR REINFORCING STEEL (EPOXY COATED) (BRIDGE)	921	LF	
CONCRETE BARRIER (TYPE 732)			
TUBULAR HAND RAILING			



**STANDARD PLANS DATED MAY 2006**

SHEET NO.	TITLE
A10A	ACRONYMS AND ABBREVIATIONS (SHEET 1 OF 2)
A10B	ACRONYMS AND ABBREVIATIONS (SHEET 2 OF 2)
RSP B6-21	JOINT SEALS (MAXIMUM MOVEMENT RATING = 2")
T3	TEMPORARY RAILING (TYPE K)
B11-55	CONCRETE BARRIER TYPE 732
B11-51	TUBULAR HAND RAILING
B0-5	BRIDGE DETAILS



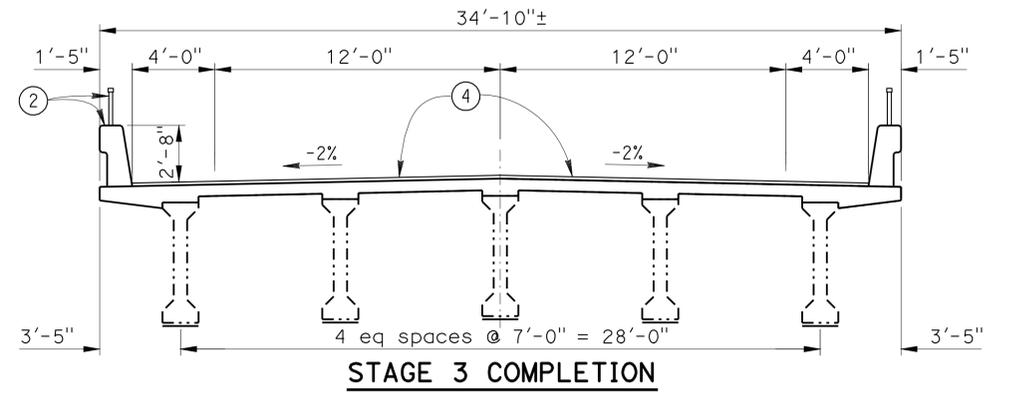
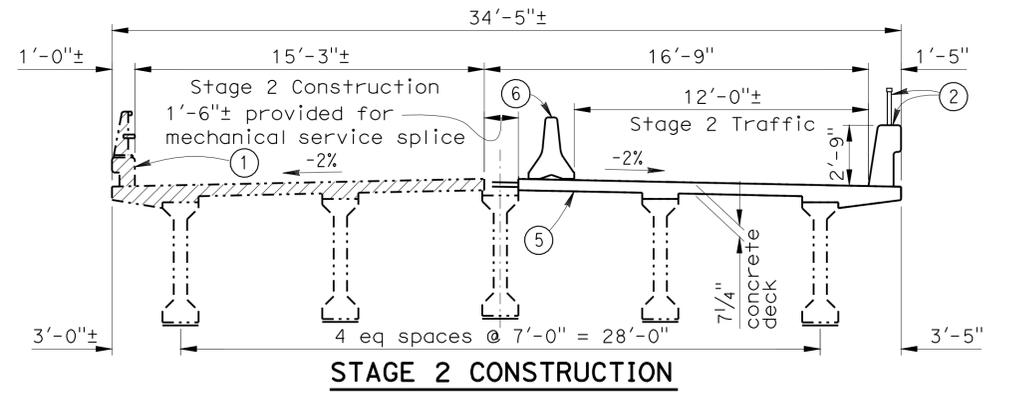
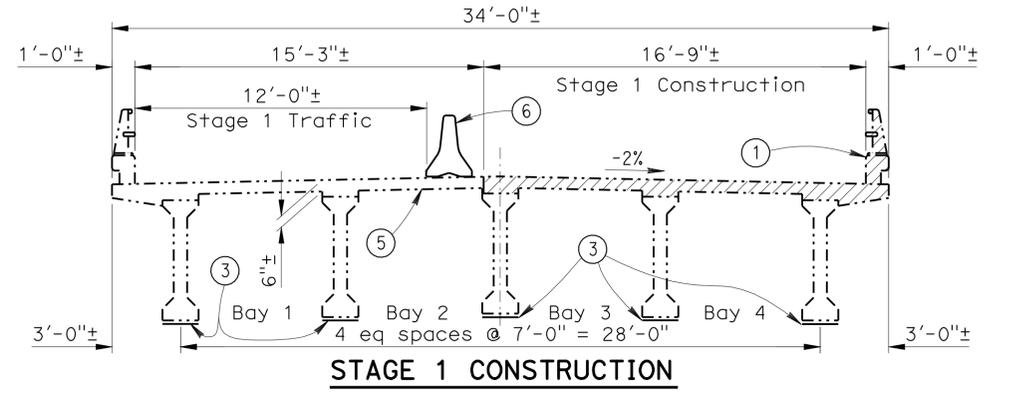
**INDEX TO PLANS**

SHEET NO.	TITLE
1	GENERAL PLAN
2	DECK CONTOURS
3	ABUTMENT DETAILS
4	TYPICAL SECTION
5	DECK DETAILS
6	MISCELLANEOUS DETAILS
7	FIBER REINFORCED POLYMER DETAILS

**NOTES:** (APPLY TO THIS SHEET ONLY)

- ▨ Indicates limits of bridge removal (portion), reinforcing and barrier rails.
- Indicates place new Joint Seal. See Joint Seal Table on ABUTMENT DETAILS sheet.
- ① Salvage existing Metal Barrier Railing Type 9-11.
- ② Place new Barrier Rail Type 732 and Tubular Hand Railing, no sooner than 28 days following last concrete placement.
- ③ Location of place Fiber Reinforced Polymer (FRP) prior to stage construction. For details, see FIBER REINFORCED POLYMER DETAILS sheet.
- ④ Place 3/4" min polyester concrete overlay no sooner than 28 days following last concrete placement.
- ⑤ Location of temporary deck supports. See TEMPORARY DECK SUPPORT TABLE on TYPICAL SECTION sheet.

- ⑥ Temporary railing, see "ROAD PLANS" and MISCELLANEOUS DETAILS sheet.
- ⑦ Paint Bridge #32-0055.
- ⑧ Paint name: BIG OAK SIDE HILL VIADUCT.



**TYPICAL SECTION**

1/4" = 1'-0"

10-31-11 Michael J. Lee DESIGN ENGINEER	DESIGN BY T. Powell	CHECKED F. Espinoza	LOAD FACTOR DESIGN	LIVE LOADING: HS20-44 AND ALTERNATIVE AND PERMIT DESIGN LOAD	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF MAINTENANCE STRUCTURE MAINTENANCE DESIGN	BRIDGE NO. 32-0055	BIG OAK SIDE HILL VIADUCT GENERAL PLAN
	DETAILS BY M. Hallstrom	CHECKED F. Espinoza	LAYOUT BY M. Hallstrom				POST MILE R44.84	
	QUANTITIES BY T. Powell	CHECKED F. Espinoza	SPECIFICATIONS BY D. Klein	PLANS AND SPECS COMPARED BY D. Klein				

STRUCTURES MAINTENANCE GENERAL PLAN SHEET (ENGLISH) (REV. 09-01-10) ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3 UNIT: X PROJECT NUMBER & PHASE: 1000020475 1 CONTRACT NO.: 10-0W0701 DISREGARD PRINTS BEARING EARLIER REVISION DATES 7-15-11 SHEET 1 OF 7

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Tuo	120	R44.8	47	52

## GENERAL NOTES LOAD FACTOR DESIGN

DESIGN: BRIDGE DESIGN SPECIFICATIONS  
(1996 AASHTO with Interims  
and Revisions by CALTRANS)

LIVE LOADING: HS20-44 and alternative and  
permit design load

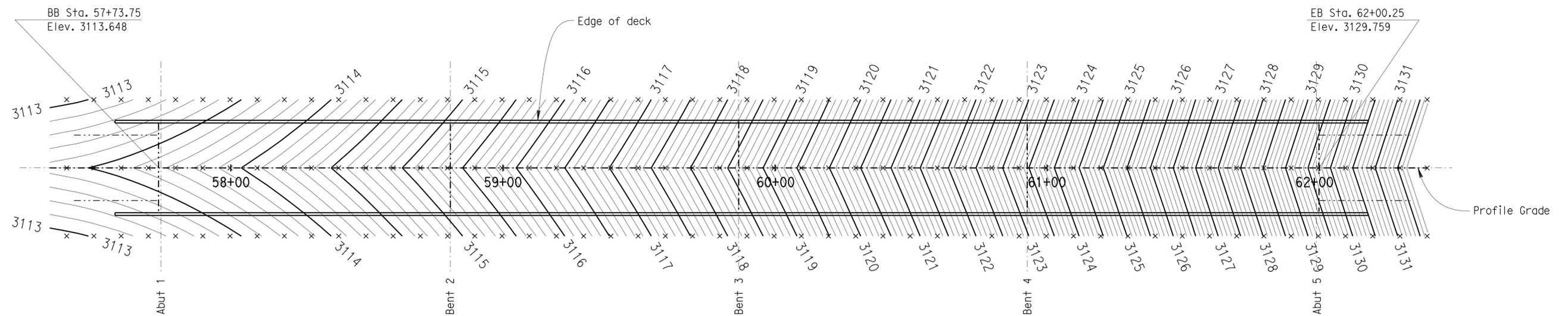
REINFORCED  
CONCRETE:  $f_y = 60$  ksi  
 $f'_c = 3.6$  ksi  
 $n = 8$

*T. Powell* 10-31-11  
REGISTERED CIVIL ENGINEER DATE

3-5-12  
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER  
TIMOTHY J. POWELL  
No. C 61037  
Exp. 12-31-12  
CIVIL  
STATE OF CALIFORNIA

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Note:  
.5' Contour Interval.  
X = 10' Station Interval.



### DECK CONTOUR PLAN

1" = 20'

DESIGN	BY T. Powell	CHECKED F. Espinoza
DETAILS	BY M. Hallstrom	CHECKED F. Espinoza
QUANTITIES	BY T. Powell	CHECKED F. Espinoza

**STATE OF CALIFORNIA**  
DEPARTMENT OF TRANSPORTATION

**DIVISION OF MAINTENANCE**  
**STRUCTURE MAINTENANCE DESIGN**

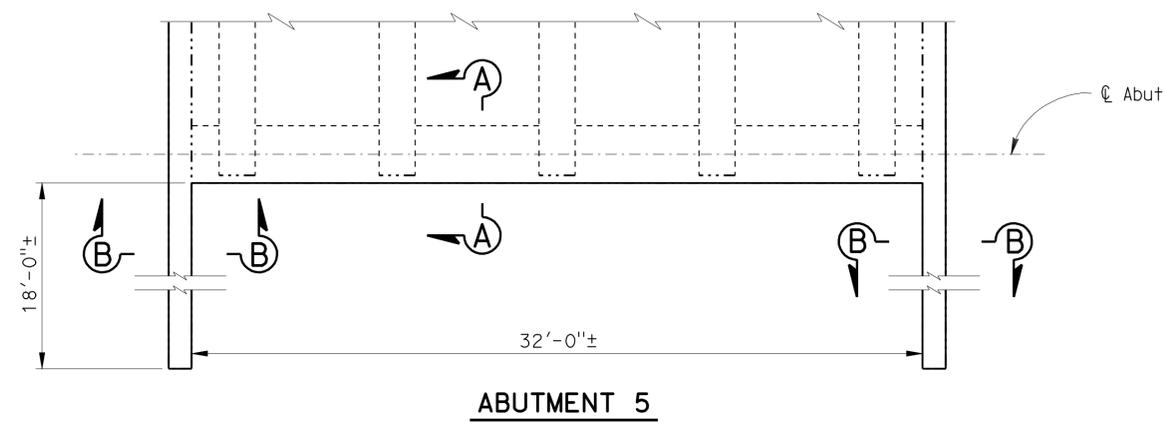
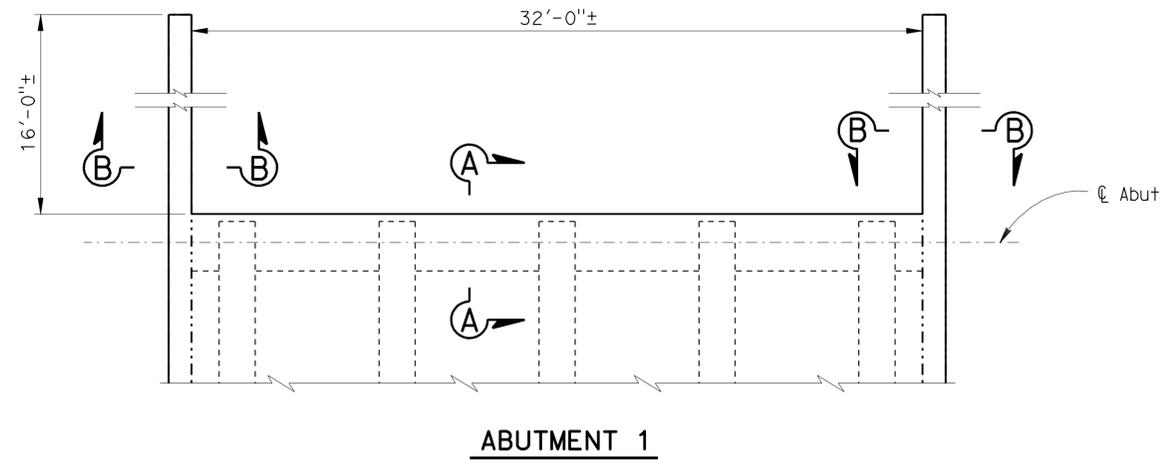
BRIDGE NO.	32-0055
POST MILE	R44.84

## BIG OAK SIDE HILL VIADUCT DECK CONTOURS

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Tuo	120	R44.8	48	52

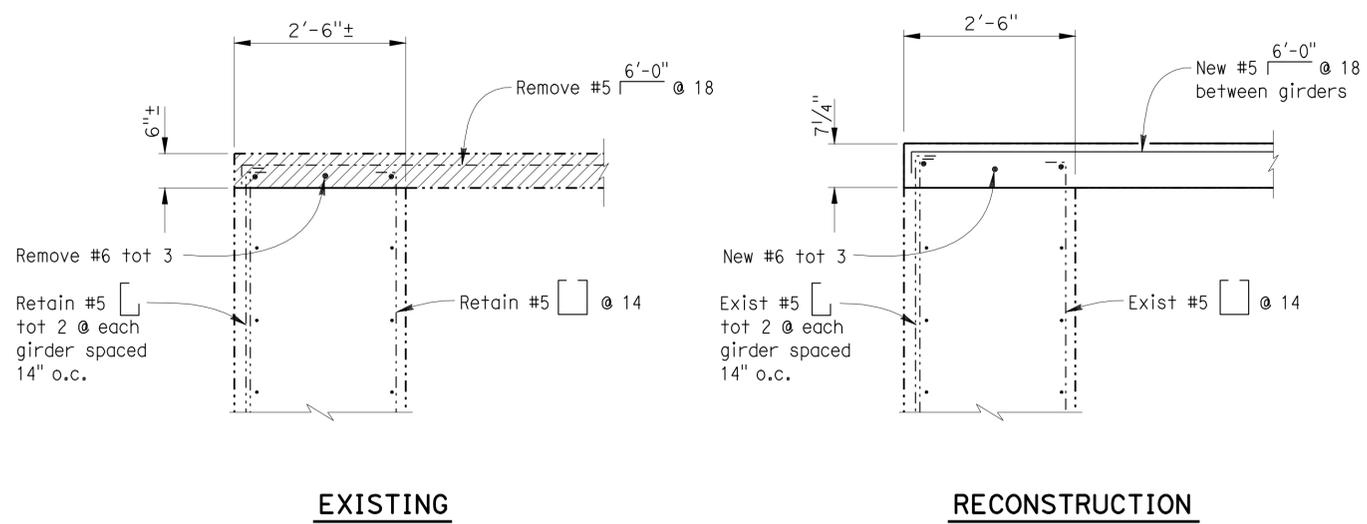
10-31-11  
 REGISTERED CIVIL ENGINEER DATE  
 3-5-12  
 PLANS APPROVAL DATE  
 The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

REGISTERED PROFESSIONAL ENGINEER  
 TIMOTHY J. POWELL  
 No. C 61037  
 Exp. 12-31-12  
 CIVIL  
 STATE OF CALIFORNIA



**ABUTMENT PLAN**

1/4" = 1'-0"



**SECTION A-A**

3/4" = 1'-0"

The following notes apply to JOINT SEAL TYPE B:

- 1) Seal must satisfy both minimum Movement Rating (MR) and minimum W1 requirements.
- 2) Minimum W1 is the calculated maximum width of the joint based on field measurements. After the joints have been cleaned, minimum W1 is to be calculated by the Engineer.
- 3) W1 shall be the smaller of the values determined as follows:
  - A) 0.85 times the manufacturer's designed minimum uncompressed width of the seal.
  - B) The width of the seal on the third successive test cycle of the pressure deflection test, when compressed to an average pressure of 3 psi.
- 4) Bend Type B joint seal 6" up into curb or rail on the low side of the deck where deck joint matches curb or rail joint.
- 5) For details not shown see RSP  
B6-21.

**JOINT SEAL TABLE**

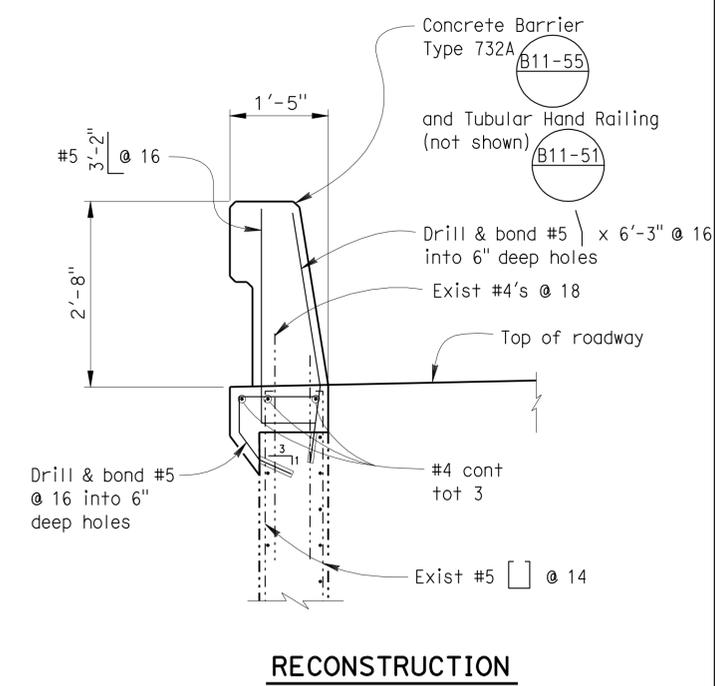
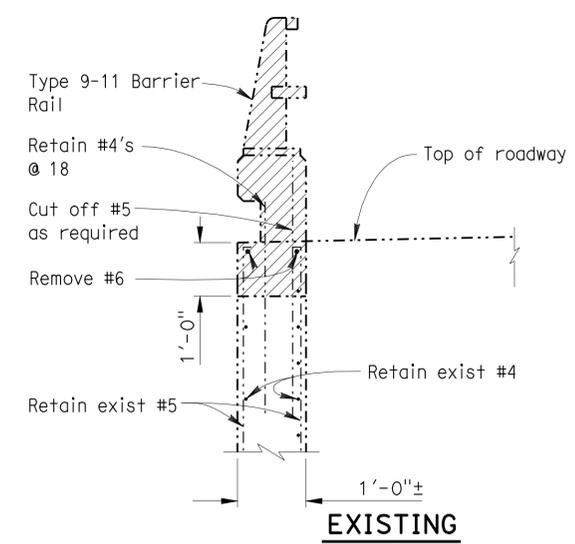
Location	Joint Seal Type *	Minimum MR (in.)	Existing Waterstop	Approx Length (ft)
Pier 2	B	1 1/2	No	35
Pier 4	B	1 1/2	No	35

\* Use Type B joint seal only.

**NOTES:** (APPLY TO THIS SHEET ONLY)

Indicates limits of bridge removal (portion).

All reinforcement bars shall be epoxy coated.



**SECTION B-B**

3/4" = 1'-0"

DESIGN	BY T. Powell	CHECKED F. Espinoza
DETAILS	BY M. Hallstrom	CHECKED F. Espinoza
QUANTITIES	BY T. Powell	CHECKED F. Espinoza

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

DIVISION OF MAINTENANCE  
STRUCTURE MAINTENANCE DESIGN

BRIDGE NO.	32-0055
POST MILE	R44.84

**BIG OAK SIDE HILL VIADUCT**  
**ABUTMENT DETAILS**

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Tuo	120	R44.8	49	52

REGISTERED CIVIL ENGINEER  
 DATE 10-31-11  
 PLANS APPROVAL DATE 3-5-12  
 REGISTERED PROFESSIONAL ENGINEER  
 TIMOTHY J. POWELL  
 No. C 61037  
 Exp. 12-31-12  
 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: (APPLY TO THIS SHEET ONLY)

 Indicates limits of bridge removal (portion).  
 ① New Concrete Barrier Type 732 (B11-55) and Tubular Hand Railing (not shown) (B11-51)  
 All reinforcement bars shall be epoxy coated.

At a minimum, provide a continuous temporary support at the free end of the deck slab. The loads shown below shall be applied to the free end. For the purposes of designing the temporary supports, assume the wheel loads are distributed 4 feet longitudinally. The temporary supports must be designed to fully support dead loads and wheel loads applied to the free end of the deck slabs. For wheel loads, see 1996 AASHTO Standard Specifications. For live load placement, see Diagram A.

		DL Kips/ft	LL + I
Bay 2	Stage 1	.80	HS 20-44 Truck
Spans 1,2,3,4			
Bay 3	Stage 1	.80	HS 20-44 Truck
Spans 1,2,3,4			
Bay 2	Stage 2	.93	HS 20-44 Truck
Spans 1,2,3,4			
Bay 3	Stage 2	.93	HS 20-44 Truck
Spans 1,2,3,4			

DL = Dead Load  
LL = Live Load  
I = Impact

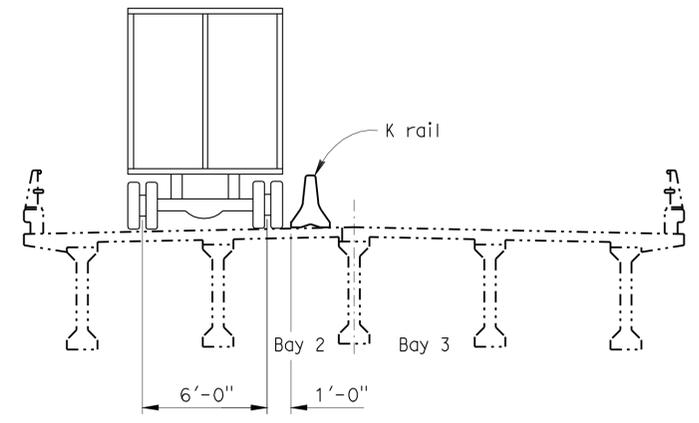
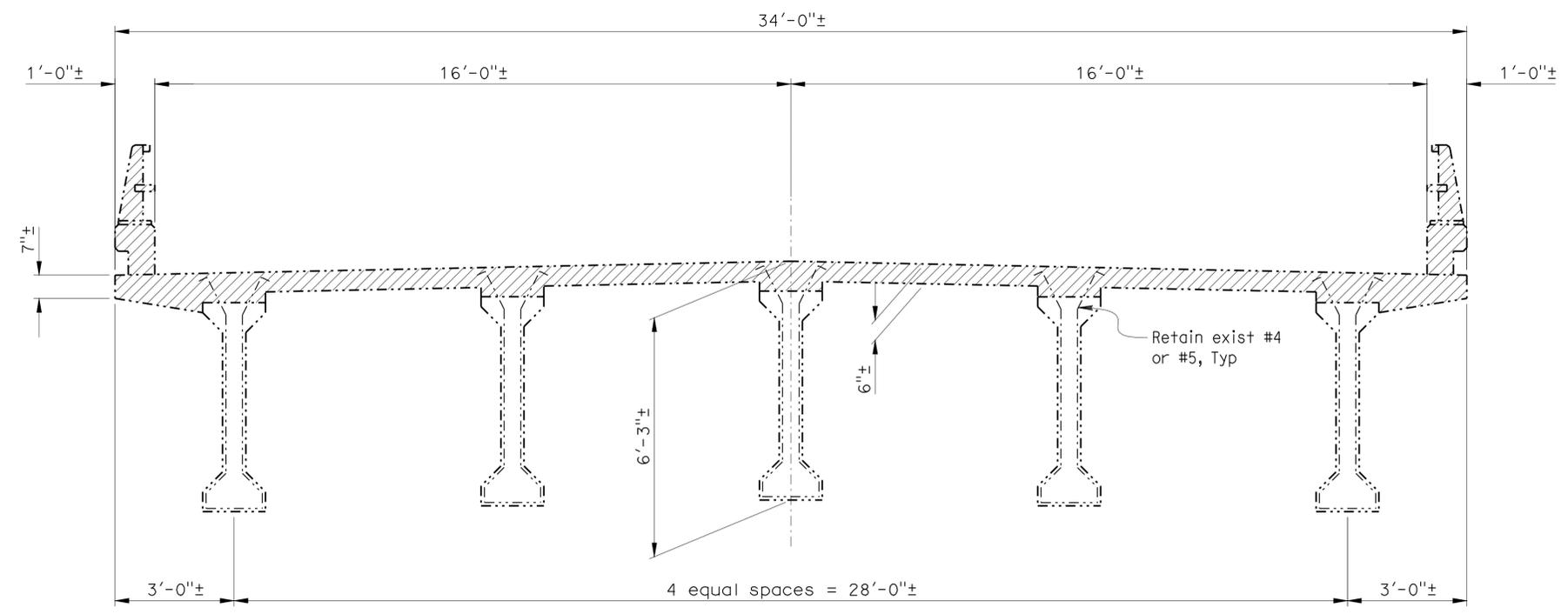
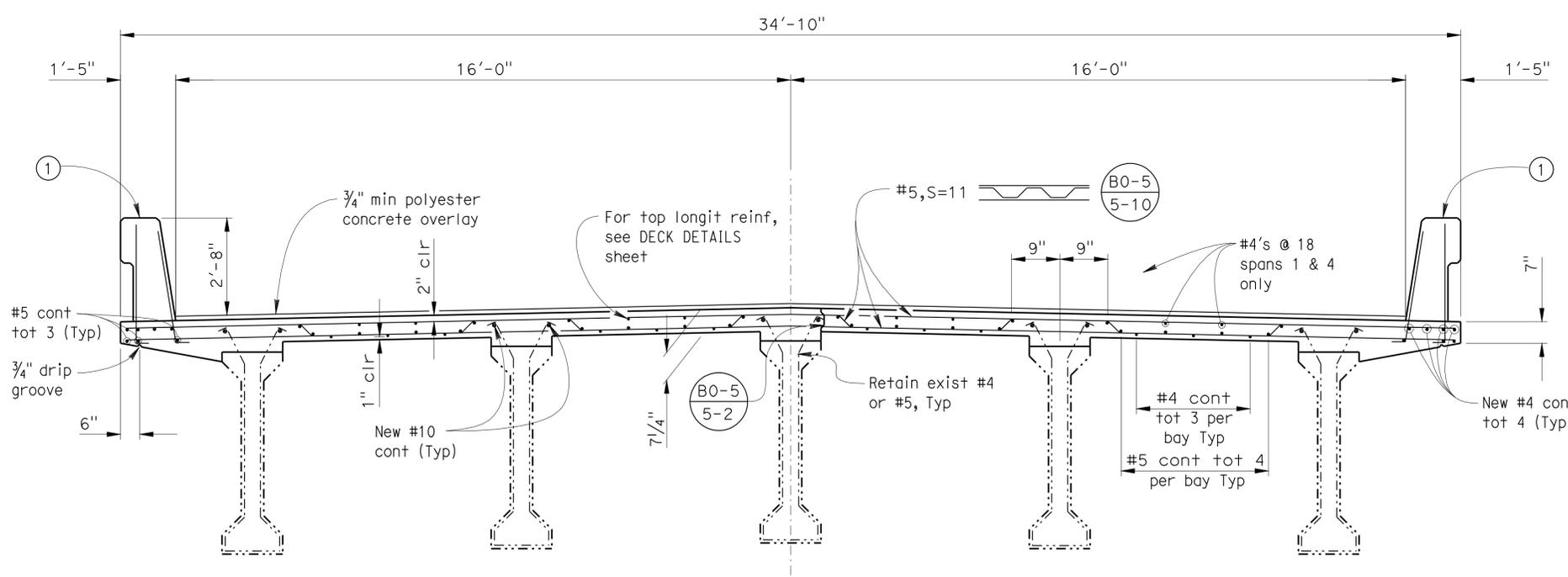


DIAGRAM A  
NO SCALE



EXISTING



RECONSTRUCTION

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

DESIGN	BY T. Powell	CHECKED F. Espinoza
DETAILS	BY M. Hallstrom	CHECKED F. Espinoza
QUANTITIES	BY T. Powell	CHECKED F. Espinoza

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

DIVISION OF MAINTENANCE  
STRUCTURE MAINTENANCE DESIGN

BRIDGE NO.	32-0055
POST MILE	R44.84

BIG OAK SIDE HILL VIADUCT  
TYPICAL SECTION

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Tuo	120	R44.8	50	52

<i>T. Powell</i>	10-31-11
REGISTERED CIVIL ENGINEER	DATE
3-5-12	
PLANS APPROVAL DATE	

TIMOTHY J. POWELL
No. C 61037
Exp. 12-31-12
CIVIL

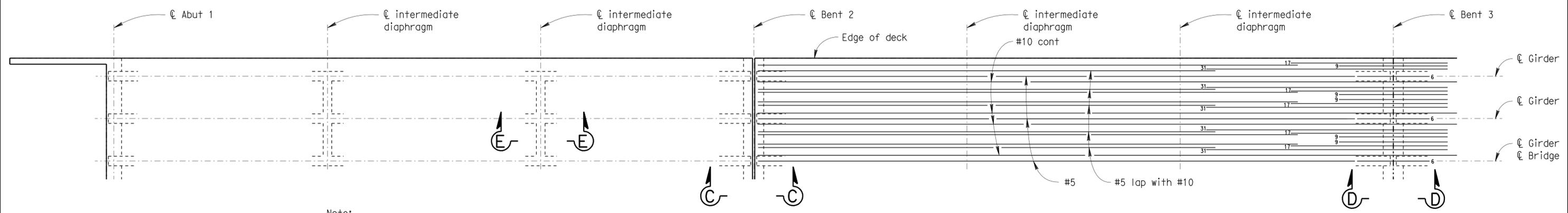
*The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.*

**NOTES:** (APPLY TO THIS SHEET ONLY)

 Indicates limits of bridge removal (portion).

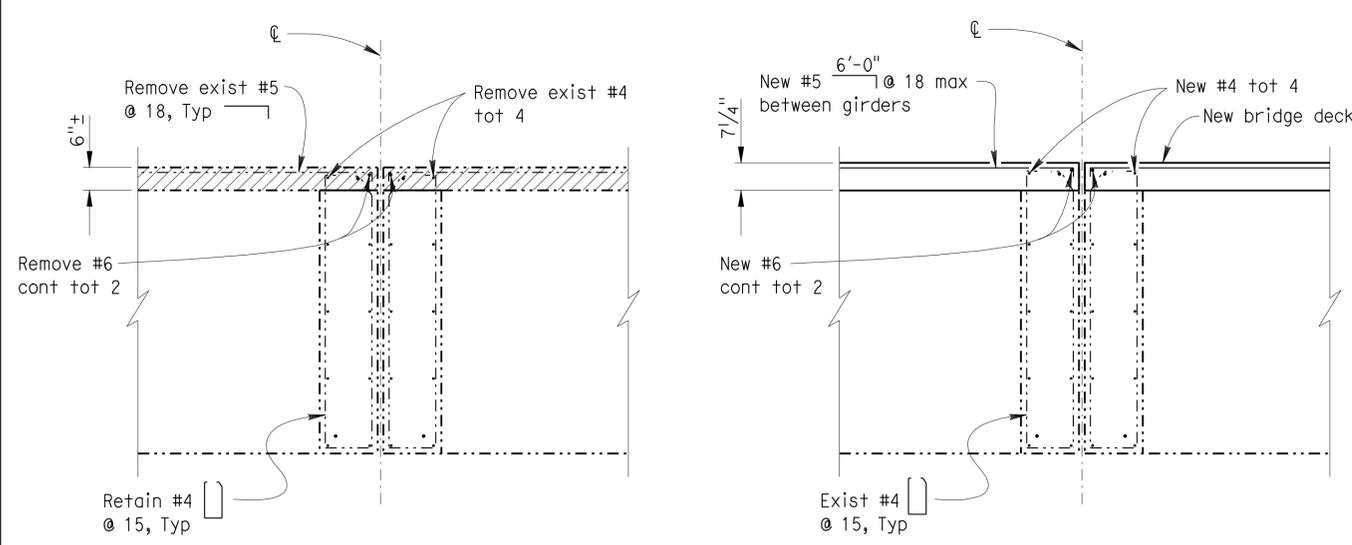
All deck reinforcement #10 bars unless otherwise noted.

All reinforcement bars shall be epoxy coated.

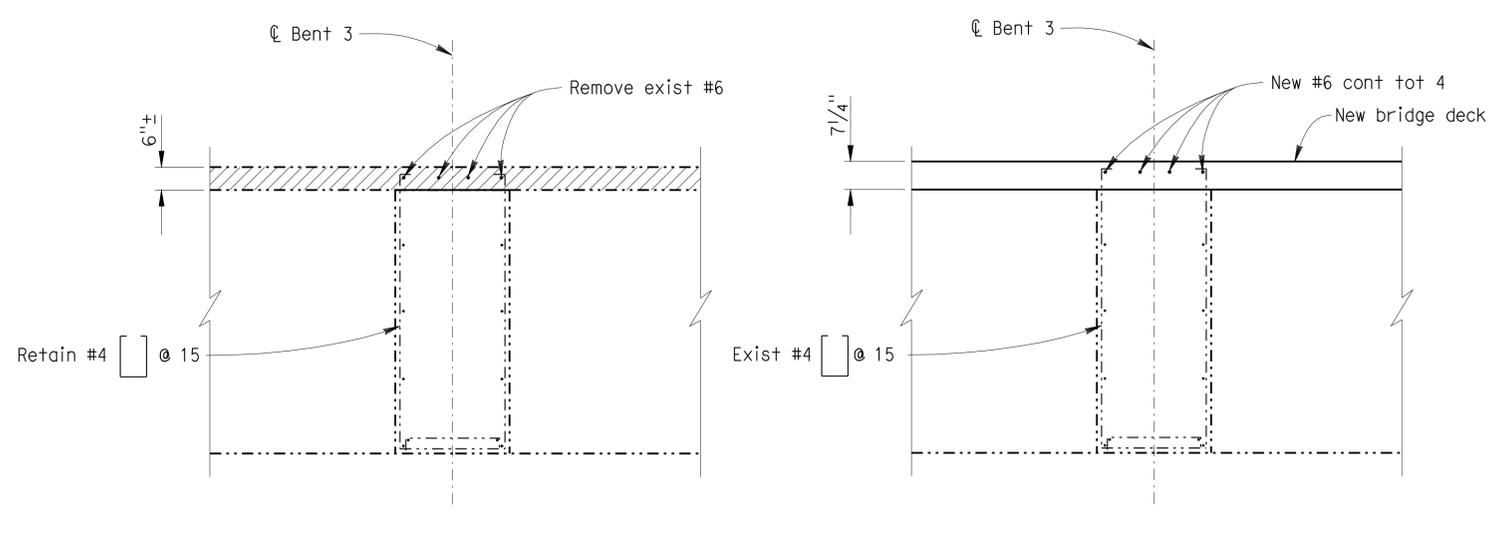


Note:  
For Section E-E, see MISCELLANEOUS DETAILS sheet.

**TOP REINFORCEMENT**  
1/8" = 1'-0"



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



**SECTION D-D**  
1/2" = 1'-0"

DESIGN	BY	T. Powell	CHECKED	F. Espinoza	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF MAINTENANCE STRUCTURE MAINTENANCE DESIGN	BRIDGE NO.	32-0055	BIG OAK SIDE HILL VIADUCT DECK DETAILS	
	DETAILS	BY	M. Hallstrom	CHECKED			F. Espinoza	POST MILE		R44.84
	QUANTITIES	BY	T. Powell	CHECKED			F. Espinoza			

STRUCTURES MAINTENANCE DETAIL SHEET (ENGLISH) (REV. 09-01-10)	ORIGINAL SCALE IN INCHES FOR REDUCED PLANS	0 1 2 3	UNIT: X PROJECT NUMBER & PHASE: 1000020475 1	CONTRACT NO.: 10-0W0701	DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES	SHEET 5 OF 7
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DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Tuo	120	R44.8	51	52

 10-31-11  
 REGISTERED CIVIL ENGINEER DATE

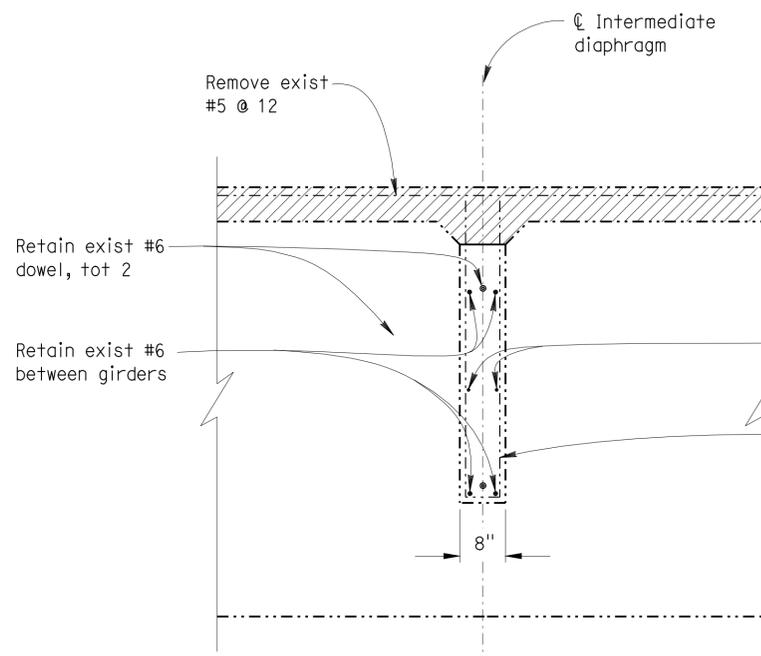
3-5-12  
 PLANS APPROVAL DATE

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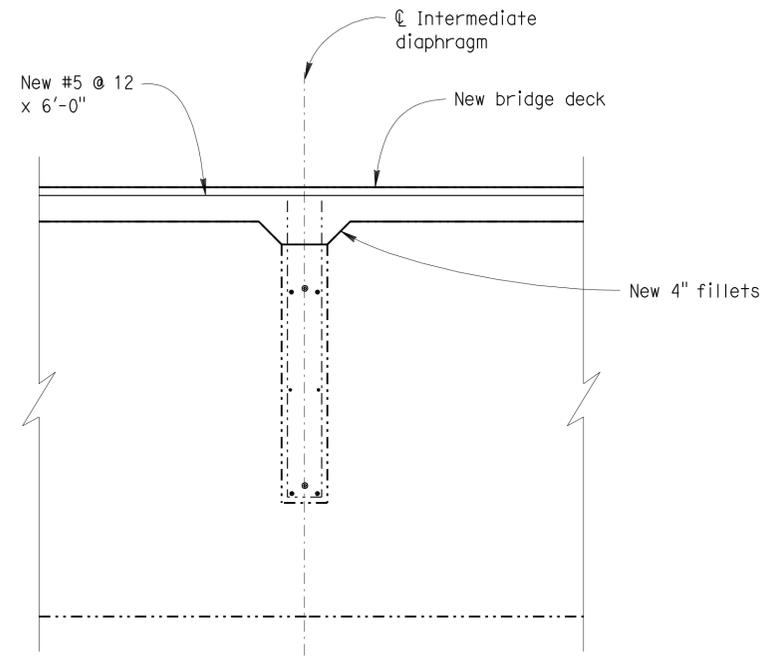
REGISTERED PROFESSIONAL ENGINEER  
**TIMOTHY J. POWELL**  
 No. C 61037  
 Exp. 12-31-12  
 CIVIL  
 STATE OF CALIFORNIA

NOTES: (APPLY TO THIS SHEET ONLY)

 Indicates limits of bridge removal (portion).



**EXISTING**



**RECONSTRUCTION**

**SECTION E-E**  
 $\frac{3}{4}'' = 1'-0''$

DESIGN	BY T. Powell	CHECKED F. Espinoza
DETAILS	BY M. Hallstrom	CHECKED F. Espinoza
QUANTITIES	BY T. Powell	CHECKED F. Espinoza

**STATE OF CALIFORNIA**  
 DEPARTMENT OF TRANSPORTATION

**DIVISION OF MAINTENANCE**  
**STRUCTURE MAINTENANCE DESIGN**

BRIDGE NO.	32-0055
POST MILE	R44.84

**BIG OAK SIDE HILL VIADUCT**  
**MISCELLANEOUS DETAILS**

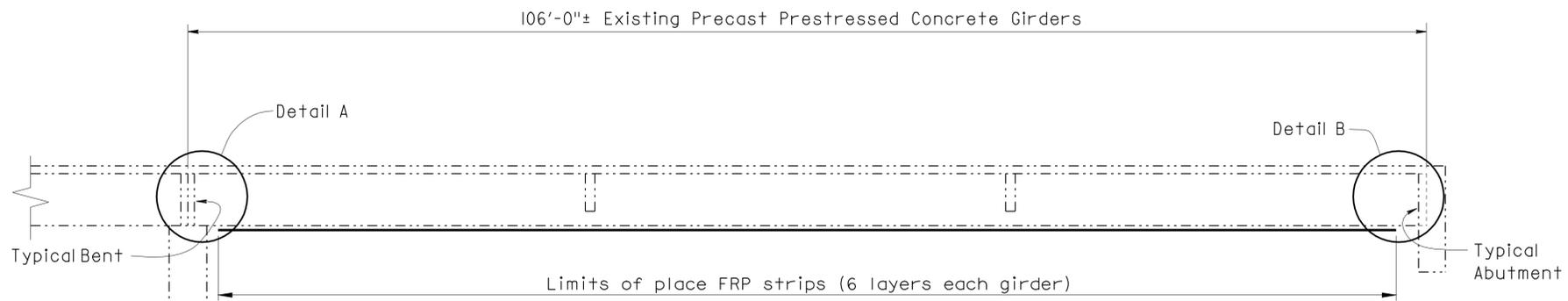


REVISION DATES	SHEET	OF
7-15-11	6	7

USERNAME => s128843 DATE PLOTTED => 07-MAR-2012 TIME PLOTTED => 17:04

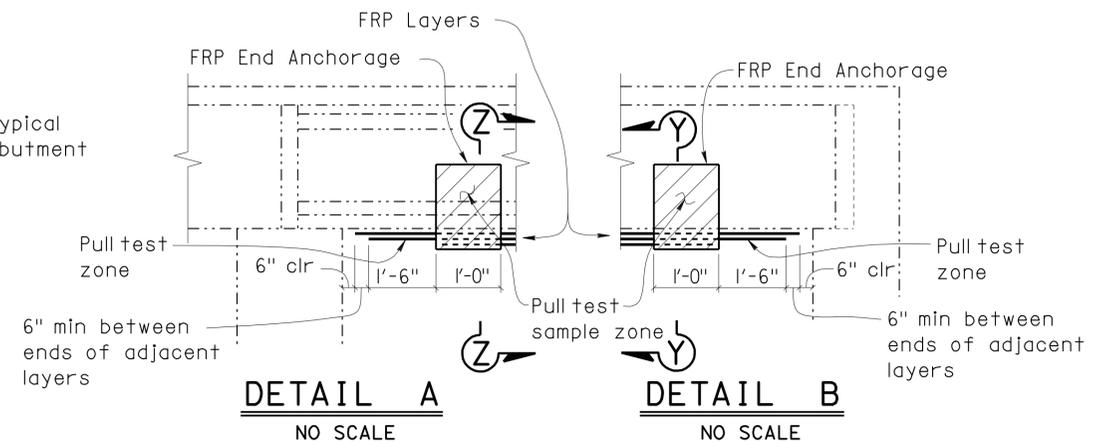
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Tuo	120	R44.8	52	52

10-31-11  
 REGISTERED CIVIL ENGINEER DATE  
 3-5-12  
 PLANS APPROVAL DATE  
 REGISTERED PROFESSIONAL ENGINEER  
 TIMOTHY J. POWELL  
 No. C 61037  
 Exp. 12-31-12  
 CIVIL  
 STATE OF CALIFORNIA  
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**ELEVATION**  
NO SCALE

**NOTES:**  
FRP = Fiber Reinforced Polymer (wet lay-up)



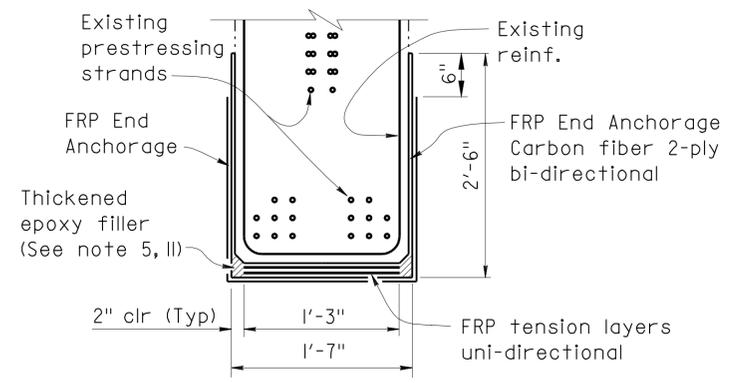
**DETAIL A**  
NO SCALE

**DETAIL B**  
NO SCALE

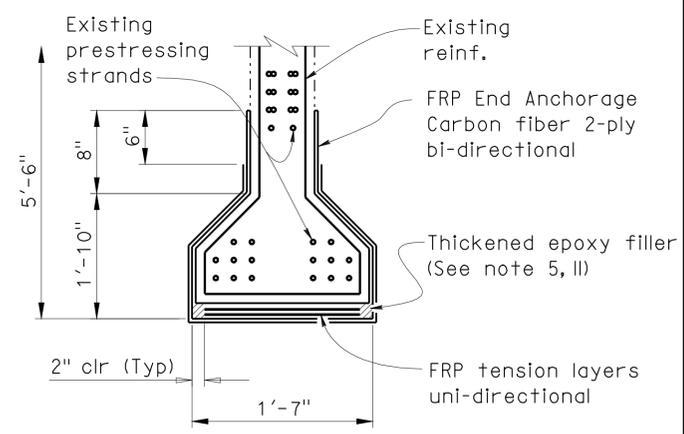
Note:  
I-Girder termination at bent shown. Block girder termination may occur.

Note:  
Block girder termination at abutment shown. I-Girder girder termination may occur.

- FRP Notes:**
- For all subsequent notes, surfaces shall be defined as the surface to receive the composite. Fabric refers to the unidirectional or bi-directional fiber. Fiber Reinforced Polymer (FRP) composite is Carbon fiber and Epoxy resin.
  - Minimum number of layers for Carbon System is based on minimum effective fiber layer thickness of 0.0065 inches. Fewer number of layers can be installed for effectively thicker (fiber) layers provided that an equivalent stiffness is maintained.



**SECTION Z-Z BLOCK GIRDER**  
NO SCALE



**SECTION Y-Y I-GIRDER**  
NO SCALE

DESIGN	BY T. Powell	CHECKED F. Espinoza
DETAILS	BY M. Hallstrom	CHECKED F. Espinoza
QUANTITIES	BY T. Powell	CHECKED F. Espinoza

**STATE OF CALIFORNIA**  
DEPARTMENT OF TRANSPORTATION

**DIVISION OF MAINTENANCE**  
STRUCTURE MAINTENANCE DESIGN

BRIDGE NO.	32-0055
POST MILE	R44.84

**BIG OAK SIDE HILL VIADUCT**  
**FIBER REINFORCED POLYMER DETAILS**