

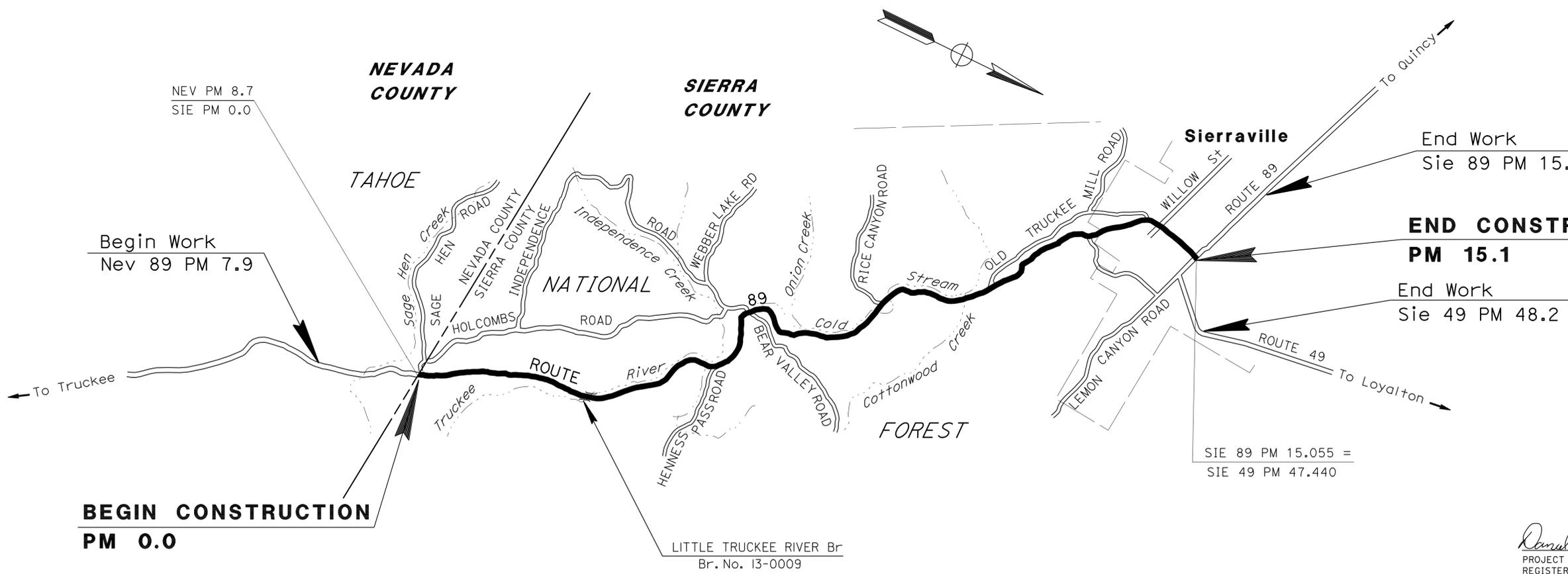
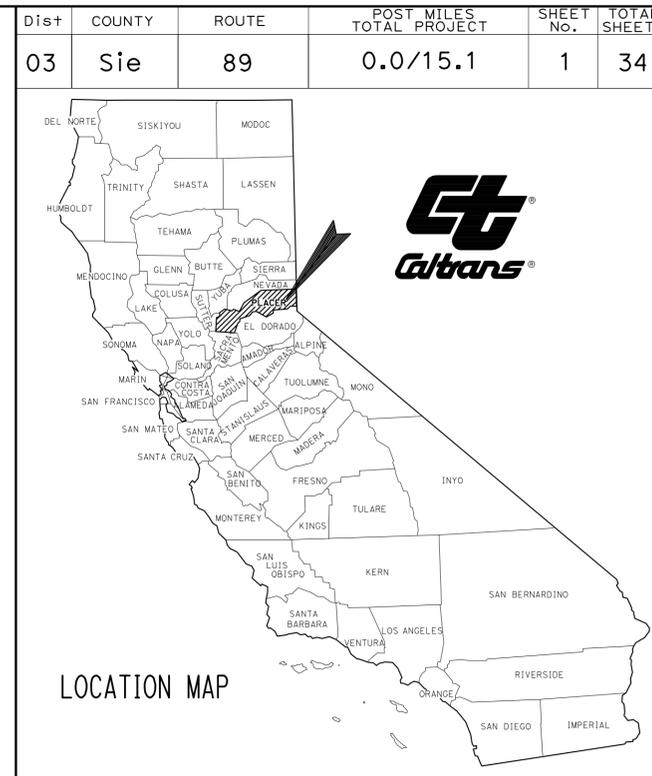
INDEX OF PLANS

SHEET No.	DESCRIPTION
1	TITLE AND LOCATION MAP
2-3	TYPICAL CROSS SECTIONS
4-9	CONSTRUCTION DETAILS
10	CONSTRUCTION AREA SIGNS
11-12	PAVEMENT DELINEATION QUANTITIES
13-15	SUMMARY OF QUANTITIES
16-34	REVISED AND NEW STANDARD PLANS

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

STATE OF CALIFORNIA STP-P089(101)E  
**DEPARTMENT OF TRANSPORTATION**  
**PROJECT PLANS FOR CONSTRUCTION ON**  
**STATE HIGHWAY**  
**IN SIERRA COUNTY**  
**AT SIERRAVILLE**  
**FROM NEVADA COUNTY LINE TO**  
**ROUTE 49/89 SEPARATION**

TO BE SUPPLEMENTED BY STANDARD PLANS DATED MAY 2006



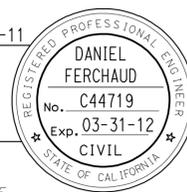
NO SCALE

PROJECT MANAGER PAT KELLEY  
DESIGN ENGINEER PAT KELLEY

*Daniel Ferchaud* 5-24-11  
 PROJECT ENGINEER DATE  
 REGISTERED CIVIL ENGINEER

**May 16, 2011**  
 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.



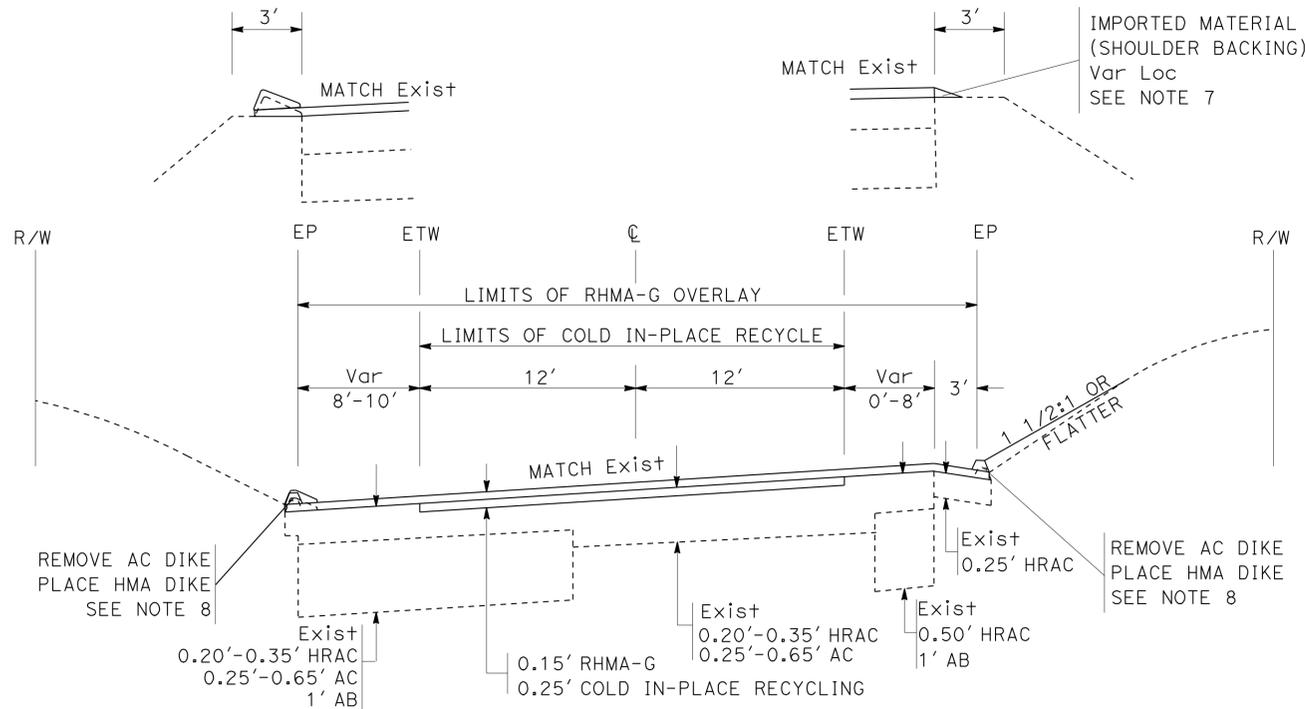
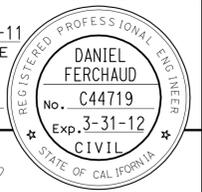
THE CONTRACTOR SHALL POSSESS THE CLASS (OR CLASSES) OF LICENSE AS SPECIFIED IN THE "NOTICE TO BIDDERS."

CONTRACT No.	<b>03-2F5804</b>
PROJECT ID	<b>0300020622</b>

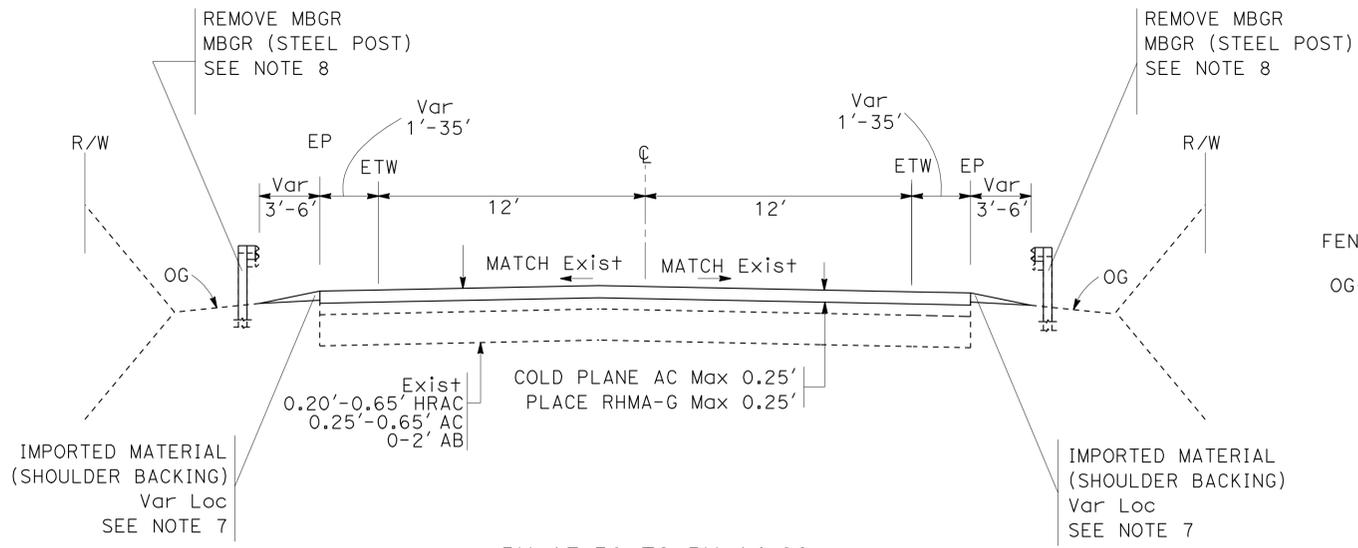
DATE PLOTTED => 12-AUG-2011  
TIME PLOTTED => 06:50  
05-17-11



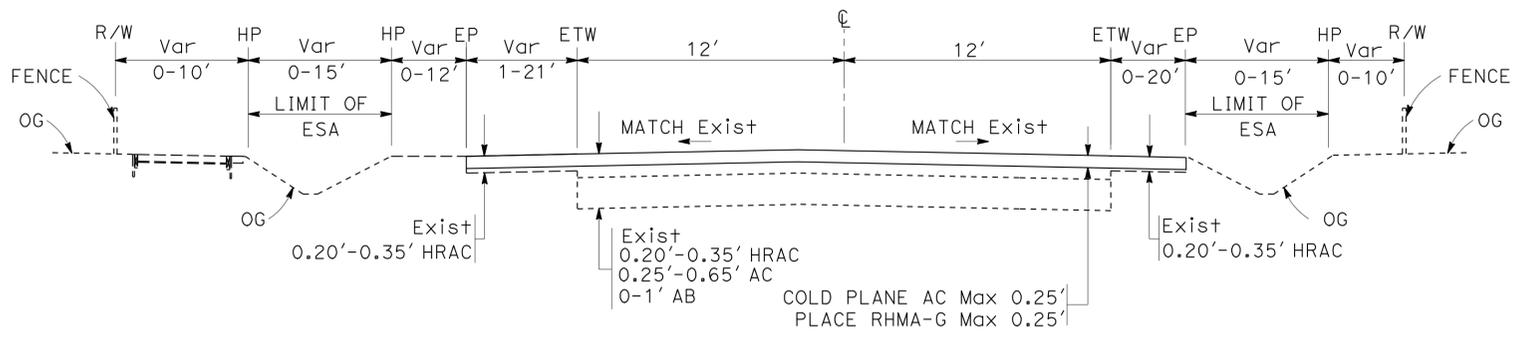
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sie	89	0.0/15.1	3	34
<i>Daniel Ferchaud</i> REGISTERED CIVIL ENGINEER			5-24-11	DATE	
5-16-11			PLANS APPROVAL DATE		
<small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small>					



PM 11.60 TO PM 11.75



PM 13.56 TO PM 14.20

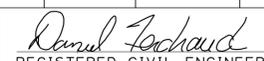
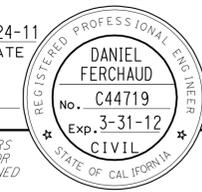


PM 14.20 TO PM 15.06

**ROUTE 89**

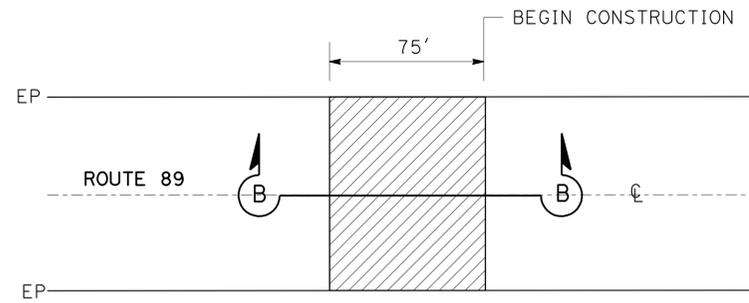
**TYPICAL CROSS SECTIONS**  
NO SCALE

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans**  
 MAINTENANCE ENGINEERING  
 FUNCTIONAL SUPERVISOR: PAT KELLEY  
 REVISIONS: D'ARCY MCLEOD, DAN FERCHAUD, CALCULATED/DESIGNED BY, CHECKED BY

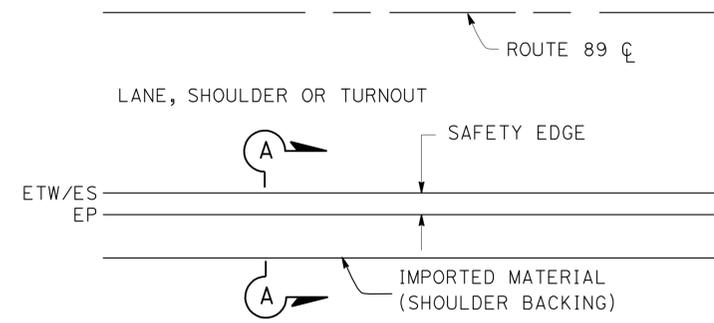
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sie	89	0.0/15.1	4	34
 REGISTERED CIVIL ENGINEER			5-24-11	DATE	
5-16-11 PLANS APPROVAL DATE					
<small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small>					

**NOTES:**

1. EXISTING UTILITY FACILITIES HAVE NOT BEEN PLOTTED ON THESE PLANS.



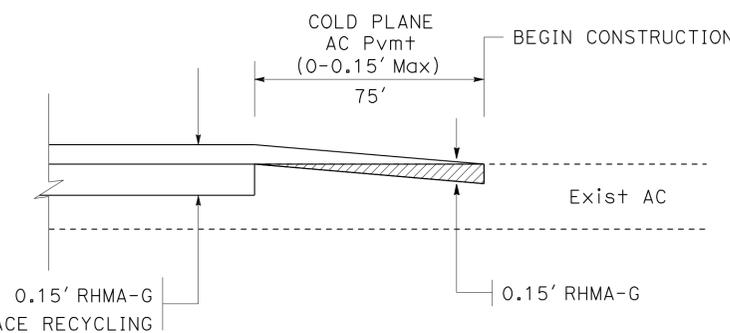
**AC PAVING CONFORM AT BEGIN CONSTRUCTION**



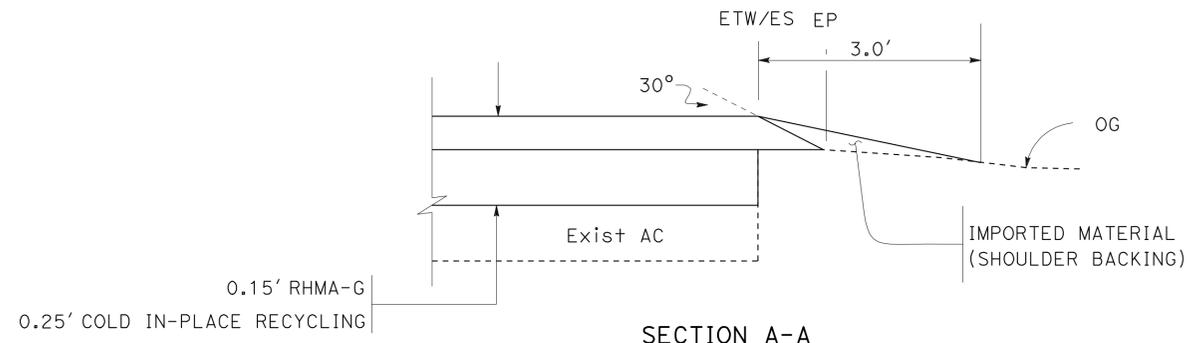
**SAFETY EDGE DETAIL**

**LEGEND:**

 COLD PLANE AC Pvm+ (0-0.15')

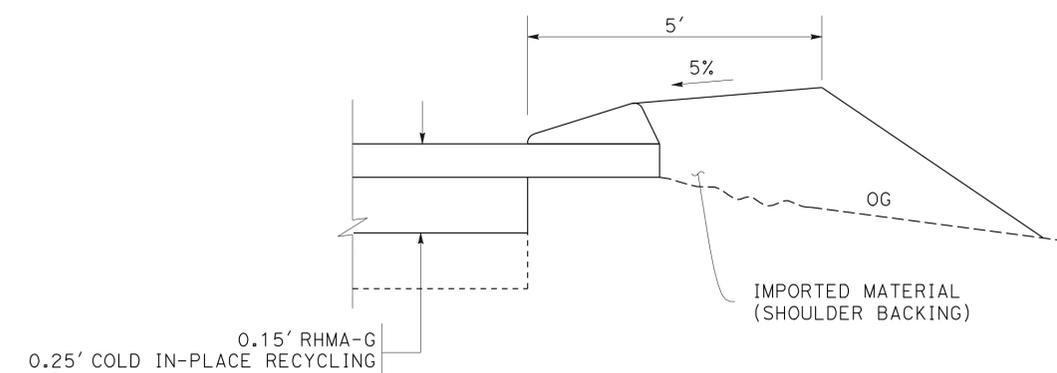


**SECTION B-B**

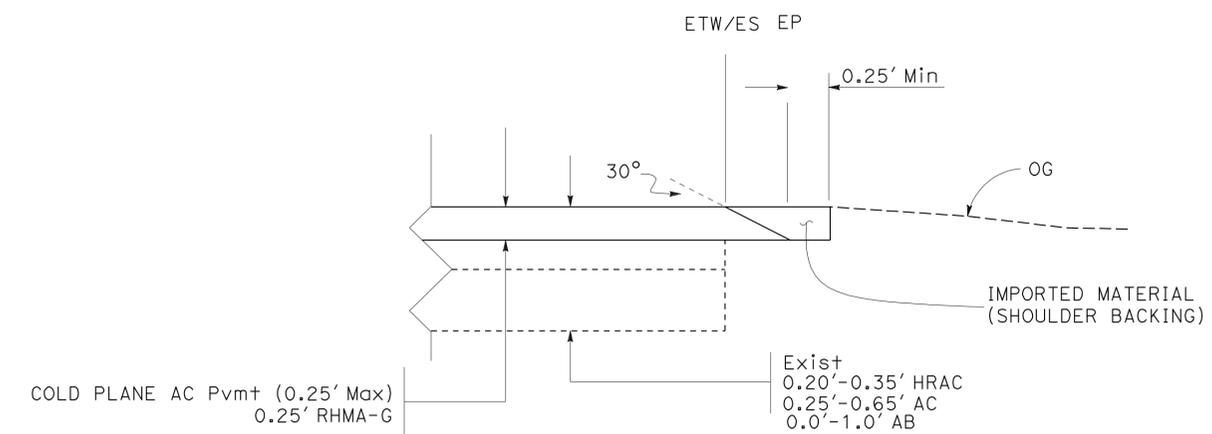


**SECTION A-A**

CASE A - OVERLAY AND COLD IN-PLACE RECYCLING



**IMPORTED MATERIAL (SHOULDER BACKING)**



**SECTION A-A**

CASE B - COLD PLANE AC Pvm+ AND OVERLAY

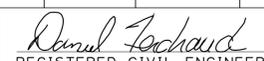
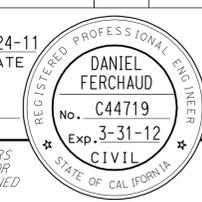
**CONSTRUCTION DETAILS**

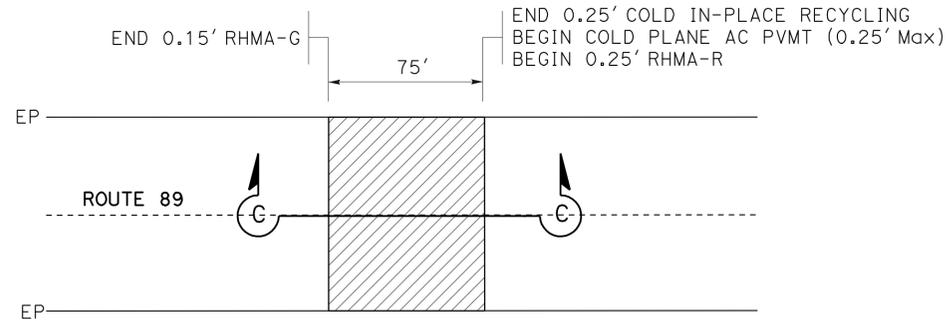
NO SCALE

**C-1**

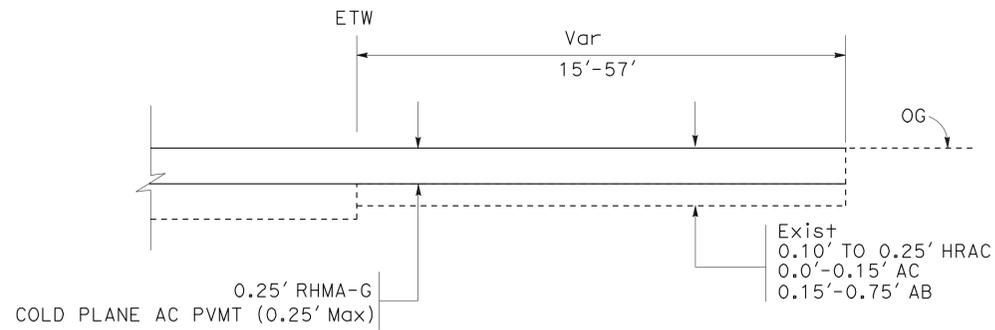
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Maintenance Engineering**  
 FUNCTIONAL SUPERVISOR: PAT KELLEY  
 D'ARCY MCLEOD  
 DAN FERCHAUD  
 REVISOR: DAN FERCHAUD  
 DATE: 5-16-11  
 CALCULATED/DESIGNED BY: DAN FERCHAUD  
 CHECKED BY: PAT KELLEY



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sie	89	0.0/15.1	5	34
 REGISTERED CIVIL ENGINEER			5-24-11	DATE	
5-16-11 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>					

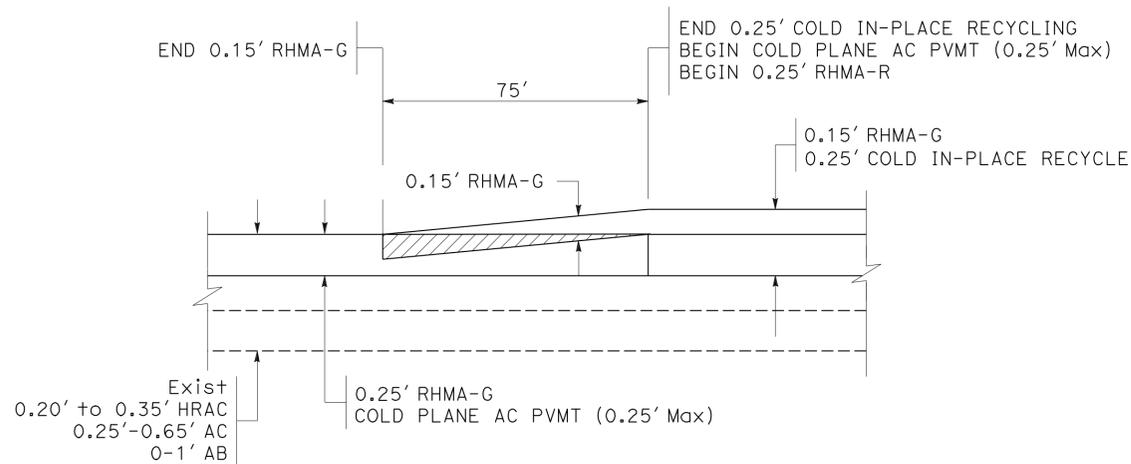


**AC PAVING CONFORM AT END COLD IN-PLACE RECYCLING**

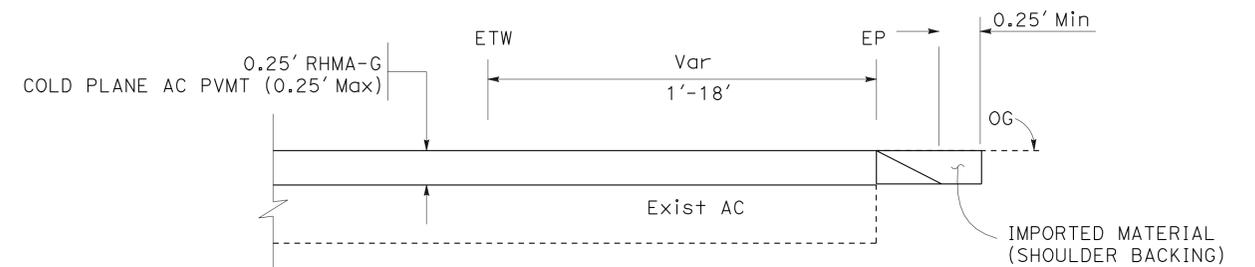


**PAVED DRIVEWAYS AND INTERSECTIONS**

PM 13.56 TO 15.06

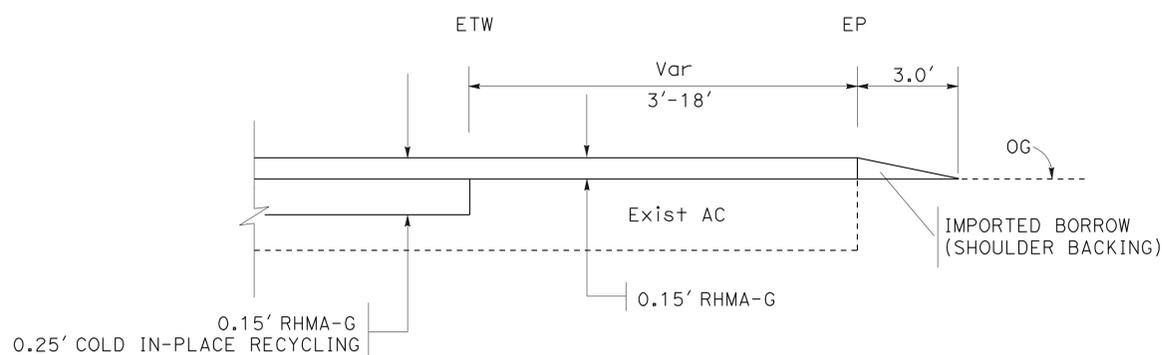


**SECTION C-C**



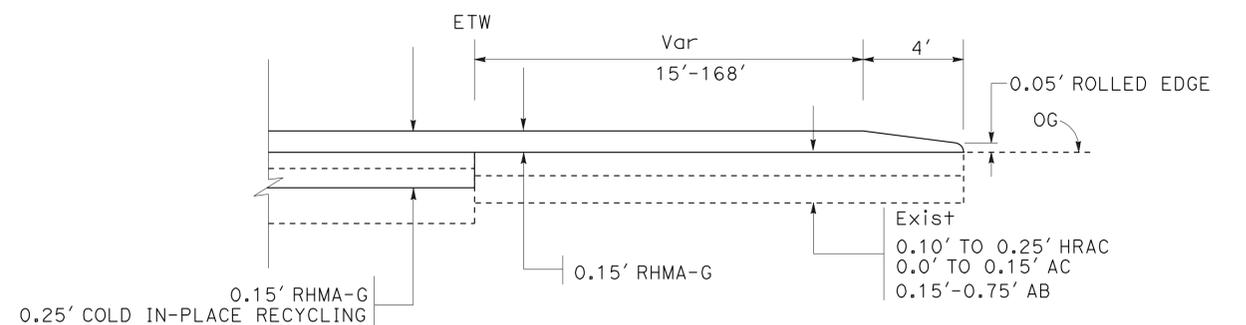
**TURNOUTS**

PM 13.56 TO 15.06



**TURNOUTS**

PM 0.0 TO 13.56



**PAVED DRIVEWAYS AND INTERSECTIONS**

PM 0.0 TO 13.56

**CONSTRUCTION DETAILS**

NO SCALE

**C-2**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Maintenance Engineering**  
 Caltrans

REVISOR BY DATE

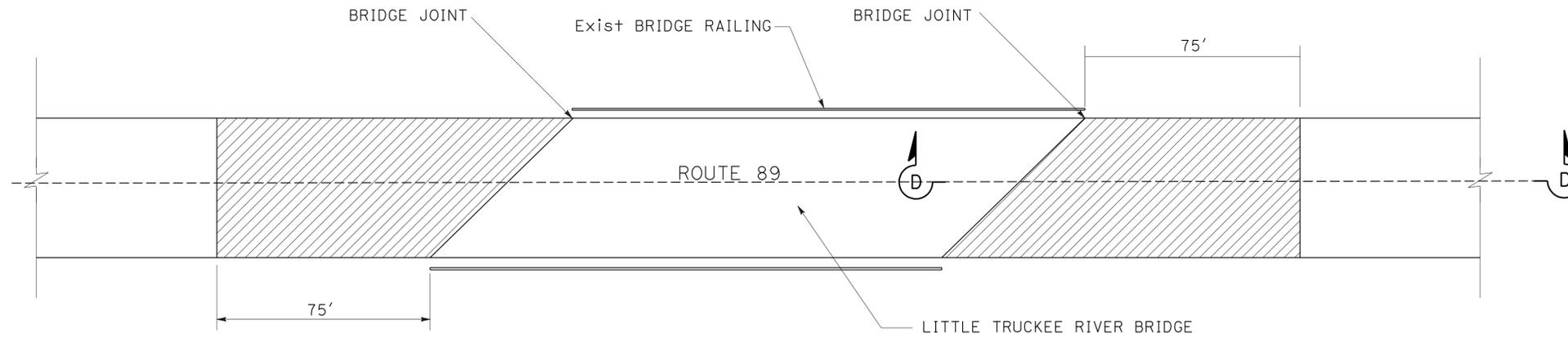
D'ARCY MCLEOD  
DAN FERCHAUD

CALCULATED/DESIGNED BY CHECKED BY

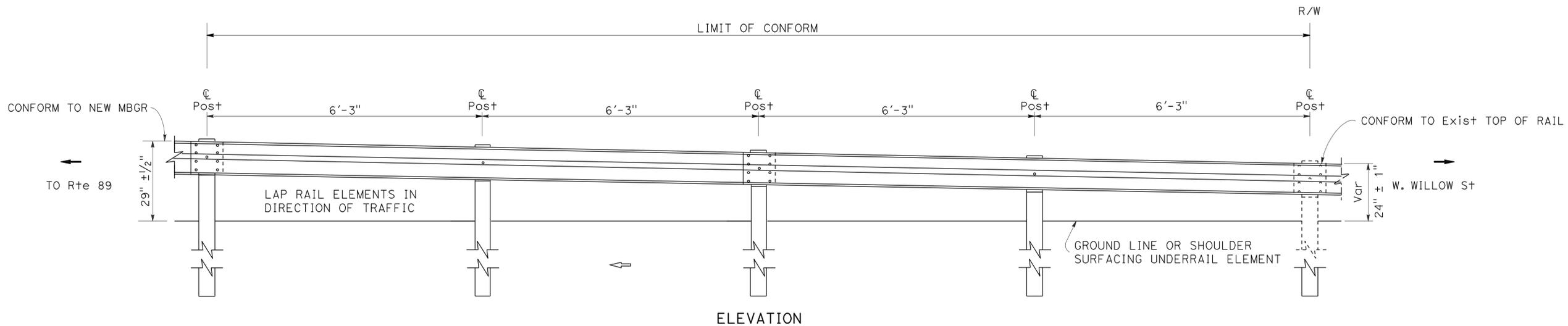
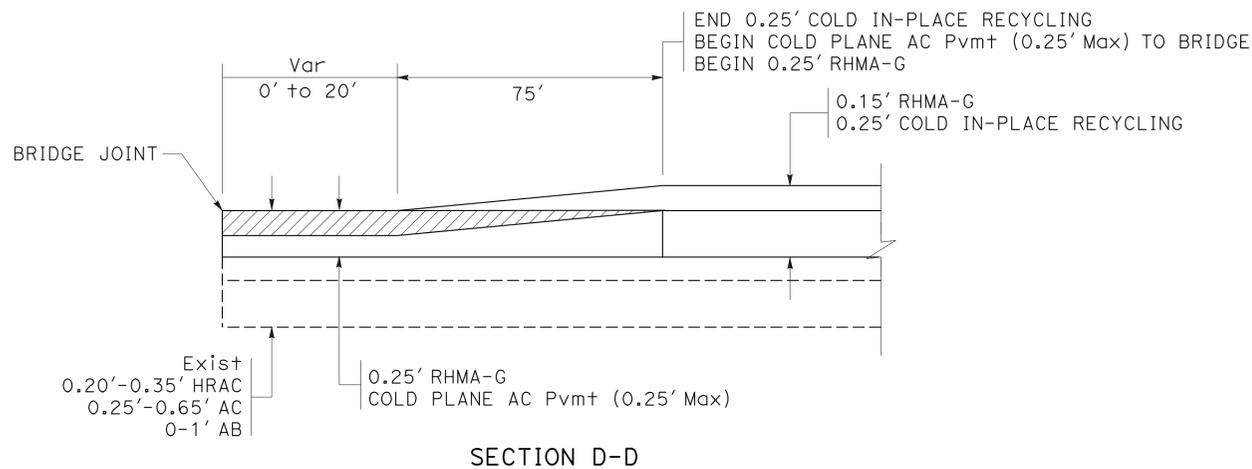
FUNCTIONAL SUPERVISOR  
PAT KELLEY

USERNAME => s113559  
DGN FILE => 0300020622ga002.dgn

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sie	89	0.0/15.1	6	34
<i>Daniel Ferchaud</i> REGISTERED CIVIL ENGINEER			5-24-11	DATE	
5-16-11			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.					



**AC PAVING CONFROM AT BEGIN/END LITTLE TRUCKEE RIVER BRIDGE**



**METAL BEAM GUARD RAILING TAPER (DOUBLE RAIL SPAN)**

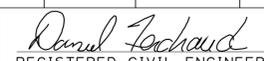
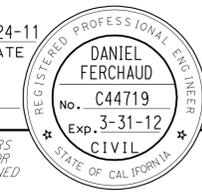
W. WILLOW ST AND ROUTE 89 EASTBOUND MBGR

**CONSTRUCTION DETAILS**

NO SCALE

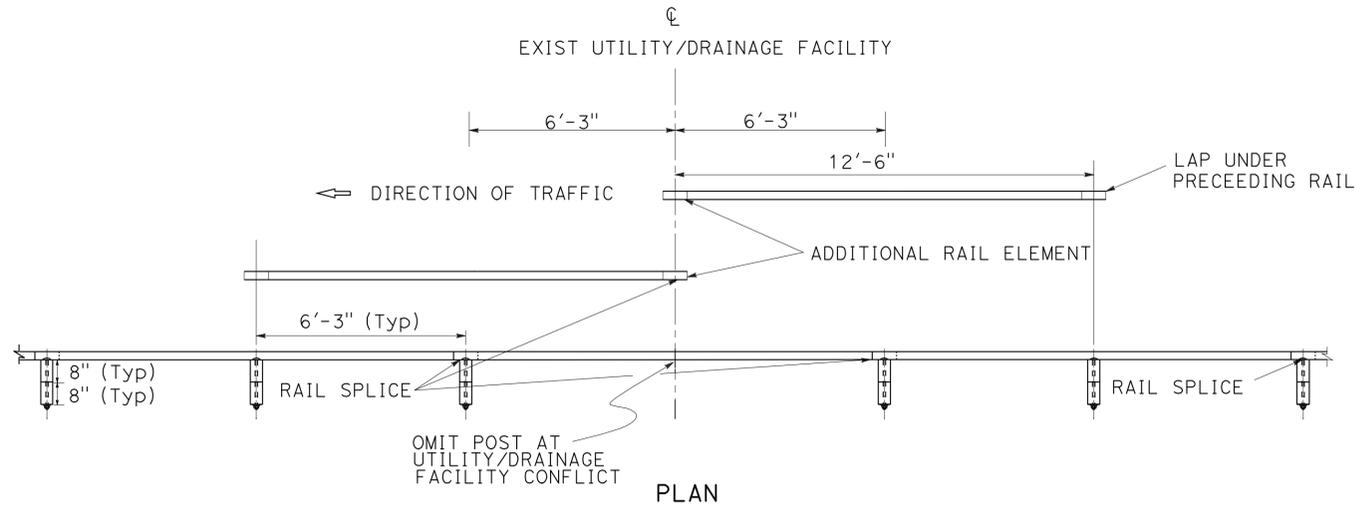
**C-3**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	FUNCTIONAL SUPERVISOR	DESIGNED BY	REVISOR
<b>Caltrans</b>	PAT KELLEY	DAN FERCHAUD	D'ARCY MCLEOD
<b>MAINTENANCE ENGINEERING</b>	CHECKED BY	DATE	DATE

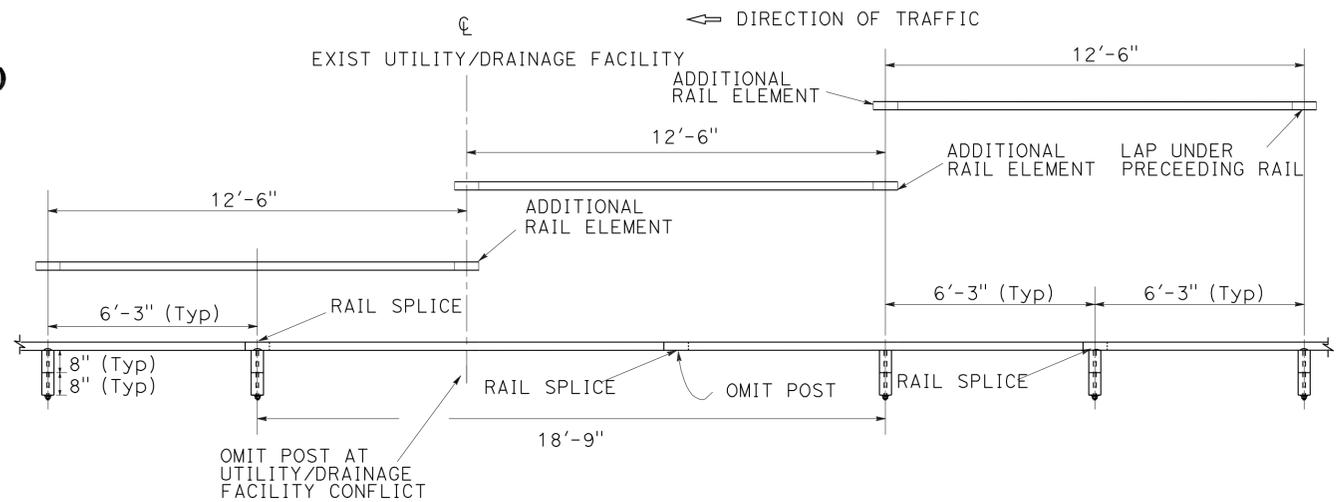
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sie	89	0.0/15.1	7	34
 REGISTERED CIVIL ENGINEER			5-24-11	DATE	
5-16-11			PLANS APPROVAL DATE		
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.					
					

**NOTES:**

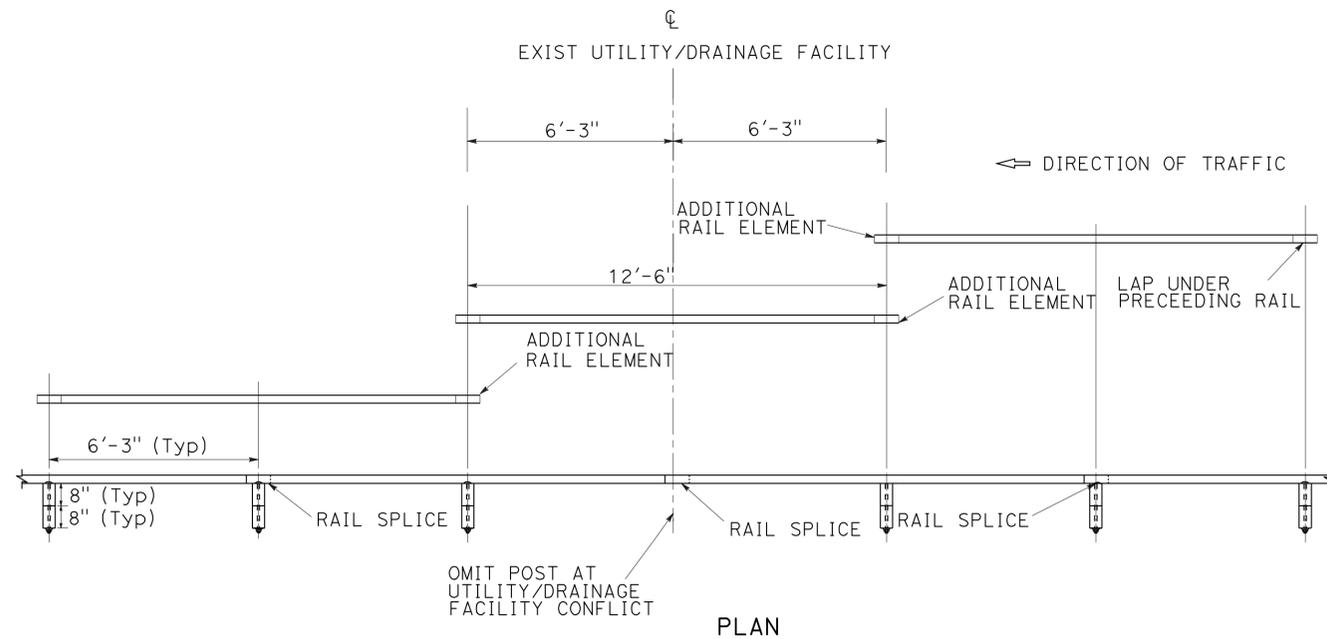
1. APPLICATION OF NESTED RAIL TO BE DETERMINED BY ENGINEER.



**2-RAIL NESTED MBGR ELEMENT (SPLICE IN CENTER)**



**3-RAIL NESTED MBGR ELEMENT (TWO POSTS OMITTED)**



**3-RAIL NESTED MBGR ELEMENT (SPLICE AT POST)**

**CONSTRUCTION DETAILS**

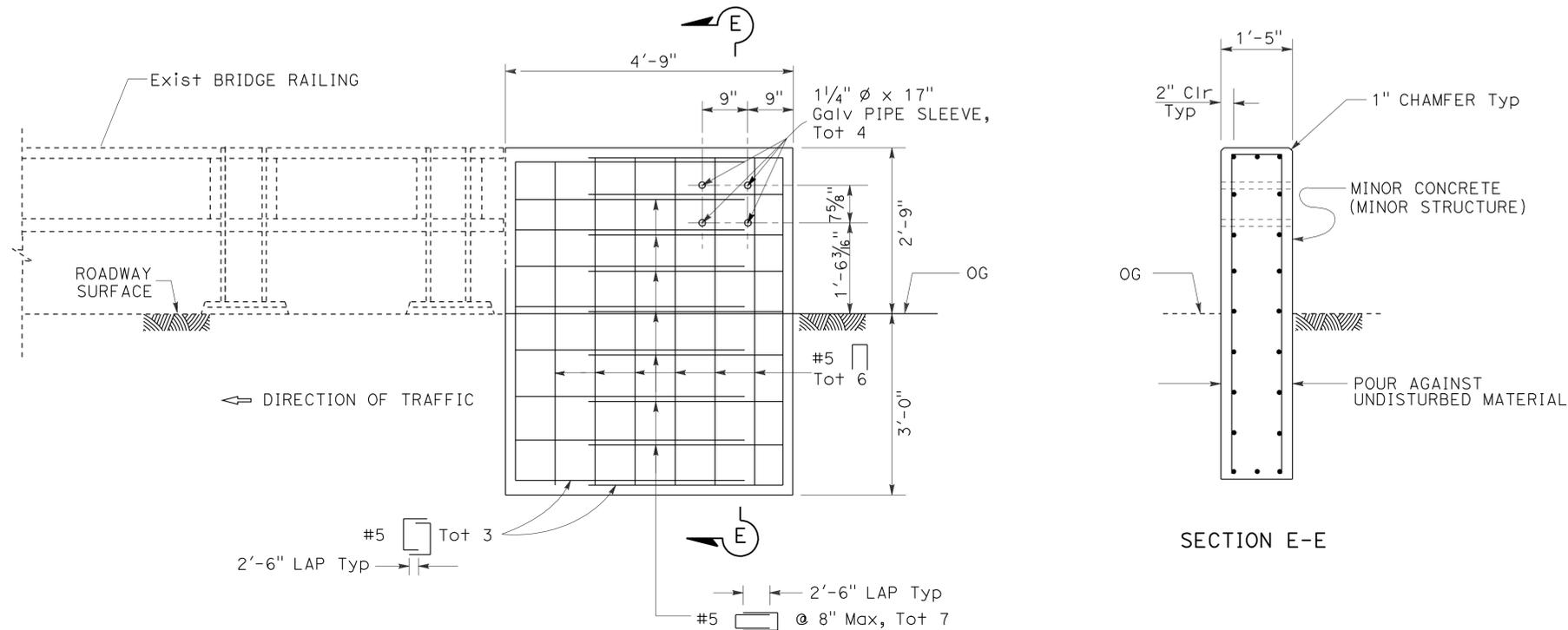
NO SCALE

**C-4**

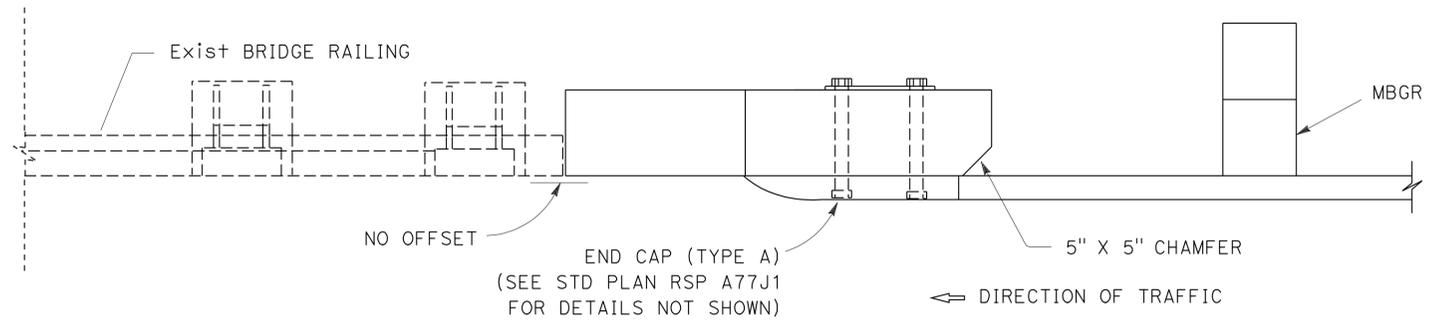
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sie	89	0.0/15.1	8	34
<i>Daniel Ferchaud</i> REGISTERED CIVIL ENGINEER			5-24-11	DATE	
5-16-11			PLANS APPROVAL DATE		
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.					

**NOTES:**

- EXISTING UTILITY FACILITIES HAVE NOT BEEN POSITIVELY IDENTIFIED.
- EXISTING BARRIER DIMENSIONS SHALL BE VERIFIED BY THE CONTRACTOR IN THE FIELD BEFORE FABRICATING ANY END CONNECTION TO CONFORM WITH EXISTING CONDITIONS.



**ELEVATION  
CONCRETE END BLOCK DETAIL**



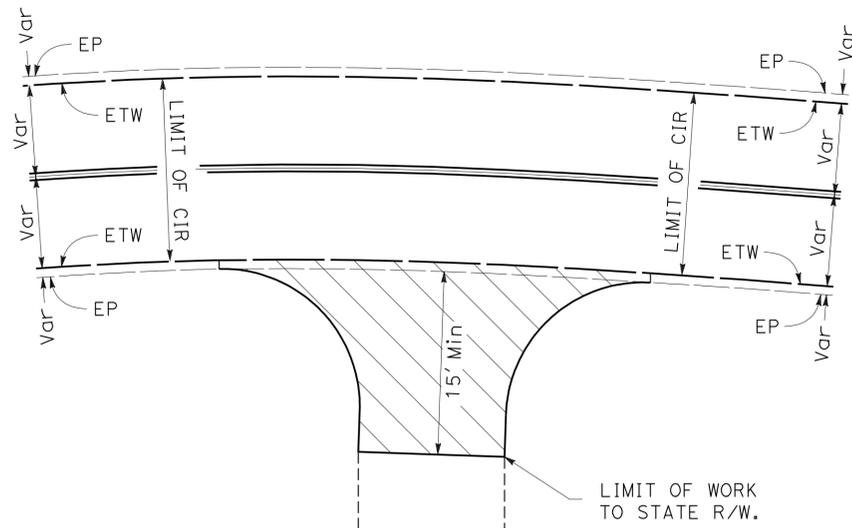
**PLAN**

**CONSTRUCTION DETAILS**

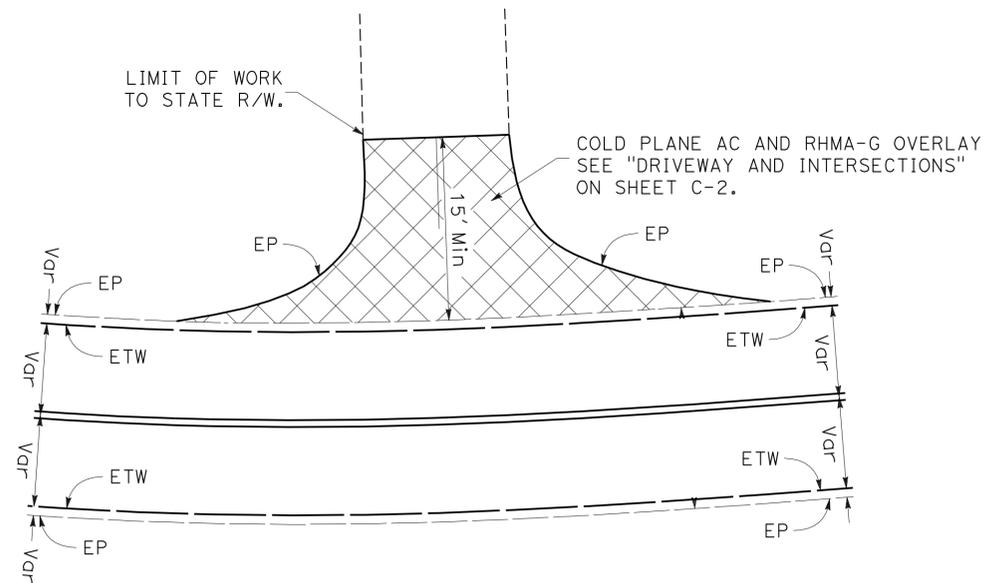
NO SCALE

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	MAINTENANCE ENGINEERING	FUNCTIONAL SUPERVISOR	CHECKED BY	DESIGNED BY	REVISOR	DATE
		PAT KELLEY		DAN FERCHAUD		

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sie	89	0.0/15.1	9	34
<i>Daniel Ferchaud</i> REGISTERED CIVIL ENGINEER			5-24-11 DATE		
5-16-11 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>					

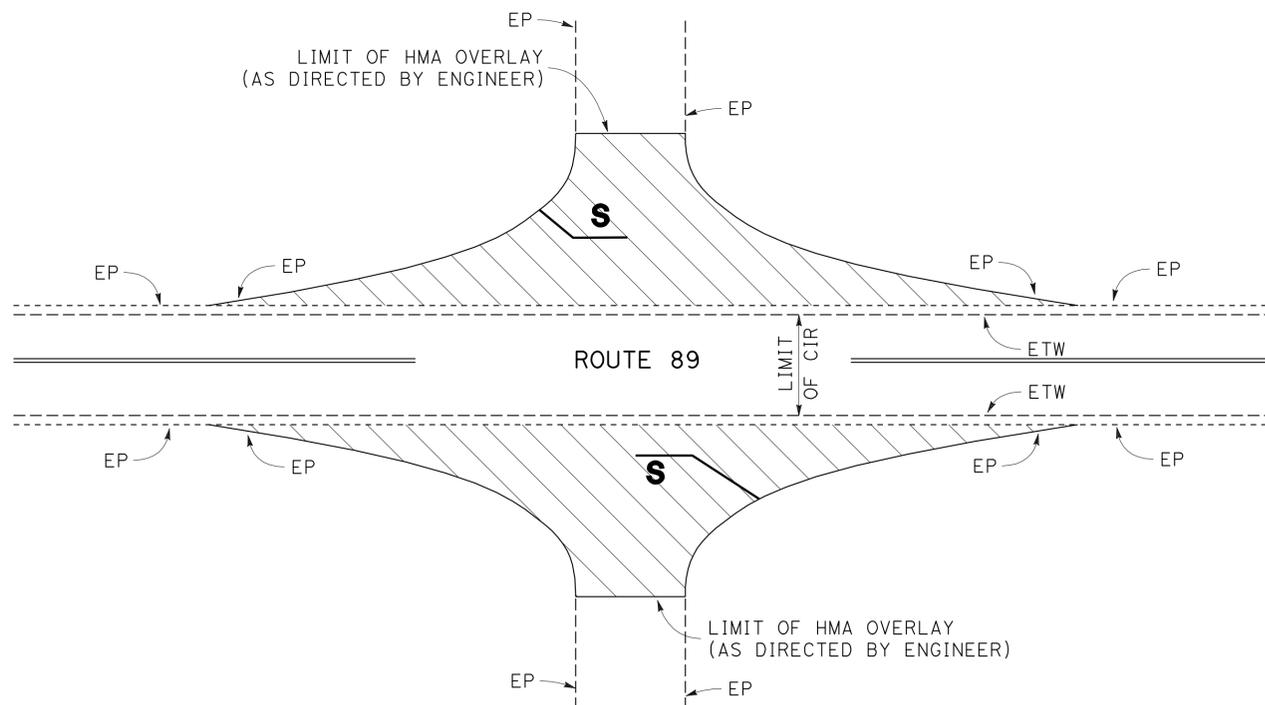


**TYPICAL DRIVEWAY**  
PM 0.00 TO 13.56

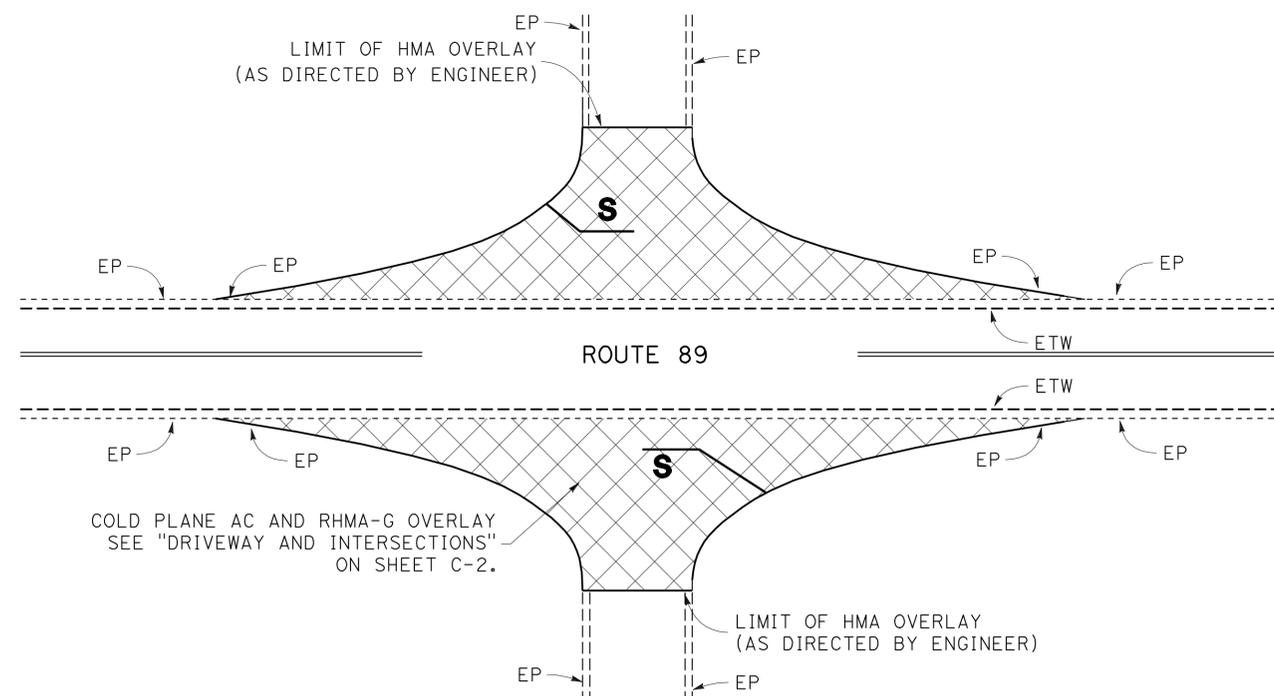


**TYPICAL DRIVEWAY**  
PM 13.56 TO 15.06

- ABBREVIATIONS:**
- CIR - COLD IN-PLACE RECYCLING
- LEGEND:**
- COLD PLANE AC AND RHMA-G OVERLAY
  - RHMA-G OVERLAY



**TYPICAL INTERSECTIONS**  
PM 0.00 TO 13.56



**TYPICAL INTERSECTIONS**  
PM 13.56 TO 15.06

**CONSTRUCTION DETAILS**  
NO SCALE

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans**  
 MAINTENANCE ENGINEERING  
 FUNCTIONAL SUPERVISOR: PAT KELLEY  
 CALCULATED/DESIGNED BY: D'ARCY MCLEOD  
 CHECKED BY: DAN FERCHAUD  
 REVISED BY: DATE REVISION

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sie	89	0.0/15.1	10	34

<i>Daniel Ferchaud</i>		5-24-11
REGISTERED CIVIL ENGINEER	DATE	
5-16-11		
PLANS APPROVAL DATE		

REGISTERED PROFESSIONAL ENGINEER  
**DANIEL FERCHAUD**  
 No. C44719  
 Exp. 3-31-12  
 CIVIL  
 STATE OF CALIFORNIA

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

### STATIONARY MOUNTED CONSTRUCTION AREA SIGNS

SIGN LETTER	SIGN CODE		PANEL SIZE	SIGN MESSAGE	No. OF POSTS AND SIZE	No. OF SIGNS
	FEDERAL	CALIFORNIA				
A	G20-1 [Spec] (15)		60" x 30"	ROAD WORK NEXT 15 MILES	2 - 4" x 6"	3
B	W20-1	C23	48" x 48"	ROAD WORK AHEAD	1 - 6" x 6"	13
C	G20-2	C14	36" x 18"	END ROAD WORK	1 - 4" x 4"	5
D		C40(Mod)	48" x 36"	TRAFFIC FINES DOUBLED IN WORK ZONES	1 - 4" x 6"	3

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

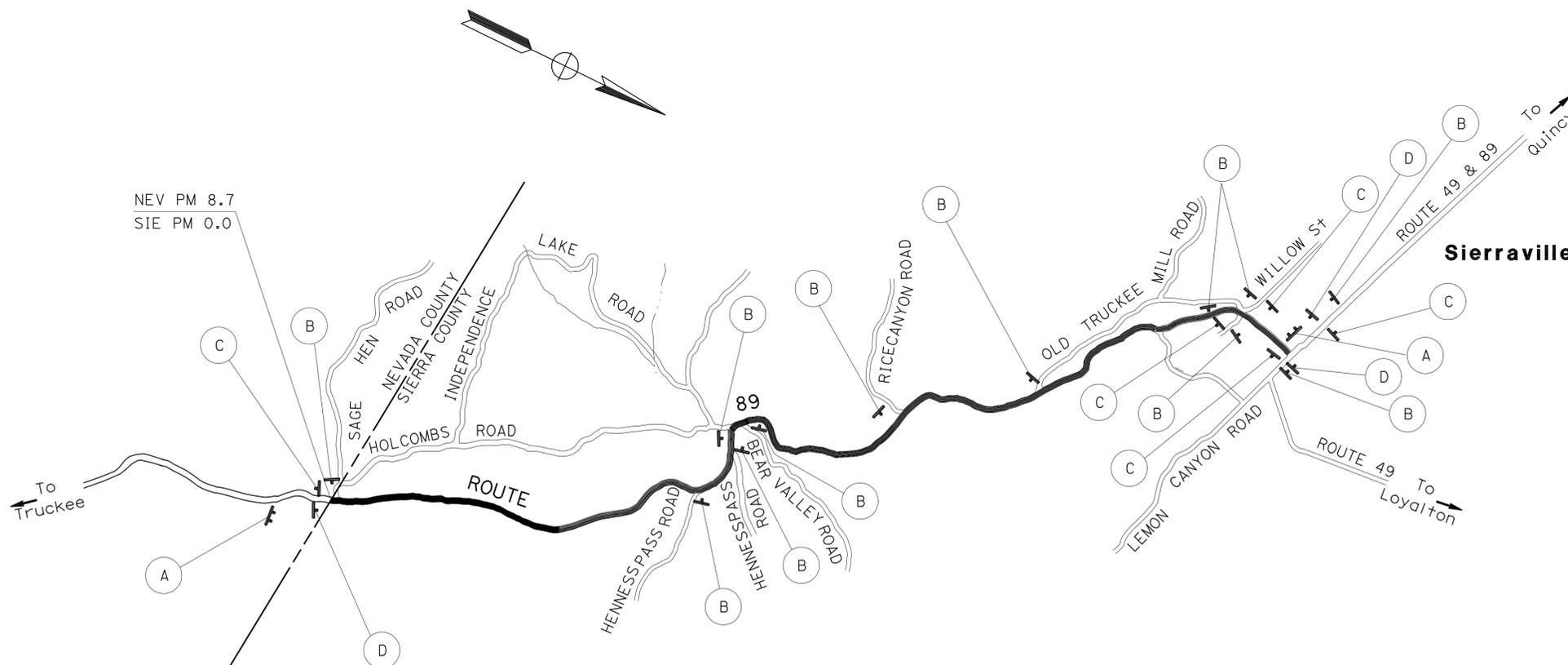
#### LEGEND:

<CA> - CALIFORNIA SIGN CODE

#### SIGN DETAILS

**A** G20-1 [Spec] (15)  
**ROAD WORK NEXT 15 MILES**  
 6" C SERIES LETTERS  
 60"X30"  
 RETROREFLECTIVE ORANGE BACKGROUND WITH BLACK LEGEND AND BORDER.

**D** C40(Mod) <CA>  
**TRAFFIC FINES DOUBLED IN WORK ZONES**  
 4" D SERIES LETTERS  
 48"X36"  
 RETROREFLECTIVE WHITE BACKGROUND WITH BLACK LEGEND AND BORDER.



### CONSTRUCTION AREA SIGNS

NO SCALE

CS-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Maintenance Engineering**  
 D'ARCY MCLEOD  
 DAN FERCHAUD  
 CALCULATED/DESIGNED BY  
 CHECKED BY  
 FUNCTIONAL SUPERVISOR  
 PAT KELLEY

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sie	89	0.0/15.1	11	34

*Daniel Ferchaud*  
 REGISTERED CIVIL ENGINEER DATE 5-24-11  
 5-16-11  
 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.

### ROADWAY DELINEATION

LOCATION	DETAIL			LF							
	BEGIN PM	END PM	CENTER L+/R+	18	21	28	5	18	27B	27C	38A
	0.00	1.89	CENTER		19,938						
	0.00	0.07	L+						370		
	0.00	5.16	R+						27,245		
	0.07	0.11	L+							211	
	0.11	3.73	L+						19,114		
	1.89	1.99	CENTER	537				537			
	1.99	2.82	CENTER				4359				
	2.82	3.02	CENTER	1066				1066			
	3.02	3.26	CENTER		2502						
	3.26	3.45	CENTER	1011				1011			
	3.45	3.56	CENTER				562				
	3.56	3.74	CENTER	933				933			
	3.73	3.75	L+							106	
	3.74	3.90	CENTER		1678						
	3.75	6.43	L+					14,150			
	3.90	4.08	CENTER	954				954			
	4.08	6.33	CENTER		23,760						
	5.16	5.21	R+							264	
	5.21	6.36	R+					6072			
	6.33	6.37	CENTER			848					
	6.36	6.43	R+							370	
	6.37	6.39	R+								106
	6.40	6.42	L+								106
	6.43	6.49	CENTER			1268					
	6.43	6.49	L+							317	
	6.43	8.83	R+					12,672			
	6.49	9.10	L+					13,781			
	6.49	7.71	CENTER		12,866						
	7.71	7.81	CENTER	508				508			
	7.81	8.02	CENTER				1109				
	8.02	8.06	CENTER	217				217			
	8.06	8.50	CENTER		4594						
	8.50	8.65	CENTER	757				757			
	8.65	8.82	CENTER				904				
	8.82	8.95	CENTER	671				671			
SUB TOTAL				6654	65,338	2116	6934	6654	93,403	1267	229

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

FUNCTIONAL SUPERVISOR  
**PAT KELLEY**

CALCULATED/DESIGNED BY  
**D'ARCY MCLEOD**

CHECKED BY  
**DAN FERCHAUD**

REVISOR  
**D'ARCY MCLEOD**

DATE REVISOR  
**DAN FERCHAUD**

## PAVEMENT DELINEATION QUANTITIES

### PDQ-1

LAST REVISION | DATE PLOTTED => 12-AUG-2011  
 05-18-11 TIME PLOTTED => 08:50

### ROADWAY QUANTITIES

LOCATION	4" THERMOPLASTIC TRAFFIC STRIPE (RECESSED)					4" THERMOPLASTIC TRAFFIC STRIPE (RECESSED, BROKEN 36-12)		4" TWO-COMPONENT PAINT TRAFFIC STRIPE	4" TWO-COMPONENT PAINT TRAFFIC STRIPE (BROKEN 12-3)	8" THERMOPLASTIC TRAFFIC STRIPE (RECESSED)
	18	21	28	5	18	27B	27C	38A		
DETAIL	BEGIN PM	END PM	CENTER Lt/Rt	LF						
	8.83	8.86	R+							
	8.86	10.62	R+					9293		
	8.95	9.32	CENTER		3874					
	9.10	9.13	L+							
	9.13	10.25	L+					5914		
	9.32	9.42	CENTER				522			
	9.42	10.28	CENTER		9082					
	10.25	10.29	L+							
	10.28	10.45	CENTER				898			
	10.29	13.98	L+					19,483		
	10.45	10.82	CENTER			1954				
	10.62	10.65	R+							
	10.82	10.93	CENTER				581			
	10.93	12.81	CENTER		19,854					
	11.11	11.15	R+							
	11.15	14.20	R+					16,104		
	12.81	12.88	CENTER				370			
	12.88	13.00	CENTER			634				
	13.00	13.13	CENTER				687			
	13.13	13.57	CENTER		4648					
	13.57	13.68	CENTER				581			
	13.68	13.87	CENTER			1004	-			
	13.87	14.00	CENTER				687			
	13.98	14.00	L+							
	14.00	15.06	CENTER		11,194					
	14.00	14.20	L+					1056		
	14.20	14.21	L+							
	14.20	14.22	R+							
	14.21	15.06	L+					4488		
	14.22	15.06	R+					4435		
	0.00	15.06	CENTER							
	SHEET SUB TOTAL				48,652		3592	4326	60,773	
	SHEET PDQ-1 SUB TOTAL				65,338	2116	6934	6654	93,403	229
	SUB TOTAL			10,980	11,3990	2116	10,526	10,980	154,176	229
	TOTAL				12,7086		21,506	154,176	2429	229

### TWO-COMPONENT PAINT PAVEMENT MARKING

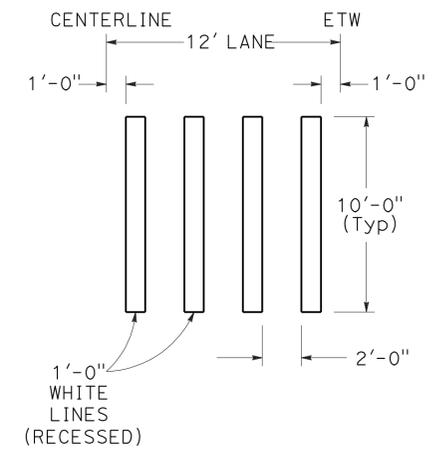
PM	Lt/Rt	SQFT	DESCRIPTION
0.07	L+	22	STOP
3.73	L+	22	STOP
5.16	R+	22	STOP
6.36	R+	22	STOP
6.39	R+	42	TYPE III (L) ARROW
6.40	L+	42	TYPE III (L) ARROW
6.43	L+	22	STOP
8.83	R+	22	STOP
9.10	L+	22	STOP
10.25	L+	22	STOP
10.62	R+	22	STOP
11.11	R+	22	STOP
14.00	L+	28	STOP
14.20	R+	22	STOP
14.20	L+	22	STOP
14.95	R+	22	STOP
14.96	R+	31	AHEAD
15.06	R+	44	2 X STOP
TOTAL		473	

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sie	89	0.0/15.1	12	34

*Daniel Ferchaud*  
 REGISTERED CIVIL ENGINEER  
 No. C44719  
 Exp. 3-31-12  
 CIVIL

5-24-11 DATE  
 5-16-11 PLANS APPROVAL DATE

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### 12" THERMOPLASTIC PAVEMENT MARKING (RECESSED)

PM	Lt/Rt	SQFT	DESCRIPTION
0.07	L+	26	LIMIT LINE
3.73	L+	26	LIMIT LINE
5.16	R+	28	LIMIT LINE
6.36	R+	28	LIMIT LINE
6.43	L+	26	LIMIT LINE
8.83	R+	28	LIMIT LINE
9.10	L+	26	LIMIT LINE
10.25	L+	26	LIMIT LINE
10.62	R+	28	LIMIT LINE
11.11	R+	28	LIMIT LINE
14.00	L+	44	LIMIT LINE
14.20	R+	28	LIMIT LINE
14.20	L+	26	LIMIT LINE
14.69	R+/L+	100	INTERNATIONAL CROSSWALK
15.06	R+	28	LIMIT LINE
TOTAL		396	

## PAVEMENT DELINEATION QUANTITIES PDQ-2

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sie	89	0.0/15.1	13	34

*Daniel Ferchaud*  
 REGISTERED CIVIL ENGINEER 5-24-11 DATE  
 5-16-11  
 PLANS APPROVAL DATE

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### METAL BEAM GUARD RAILING

LOCATION/ DESCRIPTION	REMOVE METAL BEAM GUARD RAILING	REMOVE END CAP (N)	REMOVE TERMINAL SECTION (N)	REMOVE BURIED POST ANCHOR (N)	REMOVE GROUND STRUT (N)	REMOVE CABLE ANCHOR ASSEMBLY (N)	METAL BEAM GUARD RAILING (STEEL POST)	END CAP (TYPE A) (N)	END CAP (TYPE TC) (N)	BURIED POST END ANCHOR (N)	NESTED METAL BEAM GUARD RAILING (N)	MINOR CONCRETE (MINOR STRUCTURE)	8' STEEL POST (N)	ALTERNATIVE FLARED TERMINAL SYSTEM	ALTERNATIVE IN-LINE TERMINAL SYSTEM	CABLE ANCHOR ASSEMBLY (N)	GROUND STRUT (N)	COMMENT																
																			BEGIN	END	L+/R+	LF	EA			LF	EA			CY	EA	EA		
																			PM	PM														
0.38	0.61	Rt	1225	2		1	1	1	1225	2		1		3	1		1	1																
0.84	0.89	Rt	295	2					295	2																								
0.84	0.88	Lt	240			2			240			2																						
0.97	1.02	Rt	250	2	1	1	1	1	250	2		2		3	1																			
1.38	1.44	Rt	300			2			300			2		50																				
1.38	1.44	Lt	250	2					250	2																								
1.49	1.64	Rt	788	2	1	1	1	1	788	2		1		18	1				SB LITTE TRUCKEE RIVER BRIDGE REMOVE DEPARTURE - DO NOT REPLACE															
2.62	2.63	Lt	74	2															NB LITTLE TRUCKEE RIVER BRIDE - REMOVE AND REPLACE WITH CONCRETE BLOCK															
2.63	2.64	Rt	74	2					74	1	1		1.43						SB LITTLE TRUCKEE RIVER BRIDE - REMOVE AND REPLACE WITH CONCRETE BLOCK															
2.70	2.71	Lt	74	2					74	1	1		1.43						NB LITTE TRUCKEE RIVER BRIDGE REMOVE DEPARTURE - DO NOT REPLACE															
2.69	2.70	Rt	74	2															DEER CROSSING															
5.00	5.04	Rt	150	2			2	2	150	2		2			2		2	2	DEER CROSSING															
5.01	5.05	Lt	160	2			2	2	160	2		2			2		2	2																
6.74	6.86	Lt	638	2					638	2																								
7.08	7.15	Rt	290	1	2	1	1	1	290	1		1		1		1	1	1																
7.37	7.43	Rt	325	1	2	1			325	1		1																						
8.92	8.95	Lt	145	2					145	2																								
8.92	8.95	Rt	145	2	1				145	2																								
9.39	9.42	Rt	147	2					147	2																								
9.39	9.42	Lt	156	2					156	2																								
10.57	10.60	Rt	156	2					156	2																								
10.57	10.60	Lt	187	2					187	2																								
11.76	12.23	Lt	2480	2					2480	2				38	1																			
12.27	12.39	Lt	650	2					650	2																								
13.39	13.56	Lt	900	2					900	2																								
13.70	13.73	Rt	185	2					185	2																								
13.70	13.73	Lt	191	2					191	2																								
13.79	13.85	Rt	160	2					160	2																								
13.79	13.85	Lt	155	2					155	2																								
13.91	13.94	Rt	155	2					155	2																								
13.91	13.94	Lt	155	2					155	2																								
14.18	14.20	Rt	95	1					95	1									CONFORM TO Exist MBGR ON SOUTH SIDE OF W. WILLOW St.															
14.18	14.20	Lt	105	2					105	2																								
TOTAL			11,374						11,226				2.86	6	3																			

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

## SUMMARY OF QUANTITIES

Q-1



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sie	89	0.0/15.1	13	34

*Daniel Ferchaud*  
 REGISTERED CIVIL ENGINEER 5-24-11 DATE  
 5-16-11  
 PLANS APPROVAL DATE

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### MISCELLANEOUS HOT MIX ASPHALT

LOCATION/DESCRIPTION		PLACE HOT MIX ASPHALT (MISCELLANEOUS AREA)	RUBBERIZED HOT MIX ASPHALT (GAP GRADED)	COLD PLANE ASPHALT CONCRETE PAVEMENT (0.25')	COMMENT
PM	L+/R+	SQYD	TON	SQYD	
5.27	L+	143	15		DRIVEWAYS
5.95	R+	200	20		2 DRIVEWAYS
7.54	L+	306	31		DRIVEWAY
11.75	R+	104	11		DRIVEWAY
13.24	R+	155	16		DRIVEWAY
13.28	R+	169	17		DRIVEWAY
13.85	L+	65	11	65	DRIVEWAY
13.92	R+	154	26	154	DRIVEWAY
14.00	R+	188	32	188	DRIVEWAY-GAS STATION
14.04	R+	132	22	132	DRIVEWAY-GAS STATION
14.07	L+	113	19	113	DRIVEWAY
14.09	L+	42	7	42	DRIVEWAY
14.18	L+	20	4	20	DRIVEWAY
14.19	L+	20	4	20	DRIVEWAY
14.22	L+	29	5	29	DRIVEWAY
14.31	R+	126	21	126	DRIVEWAY
14.36	L+	37	6	37	DRIVEWAY
14.37	L+	37	6	37	DRIVEWAY
14.38	L+	68	12	68	DRIVEWAY
14.40	L+	37	6	37	DRIVEWAY
14.45	L+	37	6	37	DRIVEWAY
14.47	R+	32	5	32	DRIVEWAY - CHURCH
14.48	R+	32	5	32	DRIVEWAY
14.50	L+	37	6	37	DRIVEWAY
14.52	L+	37	6	37	DRIVEWAY
14.55	L+	37	6	37	DRIVEWAY
14.56	L+	37	6	37	DRIVEWAY
14.58	L+	37	6	37	DRIVEWAY
14.64	R+	52	9	52	DRIVEWAY
14.67	R+	32	5	32	DRIVEWAY
14.69	R+	141	24	141	DRIVEWAY-POST OFFICE
14.80	R+	87	15	87	DRIVEWAY
14.75	L+	227	38	227	DRIVEWAYS-CALTRANS
14.82	R+	29	5	29	DRIVEWAY
14.85	R+	27	5	27	DRIVEWAY
14.87	R+	49	8	49	DRIVEWAY
14.88	L+	37	6	37	DRIVEWAY
14.92	L+	140	23	140	DRIVEWAY
14.93	L+	47	8	47	DRIVEWAY
14.94	R+	32	5	32	DRIVEWAY
14.97	L+	37	6	37	DRIVEWAY
14.97	R+	34	6	34	DRIVEWAY
14.98	L+	37	6	37	DRIVEWAY
14.99	R+	100	17	100	DRIVEWAY
15.01	L+	37	6	37	DRIVEWAY
15.02	L+	37	6	37	DRIVEWAY
TOTAL		3613	535*	2536**	

\* FOR GRAND TOTAL SEE ASPHALT CONCRETE RECYCLING AND PAVING TABLE.  
 \*\* FOR GRAND TOTAL SEE ASPHALT CONCRETE RECYCLING AND PAVING TABLE.

### ROADWAY QUANTITIES

LOCATION			TEMPORARY FENCE (TYPE ESA)	REPLACE LOOP DETECTOR	OBJET MARKER TYPE L-1 (CA)	COMMENT
BEGIN	END		LF	EA		
PM	PM	L+/R+				
5.12	5.26	R+	750			NORTH OF DEER CROSSING TO KYBURZ FLAT INTERPRETIVE AREA ROAD
14.72	14.72	L+/R+		2		
0.38	0.38	R+			1	
0.84	0.84	R+			1	
0.84	0.84	L+			1	
0.97	0.97	R+			1	
5.00	5.00	R+			1	
5.01	5.01	L+			1	
7.08	7.08	R+			1	
8.92	8.92	L+			1	
8.92	8.92	R+			1	
9.39	9.39	R+			1	
9.39	9.39	L+			1	
10.57	10.57	R+			1	
10.57	10.57	L+			1	
13.70	13.70	R+			1	
13.70	13.70	L+			1	
13.79	13.79	R+			1	
13.79	13.79	L+			1	
13.91	13.91	L+			1	
14.18	14.18	R+			1	
14.18	14.18	L+			1	
0.00	13.58	L+/R+				
13.58	15.06	L+/R+				
TOTAL			750	2	20	

### HOT MIX ASPHALT DIKE

LOCATION			REMOVE ASPHALT CONCRETE DIKE	PLACE HOT MIX ASPHALT DIKE (TYPE A)	PLACE HOT MIX ASPHALT DIKE (TYPE E)	MINOR HOT MIX ASPHALT
BEGIN	END		LF			TON
PM	PM	L+/R+				
11.60	11.68	L+	423		423	11.68
11.68	11.75	L+	370	370		11.75
11.68	11.75	R+	370	370		11.75
TOTAL			1163	740	423	41 *

\* FOR GRAND TOTAL SEE ASPHALT CONCRETE RECYCLING AND PAVING TABLE.

### SUMMARY OF QUANTITIES



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sie	89	0.0/15.1	15	34

*Daniel Ferchaud*  
 REGISTERED CIVIL ENGINEER DATE 5-24-11  
 5-16-11  
 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.

### ASPHALT CONCRETE RECYCLING AND PAVING

LOCATION/ DESCRIPTION	MINOR HOT MIX ASPHALT	COLD PLANE ASPHALT CONCRETE PAVEMENT (.15' Max)	COLD PLANE ASPHALT CONCRETE PAVEMENT (.25' Max)	RUBBERIZED HOT MIX ASPHALT (GAP GRADED)	TACK COAT	COLD IN-PLACE RECYCLING	EMULSIFIED RECYCLING AGENT	ASPHALTIC EMULSION (FOG SEAL COAT)	SAND COVER	IMPORTED MATERIAL (SHOULDER BACKING)	COMMENT		
												BEGIN PM	END PM
0.00	0.00	R+/L+		217		39						CONFORM @ BEGIN OF CIR	
0.00	13.58	R+/L+		20,975		190,000	1270	84	143	3047		MAINLINE ONLY	
0.11	0.11	L+		57								SAGEHEN CREEK Rd	
2.64	2.66	R+/L+		250		43						LITTLE TRUCKEE RIVER BRIDGE	
2.69	2.71	R+/L+		250		43						LITTLE TRUCKEE RIVER BRIDGE	
3.76	3.76	L+		14								UPPER TRUCKEE CREEK CAMPGROUND	
4.87	4.87	L+		52								TURNOUT	
5.28	5.28	R+		55								HENNES PASS Rd	
6.48	6.48	R+		104								COTTONWOOD CREEK Rd	
6.48	6.48	L+		64								COTTONWOOD CREEK Rd	
7.95	7.95	L+		27								TURNOUT	
8.88	8.88	R+		65								FORESTRY Rd	
9.08	9.08	L+		34								RICE CANYON Rd	
10.24	10.24	L+		106								COLD CREEK CAMPGROUND	
10.73	10.73	R+		70								COLD CREEK CAMPGROUND	
11.12	11.12	R+		41								OLD TRUCKEE Rd	
11.60	11.75	R+/L+	41									HOT MIX ASPHALT DIKE	
13.58	15.06	R+/L+		22,573	3812							MAINLINE ONLY	
14.00	14.00	L+		607	104							OLD TRUCKEE Rd	
14.11	14.11	L+		327	55							BEVERLY Ln & DRIVEWAY	
14.22	14.22	R+		511	85							E. WILLOW St & TURNOUT	
14.22	14.22	L+		555	93							W. WILLOW St.& TURNOUT	
14.31	14.31	L+		567	95							TURNOUT	
14.43	14.43	L+		212	36							TURNOUT	
14.60	14.60	L+		787	132							TURNOUT	
14.69	14.69	L+		552	92							TURNOUT - OLD SCHOOL	
14.80	14.80	L+		637	107							TURNOUT	
14.85	14.85	L+		277	47							TURNOUT	
14.90	14.90	R+		254	43							TURNOUT	
15.02	15.02	L+		400	67							TURNOUT	
15.04	15.04	L+		228	38							TURNOUT	
0.00	15.05	R+/L+		2536	535	56						MISCELLANOUS HOT MIX ASPHALT	
SUB TOTAL			41	717	31,023	27,130	56	190,000	1270	84	143	3047	
TOTAL			41	31,740		27,130	56	190,000	1270	84	143	3047	

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Maintenance Engineering**  
 FUNCTIONAL SUPERVISOR: PAT KELLEY  
 CALCULATED/DESIGNED BY: D'ARCY MCLEOD  
 CHECKED BY: DAN FERCHAUD  
 REVISED BY: DATE REVISED:

## SUMMARY OF QUANTITIES

### Q-3

LAST REVISION: DATE PLOTTED => 12-AUG-2011    TIME PLOTTED => 08:50

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sie	89	0.0/15.1	16	34

*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

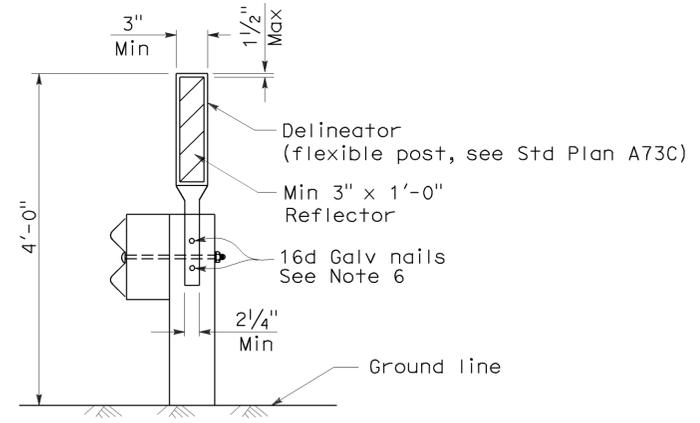
May 20, 2011  
PLANS APPROVAL DATE

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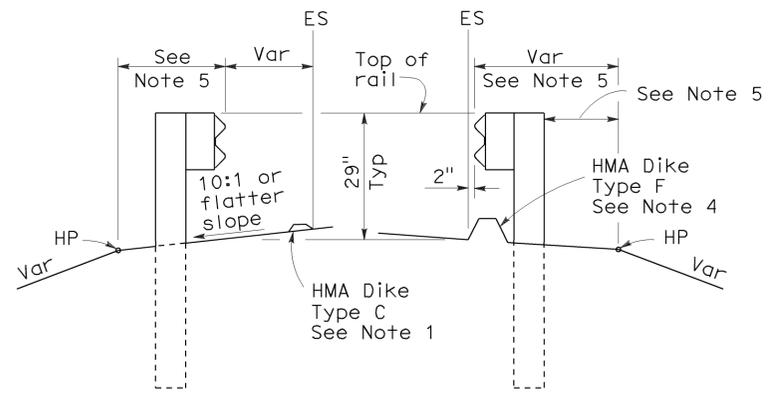
To accompany plans dated 5-16-11

**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
03	Sie	89	0.0/15.1	17	34

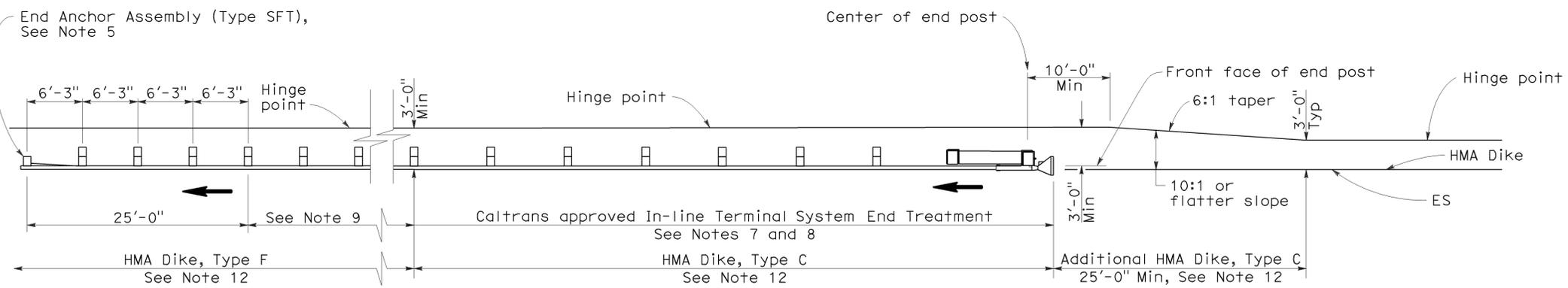
**Randell D. Hiatt**  
REGISTERED CIVIL ENGINEER

June 6, 2008  
PLANS APPROVAL DATE

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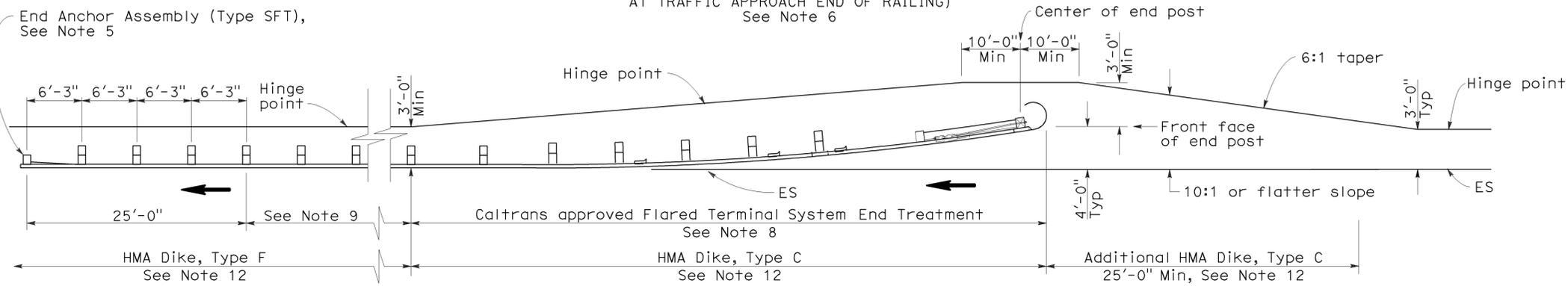
To accompany plans dated 5-16-11

2006 REVISED STANDARD PLAN RSP A77E1



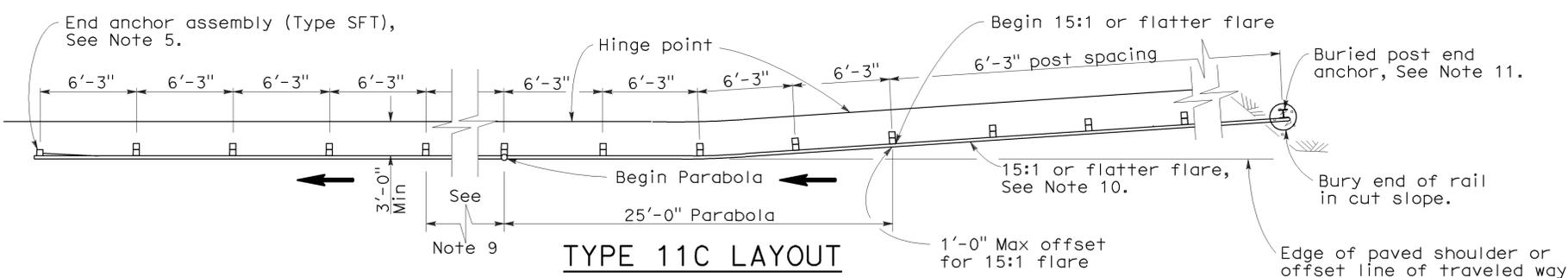
**TYPE 11A LAYOUT**

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



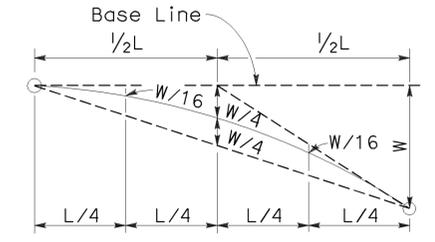
**TYPE 11B LAYOUT**

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

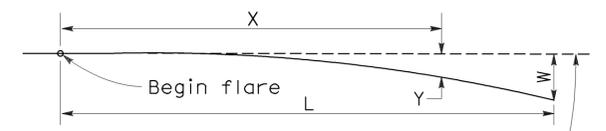


**TYPE 11C LAYOUT**

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



**TYPICAL PARABOLIC LAYOUT**

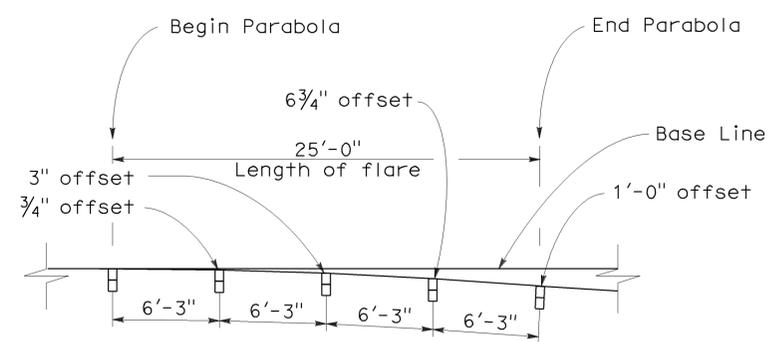


Base Line (Edge of paved shoulder or offset line of edge of traveled way)

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

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  $\rightarrow$ .
- 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  
DEPARTMENT OF TRANSPORTATION  
**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**

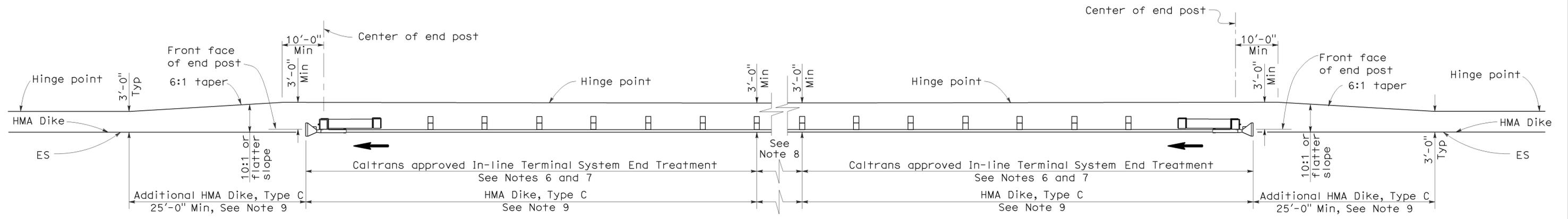
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
03	Sie	89	0.0/15.1	18	34

*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

June 6, 2008  
PLANS APPROVAL DATE

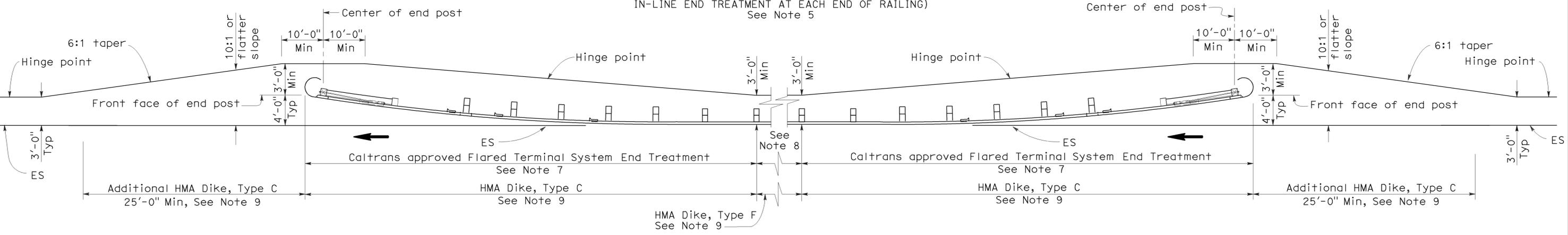
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To accompany plans dated 5-16-11



**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 .
- 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.

**REVISED STANDARD PLAN RSP A77E2**

2006 REVISED STANDARD PLAN RSP A77E2

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
03	Sie	89	0.0/15.1	19	34

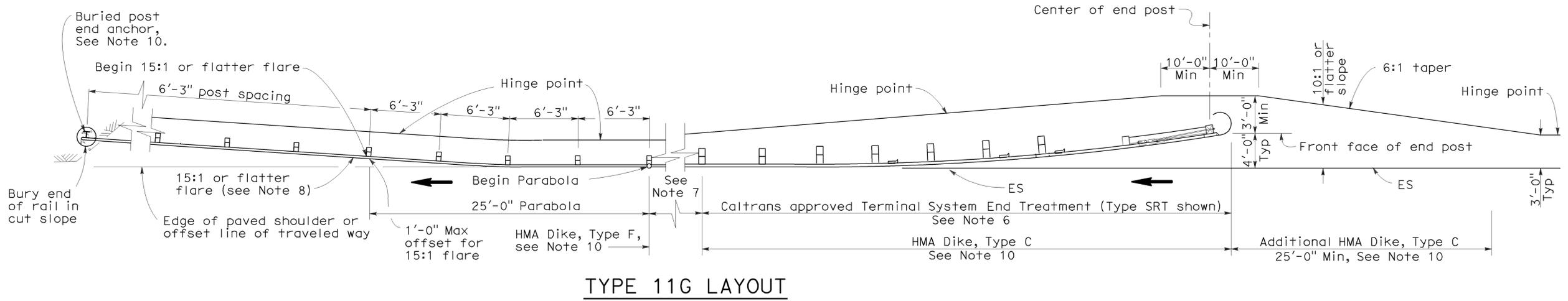
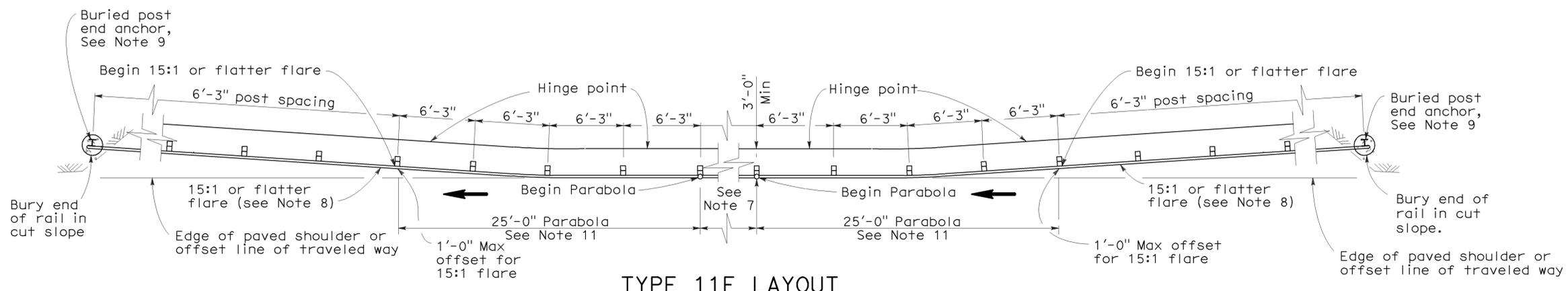
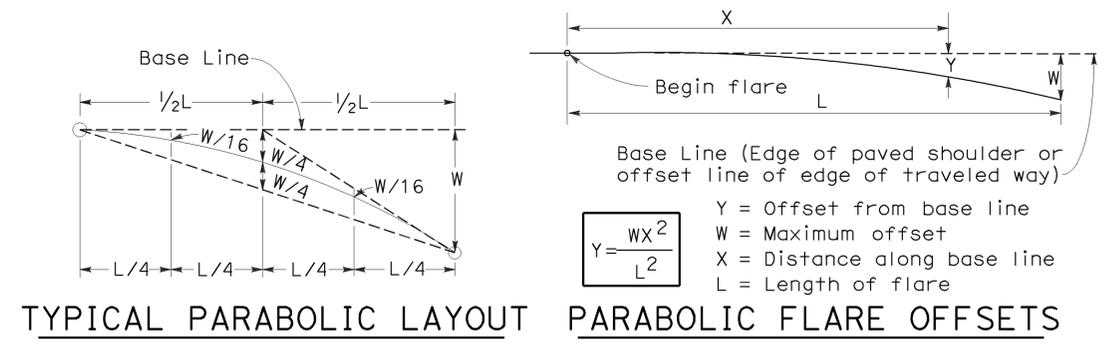
*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

June 6, 2008  
PLANS APPROVAL DATE

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

To accompany plans dated 5-16-11



**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.
- 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.

STATE OF CALIFORNIA  
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
03	Sie	89	0.0/15.1	20	34

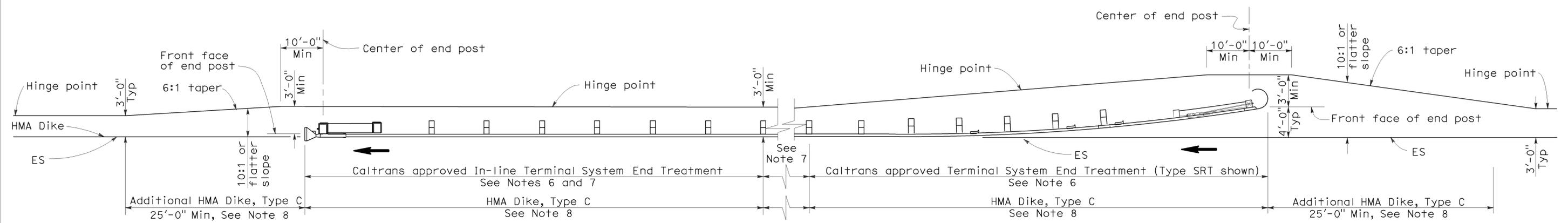
*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

June 6, 2008  
PLANS APPROVAL DATE

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To accompany plans dated 5-16-11



**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:**

- 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.
- 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.

**REVISED STANDARD PLAN RSP A77E4**

2006 REVISED STANDARD PLAN RSP A77E4

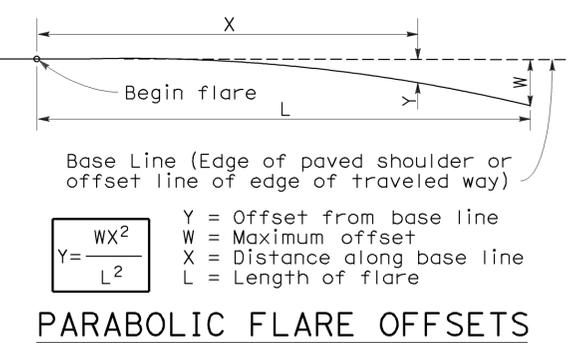
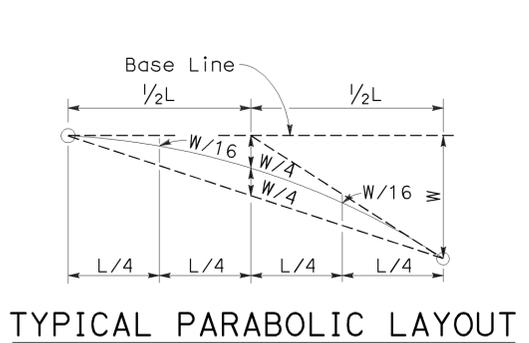
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
03	Sie	89	0.0/15.1	21	34

Randell D. Hiatt  
REGISTERED CIVIL ENGINEER

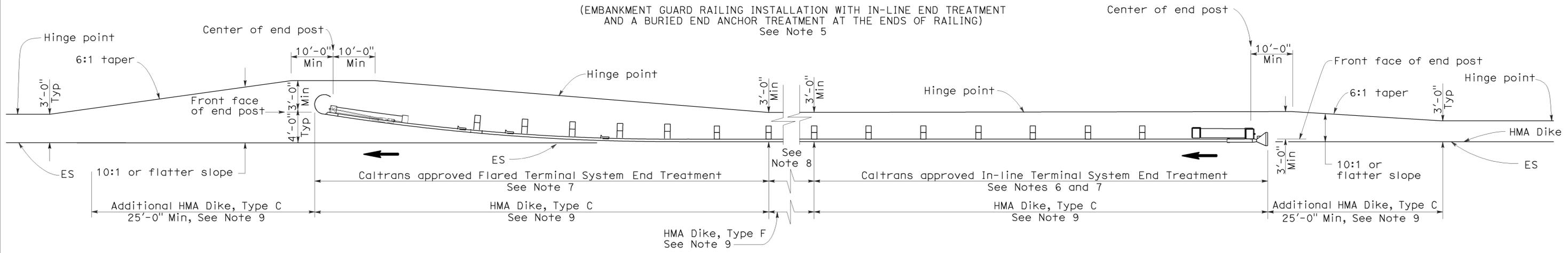
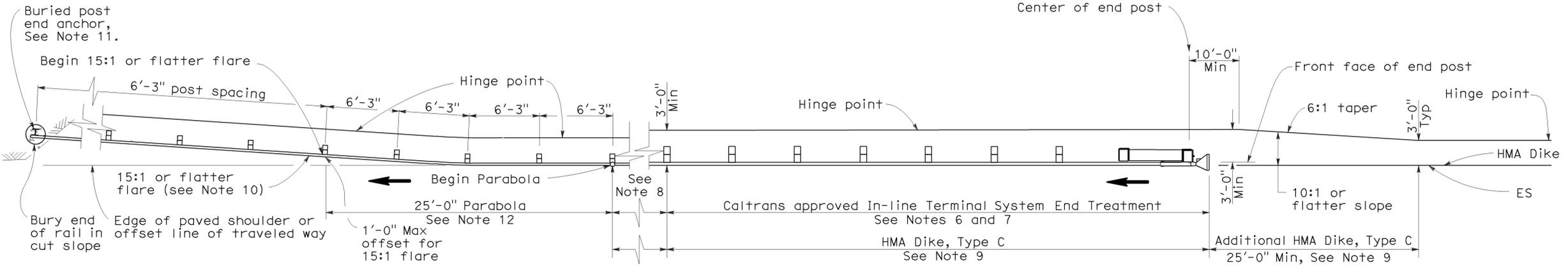
June 6, 2008  
PLANS APPROVAL DATE

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



To accompany plans dated 5-16-11



**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.
- 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  
DEPARTMENT OF TRANSPORTATION

**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
03	Sie	89	0.0/15.1	22	34

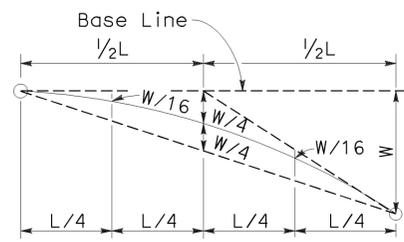
*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

June 6, 2008  
PLANS APPROVAL DATE

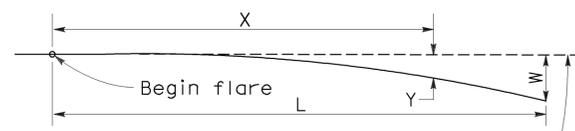
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Randell D. Hiatt  
No. C50200  
Exp. 6-30-09  
CIVIL  
STATE OF CALIFORNIA

To accompany plans dated 5-16-11



**TYPICAL PARABOLIC LAYOUT**

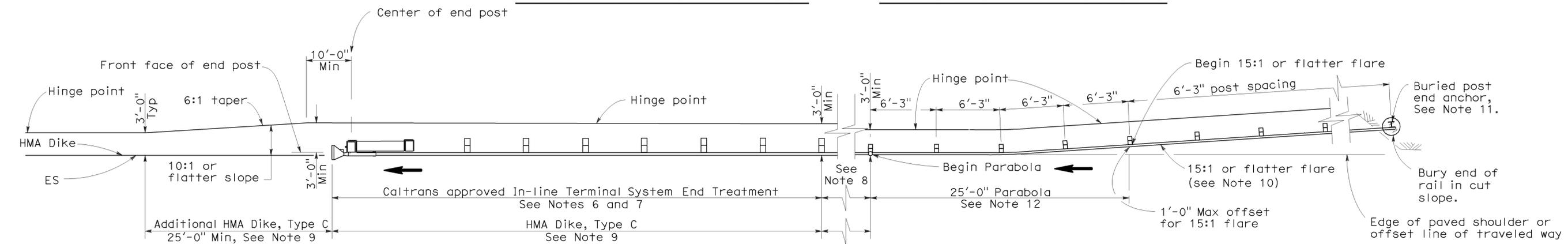


Base Line (Edge of paved shoulder or offset line of edge of traveled way)

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

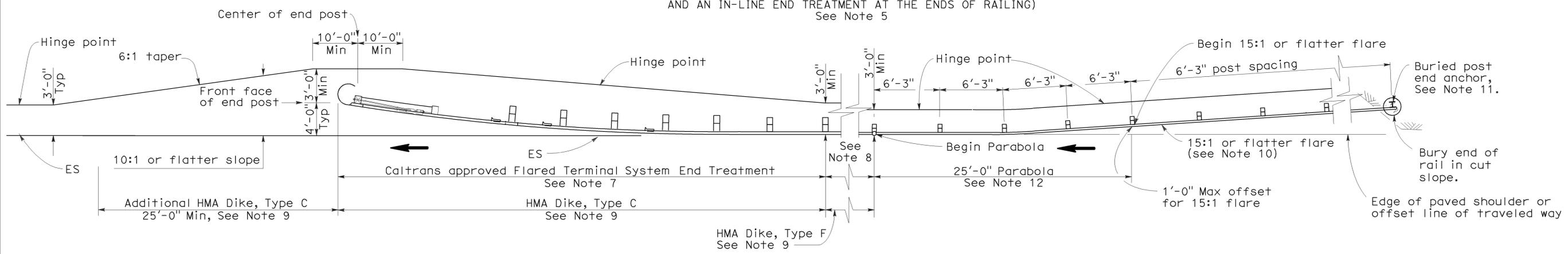
$$Y = \frac{WX^2}{L^2}$$

**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 →.
- 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.

**REVISED STANDARD PLAN RSP A77E6**

2006 REVISED STANDARD PLAN RSP A77E6

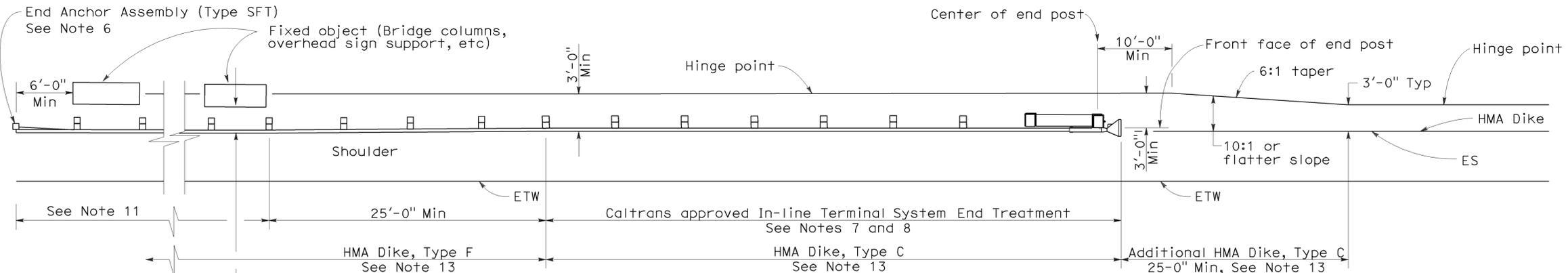
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
03	Sie	89	0.0/15.1	23	34

**Randell D. Hiatt**  
REGISTERED CIVIL ENGINEER

June 6, 2008  
PLANS APPROVAL DATE

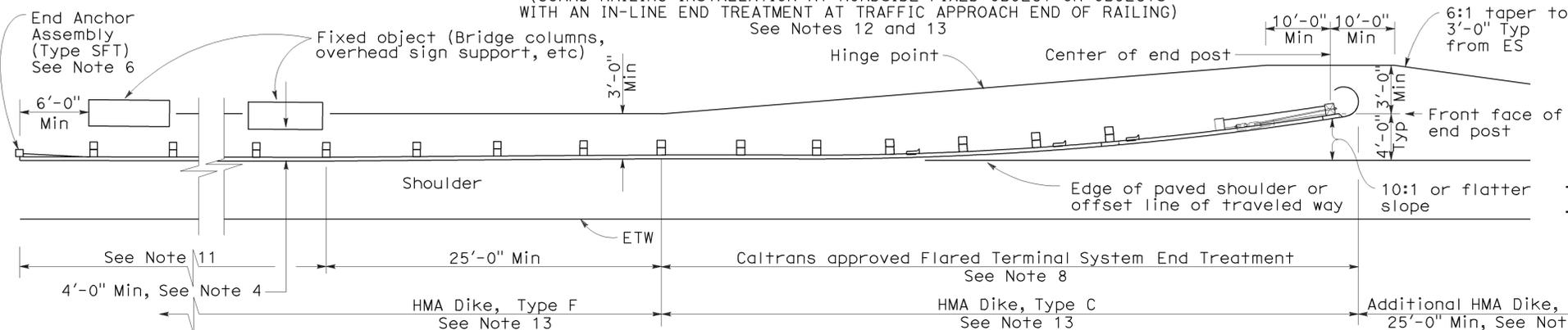
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To accompany plans dated 5-16-11



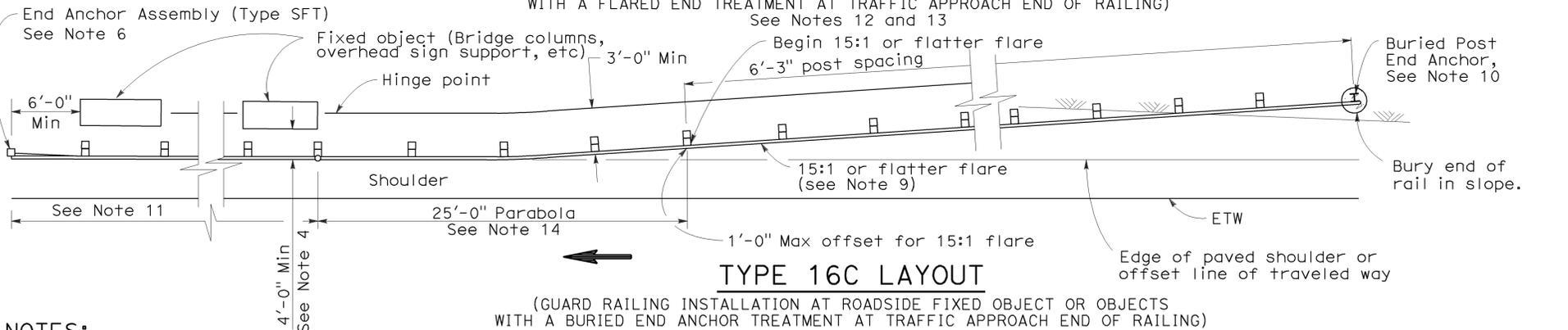
**TYPE 16A LAYOUT**

(GUARD RAILING INSTALLATION AT ROADSIDE FIXED OBJECT OR OBJECTS WITH AN IN-LINE END TREATMENT AT TRAFFIC APPROACH END OF RAILING)  
See Notes 12 and 13



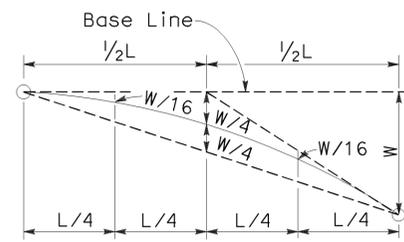
**TYPE 16B LAYOUT**

(GUARD RAILING INSTALLATION AT ROADSIDE FIXED OBJECT OR OBJECTS WITH A FLARED END TREATMENT AT TRAFFIC APPROACH END OF RAILING)  
See Notes 12 and 13

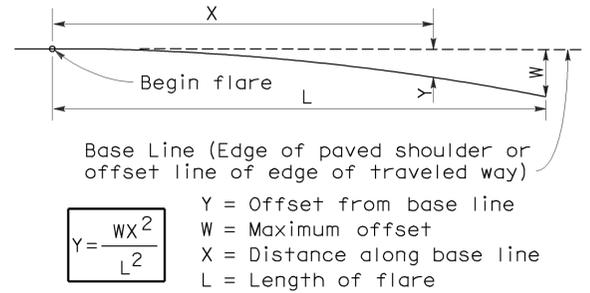


**TYPE 16C LAYOUT**

(GUARD RAILING INSTALLATION AT ROADSIDE FIXED OBJECT OR OBJECTS WITH A BURIED END ANCHOR TREATMENT AT TRAFFIC APPROACH END OF RAILING)  
See Notes 12 and 13



**TYPICAL PARABOLIC LAYOUT**



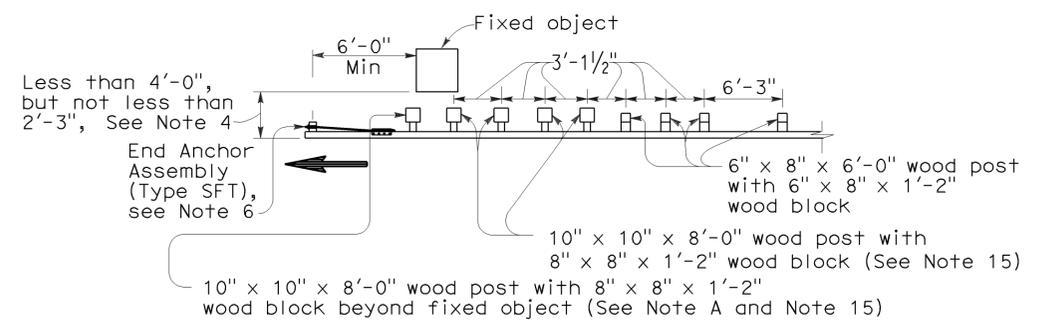
**PARABOLIC FLARE OFFSETS**

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

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

**NOTES:**

- Line post, blocks and hardware to be used are shown on Revised Standard Plans A77A1, A77A2, A77B1, A77C1 and A77C2.
- Guard railing 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 line posts with 6" x 8" x 1'-2" wood blocks where applicable and when specified.
- A 4'-0" minimum clearance is required between the face of the railing and the face of a fixed object located directly behind standard guard railing sections with post spacing of 6'-3". Construct guard railing as shown in the detail "Strengthened Railing Sections for Fixed Objects" on this plan, where the clearance between the face of the railing and the face of a fixed object is less than 4'-0", but not less than 2'-3". Where the clearance is less than 2'-3", a concrete wall or barrier should be constructed to shield the fixed object(s).
- Direction of adjacent traffic indicated by  $\rightarrow$ .
- For End Anchor Assembly (Type SFT) details, see Standard Plan A77H1.
- In-line Terminal System End 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.
- The 15:1 or flatter flare used with Type 16C Layout 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 16C Layout, see Standard Plan A77I2.
- As site conditions dictate, construct additional guard railing to shield fixed object(s). Additional guard railing length equal to multiples of 12'-6". Post spacing at 6'-3" except as specified in Note 4.
- Layout Types 16A, 16B or 16C are typically used where guard railing is recommended to shield roadside fixed object(s) and a crashworthy end treatment is required for only one direction of traffic.
- Where placement of dike is required with guard railing, 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.
- W6 x 15 steel post, 8'-0" in length, with 8" x 8" x 1'-2" notched wood block or notched recycled plastic blocks may be used in place of the 10" x 10" x 8'-0" wood post with 8" x 8" x 1'-2" wood block shown in the "Strengthened Railing Sections Detail".



**NOTE A:**

For a series of fixed objects (bridge columns, overhead sign supports, etc.) additional 10" x 10" x 8'-0" wood post with 8" x 8" x 1'-2" wood blocks at 3'-1/2" center to center spacing are to be used between fixed objects.

**STRENGTHENED RAILING SECTIONS FOR FIXED OBJECT**

Use strengthened railing sections with Types 16A, 16B or 16C Layouts where minimum clearance between the face of the guard railing and fixed object(s) is less than 4'-0", but not less than 2'-3". See Note 4

STATE OF CALIFORNIA  
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**METAL BEAM GUARD RAILING TYPICAL LAYOUTS FOR ROADSIDE FIXED OBJECTS**

NO SCALE

RSP A77G3 DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN A77G3 DATED MAY 1, 2006 - PAGE 61 OF THE STANDARD PLANS BOOK DATED MAY 2006.

**REVISED STANDARD PLAN RSP A77G3**

2006 REVISED STANDARD PLAN RSP A77G3

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sie	89	0.0/15.1	24	34

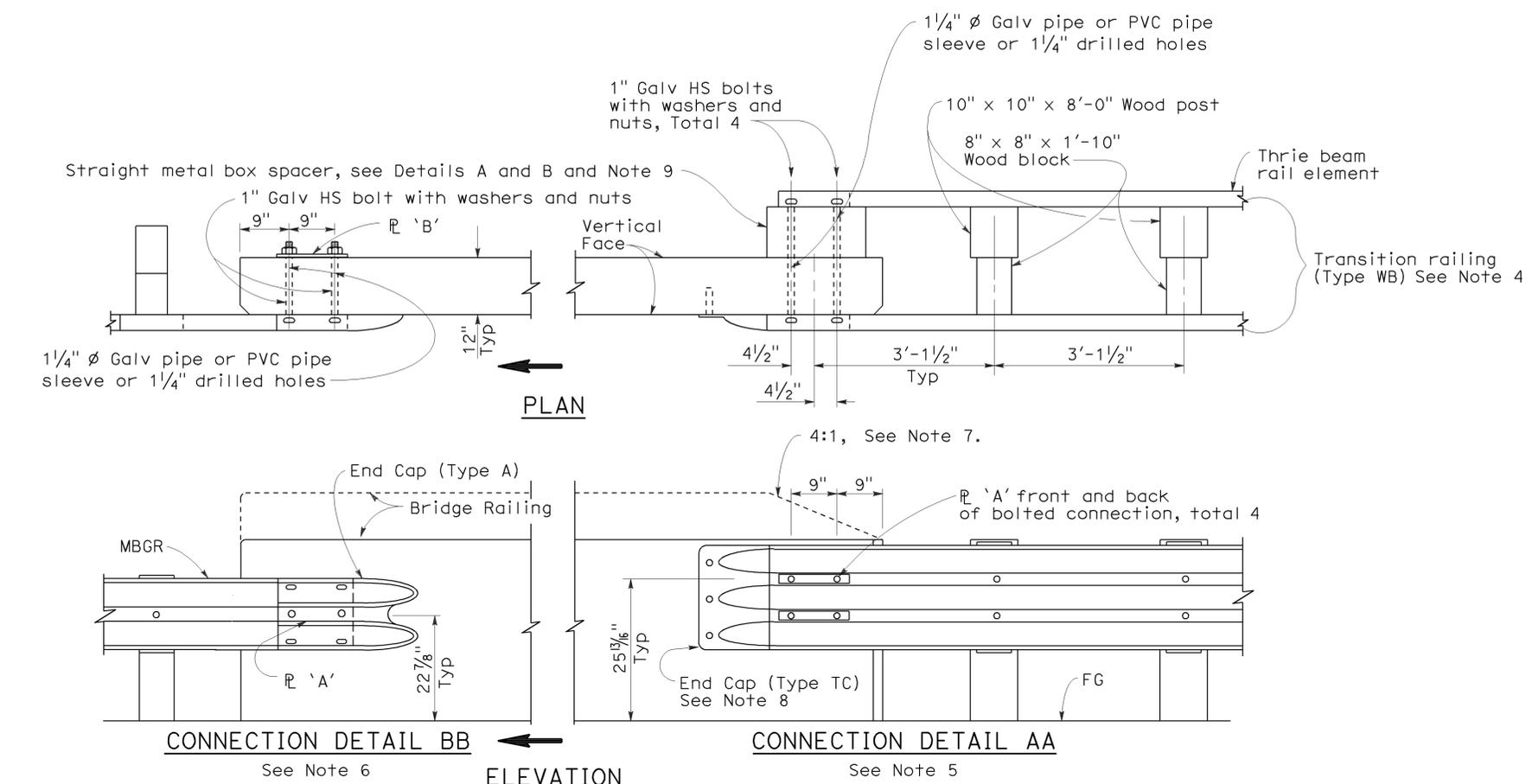
*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

May 20, 2011  
PLANS APPROVAL DATE

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

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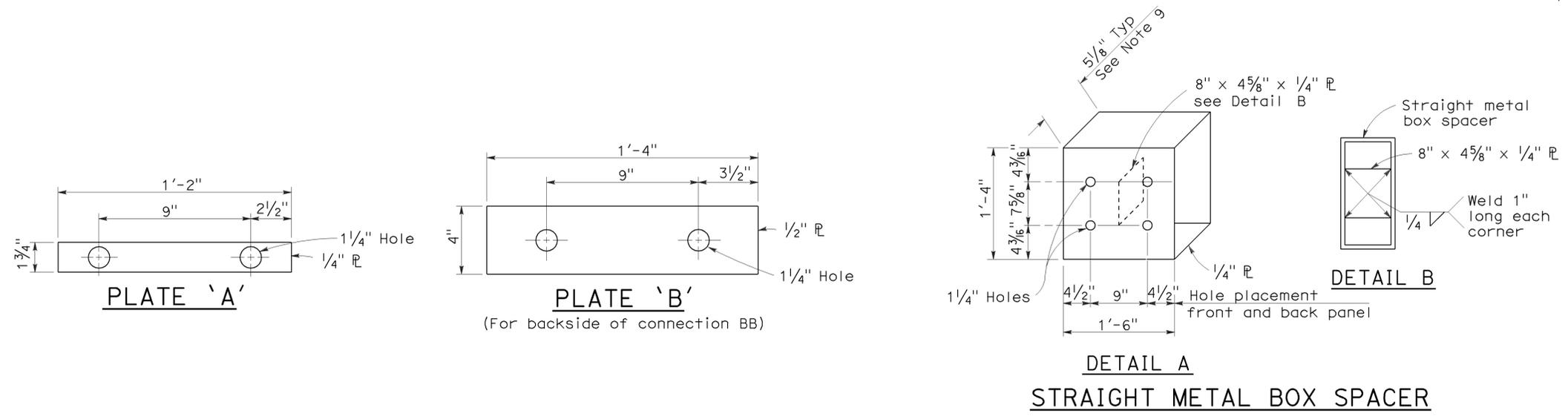
To accompany plans dated 5-16-11



**NOTES:**

1. See Revised Standard Plan RSP A77J2 for additional connection details to bridges without sidewalks.
2. Additional details of posts, blocks and hardware are shown on Standard Plan A77B1, A77C1 and A77C2.
3. Direction of adjacent traffic indicated by  $\rightarrow$ .
4. For additional details of Transition Railing (Type WB), see Standard Plan A77J4. Transition Railing (Type WB) transitions the 12 gage w-beam standard railing section of guard railing to a heavier gage nested thrie beam railing section which is connected to the concrete bridge railing.
5. For typical use of Connection Detail AA, see Layout Types 12A and 12B on Revised Standard Plan RSP A77F1, Layout Types 12C and 12D on Standard Plan A77F2, and Layout Type 12E on Revised Standard Plan RSP A77F3.
6. For typical use of Connection Detail BB, see Layout Type 12D (structure departure railing connection) on Standard Plan A77F2 and Layout Type 12DD on Standard Plan A77F5.
7. Where the height of the bridge railing exceeds the height of the thrie beam railing by more than 1" at Connection Detail AA, taper the top of the end of the bridge railing at 4:1 to match the top elevation of the thrie beam rail.
8. For details of End Cap (Type TC), see Standard Plan A77J4.
9. See Standard Plan A77J4 for additional details regarding depth dimension for straight metal box spacer.

**GUARD RAILING CONNECTION TO BRIDGE RAILING WITHOUT SIDEWALK**



STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**METAL BEAM GUARD RAILING CONNECTIONS TO BRIDGE RAILINGS WITHOUT SIDEWALKS DETAILS No.1**

NO SCALE

RSP A77J1 DATED MAY 20, 2011 SUPERSEDES RSP A77J1 DATED JUNE 6, 2008 AND STANDARD PLAN A77J1 DATED MAY 1, 2006 - PAGE 72 OF THE STANDARD PLANS BOOK DATED MAY 2006.

**REVISED STANDARD PLAN RSP A77J1**

2006 REVISED STANDARD PLAN RSP A77J1

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
03	Sie	89	0.0/15.1	25	34

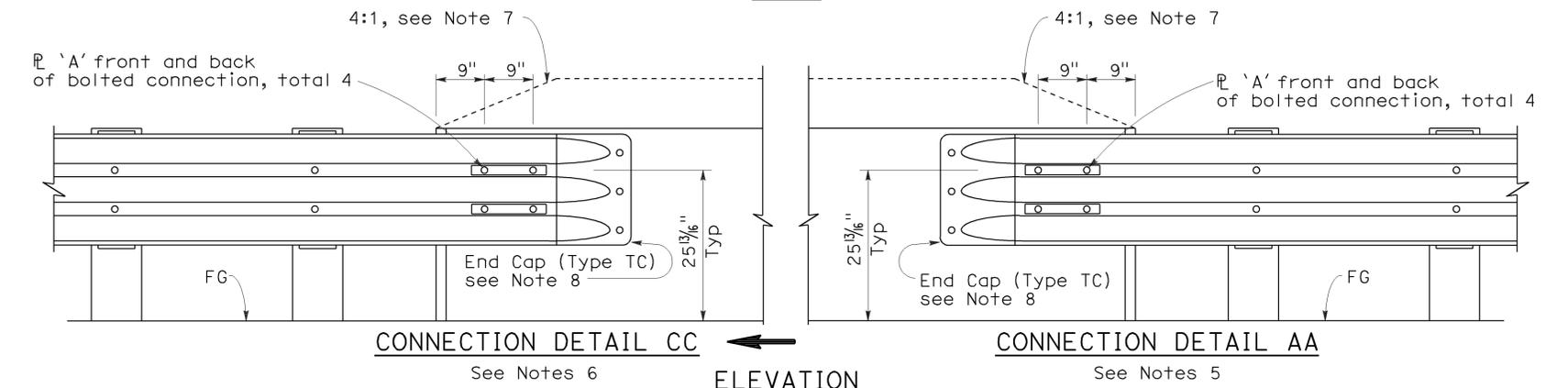
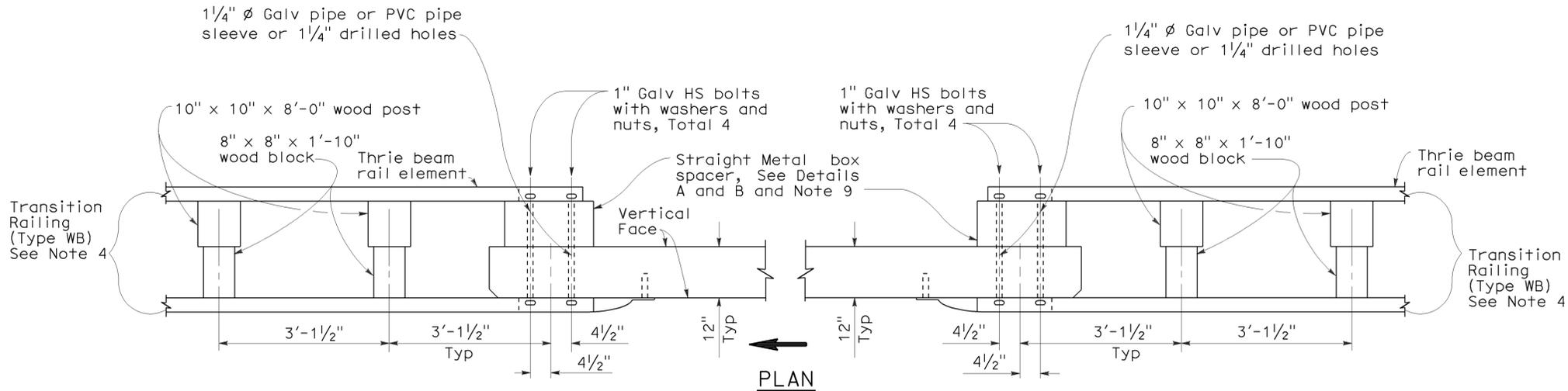
*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

June 6, 2008  
PLANS APPROVAL DATE

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

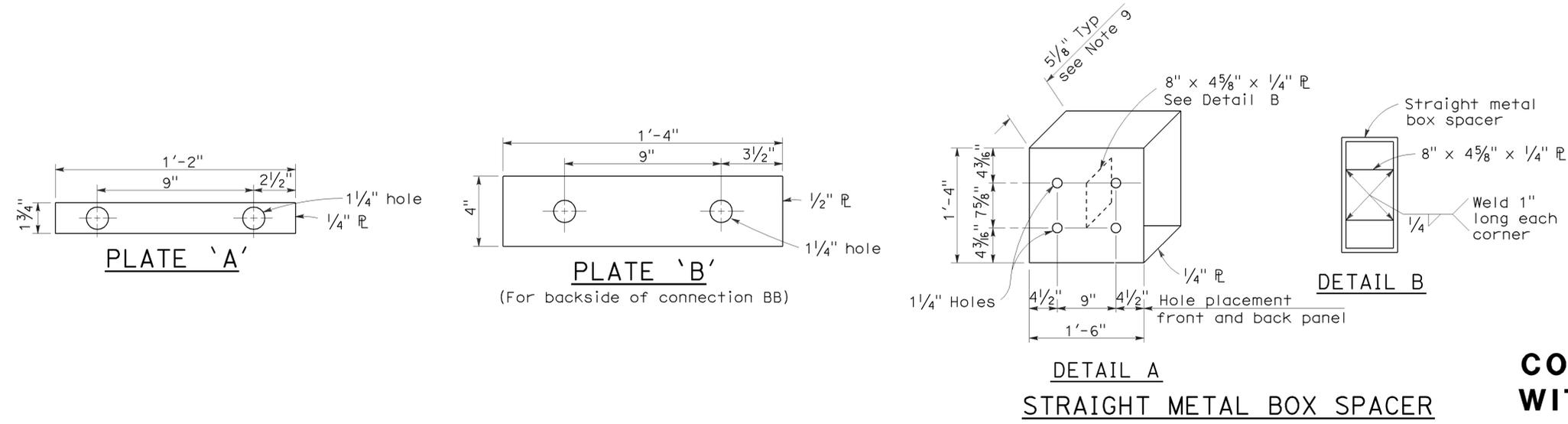
To accompany plans dated 5-16-11



**GUARD RAILING CONNECTION TO BRIDGE RAILING WITHOUT SIDEWALK**

**NOTES:**

1. See Revised Standard Plan RSP A77J1 for additional connection details to bridges without sidewalks.
2. Additional details of posts, blocks and hardware are shown on Standard Plan A77B1, A77C1 and A77C2.
3. Direction of adjacent traffic indicated by →.
4. For additional details of Transition Railing (Type WB), see Standard Plan A77J4. Transition Railing (Type WB) transitions the 12 gage w-beam standard railing section of guard railing to a heavier gage nested thrie beam railing section which is connected to the concrete bridge railing.
5. For typical use of Connection Detail AA, see Layout Types 12A and 12B on Revised Standard Plan RSP A77F1, Layout Types 12C and 12D on Standard Plan A77F2, and Layout Type 12E on Revised Standard Plan RSP A77F3.
6. For typical use of Connection Detail CC, see Layout Types 12AA and 12BB on Standard Plan A77F4 and Layout Type 12CC on Standard Plan A77F5.
7. Where the height of the bridge railing exceeds the height of the thrie beam railing by more than 1" at Connection Detail AA and connection Detail CC, taper the top of the end of the bridge railing at 4:1 to match the top elevation of the thrie beam railing.
8. For details of End Cap (Type TC), see Standard Plans A77J4.
9. See Standard Plans A77J4 for additional details regarding depth dimension for straight metal box spacer.



STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**METAL BEAM GUARD RAILING CONNECTIONS TO BRIDGE RAILINGS WITHOUT SIDEWALKS DETAILS No.2**

NO SCALE  
RSP A77J2 DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN A77J2  
DATED MAY 1, 2006 - PAGE 73 OF THE STANDARD PLANS BOOK DATED MAY 2006.

**REVISED STANDARD PLAN RSP A77J2**

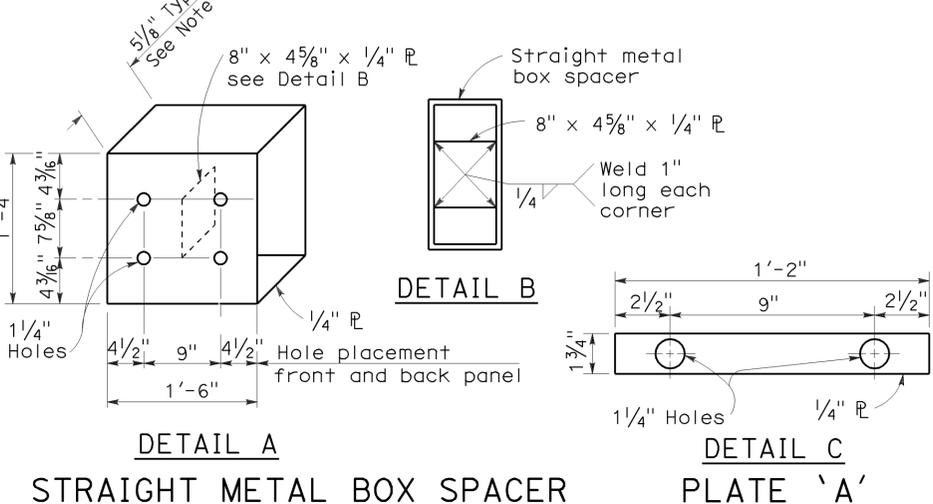
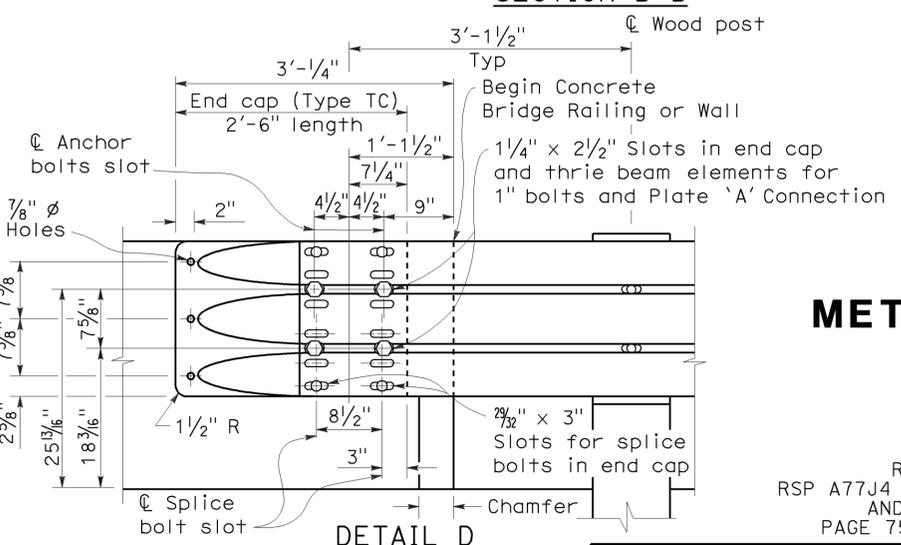
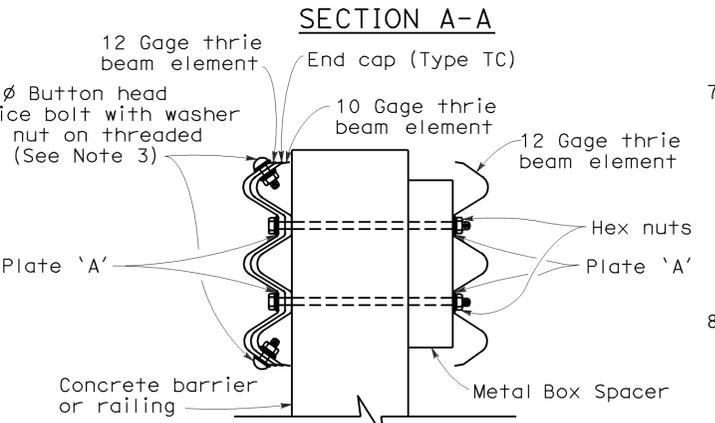
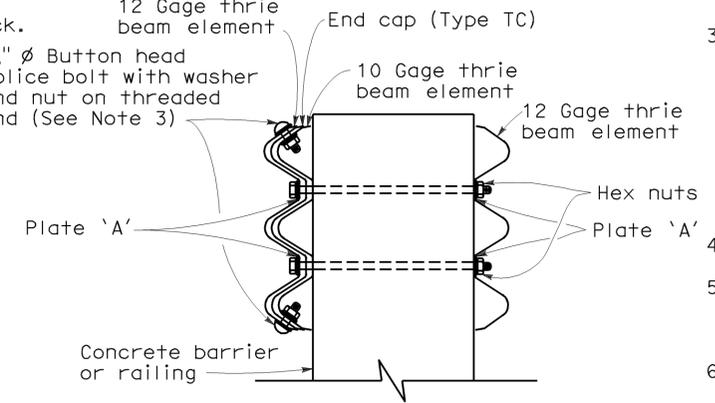
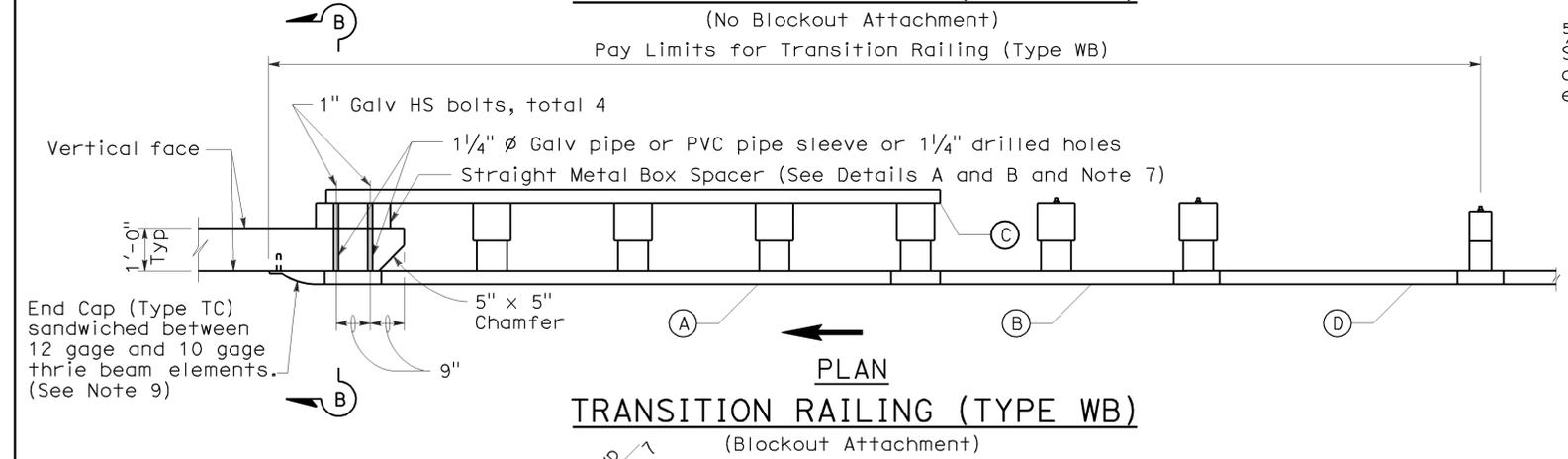
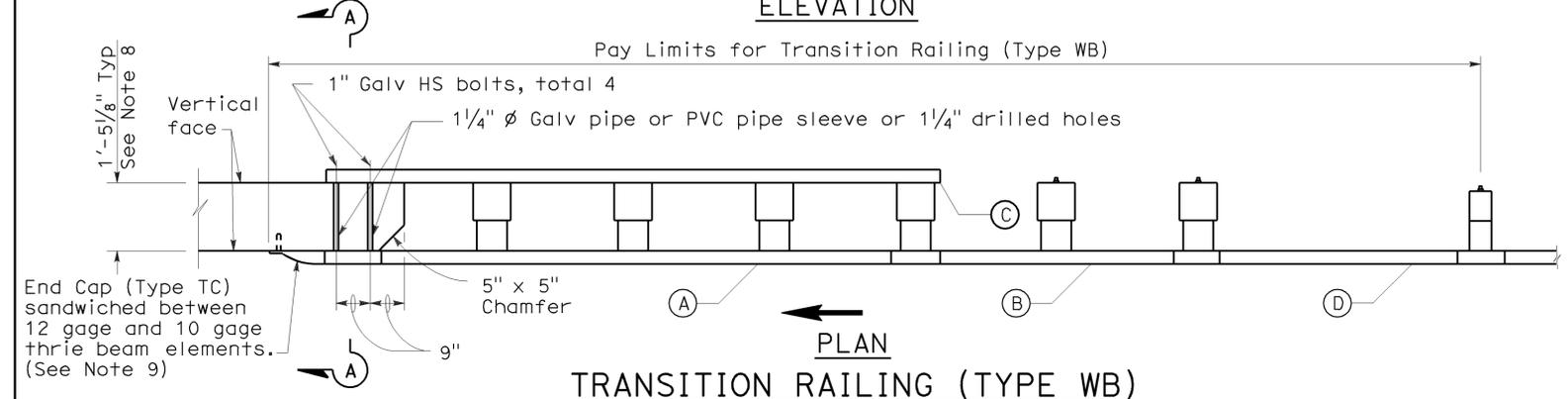
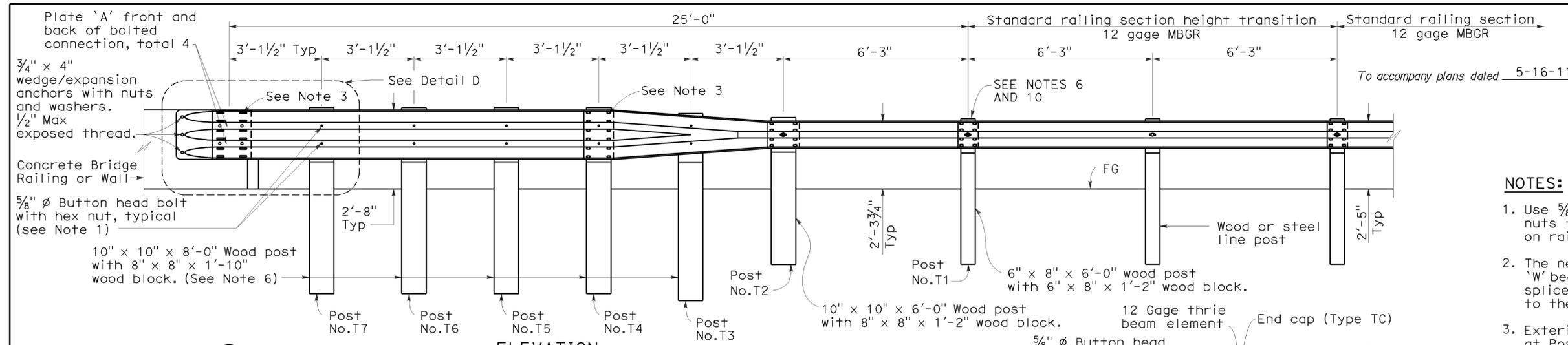
2006 REVISED STANDARD PLAN RSP A77J2

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sie	89	0.0/15.1	26	34

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

May 20, 2011  
 PLANS APPROVAL DATE

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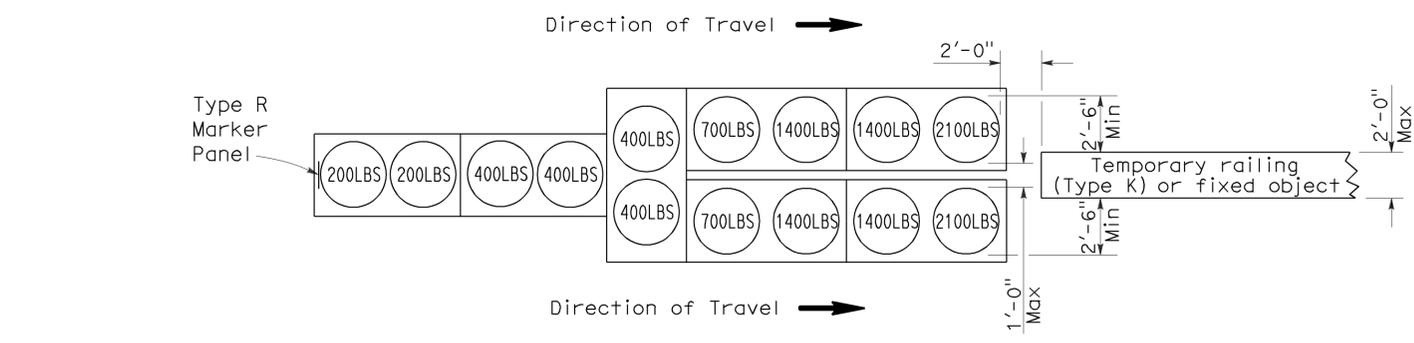
- LEGEND**
- (A) Nested thrie beam elements (one 12 gage element nested over one 10 gage element).
  - (B) One 10 gage "W" beam to thrie beam element.
  - (C) One 12 gage thrie beam element.
  - (D) One 10 gage "W" beam rail element (7'-3 1/2" length)
- 10 gage = 0.135" thick  
12 gage = 0.108" thick

- NOTES:**
- Use 5/8" Ø Button head bolts and hex nuts for connections to posts. No washer on rail face for bolted connections to post.
  - The nested rail elements, end cap, and "W" beam to thrie beam element may be spliced together prior to bolting the elements to the wood post and concrete barrier or railing.
  - Exterior splice bolt holes for rail element splices at Post No. T4 and the connection to the concrete barrier or railing shall be the standard 7/32" x 1/8" slot size. Interior splice bolt holes at these locations may be increased up to 1/4" Ø. Only the top 2 and the bottom 2 splice bolts with washers and nuts are required for rail splices at Post No. T4 and the connection to the concrete barrier or railing.
  - Direction of adjacent traffic indicated by →.
  - The top elevation of Posts No. T2 through No. T7 shall not project more than 1" above the top elevation of the rail element.
  - Typically, the railing connected to Transition Railing (Type WB) will be either standard railing section of metal beam guard railing with height transition ratio of 120:1 or an approved Caltrans end treatment attached to Post No. T1.
  - The depth of the metal box spacer varies from the 5/8" to 1 1/2" and is dependent on the width of the concrete railing or wall. The combined dimension for the depth of the metal box spacer plus the width of railing or wall is typically 17 1/8". Where the space between the backside of the concrete railing or wall and the rear thrie beam element is less than 1 1/2", metal plates similar to Plate 'A' are to be used as spacers.
  - Where the width of the concrete railing or wall is greater than 17 1/8", wood blocks are to be used to fill the space created between the backside of Posts No. T4 through No. T7 and the rear thrie beam element. These wood blocks shall be 8" in width and 1'-2" in length. The dimension between the front thrie beam element and the rear thrie beam element is to match the width of the concrete railing or wall.
  - End cap may be installed over 12 gage and 10 gage thrie beam elements where transition railing is installed on the departure end of bridge railing.
  - Conform standard railing section height to 2'-3 3/4" at Post No. T1 using height transition ratio of 120:1.

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**METAL BEAM GUARD RAILING  
 TRANSITION RAILING  
 (TYPE WB)**  
 NO SCALE  
 RSP A77J4 DATED MAY 20, 2011 SUPERSEDES  
 RSP A77J4 DATED JUNE 5, 2009, RSP A77J4 DATED JUNE 6, 2008  
 AND STANDARD PLAN A77J4 DATED MAY 1, 2006 -  
 PAGE 75 OF THE STANDARD PLANS BOOK DATED MAY 2006.

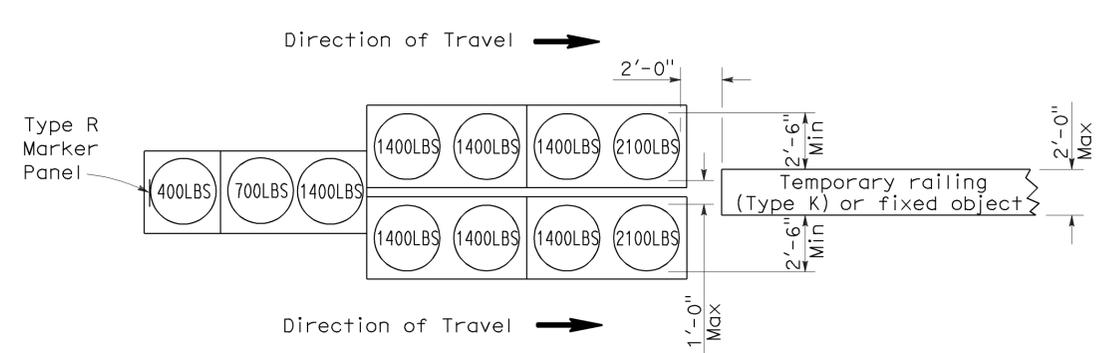
2006 REVISED STANDARD PLAN RSP A77J4

To accompany plans dated 5-16-11



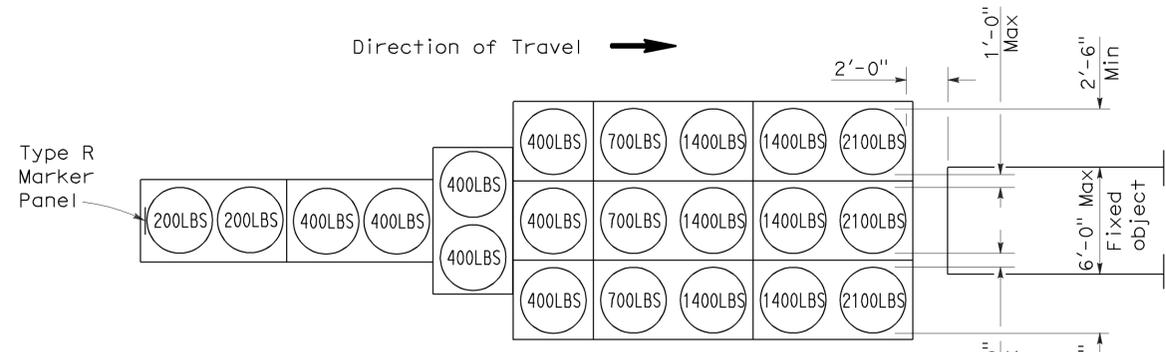
**ARRAY 'TU14'**

Approach speed 45 mph or more



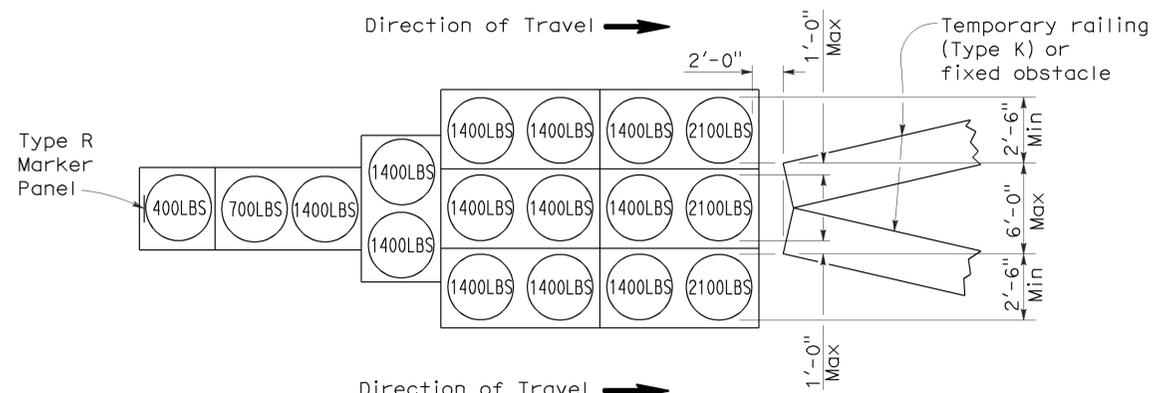
**ARRAY 'TU11'**

Approach speed less than 45 mph



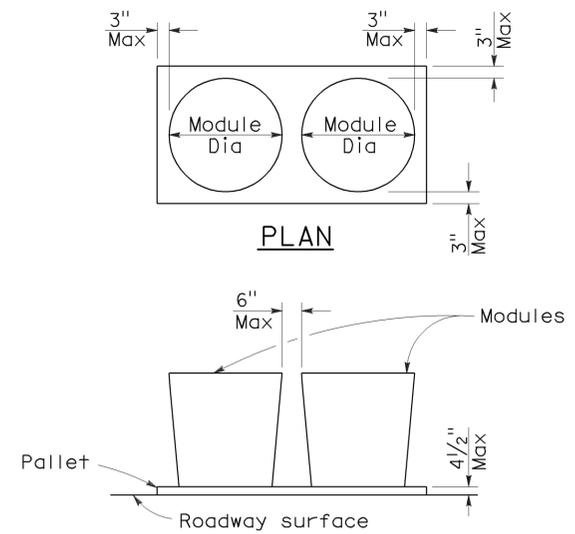
**ARRAY 'TU21'**

Approach speed 45 mph or more



**ARRAY 'TU17'**

Approach speed less than 45 mph



**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
03	Sie	89	0.0/15.1	28	34

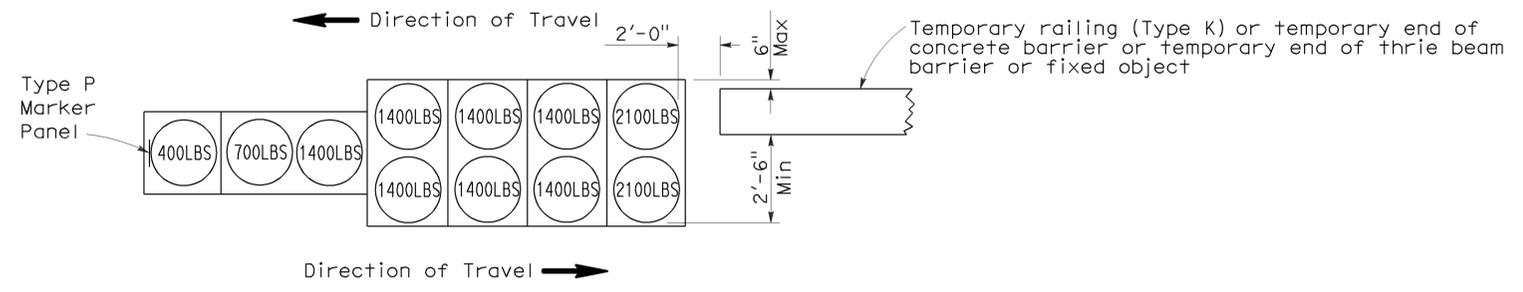
*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

June 6, 2008  
PLANS APPROVAL DATE

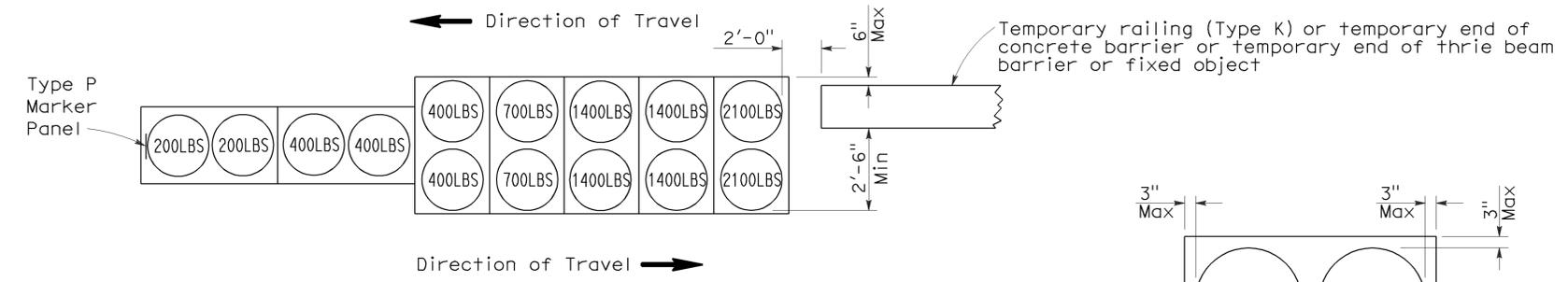
*The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.*



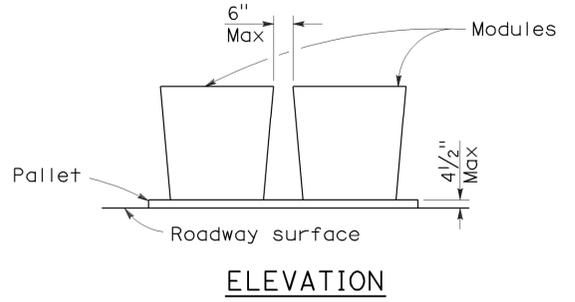
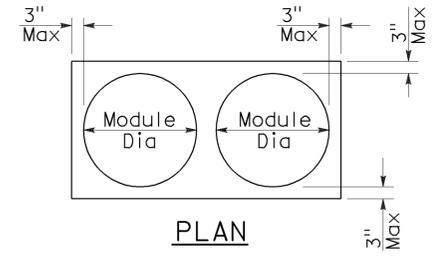
To accompany plans dated 5-16-11



**ARRAY 'TB11'**  
Approach speed less than 45 mph



**ARRAY 'TB14'**  
Approach speed 45 mph or more



**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.

2006 REVISED STANDARD PLAN RSP T1B

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
03	Sie	89	0.0/15.1	29	34

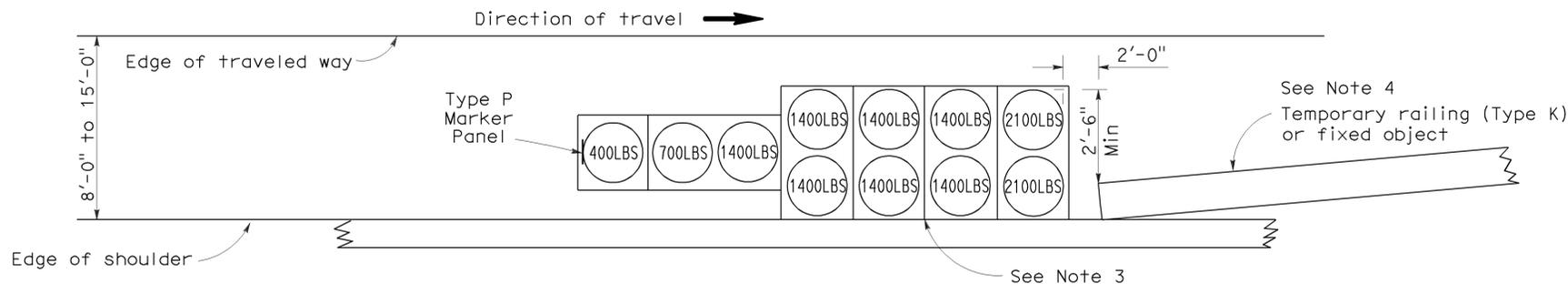
*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

June 6, 2008  
PLANS APPROVAL DATE

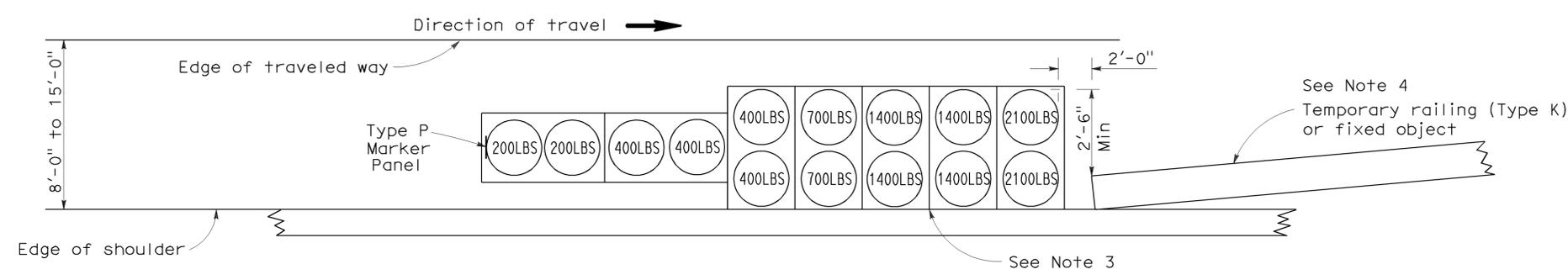
*Randell D. Hiatt*  
REGISTERED PROFESSIONAL ENGINEER  
No. C50200  
Exp. 6-30-09  
CIVIL  
STATE OF CALIFORNIA

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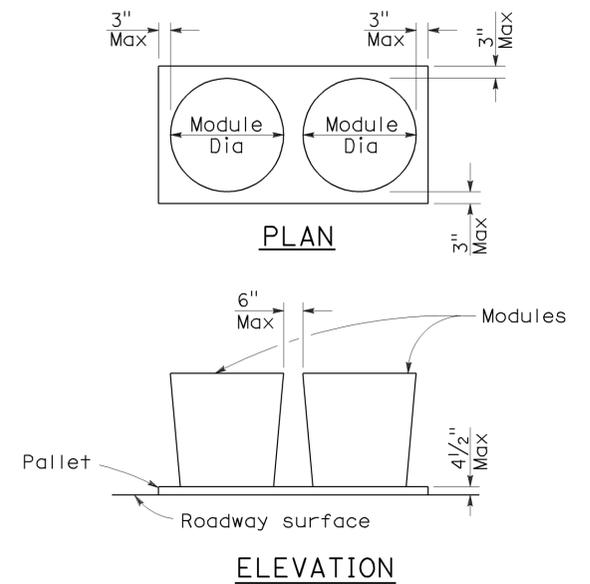
To accompany plans dated 5-16-11



**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:**

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. 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.
4. 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.
5. Temporary crash cushion arrays shall not encroach on the traveled way.
6. Arrays for median shoulders shall conform to details shown on this plan for outside shoulders.
7. Place the Type P marker panel so that the bottom of the panel rests upon the pallet and faces traffic.
8. Refer to Standard Plan A73B for marker details.
9. 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.
10. Approach speeds indicated conform to NCHRP 350 Report criteria.
11. Use of pallets is optional.

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

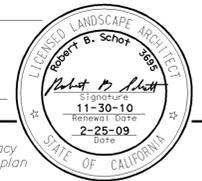
NO SCALE  
RSP T2 DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN T2  
DATED MAY 1, 2006 - PAGE 213 OF THE STANDARD PLANS BOOK DATED MAY 2006.

**REVISED STANDARD PLAN RSP T2**

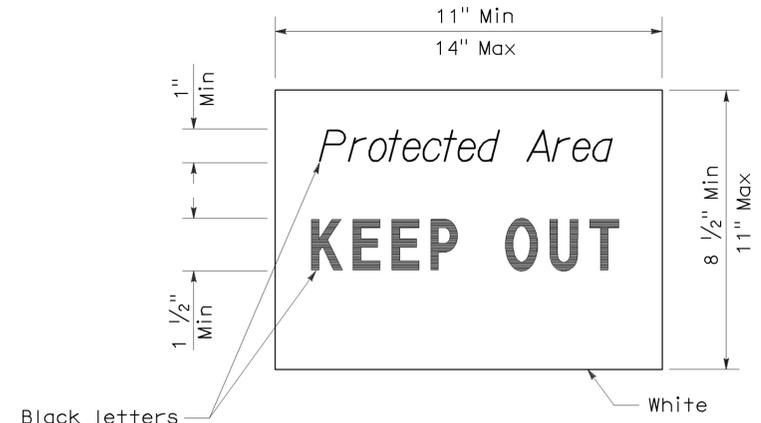
2006 REVISED STANDARD PLAN RSP T2

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
03	Sie	89	0.0/15.1	30	34

*Robert B. Schott*  
 LICENSED LANDSCAPE ARCHITECT  
 April 3, 2009  
 PLANS APPROVAL DATE  
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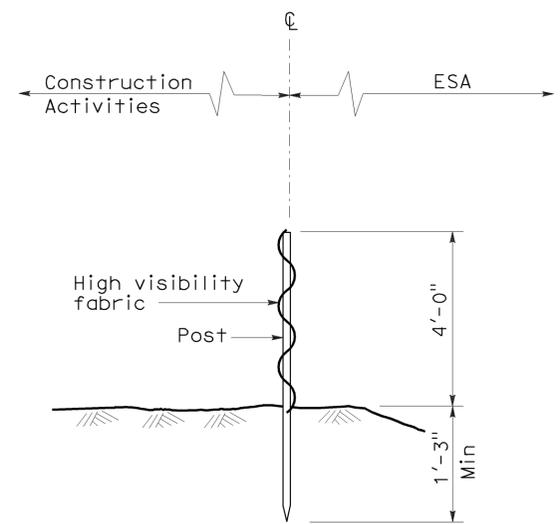
To accompany plans dated 5-16-11



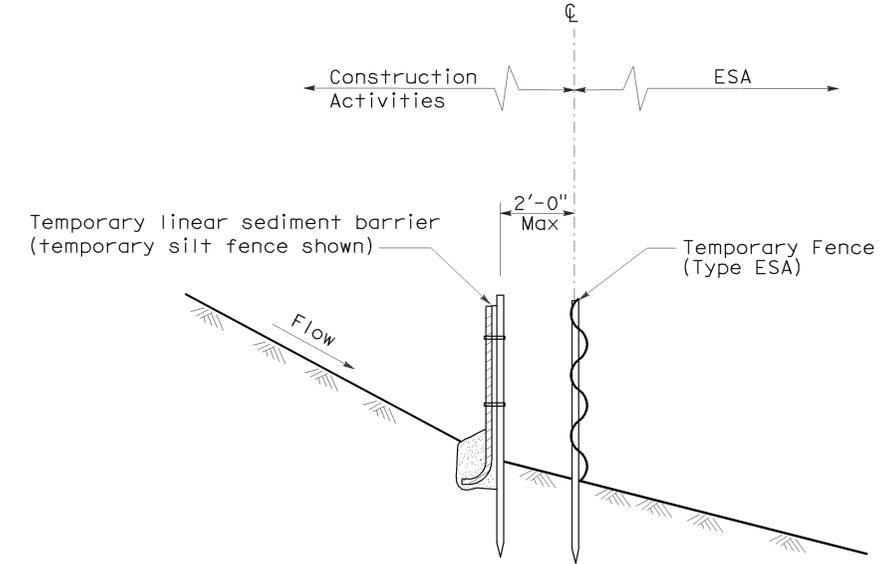
SIGN DETAIL

**NOTE:**

1. Temporary silt fence and temporary straw bale barrier shown for reference purposes only.

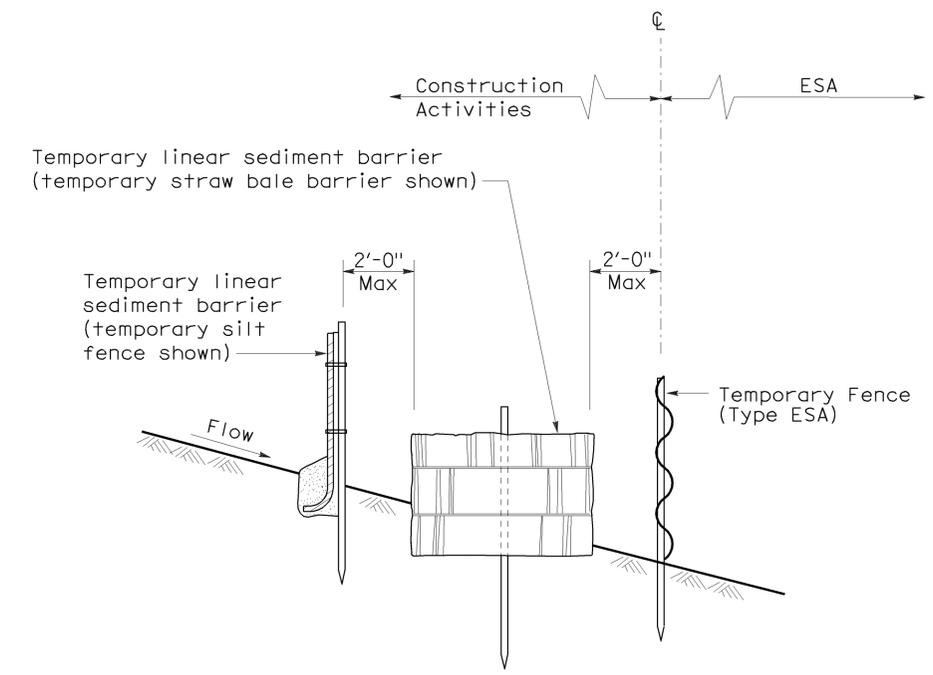


SECTION TEMPORARY FENCE (TYPE ESA)



SECTION PLACEMENT DETAIL FOR TEMPORARY LINEAR SEDIMENT BARRIER USED WITH TEMPORARY FENCE (TYPE ESA)

(See Note 1 )



SECTION PLACEMENT DETAIL FOR TEMPORARY SILT FENCE AND TEMPORARY STRAW BALE BARRIER USED WITH TEMPORARY FENCE (TYPE ESA)

(See Note 1 )

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**TEMPORARY WATER POLLUTION CONTROL DETAILS [TEMPORARY FENCE (TYPE ESA)]**

NO SCALE

NSP T65 DATED APRIL 3, 2009 SUPPLEMENTS THE STANDARD PLANS BOOK DATED MAY 2006.

2006 NEW STANDARD PLAN NSP T65

# ELECTROLIERS

STANDARD TYPES	Symbol	Description
15, 15D		High mast light pole
15 STRUCTURE		Double Arm lighting standard
21, 21D STRUCTURE		Existing electrolier
30		Electrolier foundation (Future installation)
31		
32		
35		
36-20A		

**NOTES:**

- Luminaires shall be 310 W HPS when installed on Type 21, 21D, 30, 31, 32, 35 and 36-20A Standards, unless otherwise specified. Luminaires shall be 200 W HPS when installed on other type standards or poles, unless otherwise specified.
- Luminaires shall be the cutoff type, ANSI Type III medium cutoff lighting distribution, unless otherwise specified.
- Variations noted adjacent to symbol on project plans.

- Electrolier (see project notes or project plans)
- Luminaire on wood pole

## 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

PROPOSED	EXISTING	Description
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, side 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, side 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
N	N	Mercury vapor lighting fixture
NC	NC	Neutral (Grounded Conductor)
NO	NO	Normally closed
PB	pb	Normally open
PEC	pec	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
03	Sie	89	0.0/15.1	31	34

*Jeffrey G. McRae*  
REGISTERED ELECTRICAL ENGINEER

October 5, 2007  
PLANS APPROVAL DATE

*Jeffrey G. McRae*  
REGISTERED PROFESSIONAL ENGINEER  
No. E14512  
Exp. 6-30-08  
ELECTRICAL  
STATE OF CALIFORNIA

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To accompany plans dated 5-16-11

## SOFFIT AND WALL MOUNTED LUMINAIRES

- Pendant, 70 W HPS unless otherwise specified.
- Flush, 70 W HPS unless otherwise specified.
- Wall surface, 70 W HPS unless otherwise specified.
- Existing soffit or wall luminaire to remain unmodified.
- Existing soffit or wall luminaire to be modified as specified.

### NOTE:

Arrow indicates "street side" of luminaire.

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

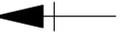
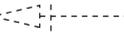
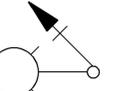
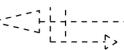
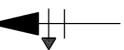
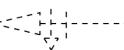
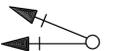
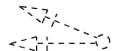
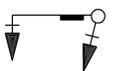
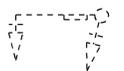
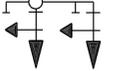
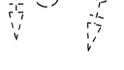
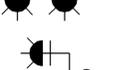
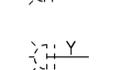
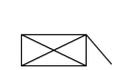
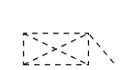
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
03	Sie	89	0.0/15.1	32	34

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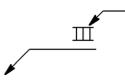
### CONDUIT

PROPOSED	EXISTING	
---	---	Lighting Conduit, unless otherwise indicated or noted
---	---	Traffic signal conduit
-C-	-c-	Communication conduit
-T-	-t-	Telephone conduit
-F-	-f-	Fire alarm conduit
-FO-	-fo-	Fiber optic conduit
---	---	Conduit termination 
		Conduit riser in/on structure or service pole

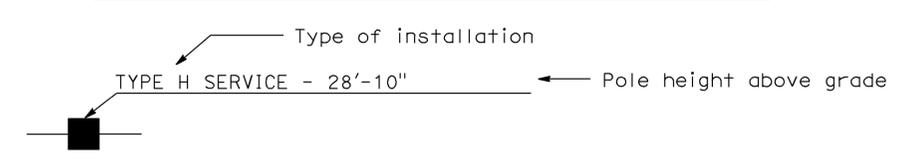
### SIGNAL EQUIPMENT

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	
---OH---	---oh---	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

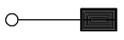
### POLE-MOUNTED SERVICE DESIGNATION



### 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:

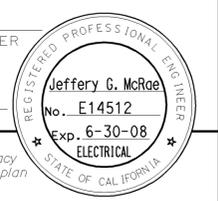
- All signal sections shall be 12" unless shown otherwise.
- Signal heads shall be provided with backplates unless shown otherwise.
- Signal indication shall be LED.

STATE OF CALIFORNIA  
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**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**

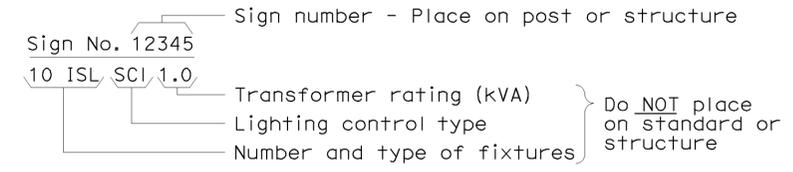
2006 REVISED STANDARD PLAN RSP ES-1B



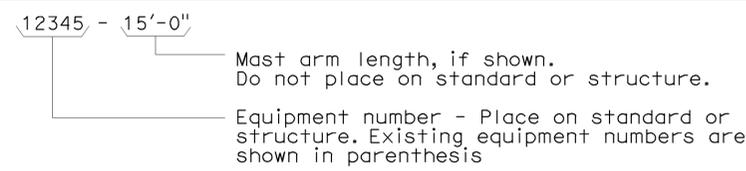
To accompany plans dated 5-16-11

### EQUIPMENT IDENTIFICATION

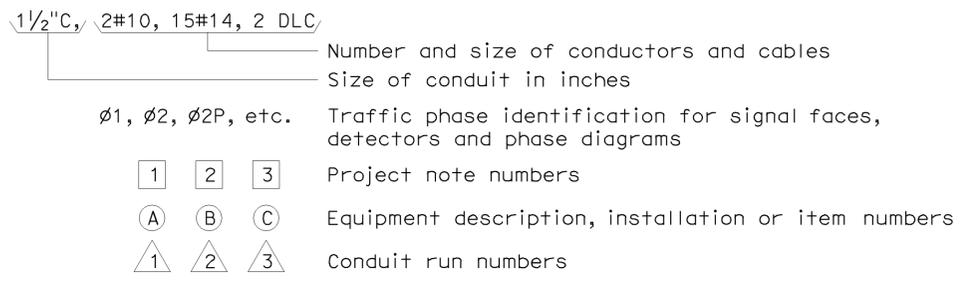
#### ILLUMINATED SIGN IDENTIFICATION NUMBER:



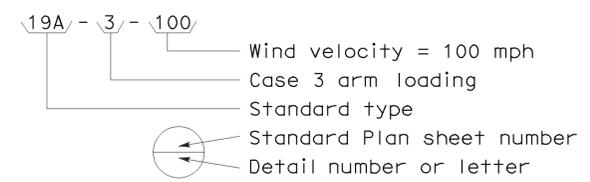
#### ELECTROLIER OR EQUIPMENT IDENTIFICATION NUMBER:



#### CONDUIT AND CONDUCTOR IDENTIFICATION:



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



### MISCELLANEOUS EQUIPMENT

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

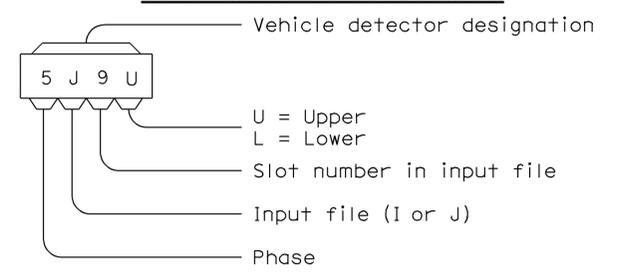
### WIRING DIAGRAM LEGEND

- |                                 |                       |
|---------------------------------|-----------------------|
| 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. 3 1/2 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  
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**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
03	Sie	89	0.0/15.1	34	34

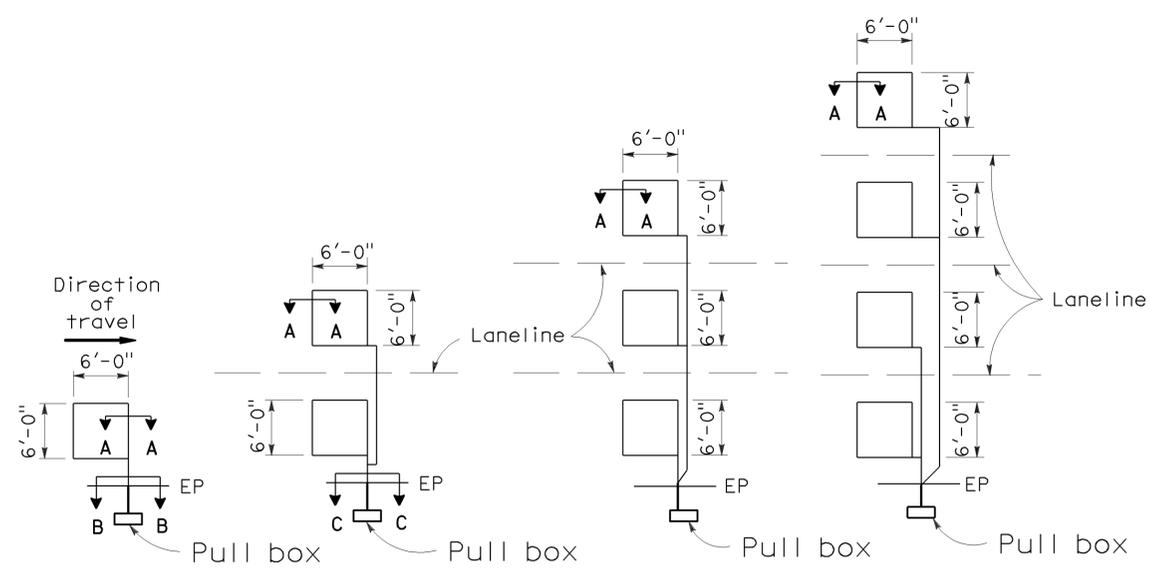
*Jeffery G. McRae*  
 REGISTERED ELECTRICAL ENGINEER  
 October 5, 2007  
 PLANS APPROVAL DATE  
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To accompany plans dated 5-16-11

2006 REVISED STANDARD PLAN RSP ES-5A

## LOOP INSTALLATION PROCEDURE

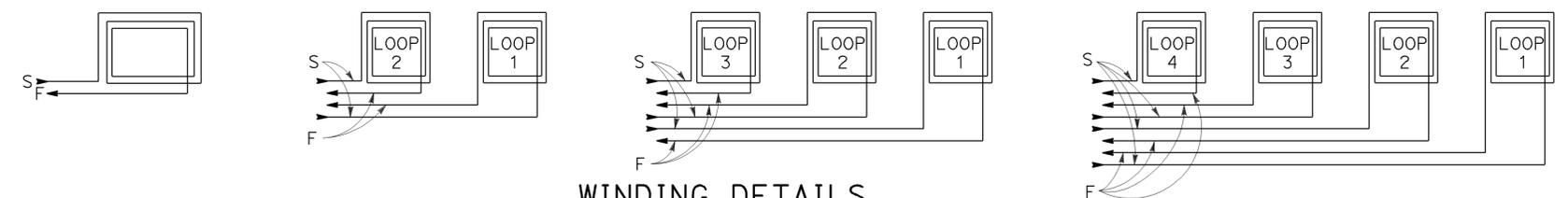
- Loops shall be centered in lanes.
- Saw slots in pavement for loop conductors as shown in details.
- Distance between side of loop and a lead-in saw cut from adjacent detectors shall be 2'-0" minimum. Distance between lead-in saw cuts shall be 6" minimum.
- Bottom of saw slot shall be smooth with no 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**

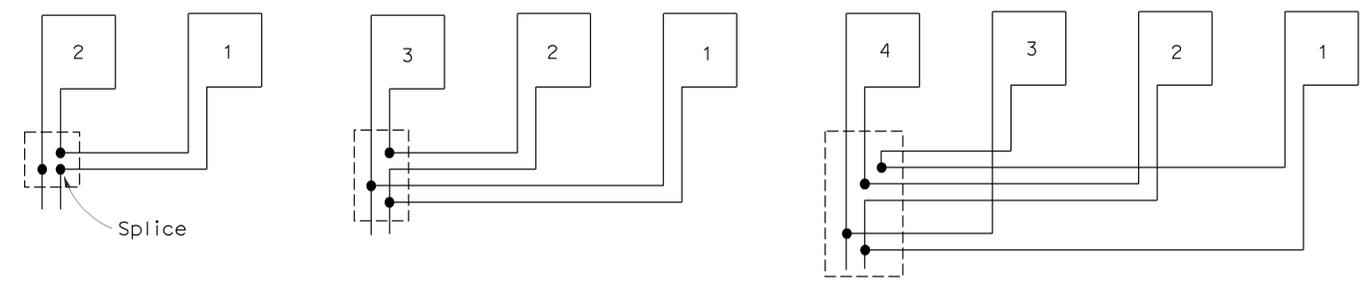
### SAWCUT DETAILS

- (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)



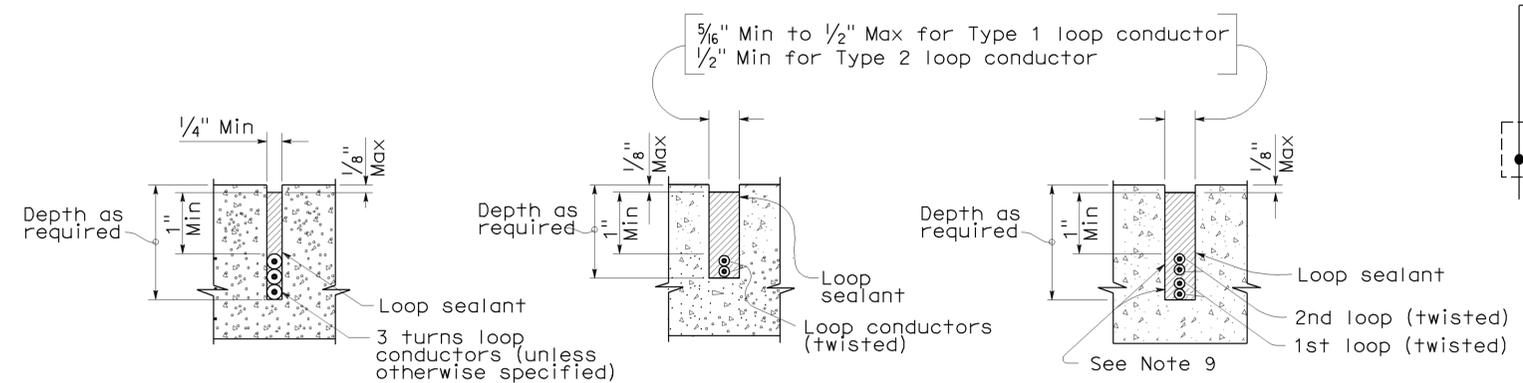
### WINDING DETAILS

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  
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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.

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