

INDEX OF PLANS

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

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
PROJECT PLANS FOR CONSTRUCTION ON
STATE HIGHWAY
IN SHASTA AND TRINITY COUNTIES
NEAR DOUGLAS CITY FROM 0.6 MILE
EAST OF LEWISTON ROAD TO 0.1 MILE
EAST OF SHASTA COUNTY LINE

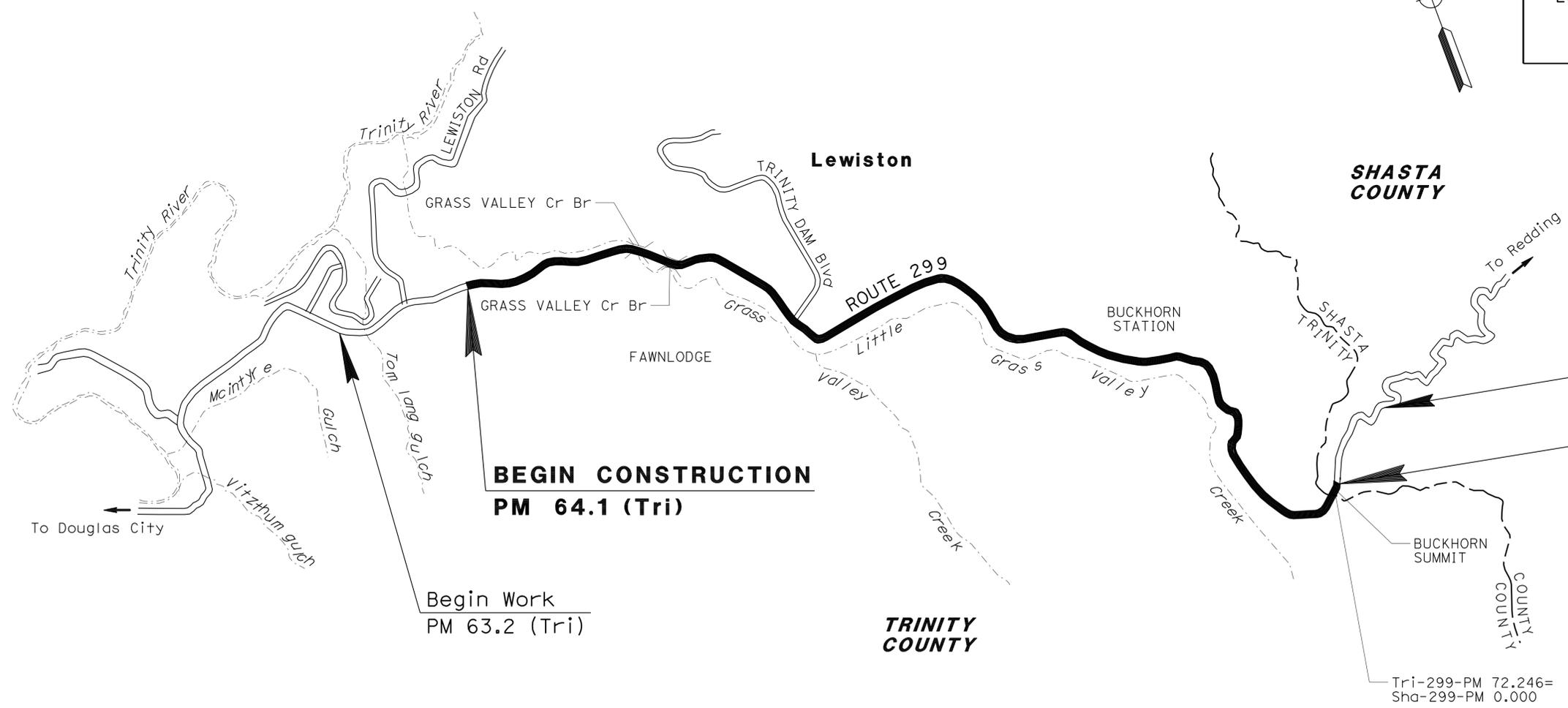
TO BE SUPPLEMENTED BY STANDARD PLANS DATED MAY 2006

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
02	Sha, Tri	299	0.0/0.1 64.1/72.2	1	25





LOCATION MAP



End Work
PM 1.0 (Sha)
END CONSTRUCTION
PM 0.1 (Sha)

BEGIN CONSTRUCTION
PM 64.1 (Tri)

Begin Work
PM 63.2 (Tri)

Tri-299-PM 72.246=
Sha-299-PM 0.000

Michael A. Conner 12-28-11

PROJECT ENGINEER DATE
REGISTERED CIVIL ENGINEER

December 28, 2011

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
 MICHAEL A. CONNER
 No. 073123
 Exp. 12-31-12
 CIVIL
 STATE OF CALIFORNIA

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

CONTRACT No.	02-3E9304
PROJECT ID	0200020232

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

NO SCALE



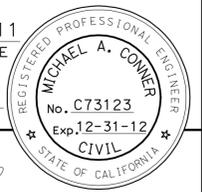
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PROJECT MANAGER LANCE BROWN	DESIGN ENGINEER LANCE BROWN
--------------------------------	--------------------------------

DATE PLOTTED => 29-DEC-2011 TIME PLOTTED => 12:45

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
02	Sha, Tri	299	0.0/0.1 64.1/72.2	2	25
			12-28-11	REGISTERED CIVIL ENGINEER DATE	
			12-28-11	PLANS APPROVAL DATE	
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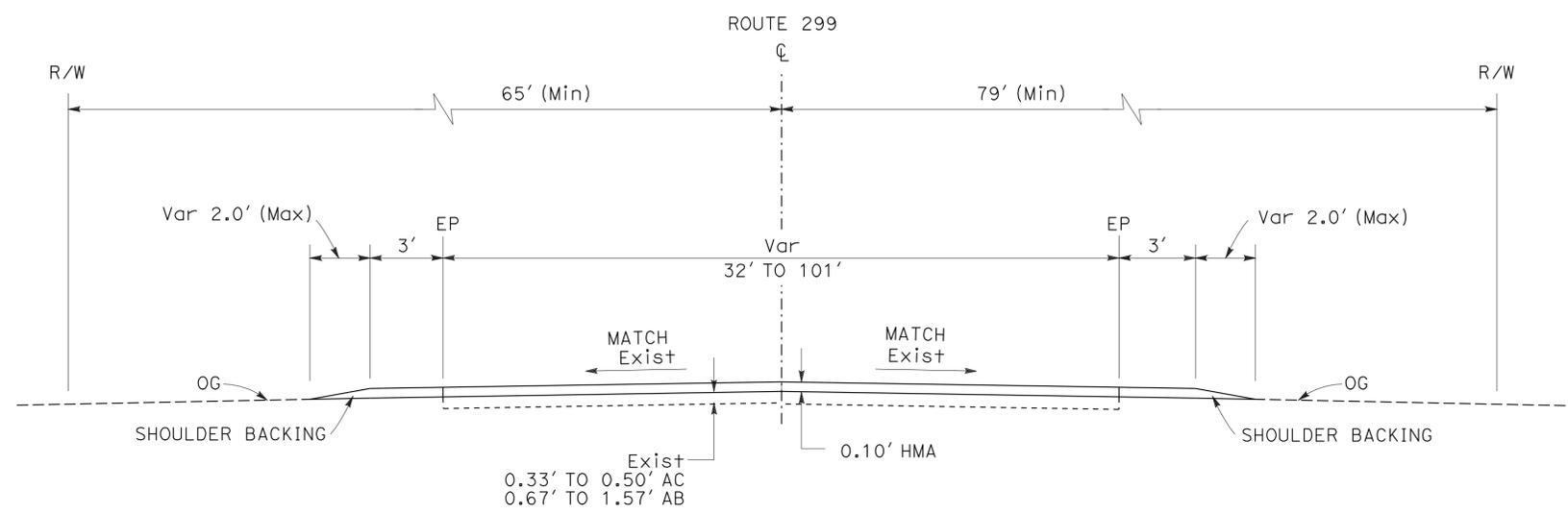


NOTES:

- DIMENSIONS OF THE STRUCTURAL SECTIONS ARE SUBJECT TO TOLERANCES SPECIFIED IN THE STANDARD SPECIFICATIONS.
- SUPERELEVATIONS AS SHOWN OR AS DIRECTED BY THE ENGINEER.
- EXISTING UTILITY FACILITIES ARE NOT SHOWN ON THESE PLANS.
- DO NOT OVERLAY BRIDGE DECKS.
- FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

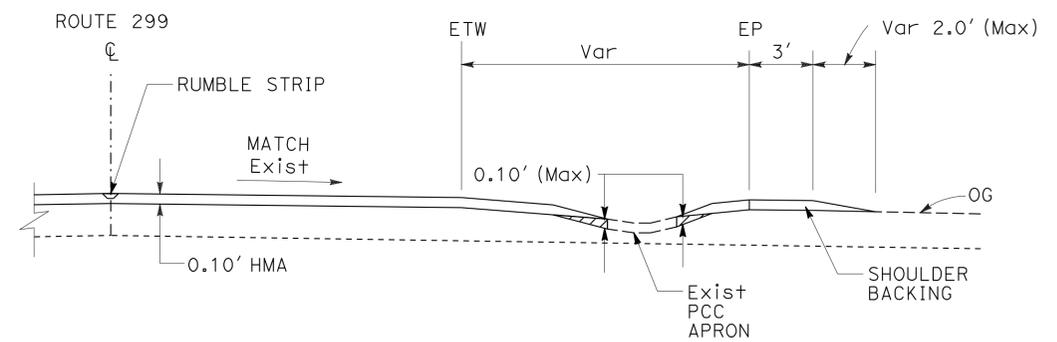
LEGEND:

COLD PLANE ASPHALT CONCRETE PAVEMENT (0.00' TO 0.10')



TYPICAL CROSS SECTION

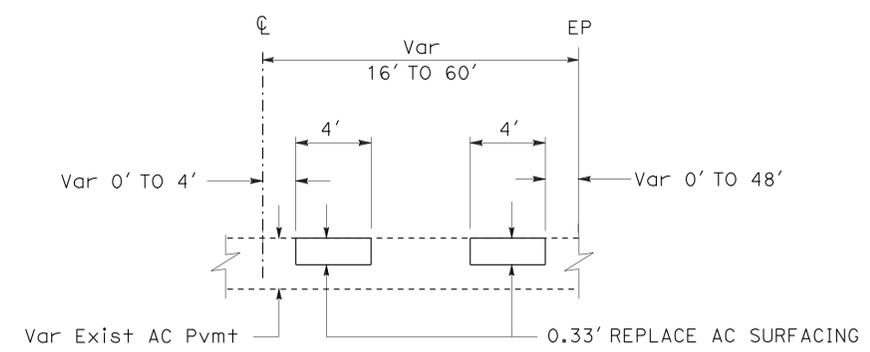
Sha-299-0.0/0.1
Tri-299-64.1/69.5
Tri-299-70.6/72.2



FAWNLodge NORTHERN SHOULDER LOCATION

Tri-299-64.2/64.5

SEE CONFORM TAPER FOR Exist PCC APRONS DETAIL ON C-1



REPLACE AC SURFACING

(TYPICAL BOTH DIRECTIONS)

Sha-299-0.0/0.1
Tri-299-64.1/69.5
Tri-299-70.6/72.2

TYPICAL CROSS SECTIONS

NO SCALE

X-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION - MAINTENANCE
 Michael Conner
 Karlie Smith
 Lance Brown

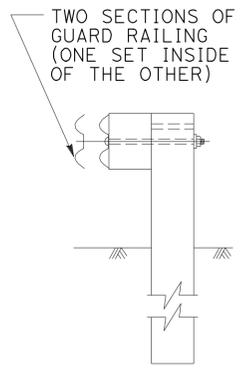


Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
02	Sha, Tri	299	0.0/0.1 64.1/72.2	5	25
			12-28-11	REGISTERED CIVIL ENGINEER DATE	
			12-28-11	PLANS APPROVAL DATE	
<small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small>					

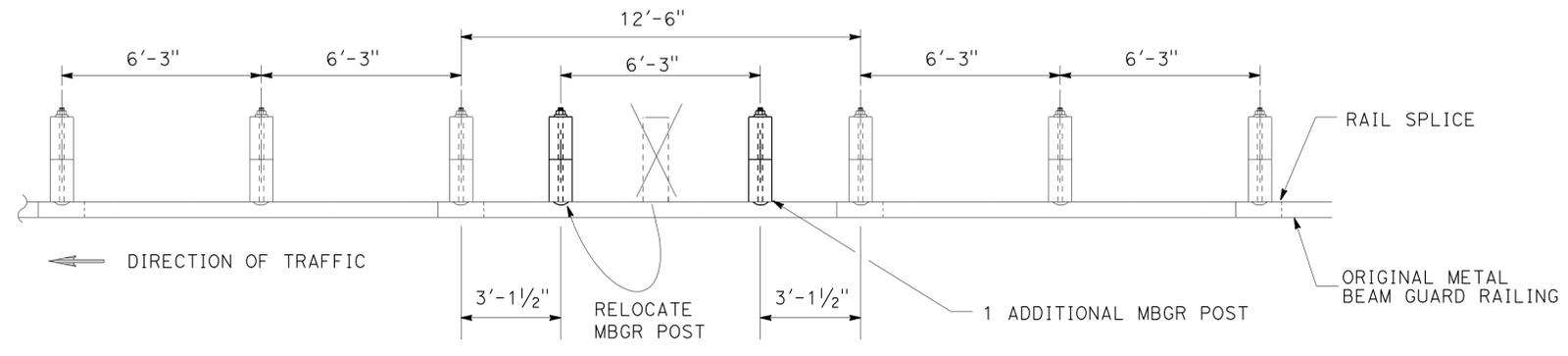


NOTES:

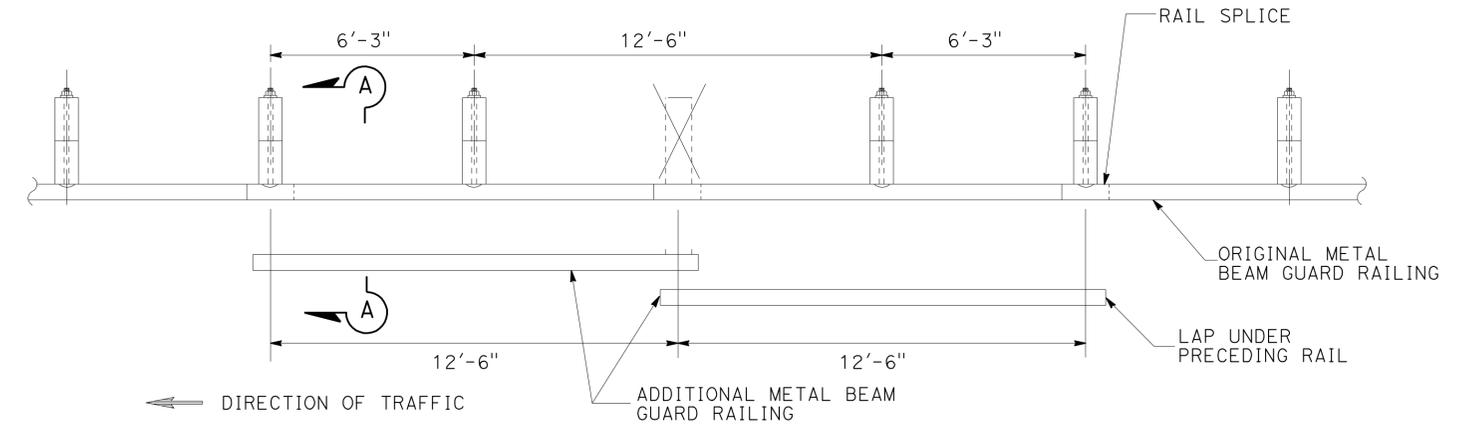
- LAP ALL RAILS AT EXISTING RAIL LAPS
- WHEN A POST IS REMOVED AND THE RAIL ELEMENTS ARE LAPPED, THEN THE LAPPED ELEMENTS MUST BE SUPPORTED BY A MIN OF 2 POST OR ADD ADDITIONAL LENGTH OF LAPPED ELEMENTS.
- EXISTING UTILITY FACILITIES ARE NOT SHOWN ON THESE PLANS.



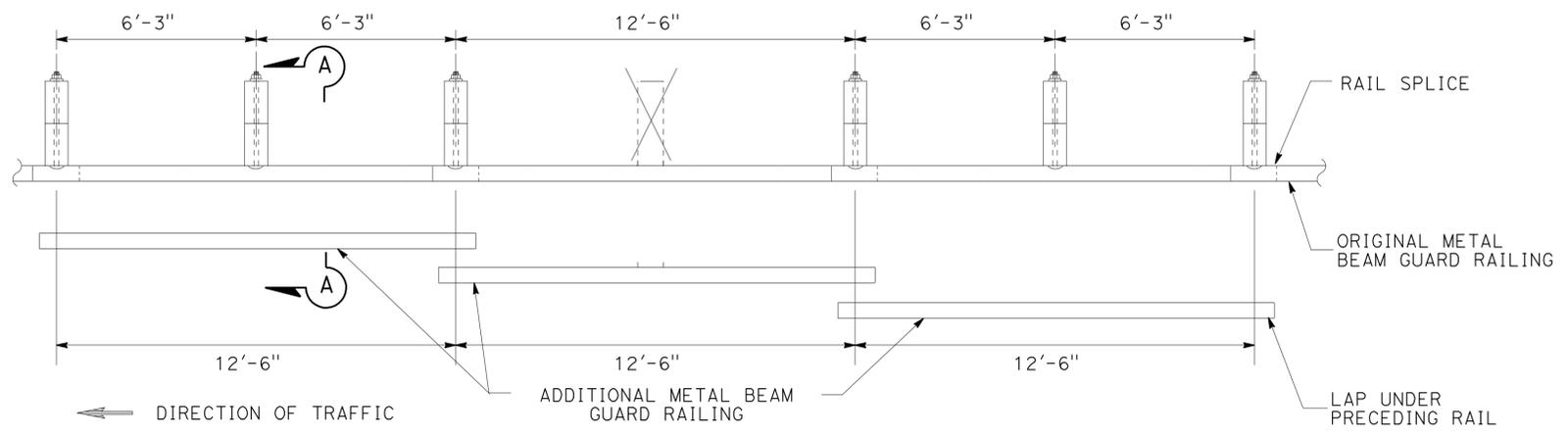
SECTION A-A
TYPICAL RAILING OVERLAP INSTALLATION AT POST



CASE 1
(ONE POST OMITTED, MOVE THE POST AND ADD ONE POST)



CASE 2
(ONE POST OMITTED AT JUNCTION OF TWO ELEMENTS)



CASE 3
(ONE POST OMITTED AT CENTER OF AN ELEMENT)

LONG SPAN NESTED GUARD RAILING

CONSTRUCTION DETAILS
NO SCALE

C-3

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
MAINTENANCE
 FUNCTIONAL SUPERVISOR: LANCE BROWN
 CALCULATED/DESIGNED BY: MICHAEL CONNER
 CHECKED BY: KARLIE SMITH
 REVISIONS: REVISED BY: DATE REVISED:

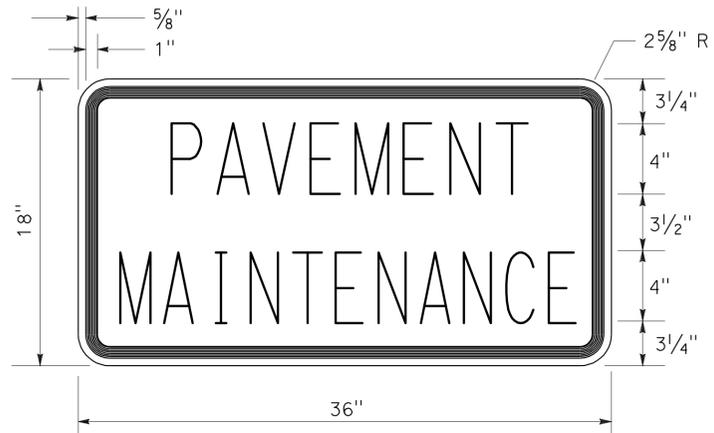
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
02	Sha, Tri	299	0.0/0.1 64.1/72.2	6	25
			12-28-11	DATE	
REGISTERED CIVIL ENGINEER			PLANS APPROVAL DATE		
			12-28-11	DATE	
<small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small>					

NOTES:

1. EXACT LOCATION OF ALL SIGNS TO BE DETERMINED BY THE ENGINEER.
2. CALIFORNIA CODES ARE DESIGNATED BY (CA), OTHERWISE FEDERAL CODES ARE SHOWN.
3. INTERMEDIATE G20-1 SIGNS SHOULD BE PLACED EVERY 3 TO 5 MILES AS NECESSARY.
4. EXISTING UTILITY FACILITIES ARE NOT SHOWN ON THESE PLANS.

LEGEND:

- ONE POST STATIONARY MOUNTED SIGN
- DIRECTION OF TRAFFIC



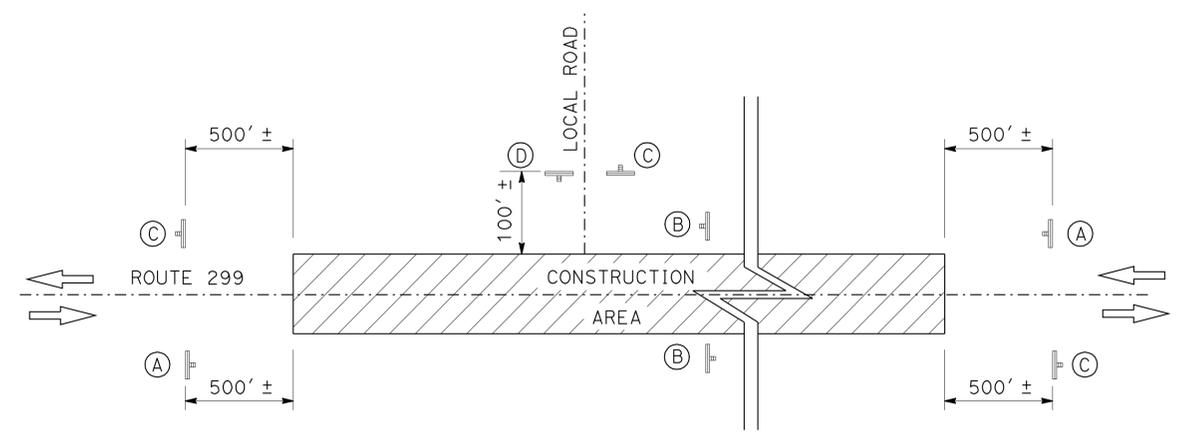
C23B(CA) SIGN PANEL DETAIL

ROAD CONNECTIONS

Co-Rte	PM	DESCRIPTION	(D)	(C)
Tri-299	64.48	ROAD CONNECTION	L+	
	65.32	ROAD TO FAWN LODGE	L+	
	66.51	ROAD CONNECTION	R+	
	67.43	TRINITY DAM Blvd	R+ & L+	L+
	68.03	BUCKHORN CAFE WEST ENTRANCE	L+	
	68.24	BUCKHORN CAFE EAST ENTRANCE	L+	
	69.25	ROAD TO HOMES FOR MAINTENANCE STATION	L+	
	71.64	ROAD CONNECTION	R+	

CONSTRUCTION AREA SIGNS (STATIONARY MOUNTED)

TYPE	CODE	PANEL SIZE	SIGN MESSAGE	NUMBER AND SIZE OF POST	No. OF SIGNS
(A)	W20-1	48" x 48"	ROAD WORK AHEAD	1-4" x 6"	2
(B)	C23B(CA)	36" x 18"	PAVEMENT MAINTENANCE	1-4" x 4"	2
(C)	G20-1	36" x 18"	ROAD WORK NEXT XX MILES	1-4" x 4"	2
(D)	G20-2	36" x 18"	END ROAD WORK	1-4" x 4"	3
(E)	W20-1	48" x 48"	ROAD WORK AHEAD	1-4" x 6"	9



CONSTRUCTION AREA SIGNS (STATIONARY MOUNTED)

CONSTRUCTION AREA SIGNS

NO SCALE

CS-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
 Michael Conner
 Karlie Smith
 Lance Brown
 MAINTENANCE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
02	Sha, Tri	299	0.0/0.1 64.1/72.2	7	25
			12-28-11	REGISTERED CIVIL ENGINEER DATE	
			12-28-11	PLANS APPROVAL DATE	
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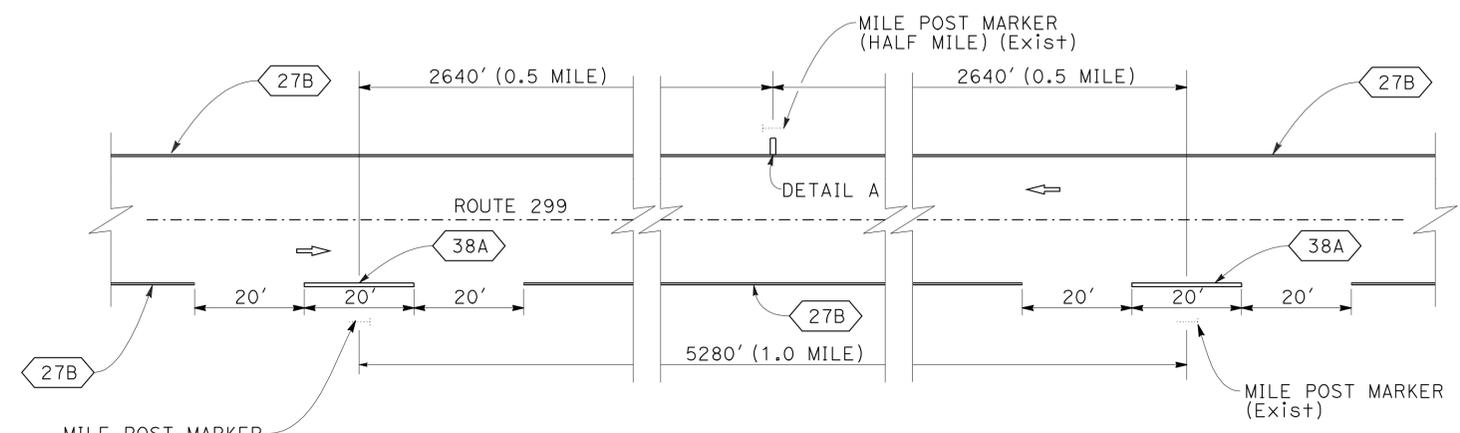


NOTE:

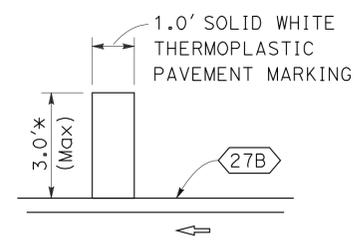
1. EXISTING UTILITY FACILITIES ARE NOT SHOWN ON THESE PLANS.

LEGEND:

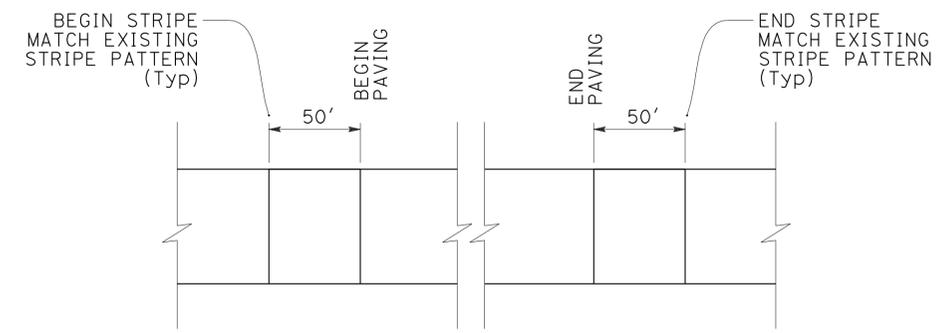
- DIRECTION OF TRAFFIC
- 27B TRAFFIC STRIPE DETAIL No.



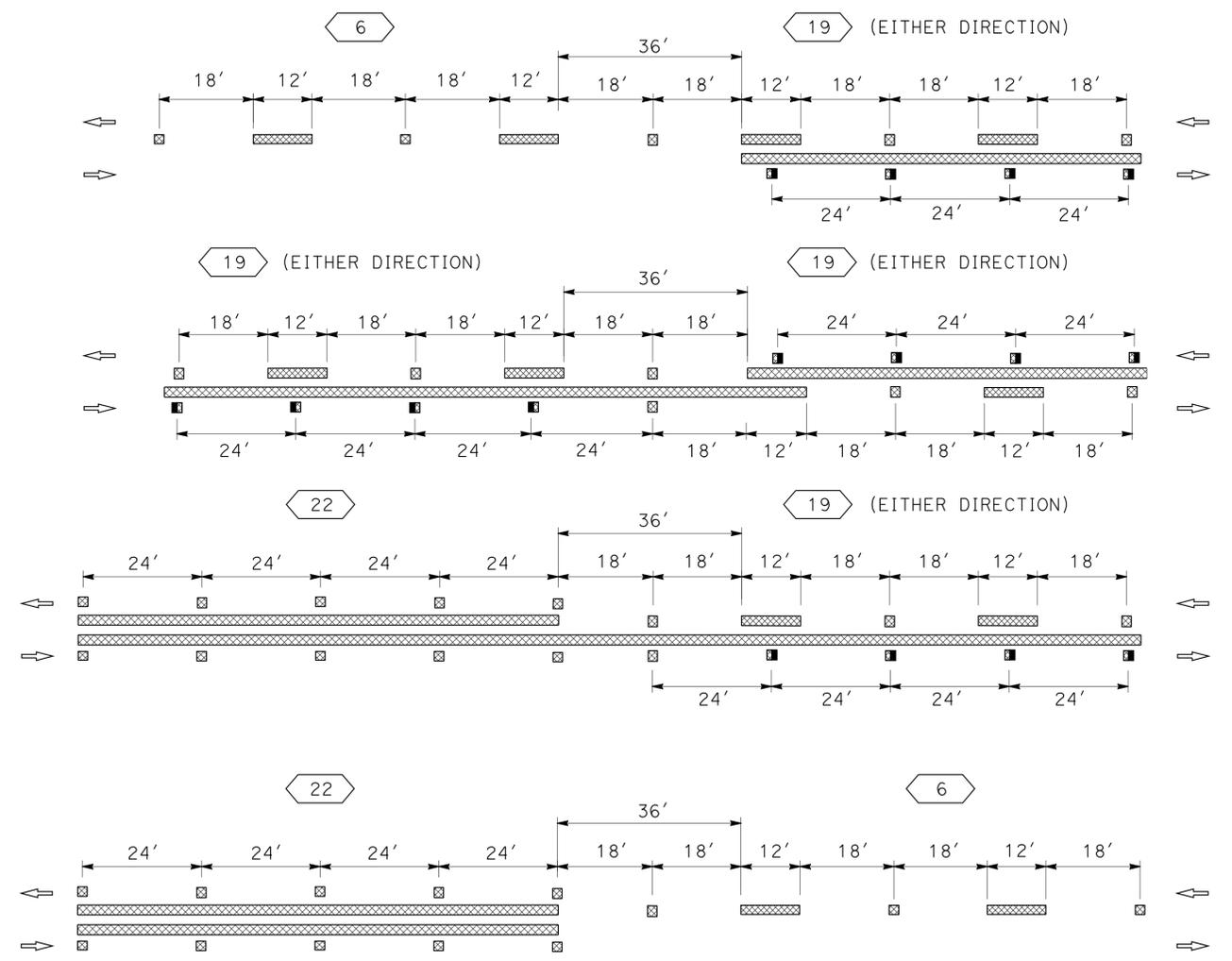
TYPICAL HALF MILE AND MILE POST STRIPE
NO HALF MILE STRIPE WITHIN AN EQUATION



DETAIL A
* ACTUAL LENGTH MAY VARY DUE TO PAVEMENT WIDTH



TRAFFIC STRIPE MATCH DETAIL



TYPICAL STRIPE TRANSITION DETAILS

PAVEMENT DELINEATION DETAILS

NO SCALE

PDD-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION - MAINTENANCE
 Michael Conner, Registered Civil Engineer
 Karlie Smith, Checked By
 Lance Brown, Functional Supervisor

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
02	Sha, Tri	299	0.0/0.1 64.1/72.2	8	25

12-28-11
 REGISTERED CIVIL ENGINEER DATE
 12-28-11
 PLANS APPROVAL DATE

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NOTES:

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- (N) NOT A SEPERATE PAY ITEM, FOR INFORMATION ONLY.
- NO PAVEMENT MARKERS SHALL BE APPLIED TO BRIDGE DECKS.

THERMOPLASTIC PAVEMENT MARKING

Co-Rte	POST MILE	L+	R+	(N) EA	SQFT	REMARKS
Tri-299	64.50-71.50	X		8	24.0	DETAIL A
	64.28	X		1	42.0	TYPE VI ARROW
	64.33	X		1	42.0	TYPE VI ARROW
	64.37	X		1	42.0	TYPE VI ARROW
	64.43		X	1	42.0	TYPE VI ARROW
	64.48		X	1	42.0	TYPE VI ARROW
	64.52		X	1	42.0	TYPE VI ARROW
	65.32	X		1	43.0	ROAD CONNECTION LIMIT LINE
	65.32	X		1	22.0	STOP
	66.51		X	1	28.0	ROAD CONNECTION LIMIT LINE
	66.51		X	1	22.0	STOP
	66.80	X		1	42.0	TYPE VI ARROW
	66.83	X		1	42.0	TYPE VI ARROW
	66.87	X		1	42.0	TYPE VI ARROW
	67.05		X	1	42.0	TYPE VI ARROW
	67.09		X	1	42.0	TYPE VI ARROW
	67.13		X	1	42.0	TYPE VI ARROW
	67.43	X	X	2	67.0	ROAD CONNECTION LIMIT LINE
	67.43	X	X	2	44.0	STOP
	67.43	X		1	700.0	ISLAND
	68.03	X		1	30.0	ROAD CONNECTION LIMIT LINE
	68.24	X		1	34.0	ROAD CONNECTION LIMIT LINE
	71.64		X	1	31.0	ROAD CONNECTION LIMIT LINE
	72.11		X	1	42.0	TYPE VI ARROW
	72.15		X	1	42.0	TYPE VI ARROW
	72.18		X	1	42.0	TYPE VI ARROW
TOTAL					1675.0	

REMOVE THERMOPLASTIC PAVEMENT MARKING

Co-Rte	POST MILE	L+	R+	(N) EA	SQFT	REMARKS
Tri-299	64.28	X		1	42.0	TYPE VI ARROW
	64.33	X		1	42.0	TYPE VI ARROW
	64.37	X		1	42.0	TYPE VI ARROW
	64.43		X	1	42.0	TYPE VI ARROW
	64.48		X	1	42.0	TYPE VI ARROW
	64.52		X	1	42.0	TYPE VI ARROW
	65.32	X		1	43.0	ROAD CONNECTION LIMIT LINE
	65.32	X		1	22.0	STOP
	66.51		X	1	28.0	ROAD CONNECTION LIMIT LINE
	66.51		X	1	22.0	STOP
	66.80	X		1	42.0	TYPE VI ARROW
	66.83	X		1	42.0	TYPE VI ARROW
	66.87	X		1	42.0	TYPE VI ARROW
	67.05		X	1	42.0	TYPE VI ARROW
	67.09		X	1	42.0	TYPE VI ARROW
	67.13		X	1	42.0	TYPE VI ARROW
	67.43		X	1	39.0	ROAD CONNECTION LIMIT LINE
	67.43		X	1	22.0	STOP
	68.03	X		1	30.0	ROAD CONNECTION LIMIT LINE
	68.24	X		1	34.0	ROAD CONNECTION LIMIT LINE
	71.64		X	1	31.0	ROAD CONNECTION LIMIT LINE
	72.11		X	1	42.0	TYPE VI ARROW
	72.15		X	1	42.0	TYPE VI ARROW
	72.18		X	1	42.0	TYPE VI ARROW
TOTAL					901.0	

PAVEMENT MARKER (RETROREFLECTIVE-RECESSED)

Co-Rte	POSTMILE LIMITS	TYPE D	TYPE G	TYPE H
		EA	EA	EA
Tri-299	64.10-72.25	3279	170	211
Sha-299	0.00-0.09	42		
SUB-TOTAL		3321	170	211
TOTAL		3702		

THERMOPLASTIC TRAFFIC STRIPE (SPRAYABLE)

Co-Rte	POSTMILE LIMITS	DETAIL 6	DETAIL 12	DETAIL 19	DETAIL 22	DETAIL 27B	DETAIL 27C	DETAIL 29	DETAIL 38	DETAIL 38A
		LF	LF	LF	LF	LF	LF	LF	LF	LF
Tri-299	64.10-72.25	1901	7023	5017	33,159	85,373	1244	4383	498	160
Sha-299	0.00-0.09				476	891				20
SUB-TOTAL		1901	7023	5017	33,635	86,264	1244	4383	498	180
TOTAL		140,145								

PAVEMENT DELINEATION QUANTITIES

PDQ-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION - MAINTENANCE
 Michael Conner
 Karlie Smith
 Lance Brown
 Functional Supervisor
 Calculated-Designed By
 Checked By
 Revised By
 Date Revised

LAST REVISION
 DATE PLOTTED => 29-DEC-2011
 TIME PLOTTED => 12:45

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 STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans MAINTENANCE
 FUNCTIONAL SUPERVISOR LANCE BROWN
 CALCULATED-DESIGNED BY
 CHECKED BY
 MICHAEL CONNER
 KARLIE SMITH
 REVISED BY
 DATE REVISED

NOTES:

- (N) NOT A SEPARATE PAY ITEM, FOR INFORMATION ONLY
- EXACT LOCATIONS OF REPLACE AC SURFACING TO BE DETERMINED BY ENGINEER.
- EXISTING UTILITY FACILITIES ARE NOT SHOWN ON THESE PLANS.

RUMBLE STRIP

Co-Rte	POSTMILE LIMITS	SIDE	Sta
Tri-299	64.17-64.61	MIDDLE	24
TOTAL			24

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
02	Sha, Tri	299	0.0/0.1 64.1/72.2	10	25

12-28-11
 REGISTERED CIVIL ENGINEER DATE
 12-28-11
 PLANS APPROVAL DATE

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ROADWAY QUANTITIES SUMMARY

Co-Rte	POSTMILE LIMITS	(N) LENGTH	(N) WIDTH	HMA	SHOULDER BACKING	TACK COAT	PAVING ASPHALT (BINDER, GEOSYNTHETIC PAVEMENT INTERLAYER)	GEOSYNTHETIC PAVEMENT INTERLAYER (PAVING FABRIC)
							TON	SQYD
Tri-299	64.10-64.17	370	38.0-57.0	8931	1860	38.6		
	64.17-64.19	106	57.0-71.0					
	64.19-64.28	475	71.0-98.0					
	64.28-64.34	317	98.0-101.0					
	64.34-64.44	528	101.0-99.0					
	64.44-64.48	211	99.0-100.0					
	64.48-64.49	53	100.0-90.0					
	64.49-64.51	106	90.0-68.0					
	64.51-64.56	264	68.0-64.0					
	64.56-64.70	739	64.0-36.0					
	64.70-65.00	1584	36.0-33.5					
	65.00-65.44	2323	33.5-35.0					
	65.53-65.56	158	35.0-32.0					
	65.56-65.80	1267	32.0-33.0					
	65.91-66.06	792	33.0					
	66.06-66.50	2323	33.0					
	66.50-66.70	1056	33.0					
	66.70-66.84	739	33.0-61.0					
	66.84-67.00	845	61.0-62.0					
	67.00-67.32	1690	62.0-64.5					
	67.32-67.35	158	64.5-36.0					
	67.35-67.36	53	36.0-55.5					
	67.36-67.44	422	55.5-58.5					
	67.44-67.48	211	53.5-74.0					
	67.48-67.60	634	74.0-45.0					
	67.60-67.67	370	45.0-33.0					
	67.67-68.00	1742	33.0					
	68.00-68.65	3432	33.0					
	68.65-68.85	1056	33.0-36.0					
	68.85-68.89	211	36.0-58.0					
68.89-68.97	422	58.0-36.0						
68.97-69.14	898	36.0-33.0						
69.14-69.54	2112	33.0-36.0						
HMA DIKE				47				
ROAD CONNECTIONS				145	13	0.9		
69.64	SANDHOUSE		207	4	0.6	2.2	2042	
69.54-70.53	MAINLINE		*	*	*	*	*	
70.53-70.59	317	41.5-46.0	3233	618	14.0			
70.59-71.00	2165	46.0-46.5						
71.00-71.54	2851	46.5-47.0						
71.54-72.00	2429	47.0-46.5						
72.00-72.27	1426	46.5-52.0						
ROAD CONNECTIONS				3	1	0.1		
Sha-299	0.00-0.01	53	41.5-46.0	158	32	0.7		
	0.01-0.05	211	46.0-46.5					
	0.05-0.09	211	46.5-47.0					
HMA DIKE				3				
TOTAL				12,727	2528	54.9	2.2	2042

* TRAFFIC STRIPE AND PAVEMENT MARKERS ONLY

PLACE HMA DIKE (TYPE F)

Co-Rte	POSTMILE LIMITS	DIRECTION	SIDE	LENGTH
				LF
Tri-299	64.18-64.28	WB	L+	534
	64.28-64.30	EB	R+	123
	64.55-64.68	WB	L+	703
	64.69-64.75	WB	L+	338
	66.43-66.48	EB	R+	270
	67.67-67.89	EB	R+	1167
	67.73-67.87	WB	L+	211
	68.06-68.09	EB	R+	120
Sha-299	0.06-0.09	EB	R+	169
TOTAL				3635

REMOVE ASPHALT CONCRETE DIKE

Co-Rte	POSTMILE LIMITS	DIRECTION	SIDE	LENGTH
				LF
Tri-299	64.18-64.28	WB	L+	534
	64.28-64.30	EB	R+	123
	64.55-64.68	WB	L+	703
	64.69-64.75	WB	L+	338
	66.43-66.48	EB	R+	270
	67.67-67.89	EB	R+	1167
	67.73-67.87	WB	L+	211
	68.06-68.09	EB	R+	120
Sha-299	0.06-0.09	EB	R+	169
TOTAL				3635

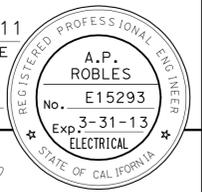
REPLACE ASPHALT CONCRETE SURFACING

Co-Rte	POSTMILE LIMITS	(N) Approx No. OF DIGOUTS	(N) Avg LENGTH	(N) WIDTH	(N) DEPTH	CY
			LF	LF	LF	
Tri-299	64.10-65.00	18	100	4	0.33	88
	65.00-66.00	18	100	4	0.33	88
	66.00-67.00	18	100	4	0.33	88
	67.00-68.00	18	100	4	0.33	88
	67.43	1	40	29-63	0.33	23
	68.00-69.00	18	100	4	0.33	88
	69.00-69.50	8	100	4	0.33	40
	70.60-71.00	8	100	4	0.33	40
Sha-299	71.00-72.20	18	100	4	0.33	88
Sha-299	0.00-0.10	4	100	4	0.33	20
TOTAL						646

SUMMARY OF QUANTITIES
Q-2

LAST REVISION DATE PLOTTED => 29-DEC-2011
 12-28-11 TIME PLOTTED => 12:46

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
02	Sha, Tri	299	0.0/0.1 64.1/72.2	11	25
			ART	12-28-11	
			REGISTERED ELECTRICAL ENGINEER	DATE	
			12-28-11		
			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 (THIS SHEET):

- LOCATION OF LOOPS WILL BE DETERMINED BY THE ENGINEER.
- COIL 10' OF CONDUCTORS IN PULL BOX.

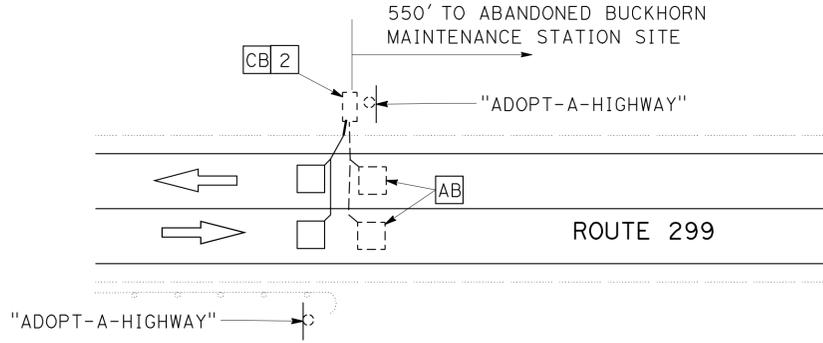
LEGEND:

→ DIRECTION OF TRAVEL



EXISTING TRAFFIC MANAGEMENT SYSTEM ELEMENTS TO BE MAINTAINED

TYPE	LOCATION	DESCRIPTION
CCTV	Tri-299-69.7	BUCKHORN SUMMIT SAND HOUSE
RWIS INCLUDING PAVEMENT SENSORS	Tri-299-69.7	BUCKHORN SUMMIT SAND HOUSE



TMS No. 159

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans ELECTRICAL DESIGN
 FUNCTIONAL SUPERVISOR: ROB STINGER
 CALCULATED/DESIGNED BY: ARTURO ROBLES
 CHECKED BY: KAREN CARMO
 REVISED BY: [] DATE REVISED: []
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TRAFFIC MONITORING STATION

NO SCALE

E-1

APPROVED FOR ELECTRICAL WORK ONLY

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
02	Sha, Tri	299	0.0/0.1 64.1/72.2	12	25

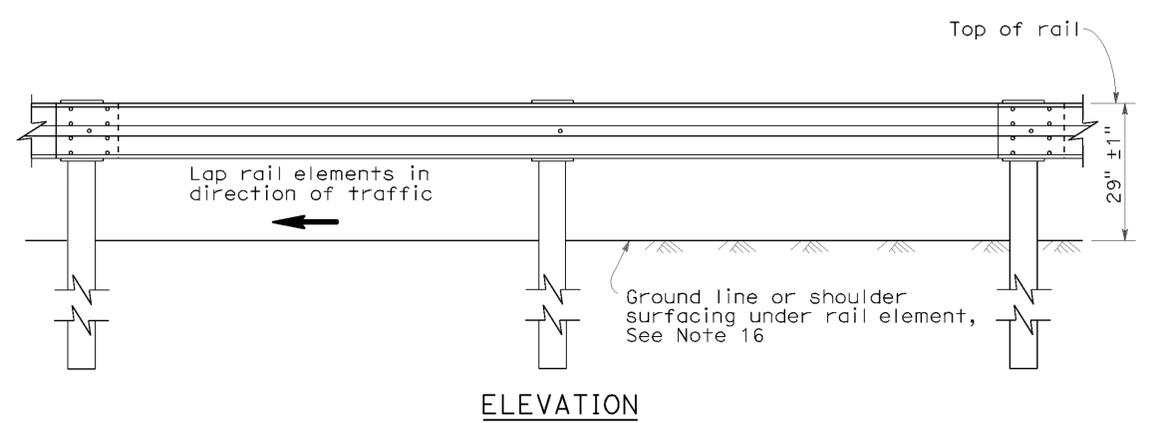
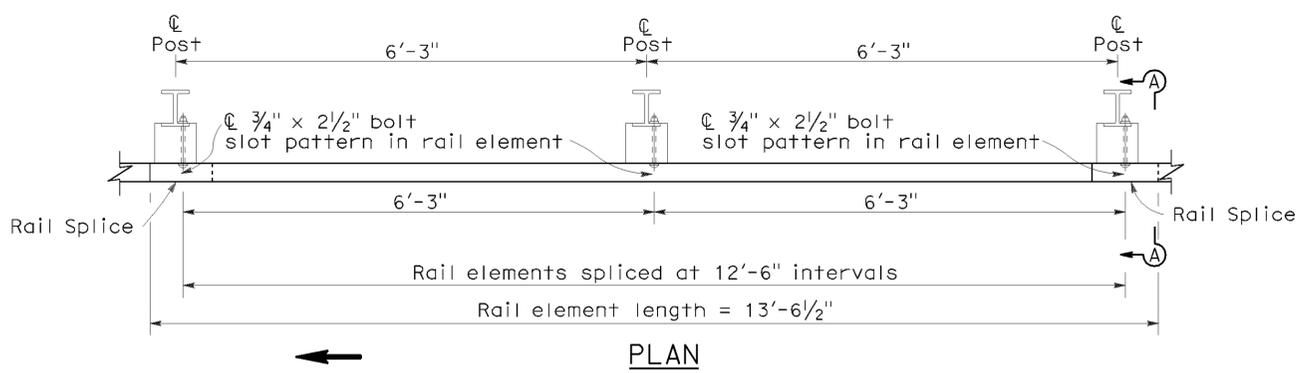
Randell D. Hiatt
REGISTERED CIVIL ENGINEER

May 20, 2011
PLANS APPROVAL DATE

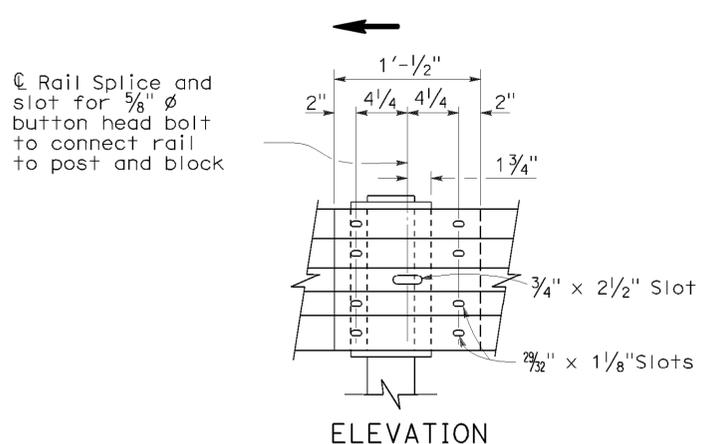
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REGISTERED PROFESSIONAL ENGINEER
No. C50200
Exp. 6-30-11
CIVIL
STATE OF CALIFORNIA

To accompany plans dated 12-28-11

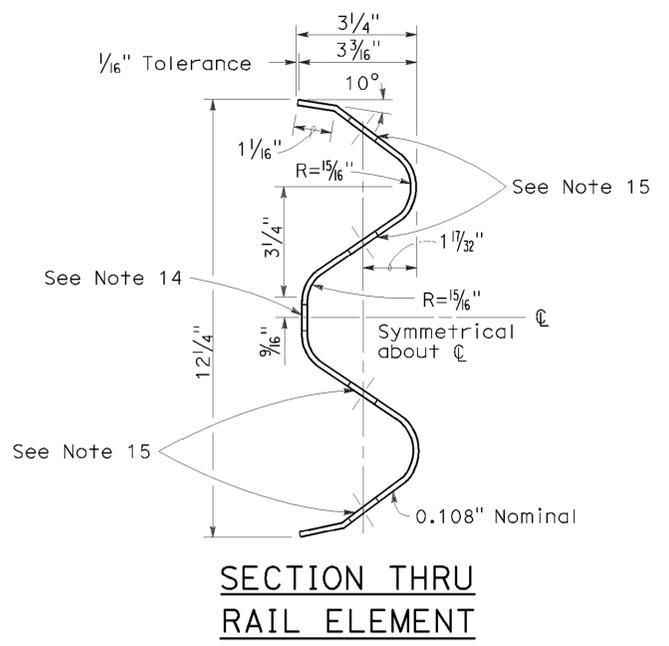


**METAL BEAM GUARD RAILING WITH STEEL POSTS
AND NOTCHED WOOD OR NOTCHED RECYCLED PLASTIC BLOCKS**

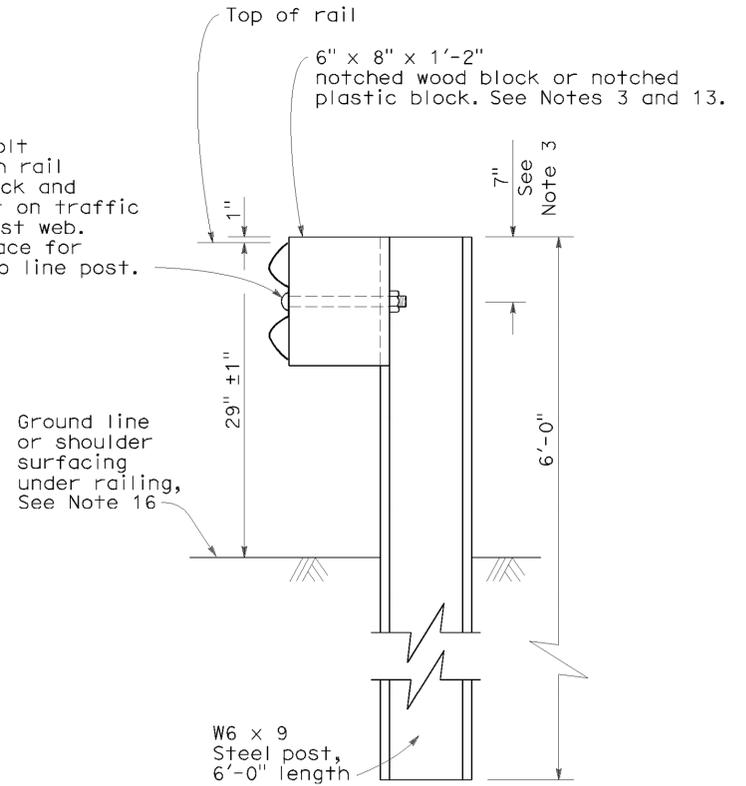


RAIL ELEMENT SPLICE DETAIL

- Connect the overlapped end of the rail elements with 5/8" ϕ x 1 3/8" button head oval shoulder splice bolts inserted into the 2 7/32" x 1 1/8" slots and bolted together with 5/8" ϕ recessed hex nuts. Recess of hex nut points toward rail element. A total of 8 bolts and nuts are to be used at each rail splice connection.
- The ends of the rail elements are to be overlapped in the direction of traffic (see details).
- Where end cap is to be attached to the end of a rail element, a total of 4 of the above described splice bolts and nuts are to be used.



**SECTION THRU
RAIL ELEMENT**



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

See Note 4

NOTES:

- For details of wood post installations, see Standard Plan A77A1.
- For details of standard hardware used to construct guard railing, see Standard Plan A77B1.
- For details of steel posts and notched wood blocks used to construct guard railing, see Standard Plan A77C2.
- For additional installation details, see Standard Plan A77C3.
- Guard railing post spacing to be 6'-3" center to center, except as otherwise noted.
- For guard railing typical layouts, see the A77E, A77F and A77G Series of Standard Plans.
- For terminal system end treatment details, see the A77L Series of Standard Plans. To connect railing to terminal system end treatment, transition the top of railing height at a ratio of 120:1 to terminal system end treatment height plus one 12'-6" standard railing section at the transitioned height for a horizontal connection to the end treatment.
- For guard railing end anchor details, see Standard Plans A77H1 and A77I2.
- For details of guard railing transition to bridge railing, see Standard Plan A77J4.
- For additional details of guard railing connection to bridge railings, see Standard Plans A77J1, A77J2 and A77K1.
- For dike positioning and guard railing delineation details, see Standard Plan A77C4.
- Direction of adjacent traffic indicated by \rightarrow .
- Notched face of block faces steel post.
- Slotted hole for bolted connection of rail element to block and post. See "Section Thru Rail Element".
- Slotted holes for splice bolts to overlap ends of rail element. See "Section Thru Rail Element".
- Install posts in soil.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

**METAL BEAM GUARD RAILING
STANDARD RAILING SECTION
(STEEL POST WITH NOTCHED
WOOD OR NOTCHED
RECYCLED PLASTIC BLOCK)**

NO SCALE

RSP A77A2 DATED MAY 20, 2011 SUPERSEDES STANDARD PLAN A77A2
DATED MAY 1, 2006 - PAGE 42 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP A77A2

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2006 REVISED STANDARD PLAN RSP A77A2

To accompany plans dated 12-28-11

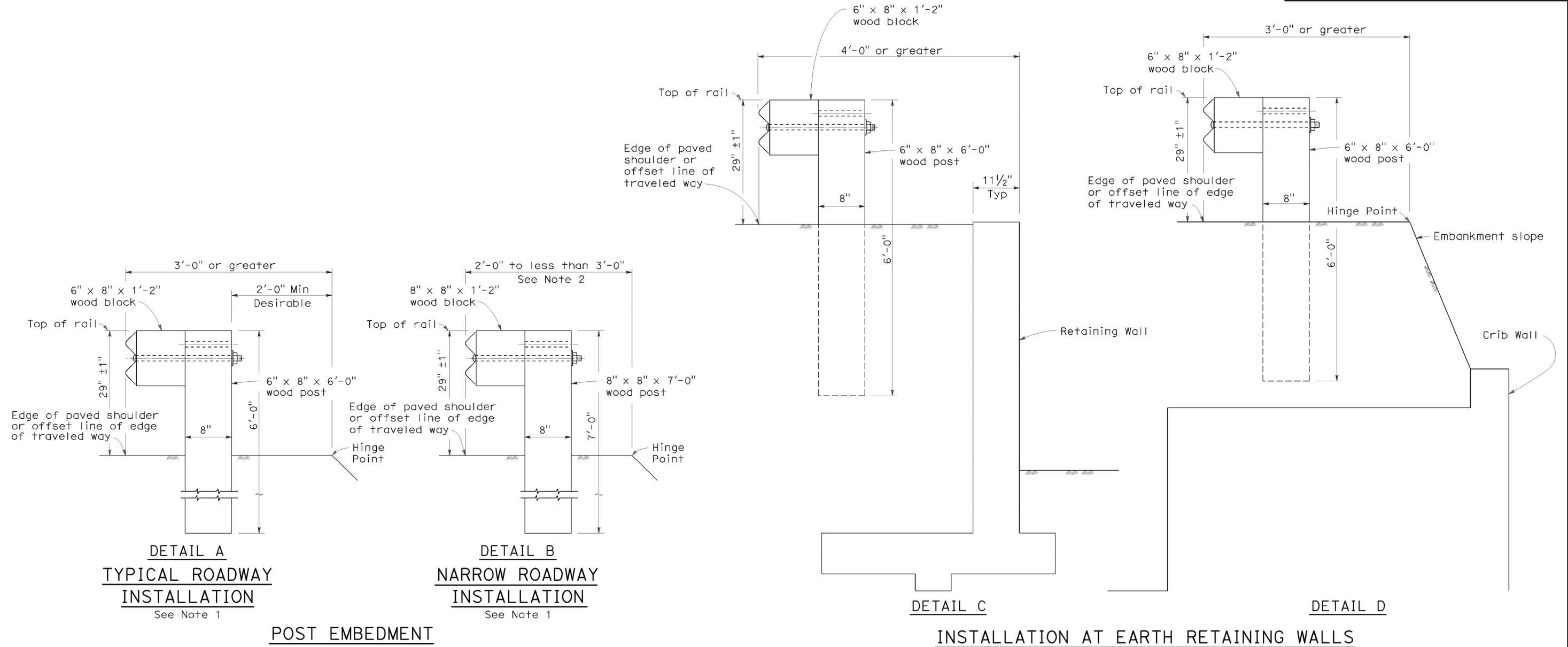
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
02	Sha, Tri	299	0.0/0.1 64.1/72.2	13	25

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

May 20, 2011
PLANS APPROVAL DATE

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

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NOTES:

1. These installation details also applicable to steel line post installations. For Detail A, C, and D, where steel line post installations are constructed, W6 x 9 steel post, 6'-0" in length, with 6" x 8" x 1'-2" notched wood blocks or notched recycled plastic blocks are to be used in place of the size of wood post and wood block shown. For Detail B, where steel line post installations are constructed, W6 x 9 steel post, 7'-0" in length, with 6" x 8" x 1'-2" notched wood blocks or notched recycled plastic blocks are to be used in place of the size of wood post and wood block shown. For additional installation details, see Standard Plans A77A1 and A77A2.
2. Where the distance between the face of the rail and the hinge point is less than 2'-0", see the Project Plans for special details.
3. For dike positioning with guard railing installations, see Standard Plan A77C4.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

**METAL BEAM GUARD RAILING
TYPICAL LINE POST
EMBEDMENT AND
HINGE POINT OFFSET DETAILS**

NO SCALE

RSP A77C3 DATED MAY 20, 2011 SUPERSEDES STANDARD PLAN A77C3
DATED MAY 1, 2006 - PAGE 46 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP A77C3

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2006 REVISED STANDARD PLAN RSP A77C3

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
02	Sha, Tri	299	0.0/0.1 64.1/72.2	14	25

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

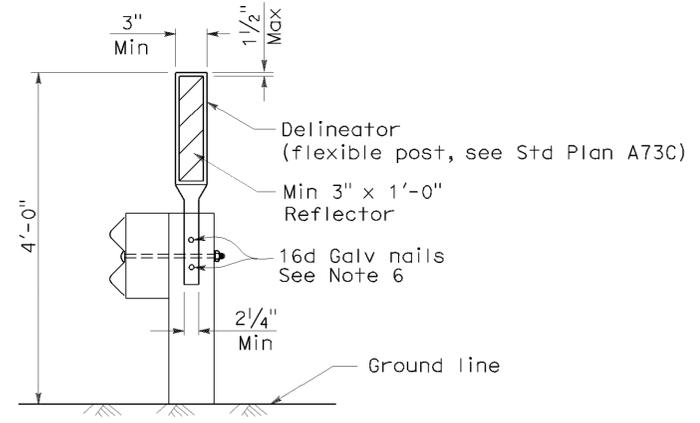
May 20, 2011
PLANS APPROVAL DATE

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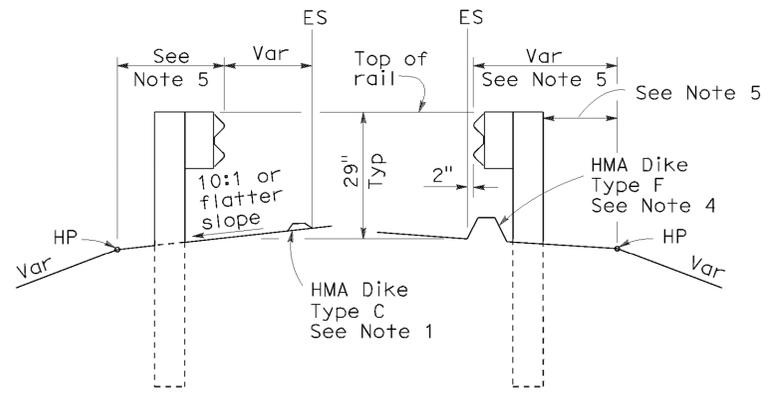
To accompany plans dated 12-28-11

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

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2006 REVISED STANDARD PLAN RSP A77C4

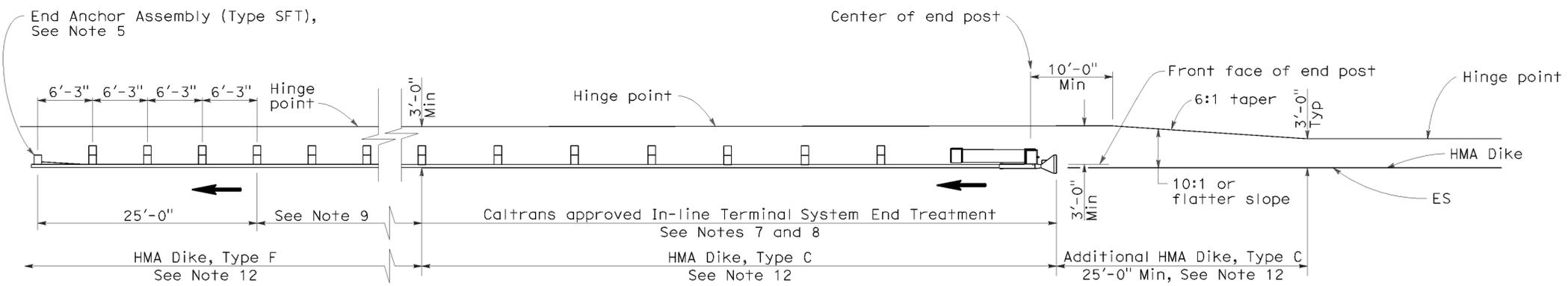
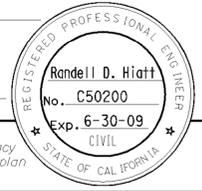
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
02	Sha, Tri	299	0.0/0.1 64.1/72.2	15	25

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

June 6, 2008
PLANS APPROVAL DATE

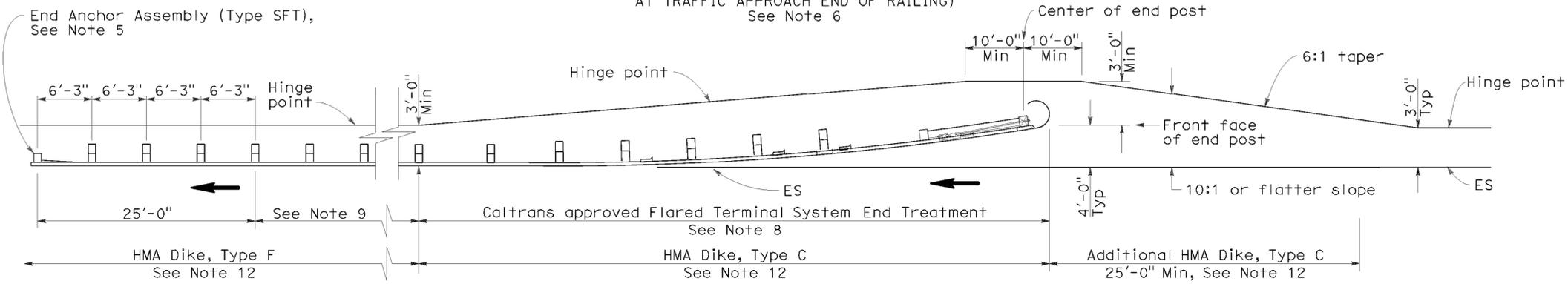
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To accompany plans dated 12-28-11



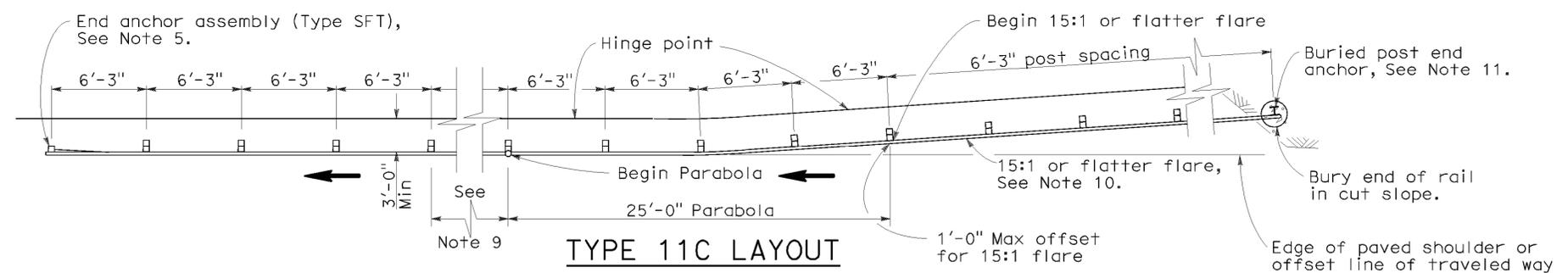
TYPE 11A LAYOUT

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



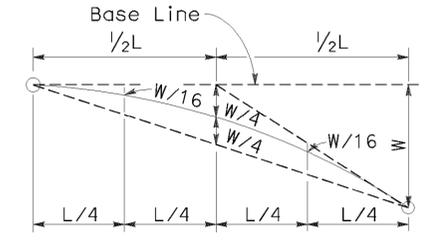
TYPE 11B LAYOUT

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

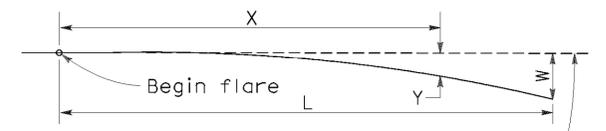


TYPE 11C LAYOUT

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



TYPICAL PARABOLIC LAYOUT

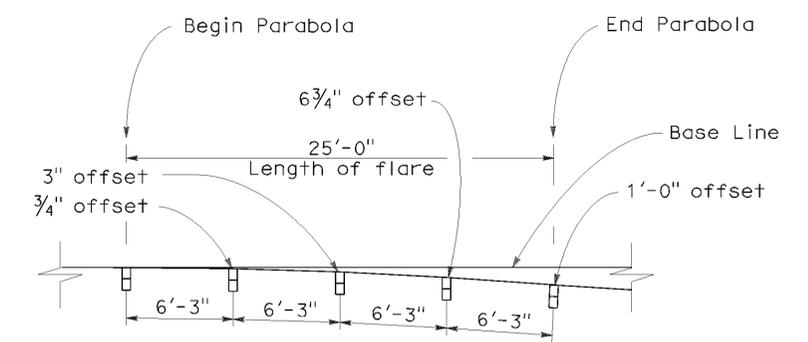


Base Line (Edge of paved shoulder or offset line of edge of traveled way)

Y = 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



TYPICAL FLARE OFFSETS FOR 1 FOOT MAX END OFFSET

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

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.

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2006 REVISED STANDARD PLAN RSP A77E1

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
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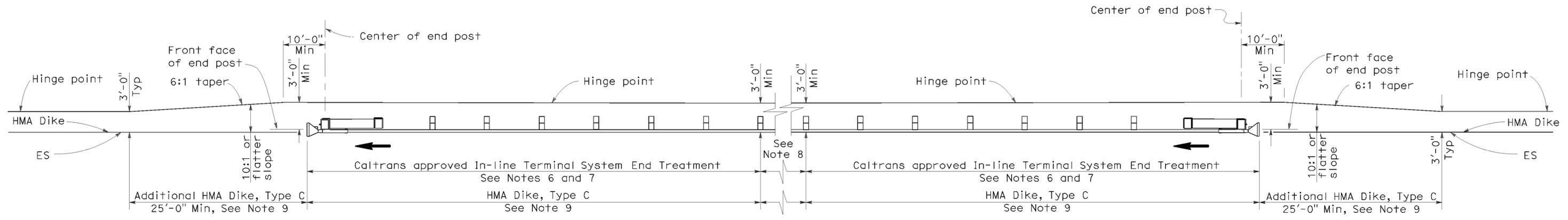
Randell D. Hiatt
REGISTERED CIVIL ENGINEER

June 6, 2008
PLANS APPROVAL DATE

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

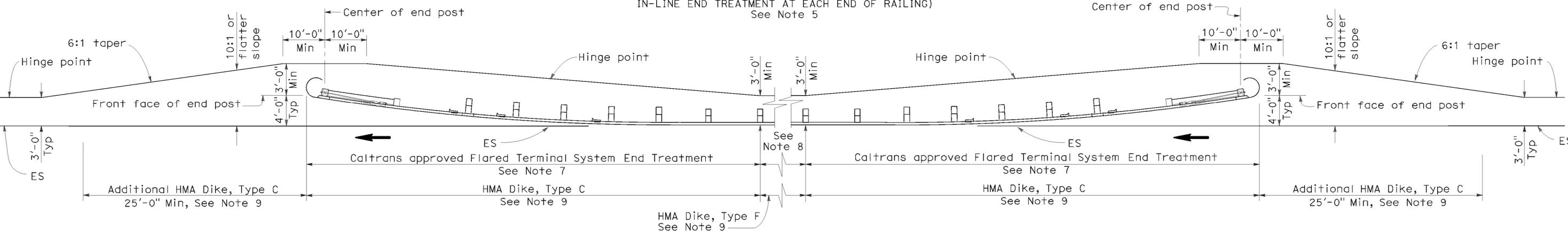
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To accompany plans dated 12-28-11



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 \rightarrow .
- Layout Types 11D through 11L, shown on the A77E Series of Revised Standard Plans, are typically used where guard railing is recommended to shield embankment slopes and a crashworthy end treatment is required for both directions of traffic.
- In-line Terminal System End Treatments are used where site conditions will not accommodate a flared end treatment.
- The type of terminal system end treatment to be used will be shown on the Project Plans.
- Dependent on site conditions (embankment height and side slope), construction of additional guard railing (length equal to multiples of 12'-6" with 6'-3" post spacing) may be advisable.
- Where placement of dike is required with guard railing installations, see Revised Standard Plan RSP A77C4 for dike positioning details.

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

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

REVISED STANDARD PLAN RSP A77E2

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2006 REVISED STANDARD PLAN RSP A77E2

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
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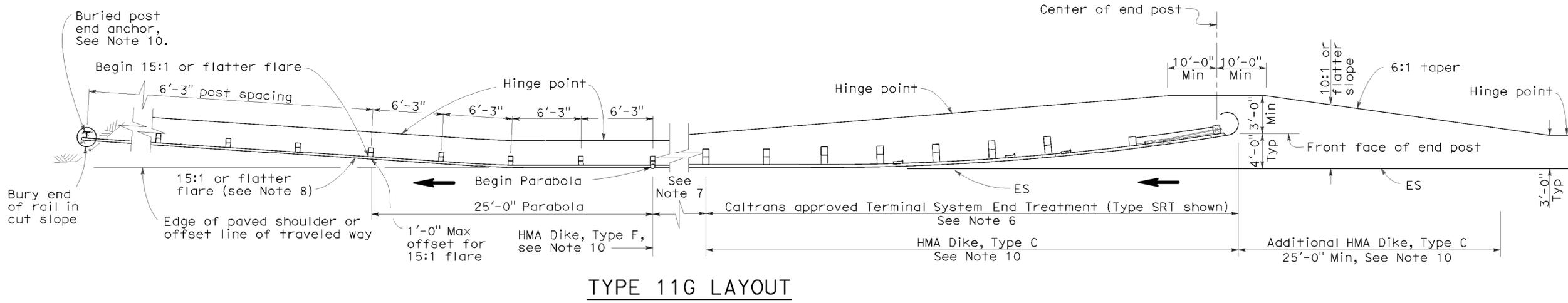
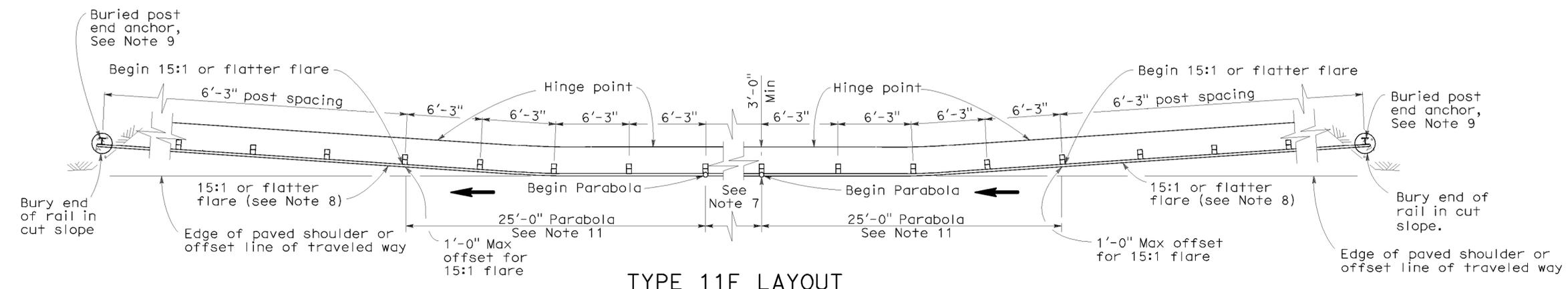
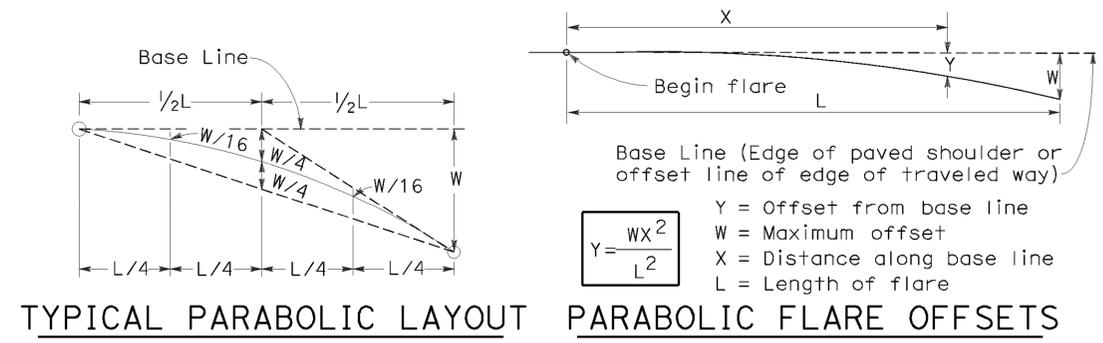
Randell D. Hiatt
REGISTERED CIVIL ENGINEER

June 6, 2008
PLANS APPROVAL DATE

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

To accompany plans dated 12-28-11



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

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2006 REVISED STANDARD PLAN RSP A77E3

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
02	Sha, Tri	299	0.0/0.1 64.1/72.2	18	25

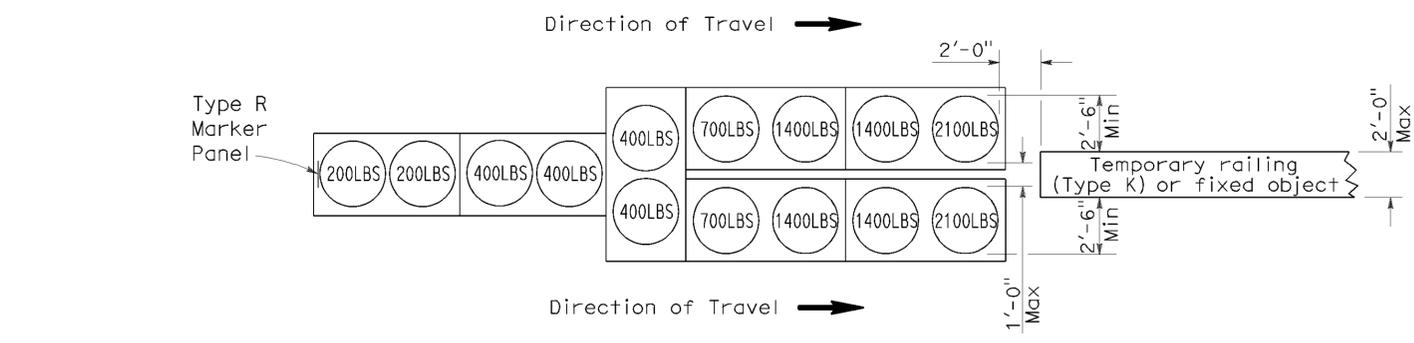
Randell D. Hiatt
REGISTERED CIVIL ENGINEER

June 6, 2008
PLANS APPROVAL DATE

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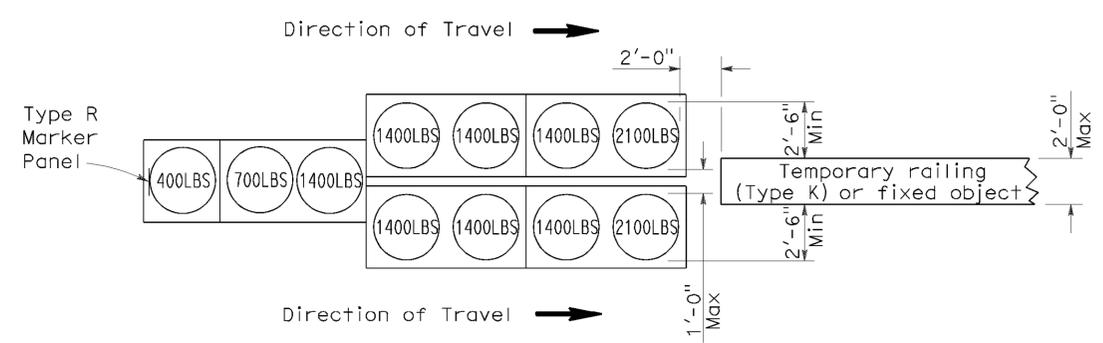
REGISTERED PROFESSIONAL ENGINEER
Randell D. Hiatt
No. C50200
Exp. 6-30-09
CIVIL
STATE OF CALIFORNIA

To accompany plans dated 12-28-11



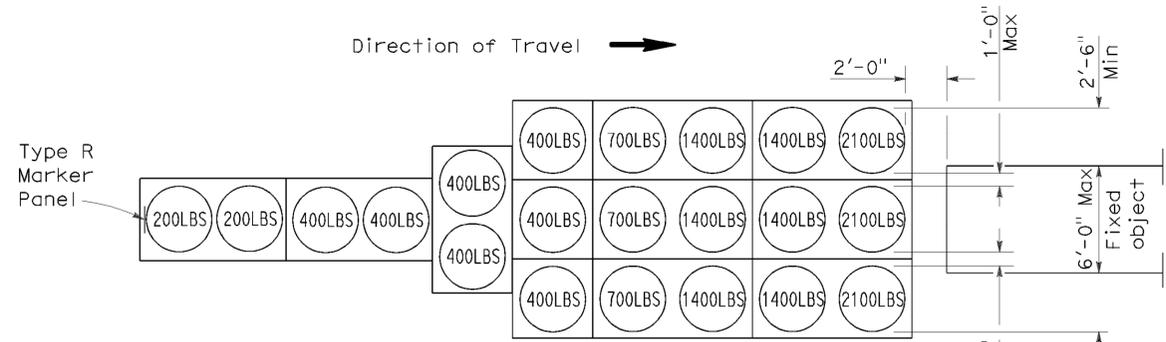
ARRAY 'TU14'

Approach speed 45 mph or more



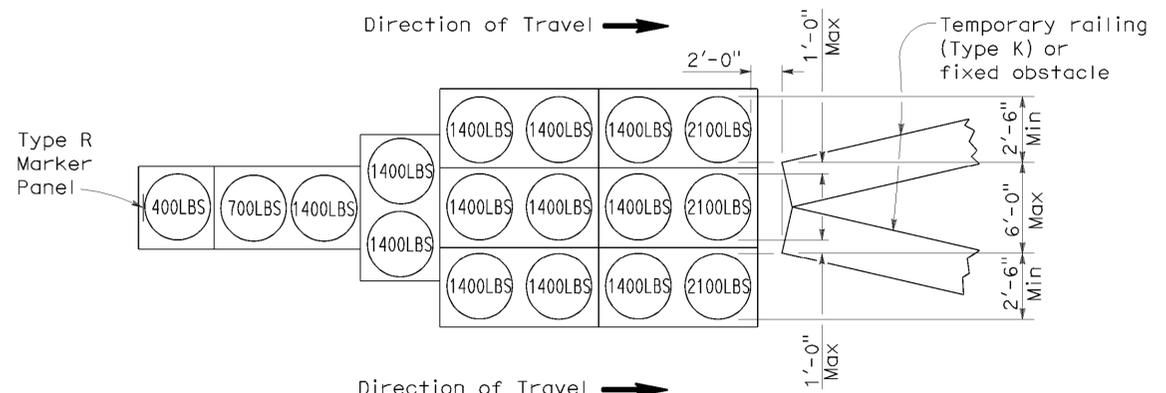
ARRAY 'TU11'

Approach speed less than 45 mph



ARRAY 'TU21'

Approach speed 45 mph or more

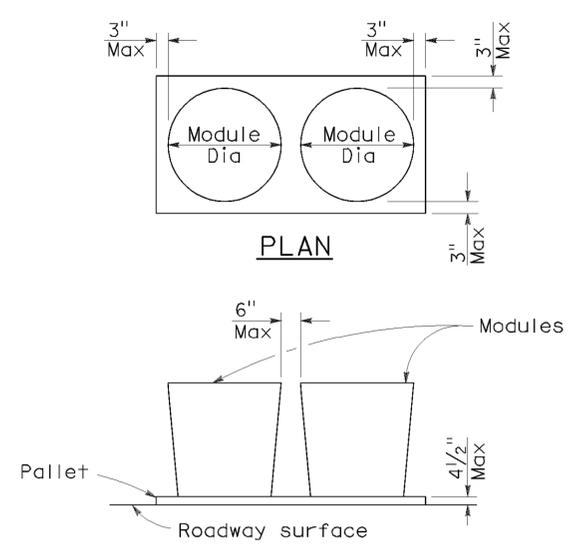


ARRAY 'TU17'

Approach speed less than 45 mph

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.



CRASH CUSHION PALLET DETAIL
See Note 7

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

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2006 REVISED STANDARD PLAN RSP T1A

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
02	Sha, Tri	299	0.0/0.1 64.1/72.2	19	25

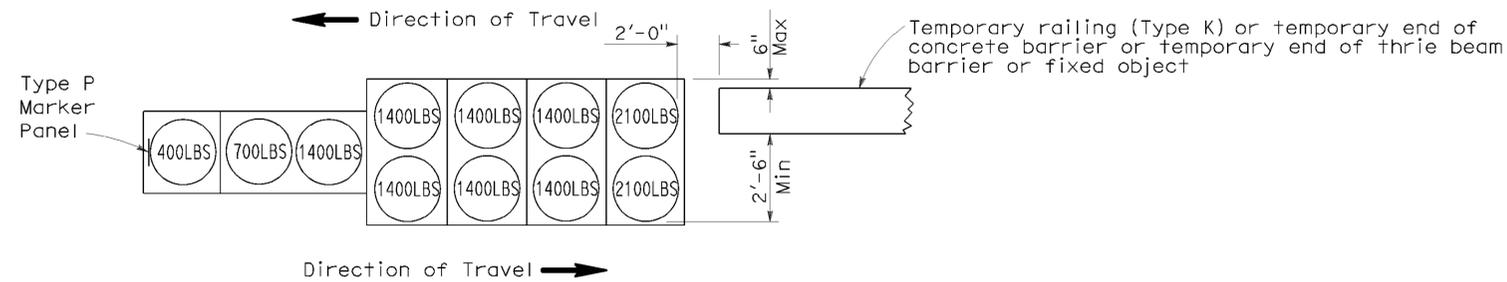
Randell D. Hiatt
REGISTERED CIVIL ENGINEER

June 6, 2008
PLANS APPROVAL DATE

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

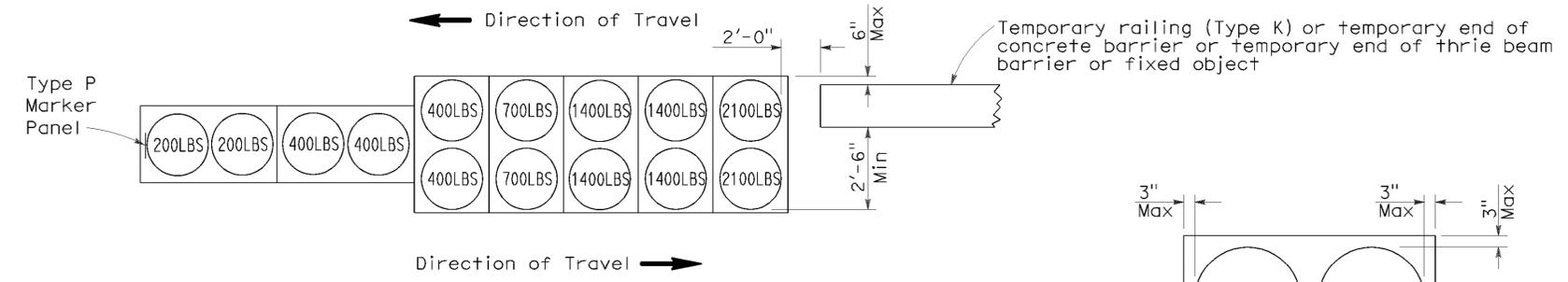
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To accompany plans dated 12-28-11



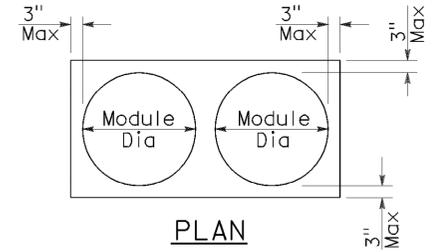
ARRAY 'TB11'

Approach speed less than 45 mph

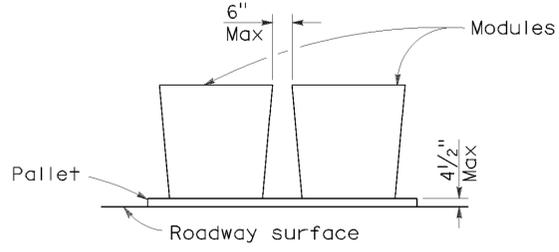


ARRAY 'TB14'

Approach speed 45 mph or more



PLAN



ELEVATION

CRASH CUSHION PALLET DETAIL

See Note 7

NOTES:

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

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

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

NO SCALE

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

REVISED STANDARD PLAN RSP T1B

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2006 REVISED STANDARD PLAN RSP T1B

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
02	Sha,Tri	299	0.0/0.1 64.1/72.2	20	25

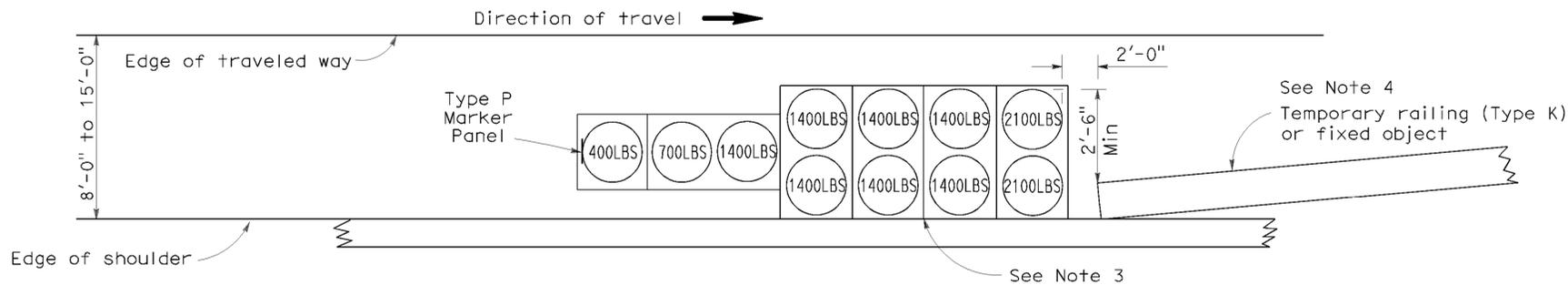
Randell D. Hiatt
REGISTERED CIVIL ENGINEER

June 6, 2008
PLANS APPROVAL DATE

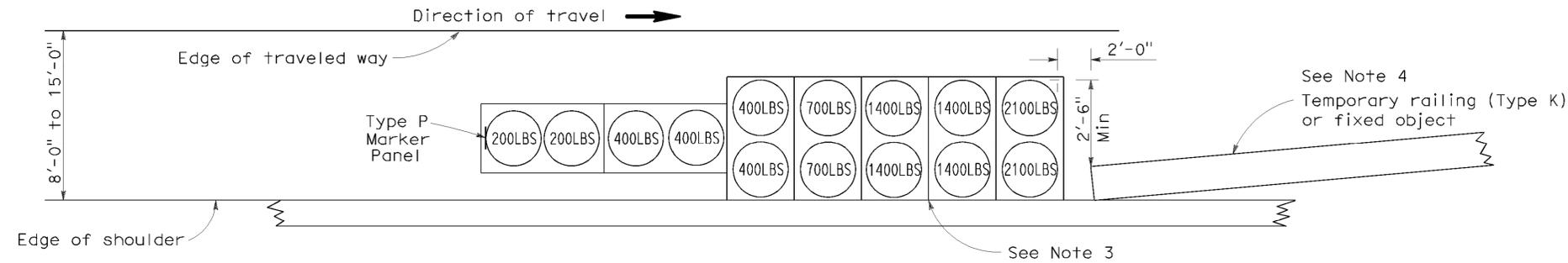
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

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

To accompany plans dated 12-28-11



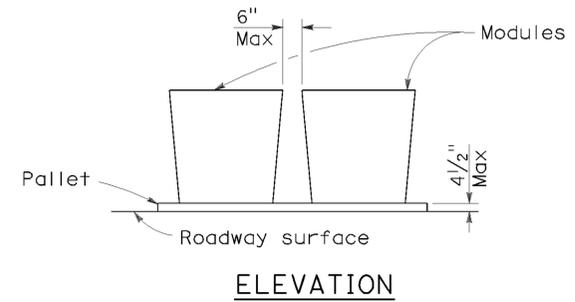
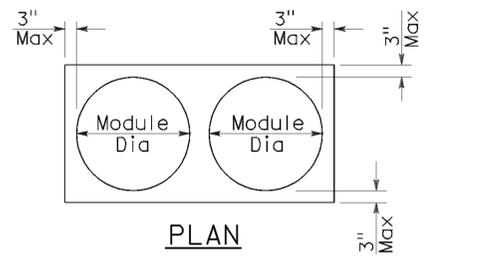
ARRAY 'TS11'
Approach speed less than 45 mph
See Note 9



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

NOTES:

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



CRASH CUSHION PALLET DETAIL
See Note 11

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

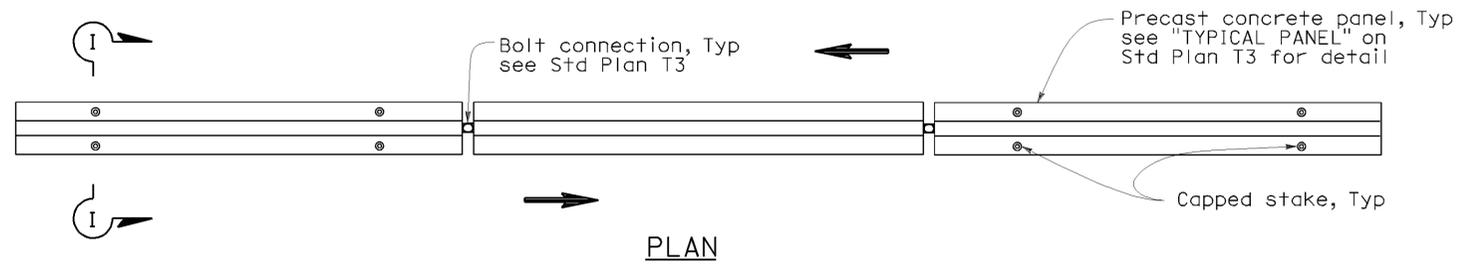
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
02	Sha, Tri	299	0.0/0.1 64.1/72.2	21	25

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

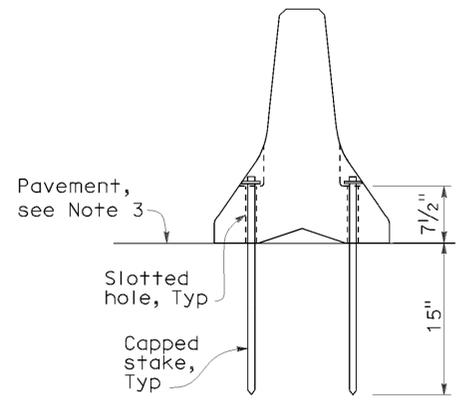
May 20, 2011
PLANS APPROVAL DATE

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

To accompany plans dated 12-28-11

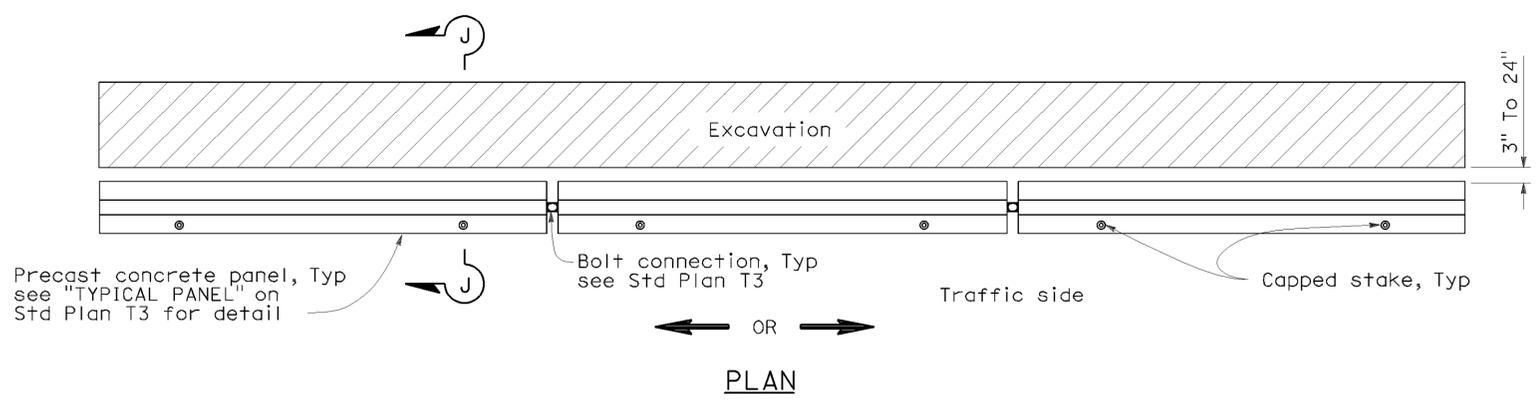


RAILING STAKING CONFIGURATION FOR TWO-WAY TRAFFIC
See Note 1

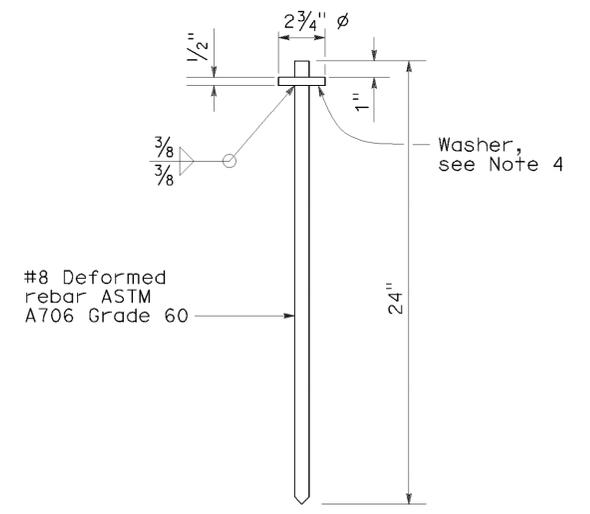
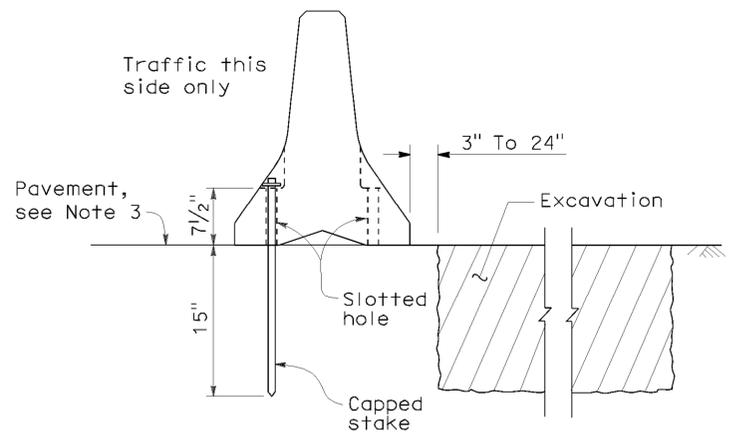


NOTES:

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



RAILING STAKING CONFIGURATION ADJACENT TO AN EXCAVATION
See Note 2



STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

**TEMPORARY RAILING
(TYPE K)**

NO SCALE

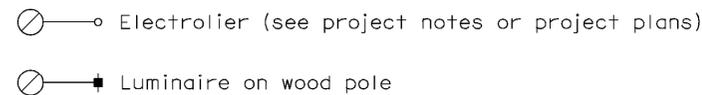
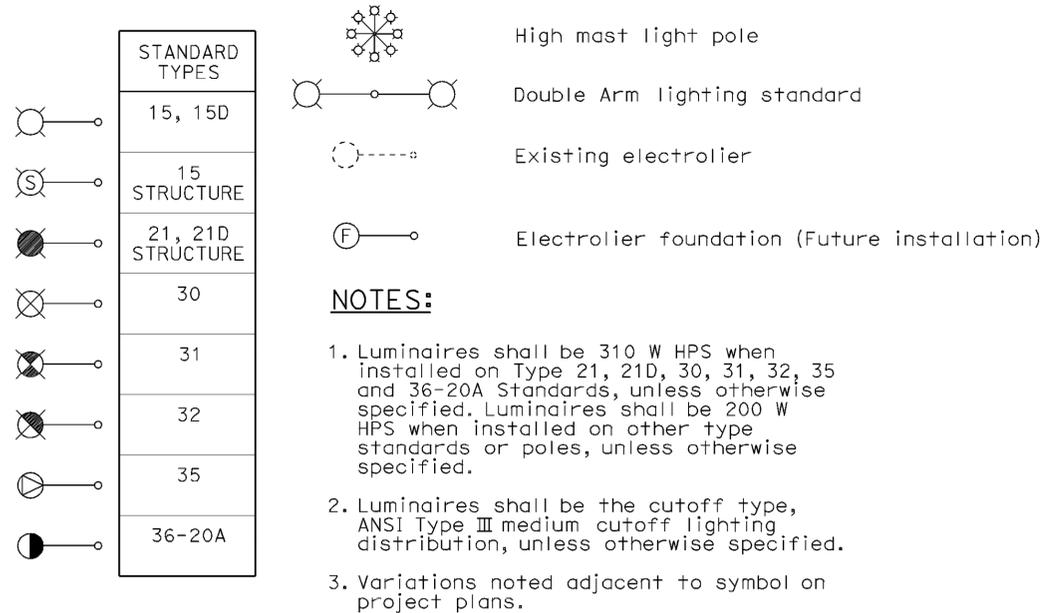
NSP T3A DATED MAY 20, 2011 SUPPLEMENTS
THE STANDARD PLANS BOOK DATED MAY 2006.

NEW STANDARD PLAN NSP T3A

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2006 NEW STANDARD PLAN NSP T3A

ELECTROLIERS



STANDARD NOTES:

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

ABBREVIATIONS AND EQUIPMENT DESIGNATIONS

PROPOSED EXISTING

BBS	bbs	Battery backup system
BC	bc	Bolt circle
C	C	Conduit
CCTV	cctv	Closed circuit television
CKT	ckt	Circuit
CMS	cms	Changeable message sign
DLC	dlc	Loop detector lead-in cable
EMS	ems	Extinguishable message sign
EVC	evc	Emergency vehicle cable
EVD	evd	Emergency vehicle detector
FB	fb	Flashing beacon
FBCA	fbca	Flashing beacon control assembly
FBS	fbs	Flashing beacon with slip base
FO	fo	Fiber optic
G	G	Ground (Equipment Grounding Conductor)
GFCI	GFCI	Ground fault circuit interrupt
HAR	har	Highway advisory radio
HEX	hex	Hexagonal
HPS	hps	High pressure sodium
IISNS	iisns	Internally illuminated street name sign
ISL	isl	Induction sign lighting
LED	led	Light emitting diode
LMA	lma	Luminaire mast arm
LPS	lps	Low pressure sodium
LTG	ltg	Lighting
LUM	lum	Luminaire
MAT	mat	Mast arm mounting vehicle signal faces, top attachment
MAS	mas	Mast arm mounting vehicle signal faces, side attachment
MAS-4A	mas-4A	Mast arm mounting vehicle signal faces, side attachment - 4 signal section
MAS-4B	mas-4B	
MAS-4C	mas-4C	
MAS-5A	mas-5A	Mast arm mounting vehicle signal faces, side attachment - 5 signal section
MAS-5B	mas-5B	
MC	mc	Mercury contactor
M/M	m/m	Multiple to multiple transformer
MT	mt	Conduit with pull wire or rope only
MTG	mtg	Mounting
	mv	Mercury vapor lighting fixture
N	N	Neutral (Grounded Conductor)
NC	NC	Normally closed
NO	NO	Normally open
PB	pb	Pull box
PEC	pec	Photoelectric control (Type I, II, III, IV or V as shown)
PED	ped	Pedestrian
PEU	peu	Photoelectric unit
PPB	ppb	Pedestrian push button
RL		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
02	Sha, Tri	299	0.0/0.1 64.1/72.2	22	25

Jeffery G. McRae
REGISTERED ELECTRICAL ENGINEER

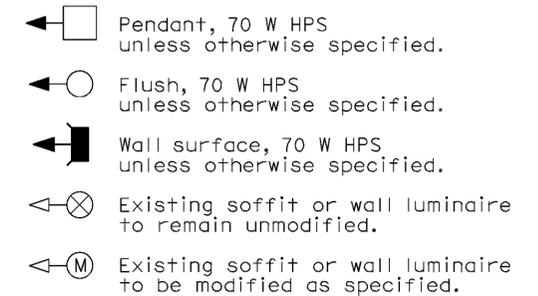
October 5, 2007
PLANS APPROVAL DATE

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

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To accompany plans dated 12-28-11

SOFFIT AND WALL MOUNTED LUMINAIRES



NOTE:

Arrow indicates "street side" of luminaire.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

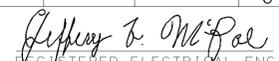
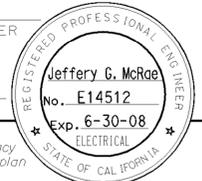
ELECTRICAL SYSTEMS (SYMBOLS AND ABBREVIATIONS)

NO SCALE

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

REVISED STANDARD PLAN RSP ES-1A

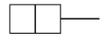
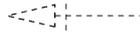
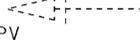
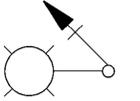
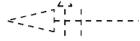
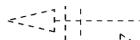
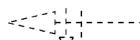
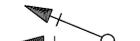
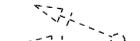
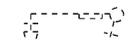
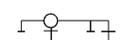
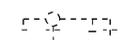
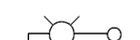
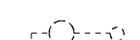
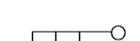
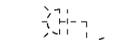
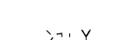
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
02	Sha, Tri	299	0.0/0.1 64.1/72.2	23	25


 REGISTERED ELECTRICAL ENGINEER
 October 5, 2007
 PLANS APPROVAL DATE

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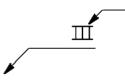
CONDUIT

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

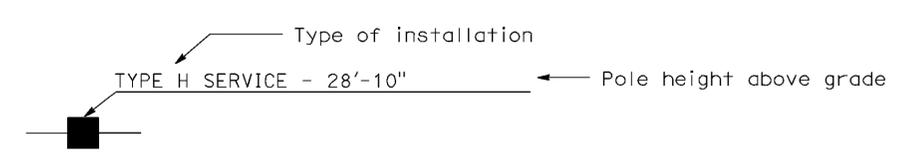
SIGNAL EQUIPMENT

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 lowered "LG" Indicates lowered 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

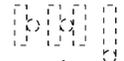
SERVICE EQUIPMENT

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

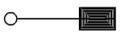
POLE-MOUNTED SERVICE DESIGNATION



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

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

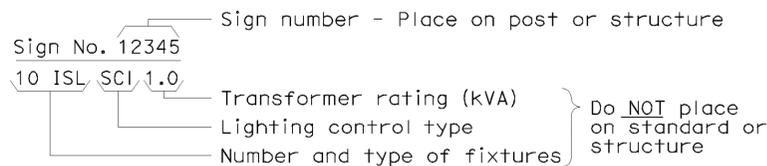
REVISED STANDARD PLAN RSP ES-1B

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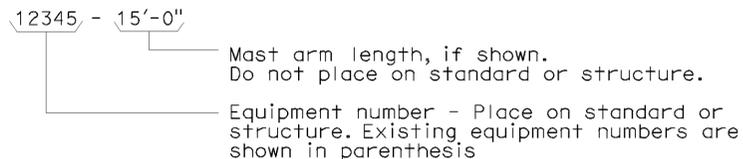
2006 REVISED STANDARD PLAN RSP ES-1B

EQUIPMENT IDENTIFICATION

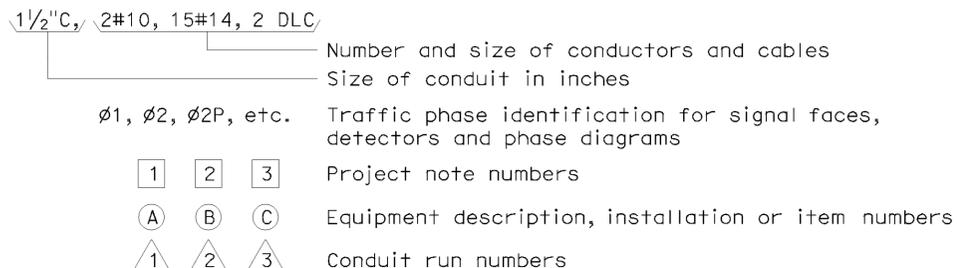
ILLUMINATED SIGN IDENTIFICATION NUMBER:



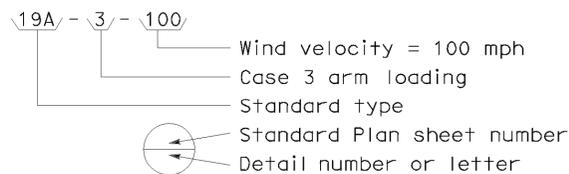
ELECTROLIER OR EQUIPMENT IDENTIFICATION NUMBER:



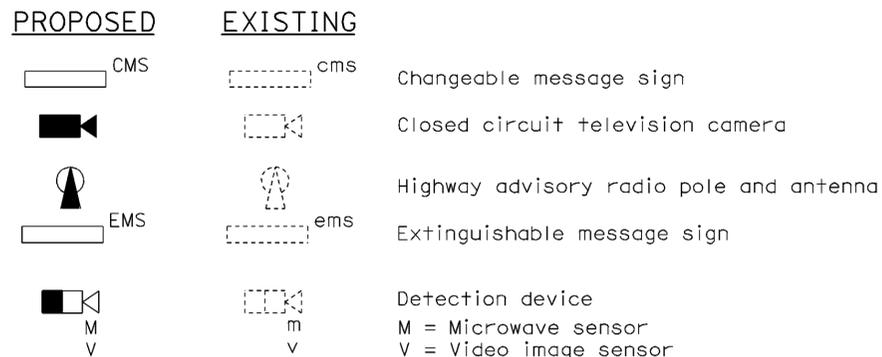
CONDUIT AND CONDUCTOR IDENTIFICATION:



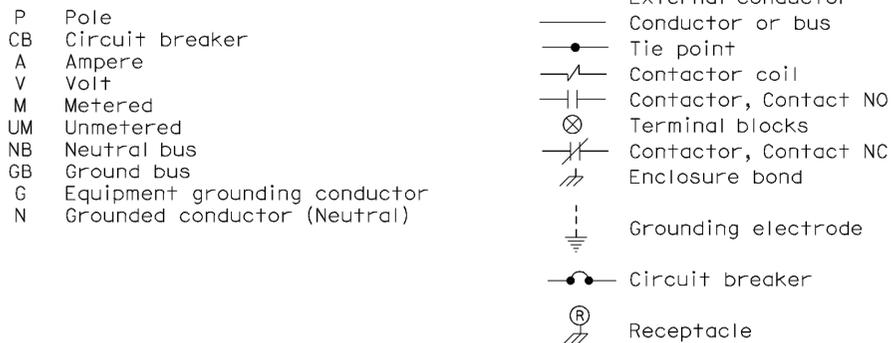
SIGNAL AND LIGHTING STANDARD (TYPICAL DESIGNATION):



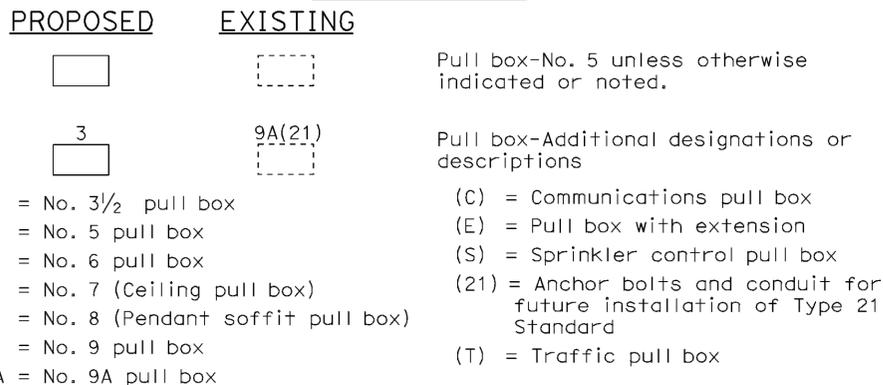
MISCELLANEOUS EQUIPMENT



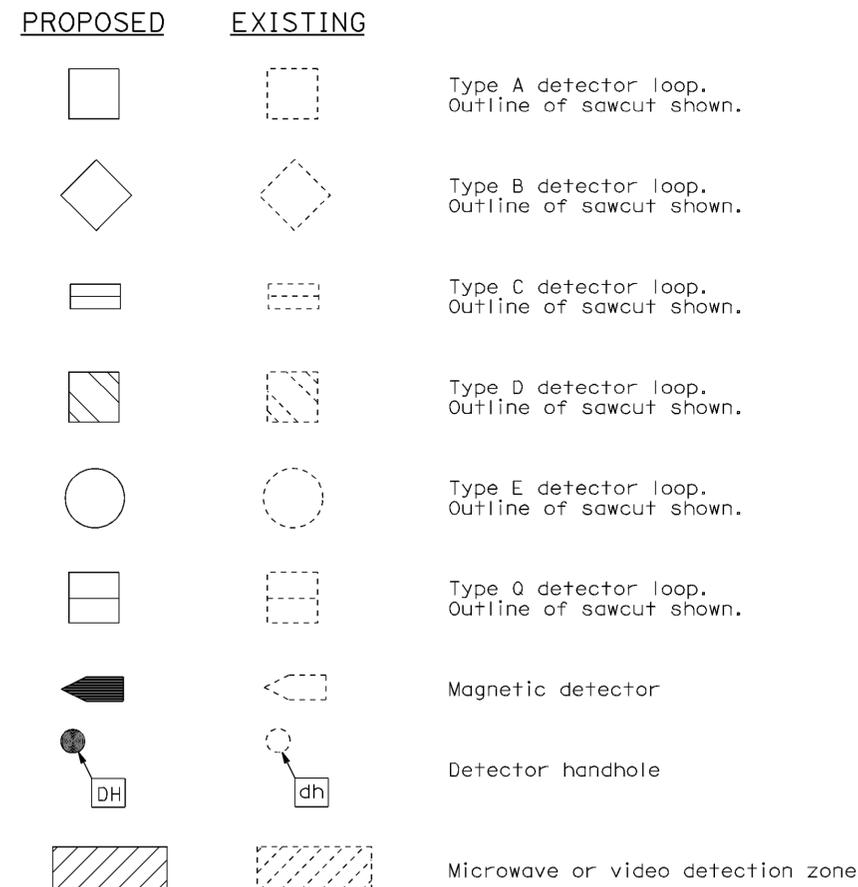
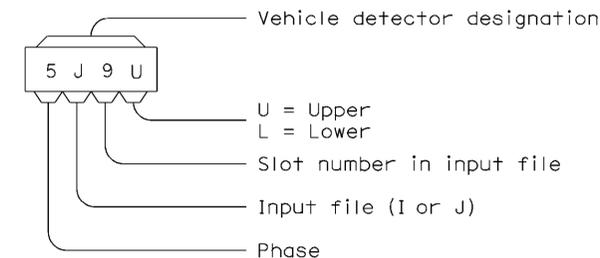
WIRING DIAGRAM LEGEND



PULL BOXES



VEHICLE DETECTORS



STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

ELECTRICAL SYSTEMS (SYMBOLS AND ABBREVIATIONS)

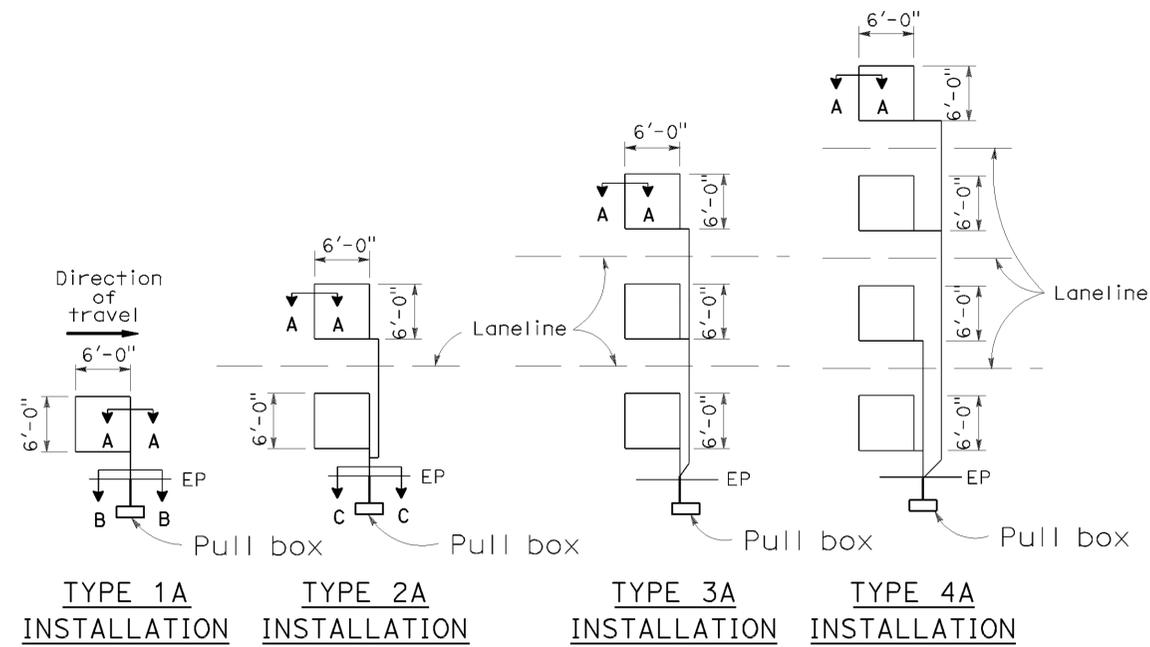
NO SCALE

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

REVISED STANDARD PLAN RSP ES-1C

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.

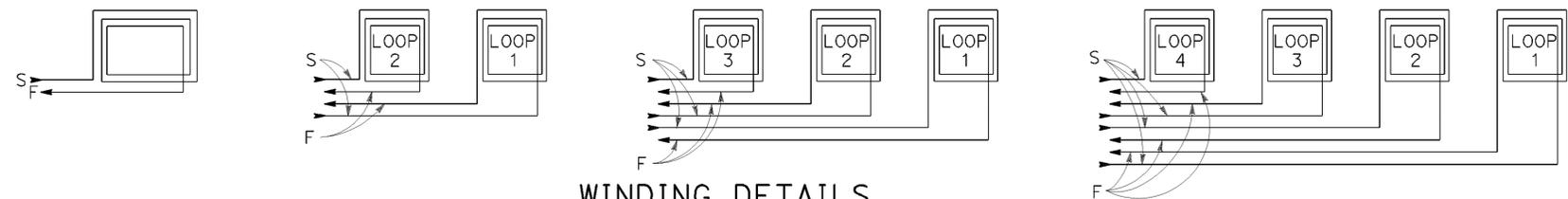


TYPE 1A INSTALLATION TYPE 2A INSTALLATION TYPE 3A INSTALLATION TYPE 4A INSTALLATION

SAWCUT DETAILS

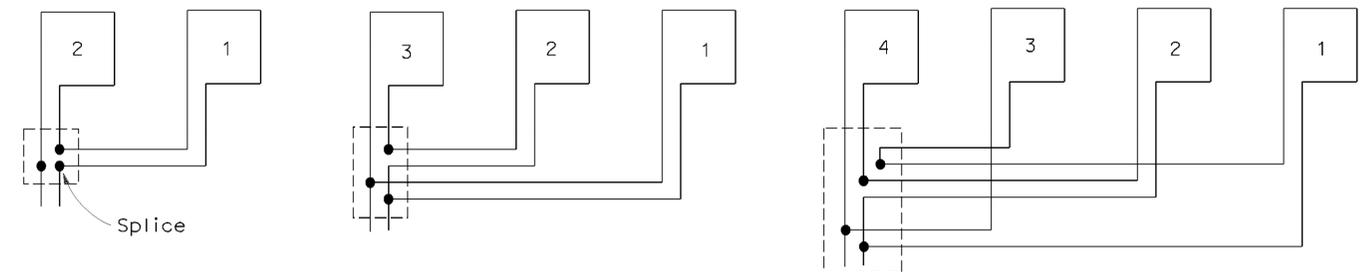
(Type A loop detector configurations illustrated)

- 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)



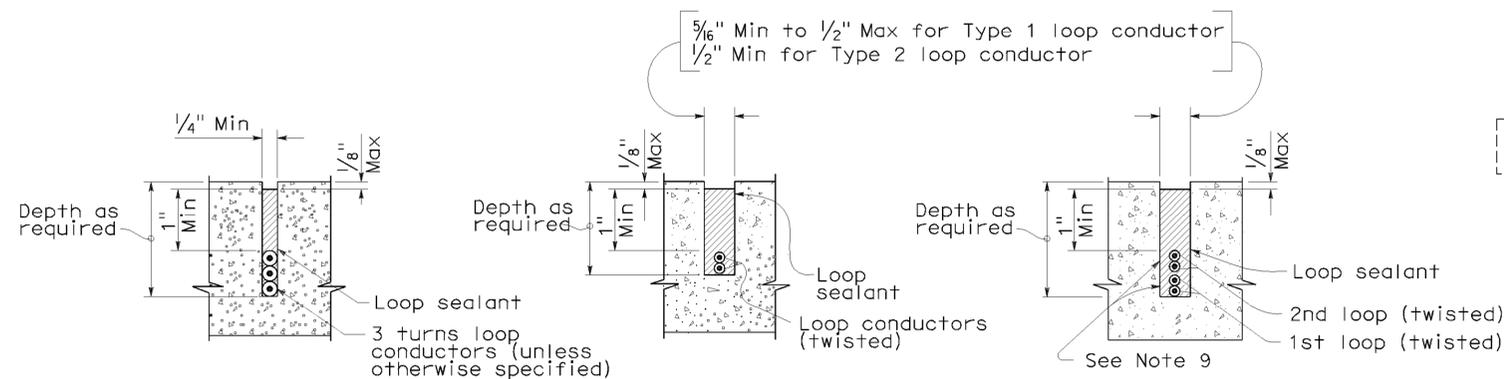
WINDING DETAILS

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

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
02	Sha, Tri	299	0.0/0.1 64.1/72.2	25	25

Jeffery G. McRae
REGISTERED ELECTRICAL ENGINEER

October 5, 2007
PLANS APPROVAL DATE

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

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

To accompany plans dated 12-28-11

ELECTRICAL SYSTEMS (DETECTORS)

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