

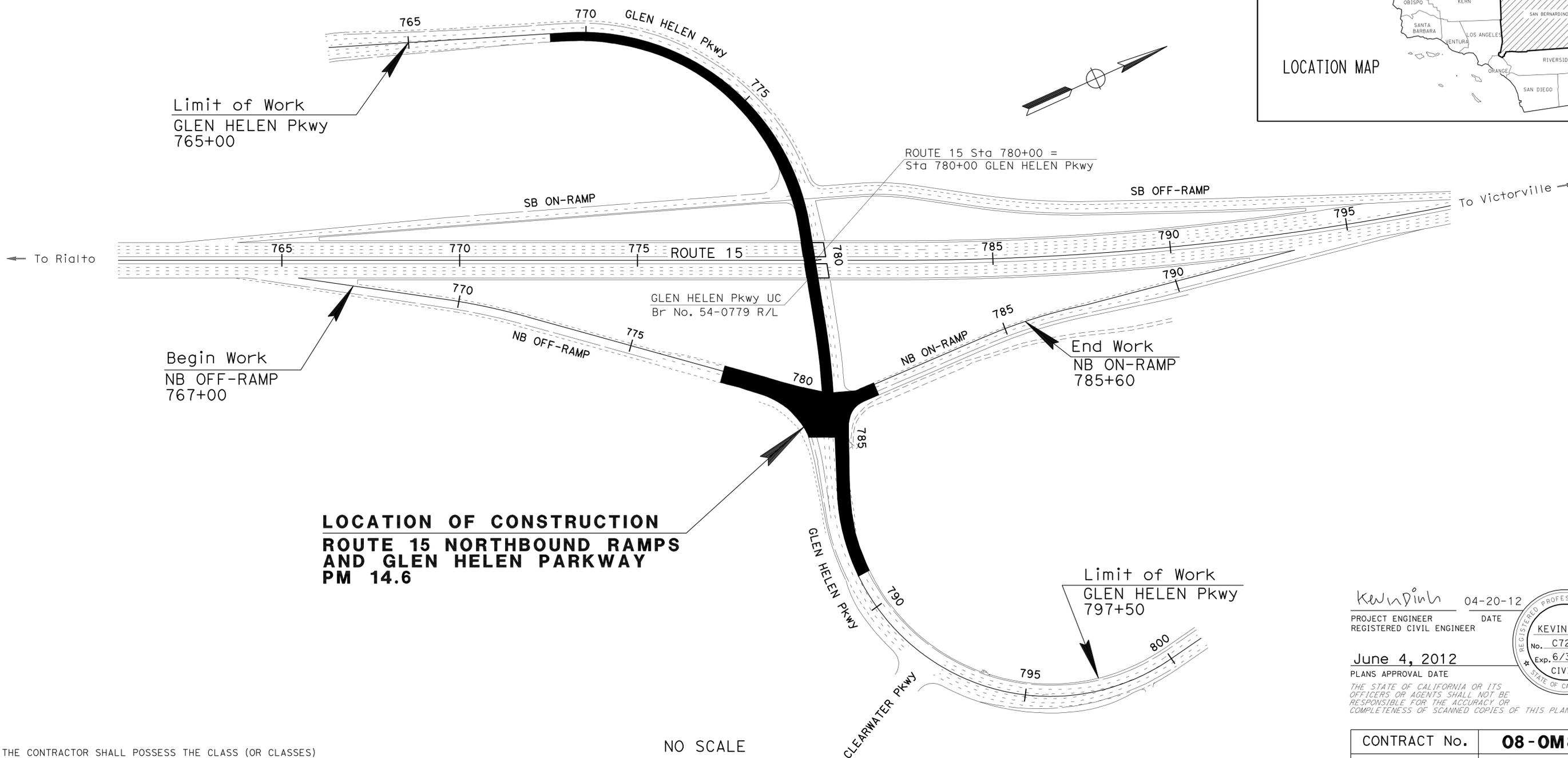
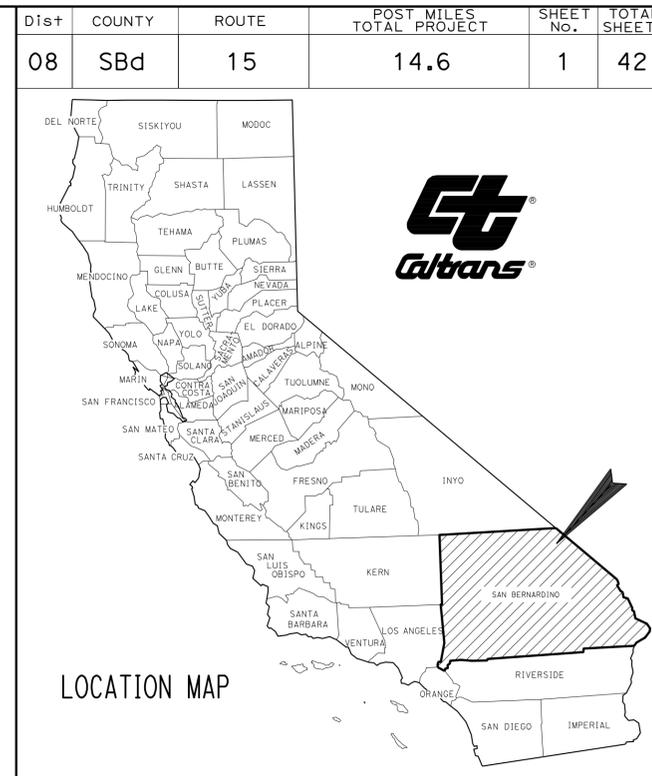
INDEX OF PLANS

SHEET No.	DESCRIPTION
1	TITLE AND LOCATION MAP
2	TYPICAL CROSS SECTIONS
3	LAYOUTS
4-5	CONSTRUCTION DETAILS
6-7	UTILITY PLAN
8	CONSTRUCTION AREA SIGNS
9	PAVEMENT DELINEATION PLANS, DETAILS AND QUANTITIES
10	SIGN PLAN AND QUANTITIES
11	SUMMARY OF QUANTITIES
12-20	ELECTRICAL PLANS
21-42	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 **ACHSIMG-015-5(158)122E**  
**DEPARTMENT OF TRANSPORTATION**  
**PROJECT PLANS FOR CONSTRUCTION ON**  
**STATE HIGHWAY**  
**IN SAN BERNARDINO COUNTY**  
**NEAR RIALTO**  
**AT ROUTE 15 NORTHBOUND RAMPS**  
**AND GLEN HELEN PARKWAY**

TO BE SUPPLEMENTED BY STANDARD PLANS DATED MAY 2006



PROJECT MANAGER <b>ALI HADAVI</b>	DESIGN ENGINEER <b>MYLINH NGUYEN</b>
--------------------------------------	---

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

NO SCALE

**Kevin Dinh** 04-20-12  
 PROJECT ENGINEER DATE  
 REGISTERED CIVIL ENGINEER  
**June 4, 2012**  
 PLANS APPROVAL DATE  
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



CONTRACT No.	<b>08-0M8801</b>
PROJECT ID	<b>0800020504</b>

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	SBd	15	14.6	2	42
<i>Kevin Dinh</i> REGISTERED CIVIL ENGINEER DATE 04-20-12					
6-4-12			PLANS APPROVAL DATE		
<small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small>					

**NOTES:**

- DIMENSIONS OF THE STRUCTURAL SECTIONS ARE SUBJECT TO TOLERANCES SPECIFIED IN THE STANDARD SPECIFICATIONS.
- FOR LOCATIONS OF CURB & GUTTER, SEE LAYOUT SHEET L-1.
- EXACT LOCATIONS OF CURB RAMPS, SEE CONSTRUCTION DETAILS SHEET C-1.

**LEGEND:**

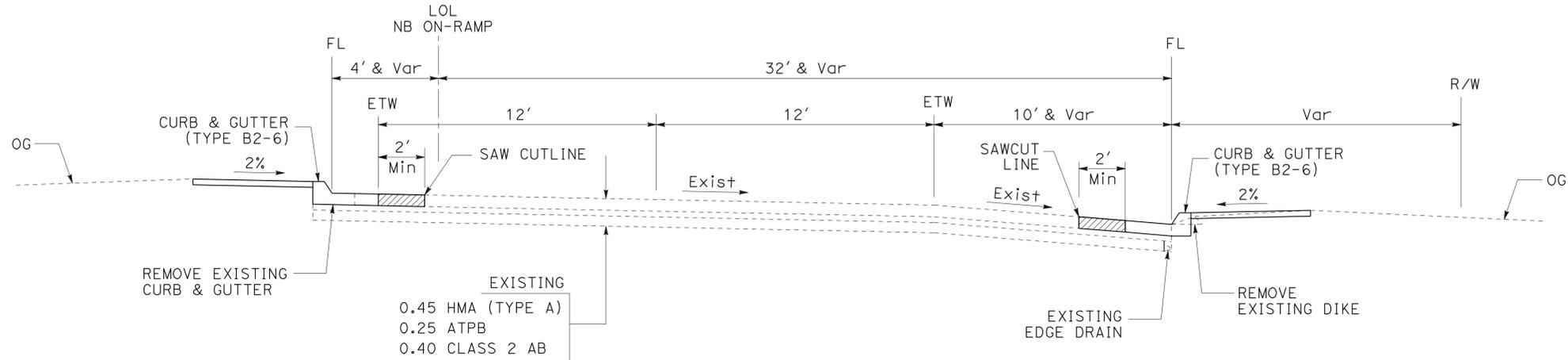
- NEW HMA (TYPE A)
- MATCH EXISTING HMA THICKNESS AND PAVEMENT ELEVATIONS

**ABBREVIATION:**

- HMA: HOT MIX ASPHALT
- ATPB: ASPHALT TREATED PERMEABLE BASE
- AB: AGGREGATE BASE
- AC: ASPHALT CONCRETE

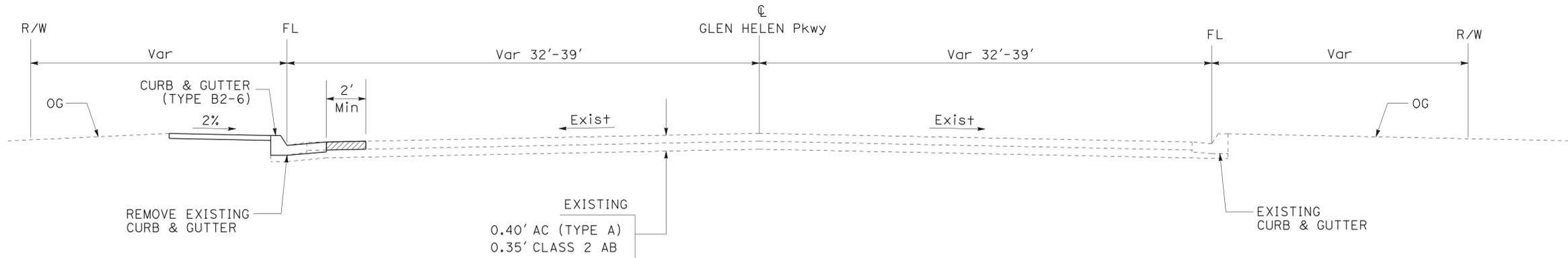
**DESIGN DESIGNATION (ROUTE-15)**

- AADT (2012) 3,100
- AADT (2032) 5,400
- DHV (2032) 374
- T (2012) 5%
- T (2032) 6%



**ROUTE 15 NORTHBOUND ON-RAMP**

Sta 780+00 TO Sta 780+56.60



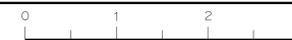
**GLEN HELEN PARKWAY**

Sta 783+42.18 TO Sta 784+70.97  
SOUTHBOUND

**TYPICAL CROSS SECTIONS**

NO SCALE

**X-1**



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	SBd	15	14.6	3	42

Kevin Dinh	04-20-12
REGISTERED CIVIL ENGINEER	DATE
6-4-12	PLANS APPROVAL DATE

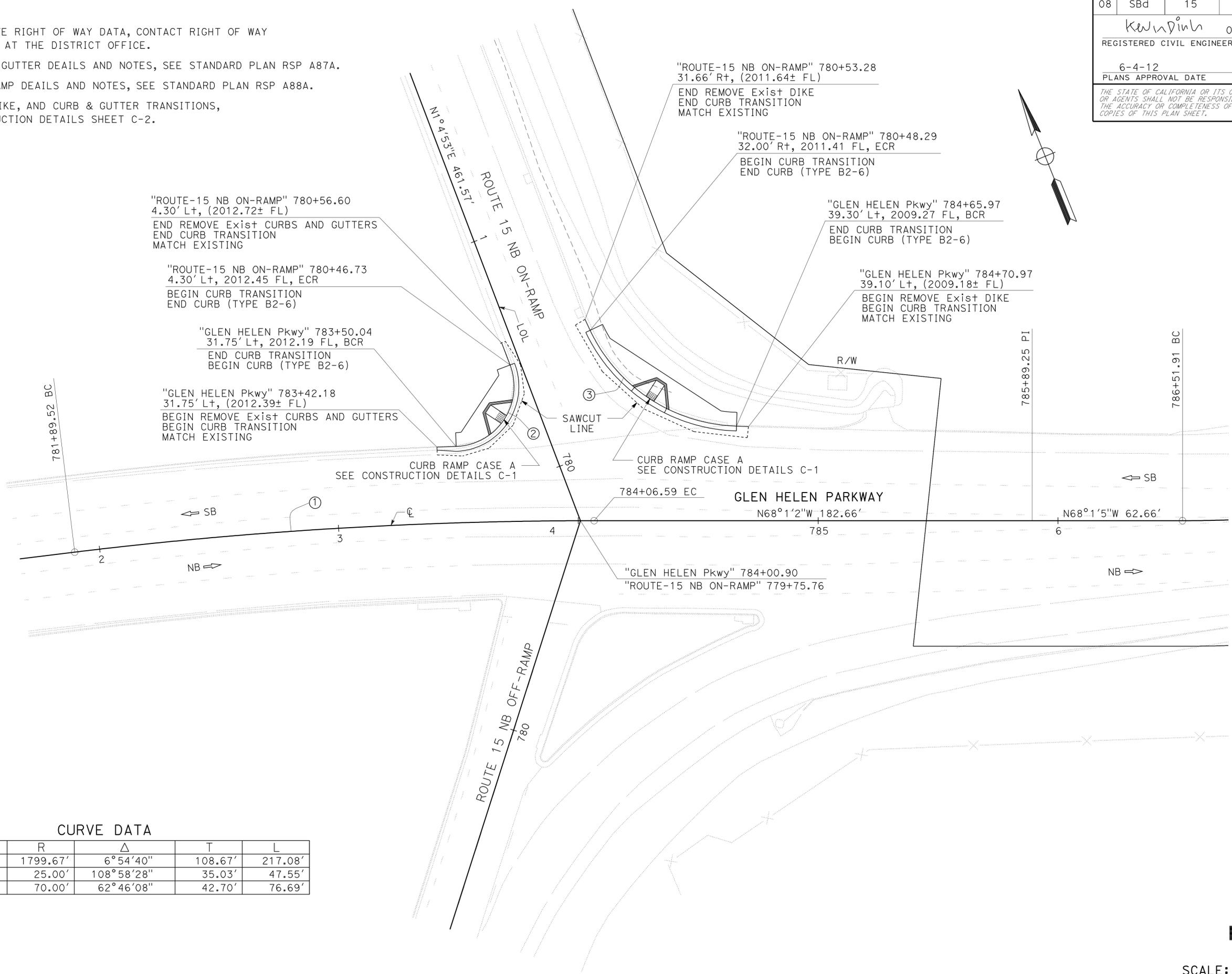
  

REGISTERED PROFESSIONAL ENGINEER
KEVIN DINH
No. C72113
Exp. 6/30/12
CIVIL

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

**NOTES:**

- FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.
- FOR CURB & GUTTER DETAILS AND NOTES, SEE STANDARD PLAN RSP A87A.
- FOR CURB RAMP DETAILS AND NOTES, SEE STANDARD PLAN RSP A88A.
- FOR CURB, DIKE, AND CURB & GUTTER TRANSITIONS, SEE CONSTRUCTION DETAILS SHEET C-2.



**CURVE DATA**

No. ①	R	Δ	T	L
①	1799.67'	6°54'40"	108.67'	217.08'
②	25.00'	108°58'28"	35.03'	47.55'
③	70.00'	62°46'08"	42.70'	76.69'

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** OPERATIONS / SAFETY DESIGN

REVISOR BY DATE  
 MYLINH NGUYEN KEVIN DINH

CALCULATED-DESIGNED BY CHECKED BY

FUNCTIONAL SUPERVISOR  
 BEHZAD SEDIGHT

**LAYOUT**

SCALE: 1" = 20' **L-1**

LAST REVISION DATE PLOTTED => 08-NOV-2012  
 04-20-12 TIME PLOTTED => 13:48

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	SBd	15	14.6	4	42

<i>Kevin Dinh</i>	04-20-12
REGISTERED CIVIL ENGINEER	DATE
6-4-12	
PLANS APPROVAL DATE	

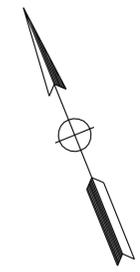
  

REGISTERED PROFESSIONAL ENGINEER
KEVIN DINH
No. C72113
Exp. 6/30/12
CIVIL

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**NOTES:**

- FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.
- FOR CURB AND GUTTER NOTES AND DEAILS NOT SHOWN, SEE STANDARD PLAN RSP A87A
- FOR CURB RAMP NOTES AND DEAILS NOT SHOWN, SEE STANDARD PLAN RSP A88A
- FOR CURB, DIKE, AND CURB & GUTTER TRANSITIONS SEE CONSTRUCTION DETAILS SHEET C-2
- FOR DETECTABLE WARNING SURFACE, USE YELLOW CONCRETE PAVERS



STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION - OPERATIONS / SAFETY DESIGN

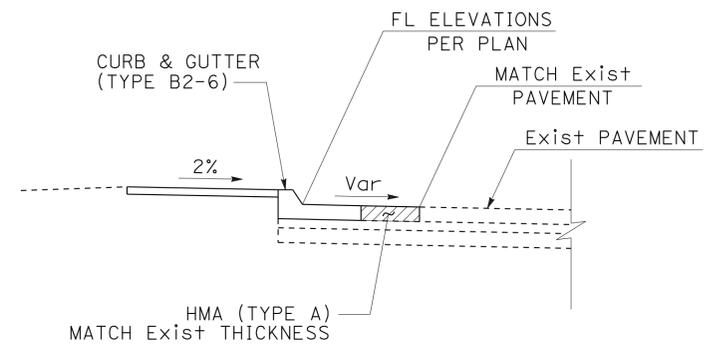
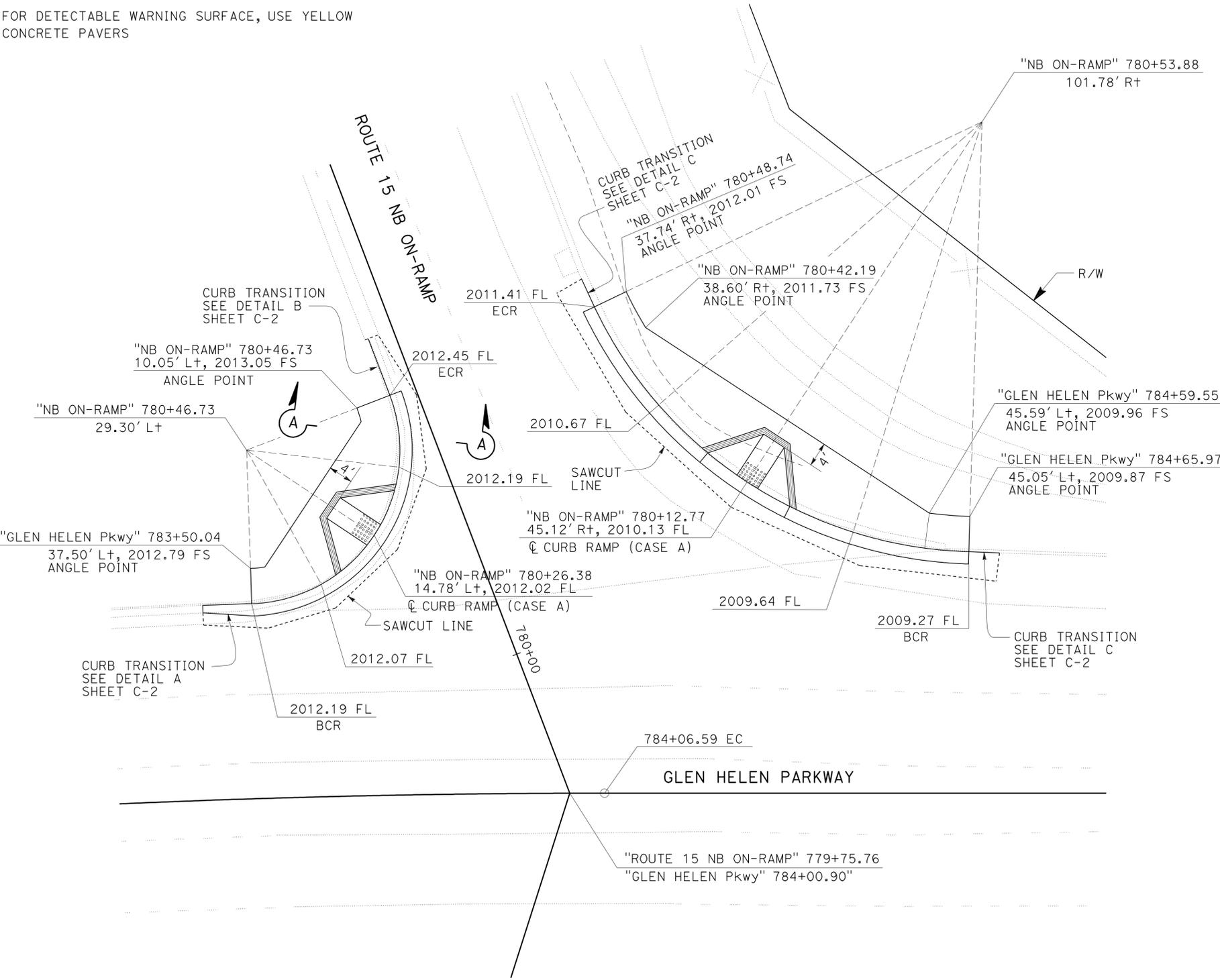
Caltrans

FUNCTIONAL SUPERVISOR: BEHZAD SEDIGHT

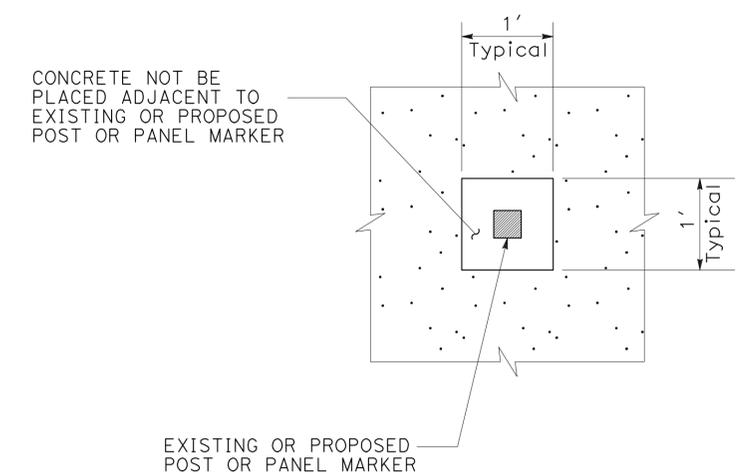
REVISOR: MYLINH NGUYEN, KEVIN DINH

CALCULATED/DESIGNED BY: KEVIN DINH

CHECKED BY:



**SECTION A-A (TYPICAL)**  
NO SCALE



**POST OR PANEL MARKER ON CONCRETE DETAIL**

**CONSTRUCTION DETAILS**

SCALE: 1" = 10' **C-1**

LAST REVISION DATE PLOTTED => 08-NOV-2012 04-20-12 TIME PLOTTED => 13:48



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	SBd	15	14.6	6	42

Kevin Dinh 04-20-12  
 REGISTERED CIVIL ENGINEER DATE  
 6-4-12  
 PLANS APPROVAL DATE

KEVIN DINH  
 No. C72113  
 Exp 6/30/12  
 CIVIL

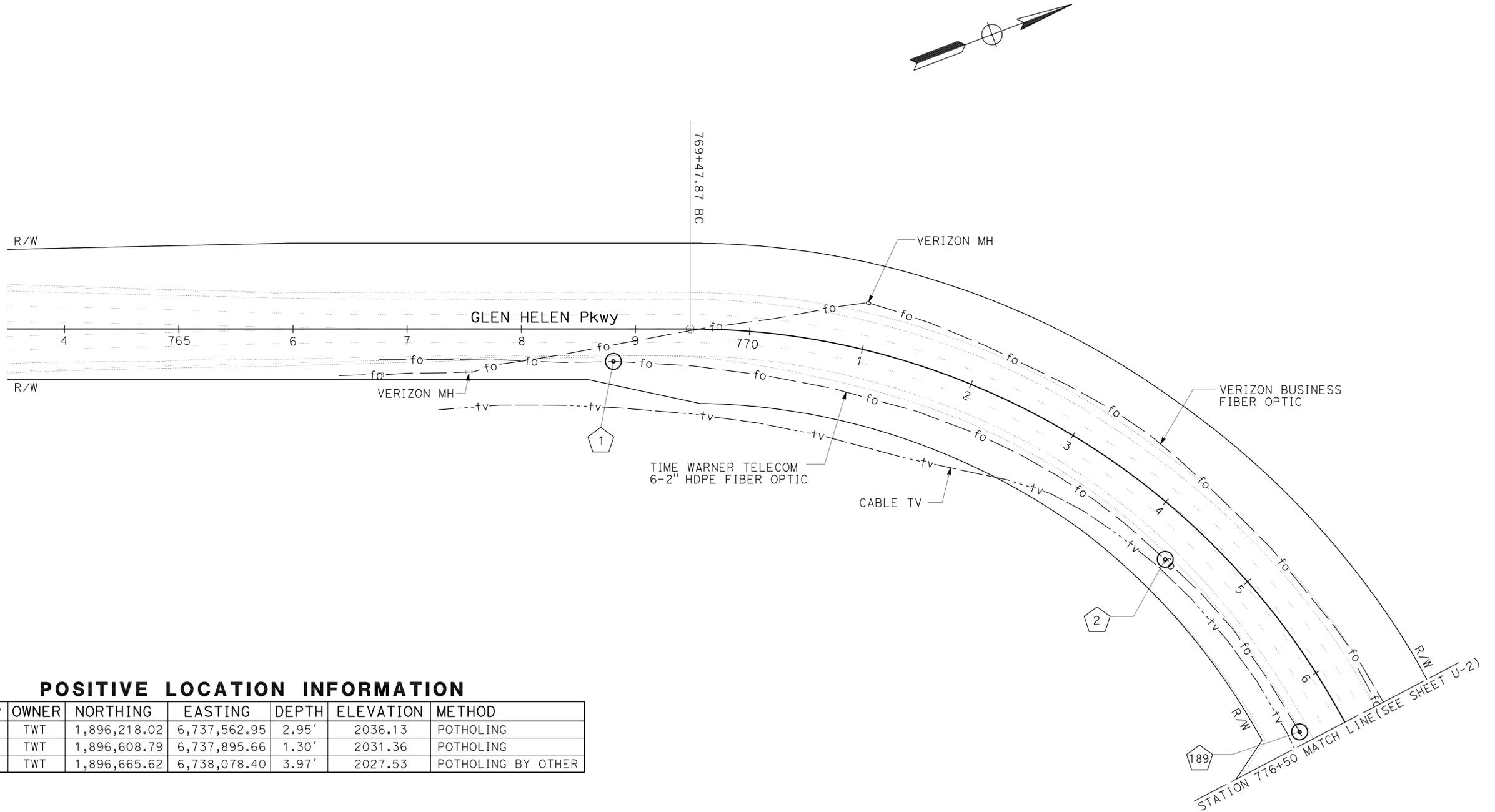
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

**NOTES:**

- FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY, ENGINEERING AT THE DISTRICT OFFICE.
- ELEVATIONS SHOWN REFER TO THE TOP OF PIPE OR CONDUIT, UNLESS OTHERWISE STATED.

**ABBREVIATIONS:**

- TWT TIME WARNER TELECOM  
 VB VERIZON BUSINESS  
 V VERISON  
 HDPE HIGH DENSITY POLY ETHYLENE



**POSITIVE LOCATION INFORMATION**

No. #	OWNER	NORTHING	EASTING	DEPTH	ELEVATION	METHOD
1	TWT	1,896,218.02	6,737,562.95	2.95'	2036.13	POTHOLING
2	TWT	1,896,608.79	6,737,895.66	1.30'	2031.36	POTHOLING
189	TWT	1,896,665.62	6,738,078.40	3.97'	2027.53	POTHOLING BY OTHER

APPROVED FOR UTILITY INFORMATION ONLY

**UTILITY PLAN**  
SCALE: 1" = 50' **U-1**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** OPERATIONS / SAFETY DESIGN  
 FUNCTIONAL SUPERVISOR: BEHZAD SEDIGHT  
 CALCULATED/DESIGNED BY: MYLINH NGUYEN  
 CHECKED BY: KEVIN DINH  
 REVISED BY: DATE REVISIONS

**NOTE:**

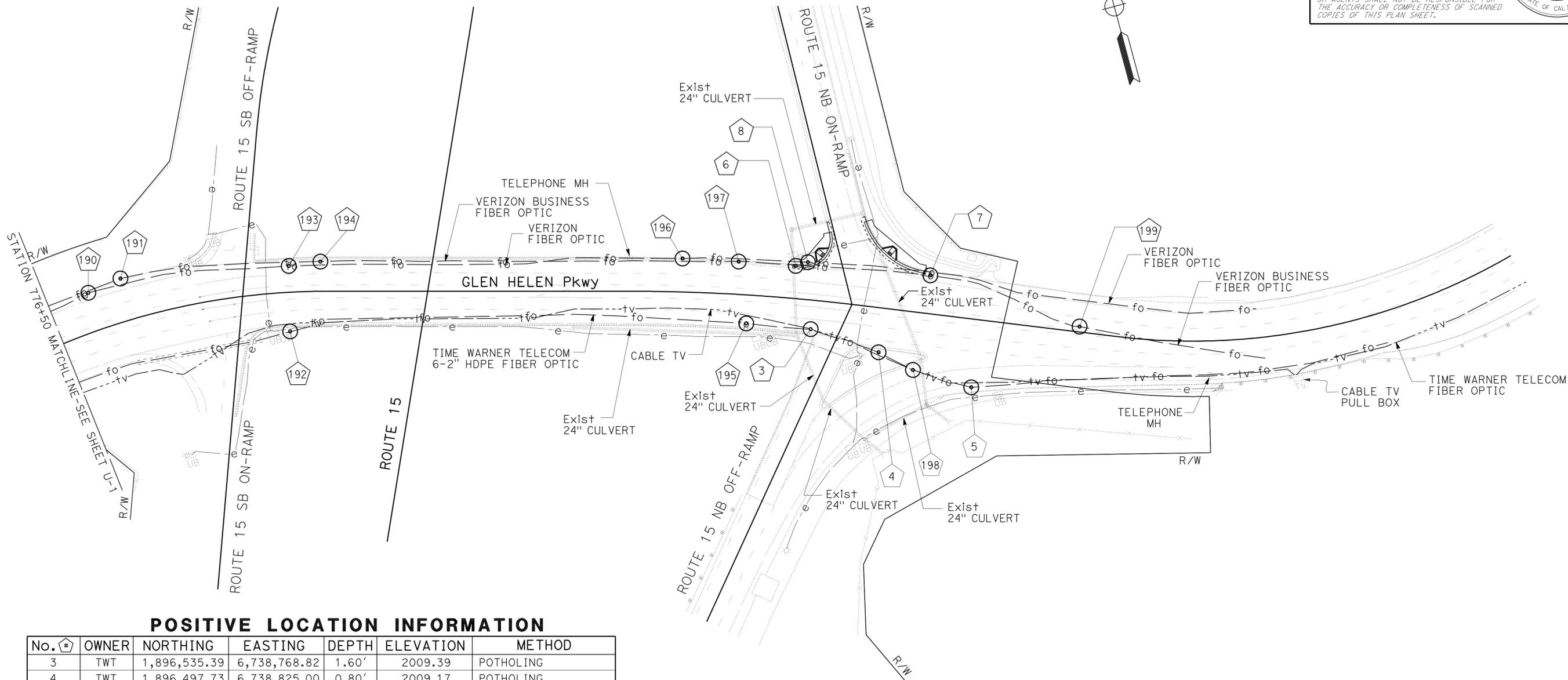
1. FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	SBd	15	14.6	7	42

Kevin Dinh 04-20-12  
 REGISTERED CIVIL ENGINEER DATE  
 6-4-12  
 PLANS APPROVAL DATE

KEVIN DINH  
 No. C72113  
 Exp 6/30/12  
 CIVIL

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



**POSITIVE LOCATION INFORMATION**

No. #	OWNER	NORTHING	EASTING	DEPTH	ELEVATION	METHOD
3	TWT	1,896,535.39	6,738,768.82	1.60'	2009.39	POTHOLING
4	TWT	1,896,497.73	6,738,825.00	0.80'	2009.17	POTHOLING
5	TWT	1,896,443.10	6,738,900.92	1.30'	2006.33	POTHOLING
6	VB	1,896,596.59	6,738,770.71	5.15'	2007.24	POTHOLING
7	VB	1,896,554.95	6,738,891.02	5.58'	2003.71	POTHOLING
8	V	1,896,596.92	6,738,782.75	7.00'	2005.65	POTHOLING
190	V	1,896,745.68	6,738,119.66	9.72'	2024.89	POTHOLING BY OTHER
191	VB	1,896,750.77	6,738,152.41	10.75'	2023.18	POTHOLING BY OTHER
192	TWT	1,896,661.09	6,738,294.07	3.48'	2025.45	POTHOLING BY OTHER
193	V	1,896,720.91	6,738,308.84	3.25'	2027.44	POTHOLING BY OTHER
194	VB	1,896,717.13	6,738,338.71	1.15'	2028.98	POTHOLING BY OTHER
195	TWT	1,896,556.40	6,738,711.55	0.58'	2014.84	POTHOLING BY OTHER
196	V	1,896,631.05	6,738,669.36	3.55'	2015.05	POTHOLING BY OTHER
197	VB	1,896,614.53	6,738,719.84	4.85'	2011.93	POTHOLING BY OTHER
198	TWT	1,896,473.19	6,738,852.05	14.68'	1996.43	POTHOLING BY OTHER
199	VB	1,896,471.79	6,739,014.46	6.70'	2004.02	POTHOLING BY OTHER

**UTILITY PLAN**

SCALE: 1" = 50' **U-2**

APPROVED FOR UTILITY INFORMATION ONLY



STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** OPERATIONS / SAFETY DESIGN  
 FUNCTIONAL SUPERVISOR: BEHZAD SEDIGHI  
 CALCULATED/DESIGNED BY: MYLINH NGUYEN  
 CHECKED BY: KEVIN DINH  
 REVISED BY: MYLINH NGUYEN  
 DATE REVISED: KEVIN DINH

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	SBd	15	14.6	8	42

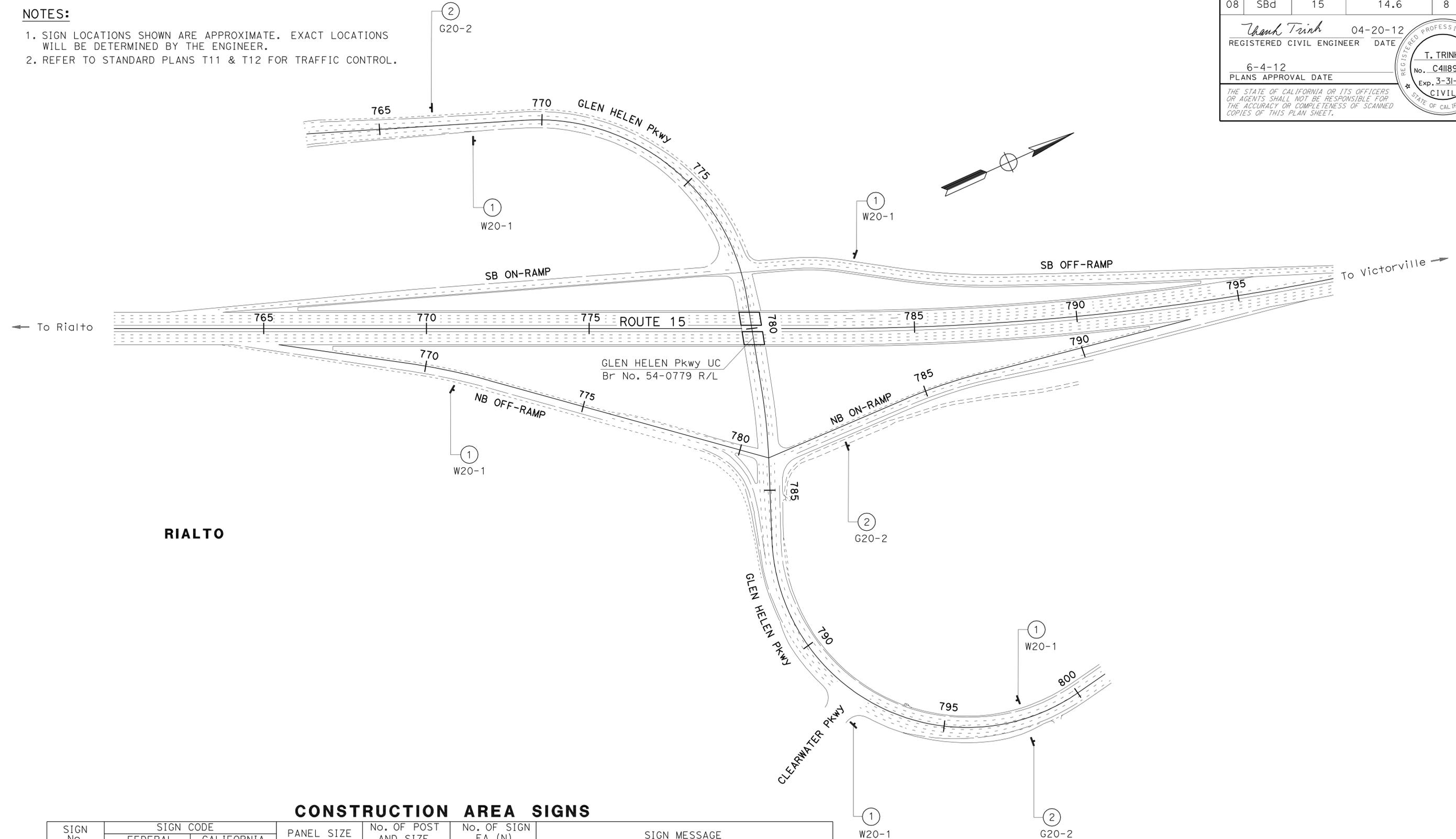
*Thanh Trinh* 04-20-12  
 REGISTERED CIVIL ENGINEER DATE  
 6-4-12  
 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER  
 T. TRINH  
 No. C41189  
 Exp. 3-31-13  
 CIVIL  
 STATE OF CALIFORNIA

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

**NOTES:**

- SIGN LOCATIONS SHOWN ARE APPROXIMATE. EXACT LOCATIONS WILL BE DETERMINED BY THE ENGINEER.
- REFER TO STANDARD PLANS T11 & T12 FOR TRAFFIC CONTROL.



**CONSTRUCTION AREA SIGNS**

SIGN No.	SIGN CODE		PANEL SIZE	No. OF POST AND SIZE	No. OF SIGN EA (N)	SIGN MESSAGE
	FEDERAL	CALIFORNIA				
①	W20-1		48" X 48"	1-6" X 6"	5	ROAD WORK AHEAD
②	G20-2		36" X 18"	1-4" X 4"	3	END ROAD WORK

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

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

APPROVED FOR CONSTRUCTION AREA SIGNS WORK ONLY

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

**Caltrans** TRAFFIC DESIGN

FUNCTIONAL SUPERVISOR: BILL WASSER

REVISOR: KN TT

REVISIONS: (Grid with 'x' marks)

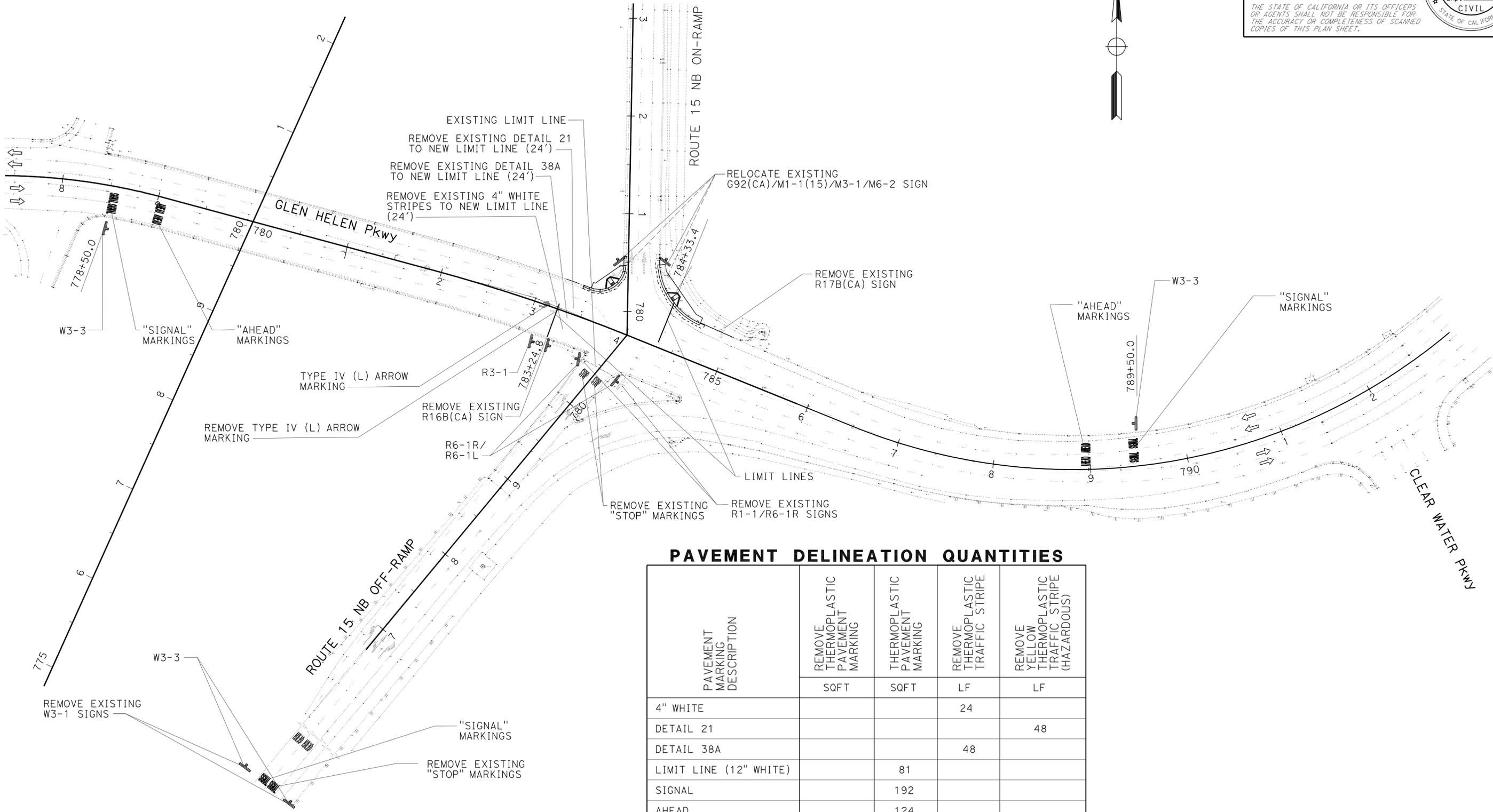
LAST REVISION DATE PLOTTED => 08-NOV-2012  
 00-00-00 TIME PLOTTED => 13:49

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	SBd	15	14.6	9	42

*Thanh Trinh* 04-20-12  
 REGISTERED CIVIL ENGINEER DATE  
 6-4-12  
 PLANS APPROVAL DATE

T. TRINH  
 No. C41189  
 Exp. 3-31-13  
 CIVIL

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**PAVEMENT DELINEATION QUANTITIES**

PAVEMENT MARKING DESCRIPTION	REMOVE THERMOPLASTIC PAVEMENT MARKING	THERMOPLASTIC PAVEMENT MARKING	REMOVE THERMOPLASTIC TRAFFIC STRIPE	REMOVE YELLOW THERMOPLASTIC TRAFFIC STRIPE (HAZARDOUS)
	SQFT	SQFT	LF	LF
4" WHITE			24	
DETAIL 21				48
DETAIL 38A			48	
LIMIT LINE (12" WHITE)		81		
SIGNAL		192		
AHEAD		124		
STOP	88			
TYPE IV (L) ARROW	15	15		
TOTAL	103	412	72	48

**PAVEMENT DELINEATION AND SIGN PLAN**

SCALE: 1" = 50' PD-1

APPROVED FOR PAVEMENT DELINEATION AND SIGN WORK ONLY

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** TRAFFIC DESIGN  
 FUNCTIONAL SUPERVISOR: BILL WASSER  
 CALCULATED/DESIGNED BY: [Blank]  
 CHECKED BY: [Blank]  
 KN TT  
 REVISED BY: [Blank] DATE REVISED: [Blank]

USERNAME => s123631  
 DGN FILE => 80m880na001.dgn

RELATIVE BORDER SCALE IS IN INCHES  
 0 1 2 3

UNIT 2284

PROJECT NUMBER & PHASE: 0800020504

LAST REVISION | DATE PLOTTED => 08-NOV-2012  
 00-00-00 TIME PLOTTED => 13:49

**LEGEND:**

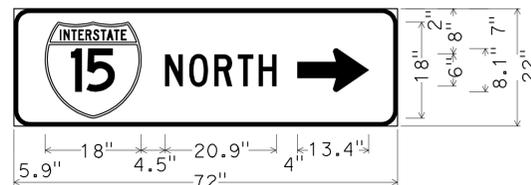
B: BLACK, R: RED, G: GREEN, Y: YELLOW, W: WHITE  
 x: APPLICABLE  
 L = LENGTH OF SIGN  
 D = DEPTH OF SIGN

**SIGN PANEL MATERIAL QUANTITIES**

SHEET No.	SIGN CODE		SIGN SIZE L x D	FURNISH SINGLE SHEET ALUMINUM (0.063" UNFRAMED)	FURNISH SINGLE SHEET ALUMINUM (0.080" UNFRAMED)	SINGLE FACED	DOUBLE FACED	BACKGROUND		LEGEND		GRAFFITI FILM		ROADSIDE			REMARKS
								SHEETING COLOR	RETROREFLECTIVE ASTM TYPE	SHEETING COLOR	RETROREFLECTIVE ASTM TYPE	STANDARD	PREMIUM	SINGLE-SHEET UNFRAMED ALUMINUM			
														0.063"	0.080"	0.126"	
PD-1	W3-3		48"x48"		80.0	x		Y	3	R,G,Y	x	x				QTY: FIVE W3-3 SIGN PANELS; INCLUDED ONE PANEL FOR MOUNTING ON FLASHING BEACON (SEE ELECTRICAL PLANS)	
	R6-1R		54"x18"		13.5	x		W	3	B	x					QTY: TWO R6-1R SIGN PANELS	
	R6-1L		54"x18"		13.5											QTY: TWO R6-1L SIGN PANELS	
	R3-1		30"x30"	6.25		x		W	3	B,R	x					QTY: ONE R3-1 SIGN PANEL	
PERTAIN TO ELECTRICAL PLANS	D3(f1)		72"x22"		11.0	x		G	3	W						QTY: ONE D3(f1) SIGN PANEL MOUNTED ON TRAFFIC SIGNAL MAST ARM (SEE ELECTRICAL PLANS)	
	D3(f2)		72"x22"		11.0	x		G	3	W						QTY: ONE D3(f2) SIGN PANEL MOUNTED ON TRAFFIC SIGNAL MAST ARM (SEE ELECTRICAL PLANS)	
	D3(g)		72"x18"		9.0	x		G	3	W						QTY: ONE D3(g) SIGN PANEL MOUNTED ON TRAFFIC SIGNAL MAST ARM (SEE ELECTRICAL PLANS)	
	R3-4		30"x30"	6.25		x		W	3	B,R	x					QTY: ONE R3-4 SIGN PANEL MOUNTED ON TRAFFIC SIGNAL MAST ARM FEBT (SEE ELECTRICAL PLANS)	
	R3-2		30"x30"	6.25		x		W	3	B,R	x					QTY: ONE R3-2 SIGN PANEL MOUNTED ON TRAFFIC SIGNAL MAST ARM FWBT (SEE ELECTRICAL PLANS)	
	R9-3a		24"x24"	24.0		x		W	3	B,R	x					QTY: SIX R9-3a SIGN PANELS MOUNTED ON TRAFFIC SIGNAL POST (SEE ELECTRICAL PLANS)	
TOTAL					42.75												

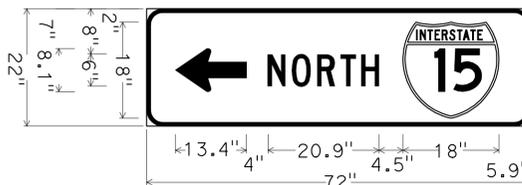
**ROADSIDE SIGN QUANTITIES**

SHEET No.	SIGN CODE		SIGN MESSAGE/SYMBOL	PANEL SIZE	POST SIZE				ROADSIDE SIGN		REMOVE ROAD-SIDE SIGN	RELOCATE ROADSIDE SIGN	
					4"x4"	4"x6"	6"x6"	6"x8"	ONE POST	TWO POST			
					LENGTH (FT)				EA	EA			EA
PD-1	W3-3		SIGNAL AHEAD SYMBOL	48"x48"			16.7		4				
	R1-1/W4-4p/R6-1R/R6-1L		STOP/CROSS TRAFFIC DOES NOT STOP/ONE WAY	EXISTING							2		
	W3-1		STOP AHEAD SYMBOL	EXISTING							2		
	R6-1R/R6-1L		ONE WAY	54"x18"	7.0				2				
		R16B		NO RIGHT TURN	EXISTING							1	
		R3-1		NO RIGHT TURN SYMBOL	30"x30"	12.0				1			
		R17B		NO LEFT TURN	EXISTING							1	
TOTAL									7		6	2	



1.5" RADIUS, 0.5" BORDER, WHITE ON GREEN;  
 [NORTH] C;  
 STANDARD ARROW CUSTOM 13.4" X 8.1"

SIGN PANEL D3(f1) DETAIL



1.5" RADIUS, 0.5" BORDER, WHITE ON GREEN;  
 [NORTH] C;  
 STANDARD ARROW CUSTOM 13.4" X 8.1"

SIGN PANEL D3(f2) DETAIL



1.5" RADIUS, 0.5" BORDER, WHITE ON GREEN;  
 [GLEN HELEN Pkwy] C;

SIGN PANEL D3(g) DETAIL

**SIGN QUANTITIES**

**SQ-1**

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	SBd	15	14.6	10	42

Thank Trinh 04-20-12  
 REGISTERED CIVIL ENGINEER DATE

6-4-12  
 PLANS APPROVAL DATE

T. TRINH  
 No. C41189  
 Exp. 3-31-13  
 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.

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
 Functional Supervisor: BILL WASSER  
 Traffic Design

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	SBd	15	14.6	11	42

Kevin Dinh 04-20-12  
 REGISTERED CIVIL ENGINEER DATE  
 6-4-12  
 PLANS APPROVAL DATE

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

### CURB & GUTTER AND CURB RAMP QUANTITIES

LOCATION	STATION	MINOR CONCRETE (CURB & CURB RAMP)		(N)	CURB RAMP DETECTABLE WARNING SURFACE	REMOVE CONCRETE (CURB AND GUTTER)	ROAD EXCAVATION
		CURB RAMP (CASE A) CY	CURB & GUTTER (TYPE B2-6) CY				
WEST OF ROUTE-15 NB ON-RAMP	783+42.18 "GLEN HELEN Pkwy" TO 780+56.60 "ROUTE-15 NB ON-RAMP"	3.9	3.4	12	65	10	
EAST OF ROUTE-15 NB ON-RAMP	784+65.97 "GLEN HELEN Pkwy" TO 780+48.29 "ROUTE-15 NB ON-RAMP"	7.1	4.7	12		15	
<b>TOTAL</b>			19.1		65	25	

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

### HOT MIX ASPHALT AND PLACE HOT MIX ASPHALT DIKE

LOCATION	STATION	PLACE HOT MIX ASPHALT DIKE			
		TYPE E (TRANSITION) LF	HOT MIX ASPHALT (TYPE A) TON	HOT MIX ASPHALT (TYPE A) TON	REMOVE ASPHALT CONCRETE DIKE LF
WEST OF ROUTE-15 NB ON-RAMP	780+46.73 TO 780+56.60 "ROUTE-15 NB ON-RAMP"	10	0.26		
	783+42.18 "GLEN HELEN Pkwy" TO 780+56.60 "ROUTE-15 NB ON-RAMP"			4.8	
EAST OF ROUTE-15 NB ON-RAMP	780+48.29 TO 780+53.28 "ROUTE-15 NB ON-RAMP"	5	0.13		
	784+65.97 TO 784+70.97 "GLEN HELEN Pkwy"	5	0.13		
	784+70.97 "GLEN HELEN Pkwy" TO 780+53.28 "ROUTE-15 NB ON-RAMP"			7.4	87
<b>TOTAL</b>		20	12.72		87

## SUMMARY OF QUANTITIES

NO SCALE

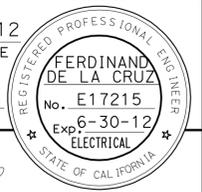
**Q-1**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** OPERATIONS / SAFETY DESIGN  
 FUNCTIONAL SUPERVISOR: BEHZAD SEDIGHT  
 MYLINH NGUYEN  
 KEVIN DINH  
 REVISOR: MYLINH NGUYEN  
 DATE: 04-20-12  
 CALCULATED/DESIGNED BY: KEVIN DINH  
 CHECKED BY:



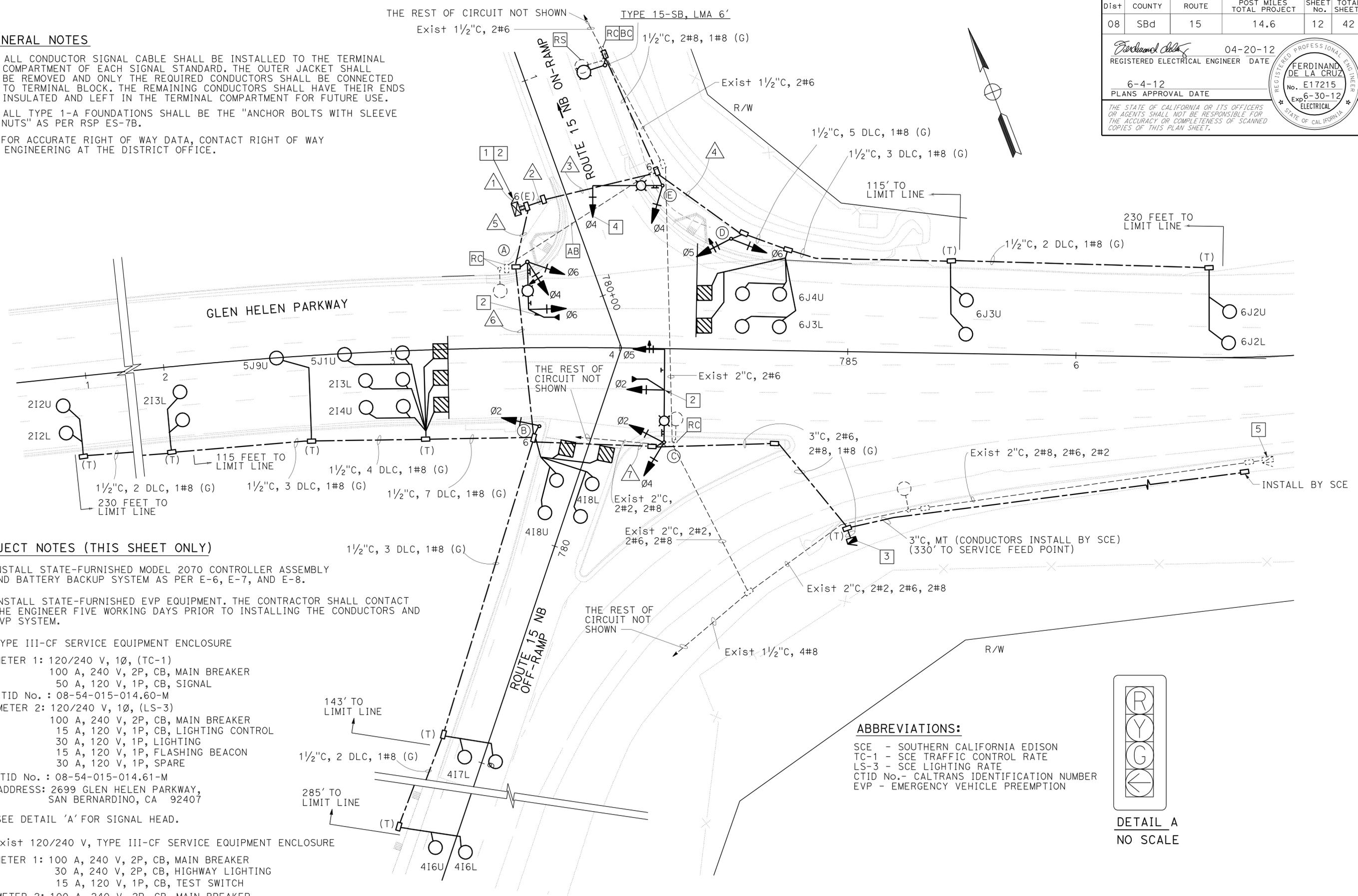
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	SBd	15	14.6	12	42

04-20-12  
 REGISTERED ELECTRICAL ENGINEER DATE  
 6-4-12  
 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.



**GENERAL NOTES**

1. ALL CONDUCTOR SIGNAL CABLE SHALL BE INSTALLED TO THE TERMINAL COMPARTMENT OF EACH SIGNAL STANDARD. THE OUTER JACKET SHALL BE REMOVED AND ONLY THE REQUIRED CONDUCTORS SHALL BE CONNECTED TO TERMINAL BLOCK. THE REMAINING CONDUCTORS SHALL HAVE THEIR ENDS INSULATED AND LEFT IN THE TERMINAL COMPARTMENT FOR FUTURE USE.
2. ALL TYPE 1-A FOUNDATIONS SHALL BE THE "ANCHOR BOLTS WITH SLEEVE NUTS" AS PER RSP ES-7B.
3. FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

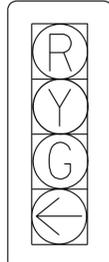


**PROJECT NOTES (THIS SHEET ONLY)**

1. INSTALL STATE-FURNISHED MODEL 2070 CONTROLLER ASSEMBLY AND BATTERY BACKUP SYSTEM AS PER E-6, E-7, AND E-8.
2. INSTALL STATE-FURNISHED EVP EQUIPMENT. THE CONTRACTOR SHALL CONTACT THE ENGINEER FIVE WORKING DAYS PRIOR TO INSTALLING THE CONDUCTORS AND EVP SYSTEM.
3. TYPE III-CF SERVICE EQUIPMENT ENCLOSURE  
 METER 1: 120/240 V, 1Ø, (TC-1)  
 100 A, 240 V, 2P, CB, MAIN BREAKER  
 50 A, 120 V, 1P, CB, SIGNAL  
 CTID No. : 08-54-015-014.60-M  
 METER 2: 120/240 V, 1Ø, (LS-3)  
 100 A, 240 V, 2P, CB, MAIN BREAKER  
 15 A, 120 V, 1P, CB, LIGHTING CONTROL  
 30 A, 120 V, 1P, LIGHTING  
 15 A, 120 V, 1P, FLASHING BEACON  
 30 A, 120 V, 1P, SPARE  
 CTID No. : 08-54-015-014.61-M  
 ADDRESS: 2699 GLEN HELEN PARKWAY,  
 SAN BERNARDINO, CA 92407
4. SEE DETAIL 'A' FOR SIGNAL HEAD.
5. Exist 120/240 V, TYPE III-CF SERVICE EQUIPMENT ENCLOSURE  
 METER 1: 100 A, 240 V, 2P, CB, MAIN BREAKER  
 30 A, 240 V, 2P, CB, HIGHWAY LIGHTING  
 15 A, 120 V, 1P, CB, TEST SWITCH  
 METER 2: 100 A, 240 V, 2P, CB, MAIN BREAKER  
 30 A, 240 V, 2P, CB, SIGN ILLUMINATION

**ABBREVIATIONS:**

- SCE - SOUTHERN CALIFORNIA EDISON
- TC-1 - SCE TRAFFIC CONTROL RATE
- LS-3 - SCE LIGHTING RATE
- CTID No.- CALTRANS IDENTIFICATION NUMBER
- EVP - EMERGENCY VEHICLE PREEMPTION



DETAIL A  
NO SCALE

**SIGNAL AND LIGHTING**

SCALE: 1" = 20'

**E-1**

APPROVED FOR ELECTRICAL WORK ONLY

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** ELECTRICAL DESIGN B  
 FUNCTIONAL SUPERVISOR: FERDINAND DE LA CRUZ  
 CHECKED BY: FERDINAND DE LA CRUZ  
 CALCULATED/DESIGNED BY: FERDINAND DE LA CRUZ  
 REVISIONS: SANDY TUNG, FERDINAND DE LA CRUZ  
 REVISED BY: SANDY TUNG, FERDINAND DE LA CRUZ  
 DATE REVISED:

USERNAME => s123631  
DGN FILE => 80m880u001.dgn



UNIT 2292

PROJECT NUMBER & PHASE

08000020504

BORDER LAST REVISED 7/2/2010

LAST REVISION: DATE PLOTTED => 08-NOV-2012  
 03-14-12 TIME PLOTTED => 13:49

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	SBd	15	14.6	13	42

*Ferdinand De la Cruz* 04-20-12  
 REGISTERED ELECTRICAL ENGINEER DATE

6-4-12  
 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.

CONDUCTOR SCHEDULE																				
CONDUCTOR DESIGNATION			NUMBER OF CONDUCTORS																	
CABLE TYPE	Std	PHASE	RUN NUMBER																	
			1	2	3	4	5	6	7											
VEH-PED 12CSC	(A) Ø4,Ø6	*	2	1				2	1											
	(B) Ø2	*	1	1				1	1	1	1									
	(C) Ø2,Ø4,Ø5	*	2	1				2	1	2	1	2	1							
	(D) Ø5,Ø6	*	1	1	1	1	1	1												
	(E) Ø4	*	1	1	1	1	1													
PPB*																				
3CSC																				
TOTAL CABLES 12/3 CONDUCTORS			7	5	2	2	2	1	5	3	3	2	1							
#10	STREET LIGHTING			2	2			2	2	2										
#8	GROUND		1	1	1	1	1	1	1	1										
DLC	Ø2		5					5	5											
	Ø4		5					5	5											
	Ø5		2					2	2											
	Ø6		5	5	5	5														
TOTAL DLC's PER RUN			17	5	5	5	12	12												
EVP CABLE			3	1	1		2	1	1											
CONDUIT SIZE			2-4"	4"	4"	4"	3"	4"	4"	3"										

\* CONDUCTORS TO BE USED FOR FUTURE PED SIGNALS.

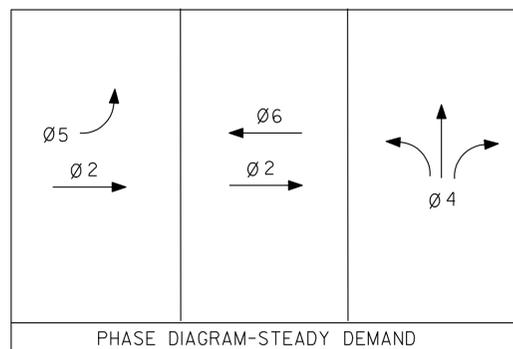
### POLE AND EQUIPMENT SCHEDULE

No.	STANDARD			VEH SIG MTG		HPS LUMINAIRE	RETROFLECTIVE STREET NAME SIGN	SPECIAL REQUIREMENTS
	Type	SMA	LMA	Mast ARM	POLE			
(A)	17A-2-100	20'	12'	1-MAT	SV-2-T	310	15 NORTH →	1 3
(B)	1-A				TV-1-1			TWO 1
(C)	26A-3-100	40'	12'	2-MAT	SV-2-T	310	15 NORTH ←	TWO 1 2
(D)	1-A				TV-2-T			1
(E)	19A-3-100	30'	12'	1-MAT	SV-1-T	310	GLEN HELEN PARKWAY	2

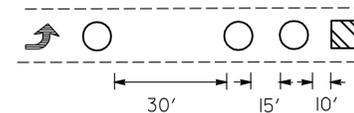
\* SEE SHEET SQ-1 FOR QUANTITIES AND ADDITIONAL INFORMATION.

### PROJECT NOTES: (THIS SHEET ONLY)

- 1 INSTALL R9-3a SIGN.
- 2 INSTALL R3-4 SIGN PER E-7N DETAIL U.
- 3 INSTALL R3-2 SIGN.



LEFT TURN DETECTOR LOOP LAYOUT



THRU LANES DETECTOR LOOP LAYOUT



## SIGNAL AND LIGHTING

E-2

APPROVED FOR ELECTRICAL WORK ONLY

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	SBd	15	14.6	14	42

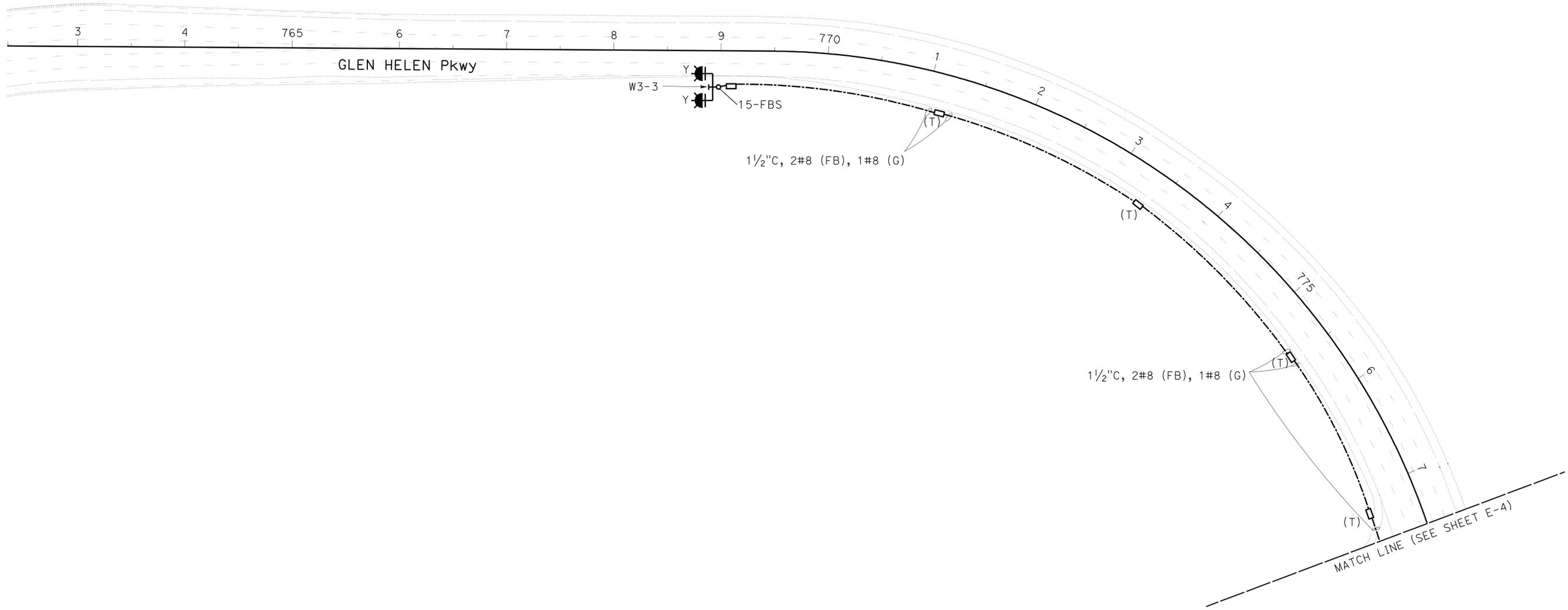
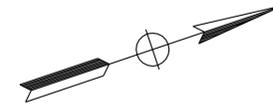
<i>Ferdinand De La Cruz</i>	04-20-12
REGISTERED ELECTRICAL ENGINEER	DATE
6-4-12	
PLANS APPROVAL DATE	

REGISTERED PROFESSIONAL ENGINEER
Ferdinand DE LA CRUZ
No. E17215
Exp. 6-30-12
ELECTRICAL
STATE OF CALIFORNIA

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

FOR COMPLETE RIGHT OF WAY DATA AND ACCURATE ACCESS DATA, SEE RIGHT OF WAY RECORD MAP AT THE DISTRICT OFFICE.



STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
<b>Caltrans</b> ELECTRICAL DESIGN B
FUNCTIONAL SUPERVISOR
FERDINAND DE LA CRUZ
CALCULATED/DESIGNED BY
CHECKED BY
SANDY TUNG
FERDINAND DE LA CRUZ
REVISED BY
DATE REVISED

# FLASHING BEACON SYSTEM

SCALE: 1" = 50'

**E-3**

APPROVED FOR ELECTRICAL WORK ONLY





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

FUNCTIONAL SUPERVISOR  
 FERDINAND DE LA CRUZ

CALCULATED/DESIGNED BY  
 CHECKED BY

SANDY TUNG  
 FERDINAND DE LA CRUZ

REVISED BY  
 DATE REVISED

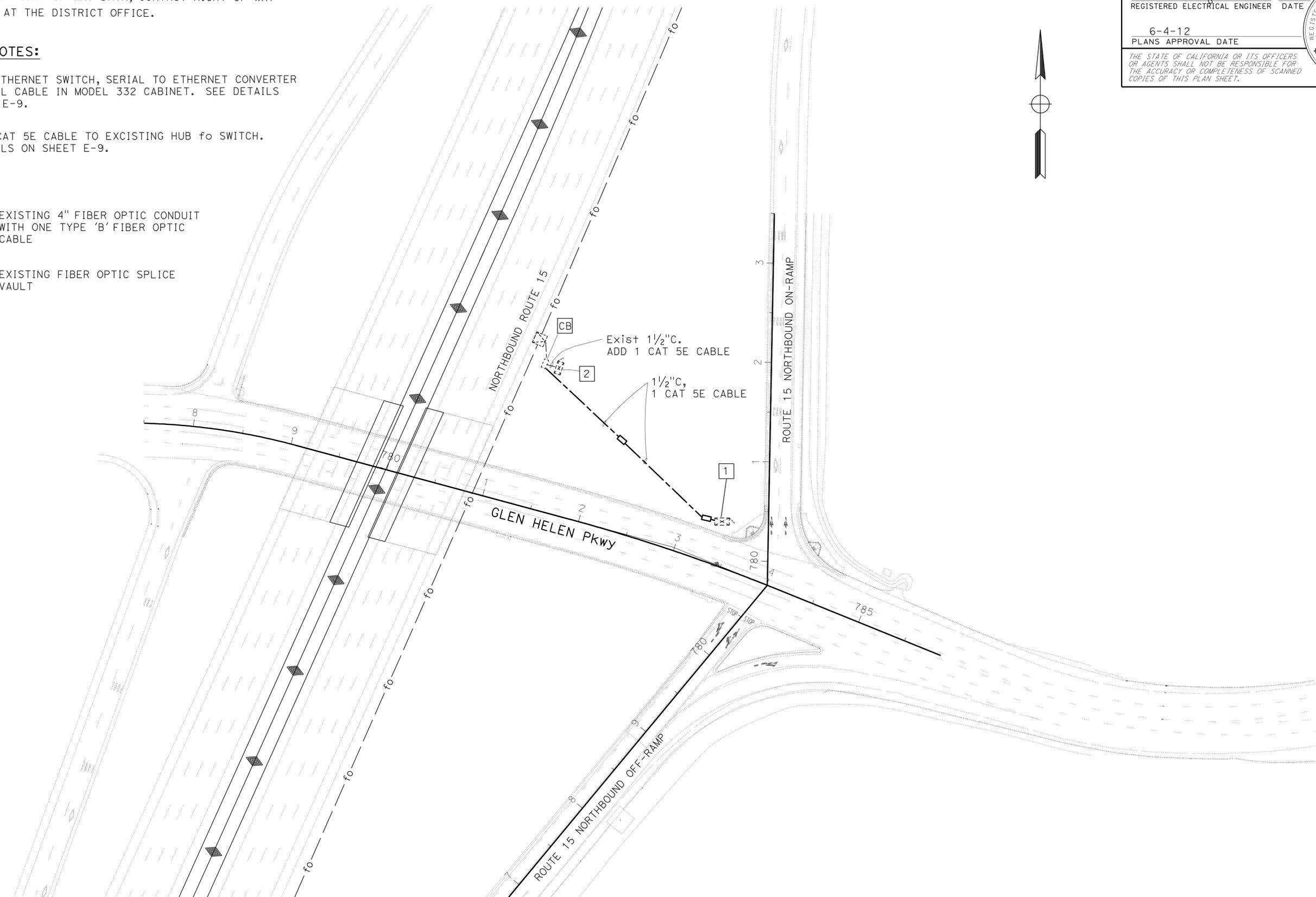
FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

**PROJECT NOTES:**

- 1 INSTALL ETHERNET SWITCH, SERIAL TO ETHERNET CONVERTER AND SERIAL CABLE IN MODEL 332 CABINET. SEE DETAILS ON SHEET E-9.
- 2 CONNECT CAT 5E CABLE TO EXCISTING HUB fo SWITCH. SEE DETAILS ON SHEET E-9.

**LEGEND:**

- fo — EXISTING 4" FIBER OPTIC CONDUIT WITH ONE TYPE 'B' FIBER OPTIC CABLE
- ▣ EXISTING FIBER OPTIC SPLICE VAULT



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	SBd	15	14.6	16	42

REGISTERED ELECTRICAL ENGINEER DATE 04-20-12  
 6-4-12  
 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  
 FERDINAND DE LA CRUZ  
 No. E17215  
 Exp. 6-30-12  
 ELECTRICAL  
 STATE OF CALIFORNIA

**MODIFY COMMUNICATION SYSTEM**

SCALE: 1" = 50'

**E-5**

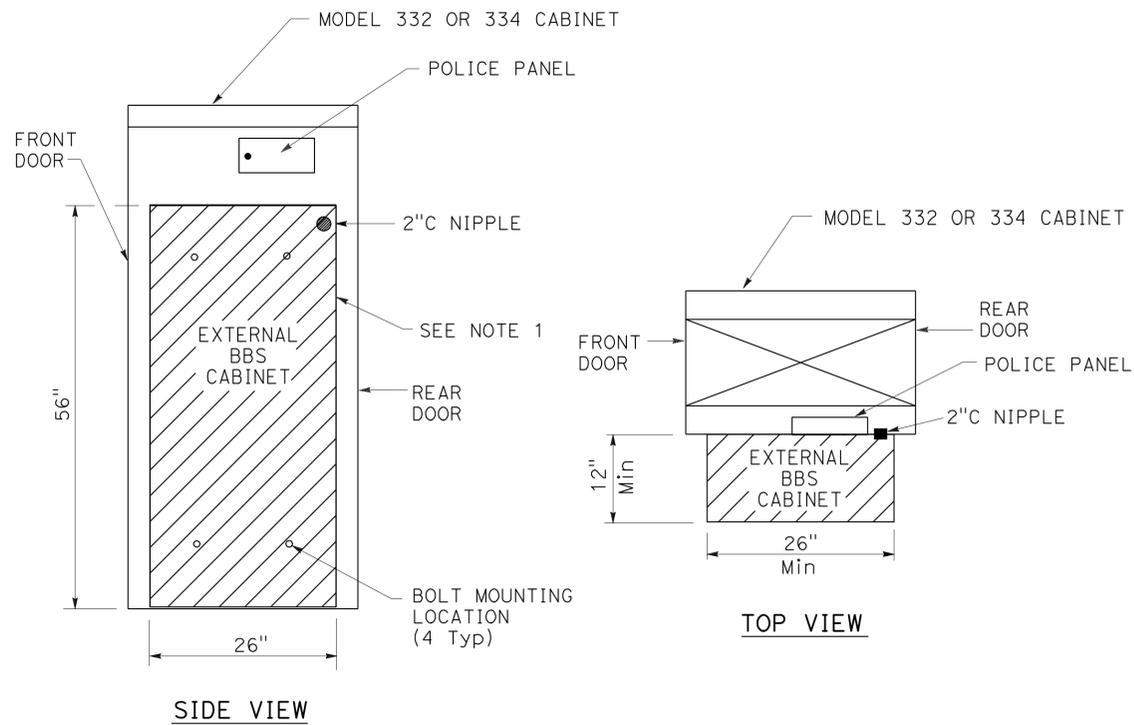
APPROVED FOR ELECTRICAL WORK ONLY

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	SBd	15	14.6	17	42

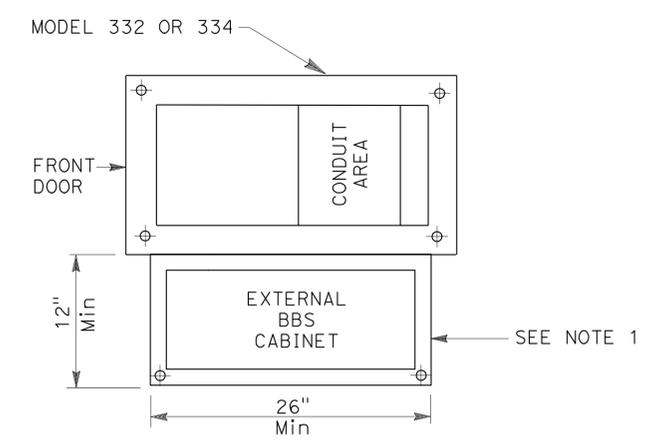
  

<i>Theresa Gabriel</i> REGISTERED ELECTRICAL ENGINEER No. E15129 Exp. 6-30-12 ELECTRICAL STATE OF CALIFORNIA	04-20-12 DATE 6-4-12 PLANS APPROVAL DATE
---	---

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.



**EXTERNAL BBS CABINET MOUNTED TO THE MODEL 332 OR 334 CABINET**

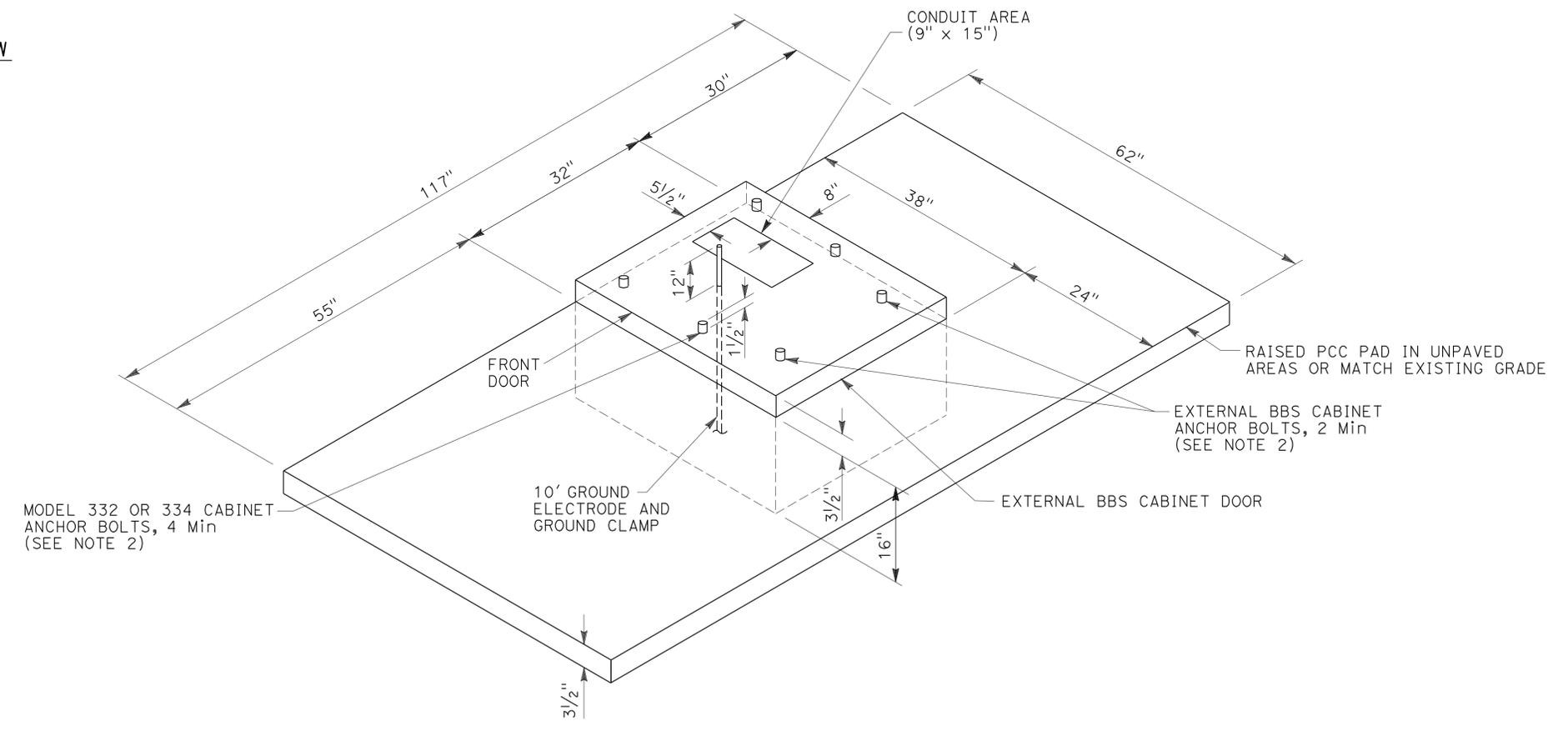


**BASE PLAN FOR BBS MOUNTED TO THE MODEL 332 OR 334 CABINET**

(FOR DIMENSIONS AND DETAILS NOT SHOWN, SEE SHEET A6-1 TO A6-4, CABINET HOUSING DETAILS OF THE TRANSPORTATION ELECTRICAL EQUIPMENT SPECIFICATION (TEES))

**NOTES: (THIS SHEET ONLY)**

1. THE EXTERNAL BBS CABINET SHALL BE MOUNTED TO THE MODEL 332 OR 334 CABINET WITH FOUR 18-8 STAINLESS STEEL HEX HEAD, FULLY-THREADED, 3/8"-16 X 1" BOLTS; TWO WASHERS PER BOLT, DESIGNED FOR 3/8" BOLTS AND ARE 18-8 STAINLESS STEEL, 1" OUTSIDE DIAMETER, ROUND, AND FLAT; AND ONE K-LOCK NUT PER BOLT THAT IS 18-8 STAINLESS STEEL AND A HEX-NUT. THE ENGINEER WILL HAVE TO APPROVE THE BOLT MOUNTING LOCATION PRIOR TO INSTALLATION.
2. THE ANCHOR BOLTS SHALL BE 3/4" Dia X 15" WITH A 2"-90° BEND. THE CABINET MANUFACTURER'S SPECIFICATION SHALL DETERMINE THE LOCATION OF THE ANCHOR BOLTS IN THE FOUNDATION. THE ENGINEER WILL HAVE TO APPROVE THE ANCHOR BOLTS AND ITS LOCATION IN THE FOUNDATION PRIOR TO CONSTRUCTION.
3. THE CONTRACTOR SHALL VERIFY THE DIMENSIONS OF THE BBS CABINET PRIOR TO CONSTRUCTING THE FOUNDATION OF THE MODIFIED PORTION OF THE STD MODEL 332 AND 334 CABINET FOUNDATION. THE ENGINEER WILL HAVE TO APPROVE ANY NECESSARY DEVIATIONS PRIOR TO CONSTRUCTION.
4. ALL DIMENSIONS ARE NOMINAL.



**MODIFIED MODEL 332 AND 334 CABINET FOUNDATION DETAIL FOR BATTERY BACKUP SYSTEM (BBS)**

(FOR DIMENSIONS AND DETAILS NOT SHOWN AND ADDITIONAL NOTES, SEE SHEET ES-3C OF THE STANDARD PLANS FOR MODEL 332 AND 334 CABINETS)

**SIGNAL AND LIGHTING (BBS FOUNDATION DETAILS)**

NO SCALE **E-6**

APPROVED FOR ELECTRICAL WORK ONLY

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

REVISOR: THERESA A. GABRIEL  
 DATE: FERDINAND DE LA CRUZ

CALCULATED/DESIGNED BY: FERDINAND DE LA CRUZ  
 CHECKED BY:

FUNCTIONAL SUPERVISOR: FERDINAND DE LA CRUZ

DATE PLOTTED => 08-NOV-2012  
 TIME PLOTTED => 1:31:50

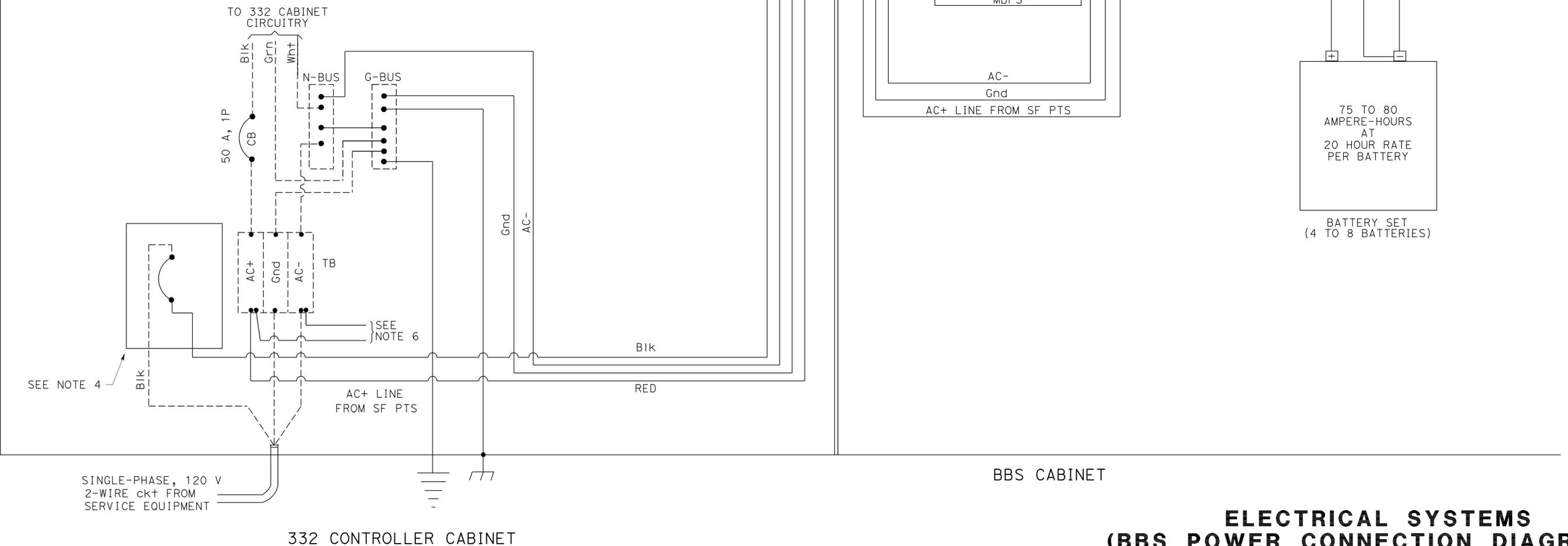
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	SBd	15	14.6	18	42
<i>Theresa Gabriel</i> REGISTERED ELECTRICAL ENGINEER DATE			04-20-12 DATE		
6-4-12 PLANS APPROVAL DATE					
<small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small>					

**LEGEND: (THIS SHEET ONLY)**

- PTS = POWER TRANSFER SWITCH
- UPS = UNINTERRUPTIBLE POWER SUPPLY
- UPSC = UNINTERRUPTIBLE POWER SUPPLY CONTROLLER
- UPSM = UPS MODE
- BP = BYPASS
- MBPS = MANUAL BYPASS SWITCH
- AC+ = UNGROUNDED CONDUCTOR
- AC- = GROUNDED CONDUCTOR
- C = COMMON
- Grn = GREEN
- Blk = BLACK
- Whit = WHITE
- SF = STATE-FURNISHED
- Batt = BATTERY
- Temp = TEMPERATURE
- TB = TERMINAL BOARD
- Cntl = CONTROL
- Gnd = GROUND

**NOTES: (THIS SHEET ONLY)**

1. TYPE B REFERS TO THE BBS EQUIPMENT FROM MANUFACTURER B.
2. CASE-1 REFERS TO THE SITUATION WHEN THE ENTIRE BBS EQUIPMENT INCLUDING THE BATTERIES ARE INSTALLED IN THE BBS CABINET.
3. THE LOCATION OF THE 2" NIPPLE WILL BE DETERMINED BY THE ENGINEER IN THE FIELD.
4. THE CONTRACTOR SHALL FURNISH AND INSTALL A NEMA-1 ENCLOSURE WITH 30 A, 1P, 120/240 VOLTS RATED CIRCUIT BREAKER MANUFACTURED PER UL STANDARD 489.
5. A TEMPERATURE PROBE SHALL BE ATTACHED TO THE BATTERY BY TAPE OR ATTACHED TO THE NEGATIVE TERMINAL OF THE BATTERY.
6. THE ELECTRICAL POWER FOR THE COOLING FAN FOR THE BBS CABINET SHALL BE TAPPED FROM THE BOTTOM OF THE TB IN THE 332 CABINET.
7. THE CONTRACTOR SHALL PROVIDE A 9-WIRE WIRING HARNESS OR BUNDLED 9 MULTICOLOR CONDUCTORS, #18 AWG WIRES FROM THE RELAY ON THE INVERTER/CHARGER UNIT TO THE CONTROLLER. THE ENDS OF THE CONDUCTORS SHALL BE INSULATED WITH TAPE AND A SIX-FOOT COIL ON EACH END.



**ELECTRICAL SYSTEMS  
(BBS POWER CONNECTION DIAGRAM,  
TYPE B, CASE-1)  
NO SCALE**

**E-7**

APPROVED FOR ELECTRICAL WORK ONLY

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** ELECTRICAL DESIGN B  
 FUNCTIONAL SUPERVISOR: FERDINAND DE LA CRUZ  
 REVISIONS: [Grid with 'x' marks]

**LEGEND: (THIS SHEET ONLY)**

- PTS = POWER TRANSFER SWITCH
- UPS = UNINTERRUPTIBLE POWER SUPPLY
- UPSC = UNINTERRUPTIBLE POWER SUPPLY CONTROLLER
- UPSM = UPS MODE
- BP = BYPASS
- MBPS = MANUAL BYPASS SWITCH
- AC+ = UNGROUNDED CONDUCTOR
- AC- = GROUNDED CONDUCTOR
- C = COMMON
- Grn = GREEN
- Blk = BLACK
- Wh+ = WHITE
- SF = STATE-FURNISHED
- TB = TERMINAL BOARD
- Cn+I = CONTROL
- Gnd = GROUND
- Temp = TEMPERATURE
- Bat+ = BATTERY

**NOTES: (THIS SHEET ONLY)**

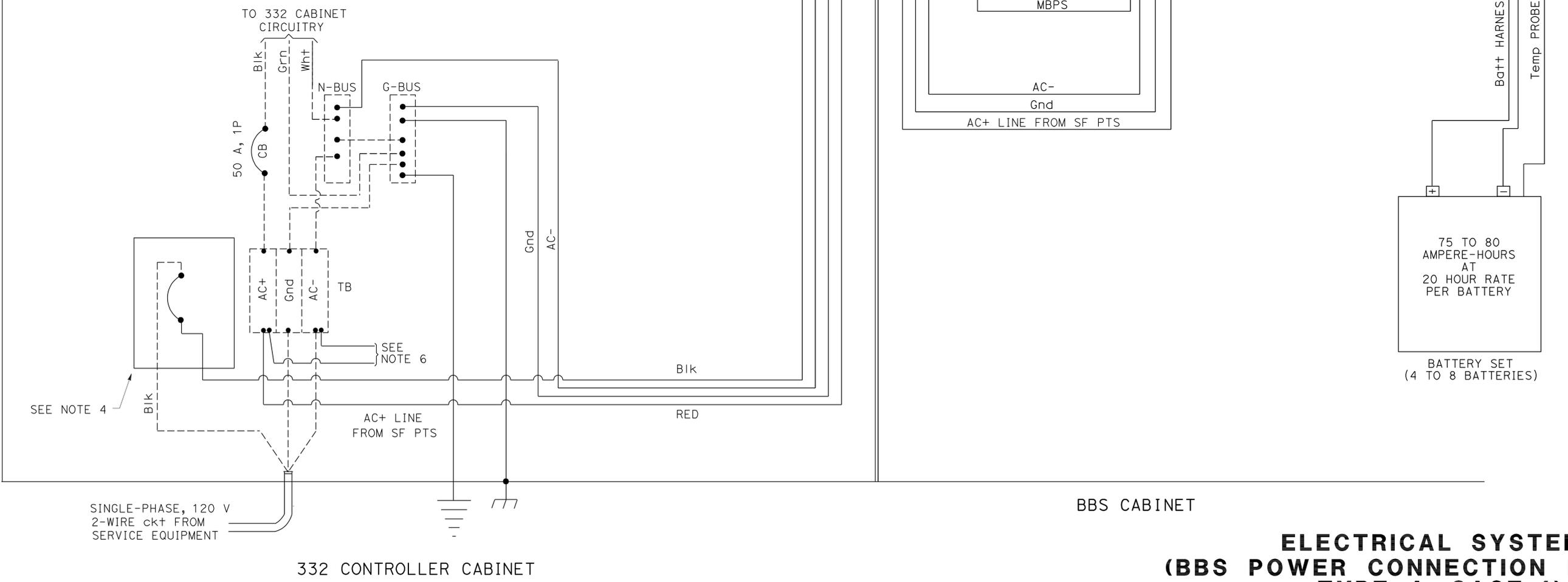
1. TYPE A REFERS TO THE BBS EQUIPMENT FROM MANUFACTURER A.
2. CASE-1 REFERS TO THE SITUATION WHEN THE ENTIRE BBS EQUIPMENT INCLUDING THE BATTERIES ARE INSTALLED IN THE BBS CABINET.
3. THE LOCATION OF THE 2" C NIPPLE WILL BE DETERMINED BY THE ENGINEER IN THE FIELD.
4. THE CONTRACTOR SHALL FURNISH AND INSTALL A NEMA-1 ENCLOSURE WITH 30 A, 1P, 120/240 VOLTS RATED CIRCUIT BREAKER MANUFACTURED PER UL STANDARD 489.
5. A TEMPERATURE PROBE SHALL BE ATTACHED TO THE BATTERY BY TAPE OR ATTACHED TO THE NEGATIVE TERMINAL OF THE BATTERY.
6. THE ELECTRICAL POWER FOR THE COOLING FAN FOR THE BBS CABINET SHALL BE TAPPED FROM THE BOTTOM OF THE TB IN THE 332 CABINET.
7. THE CONTRACTOR SHALL PROVIDE A 9-WIRE WIRING HARNESS OR BUNDLED 9 MULTICOLOR CONDUCTORS, #18 AWG WIRES FROM THE RELAY ON THE INVERTER/CHARGER UNIT TO THE CONTROLLER. THE ENDS OF THE CONDUCTORS SHALL BE INSULATED WITH TAPE AND A SIX-FOOT COIL ON EACH END.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	SBd	15	14.6	19	42

*Theresa Gabriel* 04-20-12  
 REGISTERED ELECTRICAL ENGINEER DATE  
 6-4-12  
 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER  
**THERESA A. GABRIEL**  
 No. E15129  
 Exp. 6-30-12  
 ELECTRICAL  
 STATE OF CALIFORNIA

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



**ELECTRICAL SYSTEMS  
 (BBS POWER CONNECTION DIAGRAM,  
 TYPE A, CASE-1)**

APPROVED FOR ELECTRICAL WORK ONLY

NO SCALE

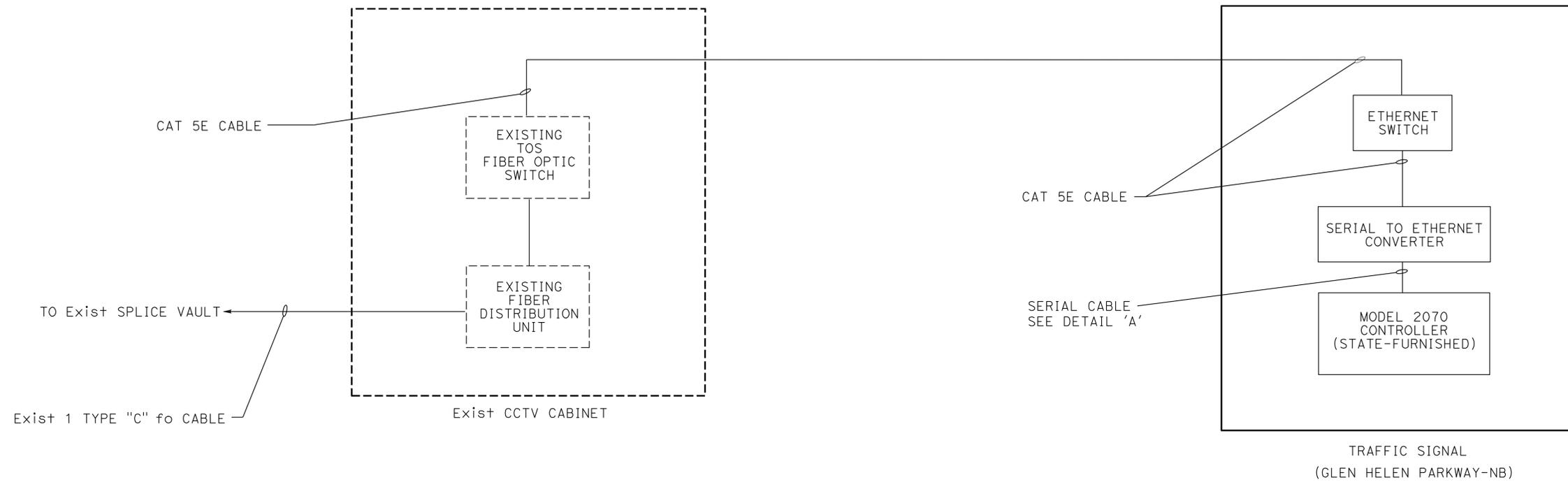
**E-8**

LAST REVISION: DATE PLOTTED => 08-NOV-2012 13:50  
 03-14-12 TIME PLOTTED => 13:50

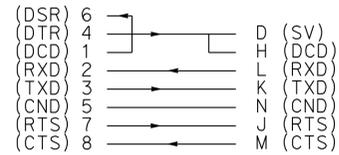
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	SBd	15	14.6	20	42
<i>Ferdinand De la Cruz</i> REGISTERED ELECTRICAL ENGINEER			04-20-12 DATE	REGISTERED PROFESSIONAL ENGINEER <b>FERDINAND DE LA CRUZ</b> No. E17215 Exp 6-30-12 ELECTRICAL STATE OF CALIFORNIA	
6-4-12 PLANS APPROVAL DATE			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)

1. THE CONTRACTOR SHALL FURNISH ALL EQUIPMENT UNLESS SHOWN AS EXISTING.



MALE CONNECTOR DB9



MALE CONNECTOR C20S



DETAIL 'A'

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

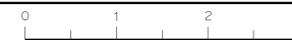
FUNCTIONAL SUPERVISOR FERDINAND DE LA CRUZ	CALCULATED/DESIGNED BY SANDY TUNG	REVISOR FERDINAND DE LA CRUZ	DATE
CHECKED BY	DATE	REVISOR	DATE

APPROVED FOR ELECTRICAL WORK ONLY

**MODIFY COMMUNICATION SYSTEM  
EQUIPMENT DETAILS**

NO SCALE

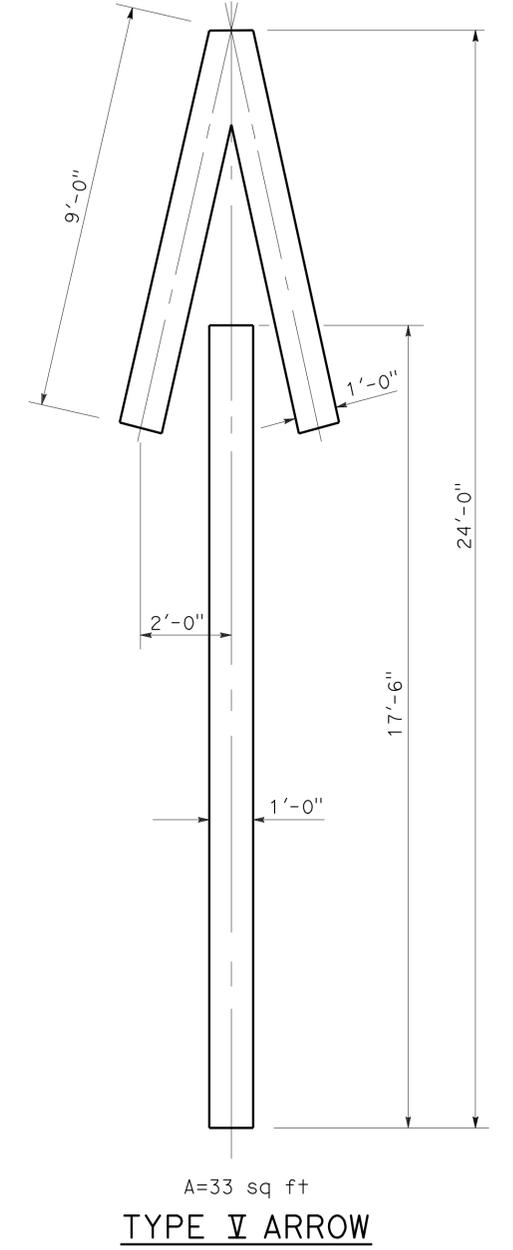
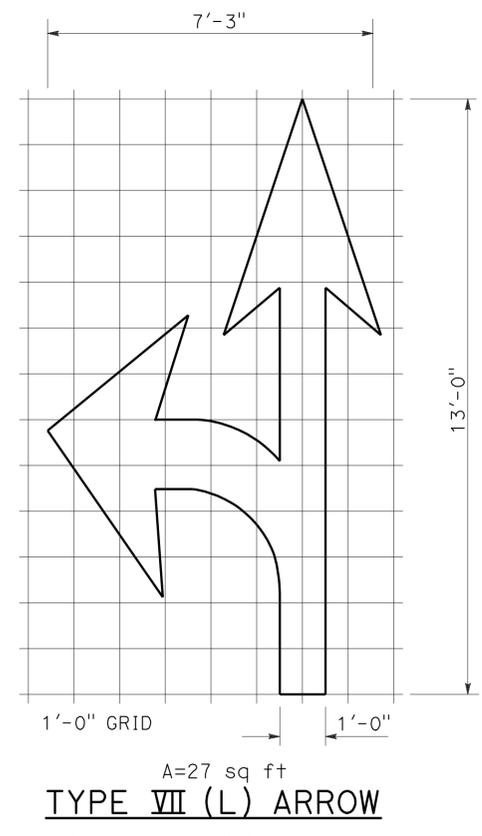
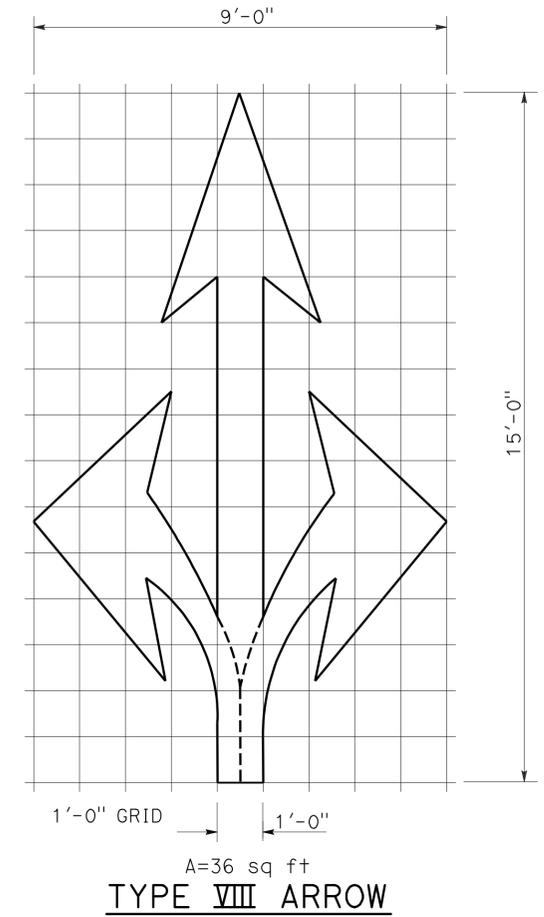
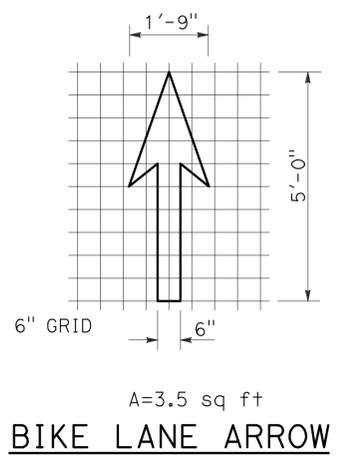
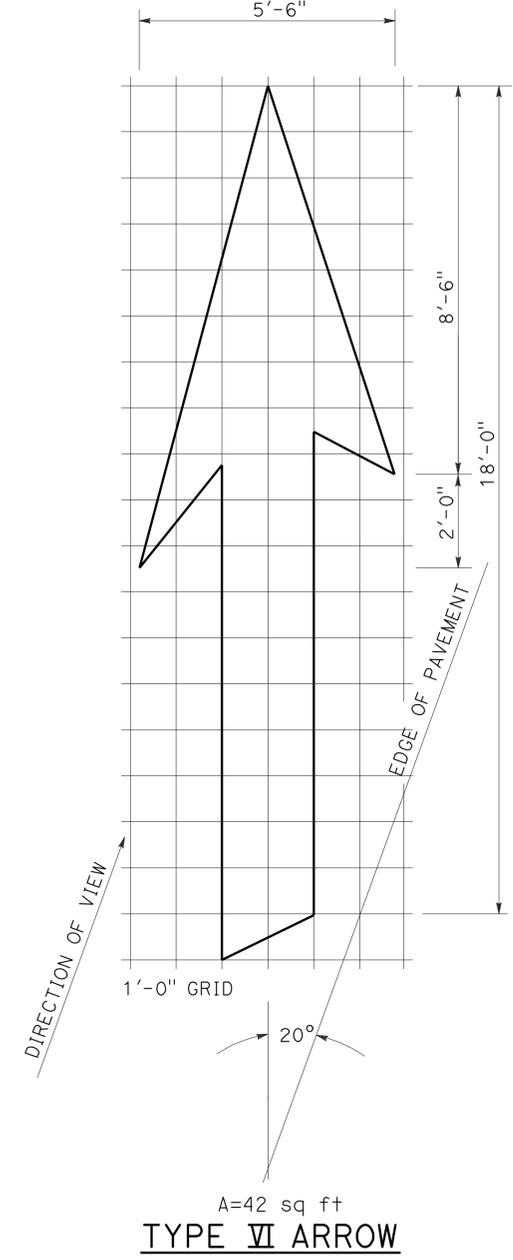
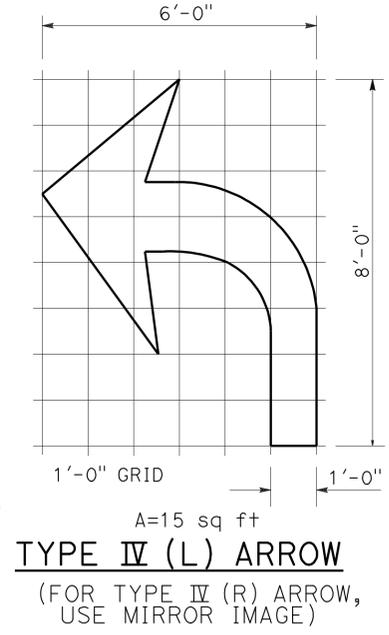
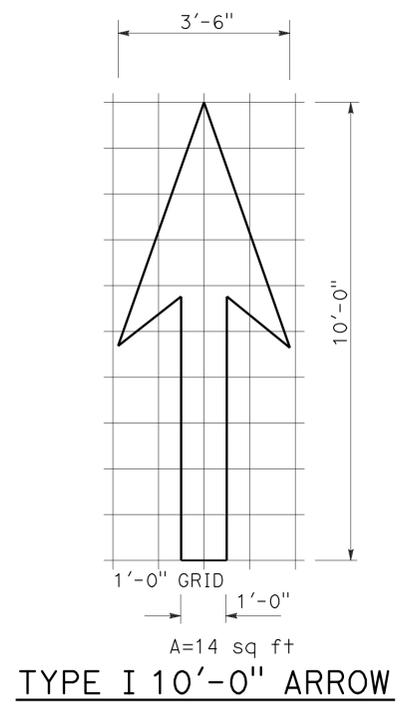
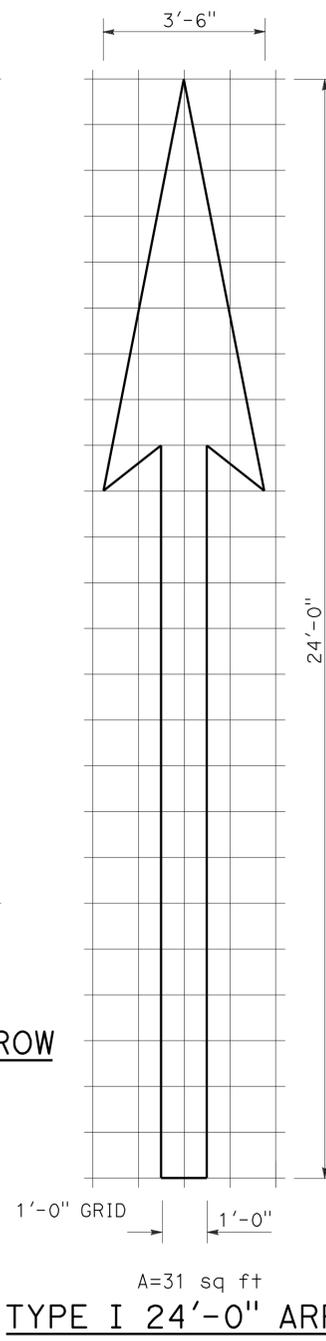
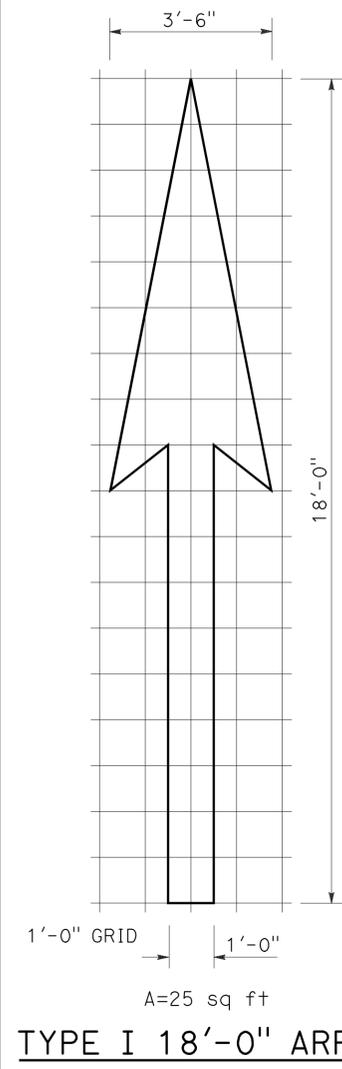
**E-9**



DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
08	SBd	15	14.6	21	42

Roberto L. McLaughlin  
 REGISTERED CIVIL ENGINEER  
 April 20, 2012  
 PLANS APPROVAL DATE  
 The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

To accompany plans dated 6-4-12



**NOTE:**  
MINOR VARIATIONS IN DIMENSIONS  
MAY BE ACCEPTED BY THE ENGINEER.

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

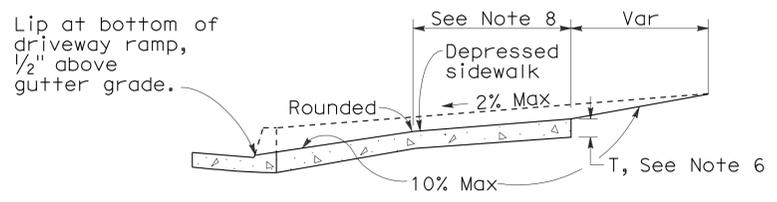
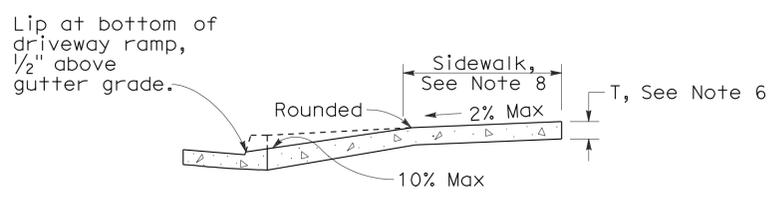
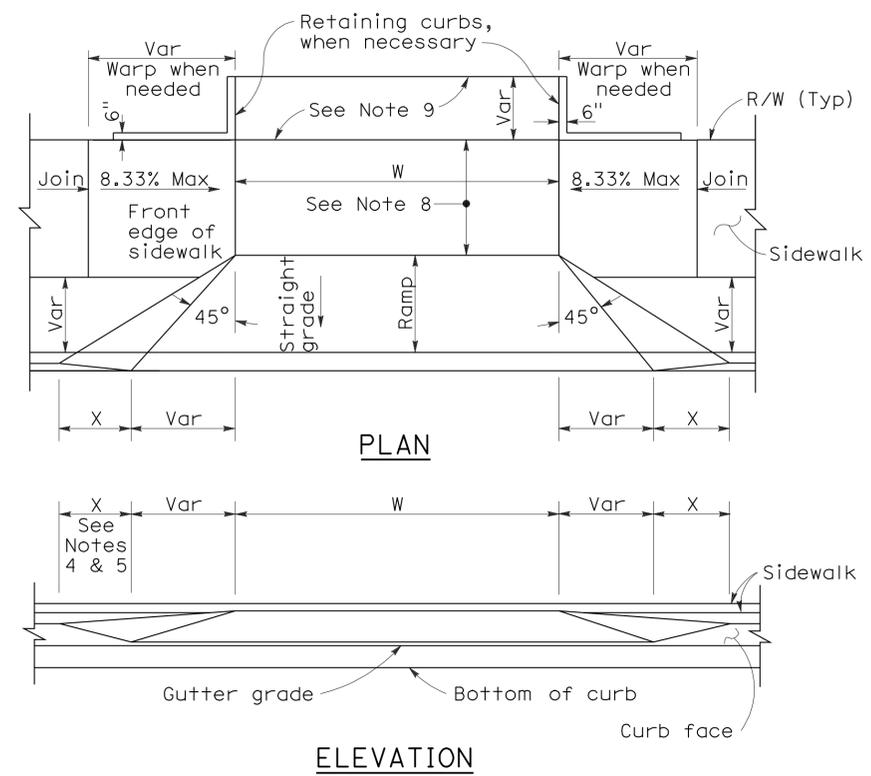
RSP A24A DATED APRIL 20, 2012 SUPERSEDES STANDARD PLAN A24A  
DATED MAY 1, 2006 - PAGE 9 OF THE STANDARD PLANS BOOK DATED MAY 2006.

2006 REVISED STANDARD PLAN RSP A24A

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
08	SBd	15	14.6	22	42

REGISTERED CIVIL ENGINEER  
 November 17, 2006  
 PLANS APPROVAL DATE  
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REGISTERED PROFESSIONAL ENGINEER  
 Michael Janzen  
 No. 44788  
 Exp. 03-31-08  
 CIVIL  
 STATE OF CALIFORNIA



**CASE A**

Typical driveway, sidewalk not depressed

**CASE B**

Driveway with depressed sidewalk

**SECTIONS**

**CURB QUANTITIES**

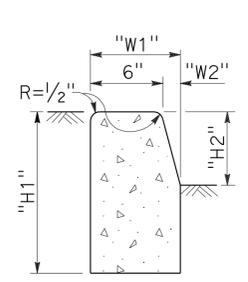
TYPE	CUBIC YARDS PER LINEAR FOOT
A1-6	0.02585
A1-8	0.03084
A2-6	0.05903
A2-8	0.06379
A3-6	0.01036
A3-8	0.01435
B1-4	0.02185
B1-6	0.02930
B2-4	0.05515
B2-6	0.06171
B3-4	0.00641
B3-6	0.01074
B4	0.05709
D-4	0.04083
D-6	0.06804
E	0.06661

**TABLE A**

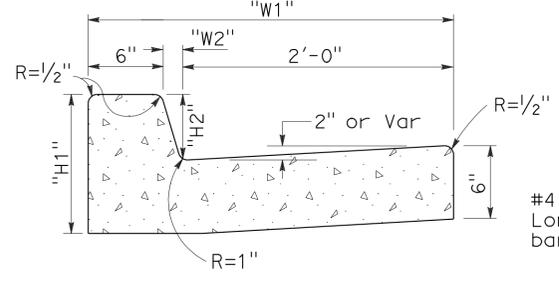
CURB TYPE	DIMENSIONS			
	"H1"	"H2"	"W1"	"W2"
A1-6	1'-2"	6"	7 1/2"	1 1/2"
A1-8	1'-4"	8"	8"	2"
A2-6	1'-0"	6"	2'-7 1/2"	1 1/2"
A2-8	1'-2"	8"	2'-8"	2"
A3-6	6"	5"	7 1/4"	1 1/4"
A3-8	8"	7"	7 3/4"	1 3/4"
B1-4	1'-0"	4"	7 1/2"	2 1/2"
B1-6	1'-2"	6"	9"	4"
B2-4	10"	4"	2'-7 1/2"	2 1/2"
B2-6	1'-0"	6"	2'-9"	4"
B3-4	4"	3"	7"	2"
B3-6	6"	5"	8 1/2"	3 1/2"
D-4	10"	4"	1'-6"	1'-1"
D-6	1'-0"	6"	2'-2"	1'-8"

To accompany plans dated 6-4-12

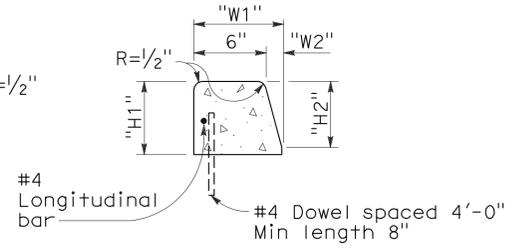
**DRIVEWAYS**



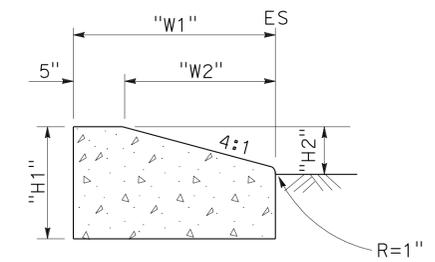
**TYPE A1 CURBS**  
See Table A



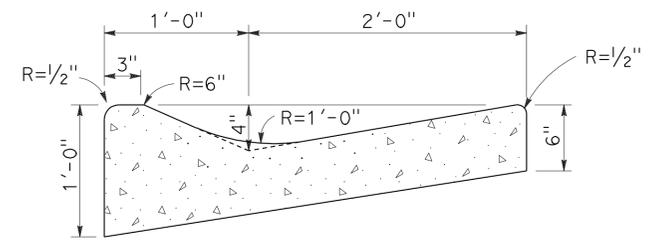
**TYPE A2 CURBS**  
See Table A



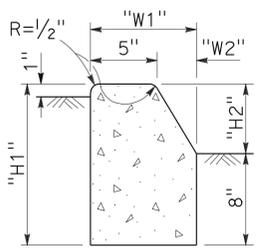
**TYPE A3 CURBS**  
Superimposed on existing pavement  
See Table A



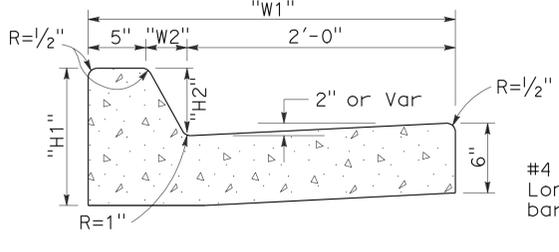
**TYPE D CURBS**  
See Table A



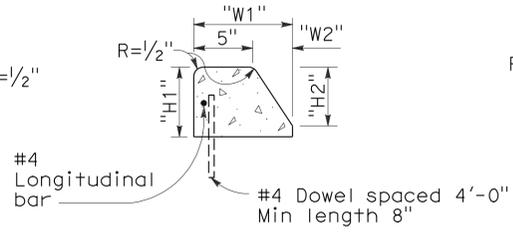
**TYPE E CURB**



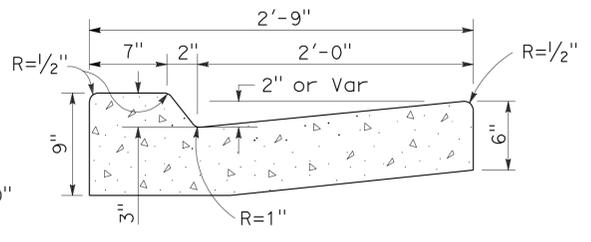
**TYPE B1 CURBS**  
See Table A



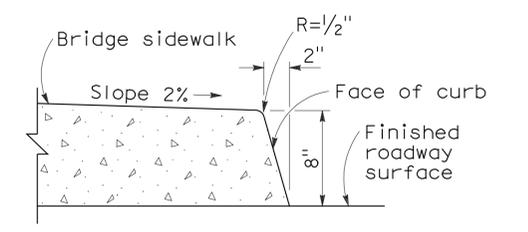
**TYPE B2 CURBS**  
See Table A



**TYPE B3 CURBS**  
Superimposed on existing pavement  
See Table A



**TYPE B4 CURBS**



**TYPE H CURB**  
On Bridges

**NOTES:**

- Case A driveway section typically applies.
- Use Case B driveway section when ramp slopes would exceed 10% in Case A.
- Use Case B driveway section when sidewalk cross slope would exceed 2% in Case A.
- X=3'-0" except for curb heights over 10" where 4:1 slopes shall be used on curb slope.
- X is a variable when sidewalk is located where wheelchairs may traverse the surface. Slopes shall not exceed 8.33%.
- Sidewalk and ramp thickness "T" at driveway shall be 4" for residential and 6" for commercial.
- Difference in slope of the driveway ramp and the slope of a line between the gutter and a point on the roadway 5'-0" from gutter line shall not exceed 15%. Reduce driveway ramp slope, not gutter slope, where required.
- Minimum width of clear passageway for sidewalk shall be 4'-0".
- Retaining curbs and acquisition of construction easement may be necessary for narrow sidewalks or curb heights in excess of 6".
- Across the pedestrian route at curb ramp locations, the gutter pan slope shall not exceed 1" of depth for each 2'-0" of width.

**CURBS**

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**CURBS AND DRIVEWAYS**

NO SCALE

RSP A87A DATED NOVEMBER 17, 2006 SUPERSEDES STANDARD PLAN A87A  
DATED MAY 1, 2006 - PAGE 113 OF THE STANDARD PLANS BOOK DATED MAY 2006.

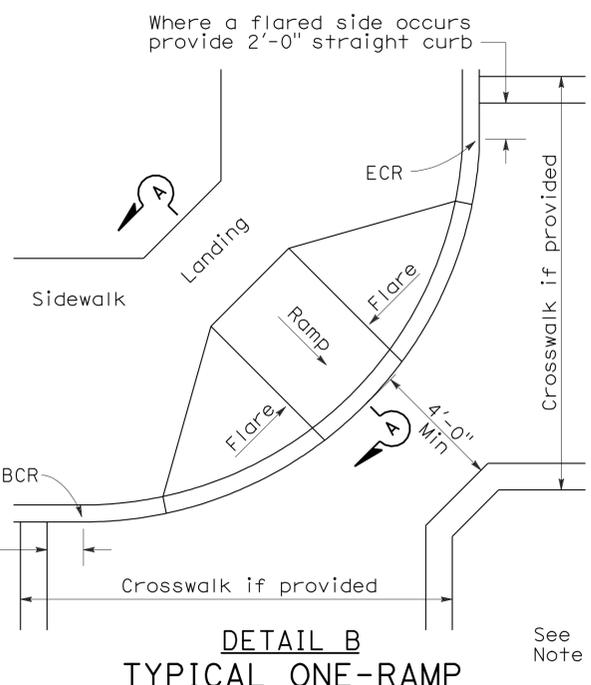
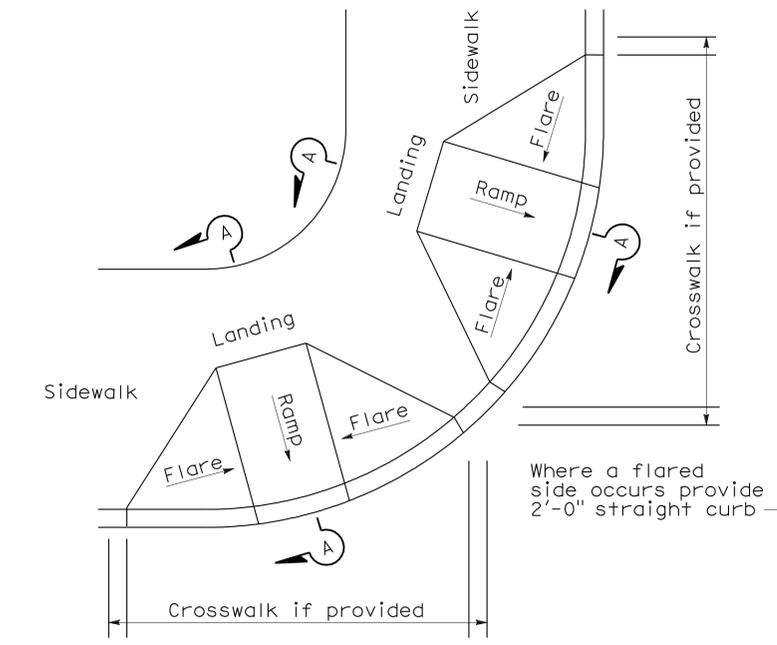
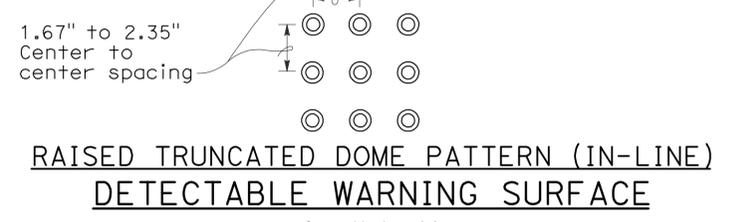
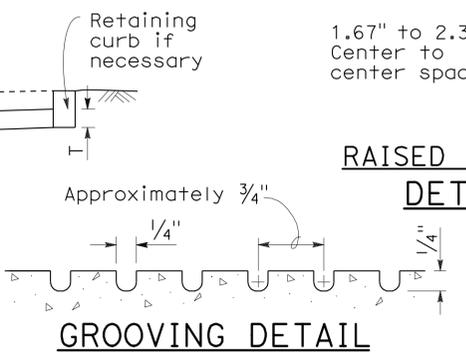
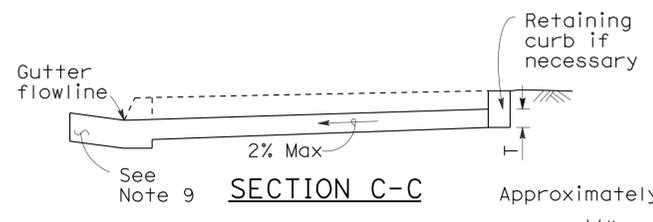
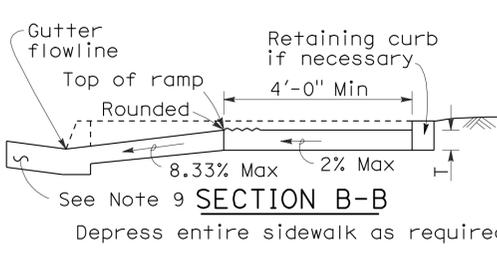
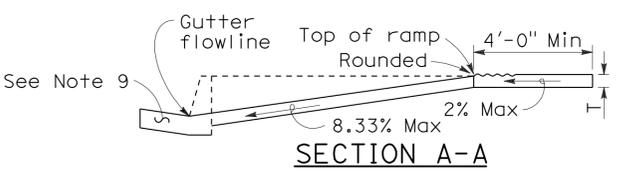
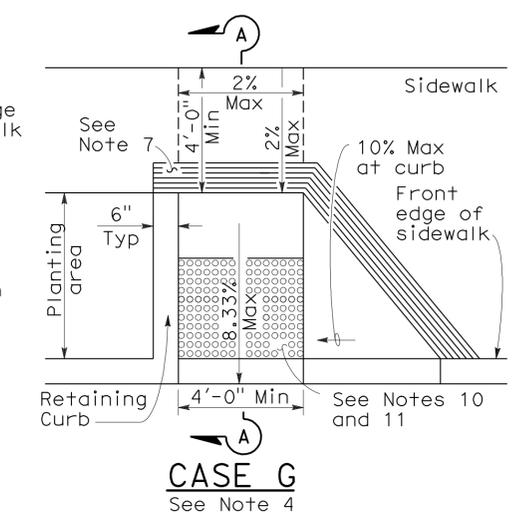
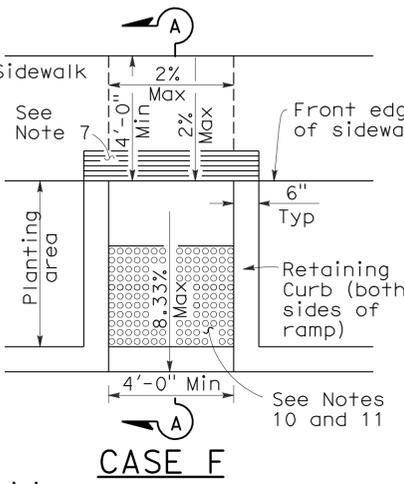
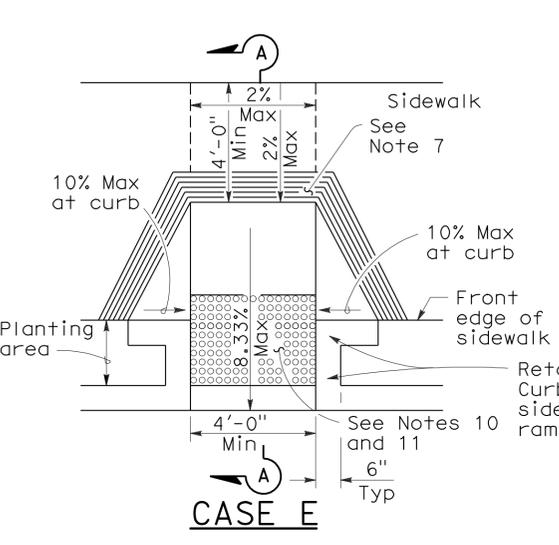
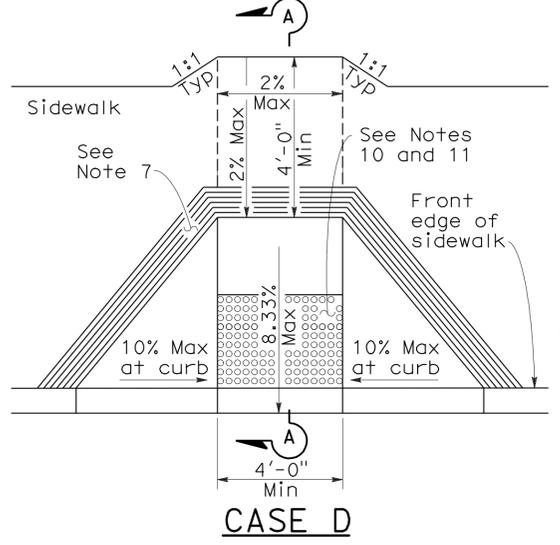
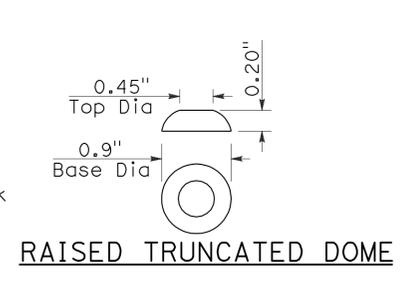
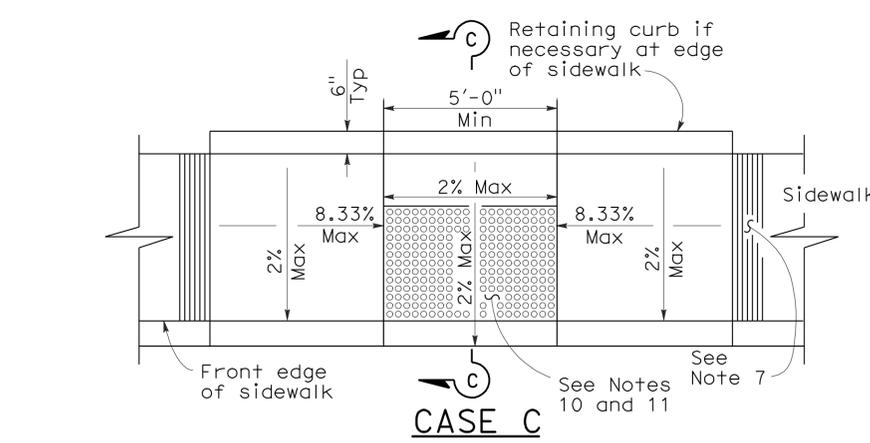
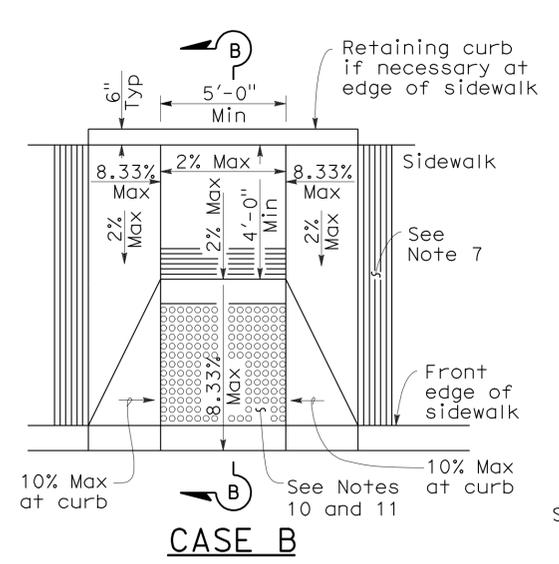
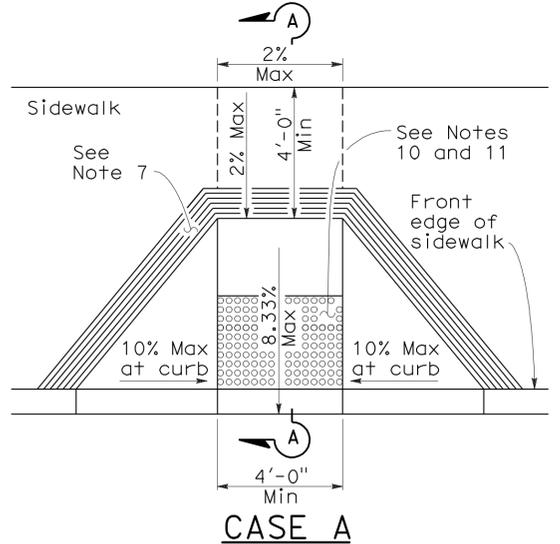
**REVISED STANDARD PLAN RSP A87A**

2006 REVISED STANDARD PLAN RSP A87A

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
08	SBd	15	14.6	23	42

*H. David Cordova*  
 REGISTERED CIVIL ENGINEER  
 September 1, 2006  
 PLANS APPROVAL DATE  
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

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



**TYPICAL TWO-RAMP CORNER INSTALLATION**  
See Note 1

**TYPICAL ONE-RAMP CORNER INSTALLATION**  
See Notes 1 and 3

**RETROFIT DETAIL**  
Existing curb and sidewalk

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

See Note 10  
 STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**CURB RAMP DETAILS**  
 NO SCALE  
 RSP A88A DATED SEPTEMBER 1, 2006 SUPERSEDES STANDARD PLAN A88A  
 DATED MAY 1, 2006 - PAGE 115 OF THE STANDARD PLANS BOOK DATED MAY 2006.  
**REVISED STANDARD PLAN RSP A88A**

2006 REVISED STANDARD PLAN RSP A88A

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
08	SBd	15	14.6	24	42

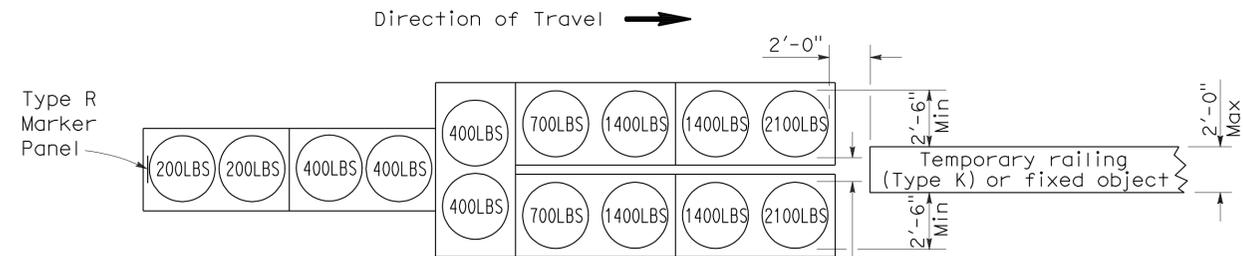
*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

June 6, 2008  
PLANS APPROVAL DATE

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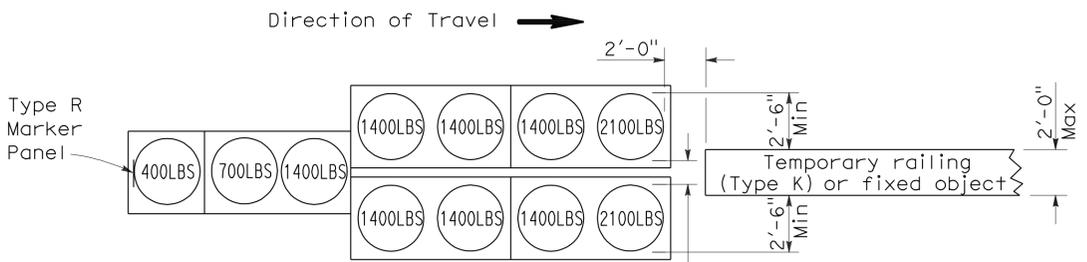
REGISTERED PROFESSIONAL ENGINEER  
Randell D. Hiatt  
No. C50200  
Exp. 6-30-09  
CIVIL  
STATE OF CALIFORNIA

To accompany plans dated 6-4-12



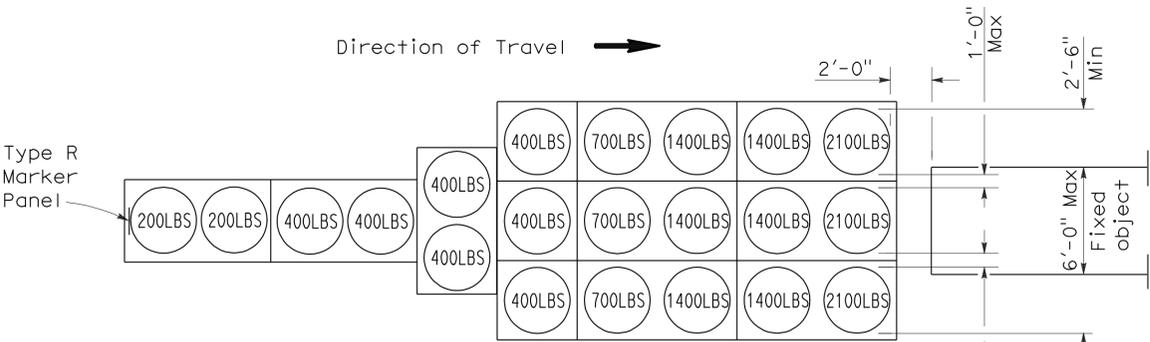
**ARRAY 'TU14'**

Approach speed 45 mph or more



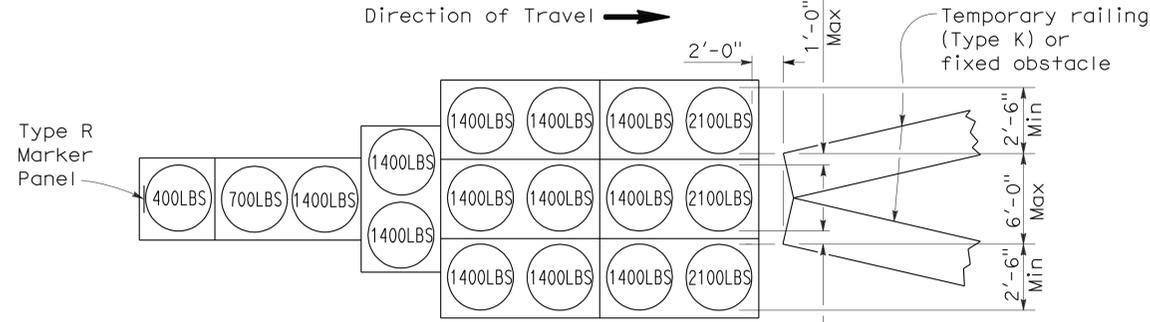
**ARRAY 'TU11'**

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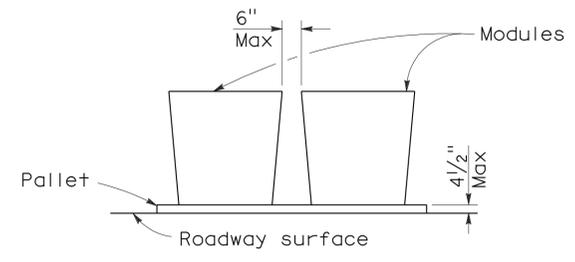
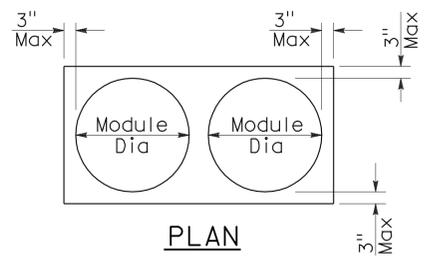
**ARRAY 'TU21'**

Approach speed 45 mph or more



**ARRAY 'TU17'**

Approach speed less than 45 mph



**CRASH CUSHION PALLET DETAIL**

See Note 7

**NOTES:**

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

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

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

NO SCALE

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

**REVISED STANDARD PLAN RSP T1A**

2006 REVISED STANDARD PLAN RSP T1A

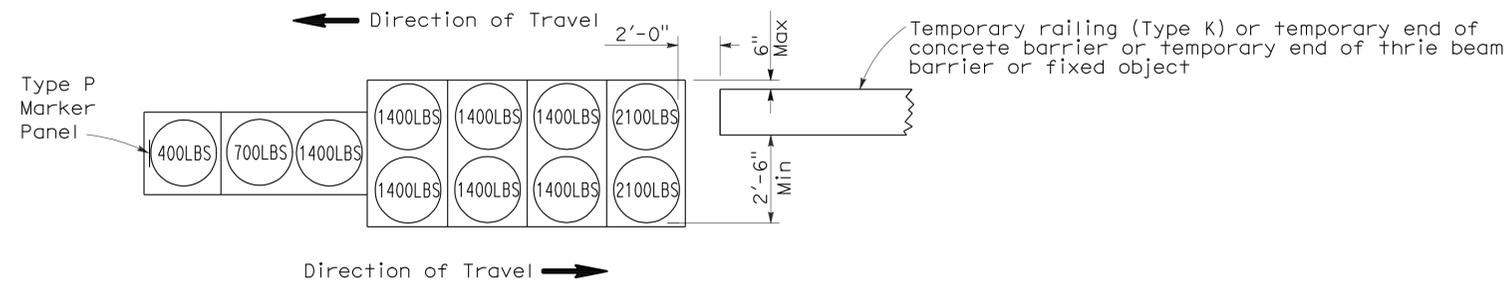
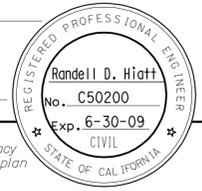
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
08	SBd	15	14.6	25	42

*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

June 6, 2008  
PLANS APPROVAL DATE

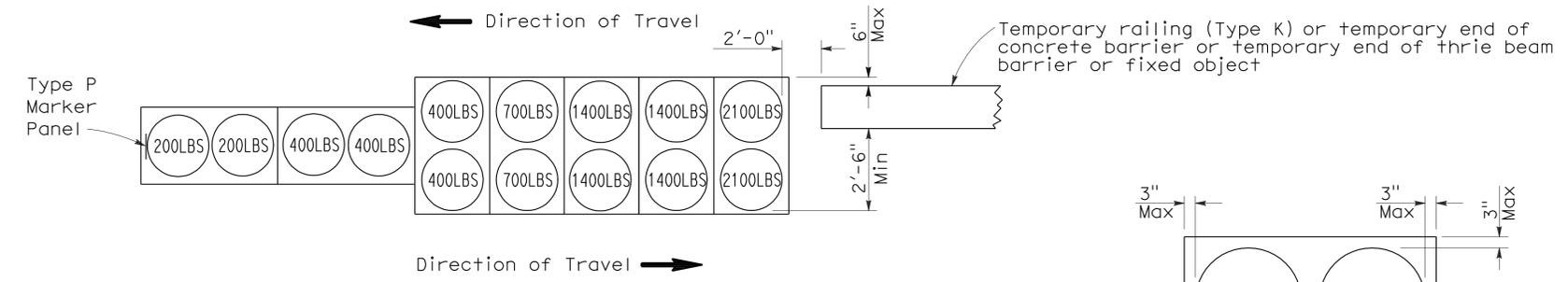
*The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.*

To accompany plans dated 6-4-12



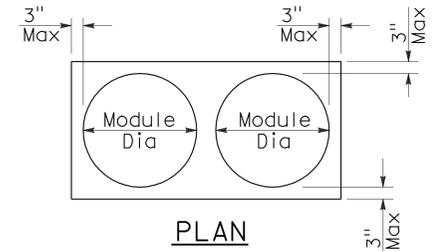
**ARRAY 'TB11'**

Approach speed less than 45 mph

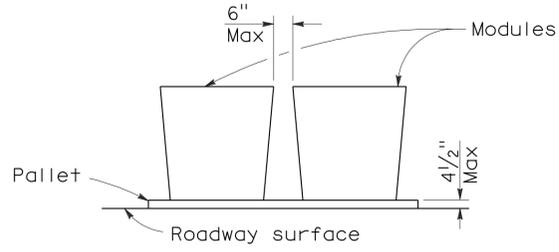


**ARRAY 'TB14'**

Approach speed 45 mph or more



PLAN



ELEVATION

**CRASH CUSHION PALLET DETAIL**

See Note 7

**NOTES:**

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

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

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

NO SCALE

RSP T1B DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN T1B  
DATED MAY 1, 2006 - PAGE 212 OF THE STANDARD PLANS BOOK DATED MAY 2006.

**REVISED STANDARD PLAN RSP T1B**

2006 REVISED STANDARD PLAN RSP T1B

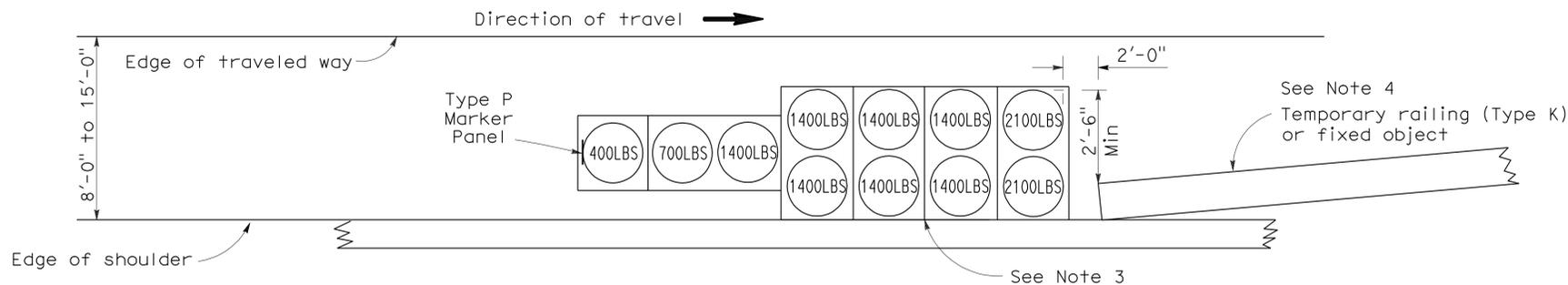
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
08	SBd	15	14.6	26	42

*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

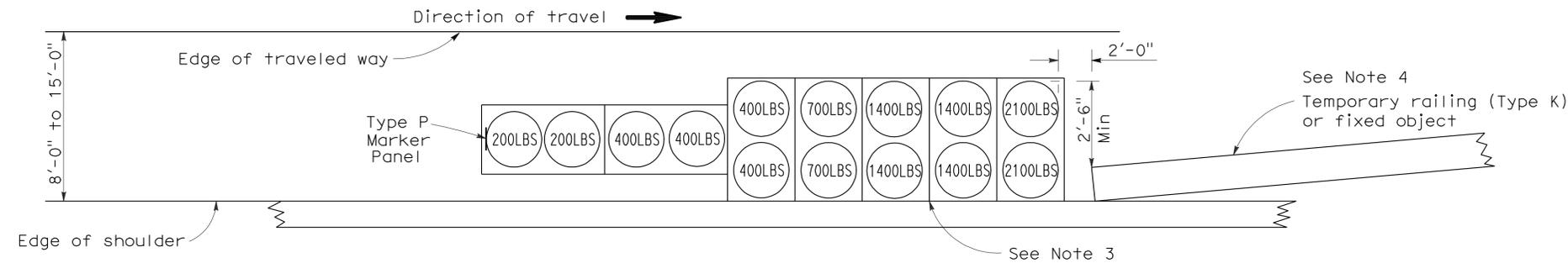
June 6, 2008  
PLANS APPROVAL DATE

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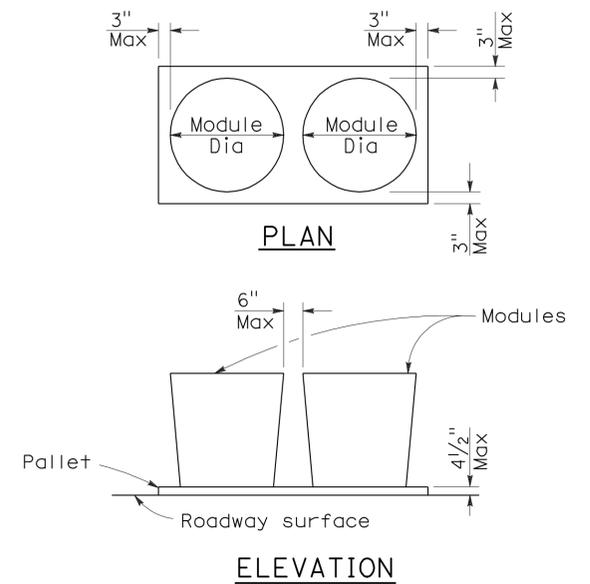
To accompany plans dated 6-4-12



**ARRAY 'TS11'**  
Approach speed less than 45 mph  
See Note 9



**ARRAY 'TS14'**  
Approach speed 45 mph or more  
See Note 9



**CRASH CUSHION PALLET DETAIL**  
See Note 11

**NOTES:**

- (XXX) Indicates sand filled module location and weight of sand in pounds for each module. Module spacing is based on the greater diameter of the module.
- All sand weights are nominal.
- The temporary crash cushion arrays shown on this plan shall be used only in locations where there will be traffic on one side of the temporary crash cushion array.
- If the fixed object or approach end of the temporary railing is less than 15'-0" from the edge of traveled way, a temporary crash cushion is required in a construction or work zone.
- Temporary crash cushion arrays shall not encroach on the traveled way.
- Arrays for median shoulders shall conform to details shown on this plan for outside shoulders.
- Place the Type P marker panel so that the bottom of the panel rests upon the pallet and faces traffic.
- Refer to Standard Plan A73B for marker details.
- For shoulder widths less than 8'-0", appropriate approved crash cushion protection, other than sand filled modules, shall be provided at fixed objects and at approach ends of temporary railing. The specific type of crash cushion shall be as shown on the project plans or as specified in the Special Provisions, or if not shown on the project plans or specified in the Special Provisions, shall be as approved by the Engineer.
- Approach speeds indicated conform to NCHRP 350 Report criteria.
- Use of pallets is optional.

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

NO SCALE  
RSP T2 DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN T2  
DATED MAY 1, 2006 - PAGE 213 OF THE STANDARD PLANS BOOK DATED MAY 2006.

**REVISED STANDARD PLAN RSP T2**

2006 REVISED STANDARD PLAN RSP T2

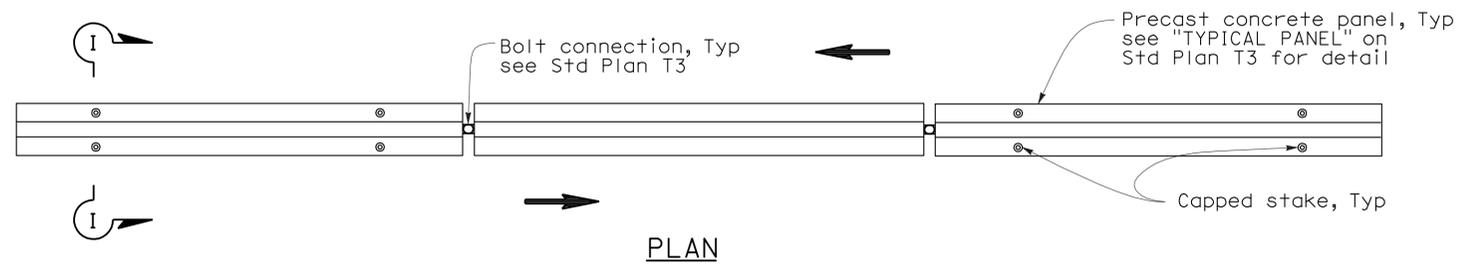
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	SBd	15	14.6	27	42

*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

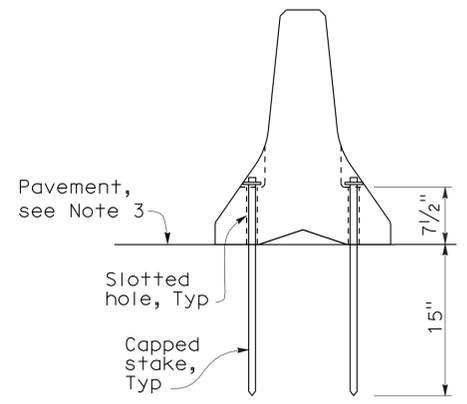
May 20, 2011  
PLANS APPROVAL DATE

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To accompany plans dated 6-4-12



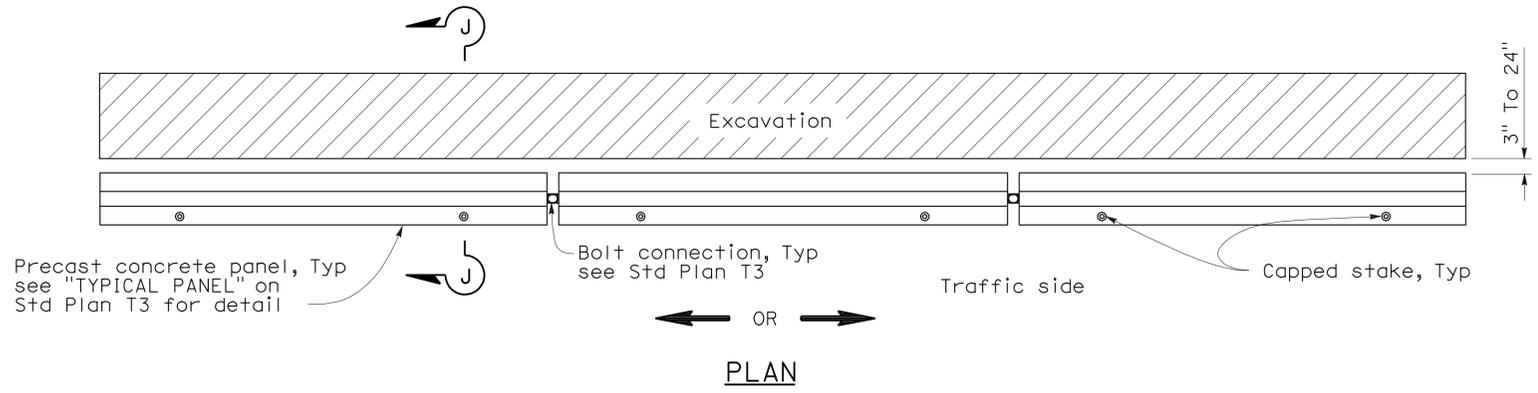
**RAILING STAKING CONFIGURATION FOR TWO-WAY TRAFFIC**  
See Note 1



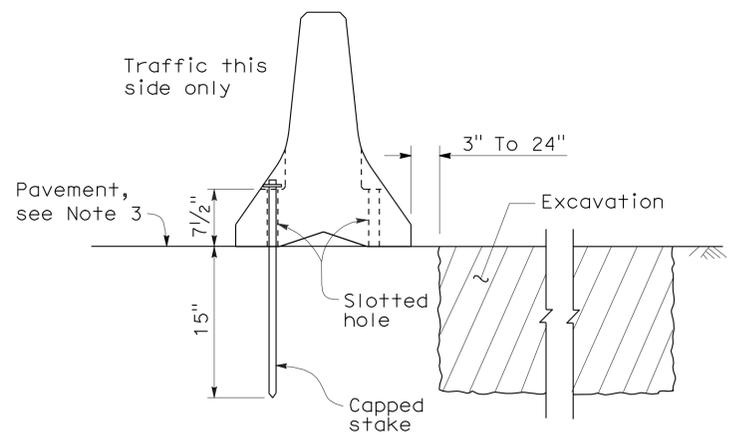
SECTION I-I

**NOTES:**

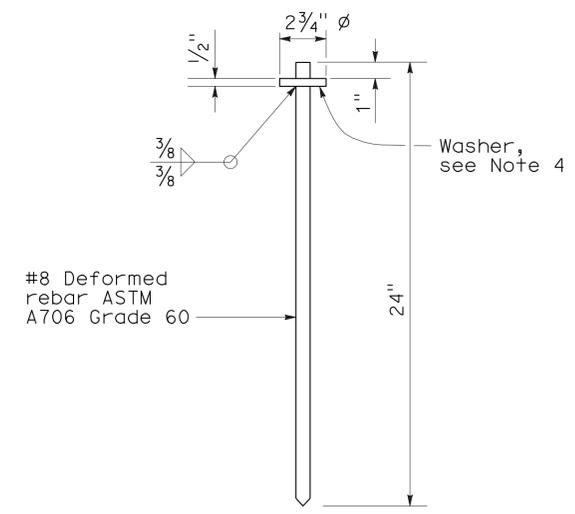
1. Where Type K Temporary Railing is placed as a temporary or long term barrier in two-way traffic on highways with less than 24" from the edge of traveled way, use four capped stakes per every other panel with end panels staked.
2. Where Type K Temporary Railing is placed 3" to 24" from the edge of an excavation on highways, use two capped stakes per panel along the traffic side.
3. Staked Type K Temporary Railing must be supported by at least 4" thick concrete, hot mix asphalt or existing asphalt concrete pavement.
4. The minimum yield strength for the washer must be 60,000 psi.
5. Direction of adjacent traffic indicated by  $\Rightarrow$ .



**RAILING STAKING CONFIGURATION ADJACENT TO AN EXCAVATION**  
See Note 2



SECTION J-J



CAPPED STAKE DETAIL

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DEPARTMENT OF TRANSPORTATION

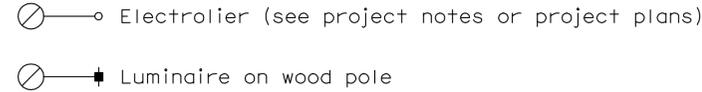
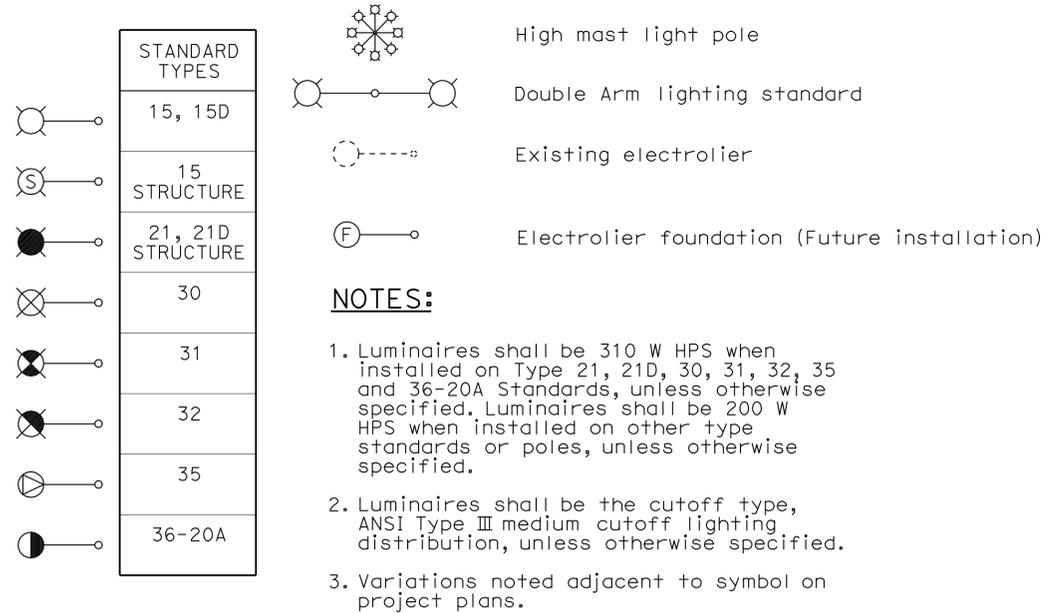
**TEMPORARY RAILING  
(TYPE K)**

NO SCALE

NSP T3A DATED MAY 20, 2011 SUPPLEMENTS  
THE STANDARD PLANS BOOK DATED MAY 2006.

2006 NEW STANDARD PLAN NSP T3A

# ELECTROLIERS



## STANDARD NOTES:

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

# ABBREVIATIONS AND EQUIPMENT DESIGNATIONS

## PROPOSED EXISTING

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

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
08	SBd	15	14.6	28	42

*Jeffery G. McRae*  
REGISTERED ELECTRICAL ENGINEER

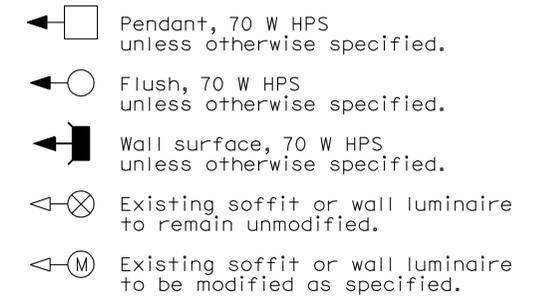
October 5, 2007  
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER  
Jeffery G. McRae  
No. E14512  
Exp. 6-30-08  
ELECTRICAL  
STATE OF CALIFORNIA

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To accompany plans dated 6-4-12

## SOFFIT AND WALL MOUNTED LUMINAIRES



### NOTE:

Arrow indicates "street side" of luminaire.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

## ELECTRICAL SYSTEMS (SYMBOLS AND ABBREVIATIONS)

NO SCALE

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

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

2006 REVISED STANDARD PLAN RSP ES-1A

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
08	SBd	15	14.6	29	42

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

To accompany plans dated 6-4-12

### CONDUIT

PROPOSED	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 in/on structure or service pole

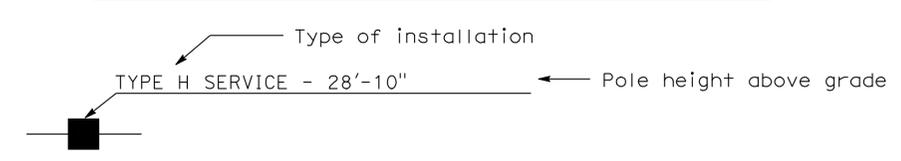
### SIGNAL EQUIPMENT

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

### SERVICE EQUIPMENT

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

### POLE-MOUNTED SERVICE DESIGNATION



### ILLUMINATED OVERHEAD SIGN

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

### SIGNAL EQUIPMENT Cont

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

### NOTES:

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

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**ELECTRICAL SYSTEMS  
 (SYMBOLS AND ABBREVIATIONS)**  
 NO SCALE

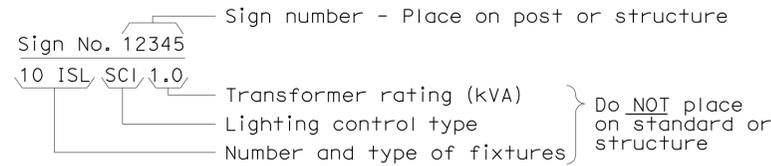
RSP ES-1B DATED OCTOBER 5, 2007 SUPERCEDES STANDARD PLAN ES-1B  
 DATED MAY 1, 2006 - PAGE 401 OF THE STANDARD PLANS BOOK DATED MAY 2006.

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

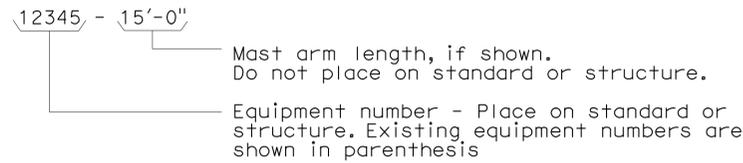
2006 REVISED STANDARD PLAN RSP ES-1B

### EQUIPMENT IDENTIFICATION

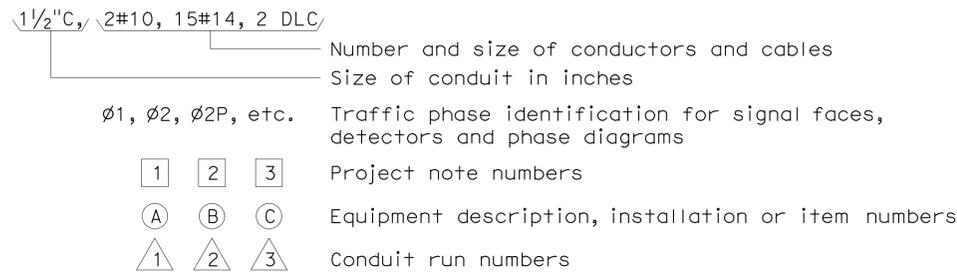
#### ILLUMINATED SIGN IDENTIFICATION NUMBER:



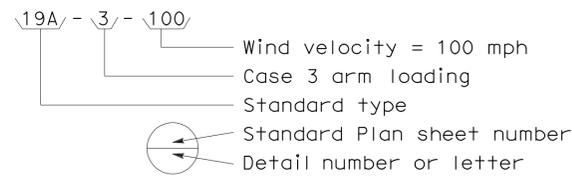
#### ELECTROLIER OR EQUIPMENT IDENTIFICATION NUMBER:



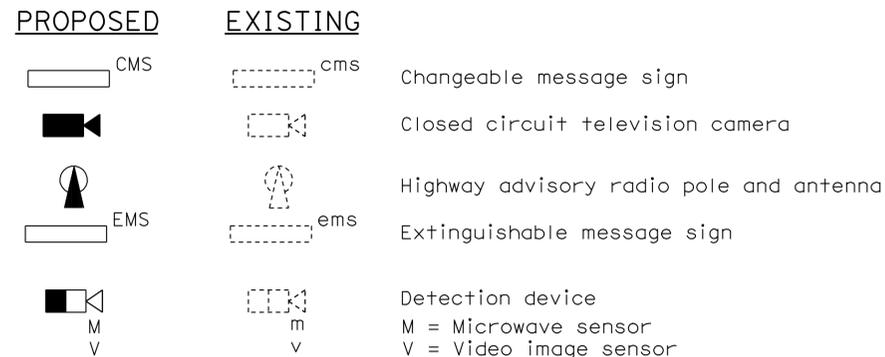
#### CONDUIT AND CONDUCTOR IDENTIFICATION:



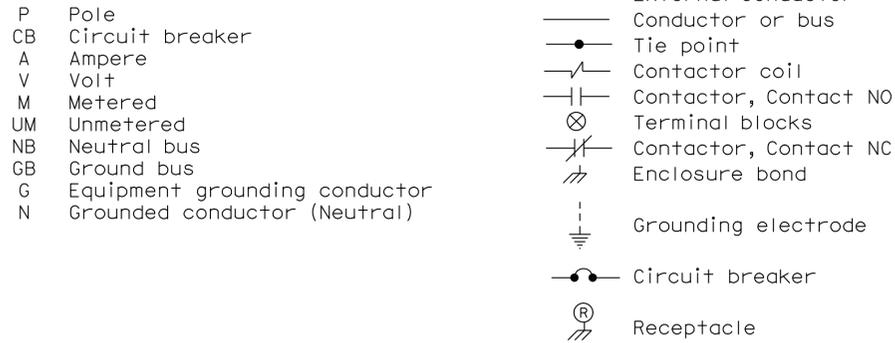
#### SIGNAL AND LIGHTING STANDARD (TYPICAL DESIGNATION):



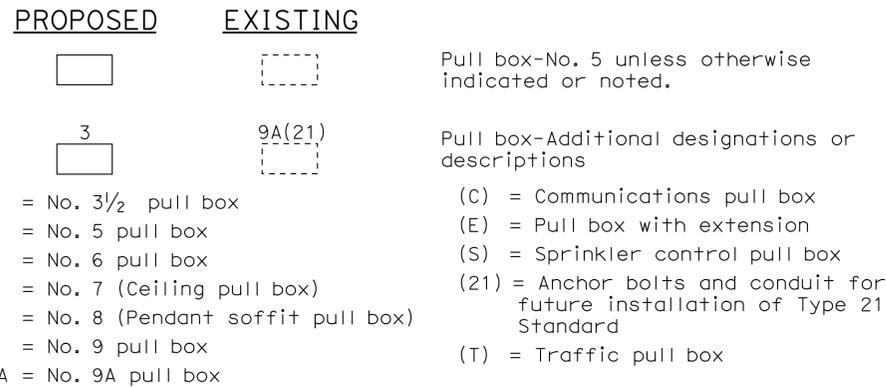
### MISCELLANEOUS EQUIPMENT



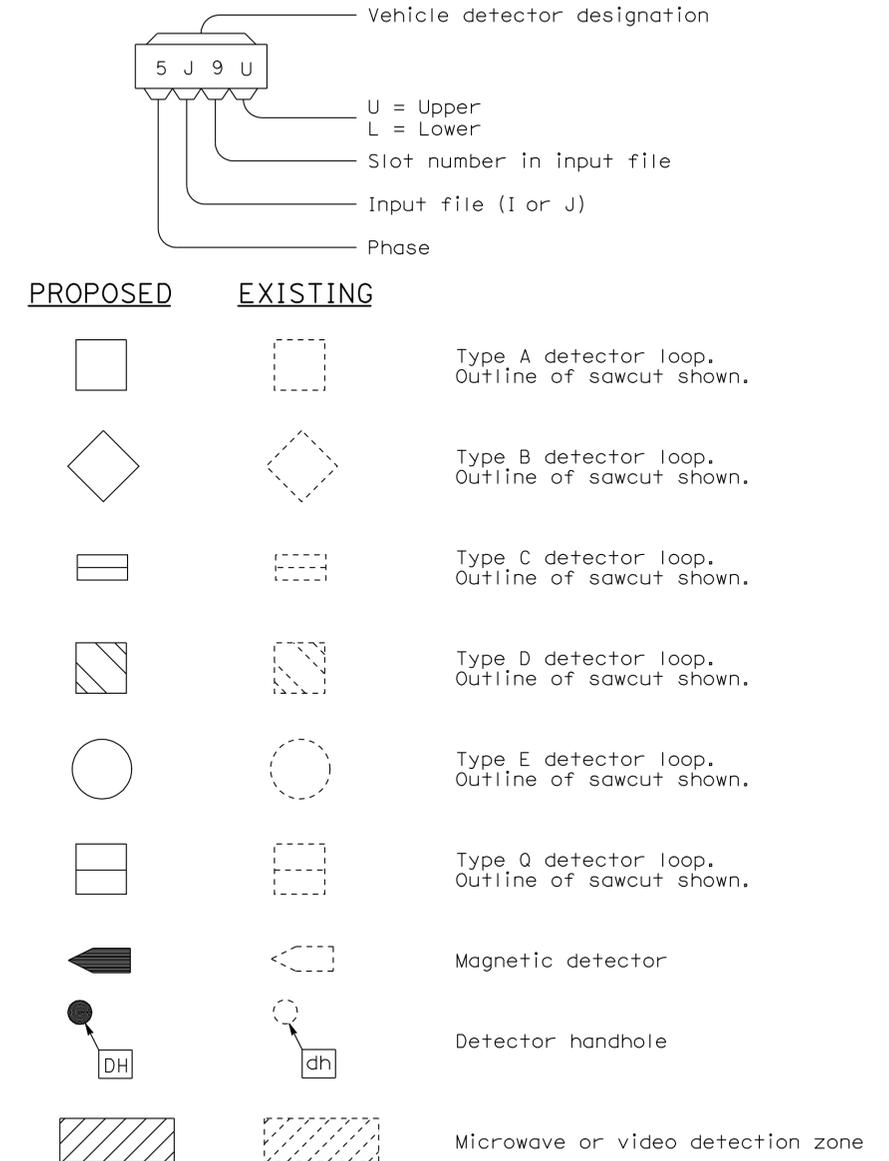
### WIRING DIAGRAM LEGEND



### PULL BOXES



### VEHICLE DETECTORS



STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION

## ELECTRICAL SYSTEMS (SYMBOLS AND ABBREVIATIONS)

NO SCALE

RSP ES-1C DATED OCTOBER 5, 2007 SUPERCEDES STANDARD PLAN ES-1C  
 DATED MAY 1, 2006 - PAGE 402 OF THE STANDARD PLANS BOOK DATED MAY 2006.

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

2006 REVISED STANDARD PLAN RSP ES-1C

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
08	SBd	15	14.6	31	42

*Jeffery G. McRae*  
 REGISTERED ELECTRICAL ENGINEER

October 5, 2007  
 PLANS APPROVAL DATE

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REGISTERED PROFESSIONAL ENGINEER  
 Jeffery G. McRae  
 No. E14512  
 Exp. 6-30-08  
 ELECTRICAL  
 STATE OF CALIFORNIA

To accompany plans dated 6-4-12

**NOTES-TYPE III SERVICE EQUIPMENT ENCLOSURES:**

1. Service equipment enclosure and metering equipment shall meet the requirements of the service utility. The meter area shall have a sealable, lockable, weathertight cover that can be removed without the use of tools.
2. Service equipment enclosures shall be factory wired and conform to NEMA standards.
3. Dimensions of service equipment enclosures shall meet the requirements of the service utility.
4. The dead front panels on Type III service equipment enclosures shall have a continuous stainless steel or aluminum piano hinge. The panel in front of the breakers shall be secured with a latch or captive screws. No live parts shall be mounted on the dead front panel.
5. The exterior door shall have provisions for padlocking. The padlock hole shall be a minimum diameter of  $\frac{1}{16}$ ".
6. Enclosures housing transformers of more than one kVA shall have effective screened ventilation louver of not less than 50 square inches. Screen shall be stainless steel No. 304, with a No. 10 size mesh. Framed screen shall be secured with at least four bolts.
7. Fasteners on the exterior of the enclosure shall be vandal-resistant and shall not be removable from the exterior. Exterior screws, nuts, bolts and washers shall be stainless steel.
8. Landing lugs for incoming service conductors shall be compatible with either copper or aluminum conductors sized to suit the conductors shown on the plan. Landing lugs shall be copper or tin-plated aluminum. Neutral bus shall be rated for 125 A and be suitable for copper or aluminum conductors unless otherwise specified. The terminal shall include but not be limited to:
  - a) Incoming terminals (landing lugs)
  - b) Neutral lugs
  - c) Solid neutral terminal strip
9. At least 6 standard single pole circuit breaker spaces,  $\frac{3}{4}$ " nominal, shall be provided for branch circuits. Circuit breaker interiors shall be copper. Interiors of enclosure shall accept plug-in or cable-in/cable-out circuit breakers.
10. Control wiring shall be 600 V, 14 stranded machine tool wire. Where subject to flexing, 19 strand wire shall be used.
11. Main bus shall be rated for 125 A and shall be tin-plated copper.
12. A plastic laminated wiring diagram shall be provided with brass mounting eyelets and attached to the inside of the enclosure and the wiring diagram shall be affixed to the interior with a UL or ETL approved method.

13. An engraved phenolic nameplate on the dead front panel indicating the function of each circuit or device shall be installed with stainless steel rivets or stainless steel screws:
  - a) Adjacent to the breaker or device with character size a minimum of  $\frac{1}{8}$ ".
  - b) At the top of the exterior door panel indicating State system number, voltage level and number of phases with character size a minimum of  $\frac{3}{16}$ ".
14. The plan shows the approximate location of devices within the enclosure. Components may be rearranged, however, the "working" clearances within the service equipment enclosure shall be maintained.
15. In unpaved areas a raised portland cement concrete pad 2'-0" x 4" x width of foundation shall be constructed in front of new service equipment enclosure installation. Pad shall be set to elevation of foundation.
16. Foundation shall extend 2" minimum beyond edge of service equipment enclosure.
17. Internal bus, where shown, is typical only. Alternative design of proposed service equipment enclosure shall be submitted to the Engineer for approval.
18. Plug-in circuit breakers may be mounted in the vertical or horizontal position. Cable-in/cable-out circuit breakers shall be mounted in the vertical position.
19. Type III-AF and Type III-BF service equipment enclosures shall have the meter viewing windows located on the front side of the service equipment enclosures.
20. Type III-AR and Type III-BR service equipment enclosures shall be similarly constructed as Type III-AF and Type III-BF respectively, except the meter viewing windows shall be located on the back side of the service equipment enclosures.
21. Minimum clearance shall be required for front and back of service equipment enclosure per National Electrical Code, Article 110.26, "Spaces About Electric Equipment (600 Volts, Nominal, or Less)."

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DEPARTMENT OF TRANSPORTATION

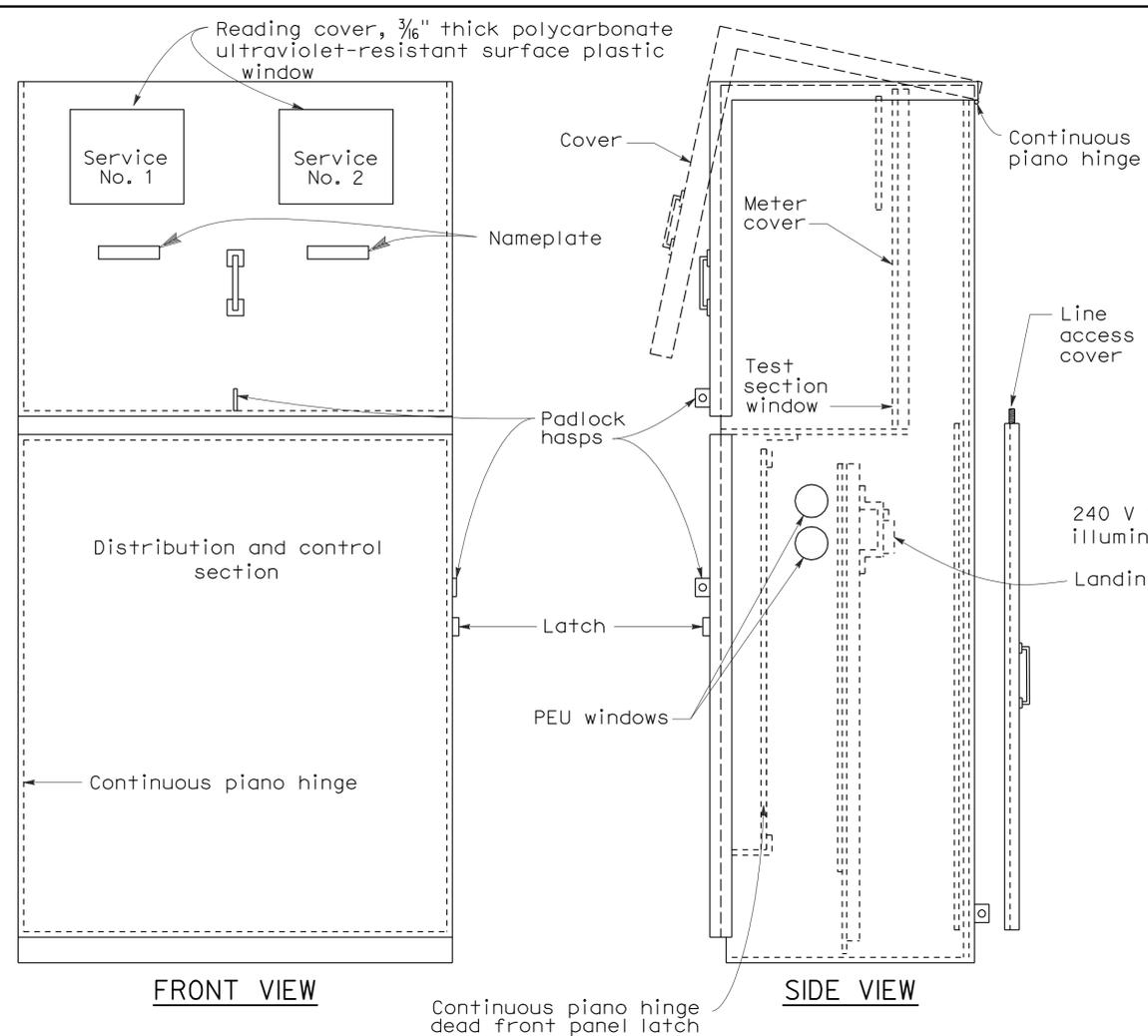
**ELECTRICAL SYSTEMS  
(SERVICE EQUIPMENT NOTES  
TYPE III SERIES)**

NO SCALE

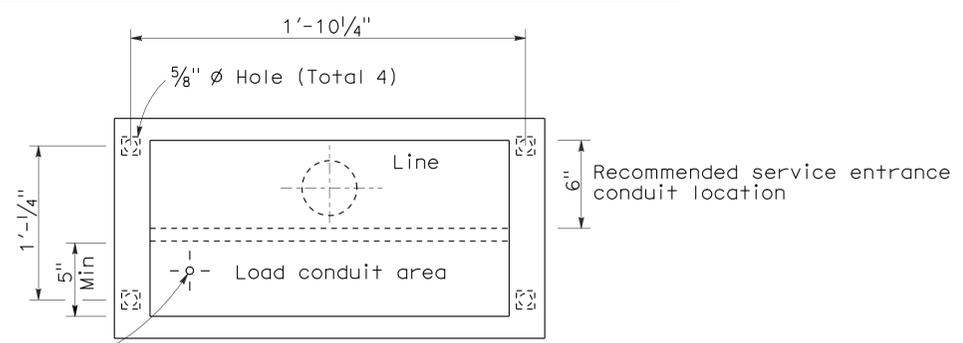
RSP ES-2C DATED OCTOBER 5, 2007 SUPERCEDES STANDARD PLAN ES-2C  
DATED MAY 1, 2006 - PAGE 405 OF THE STANDARD PLANS BOOK DATED MAY 2006.

**REVISED STANDARD PLAN RSP ES-2C**

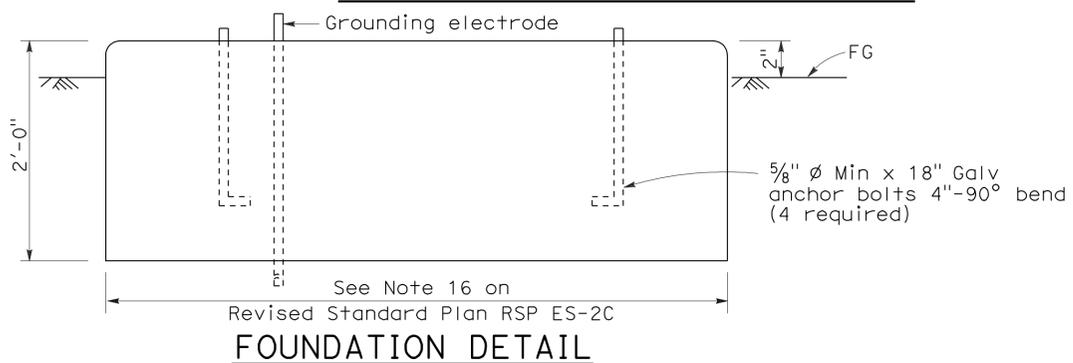
2006 REVISED STANDARD PLAN RSP ES-2C



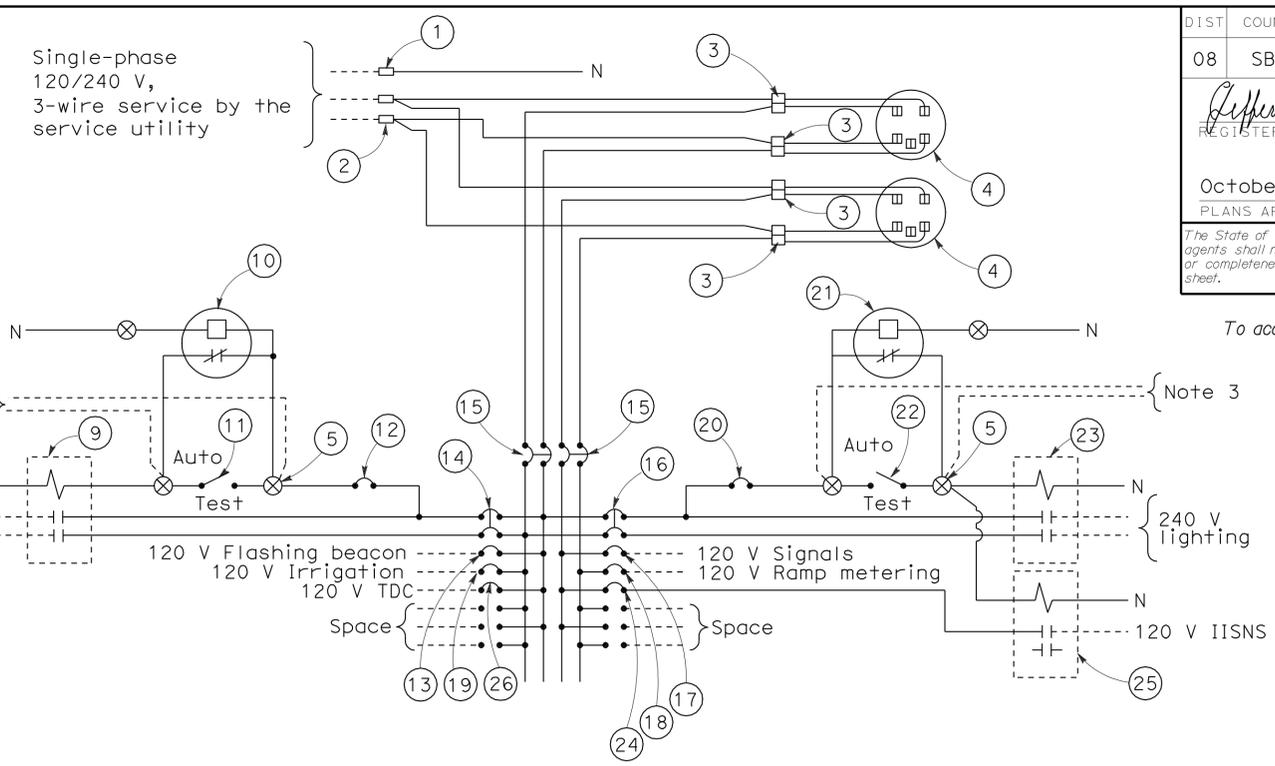
**TYPE III-CF SERVICE EQUIPMENT ENCLOSURE WITH PROVISIONS FOR TWO 100 A METERS (TYPICAL)**



**BASE FOR TYPE III-C SERVICE EQUIPMENT ENCLOSURE**



**FOUNDATION DETAIL**



**120/240 V SERVICE WIRING DIAGRAM (TYPICAL)**

TYPE III-C SERVICE (120/240 V) EQUIPMENT LEGEND					
ITEM No.	COMPONENT	NAME PLATE DESCRIPTION	ITEM No.	COMPONENT	NAME PLATE DESCRIPTION
1	Neutral lug		14	30 A, 240 V, 2P, CB	Sign Illumination
2	Landing lug (Note 6)		15	100 A, 240 V, 2P, CB	Main Breaker
3	Test bypass facility		16	30 A, 240 V, 2P, CB	Lighting
4	Meter socket and support		17	50 A, 120 V, 1P, CB	Signals
5	Terminal blocks		18	30 A, 120 V, 1P, CB	Ramp Metering
6	Neutral bus		19	20 A, 120 V, 1P, CB	Irrigation
7	Ground bus		20	15 A, 120 V, 1P, CB	Lighting Control
8	Grounding electrode		21	Photoelectric unit (Note 7)	
9	30 A, 2PNO, Contactor	Sign Illumination	22	15 A, 1P, Test switch	Lighting Control
10	Photoelectric unit (Note 7)		23	60 A, 2PNO Contactor	Lighting
11	15 A, 1P, Test switch	Sign Illumination Test Switch	24	15 A, 120 V, 1P, CB	IISNS
12	15 A, 120 V, 1P, CB	Sign Illumination Control	25	30 A, 2PNO Contactor	IISNS
13	15 A, 120 V, 1P, CB	Flashing Beacon	26	20 A, 120 V, 1P, CB	Telephone Demarcation Cabinet

**NOTES: (FOR SERVICE EQUIPMENT ENCLOSURE)**

- Voltage ratings of service equipment shall conform to the service voltages indicated on the plans.
- Unless otherwise indicated on the plans, service equipment items shall be provided for each service equipment enclosure as shown.
- Connect to remote test switch mounted on lighting standards, sign post or structure when required.
- Items No. 1 and 6 shall be isolated from the service equipment enclosure.
- Meter sockets shall be 5 clip type.
- The landing lug shall be suitable for multiple conductors.
- Type I photoelectric control shall be used unless otherwise indicated on the plans.

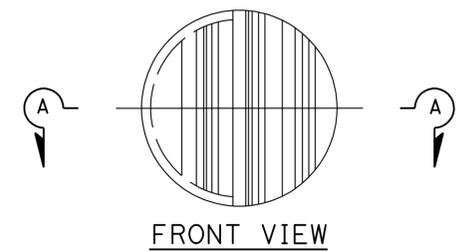
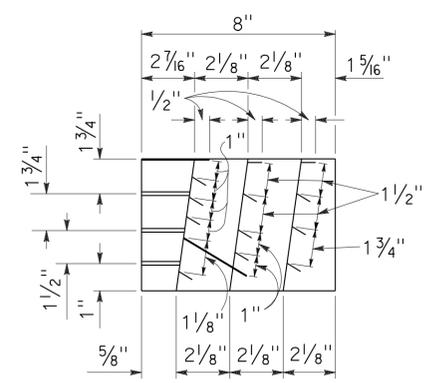
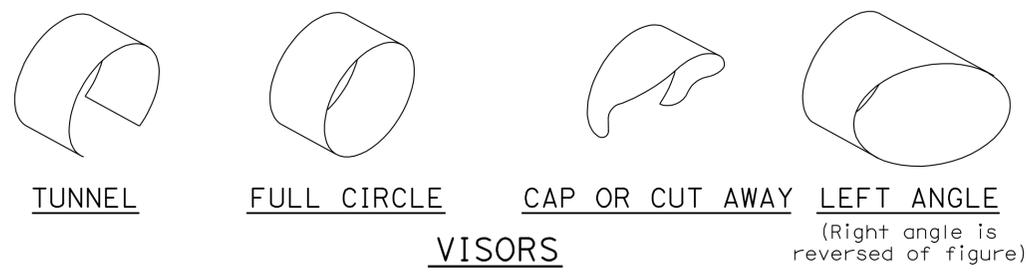
STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**ELECTRICAL SYSTEMS  
 (SERVICE EQUIPMENT AND  
 TYPICAL WIRING DIAGRAM  
 TYPE III - C SERIES)**  
 NO SCALE

RSP ES-2F DATED OCTOBER 5, 2007 SUPERCEDES STANDARD PLAN ES-2F  
 DATED MAY 1, 2006 - PAGE 408 OF THE STANDARD PLANS BOOK DATED MAY 2006.

2006 REVISED STANDARD PLAN RSP ES-2F

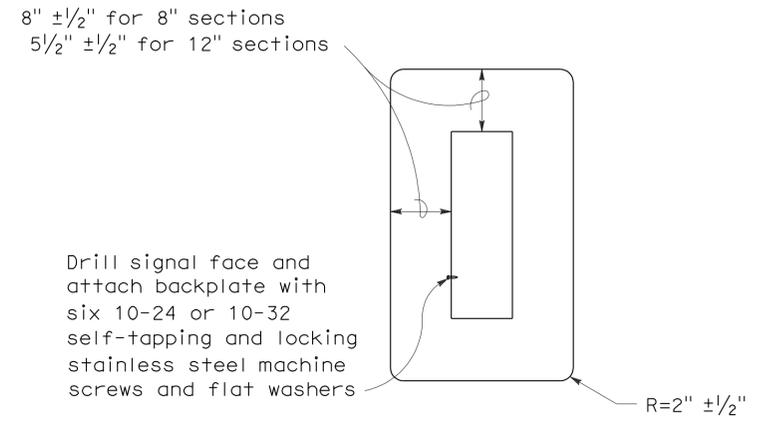
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
08	SBd	15	14.6	33	42

Jeffrey G. McRae  
 REGISTERED ELECTRICAL ENGINEER  
 June 6, 2008  
 PLANS APPROVAL DATE  
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 REGISTERED PROFESSIONAL ENGINEER  
 Jeffrey G. McRae  
 No. E14512  
 Exp. 6-30-10  
 ELECTRICAL  
 STATE OF CALIFORNIA



**DIRECTIONAL LOUVER**

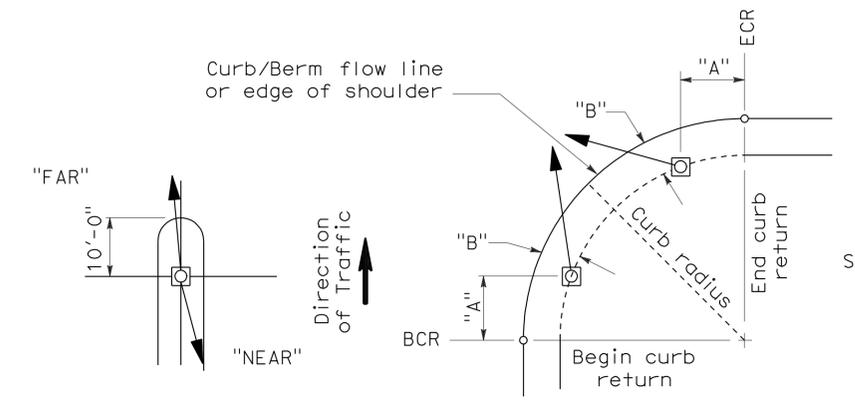
Directional louvers shall be oriented as directed by the Engineer and secured in place with one plated brass machine screw and nut.



**8" AND 12" SECTIONS**

**BACKPLATE**

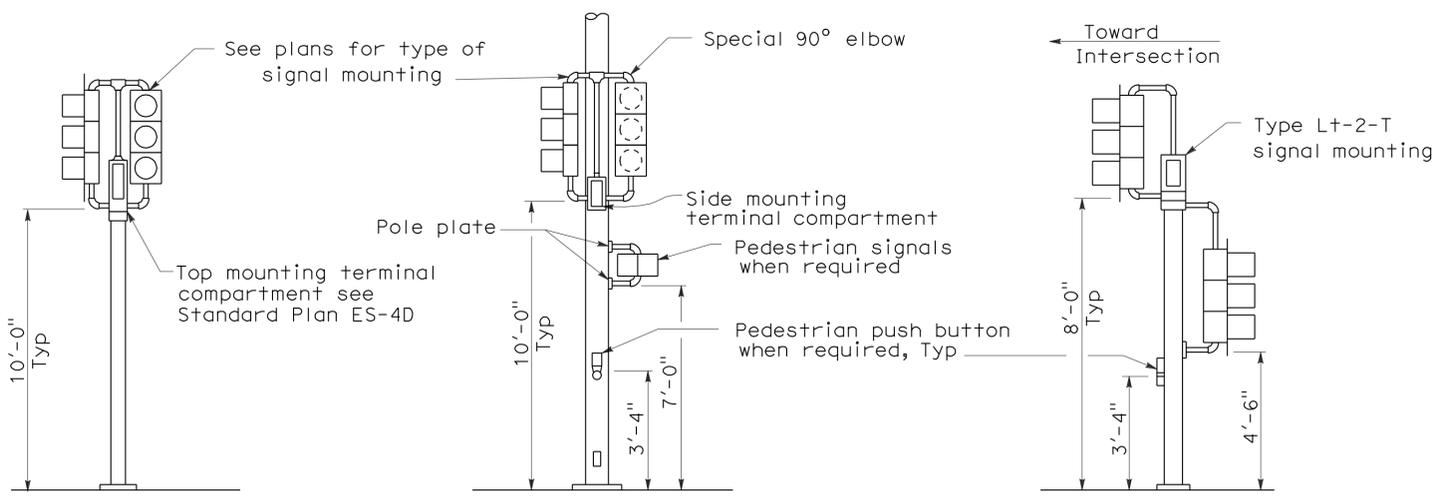
1/16" minimum thickness  
 3001-14 aluminum, or plastic when specified



**NOTES:**

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

**SIGNAL STANDARD PLACEMENT DIMENSIONS AND EQUIPMENT LOCATIONS**



**TOP MOUNTED SIGNALS (TV)**

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

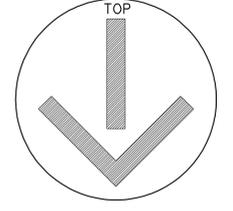
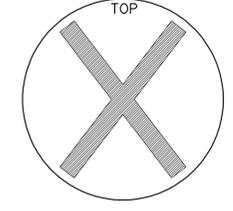
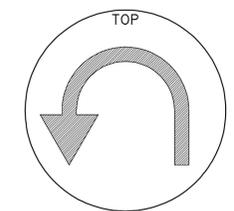
**SIDE MOUNTED SIGNALS (SV AND SP)**

Normally used on standards with luminaire or signal mast arm

**LEFT TURN LANE SIGNAL**

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

**TYPICAL SIGNAL INSTALLATIONS**



STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**ELECTRICAL SYSTEMS (SIGNAL HEADS AND MOUNTINGS)**

NO SCALE

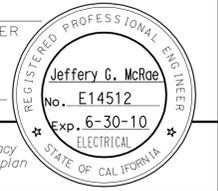
RSP ES-4C DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN ES-4C DATED MAY 1, 2006 - PAGE 420 OF THE STANDARD PLANS BOOK DATED MAY 2006.

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

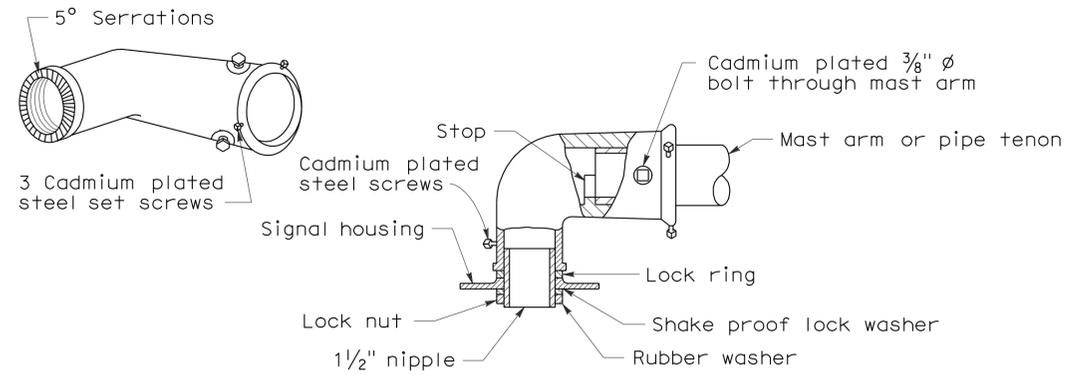
2006 REVISED STANDARD PLAN RSP ES-4C

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
08	Sbd	15	14.6	34	42

June 6, 2008  
 PLANS APPROVAL DATE  
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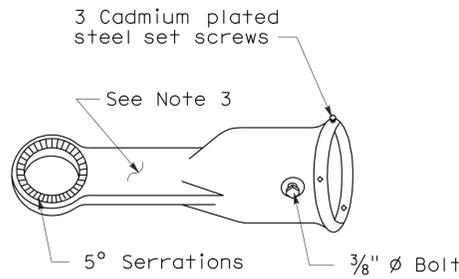


To accompany plans dated 6-4-12



**MAST ARM MOUNTING - TYPE "MAT"**

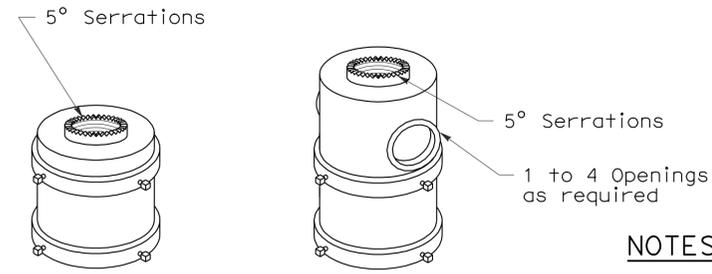
For 2 NPS pipe, see Note 1.



**MAST ARM MOUNTING - TYPE "MAS"**

For 2 NPS pipe. See Note 1.

**SIGNAL SLIP FITTERS**



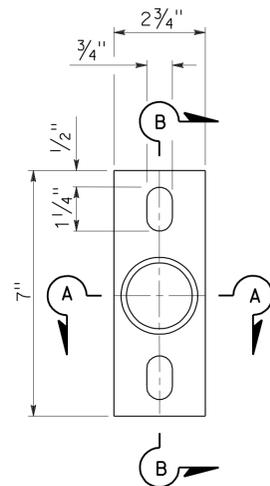
For one mounting For multiple mountings

**TOP MOUNTINGS**

For 4 NPS pipe, see Note 2.

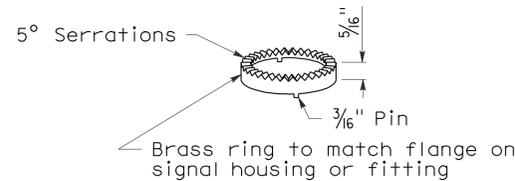
**NOTES:**

- After mast arm signal has been plumbed and secured, drill 7/16" hole through mast arm tenon in line with slip fitter hole. Place a cadmium plated 3/8" diameter 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 1/2" 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 1/2".



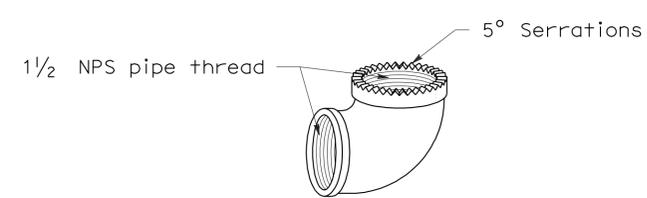
**POLE PLATE**

For side mountings



**LOCK RING**

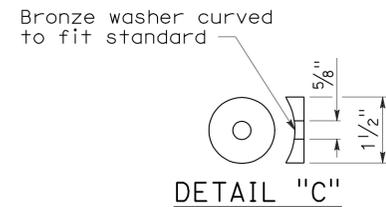
Use where locking ring is not integral with signal housing or fitting.



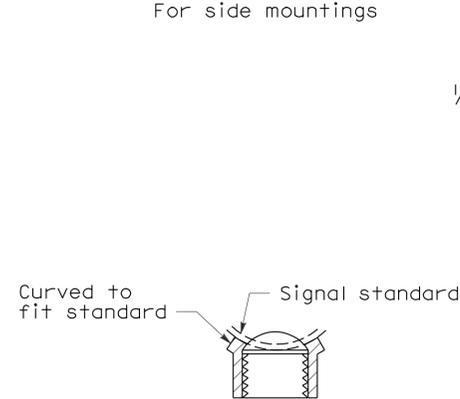
**SPECIAL 90° ELBOW**

One for each signal head, except those with special slip fitter mounting

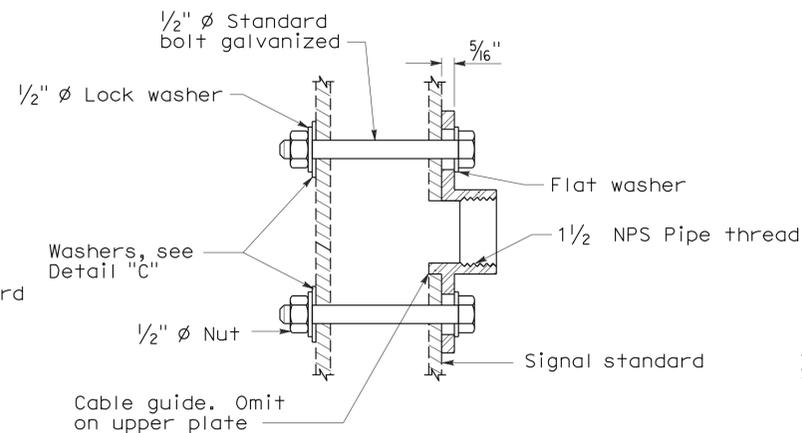
**MISCELLANEOUS MOUNTING HARDWARE**



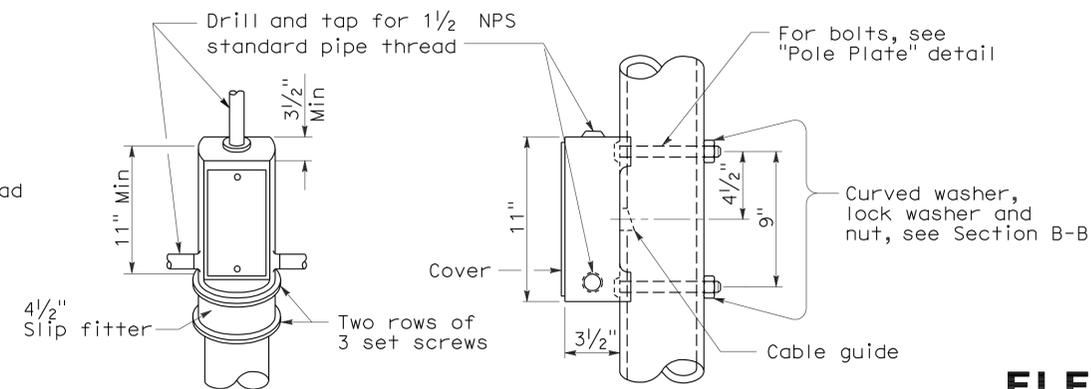
**DETAIL "C"**



**SECTION A-A**



**SECTION B-B**



**TOP MOUNTING**

**SIDE MOUNTING**

**TERMINAL COMPARTMENTS**

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

NO SCALE

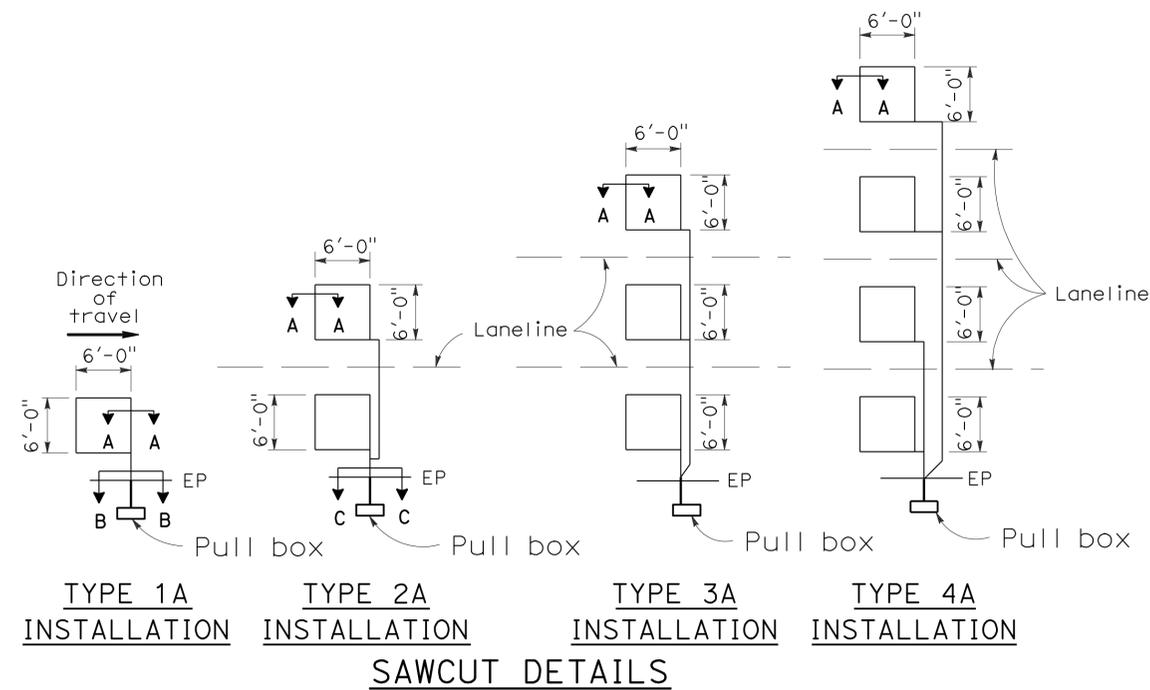
RSP ES-4D DATED June 6, 2008 SUPERSEDES STANDARD PLAN ES-4D DATED MAY 1, 2006 - PAGE 421 OF THE STANDARD PLANS BOOK DATED MAY 2006.

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

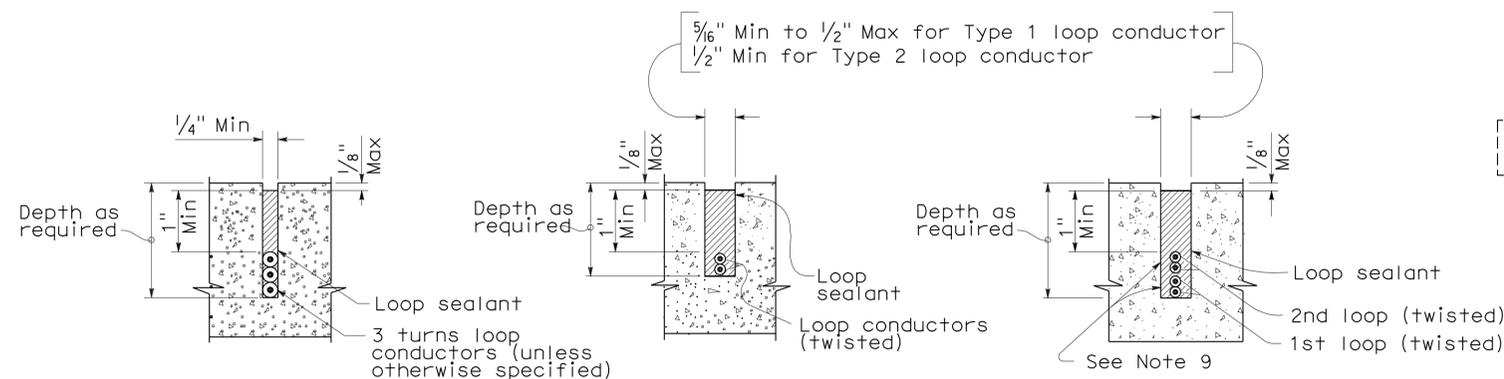
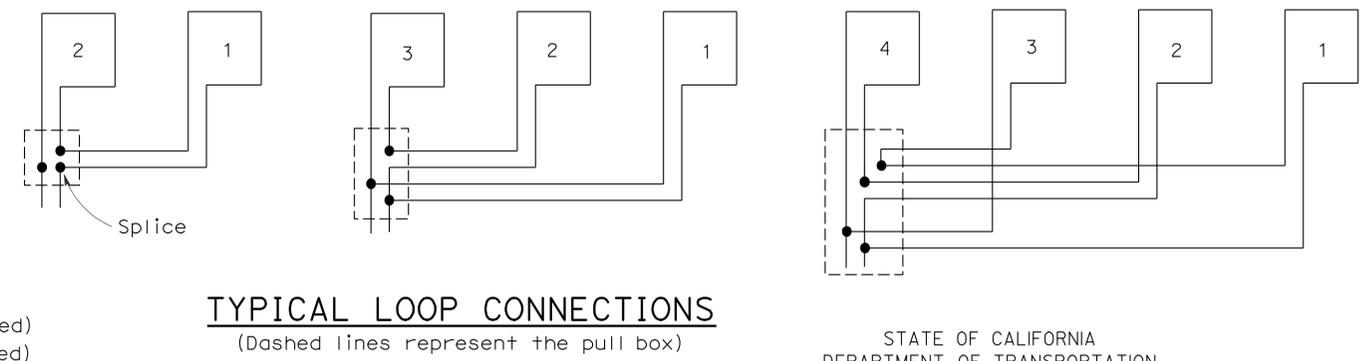
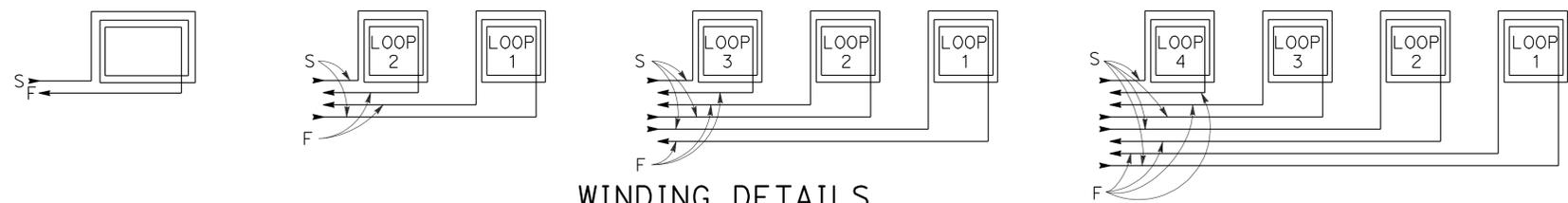
2006 REVISED STANDARD PLAN RSP ES-4D

# LOOP INSTALLATION PROCEDURE

- Loops shall be centered in lanes.
- Saw slots in pavement for loop conductors as shown in details.
- Distance between side of loop and a lead-in saw cut from adjacent detectors shall be 2'-0" minimum. Distance between lead-in saw cuts shall be 6" minimum.
- Bottom of saw slot shall be smooth with no sharp edges.
- Slots shall be washed until clean, blown out and thoroughly dried before installing loop conductors.
- Adjacent loops on the same sensor unit channel shall be wound in opposite directions.
- Identify and tag loop circuit pairs in the pull box with loop number, start (S) and finish (F) of conductor. Identify and tag lead-in-cable with sensor number and phase.
- Install loop conductor in slot using a 3/16" to 1/4" thick wood paddle. Hold loop conductors with wood paddles (at the bottom of the sawed slot) during sealant placement.
- No more than 2 twisted pairs shall be installed in one sawed slot.
- Allow additional 5'-0" of slack length of conductor for the lead-in run to pull box.
- The additional length of each conductor for each loop shall be twisted together into a pair (6 turns per 3'-4" minimum) before being placed in the slot and conduit leading to pull box.
- Test each loop circuit for continuity, circuit resistance and insulation resistance at the pull box before filling slots.
- Fill slots as shown in details.
- Splice loop conductors to lead-in-cable. Splices shall be soldered.
- End of lead-in-cable and Type 2 loop conductor shall be waterproofed prior to installing in conduit to prevent moisture from entering the cable.
- Lead-in-cable shall not be spliced between the pull box and the controller cabinet terminals.
- Test each loop circuit for continuity, circuit resistance and insulation resistance at the controller cabinet location.
- Where loop conductors are not to be spliced to a lead-in-cable, the ends of the conductors shall be taped and waterproofed with electrical insulating coating.



- 1A thru 4A = 1 Type A loop configuration in each lane.
  - 1B thru 4B = 1 Type B loop configuration in each lane.
  - 1C = 1 Type C loop configuration entering lanes as required.
  - 1D thru 4D = 1 Type D loop configuration in each lane.
  - 1E thru 4E = 1 Type E loop configuration in each lane.
  - 1Q thru 4Q = 1 Type Q loop configuration in each lane.
- (Use Type A, B, C, D, E or Q loop detector configurations only when specified or shown on plans)



## ELECTRICAL SYSTEMS (DETECTORS)

NO SCALE

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

## REVISED STANDARD PLAN RSP ES-5A

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
08	SBd	15	14.6	35	42

*Jeffery G. McRae*  
 REGISTERED ELECTRICAL ENGINEER  
 October 5, 2007  
 PLANS APPROVAL DATE  
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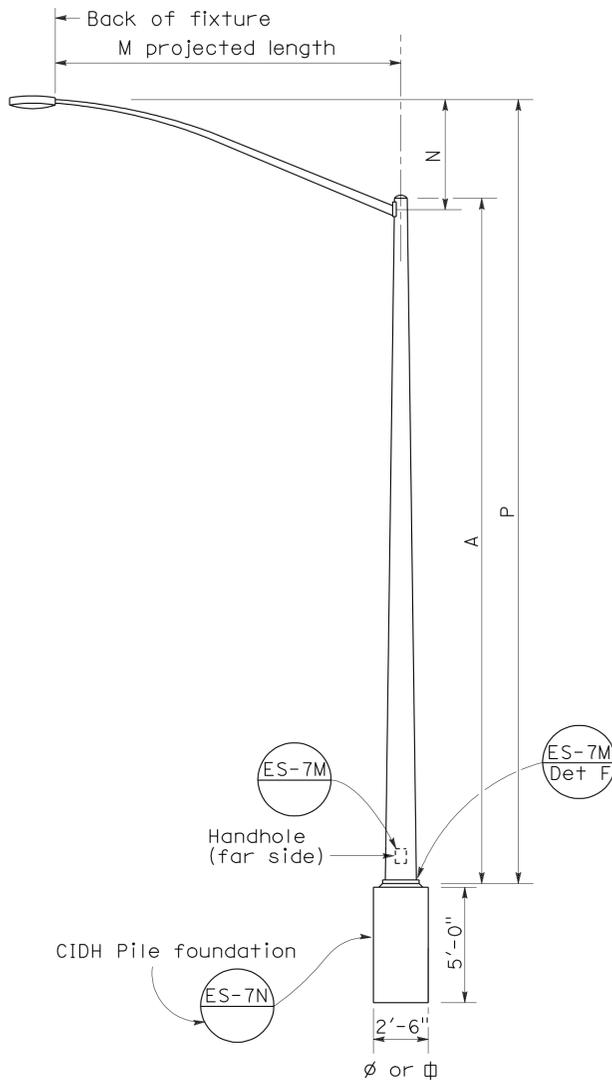
To accompany plans dated 6-4-12

2006 REVISED STANDARD PLAN RSP ES-5A

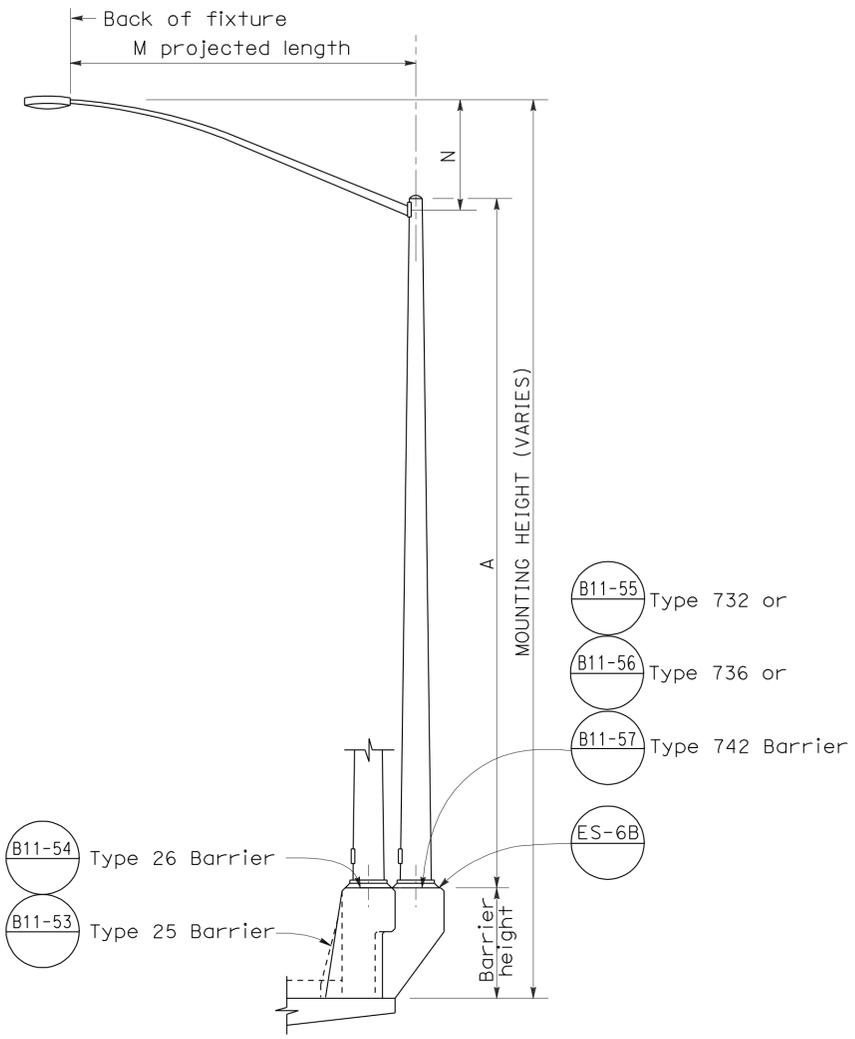
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
08	SBd	15	14.6	36	42

Stanley P. Johnson  
 REGISTERED CIVIL ENGINEER  
 October 5, 2007  
 PLANS APPROVAL DATE  
 No. C57793  
 Exp. 3-31-08  
 CIVIL  
 STATE OF CALIFORNIA

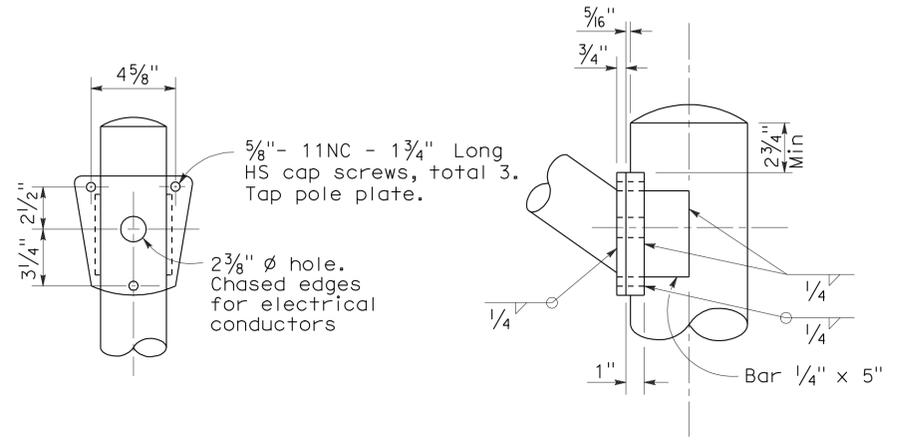
To accompany plans dated 6-4-12



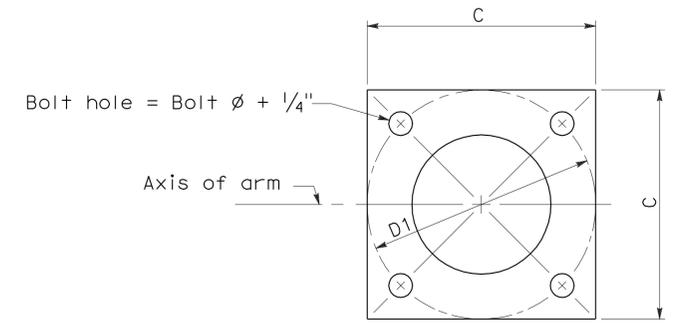
**ELEVATION**  
**TYPE 15 AND TYPE 21**



**ELEVATION**  
**TYPE 15 AND TYPE 21 BARRIER RAIL MOUNTED**



**DETAIL R**  
**LUMINAIRE ARM CONNECTION**



**BASE PLATE**

POLE TYPE	POLE DATA				BASE PLATE DATA				LUMINAIRE ARM
	A Height	Min OD		Wall Thickness	C	D1 Bolt Circle	Thick-ness	Anchor Bolts Size	
15	30'	8"	3 7/8"	0.1196"	1'-0"	1'-0"	1"	1" $\phi$ x 3'-0" x 4"*	6' - 15' 12'
21	35'	8 5/8"	3 7/8"	0.1196"	1'-0"	1'-0"	1"	1 1/4" $\phi$ x 3'-0" x 4"*	6' - 15' 12'

\* For barrier rail bolts, see Standard Plan ES-6B.

M Projected Length	N Rise	Min OD At Pole	Nominal Thickness	LUMINAIRE ARM DATA	
				Type 15	Type 21
6'-0"	2'-0"±	3/4"	0.1196"	31'-6"±	36'-6"±
8'-0"	2'-6"±	3/2"	0.1196"	32'-0"±	37'-0"±
10'-0"	3'-3"±	3 7/8"	0.1196"	32'-9"±	37'-9"±
12'-0"	4'-3"±	3 7/8"	0.1196"	33'-9"±	38'-9"±
15'-0"	4'-9"±	4 1/4"	0.1196"	34'-3"±	39'-3"±

**NOTES:**

- Indicates arm length to be used unless otherwise noted on the plans.
- For Type 15-SB, use Type 15 standard with Type 30 slip base plate details, see Standard Plan ES-6F.
- For additional notes, see Standard Plan ES-7M and ES-7N.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**ELECTRICAL SYSTEMS**  
**(LIGHTING STANDARD**  
**TYPES 15 AND 21)**

NO SCALE

RSP ES-6A DATED OCTOBER 5, 2007 SUPERCEDES STANDARD PLAN ES-6A DATED MAY 1, 2006 - PAGE 427 OF THE STANDARD PLANS BOOK DATED MAY 2006.

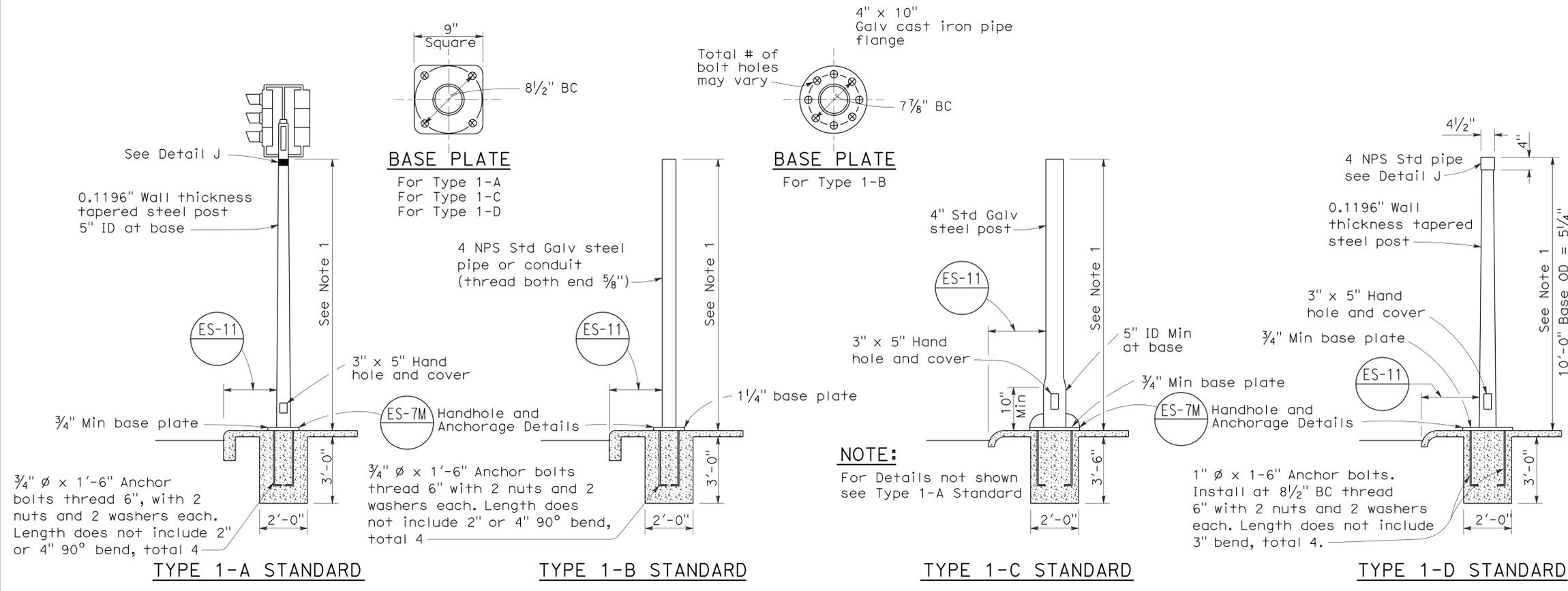
**REVISED STANDARD PLAN RSP ES-6A**

2006 REVISED STANDARD PLAN RSP ES-6A

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
08	SBd	15	14.6	37	42

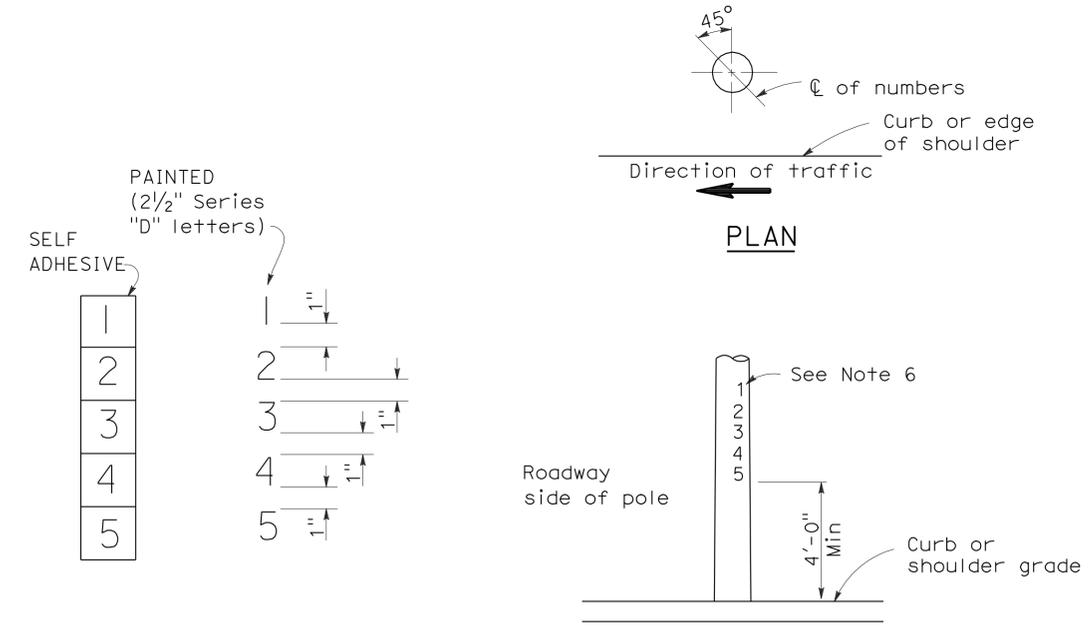
Stanley P. Johnson  
 REGISTERED CIVIL ENGINEER  
 October 5, 2007  
 PLANS APPROVAL DATE  
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 REGISTERED PROFESSIONAL ENGINEER  
 Stanley P. Johnson  
 No. C57793  
 Exp. 3-31-08  
 CIVIL  
 STATE OF CALIFORNIA

To accompany plans dated 6-4-12

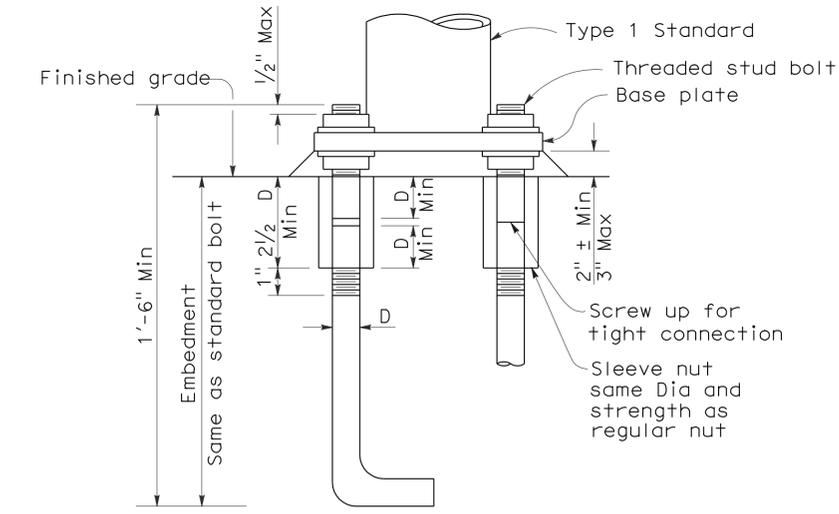


- NOTES:**
- Standards shall be 10'-0"  $\pm$  2" for vehicle signals and 7'-0"  $\pm$  2" for pedestrian signals unless otherwise noted on plans.
  - Top of standards shall be 4 1/2" OD.
  - Conduits shall extend 2" maximum above finished surface of foundation and for Types 1-A, 1-C and 1-D shall be sloped toward handhole.
  - Anchor bolts shall be bonded to conduit or grounding conductor.
  - Conduit between standard and adjacent pull box shall be 2" minimum.
  - Paint numbers on roadway side facing traffic when electrolier or post is left of direction of traffic.

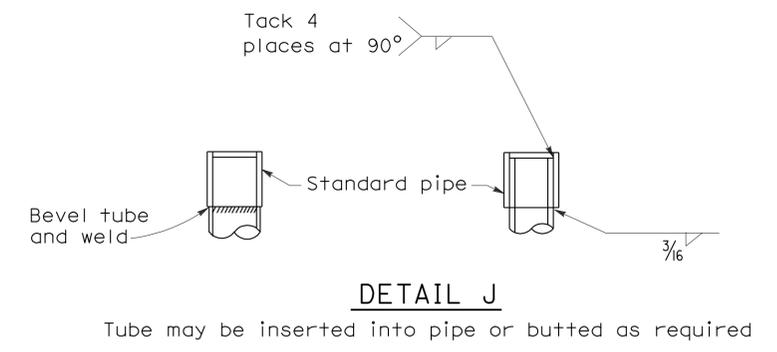
**TYPE 1 SIGNAL STANDARDS**



**NUMBER DETAIL**  
**TYPICAL NUMBER FORMAT**  
**LOCATION OF EQUIPMENT NUMBERS ON STANDARDS AND POSTS**



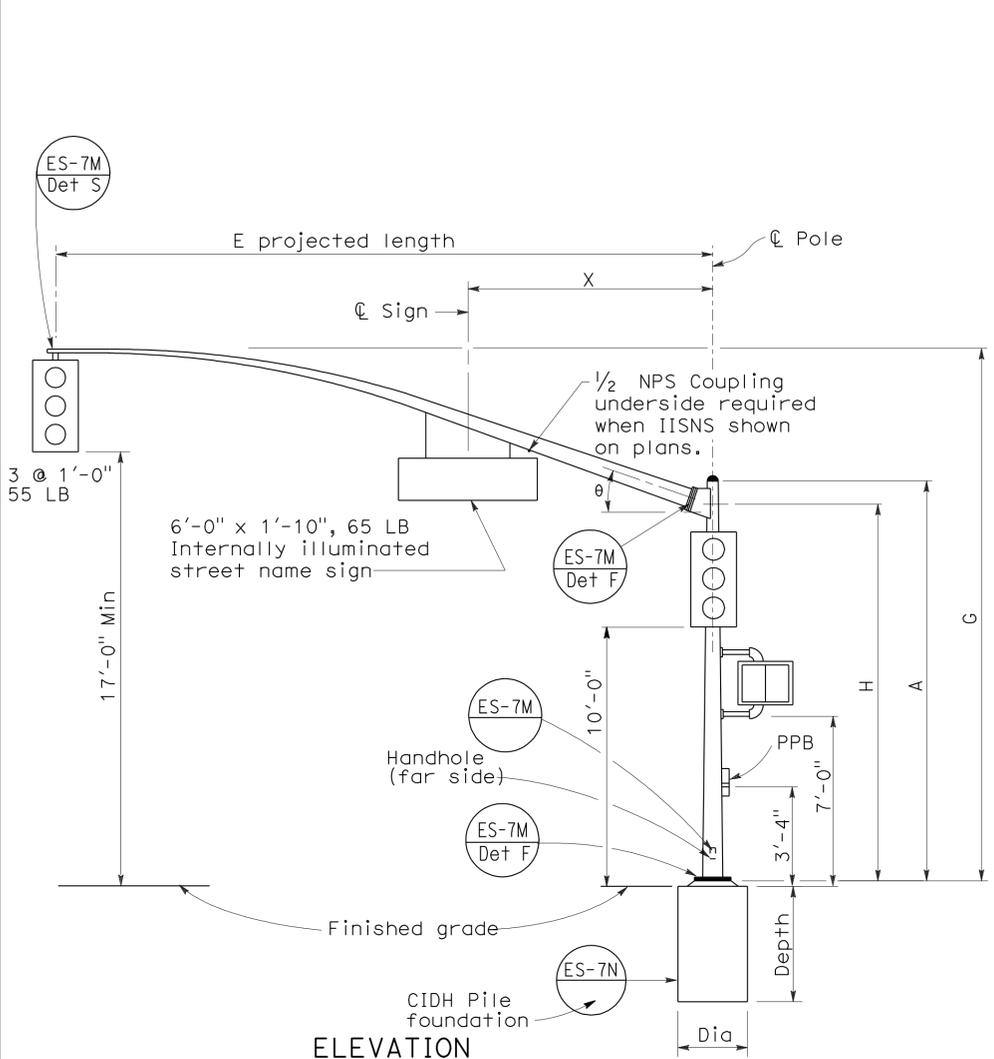
**ANCHOR BOLTS WITH SLEEVE NUTS**  
Sleeve nuts to be used only when shown or specified on Project Plans  
D = Diameter of anchor bolt



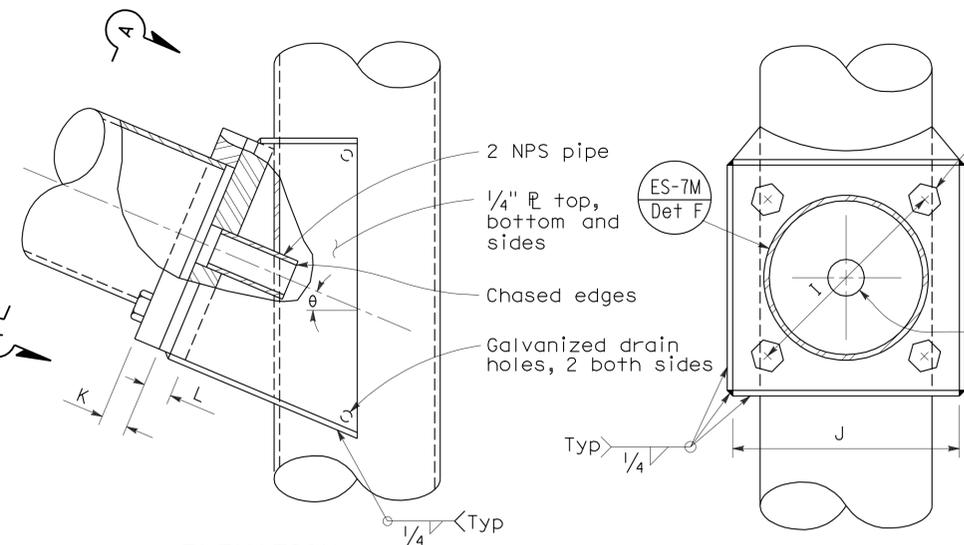
STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**ELECTRICAL SYSTEMS (SIGNAL AND LIGHTING STANDARD TYPE 1 STANDARD AND EQUIPMENT NUMBERING)**  
NO SCALE

2006 REVISED STANDARD PLAN RSP ES-7B

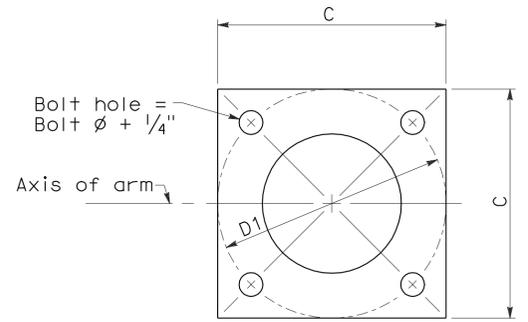
To accompany plans dated 6-4-12



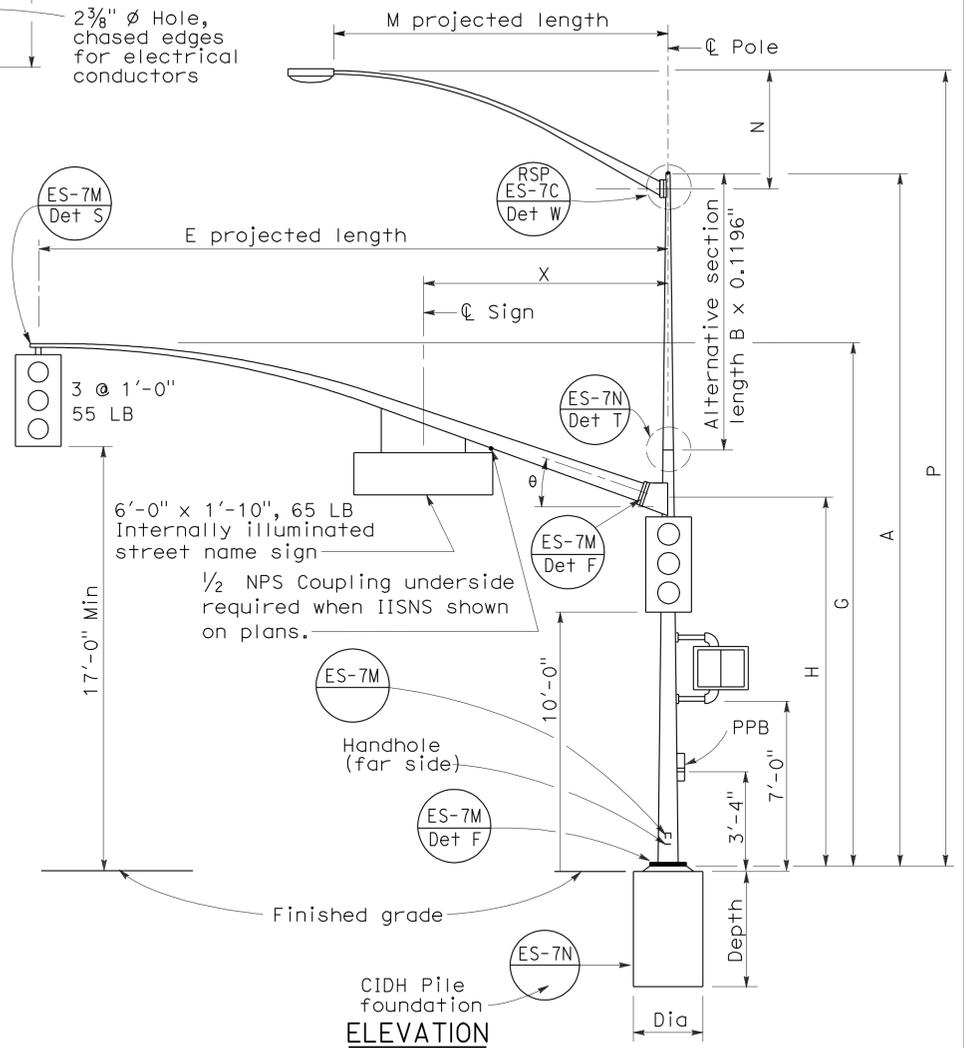
**ELEVATION**  
TYPE 16-2-100, 18-2-100



**ELEVATION**  
**VIEW A-A**  
SIGNAL ARM CONNECTION DETAILS



**BASE PLATE**



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

E Projected Length	G Mounting Height	H	Min OD At Pole	Thickness	I Bolt Circle	HS Cap Screws	J Plate Size	K Arm R Thickness	L Pole R Thickness	θ	X Max
15'-0"	21'-8"±	17'-6"	6 5/8"	0.1793"	12"	1 1/4"-7NC-3"	1'-0"	1 1/4"	1 1/2"	23°	10'-6"
20'-0"	21'-8"±	17'-6"	6 5/8"								
25'-0"	22'-8"±	16'-0"	7 5/16"	0.1793"	12"	1 1/4"-7NC-3"	1'-0"	1 1/4"	1 1/2"	23°	10'-6"
30'-0"	23'-0"±		8"								

M Projected Length	N Rise	Min OD at Pole	Thickness	P Mounting Height	
				30'-0" Pole	35'-0" Pole
6'-0"	2'-0"±	3 1/4"	0.1196"	31'-6"±	36'-6"±
8'-0"	2'-6"±	3 1/2"		32'-0"±	37'-0"±
10'-0"	3'-3"±	3 7/8"		32'-9"±	37'-9"±
12'-0"	4'-3"±	4 1/4"		33'-9"±	38'-9"±
15'-0"	4'-9"±	4 1/4"		34'-3"±	39'-3"±

Pole Type	Load Case	Wind Velocity mph	POLE DATA				BASE PLATE DATA				Anchor Bolts Size	Luminaire Arm	Signal Arm	CIDH PILE FOUNDATION				
			A Height	Min OD		Thickness	Alternative Section		C	D1 Bolt Circle				Thickness	Diameter	Depth	Reinforced	
				Base	Top		B Length	Bottom										Top
16-2-100	2	100	18'-6"	10 3/4"	0.1793"	None	8"	6 5/8"	1'-6"	1'-5 1/2"	1 1/2"	2"φ x 42" x 6"	None	15'-0", 20'-0"	2'-6"	7'-2"	Yes	
17-2-100			30'-0"			8"												6 5/8"
17A-2-100			35'-0"			None												5 15/16"
18-2-100			17'-0"			None												8 7/16"
19-2-100			30'-0"			8"												6 5/8"
19A-2-100			35'-0"			15'-0"												5 15/16"

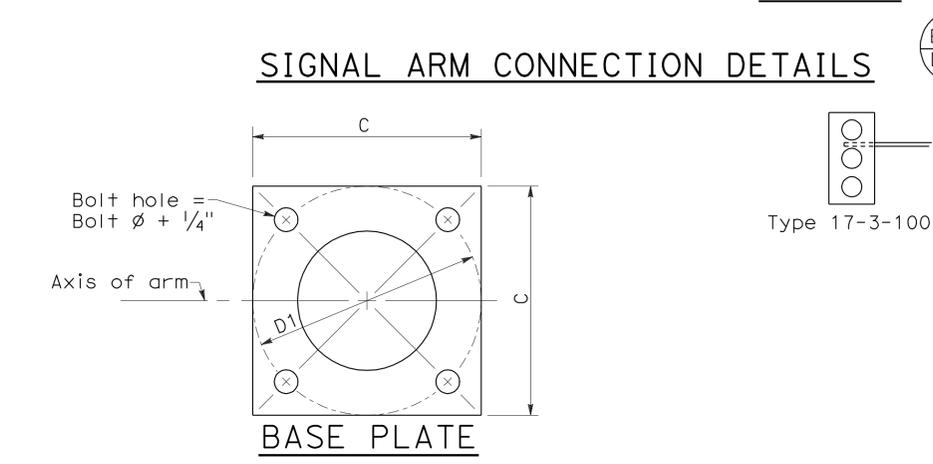
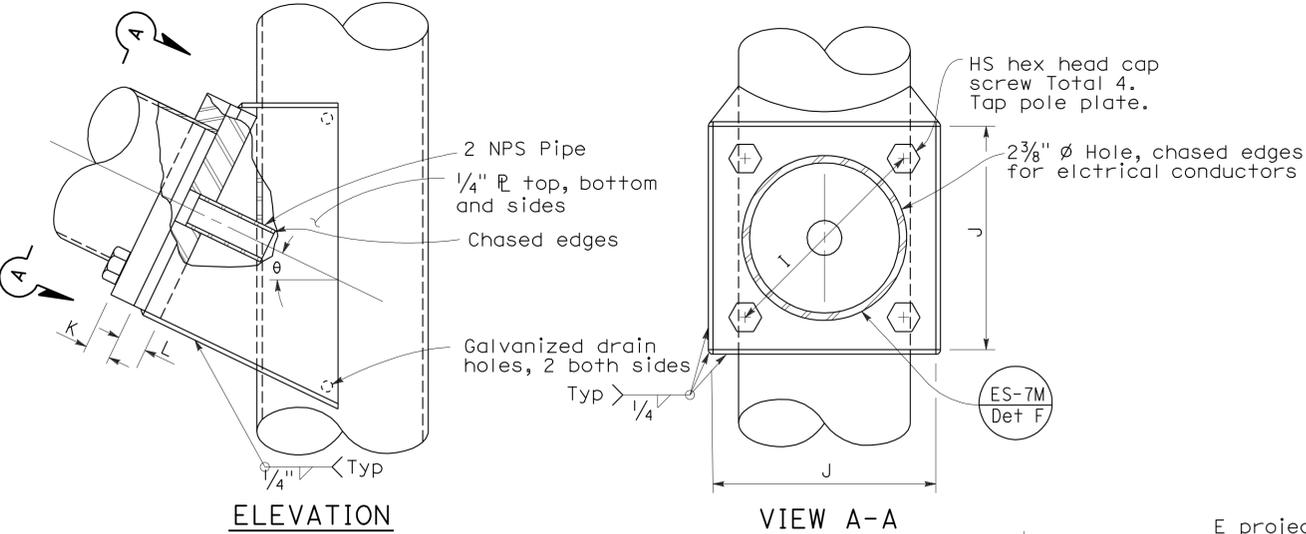
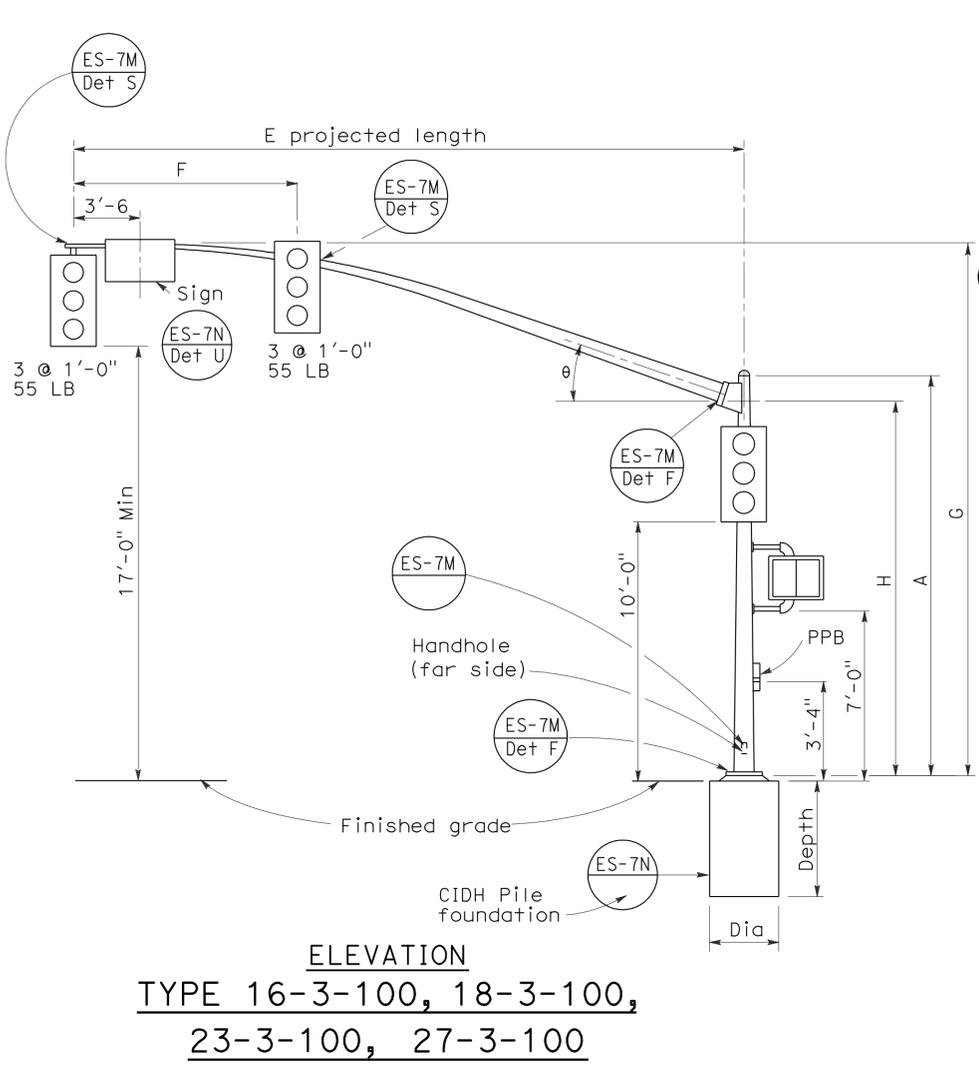
□ Indicates arm length to be used unless otherwise noted on plans.

2006 REVISED STANDARD PLAN RSP ES-7D

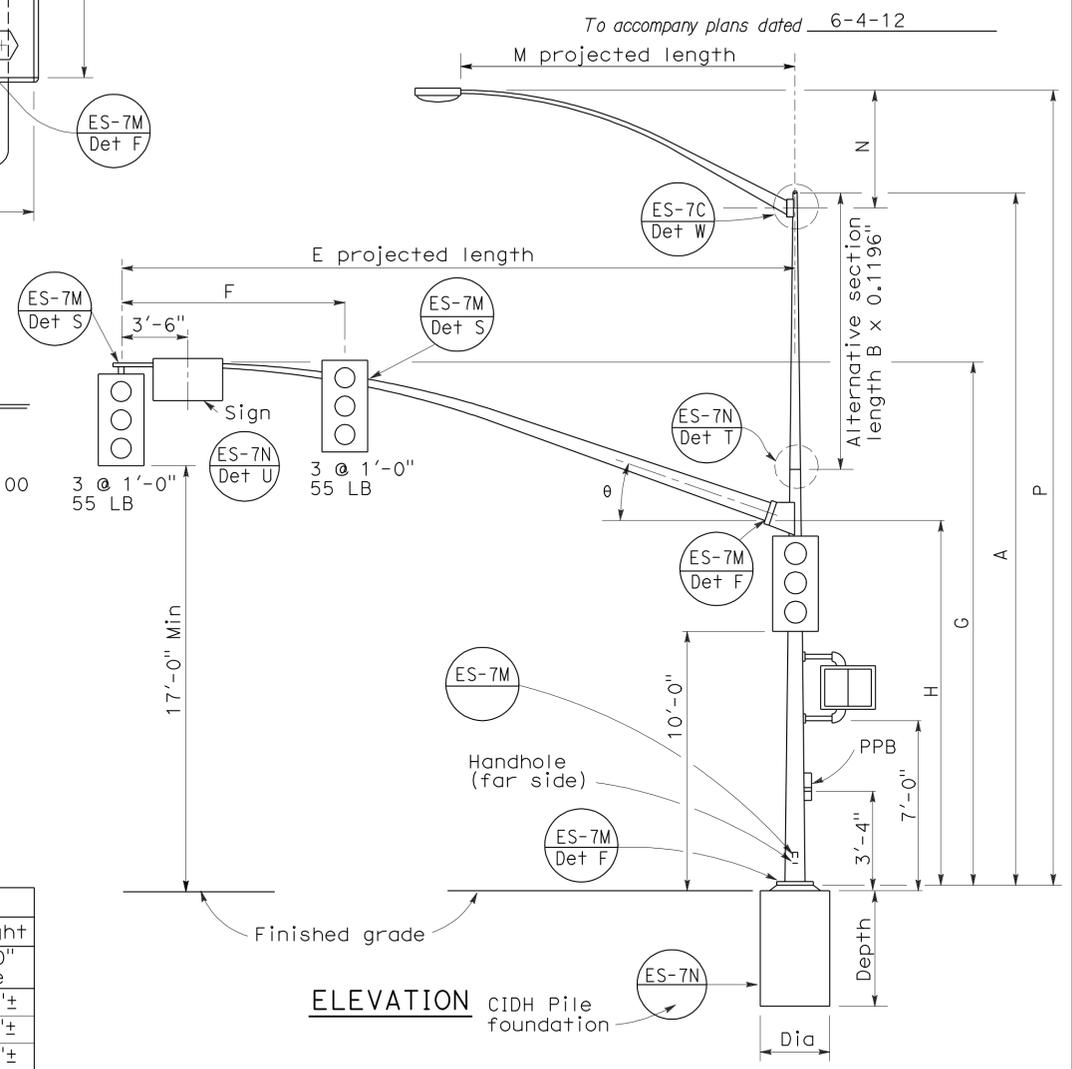
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
08	SBd	15	14.6	39	42

REGISTERED CIVIL ENGINEER  
 June 30, 2006  
 PLANS APPROVAL DATE  
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REGISTERED PROFESSIONAL ENGINEER  
 Jeffrey B. Woody  
 No. C41260  
 Exp. 3-31-07  
 CIVIL  
 STATE OF CALIFORNIA



ELEVATION  
 TYPE 16-3-100, 18-3-100,  
 23-3-100, 27-3-100



ELEVATION  
 TYPE 17-3-100, 24A-3-100,  
 19-3-100, 26-3-100,  
 19A-3-100, 26A-3-100, 24-3-100

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 Arm R Thickness	L Pole R Thickness	theta
15'-0"	8'-0"	21'-8"±	17'-6"	6 5/8"	0.1793"	12"	1 1/4"-7NC-3"	1'-0"	1 1/4"	1 1/2"	23°
20'-0"		21'-8"±		7"							
25'-0"	12'-0"	22'-8"±		7 5/8"							
30'-0"				8"							
35'-0"	14'-0"	23'-0"±	16'-0"	8 3/4"	0.2391"	13"	1'-1"	1 1/2"	1 3/4"	21°	
40'-0"				9 3/8"							
45'-0"	15'-0"	23'-8"±		10 1/16"							

M Projected Length	N Rise	Min OD at Pole	Thickness	P Mounting Height Pole	P Mounting Height Pole
6'-0"	2'-0"±	3 1/4"	0.1196"	31'-6"±	36'-6"±
8'-0"	2'-6"±	3 1/2"		32'-0"±	37'-0"±
10'-0"	3'-3"±	3 7/8"	0.1196"	32'-9"±	37'-9"±
12'-0"	4'-3"±	4"		33'-9"±	38'-9"±
15'-0"	4'-9"±	4 1/4"		34'-3"±	39'-3"±

Pole Type	Load Case	Wind Velocity mph	POLE DATA				BASE PLATE DATA				Luminaire Arm	Signal Arm	CIDH PILE FOUNDATION						
			A Height	Min OD		Thickness	Alternative Section			C			D1 Bolt Circle	Thickness	Anchor Bolts Size	Diameter	Depth	Reinforced	
				Base	Top		B Length	Bottom	Top										
16-3-100	3	100	18'-6"	10 3/4"	8 1/4"	0.1793"	None			1'-6"	1'-5 1/2"	1 1/2"	2"ø x 42" x 6"	3'-0"	9'-0"	Yes			
17-3-100			30'-0"		6 5/8"	10'-0"	8"	7 5/8"	None									6'-15'   12'-0"	15'-0", 20'-0"
18-3-100			17'-0"	8 7/16"	None			None									None	25'-0", 30'-0"	
19-3-100			30'-0"	7 7/8"	10'-0"	9 1/4"	7 7/8"	10'-0"	9 1/4"								7 7/8"	6'-15'   12'-0"	30'-0"
19A-3-100			35'-0"	7 3/16"	15'-0"	9 1/4"	7 3/16"	15'-0"	9 1/4"								7 3/16"	6'-15'   15'-0"	
23-3-100			17'-0"	9 5/8"	None			None									None	35'-0"	
24-3-100			30'-0"	7 7/8"	10'-0"	9 1/4"	7 7/8"	10'-0"	9 1/4"								7 7/8"	6'-15'   12'-0"	35'-0"
24A-3-100			35'-0"	7 3/16"	15'-0"	9 1/4"	7 3/16"	15'-0"	9 1/4"								7 3/16"	6'-15'   15'-0"	
26-3-100			30'-0"	8"	10'-0"	9 3/8"	8"	10'-0"	9 3/8"								8"	6'-15'   12'-0"	40'-0", 45'-0"
26A-3-100			35'-0"	7 5/16"	15'-0"	9 3/8"	7 5/16"	15'-0"	9 3/8"								7 5/16"	6'-15'   15'-0"	
27-3-100			17'-0"	9 3/4"	None			None										None	

□ Indicates arm length to be used unless otherwise noted on plans.

REVISED STANDARD PLAN RSP ES-7E

RSP ES-7E DATED JUNE 30, 2006 SUPERSEDES STANDARD PLAN DATED MAY 1, 2006 - PAGE 441 OF THE STANDARD PLANS BOOK DATED MAY 2006.

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**ELECTRICAL SYSTEMS  
 (SIGNAL AND LIGHTING STANDARD  
 CASE 3 ARM LOADING  
 WIND VELOCITY=100 MPH  
 ARM LENGTHS 15' TO 45')**  
 NO SCALE

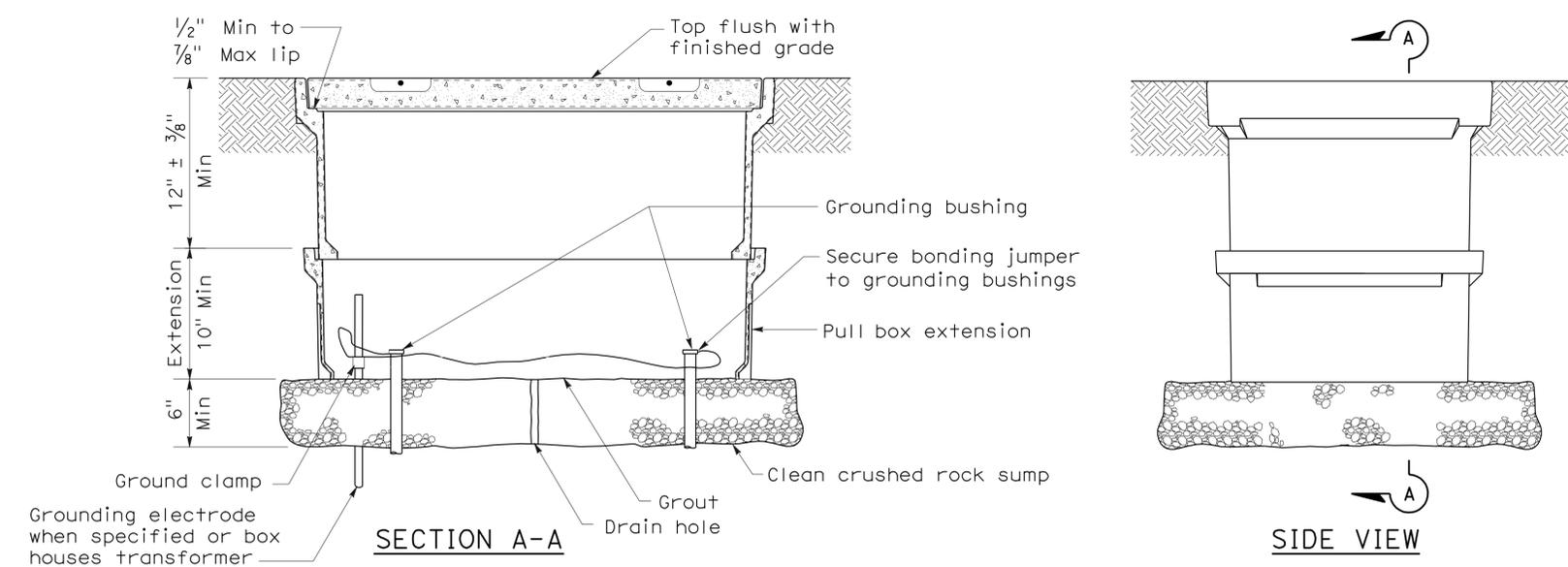
2006 REVISED STANDARD PLAN RSP ES-7E

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
08	SBd	15	14.6	40	42

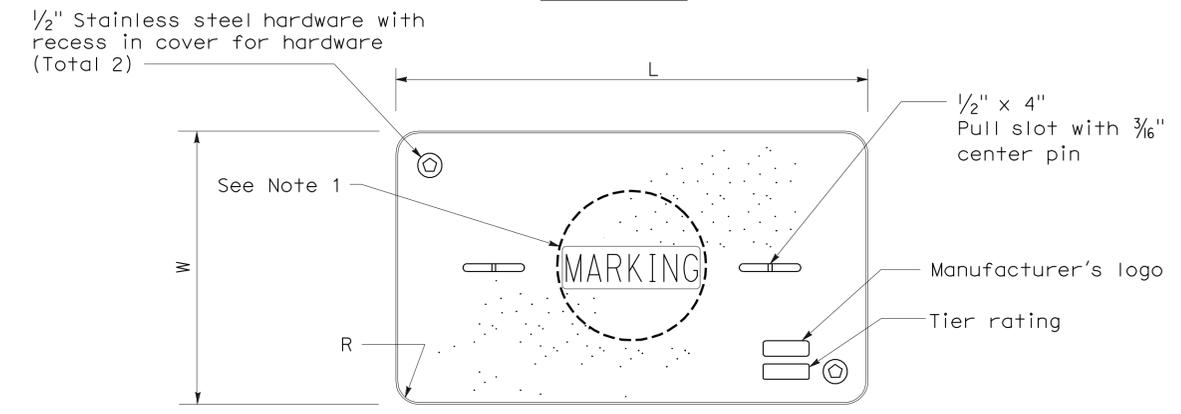
Jeffrey G. McRae  
 REGISTERED ELECTRICAL ENGINEER  
 January 20, 2012  
 PLANS APPROVAL DATE  
 The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

REGISTERED PROFESSIONAL ENGINEER  
 Jeffrey G. McRae  
 No. E14512  
 Exp. 6-30-12  
 ELECTRICAL  
 STATE OF CALIFORNIA

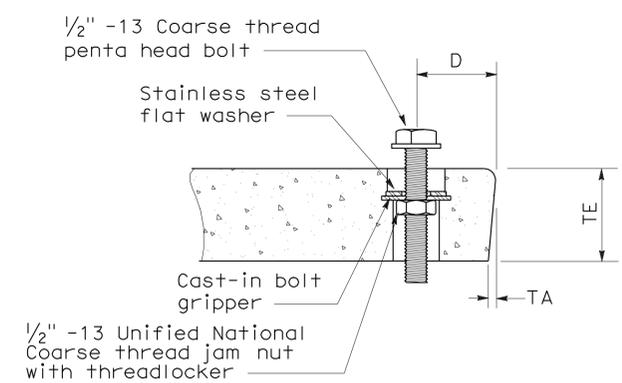
To accompany plans dated 6-4-12



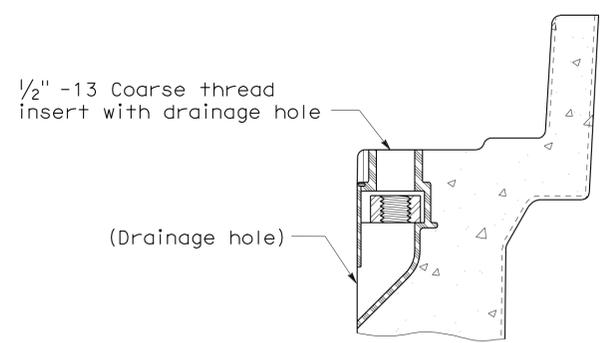
**INSTALLATION DETAILS**  
**DETAIL A**



**COVER TOP VIEW**



**TYPICAL COVER CAPTIVE BOLT**  
(Or similar)



**TYPICAL THREADED INSERT**  
(Or similar)

**NOTES ON PULL BOXES:**

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

DIMENSION TABLE										
PULL BOX	PULL BOX			COVER						
	Minimum Depth Box	Minimum Depth Extension	Maximum Weight	L	W	R	TE	TA	D	Maximum Weight
No. 3/2	12"	N/A	40 lb	1' - 3 3/8"	10 1/8"	1 3/8"	2"	1/8"	1 3/4"	30 lb
No. 5	12"	10"	55 lb	1' - 11 1/4"	1' - 1 3/4"	1 3/8"	2"	1/8"	1 3/4"	60 lb
No. 6	12"	10"	70 lb	2' - 6 1/2"	1' - 5 1/2"	1 3/8"	2"	1/8"	2"	85 lb

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

NSP ES-8A DATED JANUARY 20, 2012 SUPPLEMENTS THE STANDARD PLANS BOOK DATED MAY 2006.

2006 NEW STANDARD PLAN NSP ES-8A

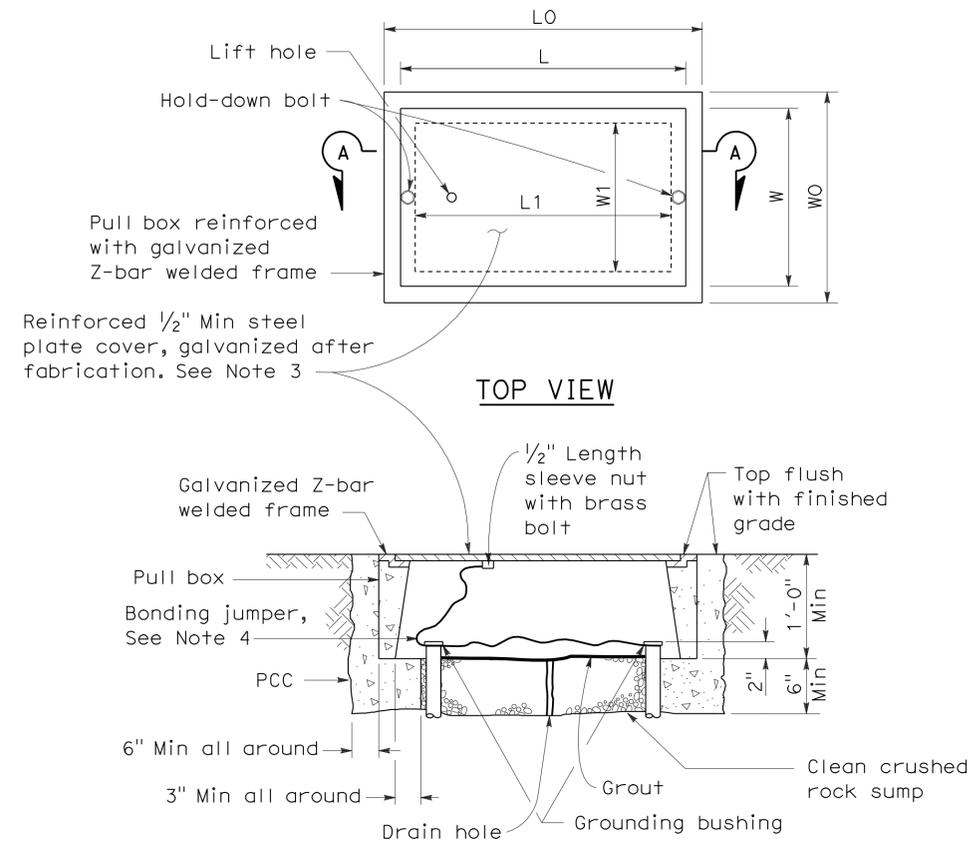
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
08	SBd	15	14.6	41	42

*Jeffery G. McRae*  
 REGISTERED ELECTRICAL ENGINEER  
 January 20, 2012  
 PLANS APPROVAL DATE

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2006 NEW STANDARD PLAN NSP ES-8B

To accompany plans dated 6-4-12



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

**NOTES ON PULL BOXES:**

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

**DIMENSION TABLE**

PULL BOX	BOX						COVER				
	Minimum * Thickness	Minimum Depth Box and Extension	W0	L0	L1	W1	L **	W **	R	Edge Thickness	Edge Taper
No. 3 1/2(T)	1 1/2"	1'-0"	1'-5"± 1"	1'-8 7/8"±	1'-2 1/2"±	10 5/8"± 1"	1'-8"±	1'-1 3/4"±	0"	1/2"	None
No. 5(T)	1 3/4"	1'-0"	1'-11 1/2"± 1"	2'-5 1/2"±	1'-7"±	1'-1"± 1"	2'-3"±	1'-4"±	0"	1/2"	None
No. 6(T)	2"	1'-0"	2'-6"± 1"	2'-11 1/2"±	1'-11 1/2"±	1'-5"± 1"	2'-9"±	1'-8"±	0"	1/2"	None

\* Excluding conduit web      \*\* Top dimension

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

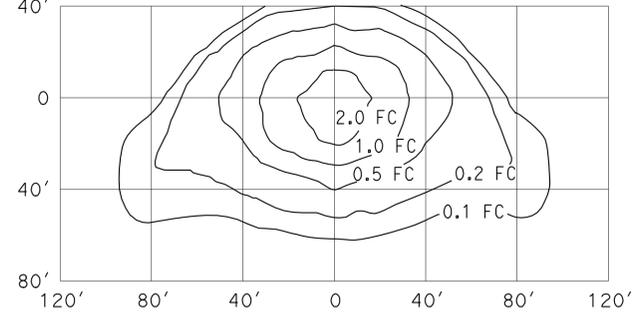
NSP ES-8B DATED JANUARY 20, 2012 SUPPLEMENTS THE STANDARD PLANS BOOK DATED MAY 2006.

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
08	SBd	15	14.6	42	42

*Jeffery G. McRae*  
 REGISTERED ELECTRICAL ENGINEER  
 July 20, 2012  
 PLANS APPROVAL DATE  
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To accompany plans dated 6-4-12

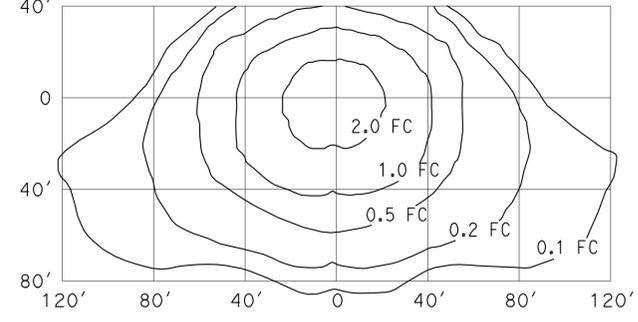
**ISOFOOTCANDLE CURVE - MINIMUM**



**TYPE III MEDIUM CUTOFF**

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

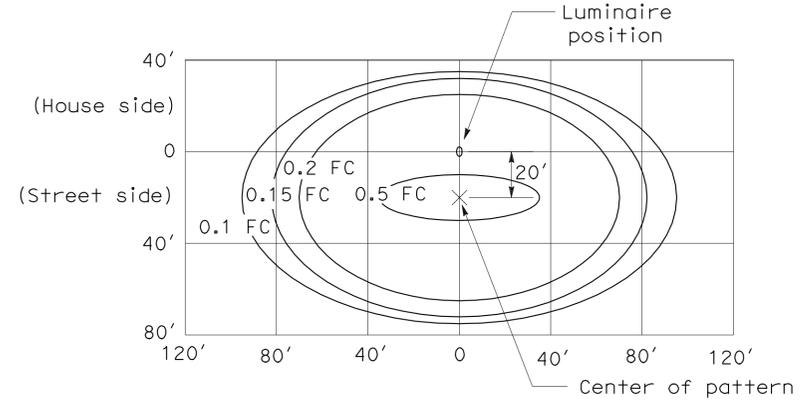
**ISOFOOTCANDLE CURVE - MINIMUM**



**TYPE III MEDIUM CUTOFF**

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

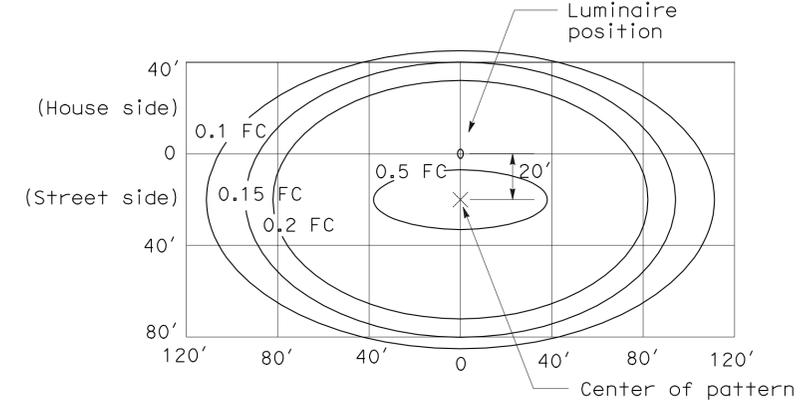
**ISOFOOTCANDLE CURVE - MINIMUM**



**LED LUMINAIRE ROADWAY 1**

200-W HPS Equivalent at 34' Mounting Height

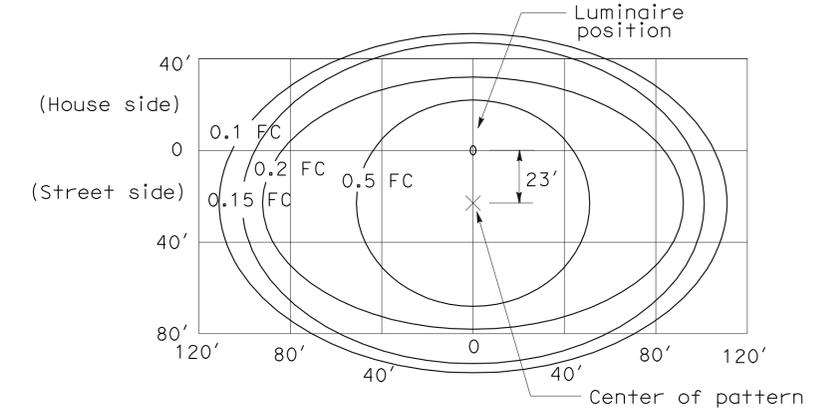
**ISOFOOTCANDLE CURVE - MINIMUM**



**LED LUMINAIRE ROADWAY 2**

310-W HPS Equivalent at 40' Mounting Height

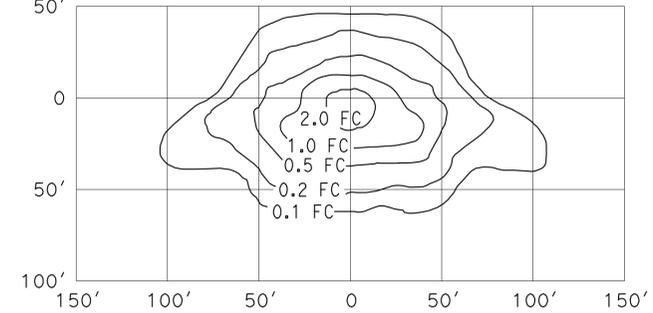
**ISOFOOTCANDLE CURVE - MINIMUM**



**LED LUMINAIRE ROADWAY 4**

400-W HPS Equivalent at 40' Mounting Height

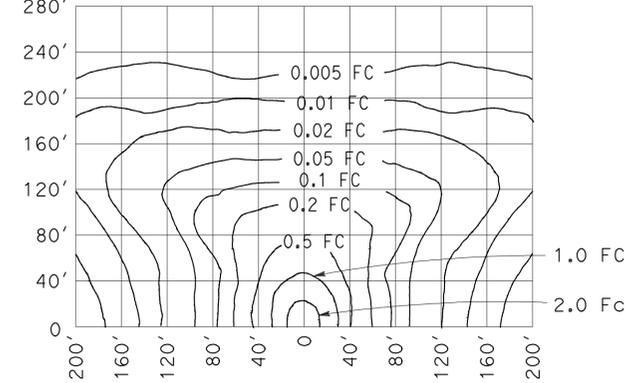
**ISOFOOTCANDLE CURVE - MINIMUM**



**TYPE III MEDIUM CUTOFF**

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

**ISOFOOTCANDLE CURVE - MINIMUM**



**LOW PRESSURE SODIUM LUMINAIRE**

40' Mounting Height  
 Lamp operated at 33,000 lm  
 180-W low pressure sodium lamp

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

NO SCALE

NSP ES-10A DATED JULY 20, 2012 SUPPLEMENTS THE  
 STANDARD PLANS BOOK DATED MAY 2006.

**NEW STANDARD PLAN NSP ES-10A**

2006 NEW STANDARD PLAN NSP ES-10A