

INDEX OF PLANS

SHEET No.	DESCRIPTION
1	TITLE AND LOCATION MAP
2-3	TYPICAL CROSS SECTIONS
4-10	CONSTRUCTION DETAILS
11	CONSTRUCTION AREA SIGNS
12-14	DETOUR PLANS
15	PAVEMENT DELINEATION QUANTITIES
16-18	SUMMARY OF QUANTITIES
19-20	ELECTRICAL PLANS
21-67	REVISED AND NEW STANDARD PLANS

STRUCTURE PLANS

68-71 ROUTE 50 BRIDGES

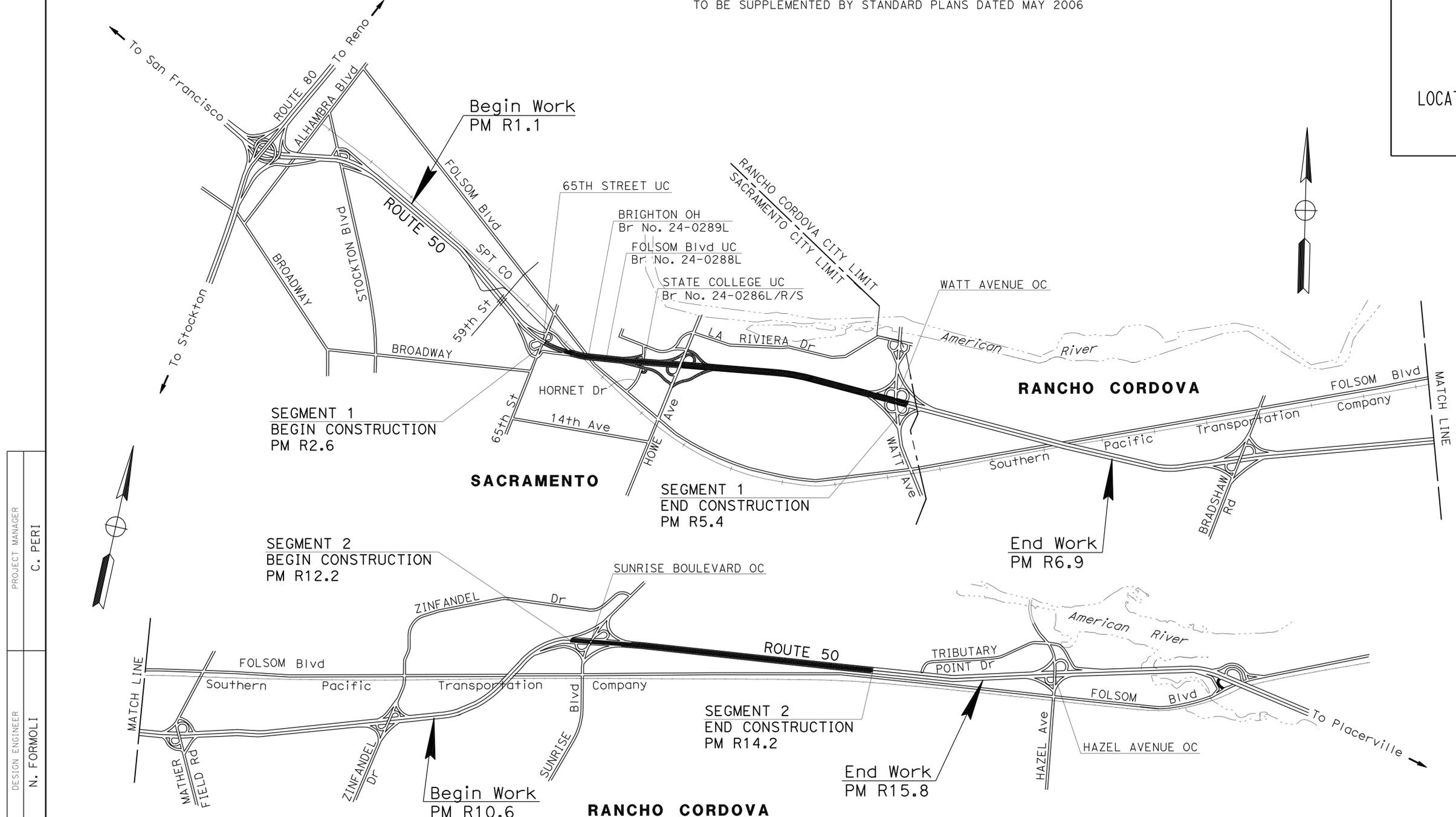
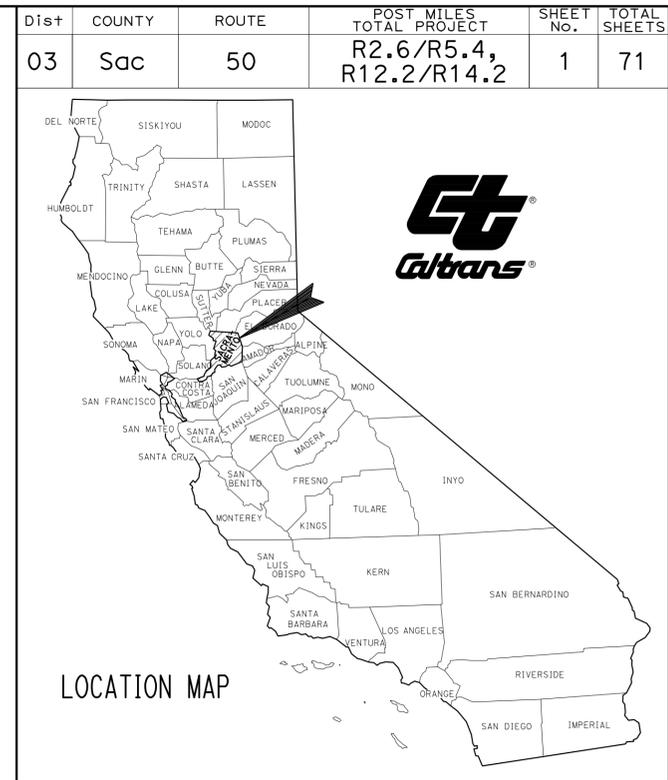
THE STANDARD PLANS LIST APPLICABLE TO THIS CONTRACT IS INCLUDED IN THE NOTICE TO CONTRACTORS AND SPECIAL PROVISIONS BOOK.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

ACNH-P050(119)E

PROJECT PLANS FOR CONSTRUCTION ON  
STATE HIGHWAY  
IN SACRAMENTO COUNTY  
FROM 65TH STREET UNDERCROSSING  
TO 0.1 MILE EAST OF WATT AVENUE OVERCROSSING AND  
FROM 0.2 MILE WEST OF SUNRISE BOULEVARD OVERCROSSING  
TO 1.6 MILES WEST OF HAZEL AVENUE OVERCROSSING

TO BE SUPPLEMENTED BY STANDARD PLANS DATED MAY 2006



PROJECT MANAGER	C. PERI
DESIGN ENGINEER	N. FORMOLI

5-3-10  
PROJECT ENGINEER REGISTERED CIVIL ENGINEER  
DATE

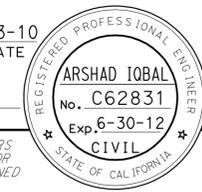
March 25, 2011  
PLANS APPROVAL DATE

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.

CONTRACT No.	03-0A8004
PROJECT ID	0300001080

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sac	50	R2.6/R5.4, R12.2/R14.2	2	71

	
REGISTERED CIVIL ENGINEER	DATE 5-3-10
3-25-11	
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>	

**NOTE:**

- DIMENSIONS OF THE STRUCTURAL SECTIONS ARE SUBJECT TO THE TOLERANCES SPECIFIED IN THE STANDARD SPECIFICATIONS.
- SUPERELEVATIONS AS SHOWN OR AS DIRECTED BY THE ENGINEER.

**STRUCTURAL SECTIONS**

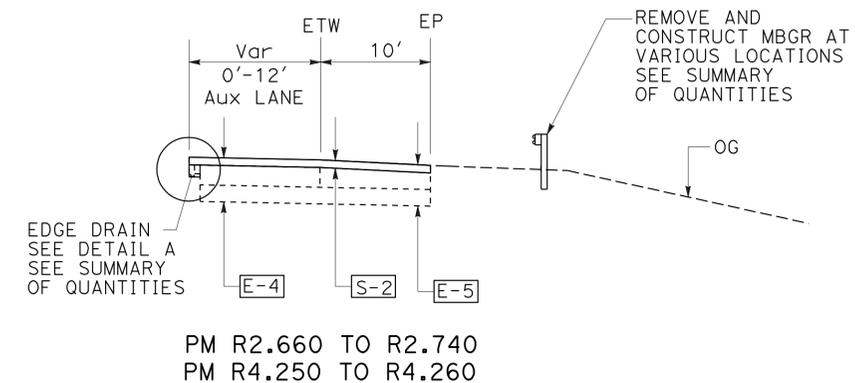
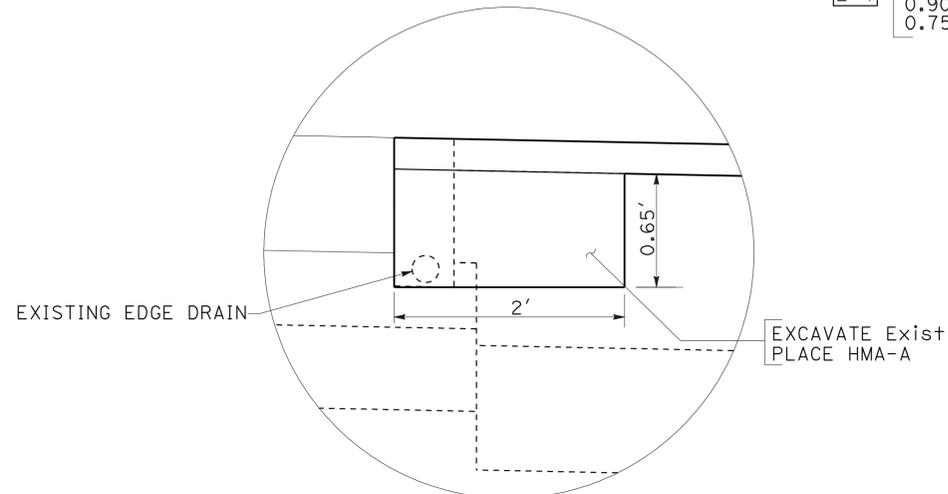
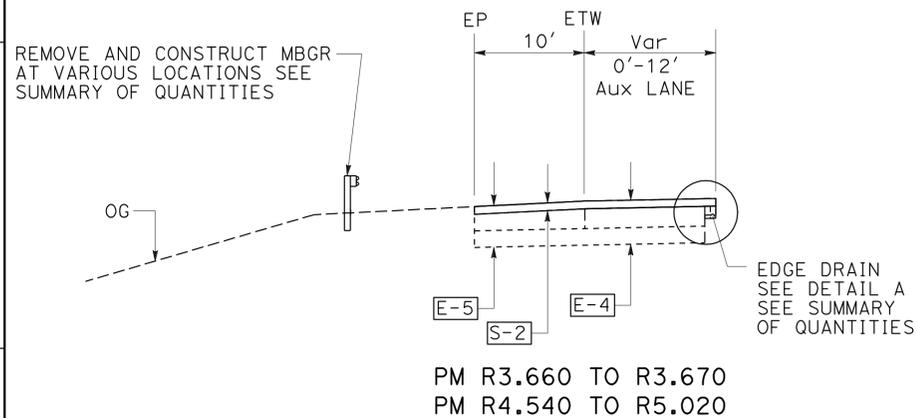
S-1 Var 0.65'-0.70' PCC      S-2 0.25'-0.35' HMA-A

**ABBREVIATION:**

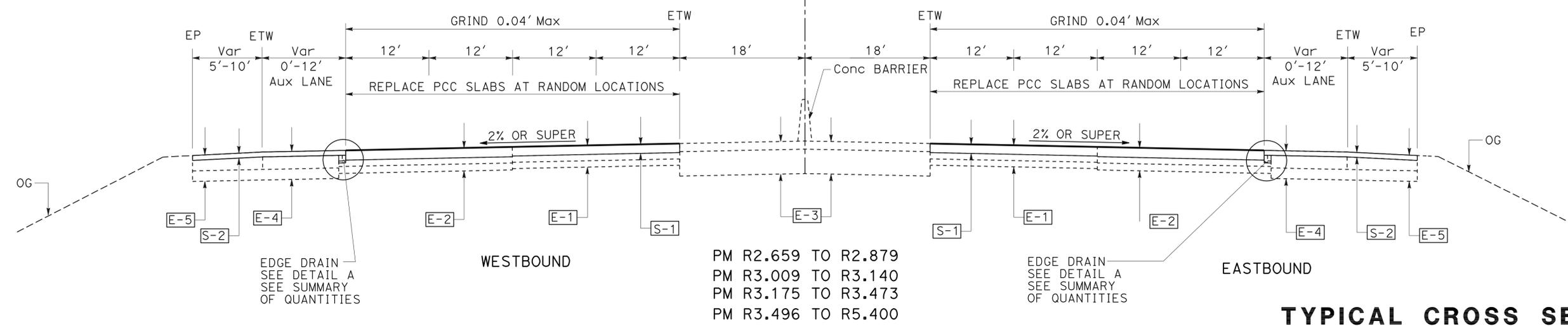
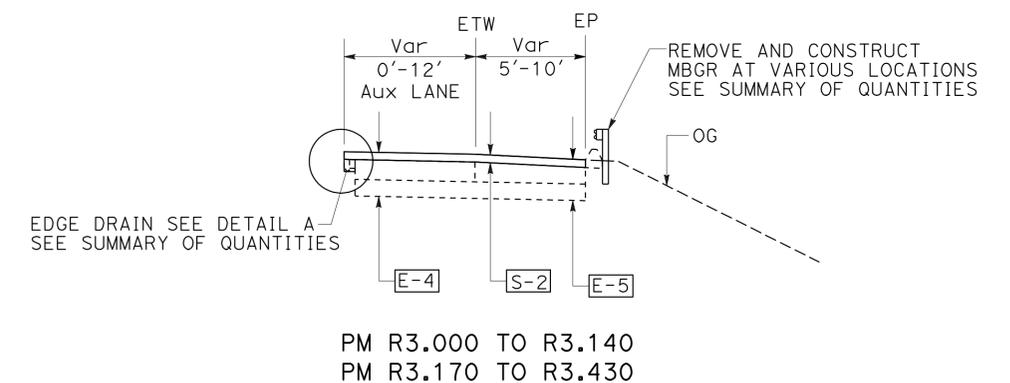
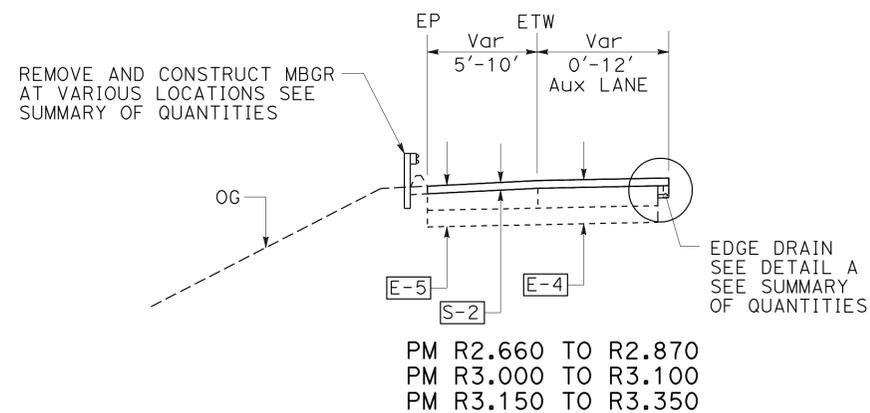
HMA-A      HOT MIX ASPHALT (TYPE A)  
 RHMA-O    RUBBERIZED HOT MIX ASPHALT (OPEN GRADED)  
 Imp MatI    IMPORTED MATERIAL (SHOULDER BACKING)  
 Aux LANE    AUXILIARY LANE

**EXISTING STRUCTURAL SECTIONS**

- E-1 Exist 0.65' PCC, 0.45' CTB, 0.50' AS
- E-2 Exist 0.70' PCC, 0.45' CTB, 0.50' AS
- E-3 Exist 0.70' AC, 2.10' AB
- E-4 Exist 0.35' AC, 0.90' CTB, 0.75' AS
- E-5 Exist 0.25' TO 0.35' AC, 0.75' TO 0.90' AB
- E-6 Exist 0.54' AC, 1.57' AB
- E-7 Exist 0.67' PCC, 0.33' CTB, 0.50' AS
- E-8 Exist 0.25' AC, 1.22' AB, 0.50' AS



**DETAIL A**



WESTBOUND  
 PM R2.659 TO R2.879  
 PM R3.009 TO R3.140  
 PM R3.175 TO R3.473  
 PM R3.496 TO R5.400

EASTBOUND  
 EDGE DRAIN SEE DETAIL A SEE SUMMARY OF QUANTITIES

**TYPICAL CROSS SECTIONS**

NO SCALE

X-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
 NORTH REGION OFFICE OF DESIGN, SOUTH DESIGN BRANCH S14  
 FUNCTIONAL SUPERVISOR NESAR FORMOLI  
 CALCULATED/DESIGNED BY  
 CHECKED BY  
 N. SELWAL A. IOBAL  
 REVISED BY DATE REVISED

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sac	50	R2.6/R5.4, R12.2/R14.2	3	71

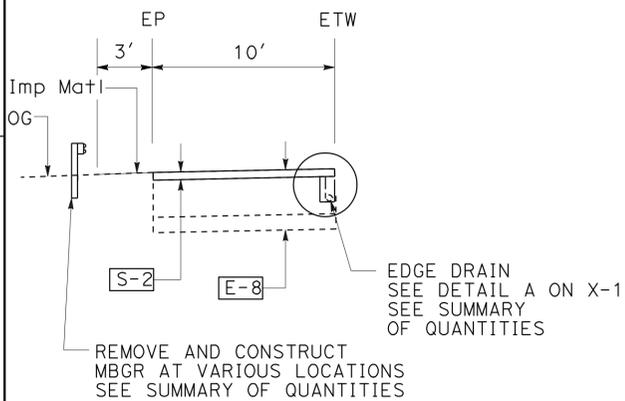
REGISTERED CIVIL ENGINEER	DATE
ARSHAD IQBAL	5-3-10
No. C62831	
Exp. 6-30-12	
CIVIL	

3-25-11  
PLANS APPROVAL DATE

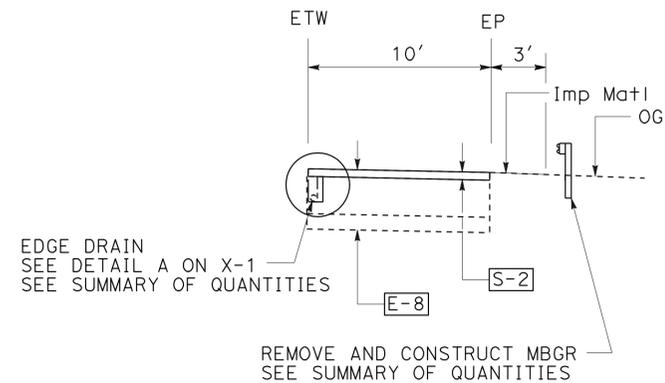
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

**NOTE:**

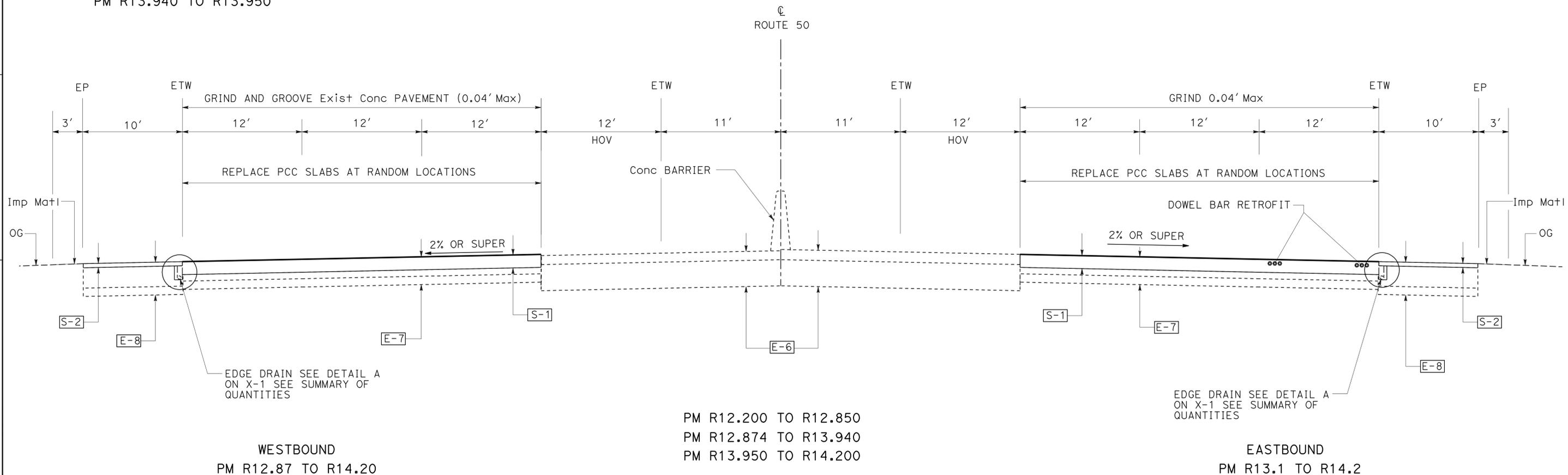
\* NO DOWEL BAR RETROFIT AND REPLACE PCC SLABS FROM PM 12.20 TO PM 12.87



PM R13.360 TO R13.370  
PM R13.940 TO R13.950



PM R13.940 TO R13.950



WESTBOUND  
PM R12.87 TO R14.20

PM R12.200 TO R12.850  
PM R12.874 TO R13.940  
PM R13.950 TO R14.200

EASTBOUND  
PM R13.1 TO R14.2

**ROUTE 50**

**TYPICAL CROSS SECTIONS**

NO SCALE

**X-2**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans**  
 NORTH REGION  
 OFFICE OF DESIGN, SOUTH  
 DESIGN BRANCH S14

FUNCTIONAL SUPERVISOR  
 NESAR FORMOLI

REVISOR BY  
 DATE REVISION

DESIGNED BY  
 CHECKED BY

N. SELWAL  
 A. IOBAL

- NOTES:**
- FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.
  - EXISTING UTILITY FACILITIES HAVE NOT BEEN PLOTTED ON THESE PLANS.
  - DIMENSIONS OF THE STRUCTURAL SECTIONS ARE SUBJECT TO THE TOLERANCES SPECIFIED IN THE STANDARD SPECIFICATIONS.
  - PAVE RHMA-O ONE FOOT BEYOND ETW EXCEPT PAVE RHMA-O TO EDGE OF PAVEMENT THROUGH HIGH SIDE OF SUPER, AND PAVE RHMA-O ONE FOOT AWAY FROM DIKE WHERE DIKE IS PRESENT.

- LEGEND:**
- 0.25' HMA (TYPE A)
  - REPLACE AC SURFACING
  - COLD PLANE AC PAVEMENT
  - 0.10' RHMA-O
  - ASPHALTIC EMULSION (FOG SEAL COAT)
  - PCC SLAB
  - ROADWAY EXCAVATION
  - OVERSIDE DRAIN (OSD)
  - CRACK TREATMENT

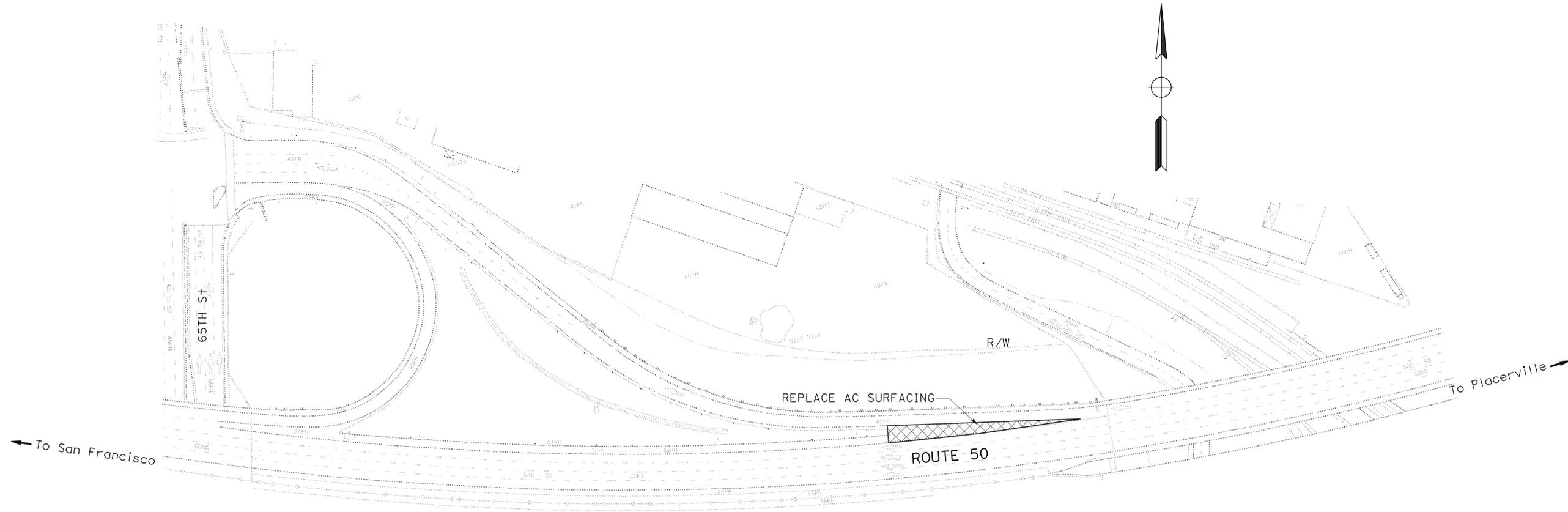
**EXISTING RAMP STRUCTURAL SECTIONS (ER)**

- ER-1: 0.083' OGAC, 0.41' AC, 0.74' CTB, 1.05' AS
- ER-2: 0.083' OGAC, 0.41' AC, 0.74' AB, 1.05' AS
- ER-3: 0.083' OGAC, 0.64' AC, 1.08' AB
- ER-4: 0.64' AC, 1.08' AB
- ER-5: 0.41' AC, 0.74' CTB, 1.05' AS
- ER-6: 0.41' AC, 0.74' AB, 1.05' AS
- ER-7: 0.083' OGAC, 0.410' AC, 1.805' AB
- ER-8: 0.083' OGAC, 0.541' AC, 0.837' AB
- ER-9: 0.541' AC, 0.837' AB
- ER-10: 0.541' AC, Var 0.900'-1.132' AB
- ER-11: 0.083' OGAC, 0.541' AC, 1.132' AB

- ABBREVIATIONS:**
- HMA-A: HOT MIX ASPHALT (TYPE A)
  - RHMA-O: RUBBERIZED HOT MIX ASPHALT (OPEN GRADED)
  - Imp Mat+I: IMPORTED MATERIAL (SHOULDER BACKING)
  - CRS: CURB RAMP DETECTABLE WARNING SURFACE

**RAMP STRUCTURAL SECTIONS (RS)**

- RS-1: 0.10' RHMA-O, COLD PLANE 0.083' OGAC
- RS-2: 0.25' HMA-A, COLD PLANE 0.25' AC
- RS-3: 0.10' RHMA-O, 0.25' HMA-A, COLD PLANE 0.083' OGAC, COLD PLANE 0.25' AC
- RS-4: 0.35' HMA-A, COLD PLANE 0.083' OGAC, COLD PLANE 0.25' AC



DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sac	50	R2.6/R5.4, R12.2/R14.2	4	71

REGISTERED CIVIL ENGINEER  
 5-3-10 DATE  
 3-25-11 PLANS APPROVAL DATE  
 ARSHAD IOBAL  
 No. C62831  
 Exp. 6-30-12  
 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.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sac	50	R2.6/R5.4, R12.2/R14.2	5	71

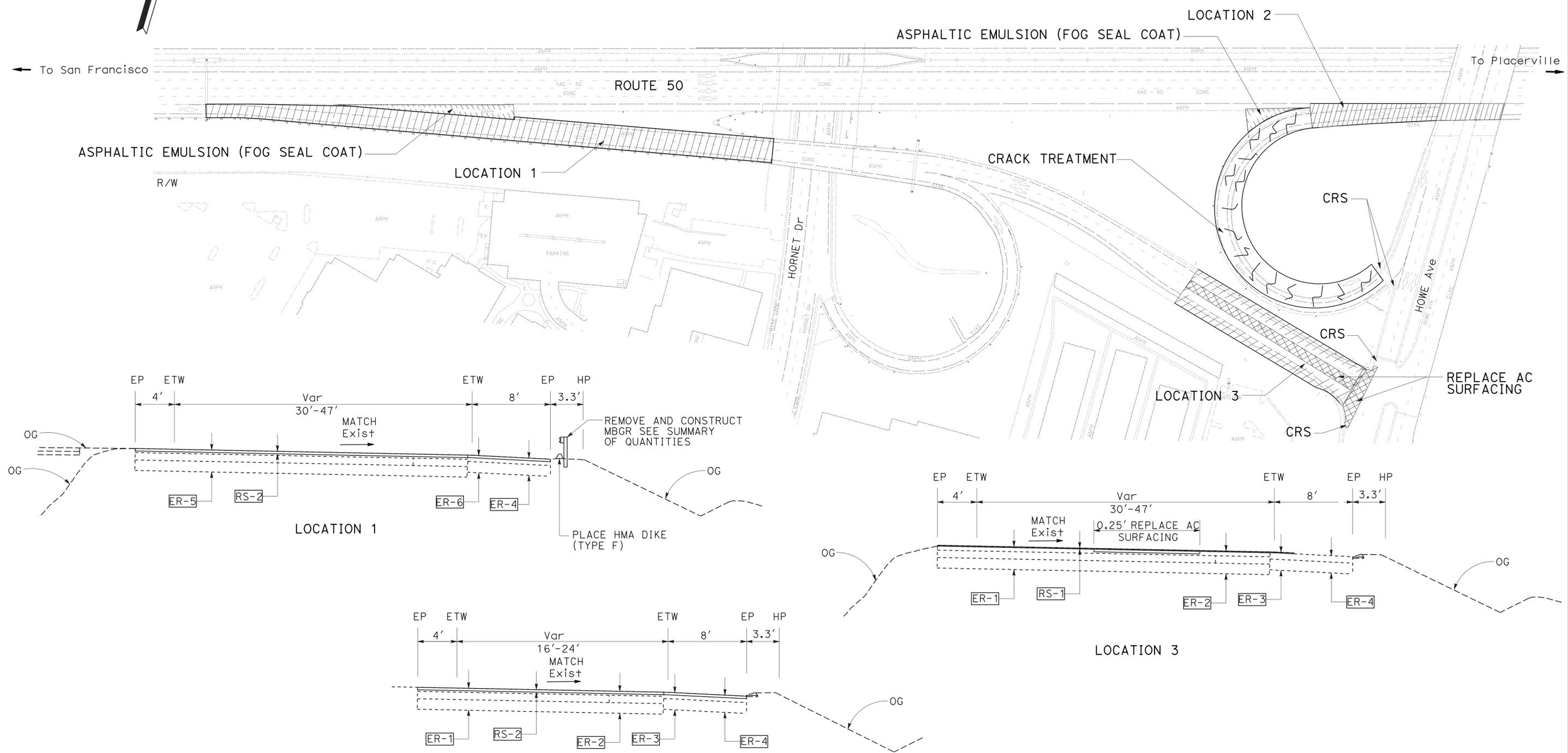
REGISTERED CIVIL ENGINEER	DATE
ARSHAD IQBAL	5-3-10
No. C62831	
Exp. 6-30-12	
CIVIL	

3-25-11  
PLANS APPROVAL DATE

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**NOTES:**

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



STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
 NORTH REGION  
 OFFICE OF DESIGN, SOUTH  
 DESIGN BRANCH S14

FUNCTIONAL SUPERVISOR  
 NESAR FORMOLI

DESIGNED BY  
 N. SELWAL

CHECKED BY  
 A. TOBAL

REVISOR  
 DATE

REVISION  
 DATE

**CONSTRUCTION DETAILS**  
 NO SCALE  
**C-2**

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sac	50	R2.6/R5.4, R12.2/R14.2	6	71

REGISTERED CIVIL ENGINEER	DATE
<i>Arshad Iqbal</i>	5-3-10
PLANS APPROVAL DATE	
	3-25-11

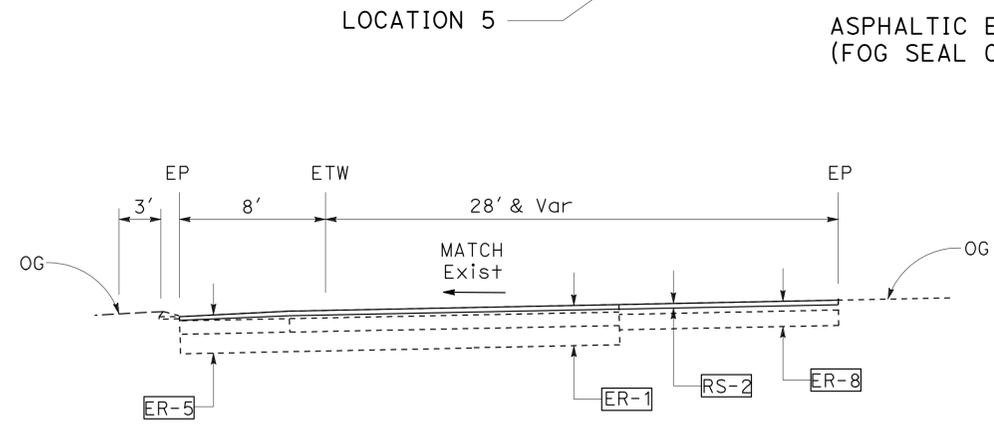
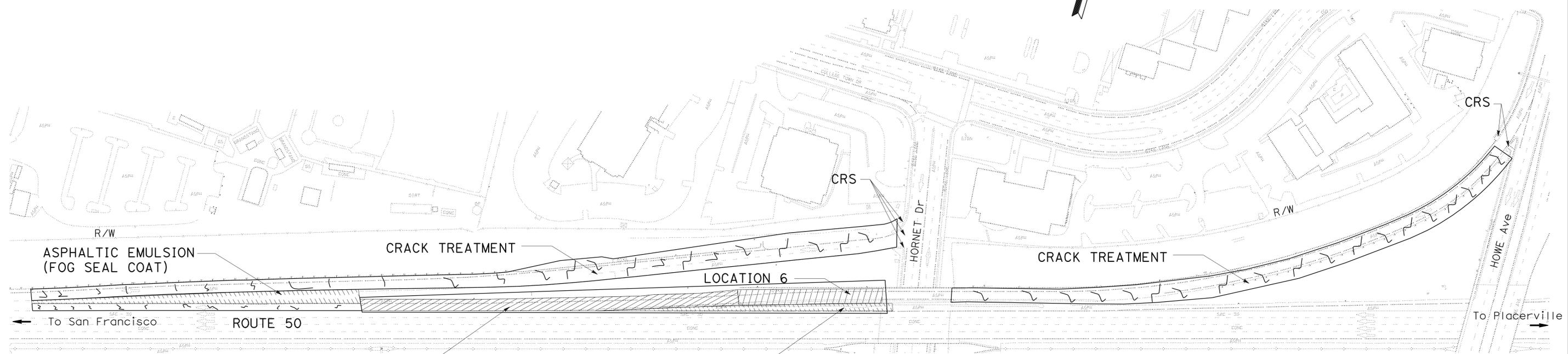
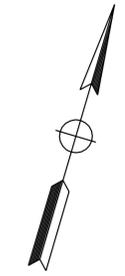
  

REGISTERED PROFESSIONAL ENGINEER
ARSHAD IQBAL
No. C62831
Exp. 6-30-12
CIVIL
STATE OF CALIFORNIA

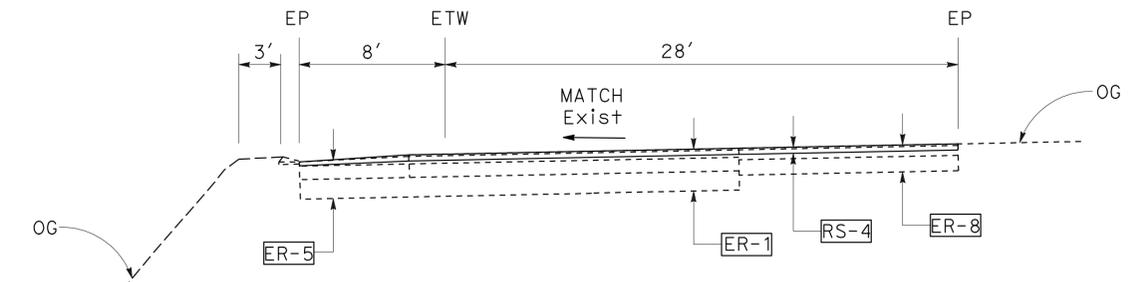
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**NOTES:**

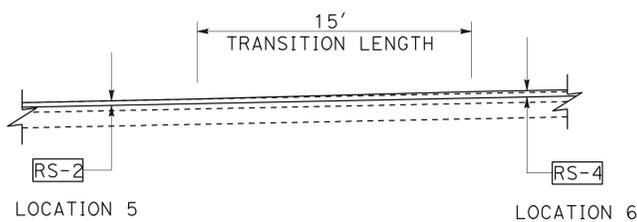
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LOCATION 5



LOCATION 6



CONFORM DETAIL  
(LOCATION 6 TO LOCATION 5)

**CONSTRUCTION DETAILS**

NO SCALE

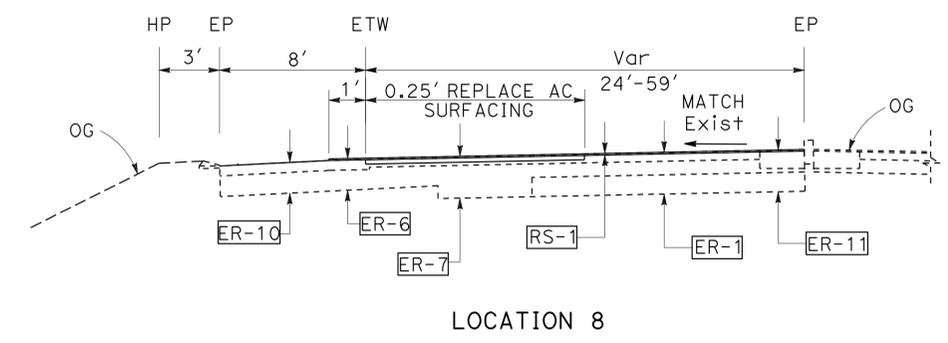
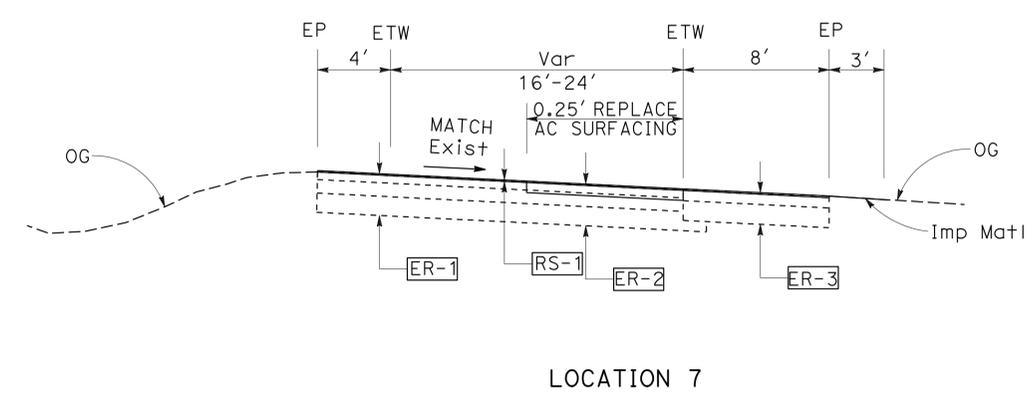
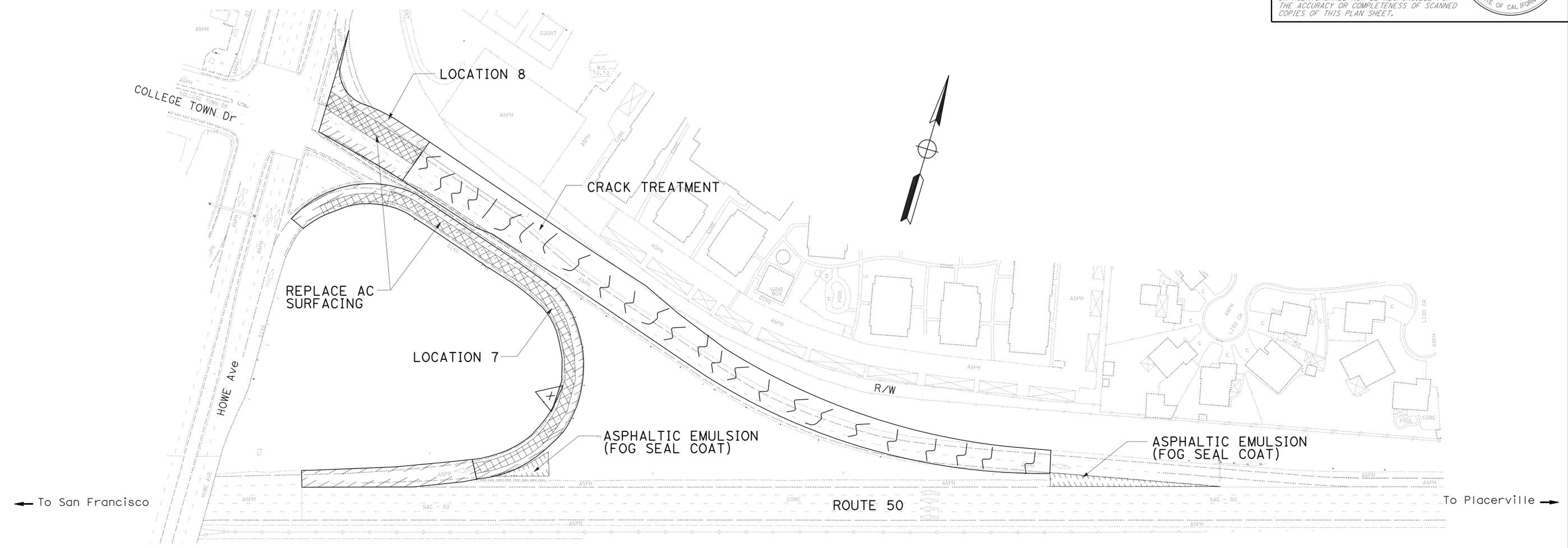
**C-3**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
 NORTH REGION  
 OFFICE OF DESIGN, SOUTH  
 DESIGN BRANCH S14  
 FUNCTIONAL SUPERVISOR  
 NESAR FORMOLI  
 CALCULATED/DESIGNED BY  
 CHECKED BY  
 N. SELWAL  
 A. IOBAL  
 REVISED BY  
 DATE REVISED

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sac	50	R2.6/R5.4, R12.2/R14.2	7	71
			5-3-10	DATE	
REGISTERED CIVIL ENGINEER			ARSHAD IQBAL		
3-25-11			No. C62831		
PLANS APPROVAL DATE			Exp. 6-30-12		
CIVIL					
<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:**
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STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
 NORTH REGION  
 OFFICE OF DESIGN, SOUTH DESIGN BRANCH S14  
 N. SELWAL  
 A. IOBAL  
 REVISOR BY  
 DATE REVISOR  
 CALCULATED/DESIGNED BY  
 CHECKED BY  
 FUNCTIONAL SUPERVISOR  
 NESAR FORMOLI  
 C-4



**CONSTRUCTION DETAILS**  
NO SCALE



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sac	50	R2.6/R5.4, R12.2/R14.2	9	71

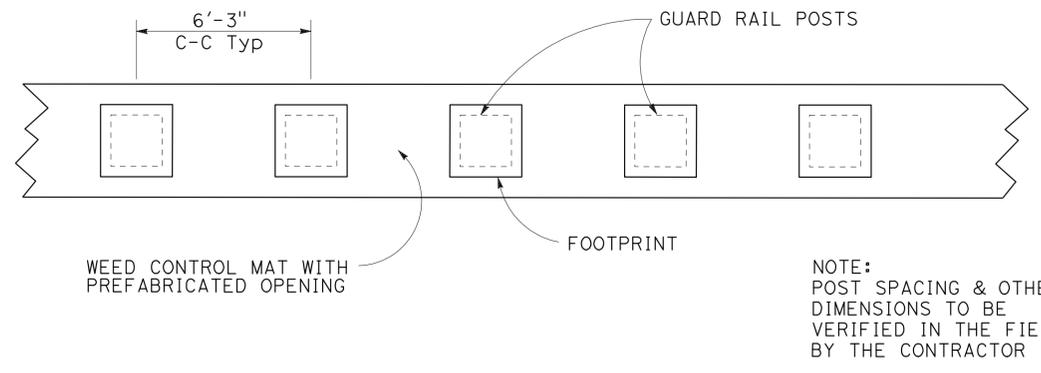
  

REGISTERED CIVIL ENGINEER	DATE
<i>Arshad Iqbal</i>	5-3-10
PLANS APPROVAL DATE	
3-25-11	

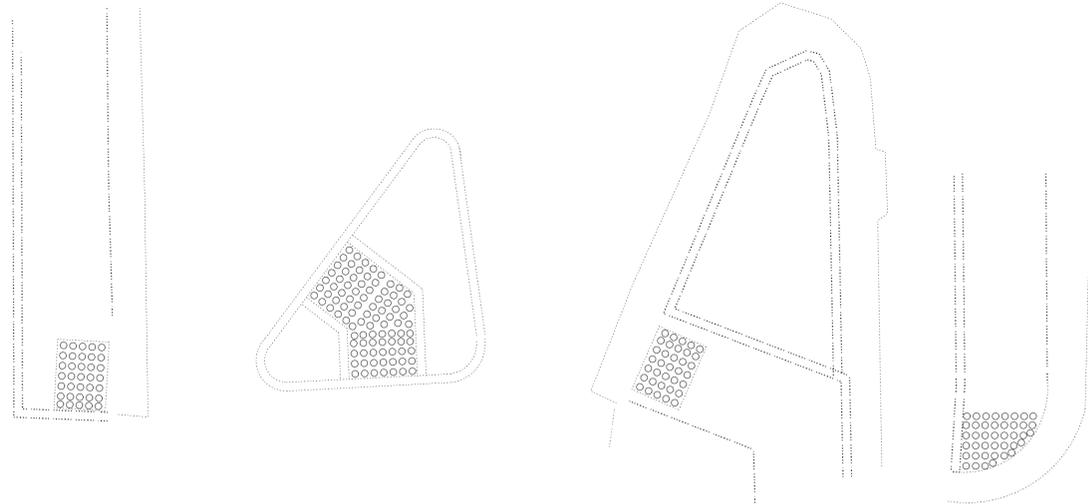
REGISTERED PROFESSIONAL ENGINEER
ARSHAD IQBAL
No. C62831
Exp. 6-30-12
CIVIL
STATE OF CALIFORNIA

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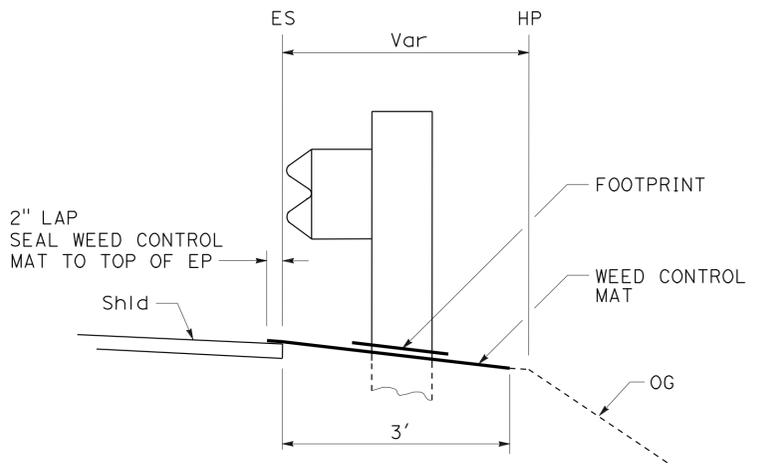


PLAN

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

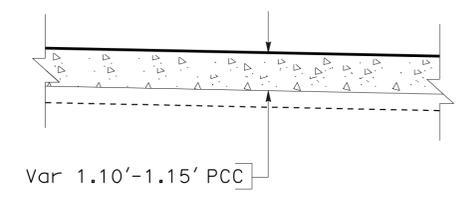


**CURB RAMP DETECTABLE WARNING SURFACE  
TYPICAL INSTALLATION AT VARIOUS LOCATIONS**

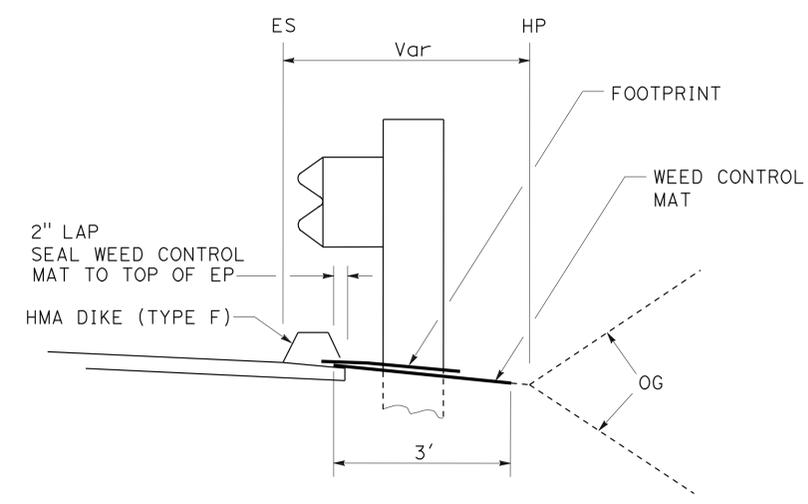
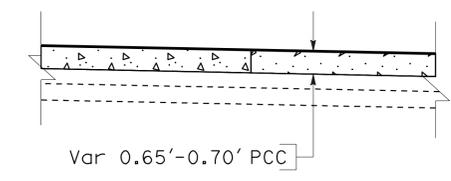


**GUARD RAILING WEED CONTROL MAT (FIBER)  
WITHOUT DIKE**

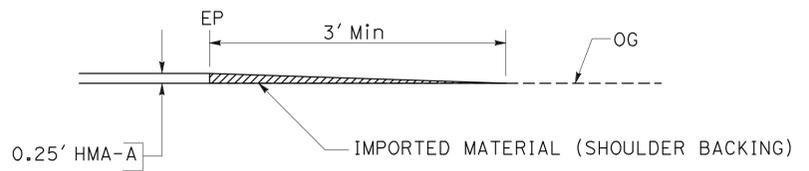
**REPLACE PCC SLABS AT RANDOM LOCATIONS  
WITH FAILED CTB**



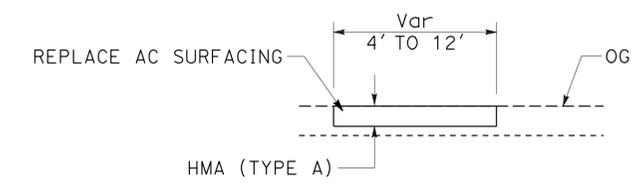
**REPLACE PCC SLABS AT RANDOM LOCATIONS  
WITHOUT FAILED CTB**



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



**SHOULDER BACKING CONSTRUCTION**



**REPLACE ASPHALT CONCRETE SURFACING**  
NOTE: SEE SUMMARY OF QUANTITIES FOR DEPTH AND LOCATIONS.

**CONSTRUCTION DETAILS  
NO SCALE**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
NORTH REGION OFFICE OF DESIGN, SOUTH DESIGN BRANCH S14  
FUNCTIONAL SUPERVISOR: NESAR FORMOLI  
DESIGNED BY: N. SELWAL  
CHECKED BY: A. IOBAL  
REVISOR: N. SELWAL  
DATE: 7/2/2010

USERNAME => s113559  
DGN FILE => 0300001080ga006.dgn

RELATIVE BORDER SCALE IS IN INCHES  
0 1 2 3

UNIT 0334

PROJECT NUMBER & PHASE

03000010801

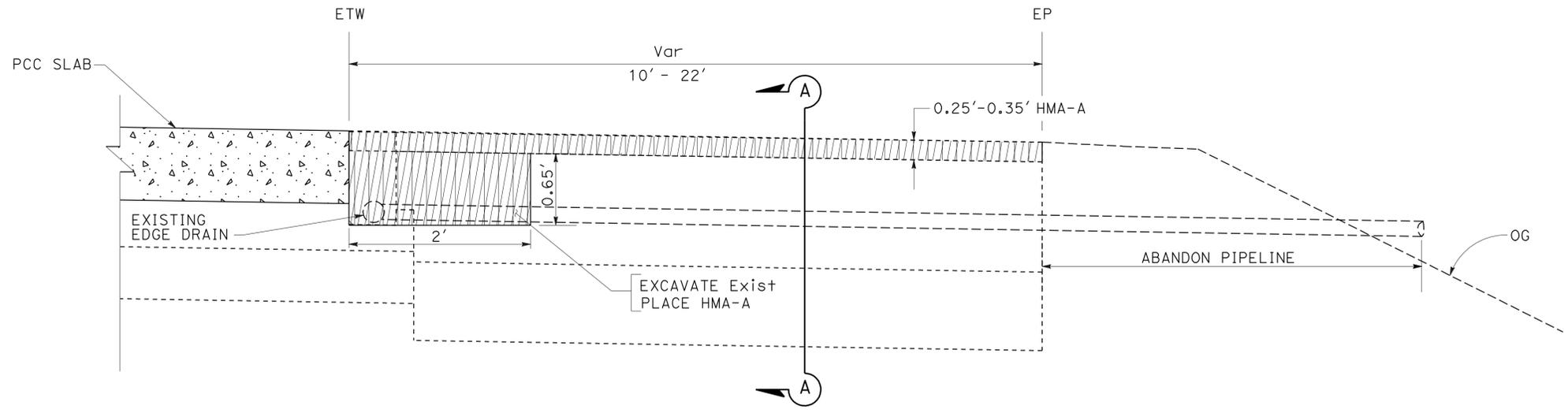
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sac	50	R2.6/R5.4, R12.2/R14.2	10	71

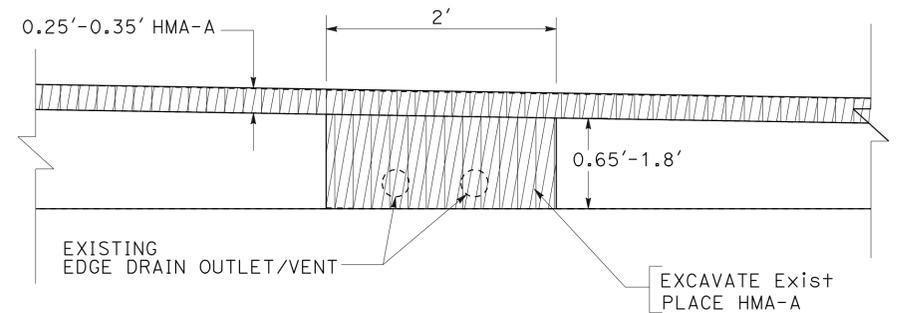
<i>Arshad Iqbal</i>	5-3-10
REGISTERED CIVIL ENGINEER	DATE
3-25-11	
PLANS APPROVAL DATE	

REGISTERED PROFESSIONAL ENGINEER  
**ARSHAD IQBAL**  
 No. C62831  
 Exp. 6-30-12  
 CIVIL  
 STATE OF CALIFORNIA

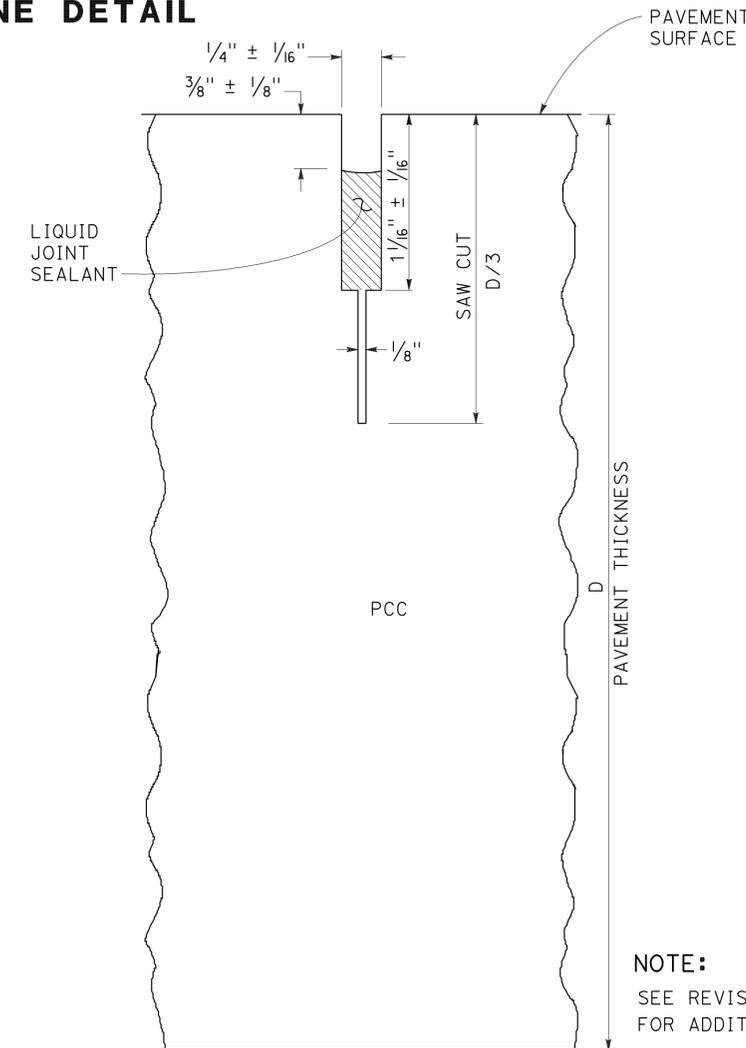
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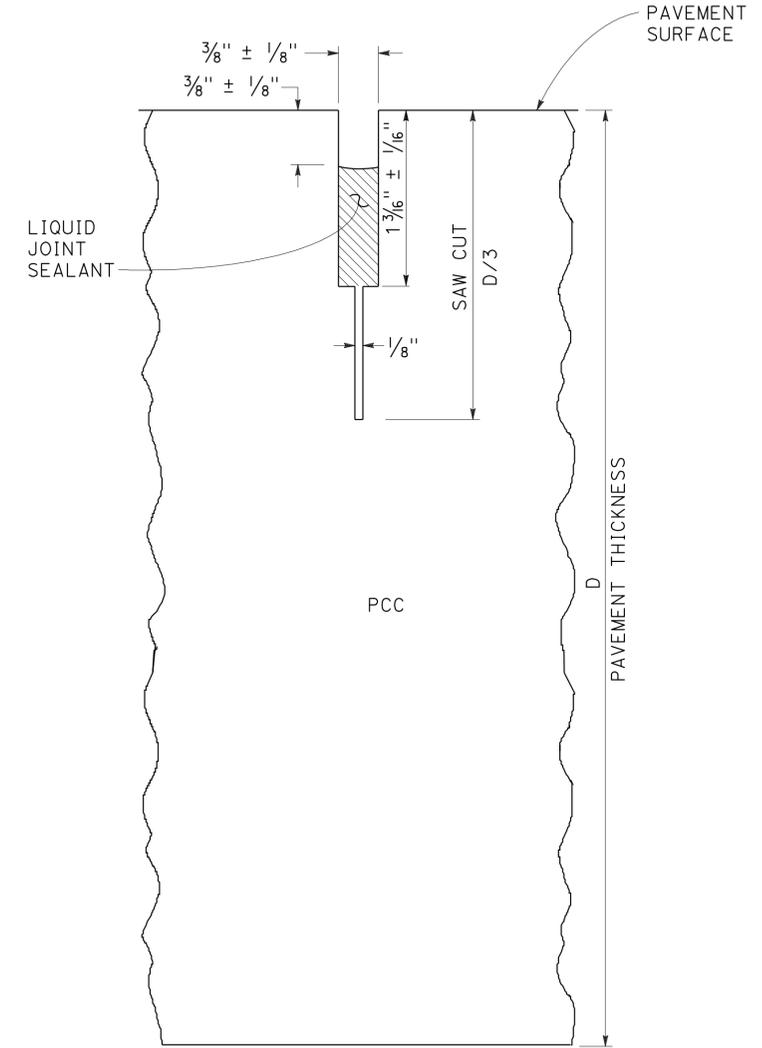
**ABANDON PIPELINE DETAIL**



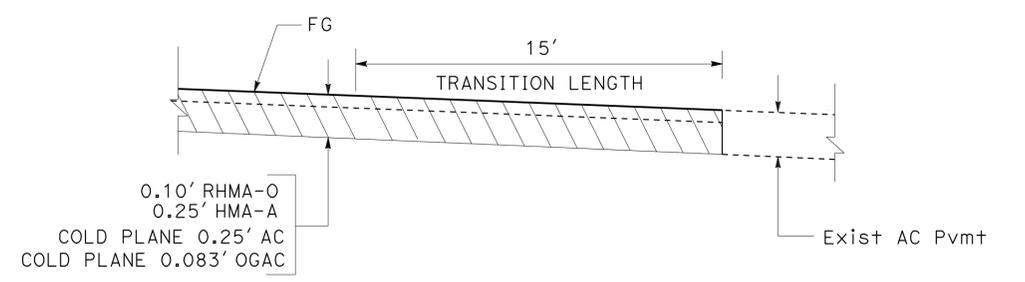
SECTION A-A



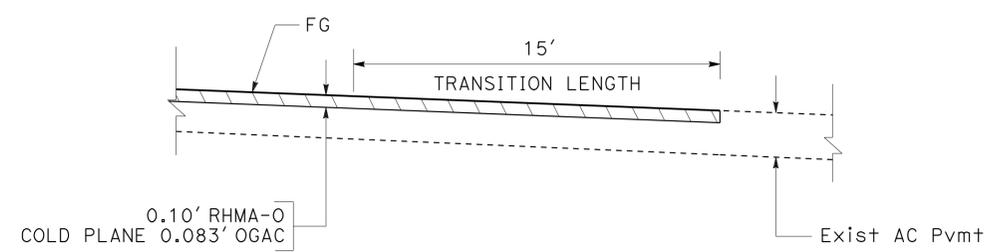
**JOINT SEAL DETAIL**  
LIQUID SEALANT  
TYPE A2  
LONGITUDINAL WEAKENED PLANE JOINTS



**JOINT SEAL DETAIL**  
LIQUID SEALANT  
TYPE A1  
TRANSVERSE WEAKENED PLANE JOINTS



**CONFORM DETAILS**  
(RHMA-O/HMA-A TO HMA-A)



**TRANSVERSE JOINT RHMA-O TAPER**

NOTE:  
SEE REVISED STANDARD PLANS RSP P20  
FOR ADDITIONAL INFORMATION

**CONSTRUCTION DETAILS**

NO SCALE

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
 NORTH REGION  
 OFFICE OF DESIGN, SOUTH  
 DESIGN BRANCH S14  
 FUNCTIONAL SUPERVISOR  
 NESAR FORMOLI  
 CALCULATED/DESIGNED BY  
 CHECKED BY  
 N. SELWAL  
 A. IOBAL  
 REVISED BY  
 DATE REVISD

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sac	50	R2.6/R5.4, R12.2/R14.2	11	71

5-3-10  
 REGISTERED CIVIL ENGINEER DATE  
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 Exp. 6-30-12  
 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:**

- EXACT SIGN LOCATIONS TO BE DETERMINED BY THE ENGINEER.
- FOR ADDITIONAL CONSTRUCTION AREA SIGNS, SEE DETOUR PLANS.

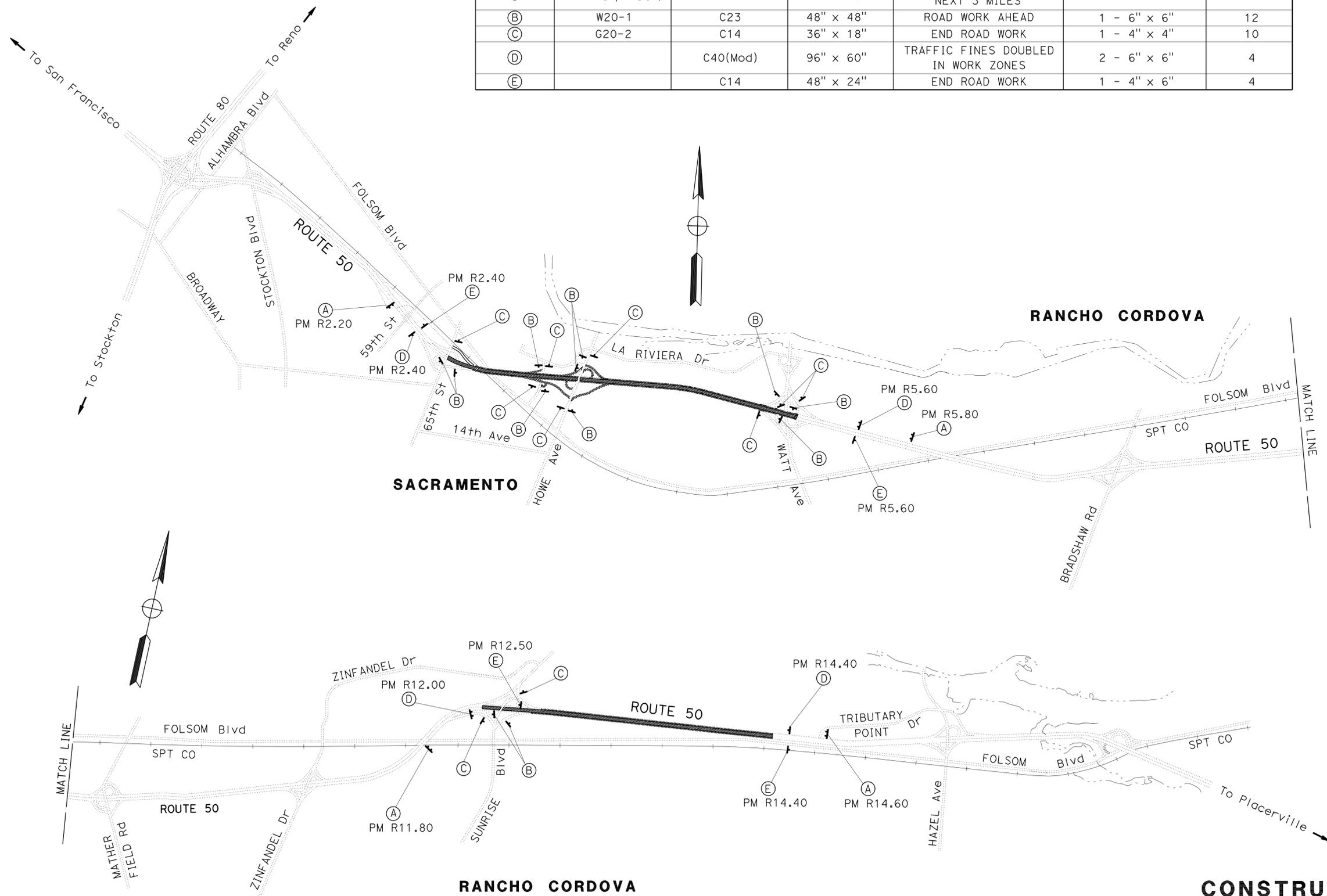
**STATIONARY MOUNTED CONSTRUCTION AREA SIGNS**

SIGN LETTER	SIGN CODE		PANEL SIZE	SIGN MESSAGE	NUMBER OF POST AND SIZE	NUMBER OF SIGNS
	FEDERAL	CALIFORNIA				
(A)	G20-1 [Spec] (3)		84" x 42"	ROAD WORK NEXT 3 MILES	2 - 4" x 6"	4
(B)	W20-1	C23	48" x 48"	ROAD WORK AHEAD	1 - 6" x 6"	12
(C)	G20-2	C14	36" x 18"	END ROAD WORK	1 - 4" x 4"	10
(D)		C40(Mod)	96" x 60"	TRAFFIC FINES DOUBLED IN WORK ZONES	2 - 6" x 6"	4
(E)		C14	48" x 24"	END ROAD WORK	1 - 4" x 6"	4

**SIGN DETAILS**

- (A) G20-1 [Spec] (3)  
 ROAD WORK NEXT 3 MILES  
 8" C SERIES LETTERS  
 84"X42"  
 RETROREFLECTIVE ORANGE BACKGROUND WITH BLACK LEGEND AND BORDER.
- (D) C40(Mod) (CA)  
 TRAFFIC FINES DOUBLED IN WORK ZONES  
 8" D SERIES LETTERS  
 96"X60"  
 RETROREFLECTIVE WHITE BACKGROUND WITH BLACK LEGEND AND BORDER.

REVISIONS:  
 1. N. SELWAL  
 2. A. IOBAL  
 3. N. SELWAL  
 4. A. IOBAL  
 5. N. SELWAL  
 6. A. IOBAL  
 7. N. SELWAL  
 8. A. IOBAL  
 9. N. SELWAL  
 10. A. IOBAL  
 11. N. SELWAL  
 12. A. IOBAL  
 13. N. SELWAL  
 14. A. IOBAL  
 15. N. SELWAL  
 16. A. IOBAL  
 17. N. SELWAL  
 18. A. IOBAL  
 19. N. SELWAL  
 20. A. IOBAL  
 21. N. SELWAL  
 22. A. IOBAL  
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 95. N. SELWAL  
 96. A. IOBAL  
 97. N. SELWAL  
 98. A. IOBAL  
 99. N. SELWAL  
 100. A. IOBAL



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

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans**  
 NORTH REGION  
 OFFICE OF DESIGN, SOUTH  
 DESIGN BRANCH S14

FUNCTIONAL SUPERVISOR  
 NESAR FORMOLI

DESIGNED BY  
 J. COWELL

CHECKED BY  
 A. IOBAL

REVISOR  
 DATE

DATE REVISION

### CONSTRUCTION AREA SIGNS

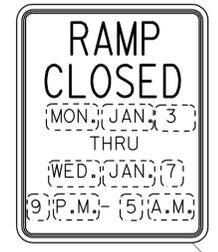
SIGN CODE		PANEL SIZE	SIGN MESSAGE	NUMBER OF SIGNS
FEDERAL	CALIFORNIA			
M4-10L	C5(L+)	48" X 18"	DETOUR (←)	1
M4-10R	C5(R+)	48" X 18"	DETOUR (→)	5
	SC3	48" X 18"	DETOUR (↑)	3
	SC6-4	48" X 60"	SEE DETAIL & NOTE 1	3

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sac	50	R2.6/R5.4, R12.2/R14.2	12	71

REGISTERED CIVIL ENGINEER  
 5-3-10 DATE  
 3-25-11 PLANS APPROVAL DATE

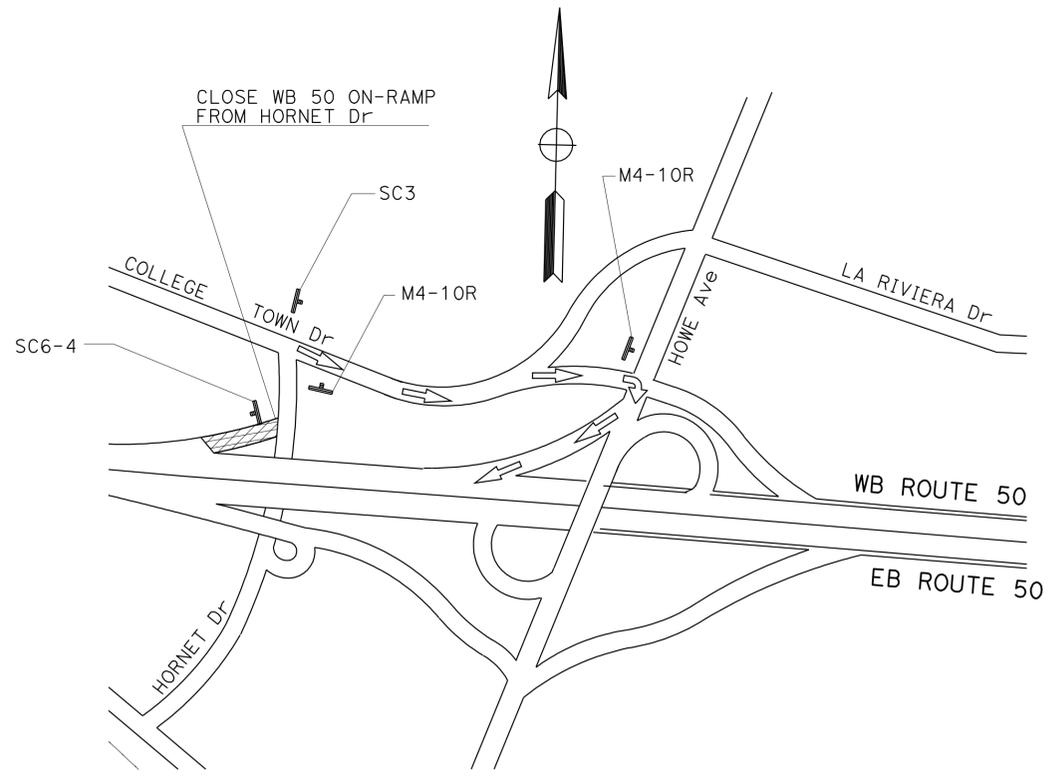
ARSHAD IOBAL  
 No. C62831  
 Exp. 6-30-12  
 CIVIL

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.

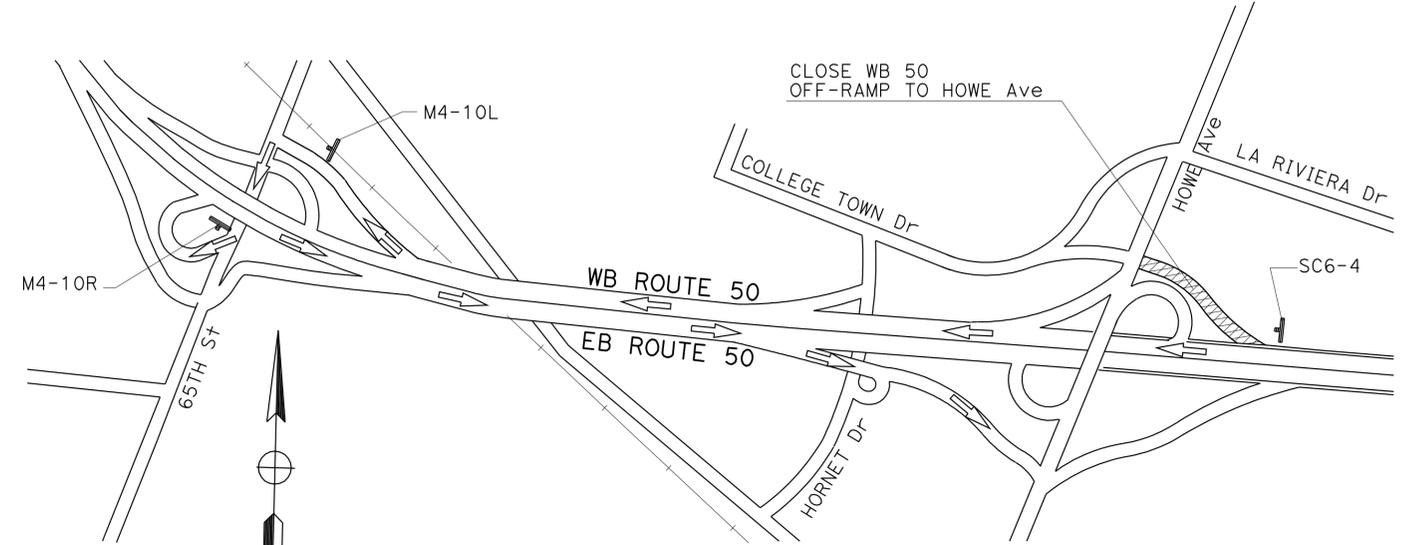


SIGN DETAIL FOR SC6-4(CA)

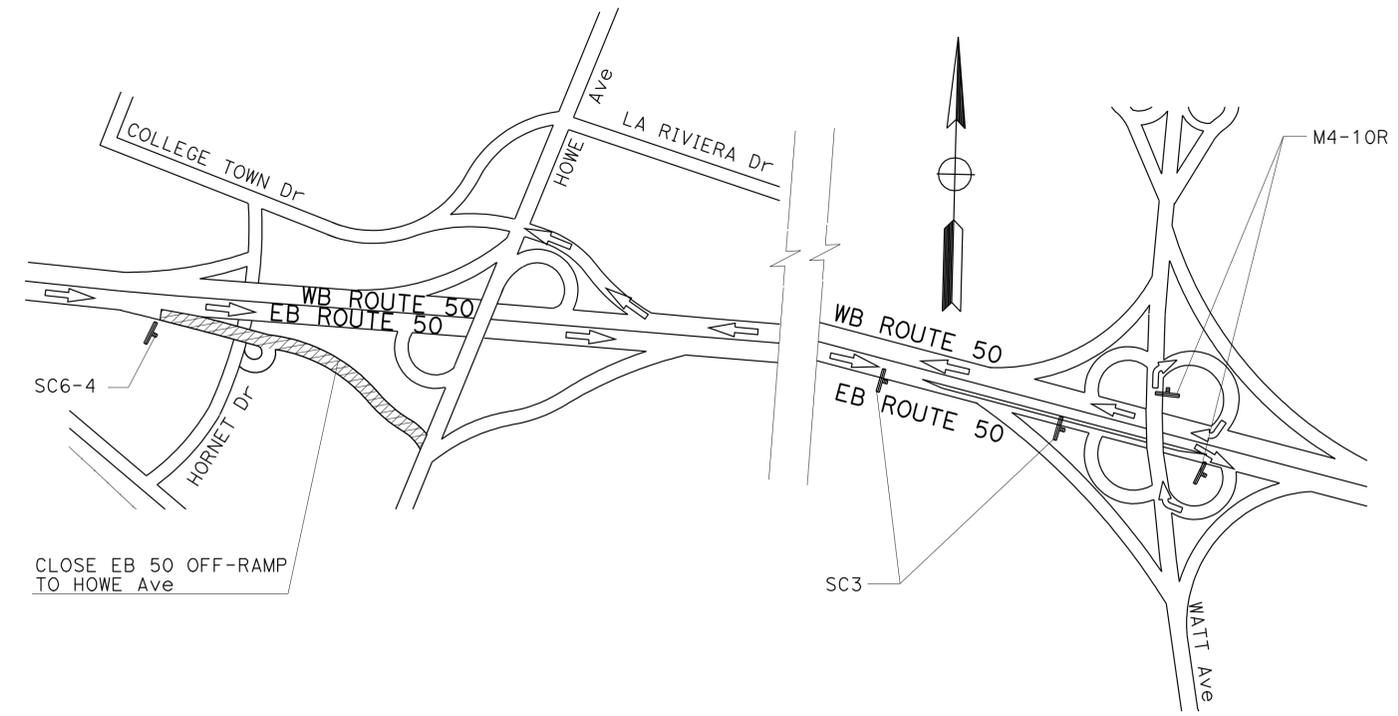
NOTE:  
 1. SEE SPECIAL PROVISIONS FOR APPROPRIATE DAY OF THE WEEK, DATE AND TIMES.



WB 50 ON-RAMP FROM HORNET DRIVE



WB 50 OFF-RAMP TO HOWE AVENUE



EB 50 OFF-RAMP TO HOWE AVENUE

### DETOUR PLAN NO SCALE

DE-1

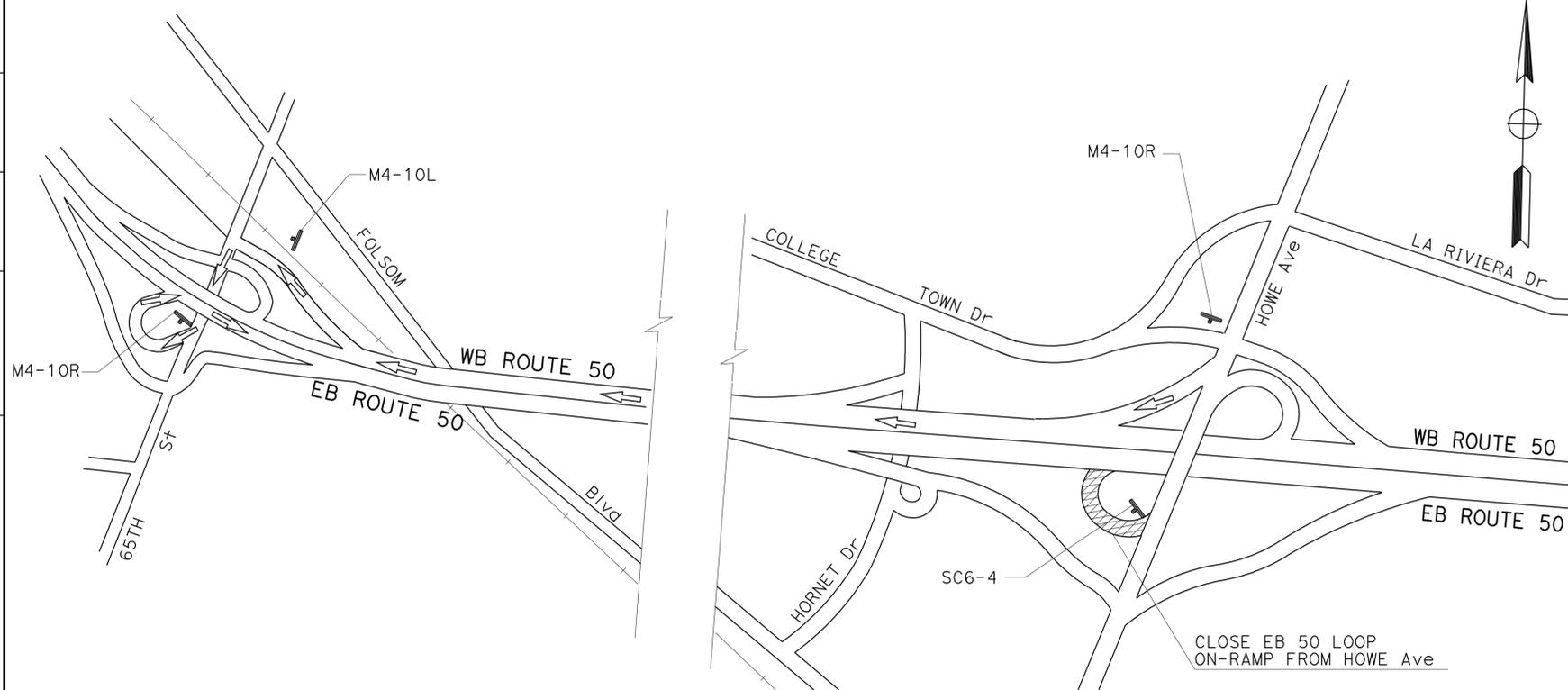
THIS PLAN ACCURATE FOR DETOUR CONSTRUCTION WORK ONLY

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sac	50	R2.6/R5.4, R12.2/R14.2	13	71

5-3-10  
 REGISTERED CIVIL ENGINEER DATE  
 3-25-11  
 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER  
 ARSHAD IQBAL  
 No. C62831  
 Exp. 6-30-12  
 CIVIL  
 STATE OF CALIFORNIA

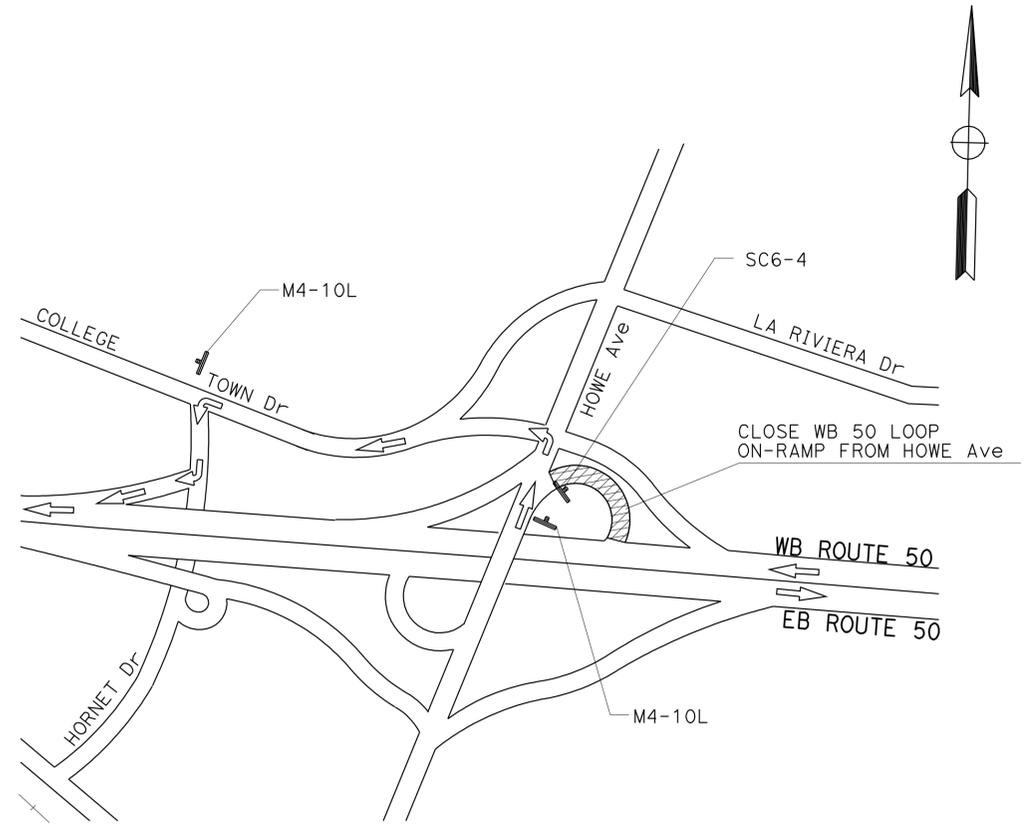
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



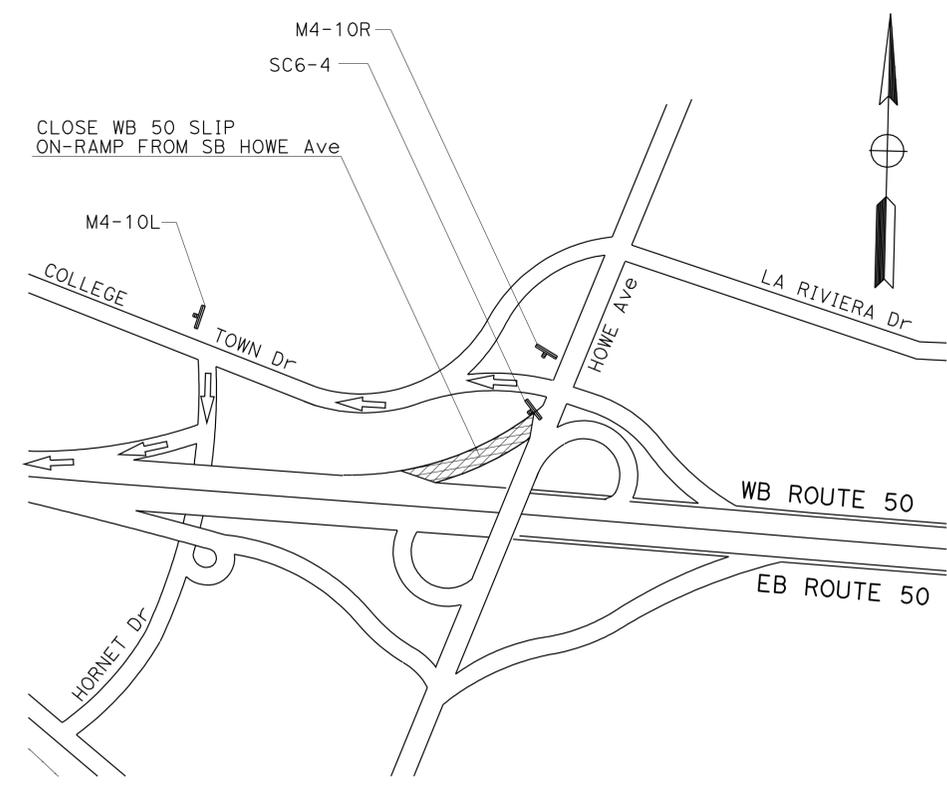
**EB 50 LOOP ON-RAMP FROM HOWE AVENUE**

**CONSTRUCTION AREA SIGNS**

SIGN CODE		PANEL SIZE	SIGN MESSAGE	NUMBER OF SIGNS
FEDERAL	CALIFORNIA			
M4-10L	C5(L+)	48" X 18"	DETOUR (←)	4
M4-10R	C5(R+)	48" X 18"	DETOUR (→)	3
	SC6-4	48" X 60"	SEE DETAIL & NOTE 1, Sht DE-1	3



**WB 50 LOOP ON-RAMP FROM HOWE AVENUE**



**WB 50 SLIP ON-RAMP FROM HOWE AVENUE**

**DETOUR PLAN**  
NO SCALE **DE-2**

THIS PLAN ACCURATE FOR DETOUR CONSTRUCTION WORK ONLY



STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
 NORTH REGION  
 OFFICE OF DESIGN, SOUTH  
 DESIGN BRANCH S14  
 FUNCTIONAL SUPERVISOR  
 NESAR FORMOLI  
 J. COWELL  
 A. IOBAL  
 REVISOR  
 DATE REVISOR  
 CALCULATED-DESIGNED BY  
 CHECKED BY  
 USERNAME => s113559  
 DGN FILE => 0300001080mg002.dgn

BORDER LAST REVISED 7/2/2010

UNIT 0334

PROJECT NUMBER & PHASE

03000010801

LAST REVISION  
 3-22-11  
 DATE PLOTTED => 19-APR-2011  
 TIME PLOTTED => 11:47

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sac	50	R2.6/R5.4, R12.2/R14.2	14	71

5-3-10  
 REGISTERED CIVIL ENGINEER DATE

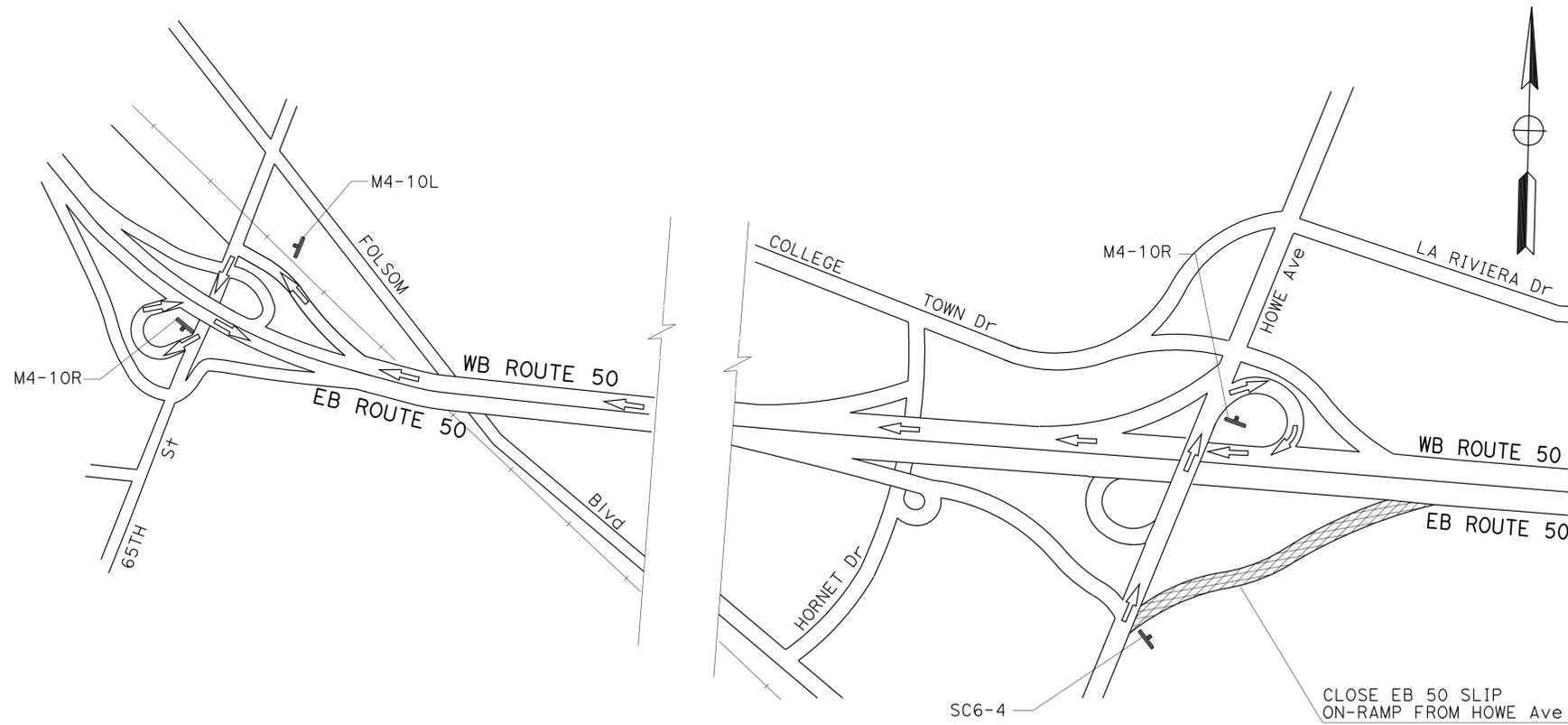
3-25-11  
 PLANS APPROVAL DATE

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

REGISTERED PROFESSIONAL ENGINEER  
 ARSHAD IQBAL  
 No. C62831  
 Exp. 6-30-12  
 CIVIL  
 STATE OF CALIFORNIA

### CONSTRUCTION AREA SIGNS

SIGN CODE		PANEL SIZE	SIGN MESSAGE	NUMBER OF SIGNS
FEDERAL	CALIFORNIA			
M4-10L	C5(L+)	48" X 18"	DETOUR (←)	1
M4-10R	C5(R+)	48" X 18"	DETOUR (→)	2
	SC6-4	48" X 60"	SEE DETAIL & NOTE 1, Sht DE-1	1



### EB 50 SLIP ON-RAMP FROM HOWE AVENUE

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
 NORTH REGION  
 OFFICE OF DESIGN, SOUTH  
 DESIGN BRANCH S14  
 Caltrans®  
 FUNCTIONAL SUPERVISOR  
 NESAR FORMOLI  
 J. COWELL  
 A. IOBAL  
 REVISIONS: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sac	50	R2.6/R5.4, R12.2/R14.2	15	71

5-3-10  
 REGISTERED CIVIL ENGINEER DATE  
 3-25-11  
 PLANS APPROVAL DATE

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

### PAVEMENT MARKINGS

LOCATION/ DESCRIPTION	THERMOPLASTIC PAVEMENT MARKING											
	ARROWS AND SYMBOLS							WORDS			LIMIT LINE	CROSSWALK
	TYPE I (24'-0")	TYPE II (L+)	TYPE II (R+)	TYPE III (L+)	TYPE III (R+)	TYPE V	DIAMOND SYMBOL	FWY ONLY	CAR POOL LANE	SIGNAL AHEAD		
	SQFT							SQFT			SQFT	
EB 50 OFF-RAMP TO HOWE Ave				168	168	66				126		170
EB 50 LOOP ON-RAMP FROM HOWE Ave	31										28	
EB 50 SLIP ON-RAMP FROM HOWE Ave	31						55	128			12	
WB 50 OFF-RAMP TO HOWE Ave		135	135	210	84	66				126		
WB 50 LOOP ON-RAMP FROM HOWE Ave	31						33	64			16	
WB 50 SLIP ON-RAMP FROM HOWE Ave	62						33	38	64		12	
WB 50 ON-RAMP FROM HORNET Dr	62						33	64			14	
<b>SUBTOTAL</b>	217	135	135	378	252	132	154	38	320	252	82	170
<b>TOTAL</b>	2,265											

### PAVEMENT MARKERS AND TRAFFIC LINES

LOCATION PM/DESCRIPTION	4" THERMOPLASTIC TRAFFIC STRIPE						8" THERMOPLASTIC TRAFFIC STRIPE					PAVEMENT MARKER			
	BROKEN 6-1	BROKEN 17-7	BROKEN 36-12		SOLID		SOLID			BROKEN 12-3	RETROREFLECTIVE				
	DETAIL No.				DETAIL No.		DETAIL No.					TYPE			
	40	9	12	14A	25	25A	27B	36	36A	38	38B	37	C	G	H
	LF				LF		LF					EA			
EB 50, PM 2.64 TO 5.39			43,550	2,160	14,520		14,500				420	3,660	64	1,182	304
EB 50, PM 12.20 TO 14.20		900	27,770				9,256							580	
WB 50, PM 2.54 TO 5.39			46,880	1,738	14,520		14,500				350	4,580	76	1,258	304
WB 50, PM 12.20 TO 14.20			20,050	1,152			6,579					2,520	40	418	
EB 50 OFF-RAMP TO HOWE Ave		2,150				1,440	1,600	200			840			134	60
EB 50 LOOP ON-RAMP FROM HOWE Ave		430				700	1,070	200	270	900				10	30
EB 50 SLIP ON-RAMP FROM HOWE Ave	200	220				1,330	1,740		300	785				66	56
WB 50 OFF-RAMP TO HOWE Ave		550				1,240	1,250	520		1,200	700			140	54
WB 50 LOOP ON-RAMP FROM HOWE Ave						770	750		600	580				40	34
WB 50 SLIP ON-RAMP FROM HOWE Ave						640	770		630	690				42	28
WB 50 ON-RAMP FROM HORNET Dr	90					1,200	1,200		1,050	400	200			58	52
<b>SUBTOTAL</b>	290	4,250	138,250	5,050	29,040	7,320	53,215	920	2,850	4,555	2,510	10,760	180	3,928	922
<b>TOTAL</b>	290	4,250	143,300			89,575			10,835			10,760		5,030	

### PAVEMENT DELINEATION QUANTITIES

PDQ-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
 NORTH REGION  
 OFFICE OF DESIGN, SOUTH  
 DESIGN BRANCH S14  
 J. COWELL  
 A. IOBAL  
 REVISOR BY  
 DATE REVISOR  
 CALCULATED-  
 DESIGNED BY  
 CHECKED BY  
 FUNCTIONAL SUPERVISOR  
 NESAR FORMOLI  
 3-22-11  
 DATE PLOTTED => 19-APR-2011  
 TIME PLOTTED => 11:47

**REPLACE CONCRETE PAVEMENT**

LOCATION PM TO PM		DIRECTION	LANE No.	DEPTH	REPLACE CONCRETE PAVEMENT (RAPID STRENGTH CONCRETE)
FROM	TO			FT	CY
2.659	2.879	EB	1,2	0.65	42
2.659	2.879	EB	3,4	0.70	299
2.659	2.879	WB	1,2	0.65	273
2.659	2.879	WB	3,4	0.70	403
3.009	3.140	EB	1,2	0.65	42
3.009	3.140	EB	3,4	0.70	60
3.009	3.129	WB	1,2	0.65	300
3.009	3.129	WB	3,4	0.70	480
3.175	3.473	EB	1,2	0.65	32
3.175	3.473	EB	3,4	0.70	60
3.164	3.473	WB	1,2	0.65	287
3.164	3.473	WB	3,4	0.70	343
3.496	3.674	EB	1,2	0.65	37
3.496	3.674	EB	3,4	0.70	60
3.496	3.674	WB	1,2	0.65	88
3.496	3.674	WB	3,4	0.70	40
3.674	4.545	EB	1,2	0.65	277
3.674	4.545	EB	3,4	0.70	600
3.674	4.545	WB	1,2	0.65	416
3.674	4.545	WB	3,4	0.70	900
4.545	5.400	EB	1,2	0.65	820
4.545	5.400	EB	3,4	0.70	134
4.545	5.400	WB	1,2	0.65	560
4.545	5.400	WB	3,4	0.70	408
12.874	13.940	EB	2,3,4	0.67	69
13.941	14.200	EB	2,3,4	0.67	370
12.800	12.850	WB	2,3,4	0.67	83
12.874	13.940	WB	2,3,4	0.67	69
13.941	14.200	WB	2,3,4	0.67	200
* 2.600	5.400	EB/WB	Var	1.10-1.15	50
* 12.200	14.200	EB/WB	Var	1.10-1.15	50
TOTAL					7,852

NOTE: EXACT NUMBER OF REPLACED SLABS TO BE DETERMINED BY THE ENGINEER.

\*- REPLACE PCC SLABS (WITH FAILED CTB)

**HMA DIKE**

LOCATION PM TO PM/DESCRIPTION		DIRECTION	PLACE HMA DIKE (TYPE E)	PLACE HMA DIKE (TYPE F)	HOT MIX ASPHALT * (TYPE A)
FROM	TO				
3.00	3.14	EB		671	9
3.17	3.43	EB		1384	18
12.88	13.04	WB	861		22
SUBTOTAL			861	2055	49
TOTAL			861	2055	

\*- QUANTITY ADDED TO ROADWAY QUANTITIES, SEE SHEET Q-2

**METAL BEAM GUARD RAILING**

LOCATION PM TO PM		DIRECTION	METAL BEAM GUARD RAILING (WOOD POST)	(N) REMOVE CABLE ANCHOR ASSEMBLY	TRANSITION RAILING (TYPE WB)	END ANCHOR ASSEMBLY (TYPE SFT)	ALTERNATIVE IN-LINE TERMINAL SYSTEM	ALTERNATIVE FLARED TERMINAL SYSTEM	END CAP (TYPE A)	OBJECT MARKER (TYPE L-1)	GUARD RAILING DELINEATOR (TYPE F)	REMOVE METAL BEAM GUARD RAILING	WEED CONTROL MAT (FIBER)	
FROM	TO													EA
2.66	2.74	EB	394			1							402	65.7
3.00	3.10	WB	445			1			1				470	74.2
3.15	3.35	WB	1015			1			1	1			1070	172.6
3.00	3.14	EB	646			1			1		2		671	107.6
3.17	3.43	EB	1359			1			1				1384	226.6
3.66	3.67	WB	40			1			1				40	6.7
4.25	4.26	EB	70	1		1	1	1		1			88	11.7
4.54	5.02	WB	2527	1		1							2533	421.2
13.36	13.37	WB	82				1						90	13.7
13.94	13.95	EB	55										55	9.2
13.94	13.95	WB	55										55	9.2
TOTAL			6688			5	3	2	3	3	2		6858	1118.3

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

**GRIND CONCRETE PAVEMENT**

LOCATION PM TO PM		DIRECTION	LANE No.	LENGTH	WIDTH	GRIND EXISTING CONCRETE PAVEMENT	GRIND AND GROOVE EXISTING CONCRETE PAVEMENT
FROM	TO			FT	FT	SQYD	SQYD
2.659	2.879	EB	1,2,3,4	1162	48	6,195	
2.659	2.879	WB	1,2,3,4	1162	48	6,195	
3.009	3.140	EB	1,2,3,4	692	48	3,689	
3.009	3.129	WB	1,2,3,4	634	48	3,379	
3.175	3.473	EB	1,2,3,4	1573	48	8,392	
3.164	3.473	WB	1,2,3,4	1632	48	8,701	
3.496	3.674	EB	1,2,3,4	940	48	5,012	
3.496	3.674	WB	1,2,3,4	940	48	5,012	
3.674	4.545	EB	1,2,3,4	4599	48	24,527	
3.674	4.545	WB	1,2,3,4	4599	48	24,527	
4.545	5.400	EB	1,2,3,4	4514	48	24,077	
4.545	5.400	WB	1,2,3,4	4514	48	24,077	
12.200	12.850	EB	2,3,4	3432	36	13,728	
12.874	13.940	EB	2,3,4	5628	36	22,514	
13.941	14.200	EB	2,3,4	1368	36	5,470	
12.800	12.850	WB	2,3,4	264	36		1,056
12.874	13.940	WB	2,3,4	5628	36		22,514
13.941	14.200	WB	2,3,4	1368	36		5,470
TOTAL						185,495	29,040

**DELINEATOR (CLASS 1)**

LOCATION PM/DESCRIPTION	DELINEATOR (CLASS 1)		
	LOCATION	TYPE F-1	TYPE G-1
		EA	
EB 50 OFF-RAMP TO HOWE Ave	Lt		8
EB 50 LOOP ON-RAMP FROM HOWE Ave	Lt		20
EB 50 SLIP ON-RAMP FROM HOWE Ave	Lt & Rt	10	16
WB 50 OFF-RAMP TO HOWE Ave	Lt		14
WB 50 LOOP ON-RAMP FROM HOWE Ave	Lt		12
WB 50 SLIP ON-RAMP FROM HOWE Ave	Lt		8
WB 50 ON-RAMP FROM HORNET Dr	Rt	6	
SUBTOTAL			78
TOTAL			94

NOTE: EXACT LOCATIONS TO BE DETERMINED BY THE ENGINEER

**HIGHWAY POST MARKERS**

NUMERAL ON PLATE	DIRECTION	HIGHWAY POST MARKER
	EA	
3.50	EB	1
4.00	EB	1
4.50	EB	1
5.00	EB	1
3.00	WB	1
4.00	WB	1
4.50	WB	1
5.00	WB	1
TOTAL		8

NOTE: EXACT LOCATIONS TO BE DETERMINED BY THE ENGINEER

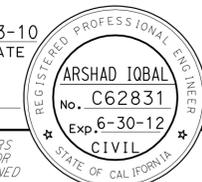
**SUMMARY OF QUANTITIES**

**Q-1**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
 NORTH REGION  
 OFFICE OF DESIGN, SOUTH DESIGN BRANCH S14  
 Et Caltrans  
 FUNCTIONAL SUPERVISOR  
 NESAR FORMOLI  
 CALCULATED/DESIGNED BY  
 CHECKED BY  
 N. SELWAL  
 A. IOBAL  
 REVISED BY  
 DATE REVISED

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sac	50	R2.6/R5.4, R12.2/R14.2	16	71

5-3-10  
 REGISTERED CIVIL ENGINEER DATE  
 3-25-11  
 PLANS APPROVAL DATE  
 THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sac	50	R2.6/R5.4, R12.2/R14.2	17	71

5-3-10  
 REGISTERED CIVIL ENGINEER DATE  
 3-25-11  
 PLANS APPROVAL DATE

ARSHAD IQBAL  
 No. C62831  
 Exp. 6-30-12  
 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.

### ROADWAY ITEMS

LOCATION PM TO PM		COLD PLANE ASPHALT CONCRETE PAVEMENT	ROADWAY EXCAVATION	HOT MIX ASPHALT (TYPE A)	RUBBERIZED HOT MIX ASPHALT (OPEN GRADED)	IMPORTED MATERIAL (SHOULDER BACKING)	CRACK TREATMENT	PLACE HOT MIX ASPHALT (MISCELLANEOUS AREA)	TACK COAT	DOWEL BAR RETROFIT	ASPHALTIC EMULSION * (FOG SEAL COAT)	SEAL PAVEMENT JOINT
BEGIN	END	SQYD	CY	TON	TON	TON	LNMI	SQYD	TON	EA	TON	LF
2.6	5.4	4,130	7,069	13,928		348	40.85		28		5.12	225,200
12.2	14.2		2,171	4,279		531	10.05		10	2,650	0.41	
EB 50 OFF-RAMP TO HOWE Ave		5,075		504	217		0.50		32			
EB 50 LOOP ON-RAMP FROM HOWE Ave		910		150			0.20		4			
WB 50 ON-RAMP FROM HORNET Dr							0.43					
WB 50 SLIP ON-RAMP FROM HOWE Ave		711		164			0.53		3			
WB 50 LOOP ON-RAMP FROM HOWE Ave		2,664			181	75	0.36		13			
WB 50 OFF-RAMP TO HOWE Ave		1,318			305		1.20		5			
EB 50 SLIP ON-RAMP FROM HOWE Ave		1,508		248			0.67		6			
PLACE HMA DIKE				49		147						
OVERSIDE DRAINS				3.2				13				
<b>TOTAL</b>		15,676	9,240	19,325	703	1,101	55	13	101	2,650	5.53	225,200

\* ASPHALTIC EMULSION (FOG SEAL COAT) WILL BE APPLIED TO ALL GORE AREA LOCATIONS.

### OVERSIDE DRAINS

LOCATION	HOT MIX ASPHALT (TYPE A)	PLACE HOT MIX ASPHALT (MISCELLANEOUS AREA)
HMA OSD 	TON	SQYD
WB 50 LOOP ON-RAMP FROM HOWE Ave	1.6	7.0
WESTBOUND PM 13.04	1.6	6.0
<b>* SUBTOTAL</b>	3.2	13.0

OSD - OVERSIDE DRAIN  
\* QUANTITIES ADDED TO ROADWAY QUANTITIES

### CURB RAMP DETECTABLE WARNING SURFACE

SHEET No.	LOCATION	CURB RAMP DETECTABLE WARNING SURFACE SQFT
C-2	EB 50 OFF-RAMP TO HOWE Ave (NW CORNER)	12
C-2	EB 50 OFF-RAMP TO HOWE Ave (SW CORNER)	12
C-2	EB 50 LOOP ON-RAMP FROM HOWE Ave (NW CORNER)	15
C-2	EB 50 LOOP ON-RAMP FROM HOWE Ave (SE CORNER)	12
C-3	WB 50 ON-RAMP FROM HORNET Dr (NW CORNER)	12
C-3	WB 50 ON-RAMP FROM HORNET Dr (ISLAND)	36
C-3	WB 50 ON-RAMP FROM HORNET Dr (SW CORNER)	11
C-3	WB 50 SLIP ON-RAMP FROM HOWE Ave (NW CORNER)	12
C-3	WB 50 SLIP ON-RAMP FROM HOWE Ave (SE CORNER)	12
<b>TOTAL</b>		134

### REPLACE AC SURFACING

SHEET No.	LOCATION	DEPTH FT	VOLUME CY
C-1	WB 50 OFF-RAMP TO 65th St (GORE AREA)	0.25	25
C-2	EB 50 OFF-RAMP TO HOWE Ave	0.25	23
C-2	EB 50 OFF-RAMP TO HOWE Ave (AT INTERSECTION)	0.30	22
C-4	WB 50 LOOP ON-RAMP FROM HOWE Ave	0.25	70
C-4	WB 50 OFF-RAMP TO HOWE Ave	0.25	23
<b>TOTAL</b>			163

### SUMMARY OF QUANTITIES

Q-2

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
 NORTH REGION  
 OFFICE OF DESIGN, SOUTH  
 DESIGN BRANCH S14  
 N. SELWAL  
 A. IOBAL  
 CALCULATED-  
 DESIGNED BY  
 CHECKED BY  
 FUNCTIONAL SUPERVISOR  
 NESAR FORMOLI

**EDGE DRAIN**

POST MILE/ LOCATION	DIRECTION	(N)				
		2" OR 3" PP (ED)	ABANDON PIPELINE (EDO)	ABANDON PIPELINE (EDV)	ABANDON PIPELINE (EDC)	
FROM	TO	LF	EA	EA	EA	
2.667	2.725	EB	320.5	1	1	
2.725	2.781	EB	301.0	1	1	
2.781	2.842	EB	328.5	1	1	
2.842	2.874	EB	166.5	1	1	
3.020	3.079	EB	254.8	1	1	
3.079	3.143	EB	335.4	1	1	
3.202	3.262	EB	325.5	1	1	
3.262	3.323	EB	322.1	1	1	
3.323	3.362	EB	203.9		1	1
3.362	3.414	EB	272.6			1
3.414	3.453	EB	203.4	1		
3.491	3.551	EB	319.5	1	1	
3.551	3.610	EB	311.5	1	1	
3.610	3.644	EB	154.1	1	1	
3.644	3.696	EB	274.0	1	1	
3.696	3.745	EB	258.4	1	1	
3.745	3.794	EB	258.7	1	1	
3.794	3.842	EB	253.4	1	1	
3.842	3.902	EB	282.0	1	1	
3.902	3.963	EB	322.1	1	1	
3.963	4.020	EB	301.0	1	1	
4.020	4.076	EB	295.7	1	1	
4.076	4.133	EB	301.0	1	1	
4.133	4.190	EB	301.0	1	1	
4.190	4.247	EB	301.0	1	1	
4.247	4.304	EB	301.0	1	1	
4.304	4.362	EB	306.2	1	1	
4.362	4.412	EB	264.0	1	1	
4.412	4.461	EB	258.7	1	1	
4.461	4.514	EB	277.3	1	1	
4.558	4.619	EB	311.5	1	1	
4.619	4.673	EB	285.1	1	1	
4.673	4.732	EB	321.0	1	1	
4.732	4.793	EB	321.0	1	1	
4.793	4.830	EB	195.4	1		1
4.830	4.868	EB	191.1			1
4.868	4.907	EB	204.4		1	
4.907	4.961	EB	285.1	1	1	
4.961	5.015	EB	285.1	1	1	
5.015	5.081	EB	348.5	1	1	
5.081	5.108	EB	142.6	1	1	
5.108	5.162	EB	278.0	1	1	
5.162	5.214	EB	281.0	1	1	
5.214	5.239	EB	272.0	1	1	
5.239	5.284	EB	240.0	1	1	
5.284	5.327	EB	216.5		1	1
5.327	5.370	EB	227.0	1		
* SUBTOTAL			12,780	42	42	5

**EDGE DRAIN (Cont)**

POST MILE/ LOCATION	DIRECTION	(N)				
		2" OR 3" PP (ED)	ABANDON PIPELINE (EDO)	ABANDON PIPELINE (EDV)	ABANDON PIPELINE (EDC)	
FROM	TO	LF	EA	EA	EA	
13.137	13.199	EB	327.4	1	1	
13.199	13.260	EB	322.1	1	1	
13.260	13.322	EB	327.4	1	1	
13.322	13.383	EB	322.1	1	1	
13.383	13.438	EB	290.4	1	1	
13.438	13.493	EB	290.4	1	1	
13.493	13.548	EB	290.4	1	1	
13.548	13.603	EB	290.4	1	1	
13.603	13.661	EB	306.2	1	1	
13.661	13.719	EB	306.2	1	1	
13.719	13.776	EB	301.0	1	1	
13.776	13.829	EB	279.8	1	1	
13.829	13.881	EB	274.6	1	1	
13.881	13.933	EB	257.5	1	1	
13.940	13.995	EB	287.9	1	1	
13.995	14.050	EB	290.4	1	1	
14.050	14.105	EB	290.4	1	1	
14.105	14.160	EB	295.6	1	1	
* SUBTOTAL			5,351	18	18	

**EDGE DRAIN (Cont)**

POST MILE/ LOCATION	DIRECTION	(N)				
		2" OR 3" PP (ED)	ABANDON PIPELINE (EDO)	ABANDON PIPELINE (EDV)	ABANDON PIPELINE (EDC)	
FROM	TO	LF	EA	EA	EA	
2.683	2.749	WB	331.2	1	1	
2.749	2.812	WB	324.0	1	1	
2.812	2.852	WB	213.6	1	1	
3.001	3.031	WB	158.4	1	1	
3.031	3.047	WB	45.0	1	1	
3.047	3.091	WB	209.3	1	1	
3.152	3.192	WB	261.0		1	1
3.192	3.240	WB	228.0			1
3.240	3.287	WB	228.0	1		
3.287	3.349	WB	324.5	1	1	
3.349	3.409	WB	321.5	1	1	
3.449	3.469	WB	100.4	1		
3.501	3.551	WB	401.0	1		1
3.551	3.600	WB	258.7	1	1	
3.600	3.649	WB	184.5	1	1	
3.649	3.696	WB	243.4	1	1	
3.696	3.735	WB	276.8	1	1	
3.770	3.805	WB	182.3	1	1	
3.805	3.849	WB	229.8	1	1	
5.005	5.100	WB	241.5	1	1	
5.100	5.167	WB	344.0	1	1	
5.171	5.214	WB	153.0	1	1	
5.214	5.273	WB	319.5	1	1	
5.273	5.313	WB	209.8		1	1
5.313	5.354	WB	216.5	1		
* SUBTOTAL			6,006	22	20	4

**EDGE DRAIN (Cont)**

POST MILE/ LOCATION	DIRECTION	(N)				
		2" OR 3" PP (ED)	ABANDON PIPELINE (EDO)	ABANDON PIPELINE (EDV)	ABANDON PIPELINE (EDC)	
FROM	TO	LF	EA	EA	EA	
12.878	12.935	WB	298.5	1	1	
12.935	12.992	WB	297.0	1	1	
12.992	13.041	WB	243.5	1	1	
13.041	13.089	WB	253.4	1	1	
13.089	13.137	WB	254.8	1	1	
13.137	13.199	WB	327.4	1	1	
13.199	13.260	WB	322.1	1	1	
13.260	13.322	WB	327.4	1	1	
13.322	13.383	WB	322.1	1	1	
13.383	13.438	WB	290.4	1	1	
13.438	13.493	WB	290.4	1	1	
13.493	13.548	WB	290.4	1	1	
13.548	13.603	WB	290.4	1	1	
13.603	13.661	WB	306.2	1	1	
13.661	13.719	WB	306.2	1	1	
13.719	13.776	WB	301.0	1	1	
13.776	13.829	WB	279.8	1	1	
13.829	13.881	WB	274.6	1	1	
13.881	13.933	WB	257.5	1	1	
13.940	13.995	WB	290.4	1	1	
13.995	14.050	WB	290.4	1	1	
14.050	14.105	WB	290.4	1	1	
14.105	14.160	WB	295.6	1	1	
* SUBTOTAL			6,700	23	23	

**SUMMARY  
ABANDON PIPELINE**

POST MILE/ LOCATION	DIRECTION	(N)				
		2" OR 3" PP (ED)	ABANDON PIPELINE (EDO)	ABANDON PIPELINE (EDV)	ABANDON PIPELINE (EDC)	
FROM	TO	LF	EA	EA	EA	
2.667	5.370	EB	12,780	42	42	5
12.236	14.160	EB	5,351	18	18	
2.683	5.354	WB	6,006	22	20	4
12.878	14.160	WB	6,700	23	23	
SUBTOTAL			30,837	105	103	9
TOTAL				217		

(N) NOT A SEPARATE PAY ITEM, FOR INFORMATION ONLY.  
 \* FOR TOTAL QUANTITY, SEE "SUMMARY ABANDON PIPELINE".

**SUMMARY OF QUANTITIES**

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sac	50	R2.6/R5.4, R12.2/R14.2	18	71

REGISTERED CIVIL ENGINEER 5-3-10 DATE

3-25-11  
 PLANS APPROVAL DATE

ARSHAD IOBAL  
 No. C62831  
 Exp. 6-30-12  
 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.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sac	50	R2.6/R5.4, R12.2/R14.2	19	71

*Mary Ann Hudspeth*  
 REGISTERED ELECTRICAL ENGINEER DATE 3-18-11  
 3-25-11  
 PLANS APPROVAL DATE

MARY ANN HUDSPETH  
 No. 17245  
 Exp. 06-30-12  
 ELECTRICAL  
 STATE OF CALIFORNIA

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

### RAMP METERING LOOP QUANTITY TABLE

LOCATION	DESCRIPTION	APPROXIMATE POST MILE	MAINLINE (No. of LANES)	RAMP (No. OF LANES)
1	EB 50 LOOP ON-RAMP FROM HOWE Ave	R3.629	4	2
2	WB 50 LOOP ON-RAMP FROM HOWE Ave	R3.759	4	2
3	WB 50 SLIP ON-RAMP FROM WATT Ave	R5.055	4	NO RAMP WORK
4	WB 50 LOOP ON-RAMP FROM WATT Ave	R5.249	4	NO RAMP WORK
5	WB 50 SLIP ON-RAMP FROM SUNRISE Blvd	R12.344	3	NO RAMP WORK
6	EB 50 SLIP ON-RAMP FROM SUNRISE Blvd	R12.655	4	NO RAMP WORK
7	EB 50 LOOP ON-RAMP FROM SUNRISE Blvd	R12.656	4	NO RAMP WORK

#### ABBREVIATION:

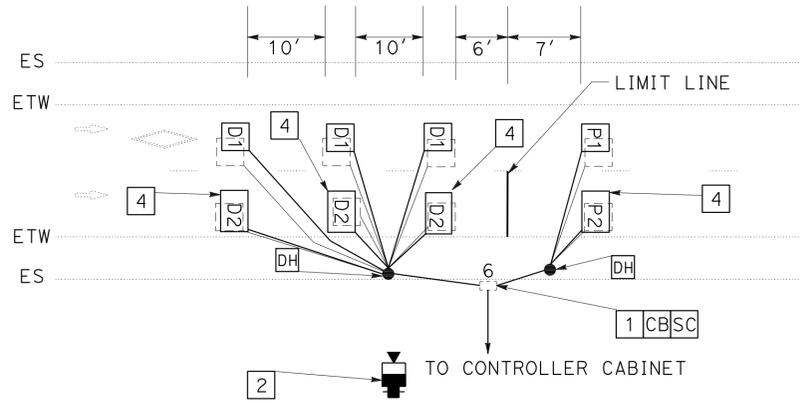
MVDS - MICROWAVE VEHICLE DETECTION SYSTEM

#### LEGEND:

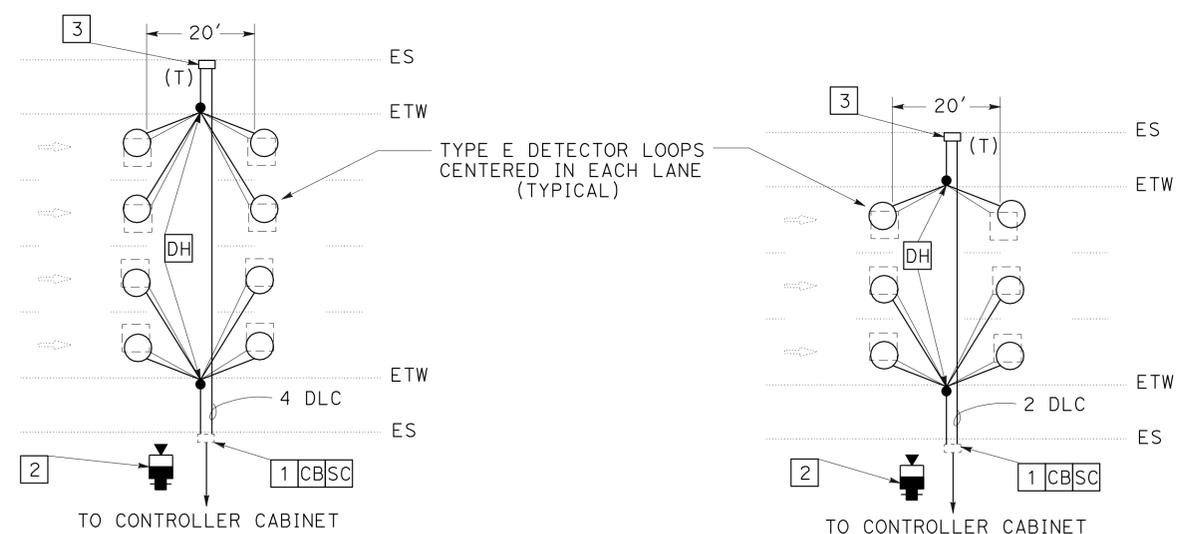
- ☐ MVDS SOLAR POWERED UNIT ON TEMPORARY WOOD POLE (UNIT TO BE MOUNTED AT 23'. POLE SHALL BE 30' FROM ETW OR SHIELDED.)

#### PROJECT NOTES (THIS SHEET ONLY):

- 1 RC EXISTING LOOP CONDUCTORS, DETECTOR HANDHOLE, AND CONDUIT BETWEEN DETECTOR HANDHOLE AND PULL BOX.
- 2 USE WIRELESS COMMUNICATION BACK TO CONTROLLER CABINET AND COORDINATE WITH ENGINEER. MVDS UNIT SHALL BE COMPATIBLE WITH THE CONTROLLER CABINET AND SHALL SIMULATE THE ACTION OF THE DETECTOR LOOPS. RC POLE AND MVDS AFTER PAVING.
- 3 RC EXISTING pb.
- 4 INSTALL 6' X 10' TYPE A LOOP.



**TYPICAL RAMP METER LIMIT LINE DETECTOR LOOP INSTALLATION DETAIL**  
NO SCALE



**TYPICAL RAMP METER MAINLINE LOOP DETECTOR INSTALLATION DETAIL**  
NO SCALE

- N1-2
- 1 = ENTERING
  - 2 = LEAVING
- LANE NUMBER
- E = EASTBOUND
  - W = WESTBOUND
  - N = NORTHBOUND
  - S = SOUTHBOUND
- 1 = 1ST LANE FROM THE LEFT
  - 2 = 2ND LANE FROM THE LEFT
  - 3 = 3RD LANE FROM THE LEFT
  - 4 = 4TH LANE FROM THE LEFT
  - 5 = 5TH LANE FROM THE LEFT

**FREEWAY MAINLINE DETECTOR DETECTOR IDENTIFICATION**  
NO SCALE

- F1
- LOOP NUMBER
  - D = DEMAND
  - P = PASSAGE
  - Q = QUEUE
  - F = OFFRAMP

**RAMP DETECTOR DETECTOR IDENTIFICATION**  
NO SCALE

## MICROWAVE VEHICLE DETECTION SYSTEM MODIFY RAMP METERING SYSTEM

NO SCALE

THIS PLAN IS ACCURATE FOR ELECTRICAL WORK ONLY.

P:\proj\4\03\0ae800\dr\af+ing\0300001080ua001.dgn

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
 TRAFFIC ELECTRICAL DESIGN MARYSVILLE  
 FUNCTIONAL SUPERVISOR STEVEN BLOCK  
 CHECKED BY MARY ANN HUDSPETH  
 DESIGNED BY MICHAEL MULLEN  
 REVISIONS: BY DATE

LAST REVISION DATE PLOTTED => 19-APR-2011  
 03-14-11 TIME PLOTTED => 11:48

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sac	50	R2.6/R5.4, R12.2/R14.2	20	71

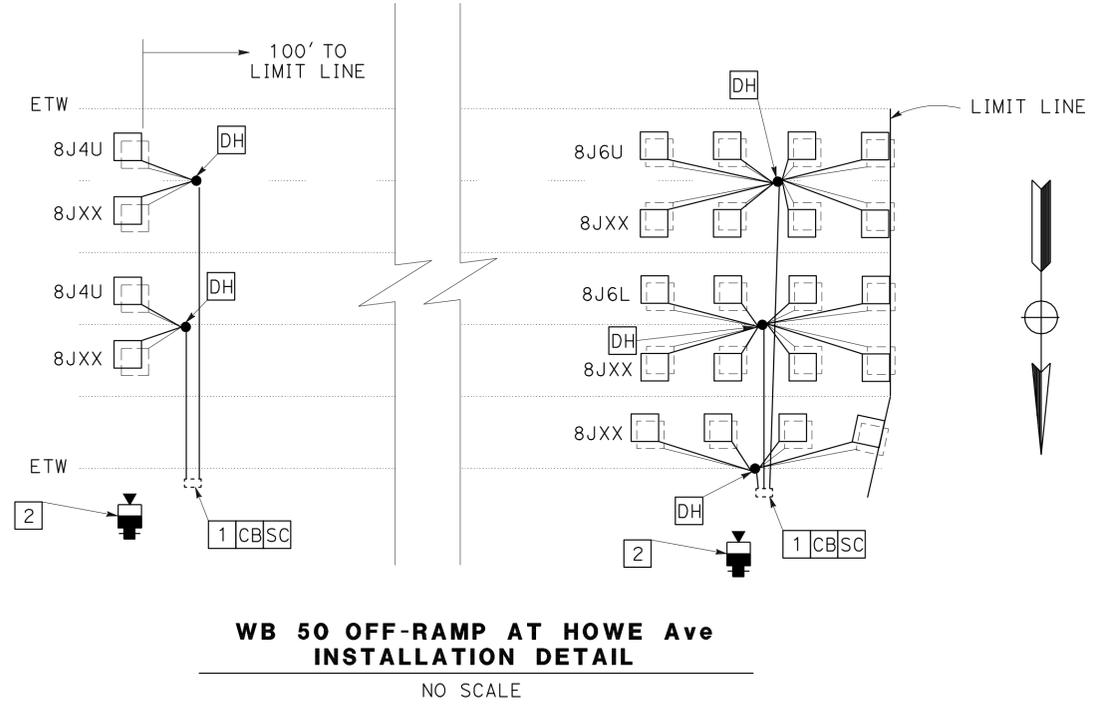
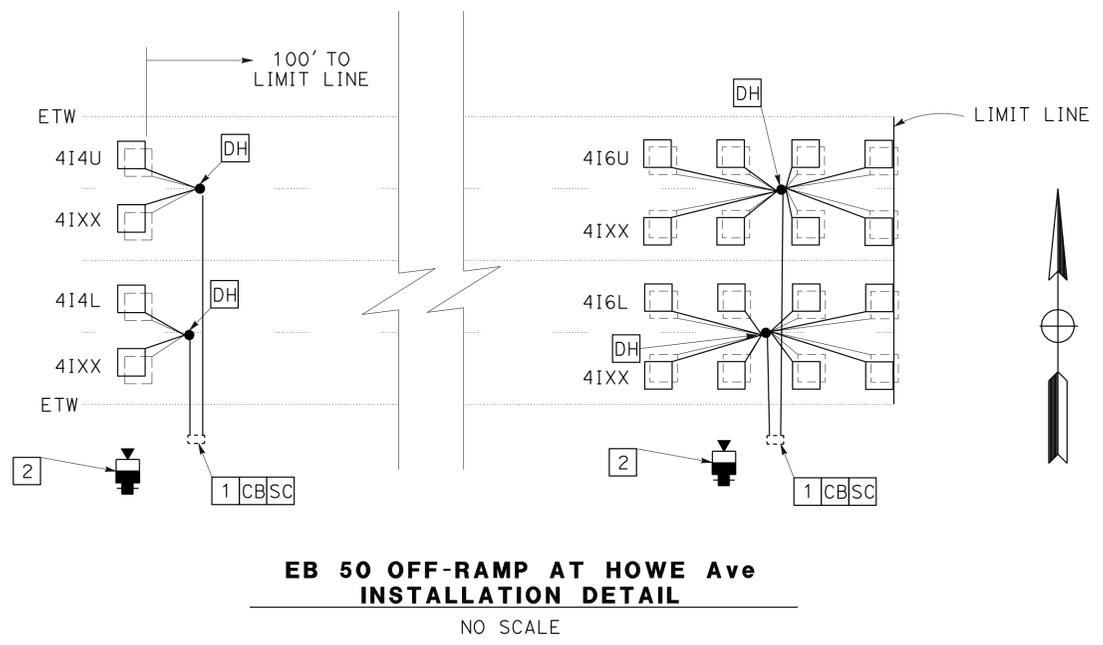
*Mary Ann Hudspeth*  
 REGISTERED ELECTRICAL ENGINEER DATE 3-18-11  
 3-25-11  
 PLANS APPROVAL DATE

MARY ANN HUDSPETH  
 No. 17245  
 Exp. 06-30-12  
 ELECTRICAL  
 STATE OF CALIFORNIA

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**PROJECT NOTES (THIS SHEET ONLY):**

- 1 [RC] EXISTING LOOP CONDUCTORS, DETECTOR HANDHOLE, AND CONDUIT BETWEEN DETECTOR HANDHOLE AND PULL BOX.
- 2 USE WIRELESS COMMUNICATION BACK TO CONTROLLER CABINET AND COORDINATE WITH ENGINEER. MVDS UNIT SHALL BE COMPATIBLE WITH THE CONTROLLER CABINET AND SHALL SIMULATE THE ACTION OF THE DETECTOR LOOPS. [RC] POLE AND MVDS AFTER PAVING.



**MICROWAVE VEHICLE DETECTION SYSTEM  
MODIFY SIGNAL**  
NO SCALE

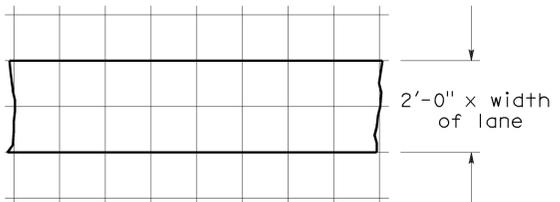
THIS PLAN IS ACCURATE FOR ELECTRICAL WORK ONLY.

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**TRAFFIC ELECTRICAL DESIGN MARYSVILLE**  
 FUNCTIONAL SUPERVISOR STEVEN BLOCK  
 CALCULATED/DESIGNED BY MICHAEL MULLEN  
 CHECKED BY MARY ANN HUDSPETH  
 REVISOR BY DATE  
 REVISOR BY DATE

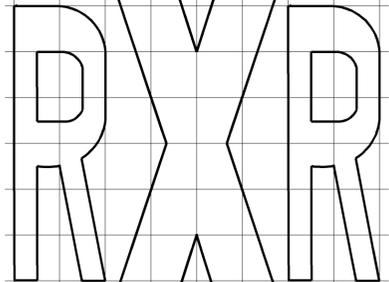
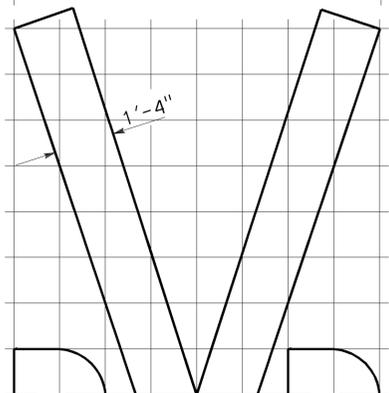
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 LAST REVISION | DATE PLOTTED => 19-APR-2011  
 03-14-11 TIME PLOTTED => 11:48



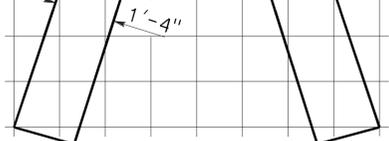
To accompany plans dated 3-25-11



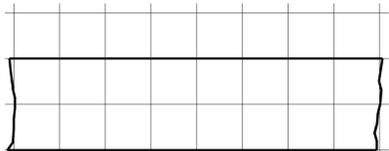
8'-0"



20'-0"



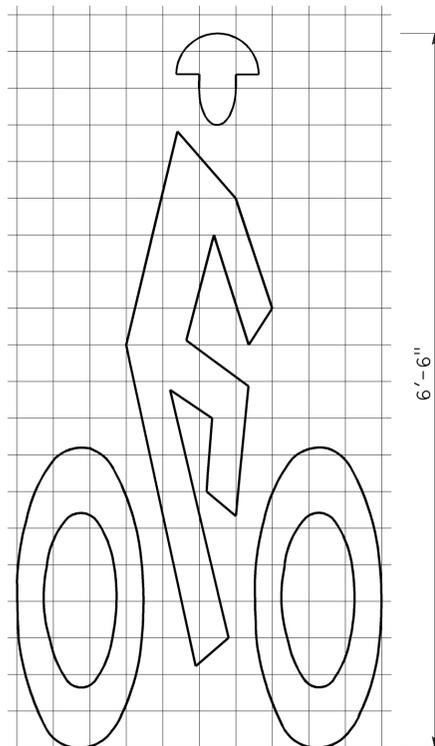
14'-0"



1'-0" GRID  
A=70 sq ft \*

**RAILROAD CROSSING SYMBOL**

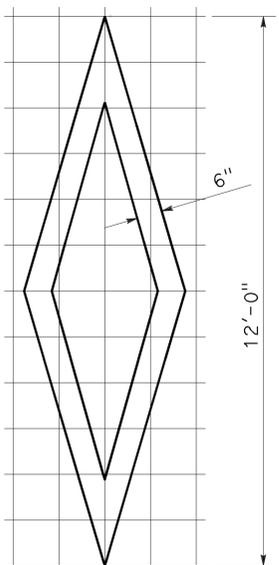
\*70 sq ft DOES NOT INCLUDE THE 2'-0" x VARIABLE WIDTH TRANSVERSE LINES.



4" GRID  
3'-4"

A=7 sq ft

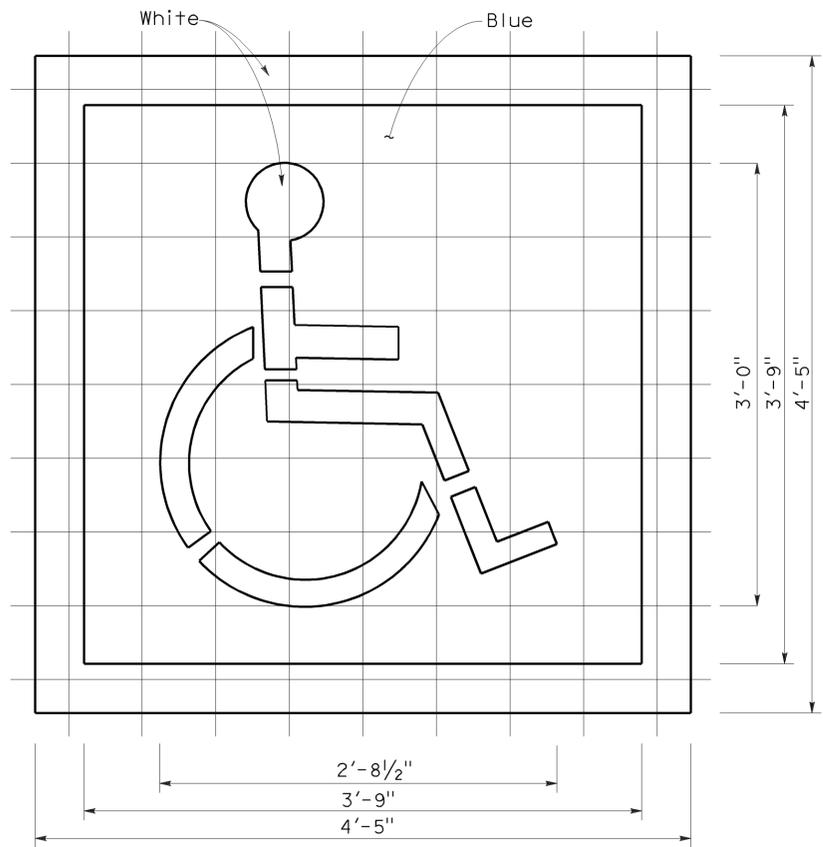
**BIKE LANE SYMBOL**



1'-0" GRID  
3'-3"

A=11 sq ft

**DIAMOND SYMBOL**

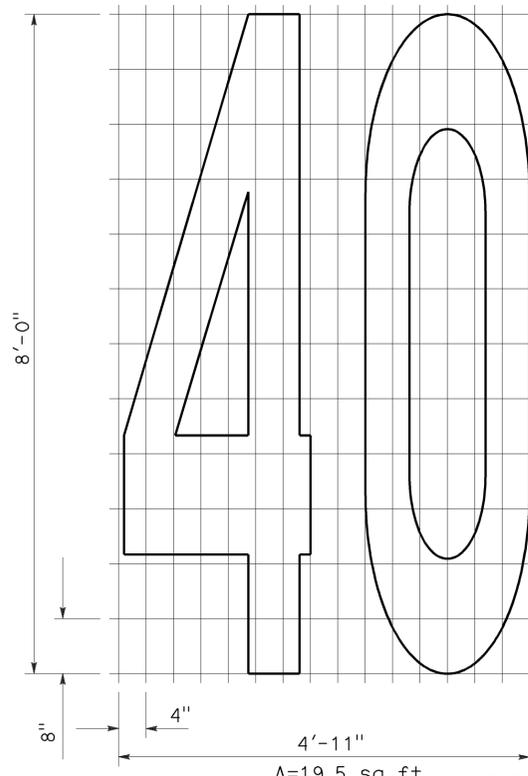
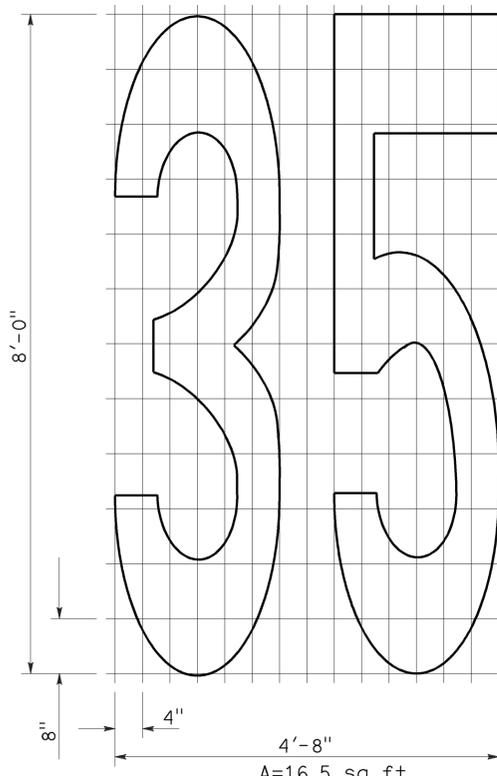
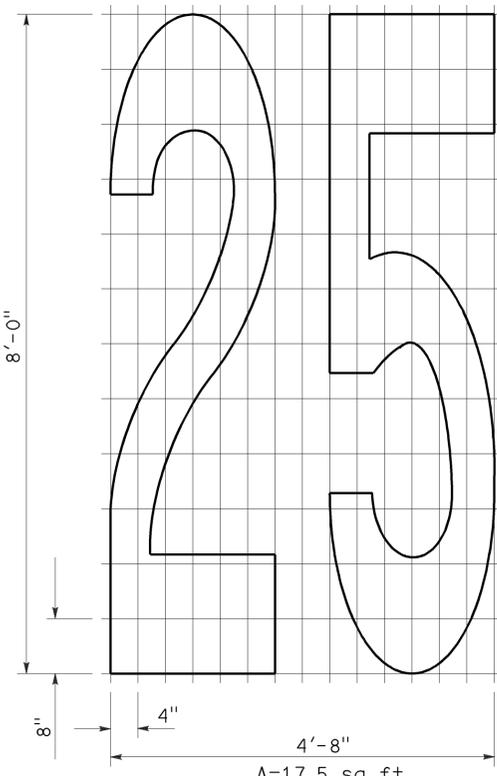


6" GRID

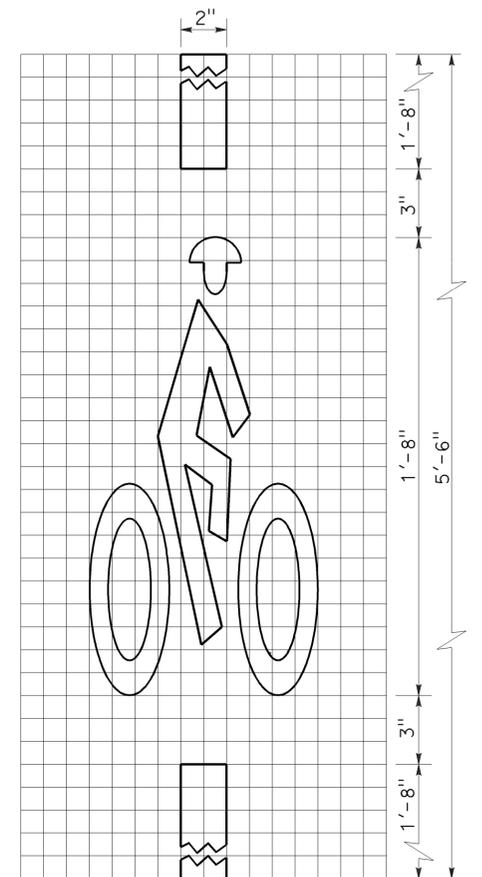
A (White) = 9 sq ft

A (Blue) = 14 sq ft

**INTERNATIONAL SYMBOL OF ACCESSIBILITY MARKING**



**NUMERALS**



1" GRID  
10"

A=2 sq ft

**BICYCLE LOOP DETECTOR SYMBOL**

**NOTE:**

1. Minor variations in dimensions may be accepted by the Engineer.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**PAVEMENT MARKINGS SYMBOLS AND NUMERALS**

NO SCALE

RSP A24C DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN A24C DATED MAY 1, 2006 - PAGE 11 OF THE STANDARD PLANS BOOK DATED MAY 2006.

**REVISED STANDARD PLAN RSP A24C**

2006 REVISED STANDARD PLAN RSP A24C

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
03	Sac	50	R2.6/R5.4, R12.2/R14.2	22	71

*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

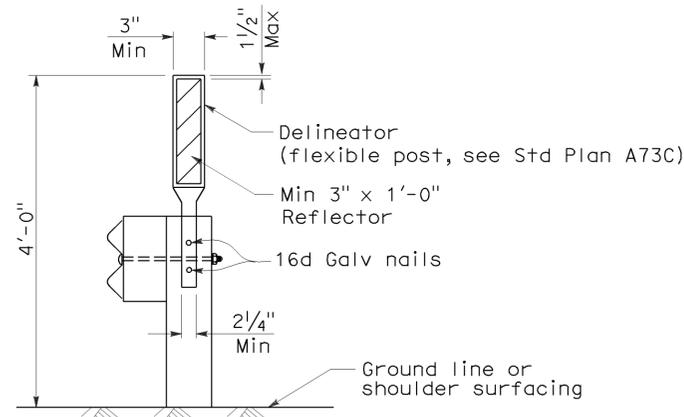
June 6, 2008  
PLANS APPROVAL DATE

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To accompany plans dated 3-25-11

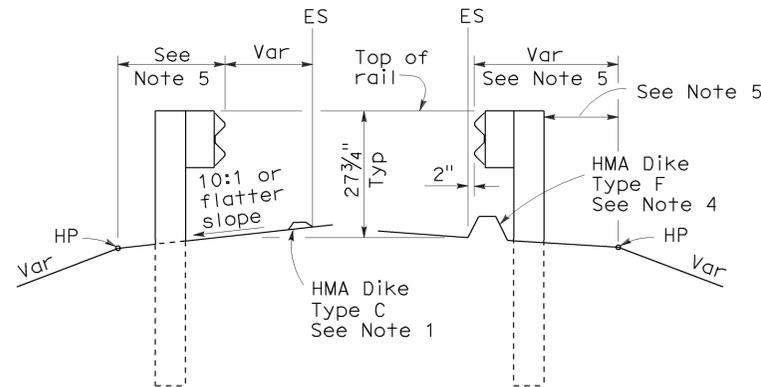
**NOTES:**

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	Sac	50	R2.6/R5.4, R12.2/R14.2	23	71

*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

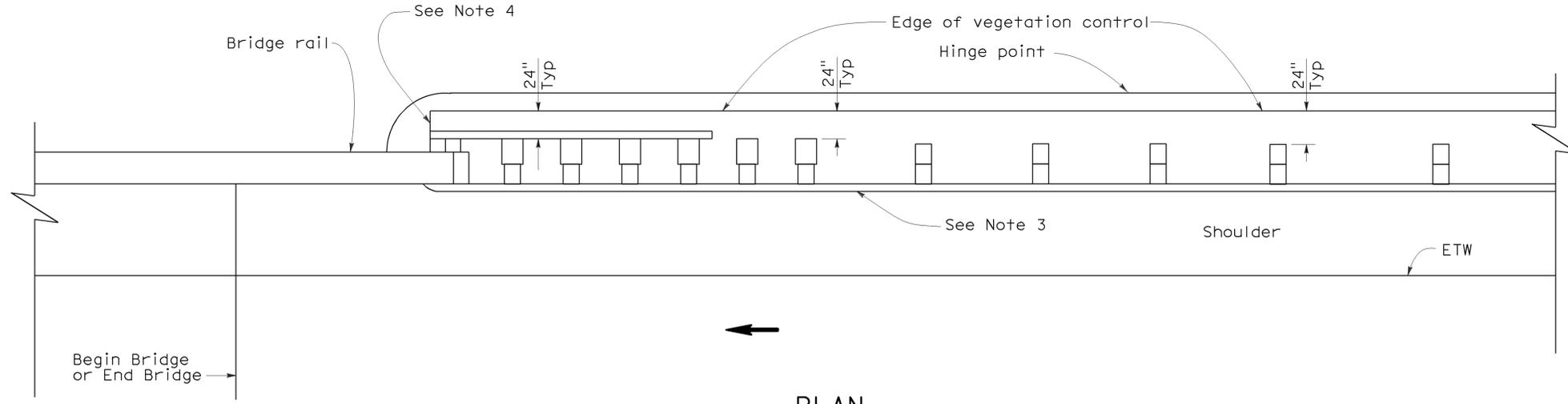
October 20, 2006  
PLANS APPROVAL DATE

*Randell D. Hiatt*  
No. C50200  
Exp. 6-30-07  
CIVIL  
STATE OF CALIFORNIA

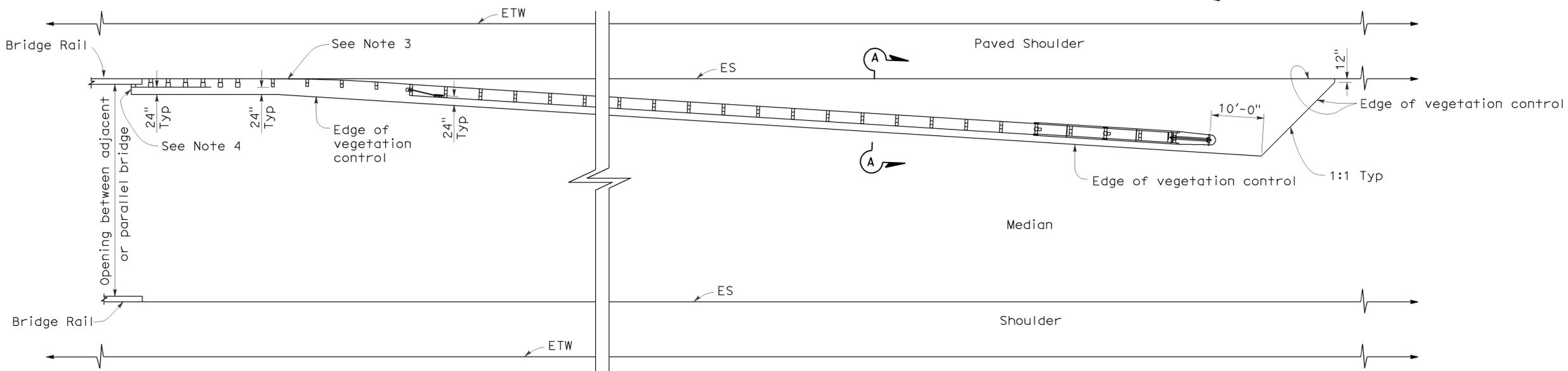
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

To accompany plans dated 3-25-11

2006 NEW STANDARD PLAN NSP A77C7



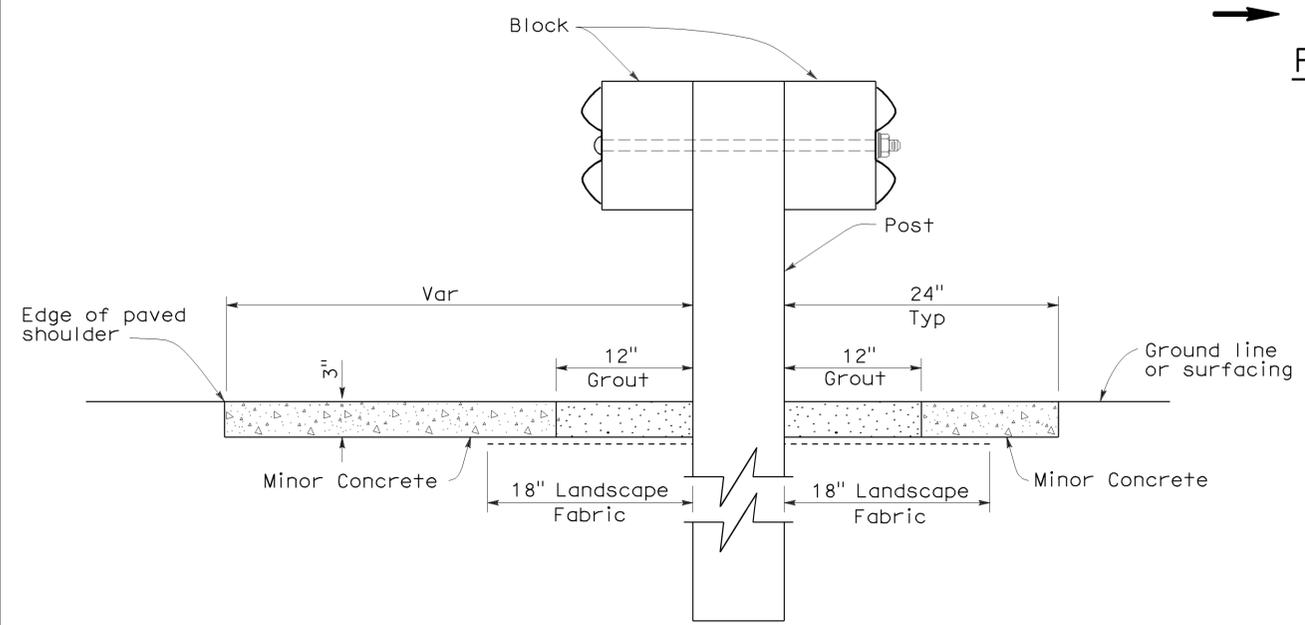
PLAN



PLAN

NOTES:

1. See New Standard Plan NSP A77C5 for additional vegetation control details.
2. Where the distance between back of post and hinge point is less than 24", vegetation control to be constructed flush with the back edge of the post.
3. Where dike is constructed under railing, construct vegetation control to back edge of dike. Where paved shoulder is constructed within 24" in front of the post, construct vegetation control to the edge of paved shoulder.
4. End vegetation control at end of backside rail element.
5. Direction of adjacent traffic indicated by ←.



SECTION A-A

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**METAL BEAM GUARD RAILING  
TYPICAL VEGETATION CONTROL  
AT STRUCTURE APPROACH  
AND DEPARTURE**

NO SCALE

NSP A77C7 DATED OCTOBER 20, 2006 SUPPLEMENTS THE STANDARD  
PLANS BOOK DATED MAY 2006.

**NEW STANDARD PLAN NSP A77C7**

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
03	Sac	50	R2.6/R5.4, R12.2/R14.2	24	71

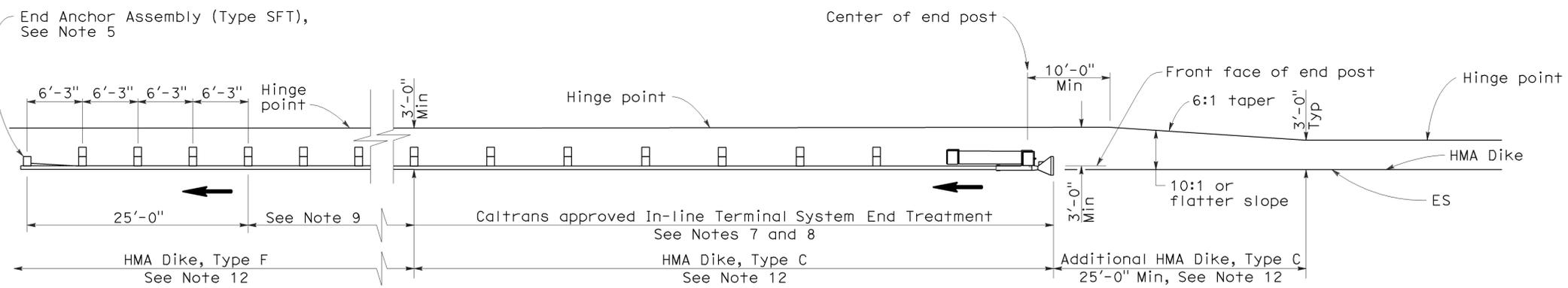
*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

June 6, 2008  
PLANS APPROVAL DATE

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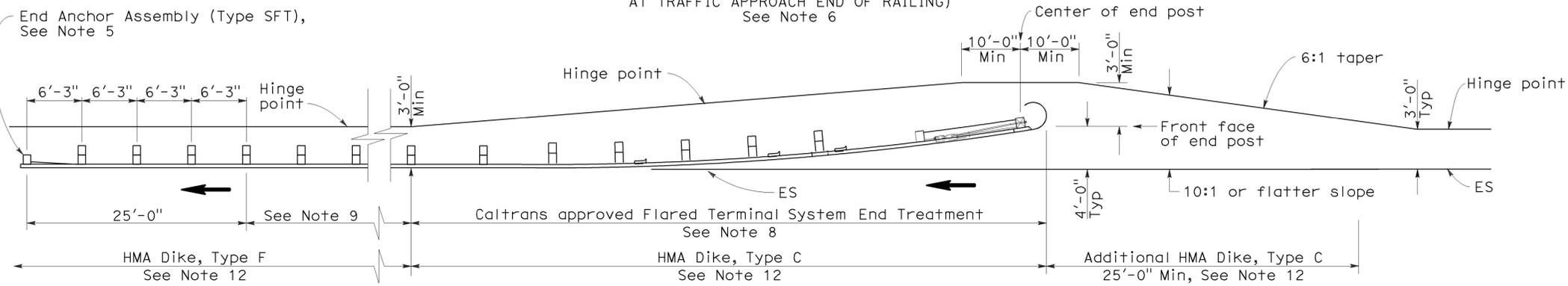
To accompany plans dated 3-25-11

2006 REVISED STANDARD PLAN RSP A77E1



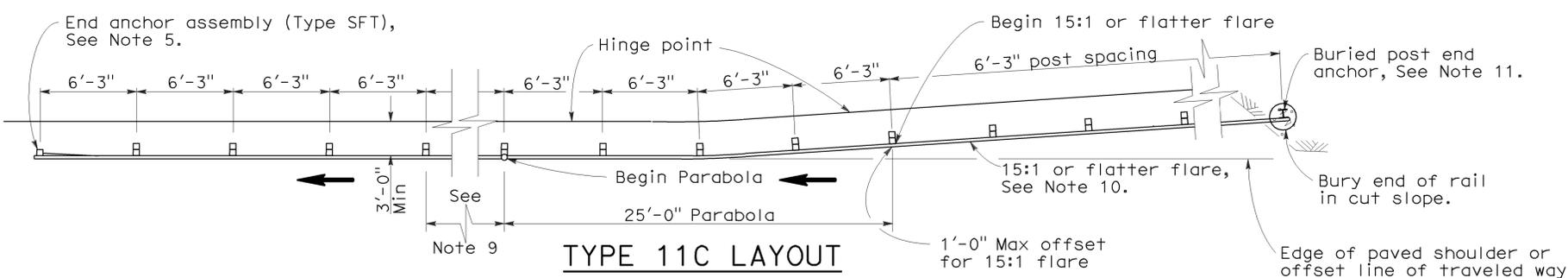
**TYPE 11A LAYOUT**

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



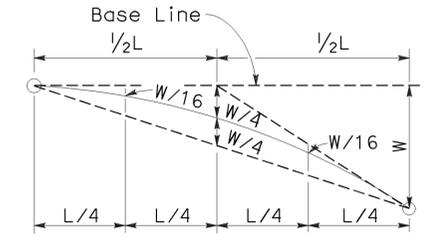
**TYPE 11B LAYOUT**

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

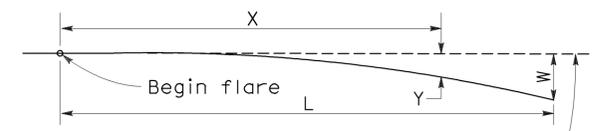


**TYPE 11C LAYOUT**

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



**TYPICAL PARABOLIC LAYOUT**

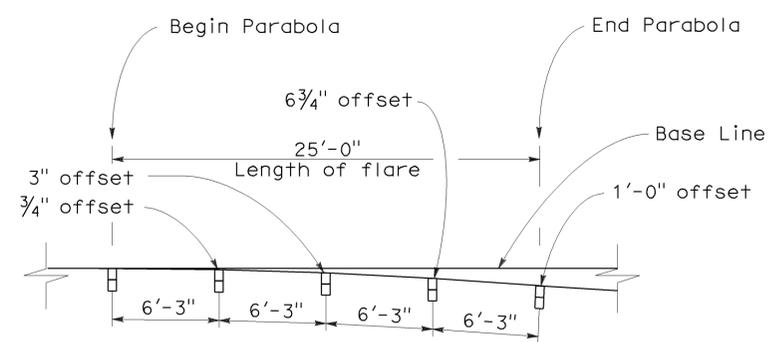


Base Line (Edge of paved shoulder or offset line of edge of traveled way)

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

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

**PARABOLIC FLARE OFFSETS**



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

**NOTES:**

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

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

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

**REVISED STANDARD PLAN RSP A77E1**

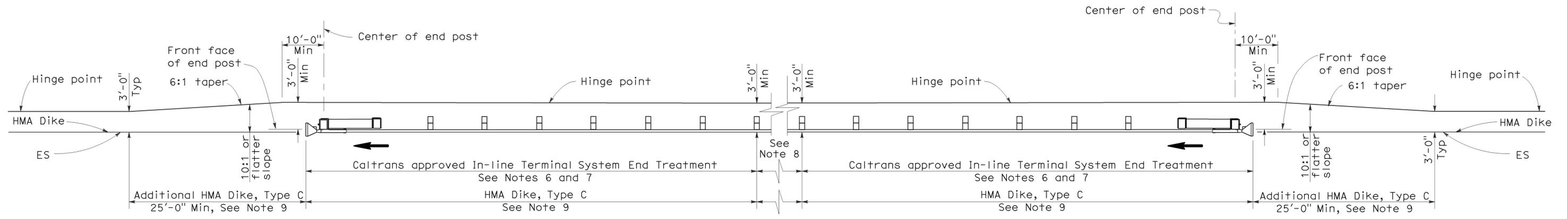
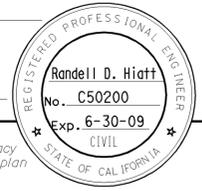
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
03	Sac	50	R2.6/R5.4, R12.2/R14.2	25	71

*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

June 6, 2008  
PLANS APPROVAL DATE

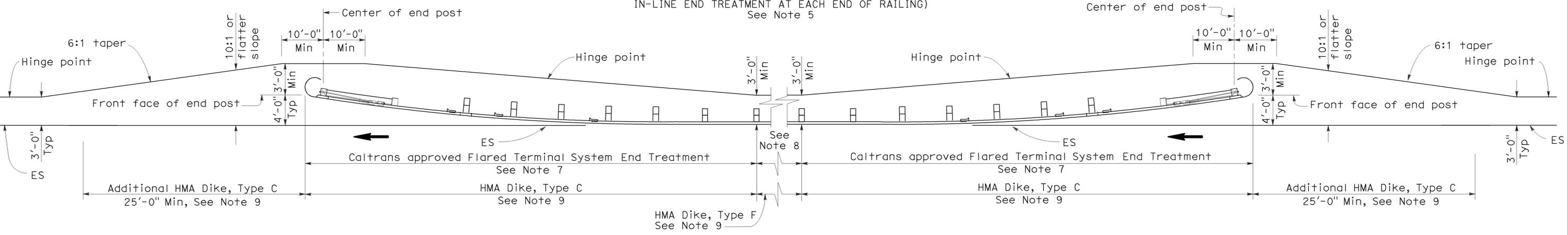
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To accompany plans dated 3-25-11



**TYPE 11D LAYOUT**

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



**TYPE 11E LAYOUT**

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

**NOTES:**

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

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

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

**REVISED STANDARD PLAN RSP A77E2**

2006 REVISED STANDARD PLAN RSP A77E2

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
03	Sac	50	R2.6/R5.4, R12.2/R14.2	26	71

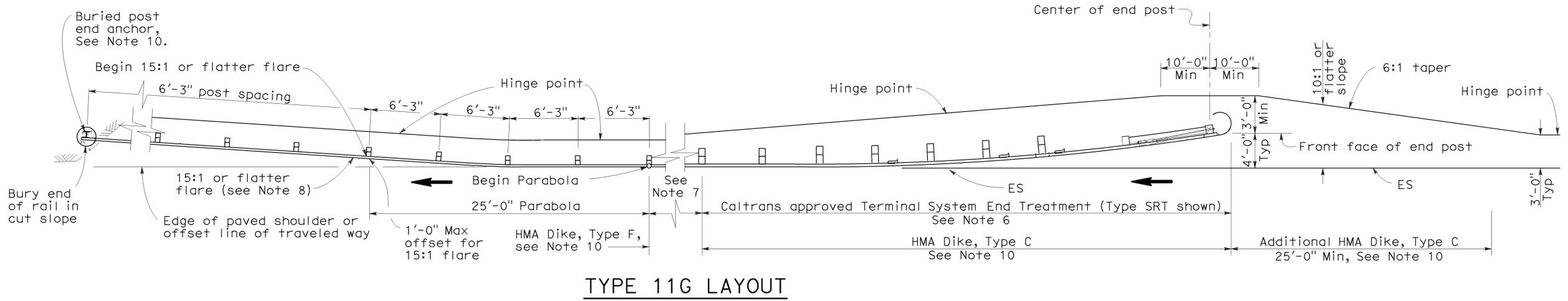
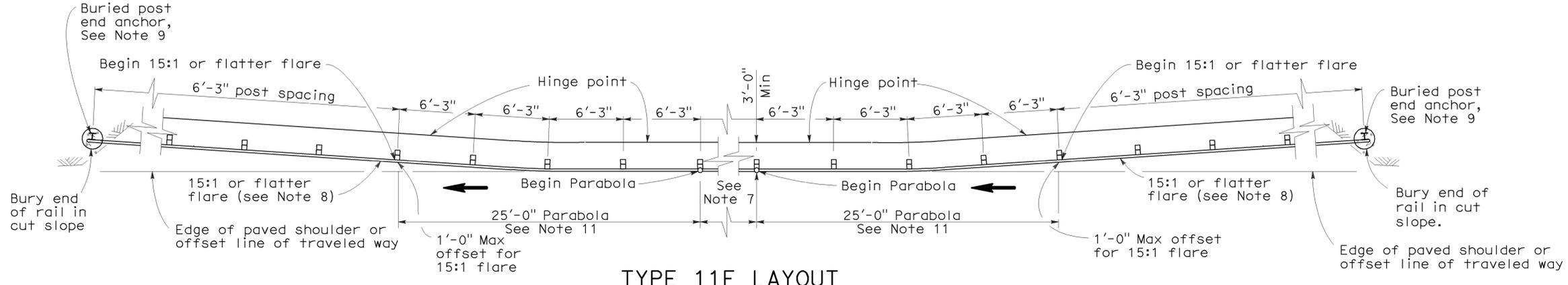
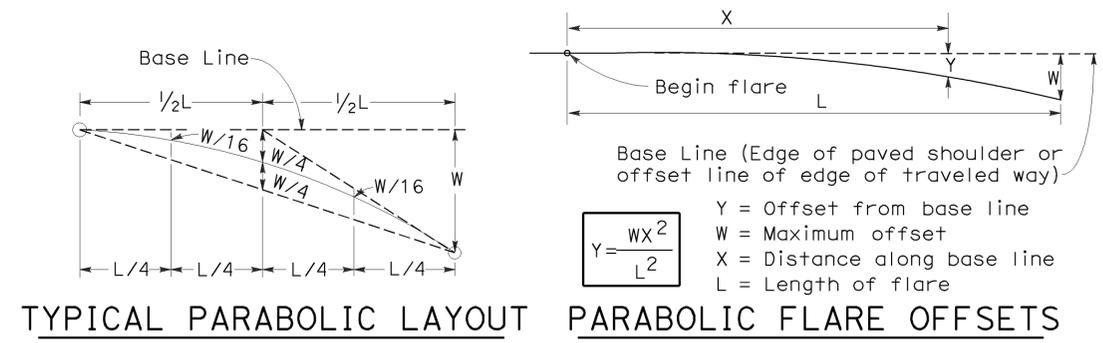
*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

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 3-25-11



**NOTES:**

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

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

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

NO SCALE

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

**REVISED STANDARD PLAN RSP A77E3**

2006 REVISED STANDARD PLAN RSP A77E3

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
03	Sac	50	R2.6/R5.4, R12.2/R14.2	27	71

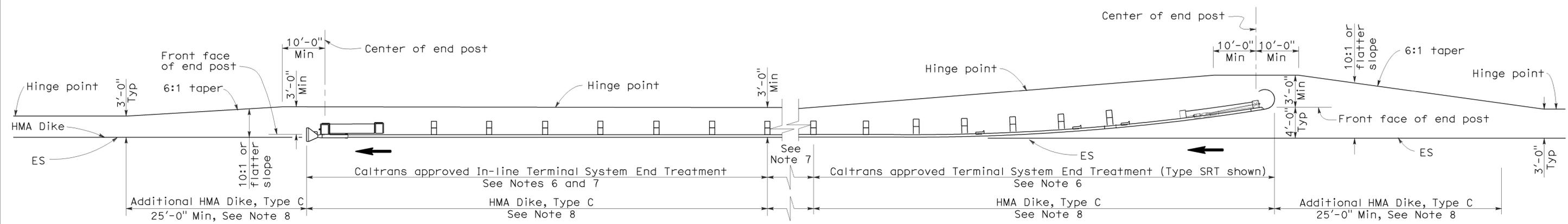
*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

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 3-25-11



**TYPE 11H LAYOUT**

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

**NOTES:**

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

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

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

**REVISED STANDARD PLAN RSP A77E4**

2006 REVISED STANDARD PLAN RSP A77E4

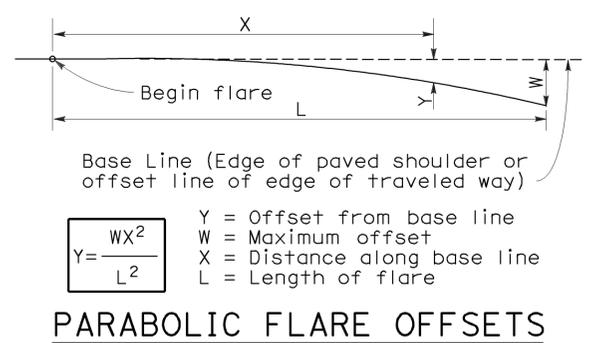
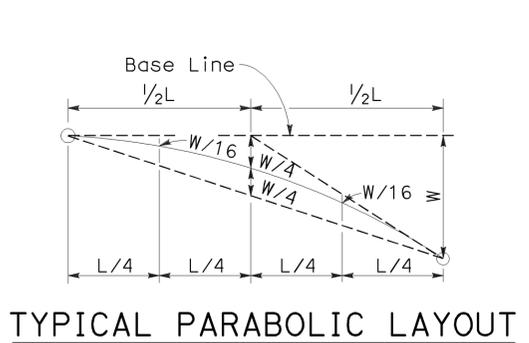
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
03	Sac	50	R2.6/R5.4, R12.2/R14.2	28	71

*Randell D. Hiatt*  
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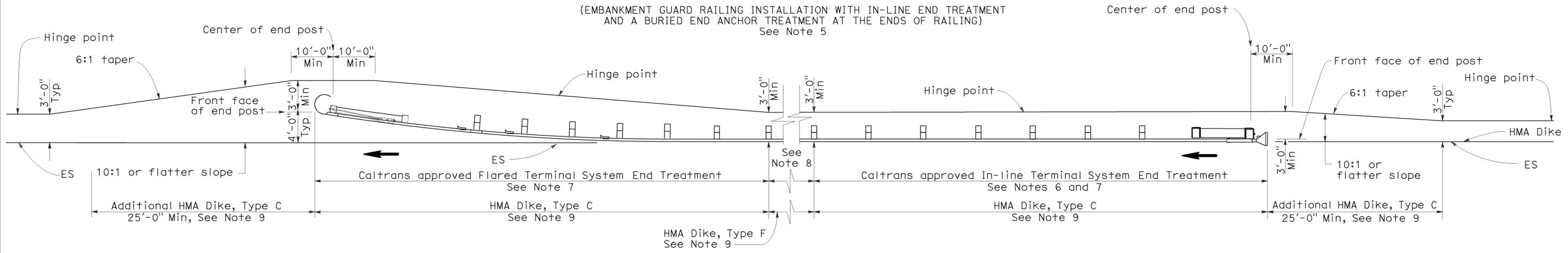
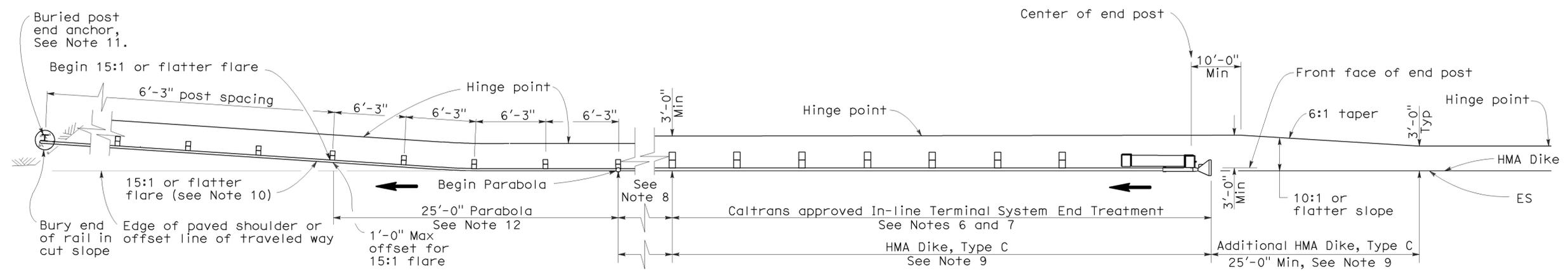
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To accompany plans dated 3-25-11



**NOTES:**

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

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

NO SCALE

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

**REVISED STANDARD PLAN RSP A77E5**

2006 REVISED STANDARD PLAN RSP A77E5

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
03	Sac	50	R2.6/R5.4, R12.2/R14.2	29	71

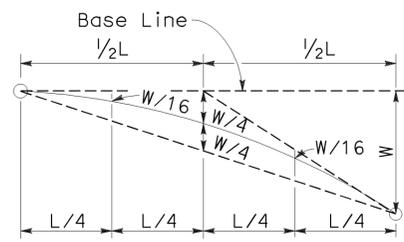
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REGISTERED CIVIL ENGINEER

June 6, 2008  
PLANS APPROVAL DATE

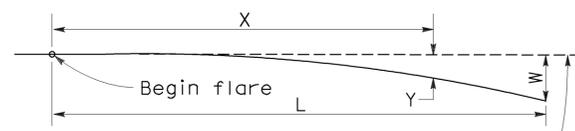
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To accompany plans dated 3-25-11



**TYPICAL PARABOLIC LAYOUT**

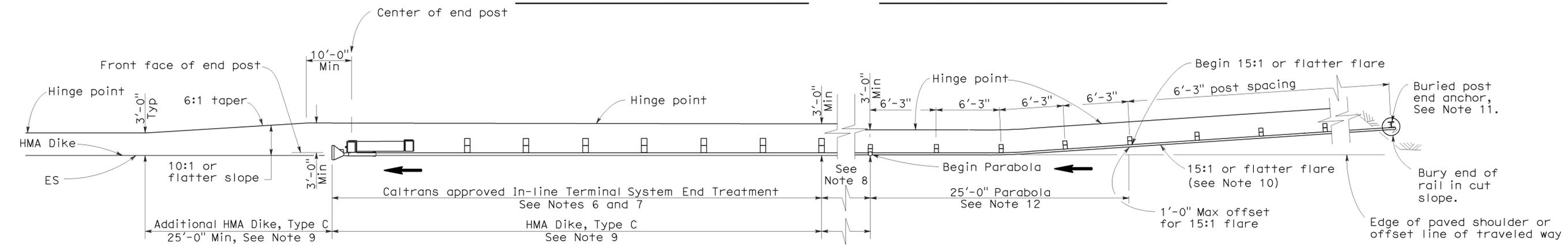


Base Line (Edge of paved shoulder or offset line of edge of traveled way)

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

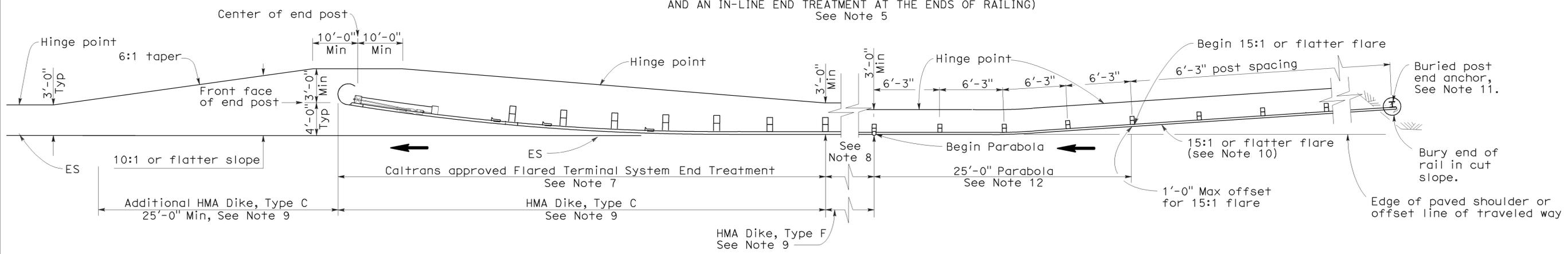
Y = Offset from base line  
W = Maximum offset  
X = Distance along base line  
L = Length of flare

**PARABOLIC FLARE OFFSETS**



**TYPE 11K LAYOUT**

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



**TYPE 11L LAYOUT**

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

**NOTES:**

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

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

NO SCALE

RSP A77E6 DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN A77E6  
DATED MAY 1, 2006 - PAGE 53 OF THE STANDARD PLANS BOOK DATED MAY 2006.

**REVISED STANDARD PLAN RSP A77E6**

2006 REVISED STANDARD PLAN RSP A77E6

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
03	Sac	50	R2.6/R5.4, R12.2/R14.2	30	71

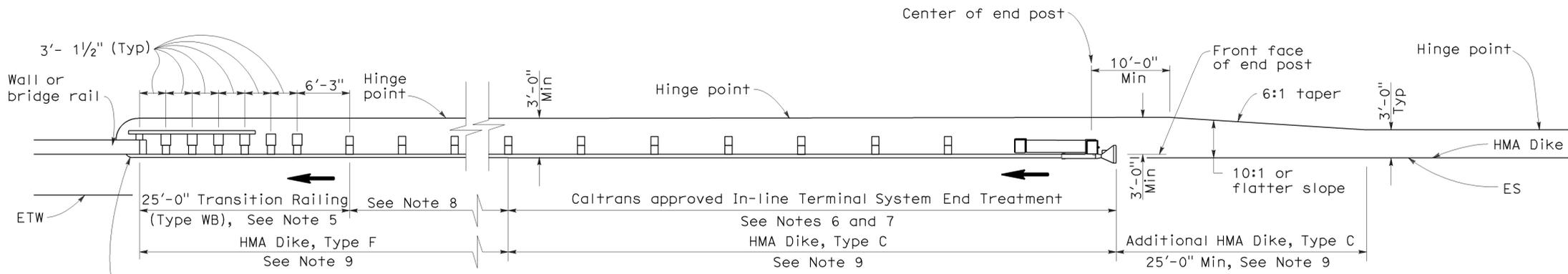
*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

June 6, 2008  
PLANS APPROVAL DATE

*Randell D. Hiatt*  
REGISTERED PROFESSIONAL ENGINEER  
No. C50200  
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STATE OF CALIFORNIA

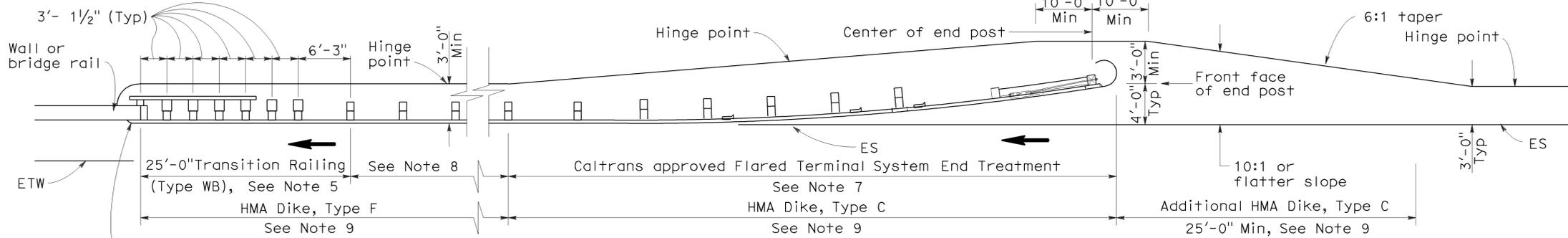
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To accompany plans dated 3-25-11



**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.

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**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

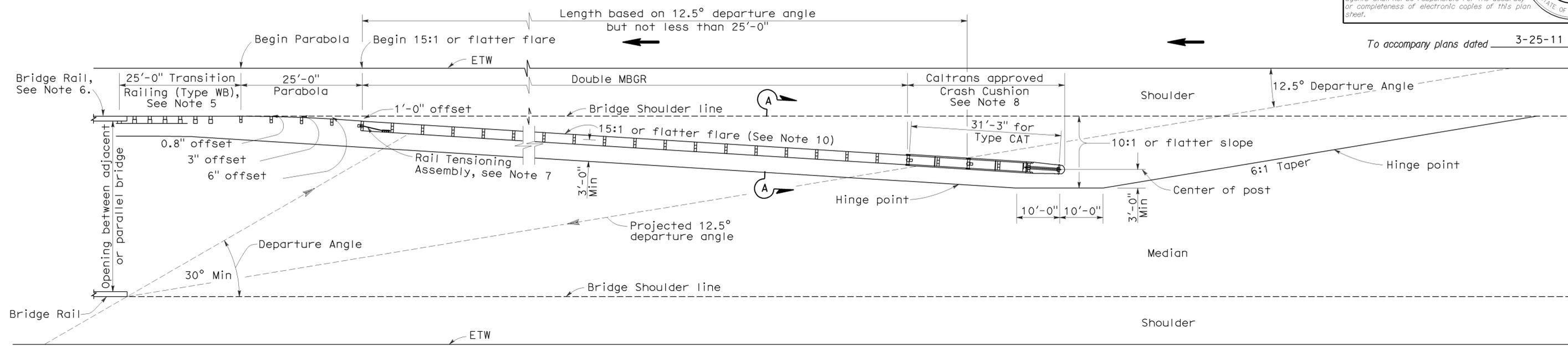
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
03	Sac	50	R2.6/R5.4, R12.2/R14.2	31	71

*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

June 6, 2008  
PLANS APPROVAL DATE

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

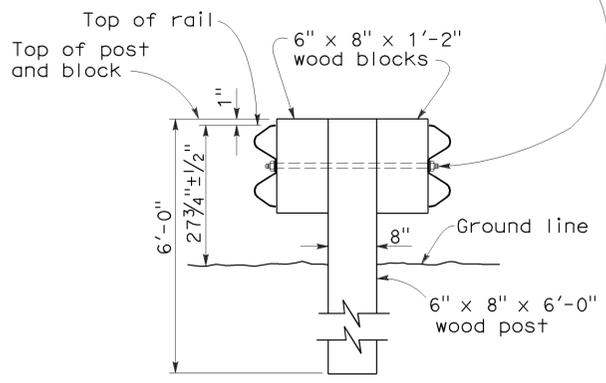
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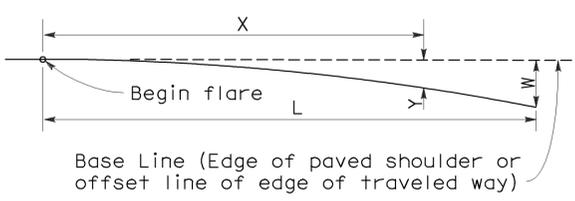
To accompany plans dated 3-25-11

**TYPE 12E LAYOUT**  
See Note 10

5/8" Ø Button head bolt with hex nut or 5/8" Ø Rod, threaded both ends, with hex nuts. 1/2" Max exposed threads after hex nut(s) tightened. No washer on rail faces for bolted connection to line post.



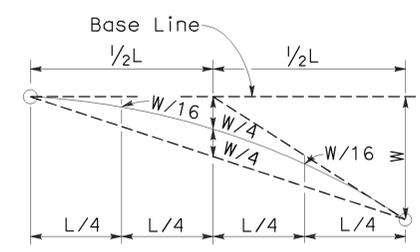
**SECTION A-A**  
**TYPICAL DOUBLE METAL BEAM GUARD RAILING**



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

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

**PARABOLIC FLARE OFFSETS**



**TYPICAL PARABOLIC LAYOUT**

**NOTES:**

- Line post, blocks and hardware to be used are shown on Standard Plans A77A1, A77A2, A77B1, A77C1 and A77C2.
- Guard railing post spacing to be 6'-3" center to center, except as otherwise noted.
- Except as noted, line posts are 6" x 8" x 6'-0" wood with 6" x 8" x 1'-2" wood blocks. W6 x 9 steel posts, 6'-0" in length, with 6" x 8" x 1'-2" notched wood blocks or notched recycled plastic blocks may be used for 6" x 8" x 6'-0" wood line posts with 6" x 8" x 1'-2" wood blocks where applicable and when specified.
- Direction of adjacent traffic indicated by →.
- For Transition Railing (Type WB) details, see Standard Plan A77J4.
- For additional details of a typical connection to bridge rail, see Connection Detail AA on Revised Standard Plan RSP A77J1.
- For Rail Tensioning Assembly details, see Standard Plan A77H2.
- The type of Crash Cushion to be used will be shown on the Project Plans.
- Type 12E Layout is typically used left of approaching traffic at the end of each structure on multilane freeways or expressways where a median type barrier is not constructed between separated roadbeds.
- The 15:1 or flatter flare is measured off of the edge of traveled way.

STATE OF CALIFORNIA  
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**METAL BEAM GUARD RAILING**  
**TYPICAL LAYOUTS FOR**  
**STRUCTURE APPROACH**

NO SCALE  
RSP A77F3 DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN A77F3  
DATED MAY 1, 2006 - PAGE 56 OF THE STANDARD PLANS BOOK DATED MAY 2006.

2006 REVISED STANDARD PLAN RSP A77F3

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
03	Sac	50	R2.6/R5.4, R12.2/R14.2	32	71

*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

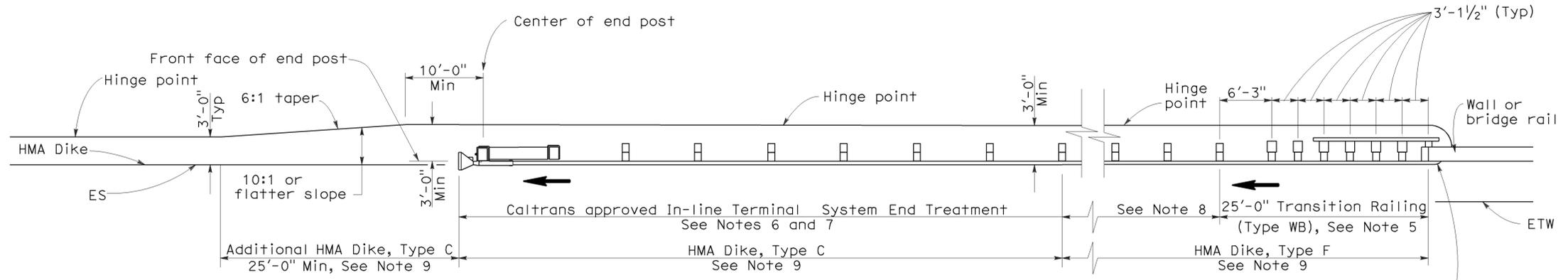
June 6, 2008  
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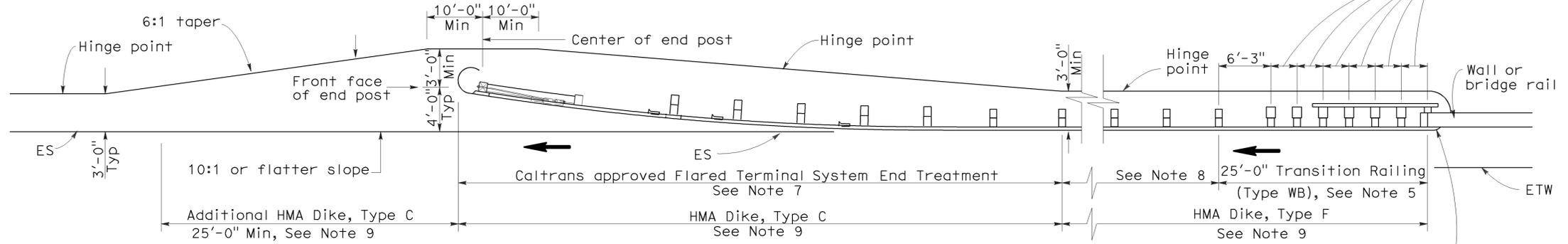
To accompany plans dated 3-25-11

2006 REVISED STANDARD PLAN RSP A77F4



**TYPE 12AA LAYOUT**

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



**TYPE 12BB LAYOUT**

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

**NOTES:**

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

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

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

**REVISED STANDARD PLAN RSP A77F4**

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
03	Sac	50	R2.6/R5.4, R12.2/R14.2	33	71

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REGISTERED CIVIL ENGINEER

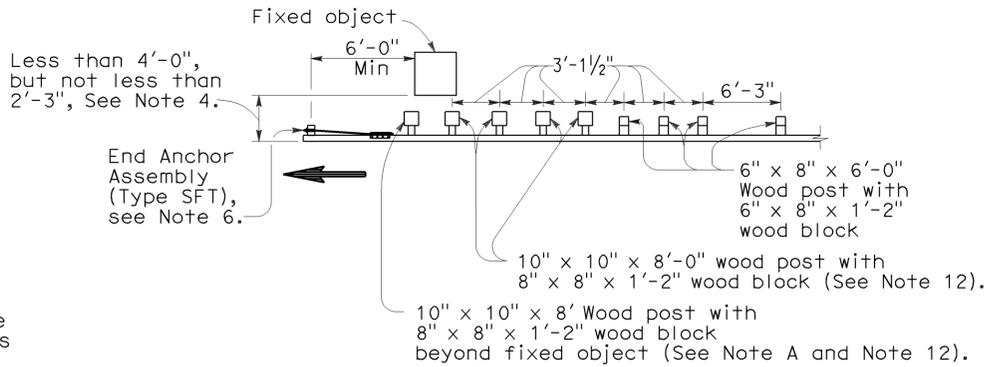
June 6, 2008  
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**NOTES:**

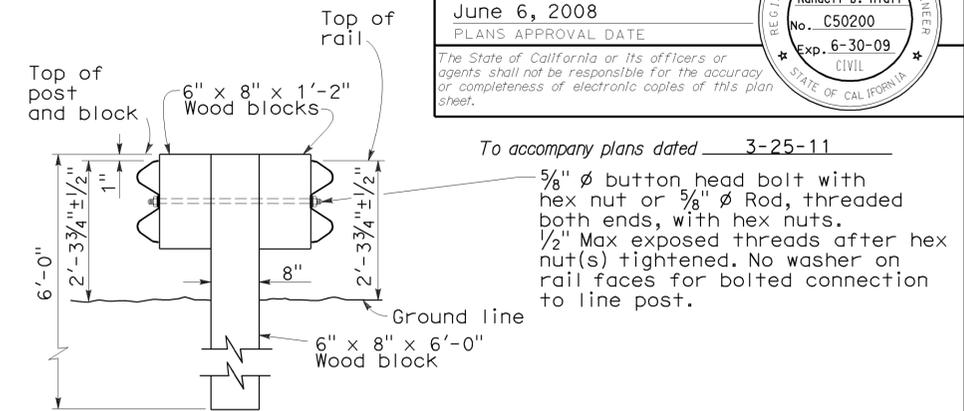
- Line post, blocks and hardware to be used are shown on Standard Plans A77A1, A77A2, A77B1, A77C1 and A77C2.
- Guard railing post spacing to be 6'-3" center to center, except as otherwise noted.
- Except as noted, line posts are 6" x 8" x 6'-0" wood with 6" x 8" x 1'-2" wood blocks. W6 x 9 steel posts, 6'-0" in length, with 6" x 8" x 1'-2" notched wood blocks or notched recycled plastic blocks may be used for 6" x 8" x 6'-0" wood line posts with 6" x 8" x 1'-2" wood blocks where applicable and when specified.
- A 4'-0" minimum clearance is required between the face of the railing and the face of a fixed object located directly behind standard guard railing sections with post spacing of 6'-3". Construct guard railing as shown in the detail "Strengthened Railing Sections for Fixed Objects" on this plan, where the clearance between the face of the railing and the face of a fixed object is less than 4'-0", but not less than 2'-3". Where the clearance is less than 2'-3", a concrete wall or barrier should be constructed to shield the fixed object(s).
- Direction of adjacent traffic indicated by  $\rightarrow$ .
- For End Anchor Assembly (Type SFT) details, see Standard Plan A77H1.
- For details of Rail Tensioning Assembly, see Standard Plan A77H2.
- The type of crash cushion to be used will be shown on the Project Plans.
- Type 14A layout is typically used on multilane freeways or expressways to shield fixed objects where a median type barrier is not constructed between the separated roadbeds.
- For typical flare offsets for 25'-0" length parabola with maximum offset of 1'-0", see Revised Standard Plan RSP A77E1.
- The 15:1 or flatter flare is measured off of the edge of traveled way.
- W6 x 15 steel post, 8'-0" in length, with 8" x 8" x 1'-2" notched wood block or notched recycled plastic block may be used in place of the 10" x 10" x 8'-0" wood post with 8" x 8" x 1'-2" wood block shown in the "Strengthened Railing Sections Detail".



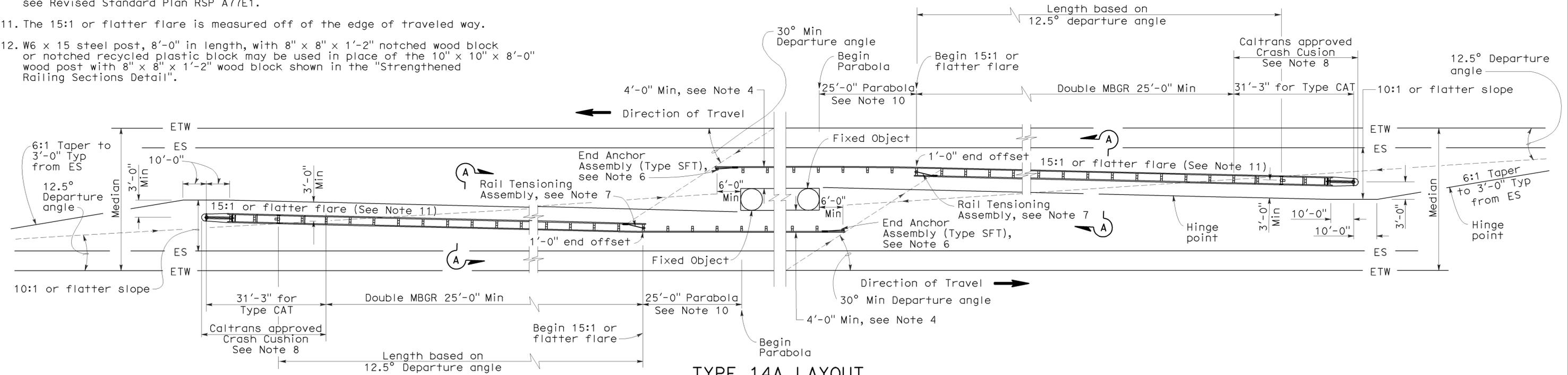
**NOTE A:** For a series of fixed objects (bridge columns, overhead sign supports, etc.) additional 10" x 10" x 8'-0" wood post with 8" x 8" x 1'-2" wood blocks at 3'-1/2" center to center spacing are to be used between fixed objects.

**STRENGTHENED RAILING SECTIONS FOR FIXED OBJECT**

Use strengthened railing sections with Type 14A layout where minimum clearance between the face of the guard railing and fixed object(s) is less than 4'-0", but not less than 2'-3", See Note 4.

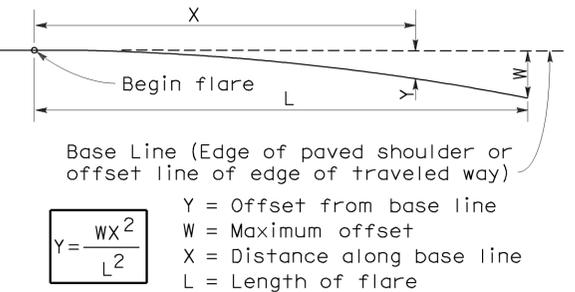


**SECTION A-A  
TYPICAL DOUBLE METAL BEAM GUARD RAILING**

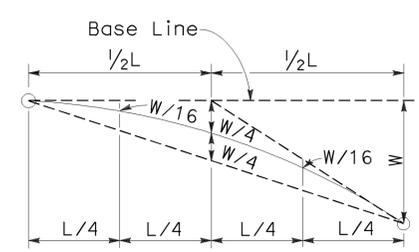


**TYPE 14A LAYOUT**

See Note 9



**PARABOLIC FLARE OFFSETS**



**TYPICAL PARABOLIC LAYOUT**

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**METAL BEAM GUARD RAILING  
TYPICAL LAYOUTS FOR  
FIXED OBJECTS  
BETWEEN SEPARATE ROADBEDS  
(TWO-WAY TRAFFIC)**

NO SCALE

RSP A77G1 DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN A77G1  
DATED MAY 1, 2006 - PAGE 59 OF THE STANDARD PLANS BOOK DATED MAY 2006.

**REVISED STANDARD PLAN RSP A77G1**

2006 REVISED STANDARD PLAN RSP A77G1

**NOTES:**

1. Line post, blocks and hardware to be used are shown on Standard Plans A77A1, A77A2, A77B1, A77C1 and A77C2.
2. Guard railing post spacing to be 6'-3" center to center, except as otherwise noted.
3. Except as noted, line posts are 6" x 8" x 6'-0" wood with 6" x 8" x 1'-2" wood blocks. W6 x 9 steel posts, 6'-0" in length, with 6" x 8" x 1'-2" notched wood blocks or notched recycled plastic blocks may be used for 6" x 8" x 6'-0" wood line posts with 6" x 8" x 1'-2" wood blocks where applicable and when specified.
4. A 4'-0" minimum clearance is required between the face of the railing and the face of a fixed object located directly behind standard guard railing section with post spacing of 6'-3". Construct guard railing as shown in the detail "Strengthened Railing Sections for Fixed Objects" on this plan, where the clearance between the face of the railing and the face of a fixed object is less than 4'-0", but not less than 2'-3". Where the clearance is less than 2'-3", a concrete wall or barrier should be constructed to shield the fixed object(s).
5. Direction of adjacent traffic indicated by  $\rightarrow$ .

6. For End Anchor Assembly (Type SFT) details, see Standard Plan A77H1.
7. Type of crash cushion to be used will be shown on the Project Plans.
8. Type 15A layout is typically used on multilane freeways or expressways to shield fixed objects in the area between separated one-way roadbeds.
9. For typical flare offsets for 25'-0" length parabola with maximum offset of 1'-0", see Revised Standard Plan RSP A77E1.
10. The 15:1 or flatter flare is measured off of the edge of the traveled way.
11. W6 x 15 steel post, 8'-0" in length, with 8" x 8" x 1'-2" notched wood block or notched recycled plastic blocks may be used in place of the 10" x 10" x 8'-0" wood post with 8" x 8" x 1'-2" wood block shown in the "Strengthened Railing Sections Detail".

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
03	Sac	50	R2.6/R5.4, R12.2/R14.2	34	71

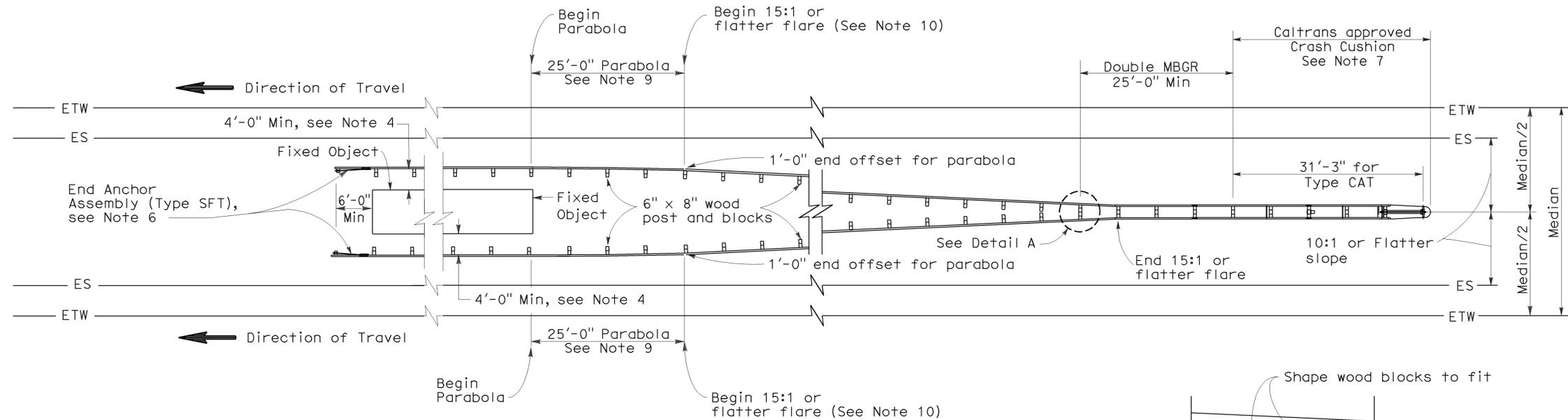
*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

June 6, 2008  
PLANS APPROVAL DATE

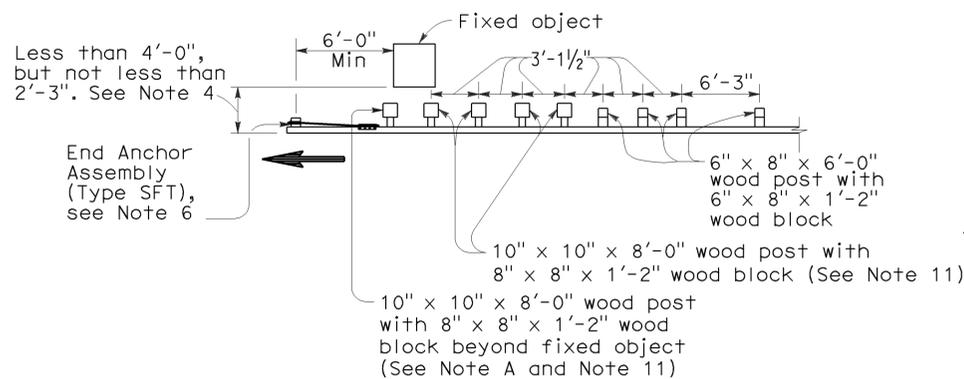
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To accompany plans dated 3-25-11

2006 REVISED STANDARD PLAN RSP A77G2



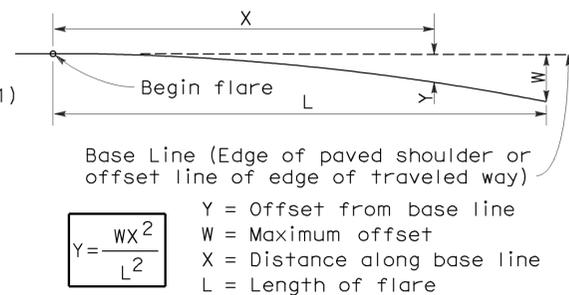
**TYPE 15A LAYOUT**  
See Note 9



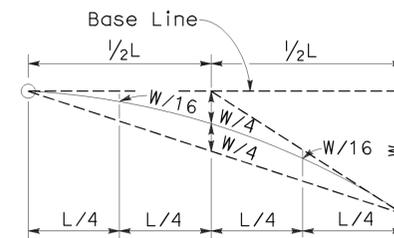
**NOTE A:** For a series of fixed objects (bridge columns, overhead sign supports, etc.) additional 10" x 10" x 8'-0" wood post with 8" x 8" x 1'-2" wood blocks at 3'-1/2" center to center spacing are to be used between fixed objects.

**STRENGTHENED RAILING SECTIONS FOR FIXED OBJECT**

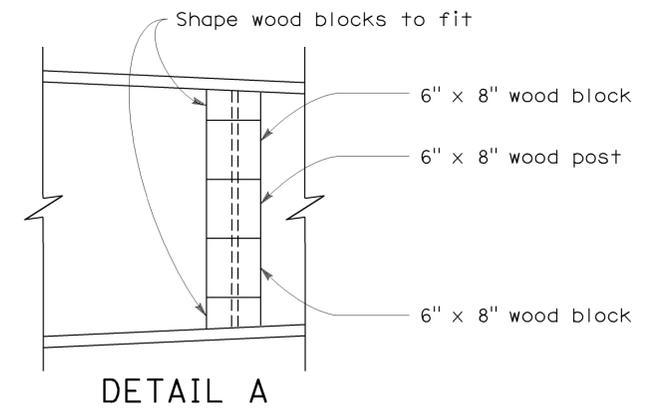
Use strengthened railing sections with Type 15A layout where minimum clearance between the face of the guard railing and the fixed object(s) is less than 4'-0", but not less than 2'-3". See Note 4.



**PARABOLIC FLARE OFFSETS**



**TYPICAL PARABOLIC LAYOUT**



**DETAIL A**

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**METAL BEAM GUARD RAILING  
TYPICAL LAYOUTS FOR  
FIXED OBJECTS  
BETWEEN SEPARATE ROADBEDS  
(ONE-WAY TRAFFIC)**

NO SCALE

RSP A77G2 DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN A77G2  
DATED MAY 1, 2006 - PAGE 60 OF THE STANDARD PLANS BOOK DATED MAY 2006.

**REVISED STANDARD PLAN RSP A77G2**

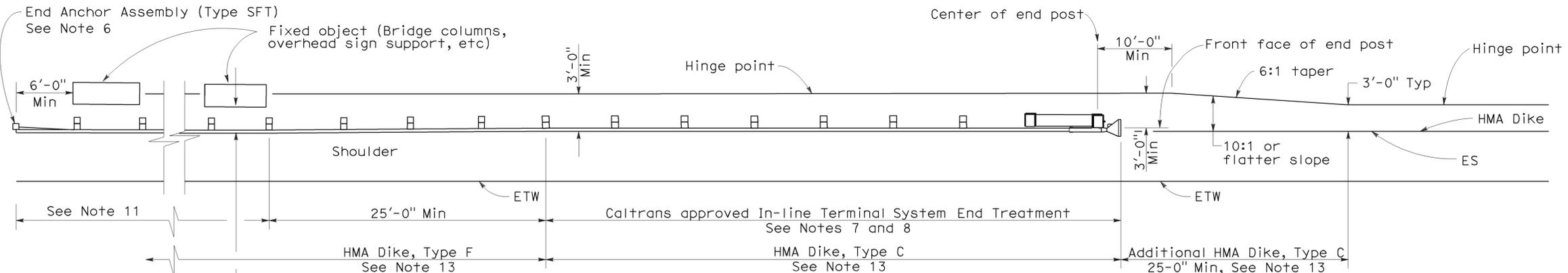
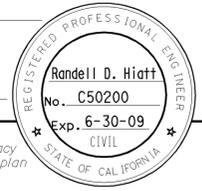
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
03	Sac	50	R2.6/R5.4, R12.2/R14.2	35	71

**Randell D. Hiatt**  
REGISTERED CIVIL ENGINEER

June 6, 2008  
PLANS APPROVAL DATE

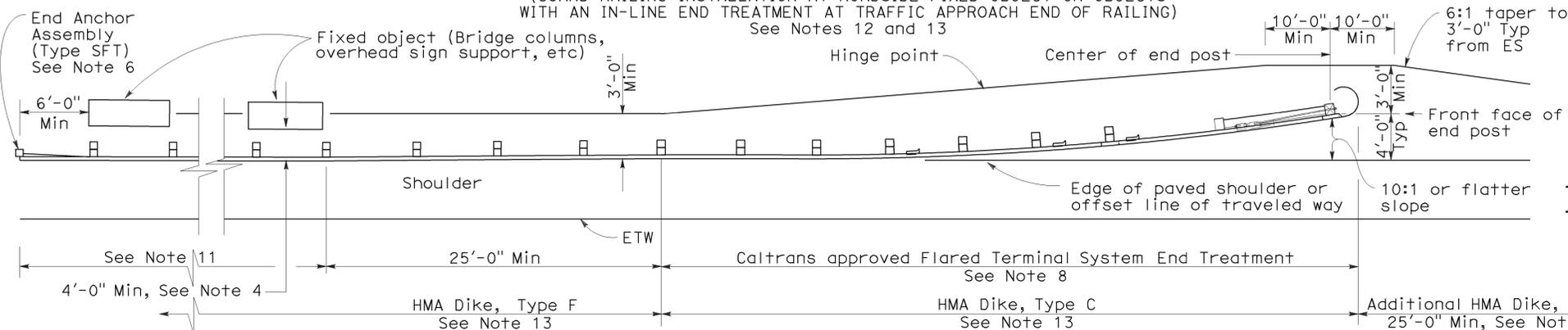
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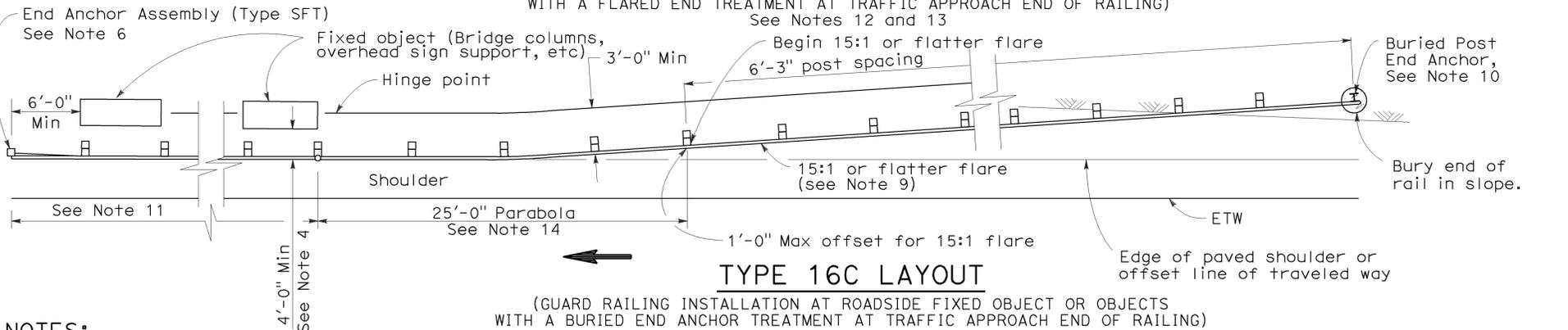
**TYPE 16A LAYOUT**

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



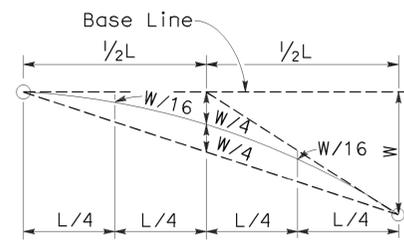
**TYPE 16B LAYOUT**

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

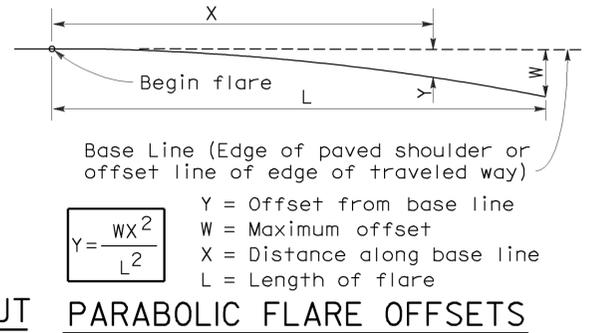


**TYPE 16C LAYOUT**

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

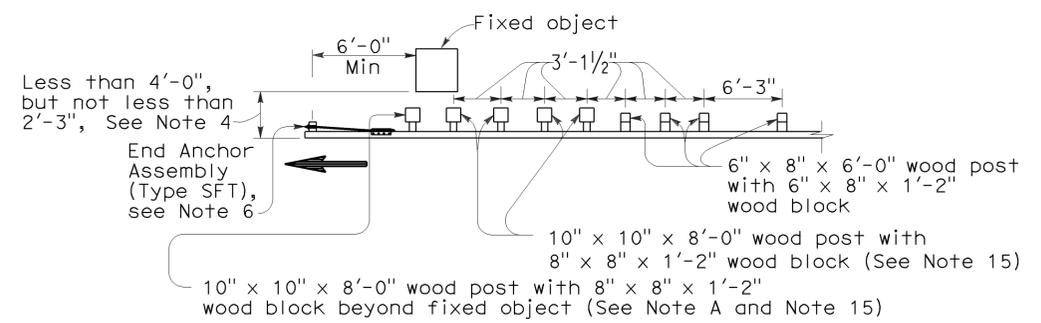


**TYPICAL PARABOLIC LAYOUT**



**NOTES:**

- Line post, blocks and hardware to be used are shown on Revised Standard Plans A77A1, A77A2, A77B1, A77C1 and A77C2.
- Guard railing post spacing to be 6'-3" center to center, except as otherwise noted.
- Except as noted, line posts are 6" x 8" x 6'-0" wood with 6" x 8" x 1'-2" wood blocks. W6 x 9 steel posts, 6'-0" in length, with 6" x 8" x 1'-2" notched wood blocks or notched recycled plastic blocks may be used for 6" x 8" x 6'-0" wood line posts with 6" x 8" x 1'-2" wood blocks where applicable and when specified.
- A 4'-0" minimum clearance is required between the face of the railing and the face of a fixed object located directly behind standard guard railing sections with post spacing of 6'-3". Construct guard railing as shown in the detail "Strengthened Railing Sections for Fixed Objects" on this plan, where the clearance between the face of the railing and the face of a fixed object is less than 4'-0", but not less than 2'-3". Where the clearance is less than 2'-3", a concrete wall or barrier should be constructed to shield the fixed object(s).
- Direction of adjacent traffic indicated by →.
- For End Anchor Assembly (Type SFT) details, see Standard Plan A77H1.
- In-line Terminal System End Treatments are used where site conditions will not accommodate a flared end treatment.
- The type of terminal system to be used will be shown on the Project Plans.
- The 15:1 or flatter flare used with Type 16C Layout is based on the edge of the paved shoulder or offset line of edge of the traveled way. The length of guard railing within the 15:1 or flatter flare is based on site conditions and should be a length equal to multiples of 12'-6".
- For details of the Buried Post End Anchor used with Type 16C Layout, see Standard Plan A77I2.
- As site conditions dictate, construct additional guard railing to shield fixed object(s). Additional guard railing length equal to multiples of 12'-6". Post spacing at 6'-3" except as specified in Note 4.
- Layout Types 16A, 16B or 16C are typically used where guard railing is recommended to shield roadside fixed object(s) and a crashworthy end treatment is required for only one direction of traffic.
- Where placement of dike is required with guard railing, see Revised Standard Plan RSP A77C4 for dike positioning details.
- For typical flare offsets for 25'-0" length parabola with maximum offset of 1'-0", see Revised Standard Plan RSP A77E1.
- W6 x 15 steel post, 8'-0" in length, with 8" x 8" x 1'-2" notched wood block or notched recycled plastic blocks may be used in place of the 10" x 10" x 8'-0" wood post with 8" x 8" x 1'-2" wood block shown in the "Strengthened Railing Sections Detail".



**NOTE A:**

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

**STRENGTHENED RAILING SECTIONS FOR FIXED OBJECT**

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

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

NO SCALE

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

**REVISED STANDARD PLAN RSP A77G3**

2006 REVISED STANDARD PLAN RSP A77G3

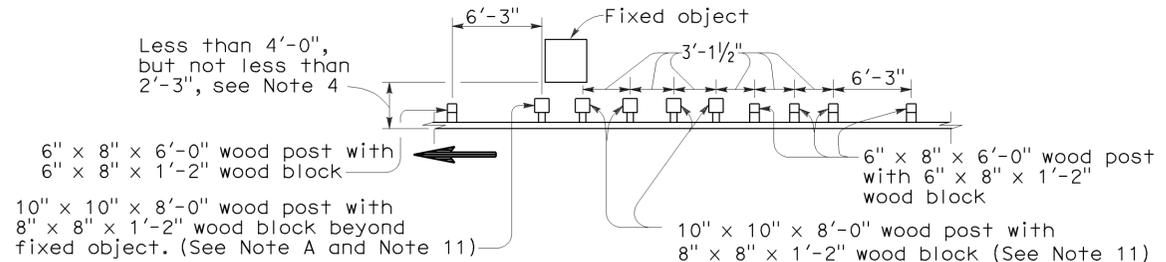
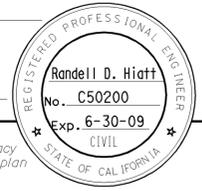
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
03	Sac	50	R2.6/R5.4, R12.2/R14.2	36	71

*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

June 6, 2008  
PLANS APPROVAL DATE

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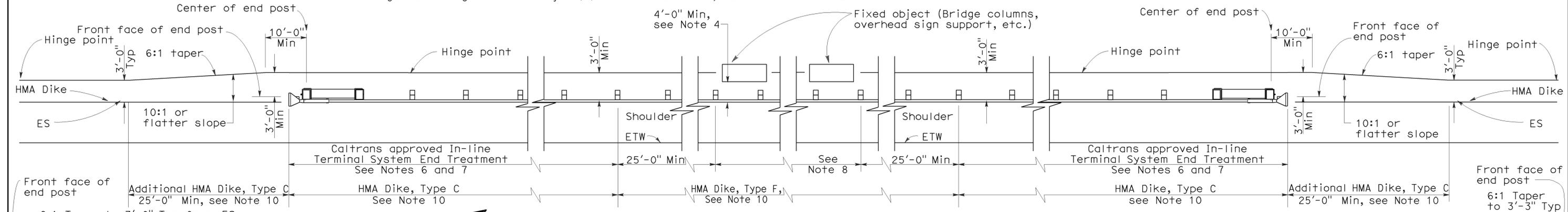
To accompany plans dated 3-25-11



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

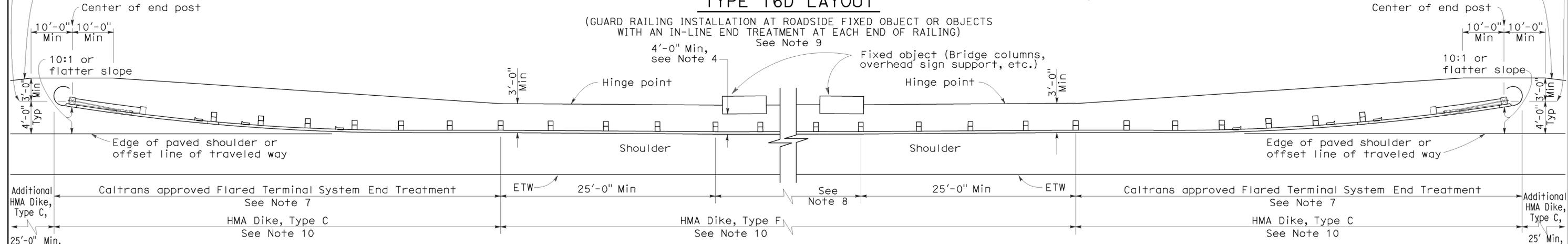
**STRENGTHENED RAILING SECTIONS FOR FIXED OBJECT**

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



**TYPE 16D LAYOUT**

(GUARD RAILING INSTALLATION AT ROADSIDE FIXED OBJECT OR OBJECTS WITH AN IN-LINE END TREATMENT AT EACH END OF RAILING) See Note 9



**TYPE 16E LAYOUT**

(GUARD RAILING INSTALLATION AT ROADSIDE FIXED OBJECT OR OBJECTS WITH A FLARED END TREATMENT AT EACH END OF RAILING) See Note 9

**NOTES:**

- Line post, blocks and hardware to be used are shown on Standard Plans A77A1, A77A2, A77B1, A77C1 and A77C2.
- Guard railing post spacing to be 6'-3" center to center, except as otherwise noted.
- Except as noted, line posts are 6" x 8" x 6'-0" wood with 6" x 8" x 1'-2" wood blocks. W6 x 9 steel posts, 6'-0" in length, with 6" x 8" x 1'-2" notched wood blocks or notched recycled plastic blocks may be used for 6" x 8" x 6'-0" wood line posts with 6" x 8" x 1'-2" wood blocks where applicable and when specified.
- A 4'-0" minimum clearance is required between the face of the railing and the face of a fixed object located directly behind standard guard railing sections with post spacing at 6'-3". Construct guard railing as shown in the detail "Strengthened Railing Sections for Fixed Objects" on this plan, where the clearance between the face of the railing and the face of a fixed object is less than 4'-0", but not less than 2'-3". Where the clearance is less than 2'-3", a concrete wall or barrier should be constructed to shield the fixed object(s).
- Direction of adjacent traffic indicated by →.

- In-line Terminal System End Treatments are used where site conditions will not accommodate a flared end treatment.
- The type of terminal system to be used will be shown on the Project Plans.
- As site conditions dictate, construct additional guard railing to shield fixed object(s). Additional guard railing length equal to multiples of 12'-6". Post spacing at 6'-3", except as specified in Note 4.
- Layout Types 16D through 16L, shown on the A77G Series of Revised Standard Plans, are typically used where guard railing is recommended to shield roadside fixed object(s) and a crashworthy end treatment is required for both directions of traffic.
- Where placement of dike is required with guard railing, see Revised Standard Plan RSP A77C4 for dike positioning details.

11. W6 x 15 steel post, 8'-0" in length, with 8" x 8" x 1'-2" notched wood block or notched recycled plastic block may be used in place of the 10" x 10" x 8'-0" wood post with 8" x 8" x 1'-2" wood block shown in the "Strengthened Railing Sections Detail."

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**METAL BEAM GUARD RAILING  
TYPICAL LAYOUTS FOR  
ROADSIDE FIXED OBJECTS**  
NO SCALE

RSP A77G4 DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN A77G4  
DATED MAY 1, 2006 - PAGE 62 OF THE STANDARD PLANS BOOK DATED MAY 2006.

**REVISED STANDARD PLAN RSP A77G4**

2006 REVISED STANDARD PLAN RSP A77G4

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
03	Sac	50	R2.6/R5.4, R12.2/R14.2	37	71

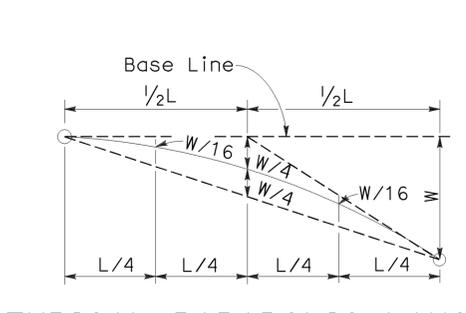
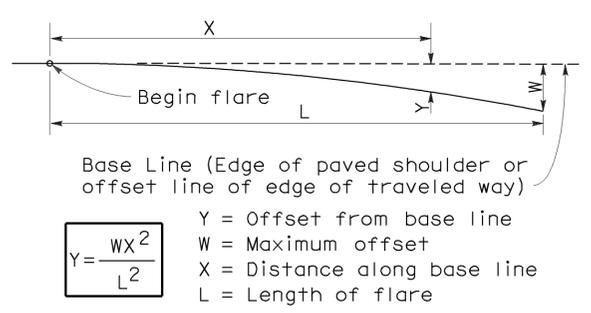
**Randell D. Hiatt**  
REGISTERED CIVIL ENGINEER

June 6, 2008  
PLANS APPROVAL DATE

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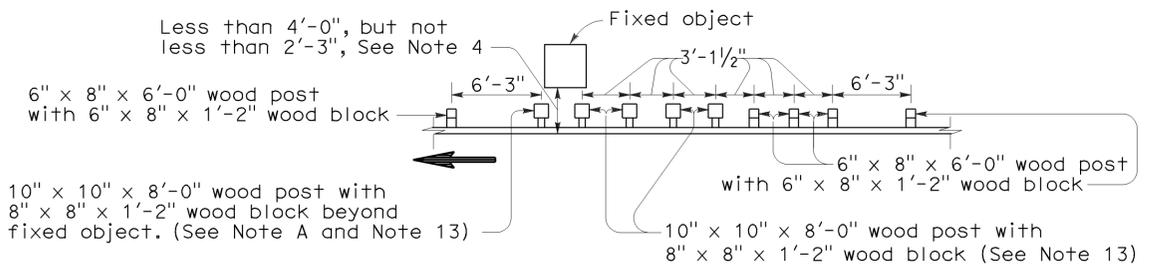
To accompany plans dated 3-25-11

2006 REVISED STANDARD PLAN RSP A77G5



**PARABOLIC FLARE OFFSETS**

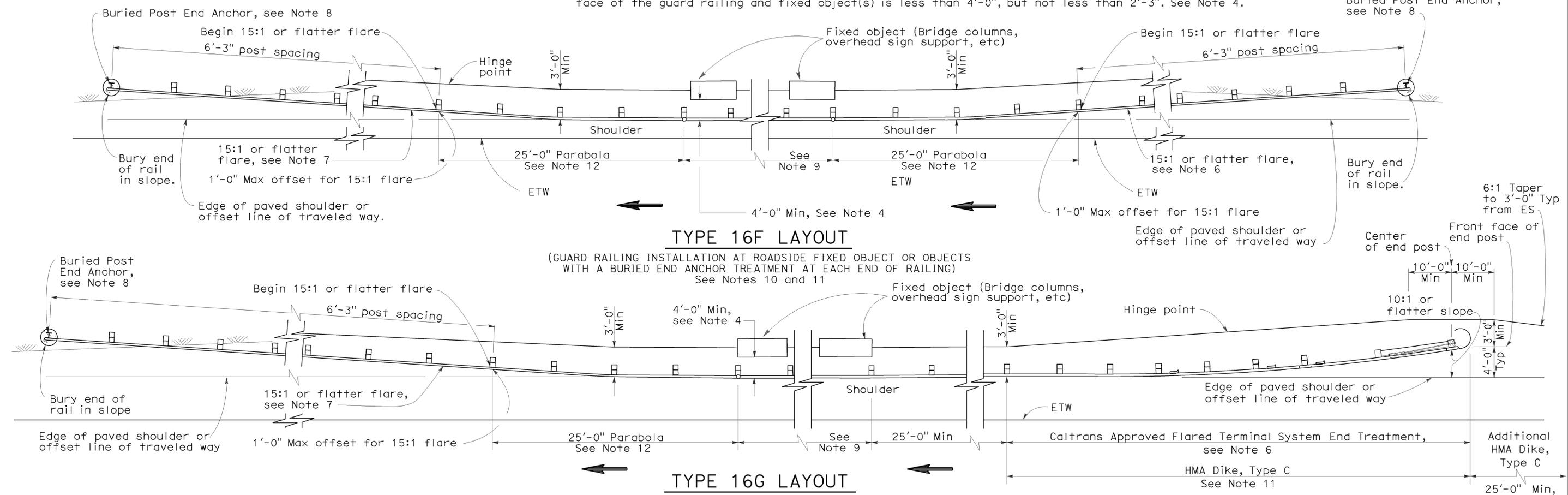
**TYPICAL PARABOLIC LAYOUT**



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

**STRENGTHENED RAILING SECTIONS FOR FIXED OBJECT**

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



**NOTES:**

- Line post, blocks and hardware to be used are shown on Standard Plans A77A1, A77A2, A77B1, A77C1 and A77C2.
- Guard railing post spacing to be 6'-3" center to center, except as otherwise noted.
- Except as noted, line posts are 6" x 8" x 6'-0" wood with 6" x 8" x 1'-2" wood blocks. W6 x 9 steel posts, 6'-0" in length, with 8" x 8" x 1'-2" notched wood blocks or notched recycled plastic blocks may be used for 6" x 8" x 6'-0" wood posts with 6" x 8" x 1'-2" wood blocks where applicable and when specified.
- A 4'-0" minimum clearance is required between the face of the railing and the face of a fixed object located directly behind standard guard railing sections with post spacing at 6'-3". Construct guard railing as shown in the detail "Strengthened Railing Sections for Fixed Objects" on this plan, where the clearance between the face of the railing and the face of a fixed object is less than 4'-0", but not less than 2'-3". Where the clearance is less than 2'-3", a concrete wall or barrier should be constructed to shield the fixed object(s).
- Direction of adjacent traffic indicated by →.

- The type of terminal system to be used will be shown on the Project Plans.
- The 15:1 or flatter flare for the buried post anchor 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 details, see Standard Plan A77I2.
- As site conditions dictate, construct additional guard railing to shield fixed object(s). Additional guard railing length equal to multiples of 12'-6". Post spacing at 6'-3", except as specified in Note 4.
- Layout Types 16D through 16L, shown on the A77G Series of Revised Standard Plans, are typically used on highways where guard railing is recommended to shield roadside fixed object(s) and a crashworthy end treatment is required for both directions of traffic.
- Where placement of dike is required with guard railing, see Revised Standard Plan RSP A77C4 for dike positioning details.

- For typical flare offsets for 25'-0" length parabola with maximum offset of 1'-0", see Revised Standard Plan RSP A77E1.
- W6 x 15 steel post, 8'-0" in length, with 8" x 8" x 1'-2" notched wood block or notched recycled plastic blocks may be used in place of the 10" x 10" x 8'-0" wood post with 8" x 8" x 1'-2" wood block shown in the "Strengthened Railing Sections Detail".

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**METAL BEAM GUARD RAILING  
TYPICAL LAYOUTS FOR  
ROADSIDE FIXED OBJECTS**

NO SCALE

RSP A77G5 DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN A77G5  
DATED MAY 1, 2006 - PAGE 63 OF THE STANDARD PLANS BOOK DATED MAY 2006.

**REVISED STANDARD PLAN RSP A77G5**

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
03	Sac	50	R2.6/R5.4, R12.2/R14.2	38	71

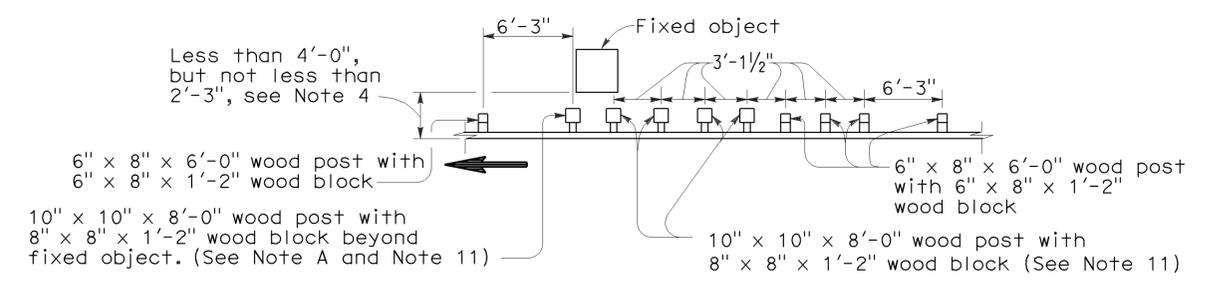
*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

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

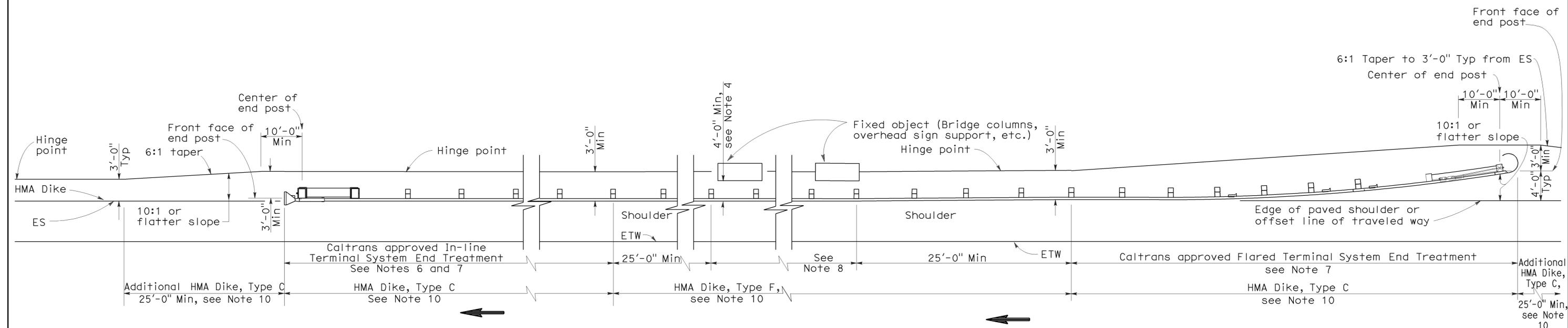
To accompany plans dated 3-25-11



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

### STRENGTHENED RAILING SECTIONS FOR FIXED OBJECT

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



### TYPE 16H LAYOUT

(GUARD RAILING INSTALLATION AT ROADSIDE FIXED OBJECT OR OBJECTS WITH A FLARED END TREATMENT AND AN IN-LINE TREATMENT AT THE ENDS OF RAILING) See Note 9

#### NOTES:

- Line post, blocks and hardware to be used are shown on Standard Plans A77A1, A77A2, A77B1, A77C1 and A77C2.
- Guard railing post spacing to be 6'-3" center to center, except as otherwise noted.
- Except as noted, line posts are 6" x 8" x 6'-0" wood with 6" x 8" x 1'-2" wood blocks. W6 x 9 steel posts, 6'-0" in length, with 6" x 8" x 1'-2" notched wood blocks or notched recycled plastic blocks may be used for 6" x 8" x 6'-0" wood posts with 6" x 8" x 1'-2" wood blocks where applicable and when specified.
- A 4'-0" minimum clearance is required between the face of the railing and the face of a fixed object located directly behind standard guard railing sections with post spacing at 6'-3". Construct guard railing as shown in the detail "Strengthened Railing Sections for Fixed Objects" on this plan, where the clearance between the face of the railing and the face of a fixed object is less than 4'-0", but not less than 2'-3". Where the clearance is less than 2'-3", a concrete wall or barrier should be constructed to shield the fixed object(s).
- Direction of adjacent traffic indicated by → .

- In-line Terminal System End Treatments are used where site conditions will not accommodate a flared end treatment.
- The type of terminal system to be used will be shown on the Project Plans.
- As site conditions dictate, construct additional guard railing to shield fixed object(s). Additional guard railing length equal to multiples of 12'-6". Post spacing at 6'-3", except as specified in Note 4.
- Layout Types 16D through 16L, shown on the A77G Series of Revised Standard Plans, typically used where guard railing is recommended to shield roadside fixed object(s) and a crashworthy end treatment is required for both directions of traffic.
- Where placement of dike is required with guard railing, see Revised Standard Plan RSP A77C4 for dike positioning details.
- W6 x 15 steel post, 8'-0" in length, with 8" x 8" x 1'-2" notched wood block or notched recycled plastic blocks may be used in place of the 10" x 10" x 8'-0" wood post with 8" x 8" x 1'-2" wood block shown in the "Strengthened Railing Sections Detail".

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

## METAL BEAM GUARD RAILING TYPICAL LAYOUTS FOR ROADSIDE FIXED OBJECTS

NO SCALE  
RSP A77G6 DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN A77G6  
DATED MAY 1, 2006 - PAGE 64 OF THE STANDARD PLANS BOOK DATED MAY 2006.

### REVISED STANDARD PLAN RSP A77G6

2006 REVISED STANDARD PLAN RSP A77G6

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
03	Sac	50	R2.6/R5.4, R12.2/R14.2	39	71

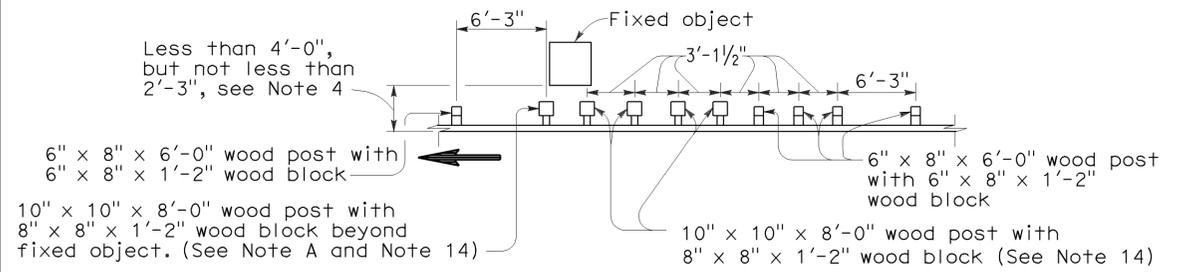
**Randell D. Hiatt**  
REGISTERED CIVIL ENGINEER

June 6, 2008  
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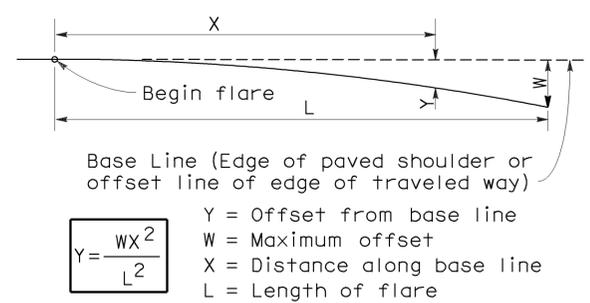
To accompany plans dated 3-25-11

2006 REVISED STANDARD PLAN RSP A77G7

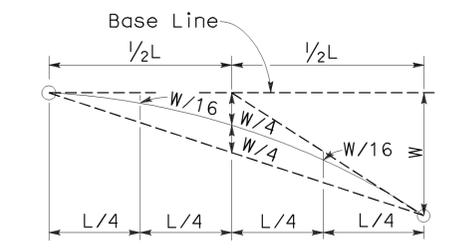


Note A. For a series of fixed objects (bridge columns, overhead sign supports, etc.) additional 10" x 10" x 8'-0" wood post with 8" x 8" x 1'-2" wood blocks at 3'-1/2" center to center spacing are to be used between fixed object(s).

**STRENGTHENED RAILING SECTIONS FOR FIXED OBJECT**

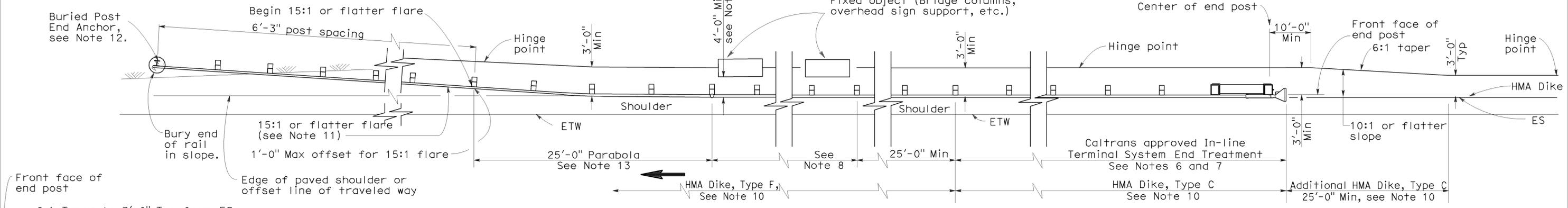


**PARABOLIC FLARE OFFSETS**



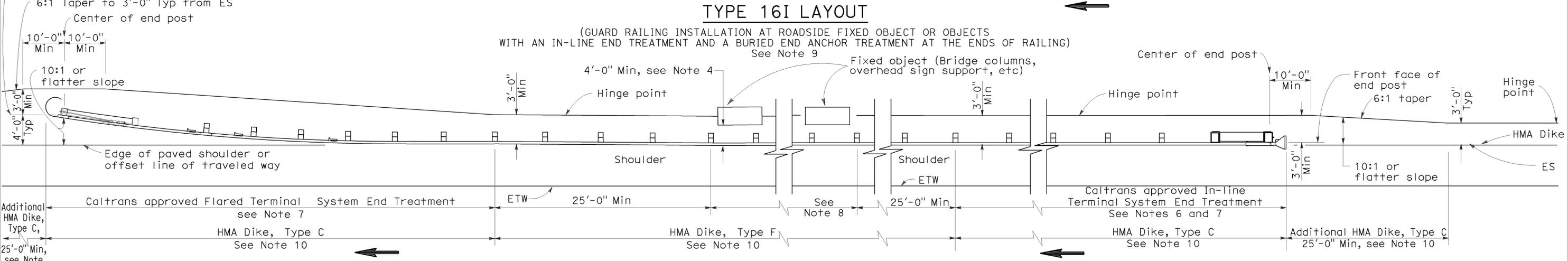
**TYPICAL PARABOLIC LAYOUT**

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



**TYPE 16I LAYOUT**

(GUARD RAILING INSTALLATION AT ROADSIDE FIXED OBJECT OR OBJECTS WITH AN IN-LINE END TREATMENT AND A BURIED END ANCHOR TREATMENT AT THE ENDS OF RAILING) See Note 9



**TYPE 16J LAYOUT**

(GUARD RAILING INSTALLATION AT ROADSIDE FIXED OBJECT OR OBJECTS WITH AN IN-LINE END TREATMENT AND A FLARED END TREATMENT AT THE ENDS OF RAILING) See Note 9

**NOTES:**

- Line post, blocks and hardware to be used are shown on Standard Plans A77A1, A77A2, A77B1, A77C1 and A77C2.
- Guard railing post spacing to be 6'-3" center to center, except as otherwise noted.
- Except as noted, line posts are 6" x 8" x 6'-0" wood with 6" x 8" x 1'-2" notched wood blocks or notched recycled plastic blocks may be used for 6" x 8" x 6'-0" wood posts with 6" x 8" x 1'-2" wood blocks where applicable and when specified.
- A 4'-0" minimum clearance is required between the face of the railing and the face of a fixed object located directly behind standard guard railing sections with post spacing at 6'-3". Construct guard railing as shown in the detail "Strengthened Railing Sections for Fixed Objects" on this plan, where the clearance between the face of the railing and the face of a fixed object is less than 4'-0", but not less than 2'-3". Where the clearance is less than 2'-3", a concrete wall or barrier should be constructed to shield the fixed object(s).
- Direction of adjacent traffic indicated by  $\rightarrow$ .

- In-line Terminal System End Treatments are used where site conditions will not accommodate a flared end treatment.
- The type of terminal system to be used will be shown on the Project Plans.
- As site conditions dictate, construct additional guard railing to shield fixed object(s). Additional guard railing length equal to multiples of 12'-6". Post spacing at 6'-3", except as specified in Note 4.
- Layout Types 16D through 16L, shown on the A77G Series of Revised Standard Plans, are typically used where guard railing is recommended to shield roadside fixed object(s) and a crashworthy end treatment is required for both directions of traffic.
- Where placement of dike is required with guard railing, see Revised Standard Plan RSP A77C4 for dike positioning details.
- The 15:1 or flatter flare for the buried post anchor 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 Buried Post End Anchor details, see Standard Plan A77I2.
- For typical flare offsets for 25'-0" length parabola with maximum offset of 1'-0", see Revised Standard RSP Plan A77E1.
- W6 x 15 steel post, 8'-0" in length, with 8" x 8" x 1'-2" notched wood block or notched recycled plastic blocks may be used in place of the 10" x 10" x 8'-0" wood post with 8" x 8" x 1'-2" wood block shown in the "Strengthened Railing Sections Detail".

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**METAL BEAM GUARD RAILING**  
**TYPICAL LAYOUTS FOR**  
**ROADSIDE FIXED OBJECTS**  
NO SCALE

RSP A77G7 DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN A77G7  
DATED MAY 1, 2006 - PAGE 65 OF THE STANDARD PLANS BOOK DATED MAY 2006.

**REVISED STANDARD PLAN RSP A77G7**

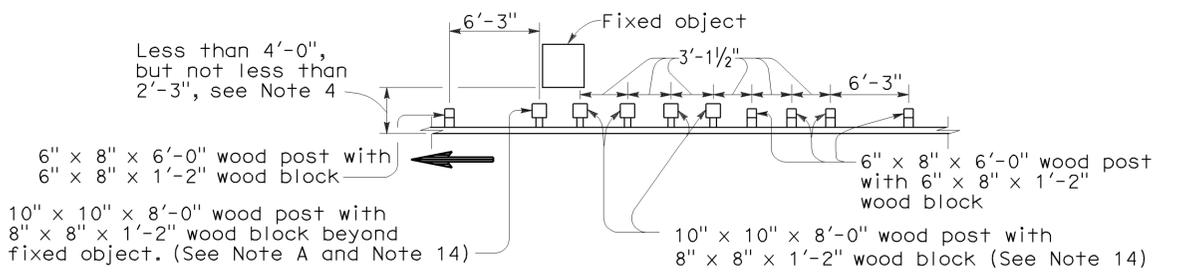
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
03	Sac	50	R2.6/R5.4, R12.2/R14.2	40	71

*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

June 6, 2008  
PLANS APPROVAL DATE

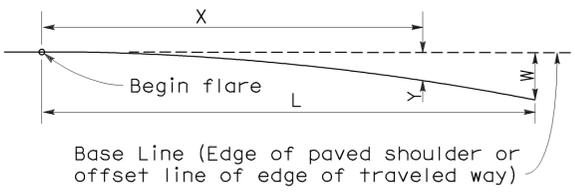
*The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.*

To accompany plans dated 3-25-11



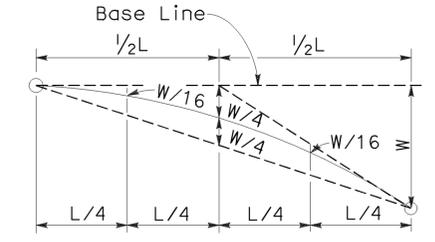
Note A. For a series of fixed objects (bridge columns, overhead sign supports, etc.) additional 10" x 10" x 8'-0" wood post with 8" x 8" x 1'-2" wood blocks at 3'-1/2" center to center spacing are to be used between fixed object(s).

**STRENGTHENED RAILING SECTIONS FOR FIXED OBJECT**



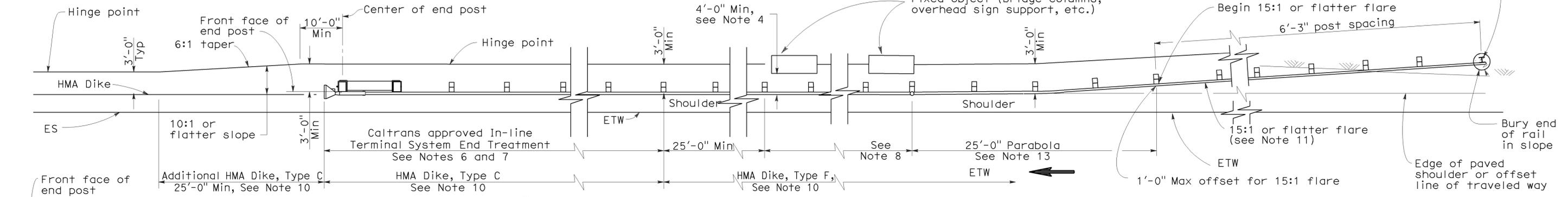
Y = Offset from base line  
W = Maximum offset  
X = Distance along base line  
L = Length of flare

**PARABOLIC FLARE OFFSETS**



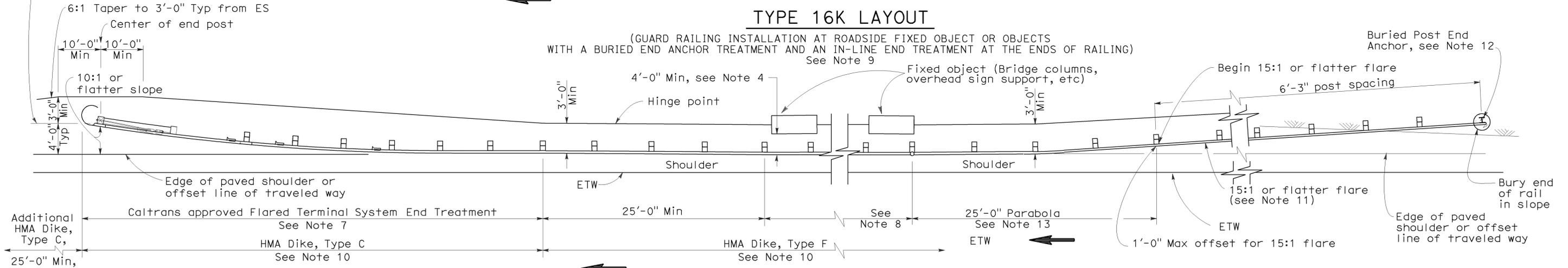
**TYPICAL PARABOLIC LAYOUT**

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



**TYPE 16K LAYOUT**

(GUARD RAILING INSTALLATION AT ROADSIDE FIXED OBJECT OR OBJECTS WITH A BURIED END ANCHOR TREATMENT AND AN IN-LINE END TREATMENT AT THE ENDS OF RAILING) See Note 9



**TYPE 16L LAYOUT**

(GUARD RAILING INSTALLATION AT ROADSIDE FIXED OBJECT OR OBJECTS WITH A BURIED END ANCHOR TREATMENT AND A FLARED END TREATMENT AT THE ENDS OF RAILING) See Note 9

**NOTES:**

- Line post, blocks and hardware to be used are shown on Standard Plans A77A1, A77A2, A77B1, A77C1 and A77C2.
- Guard railing post spacing to be 6'-3" center to center, except as otherwise noted.
- Except as noted, line posts are 6" x 8" x 6'-0" wood with 6" x 8" x 1'-2" wood blocks. W6 x 9 steel posts, 6'-0" in length, with 6" x 8" x 1'-2" notched wood blocks or notched recycled plastic blocks may be used for 6" x 8" x 6'-0" wood posts with 6" x 8" x 1'-2" wood blocks where applicable and when specified.
- A 4'-0" minimum clearance is required between the face of the railing and the face of a fixed object located directly behind standard guard railing sections with post spacing at 6'-3". Construct guard railing as shown in the detail "Strengthened Railing Sections for Fixed Objects" on this plan, where the clearance between the face of the railing and the face of a fixed object is less than 4'-0", but not less than 2'-3". Where the clearance is less than 2'-3", a concrete wall or barrier should be constructed to shield the fixed object(s).
- Direction of adjacent traffic indicated by →.

- In-line Terminal System End Treatments are used where site conditions will not accommodate a flared end treatment.
- The type of terminal system to be used will be shown on the Project Plans.
- As site conditions dictate, construct additional guard railing to shield fixed object(s). Additional guard railing length equal to multiples of 12'-6". Post spacing at 6'-3", except as specified in Note 4.
- Layout Types 16D through 16L, shown on the A77G Series of Revised Standard Plans are typically used where guard railing is recommended to shield roadside fixed object(s) and a crashworthy end treatment is required for both directions of traffic.
- Where placement of dike is required with guard railing, see Revised Standard Plan RSP A77C4 for dike positioning details.
- The 15:1 or flatter flare for the buried post anchor 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 Buried Post End Anchor details, see Standard Plan A77I2.
- For typical flare offsets for 25'-0" length parabola with maximum offset of 1'-0", see Revised Standard RSP Plan A77E1.
- W6 x 15 steel post, 8'-0" in length, with 8" x 8" x 1'-2" notched wood block or notched recycled plastic blocks may be used in place of the 10" x 10" x 8'-0" wood post with 8" x 8" x 1'-2" wood block shown in the "Strengthened Railing Sections Detail".

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

NO SCALE  
RSP A77G8 DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN A77G8  
DATED MAY 1, 2006 - PAGE 66 OF THE STANDARD PLANS BOOK DATED MAY 2006.  
**REVISED STANDARD PLAN RSP A77G8**

2006 REVISED STANDARD PLAN RSP A77G8

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
03	Sac	50	R2.6/R5.4, R12.2/R14.2	41	71

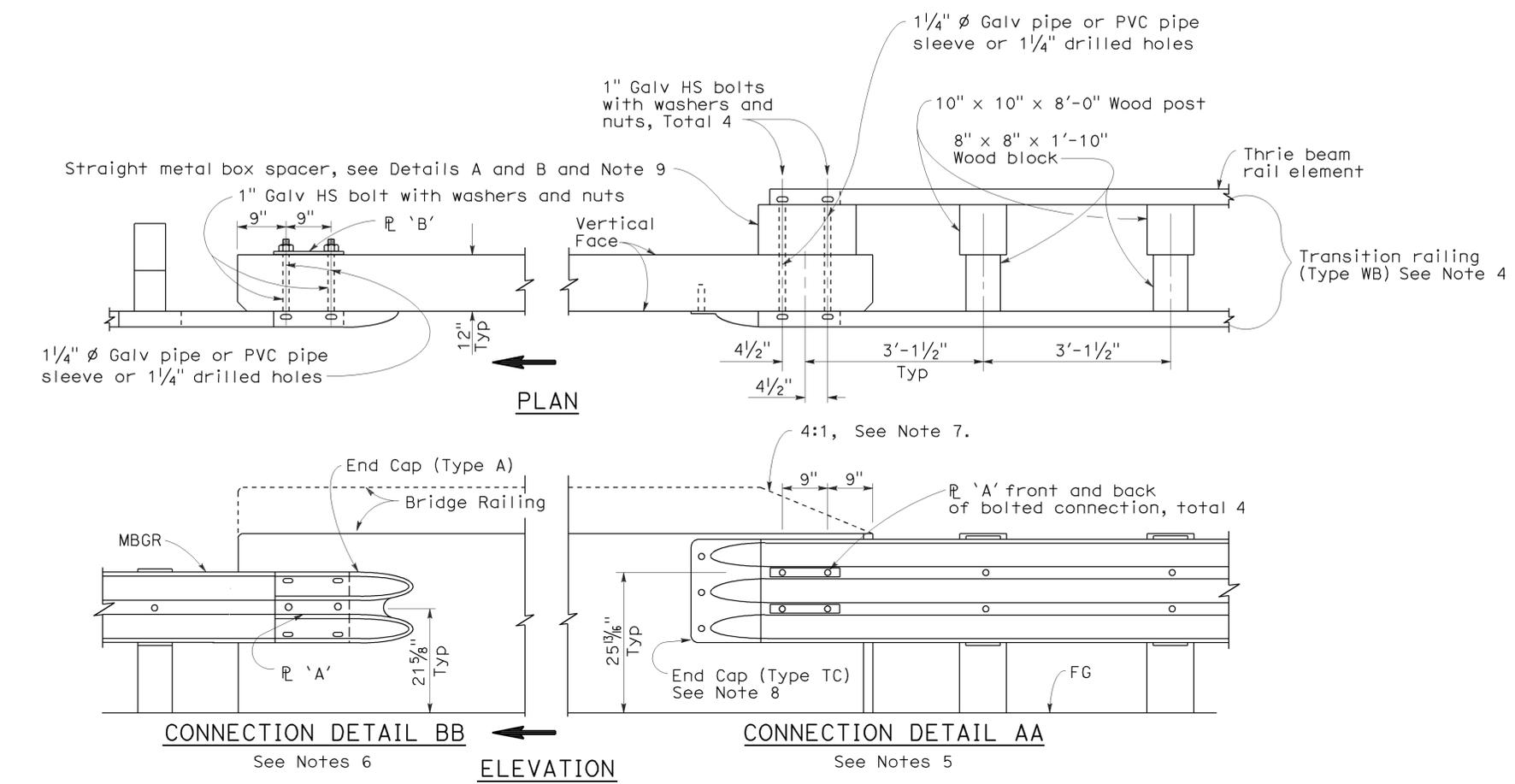
*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

June 6, 2008  
PLANS APPROVAL DATE

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

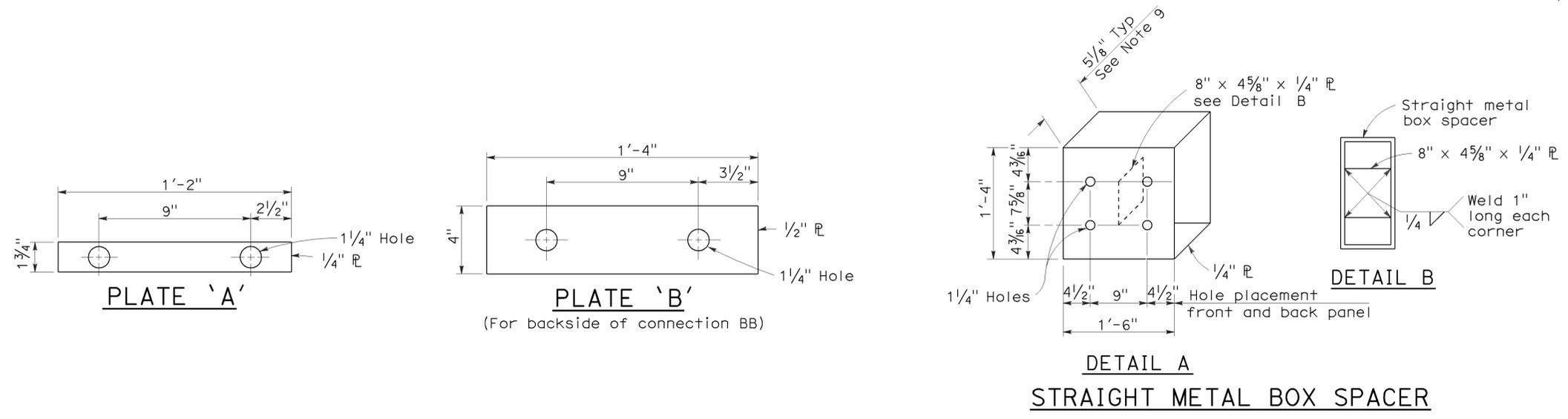
To accompany plans dated 3-25-11



**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	Sac	50	R2.6/R5.4, R12.2/R14.2	42	71

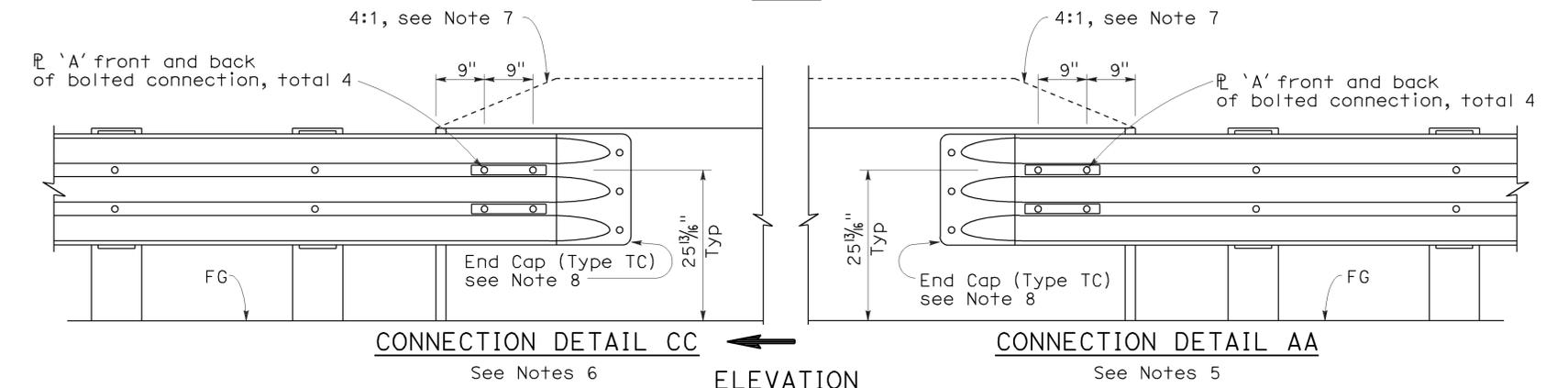
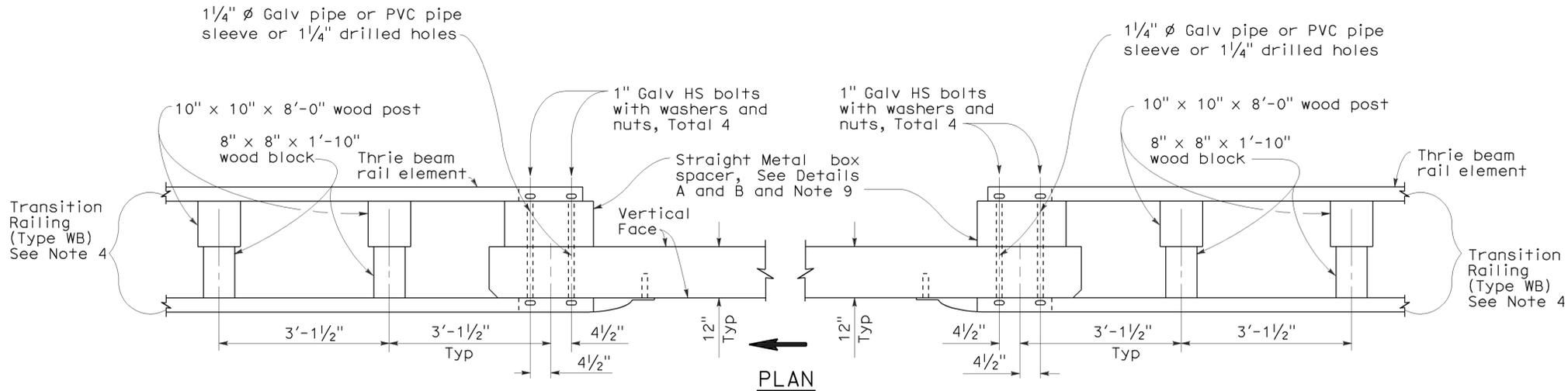
**Randell D. Hiatt**  
REGISTERED CIVIL ENGINEER

June 6, 2008  
PLANS APPROVAL DATE

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

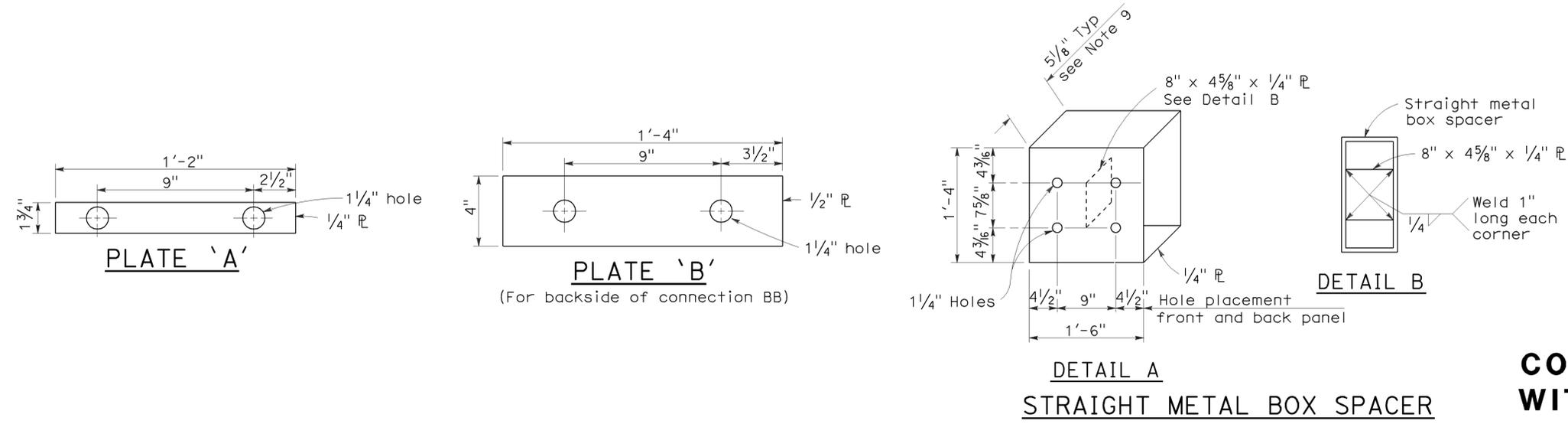
To accompany plans dated 3-25-11



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

**NOTES:**

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



STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

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

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

**REVISED STANDARD PLAN RSP A77J2**

2006 REVISED STANDARD PLAN RSP A77J2

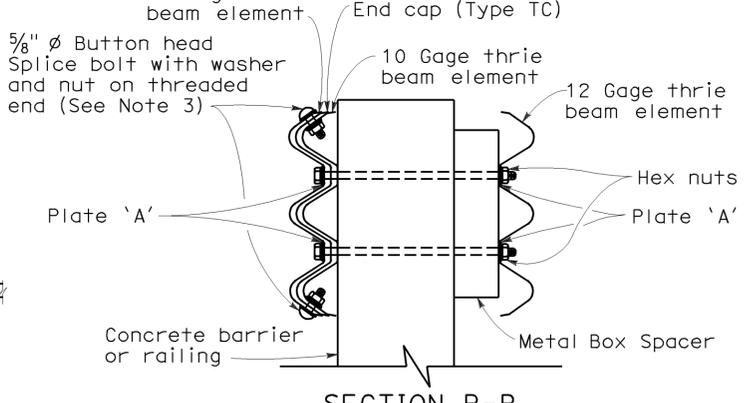
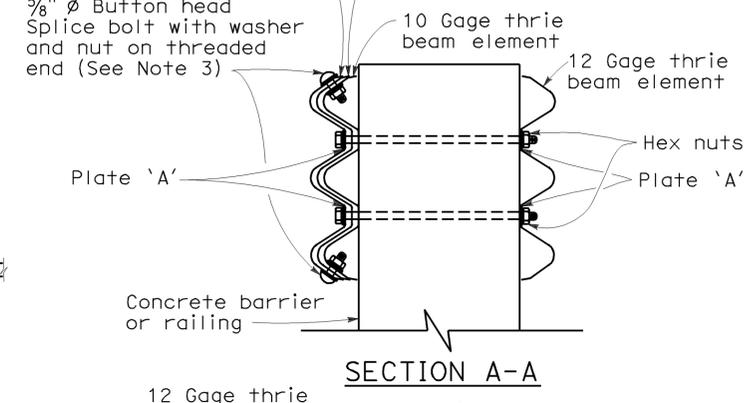
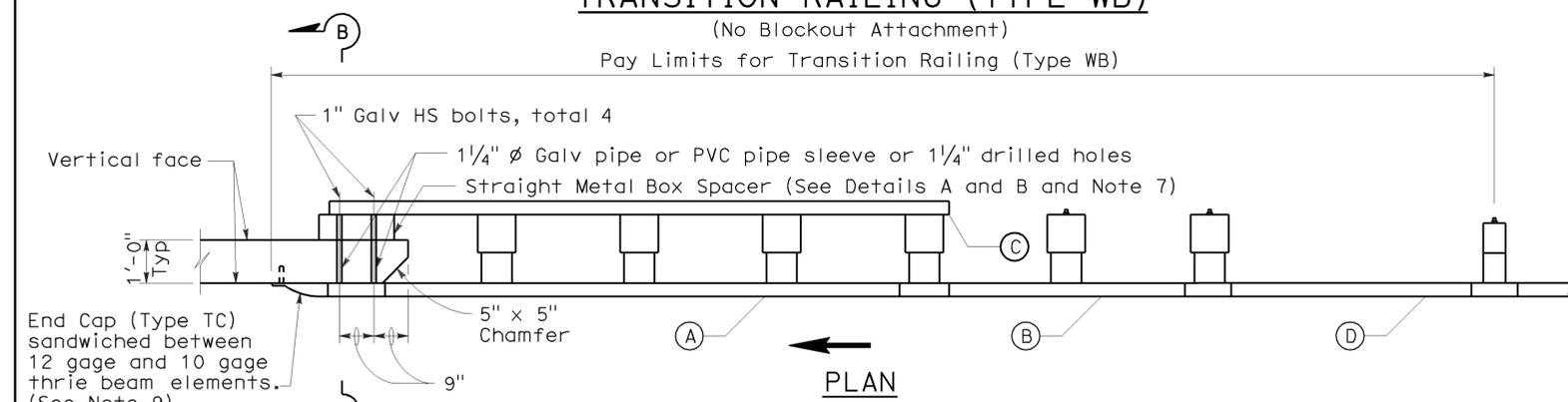
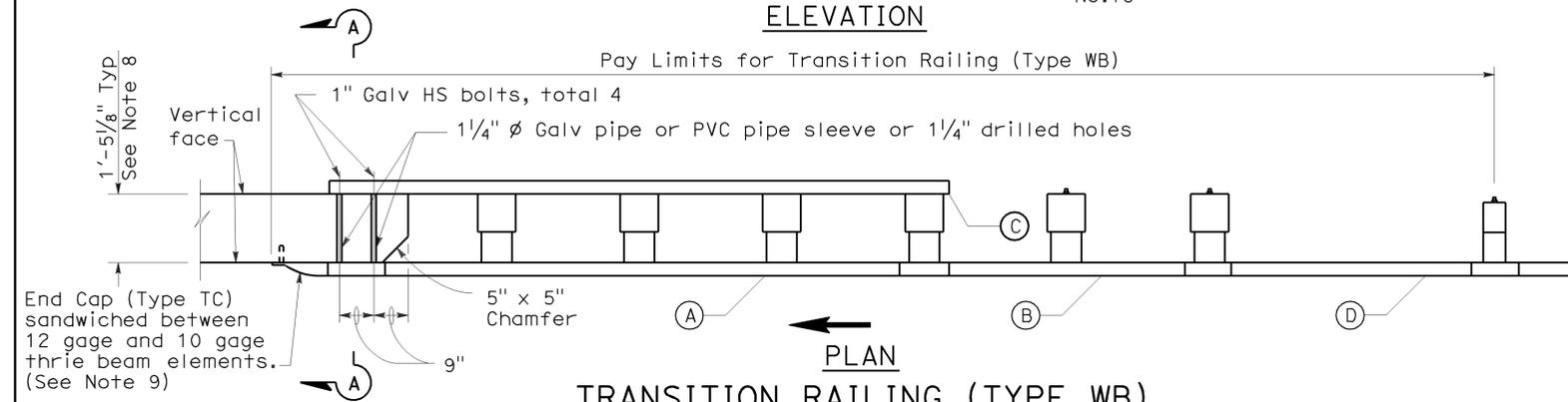
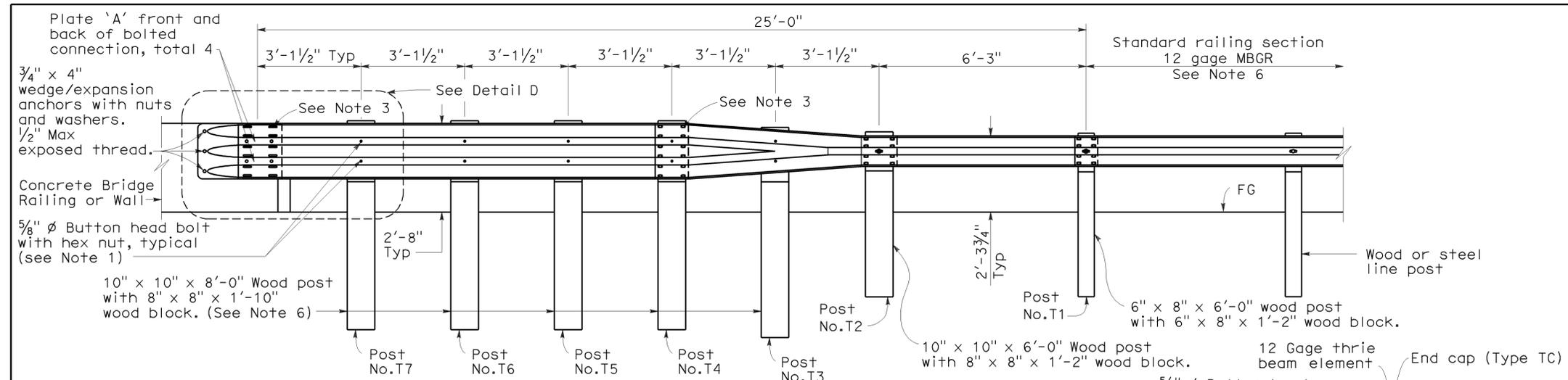
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
03	Sac	50	R2.6/R5.4, R12.2/R14.2	43	71

**Randell D. Hiatt**  
REGISTERED CIVIL ENGINEER

June 5, 2009  
PLANS APPROVAL DATE

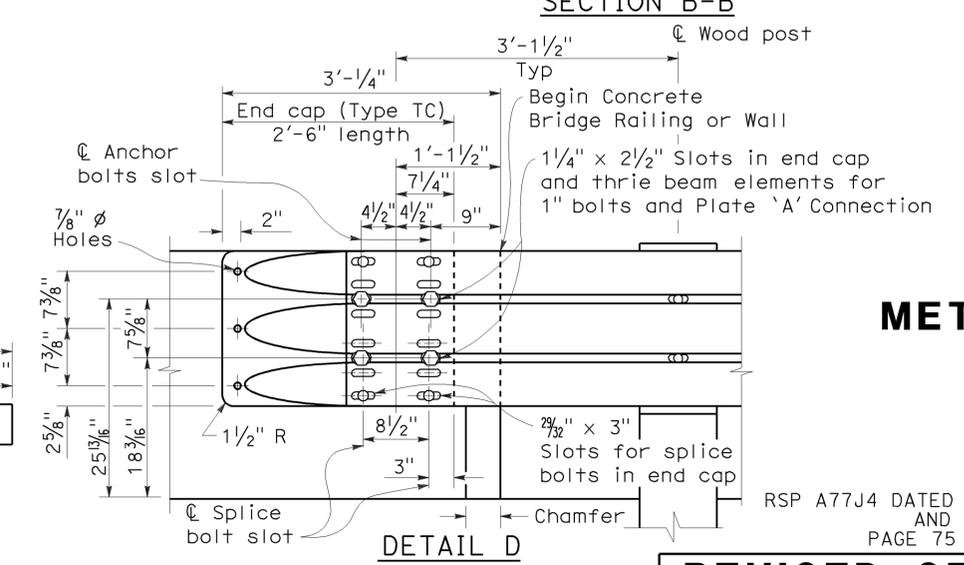
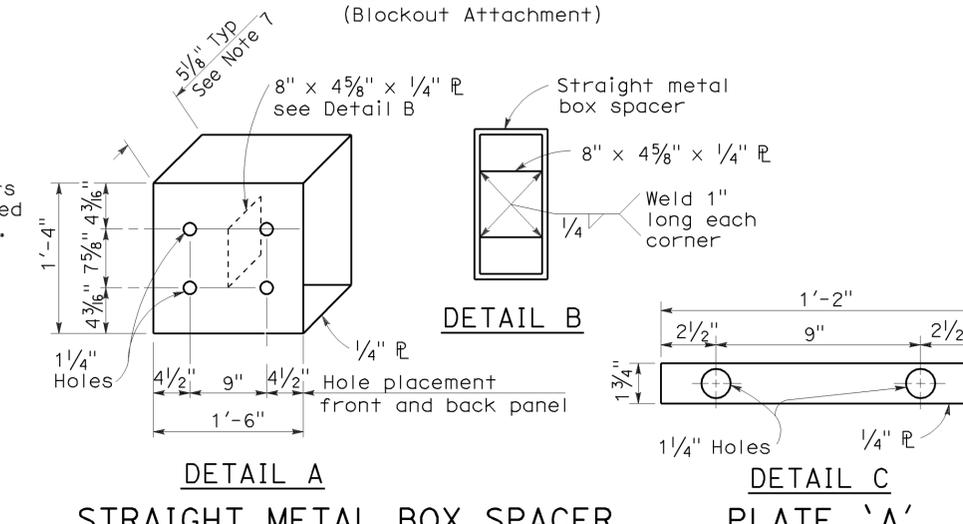
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REGISTERED PROFESSIONAL ENGINEER  
Randell D. Hiatt  
No. C50200  
Exp. 6-30-09  
STATE OF CALIFORNIA  
CIVIL



- NOTES:** To accompany plans dated 3-25-11
- Use 5/8 "  $\phi$  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 "  $\phi$ . 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.

2006 REVISED STANDARD PLAN RSP A77J4

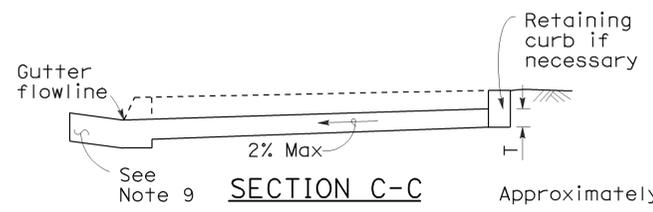
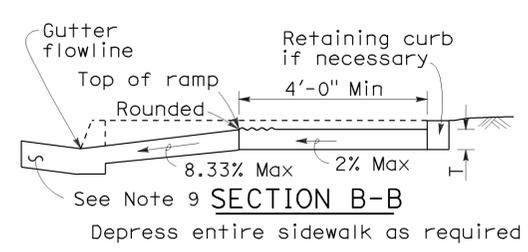
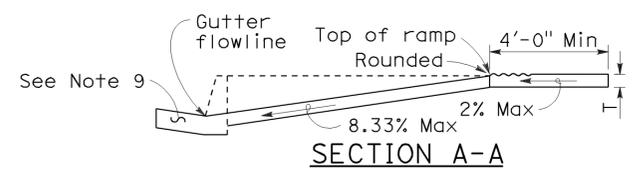
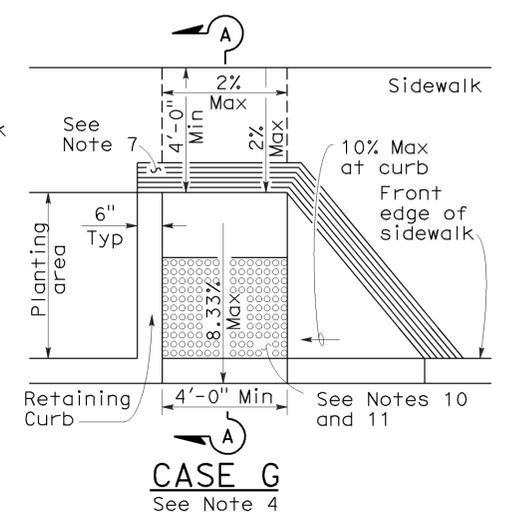
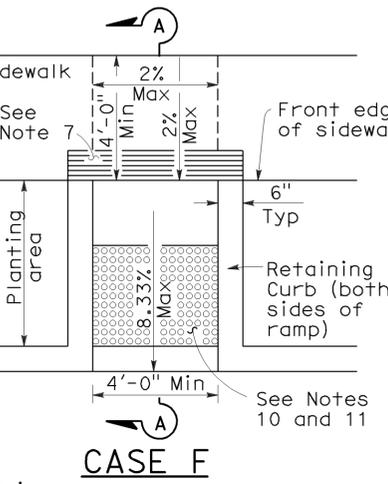
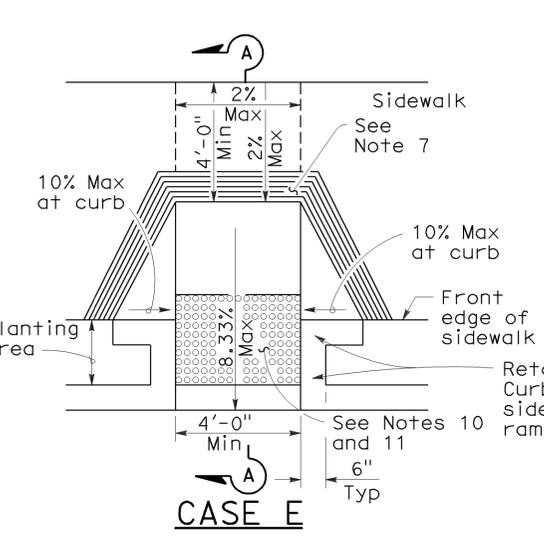
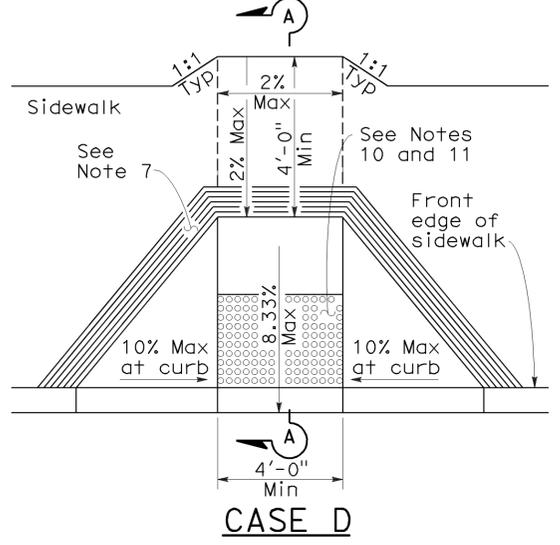
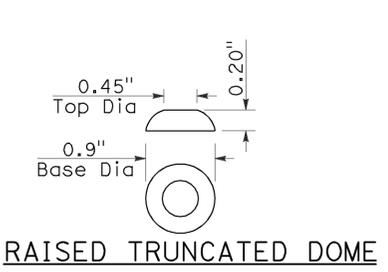
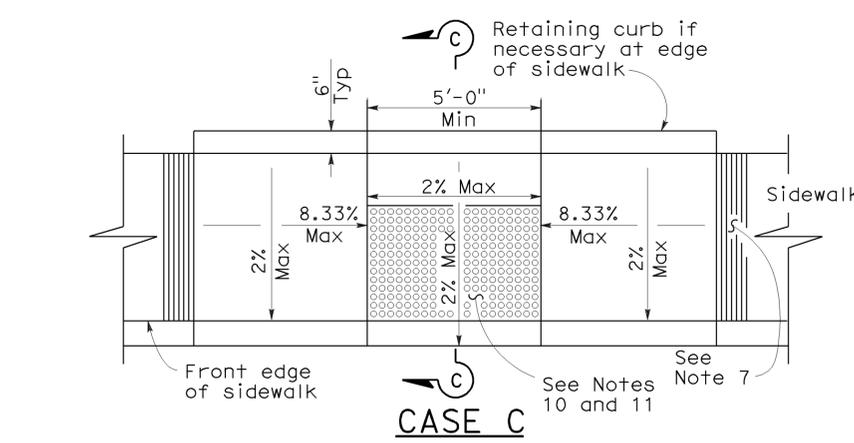
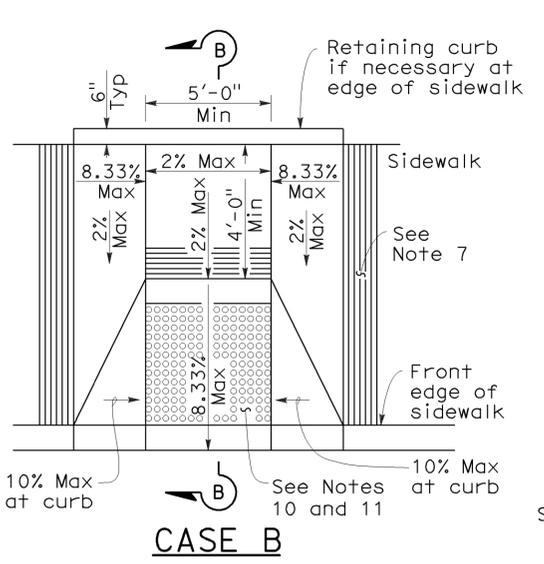
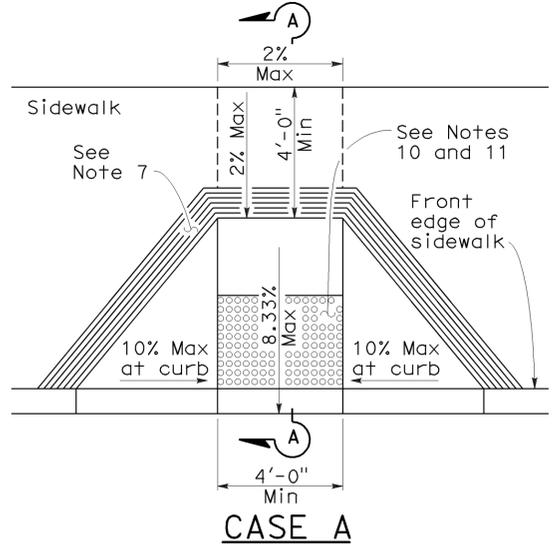
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
03	Sac	50	R2.6/R5.4, R12.2/R14.2	44	71

H. David Cordova  
REGISTERED CIVIL ENGINEER

September 1, 2006  
PLANS APPROVAL DATE

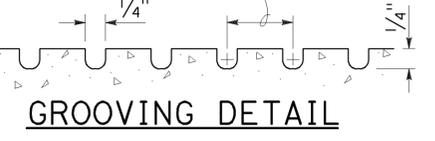
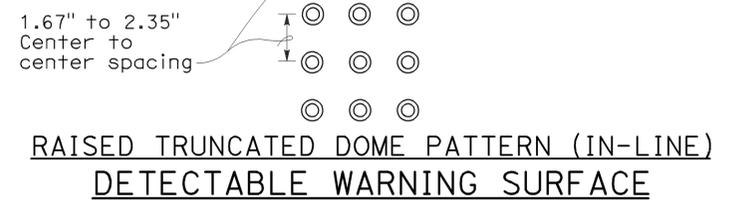
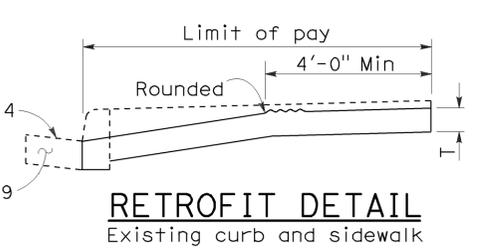
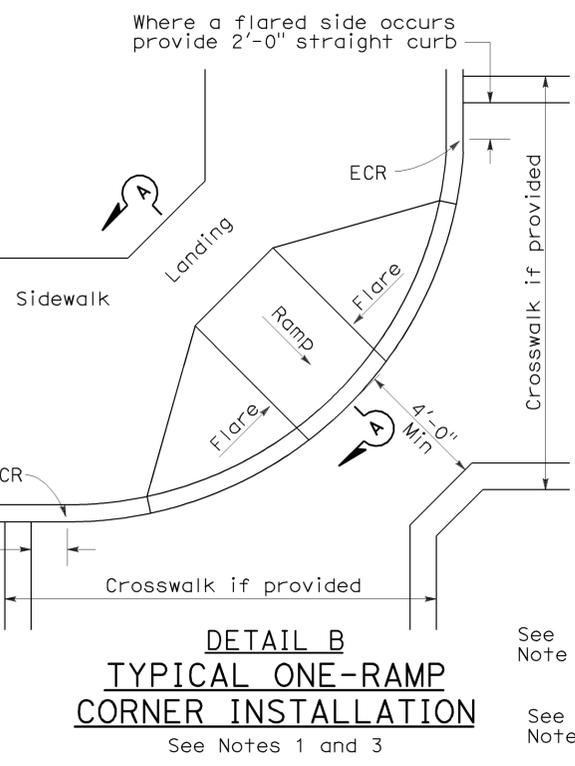
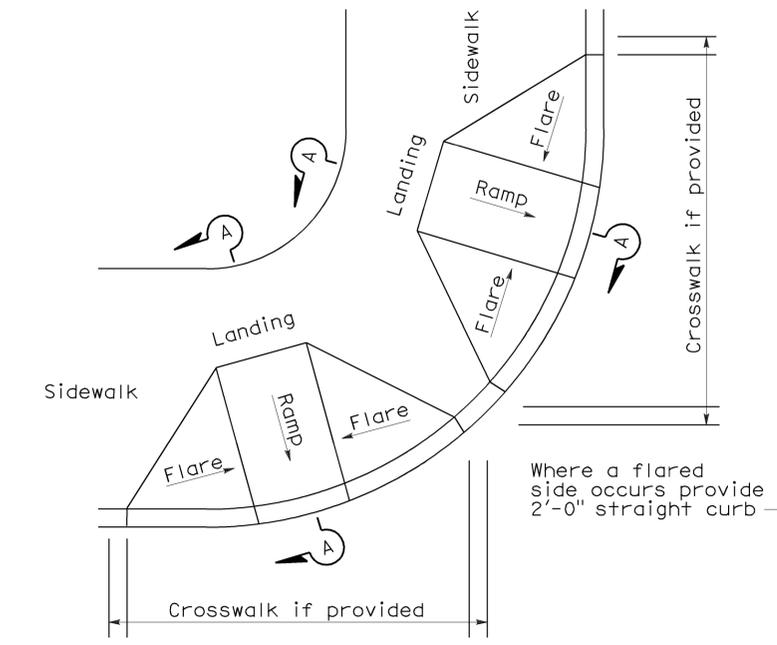
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Hector David Cordova  
REGISTERED PROFESSIONAL ENGINEER  
No. C41957  
Exp. 3-31-08  
STATE OF CALIFORNIA CIVIL



**NOTES:**

- As site conditions dictate, Case A through Case G curb ramps may be used for corner installations similar to those shown in Detail A and Detail B. The case of curb ramps used in Detail A do not have to be the same. Case A through Case G curb ramps also may be used at mid block locations, as site conditions dictate.
- If distance from curb to back of sidewalk is too short to accommodate ramp and 4'-0" platform (landing) as shown in Case A, the sidewalk may be depressed longitudinally as in Case B, or C or may be widened as in Case D.
- When ramp is located in center of curb return, crosswalk configuration must be similar to that shown for Detail B.
- As site conditions dictate, the retaining curb side and the flared side of the Case G ramp shall be constructed in reversed position.
- If located on a curve, the sides of the ramp need not be parallel, but the minimum width of the ramp shall be 4'-0".
- Side slope of ramp flares vary uniformly from a maximum of 10% at curb to conform with longitudinal sidewalk slope adjacent to top of the ramp, except in Case C and Case F.
- The curb ramp shall be outlined, as shown, with a 1'-0" wide border with 1/4" grooves approximately 3/4" on center. See grooving detail.
- Transitions from ramps and landing to walks, gutters or streets shall be flush and free of abrupt changes.
- Maximum slopes of adjoining gutters, the road surface immediately adjacent to the curb ramp or accessible route shall not exceed 5 percent within 4'-0" of the top and bottom of the curb ramp.
- Curb ramps shall have a detectable warning surface that extends the full width and 3'-0" depth of the ramp. Detectable Warning Surfaces shall conform to the details on this plan and the requirements in the Special Provisions.
- The edge of the detectable warning surface nearest the street shall be between 6" and 8" from the gutter flowline.
- Sidewalk and ramp thickness, "T", shall be 3/2" minimum.
- Utility pull boxes, manholes, vaults and all other utility facilities within the boundaries of the curb ramp will be relocated or adjusted to grade by the owner prior to, or in conjunction with, curb ramp construction.
- For retrofit conditions, removal and replacement of curb apron will be at the Contractor's option, unless otherwise shown on project plans.



**CURB RAMP DETAILS**

NO SCALE

RSP A88A DATED SEPTEMBER 1, 2006 SUPERSEDES STANDARD PLAN A88A DATED MAY 1, 2006 - PAGE 115 OF THE STANDARD PLANS BOOK DATED MAY 2006.

**REVISED STANDARD PLAN RSP A88A**

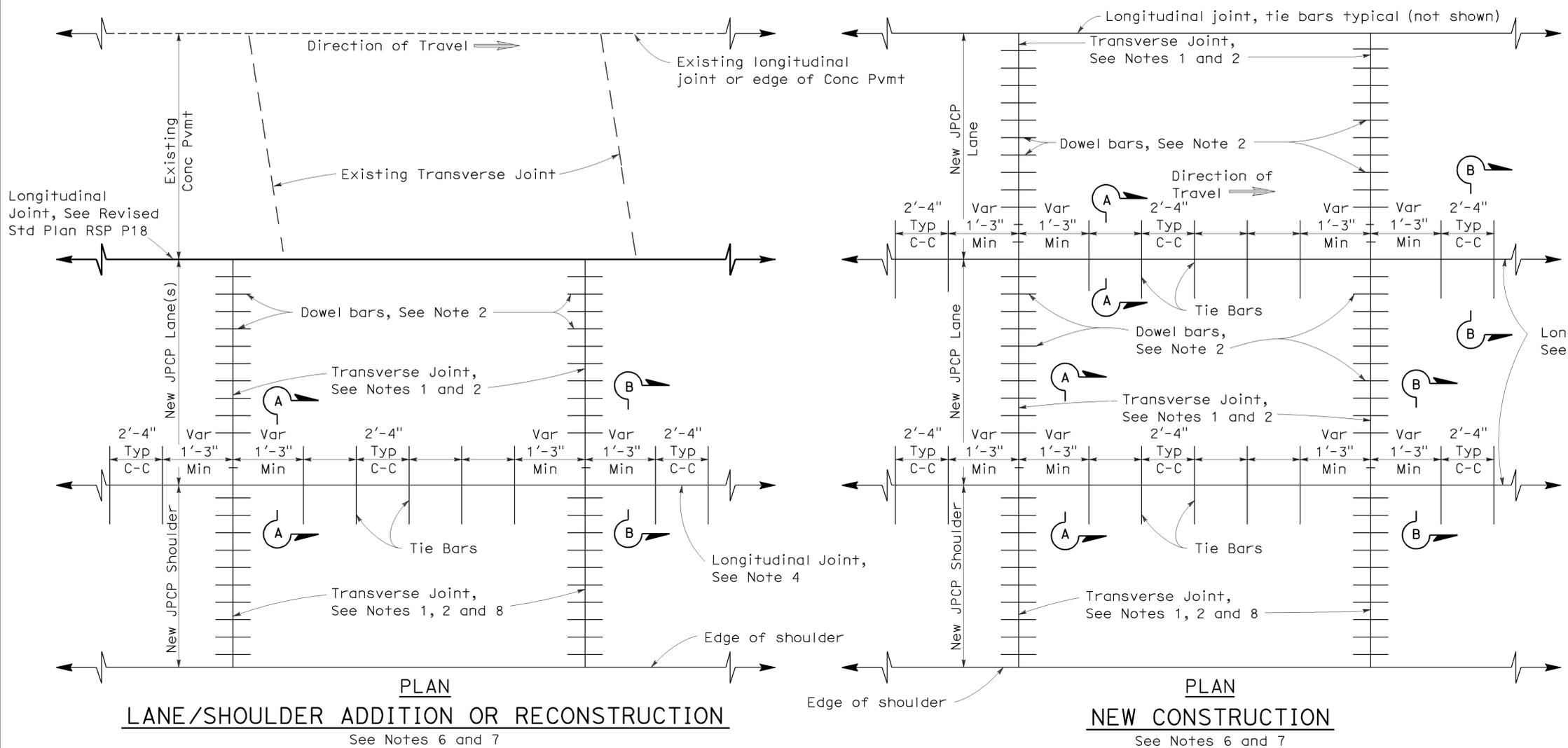
2006 REVISED STANDARD PLAN RSP A88A

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
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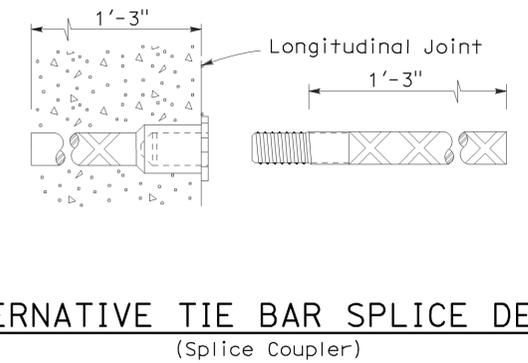
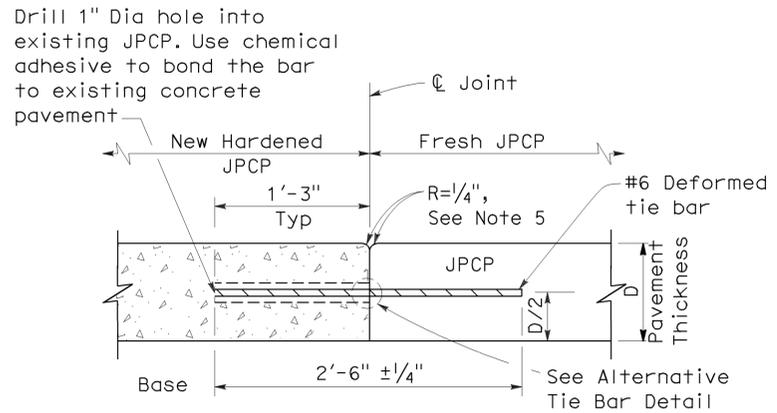
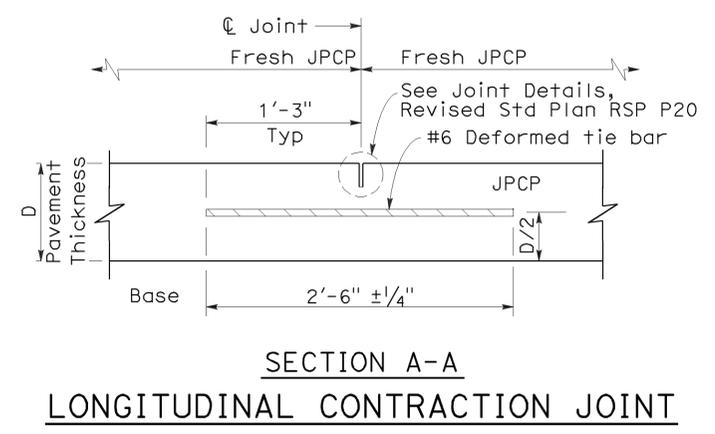
William K. Farnbach  
 REGISTERED CIVIL ENGINEER  
 May 15, 2009  
 PLANS APPROVAL DATE  
 The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

To accompany plans dated 3-25-11

2006 REVISED STANDARD PLAN RSP P1



- NOTES:**
1. Transverse joints shall be constructed at right angles to the longitudinal pavement joints in new jointed plain concrete pavement and spaced at successive repeated intervals of 12', 15', 13' and 14'.
  2. For transverse joint and dowel bar details not shown, See Revised Standard Plan RSP P10.
  3. Construct longitudinal contraction joints as shown in Section A-A when more than one lane or shoulder widths are placed at one time. If constructing one lane at a time, use longitudinal construction joint, as shown in Section B-B.
  4. For additional longitudinal joint details, see Revised Standard Plan RSP P18.
  5. If fresh concrete is placed adjacent to existing concrete, the top corner of the new hardened concrete does not need to be rounded to the 1/4" radius as shown.
  6. Joint spacing patterns do not apply to intersections.
  7. Details can also apply to inside widening.
  8. Dowel bars may be omitted from shoulders when the shoulder cross slope is not the same as the adjacent traffic lane.



**SECTION A-A**  
**LONGITUDINAL CONTRACTION JOINT**

**SECTION B-B**  
**LONGITUDINAL CONSTRUCTION JOINT**

**ALTERNATIVE TIE BAR SPLICE DETAIL**  
(Splice Coupler)

**TIE BAR DETAILS**

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**JOINTED PLAIN  
CONCRETE PAVEMENT**

NO SCALE

RSP P1 DATED MAY 15, 2009 SUPERSEDES STANDARD PLAN P1  
DATED MAY 1, 2006 - PAGE 119 OF THE STANDARD PLANS BOOK DATED MAY 2006.

**REVISED STANDARD PLAN RSP P1**

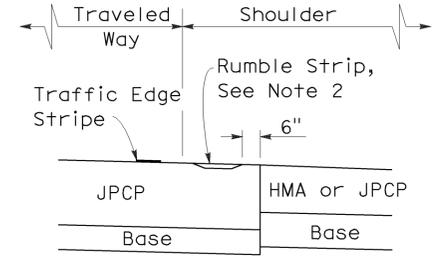
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
03	Sac	50	R2.6/R5.4, R12.2/R14.2	46	71

William K. Farnbach  
 REGISTERED CIVIL ENGINEER  
 June 5, 2009  
 PLANS APPROVAL DATE  
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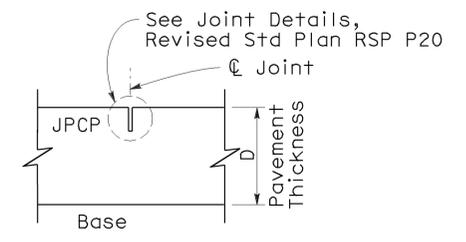
REGISTERED PROFESSIONAL ENGINEER  
 William K. Farnbach  
 No. C49042  
 Exp. 9-30-10  
 CIVIL  
 STATE OF CALIFORNIA

To accompany plans dated 3-25-11

- NOTES:**
1. Transverse joints shall be constructed at right angles to the longitudinal pavement joints in new Jointed Plain Concrete Pavement and spaced at successive repeated intervals of 12', 15', 13' and 14'.
  2. For locations of rumble strips, see project plans. For rumble strip details not shown, see Standard Plans A40A and A40B.
  3. Joint spacing patterns do not apply to intersections.



**DETAIL "A"**



**SECTION C-C  
TRANSVERSE/LONGITUDINAL JOINT**  
(no dowel bars/tie bars)

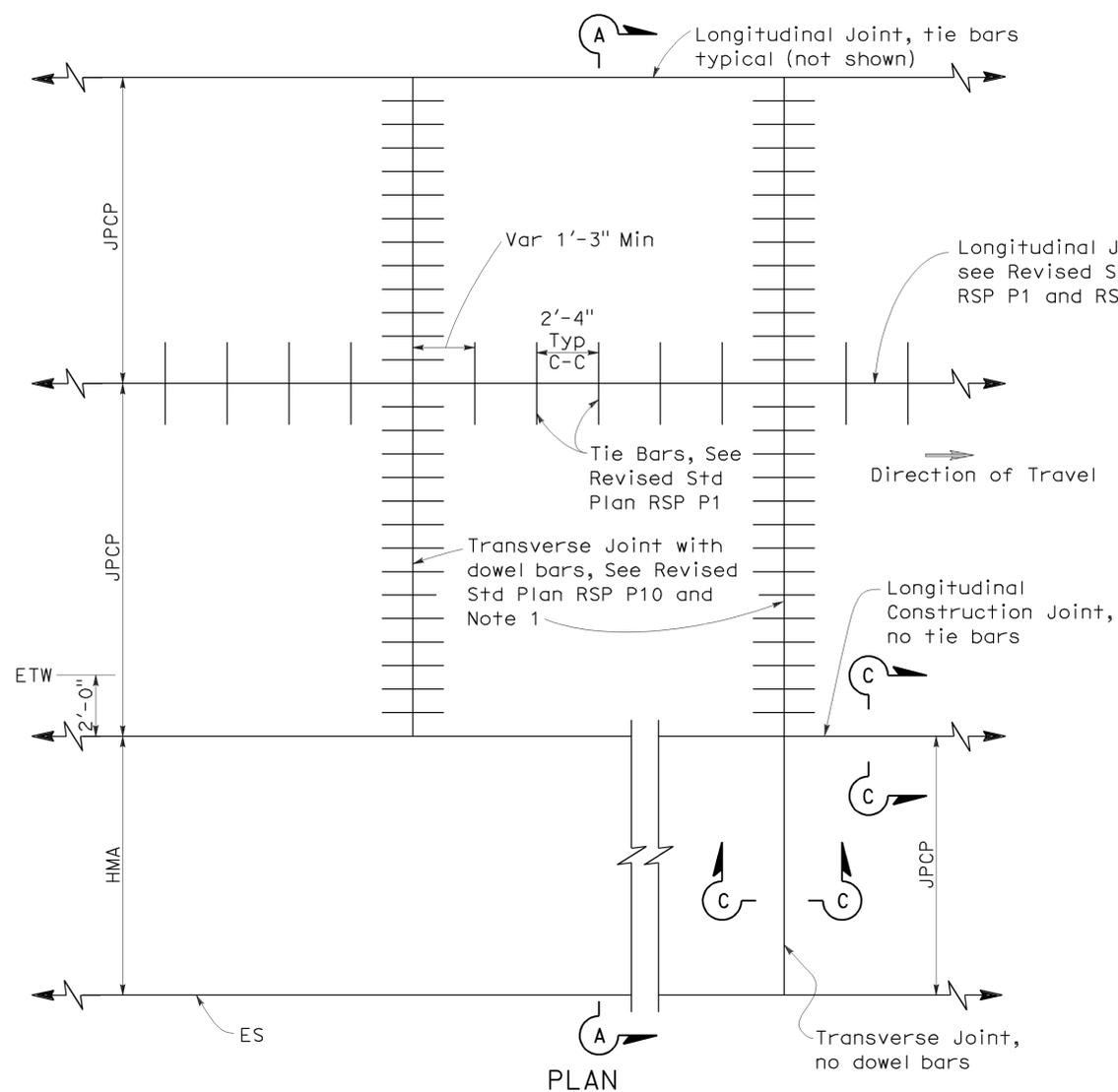
STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**JOINTED PLAIN CONCRETE  
PAVEMENT-WIDENED SLAB DETAILS**

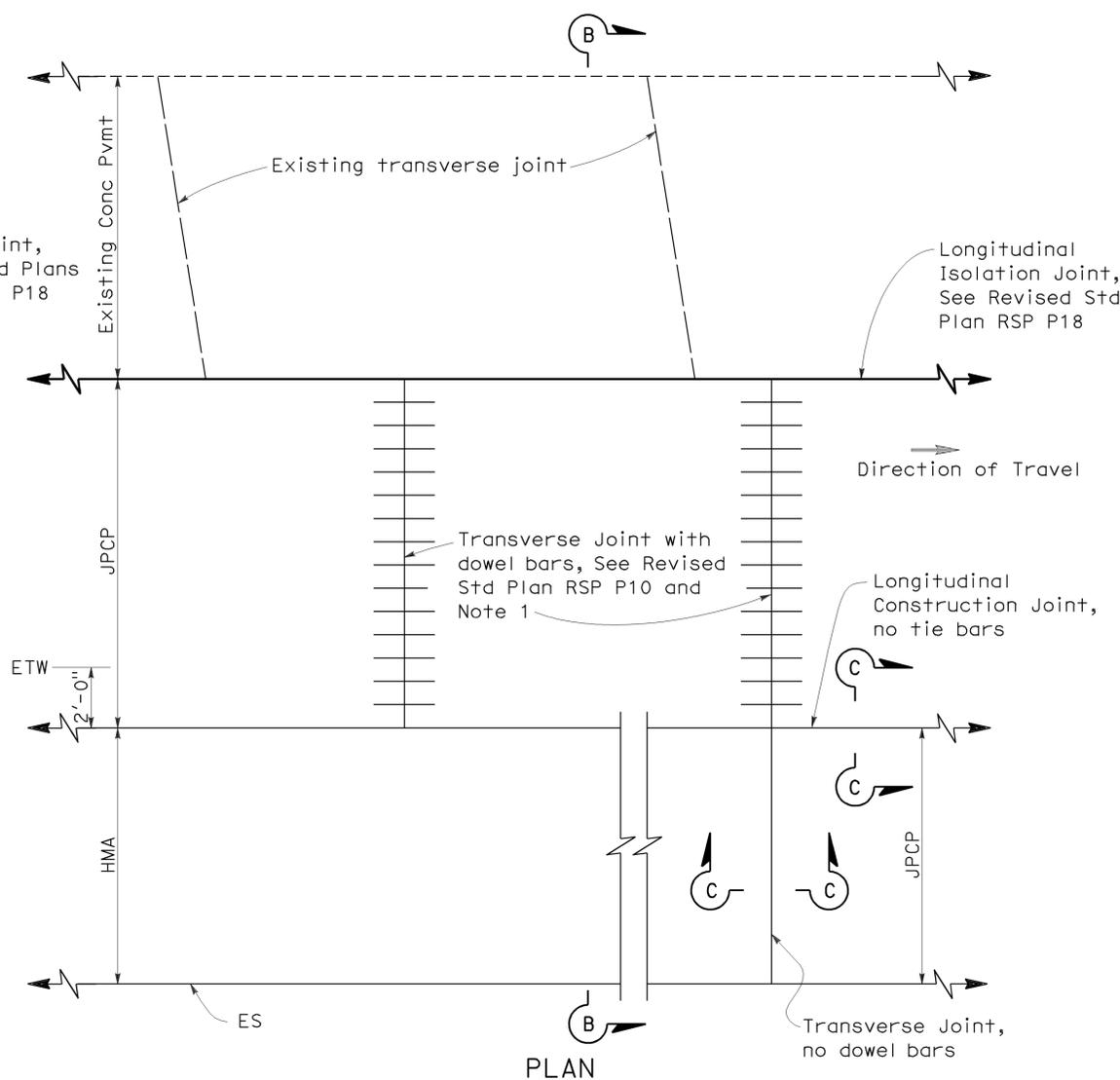
NO SCALE

RSP P2 DATED JUNE 5, 2009 SUPERCEDES STANDARD PLAN P2  
DATED MAY 1, 2006 - PAGE 120 OF THE STANDARD PLANS BOOK DATED MAY 2006.

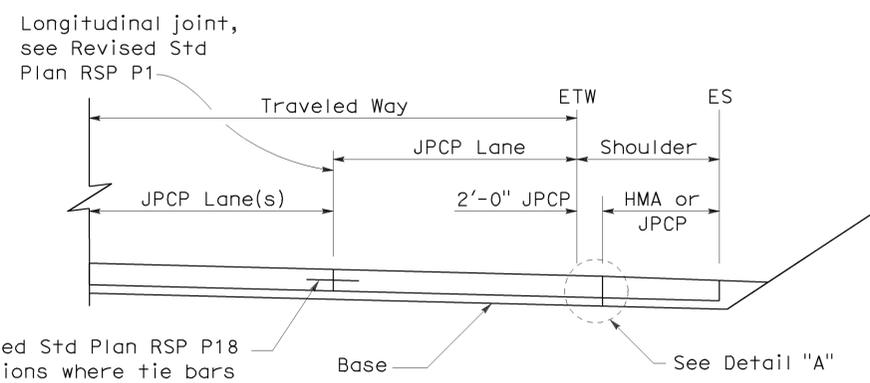
**REVISED STANDARD PLAN RSP P2**



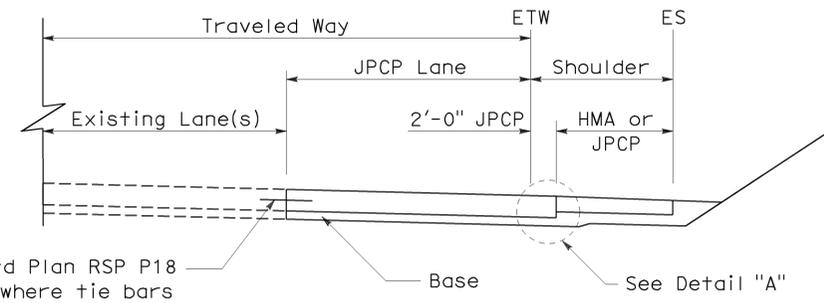
**PLAN  
NEW CONSTRUCTION**



**PLAN  
LANE/SHOULDER ADDITION OR RECONSTRUCTION**



**SECTION A-A**



**SECTION B-B**

2006 REVISED STANDARD PLAN RSP P2

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
03	Sac	50	R2.6/R5.4, R12.2/R14.2	47	71

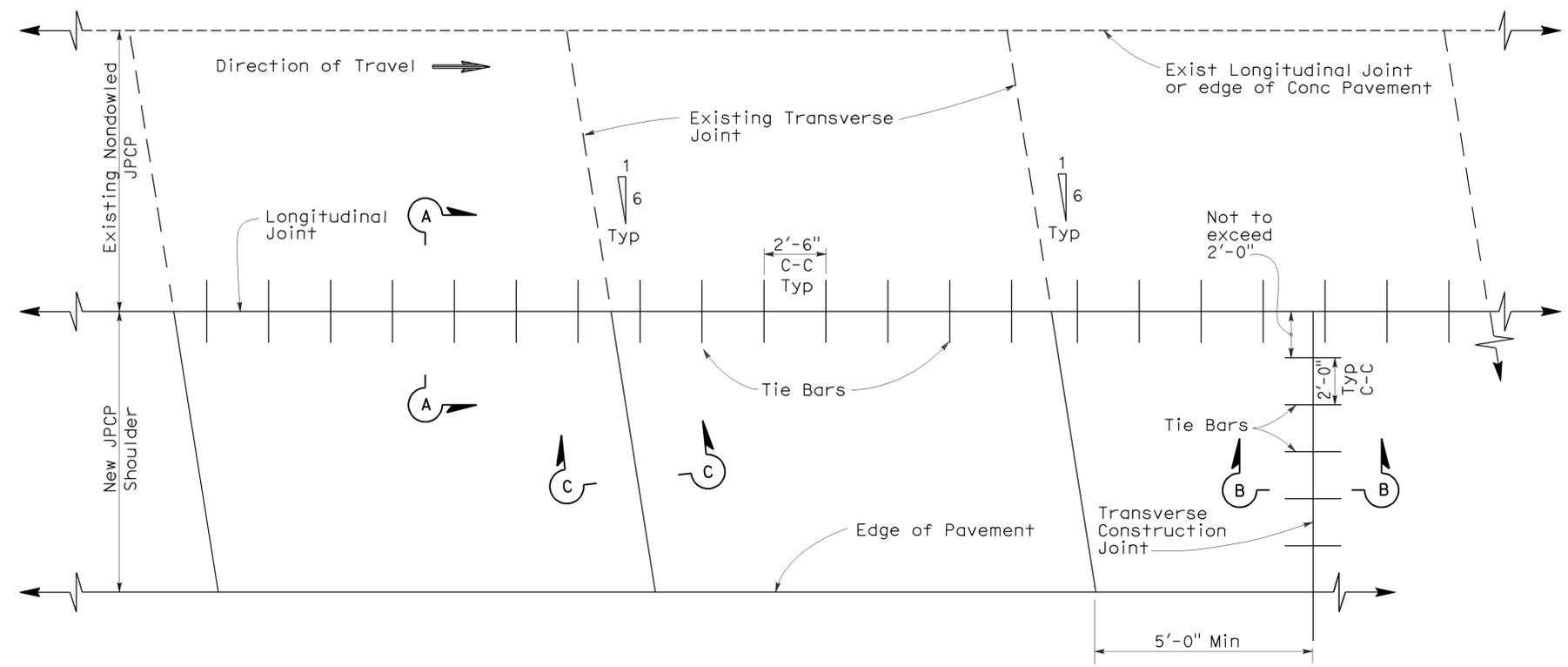
William K. Farnbach  
 REGISTERED CIVIL ENGINEER  
 No. C49042  
 Exp. 9-30-10  
 STATE OF CALIFORNIA

May 15, 2009  
 PLANS APPROVAL DATE

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To accompany plans dated 3-25-11

2006 REVISED STANDARD PLAN RSP P3



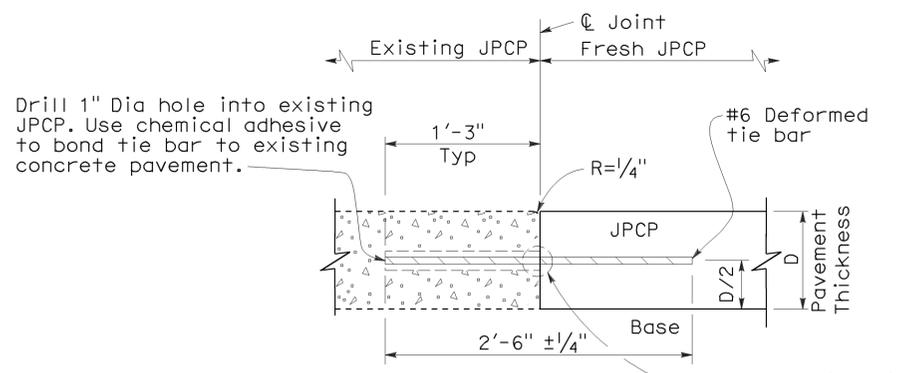
PLAN

NOTES:

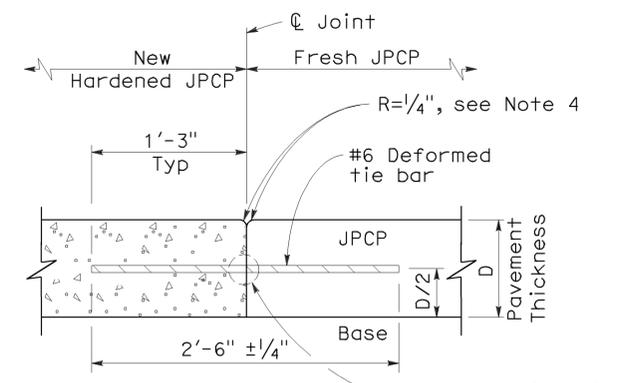
1. New transverse contraction joints shall match the skewed offset and spacing of the adjacent existing contraction joints, as shown.
2. Transverse construction joints, with tie bars spaced as shown, shall be installed at the end of paving operations. Transverse construction joints shall be placed at least 5'-0" from any contraction joint.
3. This Standard Plan only applicable for constructing a nondoweled Jointed Plain Concrete Pavement shoulder next to existing nondoweled Jointed Plain Concrete Pavement lane.
4. If fresh concrete is placed adjacent to existing concrete, the top corner of the new hardened concrete does not need to be rounded to the 1/4" radius as shown.

TABLE A

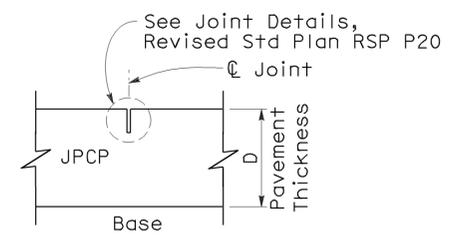
Tie Bar Spacing		
Slab Length	Total Tie Bars per Slab	Clearance Tie Bar to Transverse Joint
9'-0"	3	1'-3"
9'-6"	3	1'-4 1/2"
12'-0"	5	1'-4"
13'-0"	5	1'-10"
14'-0"	5	2'-3 3/4"
15'-0"	6	1'-8"



SECTION A-A  
LONGITUDINAL JOINT  
(Between fresh and hardened concrete)



SECTION B-B  
TRANSVERSE CONSTRUCTION JOINT



SECTION C-C  
TRANSVERSE CONTRACTION JOINT

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**JOINTED PLAIN CONCRETE PAVEMENT-NONDOWELED SHOULDER ADDITION/RECONSTRUCTION**

NO SCALE

RSP P3 DATED MAY 15, 2009 SUPERSEDES RSP P3 DATED NOVEMBER 17, 2006 AND STANDARD PLAN P3 DATED MAY 1, 2006 - PAGE 121 OF THE STANDARD PLANS BOOK DATED MAY 2006.

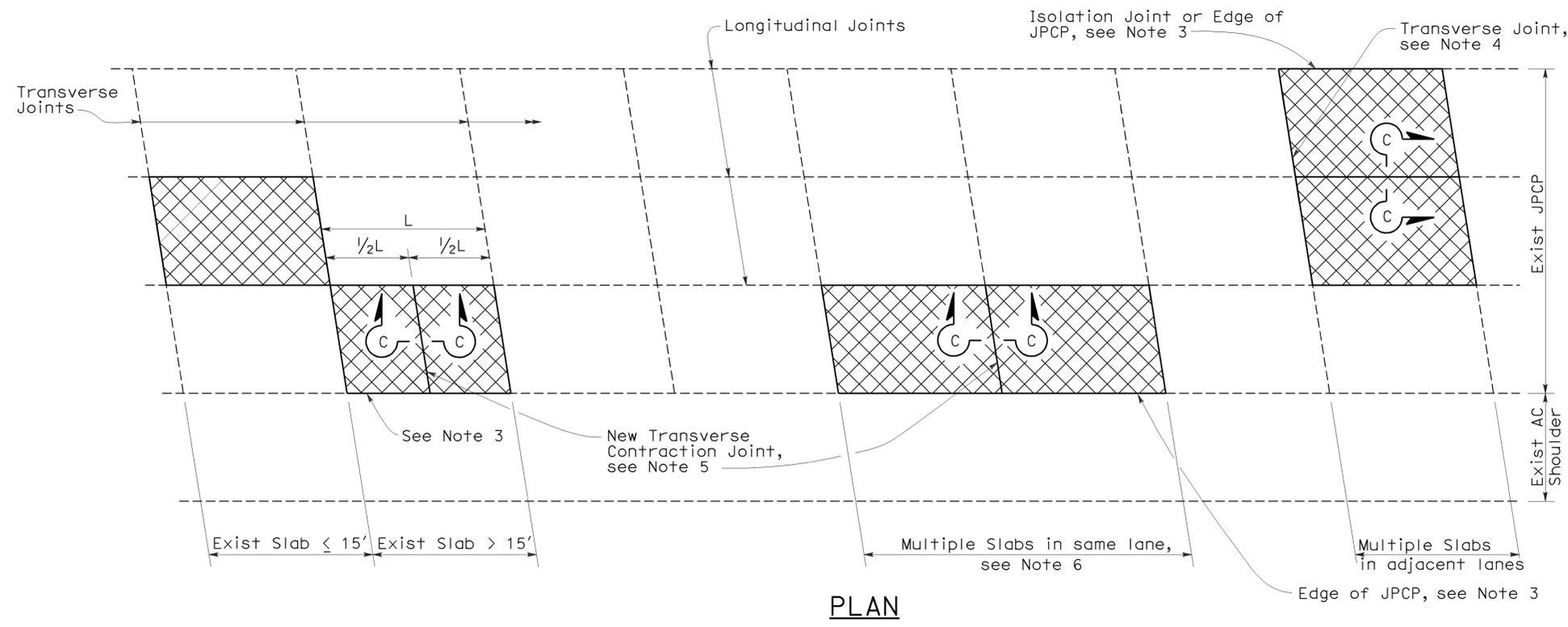
**REVISED STANDARD PLAN RSP P3**

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
03	Sac	50	R2.6/R5.4, R12.2/R14.2	48	71

William K. Farnbach  
 REGISTERED CIVIL ENGINEER  
 May 15, 2009  
 PLANS APPROVAL DATE  
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REGISTERED PROFESSIONAL ENGINEER  
 William K. Farnbach  
 No. C49042  
 Exp. 9-30-10  
 CIVIL  
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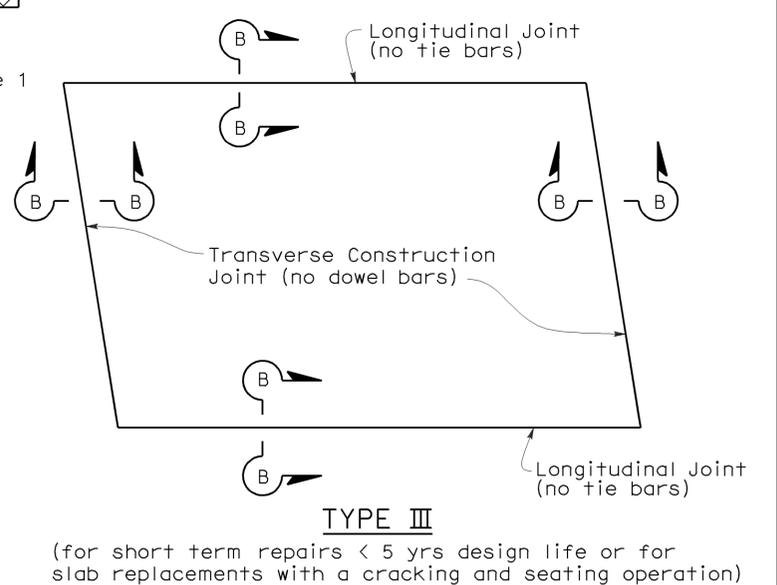
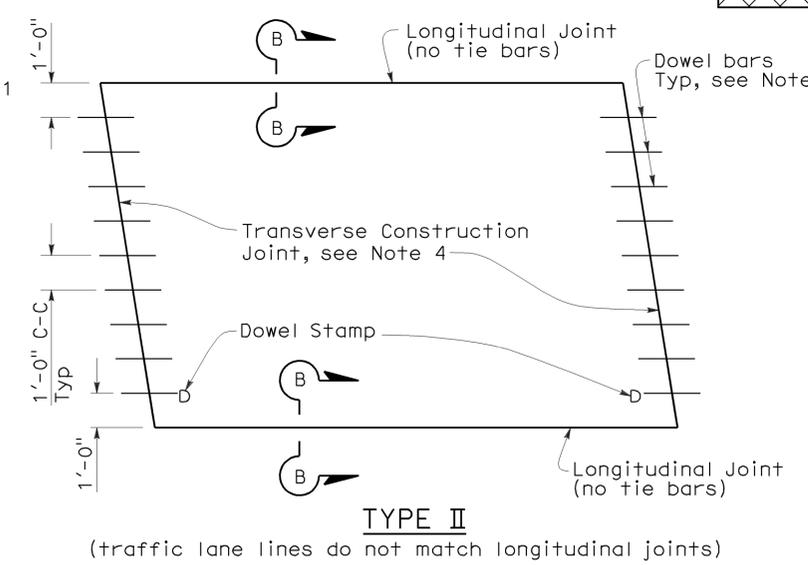
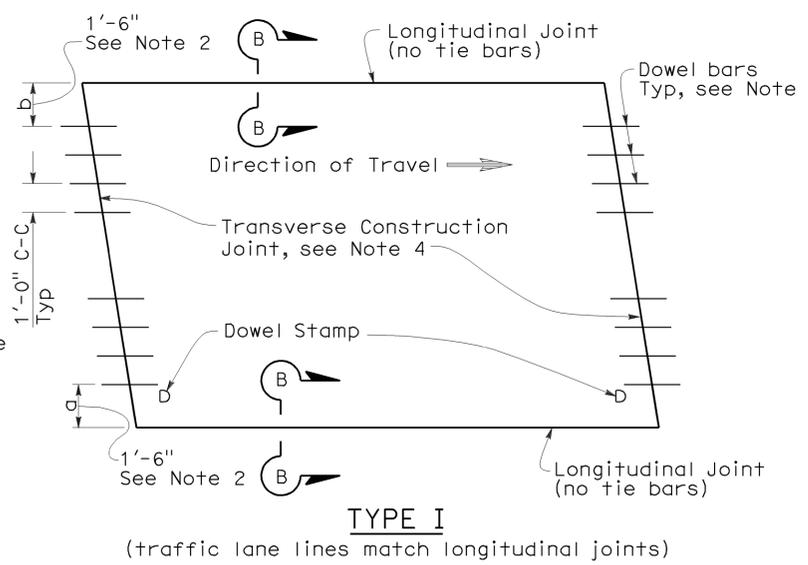
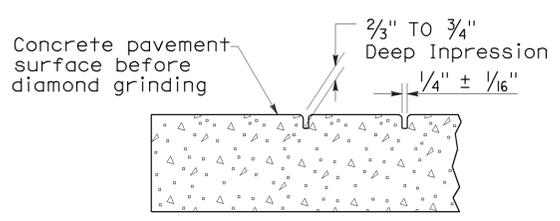
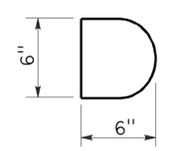
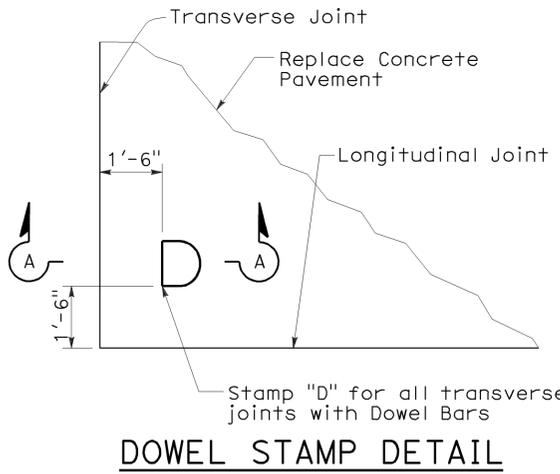
To accompany plans dated 3-25-11



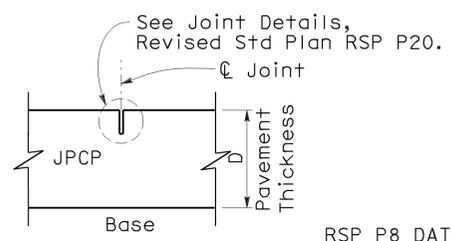
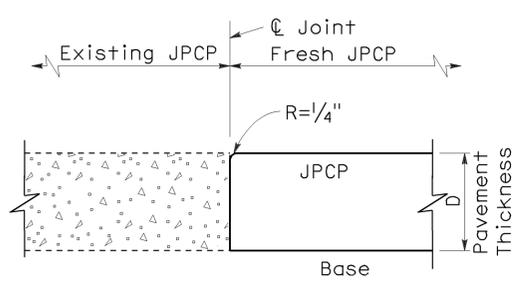
**NOTES:**

1. For details not shown, see Revised Standard Plan RSP P10.
2. Where the existing outer shoulder pavement is asphalt concrete pavement, the "a" dimension shall be 1'-0" and the "b" dimension shall be 2'-0".
3. Side forms shall be used where edge of pavement is adjacent to asphalt concrete.
4. For detail, see Transverse Construction Joint for existing concrete pavement detail on Revised Standard Plan RSP P10.
5. Transverse joint to match skew of existing joint. Omit dowel bars.
6. This Standard Plan only applicable when replacing multiple slabs in the same lane is less than 100'.

**LEGEND**



**SLAB LAYOUT**



STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**JOINTED PLAIN CONCRETE PAVEMENT-INDIVIDUAL SLAB REPLACEMENT**

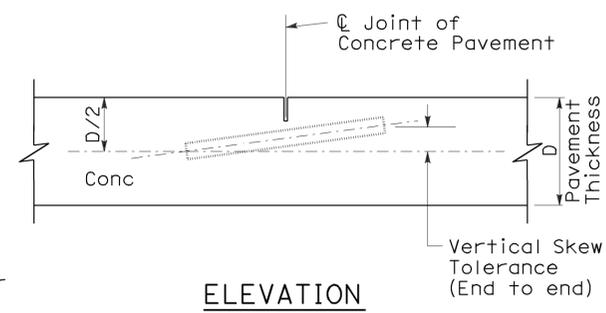
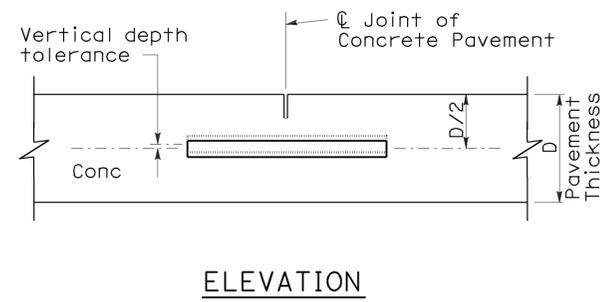
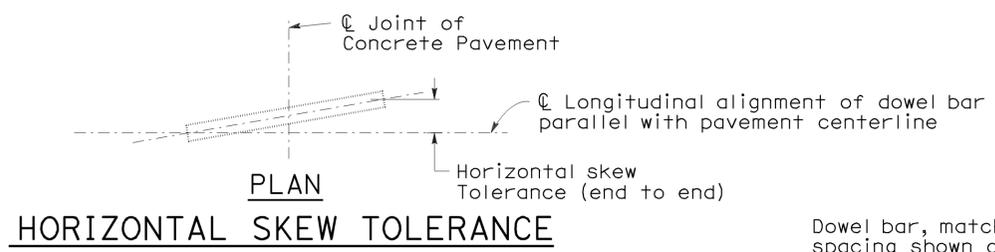
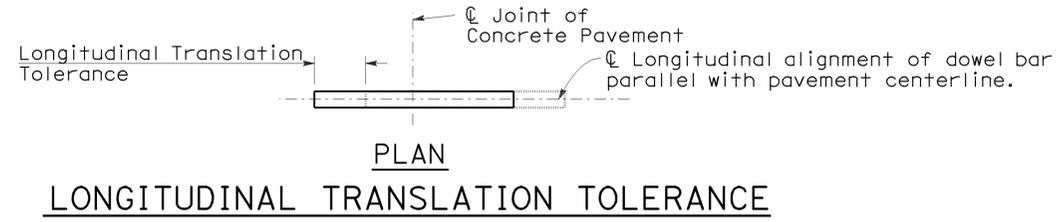
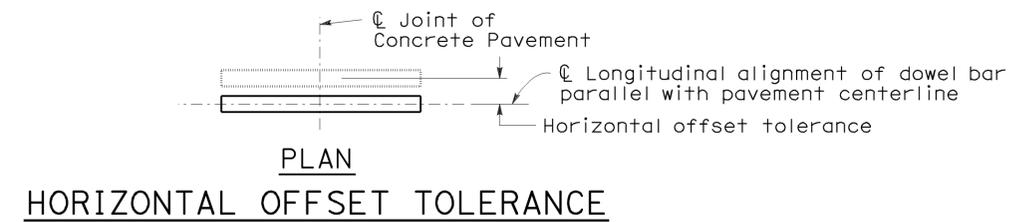
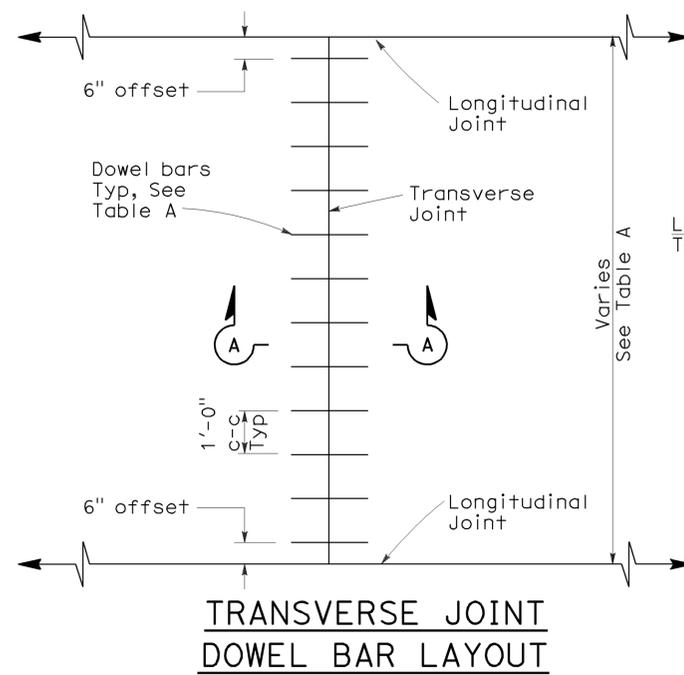
NO SCALE

RSP P8 DATED MAY 15, 2009 SUPERSEDES RSP P8 DATED SEPTEMBER 1, 2006 AND STANDARD PLAN P8 DATED MAY 1, 2006 - PAGE 123 OF THE STANDARD PLANS BOOK DATED MAY 2006.

**REVISED STANDARD PLAN RSP P8**

123

2006 REVISED STANDARD PLAN RSP P8



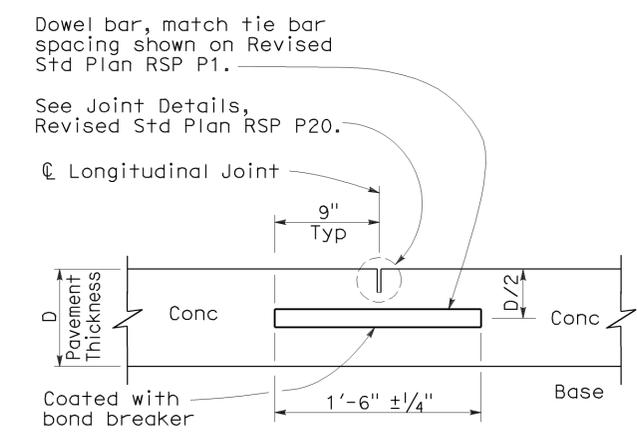
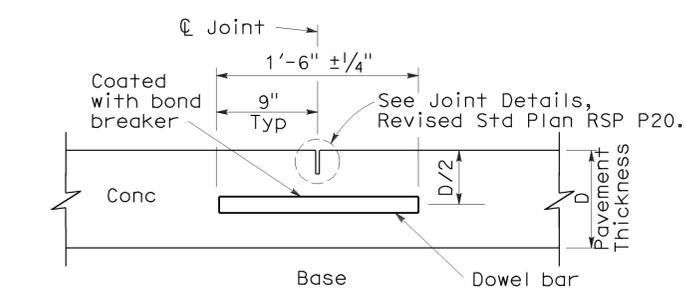
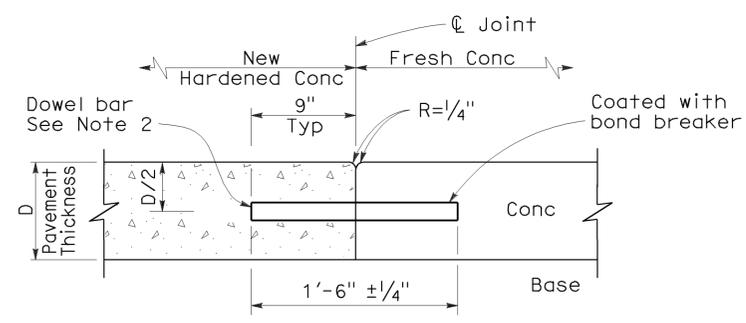
To accompany plans dated 3-25-11

- NOTES:**
- See Revised Standard Plan RSP P1 for typical dowel bar placement and locations.
  - 1/2" Dia smooth dowel bars are to be used with a pavement thickness, D, equal to or greater than 0.70 feet. For pavement thickness, D, less than 0.70 feet, use 1/4" Dia smooth dowel bars.
  - For widths not shown, see Project Plans.
  - If fresh concrete pavement is placed adjacent to existing concrete pavement, the top corner of the existing concrete pavement does not need to be rounded to the 1/4" radius, as shown.

**TABLE A (See Note 3)**

Dowel Bar Transverse Spacing Table

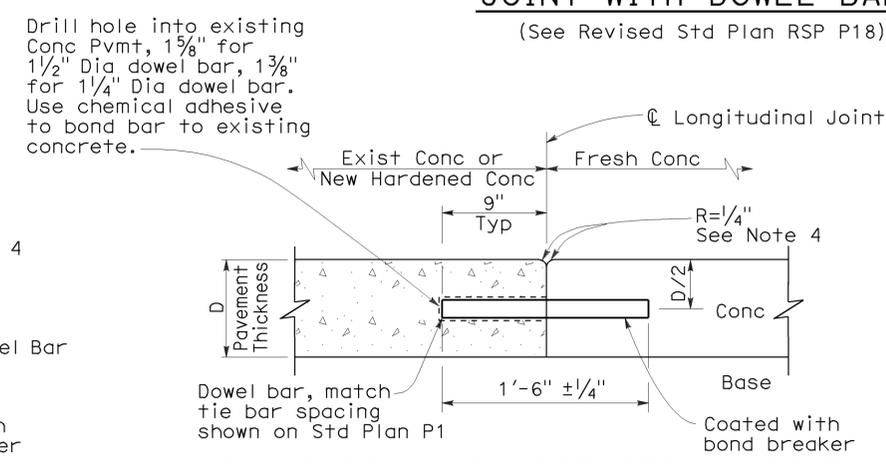
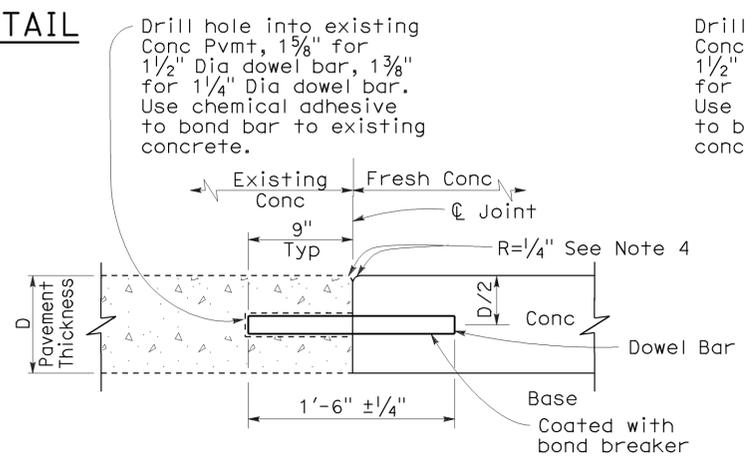
Width between Longitudinal Joints	Number of Dowels between Longitudinal Joints
14'-0"	14
13'-0"	13
12'-0"	12
11'-0"	11
10'-0"	10
8'-0"	8
5'-0"	5
4'-0"	4



**SECTION A-A  
TRANSVERSE  
CONSTRUCTION JOINT DETAIL**

**TRANSVERSE CONTRACTION JOINT**

**LONGITUDINAL CONTRACTION  
JOINT WITH DOWEL BARS**  
(See Revised Std Plan RSP P18)



**TRANSVERSE CONSTRUCTION JOINT  
FOR EXISTING CONCRETE PAVEMENT**  
(Drill and bond locations)

**LONGITUDINAL CONSTRUCTION JOINT  
WITH DOWEL BARS**  
(See Revised Std Plan RSP P18)

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**CONCRETE PAVEMENT-  
DOWEL BAR  
DETAILS**  
NO SCALE

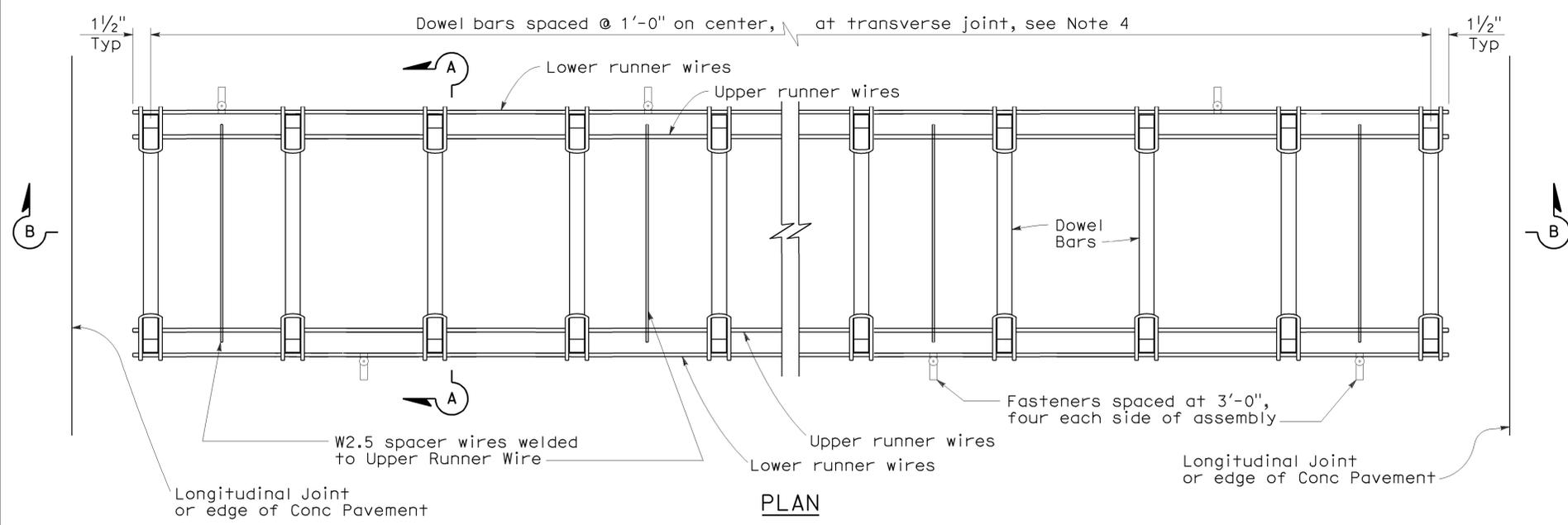
RSP P10 DATED MAY 15, 2009 SUPERSEDES STANDARD PLAN P10  
DATED MAY 1, 2006 - PAGE 124 OF THE STANDARD PLANS BOOK DATED MAY 2006.

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
03	Sac	50	R2.6/R5.4, R12.2/R14.2	50	71

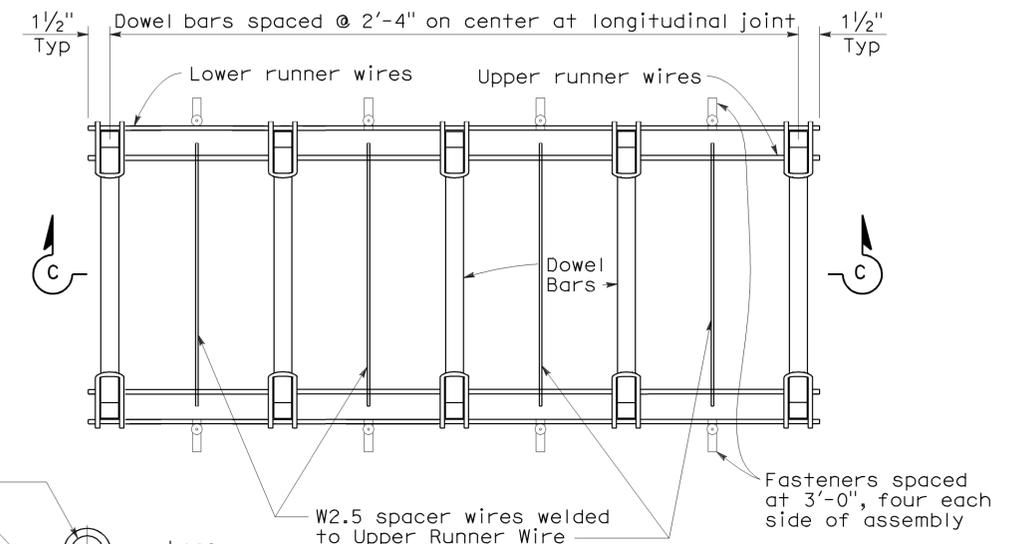
William K. Farnbach  
 REGISTERED CIVIL ENGINEER  
 May 15, 2009  
 PLANS APPROVAL DATE  
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 William K. Farnbach  
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 Exp. 9-30-10  
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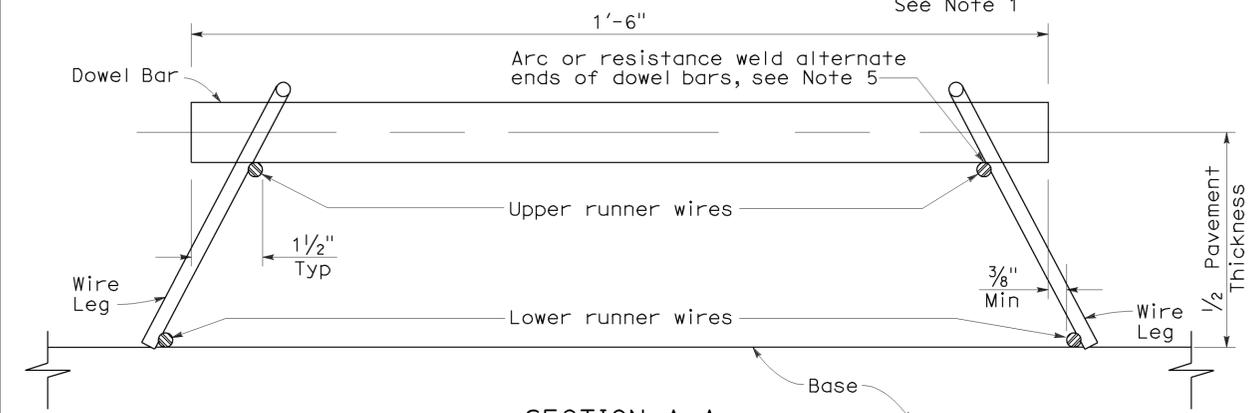
To accompany plans dated 3-25-11



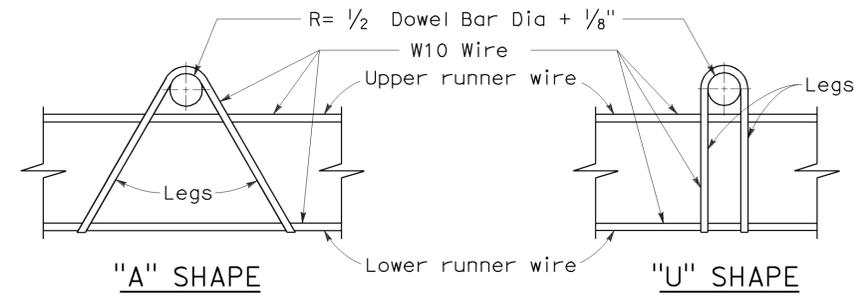
**PLAN**  
**DOWEL BAR BASKET**  
**(TRANSVERSE JOINT)**  
 See Note 1



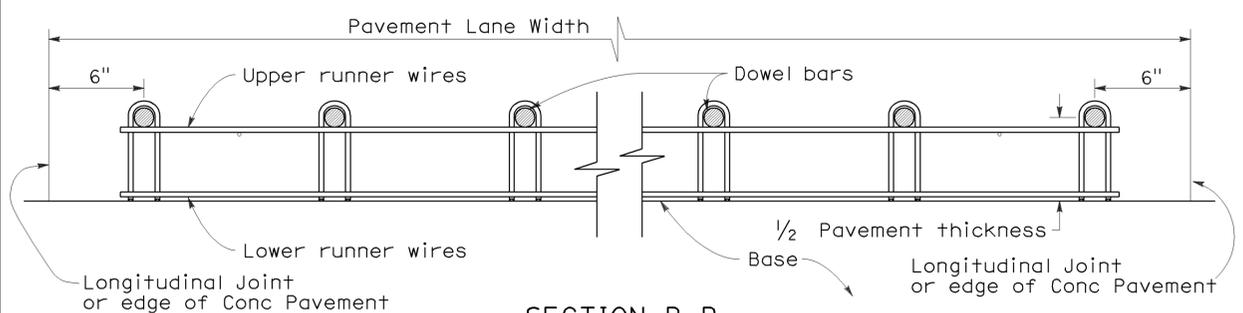
**PLAN**  
**DOWEL BAR BASKET**  
**(LONGITUDINAL JOINT)**  
 See Note 1



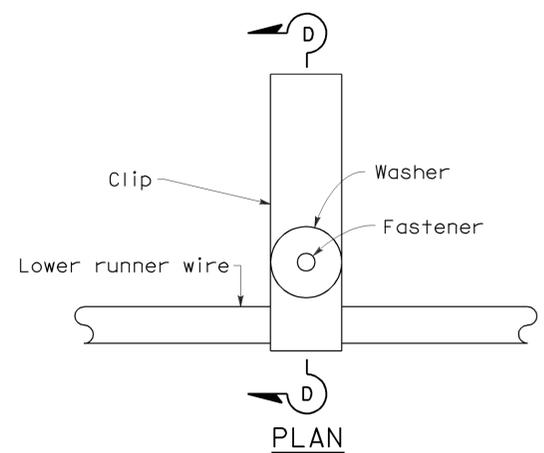
**SECTION A-A**



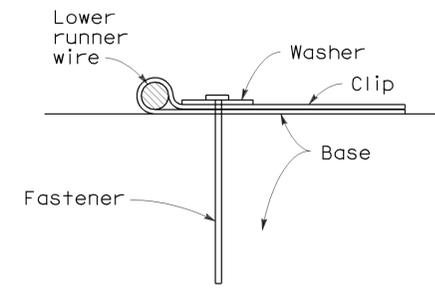
**ASSEMBLY FRAME DETAILS**



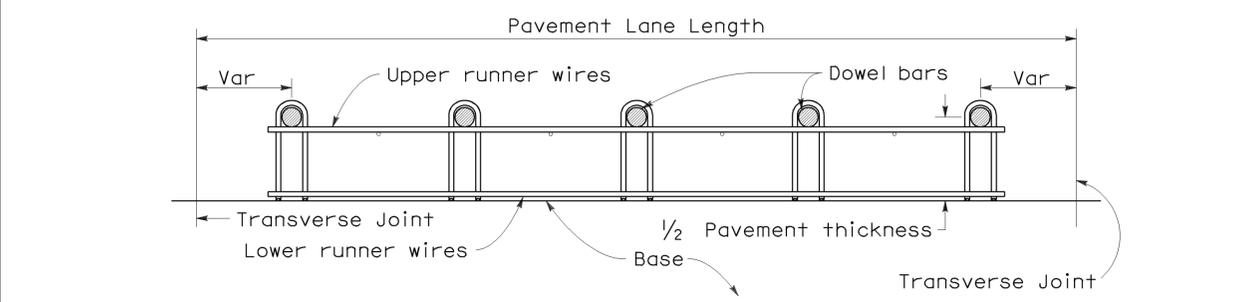
**SECTION B-B**



**FASTENER DETAIL**



**SECTION D-D**



**SECTION C-C**  
 See Notes 1 and 4

**NOTES:**

- "U" frame shape assembly shown. "U" frame shape or "A" frame shape are acceptable.
- Wire sizes shown are minimum required.
- All wire intersections are to be resistance welded.
- Use tie bar spacing for longitudinal dowel bar locations. See Revised Std Plans RSPs P1, P2, and P3 for tie bar requirements.
- Weld may be at top or bottom of dowel bar.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**CONCRETE PAVEMENT -  
DOWEL BAR BASKET  
DETAILS**

NO SCALE

RSP P12 DATED MAY 15, 2009 SUPERSEDES RSP P12 DATED NOVEMBER 17, 2006 AND STANDARD PLAN P12 DATED MAY 1, 2006 - PAGE 125 OF THE STANDARD PLANS BOOK DATED MAY 2006.

**REVISED STANDARD PLAN RSP P12**

2006 REVISED STANDARD PLAN RSP P12

125

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
03	Sac	50	R2.6/R5.4, R12.2/R14.2	51	71

William K. Farnbach  
 REGISTERED CIVIL ENGINEER  
 June 5, 2009  
 PLANS APPROVAL DATE

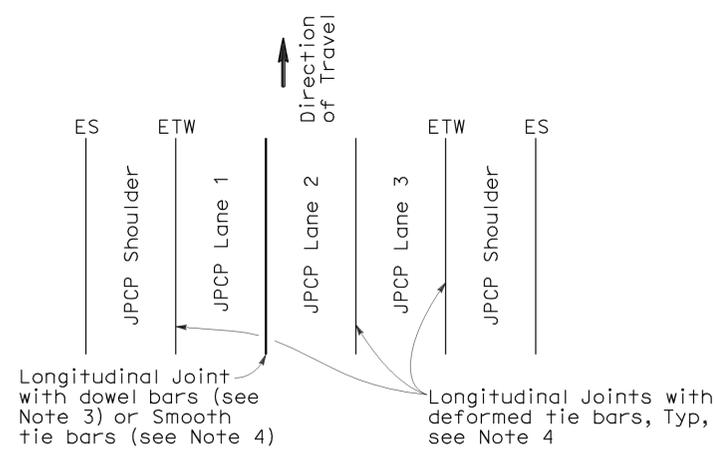
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 Exp. 9-30-10  
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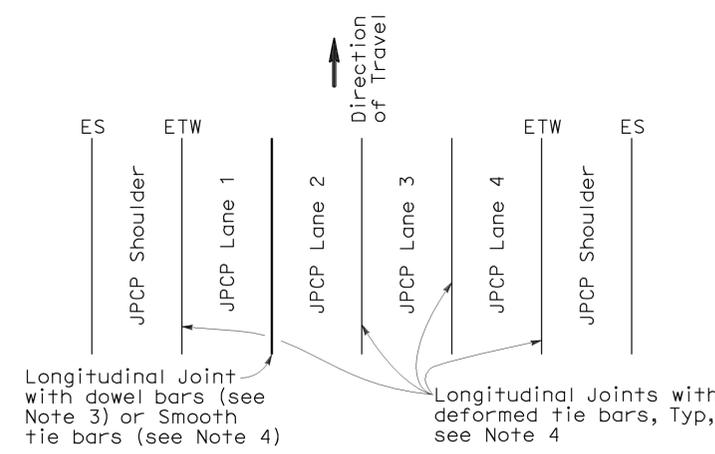
To accompany plans dated 3-25-11

**NOTES:**

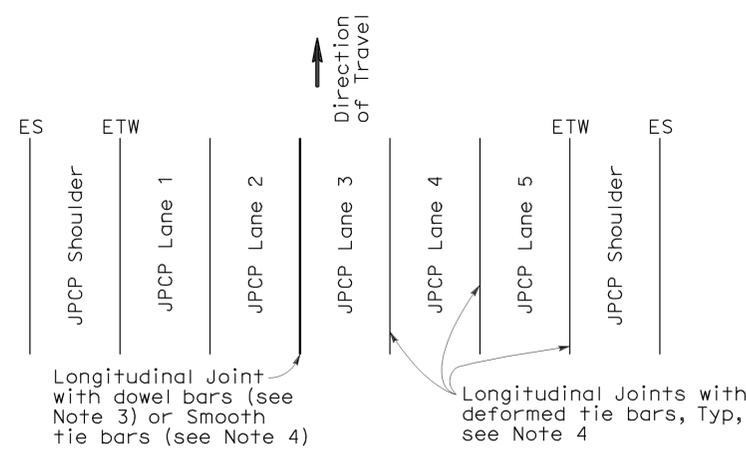
- Where Lean Concrete Base is not used as base material, the joint filler material used for the longitudinal isolation joint shall only extend to the bottom of the new concrete slab. See Detail A.
- Use  $\frac{5}{8}'' \pm \frac{1}{16}''$  dimension for silicone sealant.
- See Revised Standard Plan RSP P10 for longitudinal joint with dowel bars.
- See Revised Standard Plan RSP P1.
- See Revised Standard Plan RSP P2.



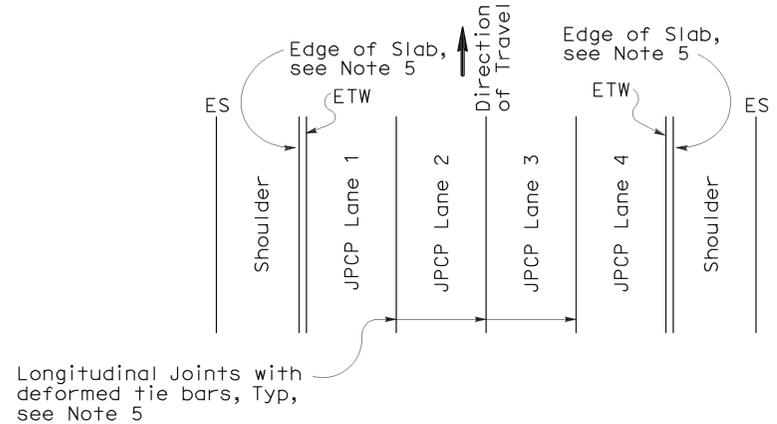
**3 LANES WITH TIED CONCRETE SHOULDERS**  
**PLAN**



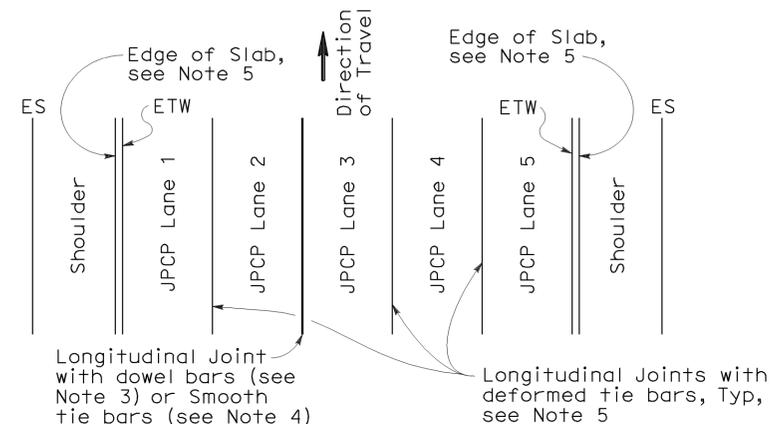
**4 LANES WITH TIED CONCRETE SHOULDERS**  
**PLAN**



**5 LANES WITH TIED CONCRETE SHOULDERS**  
**PLAN**



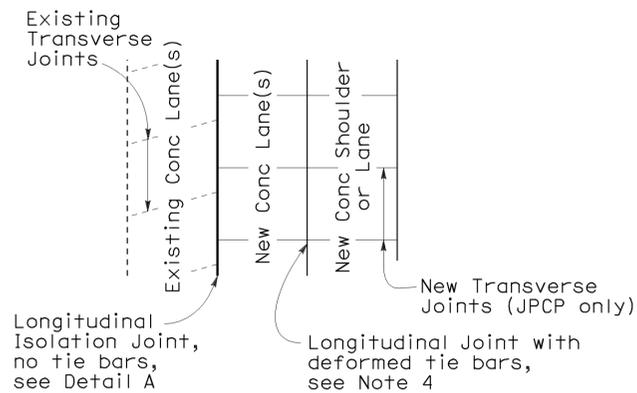
**4 LANES OR LESS WITH WIDENED SLAB**  
**PLAN**



**5 LANES WITH WIDENED SLAB**  
**PLAN**

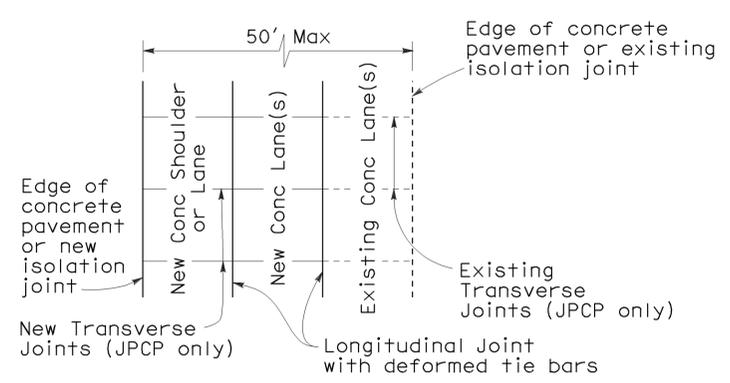
**NEW CONSTRUCTION**

Location of Longitudinal Joints (For JPCP)



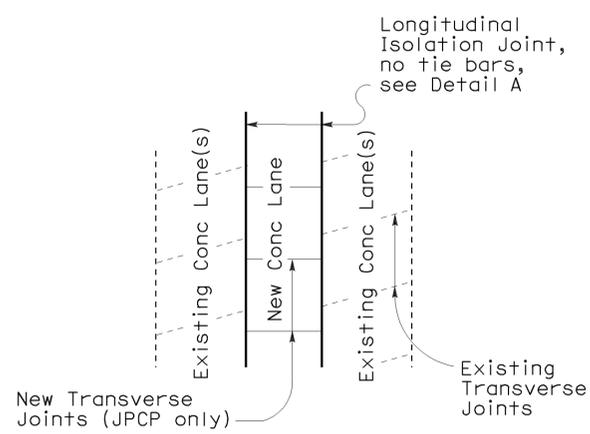
**CASE 1**  
**PLAN**

Transverse Joints do not align between new and existing



**CASE 2**  
**PLAN**

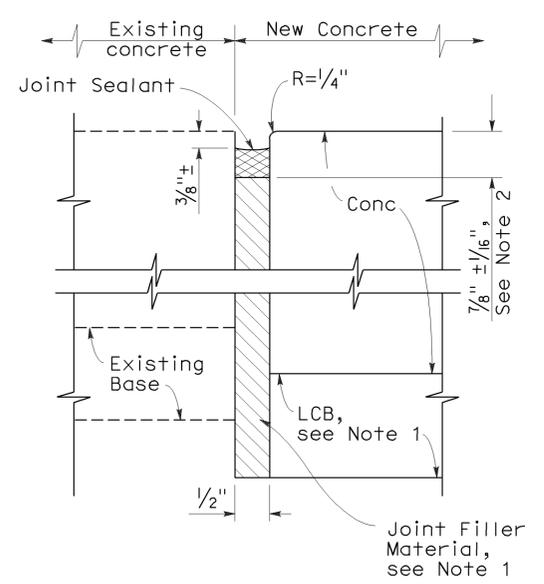
Transverse Joints align between new and existing



**CASE 3 (INTERIOR LANE REPLACEMENT)**  
**PLAN**

Transverse Joints do not align between new and existing

**LANE/SHOULDER ADDITION OR RECONSTRUCTION**  
(For JPCP and CRCP)



**DETAIL A**  
**ISOLATION JOINT**

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**CONCRETE PAVEMENT-  
LANE SCHEMATICS  
AND ISOLATION JOINT DETAIL**

NO SCALE

RSP P18 DATED JUNE 5, 2009 SUPERSEDES RSP P18 DATED MAY 15, 2009, RSP P18 DATED NOVEMBER 17, 2006 AND STANDARD PLAN P18 DATED MAY 1, 2006 - PAGE 127 OF THE STANDARD PLANS BOOK DATED MAY 2006.

**REVISED STANDARD PLAN RSP P18**

2006 REVISED STANDARD PLAN RSP P18

**NOTE:**

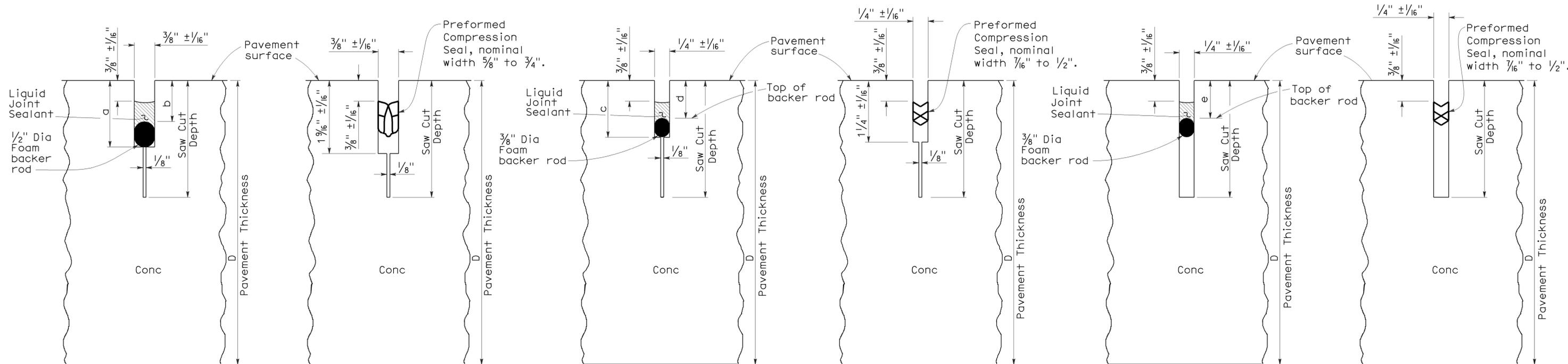
1. Tie bars, dowel bars, and reinforcement are not shown in joint seal details, see Revised Standard Plans RSP P1, RSP P3, RSP P10, RSP P35, RSP P45, or RSP P46 as applicable.

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
03	Sac	50	R2.6/R5.4, R12.2/R14.2	52	71

*William K. Farnbach*  
 REGISTERED CIVIL ENGINEER  
 No. C49042  
 Exp. 9-30-10  
 STATE OF CALIFORNIA

May 15, 2009  
 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.



**LIQUID SEALANT**

**COMPRESSION SEAL**

**LIQUID SEALANT**

**COMPRESSION SEAL**

**LIQUID SEALANT**

**COMPRESSION SEAL**

**TYPE A1**

**TYPE A2**

**TYPE B**

Transverse Contraction Joints

Longitudinal Contraction Joints

Longitudinal or Transverse Contraction Joint

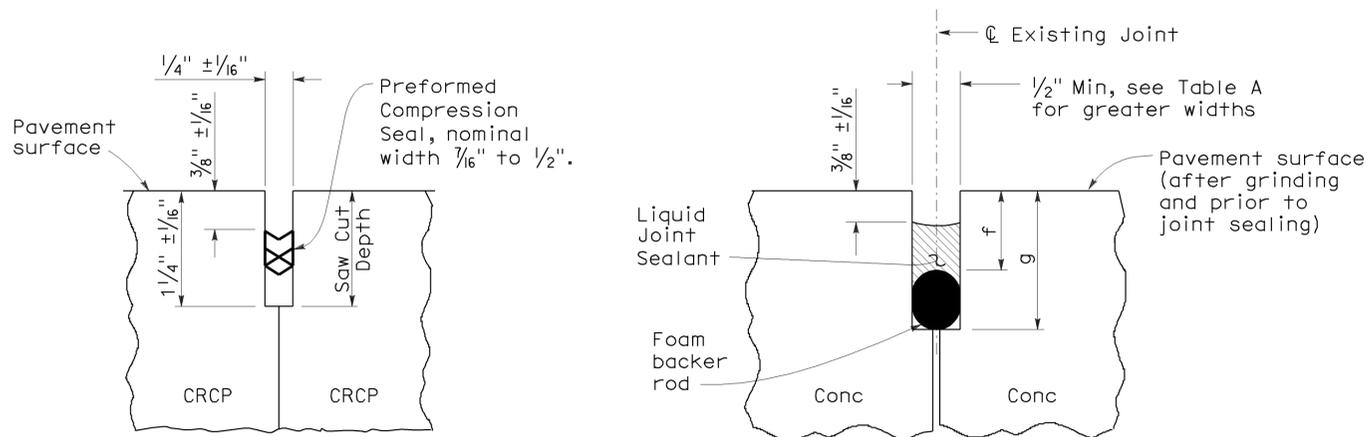
To accompany plans dated 3-25-11

**LIQUID SEALANT RESERVOIR DEPTH**

LIQUID SEALANT MATERIAL	3/8" Joint Width Type A1		1/4" Joint Width Type A2		1/4" Joint Width Type B
	DIMENSION		DIMENSION		DIMENSION
	a	b	c	d	e
SILICONE	1" ± 1/16"	5/8" ± 1/16"	15/16" ± 1/16"	9/16" ± 1/16"	9/16" ± 1/16"
ASPHALT RUBBER	1 3/16" ± 1/16"	3/4" ± 1/16"	1 1/16" ± 1/16"	11/16" ± 1/16"	11/16" ± 1/16"

**TABLE A (TYPE R JOINT)**

Sawn Joint Width	Backer Rod Diameter ± 1/16"	DIMENSION "f"	DIMENSION "g"
1"	1 5/16"	7/8"	2 1/4"
7/8"	1 3/16"	13/16"	2"
3/4"	1"	3/4"	1 3/4"
5/8"	7/8"	11/16"	1 1/2"
1/2"	11/16"	5/8"	1 1/4"



**COMPRESSION SEAL**

**LIQUID SEALANT**

**TYPE C**

**TYPE R**

Transverse and Longitudinal Construction Joints (For CRCP)

Retrofit Transverse and Longitudinal Joints

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**CONCRETE PAVEMENT-  
 JOINT DETAILS**

NO SCALE

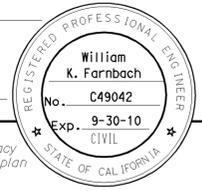
RSP P20 DATED MAY 15, 2009 SUPERSEDES STANDARD PLAN P20  
 DATED MAY 1, 2006 - PAGE 128 OF THE STANDARD PLANS BOOK DATED MAY 2006.

**REVISED STANDARD PLAN RSP P20**

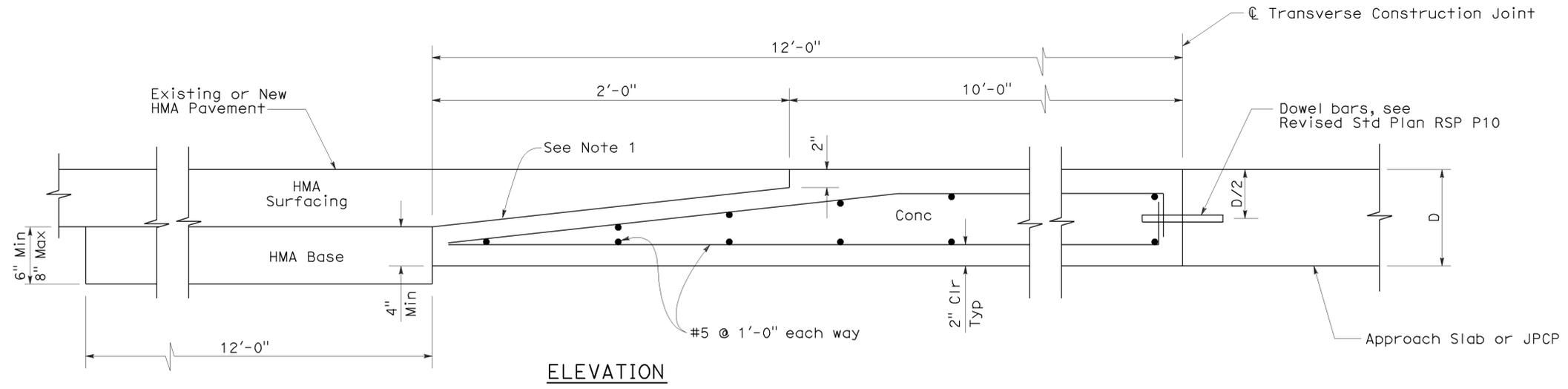
2006 REVISED STANDARD PLAN RSP P20

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
03	Sac	50	R2.6/R5.4, R12.2/R14.2	53	71

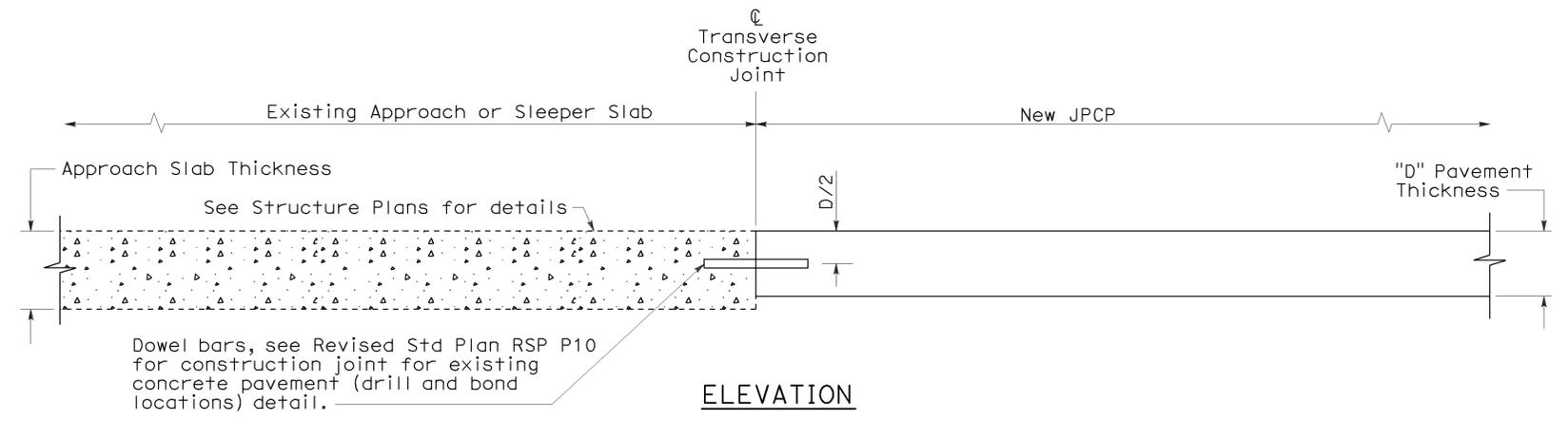
William K. Farnbach  
 REGISTERED CIVIL ENGINEER  
 May 15, 2009  
 PLANS APPROVAL DATE  
 The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.



To accompany plans dated 3-25-11

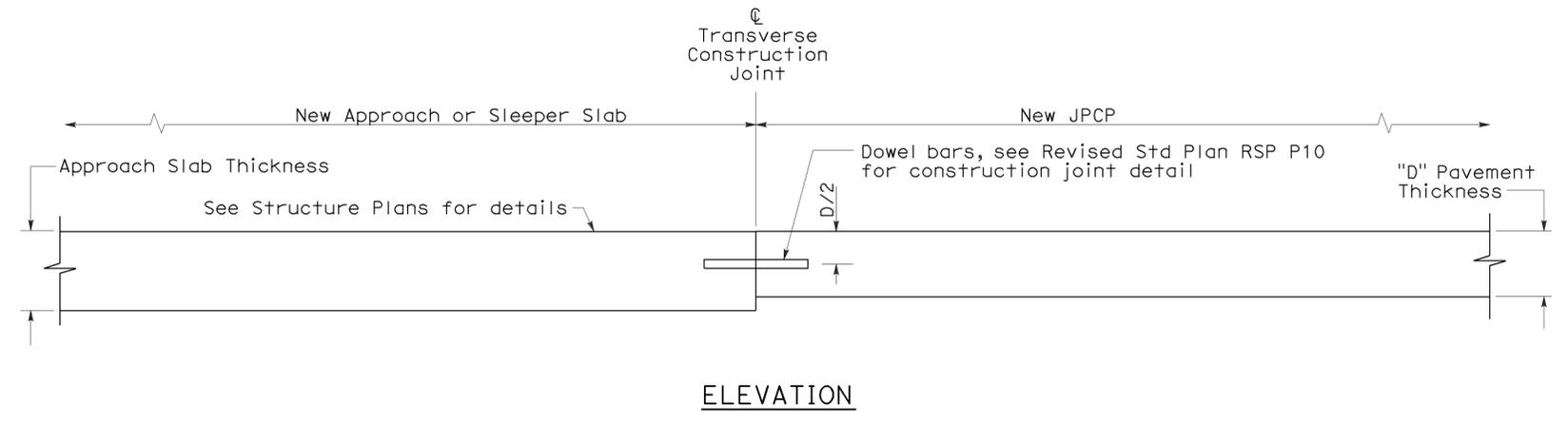


**CONCRETE PAVEMENT TO HOT MIXED ASPHALT PAVEMENT TRANSITION PANEL**



**ELEVATION PAVEMENT END ANCHOR**

**NOTE:**  
1. Heavy broom finish.



**CONCRETE PAVEMENT TRANSITION TO APPROACH OR SLEEPER SLAB**

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**JOINTED PLAIN CONCRETE PAVEMENT-  
END PANEL  
PAVEMENT TRANSITIONS**  
NO SCALE

RSP P30 DATED MAY 15, 2009 SUPERSEDES STANDARD PLAN P30  
DATED MAY 1, 2006 - PAGE 129 OF THE STANDARD PLANS BOOK DATED MAY 2006.

**REVISED STANDARD PLAN RSP P30**

129

2006 REVISED STANDARD PLAN RSP P30

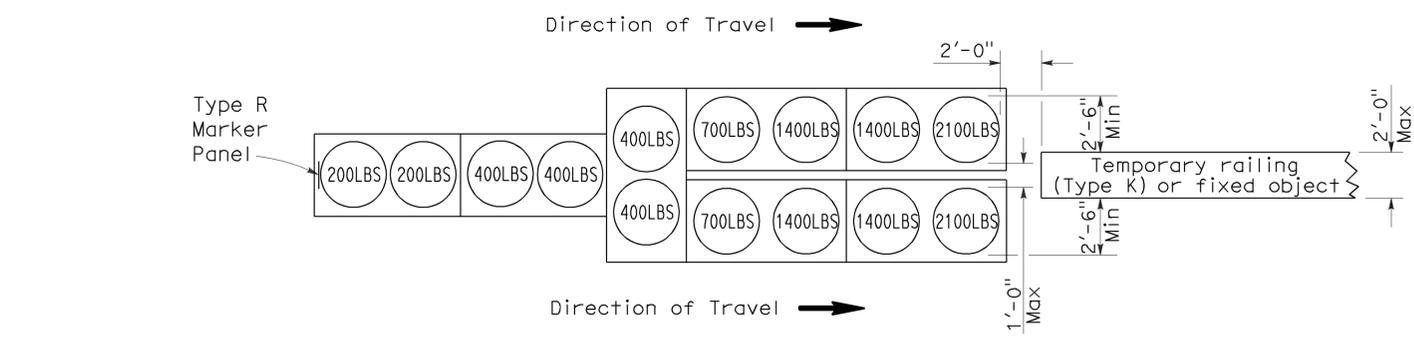
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
03	Sac	50	R2.6/R5.4, R12.2/R14.2	54	71

*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

June 6, 2008  
PLANS APPROVAL DATE

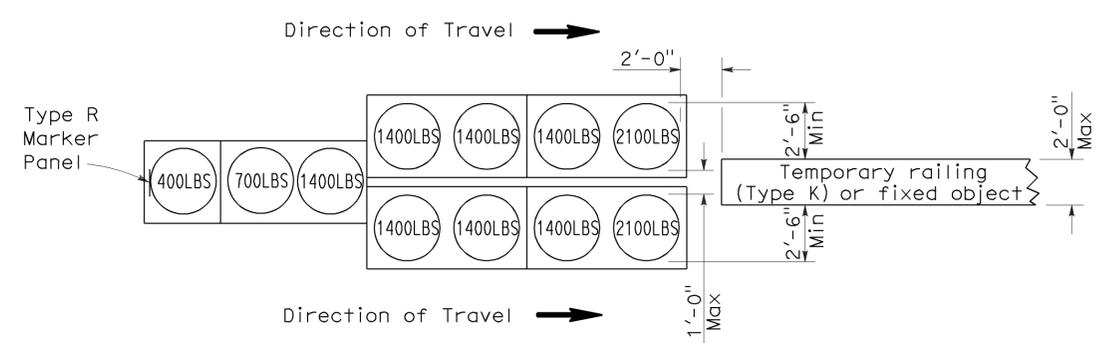
*The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.*

To accompany plans dated 3-25-11



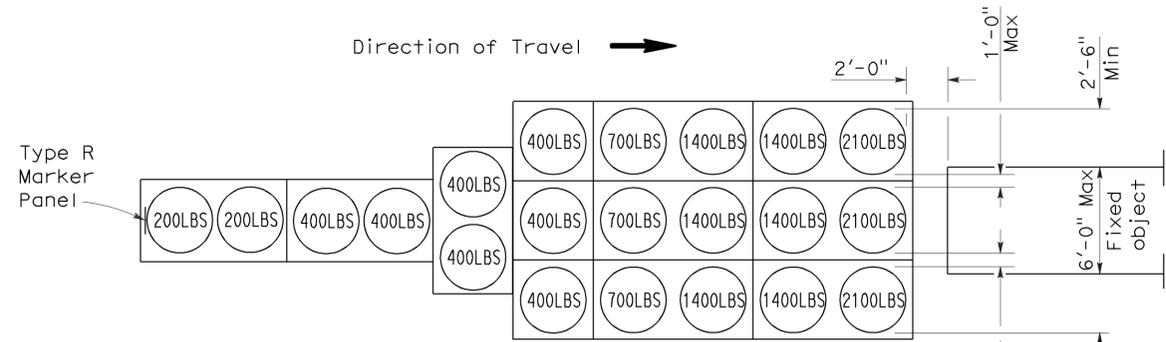
**ARRAY 'TU14'**

Approach speed 45 mph or more



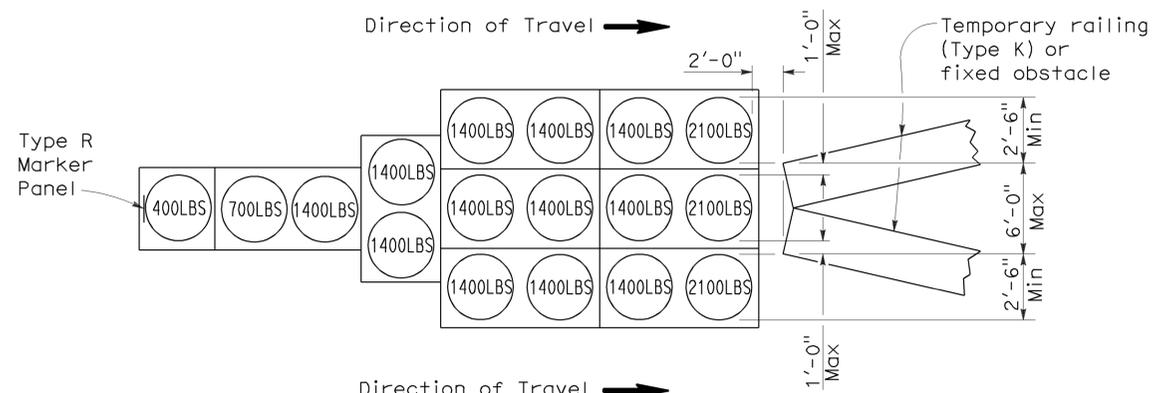
**ARRAY 'TU11'**

Approach speed less than 45 mph



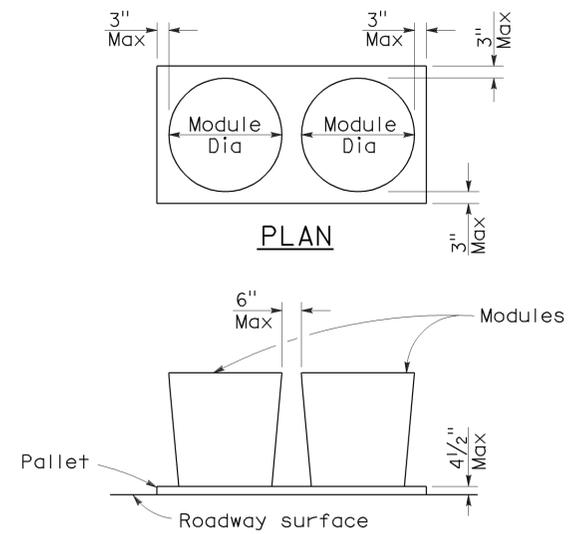
**ARRAY 'TU21'**

Approach speed 45 mph or more



**ARRAY 'TU17'**

Approach speed less than 45 mph



**CRASH CUSHION PALLET DETAIL**

See Note 7

**NOTES:**

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

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

NO SCALE

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

**REVISED STANDARD PLAN RSP T1A**

2006 REVISED STANDARD PLAN RSP T1A

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
03	Sac	50	R2.6/R5.4, R12.2/R14.2	55	71

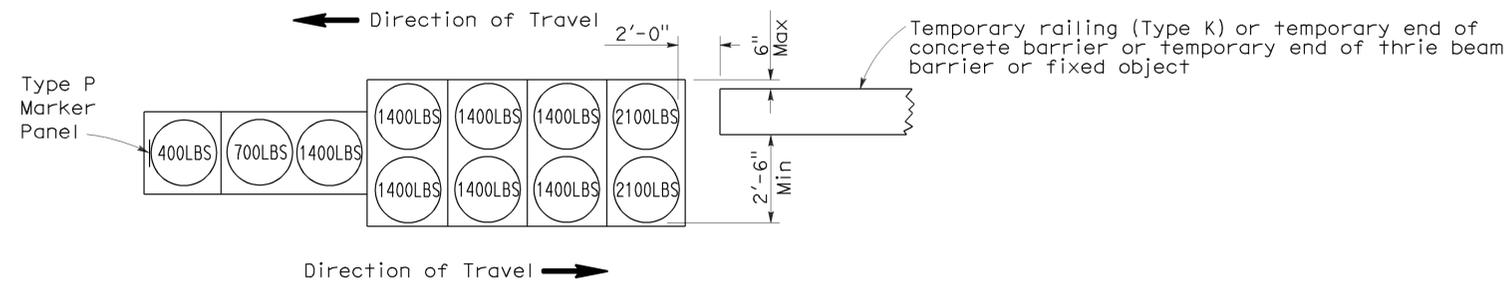
*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

June 6, 2008  
PLANS APPROVAL DATE

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

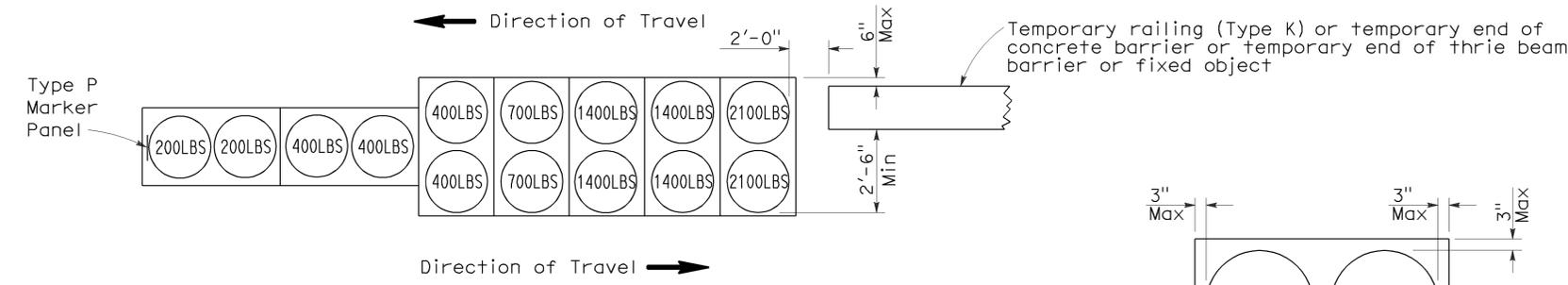
REGISTERED PROFESSIONAL ENGINEER  
Randell D. Hiatt  
No. C50200  
Exp. 6-30-09  
CIVIL  
STATE OF CALIFORNIA

To accompany plans dated 3-25-11



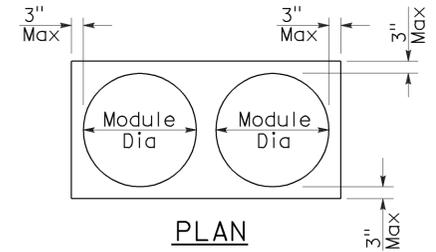
**ARRAY 'TB11'**

Approach speed less than 45 mph

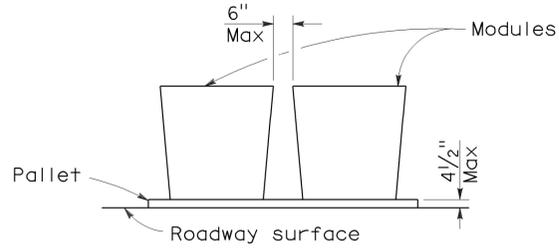


**ARRAY 'TB14'**

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

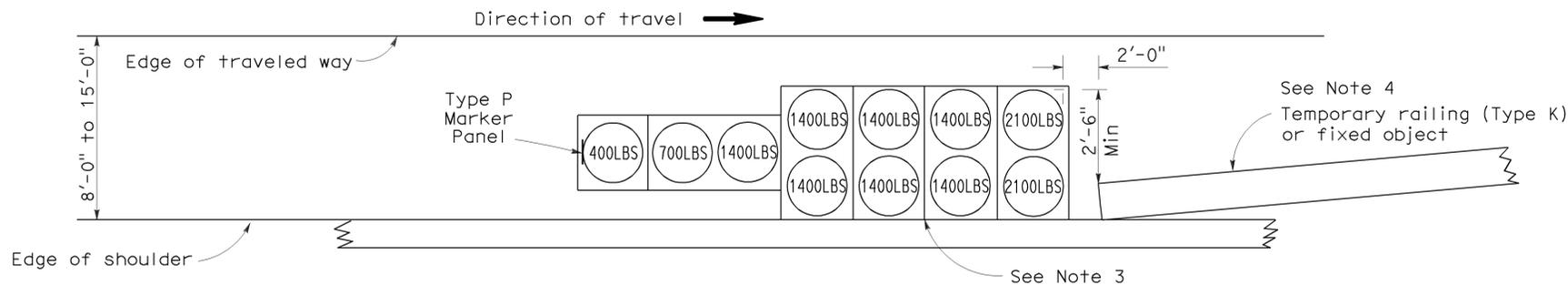
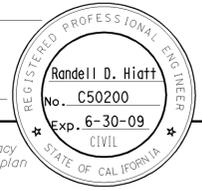
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
03	Sac	50	R2.6/R5.4, R12.2/R14.2	56	71

*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

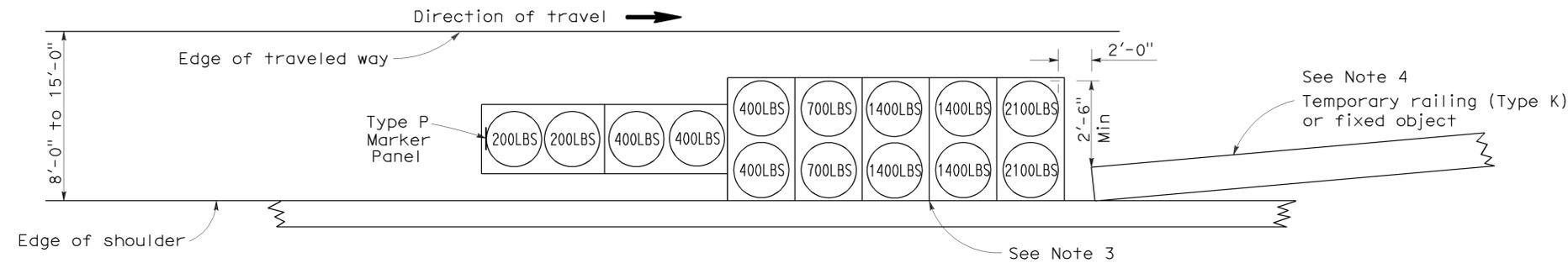
June 6, 2008  
PLANS APPROVAL DATE

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

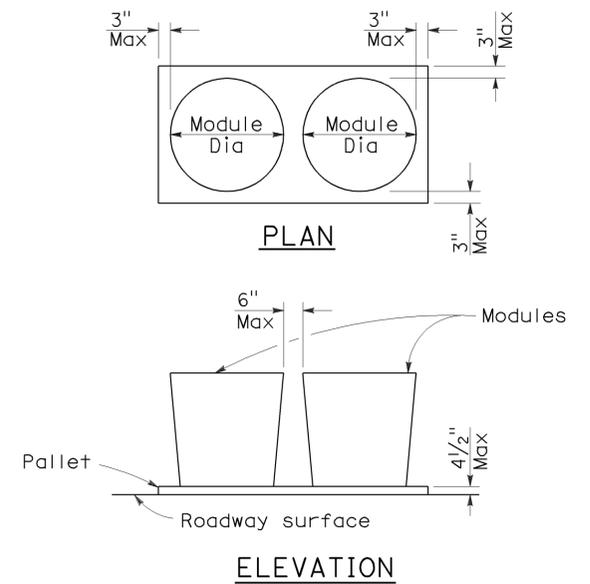
To accompany plans dated 3-25-11



**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.

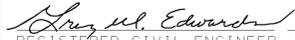
STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**TEMPORARY CRASH CUSHION,  
SAND FILLED  
(SHOULDER INSTALLATIONS)**  
NO SCALE

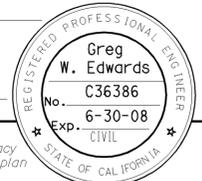
RSP T2 DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN T2  
DATED MAY 1, 2006 - PAGE 213 OF THE STANDARD PLANS BOOK DATED MAY 2006.

**REVISED STANDARD PLAN RSP T2**

2006 REVISED STANDARD PLAN RSP T2

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
03	Sac	50	R2.6/R5.4, R12.2/R14.2	57	71

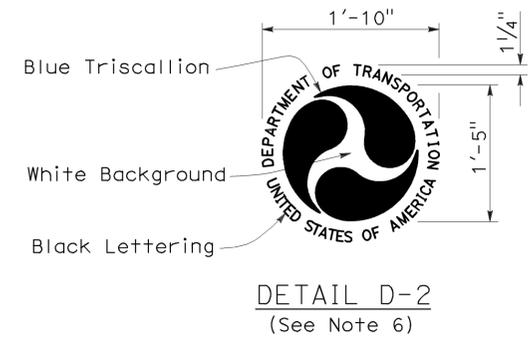
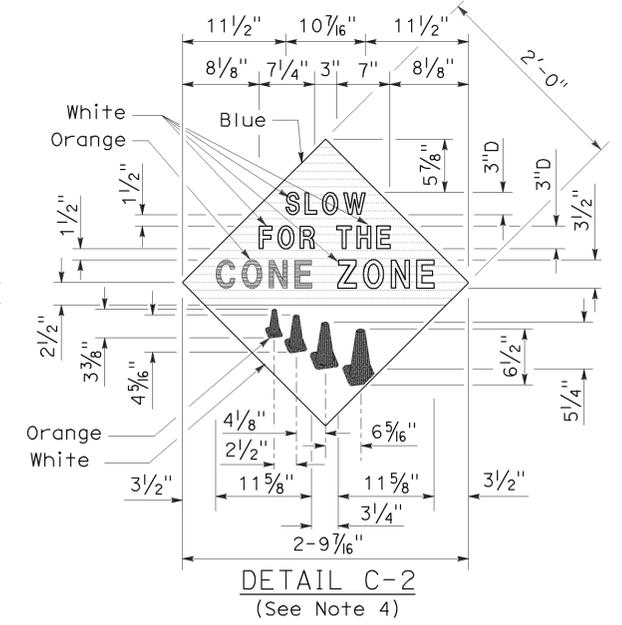
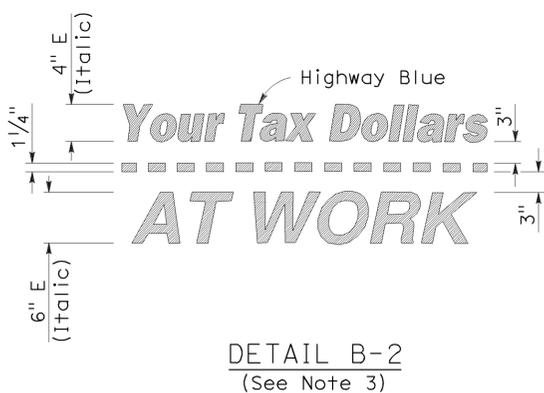
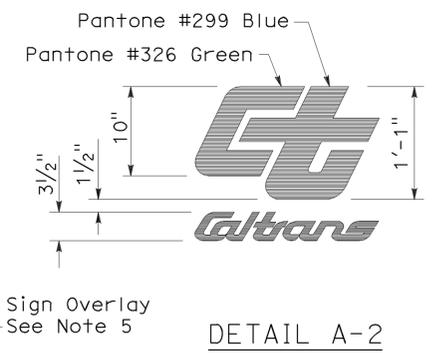
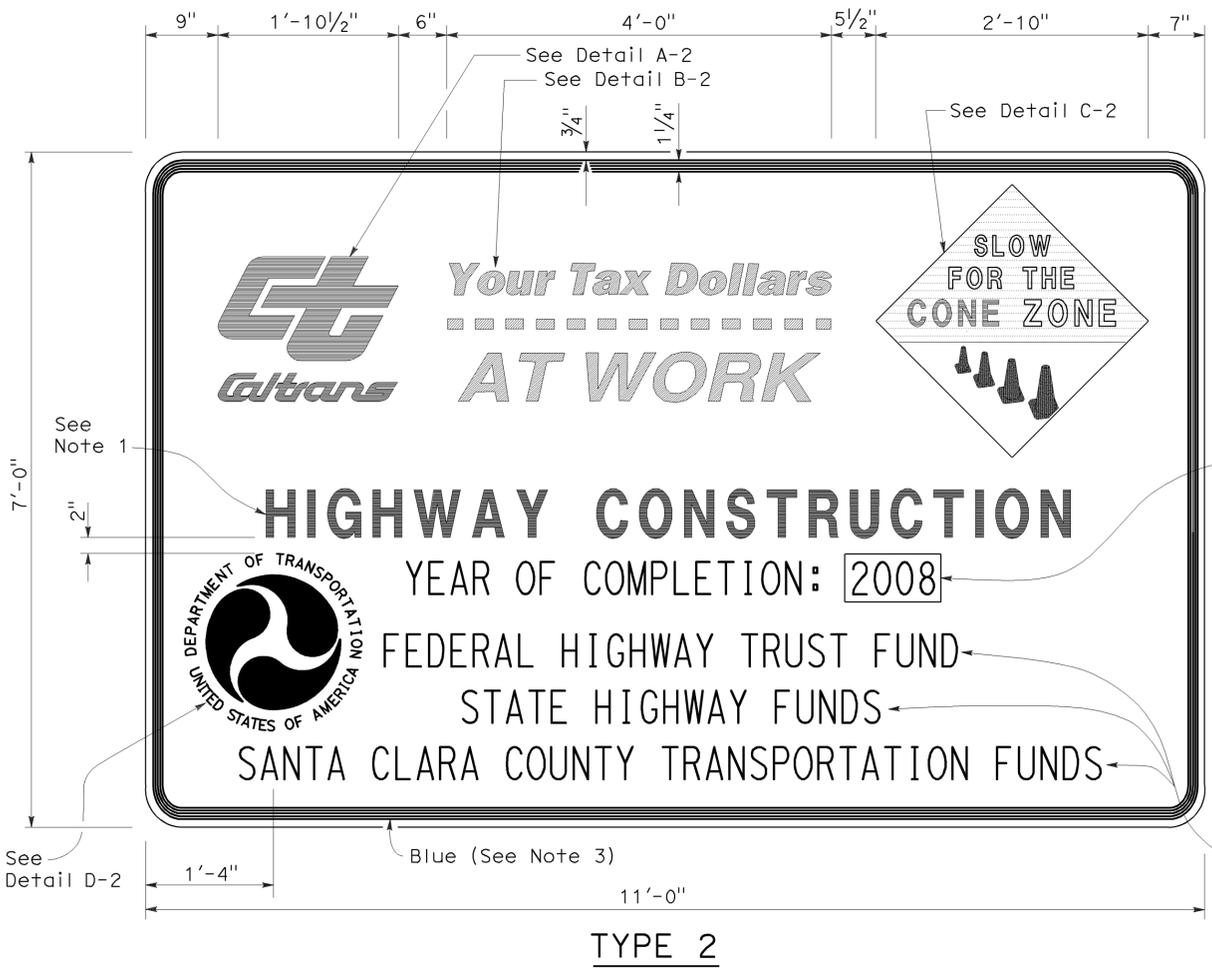
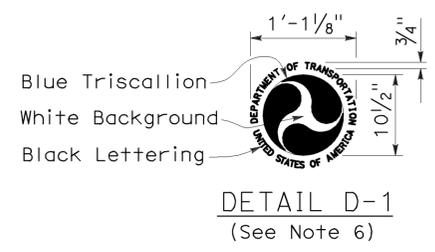
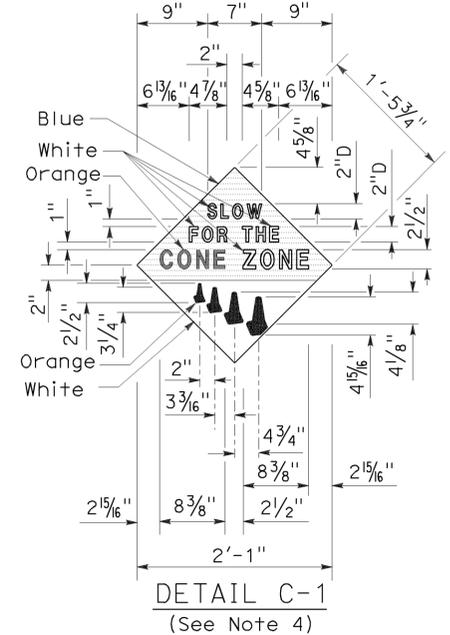
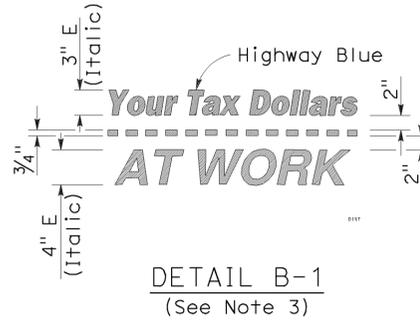
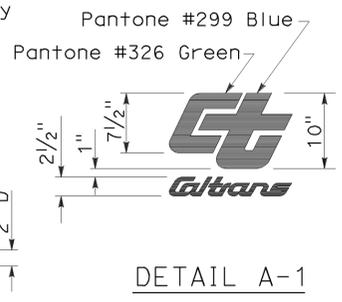
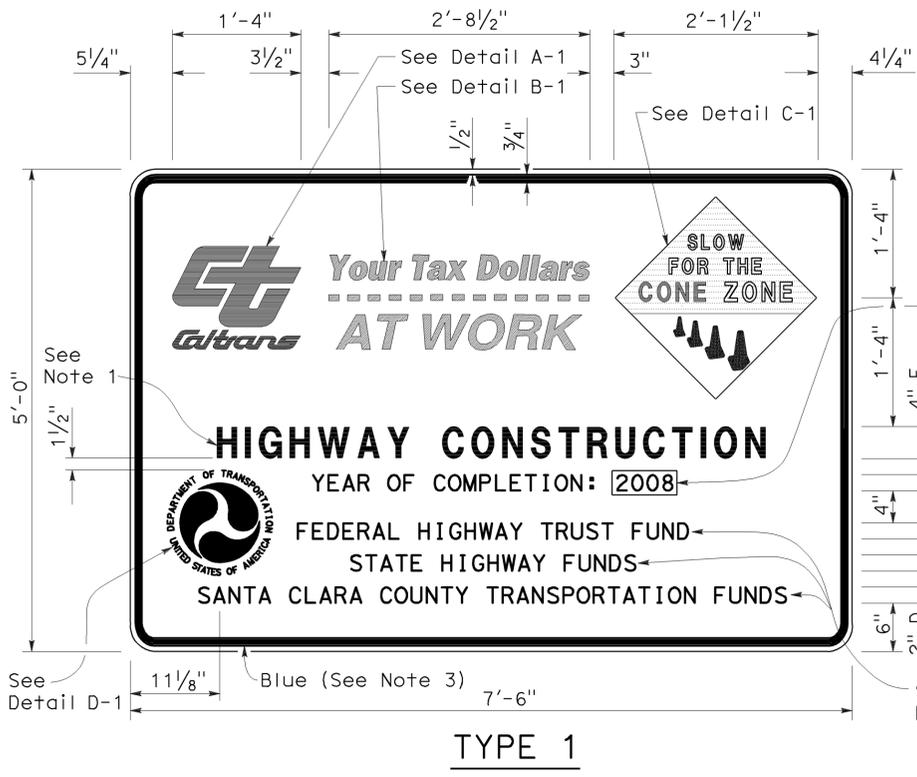
  
 REGISTERED CIVIL ENGINEER  
 November 17, 2006  
 PLANS APPROVAL DATE  
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

  
 STATE OF CALIFORNIA

To accompany plans dated 3-25-11

**NOTES:**

1. The sign messages shown for type of project and fund types are examples only. See the Special Provisions for the applicable type of project and fund type messages to be used.
2. Except as otherwise shown, the legend of sign shall be black on a white background (non-reflective).
3. The border of the signs and details "B-1" and "B-2" shall be blue (non-reflective).
4. The diamond in details "C-1" and "C-2" shall be blue for the background of message, "SLOW FOR THE CONE ZONE", and white background for the orange cones. The color and type of font for the "SLOW FOR THE CONE ZONE" message shall be: "SLOW" white D; "FOR THE" white D; "CONE" orange Arial font; "ZONE" white Arial font.
5. Year of completion of project construction shown on the overlay is an example only. See the Special Provisions.
6. Use when the Project involves Federal Highway Trust Fund.



STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**CONSTRUCTION PROJECT  
FUNDING  
IDENTIFICATION SIGNS**

NO SCALE

RSP T7 DATED NOVEMBER 17, 2006 SUPERSEDES STANDARD PLAN T7  
DATED MAY 1, 2006 - PAGE 217 OF THE STANDARD PLANS BOOK DATED MAY 2006.

**REVISED STANDARD PLAN RSP T7**

2006 REVISED STANDARD PLAN RSP T7

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
03	Sac	50	R2.6/R5.4, R12.2/R14.2	58	71

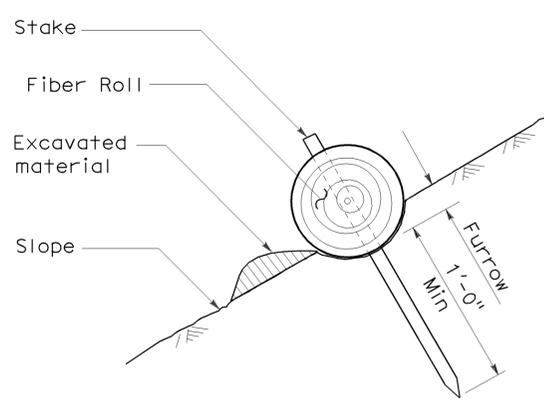
Robert B. Schott  
LICENSED LANDSCAPE ARCHITECT

April 3, 2009  
PLANS APPROVAL DATE

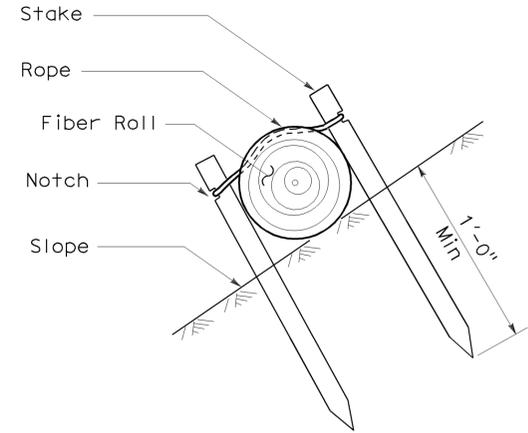
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

STATE OF CALIFORNIA  
LICENSED LANDSCAPE ARCHITECT  
Robert B. Schott 11-30-10  
Renewal Date 2-25-09

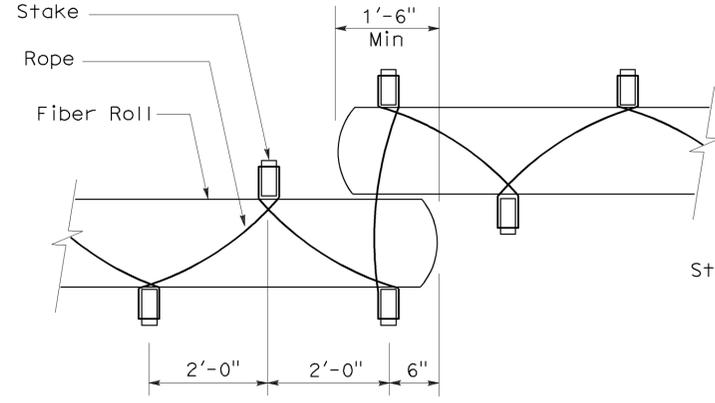
To accompany plans dated 3-25-11



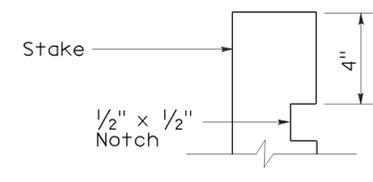
**SECTION**  
**TEMPORARY FIBER ROLL (TYPE 1)**



**SECTION**  
**TEMPORARY FIBER ROLL (TYPE 2)**

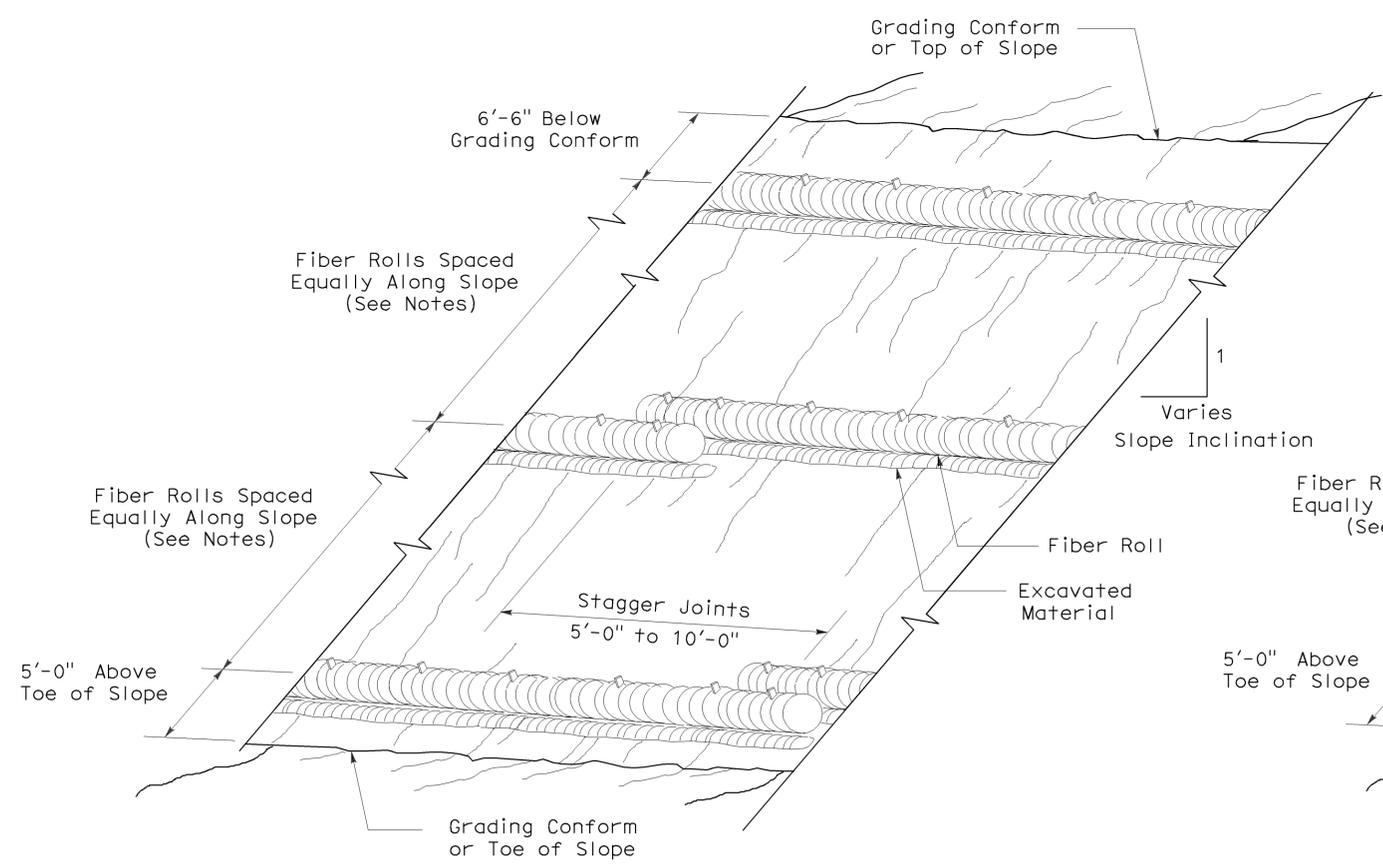


**PLAN**

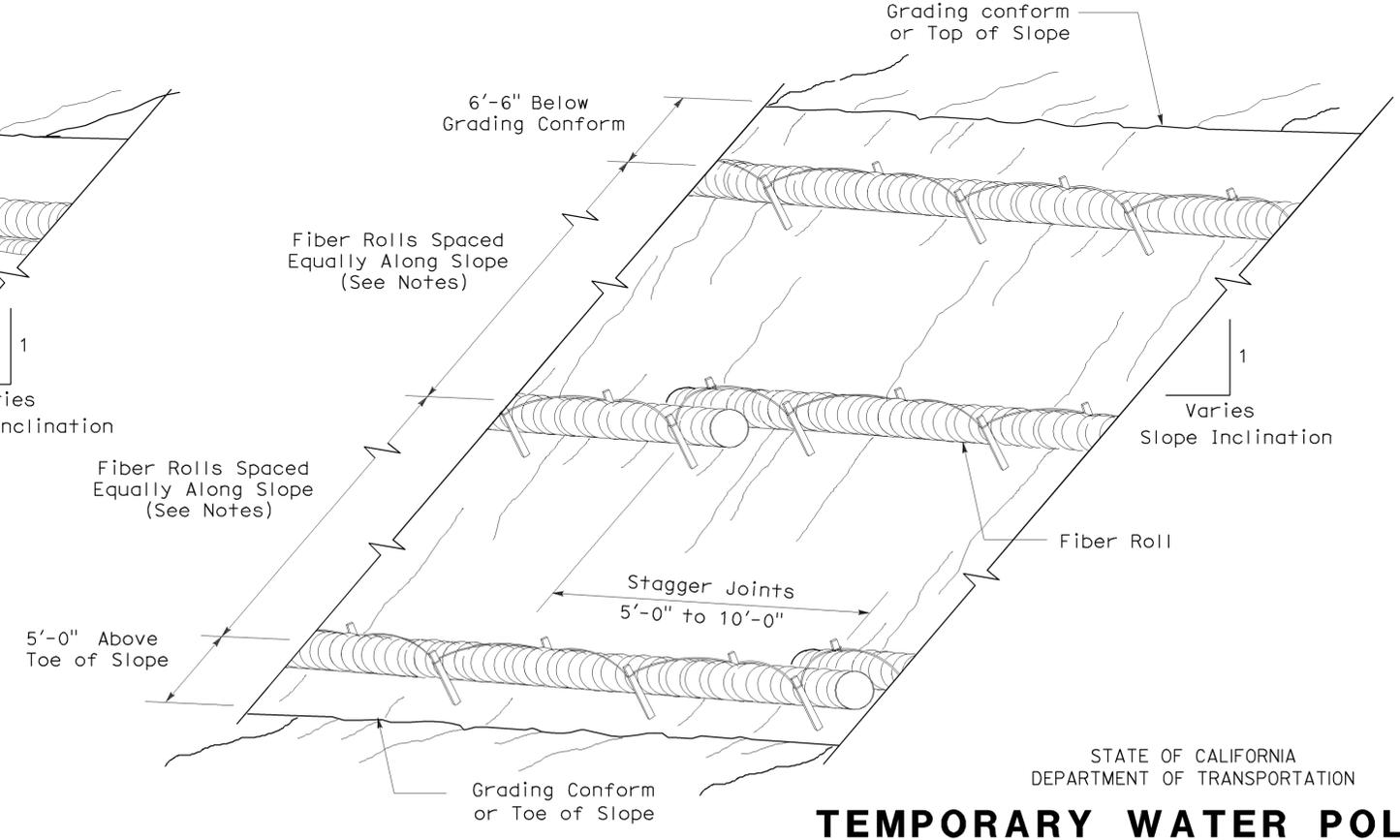


**ELEVATION**  
**STAKE NOTCH DETAIL**

- NOTES:**
1. Temporary fiber roll spacing varies depending upon slope inclination.
  2. Installations shown in the perspectives are for slope inclination of 10:1 and steeper.



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



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

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**TEMPORARY WATER POLLUTION CONTROL DETAILS (TEMPORARY FIBER ROLL)**

NO SCALE

RSP T56 DATED APRIL 3, 2009 SUPERSEDES STANDARD PLAN T56 DATED MAY 1, 2006 - PAGE 232 OF THE STANDARD PLANS BOOK DATED MAY 2006.

**REVISED STANDARD PLAN RSP T56**

232

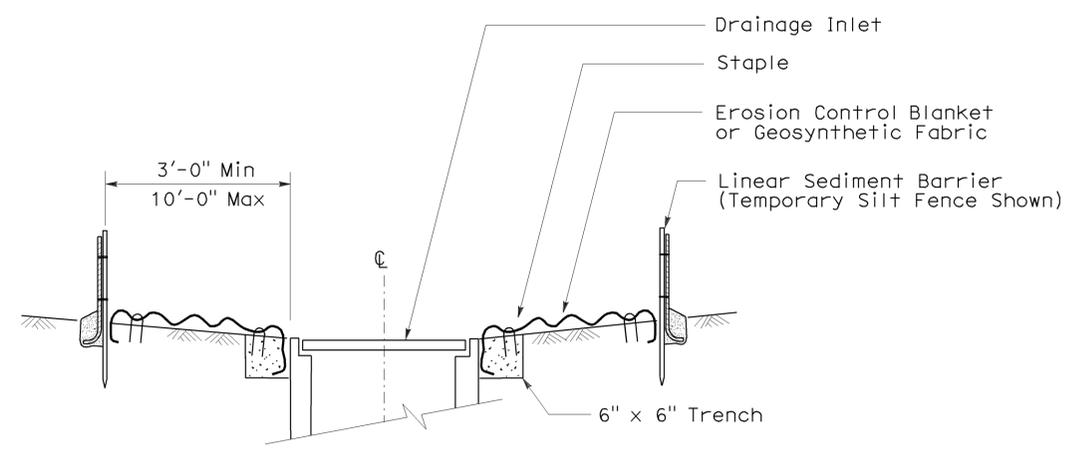
2006 REVISED STANDARD PLAN RSP T56

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
03	Sac	50	R2.6/R5.4, R12.2/R14.2	59	71

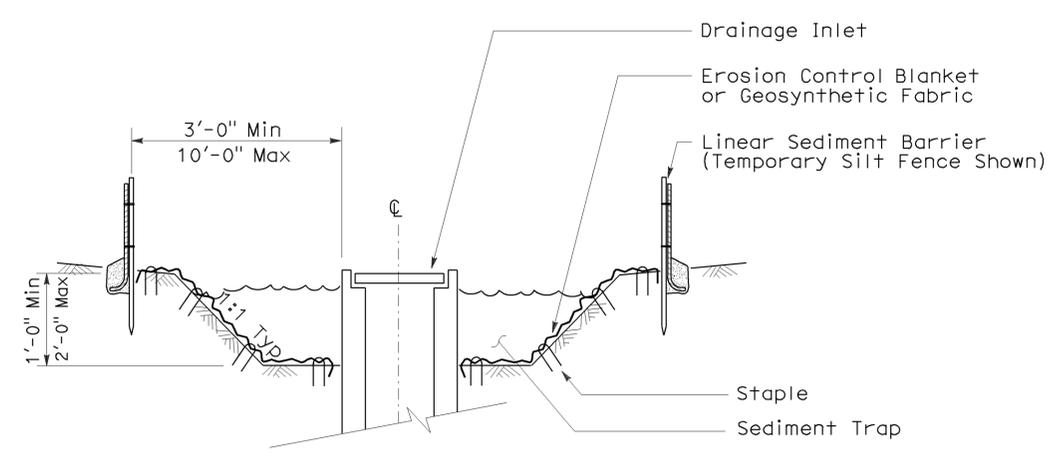
Robert B. Schott  
 LICENSED LANDSCAPE ARCHITECT  
 August 15, 2008  
 PLANS Approval DATE  
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

To accompany plans dated 3-25-11

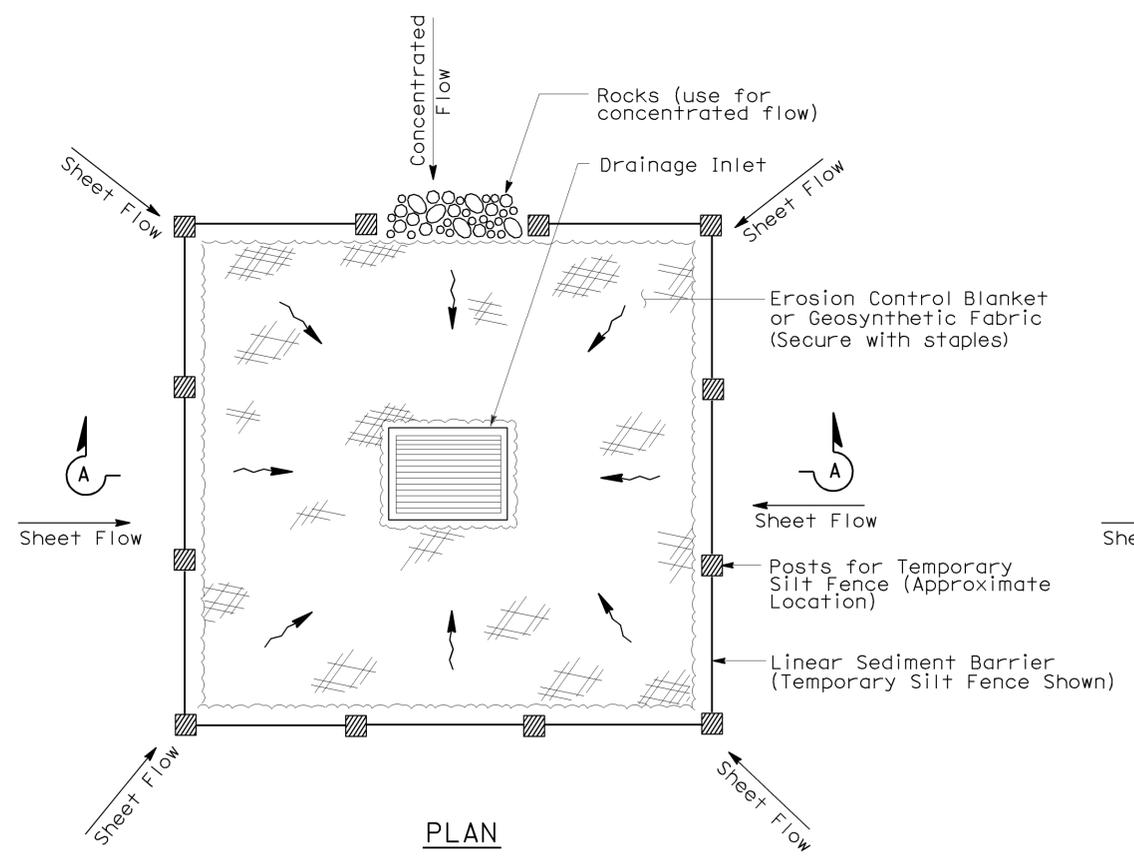
- NOTES:**
- See Standard Plan T51 for Temporary Silt Fence.
  - Dimensions may vary to fit field conditions.



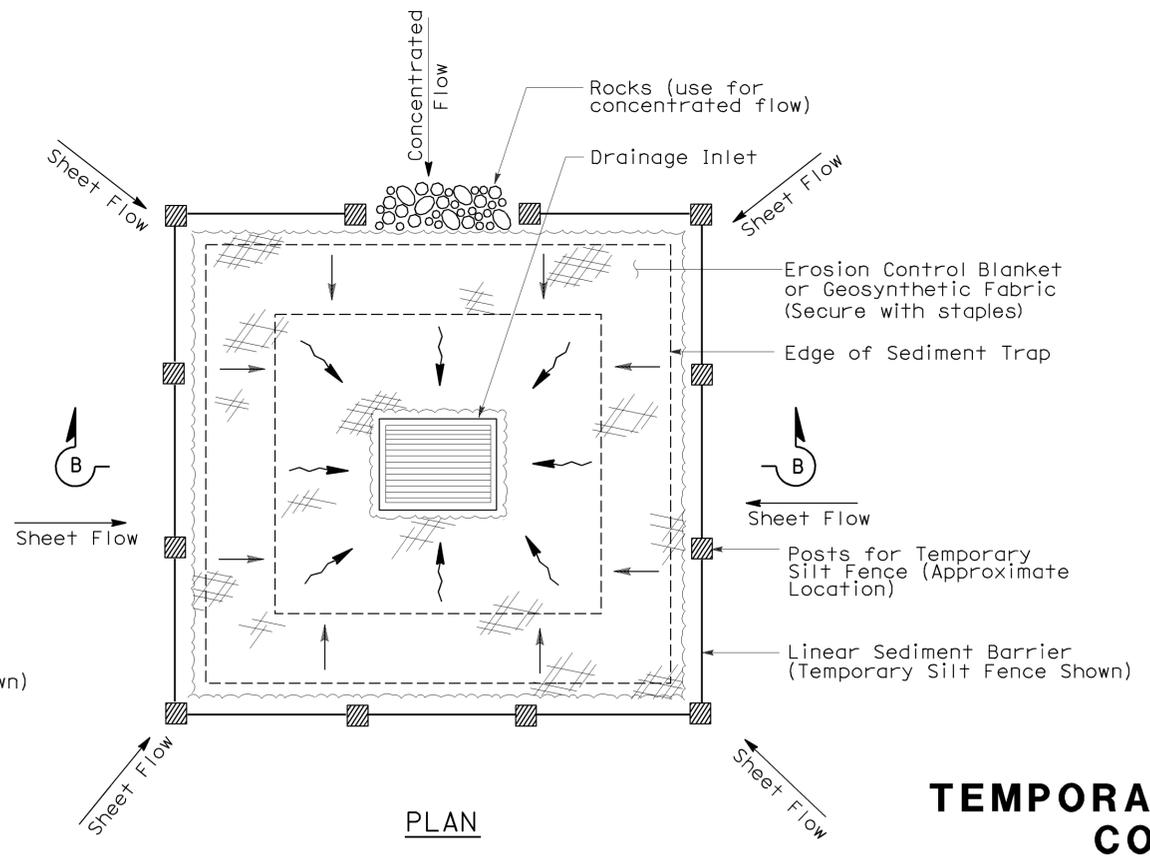
SECTION A-A



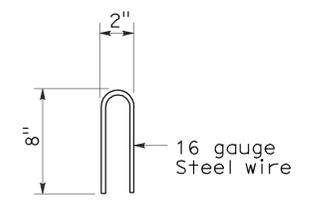
SECTION B-B



TEMPORARY DRAINAGE INLET PROTECTION (TYPE 1)



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



STAPLE DETAIL

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

Nsp +61 dated august 15, 2008 supplements the standard plans book dated may 2006.

2006 NEW STANDARD PLAN NSP T61

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
03	Sac	50	R2.6/R5.4, R12.2/R14.2	60	71

Robert B. Schott  
LICENSED LANDSCAPE ARCHITECT

August 15, 2008  
PLANS APPROVAL DATE

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

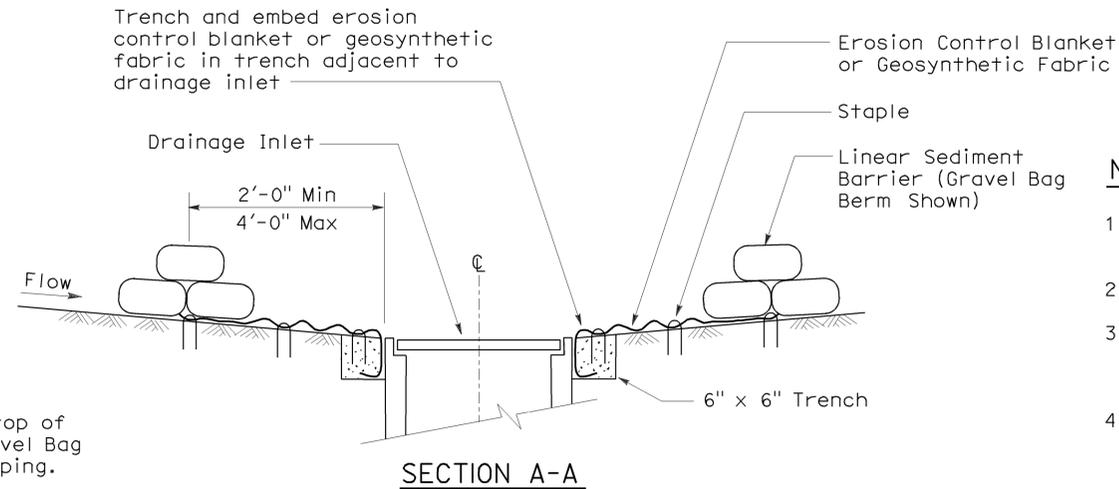
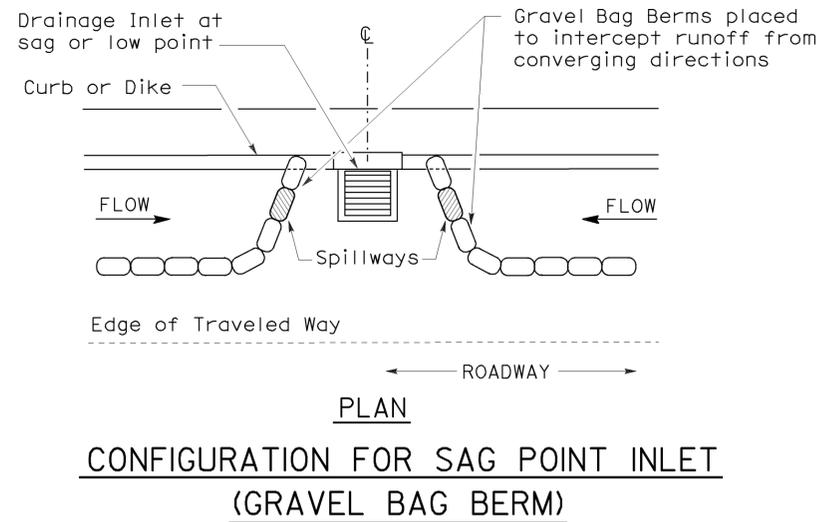
To accompany plans dated 3-25-11

STATE OF CALIFORNIA  
LICENSED LANDSCAPE ARCHITECT  
Robert B. Schott  
Signature: Robert B. Schott  
11-04-08  
08-11-08  
Renewal Date  
Date

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

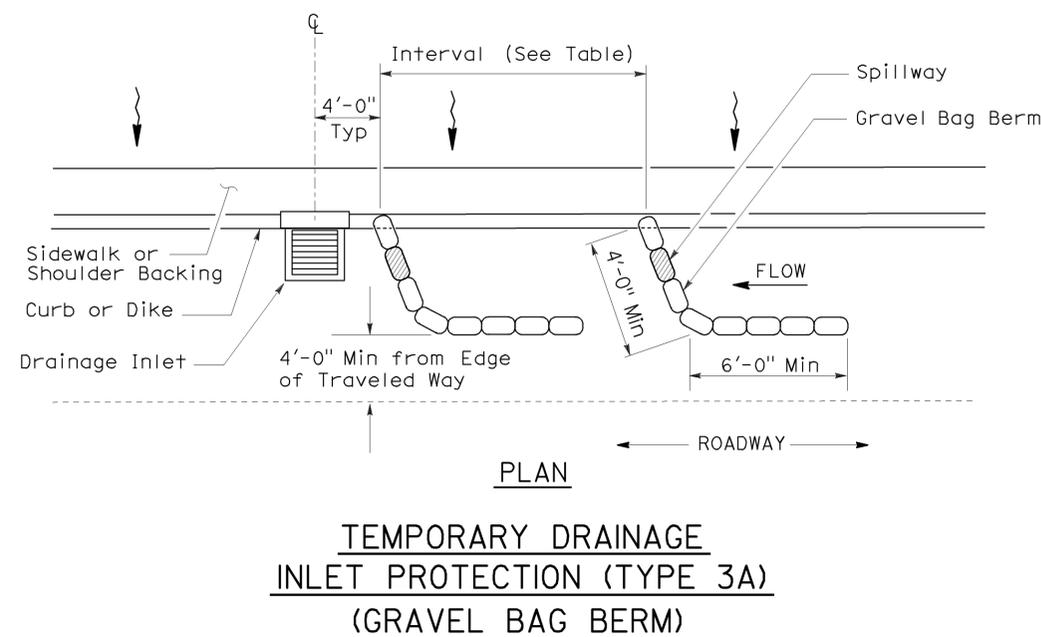
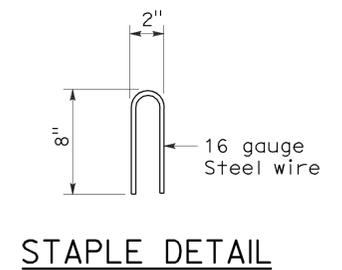
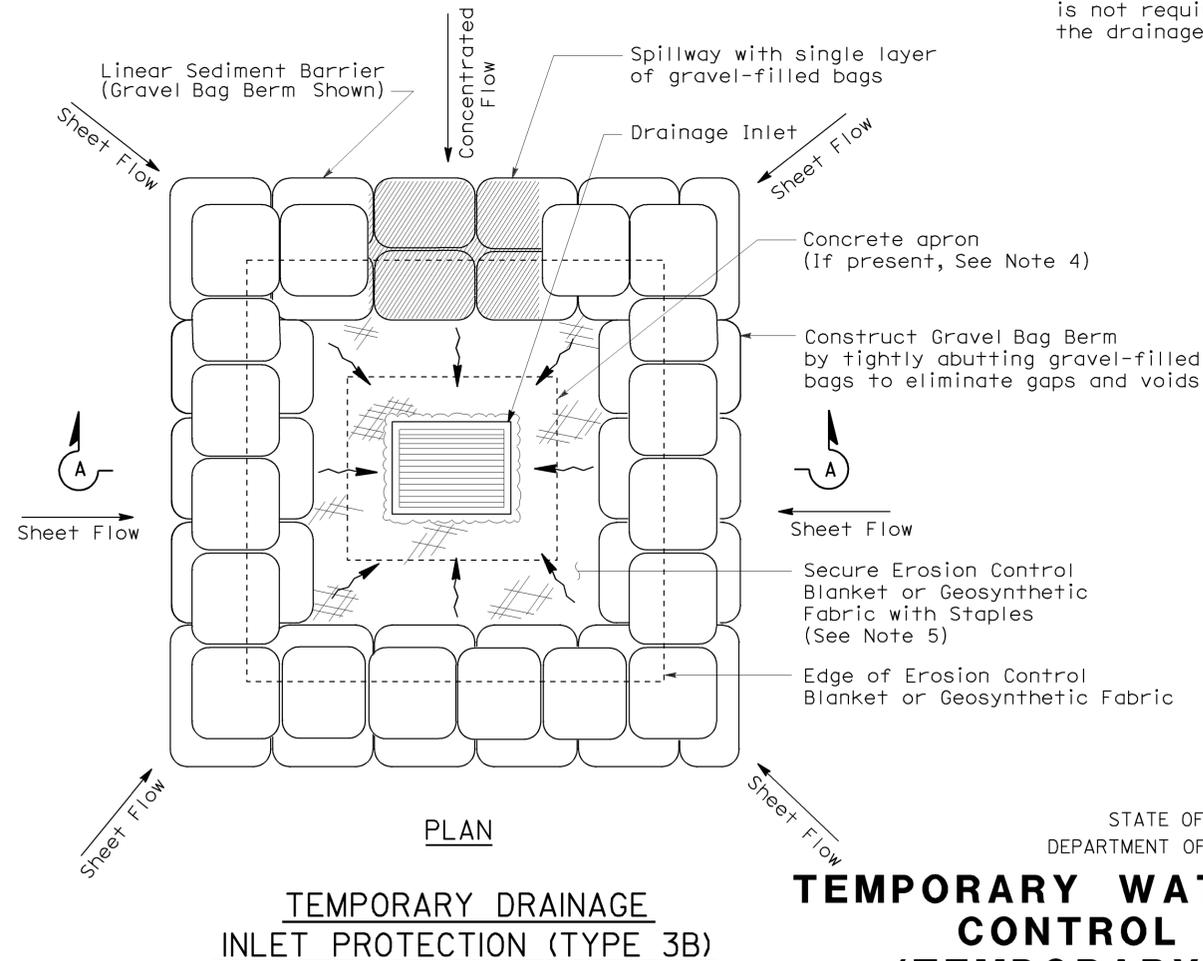
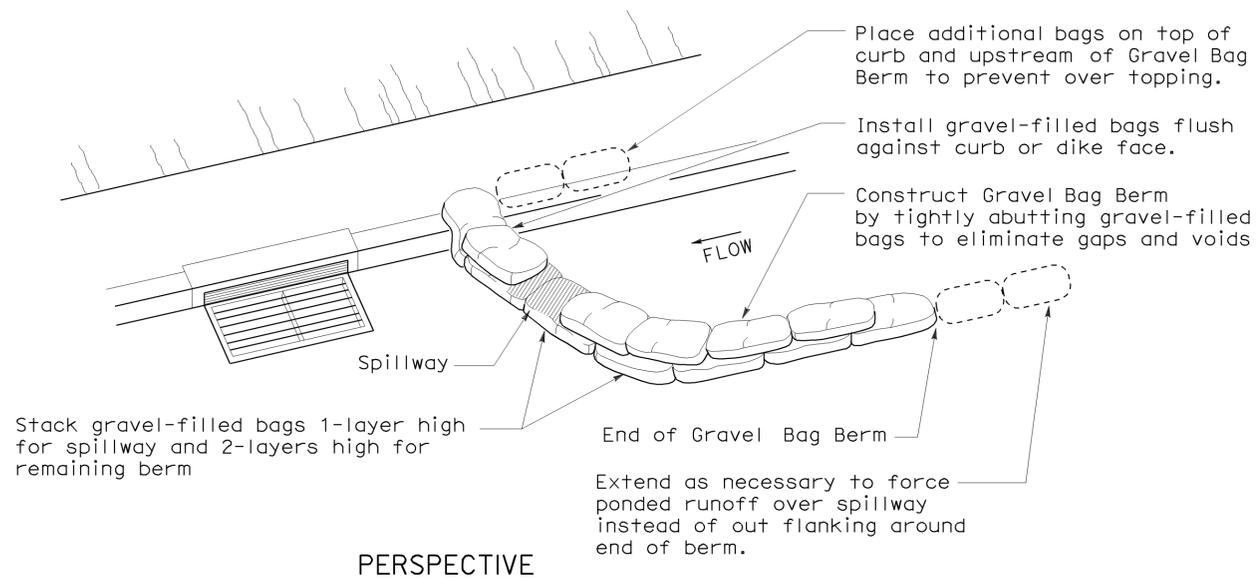
SLOPE OF ROADWAY (PERCENT)	1 to 3.9	4 to 5.9	6 to 7.9	8 to 10	10+
INTERVAL BETWEEN BERM	100'	75'	50'	25'	12'

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



**NOTES:**

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

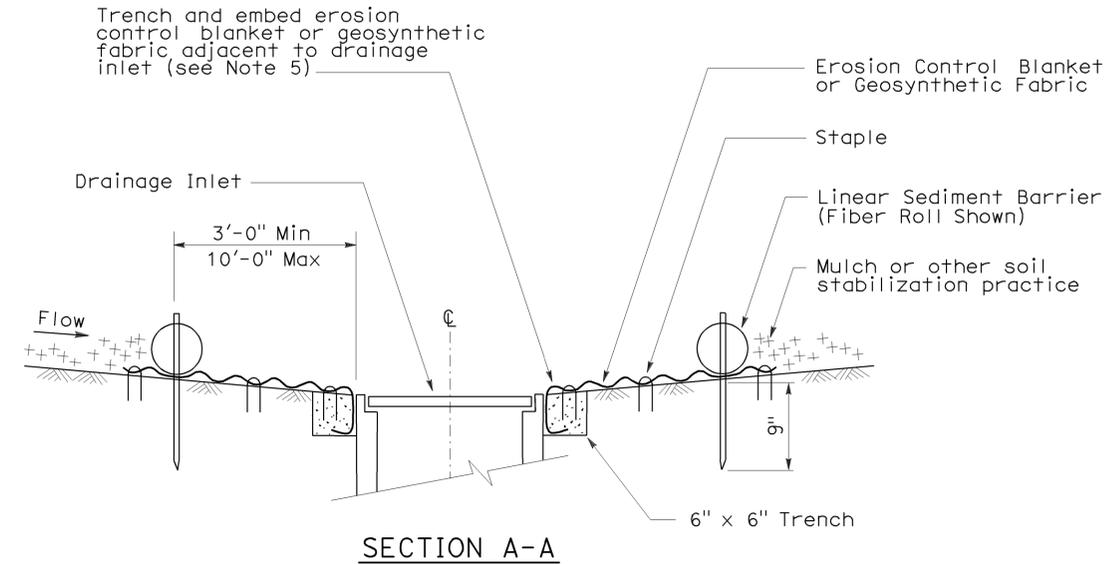


STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**TEMPORARY WATER POLLUTION CONTROL DETAILS (TEMPORARY DRAINAGE INLET PROTECTION)**

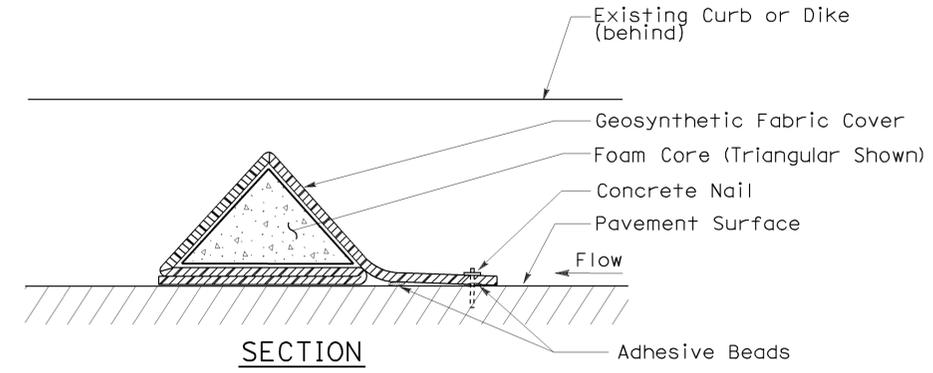
NO SCALE  
NSP T62 DATED AUGUST 15, 2008 SUPPLEMENTS  
THE STANDARD PLANS BOOK DATED MAY 2006.

**FLEXIBLE SEDIMENT BARRIER SPACING TABLE**

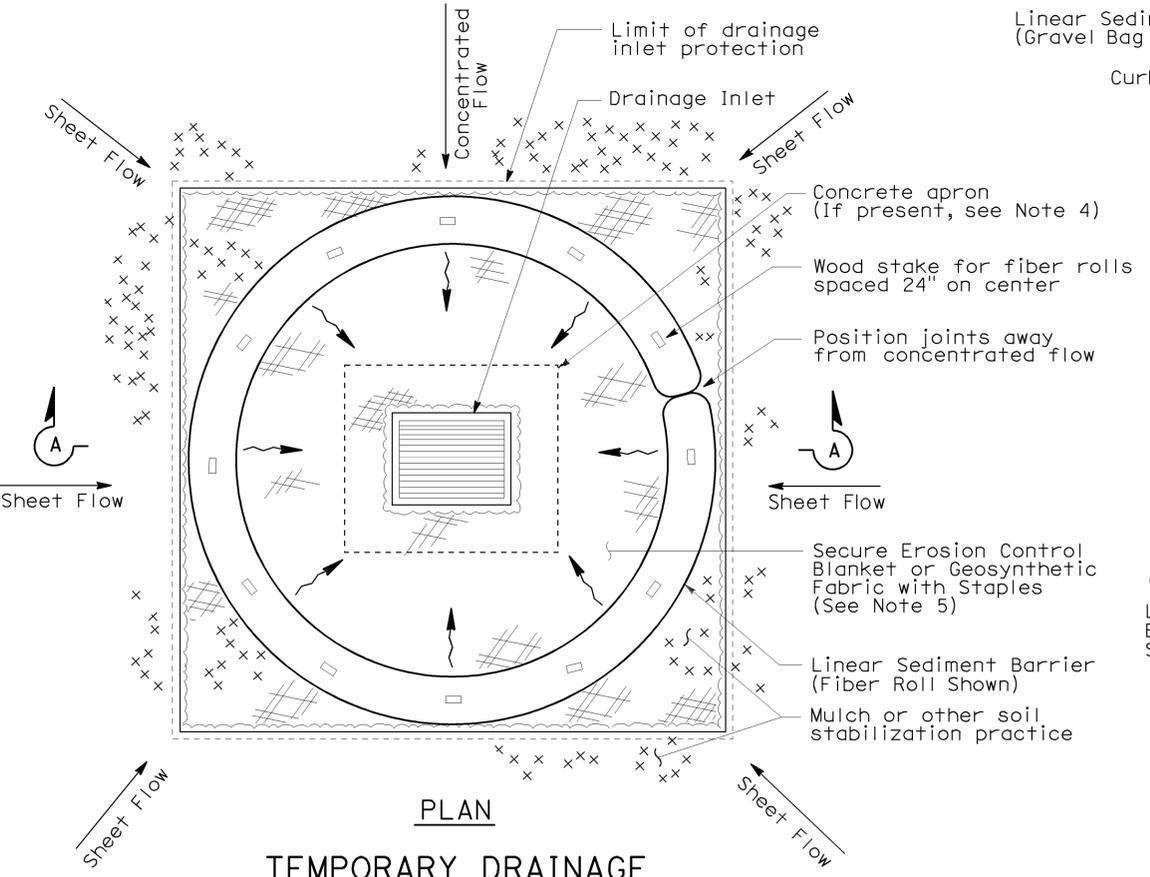
SLOPE OF ROADWAY (PERCENT)	0 to 0.9	1 to 1.9	2 to 2.9	3 to 4	5+
INTERVAL BETWEEN BARRIERS	50'	35'	30'	25'	20'
ANGLE FROM FACE OF CURB	70°	70°	70°	45°	45°
SUGGESTED BARRIER LENGTH	6'	6'	6'	6'	6'



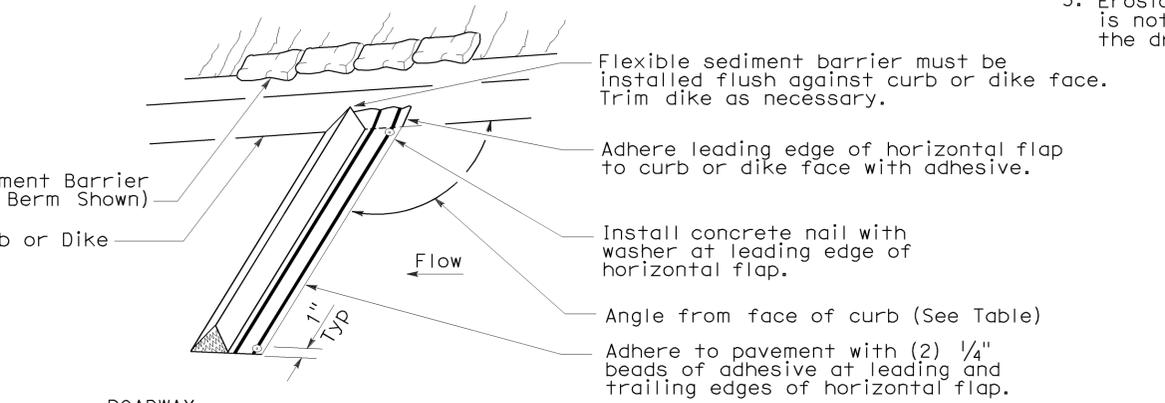
**SECTION A-A**



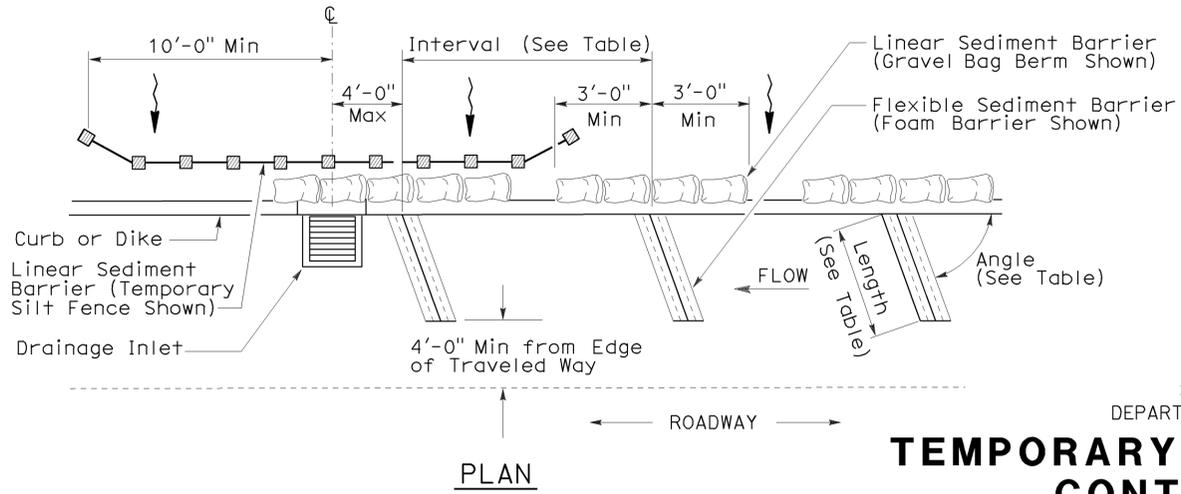
**SECTION FLEXIBLE SEDIMENT BARRIER DETAIL (FOAM BARRIER SHOWN)**



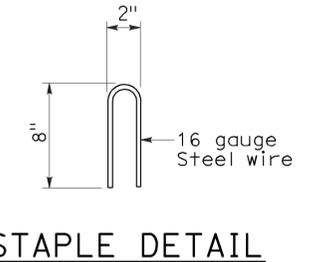
**PLAN TEMPORARY DRAINAGE INLET PROTECTION (TYPE 4A)**



**PERSPECTIVE**



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



**STAPLE DETAIL**

**NOTES:**

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

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

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

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

2006 NEW STANDARD PLAN NSP T63

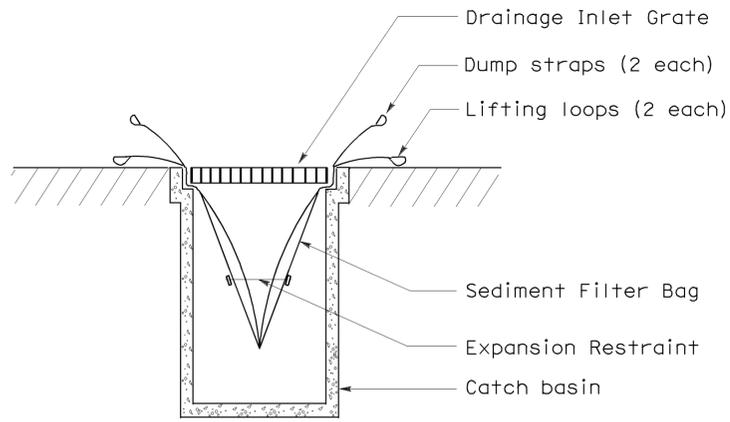
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
03	Sac	50	R2.6/R5.4, R12.2/R14.2	62	71

*Robert B. Schott*  
 LICENSED LANDSCAPE ARCHITECT

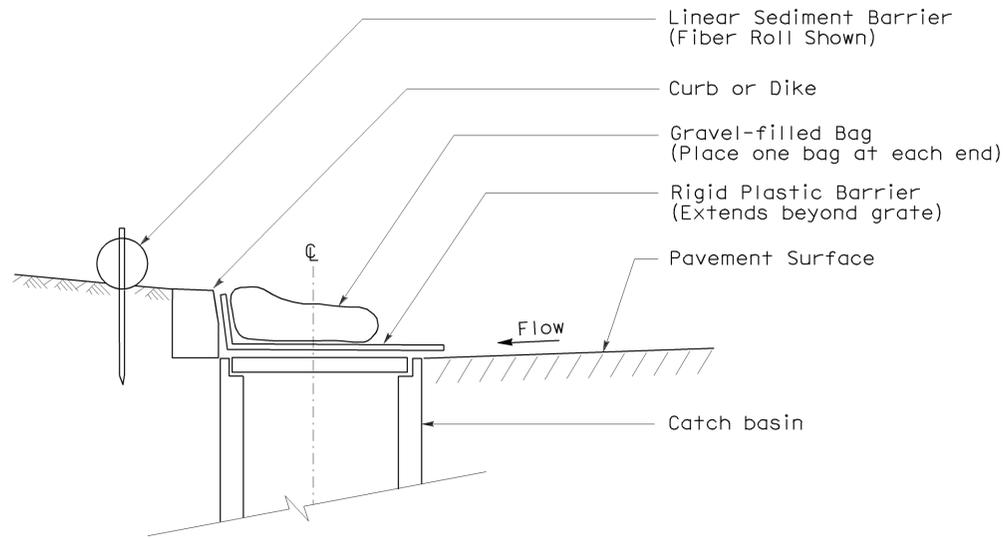
August 15, 2008  
 PLANS APPROVAL DATE

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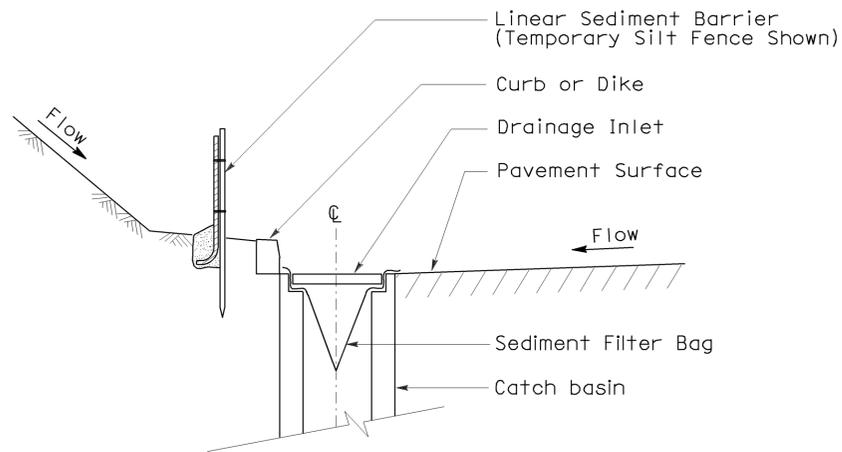
To accompany plans dated 3-25-11



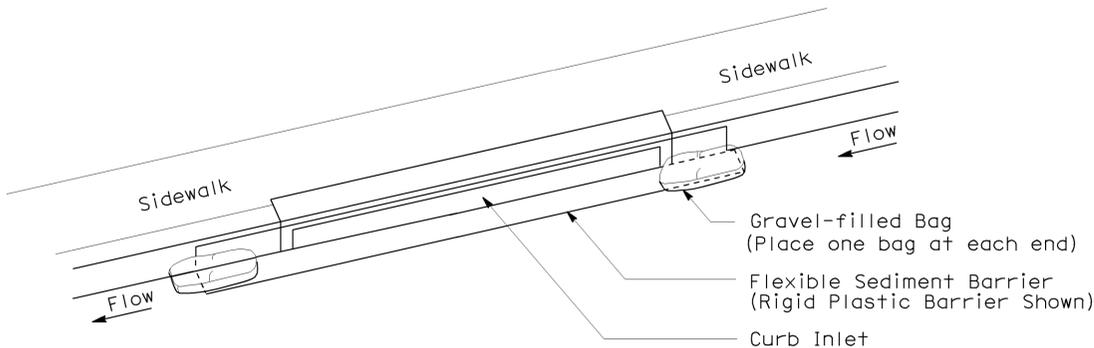
**SECTION B-B**  
**SEDIMENT FILTER BAG DETAIL**



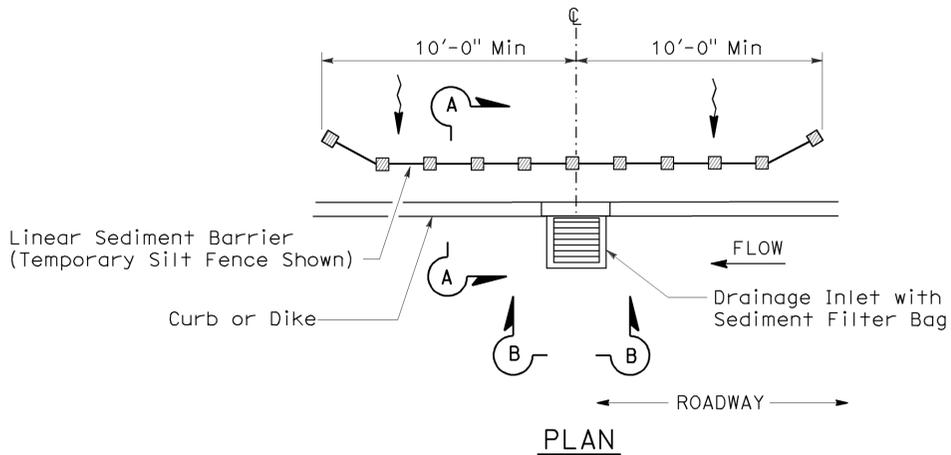
**SECTION**  
**TEMPORARY DRAINAGE**  
**INLET PROTECTION (TYPE 6A)**  
**(CATCH BASIN WITH GRATE)**



**SECTION A-A**



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



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

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

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION

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

NO SCALE

NSP T64 DATED AUGUST 15, 2008 SUPPLEMENTS THE STANDARD PLANS BOOK DATED MAY 2006.

**NEW STANDARD PLAN NSP T64**

**2006 NEW STANDARD PLAN NSP T64**

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
03	Sac	50	R2.6/R5.4, R12.2/R14.2	63	71

*Robert B. Schott*  
LICENSED LANDSCAPE ARCHITECT

April 3, 2009  
PLANS APPROVAL DATE

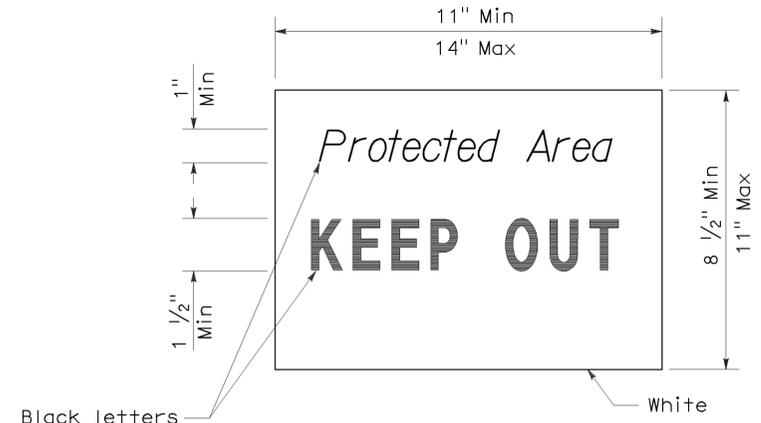
*Robert B. Schott*  
11-30-10  
2-25-09  
RENEWAL DATE

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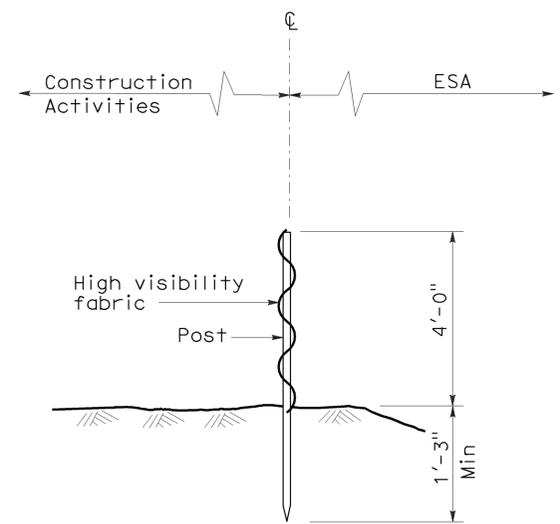
To accompany plans dated 3-25-11

**NOTE:**

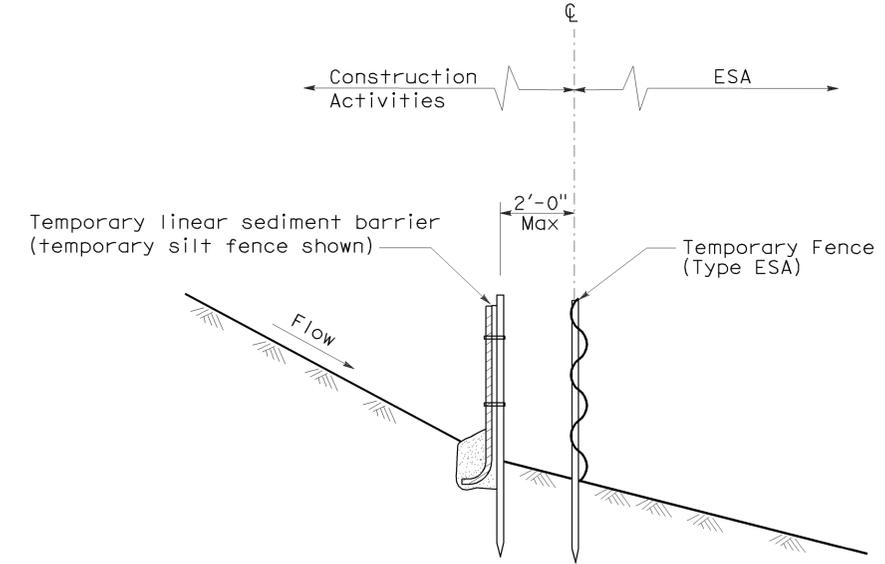
1. Temporary silt fence and temporary straw bale barrier shown for reference purposes only.



**SIGN DETAIL**

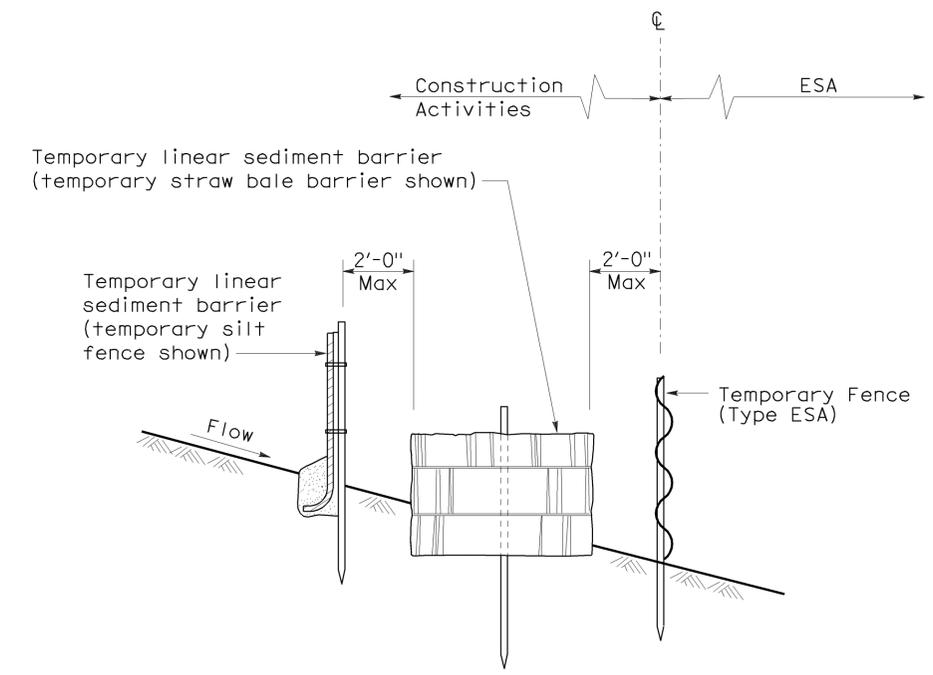


**SECTION  
TEMPORARY FENCE (TYPE ESA)**



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

(See Note 1 )



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

(See Note 1 )

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

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

NO SCALE

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

**NEW STANDARD PLAN NSP T65**

2006 NEW STANDARD PLAN NSP T65

# ELECTROLIERS

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

**NOTES:**

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

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

## STANDARD NOTES:

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

# ABBREVIATIONS AND EQUIPMENT DESIGNATIONS

## PROPOSED EXISTING

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

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
03	Sac	50	R2.6/R5.4, R12.2/R14.2	64	71

*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 3-25-11

## SOFFIT AND WALL MOUNTED LUMINAIRES

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

### NOTE:

Arrow indicates "street side" of luminaire.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

# ELECTRICAL SYSTEMS (SYMBOLS AND ABBREVIATIONS)

NO SCALE

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

## REVISED STANDARD PLAN RSP ES-1A

2006 REVISED STANDARD PLAN RSP ES-1A

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
03	Sac	50	R2.6/R5.4, R12.2/R14.2	65	71

*Jeffrey G. McRae*  
REGISTERED ELECTRICAL ENGINEER

October 5, 2007  
PLANS APPROVAL DATE

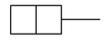
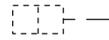
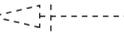
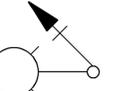
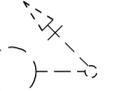
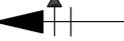
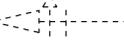
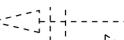
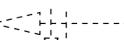
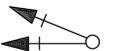
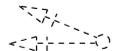
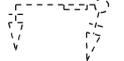
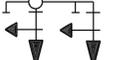
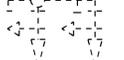
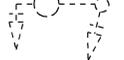
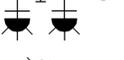
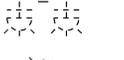
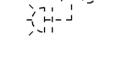
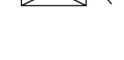
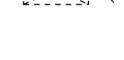
Jeffrey G. McRae  
No. E14512  
Exp. 6-30-08  
ELECTRICAL  
STATE OF CALIFORNIA

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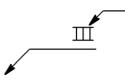
### CONDUIT

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

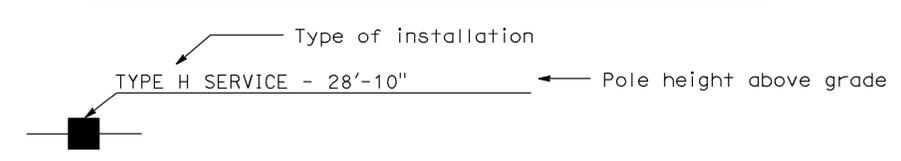
### SIGNAL EQUIPMENT

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

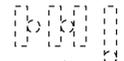
### SERVICE EQUIPMENT

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

### POLE-MOUNTED SERVICE DESIGNATION



### ILLUMINATED OVERHEAD SIGN

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

### SIGNAL EQUIPMENT Cont

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

### NOTES:

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

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**ELECTRICAL SYSTEMS  
(SYMBOLS AND ABBREVIATIONS)**

NO SCALE

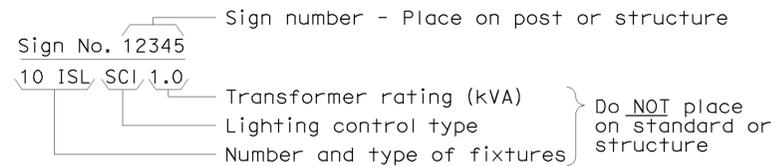
RSP ES-1B DATED OCTOBER 5, 2007 SUPERCEDES STANDARD PLAN ES-1B  
DATED MAY 1, 2006 - PAGE 401 OF THE STANDARD PLANS BOOK DATED MAY 2006.

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

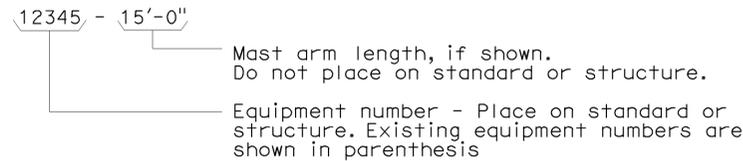
2006 REVISED STANDARD PLAN RSP ES-1B

### EQUIPMENT IDENTIFICATION

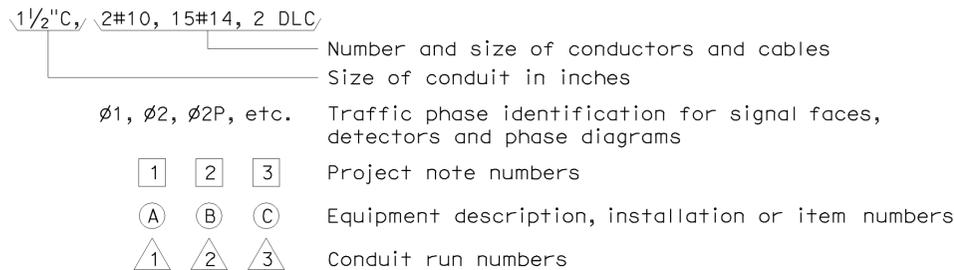
#### ILLUMINATED SIGN IDENTIFICATION NUMBER:



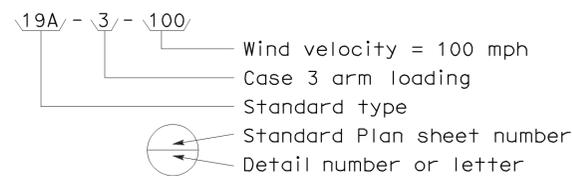
#### ELECTROLIER OR EQUIPMENT IDENTIFICATION NUMBER:



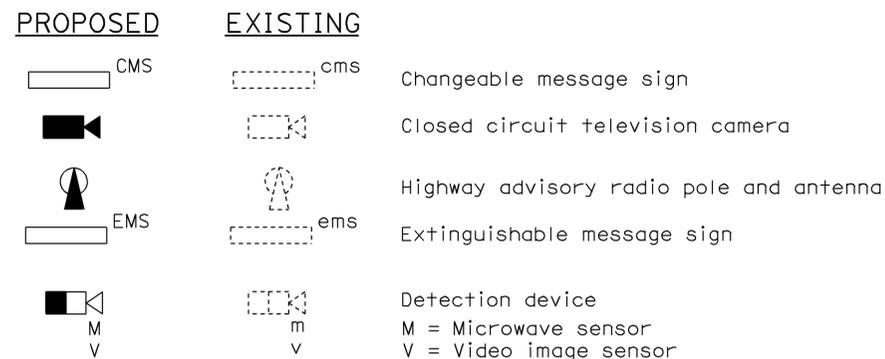
#### CONDUIT AND CONDUCTOR IDENTIFICATION:



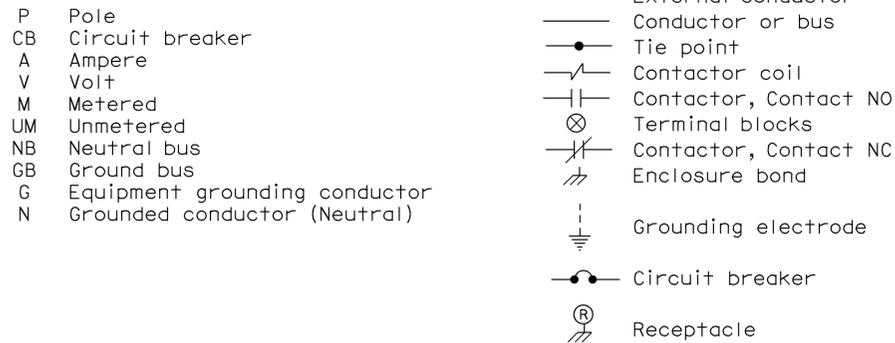
#### SIGNAL AND LIGHTING STANDARD (TYPICAL DESIGNATION):



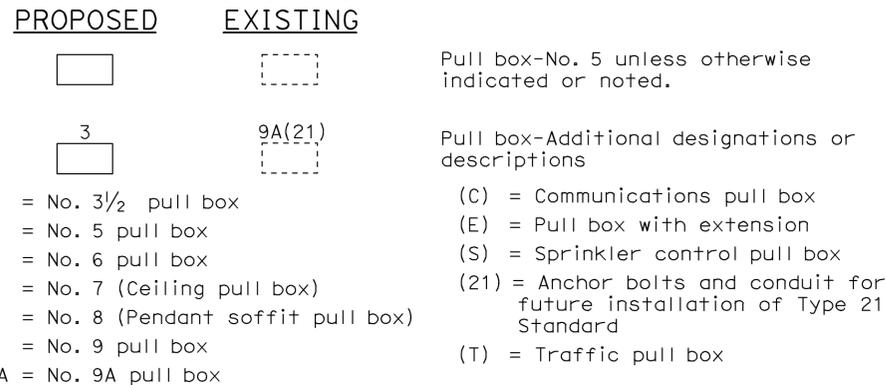
### MISCELLANEOUS EQUIPMENT



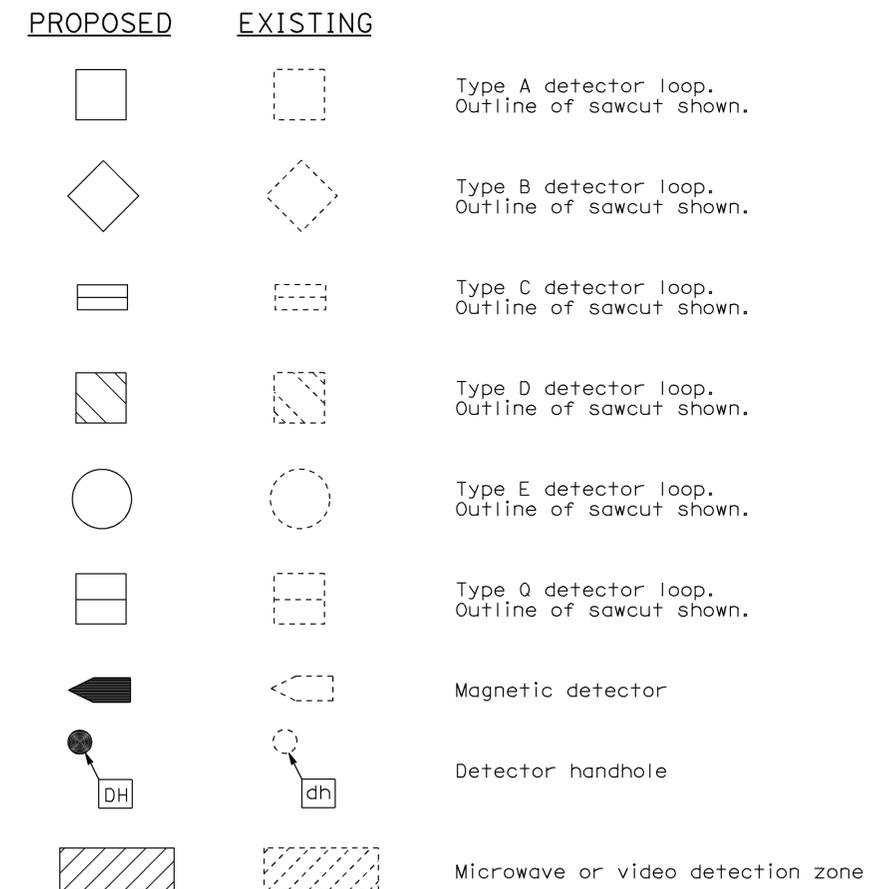
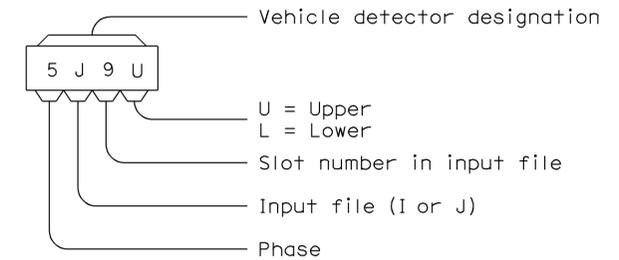
### WIRING DIAGRAM LEGEND



### 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.

2006 REVISED STANDARD PLAN RSP ES-1C

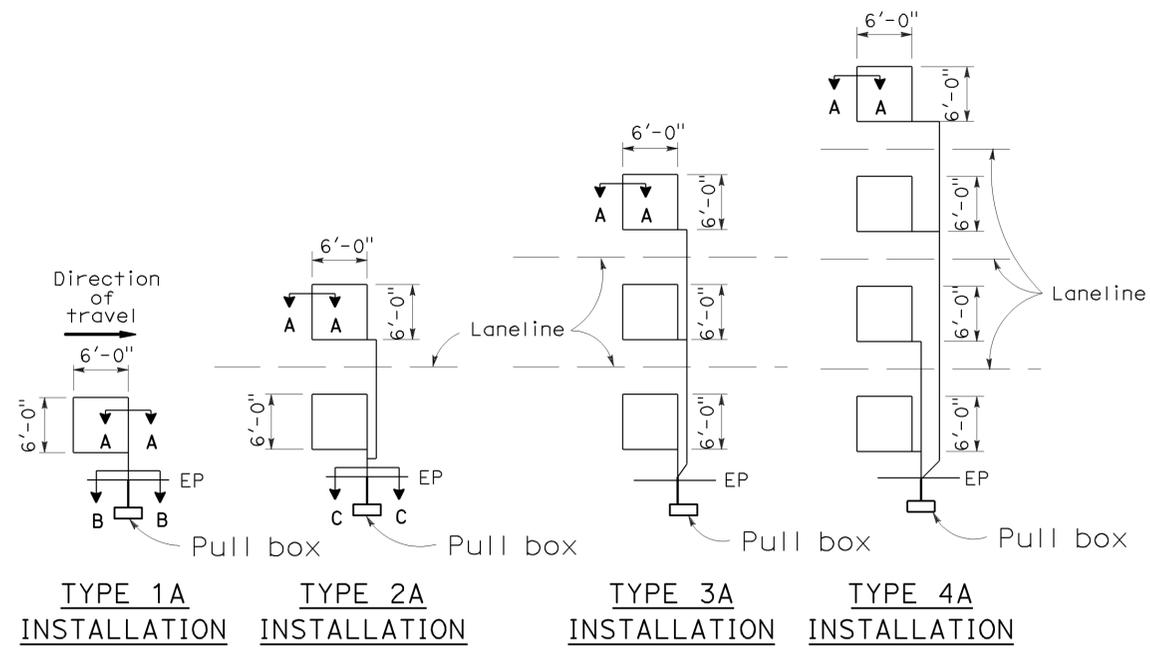
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
03	Sac	50	R2.6/R5.4, R12.2/R14.2	67	71

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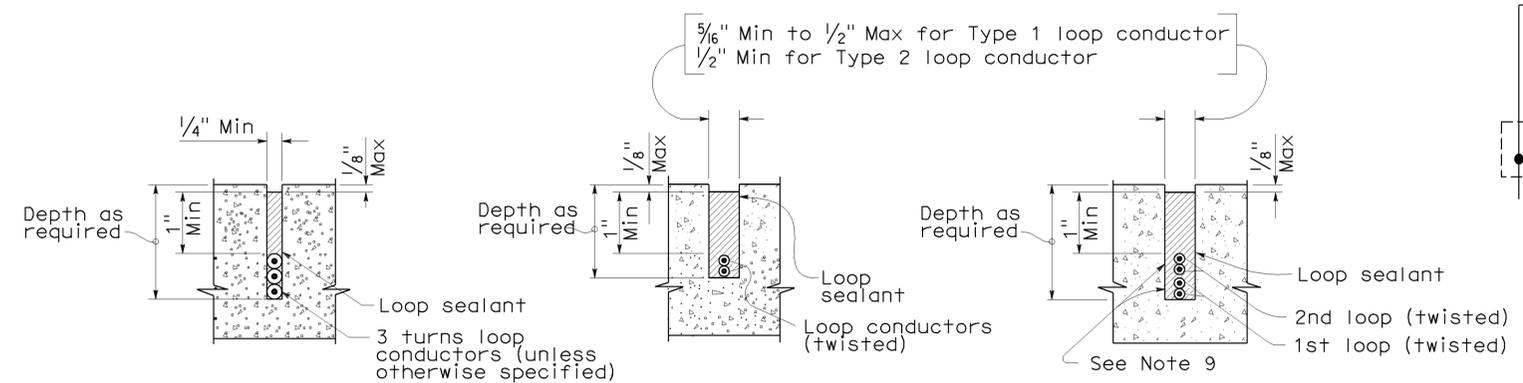
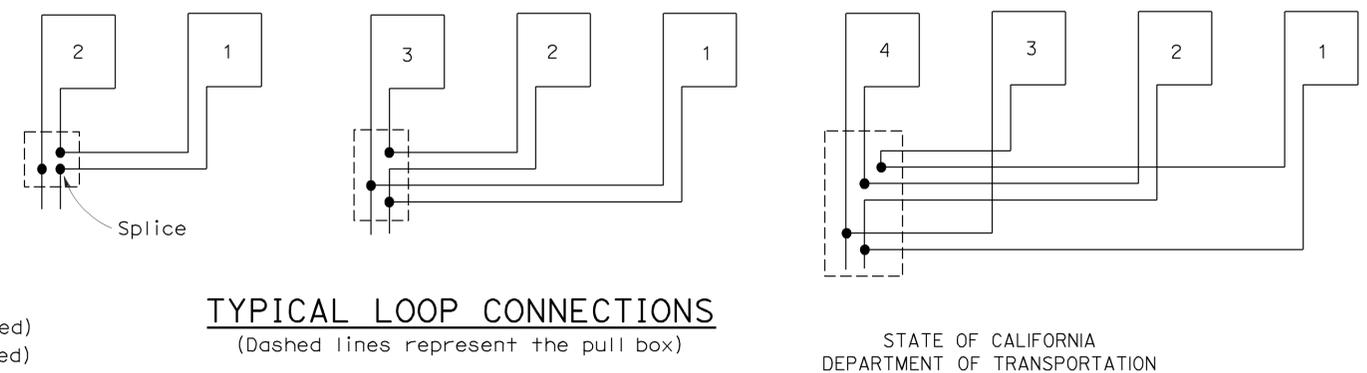
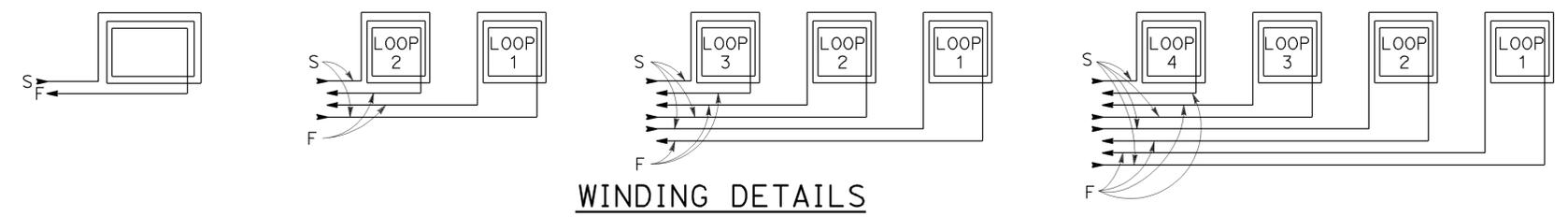
REGISTERED PROFESSIONAL ENGINEER  
*Jeffery G. McRae*  
 No. E14512  
 Exp. 6-30-08  
 ELECTRICAL  
 STATE OF CALIFORNIA

## 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.



- 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)



## ELECTRICAL SYSTEMS (DETECTORS)

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

NO SCALE

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

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

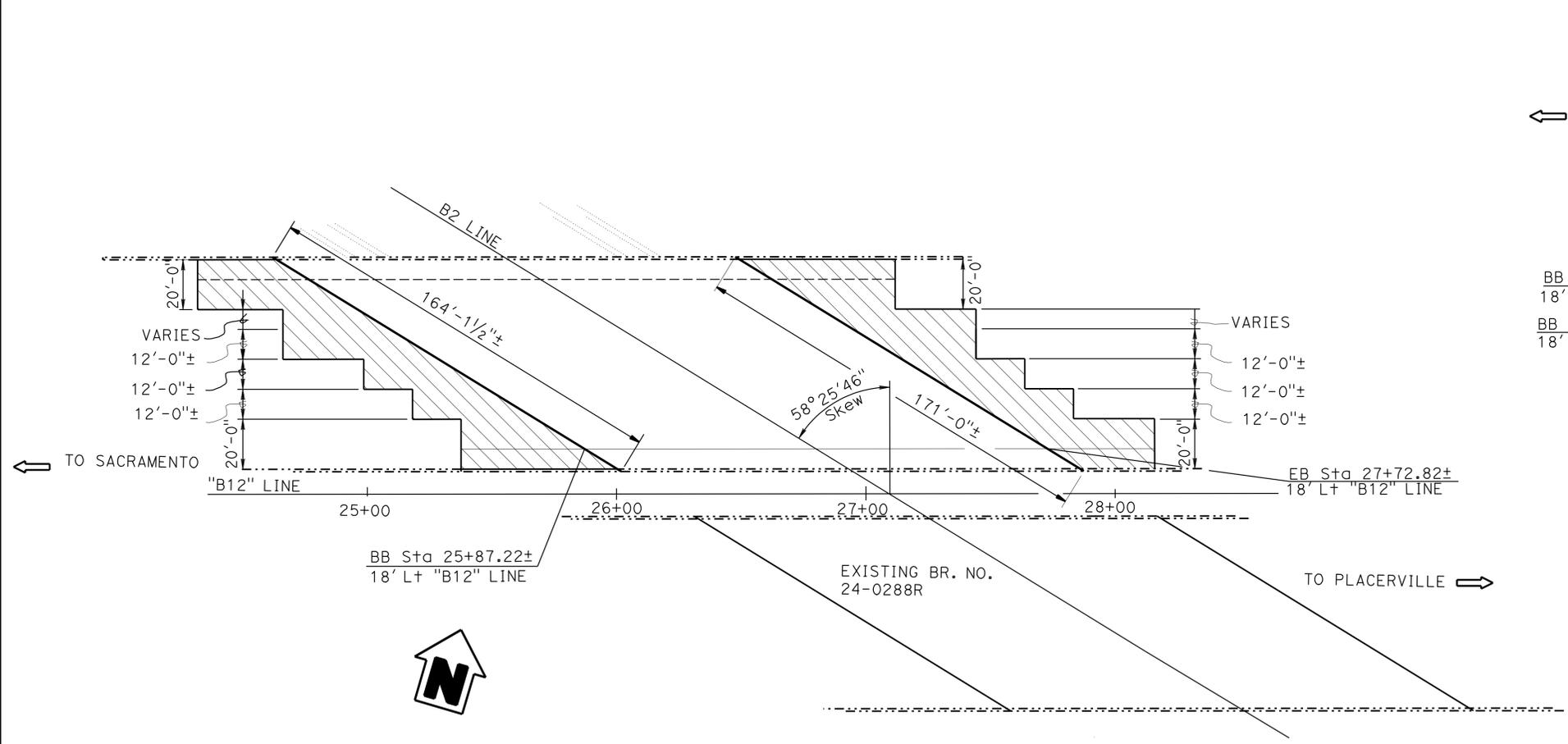
2006 REVISED STANDARD PLAN RSP ES-5A



DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
03	Sac	50	R2.6/R5.4 R12.2/R14.2	69	71

REGISTERED CIVIL ENGINEER DATE 4-30-10  
 REGISTERED CIVIL ENGINEER No. 58386  
 Exp. 12-31-12  
 CIVIL  
 STATE OF CALIFORNIA  
 PLANS APPROVAL DATE 3-25-11  
 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.

- LEGEND:
- Indicates Existing Structure.
  - Indicates Joint Seal (Type B), MR=1"
  - ▨ Indicates removal of existing PCC Approach Slab and placement of Structure Approach Type R(300)



FOLSOM BLVD (24-0288L)  
QUANTITIES

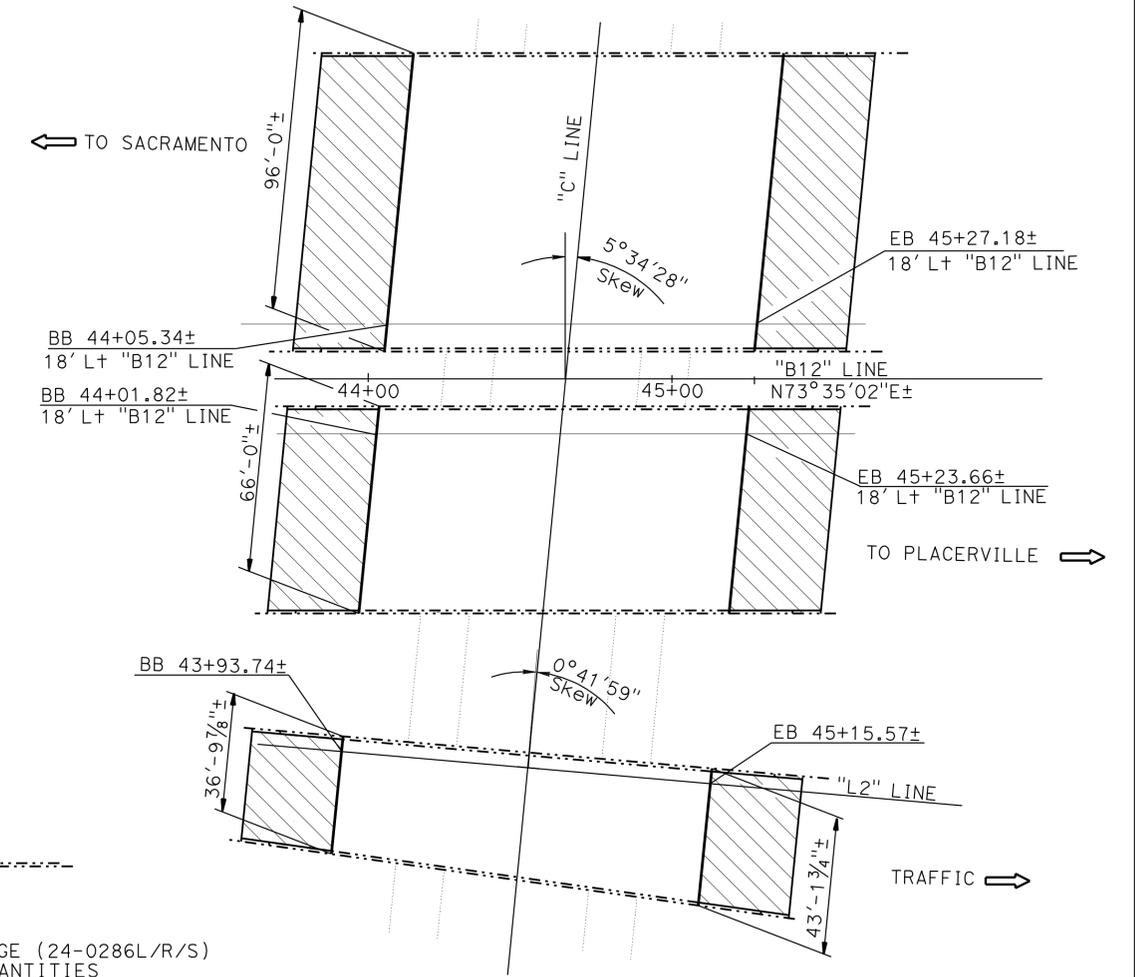
AGGREGATE BASE (APPROCH SLAB)	38	CY
STRUCTURAL CONCRETE, APPROCH SLAB (TYPE R)	381	CY
PAVING NOTCH EXTENSION	251	CF
JOINT SEAL (MR 1")	337	LF

**FOLSOM BLVD UC**  
1" = 30'  
Br. No. 24-0288L, Rte 50, PM R3.13

STATE COLLEGE (24-0286L/R/S)  
QUANTITIES

AGGREGATE BASE (APPROCH SLAB)	45	CY
STRUCTURAL CONCRETE, APPROCH SLAB (TYPE R)	449	CY
PAVING NOTCH EXTENSION	304	CF
JOINT SEAL (MR 1")	411	LF

**STATE COLLEGE UC**  
1" = 30'  
Br. No. 24-0286L, Rte 50, PM R3.47  
Br. No. 24-0286R, Rte 50, PM R3.47  
Br. No. 24-0286S, Rte 50, PM R3.47



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

Joseph E Downing DESIGN ENGINEER	DESIGN	BY Joey Aquino	CHECKED Lewis Shen	LOAD FACTOR DESIGN	
	DETAILS	BY Shadi Motalebi	CHECKED Lewis Shen	LAYOUT	BY Joey Aquino
	QUANTITIES	BY Joey Aquino	CHECKED Lewis Shen	SPECIFICATIONS	BY Iwa Huang

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

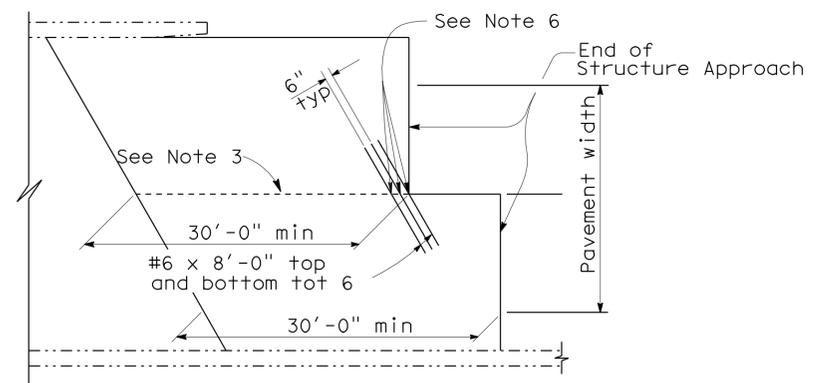
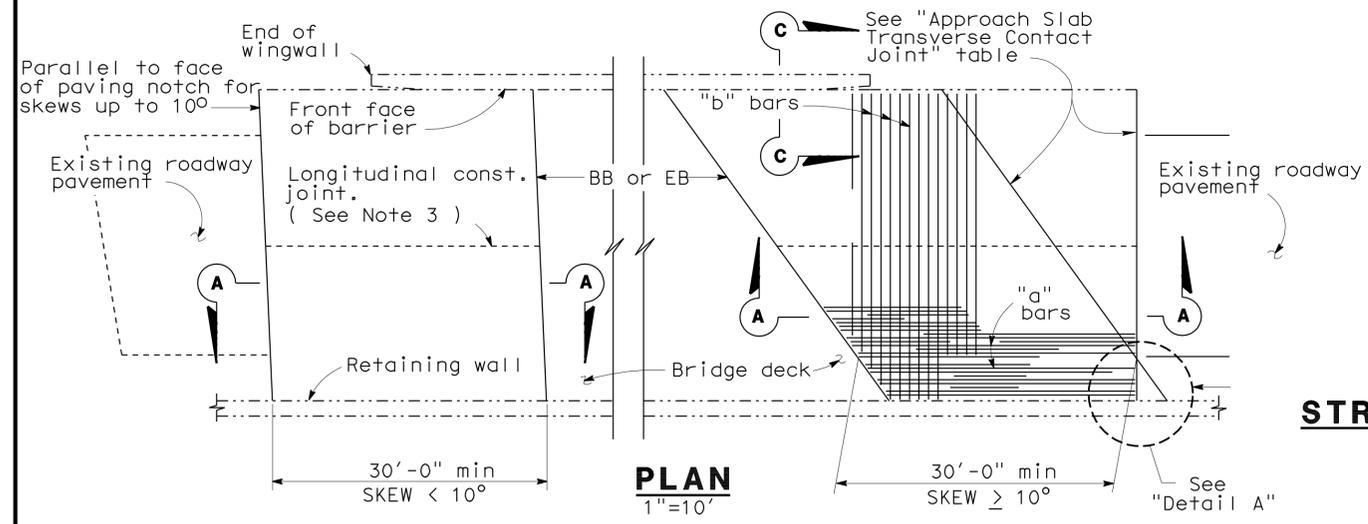
DIVISION OF ENGINEERING SERVICES  
STRUCTURE DESIGN  
DESIGN BRANCH 3

BRIDGE NO. VARIES  
POST MILE VARIES

APPROACH SLAB REPLACEMENT  
ROUTE 50 BRIDGES  
GENERAL PLAN NO. 2

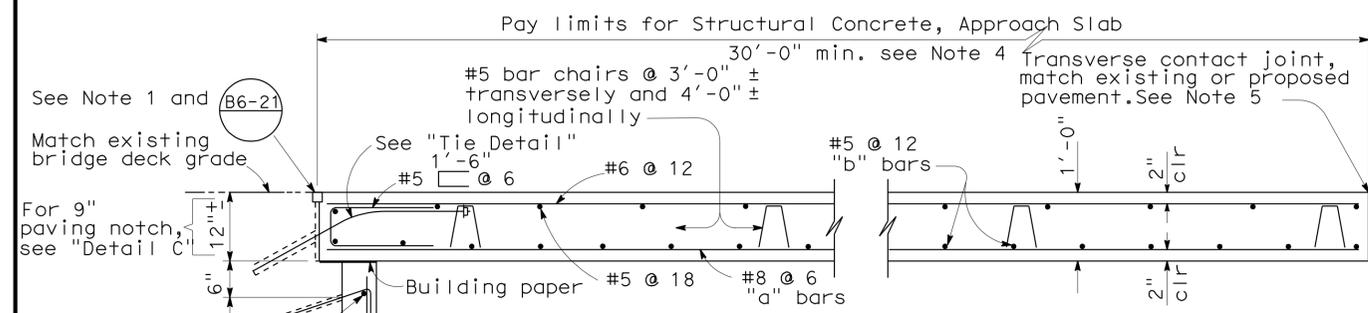
DIST.	COUNTY	ROUTE	MILE POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
03	Sac	50	R2.6/R5.4, R12.2/R14.2	70	71

4-30-10  
 REGISTERED ENGINEER - CIVIL  
 3-25-11  
 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.

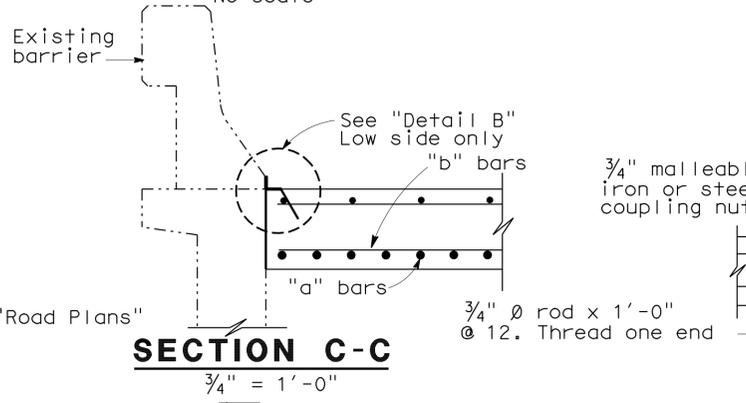


**STRUCTURE APPROACH - END STAGGER DETAIL**

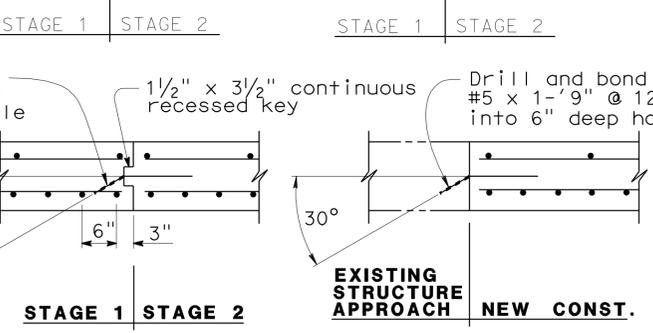
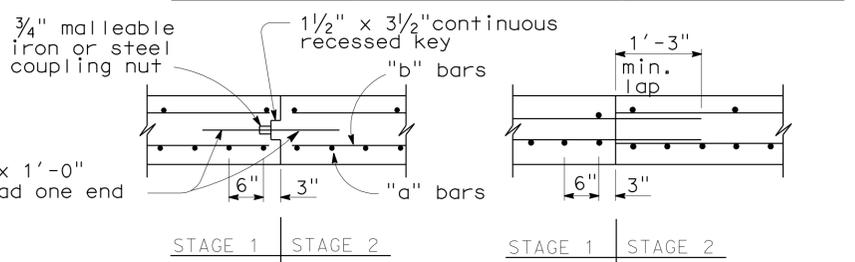
APPROACH SLAB TRANSVERSE CONTACT JOINT		
APPROACH SKEW	WITH AC ROADWAY PAVEMENT	WITH PCC ROADWAY PAVEMENT
< 10°	Parallel to face of paving notch	Parallel to face of paving notch
10° - 45°	Parallel to face of P N use (Detail A)	Stagger lines 24' to 36' apart
> 45°	Parallel to face of P N use (Detail A)	Stagger at each lane line



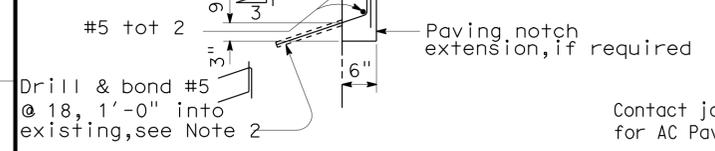
**SECTION A-A**



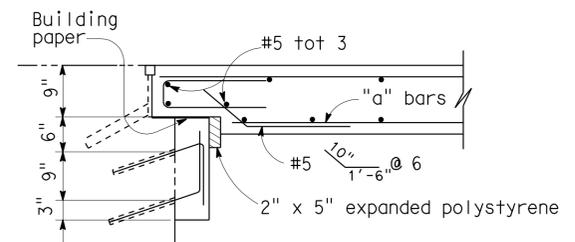
**SECTION C-C**



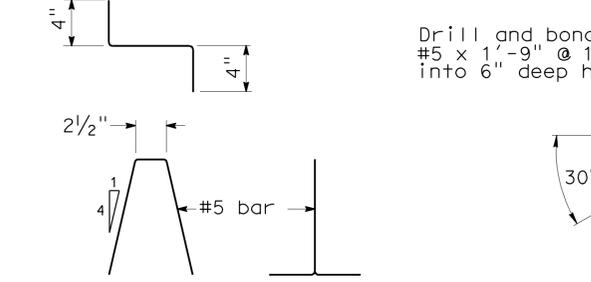
**LONGITUDINAL CONSTRUCTION JOINT ALTERNATIVES**



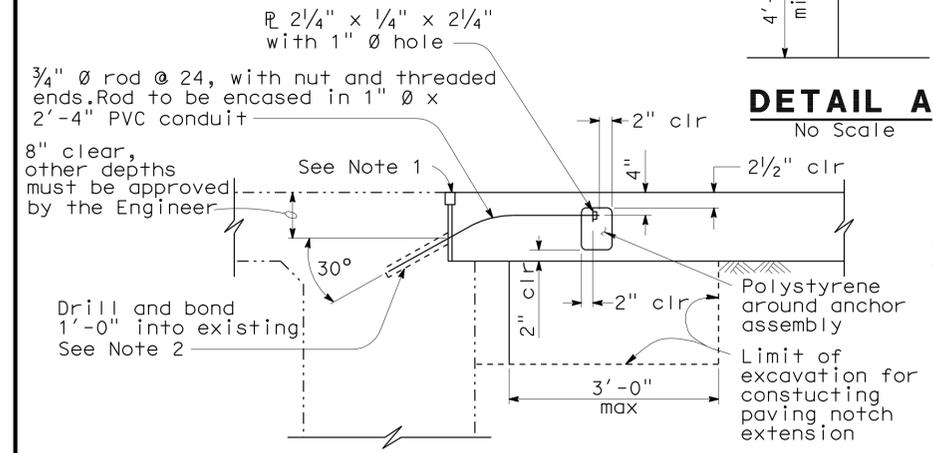
**DETAIL A**



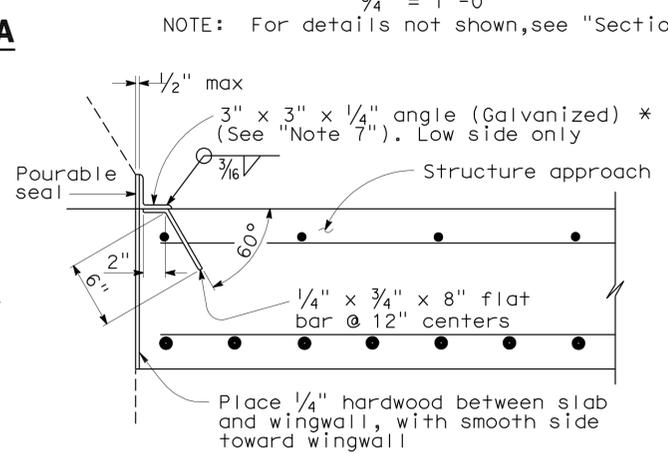
**DETAIL C**



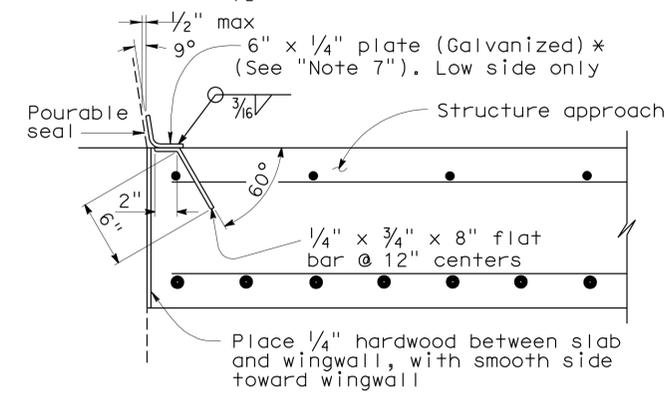
**BAR CHAIR DETAIL**



**TIE DETAIL**



**DETAIL B**



\*(TO BE USED WITH TYPE 25 OR TYPE 27 CONCRETE BARRIER) \*(TO BE USED WITH TYPE 732 OR TYPE 736 CONCRETE BARRIER)

- NOTES:**
- For details not shown or noted, see Structure Plans. Adjust bar reinforcement to clear a sawcut for sealed joint, when required.
  - Space to avoid existing prestress anchorages and main reinforcement.
  - Longitudinal construction joints, when permitted by the Engineer, shall be located on lane lines.
  - Transverse contact joint shall be a minimum of 5'-0" from an existing or constructed weakened plane joint.
  - For transverse contact joint with new PCC paving, refer to Standard Plan P10.
  - Couplers are required for stage construction.
  - End angle or plate at beginning of barrier transition, end of wingwall or end of structure approach as applicable.

STANDARD DRAWING			
RELEASE DATE <b>3/14/05</b>	DESIGN BY <b>M. TRAFFALIS</b>	CHECKED <b>E. THORKILDSEN</b>	RELEASED BY <b>[Signature]</b>
FILE NO. <b>xs3-140e</b>	DETAILS BY <b>R. YEE</b>	CHECKED <b>E. THORKILDSEN</b>	DATE <b>8/92</b>
	SUBMITTED BY <b>M. HA</b>	DRAWING DATE <b>8/92</b>	OFFICE CHIEF <b>[Signature]</b>

STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION

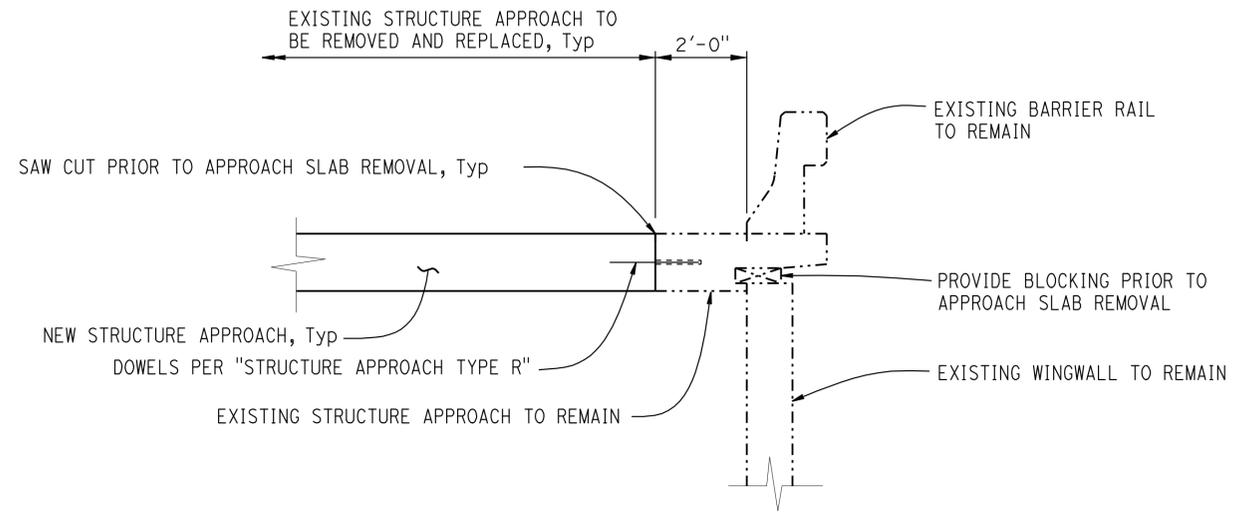
DIVISION OF ENGINEERING SERVICES

BRIDGE NO. VARIES

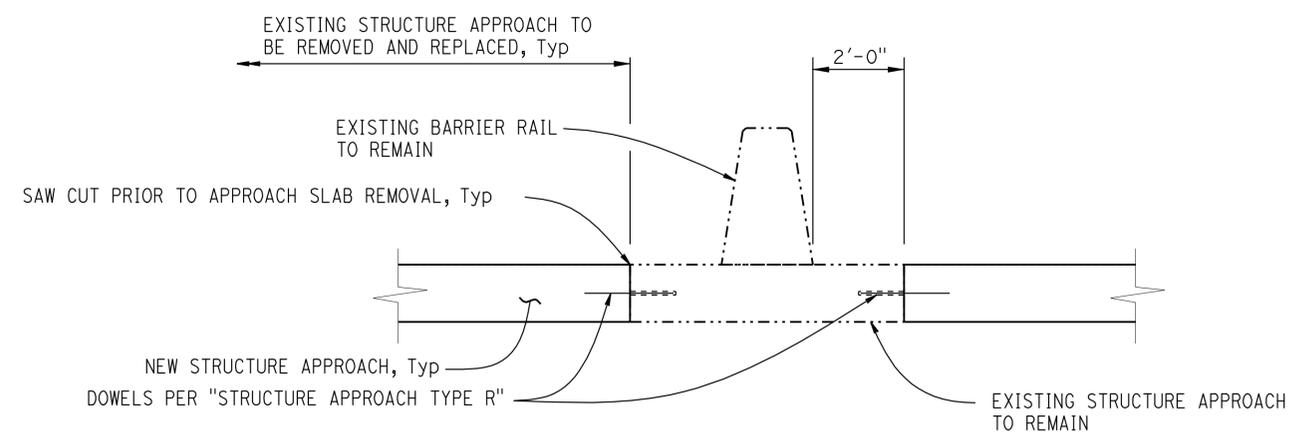
MILE POST VARIES

APPROACH SLAB REPLACEMENT	
ROUTE 50 BRIDGES	
STRUCTURE APPROACH TYPE R(30D)	

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
03	Sac	50	R2.6/R5.4, R12.2/R14.2	71	71
REGISTERED CIVIL ENGINEER <i>Joey M. Aquino III</i> DATE 4-30-10			REGISTERED PROFESSIONAL ENGINEER No. 58386 Exp. 12-31-12 CIVIL STATE OF CALIFORNIA		
PLANS APPROVAL DATE 3-25-11					
<i>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.</i>					



**DETAIL A**  
No Scale



**DETAIL B**  
No Scale

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

DESIGN BY Joey Aquino CHECKED Lewis Shen DETAILS BY Shadi Motalebi CHECKED Lewis Shen QUANTITIES BY Joey Aquino CHECKED Lewis Shen				<b>STATE OF CALIFORNIA</b> DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN <b>DESIGN BRANCH 3</b>	BRIDGE NO. VARIES POST MILE VARIES	<b>APPROACH SLAB REPLACEMENT</b> <b>ROUTE 50 BRIDGES</b> <b>STRUCTURE APPROACH DETAILS</b>
STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 10/25/05)				ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3	CU 03264 EA 0A8001	DISREGARD PRINTS BEARING EARLIER REVISION DATES REVISION DATES 2/24/10	SHEET 4 OF 4

USERNAME => s113659 DATE PLOTTED => 19-APR-2011 TIME PLOTTED => 11:59