

INDEX OF PLANS

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STRUCTURE PLANS

55-80 ANCHOR BLOCK DETAIL AND SOUNDWALL AT VARIOUS BRIDGES

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

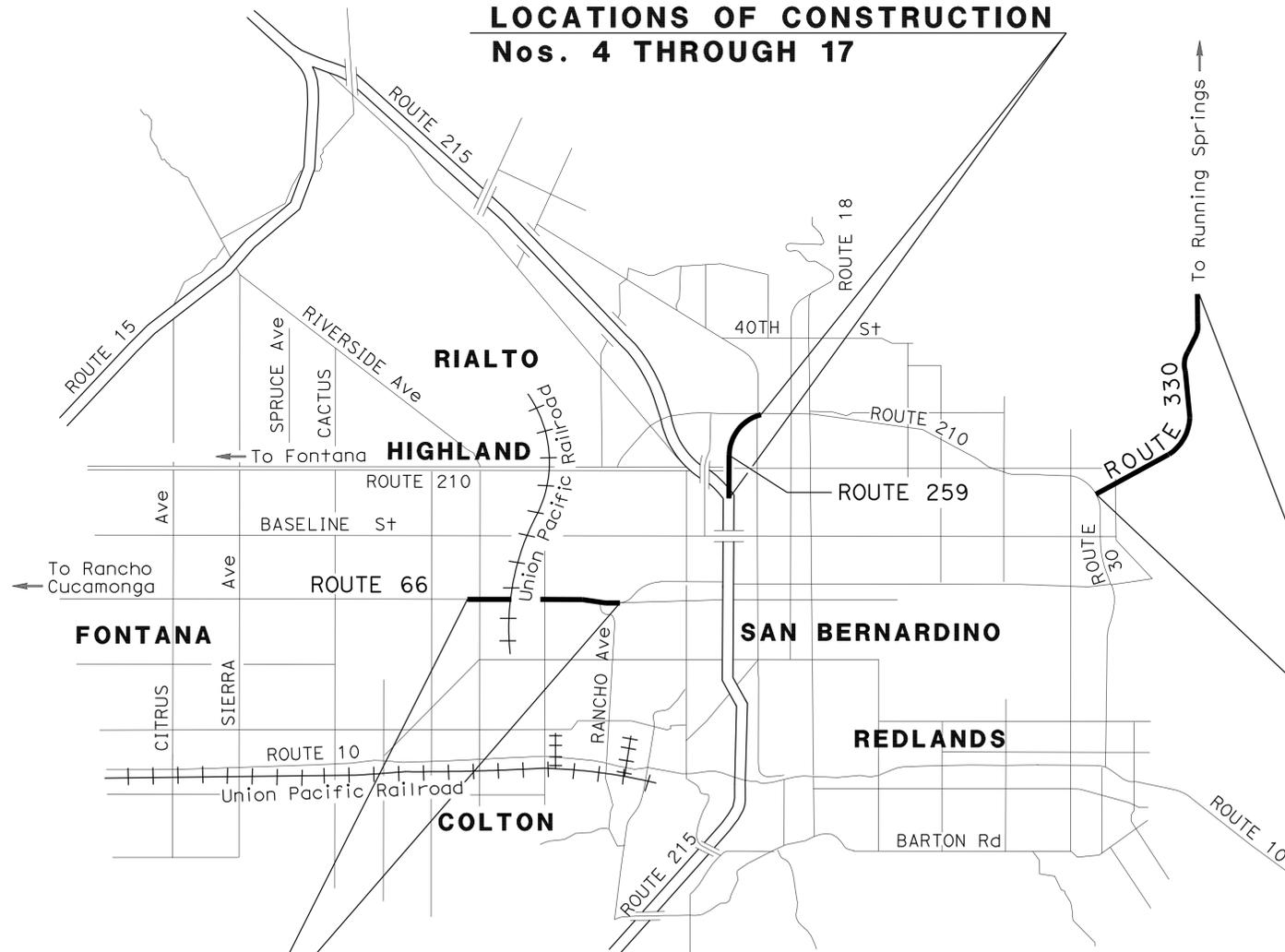
STATE OF CALIFORNIA **ACHSSTPHG-X071(055)E**  
**DEPARTMENT OF TRANSPORTATION**  
**PROJECT PLANS FOR CONSTRUCTION ON**  
**STATE HIGHWAY**  
**IN SAN BERNARDINO COUNTY**  
**AT VARIOUS LOCATIONS**

TO BE SUPPLEMENTED BY STANDARD PLANS DATED MAY 2006

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	SBd	66, 259, 330	Var	1	80

LOCATION MAP

**ROUTE 259**  
**LOCATIONS OF CONSTRUCTION**  
**Nos. 4 THROUGH 17**



LOCATION OF CONSTRUCTION

CONSTRUCTION LOCATIONS	Co	ROUTE	POST MILES	DESCRIPTION
1 THROUGH 3	SBd	66	20.8/21.3	FROM RIALTO CITY LIMITS TO EAST BRANCH LYTLE CREEK BRIDGE
4 THROUGH 17	SBd	259	0.0/1.1	FROM Jct ROUTES 215/259 TO Jct ROUTE 210 (30)
18 THROUGH 30	SBd	330	R28.7/30.4	FROM Jct ROUTES 210 (30)/330 TO 0.8 MILE N OF HIGHLAND Ave OC

NOTE: THE LOCATIONS OF CONSTRUCTION ARE SHOWN ON THE "LOCATION OF CONSTRUCTION" SHEETS.

**ROUTE 330**  
**LOCATIONS OF CONSTRUCTION**  
**Nos. 18 THROUGH 30**

**ROUTE 66**  
**LOCATIONS OF CONSTRUCTION**  
**Nos. 1 THROUGH 3**

NO SCALE

PROJECT MANAGER  
**MOHAMMAD MOLLAZADEH**  
 DESIGN ENGINEER  
**RAFTAR SHARIATZADEH**

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

PROJECT ENGINEER  
REGISTERED CIVIL ENGINEER

DATE  
8-19-09

August 24, 2009

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.



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

FUNCTIONAL SUPERVISOR  
 MUSTAPHA RAOUF

CALCULATED-DESIGNED BY  
 CHECKED BY

RAFTAR SHARIATZADEH  
 SUSAN HESS

REVISED BY  
 DATE REVISED

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	SBd	66,259,330	Var	3	80

8-19-09  
 REGISTERED CIVIL ENGINEER DATE

8-24-09  
 PLANS APPROVAL DATE

RAFTAR SHARIATZADEH  
 No. C72941  
 Exp. 12-31-10  
 CIVIL

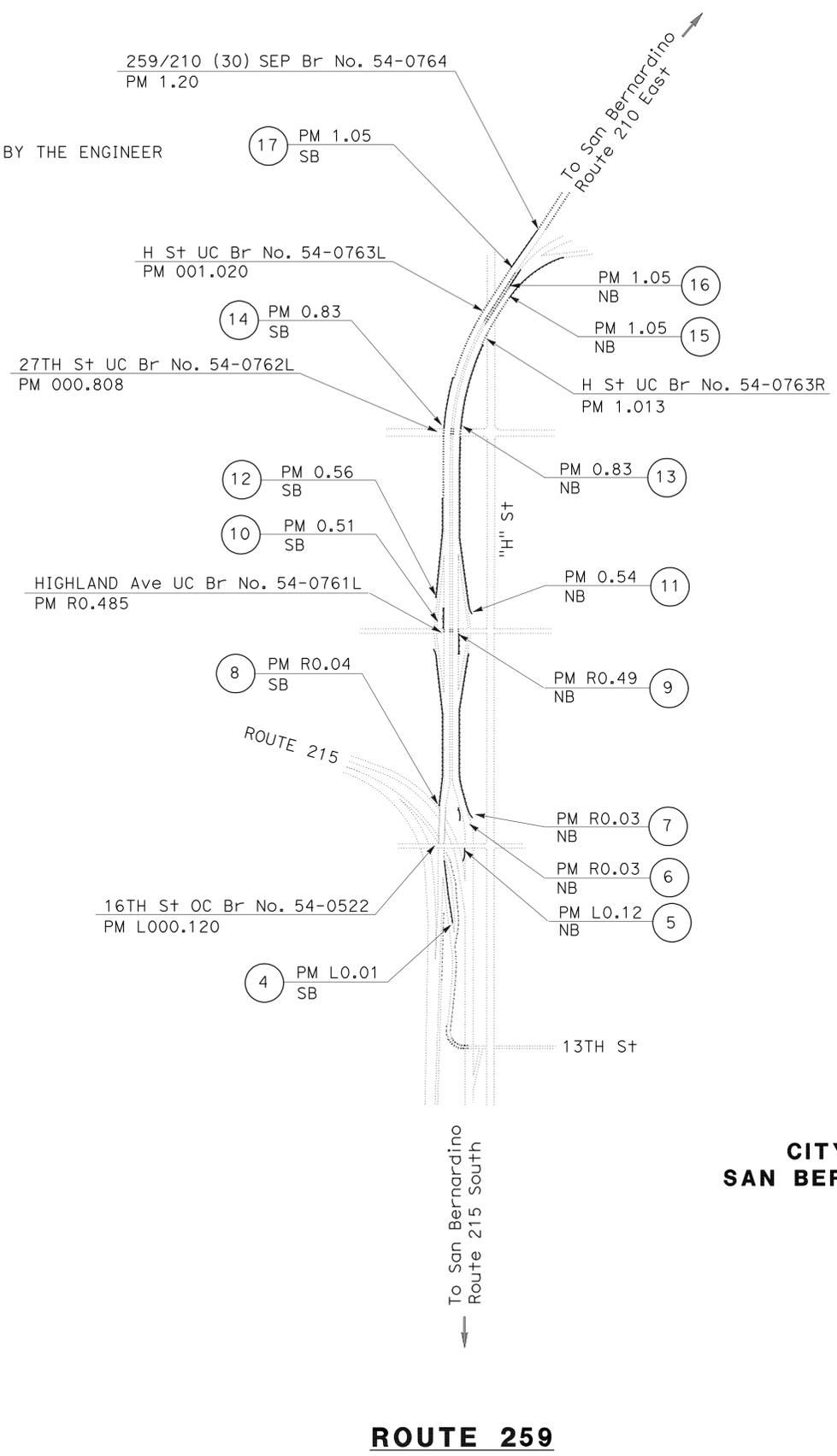
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**NOTE:**

1. METAL BEAM GUARD RAIL LENGTH AND LOCATION MAY BE VARIED BY THE ENGINEER TO SUIT CONDITIONS ENCOUNTERED IN THE FIELD.

**LEGEND:**

(X) WORK LOCATION



**CITY OF  
 SAN BERNARDINO**

**ROUTE 259**

**LOCATIONS OF CONSTRUCTION  
 NO SCALE  
 LC-2**

**EXISTING UTILITY FACILITIES HAVE NOT BEEN POSITIVELY IDENTIFIED**

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	SBd	66,259,330	Var	4	80
			8-19-09	DATE	
			8-24-09	PLANS APPROVAL DATE	
REGISTERED CIVIL ENGINEER RAFTAR SHARIATZADEH No. C72941 Exp. 12-31-10 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.					

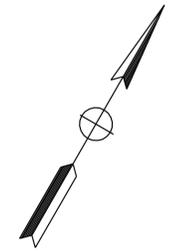
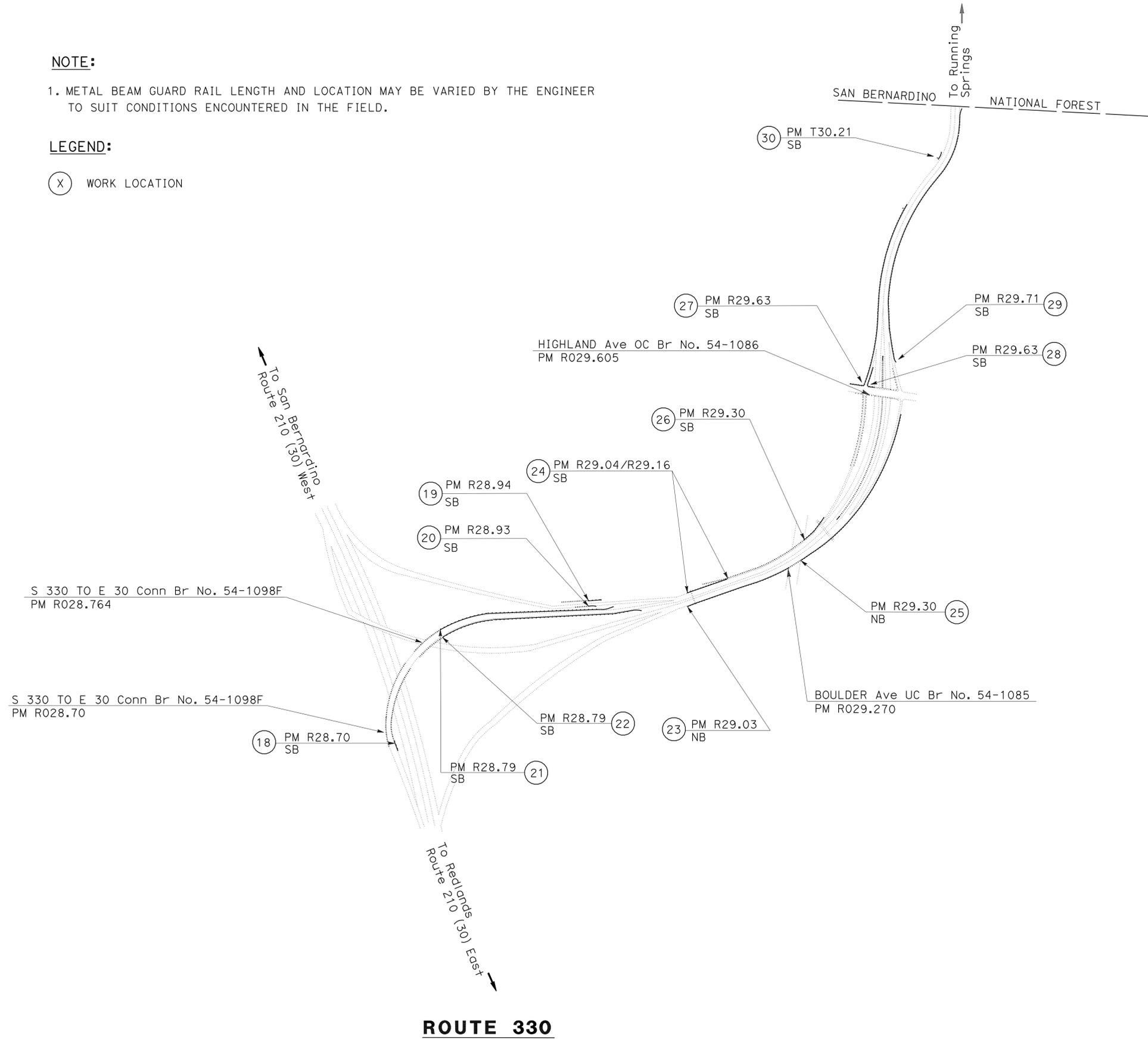
**NOTE:**

1. METAL BEAM GUARD RAIL LENGTH AND LOCATION MAY BE VARIED BY THE ENGINEER TO SUIT CONDITIONS ENCOUNTERED IN THE FIELD.

**LEGEND:**

(X) WORK LOCATION

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	DESIGN
FUNCTIONAL SUPERVISOR	MUSTAPHA RAOUF
CALCULATED-DESIGNED BY	CHECKED BY
RAFTAR SHARIATZADEH	SUSAN HESS
REVISED BY	DATE REVISED



**LOCATIONS OF CONSTRUCTION**  
NO SCALE  
**LC-3**

EXISTING UTILITY FACILITIES HAVE NOT BEEN POSITIVELY IDENTIFIED

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	SBd	66,259,330	Var	5	80

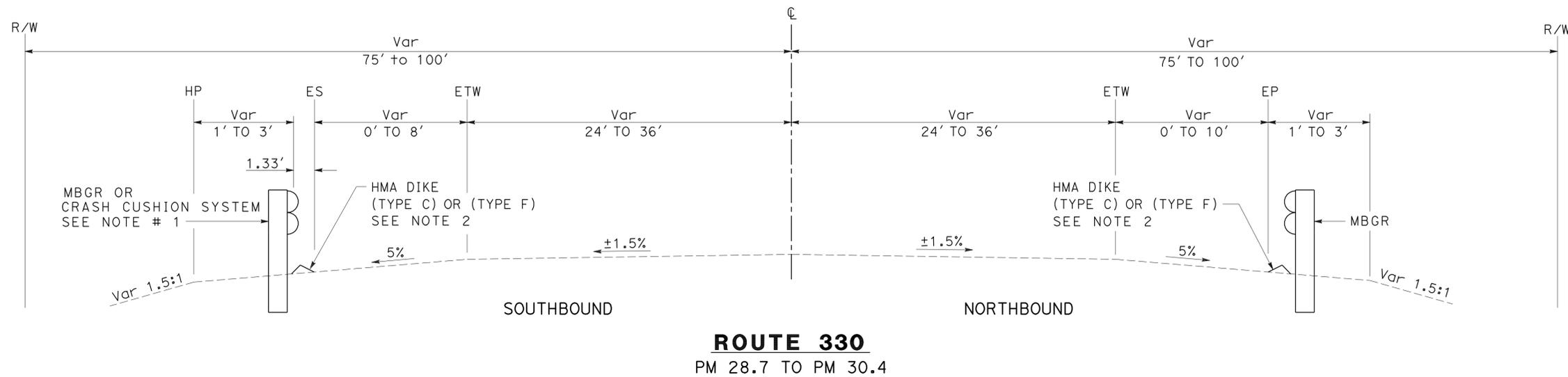
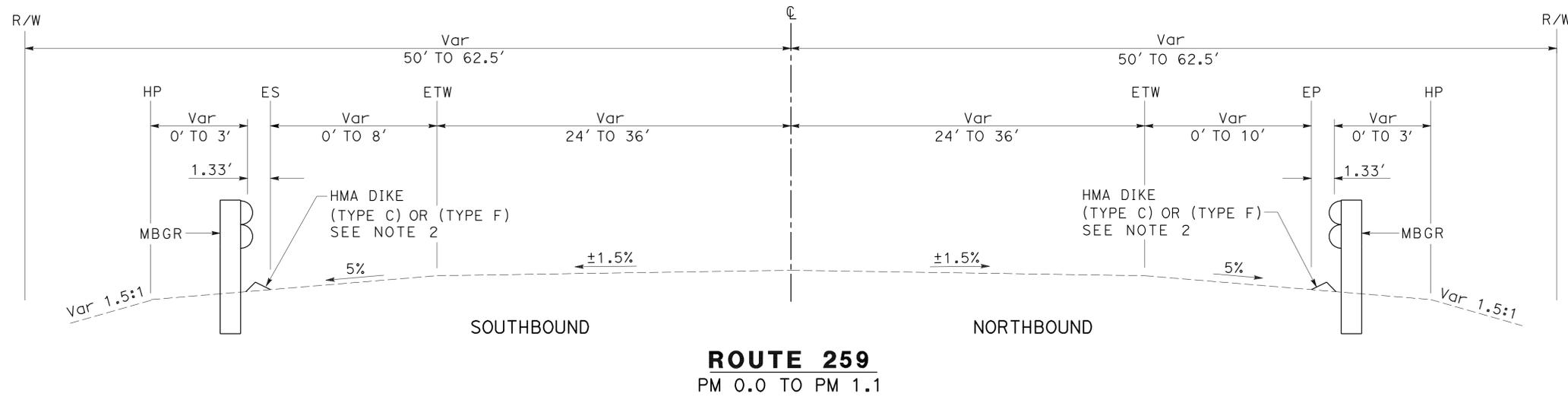
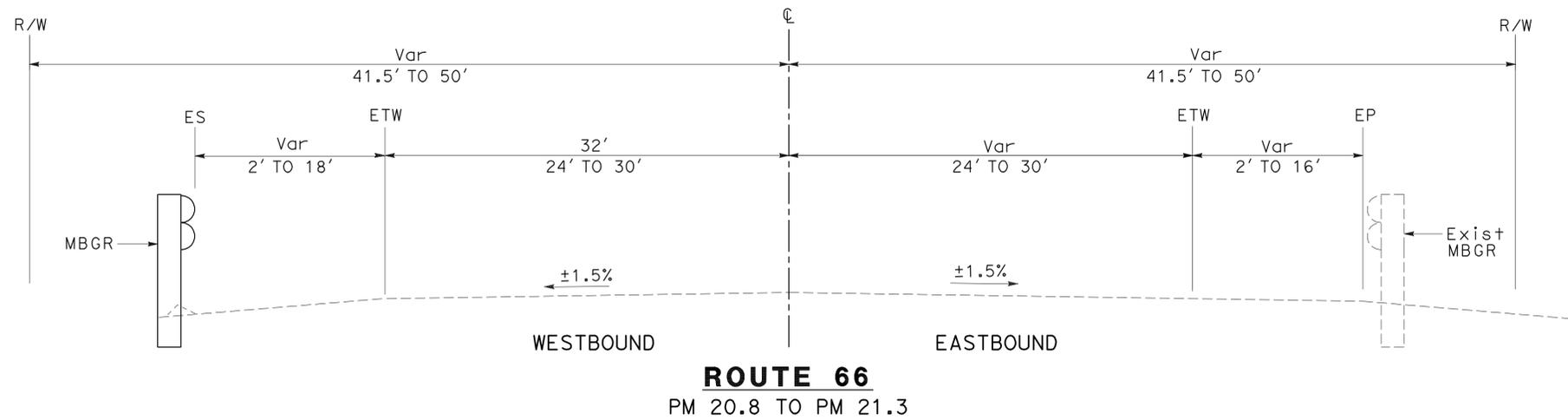
8-19-09	REGISTERED CIVIL ENGINEER DATE
8-24-09	PLANS APPROVAL DATE

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

**NOTES:**

- REFER TO THE SUMMARY OF QUANTITIES SHEETS FOR THE SPECIFIC APPLICATION.
- EXACT LOCATIONS AND TYPES OF DIKE AND CURB ARE SHOWN ON THE CONSTRUCTION DETAIL SHEETS AND IN THE SUMMARY OF QUANTITIES SHEETS.



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

EXISTING UTILITY FACILITIES HAVE NOT BEEN POSITIVELY IDENTIFIED

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

RAFTAR SHARIATZADEH  
SUSAN HESS

FUNCTIONAL SUPERVISOR  
MUSTAPHA RAOUF

REVISOR  
DATE  
BY

DESIGNED BY  
CHECKED BY

REVISIONS

DATE

BY

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	SBd	66,259,330	Var	6	80

8-19-09  
REGISTERED CIVIL ENGINEER DATE

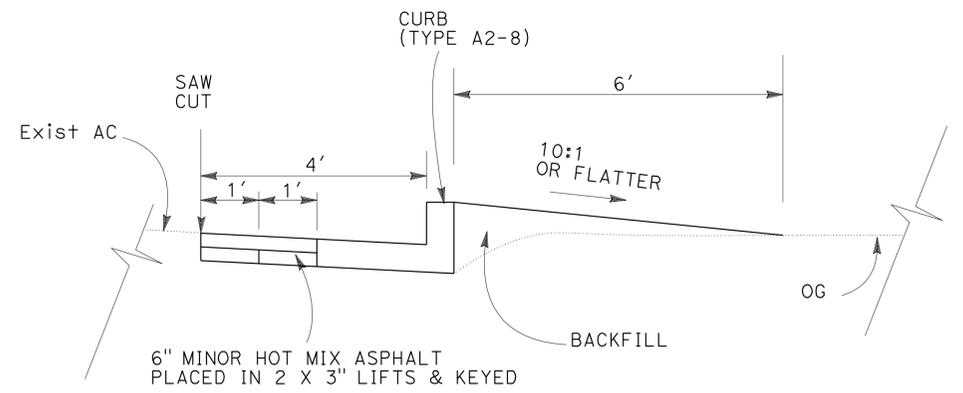
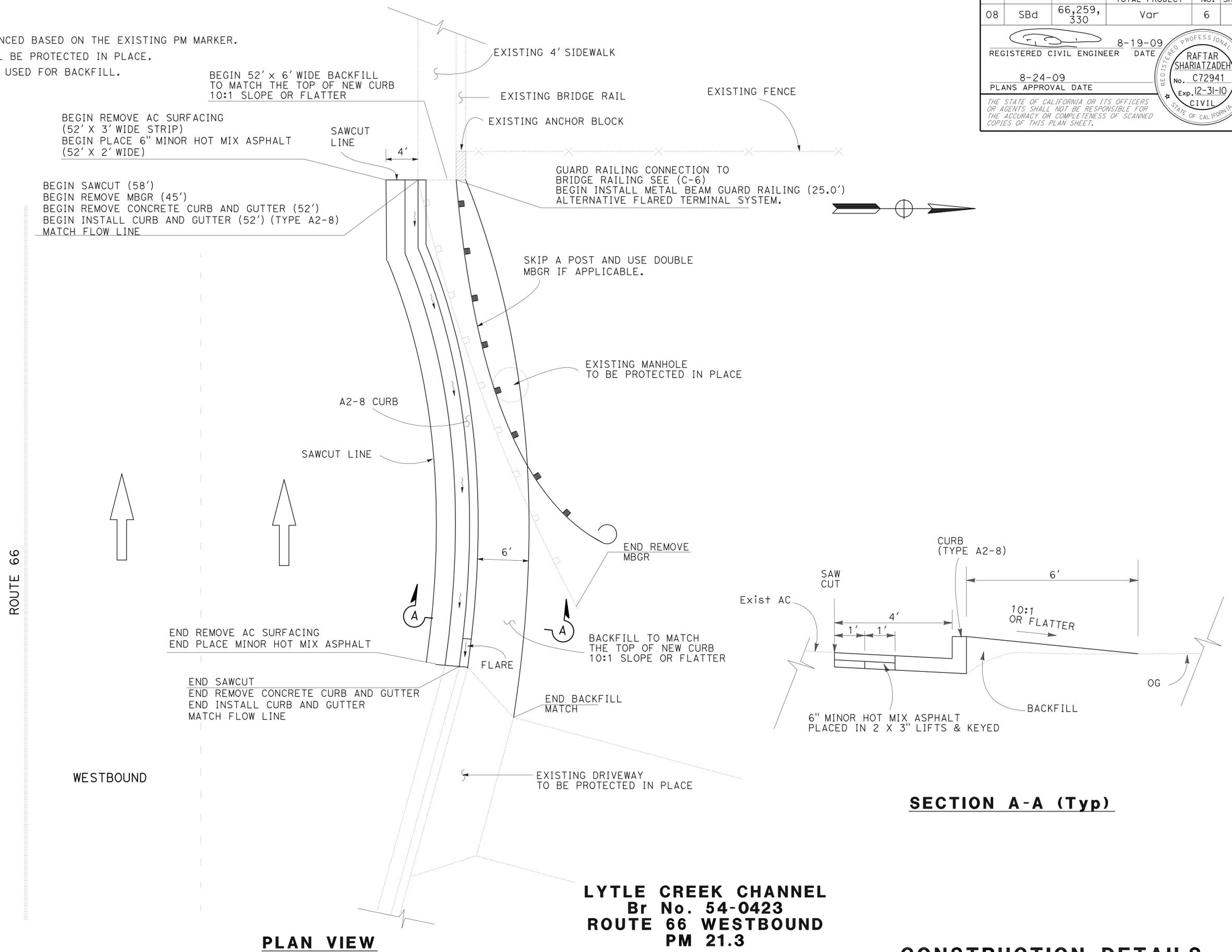
8-24-09  
PLANS APPROVAL DATE

RAFTAR SHARIATZADEH  
No. C72941  
Exp. 12-31-10  
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:**

1. ALL LOCATIONS ARE REFERENCED BASED ON THE EXISTING PM MARKER.
2. ALL DRAINAGE INLETS SHALL BE PROTECTED IN PLACE.
3. IMPORTED BORROW SHALL BE USED FOR BACKFILL.



**SECTION A-A (Typ)**

**CONSTRUCTION DETAILS**  
NO SCALE  
**C-1**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	DESIGN
FUNCTIONAL SUPERVISOR	MUSTAPHA RAOUF
CALCULATED-DESIGNED BY	CHECKED BY
RAFTAR SHARIATZADEH	SUSAN HESS
REVISED BY	DATE REVISED

EXISTING UTILITY FACILITIES HAVE NOT BEEN POSITIVELY IDENTIFIED



USERNAME => frrmikes1  
DGN FILE => 80e570ga001.dgn

CU 08235  
EA 0E5701

BORDER LAST REVISED 4/11/2008

LAST REVISION DATE PLOTTED => 28-AUG-2009  
08-19-09 TIME PLOTTED => 12:55

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	SBd	66,259,330	Var	7	80

8-19-09  
REGISTERED CIVIL ENGINEER DATE

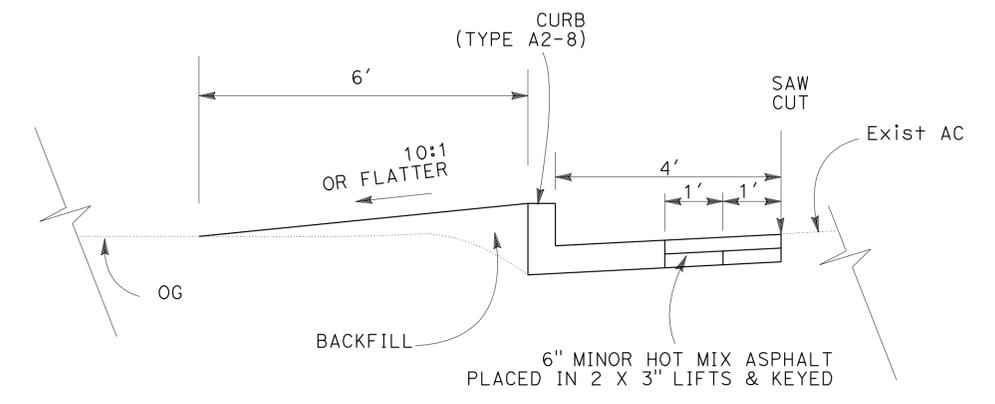
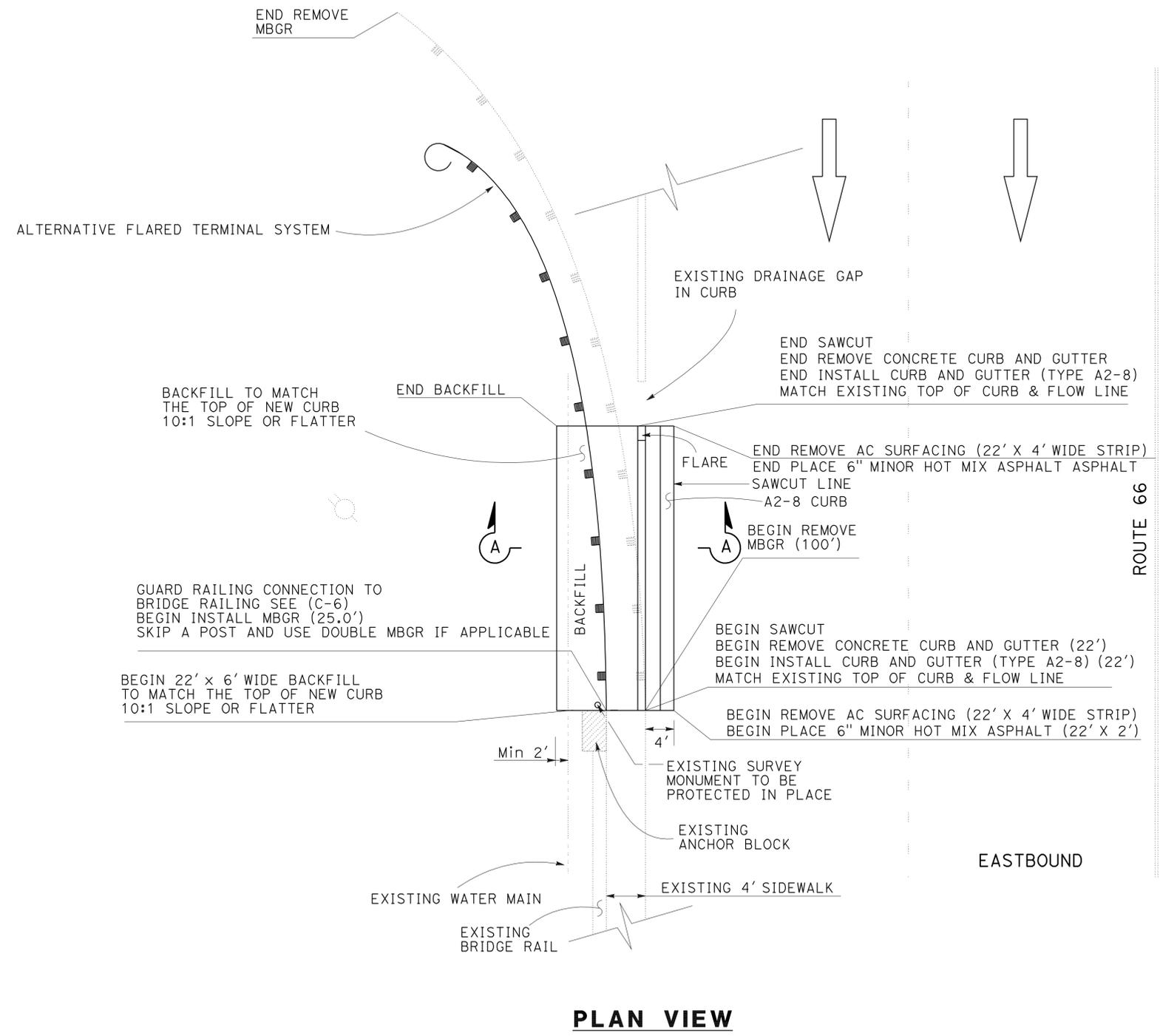
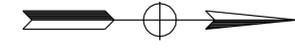
8-24-09  
PLANS APPROVAL DATE

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  
RAFTAR SHARIATZADEH  
No. C72941  
Exp. 12-31-10  
CIVIL  
STATE OF CALIFORNIA

**NOTES:**

1. ALL LOCATIONS ARE REFERENCED BASED ON THE EXISTING PM MARKER.
2. ALL DRAINAGE INLETS SHALL BE PROTECTED IN PLACE.
3. IMPORTED BORROW SHALL BE USED FOR BACKFILL.



**SECTION A-A (Typ)**

**PLAN VIEW**

**LYTLE CREEK CHANNEL**  
**Br No. 54-0423**  
**ROUTE 66 EASTBOUND**  
**PM 21.3**

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

**EXISTING UTILITY FACILITIES HAVE NOT BEEN POSITIVELY IDENTIFIED**

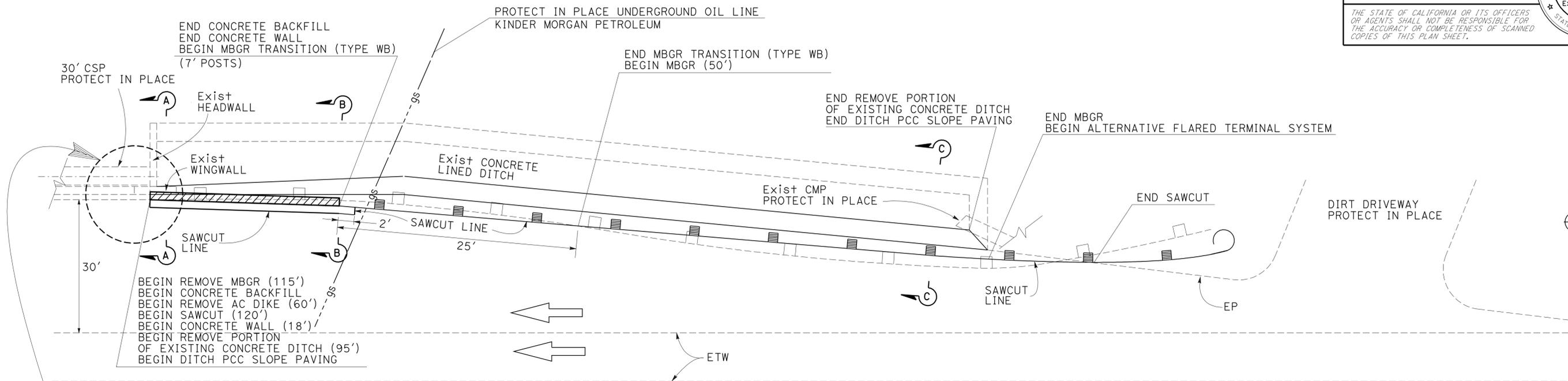
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans**  
 DESIGN

FUNCTIONAL SUPERVISOR: MUSTAPHA RAOUF  
 CALCULATED/DESIGNED BY: [blank]  
 CHECKED BY: [blank]  
 RAFTAR SHARIATZADEH  
 SUSAN HESS  
 REVISED BY: [blank]  
 DATE REVISED: [blank]

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	SBd	66,259,330	Var	8	80
			8-19-09	DATE	
			8-24-09	PLANS APPROVAL DATE	
REGISTERED CIVIL ENGINEER MUSTAPHA RAOUF No. C64250 Exp. 6-30-11 CIVIL					
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.					

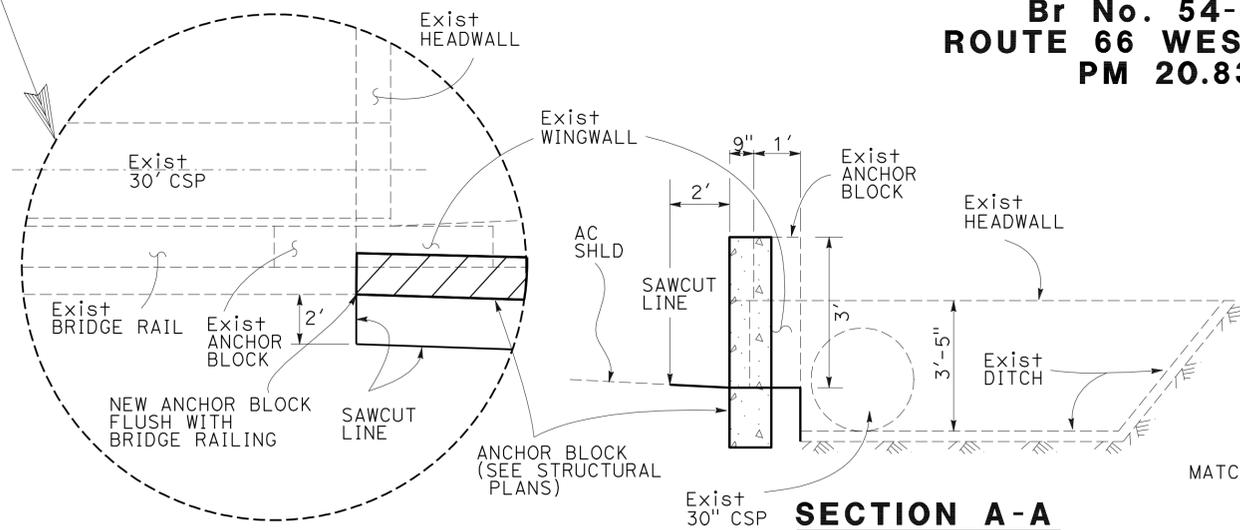
**NOTES:**

1. ALL LOCATIONS ARE REFERENCED BASED ON THE EXISTING PM MARKER.
2. ALL DRAINAGE INLETS SHALL BE PROTECTED IN PLACE.
3. IMPORTED BORROW SHALL BE USED FOR BACKFILL.
4. LOCATION OF CONCRETE WALL & MBGR SHALL BE VERIFIED BY ENGINEER.

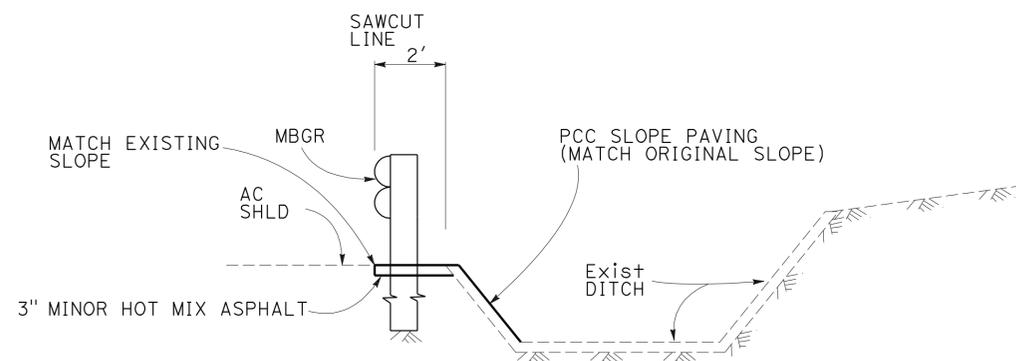


**PLAN VIEW**

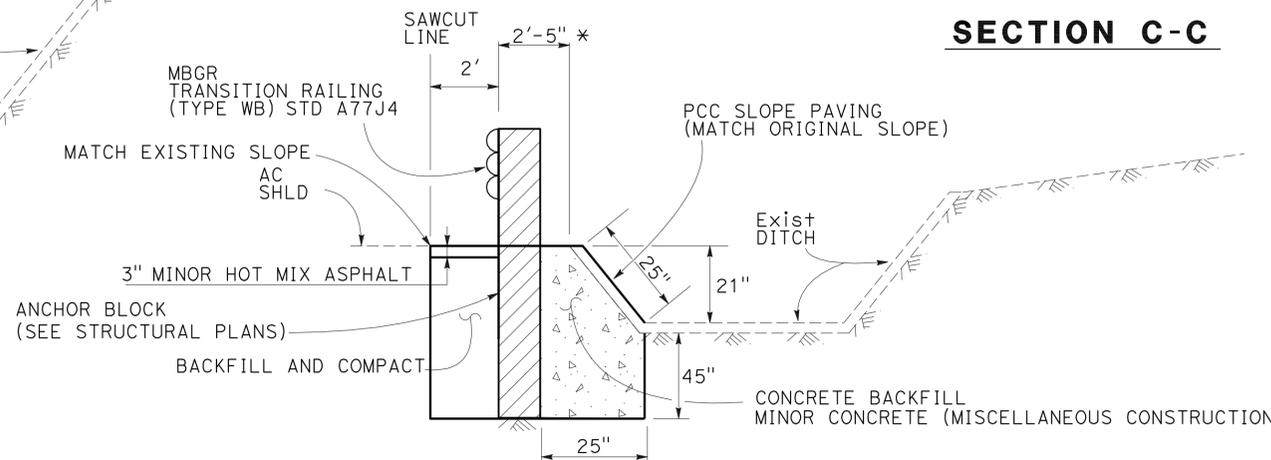
**LYTLE BASIN OH  
Br No. 54-0834  
ROUTE 66 WESTBOUND  
PM 20.83**



**SECTION A-A**



**SECTION C-C**



**SECTION B-B**

\* DIMENSION FOR THE END OF WALL ONLY

**CONSTRUCTION DETAILS**

NO SCALE

**C-3**

**EXISTING UTILITY FACILITIES HAVE NOT BEEN POSITIVELY IDENTIFIED**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
DESIGN  
FUNCTIONAL SUPERVISOR: MUSTAPHA RAOUF  
RAFTAR SHARIATZADEH  
REVISOR: S HESS  
DATE: 6/24/09  
CALCULATED/DESIGNED BY: MUSTAPHA RAOUF  
CHECKED BY:



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	SBd	66,259,330	Var	10	80

8-19-09	DATE
8-24-09	PLANS APPROVAL DATE

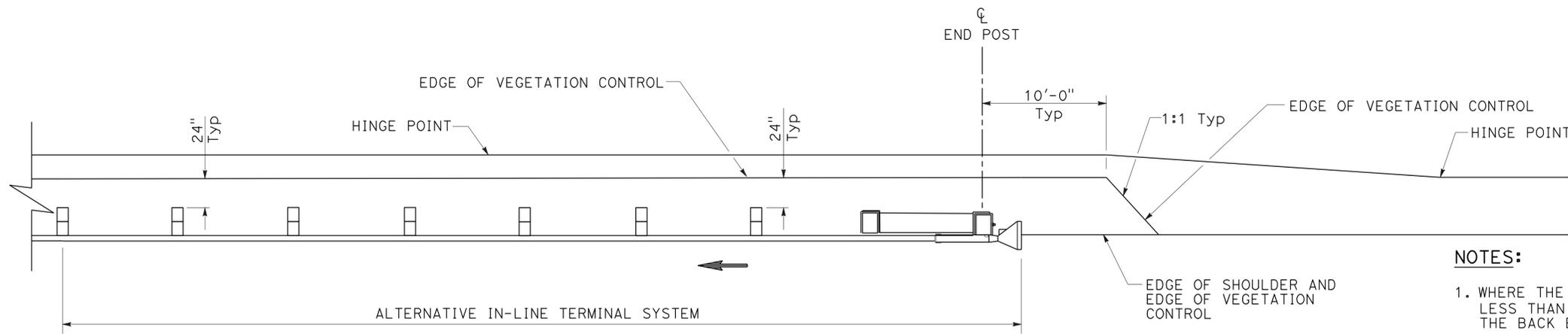
  

REGISTERED CIVIL ENGINEER	RAFTAR SHARIATZADEH
No. C72941	Exp. 12-31-10
CIVIL	STATE OF CALIFORNIA

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

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

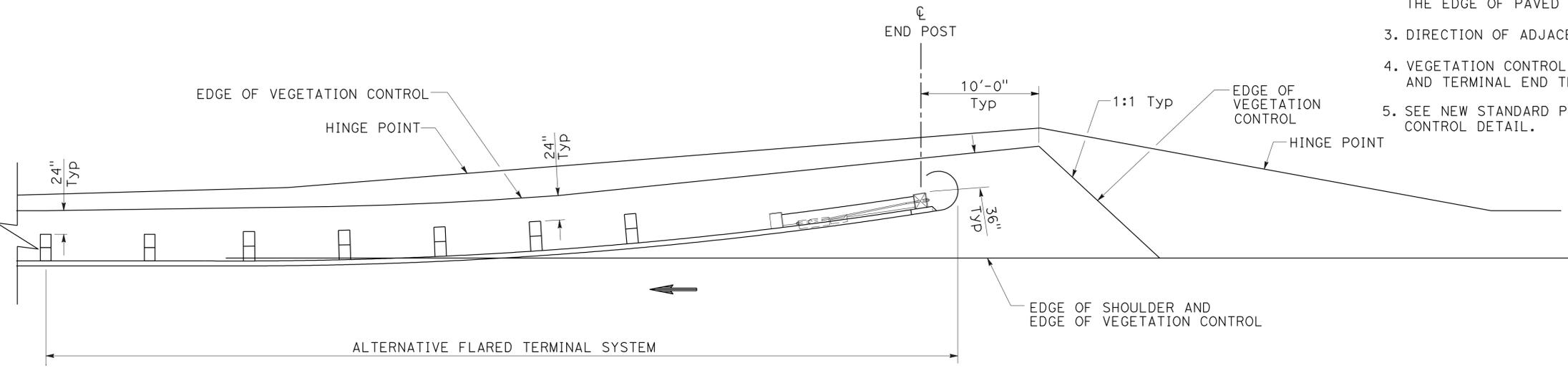
FUNCTIONAL SUPERVISOR: MUSTAPHA RAOUF  
 RAFTAR SHARIATZADEH  
 SUSAN HESS  
 REVISOR: SUSAN HESS  
 DATE REVISOR: 8-24-09



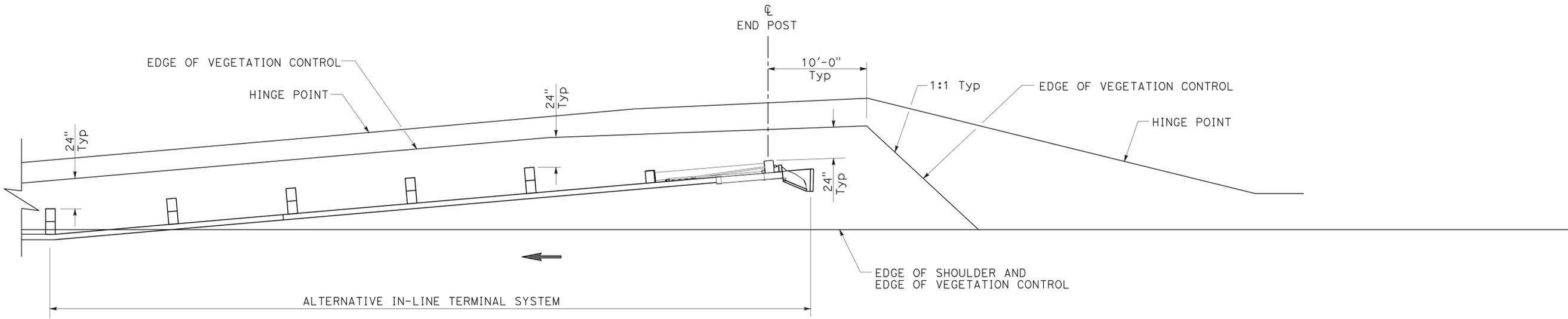
**PLAN**

**NOTES:**

1. 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.
2. 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.
3. DIRECTION OF ADJACENT TRAFFIC INDICATED BY ← .
4. VEGETATION CONTROL SHALL BE APPLIED TO THE MBGR AND TERMINAL END TREATMENT ALONG THE EDGE OF TRAVEL WAY.
5. SEE NEW STANDARD PLAN NSP A77C5 FOR ADDITIONAL VEGETATION CONTROL DETAIL.



**PLAN**



**PLAN**

**METAL BEAM GUARD RAILING  
 TYPICAL VEGETATION CONTROL  
 FOR TERMINAL SYSTEM END TREATMENTS**

**CONSTRUCTION DETAILS**

EXISTING UTILITY FACILITIES HAVE NOT BEEN POSITIVELY IDENTIFIED

NO SCALE

**C-5**

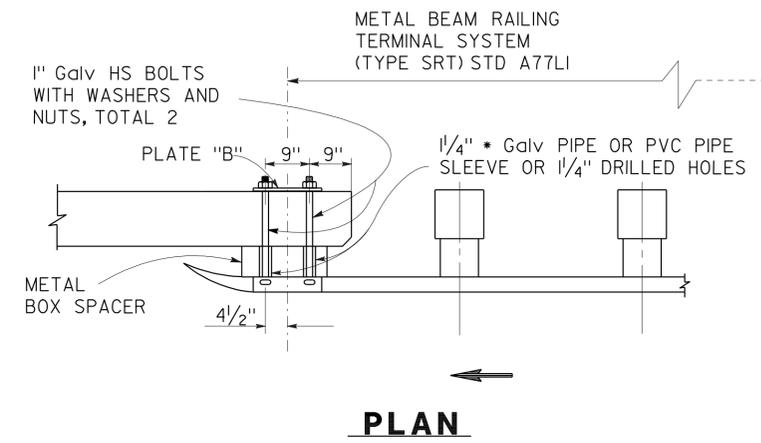
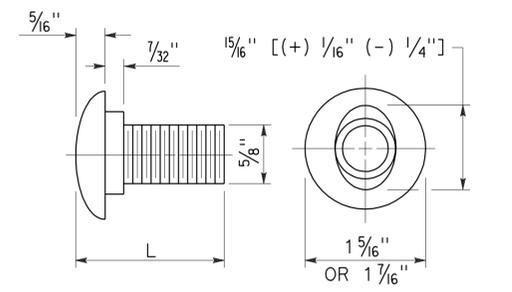
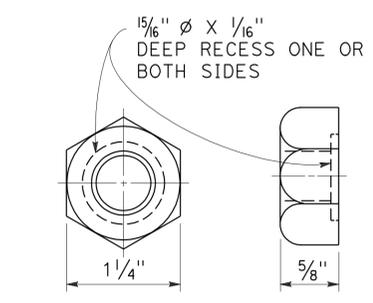
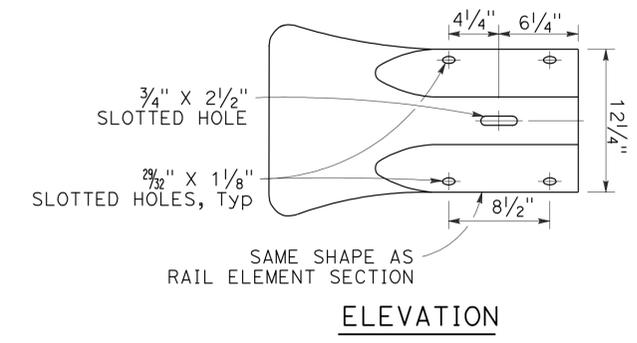
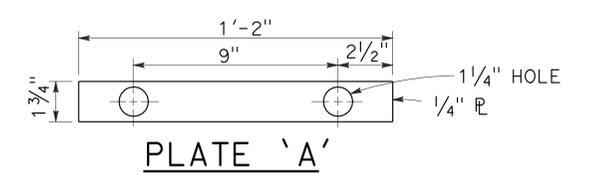
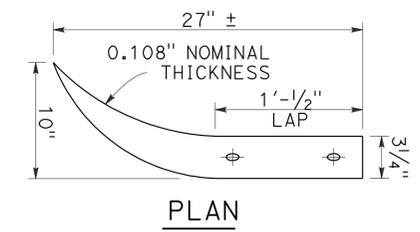
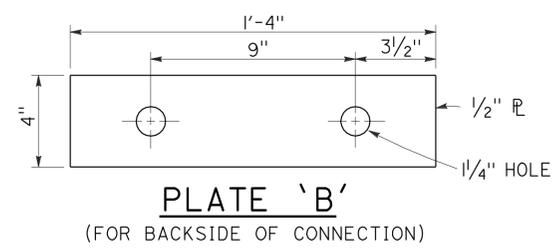
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	SBd	66,259,330	Var	11	80

8-19-09  
REGISTERED CIVIL ENGINEER DATE

8-24-09  
PLANS APPROVAL DATE

RAFTAR SHARIATZADEH  
No. C72941  
Exp. 12-31-10  
CIVIL

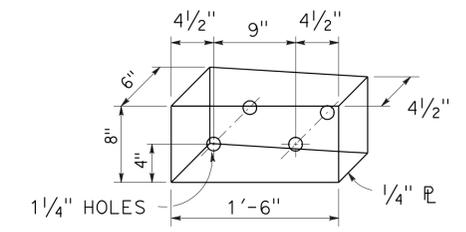
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**TERMINAL SECTION  
(TYPE B)**

L	THREAD LENGTH
1 3/8"	FULL THREAD LENGTH
2"	FULL THREAD LENGTH
10"	4" Min THREAD LENGTH
1'-6"	4" Min THREAD LENGTH
** 2 3/4"	2" Min THREAD LENGTH
** 1'-7"	4" Min THREAD LENGTH

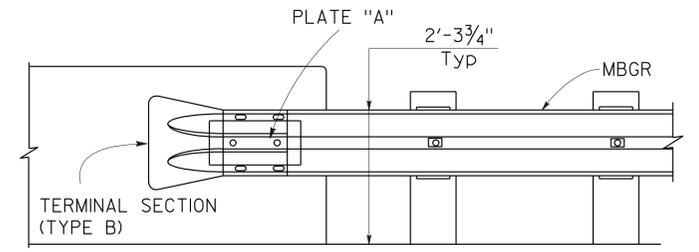
\*\* FOR NESTED RAIL APPLICATIONS.



USE WHERE APPROACH GUARD RAILING IS NOT PARALLEL TO BRIDGE RAILING, WALL OR ABUTMENT FACE AT THE POINT OF CONNECTION.

**NOTES**

1. ADDITIONAL DETAILS OF POST, BLOCKS AND HARDWARE ARE SHOWN ON STANDARD PLAN A77C1.
2. DIRECTION OF TRAFFIC INDICATED BY →
3. WHEN METAL BOX SPACER IS INSTALLED, PLACE 1" GALV HS BOLTS THROUGH 1 1/4" O X 5" AND 1 1/4" O X 4" PIPE SPACERS WITHIN TAPERED BOX SPACER.
4. USE A FLAT PLATE WASHER ON THE RAIL FACE WHEN ATTACHING RAIL ELEMENT TO THESE POSTS. WOOD POST WITH WOOD BLOCK ARE ONLY TO BE USED FOR THESE POSTS AND BLOCKS.



**GUARD RAILING CONNECTION TO BRIDGE RAILING**

**METAL BEAM GUARD RAILING  
CONNECTIONS TO  
BRIDGE RAILINGS**

**CONSTRUCTION DETAILS**  
NO SCALE

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
DESIGN  
RAFTAR SHARIATZADEH  
SUSAN HESS  
MUSTAPHA RAOUF

EXISTING UTILITY FACILITIES HAVE NOT BEEN POSITIVELY IDENTIFIED

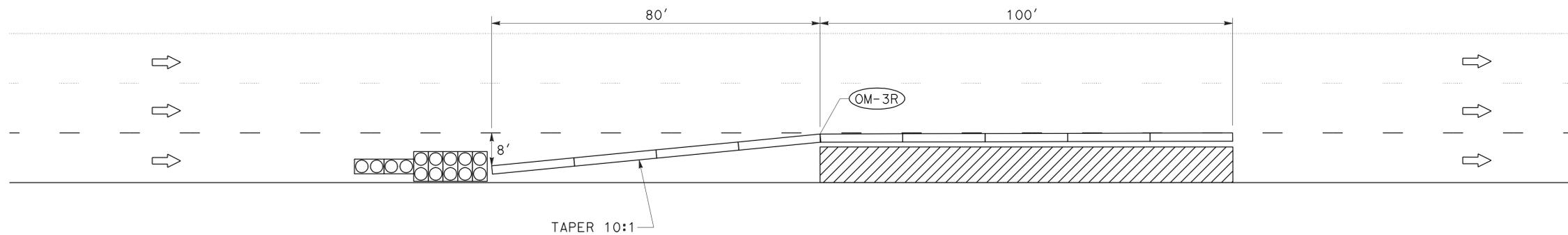
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	SBd	66,259,330	Var	12	80
			8-19-09	DATE	
			8-24-09	PLANS APPROVAL DATE	
REGISTERED CIVIL ENGINEER REGISTERED PROFESSIONAL ENGINEER No. C66092 Exp. 6-31-10 CIVIL STATE OF CALIFORNIA					
<small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small>					

**LEGEND:**

-  DIRECTION OF TRAFFIC
-  WORK AREA
-  TEMPORARY RAILING (TYPE K)
-  TEMPORARY CRASH CUSHION ARRAY TS14
-  OBJECT MARKER

**NOTES:**

1. REFER TO STANDARD PLAN T10, TRAFFIC CONTROL SYSTEM, FOR LANE CLOSURES ON Rte 330 AND Rte 259.
2. REFER TO STANDARD PLAN T11, TRAFFIC CONTROL SYSTEM, FOR LANE CLOSURES ON Rte 66.
3. OBJECT MARKER OM-3R SHALL BE INSTALLED AT BEND IN THE TEMPORARY K-RAIL.
4. THE TYPICAL K-RAIL CONFIGURATION SHOWN BELOW SHALL BE USED IN CONJUNCTION WITH STANDARD PLANS T-10 AND T-11 FOR ALL ROUTES.



**TYPICAL K-RAIL CONFIGURATION FOR PROPOSED ANCHOR BLOCK CONSTRUCTION**

STANDARD PLANS T10 AND T11 SHALL BE USED IN CONJUNCTION WITH THIS DETAIL

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	FUNCTIONAL SUPERVISOR	CALCULATED-DESIGNED BY	REVISOR
<b>Caltrans</b> TRAFFIC DESIGN B	LARRY SARTORI	CHRIS HARDIMON	CHRIS HARDIMON
		CHECKED BY	DATE REVISED
		LARRY SARTORI	

EXISTING UTILITY FACILITIES HAVE NOT BEEN POSITIVELY IDENTIFIED

THIS PLAN ACCURATE FOR TRAFFIC HANDLING WORK ONLY

**TRAFFIC HANDLING PLAN**

NO SCALE

**TH-1**

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	SBd	66,259,330	Var	13	80

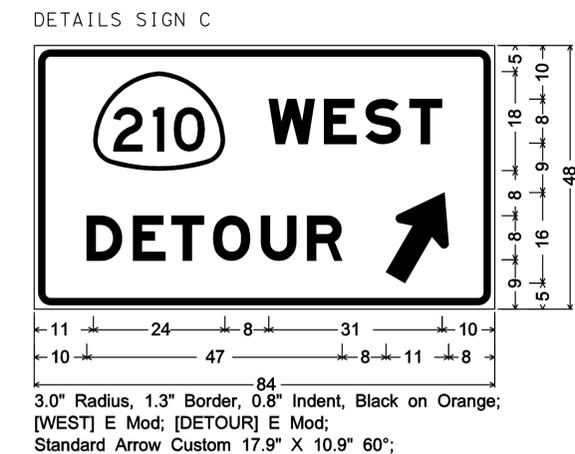
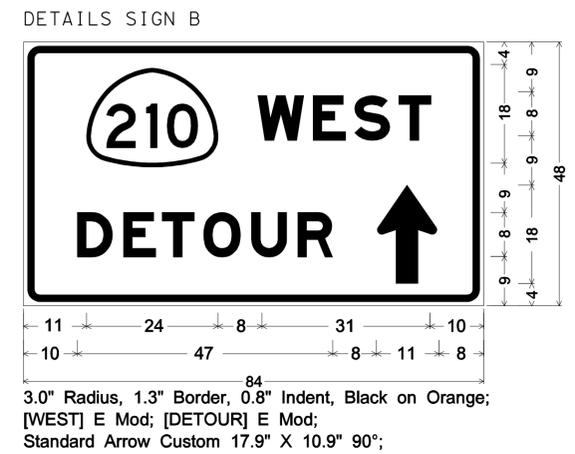
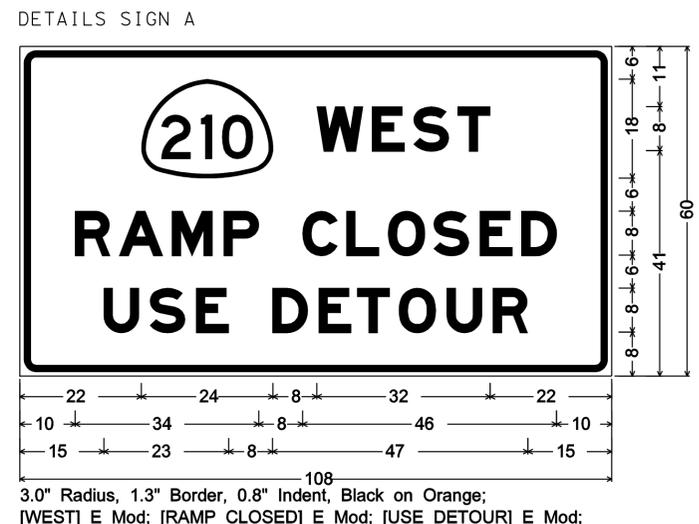
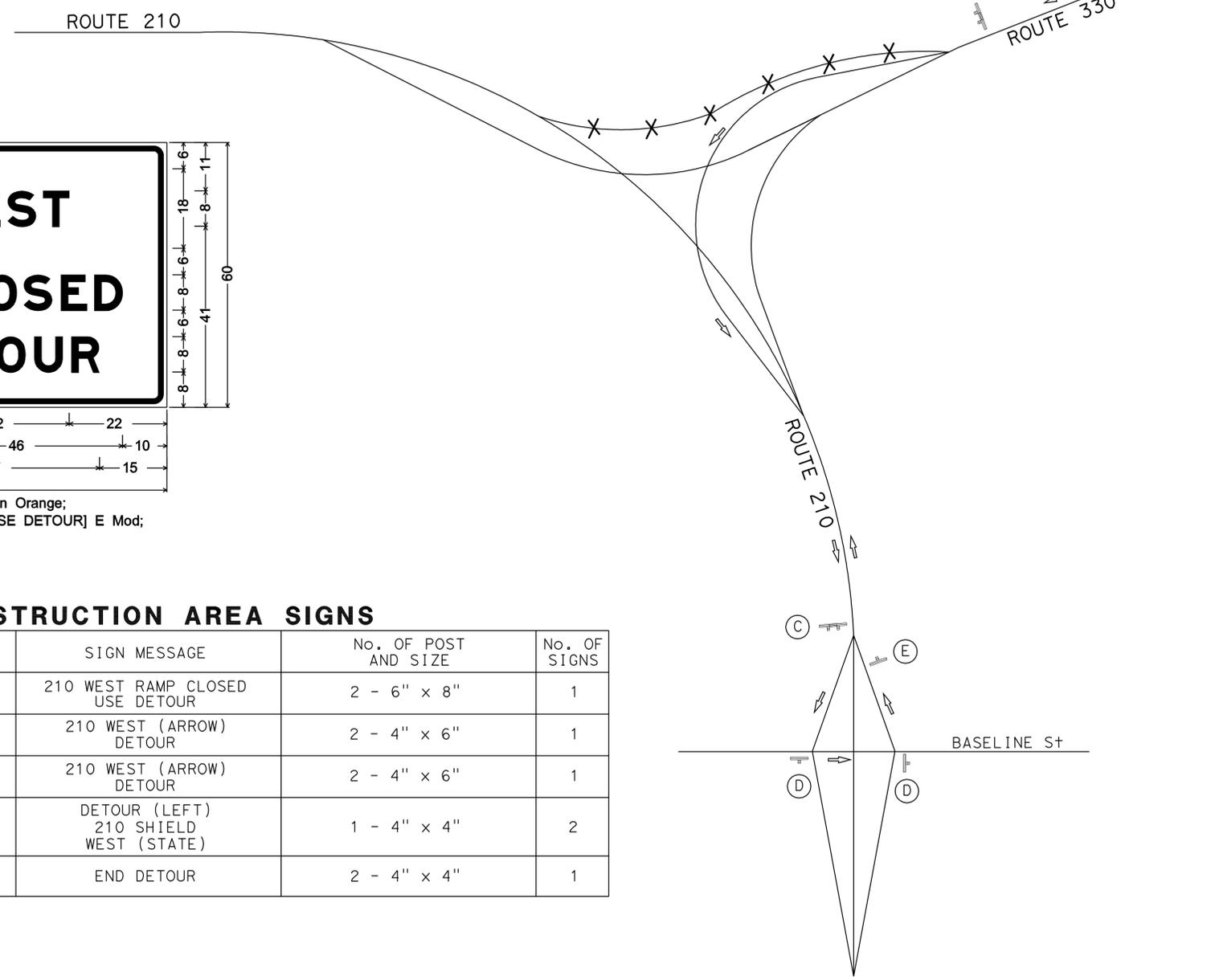
8-19-09  
 REGISTERED CIVIL ENGINEER DATE  
 8-24-09  
 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER  
 CHRIS HARDIMON  
 No. C66092  
 Exp. 6-31-10  
 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.

- LEGEND:**
- CONSTRUCTION AREA SIGN (ONE POST)
  - CONSTRUCTION AREA SIGN (TWO POST)
  - (X) CONSTRUCTION AREA SIGN LETTER
  - ⇨ DIRECTION OF DETOUR
  - \*\*\* CLOSED TO TRAFFIC

**NOTE:**  
1. SIGN PANEL DIMENSIONS ARE IN INCHES.



**CONSTRUCTION AREA SIGNS**

SIGN No.	SIGN CODE	PANEL SIZE	SIGN MESSAGE	No. OF POST AND SIZE	No. OF SIGNS
(A)	C-SPECIAL	108" x 60"	210 WEST RAMP CLOSED USE DETOUR	2 - 6" x 8"	1
(B)	C-SPECIAL	66" x 42"	210 WEST (ARROW) DETOUR	2 - 4" x 6"	1
(C)	C-SPECIAL	66" x 42"	210 WEST (ARROW) DETOUR	2 - 4" x 6"	1
(D)	M4-10(LT) G28-2(CA) M3-3	48" x 18" 25" x 28" 24" x 12"	DETOUR (LEFT) 210 SHIELD WEST (STATE)	1 - 4" x 4"	2
(E)	M4-8a	24" x 18"	END DETOUR	2 - 4" x 4"	1

**DETOUR DURING CLOSURE OF CONNECTOR  
FROM ROUTE 330 SOUTH TO ROUTE 210 WEST**

**DETOUR PLAN**  
NO SCALE **DE-1**

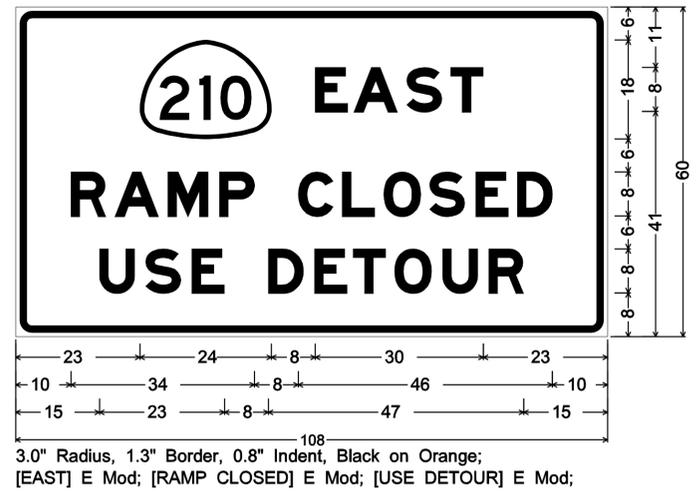
EXISTING UTILITY FACILITIES HAVE NOT BEEN POSITIVELY IDENTIFIED

THIS PLAN ACCURATE FOR DETOUR WORK ONLY

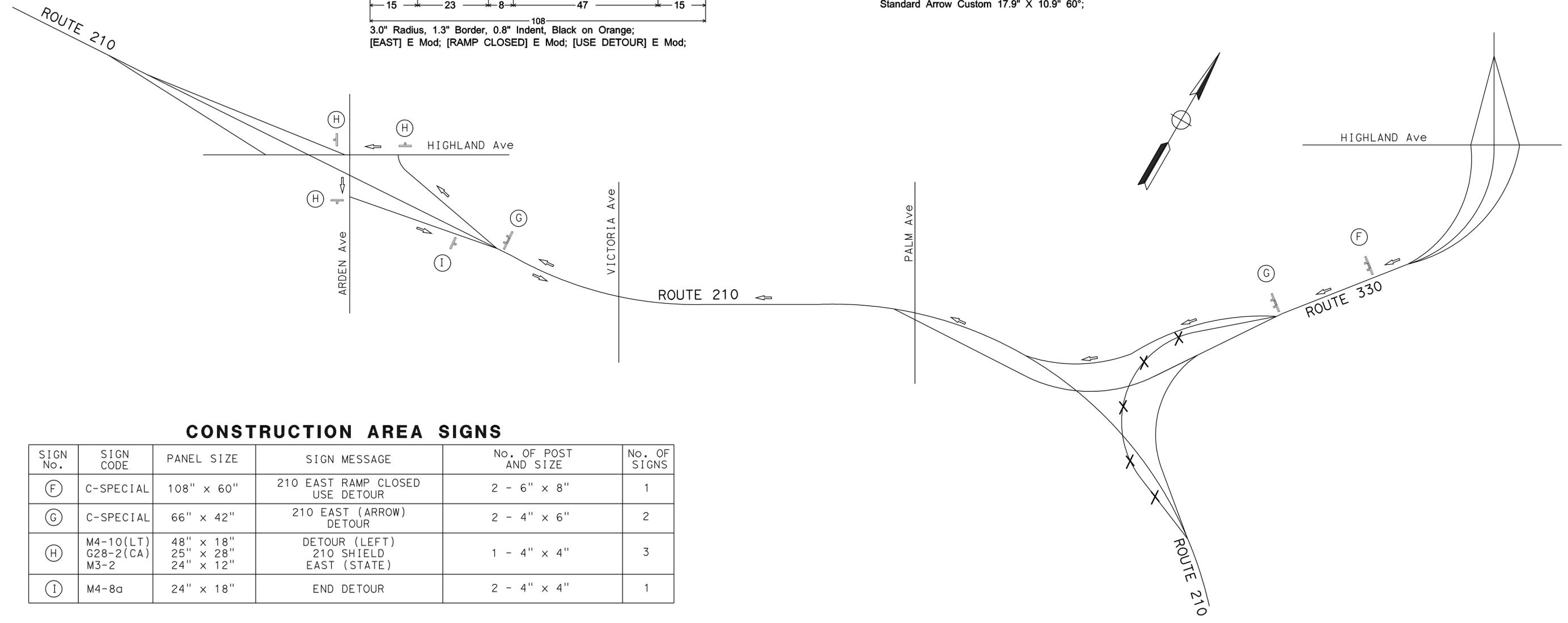
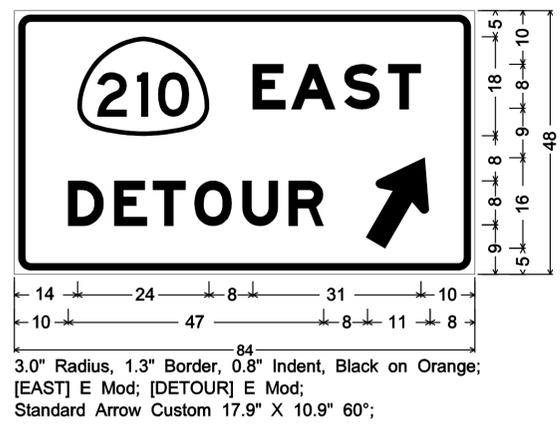
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
 Chris Hardimon  
 LARRY SARTORI  
 LARRY SARTORI  
 TRAFFIC DESIGN B

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	SBd	66,259, 330	Var	14	80
			8-19-09		
			REGISTERED CIVIL ENGINEER DATE		
			8-24-09		
			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>					

DETAILS SIGN F



DETAILS SIGN G



**CONSTRUCTION AREA SIGNS**

SIGN No.	SIGN CODE	PANEL SIZE	SIGN MESSAGE	No. OF POST AND SIZE	No. OF SIGNS
F	C-SPECIAL	108" x 60"	210 EAST RAMP CLOSED USE DETOUR	2 - 6" x 8"	1
G	C-SPECIAL	66" x 42"	210 EAST (ARROW) DETOUR	2 - 4" x 6"	2
H	M4-10(LT) G28-2(CA) M3-2	48" x 18" 25" x 28" 24" x 12"	DETOUR (LEFT) 210 SHIELD EAST (STATE)	1 - 4" x 4"	3
I	M4-8a	24" x 18"	END DETOUR	2 - 4" x 4"	1

**DETOUR DURING CLOSURE OF CONNECTOR FROM ROUTE 330 SOUTH TO ROUTE 210 EAST**

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

EXISTING UTILITY FACILITIES HAVE NOT BEEN POSITIVELY IDENTIFIED

THIS PLAN ACCURATE FOR DETOUR WORK ONLY

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	SBd	66,259,330	Var	15	80

8-19-09  
 REGISTERED CIVIL ENGINEER DATE  
 8-24-09  
 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER  
 CHRIS HARDIMON  
 No. C66092  
 Exp. 6-31-10  
 CIVIL  
 STATE OF CALIFORNIA

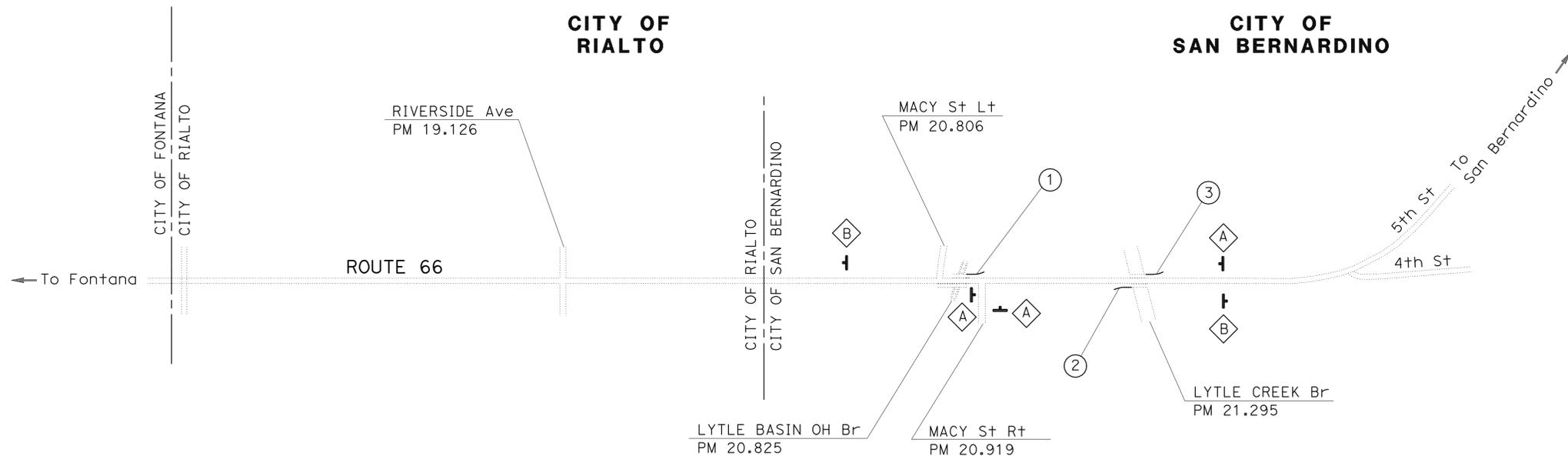
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

**NOTES:**

1. LOCATIONS OF PORTABLE CHANGEABLE MESSAGE SIGN SHALL BE DETERMINED BY THE ENGINEER.
2. EXACT SIGN LOCATIONS TO BE DETERMINED BY THE ENGINEER.
3. ADDITIONAL CONSTRUCTION AREA SIGNS SHOWN ON CS-2, CS-3, DE-1, AND DE-2 SHEETS.

**LEGEND:**

- (X) LOCATION OF WORK
- † ONE POST SIGN
- ◇ CONSTRUCTION AREA SIGN No.



**STATIONARY MOUNTED CONSTRUCTION AREA SIGNS**

SIGN No.	SIGN CODE	PANEL SIZE	SIGN MESSAGE	No. OF POST & SIZE	No. OF SIGNS (N)
◇ A	W20-1	48" x 48"	ROAD WORK AHEAD	1 - 6" x 6"	3
◇ B	G20-2	36" x 18"	END ROAD WORK	1 - 4" x 4"	2
TOTAL					5

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

PORTABLE CHANGEABLE MESSAGE SIGN	
QUANTITY	4 EACH

**CONSTRUCTION AREA SIGNS**

NO SCALE

**CS-1**

**EXISTING UTILITY FACILITIES HAVE NOT BEEN POSITIVELY IDENTIFIED**

THIS PLAN ACCURATE FOR CONSTRUCTION AREA SIGN WORK ONLY

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** TRAFFIC DESIGN B  
 FUNCTIONAL SUPERVISOR: LARRY SARTORI  
 CALCULATED-DESIGNED BY: LARRY SARTORI  
 CHECKED BY: LARRY SARTORI  
 REVISIONS: CHRIS HARDIMON, LARRY SARTORI  
 REVISED BY: LARRY SARTORI  
 DATE REVISED:

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	SBd	66,259,330	Var	16	80

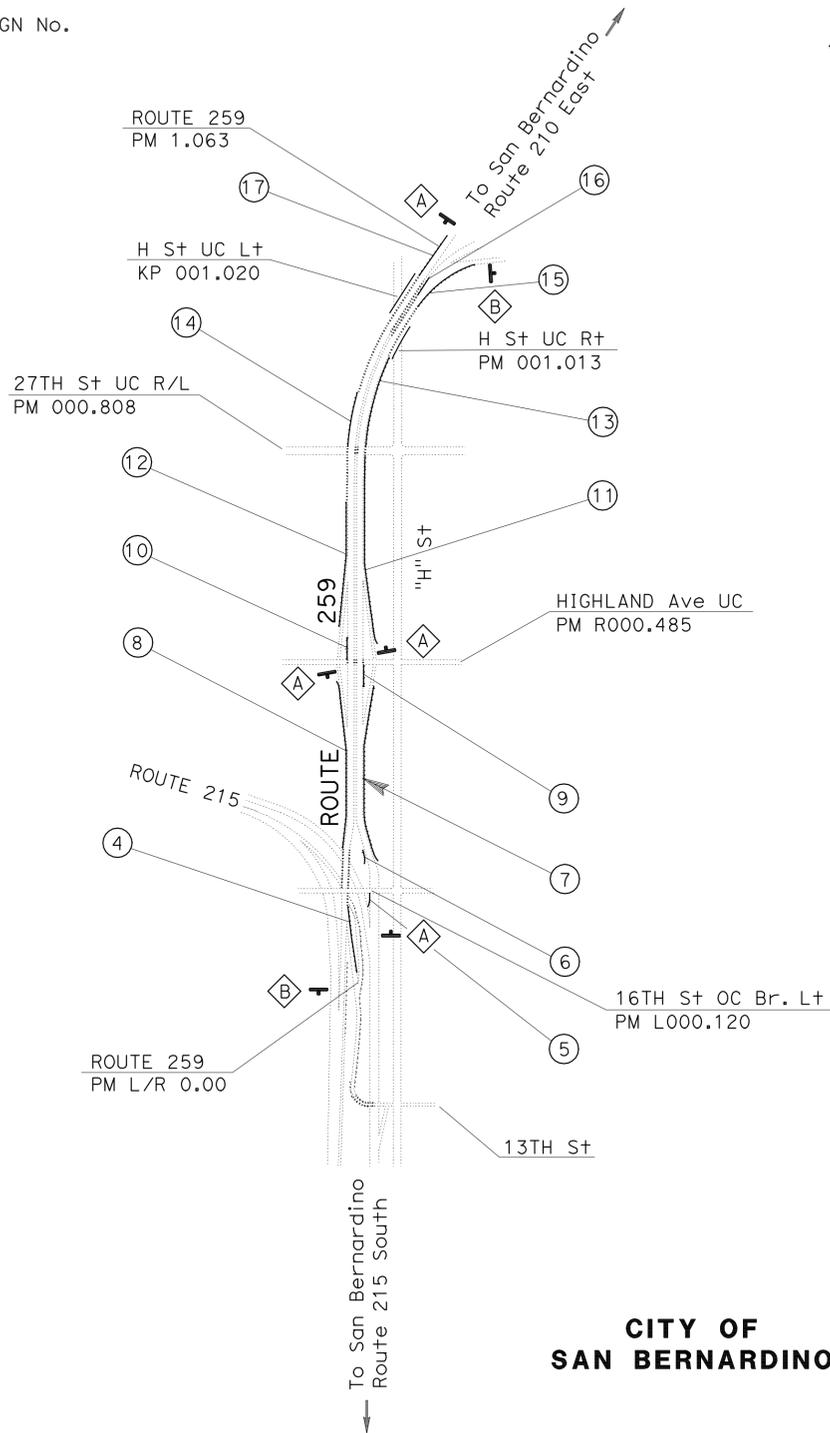
8-19-09  
 REGISTERED CIVIL ENGINEER DATE  
 8-24-09  
 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER  
 CHRIS HARDIMON  
 No. C66092  
 Exp. 6-31-10  
 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.

**LEGEND:**

- (X) LOCATION OF WORK
- ┆ ONE POST SIGN
- ◇ CONSTRUCTION AREA SIGN No.



**STATIONARY MOUNTED CONSTRUCTION AREA SIGNS**

SIGN No.	SIGN CODE	PANEL SIZE	SIGN MESSAGE	No. OF POST & SIZE	No. OF SIGNS (N)
◇ A	W20-1	48" x 48"	ROAD WORK AHEAD	1 - 6" x 6"	4
◇ B	G20-2	36" x 18"	END ROAD WORK	1 - 4" x 4"	2
TOTAL					6

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

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** TRAFFIC DESIGN B  
 FUNCTIONAL SUPERVISOR LARRY SARTORI  
 CALCULATED-DESIGNED BY CHECKED BY  
 CHRIS HARDIMON LARRY SARTORI  
 REVISED BY DATE REVISED  
 REVISIONS

**EXISTING UTILITY FACILITIES HAVE NOT BEEN POSITIVELY IDENTIFIED**

RELATIVE BORDER SCALE IS IN INCHES

THIS PLAN ACCURATE FOR CONSTRUCTION AREA SIGN WORK ONLY



USERNAME => frmikes1  
DGN FILE => 80e5701a002.dgn

**CONSTRUCTION AREA SIGNS**

NO SCALE

**CS-2**

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	SBd	66,259,330	Var	17	80

8-19-09  
 REGISTERED CIVIL ENGINEER DATE

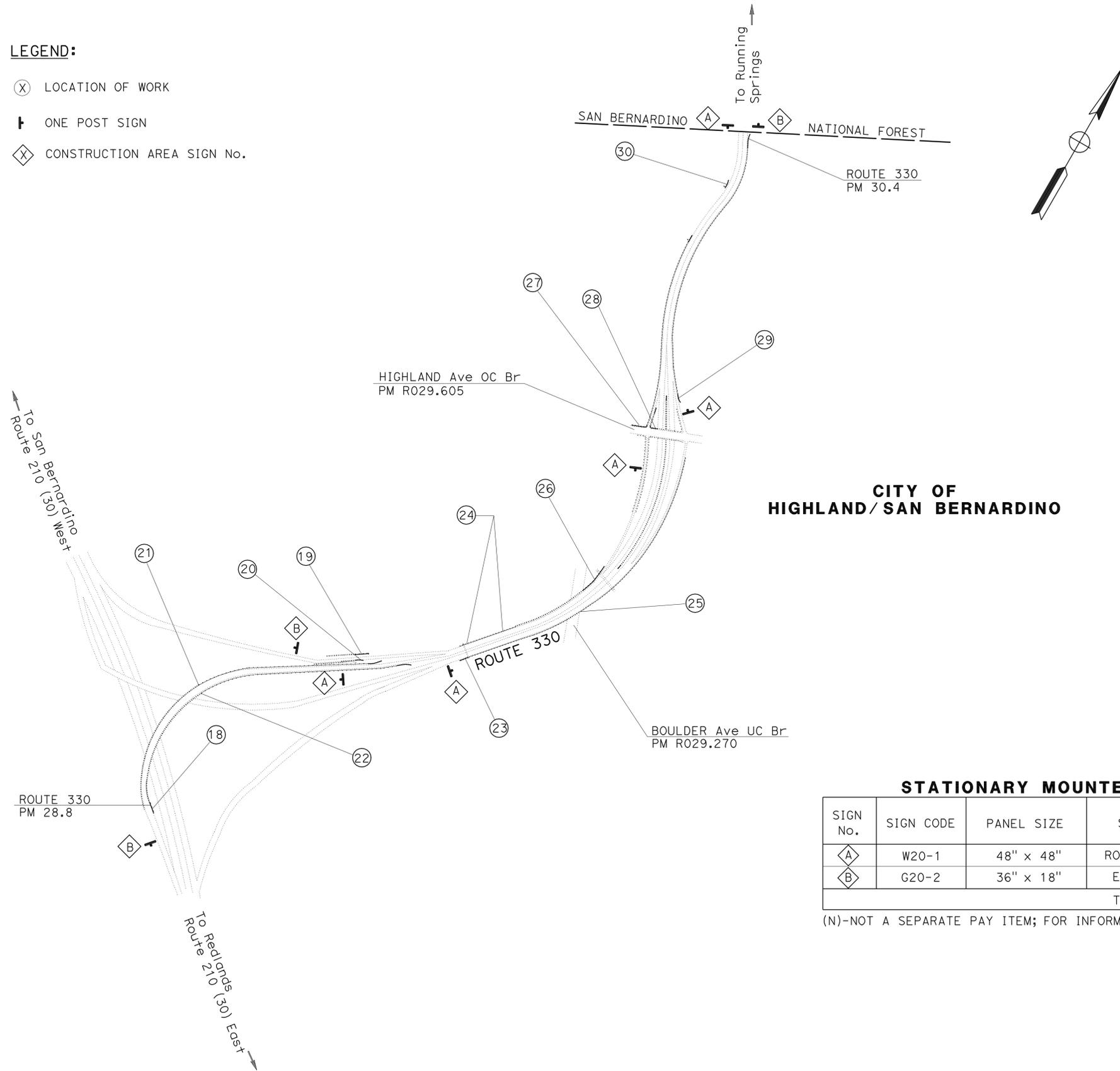
8-24-09  
 PLANS APPROVAL DATE

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  
 CHRIS HARDIMON  
 No. C66092  
 Exp. 6-31-10  
 CIVIL  
 STATE OF CALIFORNIA

**LEGEND:**

- (X) LOCATION OF WORK
- ┆ ONE POST SIGN
- ◇ CONSTRUCTION AREA SIGN No.



**STATIONARY MOUNTED CONSTRUCTION AREA SIGNS**

SIGN No.	SIGN CODE	PANEL SIZE	SIGN MESSAGE	No. OF POST & SIZE	No. OF SIGNS (N)
◇ A	W20-1	48" x 48"	ROAD WORK AHEAD	1 - 6" x 6"	5
◇ B	G20-2	36" x 18"	END ROAD WORK	1 - 4" x 4"	3
TOTAL					8

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

**CONSTRUCTION AREA SIGNS**

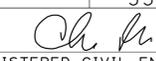
NO SCALE

**CS-3**

**EXISTING UTILITY FACILITIES HAVE NOT BEEN POSITIVELY IDENTIFIED**

THIS PLAN ACCURATE FOR CONSTRUCTION AREA SIGN WORK ONLY

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	SBd	66,259,330	Var	18	80

 8-19-09  
 REGISTERED CIVIL ENGINEER DATE

8-24-09  
 PLANS APPROVAL DATE

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



**NOTES:**

1. REFER TO STANDARD PLAN A77C4 FOR PLACEMENT OF CLASS 1 DELINEATORS ON METAL BEAM GUARD RAILING.
2. TYPE L-1 OBJECT MARKERS SHALL BE PLACED IN FRONT OF THE BEGINNING OF GUARDRAIL.
3. CLASS 1 DELINEATORS SHALL BE PLACED AT 100' SPACING.

**PAVEMENT DELINEATION QUANTITIES**

SHEET No.	LOCATION	OBJECT MARKER (TYPE L-1)	DELINEATOR (CLASS 1)
		EA	EA
CS-1	WB LOCATION 1	1	2
CS-1	WB LOCATION 2	1	1
CS-1	EB LOCATION 3	1	1
CS-2	EB LOCATION 4	1	5
CS-2	EB LOCATION 5	1	1
CS-2	EB LOCATION 6	1	1
CS-2	EB LOCATION 7	1	21
CS-2	EB LOCATION 8	1	22
CS-2	EB LOCATION 9	1	1
CS-2	EB LOCATION 10	1	1
CS-2	EB LOCATION 11	1	14
CS-2	WB LOCATION 12	1	10
CS-2	WB LOCATION 13	1	9
CS-2	WB LOCATION 14	1	5
CS-2	WB LOCATION 15	1	8
CS-2	WB LOCATION 16	1	1
CS-2	WB LOCATION 17	1	6
CS-3	NB LOCATION 18	1	1
CS-3	NB LOCATION 19	1	1
CS-3	NB LOCATION 20	1	1
CS-3	NB LOCATION 21	1	10
CS-3	SB LOCATION 22	1	11
CS-3	SB LOCATION 23	1	11
CS-3	SB LOCATION 24	1	5
CS-3	SB LOCATION 25	1	15
CS-3	SB LOCATION 26	1	2
CS-3	SB LOCATION 27	1	27
CS-3	SB LOCATION 28	1	7
CS-3	SB LOCATION 29	1	35
CS-3	SB LOCATION 30	1	1
TOTAL		30	236

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** TRAFFIC DESIGN B  
 FUNCTIONAL SUPERVISOR: LARRY SARTORI  
 CALCULATED-DESIGNED BY: CHECKED BY: CHRIS HARDIMON, LARRY SARTORI  
 REVISED BY: DATE REVISED:

**EXISTING UTILITY FACILITIES HAVE NOT BEEN POSITIVELY IDENTIFIED**

**PAVEMENT DELINEATION QUANTITIES PDQ-1**

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	SBd	66,259,330	Var	19	80

8-19-09  
 REGISTERED CIVIL ENGINEER DATE

8-24-09  
 PLANS APPROVAL DATE

RAFTAR SHARIATZADEH  
 No. C72941  
 Exp. 12-31-10  
 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:**

1. ALL LOCATIONS ARE REFERENCED, BASED ON THE EXISTING POSTMILE MARKER & BRIDGE NUMBERS.

**ROUTE 66**

LOCATION	DIRECTION	PM	DESCRIPTION	MEDIAN/OUTSIDE SHOULDER/RAMP (M/O/R)		BRIDGE APPROACH/DEPARTURE (A/D) OR CONCRETE BARRIER (CB)		REMOVE METAL BEAM GUARD RAILING		METAL BEAM GUARD RAILING (STEEL POST)		TERMINAL SYSTEM					REMARKS			
				LF	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA		EA		
1	WB	20.83	LYTLE BASIN OH BRIDGE (Br No. 54-0834)	0	A	115.0	50.0	1	1										EXISTING DRAINAGE CULVERT SHALL BE PROTECTED DURING CONSTRUCTION. 7 FOOT POSTS SHALL BE USED FOR WB TRANSITION AS SHOWN ON SHEET C-3.	
2	EB	21.30	LYTLE CREEK CHANNEL BRIDGE	0	A	100.0	25.0		1	1	22.0	0.5	22.0	1.5		3.0		88.0	1.7	ALL SURVEY MONUMENTS, EXISTING WATER MAIN AND ANY OTHER EXISTING UTILITIES SHALL BE PROTECTED DURING CONSTRUCTION. REFER TO CONSTRUCTION DETAIL C-2.
3	WB	21.31	LYTLE CREEK CHANNEL BRIDGE	0	A	45.0	25.0		1	1	52.0	1.0	52.0	3.5		7.0		156.0	4.0	EXISTING UTILITY MANHOLE LID SHALL BE PROTECTED AND EXPOSED WHEN BACKFILLING IS PERFORMED DURING CONSTRUCTION. REFER TO CONSTRUCTION DETAIL C-1.
TOTAL						260.0	100.0	1	3	2	74.0	1.5	74.0	15.0	2.6	28.0	60.0	694.0	7.7	

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

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

**EXISTING UTILITY FACILITIES HAVE NOT BEEN POSITIVELY IDENTIFIED**

LAST REVISION | DATE PLOTTED => 28-AUG-2009  
 08-19-09 | TIME PLOTTED => 12:57

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	SBd	66,259,330	Var	20	80

8-19-09  
REGISTERED CIVIL ENGINEER DATE

8-24-09  
PLANS APPROVAL DATE

RAFTAR SHARIATZADEH  
No. C72941  
Exp. 12-31-10  
CIVIL

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**NOTES:**

1. ALL LOCATIONS ARE REFERENCED BASED ON THE EXISTING PM MARKER.

**ROUTE 259**

LOCATION DIRECTION	BEGIN PM	END PM	DESCRIPTION OF LOCATION	MEDIAN/OUTSIDE SHOULDER/RAMP (M/O/R)	BRIDGE APPROACH/DEPARTURE (A/D) OR CONCRETE BARRIER (CB)	REMOVE METAL BEAM GUARD RAILING	METAL BEAM GUARD RAILING (STEEL POST)	TERMINAL SYSTEM				(N)	REMOVE ASPHALT CONCRETE DIKE	PLACE HOT MIX ASPHALT DIKE (TYPE C)	PLACE HOT MIX ASPHALT DIKE (TYPE F)	VEGETATION CONTROL (MINRO CONCRETE) 4.5 FT WIDE BY 3 INCHES THICK	VEGETATION CONTROL (MINRO CONCRETE) 2.75 FT WIDE BY 3 INCHES THICK	REMARKS	
								LF	LF	EA	EA								EA
4 SB	L0.01	L0.10	BASELINE EXIT RAMP	R	CB	495	470.0	1			1	495	29.22		25.0	495.0	151.25	METAL RAILING END ANCHOR ASSEMBLY (TYPE SFT) SHALL BE PER STANDARD PLAN A77HI. REMOVE 495' (29.22 CY) CURB & GUTTER.	
5 NB	L0.12	L0.12	16TH S+ OC (BRIDGE COLUMN)	M		81	43.5			1	1			81	62.5	43.5	53.00	THE BEGINNING OF EXISTING MBGR SHALL BE MARKED AS A REFERENCE POINT FOR INSTALLING THE NEW MBGR & TERMINAL SYSTEM. USE STRENGTHENED RAILING SECTIONS FOR FIXED OBJECTS PER STANDARD PLAN A77G3.	
6 NB	R0.03	R0.05	HIGHLAND Ave EXIT SIGN	M		102	64.5			1	1			102	62.5	64.5	63.50	MINOR GRADING FOR VEGETATION CONTROL SHALL BE INCLUDED IN THE BID FOR THIS LOCATION.	
7 NB	R0.03	R0.42	FROM RTE 215/259 CONNECTOR RAMP TO HIGHLAND Ave EXIT RAMP	O		2083	2045.5			1	1			2083	62.5	2045.5	644.11	EXISTING IRRIGATION SYSTEM SHALL BE PROTECTED IN PLACE.	
8 SB	R0.04	R0.44	FROM HIGHLAND ENTRANCE RAMP TO CONNECTOR BRIDGE No. 54-0523F (S259/S215 CONNECTOR)	O	A	2150	2112.5			1				2150	62.5	2112.5	664.58	REPLACE ENTIRE EXISTING SYSTEM.SEE STRUCTURES PLAN 15 OF 26.	
9 NB	R0.49	0.51	HIGHLAND Ave UC BRIDGE No. 54-0761R	O	A	103	28.0	1	1					103	75.0	53.0	39.11	REPLACE ENTIRE EXISTING SYSTEM. REFER TO STRUCTURES PLAN 4 OF 26 FOR ANCHOR BLOCK DETAILS.	
10 SB	0.51	0.53	HIGHLAND Ave UC BRIDGE No. 54-0761L	O	A	104	41.5	1	1					104	75.0	66.5	39.42	REPLACE ENTIRE EXISTING SYSTEM. REFER TO STRUCTURES PLAN 5 OF 26 FOR ANCHOR BLOCK DETAILS.	
11 NB	0.54	0.80	FROM HIGHLAND Ave ENTRANCE RAMP TO 27TH S+ UC BRIDGE No. 54-0762R	O	A	1390	1315.0	1	1					1390	75.0	1340.0	432.36	REPLACE ENTIRE EXISTING SYSTEM. REFER TO STRUCTURES PLAN 6 OF 26 FOR ANCHOR BLOCK DETAILS.	
12 SB	0.56	0.75	FROM 27TH S+ UC BRIDGE No. 54-0762L TO HIGHLANDS Ave EXIT RAMP	O	D	1031	956.0	1	1					1031	75.0	981.0	322.67	REPLACE ENTIRE EXISTING SYSTEM. REFER TO STRUCTURES PLAN 9 OF 26 FOR ANCHOR BLOCK DETAILS.	
13 NB	0.83	0.99	FROM 27TH S+ UC BRIDGE No. 54-0762R TO "H" S+ UC BRIDGE No. 54-0763R	O	D,A	856	831.0	2						856		856.0	261.56	METAL BEAM GUARD RAILING CONNECTIONS TO BRIDGE RAILINGS PER STANDARD PLAN A77J1. SEE STRUCTURE PLANS 7 AND 10 OF 26.	
14 SB	0.83	0.92	FROM "H" S+ UC BRIDGE No. 54-0763L TO 27TH S+ UC BRIDGE No. 54-0762L	O	D,A	504	479.0	2									154.00	METAL BEAM GUARD RAILING CONNECTIONS TO BRIDGE RAILINGS PER STANDARD PLAN A77J1. SEE STRUCTURE PLANS 8 AND 14 OF 26.	
15 NB	1.05	1.21	FROM H S+ UC BRIDGE No. 54-0763R TO E S+ EXIT RAMP (RIGHT SIDE)	O	D	841	766.0	1	1					841	75.0	791.0	264.61	REPLACE ENTIRE EXISTING SYSTEM. REFER TO STRUCTURES PLAN 12 OF 26 FOR ANCHOR BLOCK DETAILS.	
16 NB	1.05	1.08	"H" S+ UC BRIDGE No. 54-0763R (LEFT SIDE)	M	D	145	82.5	1		1				145	62.5	107.5	51.94	REPLACE ENTIRE EXISTING SYSTEM. REFER TO STRUCTURES PLAN 11 OF 26 FOR ANCHOR BLOCK DETAILS.	
17 SB	1.05	1.17	FROM 210 (30)/259 CONNECTOR BRIDGE No. 54-0764F TO "H" S+ UC BRIDGE #54-0763L	O	A	620	595.0	2									189.44	REPLACE ENTIRE EXISTING SYSTEM. REFER TO STRUCTURES PLAN 13 AND 16 OF 26 FOR ANCHOR BLOCK DETAILS.	
TOTAL						10505	9830.0	13	5	5	4	495	29.22	8886	712.5	8956.0	116.50	3215.05	

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

**EXISTING UTILITY FACILITIES HAVE NOT BEEN POSITIVELY IDENTIFIED**

**SUMMARY OF QUANTITIES Q-2**

LAST REVISION => 28-AUG-2009  
08-19-09 DATE PLOTTED => 12:57  
08-19-09 TIME PLOTTED => 12:57

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	SBd	66,259, 330	Var	21	80

8-19-09  
REGISTERED CIVIL ENGINEER DATE

8-24-09  
PLANS APPROVAL DATE

RAFTAR SHARIATZADEH  
No. C72941  
Exp. 12-31-10  
CIVIL

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

**NOTE:**

1. ALL LOCATIONS ARE REFERENCED, BASED ON THE EXISTING POSTMILE MARKER AND BRIDGE NUMBERS.

**ROUTE 330**

LOCATION	DIRECTION	BEGIN PM	END PM	DESCRIPTION OF LOCATION	MEDIAN/OUTSIDE SHOULDER/RAMP (M/O/R)	BRIDGE APPROACH/DEPARTURE (A/D) OR CONCRETE BARRIER (CB)	REMOVE METAL BEAM GUARD RAILING	METAL BEAM GUARD RAILING (STEEL POST)	TERMINAL SYSTEM					REMOVE ASPHALT CONCRETE DIKE	PLACE HOT MIX ASPHALT DIKE (TYPE C)	PLACE HOT MIX ASPHALT DIKE (TYPE F)	VEGETATION CONTROL (MINOR CONCRETE) 4.5 FT WIDE BY 3 INCH THICK	VEGETATION CONTROL (MINOR CONCRETE) 2.75 FT WIDE BY 3 INCH THICK	REMARKS				
									BURIED POST END ANCHOR (N)	TRANSITION RAILING (TYPE WB)	ALTERNATIVE IN-LINE	ALTERNATIVE FLARED	END ANCHOR ASSEMBLY (TYPE SFT)							LF	LF	LF	SQ YD
18	SB	R28.70	R28.71	SOUTHBOUND Rte 330 CONNECTOR TO EASTBOUND ROUTE 210 (30) Br No. 54-1098F (RIGHT SIDE)		D	67.0	50.0				1					1	67.0	75.0		20.10	METAL BEAM GUARD RAILING CONNECTIONS TO BRIDGE RAILINGS PER STANDARD PLAN A77J1 WITH METAL RAILING END ANCHOR ASSEMBLY (TYPE SFT). SEE STRUCTURES PLAN 25 OF 26.	
19	SB	R28.94	R28.94	CONCRETE BARRIER ON THE SOUTHBOUND Rte 330 CONNECTOR TO WESTBOUND ROUTE 210 (30) (LEFT SIDE)	0	CB	25.0														15.28	REMOVE 25 FEET OF CONCRETE BARRIER FROM THE END CONNECTION OF EXISTING MBGR. INSTALL QUAD GUARD (6 BAYS) OR EQUIVALENT CRASH CUSHION SYSTEM AS PER MANUFACTURE'S STANDARD AND REQUIREMENTS.	
20	SB	R28.93	R28.94	RETAINING WALL ON CONNECTOR FROM Rte 330 SOUTHBOUND TO WESTBOUND ROUTE 210 (RIGHT SIDE)	0		62.5	37.5	1	1				62.5	62.5								REPLACE ENTIRE EXISTING SYSTEM. SEE STRUCTURE PLAN 26 OF 26.
21	SB	R28.79	R28.97	CONNECTOR FROM SOUTHBOUND Rte 330 TO EASTBOUND Rte 210 (30) (LEFT SIDE) TO CONNECTOR Br No. 54-1098F	M	A	1000.0	937.5				1	1		0	0	0				305.56	REPLACE ENTIRE EXISTING SYSTEM. SEE STRUCTURE PLAN 23 OF 26.	
22	SB	R28.79	R29.20	CONNECTOR FROM SOUTHBOUND Rte 330 TO EASTBOUND Rte 210 (30) (RIGHT SIDE) TO CONNECTOR Br No. 54-1098F	0	A	1070.0	1012.5				1	1		1033.0	62.5	1032.5				334.58	REPLACE ENTIRE EXISTING SYSTEM. SEE STRUCTURE PLAN 24 OF 26.	
23	NB	R29.03	R29.20	FROM OVERHEAD SIGN FOR HIGHLAND Ave EXIT TO BOULDER Ave UC Br No. 54-1085	0	A	1080.0	1025				1	1		1080.0	62.5	1042.5				337.64	REPLACE ENTIRE EXISTING SYSTEM. SEE STRUCTURE PLAN 18 OF 26.	
24	SB	R29.04	R29.12	CONNECTOR FROM SOUTHBOUND Rte 330 TO WESTBOUND Rte 210 (30), FROM SOUNDWALL TO OVERHEAD SIGN	0		450.0	425.0				1			450.0	450.0					137.50	REFER TO STRUCTURE PLANS 21 AND 22 OF 26 FOR SOUND WALL REMOVAL AND INSTALLATION OF NEW CONCRETE BARRIER WITH SOUND WALL.	
25	NB	R29.30	R29.58	FROM BOULDER Ave UC Br No. 54-1085 TO NORTHBOUND HIGHLAND Ave EXIT RAMP	0	D	1503.0	1487.5				1			0	0	0				459.25	REPLACE ENTIRE EXISTING SYSTEM. SEE STRUCTURE PLAN 17 OF 26.	
26	SB	R29.30	R29.34	FROM OVERHEAD SIGN TO BOULDER Ave UC Br No. 54-1085		A	204.0	137.5				1	1		204.0	75.0	154.0				69.97	REPLACE ENTIRE EXISTING SYSTEM. SEE STRUCTURE PLAN 19 OF 26.	
27	SB	R29.63	T30.14	REDLANDS/PASADENA OVERHEAD SIGN TO HIGHLAND Ave EXIT RAMP (LEFT SIDE TO TOP OF RAMP)	0		2717.0	2625.0					2		1043.0	1043.0					845.47	REPLACE ENTIRE EXISTING SYSTEM.	
28	SB	R29.63	R29.76	EXIT RAMP TO HIGHLAND Ave (RIGHT SIDE) Br No. 54-1086	R		732.0	675				1	1								231.31	REPLACE ENTIRE EXISTING SYSTEM. SEE STRUCTURE PLAN 20 OF 26.	
29	NB	R29.71	30.37	FROM HIGHLAND Ave NORTHBOUND ENTRANCE RAMP TO END PROJECT PM 30.4			3520.0	3487.5	1				1		1965.0	62.5	1927.5				1083.19	REPLACE ENTIRE EXISTING SYSTEM.	
30	SB	30.21	30.22	OVERHEAD SIGN FOR HIGHLAND Ave EXIT	0		66.0	50.0						2	66.0	125.0	50.0	87.50				INSTALL MBGR TYPICAL LAYOUTS FOR ROADSIDE FIXED OBJECTS PER STANDARD PLAN A77G3.	
TOTAL							12496.5	11950.0	2	9	3	7	3	5970.5	387.5	5837.0	87.50	3839.85					

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

**EXISTING UTILITY FACILITIES HAVE NOT BEEN POSITIVELY IDENTIFIED**

**SUMMARY OF QUANTITIES Q-3**



x

x

x

x

x

**METAL BEAM GUARD RAIL**

COUNTY/ ROUTE	REMOVE METAL BEAM GUARD RAILING	METAL BEAM GUARD RAILING (STEEL POST)	BURIED POST END ANCHOR (N)	TRANSITION RAILING (TYPE WB)	TERMINAL ANCHOR ASSEMBLY (TYPE SFT)	ALTERNATIVE-IN LINE TERMINAL SYSTEM	ALTERNATIVE FLARED TERMINAL SYSTEM	TERMINAL SECTION (TYPE B)
	LF	LF	EA	EA	EA	EA	EA	EA
SBd-330	12496.5	11950.0	2	9	3	3	7	
SBd-259	10505.0	9830.0		13	4	5	5	
SBd-66	260.0	100.0		1			3	2
TOTAL	23261.5	21880.0	2	23	7	8	15	2

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

**AC DIKE**

COUNTY/ ROUTE	REMOVE ASPHALT CONCRETE DIKE	PLACE HOT MIX ASPHALT DIKE (TYPE C)	PLACE HOT MIX ASPHALT DIKE (TYPE F)	MINOR HOT MIX ASPHALT FOR DIKES
	LF	LF	LF	TON
SBd-330	5970.5	387.5	5837.0	81.2
SBd-259	8886.0	712.5	8956.0	125.2
SBd-66	60.0			
TOTAL	14916.5	1100.0	14793.0	206.4

**QUAD GUARD CRASH  
CUSHION SYSTEM**

COUNTY/ ROUTE/ DIRECTION	POSTMILE	UNIT	MODEL No. (BAYS)
		EA	
SBd-330-SB (LOCATION 19)	R28.94	1	QS2406Y (6 BAYS)
TOTAL		1	

**REMOVE CONCRETE BARRIER**

COUNTY/ ROUTE/ DIRECTION	POSTMILE	UNIT	NOTE
		LF	
SBd-330-SB	R28.94	25	LOCATION 19 - ON SOUTHBOUND RTE 330 CONNECTOR TO WESTBOUND ROUTE 210 (30) (LEFT SIDE). REMOVE 25 FEET OF CONCRETE BARRIER FROM THE END CONNECTION OF EXISTING MBGR.

**VEGETATION CONTROL  
(MINOR CONCRETE)**

COUNTY/ ROUTE	MINOR CONCRETE (4.5' WIDE BY 3" THICK)	MINOR CONCRETE (2.75' WIDE BY 3" THICK)
	SQ YD	SQ YD
SBd-330	87.5	3839.85
SBd-259	116.5	3215.05
SUB-TOTALS	204.00	7054.90
TOTAL	7258.90	

**ROADWAY QUANTITIES**

COUNTY/ ROUTE	IMPORTED BORROW	REMOVE ASPHALT CONCRETE SURFACING	MINOR HOT MIX ASPHALT	MINOR HOT MIX ASPHALT FOR DIKES
	CY	SQFT	TON	TON
SBd-330				81.2
SBd-259				125.2
SBd-66	28.0	694.0	7.7	
TOTAL	28.0	694.0	214.1	

**MINOR CONCRETE**

COUNTY/ ROUTE	REMOVE CONCRETE CURB, GUTTER AND SIDEWALK (N)	REMOVE CONCRETE CURB, GUTTER AND SIDEWALK	MINOR CONCRETE (MISCELLANEOUS CONSTRUCTION) (N)	MINOR CONCRETE (MISCELLANEOUS CONSTRUCTION)	REMOVE SLOPE PAYING (CONCRETE)
	LF	CY	LF	CY	CY
SBd-259	495.0	29.22			
SBd-66	74.0	1.5	74.0	15.0	2.6
TOTAL		30.72		15.0	2.6

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

**SUMMARY OF QUANTITIES**

**Q-4**

EXISTING UTILITY FACILITIES HAVE NOT BEEN POSITIVELY IDENTIFIED

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	SBd	66,259, 330	Var	22	80

8-19-09  
 REGISTERED CIVIL ENGINEER DATE

8-24-09  
 PLANS APPROVAL DATE

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REGISTERED PROFESSIONAL ENGINEER  
 RAFTAR SHARIATZADEH  
 No. C72941  
 Exp. 12-31-10  
 CIVIL  
 STATE OF CALIFORNIA

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
08	SBd	66,259, 330	Var	23	80

*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

June 6, 2008  
PLANS APPROVAL DATE

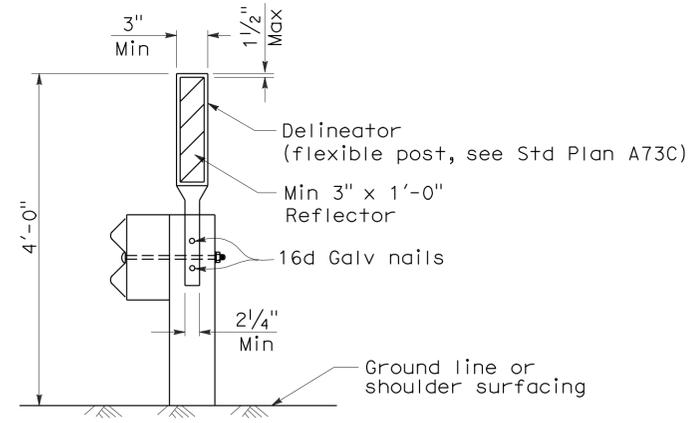
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REGISTERED PROFESSIONAL ENGINEER  
Randell D. Hiatt  
No. C50200  
Exp. 6-30-09  
CIVIL  
STATE OF CALIFORNIA

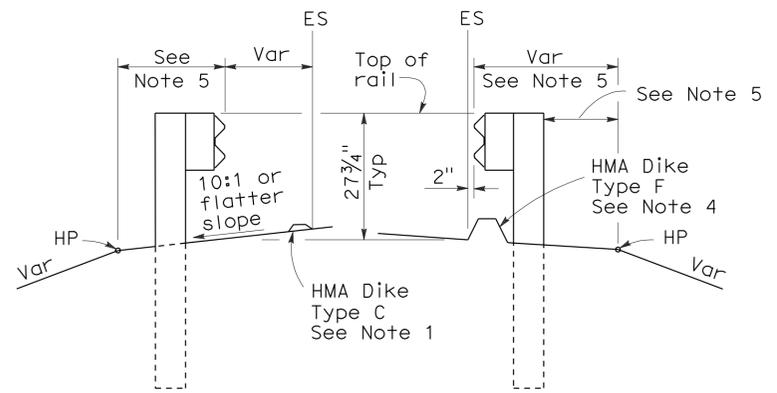
To accompany plans dated 8-24-09

**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
08	SBd	66,259, 330	Var	24	80

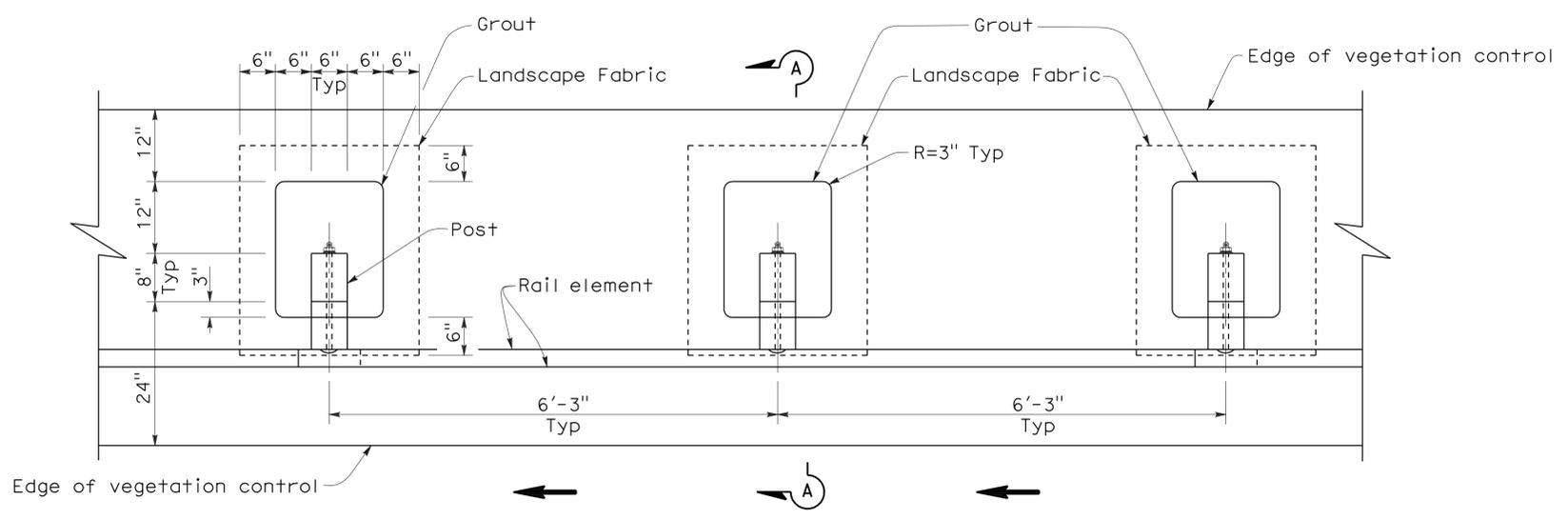
Randell D. Hiatt  
REGISTERED CIVIL ENGINEER

October 20, 2006  
PLANS APPROVAL DATE

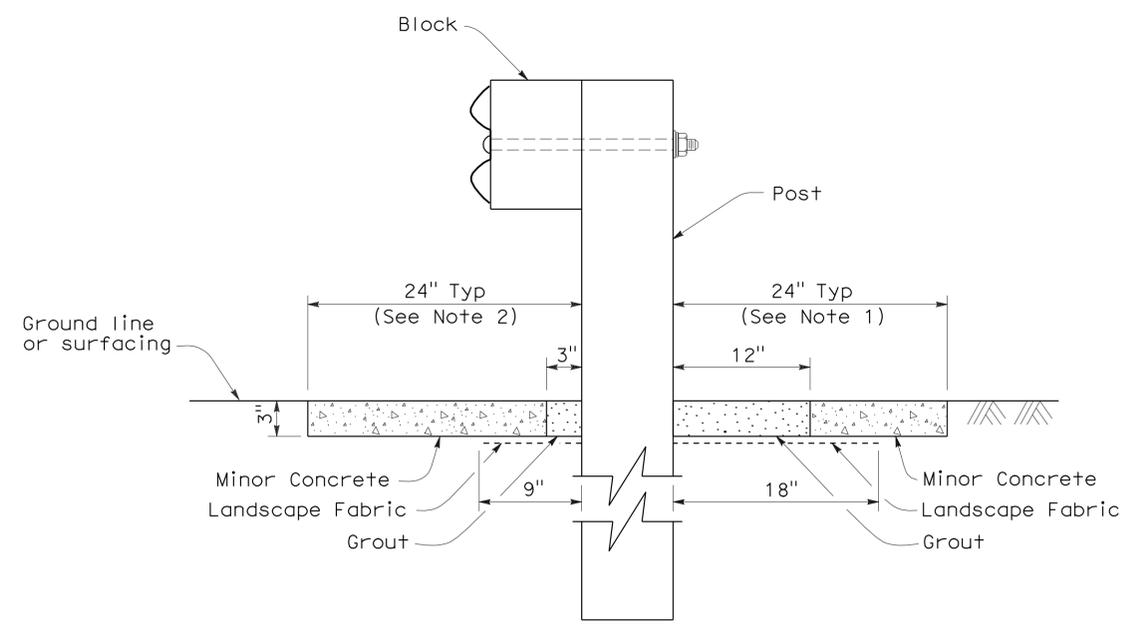
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REGISTERED PROFESSIONAL ENGINEER  
Randell D. Hiatt  
No. C50200  
Exp. 6-30-07  
CIVIL  
STATE OF CALIFORNIA

To accompany plans dated 8-24-09



PLAN



SECTION A-A

NOTES:

1. 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.
2. 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.
3. Direction of adjacent traffic indicated by ← .

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**METAL BEAM GUARD RAILING  
TYPICAL VEGETATION CONTROL  
STANDARD RAILING SECTION**

NO SCALE

NSP A77C5 DATED OCTOBER 20, 2006 SUPPLEMENTS THE STANDARD  
PLANS BOOK DATED MAY 2006.

**NEW STANDARD PLAN NSP A77C5**

2006 NEW STANDARD PLAN NSP A77C5

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
08	SBd	66,259, 330	Var	25	80

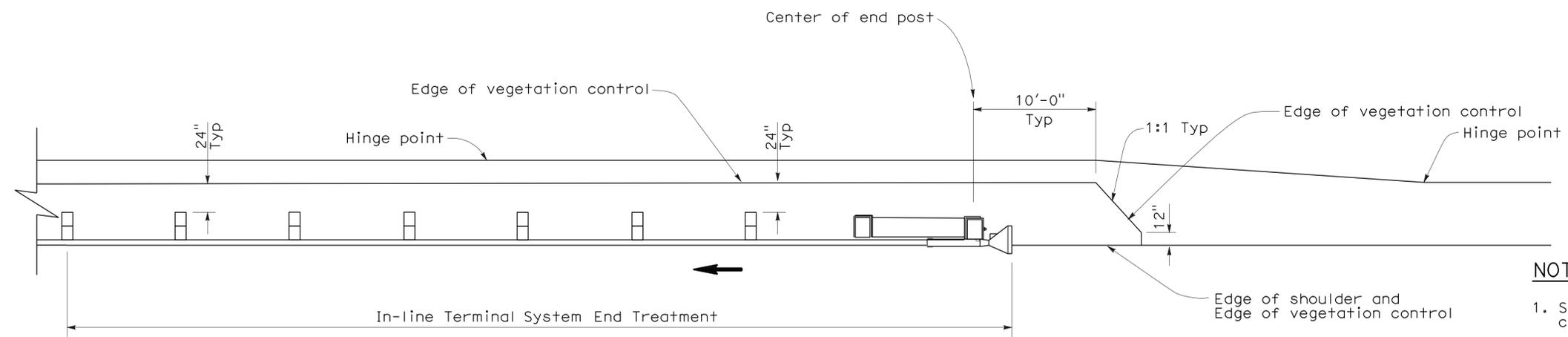
Randell D. Hiatt  
REGISTERED CIVIL ENGINEER

October 20, 2006  
PLANS APPROVAL DATE

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

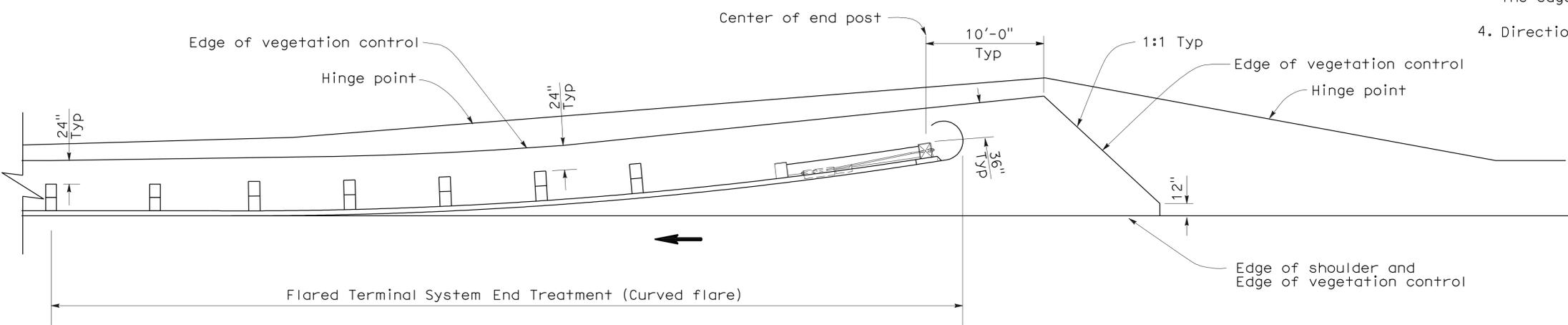
To accompany plans dated 8-24-09



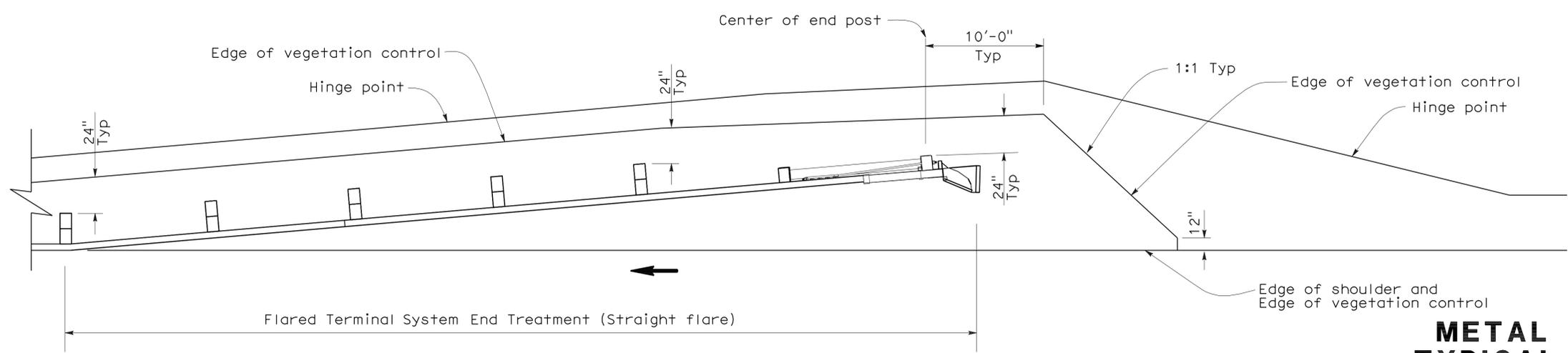
PLAN

**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. Direction of adjacent traffic indicated by ←.



PLAN



PLAN

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**METAL BEAM GUARD RAILING  
TYPICAL VEGETATION CONTROL  
FOR TERMINAL SYSTEM END TREATMENTS**

NO SCALE  
NSP A77C6 DATED OCTOBER 20, 2006 SUPPLEMENTS THE STANDARD  
PLANS BOOK DATED MAY 2006.

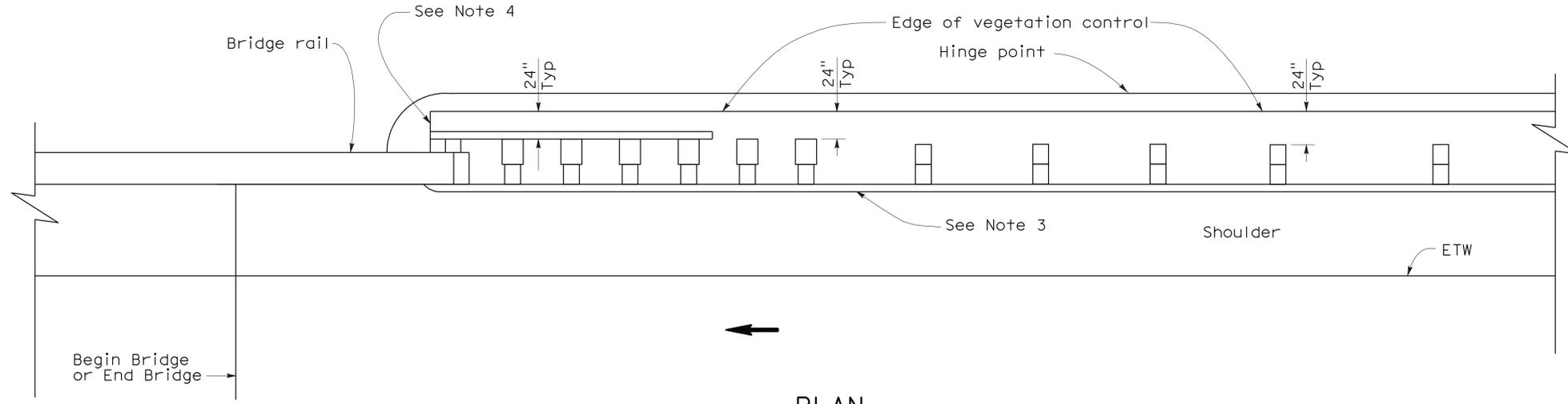
2006 NEW STANDARD PLAN NSP A77C6

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
08	SBd	66,259, 330	Var	26	80

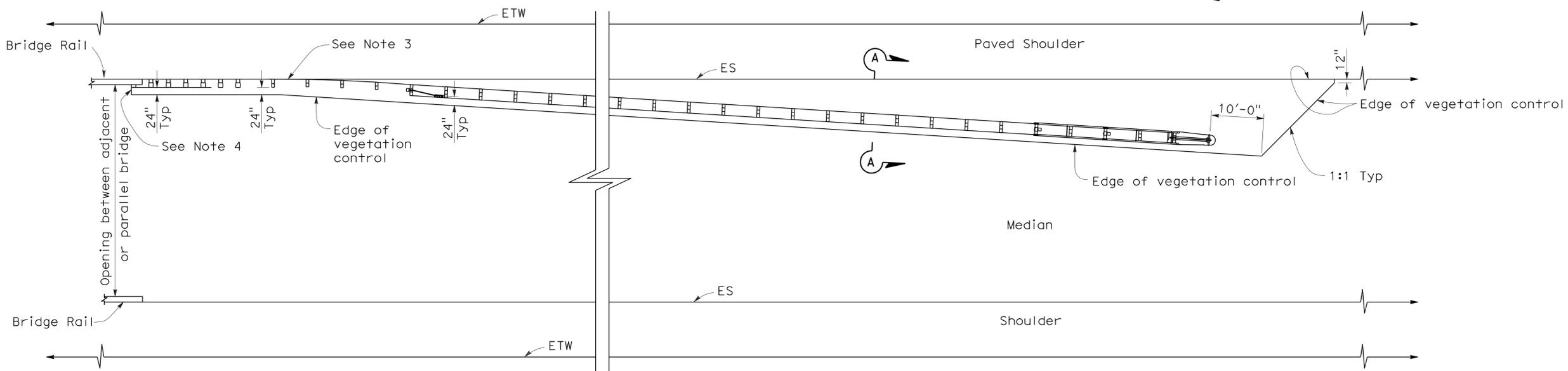
*Randell D. Hiatt*  
 REGISTERED CIVIL ENGINEER  
 October 20, 2006  
 PLANS APPROVAL DATE  
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To accompany plans dated 8-24-09

2006 NEW STANDARD PLAN NSP A77C7



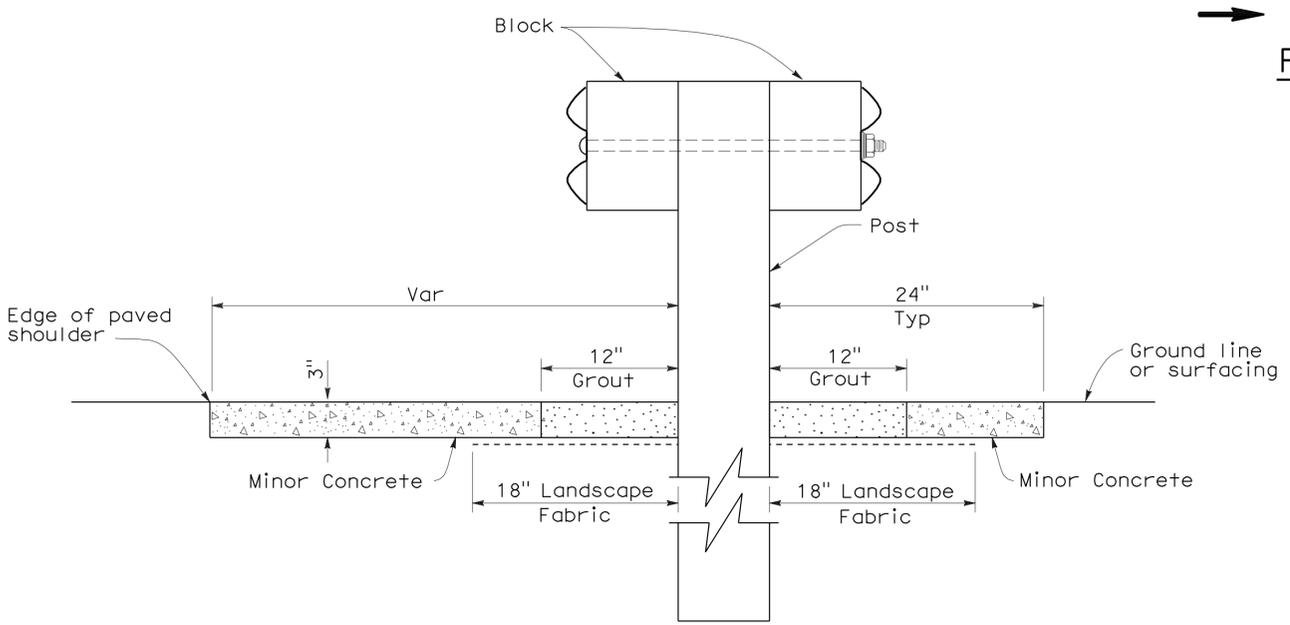
PLAN



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
08	Sbd	66,259, 330	Var	27	80

*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

October 20, 2006  
PLANS APPROVAL DATE

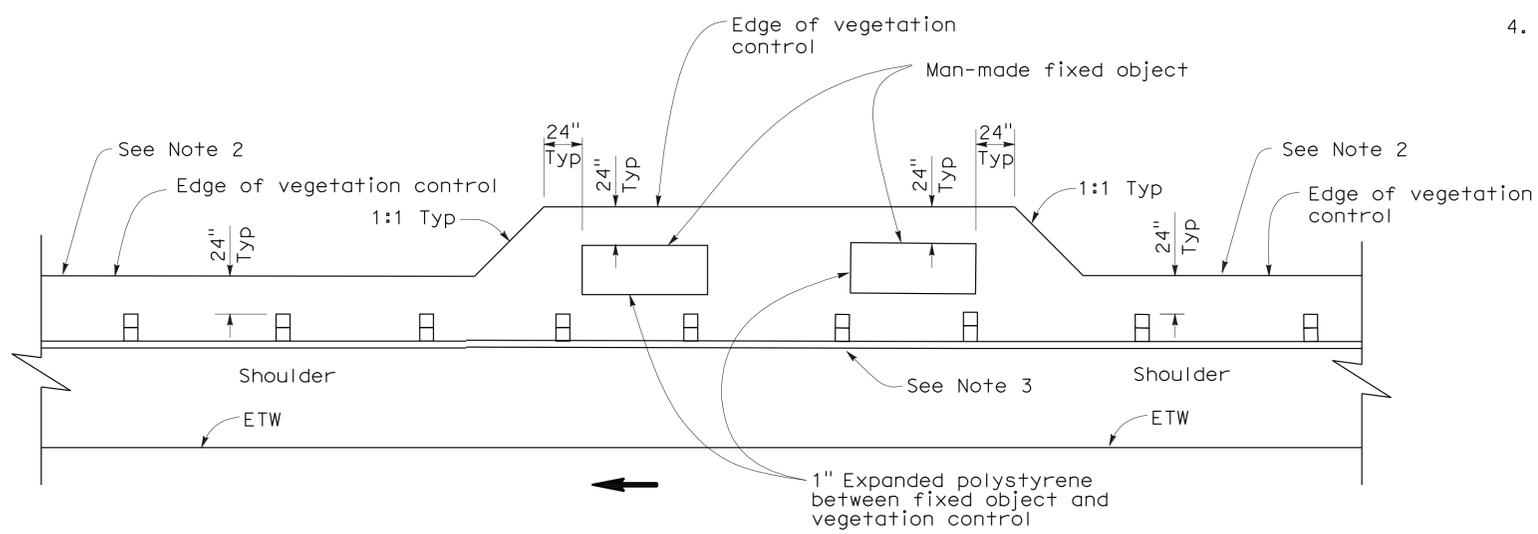
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REGISTERED PROFESSIONAL ENGINEER  
Randell D. Hiatt  
No. C50200  
Exp. 6-30-07  
CIVIL  
STATE OF CALIFORNIA

To accompany plans dated 8-24-09

**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. Direction of adjacent traffic indicated by ←.



**PLAN**  
FIXED OBJECT(S) ON SHOULDER

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**METAL BEAM GUARD RAILING  
TYPICAL VEGETATION CONTROL  
AT FIXED OBJECT**

NO SCALE  
NSP A77C8 DATED OCTOBER 20, 2006 SUPPLEMENTS THE STANDARD  
PLANS BOOK DATED MAY 2006.

2006 NEW STANDARD PLAN NSP A77C8

**NOTES:**

1. See New Standard Plan NSP A77C5 for additional vegetation control details.
2. 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.
3. Direction of adjacent traffic indicated by ← .

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
08	Sbd	66,259, 330	Var	28	80

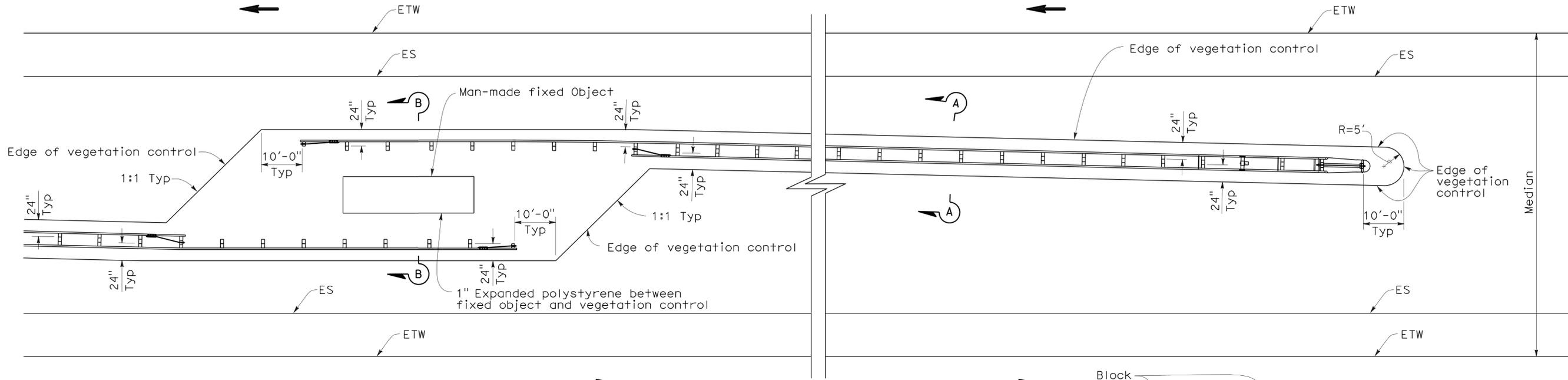
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REGISTERED CIVIL ENGINEER

October 20, 2006  
PLANS APPROVAL DATE

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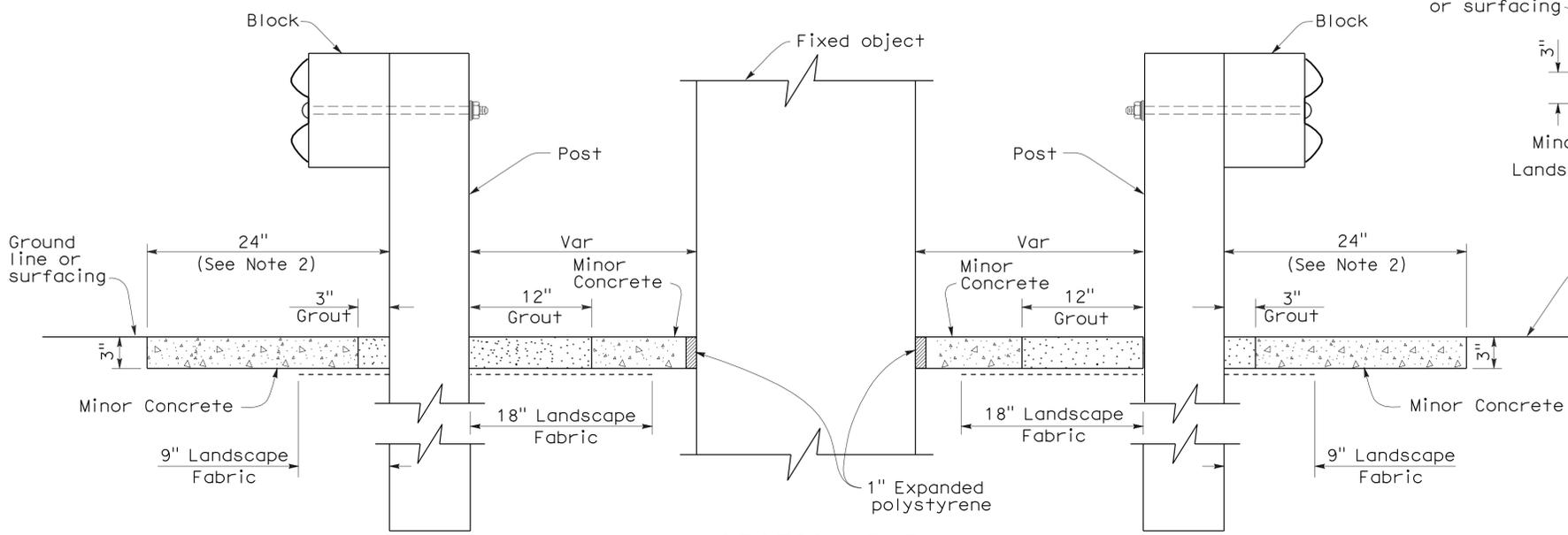
To accompany plans dated 8-24-09

2006 NEW STANDARD PLAN NSP A77C9

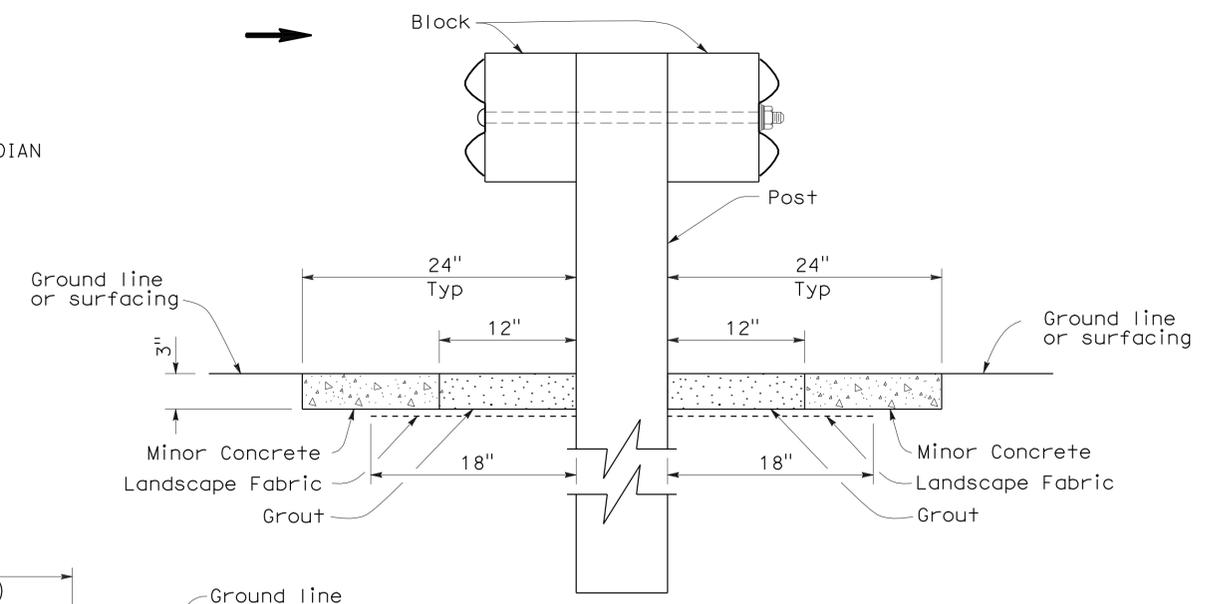


**PLAN**

FIXED OBJECT(S) IN MEDIAN



**SECTION B-B**



**SECTION A-A**

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**METAL BEAM GUARD RAILING  
TYPICAL VEGETATION CONTROL  
AT FIXED OBJECT**

NO SCALE  
NSP A77C9 DATED OCTOBER 20, 2006 SUPPLEMENTS THE STANDARD  
PLANS BOOK DATED MAY 2006.

**NEW STANDARD PLAN NSP A77C9**

**NOTES:**

1. See New Standard Plan NSP A77C5 for additional vegetation control details.
2. 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.
3. Direction of adjacent traffic indicated by ←.

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
08	SBd	66,259, 330	Var	29	80

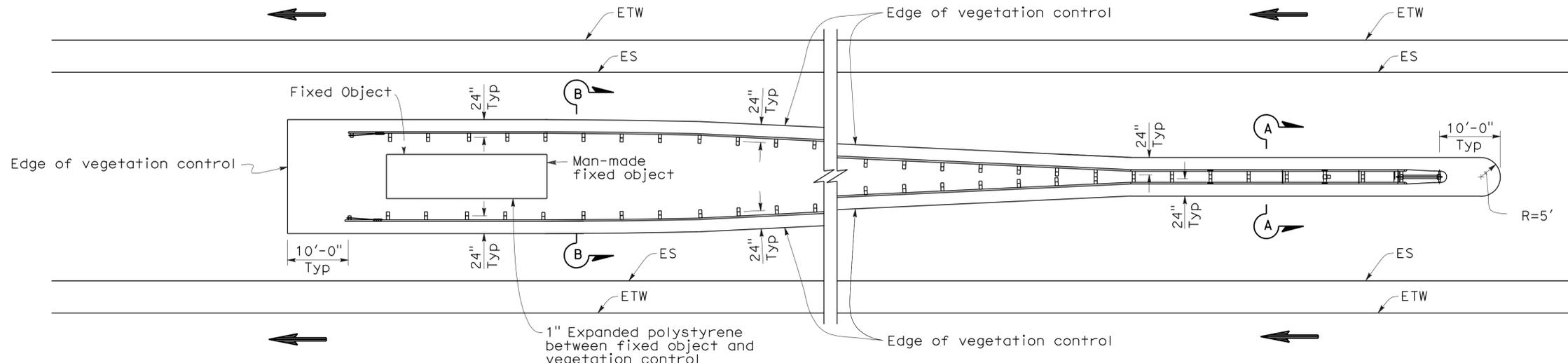
*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

October 20, 2006  
PLANS APPROVAL DATE

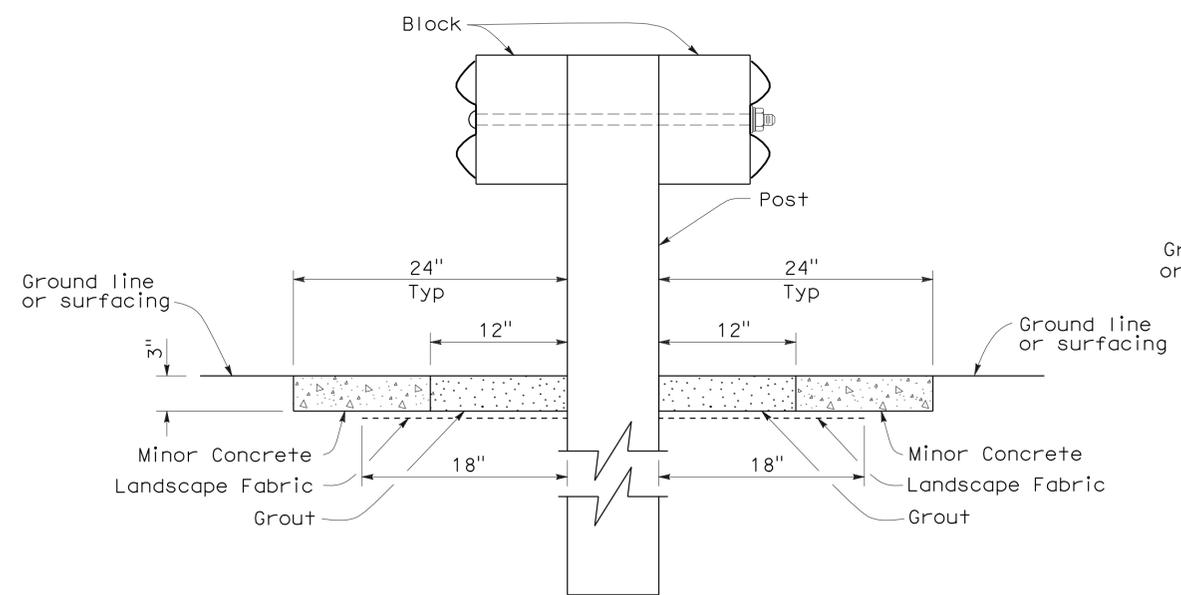
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Exp. 6-30-07  
CIVIL  
STATE OF CALIFORNIA

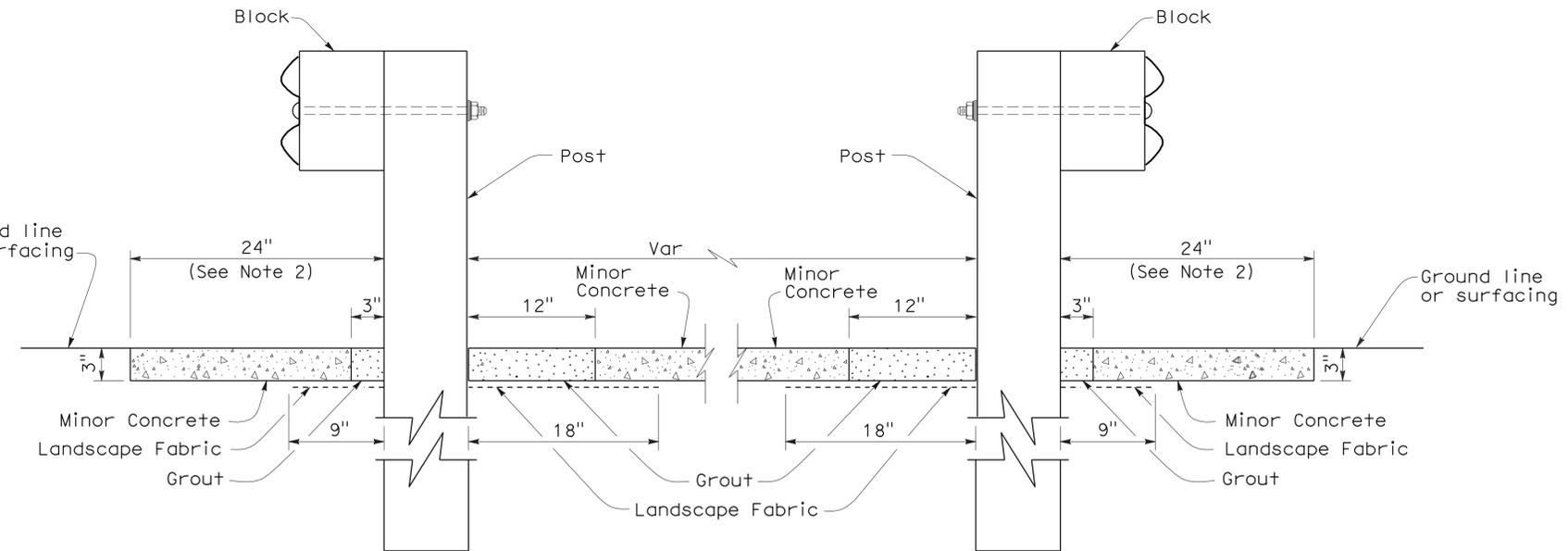
To accompany plans dated 8-24-09



**PLAN**  
FIXED OBJECT(S) BETWEEN SEPARATE ROADBEDS  
(ONE-WAY TRAFFIC)



**SECTION A-A**



**SECTION B-B**

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**METAL BEAM GUARD RAILING  
TYPICAL VEGETATION CONTROL  
AT FIXED OBJECT**

NO SCALE

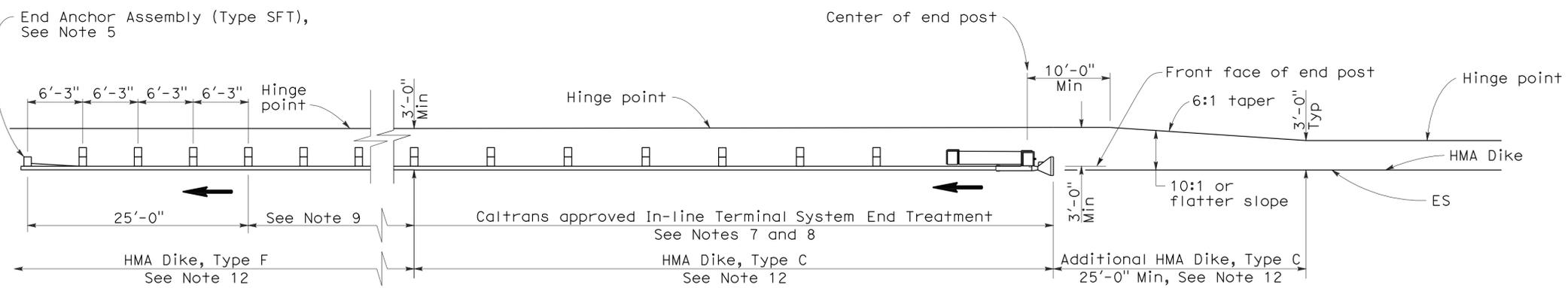
NSP A77C10 DATED OCTOBER 20, 2006 SUPPLEMENTS THE STANDARD  
PLANS BOOK DATED MAY 2006.

2006 NEW STANDARD PLAN NSP A77C10

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
08	SBd	66,259, 330	Var	30	80

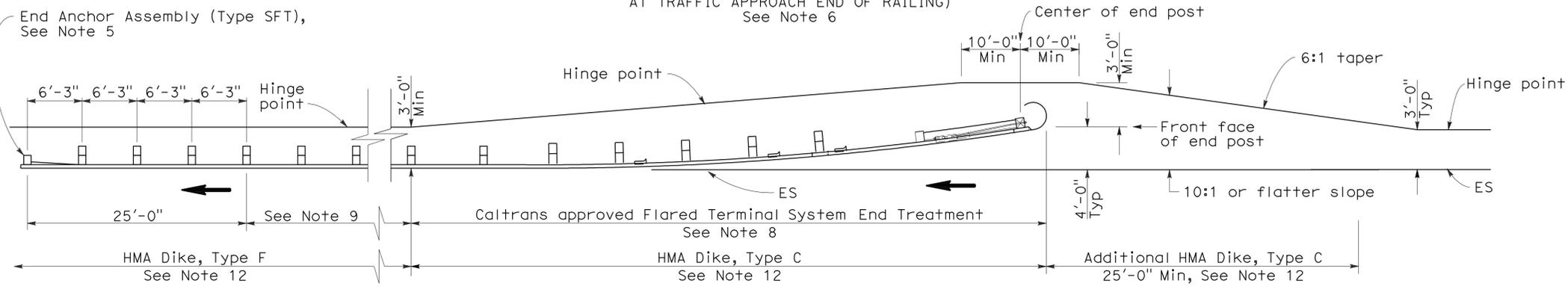
RANDALL D. HIATT  
 REGISTERED CIVIL ENGINEER  
 June 6, 2008  
 PLANS APPROVAL DATE  
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2006 REVISED STANDARD PLAN RSP A77E1



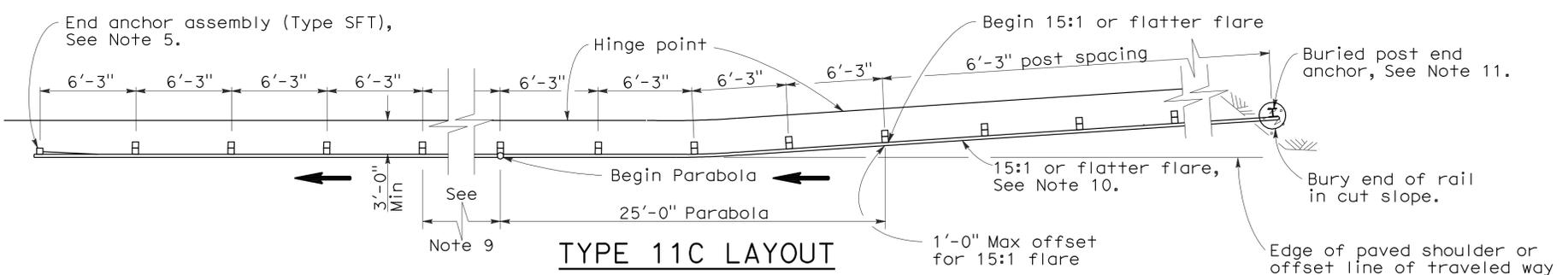
**TYPE 11A LAYOUT**

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



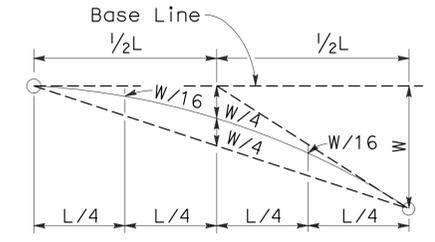
**TYPE 11B LAYOUT**

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

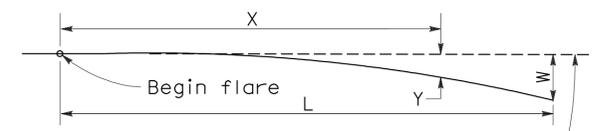


**TYPE 11C LAYOUT**

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



**TYPICAL PARABOLIC LAYOUT**

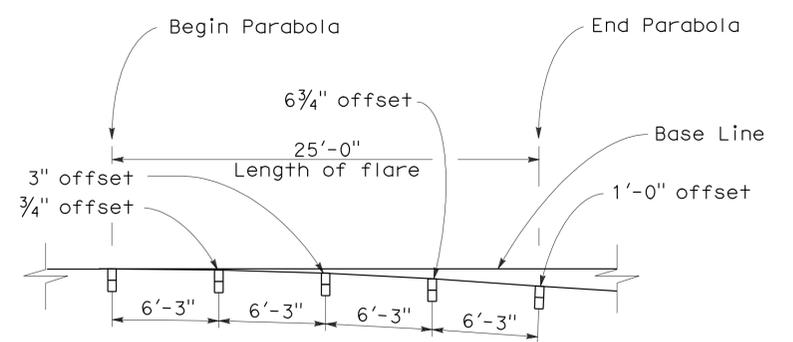


Base Line (Edge of paved shoulder or offset line of edge of traveled way)

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

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
08	SBd	66,259, 330	Var	31	80

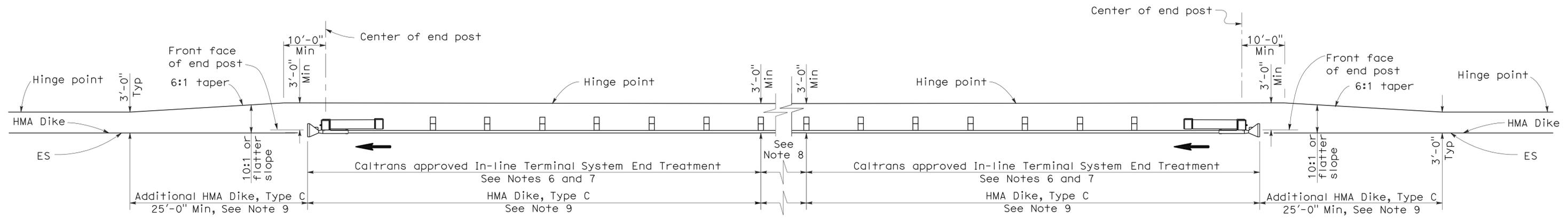
*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

June 6, 2008  
PLANS APPROVAL DATE

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

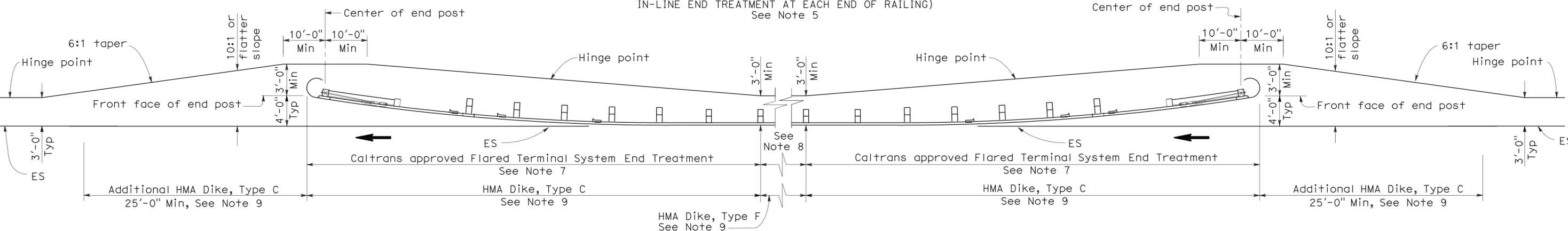
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To accompany plans dated 8-24-09



**TYPE 11D LAYOUT**

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



**TYPE 11E LAYOUT**

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

**NOTES:**

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

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

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

2006 REVISED STANDARD PLAN RSP A77E2

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
08	SBd	66,259, 330	Var	32	80

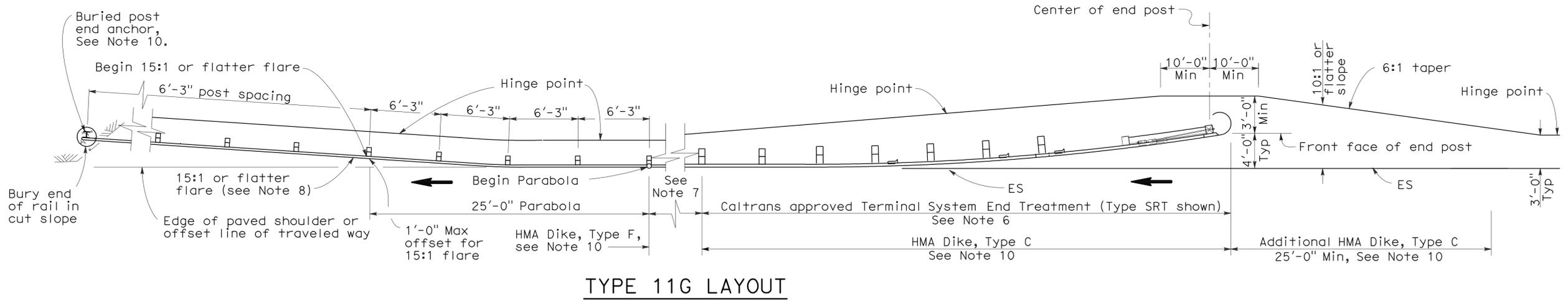
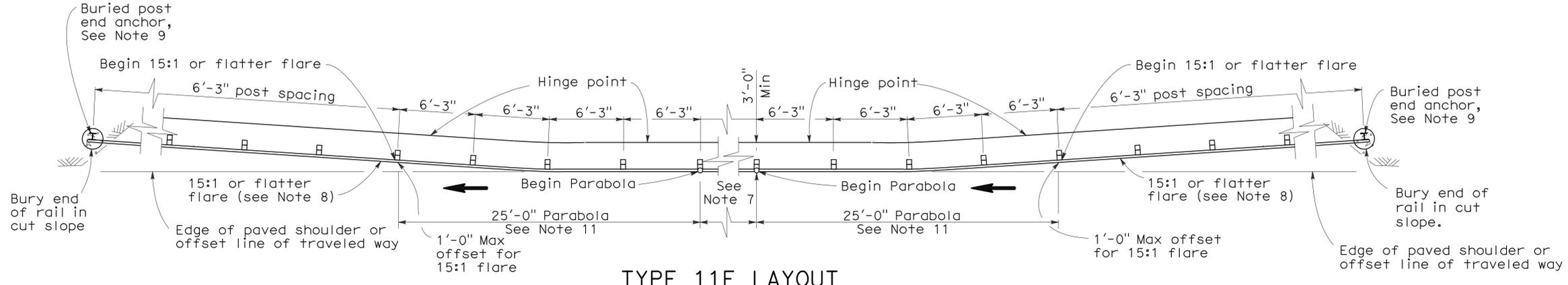
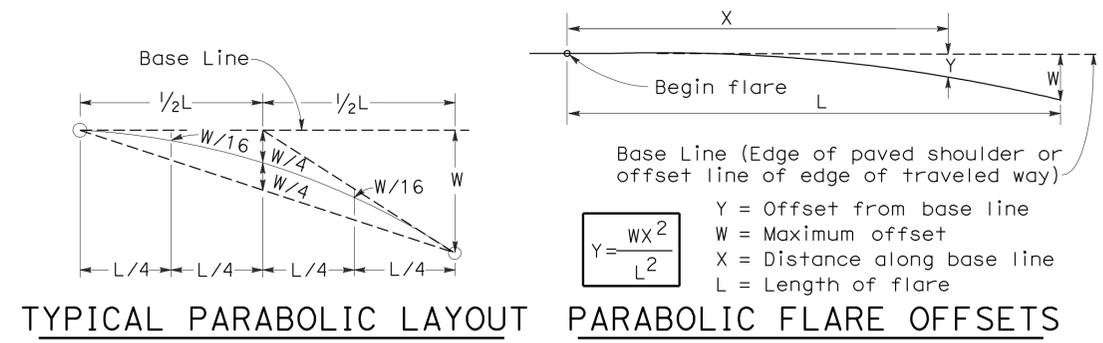
*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

June 6, 2008  
PLANS APPROVAL DATE

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

To accompany plans dated 8-24-09



**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
08	SBd	66,259, 330	Var	33	80

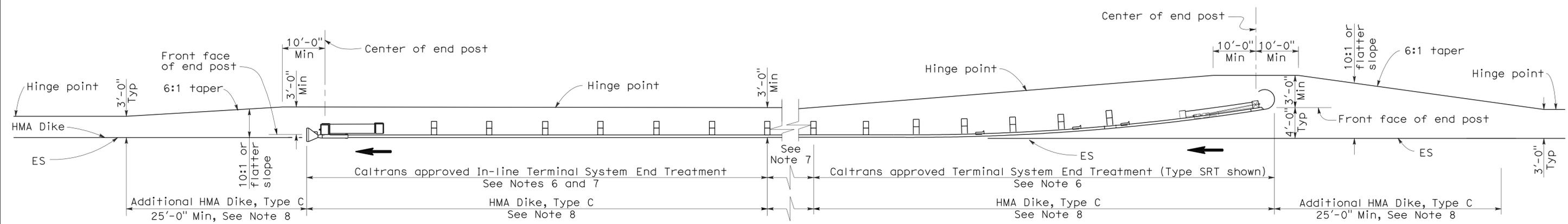
*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

June 6, 2008  
PLANS APPROVAL DATE

*Randell D. Hiatt*  
REGISTERED PROFESSIONAL ENGINEER  
No. C50200  
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To accompany plans dated 8-24-09



**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.

2006 REVISED STANDARD PLAN RSP A77E4

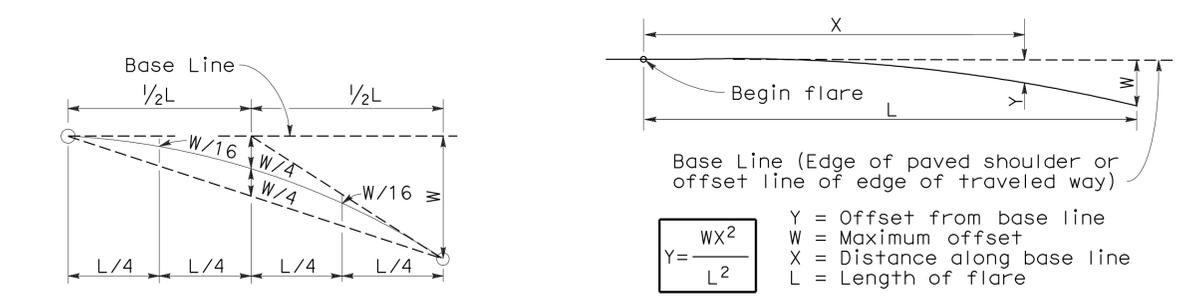
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
08	SBd	66,259, 330	Var	34	80

Randell D. Hiatt  
REGISTERED CIVIL ENGINEER

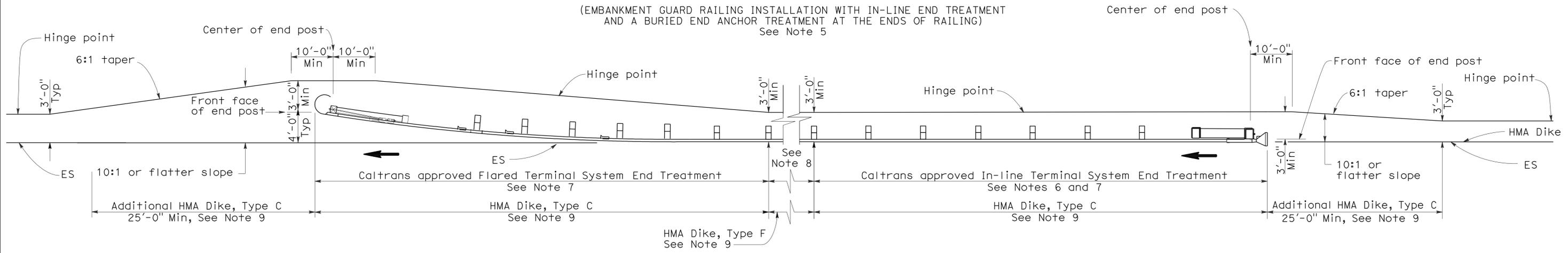
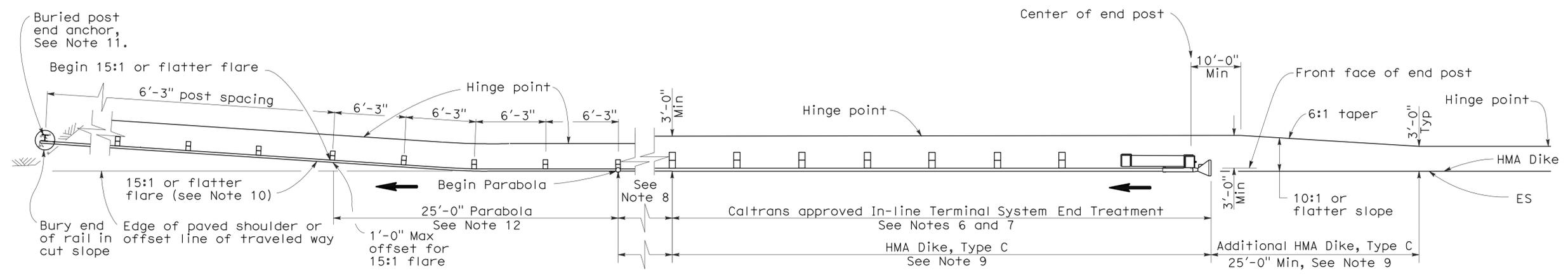
June 6, 2008  
PLANS APPROVAL DATE

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



To accompany plans dated 8-24-09



**NOTES:**

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

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

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

NO SCALE

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

**REVISED STANDARD PLAN RSP A77E5**

2006 REVISED STANDARD PLAN RSP A77E5

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
08	Sbd	66,259, 330	Var	35	80

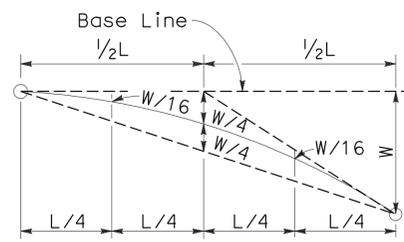
*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

June 6, 2008  
PLANS APPROVAL DATE

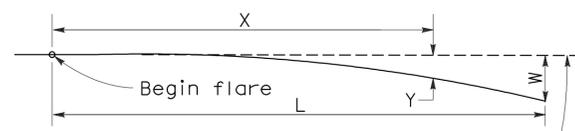
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No. C50200  
Exp. 6-30-09  
CIVIL  
STATE OF CALIFORNIA

To accompany plans dated 8-24-09



**TYPICAL PARABOLIC LAYOUT**

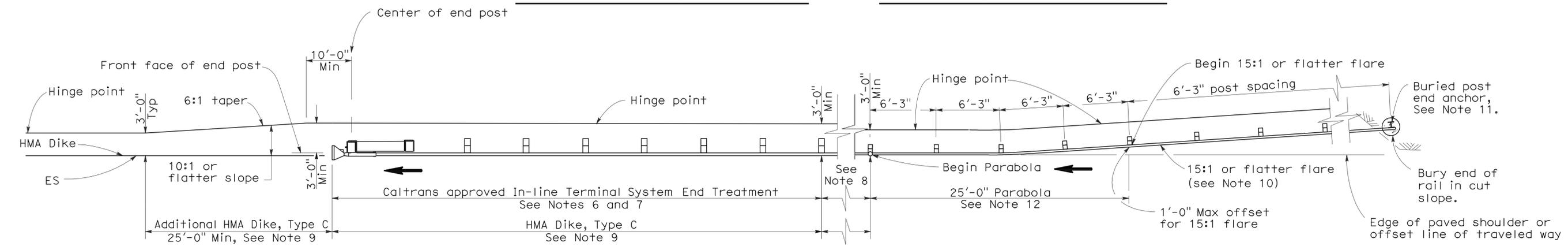


Base Line (Edge of paved shoulder or offset line of edge of traveled way)

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

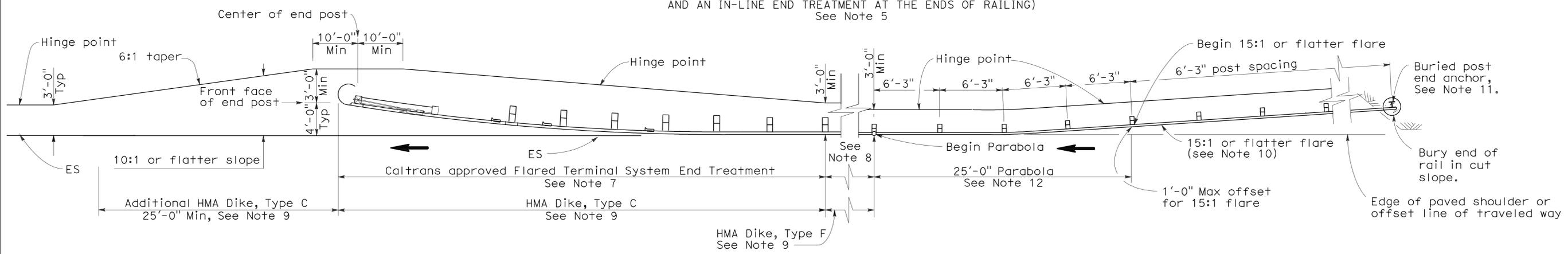
Y = Offset from base line  
W = Maximum offset  
X = Distance along base line  
L = Length of flare

**PARABOLIC FLARE OFFSETS**



**TYPE 11K LAYOUT**

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



**TYPE 11L LAYOUT**

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

**NOTES:**

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

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**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
08	SBd	66,259, 330	Var	36	80

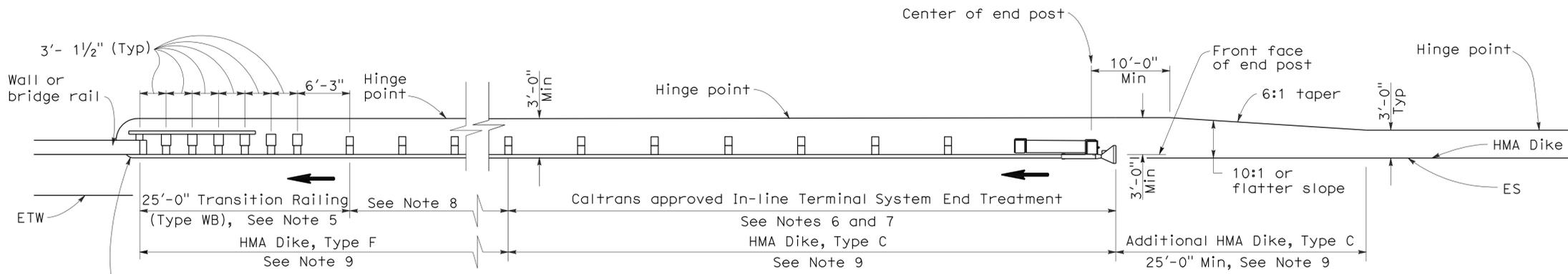
*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

June 6, 2008  
PLANS APPROVAL DATE

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

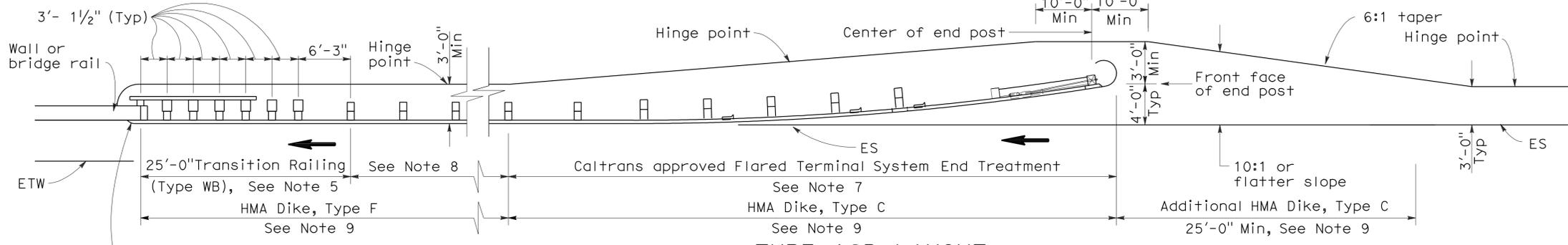
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To accompany plans dated 8-24-09



**TYPE 12A LAYOUT**

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



**TYPE 12B LAYOUT**

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

**NOTES:**

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

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

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

STATE OF CALIFORNIA  
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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

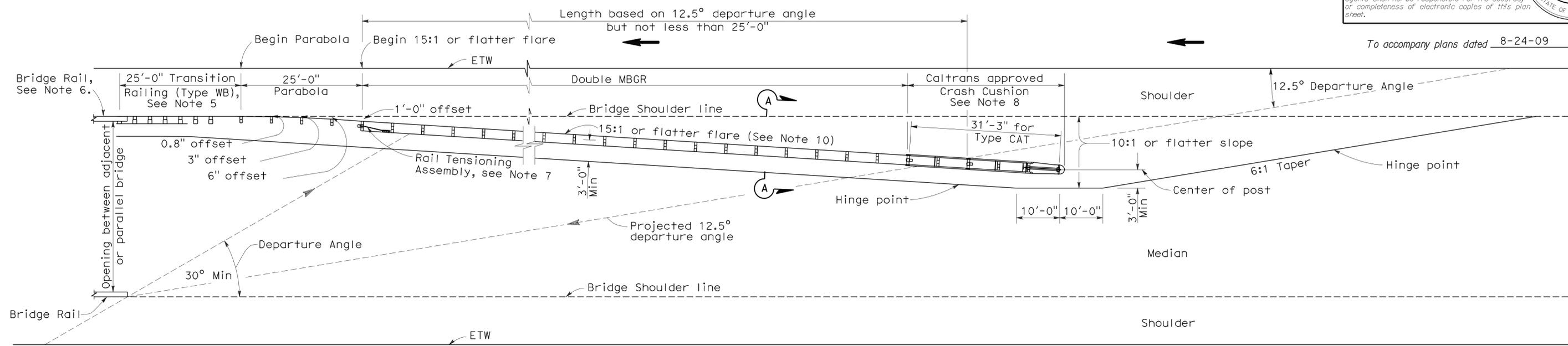
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
08	Sbd	66,259, 330	Var	37	80

**Randell D. Hiatt**  
REGISTERED CIVIL ENGINEER

June 6, 2008  
PLANS APPROVAL DATE

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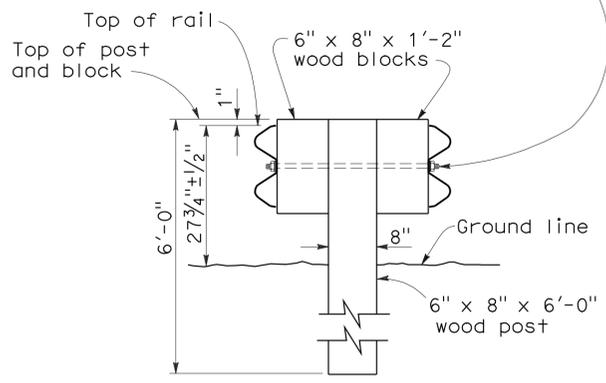


To accompany plans dated 8-24-09

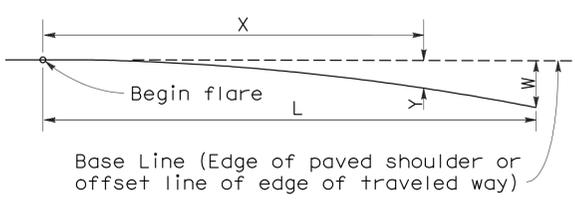
**TYPE 12E LAYOUT**

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.



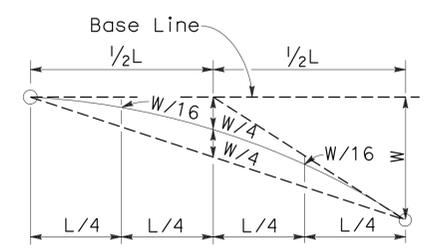
**SECTION A-A**  
**TYPICAL DOUBLE METAL BEAM GUARD RAILING**



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

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  
DEPARTMENT OF TRANSPORTATION

**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
08	Sbd	66,259, 330	Var	38	80

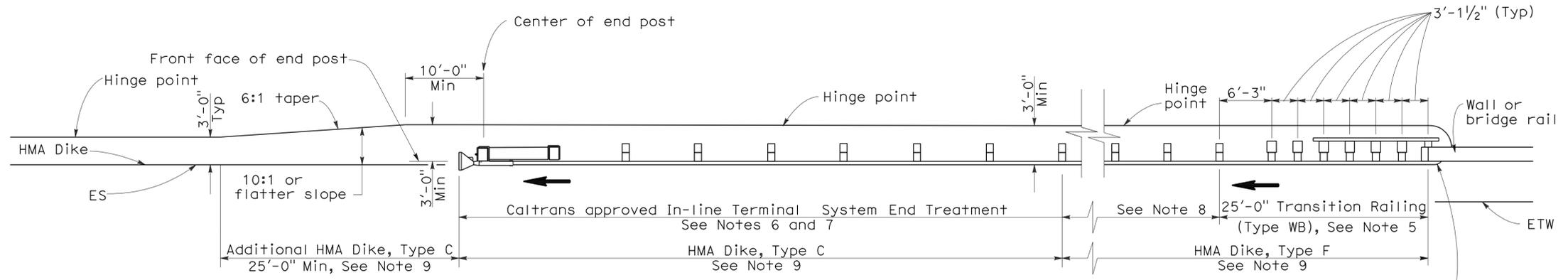
*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

June 6, 2008  
PLANS APPROVAL DATE

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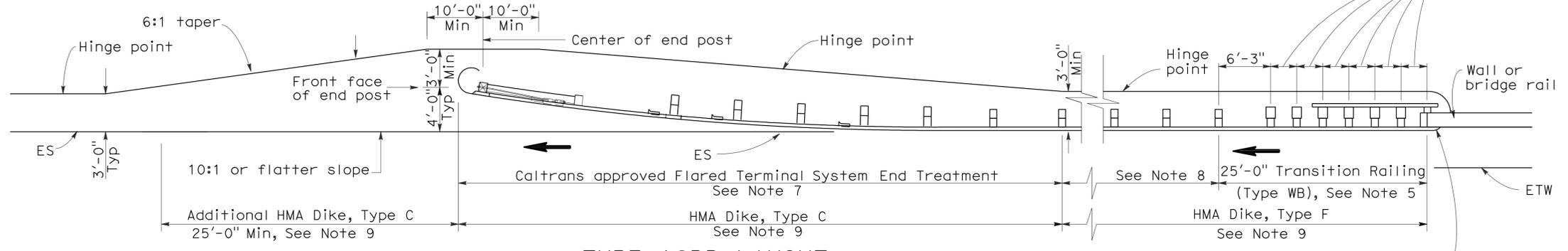
REGISTERED PROFESSIONAL ENGINEER  
Randell D. Hiatt  
No. C50200  
Exp. 6-30-09  
CIVIL  
STATE OF CALIFORNIA

To accompany plans dated 8-24-09



**TYPE 12AA LAYOUT**

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



**TYPE 12BB LAYOUT**

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

**NOTES:**

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

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

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

NO SCALE

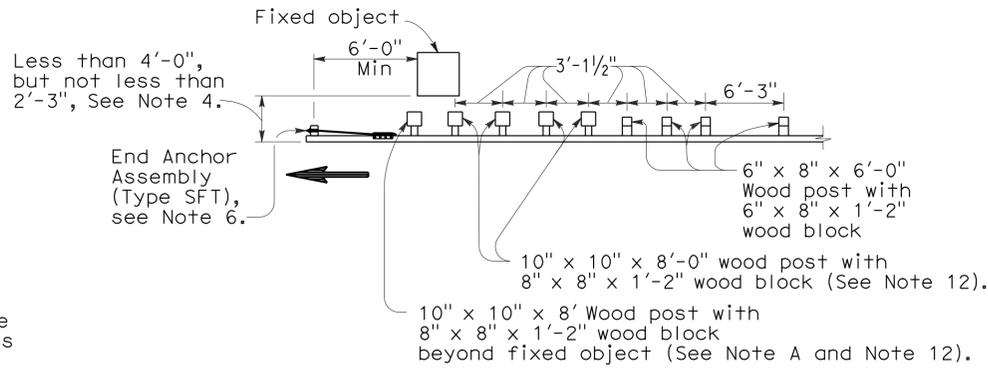
RSP A77F4 DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN A77F4  
DATED MAY 1, 2006 - PAGE 57 OF THE STANDARD PLANS BOOK DATED MAY 2006.

**REVISED STANDARD PLAN RSP A77F4**

2006 REVISED STANDARD PLAN RSP A77F4

**NOTES:**

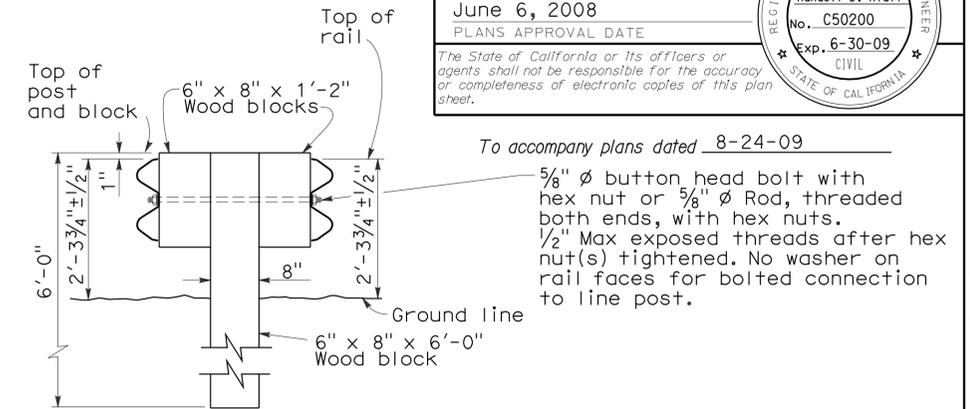
- Line post, blocks and hardware to be used are shown on Standard Plans A77A1, A77A2, A77B1, A77C1 and A77C2.
- Guard railing post spacing to be 6'-3" center to center, except as otherwise noted.
- Except as noted, line posts are 6" x 8" x 6'-0" wood with 6" x 8" x 1'-2" wood blocks. W6 x 9 steel posts, 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".



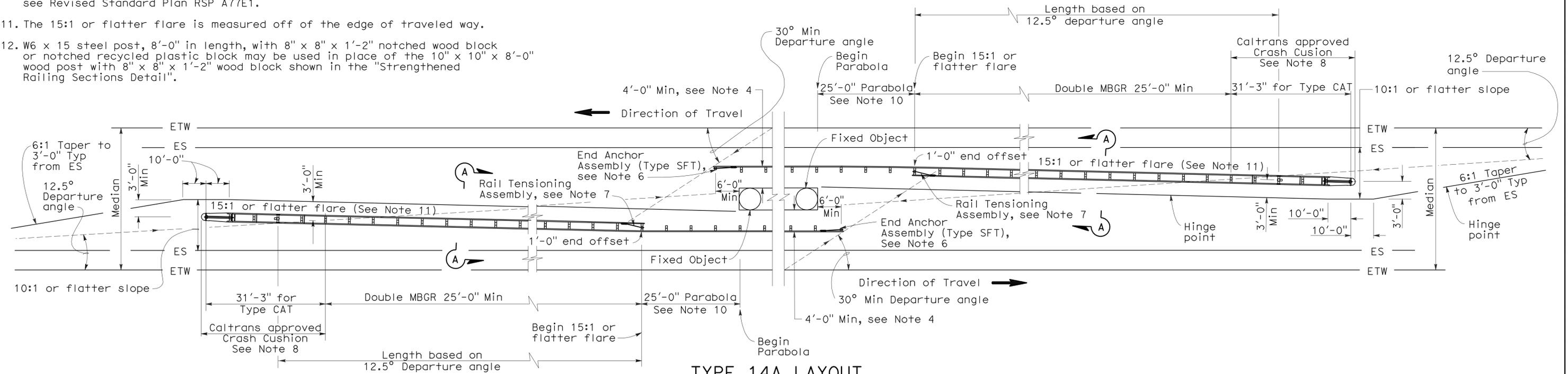
**NOTE A:** For a series of fixed objects (bridge columns, overhead sign supports, etc.) additional 10" x 10" x 8'-0" wood post with 8" x 8" x 1'-2" wood blocks at 3'-1/2" center to center spacing are to be used between fixed objects.

**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.

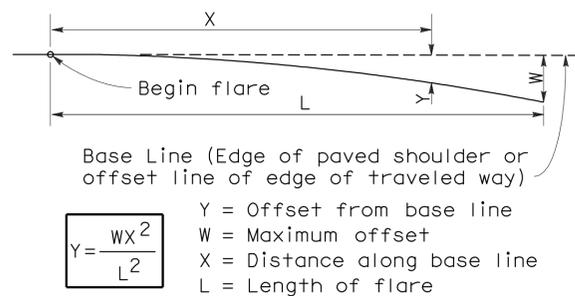


**SECTION A-A  
TYPICAL DOUBLE METAL BEAM GUARD RAILING**

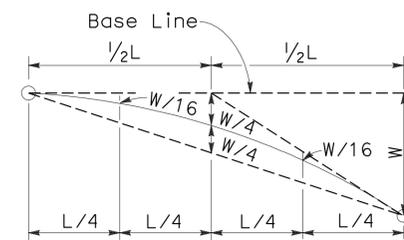


**TYPE 14A LAYOUT**

See Note 9



**PARABOLIC FLARE OFFSETS**



**TYPICAL PARABOLIC LAYOUT**

**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**

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
08	Sbd	66,259, 330	Var	39	80

*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 8-24-09

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".

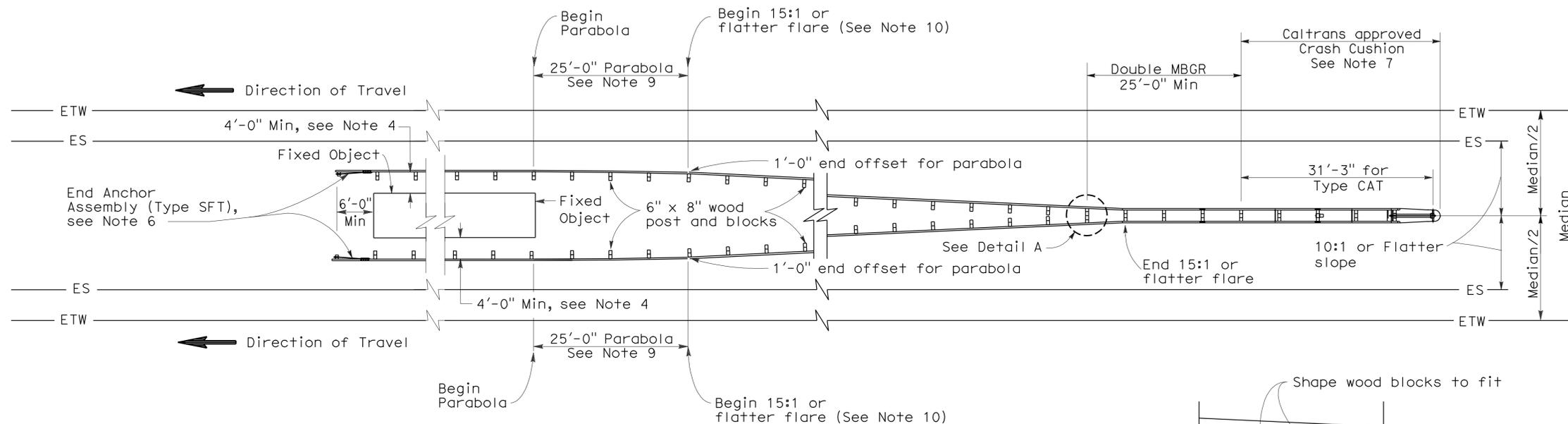
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
08	Sbd	66,259, 330	Var	40	80

*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

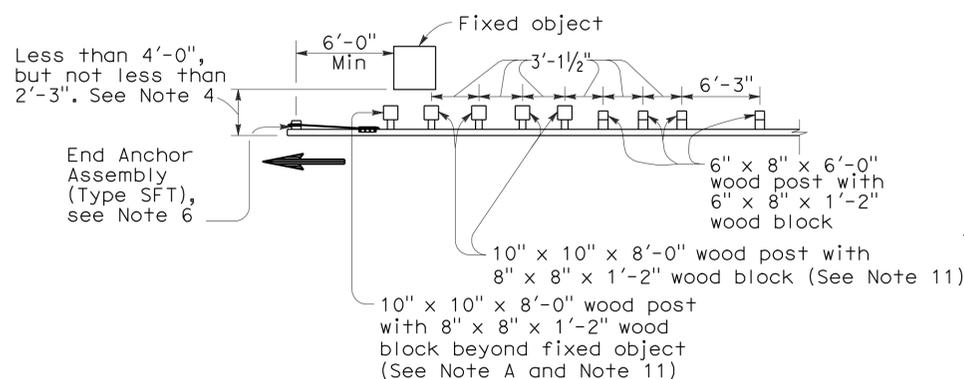
June 6, 2008  
PLANS APPROVAL DATE

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To accompany plans dated 8-24-09



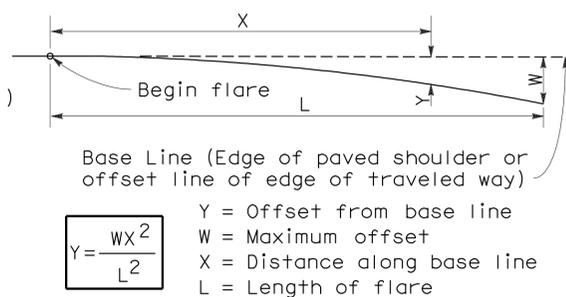
**TYPE 15A LAYOUT**  
See Note 9



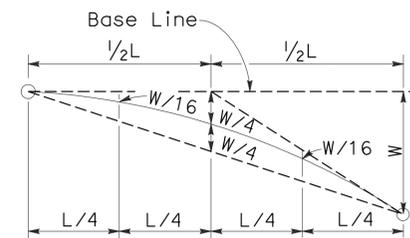
**NOTE A:** For a series of fixed objects (bridge columns, overhead sign supports, etc.) additional 10" x 10" x 8'-0" wood post with 8" x 8" x 1'-2" wood blocks at 3'-1/2" center to center spacing are to be used between fixed objects.

**STRENGTHENED RAILING SECTIONS FOR FIXED OBJECT**

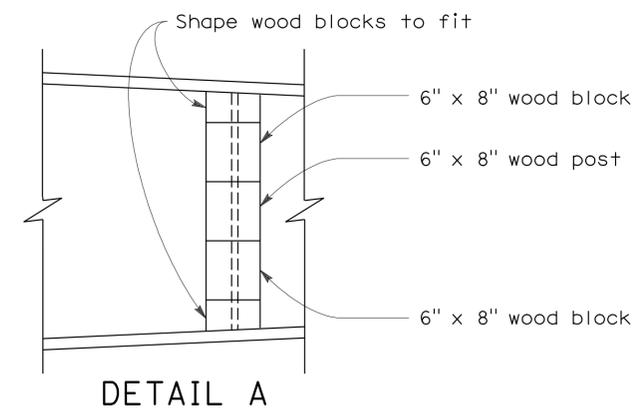
Use strengthened railing sections with Type 15A layout where minimum clearance between the face of the guard railing and the fixed object(s) is less than 4'-0", but not less than 2'-3". See Note 4.



**PARABOLIC FLARE OFFSETS**



**TYPICAL PARABOLIC LAYOUT**



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**

2006 REVISED STANDARD PLAN RSP A77G2

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
08	Sbd	66,259, 330	Var	41	80

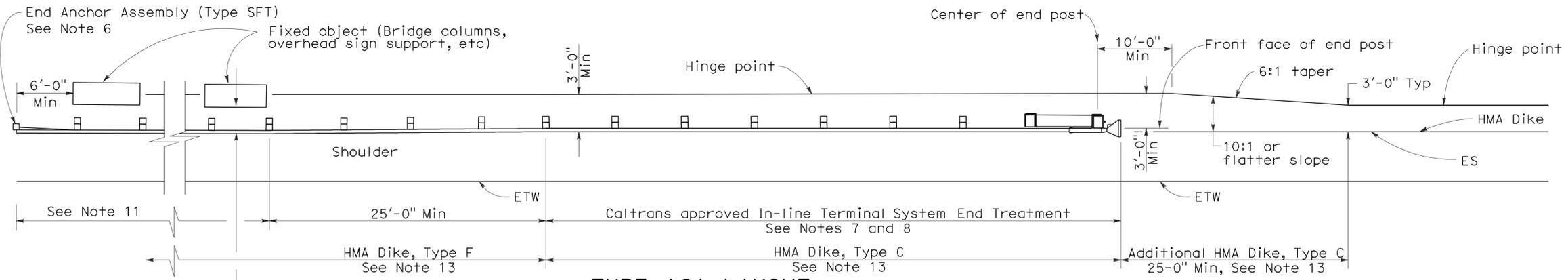
**Randell D. Hiatt**  
REGISTERED CIVIL ENGINEER

June 6, 2008  
PLANS APPROVAL DATE

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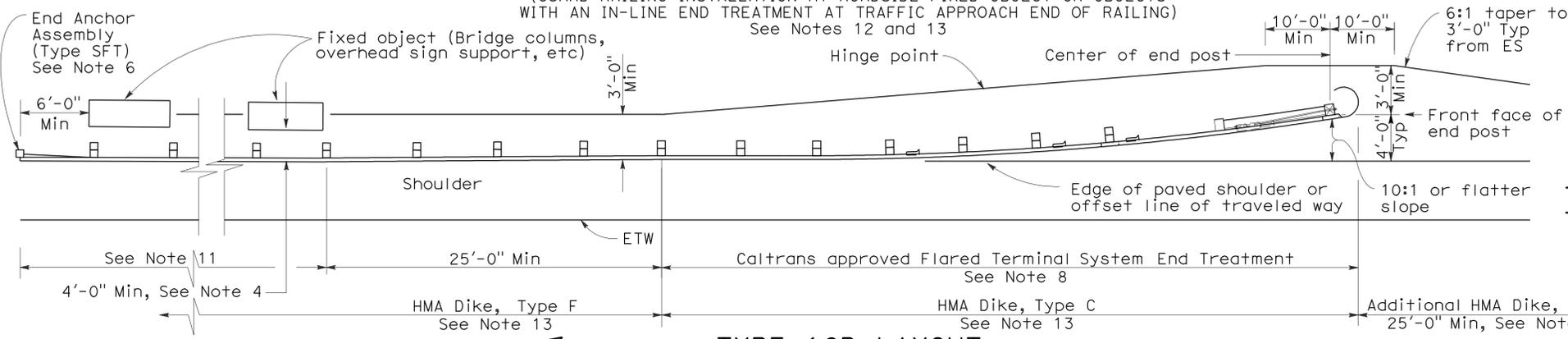
To accompany plans dated 8-24-09

2006 REVISED STANDARD PLAN RSP A77G3



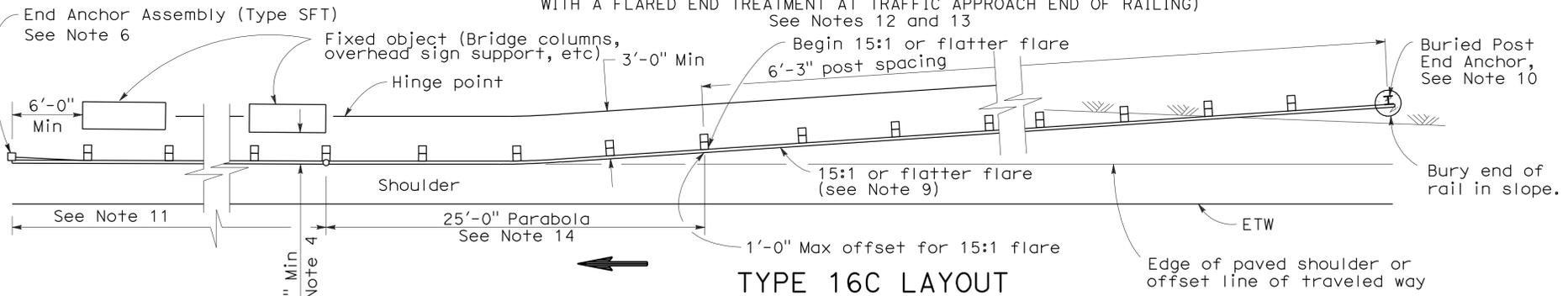
**TYPE 16A LAYOUT**

(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



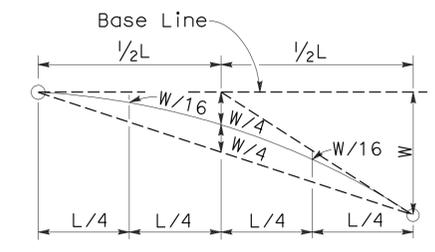
**TYPE 16B LAYOUT**

(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

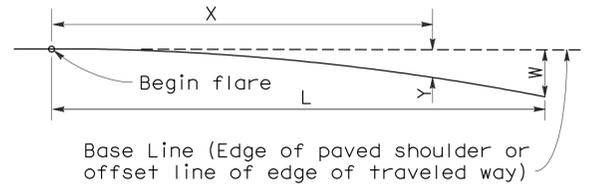


**TYPE 16C LAYOUT**

(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**

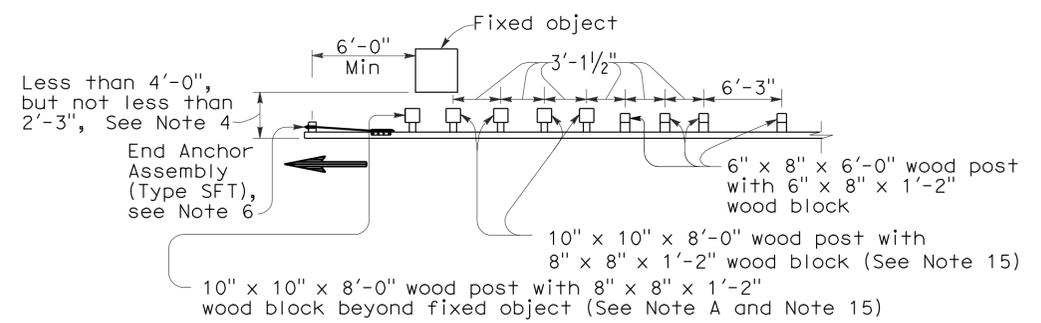


Base Line (Edge of paved shoulder or offset line of edge of traveled way)  
Y = Offset from base line  
W = Maximum offset  
X = Distance along base line  
L = Length of flare

**PARABOLIC FLARE OFFSETS**

**NOTES:**

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



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

**STRENGTHENED RAILING SECTIONS FOR FIXED OBJECT**

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

STATE OF CALIFORNIA  
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**

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
08	Sbd	66,259, 330	Var	42	80

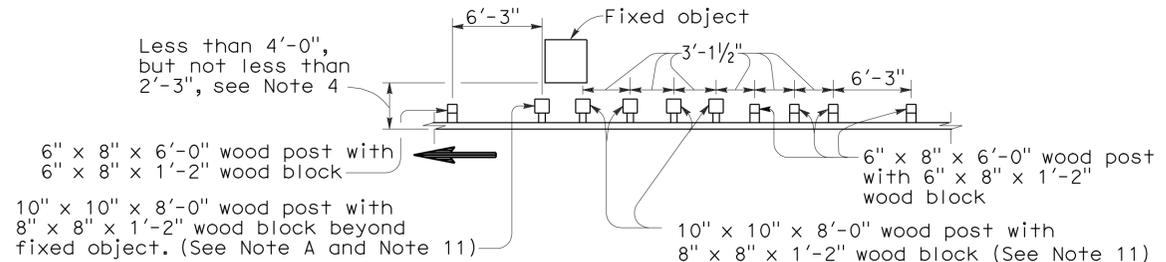
*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

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

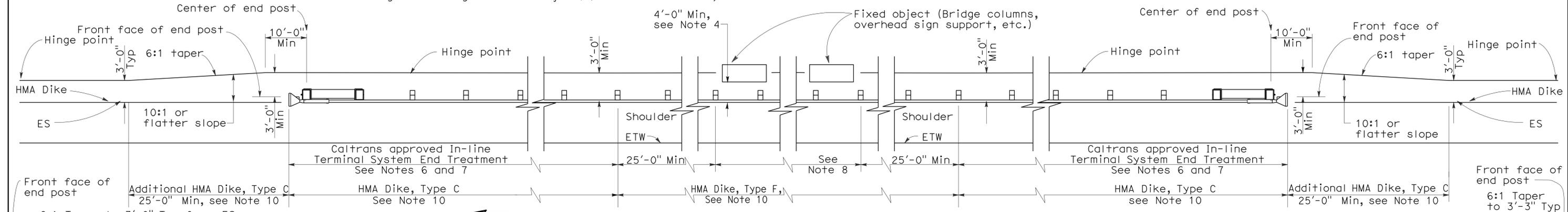
To accompany plans dated 8-24-09



**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).

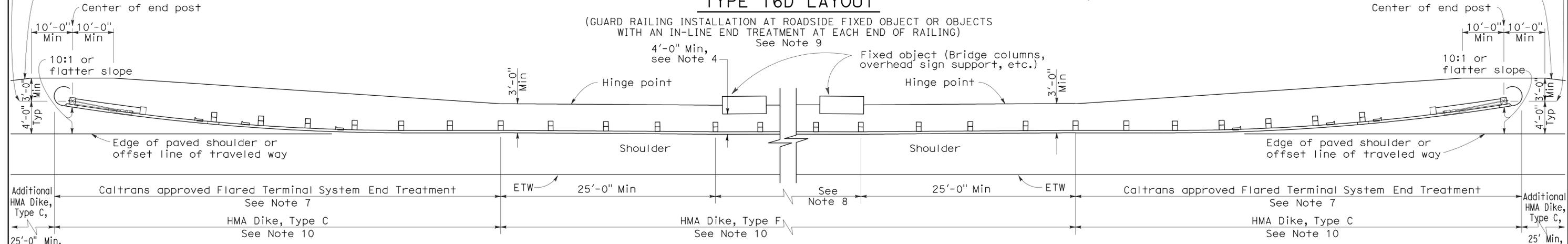
**STRENGTHENED RAILING SECTIONS FOR FIXED OBJECT**

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.

- 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
08	SBd	66,259, 330	Var	43	80

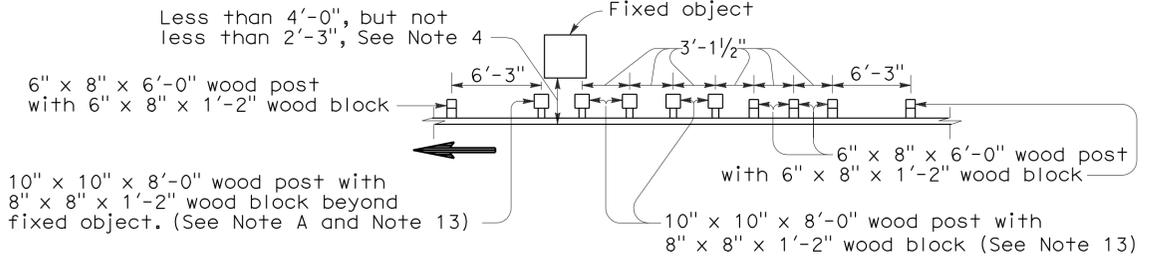
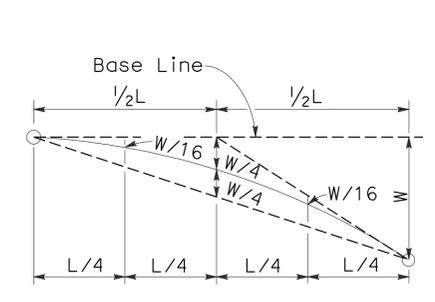
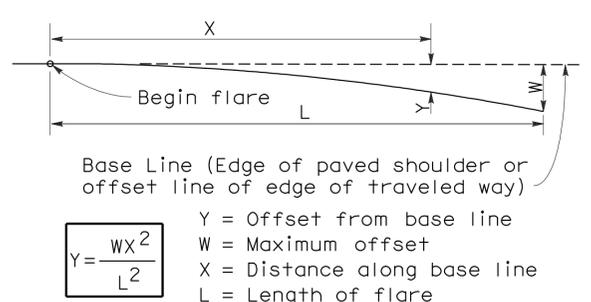
*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

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 8-24-09

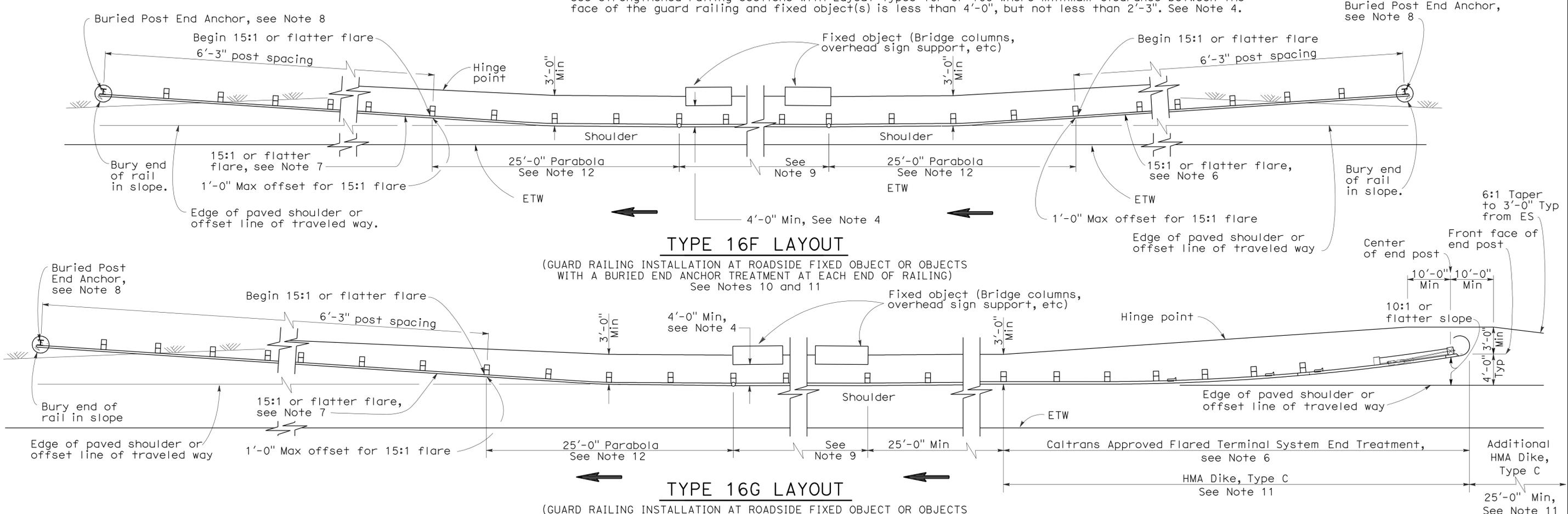


**NOTE A:** For a series of fixed objects (bridge columns, overhead sign supports, etc.) additional 10" x 10" x 8'-0" wood post with 8" x 8" x 1'-2" wood blocks at 3'-1/2" center to center spacing are to be used between fixed object(s).

**PARABOLIC FLARE OFFSETS**      **TYPICAL PARABOLIC LAYOUT**

**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**

2006 REVISED STANDARD PLAN RSP A77G5

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
08	Sbd	66,259, 330	Var	44	80

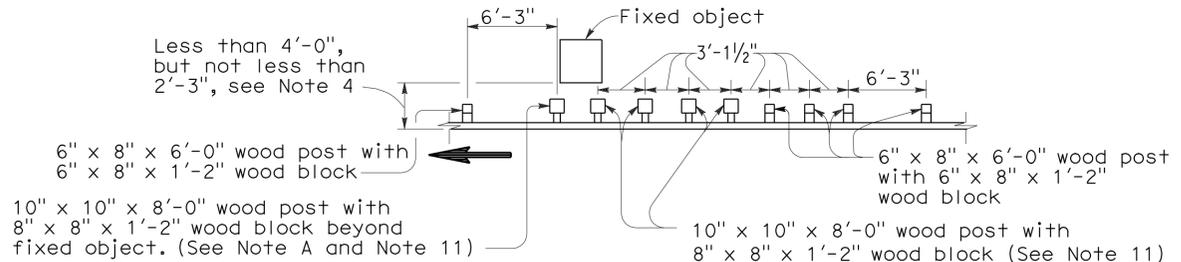
Randell D. Hiatt  
REGISTERED CIVIL ENGINEER

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

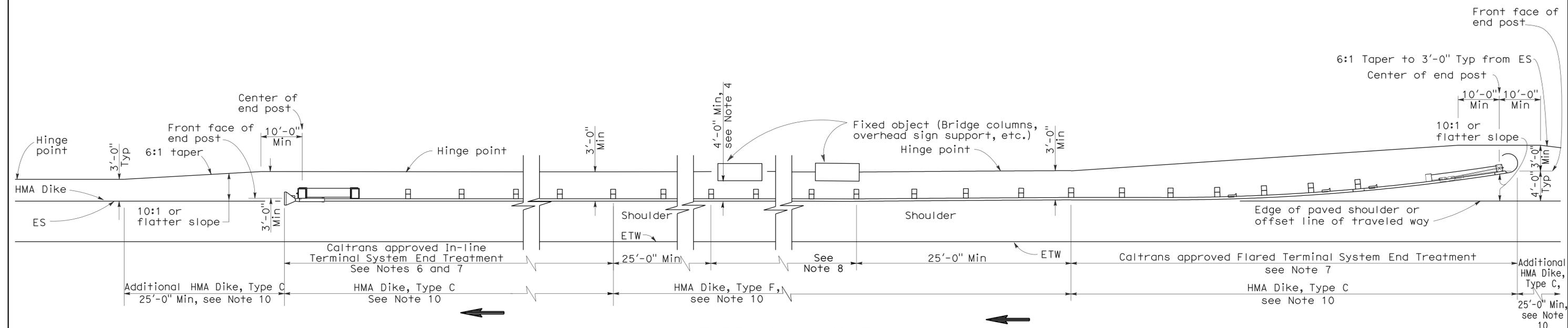
To accompany plans dated 8-24-09



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

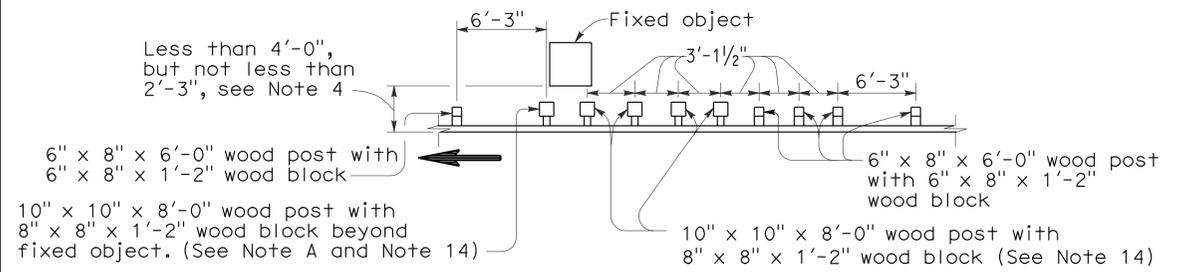
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
08	Sbd	66,259, 330	Var	45	80

*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

June 6, 2008  
PLANS APPROVAL DATE

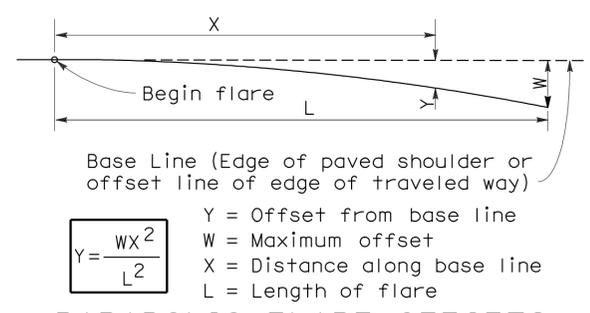
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To accompany plans dated 8-24-09

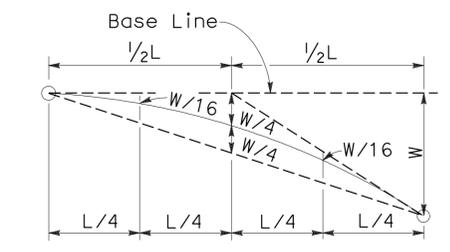


Note A. For a series of fixed objects (bridge columns, overhead sign supports, etc.) additional 10" x 10" x 8'-0" wood post with 8" x 8" x 1'-2" wood blocks at 3'-1/2" center to center spacing are to be used between fixed object(s).

**STRENGTHENED RAILING SECTIONS FOR FIXED OBJECT**

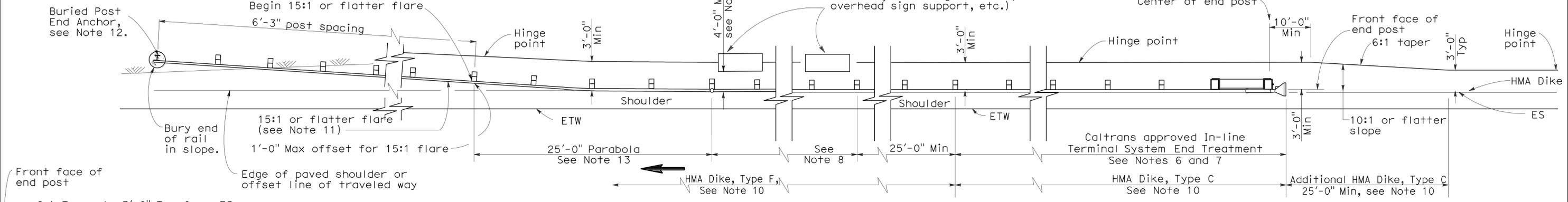


**PARABOLIC FLARE OFFSETS**



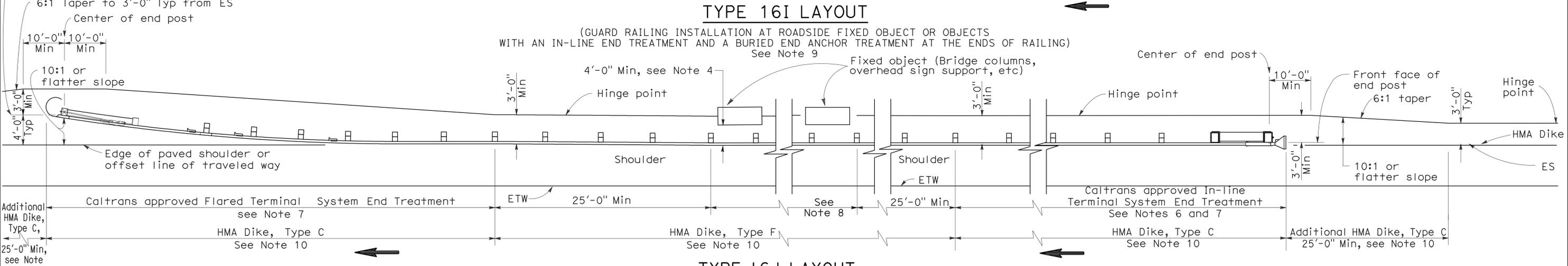
**TYPICAL PARABOLIC LAYOUT**

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" 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 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**

2006 REVISED STANDARD PLAN RSP A77G7

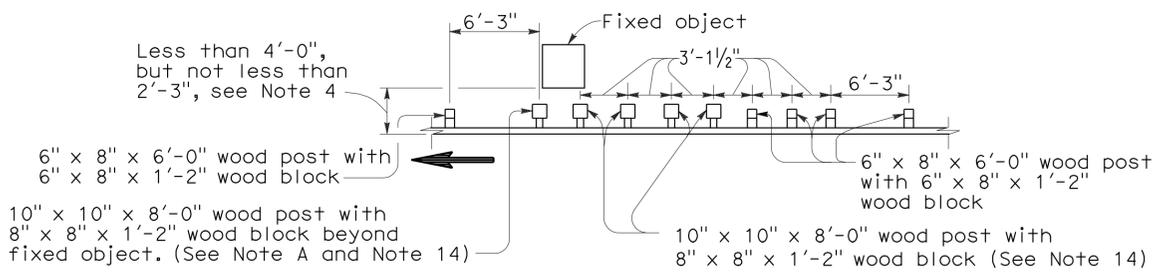
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
08	Sbd	66,259, 330	Var	46	80

**Randell D. Hiatt**  
REGISTERED CIVIL ENGINEER

June 6, 2008  
PLANS APPROVAL DATE

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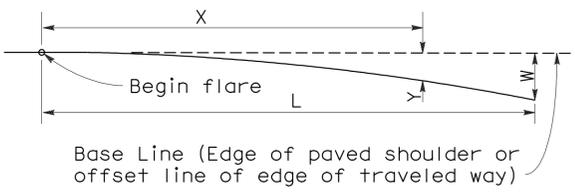
To accompany plans dated 8-24-09



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).

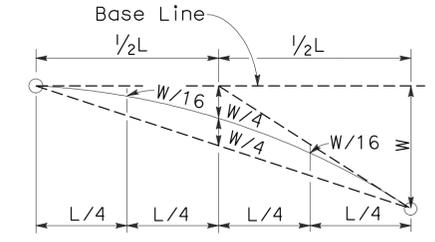
### STRENGTHENED RAILING SECTIONS FOR FIXED OBJECT

Use strengthened railing sections with Layout Types 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.

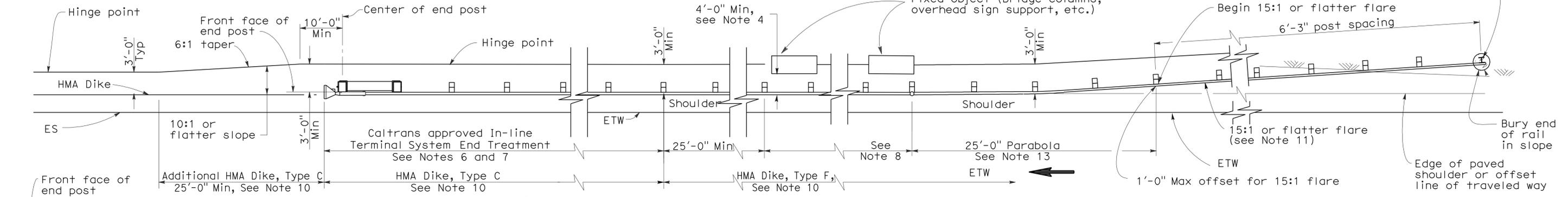


Y = Offset from base line  
W = Maximum offset  
X = Distance along base line  
L = Length of flare

### PARABOLIC FLARE OFFSETS

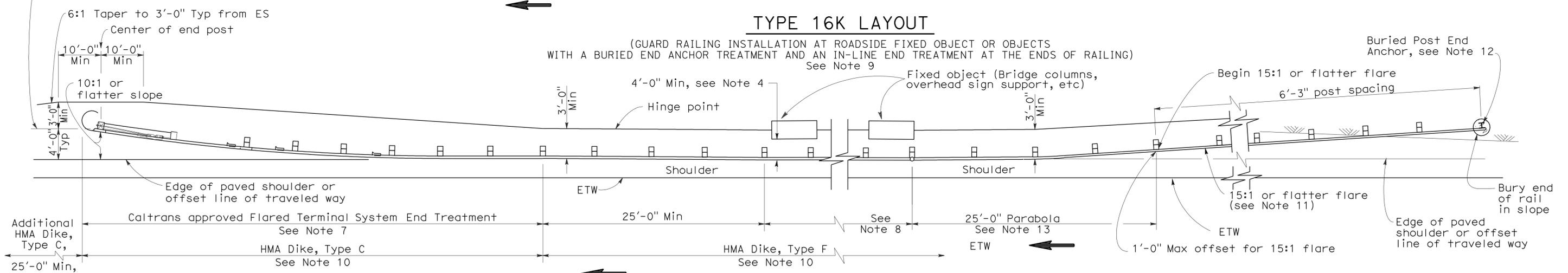


### TYPICAL PARABOLIC LAYOUT



### 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".

## 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
08	Sbd	66,259, 330	Var	47	80

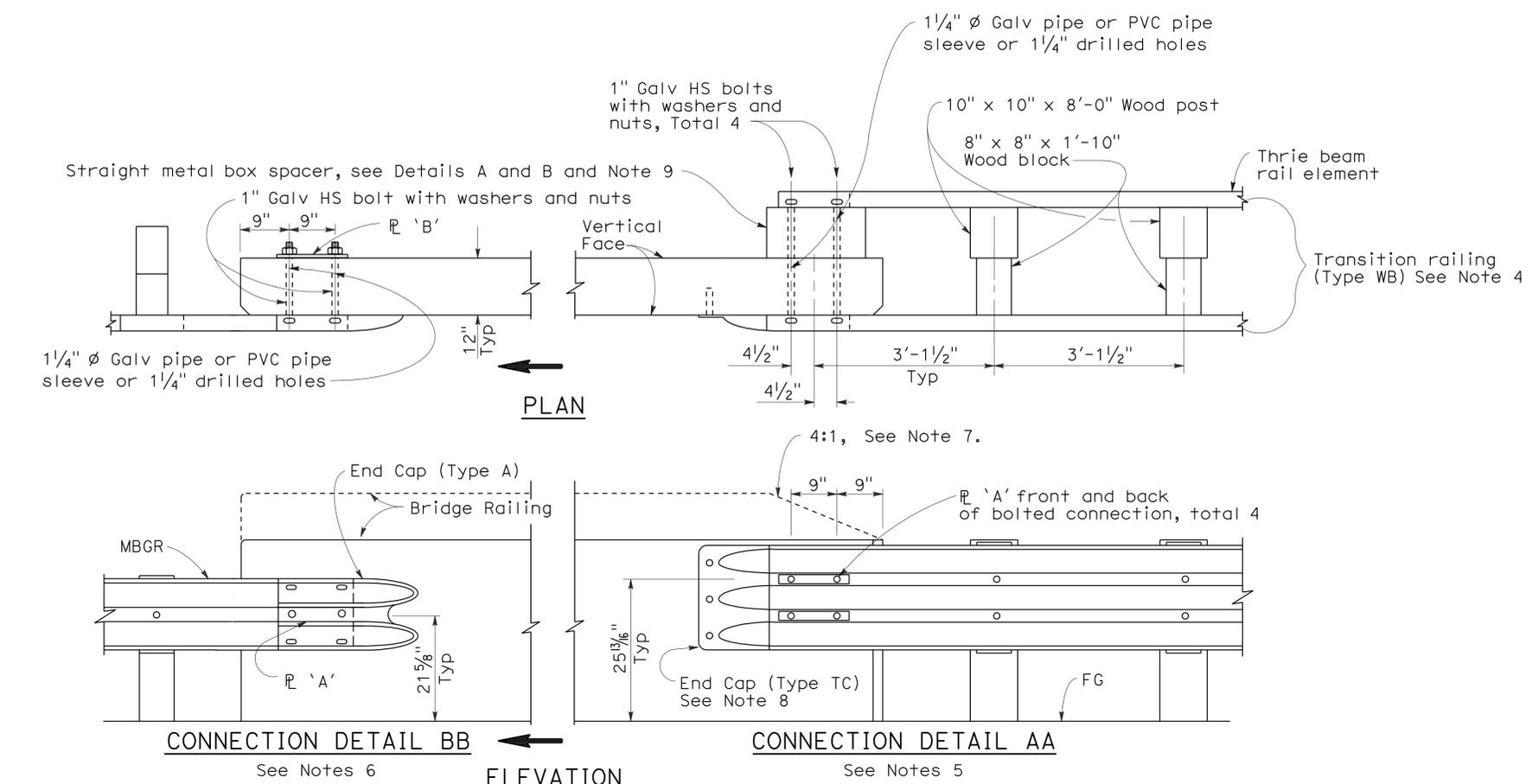
Randell D. Hiatt  
REGISTERED CIVIL ENGINEER

June 6, 2008  
PLANS APPROVAL DATE

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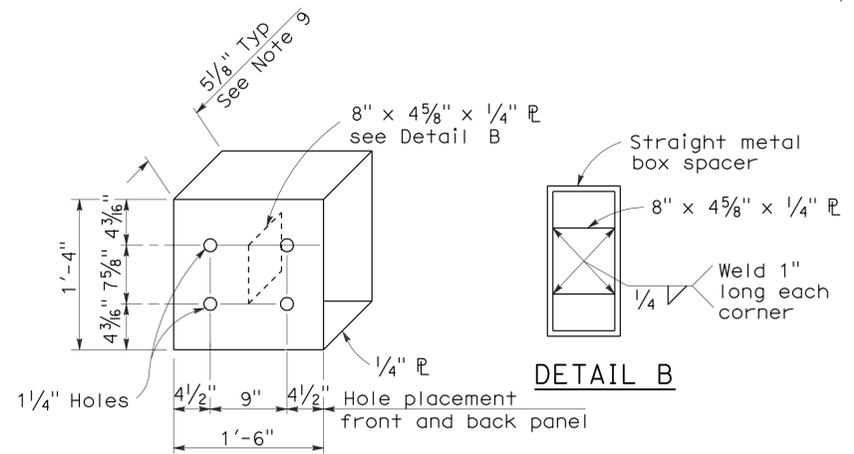
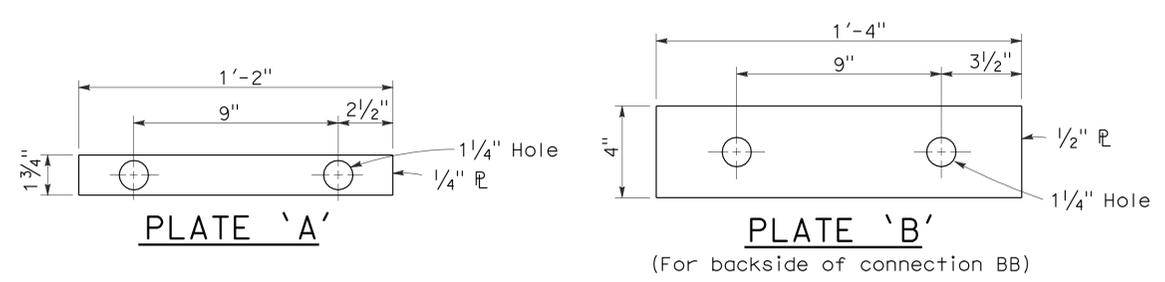
REGISTERED PROFESSIONAL ENGINEER  
Randell D. Hiatt  
No. C50200  
Exp. 6-30-09  
CIVIL  
STATE OF CALIFORNIA

To accompany plans dated 8-24-09



**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 →.
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.



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.

2006 REVISED STANDARD PLAN RSP A77J1

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
08	SBd	66,259, 330	Var	48	80

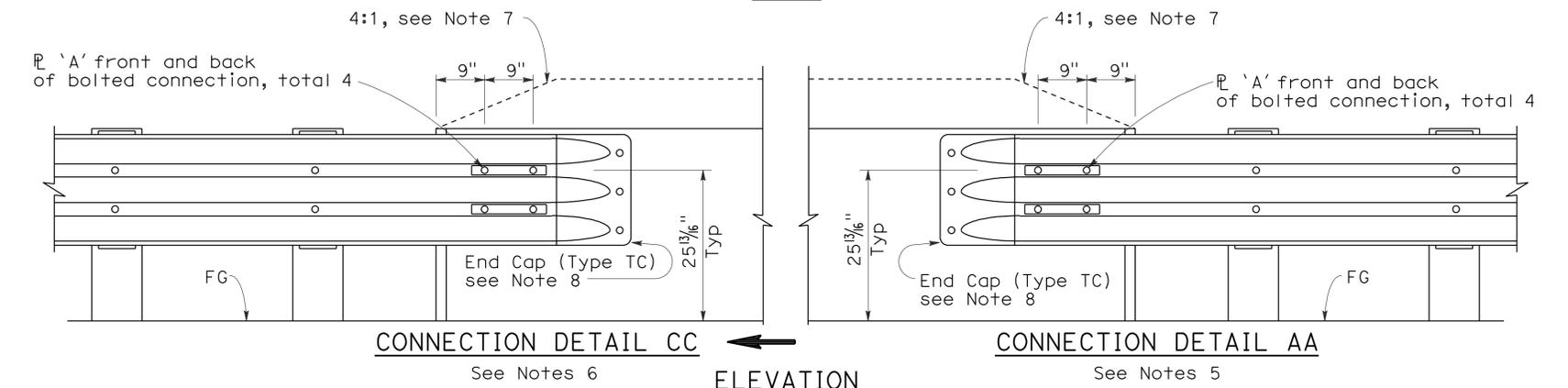
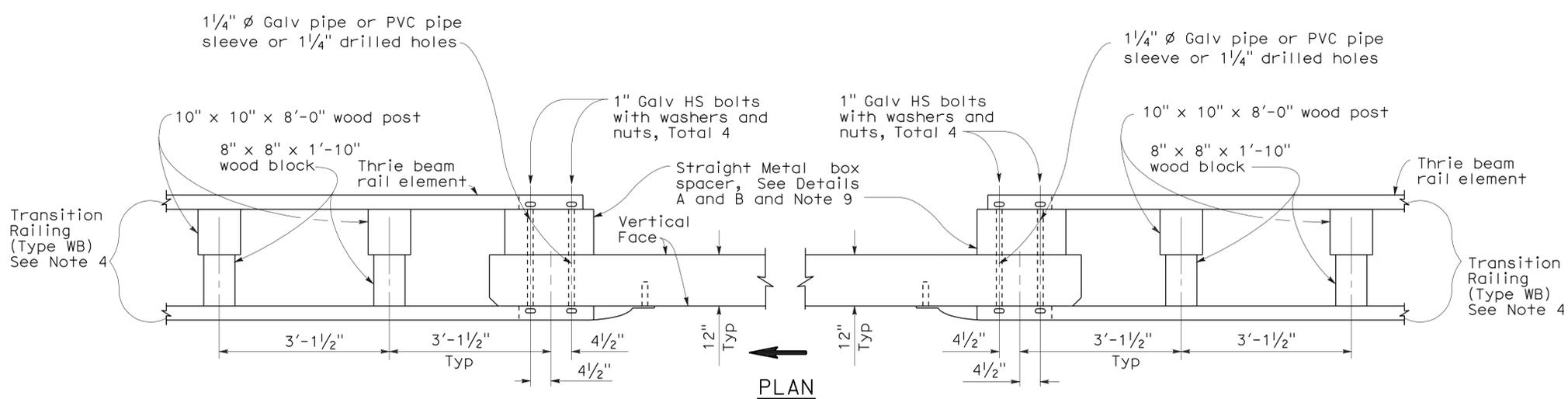
**Randell D. Hiatt**  
REGISTERED CIVIL ENGINEER

June 6, 2008  
PLANS APPROVAL DATE

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

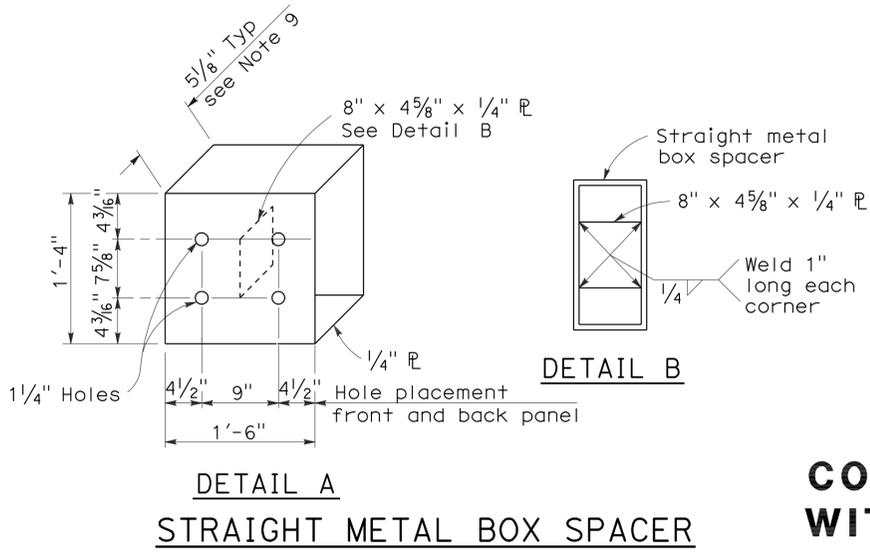
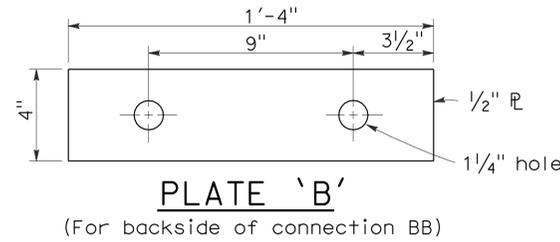
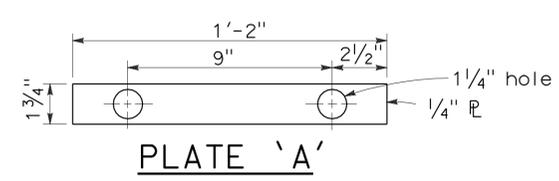
To accompany plans dated 8-24-09



**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

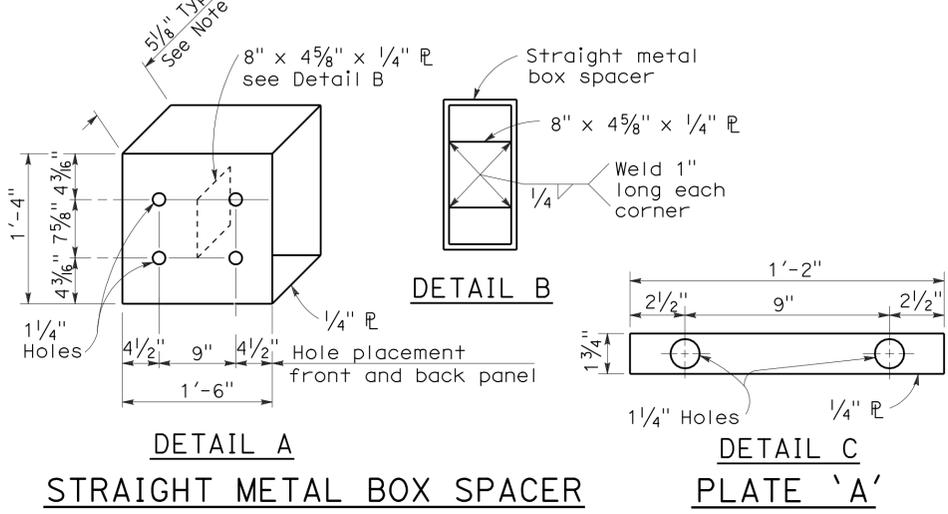
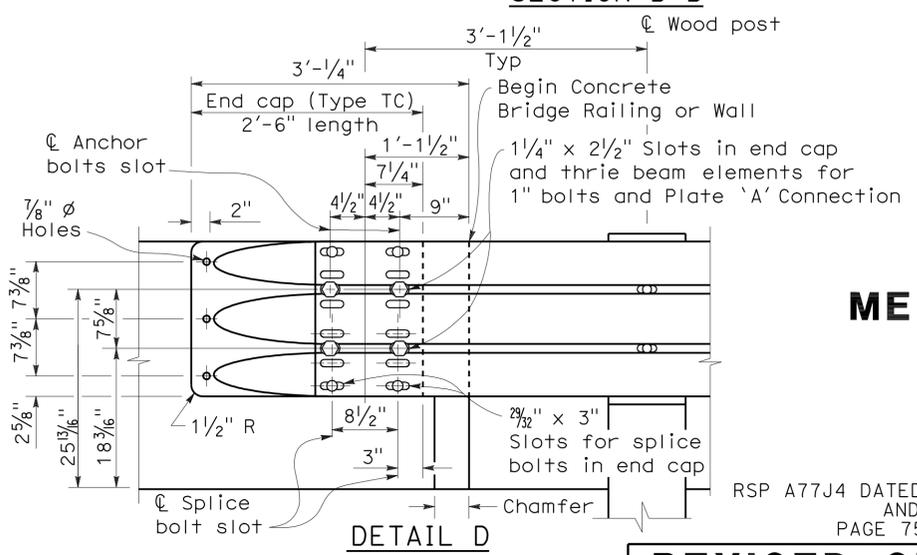
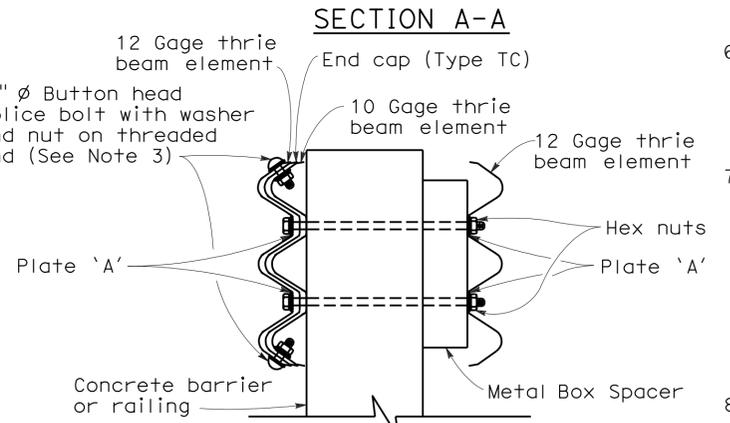
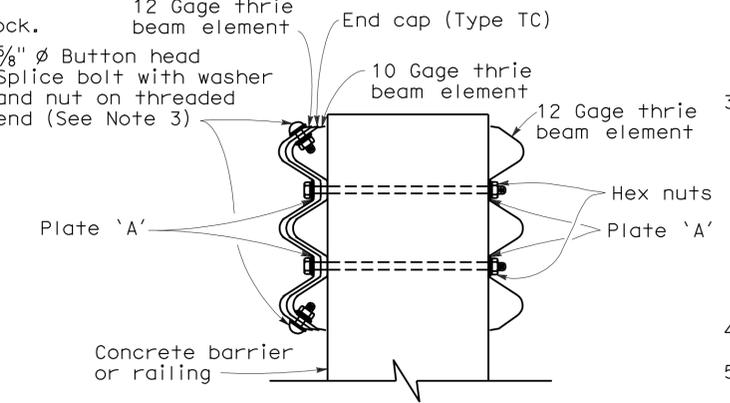
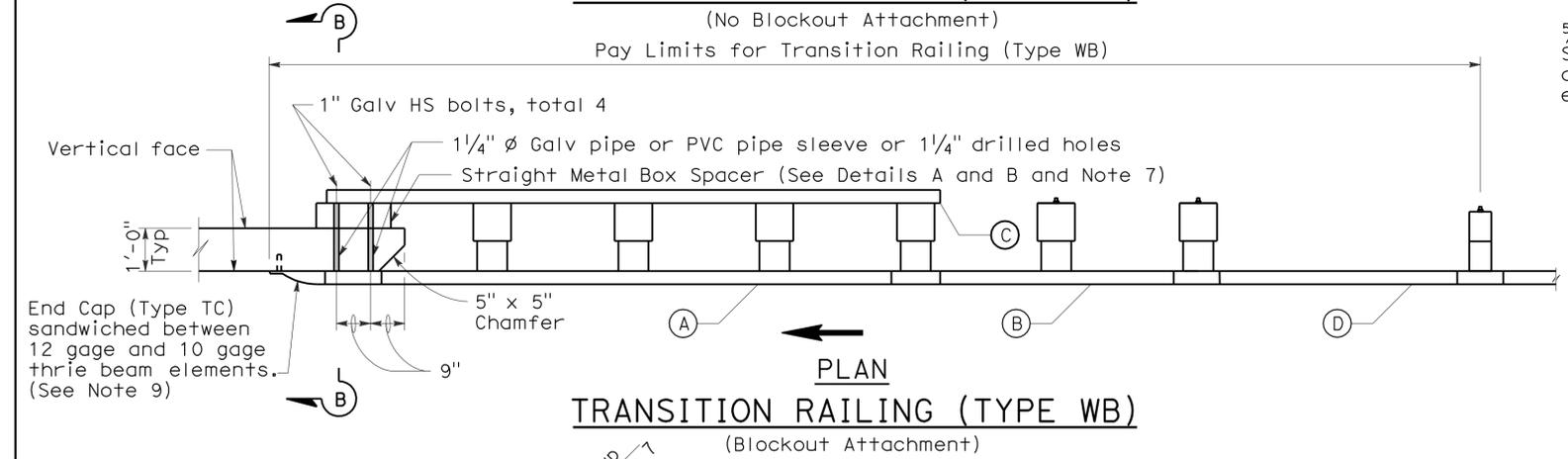
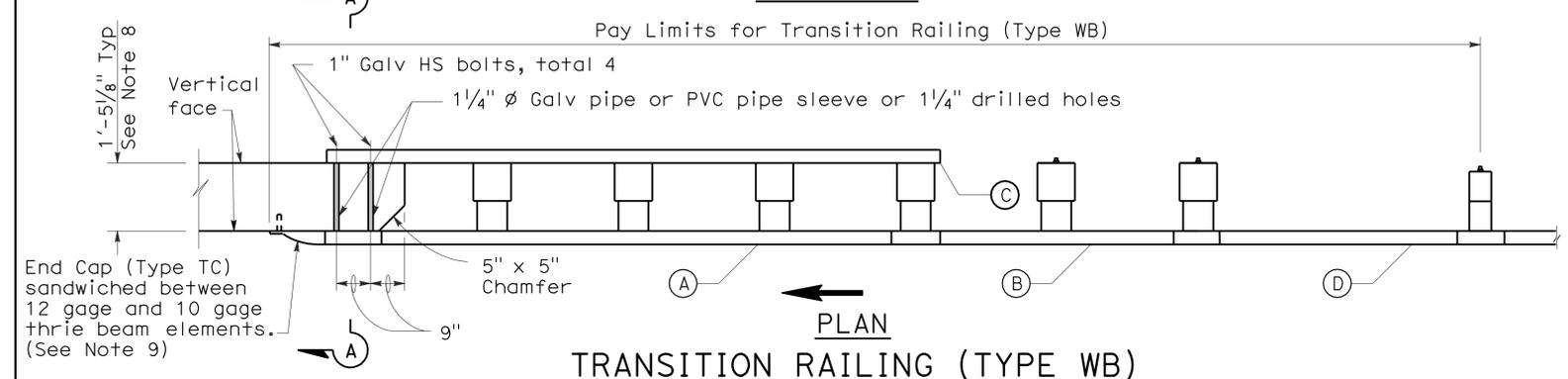
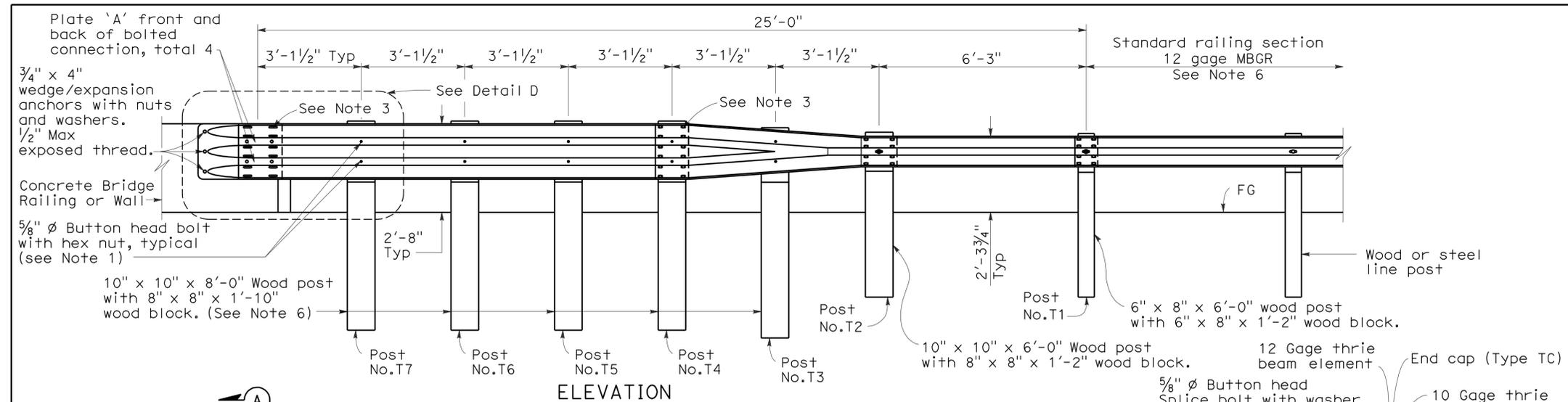
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
08	Sbd	66,259, 330	Var	49	80

**Randell D. Hiatt**  
REGISTERED CIVIL ENGINEER

June 5, 2009  
PLANS APPROVAL DATE

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



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

- NOTES:** To accompany plans dated 8-24-09
1. Use 5/8"  $\phi$  Button head bolts and hex nuts for connections to posts. No washer on rail face for bolted connections to post.
  2. 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.
  3. 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.
  4. Direction of adjacent traffic indicated by  $\rightarrow$ .
  5. The top elevation of Post Nos. T2 through T7 shall not project more than 1" above the top elevation of the rail element.
  6. 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.
  7. 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.
  8. 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.
  9. 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.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**METAL BEAM GUARD RAILING  
TRANSITION RAILING  
(TYPE WB)**

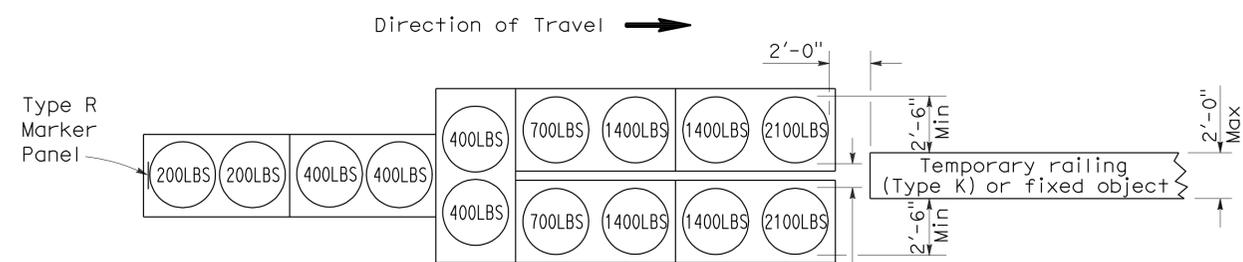
NO SCALE

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

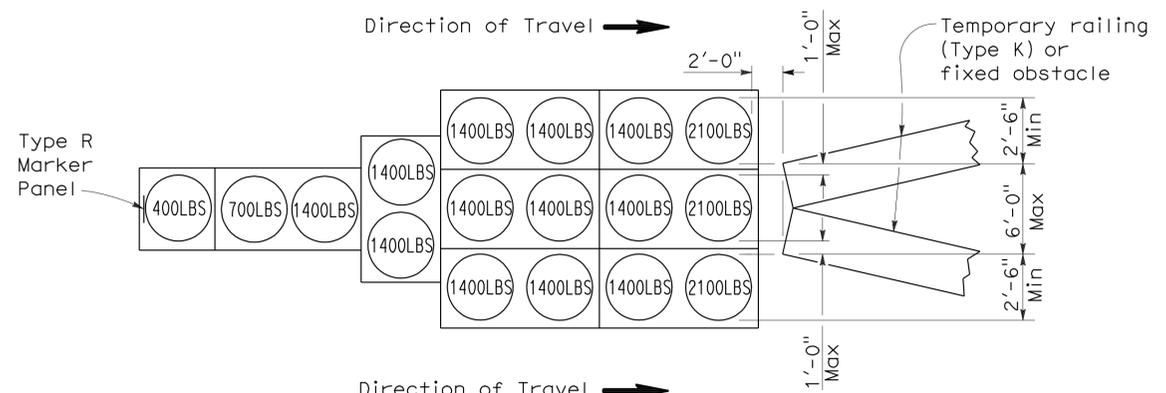
To accompany plans dated 8-24-09

2006 REVISED STANDARD PLAN RSP T1A



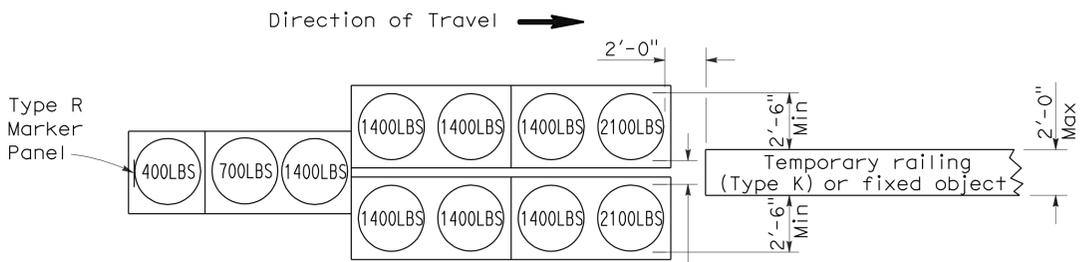
**ARRAY 'TU14'**

Approach speed 45 mph or more



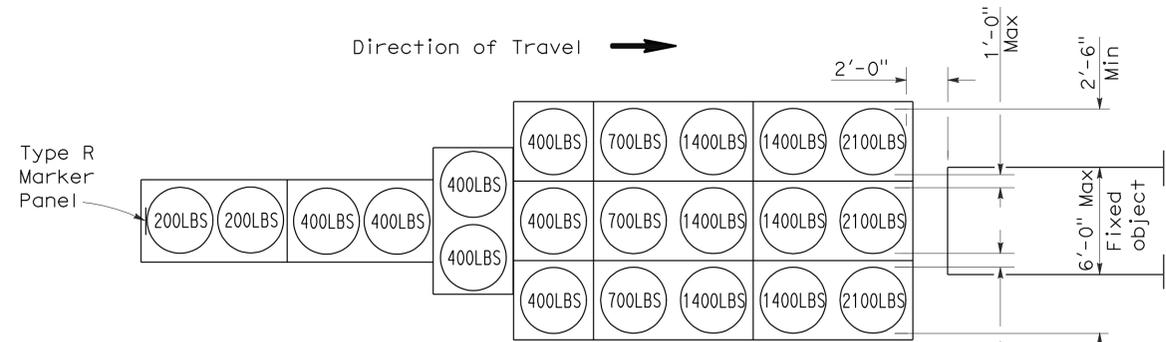
**ARRAY 'TU17'**

Approach speed less than 45 mph



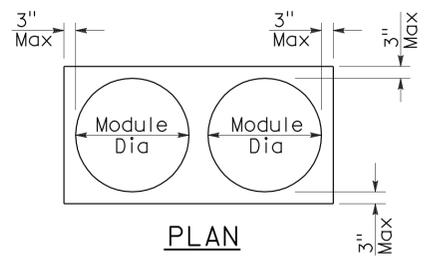
**ARRAY 'TU11'**

Approach speed less than 45 mph

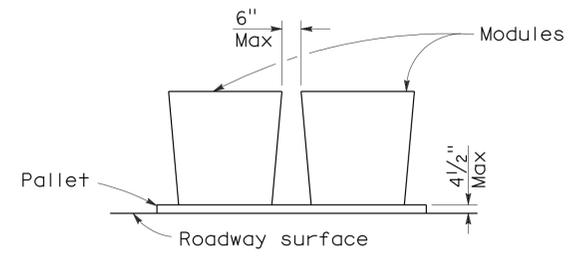


**ARRAY 'TU21'**

Approach speed 45 mph or more



**PLAN**



**ELEVATION**

**CRASH CUSHION PALLET DETAIL**

See Note 7

**NOTES:**

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

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

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

NO SCALE

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

**REVISED STANDARD PLAN RSP T1A**

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
08	SBd	66,259, 330	Var	51	80

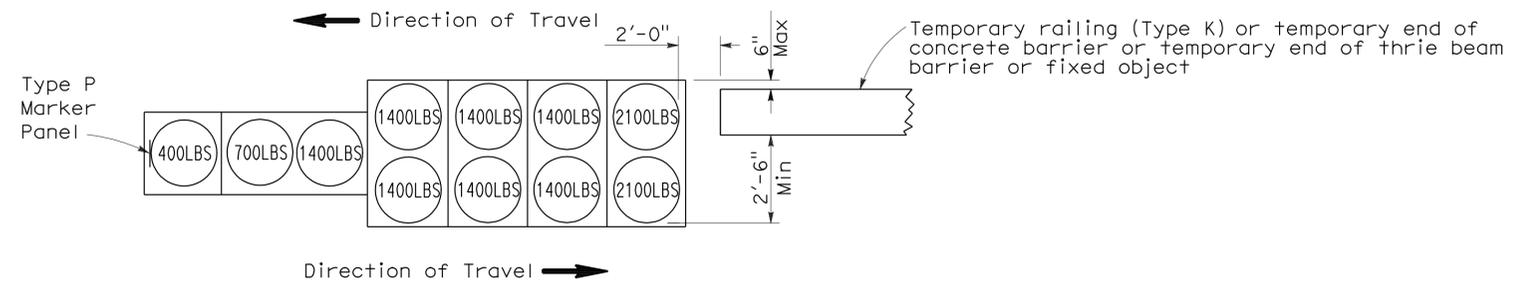
*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

June 6, 2008  
PLANS APPROVAL DATE

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

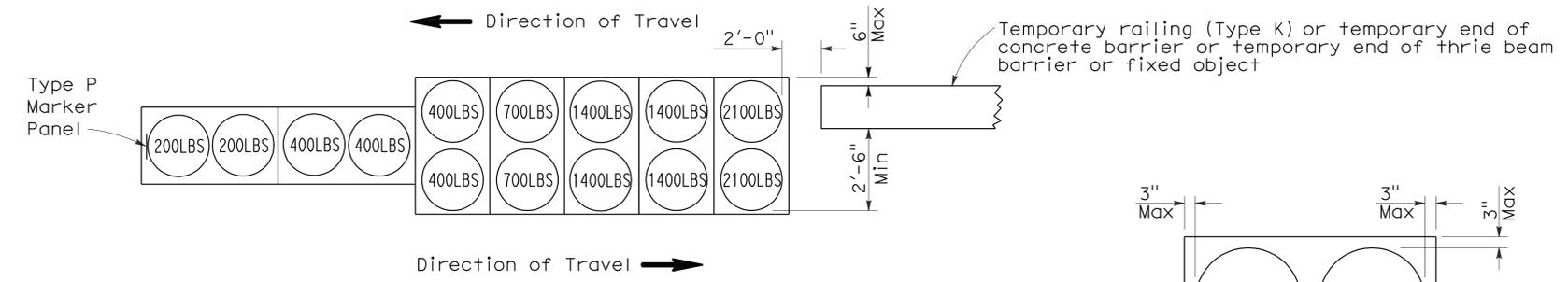
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To accompany plans dated 8-24-09



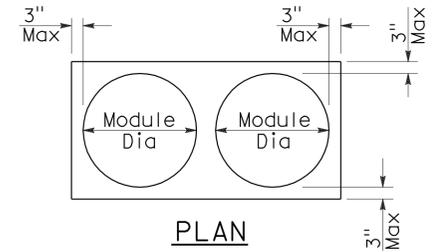
**ARRAY 'TB11'**

Approach speed less than 45 mph

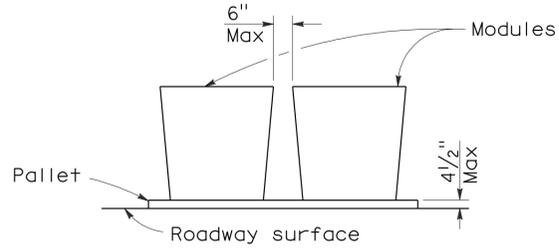


**ARRAY 'TB14'**

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
08	SBd	66,259, 330	Var	52	80

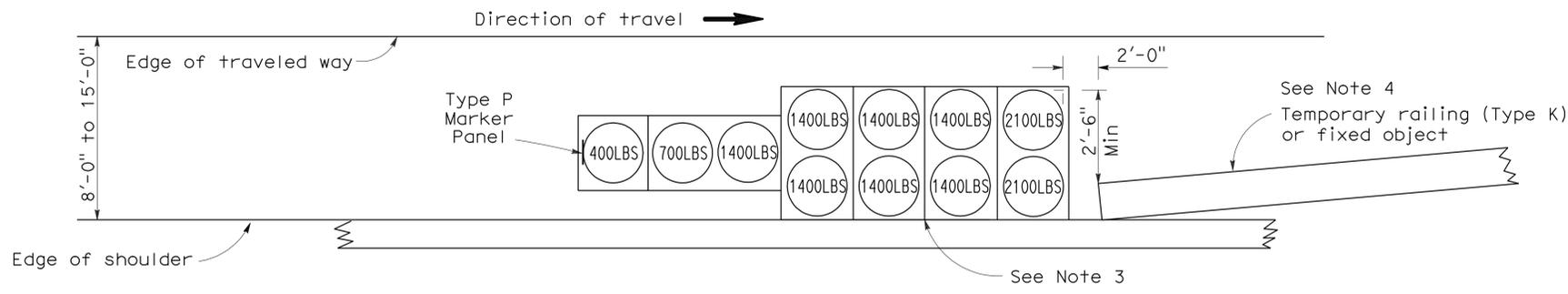
*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

June 6, 2008  
PLANS APPROVAL DATE

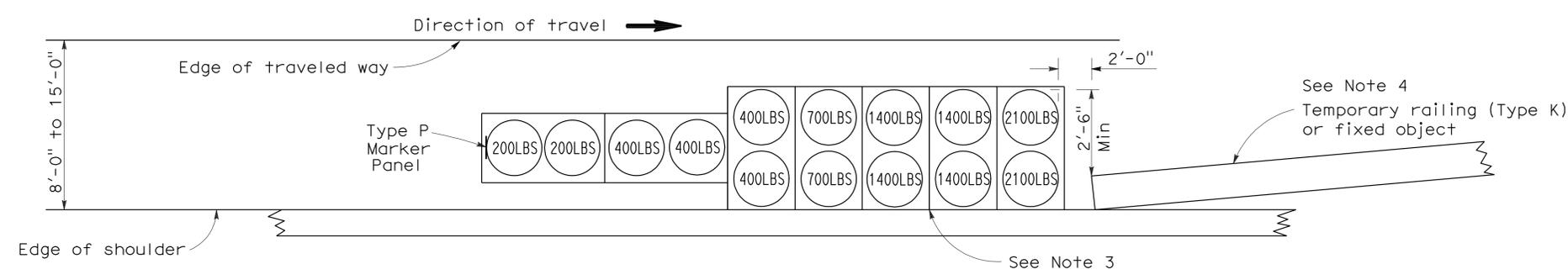
*Randell D. Hiatt*  
REGISTERED PROFESSIONAL ENGINEER  
No. C50200  
Exp. 6-30-09  
CIVIL  
STATE OF CALIFORNIA

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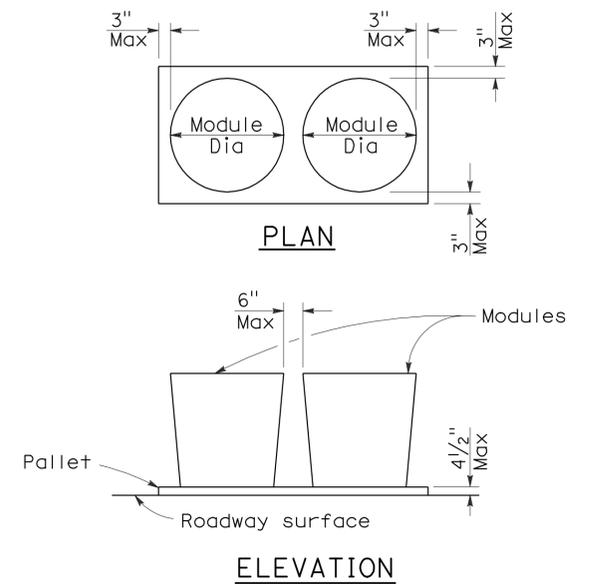
To accompany plans dated 8-24-09



**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.

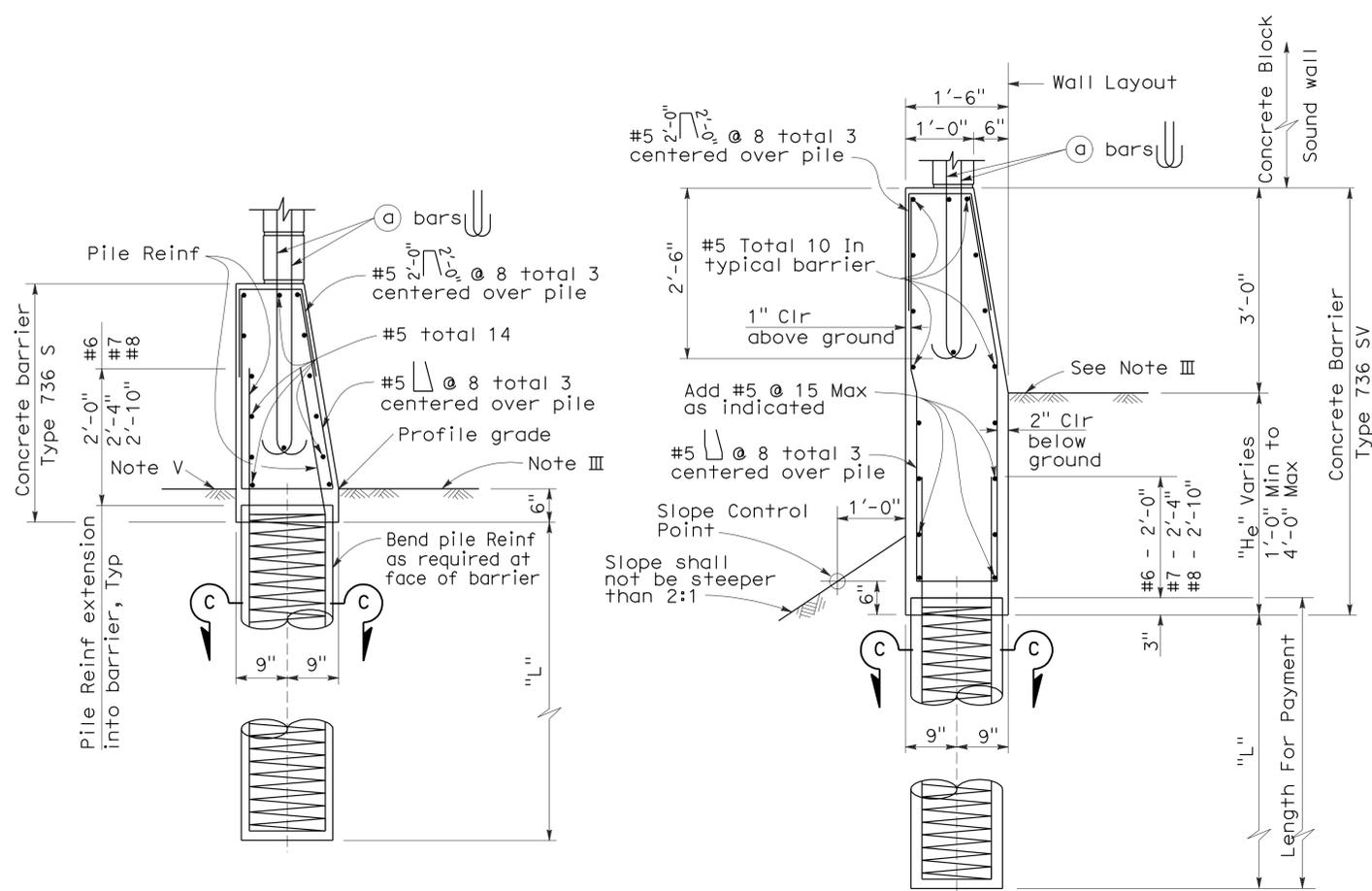
STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**TEMPORARY CRASH CUSHION,  
SAND FILLED  
(SHOULDER INSTALLATIONS)**

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





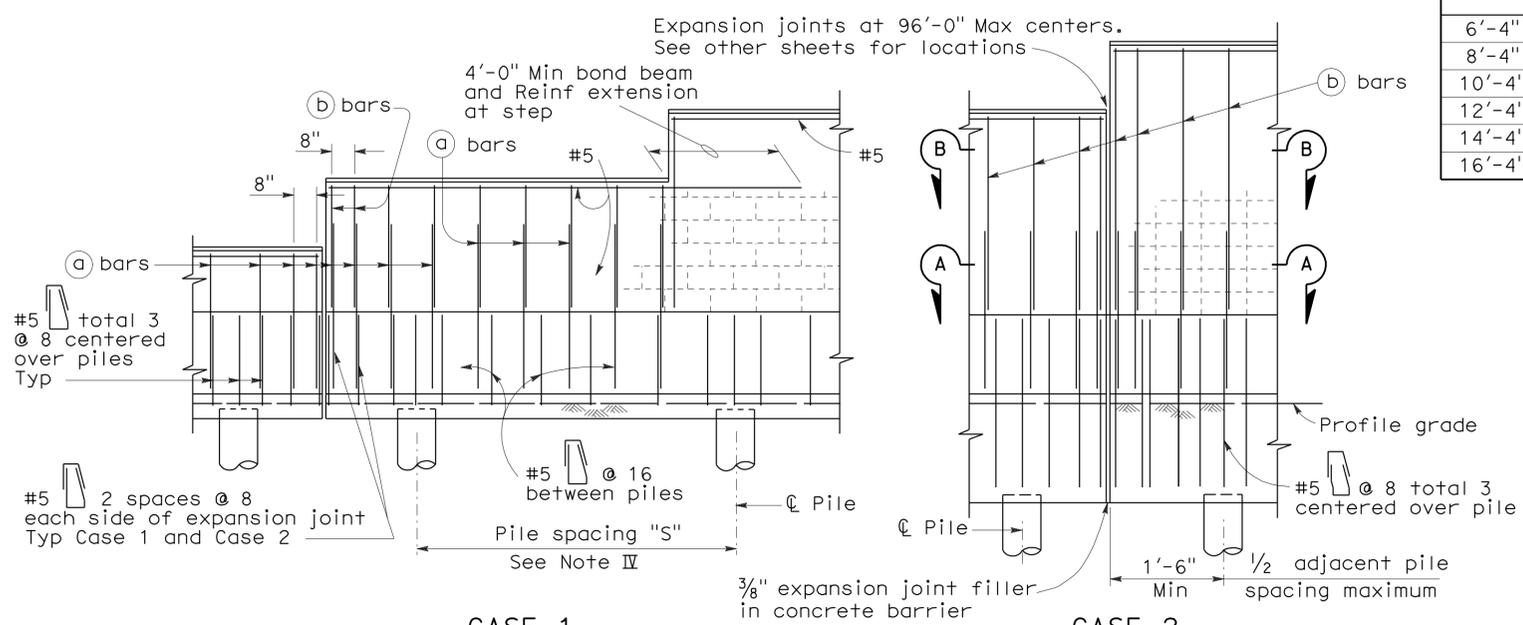
**CASE 1**

For details not shown, See Case 2.  
 Level ground ±10% on both sides of barrier.

**CASE 2**

For details not shown, See Case 1.  
 Level ground ±10% at the traffic side of barrier and sloping ground on the opposite side.

**BARRIER SECTIONS**



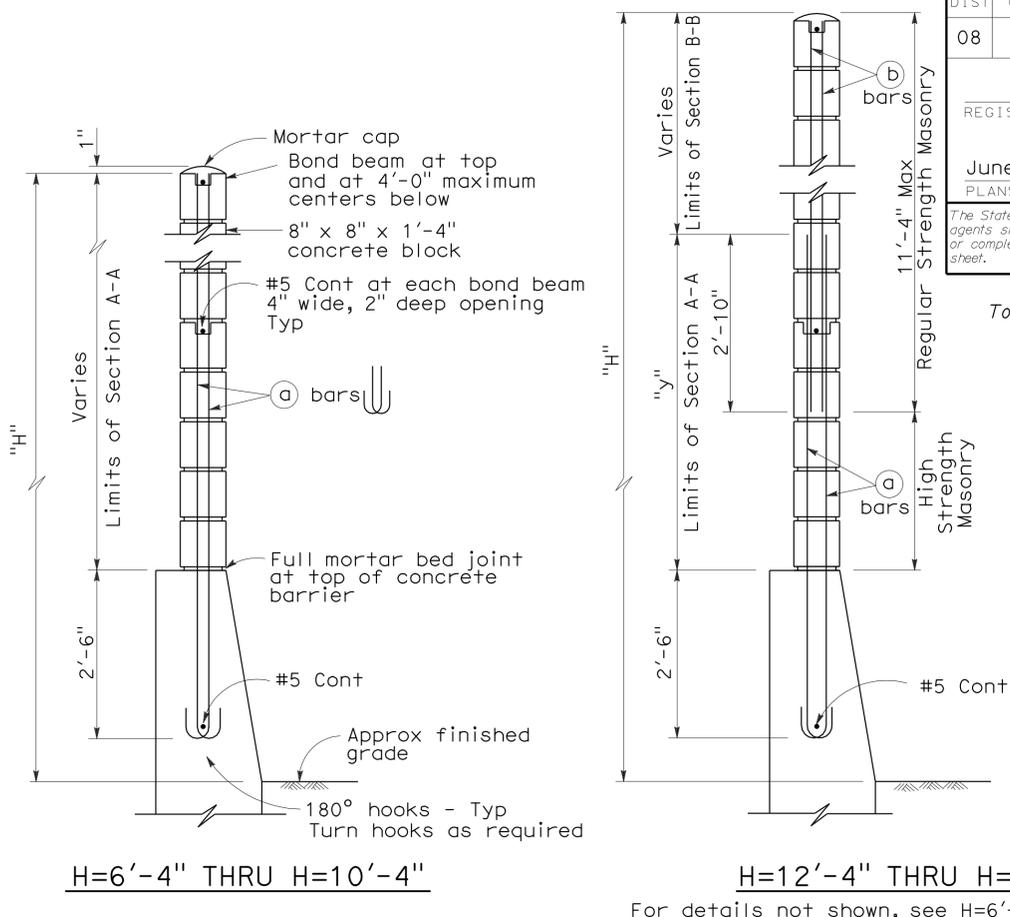
**CASE 1**

For details not shown, See Case 2.

**CASE 2**

For details not shown, See Case 1.

**PARTIAL ELEVATIONS**



**TYPICAL SECTIONS**

See Revised Standard Plan RSP B15-8 for pile details.

**NOTES A THROUGH G:**

- A. For type of block, type of block bond, and joint finish, see other sheets.
- B. When blocks are laid in stacked bond, ladder type, galvanized joint reinforcement shall be provided. A minimum of 2-9 gauge wires continuous at 4'-0" maximum to be used. Locate reinforcement in joints that are at the approximate midpoint between bond beams.
- C. Horizontal joints shall be tooled concave or may be weathered. Vertical joints shall be tooled concave or may be raked.
- D. For intermediate wall heights (H), or barrier depths (H<sub>e</sub>), that are between the values given, use the tabular information for the next higher (H) or (H<sub>e</sub>).
- E. Concrete to be used for the barrier shall contain not less than 590 pounds of cementitious material per cubic yard.
- F. Masonry strengths are listed in the "SOUND WALL REINFORCEMENT TABLE".

**SOUND WALL REINFORCEMENT TABLE**

Maximum H	(a) bars @ 1'-4" Max	(b) bars @ 1'-4" Max	"y"	f'm (psi)	Compressive Strength of CMU (psi)	H
6'-4"	#4	---	---	1500	1900	6'-4"
8'-4"	#4	---	---	1500	1900	8'-4"
10'-4"	#4	---	---	1500	1900	10'-4"
12'-4"	#5	#4	5'-0"	1500	1900	12'-4"
14'-4"	#6	#4	7'-0"	1500	1900	14'-4"
16'-4"	#6	#4	9'-0"	2500	3750	16'-4"

**NOTES I THROUGH VI:**

- I. Details shown are primarily to conform design of sound walls to Type 736S and Type 736 SV Concrete Barriers. For sound wall details conforming with barriers see Standard Plan B15-7 and Revised Standard Plan RSP B15-8.
- II. For details and sections not shown, see Standard Plan B15-7 and Revised Standard Plan RSP B15-8.
- III. Slope ground at traffic side of barrier to drain. Maximum slope ±10%. See Std Plan B11-56, Note D.
- IV. Pile spacing may be varied, but shall not exceed the tabular values. See Revised Standard Plan RSP B15-8.
- V. For Case 1 - ground line to be at the same elevation on both sides of the barrier. Barrier shall not be used to retain earth.
- VI. See Standard Plan B15-9 for other details.

**SOUND WALL MASONRY BLOCK ON TYPE 736S/SV BARRIER DETAILS (1)**

NO SCALE

RSP B15-6 DATED JUNE 5, 2009 SUPERSEDES RSP B15-6 DATED OCTOBER 5, 2007 AND STANDARD PLAN B15-6 DATED MAY 1, 2006 - PAGE 296 OF THE STANDARD PLANS BOOK DATED MAY 2006.



DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
08	SBd	66,259,330	Var	56	80

*Felix S. Altamirano* 7/30/09  
REGISTERED CIVIL ENGINEER DATE

8-24-09  
PLANS APPROVAL DATE

*FELIX ALTAMIRANO*  
No. C56401  
Exp. 6/30/11  
CIVIL  
STATE OF CALIFORNIA

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QUANTITIES

LYTLE BASIN OH (WB)	BRIDGE NO. 54-0834	BOULDER AVE UC (3 STRUCTURES)	BRIDGE NO. 54-1085
BRIDGE REMOVAL (PORTION), LOCATION A MINOR CONCRETE (MINOR STRUCTURE)	LUMP SUM 6 CY	MINOR CONCRETE (MINOR STRUCTURE)	2 CY
HIGHLAND AVE UC (2 STRUCTURES)	BRIDGE NO. 54-0761	HIGHLAND AVENUE OC - OFF RAMP	BRIDGE NO. 54-1086
MINOR CONCRETE (MINOR STRUCTURE)	1.5 CY	MINOR CONCRETE (MINOR STRUCTURE)	1 CY
27TH STREET UC (4 STRUCTURES)	BRIDGE NO. 54-0762L/R	EXISTING CONCRETE BARRIER WITH SOUNDWALL ON TOP AT PM 29.4 ON RT 330 SOUTHBOUND	
MINOR CONCRETE (MINOR STRUCTURE)	3 CY	BRIDGE REMOVAL (PORTION), LOCATION B MINOR CONCRETE (MINOR STRUCTURE) SOUND WALL (MASONRY BLOCK)	LUMP SUM 13.5 CY 320 SQFT
H ST UC (5 STRUCTURES)	BRIDGE NO. 54-0763L/R	S 330-E 30 CONNECTOR (3 STRUCTURES)	BRIDGE NO. 54-1098F
MINOR CONCRETE (MINOR STRUCTURE)	4 CY	MINOR CONCRETE (MINOR STRUCTURE)	2 CY
S 259-S 215 CONNECTOR	BRIDGE NO. 54-0523F	S 330-W 210 CONNECTOR RET. WALL ON LEFT SIDE AT PM 29.09 RT 330 SOUTHBOUND	
MINOR CONCRETE (MINOR STRUCTURE)	1 CY	MINOR CONCRETE (MINOR STRUCTURE)	1.5 CY
		W 210-S 259 CONNECTOR OC DEPARTURE	BRIDGE NO. 54-0764F
		MINOR CONCRETE (MINOR STRUCTURE)	1.5 CY

DESIGN	BY Felix Altamirano	CHECKED N.Kanepathipillai
DETAILS	BY Hung Nguyen	CHECKED N.Kanepathipillai
QUANTITIES	BY N.Kanepathipillai	CHECKED Yu Song

**STATE OF CALIFORNIA**  
DEPARTMENT OF TRANSPORTATION

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

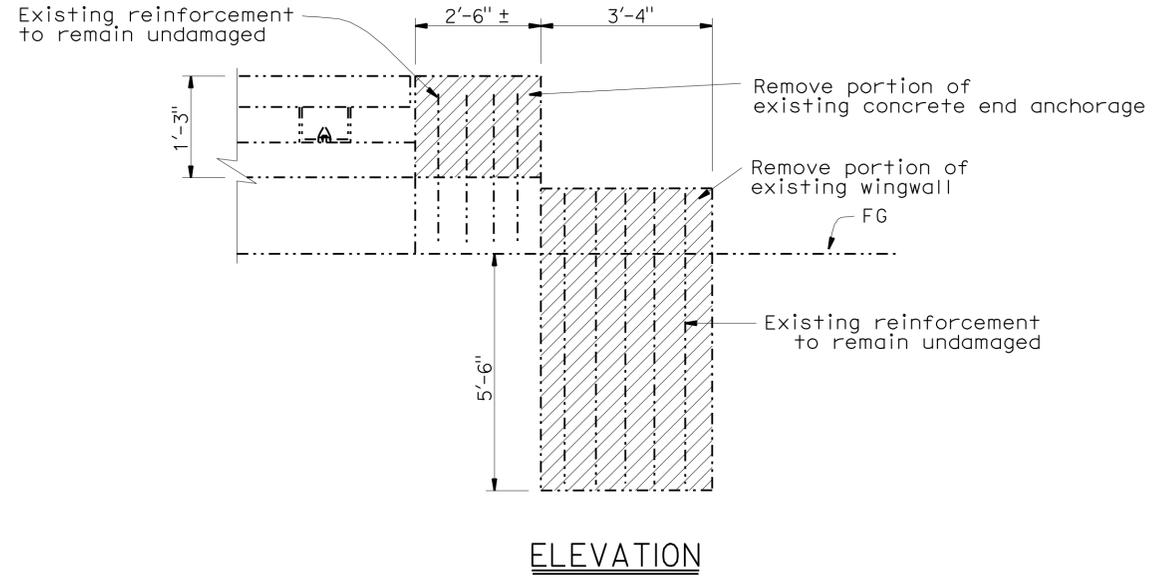
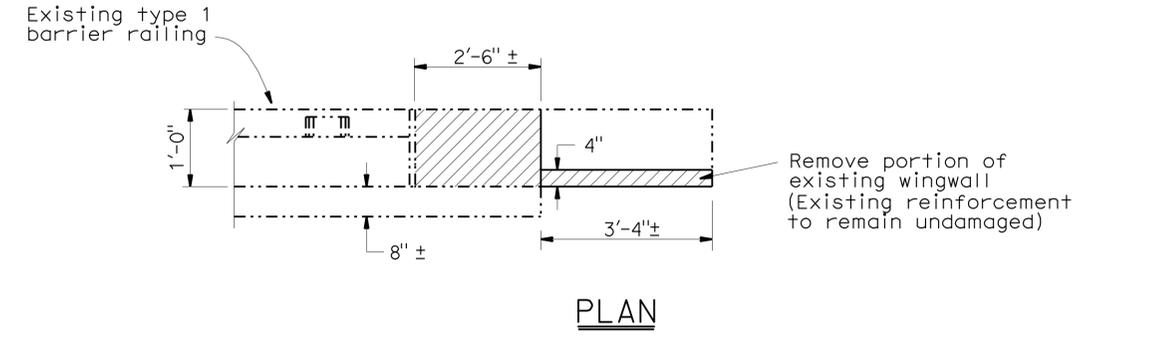
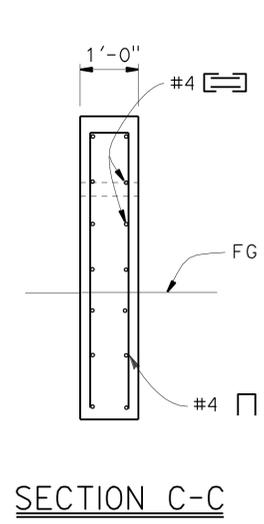
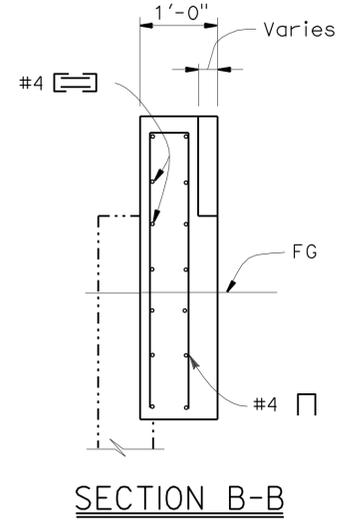
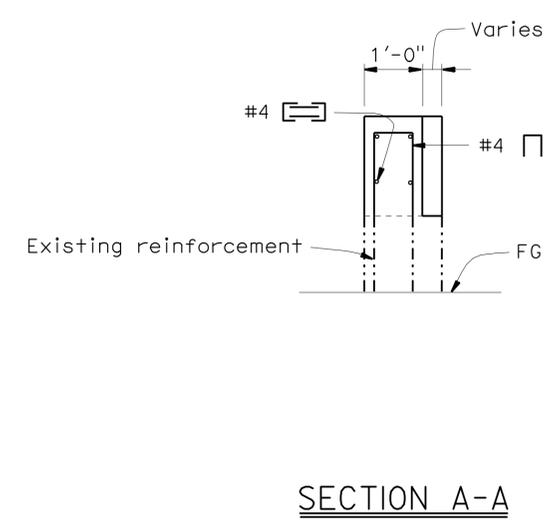
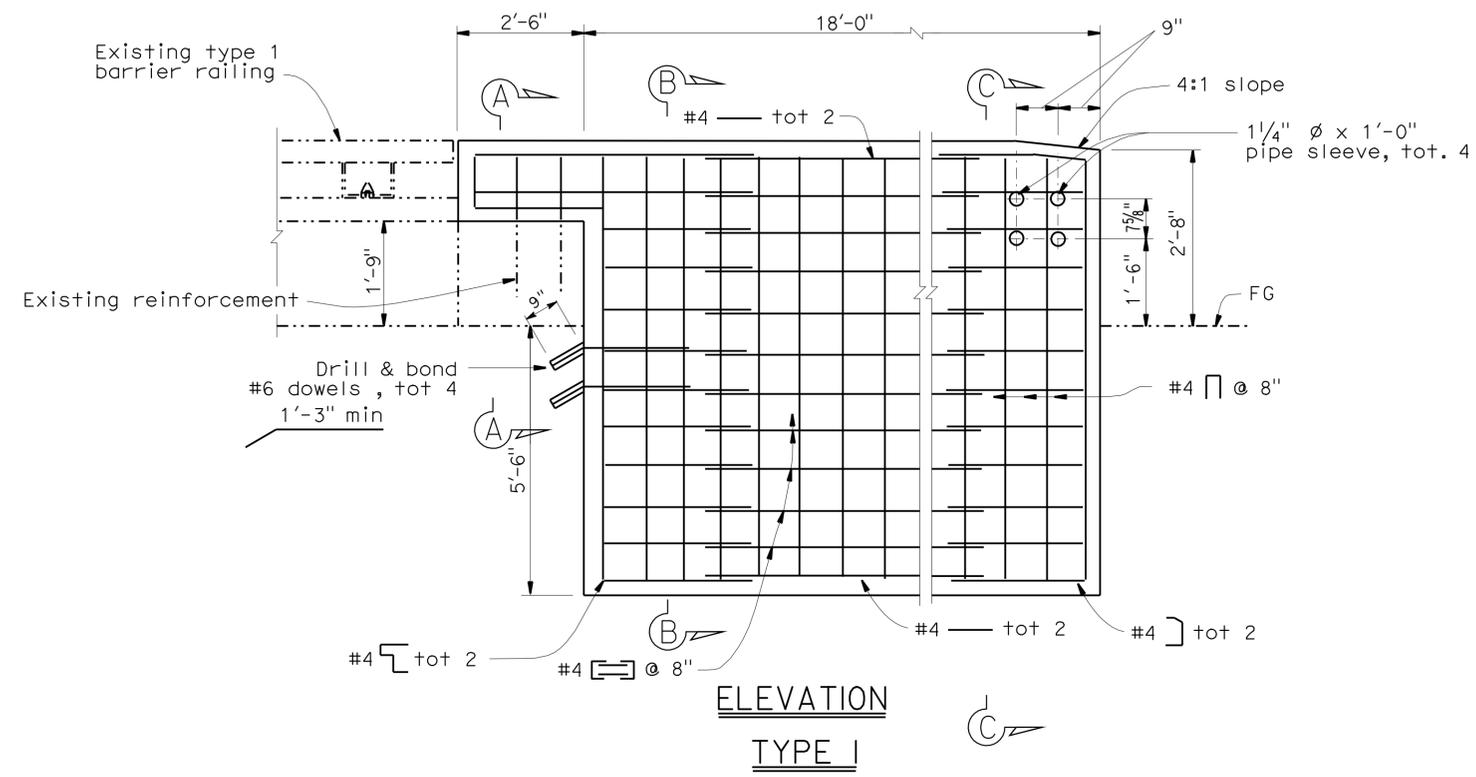
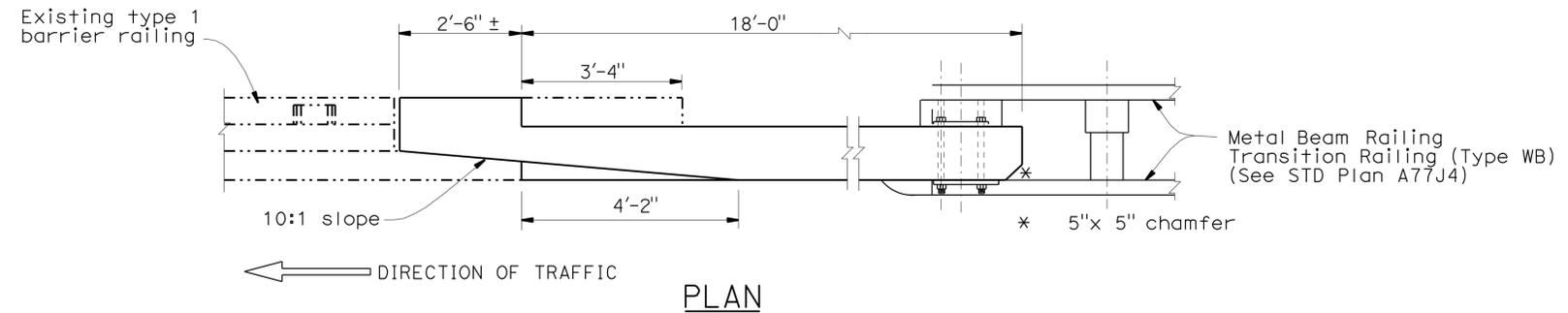
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POST MILE	Varies	
REVISION DATES		
SHEET	2	OF 26

USERNAME => fhmikes DATE PLOTTED => 28-AUG-2009 TIME PLOTTED => 13:05

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
08	SBd	66,259, 330	Var	57	80

Felix S. Altamirano 7/30/09  
 REGISTERED CIVIL ENGINEER DATE  
 8-24-09  
 PLANS APPROVAL DATE  
 No. C56401  
 Exp. 6/30/11  
 CIVIL  
 STATE OF CALIFORNIA

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**CONCRETE REMOVAL**

Legend:

Bridge removal (Portion)

Notes:

1. For limits of excavation and backfill, see Standard Plans A62C, section E-E.
2. The contractor shall verify all controlling field dimensions, before ordering or fabricating any material.

**NO SCALE**

DESIGN	BY	Felix Altamirano	CHECKED	N. Kanepathipillai	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN SPECIAL DESIGN BRANCH	BRIDGE NO.	54-0834	LYTLE BASIN OH - WB ANCHOR BLOCK DETAILS			
	DETAILS	BY	Hung Nguyen	CHECKED			N. Kanepathipillai	POST MILE		20.83		
	QUANTITIES	BY	Felix Altamirano	CHECKED			Yu Song	CU 08 EA 0E5701		DISREGARD PRINTS BEARING EARLIER REVISION DATES	<table border="1"> <tr> <td>3/1/08</td> <td>1/27/08</td> <td>1/28/09</td> <td>5/2/09</td> <td>7/20/09</td> </tr> </table>	3/1/08
3/1/08	1/27/08	1/28/09	5/2/09	7/20/09								

STRUCTURES DESIGN SPECIAL DESIGN SHEET (ENGLISH) (REV. 10-25-05)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

0 1 2 3

FILE => 08-0e5701\_s003.dgn

REVISION DATES

SHEET 3 OF 26

DATE PLOTTED => 13:06

USERNAME => fhmikes

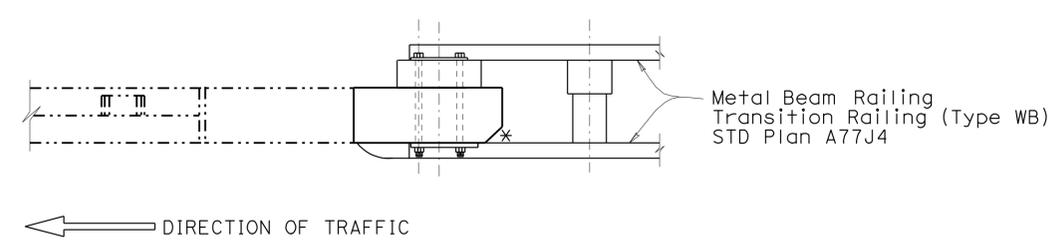
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
08	SBd	66,259, 330	Var	58	80

*Felix S. Altamirano* 1/30/09  
REGISTERED CIVIL ENGINEER DATE

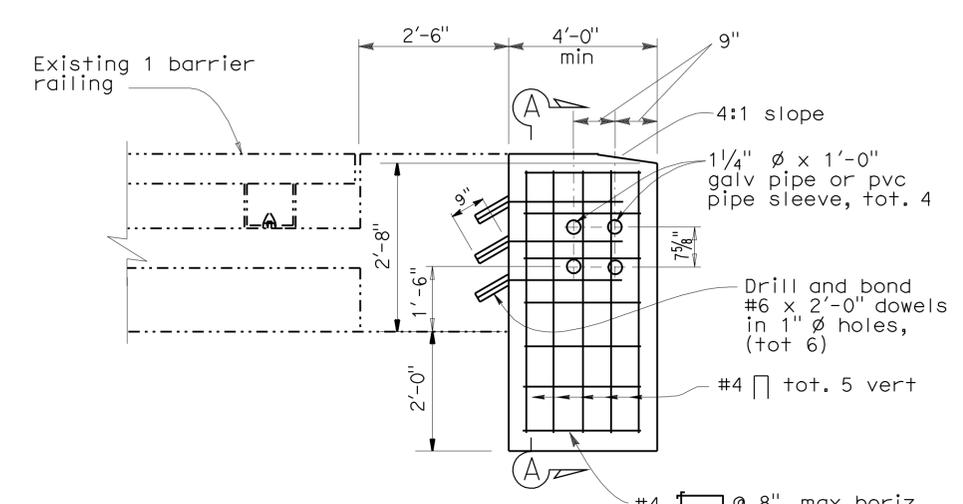
8-24-09  
PLANS APPROVAL DATE

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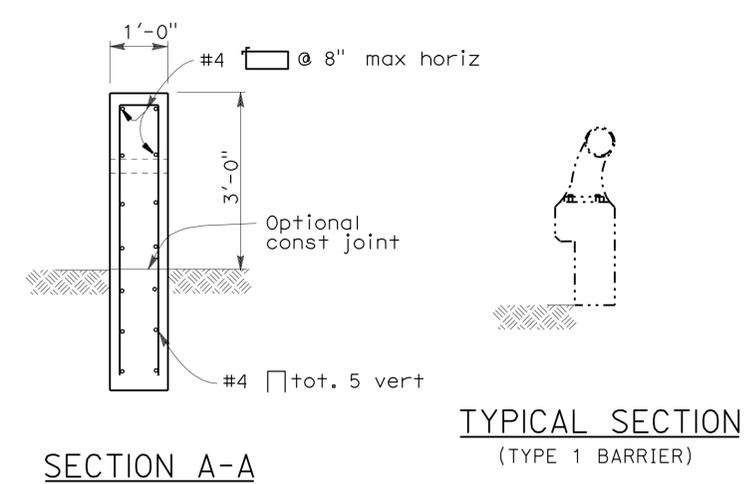
REGISTERED PROFESSIONAL ENGINEER  
FELIX ALTAMIRANO  
No. C56401  
Exp. 6/30/11  
CIVIL  
STATE OF CALIFORNIA



PLAN \* 5"x 5" chamfer



ELEVATION TYPE I



- Notes:
- For limits of excavation and backfill, see Standard Plans A62C, section E-E.
  - The contractor shall verify all controlling field dimensions, before ordering or fabricating any material.

NO SCALE

DESIGN	BY	Felix Altamirano	CHECKED	N.Kanepathipillai	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN SPECIAL DESIGN BRANCH	BRIDGE NO.	54-0761R	HIGHLAND AVE UC - NB APPROACH ANCHOR BLOCK DETAILS		
	DETAILS	BY	Hung Nguyen	CHECKED			N.Kanepathipillai	POST MILE		RO.49	
	QUANTITIES	BY	N.Kanepathipillai	CHECKED			Yu Song				
STRUCTURES DESIGN SPECIAL DESIGN SHEET (ENGLISH) (REV. 10-25-05)						ORIGINAL SCALE IN INCHES FOR REDUCED PLANS	0 1 2 3	CU 08 EA 0E5701	DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES	SHEET 4 OF 26

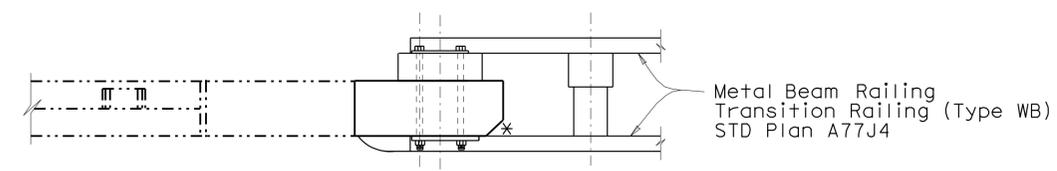
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
08	SBd	66,259, 330	Var	59	80

*Felix S. Altamirano* 8/1/30/09  
REGISTERED CIVIL ENGINEER DATE

8-24-09  
PLANS APPROVAL DATE

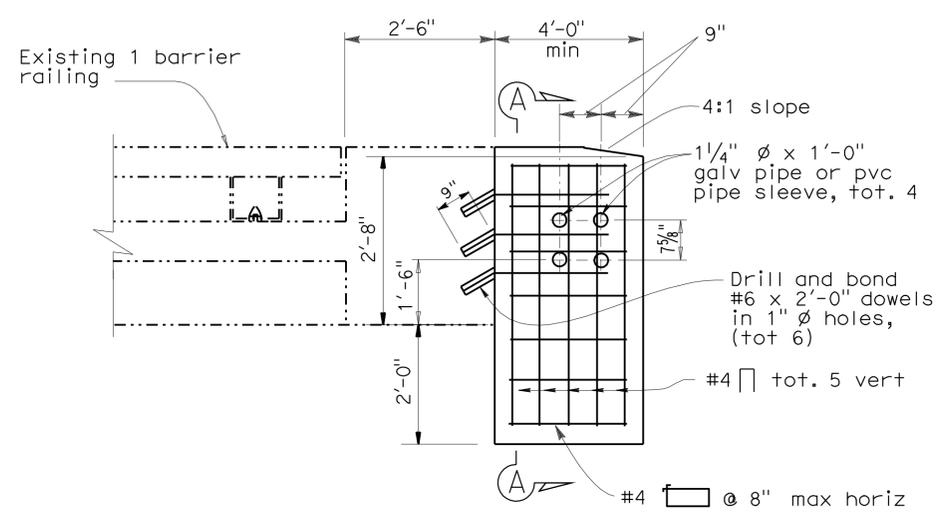
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REGISTERED PROFESSIONAL ENGINEER  
FELIX ALTAMIRANO  
No. C56401  
Exp. 6/30/11  
CIVIL  
STATE OF CALIFORNIA

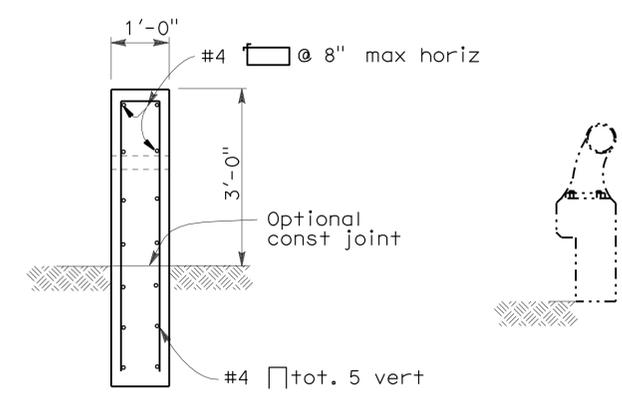


← DIRECTION OF TRAFFIC

PLAN \* 5"x 5" chamfer



ELEVATION TYPE I



SECTION A-A

TYPICAL SECTION (TYPE 1 BARRIER)

Notes:

1. For limits of excavation and backfill, see Standard Plans A62C, section E-E.
2. The contractor shall verify all controlling field dimensions, before ordering or fabricating any material.

NO SCALE

STRUCTURES DESIGN SPECIAL DESIGN SHEET (ENGLISH) (REV. 10-25-05)	DESIGN	BY Felix Altamirano	CHECKED N.Kanepathipillai	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN SPECIAL DESIGN BRANCH	BRIDGE NO.	54-0761L	HIGHLAND AVE UC - SB APPROACH ANCHOR BLOCK DETAILS
	DETAILS	BY Hung Nguyen	CHECKED N.Kanepathipillai			POST MILE	0.51	
	QUANTITIES	BY N.Kanepathipillai	CHECKED Yu Song			CU 08 EA 0E5701	REVISION DATES	
ORIGINAL SCALE IN INCHES FOR REDUCED PLANS				0 1 2 3	DISREGARD PRINTS BEARING EARLIER REVISION DATES	SHEET 5	OF 26	

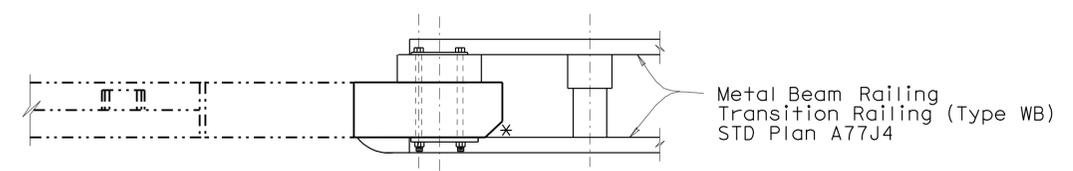
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
08	SBd	66,259, 330	Var	60	80

*Felix S. Altamirano* 1/30/09  
REGISTERED CIVIL ENGINEER DATE

8-24-09  
PLANS APPROVAL DATE

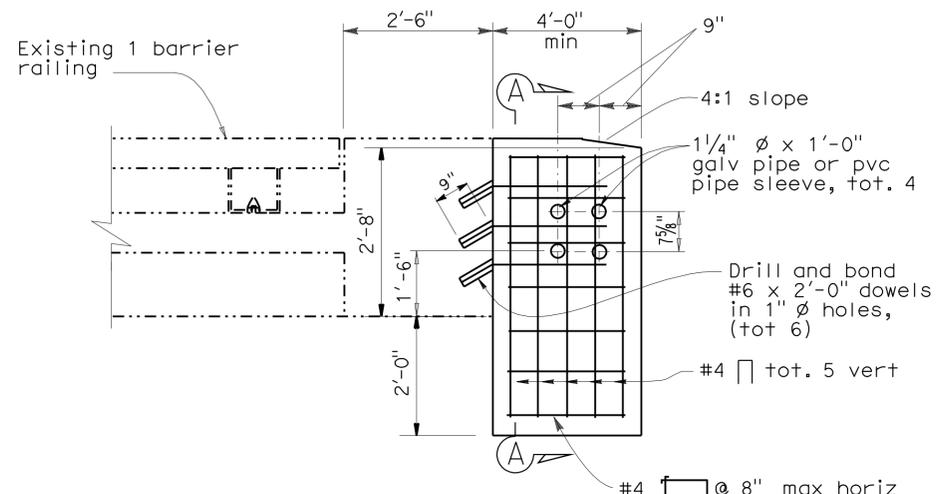
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REGISTERED PROFESSIONAL ENGINEER  
FELIX ALTAMIRANO  
No. C56401  
Exp. 6/30/11  
CIVIL  
STATE OF CALIFORNIA

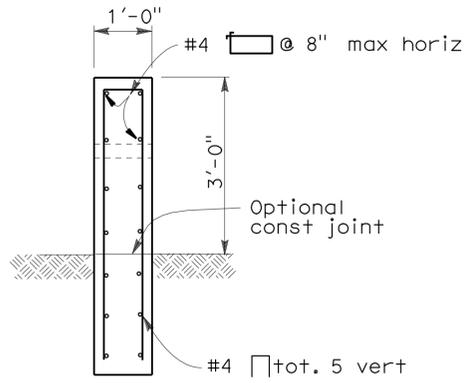


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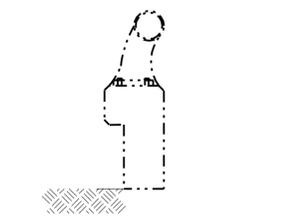
PLAN \* 5"x 5" chamfer



ELEVATION TYPE I



SECTION A-A



TYPICAL SECTION (TYPE 1 BARRIER)

- Notes:
- For limits of excavation and backfill, see Standard Plans A62C, section E-E.
  - The contractor shall verify all controlling field dimensions, before ordering or fabricating any material.

NO SCALE

DESIGN	BY Felix Altamirano	CHECKED N.Kanepathipillai
DETAILS	BY Hung Nguyen	CHECKED N.Kanepathipillai
QUANTITIES	BY N.Kanepathipillai	CHECKED Yu Song

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES  
STRUCTURE DESIGN  
SPECIAL DESIGN BRANCH

BRIDGE NO.	54-0762R
POST MILE	0.54

27<sup>TH</sup> ST UC - NB APPROACH  
ANCHOR BLOCK DETAILS

USERNAME => fhmikes DATE PLOTTED => 28-AUG-2009 TIME PLOTTED => 13:06

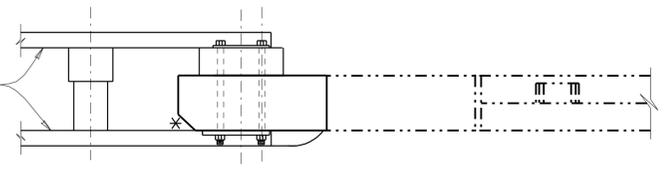
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
08	SBd	66,259, 330	Var	61	80

*Felix S. Altamirano* 7/30/09  
REGISTERED CIVIL ENGINEER DATE

8-24-09  
PLANS APPROVAL DATE

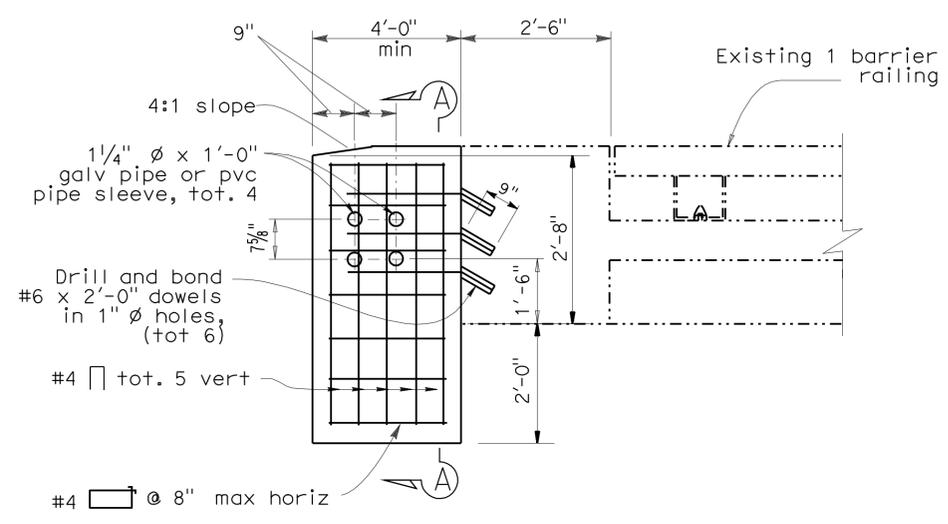
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

Metal Beam Guard Railing  
Connections to Bridge Railing  
Detail No. 1  
STD Plan A77J1

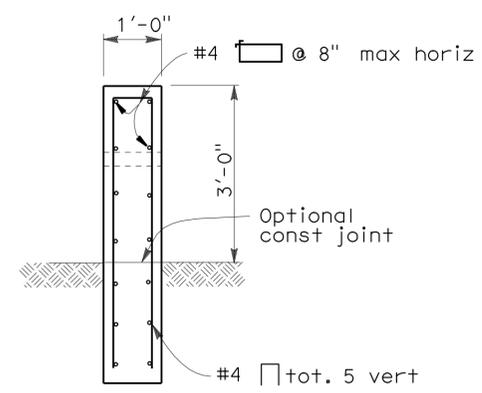


← DIRECTION OF TRAFFIC

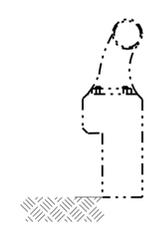
PLAN \* 5"x 5" chamfer



ELEVATION  
TYPE I



SECTION A-A



TYPICAL SECTION  
(TYPE 1 BARRIER)

Notes:

- For limits of excavation and backfill, see Standard Plans A62C, section E-E.
- The contractor shall verify all controlling field dimensions, before ordering or fabricating any material.

NO SCALE

DESIGN	BY Felix Altamirano	CHECKED N.Kanepathipillai
DETAILS	BY Hung Nguyen	CHECKED N.Kanepathipillai
QUANTITIES	BY N.Kanepathipillai	CHECKED Yu Song

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES  
STRUCTURE DESIGN  
SPECIAL DESIGN BRANCH

BRIDGE NO.	54-0762R
POST MILE	0.83

27<sup>TH</sup> ST UC - NB DEPARTURE  
ANCHOR BLOCK DETAILS

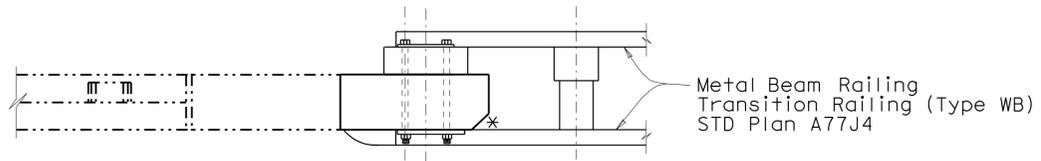
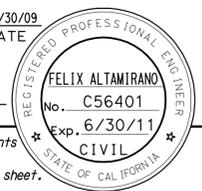
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08	SBd	66,259, 330	Var	62	80

*Felix S. Altamirano* 7/30/09  
REGISTERED CIVIL ENGINEER DATE

8-24-09  
PLANS APPROVAL DATE

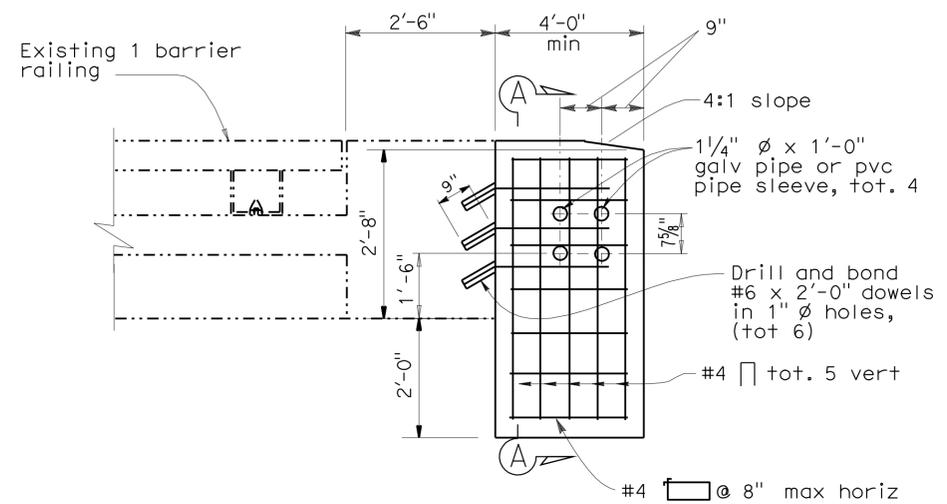
No. C56401  
Exp. 6/30/11  
CIVIL

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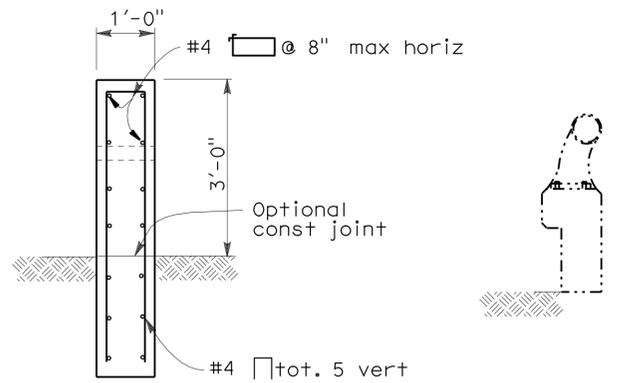


← DIRECTION OF TRAFFIC

PLAN \* 5"x 5" chamfer



ELEVATION TYPE I



SECTION A-A

TYPICAL SECTION (TYPE 1 BARRIER)

Notes:

- For limits of excavation and backfill, see Standard Plans A62C, section E-E.
- The contractor shall verify all controlling field dimensions, before ordering or fabricating any material.

NO SCALE

DESIGN	BY Felix Altamirano	CHECKED N.Kanepathipillai
DETAILS	BY Hung Nguyen	CHECKED N.Kanepathipillai
QUANTITIES	BY N.Kanepathipillai	CHECKED Yu Song

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES  
STRUCTURE DESIGN  
SPECIAL DESIGN BRANCH

BRIDGE NO.	54-0762L
POST MILE	0.83

27<sup>TH</sup> ST UC - SB APPROACH  
ANCHOR BLOCK DETAILS

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
08	SBd	66,259, 330	Var	63	80

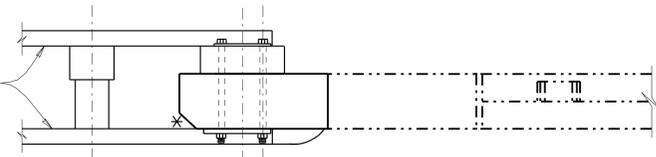
*Felix S. Altamirano* 1/30/09  
REGISTERED CIVIL ENGINEER DATE

8-24-09  
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  
FELIX ALTAMIRANO  
No. C56401  
Exp. 6/30/11  
CIVIL  
STATE OF CALIFORNIA

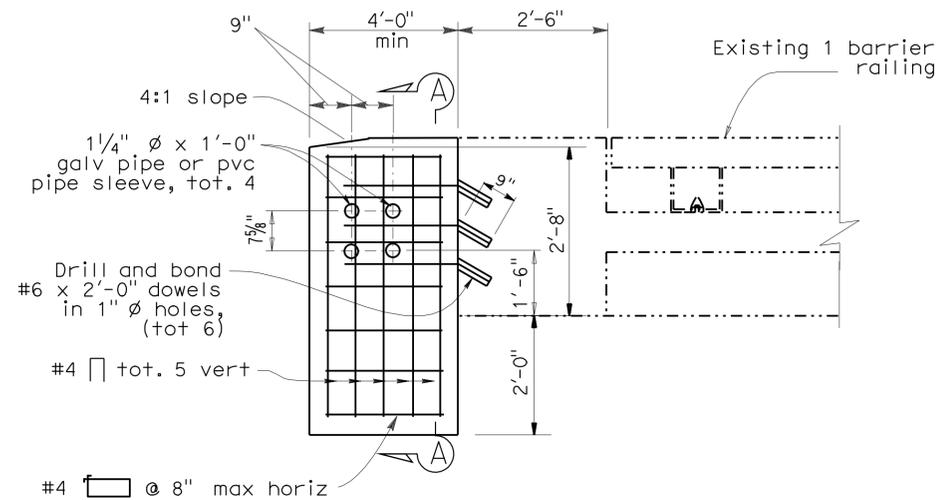
Metal Beam Guard Railing  
Connections to Bridge Railing  
Detail No. 1  
STD Plan A77J1



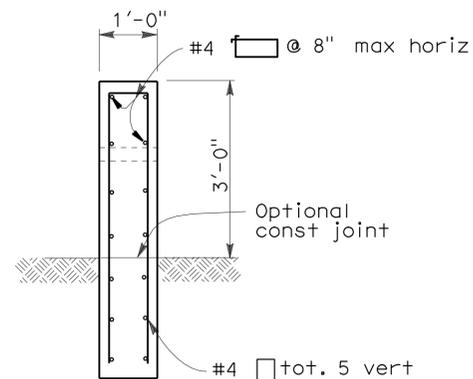
← DIRECTION OF TRAFFIC

PLAN

\* 5"x 5" chamfer



ELEVATION  
TYPE I



SECTION A-A

TYPICAL SECTION  
(TYPE 1 BARRIER)

Notes:

1. For limits of excavation and backfill, see Standard Plans A62C, section E-E.
2. The contractor shall verify all controlling field dimensions, before ordering or fabricating any material.

NO SCALE

DESIGN	BY Felix Altamirano	CHECKED N.Kanepathipillai
DETAILS	BY Hung Nguyen	CHECKED N.Kanepathipillai
QUANTITIES	BY N.Kanepathipillai	CHECKED Yu Song

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES  
STRUCTURE DESIGN  
SPECIAL DESIGN BRANCH

BRIDGE NO.	54-0762L
POST MILE	0.56

27<sup>TH</sup> ST UC - SB DEPARTURE  
ANCHOR BLOCK DETAILS



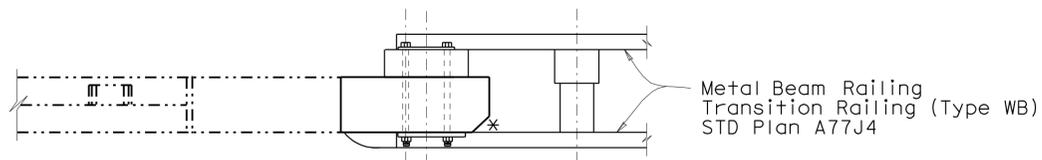
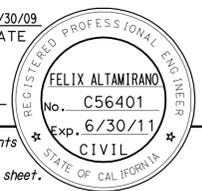
REVISION DATES	
10/27/08	6/5/09

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
08	SBd	66,259, 330	Var	64	80

Felix S. Altamirano 1/30/09  
REGISTERED CIVIL ENGINEER DATE

8-24-09  
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.

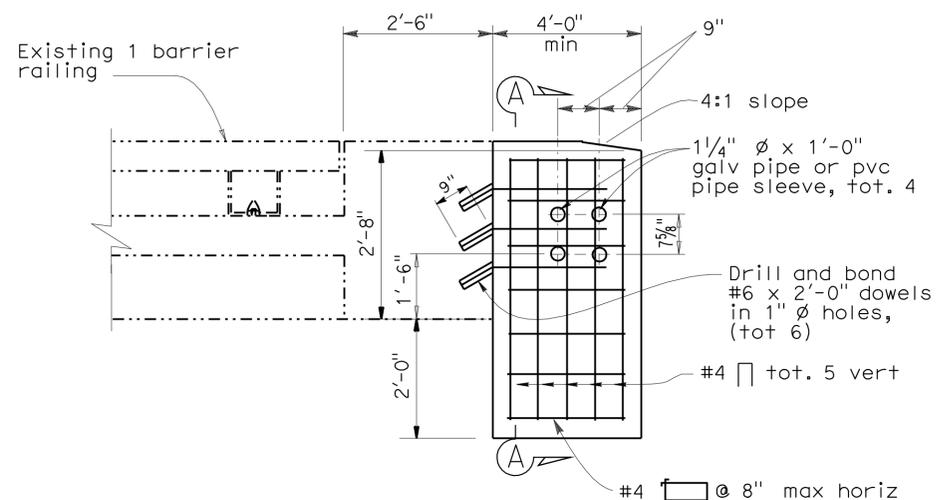


Metal Beam Railing  
Transition Railing (Type WB)  
STD Plan A77J4

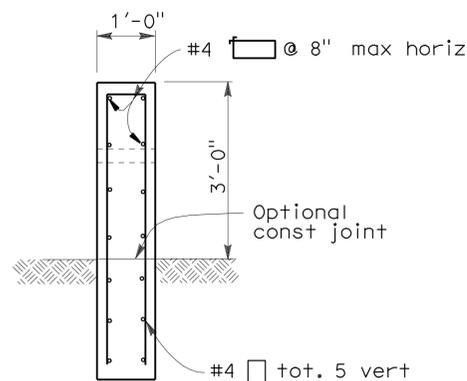
← DIRECTION OF TRAFFIC

PLAN

\* 5"x 5" chamfer



ELEVATION  
TYPE I



SECTION A-A

TYPICAL SECTION  
(TYPE 1 BARRIER)

Notes:

- For limits of excavation and backfill, see Standard Plans A62C, section E-E.
- The contractor shall verify all controlling field dimensions, before ordering or fabricating any material.

NO SCALE

DESIGN	BY Felix Altamirano	CHECKED N.Kanepathipillai
DETAILS	BY Hung Nguyen	CHECKED N.Kanepathipillai
QUANTITIES	BY N.Kanepathipillai	CHECKED Yu Song

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES  
STRUCTURE DESIGN  
SPECIAL DESIGN BRANCH

BRIDGE NO.	54-0763R
POST MILE	0.83

H ST UC - NB APPROACH  
ANCHOR BLOCK DETAILS

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
08	SBd	66,259, 330	Var	65	80

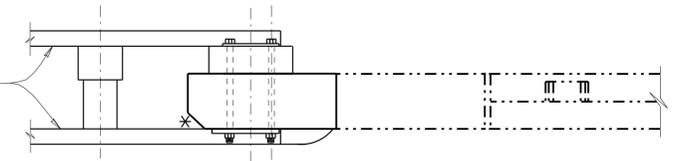
*Felix S. Altamirano* 1/30/09  
REGISTERED CIVIL ENGINEER DATE

8-24-09  
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.*

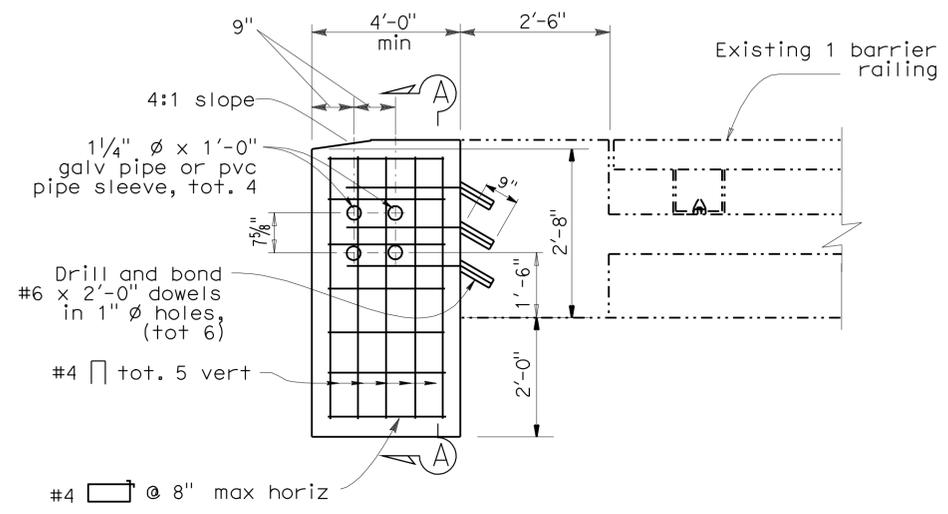
REGISTERED PROFESSIONAL ENGINEER  
FELIX ALTAMIRANO  
No. C56401  
Exp. 6/30/11  
CIVIL  
STATE OF CALIFORNIA

Metal Beam Guard Railing  
Connections to Bridge Railing  
Detail No. 1  
STD Plan A77J1

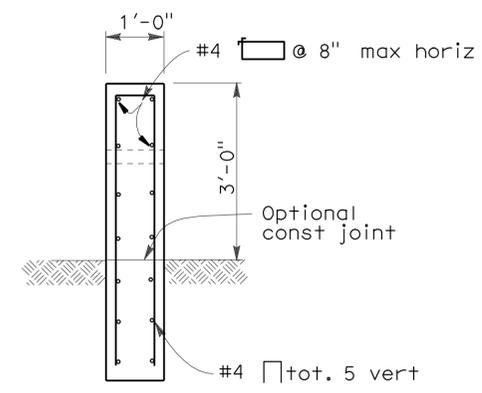


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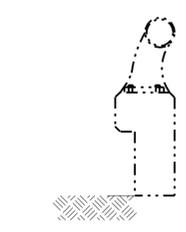
PLAN \* 5"x 5" chamfer



ELEVATION  
TYPE 1



SECTION A-A



TYPICAL SECTION  
(TYPE 1 BARRIER)

Notes:

1. For limits of excavation and backfill, see Standard Plans A62C, section E-E.
2. The contractor shall verify all controlling field dimensions, before ordering or fabricating any material.

NO SCALE

DESIGN	BY Felix Altamirano	CHECKED N. Kanepathipillai
DETAILS	BY Hung Nguyen	CHECKED N. Kanepathipillai
QUANTITIES	BY N. Kanepathipillai	CHECKED Yu Song

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES  
STRUCTURE DESIGN  
SPECIAL DESIGN BRANCH

BRIDGE NO.	54-0763R
POST MILE	1.05

H ST UC - NB LEFT SIDE DEPARTURE  
ANCHOR BLOCK DETAILS

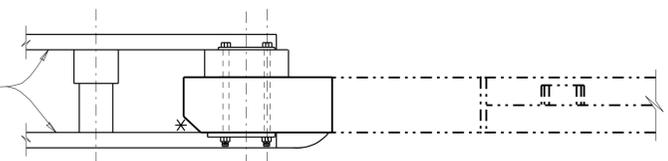
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
08	SBd	66, 259, 330	Var	66	80

Felix S. Altamirano 7/30/09  
REGISTERED CIVIL ENGINEER DATE

8-24-09  
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.

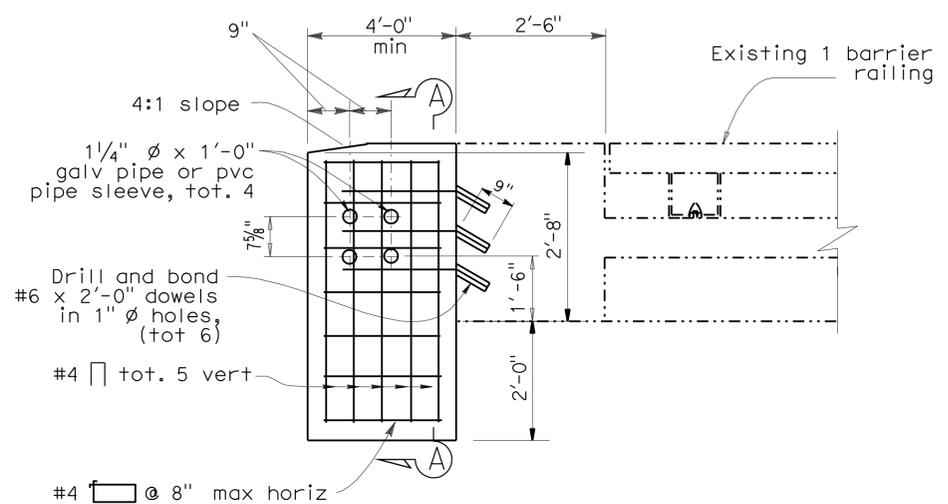
Metal Beam Guard Railing  
Connections to Bridge Railing  
Detail No. 1  
STD Plan A77J1



← DIRECTION OF TRAFFIC

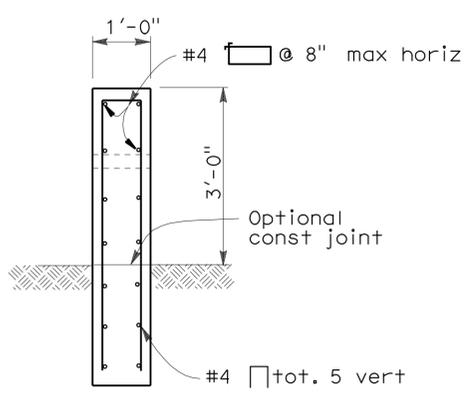
PLAN

\* 5"x 5" chamfer

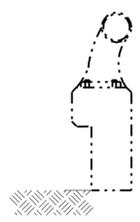


ELEVATION

TYPE I



SECTION A-A



TYPICAL SECTION

(TYPE 1 BARRIER)

Notes:

1. For limits of excavation and backfill, see Standard Plans A62C, section E-E.
2. The contractor shall verify all controlling field dimensions, before ordering or fabricating any material.

NO SCALE

DESIGN	BY Felix Altamirano	CHECKED N. Kanepathipillai
DETAILS	BY Hung Nguyen	CHECKED N. Kanepathipillai
QUANTITIES	BY N. Kanepathipillai	CHECKED Yu Song

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES  
STRUCTURE DESIGN  
SPECIAL DESIGN BRANCH

BRIDGE NO.	54-0763R
POST MILE	1.05

H ST UC - NB RIGHT SIDE DEPARTURE  
ANCHOR BLOCK DETAILS

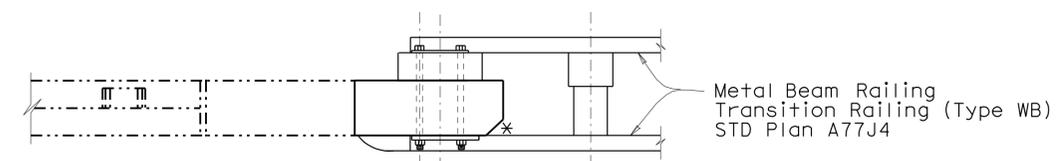
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
08	SBd	66, 259, 330	Var	67	80

*Felix S. Altamirano* 1/30/09  
REGISTERED CIVIL ENGINEER DATE

8-24-09  
PLANS APPROVAL DATE

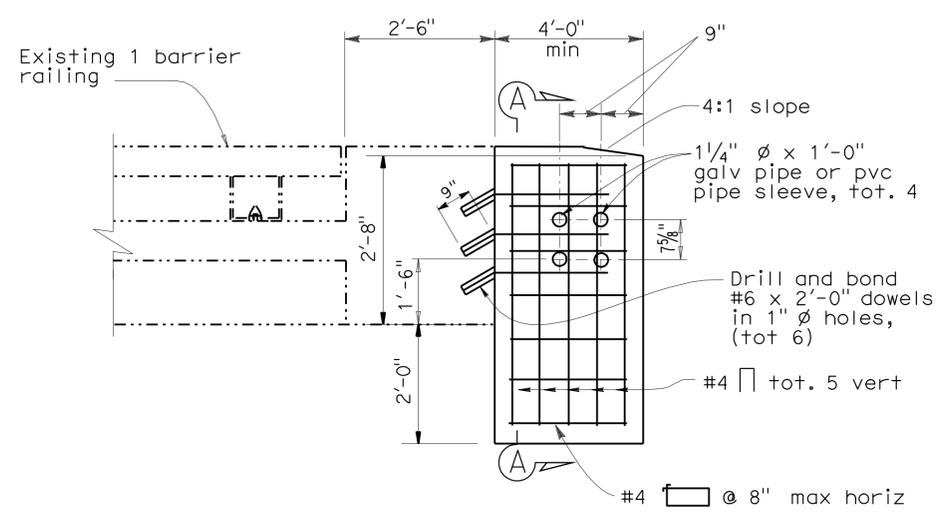
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

REGISTERED PROFESSIONAL ENGINEER  
FELIX ALTAMIRANO  
No. C56401  
Exp. 6/30/11  
CIVIL  
STATE OF CALIFORNIA

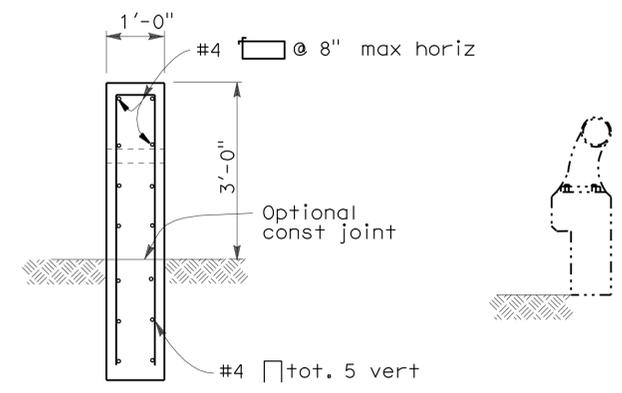


← DIRECTION OF TRAFFIC

PLAN \* 5"x 5" chamfer



ELEVATION TYPE I



SECTION A-A

TYPICAL SECTION (TYPE 1 BARRIER)

Notes:

1. For limits of excavation and backfill, see Standard Plans A62C, section E-E.
2. The contractor shall verify all controlling field dimensions, before ordering or fabricating any material.

NO SCALE

DESIGN	BY Felix Altamirano	CHECKED N. Kanepathipillai
DETAILS	BY Hung Nguyen	CHECKED N. Kanepathipillai
QUANTITIES	BY N. Kanepathipillai	CHECKED Yu Song

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES  
STRUCTURE DESIGN  
SPECIAL DESIGN BRANCH

BRIDGE NO.	54-0763L
POST MILE	1.05

H ST UC - SB APPROACH  
ANCHOR BLOCK DETAILS

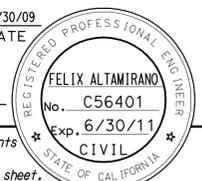
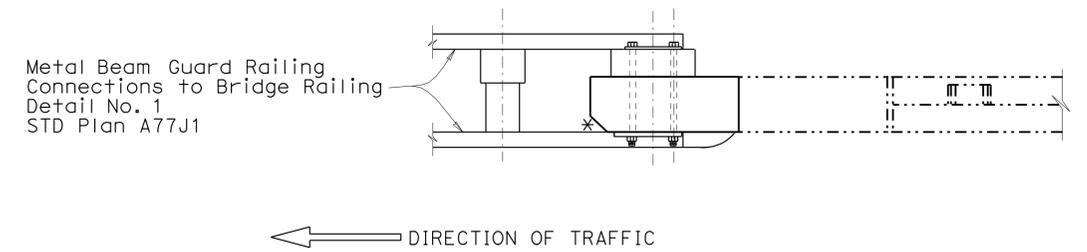
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DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
08	SBd	66, 259, 330	Var	68	80

*Felix S. Altamirano* 1/30/09  
REGISTERED CIVIL ENGINEER DATE

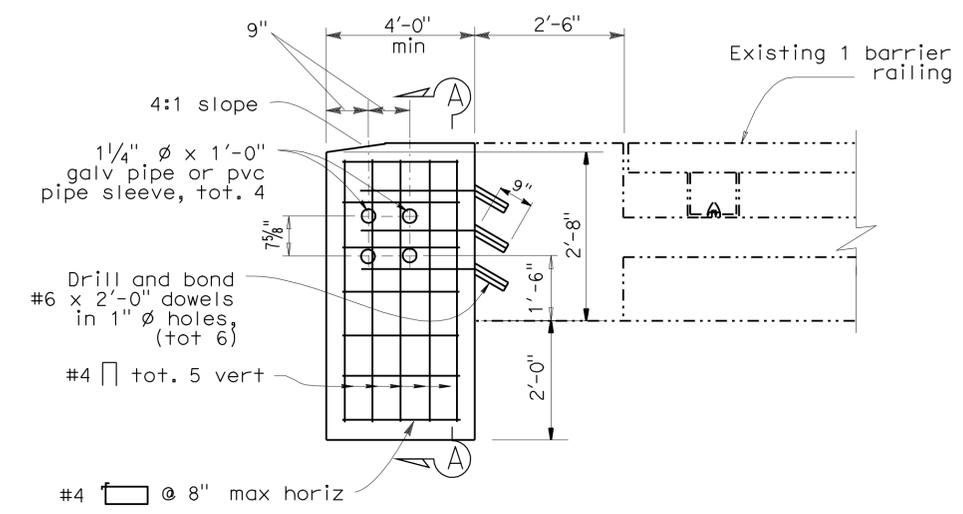
8-24-09  
PLANS APPROVAL DATE

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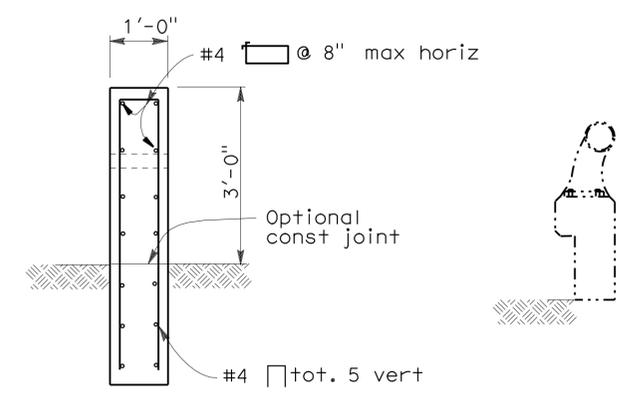



← DIRECTION OF TRAFFIC

**PLAN** \* 5"x 5" chamfer



**ELEVATION**  
**TYPE I**



**SECTION A-A**

**TYPICAL SECTION**  
(TYPE 1 BARRIER)

- Notes:
1. For limits of excavation and backfill, see Standard Plans A62C, section E-E.
  2. The contractor shall verify all controlling field dimensions, before ordering or fabricating any material.

**NO SCALE**

DESIGN	BY Felix Altamirano	CHECKED N. Kanepathipillai
DETAILS	BY Hung Nguyen	CHECKED N. Kanepathipillai
QUANTITIES	BY N. Kanepathipillai	CHECKED Yu Song

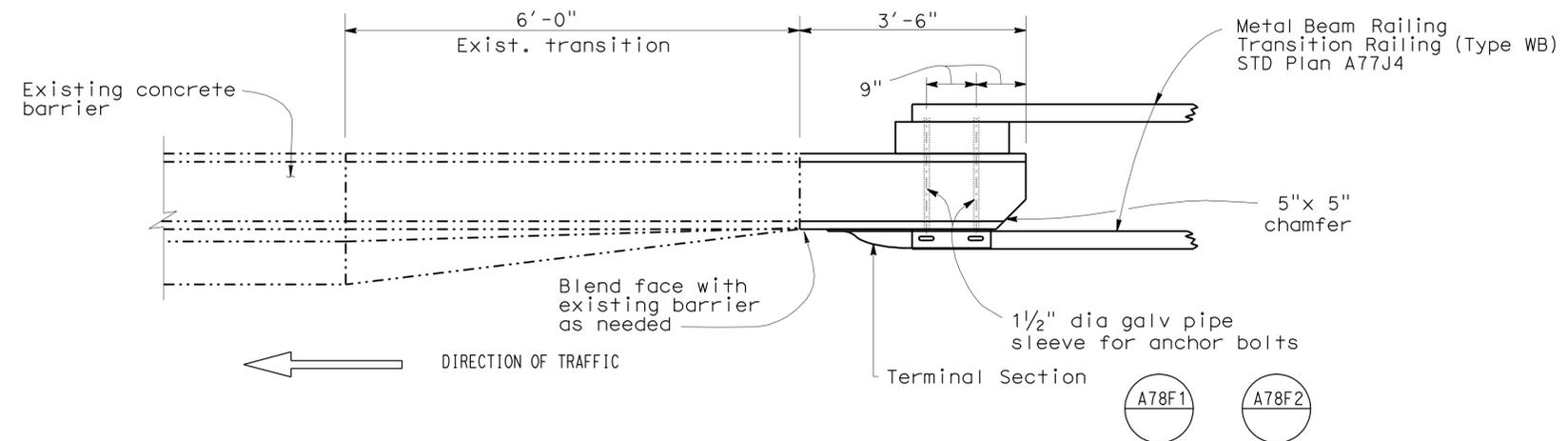
**STATE OF CALIFORNIA**  
DEPARTMENT OF TRANSPORTATION

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

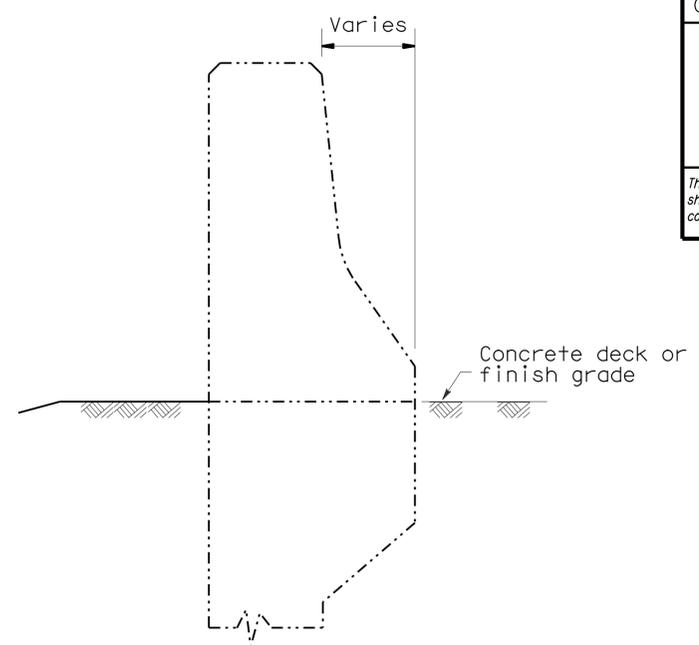
BRIDGE NO.	54-0763L
POST MILE	0.83

**H ST UC - SB DEPARTURE**  
**ANCHOR BLOCK DETAILS**

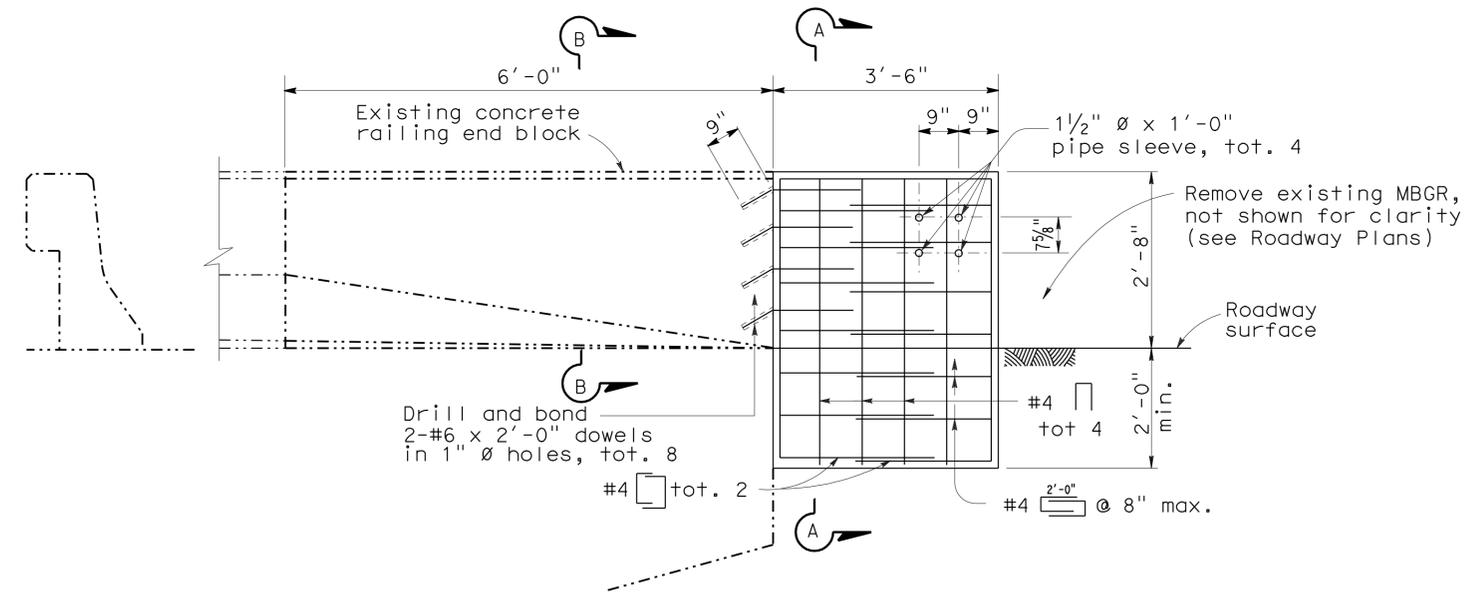
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
08	SBd	66, 259, 330	Var	69	80
<i>Felix S. Altamirano</i> 7/30/09 REGISTERED CIVIL ENGINEER DATE					
8-24-09 PLANS APPROVAL DATE					
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.					



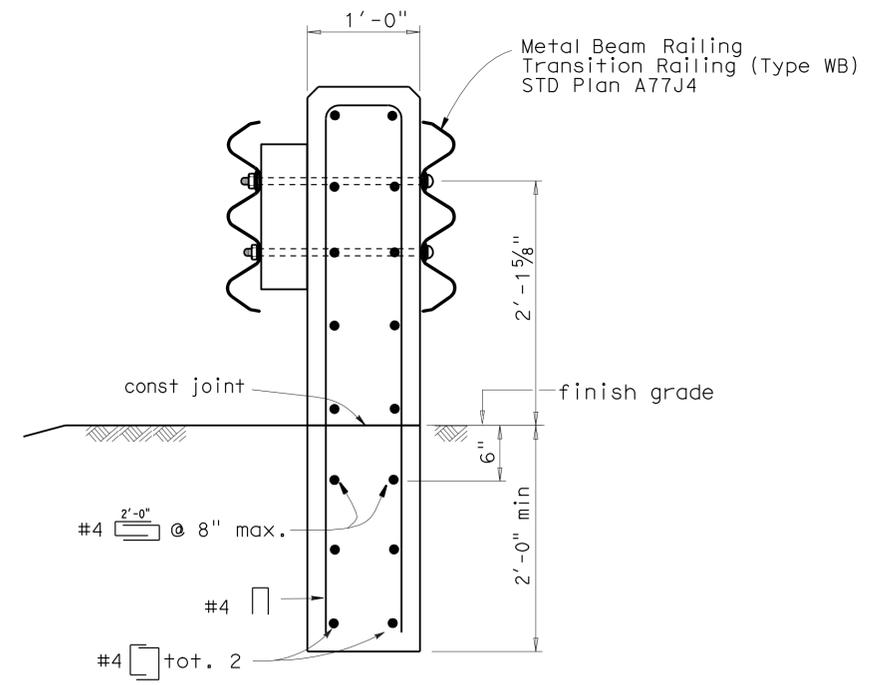
PLAN



SECTION B-B



ELEVATION



SECTION A-A

- Notes:
- For limits of excavation and backfill, see Standard Plans A62C, section E-E.
  - The contractor shall verify all controlling field dimensions, before ordering or fabricating any material.

NO SCALE

STRUCTURES DESIGN SPECIAL DESIGN SHEET (ENGLISH) (REV. 10-25-05)	DESIGN	BY Felix Altamirano	CHECKED N. Kanepathipillai	<b>STATE OF CALIFORNIA</b> DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN <b>SPECIAL DESIGN BRANCH</b>	BRIDGE NO.	<b>S 259 - S 215 CONNECTOR - SB APPROACH</b> <b>ANCHOR BLOCK DETAILS</b>
	DETAILS	BY Hung Nguyen	CHECKED N. Kanepathipillai			54-0523F	
	QUANTITIES	BY N. Kanepathipillai	CHECKED Yu Song			POST MILE R0.04	
ORIGINAL SCALE IN INCHES FOR REDUCED PLANS				0 1 2 3	CU 08 EA 0E5701	DISREGARD PRINTS BEARING EARLIER REVISION DATES	
						REVISION DATES: 8/19/08, 10/27/08, 6/4/09	
						SHEET 15	OF 26

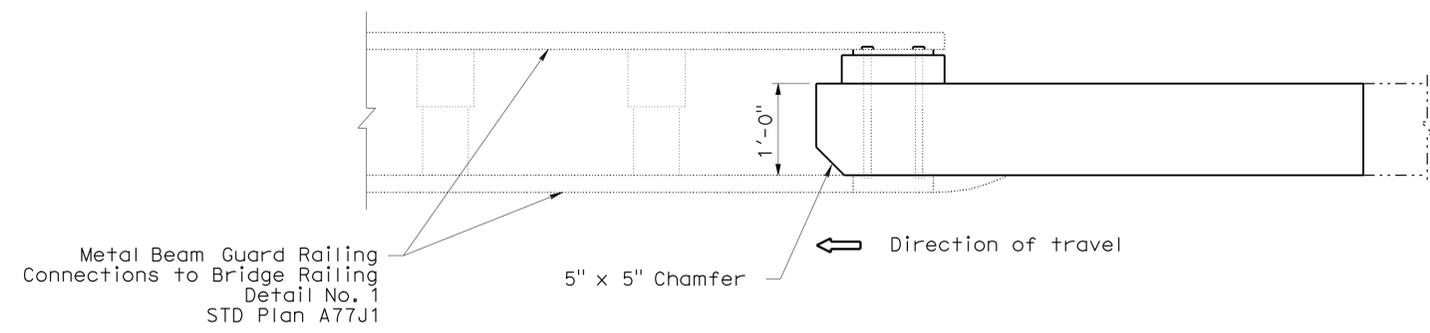
USERNAME => fhmikes DATE PLOTTED => 28-AUG-2009 TIME PLOTTED => 13:08

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
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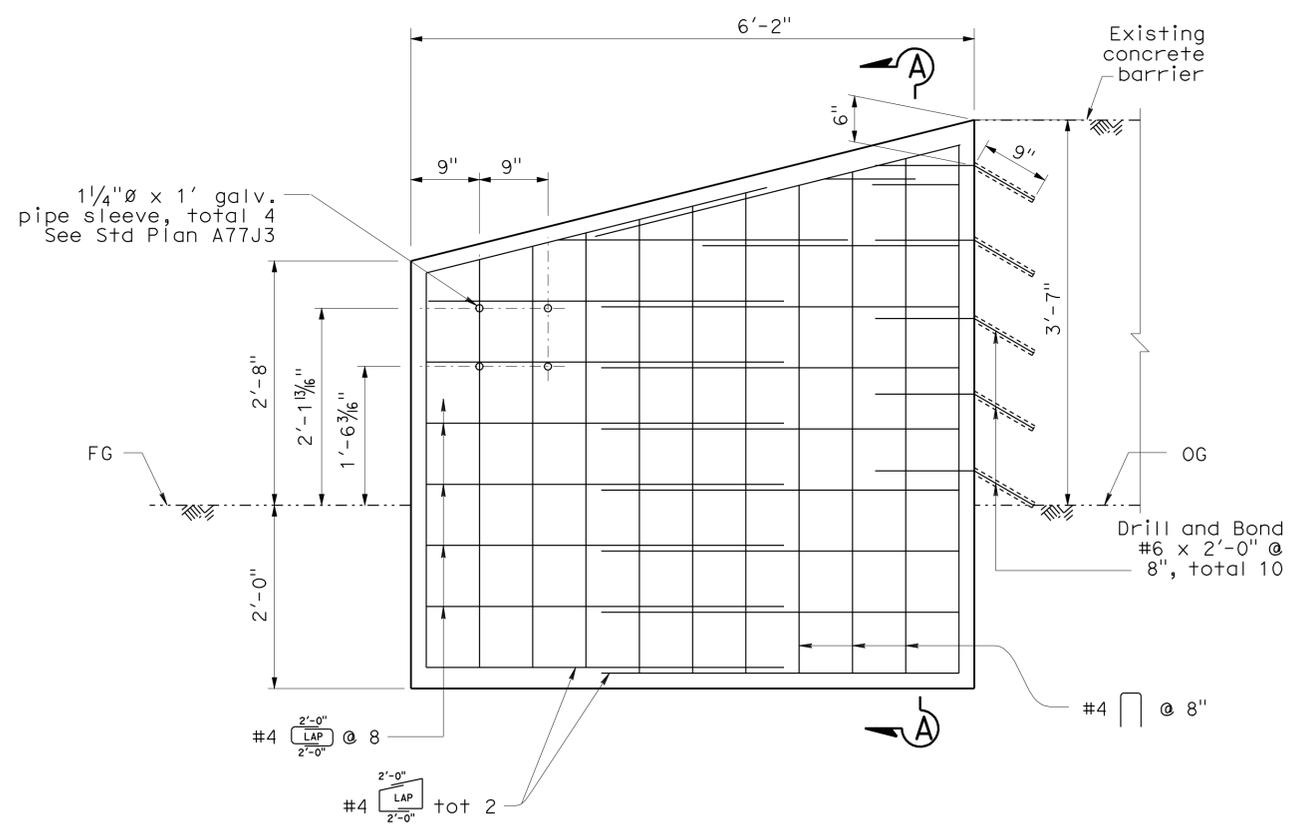
Felix S. Altamirano 7/30/09  
REGISTERED CIVIL ENGINEER DATE

8-24-09  
PLANS APPROVAL DATE

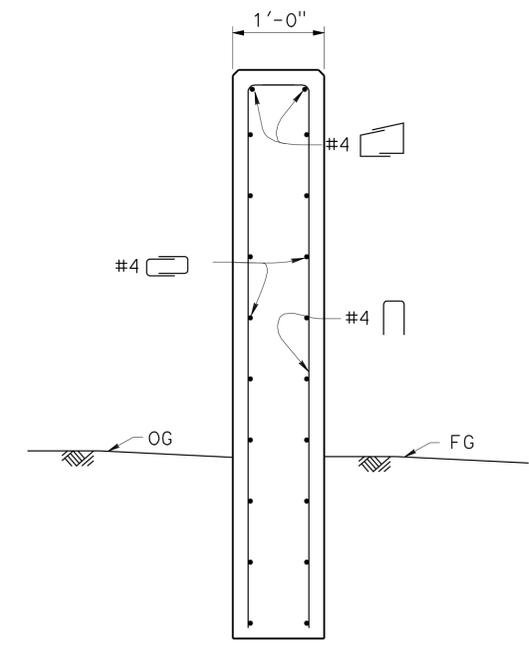
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.



**PLAN**  
No scale



**ELEVATION**  
No scale



**SECTION A-A**  
No scale

- Notes:
1. For limits of excavation and backfill, see Standard Plans A62C, section E-E.
  2. The contractor shall verify all controlling field dimensions, before ordering or fabricating any material.

STRUCTURES DESIGN SPECIAL DESIGN SHEET (ENGLISH) (REV. 10-25-05)	DESIGN	BY FELIX ALTAMIRANO	CHECKED N. KANEPATHIPILLAI	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN SPECIAL DESIGN BRANCH	BRIDGE NO.	54-0764F	W 210 - S 259 CONNECTOR OC DEPARTURE ANCHOR BLOCK DETAILS		
	DETAILS	BY HUNG NGUYEN	CHECKED N. KANEPATHIPILLAI			POST MILE	1.05			
	QUANTITIES	BY N. KANEPATHIPILLAI	CHECKED YU SONG							
	ORIGINAL SCALE IN INCHES FOR REDUCED PLANS				0 1 2 3	CU 08 EA 0e5701	DISREGARD PRINTS BEARING EARLIER REVISION DATES	10/28/08 1/22/09	REVISION DATES	SHEET 16 OF 26

USERNAME => fhmikes DATE PLOTTED => 28-AUG-2009 TIME PLOTTED => 13:08

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
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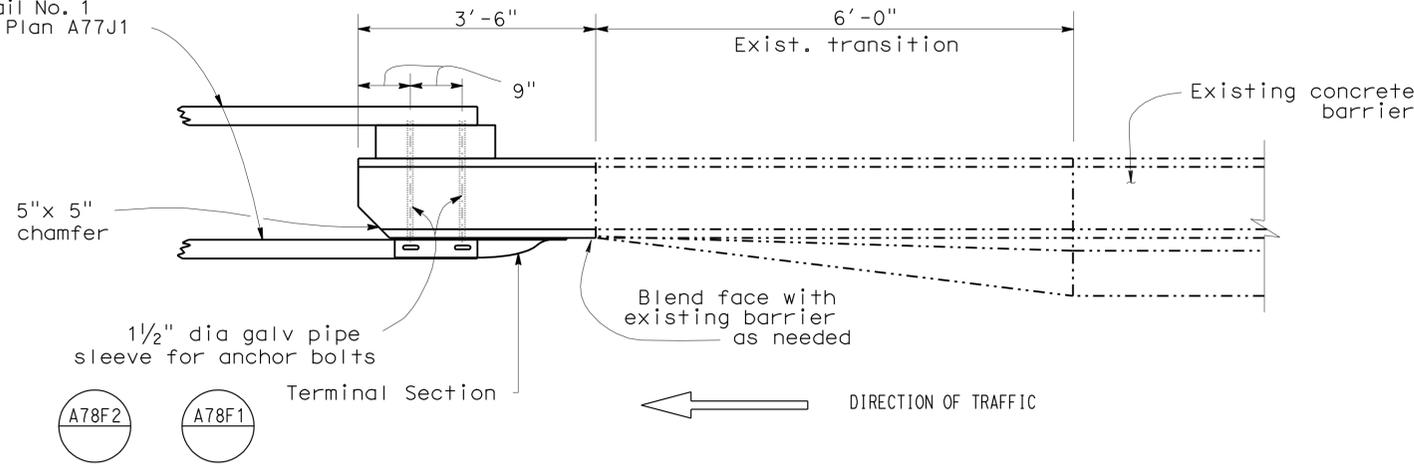
*Felix S. Altamirano* 1/30/09  
REGISTERED CIVIL ENGINEER DATE

8-24-09  
PLANS APPROVAL DATE

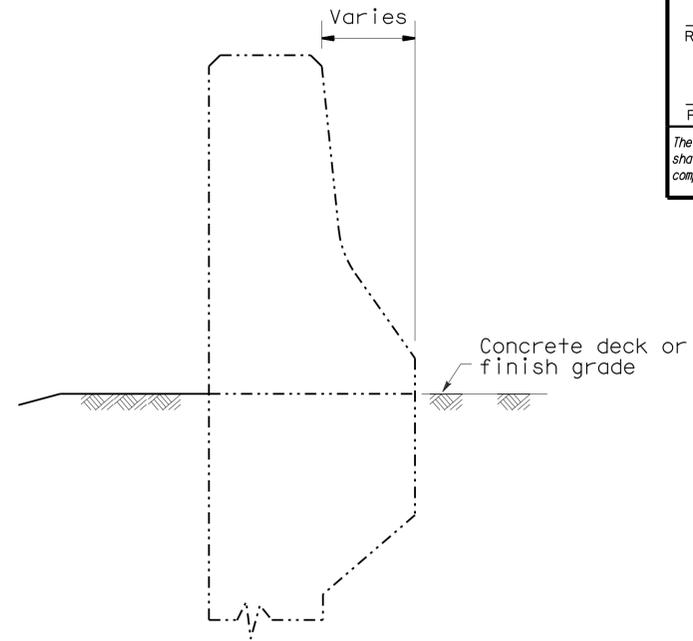
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

REGISTERED PROFESSIONAL ENGINEER  
FELIX ALTAMIRANO  
No. C56401  
Exp. 6/30/11  
CIVIL  
STATE OF CALIFORNIA

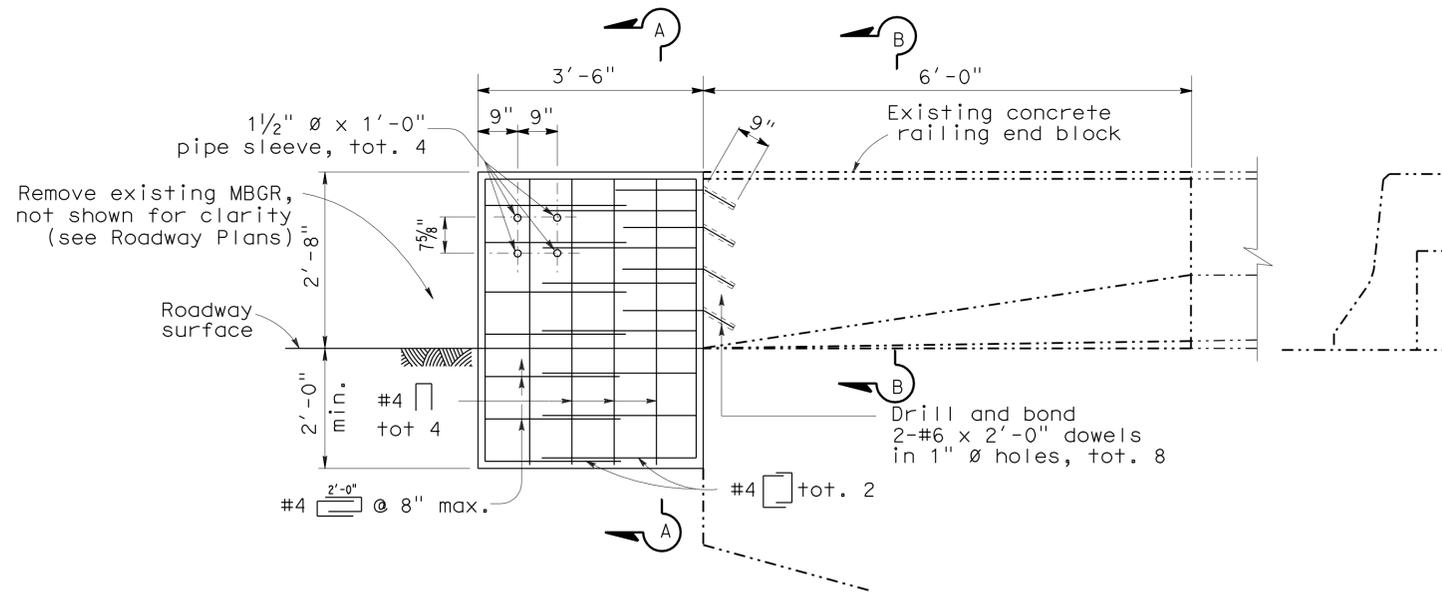
Metal Beam Guard Railing  
Connections to Bridge Railing  
Detail No. 1  
STD Plan A77J1



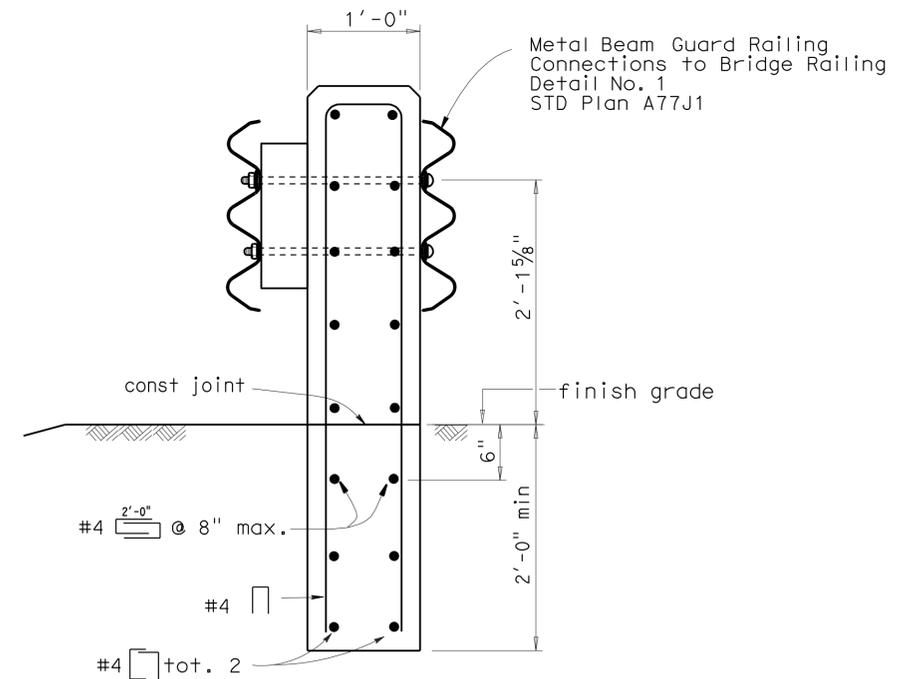
PLAN



SECTION B-B



ELEVATION



SECTION A-A

Notes:

1. For limits of excavation and backfill, see Standard Plans A62C, section E-E.
2. The contractor shall verify all controlling field dimensions, before ordering or fabricating any material.

NO SCALE

DESIGN	BY Felix Altamirano	CHECKED N. Kanepathipillai
DETAILS	BY Hung Nguyen	CHECKED N. Kanepathipillai
QUANTITIES	BY N. Kanepathipillai	CHECKED Yu Song

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES  
STRUCTURE DESIGN  
SPECIAL DESIGN BRANCH

BRIDGE NO.	54-1085
POST MILE	R29.30

BOULDER AVE UC - NB DEPARTURE  
ANCHOR BLOCK DETAILS

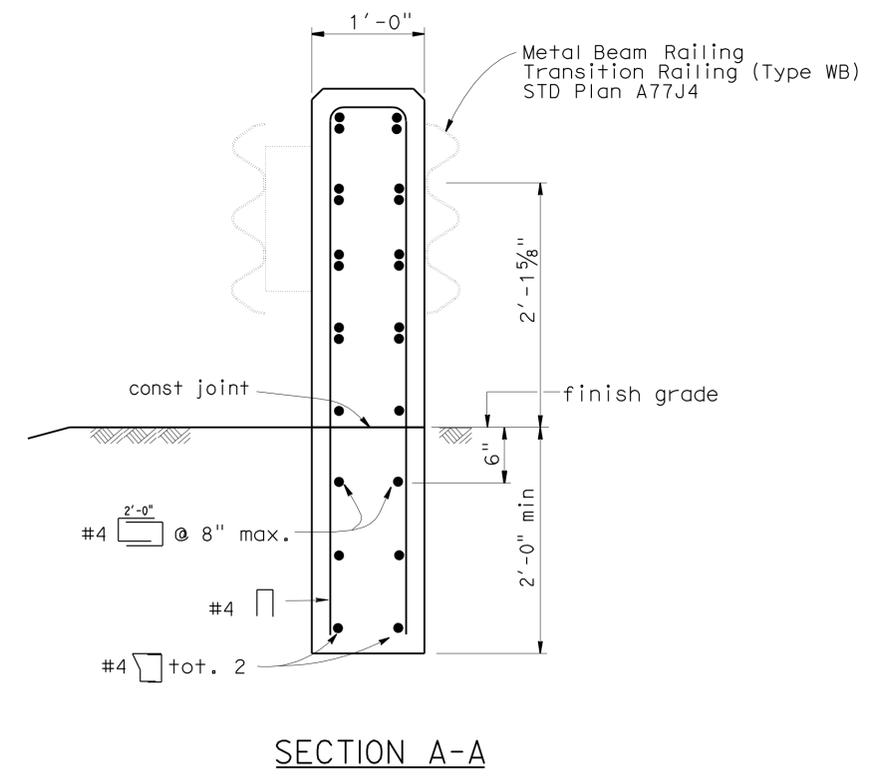
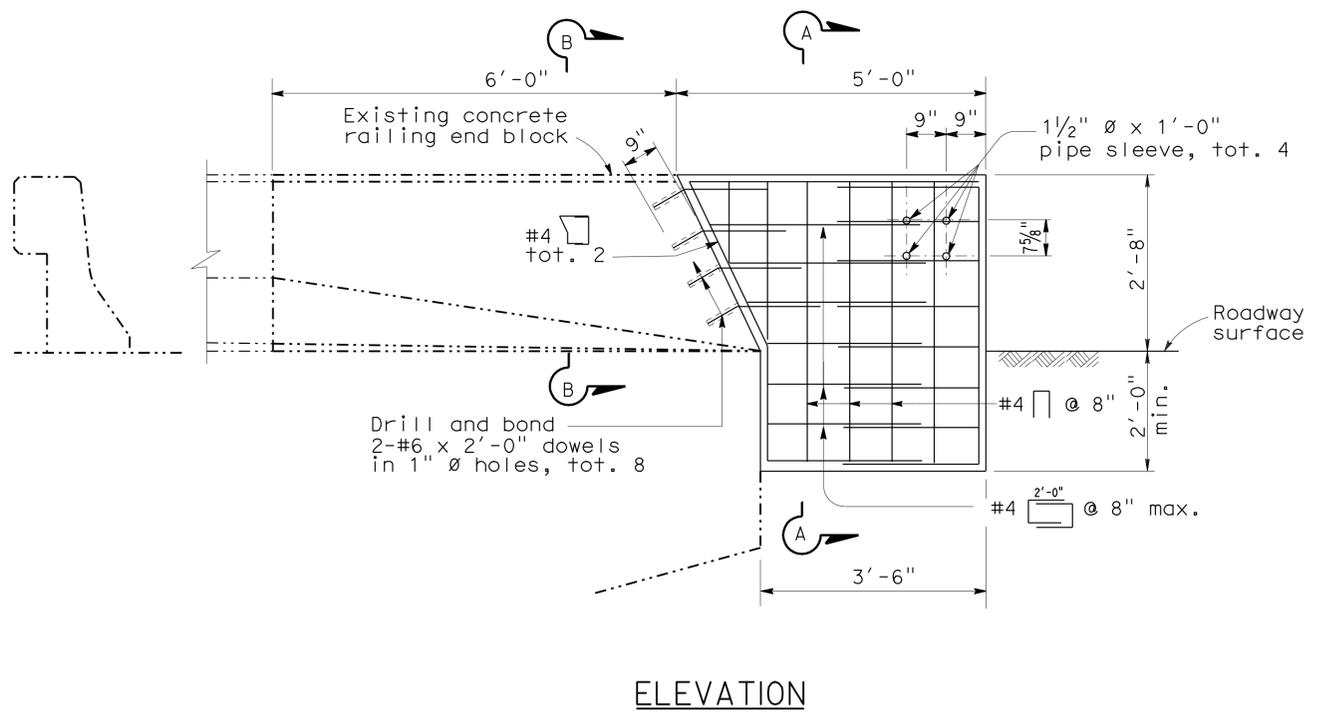
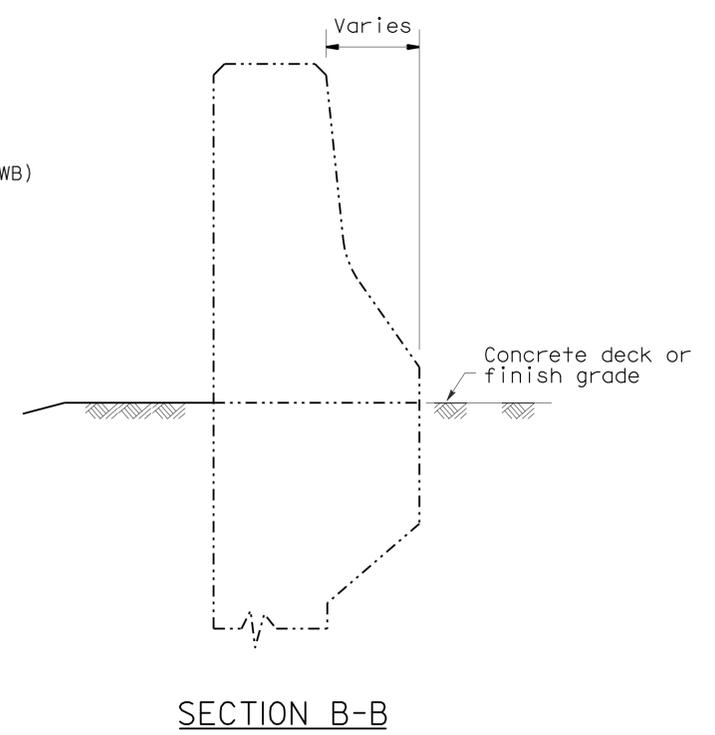
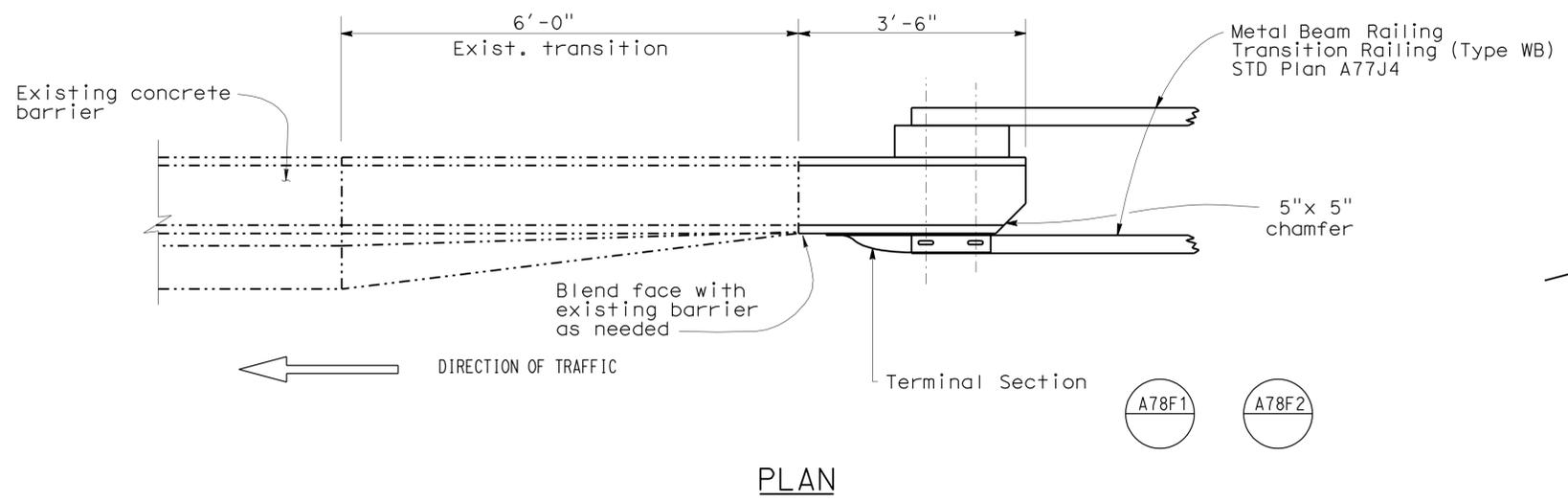
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
08	Sbd	66,259,330	Var	72	80

*Felix S. Altamirano* 8/130/09  
REGISTERED CIVIL ENGINEER DATE

8-24-09  
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  
**FELIX ALTAMIRANO**  
No. C56401  
Exp. 6/30/11  
CIVIL  
STATE OF CALIFORNIA



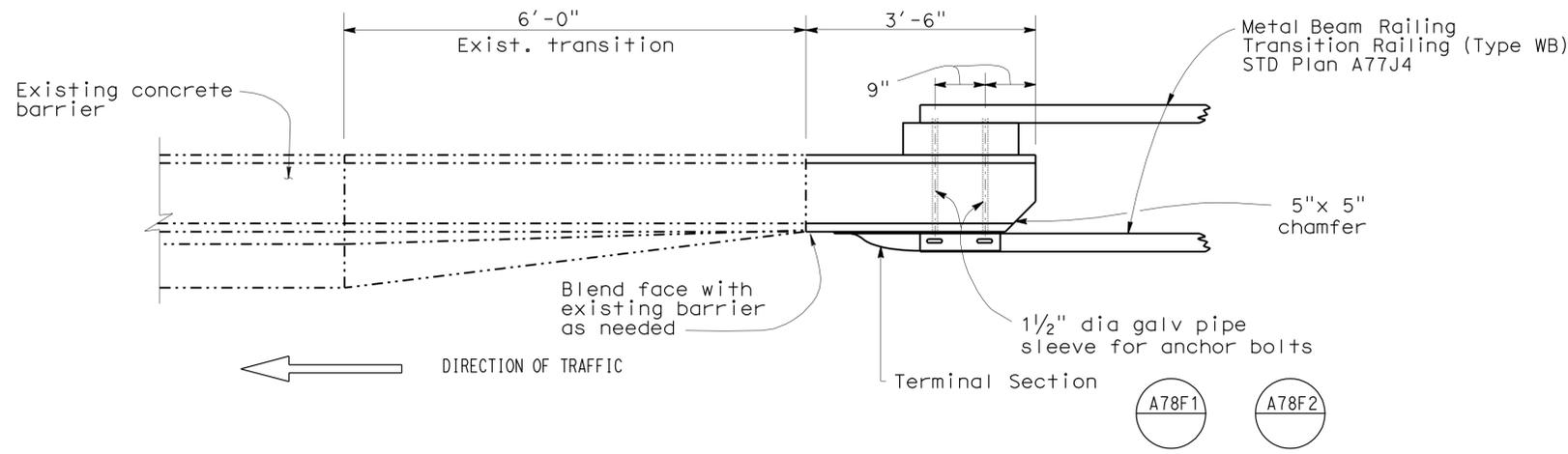
- Notes:
1. For limits of excavation and backfill, see Standard Plans A62C, section E-E.
  2. The contractor shall verify all controlling field dimensions, before ordering or fabricating any material.

**NO SCALE**

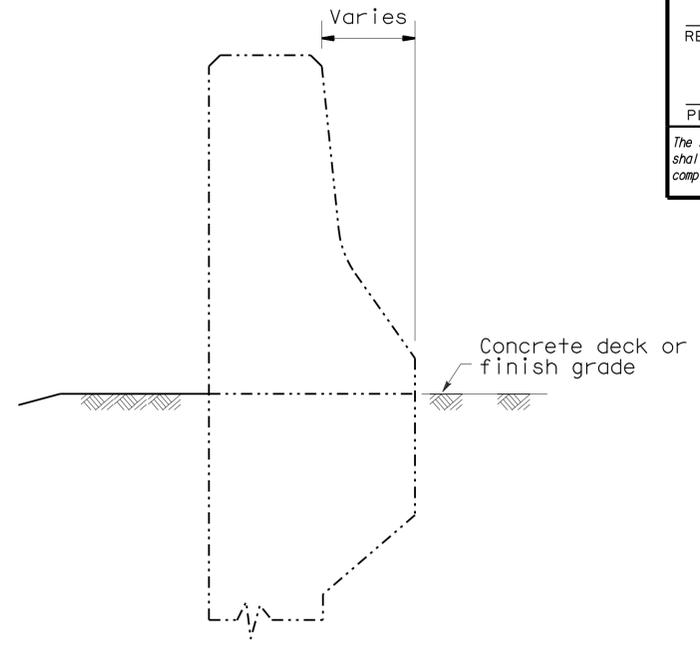
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	DETAILS	BY Hung Nguyen	CHECKED N.Kanepathipillai			54-1085		
	QUANTITIES	BY N.Kanepathipillai	CHECKED Yu Song			R29.03		
ORIGINAL SCALE IN INCHES FOR REDUCED PLANS						CU 08 EA 0E5701	REVISION DATES	SHEET 18 OF 26
						DISREGARD PRINTS BEARING EARLIER REVISION DATES	8/13/08 10/27/08 1/24/09 6/4/09	

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
08	Sbd	66,259,330	Var	73	80

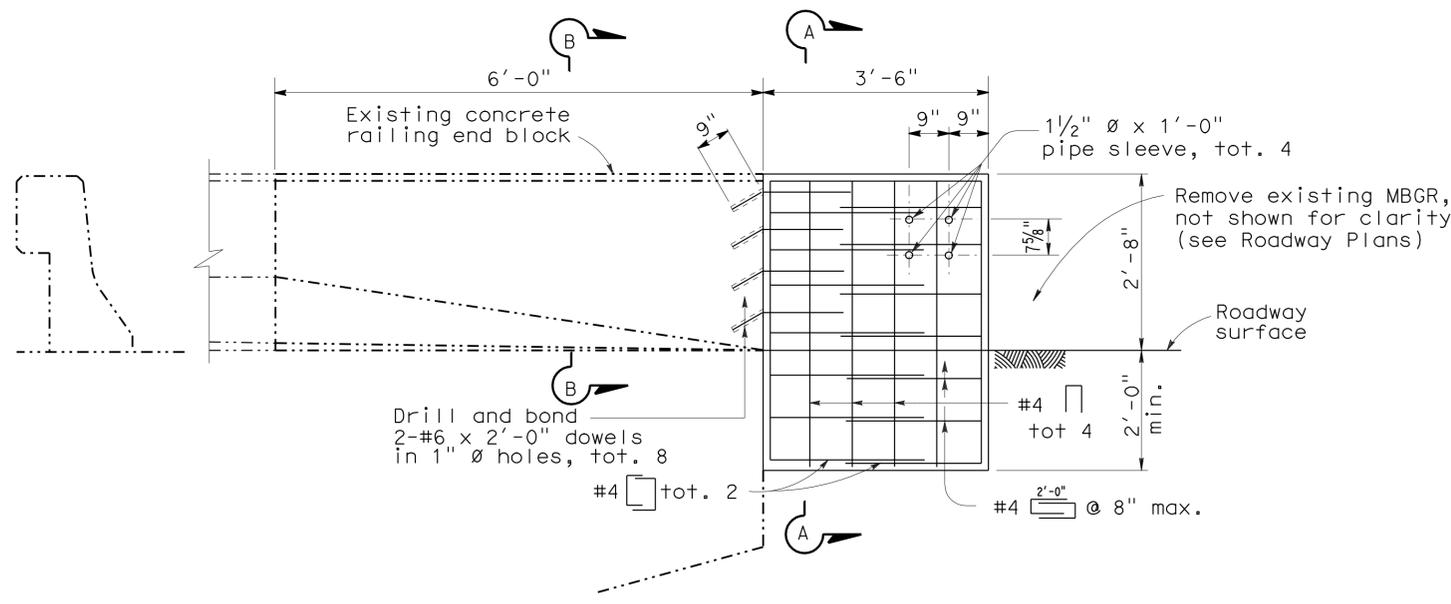
Felix S. Altamirano 7/30/09  
 REGISTERED CIVIL ENGINEER DATE  
 8-24-09  
 PLANS APPROVAL DATE  
 No. C56401  
 Exp. 6/30/11  
 CIVIL  
 STATE OF CALIFORNIA  
 The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.



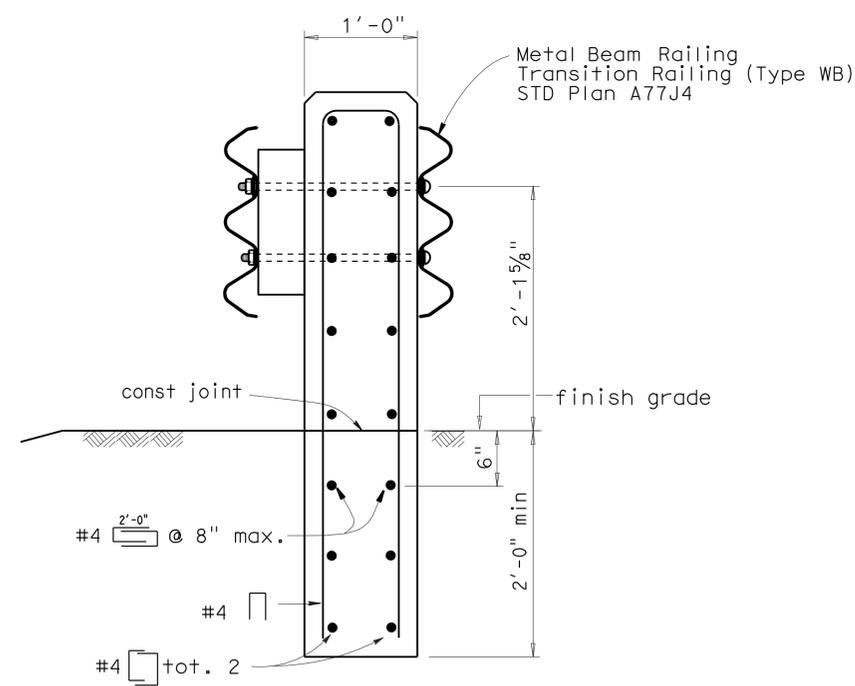
PLAN



SECTION B-B



ELEVATION



SECTION A-A

- Notes:
- For limits of excavation and backfill, see Standard Plans A62C, section E-E.
  - The contractor shall verify all controlling field dimensions, before ordering or fabricating any material.

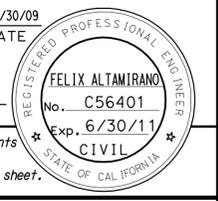
NO SCALE

DESIGN	BY Felix Altamirano	CHECKED N.Kanepathipillai	<b>STATE OF CALIFORNIA</b> DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN <b>SPECIAL DESIGN BRANCH</b>	BRIDGE NO.	<b>BOULDER AVE UC - SB APPROACH</b> <b>ANCHOR BLOCK DETAILS</b>
DETAILS	BY Hung Nguyen	CHECKED N.Kanepathipillai			54-1085	
QUANTITIES	BY N.Kanepathipillai	CHECKED Yu Song			R29.30	

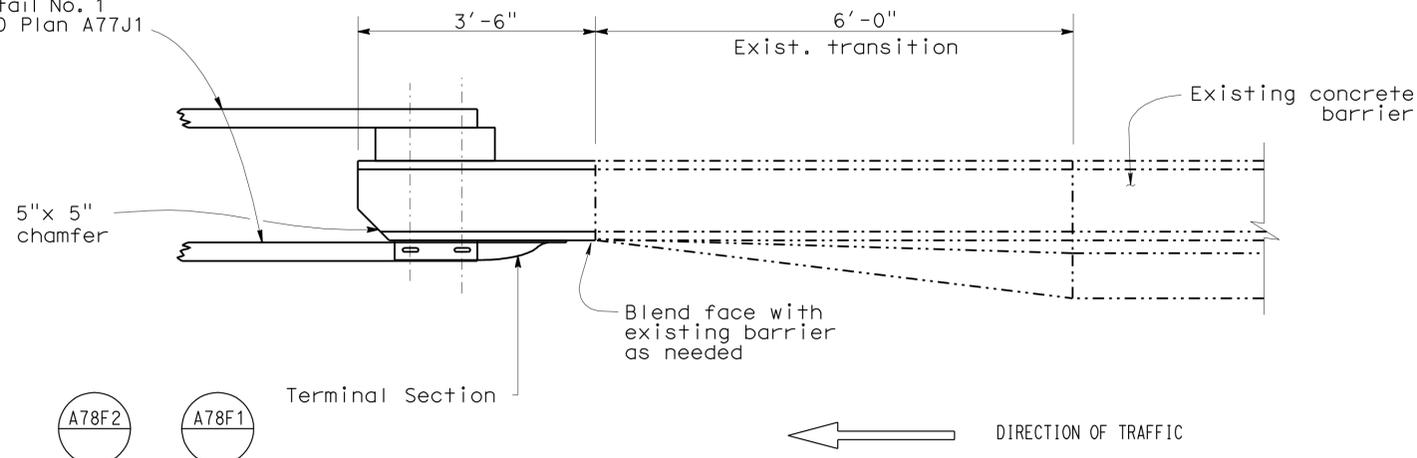
STRUCTURES DESIGN SPECIAL DESIGN SHEET (ENGLISH) (REV. 10-25-05) ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3 CU 08 EA 0E5701 DISREGARD PRINTS BEARING EARLIER REVISION DATES 8/18/08 10/27/08 1/22/09 6/4/09 SHEET 19 OF 26

USERNAME => fhmikes DATE PLOTTED => 28-AUG-2009 TIME PLOTTED => 13:09

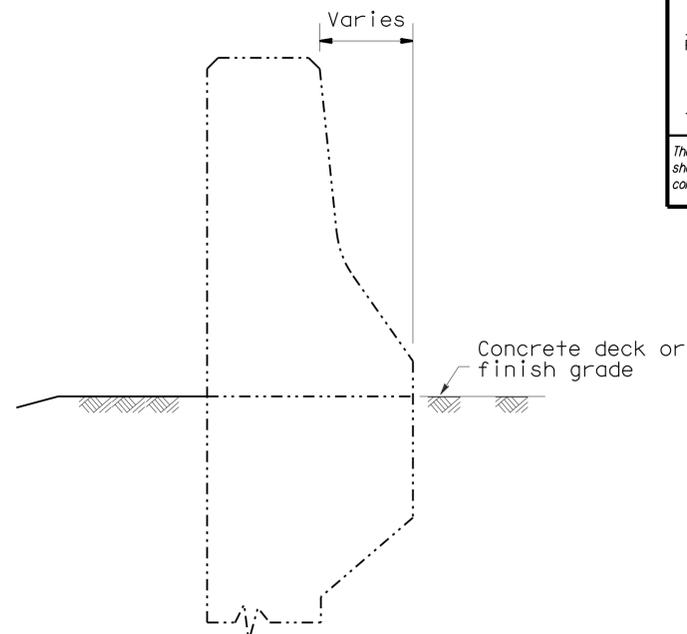
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
08	SBd	66,259, 330	Var	74	80
<i>Felix S. Altamirano</i> 7/30/09 REGISTERED CIVIL ENGINEER DATE					
8-24-09 PLANS APPROVAL DATE					
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.					



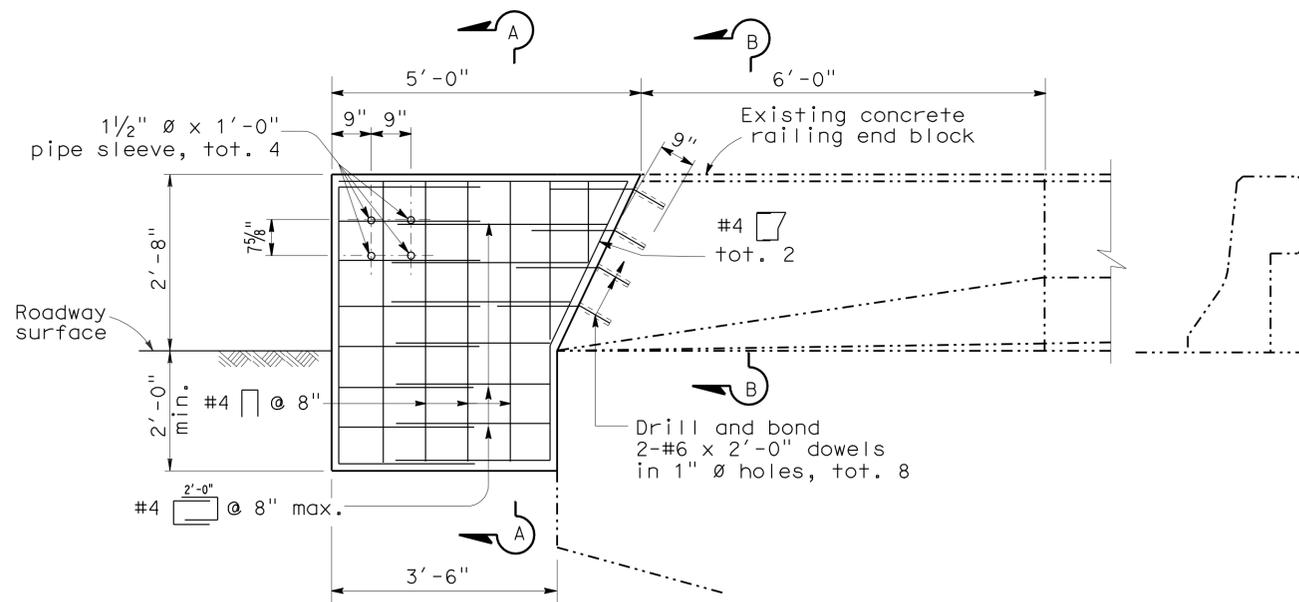
Metal Beam Guard Railing  
Connections to Bridge Railing  
Detail No. 1  
STD Plan A77J1



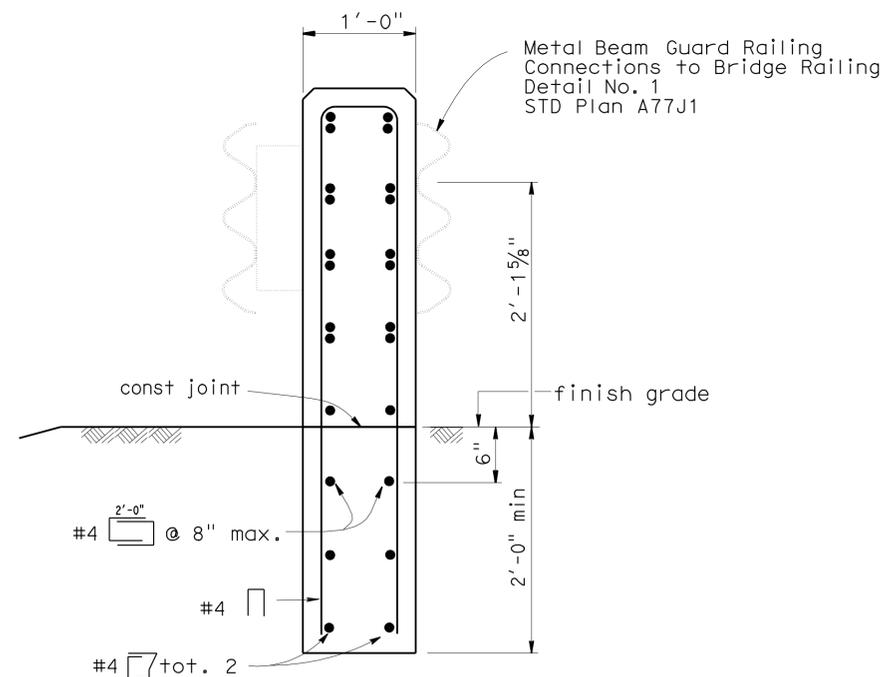
PLAN



SECTION B-B



ELEVATION



SECTION A-A

Notes:

1. For limits of excavation and backfill, see Standard Plans A62C, section E-E.
2. The contractor shall verify all controlling field dimensions, before ordering or fabricating any material.

NO SCALE

DESIGN	BY Felix Altamirano	CHECKED N. Kanepathipillai
DETAILS	BY Hung Nguyen	CHECKED N. Kanepathipillai
QUANTITIES	BY N. Kanepathipillai	CHECKED Yu Song

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES  
STRUCTURE DESIGN  
SPECIAL DESIGN BRANCH

BRIDGE NO.	54-1086
POST MILE	R29.63

HIGHLAND AVE OC - OFF-RAMP (RIGHT SIDE)

ANCHOR BLOCK DETAILS

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
08	SBd	66, 259, 330	Var	75	80

Felix S. Altamirano 7/30/09  
 REGISTERED CIVIL ENGINEER DATE

8-24-09  
 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.

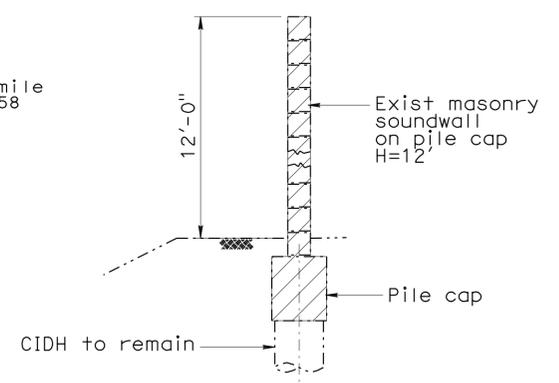
REGISTERED PROFESSIONAL ENGINEER  
 FELIX ALTAMIRANO  
 No. C56401  
 Exp. 6/30/11  
 CIVIL  
 STATE OF CALIFORNIA

### LEGEND

Bridge Removal (portion)

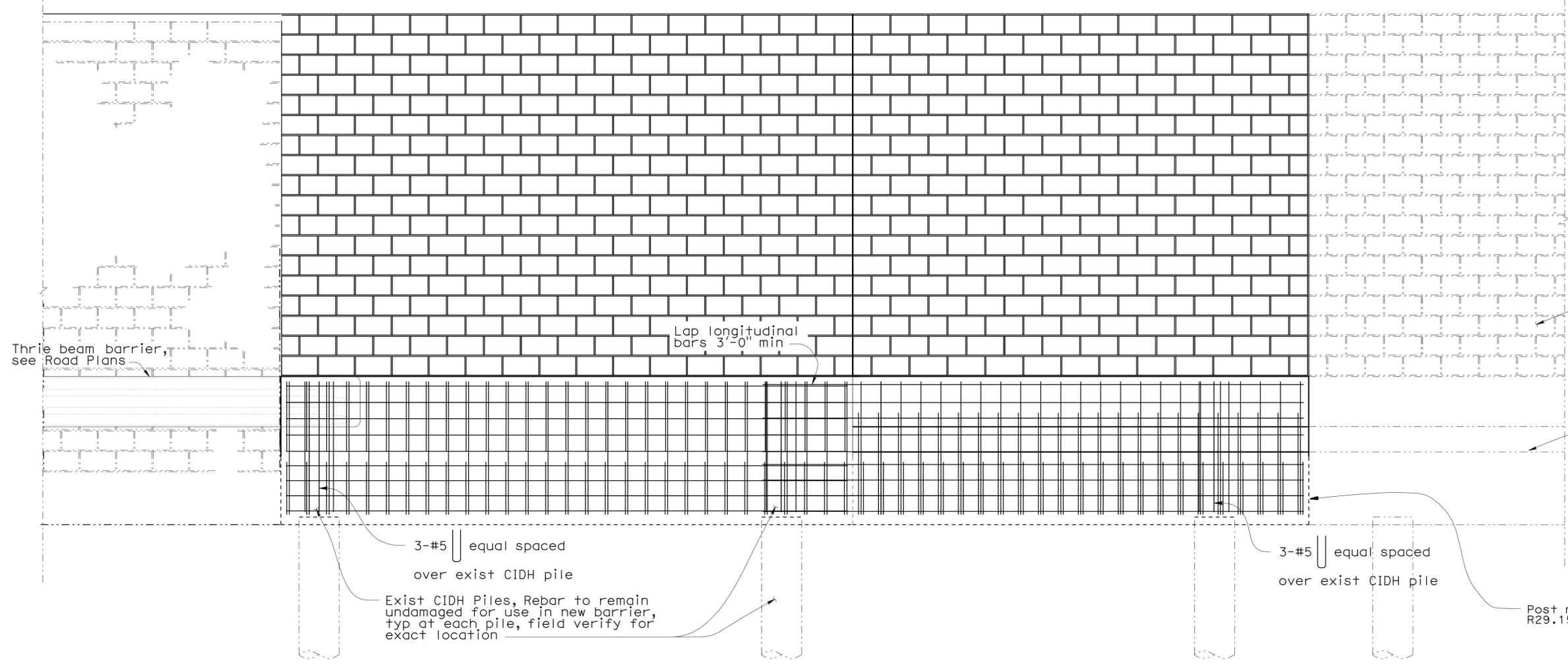
Exist Sound Wall Masonry Block on Type 27SV Barrier

FG



### EXISTING SECTION DEMOLITION

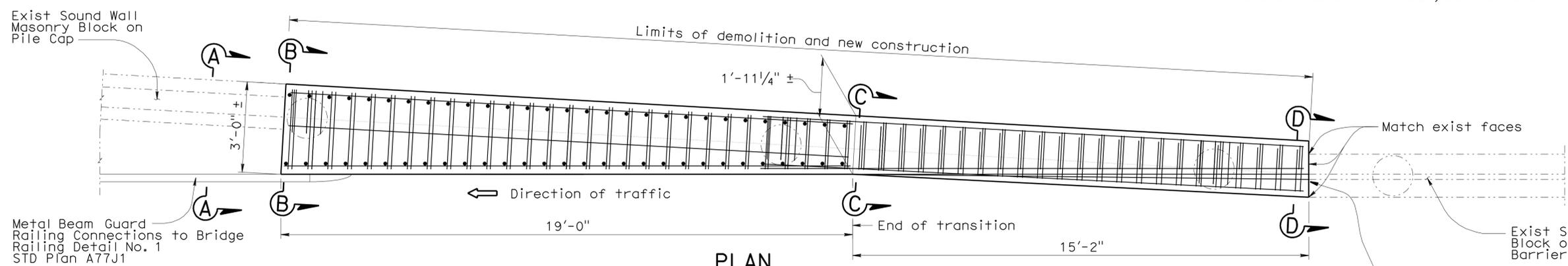
no scale



### ELEVATION

1" = 1'-0"

Note:  
For limits of excavation and backfill, see Standard Plans A62C, Section E-E



### PLAN

1" = 1'-0"

The contractor shall verify all controlling field dimensions, before ordering or fabricating any material.

DESIGN BY F ALTAMIRANO CHECKED N KANEPATHIPILLAI DETAILS BY P C WELLS CHECKED F ALTAMIRANO QUANTITIES BY P C WELLS CHECKED N KANEPATHIPILLAI	<b>STATE OF CALIFORNIA</b> DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN <b>SPECIAL DESIGN BRANCH</b>	BRIDGE NO. POST MILE R29.04	<b>EXISTING CONCRETE BARRIER WITH SOUNDWALL ON TOP</b> <b>REINFORCING PLAN &amp; ELEVATION</b>
	ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3	CU 08 EA 0E5701	DISREGARD PRINTS BEARING EARLIER REVISION DATES 9/28/08 1/23/09	REVISION DATES SHEET 21 OF 26
	STRUCTURES DESIGN SPECIAL DESIGN SHEET (ENGLISH) (REV. 10-25-05)			

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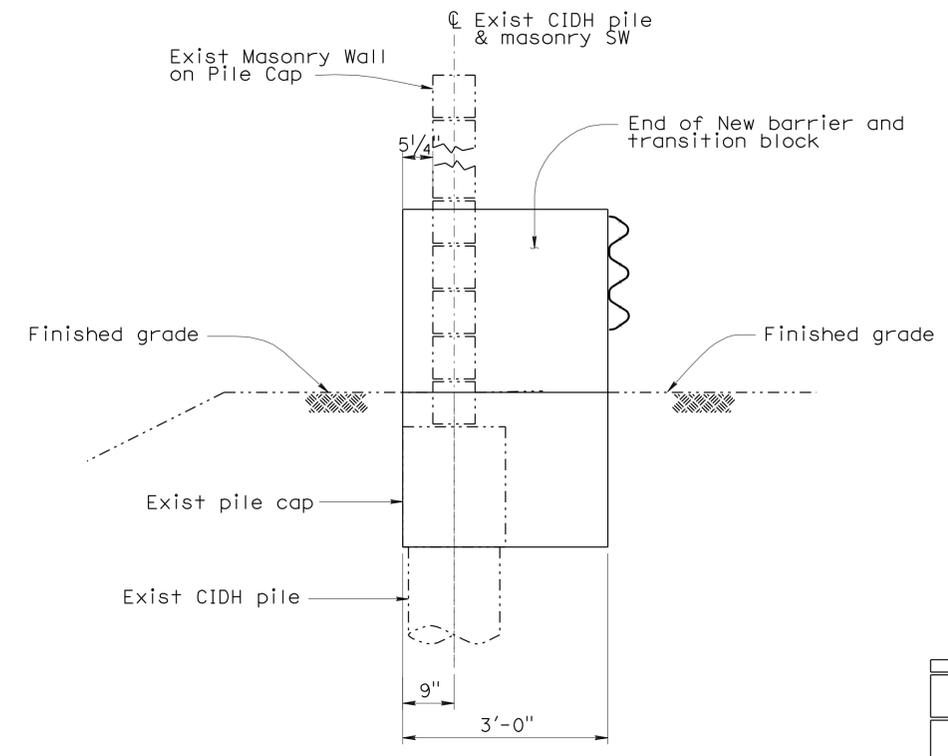
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
08	SBd	66, 259, 330	Var	76	80

*Felix S. Altamirano* 7/30/09  
REGISTERED CIVIL ENGINEER DATE

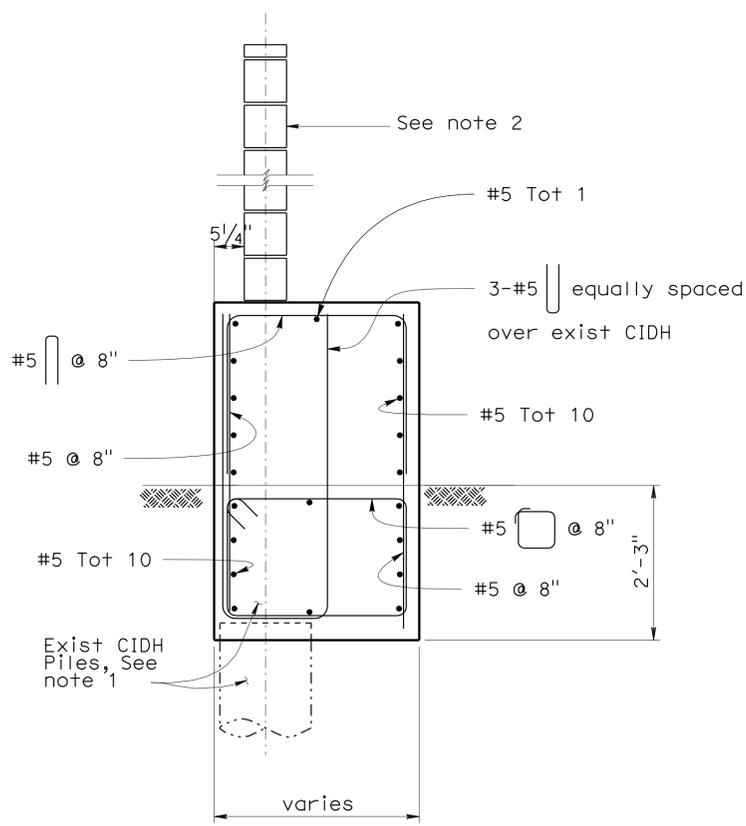
8-24-09  
PLANS APPROVAL DATE

**FELIX ALTAMIRANO**  
No. C56401  
Exp. 6/30/11  
CIVIL  
STATE OF CALIFORNIA

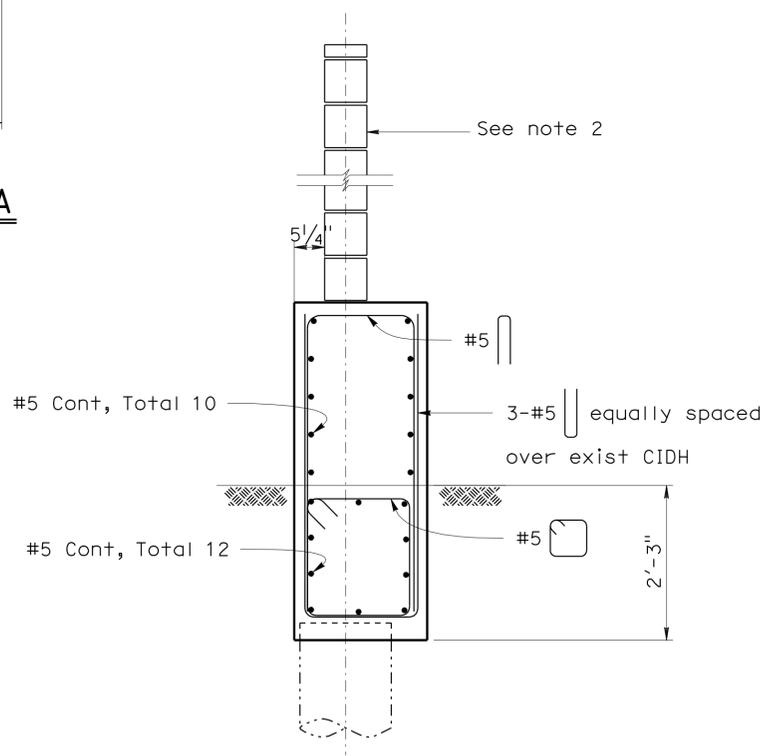
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.



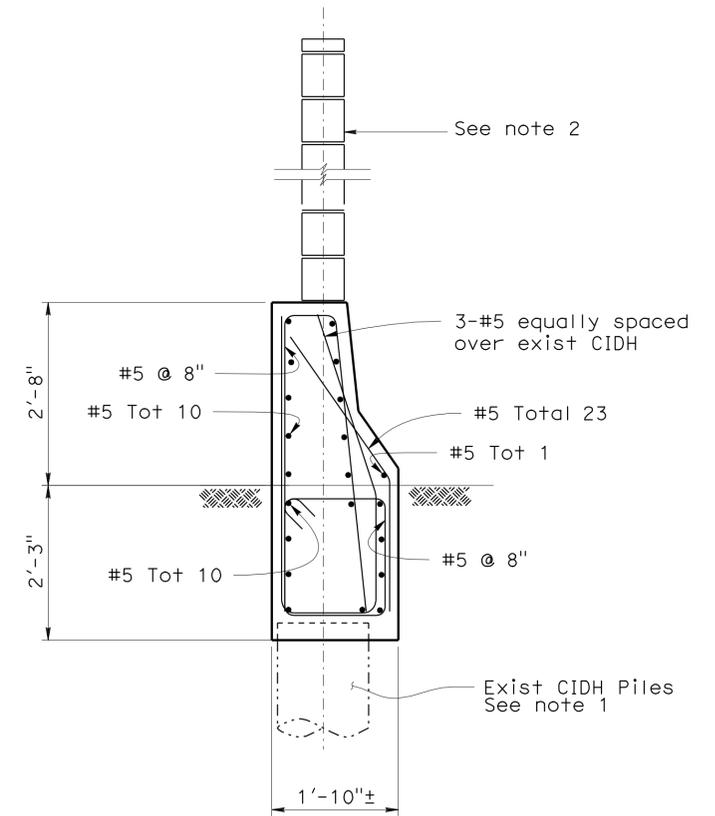
**SECTION A-A**  
1/2" = 1'



**SECTION B-B**  
1/2" = 1'



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



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

NOTES:

1. Reinforcing from exist CIDH piles to remain undamaged for use in new transition block, typical, (exist reinf not shown).
2. For masonry wall and masonry wall reinforcing see Revised Standard Plan B15-6.
3. For limits of excavation and backfill, see Standard Plans A62C, section E-E

The contractor shall verify all controlling field dimensions, before ordering or fabricating any material.

DESIGN	BY	F ALTAMIRANO	CHECKED	N KANEPATHIPILLAI	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN SPECIAL DESIGN BRANCH	BRIDGE NO.	EXISTING CONCRETE BARRIER WITH SOUNDWALL ON THE TOP SECTIONS	
	DETAILS	BY	P C WELLS	CHECKED			F ALTAMIRANO		POST MILE
	QUANTITIES	BY	N KANEPATHIPILLAI	CHECKED			P C WELLS		R29.04
STRUCTURES DESIGN SPECIAL DESIGN SHEET (ENGLISH) (REV. 10-25-05)						CU 08 EA 0E5701	DISREGARD PRINTS BEARING EARLIER REVISION DATES	11-24-08 1/23/09	SHEET 22 OF 26

USERNAME => fhmikes DATE PLOTTED => 28-AUG-2009 TIME PLOTTED => 13:09

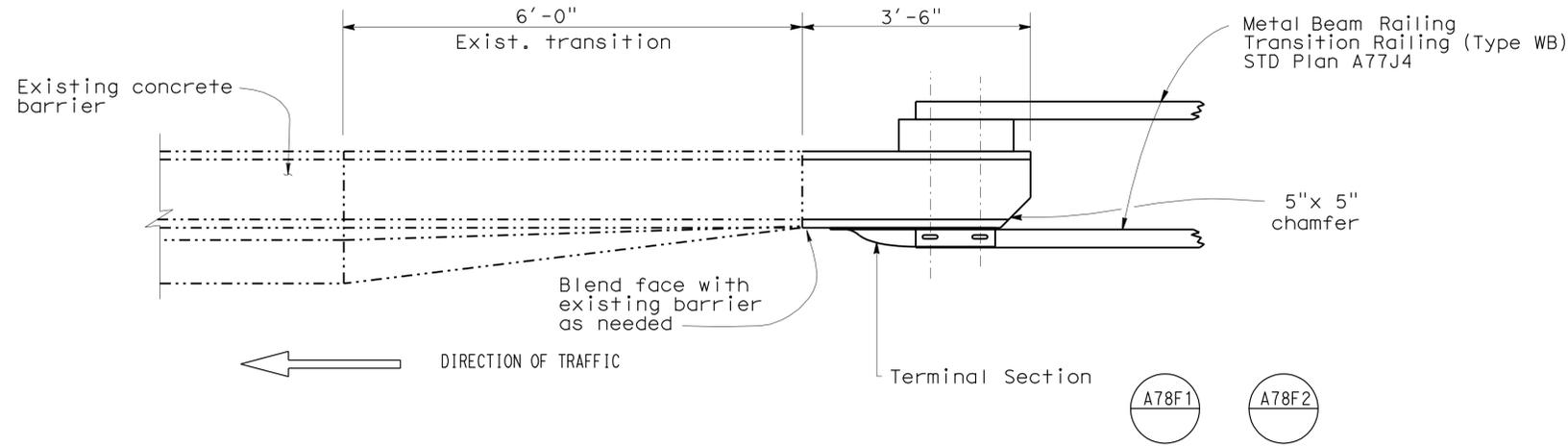
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
08	SBd	66,259,330	Var	77	80

*Felix S. Altamirano* 7/30/09  
REGISTERED CIVIL ENGINEER DATE

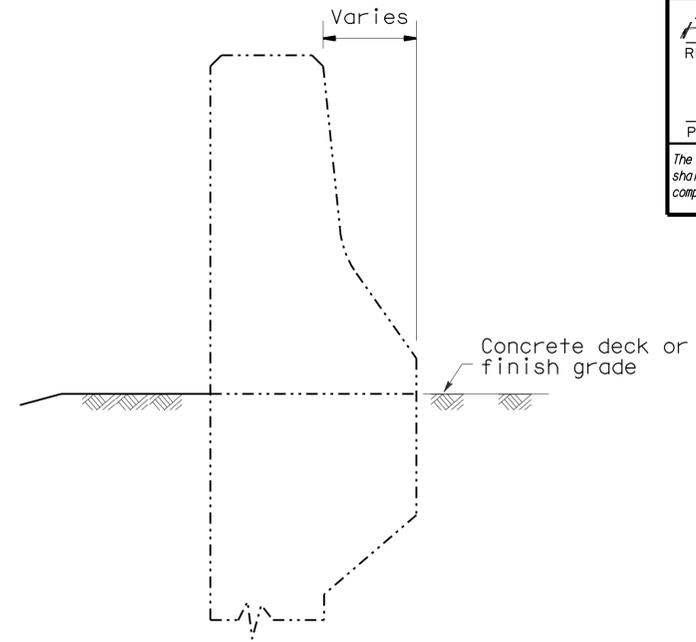
8-24-09  
PLANS APPROVAL DATE

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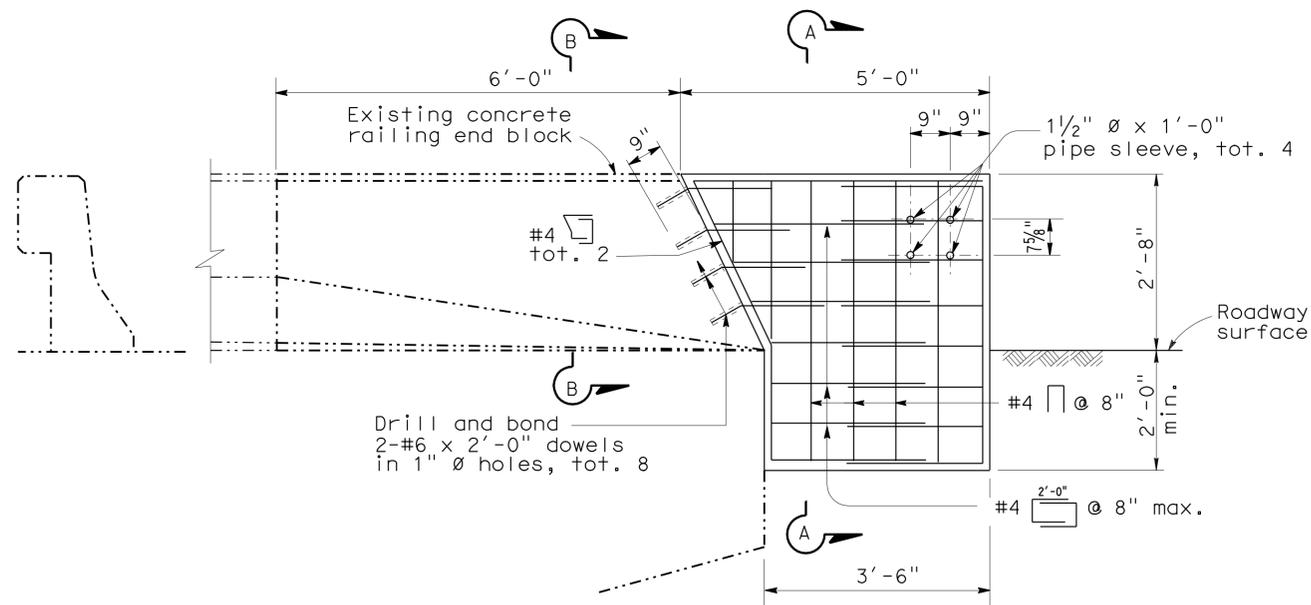
REGISTERED PROFESSIONAL ENGINEER  
FELIX ALTAMIRANO  
No. C56401  
Exp. 6/30/11  
CIVIL  
STATE OF CALIFORNIA



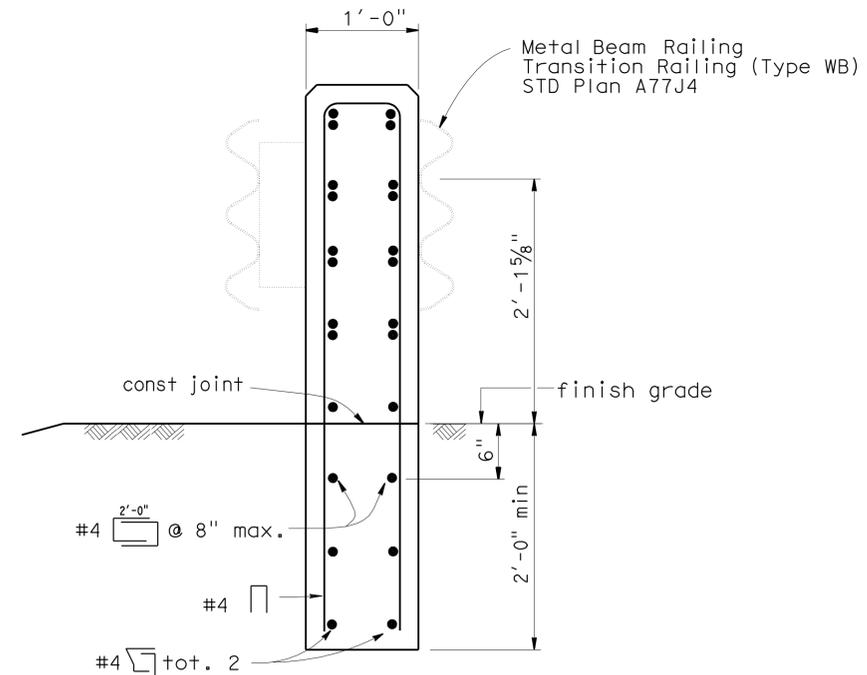
PLAN



SECTION B-B



ELEVATION



SECTION A-A

Notes:

- For limits of excavation and backfill, see Standard Plans A62C, section E-E.
- The contractor shall verify all controlling field dimensions, before ordering or fabricating any material.

NO SCALE

DESIGN	BY Felix Altamirano	CHECKED N. Kanepathipillai
DETAILS	BY Hung Nguyen	CHECKED N. Kanepathipillai
QUANTITIES	BY N. Kanepathipillai	CHECKED Yu Song

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES  
STRUCTURE DESIGN  
SPECIAL DESIGN BRANCH

BRIDGE NO.	54-1098F
POST MILE	R28.79

S330 - E210(30) CONNECTOR - LEFT SIDE APPROACH  
ANCHOR BLOCK DETAILS

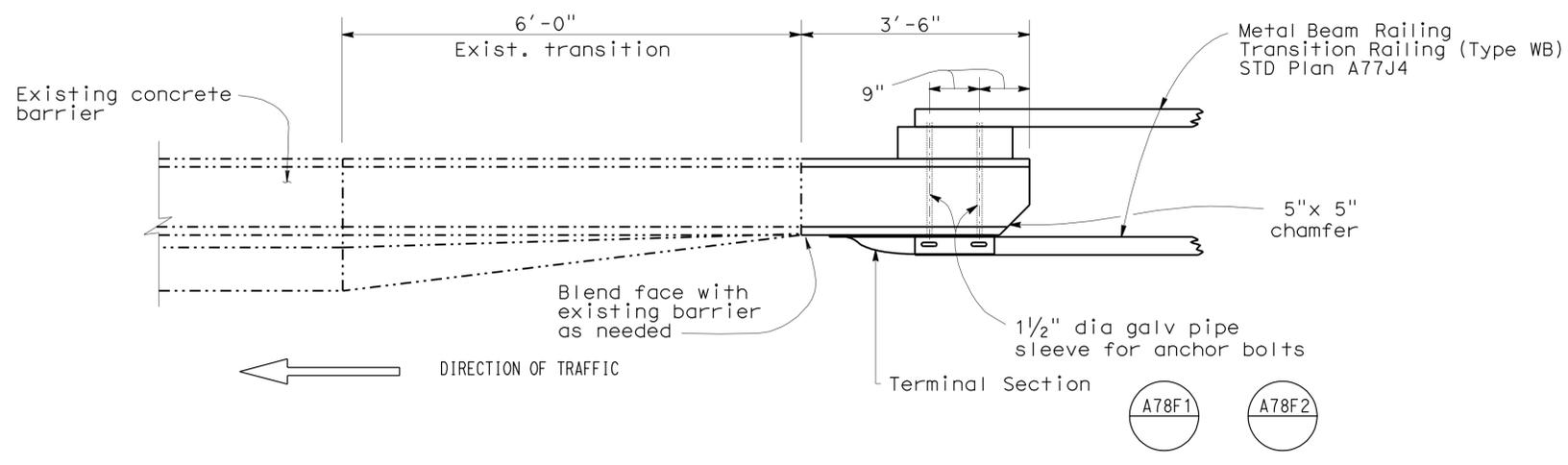
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
08	SBd	66,259,330	Var	78	80

Felix S. Altamirano 7/30/09  
REGISTERED CIVIL ENGINEER DATE

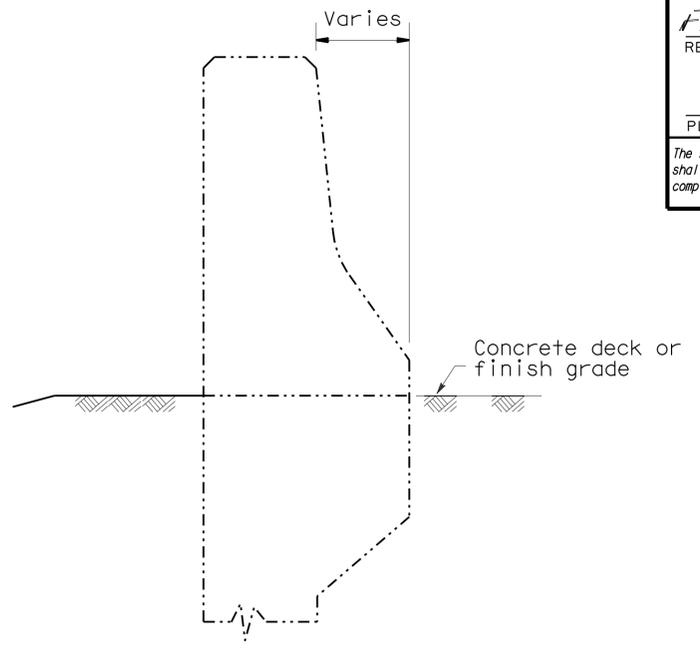
8-24-09  
PLANS APPROVAL DATE

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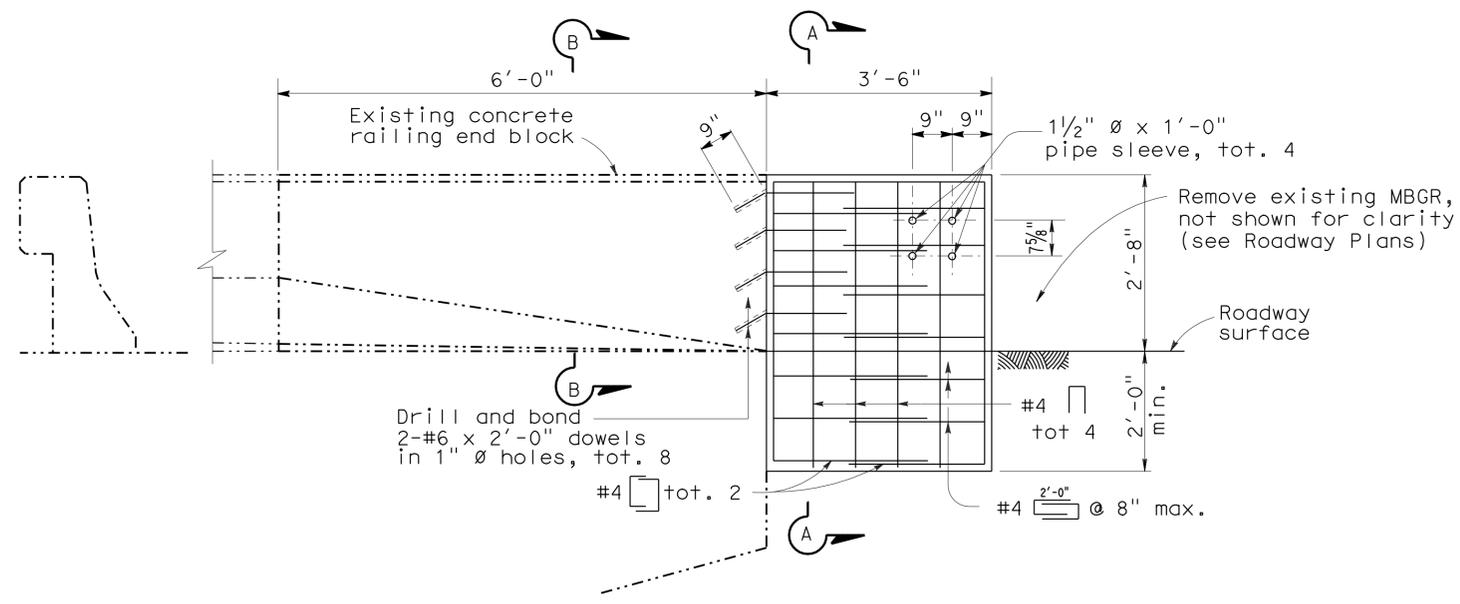
REGISTERED PROFESSIONAL ENGINEER  
FELIX ALTAMIRANO  
No. C56401  
Exp. 6/30/11  
CIVIL  
STATE OF CALIFORNIA



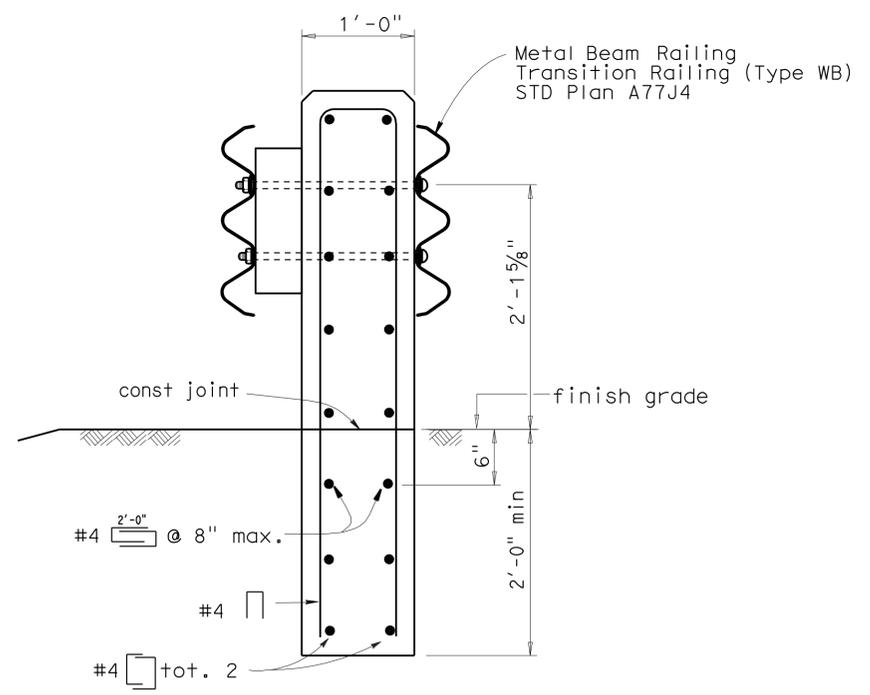
PLAN



SECTION B-B



ELEVATION



SECTION A-A

- Notes:
- For limits of excavation and backfill, see Standard Plans A62C, section E-E.
  - The contractor shall verify all controlling field dimensions, before ordering or fabricating any material.

NO SCALE

DESIGN	BY Felix Altamirano	CHECKED N. Kanepathipillai
DETAILS	BY Hung Nguyen	CHECKED N. Kanepathipillai
QUANTITIES	BY N. Kanepathipillai	CHECKED Yu Song

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES  
STRUCTURE DESIGN  
SPECIAL DESIGN BRANCH

BRIDGE NO.	54-1098F	S330 - E210(30) CONNECTOR - RIGHT SIDE APPROACH
POST MILE	R28.79	
		ANCHOR BLOCK DETAILS

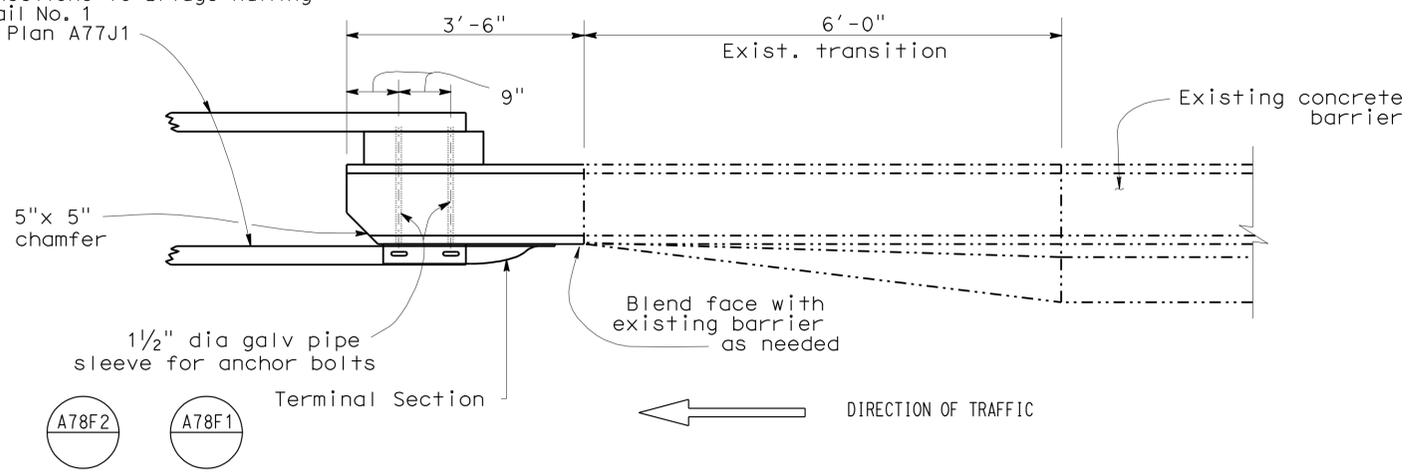
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
08	SBd	66,259,330	Var	79	80

Felix S. Altamirano 7/30/09  
REGISTERED CIVIL ENGINEER DATE

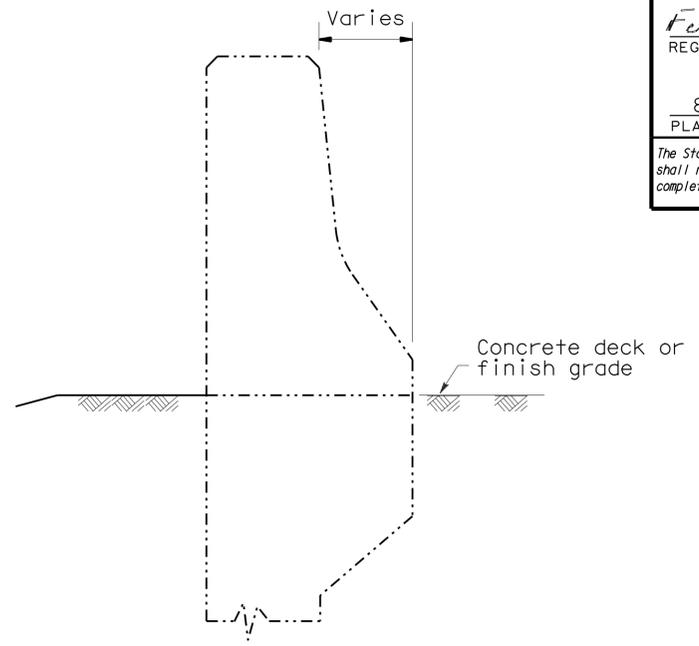
8-24-09  
PLANS APPROVAL DATE

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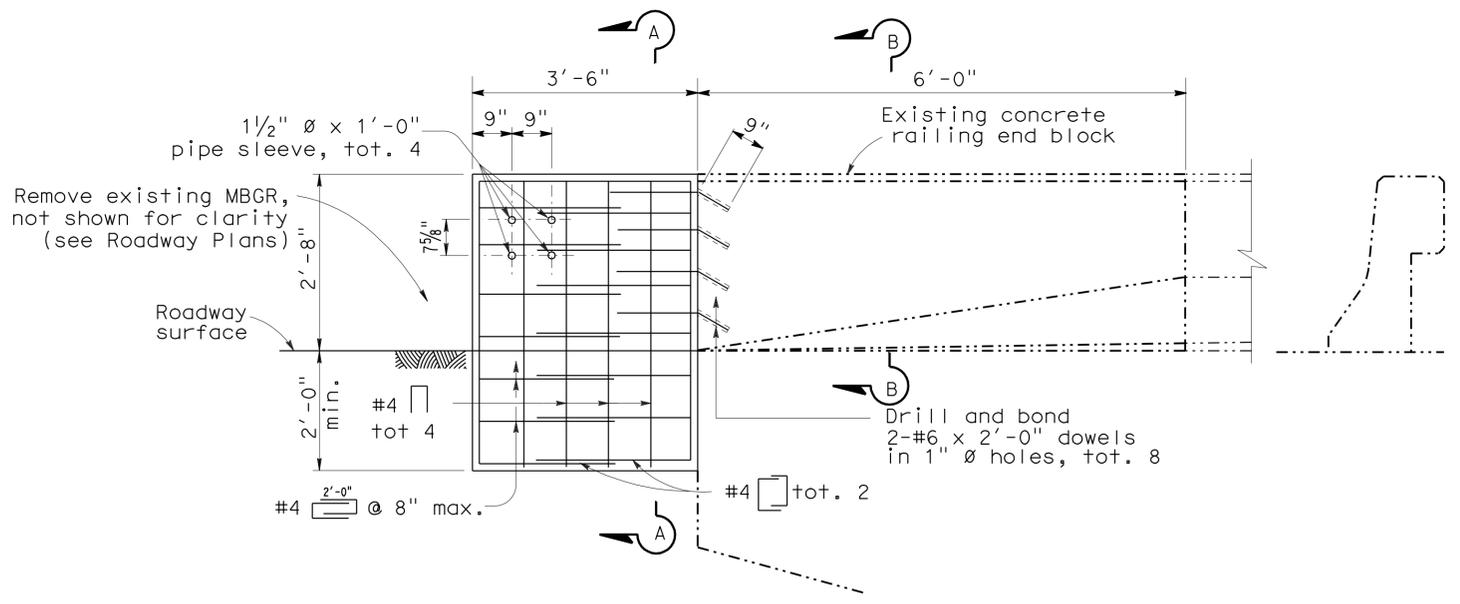
Metal Beam Guard Railing  
Connections to Bridge Railing  
Detail No. 1  
STD Plan A77J1



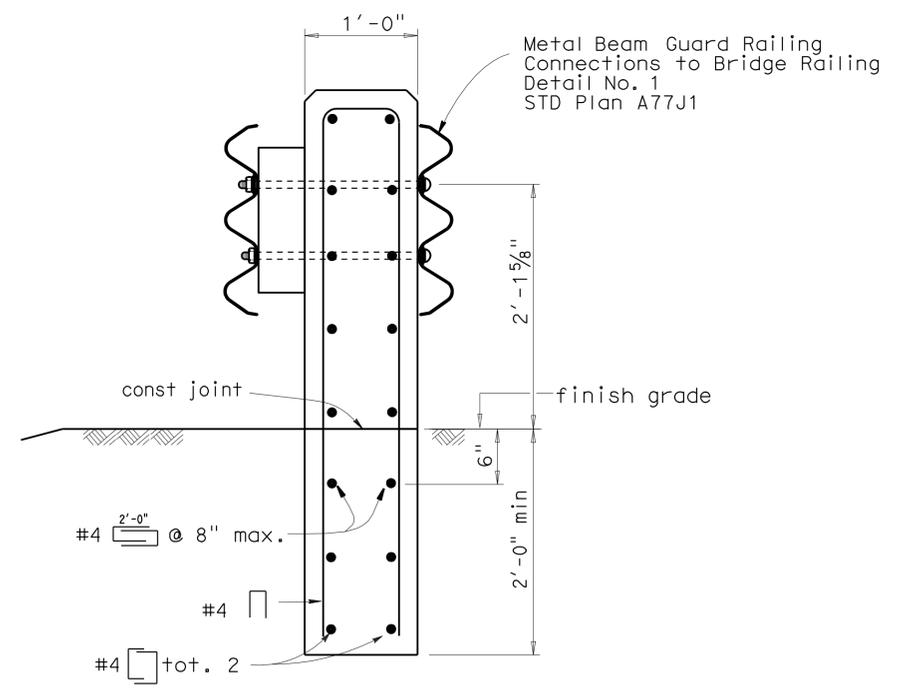
PLAN



SECTION B-B



ELEVATION



SECTION A-A

Notes:

1. For limits of excavation and backfill, see Standard Plans A62C, section E-E.
2. The contractor shall verify all controlling field dimensions, before ordering or fabricating any material.

NO SCALE

DESIGN	BY Felix Altamirano	CHECKED N.Kanepathipillai
DETAILS	BY Hung Nguyen	CHECKED N.Kanepathipillai
QUANTITIES	BY N.Kanepathipillai	CHECKED Yu Song

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES  
STRUCTURE DESIGN  
SPECIAL DESIGN BRANCH

BRIDGE NO.	54-1098F
POST MILE	R28.70

S330 - E 210(30) CONNECTOR - RIGHT SIDE DEPARTURE  
ANCHOR BLOCK DETAILS

