

INDEX OF PLANS

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STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

STP-P113(031)E

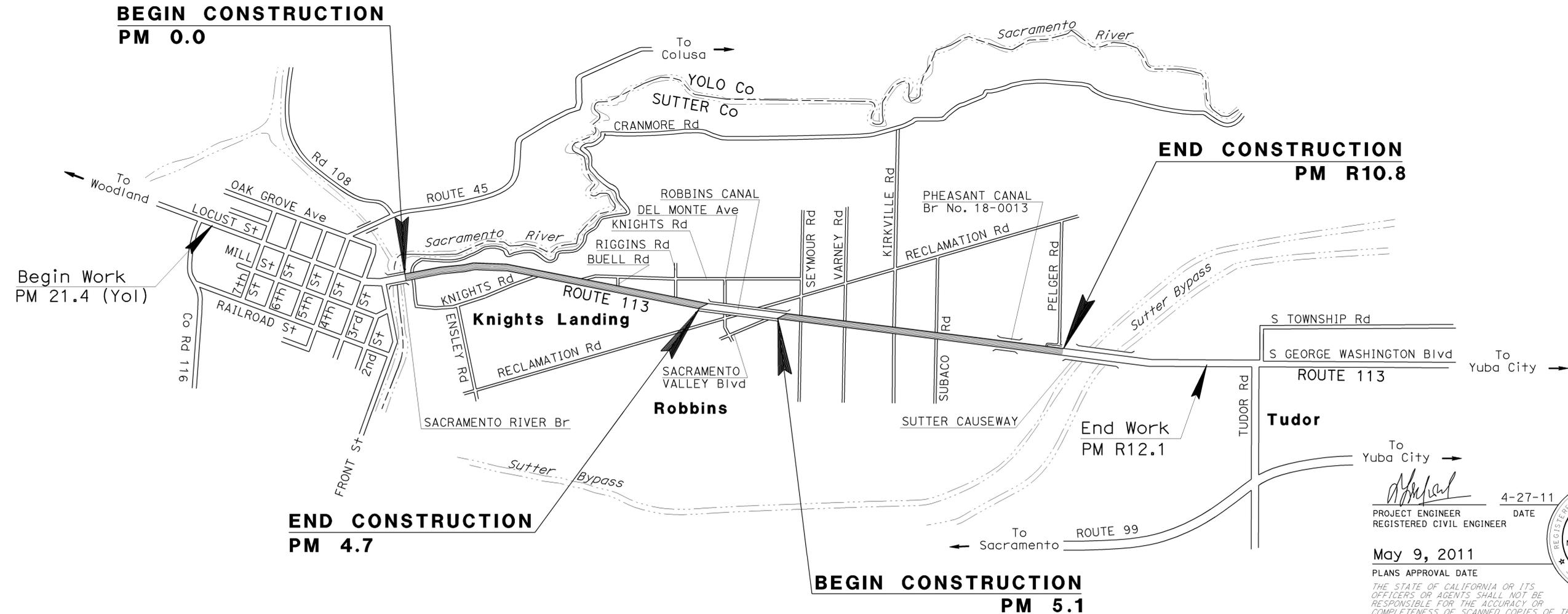
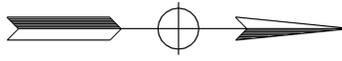
PROJECT PLANS FOR CONSTRUCTION ON STATE HIGHWAY
IN SUTTER COUNTY
NEAR KNIGHTS LANDING FROM CRANMORE/KNIGHTS ROAD TO 0.1 MILE NORTH OF RIGGINS ROAD AND FROM SACRAMENTO VALLEY BOULEVARD TO SUTTER CAUSEWAY BRIDGE

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

TO BE SUPPLEMENTED BY STANDARD PLANS DATED MAY 2006

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sut	113	0.0/4.7, 5.1/R10.8	1	21

LOCATION MAP



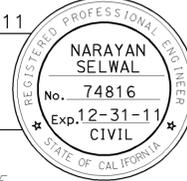
PROJECT MANAGER
 SUKHWINDER BAJWA

DESIGN ENGINEER
 NESAR FORMOLI

[Signature] 4-27-11
 PROJECT ENGINEER REGISTERED CIVIL ENGINEER DATE

May 9, 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."

NO SCALE

CONTRACT No.	03-1F8104
PROJECT ID	0300020127

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Su+	113	0.0/4.7, 5.1/R10.8	2	21

REGISTERED CIVIL ENGINEER		DATE
5-9-11		4-27-11
PLANS APPROVAL DATE		

REGISTERED PROFESSIONAL ENGINEER	
N. SELWAL	No. 74816
Exp. 12-31-11	
CIVIL	

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

NOTES:

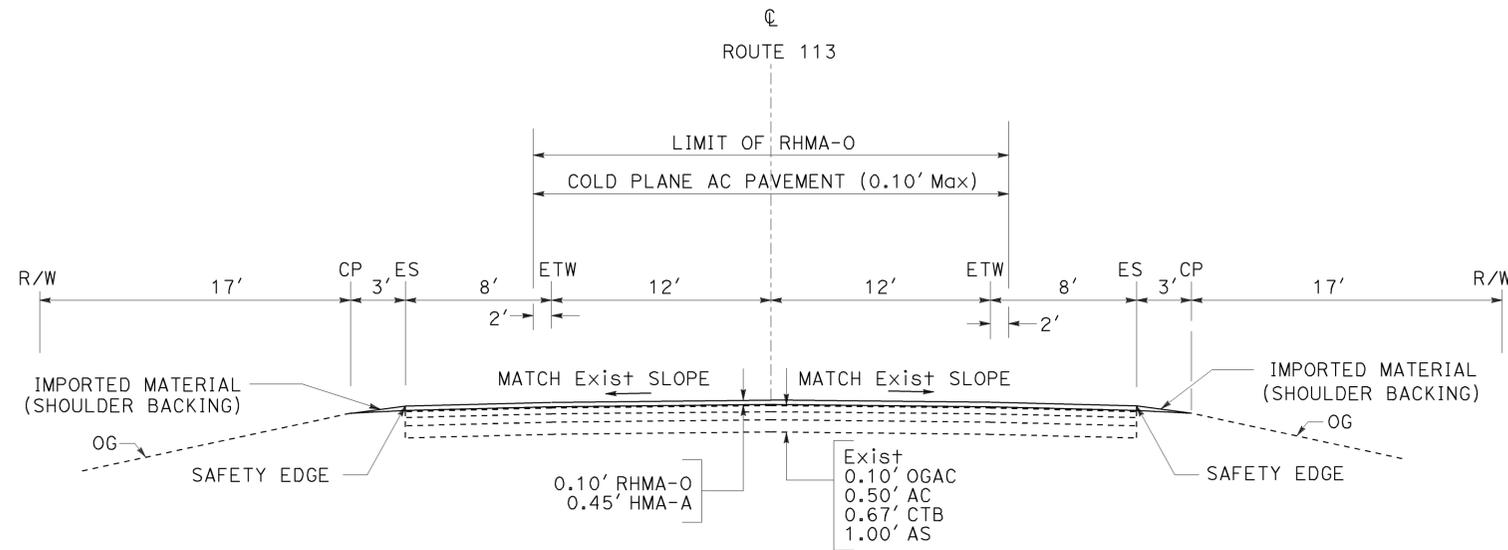
- DIMENSIONS OF THE PAVEMENT STRUCTURES (STRUCTURAL SECTIONS) ARE SUBJECT TO TOLERANCES SPECIFIED IN THE STANDARD SPECIFICATIONS.
- EXISTING UTILITY FACILITIES HAVE NOT BEEN POSITIVELY IDENTIFIED.
- FOR REPLACE AC SURFACING AND RUMBLE STRIP, SEE CONSTRUCTION DETAILS.

ABBREVIATIONS:

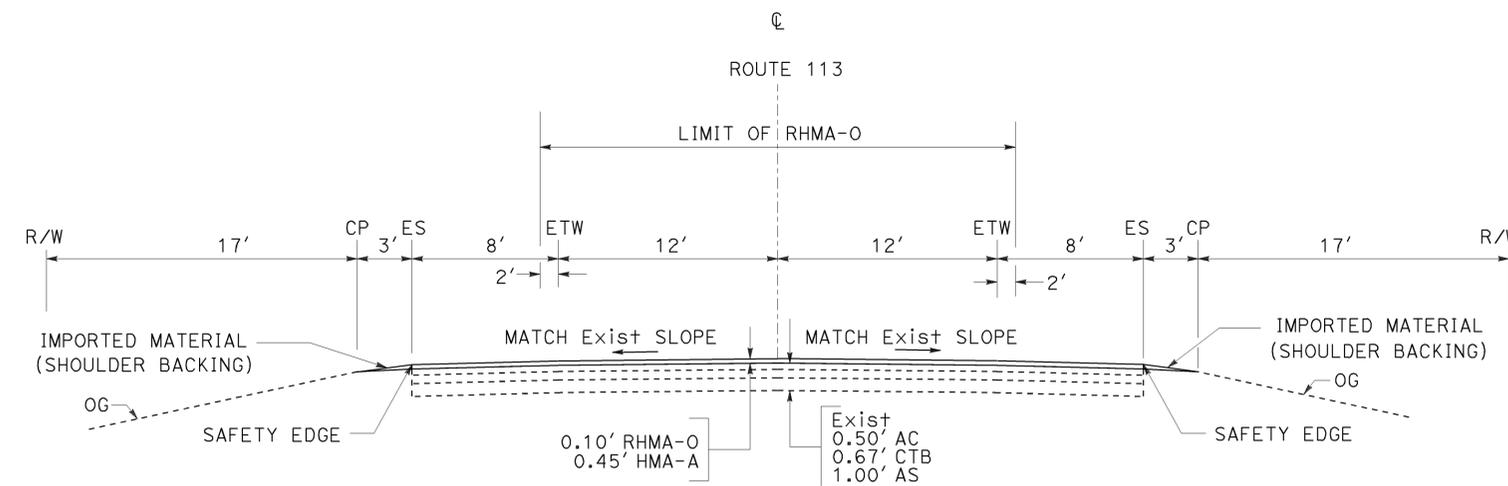
HMA-A HOT MIX ASPHALT (TYPE A)
 RHMA-O RUBBERIZED HOT MIX ASPHALT (OPEN GRADED)
 CP CATCH POINT

DESIGN DESIGNATION

ADT (2012)	7,990	D	55%
ADT (2032)	11,000	T	5%
DHV	780	V	65 mph
ESAL	1,549,941	TI ₂₀	9.5



PM 2.8 TO 4.7



PM 5.1 to R10.8
 PM 0.0 to 2.8

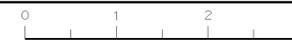
ROUTE 113

TYPICAL CROSS SECTIONS

NO SCALE

X-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	FUNCTIONAL SUPERVISOR	REVISOR	DATE
Caltrans	NESAR FORMOLI	NARAYAN SELWAL	
NORTH REGION DIVISION OF ENGINEERING	CHECKED BY	DESIGNED BY	
		NESAR FORMOLI	



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sut	113	0.0/4.7, 5.1/R10.8	3	21

REGISTERED CIVIL ENGINEER *N. Selwal* DATE 4-27-11
 5-9-11
 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
 N. SELWAL
 No. 74816
 Exp. 12-31-11
 CIVIL
 STATE OF CALIFORNIA

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NOTES:

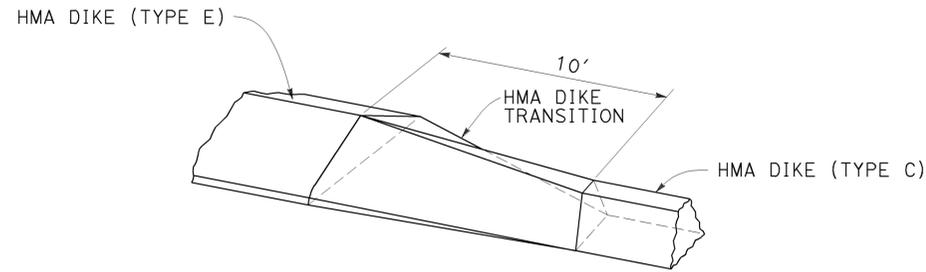
- EXISTING UTILITY FACILITIES HAVE NOT BEEN POSITIVELY IDENTIFIED.
- FOR LOCATION AND QUANTITY OF HOT MIX ASPHALT (LEVELING), SEE SUMMARY OF QUANTITIES OR AS DIRECTED BY THE ENGINEER.

ABBREVIATIONS:

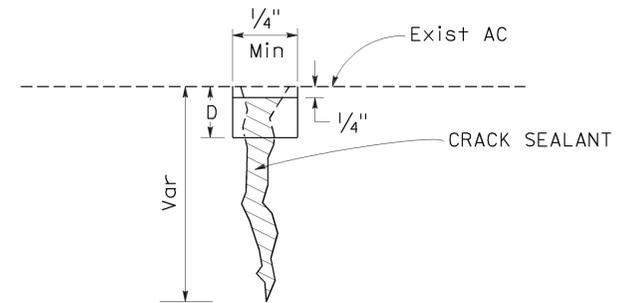
HMA-A HOT MIX ASPHALT (TYPE A)
 RHMA-O RUBBERIZED HOT MIX ASPHALT (OPEN GRADED)

LEGEND:

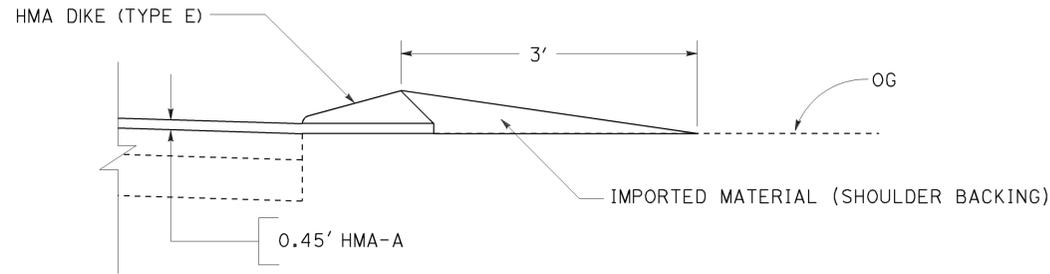
W= WIDTH OF ROUTING=WIDTH OF CRACK=1/4" Min
 D= DEPTH OF ROUTING=W=1/4" Min



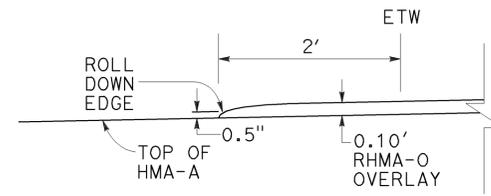
HMA DIKE TRANSITION



CRACK TREATMENT

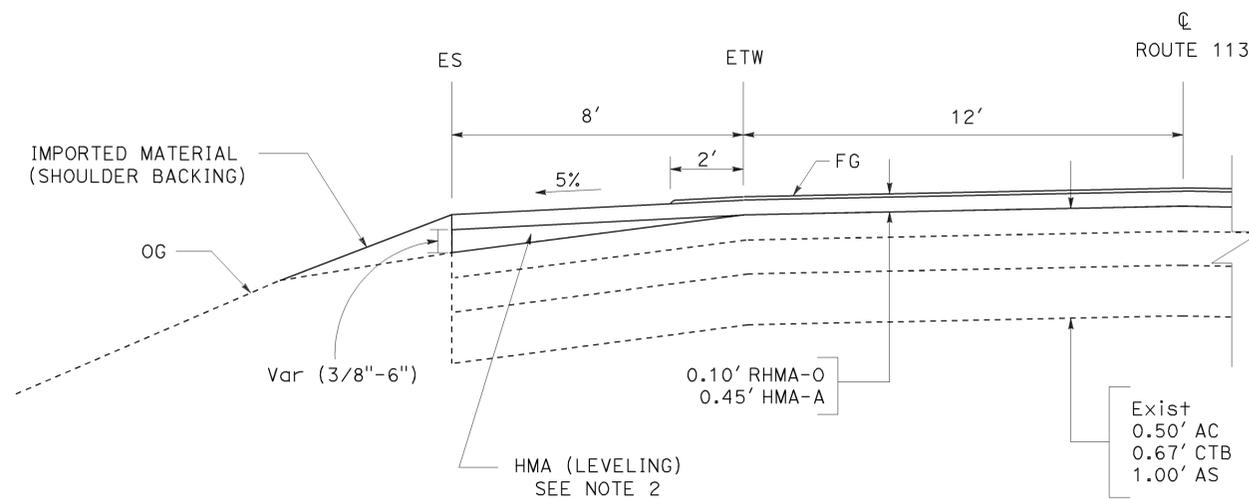


IMPORTED MATERIAL (SHOULDER BACKING)

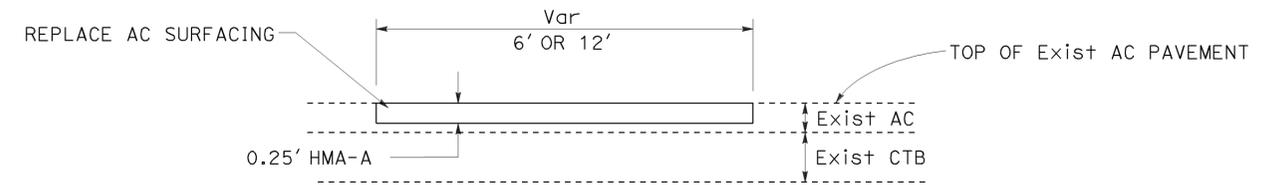


RHMA-O DETAIL

LONGITUDINAL EDGE TAPER FOR RHMA-O



HMA (LEVELING)



REPLACE ASPHALT CONCRETE SURFACING

CONSTRUCTION DETAILS

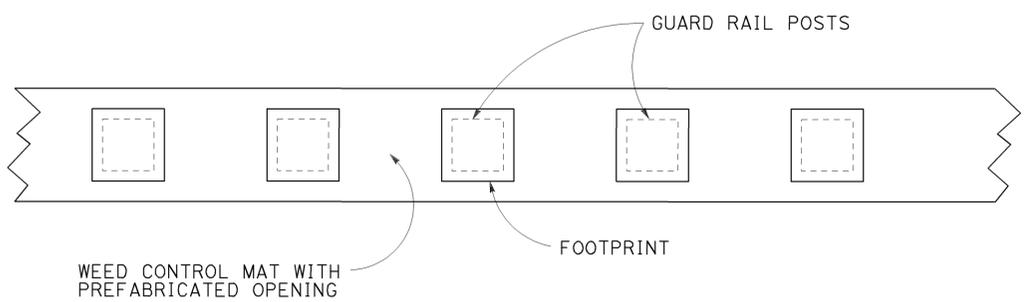
NO SCALE

C-1

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sut	113	0.0/4.7; 5.1/R10.8	4	21
			4-27-11		
REGISTERED CIVIL ENGINEER			DATE		
5-9-11			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>					

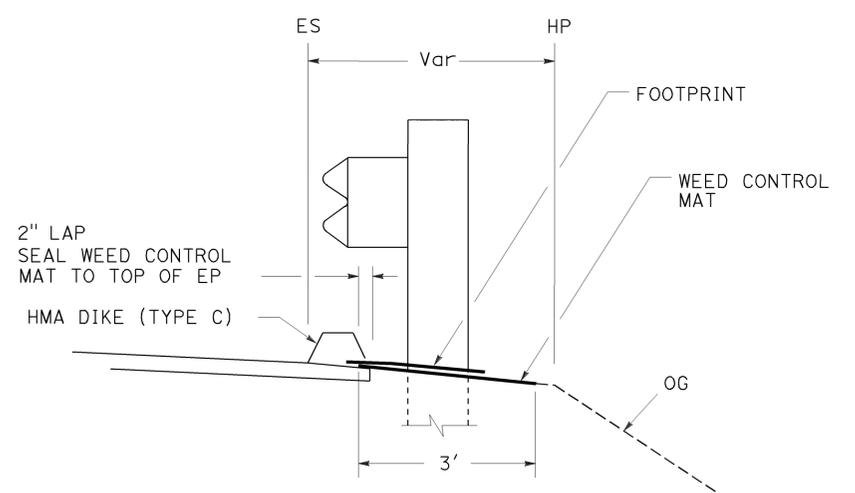
NOTES:

- EXISTING UTILITY FACILITIES HAVE NOT BEEN POSITIVELY IDENTIFIED.
- POST SPACING AND OTHER DIMENSIONS TO BE VERIFIED IN THE FIELD BY THE CONTRACTOR.
- DO NOT PLACE SAFETY EDGE ADJACENT TO DIKE

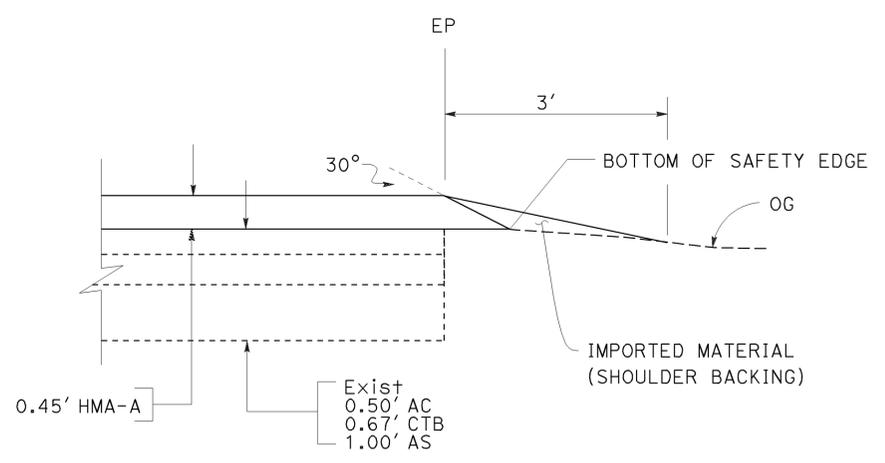


PLAN

**GUARD RAILING WEED CONTROL MAT (FIBER)
AT WOOD POST**



**GUARD RAILING
WEED CONTROL MAT (FIBER)**



SAFETY EDGE DETAIL

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

 NORTH REGION DIVISION OF ENGINEERING

REVISOR
DATE

NARAYAN SELWAL
NESAR FORMOLI

CALCULATED/DESIGNED BY
CHECKED BY

FUNCTIONAL SUPERVISOR
NESAR FORMOLI

BORDER LAST REVISED 7/2/2010

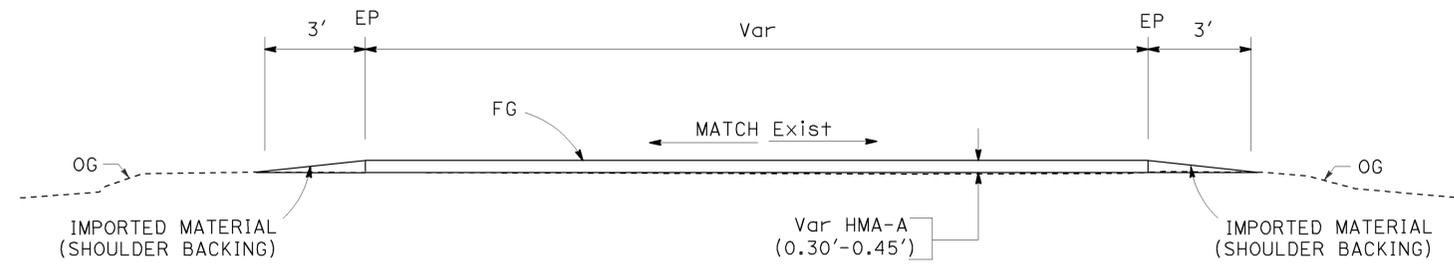
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sut	113	0.0/4.7, 5.1/R10.8	5	21
			4-27-11		
			REGISTERED CIVIL ENGINEER		
			DATE		
			5-9-11		
			PLANS APPROVAL DATE		
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NOTE:

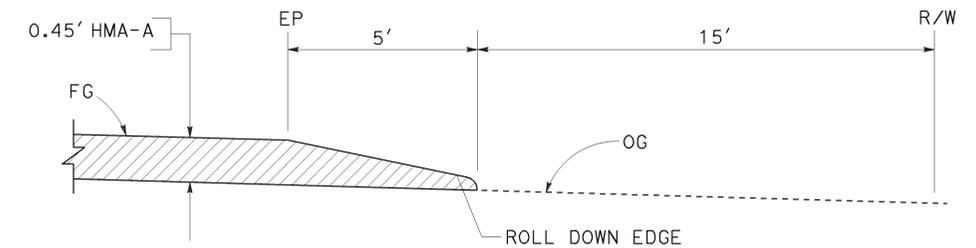
1. EXISTING UTILITY FACILITIES HAVE NOT BEEN POSITIVELY IDENTIFIED.

LEGEND:

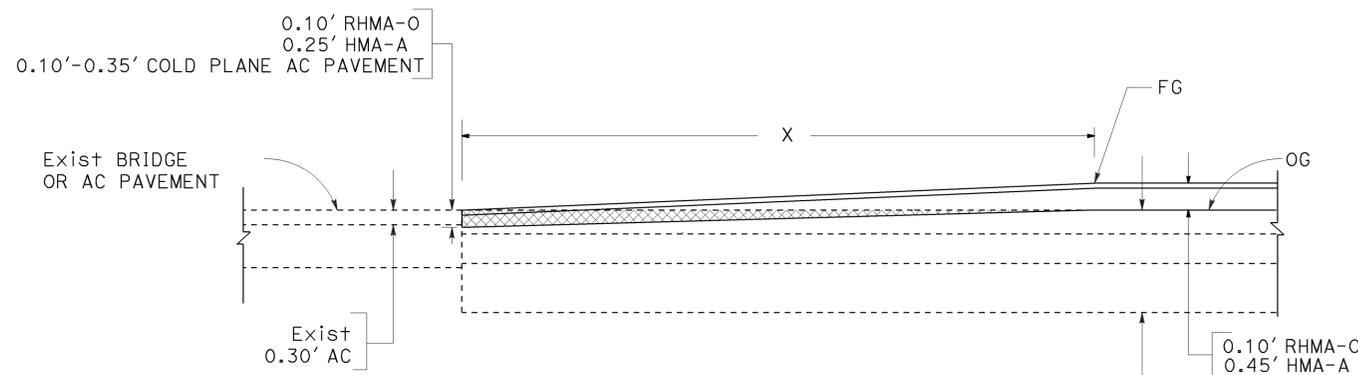
- COLD PLANE AC PAVEMENT
- 0.45' HMA-A



**TYPICAL SECTION (OVERLAY)
PUBLIC, PRIVATE Rd & DRIVEWAYS**

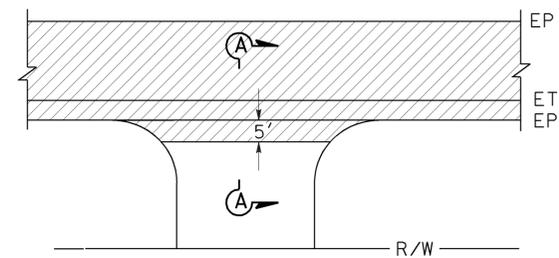


SECTION A-A

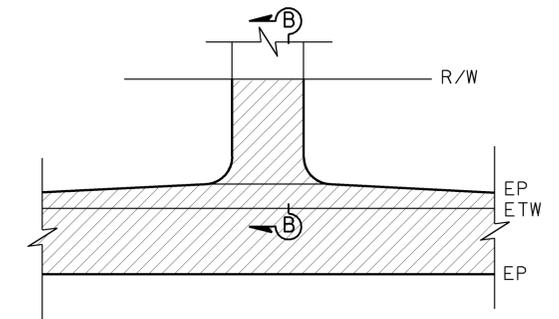


PAVING CONFORM

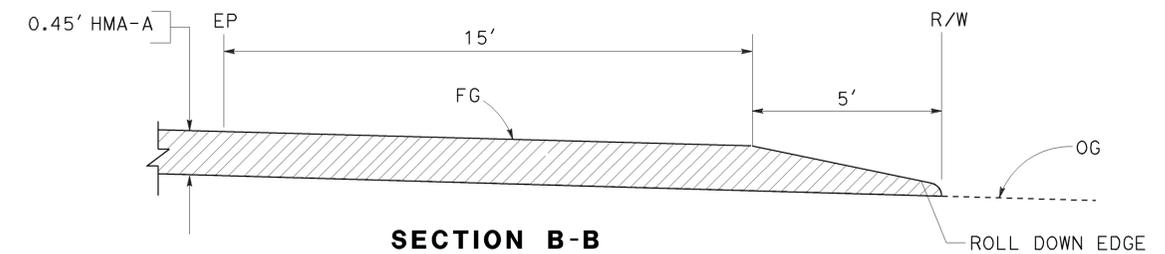
LOCATION	X (LF)
BEGIN CONSTRUCTION PM 0.03	70
END CONSTRUCTION PM 4.70	200
BEGIN CONSTRUCTION PM 5.10	200
END CONSTRUCTION PM R10.80	200



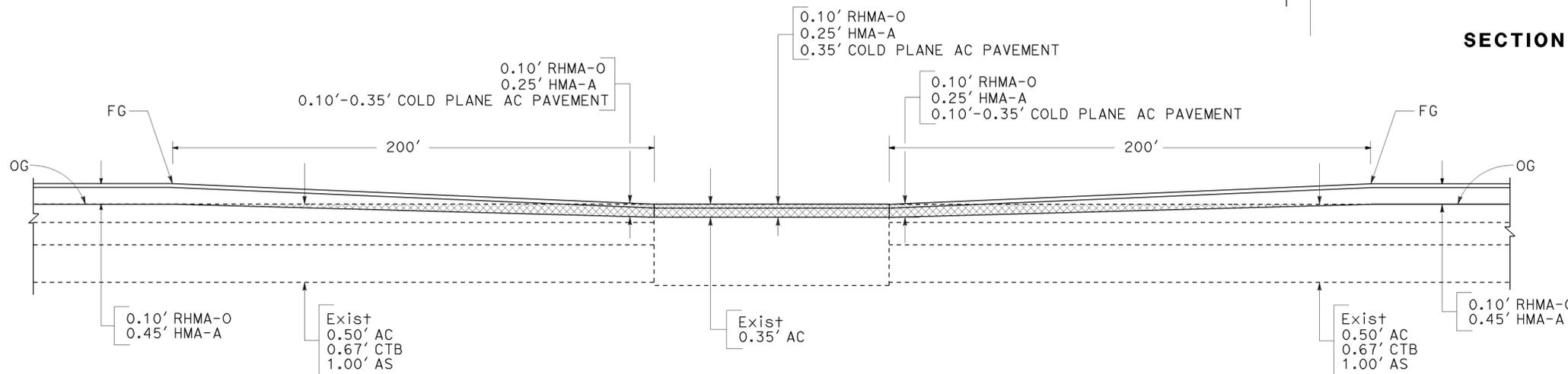
**PRIVATE Rd & DRIVEWAYS
PAVING CONFORM**



PUBLIC Rd CONNECTION



SECTION B-B



**PAVING CONFORM AT PHEASANT CANAL BRIDGE
PM 9.17, BRIDGE No. 18-0013**

CONSTRUCTION DETAILS

NO SCALE

C-3

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
 NORTH REGION DIVISION OF ENGINEERING
 FUNCTIONAL SUPERVISOR
 NARAYAN SELWAL
 Nesar Formoli
 REVISIONS
 REVISION NO. DATE REVISION BY DATE REVISOR
 1. 0.00-00-00 TIME PLOTTED => 11:56

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sut	113	0.0/4.7, 5.1/R10.8	6	21

REGISTERED CIVIL ENGINEER	DATE
<i>N. Selwal</i>	4-27-11
PLANS APPROVAL DATE	
5-9-11	

REGISTERED PROFESSIONAL ENGINEER
N. SELWAL
No. 74816
Exp. 12-31-11
CIVIL

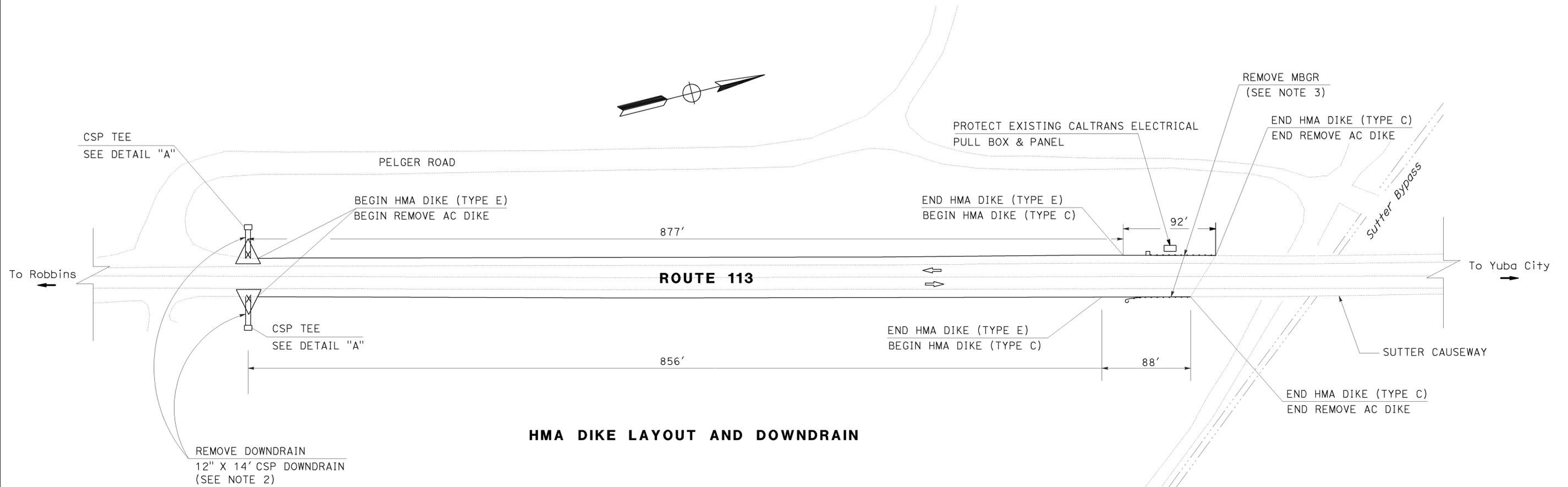
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

NOTES:

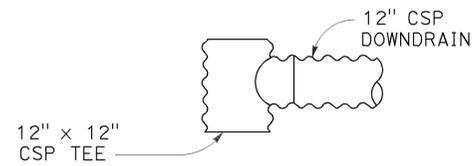
- EXISTING UTILITY FACILITIES HAVE NOT BEEN POSITIVELY IDENTIFIED.
- FOR DETAILS NOT SHOWN, SEE STANDARD PLAN D87A.
- FOR ADDITIONAL MBGR INFORMATION, SEE SUMMARY OF QUANTITIES.

LEGEND:

-  ENTRANCE TAPER (SEE NOTE 2)
-  DIRECTION OF TRAVEL



HMA DIKE LAYOUT AND DOWNDRAIN



DETAIL "A"

CONSTRUCTION DETAILS

NO SCALE

C-4

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sut	113	0.0/4.7, 5.1/R10.8	7	21
			REGISTERED CIVIL ENGINEER	DATE	
			N. SELWAL	4-27-11	
			No. 74816		
			PLANS APPROVAL DATE	5-9-11	
			THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.		

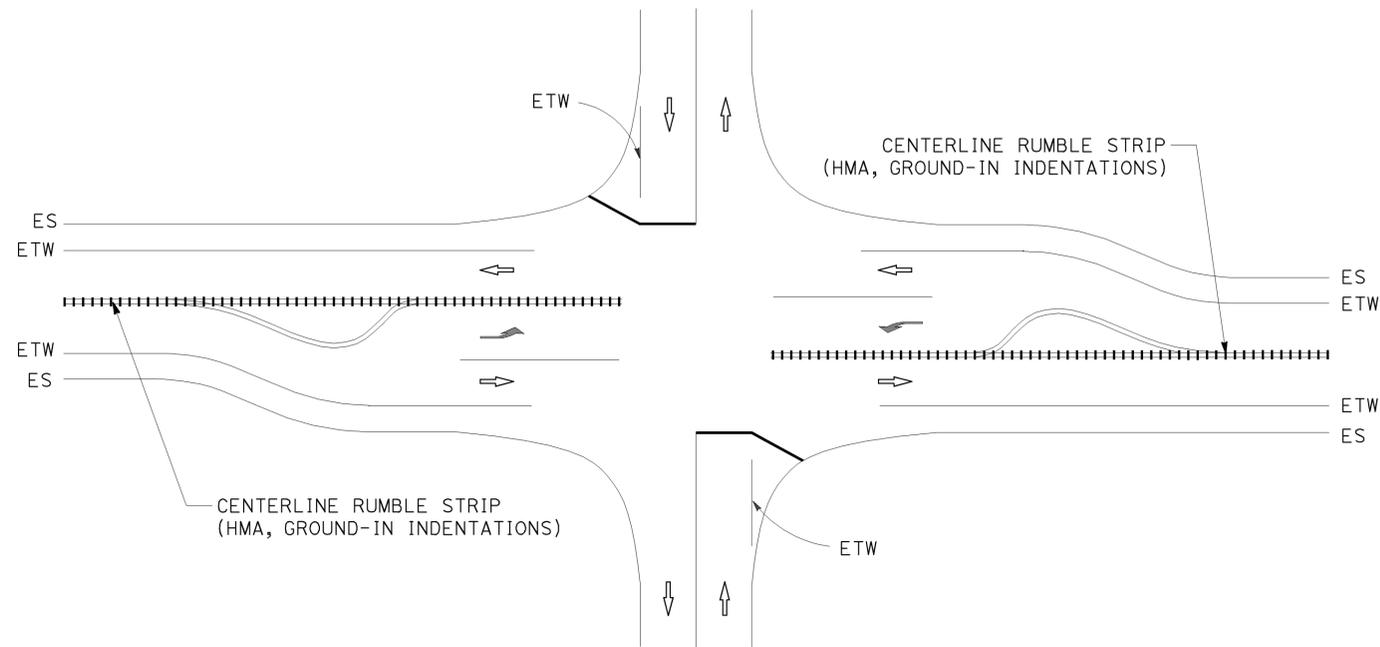


NOTE:

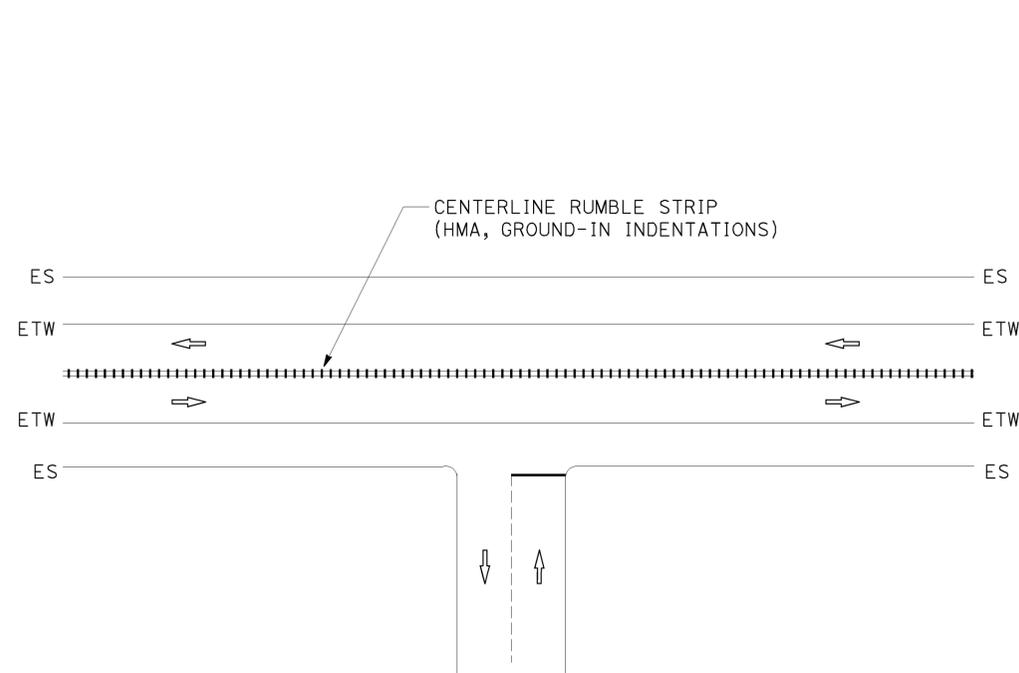
1. EXISTING UTILITY FACILITIES HAVE NOT BEEN POSITIVELY IDENTIFIED.

LEGEND:

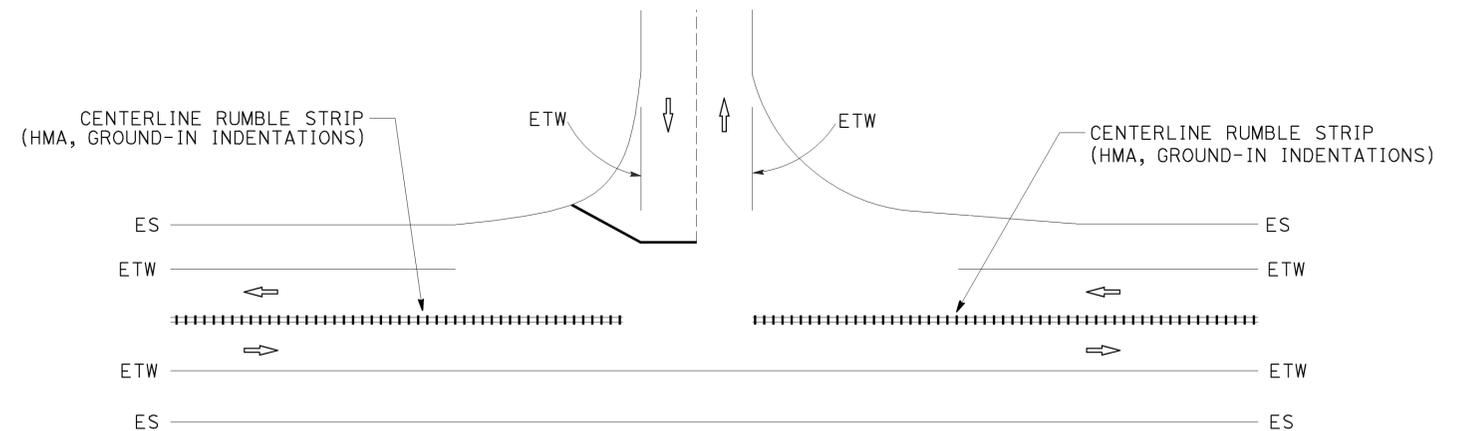
⇨ DIRECTION OF TRAVEL



**CENTERLINE RUMBLE STRIP
AT INTERSECTION WITH LEFT TURN POCKETS**



**CENTERLINE RUMBLE STRIP
AT DRIVEWAY/PRIVATE ROAD APPROACH**



**CENTERLINE RUMBLE STRIP
AT PUBLIC ROAD INTERSECTION**

CONSTRUCTION DETAILS

NO SCALE

C-5

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sut	113	0.0/4.7, 5.1/R10.8	8	21

REGISTERED CIVIL ENGINEER	DATE
<i>N. Selwal</i>	4-27-11
PLANS APPROVAL DATE	
5-9-11	

REGISTERED PROFESSIONAL ENGINEER
N. SELWAL
No. 74816
Exp. 12-31-11
CIVIL

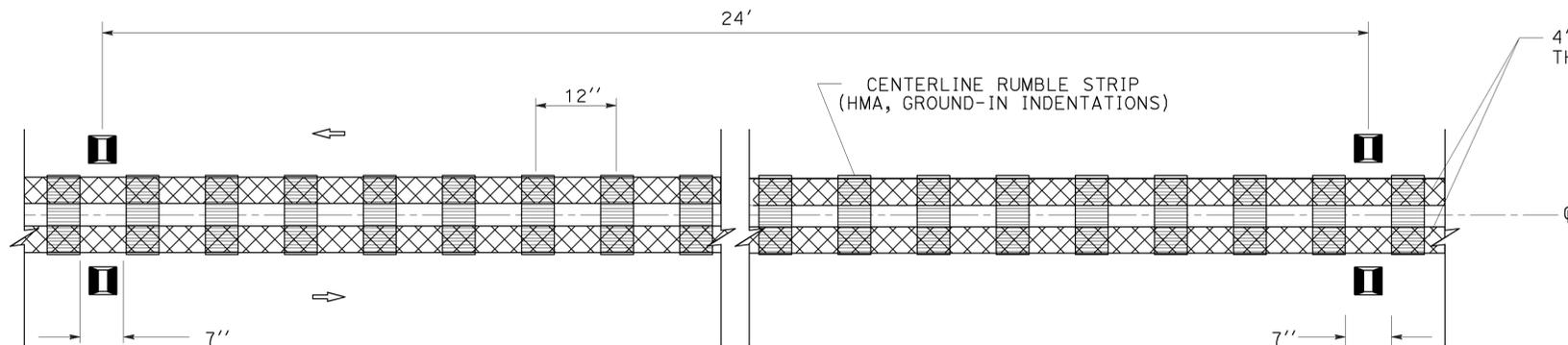
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

NOTES:

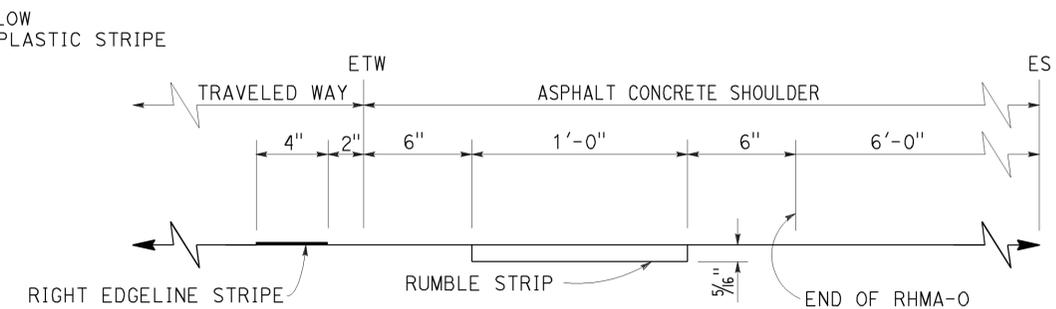
- EXISTING UTILITY FACILITIES HAVE NOT BEEN POSITIVELY IDENTIFIED.
- CENTERLINE RUMBLE STRIP MUST BE CONSTRUCTED PRIOR TO INSTALLING FINAL TRAFFIC STRIPES.

LEGEND:

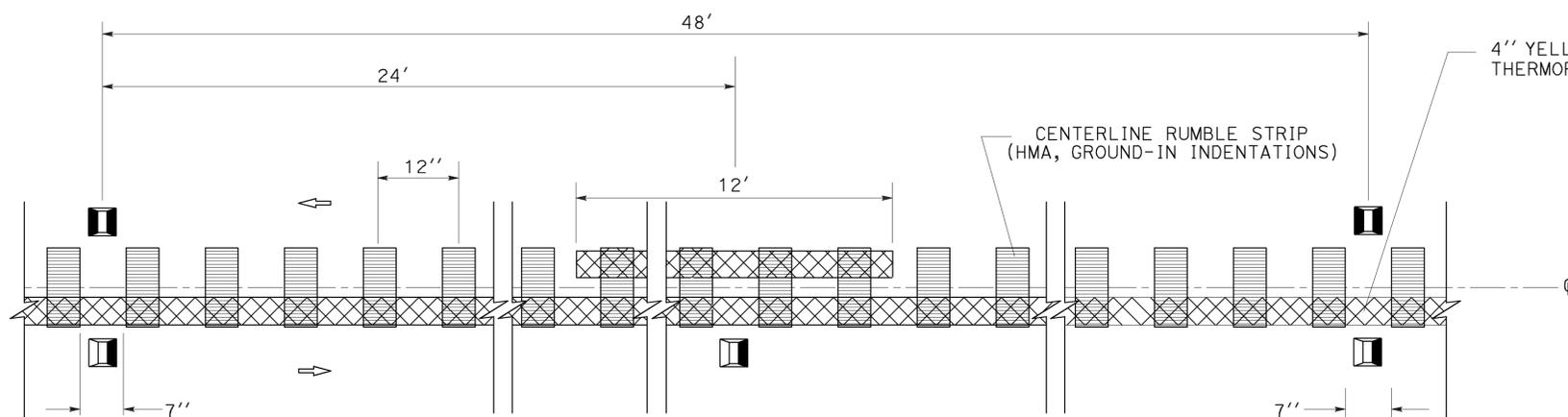
- DIRECTION OF TRAVEL
- TYPE D TWO-WAY YELLOW RETROREFLECTIVE, PAVEMENT MARKER
- TYPE H ONE-WAY YELLOW RETROREFLECTIVE, PAVEMENT MARKER



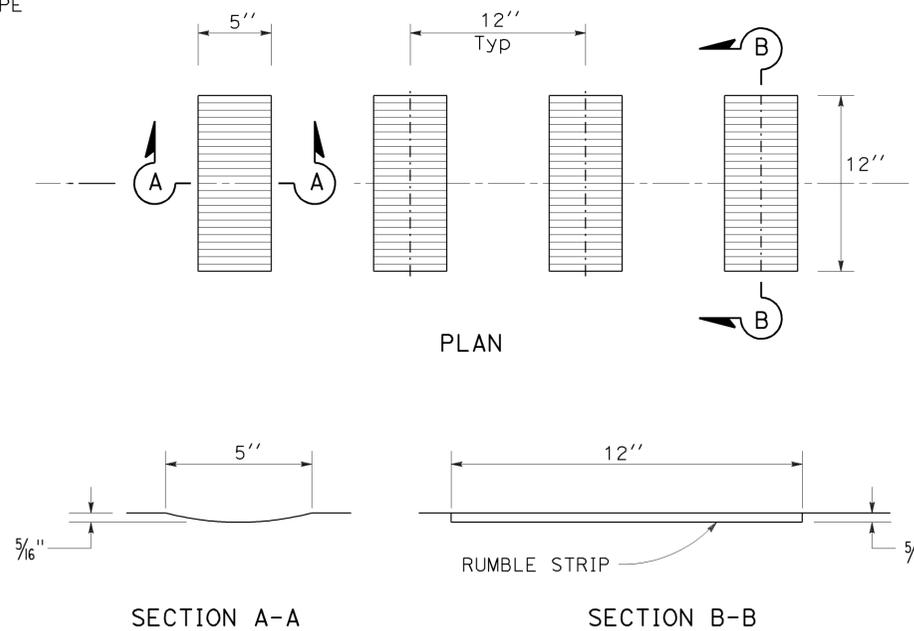
DETAIL 22 WITH CENTERLINE RUMBLE STRIP



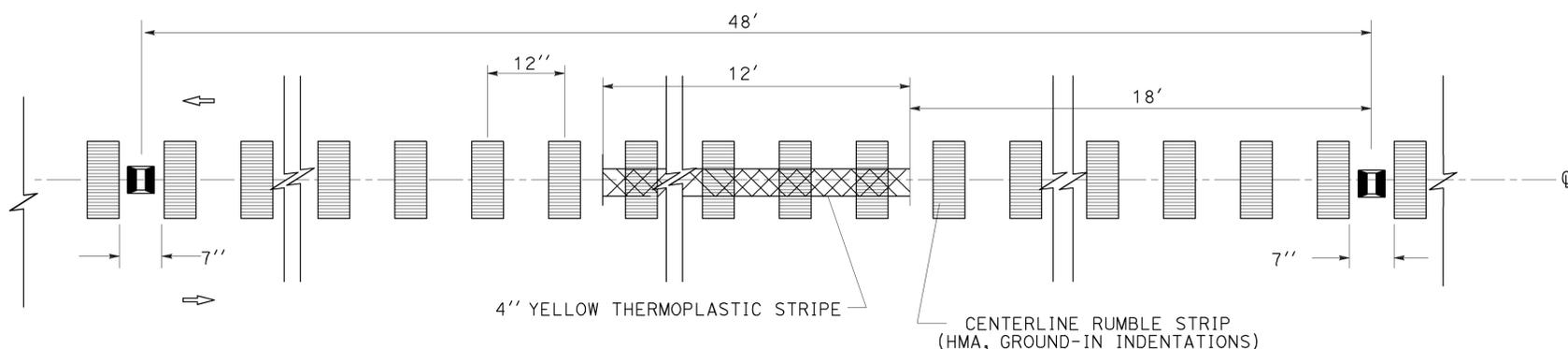
SHOULDER RUMBLE STRIP PLACEMENT RIGHT OF DIRECTION OF TRAVEL



DETAIL 19 WITH CENTERLINE RUMBLE STRIP



GROUND-IN INDENTATIONS



DETAIL 6 WITH CENTERLINE RUMBLE STRIP

CONSTRUCTION DETAILS

NO SCALE

C-6

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
 NORTH REGION DIVISION OF ENGINEERING
 NARAYAN SELWAL
 NESAR FORMOLI
 NARAYAN SELWAL
 NESAR FORMOLI
 NARAYAN SELWAL
 NESAR FORMOLI
 NARAYAN SELWAL
 NESAR FORMOLI

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sut	113	0.0/4.7 5.1/R10.8	9	21

REGISTERED CIVIL ENGINEER DATE 4-27-11
 5-9-11
 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
 Jeffrey S Jewett
 No. 49233
 Exp. 9-30-12
 CIVIL
 STATE OF CALIFORNIA

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LEGEND

- (X) CONSTRUCTION AREA SIGN LETTER
- ↑ SIGN - SINGLE POST
- ↑↑ SIGN - TWO POSTS

SIGN DETAILS

(C) G20-1 [Spec] (12)

ROAD WORK
 NEXT 12 MILES

6" C
SERIES
LETTERS

60"x30"

RETROREFLECTIVE ORANGE
BACKGROUND WITH BLACK
LEGEND AND BORDER.

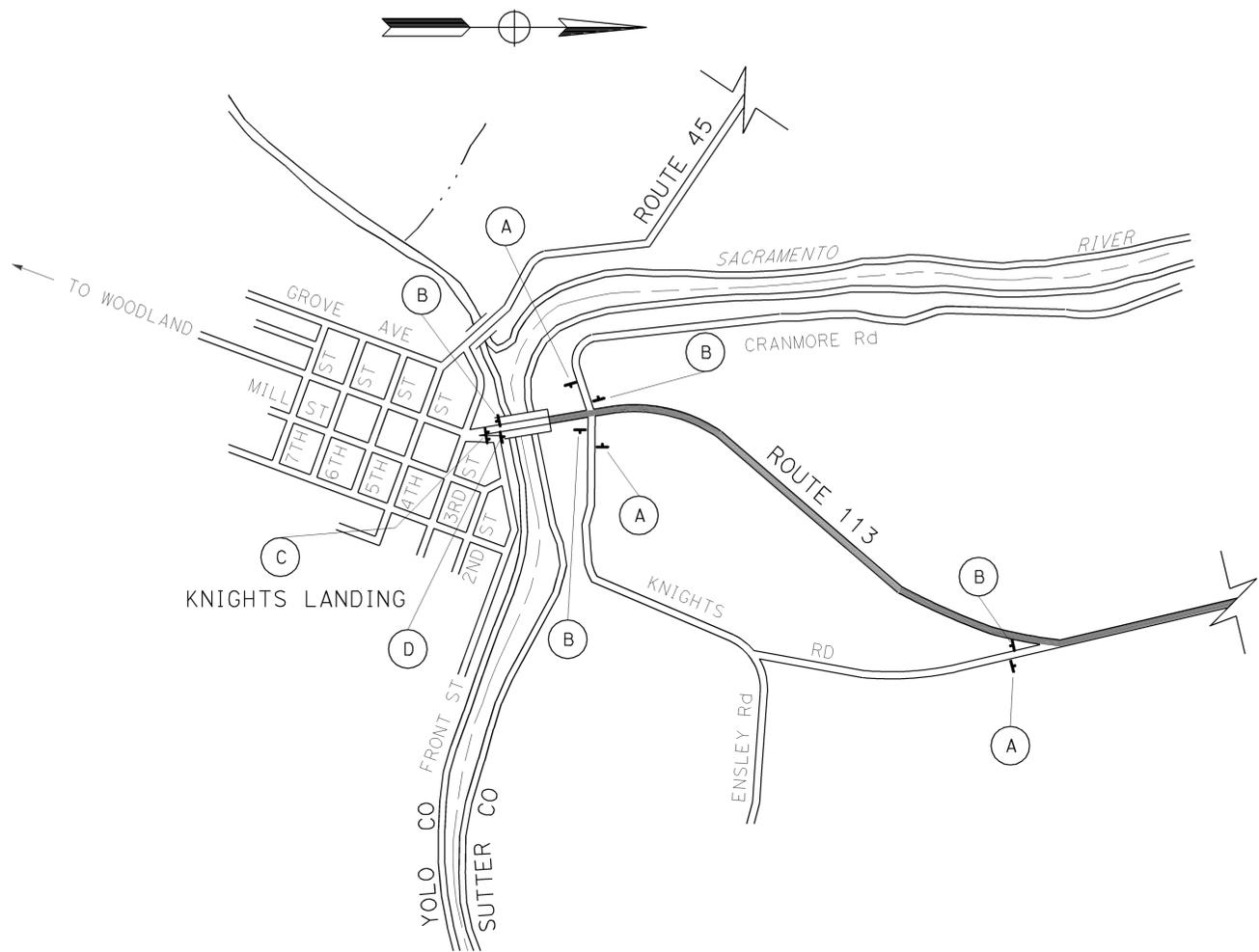
(D) C40(Mod) <CA>

TRAFFIC FINES
 DOUBLED IN
 WORK ZONES

4" D
SERIES
LETTERS

48"x36"

RETROREFLECTIVE WHITE
BACKGROUND WITH BLACK
LEGEND AND BORDER.



STATIONARY MOUNTED CONSTRUCTION AREA SIGNS

SIGN LETTER	SIGN CODE		PANEL SIZE	SIGN MESSAGE	NUMBER OF POST AND SIZE	NUMBER OF SIGNS
	FEDERAL	CALIFORNIA				
(A)	W20-1	C23	48" x 48"	ROAD WORK AHEAD	1 - 6" x 6"	20
(B)	G20-2	C14	36" x 18"	END ROAD WORK	1 - 4" x 4"	22
(C)	G20-1 [Spec] (12)		60" x 30"	ROAD WORK NEXT 12 MILES	2 - 4" x 6"	2
(D)		C40(Mod)	48" x 36"	TRAFFIC FINES DOUBLED IN WORK ZONES	1 - 4" x 6"	2

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

NOTE: THIS PLAN ACCURATE FOR CONSTRUCTION AREA SIGN WORK ONLY.

**CONSTRUCTION
AREA SIGNS**
NO SCALE

CS-1

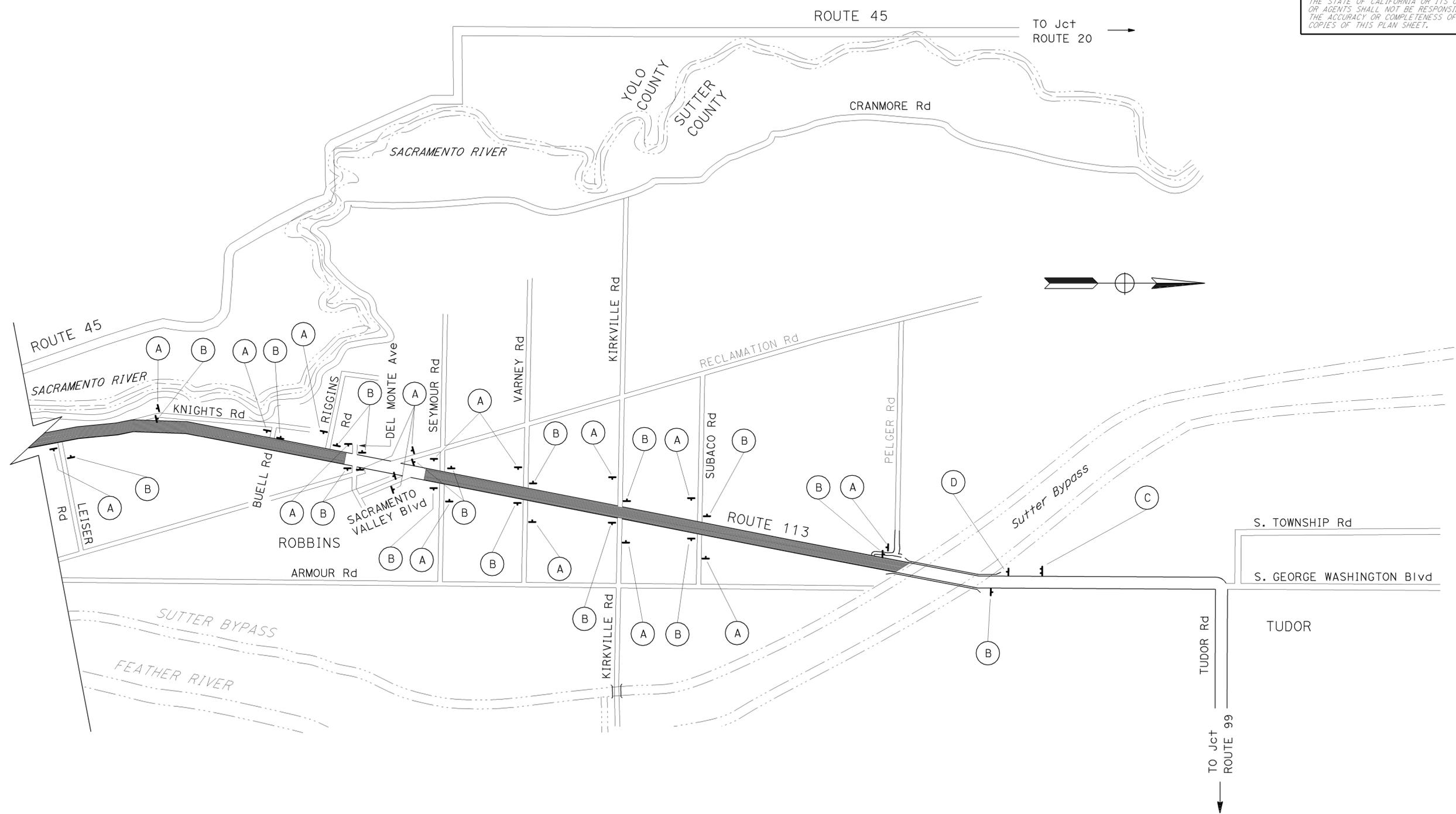
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
 FUNCTIONAL SUPERVISOR JOHN KEBER
 CALCULATED/DESIGNED BY CHECKED BY
 CHUCK COOK JEFF JEWETT
 REVISED BY DATE REVISED
 CHUCK COOK JEFF JEWETT

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sut	113	0.0/4.7 5.1/R10.8	10	21

REGISTERED CIVIL ENGINEER DATE 4-27-11
 5-9-11
 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
 Jeffrey S. Jewett
 No. 49233
 Exp. 9-30-12
 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.



STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
 FUNCTIONAL SUPERVISOR JOHN KEBER
 CALCULATED/DESIGNED BY CHUCK COOK
 CHECKED BY JEFF JEWETT
 REVISED BY CHUCK COOK
 DATE REVISED
 TRAFFIC

NOTE: THIS PLAN ACCURATE FOR CONSTRUCTION AREA SIGN WORK ONLY.

**CONSTRUCTION
 AREA SIGNS**
 NO SCALE
CS-2

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
 NORTH REGION
 DIVISION OF ENGINEERING

FUNCTIONAL SUPERVISOR
 NESAR FORMOLI

CALCULATED/DESIGNED BY
 CHECKED BY

NARAYAN SELWAL
 NESAR FORMOLI

REVISED BY
 DATE REVISED

ABBREVIATION:
 LNMI LANE MILE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sut	113	0.0/4.7, 5.1/R10.8	12	21

REGISTERED CIVIL ENGINEER DATE 4-27-11
 N. SELWAL No. 74816 Exp. 12-31-11
 PLANS APPROVAL DATE 5-9-11

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 ITEMS

LOCATION PM TO PM		DIRECTION	COLD PLANE ASPHALT CONCRETE PAVEMENT	HOT MIX ASPHALT (TYPE A)	RUBBERIZED HOT MIX ASPHALT (OPEN GRADED)	IMPORTED MATERIAL (SHOULDER BACKING)	CRACK TREATMENT	TACK COAT	CENTERLINE RUMBLE STRIP (HMA, GROUND-IN INDENTATIONS)	SHOULDER RUMBLE STRIP (HMA, GROUND-IN INDENTATIONS)	SAFETY EDGE (N)
BEGIN	END										
0.03	2.80	BOTH	889	19,841	2,453	3,397	4	61	147.84	295.68	129.00
2.80	4.70	BOTH	32,100	13,462	1,665	2,306	6	58	100.32	200.64	86.00
5.10	10.81	BOTH	3,556	40,465	5,003	6,928	19	128	301.49	602.98	263.00
PUBLIC, PRIVATE ROADS & DRIVEWAYS				868				1			
HMA DIKE				28							
TOTAL			36,545	74,664	9,121	12,631	29	248	549.65	1,099.30	478.00

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

DIKE

LOCATION PM TO PM		DIRECTION	PLACE HMA DIKE (TYPE C)	PLACE HMA DIKE (TYPE E)	HOT MIX ASPHALT (TYPE A) *	REMOVE AC DIKE
FROM	TO					
10.60	10.81	SB	92	877	14	969
10.60	10.81	NB	88	856	14	944
TOTAL			180	1,733	28	1,913

* - SEE ROADWAY ITEMS TABLE FOR PROJECT TOTALS.

HMA (LEVELING)

LOCATION PM TO PM		DIRECTION	LENGTH	WIDTH	HMA (LEVELING)
FROM	TO				
5.10	5.57	NB	2,500	8	371
		SB	2,500	8	371
5.57	6.65	NB	5,000	8	741
		SB	5,000	8	741
6.65	10.60	NB	5,000	8	741
		SB	5,000	8	741
TOTAL					3,706

REPLACE AC SURFACING

LOCATION PM TO PM		DIRECTION	LENGTH	WIDTH	REPLACE AC SURFACING
FROM	TO				
0.03	2.80	NB	2000	12	223
		SB	2000	12	223
		NB	1000	12	112
		SB	8000	12	889
		NB	8000	12	889
		SB	1600	12	178
		NB	1600	12	178
		BOTH	350	24	78
		SB	300	12	34
		2.80	4.70	NB	2000
		SB	2000	12	223
5.10	7.68	SB	1000	12	112
		NB	1000	12	112
		BOTH	300	24	67
		SB	500	12	56
		SB	300	12	34
		SB	500	12	56
		NB	500	12	56
		NB	300	12	34
		BOTH	300	24	67
7.68	10.81	SB	300	6	17
		SB	2000	12	223
		SB	800	12	89
		SB	200	12	23
		SB	200	6	12
		SB	200	6	12
		SB	400	6	23
		SB	1000	12	112
		NB	5000	12	556
		BOTH	300	24	67
		NB	1000	12	112
		NB	1000	12	112
		SB	1500	12	167
		SB	500	12	56
		SB	500	12	56
		NB	1500	12	167
		SB	1000	12	112
		SB	500	6	28
		SB	500	12	56
		SB	1000	12	112
		NB	1000	12	112
TOTAL					6,068

SUMMARY OF QUANTITIES

Q-1

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Su+	113	0.0/4.7, 5.1/R10.8	13	21

REGISTERED CIVIL ENGINEER DATE 4-27-11

5-9-11
 PLANS APPROVAL DATE

N. SELWAL
 No. 74816
 Exp 12-31-11
 CIVIL

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METAL BEAM GUARD RAILING

LOCATION PM TO PM		DIRECTION	REMOVE METAL BEAM GUARD RAILING	(N) REMOVE CABLE ANCHOR ASSEMBLY	METAL BEAM GUARD RAILING (WOOD POST)	TRANSITION RAILING (TYPE WB)	END ANCHOR ASSEMBLY (TYPE SFT)	ALTERNATIVE FLARED TERMINAL SYSTEM	END CAP (TYPE A)	END CAP (TYPE TC)	(N) LAYOUT TYPE	WEED CONTROL MAT (FIBER)
FROM	TO	NB/SB	LF	EA	LF	EA	EA	EA	EA	EA		SQYD
10.6	10.81	NB	53	1		1		1		1	12B	22
10.6	10.81	SB	53	1	60		1		1		12DD	22
TOTAL			106	2	60	1	1	1	1	1	-	44

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

DOWNDRAIN

LOCATION PM	DIRECTION NB/SB	REMOVE DOWNDRAIN LF	12" CORRUGATED STEEL PIPE DOWNDRAIN (0.079" THICK) LF	12" x 12" CSP TEE EA	12" ENTRANCE TAPER EA
10.62	NB	14	14	1	1
10.62	SB	14	14	1	1
TOTAL		28	28	2	2

SUMMARY OF QUANTITIES



DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
03	Sut	113	0.0/4.7, 5.1/ R10.8	14	21

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

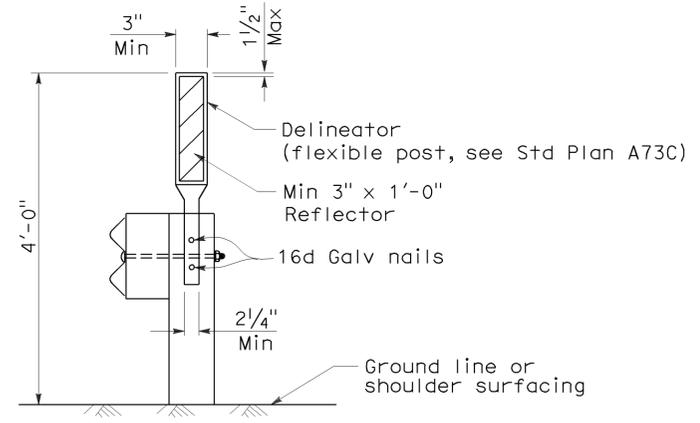
June 6, 2008
PLANS APPROVAL DATE

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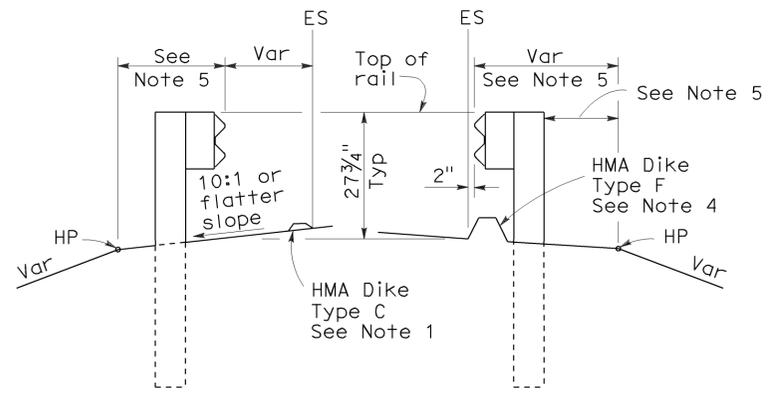
To accompany plans dated 5-9-11

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 Revised Standard Plans RSP A87A and Standard Plan A87B.
5. For details of typical distance between the face of rail and hinge point, see Standard Plan A77C3.



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 JUNE 6, 2008 SUPERSEDES 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	Sut	113	0.0/4.7, 5.1/R10.8	15	21

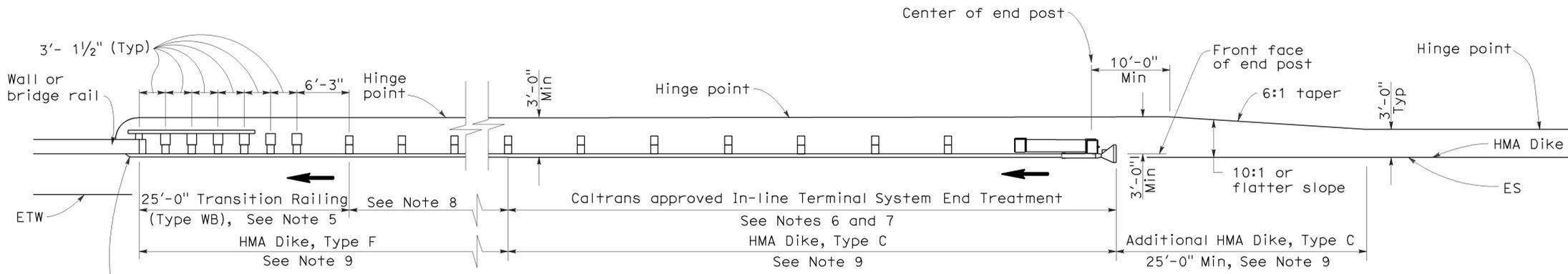
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June 6, 2008
PLANS APPROVAL DATE

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

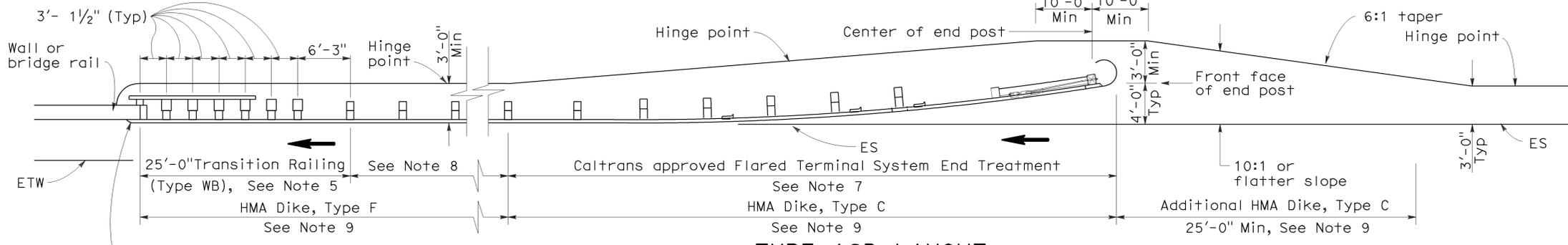
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To accompany plans dated 5-9-11



TYPE 12A LAYOUT

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



TYPE 12B LAYOUT

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

NOTES:

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

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

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

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

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

NO SCALE

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

REVISED STANDARD PLAN RSP A77F1

2006 REVISED STANDARD PLAN RSP A77F1

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
03	Sut	113	0.0/4.7, 5.1/ R10.8	16	21

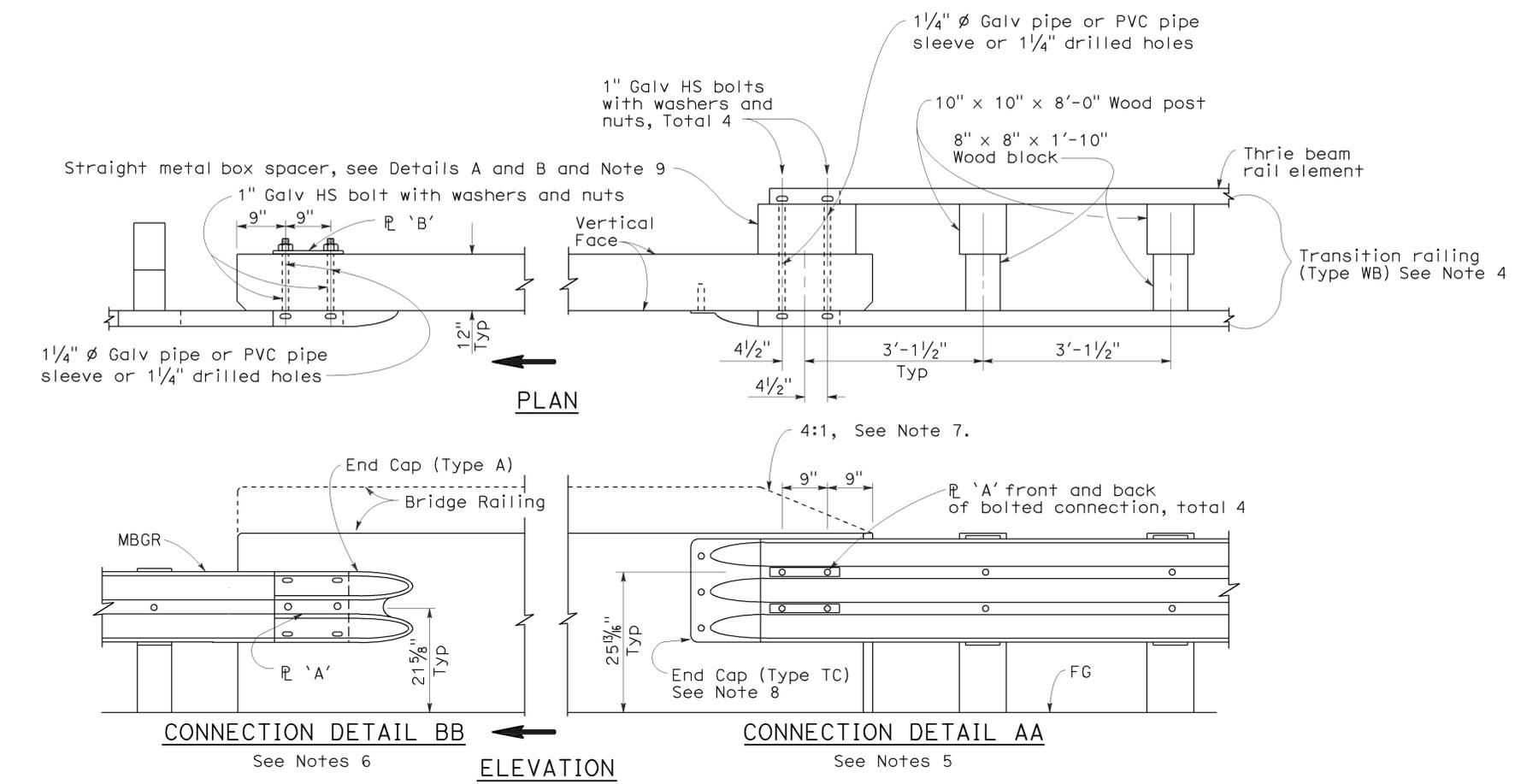
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June 6, 2008
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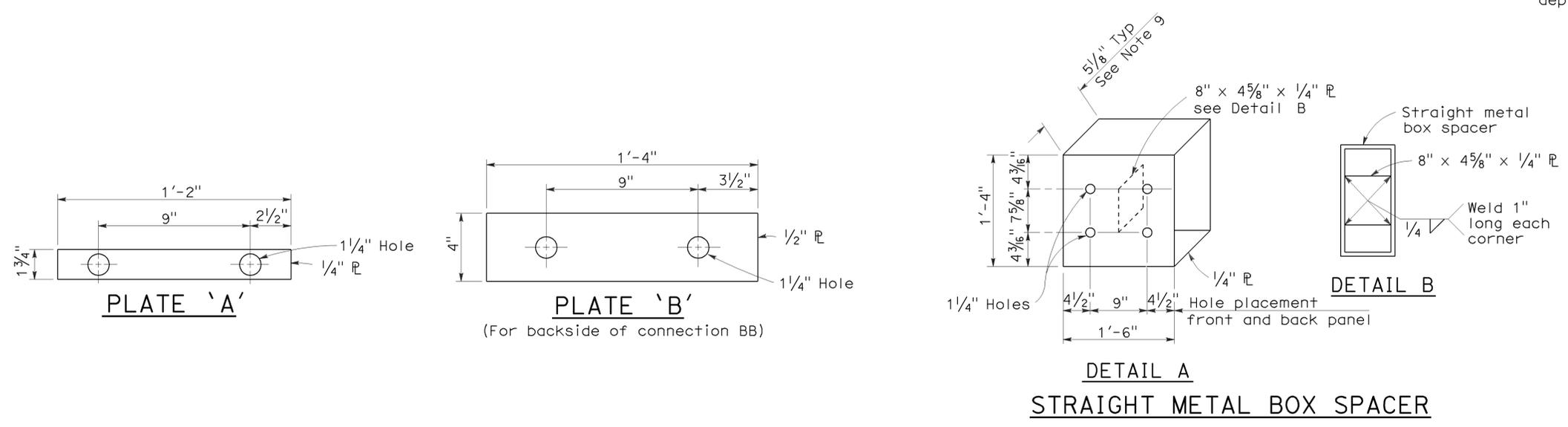
To accompany plans dated 5-9-11



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 JUNE 6, 2008 SUPERSEDES 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	Sut	113	0.0/4.7, 5.1/ R10.8	17	21

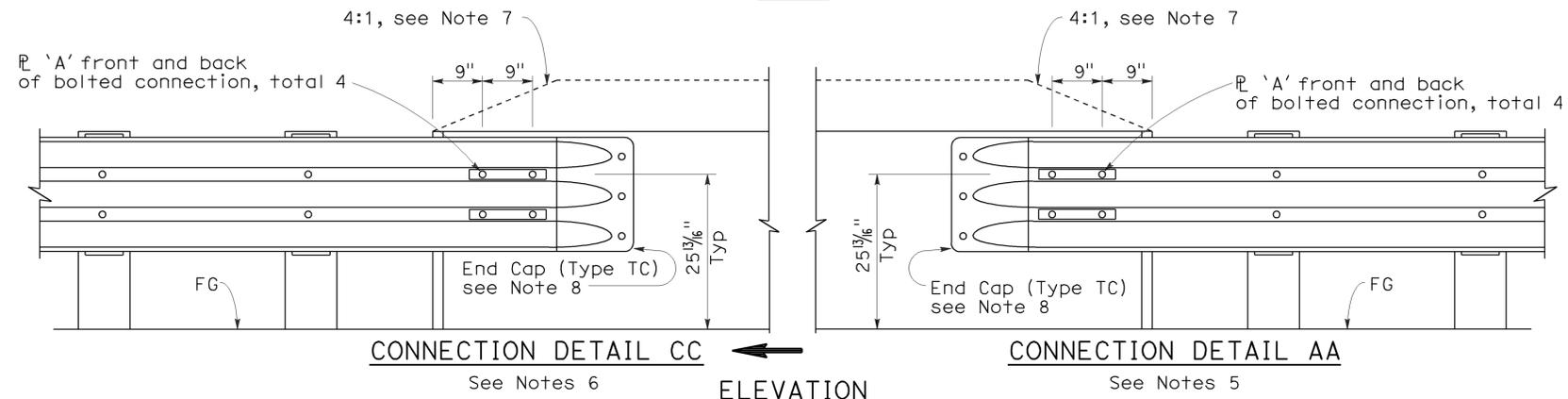
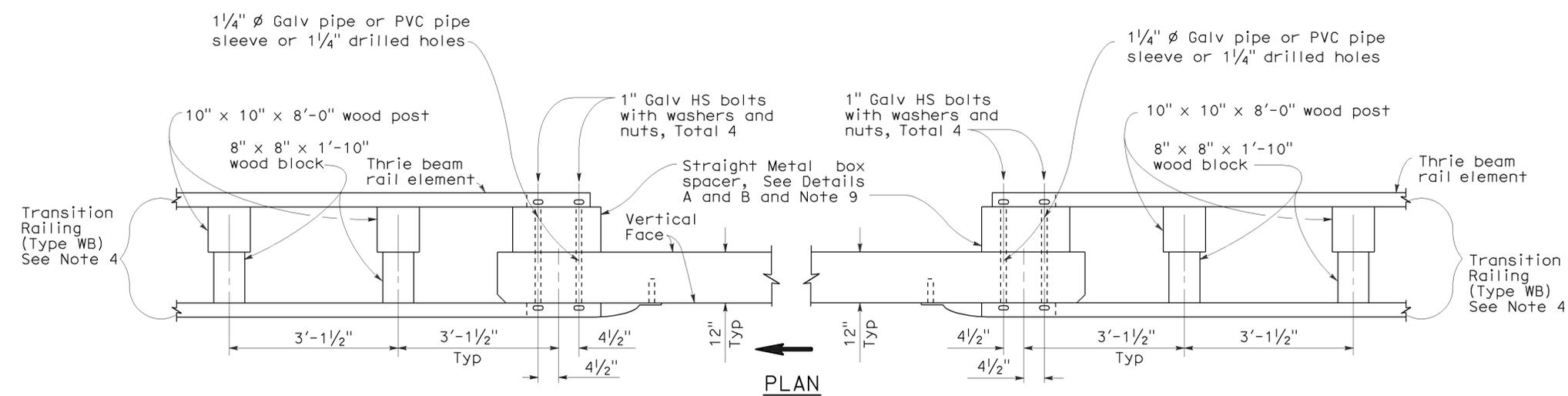
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REGISTERED CIVIL ENGINEER

June 6, 2008
PLANS APPROVAL DATE

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STATE OF CALIFORNIA

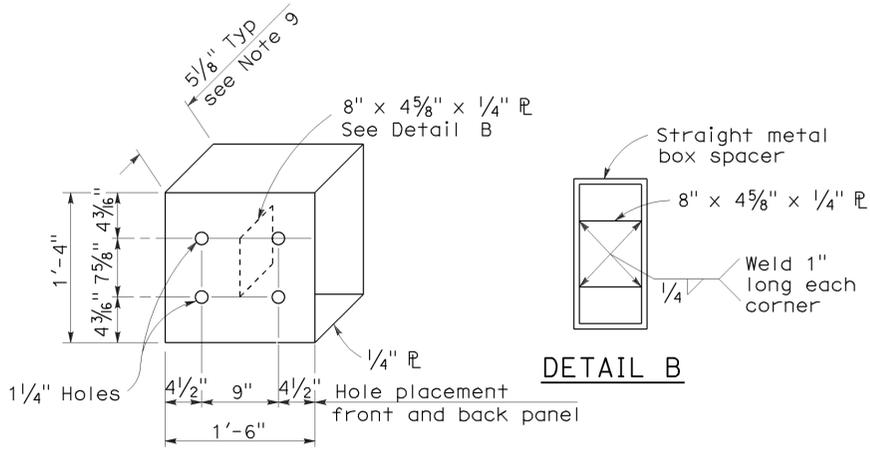
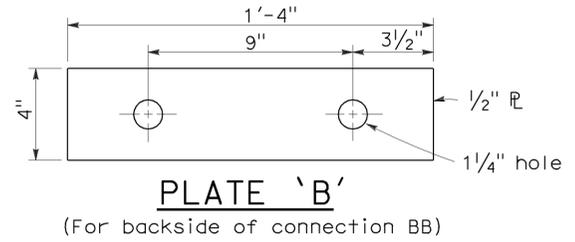
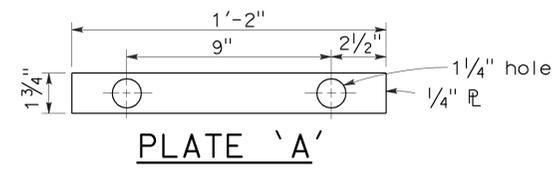
To accompany plans dated 5-9-11



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.



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

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

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

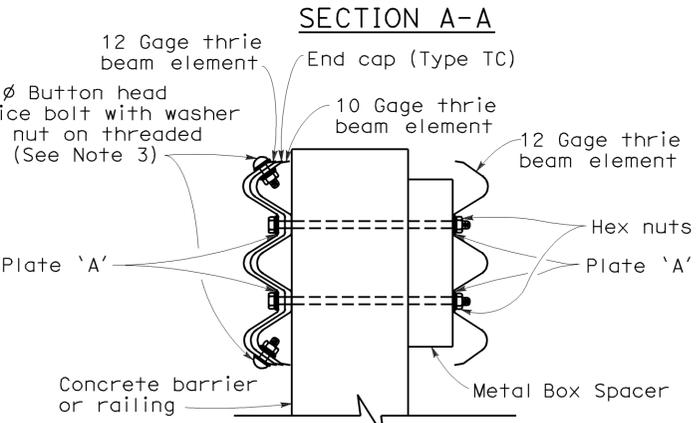
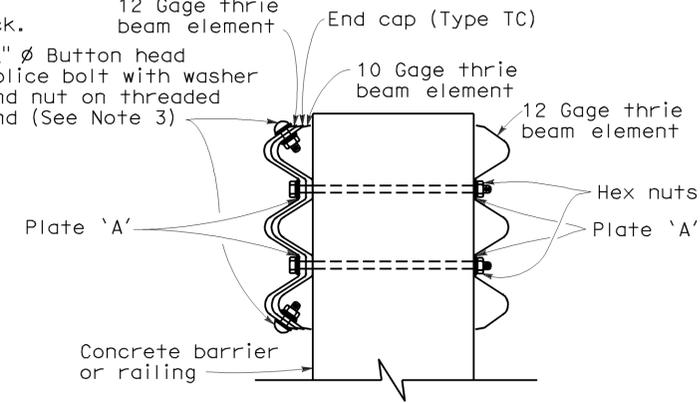
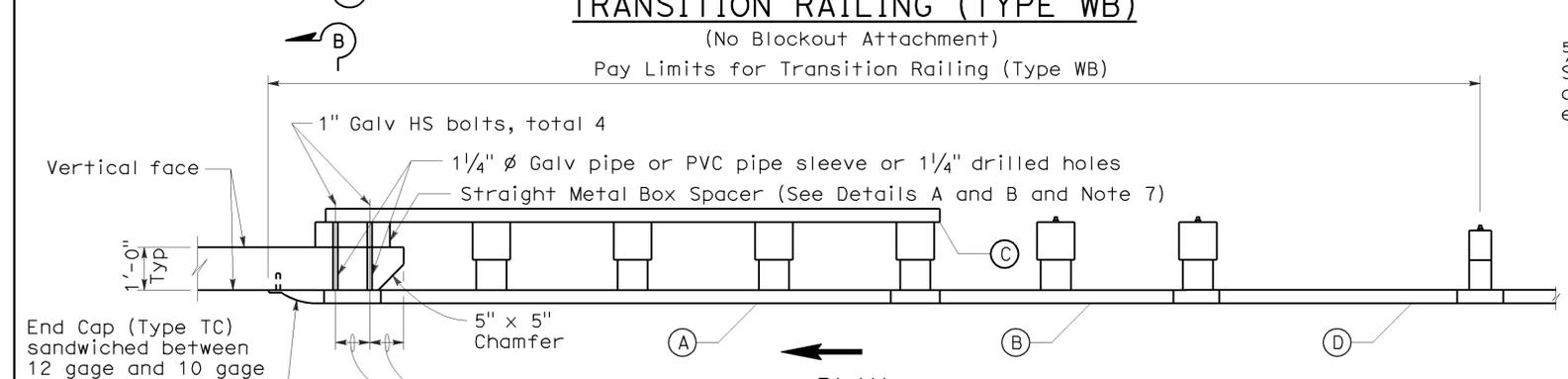
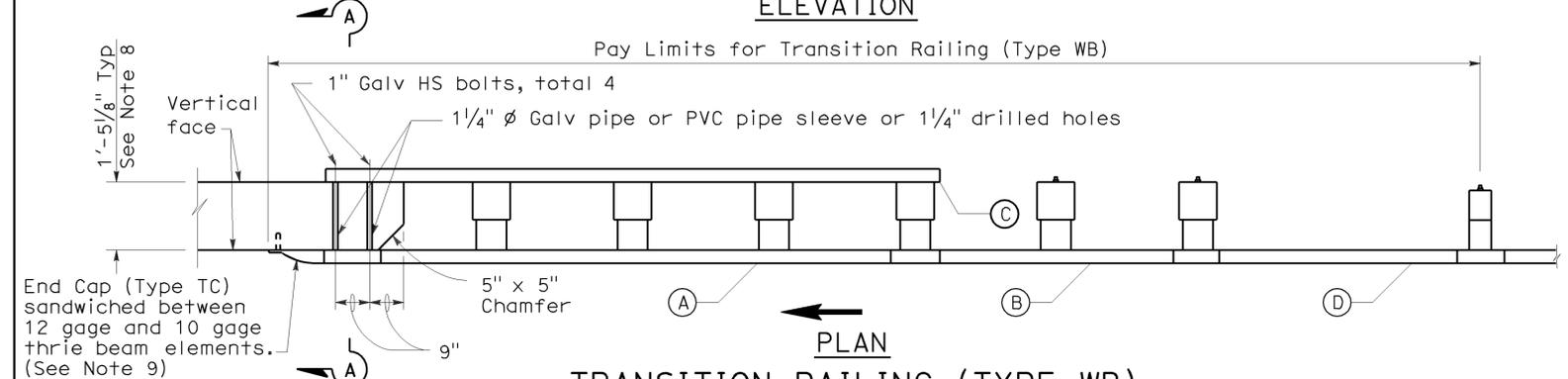
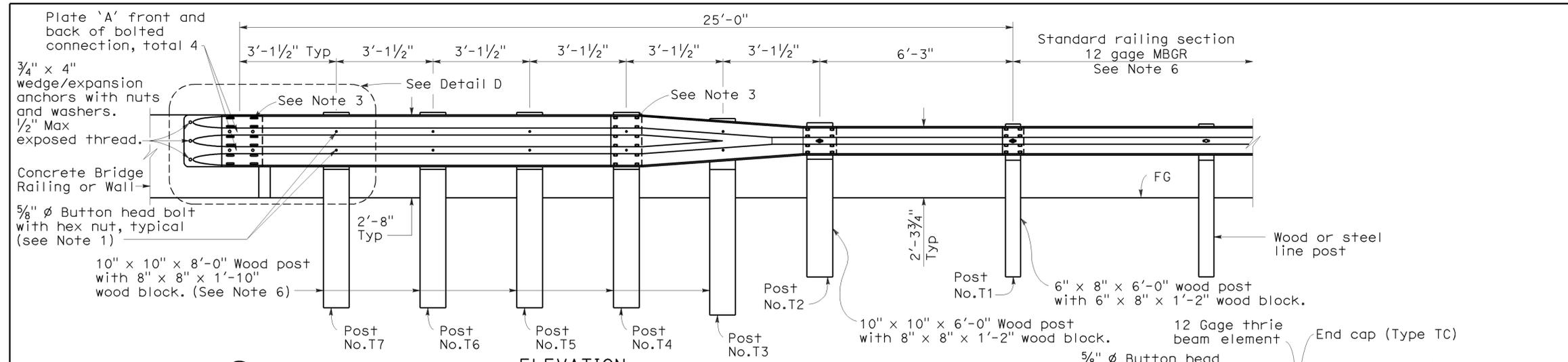
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
03	Sut	113	0.0/4.7, 5.1/ R10.8	18	21

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

June 5, 2009
PLANS APPROVAL DATE

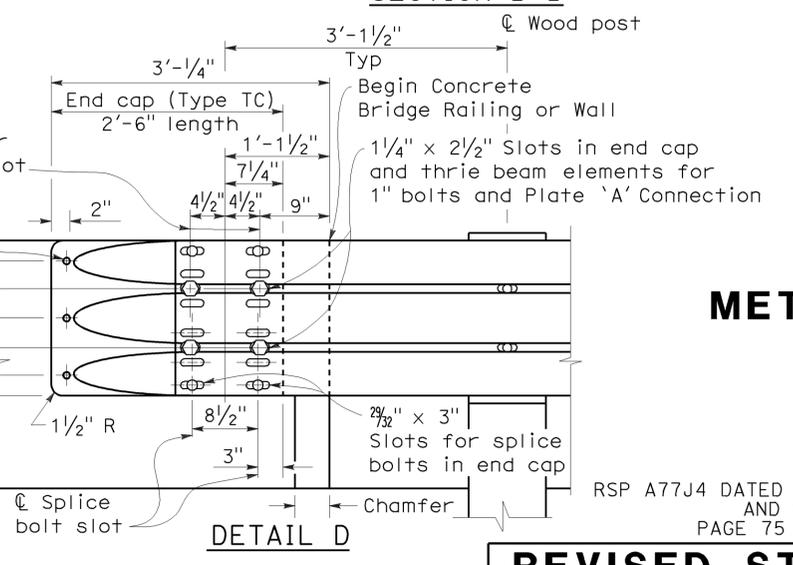
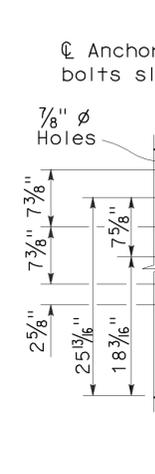
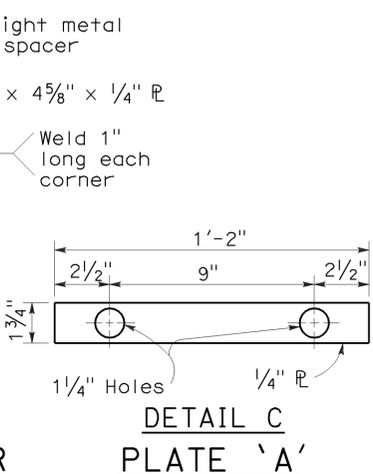
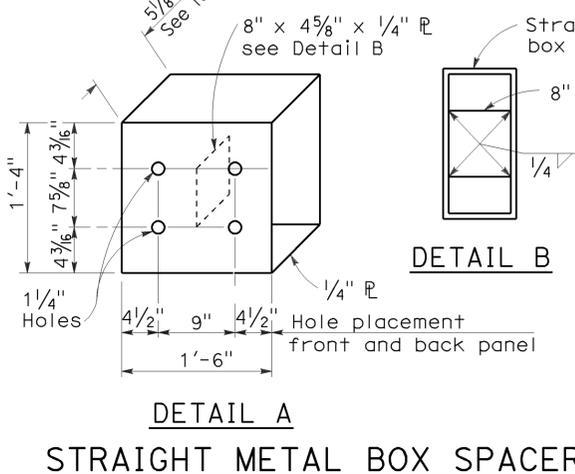
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- NOTES:** To accompany plans dated 5-9-11
- Use 5/8 " ϕ Button head bolts and hex nuts for connections to posts. No washer on rail face for bolted connections to post.
 - The nested rail elements, end cap, and 'W' beam to thrie beam element may be 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 29/32 " x 1 1/8 " slot size. Interior splice bolt holes at these locations may be increased up to 1 1/4 " ϕ . 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 \rightarrow .
 - The top elevation of Post Nos.T2 through 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 or an approved Caltrans end treatment attached to Post No.T1.
 - The depth of the metal box spacer varies from the 5 1/8 " 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.4 through No.7 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.

- 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



STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

METAL BEAM GUARD RAILING TRANSITION RAILING (TYPE WB)

NO SCALE

RSP A77J4 DATED JUNE 5, 2009 SUPERSEDES RSP A77J4 DATED JUNE 6, 2008
AND STANDARD PLAN A77J4 DATED MAY 1, 2006
PAGE 75 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP A77J4

2006 REVISED STANDARD PLAN RSP A77J4

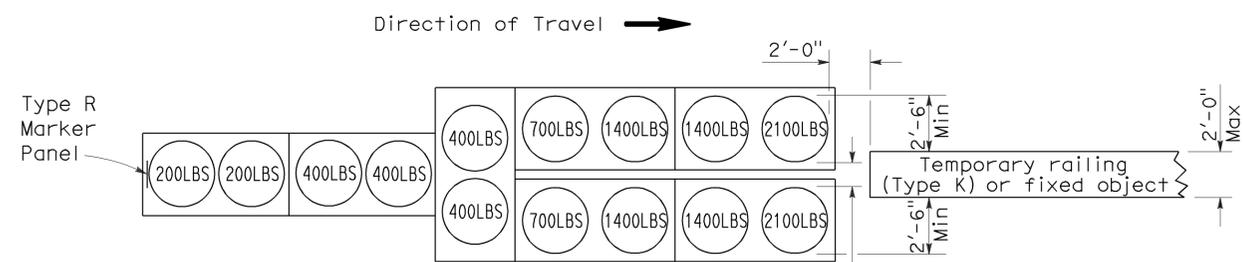
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03	Sut	113	0.0/4.7, 5.1/R10.8	19	21

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

June 6, 2008
PLANS APPROVAL DATE

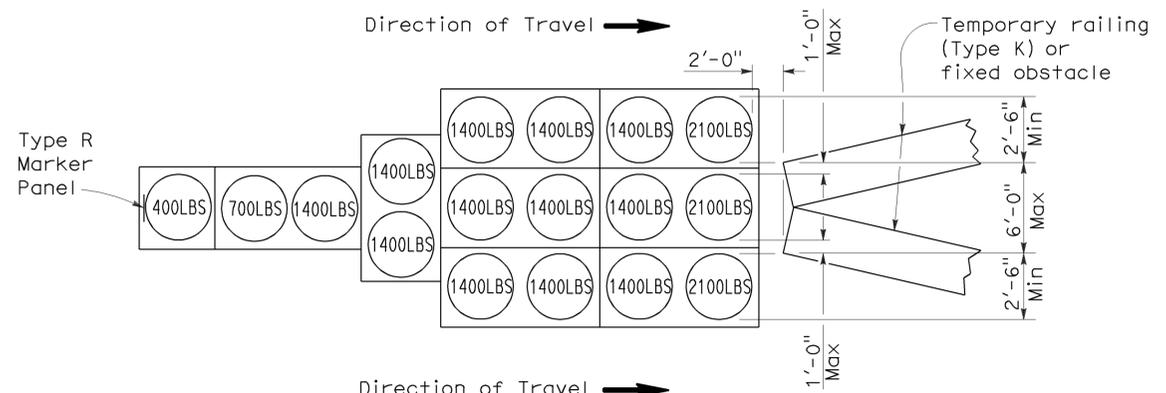
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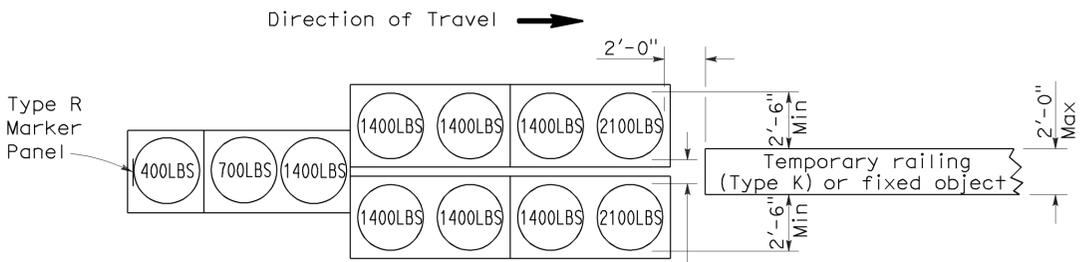
ARRAY 'TU14'

Approach speed 45 mph or more



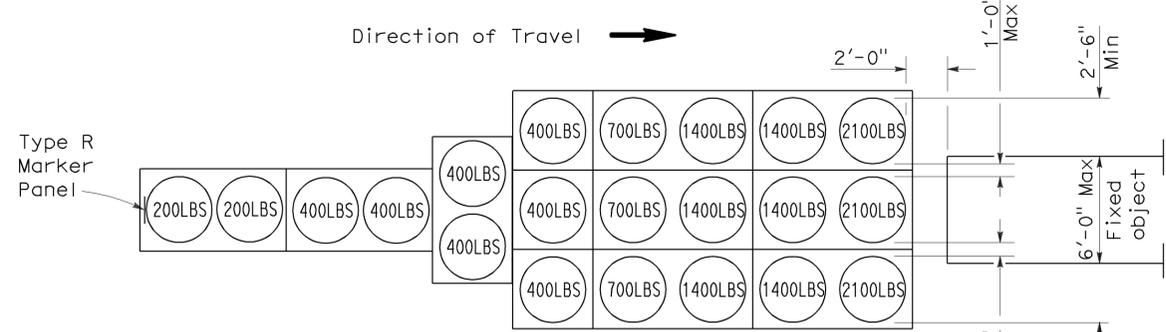
ARRAY 'TU17'

Approach speed less than 45 mph



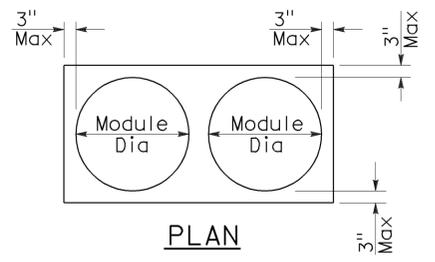
ARRAY 'TU11'

Approach speed less than 45 mph

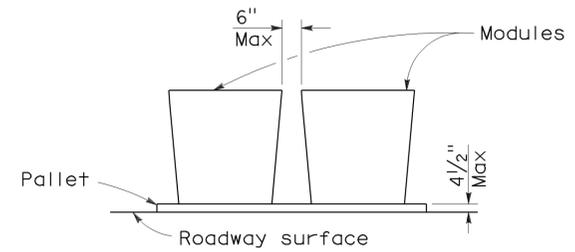


ARRAY 'TU21'

Approach speed 45 mph or more



PLAN



ELEVATION

CRASH CUSHION PALLET DETAIL

See Note 7

NOTES:

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

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

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

NO SCALE

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

REVISED STANDARD PLAN RSP T1A

2006 REVISED STANDARD PLAN RSP T1A

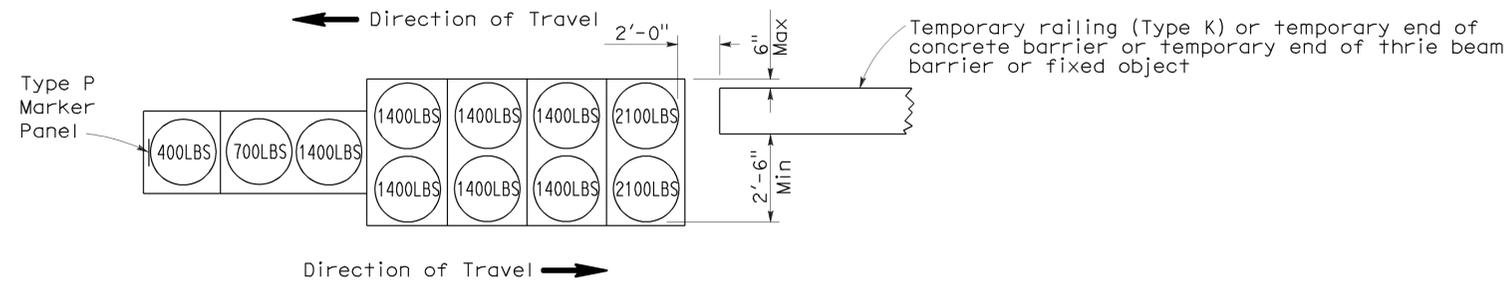
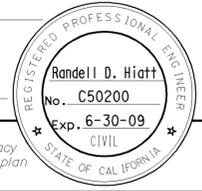
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
03	Sut	113	0.0/4.7, 5.1/ R10.8	20	21

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

June 6, 2008
PLANS APPROVAL DATE

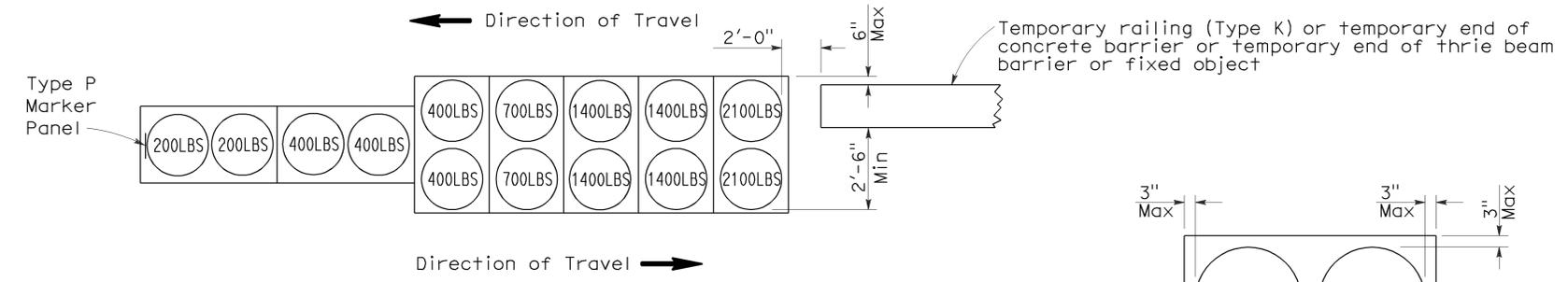
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

To accompany plans dated 5-9-11



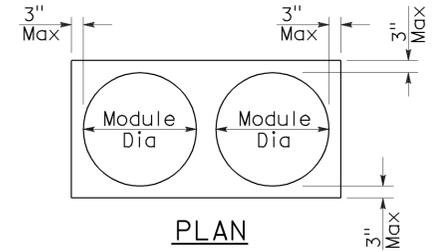
ARRAY 'TB11'

Approach speed less than 45 mph

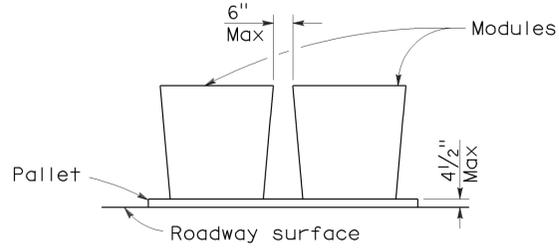


ARRAY 'TB14'

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

2006 REVISED STANDARD PLAN RSP T1B

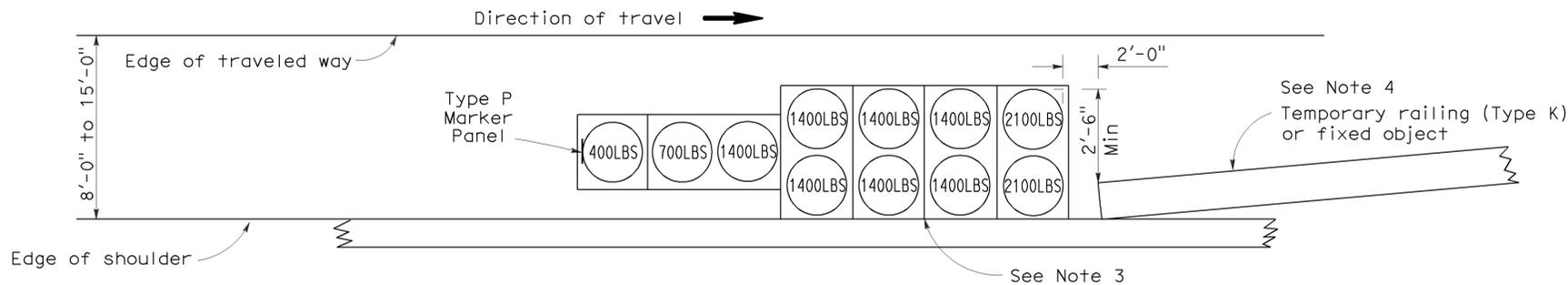
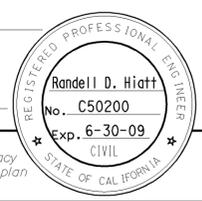
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
03	Sut	113	0.0/4.7, 5.1/ R10.8	21	21

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

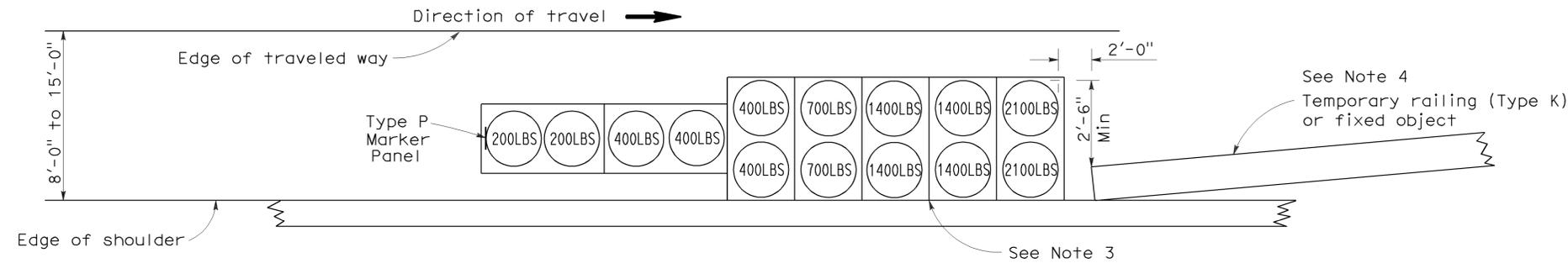
June 6, 2008
PLANS APPROVAL DATE

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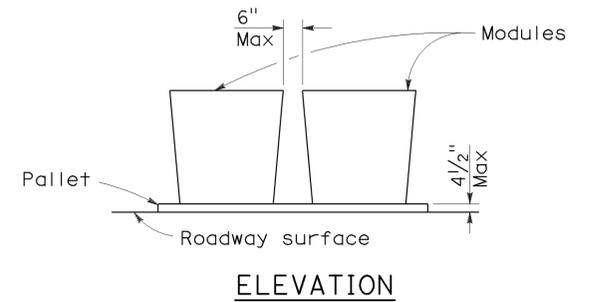
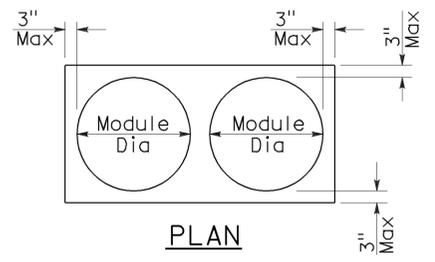
To accompany plans dated 5-9-11



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:

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

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

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

REVISED STANDARD PLAN RSP T2

2006 REVISED STANDARD PLAN RSP T2