

**NOTE:**  
 Minor variations in dimensions  
 may be accepted by the Engineer.

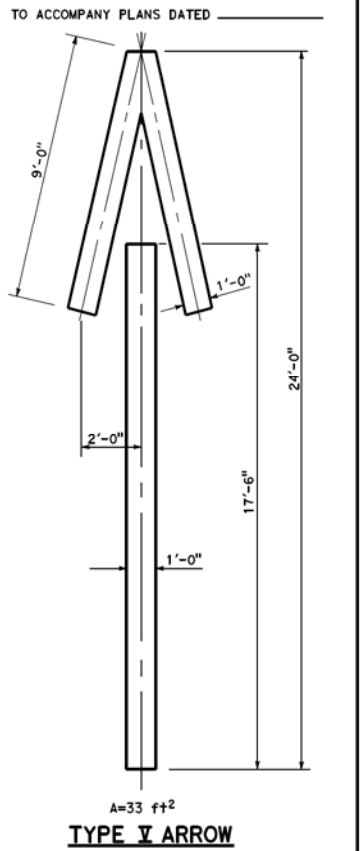
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

*Roberto L. McLaughlin*  
 REGISTERED CIVIL ENGINEER

April 20, 2012  
 PLANS APPROVAL DATE

*Roberto L. McLaughlin*  
 No. C40375  
 Exp. 3-31-13  
 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.

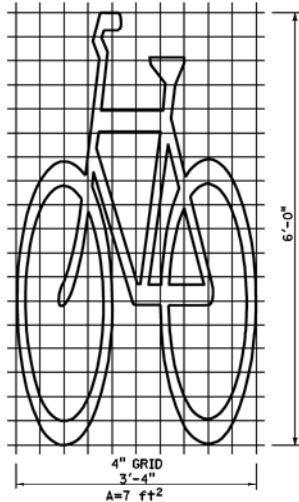


STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**PAVEMENT MARKINGS  
 ARROWS**  
 NO SCALE

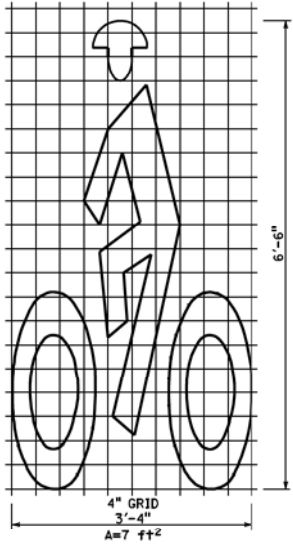
RSP A24A DATED APRIL 20, 2012 SUPERSEDES STANDARD PLAN A24A  
 DATED MAY 20, 2011 - PAGE 13 OF THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP A24A**

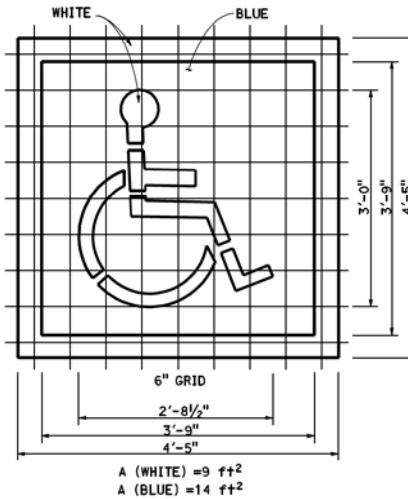
2010 REVISED STANDARD PLAN RSP A24A



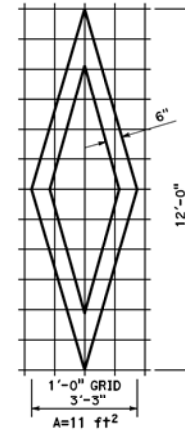
**BIKE LANE SYMBOL  
WITHOUT PERSON**



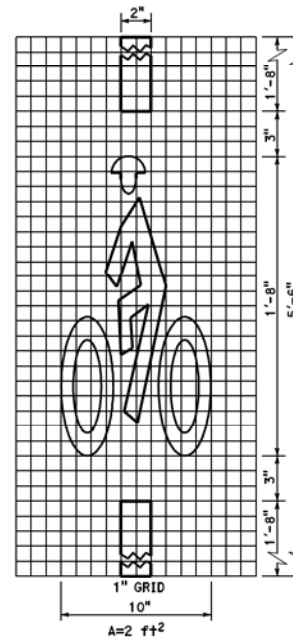
**BIKE LANE SYMBOL  
WITH PERSON**



**INTERNATIONAL SYMBOL  
OF ACCESSIBILITY (ISA) MARKING**



**DIAMOND SYMBOL**



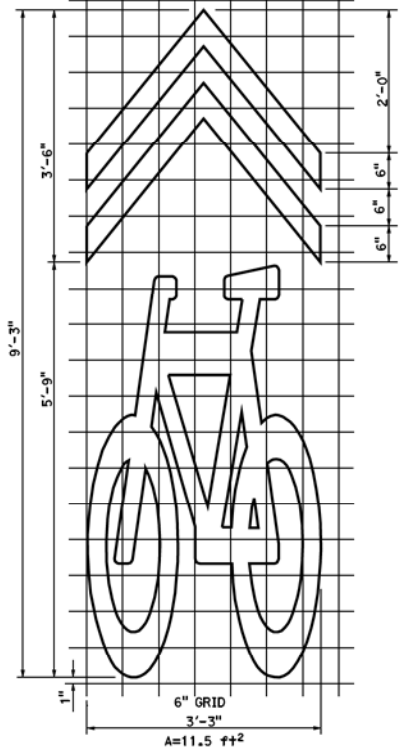
**BIKE LOOP  
DETECTOR SYMBOL**

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

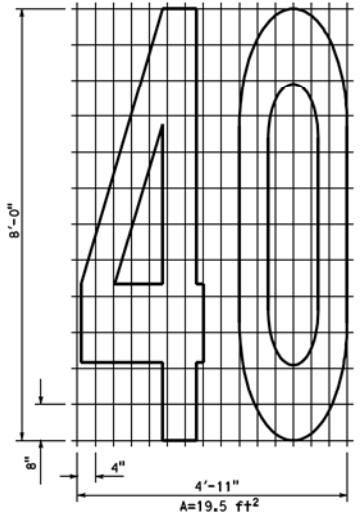
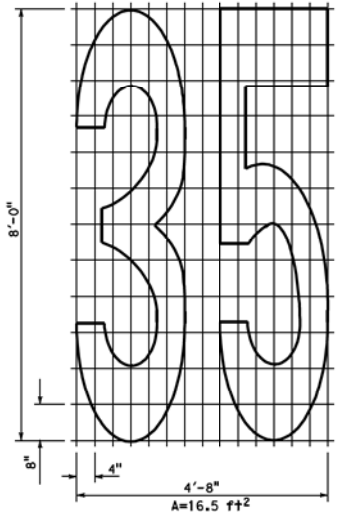
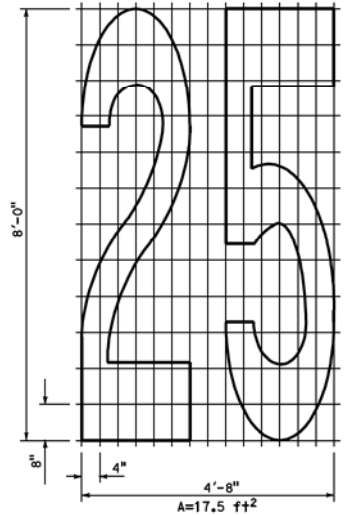
*Roberta L. McLaughlin*  
 REGISTERED CIVIL ENGINEER  
 No. C40375  
 Exp. 3-31-13  
 CIVIL  
 STATE OF CALIFORNIA

October 19, 2012  
 PLANS APPROVAL DATE  
 THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

**NOTE:** TO ACCOMPANY PLANS DATED \_\_\_\_\_  
 Minor variations in dimensions may be accepted by the Engineer.



**SHARED ROADWAY BICYCLE MARKING**



**NUMERALS**

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**PAVEMENT MARKINGS  
 SYMBOLS AND NUMERALS**  
 NO SCALE

RSP A24C DATED OCTOBER 19, 2012 SUPERSEDES STANDARD PLAN A24C DATED MAY 20, 2011 - PAGE 15 OF THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP A24C**

2010 REVISED STANDARD PLAN RSP A24C

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL SHEETS

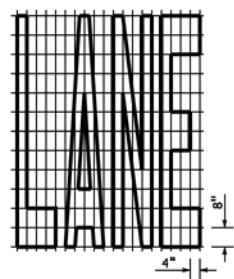
*Robert L. McLaughlin*  
REGISTERED CIVIL ENGINEER

July 20, 2012  
PLANS APPROVAL DATE

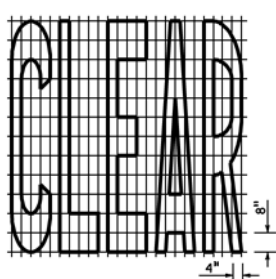
Roberto L. McLaughlin  
No. C40375  
Exp. 3-31-13  
CIVIL  
STATE OF CALIFORNIA

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.

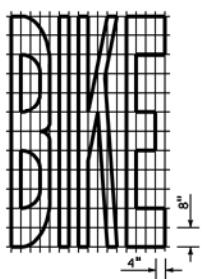
TO ACCOMPANY PLANS DATED \_\_\_\_\_



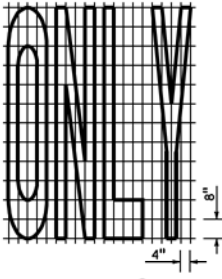
A=24 ft<sup>2</sup>



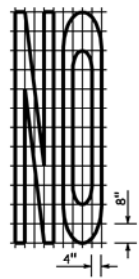
A=27 ft<sup>2</sup>



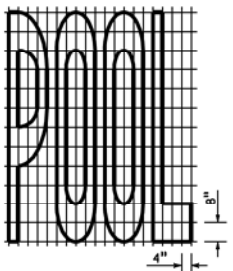
A=21 ft<sup>2</sup>



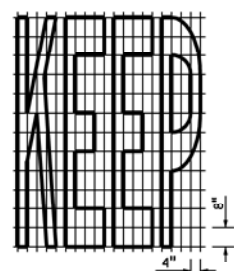
A=22 ft<sup>2</sup>



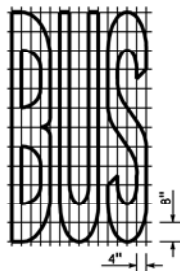
A=14 ft<sup>2</sup>



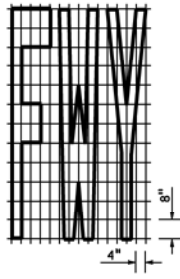
A=23 ft<sup>2</sup>



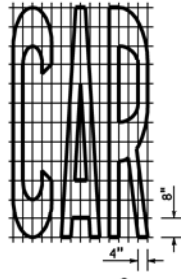
A=24 ft<sup>2</sup>



A=20 ft<sup>2</sup>



A=16 ft<sup>2</sup>



A=17 ft<sup>2</sup>

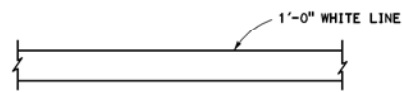
WORD MARKINGS			
ITEM	ft <sup>2</sup>	ITEM	ft <sup>2</sup>
LANE	24	NO	14
POOL	23	BIKE	21
CAR	17	BUS	20
CLEAR	27	ONLY	22
KEEP	24	FWY	16

**NOTES:**

- If a message consists of more than one word, it should read "UP", i.e., the first word should be nearest the driver.
- The space between words should be at least four times the height of the characters for low speed roads, but not more than ten times the height of the characters. The space may be reduced appropriately where there is limited space because of local conditions.
- Minor variations in dimensions may be accepted by the Engineer.
- Portions of a letter, number or symbol may be separated by connecting segments not to exceed 2" in width.
- The words "NO PARKING" pavement marking is to be used for parking facilities. For typical locations of markings, see Standard Plans A90A and A90B.
- The words "NO PARKING", shall be painted in white letters no less than 1'-0" high on a contrasting background and located so that it is visible to traffic enforcement officials.



A=2 ft<sup>2</sup>  
See Notes 6 and 7



**LIMIT LINE (STOP LINE)**



DIRECTION OF TRAVEL

**YIELD LINE**

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**PAVEMENT MARKINGS**  
**WORDS, LIMIT AND YIELD LINES**

NO SCALE

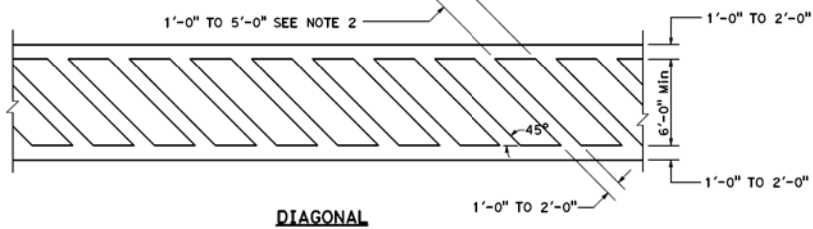
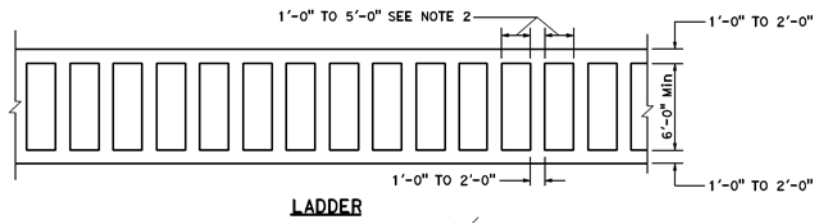
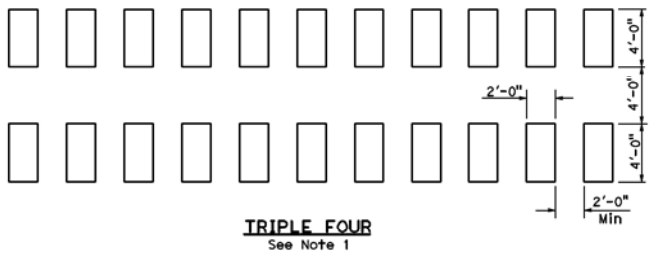
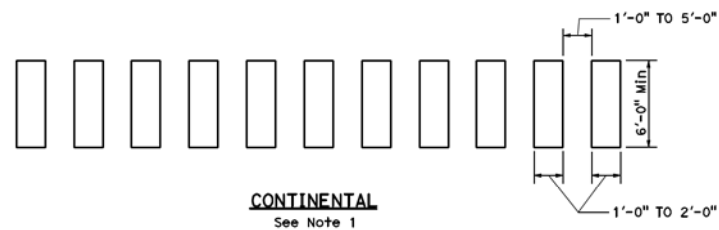
RSP A24E DATED JULY 20, 2012 SUPERSEDES STANDARD PLAN A24E  
DATED MAY 20, 2011 - PAGE 17 OF THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP A24E**

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
<i>Robert L. McLaughlin</i> REGISTERED CIVIL ENGINEER					
July 20, 2012 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>					



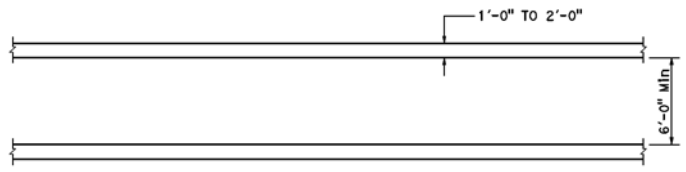
TO ACCOMPANY PLANS DATED \_\_\_\_\_



**HIGHER VISIBILITY CROSSWALKS**

**NOTES:**

1. Spaces between markings should be placed in wheel tracks of each lane.
2. Spacings not to exceed 2.5 times width of longitudinal line.
3. All crosswalk markings must be white except for those near schools must be yellow.



**BASIC**

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**PAVEMENT MARKINGS  
CROSSWALKS**  
NO SCALE

RSP A24F DATED JULY 20, 2012 SUPPLEMENTS THE  
STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP A24F**

2010 REVISED STANDARD PLAN RSP A24F

**NOTES:**

1. See Revised Standard Plan RSP 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 36" in front of the post, construct vegetation control to the edge of paved shoulder.

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

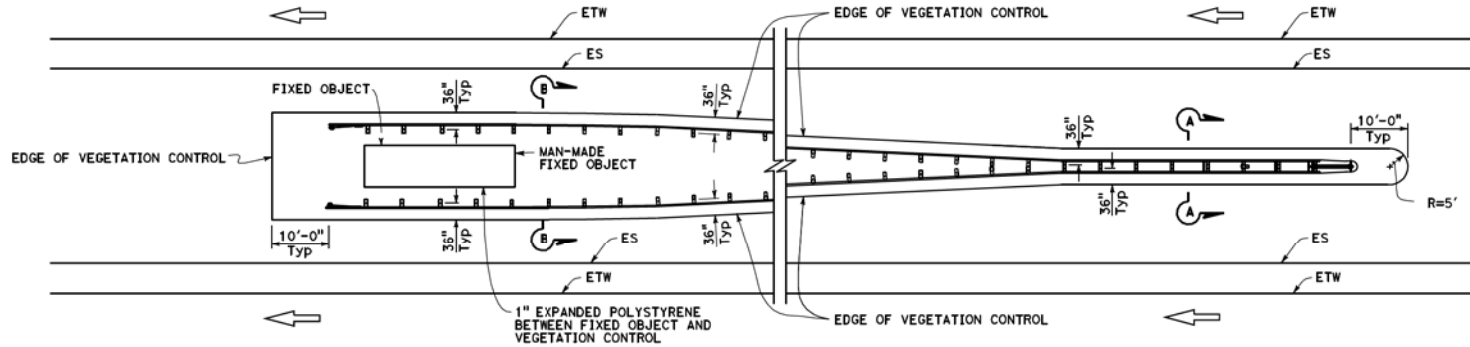
*Randell D. Hiett*  
REGISTERED CIVIL ENGINEER

October 19, 2012  
PLANS APPROVAL DATE

*Randell D. Hiett*  
No. C50200  
Exp. 6-30-13  
CIVIL  
STATE OF CALIFORNIA

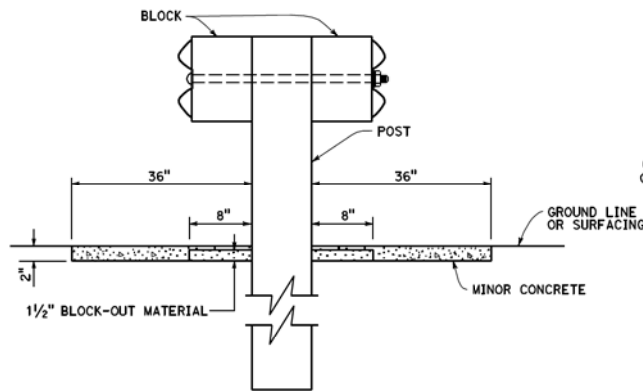
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

TO ACCOMPANY PLANS DATED \_\_\_\_\_

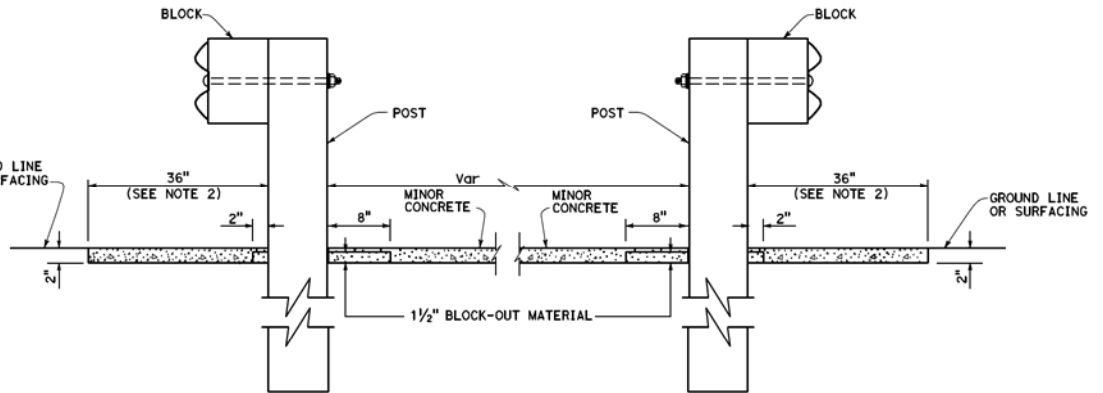


**PLAN**

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**

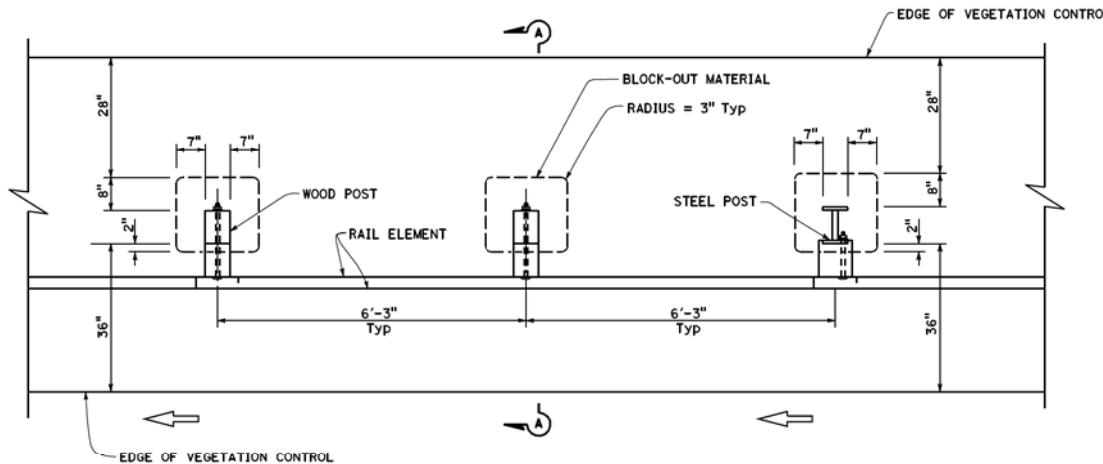
NO SCALE

RSP A77C10 DATED OCTOBER 19, 2012 SUPERSEDES STANDARD PLAN A77C10  
DATED MAY 20, 2011 - PAGE 58 OF THE STANDARD PLANS BOOK DATED 2010.

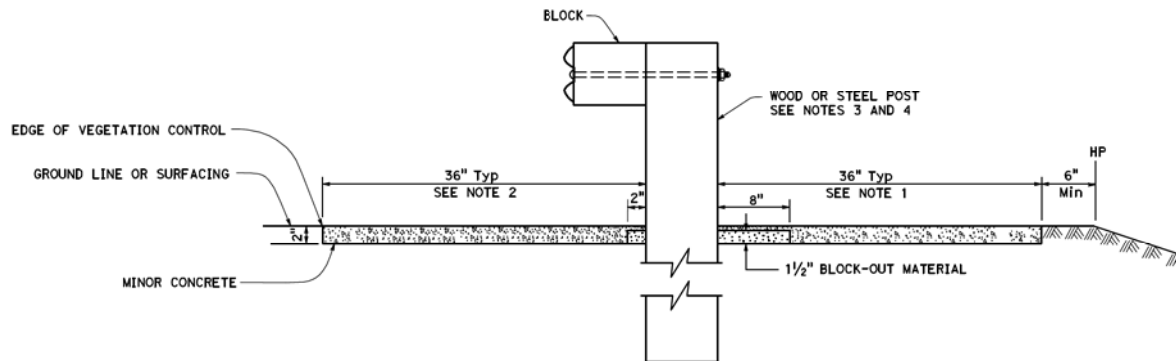
**REVISED STANDARD PLAN RSP A77C10**

2010 REVISED STANDARD PLAN RSP A77C10

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
<i>Randell D. Hiatt</i> REGISTERED CIVIL ENGINEER					
October 19, 2012 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>					
TO ACCOMPANY PLANS DATED _____					



**PLAN**



**SECTION A-A**

**NOTES:**

1. Where the distance between back of post and hinge point is less than 42", construct vegetation control to 6" from hinge point while maintaining the 8" block-out at back of post. If the 8" block-out at back of post can not be maintained, construct vegetation control flush with the back edge of post.
2. Where dike is constructed under railing, construct vegetation control to back edge of dike. Where paved shoulder is constructed within 36" in front of the post, construct vegetation control to the edge of paved shoulder.
3. For wood post sizes, see Standard Plan A77C1.
4. For steel post sizes, see Standard Plan A77C2.
5. For details not shown, see Standard Plans A77A1 and A77A2.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**METAL BEAM GUARD RAILING  
TYPICAL VEGETATION CONTROL  
STANDARD RAILING SECTION  
NO SCALE**

RSP A77C5 DATED OCTOBER 19, 2012 SUPERSEDES STANDARD PLAN A77C5  
DATED MAY 20, 2011 - PAGE 53 OF THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP A77C5**

2010 REVISED STANDARD PLAN RSP A77C5

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

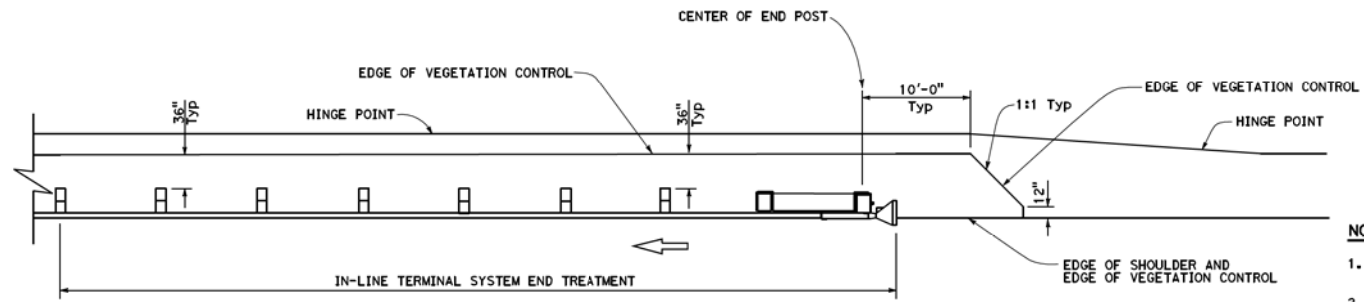
*Randell D. Hiatt*  
 REGISTERED CIVIL ENGINEER  
 October 19, 2012  
 PLANS APPROVAL DATE  
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



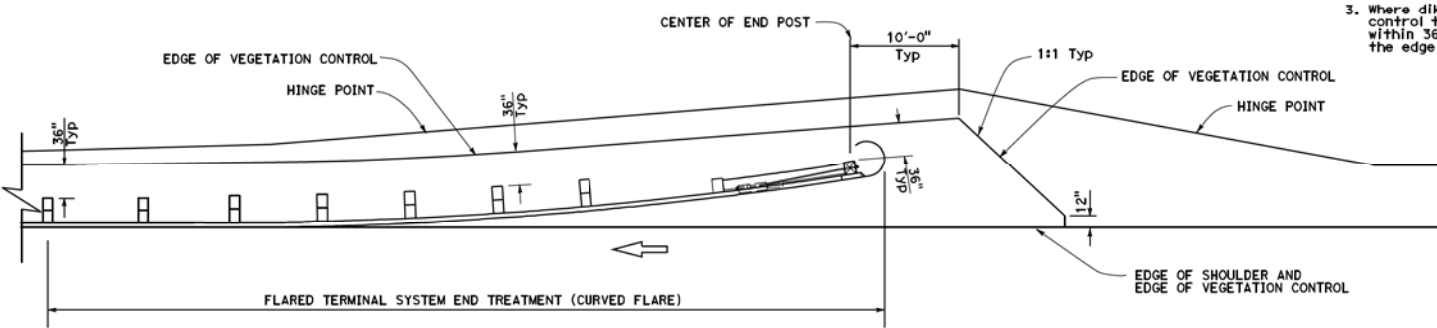
TO ACCOMPANY PLANS DATED \_\_\_\_\_

**NOTES:**

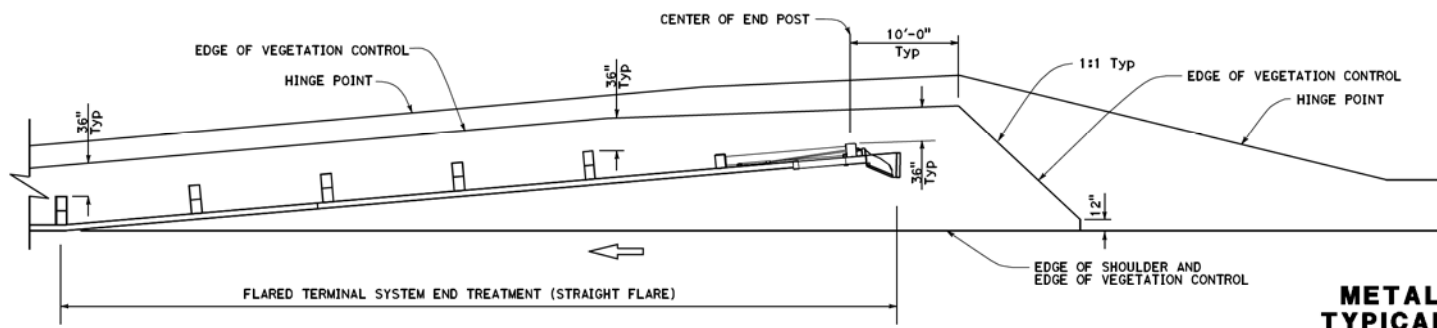
1. See Revised Standard Plan RSP A77C5 for additional vegetation control details.
2. Where the distance between back of post and hinge point is less than 42", construct vegetation control to 6" from hinge point while maintaining the 8" block-out at back of post. If the 8" block-out at back of post can not be maintained, construct vegetation control flush with the back edge of post.
3. Where dike is constructed under railing, construct vegetation control to back edge of dike. Where paved shoulder is constructed within 36" in front of the post, construct vegetation control to the edge of paved shoulder.



**PLAN**



**PLAN**



**PLAN**

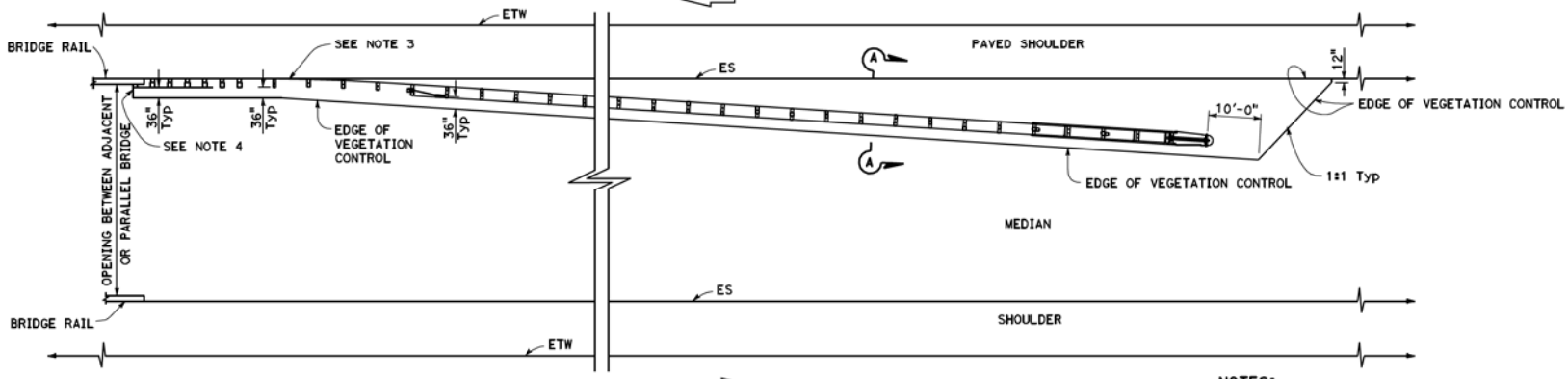
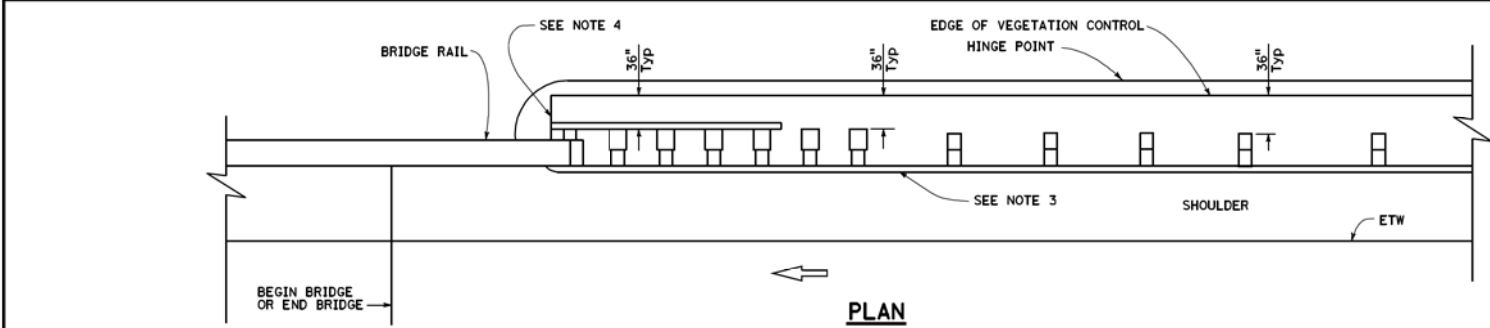
STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**METAL BEAM GUARD RAILING  
 TYPICAL VEGETATION CONTROL  
 FOR TERMINAL SYSTEM END TREATMENTS**

NO SCALE  
 RSP A77C6 DATED OCTOBER 19, 2012 SUPERSEDES STANDARD PLAN A77C6  
 DATED MAY 20, 2011 - PAGE 54 OF THE STANDARD PLANS BOOK DATED 2010.

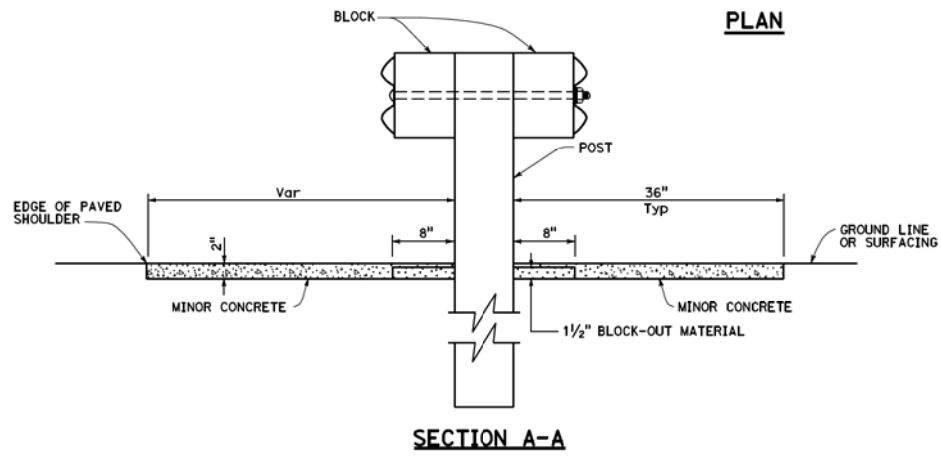
**REVISED STANDARD PLAN RSP A77C6**

2010 REVISED STANDARD PLAN RSP A77C6

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
<i>Randell D. Hiatt</i> REGISTERED CIVIL ENGINEER October 19, 2012 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>					
TO ACCOMPANY PLANS DATED _____					



- NOTES:**
1. See Revised Standard Plan RSP A77C5 for additional vegetation control details.
  2. Where the distance between back of post and hinge point is less than 42", construct vegetation control to 6" from hinge point while maintaining the 8" block-out at back of post. If the 8" block-out at back of post can not be maintained, construct vegetation control flush with the back edge of post.
  3. Where dike is constructed under railing, construct vegetation control to back edge of dike. Where paved shoulder is constructed within 36" in front of the post, construct vegetation control to the edge of paved shoulder.
  4. End vegetation control at end of backside rail element.



STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**METAL BEAM GUARD RAILING  
TYPICAL VEGETATION CONTROL  
AT STRUCTURE APPROACH**

NO SCALE  
RSP A77C7 DATED OCTOBER 19, 2012 SUPERSEDES STANDARD PLAN A77C7  
DATED MAY 20, 2011 - PAGE 55 OF THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP A77C7**

2010 REVISED STANDARD PLAN RSP A77C7



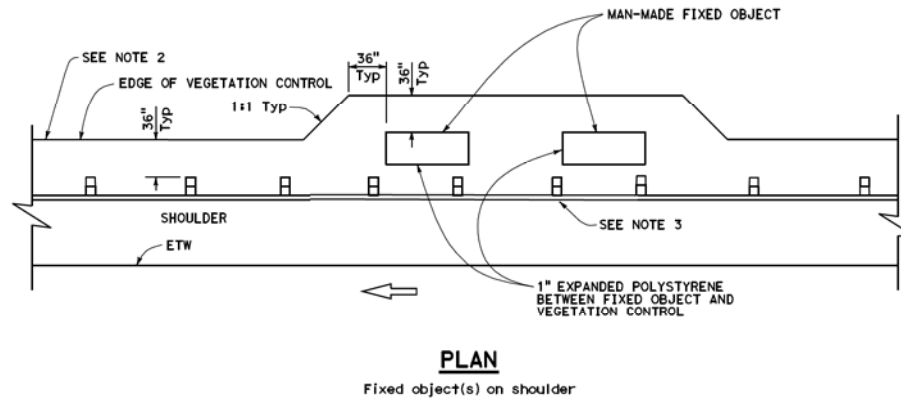
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
<i>Randell D. Hiatt</i> REGISTERED CIVIL ENGINEER					
October 19, 2012 PLANS APPROVAL DATE					
<small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small>					



TO ACCOMPANY PLANS DATED \_\_\_\_\_

**NOTES:**

1. See Revised Standard Plan RSP A77C5 for additional vegetation control details.
2. Where the distance between back of post and hinge point is less than 42", construct vegetation control to 6" from hinge point while maintaining the 8" block-out at back of post. If the 8" block-out at back of post can not be maintained, construct vegetation control flush with the back edge of post.
3. Where dike is constructed under railing, construct vegetation control to back edge of dike. Where paved shoulder is constructed within 36" in front of the post, construct vegetation control to the edge of paved shoulder.



2010 REVISED STANDARD PLAN RSP A77C8

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

NO SCALE

RSP A77C8 DATED OCTOBER 19, 2012 SUPERSEDES STANDARD PLAN A77C8  
DATED MAY 20, 2011 - PAGE 56 OF THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP A77C8**

**NOTES:**

1. See Revised Standard Plan RSP 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 36" in front of the post, construct vegetation control to the edge of paved shoulder.

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

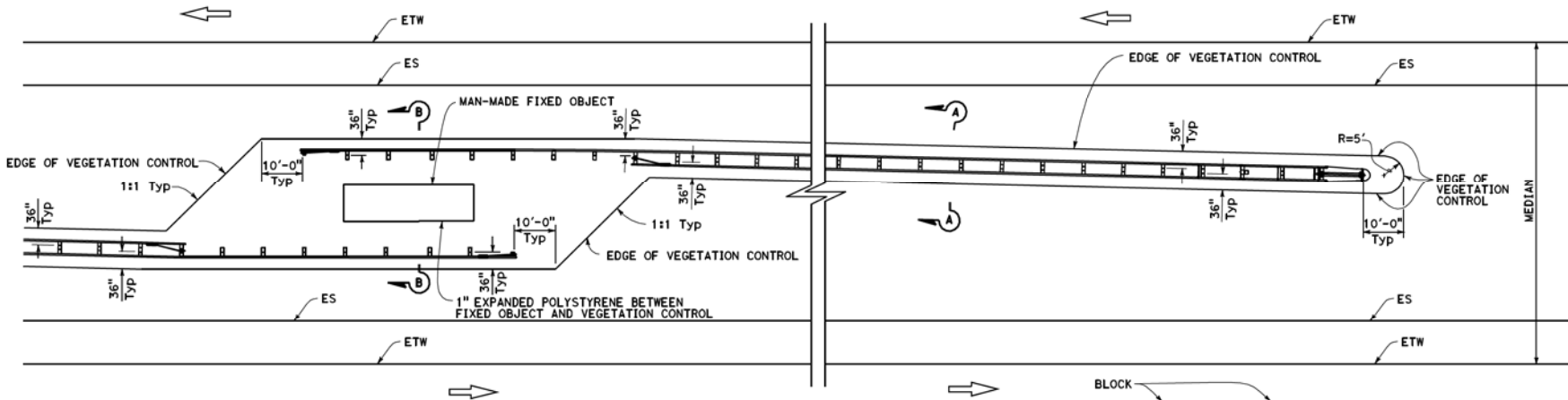
*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

October 19, 2012  
PLANS APPROVAL DATE

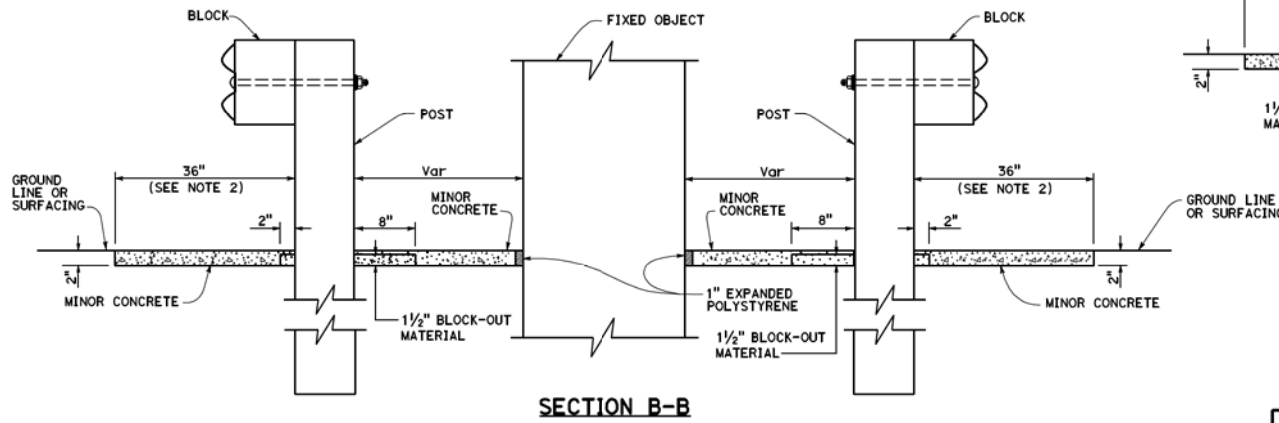
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

REGISTERED PROFESSIONAL ENGINEER  
*Randell D. Hiatt*  
No. C50200  
Exp. 6-30-13  
CIVIL  
STATE OF CALIFORNIA

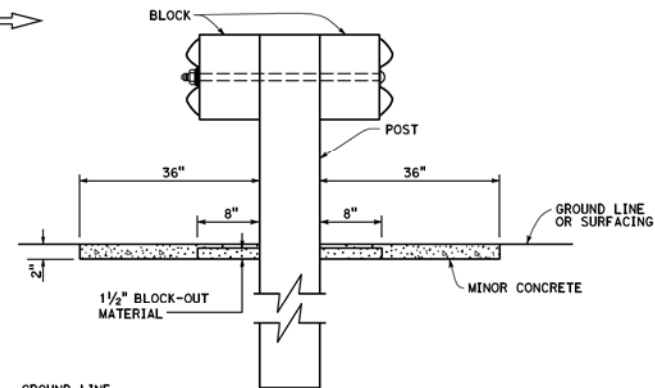
TO ACCOMPANY PLANS DATED \_\_\_\_\_



**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

RSP A77C9 DATED OCTOBER 19, 2012 SUPERSEDES STANDARD PLAN A77C9  
DATED MAY 20, 2011 - PAGE 57 OF THE STANDARD PLANS BOOK DATED 2010.

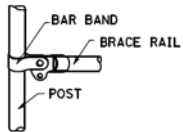
**REVISED STANDARD PLAN RSP A77C9**

2010 REVISED STANDARD PLAN RSP A77C9

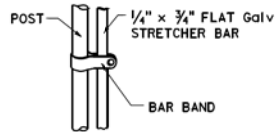
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER  
 Glenn DeCau  
 No. C34547  
 Exp. 9-30-13  
 CIVIL  
 STATE OF CALIFORNIA

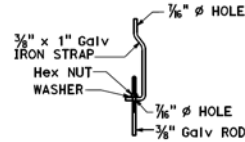
October 19, 2012  
 PLANS APPROVAL DATE  
 THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



**BRACE RAIL**



**STRETCHER BAR**

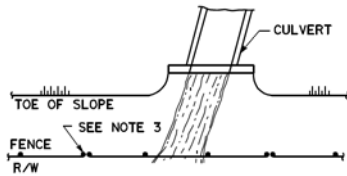


**TRUSS TIGHTENER**

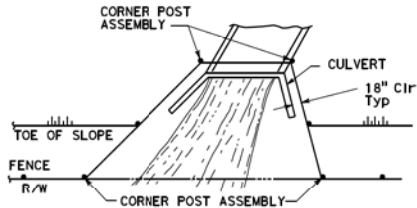
**NOTES:**

1. All material for abutment connection to be galvanized.
2. The chain link fabric shall be replaced by barbed wire strands at 12" maximum centers between the double posts.
3. When the width of the culvert makes it necessary to anchor a post to the top of the culvert, a cast iron shoe or other device approved by the Engineer shall be used.
4. Fencing over stream and around headwall may also use Barbed Wire or Wire Mesh fencing with either wood post or steel post installation.
5. See Standard Plan A85 for Chain Link fence dimensions. See Standard Plan A86 for Barbed Wire and Wire Mesh fence dimensions and for wood post and steel post installation.

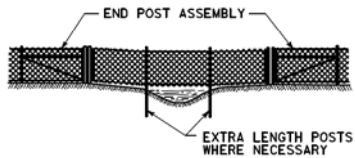
TO ACCOMPANY PLANS DATED \_\_\_\_\_



**PLAN**

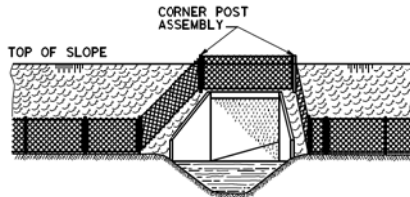


**PLAN**



**ELEVATION**

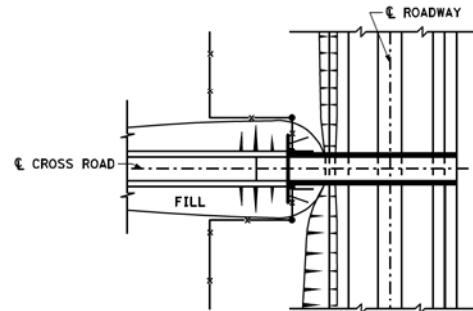
**INSTALLATION OVER STREAM**



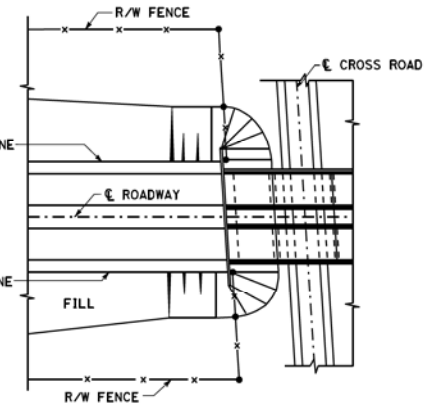
**ELEVATION**

**INSTALLATION AROUND HEADWALL**

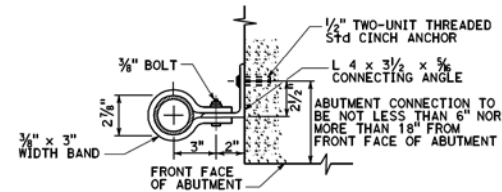
See Note 4



**PLAN OF ROADWAY - OVERCROSSING**



**PLAN OF ROADWAY - UNDERCROSSING**



**ABUTMENT CONNECTION**

**TYPICAL INSTALLATION AT BRIDGES**

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**CHAIN LINK FENCE DETAILS**  
 NO SCALE

RSP A85B DATED OCTOBER 19, 2012 SUPERSEDES STANDARD PLAN A85B  
 DATED MAY 20, 2011 - PAGE 114 OF THE STANDARD PLANS BOOK DATED 2010.  
**REVISED STANDARD PLAN RSP A85B**

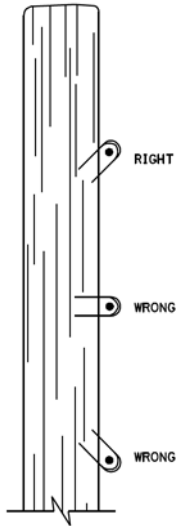
2010 REVISED STANDARD PLAN RSP A85B

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

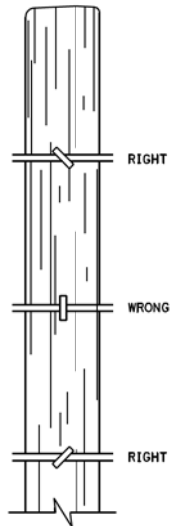
Raymond On Jester  
 REGISTERED CIVIL ENGINEER  
 October 19, 2012  
 PLANS APPROVAL DATE  
 No. C37332  
 Exp. 6-30-14  
 CIVIL  
 REGISTERED PROFESSIONAL ENGINEER  
 STATE OF CALIFORNIA

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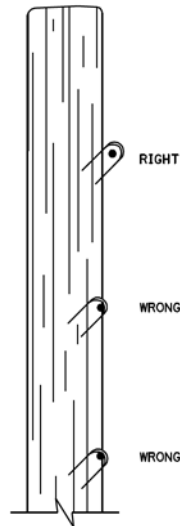
TO ACCOMPANY PLANS DATED \_\_\_\_\_



**DRIVE STAPLES AT ANGLE**

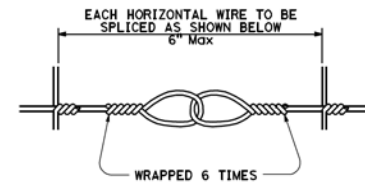


**DO NOT DRIVE STAPLES PARALLEL TO SIDE OF POST**

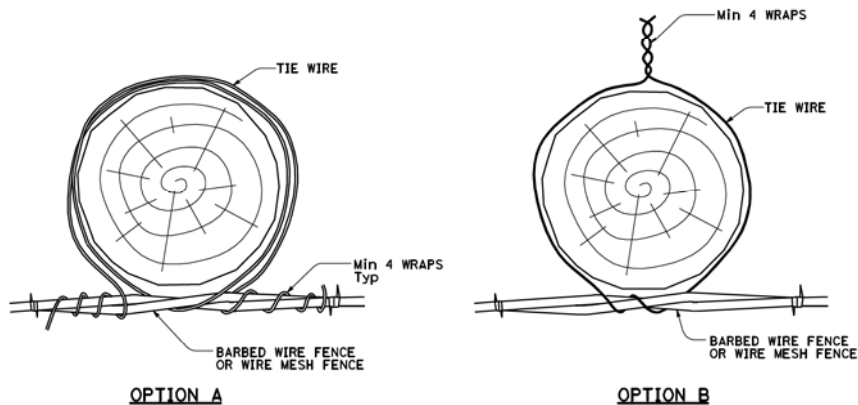


**LEAVE WIRE LOOSE IN STAPLE**

**LINE POST STAPLING DETAILS**  
 (Apply to rectangular/square and round posts)  
 Do not staple vertical wire in wire mesh.



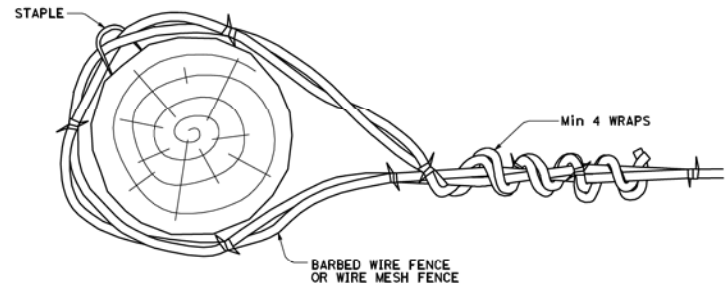
**SPLICE DETAIL FOR BARBED WIRE/WIRE MESH FENCE**



**OPTION A**

**OPTION B**

**LINE POST WIRE TIE OPTION DETAILS**  
 (Option details also apply to rectangular/square posts)



**END LATCH PULL AND CORNER POST DETAIL**  
 (Also applies to rectangular/square posts)

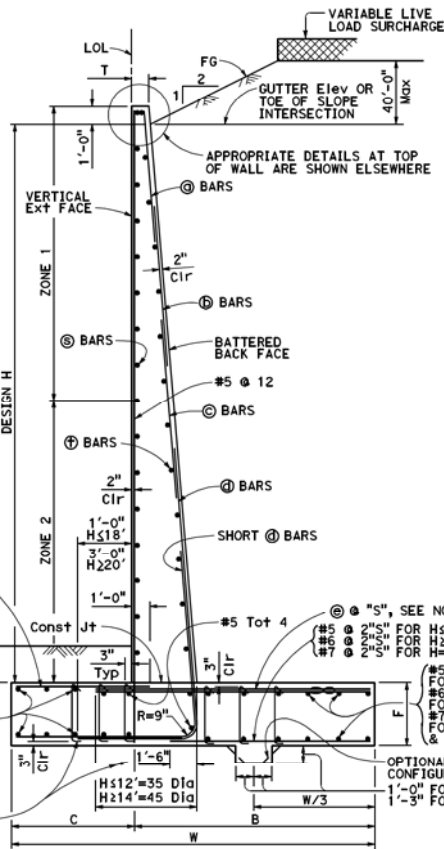
STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**BARBED WIRE AND WIRE MESH FENCE - MISCELLANEOUS DETAILS**

NO SCALE

RSP A86D DATED OCTOBER 19, 2012 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP A86D**

2010 REVISED STANDARD PLAN RSP A86D



**DESIGN CONDITIONS:**

Design H may be exceeded by 6" before going to the next size. Special footing design is required where foundation material is incapable of supporting bearing stress listed in the table.

**DESIGN NOTES:**

- DESIGN: AASHTO LRFD Bridge Design Specifications, 4th Edition with California Amendments
- LS1: Varied surcharge on level ground surface
- DC: Stem Architectural Treatment of thickness up to 6' of concrete (75 psf) considered
- SEISMIC:  $k_h = 0.2$   
 $k_v = 0.0$
- SOIL:  $\phi = 34^\circ$   
 $\gamma = 120$ pcf
- REINFORCED CONCRETE:  $f'_c = 3,600$  psi  
 $f_y = 60,000$  psi
- LOAD COMBINATIONS AND LIMIT STATES:  
Service I  $0 = 1.00DC+1.00EV+1.00EH+1.00LS$   
Strength I  $0 = \alpha DC + \rho EV + \eta EH + 1.75LS$   
Extreme I  $0 = 1.00DC + 1.00EV + 1.00EH + 1.00EOD + 1.00EOE$

- Where:
- Q: Force Effects
  - $\alpha$ : 1.25 or 0.90, Whichever Controls Design
  - $\rho$ : 1.35 or 1.00, Whichever Controls Design
  - $\eta$ : 1.50 or 0.90, Whichever Controls Design
  - DC: Dead Load of Structure Components
  - EH: Horizontal Earth Fill Pressure
  - EV: Vertical Earth Pressure from Earth Fill Weight
  - LS: Live Load Surcharge
  - EOE: Seismic Earth Pressure
  - EOD: Soil and Structural and Nonstructural Components Inertia

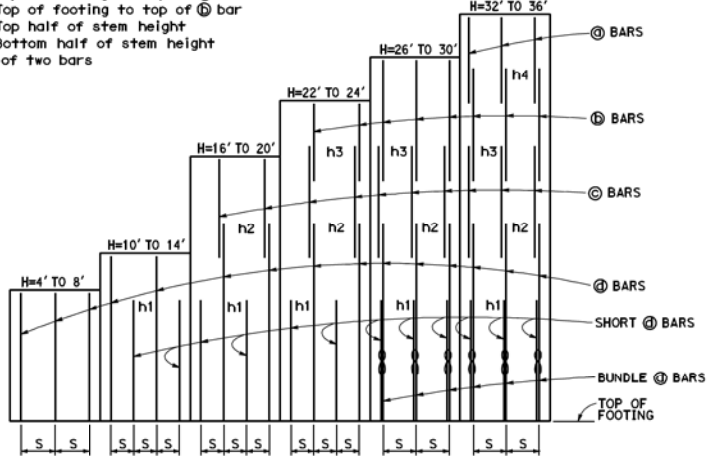
**SYMBOLS:**

- TO ACCOMPANY PLANS DATED \_\_\_\_\_
- Ser - service limit state I
  - Str - strength limit state I
  - Ext - extreme event limit state I
  - B' - effective footing width (ft)
  - $q_0$  - net bearing stress (ksf), OG assumed to be FG at toe
  - $q_0$  - gross uniform bearing stress (ksf)
  - h1 = Top of footing to top of short @ bar
  - h2 = Top of footing to top of @ bar
  - h3 = Top of footing to top of @ bar
  - h4 = Top of footing to top of @ bar
  - Zone 1 = Top half of stem height
  - Zone 2 = Bottom half of stem height
  - ∞ - Bundle of two bars

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

APRIL 20, 2012  
PLANS APPROVAL DATE

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**TABLE OF REINFORCING STEEL, DIMENSIONS AND DATA**

DESIGN H	4'	6'	8'	10'	12'	14'	16'	18'	20'	22'	24'	26'	28'	30'	32'	34'	36'
W	6'-0"	7'-6"	9'-6"	11'-0"	12'-6"	15'-6"	17'-3"	19'-6"	21'-9"	23'-6"	26'-0"	28'-1"	30'-3"	31'-6"	33'-0"	34'-8"	35'-11"
C	2'-0"	2'-6"	3'-3"	3'-6"	4'-3"	5'-0"	5'-3"	5'-9"	6'-9"	7'-3"	8'-3"	8'-9"	9'-0"	9'-6"	10'-0"	10'-10"	11'-3"
B	4'-0"	5'-0"	6'-3"	7'-6"	8'-3"	10'-6"	12'-0"	13'-9"	15'-0"	16'-3"	17'-9"	19'-4"	21'-3"	22'-0"	23'-0"	23'-10"	24'-8"
DF	1'-6"	1'-6"	2'-0"	2'-3"	2'-6"	2'-6"	2'-10"	3'-0"	3'-4"	3'-6"	3'-6"	3'-7"	3'-9"	3'-9"	3'-9"	4'-0"	4'-4"
T	11 1/2"	11 1/2"	11 1/2"	11 1/2"	11 1/2"	11 1/2"	11 1/2"	11 1/2"	11 1/2"	11 1/2"	11 1/2"	11 1/2"	1'-2"	1'-2"	1'-5"	1'-10"	2'-3"
BATTER	1/2 12	1/2 12	1/2 12	1/2 12	1/2 12	5/8 12	5/8 12	3/4 12	3/4 12	1 12	1 1/2 12	1 1/2 12	1 1/2 12	1 1/2 12	1 1/2 12	1 1/2 12	1 1/2 12
SPACING "S"	16"	12"	10"	7"	7"	7"	7"	7"	7"	6"	6"	10"	8"	7"	7"	7"	7"
@ BARS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#5	#5
B BARS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#5	#5
C BARS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	#5	#7
D BARS	#5	#5	#6	#6	#7	#8	#9	#10	#10	#10	#11	#11	#11	#11	#11	#11	#11
∞ BARS	#5	#5	#6	#6	#7	#8	#9	#10	#10	#10	#11	#11	#11	#11	#11	#11	#11
h1	-	-	-	5'-3"	6'-4"	7'-6"	8'-9"	9'-9"	11'-0"	11'-3"	11'-6"	10'-3"	11'-9"	12'-3"	12'-6"	13'-3"	13'-8"
h2	-	-	-	-	-	-	12'-8"	15'-6"	17'-0"	16'-6"	17'-3"	18'-0"	17'-4"	14'-10"	15'-9"	16'-4"	16'-4"
h3	-	-	-	-	-	-	-	-	-	18'-9"	21'-3"	21'-3"	22'-4"	22'-8"	18'-0"	18'-6"	19'-6"
h4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	26'-3"	27'-4"	28'-6"
No. of Toe Stirrups	0	0	0	0	0	0	0	0	0	0	0	5	5	6	7	8	9
No. of Heel Stirrups	0	0	0	0	0	0	0	0	4	6	7	8	10	10	11	11	11
ZONE 1 @ BARS	#5 @ 18	#5 @ 18	#5 @ 18	#5 @ 18	#5 @ 18	#5 @ 18	#5 @ 18	#5 @ 18	#5 @ 18	#5 @ 18	#5 @ 18	#5 @ 18	#5 @ 18	#6 @ 12	#6 @ 12	#6 @ 10	#6 @ 10
ZONE 2 @ BARS	#5 @ 18	#5 @ 18	#5 @ 18	#5 @ 18	#5 @ 18	#5 @ 12	#5 @ 12	#5 @ 12	#5 @ 12	#6 @ 12	#6 @ 12	#7 @ 12	#7 @ 12	#7 @ 12	#7 @ 12	#7 @ 10	#7 @ 10
ZONE 1 B BARS	#4 @ 18	#4 @ 18	#4 @ 18	#4 @ 18	#4 @ 18	#4 @ 18	#4 @ 18	#4 @ 18	#4 @ 18	#4 @ 18	#4 @ 18	#4 @ 18	#4 @ 18	#4 @ 12	#4 @ 12	#5 @ 12	#5 @ 12
ZONE 2 B BARS	#4 @ 18	#4 @ 18	#4 @ 18	#4 @ 18	#4 @ 18	#4 @ 12	#4 @ 12	#4 @ 12	#4 @ 12	#4 @ 12	#4 @ 12	#4 @ 12	#4 @ 12	#5 @ 12	#5 @ 12	#6 @ 12	#6 @ 12
Ser: B', q <sub>0</sub>	4.0, 0.9	5.5, 1.0	9.3, 1.0	10.9, 1.3	12.3, 1.5	14.8, 1.9	16.6, 2.1	18.7, 2.4	20.6, 2.7	22.3, 3.0	24.2, 3.3	26.1, 3.5	28.2, 3.9	29.6, 4.0	31.1, 4.2	32.7, 4.4	34.1, 4.6
Str: B', q <sub>0</sub>	2.2, 2.2	3.5, 2.2	5.1, 2.3	6.3, 2.6	7.6, 2.7	12.9, 3.1	14.3, 3.6	16.5, 3.9	19.4, 4.5	20.7, 4.8	22.5, 5.2	24.3, 5.6	26.2, 6.0	27.5, 6.3	28.8, 6.6	30.3, 6.9	31.8, 7.2
Ext: B', q <sub>0</sub>	2.3, 3.4	2.7, 4.4	3.6, 5.0	3.8, 6.5	4.5, 7.0	7.0, 6.1	7.6, 6.9	9.3, 7.0	11.0, 7.1	11.8, 7.6	14.1, 7.4	15.6, 7.7	17.1, 8.0	17.2, 8.7	18.1, 9.0	19.0, 9.4	19.4, 10.0

**NOTES:**

**TYPICAL SECTION**

- For details not shown and drainage notes see RSP B3-5
- For wall stem joint details see B0-3 and B0-3
- At @ and short @ bars:  
H < 6', no splices are allowed within 1'-8" above the top of footing.  
H > 6', no splices are allowed within H/4 above the top of footing.
- Bundle @ bars for H ≥ 26'.
- Hook stirrups around & space with alternating transverse reinforcement at 2 x "S".

**RETAINING WALL TYPE 1 (CASE 2)**  
NO SCALE

**REVISED STANDARD PLAN RSP B3-1B**

RSP B3-1B DATED APRIL 20, 2012 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.

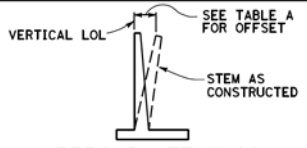
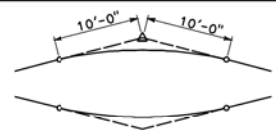


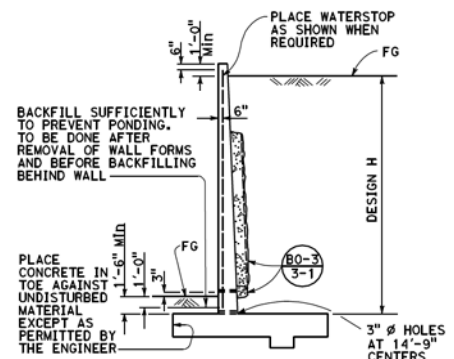
TABLE A	
H	OFFSET
4'-12'	H/200
14'-16'	H/160
18'-20'	H/140
22'-24'	H/130
26'-36'	2 1/2"

**APPROXIMATE WALL OFFSET VALUES**

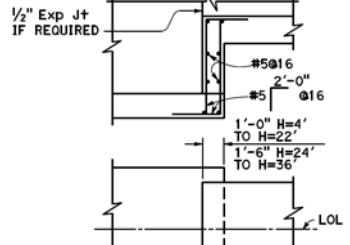
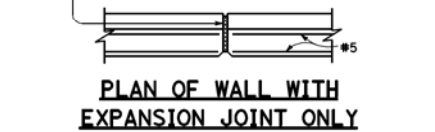
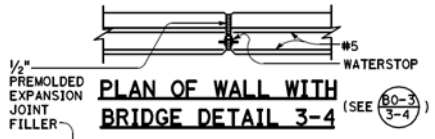
Values for offsetting forms to be determined by the Engineer.



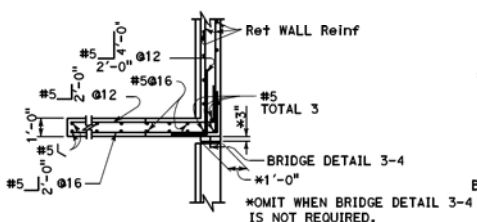
**20'-0" VC AT TOP OF WALL SLOPE CHANGE**  
Where shown on the plans



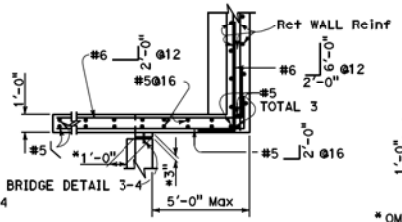
**DESIGN AND DRAINAGE**



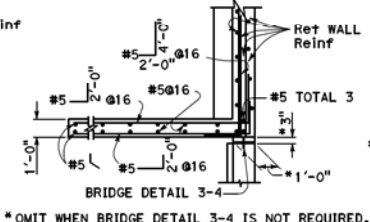
**FOOTING STEP**



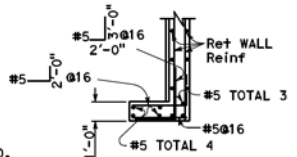
**PLAN**  
(For return wall Type "A")



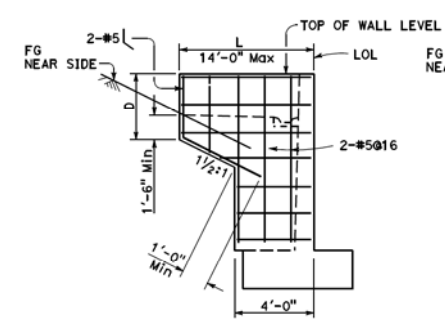
**PLAN**  
(For return wall Type "B")



**PLAN**  
(For return wall Type "C")

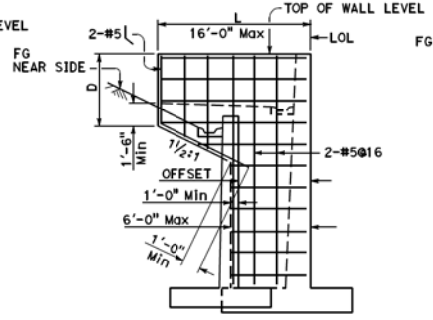


**PLAN**  
(For return wall Type "D")



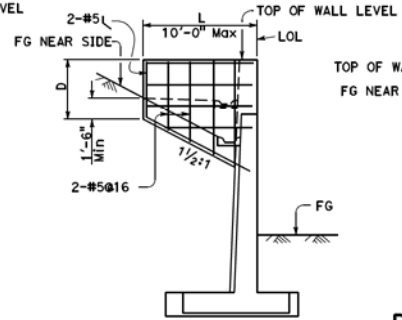
**ELEVATION**  
**RETURN WALL TYPE "A"**

Use where H=8' or less



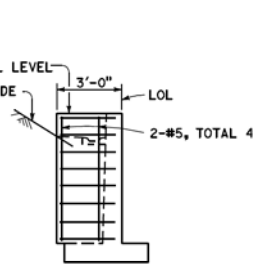
**ELEVATION**  
**RETURN WALL TYPE "B"**

Use where H=10' or more on offset walls



**ELEVATION**  
**RETURN WALL TYPE "C"**

Use where H=10' or more on straight walls



**ELEVATION**  
**RETURN WALL TYPE "D"**

Use where H=6' or less

**DESIGN CONDITIONS:**

Design "H" may be exceeded by 6" before going to the next size. Special footing design is required where foundation material is incapable of supporting bearing stress listed in table

Return wall not required unless shown elsewhere

**DESIGN NOTES:**

DESIGN: AASHTO LRFD Bridge Design Specifications, 4th edition with California Amendments

LIVE LOAD: Surcharge on level ground surface

SOIL:  $\phi = 34^\circ$   
 $\gamma = 120$  pcf

REINFORCED CONCRETE:  $f_y = 60,000$  psi  
 $f_c' = 3,600$  psi

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

**April 20, 2012**  
 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.

TO ACCOMPANY PLANS DATED \_\_\_\_\_

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**RETAINING WALL DETAILS No. 1**

NO SCALE

RSP B3-5 DATED APRIL 20, 2012 SUPERSEDES STANDARD PLAN B3-5 DATED MAY 20, 2011 - PAGE 277 OF THE STANDARD PLANS BOOK DATED 2010.

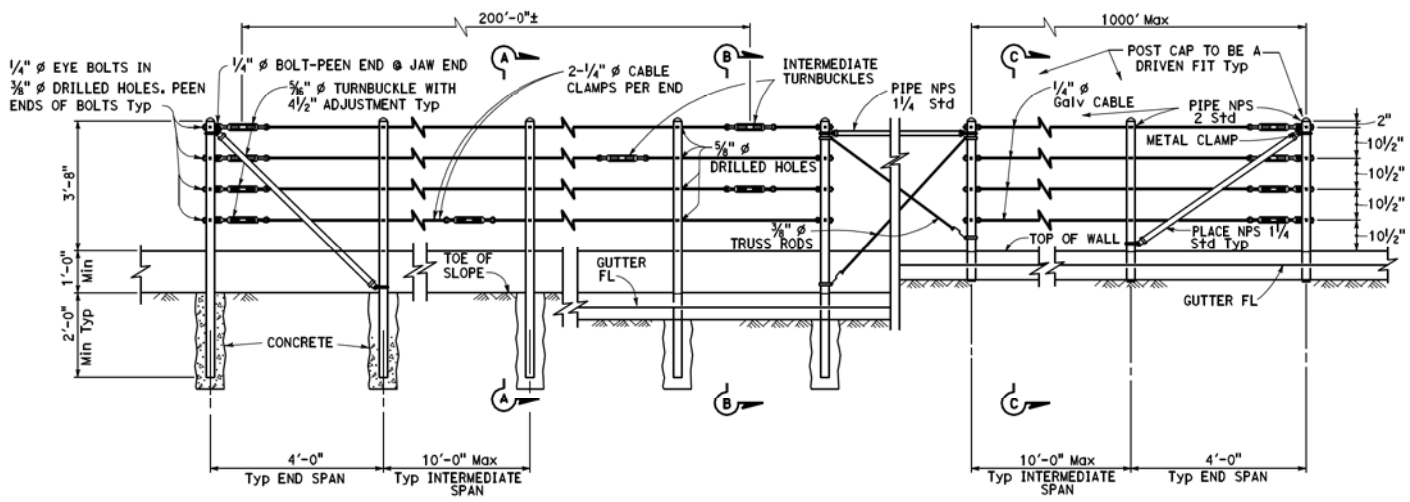
**REVISED STANDARD PLAN RSP B3-5**

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL SHEETS

REGISTERED CIVIL ENGINEER	
October 21, 2011	
PLANS APPROVAL DATE	
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TO ACCOMPANY PLANS DATED \_\_\_\_\_

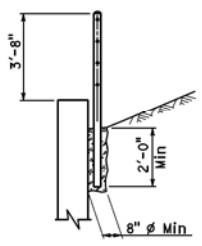


**EXISTING WALL (WITHOUT GUTTER)** Existing  
**RETAINING WALL (WITH GUTTER)** Existing  
**RETAINING WALL (WITH GUTTER)** New construction

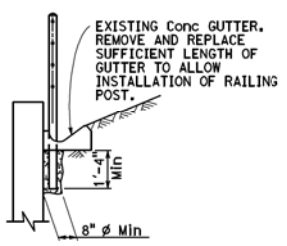
**ELEVATION**

**NOTES:**

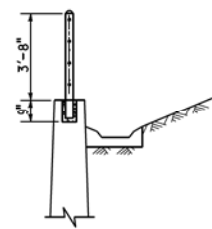
1. Maximum distance between turnbuckles shall be 200'-0"±.
2. Intermediate turnbuckles to be placed in adjacent spans.
3. Cable shall not be spliced between intermediate turnbuckles and end posts.
4. Posts to be vertical.
5. Alignment of holes in posts may vary to conform to slope of top of retaining wall.
6. The Contractor shall verify all dependent dimensions in the field before ordering or fabricating any material.
7. Line posts shall be braced horizontally and trussed diagonally in both directions at intervals not to exceed 1000'.
8. Post pockets to be centered in top of wall.
9. Typical end spans, braced in both directions, shall be constructed at changes in line where the angle of deflection is 15° or more.
10. Provide thimbles at all cable loops.



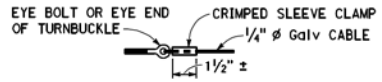
**SECTION A-A**  
Existing



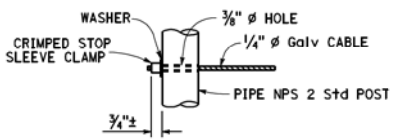
**SECTION B-B**  
Existing



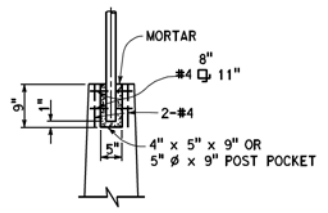
**SECTION C-C**  
New construction



**ALTERNATIVE CABLE CONNECTION**



**ALTERNATIVE DEAD END ANCHORAGE**



**POST POCKET**

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**CABLE RAILING**

NO SCALE

RSP B11-47 DATED OCTOBER 21, 2011 SUPERSEDES STANDARD PLAN B11-47 DATED MAY 20, 2011 - PAGE 293 OF THE STANDARD PLANS BOOK DATED 2010.

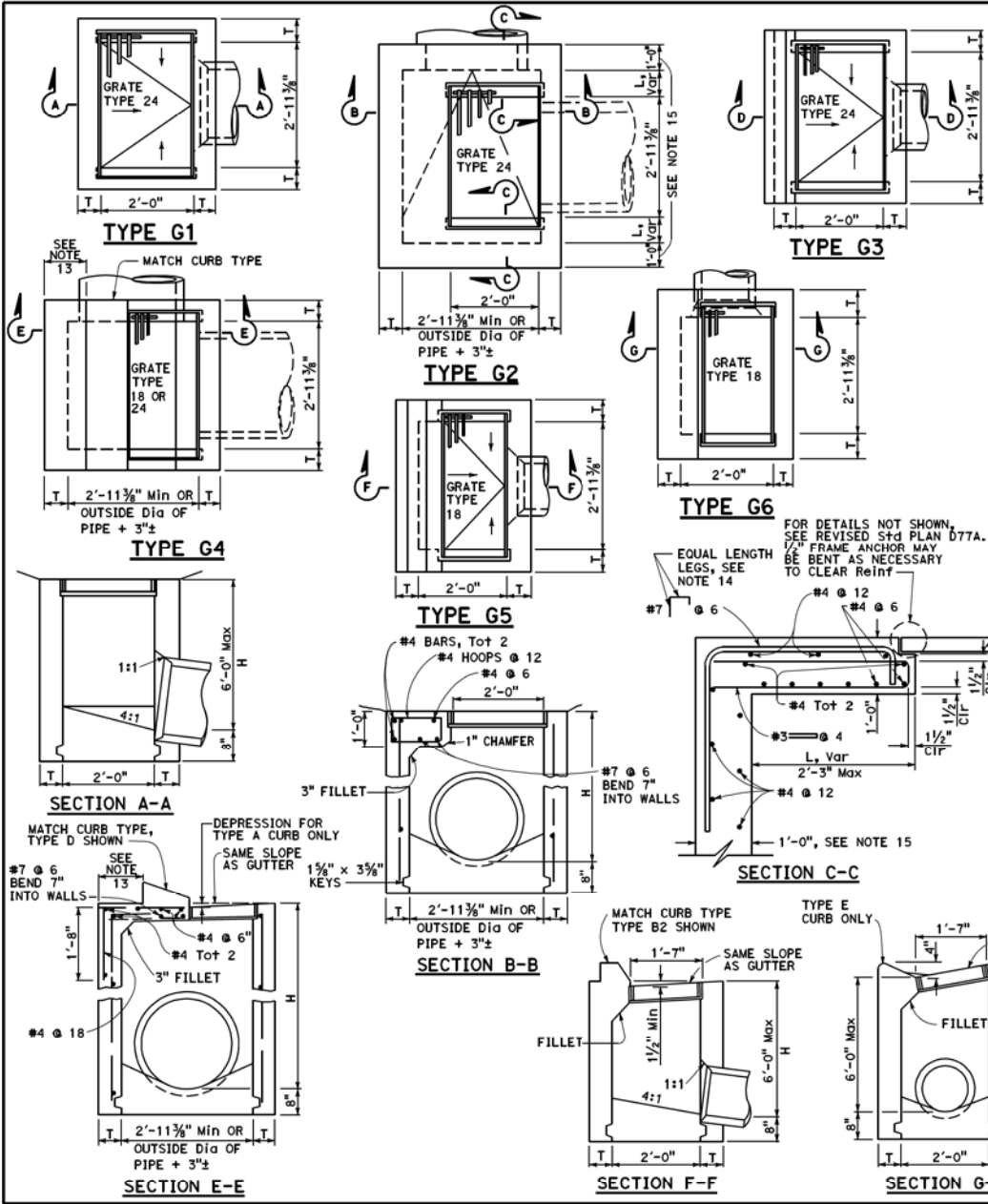
**REVISED STANDARD PLAN RSP B11-47**

2010 REVISED STANDARD PLAN RSP B11-47

TO ACCOMPANY PLANS DATED \_\_\_\_\_

D16+	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL SHEETS

October 19, 2012  
 PLANS APPROVAL DATE  
 THE STATE OF CALIFORNIA ON ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



- NOTES:**
- "H" is the difference in elevation between the outlet pipe flow line and the normal gutter grade line undepressed.
  - For "T" wall thickness, see Table A below.
  - Wall reinforcing not required when "H" is 8'-0" or less and the unsupported width or length is 7'-0" or less. Walls exceeding these limits shall be reinforced with #4 bars @ 1'-6" ± centers placed 1/2" clear to inside of box unless otherwise shown.
  - Inlet bottom reinforcing not required. See Standard Plan D74C for alternative reinforced bottom and alternative half round bottom.
  - Steps-None required where "H" is less than 2'-6". Where "H" is 2'-6" or more, install steps with lowest rung 1'-0" above the floor and highest rung not more than 6" below top of Inlet. The distance between steps shall not exceed 1'-0" and shall be uniform throughout the length of the wall. Place steps in the wall without an opening. Steps inserts may be substituted for the bar steps. Step inserts shall comply with State Industrial Safety requirements. See Standard Plan D74C for step details.
  - Details shown apply to both metal and concrete pipe.
  - Pipe(s) can be placed in any wall.
  - Curb section shall match adjacent curb.
  - Basin floors shall have wood trowel finish and a minimum slope of 12:3 from all directions toward outlet pipe.
  - Set inlet so that grate bars are parallel to direction of principal surface flow.
  - See Revised Standard Plans D77A and D77B for grate and frame details and weights of miscellaneous iron and steel.
  - See Standard Plan D78A for gutter depression details.
  - This dimension will vary with different grates, curbs types, box width and wall thickness.
  - Bar may be rotated as necessary to clear opening. Where "L" is 6" or less, bar may be omitted.
  - Where "L" is 6" or less, wall thickness shall be as shown in Table A.
  - Cast-in-place inlets to be formed around all pipes/stubs intersecting the inlet, and concrete poured in one continuous operation. Precast inlets shall have mortared connections conforming to details for Type GCP Inlet shown on Standard Plan D75B. See Standard Specifications for mortar composition.

**TABLE A**

**CONCRETE QUANTITIES**

TYPE	H=3'-0" TO 8'-0" (T=6")		H=8'-1" TO 20'-0" (T=8")	
	H=3'-0" (CY)	ADDITIONAL PCC PER FOOT (CY)	H=8'-1" (CY)	ADDITIONAL PCC PER FOOT (CY)
G-1	0.95	0.220	See Note A	SEE NOTE A
G-2*	1.31	0.255	3.50	0.357
G-3	1.03	0.220	See Note A	SEE NOTE A
G-4* (TYPE 24)	1.27	0.255	3.48	0.357
G-4* (TYPE 18)	1.30	0.255	3.50	0.357
G-5	1.02	0.220	SEE NOTE A	SEE NOTE A
G-6	1.04	0.220	SEE NOTE A	SEE NOTE A

TABLE BASED ON 8" FLOOR SLAB. NO DEDUCTIONS ARE TO BE MADE TO THESE QUANTITIES BECAUSE OF PIPE OPENINGS, DIFFERENT FLOOR ALTERNATIVES OR DIFFERENT CURB TYPES. \* QUANTITIES FOR TYPE G-2 AND G-4 INLETS BASED ON THE MINIMUM INTERIOR DIMENSIONS.

**NOTE A:**  
 Maximum allowable height 6'-0".

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**DRAINAGE INLETS**  
 NO SCALE

RSP D73 DATED OCTOBER 19, 2012 SUPERSEDES STANDARD PLAN D73  
 DATED MAY 20, 2011 - PAGE 156 OF THE STANDARD PLANS BOOK DATED 2010.  
**REVISED STANDARD PLAN RSP D73**

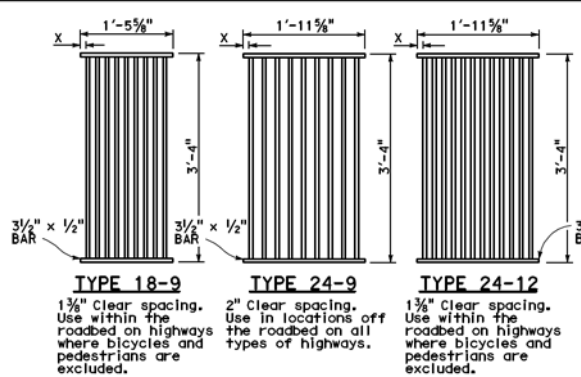
2010 REVISED STANDARD PLAN RSP D73



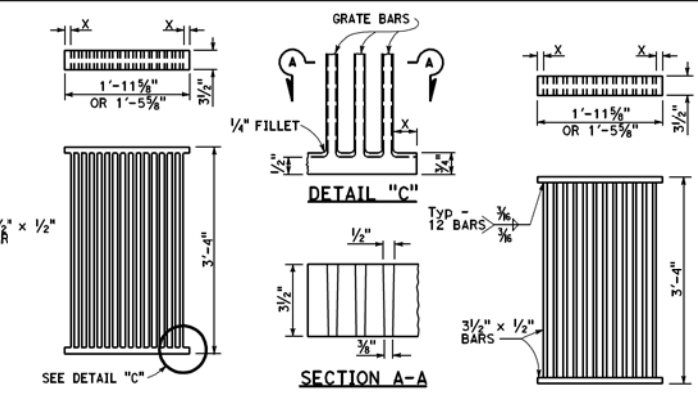
DIST	COUNTY	ROUTE	POST MILES	SHEET TOTAL
			TOTAL PROJECT	NO. SHEETS

**Raymond Don Isztos**  
 REGISTERED CIVIL ENGINEER  
 No. C37332  
 Exp. 6-30-14  
 CIVIL  
 STATE OF CALIFORNIA

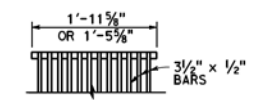
April 19, 2013  
 PLANS APPROVAL DATE  
 THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



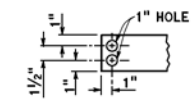
**RECTANGULAR GRATE DETAILS**  
(See table below)



**ALTERNATIVE CAST DUCTILE IRON GRATE OR CAST CARBON STEEL GRATE**

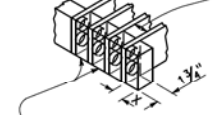


**CAST END BLOCK**



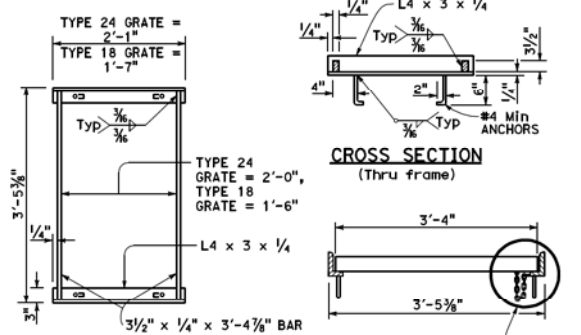
**END OF BAR**

SPACING SAME AS FOR WELDED OR BOLTED GRATE

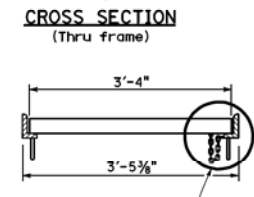


**ALTERNATIVE CAST DUCTILE IRON OR CAST CARBON STEEL END BLOCK GRATE**

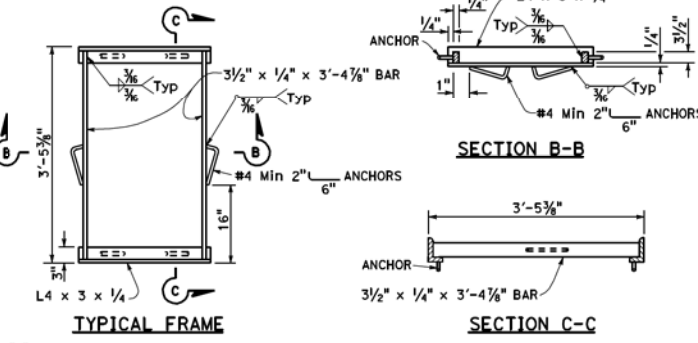
- NOTES:**
1. Grate type numbers refer to approximate width of grate in inches and number of bars, respectively.
  2. Contractor has the option of using cast ductile iron, cast carbon steel, welded, bolted, or cast end block grate.
  3. Rounded top of bars optional on all grates.
  4. Pipe inlets with a grate shall be placed so that bars parallel direction of principle surface flow.
  5. Complete joint penetration butt welds may be substituted for the fillet welds on all anchors.
  6. Standard square, hexagon, round or equivalent headed anchors may be substituted for the right angle hooks on the anchors shown in this plan.
  7. Grate and frame weights are based on welded grates (weights of face angles, steps, protection bars, etc. are not included).
  8. Connect chain to grate and frame only at locations shown on the plans. When chain is required, do not use cast ductile iron grates.



**TYPICAL FRAME**



**LONGITUDINAL SECTION**  
(Thru frame and grate)



**TYPICAL FRAME**  
**ALTERNATIVE ANCHOR FOR RECTANGULAR FRAME**  
(For details not shown, See Rectangular Frame Details)

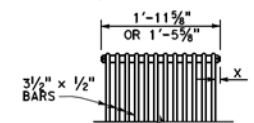
**RECTANGULAR FRAME DETAILS**  
(For all rectangular grates)

**GRATE BAR SPACING TABLE**

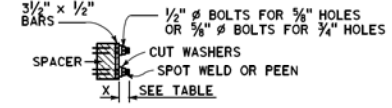
TYPE	NO. OF BARS	CLEAR BAR SPACING	X
18-9	9	1 3/8"	1 1/8"
24-9	9	2"	1 3/8"
24-12	12	1 3/8"	1 1/4"

INLET TYPE	COVER TYPE	WEIGHT LB
OS	PLATE	174
OL-7	PLATE	170
OL-10	PLATE	170
OL-14	PLATE	170
OL-21	PLATE	170
OCF	PLATE	112
OCF1	PLATE	112
OCF1	REDWOOD	42
OMP	PLATE	177
OMP1	PLATE	177

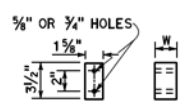
INLET TYPE	GRATE TYPE	NO. OF GRATES	WEIGHT LB
GDO	24-12	2	634
GOL-7	24-12	1	326
GOL-10	24-12	1	326
G0,G1,G2,G3,G4 (TYPE 24)	24-9	1	263
	24-12	1	326
G4 (TYPE 18),G5,G6	18-9	1	249
GT1	18-9	2	498
GT2	18-9	2	498
GT3	24-12	2	652
GT4	24-12	2	652
TRASH RACK			22
GRATE CHAIN			3



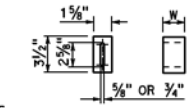
**BOLTED END BLOCK**



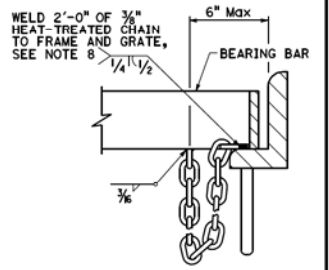
**BOLTING DETAIL**  
**ALTERNATIVE BOLTED GRATE**



**BAR SPACER**



**ALTERNATIVE SPACER**  
W = 1 3/8" or 2"



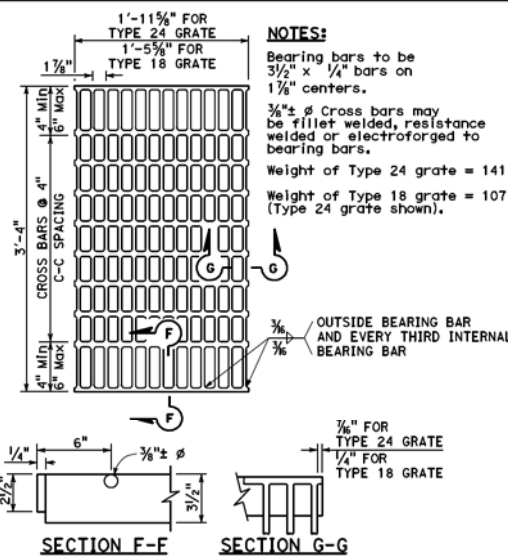
**DETAIL "D"**  
(Steel grates only)

**BASIS FOR Misc IRON & STEEL FINAL PAY WEIGHTS FOR DRAINAGE INLETS**  
(See Note 7)

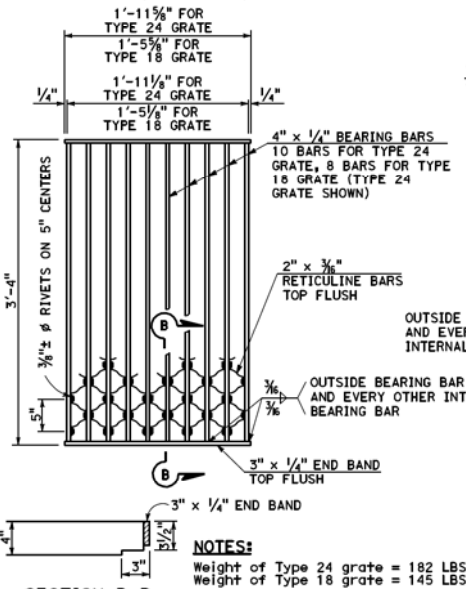
RSP D77A DATED APRIL 19, 2013 SUPERSEDES RSP D77A DATED JULY 20, 2012 AND STANDARD PLAN D77A DATED MAY 20, 2011 - PAGE 164 OF THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP D77A**

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**GRATE DETAILS No. 1**  
NO SCALE

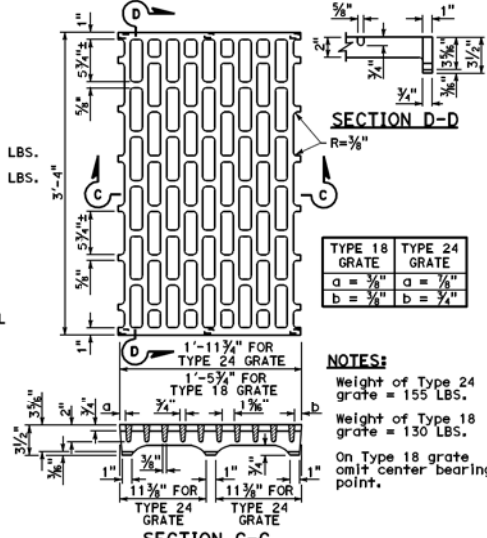


**SECTION F-F SECTION G-G**  
**TYPE 18-10 AND 24-13 GRATE**  
(Welded Steel)



**SECTION B-B**  
**TYPE 18-8S AND 24-10S GRATE**  
(Welded Steel) Reticuline type

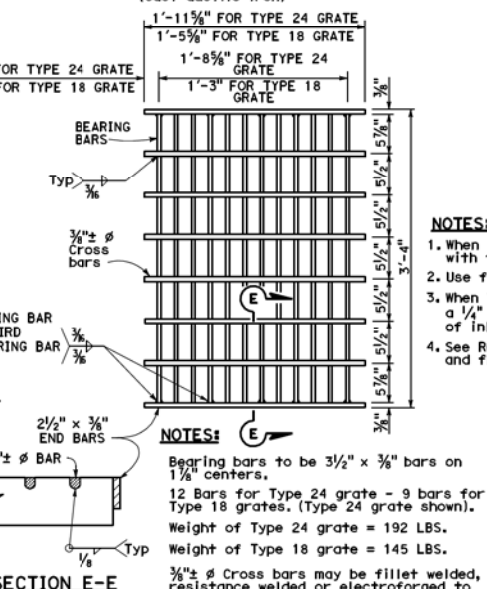
**NOTES:**  
Bearing bars to be 3/2" x 1/4" bars on 1 1/8" centers.  
3/8" ±  $\phi$  Cross bars may be fillet welded, resistance welded or electroforged to bearing bars.  
Weight of Type 24 grate = 141 LBS.  
Weight of Type 18 grate = 107 LBS. (Type 24 grate shown).



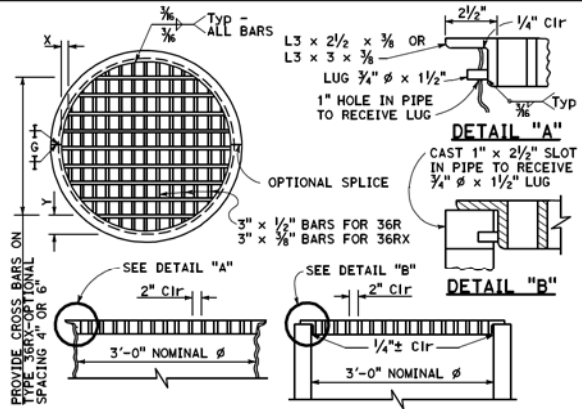
**SECTION C-C**  
**TYPE 18-8C AND 24-10C GRATE**  
(Cast ductile iron)

TYPE 18 GRATE	TYPE 24 GRATE
a = 3/8"	a = 7/8"
b = 3/8"	b = 1/2"

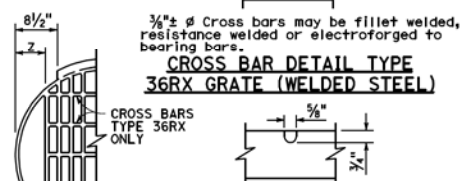
**NOTES:**  
Weight of Type 24 grate = 155 LBS.  
Weight of Type 18 grate = 130 LBS.  
On Type 18 grate omit center bearing point.



**SECTION E-E**  
**TYPE 18-9X AND 24-12X GRATE**  
(Welded Steel)



**TYPE 36R AND 36RX GRATE DETAILS**



**CROSS BAR DETAIL TYPE 36R GRATE (WELDED STEEL)**  
**CROSS BAR DETAIL ALTERNATIVE CAST DUCTILE IRON OR CAST CARBON STEEL GRATE TYPE 36RX MODIFIED TYPE 36R AND 36RX GRATE FOR ODI INLET**

- NOTES:**
- When alternative grates are allowed - Final pay based on alternative with the lesser weight.
  - Use frame shown on Standard Plan D74A, D74B or RSP D77A as appropriate.
  - When Type 24-10S, 24-12X or 24-13 grates are used with GDO Inlets, a 1/4" x 3/2" x 3'-4 1/8" steel bar shall be welded across the center of inlet frame to separate the individual grates.
  - See Revised Standard Plan RSP D77A for connecting chain to welded grate and frame. When chain is required, do not use cast ductile iron grate.

**GRATE BAR SPACING TABLE**

TYPE	NO. OF BARS	CLEAR BAR SPACING	X	Y	Z
36R	13	2"	2 1/8"	-	-
36RX (STEEL)	15	2"	3/8"	3 3/4"	5 3/4"
36RX (CAST)	13	2"	2 1/8"	3 3/4"	5 3/4"
36R Mod	12	2"	2 1/8"	-	5"
36RX Mod (STEEL)	13	2"	3/8"	3 3/4"	5 3/4"
36RX Mod (CAST)	12	2"	2 1/8"	3 3/4"	5 3/4"

RSP D77B DATED APRIL 19, 2013 SUPERSEDES RSP D77B DATED JULY 20, 2012 AND STANDARD PLAN D77B DATED MAY 20, 2011 - PAGE 165 OF THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP D77B**

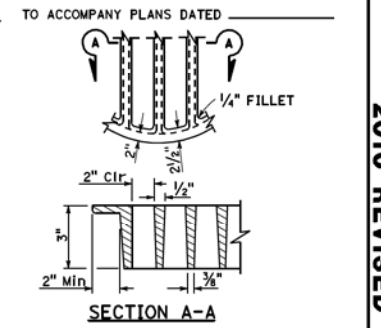
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL SHEETS

Raymond Don Tzstoo  
REGISTERED CIVIL ENGINEER

April 19, 2013  
PLANS APPROVAL DATE

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

Raymond Don Tzstoo  
No. C37332  
Exp. 6-30-14  
CIVIL  
REGISTERED PROFESSIONAL ENGINEER  
STATE OF CALIFORNIA



**SECTION A-A**  
**ALTERNATIVE CAST DUCTILE IRON GRATE OR CAST CARBON STEEL GRATE TYPE 36R AND 36RX**

**BASIS FOR MISC IRON AND STEEL FINAL PAY WEIGHTS FOR DRAINAGE INLETS**

INLET TYPE	GRATE TYPE	NO. OF GRATES	WEIGHT LB
GDO (SEE NOTE 4)	24-10C	2	391
	24-10S	2	456
	24-12X	2	473
	24-13	2	374
G0, G0L, G1, G2, G3, G4 (TYPE 24)	24-10C	1	202
	24-10S	1	229
	24-12X	1	239
	24-13	1	188
G4 (TYPE 18) G5, G6	18-8S	1	187
	18-9X	1	187
	18-10	1	149
GT1, GT2	18-8S	2	374
	18-9X	2	374
	18-10	2	298
GT3, GT4	24-10C	2	404
	24-10S	2	458
	24-12X	2	478
ODI	24-13	2	376
	36RX (Mod)	1	196
	36RX	1	215
GMP, GCP, GCP1	ODI	1	220
	36R	1	236
TRASH RACK			22
GRATE CHAIN			3

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**GRATE DETAILS No. 2**  
NO SCALE

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

*Jeffrey G. Wilson*  
REGISTERED ELECTRICAL ENGINEER

January 20, 2012  
PLANS APPROVAL DATE

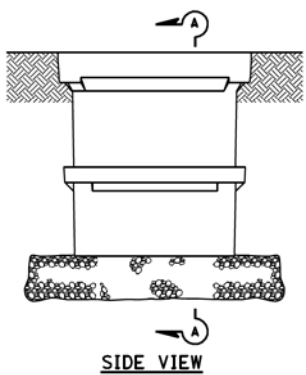
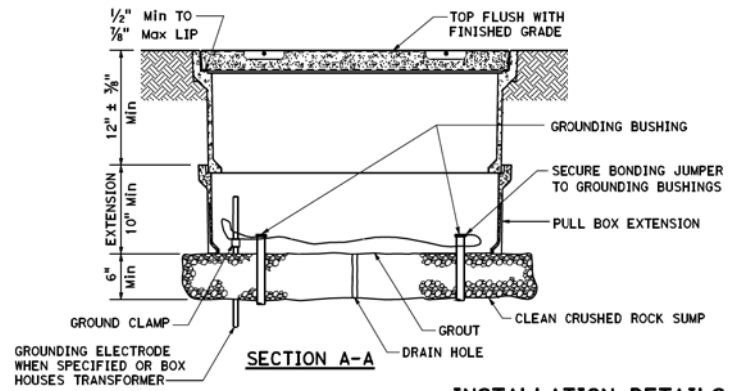
Jeffrey G. Wilson  
No. E14512  
Exp. 6-30-12  
ELECTRICAL

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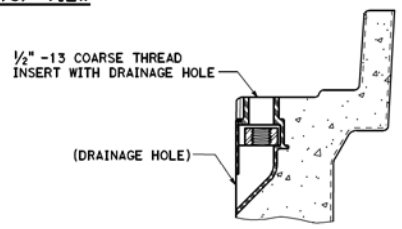
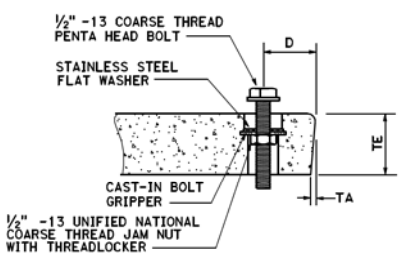
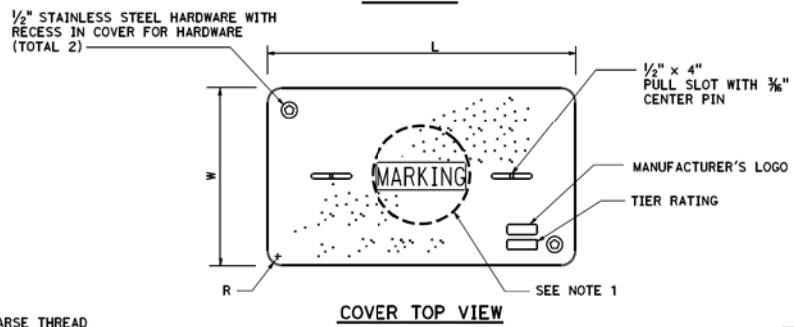
TO ACCOMPANY PLANS DATED \_\_\_\_\_

**NOTES ON PULL BOXES:**

- Pull box covers must be marked as follows: "SERVICE" Service circuits between service point and service disconnect; "SPRINKLER-CONTROL" sprinkler control circuits, 50 V or less; "CALTRANS" on all pull boxes, except pull boxes marked "SPRINKLER-CONTROL"; and "TELEPHONE" Telephone service;
  - No. 3 1/2 pull box.
    - "SIGNAL" - Traffic signal circuits with or without street or sign lighting circuits.
  - "ST LIGHTING" - Street or sign lighting circuits where voltage is under 600 V.
    - No. 5, 6, 9 or 9A pull box.
      - "TRAFFIC SIGNAL" - Traffic signal circuits with or without street or sign lighting circuits.
      - "STREET LIGHTING" - Street or sign lighting circuits where voltage is under 600 V.
      - "STREET LIGHTING-HIGH VOLTAGE" - Street or sign lighting circuits where voltage is above 600 V.
      - "IRRIGATION" - Circuits to irrigation controller 120 V or more.
      - "RAMP METER" - Ramp meter circuits.
      - "COUNT STATION" - Count or speed monitor circuits.
      - "COMMUNICATIONS" - Communication circuits.
      - "TOS COMMUNICATIONS" - TOS communication line.
      - "TOS POWER" - TOS power.
      - "TDC POWER" - Telephone demarcation cabinet power.
      - "CCTV" - Closed circuit television circuits.
      - "TMS" - Traffic monitoring station circuits.
      - "CMS" - Changeable message sign circuits.
      - "HAR" - Highway advisory radio circuits.
- The nominal dimensions of the opening in which the cover sets must be the same as the cover dimensions (L and W) plus 1/8" or greater.
- Covers and boxes must be interchangeable with California Standard. When interchanged with a standard, the top surfaces must be flush within 1/8". Top outside radius of covers and pull boxes must have a 1/8" radius.
- Pull box extension may be another pull box as long as the bottom edge of the pull box can fit into the cover opening.



**INSTALLATION DETAILS  
DETAIL A**



**TYPICAL COVER CAPTIVE BOLT  
OR SIMILAR**

**TYPICAL THREADED INSERT  
OR SIMILAR**

PULL BOX	PULL BOX			COVER						
	MINIMUM DEPTH BOX	MINIMUM DEPTH EXTENSION	MAXIMUM WEIGHT	L	W	R	TE	TA	D	MAXIMUM WEIGHT
No. 3 1/2	12"	N/A	40 lb	1' - 3 3/8"	10 1/8"	1 3/8"	2"	1/8"	1 3/4"	30 lb
No. 5	12"	10"	55 lb	1' - 11 1/4"	1' - 1 3/4"	1 3/8"	2"	1/8"	1 3/4"	60 lb
No. 6	12"	10"	70 lb	2' - 6 1/2"	1' - 5 1/2"	1 3/8"	2"	1/8"	2"	85 lb

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**ELECTRICAL SYSTEMS  
(PULL BOX)**  
NO SCALE

RSP ES-8A DATED JANUARY 20, 2012 SUPPLEMENTS THE  
STANDARD PLANS BOOK DATED 2010,

**REVISED STANDARD PLAN RSP ES-8A**

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL NO. SHEETS

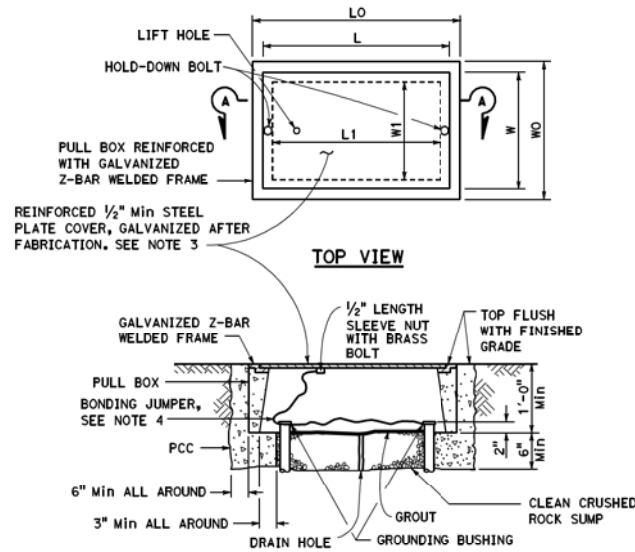
*Richard J. McFar*  
REGISTERED ELECTRICAL ENGINEER

January 20, 2012  
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER  
Richard J. McFar  
No. E14512  
Exp. 6-30-12  
ELECTRICAL  
STATE OF CALIFORNIA

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TO ACCOMPANY PLANS DATED \_\_\_\_\_



**SECTION A-A**  
**No. 3 1/2(T), No. 5(T) AND**  
**No. 6(T) TRAFFIC PULL BOX**

**NOTES ON PULL BOXES:**

- Traffic pull box shall be provided with steel cover and special concrete footing. Steel cover shall have embossed non-skid pattern.
- Steel reinforcing shall be as regularly used in the standard products of the respective manufacturer.
- Pull box covers must be marked as follows: "SERVICE" Service circuits between service point and service disconnect; "SPRINKLER-CONTROL" Sprinkler control circuits, 50 V or less; "CALTRANS" On all pull boxes, except pull boxes marked "SPRINKLER-CONTROL"; and "TELEPHONE" Telephone service.
  - No. 3 1/2(T) pull box.
    - "SIGNAL" - Traffic signal circuits with or without street or sign lighting circuits.
    - "ST LIGHTING" - Street or sign lighting circuits where voltage is under 600 V.
  - No. 5(T) or 6(T) pull box.
    - "TRAFFIC SIGNAL" - Traffic signal circuits with or without street or sign lighting circuits.
    - "STREET LIGHTING" - Street or sign lighting circuits where voltage is under 600 V.
    - "STREET LIGHTING-HIGH VOLTAGE" - Street or sign lighting circuits where voltage is above 600 V.
    - "IRRIGATION" - Circuits to Irrigation controller 120 V or more.
    - "RAMP METER" - Ramp meter circuits.
    - "COUNT STATION" - Count or speed monitor circuits.
    - "COMMUNICATION" - Communication circuits.
    - "TOS COMMUNICATIONS" - TOS communications line.
    - "TOS POWER" - TOS power.
    - "TDC POWER" - Telephone demarcation cabinet power.
    - "CCTV" - Closed circuit television circuits.
    - "TMS" - Traffic monitoring station circuits.
    - "CMS" - Changeable message sign circuits.
    - "HAR" - Highway advisory radio circuits.
- Bonding jumper for metal covers shall be 3' long, minimum.
- The nominal dimensions of the opening in which the cover sets must be the same as the cover dimensions except the length and width dimensions shall be 1/8" greater.
- Covers and boxes must be interchangeable with California standard male and female gages. When interchanged with a standard male or female gage, the top surfaces must be flush within 1/8".

PULL BOX	BOX						COVER				
	MINIMUM * THICKNESS	MINIMUM DEPTH BOX AND EXTENSION	W0	L0	L1	W1	L **	W **	R	EDGE THICKNESS	EDGE TAPER
No. 3 1/2(T)	1 1/2"	1'-0"	1'-5" ± 1"	1'-8 3/4" ±	1'-2 1/2" ±	10 3/8" ± 1"	1'-8" ±	1'-1 3/4" ±	0"	1/2"	NONE
No. 5(T)	1 3/4"	1'-0"	1'-11 1/2" ± 1"	2'-5 1/2" ±	1'-7" ±	1'-1" ± 1"	2'-3" ±	1'-4" ±	0"	1/2"	NONE
No. 6(T)	2"	1'-0"	2'-6" ± 1"	2'-11 1/2" ±	1'-11 1/2" ±	1'-5" ± 1"	2'-9" ±	1'-8" ±	0"	1/2"	NONE

\* EXCLUDING CONDUIT WEB      \*\* TOP DIMENSION

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**ELECTRICAL SYSTEMS**  
**(TRAFFIC RATED PULL BOX)**  
NO SCALE

RSP ES-8B DATED JANUARY 20, 2012 SUPPLEMENTS THE  
STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP ES-8B**

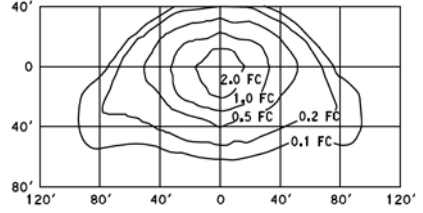
2010 REVISED STANDARD PLAN RSP ES-8B

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

*William F. McFar*  
 REGISTERED ELECTRICAL ENGINEER  
 No. E14512  
 July 20, 2012  
 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  
 CATEGORY 6 - ELECTRICAL  
 Exp. 6-30-14  
 STATE OF CALIFORNIA

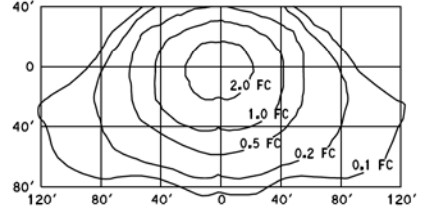
TO ACCOMPANY PLANS DATED \_\_\_\_\_

**ISOFOOTCANDLE CURVE - MINIMUM**



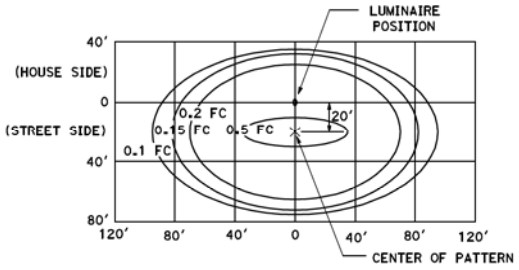
**TYPE III MEDIUM CUTOFF**  
 Cutoff Luminaire  
 34' Mounting Height  
 Lamp operated at 22,000 lm  
 200-W high pressure sodium lamp  
 ANSI Designation S66

**ISOFOOTCANDLE CURVE - MINIMUM**



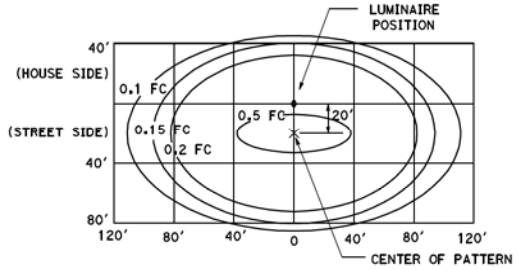
**TYPE III MEDIUM CUTOFF**  
 Cutoff Luminaire  
 40' Mounting Height  
 Lamp operated at 37,000 lm  
 310-W high pressure sodium lamp  
 ANSI Designation S67

**ISOFOOTCANDLE CURVE - MINIMUM**



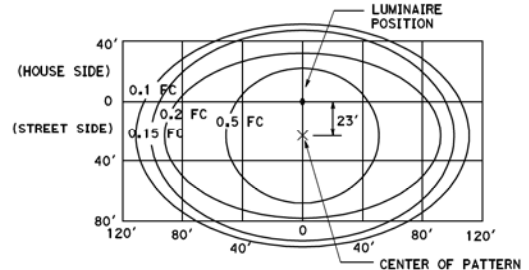
**LED LUMINAIRE ROADWAY 1**  
 200-W HPS Equivalent at 34' Mounting Height

**ISOFOOTCANDLE CURVE - MINIMUM**



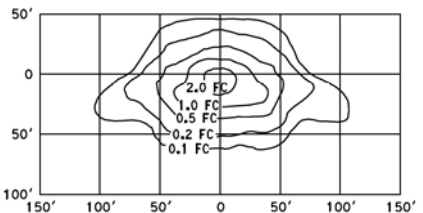
**LED LUMINAIRE ROADWAY 2**  
 310-W HPS Equivalent at 40' Mounting Height

**ISOFOOTCANDLE CURVE - MINIMUM**



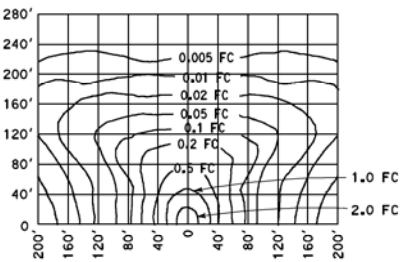
**LED LUMINAIRE ROADWAY 4**  
 400-W HPS Equivalent at 40' Mounting Height

**ISOFOOTCANDLE CURVE - MINIMUM**



**TYPE III MEDIUM CUTOFF**  
 Cutoff Luminaire  
 30' Mounting Height  
 Lamp operated at 16,000 lm  
 150-W high pressure sodium lamp  
 ANSI Designation S55

**ISOFOOTCANDLE CURVE - MINIMUM**



**LOW PRESSURE SODIUM LUMINAIRE**  
 40' Mounting Height  
 Lamp operated at 33,000 lm  
 180-W low pressure sodium lamp

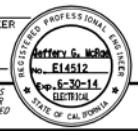
STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**ELECTRICAL SYSTEMS  
 (ISOFOOTCANDLE DIAGRAMS)**  
 NO SCALE

RSP ES-10A DATED JULY 20, 2012 SUPPLEMENTS THE  
 STANDARD PLANS BOOK DATED 2010.

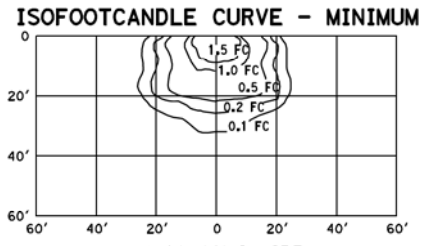
**REVISED STANDARD PLAN RSP ES-10A**

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

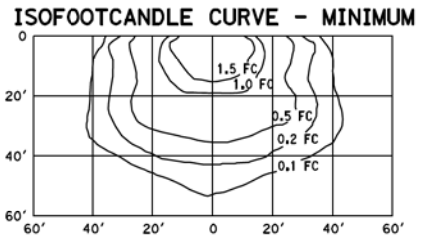
*William F. McFar*  
 REGISTERED ELECTRICAL ENGINEER  
 July 20, 2012  
 PLANS APPROVAL DATE  
 THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



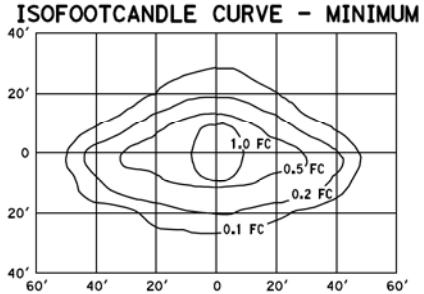
TO ACCOMPANY PLANS DATED \_\_\_\_\_



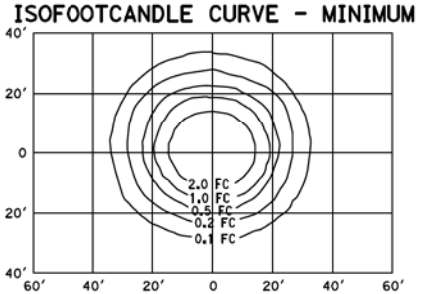
**WALL LUMINAIRE**  
 15' Mounting Height  
 Lamp operated at 9,500 lm  
 70-W high pressure sodium lamp  
 ANSI Designation S54



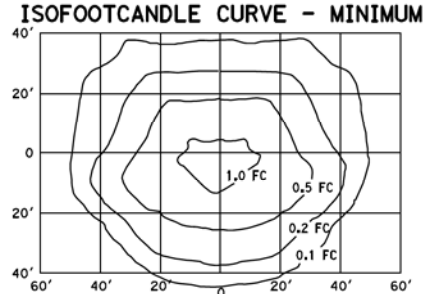
**WALL LUMINAIRE**  
 15' Mounting Height  
 Lamp operated at 9,500 lm  
 100-W high pressure sodium lamp  
 ANSI Designation S54



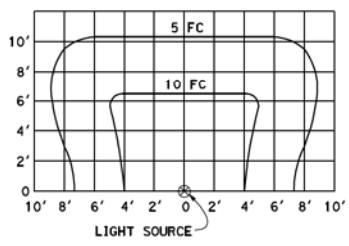
**PENDANT SOFFIT LUMINAIRE**  
 TYPE III SHORT  
 17' Mounting Height  
 Lamp operated at 5,800 lm  
 70-W high pressure sodium lamp  
 ANSI Designation S62



**PENDANT SOFFIT LUMINAIRE**  
 17' Mounting Height  
 Lamp operated at 5,800 lm  
 70-W high pressure sodium lamp  
 ANSI Designation S62



**FLUSH SOFFIT LUMINAIRE**  
 17' Mounting Height  
 Lamp operated at 5,800 lm  
 70-W high pressure sodium lamp  
 ANSI Designation S62



**SIGN LIGHTING FIXTURE**  
**ISOFOOTCANDLE DIAGRAM**

- NOTES:**
1. Curves represent the minimum footcandle (FC) of initial illumination on a 10'-0" x 20'-0" panel.
  2. The FC shown are with the fixture attached to the light fixture mounting channel which places the center of the source 4'-8" in front of panel and 1'-0" below the bottom edge.
  3. Applicable lamp: 85-W fluorescent phosphor coated induction lamp.

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**ELECTRICAL SYSTEMS**  
**(ISOFOOTCANDLE DIAGRAMS)**

NO SCALE

RSP ES-10B DATED JULY 20, 2012 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP ES-10B**

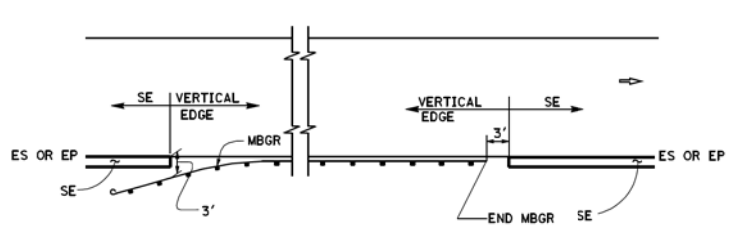
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

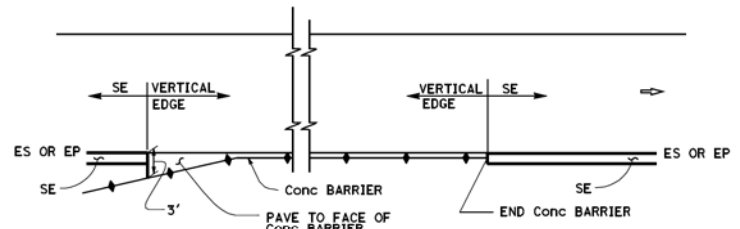
REGISTERED CIVIL ENGINEER January 20, 2012 PLANS APPROVAL DATE <small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small>	

TO ACCOMPANY PLANS DATED \_\_\_\_\_

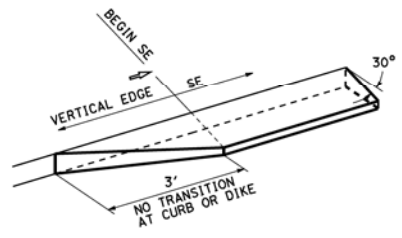
**ABBREVIATIONS:**  
SE SAFETY EDGE



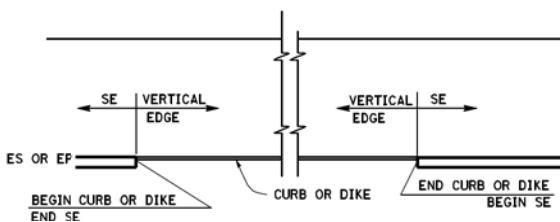
**MBGR**



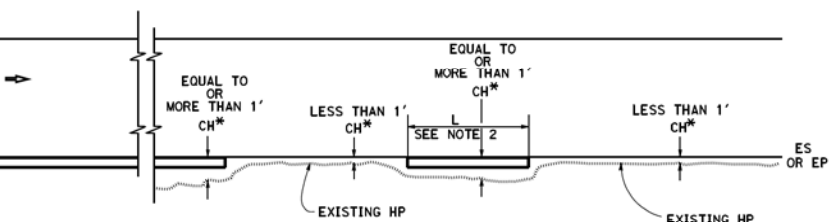
**CONCRETE BARRIER**



**TRANSITION DETAIL FOR CONCRETE ONLY**

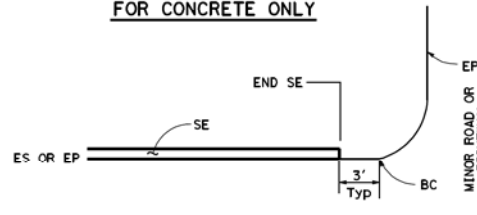


**CURB OR DIKE**

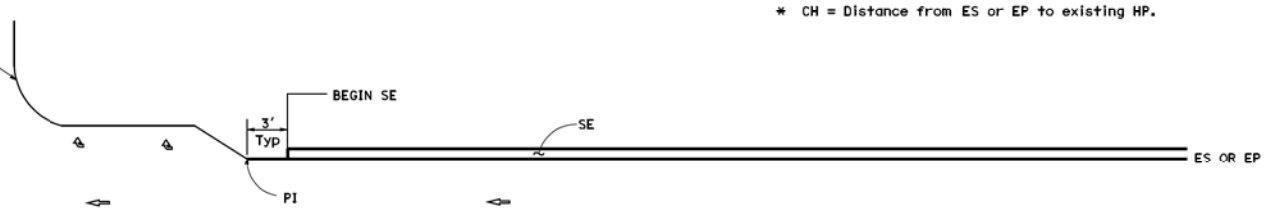


**NARROW SIDE SLOPE**

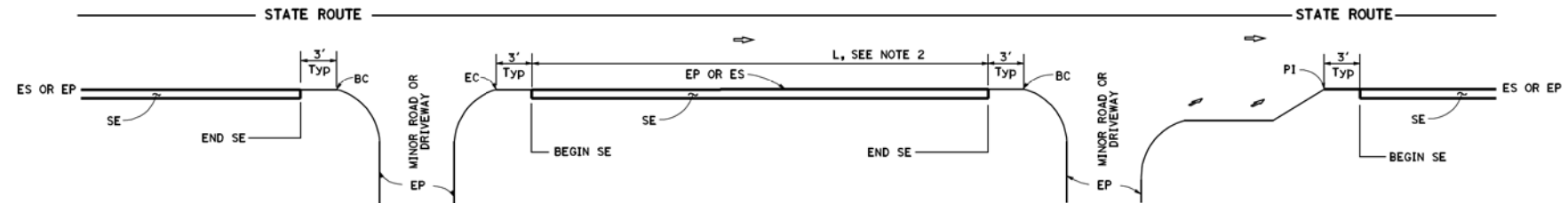
\* CH = Distance from ES or EP to existing HP.



**STATE ROUTE**



**DRIVEWAY AND INTERSECTION**



**MINOR ROADWAY OR DRIVEWAY**

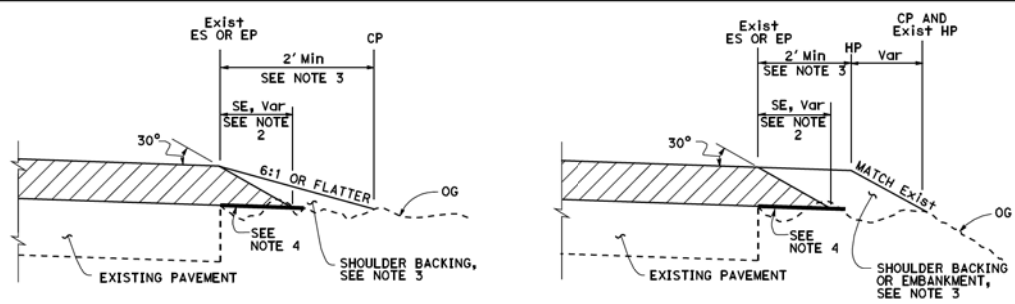
**NOTES:**

1. For details not shown, see Revised Standard Plans RSP P75 and RSP P76.
2. Safety edge is optional when L is less than 30'.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**PAVEMENT EDGE TREATMENTS**  
NO SCALE

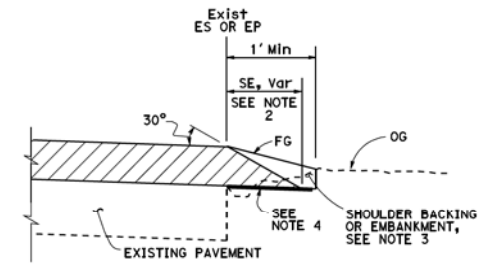
RSP P74 DATED JANUARY 20, 2012 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP P74**

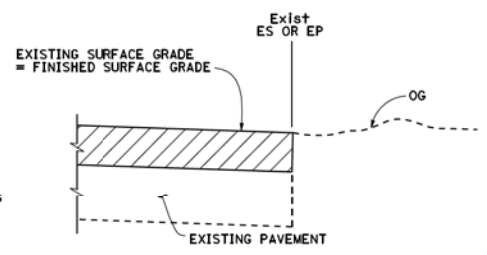


**CASE A**  
Safety Edge

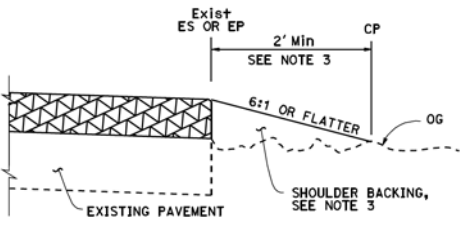
**CASE B**  
Safety Edge



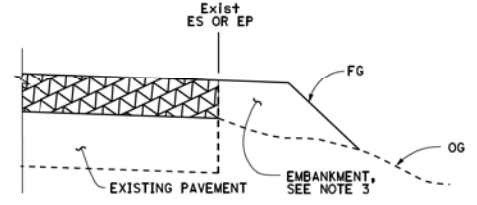
**CASE C**  
Safety Edge



**CASE D**  
Vertical Edge



**CASE E**  
Vertical Edge



**CASE F**  
Vertical Edge

\* See Table A and Revised Std Plan RSP P74

**NOTES:**

1. For limits of safety edge and vertical edge treatments, see Revised Standard Plan RSP P74.
2. Details shown for HMA overlay thickness less than 0.43'. See Detail "A" for HMA overlay thickness more than 0.43' or concrete overlay.
3. For locations and limits of shoulder backing or embankment see project plans.
4. Grade existing ground to place safety edge. 1' minimum width
5. Safety edge transverse joint must match overlay transverse joint. End of #6 longitudinal bar must be 2" ± 1/2" clear from transverse joint.
6. Safety edge is not needed in the area of MBGR, barrier, right turn lane and acceleration lane. See Revised Standard Plan RSP P74.

**LEGEND:**

- HMA OVERLAY
- HMA OR CONCRETE OVERLAY
- CONCRETE OVERLAY

**ABBREVIATIONS:**

- SE SAFETY EDGE
- TT TOTAL THICKNESS OF SE

**TABLE A**  
EDGE TREATMENT FOR VARIOUS OVERLAY THICKNESS AND CONDITIONS

FIELD CONDITION	OVERLAY THICKNESS	
	LESS THAN 0.15'	0.15' OR MORE
Exist SLOPE 6:1 OR FLATTER	CASE E	CASE A
Exist SLOPE 3:1 TO 6:1	CASE E	CASE B
Exist SLOPE STEEPER THAN 3:1	CASE F	CASE F
CUT SECTION (REPLACE, COLD PLANE, MILL PAVEMENT)	CASE D	CASE C

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

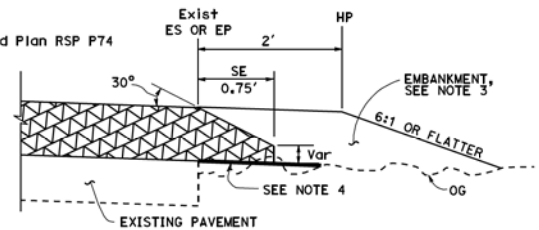
January 20, 2012  
 PLANS APPROVAL DATE  
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TO ACCOMPANY PLANS DATED \_\_\_\_\_

**ADDITIONAL HMA OR CONCRETE QUANTITIES FOR SE/SIDE/MILE**

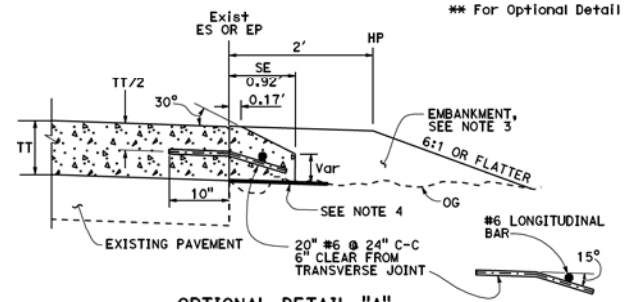
TYPICAL CROSS SECTION	TT	TOTAL ADDITIONAL MATERIAL FOR SE/SIDE/MILE		
		HMA (TON)	CONCRETE (CY)*	CONCRETE (CY)**
	0.15'	NA	NA	NA
	0.20'	13.7	NA	NA
	0.30'	30.9	NA	NA
	0.40'	54.9	NA	NA
	0.45'	69.4	NA	NA
	0.50'	84.2	NA	NA
	0.60'	113.9	NA	NA
	0.70'	143.6	70.9	94.2
	0.80'	173.3	85.6	112.2
	0.90'	203.0	100.3	130.2
	1.00'	232.7	114.9	148.2
	1.10'	262.4	129.6	166.2
1.20'	292.1	144.3	184.2	

\* For Detail "A"  
\*\* For Optional Detail "A"



**DETAIL "A"**

For HMA overlay thickness more than 0.43' or concrete overlay



**OPTIONAL DETAIL "A"**

For concrete overlay  
See Note 5

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**PAVEMENT EDGE TREATMENTS-OVERLAYS**  
NO SCALE

RSP P75 DATED JANUARY 20, 2012 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP P75**



DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

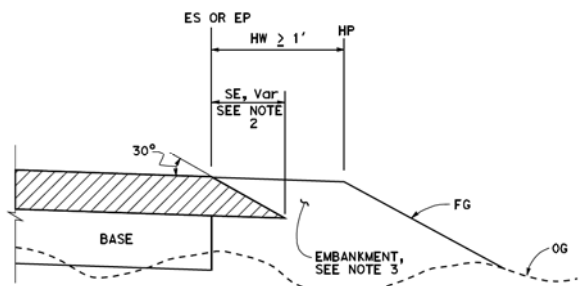
  

REGISTERED CIVIL ENGINEER January 20, 2012 PLANS APPROVAL DATE	
<small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small>	

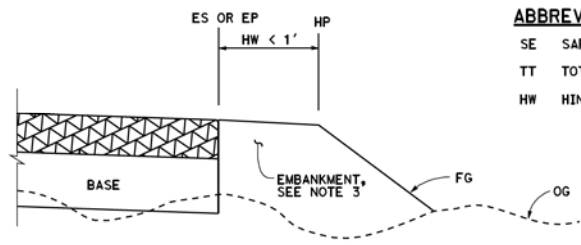
- LEGEND:**
- HMA PAVEMENT
  - HMA OR CONCRETE PAVEMENT
  - CONCRETE PAVEMENT

- ABBREVIATIONS:**
- SE SAFETY EDGE
  - TT TOTAL THICKNESS OF SE
  - HW HINGE WIDTH, DISTANCE FROM ES OR EP TO HP

TO ACCOMPANY PLANS DATED \_\_\_\_\_

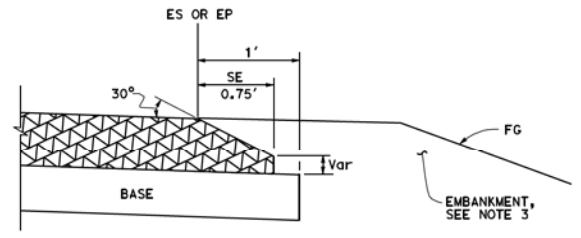


**CASE K**  
Safety Edge - Fill Section, HW  $\geq 1'$

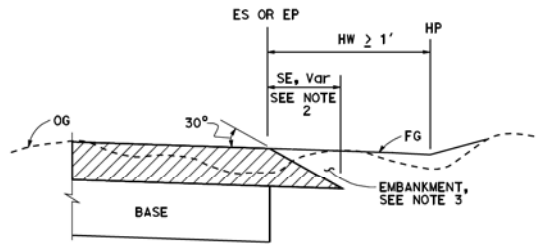


**CASE L**  
Vertical Edge - Fill Section, HW  $< 1'$

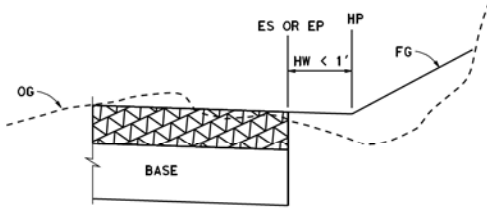
**FILL SECTION**



**DETAIL "B"**  
For HMA pavement thickness more than 0.43' or concrete pavement

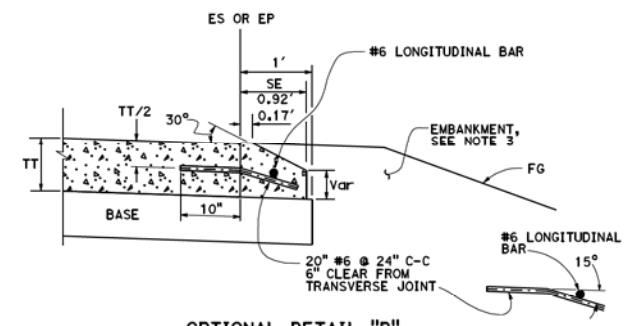


**CASE M**  
Safety Edge - Cut Section, HW  $\geq 1'$



**CASE N**  
Vertical Edge - Cut Section, HW  $< 1'$

**CUT SECTION**



**OPTIONAL DETAIL "B"**  
For concrete pavement  
See Note 4

**NOTES:**

1. For limits of safety edge and vertical edge treatments, see Revised Standard Plan RSP P74
2. Details shown for HMA pavement thickness less than 0.43'. See Detail "B" for HMA pavement thickness more than 0.43' or concrete pavement.
3. For locations and limits of embankment see project plans.
4. Safety edge transverse joint must match pavement transverse joint. End of #6 longitudinal bar must be 2" ± 1/2" clear from transverse joint.
5. Safety edge is not needed in the area of MBGR, barrier, right turn lane and acceleration lane. See Revised Standard Plan RSP P74.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**PAVEMENT EDGE TREATMENTS-  
NEW CONSTRUCTION**  
NO SCALE

RSP P76 DATED JANUARY 20, 2012 SUPPLEMENTS THE  
STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP P76**