

STATE OF CALIFORNIA  
**DEPARTMENT OF TRANSPORTATION**  
**PROJECT PLANS FOR CONSTRUCTION ON**  
**STATE HIGHWAY**  
**IN ORANGE COUNTY**  
**IN TUSTIN FROM TUSTIN RANCH ROAD OVERCROSSING**  
**TO 0.3 MILE NORTH OF TUSTIN RANCH ROAD OVERCROSSING**

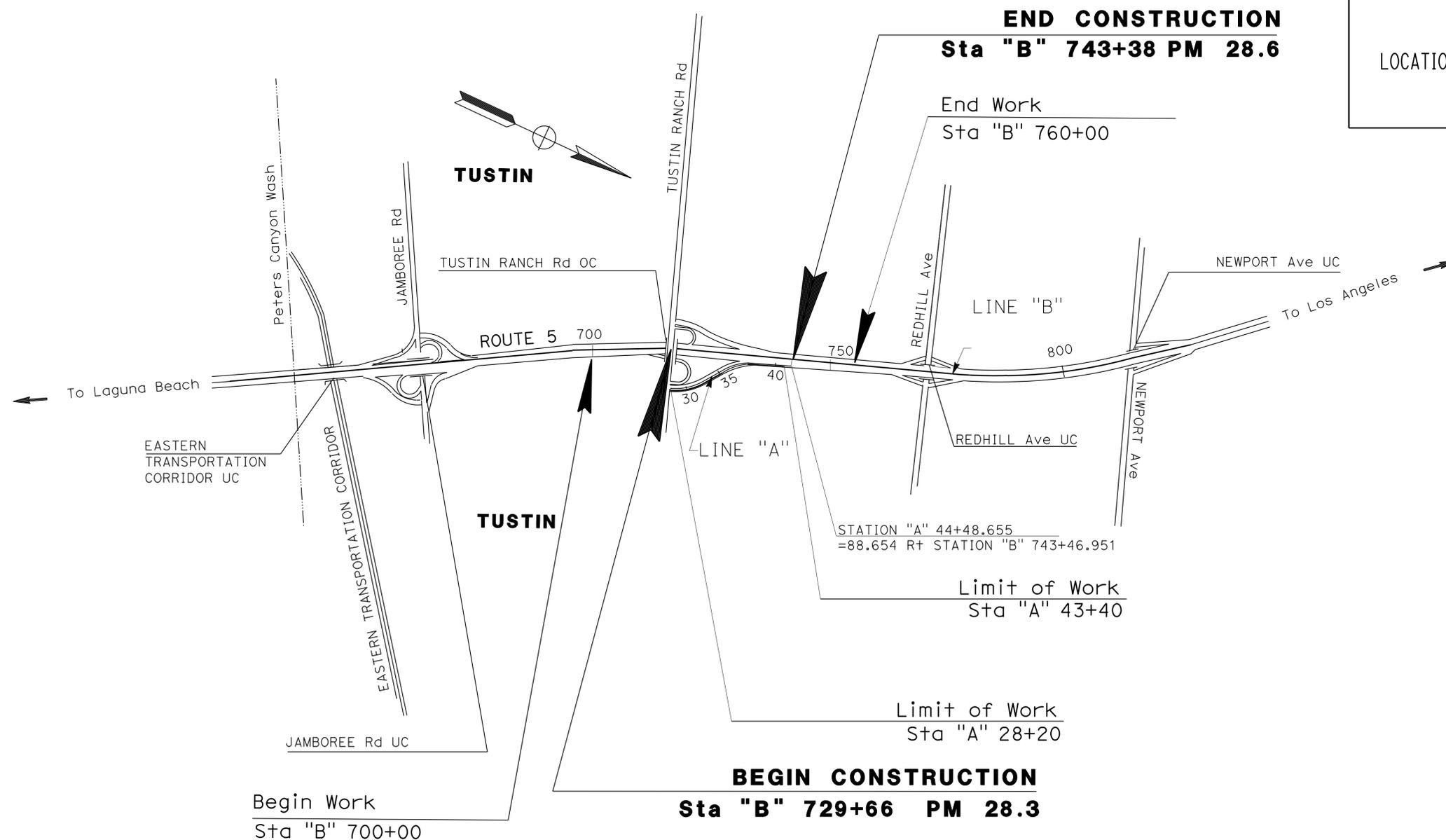
TO BE SUPPLEMENTED BY STANDARD PLANS DATED 2010

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	28.3/28.6	1	78





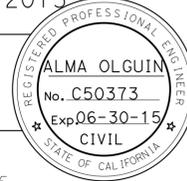
LOCATION MAP



NO SCALE

PROJECT MANAGER  
**BOB BAZARGAN**  
 DESIGN MANAGER  
**KAMRAN MAZHAR**

  
 PROJECT ENGINEER DATE  
 REGISTERED CIVIL ENGINEER 03-06-2015  
**MARCH 9, 2015**  
 PLANS APPROVAL DATE  
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



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

LAST REVISION 03-02-15  
 DATE PLOTTED => 10-MAR-2015  
 TIME PLOTTED => 09:21





Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	28.3/28.6	4	78

03-06-15  
 REGISTERED CIVIL ENGINEER DATE  
 03-09-15  
 PLANS APPROVAL DATE

DUNG THANH PHAN  
 No. C77219  
 Exp. 06-30-15  
 CIVIL

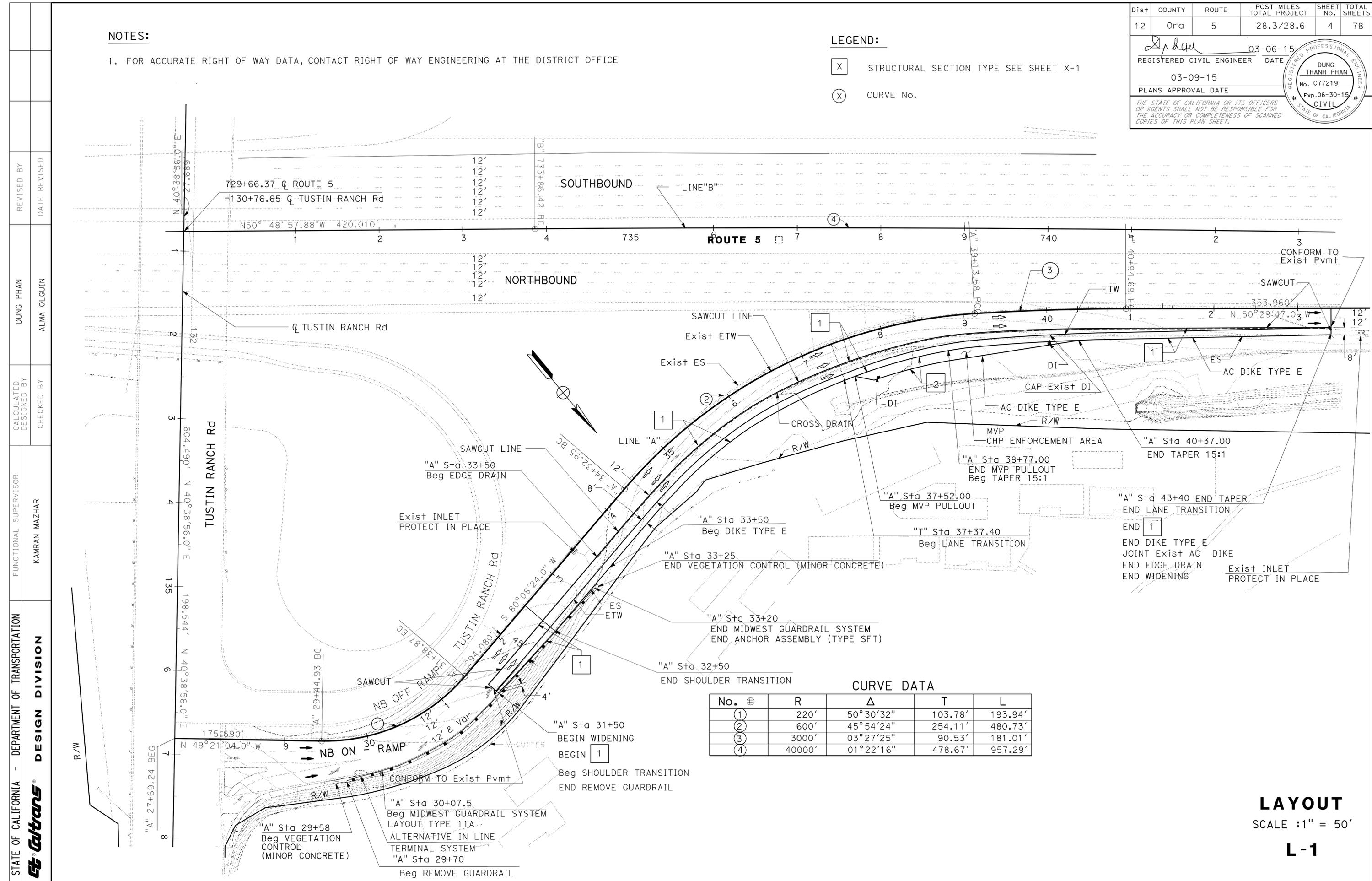
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

**NOTES:**

1. FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE

**LEGEND:**

- X STRUCTURAL SECTION TYPE SEE SHEET X-1
- (X) CURVE No.



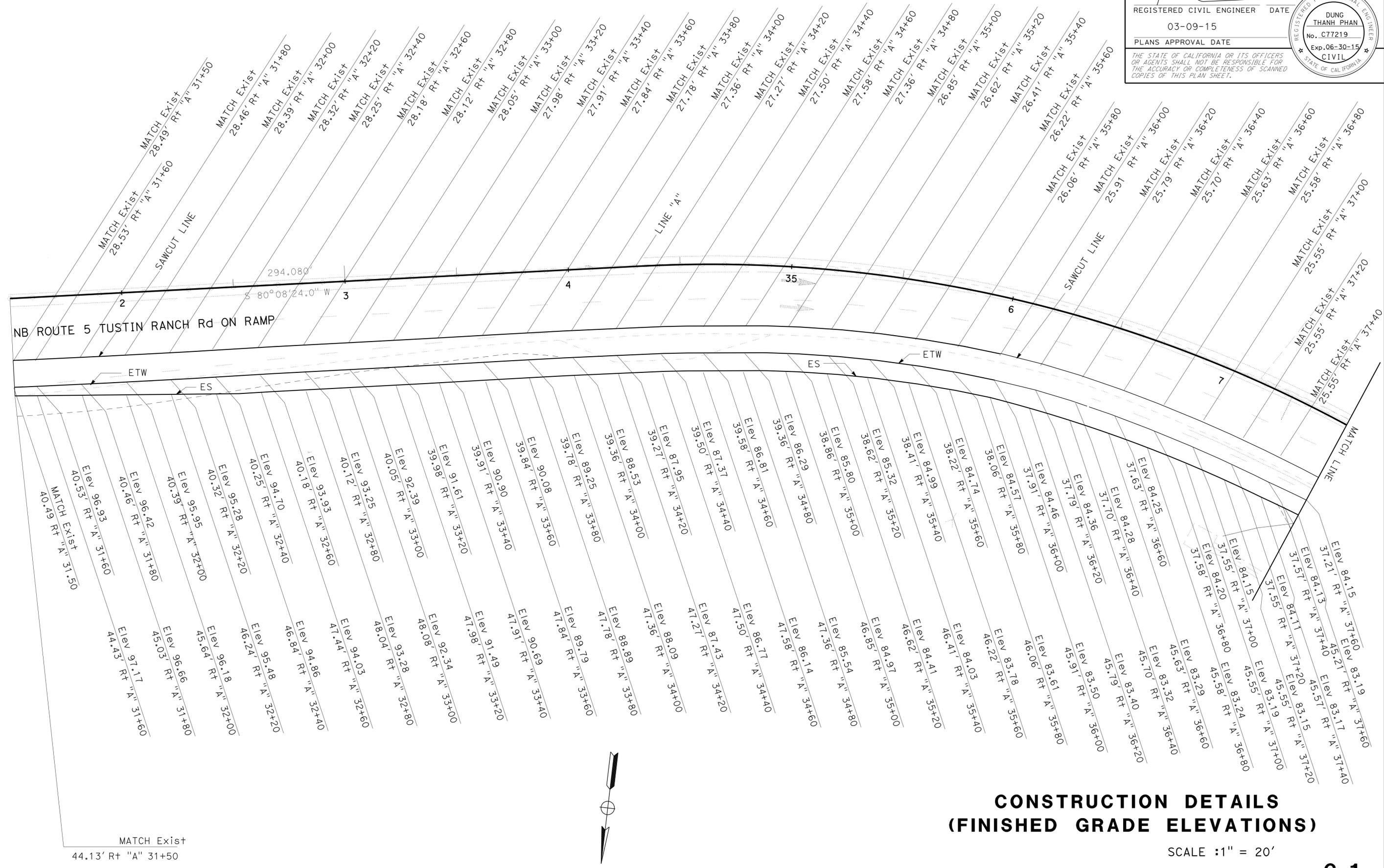
**CURVE DATA**

No. ⊕	R	Δ	T	L
(1)	220'	50°30'32"	103.78'	193.94'
(2)	600'	45°54'24"	254.11'	480.73'
(3)	3000'	03°27'25"	90.53'	181.01'
(4)	40000'	01°22'16"	478.67'	957.29'

**LAYOUT**  
 SCALE : 1" = 50'  
**L-1**

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	28.3/28.6	5	78
			03-06-15		
REGISTERED CIVIL ENGINEER			DATE		
			03-09-15	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>					

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	DESIGN DIVISION	FUNCTIONAL SUPERVISOR	KAMRAN MAZHAR	CHECKED BY		CALCULATED/DESIGNED BY		DUNG PHAN	REVISED BY	
				ALMA OLGUIN	DATE REVISED					



**CONSTRUCTION DETAILS  
(FINISHED GRADE ELEVATIONS)**

SCALE :1" = 20'

**C-1**



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	28.3/28.6	7	78

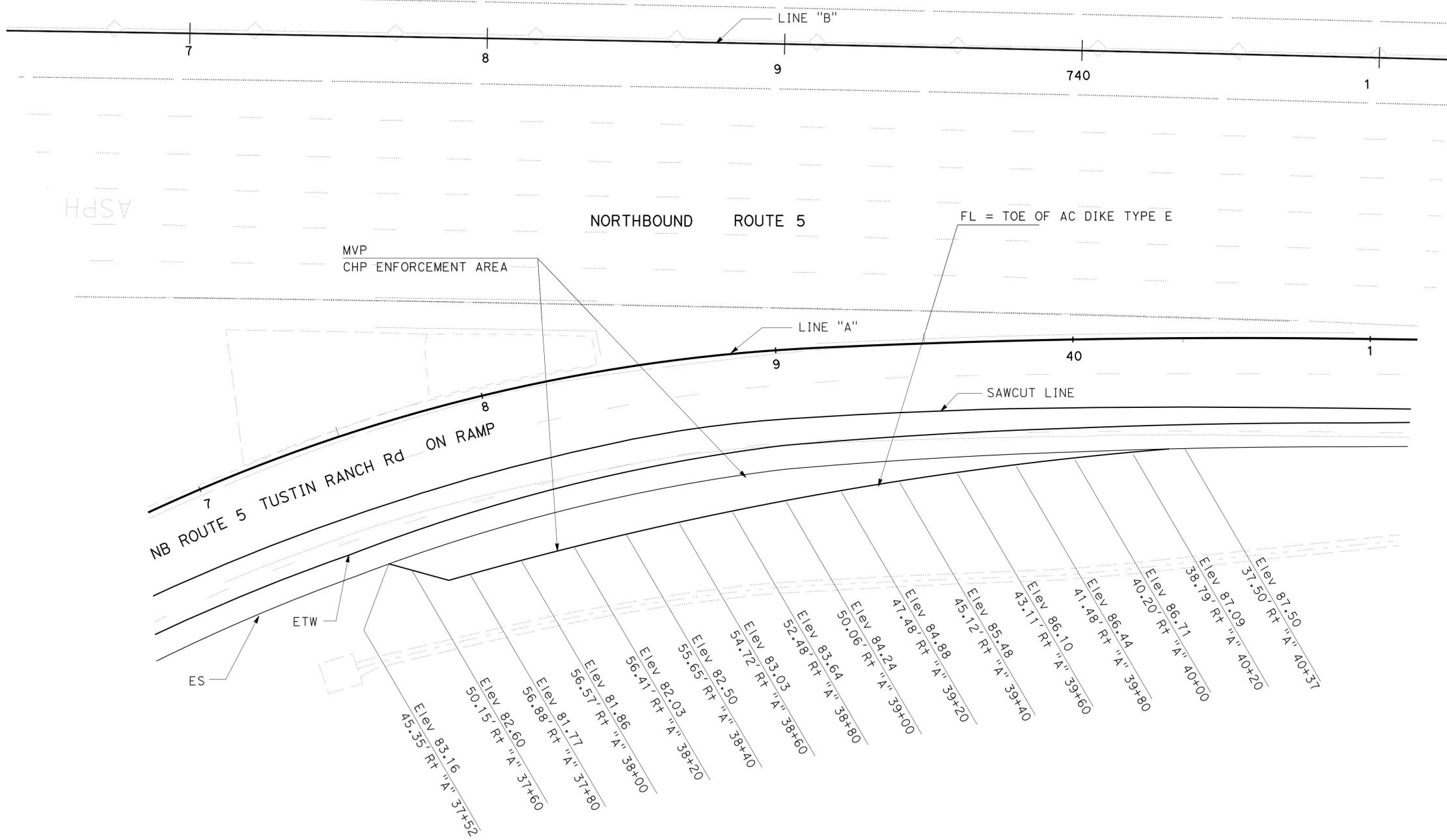
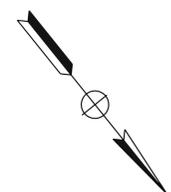
  

<i>Dphw</i>	03-06-15
REGISTERED CIVIL ENGINEER	DATE
03-09-15	
PLANS APPROVAL DATE	

REGISTERED PROFESSIONAL ENGINEER
DUNG THANH PHAN
No. C77219
Exp. 06-30-15
CIVIL
STATE OF CALIFORNIA

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**MVP AND CHP ENFORCEMENT AREA**

**CONSTRUCTION DETAILS  
(FINISHED GRADE ELEVATIONS)**

SCALE :1" = 20'

**C-3**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
<b>Caltrans</b> DESIGN DIVISION
FUNCTIONAL SUPERVISOR
KAMRAN MAZHAR
CALCULATED/DESIGNED BY
CHECKED BY
DUNG PHAN
ALMA OLGUIN
REVISED BY
DATE REVISED

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	28.3/28.6	8	78

03-06-15  
 REGISTERED CIVIL ENGINEER DATE  
 03-09-15  
 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER  
 DUNG THANH PHAN  
 No. C77219  
 Exp. 06-30-15  
 CIVIL  
 STATE OF CALIFORNIA

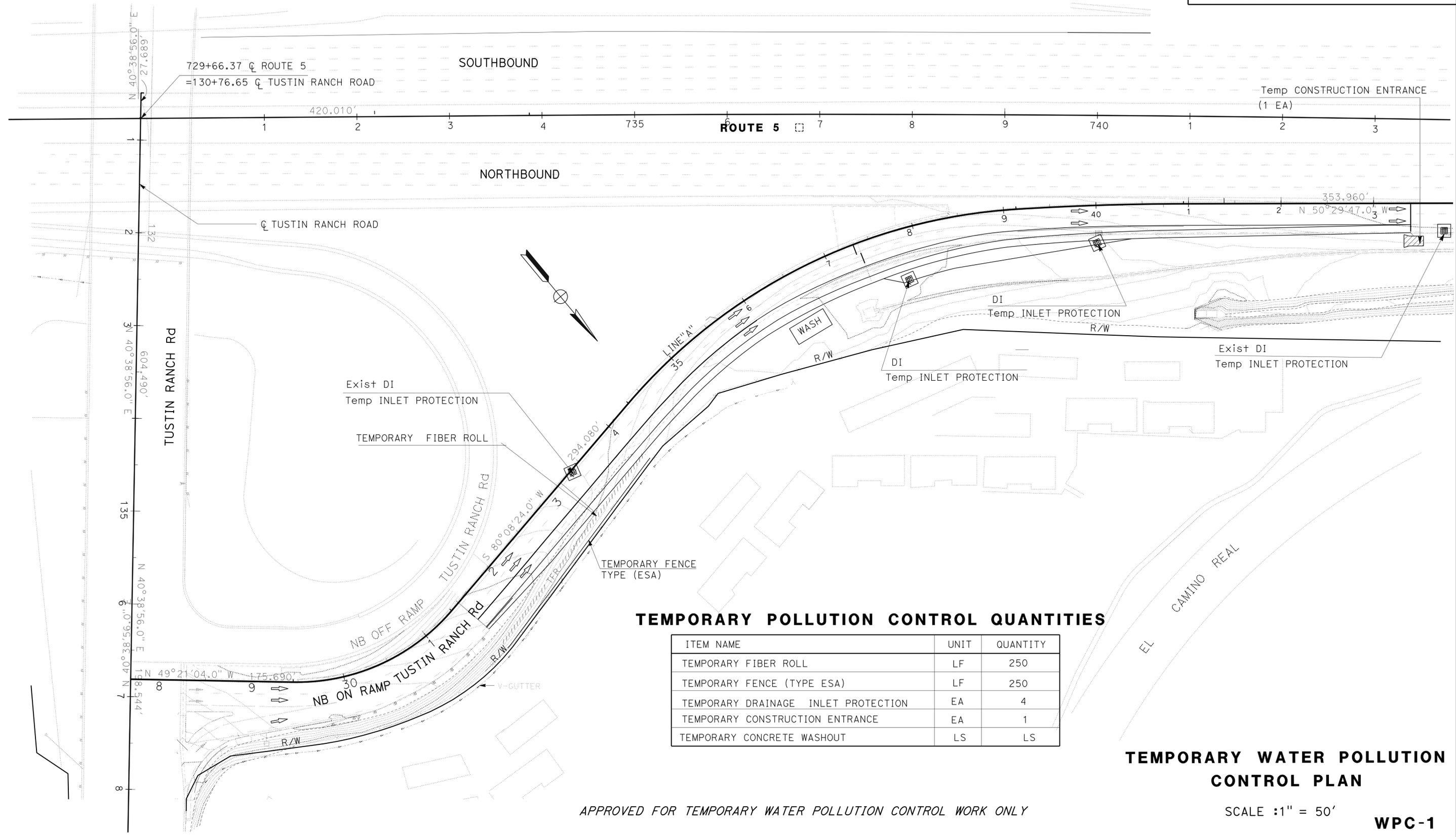
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

**NOTES:**

1. LOCATION OF ALL TEMPORARY WATER POLLUTION CONTROL ARE APPROXIMATE, EXACT LOCATIONS TO BE DETERMINED BY THE ENGINEER.
2. FOR ACCURATE RIGHT OF WAY DATE, CONTACT RIGHT OF WAY ENGINEER AT THE DISTRICT OFFICE.

**LEGEND:**

- TEMPORARY DRAINAGE INLET PROTECTION
- TEMPORARY CONCRETE WASHOUT BIN
- TEMPORARY CONSTRUCTION ENTRANCE
- TEMPORARY FIBER ROLL



**TEMPORARY POLLUTION CONTROL QUANTITIES**

ITEM NAME	UNIT	QUANTITY
TEMPORARY FIBER ROLL	LF	250
TEMPORARY FENCE (TYPE ESA)	LF	250
TEMPORARY DRAINAGE INLET PROTECTION	EA	4
TEMPORARY CONSTRUCTION ENTRANCE	EA	1
TEMPORARY CONCRETE WASHOUT	LS	LS

**TEMPORARY WATER POLLUTION CONTROL PLAN**

APPROVED FOR TEMPORARY WATER POLLUTION CONTROL WORK ONLY

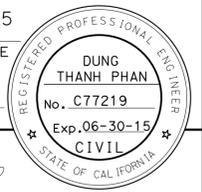
SCALE : 1" = 50'

**WPC-1**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** DESIGN DIVISION  
 FUNCTIONAL SUPERVISOR: KAMRAN MAZHAR  
 CALCULATED/DESIGNED BY: DUNG PHAN  
 CHECKED BY: ALMA OLGUIN  
 REVISED BY: DUNG PHAN  
 DATE REVISED:

LAST REVISION DATE PLOTTED => 10-MAR-2015  
 TIME PLOTTED => 09:21

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	28.3/28.6	9	78
		03-06-15			
REGISTERED CIVIL ENGINEER		DATE			
		03-09-15			
PLANS APPROVAL DATE					
<small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small>					



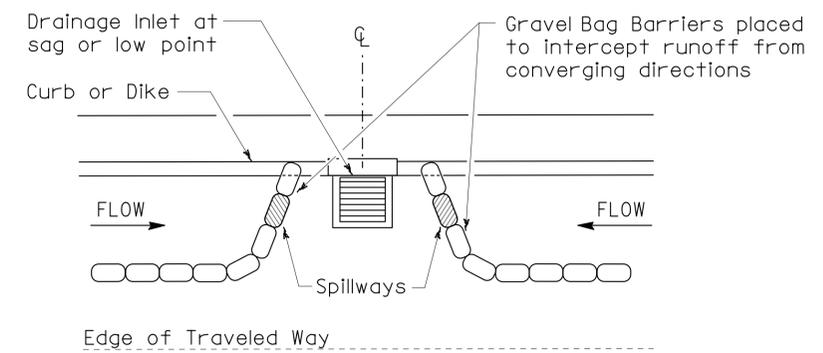
**NOTES**

1. Place safety cones adjacent to drainage inlet protection.
2. Dimensions may vary to fit field conditions.
3. Install a minimum of 3 gravel bag barriers upstream of each drainage inlet to be protected.

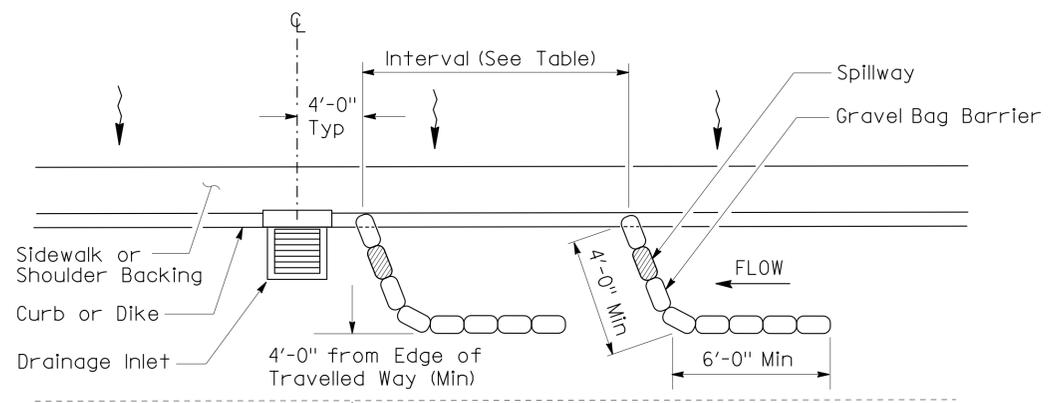
**GRAVEL BAG BARRIER (TYPE 3A) SPACING TABLE**

SLOPE OF ROADWAY (PERCENT)	1 to 4	4 to 6	6 to 8	8 to 10	10+
INTERVAL BETWEEN BARRIERS (FT)	100'	75'	50'	25'	12'

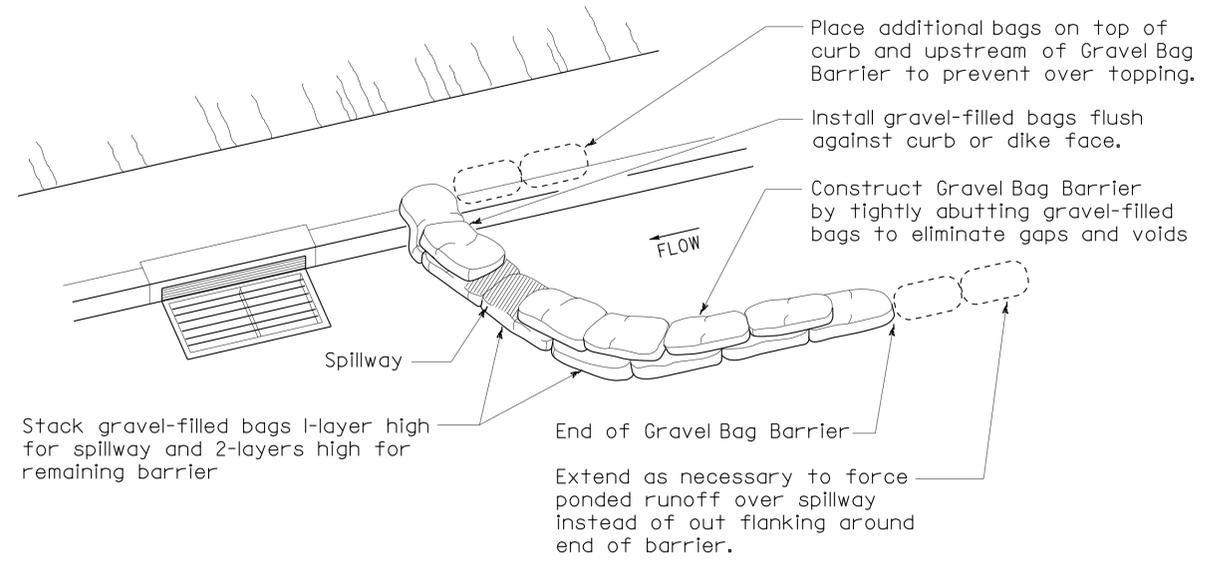
For slope of less than 1%, install barriers only if erosion/sediment is prevalent



**PLAN**  
**CONFIGURATION FOR SAG POINT INLET**  
**(GRAVEL BAG BARRIER)**



**PLAN**  
**TEMPORARY DRAINAGE**  
**INLET PROTECTION (TYPE 3A)**  
**(GRAVEL BAG BARRIER)**



**PERSPECTIVE**

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

NO SCALE

**WPCD-1**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION - DESIGN DIVISION

FUNCTIONAL SUPERVISOR  
KAMRAN MAZHAR

CALCULATED/DESIGNED BY  
CHECKED BY

DUNG PHAN  
ALMA OLGUIN

REVISED BY  
DATE REVISED

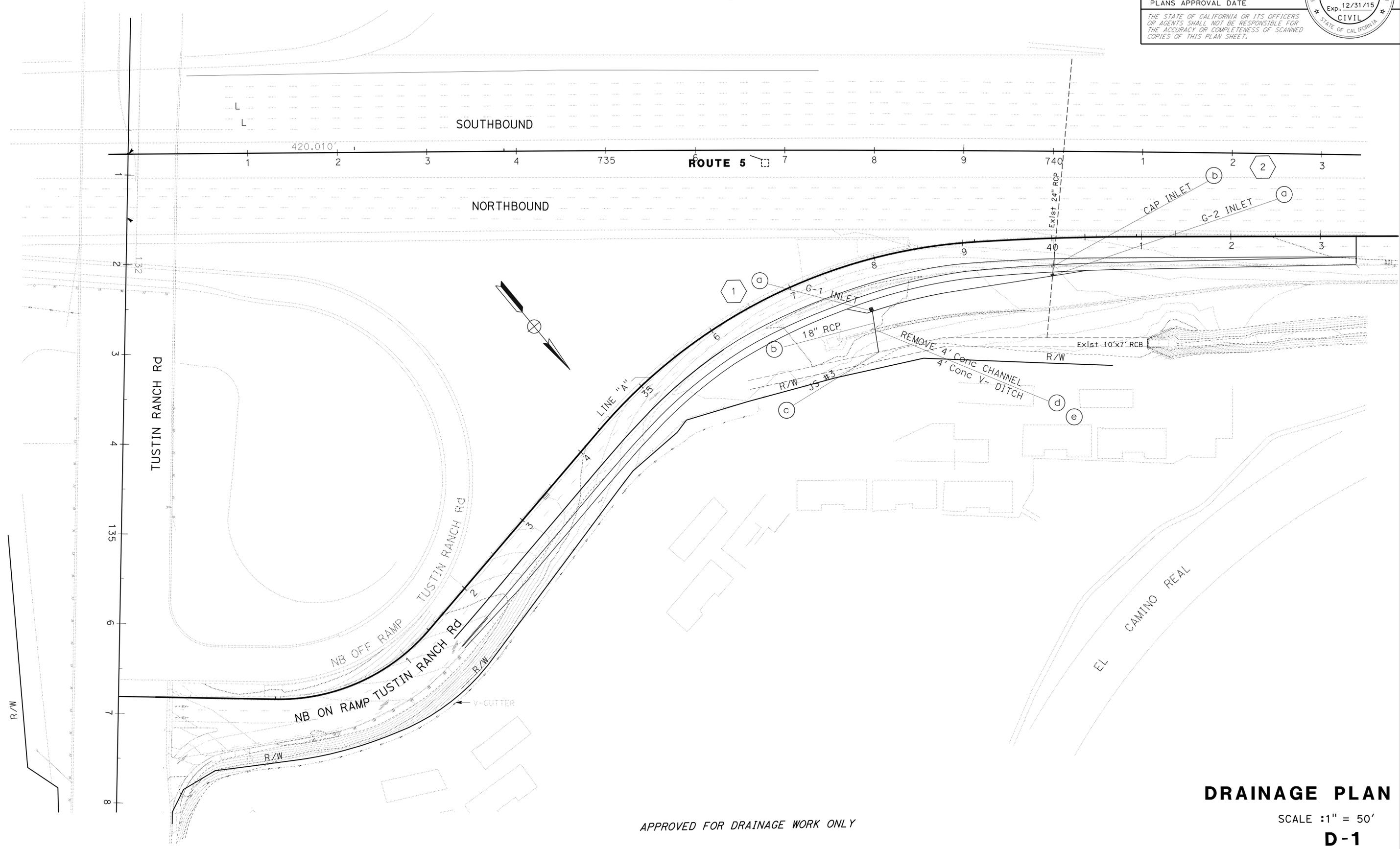
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Oran	5	28.3/28.6	10	78
<i>Tan Nguyen</i> 03-06-15 REGISTERED CIVIL ENGINEER DATE			REGISTERED PROFESSIONAL ENGINEER TAN T NGUYEN No. C 47660 Exp. 12/31/15 CIVIL STATE OF CALIFORNIA		
03-09-15			PLANS APPROVAL DATE		
<small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small>					

**NOTES:**

1. FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE

**LEGEND:**

-  DRAINAGE SYSTEM No.
-  DRAINAGE UNIT No.



STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	FUNCTIONAL SUPERVISOR	CALCULATED/DESIGNED BY	TAN T NGUYEN	REVISOR BY	DATE REVISOR
<b>Caltrans</b> HYDRAULICS	KATHY LOWE	CHECKED BY			

**DRAINAGE PLAN**

SCALE :1" = 50'

**D-1**

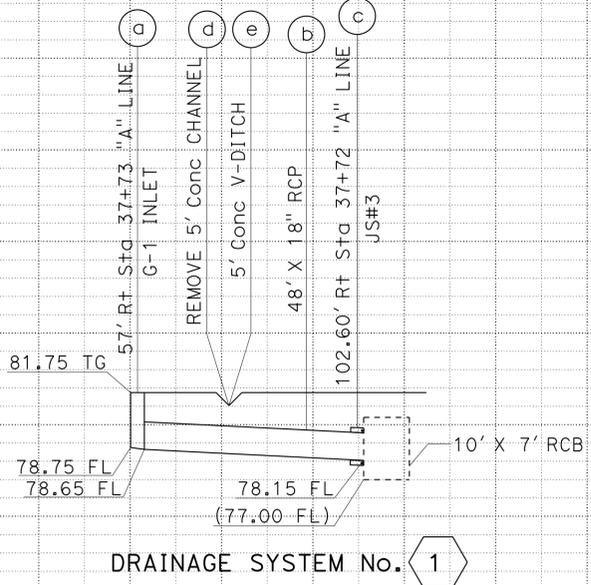
APPROVED FOR DRAINAGE WORK ONLY

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	28.3/28.6	11	78

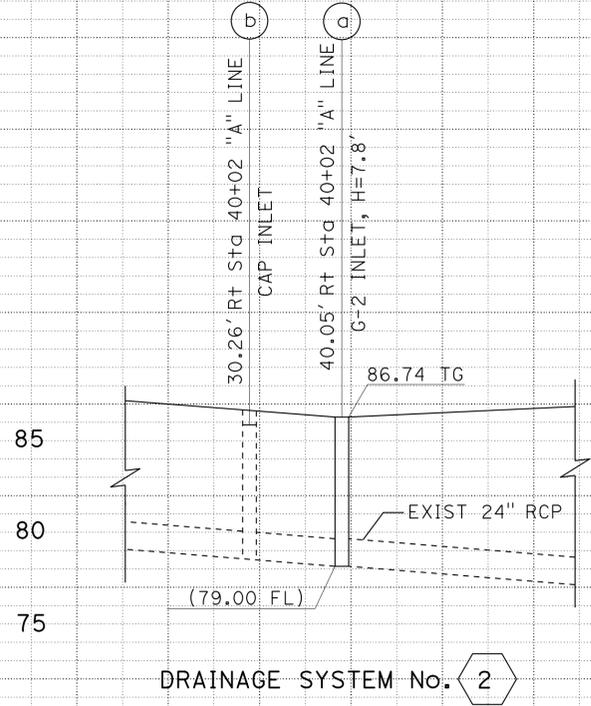
Tan Nguyen 03-06-15  
 REGISTERED CIVIL ENGINEER DATE  
 03-09-15  
 PLANS APPROVAL DATE

TAN T NGUYEN  
 No. C47660  
 Exp. 12/31/15  
 CIVIL

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**DRAINAGE PROFILE**  
 SCALE: HORIZ 1" = 20'  
 VERT 1" = 5'



**DRAINAGE QUANTITIES**

**NOTE:**  
 (N) NOT A SEPARATE PAY ITEM, FOR INFORMATION ONLY

**ABBREVIATIONS:**  
 S STANDARD JOINT TYPE

DRAINAGE SYSTEM NUMBER	DRAINAGE UNIT	18" RCP LF	PIPE JOINT CLASSIFICATION	CAP INLET EA	MINOR CONCRETE (MINOR STRUCTURE) CY	Misc IRON AND STEEL LB	FRAME & GRATE (24-12) (N) EA	REMOVE CONCRETE (CHANNEL) CY	"V" OR "H" FT	Max COVER FT	DESCRIPTION	STATION	DRAINAGE PLAN SHEET NUMBER	DRAINAGE SYSTEM NUMBER	DRAINAGE UNIT
1	a				0.95	326	1		3.00		G-1 INLET	57' Rt Sta 37+73 "A" LINE	D-1	1	a
	b	48	S							2	48' X 18" RCP				b
	c				0.83						JUNCTION STRUCTURE #3	102.60' Rt Sta 37+72 "A" LINE			c
	d							0.60			REMOVE Conc (CHANNEL)	78' Rt Sta 37+73 "A" LINE			d
	e				0.60						Conc V-DITCH	78' Rt Sta 37+73 "A" LINE			e
2	a				3.30	326	1		7.80		G-1 INLET	40.05' Rt Sta 40+02 "A" LINE	D-1	2	a
	b			1							CAP INLET	30.26' Rt Sta 40+02 "A" LINE			b
TOTAL		48		1	5.68	652	2	0.60							

**DRAINAGE PROFILES AND QUANTITIES**

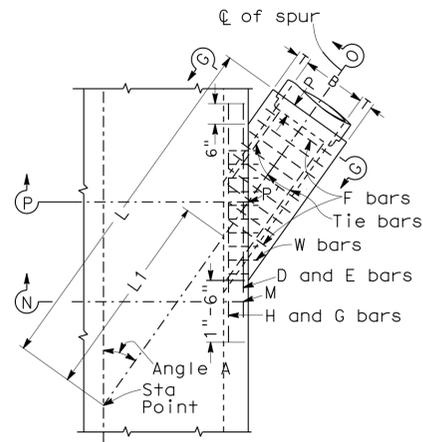
**DP-1**

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Oran	5	28.3/28.6	12	78

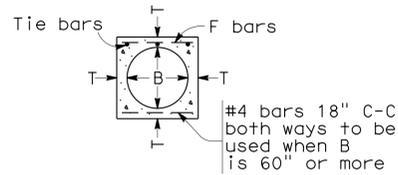
Tan Nguyen 03-06-15  
REGISTERED CIVIL ENGINEER DATE  
03-09-15  
PLANS APPROVAL DATE

TAN T NGUYEN  
No. C54928  
Exp. 12/31/15  
CIVIL  
STATE OF CALIFORNIA

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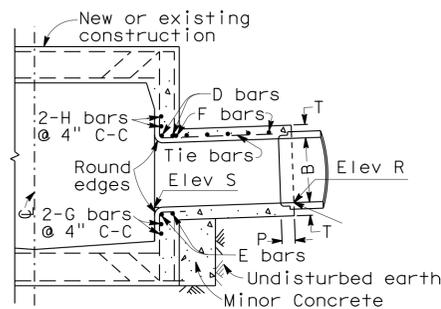


PLAN



SECTION G-G

B	T	B	T
12"	4"	63"	10"
15"	4 1/4"	66"	10 1/4"
18"	4 1/2"	69"	10 3/4"
21"	5"	72"	11"
24"	5 1/4"	78"	11 3/4"
27"	5 1/2"	84"	12 1/2"
30"	6"	90"	13 1/4"
33"	6 1/4"	96"	14"
36"	6 1/2"	102"	15 1/2"
39"	7"	108"	16"
42"	7 1/2"	114"	16 1/2"
45"	7 3/4"	120"	17"
48"	8"	126"	17"
51"	8 1/2"	132"	17 1/2"
54"	9"	138"	17 1/2"
57"	9 1/4"	144"	18"
60"	9 1/2"		



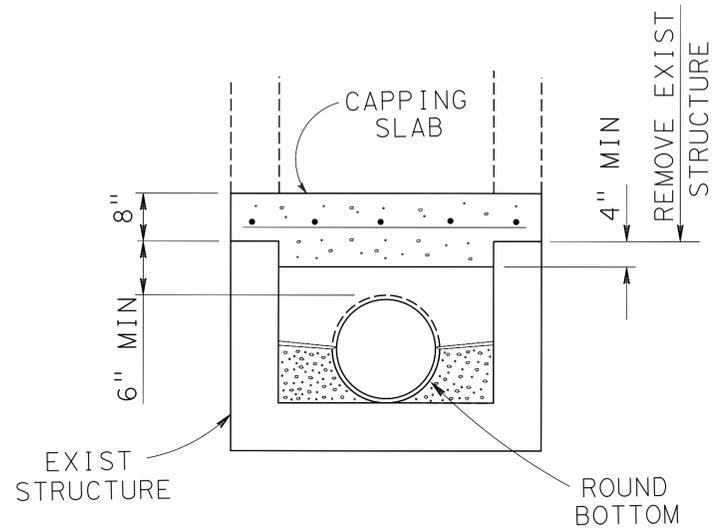
SECTION N-M-P'-O  
Projected on P-P'-O

NOTES

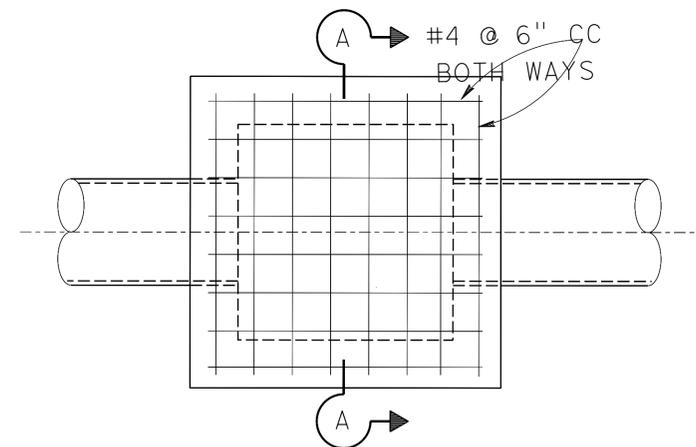
- VALUES for 'A', 'B', 'L', 'L1', 'Elev R' and 'Elev S' are shown on Drainage Plan.
- STATIONS specified in Drainage Plan apply at intersection of centerlines of main line and lateral.
- EMBEDMENT 'P' shall be 5" for pipe diameters 12" to 96" and 8" for pipe diameters 102" to 144".
- REINFORCING STEEL shall be 1/2" clear from face of concrete unless otherwise shown. W BARS are of size and spacing specified for wall steel on Drainage Plan, and shall be cut in center of opening and bent into top and bottom of junction structure. OMIT H BARS when soffit of spur is 1' or less below soffit of main line, and omit G bars when invert of spur is 1' or less above floor of main line.
- STEEL SCHEDULE:

Dia B	D,E,H,G Bars	F Bars
12" to 39"	#5	#4 @ 6" C-C
42" to 84"	#6	#5 @ 6" C-C
90" to 144"	#7	#6 @ 6" C-C
Tie bars - #3 @ 18" C-C		
- JUNCTION STRUCTURE shall be poured monolithic with main line storm drain or manhole.
- FLOOR of structure shall be steel-troweled.

JUNCTION STRUCTURE No. 3 (JS No. 3)



SECTION A-A



PLAN

CAP INLET DETAIL

DRAINAGE DETAILS

NO SCALE

DD-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION - HYDRAULICS

FUNCTIONAL SUPERVISOR: KATHY LOWE

DESIGNED BY: TAN T NGUYEN

CHECKED BY: MY-LINH DUVAN

REVISIONS:

NO.	DESCRIPTION	DATE	BY

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
12	Ora	5	28.3/28.6	13	78

REGISTERED CIVIL ENGINEER		DATE
DUNG THANH PHAN		03-06-15
PLANS APPROVAL DATE		
DUNG THANH PHAN		03-09-15
No. C77219		
Exp. 06-30-15		
CIVIL		

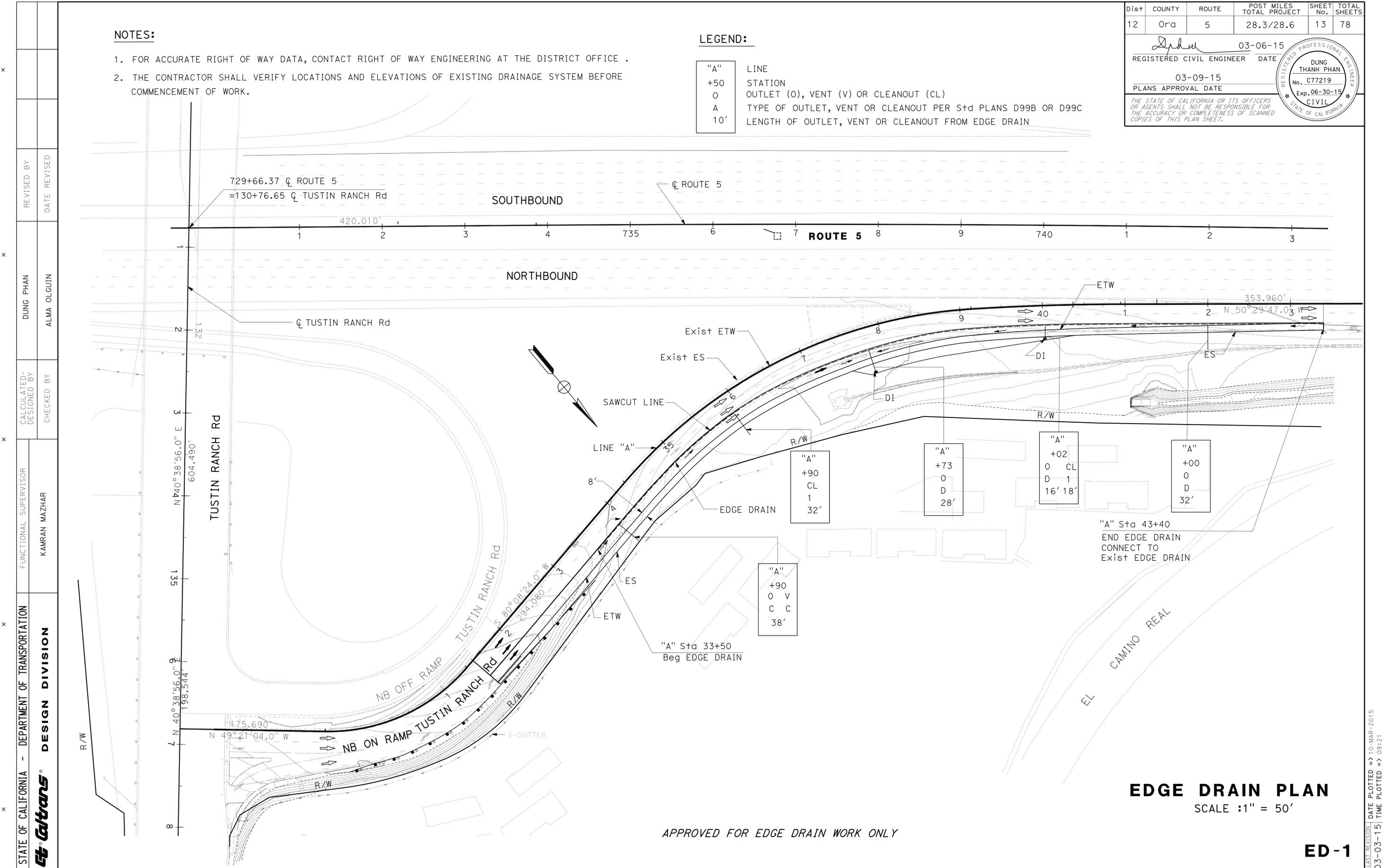
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**NOTES:**

- FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE .
- THE CONTRACTOR SHALL VERIFY LOCATIONS AND ELEVATIONS OF EXISTING DRAINAGE SYSTEM BEFORE COMMENCEMENT OF WORK.

**LEGEND:**

- "A" LINE
- +50 STATION
- 0 OUTLET (O), VENT (V) OR CLEANOUT (CL)
- A TYPE OF OUTLET, VENT OR CLEANOUT PER Std PLANS D99B OR D99C
- 10' LENGTH OF OUTLET, VENT OR CLEANOUT FROM EDGE DRAIN



**EDGE DRAIN PLAN**  
SCALE :1" = 50'

APPROVED FOR EDGE DRAIN WORK ONLY

**ED-1**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	DESIGN DIVISION
FUNCTIONAL SUPERVISOR	KAMRAN MAZHAR
CALCULATED-DESIGNED BY	CHECKED BY
DUNG PHAN	ALMA OLGUIN
REVISOR	DATE

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

FUNCTIONAL SUPERVISOR: KAMRAN MAZHAR  
 CALCULATED/DESIGNED BY: DUNG PHAN  
 CHECKED BY: ALMA OLGUIN  
 REVISED BY: [ ]  
 DATE REVISED: [ ]

**NOTE:**

- 1- LOCATIONS OF CONSTRUCTION AREA SIGNS AREA APPROXIMATE. EXACT LOCATIONS TO BE DETERMINED BY THE ENGINEER.
- 2- FOR ADDITIONAL CONSTRUCTION AREA SIGNS, SEE SHEET DE-1.
- 3- CONSTRUCTION AREA SIGNS SHALL BE LOCATED 100 FEET AWAYS FROM THE INTERSECTION.

**LEGEND:**

- ↓ CONSTRUCTION AREA SIGN 1 POST
- ⊙ CONSTRUCTION AREA SIGNS

**CONSTRUCTION AREA SIGNS (STATIONARY MOUNTED)**

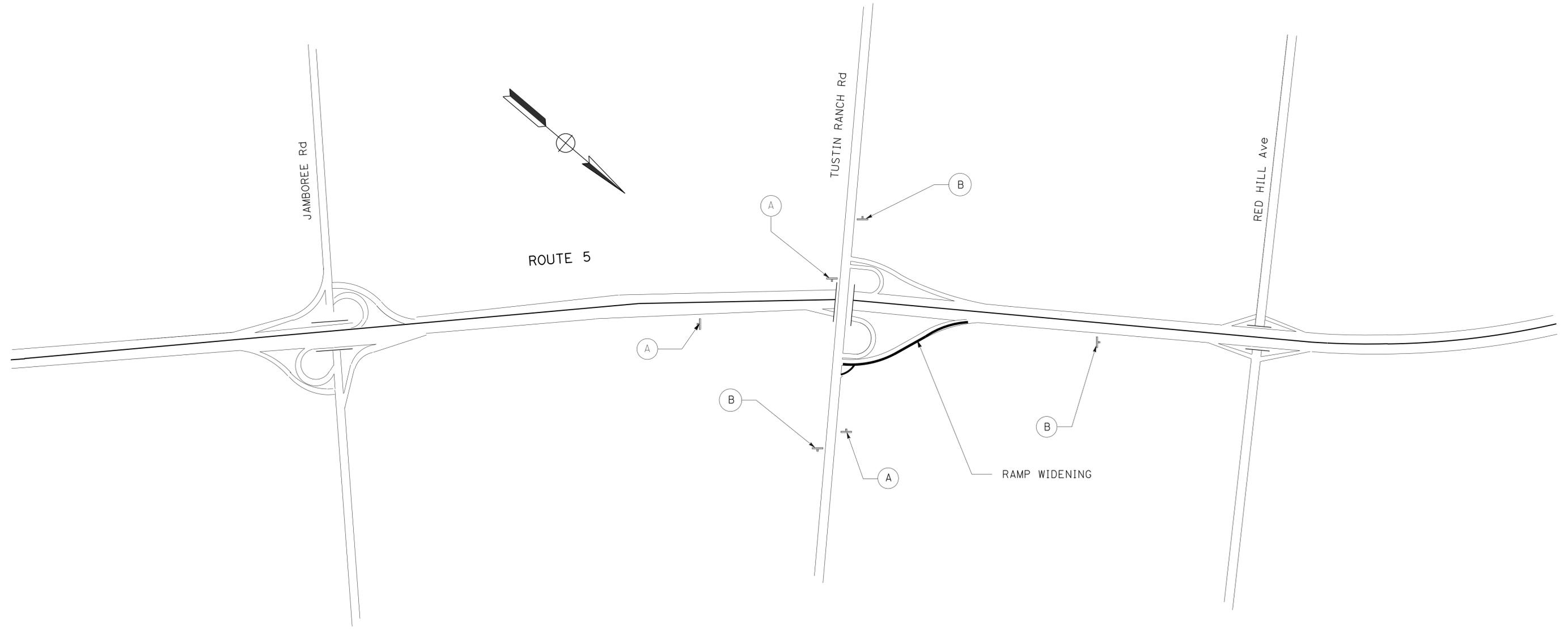
SIGN No.	SIGN CODE	PANEL SIZE (INCHES)	DESCRIPTION	No. OF POST AND SIZE (INCH X INCH)	QUANTITIES
⊙ A	W20-1	48 X 48	ROAD WORK AHEAD	1- 4 x 4	3
⊙ B	G20-2	36 x 18	END ROAD WORK	1- 4 x 4	3

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	28.3/28.6	14	78

REGISTERED CIVIL ENGINEER: *D.P.H.* 03-06-15  
 DATE: 03-09-15  
 PLANS APPROVAL DATE: 03-09-15

REGISTERED PROFESSIONAL ENGINEER: DUNG THANH PHAN  
 No. C77219  
 Exp. 06-30-15  
 CIVIL

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**CONSTRUCTION AREA SIGNS**  
 NO SCALE

APPROVED FOR CONSTRUCTION AREA SIGN WORK ONLY

**CS-1**

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	28.3/28.6	15	78

03-06-15  
 REGISTERED CIVIL ENGINEER DATE  
 03-09-15  
 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER  
 DUNG THANH PHAN  
 No. C77219  
 Exp. 06-30-15  
 CIVIL  
 STATE OF CALIFORNIA

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**TEMPORARY STRIPING QUANTITIES**

SHEET	LOCATION	ALIGNMENT	STATION LIMITS	4" WHITE PAINT TRAFFIC STRIPE (2 COAT)	CHANNELIZER (SURFACE MOUNTED)	TEMPORARY RAILING (TYPE K)	TEMPORARY TRAFFIC SCREEN	TEMPORARY CRASH CUSHION MODULE (TS11)	REMOVE PAINTED TRAFFIC STRIPE	REMOVE THERMOPLASTIC TRAFFIC STRIPE (*)
				LF	EA	LF	LF	EA	LF	LF
TH-1	TEMPORARY RAILING TYPE K AT RAMP ENTRANCE	"A"	28+24.00			50		11		
TH-1	DETAIL 27 B (TEMPORARY STRIPING) AT TUSTIN RANCH Rd ON-RAMP	"A"	29+00.00 TO 43+40.00	1440	7				1440	
TH-1	CHANNELIZER, TEMPORARY RAILING TYPE K AND TRAFFIC SCREEN AT TUSTIN RANCH Rd	"A"	31+10.00 TO 43+40.00			1340	1312	11		
TH-2	REMOVE DETAIL 40 AT TUSTIN RANCH Rd	"A"	27+69.00 TO 28+35.00							10
TH-2	DETAIL 27 B (TEMPORARY STRIPING) AT TUSTIN RANCH Rd	"TR"	130+50.00 TO 131+16.00	66					66	
TH-2	CHANNELIZER AT SB TUSTIN RANCH Rd LEFT TUEN LANE	"TR"	130+50.00 TO 136+09.00		56					
TOTAL				1506	63	1390	1312	22	1506	10 (*)

(\*) - USE GRAND TOTAL QUANTITY IN SHEET PDQ-1

**TRAFFIC HANDLING QUANTITIES**

**THQ-1**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** DESIGN DIVISION  
 FUNCTIONAL SUPERVISOR: KAMRAN MAZHAR  
 CALCULATED/DESIGNED BY: DUNG PHAN  
 CHECKED BY: ALMA OLGUIN  
 REVISED BY: DATE  
 REVISIONS:

LAST REVISION | DATE PLOTTED => 10-MAR-2015  
 03-03-15 TIME PLOTTED => 09:21

**NOTES:**

1. FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE
2. EXACT LOCATIONS FOR PAVEMENT MARKING SHALL BE DETERMINE BY THE ENGINEER.
3. 20:1 TAPER SHALL BE USED AT THE END OF ALL TEMPORARY RAILING UNLESS OTHERWISE NOTED.
4. ALL CONFLICTING STRIPING AND PAVEMENT MARKING SHALL BE REMOVED.
5. (\*) QUANTITIES OF REMOVAL EXISTING STRIPING IS ACCOUNTED IN SHEET PDQ-1

**LEGEND:**

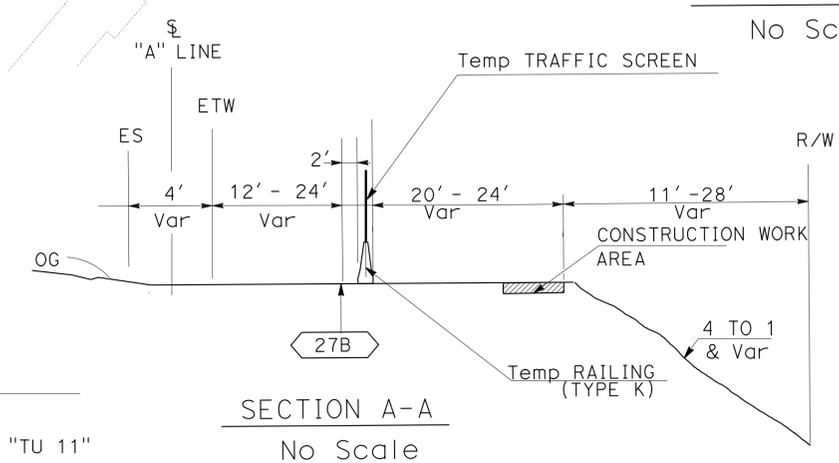
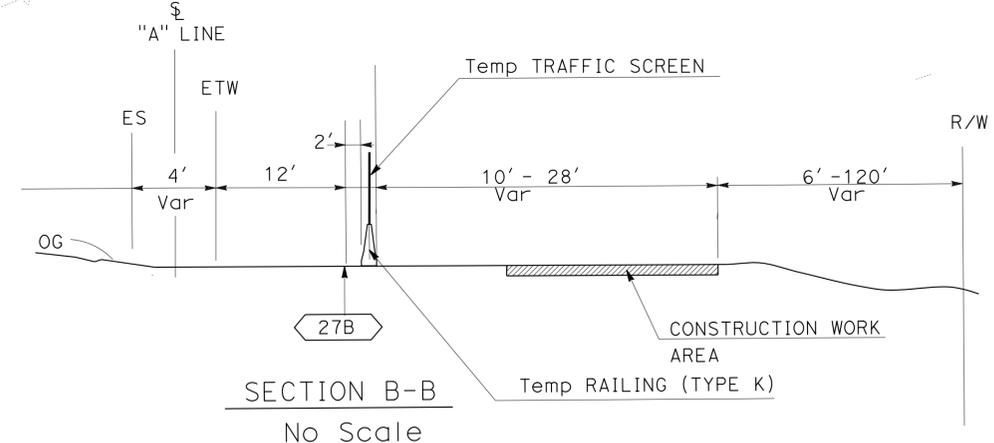
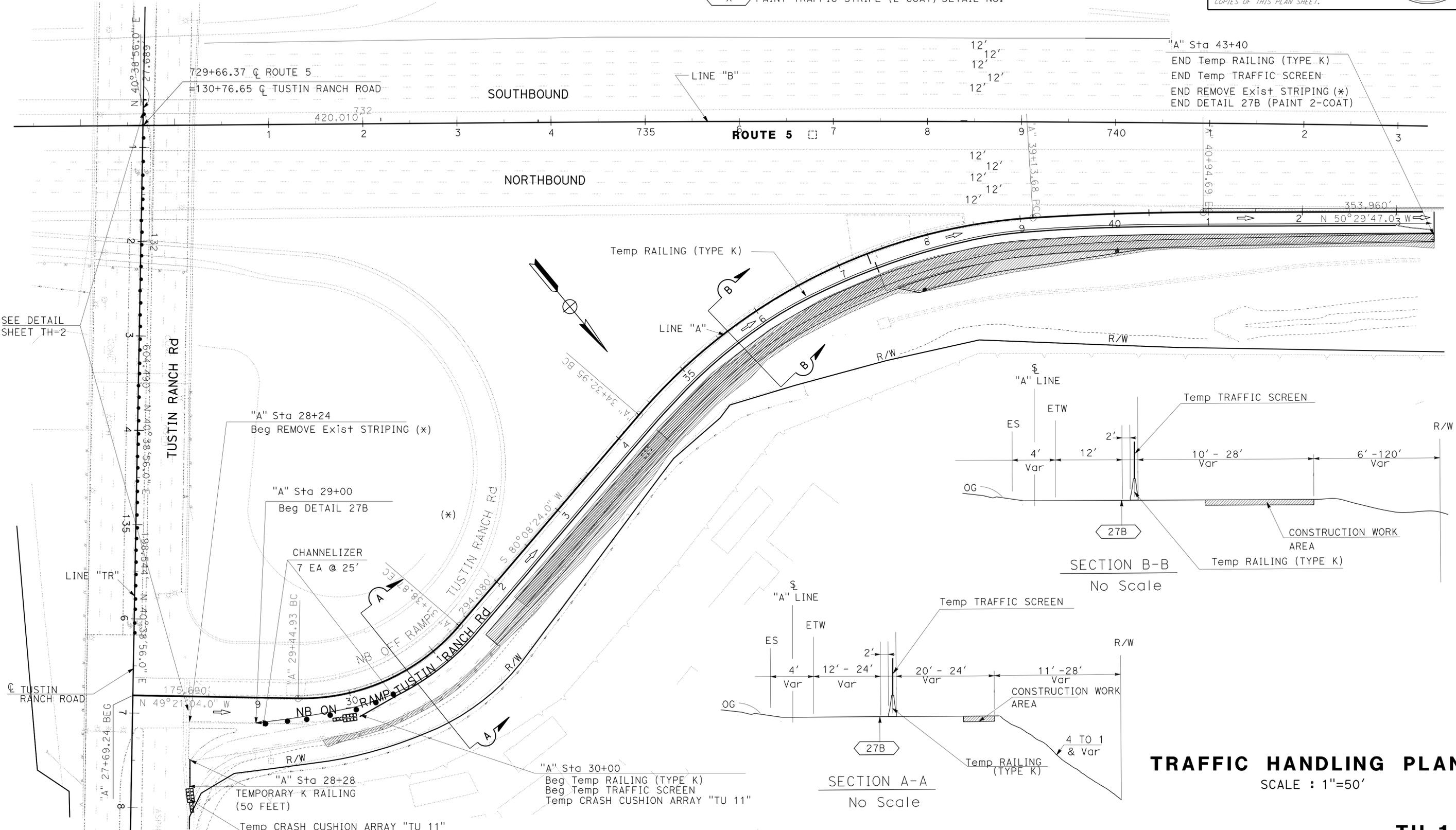
- CHANNELIZER (SURFACE MOUNTED)
- ▨ CONSTRUCTION WORK AREA
- ▩ TEMPORARY CRASH CUSHION MODULE, ARRAY PER PLAN
- DIRECTION OF TRAFFIC
- ⊗ PAINT TRAFFIC STRIPE (2-COAT) DETAIL No.
- ┌ END OF PAVEMENT DETAIL
- └ BEGIN OF PAVEMENT DETAIL

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	28.3/28.6	16	78

03-06-15  
 REGISTERED CIVIL ENGINEER DATE  
 03-09-15  
 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER  
 DUNG THANH PHAN  
 No. C77219  
 Exp. 06-30-15  
 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.



**TRAFFIC HANDLING PLAN**  
SCALE : 1"=50'

TH-1

REVISIONS:  
 DUNG PHAN  
 ALMA OLGUIN  
 KAMRAN MAZHAR  
 DESIGN DIVISION  
 DEPARTMENT OF TRANSPORTATION  
 STATE OF CALIFORNIA

LAST REVISION DATE PLOTTED => 10-MAR-2015  
 03-03-15 TIME PLOTTED => 09:21

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	28.3/28.6	17	78

<i>Alpha</i>	03-06-15
REGISTERED CIVIL ENGINEER	DATE
03-09-15	
PLANS APPROVAL DATE	

REGISTERED PROFESSIONAL ENGINEER
DUNG THANH PHAN
No. C77219
Exp. 06-30-15
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.

**LEGEND:**



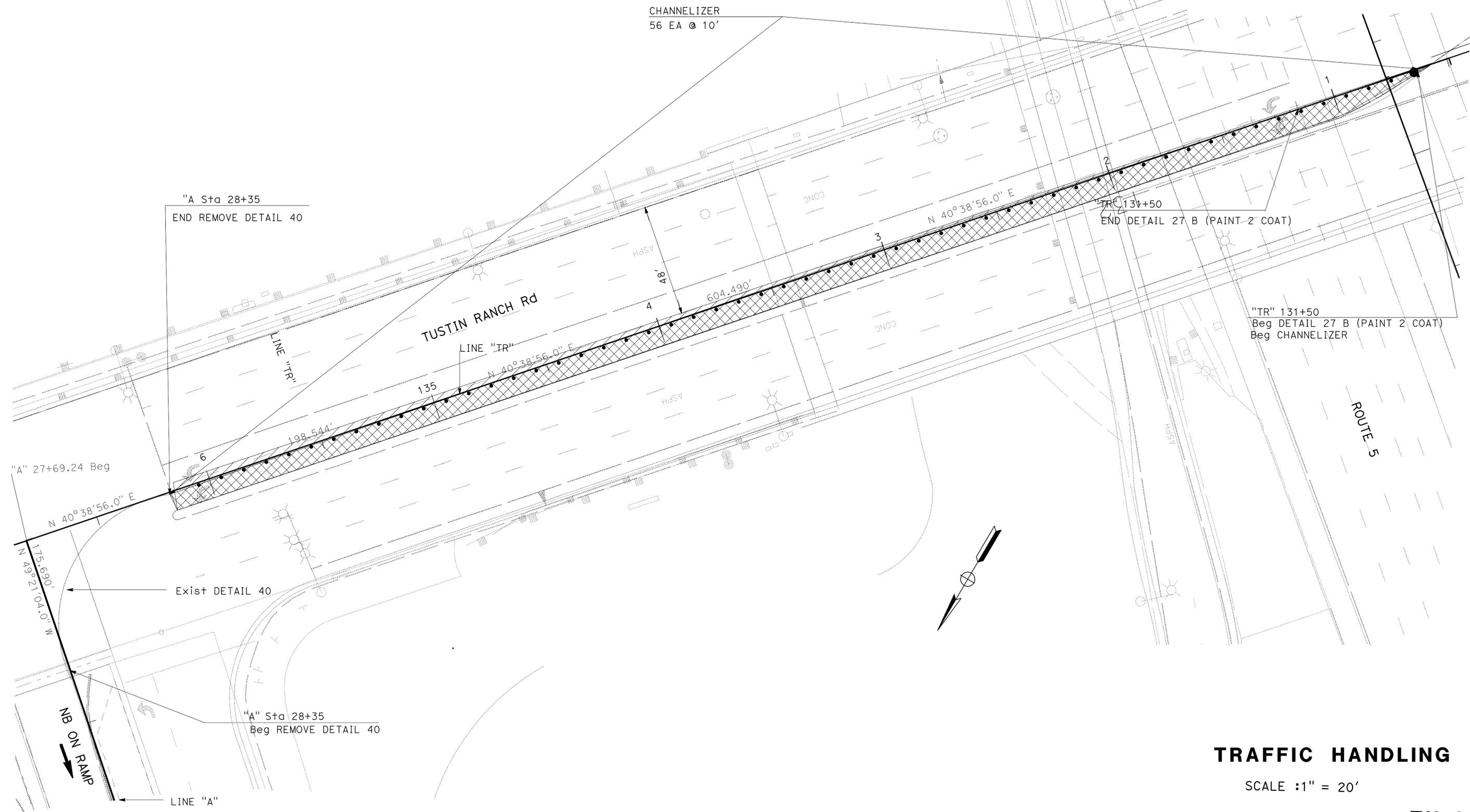
CLOSED LANE

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

FUNCTIONAL SUPERVISOR: KAMRAN MAZHAR

CALCULATED/DESIGNED BY: DUNG PHAN  
 CHECKED BY: ALMA OLGUIN

REVISOR: DUNG PHAN  
 DATE: 03-09-15



APPROVED FOR TRAFFIC HANDLING WORK ONLY

**TRAFFIC HANDLING**  
 SCALE :1" = 20'

**TH-2**

LAST REVISION DATE PLOTTED => 10-MAR-2015 03-03-15 TIME PLOTTED => 09:21

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	28.3/28.6	18	78

03-06-15  
 REGISTERED CIVIL ENGINEER DATE  
 03-09-15  
 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER  
 DUNG THANH PHAN  
 No. C77219  
 Exp. 06-30-15  
 CIVIL  
 STATE OF CALIFORNIA

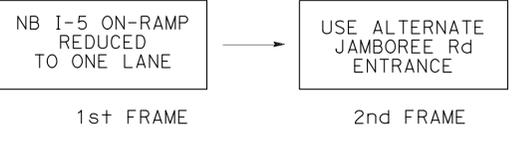
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

**STATIONARY MOUNTED CONSTRUCTION AREA SIGN (DETOUR)**

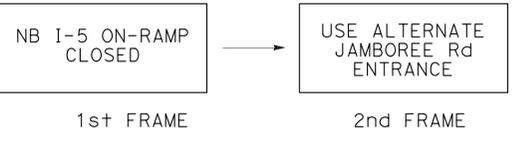
SIGN No.	SIGN CODE	DESCRIPTION	PANEL SIZE (INCHES)	No. OF POST AND SIZE (INCH x INCH)	QUANTITY
A	SC-3	DETOUR	48 X 18	1- 4 X 4	9
	M1-1	INTERSTATE 5	21 X 18		
	M3-1	NORTH	24 X 12		
B	M4-10R	DETOUR (R+ ARROW)	30 X 24	1- 4 X 4	3
	M1-1	INTERSTATE 5	21 X 18		
	M3-1	NORTH	24 X 12		
C	M4-10L	DETOUR (L+ ARROW)	30 X 24	1- 4 X 4	3
	M1-1	INTERSTATE 5	21 X 18		
	M3-1	NORTH	24 X 12		
D	R10-11	NO TURN ON RED	30 X 24	1- 4 x 4	1

**NOTE:**

1. LOCATION S OF CONSTRUCTION AREA SIGNS SHOWN ARE APPROXIMATE. EXACT LOCATIONS WILL BE DETERMINED BY THE ENGINEER.
2. SEE PLAN TH-1 AND TH-2 FOR ADDITIONAL CONSTRUCTION AREA SIGNS.
3. DURING TUSTIN RANCH Rd NB ROUTE 5 ON-RAMP PARTIAL CLOSURE, PCMS MESSAGE AT PCMS-1, PCMS-2, PCMS-3, PCMS-4 SHOULD READ :



4. DURING TUSTIN RANCH Rd NB ROUTE 5 ON-RAMP FULL CLOSURE, PCMS MESSAGE AT PCMS-1, PCMS-2, PCMS-3, PCMS-4 SHOULD READ :



**LEGENDS:**

- DIRECTION OF TRAVEL
- ⊥ CONSTRUCTION AREA SIGN 1-POST
- SIGN NO.
- WORK AREA
- PCMS
- A DETOUR NUMBER

**CLOSURE:**

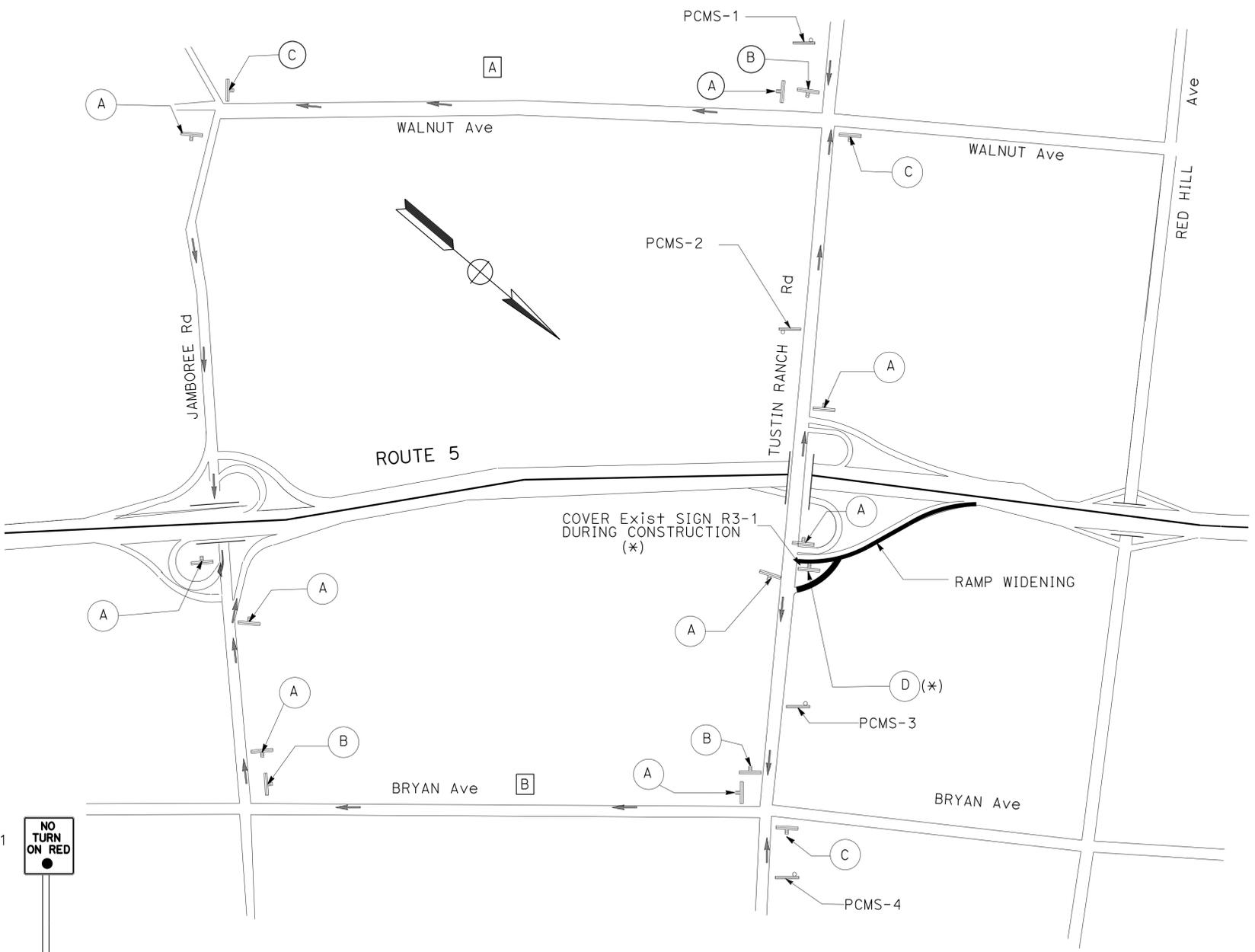
TUSTIN RANCH Rd NB ROUTE 5 ON - RAMP.

**DETOUR:**

- A SB TUSTIN RANCH Rd TO WB WALNUT Ave TO NB JAMBOREE Rd.
- B NB TUSTIN RANCH Rd TO WB BRYAN Ave TO SB JAMBOREE Rd.

**PORTABLE CHANGEABLE MESSAGE SIGN**

PCMS No.	SHEET No.	MESSAGE	QUANTITY (EA)
PCMS - 1	TH-3	SEE NOTE 3 AND 4	1
PCMS - 2	TH-3	SEE NOTE 3 AND 4	1
PCMS - 3	TH-3	SEE NOTE 3 AND 4	1
PCMS - 4	TH-3	SEE NOTE 3 AND 4	1
TOTAL			4



(\*) USED ONLY ON PARTIAL RAMP CLOSURE.

**TRAFFIC HANDLING PLAN (DETOUR)**

NO SCALE

APPROVED FOR TRAFFIC HANDLING WORK ONLY

**TH-3**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION DESIGN DIVISION  
 KAMRAN MAZHAR  
 DUNG PHAN  
 ALMA OLGUN  
 REVISOR BY DATE  
 CALCULATED/DESIGNED BY CHECKED BY  
 FUNCTIONAL SUPERVISOR

LAST REVISION DATE PLOTTED => 10-MAR-2015 03-06-15 TIME PLOTTED => 09:21

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	28.3/28.6	19	78

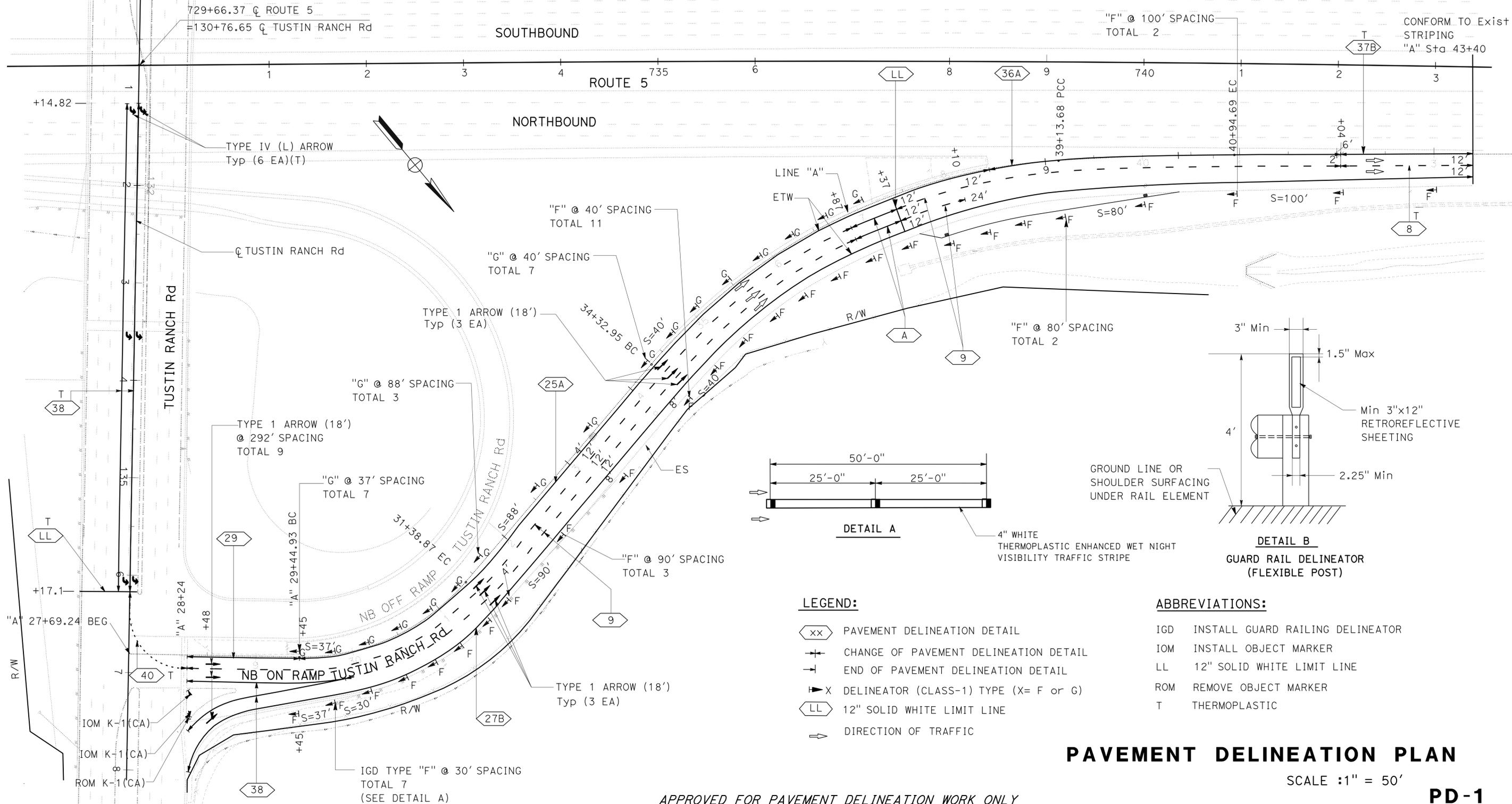
03-06-15  
 REGISTERED CIVIL ENGINEER DATE  
 03-09-15  
 PLANS APPROVAL DATE

BERNADETTE SURAWEEERA  
 No. C77207  
 Exp. 06-30-15  
 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. FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.
2. REMOVE ALL CONFLICTING TRAFFIC STRIPES, PAVEMENT MARKINGS AND PAVEMENT MARKERS.
3. TRAFFIC STRIPE AND PAVEMENT MARKINGS SHALL BE THERMOPLASTIC ENHANCED WET NIGHT VISIBILITY, UNLESS OTHERWISE NOTED.
4. EXACT LOCATIONS FOR PAVEMENT MARKINGS TO BE DETERMINED BY THE ENGINEER.
5. DIMENSIONS ALONG CURB AND GUTTER ARE GIVEN TO FACE OF CURB



**LEGEND:**

- xx PAVEMENT DELINEATION DETAIL
- + CHANGE OF PAVEMENT DELINEATION DETAIL
- END OF PAVEMENT DELINEATION DETAIL
- X DELINEATOR (CLASS-1) TYPE (X= F or G)
- LL 12" SOLID WHITE LIMIT LINE
- DIRECTION OF TRAFFIC

**ABBREVIATIONS:**

- IGD INSTALL GUARD RAILING DELINEATOR
- IOM INSTALL OBJECT MARKER
- LL 12" SOLID WHITE LIMIT LINE
- ROM REMOVE OBJECT MARKER
- T THERMOPLASTIC

**PAVEMENT DELINEATION PLAN**

SCALE :1" = 50'

**PD-1**

APPROVED FOR PAVEMENT DELINEATION WORK ONLY

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	28.3/28.6	20	78

*B. Suraweera* 03-06-15  
 REGISTERED CIVIL ENGINEER DATE  
 03-09-15  
 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER  
 BERNADETTE SURAWEEERA  
 No. C77207  
 Exp. 06-30-15  
 CIVIL  
 STATE OF CALIFORNIA

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### PAVEMENT DELINEATION QUANTITIES

SHEET No	STATIONS	THERMOPLASTIC TRAFFIC STRIPE										THERMOPLASTIC PAVEMENT MARKING				PAVEMENT MARKER (RETROREFLECTIVE)			DELINEATOR			REMOVE					
		4"					8"					ARROW WHITE (EWNV)	LIMIT LINE WHITE (EWNV)	ARROW WHITE	LIMIT LINE WHITE	TYPE D	TYPE H	TYPE G	TYPE F (CLASS 1)	TYPE G (CLASS 1)	GUARD RAILING	OBJECT MARKER (TYPE K)	THERMOPLASTIC TRAFFIC STRIPE	THERMOPLASTIC PAVEMENT MARKING	PAVEMENT MARKER	DELINEATOR	MARKER
		SOLID YELLOW DETAIL 29 (EWNV)	SOLID YELLOW DETAIL 25A (EWNV)	SOLID WHITE DETAIL 27B (EWNV)	SOLID WHITE DETAIL A (EWNV)	BROKEN WHITE (6-1) DETAIL 40	BROKEN WHITE (17-7) DETAIL 8	BROKEN WHITE (17-7) DETAIL 9 (EWNV)	SOLID WHITE DETAIL 38 (EWNV)	SOLID WHITE DETAIL 36A (EWNV)	SOLID WHITE DETAIL 38																
PD-1	"A1" 28+24 TO 43+40 NB ON-RAMP TUSTIN RANCH ROAD	900	1555	150		136	2209	345	359		136	225	40			4	39	103	19	17	7	2	4573	249	126	21	1
PD-1	TUSTIN RANCH ROAD Sta 131+14.82 to Sta 136+07.1				68					1005			90	58				44					2009	148	44		
TOTAL FROM Q-1																							10				
SUBTOTAL		150	900	1555	150			345	359			225	40	90	58	4	39	147	19	17							
TOTAL		2755			68	136	2209	704	1005	136	265	148		190			36	7	2	6592	397	170	21	1			

**ABBREVIATION:**  
 EMNV ENHANCED WET NIGHT VISIBILITY

## PAVEMENT DELINEATION QUANTITIES

### PDQ-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans**  
 DESIGN BRANCH F  
 FUNCTIONAL SUPERVISOR: KAMRAN MAZHAR  
 CALCULATED/DESIGNED BY: BERNADETTE SURAWEEERA  
 CHECKED BY: BERNADETTE SURAWEEERA  
 REVISED BY: BERNADETTE SURAWEEERA  
 DATE REVISED:

LAST REVISION DATE PLOTTED => 10-MAR-2015 03-03-15 TIME PLOTTED => 09:21

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Orca	5	28.3/28.6	21	78

03-06-15  
 REGISTERED CIVIL ENGINEER DATE  
 03-09-15  
 PLANS APPROVAL DATE

BERNADETTE SURAWEEERA  
 No. C77207  
 Exp. 06-30-15  
 CIVIL

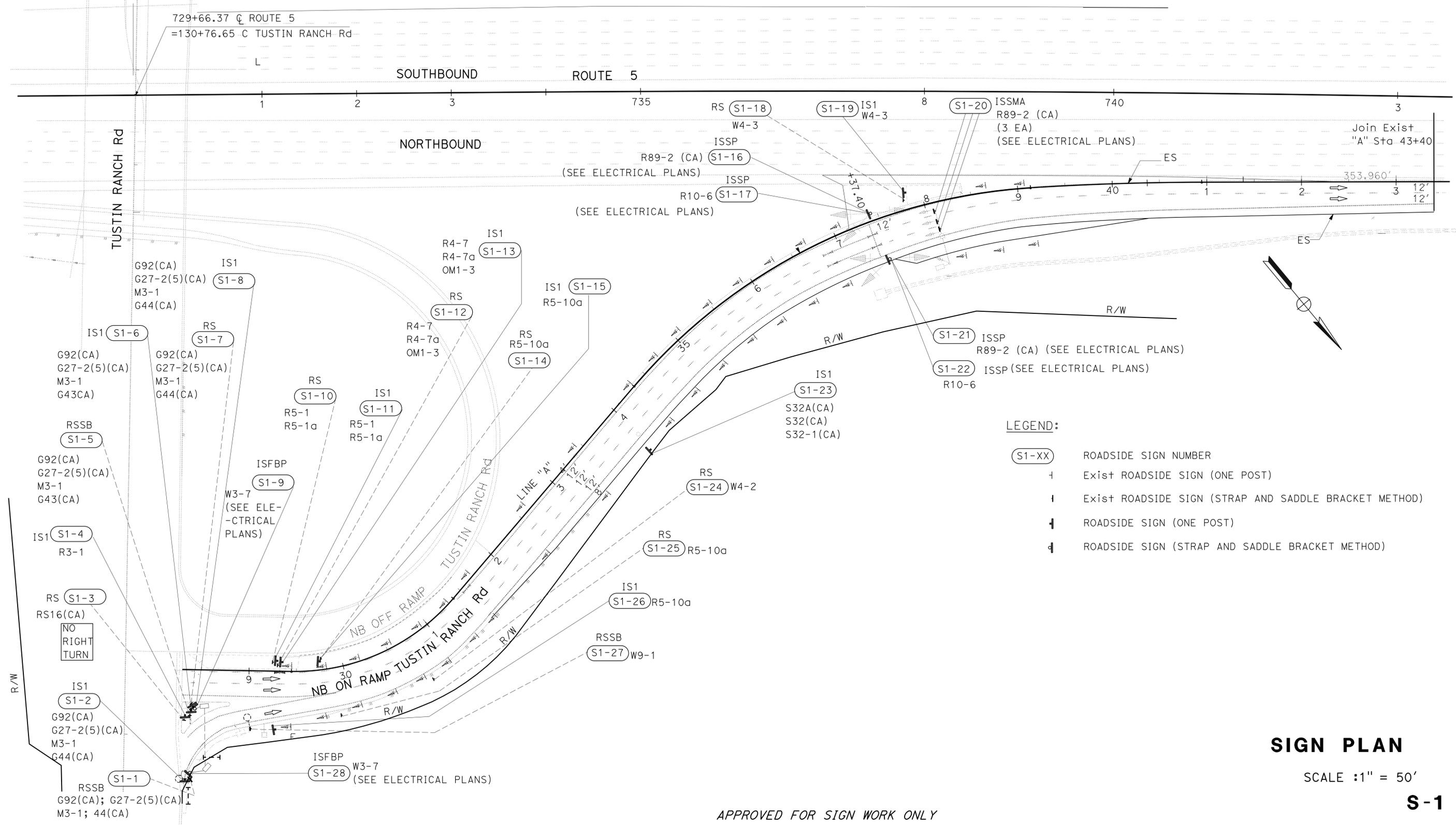
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**NOTES:**

- FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE
- SEE STANDARD PLAN FOR ROADSIDE SIGN INSTALLATION

**ABBREVIATIONS:**

- IS1 ROADSIDE SIGN-ONE POST
- ISSP INSTALL ROADSIDE SIGN PANEL ON SIGNAL POLE
- ISFBP INSTALL ROADSIDE SIGN PANEL ON FLASHING BEACON POLE
- ISSMA INSTALL ROADSIDE SIGN PANEL ON SIGNAL MAST ARM
- RS REMOVE ROADSIDE SIGN
- RSSB REMOVE ROADSIDE SIGN (STRAP AND SADDLE BRACKET METHOD)



**LEGEND:**

- (S1-XX) ROADSIDE SIGN NUMBER
- + Exist ROADSIDE SIGN (ONE POST)
- | Exist ROADSIDE SIGN (STRAP AND SADDLE BRACKET METHOD)
- ↓ ROADSIDE SIGN (ONE POST)
- ↓ ROADSIDE SIGN (STRAP AND SADDLE BRACKET METHOD)

**SIGN PLAN**

SCALE :1" = 50'

**S-1**

APPROVED FOR SIGN WORK ONLY

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
 TRAFFIC DESIGN  
 FUNCTIONAL SUPERVISOR: KAMRAN MAZHAR  
 CALCULATED/DESIGNED BY: BERNADETTE SURAWEEERA  
 CHECKED BY: [Blank]  
 REVISED BY: [Blank] DATE REVISED: [Blank]

LAST REVISION DATE PLOTTED => 10-MAR-2015  
 03-03-15 TIME PLOTTED => 09:21

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** DESIGN BRANCH F  
 FUNCTIONAL SUPERVISOR: KAMRAN MAZHAR  
 CALCULATED/DESIGNED BY: BERNADETTE SURAWEERA  
 CHECKED BY: BERNADETTE SURAWEERA  
 REVISED BY: BERNADETTE SURAWEERA  
 DATE REVISED:

### ROADSIDE SIGNS

SHEET No.	SIGN No. 	SIGN CODE	SIGN PANEL SIZE		POST SIZE & LENGTH (N)		ROADSIDE SIGN (ONE POST)	INSTALL ROADSIDE SIGN PANEL ON SIGNAL MAST ARM (N)	INSTALL ROADSIDE SIGN PANEL ON FLASHING BEACON POLE (N)	INSTALL ROADSIDE SIGN PANEL ON SIGNAL POLE (N)	REMOVE ROADSIDE SIGN	REMOVE ROADSIDE SIGN (STRAP & SADDLE BRACKET METHOD)	TREATED WOOD WASTE (*)							
			INCHES	FT(N)	FT(N)	EA								EA(N)	EA(N)	EA	EA	EA	EA	EA
S-1	S1-1	G92(CA) G27-2 (5)(CA) M3-1 G44(CA)										1								
	S1-2	G92(CA) G27-2 (5)(CA) M3-1 G44(CA)	48" x 30" 24" x 25" 24" x 12" 21" x 15"	13.5			1													
	S1-3	R16(CA)									1		57.2							
	S1-4	R3-1		36" x 36"	15		1													
	S1-5	G92(CA) G27-2 (5)(CA) M3-1 G43(CA)										1								
	S1-6	G92(CA) G27-2 (5)(CA) M3-1 G43(CA)	48" x 30" 24" x 25" 24" x 12" 21" x 15"	13.5			1													
	S1-7	G92(CA) G27-2 (5)(CA) M3-1 G44(CA)									1		51.48							
	S1-8	G92(CA) G27-2 (5)(CA) M3-1 G44(CA)	48" x 30" 24" x 25" 24" x 12" 21" x 15"	13.5			1													
	S1-9	W3-7		36" x 36"					1											
	S1-10	R5-1 R5-1a									1		47.67							
	S1-11	R5-1 R5-1a		36" x 36" 36" x 24"	12.5		1													
<b>SHEET TOTAL</b>							5	<del>X</del>	<del>X</del>	<del>X</del>	3	2	156.35							

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	28.3/28.6	22	78

03-06-15  
 REGISTERED CIVIL ENGINEER DATE  
 03-09-15  
 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER  
 BERNADETTE SURAWEERA  
 No. C77207  
 Exp. 06-30-15  
 CIVIL  
 STATE OF CALIFORNIA

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

(\*) = SEE Q-1 SHEET FOR THE GRAND TOTAL QUANTITY

## SIGN QUANTITIES

**SQ-1**

LAST REVISION DATE PLOTTED => 10-MAR-2015 03-03-15 TIME PLOTTED => 09:21

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	28.3/28.6	23	78

03-06-15  
 REGISTERED CIVIL ENGINEER DATE  
 03-09-15  
 PLANS APPROVAL DATE

BERNADETTE SURAWEEERA  
 No. C77207  
 Exp. 06-30-15  
 CIVIL

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### ROADSIDE SIGNS

SHEET No.	SIGN No.	SIGN CODE	SIGN PANEL SIZE	POST SIZE & LENGTH (N)		ROADSIDE SIGN (ONE POST)	INSTALL ROADSIDE SIGN PANEL ON SIGNAL MAST ARM (N)	INSTALL ROADSIDE SIGN PANEL ON FLASHING BEACON POLE (N)	INSTALL ROADSIDE SIGN PANEL ON SIGNAL POLE (N)	REMOVE ROADSIDE SIGN	REMOVE ROADSIDE SIGN (STRAP & SADDLE BRACKET METHOD)	TREATED WOOD WASTE (*)
				4"x6"	6"x6"							
				INCHES	FT(N)							
S-1	S1-12	R4-7 R4-7a OM1-3								1		91.52
	S1-13	R4-7 R4-7a OM1-3	24" x 30" 24" x 30" 18" x 18"		16	1						
	S1-14	R5-10a								1		53.39
	S1-15	R5-10a	30" x 36"	14		1						
	S1-16	R89-2 (CA)	24" x 10"						1			
	S1-17	R10-6	24" x 36"						1			
	S1-18	W4-3								1		102.96
	S1-19	W4-3	48" x 48"		18	1						
	S1-20	R89-2(CA)	48" x 20"				3					
	S1-21	R89-2 (CA)	24" x 10"						1			
	S1-22	R10-6	24" x 36"						1			
	S1-23	S32A(CA) S32(CA) S32-1(CA)	15" x 18" 54" x 42" 15" x 18"		18	1						
	S1-24	W4-2								1		61.01
	S1-25	R5-10a								1		53.39
	S1-26	R5-10a	30" x 36"	14		1						
	S1-27	W9-1									1	
S1-28	W3-7	36" x 36"						1				
SHEET TOTAL						5				5	1	362.27
GRAND TOTAL						10				8	3	518.62

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

(\*) = SEE Q-1 SHEET FOR THE GRAND TOTAL QUANTITY

### SIGN QUANTITIES

**SQ-2**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans**  
 DESIGN BRANCH F  
 FUNCTIONAL SUPERVISOR: KAMRAN MAZHAR  
 CALCULATED/DESIGNED BY: BERNADETTE SURAWEEERA  
 CHECKED BY: BERNADETTE SURAWEEERA  
 REVISED BY: BERNADETTE SURAWEEERA  
 DATE REVISED:

LAST REVISION DATE PLOTTED => 10-MAR-2015  
 03-03-15 TIME PLOTTED => 09:21

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	28.3/28.6	24	78

*Burawera* 03-06-15  
 REGISTERED CIVIL ENGINEER DATE

03-09-15  
 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.

### ROADSIDE SIGN PANEL QUANTITIES

SHEET No.	SIGN No.	SIGN CODE	PANEL SIZE	SINGLE FACED	BACKGROUND		LEGENDS		PROTECTIVE FILM		FURNISH SINGLE SHEET ALUMINUM SIGN		REMARKS
					SHEETING COLOR	RETROREFLECTIVE ASTM TYPE	SHEETING COLOR	RETROREFLECTIVE ASTM TYPE	STANDARD	PREMIUM	0.063" UNFRAMED	0.080" UNFRAMED	
											SQFT	SQFT	
S-1	S1-2	G92(CA)	48" x 30"	X	G	XI	W	XI		X		10	
		G27-2 (5)(CA)	24" x 25"	X	Bu	XI	W	XI		X	4.17		
		M3-1	24" x 12"	X	Bu	XI	W	XI		X	2		
	S1-4	G44(CA)	21" x 15"	X	Bu	XI	W	XI		X	2.19		
		R3-1	36" x 36"	X	B	Non	R/W	IX		X	9		
		G92(CA)	48" x 30"	X	G	XI	W	XI		X		10	
	S1-6	G27-2 (5)(CA)	24" x 25"	X	Bu	XI	W	XI		X	4.17		
		M3-1	24" x 12"	X	Bu	XI	W	XI		X	2		
		G43(CA)	21" x 15"	X	Bu	XI	W	XI		X	2.19		
	S1-8	G92(CA)	48" x 30"	X	G	XI	W	XI		X		10	
		G27-2 (5)(CA)	24" x 25"	X	Bu	XI	W	XI		X	4.17		
		M3-1	24" x 12"	X	Bu	XI	W	XI		X	2		
	S1-9	G44(CA)	21" x 15"	X	Bu	XI	W	XI		X	2.19		
		W3-7	36" x 36"	X	Y	XI	B	Non		X	9		SEE ELCTRICAL PLANS
		R5-1	36" x 36"	X	W	IX	R	IX		X	9		
	S1-11	R5-1a	36" x 24"	X	R	IX	W	IX		X	6		
		R4-7	24" x 30"	X	W	IX	B	Non		X	5		
		R4-7a	24" x 30"	X	W	IX	B	Non		X	5		
	S1-13	OM1-3	18" x 18"	X	Y	III	N/A	N/A		X	2.25		
		R5-10a	30" x 36"	X	W	IX	B	Non		X	7.5		
		R89-2 (CA)	24" x 10"	X	W	IX	B	Non		X	1.67		SEE ELCTRICAL PLANS
	S1-17	R10-6	24" x 36"	X	W	IX	B	Non		X	6		SEE ELCTRICAL PLANS
		W4-3	48" x 48"	X	Y	IX	B	Non		X		16	
		R89-2 (CA) (3 EA)	48" x 20" X 3	X	W	IX	B	Non		X		20.01	SEE ELCTRICAL PLANS
	S1-21	R89-2 (CA)	24" x 10"	X	W	IX	B	Non		X	1.67		SEE ELCTRICAL PLANS
		R10-6	24" x 36"	X	W	IX	B	Non		X	6		SEE ELCTRICAL PLANS
		S32A(CA)	15" x 18"	X	s2*	IX	W	IX		X	1.88		
	S1-23	S32(CA)	54" x 42"	X	s2*	IX	W, s1*	IX				15.75	
S32-1(CA)		15" x 18"	X	s2*	IX	W, B, s3*	IX		X	1.88			
R5-10a		30" x 36"	X	W	IX	B	Non		X	7.5			
S1-28	W3-7	36" x 36"	X	W	IX	B	Non		X	9		SEE ELCTRICAL PLANS	
TOTAL											113.43	81.76	

#### LEGENDS:

- B = BLACK (Non-Reflective)
- Bu = Blue
- W = WHITE
- R = RED
- G = GREEN
- Y = YELLOW
- s1\* = Pantones 165C
- s2\* = Pantones 327C
- s3\* = Pantones 154C & 467C, 291C & 165C

### SIGN PANEL QUANTITIES

SQ-3



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	28.3/28.6	25	78

03-06-15  
 REGISTERED CIVIL ENGINEER DATE  
 03-09-15  
 PLANS APPROVAL DATE

DUNG THANH PHAN  
 No. C77219  
 Exp. 06-30-15  
 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.

### PLASTIC PIPE (EDGE DRAIN)

LOCATION	STATION LIMITS	3" PLASTIC PIPE (EDGE DRAIN) LF	3" PLASTIC PIPE (EDGE DRAIN OULET)					
			OUTLET (O)		VENT (V)		CLEANOUT (CL)	
			TYPE	LF	TYPE	LF	TYPE	LF
NB ROUTE 5 ON-RAMP FROM TUSTIN RANCH Rd	"A" 33+50 TO "A" 34+90	140	C	38	C	0		
NB ROUTE 5 ON-RAMP FROM TUSTIN RANCH Rd	"A" 34+90 TO "A" 35+90	100					1	32
NB ROUTE 5 ON-RAMP FROM TUSTIN RANCH Rd	"A" 35+90 TO "A" 36+73	83	D	28				
NB ROUTE 5 ON-RAMP FROM TUSTIN RANCH Rd	"A" 36+73 TO "A" 40+02	329	D	16			1	18
NB ROUTE 5 ON-RAMP FROM TUSTIN RANCH Rd	"A" 40+02 TO "A" 42+00	198	A	32				
NB ROUTE 5 ON-RAMP FROM TUSTIN RANCH Rd	"A" 42+00 TO "A" 43+40	140						
TOTAL		990		114				50
GRAND TOTAL		990	164					

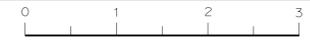
### ROADWAY QUANTITIES

LOCATION	STATION LIMITS	Pvmt Str Sec Type	ROADWAY EXCAVATION CY	HOT MIX ASPHALT		TACK COAT TON	CLASS 2 AGGREGATE BASE CY	CLASS 3 AGGREGATE SUBBASE CY	PLACE HMA DIKE (TYPE E) LF	REMOVE GUARDRAIL LF	TREATED WOOD WASTE LB	VEGETATION CONTROL (MINOR CONCRETE) SQFT	MIDWEST GUARD RAILING SYSTEM (WOOD POST) LF	ALTERNATIVE IN-LINE TERMINAL SYSTEM EA	END ANCHOR ASSEMBLY (TYPE SFT) EA
				OPEN GRADED (OPEN GRADED FRICTION COURSE) TON	TYPE A TON										
CONSTRUCTION AREAS	"A" 31+50.00 TO "A" 43+40.00		3260												
ON-RAMP WIDENING	"A" 31+50.00 TO "A" 43+40.00	1		149.90	899.90	15.60	851.90	1592.60							
MVP AND CHP ENFORCEMENT AREA	"A" 37+52.00 TO "A" 40+32.00	2		25.10	37.70	0.90	62.00								
AC DIKE	"A" 32+50.00 TO "A" 43+40.00				27.10										
ON-RAMP RIGHT SHOULDER	"A" 33+20.00 TO "A" 43+40.00								1030						
ON-RAMP RIGHT SHOULDER	"A" 29+70.00 TO "A" 31+50.00								180	1714.28					
ON-RAMP RIGHT SHOULDER	"A" 29+58.00 TO "A" 33+25.00										518.62	151	312.5	1	1
QUANTITY FROM SHEET SQ-2											518.62				
GRAND TOTAL			3260	175.00	964.70	16.50	913.90	1592.60	1030	180	2233.00	151	312.5	1	1

### SUMMARY OF QUANTITIES

Q-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION DESIGN DIVISION  
 KAMRAN MAZHAR  
 FUNCTIONAL SUPERVISOR  
 ALMA OLGUIN  
 DUNG PHAN  
 REVISOR  
 DATE REVISOR  
 DATE REVISOR



LAST REVISION DATE PLOTTED => 10-MAR-2015  
 03-09-15 TIME PLOTTED => 09:21

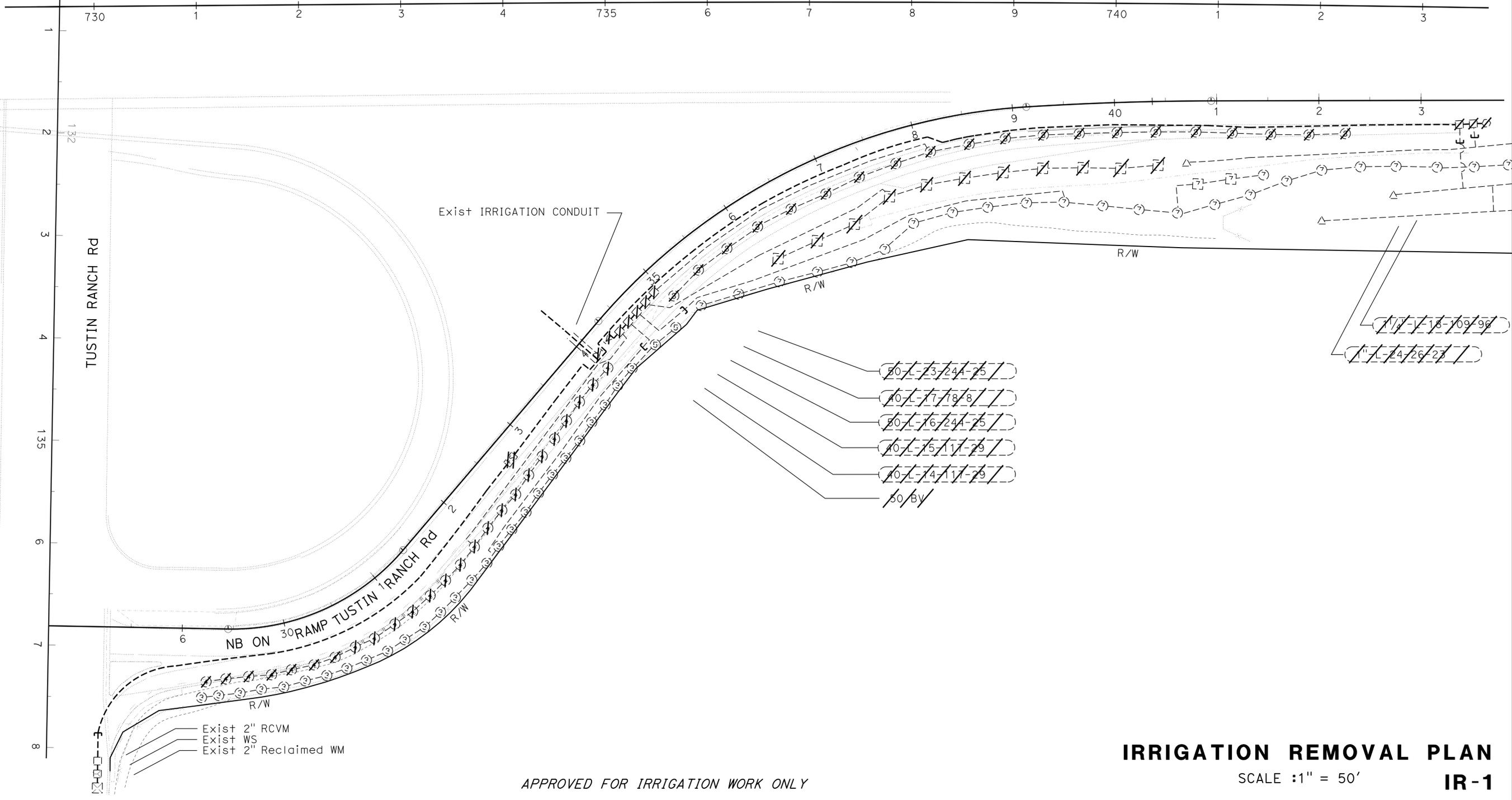
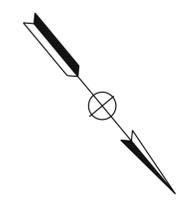
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Or	5	28.3/28.6	26	78

*Monf Sun*  
 LICENSED LANDSCAPE ARCHITECT  
 03-09-15  
 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.

LICENSED LANDSCAPE ARCHITECT  
 MONF SUN No. 5357  
 STATE OF CALIFORNIA  
 12-31-16  
 03-06-15

**NOTE:**  
 FOR ACCURATE RIGHT OF WAY DATA, CONTACT  
 RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.



STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	LANDSCAPE ARCHITECTURE	SENIOR LANDSCAPE ARCHITECT	ERIC DICKSON	CALCULATED/DESIGNED BY	CHECKED BY	I-HONG SUN	REVISED BY	DATE	REVISED
--	------------------------	----------------------------	--------------	------------------------	------------	------------	------------	------	---------

APPROVED FOR IRRIGATION WORK ONLY

**IRRIGATION REMOVAL PLAN**  
 SCALE : 1" = 50'  
**IR-1**





NOTES (THIS SHEET ONLY):

- FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.
- AB** EXISTING DETECTOR LOOPS, WHERE NEW DETECTOR LOOPS ARE INSTALLED. INSTALL NEW CONDUIT STUBOUT FOR NEW LOOPS.

LEGENDS (THIS SHEET ONLY):

- RC** EXISTING MODEL 170 CONTROLLER ASSEMBLY.
- EXISTING 1" C, 1 dlc. REMOVE 1 dlc. INSTALL 1 DLC.
- EXISTING 2" C, 13 dlc. REMOVE 13 dlc, INSTALL 13 DLC.
- RC** EXISTING 2-METER ON SIGNS, TYPE 1A AND FOUNDATION.
- INSTALL DEPARTMENT-FURNISHED MODEL 334 CABINET, WITH 170 CONTROLLER ASSEMBLY.
- SEE DETAIL B ON SHEET E-2.
- RC** EXISTING TDC, PULL BOX.
- EXISTING 120/240 V TYPE III-CF SERVICE EQUIPMENT ENCLOSURE WITH METER A: (12-55-005-0-028.383)  
100 A, 240 V, 2P, CB MAIN  
30 A, 120 V, 2P, CB LIGHTS  
30 A, 120 V, 2P, CB SIGN  
METER B: (12-55-005-0-028.384)  
100 A, 240 V, 2P, CB MAIN  
30 A, 120 V, 1P, CB RAMP  
30 A, 120 V, 1P, CB DEMARCATION  
15 A, 120 V, 1P, CB IRRIGATION  
30 A, 120 V, 1P, CB CCTV  
ADD 15 A, 120 V, 1P, CB PEC  
ADD 20 A, 120 V, 1P, CB RAMP METER LIGHTING
- INSTALL 2" C, 2#14 (FLASHING BEACON), 2#14 (SPARE)

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ord	5	28.3/28.6	29	78

03-06-15  
REGISTERED ELECTRICAL ENGINEER DATE

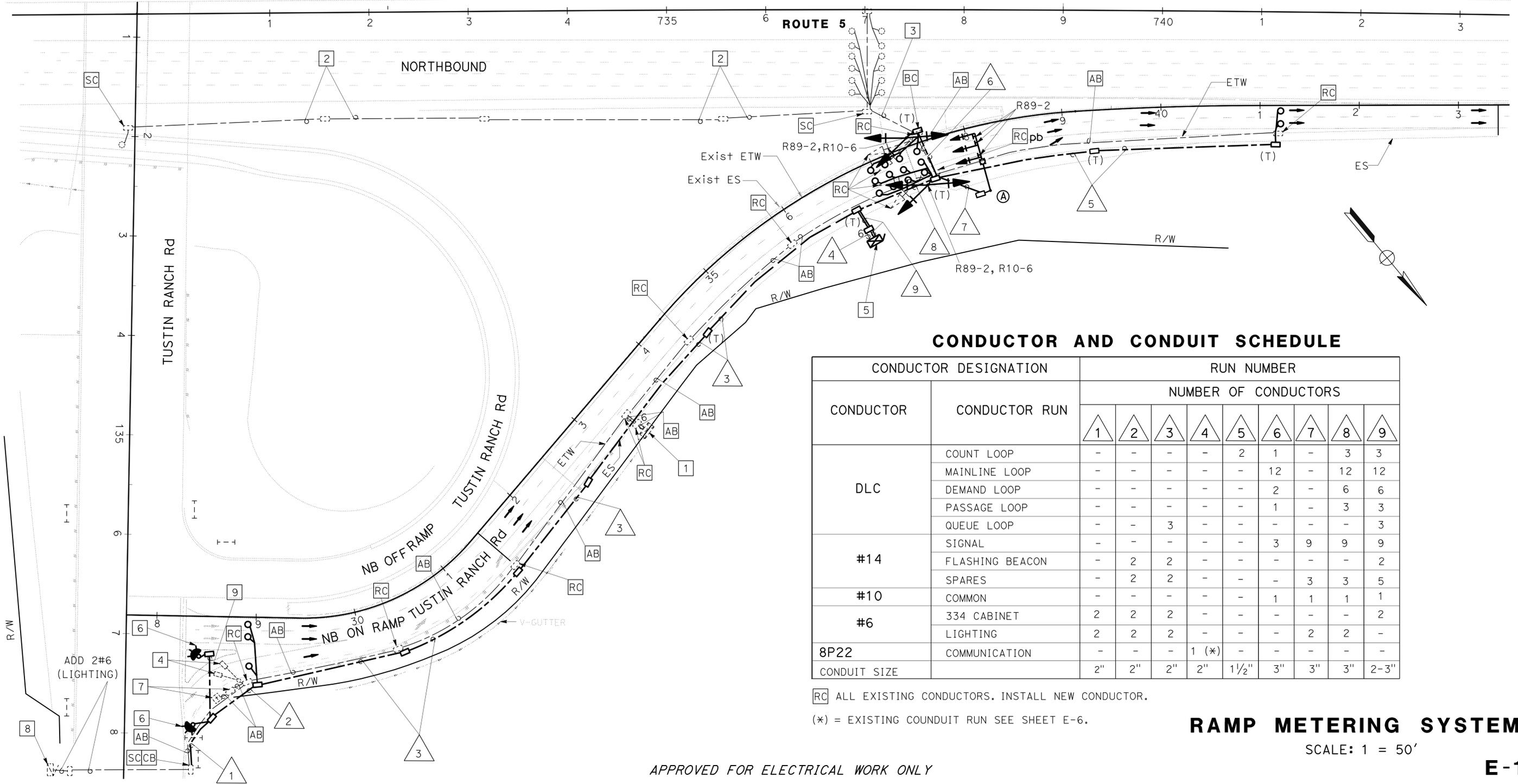
03-09-15  
PLANS APPROVAL DATE

S. SHAHRIARI  
No. E 13485  
Exp. 9/30/15  
ELECTRICAL

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.

STANDARD AND EQUIPMENT SCHEDULE

STANDARD			VEH SIG MTG	LED LUMINAIRE
⊗	TYPE	SMA	MAST ARM	
Ⓐ	61A-5-100	60'	3 MAS	ROADWAY 2



CONDUCTOR AND CONDUIT SCHEDULE

CONDUCTOR	CONDUCTOR RUN	RUN NUMBER								
		NUMBER OF CONDUCTORS								
		1	2	3	4	5	6	7	8	9
DLC	COUNT LOOP	-	-	-	-	2	1	-	3	3
	MAINLINE LOOP	-	-	-	-	-	12	-	12	12
	DEMAND LOOP	-	-	-	-	-	2	-	6	6
	PASSAGE LOOP	-	-	-	-	-	1	-	3	3
	QUEUE LOOP	-	-	3	-	-	-	-	-	3
#14	SIGNAL	-	-	-	-	-	3	9	9	9
	FLASHING BEACON	-	2	2	-	-	-	-	-	2
	SPARES	-	2	2	-	-	-	3	3	5
#6	COMMON	-	-	-	-	-	1	1	1	1
	334 CABINET	2	2	2	-	-	-	-	-	2
#8P22	LIGHTING	2	2	2	-	-	-	2	2	-
	COMMUNICATION	-	-	-	1 (*)	-	-	-	-	-
CONDUIT SIZE		2"	2"	2"	2"	1 1/2"	3"	3"	3"	2-3"

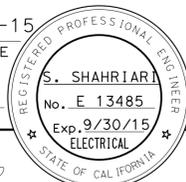
**RC** ALL EXISTING CONDUCTORS. INSTALL NEW CONDUCTOR.  
 (\*) = EXISTING CONDUIT RUN SEE SHEET E-6.

RAMP METERING SYSTEM

SCALE: 1" = 50'

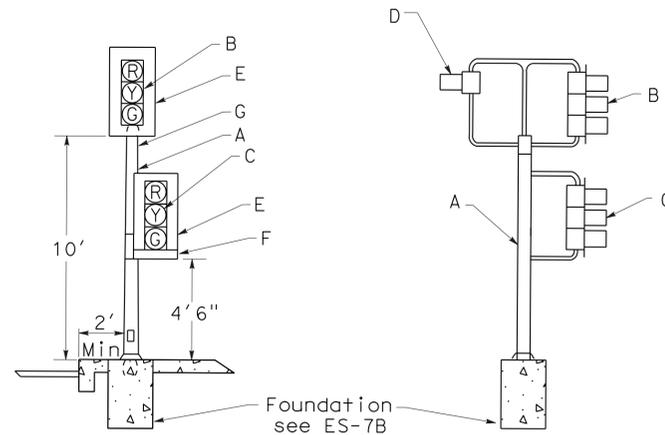
APPROVED FOR ELECTRICAL WORK ONLY

E-1

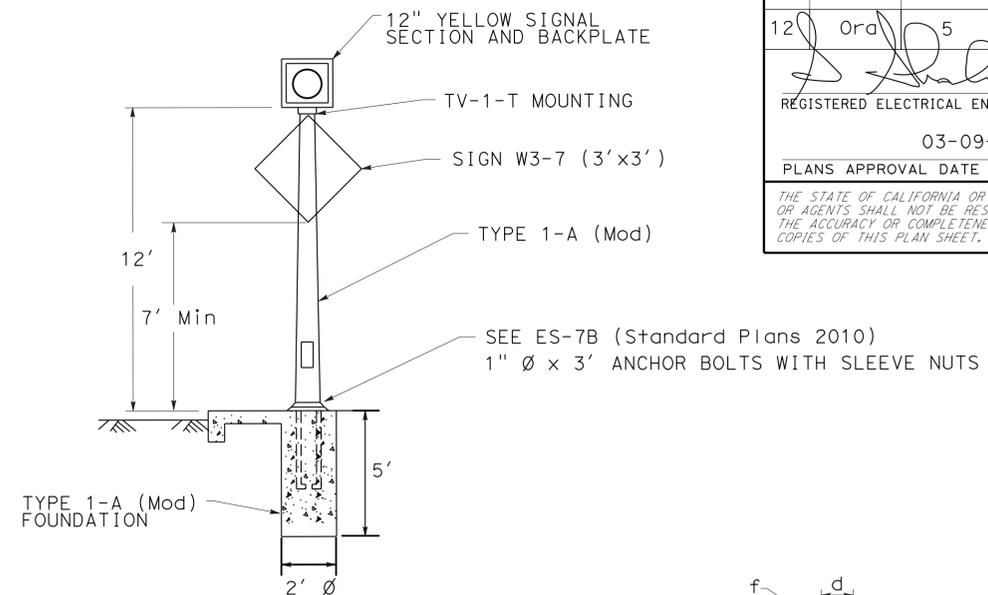
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Oran	5	28.3/28.6	30	78
 03-06-15 REGISTERED ELECTRICAL ENGINEER DATE					
03-09-15 PLANS APPROVAL DATE					
<small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small>					

**LEGENDS: (RAMP METERING SIGNAL)**

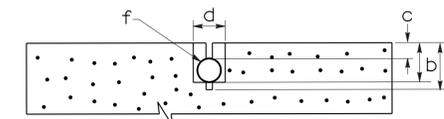
- A. Type 1-A standard. Install anchor bolts with sleeve nuts (See ES-7B).
- B. 3-section, 12" signal head (red, yellow, green). 18" x 12" angled visors are required where shown on the plans. Type TV-2-T post-top mounting.
- C. 3-section, 8" signal head (red, yellow, green), 8" full circle visors. Type SV-1-T bracket mounting on side of standard away from traffic.
- D. 1-section, 8" signal head (red), 12" full circle visor. Red Status Light for enforcement.
- E. Backplate.
- F. "ONE CAR PER GREEN THIS LANE" R89-2 sign (24"x10"). Mounted on back plate and center between green section and bottom of back plate and sides. Attach with 1/4" aluminum blind rivets or galvanized 1/4" x 3/4" bolts, hex nuts, plain and lock washers.
- G. "STOP HERE ON RED" R10-6 sign (24"x36").



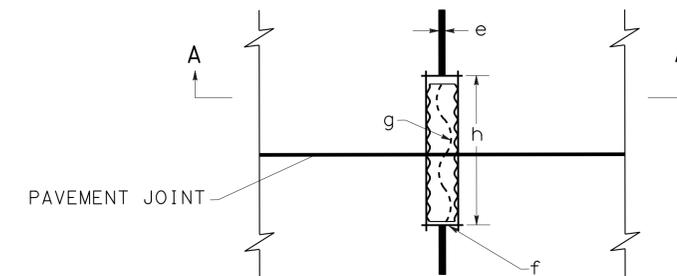
**RAMP METERING SIGNAL  
DETAIL "A"**



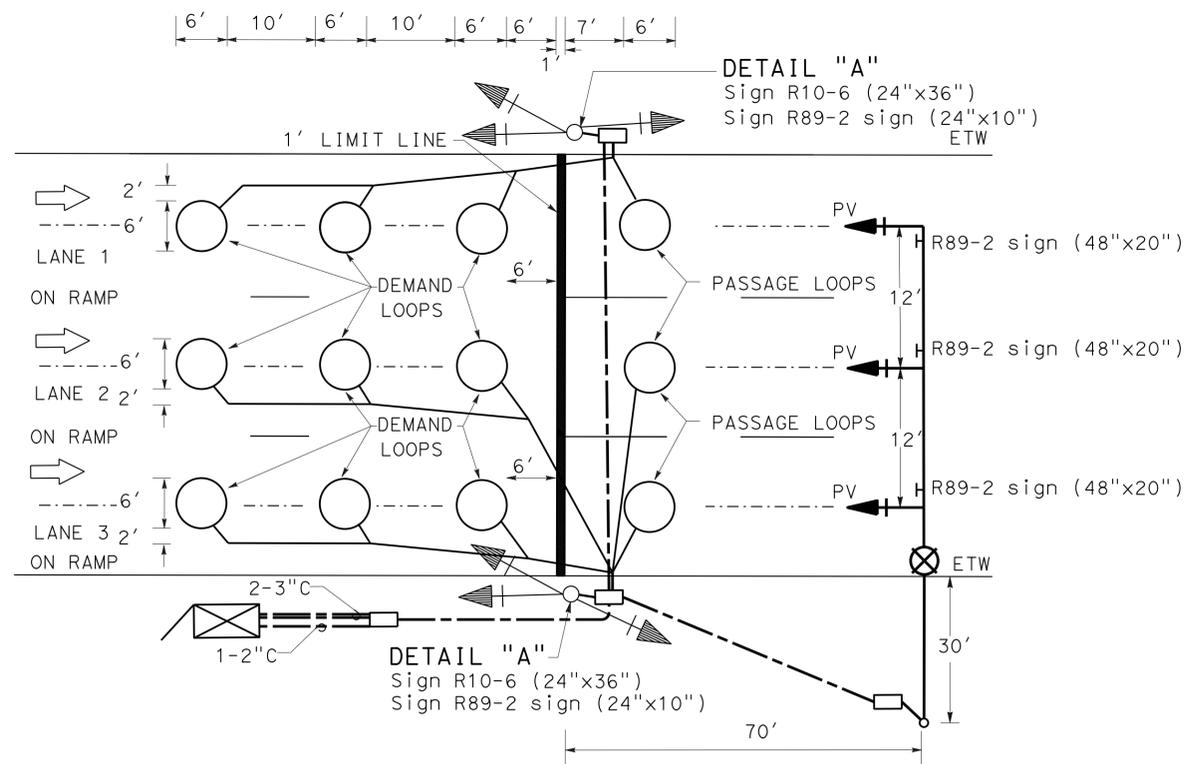
**TYPE 1-A (Mod)  
FLASHING BEACON  
DETAIL "B"**  
NTS



**SECTION A-A**



**PLAN VIEW  
TYPICAL LOOP LEAD-IN DETAIL AT PAVEMENT JOINT**



**TYPICAL 3-LANE RAMP  
METERING INSTALLATION**

**NOTES: (LOOP DETECTOR)**

- a. SAW CUT DEPTH TO ACCOMMODATE SPECIFIED NUMBER OF CONDUCTORS WITH A MINIMUM OF 1/2" FROM TOP OF WIRE TO PAVEMENT SURFACE (3/4" Max).
- b. SLOT SAW CUT DEPTH TO ACCOMMODATE 1" NON-METALLIC CONDUIT WITH 1/2" MINIMUM FROM TOP OF CONDUIT TO PAVEMENT SURFACE.
- c. 1/2" MINIMUM BETWEEN TOP OF CONDUIT AND PAVEMENT SURFACE.
- d. SAW CUT WIDTH TO ACCOMMODATE 1" NON-METALLIC CONDUIT WITH 1/8" CLEARANCE.
- e. INDUCTIVE LOOP DETECTOR SAW CUT.
- f. 1" NON-METALLIC CONDUIT, 6" LONG, PLUG BOTH ENDS WITH CAULKING COMPOUND TO KEEP OUT EPOXY.
- g. CONDUCTORS WITH 1/2" MINIMUM SLACK INSIDE CONDUIT.
- h. SAW CUT LENGTH OF SLOT 1/8" LONGER THAN CONDUIT.
- i. SEE RSP ES-5A, ES-5B AND ES-5D FOR ADDITIONAL LOOP INSTALLATION PROCEDURE.
- j. SPACING FOR MAINLINE DOUBLE LOOP IS 20' LEADING EDGE TO LEADING EDGE.
- k. LOOP DETECTORS SHALL BE INSTALLED AFTER THE PLACEMENT OF UPPERMOST LAYER OF NEW PAVEMENT AND AFTER APPLYING TRAFFIC STRIPES AND PAVEMENT MARKINGS.

**RAMP METERING SYSTEM**

DETAIL  
NO SCALE

**E-2**

NOTES (THIS SHEET ONLY):

- FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.
- SEE SHEET E-4 FOR WIRING DIAGRAM, LUMINAIRE AND CONDUCTOR INFORMATION.
- ALL NEW CONDUIT MUST BE 2" C, 2#6 (LIGHTING).
- ALL EXISTING CONDUITS ARE 1 1/2" C, 2#6 (LIGHTING).

LEGEND (THIS SHEET ONLY):

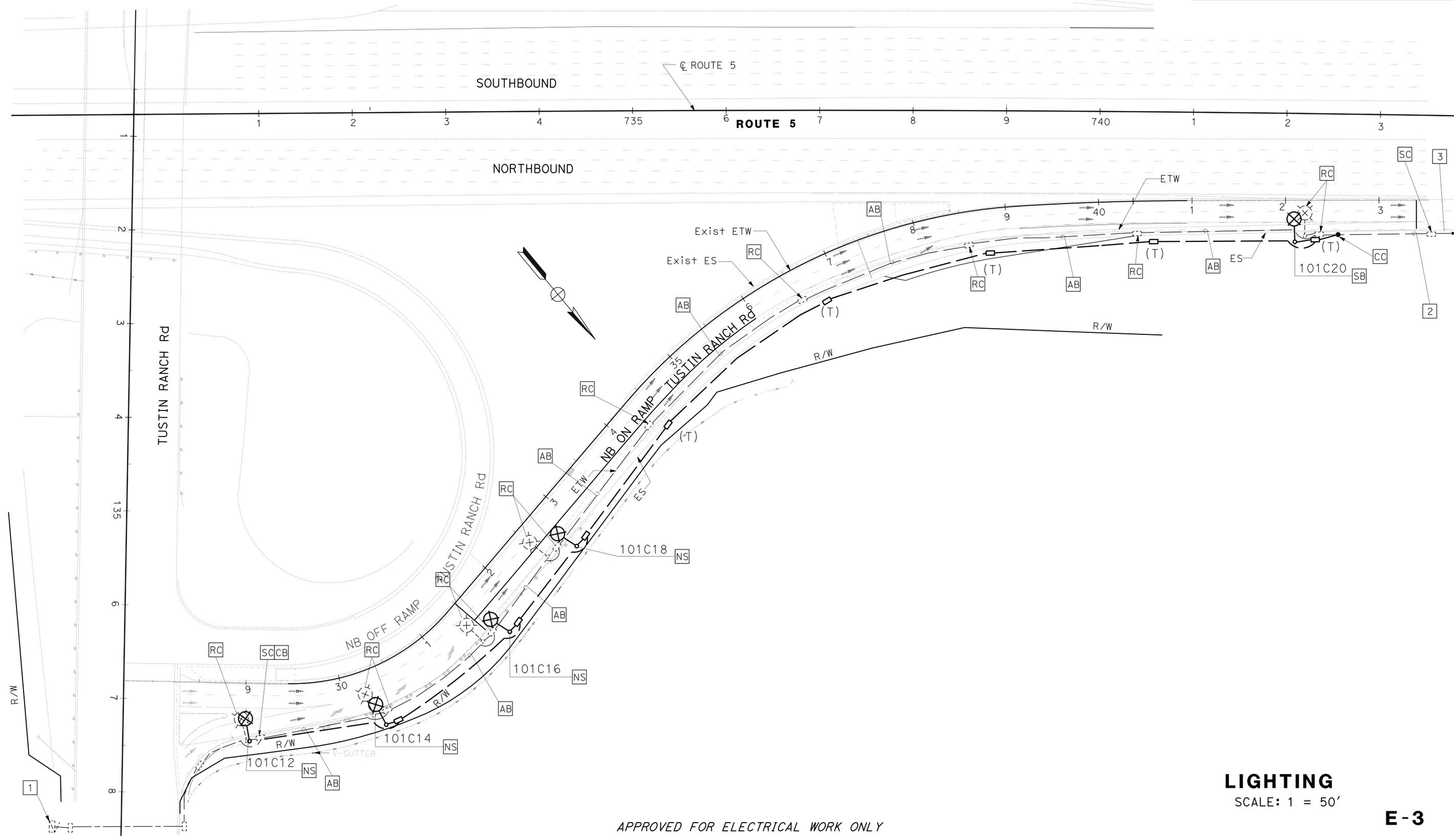
- SEE SHEET E-1 FOR SERVICE EQUIPMENT ENCLOSURE INFORMATION.
- EXISTING 1 1/2" C, 2#6. RC 2#6, INSTALL 2#6.
- SEE WIRING DIAGRAM FOR CONTINUATION.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ord	5	28.3/28.6	31	78

REGISTERED ELECTRICAL ENGINEER DATE 03-06-15  
 REGISTERED PROFESSIONAL ENGINEER No. E 13485  
 PLANS APPROVAL DATE 03-09-15  
 Exp. 9/30/15  
 ELECTRICAL

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** ELECTRICAL DESIGN  
 FUNCTIONAL SUPERVISOR SHAHRAM SHAHRIARI  
 CALCULATED/DESIGNED BY CHECKED BY  
 Soudabeh Afrastabi Vanessa Truong  
 REVISED BY DATE REVISED

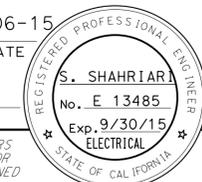


**LIGHTING**  
 SCALE: 1 = 50'

**E-3**

APPROVED FOR ELECTRICAL WORK ONLY

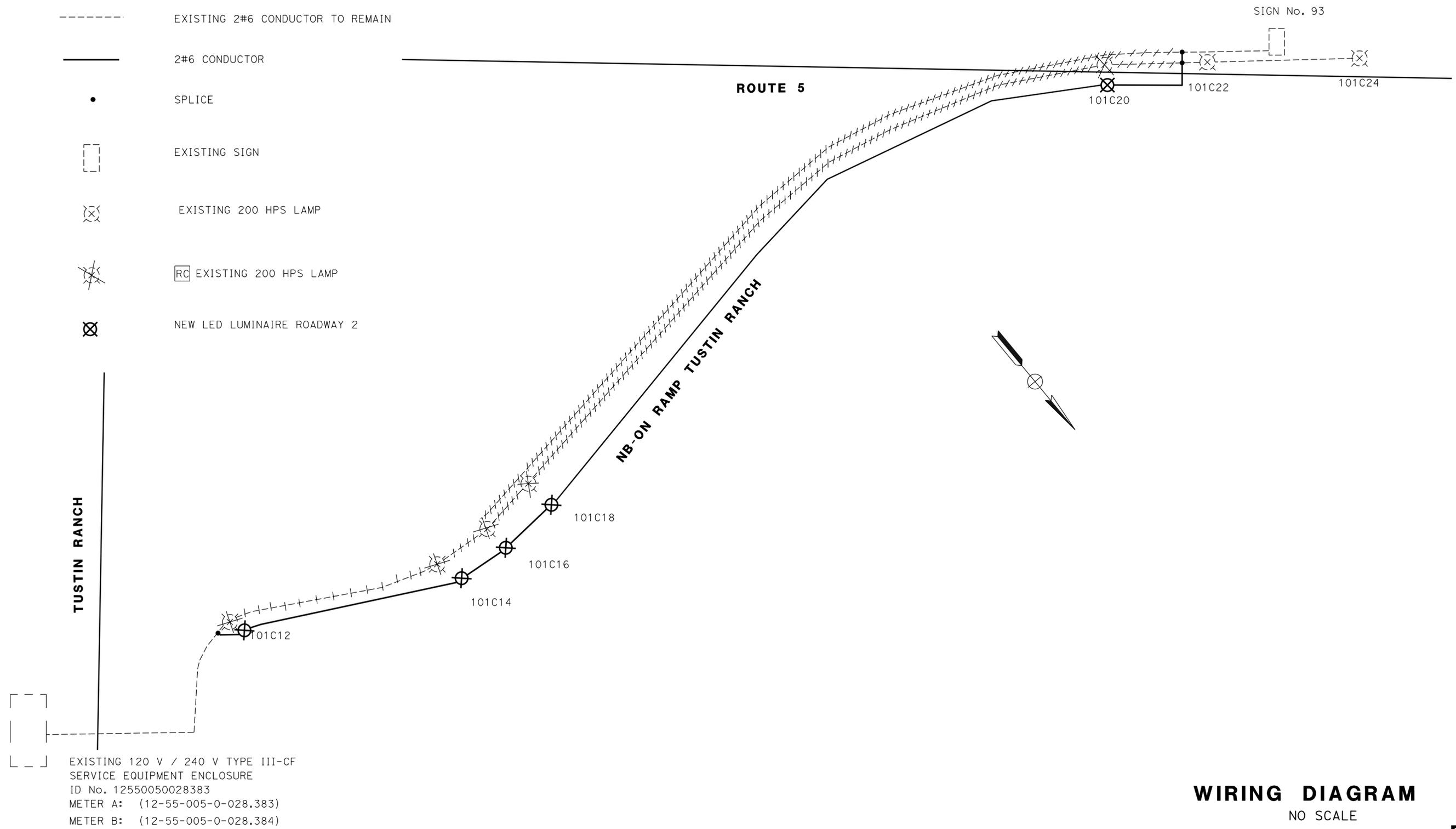
LAST REVISION DATE PLOTTED => 10-MAR-2015 03-03-15 TIME PLOTTED => 09:22

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ord	5	28.3/28.6	32	78
 REGISTERED ELECTRICAL ENGINEER DATE 03-06-15					
PLANS APPROVAL DATE			03-09-15		
<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>					

**LEGENDS:**

- ##### RC EXISTING 2#6 CONDUCTOR
- EXISTING 2#6 CONDUCTOR TO REMAIN
- 2#6 CONDUCTOR
- SPLICE
- EXISTING SIGN
- ⊗ EXISTING 200 HPS LAMP
- ⊗ RC EXISTING 200 HPS LAMP
- ⊗ NEW LED LUMINAIRE ROADWAY 2

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	FUNCTIONAL SUPERVISOR	CALCULATED/DESIGNED BY	REVISOR
<b>Caltrans</b> ELECTRICAL DESIGN	SHAHAM SHAHRIAR	CHECKED BY	DATE REVISED
		SOUDEBEH AFRASIABI	
		VANESSA TRUONG	



**WIRING DIAGRAM**  
NO SCALE

**E-4**

LAST REVISION DATE PLOTTED => 10-MAR-2015 03-03-15 TIME PLOTTED => 09:22

**NOTES (THIS SHEET ONLY):**

- FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.
- MAXIMUM DOWNTIME FOR EACH CABLE WHEN SWITCHING FROM EXISTING TO TEMPORARY AND FROM TEMPORARY TO PERMANENT MUST BE 8 HOURS.
- RC** WOOD POLE AND CABLES AFTER SWITCHING TO PERMANENT SYSTEM.
- NOTIFY THE ENGINEER AND TMC (949)936-3400 PRIOR TO EACH CUTOVER.

**LEGENDS (THIS SHEET ONLY):**

- FOR EXISTING MODEL 170 CONTROLLER ASSEMBLY SEE SHEET E-1.
  - TO EXISTING MODEL 170 CONTROLLER ASSEMBLY IN MODEL 334C CABINET FOR CMS 93.
  - PERMANENT COMMUNICATION PULL BOX TO REMAIN.
  - PERMANENT SPLICE VAULT TO REMAIN.
  - SPLICE NEW 25P22, 12 MMFO AND 72 SMFO TO EXISTING 25P22, 12 MMFO AND 72 SMFO IN NEW SPLICE ENCLOSURES.
  - INSTALL TYPE H RISER.
- NEW SPLICE VAULT
  - NEW COMMUNICATION PULL BOX
  - EXISTING SPLICE VAULT
  - 25P22 25 PAIRS #22
  - 8P22 8 PAIRS #22
  - MMFO MULTIMODE FIBER OPTIC CABLE
  - SMFO SINGLEMODE FIBER OPTIC CABLE
  - INSTALL WOOD POLE WITH MINIMUM 10' UNDERGROUND.
  - TEMPORARY AERIAL COMMUNICATION CABLES, MAINTAIN 20' VERTICAL CLEARANCE.

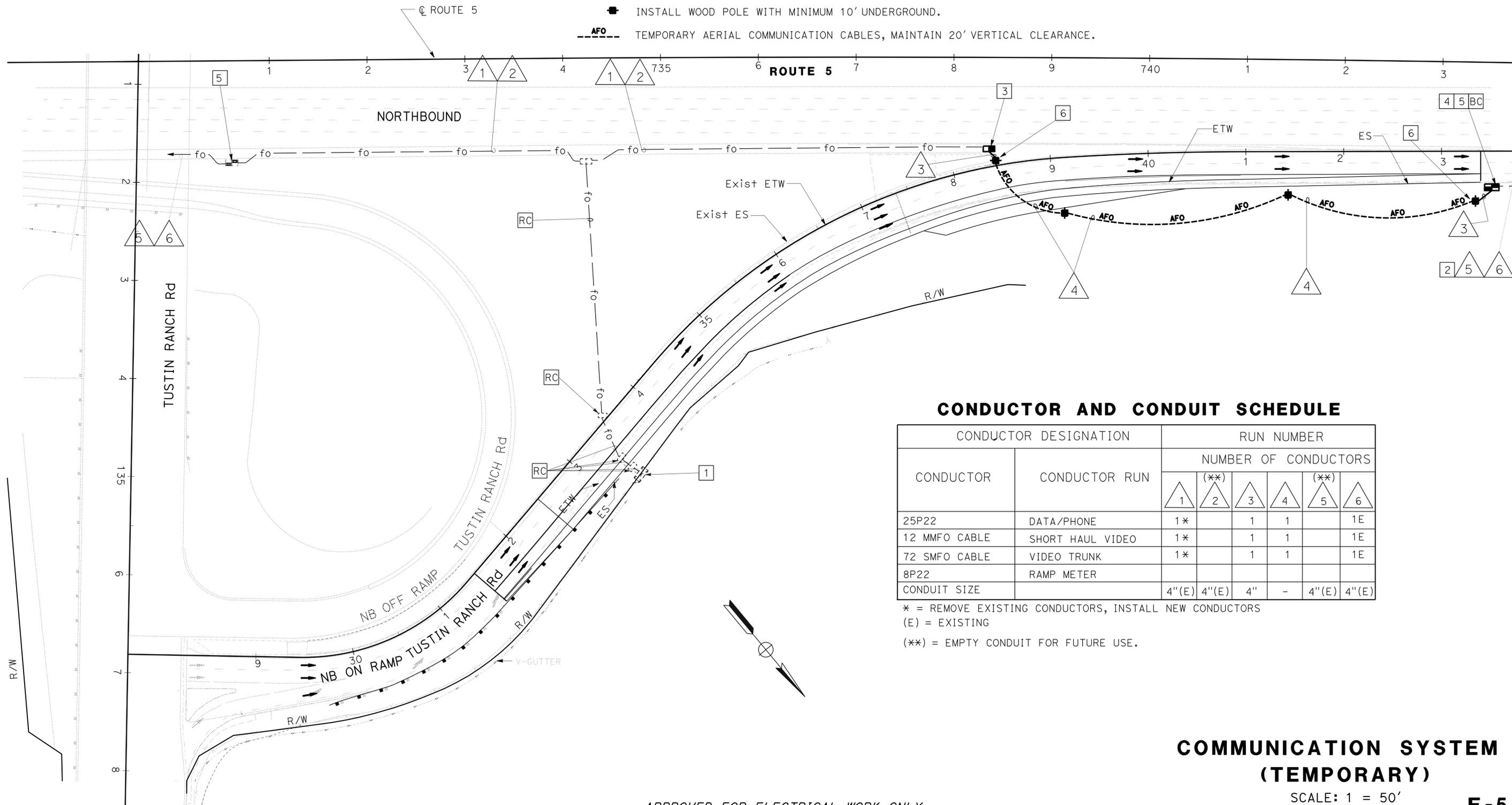
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Oran	5	28.3/28.6	33	78

03-06-15  
REGISTERED ELECTRICAL ENGINEER DATE

03-09-15  
PLANS APPROVAL DATE

S. SHAHRIARI  
No. E 13485  
Exp. 9/30/15  
ELECTRICAL

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.



**CONDUCTOR AND CONDUIT SCHEDULE**

CONDUCTOR DESIGNATION		RUN NUMBER							
CONDUCTOR	CONDUCTOR RUN	NUMBER OF CONDUCTORS							
		1	(**)	2	3	4	(**)	5	6
25P22	DATA/PHONE	1*		1	1				1E
12 MMFO CABLE	SHORT HAUL VIDEO	1*		1	1				1E
72 SMFO CABLE	VIDEO TRUNK	1*		1	1				1E
8P22	RAMP METER								
CONDUIT SIZE		4"(E)	4"(E)	4"	-	4"(E)	4"(E)		

\* = REMOVE EXISTING CONDUCTORS, INSTALL NEW CONDUCTORS  
 (E) = EXISTING  
 (\*\*) = EMPTY CONDUIT FOR FUTURE USE.

**COMMUNICATION SYSTEM (TEMPORARY)**

SCALE: 1 = 50'

**E-5**

**NOTES (THIS SHEET ONLY):**

- FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.
- EACH 4" CONDUIT MUST HAVE 4-1" INNERDUCTS.

**LEGENDS (THIS SHEET ONLY):**

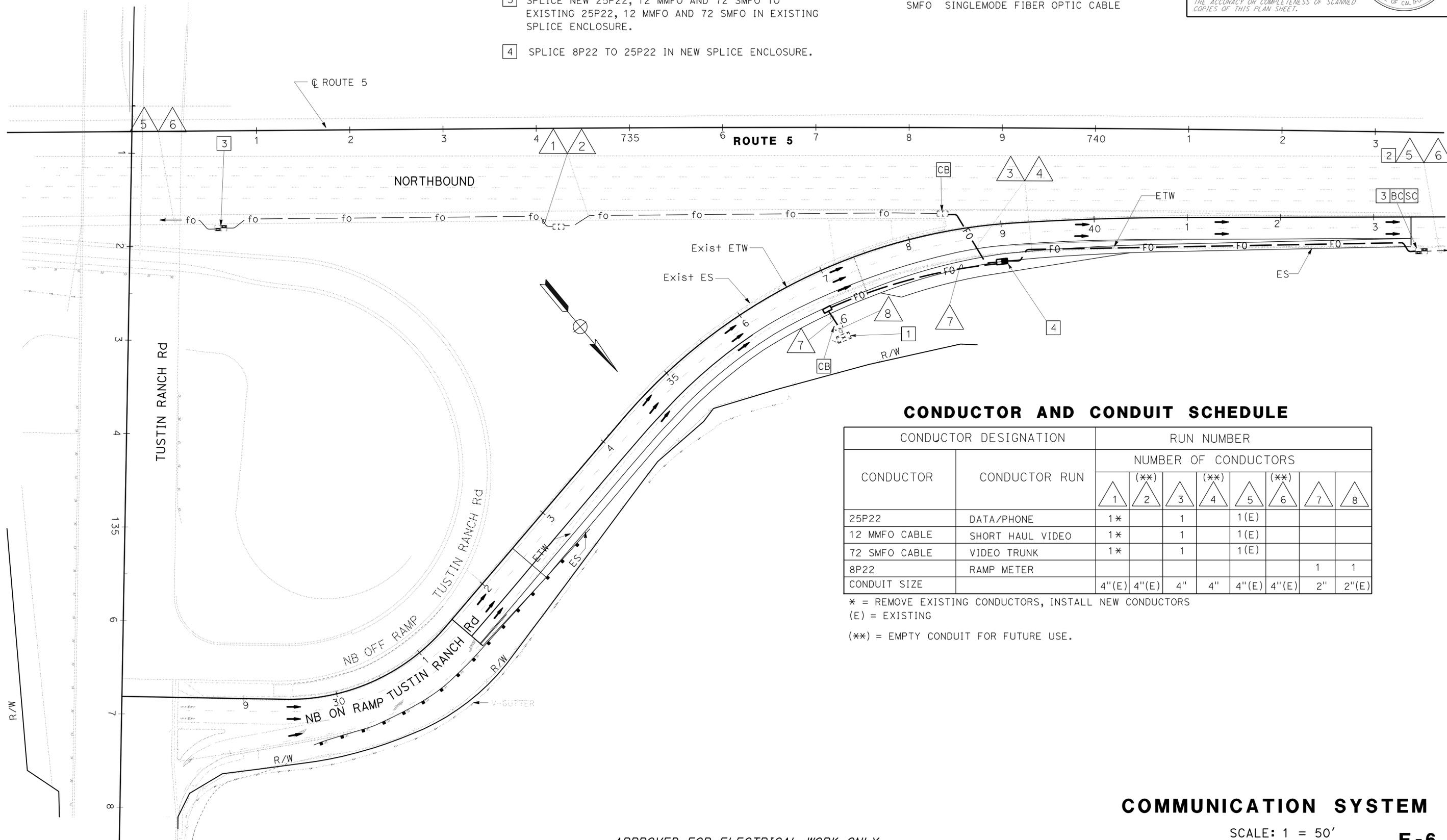
- FOR EXISTING MODEL 170 CONTROLLER ASSEMBLY SEE SHEET E-1.
- TO EXISTING MODEL 170 CONTROLLER ASSEMBLY IN MODEL 334C CABINET FOR CMS 93.
- SPLICE NEW 25P22, 12 MMFO AND 72 SMFO TO EXISTING 25P22, 12 MMFO AND 72 SMFO IN EXISTING SPLICE ENCLOSURE.
- SPLICE 8P22 TO 25P22 IN NEW SPLICE ENCLOSURE.

- ☐ EXISTING COMMUNICATION PULL BOX
  - ☐ EXISTING SPLICE VAULT
  - NEW COMMUNICATION PULL BOX.
- 25P22 25 PAIRS #22  
 8P22 8 PAIRS #22  
 MMFO MULTIMODE FIBER OPTIC CABLE  
 SMFO SINGLEMODE FIBER OPTIC CABLE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ord	5	28.3/28.6	34	78

REGISTERED ELECTRICAL ENGINEER DATE 03-06-15  
 S. SHAHRIARI No. E 13485 Exp. 9/30/15  
 PLANS APPROVAL DATE 03-09-15

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.



**CONDUCTOR AND CONDUIT SCHEDULE**

CONDUCTOR	CONDUCTOR RUN	RUN NUMBER							
		NUMBER OF CONDUCTORS							
		1	(**)	2	(**)	3	(**)	4	(**)
25P22	DATA/PHONE	1*		1		1(E)			
12 MMFO CABLE	SHORT HAUL VIDEO	1*		1		1(E)			
72 SMFO CABLE	VIDEO TRUNK	1*		1		1(E)			
8P22	RAMP METER							1	1
CONDUIT SIZE		4"(E)	4"(E)	4"	4"	4"(E)	4"(E)	2"	2"(E)

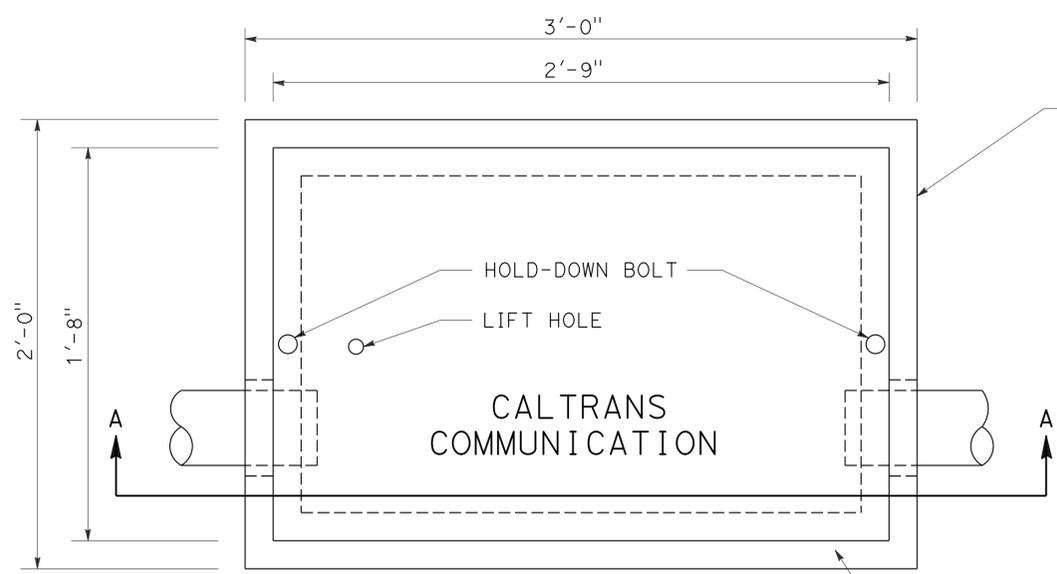
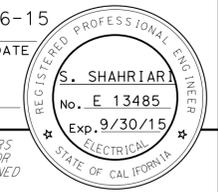
\* = REMOVE EXISTING CONDUCTORS, INSTALL NEW CONDUCTORS  
 (E) = EXISTING  
 (\*\*) = EMPTY CONDUIT FOR FUTURE USE.

**COMMUNICATION SYSTEM**

SCALE: 1 = 50'

**E-6**

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Oran	5	28.3/28.6	35	78
REGISTERED ELECTRICAL ENGINEER			DATE	03-06-15	
REGISTERED PROFESSIONAL ENGINEER			DATE	03-09-15	
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.					

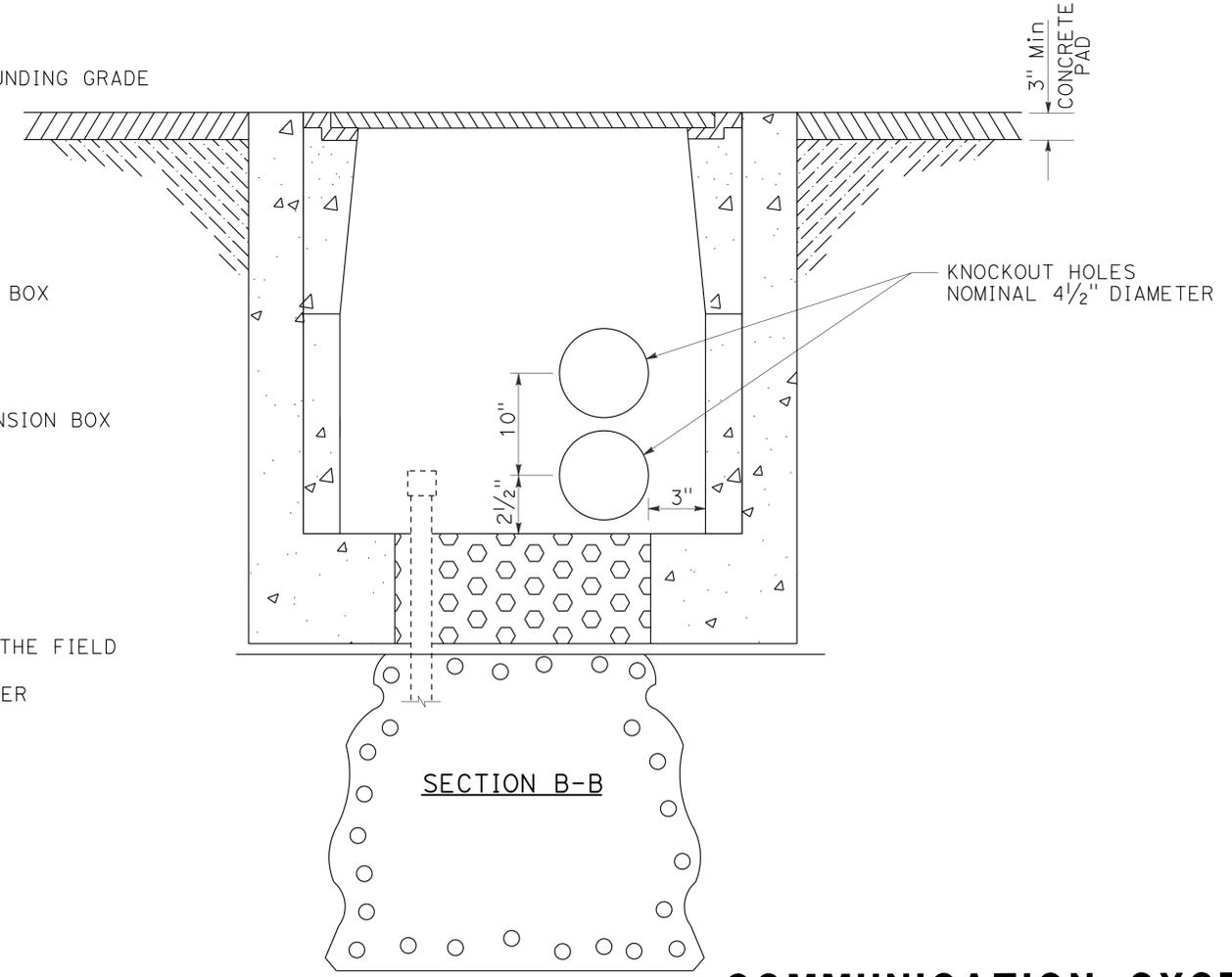
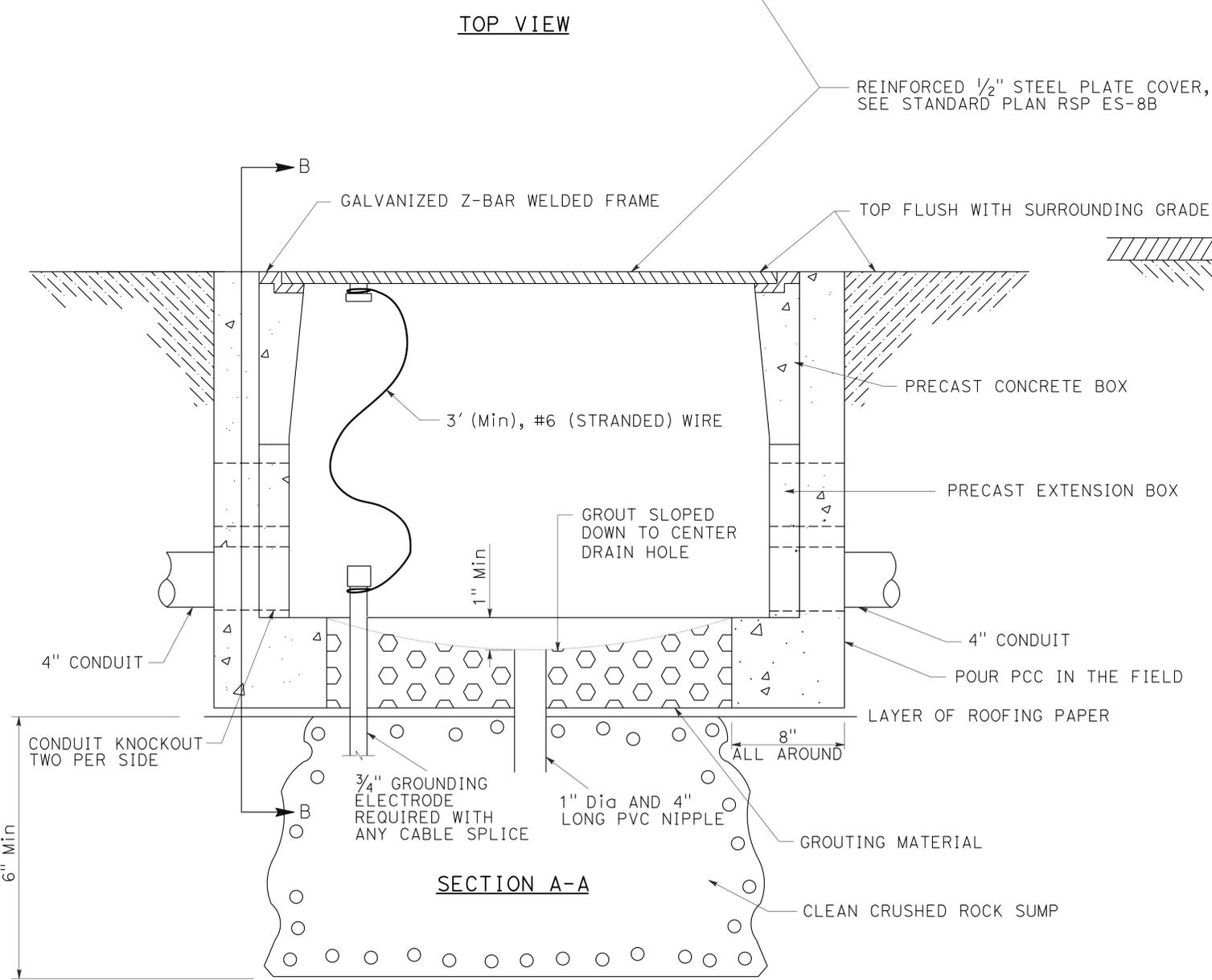
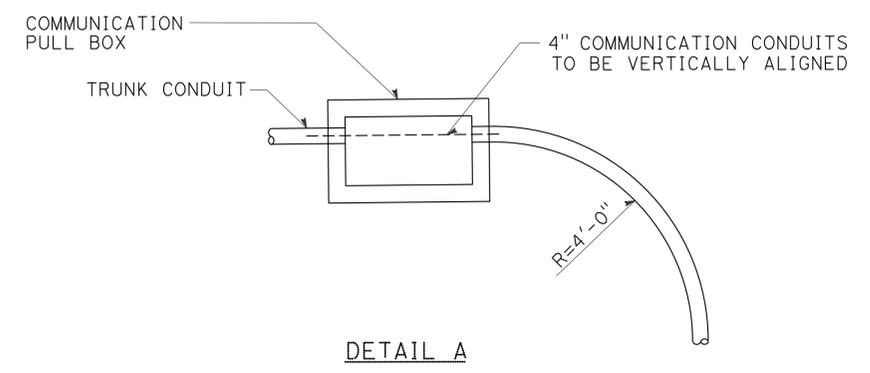


PRECAST CONCRETE BOX REINFORCED WITH GALVANIZED Z-BAR WELDED FRAME

**NOTES: (THIS SHEET ONLY)**

1. ADDITIONAL CONDUIT ENTRANCES AS SHOWN IN THE PLANS.
2. SEE SPECIAL PROVISIONS REGARDING HOLD DOWN BOLTS FOR TRAFFIC COVERS.
3. 4'-0" x 5'-0" CONCRETE PAD WITH PULL BOX IN CENTER MUST BE INSTALLED FLUSH WITH PULL BOX COVER.

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION - ELECTRICAL DESIGN  
 S. SHAHRIARI  
 SHAHRAM SHAHRIARI  
 VANESSA TRUONG  
 S. SHAHRIARI  
 No. E 13485  
 Exp. 9/30/15  
 03-03-15 10:09:22



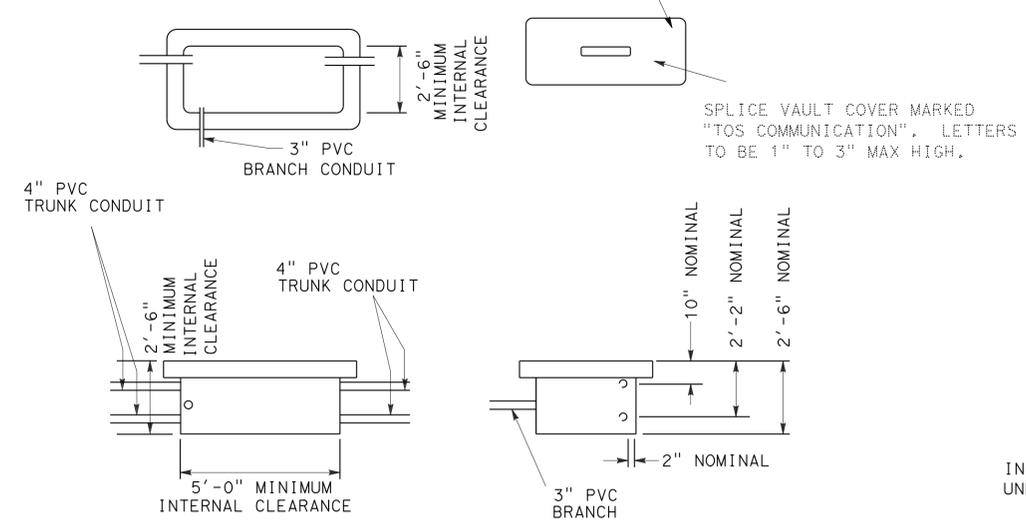
**COMMUNICATION PULL BOX DETAILS**

**COMMUNICATION SYSTEM**  
NO SCALE

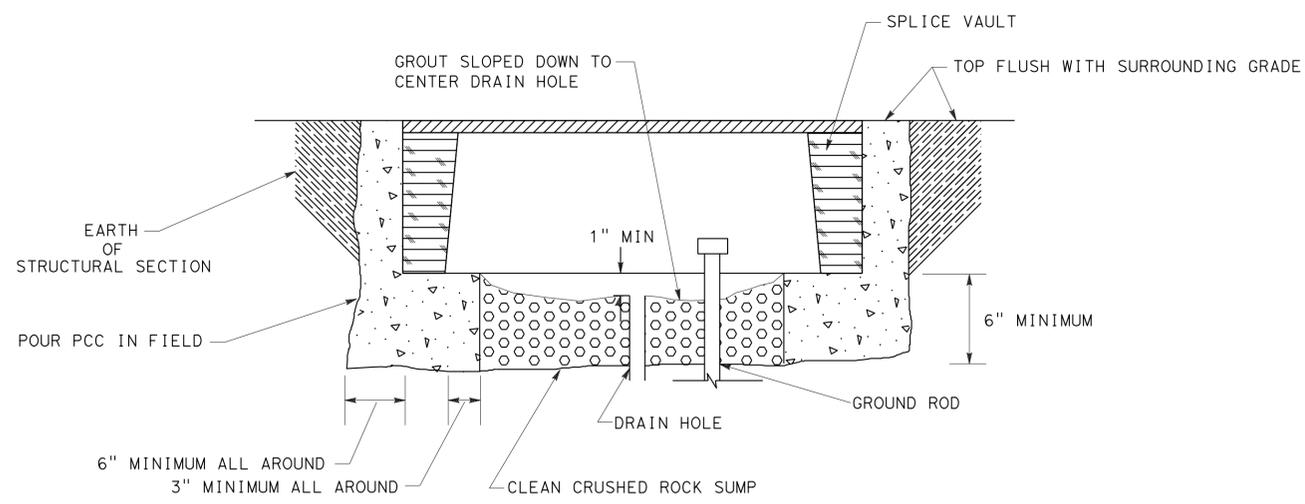
**E-7**

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ord	5	28.3/28.6	36	78
REGISTERED ELECTRICAL ENGINEER			DATE	03-06-15	
PLANS APPROVAL DATE			03-09-15		
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 S. SHAHRIARI No. E 13485 Exp. 9/30/15 ELECTRICAL STATE OF CALIFORNIA					

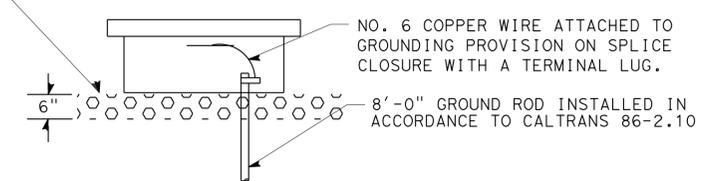
THE FRAME AND LID OF THE VAULT SHALL COMPLY WITH THE LOAD RATING APPLICABLE TO THE VAULT LOCATION AS DESCRIBED IN THE SPECIAL PROVISIONS.



**SPLICE VAULT**



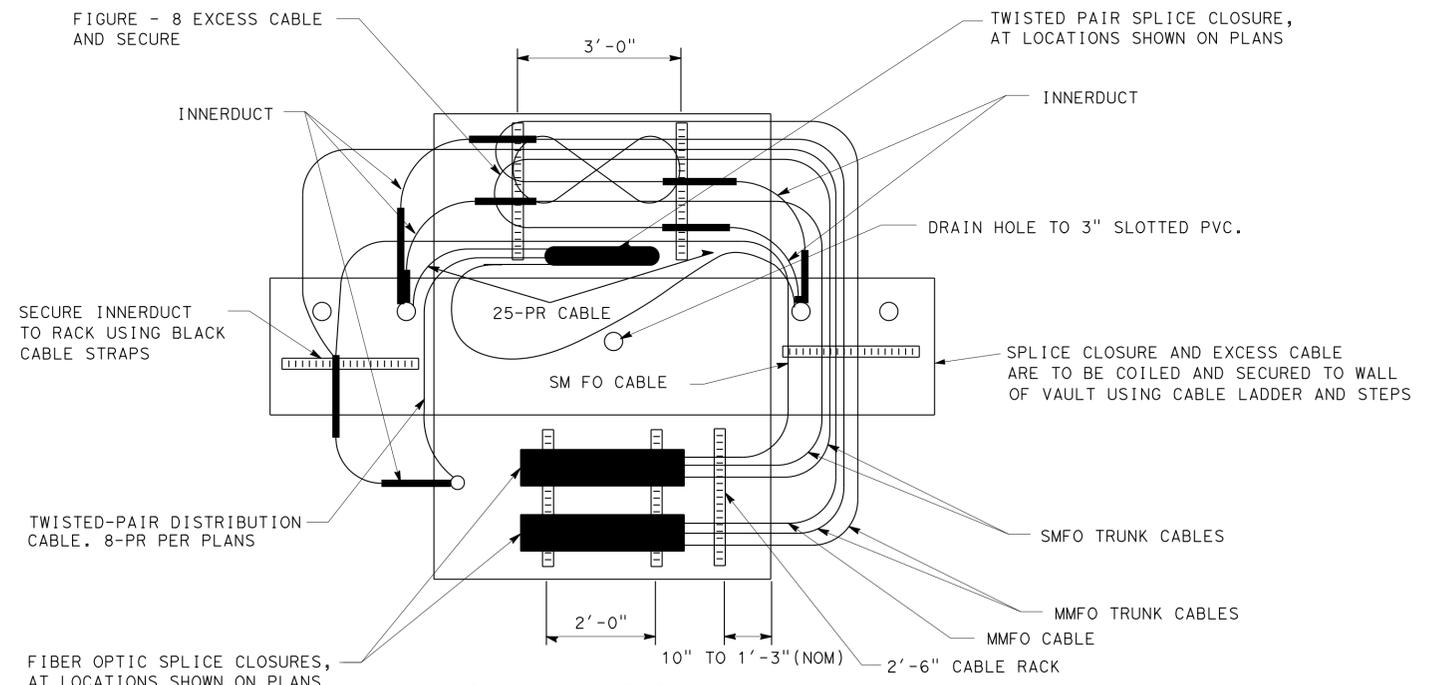
INSTALL 6" CLEAN CRUSHED 1/2" ROCK UNDER VAULT.



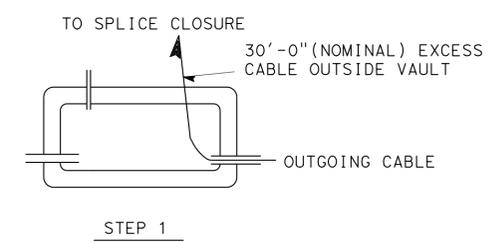
**VAULT INSTALLATION**

**INSTALLATION NOTES (THIS SHEET)**

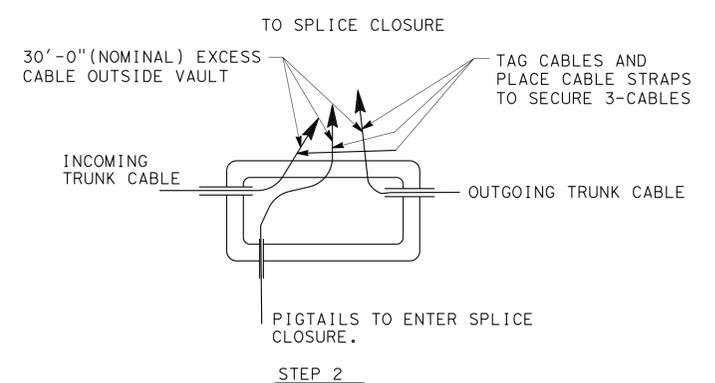
1. CONCRETE RING SHALL BE MINOR CONCRETE.
2. PAVEMENT AND SUBGRADE TO BE AS DIRECTED BY THE ENGINEER.



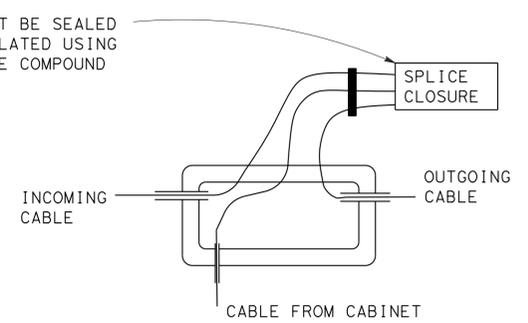
**CABLE INSTALLATION**



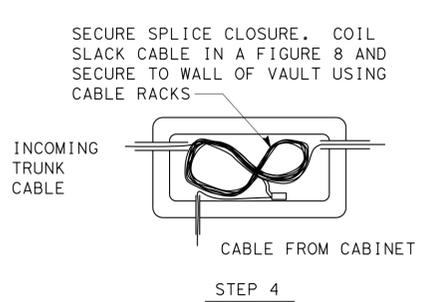
**STEP 1**



**STEP 2**



**STEP 3**



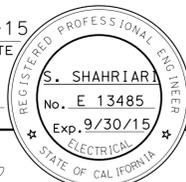
**STEP 4**

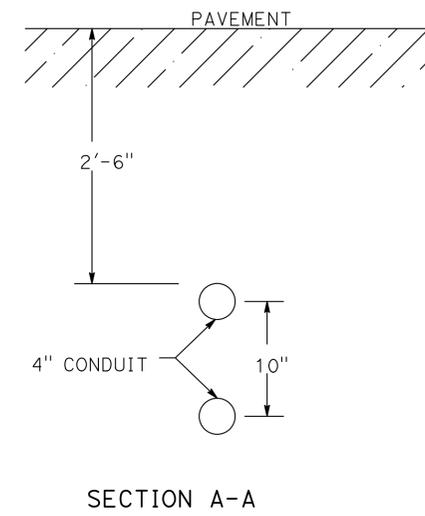
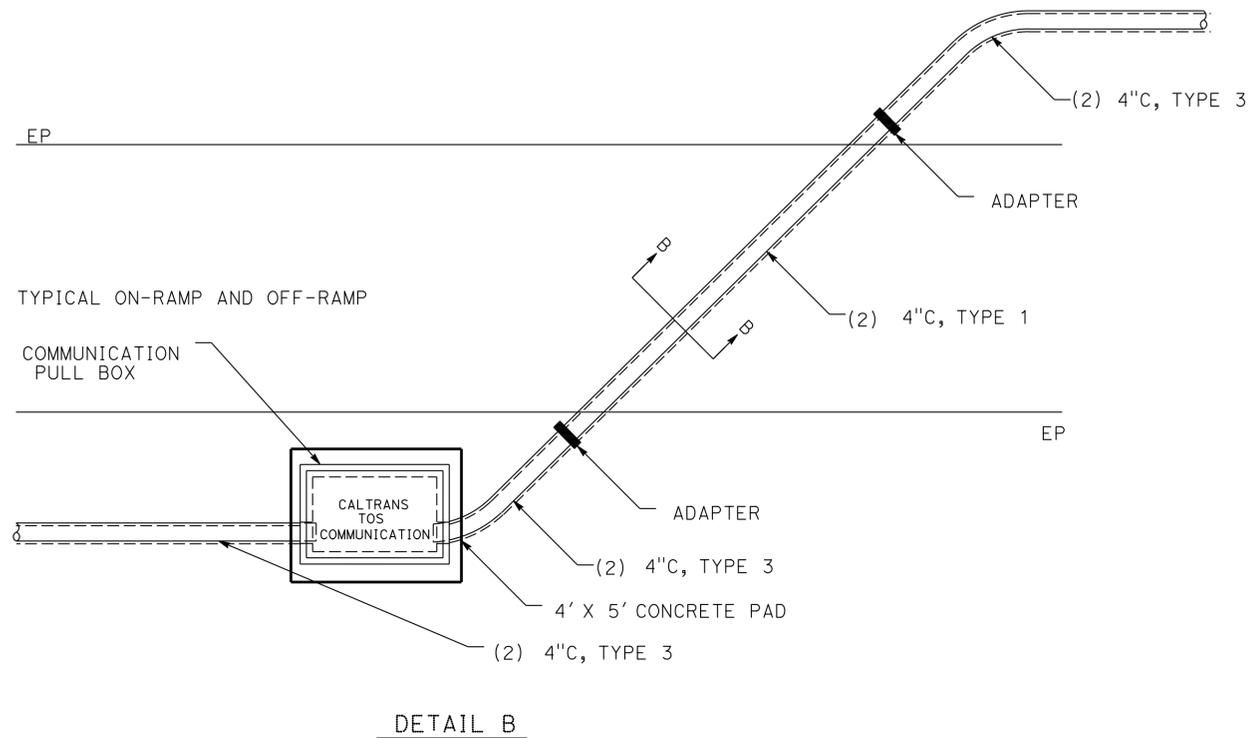
**SPLICE PROCEDURE**

- NOTES (THIS SHEET)**
1. UPON ACCEPTANCE OF THE WORK ALL CONDUITS SHALL BE SEALED WITH COMPATIBLE SEALANT MATERIAL.
  2. ALL GROUND CONNECTIONS SHALL BE COATED WITH OXIDATION PROHIBITING COMPOUND.
  3. ALL CABLE STRAPS SHALL BE DESIGNED TO WITHSTAND ULTRA-VIOLET EXPOSURE.
  4. THE VAULT SHALL BE CAULKED AFTER ALL KNOWN ENTRANCES HAVE BEEN MADE.
  5. INSTALL ALL CABLES IN LOWER 4" CONDUIT.
  6. UPPER 4" CONDUIT IS SPARE ONLY.
  7. NOT TO SCALE.
  8. VAULT SHALL HAVE INTEGRAL BASE OR SHALL BE GROUTED PER STANDARD SPECIFICATION OF PULLBOXES.
  9. NUMBER OF SPLICE CLOSURES MAY VARY.

**SPLICE VAULT DETAILS**

**COMMUNICATION SYSTEM**  
NO SCALE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ord	5	28.3/28.6	37	78
 REGISTERED ELECTRICAL ENGINEER DATE 03-06-15					
PLANS APPROVAL DATE			03-09-15		
<small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small>					



- NOTES: (THIS SHEET ONLY)**
1. ALL CONDUITS MUST BE 2'-6" BELOW FINISHED GRADE.
  2. PLACE PULL BOX AS SHOWN ON THE PLANS.
  3. ALL BENDS MUST BE FACTORY BENDS.
  4. BEND ANGLES AND CONDUIT DIRECTION VARY AS SHOWN IN PLANS.

**CONDUIT JACKING DETAILS**

**COMMUNICATION SYSTEM**  
NO SCALE

**E-9**

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

FUNCTIONAL SUPERVISOR  
 SHAHRAM SHAHRIAR

CHECKED BY  
 VANESSA TRUONG

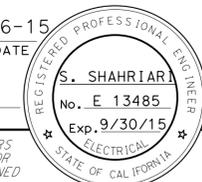
DESIGNED BY  
 S. SHAHRIAR

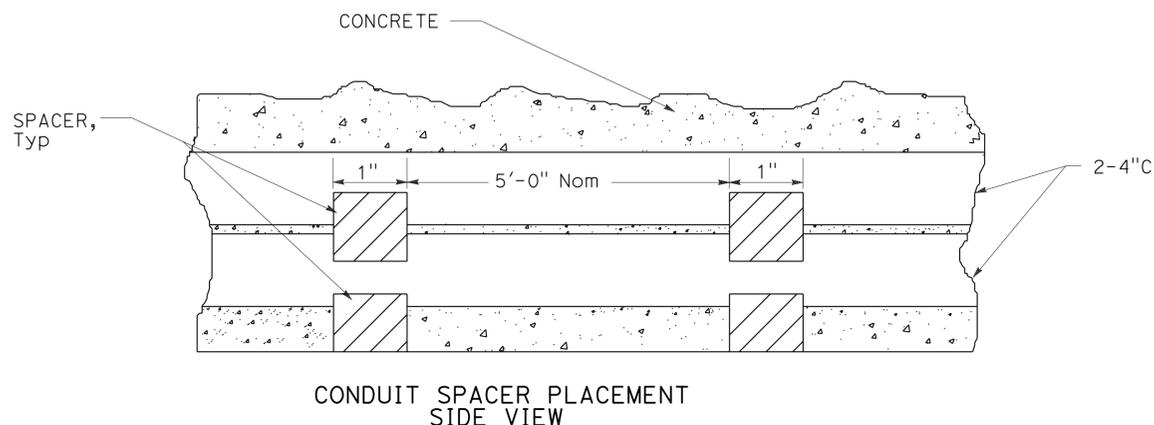
REVISOR  
 S. SHAHRIAR

DATE  
 03-09-15

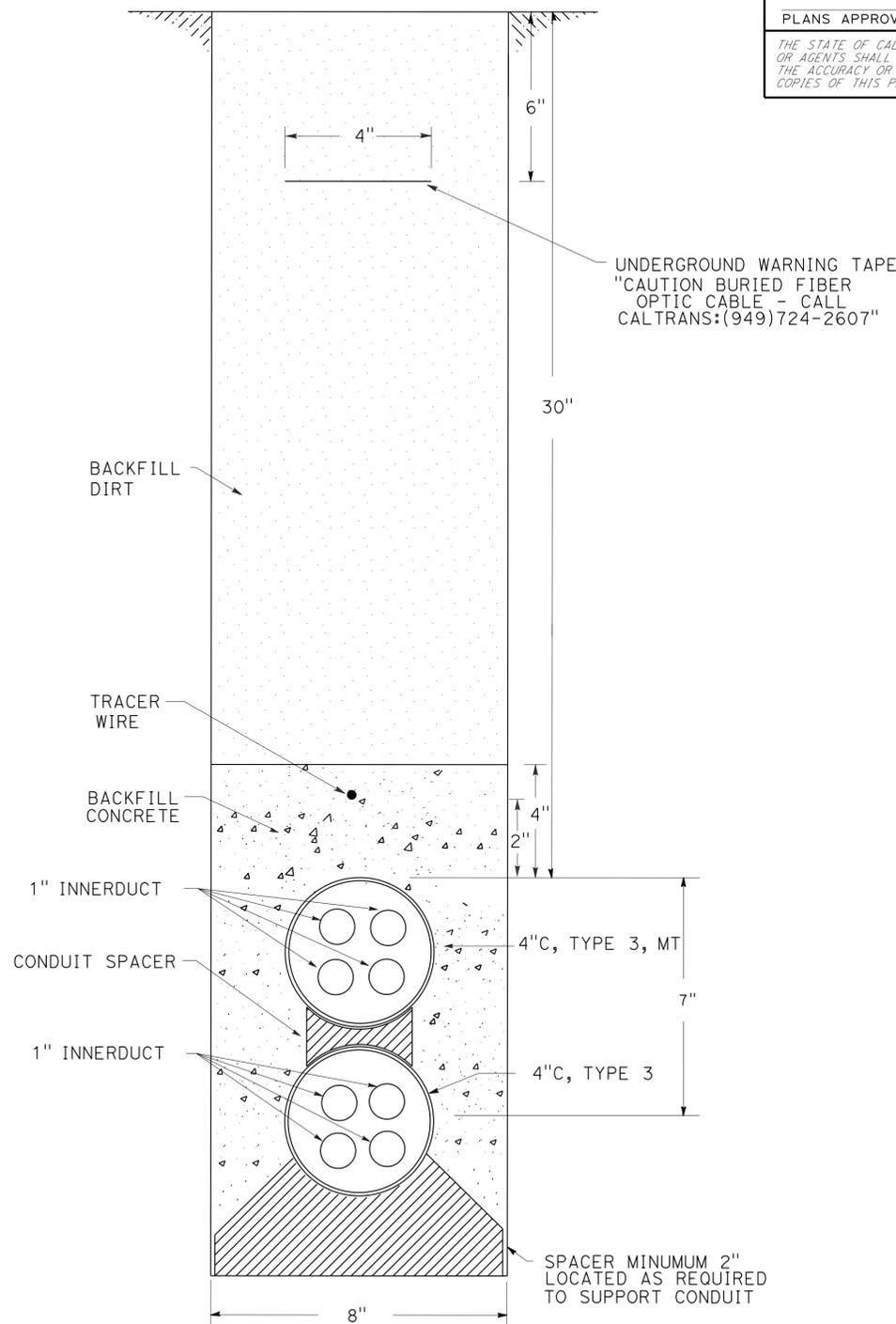
**NOTES: (THIS SHEET ONLY)**

1. WHEN TRENCH TRANSITIONS FROM ASPHALT TO DIRT AREAS, CONDUIT TO GRADUALLY DROP FROM 9" Min DEPTH TO 2'-6" Min DEPTH WITHIN ASPHALT AREA.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ord	5	28.3/28.6	38	78
			03-06-15	DATE	
REGISTERED ELECTRICAL ENGINEER			DATE		
PLANS APPROVAL DATE			03-09-15		
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.					
					



CONDUIT SPACER PLACEMENT SIDE VIEW



DETAIL A  
(TRENCH DETAILS)

(TRENCH DETAILS)

**COMMUNICATION SYSTEM**

NO SCALE

**E-10**



	<b>M</b>	
Maint	MAINTENANCE	
Max	MAXIMUM	
MB	METAL BEAM	
MBB	METAL BEAM BARRIER	
MBGR	METAL BEAM GUARD RAILING	
Med	MEDIAN	
MGS	MIDWEST GUARDRAIL SYSTEM	
MH	MANHOLE	
Min	MINIMUM	
Misc	MISCELLANEOUS	
Misc I & S	MISCELLANEOUS IRON AND STEEL	
Mkr	MARKER	
Mod	MODIFIED, MODIFY	
Mon	MONUMENT	
MP	METAL PLATE	
MPGR	METAL PLATE GUARD RAILING	
MR	MOVEMENT RATING	
MSE	MECHANICALLY STABILIZED EMBANKMENT	
Mt	MOUNTAIN, MOUNT	
MtI	MATERIAL	
MVP	MAINTENANCE VEHICLE PULLOUT	
	<b>N</b>	
N	NORTH	
NB	NORTHBOUND	
No.	NUMBER (MUST HAVE PERIOD)	
Nos.	NUMBERS (MUST HAVE PERIOD)	
NPS	NOMINAL PIPE SIZE	
NS	NEAR SIDE	
NSP	NEW STANDARD PLAN	
NTS	NOT TO SCALE	
	<b>O</b>	
Obir	OBLITERATE	
OC	OVERCROSSING	
OD	OUTSIDE DIAMETER	
OF	OUTSIDE FACE	
OG	ORIGINAL GROUND	
OGAC	OPEN GRADED ASPHALT CONCRETE	
OGFC	OPEN GRADED FRICTION COURSE	
OH	OVERHEAD	
OHWM	ORDINARY HIGH WATER MARK	
O-O	OUT TO OUT	
Opp	OPPOSITE	
OSD	OVERSIDE DRAIN	
	<b>P</b>	
p	PAGE	
PAP	PERFORATED ALUMINUM PIPE	
PB	PULL BOX	
PC	POINT OF CURVATURE, PRECAST	
PCC	POINT OF COMPOUND CURVE, PORTLAND CEMENT CONCRETE	
PCMS	PORTABLE CHANGEABLE MESSAGE SIGN	
PCP	PERFORATED CONCRETE PIPE, PRESTRESSED CONCRETE PIPE	
PCVC	POINT OF COMPOUND VERTICAL CURVE	
PEC	PERMIT TO ENTER AND CONSTRUCT	
Ped	PEDESTRIAN	
Ped OC	PEDESTRIAN OVERCROSSING	
Ped UC	PEDESTRIAN UNDERCROSSING	
Perm MtI	PERMEABLE MATERIAL	

	<b>P continued</b>	
PG	PROFILE GRADE	
PI	POINT OF INTERSECTION	
PJP	PARTIAL JOINT PENETRATION	
Pkwy	PARKWAY	
PL, PL	PLATE	
P/L	PROPERTY LINE	
PM	POST MILE, TIME FROM NOON TO MIDNIGHT	
PN	PAVING NOTCH	
POC	POINT OF HORIZONTAL CURVE	
POT	POINT OF TANGENT	
POVC	POINT OF VERTICAL CURVE	
PP	PIPE PILE, PLASTIC PIPE, POWER POLE	
PPL	PREFORMED PERMEABLE LINER	
PPP	PERFORATED PLASTIC PIPE	
PRC	POINT OF REVERSE CURVE	
PRF	PAVEMENT REINFORCING FABRIC	
PRVC	POINT OF REVERSE VERTICAL CURVE	
PS&E	PLANS, SPECIFICATIONS AND ESTIMATES	
PS, P/S	PRESTRESSED	
PSP	PERFORATED STEEL PIPE	
PT	POINT OF TANGENCY	
PVC	POLYVINYL CHLORIDE	
Pvmt	PAVEMENT	
	<b>Q</b>	
Qty	QUANTITY	
	<b>R</b>	
R	RADIUS	
R & D	REMOVE AND DISPOSE	
R & S	REMOVE AND SALVAGE	
R/C	RATE OF CHANGE	
RCA	REINFORCED CONCRETE ARCH	
RCB	REINFORCED CONCRETE BOX	
RCP	REINFORCED CONCRETE PIPE	
RCPA	REINFORCED CONCRETE PIPE ARCH	
Rd	ROAD	
Reinf	REINFORCED, REINFORCEMENT, REINFORCING	
Rel	RELOCATE	
Repl	REPLACEMENT	
Ret	RETAINING	
Rev	REVISED, REVISION	
Rdwy	ROADWAY	
RHMA	RUBBERIZED HOT MIX ASPHALT	
Riv	RIVER	
RM	ROAD-MIXED	
RP	RADIUS POINT, REFERENCE POINT	
RR	RAILROAD	
RSP	ROCK SLOPE PROTECTION, REVISED STANDARD PLAN	
Rt	RIGHT	
Rte	ROUTE	
RW	REDWOOD, RETAINING WALL	
R/W	RIGHT OF WAY	
Rwy	RAILWAY	

	<b>S</b>	
S	SOUTH, SUPPLEMENT	
SAE	STRUCTURE APPROACH EMBANKMENT	
Salv	SALVAGE	
SAPP	STRUCTURAL ALUMINUM PLATE PIPE	
SB	SOUTHBOUND	
SC	SAND CUSHION	
SCSP	SLOTTED CORRUGATED STEEL PIPE	
SD	STORM DRAIN	
Sec	SECOND, SECTION	
Sep	SEPARATION	
SG	SUBGRADE	
Shld	SHOULDER	
Sht	SHEET	
Sim	SIMILAR	
±	STATION LINE	
SM	SELECTED MATERIAL	
Spec	SPECIAL, SPECIFICATIONS	
SPP	SLOTTED PLASTIC PIPE	
SS	SLOPE STAKE	
SSBM	STRAP AND SADDLE BRACKET METHOD	
SSD	STRUCTURAL SECTION DRAIN	
SSPA	STRUCTURAL STEEL PLATE ARCH	
SSPP	STRUCTURAL STEEL PLATE PIPE	
SSPPA	STRUCTURAL STEEL PLATE PIPE ARCH	
SSRP	STEEL SPIRAL RIB PIPE	
St	STREET	
Sta	STATION	
STBB	SINGLE THRIE BEAM BARRIER	
Std	STANDARD	
Str	STRUCTURE	
Surf	SURFACING	
SW	SIDEWALK, SOUND WALL	
Swr	SEWER	
Sym	SYMMETRICAL	
S4S	SURFACE 4 SIDES	
	<b>T</b>	
T	SEMI-TANGENT	
Tan	TANGENT	
TBB	THRIE BEAM BARRIER	
Tbr	TIMBER	
TC	TOP OF CURB	
TCB	TRAFFIC CONTROL BOX	
TCE	TEMPORARY CONSTRUCTION EASEMENT	
TeI	TELEPHONE	
Temp	TEMPORARY	
TG	TOP OF GRADE	
Tot	TOTAL	
TP	TELEPHONE POLE	
TPB	TREATED PERMEABLE BASE	
TPM	TREATED PERMEABLE MATERIAL	
Trans	TRANSITION	

	<b>T continued</b>	
TS	TRANSVERSE, TRAFFIC SIGNAL, TUBULAR STEEL	
Typ	TYPICAL	<b>U</b>
UC	UNDERCROSSING	
UD	UNDERDRAIN	
UG	UNDERGROUND	
UON	UNLESS OTHERWISE NOTED	
UP	UNDERPASS	<b>V</b>
V	VALVE, DESIGN SPEED	
Var	VARIABLE, VARIES	
VC	VERTICAL CURVE	
VCP	VITRIFIED CLAY PIPE	
Vert	VERTICAL	
Via	VIADUCT	
Vol	VOLUME	<b>W</b>
W	WEST, WIDTH	
WB	WESTBOUND	
WH	WEEP HOLE	
WM	WIRE MESH	
WS	WATER SURFACE	
WSP	WELDED STEEL PIPE	
Wt	WEIGHT	
WV	WATER VALVE	
WW	WINGWALL	
WWLOL	WINGWALL LAYOUT LINE	<b>X</b>
X Sec	CROSS SECTION	
Xing	CROSSING	<b>Y</b>
Yr	YEAR	
Yrs	YEARS	

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	28.3/28.6	40	78

*Grace M. Tsushima*  
REGISTERED CIVIL ENGINEER

July 19, 2013  
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER  
 Grace M. Tsushima  
 No. C49814  
 Exp. 9-30-14  
 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 **03-09-15**

**UNIT OF MEASUREMENT SYMBOLS:**  
Some of the symbols used in the project plan quantity tables and in the Bid Item List are:

**TABLE A**

SYMBOL USED	DEFINITIONS
ACRE	ACRE
CF	CUBIC FOOT
CY	CUBIC YARD
EA	EACH
GAL	GALLON
LB	POUND
LF	LINEAR FOOT
SQFT	SQUARE FOOT
SQYD	SQUARE YARD
STA	100 FEET
TAB	TABLET
TON	2,000 POUNDS

Some of the symbols used in the plans other than in the project plan quantity tables are:

**TABLE B**

SYMBOL USED	DEFINITIONS
ksi	KIPS PER SQUARE INCH
ksf	KIPS PER SQUARE FOOT
psi	POUNDS PER SQUARE INCH
psf	POUNDS PER SQUARE FOOT
lb/ft <sup>3</sup> , pcf	POUNDS PER CUBIC FOOT
tsf	TONS PER SQUARE FOOT
mph, MPH *	MILES PER HOUR
∅	NOMINAL DIAMETER
oz	OUNCE
lb	POUND
kíp	1,000 POUNDS
cal	CALORIE
ft	FOOT OR FEET
gal	GALLON

\* For use on a sign panel only

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

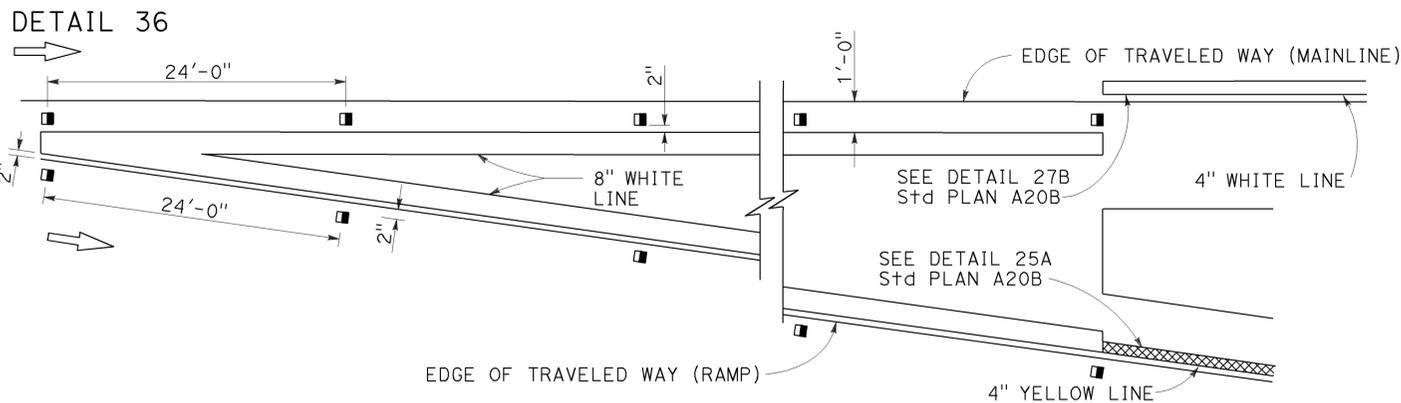
**ABBREVIATIONS  
(SHEET 2 OF 2)**

NO SCALE

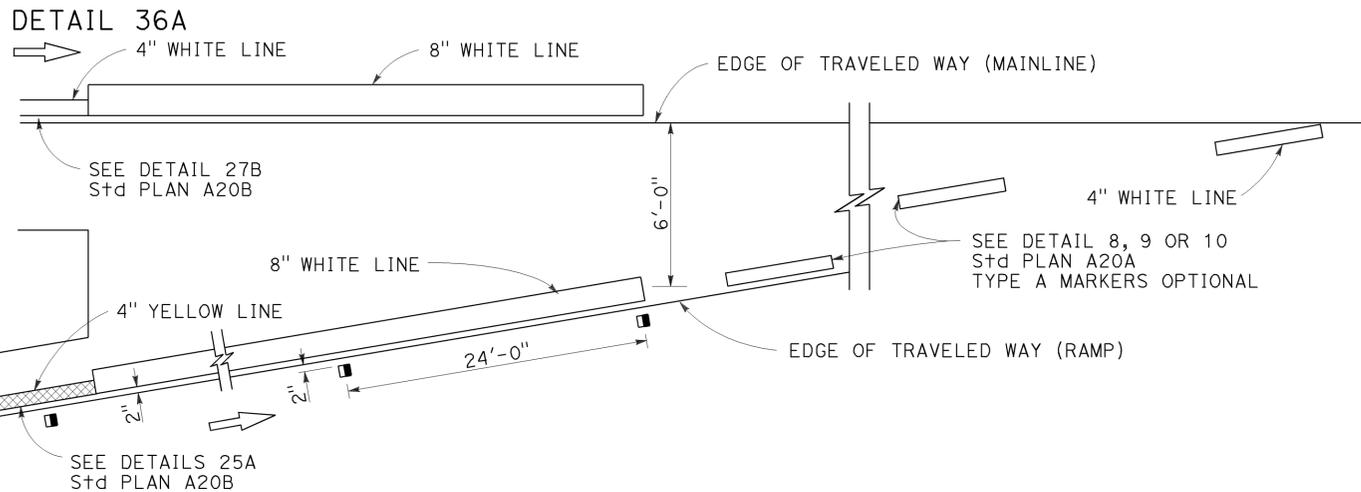
RSP A10B DATED JULY 19, 2013 SUPERSEDES STANDARD PLAN A10B  
DATED MAY 20, 2011 - PAGE 2 OF THE STANDARD PLANS BOOK DATED 2010.

2010 REVISED STANDARD PLAN RSP A10B

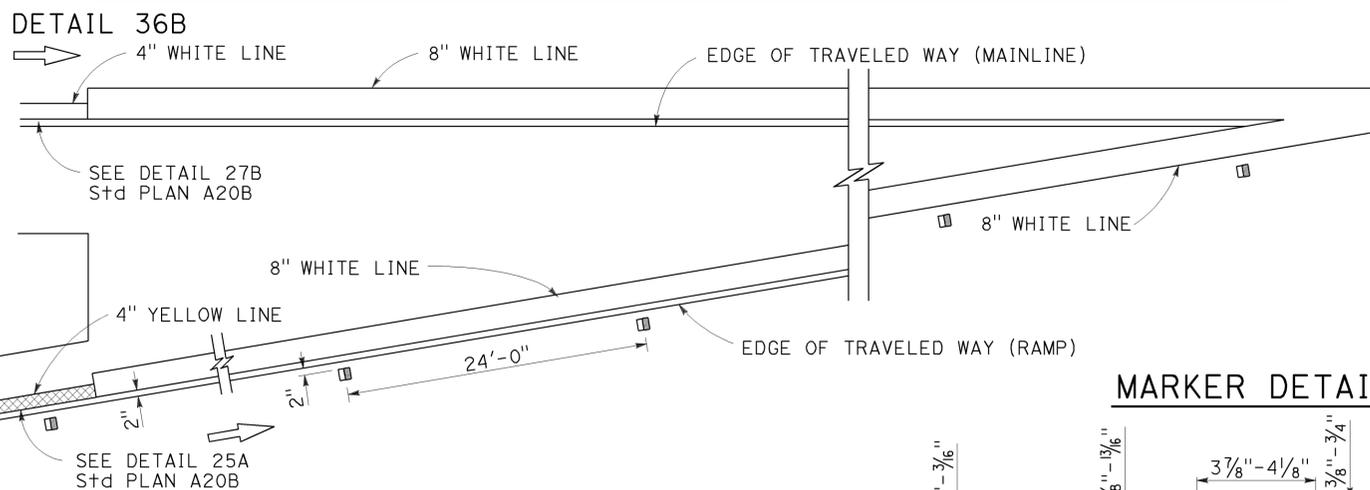
### EXIT RAMP NEUTRAL AREA (GORE) TREATMENT



### ENTRANCE RAMP NEUTRAL AREA (MERGE) TREATMENT



### ENTRANCE RAMP NEUTRAL AREA (ACCELERATION LANE) TREATMENT

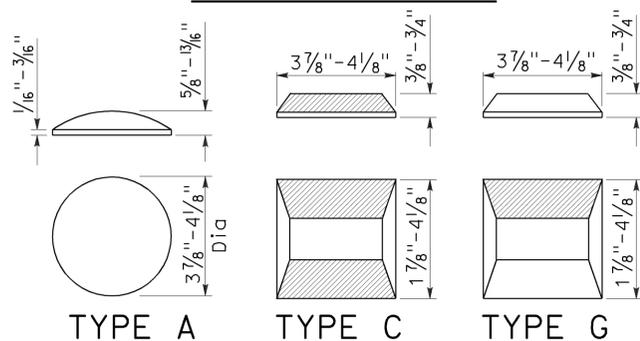


### MARKER DETAILS

#### LEGEND:

#### MARKERS

- TYPE A WHITE NON-REFLECTIVE
- ◻ TYPE C RED-CLEAR RETROREFLECTIVE
- TYPE G ONE-WAY CLEAR RETROREFLECTIVE



RETROREFLECTIVE FACE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	28.3/28.6	41	78

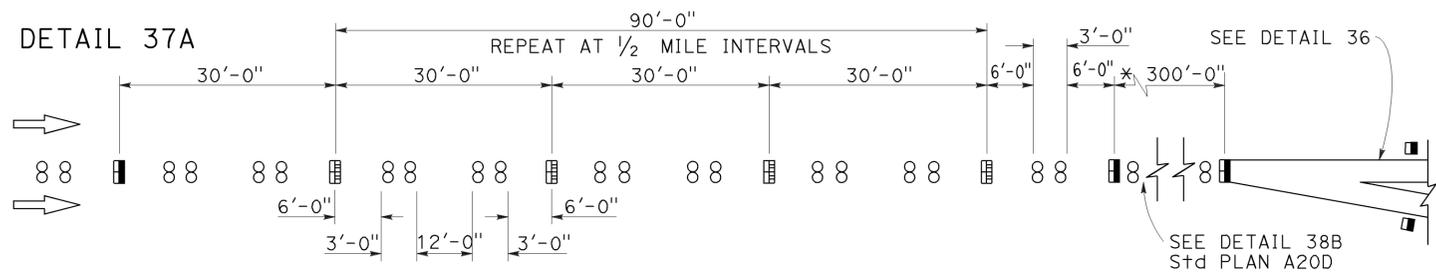
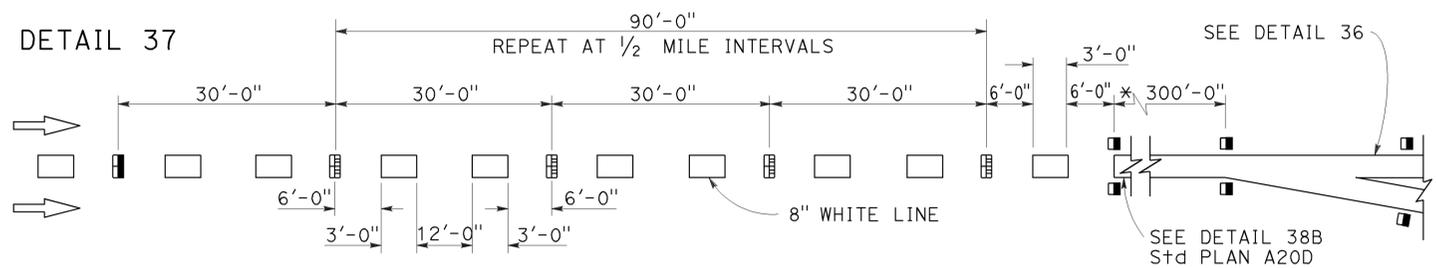
*Roberta L. McLaughlin*  
 REGISTERED CIVIL ENGINEER  
 July 19, 2013  
 PLANS APPROVAL DATE

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.

REGISTERED PROFESSIONAL ENGINEER  
 Roberta L. McLaughlin  
 No. C40375  
 Exp. 3-31-15  
 CIVIL  
 STATE OF CALIFORNIA

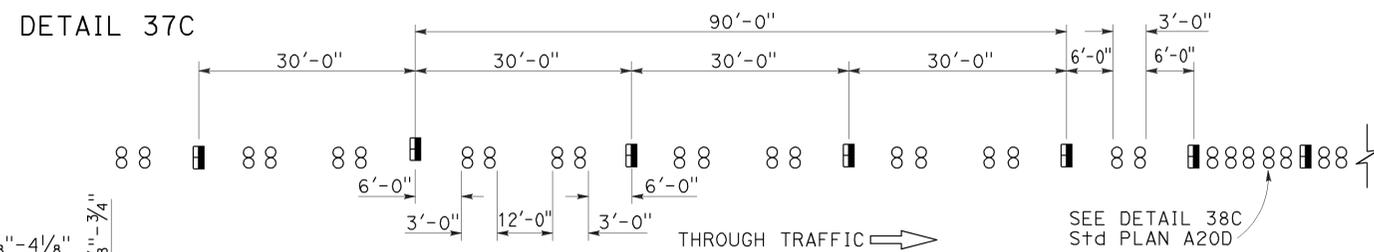
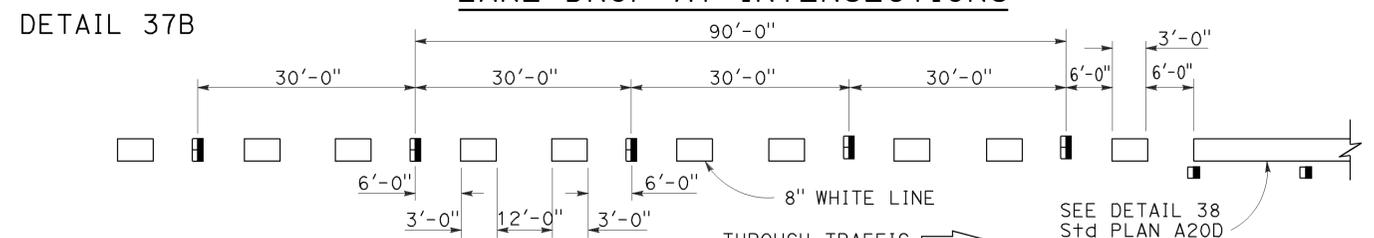
TO ACCOMPANY PLANS DATED **03-09-15**

### LANE DROP AT EXIT RAMP



\* The solid channelizing line shown may be omitted on short auxiliary lanes where weaving length is critical.

### LANE DROP AT INTERSECTIONS



STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

## PAVEMENT MARKERS AND TRAFFIC LINE TYPICAL DETAILS

NO SCALE

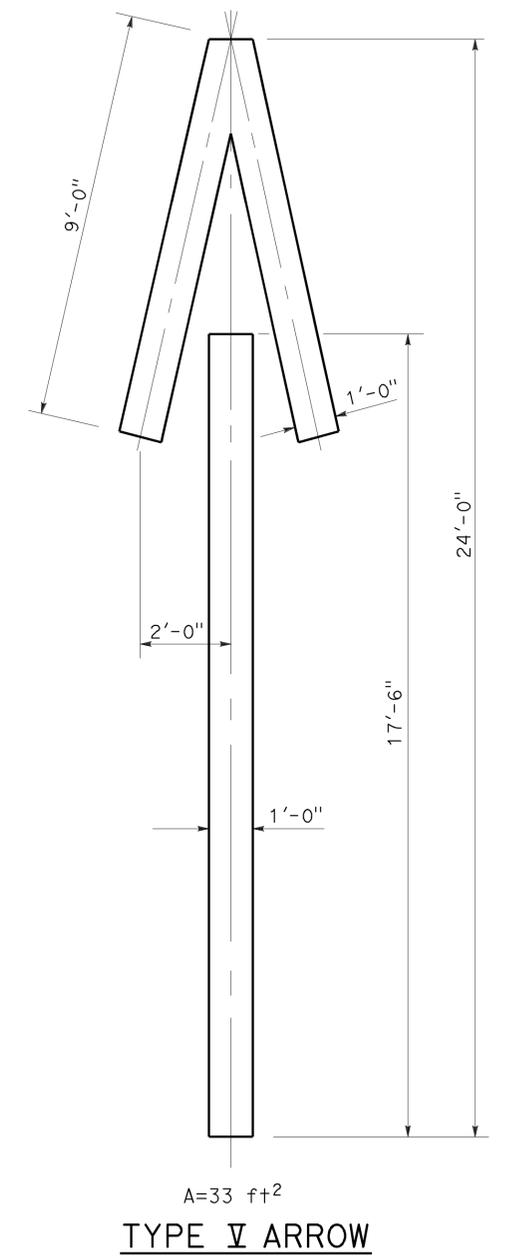
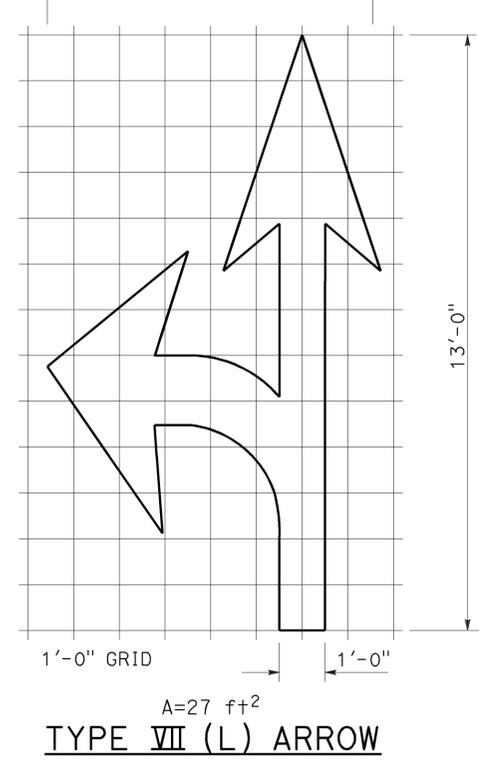
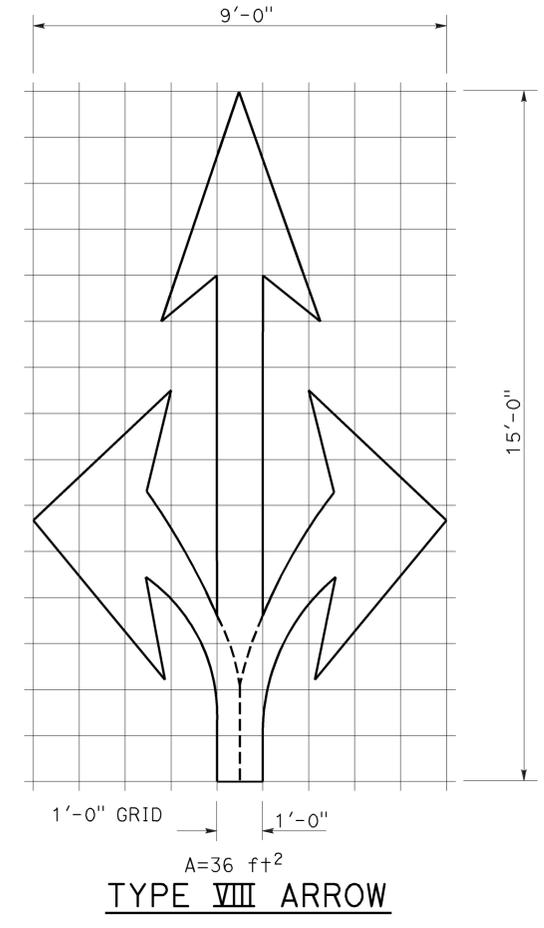
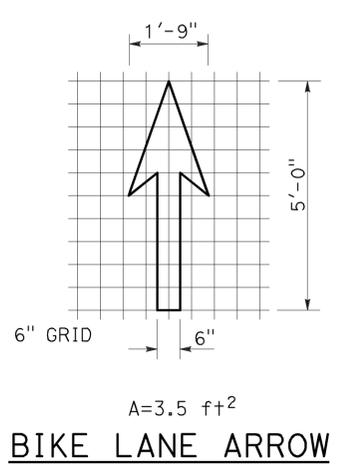
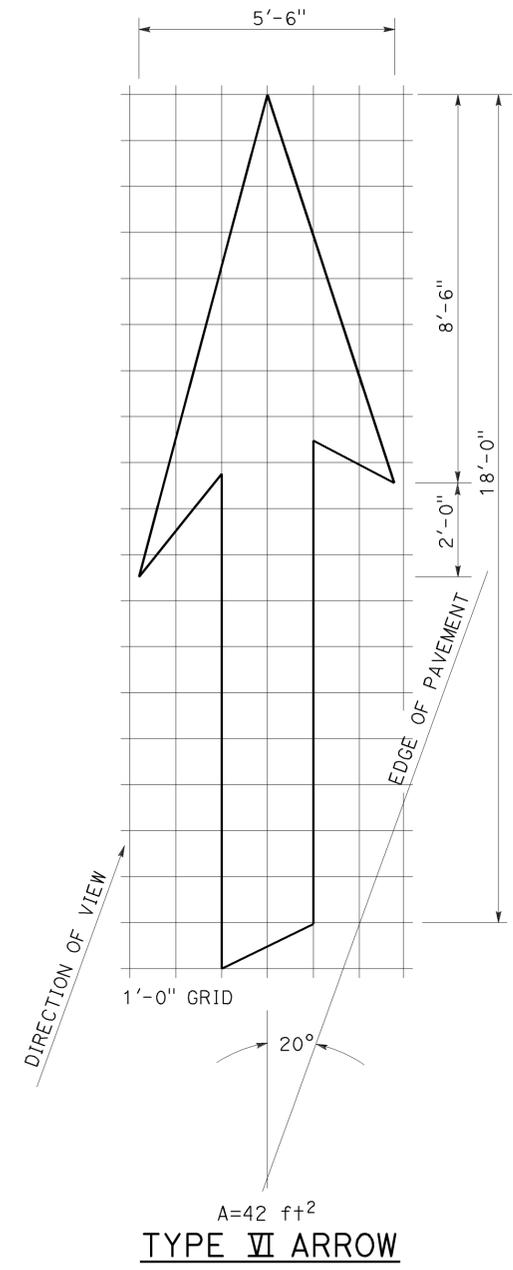
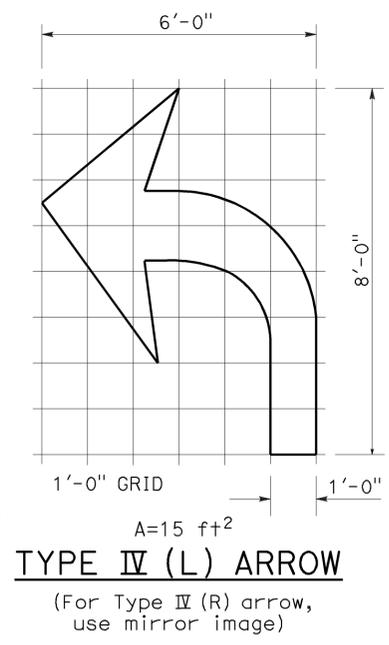
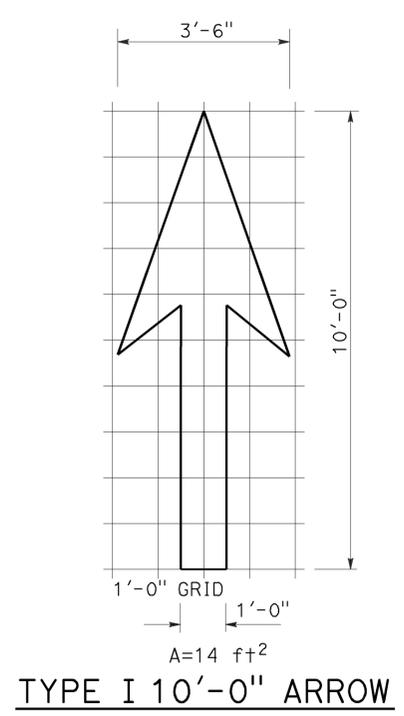
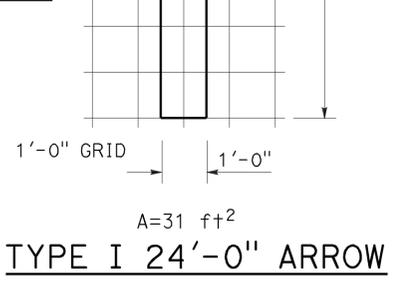
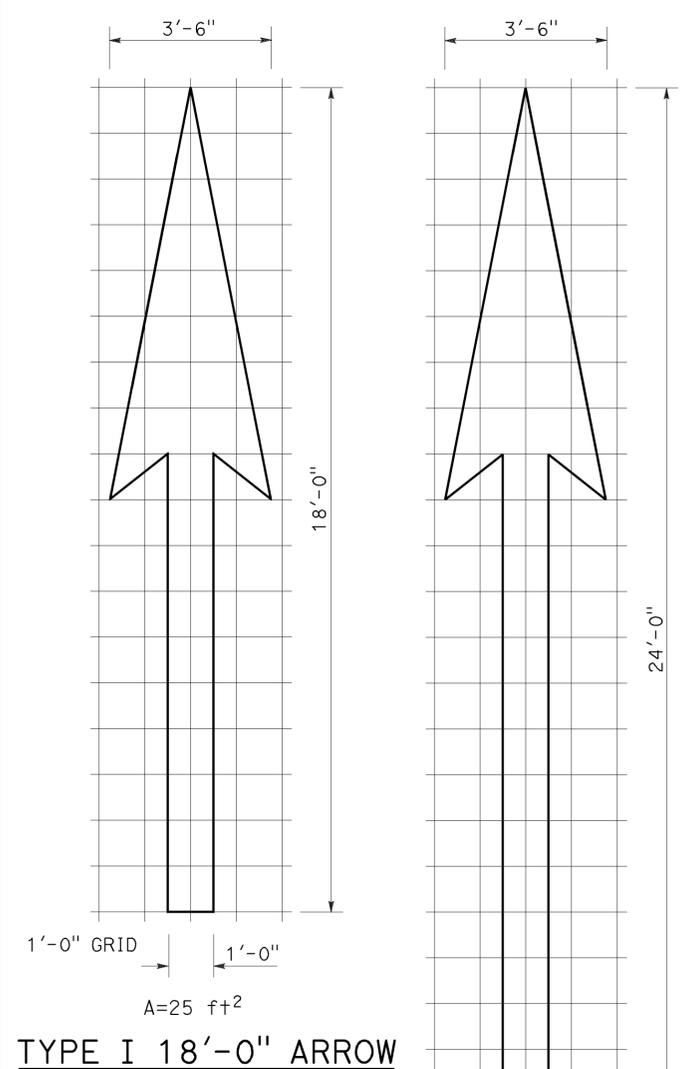
RSP A20C DATED JULY 19, 2013 SUPERSEDES STANDARD PLAN A20C DATED MAY 20, 2011 - PAGE 11 OF THE STANDARD PLANS BOOK DATED 2010.

## REVISED STANDARD PLAN RSP A20C

2010 REVISED STANDARD PLAN RSP A20C

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	28.3/28.6	42	78
REGISTERED CIVIL ENGINEER April 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 03-09-15



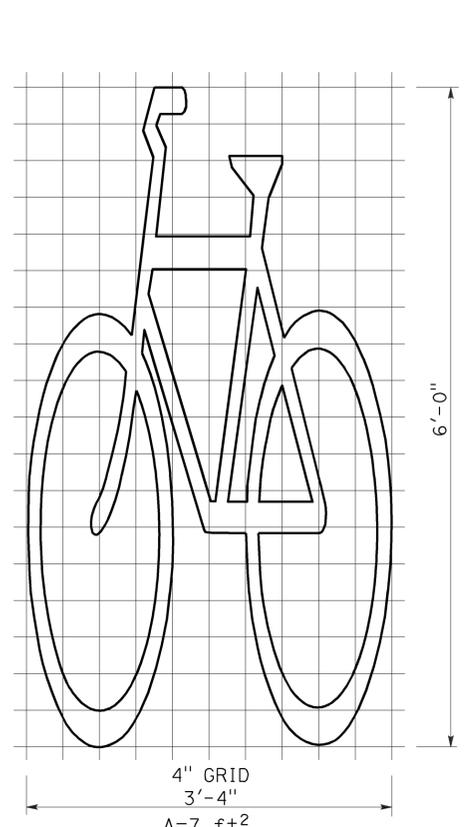
**NOTE:**  
Minor variations in dimensions may be accepted by the Engineer.

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

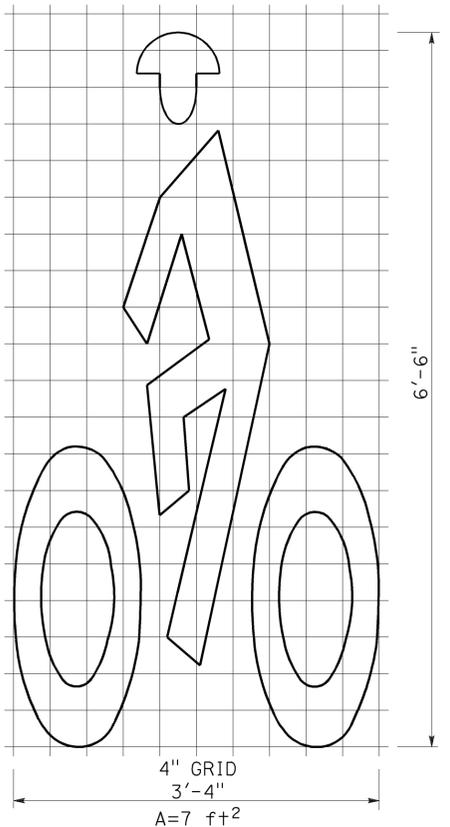
RSP A24A DATED APRIL 20, 2012 SUPERSEDES STANDARD PLAN A24A DATED MAY 20, 2011 - PAGE 13 OF THE STANDARD PLANS BOOK DATED 2010.

**2010 REVISED STANDARD PLAN RSP A24A**

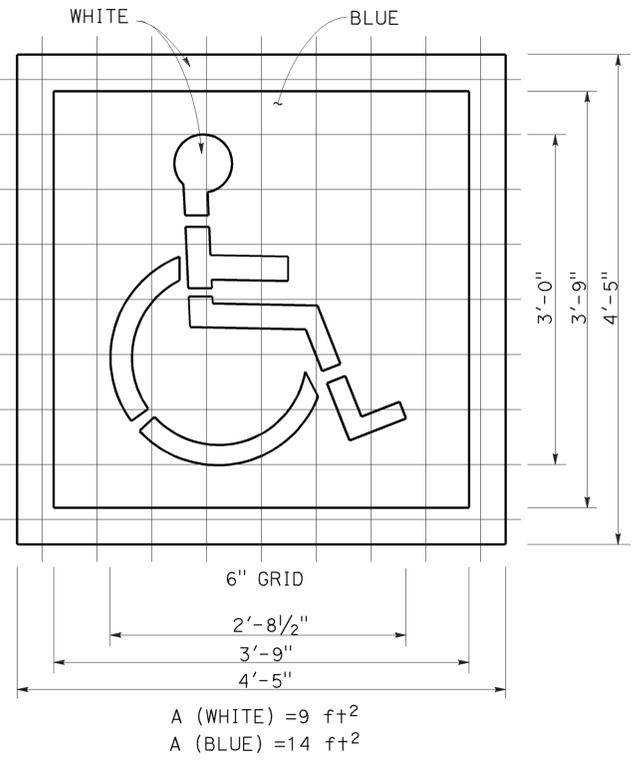
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	28.3/28.6	43	78
<i>Roberta L. McLaughlin</i> REGISTERED CIVIL ENGINEER					
October 19, 2012 PLANS APPROVAL DATE					
<small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small>					
REGISTERED PROFESSIONAL ENGINEER Roberta L. McLaughlin No. C40375 Exp. 3-31-13 CIVIL STATE OF CALIFORNIA					



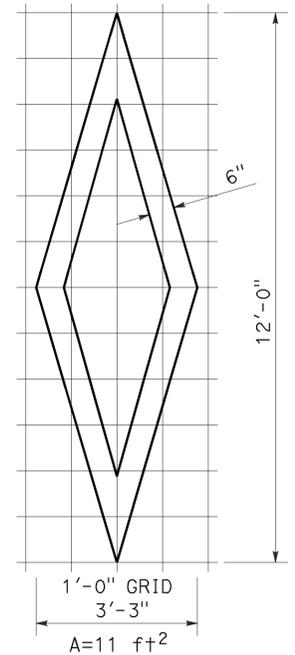
**BIKE LANE SYMBOL WITHOUT PERSON**



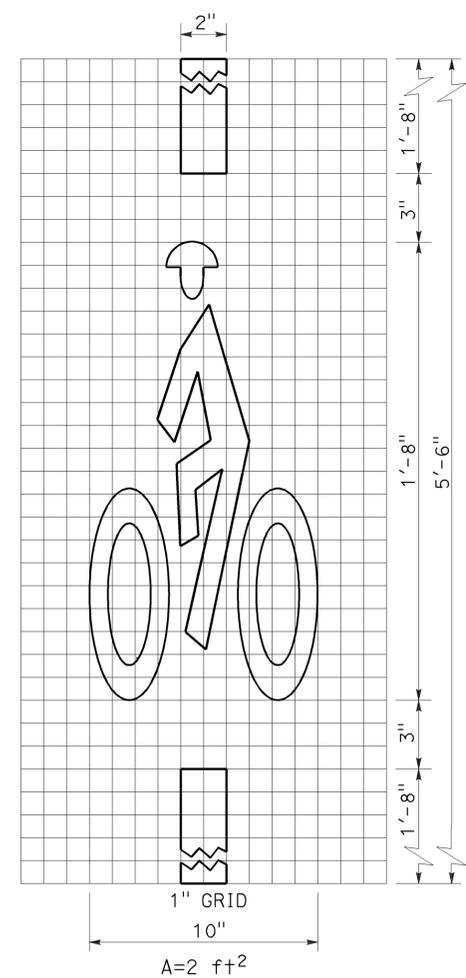
**BIKE LANE SYMBOL WITH PERSON**



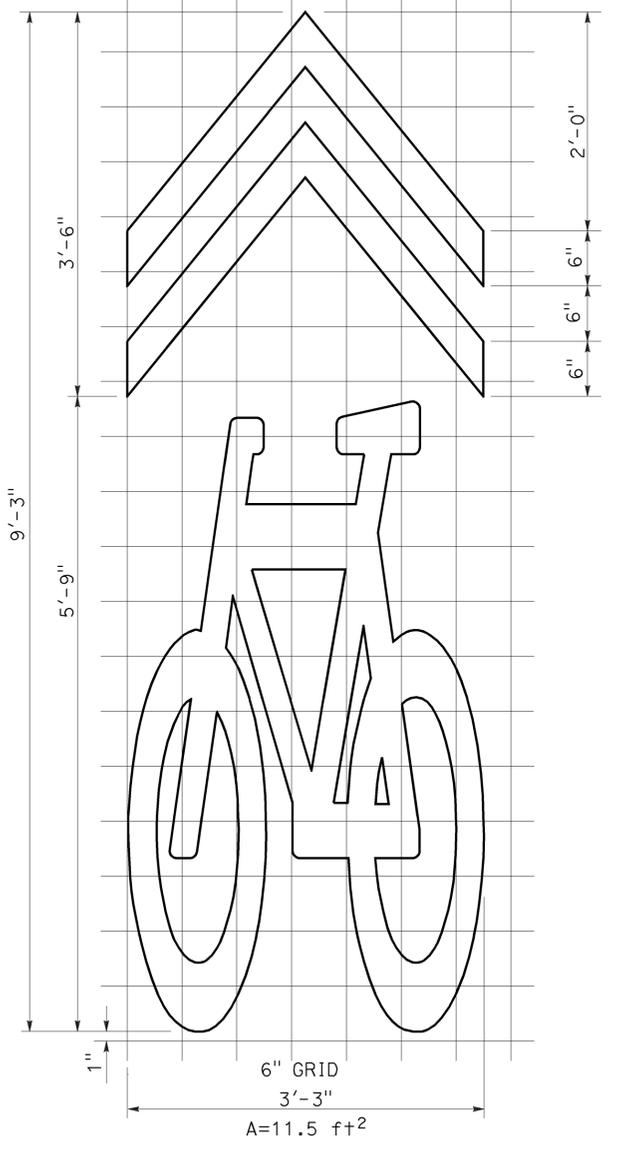
**INTERNATIONAL SYMBOL OF ACCESSIBILITY (ISA) MARKING**



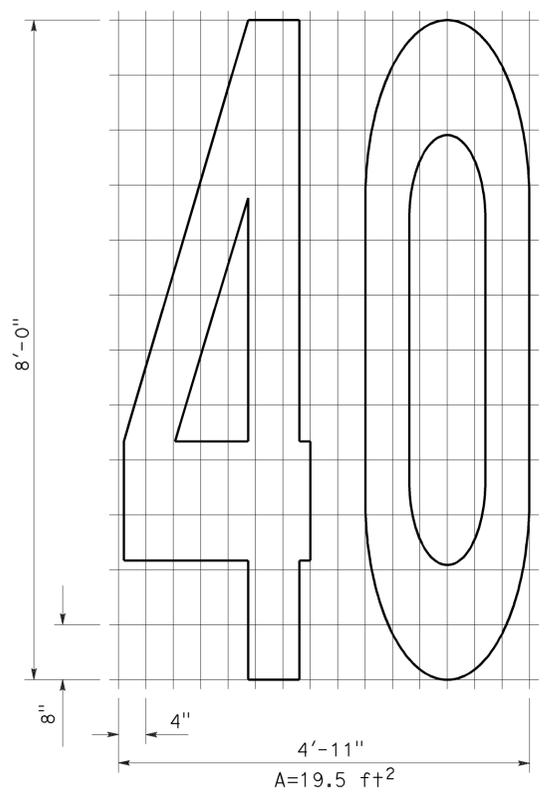
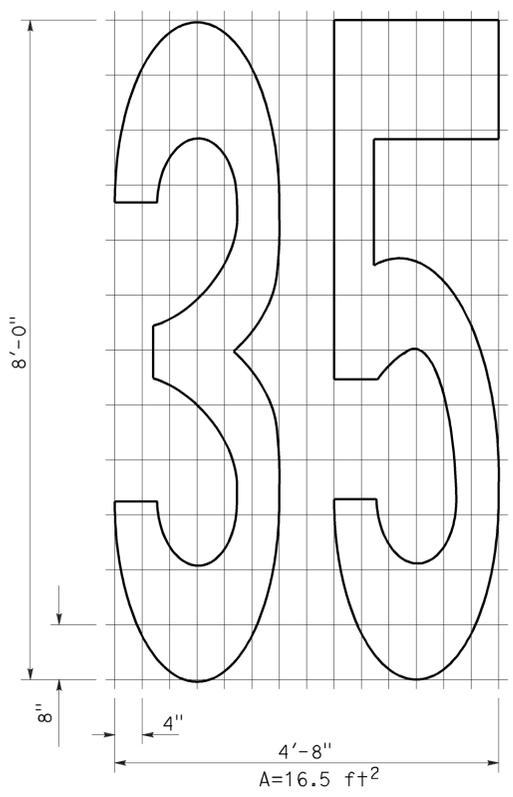
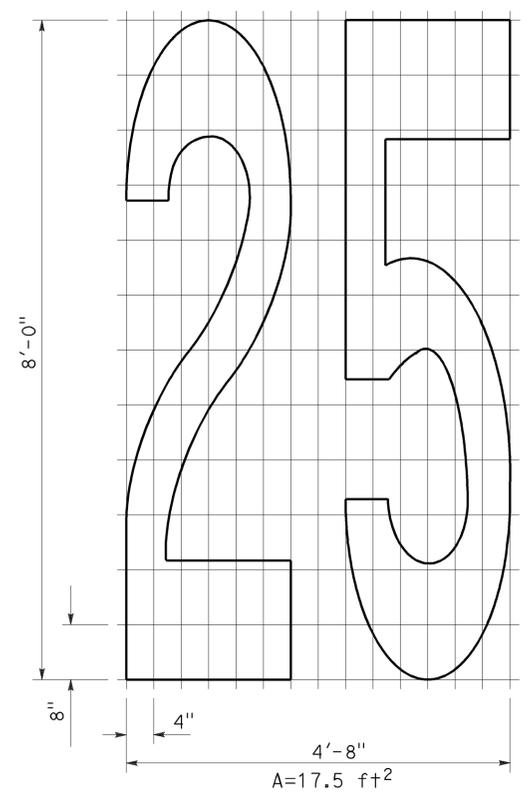
**DIAMOND SYMBOL**



**BICYCLE LOOP DETECTOR SYMBOL**



**SHARED ROADWAY BICYCLE MARKING**



**NUMERALS**

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

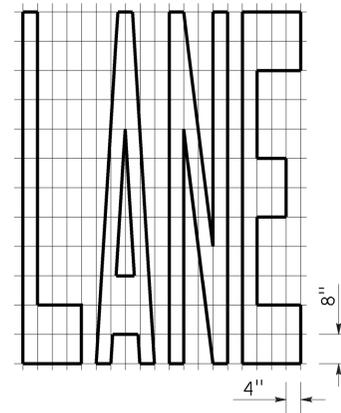
RSP A24C DATED OCTOBER 19, 2012 SUPERSEDES STANDARD PLAN A24C DATED MAY 20, 2011 - PAGE 15 OF THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP A24C**

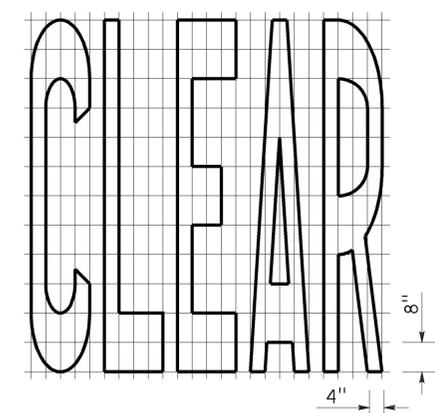
**2010 REVISED STANDARD PLAN RSP A24C**

TO ACCOMPANY PLANS DATED **03-09-15**

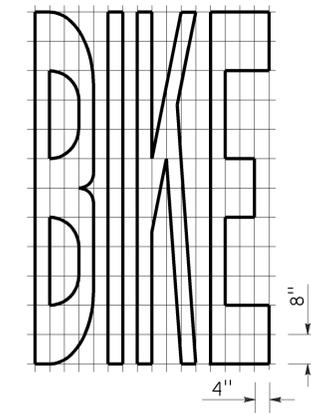
2010 REVISED STANDARD PLAN RSP A24E



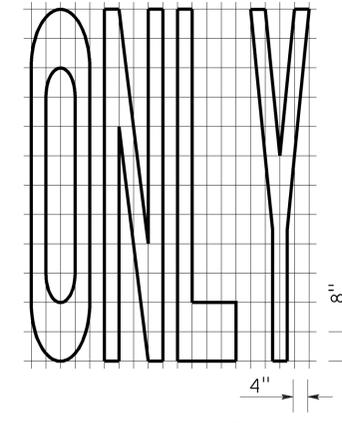
A=24 ft<sup>2</sup>



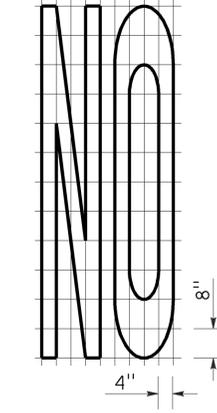
A=27 ft<sup>2</sup>



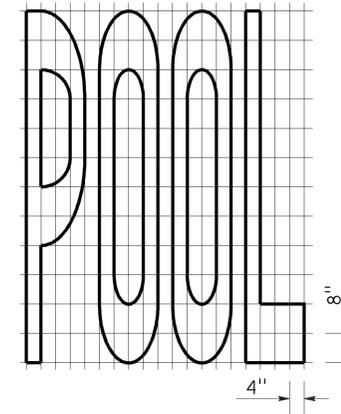
A=21 ft<sup>2</sup>



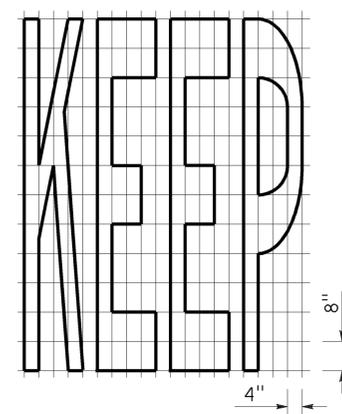
A=22 ft<sup>2</sup>



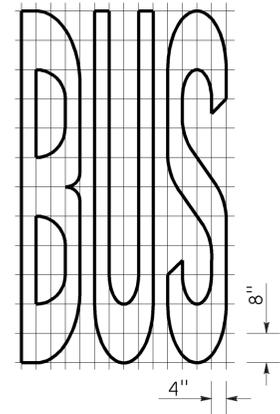
A=14 ft<sup>2</sup>



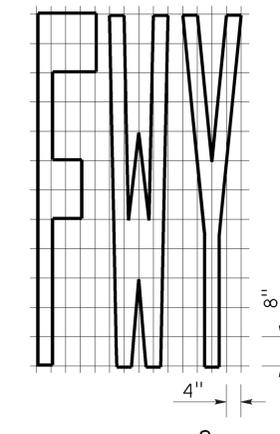
A=23 ft<sup>2</sup>



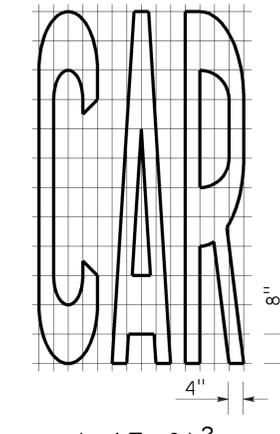
A=24 ft<sup>2</sup>



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

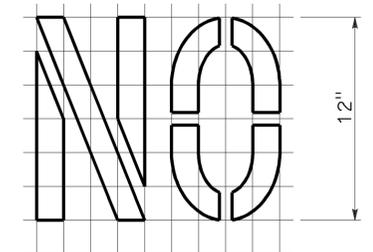


A=16 ft<sup>2</sup>



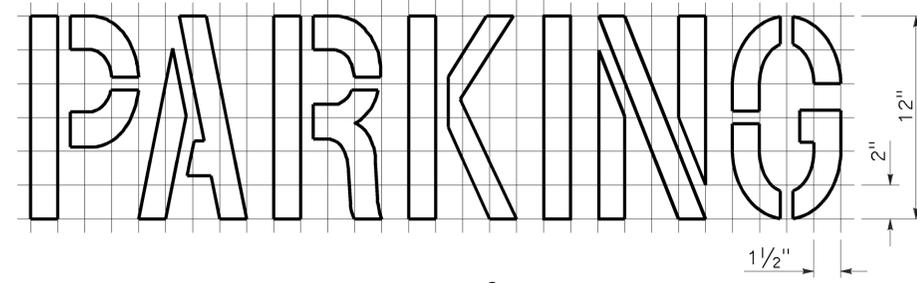
A=17 ft<sup>2</sup>

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



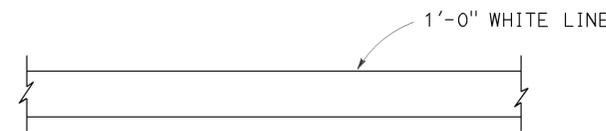
A=2 ft<sup>2</sup>

See Notes 6 and 7



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

See Notes 6 and 7



LIMIT LINE (STOP LINE)



YIELD LINE

**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.

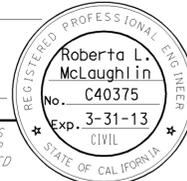
STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**PAVEMENT MARKINGS  
WORDS, LIMIT AND YIELD LINES**

NO SCALE

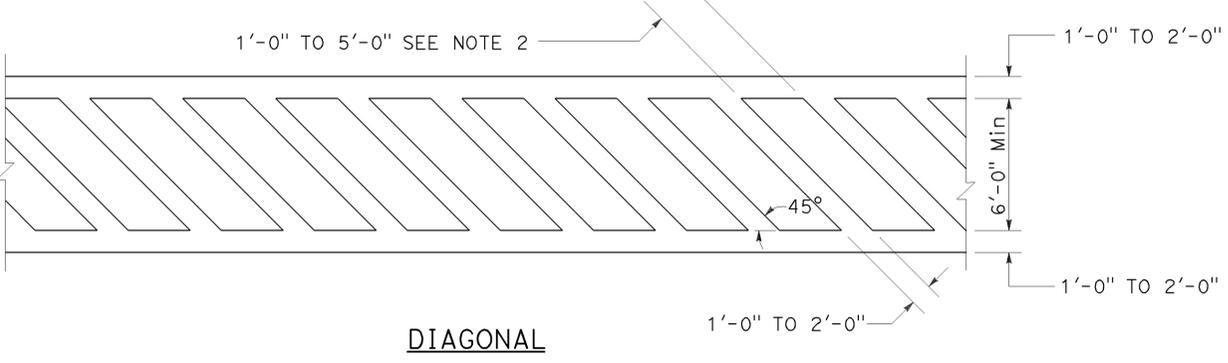
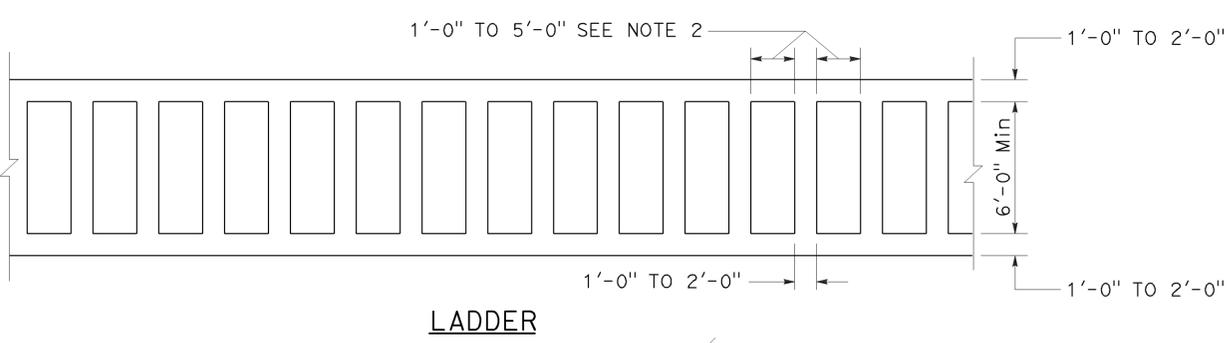
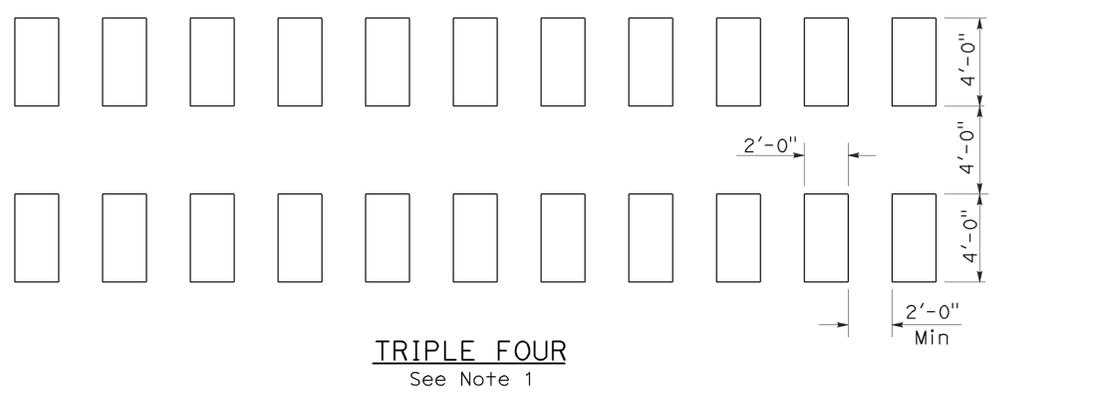
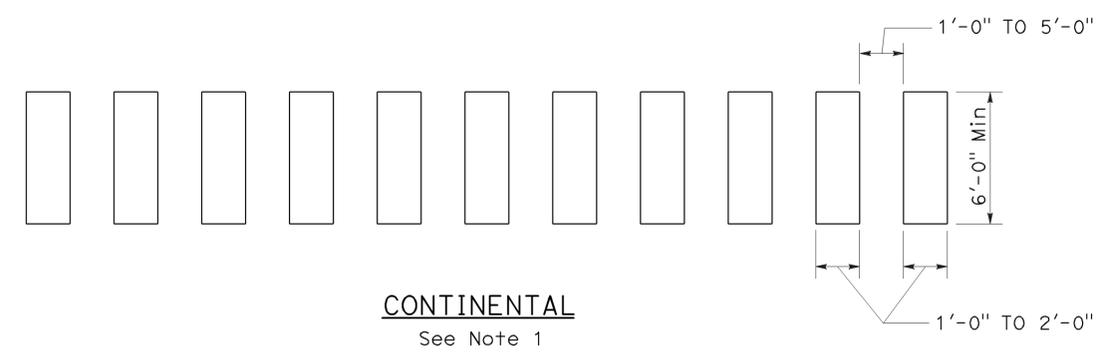
RSP A24E DATED JULY 20, 2012 SUPERSEDES STANDARD PLAN A24E  
DATED MAY 20, 2011 - PAGE 17 OF THE STANDARD PLANS BOOK DATED 2010.

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
12	Ora	5	28.3/28.6	45	78

 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>		

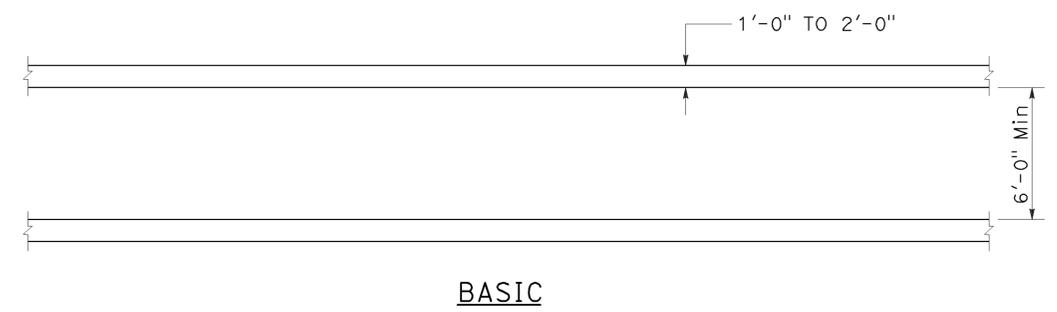
TO ACCOMPANY PLANS DATED 03-09-15



**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.

2010 REVISED STANDARD PLAN RSP A24F

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	28.3/28.6	46	78

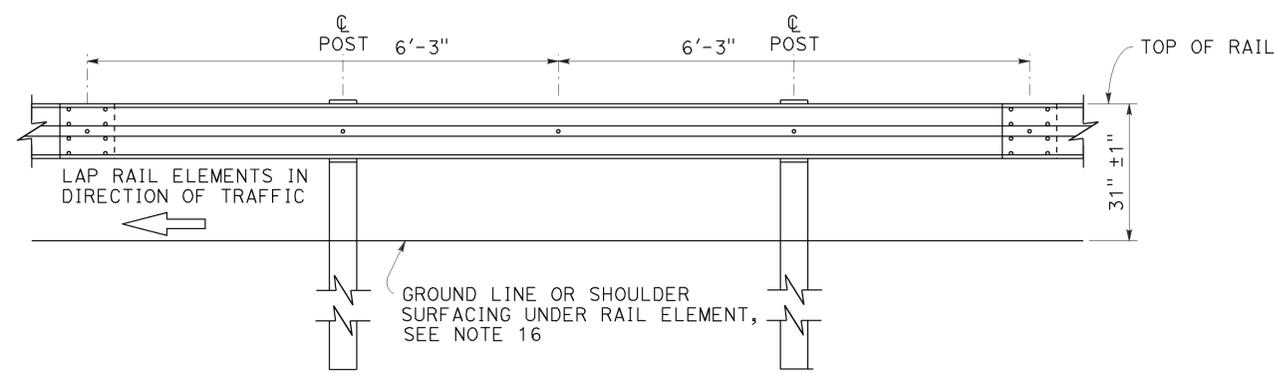
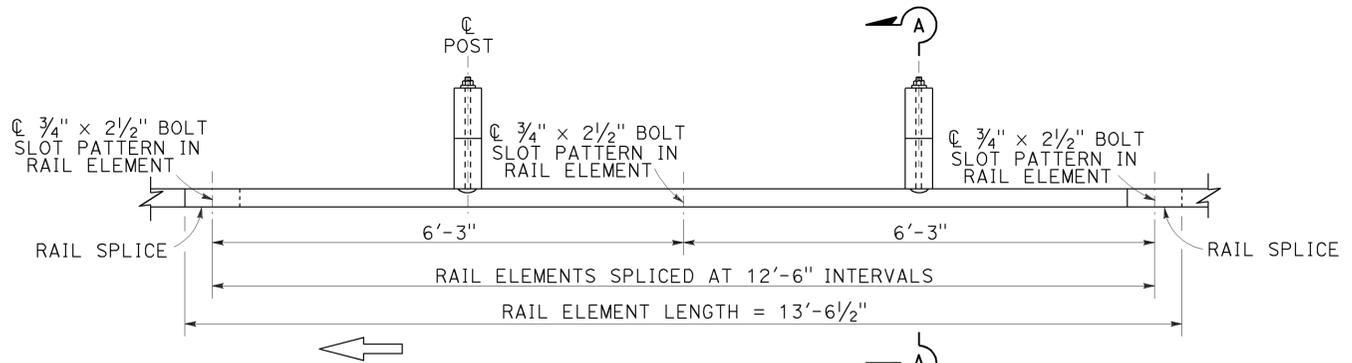
Randell D. Hiatt  
REGISTERED CIVIL ENGINEER

July 19, 2013  
PLANS APPROVAL DATE

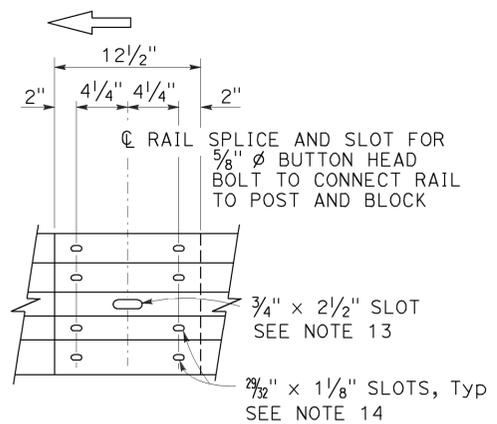
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

REGISTERED PROFESSIONAL ENGINEER  
Randell D. Hiatt  
No. C50200  
Exp. 6-30-15  
CIVIL  
STATE OF CALIFORNIA

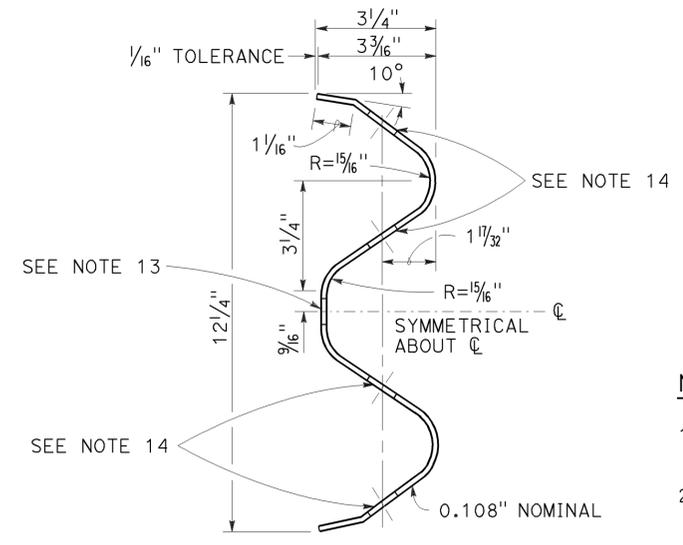
TO ACCOMPANY PLANS DATED 03-09-15



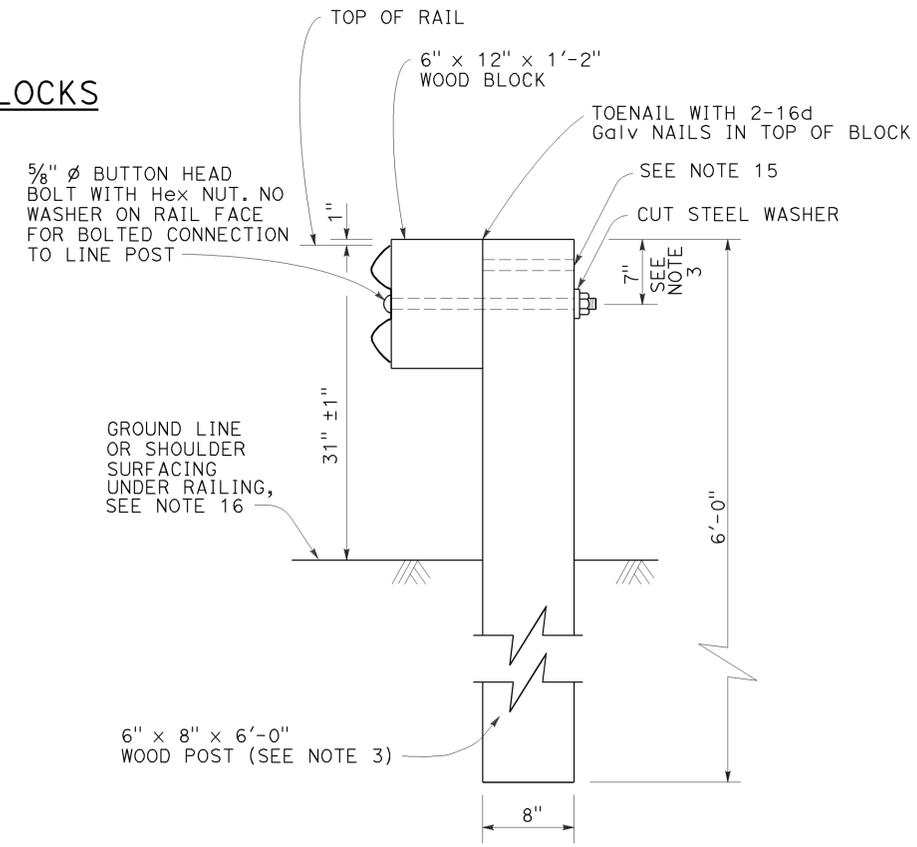
MIDWEST GUARDRAIL SYSTEM WITH WOOD POST AND BLOCKS



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



SECTION THRU RAIL ELEMENT



SECTION A-A  
TYPICAL WOOD LINE POST INSTALLATION  
See Note 4

NOTES:

- For details of steel post installations, see Revised Standard Plan RSP A77L2.
- For details of standard hardware used to construct MGS, see Revised Standard Plan RSP A77M1.
- For details of wood posts and wood blocks used to construct MGS, see Revised Standard Plan RSP A77N1.
- For additional installation details, see Revised Standard Plan RSP A77N3.
- MGS post spacing to be 6'-3" center to center, except as otherwise noted.
- For MGS typical layouts, see the A77P, A77Q and A77R Series of Standard Plans.
- If railing is connected to terminal system end treatment, use 31" height terminal system end treatment.
- For MGS end anchor details, see Revised Standard Plans RSP A77S1 and RSP A77T2.
- For details of MGS transition to bridge railing, see Revised Standard Plan RSP A77U4.
- For additional details of MGS connection to bridge railing, see Revised Standard Plans RSP A77U1, RSP A77U2 and RSP A77V1.
- For MGS connection details to abutments and walls, see Revised Standard Plan RSP A77U3.
- For typical MGS delineation and dike positioning details, see Revised Standard Plan RSP A77N4.
- Slotted hole for bolted connection of rail element to block and post. See "Section Thru Rail Element".
- Slotted holes for splice bolts to overlap ends of rail element. See "Section Thru Rail Element".
- Additional hole in uppermost portion of line post is for potential future adjustments of railing height. See Revised Standard Plan RSP A77N1.
- Install posts in soil.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

MIDWEST GUARDRAIL SYSTEM  
STANDARD RAILING SECTION  
(WOOD POST WITH WOOD BLOCK)

NO SCALE

RSP A77L1 DATED JULY 19, 2013 SUPPLEMENTS STANDARD PLANS BOOK DATED 2010.

REVISED STANDARD PLAN RSP A77L1

2010 REVISED STANDARD PLAN RSP A77L1

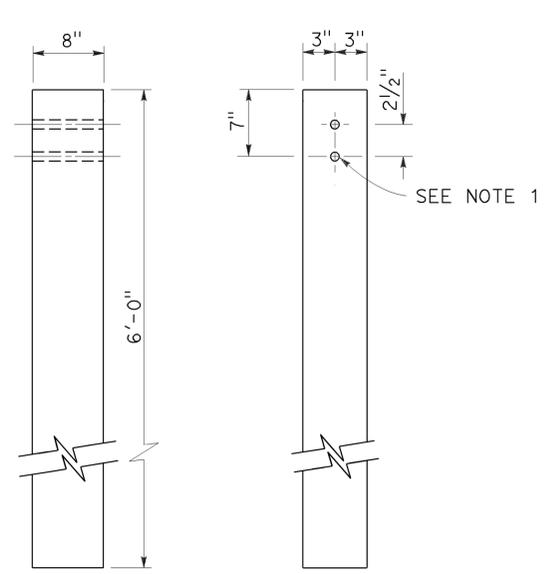
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	28.3/28.6	47	78

*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

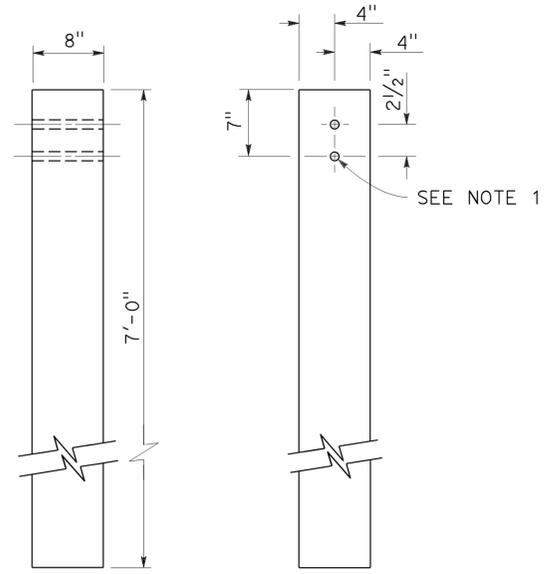
July 19, 2013  
PLANS APPROVAL DATE

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.

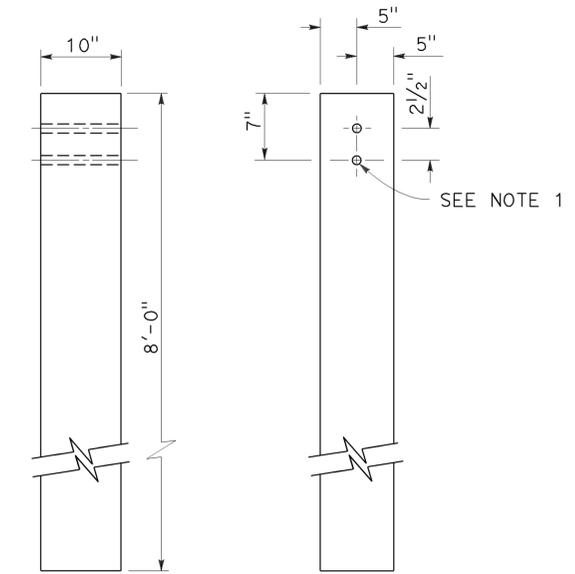
TO ACCOMPANY PLANS DATED 03-09-15



SIDE      FRONT  
6" x 8" WOOD POST  
See Note 3



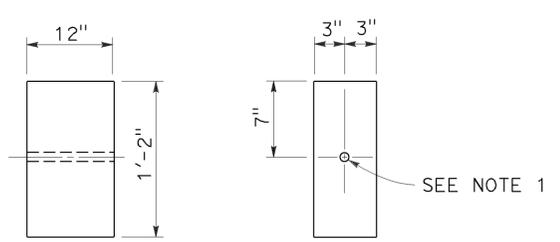
SIDE      FRONT  
8" x 8" WOOD POST  
See Note 4



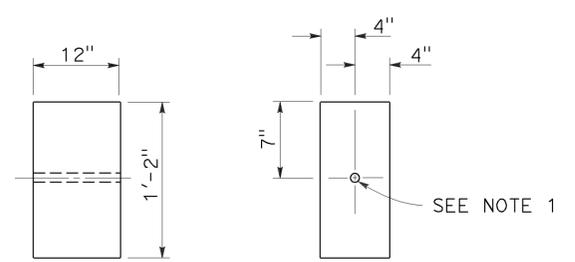
SIDE      FRONT  
10" x 10" WOOD POST  
See Note 5

**NOTES:**

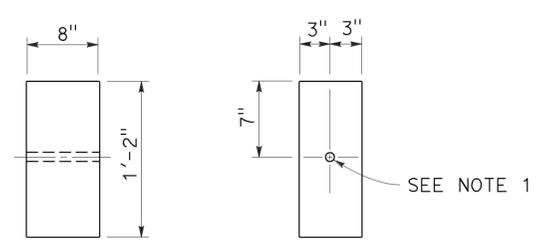
1. All holes in wood posts and blocks shall be 3/4" Dia ± 1/16".
2. Dimensions shown for wood post are nominal.
3. This post and block combination used for standard line post sections of MGS.
4. This post and 8" x 12" block combination used for line post sections of MGS on narrow roadways.
5. This post and 8" x 12" block combination is typically used where strengthened line post sections of MGS are warranted to shield fixed objects.
6. See Revised Standard Plan RSP A77L3 for use of 6" x 8" and 8" x 8" wood blocks.



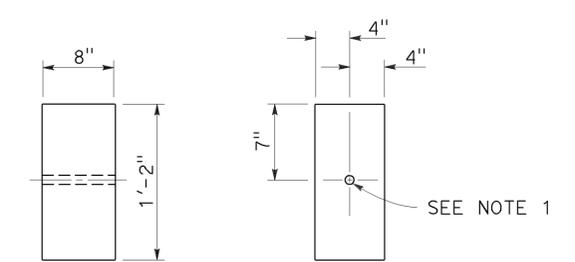
SIDE      FRONT  
6" x 12" WOOD BLOCK  
See Note 3



SIDE      FRONT  
8" x 12" WOOD BLOCK



SIDE      FRONT  
6" x 8" WOOD BLOCK  
Only for use with metal beam guard rail see Note 6



SIDE      FRONT  
8" x 8" WOOD BLOCK  
Only for use with metal beam guard rail see Note 6

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**MIDWEST GUARDRAIL SYSTEM  
WOOD POST AND  
WOOD BLOCK DETAILS**

NO SCALE

RSP A77N1 DATED JULY 19, 2013 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP A77N1**

2010 REVISED STANDARD PLAN RSP A77N1

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	28.3/28.6	48	78

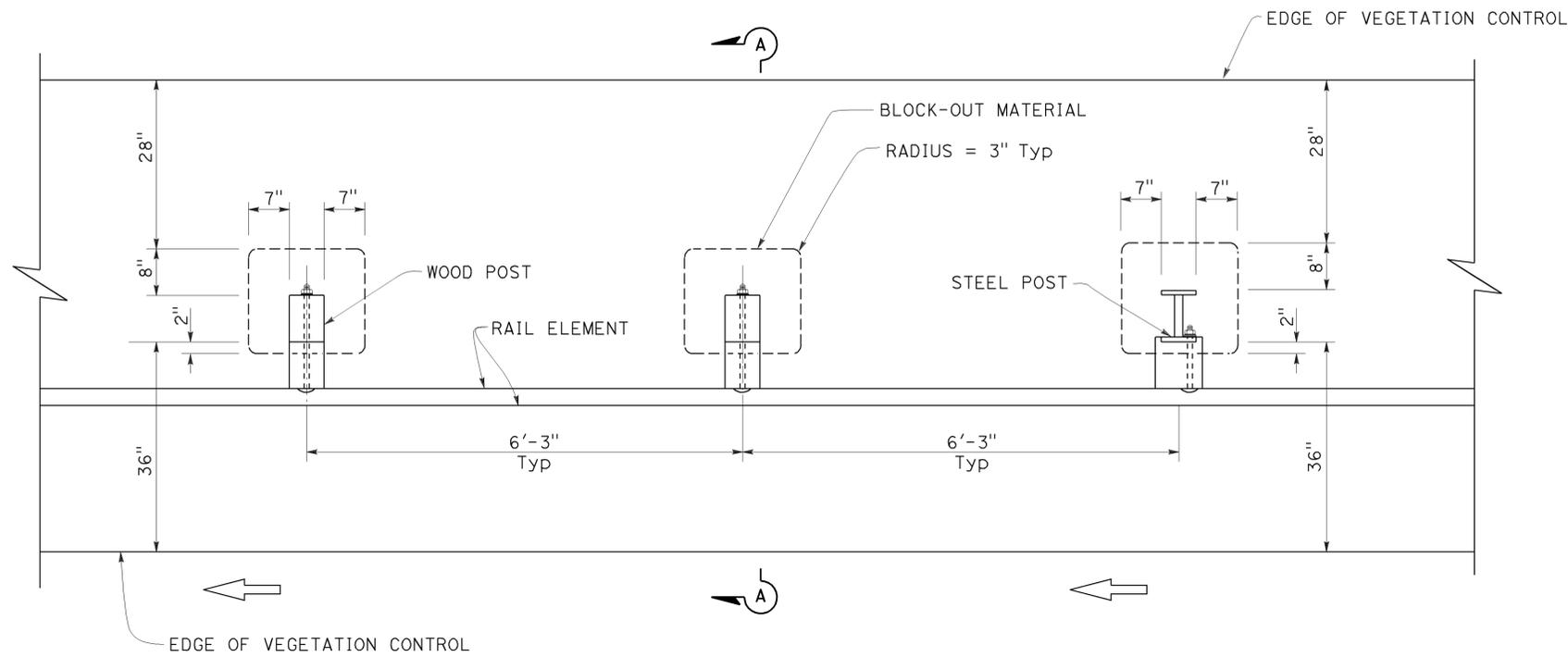
Randell D. Hiatt  
REGISTERED CIVIL ENGINEER

July 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.

REGISTERED PROFESSIONAL ENGINEER  
Randell D. Hiatt  
No. C50200  
Exp. 6-30-15  
CIVIL  
STATE OF CALIFORNIA

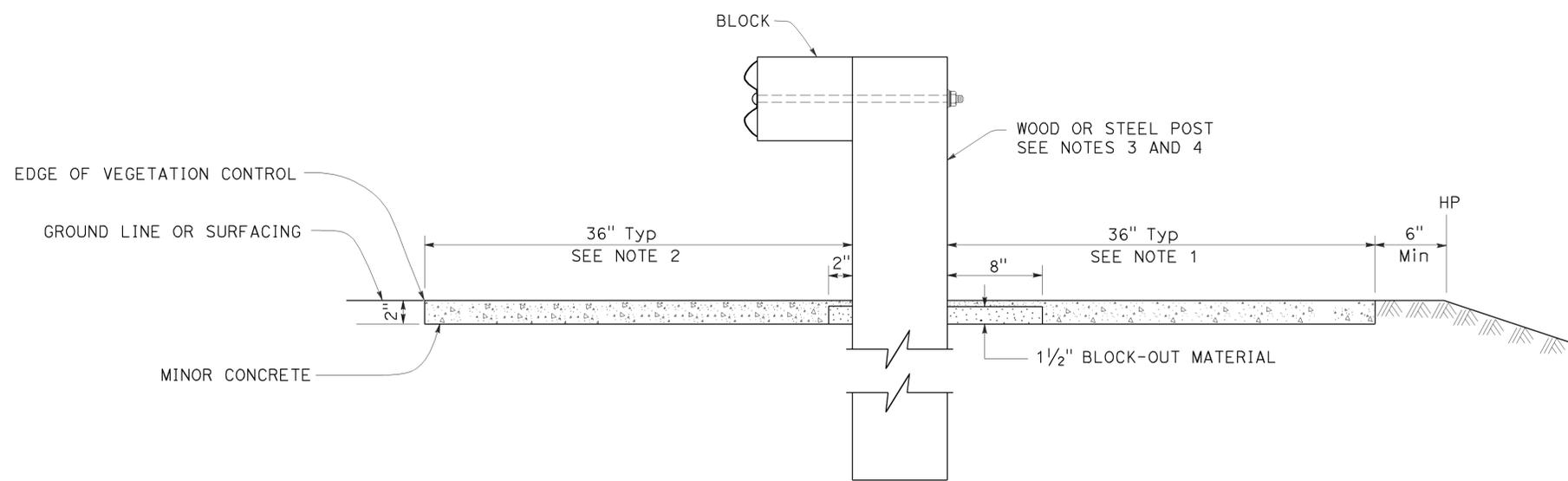
TO ACCOMPANY PLANS DATED 03-09-15



PLAN

**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 Revised Standard Plan RSP A77N1.
4. For steel post sizes, see Revised Standard Plan RSP A77N2.
5. For details not shown, see Revised Standard Plans RSP A77L1 and RSP A77L2.



SECTION A-A

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**MIDWEST GUARDRAIL SYSTEM  
TYPICAL VEGETATION CONTROL  
STANDARD RAILING SECTION**

NO SCALE

RSP A77N5 DATED JULY 19, 2013 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP A77N5**

2010 REVISED STANDARD PLAN RSP A77N5

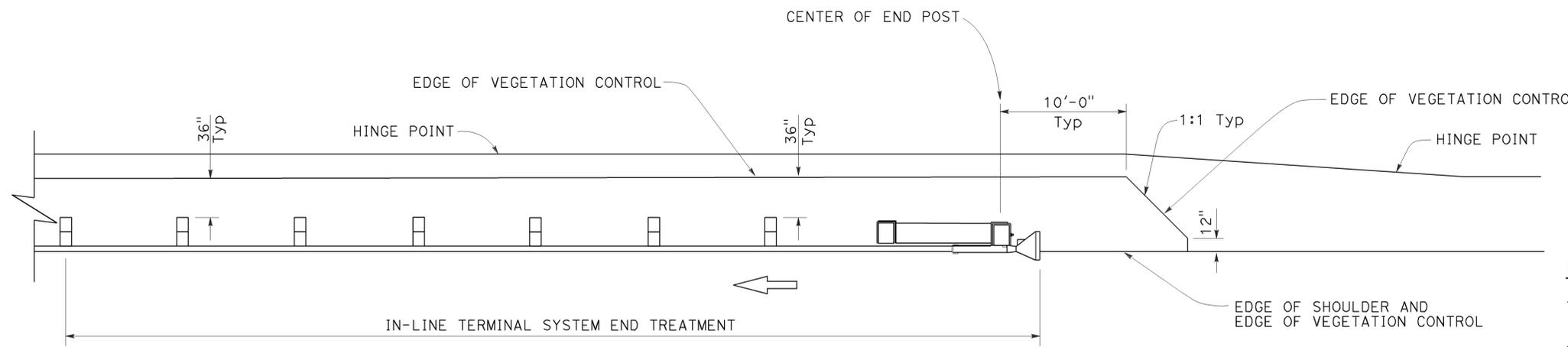
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	28.3/28.6	49	78

**Randell D. Hiatt**  
REGISTERED CIVIL ENGINEER

July 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.

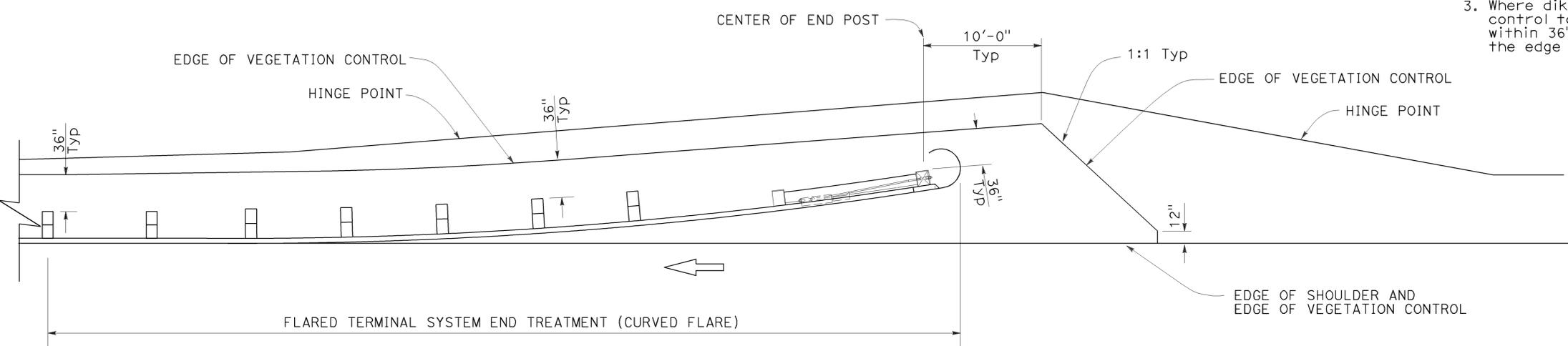
TO ACCOMPANY PLANS DATED **03-09-15**



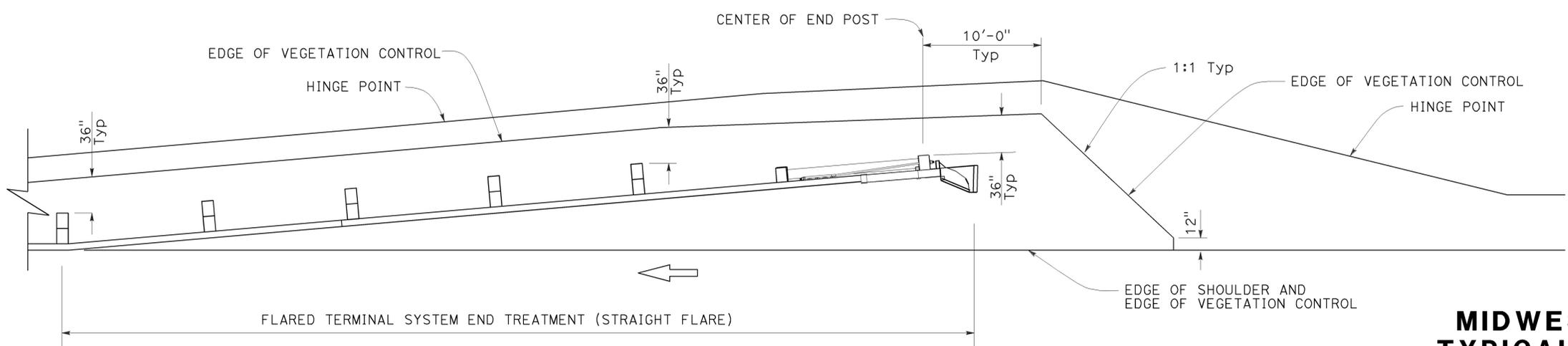
**PLAN**

**NOTES:**

1. See Revised Standard Plan RSP A77N5 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**

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**MIDWEST GUARDRAIL SYSTEM  
TYPICAL VEGETATION CONTROL  
FOR TERMINAL SYSTEM END TREATMENTS**

NO SCALE

RSP A77N6 DATED JULY 19, 2013 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP A77N6**

2010 REVISED STANDARD PLAN RSP A77N6

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	28.3/28.6	50	78

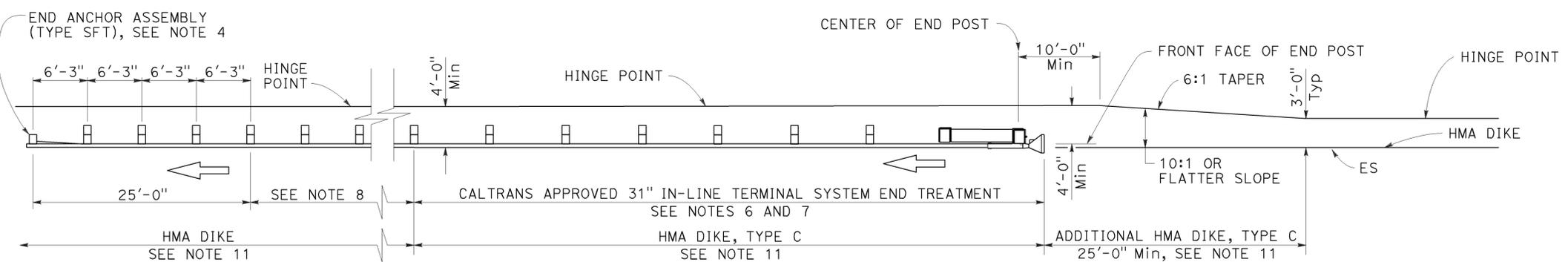
**Randell D. Hiatt**  
REGISTERED CIVIL ENGINEER

November 15, 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.

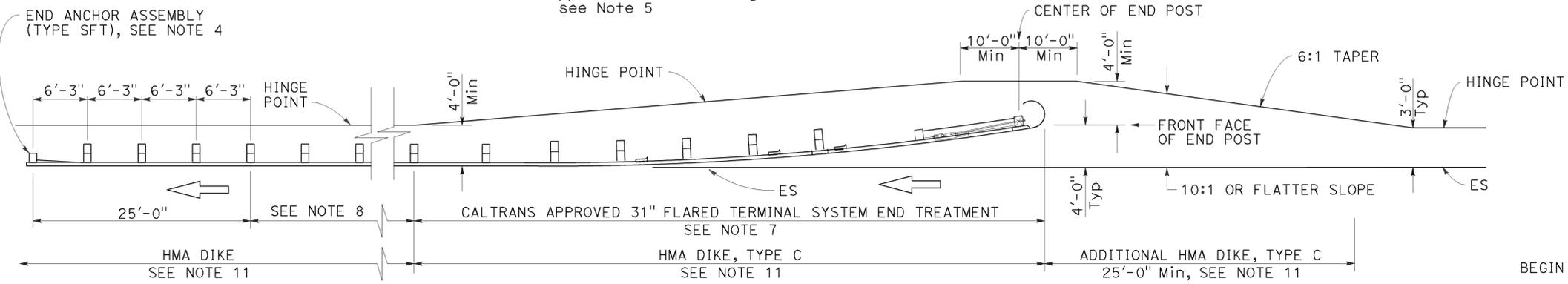
REGISTERED PROFESSIONAL ENGINEER  
No. C50200  
Exp. 6-30-15  
CIVIL  
STATE OF CALIFORNIA

TO ACCOMPANY PLANS DATED **03-09-15**



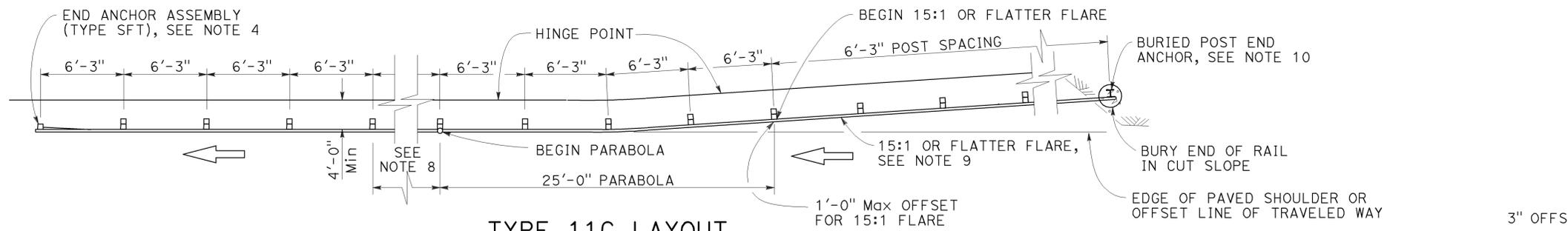
**TYPE 11A LAYOUT**

(Embankment MGS installation with 31" in-line end treatment at traffic approach end of railing) see Note 5



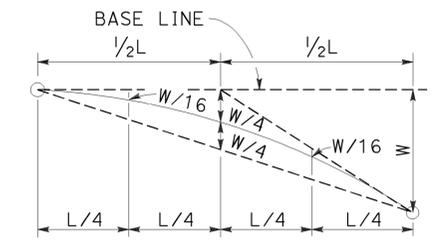
**TYPE 11B LAYOUT**

(Embankment MGS installation with 31" flared end treatment at traffic approach end of railing) see Note 5

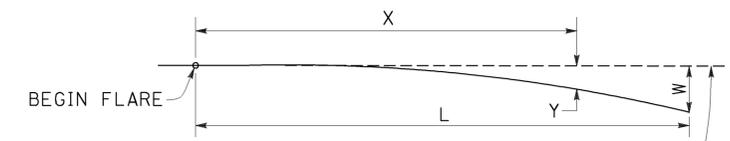


**TYPE 11C LAYOUT**

(Embankment MGS installation with buried end anchor treatment at traffic approach end of railing) see Notes 5 and 11



**TYPICAL PARABOLIC LAYOUT**

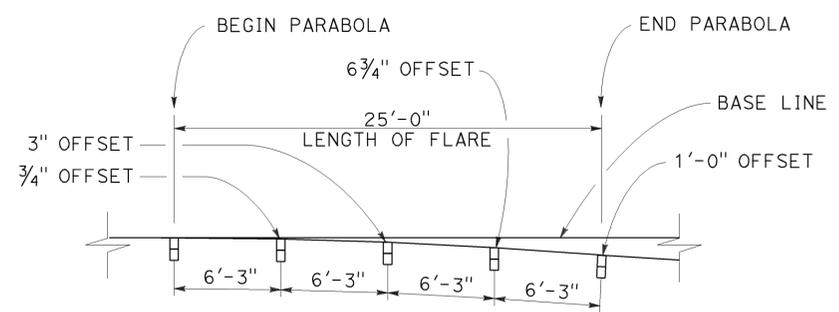


BASE LINE (EDGE OF PAVED SHOULDER OR OFFSET LINE OF EDGE OF TRAVELED WAY)

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

Y = OFFSET FROM BASE LINE  
W = MAXIMUM OFFSET  
X = DISTANCE ALONG BASE LINE  
L = LENGTH OF FLARE

**PARABOLIC FLARE OFFSETS**



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

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**MIDWEST GUARDRAIL SYSTEM TYPICAL LAYOUTS FOR EMBANKMENTS**

NO SCALE

RSP A77P1 DATED NOVEMBER 15, 2013 SUPERSEDES RSP A77P1 DATED JULY 19, 2013 THAT SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP A77P1**

**NOTES:**

- Line post, blocks and hardware to be used are shown on Revised Standard Plans RSP A77L1, RSP A77L2, RSP A77M1, RSP A77N1 and RSP A77N2.
- MGS 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 12" x 1'-2" wood blocks. W6 x 8.5 or W6 x 9 steel posts, 6'-0" in length, with 6" x 12" 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 12" x 1'-2" wood blocks where applicable and when specified.
- For End Anchor Assembly (Type SFT) details, see Revised Standard Plan RSP A77S1.
- Layout Types 11A, 11B or 11C are typically used where MGS is recommended to shield embankment slopes and a crashworthy end treatment is required for only one direction of traffic.
- 31" in-line terminal system end treatments are used where site conditions will not accommodate a flared end treatment.
- The type of 31" 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 MGS (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 MGS 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 Revised Standard Plan RSP A77T2.
- Where placement of dike is required with MGS installations, see Revised Standard Plan RSP A77N4 for dike positioning details.

2010 REVISED STANDARD PLAN RSP A77P1

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	28.3/28.6	51	78

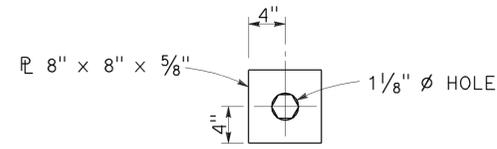
Randell D. Hiatt  
REGISTERED CIVIL ENGINEER

November 15, 2013  
PLANS APPROVAL DATE

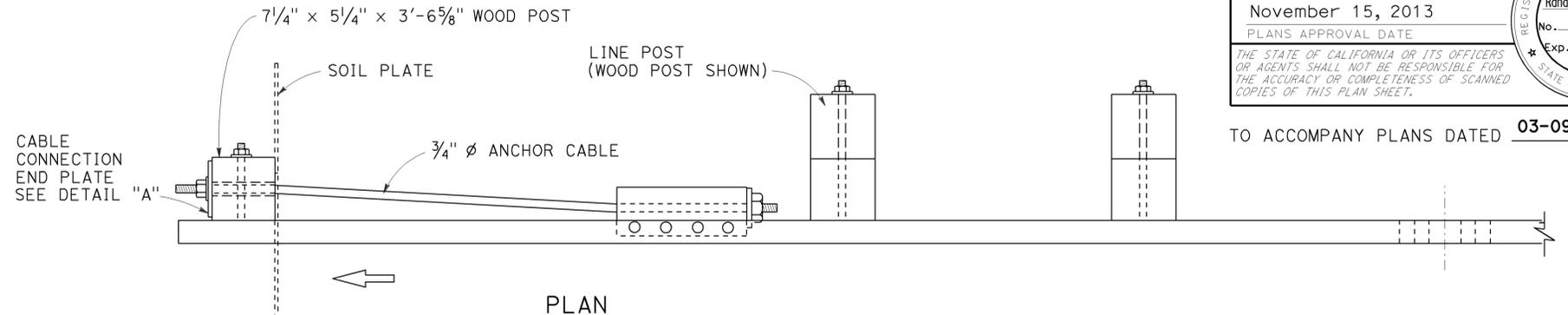
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

TO ACCOMPANY PLANS DATED 03-09-15

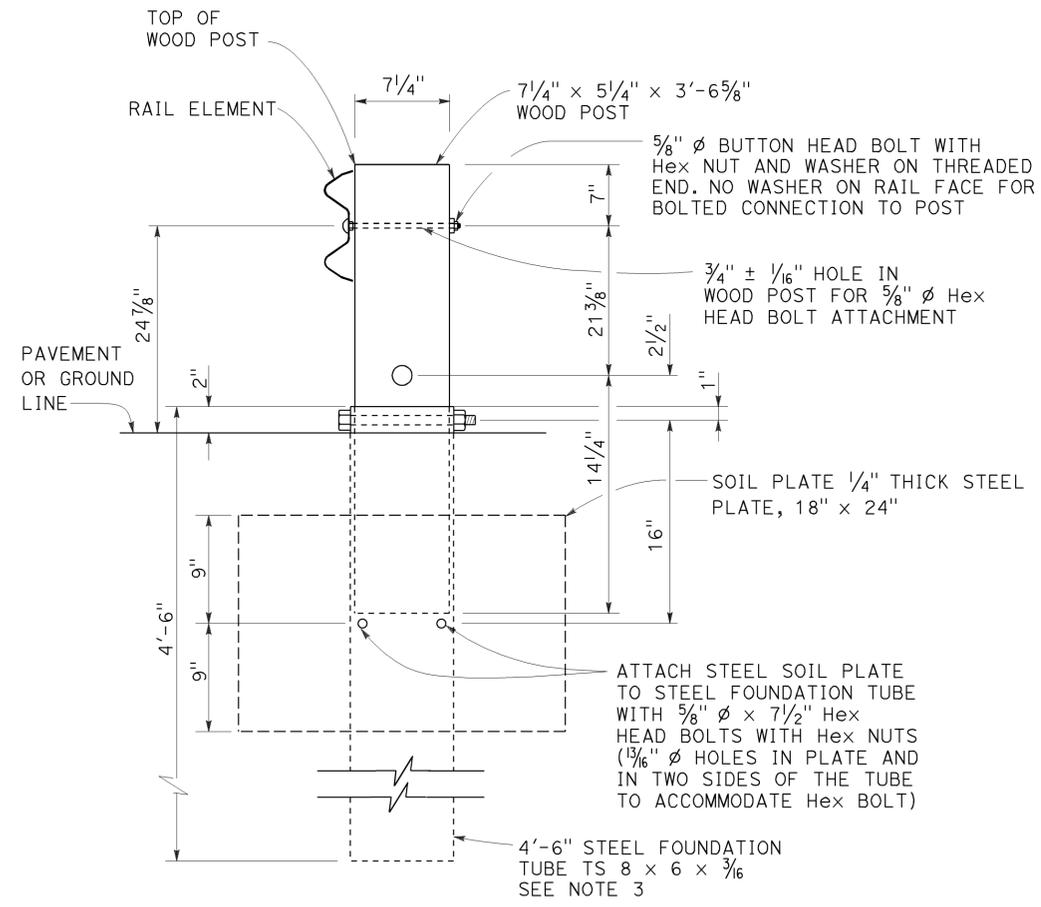
REGISTERED PROFESSIONAL ENGINEER  
Randell D. Hiatt  
No. C50200  
Exp. 6-30-15  
CIVIL  
STATE OF CALIFORNIA



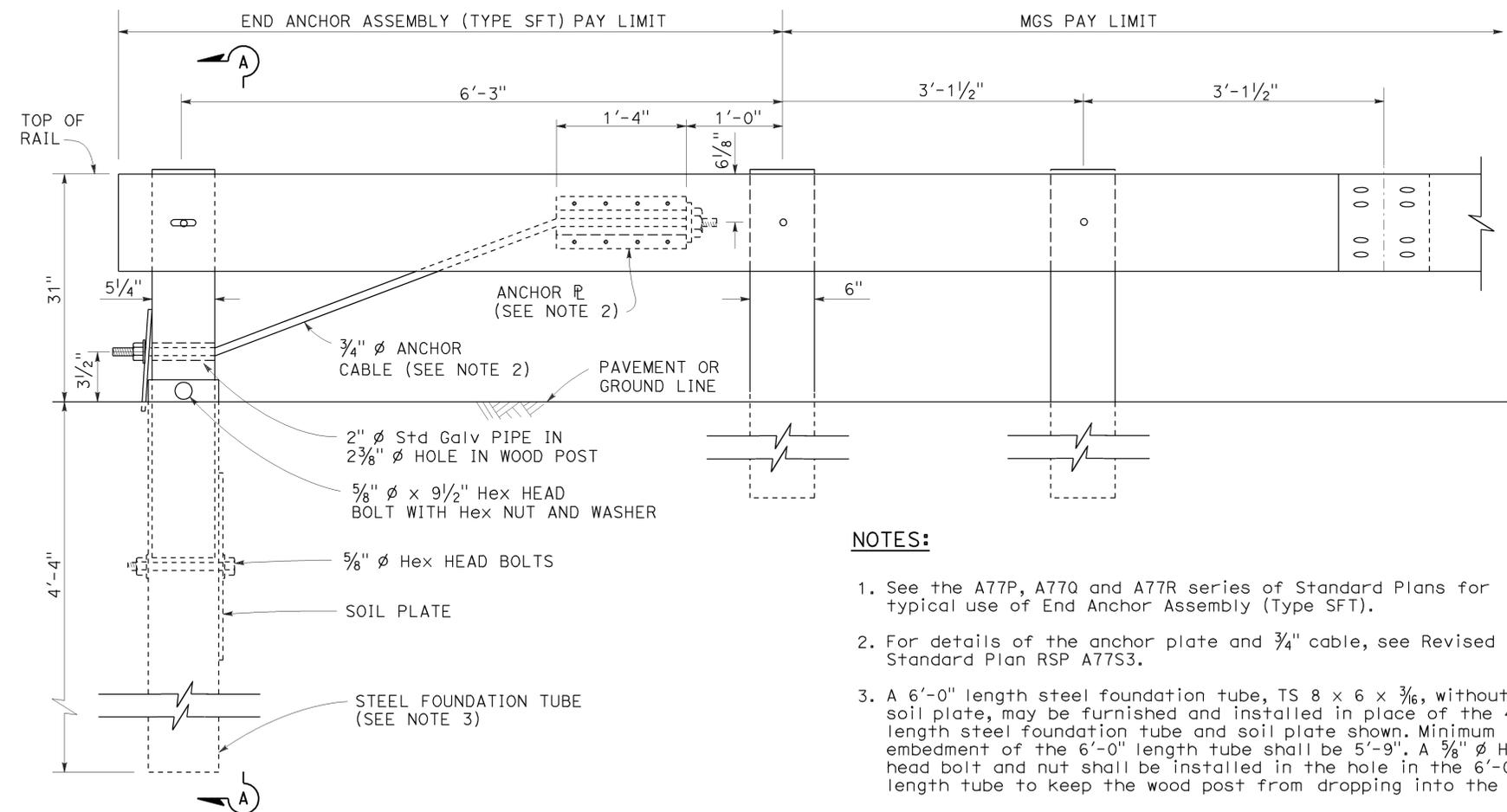
**DETAIL "A"**  
**CABLE CONNECTION**  
**END PLATE**



**PLAN**



**SECTION A-A**



**ELEVATION**

**END ANCHOR**  
**ASSEMBLY (TYPE SFT)**  
See Note 1

**NOTES:**

1. See the A77P, A77Q and A77R series of Standard Plans for typical use of End Anchor Assembly (Type SFT).
2. For details of the anchor plate and 3/4" cable, see Revised Standard Plan RSP A77S3.
3. A 6'-0" length steel foundation tube, TS 8 x 6 x 3/16, without a soil plate, may be furnished and installed in place of the 4'-6" length steel foundation tube and soil plate shown. Minimum embedment of the 6'-0" length tube shall be 5'-9". A 5/8" diameter hex head bolt and nut shall be installed in the hole in the 6'-0" length tube to keep the wood post from dropping into the tube.
4. Install line post, steel foundation tube and soil plate in soil.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**MIDWEST GUARDRAIL SYSTEM**  
**END ANCHOR ASSEMBLY**  
**(TYPE SFT)**

NO SCALE

RSP A77S1 DATED NOVEMBER 15, 2013 SUPERSEDES RSP A77S1  
DATED JULY 19, 2013 THAT SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.

2010 REVISED STANDARD PLAN RSP A77S1

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	28.3/28.6	52	78

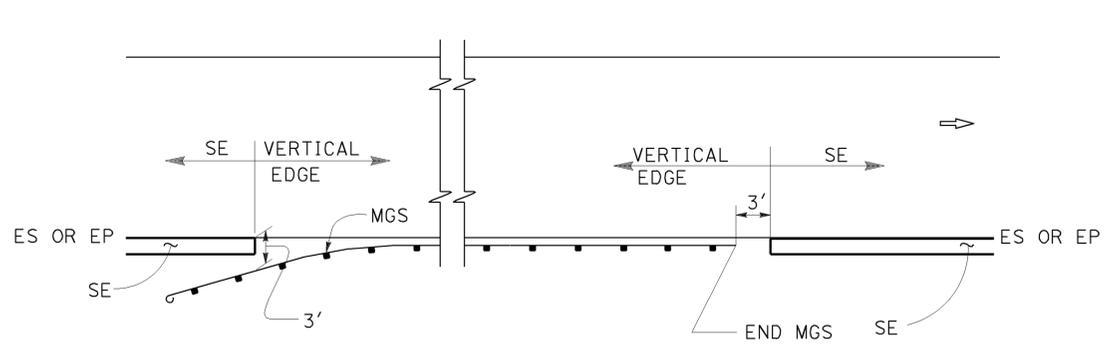
REGISTERED CIVIL ENGINEER  
 November 15, 2013  
 PLANS APPROVAL DATE  
 THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

REGISTERED PROFESSIONAL ENGINEER  
 Cornelis M. Hakim  
 No. C55610  
 Exp. 12-31-14  
 CIVIL  
 STATE OF CALIFORNIA

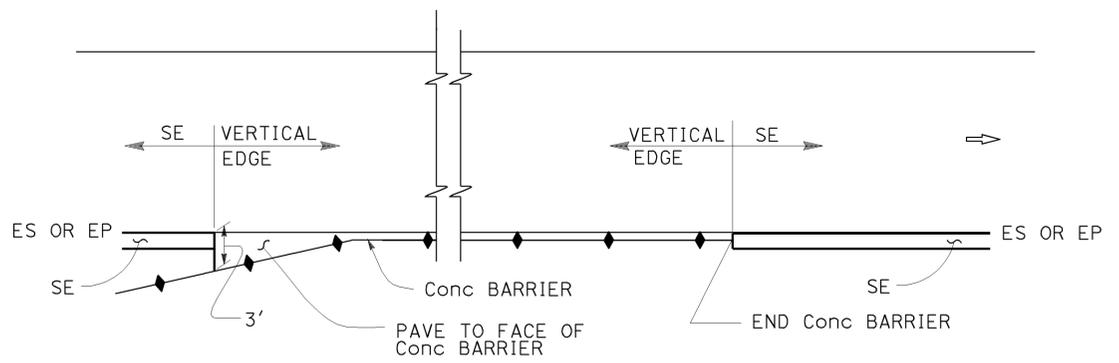
TO ACCOMPANY PLANS DATED 03-09-15

**ABBREVIATIONS:**

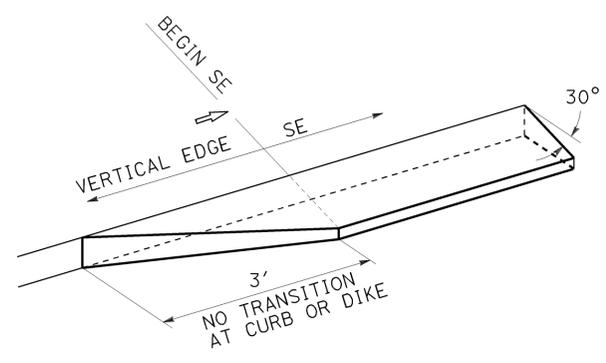
SE SAFETY EDGE



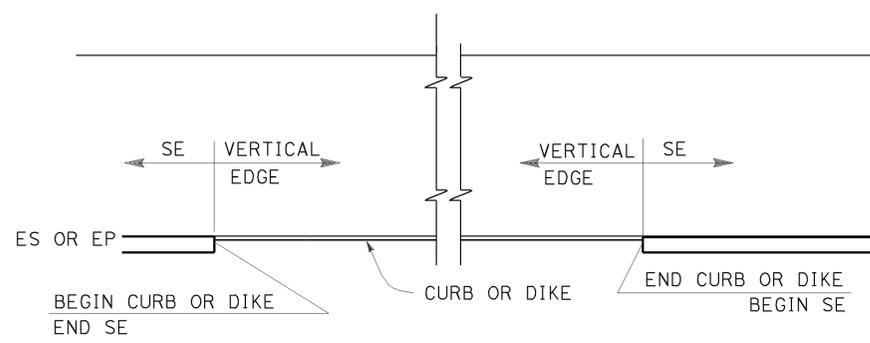
**MGS**



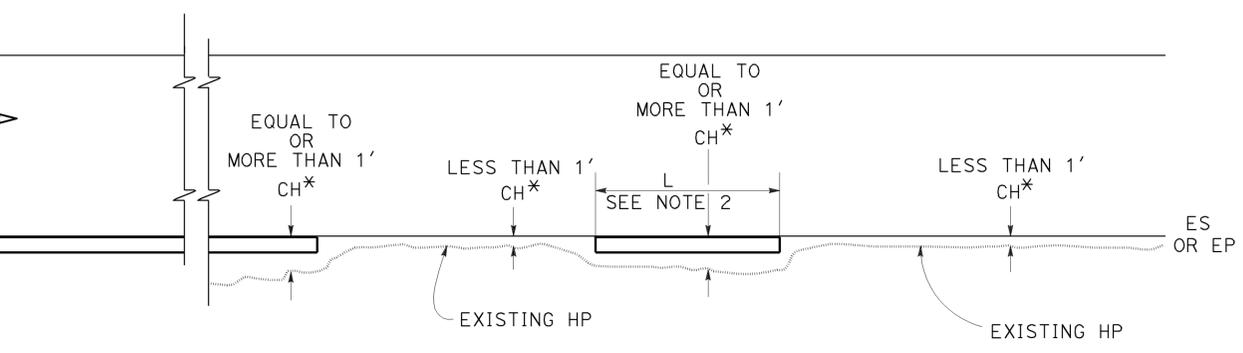
**CONCRETE BARRIER**



**TRANSITION DETAIL FOR CONCRETE ONLY**

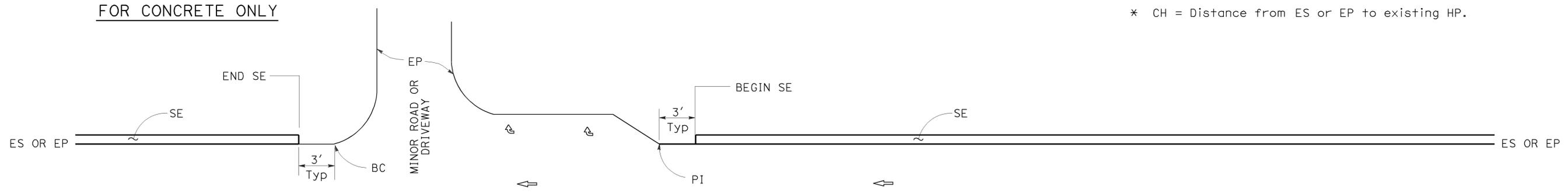


**CURB OR DIKE**



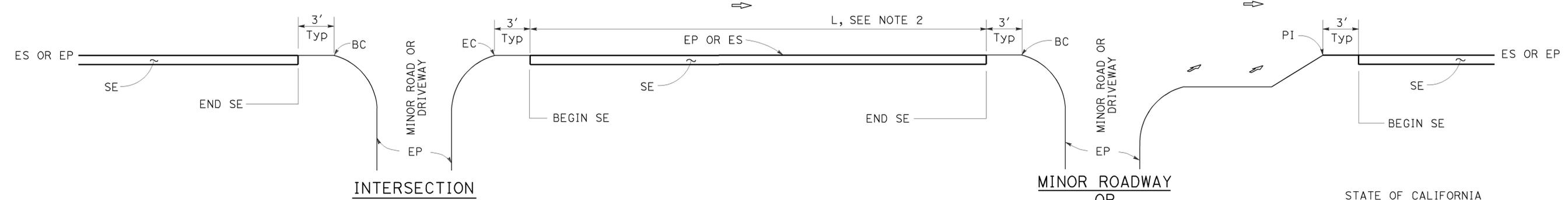
**NARROW SIDE SLOPE**

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



**STATE ROUTE**

**STATE ROUTE**



**INTERSECTION**

**DRIVEWAY AND INTERSECTION**

**MINOR ROADWAY OR DRIVEWAY**

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**PAVEMENT EDGE TREATMENTS**

NO SCALE

**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'.

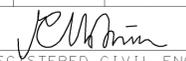
RSP P74 DATED NOVEMBER 15, 2013 SUPERSEDES RSP P74 DATED JANUARY 20, 2012 THAT SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP P74**

2010 REVISED STANDARD PLAN RSP P74

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	28.3/28.6	53	78

 REGISTERED CIVIL ENGINEER		
November 15, 2013 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>		

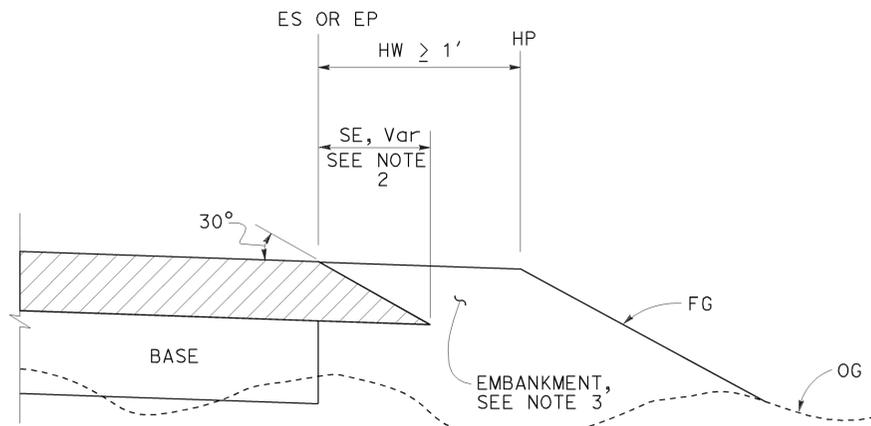
**LEGEND:**

-  HMA PAVEMENT
-  HMA OR CONCRETE PAVEMENT
-  CONCRETE PAVEMENT

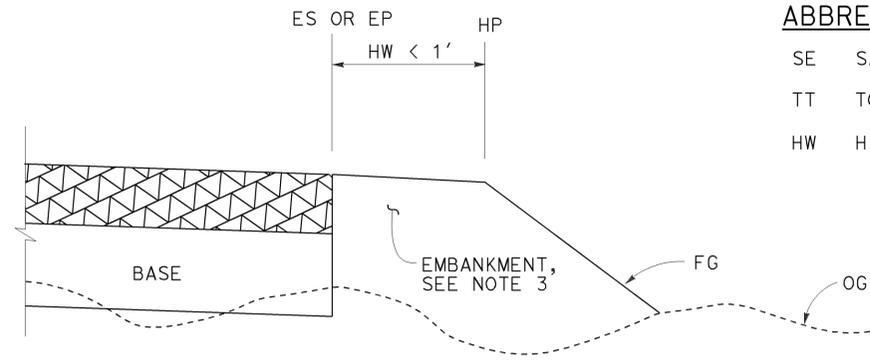
**ABBREVIATIONS:**

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

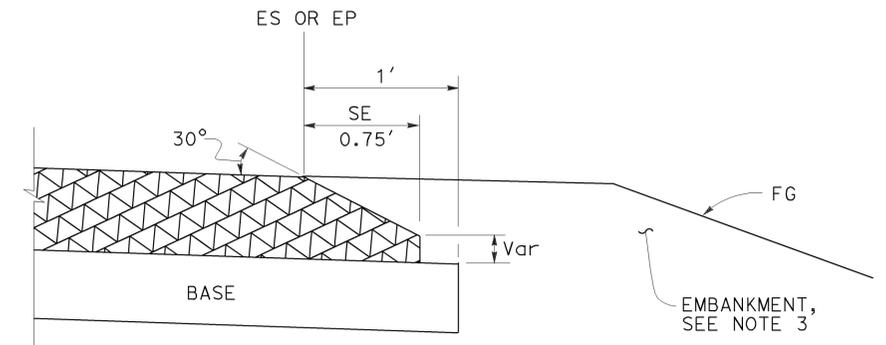
TO ACCOMPANY PLANS DATED **03-09-15**



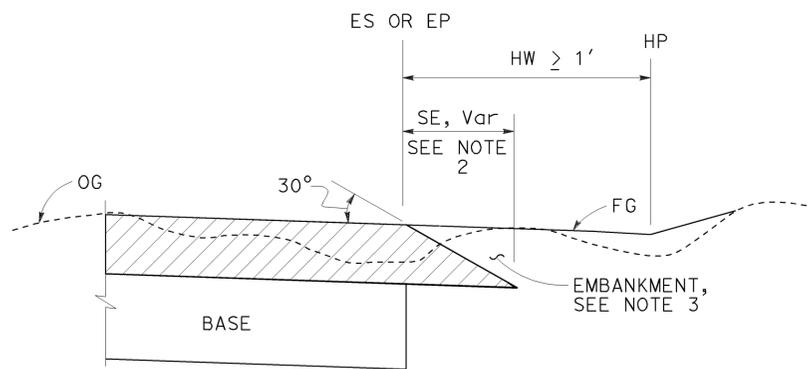
**CASE K**  
Safety Edge - Fill Section, HW  $\geq 1'$



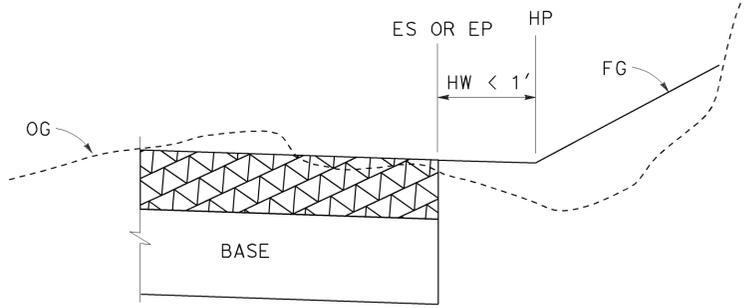
**CASE L**  
Vertical Edge - Fill Section, HW  $< 1'$



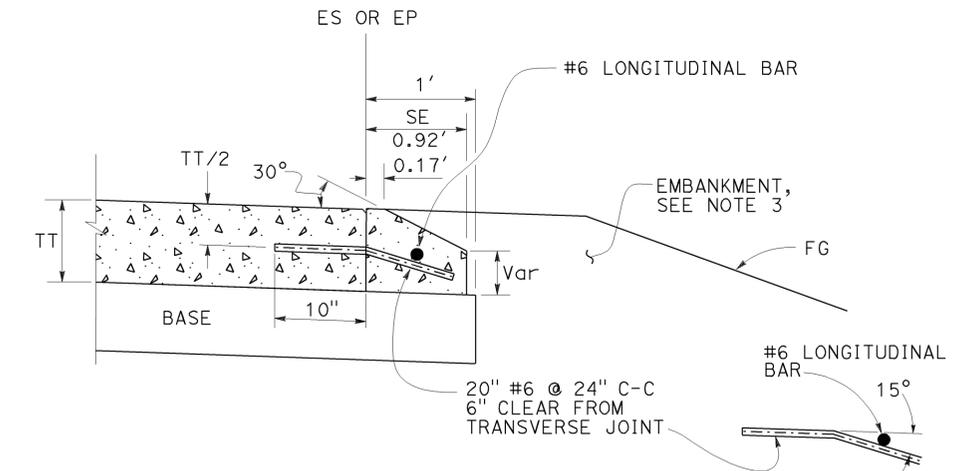
**DETAIL "B"**  
For HMA pavement thickness more than 0.43' or concrete pavement



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



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



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

**FILL SECTION**

**CUT SECTION**

**NOTES:**

- For limits of safety edge and vertical edge treatments, see Revised Standard Plan RSP P74
- Details shown for HMA pavement thickness less than 0.43'. See Detail "B" for HMA pavement thickness more than 0.43' or concrete pavement.
- For locations and limits of embankment see project plans.
- Safety edge transverse joint must match pavement transverse joint. End of #6 longitudinal bar must be 2"  $\pm 1/2$ " clear from transverse joint.
- Safety edge is not needed in the area of MGS, 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 NOVEMBER 15, 2013 SUPERSEDES RSP P76 DATED JANUARY 20, 2012 THAT SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.  
**REVISED STANDARD PLAN RSP P76**

2010 REVISED STANDARD PLAN RSP P76

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	28.3/28.6	54	78

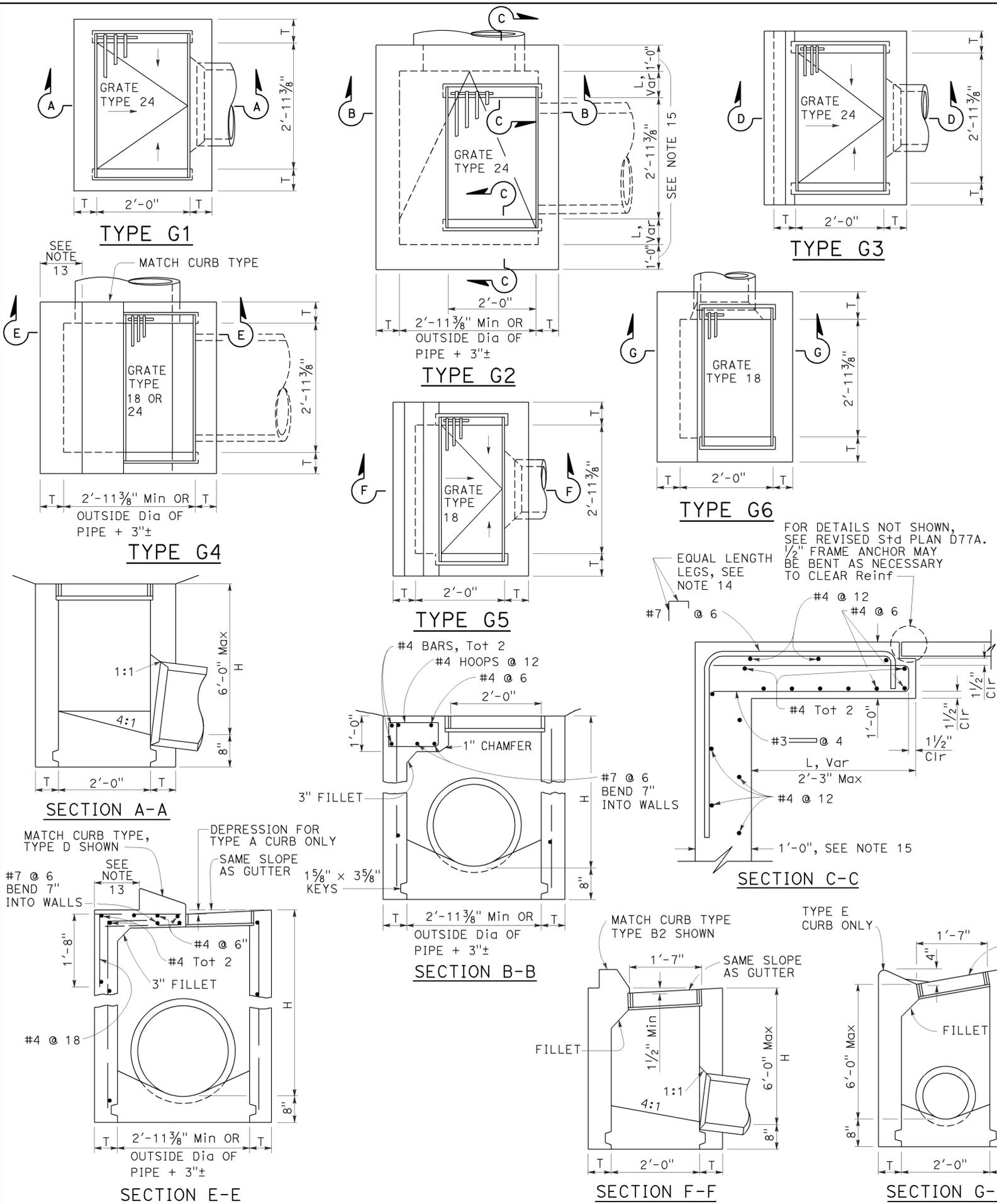
Glenn DeCou  
REGISTERED CIVIL ENGINEER

October 19, 2012  
PLANS APPROVAL DATE

Glenn DeCou  
No. C34547  
Exp. 9-30-13  
CIVIL  
STATE OF CALIFORNIA

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2010 REVISED STANDARD PLAN RSP D73



- 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 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**

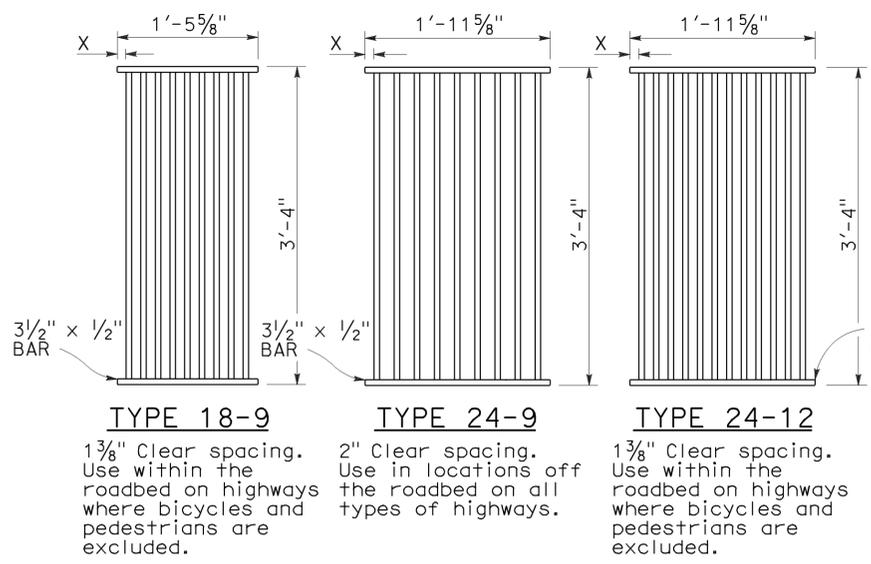
TYPE	H=3'-0" TO 8'-0" (T=6")		H=8'-1" TO 20'-0" (T=8")	
	H=3'-0" (CY)	ADDITIONAL PCC PER FOOT (CY)	H=8'-1" (CY)	ADDITIONAL PCC PER FOOT (CY)
G-1	0.95	0.220	See Note A	SEE NOTE A
G-2*	1.31	0.255	3.50	0.357
G-3	1.03	0.220	See Note A	SEE NOTE A
G-4* (TYPE 24)	1.27	0.255	3.48	0.357
G-4* (TYPE 18)	1.30	0.255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

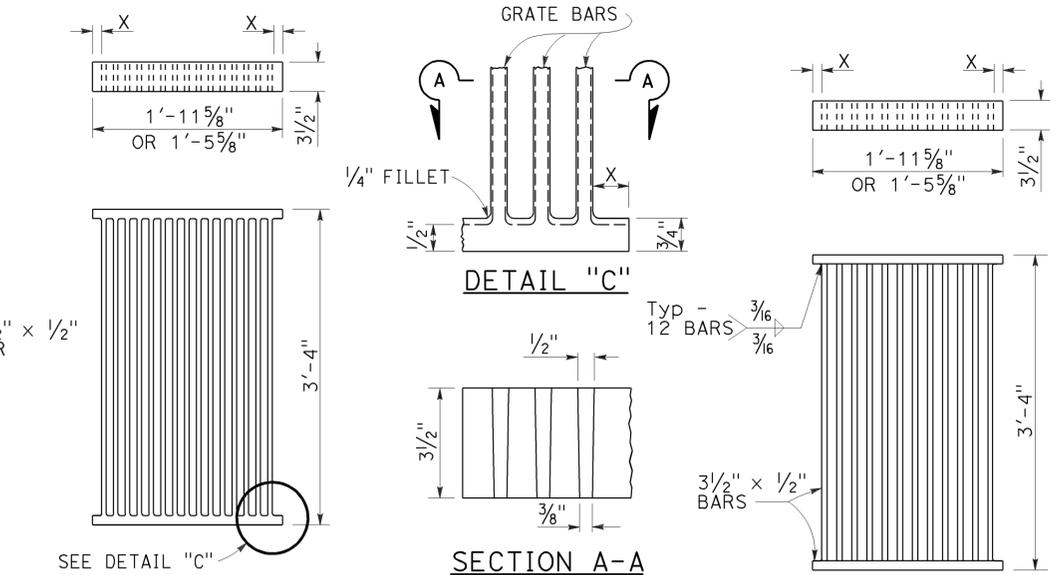
**NOTE A:**  
Maximum allowable height 6'-0".

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

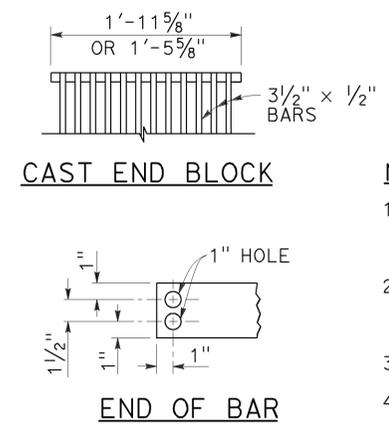
**DRAINAGE INLETS**  
NO SCALE



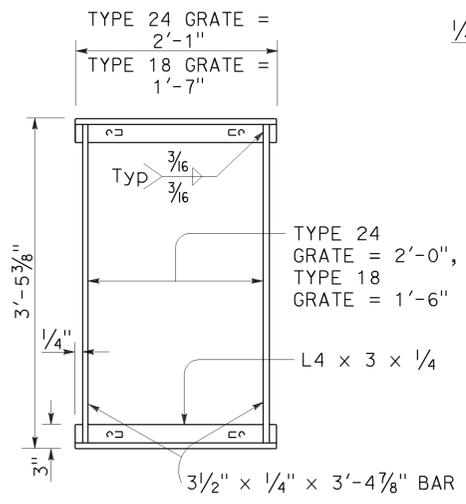
**RECTANGULAR GRATE DETAILS**  
(See table below)



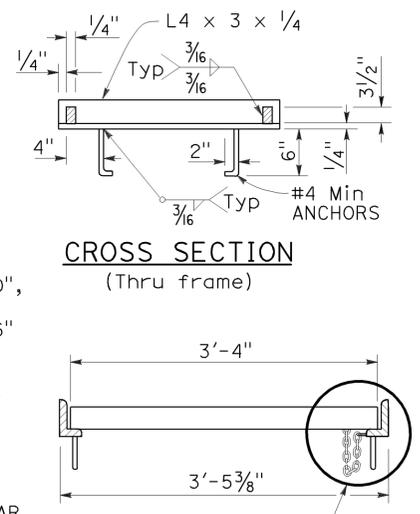
**ALTERNATIVE CAST DUCTILE IRON GRATE OR CAST CARBON STEEL GRATE**



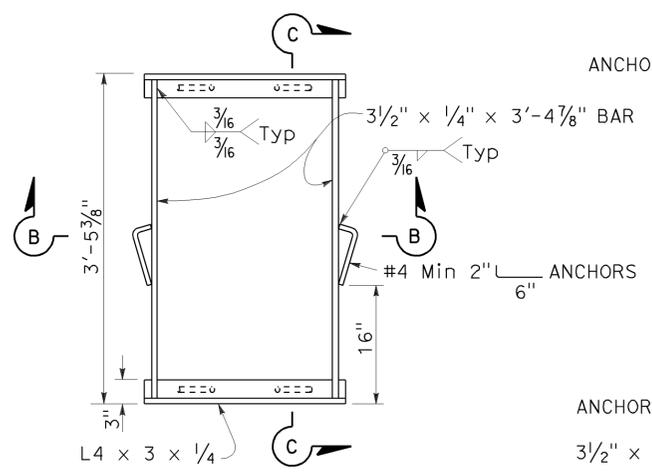
**ALTERNATIVE WELDED GRATE**



**TYPICAL FRAME**

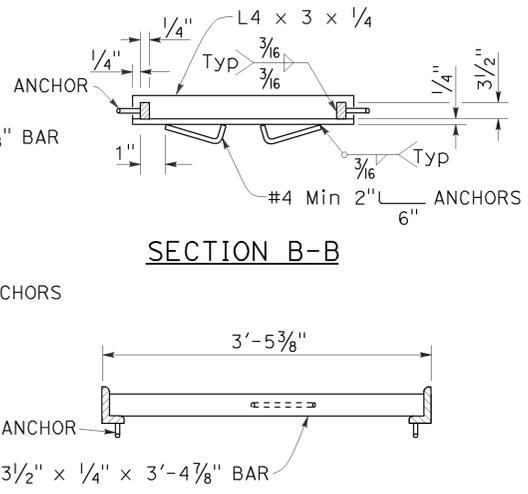


**LONGITUDINAL SECTION**  
(Thru frame and grate)

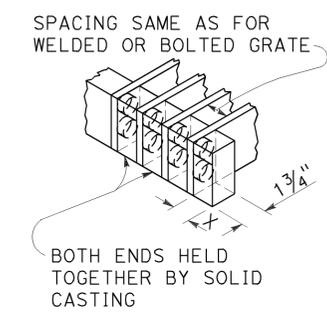


**TYPICAL FRAME**

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



**SECTION B-B**



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

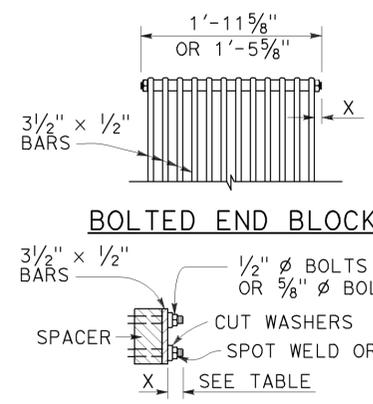
**RECTANGULAR FRAME DETAILS**  
(For all rectangular grates)

**GRATE BAR SPACING TABLE**

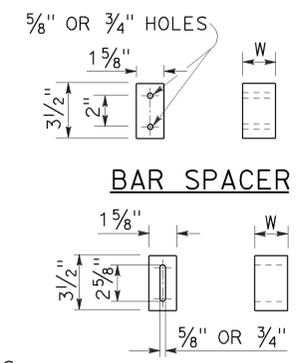
TYPE	NO. OF BARS	CLEAR BAR SPACING	X
18-9	9	1 3/8"	1 1/16"
24-9	9	2"	1 9/16"
24-12	12	1 3/8"	1 1/4"

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
OCPI	PLATE	112
OCPI	PLATE	112
OCPI	REDWOOD	42
OMP	PLATE	177
OMPI	PLATE	177

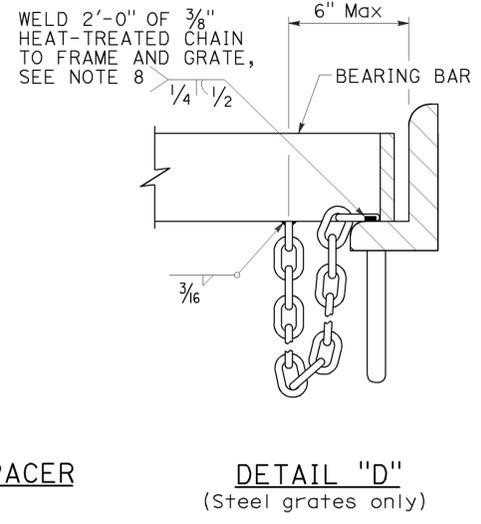
INLET TYPE	GRATE TYPE	NO. OF GRATES	WEIGHT LB
GDO	24-12	2	634
GOL-7	24-12	1	326
GOL-10	24-12	1	326
G0,G1,G2,G3,G4 (TYPE 24)	24-9	1	263
	24-12	1	326
G4 (TYPE 18),G5,G6	18-9	1	249
GT1	18-9	2	498
GT2	18-9	2	498
GT3	24-12	2	652
GT4	24-12	2	652
TRASH RACK			22
GRATE CHAIN			3



**BOLTED END BLOCK**



**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)

**GRATE DETAILS No. 1**  
NO SCALE

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**

2010 REVISED STANDARD PLAN RSP D77A

*Gregory A. Balzer*  
 LICENSED LANDSCAPE ARCHITECT

July 19, 2013  
 PLANS APPROVAL DATE

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TO ACCOMPANY PLANS DATED **03-09-15**

**A**

AB AGGREGATE BASE  
 ABS ACRYLONITRILE-BUTADIENE-STYRENE  
 AC ASPHALT CONCRETE  
 ACC ARMOR-CLAD CONDUCTORS  
 Adj ADJACENT/ADJUSTABLE  
 AIC AUXILIARY IRRIGATION CONTROLLER  
 Alt ALTERNATIVE  
 AMEND AMENDMENT  
 ARV AIR RELEASE VALVE  
 AUTO AUTOMATIC  
 AUX AUXILIARY  
 AVB ATMOSPHERIC VACUUM BREAKER

**B**

B&B BALLED AND BURLAPPED  
 B/B BRASS/BRONZE  
 B/B/PL BRASS/BRONZE/PLASTIC  
 B/PL BRASS/PLASTIC  
 BFM BONDED FIBER MATRIX  
 Bit Ctd BITUMINOUS COATED  
 BP BOOSTER PUMP  
 BPA BACKFLOW PREVENTER ASSEMBLY  
 BPE BACKFLOW PREVENTER ENCLOSURE  
 BV BALL VALVE

**C**

C CONDUIT  
 CAP CORRUGATED ALUMINUM PIPE  
 CARV COMBINATION AIR RELEASE VALVE  
 CB COUPLING BAND  
 CCA CAM COUPLER ASSEMBLY  
 CEC CONTROLLER ENCLOSURE CABINET  
 CHDPE CORRUGATED HIGH DENSITY POLYETHYLENE  
 CL CHAIN LINK  
 CNC CONTROL AND NEUTRAL CONDUCTORS  
 Conc CONCRETE  
 CP COPPER PIPE  
 CS COMPOST SOCK  
 CSP CORRUGATED STEEL PIPE  
 CST CENTER STRIP  
 CV CHECK VALVE

**D**

Dia DIAMETER  
 DIP DUCTILE IRON PIPE  
 DIT DRIP IRRIGATION TUBING  
 DG DECOMPOSED GRANITE  
 DN DIAMETER NOMINAL  
 DVA DRIP VALVE ASSEMBLY

**E**

EC EROSION CONTROL  
 ECTC EROSION CONTROL TECHNOLOGY COUNCIL  
 ElecT ELECTRIC/ELECTRICAL  
 Elev ELEVATION  
 ELL ELBOW  
 ENCL ENCLOSURE  
 EP EDGE OF PAVEMENT  
 ES EDGE OF SHOULDER  
 EST END STRIP  
 ESTB ESTABLISHMENT  
 ETW EDGE OF TRAVELED WAY

**F**

F FULL CIRCLE  
 F/P FULL/PART CIRCLE  
 FCV FLOW CONTROL VALVE  
 FERT FERTILIZER  
 FG FINISHED GRADE  
 FH FLEXIBLE HOSE  
 FIPT FEMALE IRON PIPE THREAD  
 FIS FERTILIZER INJECTOR SYSTEM  
 FL FLOW LINE  
 FR FIBER ROLL  
 FS FLOW SENSOR  
 FSC FLOW SENSOR CABLE  
 FV FLUSH VALVE

**G**

Galv GALVANIZED  
 GARV GARDEN VALVE  
 GARVA GARDEN VALVE ASSEMBLY  
 GM GRAVEL MULCH  
 GPH GALLONS PER HOUR  
 GPM GALLONS PER MINUTE  
 GSP GALVANIZED STEEL PIPE  
 GV GATE VALVE

**H**

H HALF CIRCLE  
 HDPE HIGH DENSITY POLYETHYLENE  
 HP HORSEPOWER/HINGE POINT  
 HPL HIGH PRESSURE LINE  
 Hwy HIGHWAY

**I**

IC IRRIGATION CONTROLLER  
 ICC IRRIGATION CONTROLLER(S) IN CONTROLLER ENCLOSURE CABINET  
 ID INSIDE DIAMETER  
 IFS IRRIGATION FILTRATION SYSTEM  
 IPS IRON PIPE SIZE  
 IPT IRON PIPE THREAD  
 Irr IRRIGATION

**L**

L LENGTH

**M**

Max MAXIMUM  
 MBGR METAL BEAM GUARD RAILING  
 MCV MANUAL CONTROL VALVE  
 MIC MASTER IRRIGATION CONTROLLER  
 Min MINIMUM  
 MIPT MALE IRON PIPE THREAD  
 Misc MISCELLANEOUS  
 MtI MATERIAL  
 MVP MAINTENANCE VEHICLE PULLOUT

**N**

NCN NO COMMON NAME  
 NL NOZZLE LINE  
 No. NUMBER  
 NPT NATIONAL PIPE THREAD

**O**

O/C ON CENTER  
 OD OUTSIDE DIAMETER  
 OL OVERLAP

**P**

P PART CIRCLE  
 PB PULL BOX  
 PCC PORTLAND CEMENT CONCRETE  
 PE POLYETHYLENE  
 Pkt+ PACKET  
 PL PLASTIC  
 PLS PURE LIVE SEED  
 PLT PLANT/PLANTING  
 PLT ESTB PLANT ESTABLISHMENT  
 PM POST MILE  
 PR PRESSURE RATED  
 PRLV PRESSURE RELIEF VALVE  
 PRV PRESSURE REGULATING VALVE  
 PVC POLYVINYL CHLORIDE  
 Pvm+ PAVEMENT

**Q**

Q QUARTER CIRCLE  
 QCV QUICK COUPLING VALVE

**NOTE:**  
 For additional abbreviations, see Standard Plans A10A and A10B.

**R**

R RADIUS  
 RCP REINFORCED CONCRETE PIPE  
 RCV REMOTE CONTROL VALVE  
 RCVM REMOTE CONTROL VALVE (MASTER)  
 RCVMF REMOTE CONTROL VALVE (MASTER) W/FLOW SENSOR  
 RCVP REMOTE CONTROL VALVE W/PRESSURE REGULATOR  
 RCW RECYCLED WATER  
 RECP ROLLED EROSION CONTROL PRODUCT  
 REQ REQUIRED  
 RICS REMOTE IRRIGATION CONTROL SYSTEM  
 R/W RIGHT OF WAY

**S**

S SLIP  
 SCH SCHEDULE  
 SF STATE-FURNISHED  
 Shld SHOULDER  
 Sq SQUARE  
 SST SIDE STRIP  
 Sta STATION  
 Std STANDARD  
 SW SIDEWALK/SOUND WALL

**T**

T THIRD CIRCLE/THREAD  
 TLS TRUCK LOADING STANDPIPE  
 TQ THREE QUARTER CIRCLE  
 TRM TURF REINFORCEMENT MAT  
 TT TWO-THIRDS CIRCLE  
 TWSA TREE WELL SPRINKLER ASSEMBLY  
 Typ TYPICAL

**U**

UG UNDERGROUND

**W**

W WIDTH  
 W/ WITH  
 WM WATER METER  
 WS WYE STRAINER  
 WSA WYE STRAINER ASSEMBLY  
 WSP WELDED STEEL PIPE  
 WWM WELDED WIRE MESH

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**LANDSCAPE AND EROSION CONTROL ABBREVIATIONS**  
 NO SCALE

RSP H1 DATED JULY 19, 2013 SUPERSEDES STANDARD PLAN H1 DATED MAY 20, 2011 - PAGE 218 OF THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP H1**

2010 REVISED STANDARD PLAN RSP H1

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	28.3/28.6	57	78

*Gregory A. Balzer*  
 LICENSED LANDSCAPE ARCHITECT  
 November 15, 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.

TO ACCOMPANY PLANS DATED **03-09-15**

2010 REVISED STANDARD PLAN RSP H2

EXISTING	NEW	ITEM DESCRIPTION
		WATER METER (WM)
		BACKFLOW PREVENTER ASSEMBLY (BPA)
		BACKFLOW PREVENTER ENCLOSURE (BPE)
		BOOSTER PUMP (BP)
		TRUCK LOADING STANDPIPE (TLS)
		FLOW SENSOR (FS)
		MASTER IRRIGATION CONTROLLER (MIC)
		AUXILIARY IRRIGATION CONTROLLER (AIC)
		IRRIGATION CONTROLLER (IC) IRRIGATION CONTROLLER (IC) (BATTERY) IRRIGATION CONTROLLER (IC) (SOLAR) IRRIGATION CONTROLLER (IC) (TWO WIRE) IRRIGATION CONTROLLER(S) IN CONTROLLER ENCLOSURE CABINET (ICC)
		ARMOR-CLAD CONDUCTORS (ACC)
		CONTROL AND NEUTRAL CONDUCTORS (CNC)
		IRRIGATION CONDUIT
		EXTEND IRRIGATION CONDUIT
		DUCTILE IRON PIPE (SUPPLY LINE) (MAIN) (DIP)
		GALVANIZED STEEL PIPE (SUPPLY LINE) (MAIN) (GSP)
		GALVANIZED STEEL PIPE (SUPPLY LINE) (LATERAL) (GSP)
		PLASTIC PIPE (SUPPLY LINE) (MAIN)
		PLASTIC PIPE (SUPPLY LINE) (LATERAL)
		COPPER PIPE (SUPPLY LINE)
		DRIP IRRIGATION TUBING
		REMOTE CONTROL VALVE (RCV) REMOTE CONTROL VALVE (MASTER) (RCVM) REMOTE CONTROL VALVE (MASTER) W/FLOW METER (RCVMF)
		REMOTE CONTROL VALVE W/PRESSURE REGULATOR (RCVP)
		EXISTING MANUAL CONTROL VALVE (MCV)
		DRIP VALVE ASSEMBLY (DVA)
		WYE STRAINER ASSEMBLY (WSA)

EXISTING	NEW	ITEM DESCRIPTION
		GATE VALVE (GV)
		BALL VALVE (BV)
		QUICK COUPLING VALVE (QCV)
		CAM COUPLER ASSEMBLY (CCA)
		GARDEN VALVE ASSEMBLY (GARVA)
		PRESSURE REGULATING VALVE (PRV)
		PRESSURE RELIEF VALVE (PRLV)
		FLOW CONTROL VALVE (FCV)
		COMBINATION AIR RELEASE VALVE (CARV)
		CHECK VALVE (CV)
		FLUSH VALVE (FV)
		EXISTING NOZZLE LINE W/TURNING UNION
		EXISTING IRRIGATION SYSTEM
		EXISTING IRRIGATION SYSTEM TO BE REMOVED
		CHAIN LINK GATE
		QUICK COUPLING VALVE W/SPRINKLER PROTECTOR
		SPRINKLER W/SPRINKLER PROTECTOR
		CONNECT TO EXISTING SYSTEM
		CAP
		CAP EXISTING
		FIBER ROLL
		COMPOST SOCK



**VALVE CODE**

\* VALVE CODES FOR EXISTING VALVES ARE SHOWN IN A DASHED ENCLOSURE.

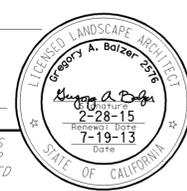
RSP H2 DATED NOVEMBER 15, 2013 SUPERSEDES RSP H2 DATED JULY 19, 2013 AND STANDARD PLAN H2 DATED MAY 20, 2011 - PAGE 219 OF THE STANDARD PLANS BOOK DATED 2010.

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**LANDSCAPE AND EROSION CONTROL SYMBOLS**  
 NO SCALE

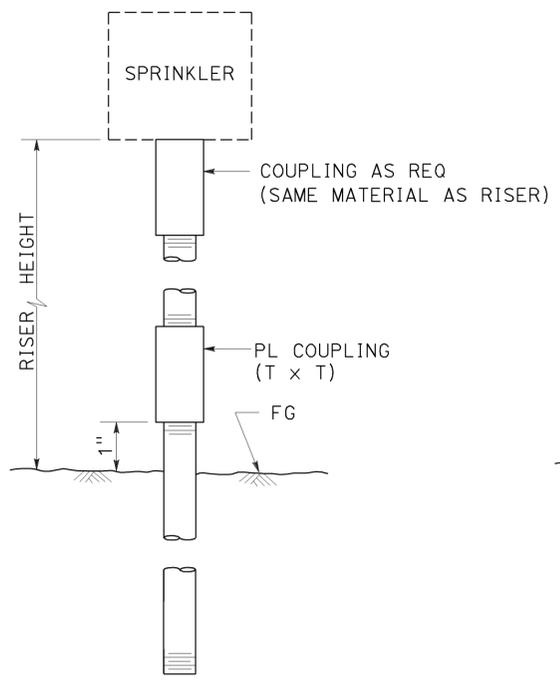
**REVISED STANDARD PLAN RSP H2**

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	28.3/28.6	58	78

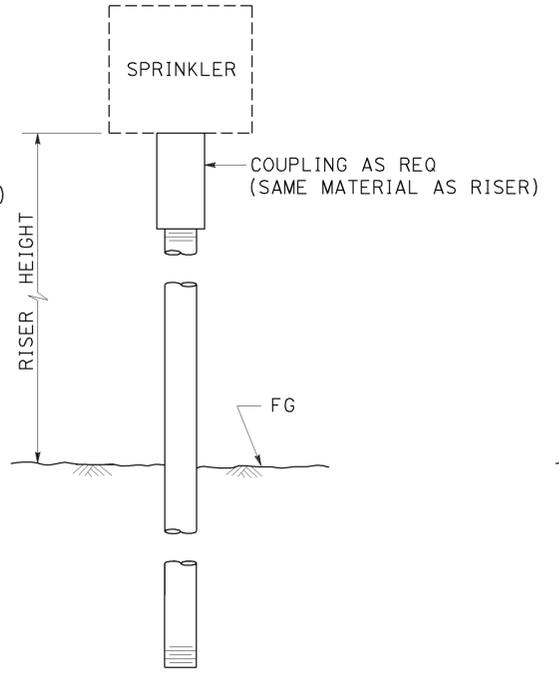
July 19, 2013  
 PLANS APPROVAL DATE  
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



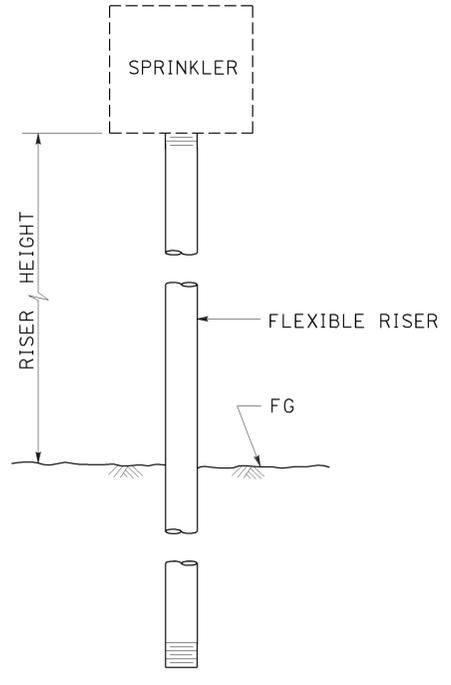
TO ACCOMPANY PLANS DATED 03-09-15



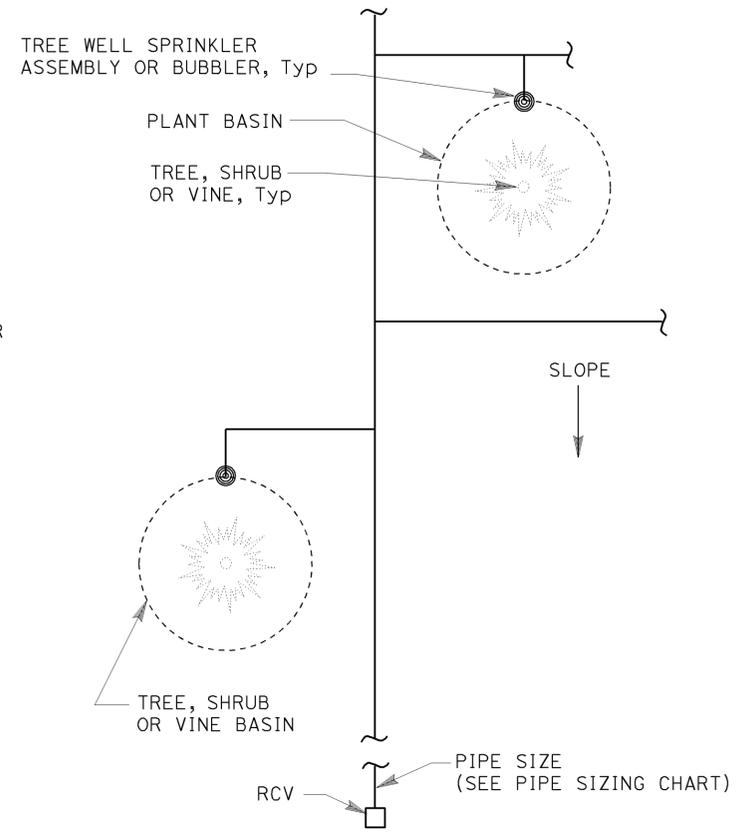
**ELEVATION**  
**RISER SPRINKLER ASSEMBLY TYPE I**



**ELEVATION**  
**RISER SPRINKLER ASSEMBLY TYPE II**



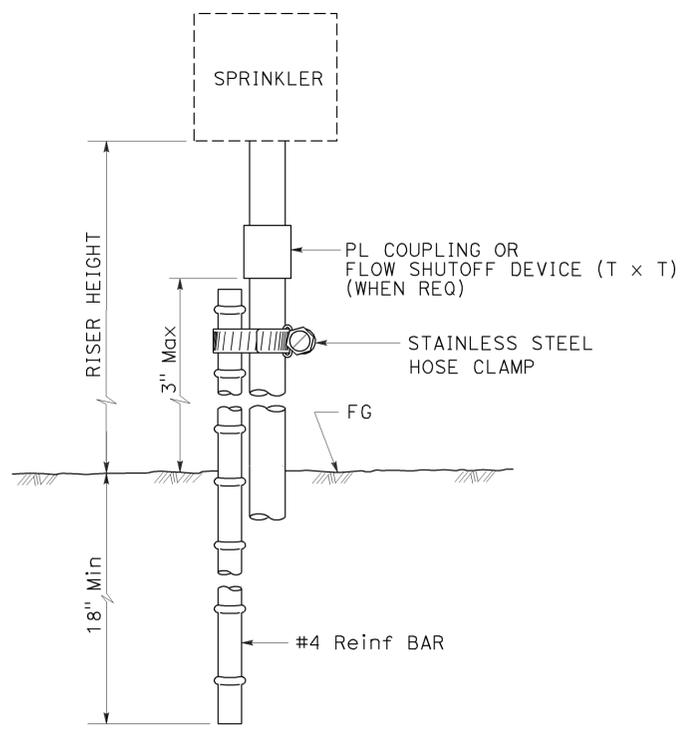
**ELEVATION**  
**RISER SPRINKLER ASSEMBLY TYPE III**



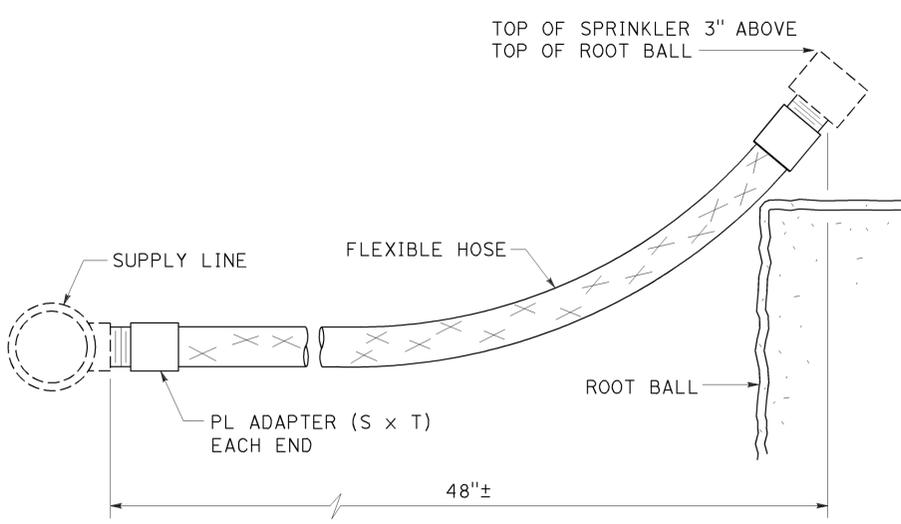
**PLAN**

**NOTES:**

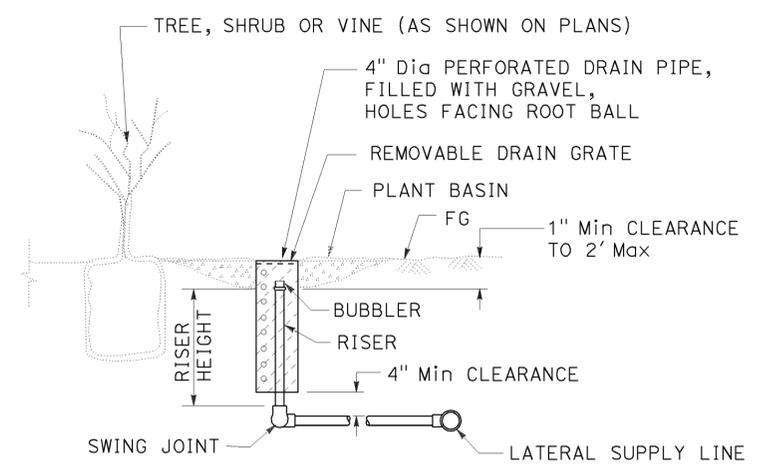
1. Install tree well sprinkler assembly on up-hill side of plant when on slope.
2. Install bubbler within basin.



**ELEVATION**  
**RISER SPRINKLER ASSEMBLY TYPE IV**



**ELEVATION**  
**RISER SPRINKLER ASSEMBLY TYPE V**



**SECTION**  
**TREE WELL SPRINKLER ASSEMBLY**

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**LANDSCAPE DETAILS**  
NO SCALE

RSP H5 DATED JULY 19, 2013 SUPERSEDES STANDARD PLAN H5 DATED MAY 20, 2011 - PAGE 222 OF THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP H5**

**2010 REVISED STANDARD PLAN RSP H5**

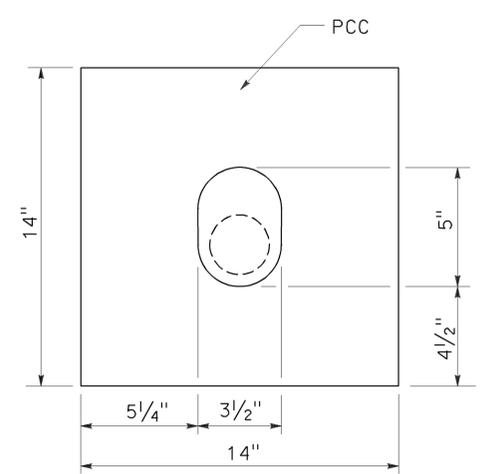
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	28.3/28.6	59	78

*Gregory A. Balzer*  
LICENSED LANDSCAPE ARCHITECT

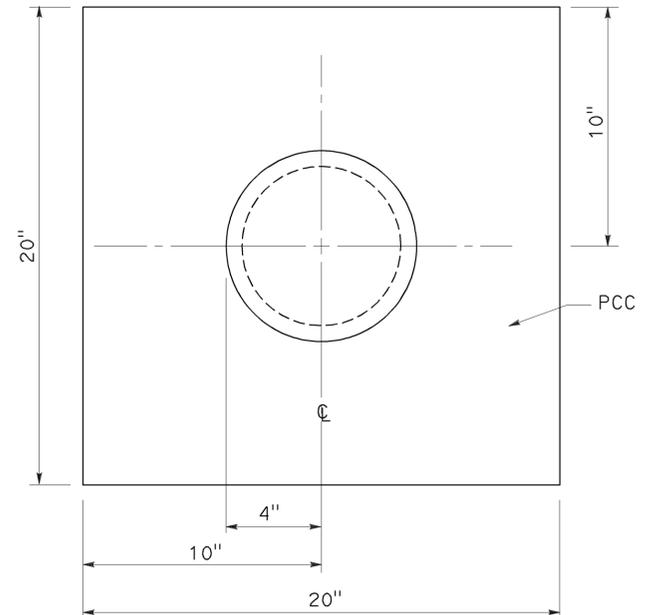
July 19, 2013  
PLANS APPROVAL DATE

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.

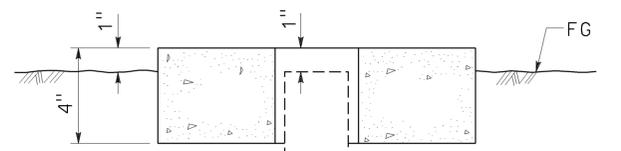
TO ACCOMPANY PLANS DATED **03-09-15**



PLAN

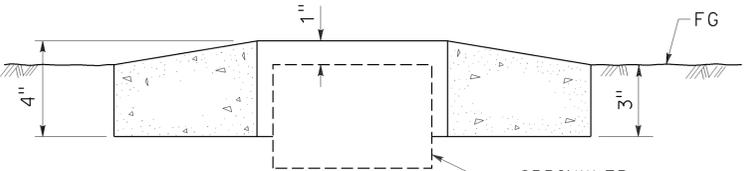


PLAN



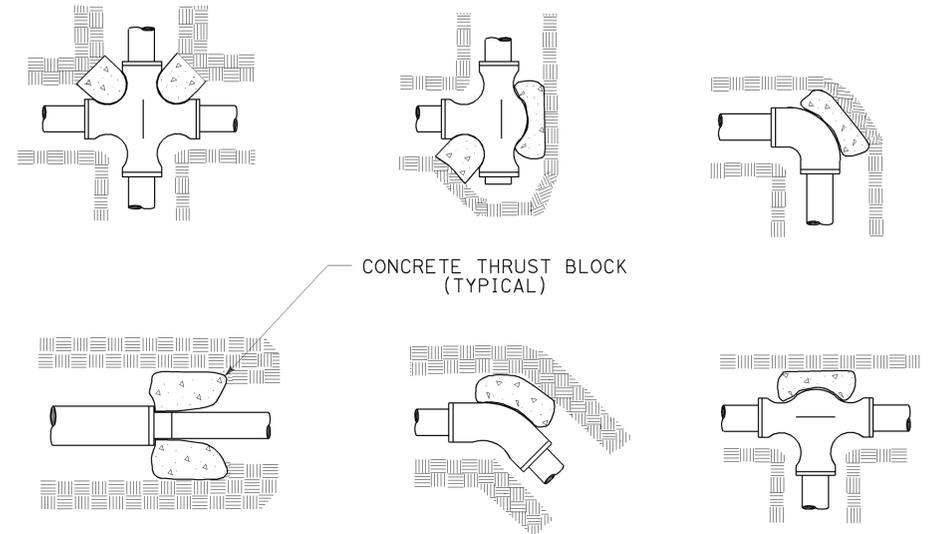
SECTION SPRINKLER OR QUICK COUPLING VALVE

SPRINKLER PROTECTOR TYPE I

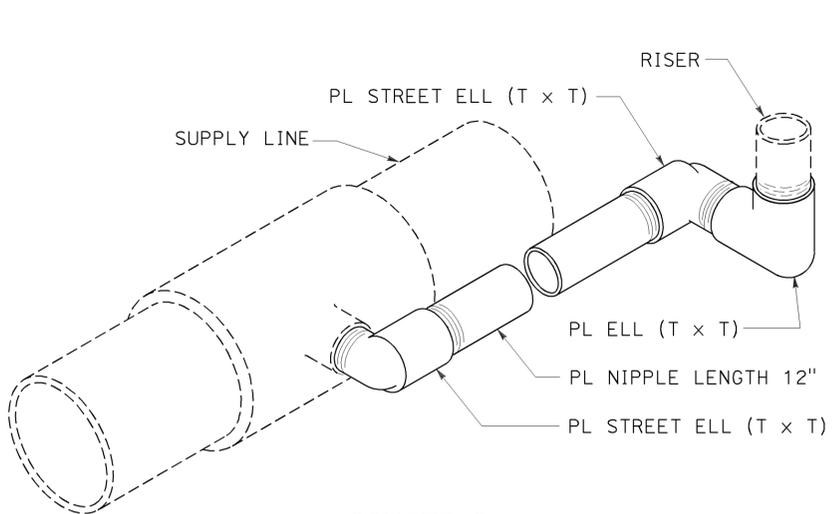


SECTION SPRINKLER

SPRINKLER PROTECTOR TYPE II

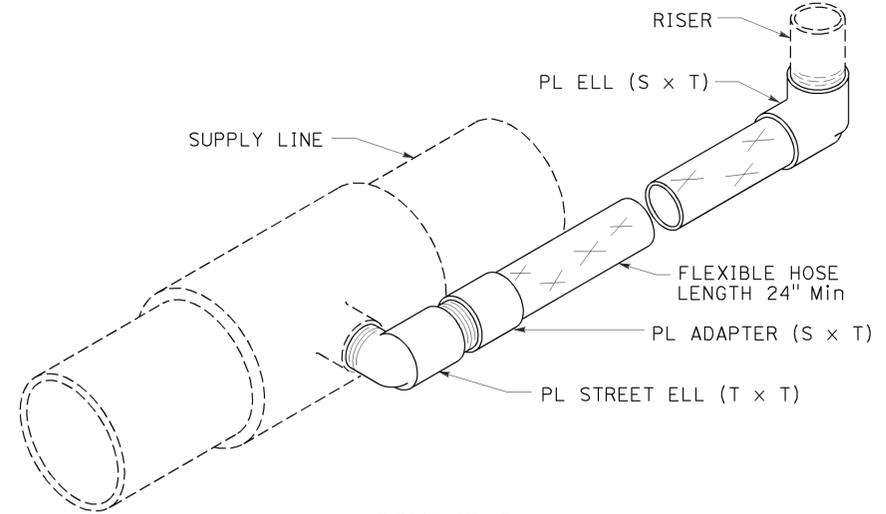


TYPICAL THRUST BLOCKS



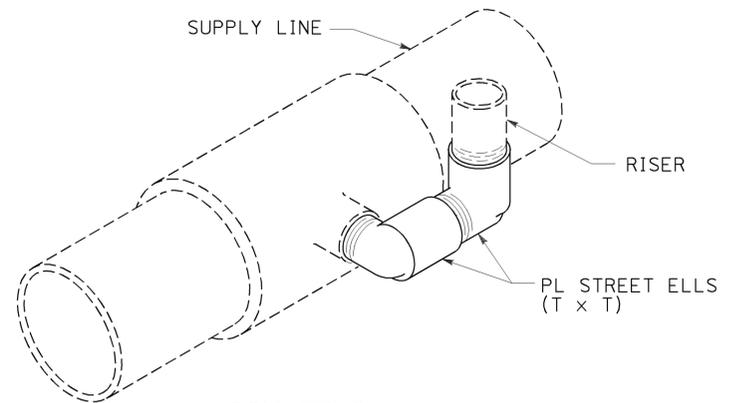
ISOMETRIC

POP-UP SPRINKLER ASSEMBLY TYPE I



ISOMETRIC

POP-UP SPRINKLER ASSEMBLY TYPE II



ISOMETRIC

POP-UP SPRINKLER ASSEMBLY TYPE III

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**LANDSCAPE DETAILS**

NO SCALE

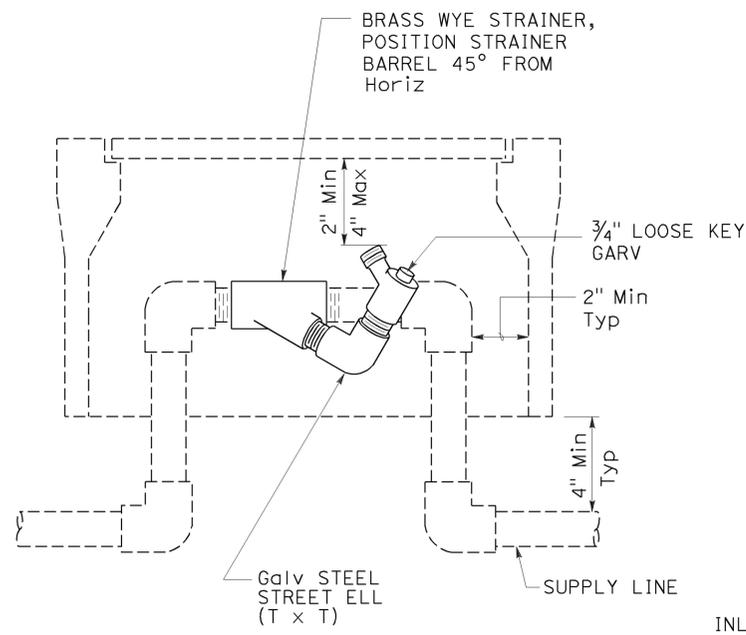
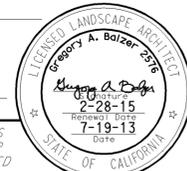
RSP H6 DATED JULY 19, 2013 SUPERSEDES STANDARD PLAN H6 DATED MAY 20, 2011 - PAGE 223 OF THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP H6**

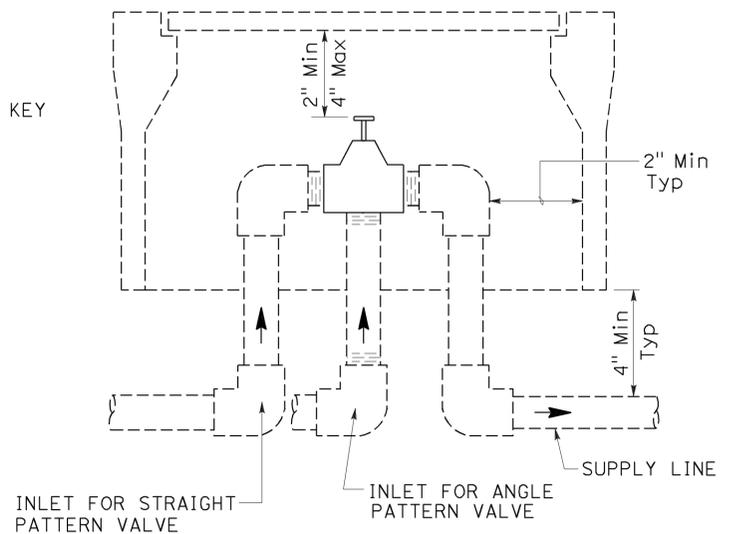
2010 REVISED STANDARD PLAN RSP H6

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	28.3/28.6	60	78

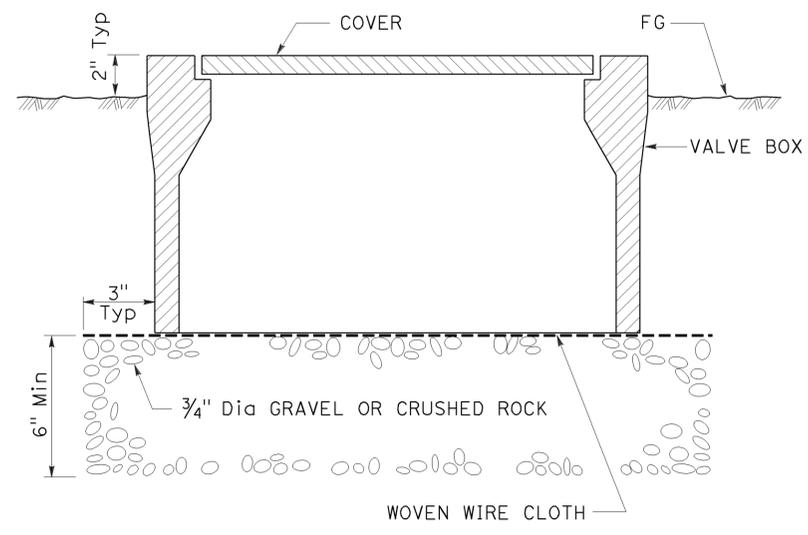
July 19, 2013  
 PLANS APPROVAL DATE  
 THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



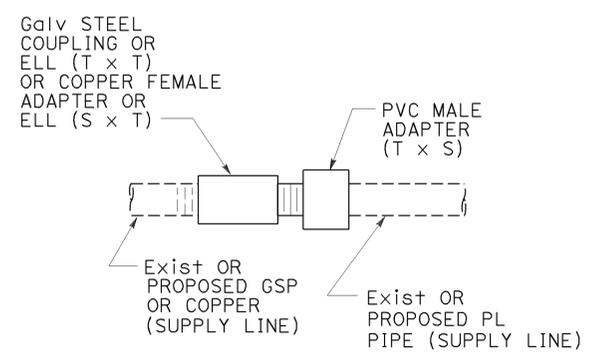
**ELEVATION**  
**WYE STRAINER ASSEMBLY**



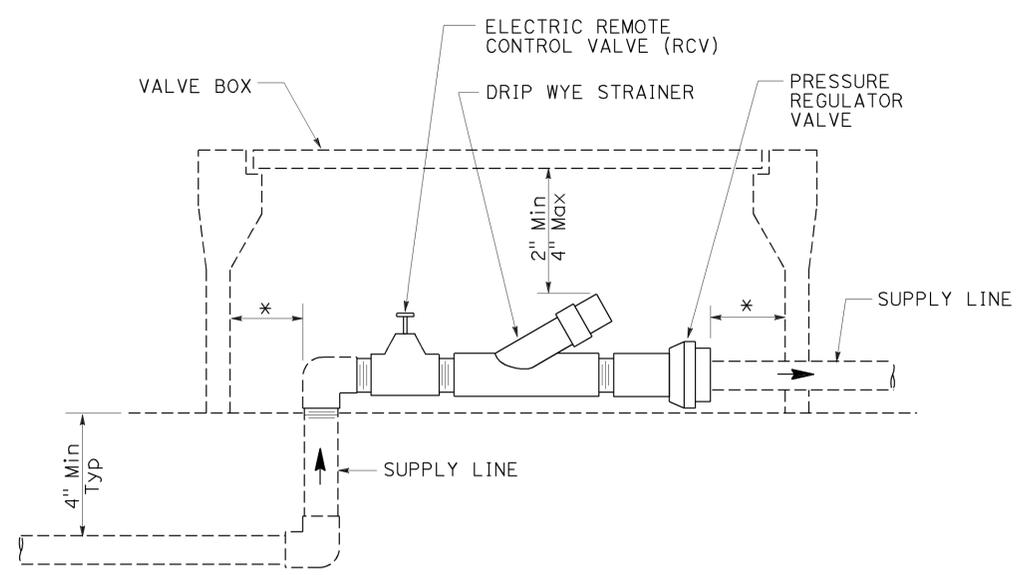
**ELEVATION**  
**VALVE**



**SECTION**  
**VALVE BOX**



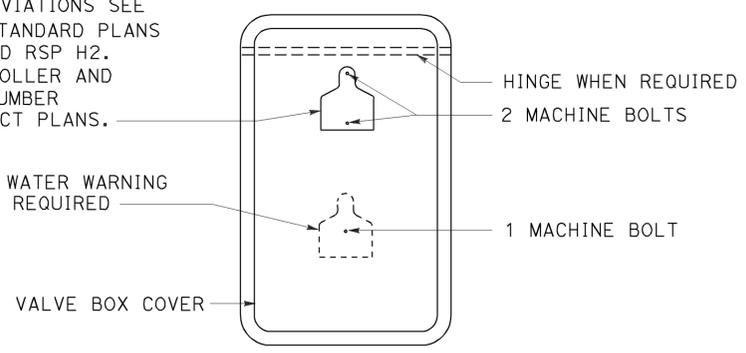
**GALVANIZED OR COPPER PIPE CONNECTION TO PLASTIC PIPE**



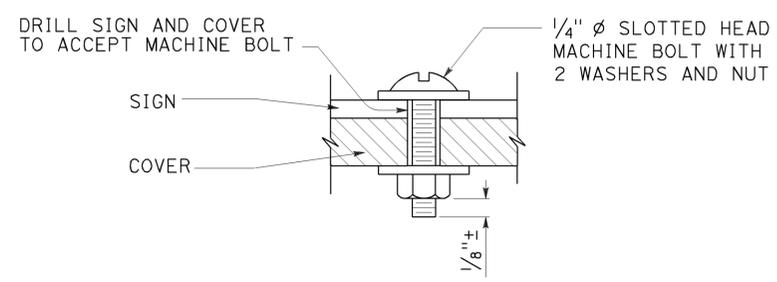
**ELEVATION**  
**DRIP VALVE ASSEMBLY**

IDENTIFICATION LABEL:  
FOR ABBREVIATIONS SEE  
REVISED STANDARD PLANS  
RSP H1 AND RSP H2.  
FOR CONTROLLER AND  
STATION NUMBER  
SEE PROJECT PLANS.

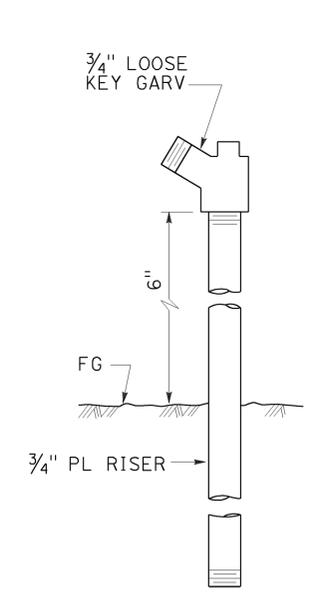
RECYCLED WATER WARNING  
SIGN WHEN REQUIRED



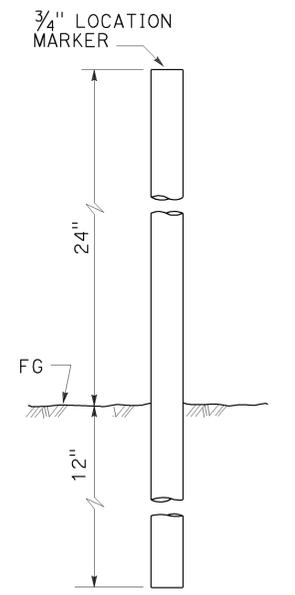
**PLAN**



**SECTION**  
**VALVE BOX IDENTIFICATION**



**ELEVATION**  
**GARDEN VALVE ASSEMBLY**



**ELEVATION**  
**LOCATION MARKER**

**GARDEN VALVE ASSEMBLY**

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**LANDSCAPE DETAILS**

NO SCALE

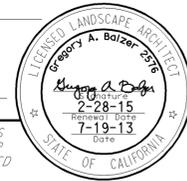
RSP H7 DATED JULY 19, 2013 SUPERSEDES STANDARD PLAN H7  
DATED MAY 20, 2011 - PAGE 224 OF THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP H7**

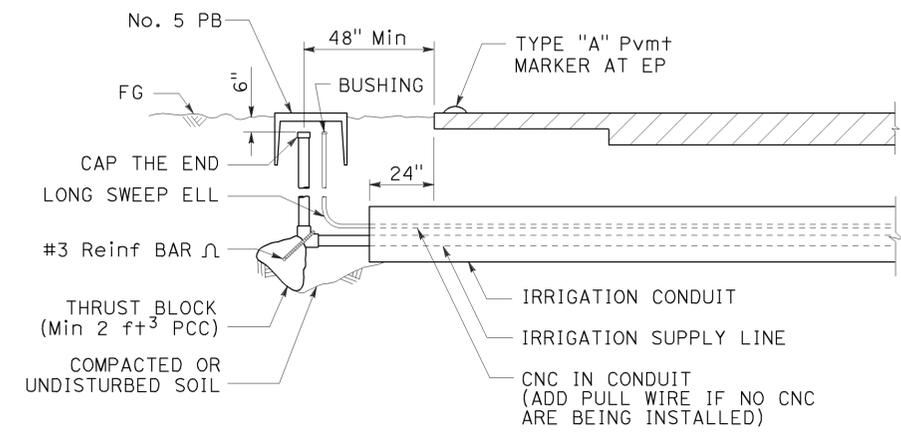
2010 REVISED STANDARD PLAN RSP H7

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	28.3/28.6	61	78

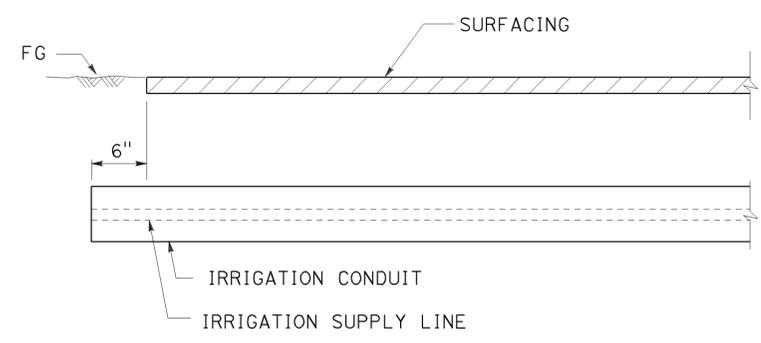
*Gregory A. Balzer*  
 LICENSED LANDSCAPE ARCHITECT  
 July 19, 2013  
 PLANS APPROVAL DATE  
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



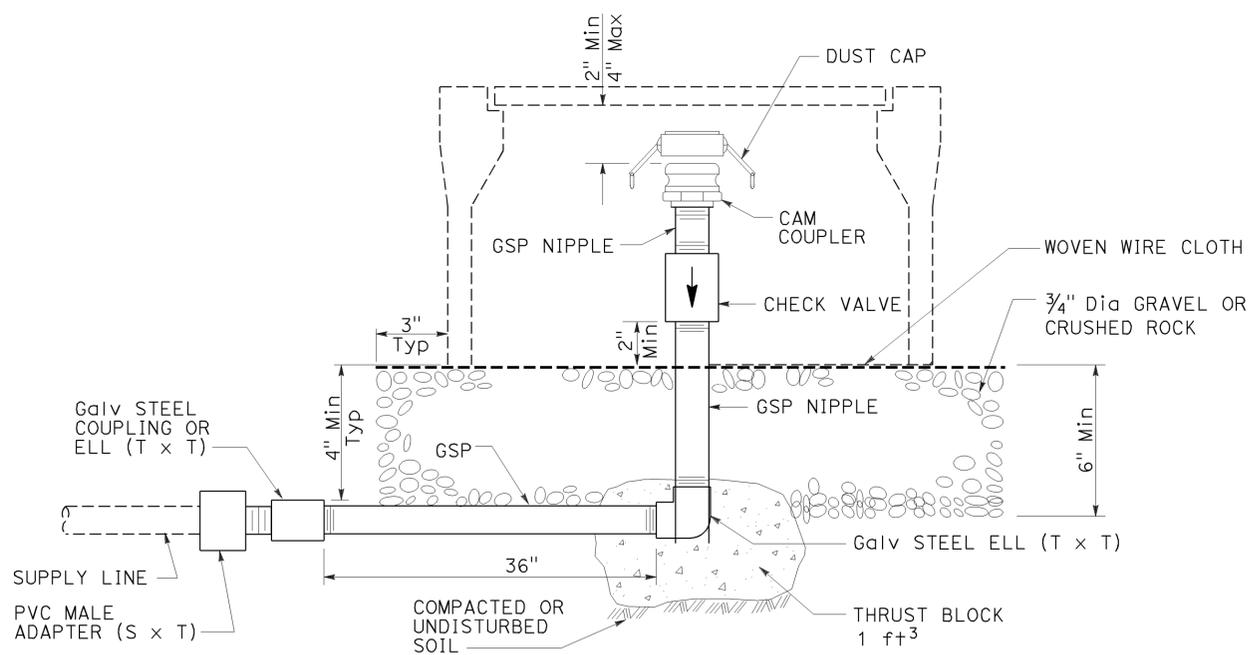
TO ACCOMPANY PLANS DATED 03-09-15



**SECTION**  
**IRRIGATION CONDUIT**  
UNDER TRAVELED WAY



**SECTION**  
**IRRIGATION CONDUIT**  
UNDER SIDEWALKS, DRIVEWAYS AND PATHS



**ELEVATION**  
**CAM COUPLER ASSEMBLY**

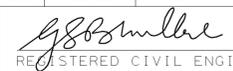
STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**LANDSCAPE DETAILS**  
NO SCALE

RSP H9 DATED JULY 19, 2013 SUPERSEDES STANDARD PLAN H9 DATED MAY 20, 2011 - PAGE 226 OF THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP H9**

2010 REVISED STANDARD PLAN RSP H9

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	28.3/28.6	62	78

  
 REGISTERED CIVIL ENGINEER  
 July 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.

TO ACCOMPANY PLANS DATED **03-09-15**

TABLE 1

TAPER LENGTH CRITERIA AND CHANNELIZING DEVICE SPACING							
SPEED (S)	MINIMUM TAPER LENGTH * FOR WIDTH OF OFFSET 12 FEET (W)				MAXIMUM CHANNELIZING DEVICE SPACING		
	TANGENT 2L	MERGING L	SHIFTING L/2	SHOULDER L/3	X	Y	Z **
					TAPER	TANGENT	CONFLICT
mph	ft	ft	ft	ft	ft	ft	ft
20	160	80	40	27	20	40	10
25	250	125	63	42	25	50	12
30	360	180	90	60	30	60	15
35	490	245	123	82	35	70	17
40	640	320	160	107	40	80	20
45	1080	540	270	180	45	90	22
50	1200	600	300	200	50	100	25
55	1320	660	330	220	55	110	27
60	1440	720	360	240	60	120	30
65	1560	780	390	260	65	130	32
70	1680	840	420	280	70	140	35

\* - For other offsets, use the following merging taper length formula for L:  
 For speed of 40 mph or less,  $L = WS^2/60$   
 For speed of 45 mph or more,  $L = WS$

Where: L = Taper length in feet  
 W = Width of offset in feet  
 S = Posted speed limit, off-peak 85th-percentile speed prior to work starting, or the anticipated operating speed in mph

\*\* - Use for taper and tangent sections where there are no pavement markings or where there is a conflict between existing pavement markings and channelizers (CA).

TABLE 2

LONGITUDINAL BUFFER SPACE AND FLAGGER STATION SPACING				
SPEED *	Min D **	DOWNGRADE Min D ***		
		-3%	-6%	-9%
		ft	ft	ft
mph	ft	ft	ft	ft
20	115	116	120	126
25	155	158	165	173
30	200	205	215	227
35	250	257	271	287
40	305	315	333	354
45	360	378	400	427
50	425	446	474	507
55	495	520	553	593
60	570	598	638	686
65	645	682	728	785
70	730	771	825	891

\* - Speed is posted speed limit, off-peak 85th-percentile speed prior to work starting, or the anticipated operating speed in mph  
 \*\* - Longitudinal buffer space or flagger station spacing  
 \*\*\* - Use on sustained downgrade steeper than -3 percent and longer than 1 mile.

TABLE 3

ADVANCE WARNING SIGN SPACING			
ROAD TYPE	DISTANCE BETWEEN SIGNS *		
	A	B	C
	ft	ft	ft
URBAN - 25 mph OR LESS	100	100	100
URBAN - MORE THAN 25 mph TO 40 mph	250	250	250
URBAN - MORE THAN 40 mph	350	350	350
RURAL	500	500	500
EXPRESSWAY / FREEWAY	1000	1500	2640

\* - The distances are approximate, are intended for guidance purposes only, and should be applied with engineering judgment. These distances should be adjusted by the Engineer for field conditions, if necessary, by increasing or decreasing the recommended distances.

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**TRAFFIC CONTROL SYSTEM TABLES  
 FOR LANE AND RAMP CLOSURES**

NO SCALE

RSP T9 DATED JULY 19, 2013 SUPERSEDES RSP T9 DATED APRIL 19, 2013 THAT SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP T9**

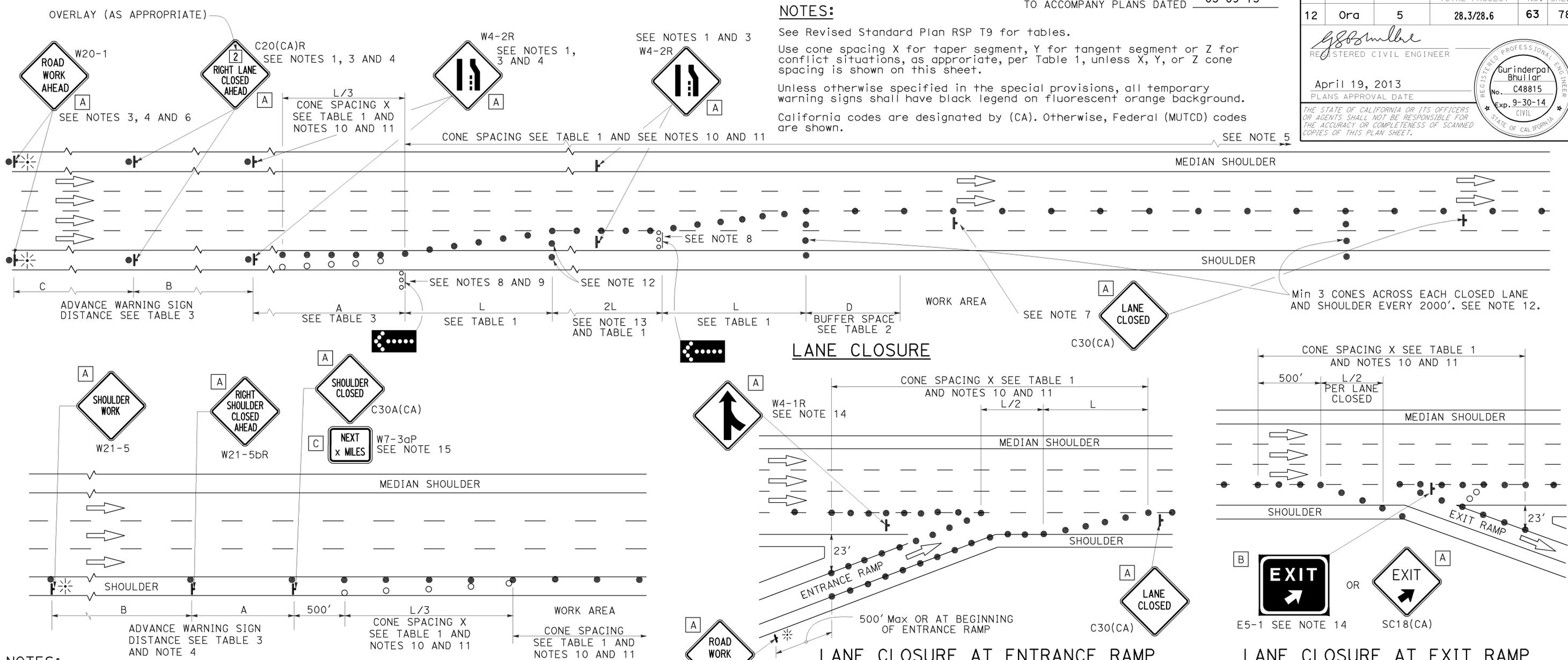
2010 REVISED STANDARD PLAN RSP T9

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	28.3/28.6	63	78

REGISTERED CIVIL ENGINEER  
 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.

REGISTERED PROFESSIONAL ENGINEER  
 Gurinderpal Bhullar  
 No. C48815  
 Exp. 9-30-14  
 CIVIL  
 STATE OF CALIFORNIA



- NOTES:**
1. Median lane closures shall conform to the details as shown except that C20(CA)L and W4-2L signs shall be used.
  2. At least one person shall be assigned to provide full time maintenance of traffic control devices for lane closures.
  3. Duplicate sign installations are not required:
    - a) On opposite shoulder if at least one-half of the available lanes remain open to traffic.
    - b) In the median if the width of the median shoulder is less than 8' and the outside lanes are to be closed.
  4. Each advance warning sign on each side of the roadway shall be equipped with at least two flags for daytime closure. Each flag shall be at least 16" x 16" in size and shall be orange or fluorescent red-orange in color. Flashing beacons shall be placed at the locations indicated for lane closure during hours of darkness.
  5. A G20-2 "END ROAD WORK" sign, with minimum size of 48" x 24" as appropriate, shall be placed at the end of the lane closure unless the end of work area is obvious or ends within a larger project's limits.

- SHOULDER CLOSURE**
6. If the W20-1 sign would follow within 2000' of a stationary W20-1 or G20-1 "ROAD WORK NEXT \_\_\_\_\_ MILES", use a C20(CA) "NEXT x MILES" sign for the first advance warning sign.
  7. Place a C30(CA) sign every 2000' throughout length of lane closure.
  8. One flashing arrow sign for each lane closed. The flashing arrow signs shall be Type I.
  9. A minimum 1500' of sight distance shall be provided where possible for vehicles approaching the first flashing arrow sign. Lane closures shall not begin at top of crest vertical curve or on a horizontal curve.
  10. All cones used for lane closures during the hours of darkness shall be fitted with retroreflective bands (or sleeves) as specified in the specifications.
  11. Portable delineators, placed at one-half the spacing indicated for traffic cones may be used instead of cones for daytime closures only.

12. Unless otherwise specified in the special provisions, a minimum of 3 cones shall be placed transversely across each closed lane and shoulder at each location where a taper across a traffic lane ends and every 2000' as shown on the "Lane Closure" detail. Two Type II barricades may be used instead of the 3 cones. The transverse alignment of the cones or barricades on the closed shoulder may be shifted from the transverse alignment to provide access to the work.
13. Unless otherwise specified in the special provisions, the 2L tangent shown along lane lines shall be used between the L tapers required for each closed traffic lane.
14. Unless otherwise specified in the special provisions, the E5-1 or SC18(CA) and W4-1 signs shall be used as shown.
15. A W7-3aP "NEXT \_\_\_\_\_ MILES" plaque must be used if the shoulder closure extends beyond the distance that can be perceived by road users.

**LEGEND**

- TRAFFIC CONE
- TRAFFIC CONE (OPTIONAL TAPER)
- † TEMPORARY TRAFFIC CONTROL SIGN
- FLASHING ARROW SIGN (FAS)
- FAS SUPPORT OR TRAILER
- ⚡ PORTABLE FLASHING BEACON

**SIGN PANEL SIZE (Min)**

A	48" x 48"
B	72" x 60"
C	36" x 30"

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION

## TRAFFIC CONTROL SYSTEM FOR LANE CLOSURE ON FREEWAYS AND EXPRESSWAYS

NO SCALE

RSP T10 DATED APRIL 19, 2013 SUPERSEDES STANDARD PLAN T10  
 DATED MAY 20, 2011 - PAGE 237 OF THE STANDARD PLANS BOOK DATED 2010.

### REVISED STANDARD PLAN RSP T10

2010 REVISED STANDARD PLAN RSP T10

# TYPICAL RAMP CLOSURES

## SIGN PANEL SIZE (Min)

- A 48" x 48"
- B 48" x 30"
- C 36" x 36"
- D 48" x 36"

## LEGEND

- TRAFFIC CONE
- † TEMPORARY TRAFFIC CONTROL SIGN
- ‡ BARRICADES
- ⚡ PORTABLE FLASHING BEACON

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	28.3/28.6	64	78

*Gurinderpal Bhullar*  
 REGISTERED CIVIL ENGINEER  
 April 19, 2013  
 PLANS APPROVAL DATE

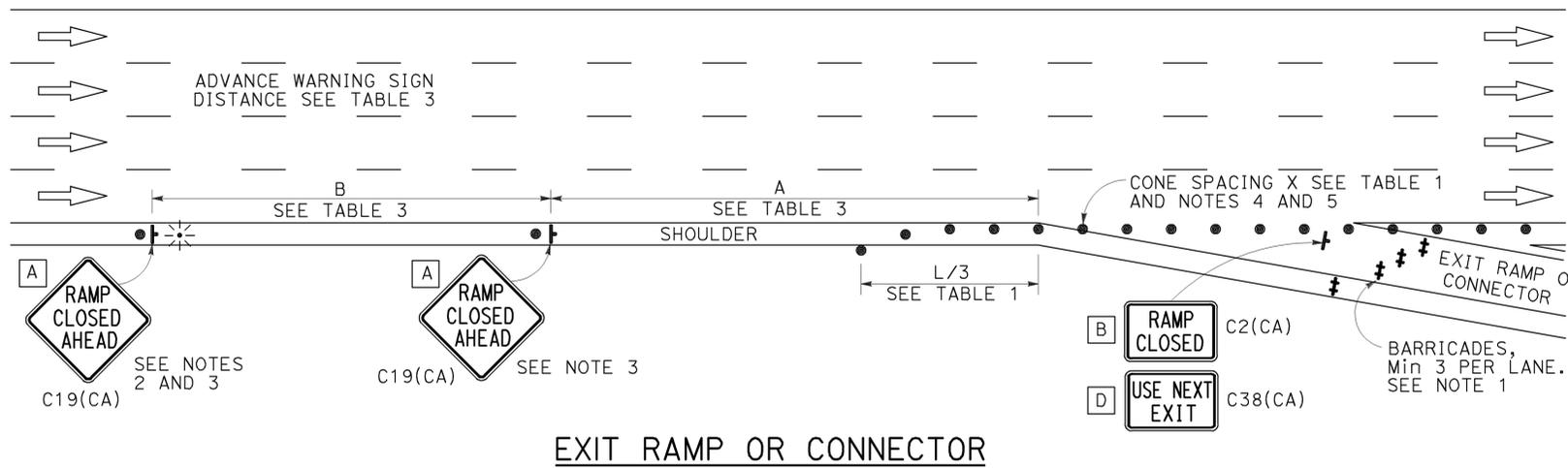
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

REGISTERED PROFESSIONAL ENGINEER  
 Gurinderpal Bhullar  
 No. C48815  
 Exp. 9-30-14  
 CIVIL  
 STATE OF CALIFORNIA

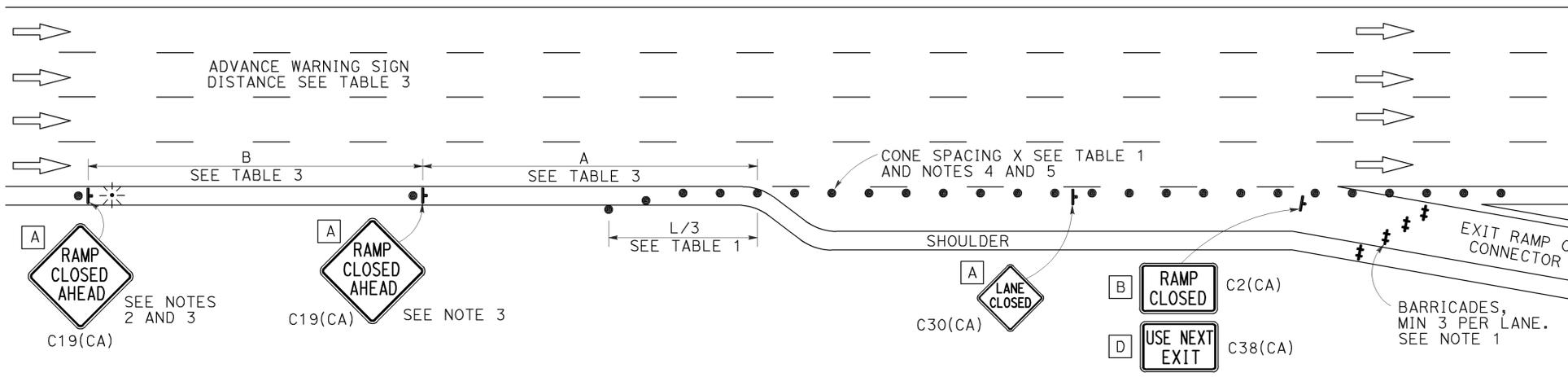
TO ACCOMPANY PLANS DATED **03-09-15**

## NOTES:

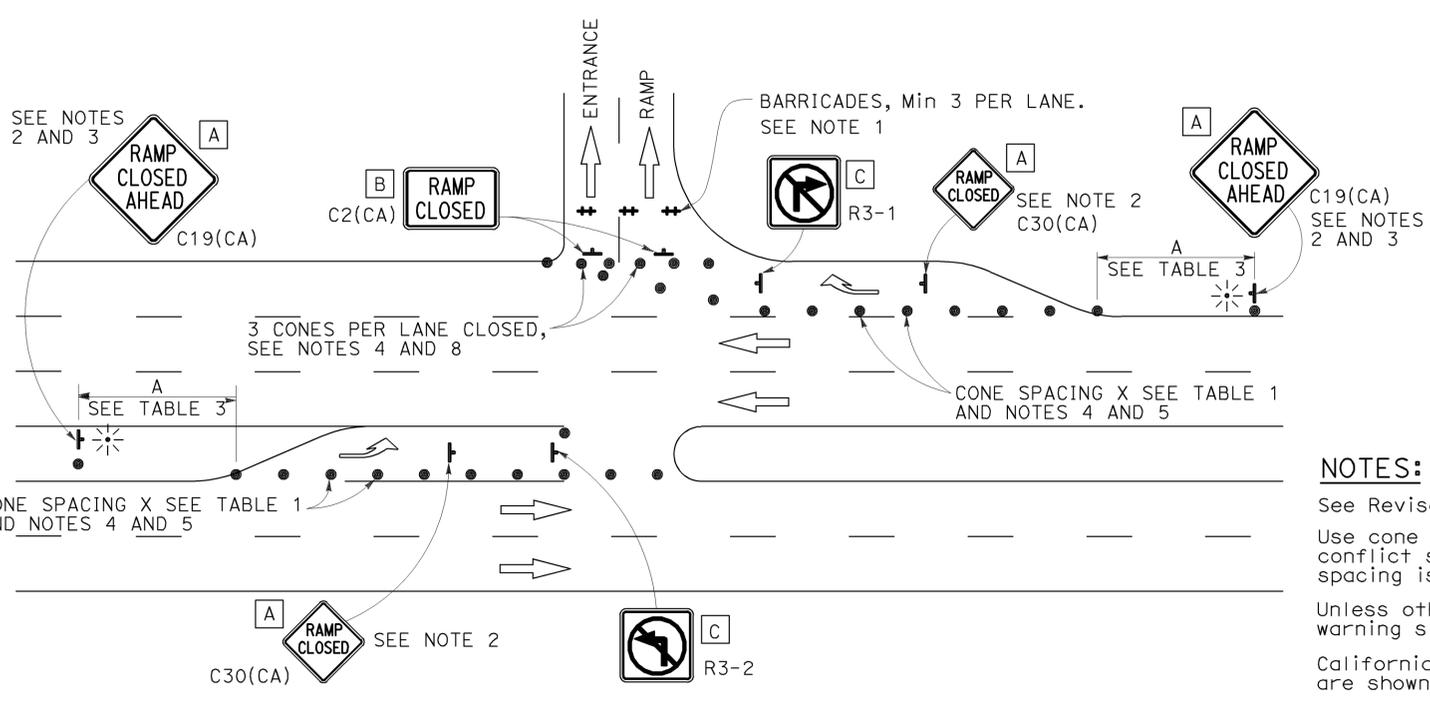
- Barricades shall be Type I, II, or III for closures lasting one week or less and Type III for closures lasting longer than one week.
- In addition to placing the C19(CA) "RAMP CLOSED AHEAD" and C30(CA) "RAMP CLOSED" signs, black on orange overlay plates with the word "CLOSED" may be mounted, as directed by the Engineer, on all guide signs that refer to the closed ramp. The letter size on the overlay shall be the same as the guide sign.
- Each advance C19(CA) "RAMP CLOSED AHEAD" sign shall be equipped with at least two flags for daytime closure. Each flag shall be at least 16" x 16" in size and shall be orange or fluorescent red-orange in color. A flashing beacon shall be placed on top of the first C19(CA) sign during hours of darkness.
- All cones used for ramp closures during the hours of darkness shall be fitted with retroreflective bands (or sleeves) as specified in the specifications.
- Portable delineators, placed at one-half the spacing indicated for traffic cones, may be used instead of cones for daytime ramp closures only.
- At least one person shall be assigned to provide full time maintenance of traffic control devices, unless otherwise directed by the Engineer.
- The existing "EXIT" signs shall be covered during ramp closures.
- A minimum of 3 cones shall be placed transversely across each closed lane and shoulder.



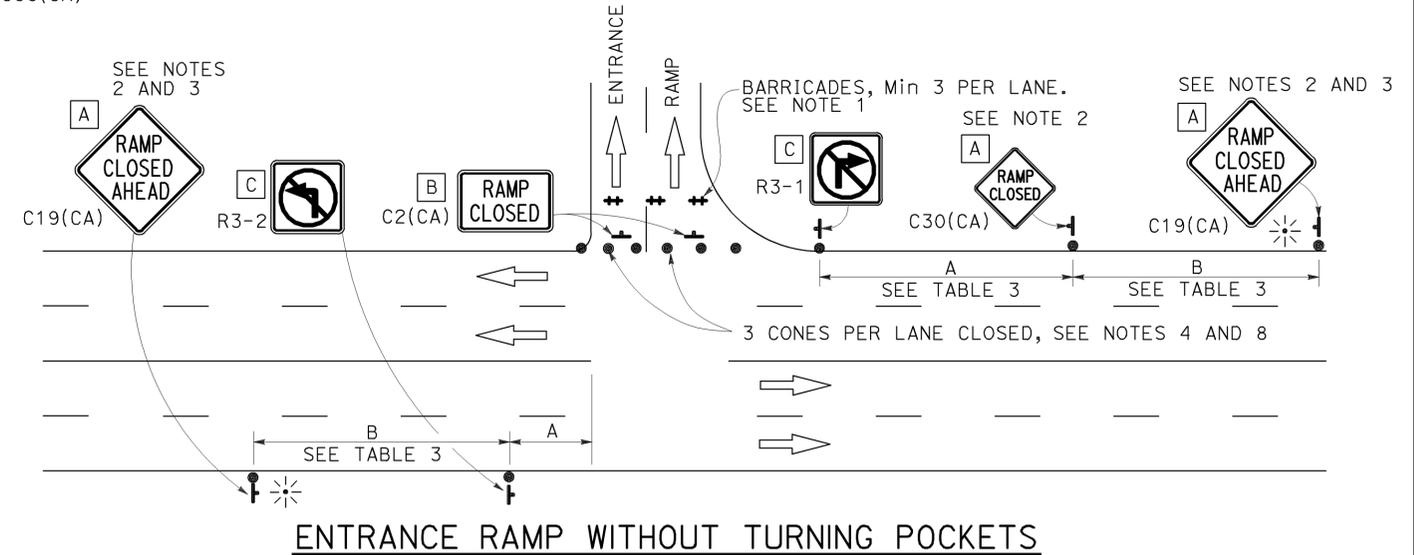
EXIT RAMP OR CONNECTOR



EXIT RAMP OR CONNECTOR WITH ADDITIONAL LANE



ENTRANCE RAMP WITH TURNING POCKETS



ENTRANCE RAMP WITHOUT TURNING POCKETS

## NOTES:

- See Revised Standard Plan RSP T9 for tables.
- Use cone spacing X for taper segment, Y for tangent segment or Z for conflict situations, as appropriate, per Table 1, unless X, Y, or Z cone spacing is shown on this sheet.
- Unless otherwise specified in the special provisions, all temporary warning signs shall have black legend on fluorescent orange background.
- California codes are designated by (CA). Otherwise, Federal (MUTCD) codes are shown.

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**TRAFFIC CONTROL SYSTEM  
 FOR RAMP CLOSURE**  
 NO SCALE

RSP T14 DATED APRIL 19, 2013 SUPERSEDES STANDARD PLAN T14  
 DATED MAY 20, 2011 - PAGE 242 OF THE STANDARD PLANS BOOK DATED 2010.  
**REVISED STANDARD PLAN RSP T14**

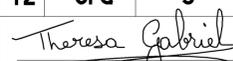
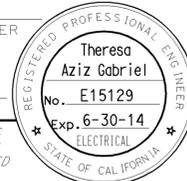
2010 REVISED STANDARD PLAN RSP T14

**LEGEND:**

<b>AB</b>	ABANDON. IF APPLIED TO CONDUIT, REMOVE CONDUCTORS
<b>BC</b>	INSTALL PULL BOX IN EXISTING CONDUIT RUN
<b>BP</b>	PEDESTRIAN BARRICADE, TYPE AS INDICATED ON PLAN
<b>CB</b>	INSTALL CONDUIT INTO EXISTING PULL BOX
<b>CC</b>	CONNECT NEW AND EXISTING CONDUIT. REMOVE EXISTING CONDUCTORS AND INSTALL CONDUCTORS AS INDICATED
<b>CF</b>	CONDUIT TO REMAIN FOR FUTURE USE. REMOVE CONDUCTORS. INSTALL PULL TAPE
<b>DH</b>	DETECTOR HANDHOLE
<b>FA</b>	FOUNDATION TO BE ABANDONED
<b>IS</b>	INSTALL SIGN ON SIGNAL MAST ARM
<b>NS</b>	NO SLIP BASE ON STANDARD
<b>PEC</b>	PHOTOELECTRIC CONTROL
<b>PEU</b>	PHOTOELECTRIC UNIT
<b>RC</b>	EQUIPMENT OR MATERIAL TO BE REMOVED AND BECOME THE PROPERTY OF THE CONTRACTOR
<b>RE</b>	REMOVE ELECTROLIER, FUSES AND BALLAST. TAPE ENDS OF CONDUCTORS
<b>RL</b>	RELOCATE EQUIPMENT
<b>RR</b>	REMOVE AND REUSE EQUIPMENT
<b>RS</b>	REMOVE AND SALVAGE EQUIPMENT
<b>SC</b>	SPLICE NEW TO EXISTING CONDUCTORS
<b>SD</b>	SERVICE DISCONNECT
<b>TSP</b>	TELEPHONE SERVICE POINT

**ABBREVIATIONS**

APS	ACCESSIBLE PEDESTRIAN SIGNAL	M/M	MULTIPLE TO MULTIPLE TRANSFORMER
BBS	BATTERY BACKUP SYSTEM	Mtg	MOUNTING
BC	BOLT CIRCLE	MV	MERCURY VAPOR LIGHTING FIXTURE
BPB	BICYCLE PUSH BUTTON	MVDS	MICROWAVE VEHICLE DETECTION SYSTEM
C	CONDUIT	N	NEUTRAL (GROUNDED CONDUCTOR)
CB	CIRCUIT BREAKER	NB	NEUTRAL BUS
CCTV	CLOSED CIRCUIT TELEVISION	NC	NORMALLY CLOSE
Ck+	CIRCUIT	NO	NORMALLY OPEN
CMS	CHANGEABLE MESSAGE SIGN	P	CIRCUIT BREAKER'S POLE
Ctid	CALTRANS IDENTIFICATION	PB	PULL BOX
Comm	COMMUNICATION	PBA	PUSH BUTTON ASSEMBLY
DLC	LOOP DETECTOR LEAD-IN CABLE	PEC	PHOTOELECTRIC CONTROL
EMS	EXTINGUISHABLE MESSAGE SIGN	Ped	PEDESTRIAN
EVUC	EMERGENCY VEHICLE UNIT CABLE	PEU	PHOTOELECTRIC UNIT
EVUD	EMERGENCY VEHICLE UNIT DETECTOR	PT	CONDUIT WITH PULL TAPE
FB	FLASHING BEACON	RE	RELOCATED EQUIPMENT
FBCA	FLASHING BEACON CONTROL ASSEMBLY	RM	RAMP METERING
FBS	FLASHING BEACON WITH SLIP BASE	RWIS	ROADSIDE WEATHER INFORMATION SYSTEM
FO	FIBER OPTIC	SB	SLIP BASE
G	EQUIPMENT GROUNDING CONDUCTOR	SIC	SIGNAL INTERCONNECT CABLE
GB	GROUND BUS	Sig	SIGNAL
GFCI	GROUND FAULT CIRCUIT INTERRUPTER	SMA	SIGNAL MAST ARM
HAR	HIGHWAY ADVISORY RADIO	SNS	STREET NAME SIGN
Hex	HEXAGONAL	SP	SERVICE POINT
HPS	HIGH PRESSURE SODIUM	TDC	TELEPHONE DEMARCATION CABINET
IISNS	INTERNALLY ILLUMINATED STREET NAME SIGN	TMS	TRAFFIC MONITORING STATION
ISL	INDUCTION SIGN LIGHTING	TOS	TRAFFIC OPERATIONS SYSTEM
LED	LIGHT EMITTING DIODE	Veh	VEHICLE
LMA	LUMINAIRE MAST ARM	VIVDS	VIDEO IMAGE VEHICLE DETECTION SYSTEM
LPS	LOW PRESSURE SODIUM	WIM	WEIGH-IN-MOTION
Ltg	LIGHTING	Xfmr	TRANSFORMER
Lum	LUMINAIRE		
M	METERED		
MAT	MAST ARM MOUNTING TOP ATTACHMENT		
MAS	MAST ARM MOUNTING SIDE ATTACHMENT		

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	28.3/28.6	65	78
 REGISTERED ELECTRICAL ENGINEER July 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.					
					

TO ACCOMPANY PLANS DATED **03-09-15**

**SOFFIT AND WALL MOUNTED LUMINAIRES**

-  PENDANT, 70 W HPS UNLESS OTHERWISE SPECIFIED
-  FLUSH, 70 W HPS UNLESS OTHERWISE SPECIFIED
-  WALL SURFACE, 70 W HPS UNLESS OTHERWISE SPECIFIED
-  EXISTING SOFFIT OR WALL LUMINAIRE TO REMAIN UNMODIFIED
-  EXISTING SOFFIT OR WALL LUMINAIRE TO BE MODIFIED AS SPECIFIED

**NOTE:**  
Arrow indicates "street side" of luminaire.

COMMONLY USED SYMBOLS FOR UNITED STATES CUSTOMARY UNITS OF MEASUREMENT:

SYMBOL USED	DEFINITIONS
$\Omega$	OHMS
min	MINUTE
s	SECOND
bps	BITS PER SECOND
Bps	BYTES PER SECOND
A	AMPERE
V	VOLT
V(dc)	VOLT (DIRECT CURRENT)
V(ac)	VOLT (ALTERNATING CURRENT)
FC	FOOT - CANDLE
W	WATTS
VA	VOLT-AMPERE
M	MEGA
k	KILO
m	MILLI
$\mu$	MICRO
P	PICO
HZ	HERTZ

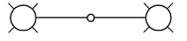
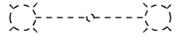
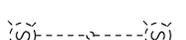
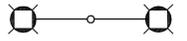
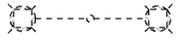
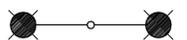
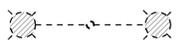
**MISCELLANEOUS ELECTROLIERS**

NEW	EXISTING	
		LUMINAIRE ON WOOD POLE
		NON-STANDARD ELECTROLIER (SEE PROJECT NOTES OR PROJECT PLANS)
		CITY ELECTROLIER
		ELECTROLIER FOUNDATION (FUTURE INSTALLATION)

**NOTES:**

- HPS luminaires shall be 310 W HPS when installed on Type 21, 21D, 30, 31 and 32 Standards, unless otherwise specified. HPS luminaires shall be 200 W when installed on other type standards or poles, unless otherwise specified.
- LED luminaires shall be 235 W when installed on Type 21, 21D, 30, 31 and 32 Standards, unless otherwise specified. LED luminaires shall be 165 W when installed on other type standards or poles, unless otherwise specified.
- Luminaires shall be the cutoff type, ANSI Type III medium cutoff lighting distribution, unless otherwise specified.

**STANDARD ELECTROLIER**

NEW	EXISTING	STANDARD TYPE
		15
		15D
		15 STRUCTURE
		15D STRUCTURE
		21
		21D
		21 STRUCTURE
		21D STRUCTURE
		30
		31
		32

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**ELECTRICAL SYSTEMS (LEGEND AND ABBREVIATIONS)**

NO SCALE

RSP ES-1A DATED JULY 19, 2013 SUPERSEDES STANDARD PLAN ES-1A DATED MAY 20, 2011 - PAGE 425 OF THE STANDARD PLANS BOOK DATED 2010.

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

2010 REVISED STANDARD PLAN RSP ES-1A

TO ACCOMPANY PLANS DATED **03-09-15**

**CONDUIT**

**SIGNAL EQUIPMENT**

NEW	EXISTING	
---	---	LIGHTING CONDUIT, UNLESS OTHERWISE INDICATED OR NOTED
---	---	TRAFFIC SIGNAL CONDUIT
---C---	---c---	COMMUNICATION CONDUIT
---T---	---t---	TELEPHONE CONDUIT
---F---	---f---	FIRE ALARM CONDUIT
---FO---	---fo---	FIBER OPTIC CONDUIT
---	---	CONDUIT TERMINATION
		CONDUIT RISER ATTACHED TO THE STRUCTURE OR SERVICE POLE

NEW	EXISTING	
		PEDESTRIAN SIGNAL HEAD "C" INDICATES COUNTDOWN PEDESTRIAN HEAD
		PUSH BUTTON ASSEMBLY POST
		PEDESTRIAN BARRICADE
		VEHICLE SIGNAL HEAD (WITH BACKPLATE AND 3-SECTIONS: RED, YELLOW AND GREEN)
		VEHICLE SIGNAL HEAD WITH ANGLE VISOR
		MODIFICATIONS OF BASIC SYMBOL: "L" INDICATES ALL NON-ARROW SECTIONS LOUVERED "LG" INDICATES LOUVERED GREEN SECTION ONLY "PV" INDICATES ALL 12" SECTIONS PROGRAMMED VISIBILITY "8" INDICATES ALL 8" SECTIONS (ONLY WHEN SPECIFIED)

**SIGNAL EQUIPMENT Cont**

NEW	EXISTING	
		GUARD POST
		TYPE 1 STANDARD WITH RAMP METERING SIGN
		OPTICAL DETECTOR FOR THE EMERGENCY VEHICLE DETECTION SYSTEM

**SERVICE EQUIPMENT**

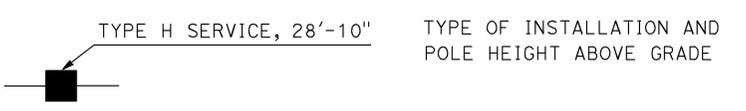
NEW	EXISTING	
---OH---	---oh---	OVERHEAD LINES
		WOOD POLE, "U" INDICATES UTILITY OWNED
		POLE GUY WITH ANCHOR
		UTILITY TRANSFORMER - GROUND MOUNTED
		SERVICE EQUIPMENT ENCLOSURE TYPE. DOOR INDICATES FRONT OF ENCLOSURE
		TELEPHONE DEMARCATION CABINET

		VEHICLE SIGNAL HEAD CONSISTING OF RED, YELLOW AND GREEN LEFT ARROW SECTIONS
		VEHICLE SIGNAL HEAD CONSISTING OF RED AND YELLOW SECTIONS WITH AN UP GREEN ARROW SECTION
		VEHICLE SIGNAL HEAD (5 SECTION) CONSISTING OF RED, YELLOW AND GREEN SECTIONS WITH YELLOW AND GREEN RIGHT ARROW SECTIONS
		TYPE 15TS STANDARD WITH VEHICLE SIGNAL HEAD AND LUMINAIRE
		TYPE 21TS STANDARD WITH VEHICLE SIGNAL HEAD AND LUMINAIRE
		STANDARD WITH LUMINAIRE AND SIGNAL MAST ARMS AND ATTACHED VEHICLE SIGNAL HEADS
		TYPE 1 STANDARD WITH ATTACHED VEHICLE SIGNAL HEADS
		STANDARD WITH A SIGNAL MAST ARM, ATTACHED VEHICLE SIGNAL HEADS AND INTERNALLY ILLUMINATED STREET NAME SIGN
		CONTROLLER ASSEMBLY. DOOR INDICATES FRONT OF CABINET

**NOTES:**

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

**POLE-MOUNTED SERVICE DESIGNATION**



**FLASHING BEACON**

NEW	EXISTING	
		FLASHING BEACON (ONE VEHICLE SIGNAL HEAD WITH BACKPLATE AND VISOR) "R" INDICATES RED INDICATION, "Y" INDICATES YELLOW INDICATION
		FLASHING BEACON WITH TYPE 15-FBS STANDARD AND A SIGN.
		FLASHING BEACON WITH TYPES 9, 9A OR 9B SIGN UNLESS OTHERWISE SPECIFIED OR INDICATED

**ILLUMINATED OVERHEAD SIGN**

NEW	EXISTING	
		SINGLE POST, SINGLE ILLUMINATED SIGN, BALANCED BUTTERFLY
		SINGLE POST, DOUBLE ILLUMINATED SIGN, BALANCED BUTTERFLY
		SINGLE POST, SINGLE ILLUMINATED SIGN, FULL CANTILEVER
		DOUBLE POST, SINGLE ILLUMINATED SIGN
		SINGLE ILLUMINATED SIGN MOUNTED ON STRUCTURE
		DOUBLE POST, SINGLE ILLUMINATED SIGN WITH ELECTROLIER

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**ELECTRICAL SYSTEMS  
(LEGEND AND ABBREVIATIONS)**

NO SCALE

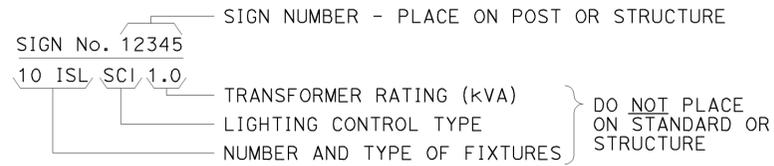
RSP ES-1B DATED JULY 19, 2013 SUPERSEDES STANDARD PLAN ES-1B DATED MAY 20, 2011 - PAGE 426 OF THE STANDARD PLANS BOOK DATED 2010.

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

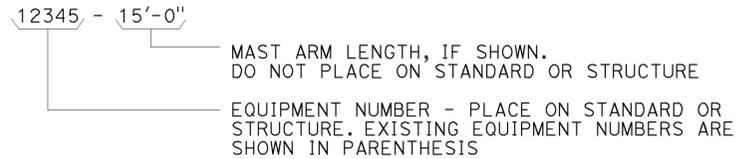
2010 REVISED STANDARD PLAN RSP ES-1B

### EQUIPMENT IDENTIFICATION

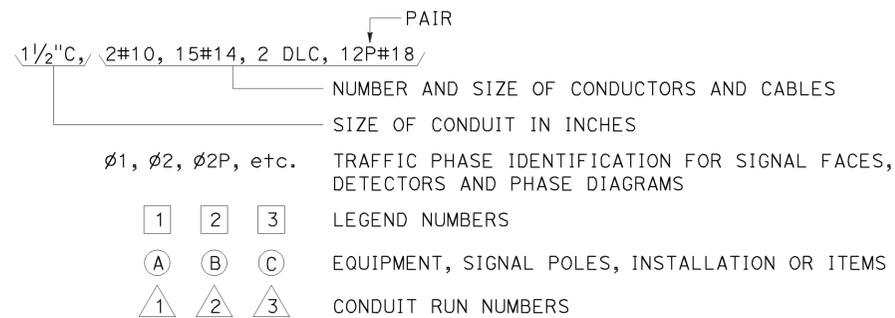
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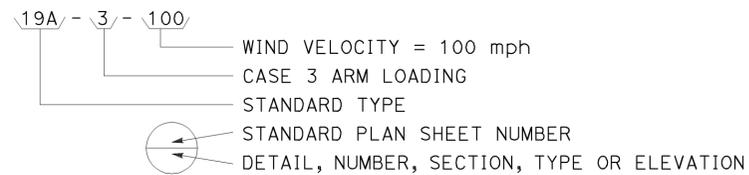
#### ELECTROLIER OR EQUIPMENT IDENTIFICATION NUMBER:



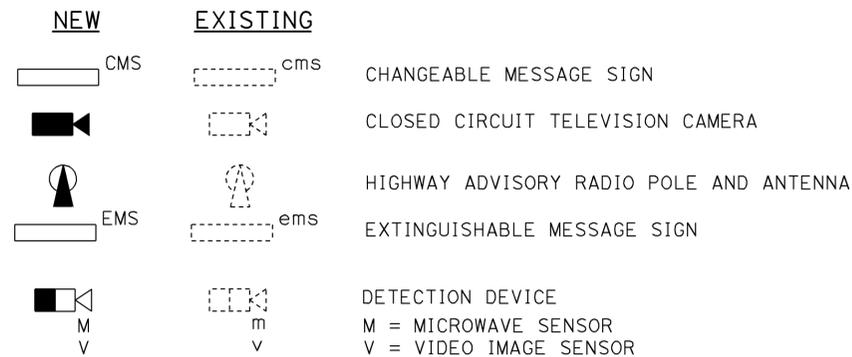
#### CONDUIT AND CONDUCTOR IDENTIFICATION:



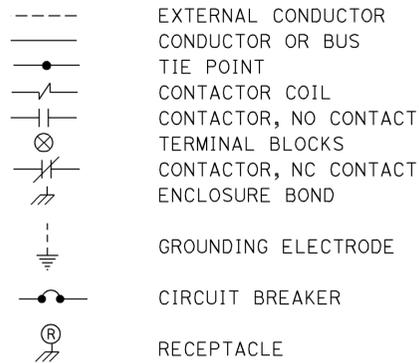
#### SIGNAL AND LIGHTING STANDARD (TYPICAL DESIGNATION):



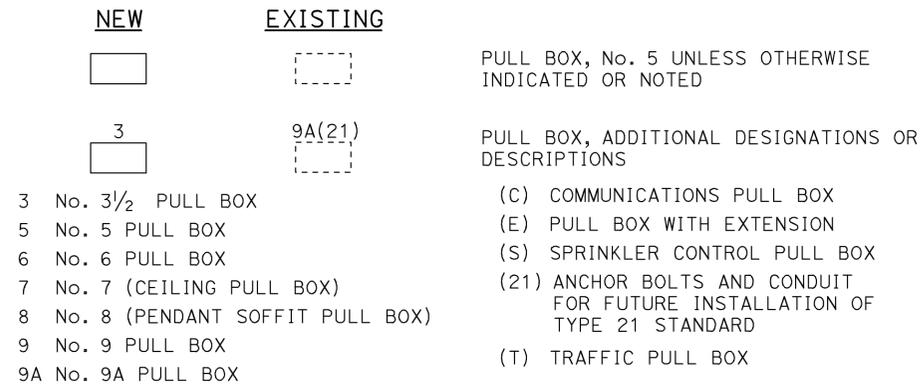
### MISCELLANEOUS EQUIPMENT



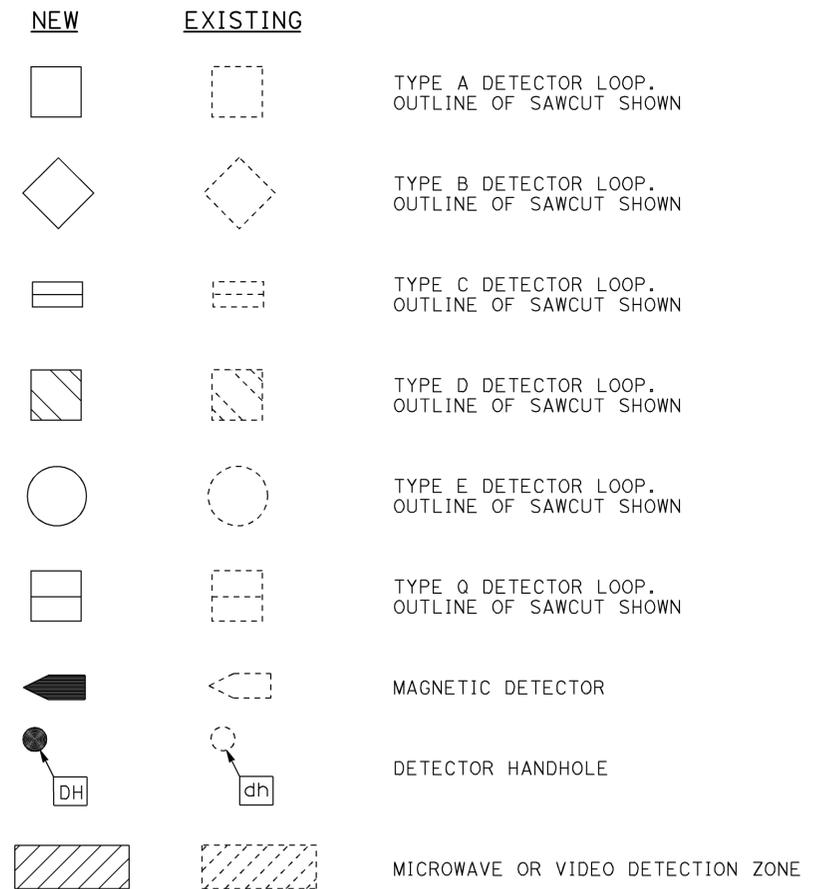
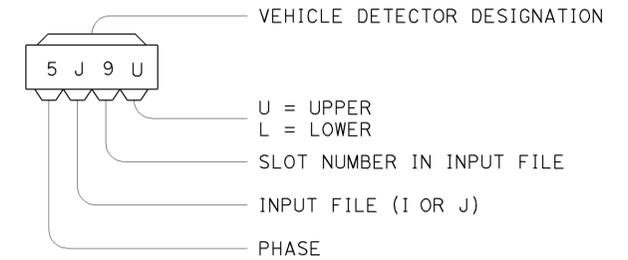
### WIRING DIAGRAM LEGEND



### PULL BOXES



### VEHICLE DETECTORS



STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

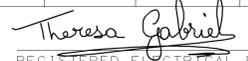
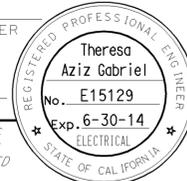
## ELECTRICAL SYSTEMS (LEGEND AND ABBREVIATIONS)

NO SCALE

RSP ES-1C DATED JULY 19, 2013 SUPERSEDES STANDARD PLAN ES-1C  
DATED MAY 20, 2011 - PAGE 427 OF THE STANDARD PLANS BOOK DATED 2010.

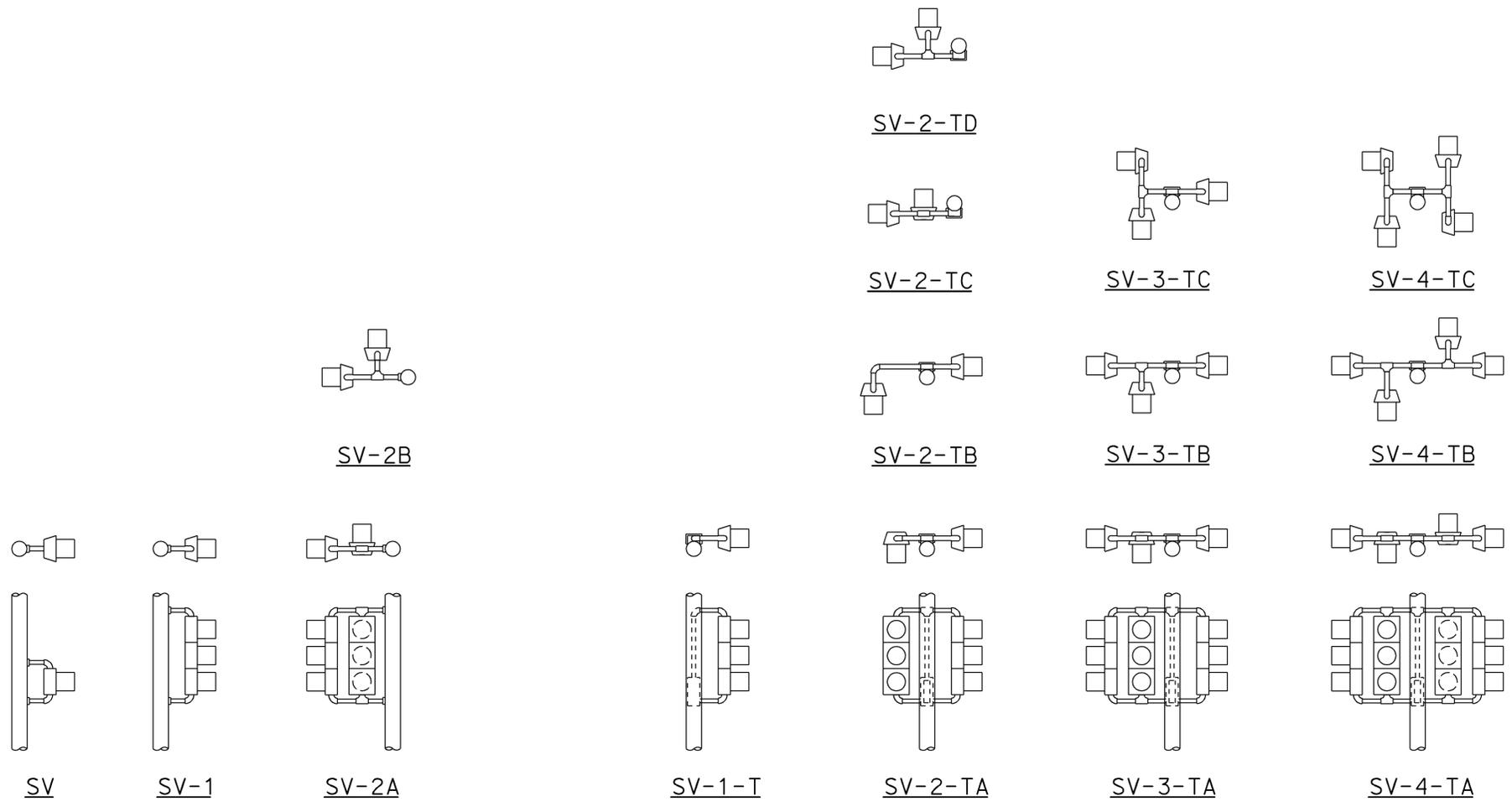
**REVISED STANDARD PLAN RSP ES-1C**

2010 REVISED STANDARD PLAN RSP ES-1C

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	28.3/28.6	68	78
 REGISTERED ELECTRICAL ENGINEER					
July 19, 2013 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 03-09-15

PLAN VIEW OF OTHER  
SIDE MOUNTINGS



**ABBREVIATIONS:**

- SV SIDE MOUNTED VEHICLE SIGNALS
- T TERMINAL COMPARTMENT
- TV TOP MOUNTED VEHICLE SIGNALS
- 1, 2, 3, 4 NUMBER OF SIGNAL FACES  
(3 - SECTION, UNLESS OTHERWISE INDICATED)
- A, B, C, D CONFIGURATION OF SIGNALS

**NOTES:**

1. Mountings shall be oriented to provide maximum horizontal clearance to adjacent roadway.
2. Bracket arms shall be long enough to permit proper alignment of signals and backplate installation.
3. See Standard Plans ES-4D and ES-4E for attachment fitting details.

PLAN VIEW OF  
TOP MOUNTINGS

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**ELECTRICAL SYSTEMS  
(VEHICULAR SIGNAL HEADS  
AND MOUNTINGS)**

NO SCALE

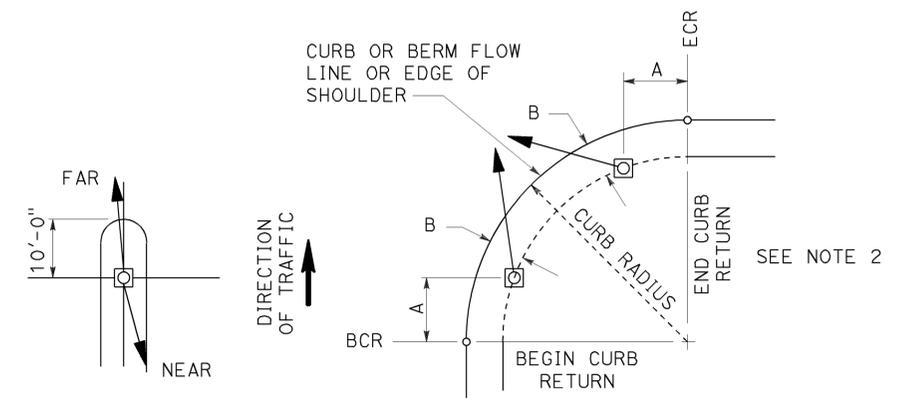
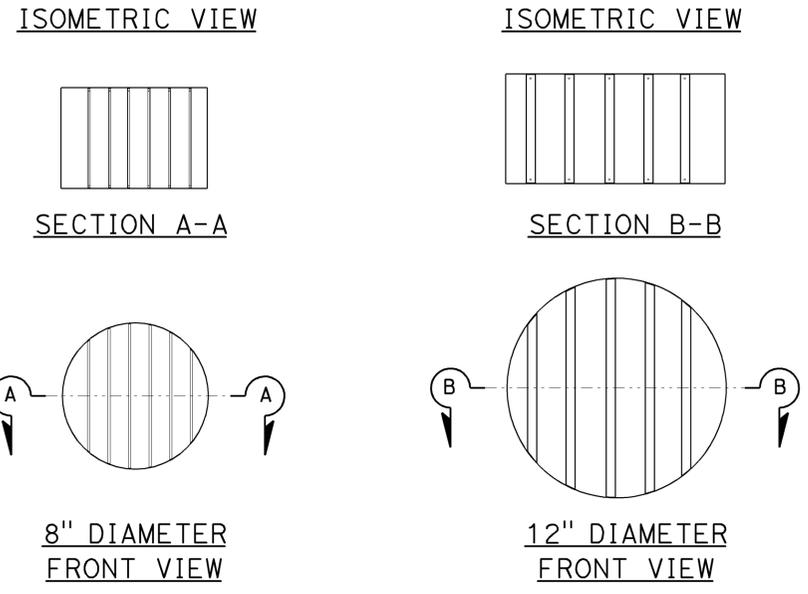
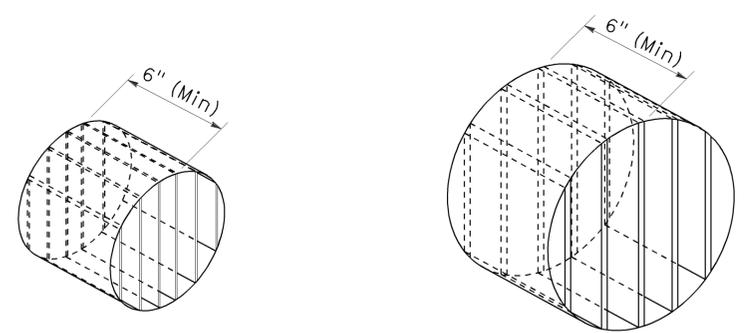
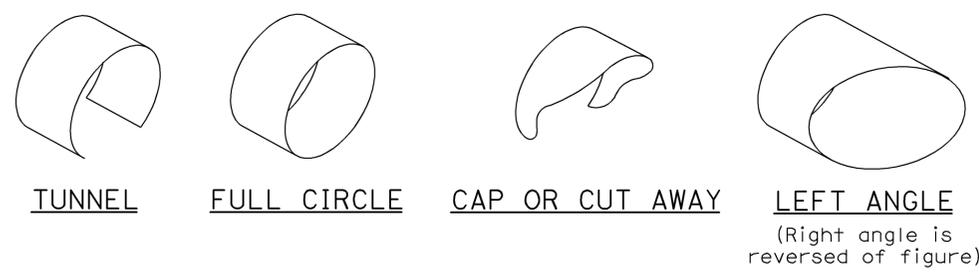
RSP ES-4A DATED JULY 19, 2013 SUPERSEDES STANDARD PLAN ES-4A  
DATED MAY 20, 2011 - PAGE 443 OF THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP ES-4A**

2010 REVISED STANDARD PLAN RSP ES-4A

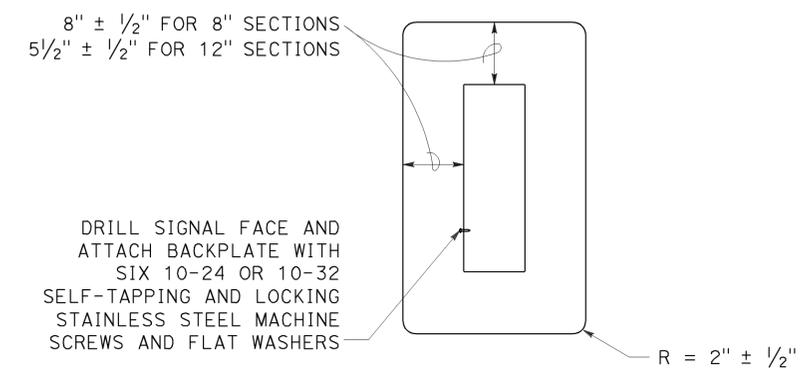
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	28.3/28.6	69	78
Theresa Gabriel REGISTERED ELECTRICAL ENGINEER July 19, 2013 PLANS APPROVAL DATE THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.					
REGISTERED PROFESSIONAL ENGINEER Theresa Aziz Gabriel No. E15129 Exp. 6-30-14 ELECTRICAL STATE OF CALIFORNIA					

TO ACCOMPANY PLANS DATED **03-09-15**



- NOTES:**
1. Typical signal pole placement unless dimensioned on plans.
  2. For A and B dimensions, see Pole Schedule, or as directed by the Engineer.

**VISORS**



**8" AND 12" SECTIONS**

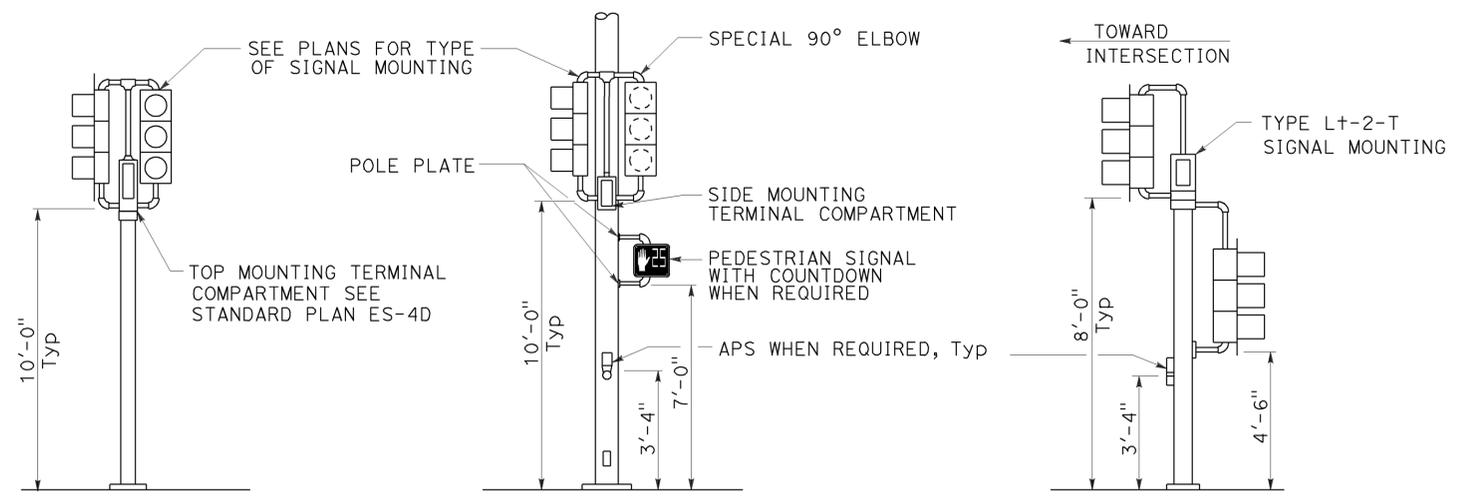
**BACKPLATE**

1/16" minimum thickness  
 3001-14 aluminum or plastic when specified

**DIRECTIONAL LOUVER**

Directional louvers shall be oriented as directed by the Engineer and secured in place with one plated brass machine screw and nut.

**SIGNAL STANDARD PLACEMENT DIMENSIONS AND EQUIPMENT LOCATIONS**



**TOP MOUNTED SIGNALS (TV)**

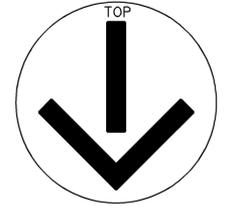
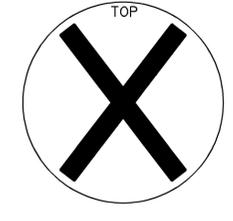
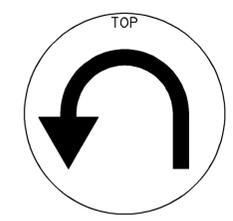
Type 1-A, 1-B, 1-C and 1-D standard as indicated on the plans

**SIDE MOUNTED SIGNALS (SV AND SP)**

Normally used on standards with luminaire or signal mast arm

**LEFT TURN LANE SIGNAL**

Type 1-A, 1-B, 1-C and 1-D standard as indicated on plans



**SIGNAL FACES**

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION

**ELECTRICAL SYSTEMS (VEHICULAR SIGNAL HEADS AND MOUNTINGS)**

NO SCALE

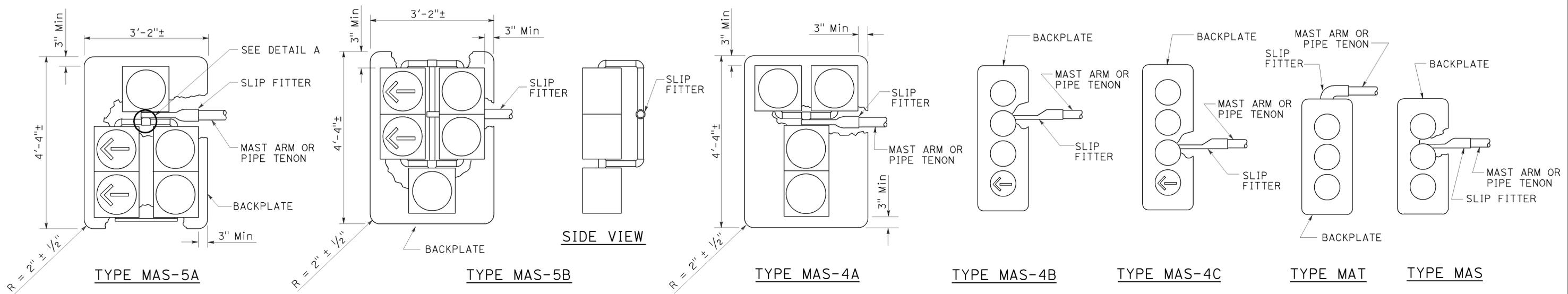
RSP ES-4C DATED JULY 19, 2013 SUPERSEDES STANDARD PLAN ES-04C DATED MAY 20, 2011 - PAGE 445 OF THE STANDARD PLANS BOOK DATED 2010.

2010 REVISED STANDARD PLAN RSP ES-4C

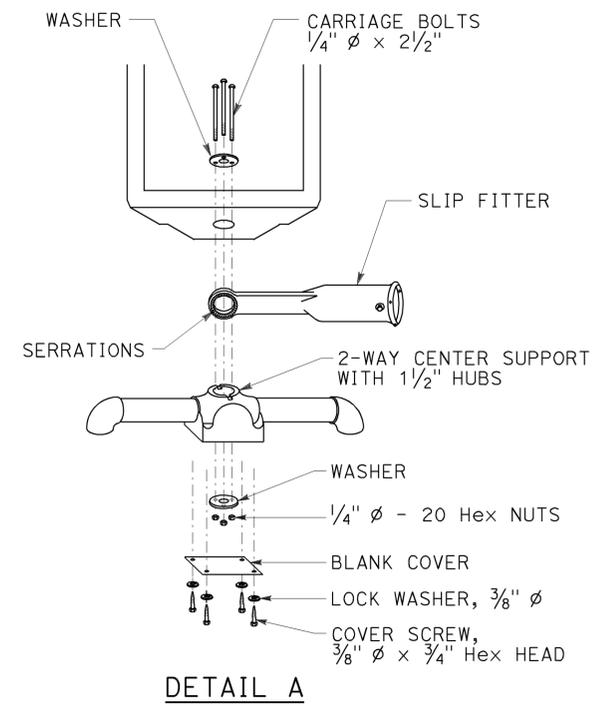
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	28.3/28.6	70	78
<i>Theresa Gabriel</i> REGISTERED ELECTRICAL ENGINEER July 19, 2013 PLANS APPROVAL DATE					
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.					



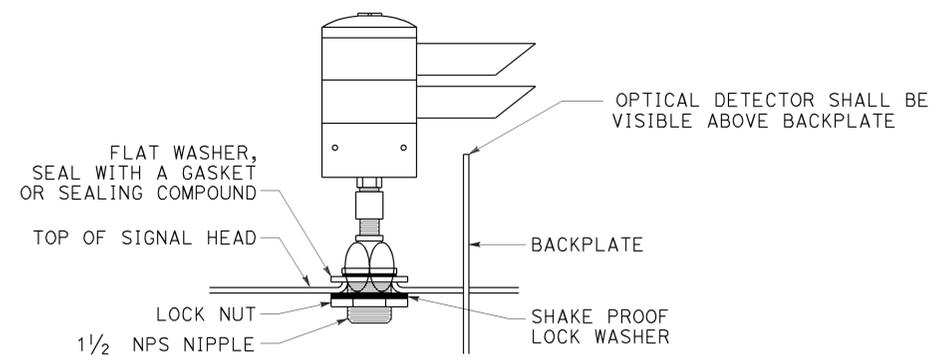
TO ACCOMPANY PLANS DATED **03-09-15**



**MAST ARM MOUNTINGS**



**DETAIL A**



**DETAIL B**

**OPTICAL DETECTOR MOUNTING FOR EMERGENCY VEHICLE DETECTION SYSTEM**

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**ELECTRICAL SYSTEMS  
 (VEHICULAR SIGNAL HEADS AND  
 OPTICAL DETECTOR MOUNTING)**

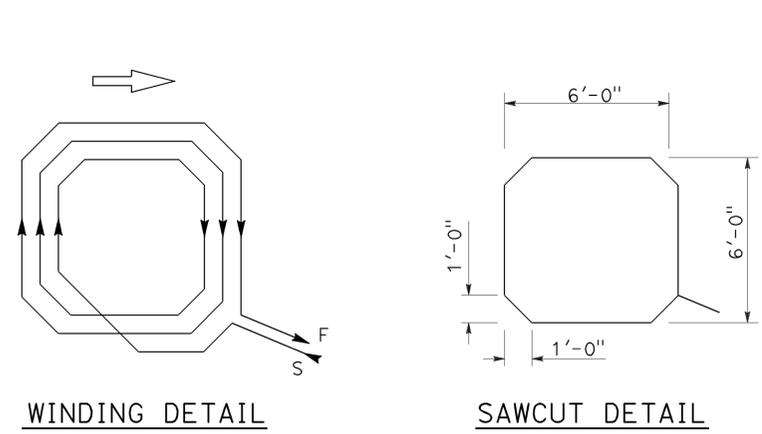
NO SCALE

RSP ES-4E DATED JULY 19, 2013 SUPERSEDES STANDARD PLAN ES-4E DATED MAY 20, 2011 - 447 OF THE STANDARD PLANS BOOK DATED 2010.

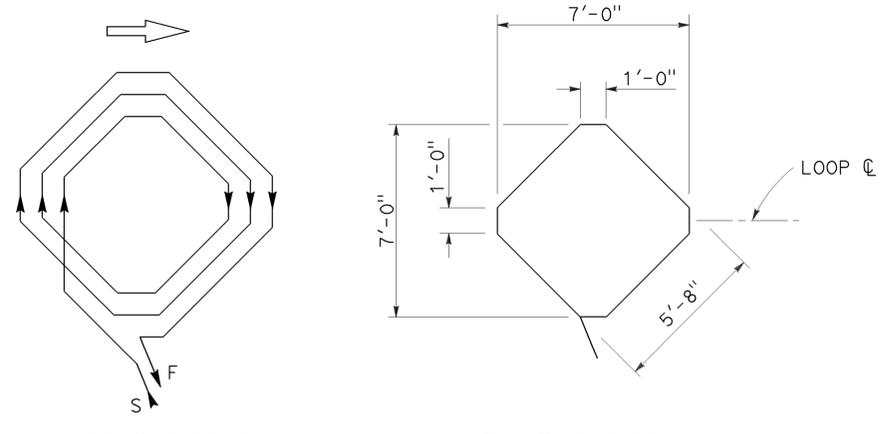
**REVISED STANDARD PLAN RSP ES-4E**

**2010 REVISED STANDARD PLAN RSP ES-4E**

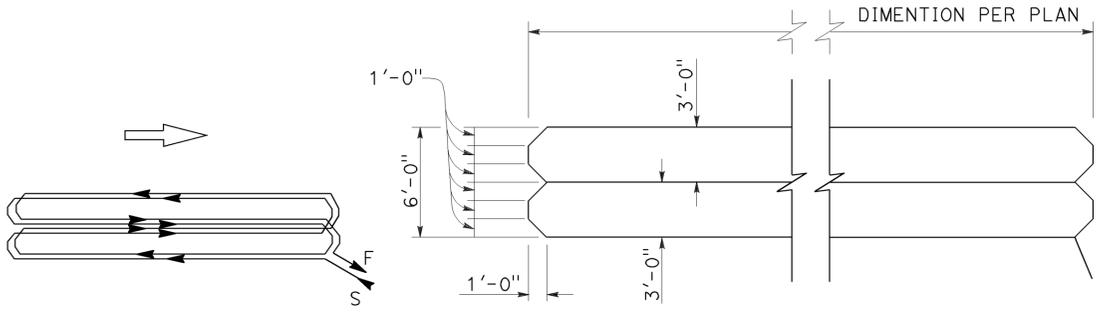
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	28.3/28.6	71	78
<i>Theresa Gabriel</i> REGISTERED ELECTRICAL ENGINEER July 19, 2013 PLANS APPROVAL DATE <small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small>					
TO ACCOMPANY PLANS DATED <u>03-09-15</u>					



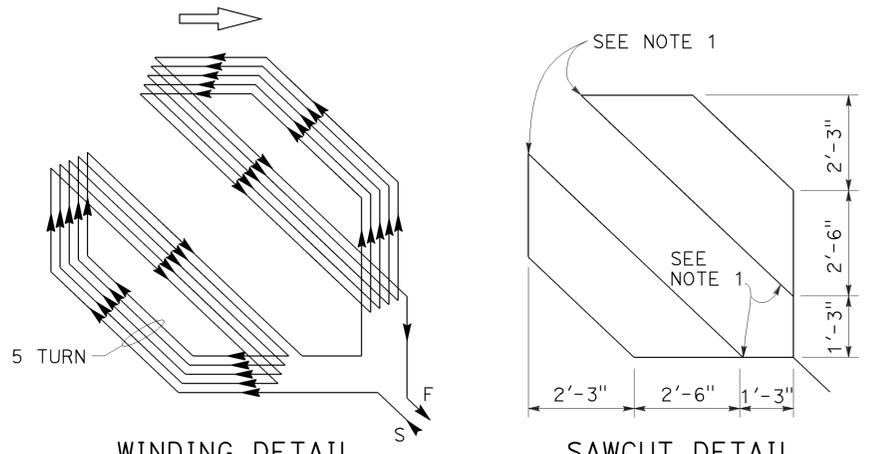
WINDING DETAIL  
SAWCUT DETAIL  
**TYPE A LOOP DETECTOR CONFIGURATION**



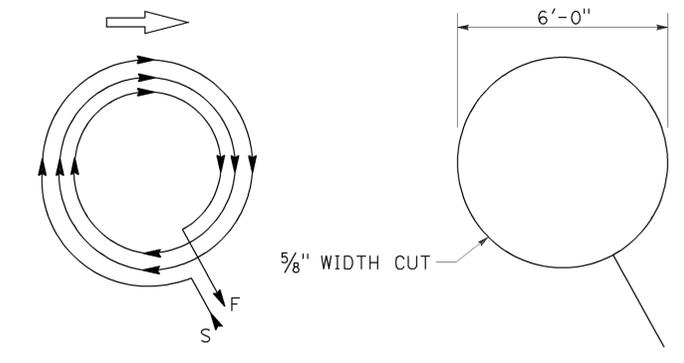
WINDING DETAIL  
SAWCUT DETAIL  
**TYPE B LOOP DETECTOR CONFIGURATION**



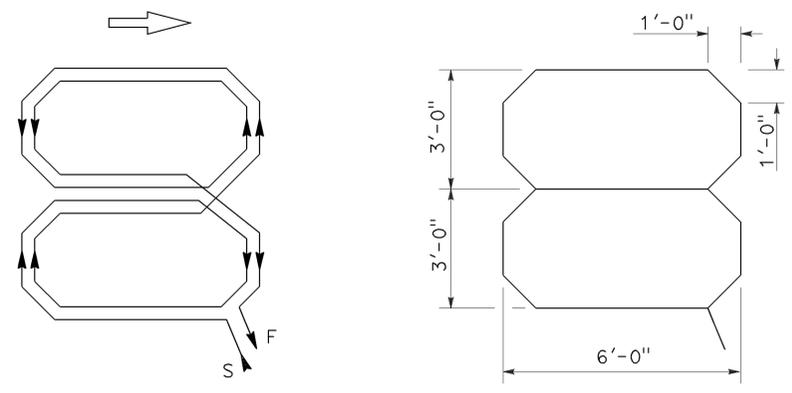
WINDING DETAIL  
SAWCUT DETAIL  
**TYPE C LOOP DETECTOR CONFIGURATION**



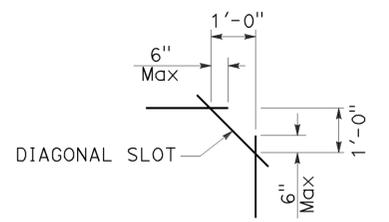
WINDING DETAIL  
SAWCUT DETAIL  
**TYPE D LOOP DETECTOR CONFIGURATION**



WINDING DETAIL  
SAWCUT DETAIL  
**TYPE E LOOP DETECTOR CONFIGURATION**



WINDING DETAIL  
SAWCUT DETAIL  
**TYPE Q LOOP DETECTOR CONFIGURATION**



**PLAN VIEW OF  
DIAGONAL SLOT  
AT CORNERS**

- NOTES:**
1. Round corners of acute angle sawcuts to prevent damage to conductors.
  2. Typical distance separating loops from edge to edge is 10' for Type A, B, D and E installation in single lane.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**ELECTRICAL SYSTEMS  
(DETECTORS)**

NO SCALE

RSP ES-5B DATED JULY 19, 2013 SUPERSEDES STANDARD PLAN ES-5B  
DATED MAY 20, 2011 - PAGE 449 OF THE STANDARD PLANS BOOK DATED 2010.

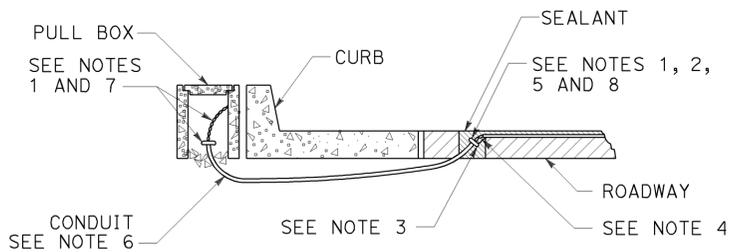
2010 REVISED STANDARD PLAN RSP ES-5B

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	28.3/28.6	72	78

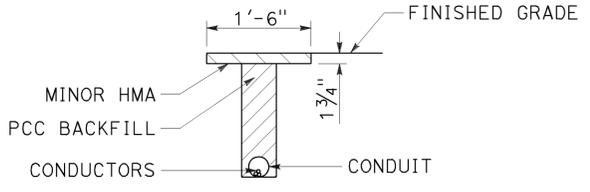
Theresa Gabriel  
REGISTERED ELECTRICAL ENGINEER  
July 19, 2013  
PLANS APPROVAL DATE

Theresa Aziz Gabriel  
No. E15129  
Exp. 6-30-14  
ELECTRICAL  
STATE OF CALIFORNIA

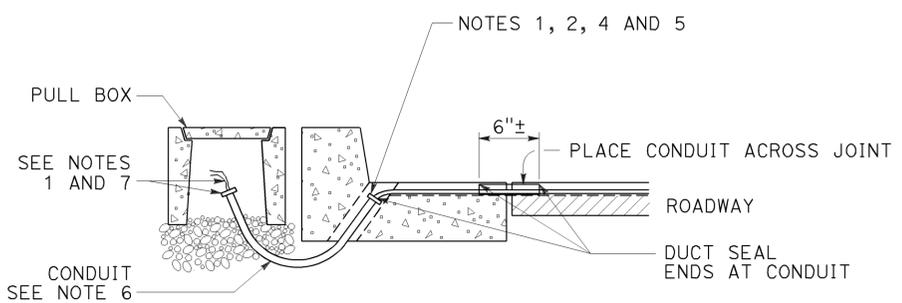
TO ACCOMPANY PLANS DATED 03-09-15



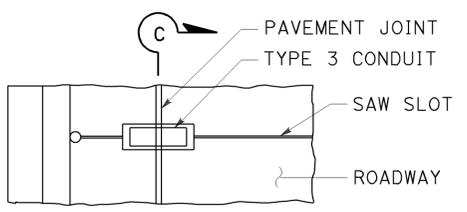
**TYPE A**  
**CURB TERMINATION DETAIL**



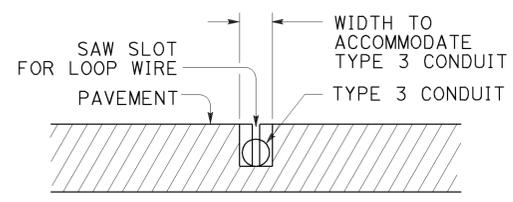
**"T" TRENCH**  
**DETAIL T**



**CROSS SECTION**

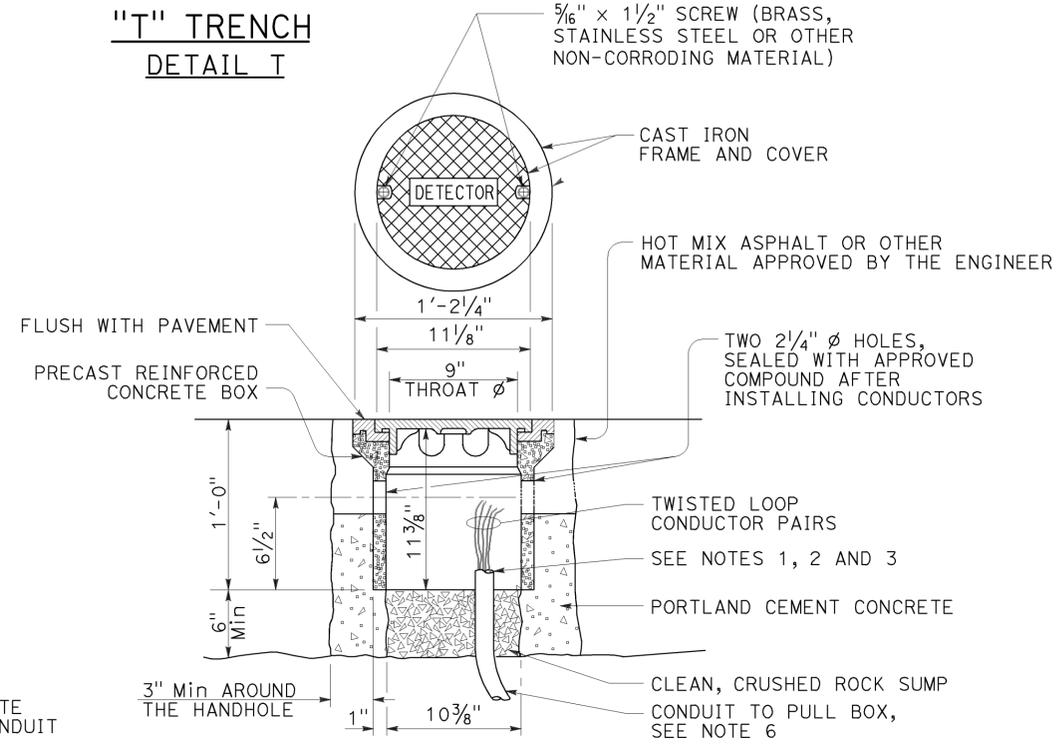


**PLAN VIEW**

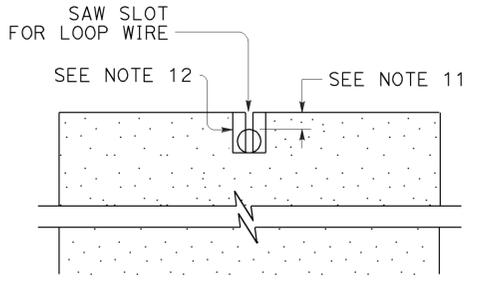


**SECTION C-C**

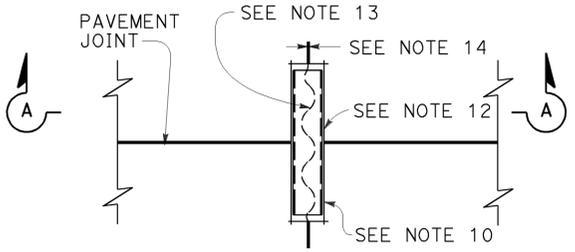
**TYPE B**  
**CURB TERMINATION DETAIL**



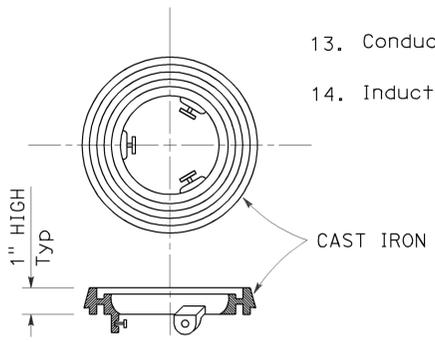
**DETECTOR HANDHOLE DETAIL**



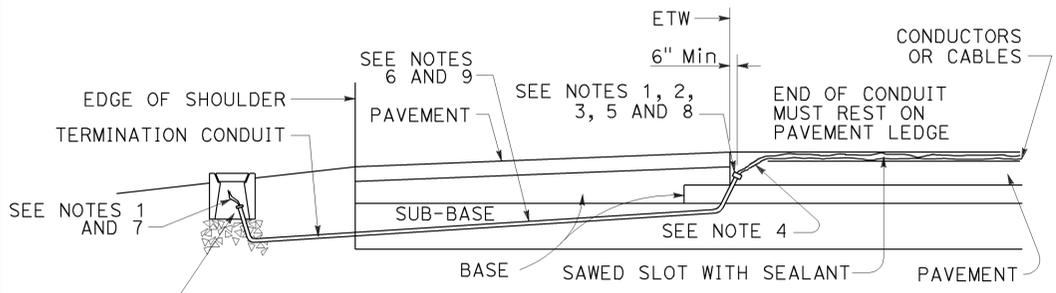
**SECTION A-A**



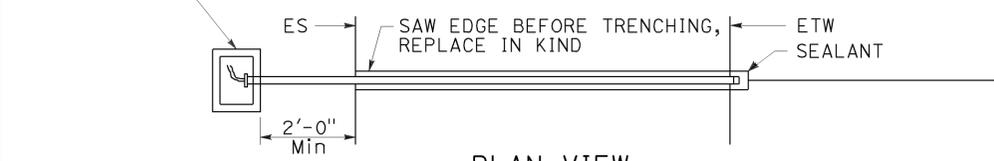
**PLAN VIEW**  
**TYPICAL LOOP LEAD-IN DETAIL**  
**AT PAVEMENT JOINT**



**LOCKING GRADE RING**



**CROSS SECTION**



**PLAN VIEW**  
**SHOULDER TERMINATION DETAILS**

**NOTES:**

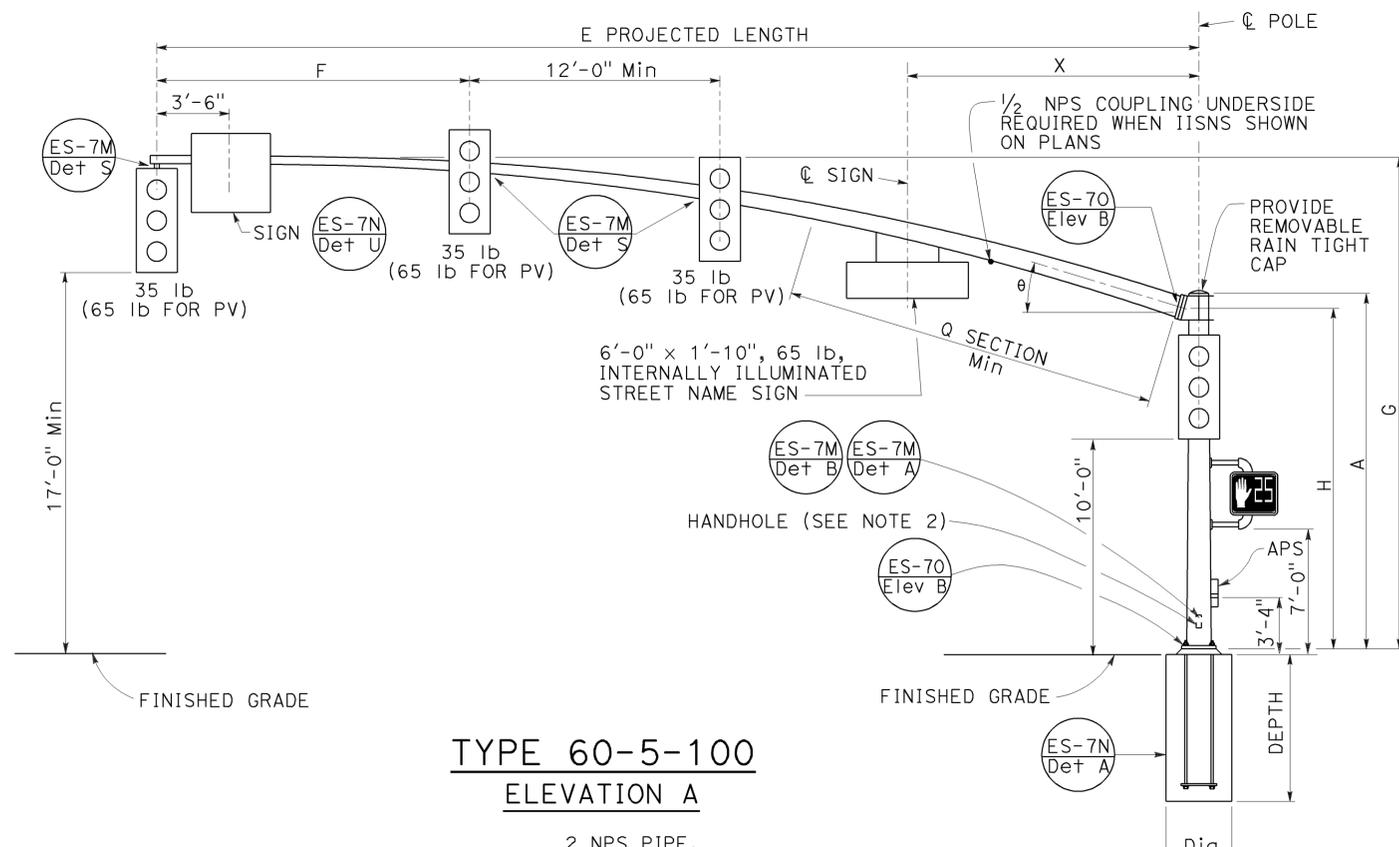
- Bushing shall be used at end of conduit.
- Tape detector conductors or cables 3" each side of bushings.
- Install duct seal compound to each end of termination conduit before installing sealant.
- Round all sharp edges where detector conductors or cables have to pass.
- End of conduit shall be 3/8" below roadway surface.
- Conduit size      Loop conductors  
1"C minimum      1 to 2 pairs  
1 1/2"C minimum    3 to 4 pairs  
2"C minimum      5 or more pairs
- Splice detector conductors or cables to detector lead-in-cable.
- Location of detector handhole when shown on plans.
- When the shoulder and traveled way are paved with the same material and there is no joint between them, the conduit shall extend only 2'-0" into the shoulder pavement.
- 3/4"C, Type 3 conduit 6" long minimum, plug both ends with duct compound to keep out sealant.
- 1/2" Minimum between top of conduit and pavement surface.
- Sawcut shall not exceed 1" in width and 1/8" longer than conduit to be installed.
- Conductors with 1/2" minimum slack inside conduit.
- Inductive loop detector saw slot.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**ELECTRICAL SYSTEMS**  
**(CURB TERMINATION**  
**AND HANDHOLE)**  
NO SCALE

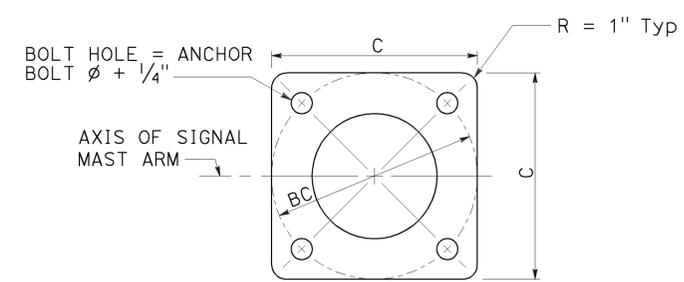
RSP ES-5D DATED JULY 19, 2013 SUPERSEDES STANDARD PLAN ES-5D  
DATED MAY 20, 2011 - PAGE 451 OF THE STANDARD PLANS BOOK DATED 2010.

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

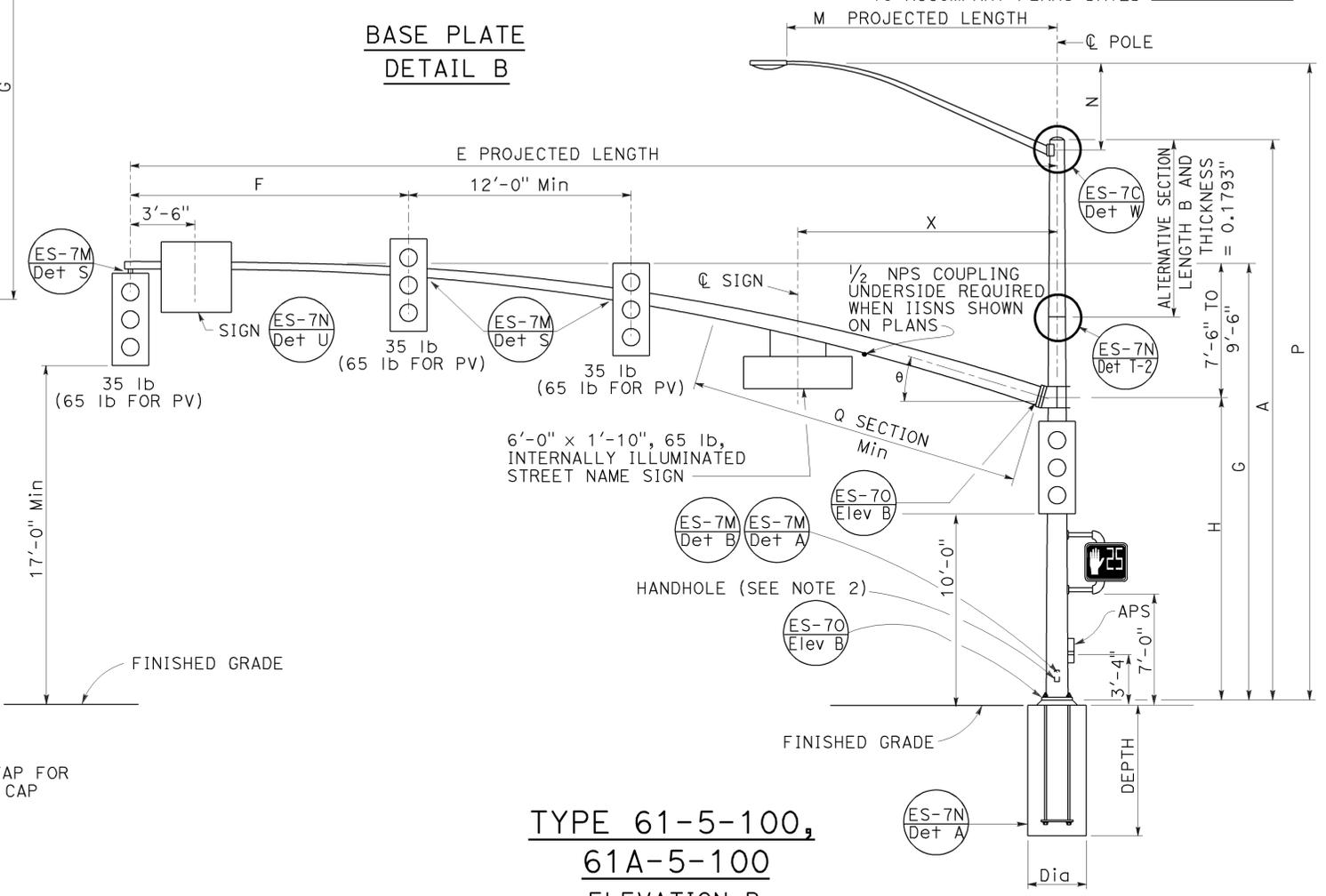
2010 REVISED STANDARD PLAN RSP ES-5D



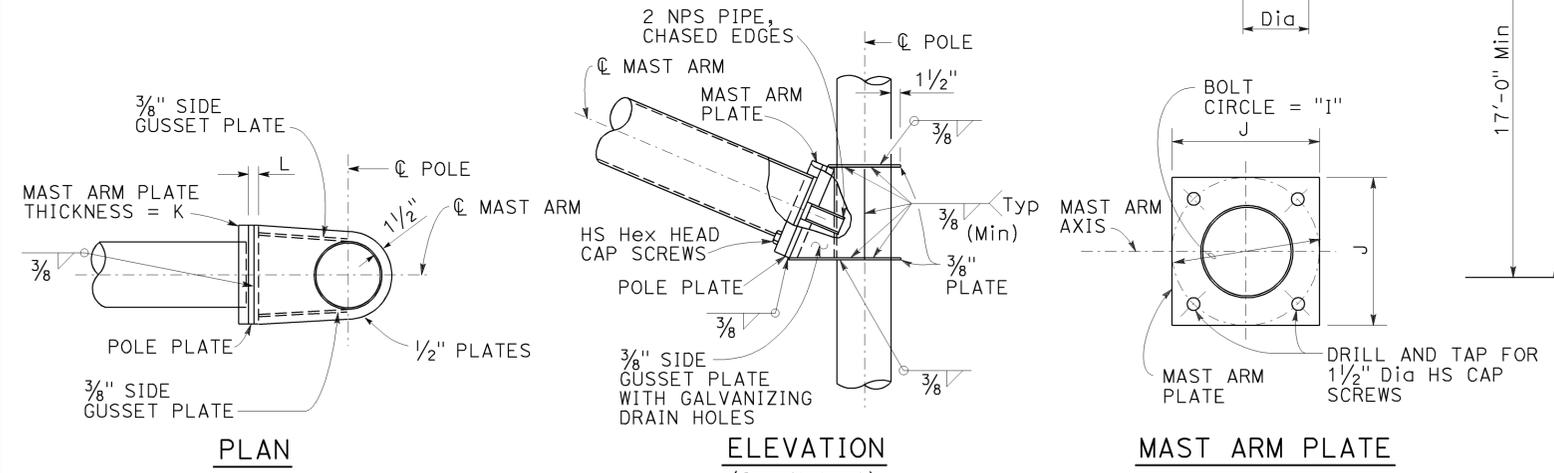
**TYPE 60-5-100**  
**ELEVATION A**



**BASE PLATE**  
**DETAIL B**



**TYPE 61-5-100,**  
**61A-5-100**  
**ELEVATION B**



**SIGNAL MAST ARM CONNECTION**  
**DETAIL A**

E PROJECTED LENGTH	F Min SPACING	G MOUNTING HEIGHT	H	Min OD AT POLE	THICKNESS	I BOLT CIRCLE	HS CAP SCREWS	J PLATE SIZE	K MAST ARM PLATE THICKNESS	L POLE PLATE THICKNESS	θ	Q SECTION		X Max
												LENGTH	THICKNESS	
60'-0"	15'-0"	23'-7" TO 25'-7"	16'-0"	1'-1 1/2"	0.1793"	20"	1 1/2"-6NC-4"	1'-8"	2"	2"	15°	24'-0"	0.2391"	14'-0"
65'-0"		0.2391"			29'-0"							0.3125"		

M PROJECTED LENGTH	N RISE	Min OD AT POLE	THICKNESS	P MOUNTING HEIGHT POLE	Q MOUNTING HEIGHT POLE
6'-0"	2'-0"±	3 1/4"	0.1196"	31'-6"±	36'-6"±
8'-0"	2'-6"±	3 1/2"		32'-0"±	37'-0"±
10'-0"	3'-3"±	3 3/8"		32'-9"±	37'-9"±
12'-0"	4'-3"±	3 7/8"		33'-9"±	38'-9"±
15'-0"	4'-9"±	4 1/4"		34'-3"±	39'-3"±

- NOTES:**
- The radial separation between the face of the pole and the adjacent insides of the top and bottom gusset plates shall not exceed 3/16". Fillet weld size to be increased by amount of gap.
  - Handhole shall be located on the downstream side of traffic.

POLE TYPE	LOAD CASE	WIND VELOCITY (mph)	POLE DATA			BASE PLATE DATA				LUMINAIRE MAST ARM	SIGNAL MAST ARM	CIDH PILE FOUNDATION			
			A HEIGHT	Min OD	THICKNESS	C	BC = BOLT CIRCLE	THICKNESS	ANCHOR BOLT SIZE			DIAMETER	DEPTH	REINFORCED	
60-5-100	5	100	17'-0"	16"	0.3125"	2'-0"	1'-11"	3"	2 1/2" ø x 60"	NONE	60'-0", 65'-0"	3'-6"	13'-0"	YES	
61-5-100			30'-0"												1'-1 9/16"
61A-5-100			35'-0"												10 15/16"

INDICATES MAST ARM LENGTH TO BE USED UNLESS OTHERWISE NOTED ON PLANS.

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**ELECTRICAL SYSTEMS**  
**(SIGNAL AND LIGHTING STANDARD,**  
**CASE 5 SIGNAL MAST ARM LOADING,**  
**WIND VELOCITY=100 MPH AND SIGNAL**  
**MAST ARM LENGTHS 60' TO 65')**  
 NO SCALE  
 RSP ES-7H DATED JULY 19, 2013 SUPERSEDES STANDARD PLAN ES-7H  
 DATED MAY 20, 2011 - PAGE 469 OF THE STANDARD PLANS BOOK DATED 2010.

2010 REVISED STANDARD PLAN RSP ES-7H

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	28.3/28.6	74	78

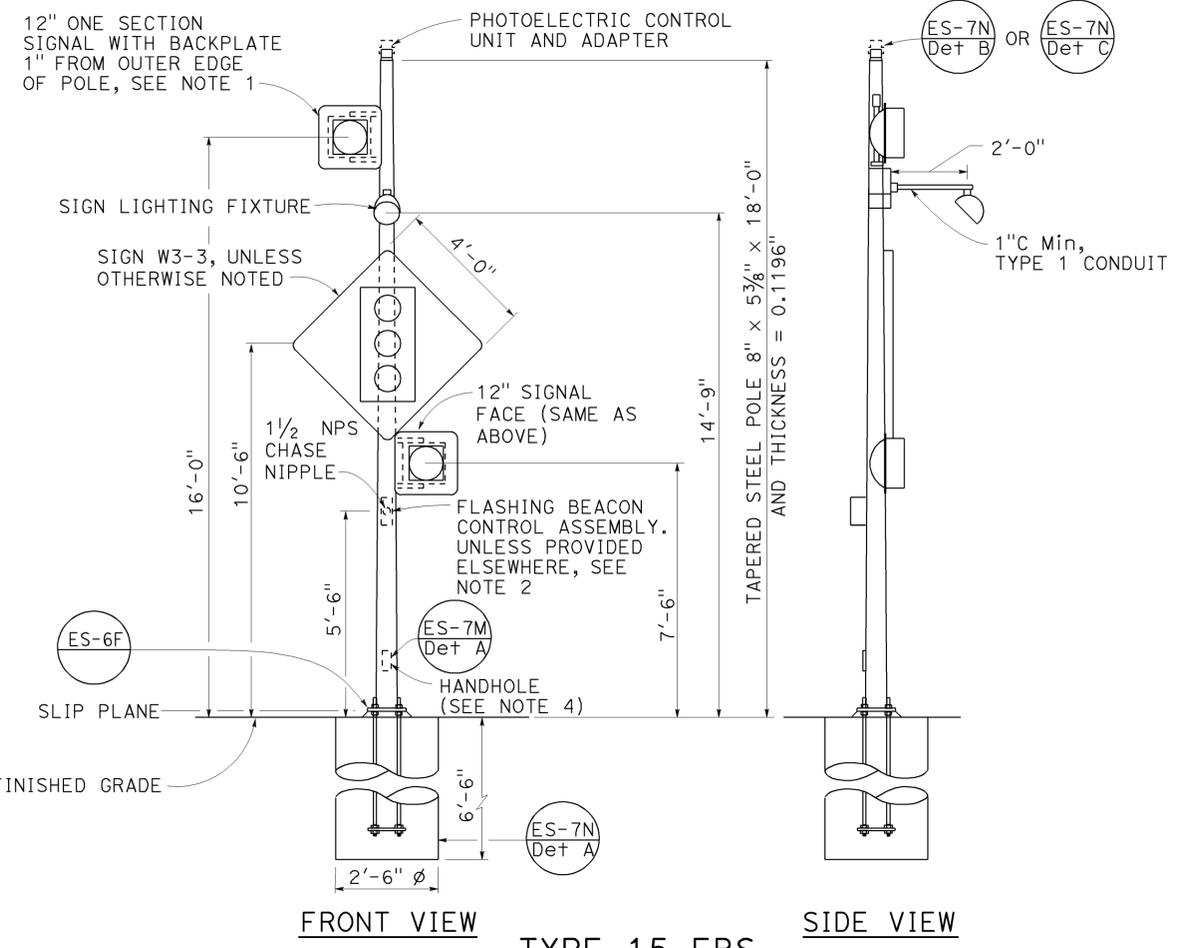
Stanley P. Johnson  
 REGISTERED CIVIL ENGINEER  
 July 19, 2013  
 PLANS APPROVAL DATE  
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

REGISTERED PROFESSIONAL ENGINEER  
 Stanley P. Johnson  
 No. C57793  
 Exp. 3-31-14  
 CIVIL  
 STATE OF CALIFORNIA

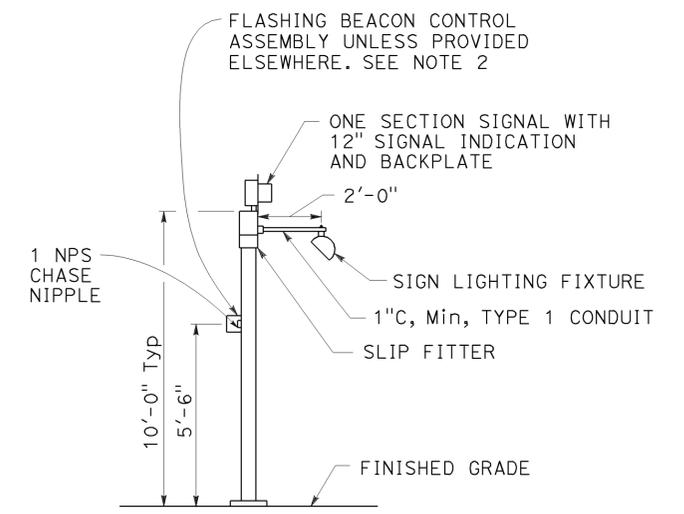
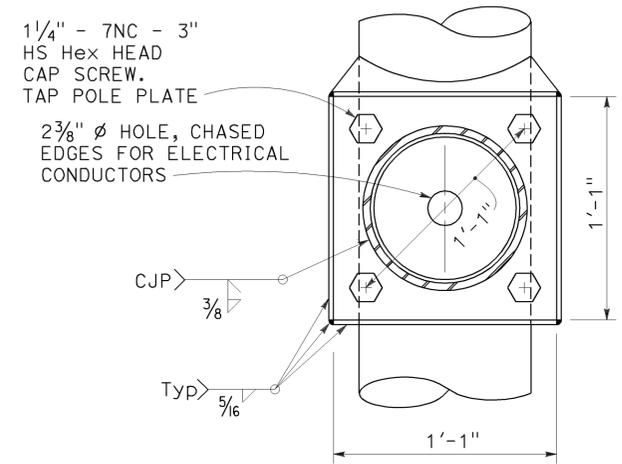
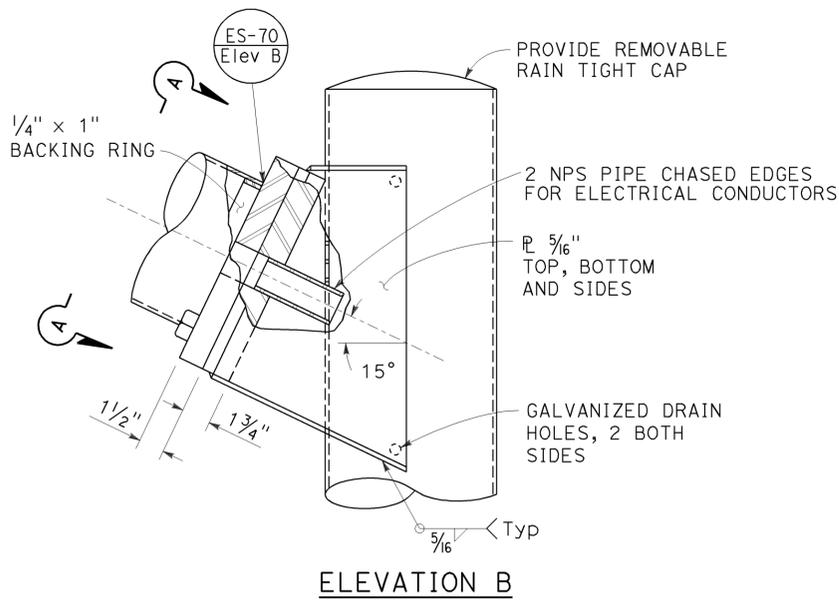
TO ACCOMPANY PLANS DATED 03-09-15

**NOTES:**

1. See Revised Standard Plan RSP ES-4A and Standard Plan ES-4D for attachment fitting details.
2. For wiring diagram, see Standard Plan ES-14B.
3. For additional notes and details, see Standard Plans ES-7M and ES-7N.
4. Handhole shall be located on the downstream side of traffic.
5. See project plans for type of standard to be installed.



**ADVANCE FLASHING BEACON WITH SLIP BASE INSTALLATION  
DETAIL A**



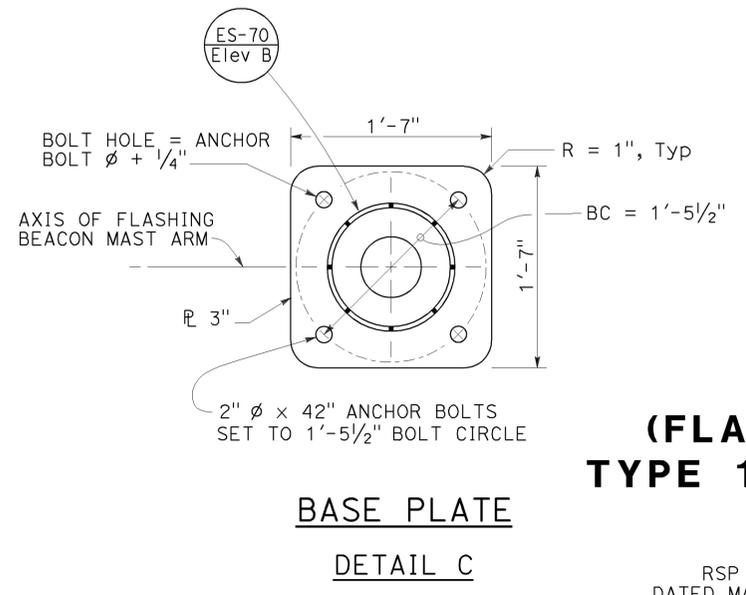
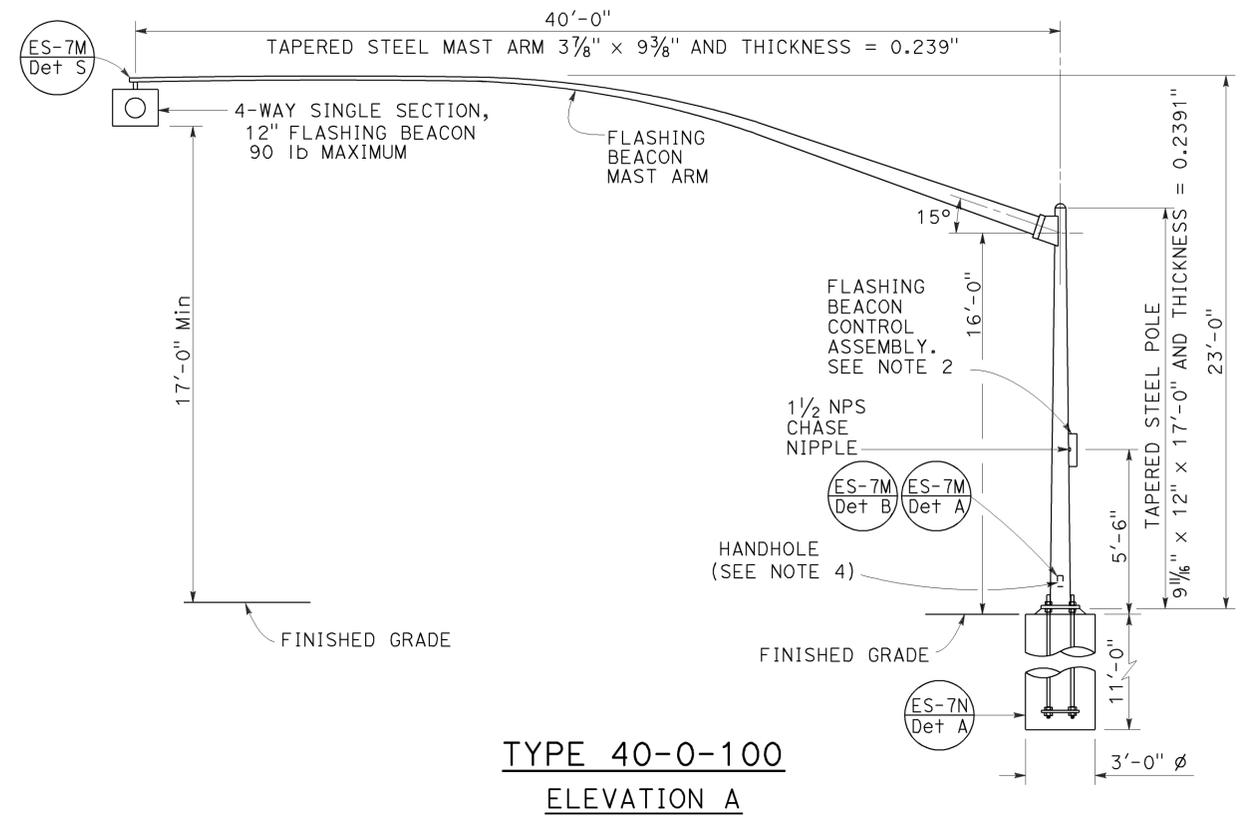
**TYPE 1-A, 1-B, 1-C AND 1-D  
ADVANCE FLASHING BEACON INSTALLATION  
DETAIL D**

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**ELECTRICAL SYSTEMS  
(FLASHING BEACON ON A TYPE 1, TYPE 15-FBS AND TYPE 40 STANDARD)  
NO SCALE**

RSP ES-7J DATED JULY 19, 2013 SUPERSEDES STANDARD PLAN ES-7J DATED MAY 20, 2011 - PAGE 471 OF THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP ES-7J**



2010 REVISED STANDARD PLAN RSP ES-7J

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
12	Ora	5	28.3/28.6	75	78

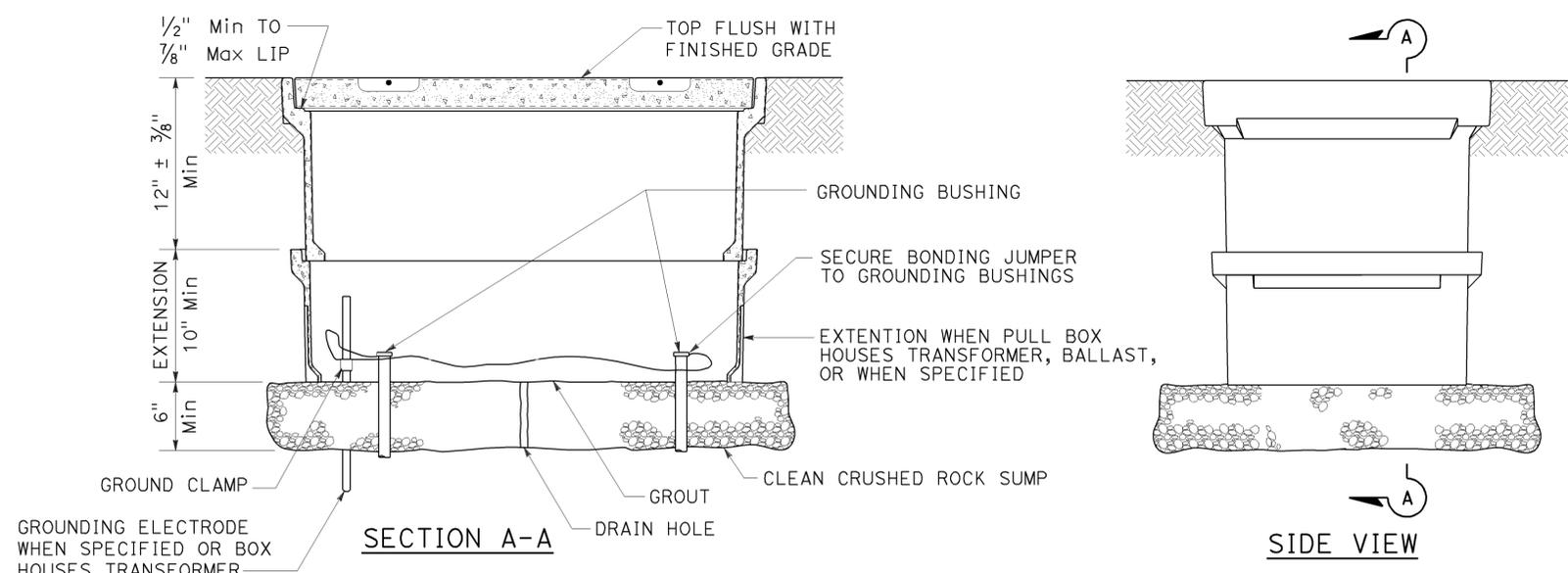
Theresa Gabriel  
REGISTERED ELECTRICAL ENGINEER

July 19, 2013  
PLANS APPROVAL DATE

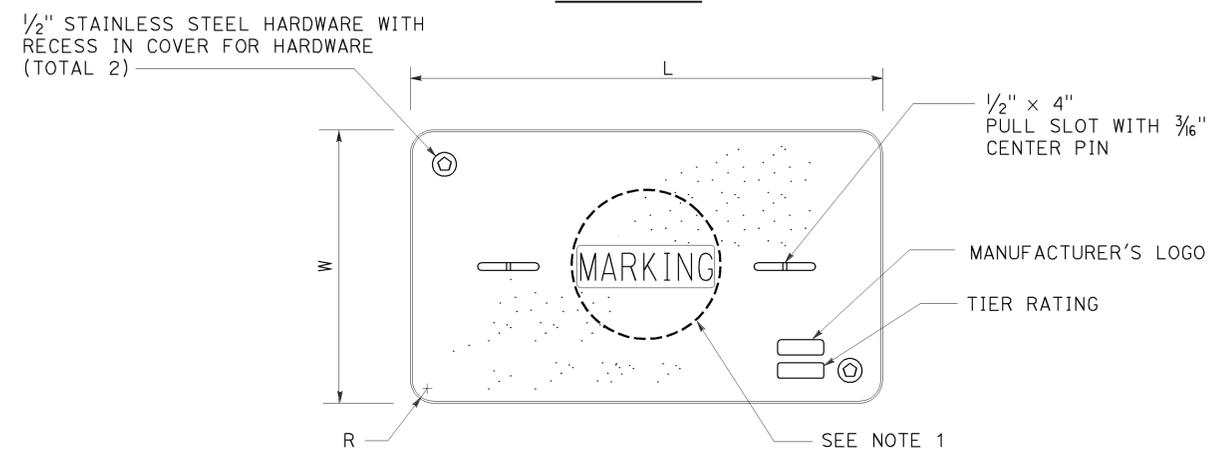
Theresa Aziz Gabriel  
No. E15129  
Exp. 6-30-14  
ELECTRICAL  
STATE OF CALIFORNIA

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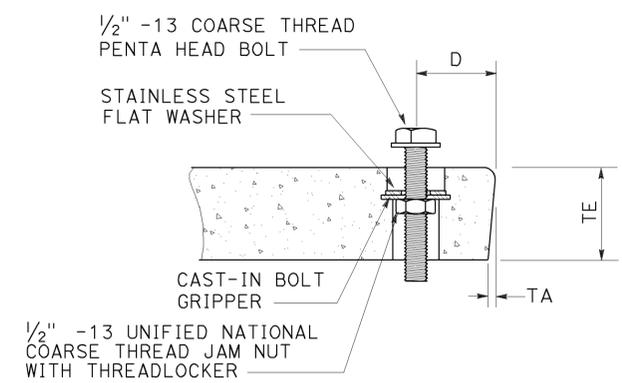
TO ACCOMPANY PLANS DATED **03-09-15**



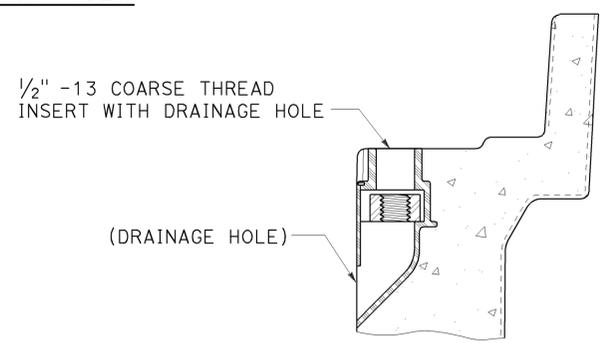
**INSTALLATION DETAILS**  
**DETAIL A**



**COVER TOP VIEW**



**TYPICAL COVER CAPTIVE BOLT**  
**OR SIMILAR**



**TYPICAL THREADED INSERT**  
**OR SIMILAR**

**NOTES:**

- Pull box covers shall 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 lighting or sign lighting circuits.
    - "LIGHTING" - Lighting 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 lighting or sign lighting circuits.
    - "LIGHTING" - Lighting or sign lighting circuits where voltage is under 600 V.
    - "LIGHTING-HIGH VOLTAGE" - Lighting 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.
    - "BOOSTER PUMP" - Booster pump circuit.
- The nominal dimensions of the opening in which the cover sets shall be the same as the cover dimensions except the length and width dimensions shall be 1/8" greater.
- Covers and boxes shall be interchangeable with California standard male and female gages. When interchanged with a standard male or female gage, the top surfaces shall be flush within 1/8". Top outside radius of covers and pull boxes shall 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.
- All dimensions for the cover for non-traffic pull box are nominal values.

DIMENSION TABLE										
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**  
**(NON-TRAFFIC PULL BOX)**  
NO SCALE

RSP ES-8A DATED JULY 19, 2013 SUPERSEDES RSP ES-8A DATED JANUARY 20, 2012 THAT SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.

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

2010 REVISED STANDARD PLAN RSP ES-8A

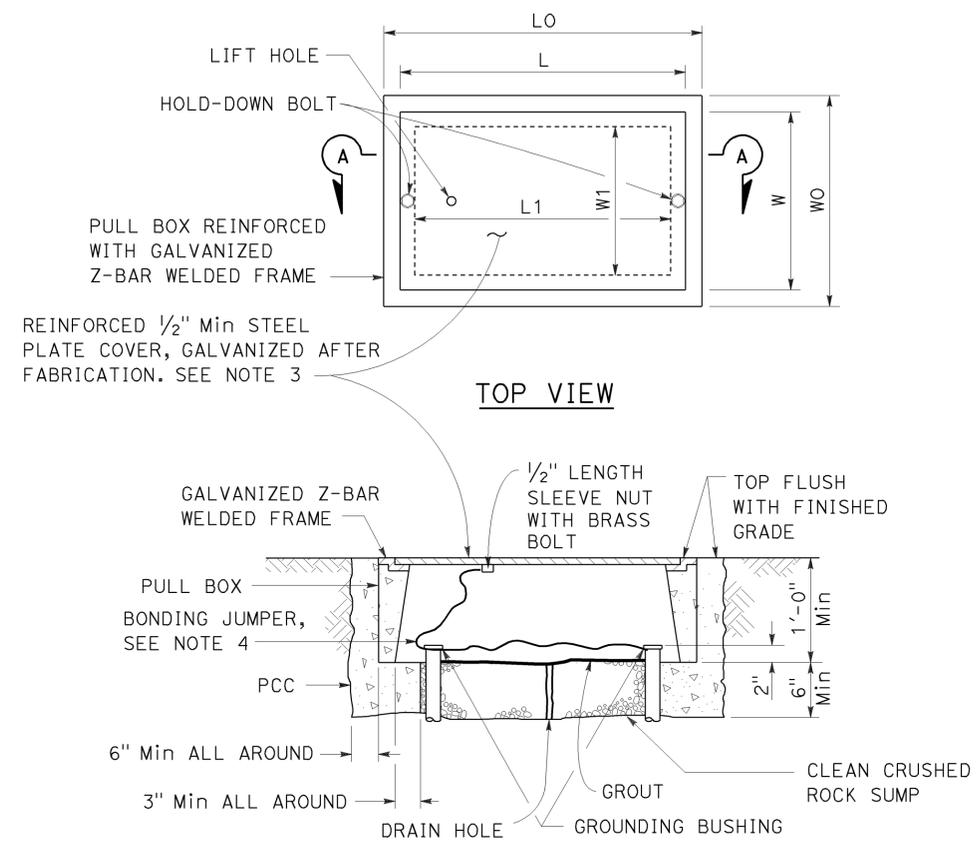
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
12	Ora	5	28.3/28.6	76	78

Theresa Gabriel  
 REGISTERED ELECTRICAL ENGINEER  
 July 19, 2013  
 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER  
 Theresa Aziz Gabriel  
 No. E15129  
 Exp. 6-30-14  
 ELECTRICAL  
 STATE OF CALIFORNIA

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

TO ACCOMPANY PLANS DATED' **03-09-15**



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

**NOTES:**

- 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 shall 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 lighting or sign lighting circuits.
    - "LIGHTING" - Lighting 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 lighting or sign lighting circuits.
    - "LIGHTING" - Lighting or sign lighting circuits where voltage is under 600 V.
    - "LIGHTING-HIGH VOLTAGE" - Lighting 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.
    - "BOOSTER PUMP" - Booster pump circuit.
- Bonding jumper for metal covers shall be 3' long, minimum.
- The nominal dimensions of the opening in which the cover sets shall be the same as the cover dimensions except the length and width dimensions shall be 1/8" greater.
- Covers and boxes shall be interchangeable with California standard male and female gages. When interchanged with a standard male or female gage, the top surfaces shall be flush within 1/8".

PULL BOX	PULL 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 3/8"±	1'-2 1/2"±	10 5/8"± 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 PULL BOX)**  
 NO SCALE

RSP ES-8B DATED JULY 19, 2013 SUPERSEDES RSP ES-8B DATED JANUARY 20, 2012 THAT SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.

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

2010 REVISED STANDARD PLAN RSP ES-8B

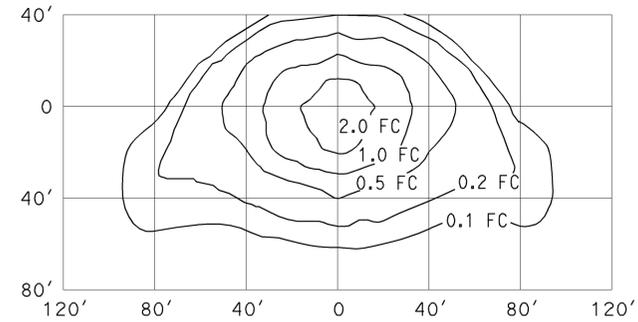
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	5	28.3/28.6	77	78

Theresa Gabriel  
 REGISTERED ELECTRICAL ENGINEER  
 July 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.

REGISTERED PROFESSIONAL ENGINEER  
 Theresa Aziz Gabriel  
 No. E15129  
 Exp. 6-30-14  
 ELECTRICAL  
 STATE OF CALIFORNIA

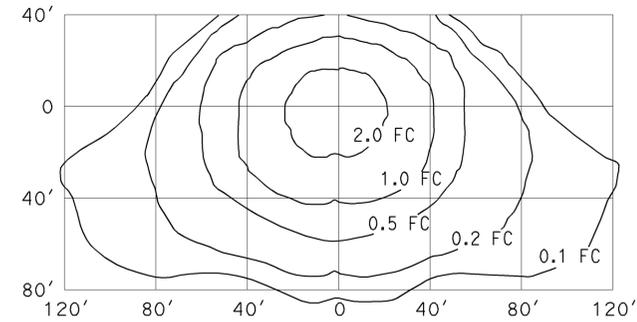
TO ACCOMPANY PLANS DATE **03-09-15**

**ISOFOOTCANDLE CURVE - MINIMUM**



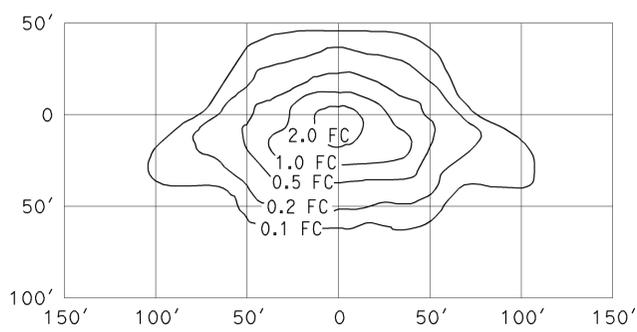
**TYPE III MEDIUM CUTOFF**  
 Cutoff Luminaire  
 34' Mounting Height  
 Lamp operated at 22,000 lm  
 200-W high pressure sodium lamp  
 ANSI Designation S66

**ISOFOOTCANDLE CURVE - MINIMUM**



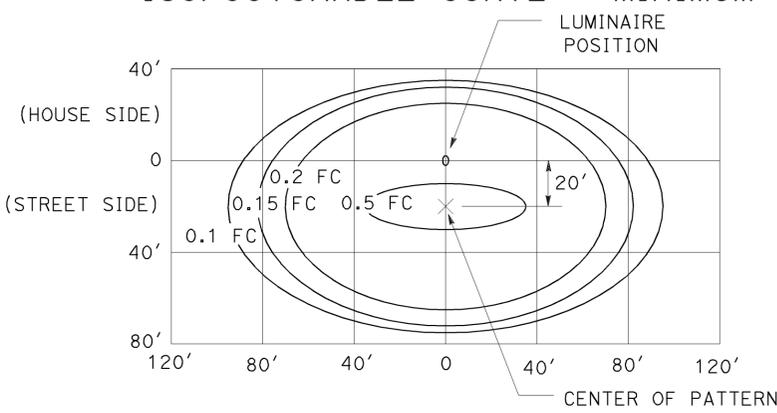
**TYPE III MEDIUM CUTOFF**  
 Cutoff Luminaire  
 40' Mounting Height  
 Lamp operated at 37,000 lm  
 310-W high pressure sodium lamp  
 ANSI Designation S67

**ISOFOOTCANDLE CURVE - MINIMUM**



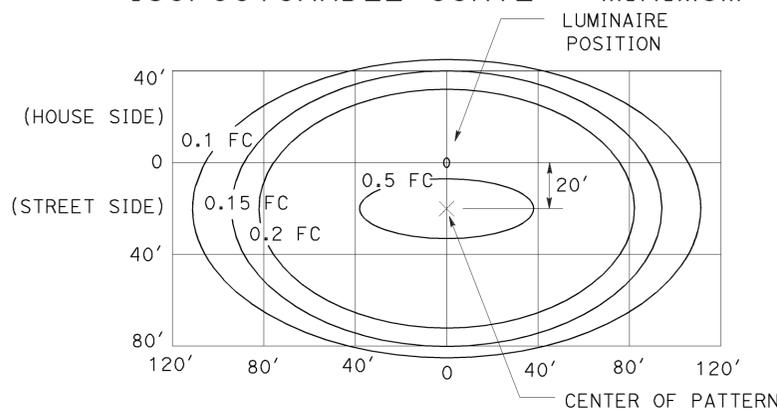
**TYPE III MEDIUM CUTOFF**  
 Cutoff Luminaire  
 30' Mounting Height  
 Lamp operated at 16,000 lm  
 150-W high pressure sodium lamp  
 ANSI Designation S55

**ISOFOOTCANDLE CURVE - MINIMUM**



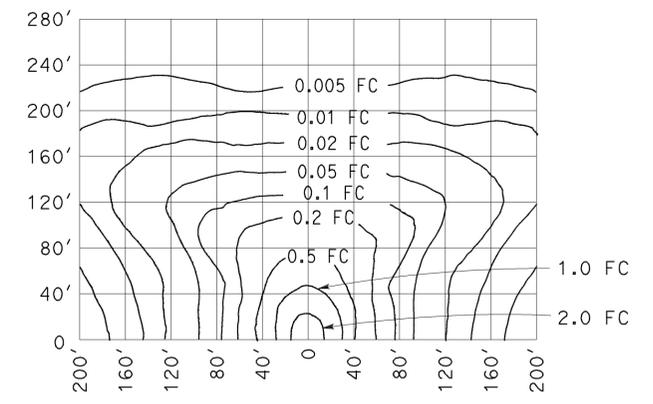
**LED LUMINAIRE ROADWAY 1**  
 165-W at 34' Mounting Height

**ISOFOOTCANDLE CURVE - MINIMUM**



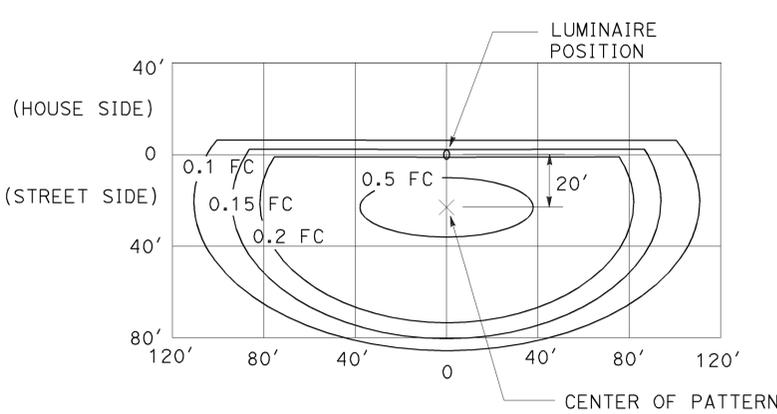
**LED LUMINAIRE ROADWAY 2**  
 235-W at 40' Mounting Height

**ISOFOOTCANDLE CURVE - MINIMUM**



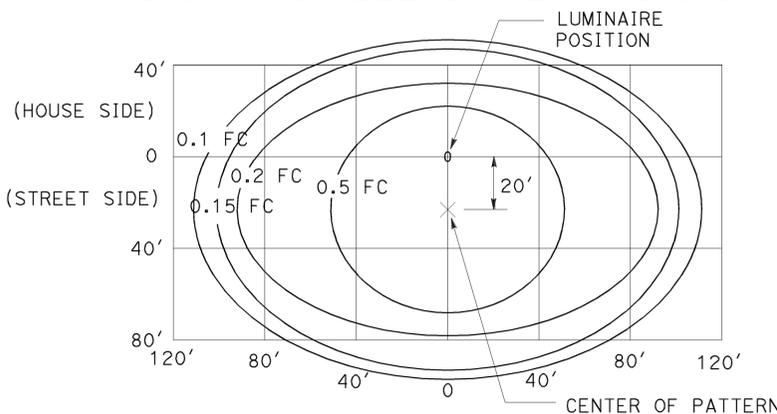
**LOW PRESSURE SODIUM LUMINAIRE**  
 40' Mounting Height  
 Lamp operated at 33,000 lm  
 180-W low pressure sodium lamp

**ISOFOOTCANDLE CURVE - MINIMUM**



**LED LUMINAIRE ROADWAY 3**  
 235-W at 40' Mounting Height  
 with back side control

**ISOFOOTCANDLE CURVE - MINIMUM**



**LED LUMINAIRE ROADWAY 4**  
 300-W at 40' Mounting Height

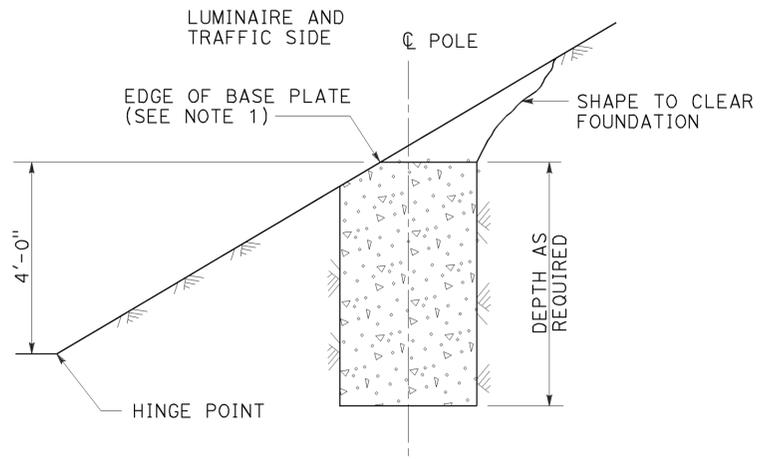
STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**ELECTRICAL SYSTEMS  
 (ISOFOOTCANDLE DIAGRAMS)**

NO SCALE

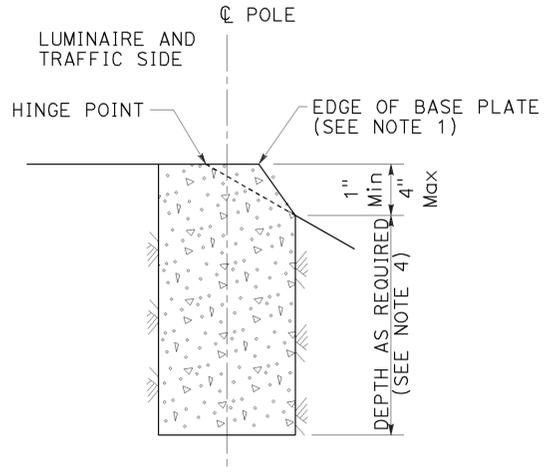
RSP ES-10A DATED JULY 19, 2013 SUPERSEDES RSP ES-10A DATED JULY 20, 2012 THAT SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.

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

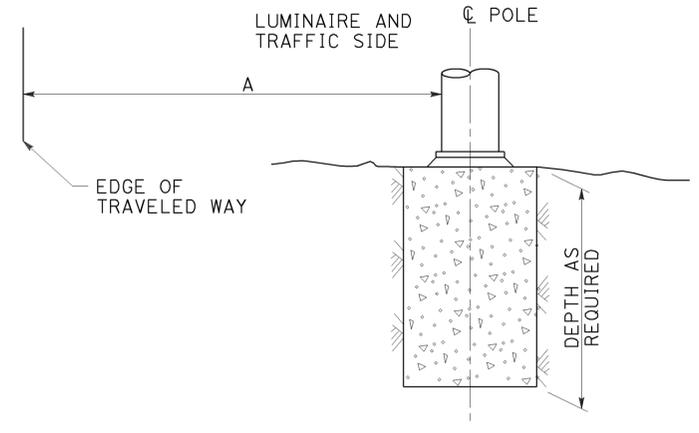
2010 REVISED STANDARD PLAN RSP ES-10A



CUT SLOPES  
STEEPER THAN 4:1,  
LESS THAN 2:1  
DETAIL A-1  
 See Note 2 and 3



FILL SLOPES  
STEEPER THAN 4:1,  
LESS THAN 2:1  
DETAIL A-2  
 See Note 2 and 3



FLAT SECTIONS, CUT OR FILL SLOPES  
4:1 OR FLATTER  
DETAIL A-3  
 See Note 2

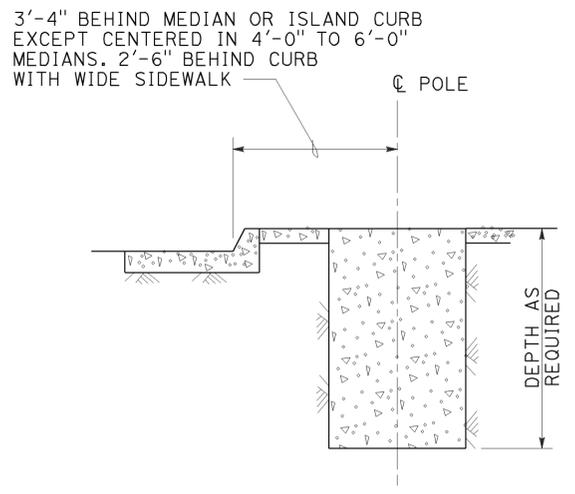
TO ACCOMPANY PLANS DATED 03-09-15

STANDARD TYPE	SETBACK (DIMENSION A)
32	30'-0" (Min)
31	20'-0" (Min)
15, 15D, 15-SB, 21, 21D, 30	ARM LENGTH (Min)

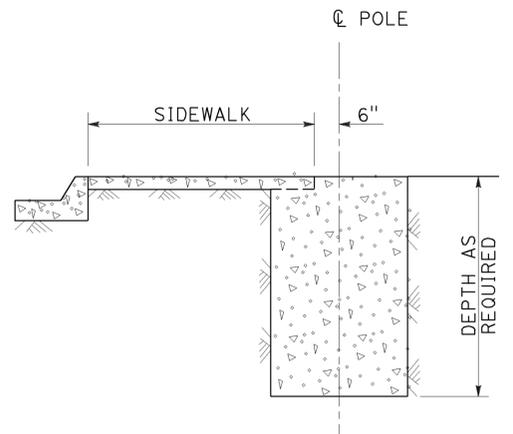
FOUNDATIONS ADJACENT TO ALL ROADWAYS EXCEPT  
IN SIDEWALK, MEDIAN AND ISLAND AREAS  
DETAIL A

NOTES:

1. Where a portion of the foundation is above grade, the top edges shall have a 1" chamfer.
2. Slopes shall be horizontal to vertical ratio (Horizontal : Vertical).
3. Horizontal setbacks on cut and fill slopes steeper than 4:1 shall not exceed the distance shown for flat sections.
4. CIDH embedment depth shall be increased beyond standard depths by the diameter of the CIDH.



MEDIAN, ISLAND  
OR WIDE SIDEWALK  
DETAIL B-1  
 7' Wide and wider



NARROW SIDEWALK  
DETAIL B-2  
 Less than 7' wide

FOUNDATIONS IN SIDEWALK, MEDIAN AND ISLAND AREAS  
DETAIL B

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**ELECTRICAL SYSTEMS**  
**(FOUNDATION INSTALLATIONS)**  
 NO SCALE

RSP ES-11 DATED JULY 19, 2013 SUPERSEDES STANDARD PLAN ES-11  
 DATED MAY 20, 2011 - PAGE 488 OF THE STANDARD PLANS BOOK DATED 2010.