

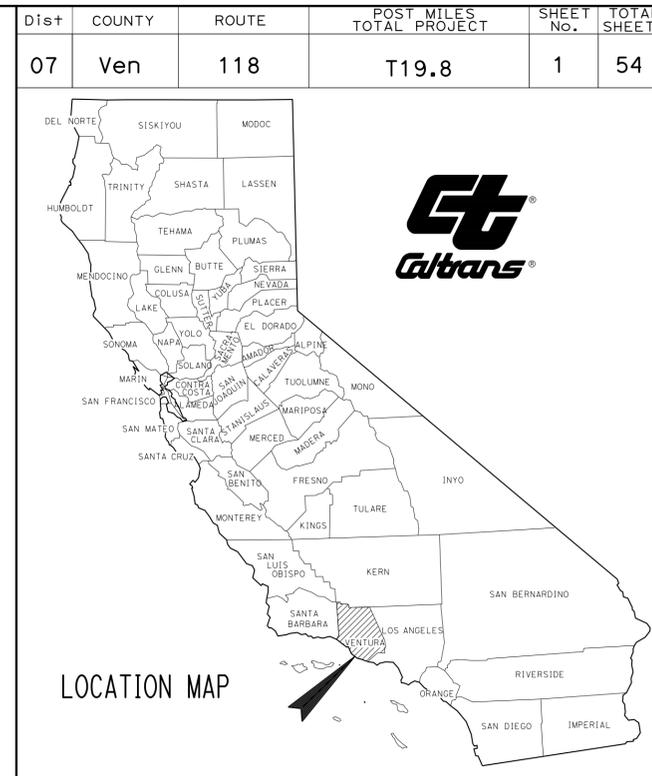
INDEX OF PLANS

SHEET No.	DESCRIPTION
1	TITLE AND LOCATION MAP
2	UTILITY PLAN
3	CONSTRUCTION AREA SIGN
4-7	TRAFFIC HANDLING DETAILS
8-10	PAVEMENT DELINEATION AND SIGN PLAN, DETAILS AND QUANTITIES
11-19	ELECTRICAL PLANS
20-54	REVISED STANDARD PLANS

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

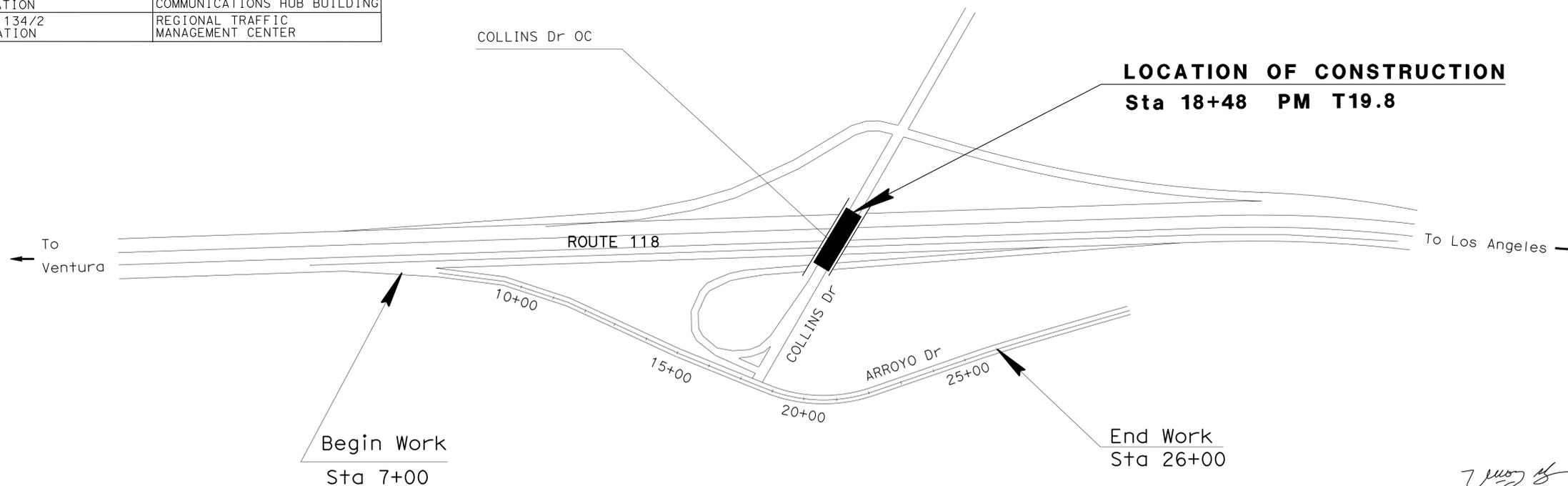
STATE OF CALIFORNIA  
**DEPARTMENT OF TRANSPORTATION**  
**PROJECT PLANS FOR CONSTRUCTION ON**  
**STATE HIGHWAY**  
**IN VENTURA COUNTY**  
**IN MOORPARK**  
**AT COLLINS DRIVE OVERCROSSING**

TO BE SUPPLEMENTED BY STANDARD PLANS DATED 2010



LOCATION OF WORK AT HUB BUILDING AND LARTMC

LOC	COUNTY	ROUTE	DESCRIPTION
1	LA	ROUTE 101/170/134 SEPARATION	NORTH HOLLYWOOD COMMUNICATIONS HUB BUILDING
2	LA	ROUTE 134/2 SEPARATION	REGIONAL TRAFFIC MANAGEMENT CENTER



**MOORPARK**

PROJECT ENGINEER      DATE 6/30/16  
 REGISTERED ELECTRICAL ENGINEER



June 30, 2016

PLANS APPROVAL DATE

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

CONTRACT No.	<b>07-4T8304</b>
PROJECT ID	<b>0715000338</b>

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

NO SCALE

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

FUNCTIONAL SUPERVISOR  
 ZOE YUE

CALCULATED/DESIGNED BY  
 CHECKED BY

OSWALD ELIZONDO  
 NASSER RAZFAR

REVISED BY  
 DATE REVISED

**NOTE:** (THIS SHEET ONLY)

- FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.
- UTILITY OWNERSHIP ARE AS SHOWN:  
 ELECTRICAL SOUTHERN CALIFORNIA EDISON (SCE)  
 TELEPHONE AMERICAN TELEGRAPH AND TELEPHONE COMPANY (AT&T)

**LEGEND:** (THIS SHEET ONLY)

BU CA = BURRIED CABLE

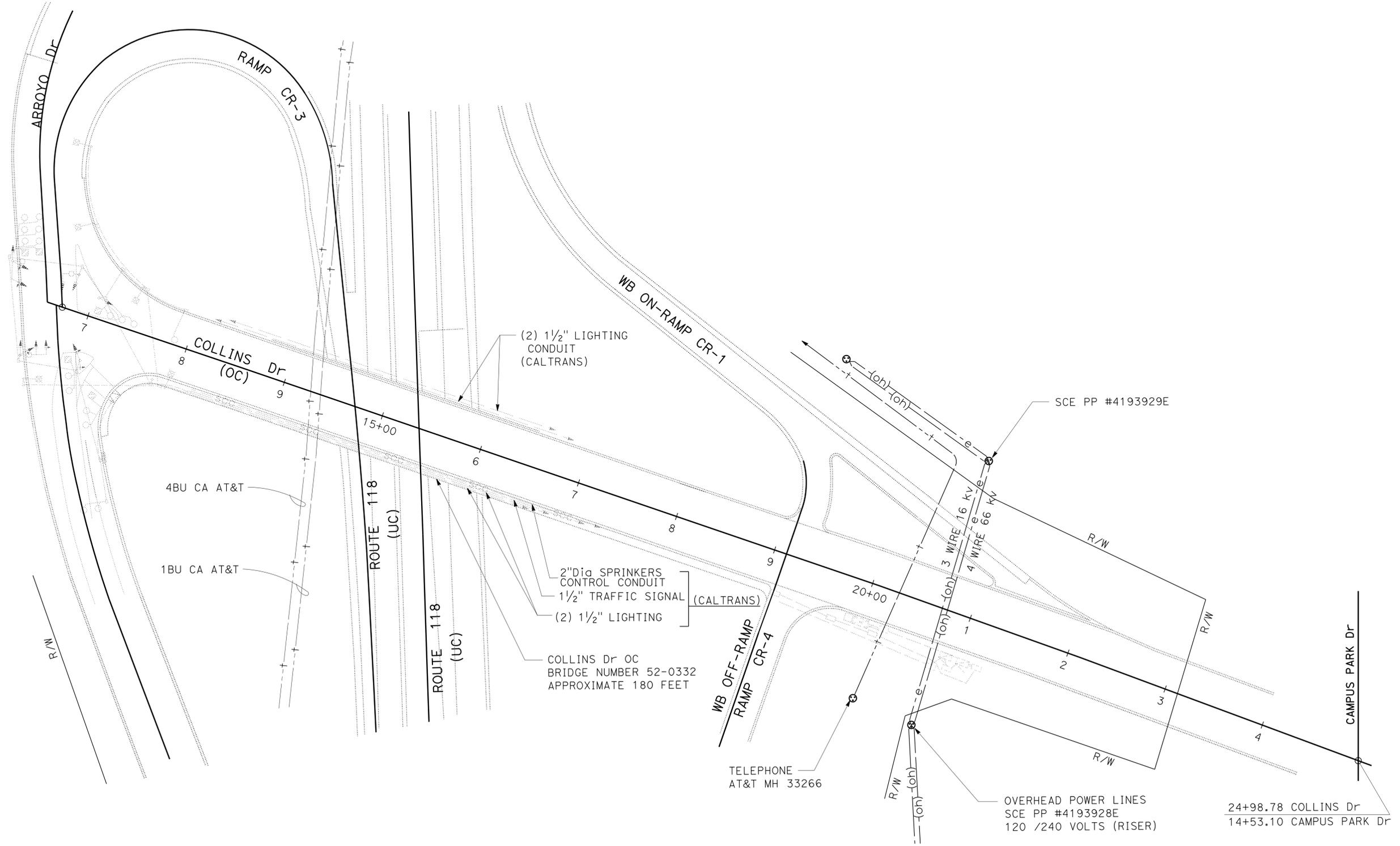
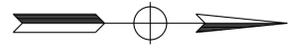
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	Ven	118	T19.8	2	54

*M. Celina Aviles* 6/30/16  
 REGISTERED CIVIL ENGINEER DATE

6-30-16  
 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**  
**N. CELINA AVILES**  
 No. C57106  
 Exp. 12/31/17  
 CIVIL  
 STATE OF CALIFORNIA



**UTILITY PLAN**  
 SCALE 1" = 50'

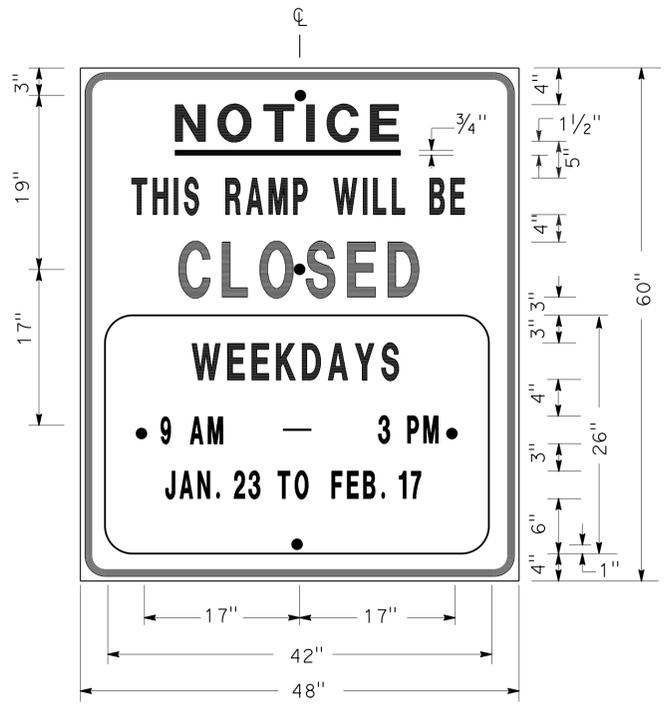
THIS PLAN TO BE USED FOR UTILITY INFORMATION ONLY

**U-1**

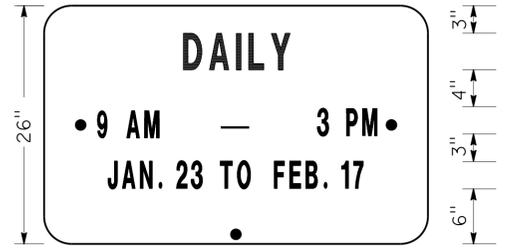
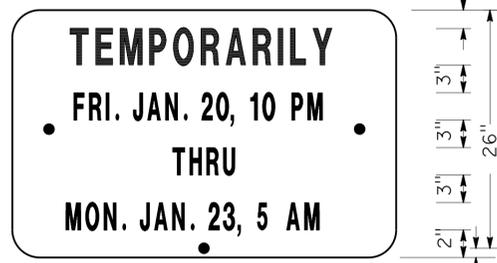
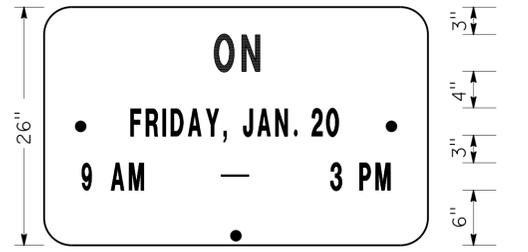


DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	Ven	118	T19.8	4	54

REGISTERED CIVIL ENGINEER: *Dyari Ahmed*  
 DATE: 3-08-16  
 PLANS APPROVAL DATE: 6-30-16  
 No. 66868  
 Exp. 9/30/16  
 CIVIL  
 THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



SIGN SP-1



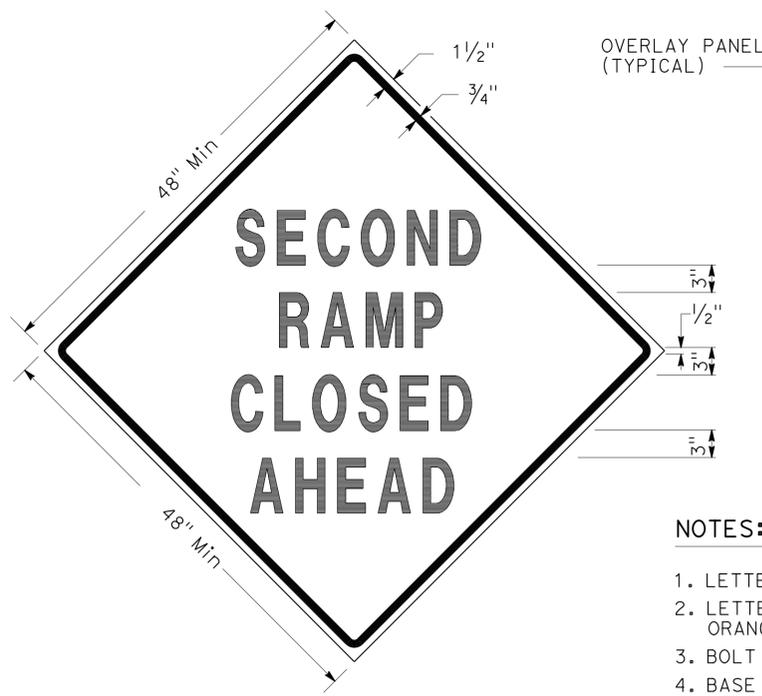
ALTERNATE OVERLAY PANELS (TYPICAL)

- NOTES:** SIGN SP-1
- LETTERS AND BORDER MUST BE BLACK ON REFLECTORIZED ORANGE BACKGROUND.
  - BOLT HOLES MUST BE 3/8" DIAMETER.
  - BASE MATERIAL MUST BE ALUMINUM (MINIMUM 0.06").
  - SIGNS MUST BE MOUNTED WITH BOTTOMS OF SIGNS A MINIMUM OF 7' ABOVE GROUND.

SIZE	BORDER WIDTH	MARGIN WIDTH	LETTER SIZE					CORNER RADIUS
			LINE 1	LINE 2*	LINE 3	LINE 4	LINE 5, 6, & 7*	
48"x60"	1 1/4"	3/4"	4E	4D	6E	4D		3"
42"x26"	OVERLAY						3D	1 1/2"

\* CONDENSED SPACING IF NECESSARY

**SPECIAL ADVANCE NOTICE PUBLICITY SIGN**



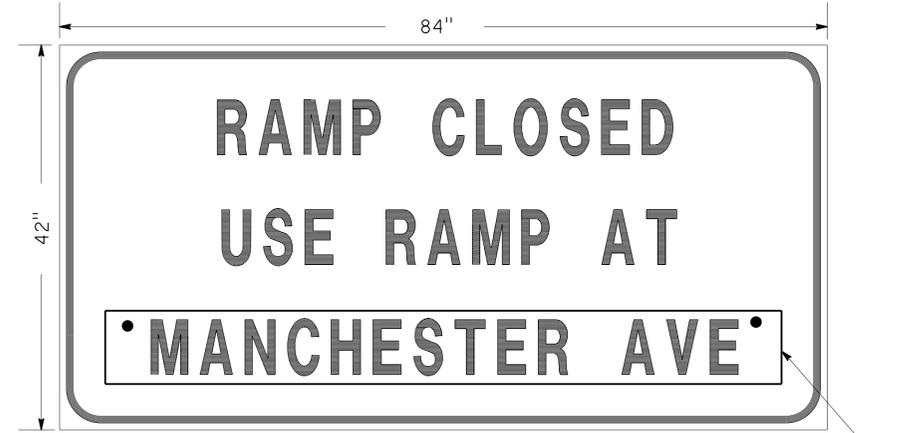
SIGN SP-3



SIGN SP-5

- NOTES:** SIGNS SP-3 & SP-5
- LETTERS - 6" SERIES D.
  - LETTERS AND BORDER MUST BE BLACK ON REFLECTORIZED ORANGE BACKGROUND.
  - BOLT HOLES MUST BE 3/8" DIAMETER.
  - BASE MATERIAL MUST BE ALUMINUM (MINIMUM 0.06").
  - SIGNS MUST BE MOUNTED WITH BOTTOMS OF SIGNS A MINIMUM OF 7' ABOVE GROUND.
  - SIGN SP-5 MUST BE USED IF THE OFF-RAMP TO BE CLOSED FOLLOWS A FREEWAY OFF-CONNECTOR.

**SPECIAL SIGNS FOR EXIT RAMP CLOSURES**



SIGN SP-4

- NOTES:** SIGN SP-4
- LETTERS - 6" SERIES C.
  - LETTERS AND BORDER MUST BE BLACK ON REFLECTORIZED WHITE BACKGROUND.
  - BOLT HOLES MUST BE 3/8" DIAMETER.
  - BASE MATERIAL MUST BE ALUMINUM (MINIMUM 0.06").
  - SIGNS MUST BE PLACED AT RAMP ENTRANCES IN ADDITION TO SIGNS POSTED IN ACCORDANCE WITH REVISED STANDARD PLAN RSP T14.

**SPECIAL SIGN FOR ENTRANCE RAMP CLOSURES**

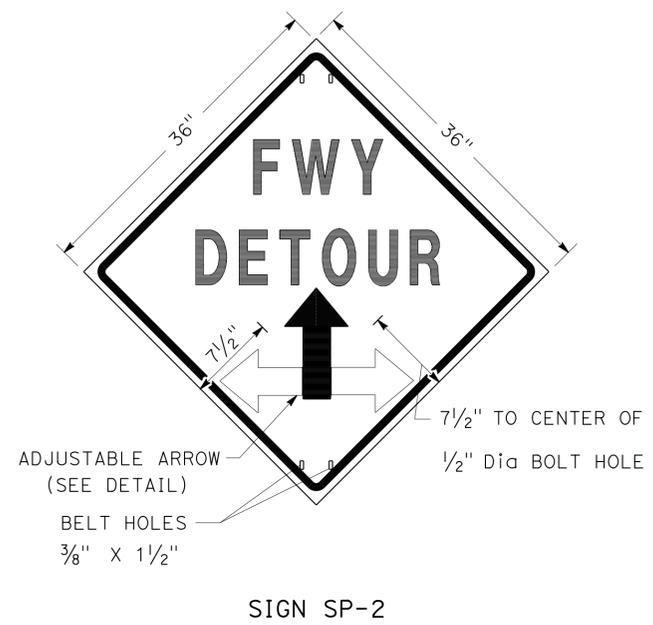
**TRAFFIC HANDLING DETAILS  
 TRAFFIC CONTROL SYSTEM  
 FOR RAMP CLOSURES, DETOUR SIGNS,  
 AND MISCELLANEOUS DETAILS**

SHEET 1 OF 2

NO SCALE

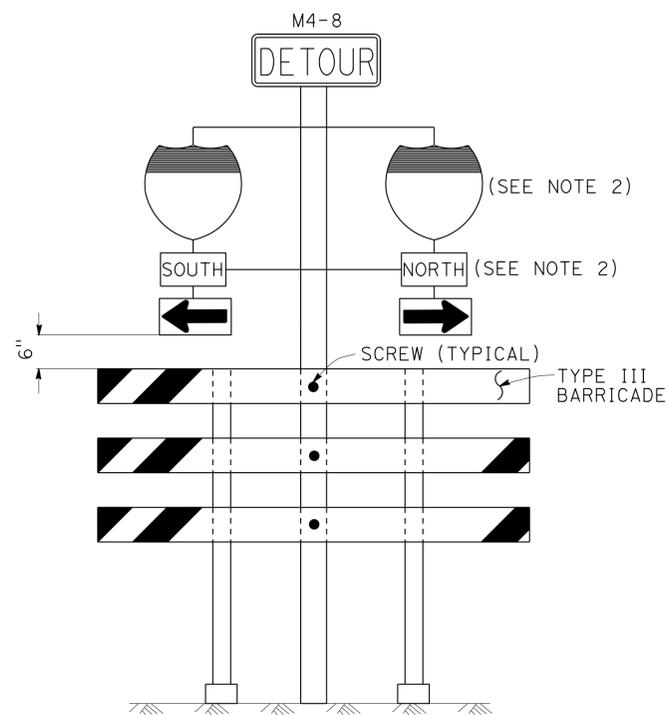
THD-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans**  
 DTM  
 FUNCTIONAL SUPERVISOR  
 SAM ESQUENAZI  
 CHECKED BY  
 JOCELYN C CHIANG  
 REVISIONS BY  
 DATE REVISION  
 2/14  
 JC

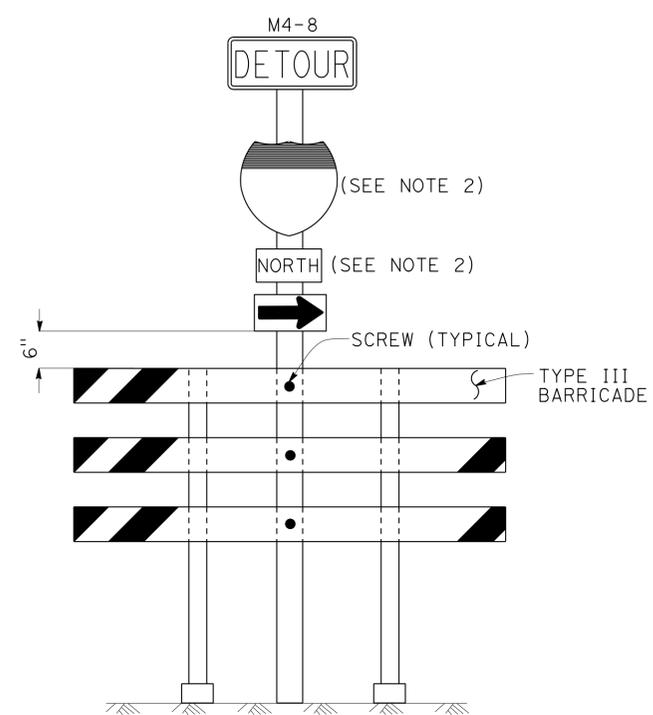


- NOTES:** SIGN SP-2
- LETTERS - 6" SERIES E.
  - LETTERS, BORDER AND ARROW - BLACK ON RETROREFLECTORIZED ORANGE BACKGROUND.
  - BASE MATERIAL FOR SIGNS AND ARROWS MUST BE ALUMINUM (MINIMUM 0.06").
  - BELTS (LUGGAGE STRAPS) MUST BE 1" WIDE BY 48" LONG, MADE OF COTTON OR POLYPROPYLENE WEB MATERIAL.
  - SIGNS MUST BE MOUNTED WITH BOTTOMS OF SIGNS A MINIMUM OF 7' ABOVE GROUND EXCEPT AS OTHERWISE SHOWN ON OTHER TRAFFIC HANDLING DETAILS PLANS.

**ABBREVIATION**  
 (CA) CALIFORNIA CODE



**SIGN SP-6 (SEE NOTE 1)**

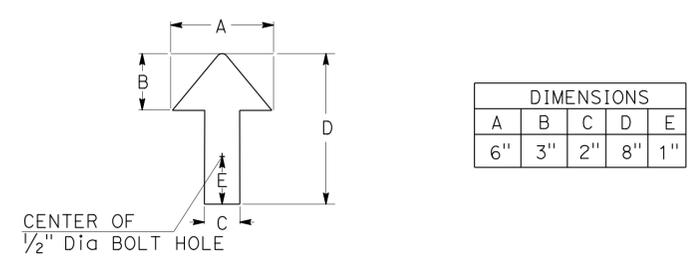


**SIGN SP-7 (SEE NOTE 1)**

**NOTES:** SIGNS SP-6 & SP-7

- IN LIEU OF PLACING SIGNS ON TYPE III BARRICADES, SIGNS, INCLUDING POSTS, MAY BE PLACED INTO THE GROUND OR FASTENED ONTO ELECTROLIERS.
- USE APPROPRIATE ROUTE MARKER [G26-2(CA), G27-2(CA), G28-2(CA)] AND CARDINAL DIRECTION [NORTH (M3-1), SOUTH (M3-3), EAST (M3-2), WEST (M3-4)].

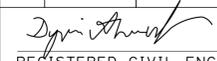
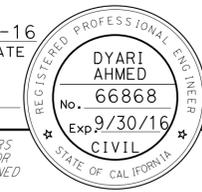
**SPECIAL PORTABLE FREEWAY DETOUR SIGNS**



**ADJUSTABLE ARROW DETAIL**

**TRAFFIC HANDLING DETAILS**  
**TRAFFIC CONTROL SYSTEM**  
**FOR RAMP CLOSURES, DETOUR SIGNS,**  
**AND MISCELLANEOUS DETAILS**  
**SHEET 2 OF 2**  
 NO SCALE

**THD-2**

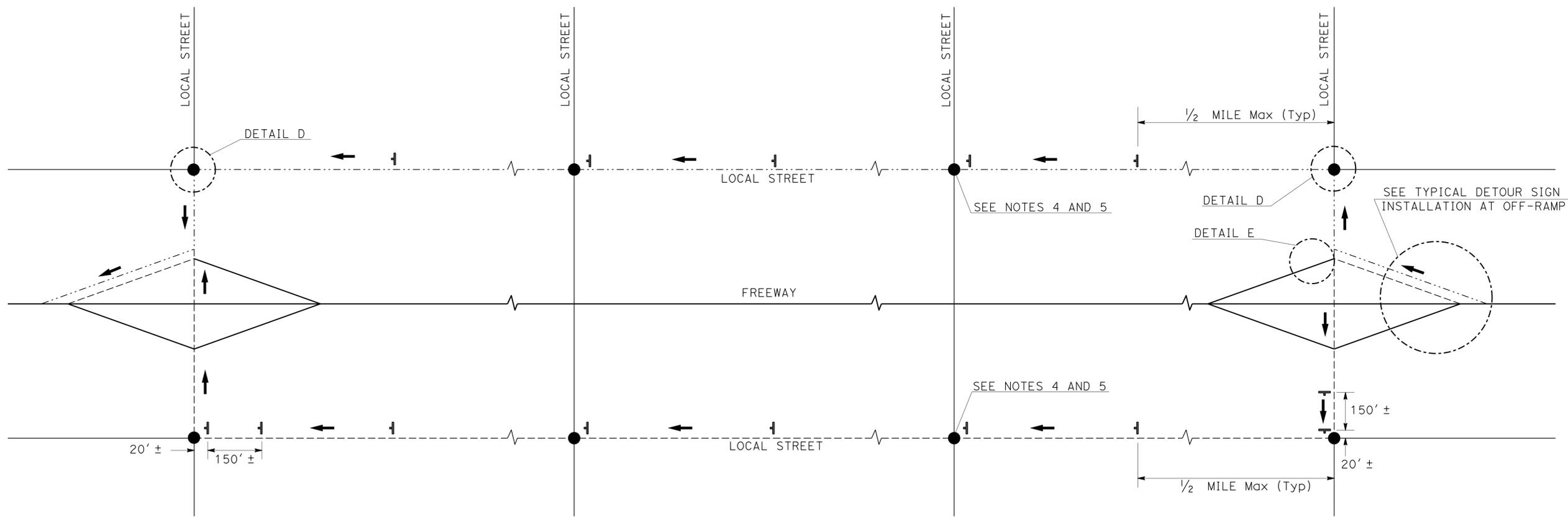
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	Ven	118	T19.8	6	54
 REGISTERED CIVIL ENGINEER DATE 3-08-16					
6-30-16 PLANS APPROVAL DATE					
<small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small>					

**LEGEND**

-  SIGN SP-2
-  AND/OR DESIGNATED DETOUR ROUTE
-  DETOUR DIRECTION
-  CONTROLLED INTERSECTION

**NOTES:**

1. SP-2 SIGNS MAY BE STRAPPED ON EXISTING ELECTROLIER, SIGNAL POST OR SIGN POST.
2. SP-2 SIGNS MUST NOT BE INSTALLED ON BARRICADES EXCEPT AS OTHERWISE SHOWN.
3. SIGN LOCATIONS ARE APPROXIMATE. EXACT LOCATIONS WILL BE DETERMINED BY THE ENGINEER.
4. SP-2 SIGNS MUST BE POSTED AT EACH CONTROLLED INTERSECTION (EXCEPT AT COMMERCIAL PROPERTY, RESIDENTIAL COMPLEX OR T-INTERSECTION FROM ONE-WAY STREET) ALONG THE DESIGNATED DETOUR ROUTE.
5. UNLESS OTHERWISE SHOWN ON OTHER THD PLANS, WHEN CONTROLLED INTERSECTIONS ALONG THE DESIGNATED DETOUR ROUTE ARE CLOSELY SPACED, PLACE SP-2 SIGNS AT CONTROLLED INTERSECTIONS AT A DISTANCE NOT TO EXCEED 1/4 MILE FROM THE PRECEDING DETOUR SIGN.
6. EXCEPT AS OTHERWISE SHOWN ON OTHER PLANS OR SPECIFIED IN THE SPECIAL PROVISIONS, SP-2 SIGNS MUST BE PLACED AS SHOWN ON THIS PLAN.



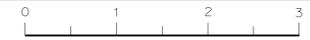
**TYPICAL DETOUR SIGN INSTALLATION ALONG DESIGNATED DETOUR ROUTE**

**TRAFFIC HANDLING DETAILS  
TRAFFIC CONTROL SYSTEM  
FOR DETOUR SIGN INSTALLATION  
ALONG DESIGNATED DETOUR ROUTE  
SHEET 1 OF 2**

NO SCALE

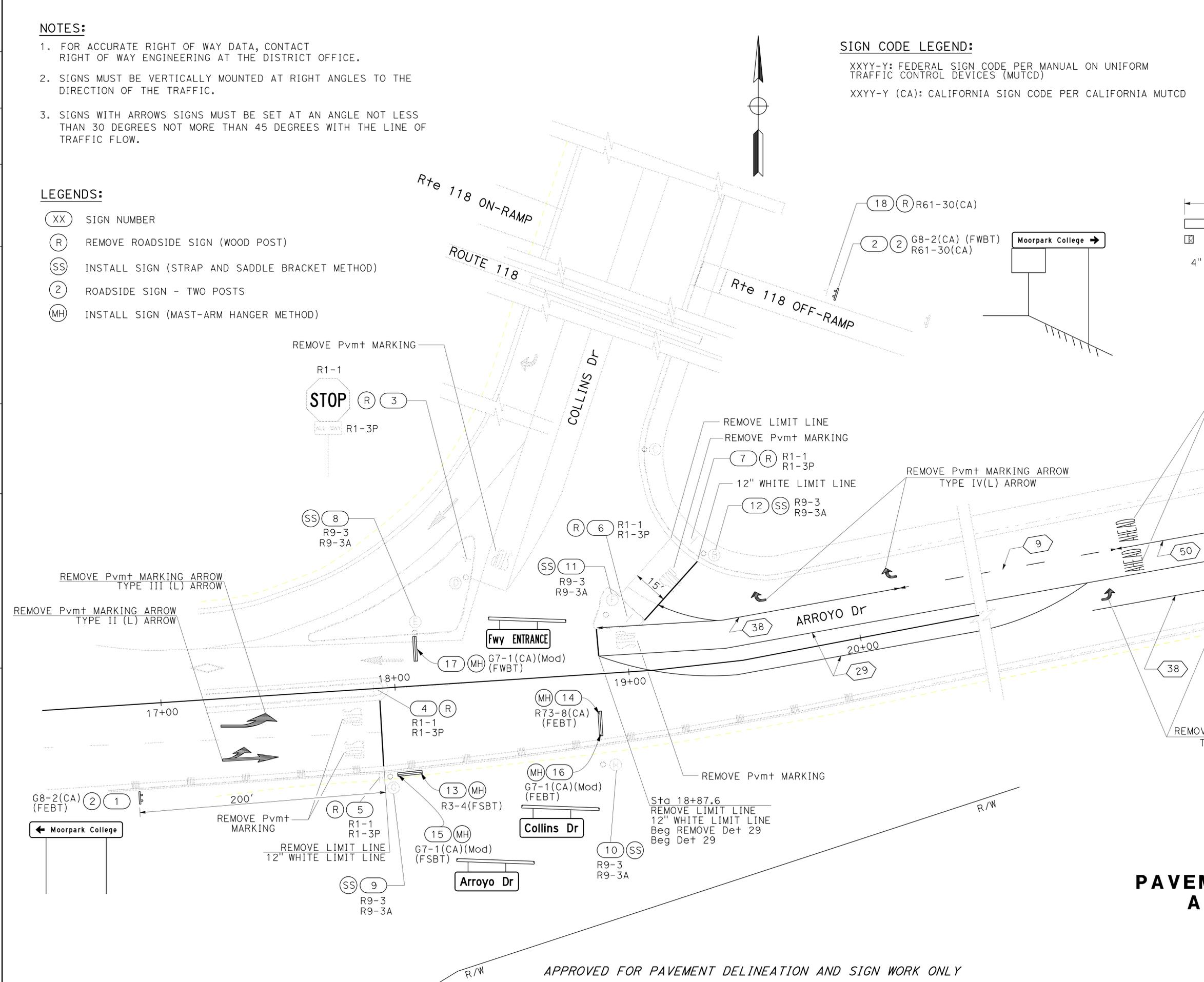
**THD-3**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans**  
 DTM  
 FUNCTIONAL SUPERVISOR  
 SAM ESQUENAZI  
 CALCULATED/DESIGNED BY  
 CHECKED BY  
 JOCELYN C CHIANG  
 REVISED BY  
 DATE REVISED  
 2/14  
 JC





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



**NOTES:**

- FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.
- SIGNS MUST BE VERTICALLY MOUNTED AT RIGHT ANGLES TO THE DIRECTION OF THE TRAFFIC.
- SIGNS WITH ARROWS SIGNS MUST BE SET AT AN ANGLE NOT LESS THAN 30 DEGREES NOT MORE THAN 45 DEGREES WITH THE LINE OF TRAFFIC FLOW.

**LEGENDS:**

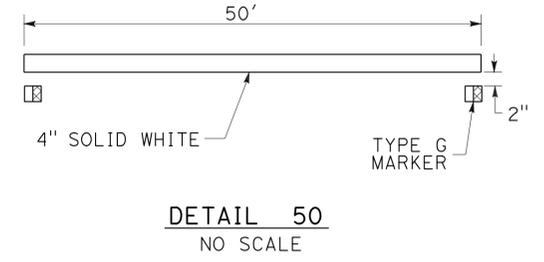
- (XX) SIGN NUMBER
- (R) REMOVE ROADSIDE SIGN (WOOD POST)
- (SS) INSTALL SIGN (STRAP AND SADDLE BRACKET METHOD)
- (2) ROADSIDE SIGN - TWO POSTS
- (MH) INSTALL SIGN (MAST-ARM HANGER METHOD)

**SIGN CODE LEGEND:**

XXYY-Y: FEDERAL SIGN CODE PER MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD)  
 XXYY-Y (CA): CALIFORNIA SIGN CODE PER CALIFORNIA MUTCD

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	Ven	118	T19.8	8	54

REGISTERED CIVIL ENGINEER DATE 6/28/16  
 SULLIASTI SUTANTO  
 No. C77282  
 Exp 6/30/17  
 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.



**PAVEMENT DELINEATION AND SIGN PLAN**

SCALE: 1" = 20'

APPROVED FOR PAVEMENT DELINEATION AND SIGN WORK ONLY

PD-1

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	Ven	118	T19.8	9	54

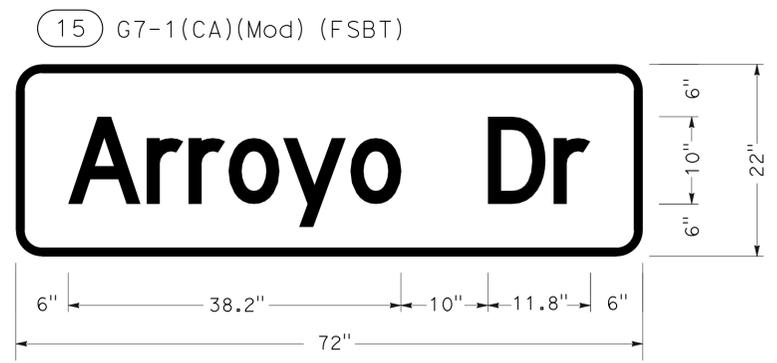
  

<i>Sulianto</i>	6/28/16
REGISTERED CIVIL ENGINEER	DATE
6-30-16	
PLANS APPROVAL DATE	

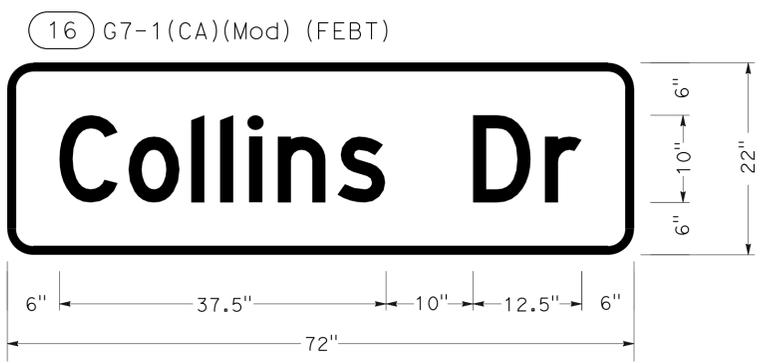
  

REGISTERED PROFESSIONAL ENGINEER
SULIASTI SUTANTO
No. C77282
Exp 6/30/17
CIVIL
STATE OF CALIFORNIA

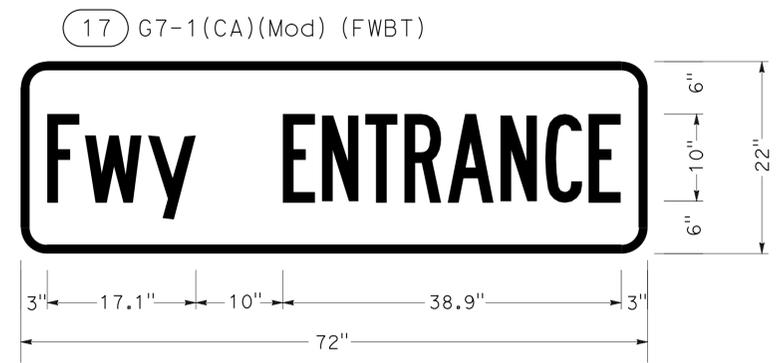
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



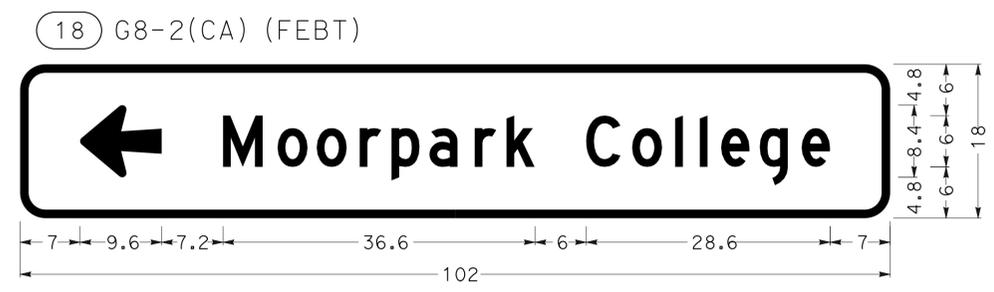
ALL DIMENSION IN INCHES  
 3" RADIUS, 1.0" BORDER  
 BACKGROUND GREEN (RETROREFLECTIVE)  
 LEGEND & BORDER WHITE (RETROREFLECTIVE)  
 [Arroyo Dr] D



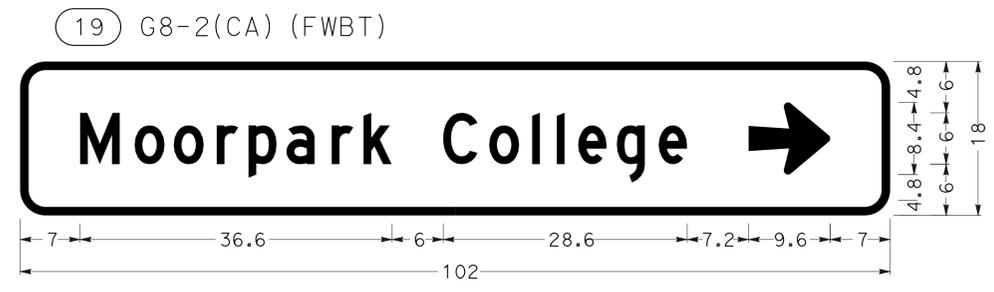
ALL DIMENSION IN INCHES  
 3" RADIUS, 1.0" BORDER  
 BACKGROUND GREEN (RETROREFLECTIVE)  
 LEGEND & BORDER WHITE (RETROREFLECTIVE)  
 [Collins Dr] D



ALL DIMENSION IN INCHES  
 3" RADIUS, 1.0" BORDER  
 BACKGROUND GREEN (RETROREFLECTIVE)  
 LEGEND & BORDER WHITE (RETROREFLECTIVE)  
 [Fwy ENTRANCE] B



ALL DIMENSION IN INCHES  
 3" RADIUS, 1.0" BORDER  
 BACKGROUND GREEN (RETROREFLECTIVE)  
 LEGEND, ARROW & BORDER WHITE (RETROREFLECTIVE)  
 ARROW 6UC-1L - 9.6" 180°; [Moorpark] D; [College] D



ALL DIMENSION IN INCHES  
 3" RADIUS, 1.0" BORDER  
 BACKGROUND GREEN (RETROREFLECTIVE)  
 LEGEND, ARROW & BORDER WHITE (RETROREFLECTIVE)  
 [Moorpark] D; [College] D; ARROW 6UC-1L - 9.6" 0°

**PAVEMENT DELINEATION AND SIGN DETAILS**

NO SCALE

**PDD-1**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	FUNCTIONAL SUPERVISOR	REVISOR	DATE
<b>Caltrans</b> TRAFFIC DESIGN	MOHAMMED CHOWDHURY	SS	5/16/16
	CHECKED BY	DESIGNED BY	
		SULIASTI SUTANTO	



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	Ven	118	T19.8	11	54

6/28/16  
 REGISTERED ELECTRICAL ENGINEER DATE  
 6-30-16  
 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  
**VUONG HONG**  
 No. E16613  
 Exp. 6/30/18  
 ELECTRICAL  
 STATE OF CALIFORNIA

**NOTES (THIS SHEET ONLY)**

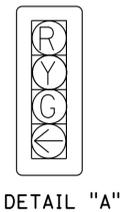
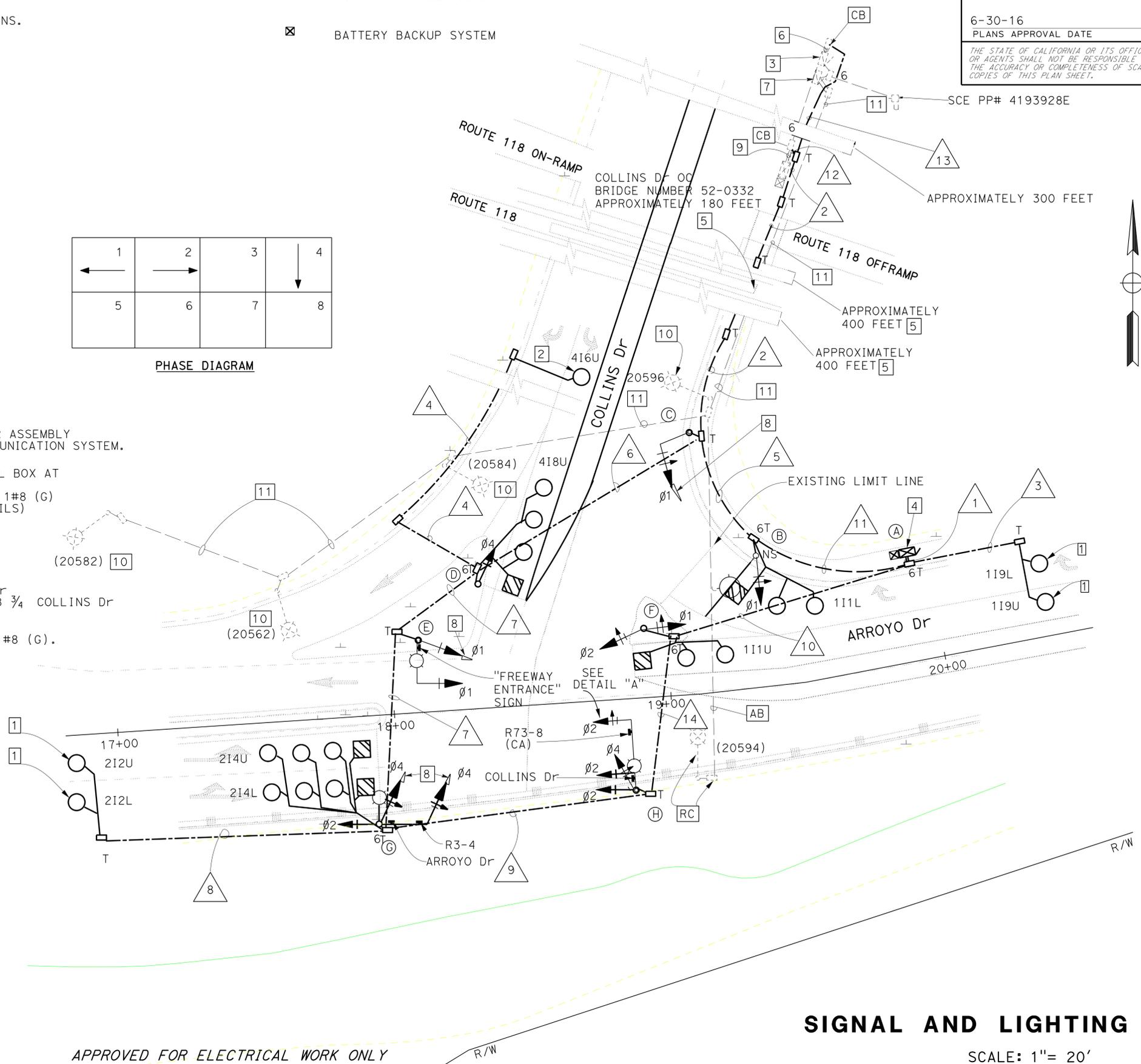
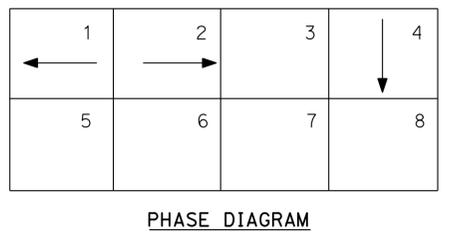
- FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.
- EXISTING UTILITY FACILITIES ARE NOT SHOWN ON THESE PLANS.
- ALL NEW PULL BOXES ARE TYPE TRAFFIC PULL BOX.

**SYMBOLS: (THIS SHEET)**

- VEHICLE SIGNAL FACE CONSISTING OF RED, YELLOW AND GREEN RIGHT ARROW SECTIONS
- BATTERY BACKUP SYSTEM

**LEGEND (THIS SHEET)**

- INSTALL TYPE E LOOP 140 FEET FROM THE LIMIT LINE.
- INSTALL TYPE E LOOP 185 FEET FROM THE LIMIT LINE.
- EXISTING 120 / 240 V TYPE III-BF SERVICE EQUIPMENT ENCLOSURE WITH TYPE V PEC LIGHTING  
 100 A, 240 V, 2P MAIN BREAKER  
 30 A, 240 V, 1P, CB FOR LIGHTING  
 50 A, 240 V, 1P, CB FOR SIGNAL  
 15 A, 120 V, 1P, CB FOR PEU  
 Ctid No. 07-52-1180-020.500 FOR INTERSECTION LIGHTING AND SIGNAL  
 ADDRESS: 6410 1#2 COLLINS Dr, MOORPARK, CA 93021  
 ADD:  
 15 A, 120 V, 1P, CB FOR PEU  
 30 A, 240 V, 1P, CB FOR LIGHTING  
 50 A, 240 V, 1P, CB FOR SIGNAL
- INSTALL DEPARTMENT FURNISHED MODEL 2070-7G CONTROLLER ASSEMBLY WITH 2070-6B MODEM FOR THE WIRELESS DATA SERVICE COMMUNICATION SYSTEM. INSTALL BBS EXTERNAL CABINET AND BATTERIES.
- INSTALL 2-2"C, 4#6, 1#SIC, 1#8 (G). INSTALL 4 No. 5T PULL BOX AT APPROXIMATELY EVERY 185 FEET. AT THE COLLINS Dr. OC BRIDGE NUMBER 52-0332, INSTALL 2-2"C, 4#6, 1#SIC AND 1#8 (G) BY STRAPPING TO THE BRIDGE (SEE SHEET SES-3 FOR DETAILS)
- EXISTING 2-3"C, 14#8. ADD 4#6 AND 1#8 (G).
- EXISTING 120 / 240 V TYPE III-CF SERVICE EQUIPMENT ENCLOSURE WITH TYPE V PEC LIGHTING  
 Ctid 07-52-1180-020.601 FREEWAY LIGHTING AND SIGN ILLUMINATION, ADDRESS: 6408 1/2 COLLINS Dr  
 Ctid 07-52-1180-020.600 RAMP METERING, ADDRESS: 6408 3/4 COLLINS Dr
- INSTALL 60 DEGREE VISOR.
- EXISTING 2-3"C, 22#14, 2#10, 2#6, 8 DLC, ADD 1 SIC, 1#8 (G).
- RC** LUMINAIRE. INSTALL 235 W LED LUMINAIRE. SEE WIRING DIAGRAM IN SHEET E-2 FOR DETAILS.
- EXISTING 2"C, 2#6. ADD 1#8 (G).



**SIGNAL AND LIGHTING SYSTEM**

SCALE: 1" = 20'

**E-1**

APPROVED FOR ELECTRICAL WORK ONLY

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** TRAFFIC DESIGN  
 FUNCTIONAL SUPERVISOR: OSWALD ELIZONDO  
 CALCULATED/DESIGNED BY: OSWALD ELIZONDO  
 CHECKED BY:  
 REVISOR: VUONG HONG  
 DATE REVISOR: OSWALD ELIZONDO

LAST REVISION DATE PLOTTED => 26-JUL-2016  
 00-00-00 TIME PLOTTED => 07:59

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	Ven	118	T19.8	12	54

6/28/16  
 REGISTERED ELECTRICAL ENGINEER DATE

6-30-16  
 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  
**VUONG HONG**  
 No. E16613  
 Exp. 6/30/18  
 ELECTRICAL  
 STATE OF CALIFORNIA

**CONDUIT AND CONDUCTOR SCHEDULE**

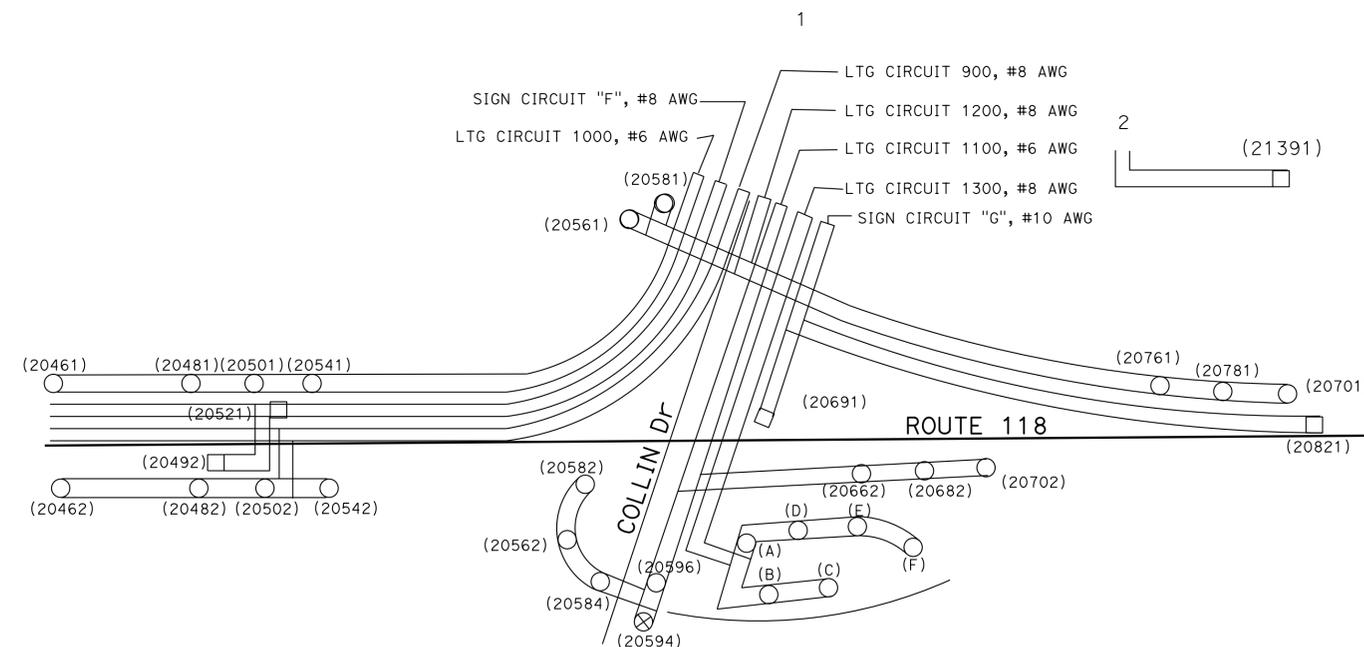
CONDUCTOR TYPE	FUNCTION	1	2	3	4	5	6	7	8	9	10	11	12	13	14
28 CSC	TRAFFIC SIGNAL	2				1	1	1			1	1			1
DLC	PHASE Ø1	4		2							1	1			
	PHASE Ø2	4				4	4	4	2			4			
	PHASE Ø4	2			1	2	2					2			
#6 AWG	LIGHTING		2			2	2	2				2		2	
#6 AWG	SIGNAL SERVICE	2	2			2						2		2	
#8 BARE	GROUND	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3TP# 20AWG	SIC	1	1			1						1	1		
CONDUIT SIZE		2-3"	2-2"	2"	2"	2",3"	3"	3"	2"	2"	3"	2",3"	(2-3")	2"	3"

NOTE: TP = TWISTED PAIR  
( ) = EXISTING

**POLE AND EQUIPMENT SCHEDULE**

No.	STANDARD			Veh Sig Mtg		Ped	PPB		LED LUMINAIRE	SPECIAL REQUIREMENT REFLECTIVE SIGNS
	TYPE/MODEL	SMA	LMA	MAST	POLE		Ø	ARROW		
(A)	332 CABINET	-	-	-	-	-	-	-	-	-
(B)	15TS	-	12'	-	SV-1-T	-	-	-	165 W	R9-3 & R9-3A
(C)	16-1-100	15'-0"	-	MAT 15'-0"	-	-	-	-	-	-
(D)	1-A	-	-	-	TV-1-T	-	-	-	-	R9-3 & R9-3A
(E)	17-2-100	15'-0"	12'	MAT 15'-0"	SV-1-T	-	-	-	165 W	"FREEWAY ENTRANCE" & R9-3 & R9-3A SIGN
(F)	1-A	-	-	-	TV-2-TA	-	-	-	-	R9-3 & R9-3A
(G)	19-3-100 MODIFIED	24'-0"	12'	MAT 24'-0"	SV-2-TA	-	-	-	165 W	"ARROYO Dr.", "R3-4" R9-3 & R9-3A SIGNS SEE "SES-1" FOR DETAILS
(H)	19-4-100 MODIFIED	26'-0"	12'	MAT 12'-0" MAT 26'-0"	SV-2-TA	-	-	-	165 W	"R73-8 (CA)", "COLLINS Dr.", R9-3 & R9-3A SIGNS SEE "SES-2" FOR DETAILS

ID 07-52-1180-020.601 FREEWAY LIGHTING AND SIGN ILLUMINATION, ADDRESS: 6408 1/2 COLLINS DR.  
ID 07-52-1180-020.600 RAMP METERING, ADDRESS: 6408 3/4 COLLINS DR.



WIRING DIAGRAM (COLLINS Dr) SEE SHEET E-1

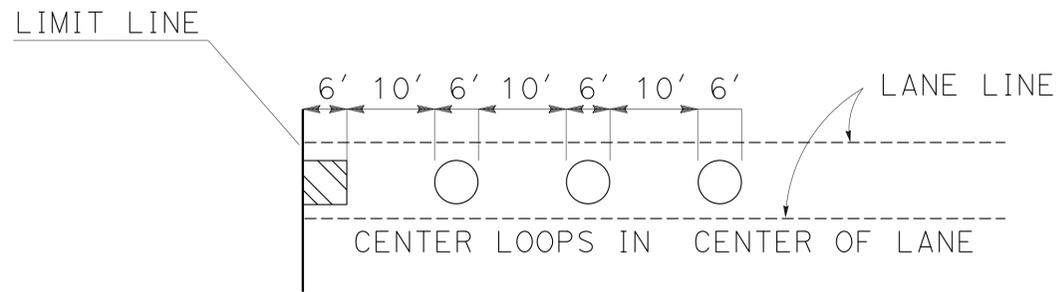
**SIGNAL AND LIGHTING SYSTEM**

NO SCALE

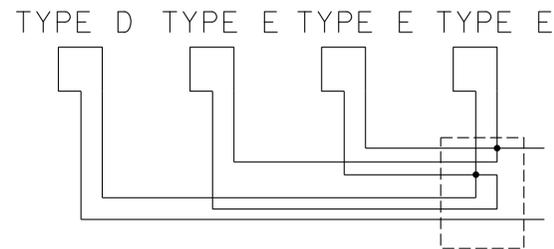
**E-2**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	FUNCTIONAL SUPERVISOR	CALCULATED-DESIGNED BY	VUONG HONG	REVISOR	VH
<b>Caltrans</b> TRAFFIC DESIGN	OSWALD ELIZONDO	CHECKED BY	OSWALD ELIZONDO	DATE	10/30/12

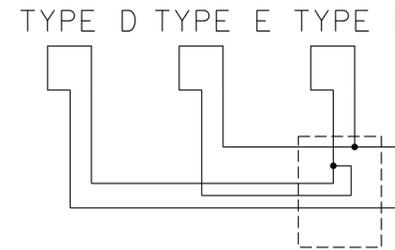
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	Ven	118	T19.8	13	54
			6/28/16		
REGISTERED ELECTRICAL ENGINEER			DATE		
6-30-16			PLANS APPROVAL DATE		
					
<small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small>					



TYPICAL LOOP DETAIL



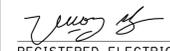
LOOP CONNECTION  
TYPE D + 3 TYPE E

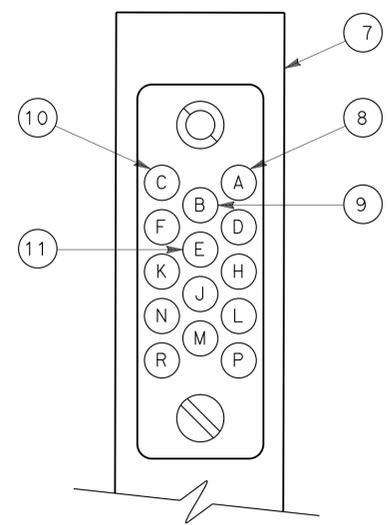


LOOP CONNECTION  
TYPE D + 2 TYPE E

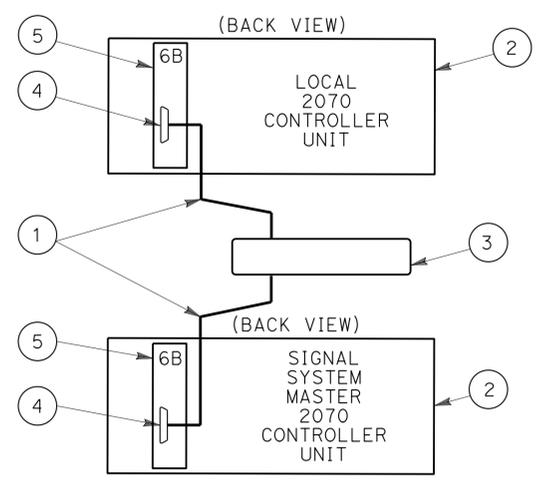
**ELECTRICAL DETAILS**  
NO SCALE



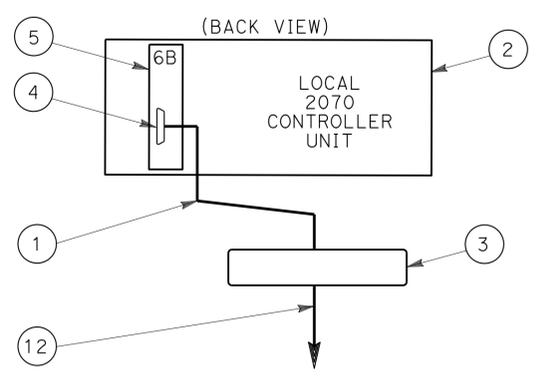
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	Ven	118	T19.8	14	54
 REGISTERED ELECTRICAL ENGINEER			6/28/16 DATE		
6-30-16 PLANS APPROVAL DATE					
<small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small>					



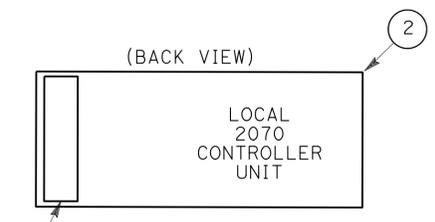
**CONNECTOR C2P DETAIL**  
**DETAIL A**



**DETAIL B**  
CABINET WITH  
LOCAL CONTROLLER  
AND SIGNAL SYSTEM MASTER



**DETAIL C**  
LOCAL CONTROLLER  
WITH STAND ALONE  
GPS TIME SOURCE DEVICE



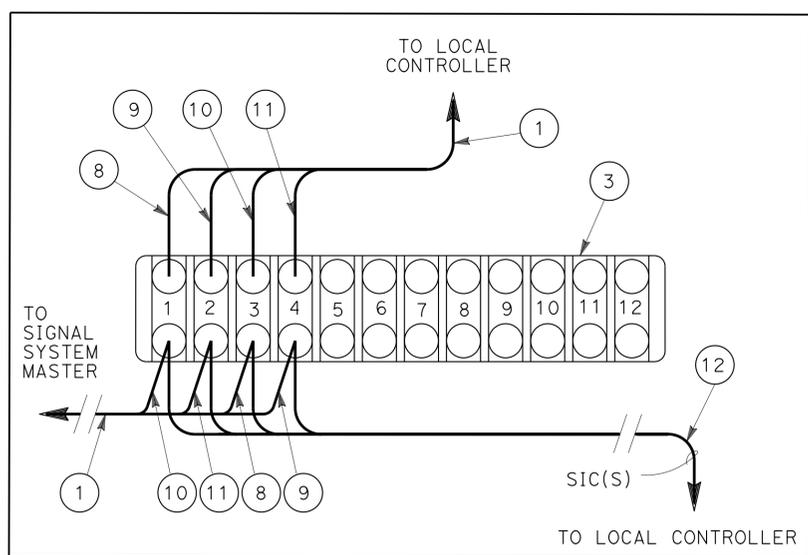
**DETAIL D**  
WITH GPS TIME  
SOURCE MODULE

**NOTES - THIS SHEET ONLY**

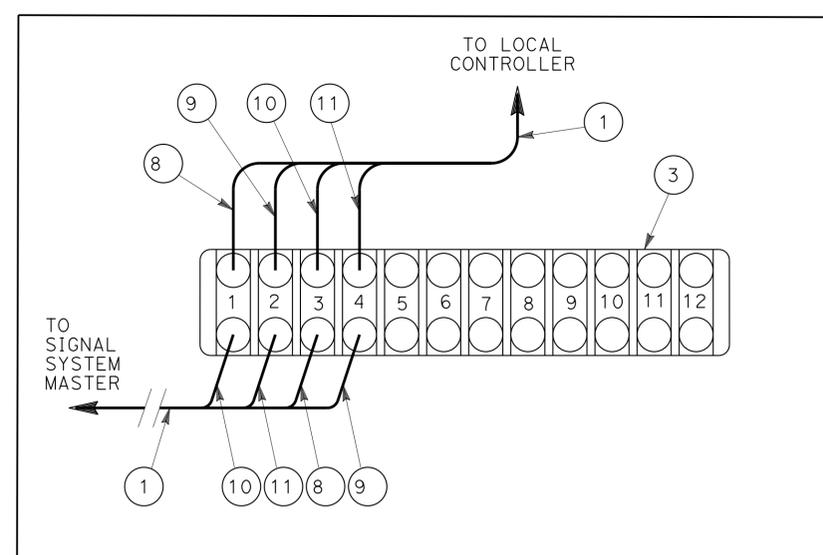
- ① C2 MODEM HARNESS
- ② MODEL 2070 CONTROLLER
- ③ TERMINAL BLOCK Ø (TBØ)
- ④ C2S PORT
- ⑤ MODEL 2070-6B MODEM IN SLOT A2
- ⑥ MODEL 2070-7G MODULE IN SLOT A1
- ⑦ CONNECTOR C2P
- ⑧ C2 A SIGNAL (WHITE)
- ⑨ C2 B SIGNAL (GREEN)
- ⑩ C2 C SIGNAL (RED)
- ⑪ C2 E SIGNAL (BLACK)
- ⑫ SIC(S) SIGNAL INTERCONNECT CABLE(S) TO OTHER CABINET(S)

**LEGEND (THIS SHEET)**

- SIC SIGNAL INTERCONNECT CABLE
- C2P C2 PLUG
- C2S C2 SOCKET



**DETAIL E**  
WITH TWO OR MORE INTERCONNECTS



**DETAIL F**  
WITH ONE INTERCONNECT

**(TYPICAL TRAFFIC SIGNAL INTERCONNECT SYSTEM DETAILS)**

**ELECTRICAL DETAILS**

NO SCALE

**E-4**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** TRAFFIC DESIGN  
 FUNCTIONAL SUPERVISOR: OSWALD ELIZONDO  
 DESIGNED BY: OSWALD ELIZONDO  
 CHECKED BY:  
 CALCULATED/DESIGNED BY:  
 REVISIONS:  
 REVISION NO. | DATE | REVISION BY | DATE REVISION BY

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	Ven	118	T19.8	15	54

<i>[Signature]</i>	6/28/16
REGISTERED ELECTRICAL ENGINEER	DATE
6-30-16	PLANS APPROVAL DATE

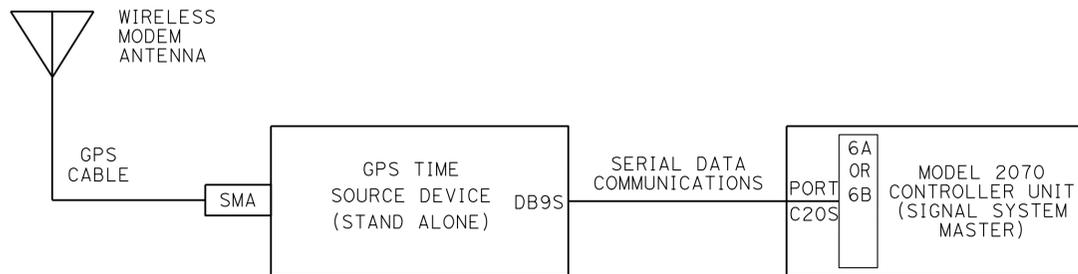
  

REGISTERED PROFESSIONAL ENGINEER	YUONG HONG
No.	E16613
Exp	06/30/18
ELECT	

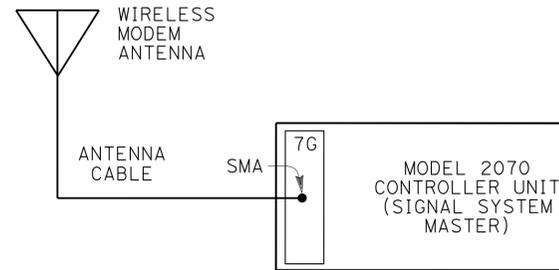
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

**LEGEND (THIS SHEET)**

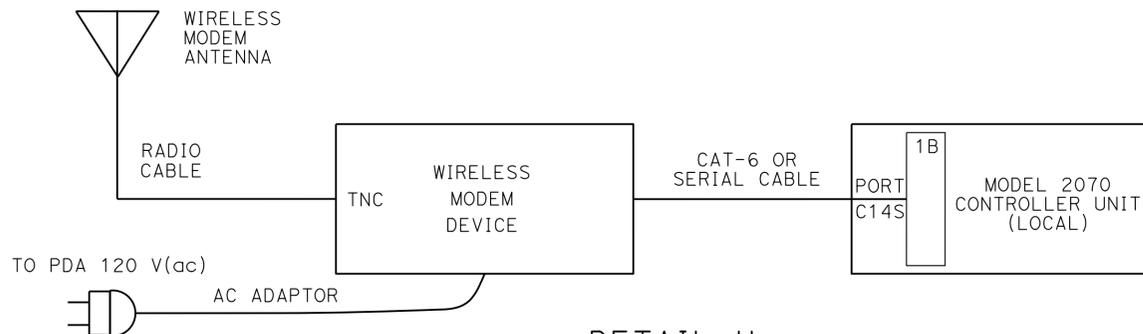
- AC ALTERNATING CURRENT
- IP INTERNET PROTOCOL
- LARTMC LOS ANGELES REGIONAL TRANSPORTATION MANAGEMENT CENTER
- GPS GLOBAL POSITIONING SYSTEM
- SMA SUBMINIATURE VERSION A
- TNC THREADED NEILL-CONCELMAN
- TSMSS TRAFFIC SIGNAL MANAGEMENT SURVEILLIANCE SYSTEM
- V(ac) VOLTS ALTERNATING CURRENT



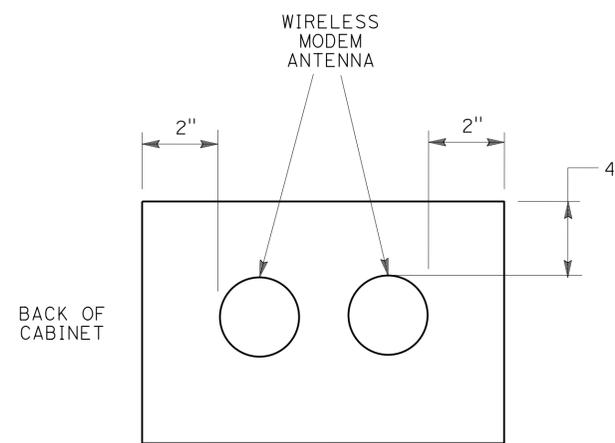
**DETAIL G**  
GPS TIME SOURCE DEVICE CONNECTION DETAIL



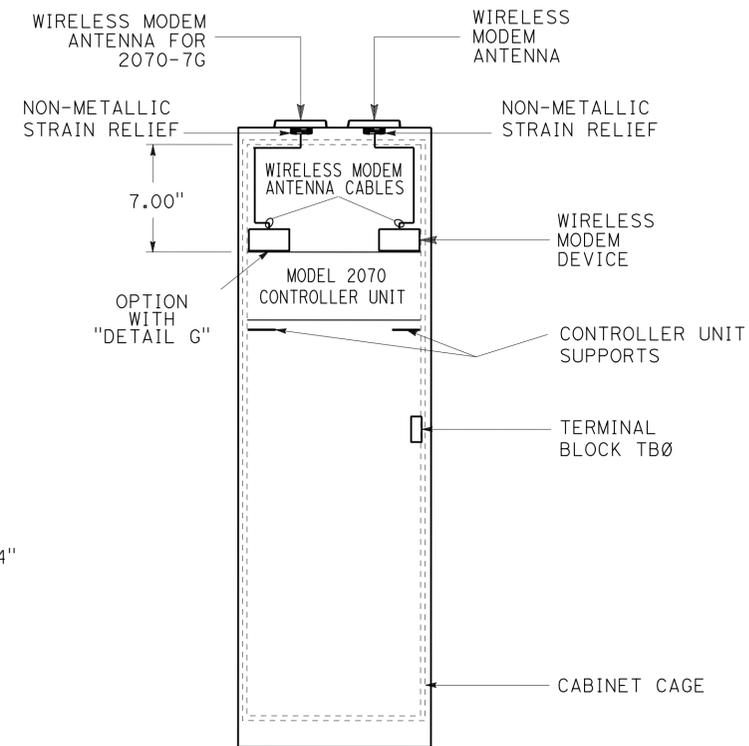
**DETAIL I**  
2070-7G MODULE CONNECTION DETAIL



**DETAIL H**  
WIRELESS MODEM DEVICE CONNECTION DETAIL

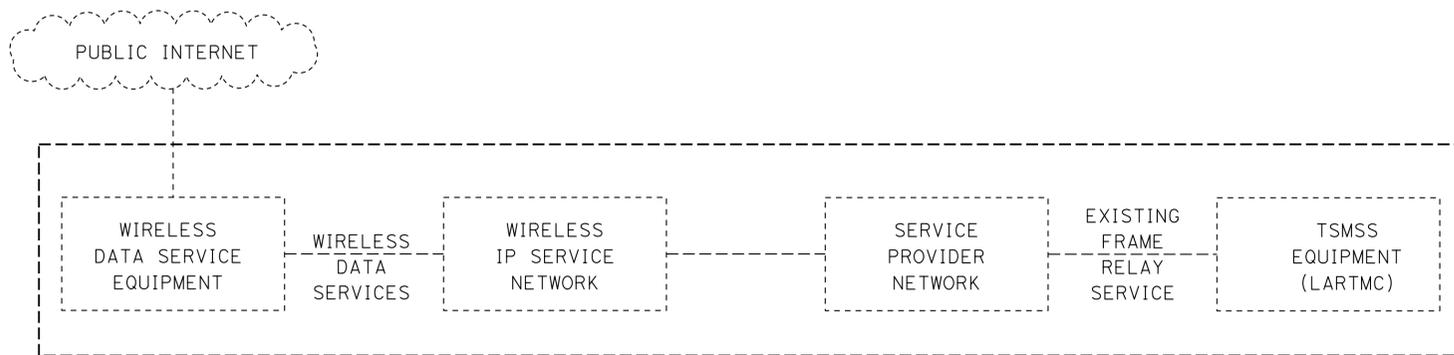


**TOP VIEW**  
MODEL 332L CONTROLLER CABINET



**Back View**  
MODEL 332L CONTROLLER CABINET

**WIRELESS MODEM DEVICE AND WIRELESS MODEM ANTENNA PLACEMENT DETAIL**



**WIRELESS CONNECTIVITY DETAIL**

**(TYPICAL WIRELESS DATA SERVICE AND GPS TIME BASE SYSTEMS DETAILS)**

**ELECTRICAL DETAILS**

NO SCALE

**E-5**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** TRAFFIC DESIGN  
 FUNCTIONAL SUPERVISOR: OSWALD ELIZONDO  
 CALCULATED/DESIGNED BY: OSWALD ELIZONDO  
 CHECKED BY:  
 REVISIONS:  
 REVISION NO. | REVISION BY | DATE | REVISION  
 1 | YUONG HONG | 6/28/16 | REGISTERED ELECTRICAL ENGINEER  
 2 | OSWALD ELIZONDO | 6/30/16 | REGISTERED ELECTRICAL ENGINEER

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	Ven	118	T19.8	16	54

 6/28/16  
 REGISTERED ELECTRICAL ENGINEER DATE

6-30-16  
 PLANS APPROVAL DATE

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



**NOTE:** (THIS SHEET ONLY)  
 ITEMS SHOWN IN THESE TABLES ARE NOT A SEPARATE PAY ITEM, FOR INFORMATION ONLY.

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** TRAFFIC DESIGN  
 FUNCTIONAL SUPERVISOR  
 OSWALD ELIZONDO  
 CALCULATED/DESIGNED BY  
 CHHECKED BY  
 OSWALD ELIZONDO  
 HANNES ANSERLIAN  
 OSWALD ELIZONDO  
 REVISED BY  
 DATE REVISED

### SIGNAL AND LIGHTING SYSTEM

SHEET No.	3 SECTION SIGNAL HEAD	60 DEGREE VISOR	TAMPER RESISTANT No. 5 PB COVER	TAMPER RESISTANT No. 6T PB AND COVER	TAMPER RESISTANT No. 5T PB AND COVER	2"C TYPE 1	165 W LED Lum	3"C TYPE 1	No. 8 (G) CONDUCTOR	No. 6 CONDUCTOR	28CSC	16-1-100 AND FOUNDATION	17-2-100 AND FOUNDATION	MODIFIED 19-3-100 AND FOUNDATION	MODIFIED 19-4-100 AND FOUNDATION	POLE TYPE 1-A AND FOUNDATION
	EA	EA	EA	EA	EA	LF	EA	LF	LF	LF	LF	EA	EA	EA	EA	EA
E-1	14	4	6	5	13	1800	8	600	2800	12000	600	1	1	1	1	2

### SIGNAL AND LIGHTING SYSTEM

SHEET No.	DLC CABLE	INTER CONNECT CABLE 3 TP	BATTERY FOR THE BATTERY BACKUP SYSTEM	BBS EXTERNAL CABINET	15TS POLE AND FOUNDATION
	LF	LF	EA	EA	EA
E-1	2800	1400	4	1	1

## ELECTRICAL QUANTITIES

**E-6**



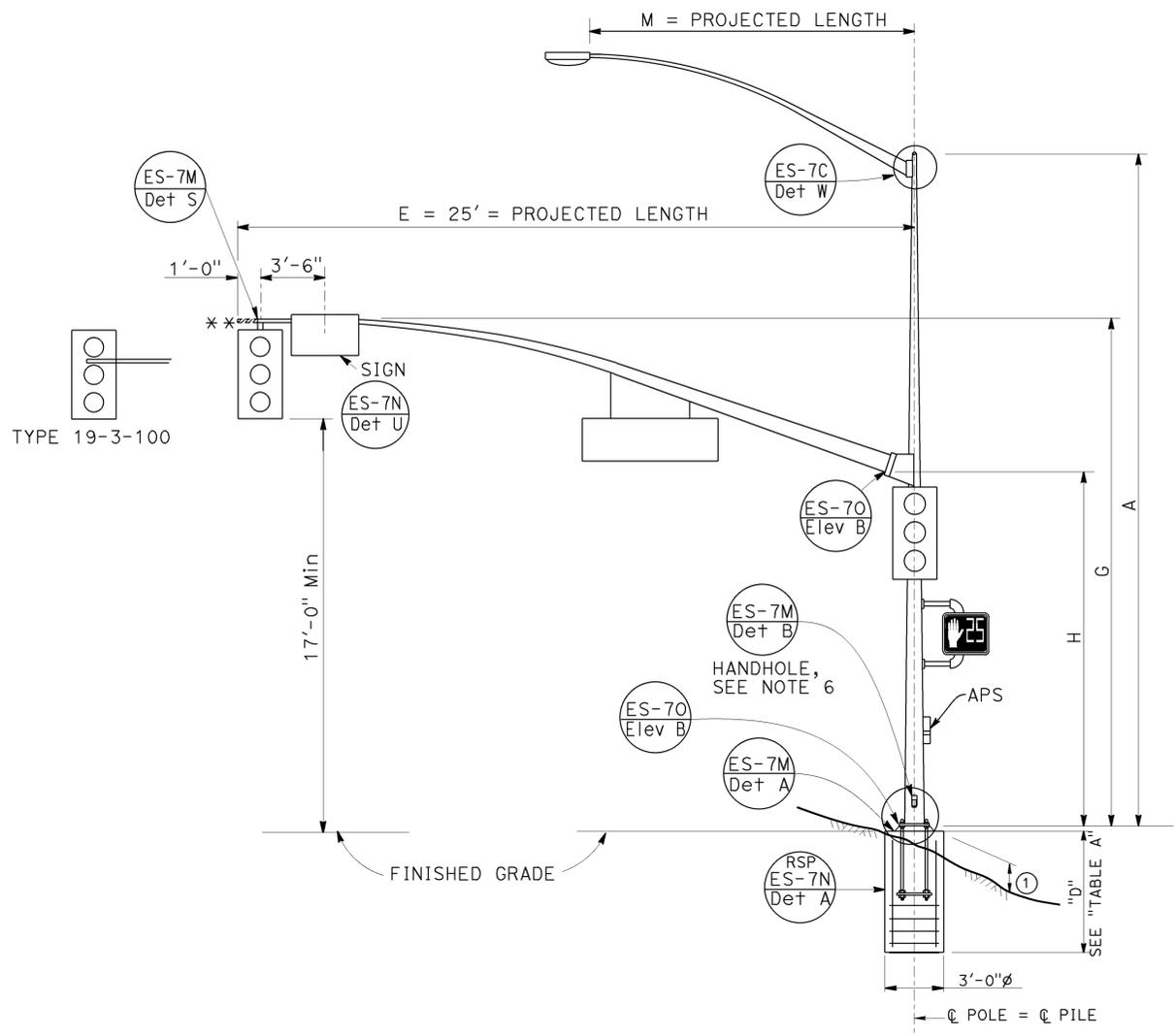
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
07	Ven	118	T19.8	17	54

*Eliseo Lopez* 5-3-16  
 REGISTERED CIVIL ENGINEER DATE

6-30-16  
 PLANS APPROVAL DATE

No. C72910  
 Exp. 12/31/16  
 CIVIL

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



① 1'-3" Maximum for sloped and finished grade.

**ELEVATION**

POLE TYPE	POLE DATA			BASE PLATE DATA			"D" 3'-0" CIDH PILE		
	A HEIGHT	Min OD BASE TOP	THICKNESS	C	BC = BOLT CIRCLE	THICKNESS	ANCHOR BOLT SIZE	LEVEL GROUND	SLOPED GROUND
19-3-100 (Modified)	30'-0"	12" 7 1/8"	0.2391"	1'-7"	1'-5 1/2"	3"	2"φ × 42"	11'-0"	14'-0"

SIGNAL MAST ARM DATA										
E PROJECTED LENGTH	G MOUNTING HEIGHT	H	Min OD AT POLE	THICKNESS	I BOLT CIRCLE	HS CAP SCREWS	J PLATE SIZE	K MAST ARM P THICKNESS	L POLE P THICKNESS	θ
** 25'-0"	22'-8"±	16'-0"	7 3/8"	0.2391"	12"	1 1/4"-7NC-3"	1'-0"	1 1/4"	1 1/2"	23°

LUMINAIRE MAST ARM DATA				
M PROJECTED LENGTH	N RISE	Min OD AT POLE	THICKNESS	P MOUNTING HEIGHT
12'-0"	4'-3"±	3 3/8"	0.1196"	33'-9"±

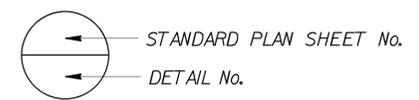
**GENERAL NOTES:**

**SPECIFICATIONS**  
 Design: AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals, Sixth Edition

**LOADING**  
 Wind Loading: 100 MPH (3-sec gust)

**UNIT STRESSES**  
 Structural Steel: fy = 55,000 psi tapered steel tube  
 fy = 50,000 psi unless otherwise noted.  
 Anchor bolts: fy = 55,000 psi  
 Reinforced Concrete: f'c = 3,600 psi  
 fy = 60,000 psi

- NOTES:**
- For pole locations, see "ROADWAY PLANS".
  - All steel must be galvanized after fabrication.
  - During pole erection the post must be raked as necessary with the use of leveling nuts to provide a plumb pole axis.
  - The foundation must be treated as level ground condition if the slope inclination is flatter than 4H:1V.
  - Foundation design is based on AASHTO LTS-6 article 13.6 Broms' approximate procedure assuming a cohesionless material. The angle of Internal friction used is 30 degrees and unit weight of soil used is 120 lbs/ft<sup>3</sup>.
  - Handhole must be located on the down stream side of the traffic.
  - For details not shown, see "2010 STANDARD PLANS" and "2010 REVISED STANDARD PLANS".
- \*\* Use a 25' Signal mast arm with the last 1' removed and a raintight cap installed at fabrication shop.



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

BRANCH CHIEF <b>JEFF WOODY</b>	DESIGN BY <b>E. LOPEZ</b>	CHECKED <b>J. JAUREGUI</b>	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES DESIGN AND TECHNICAL SERVICES SPECIAL DESIGNS BRANCH <b>A</b>	BRIDGE NO.	TYPE 19-3-100 MODIFIED POLE DETAILS	SES-1	
	DETAILS BY <b>T. NGUYEN</b>	CHECKED <b>J. JAUREGUI</b>			POST MILE 19.8			
(ENGLISH) SPECIAL DESIGNS BRANCH BORDER SHEET (REV. 4-1-14)		ORIGINAL SCALE IN INCHES FOR REDUCED PLANS		UNIT: 3619 PROJECT NUMBER & PHASE: 0715000338-1	CONTRACT NO.: 07-4T8304	DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES 3-30-16 5-3-16 4-14-16 4-29-16	SHEET 1 OF 3

USERNAME => s129055 DATE PLOTTED => 13-JUL-2016 TIME PLOTTED => 11:08

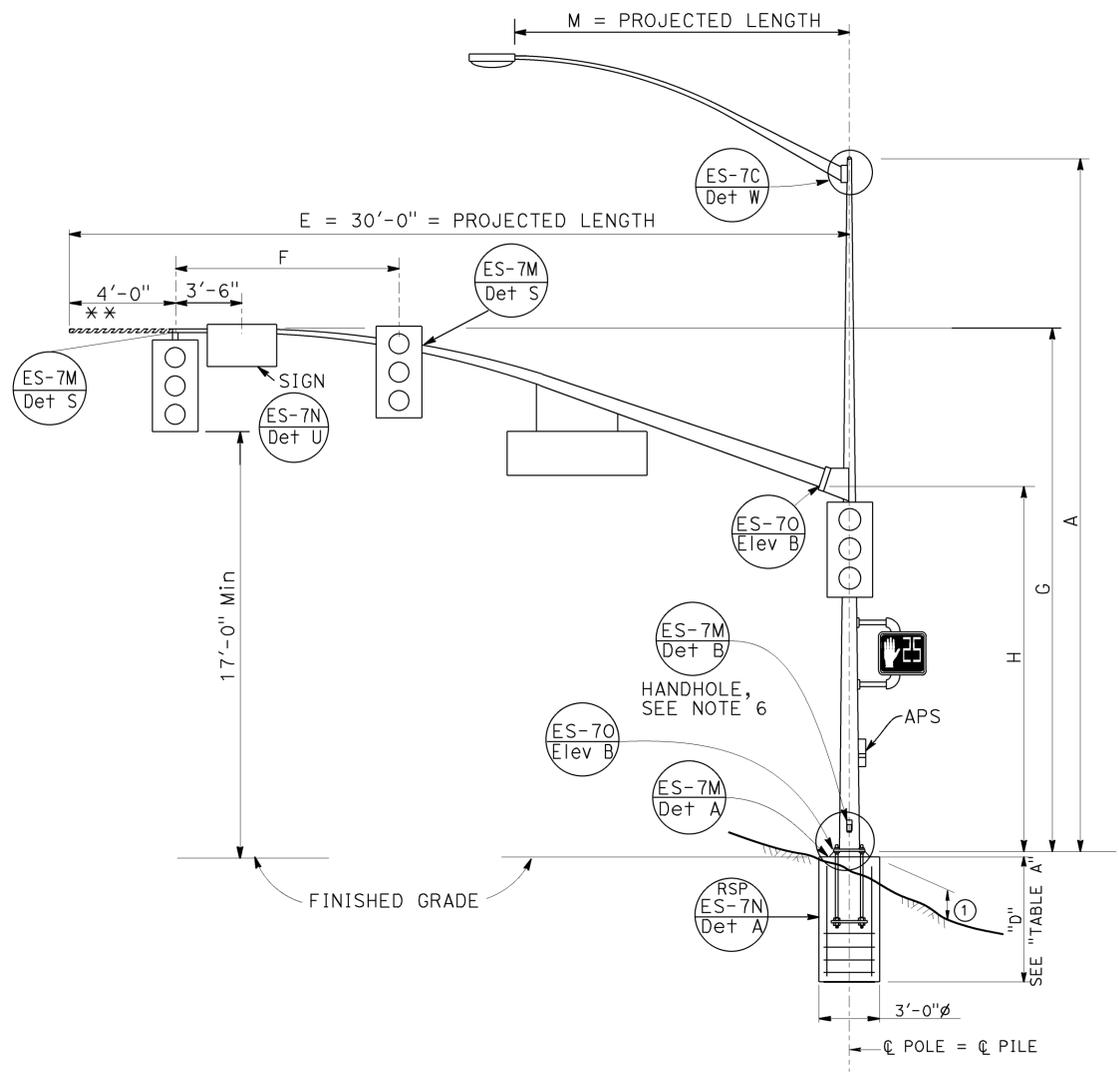
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
07	Ven	118	T19.8	18	54

*Eliseo Lopez* 5-3-16  
 REGISTERED CIVIL ENGINEER DATE

6-30-16  
 PLANS APPROVAL DATE

ELISEO LOPEZ  
 No. C72910  
 Exp. 12/31/16  
 CIVIL  
 STATE OF CALIFORNIA

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



① 1'-3" Maximum for sloped and finished grade.

**ELEVATION**

POLE TYPE	POLE DATA			BASE PLATE DATA			"D" 3'-0" CIDH PILE			
	A HEIGHT	Min OD BASE	Min OD TOP	THICKNESS	C	BC = BOLT CIRCLE	THICKNESS	ANCHOR BOLT SIZE	LEVEL GROUND	SLOPED GROUND
19-4-100 (Modified)	30'-0"	12 1/8"	7 1/8"	0.3125"	1'-7"	1'-5 1/2"	3"	2"φ x 42"	11'-6"	14'-6"

SIGNAL MAST ARM DATA											
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 P THICKNESS	L POLE P THICKNESS	θ
** 30'-0"	12'-0"	23'-0"±	16'-0"	8"	0.2391"	12"	1 1/4"-7NC-3"	1'-0"	1 1/4"	1 1/2"	23°

LUMINAIRE MAST ARM DATA				
M PROJECTED LENGTH	N RISE	Min OD AT POLE	THICKNESS	P MOUNTING HEIGHT
12'-0"	4'-3"±	3 3/8"	0.1196"	33'-9"±

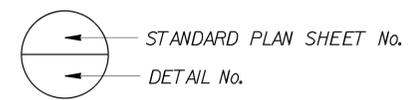
**GENERAL NOTES:**

**SPECIFICATIONS**  
 Design: AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals, Sixth Edition

**LOADING**  
 Wind Loading: 100 MPH (3-sec gust)

**UNIT STRESSES**  
 Structural Steel: fy = 55,000 psi tapered steel tube  
 fy = 50,000 psi unless otherwise noted.  
 Anchor bolts: fy = 55,000 psi  
 Reinforced Concrete: f'c = 3,600 psi  
 fy = 60,000 psi

- NOTES:**
- For pole locations, see "ROADWAY PLANS".
  - All steel must be galvanized after fabrication.
  - During pole erection the post must be raked as necessary with the use of leveling nuts to provide a plumb pole axis.
  - The foundation must be treated as level ground condition if the slope inclination is flatter than 4H:1V.
  - Foundation design is based on AASHTO LTS-6 article 13.6 Broms' approximate procedure assuming a cohesionless material. The angle of Internal friction used is 30 degrees and unit weight of soil used is 120 lbs/ft<sup>3</sup>.
  - Handhole must be located on the down stream side of the traffic.
  - For details not shown, see "2010 STANDARD PLANS" and "2010 REVISED STANDARD PLANS".
- \*\* Use a 30' Signal mast arm with the last 4' removed and a raintight cap installed at fabrication shop.



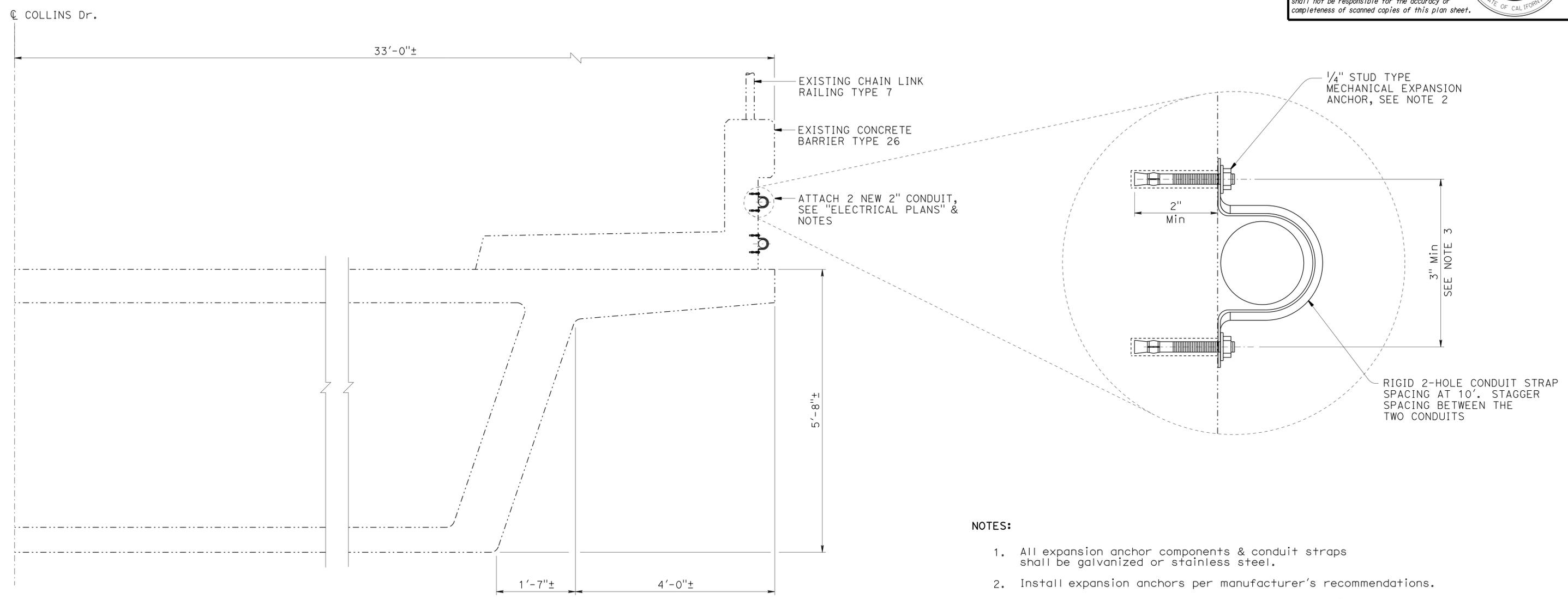
NOTE:  
 THE CONTRACTOR MUST VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

BRANCH CHIEF <b>JEFF WOODY</b>	DESIGN BY <b>E. LOPEZ</b>	CHECKED <b>J. JAUREGUI</b>	<b>STATE OF CALIFORNIA</b> DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES DESIGN AND TECHNICAL SERVICES <b>SPECIAL DESIGNS BRANCH</b>	BRIDGE NO.	<b>TYPE 19-4-100 MODIFIED</b> <b>POLE DETAILS</b>	<b>SES-2</b>
	DETAILS BY <b>T. NGUYEN</b>	CHECKED <b>J. JAUREGUI</b>			POST MILE		
	QUANTITIES BY	CHECKED			19.8		

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	VEN	118	T19.8	19	54

REGISTERED CIVIL ENGINEER *[Signature]* DATE 5-19-16  
 PLANS APPROVAL DATE 6-30-16  
 No. C78431  
 Exp. 9/30/17  
 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.*



**ELEVATION**  
1" = 1'-0"

**NOTES:**

1. All expansion anchor components & conduit straps shall be galvanized or stainless steel.
2. Install expansion anchors per manufacturer's recommendations.
3. All expansion anchors shall have a minimum of 3" edge distance and a minimum 3" spacing between other anchors.
4. Use expansion fittings/couplings at expansion joint.
5. For details not shown, see Standard Plans B14-3.
6. Total weight of utilities and conduit shall not exceed 1.1 lbs/ft.

**LEGEND:**

- Indicates existing
- \_\_\_\_\_ Indicates new structure

THE CONTRACTOR MUST VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

<b>BRANCH CHIEF</b> <u>DAVID NEUMANN</u>	DESIGN	BY LANCE WARREN	CHECKED AIMAN MALAK	<b>STATE OF CALIFORNIA</b> <b>DEPARTMENT OF TRANSPORTATION</b>	<b>DIVISION OF ENGINEERING SERVICES</b> <b>DESIGN AND TECHNICAL SERVICES</b> <b>SPECIAL DESIGNS BRANCH</b>	BRIDGE NO.	N/A	<b>COLLINS DRIVE OVERCROSSING</b> <b>CONDUIT ATTACHMENT DETAILS</b>	<b>SES-3</b>	
	DETAILS	BY HUNG NGUYEN	CHECKED LANCE WARREN			POST MILE	19.8			
STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 09-01-10)		ORIGINAL SCALE IN INCHES FOR REDUCED PLANS			UNIT: x	PROJECT NUMBER & PHASE: 07150003381		CONTRACT NO.: 07-4T8304	REVISION DATES	SHEET 3 OF 3

USERNAME => s116095 DATE PLOTTED => 26-JUL-2016 TIME PLOTTED => 08:20

	<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
SL	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
WWL	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
07	Ven	118	T19.8	20	54
<i>Grace M. Tsushima</i> REGISTERED CIVIL 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 6-30-16

**UNIT OF MEASUREMENT SYMBOLS:**

Some of the symbols used in the project plan quantity tables and in the Bid Item List are:

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:

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
ø	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

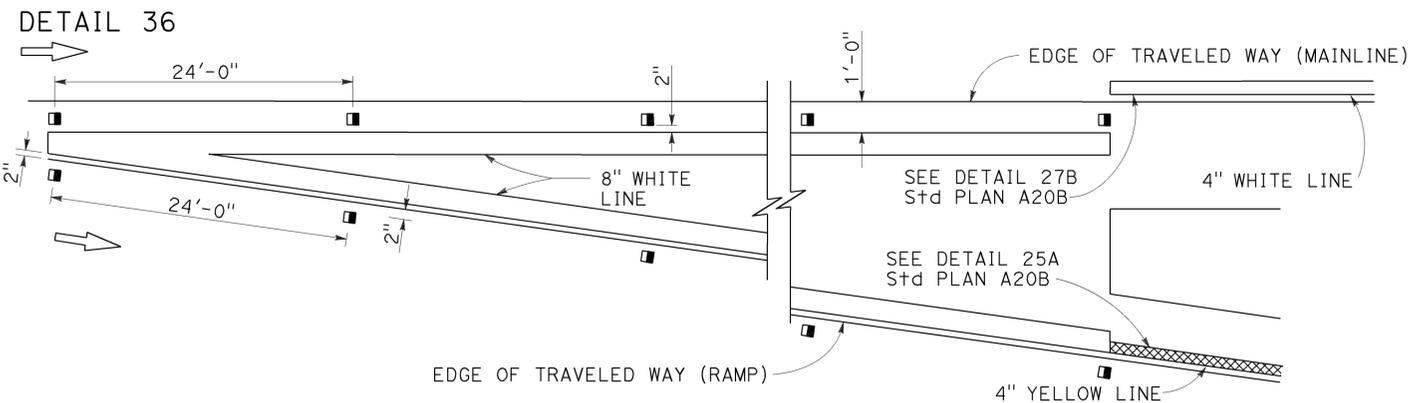
**ABBREVIATIONS  
(SHEET 2 OF 2)**

NO SCALE

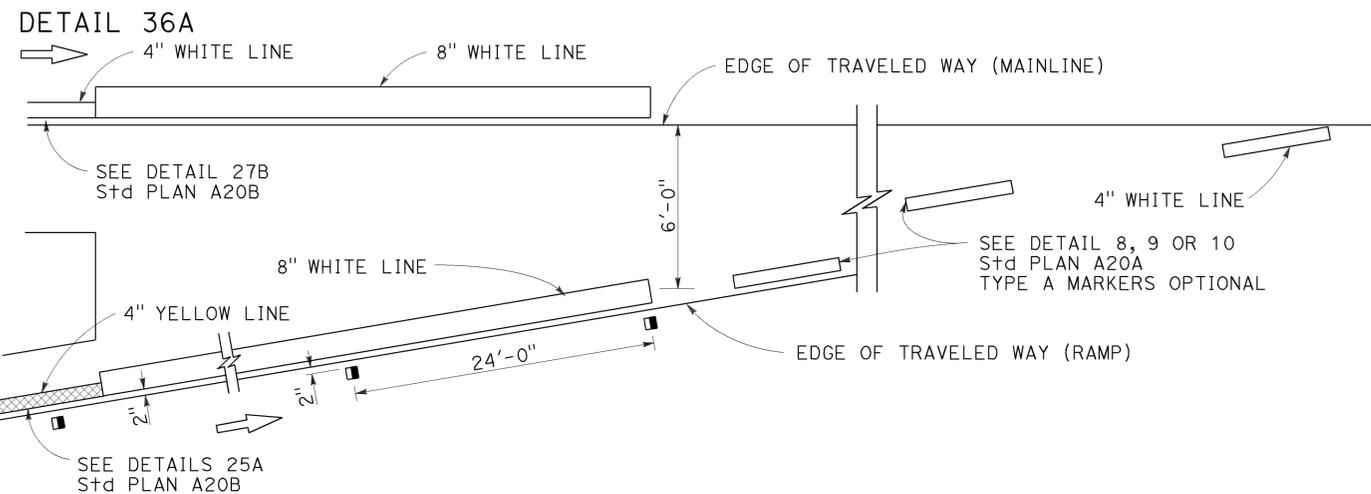
RSP A10B DATED JULY 19, 2013 SUPERSEDES STANDARD PLAN A10B  
DATED MAY 20, 2011 - PAGE 2 OF THE STANDARD PLANS BOOK DATED 2010.

2010 REVISED STANDARD PLAN RSP A10B

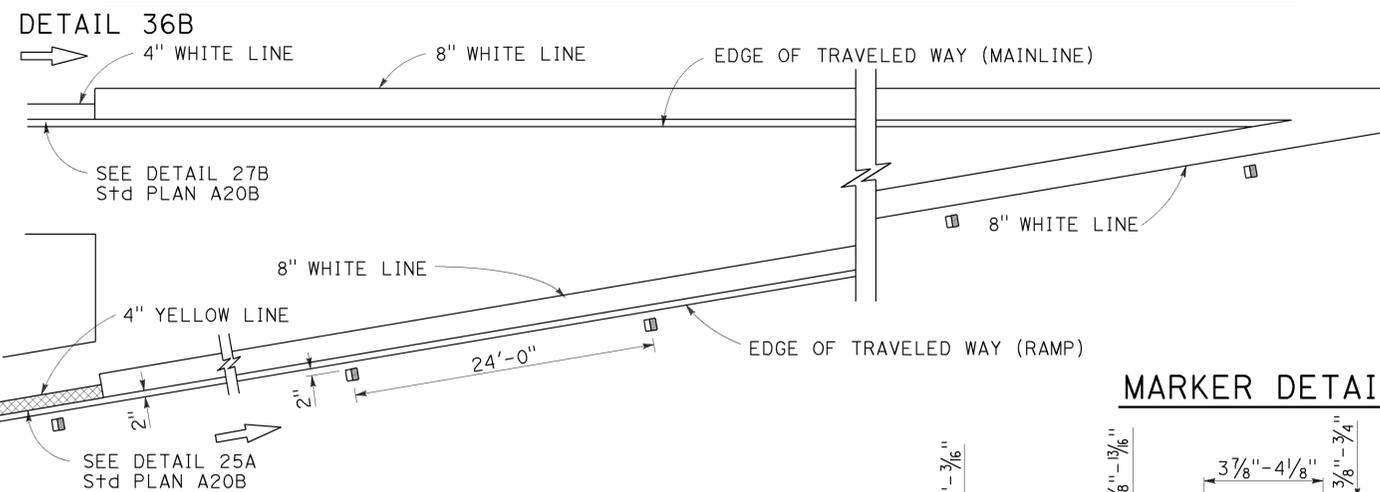
### EXIT RAMP NEUTRAL AREA (GORE) TREATMENT



### ENTRANCE RAMP NEUTRAL AREA (MERGE) TREATMENT



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

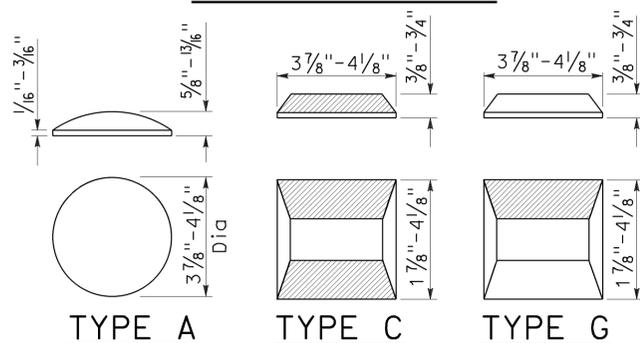


### MARKER DETAILS

#### 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
07	Ven	118	T19.8	21	54

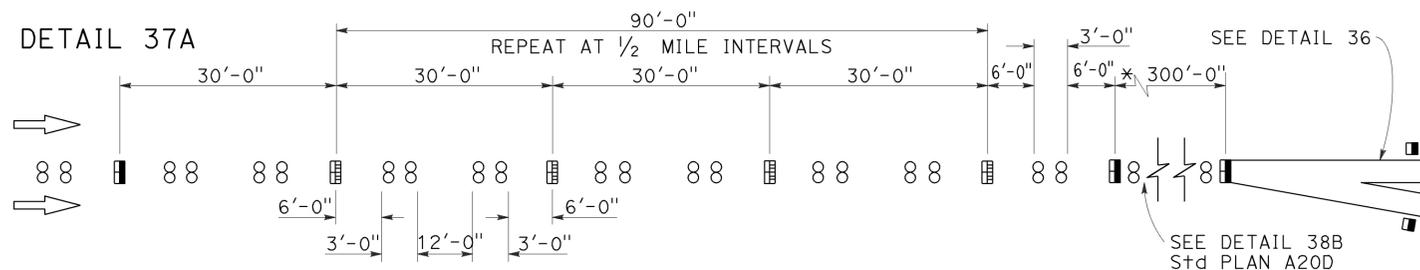
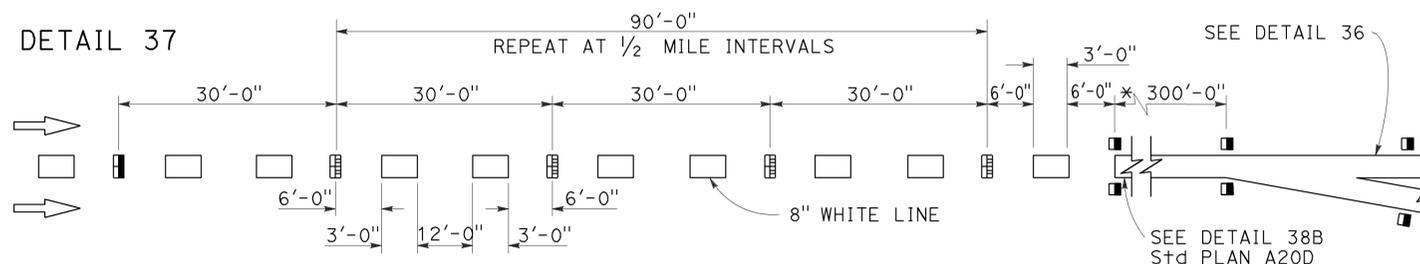
*Roberta L. McLaughlin*  
 REGISTERED CIVIL ENGINEER  
 No. C40375  
 Exp. 3-31-15  
 CIVIL  
 STATE OF CALIFORNIA

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.

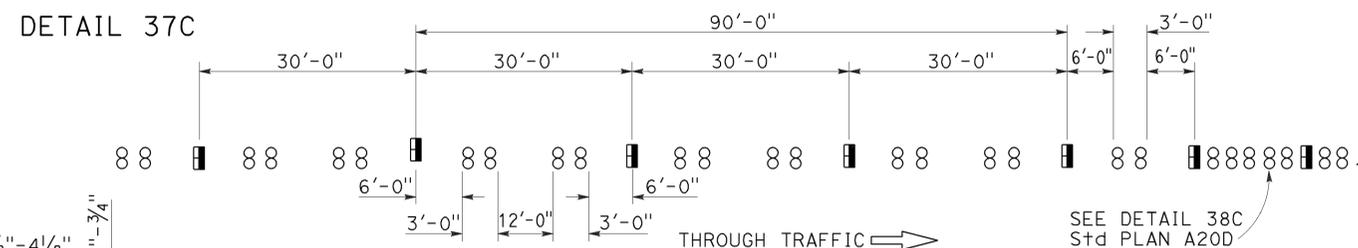
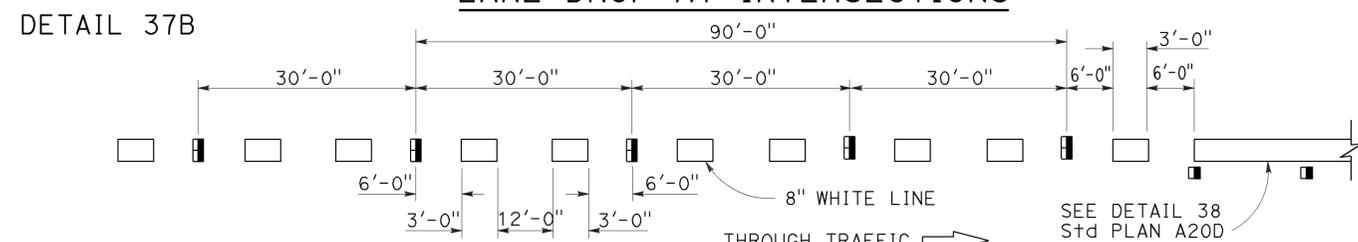
TO ACCOMPANY PLANS DATED 6-30-16

### 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

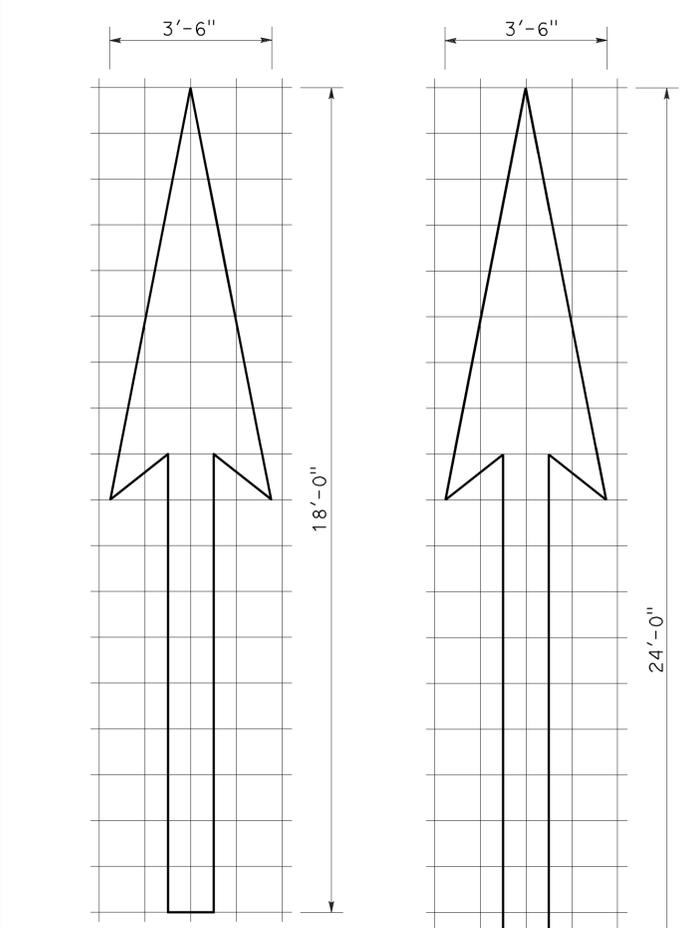
RSP A20C DATED JULY 19, 2013 SUPERSEDES STANDARD PLAN A20C DATED MAY 20, 2011 - PAGE 11 OF THE STANDARD PLANS BOOK DATED 2010.

## REVISED STANDARD PLAN RSP A20C

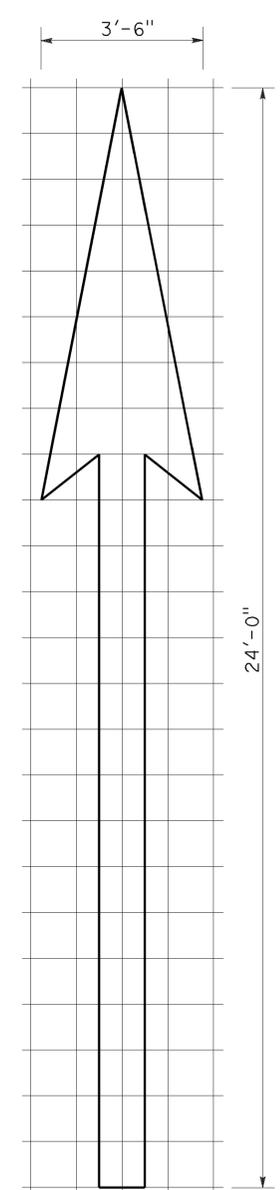
2010 REVISED STANDARD PLAN RSP A20C

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	Ven	118	T19.8	22	54
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>					

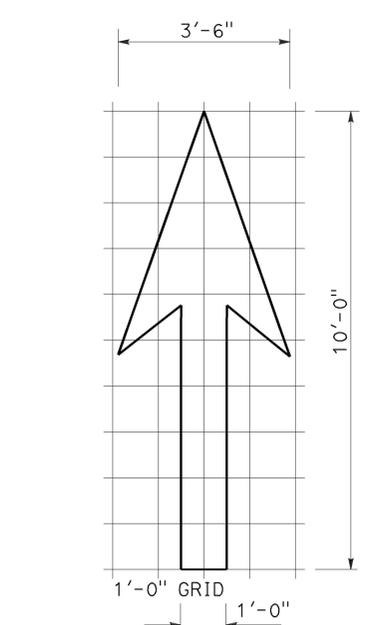
TO ACCOMPANY PLANS DATED 6-30-16



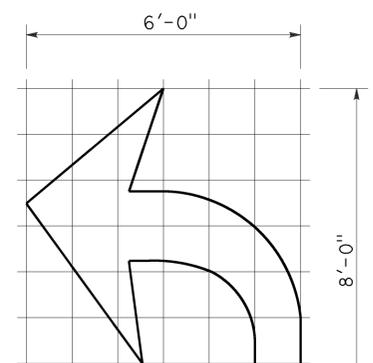
**TYPE I 18'-0" ARROW**  
A=25 ft<sup>2</sup>



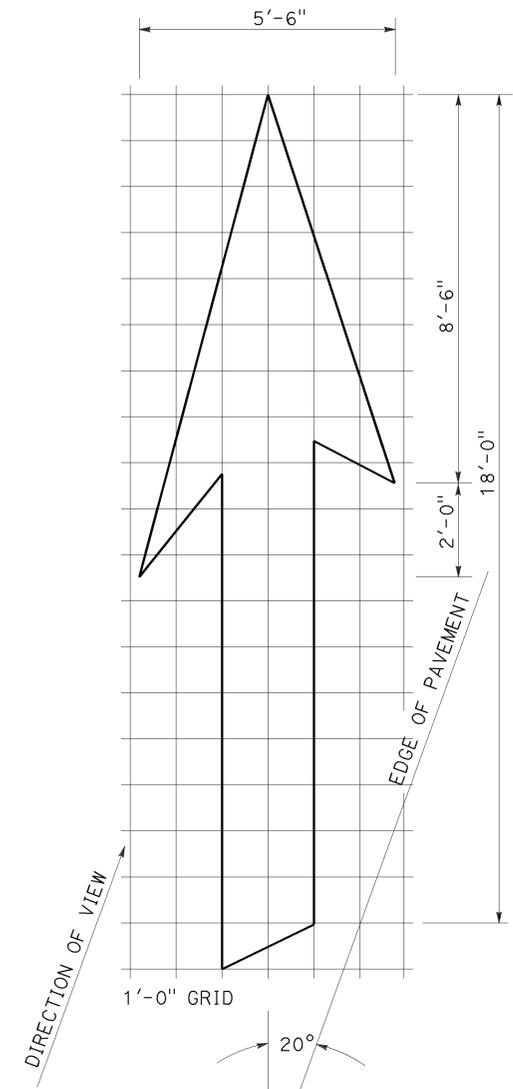
**TYPE I 24'-0" ARROW**  
A=31 ft<sup>2</sup>



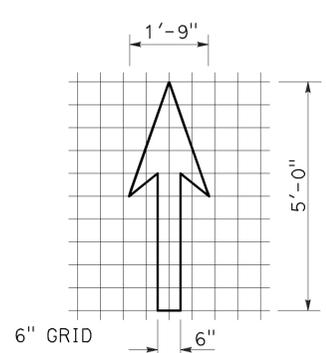
**TYPE I 10'-0" ARROW**  
A=14 ft<sup>2</sup>



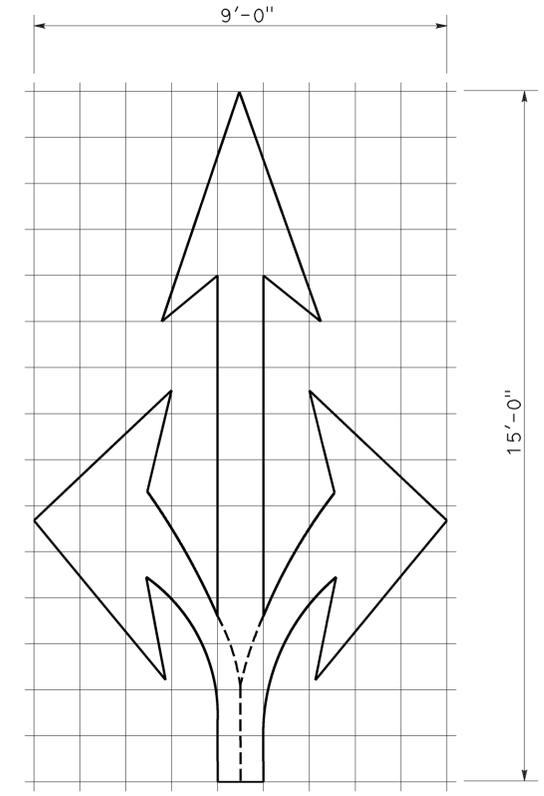
**TYPE IV (L) ARROW**  
A=15 ft<sup>2</sup>  
(For Type IV (R) arrow, use mirror image)



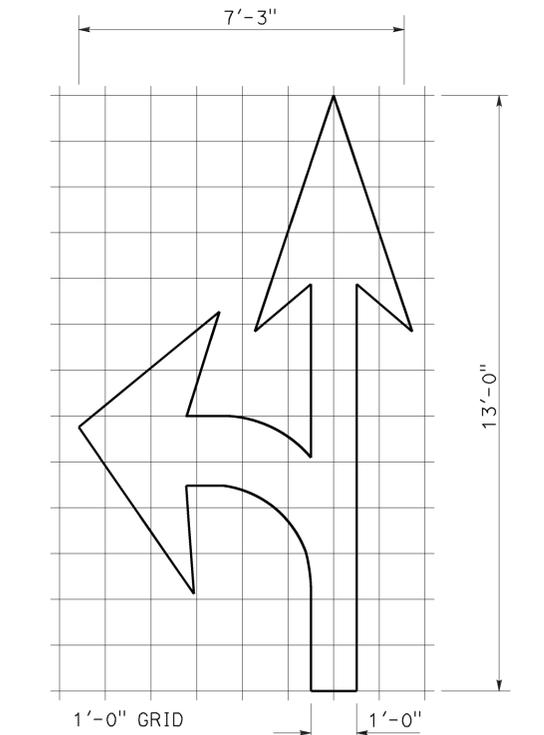
**TYPE VI ARROW**  
A=42 ft<sup>2</sup>  
Right lane drop arrow  
(For left lane, use mirror image)



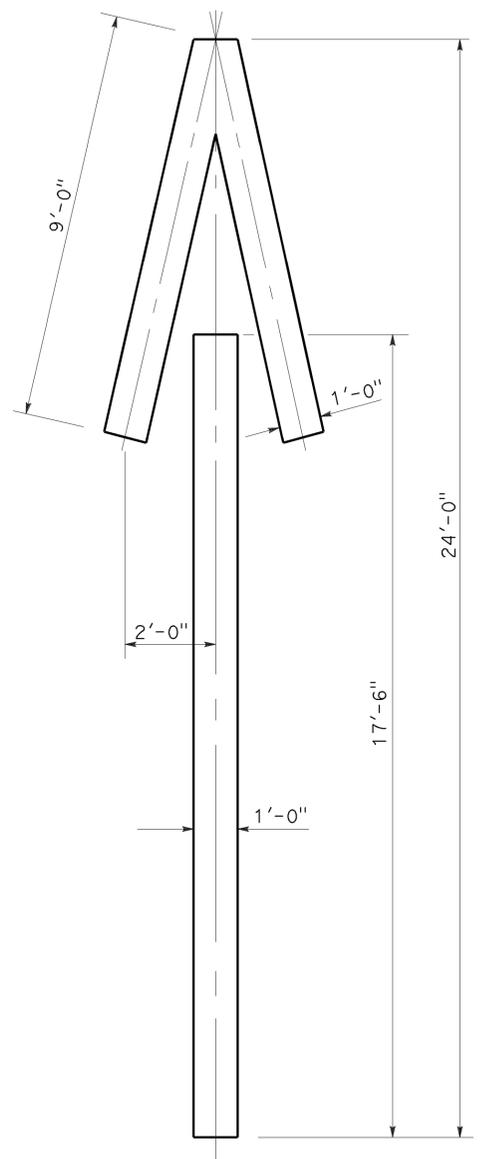
**BIKE LANE ARROW**  
A=3.5 ft<sup>2</sup>



**TYPE VIII ARROW**  
A=36 ft<sup>2</sup>



**TYPE VII (L) ARROW**  
A=27 ft<sup>2</sup>  
(For Type VII (R) arrow, use mirror image)



**TYPE V ARROW**  
A=33 ft<sup>2</sup>

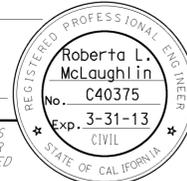
**NOTE:**  
Minor variations in dimensions may be accepted by the Engineer.

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

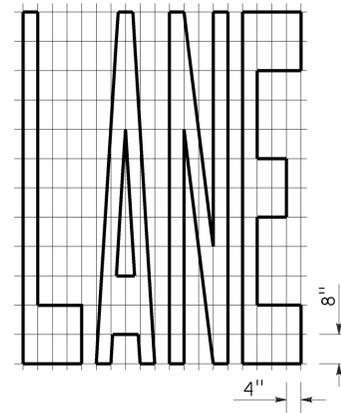
RSP A24A DATED APRIL 20, 2012 SUPERSEDES STANDARD PLAN A24A DATED MAY 20, 2011 - PAGE 13 OF THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP A24A**

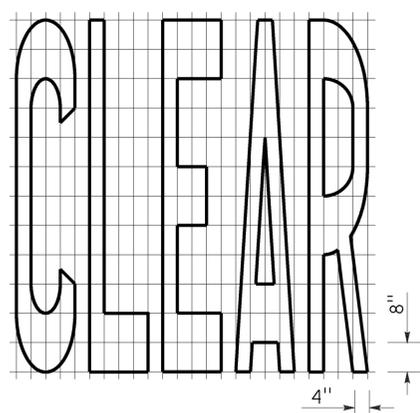
**2010 REVISED STANDARD PLAN RSP A24A**



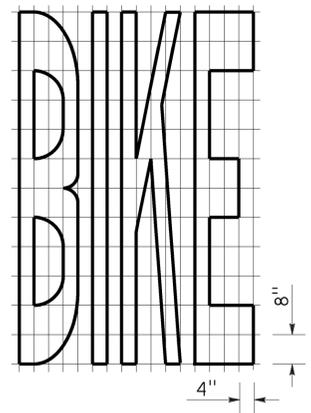
TO ACCOMPANY PLANS DATED 6-30-16



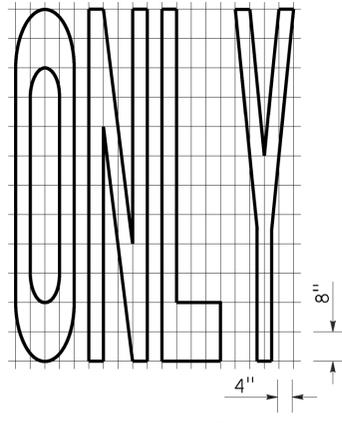
A=24 ft<sup>2</sup>



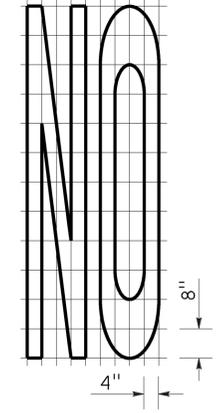
A=27 ft<sup>2</sup>



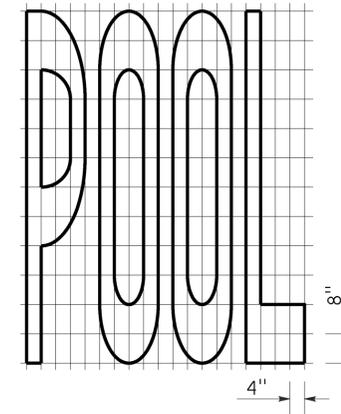
A=21 ft<sup>2</sup>



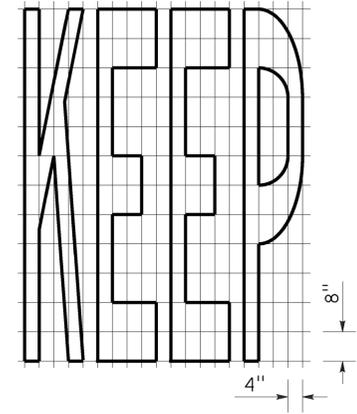
A=22 ft<sup>2</sup>



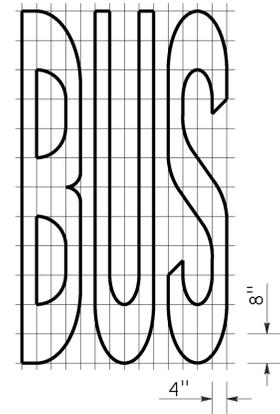
A=14 ft<sup>2</sup>



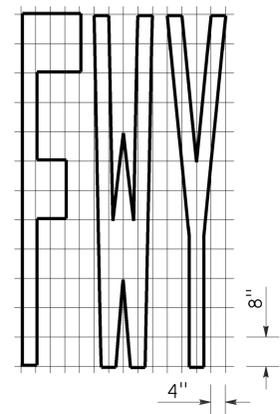
A=23 ft<sup>2</sup>



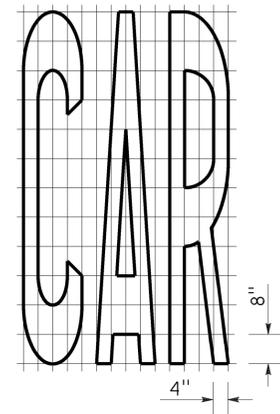
A=24 ft<sup>2</sup>



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

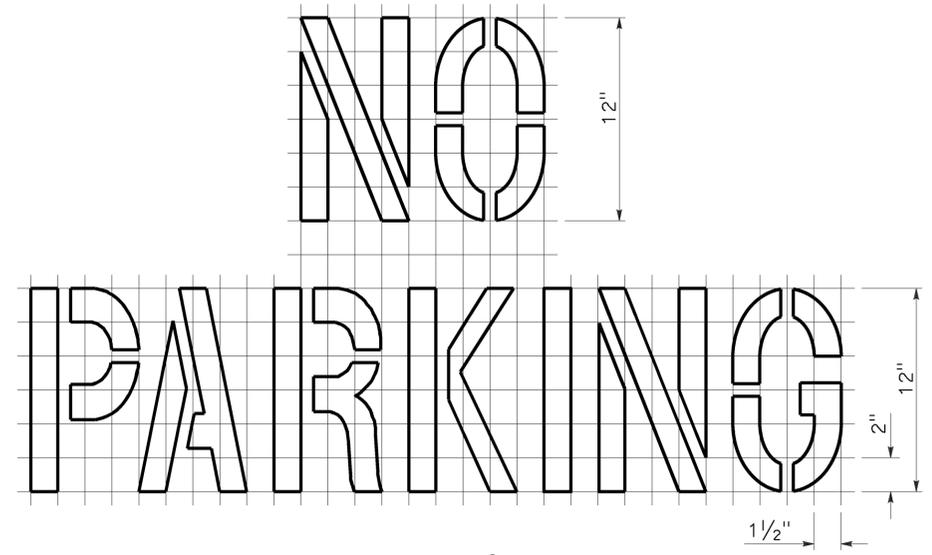


A=16 ft<sup>2</sup>

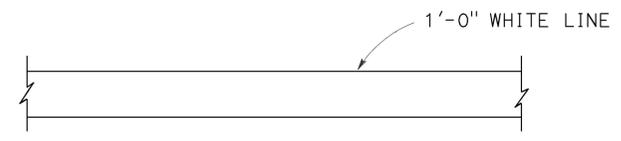


A=17 ft<sup>2</sup>

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



LIMIT LINE (STOP LINE)



YIELD LINE

**NOTES:**

1. If a message consists of more than one word, it should read "UP", i.e., the first word should be nearest the driver.
2. 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.
3. Minor variations in dimensions may be accepted by the Engineer.
4. Portions of a letter, number or symbol may be separated by connecting segments not to exceed 2" in width.
5. The words "NO PARKING" pavement marking is to be used for parking facilities. For typical locations of markings, see Standard Plans A90A and A90B.
6. 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.

2010 REVISED STANDARD PLAN RSP A24E

TO ACCOMPANY PLANS DATED 6-30-16

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
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

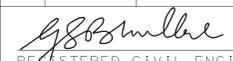
RSP T9 DATED JULY 19, 2013 SUPERSEDES RSP T9 DATED APRIL 19, 2013  
 THAT SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP T9**

2010 REVISED STANDARD PLAN RSP T9



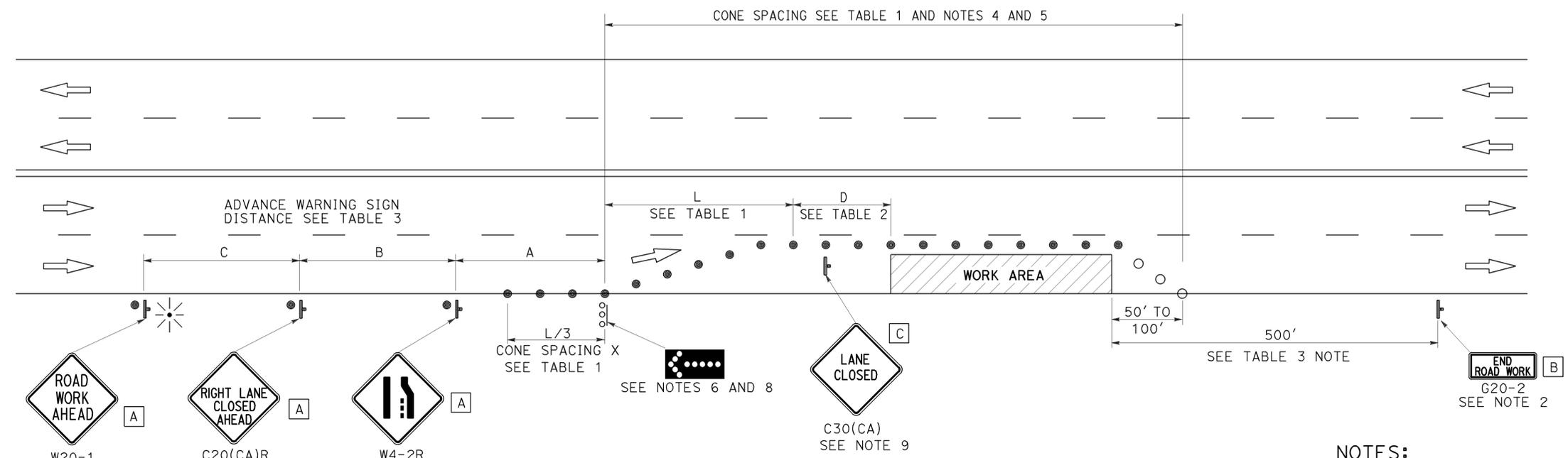
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	Ven	118	T19.8	26	54

  
 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.

TO ACCOMPANY PLANS DATED 6-30-16



**TYPICAL LANE CLOSURE**

**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.

**NOTES:**

- Each advance warning 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. Flashing beacons shall be placed at the locations indicated for lane closure during hours of darkness.
- A G20-2 "END ROAD WORK" sign, 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.
- 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) sign for the first advance warning sign.
- All cones used for lane 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 closures only.
- Flashing arrow sign shall be either Type I or Type II.
- For approach speeds over 50 mph, use the "Traffic Control System for Lane Closure On Freeways And Expressways" plan for lane closure details and requirements.
- 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 the top of crest vertical curve or on a horizontal curve.
- Place a C30(CA) sign every 2000' throughout length of lane closure.
- Median lane closures shall conform to the details as shown except that C20(CA)L and W4-2L signs shall be used.
- At least one person shall be assigned to provide full time maintenance of traffic control devices for lane closure unless, otherwise directed by the Engineer.

**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 36" x 18"
- C 30" x 30"

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**TRAFFIC CONTROL SYSTEM  
FOR LANE CLOSURE ON  
MULTILANE CONVENTIONAL  
HIGHWAYS**

NO SCALE

RSP T11 DATED APRIL 19, 2013 SUPERSEDES STANDARD PLAN T11 DATED MAY 20, 2011 - PAGE 239 OF THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP T11**

2010 REVISED STANDARD PLAN RSP T11

# 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
07	Ven	118	T19.8	27	54

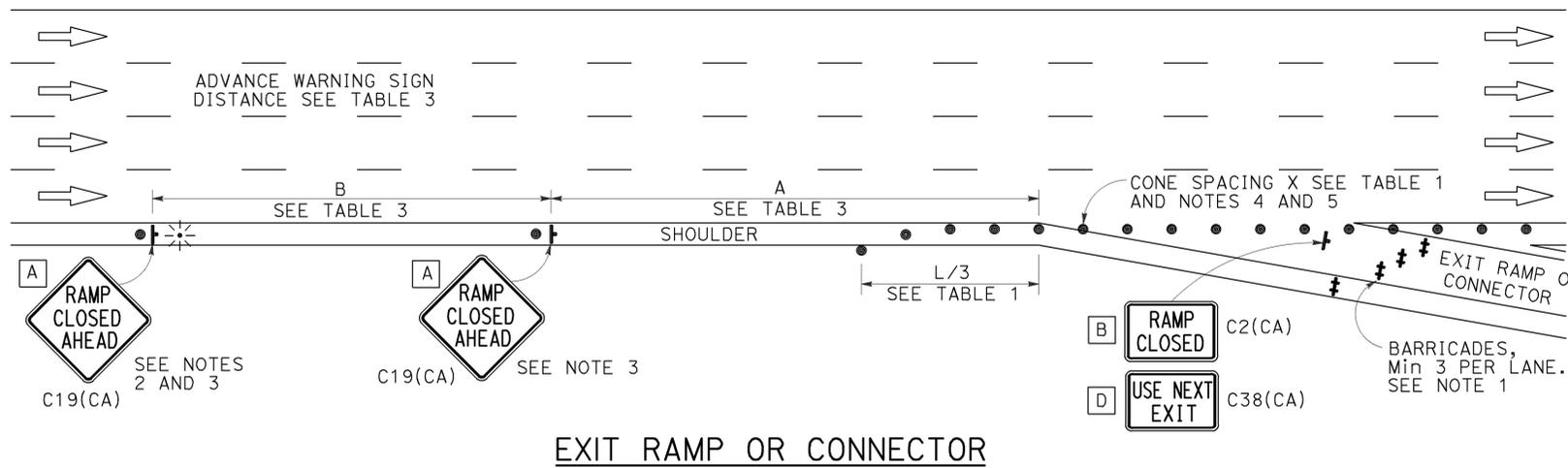
*Gurinderpal Bhullar*  
 REGISTERED CIVIL ENGINEER  
 April 19, 2013  
 PLANS APPROVAL DATE  
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

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

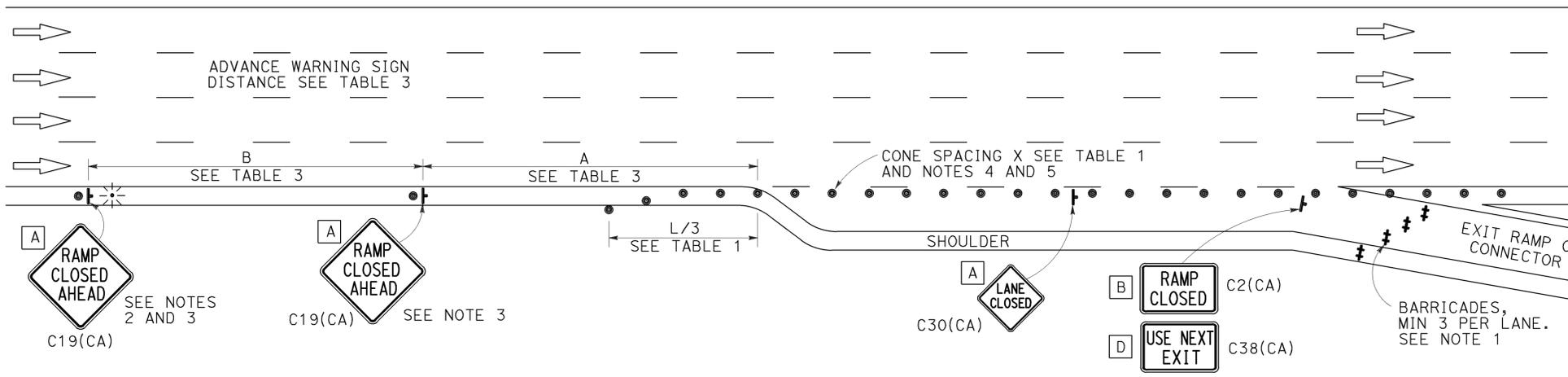
TO ACCOMPANY PLANS DATED 6-30-16

## NOTES:

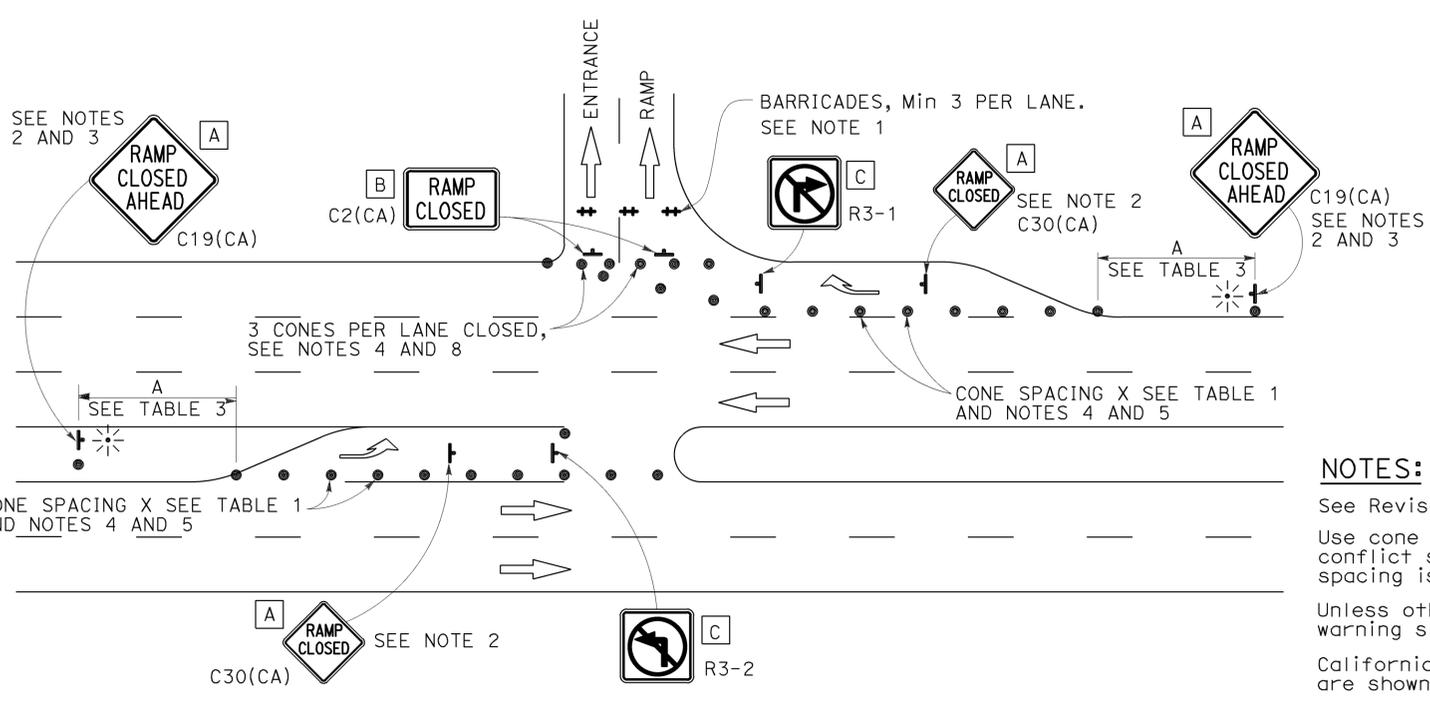
- Barricades shall be Type I, II, or III for closures lasting one week or less and Type III for closures lasting longer than one week.
- In addition to placing the C19(CA) "RAMP CLOSED AHEAD" and C30(CA) "RAMP CLOSED" signs, black on orange overlay plates with the word "CLOSED" may be mounted, as directed 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.



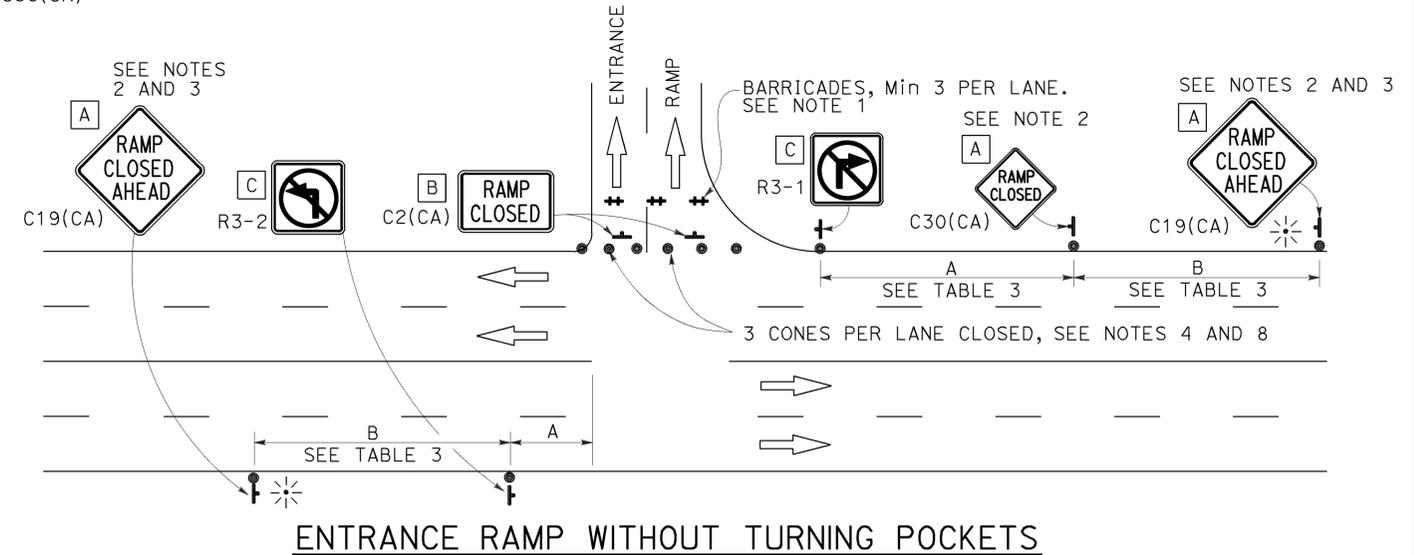
EXIT RAMP OR CONNECTOR



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**

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

**MISCELLANEOUS ELECTROLIERS**

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

**NOTES:**

- 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

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	Ven	118	T19.8	28	54
 REGISTERED ELECTRICAL ENGINEER October 30, 2015 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 Theresa Gabriel No. E15129 Exp. 6-30-16 ELECTRICAL STATE OF CALIFORNIA					

TO ACCOMPANY PLANS DATED 6-30-16

**SOFFIT AND WALL-MOUNTED LUMINAIRES**

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

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

COMMONLY USED SYMBOLS FOR UNITED STATES CUSTOMARY UNITS OF MEASUREMENT:

SYMBOL	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

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**ELECTRICAL SYSTEMS (LEGEND AND ABBREVIATIONS)**

NO SCALE

RSP ES-1A DATED OCTOBER 30, 2015 SUPERSEDES RSP ES-1A DATED JULY 19, 2013 AND 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

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	Ven	118	T19.8	29	54

*Theresa Gabriel*  
REGISTERED ELECTRICAL ENGINEER  
October 30, 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.

TO ACCOMPANY PLANS DATED 6-30-16

**CONDUIT**

**SIGNAL EQUIPMENT**

NEW	EXISTING	
		LIGHTING CONDUIT, UNLESS OTHERWISE INDICATED OR NOTED
		TRAFFIC SIGNAL CONDUIT
		COMMUNICATION CONDUIT
		TELEPHONE CONDUIT
		FIRE ALARM CONDUIT
		FIBER OPTIC CONDUIT
		CONDUIT TERMINATION
		CONDUIT RISER ATTACHED TO THE STRUCTURE OR SERVICE POLE

NEW	EXISTING	
		PEDESTRIAN SIGNAL 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

**SERVICE EQUIPMENT**

NEW	EXISTING	
		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

NEW	EXISTING	
		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**

	TYPE H SERVICE, 28'-10"	TYPE OF INSTALLATION AND POLE HEIGHT ABOVE GRADE
--	-------------------------	--

**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

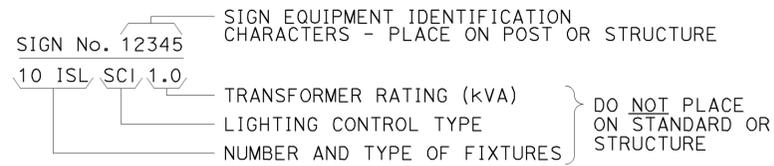
RSP ES-1B DATED OCTOBER 30, 2015 SUPERSEDES RSP ES-1B DATED JULY 19, 2013 AND STANDARD PLAN ES-1B DATED MAY 20, 2011 - PAGE 426 OF THE STANDARD PLANS BOOK DATED 2010.

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

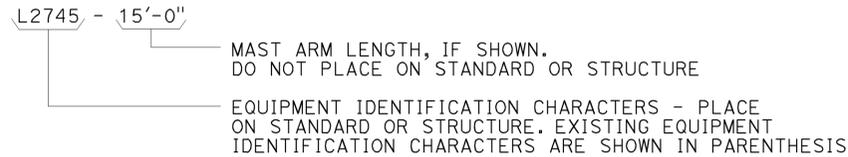
2010 REVISED STANDARD PLAN RSP ES-1B

### EQUIPMENT IDENTIFICATION

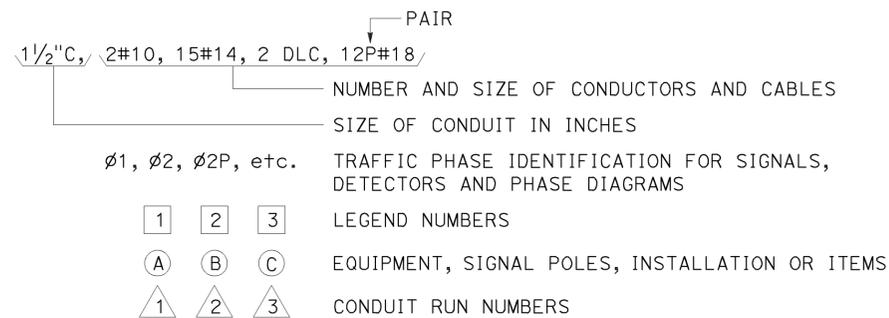
#### ILLUMINATED SIGN IDENTIFICATION:



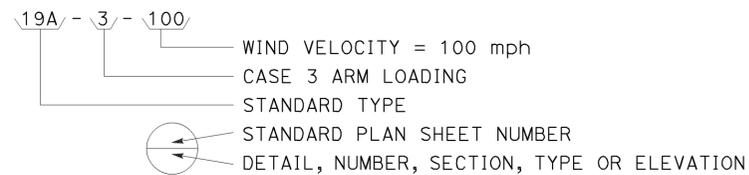
#### ELECTROLIER OR EQUIPMENT IDENTIFICATION:



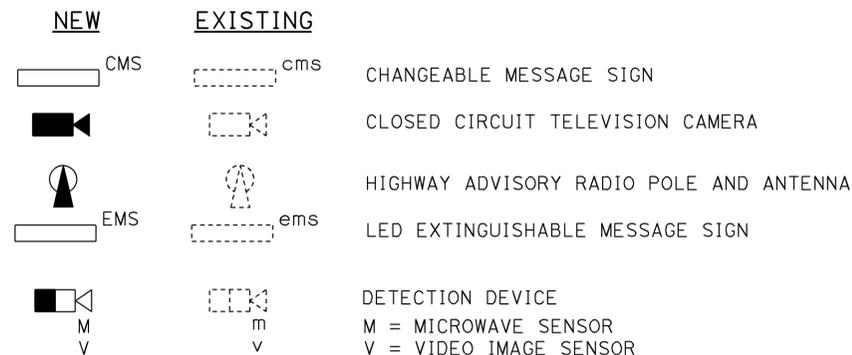
#### CONDUIT AND CONDUCTOR IDENTIFICATION:



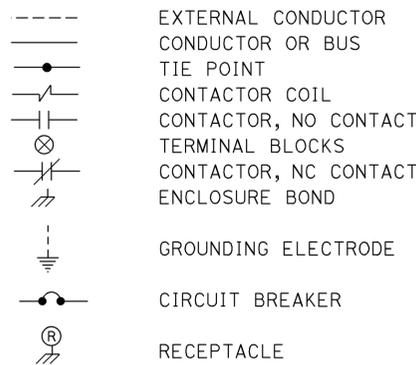
#### SIGNAL AND LIGHTING STANDARD (TYPICAL DESIGNATION):



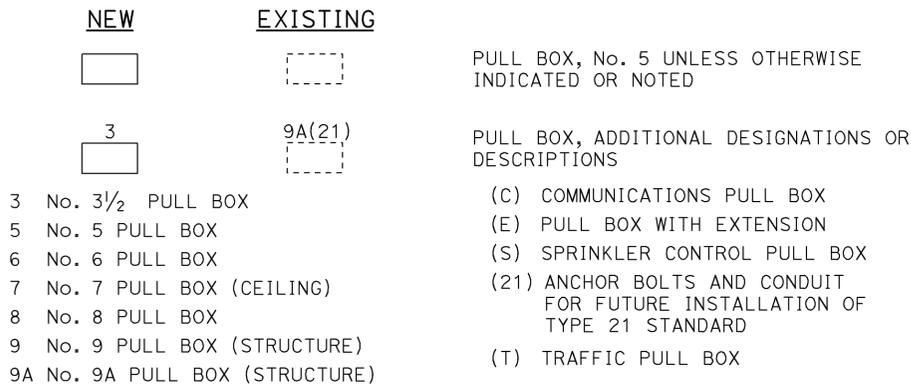
### MISCELLANEOUS EQUIPMENT



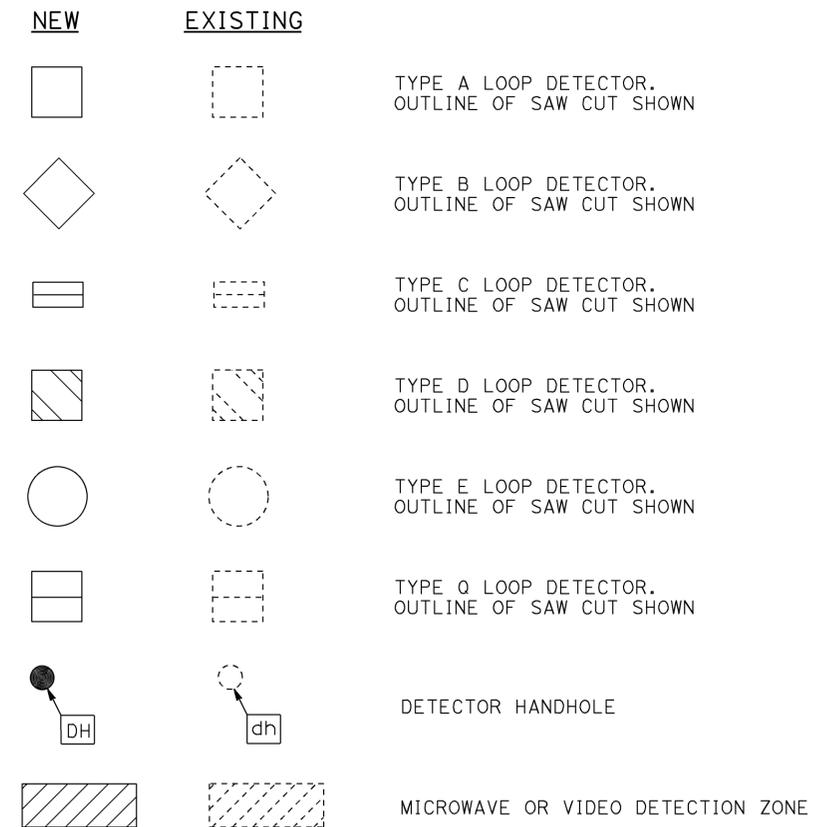
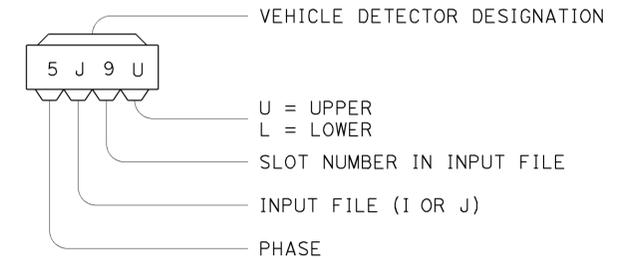
### WIRING DIAGRAM LEGEND



### PULL BOXES



### VEHICLE DETECTORS



STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

## ELECTRICAL SYSTEMS (LEGEND AND ABBREVIATIONS)

NO SCALE

RSP ES-1C DATED APRIL 15, 2016 SUPERSEDES RSP ES-1C DATED OCTOBER 30, 2015 AND RSP ES-1C DATED JULY 19, 2013 AND 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

**NOTES:**

1. Controller units, plug-mounted equipment, shelf-mounted equipment and wall-mounted equipment shall be located to permit safe and easy removal or replacement without removing any other piece of equipment.
2. Cabinet fan may be installed at an alternate location near the top of the cabinet when approved by the Engineer.
3. Where telephone interconnect is required, a minimum of 5" clear vertical space shall be provided inside the cabinet for the equipment.
4. Telephone interconnect conductors shall be enclosed in a 3/4" or larger conduit through the foundation. Type 4 conduit shall be used to separate telephone and power conductors in cabinets.

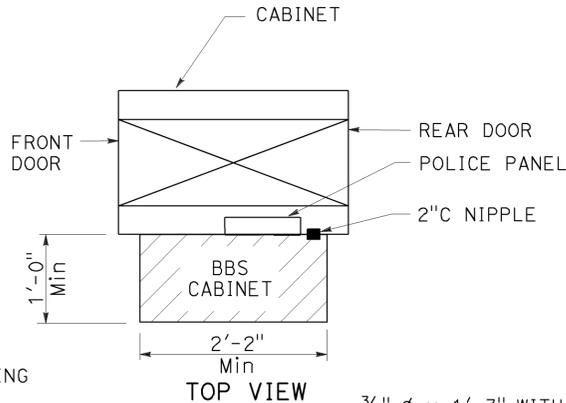
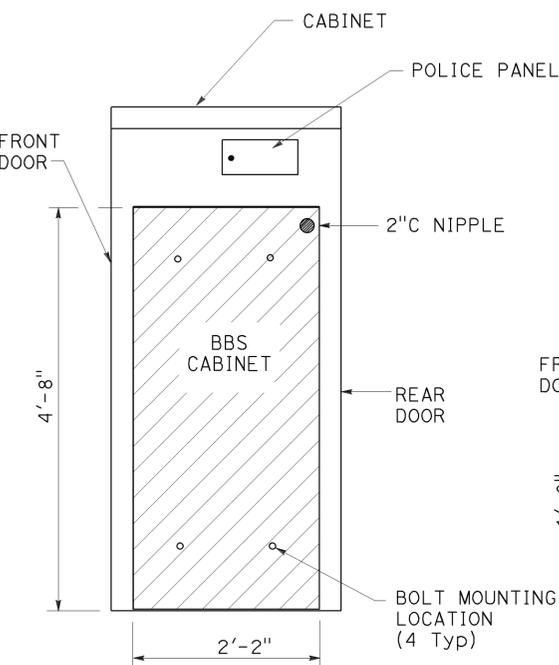
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	Ven	118	T19.8	31	54

Theresa Gabriel  
REGISTERED ELECTRICAL ENGINEER

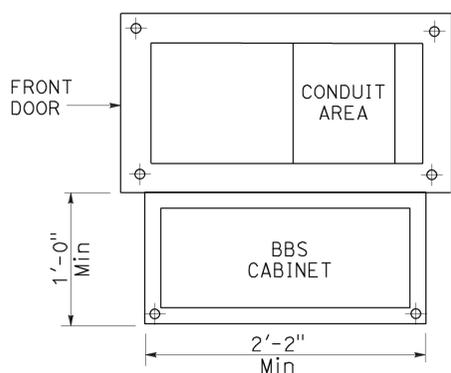
April 15, 2016  
PLANS APPROVAL DATE

Theresa Aziz Gabriel  
No. E15129  
Exp. 6-30-16  
ELECTRICAL  
STATE OF CALIFORNIA

TO ACCOMPANY PLANS DATED 6-30-16



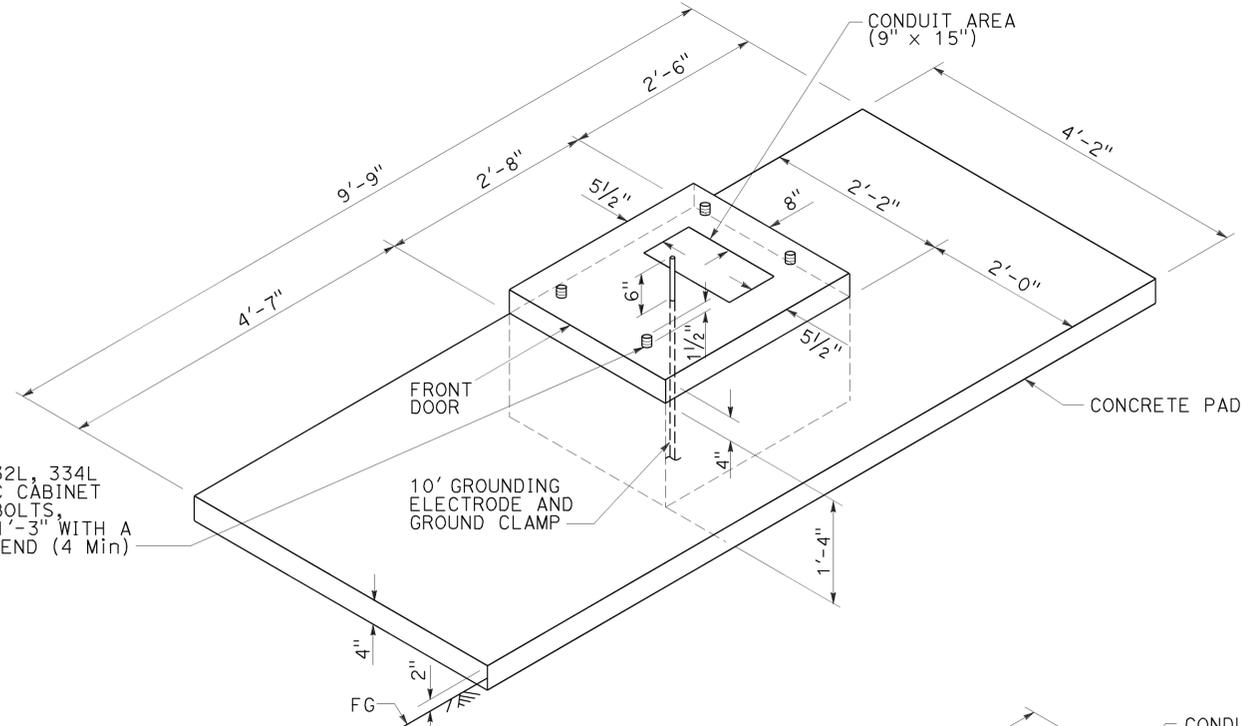
**BBS CABINET MOUNTED TO THE MODEL 332L CABINET**



**BASE PLAN FOR BBS MOUNTED TO THE MODEL 332L CABINET**

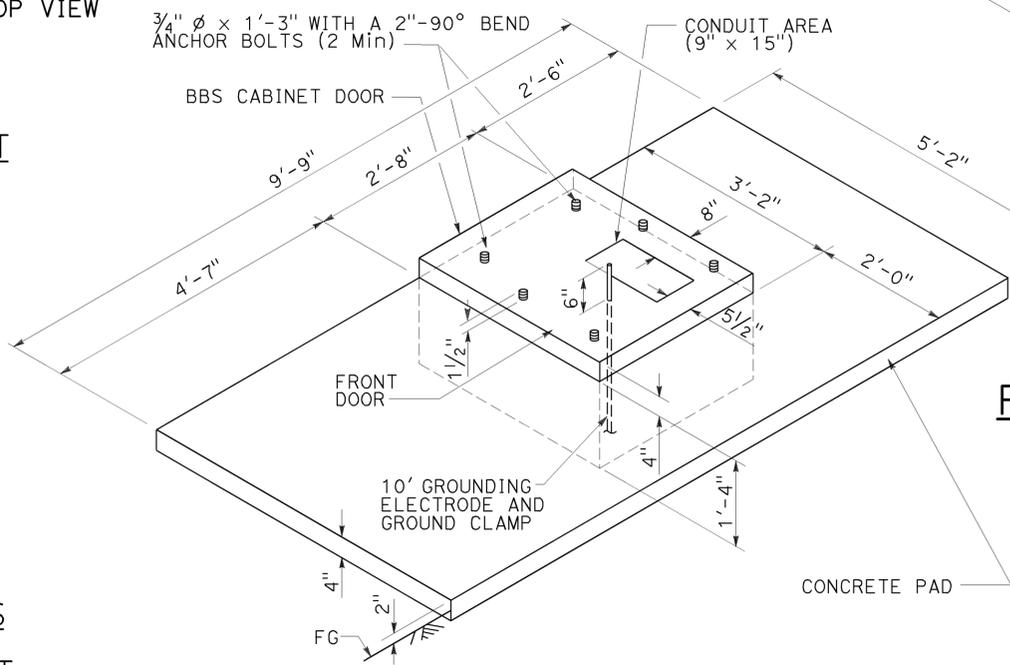
(FOR DIMENSIONS AND DETAILS NOT SHOWN, SEE CABINET HOUSING DETAILS OF THE TRANSPORTATION ELECTRICAL EQUIPMENT SPECIFICATION (TEES))

MODEL 332L, 334L OR 334LC CABINET ANCHOR BOLTS, 3/4" Ø x 1'-3" WITH A 2"-90° BEND (4 Min)

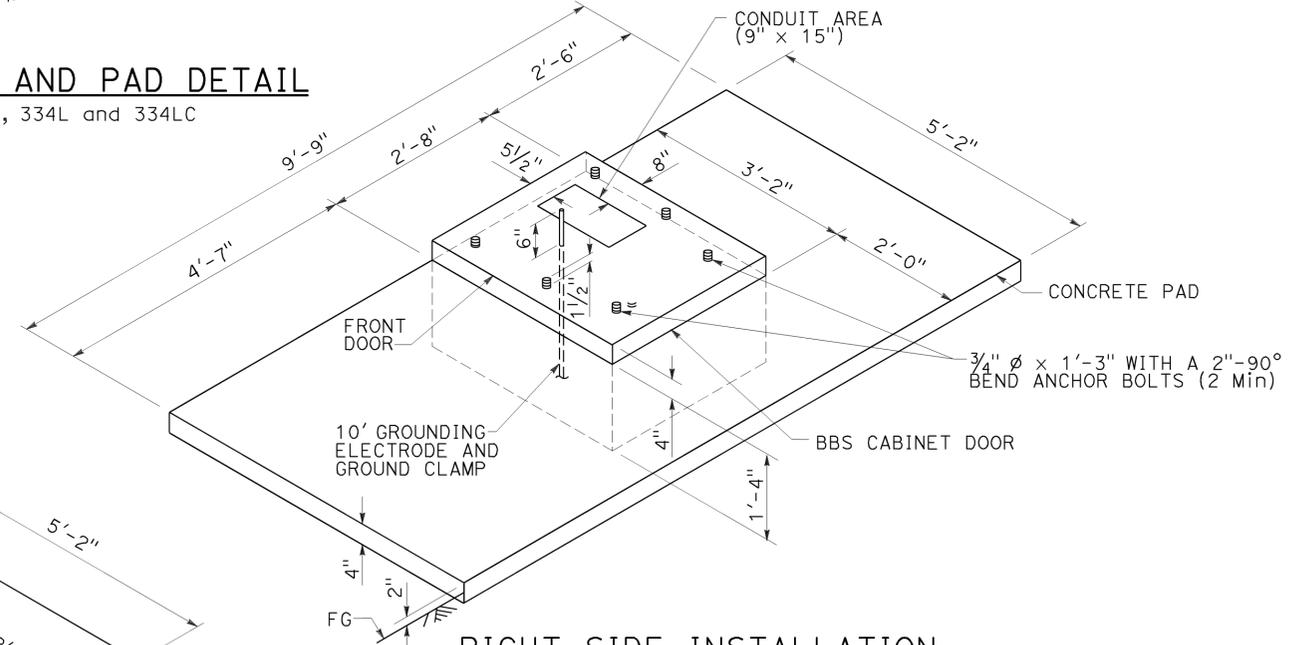


**FOUNDATION AND PAD DETAIL**  
Model 332L, 334L and 334LC

3/4" Ø x 1'-3" WITH A 2"-90° BEND ANCHOR BOLTS (2 Min)



**LEFT SIDE INSTALLATION DETAIL A**



**RIGHT SIDE INSTALLATION DETAIL B**

**MODIFIED MODEL 332L CABINET FOUNDATION DETAIL FOR BATTERY BACKUP SYSTEM**

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**ELECTRICAL SYSTEMS (CONTROLLER CABINET FOUNDATION AND PAD DETAILS)**

NO SCALE

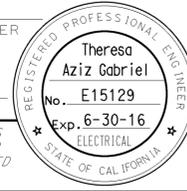
RSP ES-3C DATED APRIL 15, 2016 SUPERSEDES RSP ES-3C DATED OCTOBER 30, 2015 AND STANDARD PLAN ES-3C DATED MAY 20, 2011 - PAGE 437 OF THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP ES-3C**

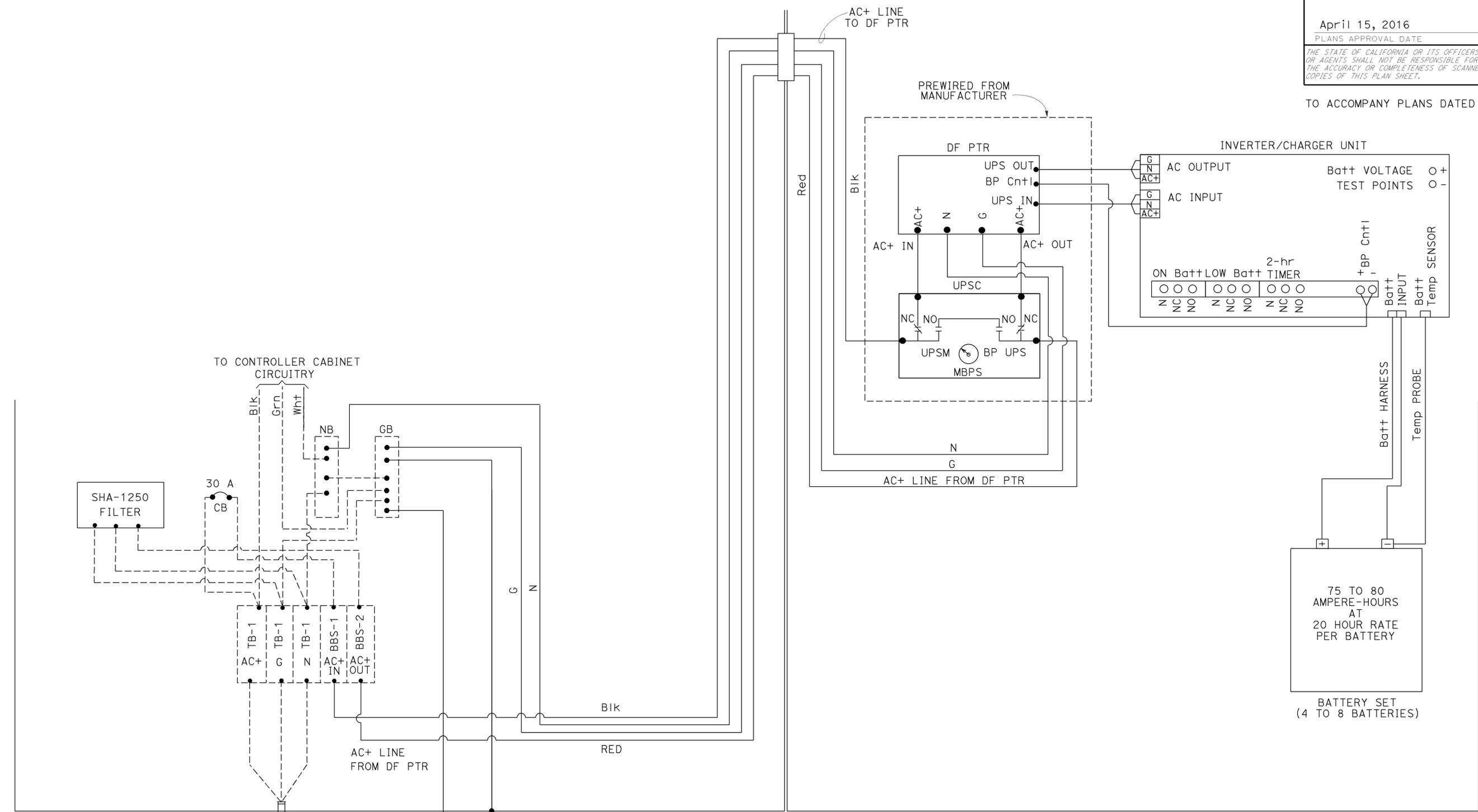
2010 REVISED STANDARD PLAN RSP ES-3C

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	Ven	118	T19.8	32	54

*Theresa Gabriel*  
 REGISTERED ELECTRICAL ENGINEER  
 April 15, 2016  
 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 6-30-16



SINGLE-PHASE, 120 V  
2-WIRE ckt FROM  
SERVICE EQUIPMENT  
ENCLOSURE

CONTROLLER CABINET

BBS CABINET

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**ELECTRICAL SYSTEMS**  
**(ELECTRONICS ASSEMBLY CONNECTION DIAGRAM,**  
**WITH BYPASS CONTROL LINE)**

NO SCALE

RSP ES-31 DATED APRIL 15, 2016 SUPERSEDES RSP ES-31  
DATED OCTOBER 30, 2015 THAT SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP ES-31**

2010 REVISED STANDARD PLAN RSP ES-31

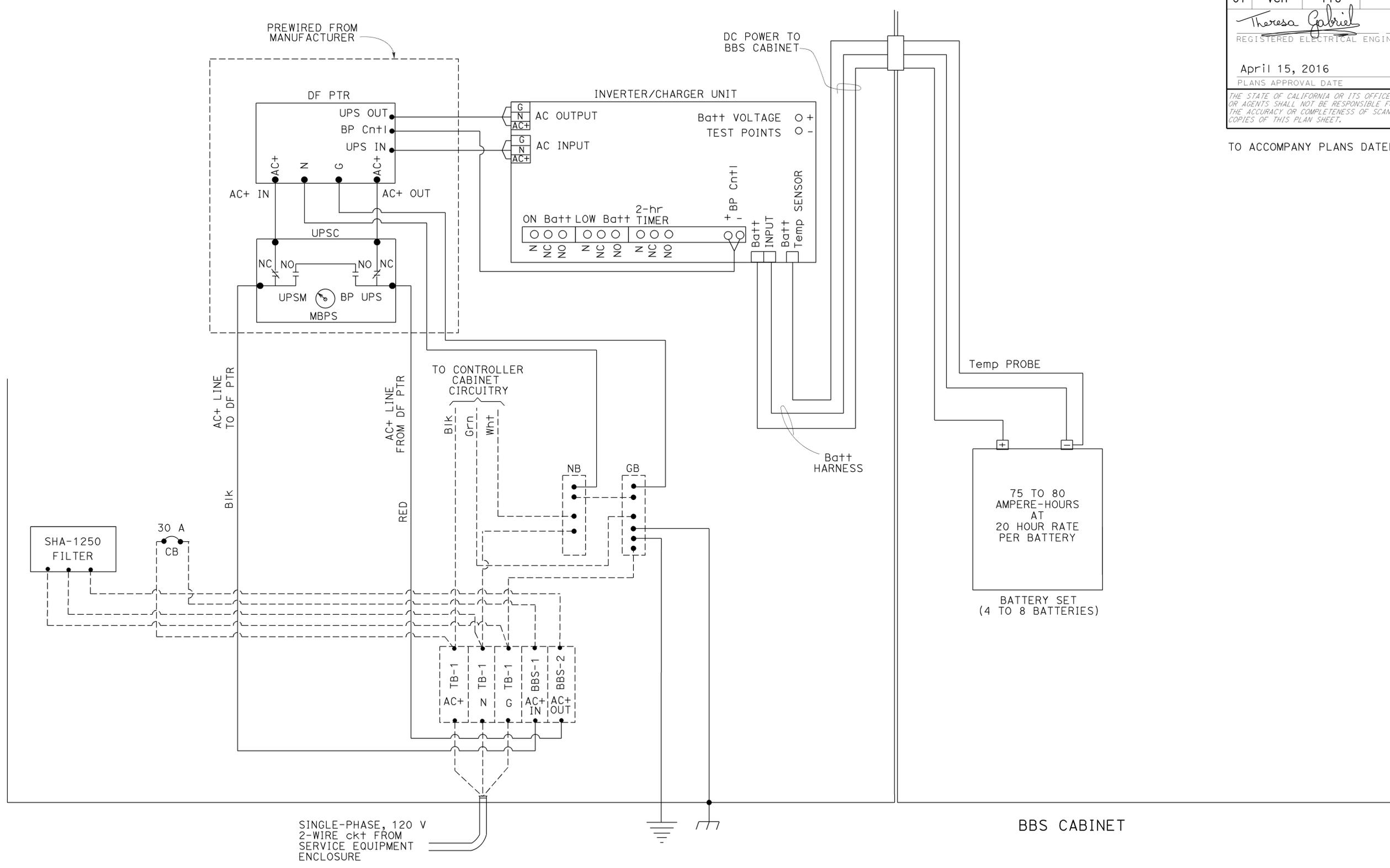
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	Ven	118	T19.8	33	54

*Theresa Gabriel*  
 REGISTERED ELECTRICAL ENGINEER  
 April 15, 2016  
 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 6-30-16

2010 REVISED STANDARD PLAN RSP ES-3J



SINGLE-PHASE, 120 V  
2-WIRE ckt FROM  
SERVICE EQUIPMENT  
ENCLOSURE

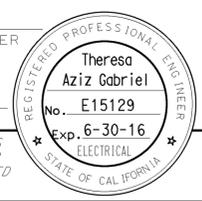
BBS CABINET

CONTROLLER CABINET

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**ELECTRICAL SYSTEMS**  
**(ELECTRONICS ASSEMBLY CONNECTION DIAGRAM,**  
**WITH BYPASS CONTROL LINE)**  
NO SCALE

RSP ES-3J DATED APRIL 15, 2016 SUPERSEDES RSP ES-3J  
DATED OCTOBER 30, 2015 THAT SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.  
**REVISED STANDARD PLAN RSP ES-3J**

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	Ven	118	T19.8	34	54
<i>Theresa Gabriel</i> REGISTERED ELECTRICAL ENGINEER					
October 30, 2015 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 6-30-16

PLAN VIEW OF OTHER SIDE MOUNTINGS

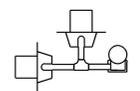
**ABBREVIATIONS:**

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

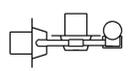
**NOTES:**

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 Revised Standard Plans RSP ES-4D and RSP ES-4E for attachment fitting details.

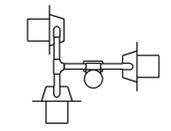
PLAN VIEW OF TOP MOUNTINGS



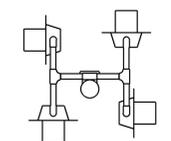
SV-2-TD



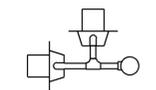
SV-2-TC



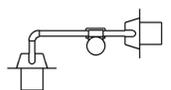
SV-3-TC



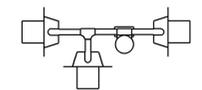
SV-4-TC



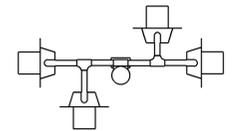
SV-2B



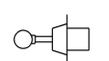
SV-2-TB



SV-3-TB



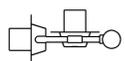
SV-4-TB



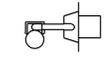
SV



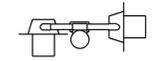
SV-1



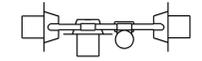
SV-2A



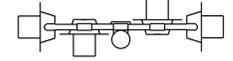
SV-1-T



SV-2-TA



SV-3-TA

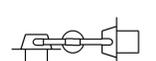


SV-4-TA

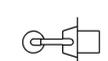
SIDE MOUNTINGS



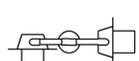
TV-1



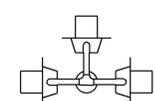
TV-2



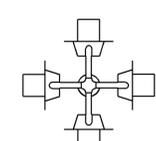
TV-1-T



TV-2-T



TV-3-T



TV-4-T

TOP MOUNTINGS

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

NO SCALE

RSP ES-4A DATED OCTOBER 30, 2015 SUPERSEDES RSP ES-4A DATED JULY 19, 2013 AND 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
07	Ven	118	T19.8	35	54

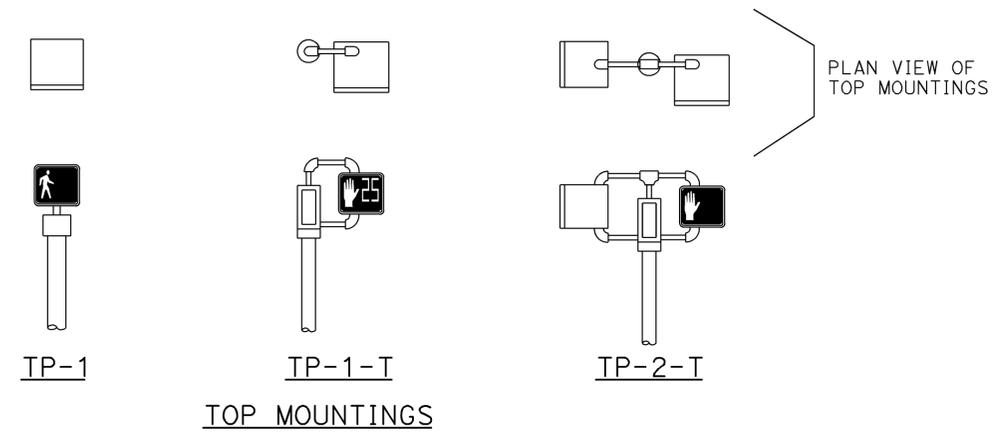
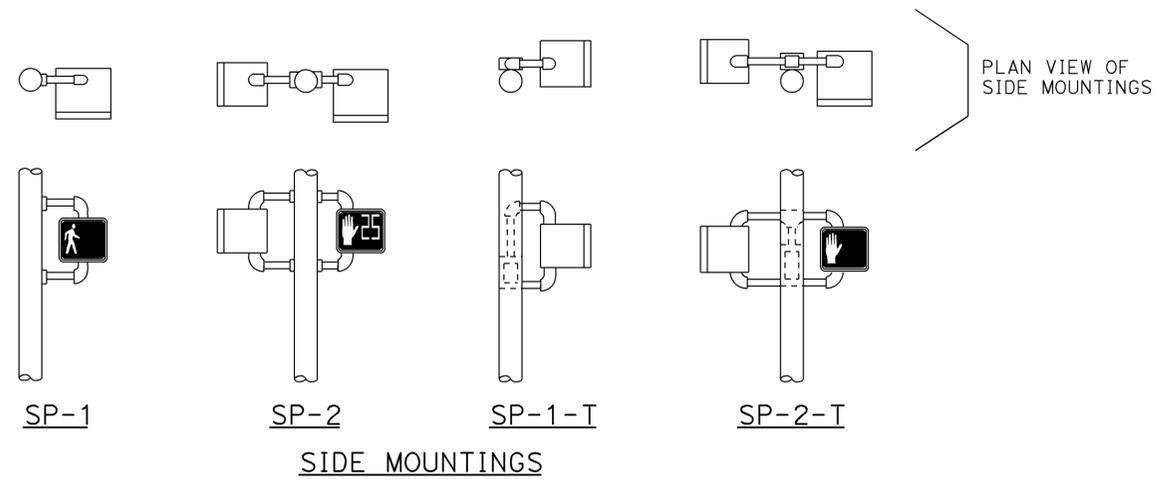
*Theresa Gabriel*  
REGISTERED ELECTRICAL ENGINEER

October 30, 2015  
PLANS APPROVAL DATE

Theresa  
Aziz Gabriel  
No. E15129  
Exp. 6-30-16  
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 6-30-16



PEDESTRIAN SIGNAL HEAD MOUNTINGS  
DETAIL A



PERSON WALKING INTERVAL    FLASHING UPRAISED HAND INTERVAL    STEADY UPRAISED HAND INTERVAL  
LED COUNTDOWN PEDESTRIAN SIGNAL FACE MODULE  
DETAIL B

NOTES:

1. Mounting shall be oriented to provide maximum horizontal clearance to adjacent roadway.
2. Bracket arms shall be long enough to permit proper alignment of signals.
3. See Revised Standard Plan RSP ES-4D for attachment fittings details.

ABBREVIATIONS:

- 1, 2    NUMBER OF SIGNAL FACES
- SP    SIDE MOUNTED PEDESTRIAN SIGNAL
- T    TERMINAL COMPARTMENT
- TP    TOP MOUNTED PEDESTRIAN SIGNAL

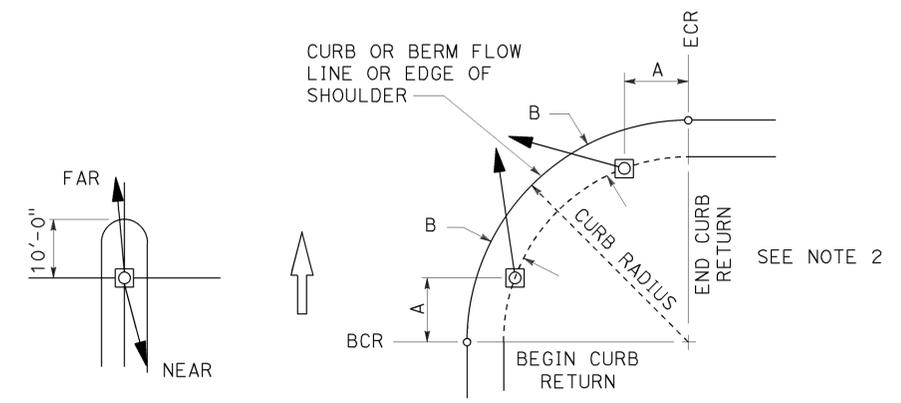
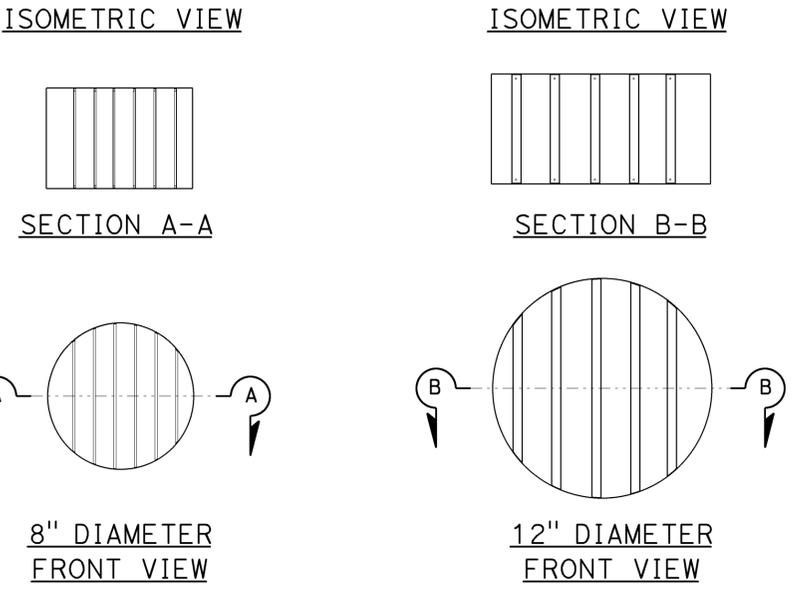
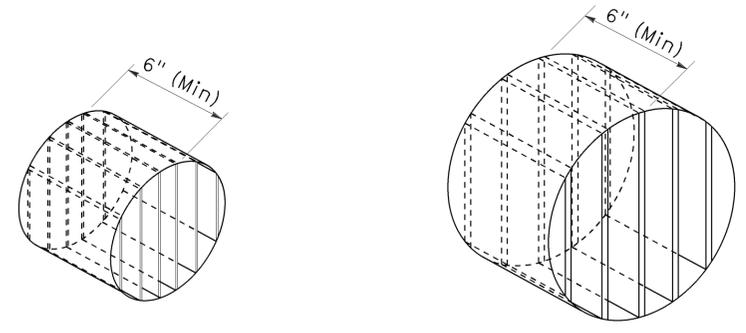
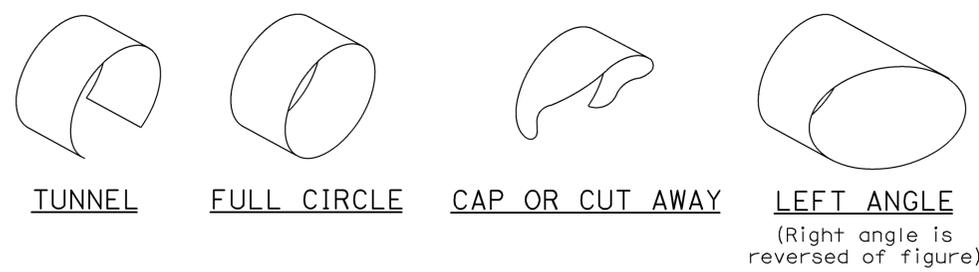
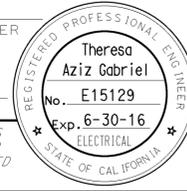
STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**ELECTRICAL SYSTEMS  
(PEDESTRIAN SIGNAL HEADS)**  
NO SCALE

RSP ES-4B DATED OCTOBER 30, 2015 SUPERSEDES RSP ES-4B DATED JULY 19, 2013 AND STANDARD PLAN ES-4B DATED MAY 20, 2011 - PAGE 444 OF THE STANDARD PLANS BOOK DATED 2010.

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

2010 REVISED STANDARD PLAN RSP ES-4B

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	Ven	118	T19.8	36	54
<i>Theresa Gabriel</i> REGISTERED ELECTRICAL ENGINEER October 30, 2015 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>6-30-16</u>					

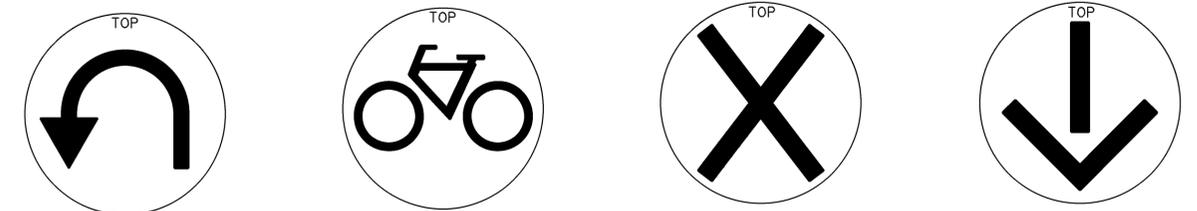
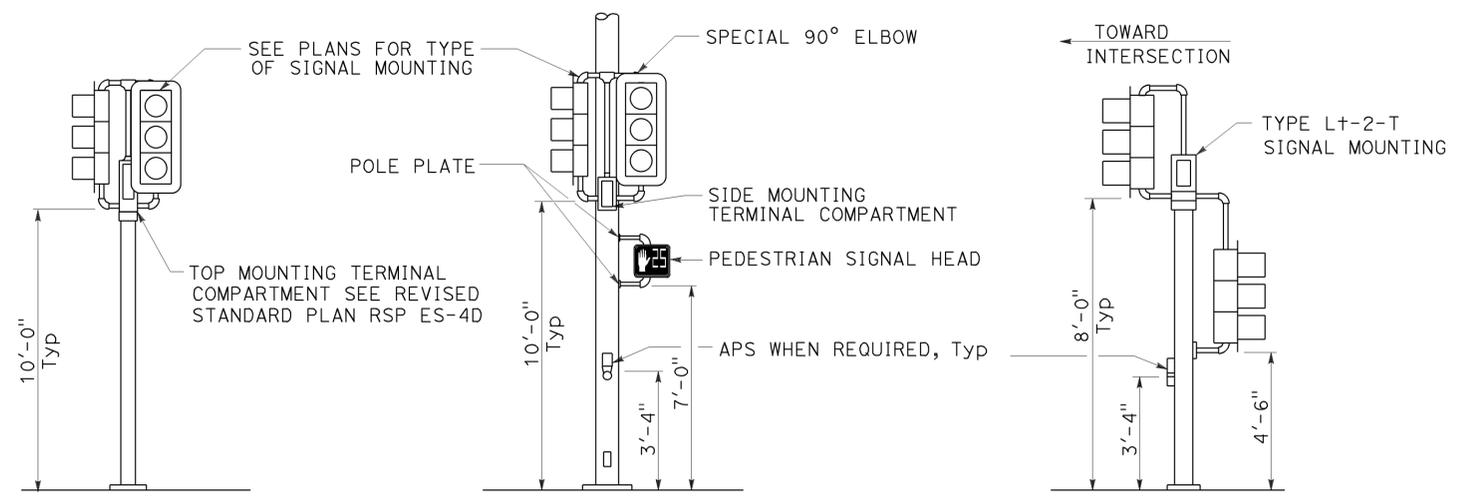


- NOTES:**
1. Typical signal pole placement unless dimensioned on plans.
  2. For A and B dimensions, see Pole Schedule.

**DIRECTIONAL LOUVER**

Directional louvers shall be oriented and secured in place with one plated brass machine screw and nut.

**SIGNAL STANDARD PLACEMENT DIMENSIONS AND EQUIPMENT LOCATIONS**



**SIGNAL FACES**

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION

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

NO SCALE

RSP ES-4C DATED OCTOBER 30, 2015 SUPERSEDES RSP ES-4C DATED JULY 19, 2013 AND STANDARD PLAN ES-4C DATED MAY 20, 2011 - PAGE 445 OF THE STANDARD PLANS BOOK DATED 2010.

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

**TYPICAL SIGNAL HEAD INSTALLATIONS**

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

Normally used on standards with luminaire or signal mast arm

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

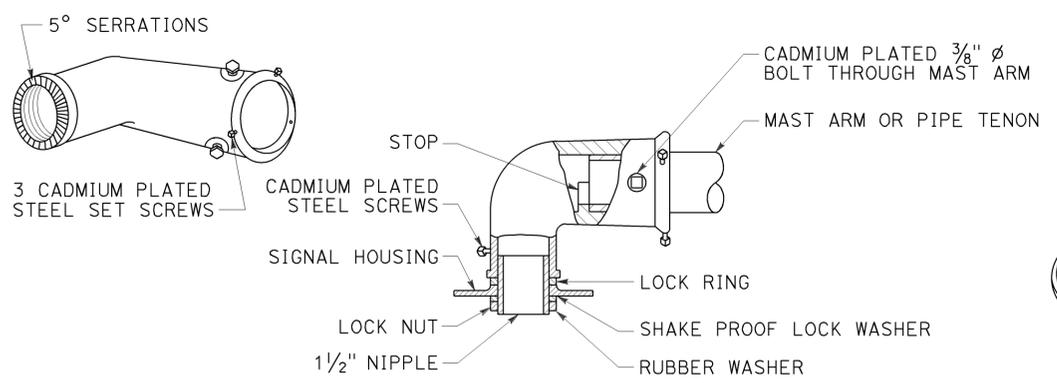
2010 REVISED STANDARD PLAN RSP ES-4C

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	Ven	118	T19.8	37	54

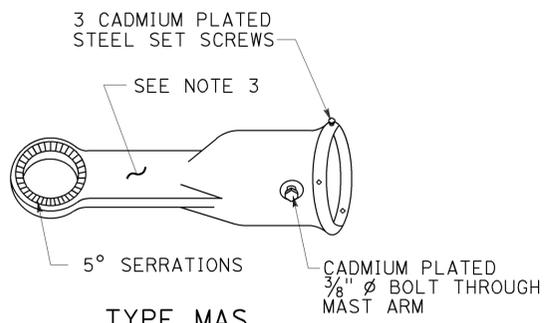
*Theresa Gabriel*  
 REGISTERED ELECTRICAL ENGINEER  
 October 30, 2015  
 PLANS APPROVAL DATE  
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



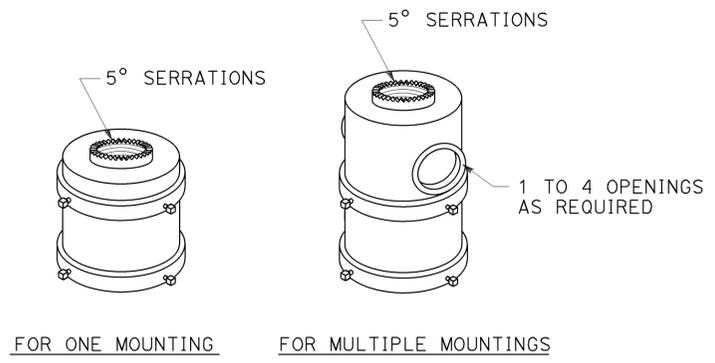
TO ACCOMPANY PLANS DATED 6-30-16



**TYPE MAT**  
**MAST ARM MOUNTING**  
For 2 NPS pipe, see Note 1.

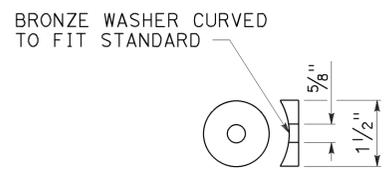


**TYPE MAS**  
**MAST ARM MOUNTING**  
For 2 NPS pipe, see Note 1.

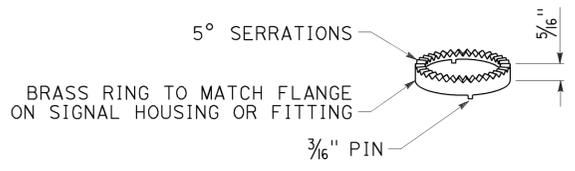


**TOP MOUNTINGS**  
For 4 NPS pipe, see Note 2.

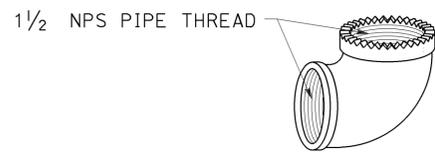
**SIGNAL SLIP FITTERS**



**DETAIL C**



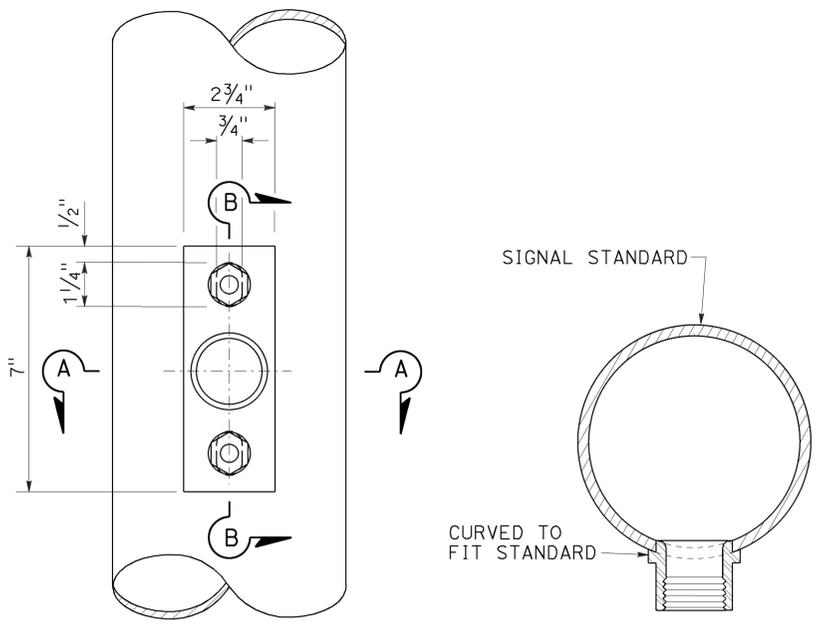
**LOCK RING**  
Use where locking ring is not integral with signal housing or fitting.



**SPECIAL 90° ELBOW**  
One for each signal head, except those with special slip fitter mounting

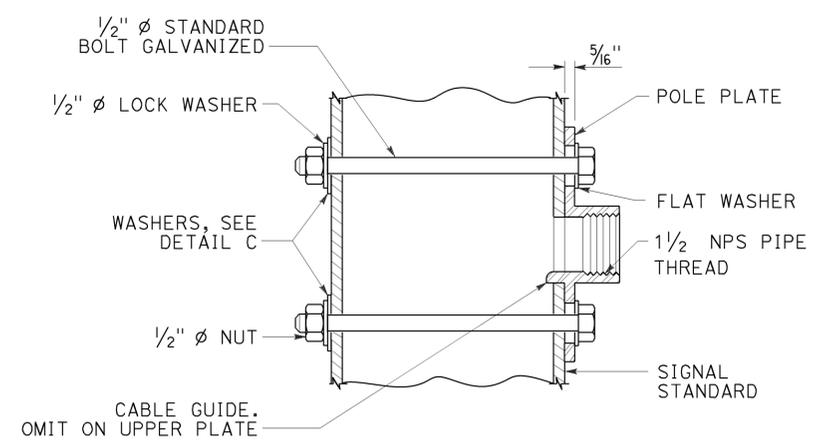
- NOTES:**
- After mast arm signal has been plumbed and secured, drill  $\frac{1}{16}$ " hole through mast arm tenon in line with slip fitter hole. Place a cadmium plated  $\frac{3}{8}$ "  $\phi$  galvanized bolt with washer under bolt head through hole and secure with washer, nut, and locknut. Seal openings between mast arm mountings and mast arm with mastic.
  - (A) Threaded top mounted slip fitter openings shall be  $1\frac{1}{2}$  NPS.  
(B) Serrations in fittings shall match those on bottom of signal heads or in lock ring.  
(C) Top opening shall be offset when backplate is used.
  - Wireway shall have a cross section area of 0.95 square inch minimum. Minimum width of  $\frac{1}{2}$ ".

**MISCELLANEOUS MOUNTING HARDWARE**

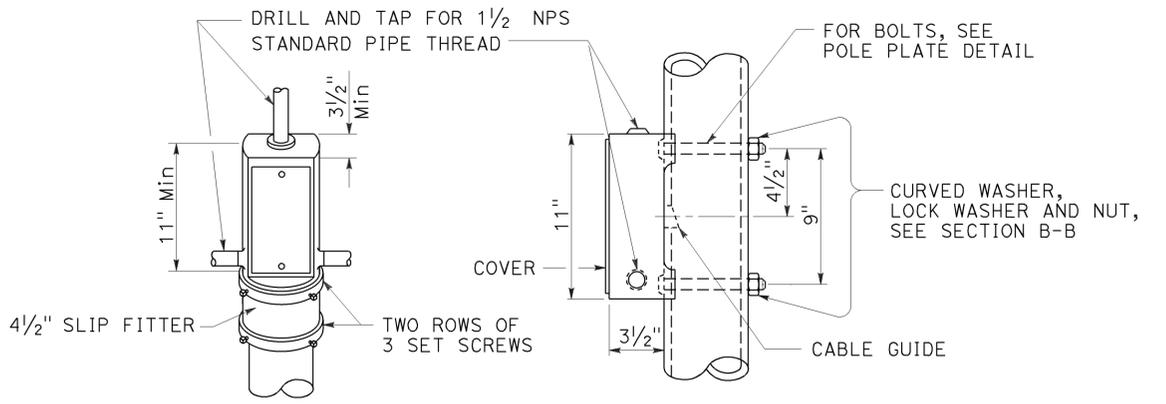


**TOP VIEW**      **SECTION A-A**

**POLE PLATE FOR SIDE MOUNTED SIGNAL HEAD WITHOUT TERMINAL COMPARTMENT**



**SECTION B-B**



**TOP MOUNTING**      **SIDE MOUNTING**  
**TERMINAL COMPARTMENT**

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**ELECTRICAL SYSTEMS**  
**(SIGNAL HEAD MOUNTING)**  
NO SCALE

RSP ES-4D DATED OCTOBER 30, 2015 SUPERSEDES STANDARD PLAN ES-4D DATED MAY 20, 2011 - PAGE 446 OF THE STANDARD PLANS BOOK DATED 2010.

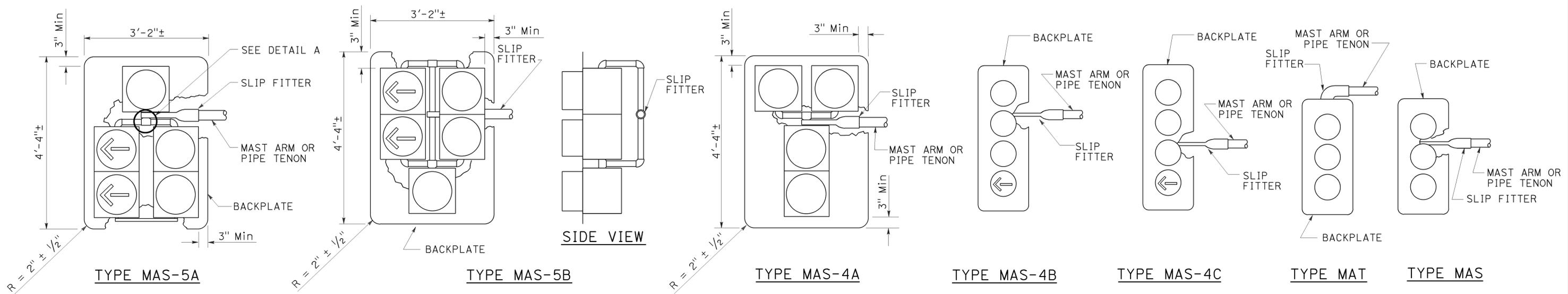
**REVISED STANDARD PLAN RSP ES-4D**

2010 REVISED STANDARD PLAN RSP ES-4D

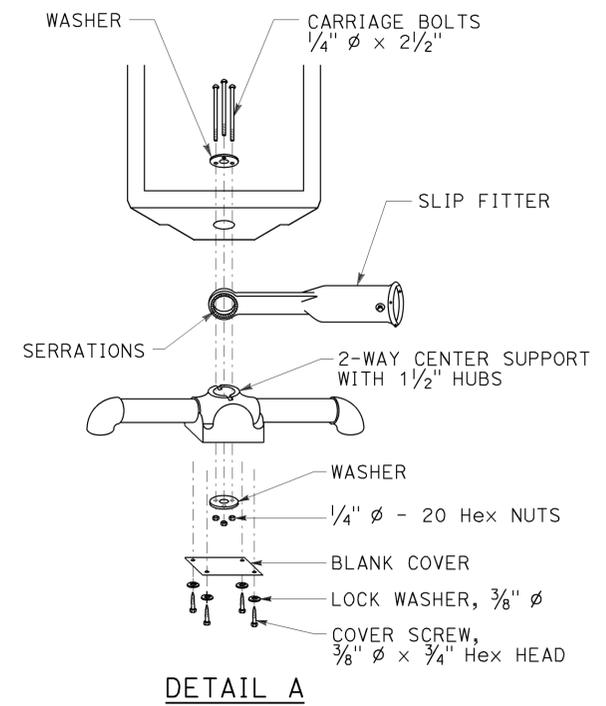
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	Ven	118	T19.8	38	54
<i>Theresa Gabriel</i> REGISTERED ELECTRICAL ENGINEER					
October 30, 2015 PLANS APPROVAL DATE					
<small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small>					



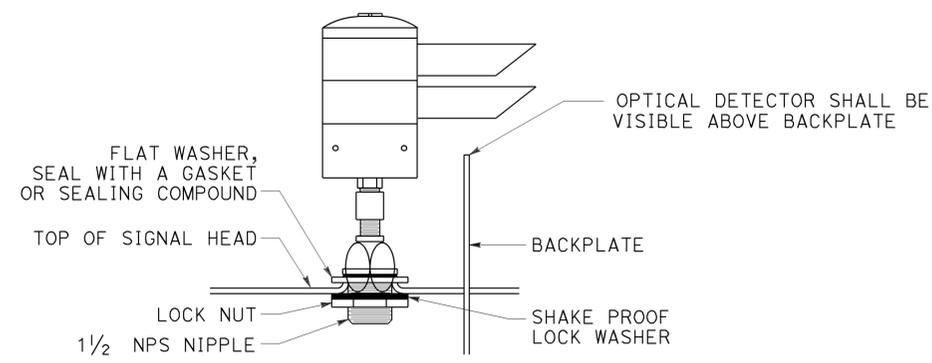
TO ACCOMPANY PLANS DATED 6-30-16



**MAST ARM MOUNTINGS**



**DETAIL A**



**OPTICAL DETECTOR MOUNTING FOR EMERGENCY VEHICLE DETECTION**

**DETAIL B**

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

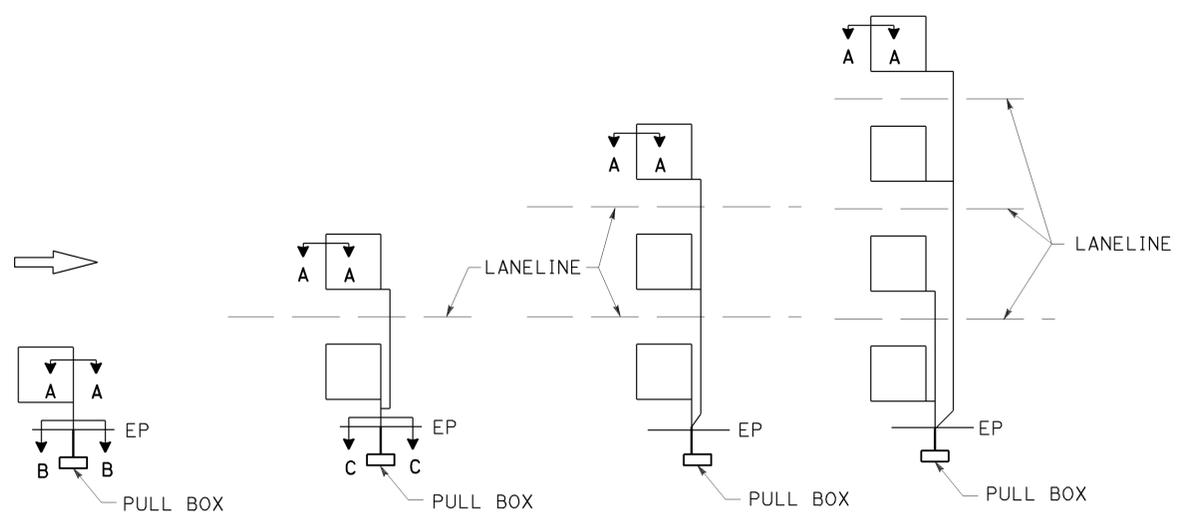
NO SCALE

RSP ES-4E DATED OCTOBER 30, 2015 SUPERSEDES RSP ES-4E DATED JULY 19, 2013 AND STANDARD PLAN ES-4E DATED MAY 20, 2011 - PAGE 447 OF THE STANDARD PLANS BOOK DATED 2010.

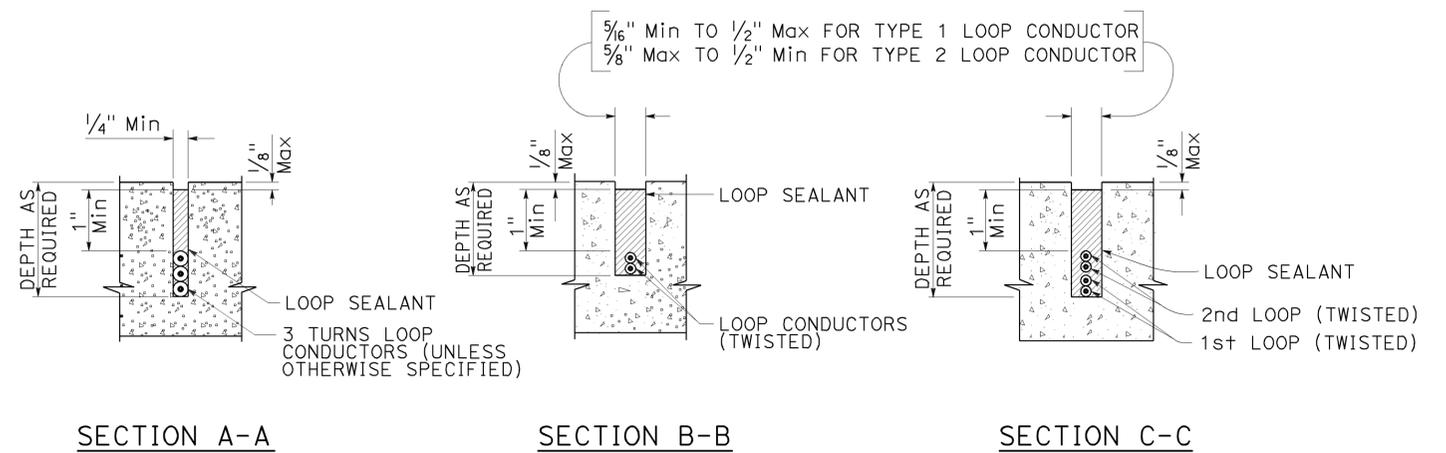
**REVISED STANDARD PLAN RSP ES-4E**

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

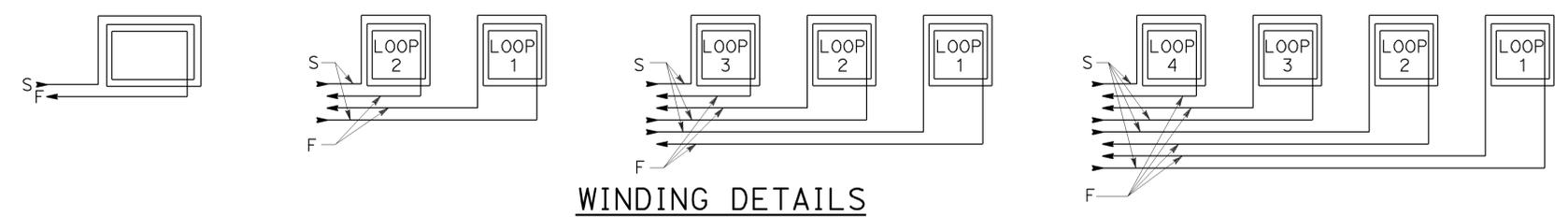
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	Ven	118	T19.8	39	54
<i>Theresa Gabriel</i> REGISTERED ELECTRICAL ENGINEER April 15, 2016 PLANS APPROVAL DATE <small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small>					
TO ACCOMPANY PLANS DATED <u>6-30-16</u>					



**SAW CUT DETAILS**  
Type A loop detector configurations illustrated

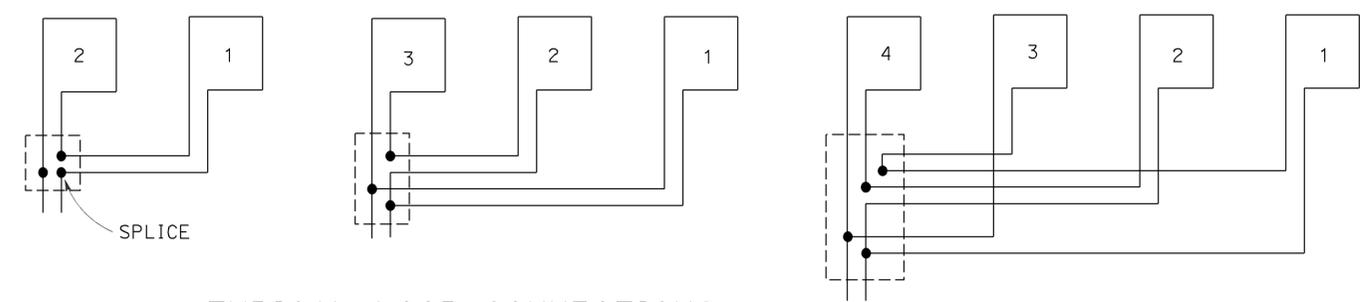


**SLOT DETAILS - TYPE 1 AND TYPE 2 LOOP CONDUCTOR**



**WINDING DETAILS**

**ABBREVIATIONS:**  
S - START  
F - FINISH



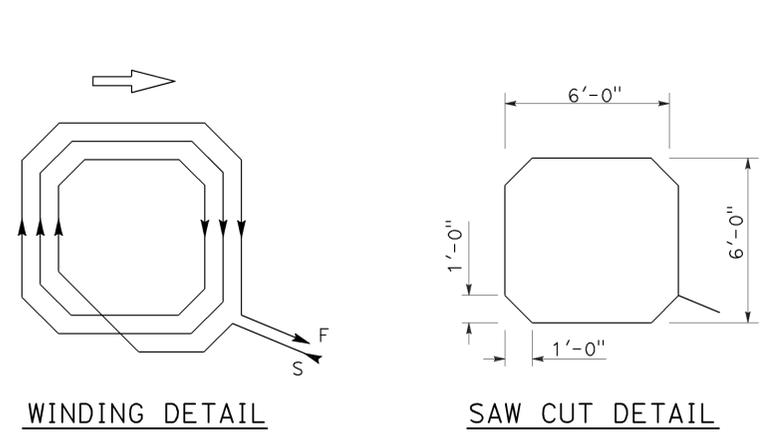
**TYPICAL LOOP CONNECTIONS**  
Dashed lines represent the pull box

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**ELECTRICAL SYSTEMS  
(LOOP DETECTORS)**  
NO SCALE

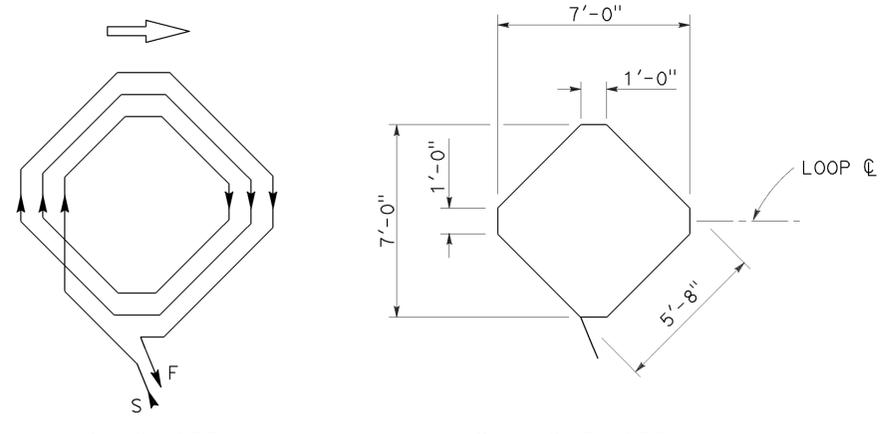
RSP ES-5A DATED APRIL 15, 2016 SUPERSEDES RSP ES-5A DATED OCTOBER 30, 2015 AND STANDARD PLAN ES-5A DATED MAY 20, 2011 - PAGE 448 OF THE STANDARD PLANS BOOK DATED 2010.

2010 REVISED STANDARD PLAN RSP ES-5A

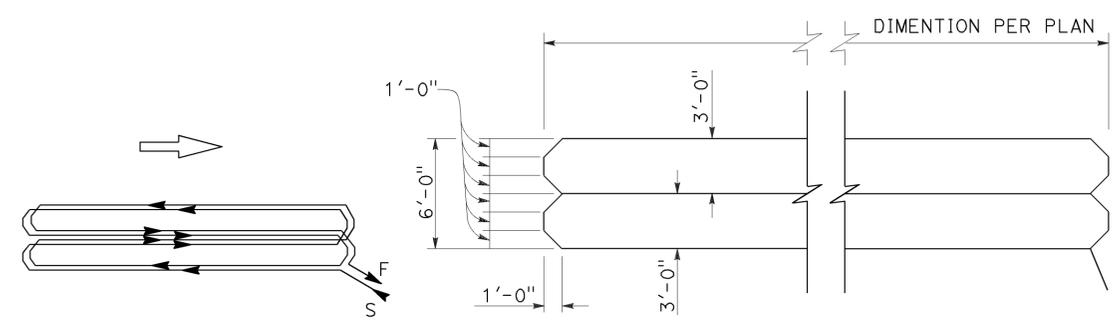
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	Ven	118	T19.8	40	54
<i>Theresa Gabriel</i> REGISTERED ELECTRICAL ENGINEER April 15, 2016 PLANS APPROVAL DATE <small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small>					
					
TO ACCOMPANY PLANS DATED <u>6-30-16</u>					



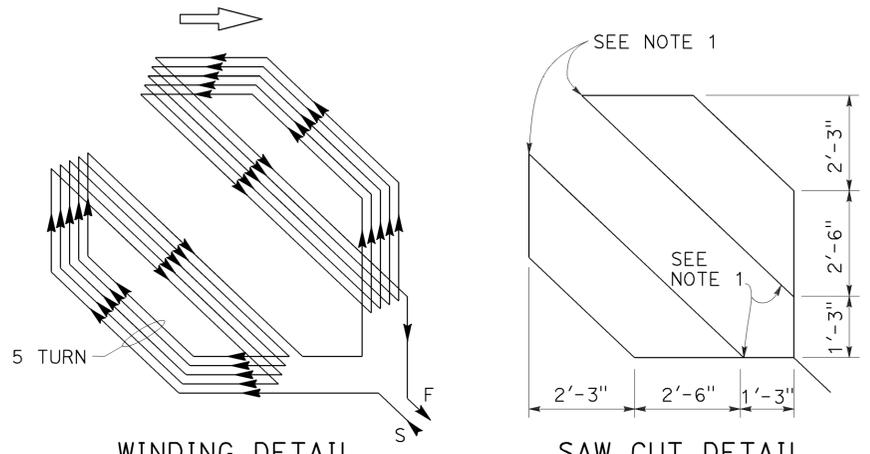
WINDING DETAIL      SAW CUT DETAIL  
TYPE A LOOP DETECTOR CONFIGURATION



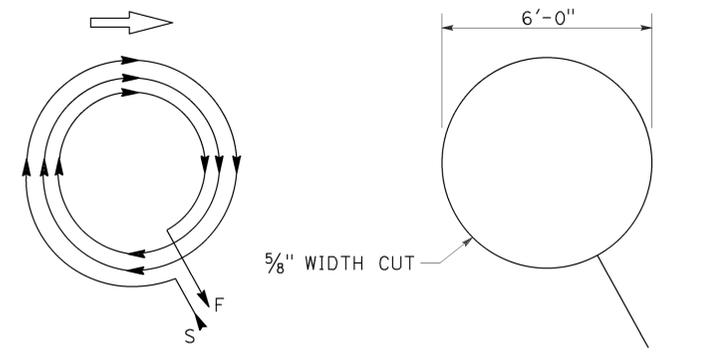
WINDING DETAIL      SAW CUT DETAIL  
TYPE B LOOP DETECTOR CONFIGURATION



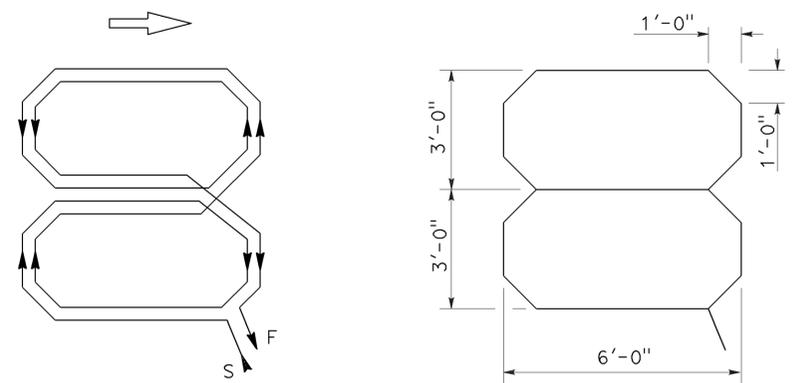
WINDING DETAIL      SAW CUT DETAIL  
TYPE C LOOP DETECTOR CONFIGURATION



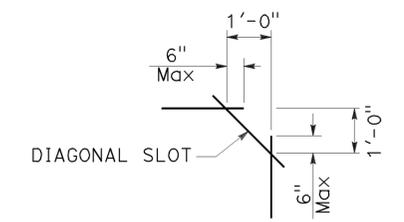
WINDING DETAIL      SAW CUT DETAIL  
TYPE D LOOP DETECTOR CONFIGURATION



WINDING DETAIL      SAW CUT DETAIL  
TYPE E LOOP DETECTOR CONFIGURATION



WINDING DETAIL      SAW CUT DETAIL  
TYPE Q LOOP DETECTOR CONFIGURATION



PLAN VIEW OF DIAGONAL SLOT AT CORNERS

- NOTES:**
1. Round corners of acute angle saw cuts 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.
  3. Use Type D loops for limit line detection and bicycle lanes.

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

RSP ES-5B DATED APRIL 15, 2016 SUPERSEDES RSP ES-5B DATED OCTOBER 30, 2015 AND RSP ES-5B DATED JULY 19, 2013 AND STANDARD PLAN ES-5B DATED MAY 20, 2011 - PAGE 449 OF THE STANDARD PLANS BOOK DATED 2010.

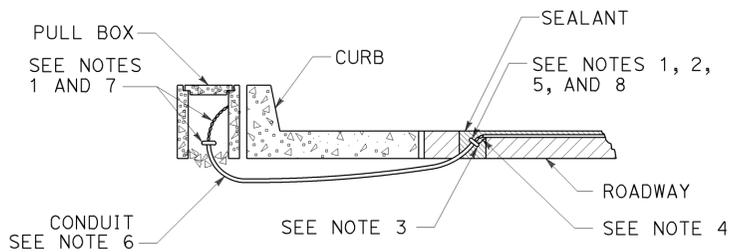
2010 REVISED STANDARD PLAN RSP ES-5B

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	Ven	118	T19.8	41	54

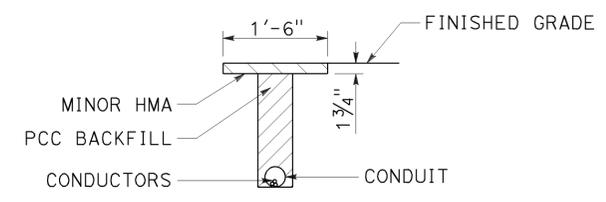
Theresa Gabriel  
 REGISTERED ELECTRICAL ENGINEER  
 October 30, 2015  
 PLANS APPROVAL DATE  
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



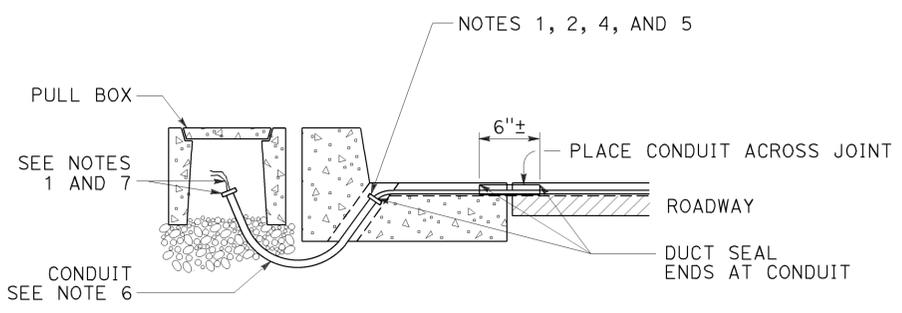
TO ACCOMPANY PLANS DATED 6-30-16



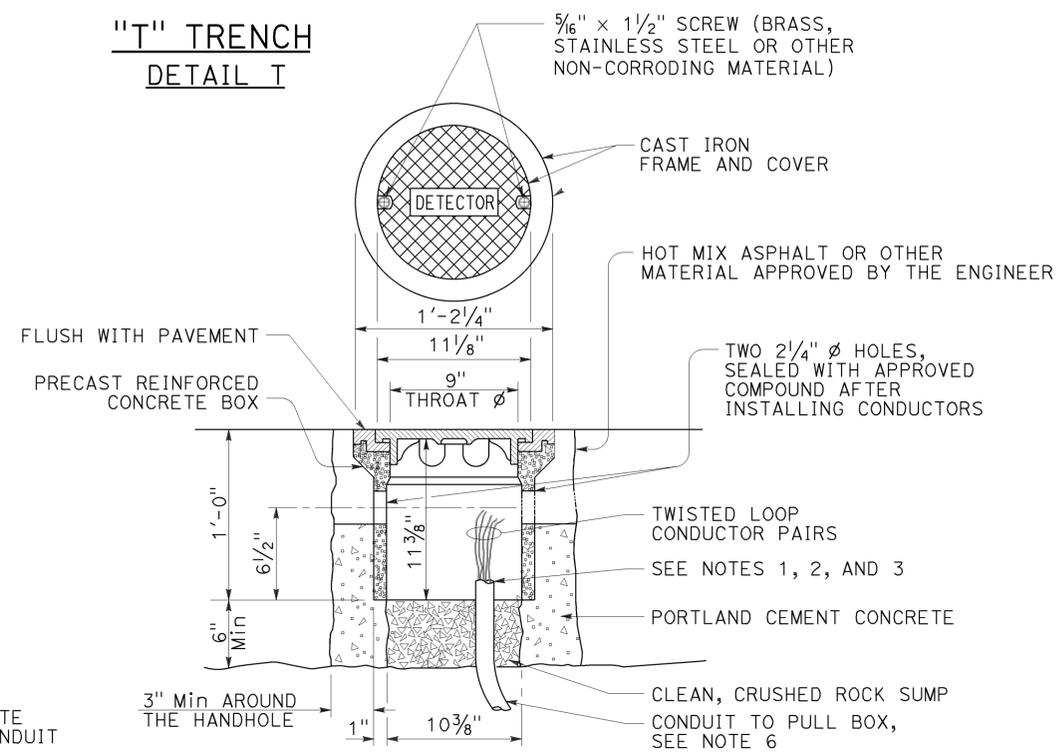
**TYPE A  
CURB TERMINATION DETAIL**



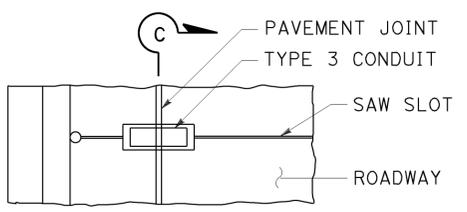
**"T" TRENCH  
DETAIL 1**



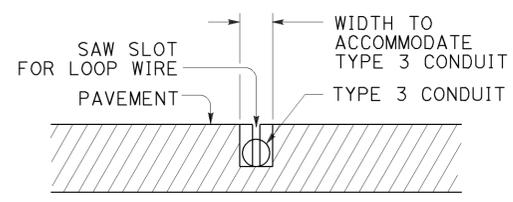
**CROSS SECTION**



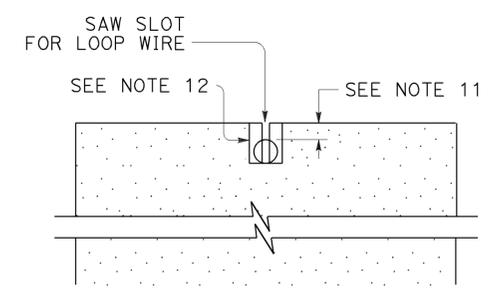
**DETECTOR HANDHOLE DETAIL**



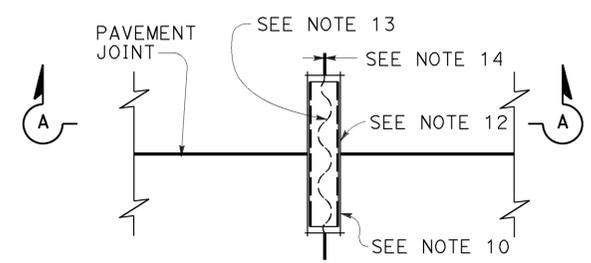
**PLAN VIEW**



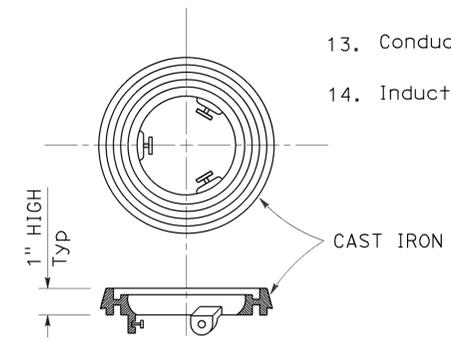
**SECTION C-C**



**SECTION A-A**



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



**LOCKING GRADE RING**

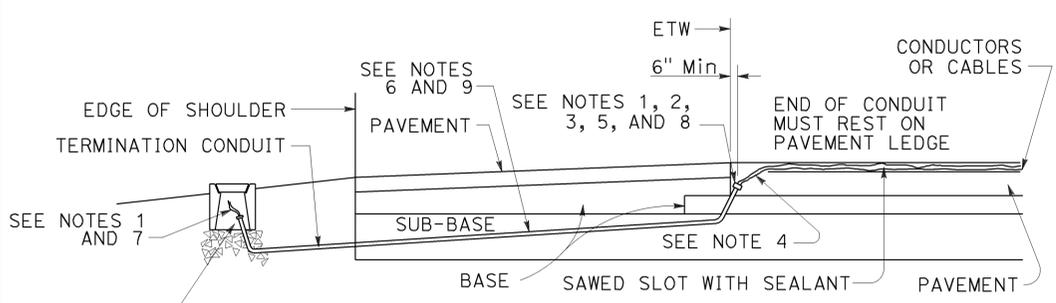
STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**ELECTRICAL SYSTEMS  
(CURB AND SHOULDER TERMINATION,  
TRENCH, AND HANDHOLE DETAILS)**

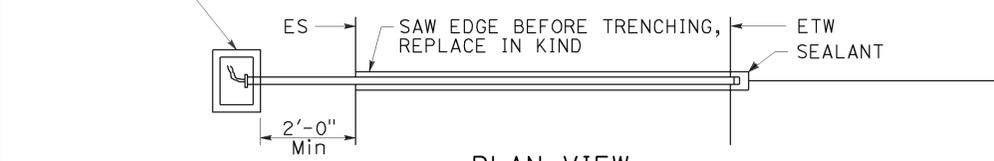
NO SCALE

RSP ES-5D DATED OCTOBER 30, 2015 SUPERSEDES RSP ES-5D DATED JULY 19, 2013 AND STANDARD PLAN ES-5D DATED MAY 20, 2011 - PAGE 451 OF THE STANDARD PLANS BOOK DATED 2010.

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



**CROSS SECTION**



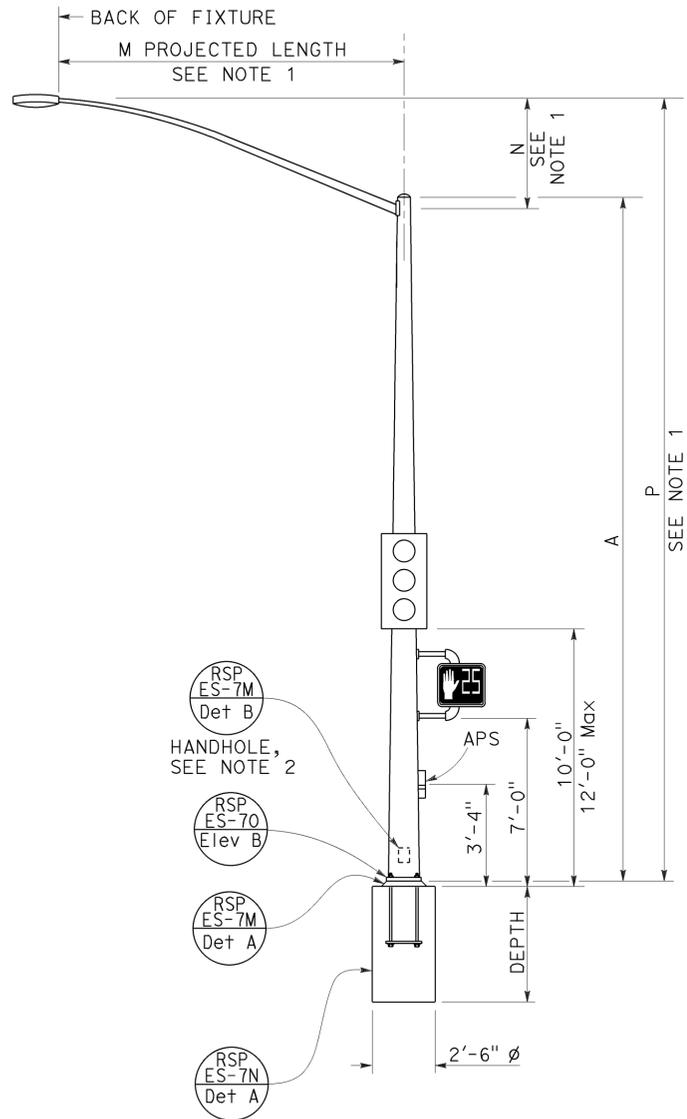
**PLAN VIEW  
SHOULDER TERMINATION DETAILS**

2010 REVISED STANDARD PLAN RSP ES-5D

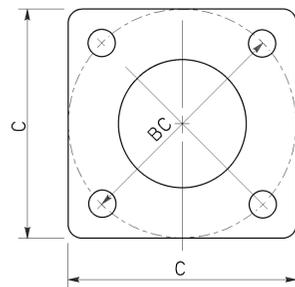
**NOTES:**

- For additional notes, details and data for Type 15TS and Type 21TS Standards, see Revised Standard Plan RSP ES-6A.
- Handhole shall be located on the downstream side of traffic.

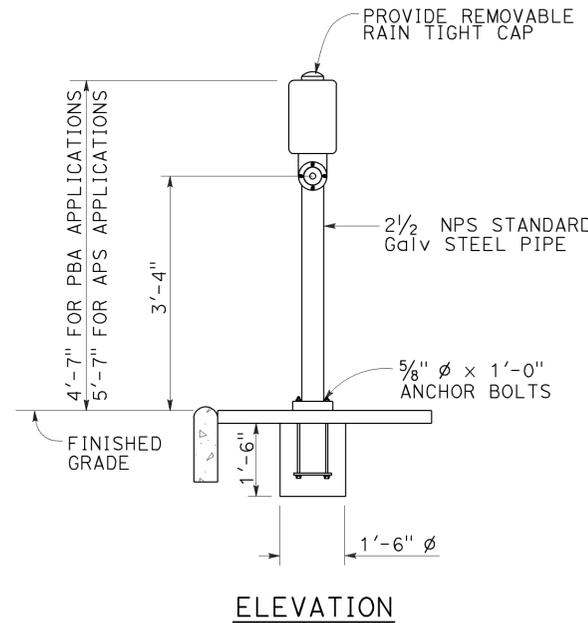
TO ACCOMPANY PLANS DATED 6-30-16



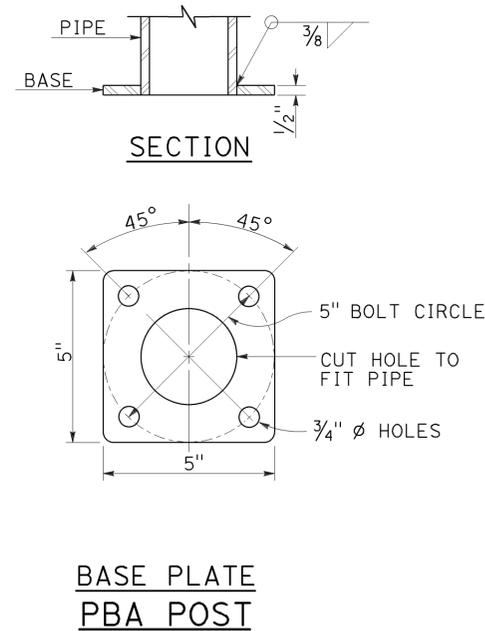
**TYPE 15TS AND 21TS STANDARD**  
**ELEVATION A**  
 (See Note 1)



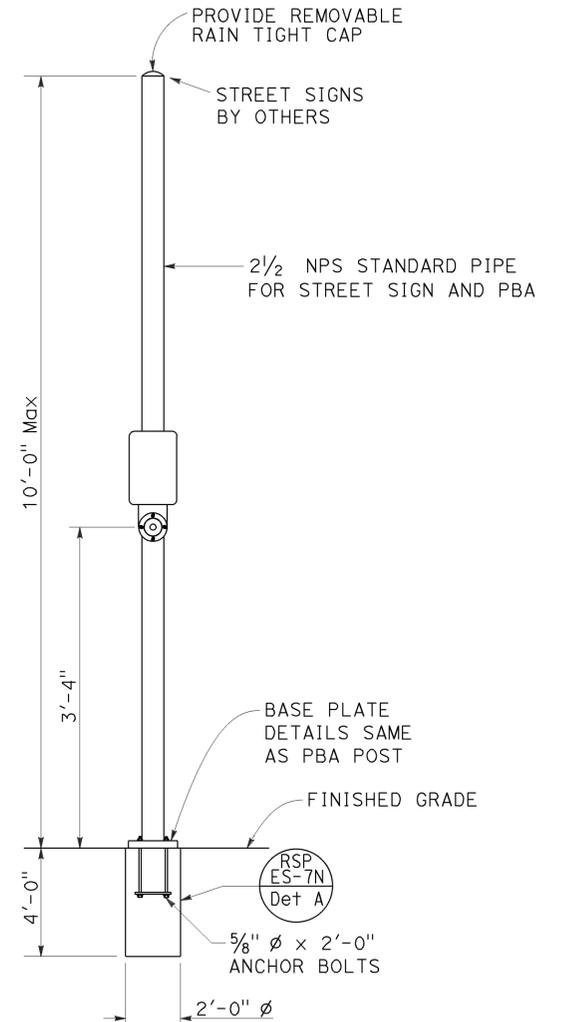
**BASE PLATE**  
**TYPE 15TS AND 21TS**  
**DETAIL A**



**PUSH BUTTON ASSEMBLY POST**  
**DETAIL B**



**COMBINED STREET SIGN**  
**PUSH BUTTON ASSEMBLY POST**  
**DETAIL C**



POLE TYPE	POLE DATA			WALL THICKNESS	BASE PLATE DATA			CIDH DEPTH
	A HEIGHT	Min OD			C	BC = BOLT CIRCLE	ANCHOR BOLT SIZE	
15TS	30'-0"	8"	3 1/16"	0.1793"	1'-1 1/2"	1'-0"	1 1/2" Ø x 42"	7'-6"
21TS	35'-0"	9 3/8"	3 3/16"		1'-3"	1'-2"		8'-6"

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**ELECTRICAL SYSTEMS**  
**(SIGNAL AND LIGHTING STANDARD, TYPE TS, AND PUSH BUTTON ASSEMBLY POST)**  
 NO SCALE

RSP ES-7A DATED JULY 15, 2016 SUPERSEDES RSP ES-7A  
 DATED OCTOBER 30, 2015 AND RSP ES-7A DATED JULY 19, 2013 AND  
 STANDARD PLAN ES-7A DATED MAY 20, 2011 - PAGE 462 OF THE STANDARD PLANS BOOK DATED 2010.

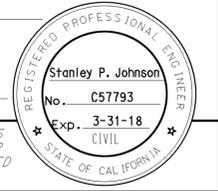
**REVISED STANDARD PLAN RSP ES-7A**

2010 REVISED STANDARD PLAN RSP ES-7A



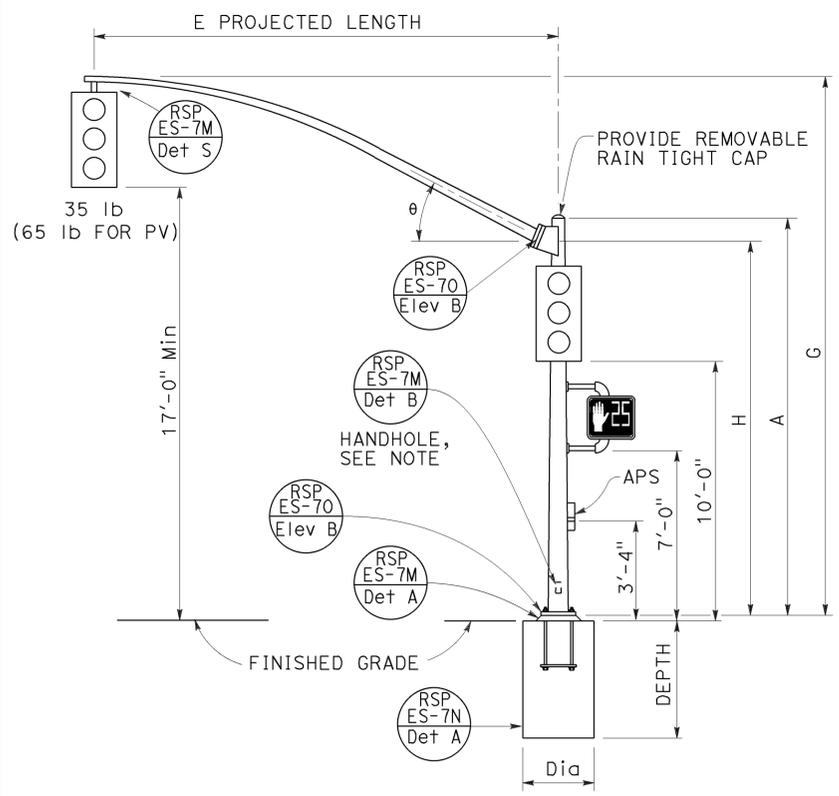
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	Ven	118	T19.8	44	54

July 15, 2016  
 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.

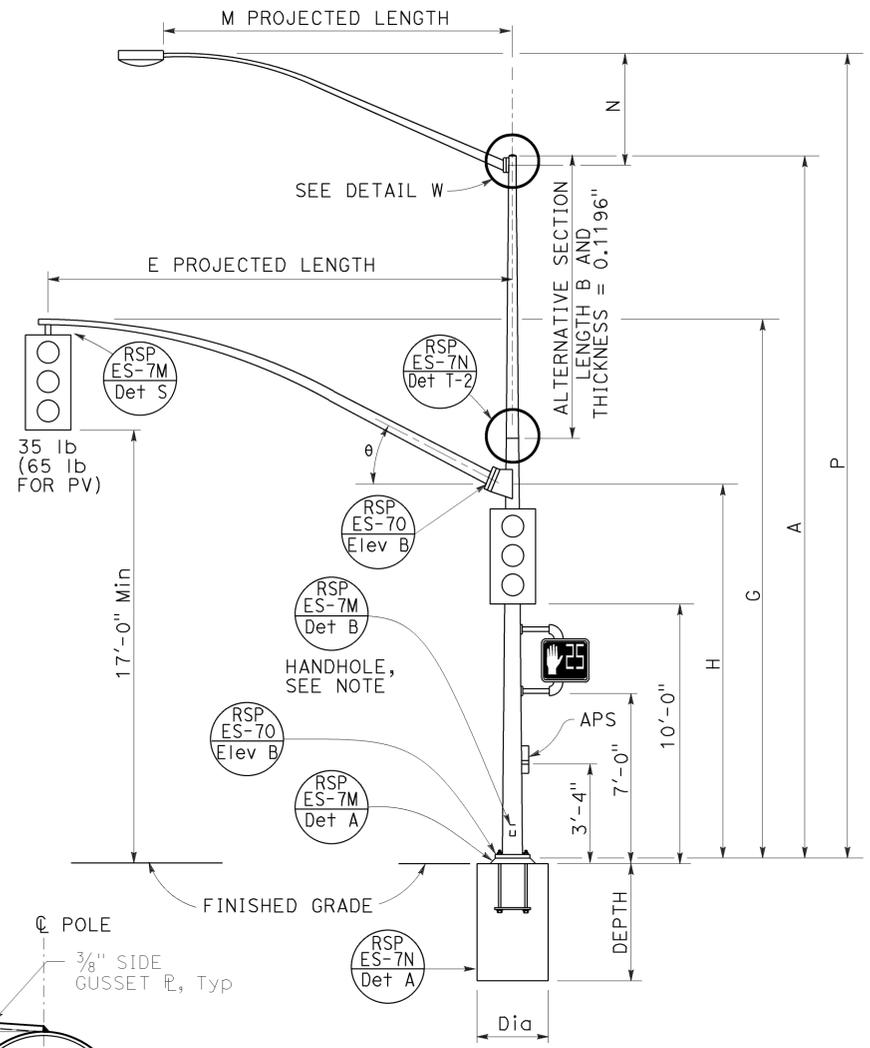


TO ACCOMPANY PLANS DATED 6-30-16

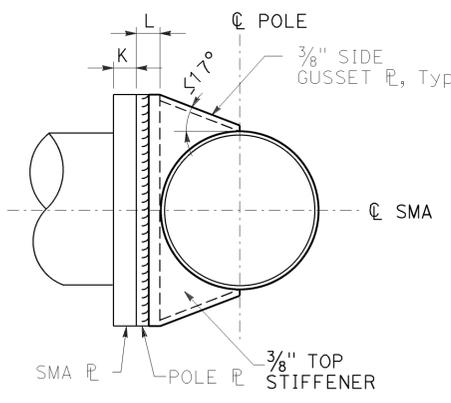
**NOTE:**  
Handhole shall be located on the downstream side of traffic.



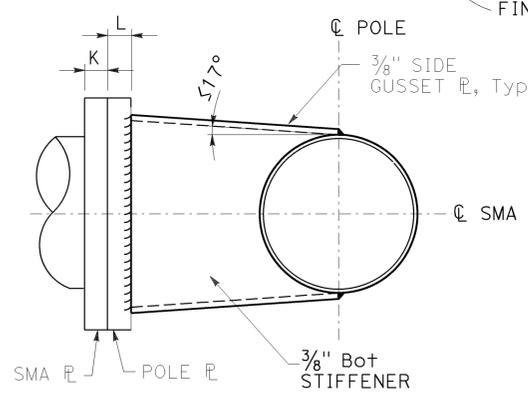
**TYPE 16-1-100, 18-1-100**  
ELEVATION A



**TYPE 19-1-100, 19A-1-100**  
ELEVATION B



SECTION B-B



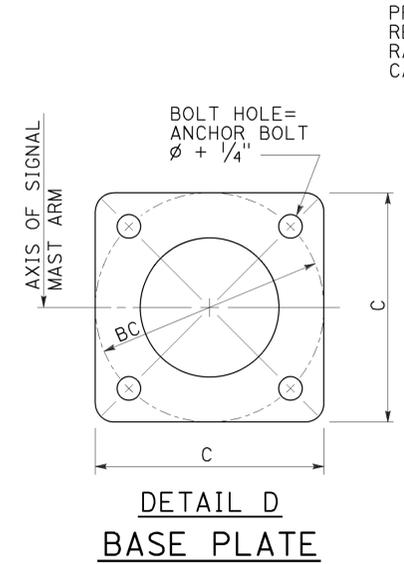
SECTION C-C

E PROJECTED LENGTH	G MOUNTING HEIGHT	H	Min OD AT POLE	THICKNESS	I BOLT CIRCLE	HS CAP SCREWS	J PLATE SIZE	M K MAST ARM P THICKNESS	L POLE P THICKNESS	θ
15'-0"	21'-8"±	17'-6"	7 3/8"	0.1793"	12"	1 1/4"-7NC-3"	1'-1"	1 1/4"	1 1/2"	23°
20'-0"			8"							
25'-0"	22'-8"±	16'-0"	9"							
30'-0"	23'-0"±		10"							

M PROJECTED LENGTH	N RISE	Min OD AT POLE	THICKNESS	P MOUNTING HEIGHT
6'-0"	2'-0"±	3 1/4"	0.1196"	30'-0" POLE
8'-0"	2'-6"±	3 1/2"		35'-0" POLE
10'-0"	3'-3"±	3 3/8"		30'-0" POLE
12'-0"	4'-3"±	3 7/8"		35'-0" POLE
15'-0"	4'-9"±	4 1/4"		30'-0" POLE

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	ALTERNATIVE SECTION			C			BC = BOLT CIRCLE	THICKNESS	ANCHOR BOLT SIZE	Dia	DEPTH								
				BASE	TOP		B LENGTH	BOTTOM	TOP																
16-1-100	1	100	18'-6"	12"	9 3/8"	0.2391" OR 0.25"	None			1'-6"	1'-4"	2"	1 3/4"φ x 42"	NONE	15'-0", [20'-0"]	3'-0"	9'-0"								
18-1-100			17'-0"				None																		
19-1-100			30'-0"	14"	9 3/4"		10'-0"	11 1/8"	9 3/4"									1'-10"	1'-8"	2 1/2"	2"φ x 42"	6'-15" [12'-0"]	25'-0", [30'-0"]	3'-6"	10'-0"
19A-1-100			35'-0"				15'-0"		9"																

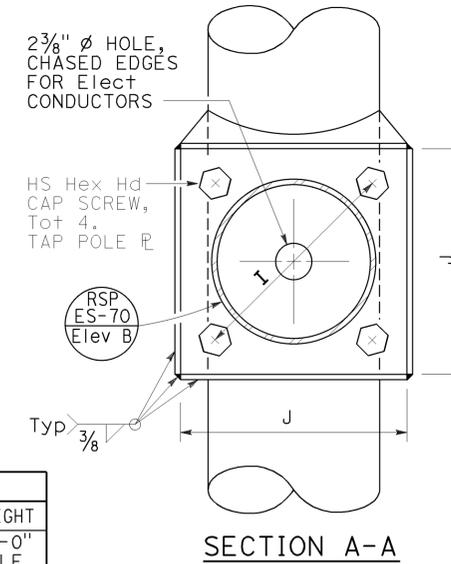
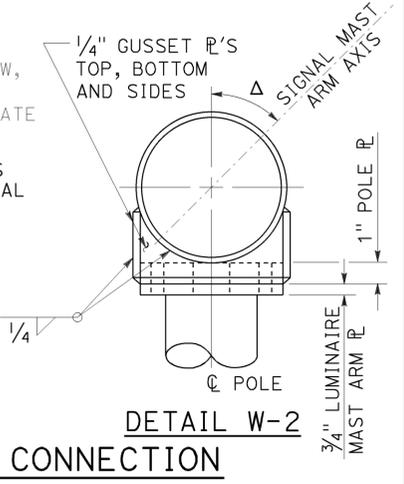
INDICATES MAST ARM LENGTH TO BE USED UNLESS OTHERWISE NOTED ON PLANS.



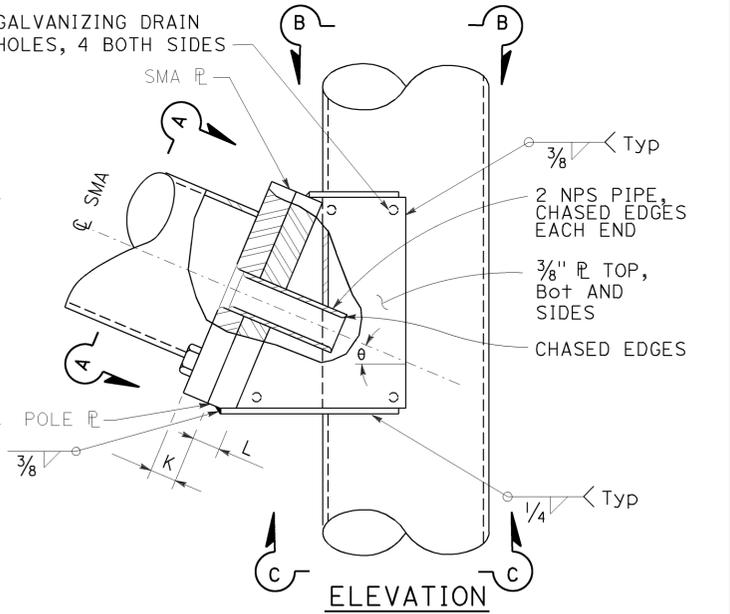
DETAIL D  
BASE PLATE



DETAIL W-1  
LUMINAIRE MAST ARM CONNECTION  
DETAIL W



SECTION A-A



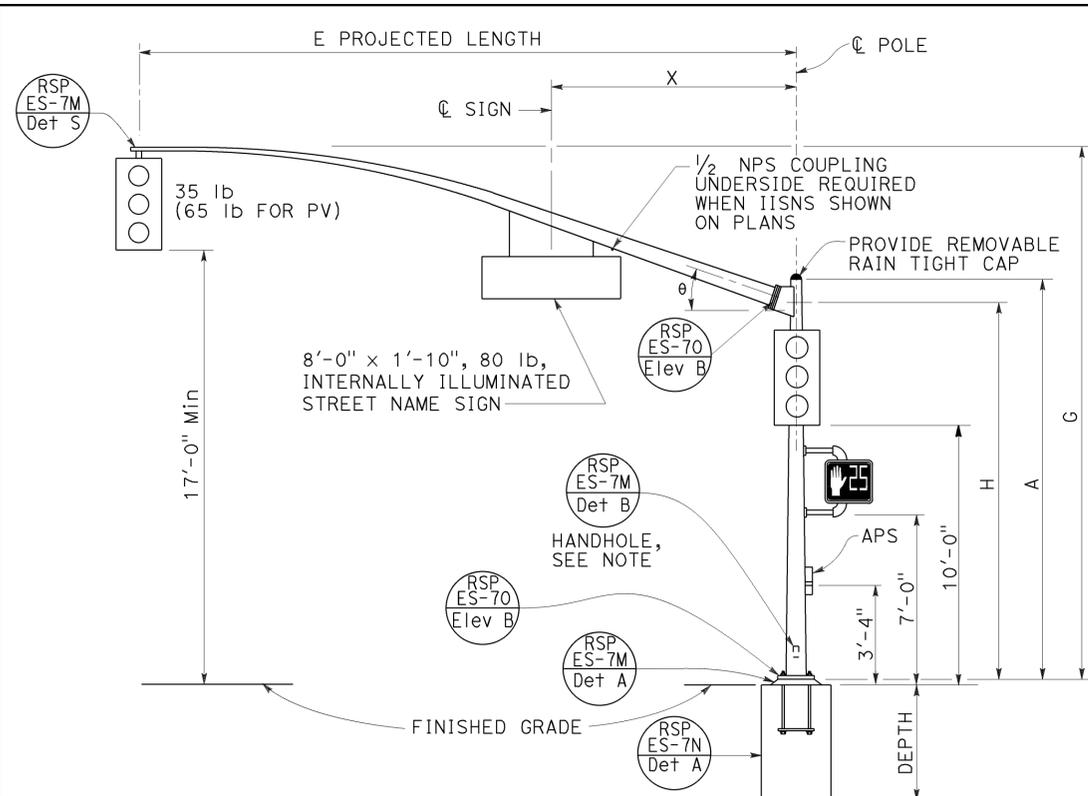
SIGNAL MAST ARM CONNECTION  
DETAIL A

**ELECTRICAL SYSTEMS (SIGNAL AND LIGHTING STANDARD, CASE 1 SIGNAL MAST ARM LOADING, WIND VELOCITY = 100 MPH AND SIGNAL MAST ARM LENGTHS 15' TO 30')**

NO SCALE  
RSP ES-7C DATED JULY 15, 2016 SUPERSEDES RSP ES-7C DATED OCTOBER 30, 2015 AND RSP ES-7C DATED JULY 19, 2013 AND STANDARD PLAN ES-7C DATED MAY 20, 2011 - PAGE 464 OF THE STANDARD PLANS BOOK DATED 2010.

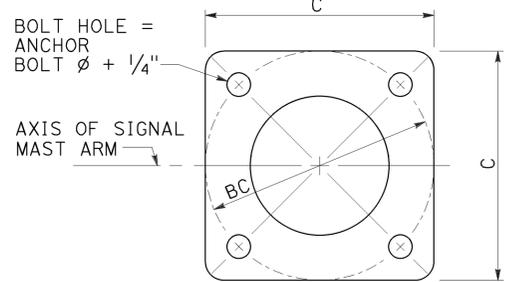
**REVISED STANDARD PLAN RSP ES-7C**

2010 REVISED STANDARD PLAN RSP ES-7C



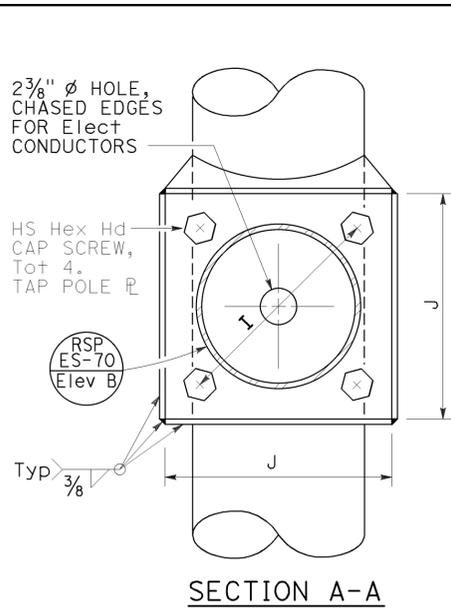
TYPE 16-2-100, 18-2-100

ELEVATION A



BASE PLATE

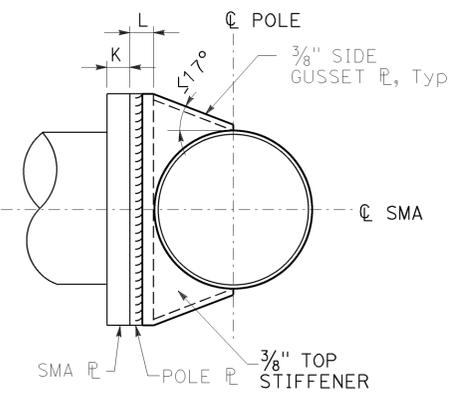
DETAIL B



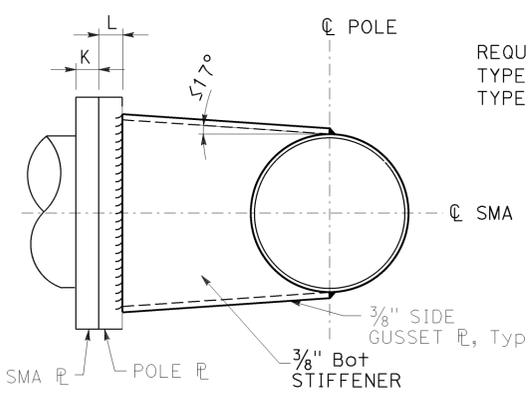
SECTION A-A

SIGNAL MAST ARM CONNECTION

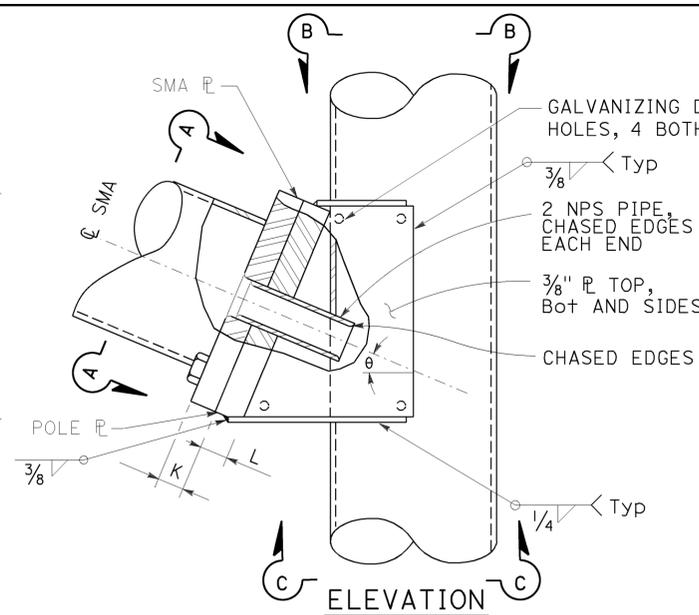
DETAIL A



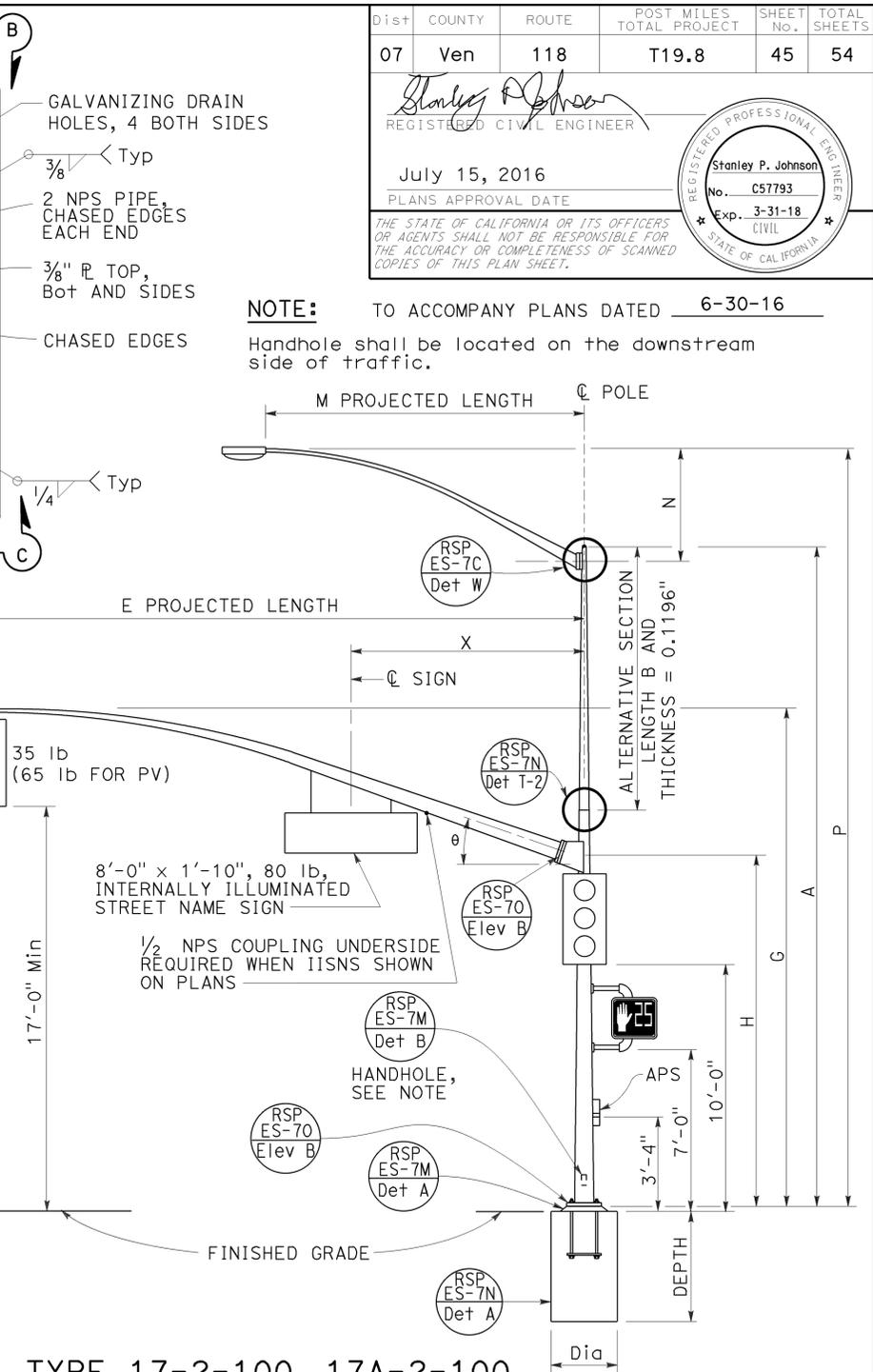
SECTION B-B



SECTION C-C



REQUIRED FOR TYPE 17-2-100 TYPE 17A-2-100



TYPE 17-2-100, 17A-2-100, 19-2-100, 19A-2-100

ELEVATION B

E PROJECTED LENGTH	G MOUNTING HEIGHT	H	Min OD AT POLE	THICKNESS	I BOLT CIRCLE	HS CAP SCREWS	J PLATE SIZE	K MAST ARM THICKNESS	L POLE THICKNESS	θ	X Max
15'-0"	21'-8"±	17'-6"	7 3/8"	0.1793"	12"	1 1/4"-7NC-3"	1'-1"	1 1/4"	1 1/2"	23°	10'-6"
20'-0"	21'-8"±	17'-6"	8"								
25'-0"	22'-8"±	16'-0"	9"	0.2391"	12"	1 1/4"-7NC-3"	1'-3"	1 1/4"	1 1/2"	23°	10'-6"
30'-0"	23'-0"±		10"								

M PROJECTED LENGTH	N RISE	Min OD AT POLE	THICKNESS	P MOUNTING HEIGHT
6'-0"	2'-0"±	3 1/4"	0.1196"	30'-0" POLE
8'-0"	2'-6"±	3 1/2"		35'-0" POLE
10'-0"	3'-3"±	3 3/8"	0.1196"	31'-6"±
12'-0"	4'-3"±	3 7/8"		32'-0"±
15'-0"	4'-9"±	4 1/4"	0.1196"	32'-9"±
				37'-0"±
				32'-9"±
				37'-9"±
				33'-9"±
				38'-9"±
				34'-3"±
				39'-3"±

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	B LENGTH	BOTTOM	TOP			C	BC = BOLT CIRCLE	THICKNESS	ANCHOR BOLT SIZE	Di
16-2-100	2	100	18'-6"	11 3/8"	0.2391" OR 0.25"				NONE	15'-0", 20'-0"	3'-6"	10'-0"			
17-2-100			30'-0"	9 3/4"		10'-0"	11 1/8"	9 3/4"	1'-10"				1'-8"	2 1/2"	2"φ x 42"
17A-2-100			35'-0"	9"		15'-0"		9"							
18-2-100			17'-0"	11 5/8"											
19-2-100			30'-0"	9 3/4"		10'-0"	11 1/8"	9 3/4"							
19A-2-100			35'-0"	11"		15'-0"	13 3/8"	11"	1'-11"				1'-9"	3"	2 1/4"φ x 42"

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 2 SIGNAL MAST ARM LOADING,  
 WIND VELOCITY=100 MPH AND SIGNAL  
 MAST ARM LENGTHS 15' TO 30')**  
 NO SCALE

RSP ES-7D DATED JULY 15, 2016 SUPERSEDES RSP ES-7D DATED OCTOBER 30, 2015 AND  
 RSP ES-7D DATED JULY 19, 2013 AND STANDARD PLAN ES-7D DATED MAY 20, 2011 -  
 PAGE 465 OF THE STANDARD PLANS BOOK DATED 2010.

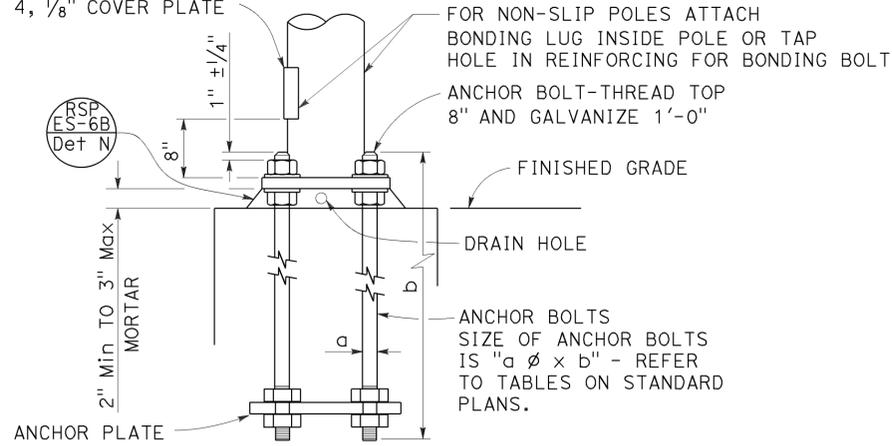
**REVISED STANDARD PLAN RSP ES-7D**

2010 REVISED STANDARD PLAN RSP ES-7D





4" x 6 1/2" ROUNDED RECTANGLE HANDHOLE REINFORCED WITH RING WELDED TO OUTSIDE OF POLE. SEE NOTE 4, 1/8" COVER PLATE



**HANDHOLE AND ANCHORAGE**  
**DETAIL A**

**IDENTIFICATION NUMBER**

1. Attach a stamped metal tag with pole's identification number above the handhole. 1/4" high number, minimum.
2. Attach a stamped metal tag with mast arm's identification number to the bottom of the signal mast arm near the pole plate. 1/4" high number, minimum.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	Ven	118	T19.8	48	54

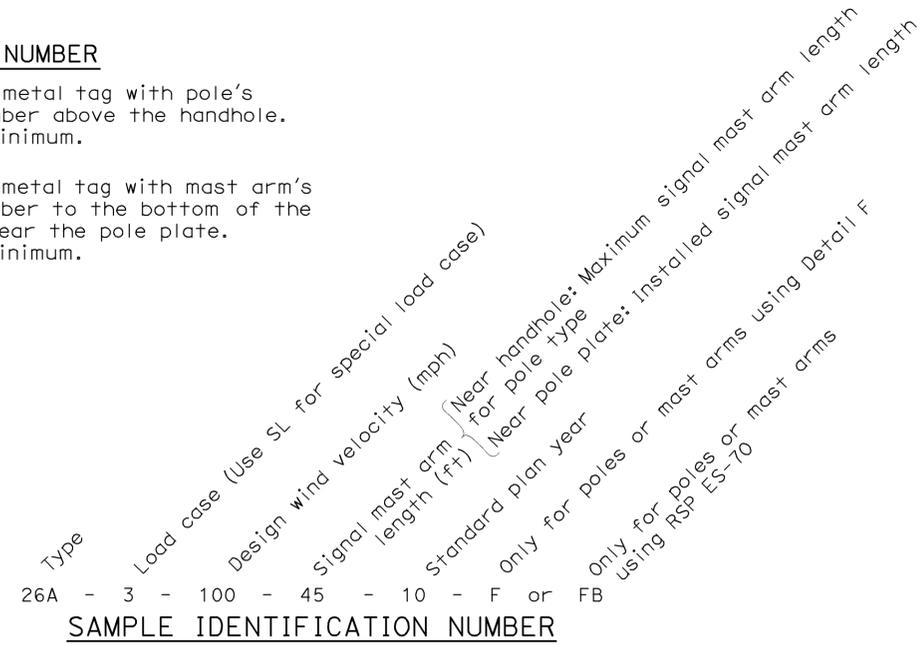
Stanley P. Johnson  
REGISTERED CIVIL ENGINEER

July 15, 2016  
PLANS APPROVAL DATE

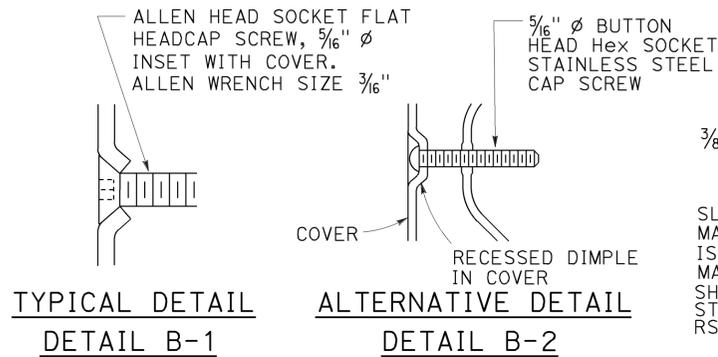
Stanley P. Johnson  
No. C57793  
Exp. 3-31-18  
CIVIL  
STATE OF CALIFORNIA

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 6-30-16

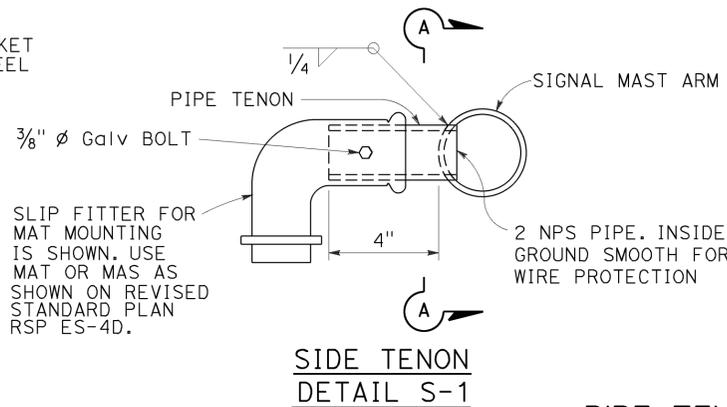


**SAMPLE IDENTIFICATION NUMBER**

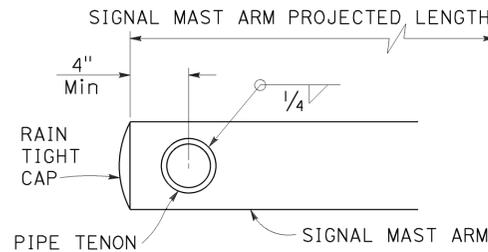


**TYPICAL DETAIL**  
**DETAIL B-1**

**ALTERNATIVE DETAIL**  
**DETAIL B-2**



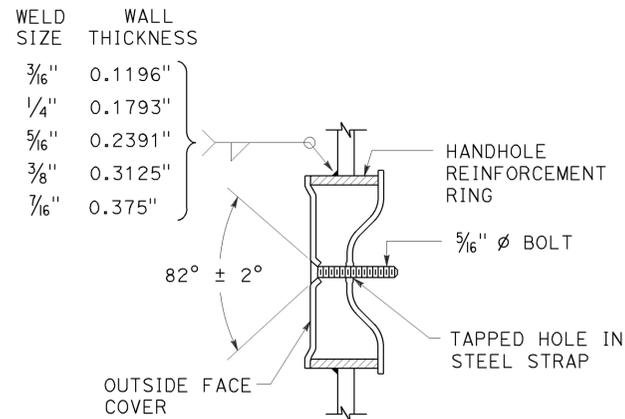
**SIDE TENON**  
**DETAIL S-1**



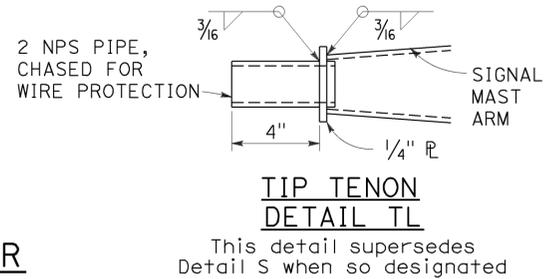
**SECTION A-A**

**NOTES:**

1. Provide a Hex nut, leveling nut and 2 washers for each bolt.
2. Luminaire mast arms shall be round, tapered steel tubes, taper of 0.1375" to 0.143-inch per foot with an end section 2 3/8" OD for mounting hardware. Extensions of 2 NPS Standard pipe and 7" long may be used at the option of the manufacturer. When low pressure sodium luminaires are required, the extension shall be 1'-3".
3. Signal mast arms shall be round, tapered steel tubes, maximum taper 0.143-inch per foot.
4. Handhole reinforcement ring shall be 1/4" x 2" for 0.1196" to 0.2391" thick poles, 3/8" x 2" for 0.3125" to 0.375" thick poles.
5. Handholes shall be located on the downstream side of traffic.
6. Detail F, fatigue resistant weld, is required at socket welded signal mast arm plate and pole base plate.
7. Cap screws shall be tightened by the turn-of-nut method 1/3 turn from a snug tight condition. No washer will be required.
8. Outside diameter, wall thickness, and corresponding section properties of poles and mast arms as shown in the Standard Plans are minimums. Unless otherwise specified, alternative sections shall require approval by the Engineer.
9. Design: AASHTO Standard Specifications for Structural Support for Highway Signs, Luminaires, and Traffic Signals, 6th Edition. Basic Wind Speed = 100 mph (3 seconds gust). Yearly Mean Wind Velocity = 15.6 mph.
10. Materials (Structural steel):  
fy = 55,000 psi (tapered steel tube and anchor bolts)  
fy = 50,000 psi (unless otherwise noted)
11. Materials (Reinforced concrete):  
f'c = 3,625 psi  
fy = 60,000 psi

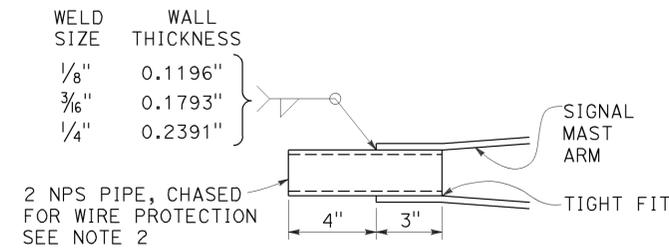


**TAMPER RESISTANT HANDHOLE COVER**  
**DETAIL B**

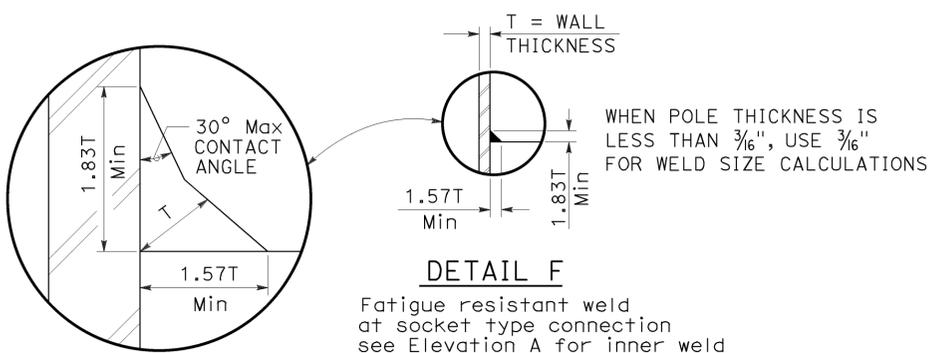


**TIP TENON**  
**DETAIL TL**  
This detail supersedes Detail S when so designated

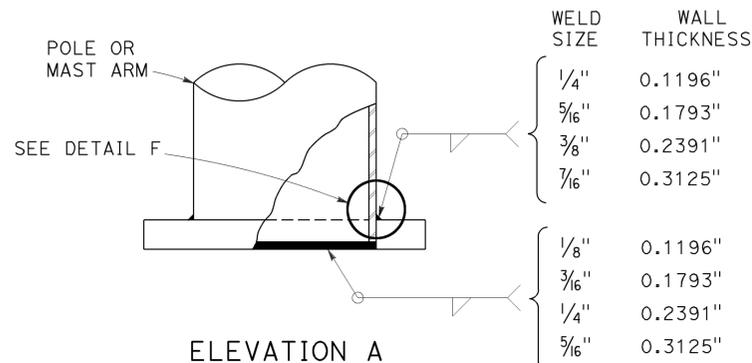
**PIPE TENONS**  
**DETAIL S**



**TIP TENON**  
**DETAIL TS**



**DETAIL F**  
Fatigue resistant weld at socket type connection see Elevation A for inner weld



**ELEVATION A**

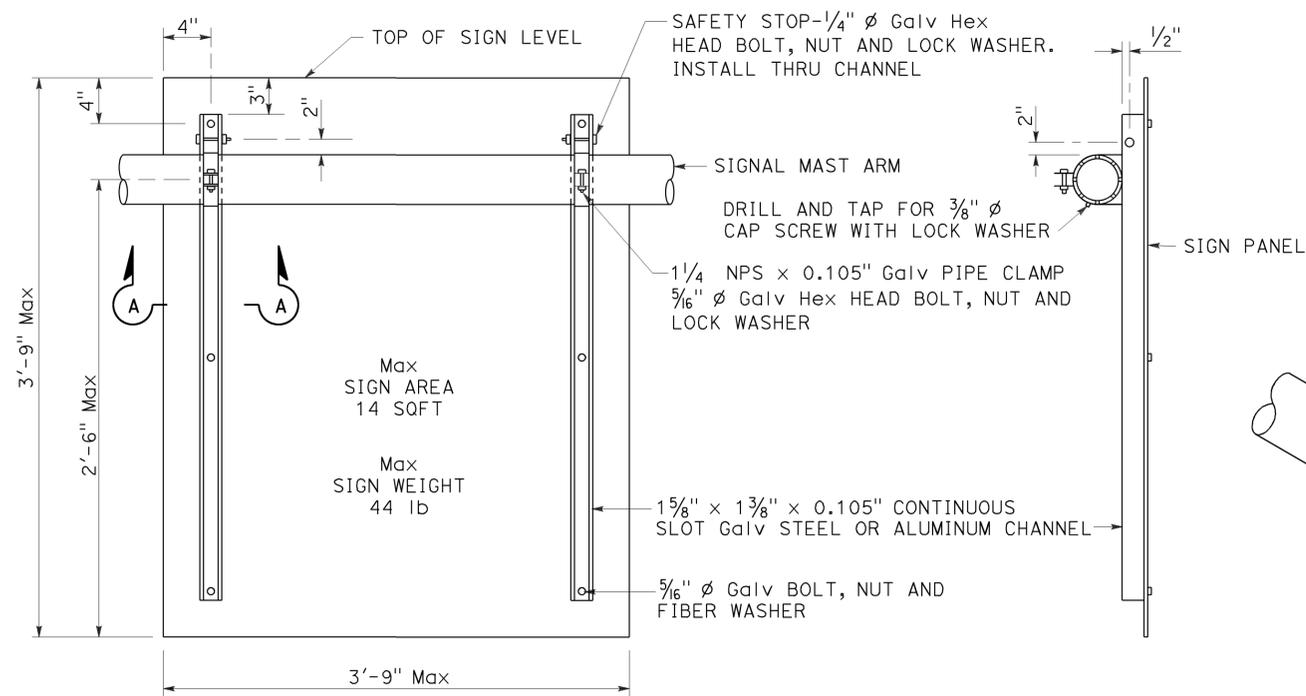
STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**ELECTRICAL SYSTEMS**  
**(SIGNAL AND LIGHTING STANDARD,**  
**DETAIL No. 1)**

NO SCALE

RSP ES-7M DATED JULY 15, 2016 SUPERSEDES RSP ES-7M DATED OCTOBER 30, 2015 AND STANDARD PLAN ES-7M DATED MAY 20, 2011 - PAGE 474 OF THE STANDARD PLANS BOOK DATED 2010.

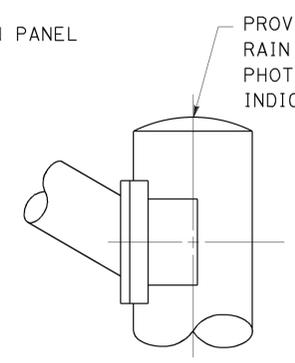
2010 REVISED STANDARD PLAN RSP ES-7N



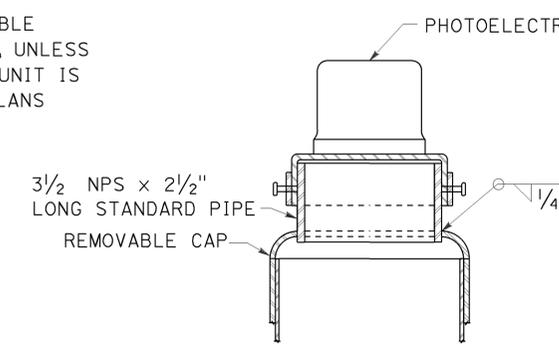
REAR VIEW

SIDE VIEW

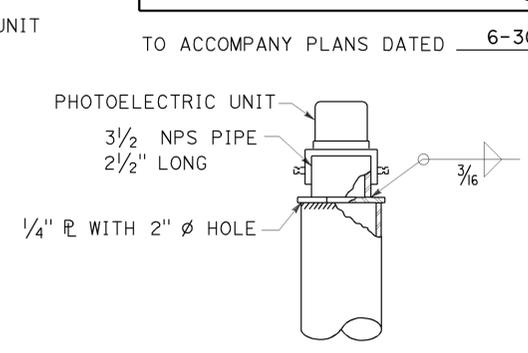
SIGN MOUNTING DETAILS  
DETAIL U



STANDARD TOP  
DETAIL B-1

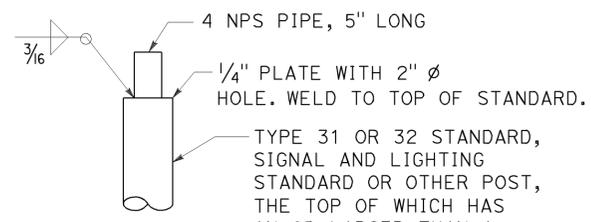


MOUNTING ADAPTER FOR  
PHOTOELECTRIC UNIT  
DETAIL B-2

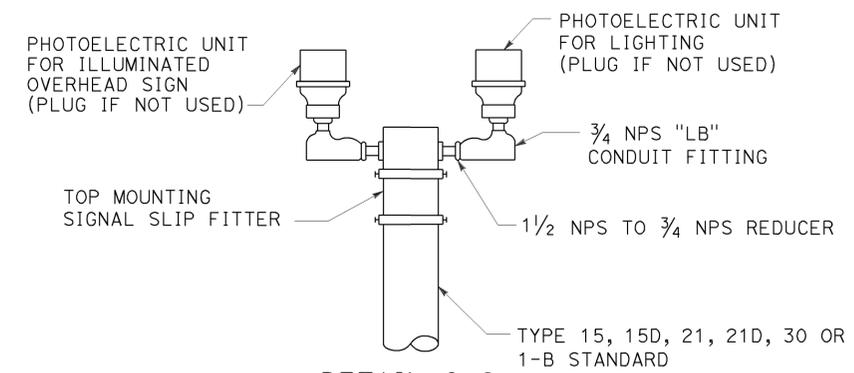


ALTERNATIVE  
MOUNTING ADAPTER  
DETAIL B-3

POLE TOP DETAILS  
DETAIL B



DETAIL C-1



DUAL PHOTOELECTRIC UNIT MOUNTING DETAIL  
DETAIL C

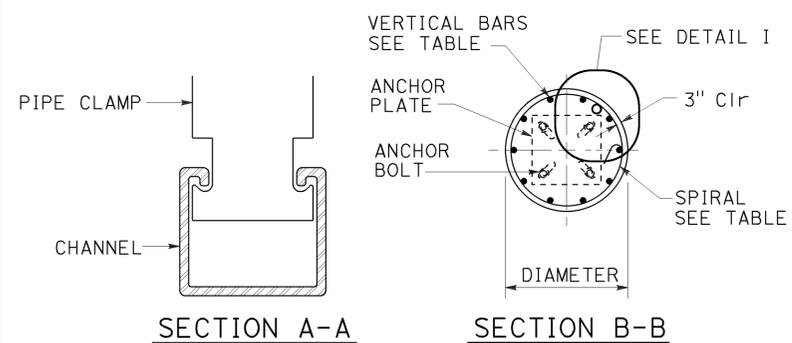
STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**ELECTRICAL SYSTEMS  
(SIGNAL AND LIGHTING STANDARD,  
DETAIL No. 2)**

NO SCALE

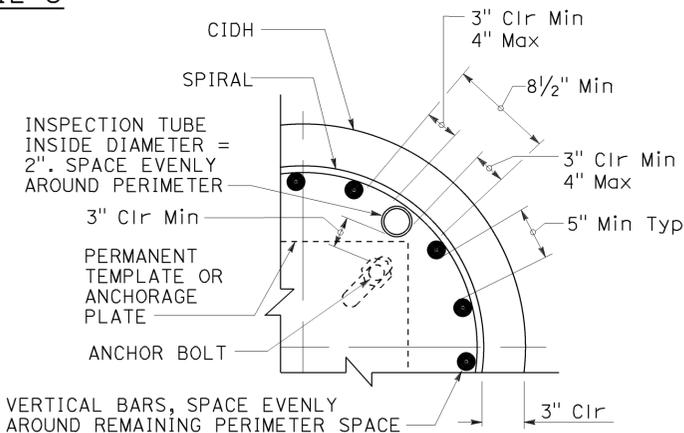
RSP ES-7N DATED JULY 15, 2016 SUPERSEDES RSP ES-7N DATED OCTOBER 30, 2015 AND STANDARD PLAN ES-7N DATED MAY 20, 2011 - PAGE 475 OF THE STANDARD PLANS BOOK DATED 2010.

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



SECTION A-A

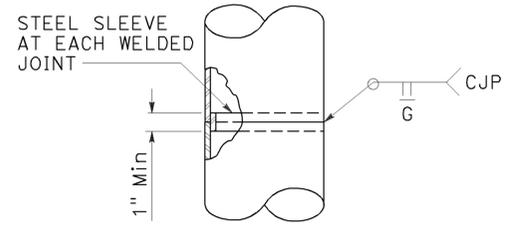
SECTION B-B



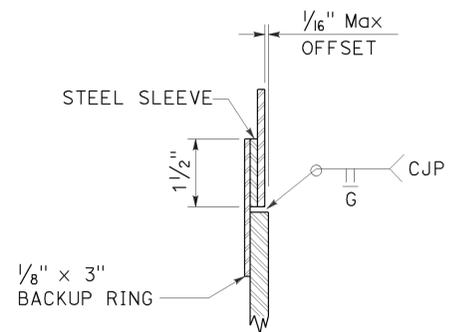
INSPECTION TUBE PLACEMENT  
DETAIL I

CIDH REINFORCING AND INSPECTION TUBE SCHEDULE			
CIDH DIAMETER	VERTICAL BARS	SPIRAL	INSPECTION TUBE
2 ft	8-#5	#4 AT 6	2
2.5 ft	10-#6		4*
3 ft	12-#7		
3.5 ft	14-#8	#5 AT 6	4
4 ft	18-#9	2-#4 AT 7	5
4.5 ft	18-#9	2-#5 AT 7	5
5 ft	22-#10	2-#5 AT 7	6
6 ft	26-#11	2-#6 AT 7	7

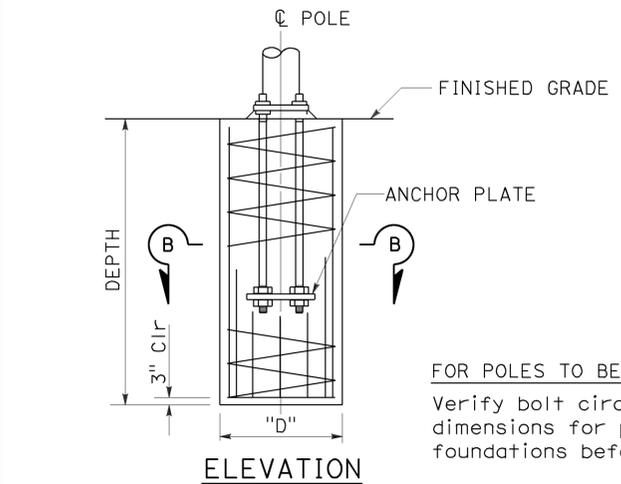
\* FOR SLIP BASE VERSIONS WITH 3 ANCHOR BOLTS USE 3 INSPECTION TUBES.



FOR UNIFORM TUBE THICKNESS  
DETAIL T-1



AT TUBE THICKNESS CHANGE  
DETAIL T-2



ELEVATION

CAST-IN-DRILLED-HOLE PILE FOUNDATION,  
REINFORCED PILE  
DETAIL A

FOR POLES TO BE INSTALLED ON EXISTING FOUNDATION:  
Verify bolt circles, anchor bolt sizes and dependent dimensions for poles to be installed on existing foundations before fabricating the poles.

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	Ven	118	T19.8	50	54

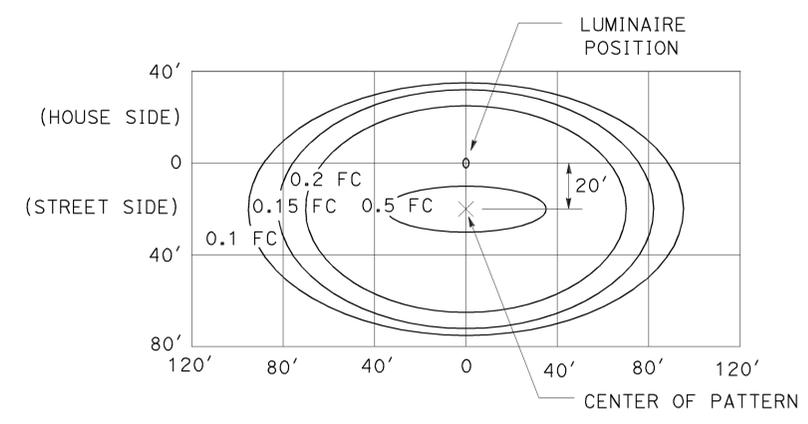
*Theresa Gabriel*  
 REGISTERED ELECTRICAL ENGINEER  
 Theresa Aziz Gabriel  
 No. E15129  
 Exp. 6-30-16  
 ELECTRICAL  
 STATE OF CALIFORNIA

October 30, 2015  
 PLANS APPROVAL DATE

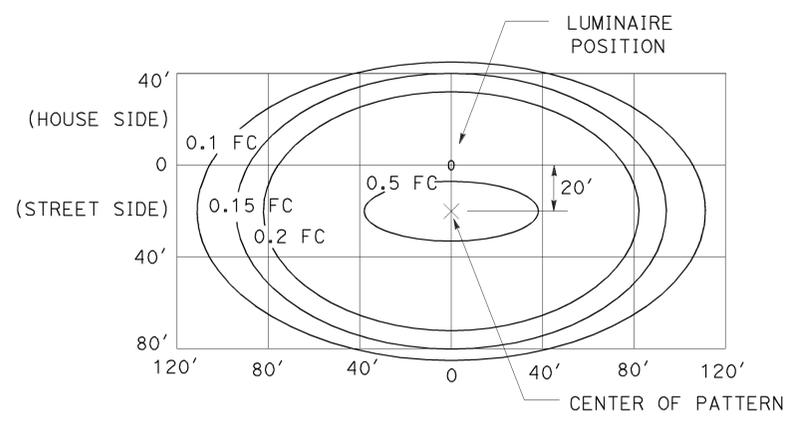
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

TO ACCOMPANY PLANS DATED 6-30-16

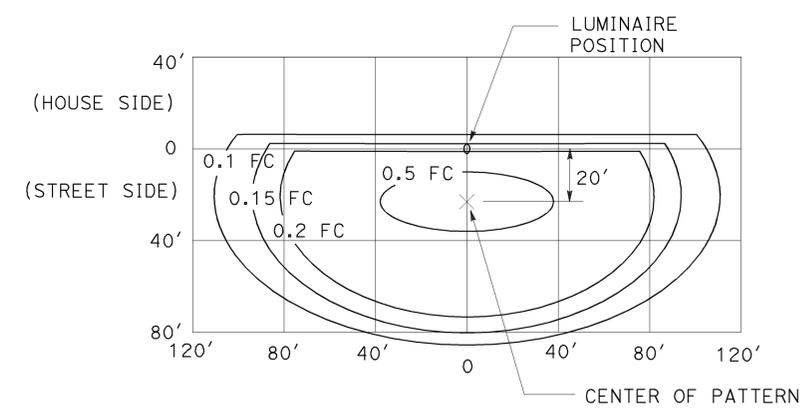
**NOTE:**  
Curves represent the minimum footcandle (FC).



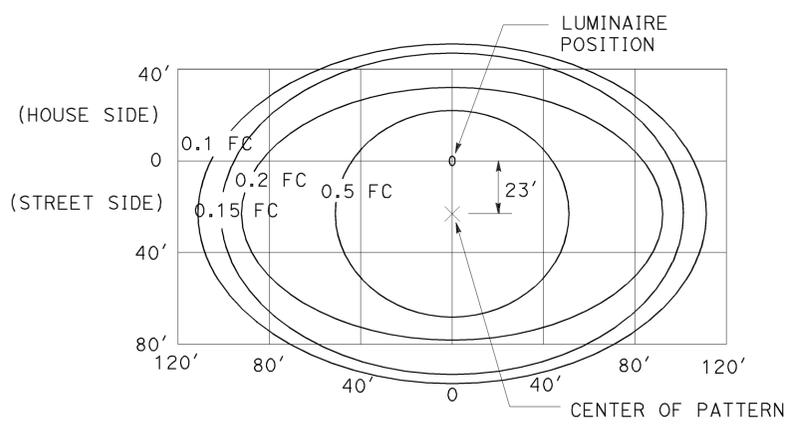
**LED LUMINAIRE 165 W**  
34' Mounting Height



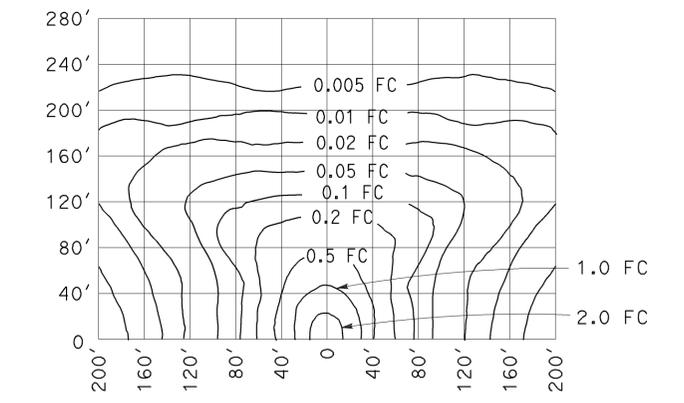
**LED LUMINAIRE 235 W**  
40' Mounting Height



**LED LUMINAIRE 235 W**  
40' Mounting Height  
with back side control



**LED LUMINAIRE 300 W**  
40' Mounting Height



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

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**ELECTRICAL SYSTEMS  
(ISOFOOTCANDLE CURVES)**

NO SCALE

RSP ES-10A DATED OCTOBER 30, 2015 SUPERSEDES RSP ES-10A DATED JULY 19, 2013 THAT SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.

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

2010 REVISED STANDARD PLAN RSP ES-10A

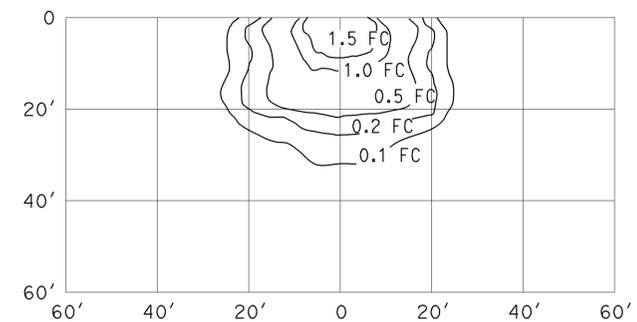
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	Ven	118	T19.8	51	54

*Theresa Gabriel*  
 REGISTERED ELECTRICAL ENGINEER  
 October 30, 2015  
 PLANS APPROVAL DATE

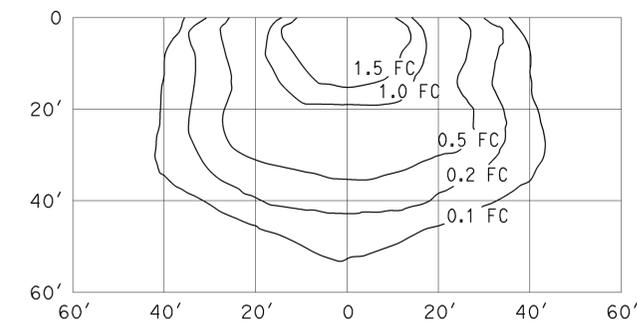
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

TO ACCOMPANY PLANS DATED 6-30-16

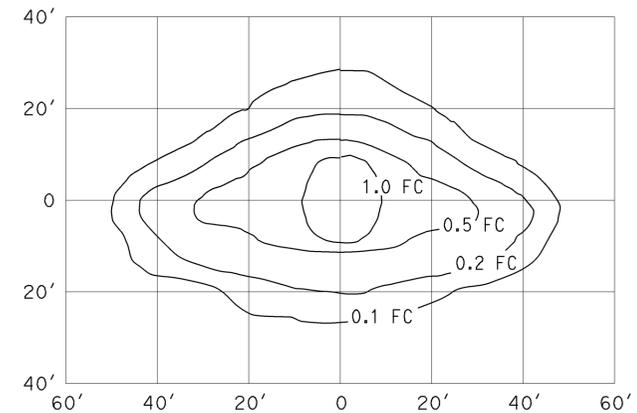
**NOTE:**  
Curves represent the minimum footcandle (FC).



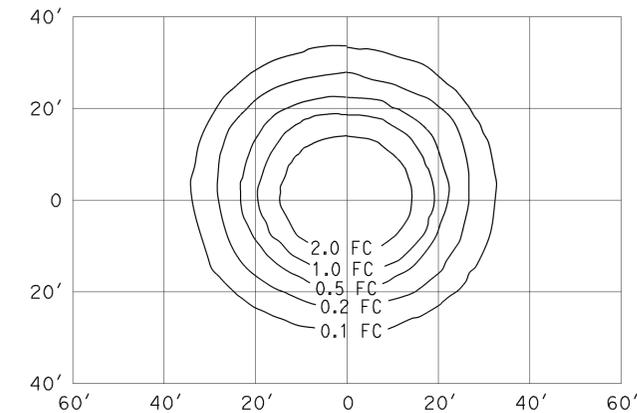
**HIGH-PRESSURE SODIUM  
WALL-MOUNTED LUMINAIRE 70 W**  
15' Mounting Height  
ANSI Designation S62  
Lamp operated at 5,800 lm



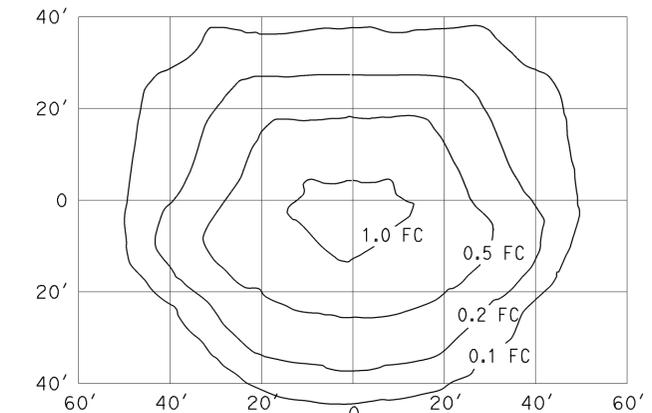
**HIGH-PRESSURE SODIUM  
WALL-MOUNTED LUMINAIRE 100 W**  
15' Mounting Height  
ANSI Designation S54  
Lamp operated at 9,500 lm



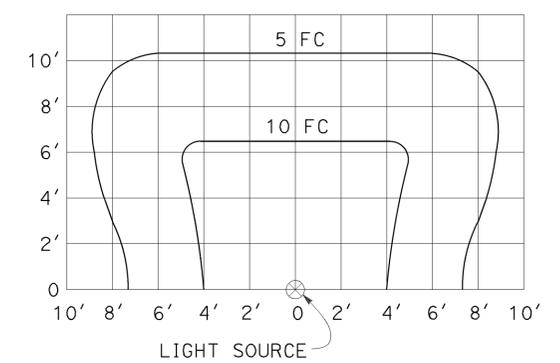
**HIGH-PRESSURE SODIUM  
PENDANT SOFFIT LUMINAIRE 70 W  
TYPE III SHORT**  
17' Mounting Height  
ANSI Designation S62  
Lamp operated at 5,800 lm



**HIGH-PRESSURE SODIUM  
PENDANT SOFFIT LUMINAIRE 70 W**  
17' Mounting Height  
ANSI Designation S62  
Lamp operated at 5,800 lm



**HIGH-PRESSURE SODIUM  
FLUSH-MOUNTED SOFFIT LUMINAIRE 70 W**  
17' Mounting Height  
ANSI Designation S62  
Lamp operated at 5,800 lm



**INDUCTION SIGN  
LIGHTING FIXTURE 85 W**

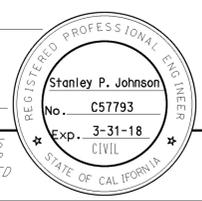
STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**ELECTRICAL SYSTEMS  
(ISOFOOTCANDLE CURVES)**

NO SCALE

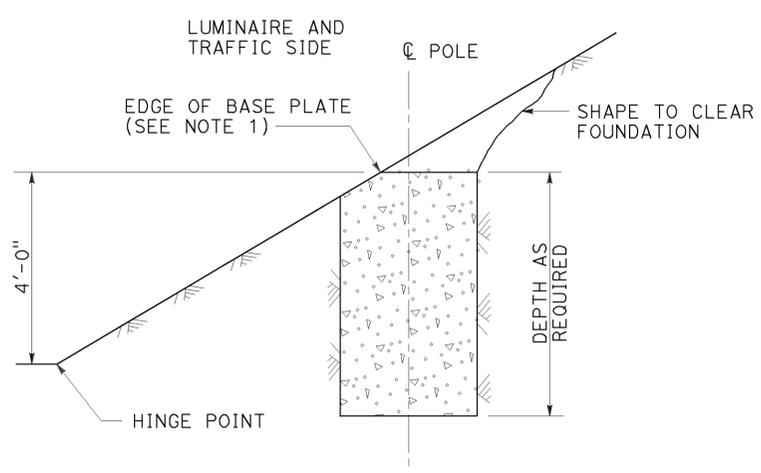
RSP ES-10B DATED OCTOBER 30, 2015 SUPERSEDES RSP ES-10B DATED JULY 20, 2012 THAT SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.

2010 REVISED STANDARD PLAN RSP ES-10B

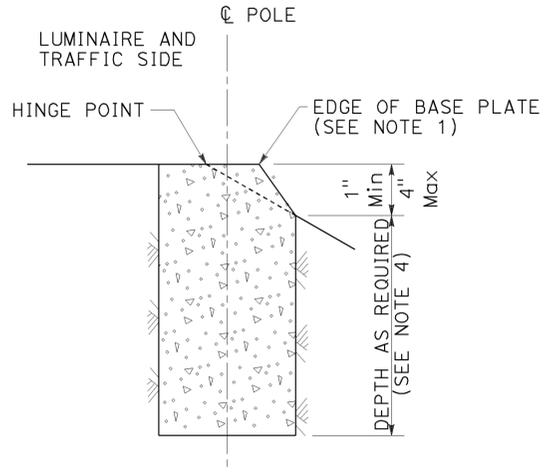


TO ACCOMPANY PLANS DATED 6-30-16

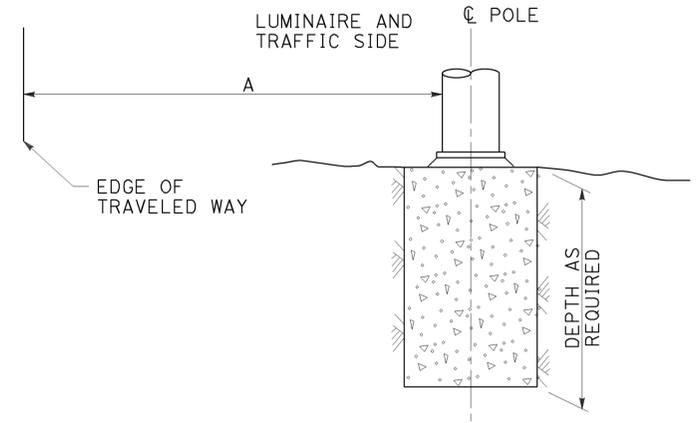
STANDARD TYPE	SETBACK (DIMENSION A)
32	30'-0" (Min)
31	20'-0" (Min)
15, 15D, 15-SB, 21, 21D, 30	ARM LENGTH (Min)



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

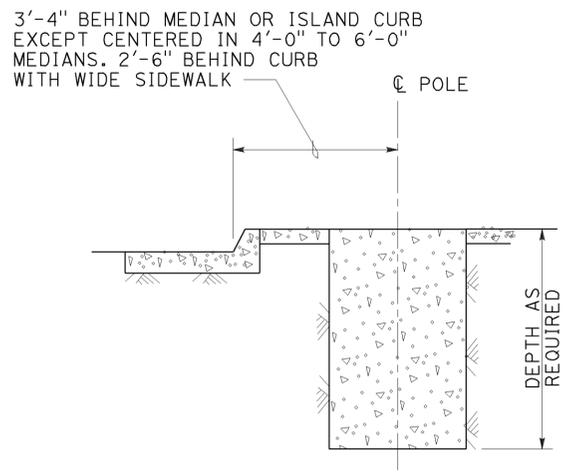


FLAT SECTIONS, CUT OR FILL SLOPES  
4:1 OR FLATTER  
DETAIL A-3  
See Note 2

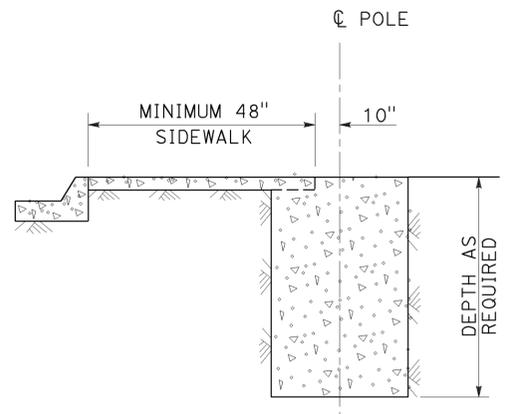
FOUNDATIONS ADJACENT TO ALL ROADWAYS EXCEPT  
IN SIDEWALK, MEDIAN AND ISLAND AREAS  
DETAIL A

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 15, 2016 SUPERSEDES RSP  
ES-11 DATED JULY 19, 2013 AND STANDARD PLAN ES-11  
DATED MAY 20, 2011 - PAGE 488 OF THE STANDARD PLANS BOOK DATED 2010.

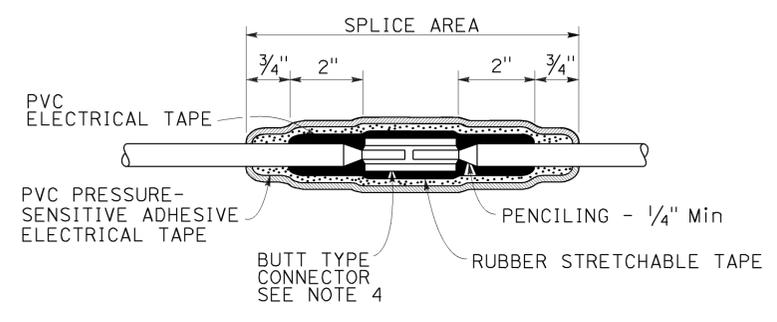
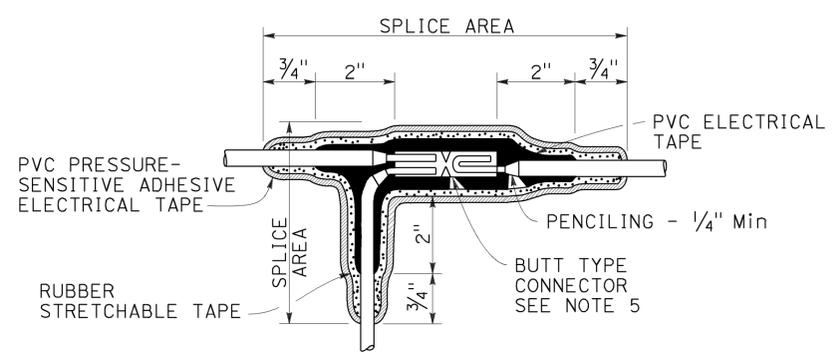
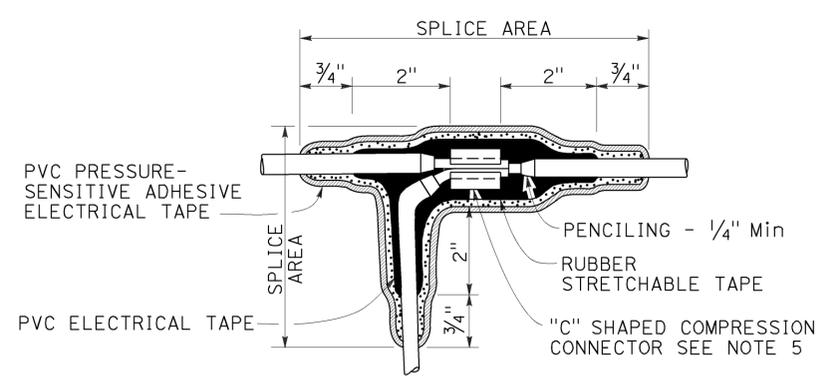
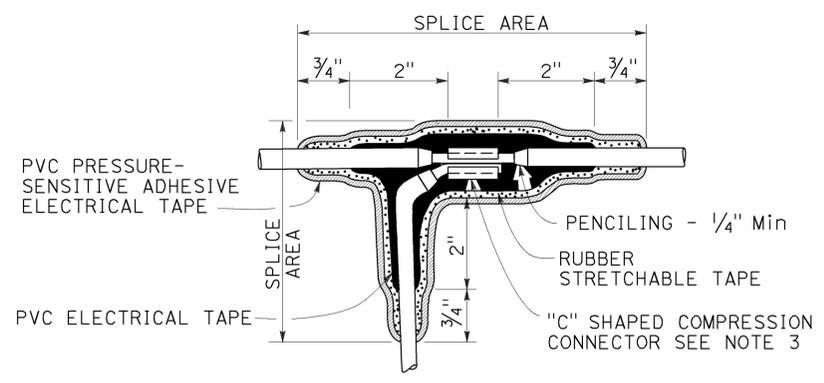
2010 REVISED STANDARD PLAN RSP ES-11

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
07	Ven	118	T19.8	53	54

Theresa Gabriel  
 REGISTERED ELECTRICAL ENGINEER  
 April 15, 2016  
 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.



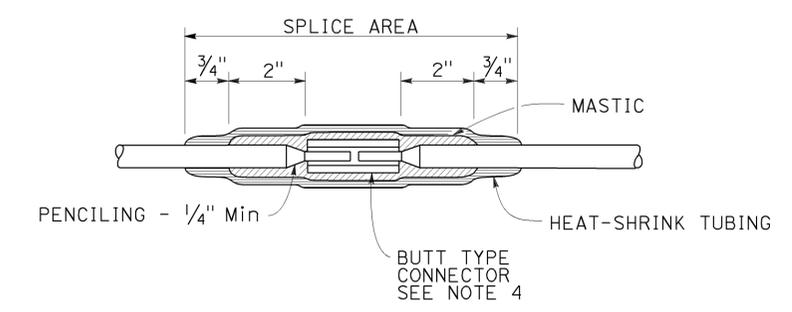
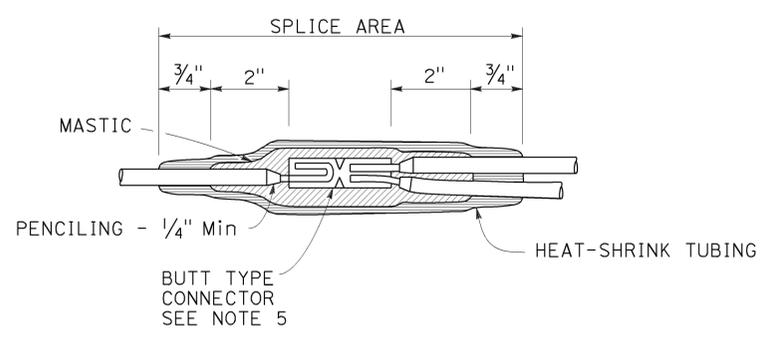
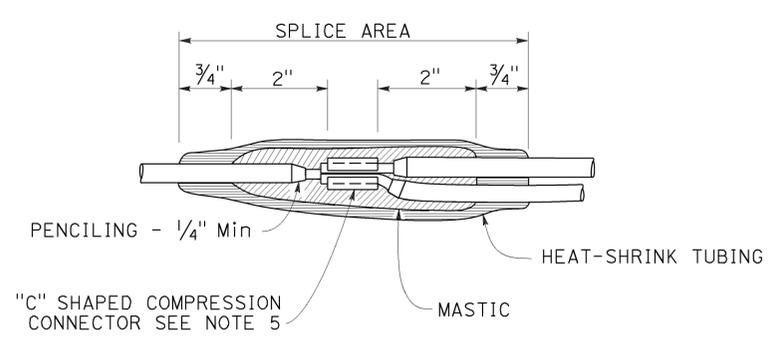
TO ACCOMPANY PLANS DATED 6-30-16



**NOTES:**

1. Dimensions are minimum.
2. Rubber tapes shall be rolled after application.
3. Between 1 free-end and 1 through conductor.
4. Between 2 free-end conductors.
5. Between 3 free-end conductors.

**TYPICAL SPLICE INSULATION METHOD B**



**TYPICAL SPLICE INSULATION HEAT-SHRINK TUBING**

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**ELECTRICAL SYSTEMS  
 (SPLICE INSULATION METHODS DETAILS)**

NO SCALE  
 RSP ES-13A DATED APRIL 15, 2016 SUPERSEDES RSP ES-13A DATED OCTOBER 30, 2015 AND STANDARD PLAN ES-13A DATED MAY 20, 2011 - PAGE 491 OF THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP ES-13A**

2010 REVISED STANDARD PLAN RSP ES-13A

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	Ven	118	T19.8	54	54

*Theresa Gabriel*  
 REGISTERED ELECTRICAL ENGINEER  
 Theresa Aziz Gabriel  
 No. E15129  
 Exp. 6-30-16  
 ELECTRICAL  
 STATE OF CALIFORNIA

April 15, 2016  
 PLANS APPROVAL DATE

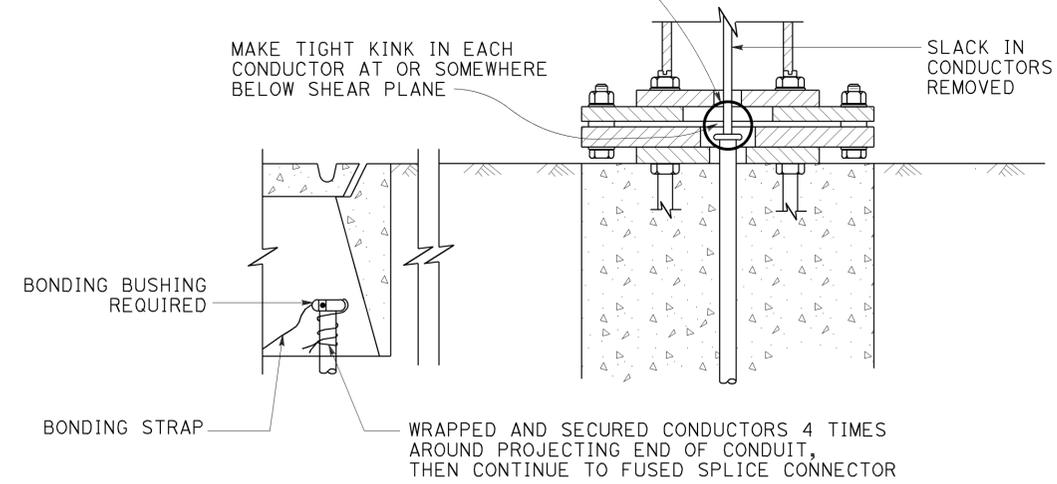
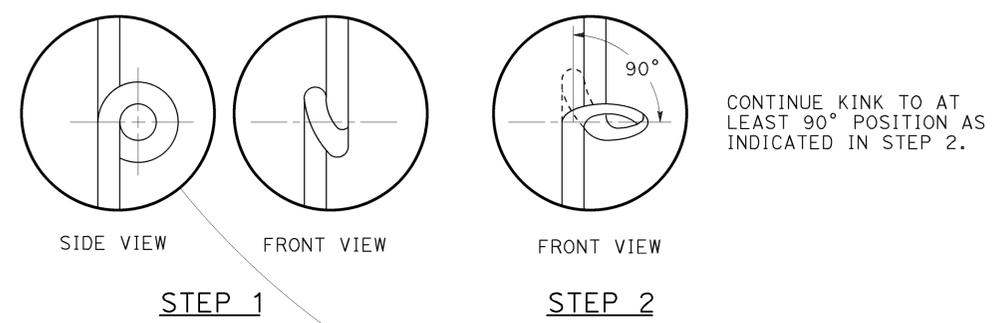
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

TO ACCOMPANY PLANS DATED 6-30-16

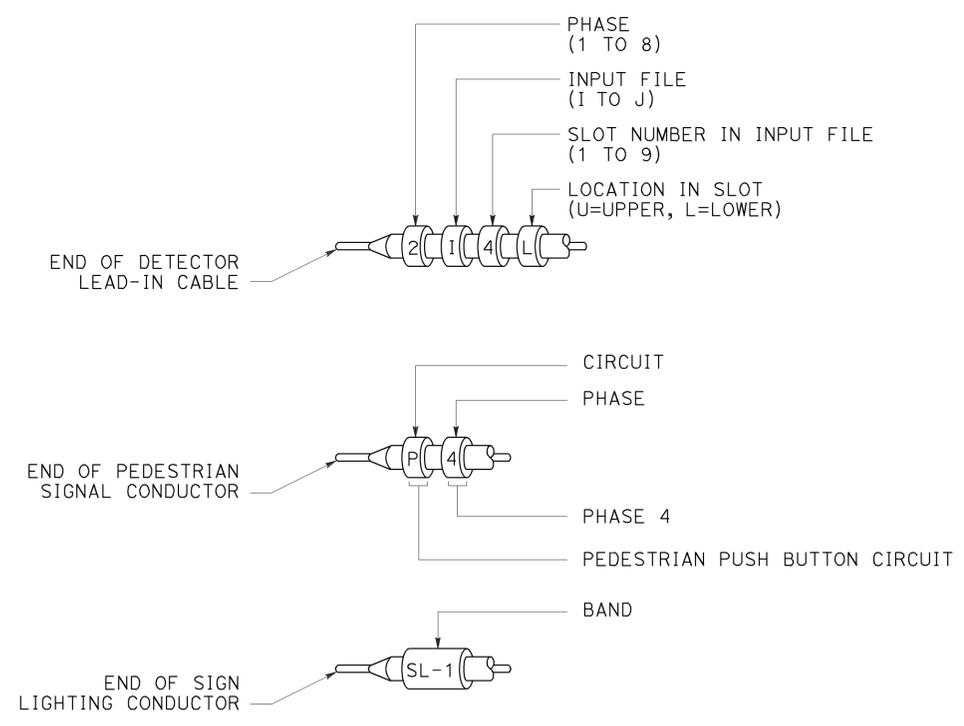
CIRCUIT VOLTAGE	FUSE VOLTAGE RATING	FUSE CURRENT RATING						
		HPS LAMP BALLAST		LOW PRESSURE SODIUM BALLAST	INDUCTION SIGN LIGHTING	SINGLE PHASE (TWO WIRE) TRANSFORMERS (PRIMARY SIDE)		
		70 W	100 W	180 W	85 W	1 KVA	2 KVA	3 KVA
120 V	250 V	5 A	5 A	5 A	5 A	10 A	20 A	30 A
240 V	250 V	5 A	5 A	5 A	5 A	6 A	10 A	20 A
480 V	500-600 V	5 A	5 A	3 A	1 A (SEE NOTE 2)	3 A	6 A	10 A

- NOTES:**
- Primary lines of multiple ballasts shall be provided with fused connectors. Fuse ratings shall be as noted above.
  - See Revised Standard Plan RSP ES-15D, Type SC3 control.

**FUSE RATINGS FOR FUSED CONNECTORS**



**KINKING DETAIL FOR SLIP BASE STANDARDS**  
DETAIL A



**TYPICAL BANDING DETAILS**  
DETAIL B

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**ELECTRICAL SYSTEMS**  
**(FUSE RATING, KINKING AND BANDING DETAIL)**

NO SCALE

RSP ES-13B DATED APRIL 15, 2016 SUPERSEDES STANDARD PLAN ES-13B DATED MAY 20, 2011 - PAGE 492 OF THE STANDARD PLANS BOOK DATED 2010.

2010 REVISED STANDARD PLAN RSP ES-13B