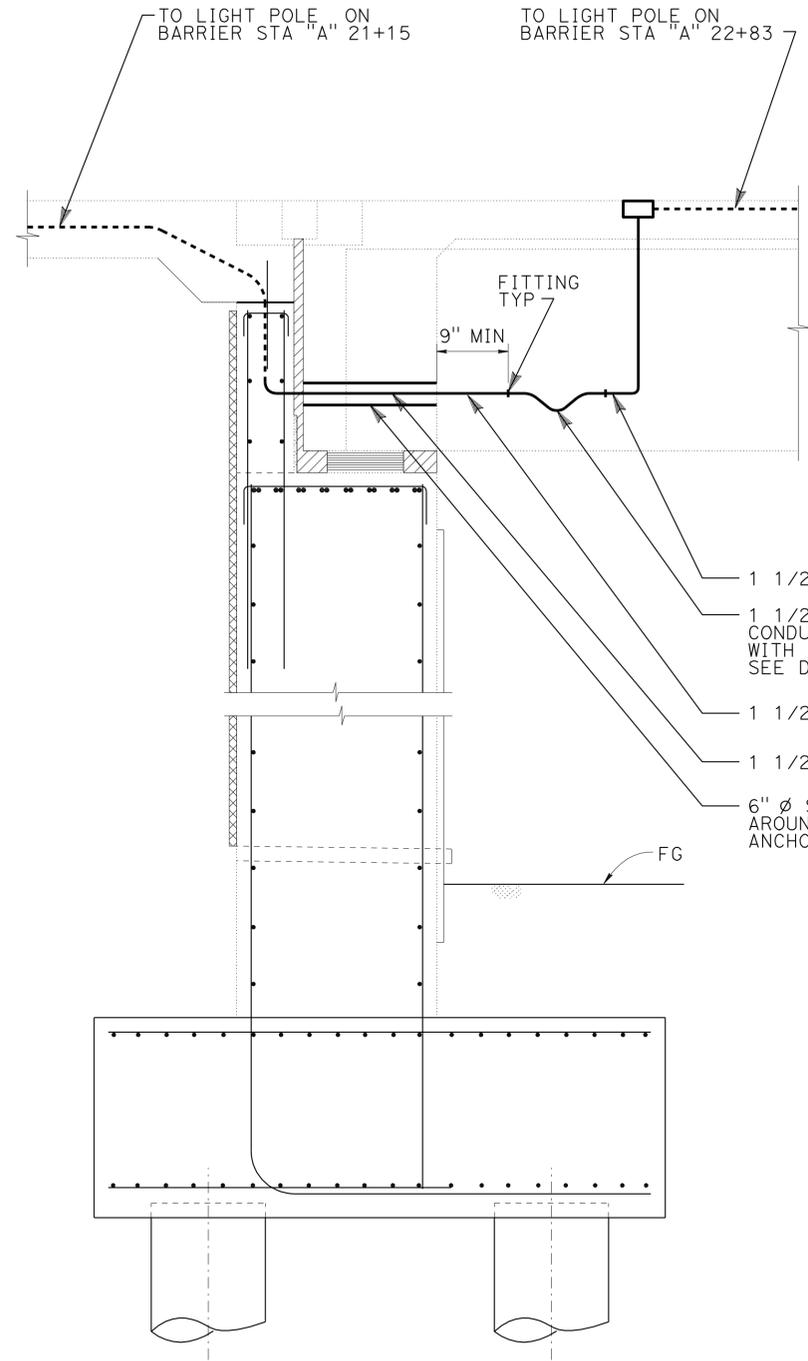


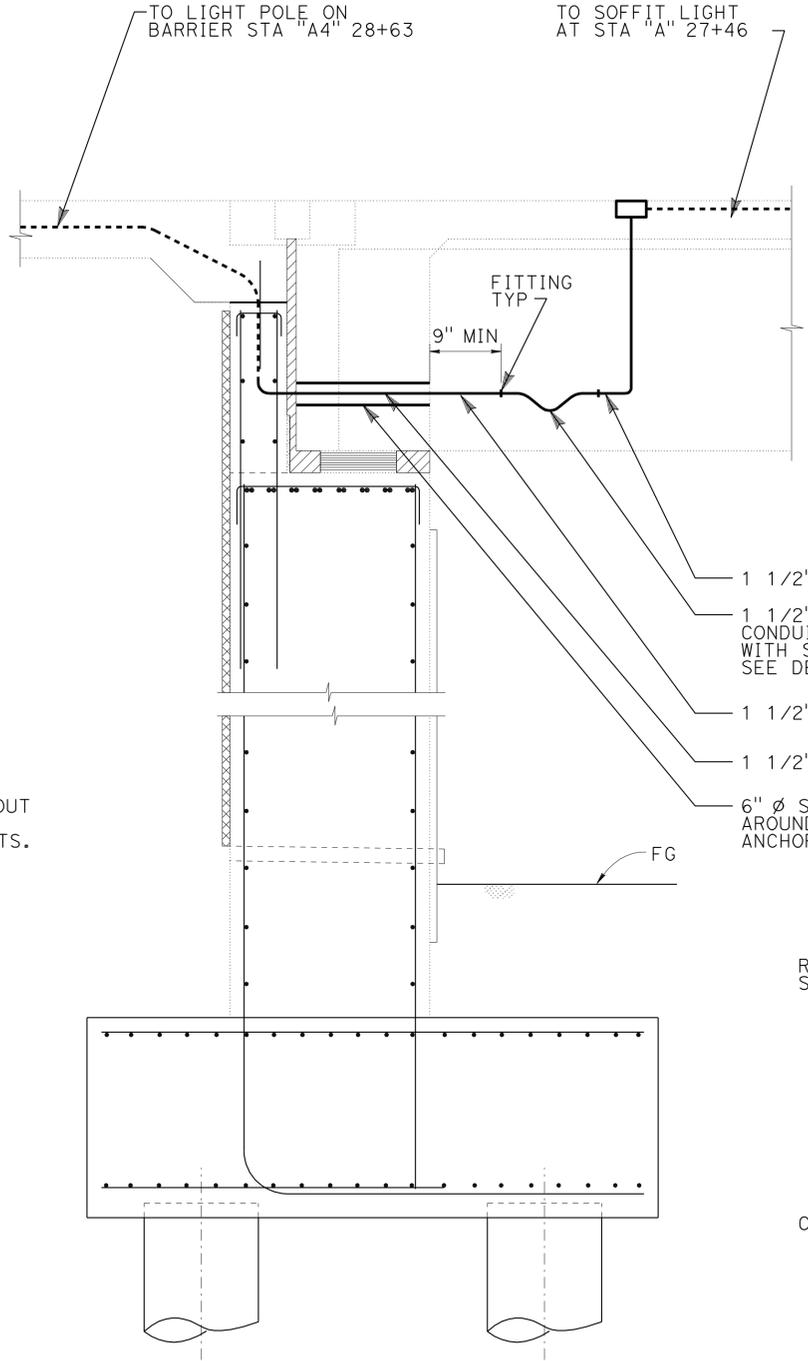
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	880	28.4/29.2	401	789

	08-22-12 REGISTERED CIVIL ENGINEER DATE
4-8-13 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>	
AECOM 2101 WEBSTER ST.#1900 OAKLAND, CA 94612	ALAMEDA CTC 1333 Broadway Suite 220 Oakland, CA 94612



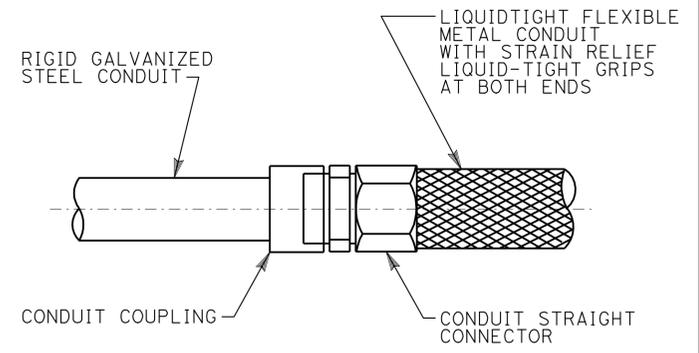
SECTION

29th Ave OC BRIDGE
(ABUTMENT 1)



SECTION

29th Ave OC BRIDGE
(ABUTMENT 8)



LIQUITIGHT FLEXIBLE METAL CONDUIT FITTING DETAIL
NO SCALE

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET E-1 THRU E-4

ELECTRICAL DETAILS
(EXPANSION JOINTS 29TH Ave)

P:\60189903_1-880_ORA\CADD\lect\Merge 8-31-2012\Merged Files\0400000160u061.dgn
 STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
 GEOFFREY RUBENDALL
 CONSULTANT
 SUPERVISOR
 FUNCTIONAL
 DESIGNED BY
 CHECKED BY
 CALCULATED-DESIGNED BY
 CHECKED BY
 REVISIONS:
 EM 04/18/12
 EM 01/06/12
 MS 06/26/12
 JOEL OBEDOZA
 JOHN KIM

P:\60189903_1-880_ORA\CADD\lect\Merge 8-31-2012\Merged Files\0400000160u062.dgn
 STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
 GEOTECHNICAL CONSULTANT - FUNCTIONAL SUPERVISOR
 GEORGE RUBENDALL
 CALCULATED/DESIGNED BY
 CHECKED BY
 JOEL OBEDOZA
 JOHN KIM
 REVISED BY
 DATE REVISED
 EM
 01/06/12
 EM
 04/18/12
 MS
 06/26/12

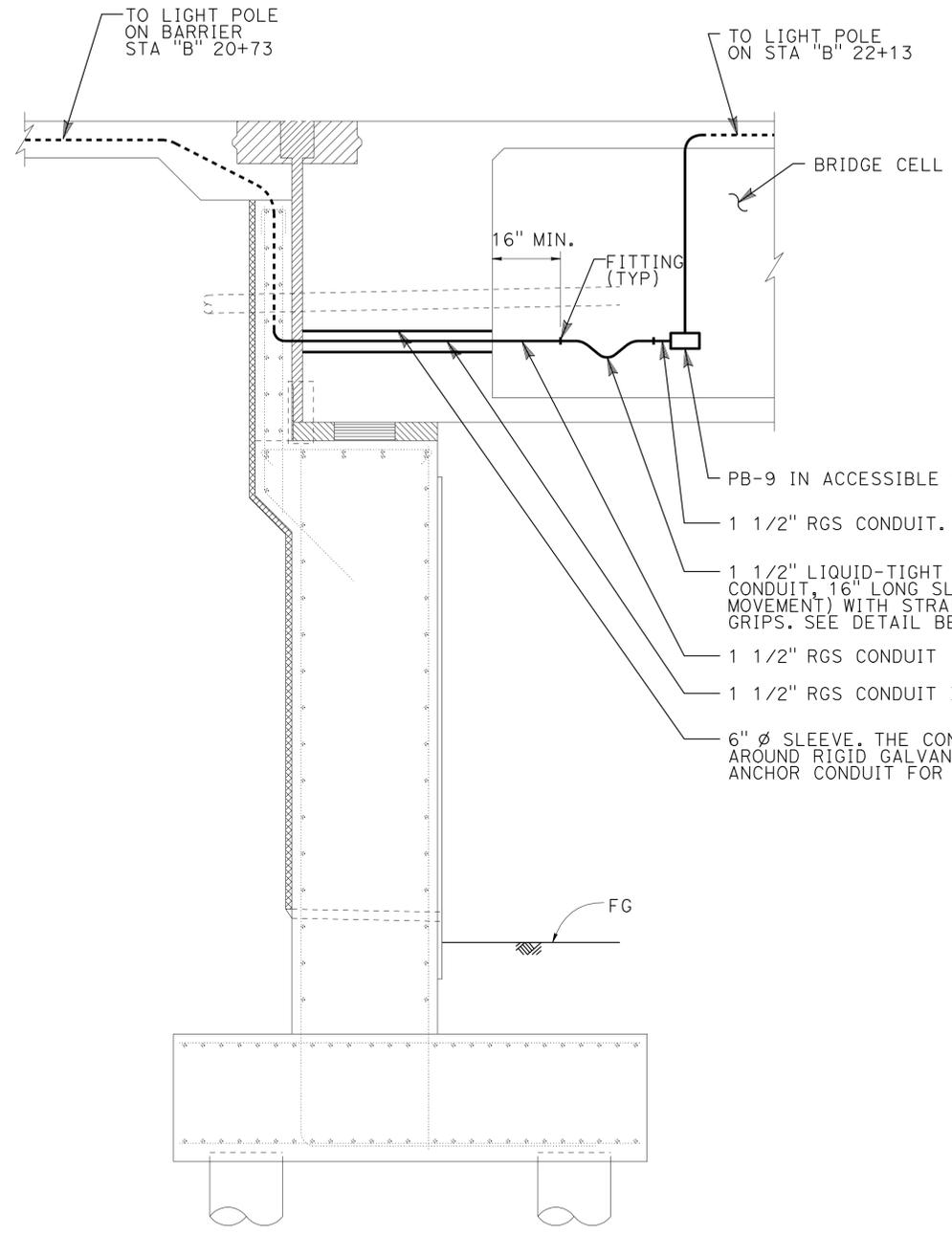
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	880	28.4/29.2	402	789

08-22-12
 REGISTERED CIVIL ENGINEER DATE
 4-8-13
 PLANS APPROVAL DATE

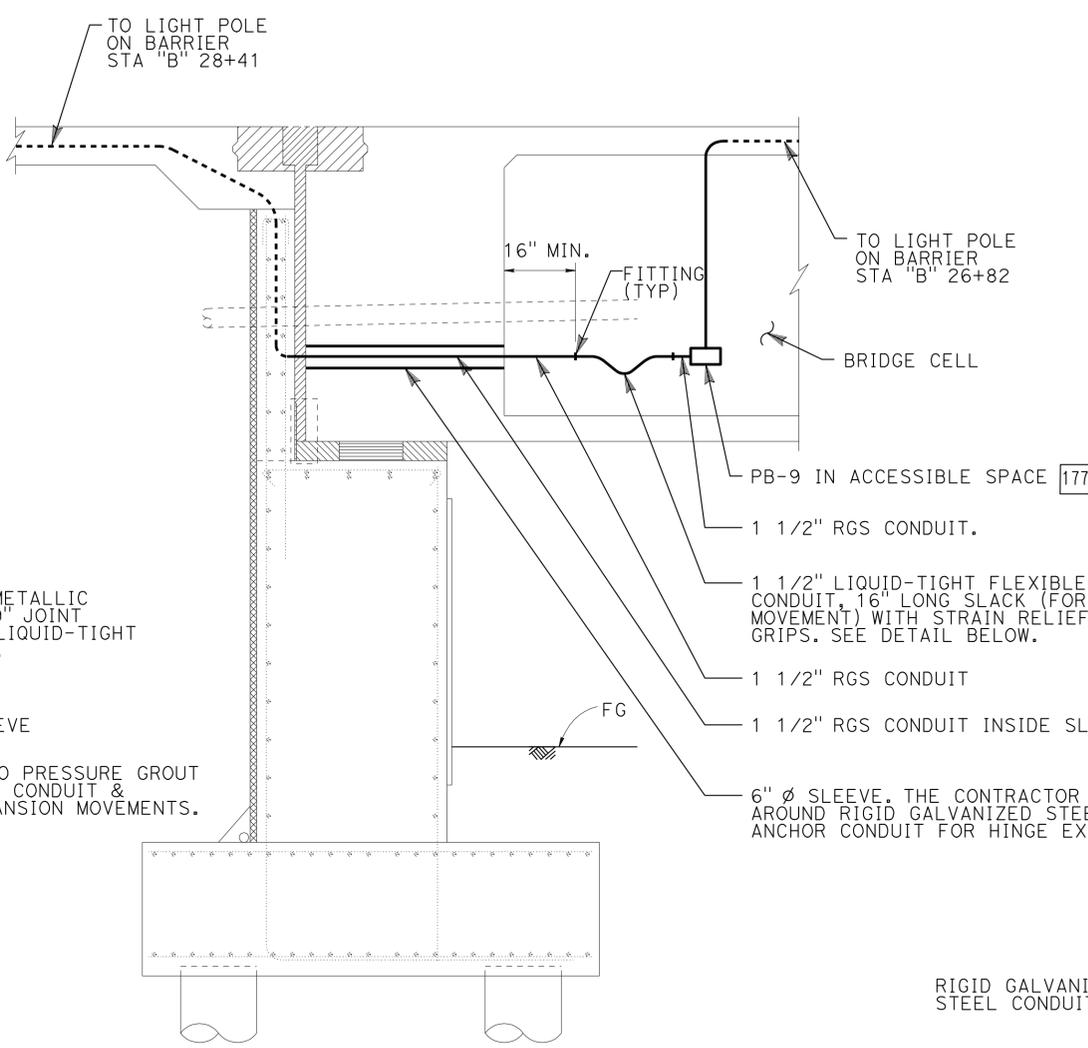
REGISTERED PROFESSIONAL ENGINEER
GEORGE RUBENDALL
 No. 71946
 Exp. 12/31/13
 CIVIL
 STATE OF CALIFORNIA

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.

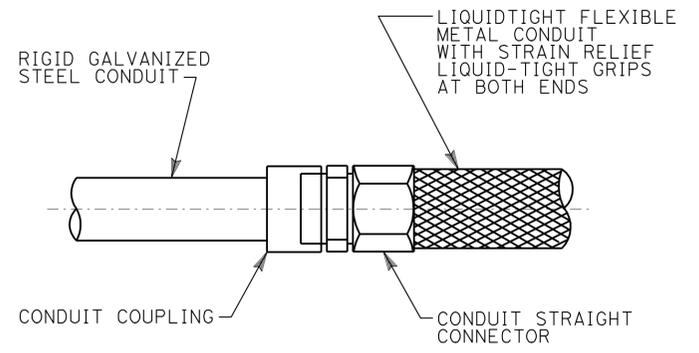
AECOM 2101 WEBSTER ST.#1900 OAKLAND, CA 94612	ALAMEDA CTC 1333 Broadway Suite 220 Oakland, CA 94612
---	--



SECTION
23rd St OC BRIDGE
(ABUTMENT 1)



SECTION
23rd St OC BRIDGE
(ABUTMENT 5)



LIQUID FLEXIBLE METAL CONDUIT FITTING DETAIL
NO SCALE

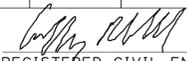
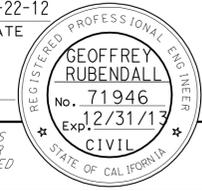
- PB-9 IN ACCESSIBLE SPACE 177
- 1 1/2" RGS CONDUIT.
- 1 1/2" LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT, 16" LONG SLACK (FOR 9" JOINT MOVEMENT) WITH STRAIN RELIEF LIQUID-TIGHT GRIPS. SEE DETAIL BELOW RIGHT.
- 1 1/2" RGS CONDUIT
- 1 1/2" RGS CONDUIT INSIDE SLEEVE
- 6" Ø SLEEVE. THE CONTRACTOR TO PRESSURE GROUT AROUND RIGID GALVANIZED STEEL CONDUIT & ANCHOR CONDUIT FOR HINGE EXPANSION MOVEMENTS.

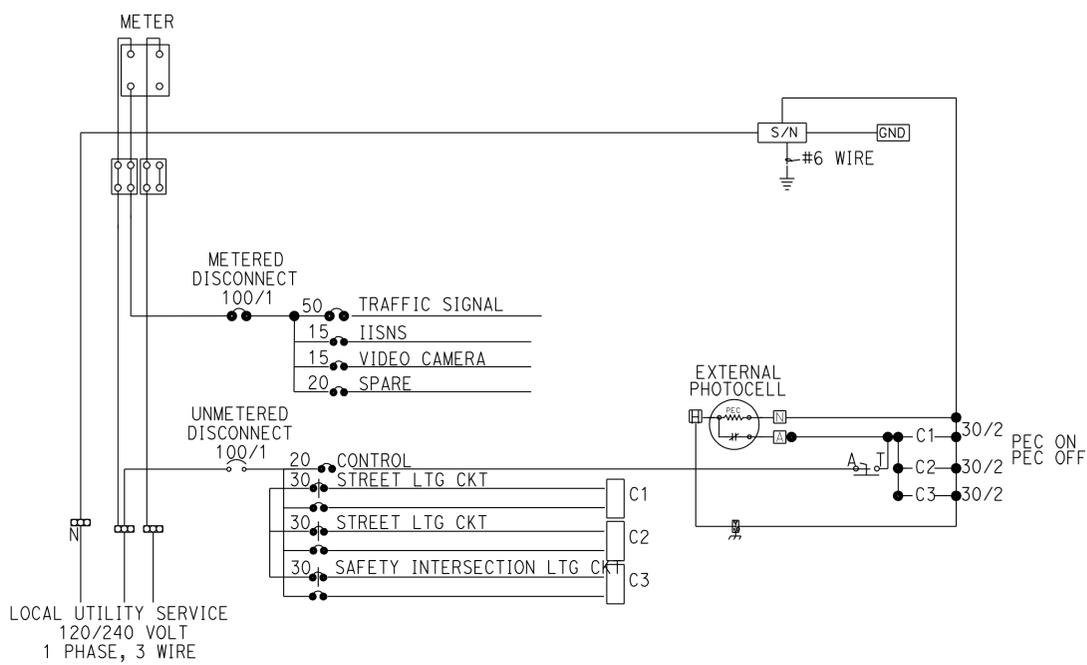
- PB-9 IN ACCESSIBLE SPACE 177
- 1 1/2" RGS CONDUIT.
- 1 1/2" LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT, 16" LONG SLACK (FOR 9" JOINT MOVEMENT) WITH STRAIN RELIEF LIQUID-TIGHT GRIPS. SEE DETAIL BELOW.
- 1 1/2" RGS CONDUIT
- 1 1/2" RGS CONDUIT INSIDE SLEEVE
- 6" Ø SLEEVE. THE CONTRACTOR TO PRESSURE GROUT AROUND RIGID GALVANIZED STEEL CONDUIT & ANCHOR CONDUIT FOR HINGE EXPANSION MOVEMENTS.

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET E-1 THRU E-4

ELECTRICAL DETAILS
(EXPANSION JOINT 23RD Ave)

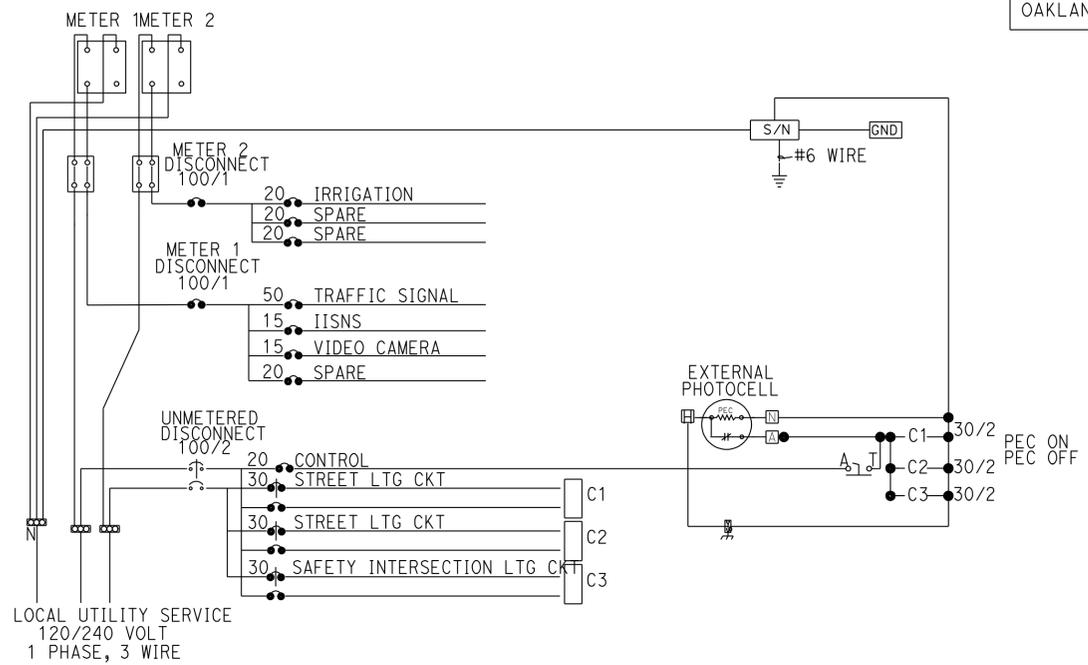


Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	880	28.4/29.2	403	789
 REGISTERED CIVIL ENGINEER			08-22-12 DATE		
4-8-13 PLANS APPROVAL DATE					
AECOM 2101 WEBSTER ST.#1900 OAKLAND, CA 94612			ALAMEDA CTC 1333 Broadway Suite 220 Oakland, CA 94612		



**NEW TYPE IIIAF SERVICE ENCLOSURE DETAIL
(CITY WIRING DIAGRAM)
SINGLE METER**

USE FOR CITY SIGNALS AND STREET LIGHTING



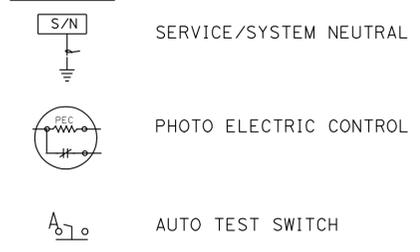
**NEW TYPE IIIAF SERVICE ENCLOSURE DETAIL
(CITY WIRING DIAGRAM)
DUAL METER**

USE FOR CITY SIGNALS, IRRIGATION, AND STREET LIGHTING

ENCLOSURE NOTES

1. EXTERIOR, GALV STEEL, AND INTERIOR 14 GA COLD ROLLED STEEL ELECTRICALLY WELDED AND REINFORCED WHERE REQUIRED.
2. CONSTRUCTION SHALL BE NEMA 3R, RAIN TIGHT.
3. ALL NUTS, BOLTS AND SCREWS SHALL BE STAINLESS STEEL.
4. NUTS, BOLTS & SCREWS SHALL NOT BE VISIBLE FROM OUTSIDE OF ENCLOSURE.
5. NAMEPLATES SHALL BE PROVIDED AS REQUIRED.
6. CONTROL WIRING SHALL BE MARKED AT BOTH ENDS BY PERMANENT WIRE MAKERS.
7. A PLASTIC COVERED WIRING DIAGRAM SHALL BE ATTACHED TO THE INSIDE OF THE FRONT DOOR.
8. ENCLOSURE SHALL BE FACTORY WIRED AND CONFORM TO REQUIRED NEMA STANDARDS.
9. FOUNDATION PER CALTRANS STANDARD RSP ES-2D.

LEGEND



**ELECTRICAL DETAILS
(CITY WIRING DIAGRAMS)**

NO SCALE

E-63

H:\Temp\0400000160\040063.dgn
 STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
 CONSULTANT - FUNCTIONAL SUPERVISOR
 GEOFFREY RUBENDALL
 CALCULATED/DESIGNED BY
 GEOFFREY RUBENDALL
 CHECKED BY
 CARMEN GENDUSA
 REVISOR
 MG
 DATE
 01/06/12
 REVISION
 EB
 DATE
 04/18/12
 SHEET
 EB
 DATE
 06/26/12

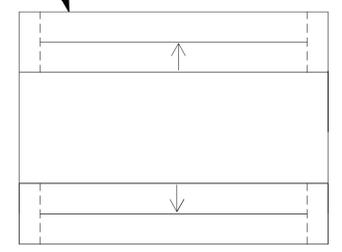


Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	880	28.4/29.2	406	789

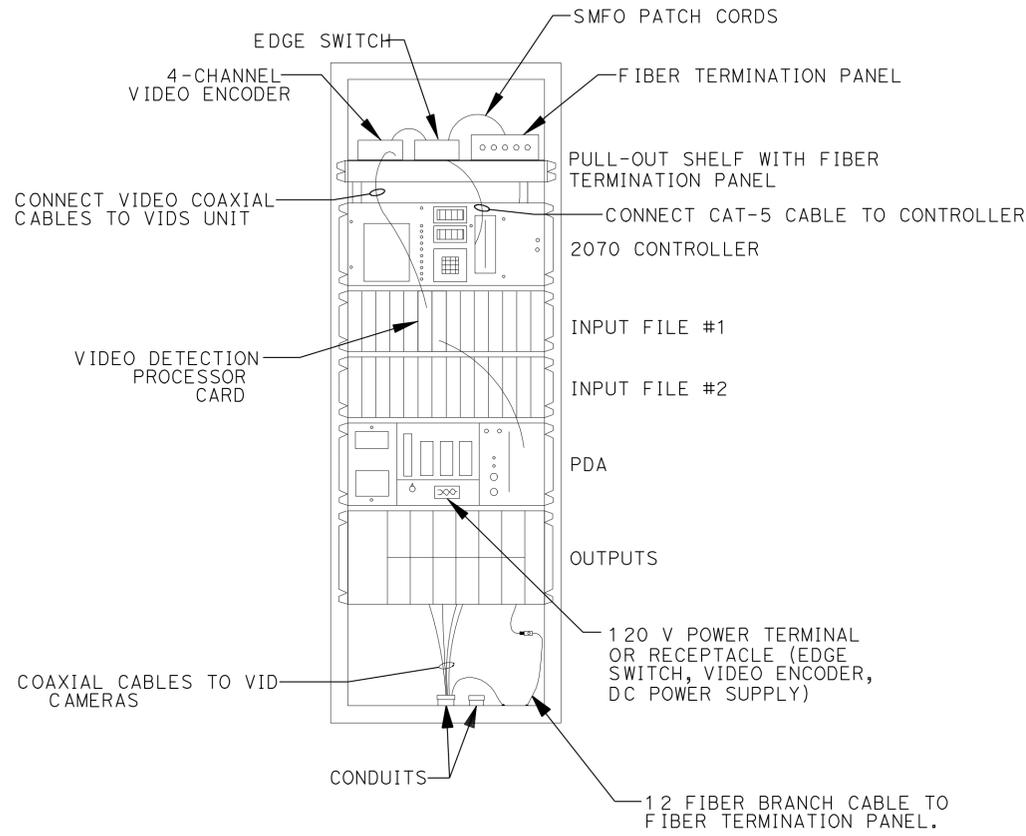
REGISTERED CIVIL ENGINEER: *Geoffrey Rubendall*
 DATE: 08-22-12
 PLANS APPROVAL DATE: 4-8-13
 REGISTERED PROFESSIONAL ENGINEER: GEOFFREY RUBENDALL
 No. 71946
 Exp. 12/31/13
 CIVIL
 STATE OF CALIFORNIA
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

AECOM: 2101 WEBSTER ST.#1900 OAKLAND, CA 94612
 ALAMEDA CTC: 1333 Broadway Suite 220 Oakland, CA 94612

DRILL 7/8" HOLE & INSTALL GPS CENTERED ALONG THE DASHED LINE SHOWN ON EITHER SIDE. EXACT LOCATION MUST BE DETERMINED ON SITE THAT PROVIDES THE BEST VISIBILITY TO THE SKY.

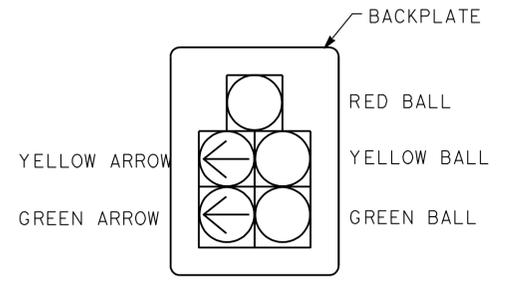


TOP VIEW OF 332 CABINET
GPS CLOCK INSTALLATION

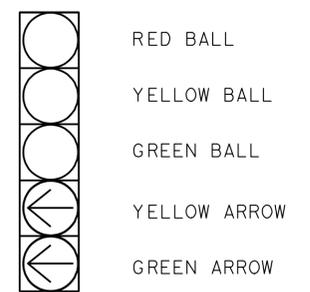


FRONT VIEW

CITY OF OAKLAND MODEL 332 CABINET DETAIL



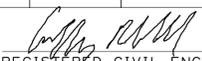
DETAIL A
 5-SECTION SIGNAL FACE



DETAIL B
 5-SECTION SIGNAL FACE

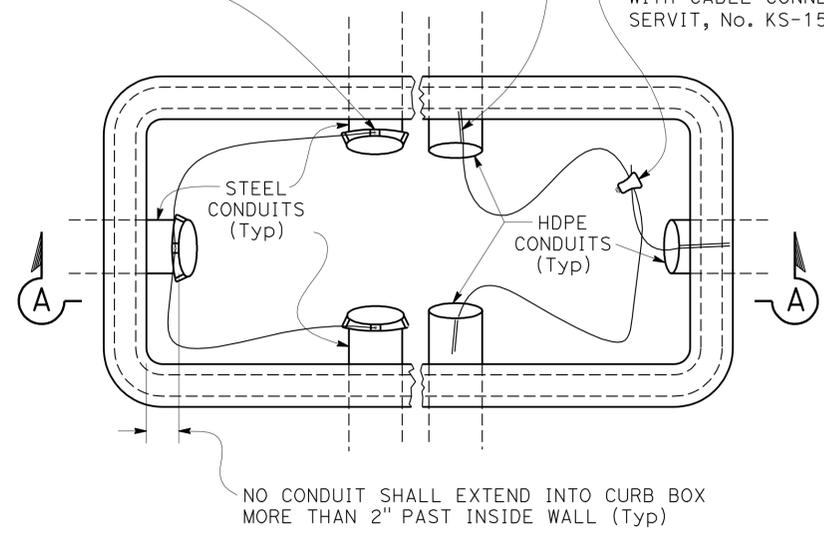
FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET E-1 THRU E-4

ELECTRICAL DETAILS
(SIGNAL COMPONENTS)
(CITY)
 NO SCALE
E-66

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	880	28.4/29.2	408	789
 REGISTERED CIVIL ENGINEER			08-22-12 DATE		
4-8-13 PLANS APPROVAL DATE					
AECOM 2101 WEBSTER ST.#1900 OAKLAND, CA 94612			ALAMEDA CTC 1333 Broadway Suite 220 Oakland, CA 94612		

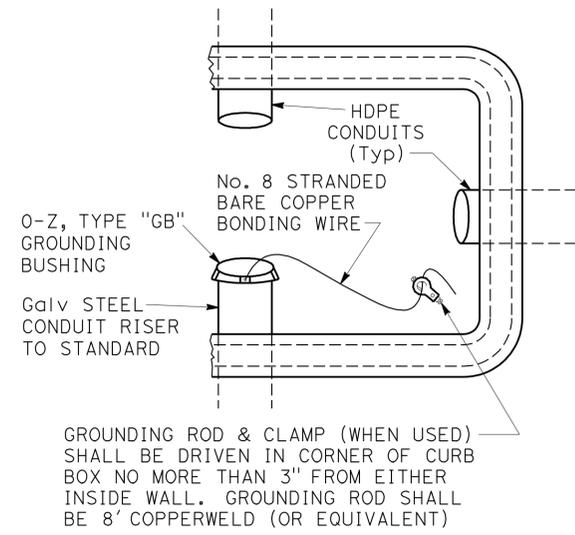
ENDS OF ALL STEEL CONDUITS ENTERING CURB BOX SHALL BE CAPPED WITH O-Z GROUNDING INSULATED BUSHINGS W/ALUMINUM LUG, TYPE IBC-L-AC. CONNECT TOGETHER WITH No.8 STRANDED BARE COPPER BONDING WIRE

ENDS OF ALL CONDUITS ENTERING CURB BOX SHALL BE DUC SEALED WITH IDEAL #31-605 OR EQUIVALENT



**PLAN
(COMPOSITE VIEW)**

ALL BONDING WIRES (No.8 STRANDED) IN PLASTIC CONDUITS ENTERING CURB BOX SHALL BE CONNECTED TOGETHER WITH CABLE CONNECTOR(S)-BURNDY SERVIT, No. KS-15 (OR EQUIVALENT)

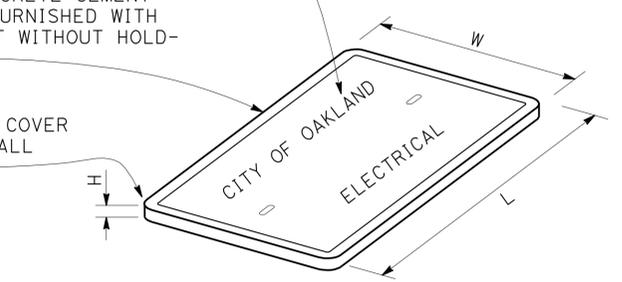


**GROUNDING DETAIL
(APPLIES WHEREVER GROUND ROD IS REQUIRED)**

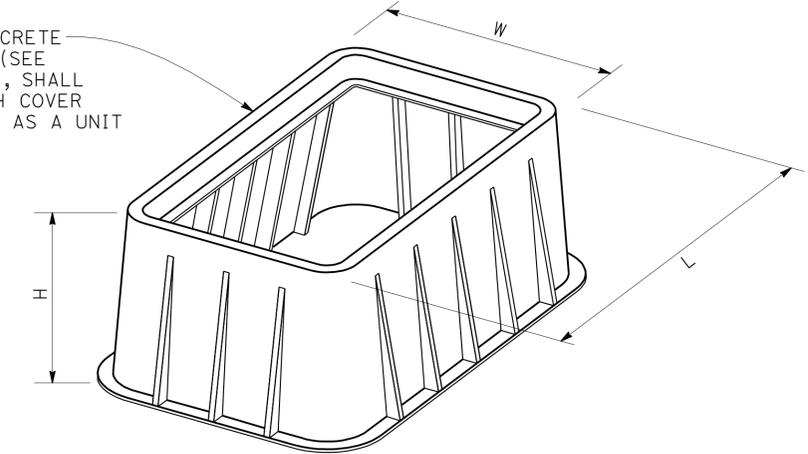
THE INSCRIPTION "CITY OF OAKLAND - ELECTRICAL" SHALL BE CAST IN ALL CURB BOX COVERS

NON-PORTLAND CEMENT COVER SHALL BE FURNISHED WITH LIFTING SLOTS BUT WITHOUT HOLD-DOWN BOLTS

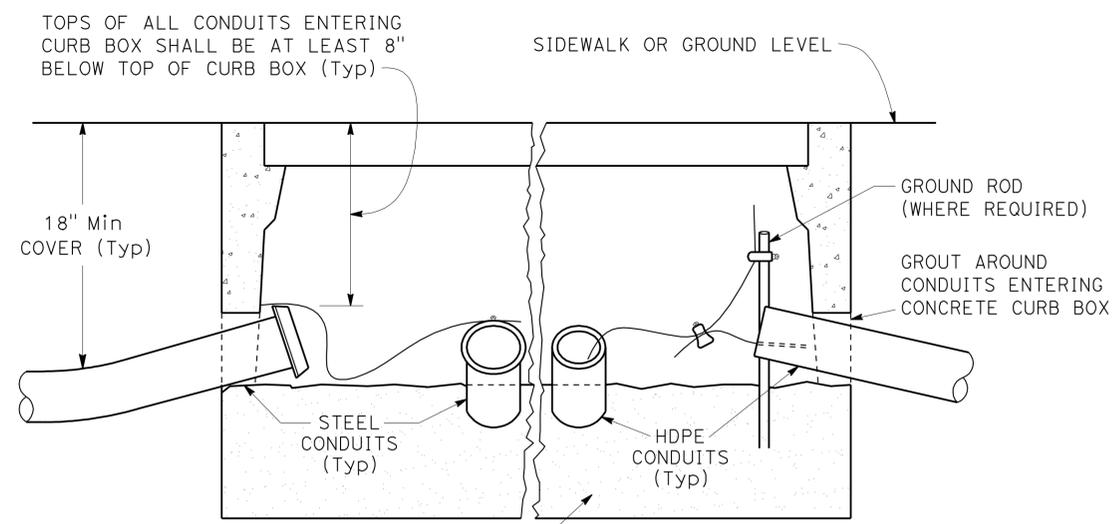
MINIMUM CURB BOX COVER CORNER RADIUS SHALL BE 1 1/4"



NON-PORTLAND CEMENT CURB BOX (SEE DIMENSIONS BELOW), SHALL BE FURNISHED WITH COVER (AS SHOWN ABOVE), AS A UNIT



CURB BOX WITH COVER



EACH CURB BOX SHALL BE SET ON 6" THICK PAD OF CRUSHED ROCK, 3/4" Max AGGREGATE

**SECTION "A-A"
(COMPOSITE VIEW)**

ARRANGEMENT OF CURB BOX AND CONDUITS FOR LIGHT STANDARDS

CURB BOX AND COVER

CURB BOX AND COVER SIZE No.	CURB BOX						CURB BOX COVER					
	LENGTH		WIDTH		HEIGHT		LENGTH		WIDTH		HEIGHT	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max		
5	23 5/8"	25 3/8"	14 1/8"	15 7/8"	12	14	23 1/8"	23 1/4"	13 5/8"	13 3/4"	2"	
6	30 7/8"	33"	17 7/8"	19 5/8"	12	14	30 3/8"	30 1/2"	17 3/8"	17 1/2"	2"	

ALL CITY LIGHTING CURB BOXES UNLESS OTHERWISE NOTED

ALL CITY SIGNAL CURB BOXES UNLESS OTHERWISE NOTED

NOTES: 1. MINIMUM CURB BOX COVER WALL THICKNESS SHALL BE 3/8" AT FLAT AREAS BETWEEN RIBS. COVERS SHALL BE FLUSH WITH TOP OF BOX WHEN INSTALLED. THE MATERIAL SHALL BE CONCRETE COLOR.

2. DIMENSIONS ARE IN INCHES AND SHOW THE ACCEPTABLE LIMITS.

PRECAST NON-CONCRETE, STANDARD CURB BOXES

ELECTRICAL DETAILS (PULL BOXES) (CITY)

NO SCALE

E-68

H:\PDATA\35101088\CADD\Transp\W\CADD_Out\AECOM\2012-12-17 E_Sheets\full_size\iparms\0400000160u068.dgn
 STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
 CONSULTANT: FUNCTIONAL SUPERVISOR
 GEOFFREY RUBENDALL
 CHECKED BY: CARMEN GENDUSA
 DATE REVISED: 01/06/12
 REVISIONS: MG (01/06/12), EM (04/18/12), EM (06/26/12)

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	880	28.4/29.2	409	789

08-22-12
 REGISTERED CIVIL ENGINEER DATE
 4-8-13
 PLANS APPROVAL DATE

GEOFFREY RUBENDALL
 No. 71946
 Exp. 12/31/13
 CIVIL
 STATE OF CALIFORNIA

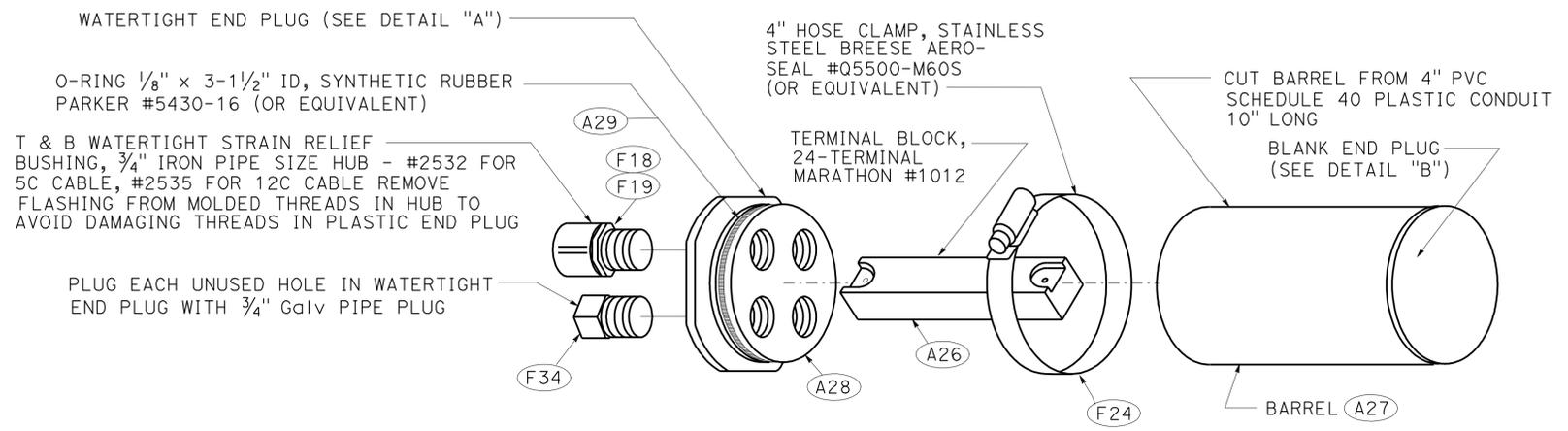
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

AECOM 2101 WEBSTER ST.#1900 OAKLAND, CA 94612	ALAMEDA CTC 1333 Broadway Suite 220 Oakland, CA 94612
---	--

CONDUCTOR NUMBERING AND COLOR CODE FOR CITY TRAFFIC SIGNAL CABLE

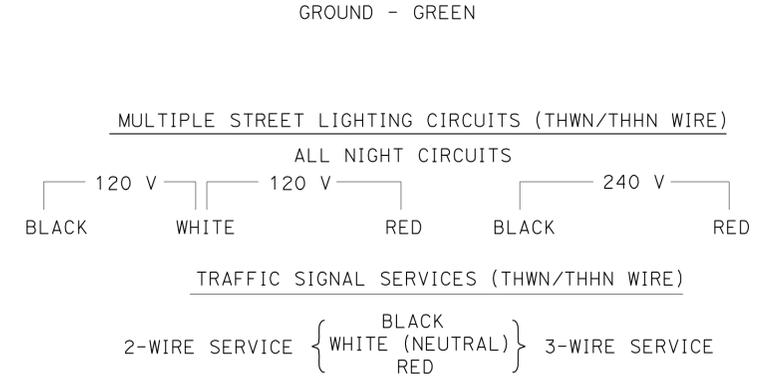
CONDUCTOR NUMBER	12-CONDUCTOR	9-CONDUCTOR	5-CONDUCTOR
1	RED	RED	RED
2	RED-BLACK	RED-BLACK	GREEN
3	GREEN	GREEN	ORANGE
4	GREEN-BLACK	GREEN-BLACK	BLACK
5	ORANGE	ORANGE	WHITE (NEUTRAL)
6	ORANGE-BLACK	BLACK	
7	BLUE	BLUE	
8	BLUE-BLACK	WHITE-BLACK	
9	BLACK	WHITE (NEUTRAL)	
10	BLACK-WHITE		
11	WHITE-BLACK		
12	WHITE (NEUTRAL)		

SEE SPECIFICATIONS FOR IMSA 19-1 OR 20-1 Specs

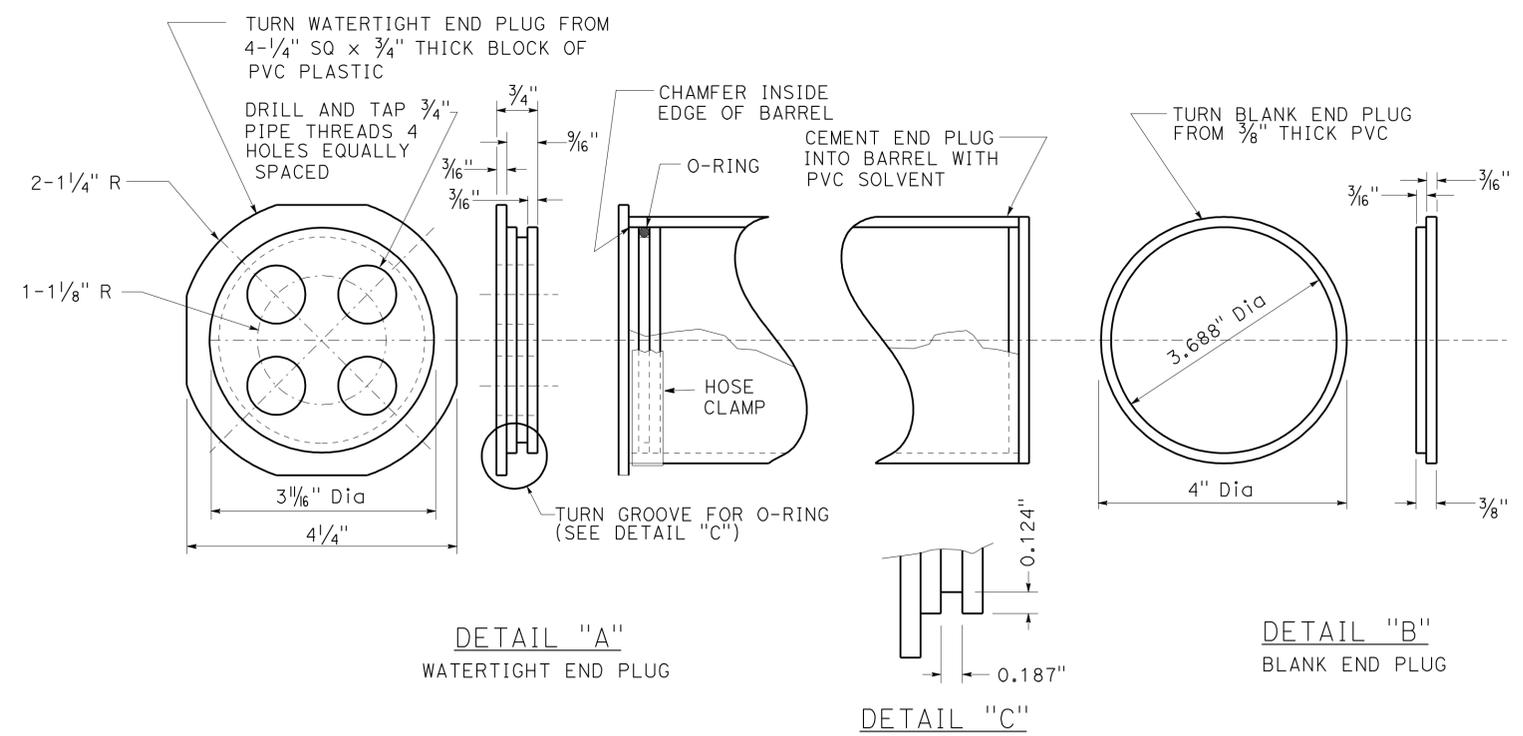


ASSEMBLY OF PARTS

COLOR CODE FOR MISCELLANEOUS WIRE AND CABLE



COLOR CODING AND CONDUCTOR NUMBERING FOR WIRING AND CABLE



DETAIL "A"
WATERTIGHT END PLUG

DETAIL "C"

DETAIL "B"
BLANK END PLUG

WATERTIGHT SPLICING CHAMBER

ELECTRICAL DETAILS (CITY)

NO SCALE **E-69**

H:\PDATA\351101088\CADD\TranspW\CADD_Out\AECOM\2012-12-17 E Sheets full size\parms\0400000160u069.dgn
 STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
 GEOFFREY RUBENDALL
 CONSULTANT - FUNCTIONAL SUPERVISOR
 GEOFFREY RUBENDALL
 CALCULATED - DESIGNED BY
 CHECKED BY
 CARMEN GENDUSA
 REVISOR
 DATE REVISED
 01/06/12
 04/18/12
 06/26/12
 EB
 MG
 MG

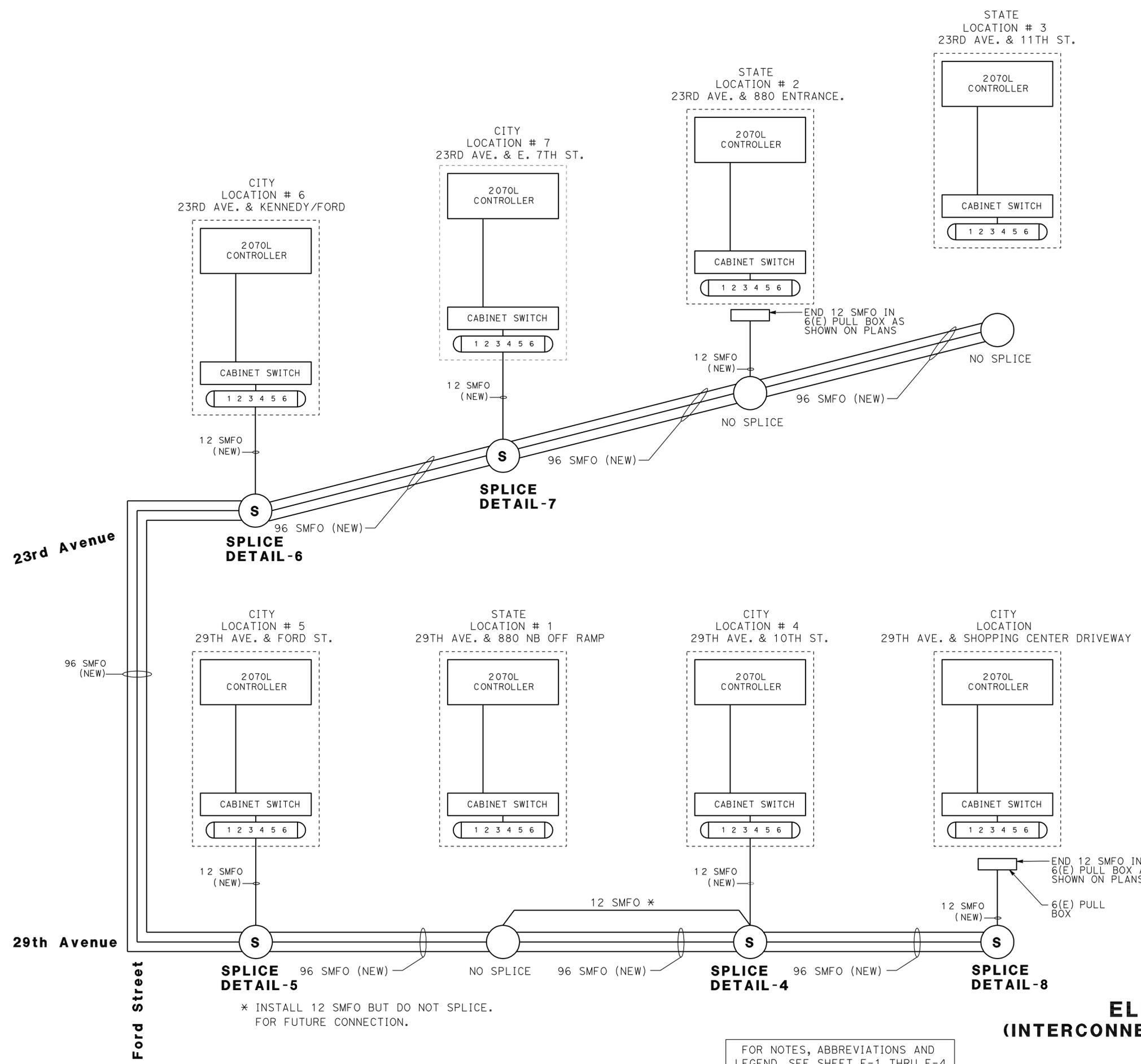
P:\60189903_1-880_ORA\CADD\Elect\Merge_8-31-2012\Merged_Files\0400000160ua070.dgn
 STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
 CONSULTANT: FUNCTIONAL SUPERVISOR: GEOFFREY RUBENDALL
 CALCULATED/DESIGNED BY: GEOFFREY RUBENDALL
 CHECKED BY: JOHN KIM
 REVISIONS:
 MS 06/26/12
 MS 04/18/12
 MS 01/06/12
 REVISED BY: DATE REVISED:

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	880	28.4/29.2	410	789

REGISTERED ELECTRICAL ENGINEER: *Geoffrey Rubendall*
 DATE: 08-22-12
 PLANS APPROVAL DATE: 4-8-13
 PROFESSIONAL ENGINEER: GEOFFREY RUBENDALL
 No. 71946
 Exp. 12/31/13
 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.

AECOM 2101 WEBSTER ST.#1900 OAKLAND, CA 94612	ALAMEDA CTC 1333 Broadway Suite 220 Oakland, CA 94612
---	--



LEGEND (SHEETS E-69, E-70 AND E-71 ONLY)

S	SPLICE ENCLOSURE
BL	BLUE
OR	ORANGE
GR	GREEN
BR	BROWN
SL	SILVER
WH	WHITE
RD	RED
BK	BLACK
YL	YELLOW
VI	VIOLET
RS	ROSE
AQ	AQUA

**ELECTRICAL DETAILS
(INTERCONNECT COMMUNICATION SCHEMATIC)**

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET E-1 THRU E-4

NO SCALE

E-70

P:\60189903.1-880_ORA\CADD\Elect\Merge 8-31-2012\Merged Files\0400000160u071.dgn
 STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
 CONSULTANT: FUNCTIONAL SUPERVISOR
 GEOFFREY RUBENDALL
 CALCULATED/DESIGNED BY
 GEOFFREY RUBENDALL
 CHECKED BY
 JOHN KIM
 REVISIONS:

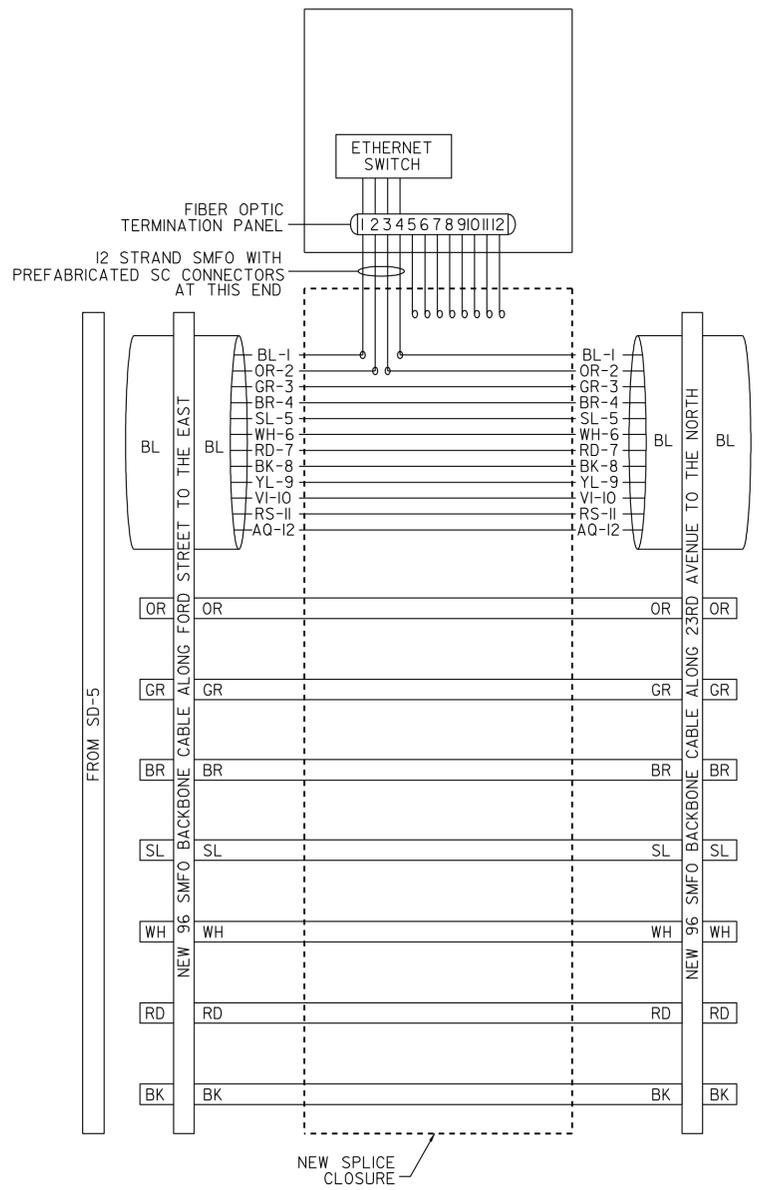
MS	06/26/12	MS
MS	04/18/12	MS
MS	01/06/12	MS

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	880	28.4/29.2	411	789

REGISTERED ELECTRICAL ENGINEER DATE 08-22-12
 4-8-13 PLANS APPROVAL DATE
 GEOFFREY RUBENDALL No. 71946 Exp. 12/31/13
 REGISTERED PROFESSIONAL ENGINEER 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.
 AECOM 2101 WEBSTER ST.#1900 OAKLAND, CA 94612
 ALAMEDA CTC 1333 Broadway Suite 220 Oakland, CA 94612

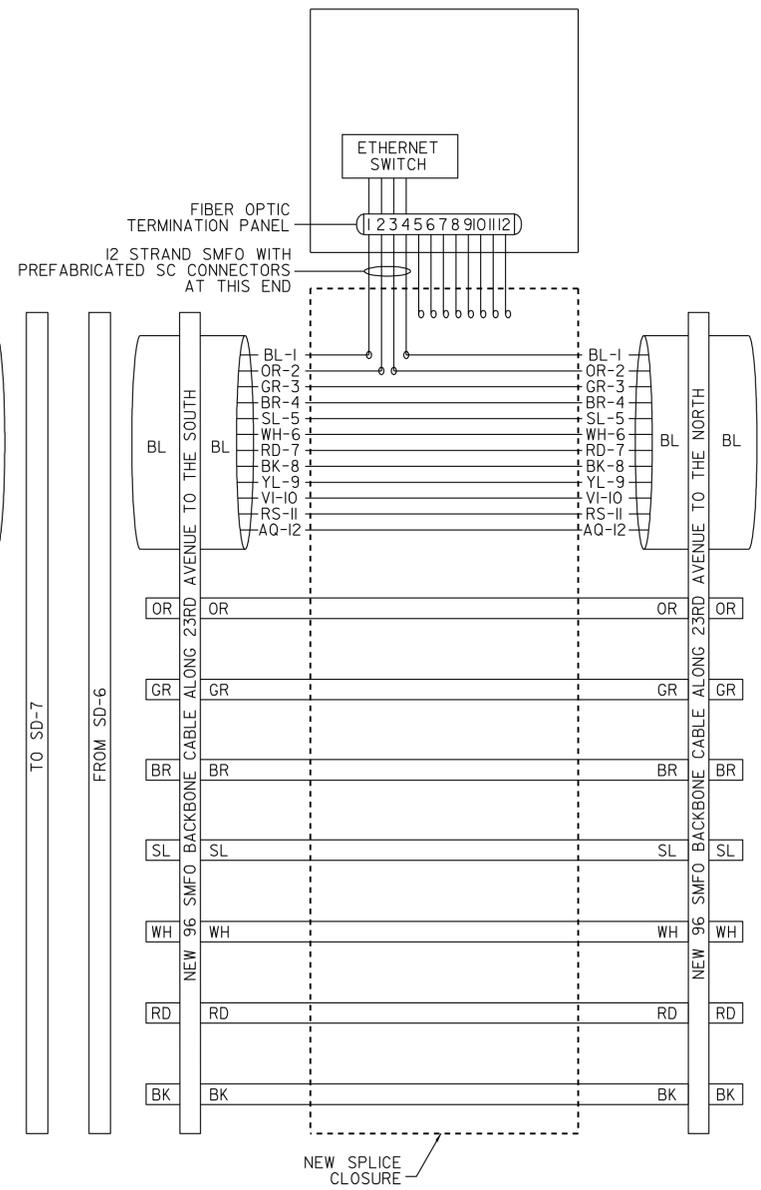
SPLICE DETAIL-6

CITY
LOCATION # 6
TRAFFIC SIGNAL CABINET
23RD AVE. & KENNEDY/FORD ST.

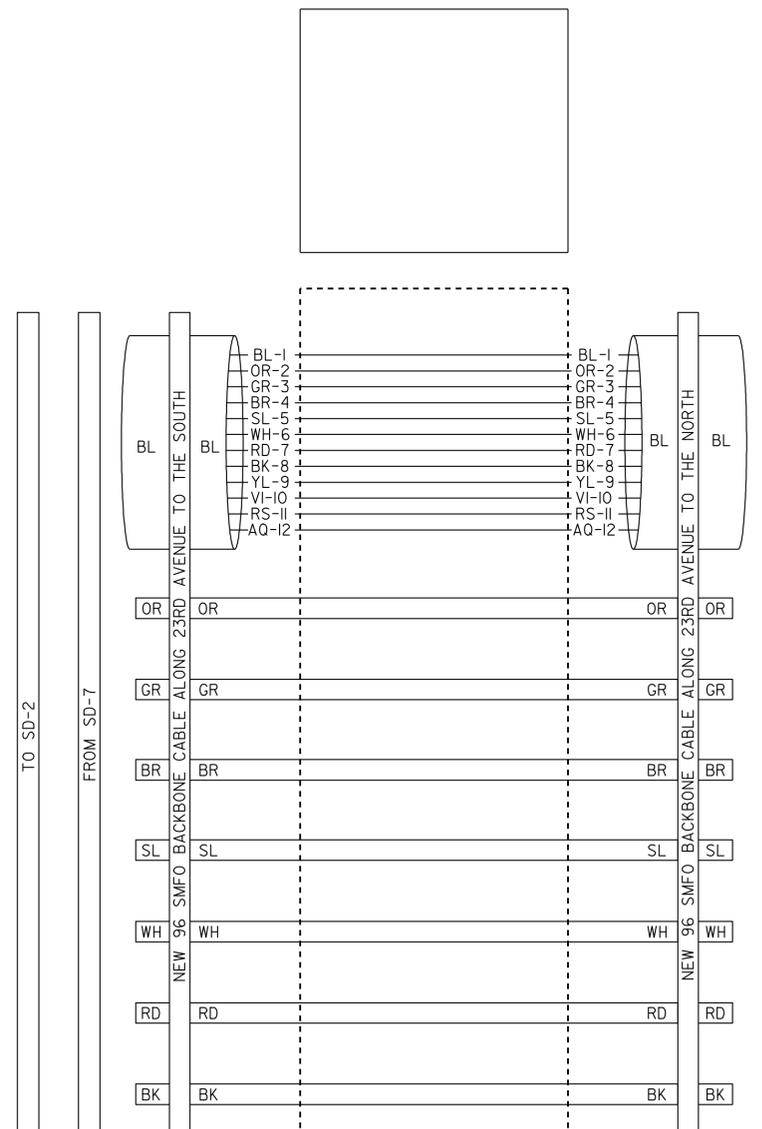


SPLICE DETAIL-7

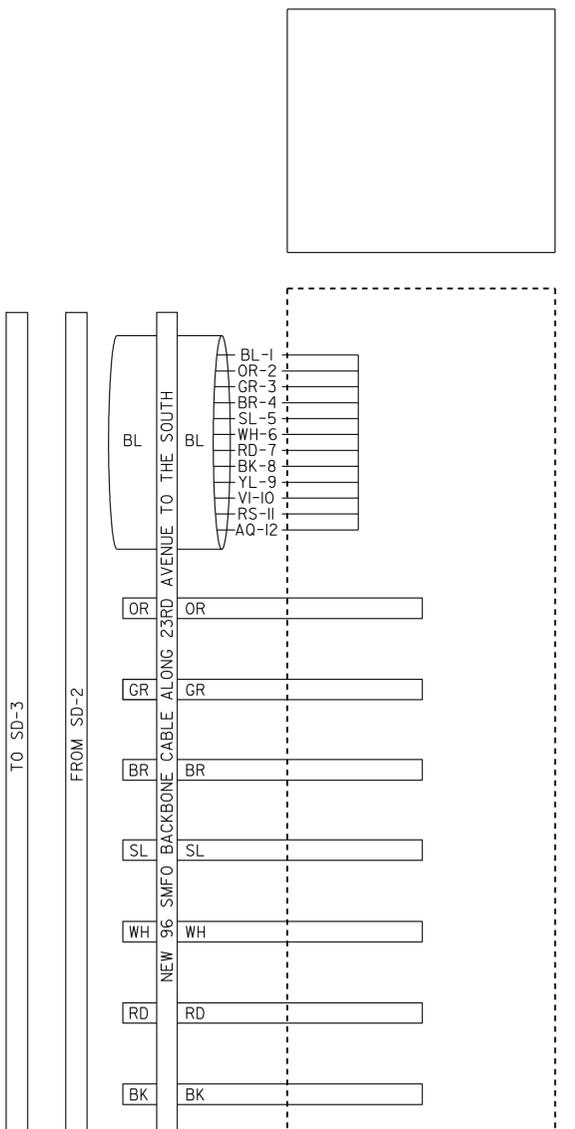
CITY
LOCATION # 7
TRAFFIC SIGNAL CABINET
23RD AVE. & 7TH ST.



STATE
LOCATION # 2
TRAFFIC SIGNAL CABINET
23RD AVE. & 880 ENTRANCE



STATE
LOCATION # 3
TRAFFIC SIGNAL CABINET
23RD AVE. & 11TH ST.



**ELECTRICAL DETAILS
(INTERCONNECT SPLICE DETAILS 23RD AVE)**

NO SCALE

E-71

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET E-1 THRU E-4

P:\60189903_1-880_ORA\CADD\Elect\Merge_8-31-2012\Merged_Files\0400000160u072.dgn
 STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
 CONSULTANT - FUNCTIONAL SUPERVISOR
 GEOFFREY RUBENDALL
 CHECKED BY
 GEOFFREY RUBENDALL
 CALCULATED/DESIGNED BY
 GEOFFREY RUBENDALL
 REVISIONS:

MS	06/26/12	MS
MS	04/18/12	MS
MS	01/06/12	MS

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	880	28.4/29.2	412	789

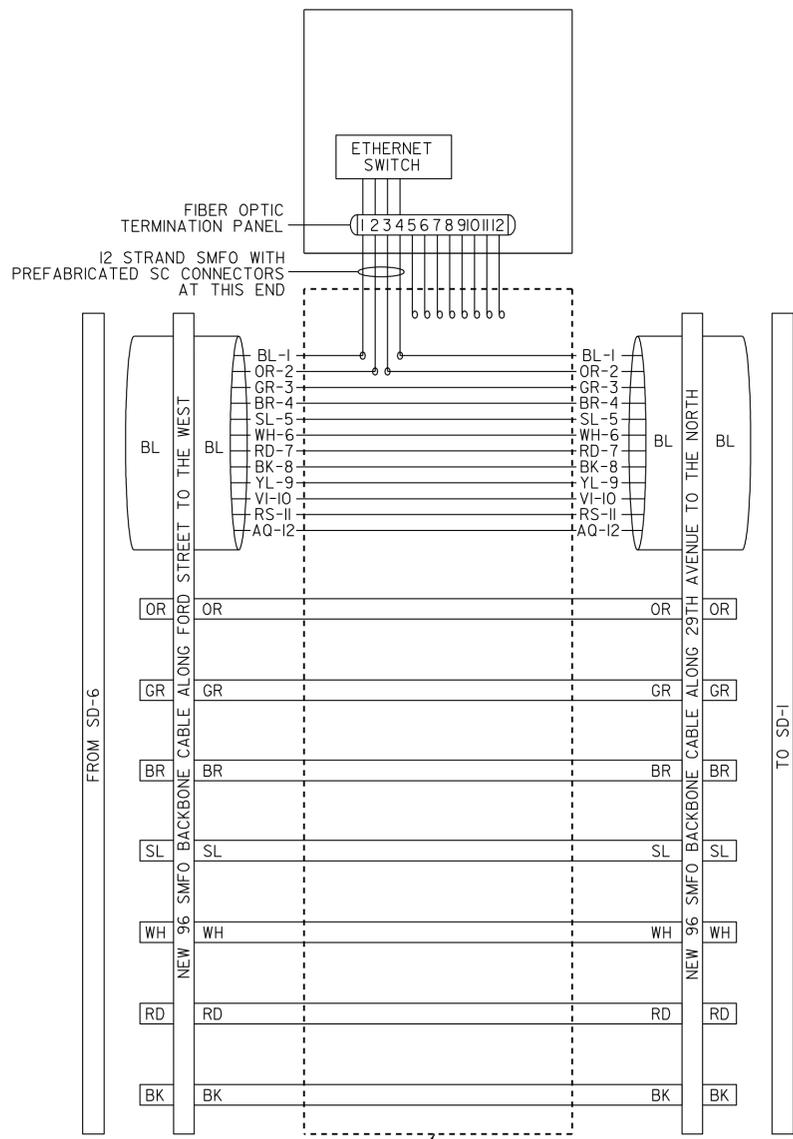
REGISTERED ELECTRICAL ENGINEER DATE 08-22-12
 4-8-13 PLANS APPROVAL DATE
 GEOFFREY RUBENDALL
 No. 71946
 Exp. 12/31/13
 CIVIL
 STATE OF CALIFORNIA

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.

AECOM 2101 WEBSTER ST.#1900 OAKLAND, CA 94612
 ALAMEDA CTC 1333 Broadway Suite 220 Oakland, CA 94612

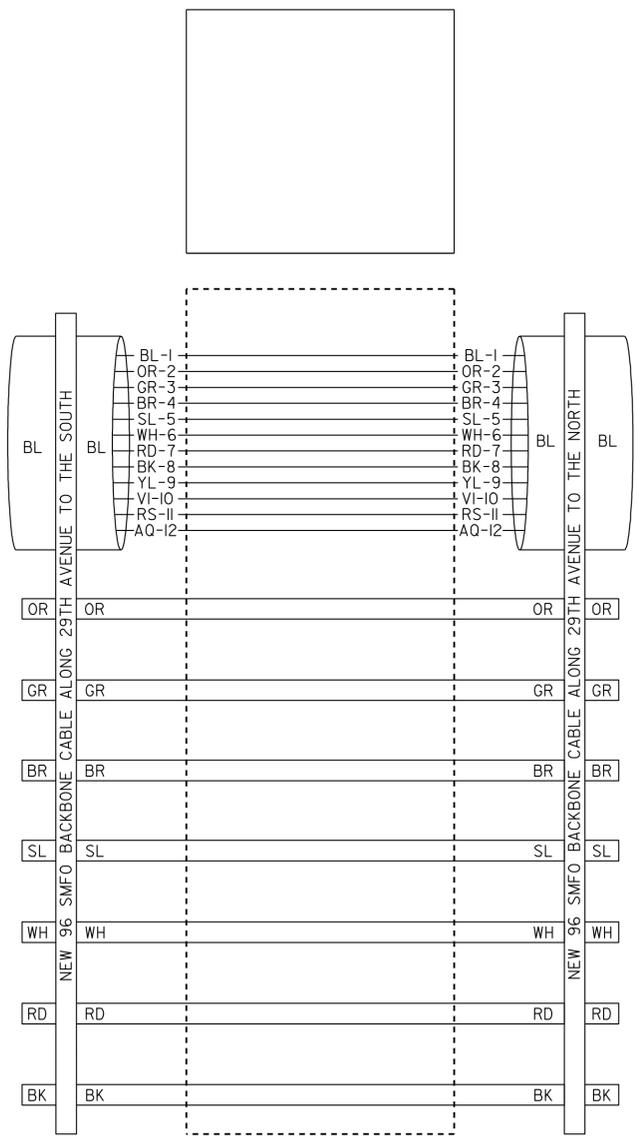
SPLICE DETAIL-5

CITY LOCATION # 5
 TRAFFIC SIGNAL CABINET
 29th AVE. & 11TH ST.



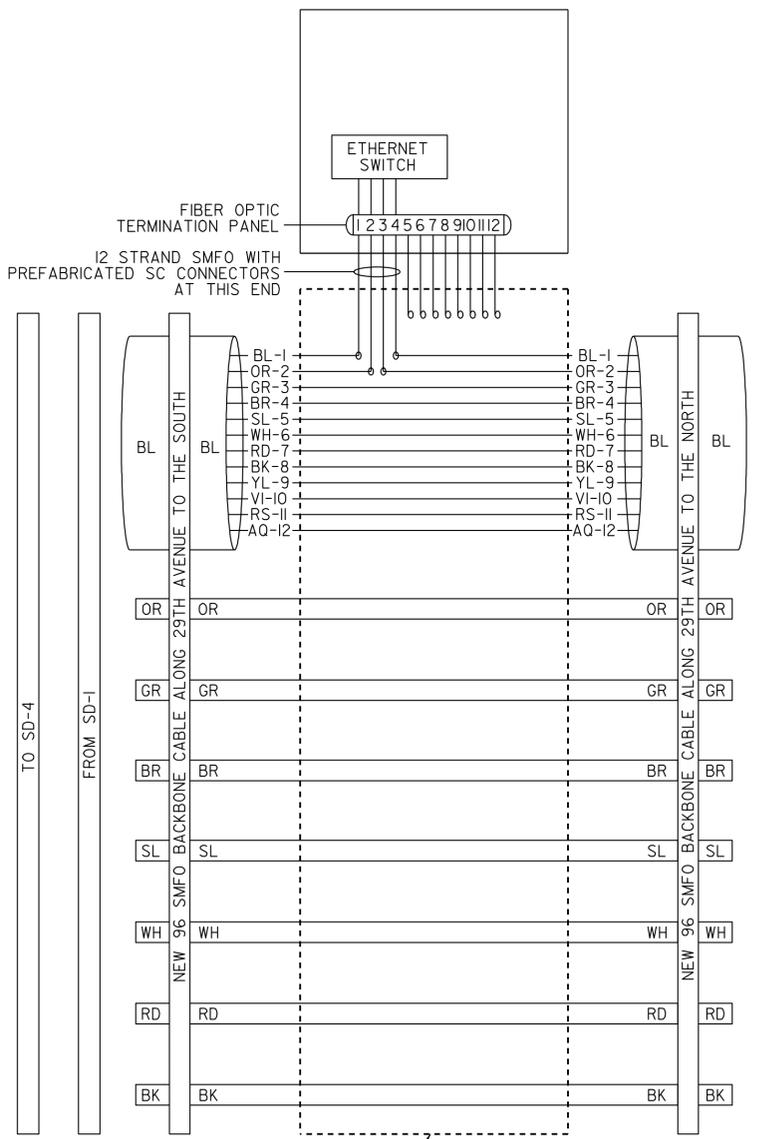
NEW SPLICE CLOSURE

STATE LOCATION # 1
 TRAFFIC SIGNAL CABINET
 29TH AVE. & 880 NB OFF RAMP



SPLICE DETAIL-4

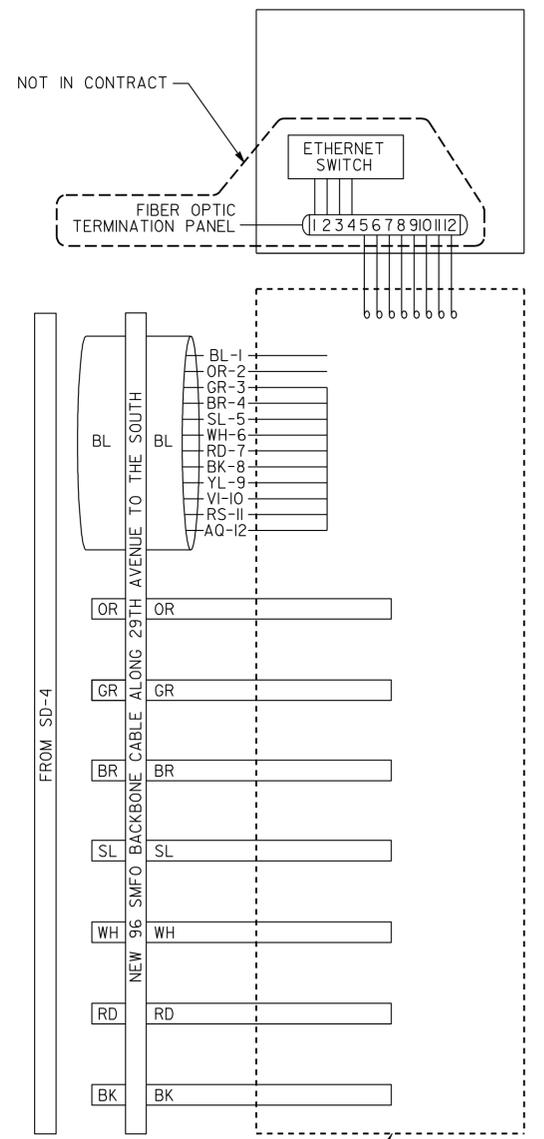
CITY LOCATION # 4
 TRAFFIC SIGNAL CABINET
 29TH AVE. & 10TH ST.



NEW SPLICE CLOSURE

SPLICE DETAIL-8

CITY LOCATION
 TRAFFIC SIGNAL CABINET
 29TH AVE. & SHOPPING CENTER DRIVEWAY



NEW SPLICE CLOSURE

ELECTRICAL DETAILS
(INTERCONNECT SPLICE DETAILS 29TH AVE)
 NO SCALE

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET E-1 THRU E-4

E-72

LAST REVISION DATE PLOTTED = 10-APR-2013
 08/22/12 TIME PLOTTED = 11:38

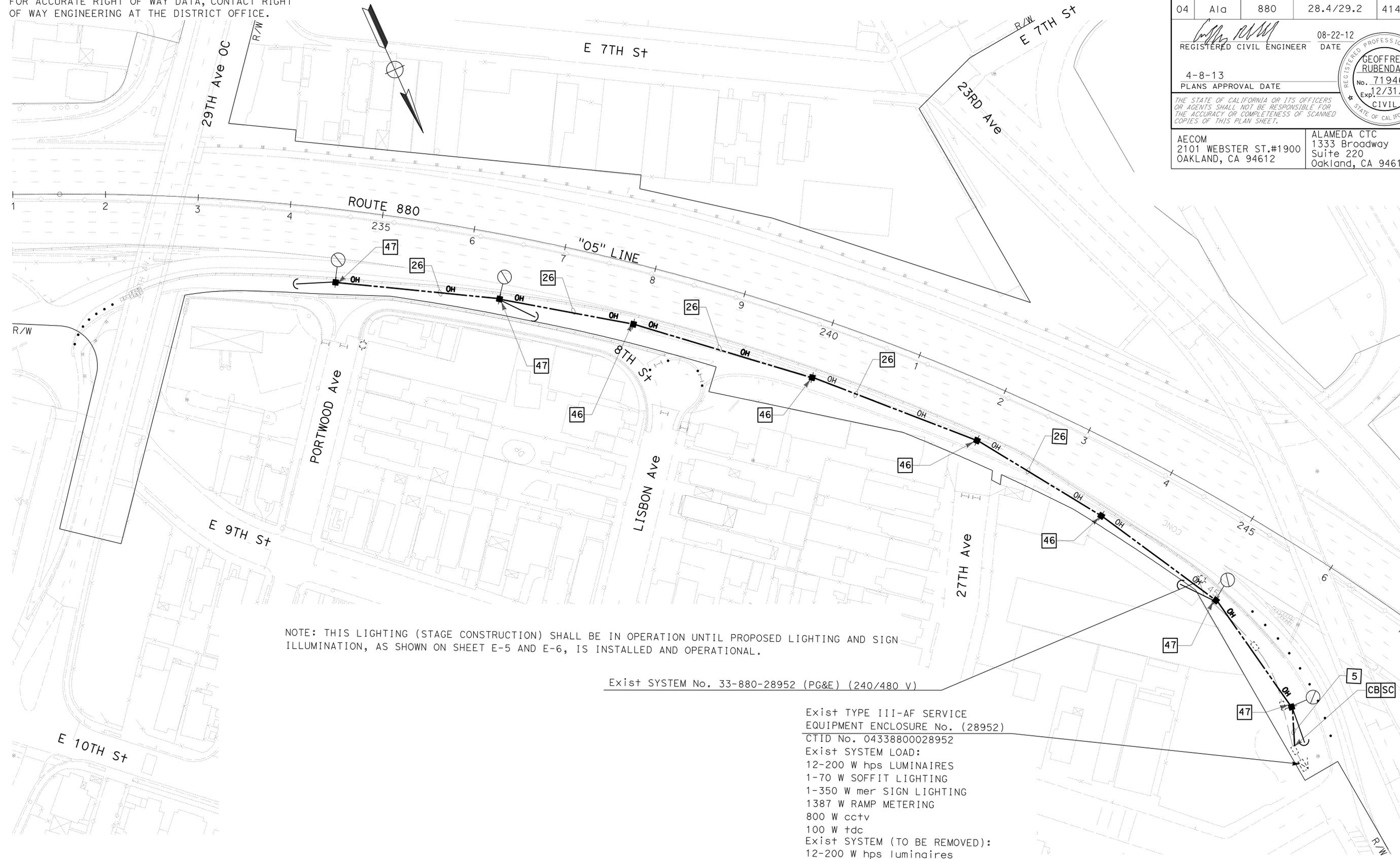
FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	880	28.4/29.2	414	789

REGISTERED CIVIL ENGINEER DATE 08-22-12
 4-8-13 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
GEOFFREY RUBENDALL
 No. 71946
 Exp. 12/31/13
 CIVIL
 STATE OF CALIFORNIA

AECOM 2101 WEBSTER ST.#1900 OAKLAND, CA 94612
 ALAMEDA CTC 1333 Broadway Suite 220 Oakland, CA 94612



NOTE: THIS LIGHTING (STAGE CONSTRUCTION) SHALL BE IN OPERATION UNTIL PROPOSED LIGHTING AND SIGN ILLUMINATION, AS SHOWN ON SHEET E-5 AND E-6, IS INSTALLED AND OPERATIONAL.

Exist SYSTEM No. 33-880-28952 (PG&E) (240/480 V)

- Exist TYPE III-AF SERVICE EQUIPMENT ENCLOSURE No. (28952)
- CTID No. 04338800028952
- Exist SYSTEM LOAD:
- 12-200 W hps LUMINAIRES
- 1-70 W SOFFIT LIGHTING
- 1-350 W mer SIGN LIGHTING
- 1387 W RAMP METERING
- 800 W cctv
- 100 W tdc
- Exist SYSTEM (TO BE REMOVED):
- 12-200 W hps luminaires
- 1-70 W soffit lighting
- NEW LOAD:
- 4-200 W HPS LUMINAIRES

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET E-1 THRU E-4

LIGHTING (STAGE CONSTRUCTION) (STAGE 1 - PHASE 4)

SCALE: 1" = 50' **E-74**

APPROVED FOR ELECTRICAL WORK ONLY

P:\60189903_1-880_ORA\CADD\Elect\Merge 8-31-2012\Merged Files\0400000160ua074.dgn
 STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
 GEOTECHNICAL CONSULTANT
 GEOTECHNICAL SUPERVISOR
 CONSULTANT
 FUNCTIONAL SUPERVISOR
 DESIGNED BY
 CHECKED BY
 REVISIONS: EB 06/26/12, EB 04/18/12, EB 01/06/12, DATE REVISED: JOHN KIM, GEOFFREY RUBENDALL

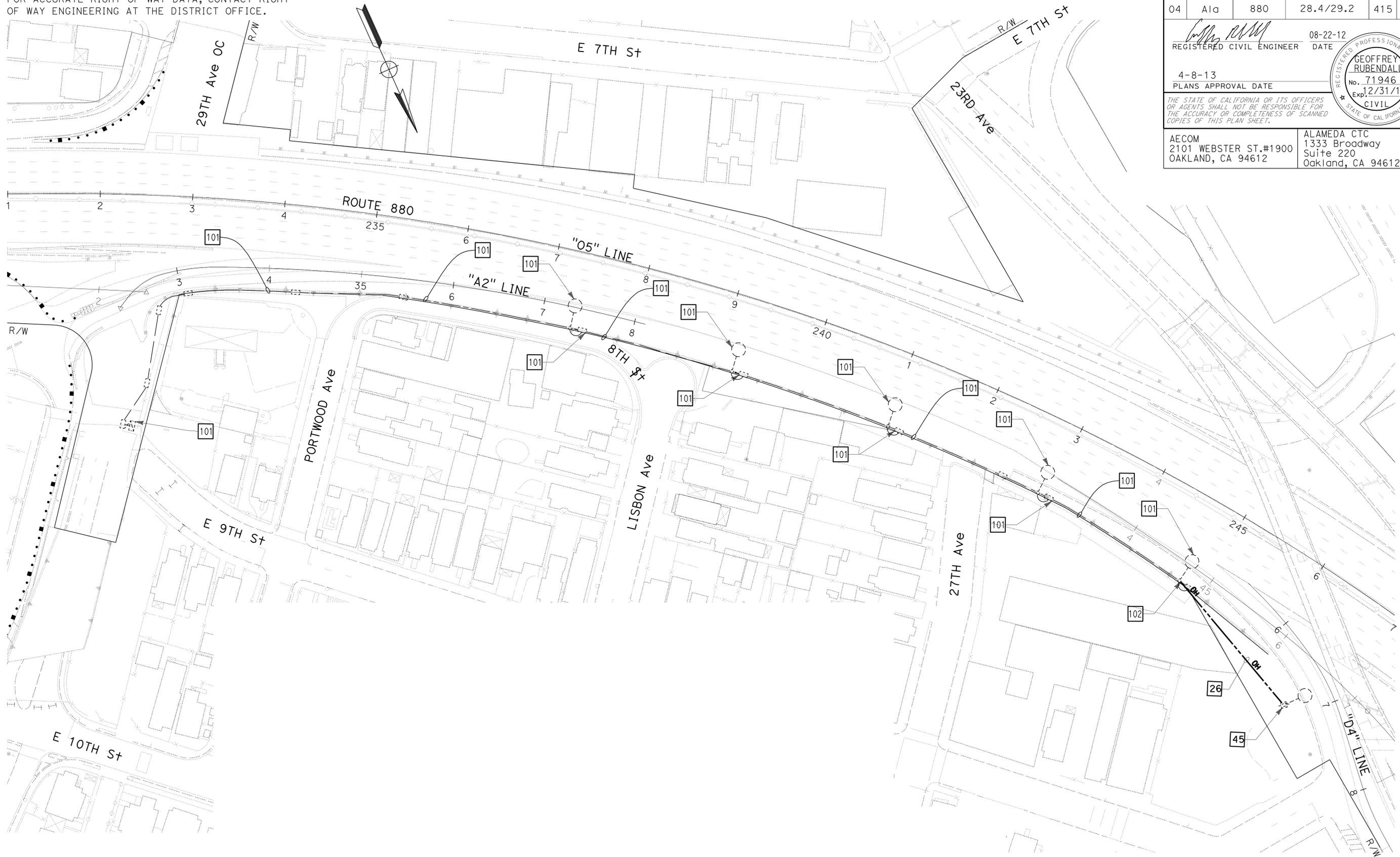
FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	880	28.4/29.2	415	789

REGISTERED CIVIL ENGINEER DATE 08-22-12
 4-8-13 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
GEOFFREY RUBENDALL
 No. 71946
 Exp. 12/31/13
 CIVIL
 STATE OF CALIFORNIA

AECOM 2101 WEBSTER ST.#1900 OAKLAND, CA 94612
 ALAMEDA CTC 1333 Broadway Suite 220 Oakland, CA 94612



P:\60189903_1-880_ORA\CADD\Elect\Merge 8-31-2012\Merged Files\0400000160u075.dgn
 STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
 CONSULTANT: FUNCTIONAL SUPERVISOR: GEOFFREY RUBENDALL
 CALCULATED/DESIGNED BY: GEOFFREY RUBENDALL
 CHECKED BY: JOHN KIM
 REVISED BY: GEOFFREY RUBENDALL
 DATE REVISED: 01/06/12
 04/18/12
 06/26/12
 EB EB EB



BORDER LAST REVISED 7/2/2010

USERNAME = s124496
 DGN FILE = 0400000160u075.dgn

APPROVED FOR ELECTRICAL WORK ONLY



FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET E-1 THRU E-4

UNIT 0724

PROJECT NUMBER & PHASE

04000001601

**LIGHTING
 (STAGE CONSTRUCTION)
 (STAGE 1 - PHASE 5)**

SCALE: 1" = 50'

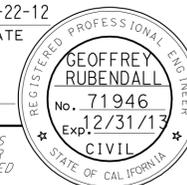
E-75

LAST REVISION: DATE PLOTTED = 10-APR-2013
 08/22/12 TIME PLOTTED = 11:39

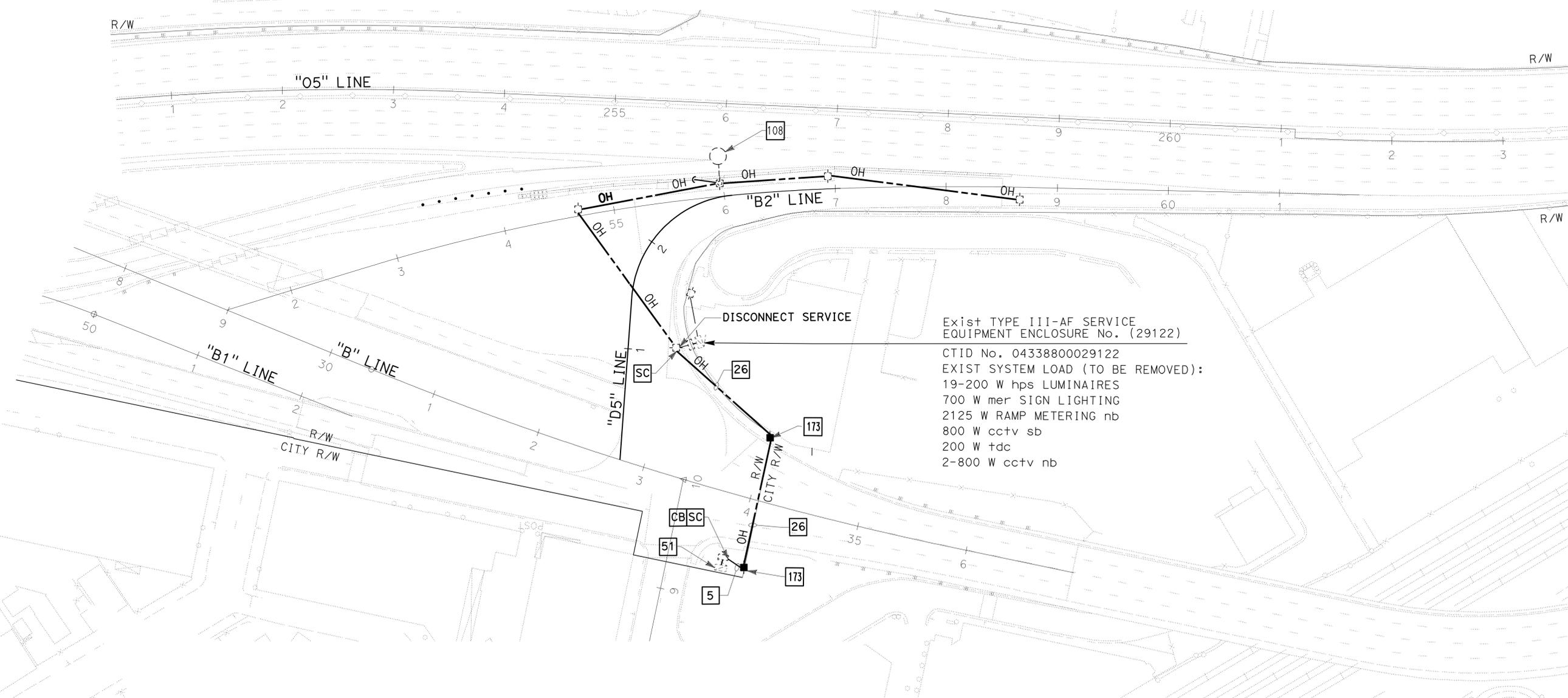
FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	880	28.4/29.2	417	789
			08-22-12	REGISTERED CIVIL ENGINEER DATE	
			4-8-13	PLANS APPROVAL DATE	
<p>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.</p>					
AECOM 2101 WEBSTER ST.#1900 OAKLAND, CA 94612			ALAMEDA CTC 1333 Broadway Suite 220 Oakland, CA 94612		



EB	06/26/12	REVISOR	EB
EB	04/18/12	REVISOR	EB
EB	01/06/12	REVISOR	EB
REVISOR		DATE REVISED	DATE REVISED
GEOFFREY RUBENDALL		JOHN KIM	JOHN KIM
CALCULATED/DESIGNED BY		CHECKED BY	CHECKED BY
GEOFFREY RUBENDALL		GEOFFREY RUBENDALL	GEOFFREY RUBENDALL
CONSULTANT FUNCTIONAL SUPERVISOR		CONSULTANT FUNCTIONAL SUPERVISOR	
GEOFFREY RUBENDALL		GEOFFREY RUBENDALL	
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION			
Caltrans			



Exist TYPE III-AF SERVICE EQUIPMENT ENCLOSURE No. (29122)
 CTID No. 04338800029122
 EXIST SYSTEM LOAD (TO BE REMOVED):
 19-200 W hps LUMINAIRES
 700 W mer SIGN LIGHTING
 2125 W RAMP SIGN METERING nb
 800 W cctv sb
 200 W tdc
 2-800 W cctv nb

**LIGHTING
 (STAGE CONSTRUCTION)
 (STAGE 4 - PHASE 2)**
 SCALE: 1" = 50'
E-77

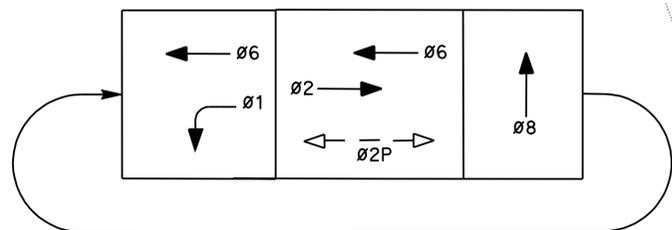
FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET E-1 THRU E-4

APPROVED FOR ELECTRICAL WORK ONLY



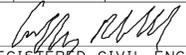
LAST REVISION DATE PLOTTED = 10-APR-2013 08/22/12 TIME PLOTTED = 11:39

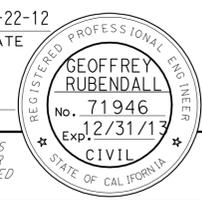
FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.



PROPOSED TRAFFIC PHASE DIAGRAM
(STAGE 4 - PHASE 1A)

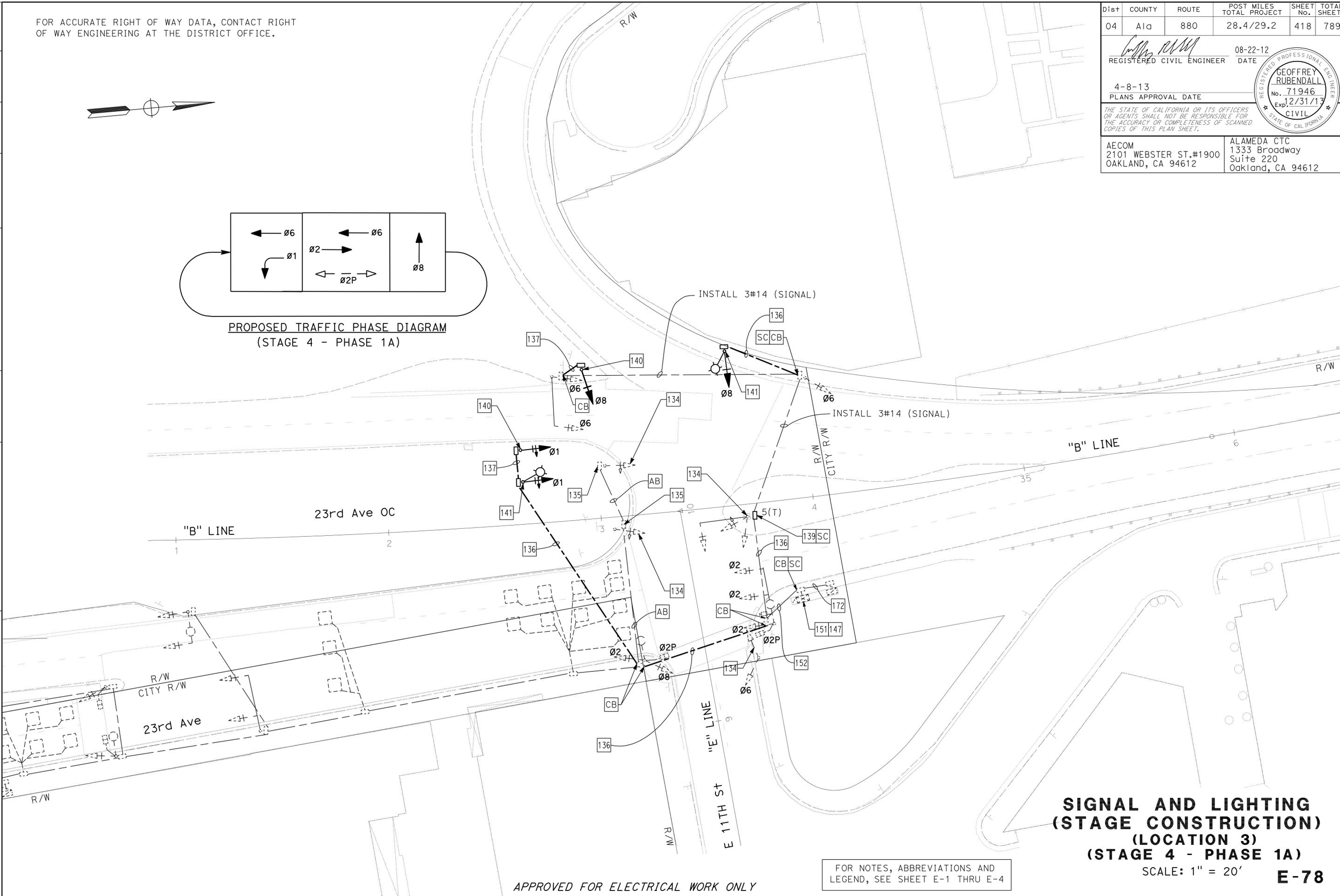
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	880	28.4/29.2	418	789


 REGISTERED CIVIL ENGINEER DATE 08-22-12
 4-8-13
 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.



AECOM
 2101 WEBSTER ST.#1900
 OAKLAND, CA 94612
 ALAMEDA CTC
 1333 Broadway
 Suite 220
 Oakland, CA 94612

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
 CONSULTANT: FUNCTIONAL SUPERVISOR
 GEORFFREY RUBENDALL
 CHECKED BY
 CARMEN GENDUSA
 REVISIONS:
 4-8-13
 01/06/12
 04/18/12
 06/26/12

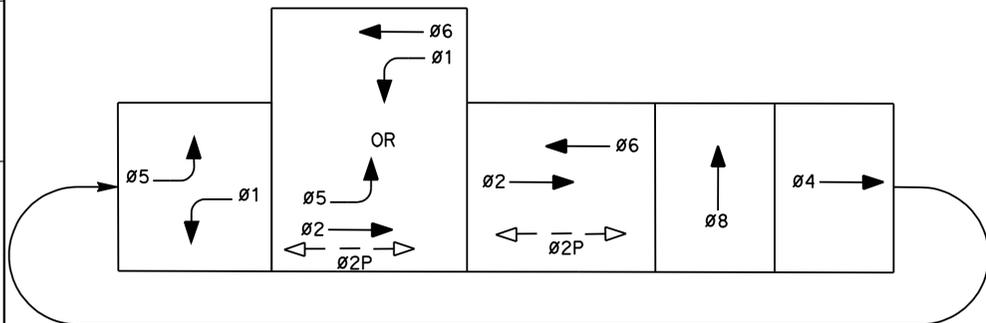


SIGNAL AND LIGHTING
(STAGE CONSTRUCTION)
(LOCATION 3)
(STAGE 4 - PHASE 1A)
 SCALE: 1" = 20'

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET E-1 THRU E-4

APPROVED FOR ELECTRICAL WORK ONLY

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



PROPOSED TRAFFIC PHASE DIAGRAM
(STAGE 4 - PHASE 1B)

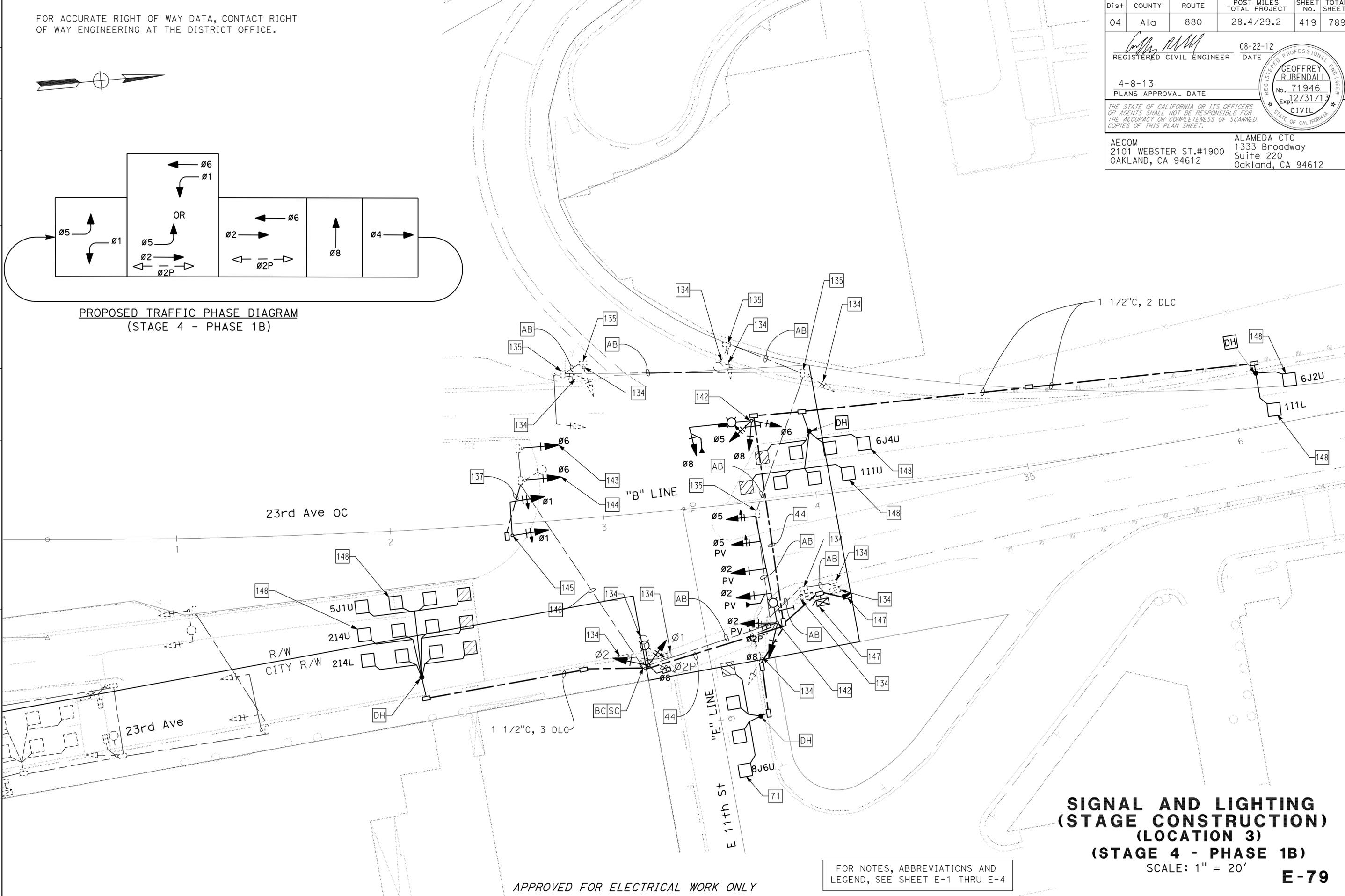
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	880	28.4/29.2	419	789


 REGISTERED CIVIL ENGINEER DATE 08-22-12
 4-8-13
 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.



AECOM
 2101 WEBSTER ST.#1900
 OAKLAND, CA 94612
 ALAMEDA CTC
 1333 Broadway
 Suite 220
 Oakland, CA 94612

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
 CONSULTANT - FUNCTIONAL SUPERVISOR
 GEORFFREY RUBENDALL
 CALCULATED/DESIGNED BY
 CHECKED BY
 GEORFFREY RUBENDALL
 REVISED BY
 DATE REVISED
 GEORFFREY RUBENDALL
 CARMEN GENDUSA
 EM
 04/18/12
 LV
 01/06/12



**SIGNAL AND LIGHTING
 (STAGE CONSTRUCTION)
 (LOCATION 3)
 (STAGE 4 - PHASE 1B)
 SCALE: 1" = 20'**

E-79

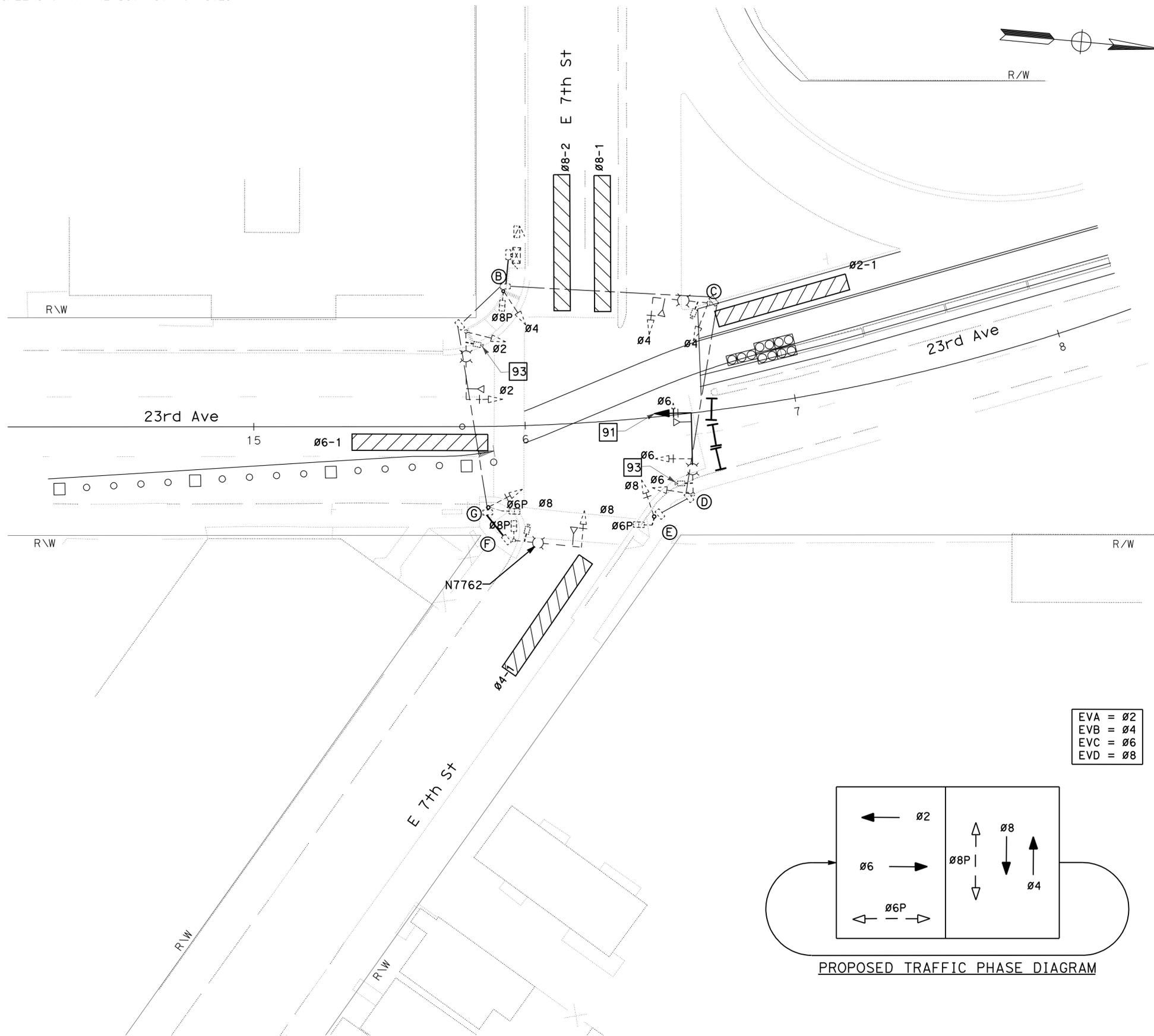
FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET E-1 THRU E-4

APPROVED FOR ELECTRICAL WORK ONLY

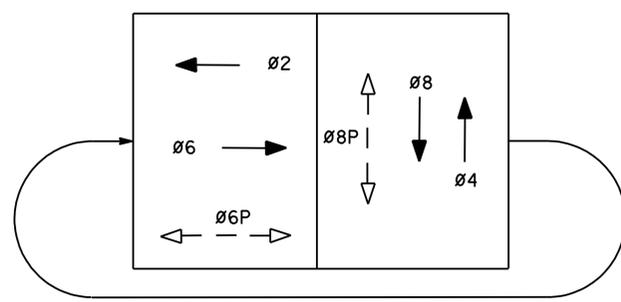
LAST REVISION: 08/22/12
 DATE PLOTTED => 10-APR-2013
 TIME PLOTTED => 11:39

C:\Documents and Settings\hrmkiesi\ENT\Desktop\0400000160u081.dgn
 STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
 Et Caltrans®
 CONSULTANT: FUNCTIONAL SUPERVISOR: GEOFFREY RUBENDALL
 CALCULATED/DESIGNED BY: CHECKED BY:
 GEOFFREY RUBENDALL CARMEN GENDUSA
 REVISED BY: DATE REVISED:
 RL 01/06/12
 LV 04/18/12
 EM 04/13/12

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



EVA = Ø2
 EVB = Ø4
 EVC = Ø6
 EVD = Ø8



PROPOSED TRAFFIC PHASE DIAGRAM

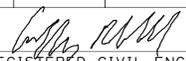
SIGNAL AND LIGHTING (CITY)
(STAGE CONSTRUCTION)
(LOCATION 7)
(STAGE 4 - PHASE 7)

SCALE: 1" = 20'

E-81

APPROVED FOR ELECTRICAL WORK ONLY

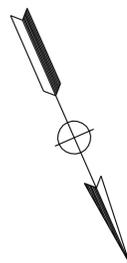
FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET E-1 THRU E-4

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	880	28.4/29.2	421	789
 REGISTERED CIVIL ENGINEER			08-22-12 DATE		
4-8-13 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>					
AECOM 2101 WEBSTER ST.#1900 OAKLAND, CA 94612			ALAMEDA CTC 1333 Broadway Suite 220 Oakland, CA 94612		

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

NOTE:

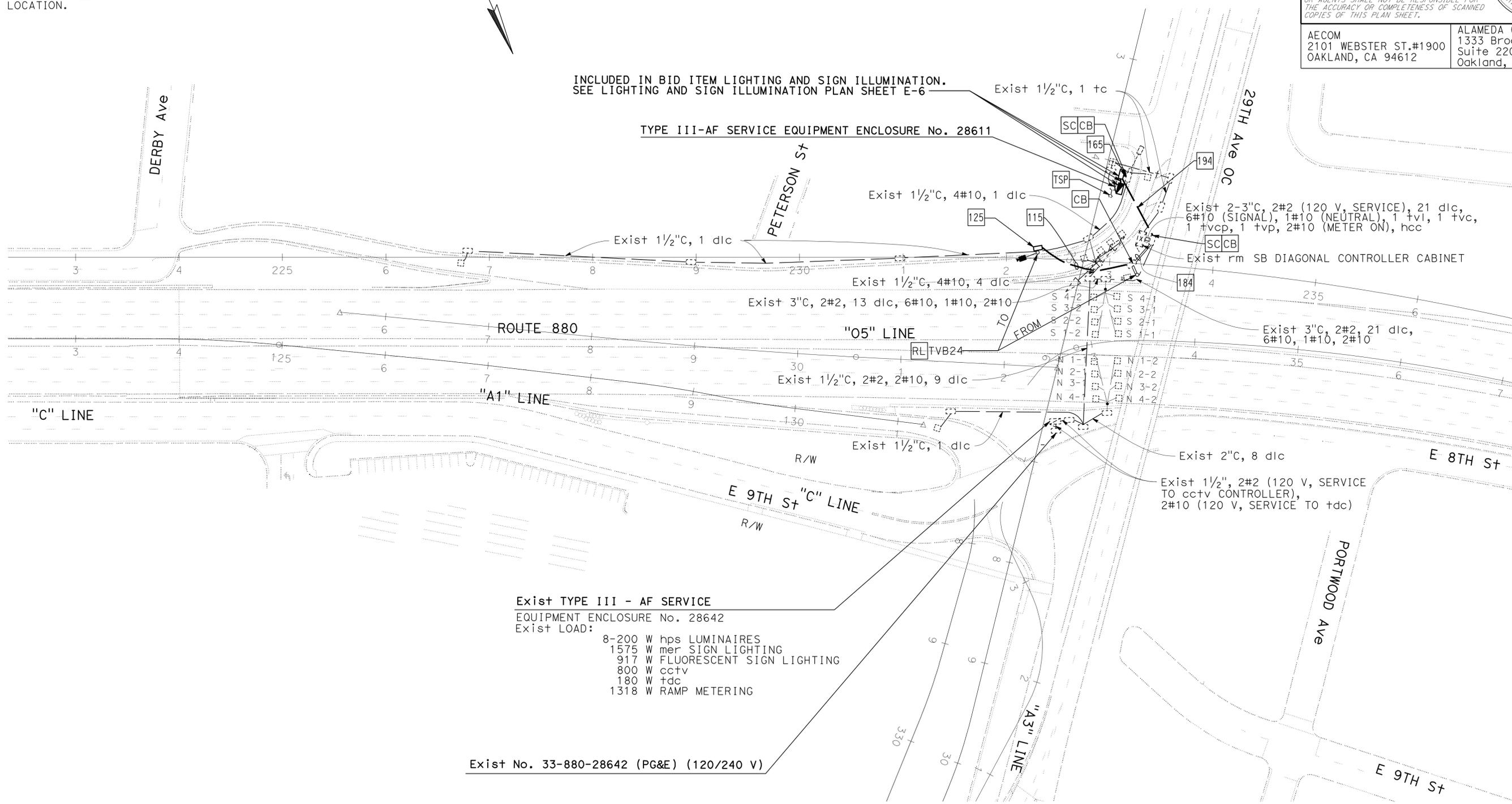
EXISTING CCTV SYSTEM SHALL BE OPERABLE AT ALL TIMES UP TO THE WORK DAY WHEN THE CCTV CAMERA AND POLE ARE TO BE RELOCATED FROM EXISTING LOCATION TO PROPOSED LOCATION.



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	880	28.4/29.2	422	789

REGISTERED CIVIL ENGINEER	DATE
08-22-12	
PLANS APPROVAL DATE	
4-8-13	

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.	
AECOM 2101 WEBSTER ST.#1900 OAKLAND, CA 94612	ALAMEDA CTC 1333 Broadway Suite 220 Oakland, CA 94612



**TRAFFIC OPERATIONS SYSTEM
(STAGE CONSTRUCTION)
(LOCATION 3)
(STAGE 2 - PHASE 1)**

SCALE: 1" = 50'

E-82

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET E-1 THRU E-4

APPROVED FOR ELECTRICAL WORK ONLY



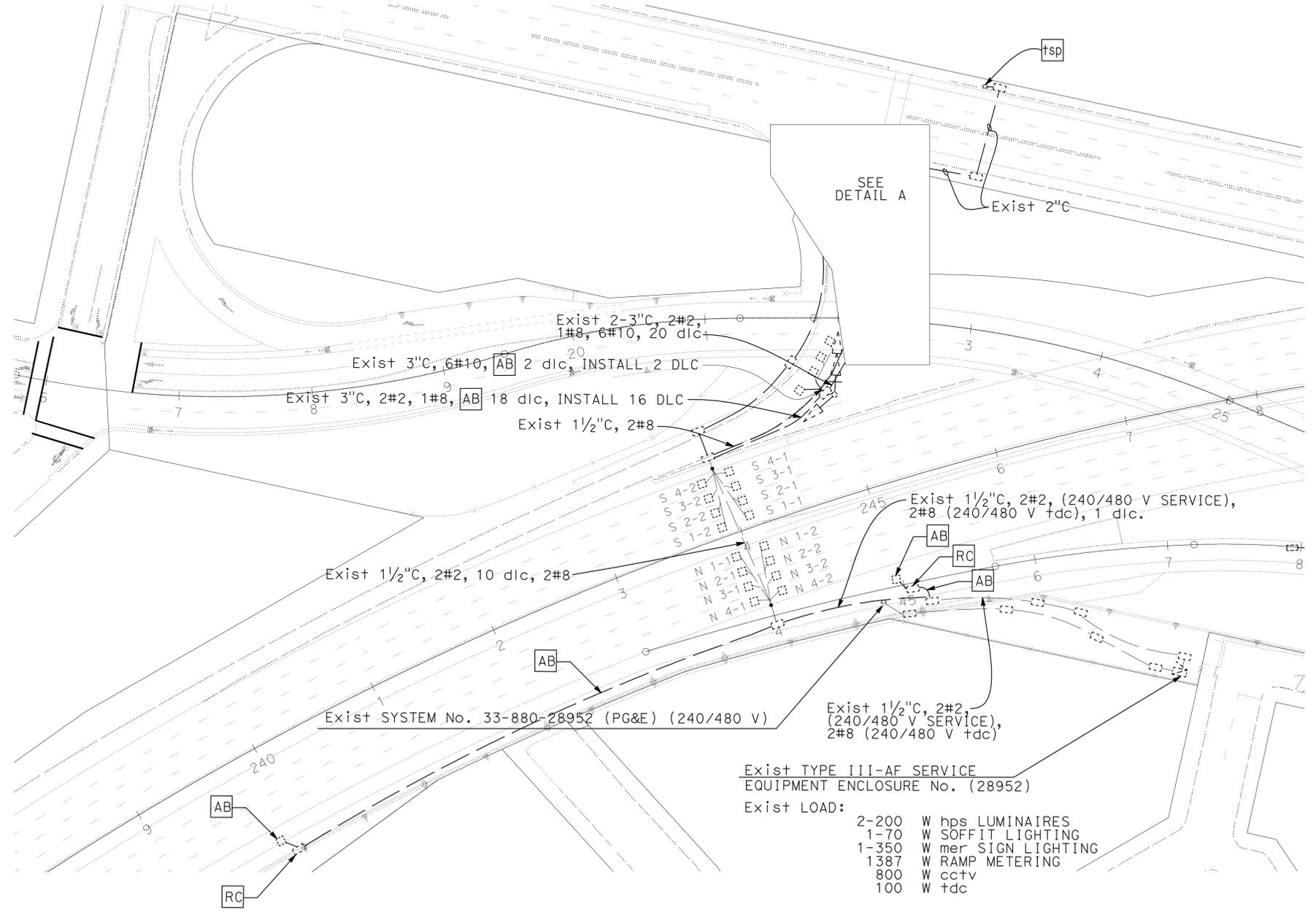
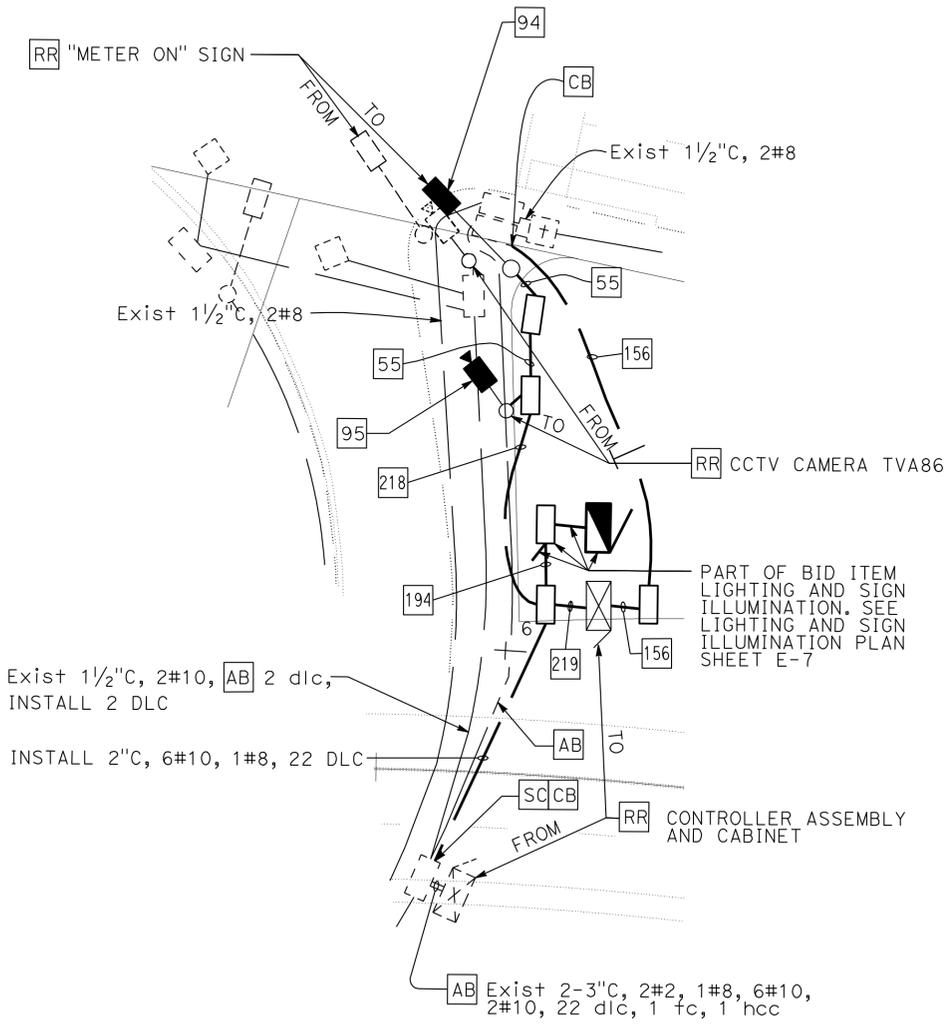
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
 CONSULTANT - FUNCTIONAL SUPERVISOR
 GEOFFREY RUBENDALL
 CHECKED BY
 CARMEN GENDUSA
 DATE REVISED
 01/06/12
 REVISOR
 EM
 04/18/12
 DATE
 06/26/12
 EM

P:\60189903_1-880_ORA\CADD\lect\Merge 8-31-2012\Merged Files\0400000160\04084.dgn
 STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
 CONSULTANT: FUNCTIONAL SUPERVISOR
 GEORFFREY RUBENDALL
 CHECKED BY
 CARMEN GENDUSA
 REVISOR: EM
 DATE: 01/06/12
 REVISOR: EM
 DATE: 04/18/12
 REVISOR: EM
 DATE: 06/26/12

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
04	Ala	880	28.4/29.2	424	789
			08-22-12 REGISTERED CIVIL ENGINEER DATE 4-8-13 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.			AECOM 2101 WEBSTER ST.#1900 OAKLAND, CA 94612		
			ALAMEDA CTC 1333 Broadway Suite 220 Oakland, CA 94612		

NOTE:
 Exist CCTV SYSTEM AND RAMP METER ON SIGN SHALL BE OPERABLE AT ALL TIMES UP TO THE WORK DAY WHEN THE CCTV CAMERA AND POLE ARE TO BE RELOCATED FROM Exist LOCATION TO PROPOSED LOCATION.



Exist TYPE III-AF SERVICE
 EQUIPMENT ENCLOSURE No. (28952)
 Exist LOAD:
 2-200 W hps LUMINAIRES
 1-70 W SOFFIT LIGHTING
 1-350 W mer SIGN LIGHTING
 1387 W RAMP METERING
 800 W cctv
 100 W tdc

**TRAFFIC OPERATIONS SYSTEM
 (STAGE CONSTRUCTION)
 (LOCATION 4)
 (STAGE 4 - PHASE 2)**

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET E-1 THRU E-4

SCALE: 1" = 50' **E-84**

APPROVED FOR ELECTRICAL WORK ONLY

P:\60189903_1-880_ORA\CADD\Elect\Merge 8-31-2012\Merged Files\0400000160u085.dgn
 STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
 CONSULTANT: FUNCTIONAL SUPERVISOR: GEOFFREY RUBENDALL
 CHECKED BY: CARMEN GENDUSA
 REVISOR: EM
 DATE: 01/06/12
 REVISOR: EM
 DATE: 04/18/12
 REVISOR: EM
 DATE: 06/26/12

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

NOTE:
 1. SEE STAGE CONSTRUCTION PLANS FOR LIMITS OF NEW CURB FOR DETOUR J.



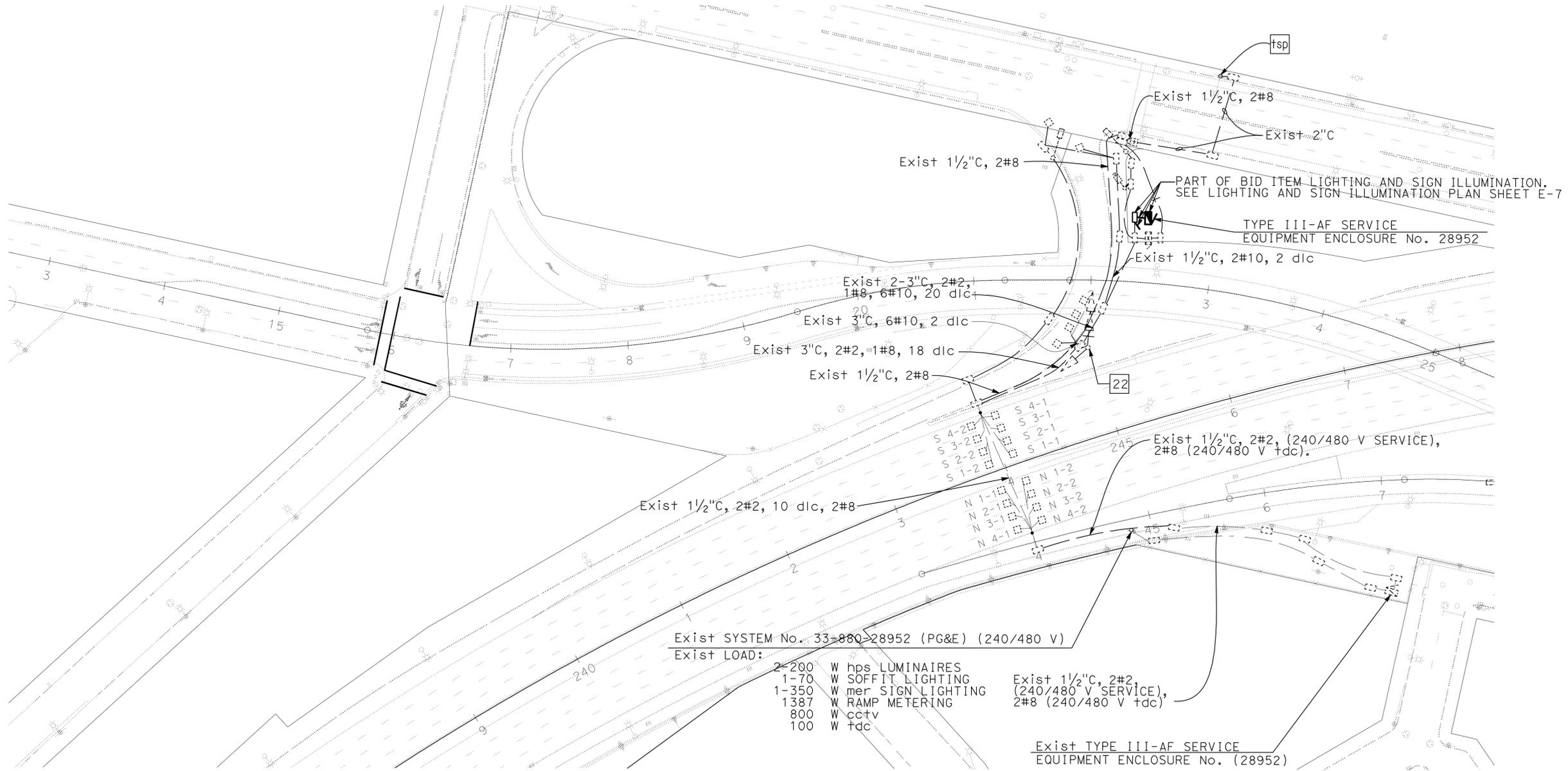
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	880	28.4/29.2	425	789

REGISTERED CIVIL ENGINEER: *Geoffrey Rubendall*
 DATE: 08-22-12
 PLANS APPROVAL DATE: 4-8-13

REGISTERED PROFESSIONAL ENGINEER
GEOFFREY RUBENDALL
 No. 71946
 Exp. 12/31/13
 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.

AECOM: 2101 WEBSTER ST.#1900 OAKLAND, CA 94612
 ALAMEDA CTC: 1333 Broadway Suite 220 Oakland, CA 94612



Exist SYSTEM No. 33-880-28952 (PG&E) (240/480 V)
 Exist LOAD:
 2-200 W hps LUMINAIRES
 1-70 W SOFFIT LIGHTING
 1-350 W mer SIGN LIGHTING
 1387 W RAMP METERING
 800 W cctv
 100 W tdc

Exist 1 1/2\"/>

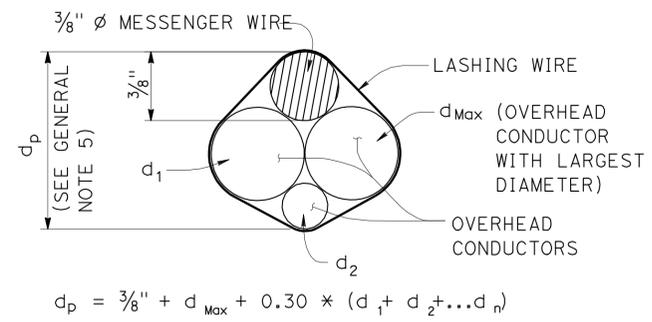
Exist TYPE III-AF SERVICE EQUIPMENT ENCLOSURE No. (28952)

**TRAFFIC OPERATIONS SYSTEM
 (STAGE CONSTRUCTION)
 (LOCATION 4)
 (STAGE 4 - PHASE 3 AND 5)
 (STAGE 5 - PHASE 1)
 SCALE: 1" = 50'**

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET E-1 THRU E-4

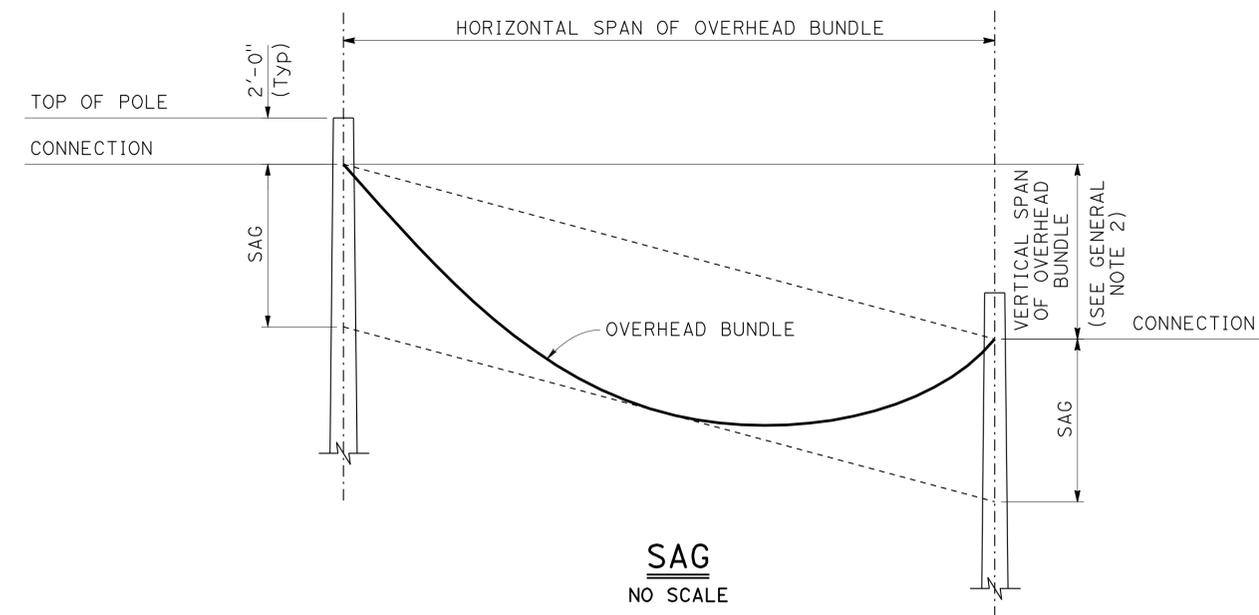
APPROVED FOR ELECTRICAL WORK ONLY





$$d_p = \frac{3}{8} + d_{Max} + 0.30 * (d_1 + d_2 + \dots + d_n)$$

PROJECTED DEPTH OF OVERHEAD BUNDLE, (d_p)



Design: AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals, Fifth Edition (LTS-5).

GROUP LOAD COMBINATIONS:

- I Dead Load
- II Dead Load + Wind Load
- III Dead Load + 0.5 (Wind Load) + Ice Load
- IV Fatigue: Not used

LOADING:

Wind Loading: 100 mph (3-second gust)
 Wind Recurrence Interval: 10 years
 Combined height, exposure, and elevated terrain factor = 1.05
 (Exposure C, structure is not located on or over the top half of a ridge, hill, or escarpment)

Ice Loading: 3.0 psf on surfaces, 0.60 in radial thickness of ice at a unit weight of 60 pcf on overhead bundles

BASIC DESIGN VALUES:

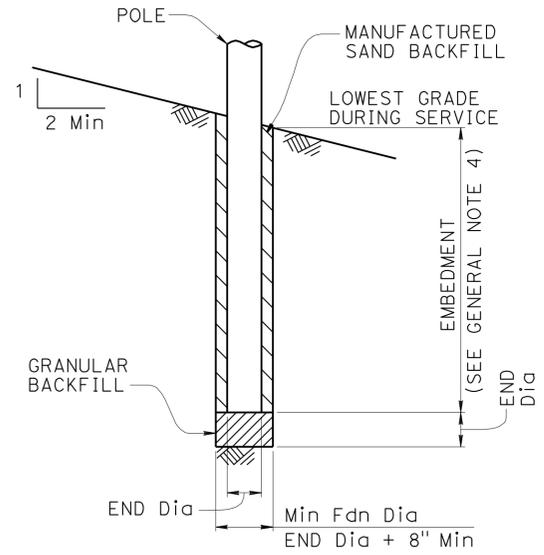
- Timber Poles:
- $F_b = 1850$ psi
 - $F_v = 110$ psi
 - $F_{cp} = 230$ psi
 - $F_c = 950$ psi
 - $E = 1500 \times 10^3$ psi

DESIGN WIRE BREAKING STRENGTHS:

ASTM A475, Utilities Grade, 7 strand modified by termination efficiency factor of 0.8

FOUNDATION DESIGN NOTES:

1. Pole embedment depth design is based on Broms' approximate procedure as described in Article 13.6 of AASHTO LTS-5.
2. Embedment depth is calculated based on following soil parameters,
 Cohesive Soil:
 Shear strength of soil $c = 1500$ psf.
 Cohesionless Soil:
 $\phi = 30$ deg, $\gamma = 120$ pcf.
 Soil assumed to be unsaturated.
3. An overload factor of 2.0 and an undercapacity factor of 0.7 were used for safety factor of 2.86.
4. Allowable vertical bearing pressure at the end bearing of poles is 3000 psf at 6 feet or more embedment.



POLE FOUNDATION

GENERAL NOTES:

1. The messenger wire and any combination of overhead conductors must not exceed either a self weight of 3.0 lb/ft or the maximum d_p .
2. The maximum vertical span is 10% of the horizontal span.
3. For poles with adjacent unbalanced horizontal spans, the shortest horizontal span must be at least 50% of the largest horizontal span.
4. Add 2'-0" for slopes above 1V:4H.
5. For a pole supporting multiple spans, calculate d_p for each span and use the largest value.
6. Do not exceed the attachments shown.

DIAMETERS AND SELF WEIGHT OF OVERHEAD CONDUCTORS		
CONDUCTOR OR CABLE TYPE	DIAMETER d (in)	WEIGHT w (plf)
3 CONDUCTOR SIGNAL CABLE (3CSC)	0.400	0.0980
5 CONDUCTOR SIGNAL CABLE (5CSC)	0.500	0.1560
9 CONDUCTOR SIGNAL CABLE (9CSC)	0.650	0.2760
12 CONDUCTOR SIGNAL CABLE (12CSC)	0.800	0.3970
28 CONDUCTOR SIGNAL CABLE (28CSC)	0.900	0.6490
1-#14	0.166	0.0235
1-#12	0.185	0.0330
1-#10	0.210	0.0476
1-#8	0.271	0.0774
1-#6	0.310	0.1130
1-#4	0.359	0.1690
1-#3	0.388	0.2080
1-#2	0.420	0.2560
1-#1	0.498	0.3340
6-CONDUCTOR SIGNAL INTERCONNECT CABLE (SIC)	0.350	0.0860
12-CONDUCTOR SIGNAL INTERCONNECT CABLE (SIC)	0.500	0.1440
DETECTOR LEAD-IN CABLE (DLC)	0.310	0.0440
12 to 48-STRAND FIBER OPTIC CABLE (48FOC)	0.424	0.0600
72-STRAND FIBER OPTIC CABLE (72FOC)	0.484	0.0770
96-STRAND FIBER OPTIC CABLE (96FOC)	0.535	0.1050
144-STRAND FIBER OPTIC CABLE (144FOC)	0.670	0.1890
$\frac{3}{8}$ " ϕ MESSENGER WIRE	0.375	0.2730

ELECTRICAL DETAILS (TEMPORARY LIGHTING)

NO SCALE

E-86

APPROVED FOR ELECTRICAL WORK ONLY

H:\PDATA\35101088\CADD\Transp\W\CADD_In\aeccom\2013-03-18 E-sheets\0400000160u0086.dgn
 STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
 CONSULTANT: FUNCTIONAL SUPERVISOR: GEOFFREY RUBENDALL
 CALCULATED/DESIGNED BY: CHECKED BY:
 REVISOR: DATE:



POLE SELECTION TABLE

LEGEND

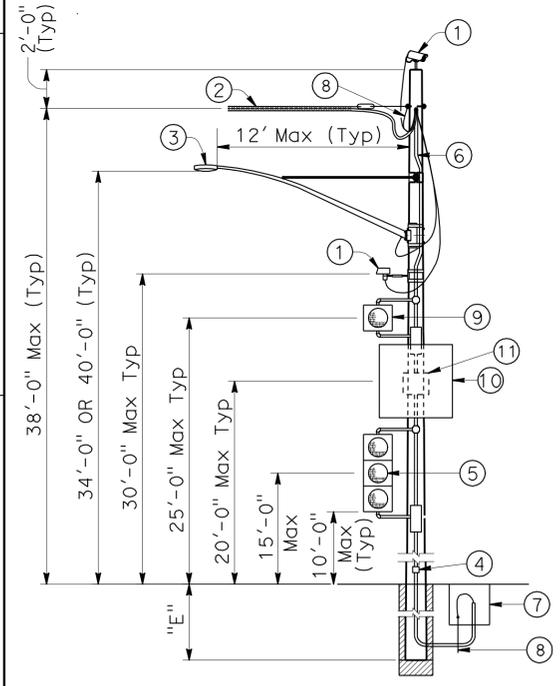
- Wood Pole No Attachments
- A Wood Pole with Attachments
- OH- Overhead Bundle

OVERHEAD BUNDLE HORIZONTAL SPAN (Max)	MAXIMUM d _p	CASE 1N				CASE 2N				CASE 3N				CASE 4N				CASE 5N
		1"	1.5"	2.0"	2.5"	1"	1.5"	2.0"	2.5"	1.0"	1.5"	2.0"	2.5"	1"	1.5"	2.0"	2.5"	N/A
50'	MINIMUM POLE CLASS	H-1	H-2	H-2	H-2	4	3	2	1	H-2	H-2	H-3	H-3	H-4	H-4	H-4	H-5	CLASS 1 E = 10'
	POLE EMBEDMENT (E)	11'				10'				11'				12'				
100'	MINIMUM POLE CLASS	H-2	H-3	H-4	H-5	1	H-1	H-2	H-3	H-4	H-5	H-5	H-6	H-5	H-5	H-6		
	POLE EMBEDMENT (E)	12'				11'				12'				12'				
150'	MINIMUM POLE CLASS	H-4	H-5	H-6		H-1	H-2	H-3	H-5	H-6				H-6				
	POLE EMBEDMENT (E)	12'				12'				12'				12'				
200'	MINIMUM POLE CLASS	H-5	H-6			H-2	H-3	H-5										
	POLE EMBEDMENT (E)	12'				12'												

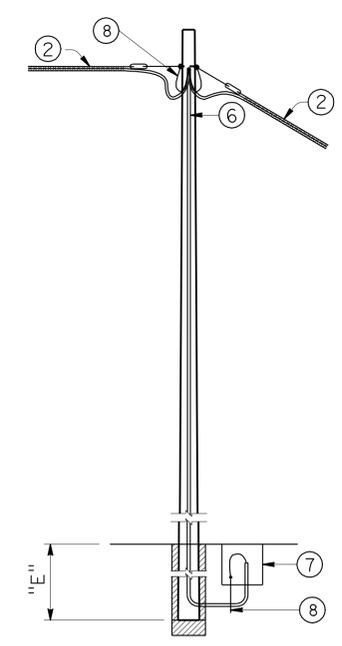
- ① CCTV camera assembly or vehicle detection system
- ② Overhead bundle consisting of a 3/8" Ø messenger wire and overhead conductors and lashing wire.
- ③ Luminaire with mast arm
- ④ Pedestrian pushbutton
- ⑤ Signal face with 3 indications or single sheet sign panel (10 SQFT Max)
- ⑥ Riser with weather head as required
- ⑦ Pull box as required
- ⑧ Grounding as required
- ⑨ Single section flashing beacon or single sheet sign panel (4 SQFT Max)
- ⑩ Single sheet sign panel (4' x 4' Max) or signal face with 3 indications
- ⑪ Flashing beacon control assembly
- ⑫ NEMA 3R enclosure, 26"(W) x 56"(H) x 12"(D) Max dimensions. Max weight including batteries, 450 lbs
- ⑬ 25' SQFT Max total photovoltaic panels mounted as shown as required
- ⑭ 2-section 12" flashing beacon

NOTES:

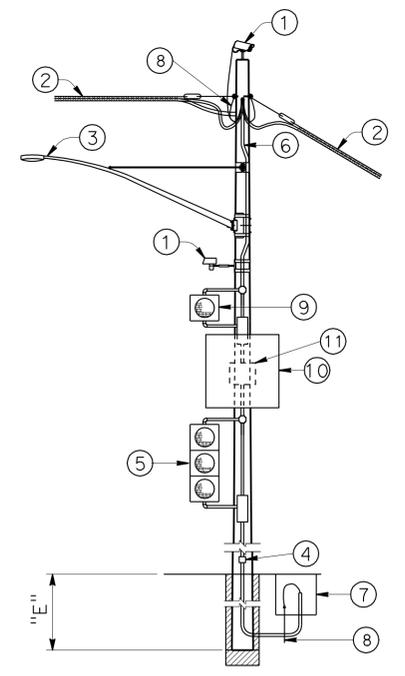
1. In addition to other restrictions on maximum horizontal span, this horizontal span must not exceed 100'.
2. Cases 1N, 3N and 4N may substitute the attachments shown in Case 5N if the photovoltaic panel is not included.



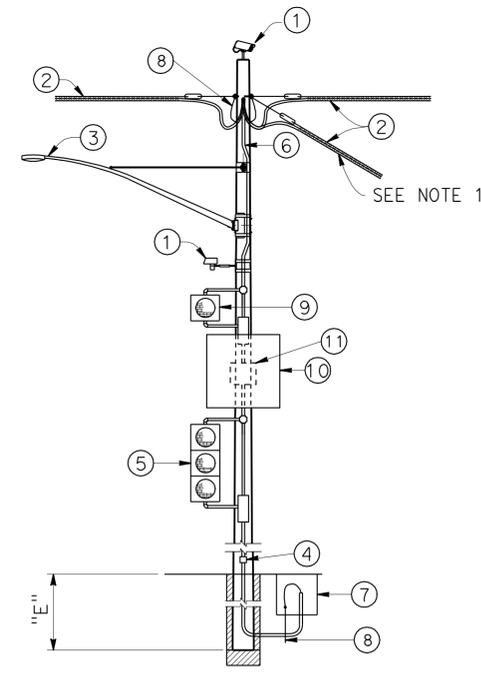
**CASE 1N
POLE AT DEAD END
WITH ATTACHMENTS**
SEE NOTE 2



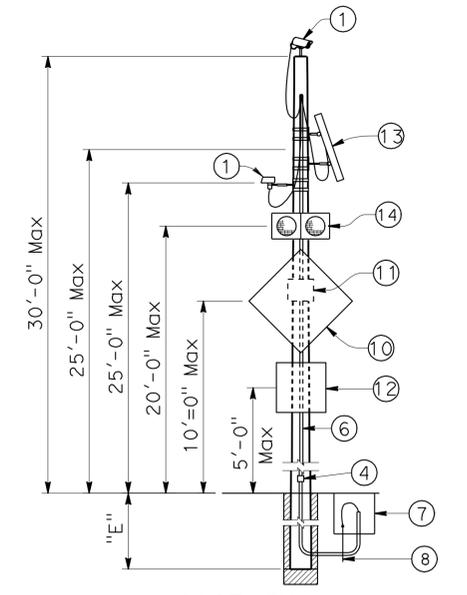
**CASE 2N
POLE AT TANGENT
WITHOUT ATTACHMENTS**



**CASE 3N
POLE AT TANGENT OR CORNER
WITH ATTACHMENTS**
SEE NOTE 2



**CASE 4N
POLE AT JUNCTION
WITH ATTACHMENTS**
SEE NOTE 2



**CASE 5N
POLE WITHOUT OVERHEAD BUNDLE
WITH ATTACHMENTS**

ELECTRICAL DETAILS (TEMPORARY LIGHTING)

NO SCALE

E-87

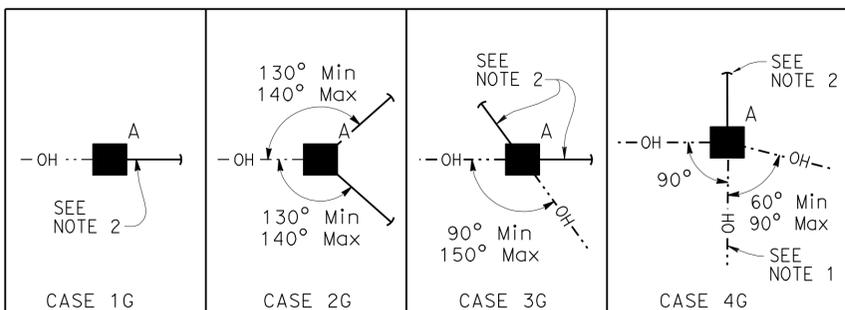
APPROVED FOR ELECTRICAL WORK ONLY

H:\PDATA\35101088\CADD\Transp\ACADD... In:\geocom\2013-03-18 E-sheets\0400000160u087.dgn
 STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
 CONSULTANT: FUNCTIONAL SUPERVISOR: GEOFFREY RUBENDALL
 CALCULATED/DESIGNED BY: CHECKED BY:
 REVISIONS: REVISED BY: DATE REVISED:

POLE SELECTION TABLE

LEGEND

- A** Wood Pole with Attachments
- OH- Overhead Bundle
- Guy Anchor



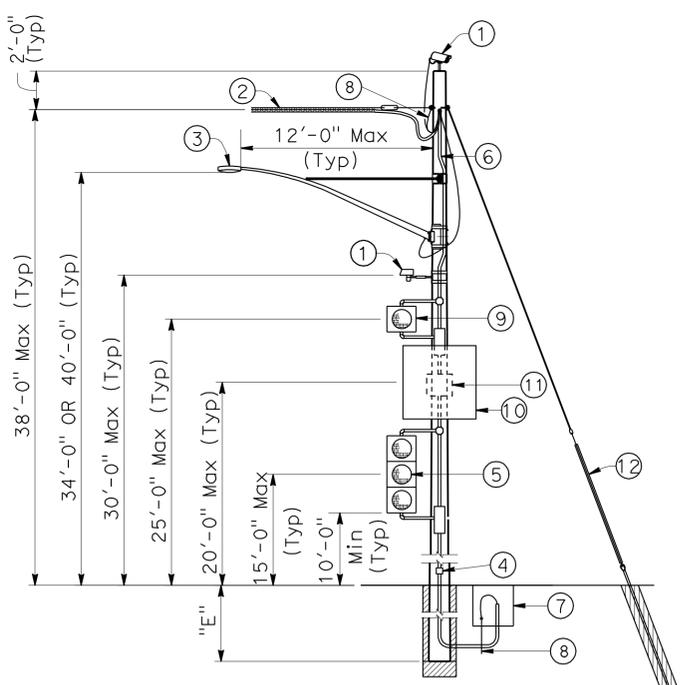
OVERHEAD BUNDLE HORIZONTAL SPAN (Max)	MAXIMUM d _p	1"				1.5"				2.0"				2.5"			
		MINIMUM POLE CLASS	POLE EMBEDMENT (E)														
50'		H-1	10'	H-1	10'	H-2	9'	H-2	9'	H-2	9'	H-3	11'	H-3	11'		
100'		H-2	11'	H-3	11'	H-4	9'	H-4	9'	H-4	9'	H-4	12'	H-4	12'		
150'		H-3	11'	H-4	11'	H-5	9'	H-5	9'	H-5	9'	H-5	12'	H-6	12'		
200'		H-4	11'	H-5	11'	H-6	9'	H-6	9'	H-6	9'	H-6	12'	H-6	12'		

- ① CCTV camera assembly or vehicle detection system
- ② Overhead bundle consisting of a 3/8" Ø messenger wire and overhead conductors and lashing wire.
- ③ Luminaire with mast arm
- ④ Pedestrian pushbutton
- ⑤ Signal face with 3 indications or single sheet sign panel (10 SQFT Max)
- ⑥ Riser with weather head as required
- ⑦ Pull box as required
- ⑧ Grounding as required
- ⑨ Single section flashing beacon or single sheet sign panel (4 SQFT Max)
- ⑩ Single sheet sign panel (4' x 4' Max) or signal face with 3 indications
- ⑪ Flashing beacon control assembly
- ⑫ 1/2" Ø guy wire with white guy marker and strain insulator (for anchorage see "TEMPORARY WOOD POLES-DETAILS No. 2" sheet)

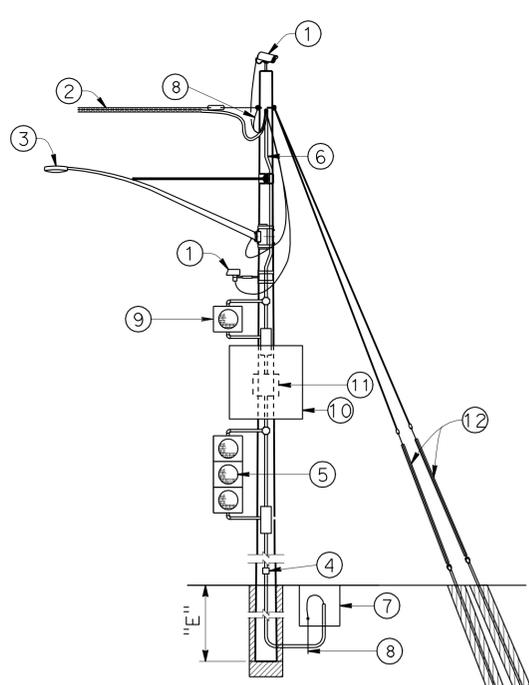
NOTES:

1. In addition to other restrictions on maximum horizontal span, this horizontal span must not exceed 100'.
2. Guy wire in line with opposing span ± 5°.

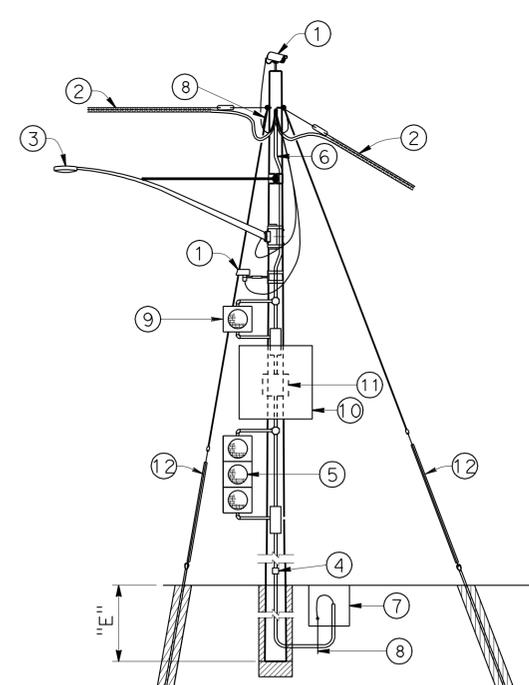
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	880	28.4/29.2	428	789
			03-18-13 REGISTERED CIVIL ENGINEER DATE		
4-8-13 PLANS APPROVAL DATE			THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.		
AECOM 2101 WEBSTER ST.#1900 OAKLAND, CA 94612			ALAMEDA CTC 1333 Broadway Suite 220 Oakland, CA 94612		



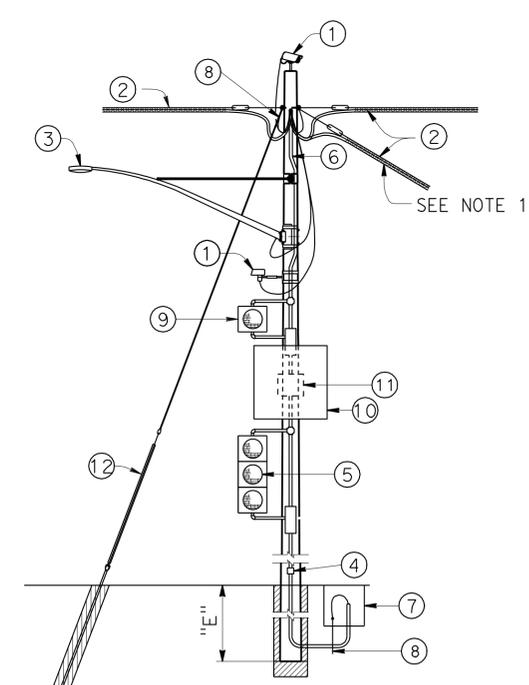
**CASE 1G
POLE AT DEAD END
WITH ATTACHMENTS**



**CASE 2G
POLE AT DEAD END
WITH ATTACHMENTS**



**CASE 3G
POLE AT CORNER
WITH ATTACHMENTS**



**CASE 4G
POLE AT JUNCTION
WITH ATTACHMENTS**

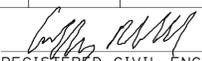
ELECTRICAL DETAILS (TEMPORARY LIGHTING)

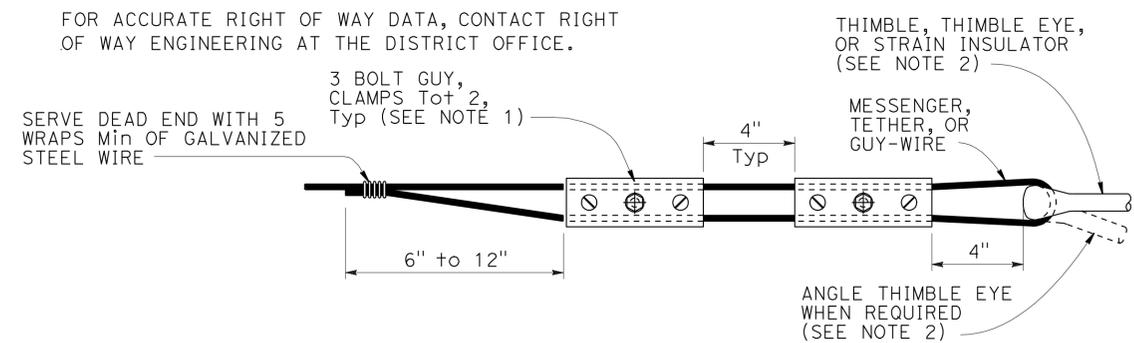
NO SCALE

E-88

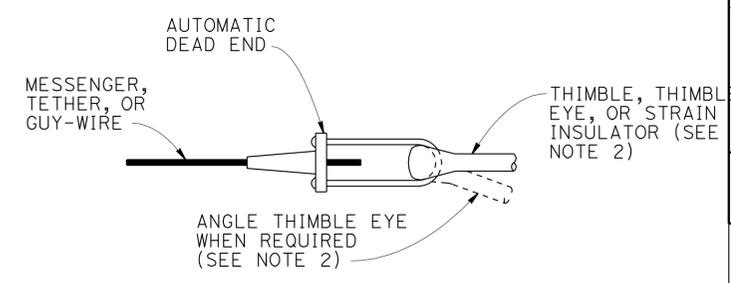
APPROVED FOR ELECTRICAL WORK ONLY

H:\PDATA\351101088\CADD\TransPW\CADD_In\aecom\2013-03-18 E-sheets\0400000160u0088.dgn
 STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
 CONSULTANT: FUNCTIONAL SUPERVISOR: GEOFFREY RUBENDALL
 CALCULATED/DESIGNED BY: CHECKED BY:
 REVISOR: DATE REVISION:

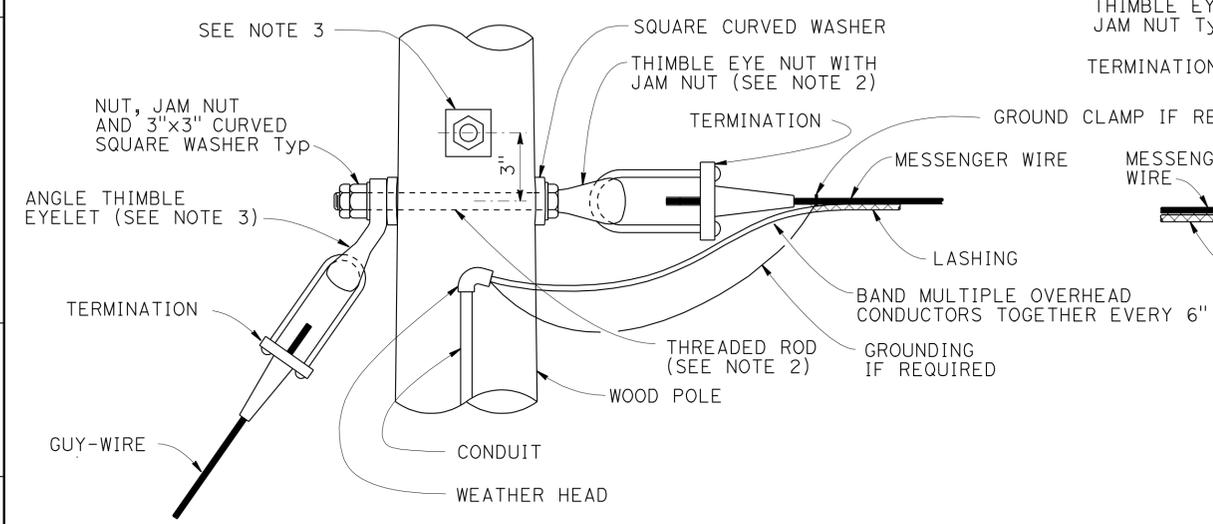
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	880	28.4/29.2	429	789
 REGISTERED CIVIL ENGINEER			03-18-13	DATE	
4-8-13 PLANS APPROVAL DATE					
<small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small>					
AECOM 2101 WEBSTER ST.#1900 OAKLAND, CA 94612			ALAMEDA CTC 1333 Broadway Suite 220 Oakland, CA 94612		



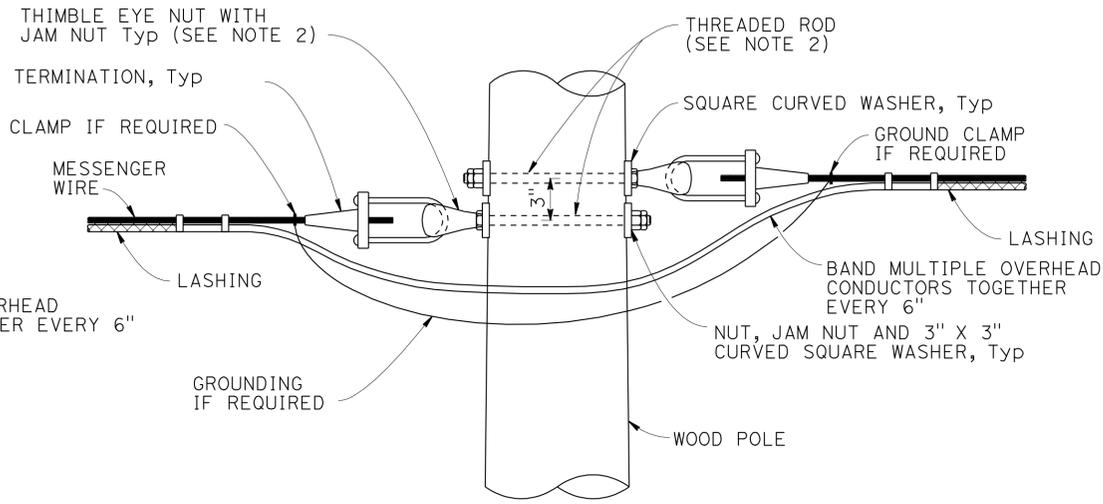
ALTERNATIVE TERMINATION OF MESSENGER WIRES USING GUY CLAMPS



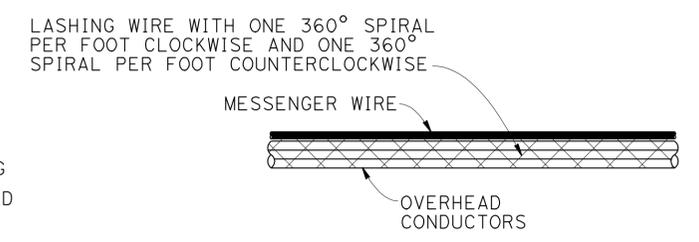
TERMINATION OF WIRES USING AUTOMATIC DEAD END



POLE AT DEAD END WITH GUY-WIRE CONNECTION

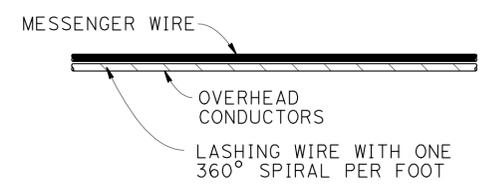


POLE AT TANGENT OR CORNER CONNECTION



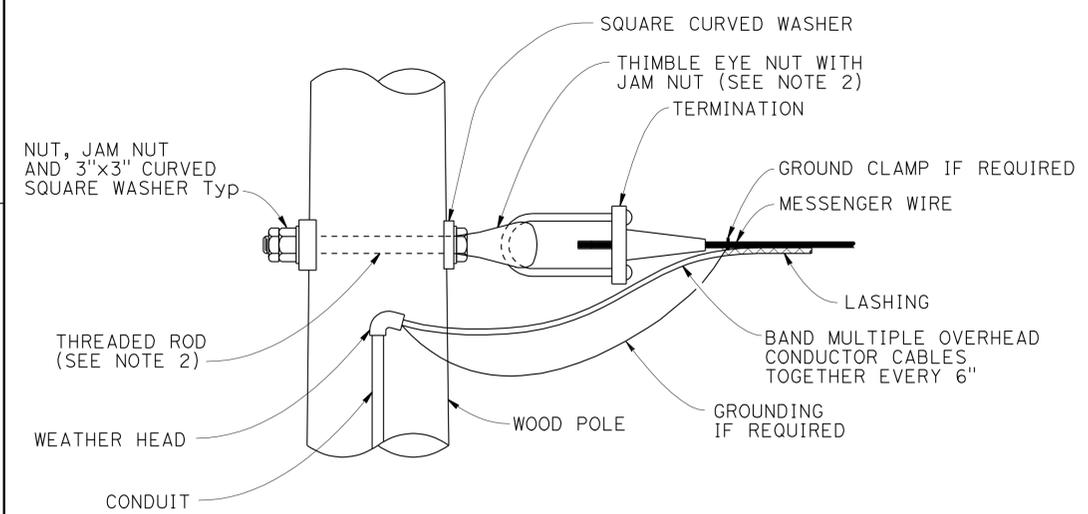
DOUBLE LASHING DETAIL

USE IF d_p IS GREATER THAN $1\frac{1}{2}$ "

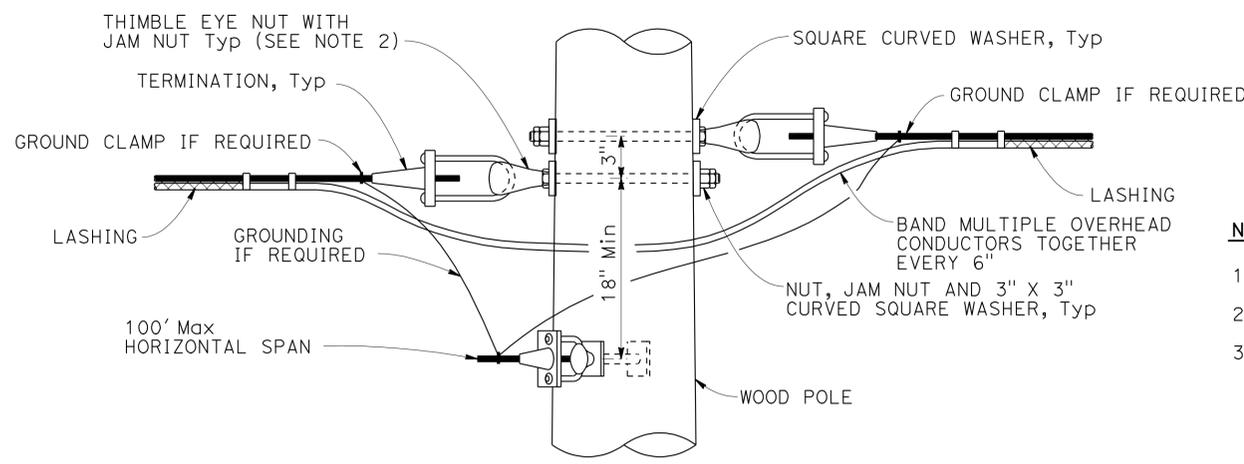


TYPICAL LASHING DETAIL

USE IF d_p IS $1\frac{1}{2}$ " OR LESS



POLE AT DEAD END CONNECTION



POLE AT JUNCTION CONNECTION

- NOTES:**
1. For guy wires use 3 clamps.
 2. Use 5#8" ϕ except 3#4" ϕ at guyed wires.
 3. Install additional angle thimble eyelet at poles with two guy wires.

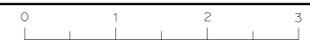
ELECTRICAL DETAILS (TEMPORARY LIGHTING)

NO SCALE

E-89

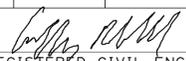
APPROVED FOR ELECTRICAL WORK ONLY

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET E-1 THRU E-4



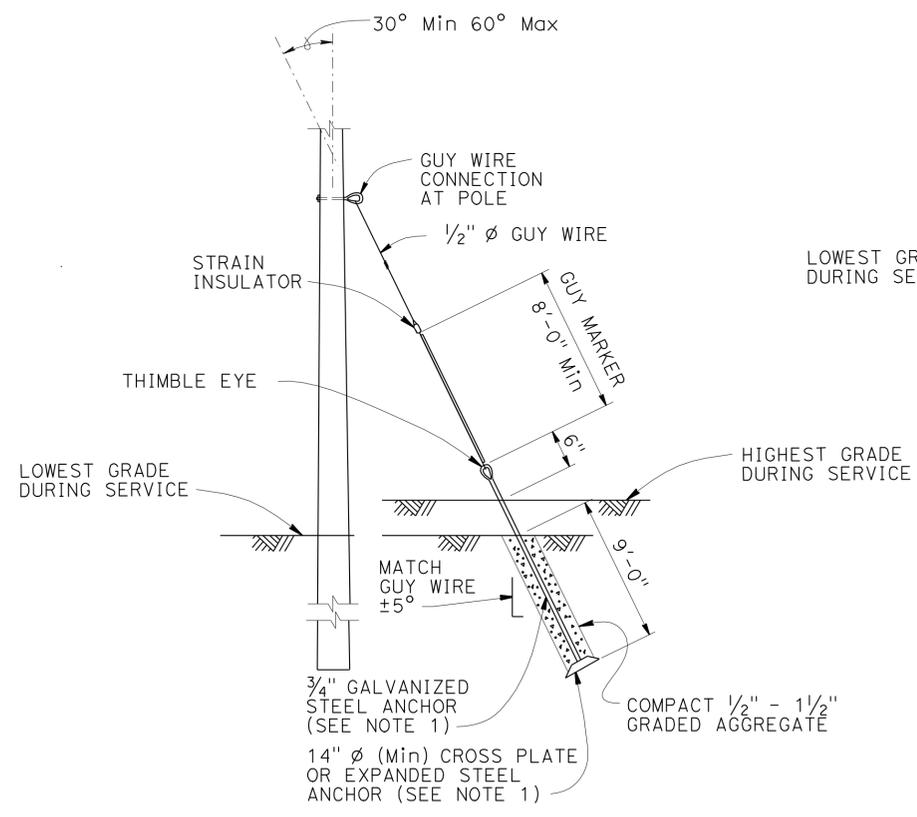
H:\PDATA\35101088\CADD\Transp\W\CADD... In:\geocom\2013-03-18 E-sheets\0400000160uad089.dgn
 STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
 CONSULTANT: FUNCTIONAL SUPERVISOR
 GEOFFREY RUBENDALL
 CALCULATED/DESIGNED BY
 CHECKED BY
 REVISOR BY
 DATE REVISED
 USERNAME = s124496
 DGN FILE = 0400000160uad089.dgn
 BORDER LAST REVISED 7/2/2010
 RELATIVE BORDER SCALE IS IN INCHES
 UNIT 0724
 PROJECT NUMBER & PHASE
 04000001601

LAST REVISION DATE PLOTTED = 10-APR-2013
 03/18/13 TIME PLOTTED = 11:39

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	880	28.4/29.2	430	789
 REGISTERED CIVIL ENGINEER			03-18-13 DATE		
4-8-13 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>					
AECOM 2101 WEBSTER ST.#1900 OAKLAND, CA 94612			ALAMEDA CTC 1333 Broadway Suite 220 Oakland, CA 94612		

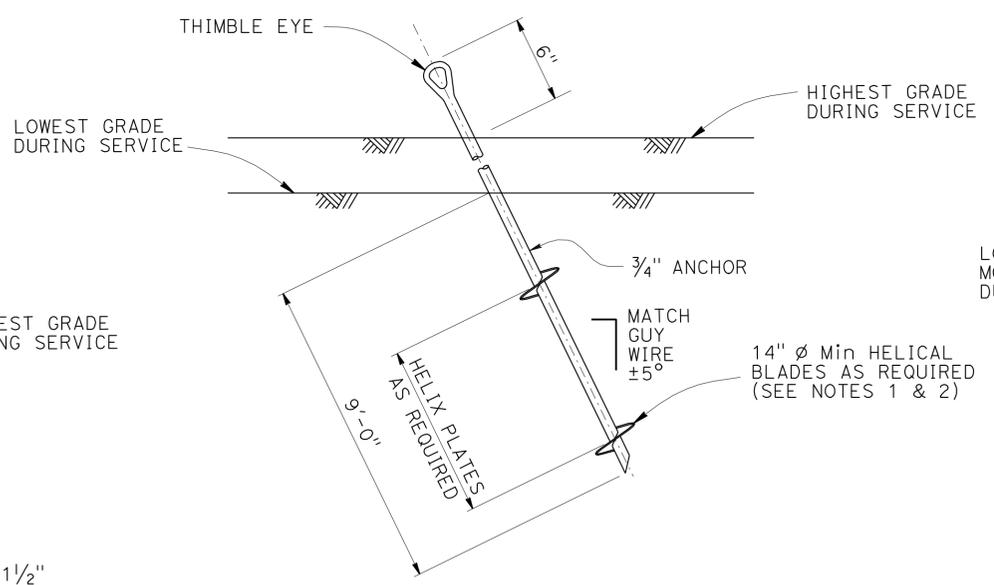
NOTES:

1. Minimum allowable tension capacity "Qa" = 8,900 lbs.
2. Minimum installation torque "T" = 1780 lbs-ft.
3. Helical anchor detail may be used in place of expanded steel anchors.

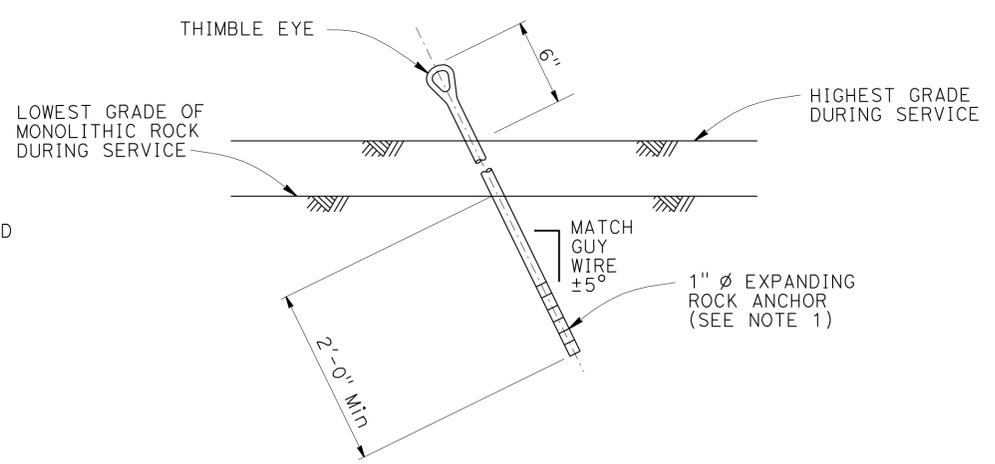


EXPANDED STEEL ANCHOR DETAIL

SEE NOTE 3



HELICAL ANCHOR DETAIL



EXPANDING ROCK ANCHOR DETAIL

**ELECTRICAL DETAILS
(TEMPORARY LIGHTING)**

NO SCALE

E-90

APPROVED FOR ELECTRICAL WORK ONLY

H:\PDATA\35101088\CADD\TransisPW\CADD_In\aeccom\2013-03-18 E-sheets\0400000160u0090.dgn
 STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
 CONSULTANT: FUNCTIONAL SUPERVISOR: GEOFFREY RUBENDALL
 CALCULATED/DESIGNED BY: CHECKED BY:
 REVISOR: DATE:

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	880	28.4/29.2	431	789

03-18-13
 REGISTERED CIVIL ENGINEER DATE
 4-8-13
 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.

GEOFFREY RUBENDALL
 No. 71946
 Exp. 12/31/13
 CIVIL
 STATE OF CALIFORNIA

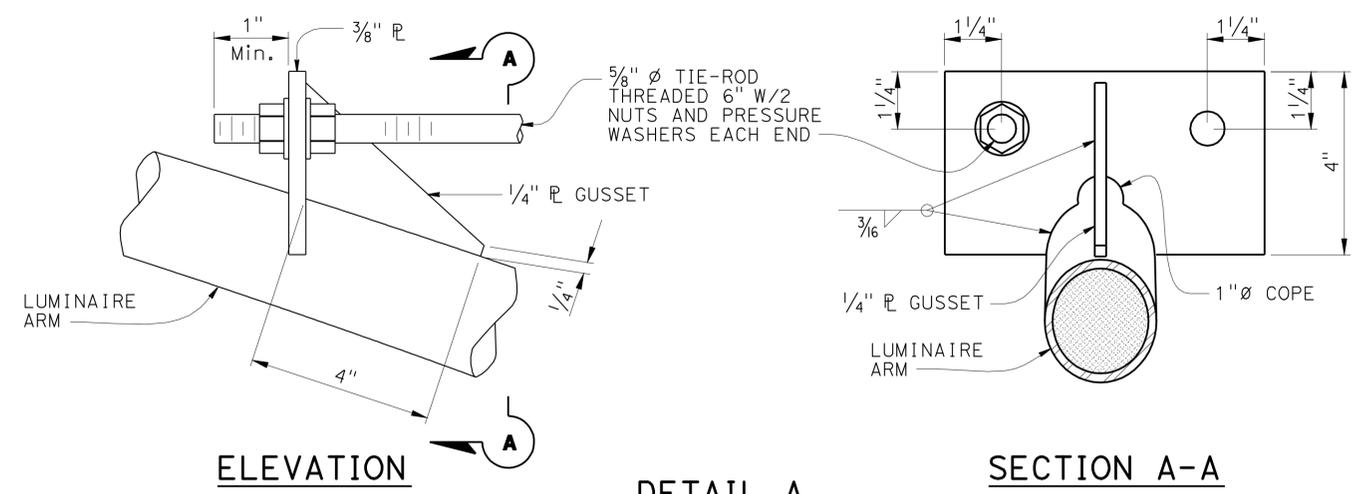
AECOM
 2101 WEBSTER ST.#1900
 OAKLAND, CA 94612

ALAMEDA CTC
 1333 Broadway
 Suite 220
 Oakland, CA 94612

NOTES:

- Luminaire mast arms must be in compliance with Standard Plan ES-6D with noted modifications.
- Verify pole dimensions at tie-rod attachment height. Fabricate 8" flat bar with "L" dimension to maintain an open gap between flanges in finished installation.
- Not all screw heads and bolt heads are shown for clarity.
- Mast arm not shown for clarity.

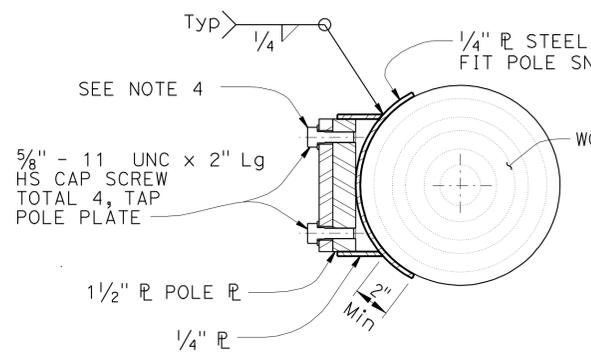
NOTE: Not all screw and bolt heads shown for clarity.



ELEVATION

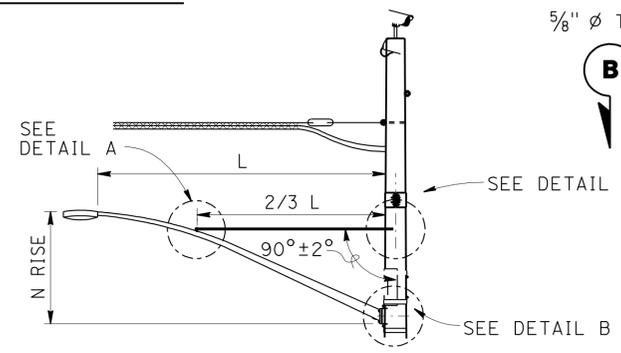
SECTION A-A

**DETAIL A
TIE-ROD AT LUMINAIRE ARM**
NO SCALE

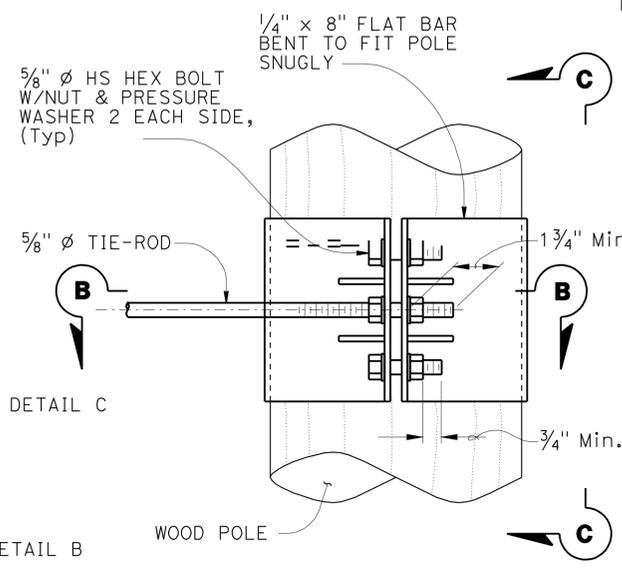


SECTION E-E

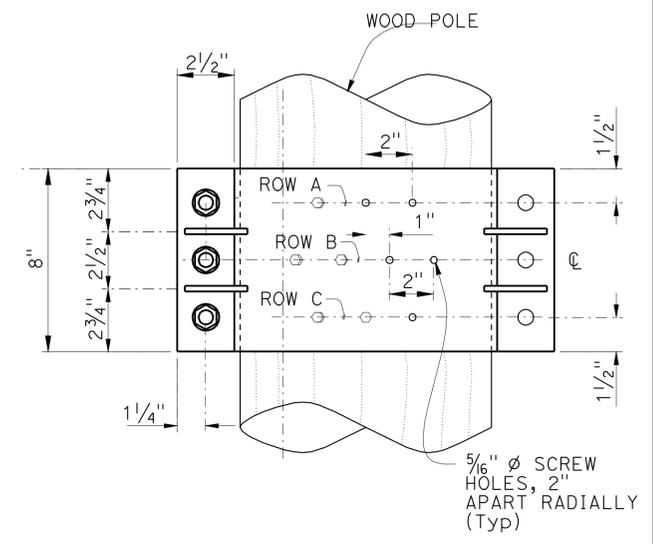
LUMINAIRE MAST ARM DATA			
PROJECTED LENGTH	N RISE	Min OD AT POLE	NOMINAL THICKNESS
6'-0"	2'-0"±	3 1/4"	0.1196"
8'-0"	2'-6"±	3 1/2"	
10'-0"	3'-3"±	3 3/8"	
12'-0"	4'-3"±	3 7/8"	



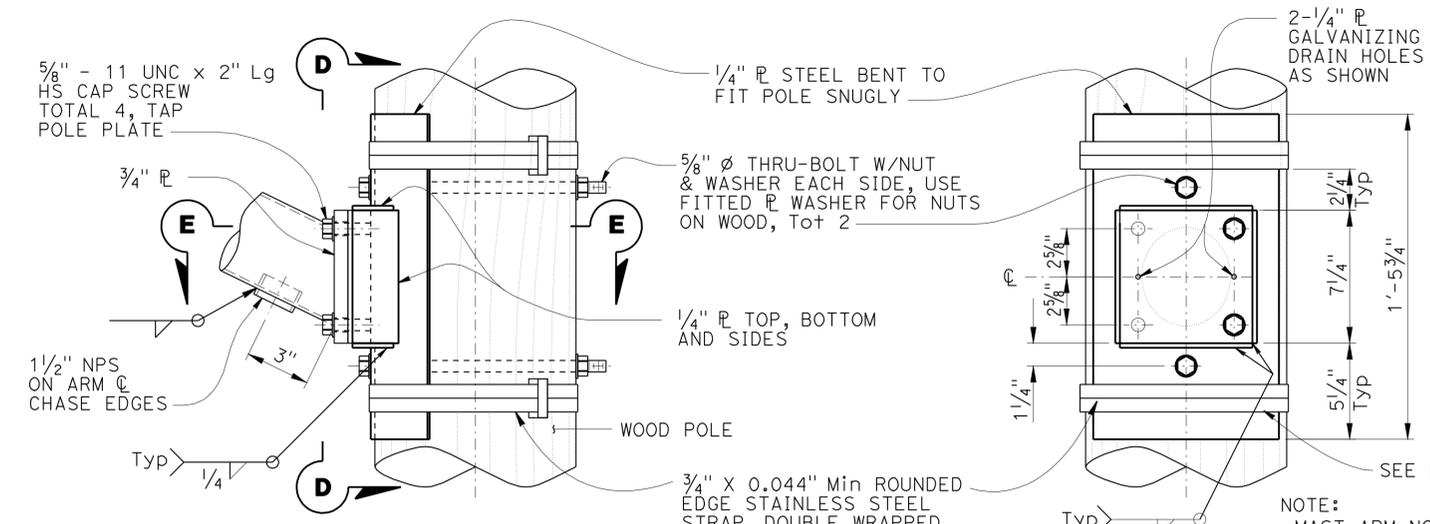
LUMINAIRE MAST ARM



ELEVATION



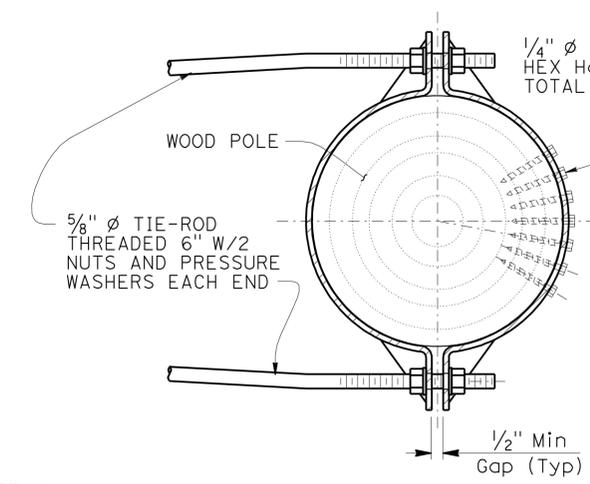
VIEW C-C



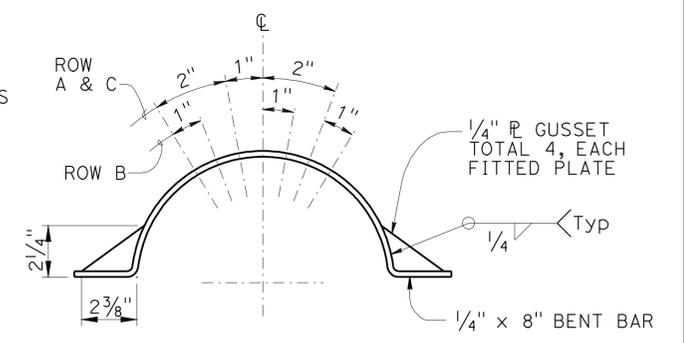
ELEVATION

VIEW D-D

**DETAIL B
ARM CONNECTION DETAILS**
NO SCALE



SECTION B-B



**DETAIL C
TIE-ROD AT POLE**

LAG SCREW AND GUSSET PLATE LAYOUT

**ELECTRICAL DETAILS
(TEMPORARY LIGHTING)**

NO SCALE

E-91

APPROVED FOR ELECTRICAL WORK ONLY

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
 CONSULTANT - FUNCTIONAL SUPERVISOR
 GEOFFREY RUBENDALL
 DESIGNED BY
 CHECKED BY
 REVISIONS: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000.

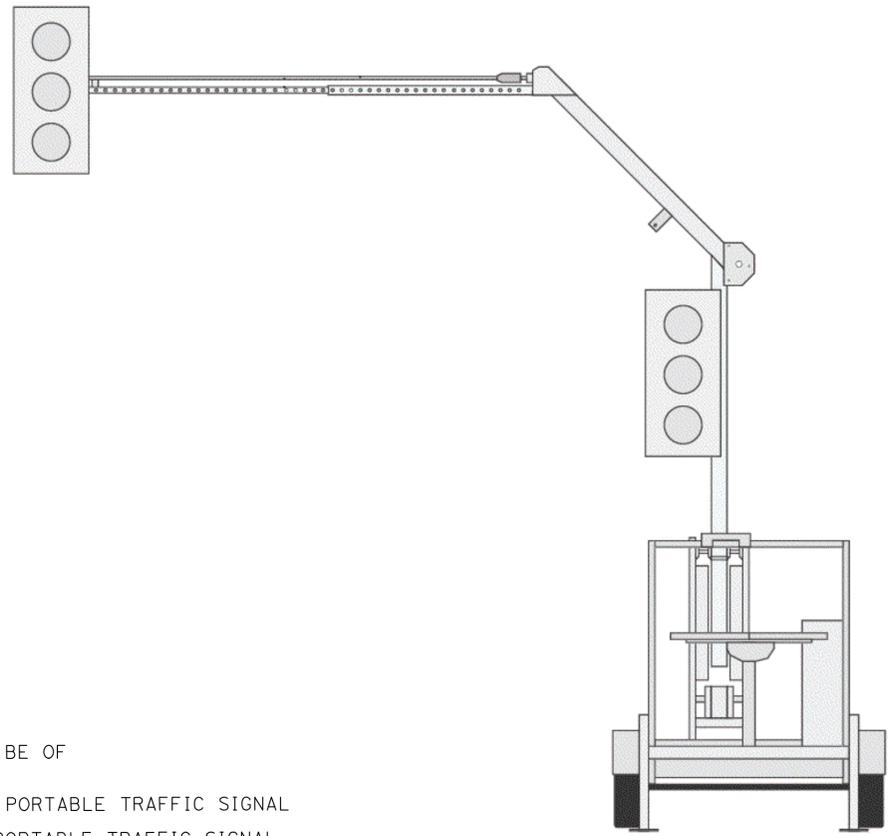
0400000160u092.dgn
 STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
 CONSULTANT: FUNCTIONAL SUPERVISOR: GEOFFREY RUBENDALL
 CALCULATED/DESIGNED BY: CHECKED BY:
 REVISOR: EM DATE: 01/06/12
 REVISOR: EM DATE: 04/18/12
 REVISOR: EM DATE: 06/26/12

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	880	28.4/29.2	432	789

REGISTERED CIVIL ENGINEER: *Geoffrey Rubendall* DATE: 08-22-12
 PLANS APPROVAL DATE: 4-8-13
 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
 GEOFFREY RUBENDALL
 No. 71946
 Exp. 12/31/13
 CIVIL
 STATE OF CALIFORNIA

AECOM 2101 WEBSTER ST.#1900 OAKLAND, CA 94612	ALAMEDA CTC 1333 Broadway Suite 220 Oakland, CA 94612
---	--



TEMPORARY PORTABLE TRAFFIC SIGNAL SHALL BE OF THE FOLLOWING OR APPROVED EQUIVALENT:

- NORTH AMERICA TRAFFIC MODEL PTL 2-4X PORTABLE TRAFFIC SIGNAL
- TOWER SIGN AND SIGNAL MODEL SX 7500 PORTABLE TRAFFIC SIGNAL
- INTERWEST SAFETY SUPPLY MODEL SQ 3TS PORTABLE TRAFFIC SIGNAL

TEMPORARY PORTABLE TRAFFIC SIGNAL

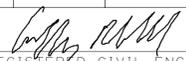
FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET E-1 THRU E-4

**ELECTRICAL DETAILS
(TEMPORARY TOS)**

NO SCALE

E-92

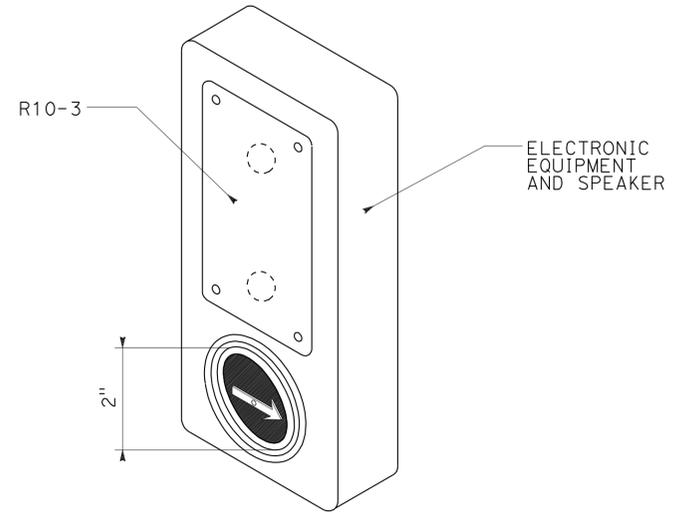


Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	880	28.4/29.2	433	789
 REGISTERED CIVIL ENGINEER			08-22-12	DATE	
4-8-13			PLANS APPROVAL DATE		
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.					
AECOM 2101 WEBSTER ST.#1900 OAKLAND, CA 94612			ALAMEDA CTC 1333 Broadway Suite 220 Oakland, CA 94612		



LEFT RIGHT BOTH

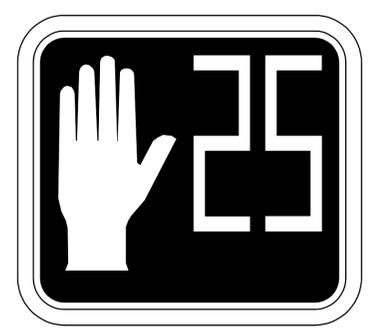
PEDESTRIAN PUSH BUTTON SIGNS (R10-3)
DETAIL A



ACCESSIBLE PEDESTRIAN SIGNAL
DETAIL B



PERSON WALKING INTERVAL



FLASHING UPRAISED HAND INTERVAL



STEADY UPRAISED HAND INTERVAL

PEDESTRIAN SIGNAL FACE
DETAIL C

FOR NOTES, ABBREVIATIONS AND
LEGEND, SEE SHEET E-1 THRU E-4

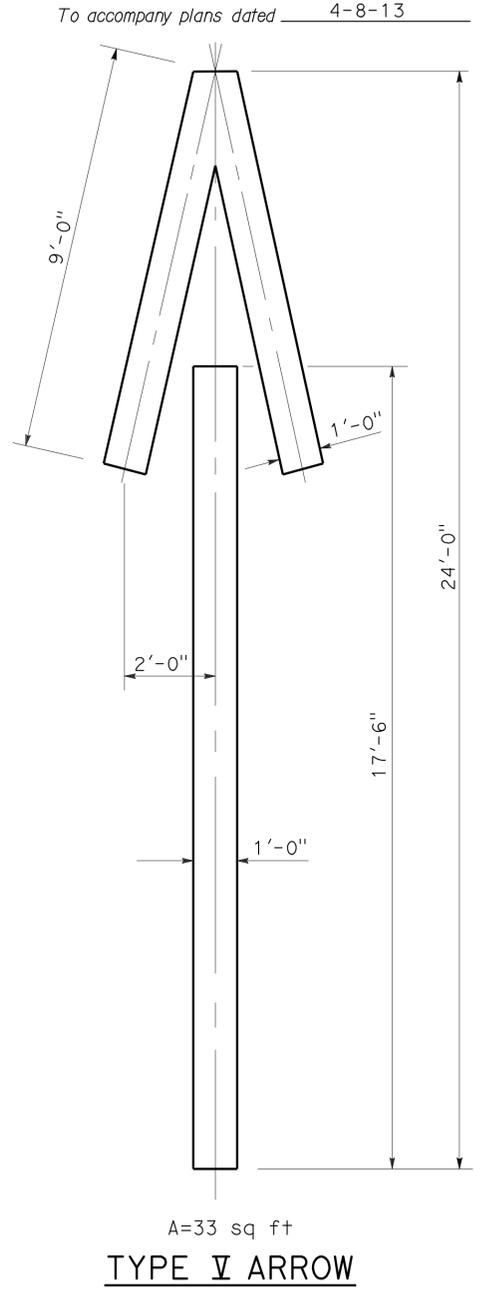
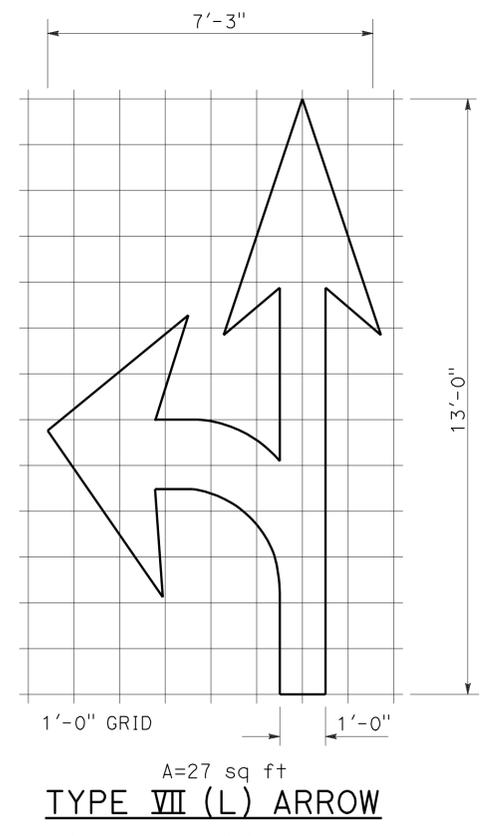
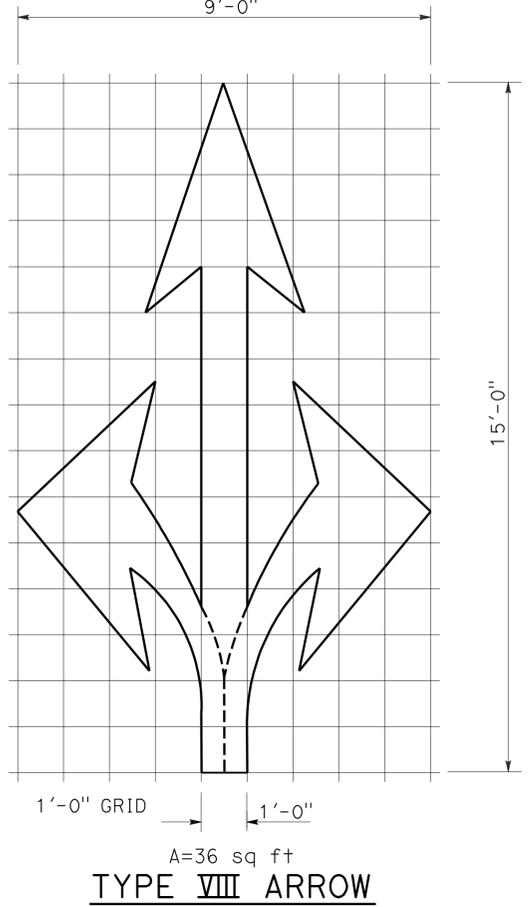
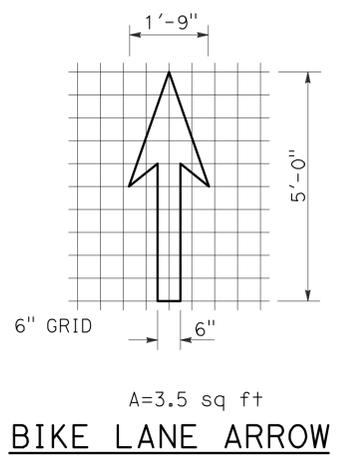
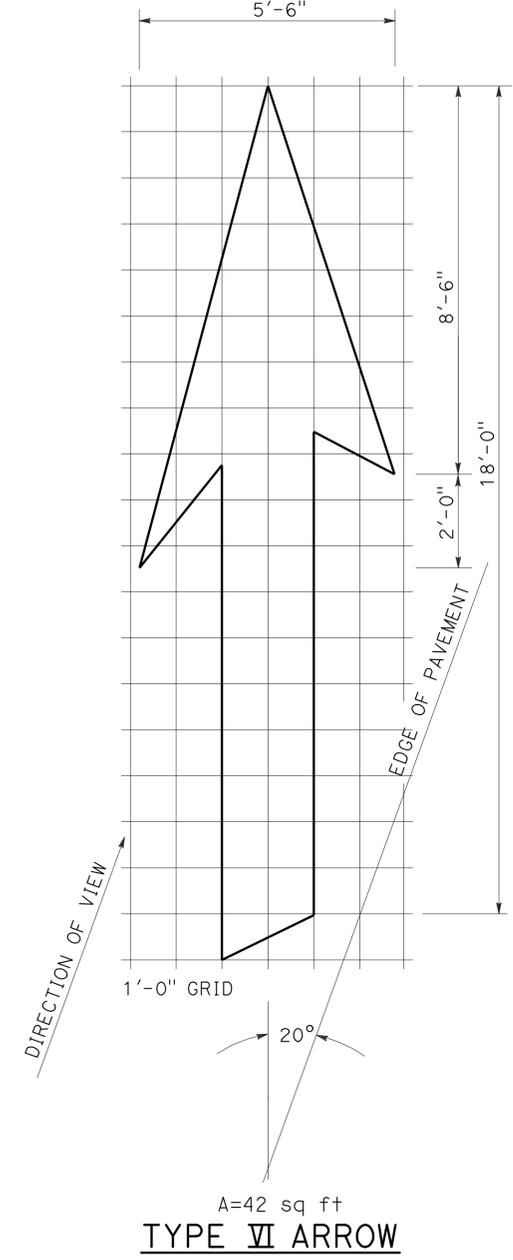
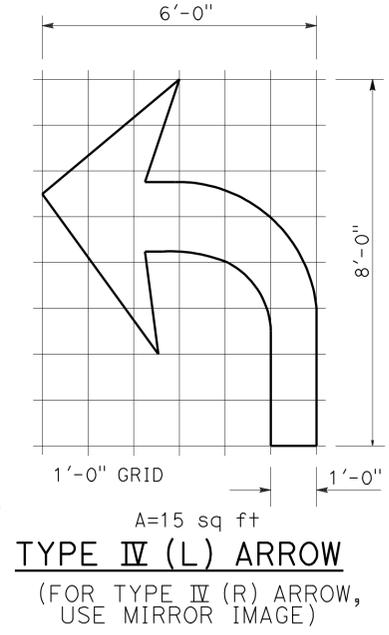
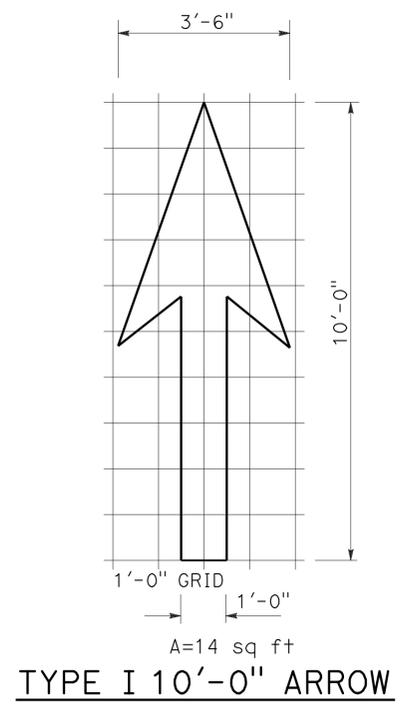
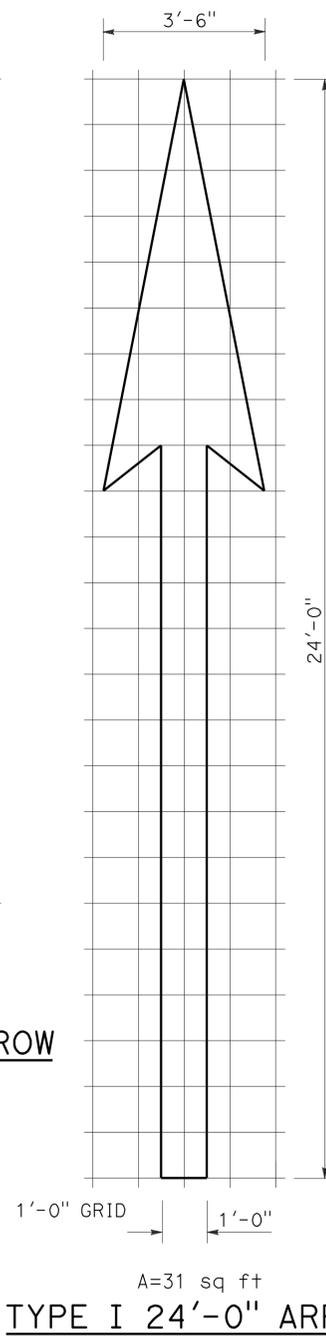
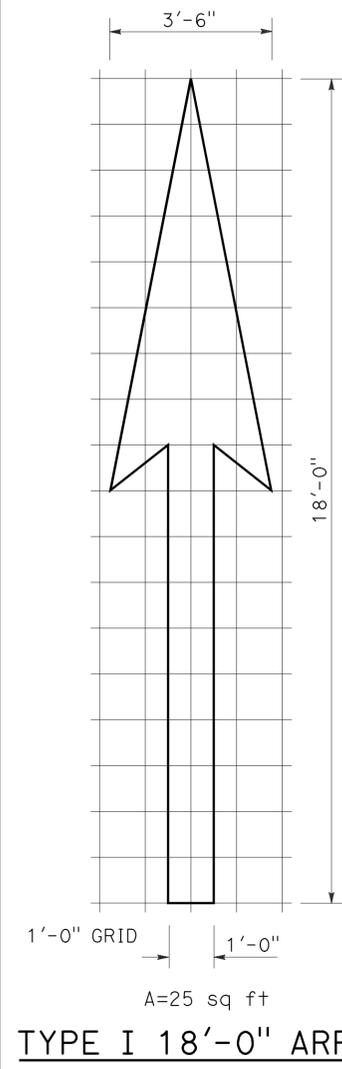
ELECTRICAL DETAILS
NO SCALE **E-93**

O:\D:\s1\04\04-0g7101\0400000160uc093.dgn
 STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
 CONSULTANT - FUNCTIONAL SUPERVISOR
 GEOFFREY RUBENDALL
 CALCULATED-DESIGNED BY
 CHECKED BY
 REVISOR BY
 DATE REVISED
 EM
 01/06/12
 04/18/12
 06/26/12

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	880	28.4/29.2	434	789

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.

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



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.

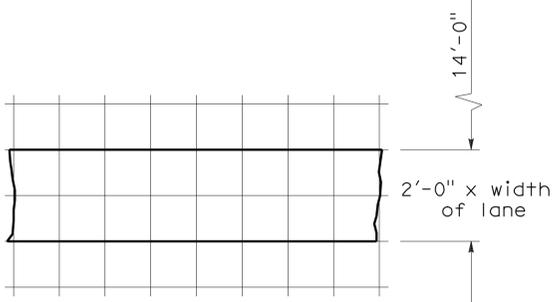
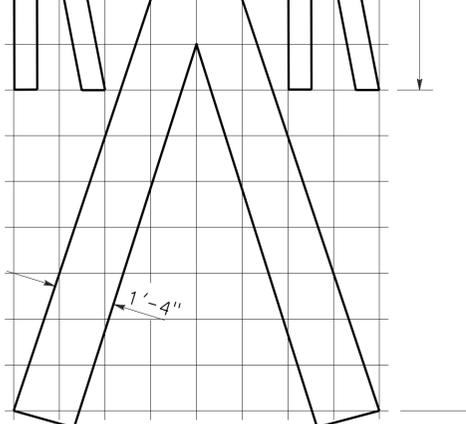
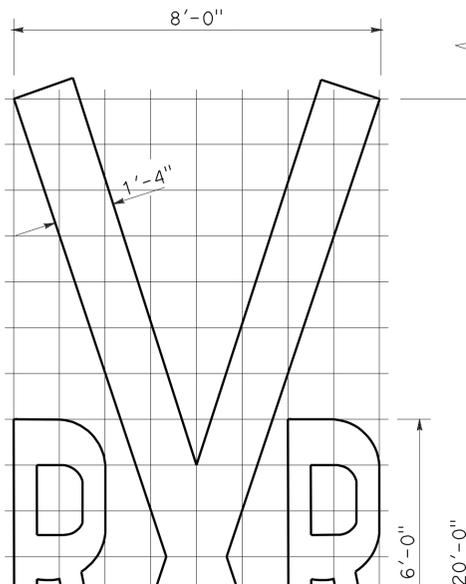
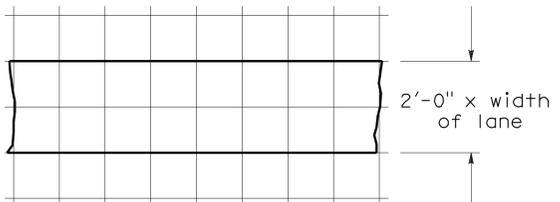
2006 REVISED STANDARD PLAN RSP A24A

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	880	28.4/29.2	435	789

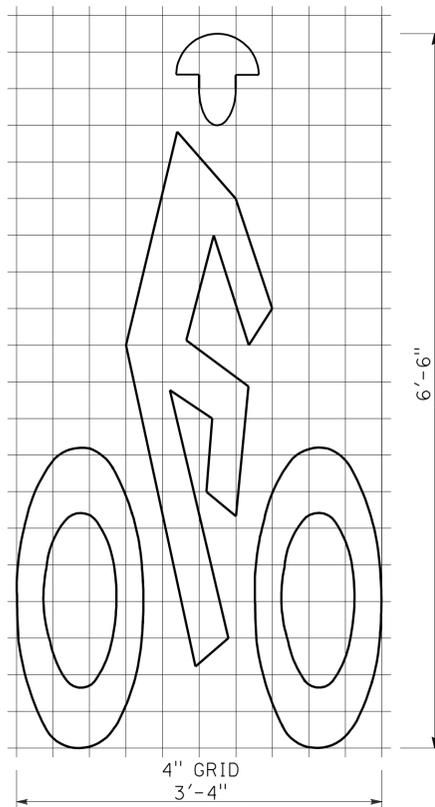
Donald E. Howe
 REGISTERED CIVIL ENGINEER
 June 6, 2008
 PLANS APPROVAL DATE
 The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

REGISTERED PROFESSIONAL ENGINEER
 Donald E. Howe
 No. C46402
 Exp. 3-31-09
 CIVIL
 STATE OF CALIFORNIA

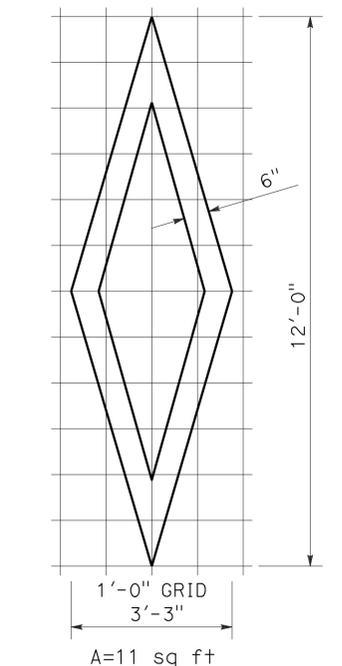
To accompany plans dated 4-8-13



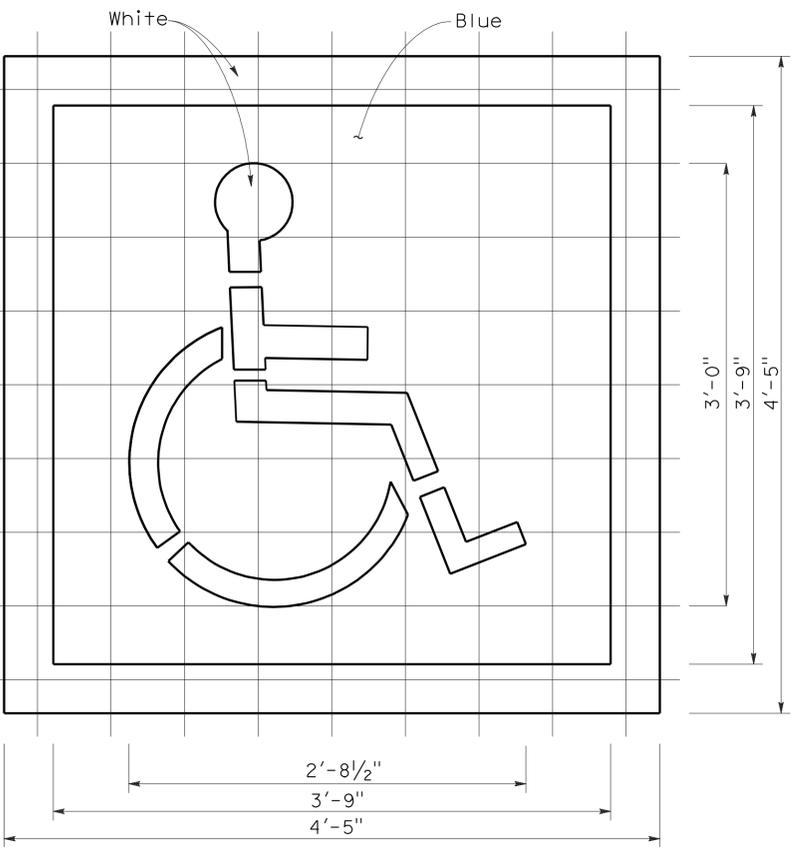
RAILROAD CROSSING SYMBOL
 *70 sq ft DOES NOT INCLUDE THE 2'-0" x VARIABLE WIDTH TRANSVERSE LINES.



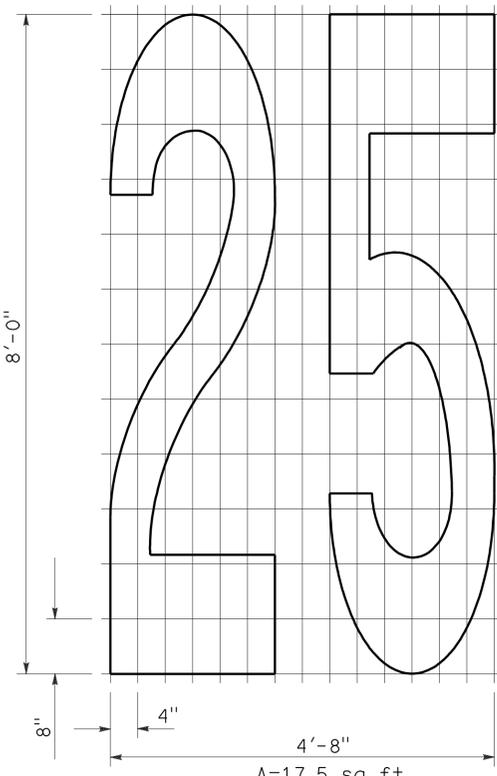
BIKE LANE SYMBOL
 A=7 sq ft



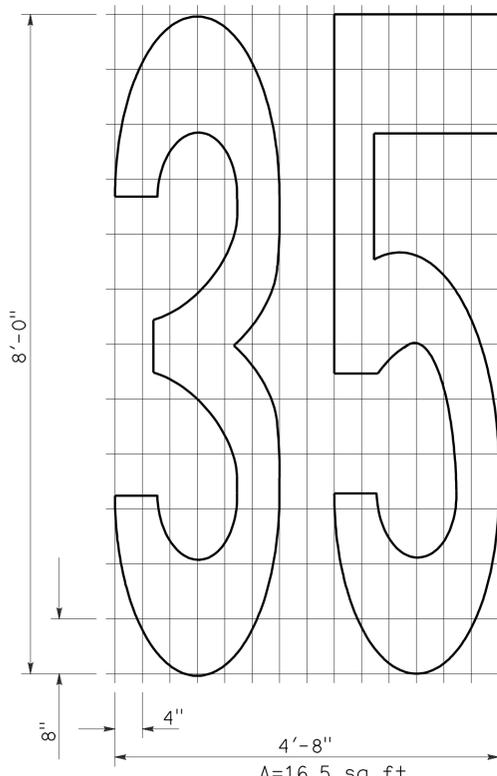
DIAMOND SYMBOL
 A=11 sq ft



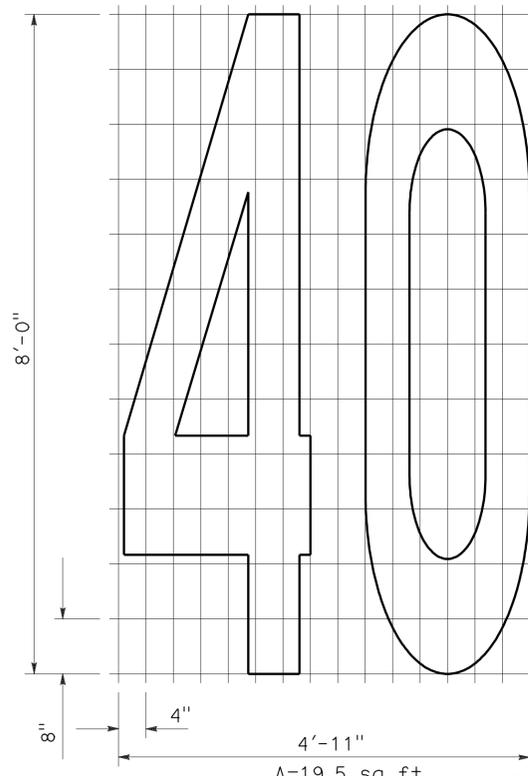
INTERNATIONAL SYMBOL OF ACCESSIBILITY MARKING
 6" GRID
 A (White) = 9 sq ft
 A (Blue) = 14 sq ft



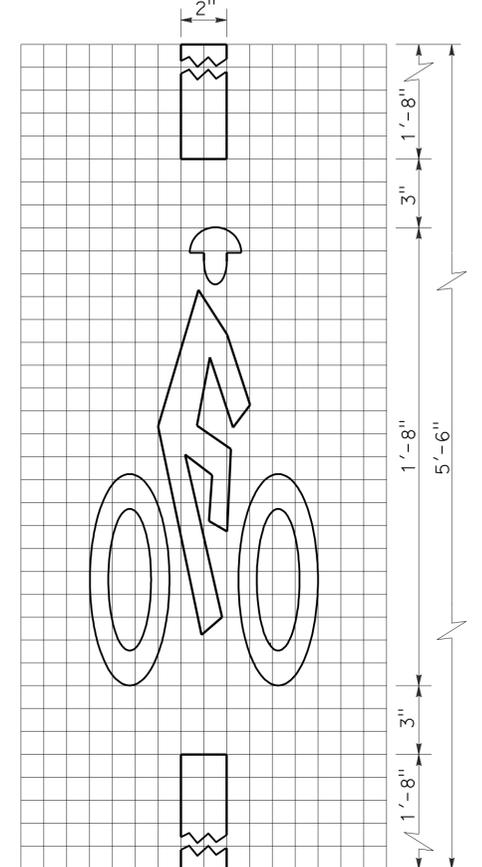
NUMERALS
 A=17.5 sq ft



NUMERALS
 A=16.5 sq ft



NUMERALS
 A=19.5 sq ft



BICYCLE LOOP DETECTOR SYMBOL
 1" GRID
 10"
 A=2 sq ft

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

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

RSP A24C DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN A24C DATED MAY 1, 2006 - PAGE 11 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP A24C

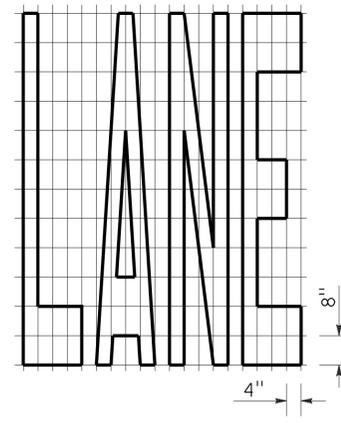
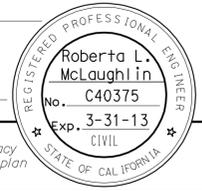
2006 REVISED STANDARD PLAN RSP A24C

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	880	28.4/29.2	436	789

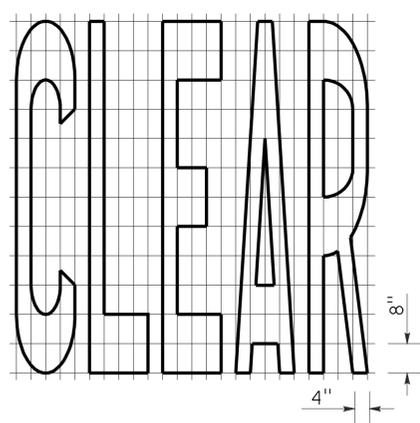
Roberto L. McLaughlin
 REGISTERED CIVIL ENGINEER
 July 20, 2012
 PLANS APPROVAL DATE

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

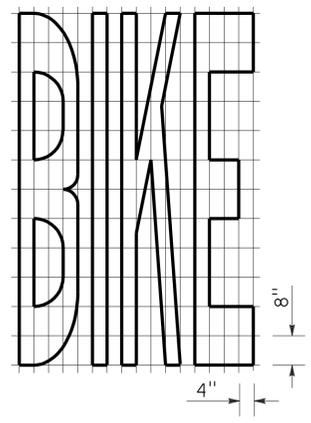
To accompany plans dated 4-8-13



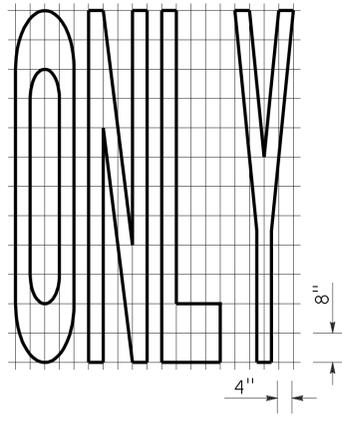
A=24 ft²



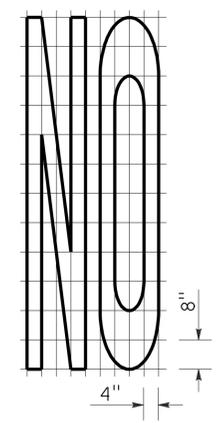
A=27 ft²



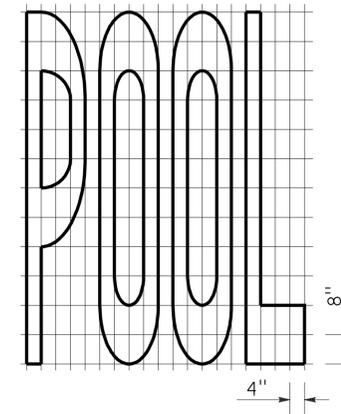
A=21 ft²



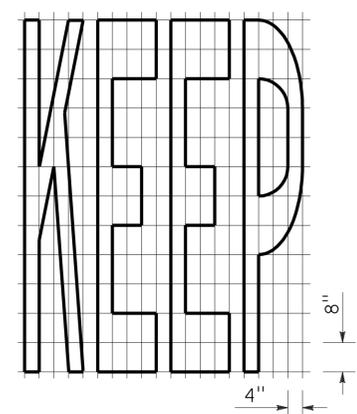
A=22 ft²



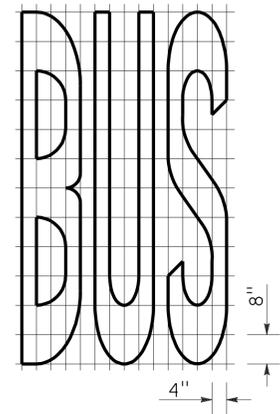
A=14 ft²



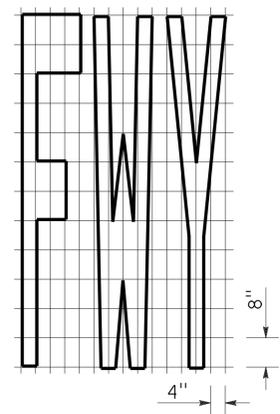
A=23 ft²



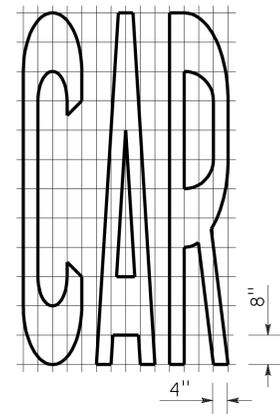
A=24 ft²



A=20 ft²

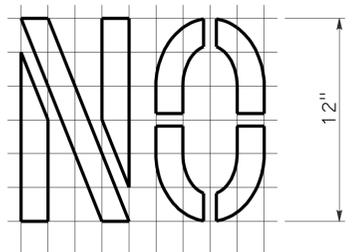


A=16 ft²



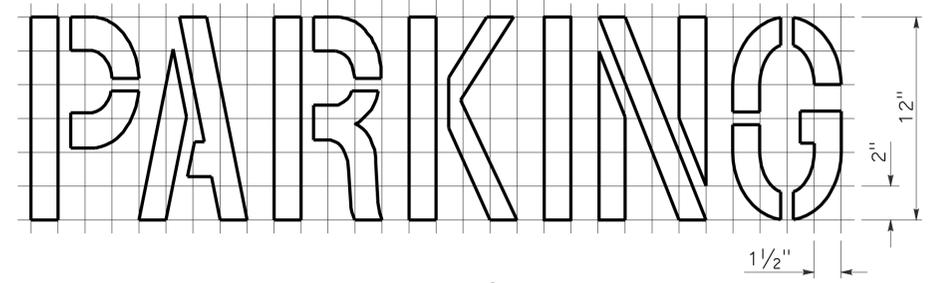
A=17 ft²

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



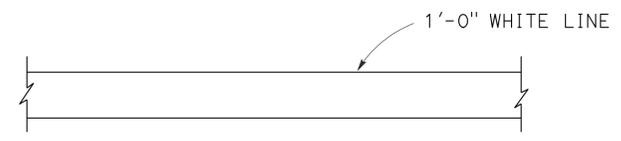
A=2 ft²

See Notes 6 and 7

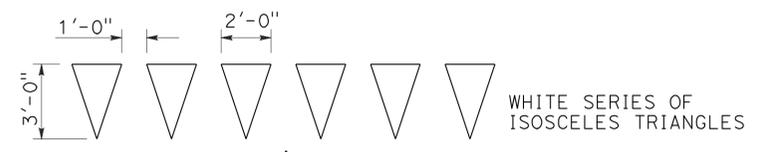


A=2 ft²

See Notes 6 and 7



LIMIT LINE (STOP LINE)



YIELD LINE

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

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

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

NO SCALE

RSP A24E DATED JULY 20, 2012 SUPERSEDES STANDARD PLAN A24E
DATED MAY 1, 2006 - PAGE 13 OF THE STANDARD PLANS BOOK DATED MAY 2006.

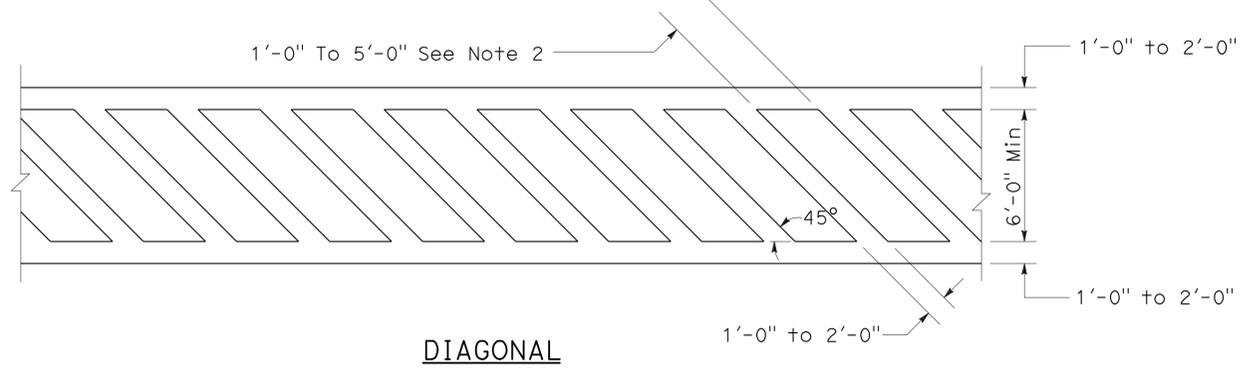
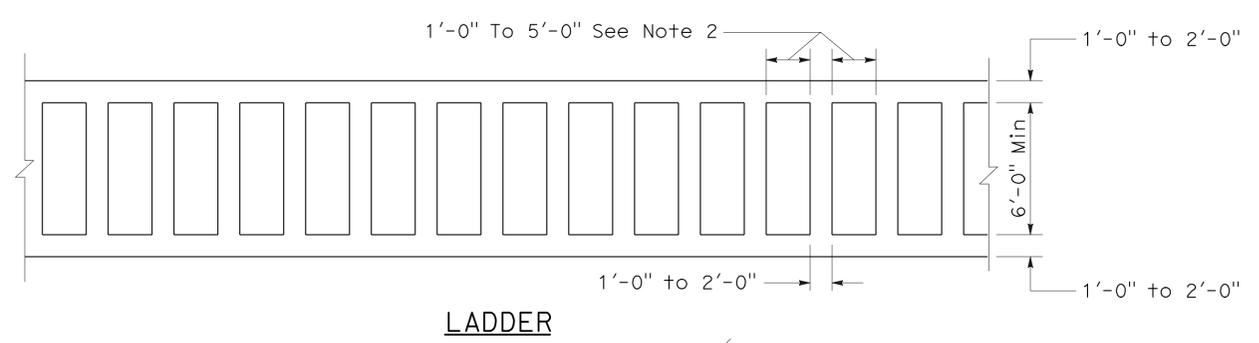
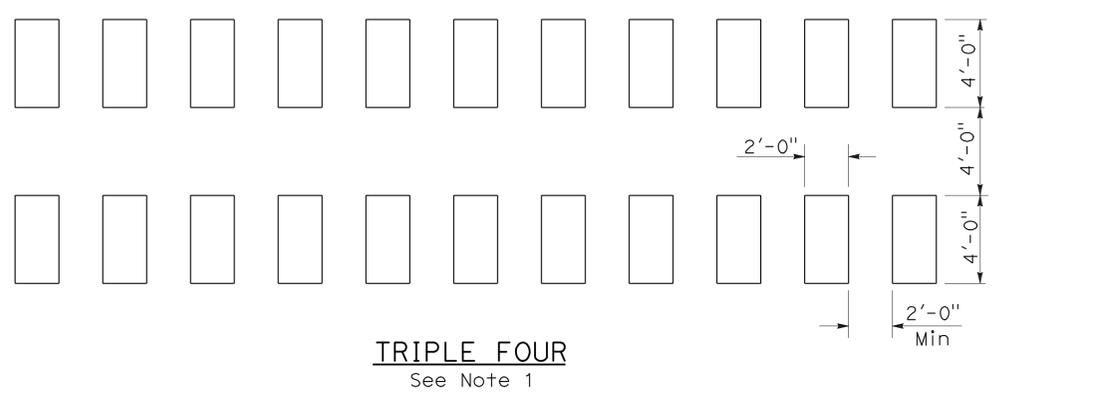
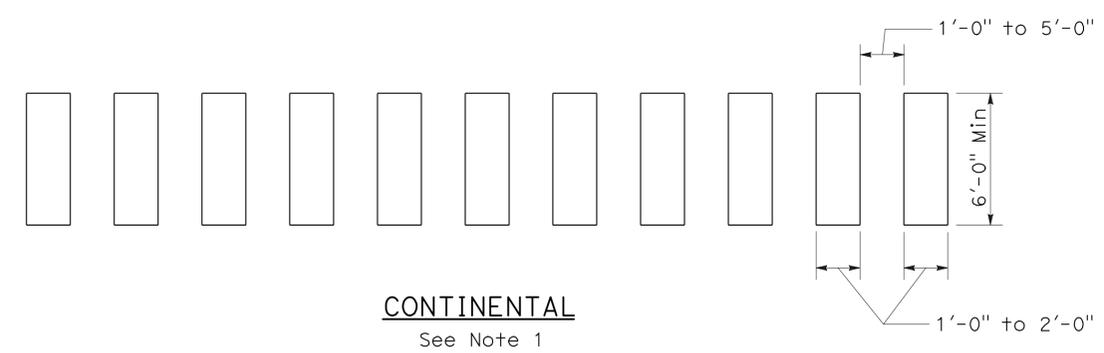
2006 REVISED STANDARD PLAN RSP A24E

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	880	28.4/29.2	437	789

Roberto L. McLaughlin
 REGISTERED CIVIL ENGINEER
 July 20, 2012
 PLANS APPROVAL DATE

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

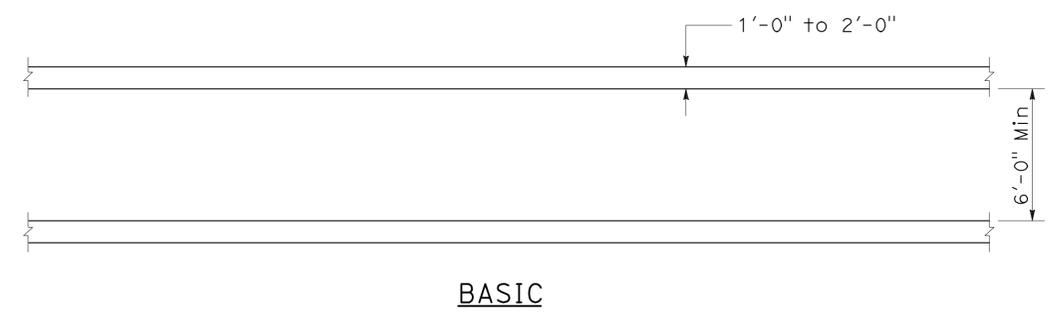
To accompany plans dated 4-8-13



HIGHER VISIBILITY CROSSWALKS

NOTES:

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



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

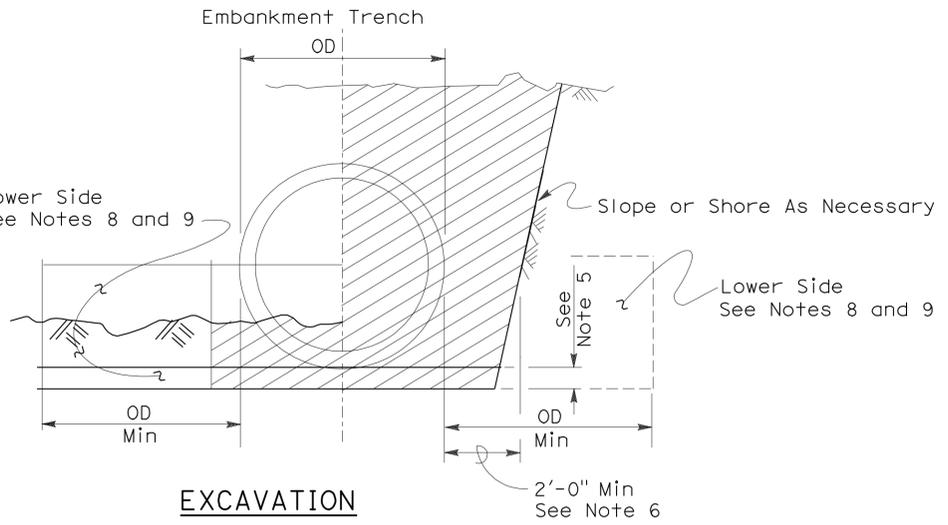
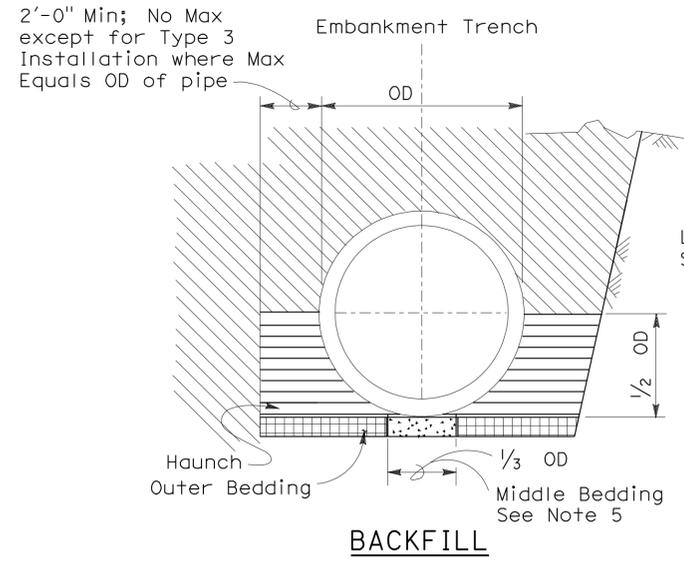
NSP A24F DATED JULY 20, 2012 SUPPLEMENTS THE STANDARD PLANS BOOK DATED MAY 2006.

2006 NEW STANDARD PLAN NSP A24F

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	880	28.4/29.2	438	789

Dallas Forester
 REGISTERED CIVIL ENGINEER
 November 17, 2006
 PLANS APPROVAL DATE
 Dallas Forester
 No. C37765
 Exp. 12-31-06
 CIVIL
 STATE OF CALIFORNIA
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

To accompany plans dated 4-8-13



	Roadway Embankment		Excavation Structure (Culvert)
	Structure Backfill (Culvert) See Note 6		
	Structure Backfill (Culvert) See Note 6		
	Loose Backfill		

TYPE 1 INSTALLATION:

The haunch and outer bedding shall be compacted to a minimum 90 percent relative compaction. In addition, the minimum sand equivalent in these areas shall be 30 and the maximum percentage passing the 75 μm sieve size shall be 12.

TYPE 2 INSTALLATION:

The haunch and outer bedding shall be compacted to a minimum 90 percent relative compaction. In addition, the minimum sand equivalent in these areas shall be 25.

TYPE 3 INSTALLATION:

The haunch and outer bedding shall be compacted to a minimum 85 percent relative compaction. 90 percent relative compaction will be required where the fill over the pipe is less than 4'-0" or 1/2 OD.

NOTES:

- Unless otherwise shown on the plans or specified in the special provision, the Contractor shall have the option of selecting the class of RCP and the type of installation to be used, provided the height of cover does not exceed the value shown for the RCP selected.
 Example: 24" RCP culvert with maximum cover of 19'-0" the options are:
 a) Class III or stronger with Installation Type 1.
 b) Class III Special or stronger with Installation Type 2.
 c) Class IV Special or stronger with Installation Type 3.
 Cover is defined as the maximum vertical distance from top of the pipe to finished grade within the length of any given culvert.
- The class of RCP and Installation Type selected shall be the same throughout the length of any given culvert.
- The "length of any culvert" is defined as the culvert between:
 a) Successive drainage structure (inlets, junction boxes, headwalls, etc.).
 b) A drainage structure and the inlet or outlet end of the culvert.
 c) The inlet and outlet end of the culvert when there are no intervening drainage structures.
- Oval and arch shaped RCP shall not be used.
- 1/25 OD Min, not less than 3".
- Slurry cement backfill may be substituted for backfill in the outer bedding and haunch areas. If slurry is used the outer and middle beddings shall be omitted. Prior to installation the soil under the middle 1/3 of the outside diameter of the pipe shall be softened by scarifying or other means to a minimum depth of 1/25 OD, but not less than 3". Where slurry cement backfill is used clear distance to trench wall may be reduced as set forth in Section 19-3.062 of the Standard Specifications.
- Backfill shall be placed full width of excavation except where dimensions are shown for backfill width or thickness. Dimensions shown are minimums.
- Lower side shall be suitable material as determined by the Engineer. Otherwise it shall be considered unsuitable as set forth in Section 19-2.02 of the Standard Specifications. See Note 9.
- Where the pipe is placed in a trench, if the trench walls are sloped at 5 vertical to 1 horizontal or steeper for at least 90 percent of the trench height or up to not less than 12" from the grading plane, the firmness of the soil in the lower side need not be considered.
- Non-reinforced precast concrete pipe sizes 3'-0" or smaller may be placed under installation Types 1, 2 or 3.

INSTALLATION TYPE 1

MINIMUM CLASS AND D-LOAD	COVER	
	108" Dia AND SMALLER	OVER 108" Dia
Class II 1000D	14.9'	12.9'
Class III 1350D	15.0' - 20.9'	13.0' - 18.9'
Class III Special 1700D	21.0' - 26.9'	19.0' - 24.9'
Class IV 2000D	27.0' - 31.9'	25.0' - 29.9'
Class IV Special 2500D	32.0' - 40.9'	30.0' - 38.9'
Class V 3000D	41.0' - 49.9'	39.0' - 46.9'
Class V Special 3600D	50.0' - 59.0'	47.0' - 58.0'

INSTALLATION TYPE 2

MINIMUM CLASS AND D-LOAD	COVER
Class II 1000D	9.9'
Class III 1350D	10.0' - 14.9'
Class III Special 1700D	15.0' - 19.9'
Class IV 2000D	20.0' - 24.9'
Class IV Special 2500D	25.0' - 31.9'
Class V 3000D	32.0' - 38.9'
Class V Special 3600D	39.0' - 47.0'

INSTALLATION TYPE 3

MINIMUM CLASS AND D-LOAD	COVER	
	48" Dia AND SMALLER	OVER 48" Dia
Class II 1000D	7.9'	5.9'
Class III 1350D	8.0' - 10.9'	6.0' - 8.9'
Class III Special 1700D	11.0' - 14.9'	9.0' - 12.9'
Class IV 2000D	15.0' - 17.9'	13.0' - 15.9'
Class IV Special 2500D	18.0' - 21.9'	16.0' - 19.9'
Class V 3000D	22.0' - 26.9'	20.0' - 24.9'
Class V Special 3600D	30.0' - 33.0'	25.0' - 31.0'

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

**EXCAVATION AND BACKFILL
CONCRETE PIPE CULVERTS**

NO SCALE

RSP A62DA DATED NOVEMBER 17, 2006 SUPERSEDES STANDARD PLAN A62DA DATED MAY 1, 2006 - PAGE 20 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP A62DA

2006 REVISED STANDARD PLAN RSP A62DA

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	880	28.4/29.2	440	789

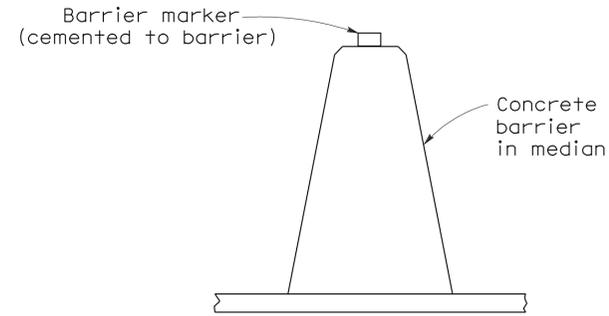
Randell D. Hiatt
REGISTERED CIVIL ENGINEER

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.

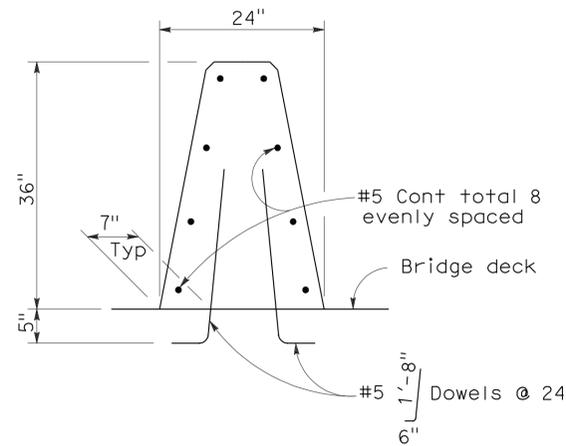
To accompany plans dated 4-8-13

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



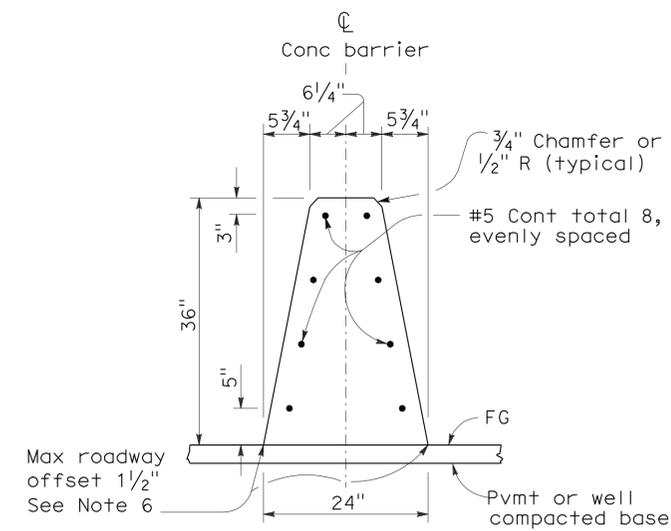
CONCRETE BARRIER TYPE 60 DELINEATION

See Notes 7 and 8



CONCRETE BARRIER TYPE 60A

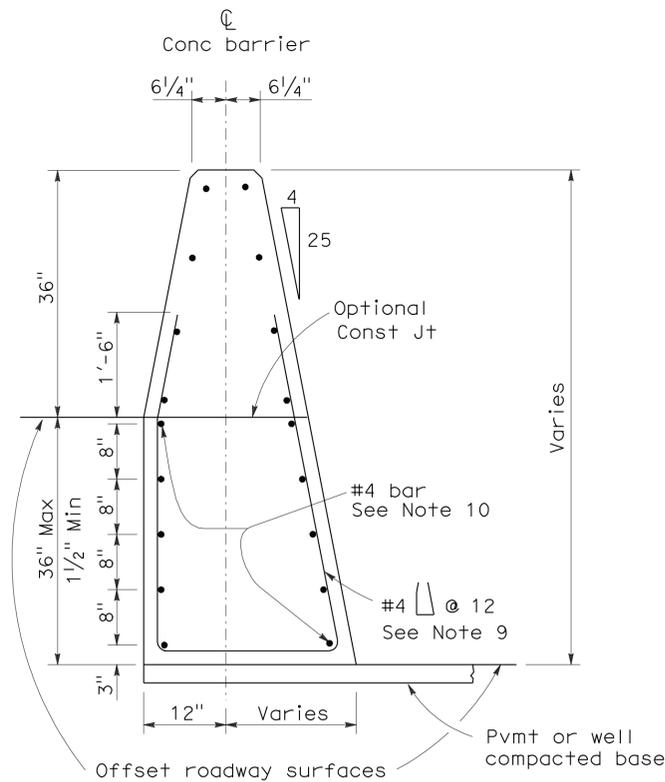
Details similar to Type 60 except as noted.



CONCRETE BARRIER TYPE 60

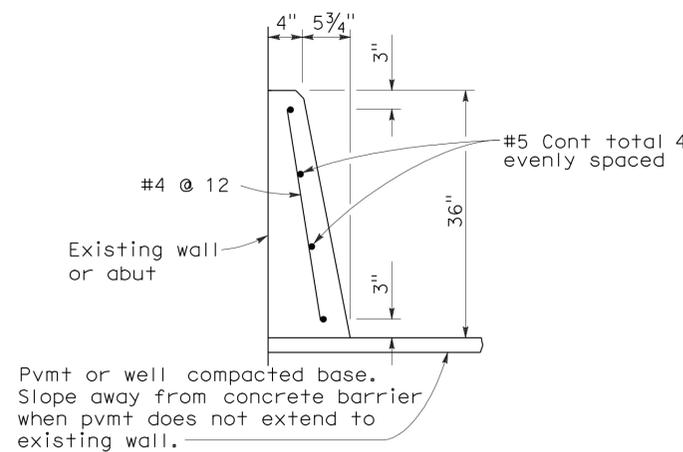
NOTES:

- See Standard Plan A76B for details of Concrete Barrier Type 60 end anchors, connection to structures and transitions to Concrete Barrier Type 50 and Concrete Barrier Type 60S.
- See Standard Plan A76C for Concrete Barrier Type 60 transitions at bridge column and sign pedestals.
- Where glare screen is required on Concrete Barrier Type 60, use Concrete Barrier Type 60G.
- Where the concrete barrier is added to the face of existing concrete structure, match existing weep holes.
- Expansion joints in concrete barrier shall be located at all deck, pavement and principal wall joints. Expansion joint filler material shall be the same size as joint or 1/2" minimum.
- Where roadway offset is greater than 1 1/2", see Concrete Barrier Type 60C.
- Barrier delineation to be used when required by the Special Provisions.
- Spacing of barrier markers to match spacing of raised pavement markers on the adjacent median edgeline pavement delineation.
- Reinforcing stirrup not required for roadway offsets less than 1'-0".
- For roadway surfaces offset greater than 1 1/2" to 3", no rebars required. For roadway surfaces offset greater than 3" to 8" use two #4 rebars at 3" above the lower roadway surface. For roadway surfaces offset greater than 8" to 12", use two #4 rebars at 3" above the lower roadway surface and two #4 rebars at 8" above the lower roadway surface. For roadway surfaces offset greater than 12" to 36", use two #4 rebars at 3" above the lower roadway surface and two #4 rebars at every 8" increment vertical spacing above the first two #4 rebars.



CONCRETE BARRIER TYPE 60C

Details similar to Type 60 except as noted. Concrete barrier end anchor when necessary. 36" roadway surfaces offset shown.



CONCRETE BARRIER TYPE 60D

CONCRETE BARRIER TYPE 60

NO SCALE

RSP A76A DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN A76A DATED MAY 1, 2006 - PAGE 29 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP A76A

2006 REVISED STANDARD PLAN RSP A76A

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	880	28.4/29.2	441	789

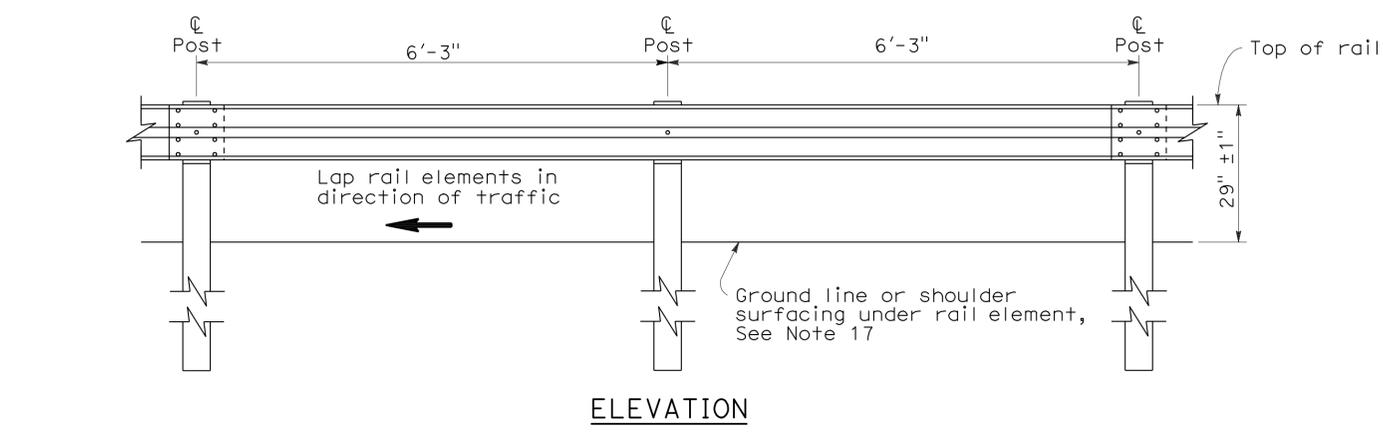
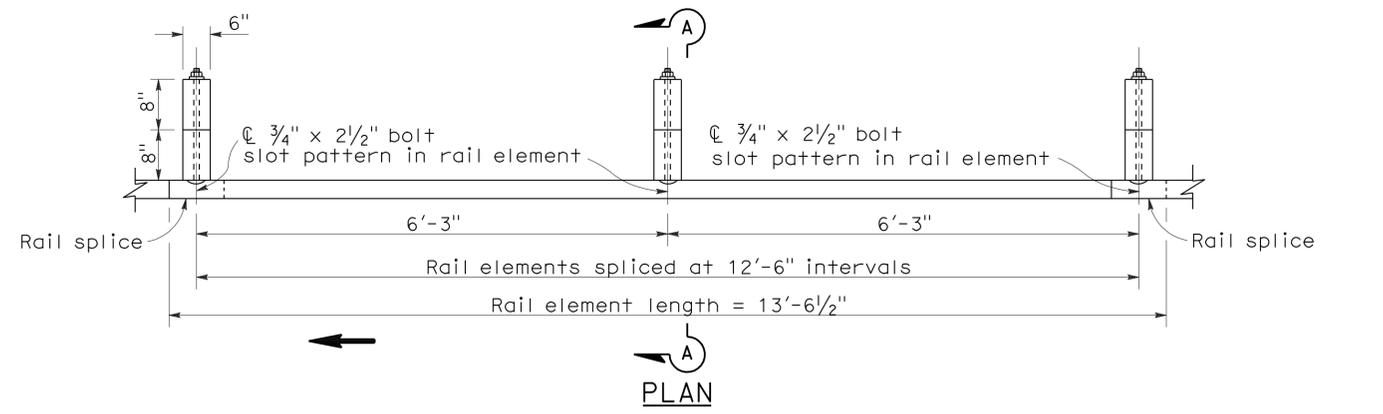
Randell D. Hiatt
REGISTERED CIVIL ENGINEER

May 20, 2011
PLANS APPROVAL DATE

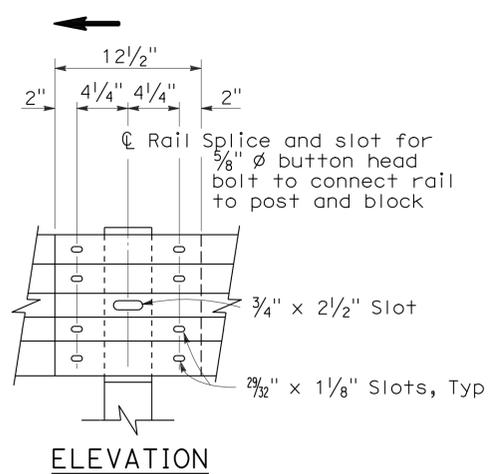
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

To accompany plans dated 4-8-13

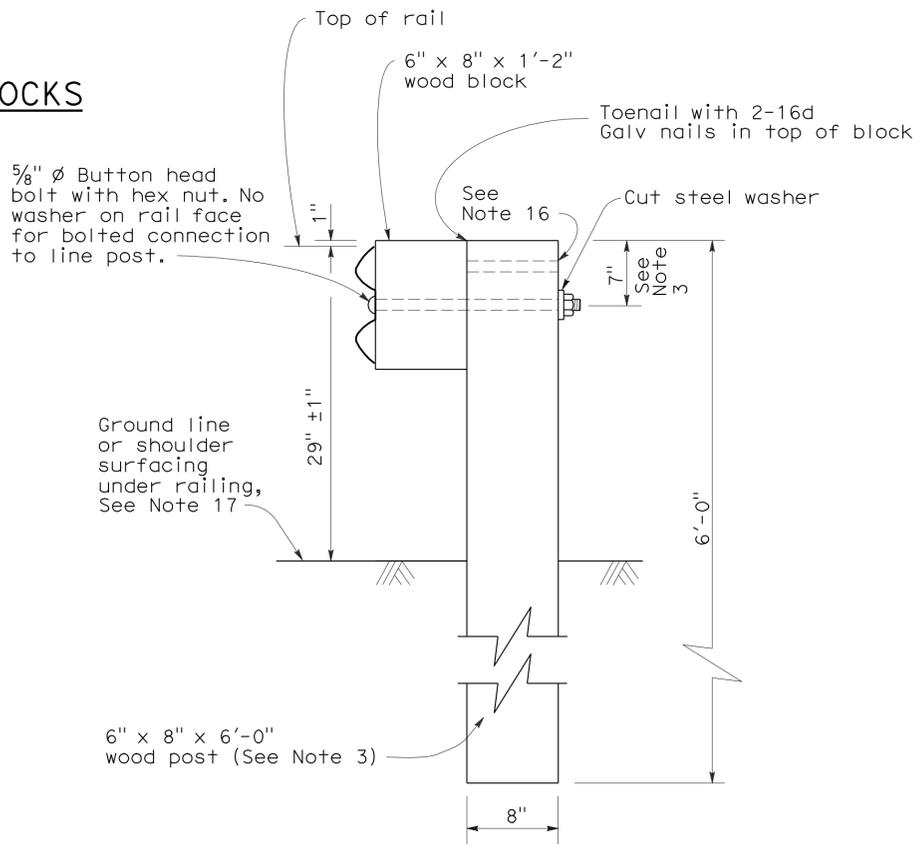
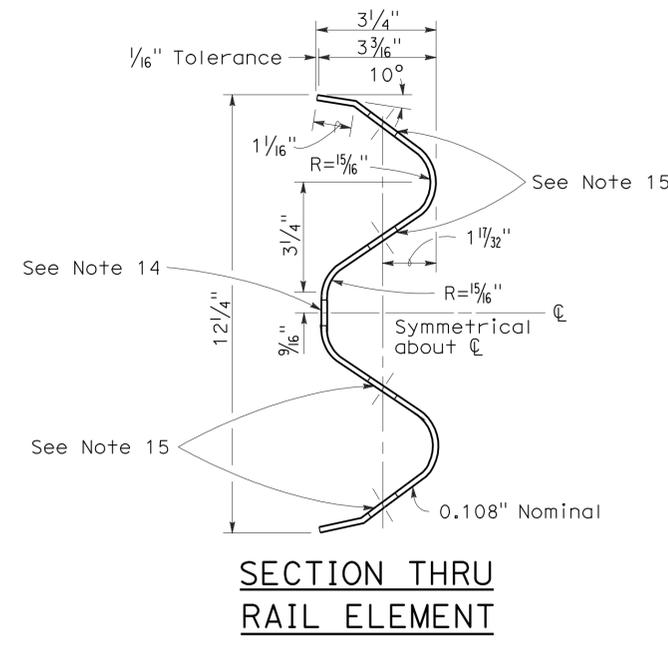
REGISTERED PROFESSIONAL ENGINEER
No. C50200
Exp. 6-30-11
CIVIL
STATE OF CALIFORNIA



METAL BEAM GUARD RAILING WITH WOOD POST AND BLOCKS



- RAIL ELEMENT SPLICE DETAIL**
- Connect the over lapped end of the rail elements with 5/8" Ø x 1 3/8" button head oval shoulder splice bolts inserted into the 2 3/32" x 1 1/8" slots and bolted together with 5/8" Ø recessed hex nuts. Recess of hex nut points toward rail element. A total of 8 bolts and nuts are to be used at each rail splice connection.
 - The ends of the rail elements are to be overlapped in the direction of traffic (see details).
 - Where end cap is to be attached to the end of a rail element, a total of 4 of the above described splice bolts and nuts are to be used.



**SECTION A-A
TYPICAL WOOD LINE
POST INSTALLATION**

See Note 4

NOTES:

- For details of steel post installations, see Standard Plan A77A2.
- For details of standard hardware used to construct guard railing, see Standard Plan A77B1.
- For details of wood posts and wood blocks used to construct guard railing, see Standard Plan A77C1.
- For additional installation details, see Standard Plan A77C3.
- Guard railing post spacing to be 6'-3" center to center, except as otherwise noted.
- For guard railing typical layouts, see the A77E, A77F and A77G Series of Standard Plans.
- For terminal system end treatment details, see the A77L Series of Standard Plans. To connect railing to terminal system end treatment, transition the top of railing height at a ratio of 120:1 to terminal system end treatment height plus one 12'-6" standard railing section at the transitioned height for a horizontal connection to the end treatment.
- For guard railing end anchor details, see Standard Plans A77H1 and A77I2.
- For details of guard railing transition to bridge railing, see Standard Plan A77J4.
- For additional details of guard railing connection to bridge railings, see Standard Plans A77J1, A77J2 and A77K1.
- For guard railing connection details to abutments and walls, see Standard Plan A77J3.
- Direction of adjacent traffic indicated by →.
- For typical guard railing delineation and dike positioning details, see Standard Plan A77C4.
- Slotted hole for bolted connection of rail element to block and post. See "Section Thru Rail Element".
- Slotted holes for splice bolts to overlap ends of rail element. See "Section Thru Rail Element".
- Additional hole in uppermost portion of line post is for potential future adjustments of railing height. See Standard Plan A77C1.
- Install posts in soil.

**METAL BEAM GUARD RAILING
STANDARD RAILING SECTION
(WOOD POST WITH
WOOD BLOCK)**

NO SCALE

RSP A77A1 DATED MAY 20, 2011 SUPERSEDES STANDARD PLAN A77A1
DATED MAY 1, 2006 - PAGE 41 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP A77A1

2006 REVISED STANDARD PLAN RSP A77A1

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	880	28.4/29.2	442	789

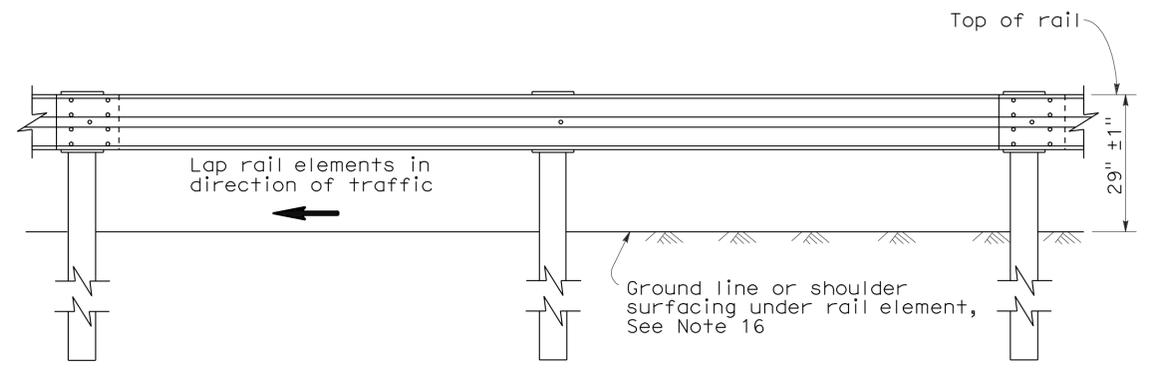
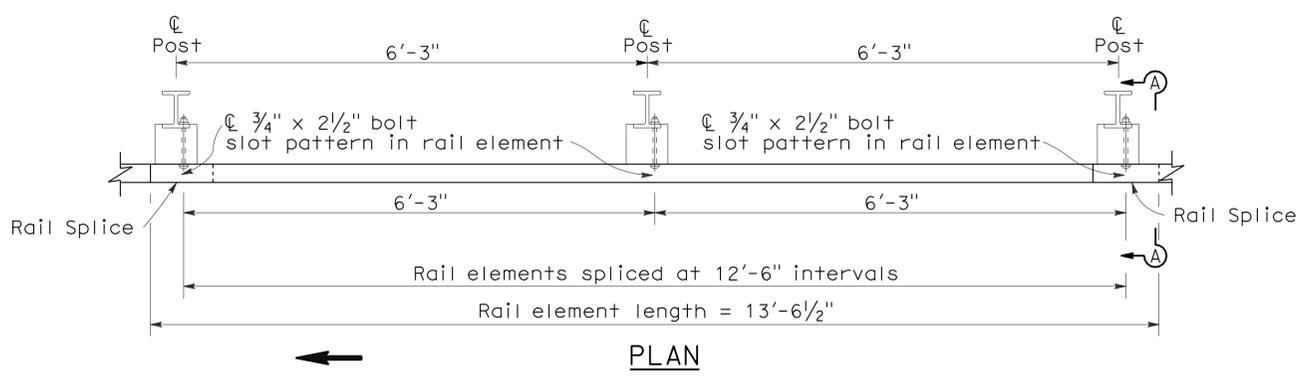
Randell D. Hiatt
REGISTERED CIVIL ENGINEER

May 20, 2011
PLANS APPROVAL DATE

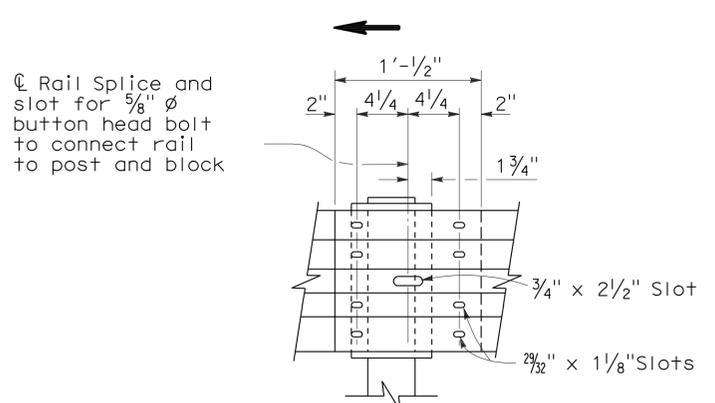
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

To accompany plans dated 4-8-13

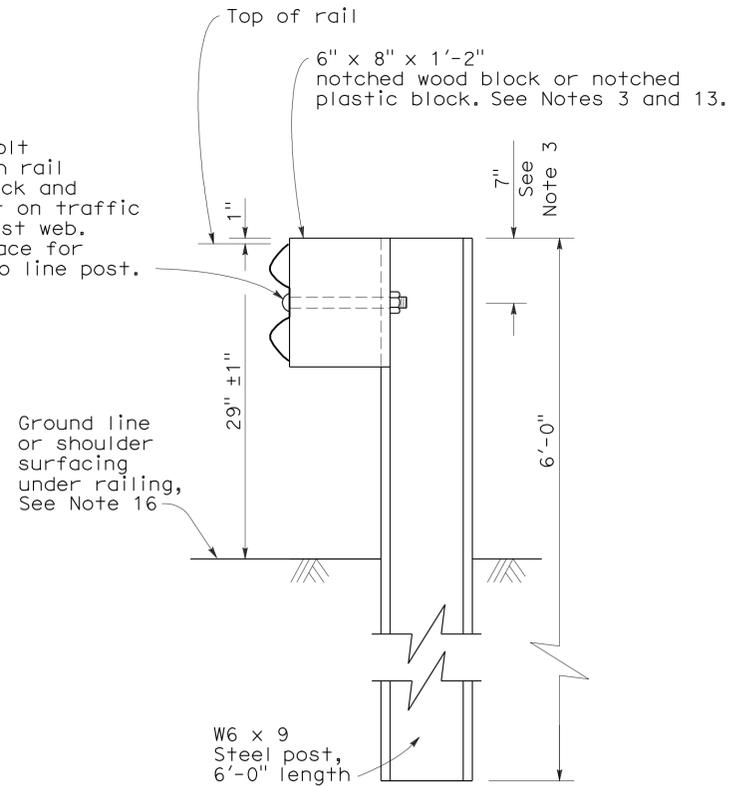
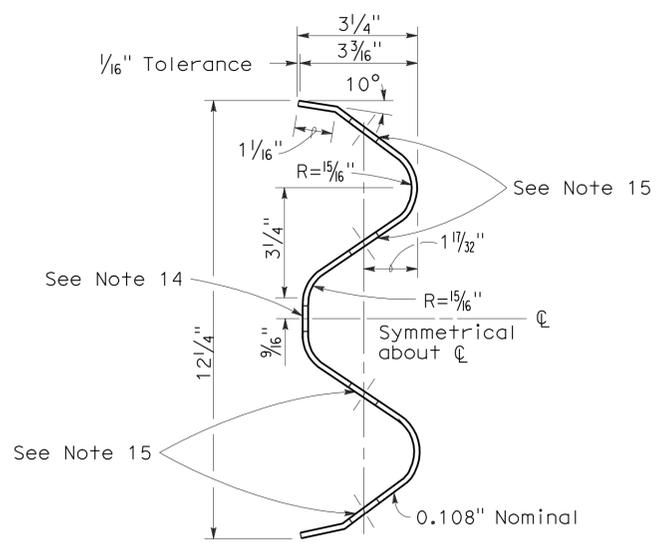
2006 REVISED STANDARD PLAN RSP A77A2



METAL BEAM GUARD RAILING WITH STEEL POSTS AND NOTCHED WOOD OR NOTCHED RECYCLED PLASTIC BLOCKS



- Connect the over lapped end of the rail elements with $\frac{5}{8}$ " ϕ x $1\frac{3}{8}$ " button head oval shoulder splice bolts inserted into the $\frac{27}{32}$ " x $1\frac{1}{8}$ " slots and bolted together with $\frac{5}{8}$ " ϕ recessed hex nuts. Recess of hex nut points toward rail element. A total of 8 bolts and nuts are to be used at each rail splice connection.
- The ends of the rail elements are to be overlapped in the direction of traffic (see details).
- Where end cap is to be attached to the end of a rail element, a total of 4 of the above described splice bolts and nuts are to be used.



- NOTES:
- For details of wood post installations, see Standard Plan A77A1.
 - For details of standard hardware used to construct guard railing, see Standard Plan A77B1.
 - For details of steel posts and notched wood blocks used to construct guard railing, see Standard Plan A77C2.
 - For additional installation details, see Standard Plan A77C3.
 - Guard railing post spacing to be 6'-3" center to center, except as otherwise noted.
 - For guard railing typical layouts, see the A77E, A77F and A77G Series of Standard Plans.
 - For terminal system end treatment details, see the A77L Series of Standard Plans. To connect railing to terminal system end treatment, transition the top of railing height at a ratio of 120:1 to terminal system end treatment height plus one 12'-6" standard railing section at the transitioned height for a horizontal connection to the end treatment.
 - For guard railing end anchor details, see Standard Plans A77H1 and A77I2.
 - For details of guard railing transition to bridge railing, see Standard Plan A77J4.
 - For additional details of guard railing connection to bridge railings, see Standard Plans A77J1, A77J2 and A77K1.
 - For dike positioning and guard railing delineation details, see Standard Plan A77C4.
 - Direction of adjacent traffic indicated by \rightarrow .
 - Notched face of block faces steel post.
 - Slotted hole for bolted connection of rail element to block and post. See "Section Thru Rail Element".
 - Slotted holes for splice bolts to overlap ends of rail element. See "Section Thru Rail Element".
 - Install posts in soil.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

**METAL BEAM GUARD RAILING
STANDARD RAILING SECTION
(STEEL POST WITH NOTCHED
WOOD OR NOTCHED
RECYCLED PLASTIC BLOCK)**

NO SCALE

RSP A77A2 DATED MAY 20, 2011 SUPERSEDES STANDARD PLAN A77A2
DATED MAY 1, 2006 - PAGE 42 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP A77A2

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	880	28.4/29.2	443	789

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

May 20, 2011
PLANS APPROVAL DATE

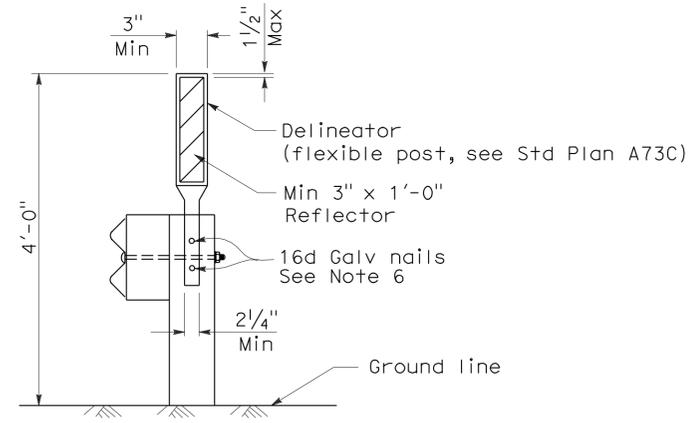
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

REGISTERED PROFESSIONAL ENGINEER
Randell D. Hiatt
No. C50200
Exp. 6-30-11
CIVIL
STATE OF CALIFORNIA

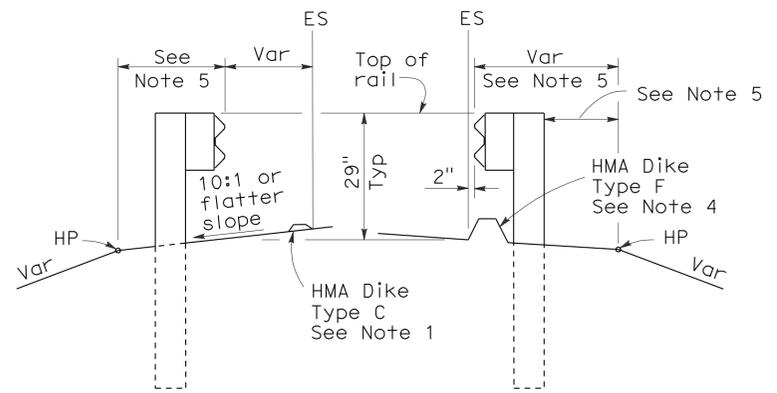
To accompany plans dated 4-8-13

NOTES:

1. When necessary to place dike in front of face of guard railing, only Type C dike may be used. For dike details, see Standard Plan A87B.
2. For standard railing post embedment, see Standard Plans A77C3.
3. Guard railing delineation to be used where shown on the Project Plans.
4. When dike or curb is placed under guard railing, the maximum height of the dike or curb shall be 4". Mountable dike should not be used. For dike and curb details, see Standard Plans A87A and A87B.
5. For details of typical distance between the face of rail and hinge point, see Standard Plan A77C3.
6. For steel line posts, use 1/4" - 20 self-tapping screws in 0.22" diameter holes or 1/4" bolts in 3/32" diameter holes.



GUARD RAILING DELINEATION
See Note 3



DIKE POSITIONING
See Note 1

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

**METAL BEAM GUARD RAILING
TYPICAL RAILING DELINEATION
AND DIKE POSITIONING DETAILS**

NO SCALE

RSP A77C4 DATED MAY 20, 2011 SUPERSEDES RSP A77C4 DATED JUNE 6, 2008 AND STANDARD PLAN A77C4 DATED MAY 1, 2006 - PAGE 47 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP A77C4

2006 REVISED STANDARD PLAN RSP A77C4

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	880	28.4/29.2	444	789

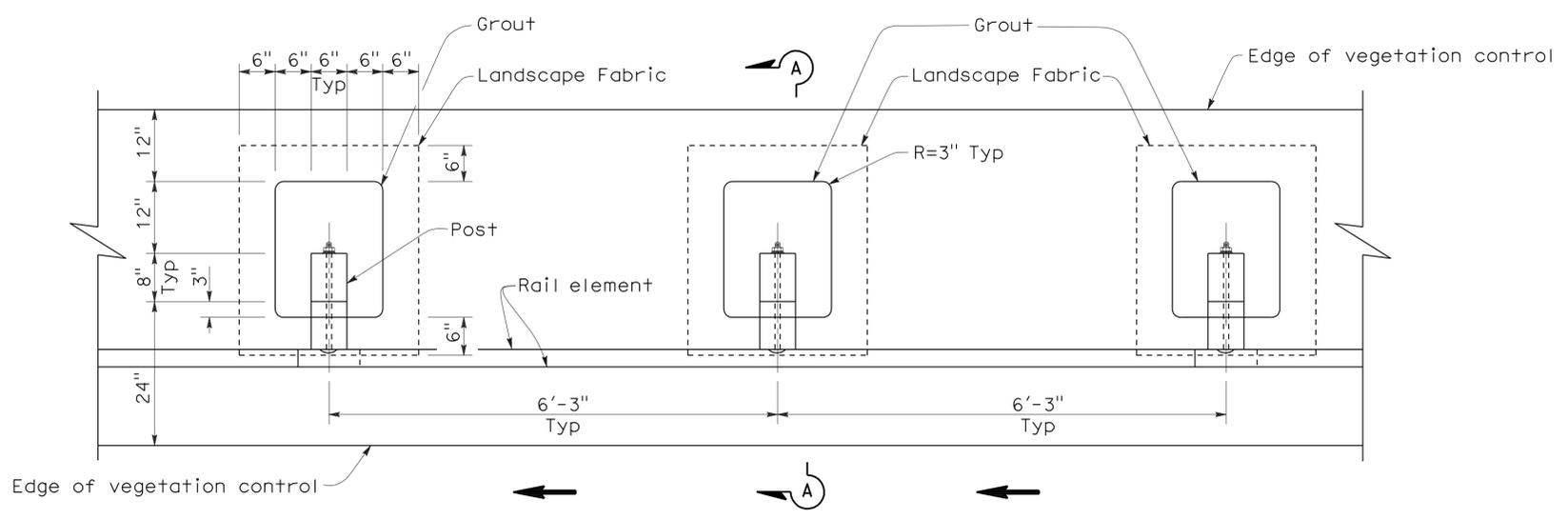
Randell D. Hiatt
REGISTERED CIVIL ENGINEER

October 20, 2006
PLANS APPROVAL DATE

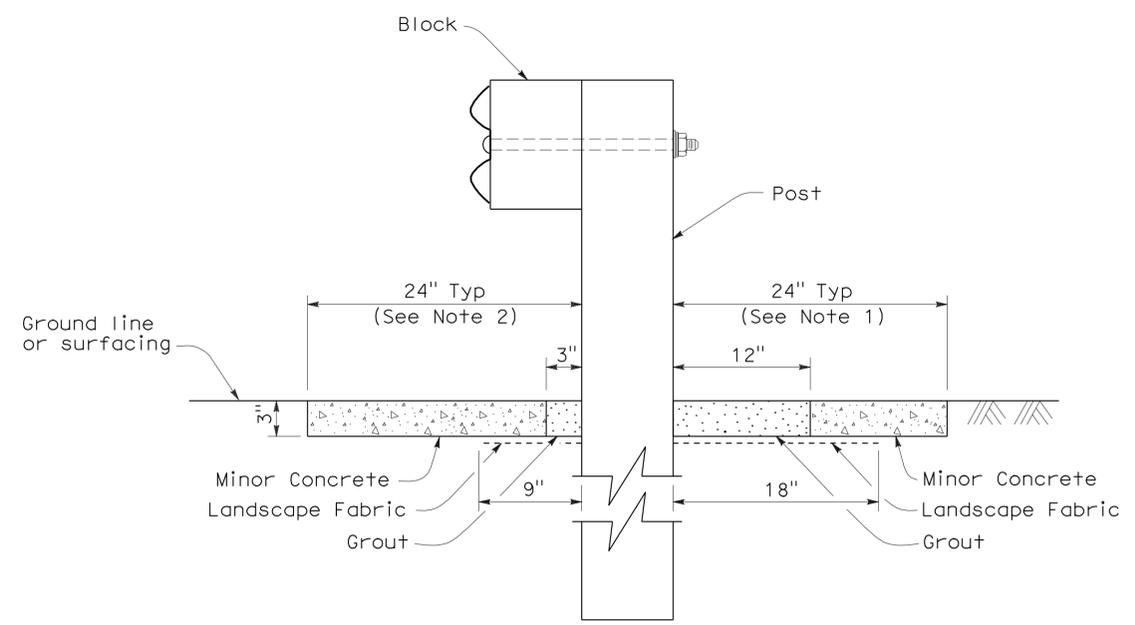
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

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

To accompany plans dated 4-8-13



PLAN



SECTION A-A

NOTES:

1. Where the distance between back of post and hinge point is less than 24", vegetation control to be constructed flush with the back edge of the post.
2. Where dike is constructed under railing, construct vegetation control to back edge of dike. Where paved shoulder is constructed within 24" in front of the post, construct vegetation control to the edge of paved shoulder.
3. Direction of adjacent traffic indicated by ←.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

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

NO SCALE

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

NEW STANDARD PLAN NSP A77C5

2006 NEW STANDARD PLAN NSP A77C5

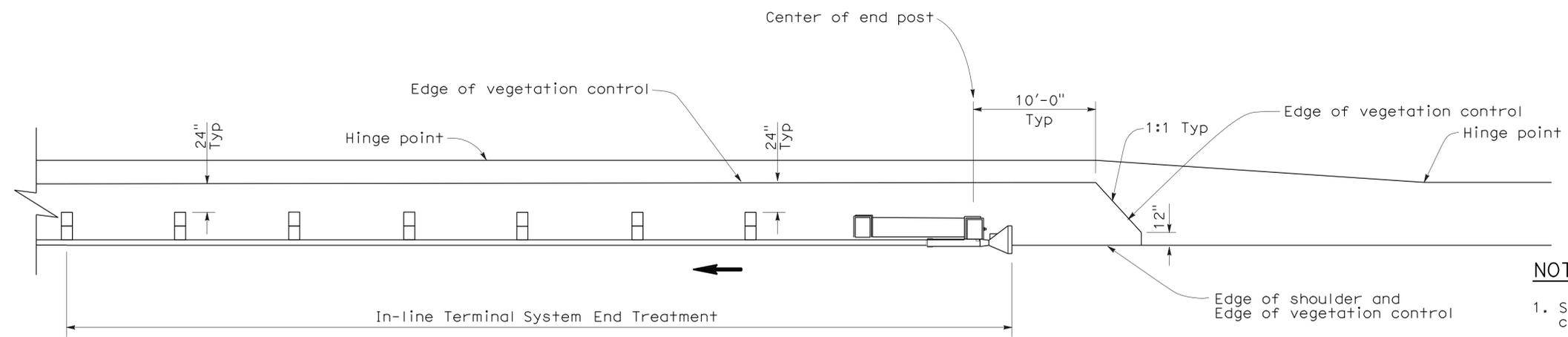
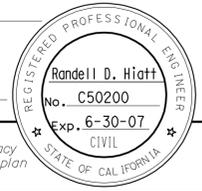
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	880	28.4/29.2	445	789

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

October 20, 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.

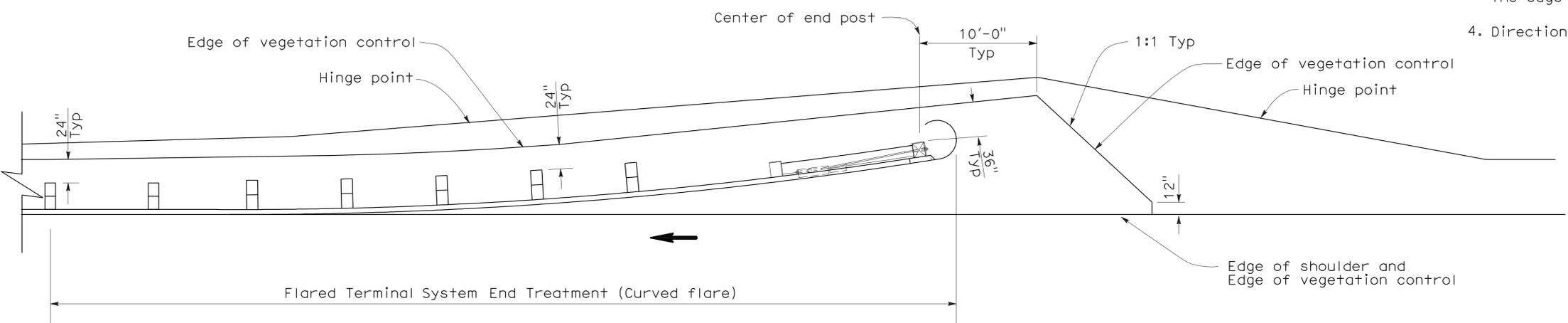
To accompany plans dated 4-8-13



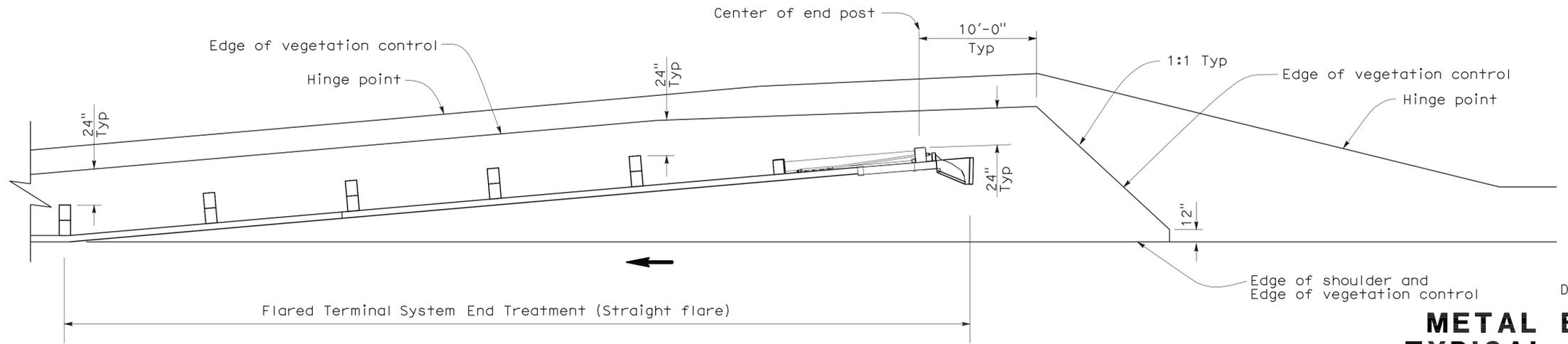
PLAN

NOTES:

1. See New Standard Plan NSP A77C5 for additional vegetation control details.
2. Where the distance between back of post and hinge point is less than 24", vegetation control to be constructed flush with the back edge of the post.
3. Where dike is constructed under railing, construct vegetation control to back edge of dike. Where paved shoulder is constructed within 24" in front of the post, construct vegetation control to the edge of paved shoulder.
4. Direction of adjacent traffic indicated by ←.



PLAN



PLAN

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

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

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

2006 NEW STANDARD PLAN NSP A77C6

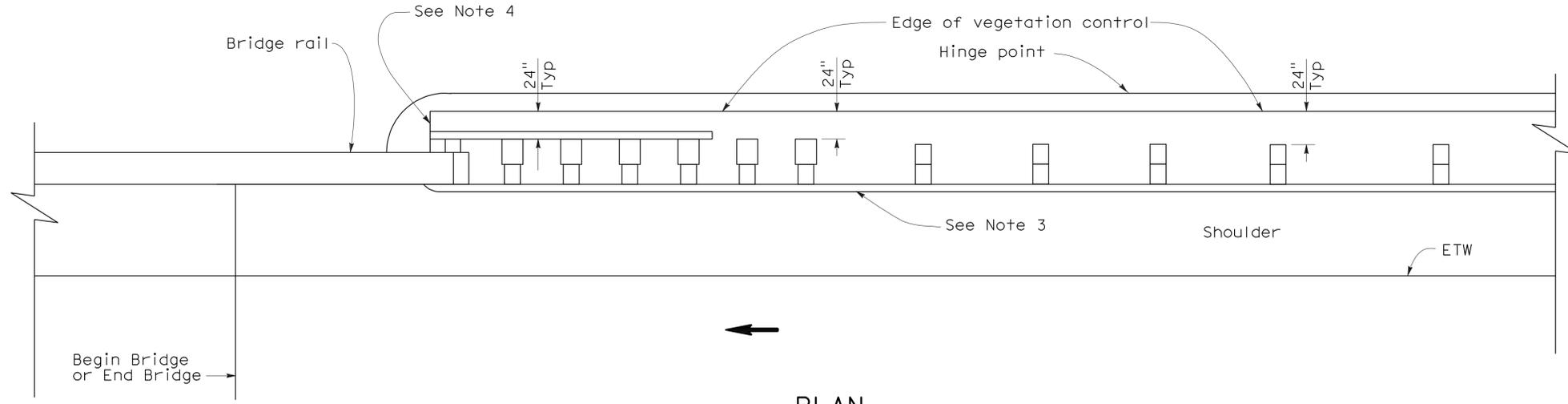
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	880	28.4/29.2	446	789

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

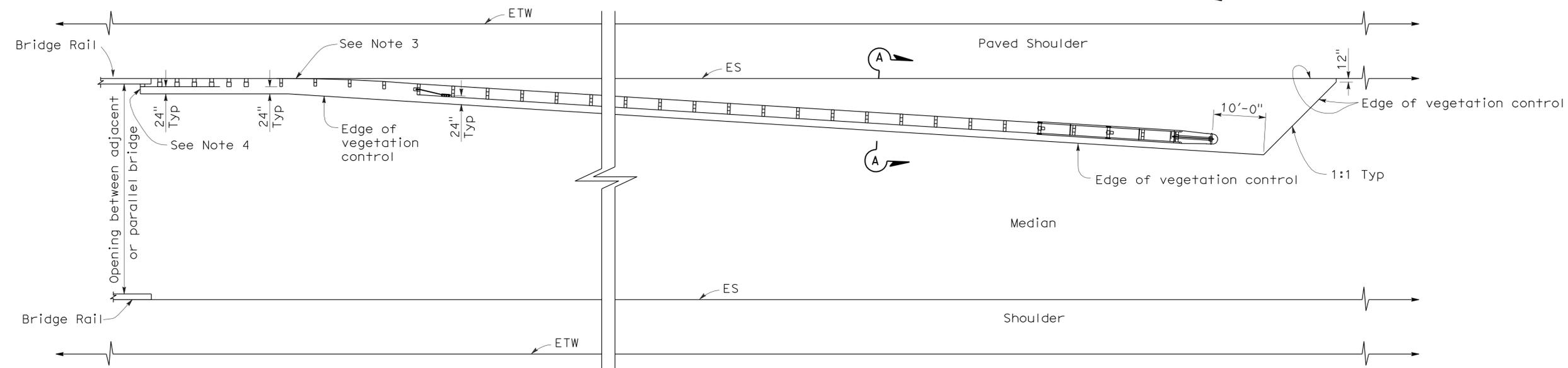
October 20, 2006
PLANS APPROVAL DATE

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.

To accompany plans dated 4-8-13



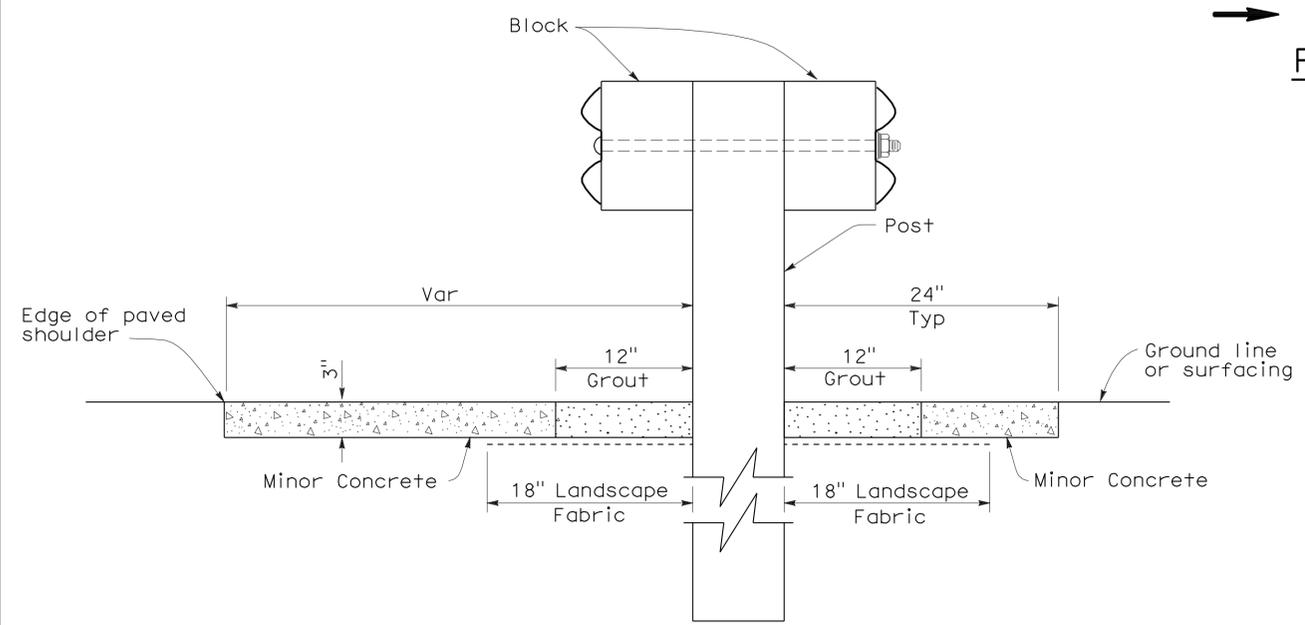
PLAN



PLAN

NOTES:

1. See New Standard Plan NSP A77C5 for additional vegetation control details.
2. Where the distance between back of post and hinge point is less than 24", vegetation control to be constructed flush with the back edge of the post.
3. Where dike is constructed under railing, construct vegetation control to back edge of dike. Where paved shoulder is constructed within 24" in front of the post, construct vegetation control to the edge of paved shoulder.
4. End vegetation control at end of backside rail element.
5. Direction of adjacent traffic indicated by ←.



SECTION A-A

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

**METAL BEAM GUARD RAILING
TYPICAL VEGETATION CONTROL
AT STRUCTURE APPROACH
AND DEPARTURE**

NO SCALE
NSP A77C7 DATED OCTOBER 20, 2006 SUPPLEMENTS THE STANDARD
PLANS BOOK DATED MAY 2006.

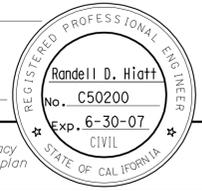
2006 NEW STANDARD PLAN NSP A77C7

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	880	28.4/29.2	447	789

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

October 20, 2006
PLANS APPROVAL DATE

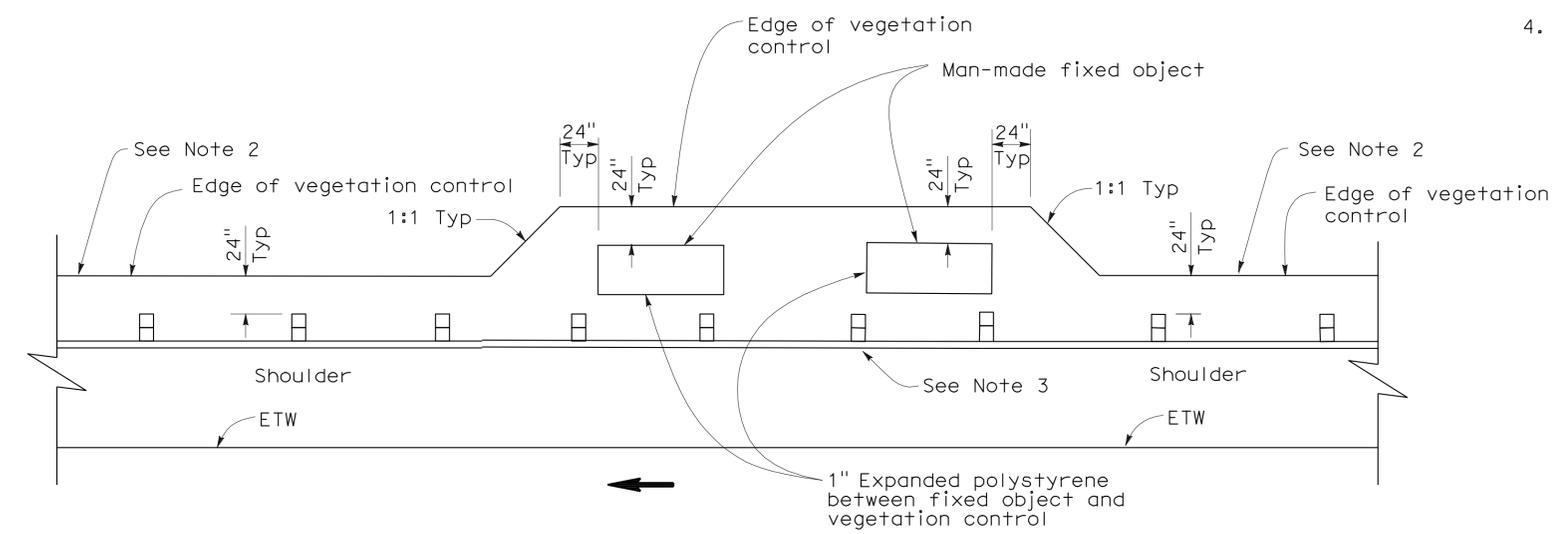
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.



To accompany plans dated 4-8-13

NOTES:

1. See New Standard Plan NSP A77C5 for additional vegetation control details.
2. Where the distance between back of post and hinge point is less than 24", vegetation control to be constructed flush with the back edge of the post.
3. Where dike is constructed under railing, construct vegetation control to back edge of dike. Where paved shoulder is constructed within 24" in front of the post, construct vegetation control to the edge of paved shoulder.
4. Direction of adjacent traffic indicated by ←.



PLAN
FIXED OBJECT(S) ON SHOULDER

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

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

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

NEW STANDARD PLAN NSP A77C8

2006 NEW STANDARD PLAN NSP A77C8

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	880	28.4/29.2	448	789

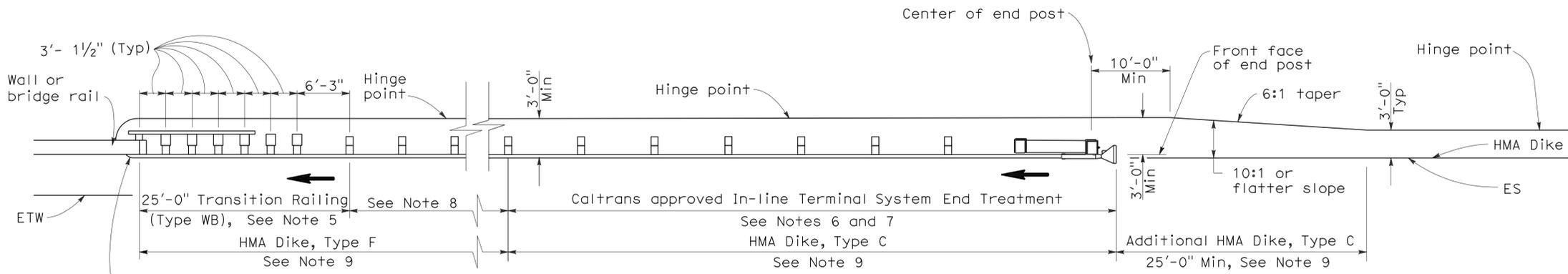
Randell D. Hiatt
REGISTERED CIVIL ENGINEER

June 6, 2008
PLANS APPROVAL DATE

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

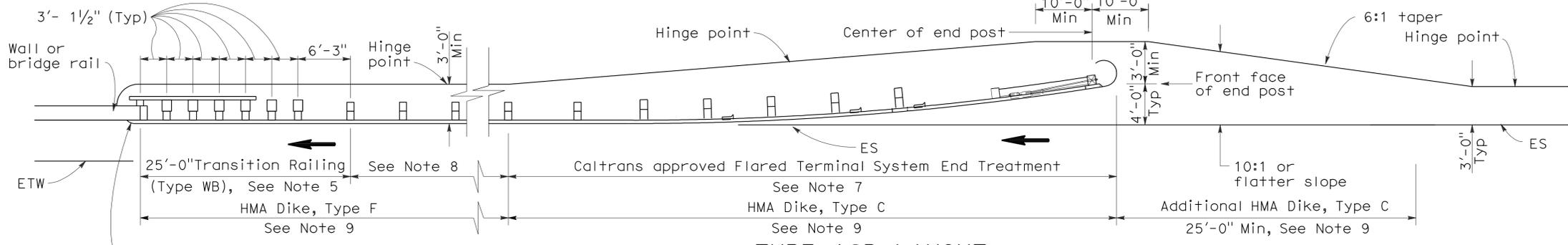
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

To accompany plans dated 4-8-13



TYPE 12A LAYOUT

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



TYPE 12B LAYOUT

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

NOTES:

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

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

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

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

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

NO SCALE

RSP A77F1 DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN A77F1
DATED MAY 1, 2006 - PAGE 54 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP A77F1

2006 REVISED STANDARD PLAN RSP A77F1

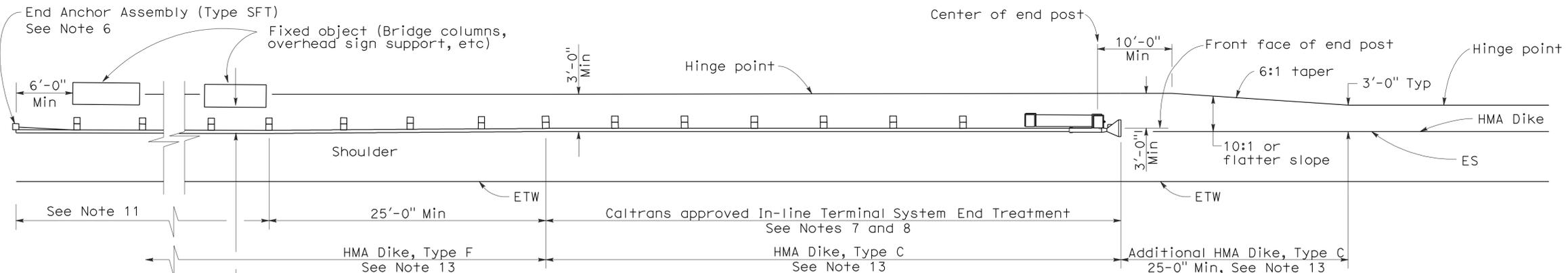
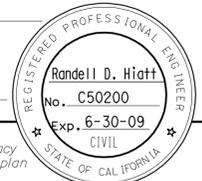
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	880	28.4/29.2	449	789

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

June 6, 2008
PLANS APPROVAL DATE

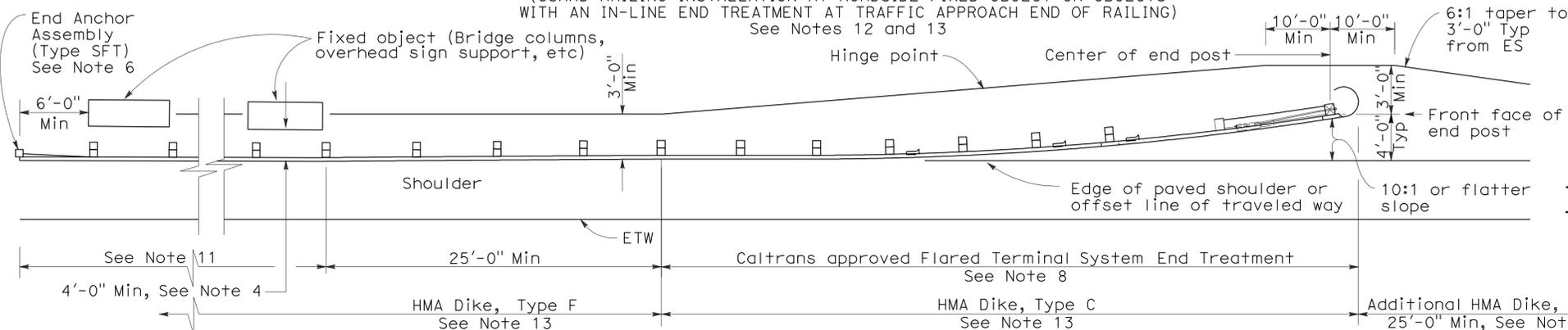
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

To accompany plans dated 4-8-13



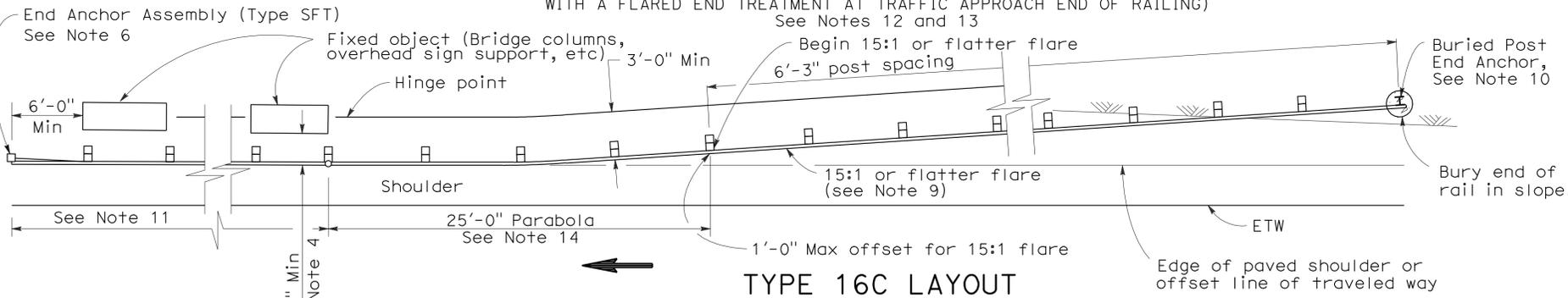
TYPE 16A LAYOUT

(GUARD RAILING INSTALLATION AT ROADSIDE FIXED OBJECT OR OBJECTS WITH AN IN-LINE END TREATMENT AT TRAFFIC APPROACH END OF RAILING)
See Notes 12 and 13



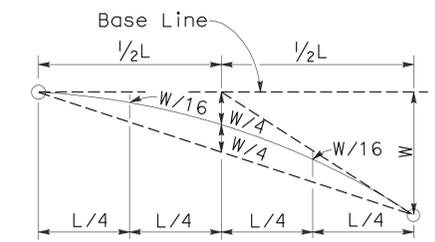
TYPE 16B LAYOUT

(GUARD RAILING INSTALLATION AT ROADSIDE FIXED OBJECT OR OBJECTS WITH A FLARED END TREATMENT AT TRAFFIC APPROACH END OF RAILING)
See Notes 12 and 13

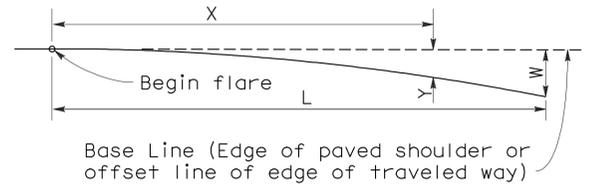


TYPE 16C LAYOUT

(GUARD RAILING INSTALLATION AT ROADSIDE FIXED OBJECT OR OBJECTS WITH A BURIED END ANCHOR TREATMENT AT TRAFFIC APPROACH END OF RAILING)
See Notes 12 and 13



TYPICAL PARABOLIC LAYOUT

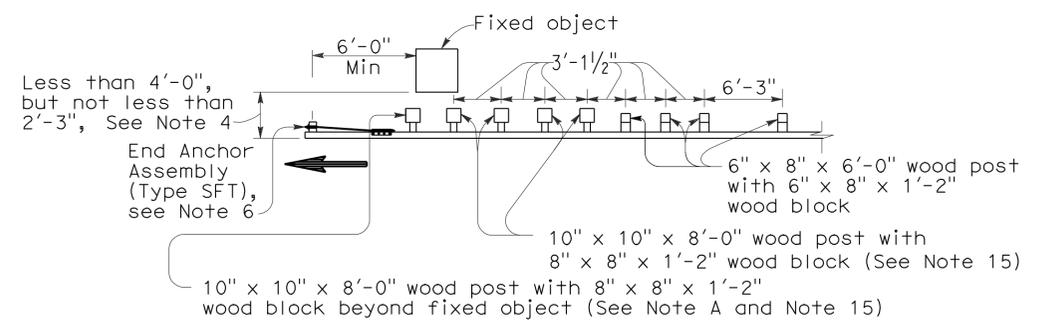


Base Line (Edge of paved shoulder or offset line of edge of traveled way)
Y = Offset from base line
W = Maximum offset
X = Distance along base line
L = Length of flare

PARABOLIC FLARE OFFSETS

NOTES:

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



NOTE A:

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

STRENGTHENED RAILING SECTIONS FOR FIXED OBJECT

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

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
METAL BEAM GUARD RAILING TYPICAL LAYOUTS FOR ROADSIDE FIXED OBJECTS

NO SCALE

RSP A77G3 DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN A77G3 DATED MAY 1, 2006 - PAGE 61 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP A77G3

2006 REVISED STANDARD PLAN RSP A77G3

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	880	28.4/29.2	450	789

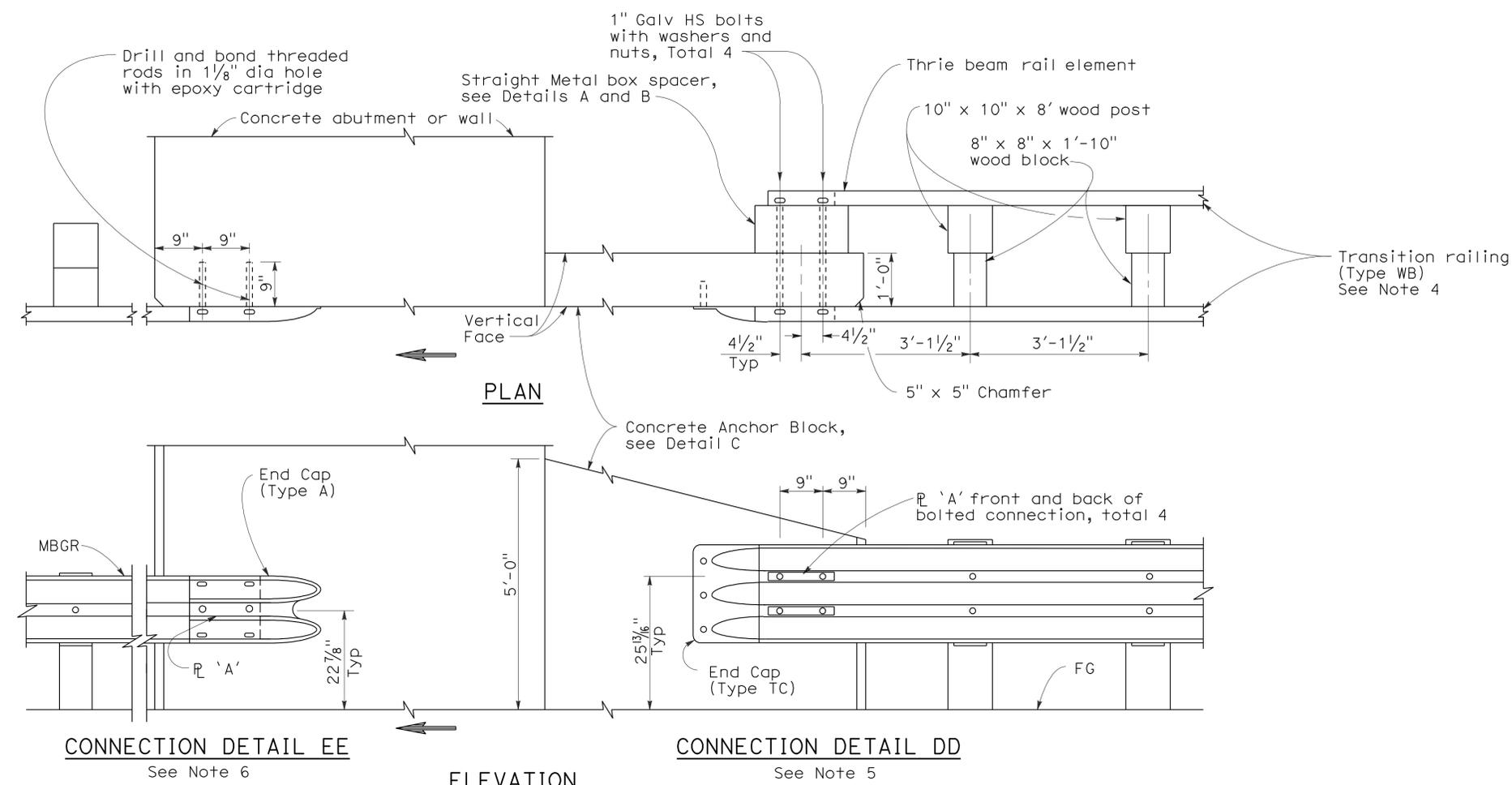
Randell D. Hiatt
REGISTERED CIVIL ENGINEER

May 20, 2011
PLANS APPROVAL DATE

Randell D. Hiatt
REGISTERED PROFESSIONAL ENGINEER
No. C50200
Exp. 6-30-11
CIVIL
STATE OF CALIFORNIA

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

To accompany plans dated 4-8-13

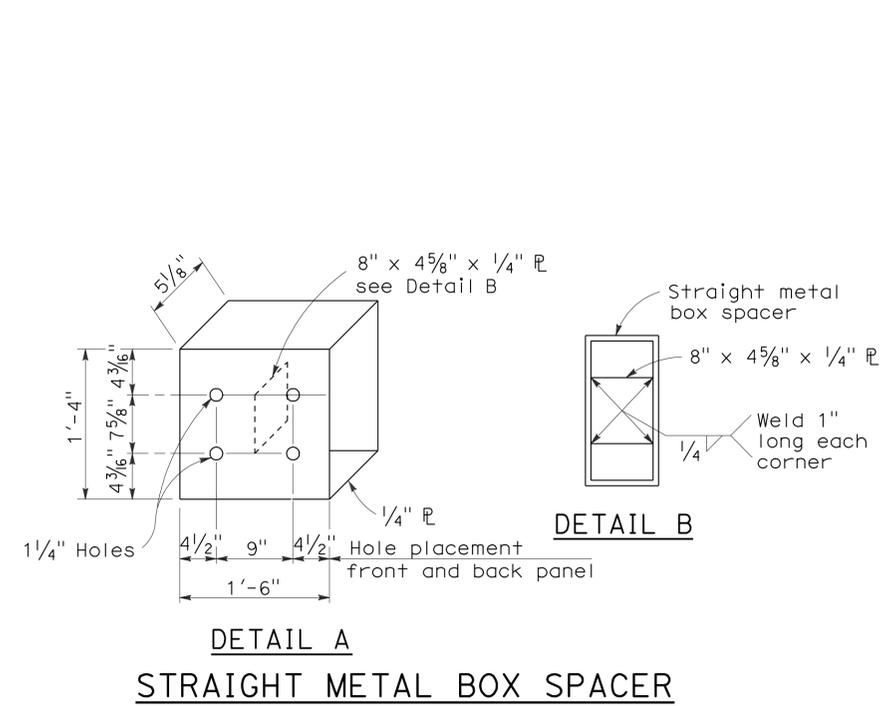


NOTES:

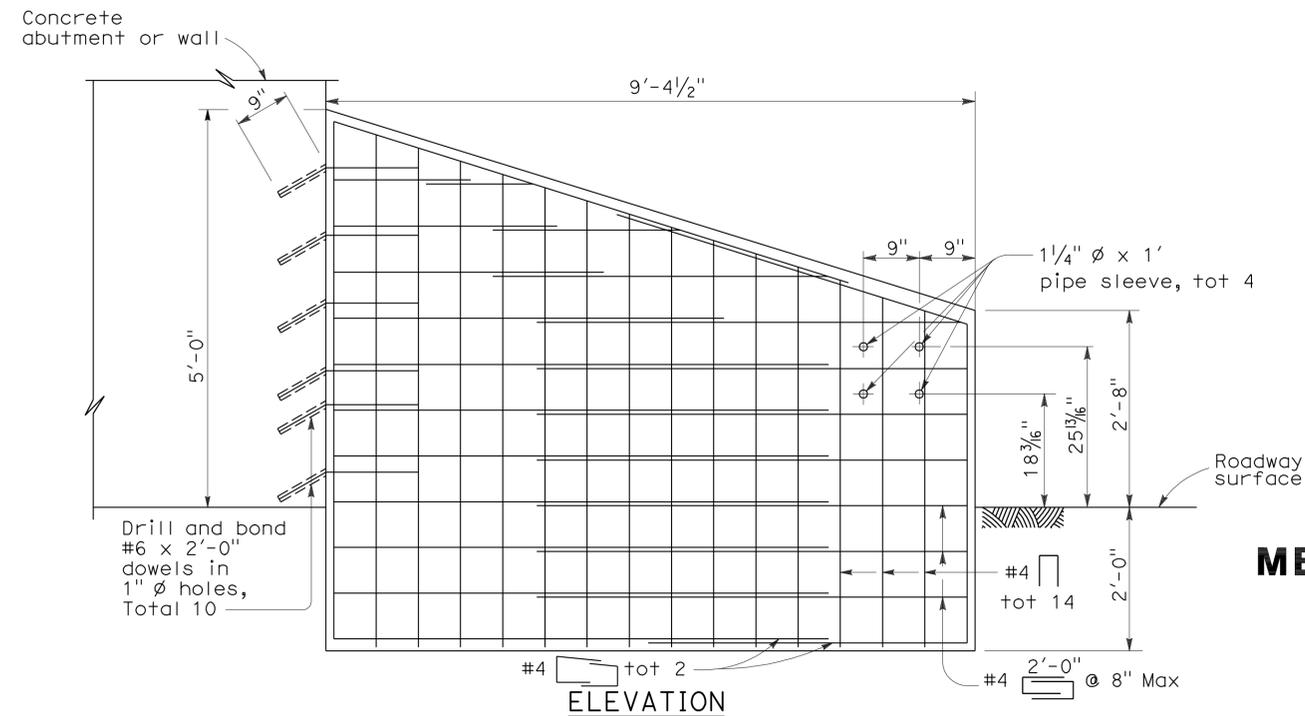
1. These connection details apply to abutments and walls.
2. Additional details of posts, blocks and hardware are shown on Standard Plans A77B1, A77C1 and A77C2.
3. Direction of adjacent traffic indicated by \rightarrow .
4. For additional details of Transition Railing (Type WB), see Standard Plan A77J4 Transition Railing (Type WB) transitions the 12 gage w-beam standard railing section of guard railing to a heavier gage nested thrie beam railing section which is connected to the concrete anchor block.
5. For typical use of Connection Details DD, See Layout Types 12A and 12B on Standard Plan A77F1 and Layout Types 12C and 12D on Standard Plan A77F2.
6. For typical use of Connection Detail EE, see Layout Type 12D on Standard Plan A77F2 and Layout Type 12DD on Standard Plan A77F5.

CONNECTION DETAIL EE See Note 6
CONNECTION DETAIL DD See Note 5

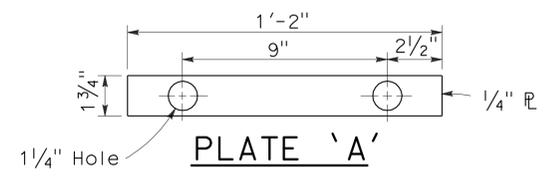
GUARD RAILING CONNECTION TO ABUTMENT OR WALL



STRAIGHT METAL BOX SPACER



ANCHOR BLOCK FOR TRANSITION RAILING CONNECTION



STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

METAL BEAM GUARD RAILING CONNECTIONS TO ABUTMENTS AND WALLS

NO SCALE

RSP A77J3 DATED MAY 20, 2011 SUPERSEDES STANDARD PLAN A77J3 DATED MAY 1, 2006 - PAGE 74 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP A77J3

2006 REVISED STANDARD PLAN RSP A77J3

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	880	28.4/29.2	451	789

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

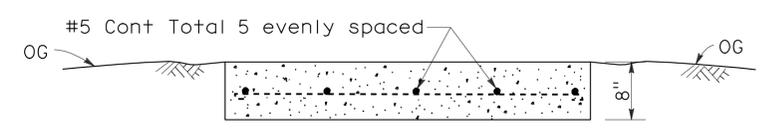
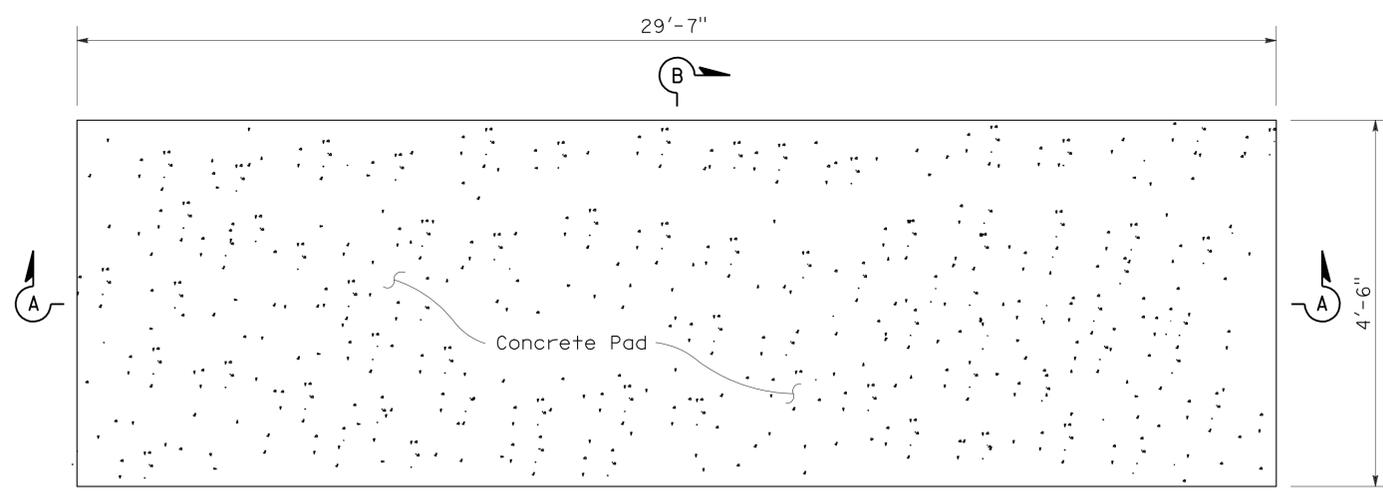
June 6, 2008
PLANS APPROVAL DATE

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.

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

To accompany plans dated 4-8-13

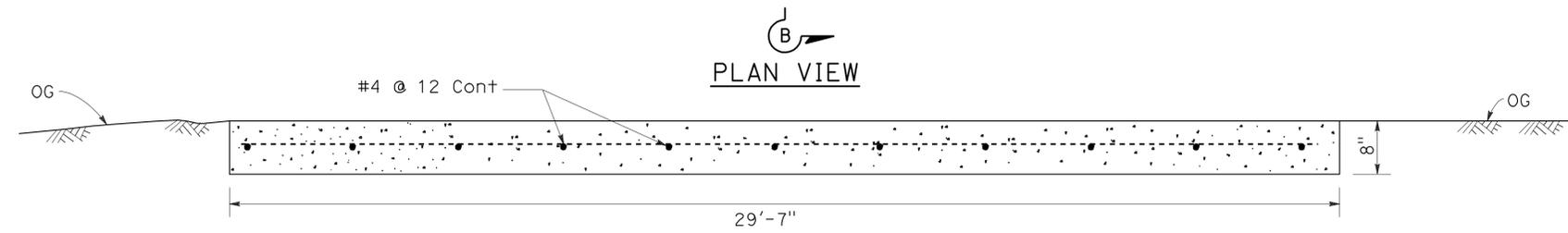
2006 REVISED STANDARD PLAN RSP A82C1



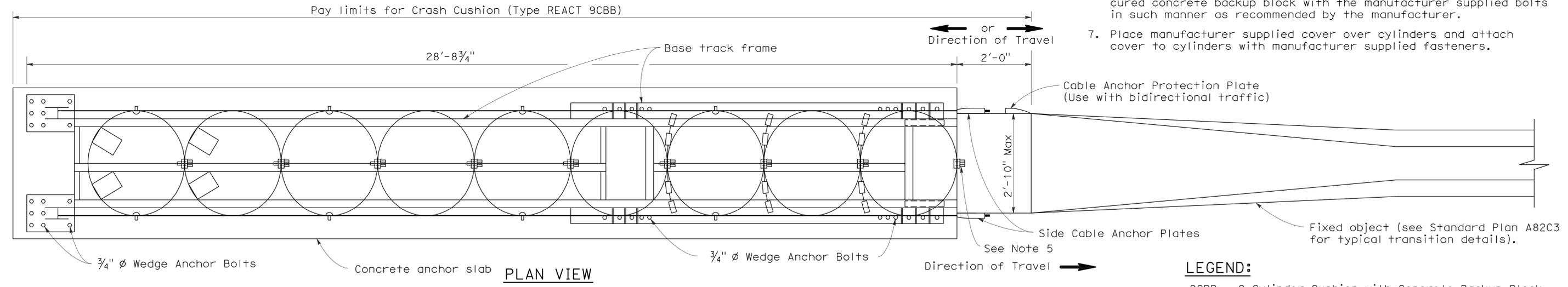
SECTION B-B

NOTES:

1. For additional details of this crash cushion, refer to manufacturer's installation instructions.
2. For details of the REACT Crash Cushion with self contained backup support (no concrete backup block), see Standard Plan A82D1.
3. The base track frame with cylinders attached comes from the manufacturer as a completely pre-assembled unit.
4. Place the crash cushion unit on the cured concrete anchor slab and use the base track frame of the crash cushion as a template for drilling anchor bolt holes. Drill holes in slab and attach crash cushion with wedge anchor bolts supplied by the manufacturer.
5. Attach last cylinder to concrete backup block with manufacturer supplied fastener in such manner as recommended by the manufacturer.
6. Attach the manufacturer supplied side cable anchor plates to the cured concrete backup block with the manufacturer supplied bolts in such manner as recommended by the manufacturer.
7. Place manufacturer supplied cover over cylinders and attach cover to cylinders with manufacturer supplied fasteners.

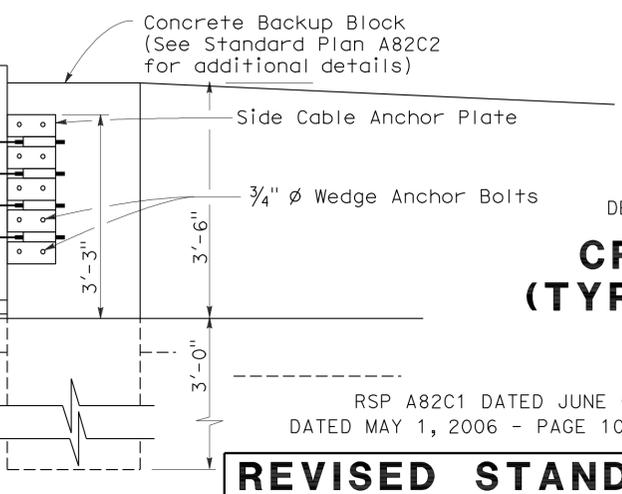
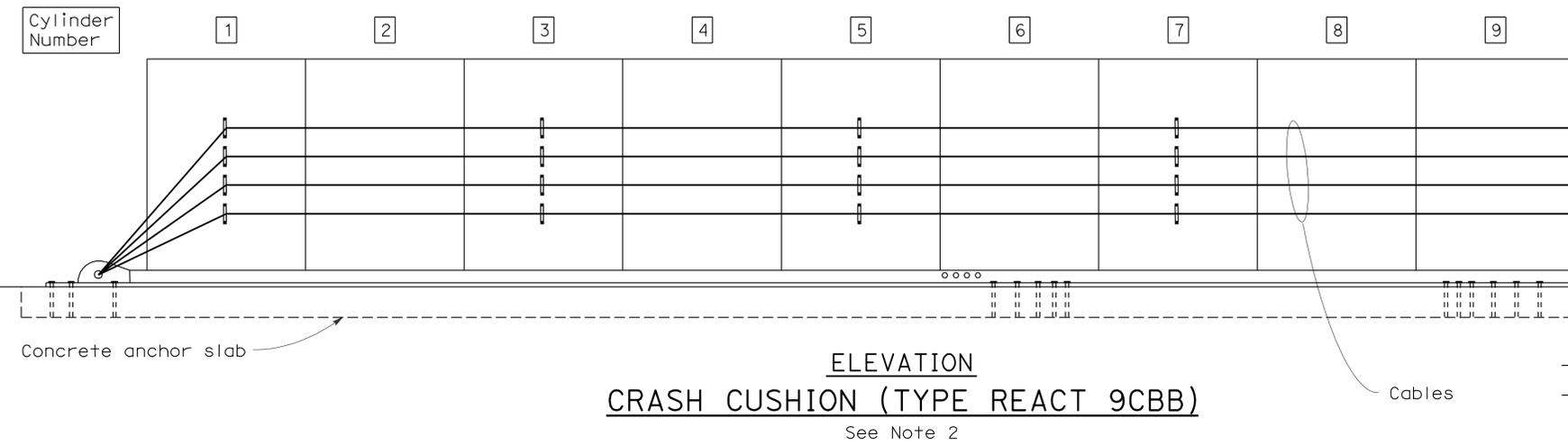


SECTION A-A
CONCRETE ANCHOR SLAB



LEGEND:

9CBB = 9 Cylinder Cushion with Concrete Backup Block



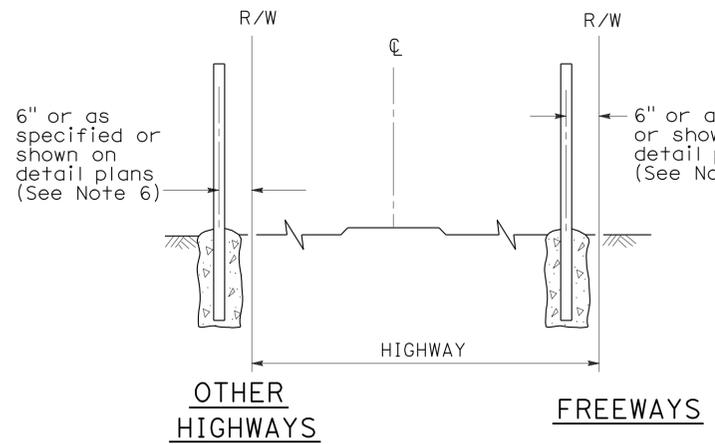
STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

**CRASH CUSHION
(TYPE REACT 9CBB)**

NO SCALE

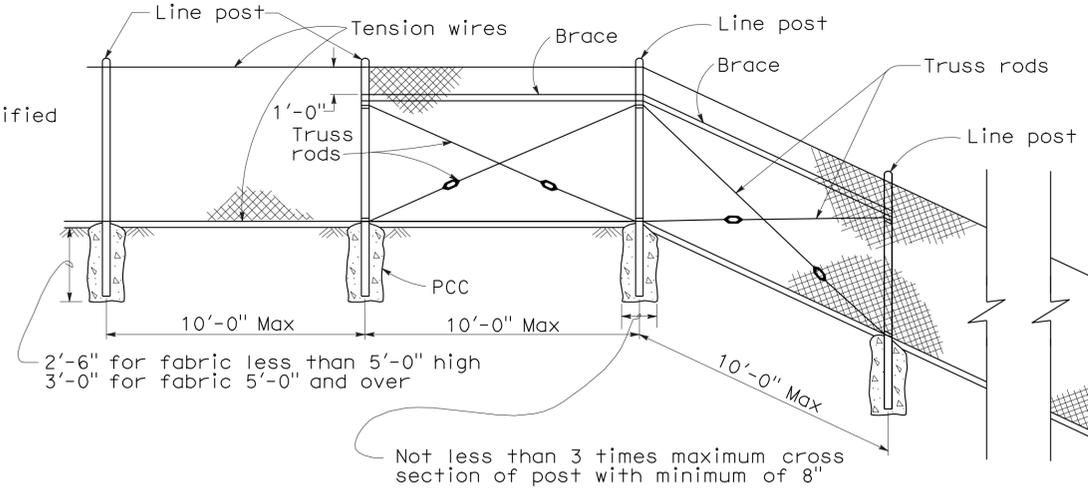
RSP A82C1 DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN A82C1 DATED MAY 1, 2006 - PAGE 104 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP A82C1

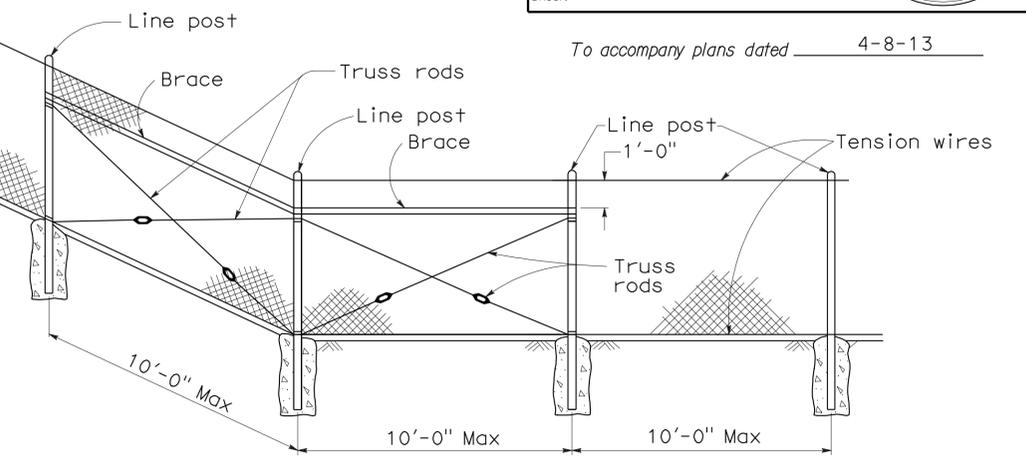


FENCE LOCATION

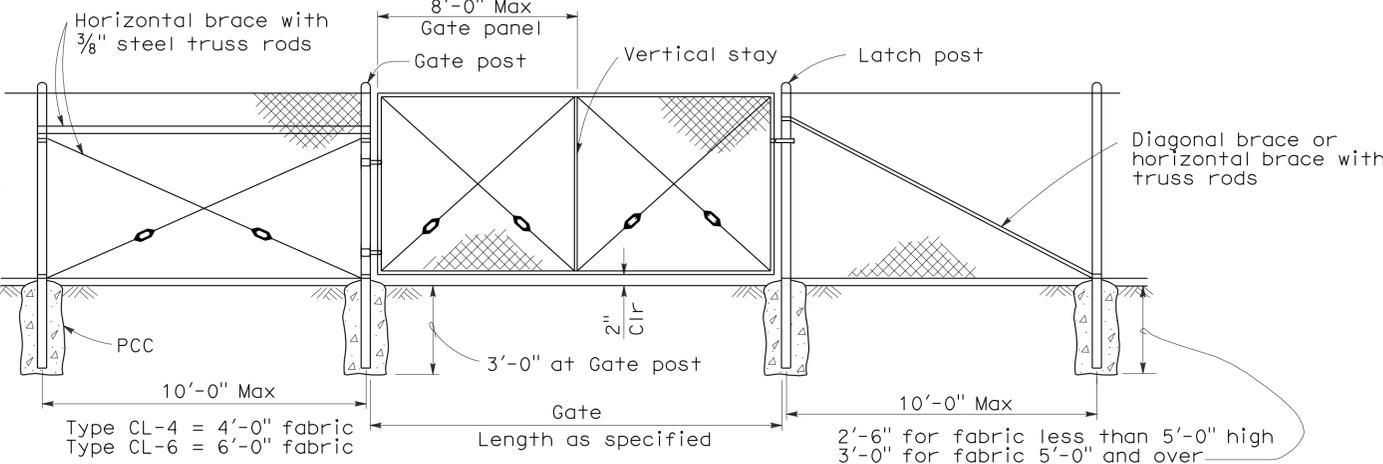
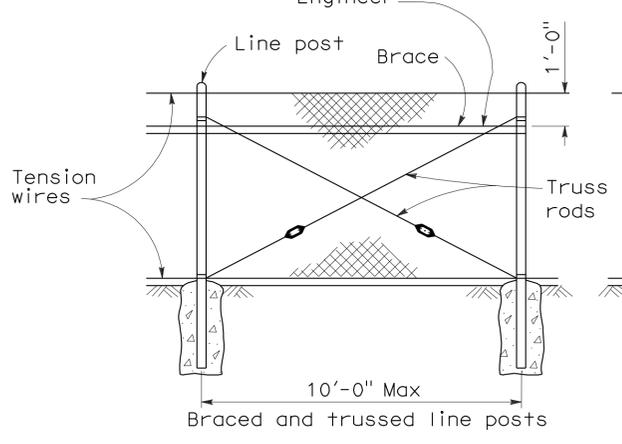
Brace to be removed after all other fence construction is completed unless otherwise directed by the Engineer



CHAIN LINK FENCE ON SHARP BREAK IN GRADE



To accompany plans dated 4-8-13



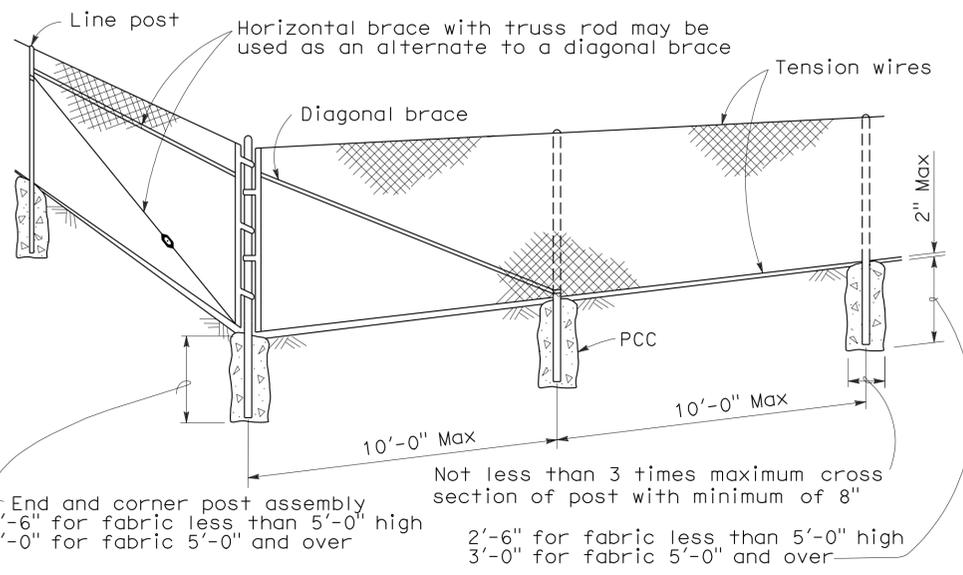
CHAIN LINK GATE INSTALLATION

NOTES:

- The below table shows examples of post and brace sections which may comply with the Specifications.
- Sections shown in the tables must also comply with the strength requirements and other provisions of the Specifications.
- Other sections which comply with the strength requirements and other provisions of the Specifications may be used on approval of the Engineer.
- Options exercised shall be uniform on any one project.
- Dimensions shown are nominal.
- Offset to be 2'-0" at monument locations, measured at right angles to R/W lines. Taper to achieve offset to be at least 20'-0" long.

GATE POST			
FENCE HEIGHT	GATE WIDTHS	NOMINAL ID	WEIGHT PER FOOT
6'-0" and Less	Up thru 6'-0"	2 1/2"	4.95 LB
	Over 6'-0" thru 12'-0"	4"	10.79 LB
	Over 12'-0" thru 18'-0"	5"	14.62 LB
	Over 18'-0" to 24'-0" Max	6"	18.97 LB
Over 6'-0"	Up thru 6'-0"	3"	7.58 LB
	Over 6'-0" thru 12'-0"	5"	14.62 LB
	Over 12'-0" thru 18'-0"	6"	18.97 LB
	Over 18'-0" to 24'-0" Max	8"	28.55 LB

Above post dimensions and weights are minimums. Larger sizes may be used on approval of the Engineer.



CORNER POST

FENCE HEIGHT	TYPICAL MEMBER DIMENSIONS (See Notes)									
	LINE POSTS			END, LATCH & CORNER POSTS			BRACES			
	ROUND ID	H	ROLL FORMED	ROUND ID	ROLL FORMED		ROUND ID	H	ROLL FORMED	
6' & less	1 1/2"	1 7/8" x 1 5/8"	1 7/8" x 1 5/8"	2"	3 1/2" x 3 1/2"	2" x 1 3/4"	1 1/4"	1 1/2" x 1 5/16"	1 5/8" x 1 1/4"	1 3/4" x 1 1/4"
Over 6'	2"	2 1/4" x 2"	2" x 1 3/4"	2 1/2"	3 1/2" x 3 1/2"	2 1/2" x 2 1/2"	1 1/4"	1 1/2" x 1 5/16"	1 5/8" x 1 1/4"	1 3/4" x 1 1/4"

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

CHAIN LINK FENCE

NO SCALE

RSP A85 DATED JUNE 5, 2009 SUPERSEDES STANDARD PLAN A85
DATED MAY 1, 2006 - PAGE 111 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP A85

2006 REVISED STANDARD PLAN RSP A85

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	880	28.4/29.2	453	789

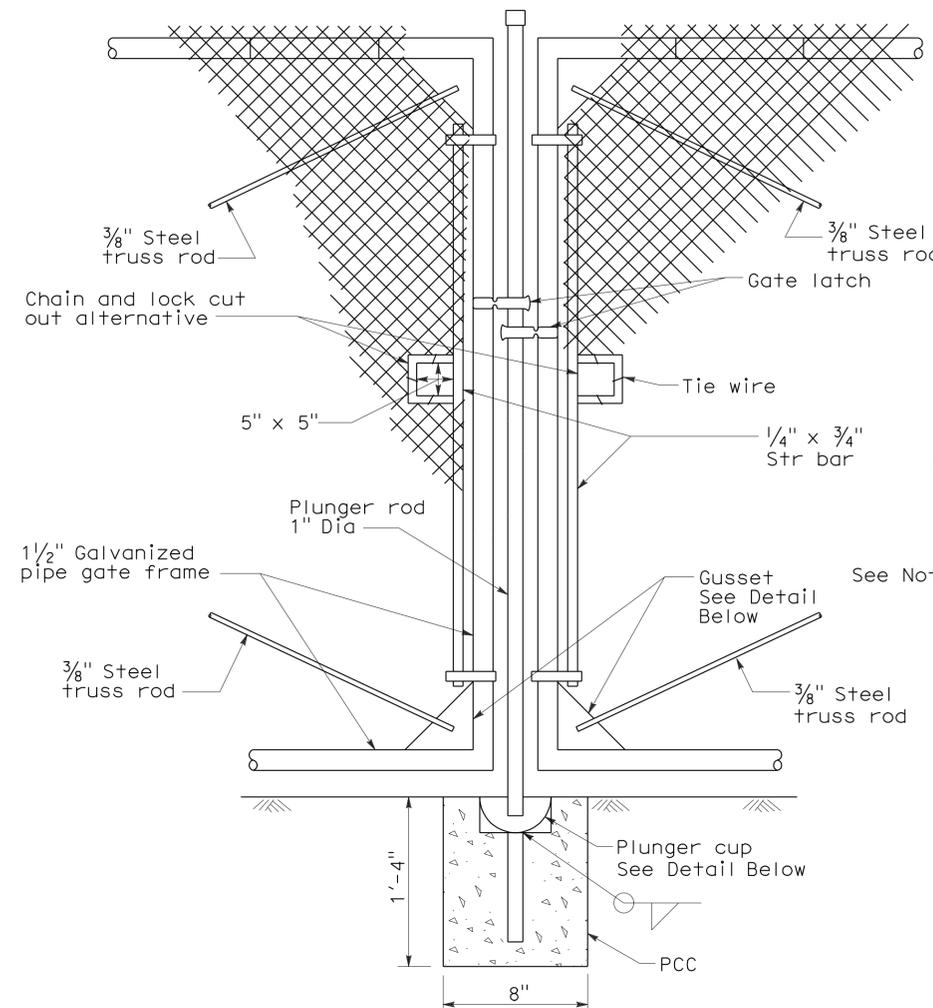
Glenn DeCou
 REGISTERED CIVIL ENGINEER
 No. C34547
 Exp. 9-30-09
 CIVIL
 STATE OF CALIFORNIA

June 5, 2009
 PLANS APPROVAL DATE

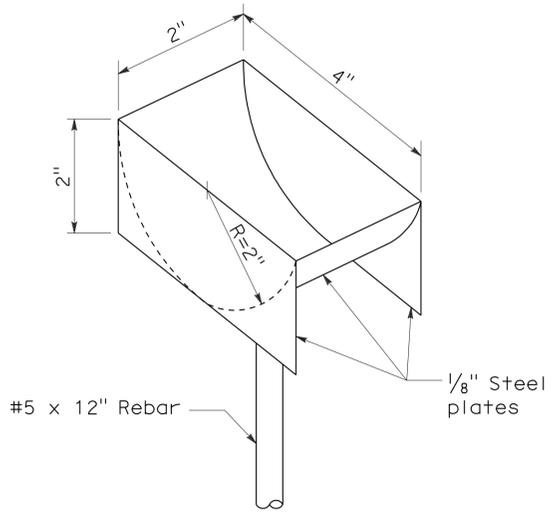
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

To accompany plans dated 4-8-13

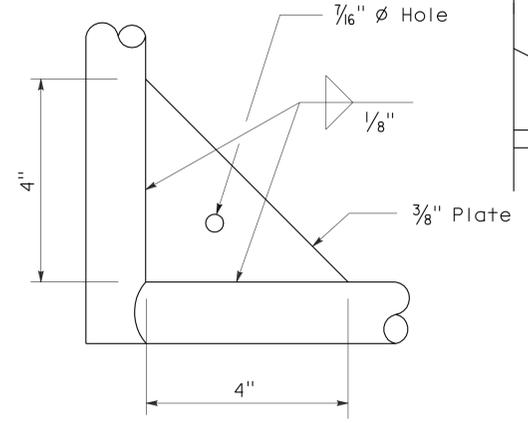
- NOTES:**
- H is 2'-6" for fabric less than 5'-0" high.
H is 3'-0" for fabric 5'-0" and over.
 - T is not less than 3 times maximum cross section of post with minimum of 8".
 - Arms with barbed wire to be used where shown on plans.
 - See Revised Standard Plan RSP A85 for Chain Link Fencing dimensions.
 - Reinforcing must comply with ASTM A 706.
 - See Detail A on New Standard Plan NSP A86B for connection at headwall.



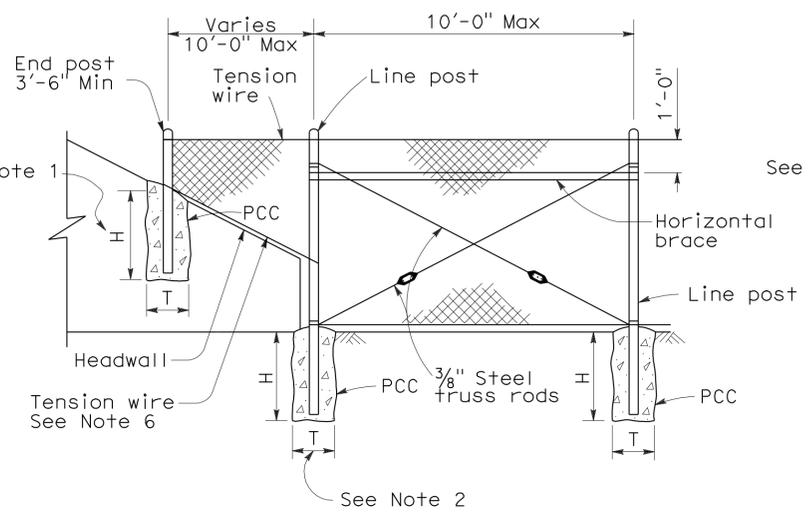
**TYPICAL DOUBLE GATE
REMOVABLE CENTER POST**



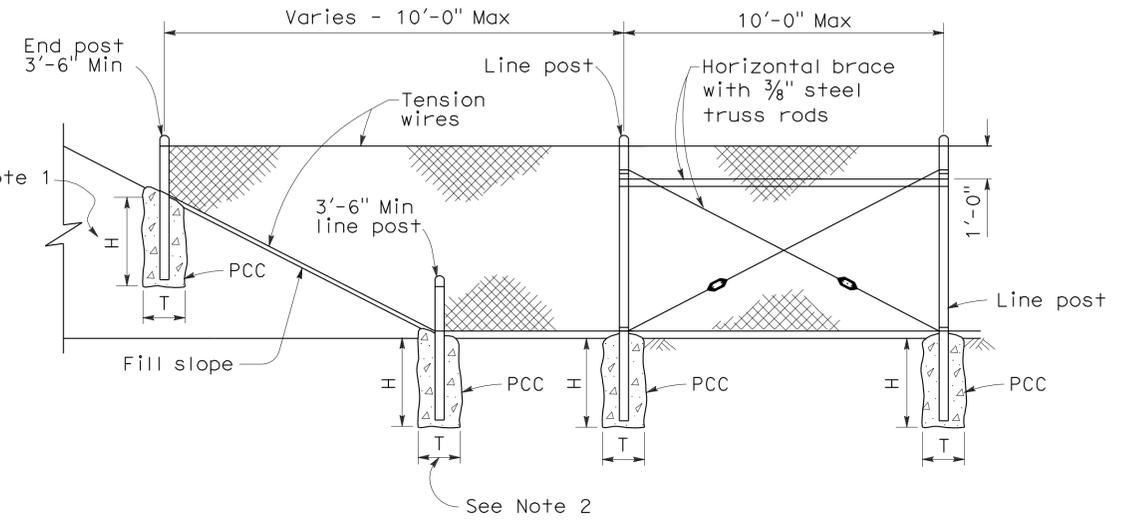
PLUNGER CUP DETAIL



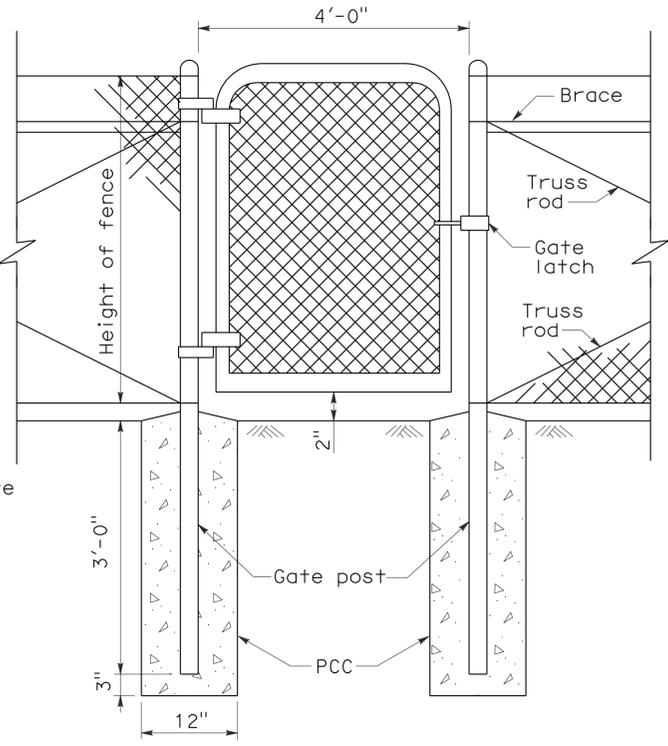
GUSSET DETAIL



METHOD OF TYING FENCE TO HEADWALL



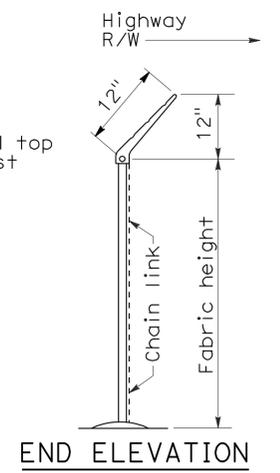
METHOD OF ERECTING FENCE FOR FILL SLOPE



WALK GATE



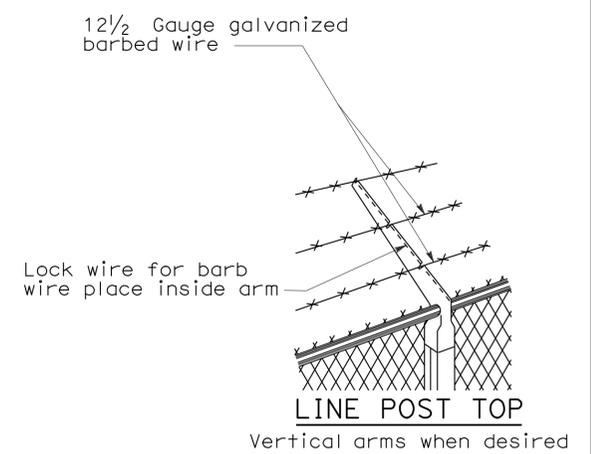
POST TOP END



END ELEVATION

BARBED WIRE POST TOP

See Note 3



LINE POST TOP

Vertical arms when desired

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

NSP A85A DATED JUNE 5, 2009 SUPPLEMENTS THE STANDARD PLANS BOOK DATED MAY 2006.

NEW STANDARD PLAN NSP A85A

2006 NEW STANDARD PLAN NSP A85A

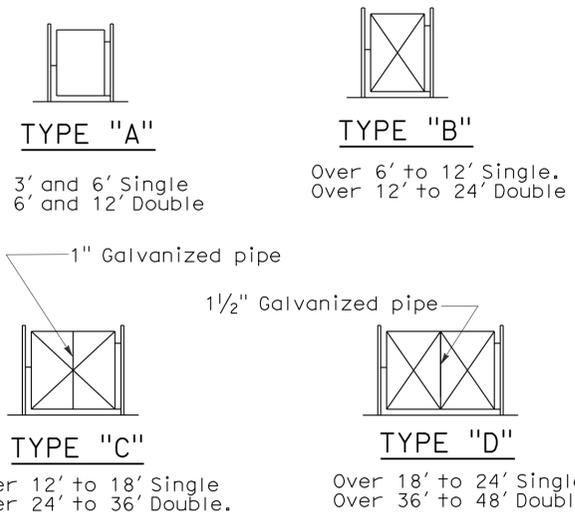
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	880	28.4/29.2	454	789

Glenn DeCou
 REGISTERED CIVIL ENGINEER
 No. C34547
 Exp. 9-30-09
 STATE OF CALIFORNIA

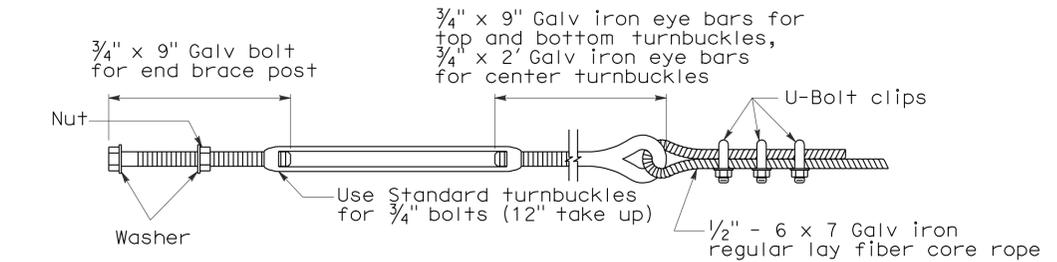
June 5, 2009
 PLANS APPROVAL DATE

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.

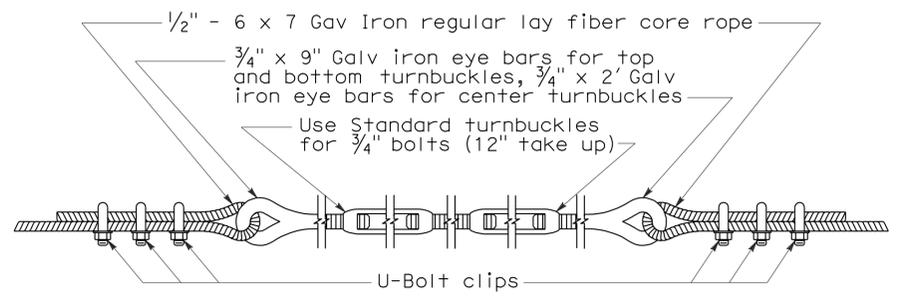
To accompany plans dated 4-8-13



TYPICAL FRAMEWORK SHOWING NUMBER OF BAYS IN GATE



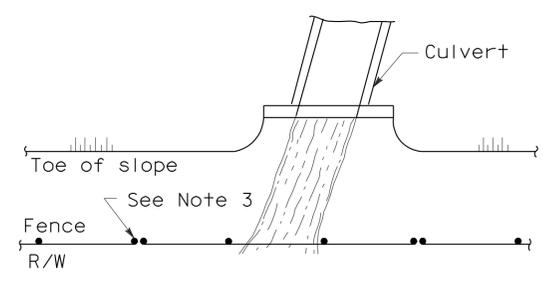
TURNBUCKLE A



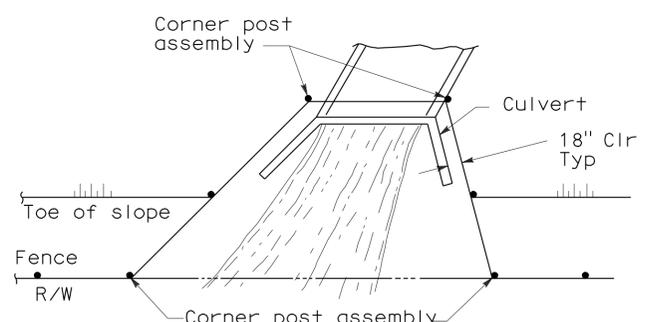
TURNBUCKLE B

NOTES:

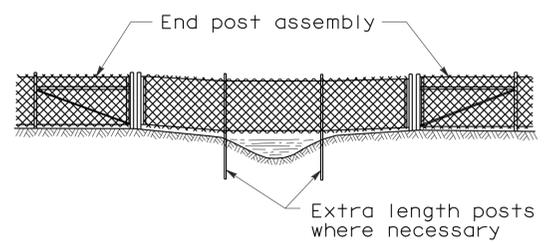
- All material for abutment connection to be galvanized.
- The chain link fabric shall be replaced by barbed wire strands at 12" maximum centers between the double posts.
- When the width of the culvert makes it necessary to anchor a post to the top of the culvert, a cast iron shoe or other device approved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



PLAN

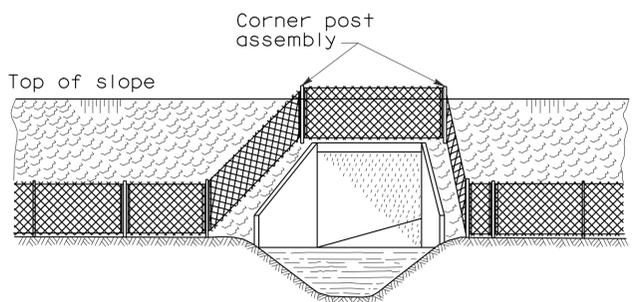


PLAN



ELEVATION

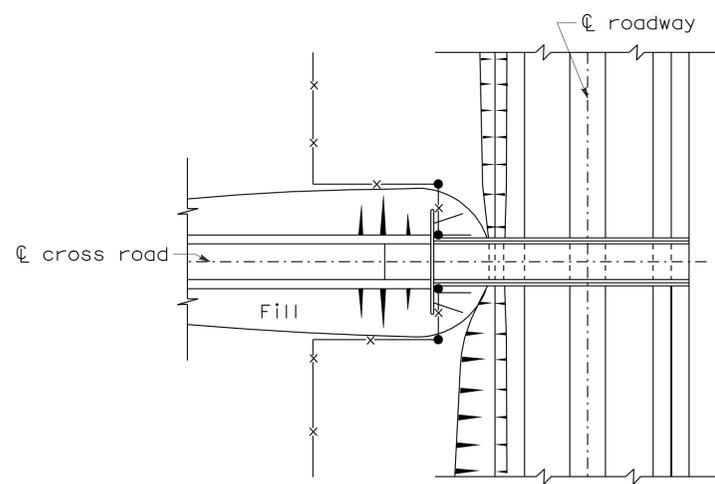
INSTALLATION OVER STREAM



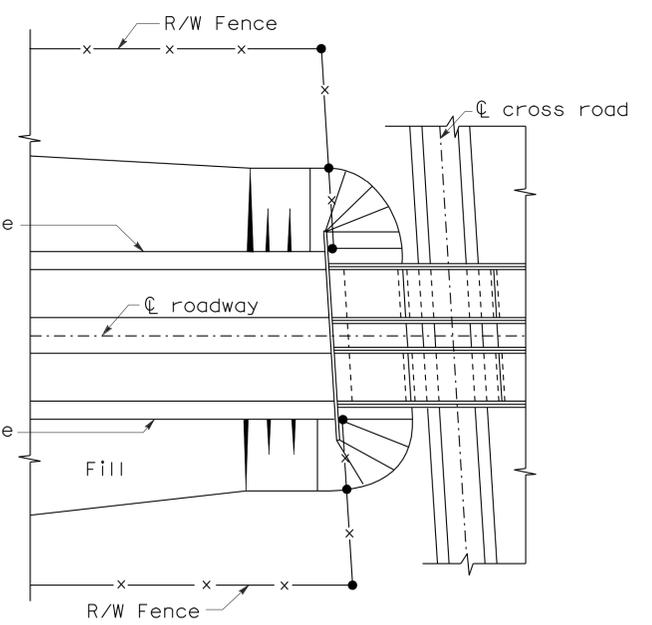
ELEVATION

INSTALLATION AROUND HEADWALL

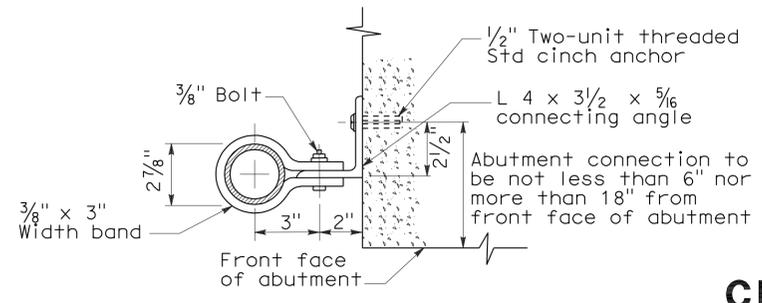
See Note 4



PLAN OF ROADWAY - UNDERPASS



PLAN OF ROADWAY - OVERPASS



ABUTMENT CONNECTION

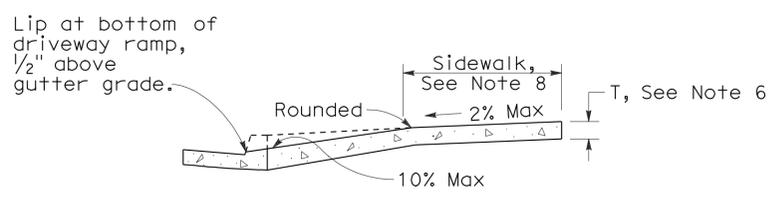
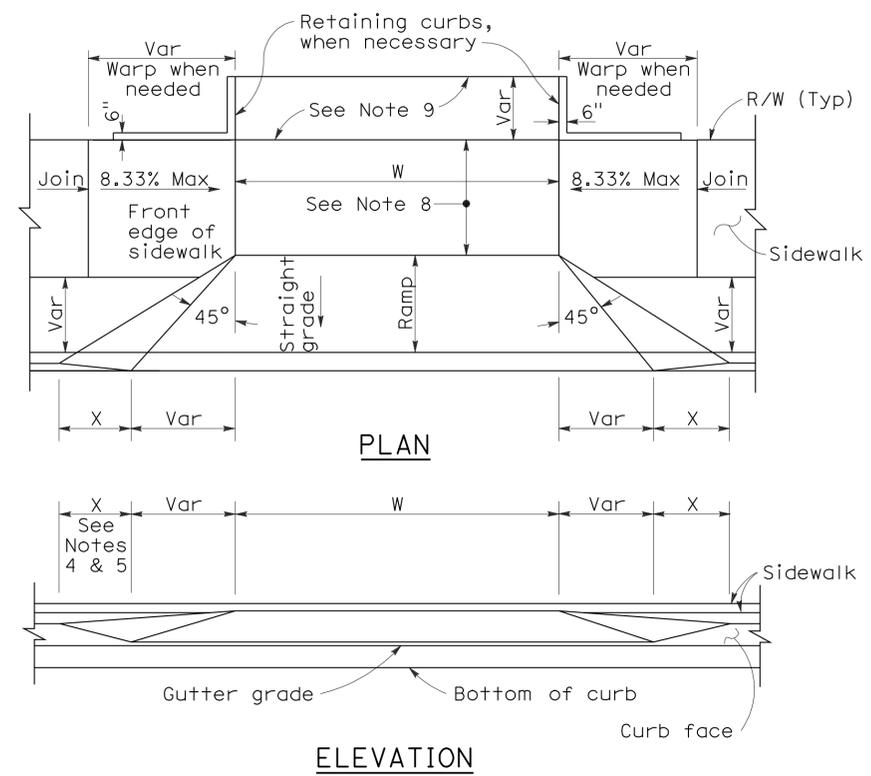
TYPICAL INSTALLATION AT BRIDGES

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

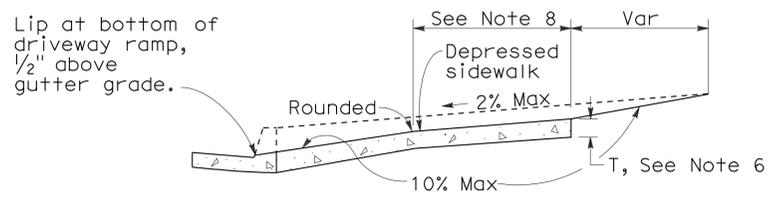
NSP A85B DATED JUNE 5, 2009 SUPPLEMENTS THE STANDARD PLANS BOOK DATED MAY 2006.

NEW STANDARD PLAN NSP A85B

2006 NEW STANDARD PLAN NSP A85B



CASE A
Typical driveway, sidewalk not depressed



CASE B
Driveway with depressed sidewalk

SECTIONS

CURB QUANTITIES

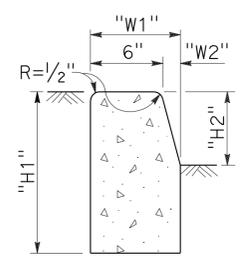
TYPE	CUBIC YARDS PER LINEAR FOOT
A1-6	0.02585
A1-8	0.03084
A2-6	0.05903
A2-8	0.06379
A3-6	0.01036
A3-8	0.01435
B1-4	0.02185
B1-6	0.02930
B2-4	0.05515
B2-6	0.06171
B3-4	0.00641
B3-6	0.01074
B4	0.05709
D-4	0.04083
D-6	0.06804
E	0.06661

TABLE A

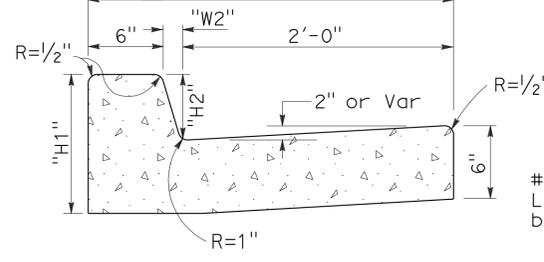
CURB TYPE	DIMENSIONS			
	"H1"	"H2"	"W1"	"W2"
A1-6	1'-2"	6"	7 1/2"	1 1/2"
A1-8	1'-4"	8"	8"	2"
A2-6	1'-0"	6"	2'-7 1/2"	1 1/2"
A2-8	1'-2"	8"	2'-8"	2"
A3-6	6"	5"	7 1/4"	1 1/4"
A3-8	8"	7"	7 3/4"	1 3/4"
B1-4	1'-0"	4"	7 1/2"	2 1/2"
B1-6	1'-2"	6"	9"	4"
B2-4	10"	4"	2'-7 1/2"	2 1/2"
B2-6	1'-0"	6"	2'-9"	4"
B3-4	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 4-8-13

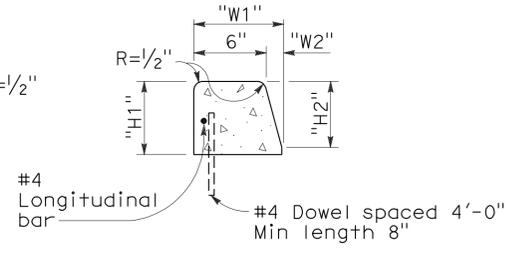
DRIVEWAYS



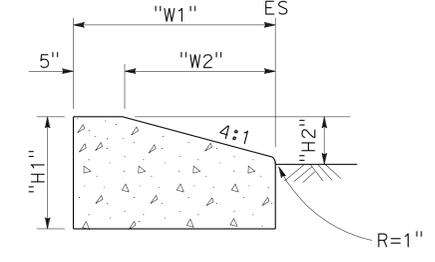
TYPE A1 CURBS
See Table A



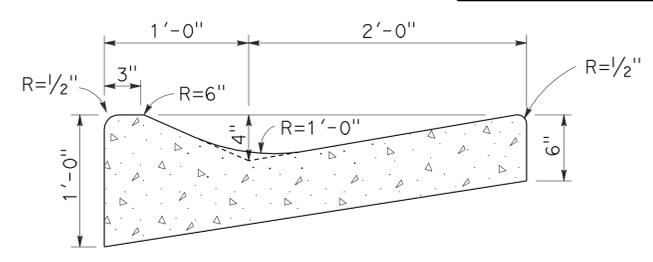
TYPE A2 CURBS
See Table A



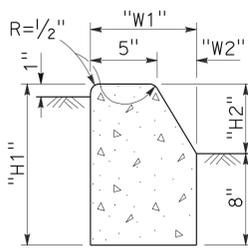
TYPE A3 CURBS
Superimposed on existing pavement
See Table A



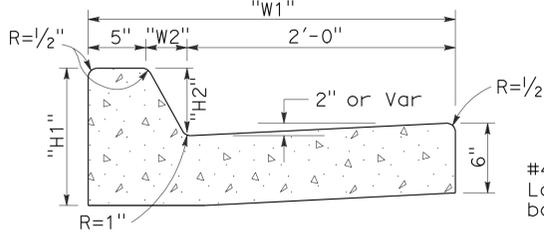
TYPE D CURBS
See Table A



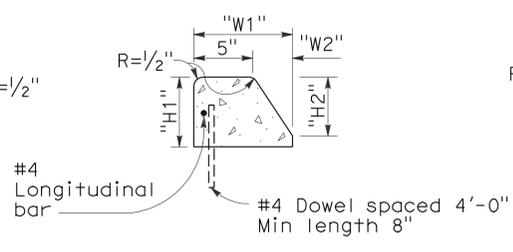
TYPE E CURB
See Table A



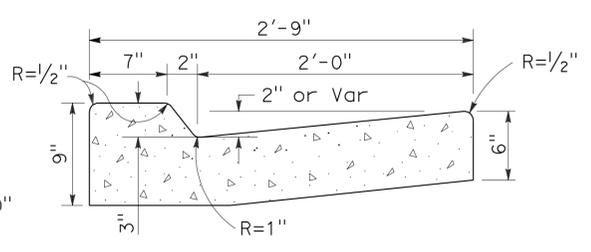
TYPE B1 CURBS
See Table A



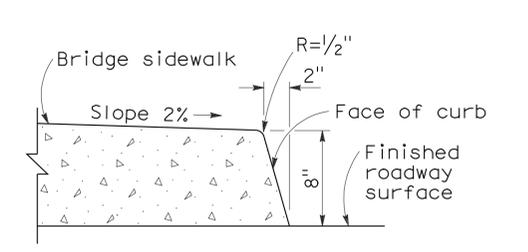
TYPE B2 CURBS
See Table A



TYPE B3 CURBS
Superimposed on existing pavement
See Table A



TYPE B4 CURBS
See Table A



TYPE H CURB
On Bridges

CURBS

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.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

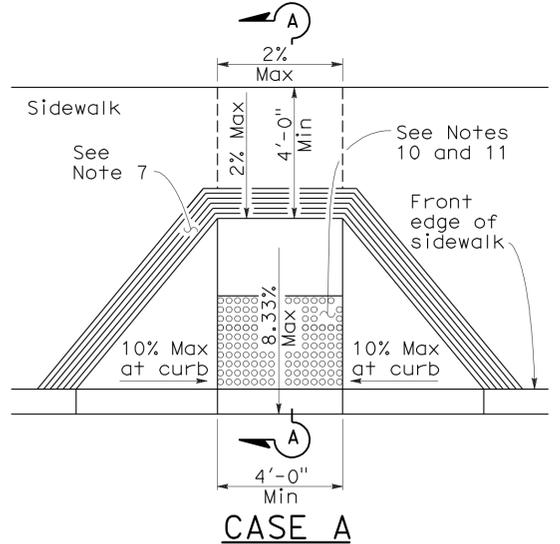
CURBS AND DRIVEWAYS

NO SCALE

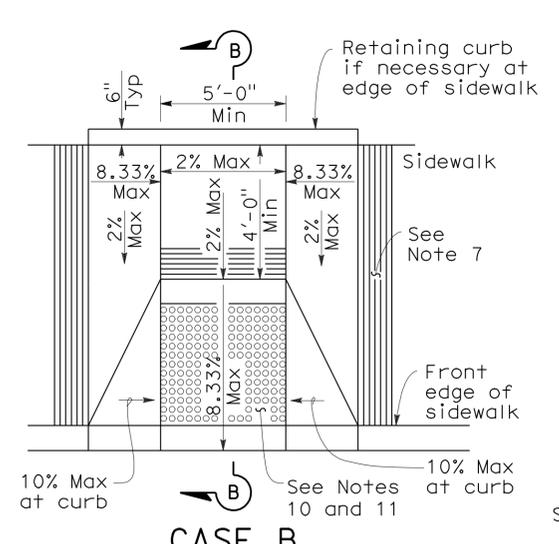
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	880	28.4/29.2	456	789

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.

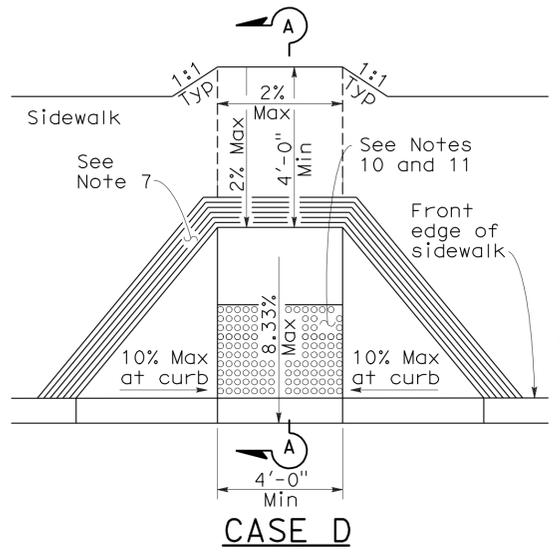
REGISTERED PROFESSIONAL ENGINEER
 Hector David Cordova
 No. C41957
 Exp. 3-31-08
 CIVIL
 STATE OF CALIFORNIA



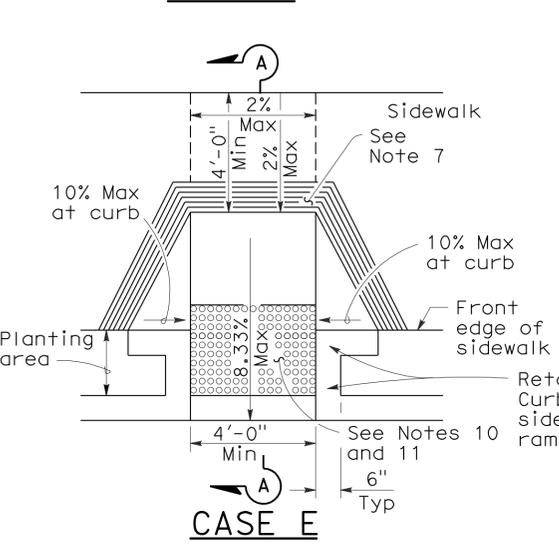
CASE A



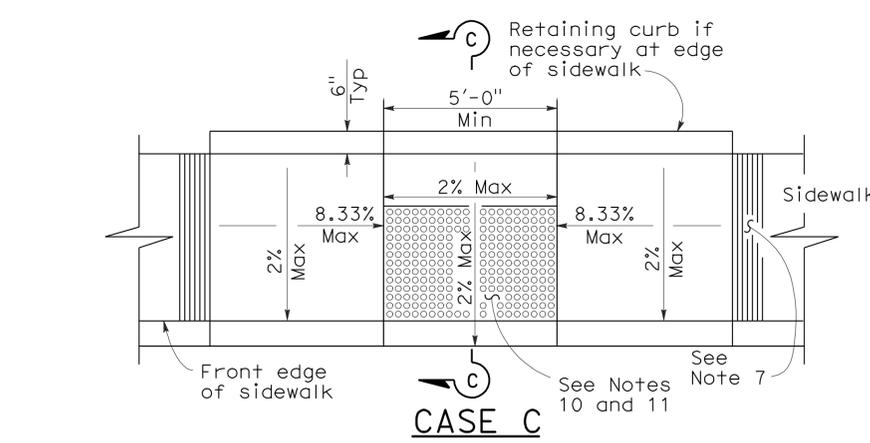
CASE B



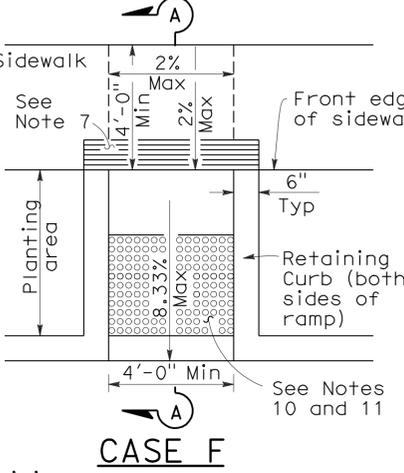
CASE D



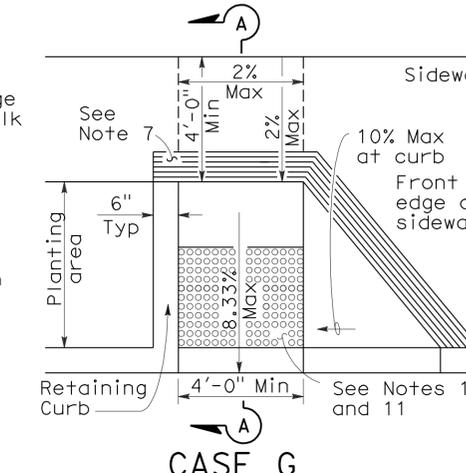
CASE E



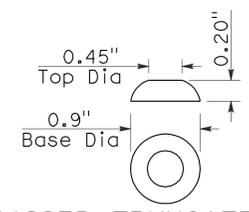
CASE C



CASE F



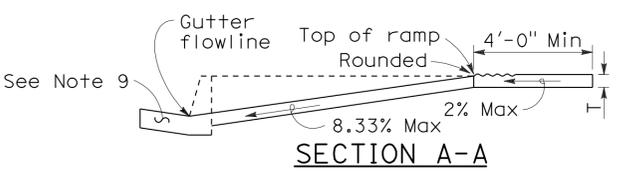
CASE G



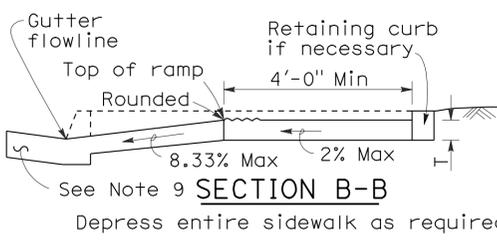
RAISED TRUNCATED DOME

NOTES:

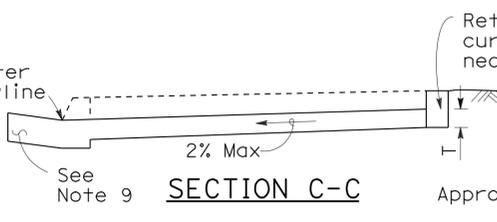
- As site conditions dictate, Case A through Case G curb ramps may be used for corner installations similar to those shown in Detail A and Detail B. The case of curb ramps used in Detail A do not have to be the same. Case A through Case G curb ramps also may be used at mid block locations, as site conditions 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.



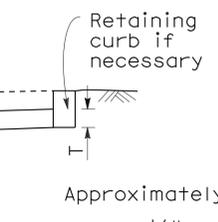
SECTION A-A



SECTION B-B



SECTION C-C

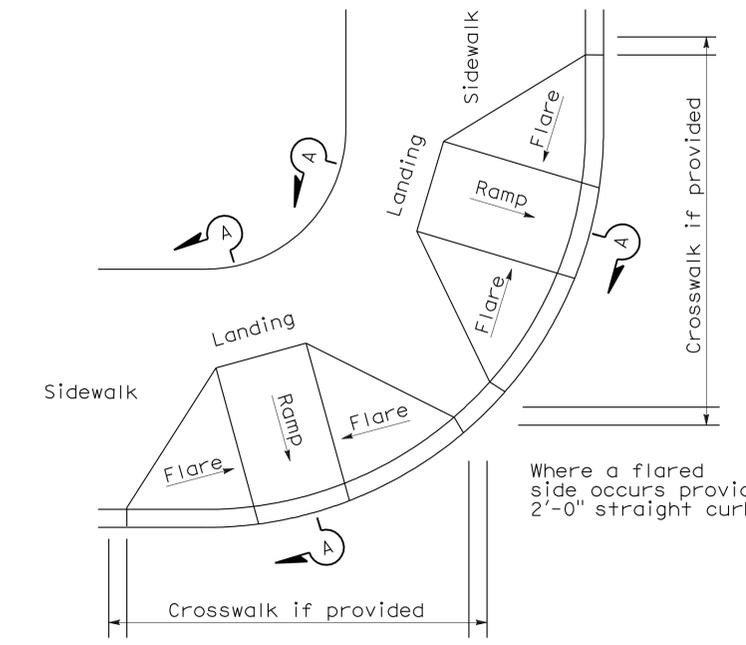


GROOVING DETAIL



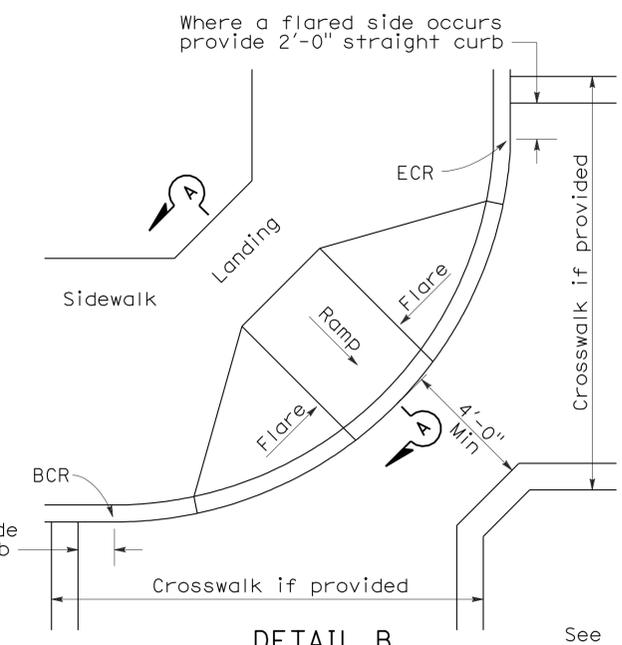
RAISED TRUNCATED DOME PATTERN (IN-LINE) DETECTABLE WARNING SURFACE

See Note 10
 STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION
CURB RAMP DETAILS
 NO SCALE

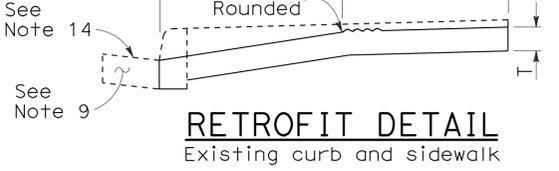


DETAIL A

TYPICAL TWO-RAMP CORNER INSTALLATION
 See Note 1



DETAIL B TYPICAL ONE-RAMP CORNER INSTALLATION
 See Notes 1 and 3



RETROFIT DETAIL
 Existing curb and sidewalk

RSP A88A DATED SEPTEMBER 1, 2006 SUPERSEDES STANDARD PLAN A88A DATED MAY 1, 2006 - PAGE 115 OF THE STANDARD PLANS BOOK DATED MAY 2006.

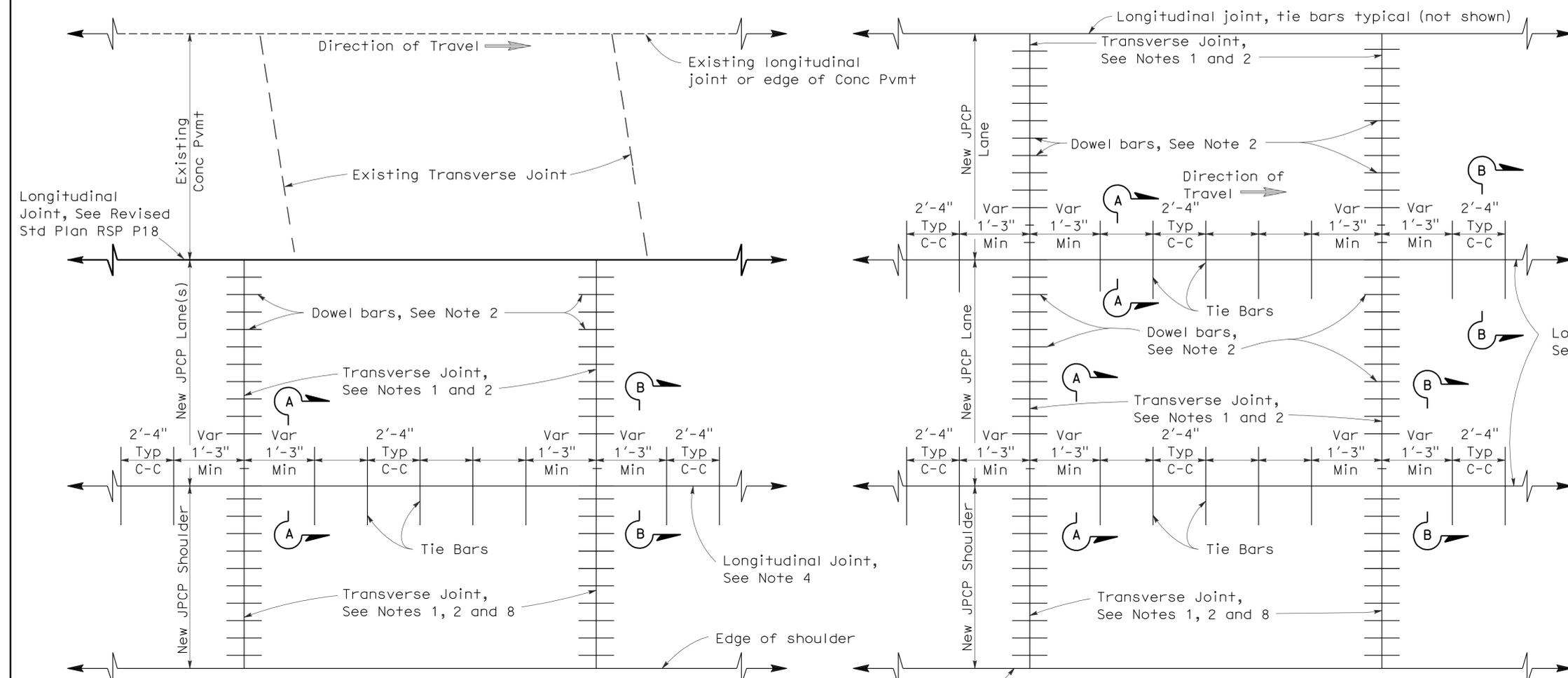
REVISED STANDARD PLAN RSP A88A

2006 REVISED STANDARD PLAN RSP A88A

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	880	28.4/29.2	457	789

William K. Farnbach
 REGISTERED CIVIL ENGINEER
 May 15, 2009
 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
 William K. Farnbach
 No. C49042
 Exp. 9-30-10
 CIVIL
 STATE OF CALIFORNIA

To accompany plans dated 4-8-13



PLAN
LANE/SHOULDER ADDITION OR RECONSTRUCTION

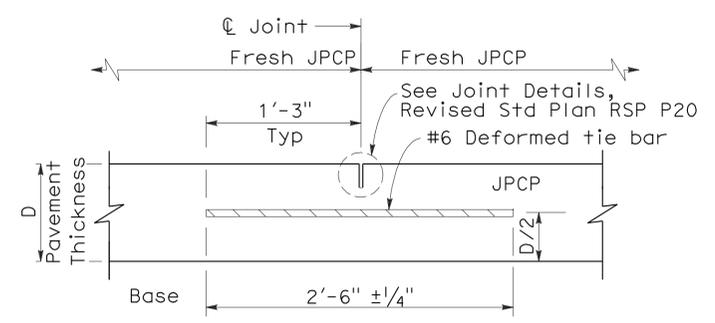
See Notes 6 and 7

PLAN
NEW CONSTRUCTION

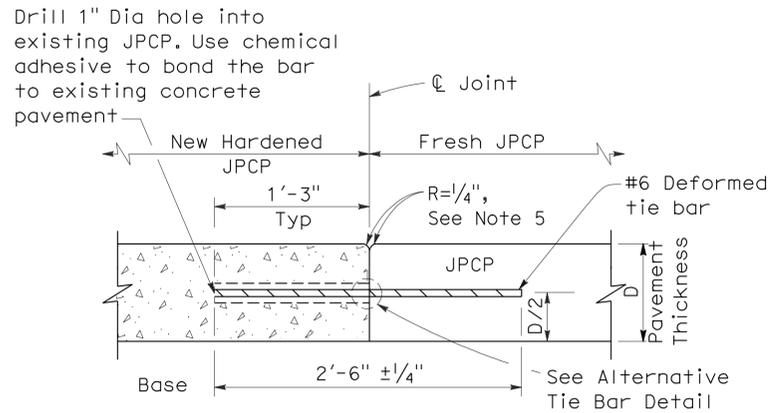
See Notes 6 and 7

NOTES:

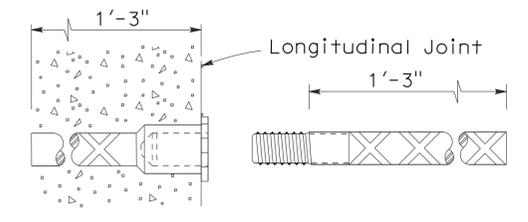
1. Transverse joints shall be constructed at right angles to the longitudinal pavement joints in new jointed plain concrete pavement and spaced at successive repeated intervals of 12', 15', 13' and 14'.
2. For transverse joint and dowel bar details not shown, See Revised Standard Plan RSP P10.
3. Construct longitudinal contraction joints as shown in Section A-A when more than one lane or shoulder widths are placed at one time. If constructing one lane at a time, use longitudinal construction joint, as shown in Section B-B.
4. For additional longitudinal joint details, see Revised Standard Plan RSP P18.
5. If fresh concrete is placed adjacent to existing concrete, the top corner of the new hardened concrete does not need to be rounded to the 1/4" radius as shown.
6. Joint spacing patterns do not apply to intersections.
7. Details can also apply to inside widening.
8. Dowel bars may be omitted from shoulders when the shoulder cross slope is not the same as the adjacent traffic lane.



SECTION A-A
LONGITUDINAL CONTRACTION JOINT



SECTION B-B
LONGITUDINAL CONSTRUCTION JOINT



ALTERNATIVE TIE BAR SPLICE DETAIL
(Splice Coupler)

TIE BAR DETAILS

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
**JOINTED PLAIN
CONCRETE PAVEMENT**

NO SCALE

RSP P1 DATED MAY 15, 2009 SUPERSEDES STANDARD PLAN P1
DATED MAY 1, 2006 - PAGE 119 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP P1

2006 REVISED STANDARD PLAN RSP P1

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	880	28.4/29.2	458	789

William K. Farnbach
 REGISTERED CIVIL ENGINEER
 No. C49042
 Exp. 9-30-10
 STATE OF CALIFORNIA

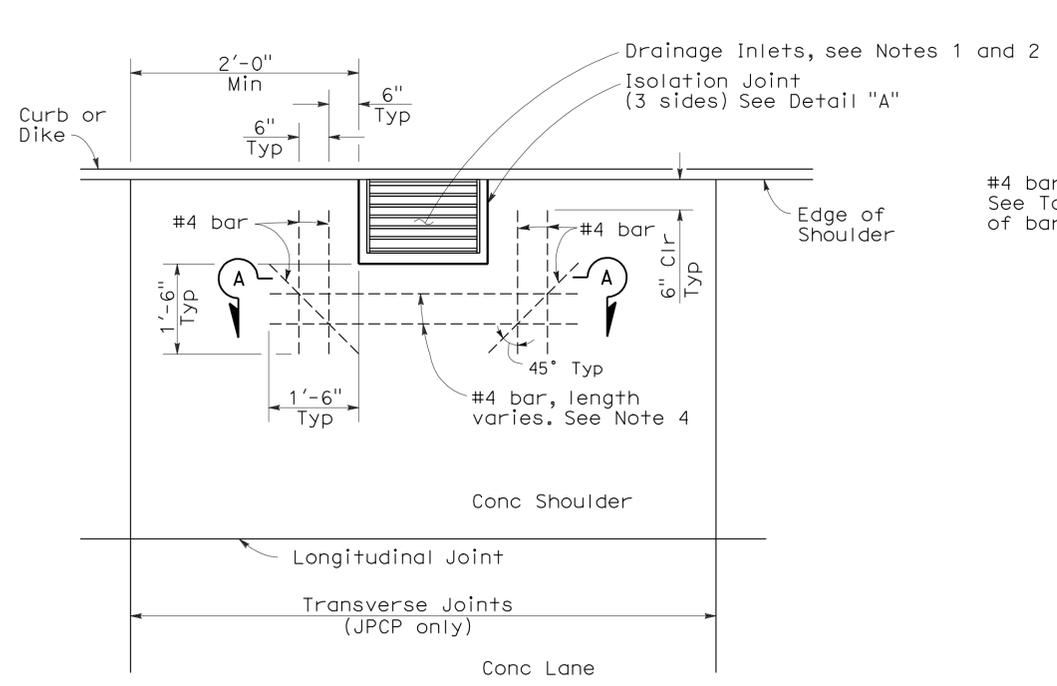
May 15, 2009
 PLANS APPROVAL DATE

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 4-8-13

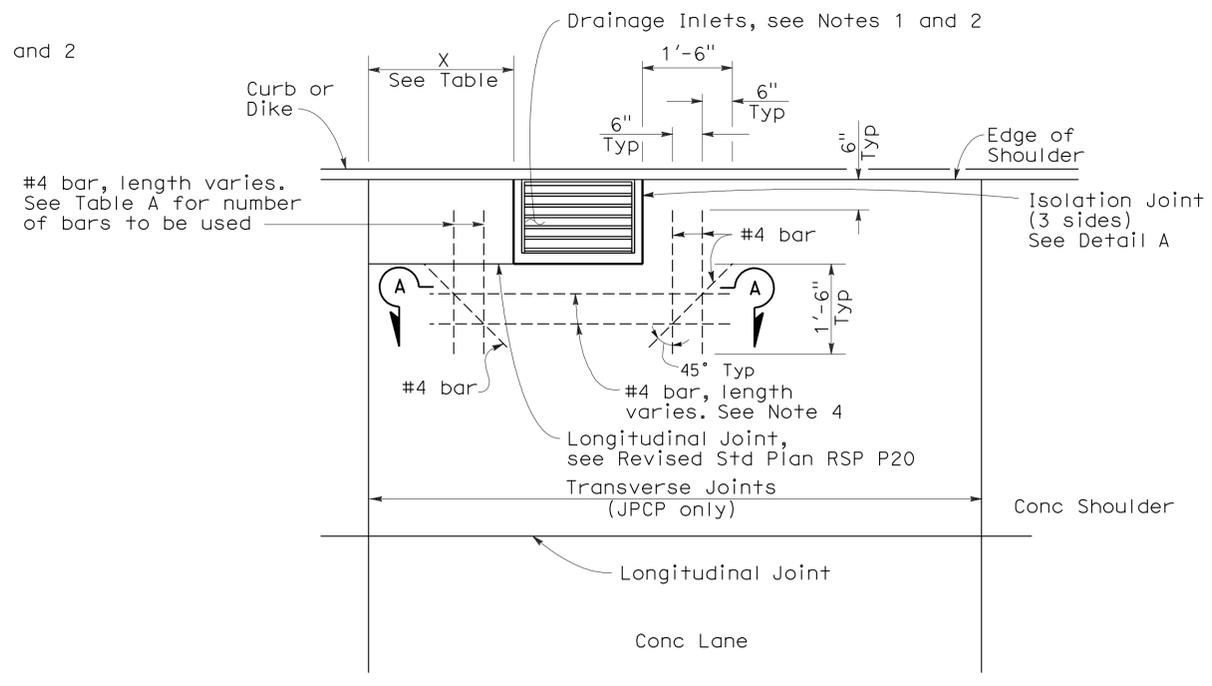
NOTES:

1. Refer to Project Plans for location and Type of drainage inlets.
2. Top of inlet shall be flush with shoulder surface.
3. Extend joint filler material to bottom of Lean Concrete Base. Where Lean Concrete Base is not used as base material, the joint filler material shall only extend to the bottom of the new concrete pavement.
4. For Jointed Plain Concrete Pavement only. For Continuously Reinforced Concrete Pavement, terminate pavement steel reinforcement 2" clear from all outside edges of isolation joint.
5. For Jointed Plain Concrete Pavement only. For Continuously Reinforced Concrete Pavement, see New Standard Plan NSP P4.
6. Dowel and tie bars not shown, see Revised Standard Plan RSP P1.



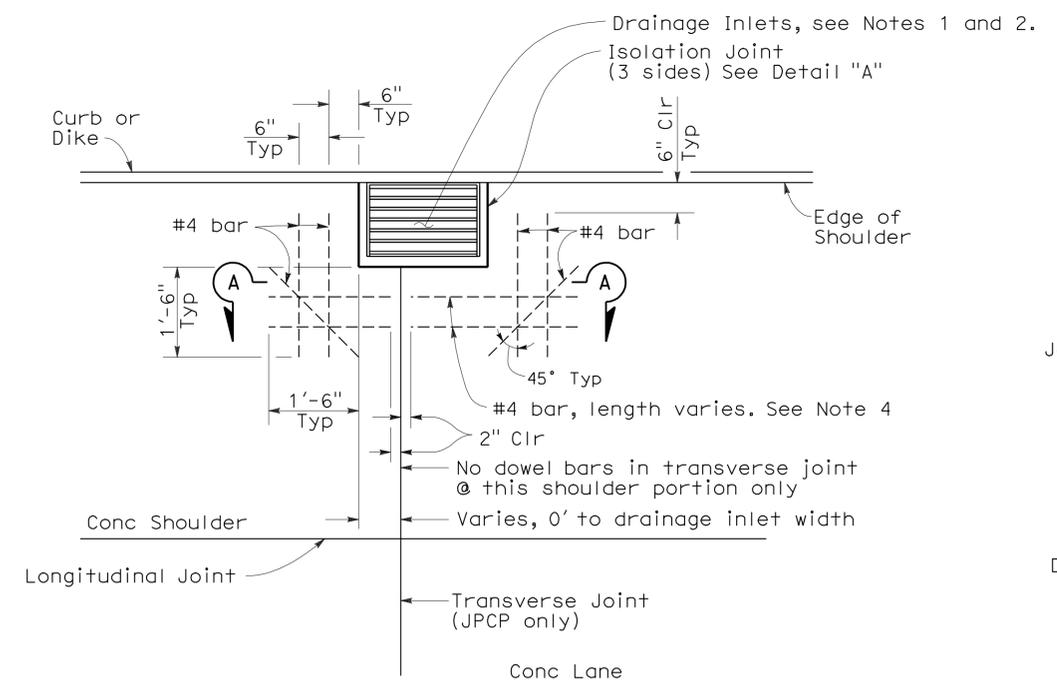
CASE 1

Transverse joint more than 2'-0" clear of drainage inlet wall or no transverse joint



CASE 3

Transverse joint within 2'-0" of drainage inlet wall, or matches drainage inlet wall.



CASE 2

Transverse joint intersects drainage inlet, or matches drainage inlet wall.

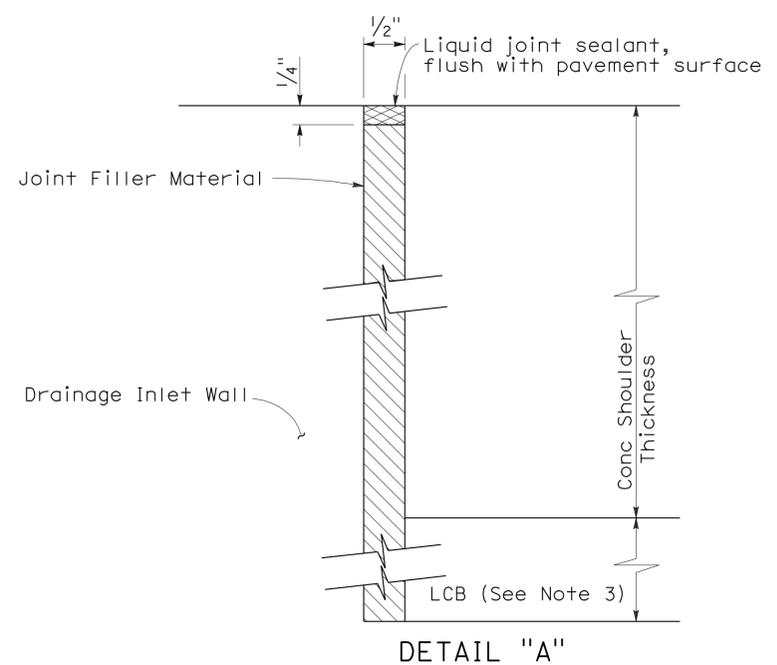
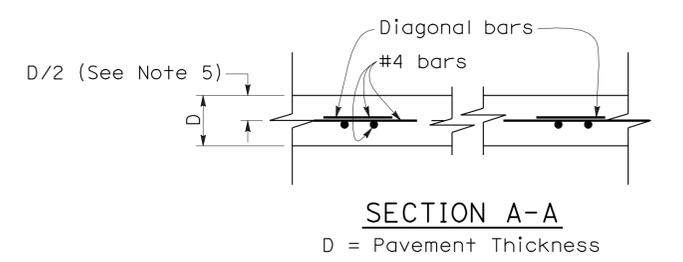


TABLE A

DISTANCE X	BARS REQUIRED
2'-0" to 1'-6"	2
1'-6" to 9"	1 @ X/2
9" or less	None

ISOLATION JOINT AROUND DRAINAGE INLET

STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION
**CONCRETE PAVEMENT-
 DRAINAGE INLET
 DETAILS No. 1**
 NO SCALE

RSP P45 DATED MAY 15, 2009 SUPERSEDES STANDARD PLAN P45
 DATED MAY 1, 2006 - PAGE 132 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP P45

2006 REVISED STANDARD PLAN RSP P45

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	880	28.4/29.2	459	789

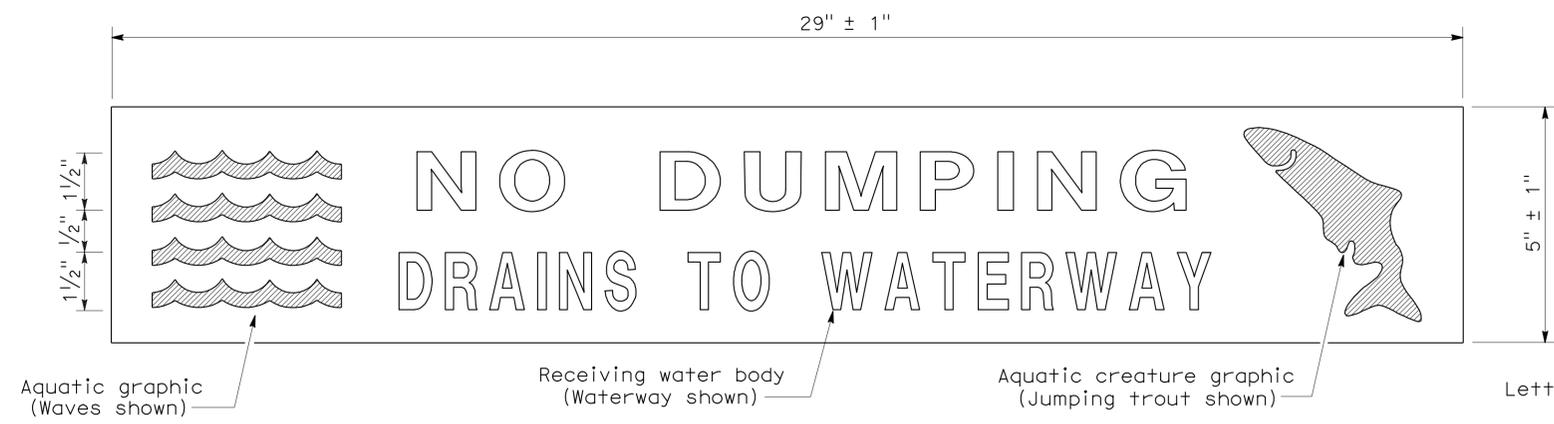
Robert B. Schott
LICENSED LANDSCAPE ARCHITECT

April 3, 2009
PLANS APPROVAL DATE

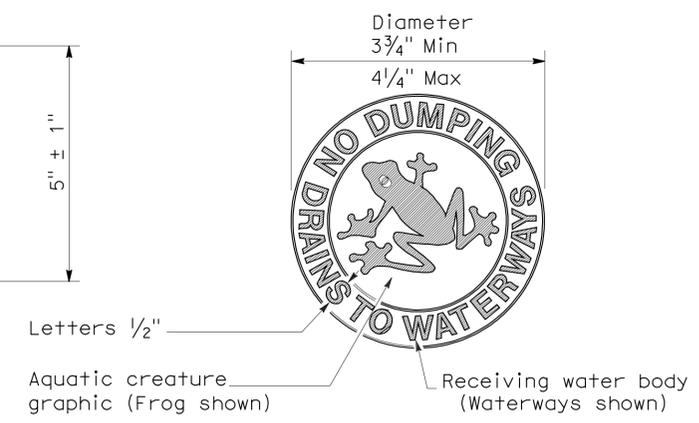
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

STATE OF CALIFORNIA
LICENSED LANDSCAPE ARCHITECT
Robert B. Schott 11-30-10
Renewal Date 2-25-09
Date

To accompany plans dated 4-8-13



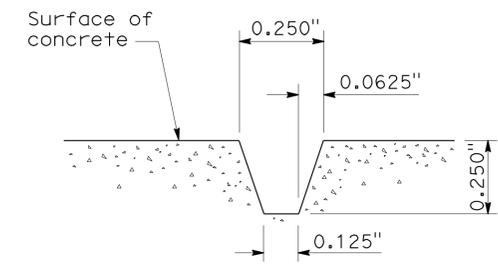
PLAN
DRAINAGE INLET MARKER
(PREFABRICATED THERMOPLASTIC)



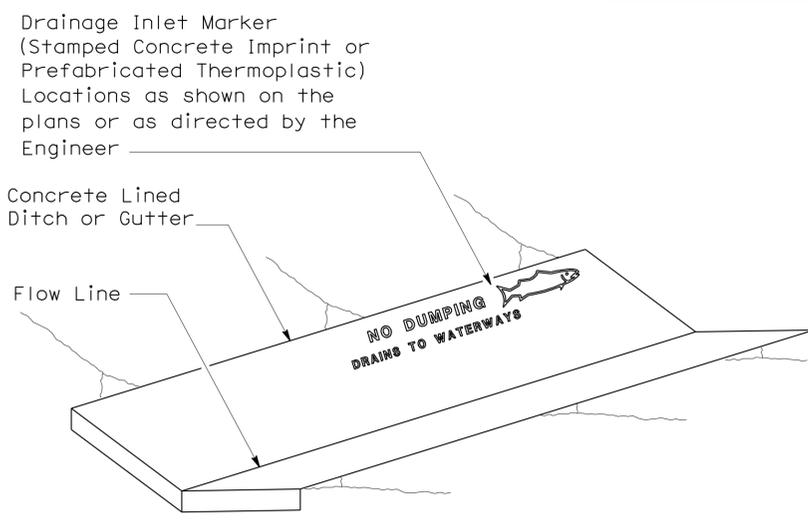
PLAN
DRAINAGE INLET MARKER
(MEDALLION)



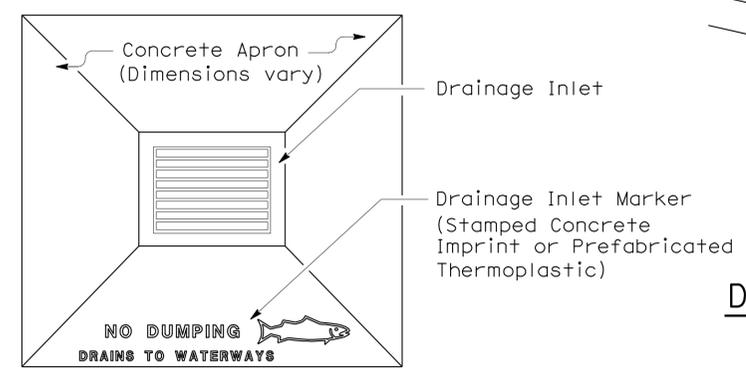
PLAN
DRAINAGE INLET MARKER
(STAMPED CONCRETE IMPRINT)



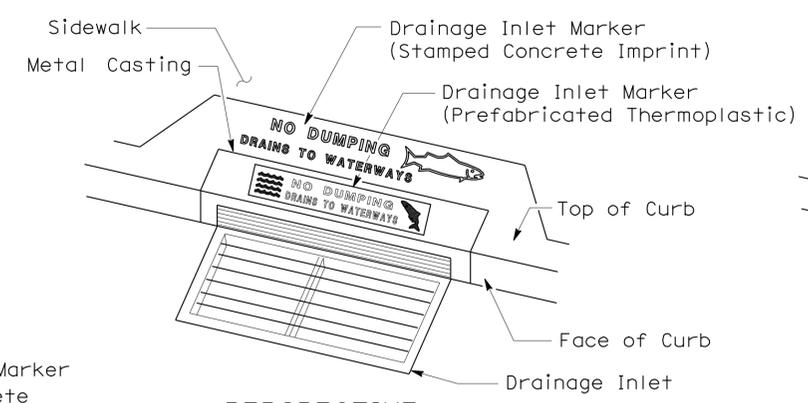
SECTION A-A
STAMPED CONCRETE
IMPRINT DETAIL



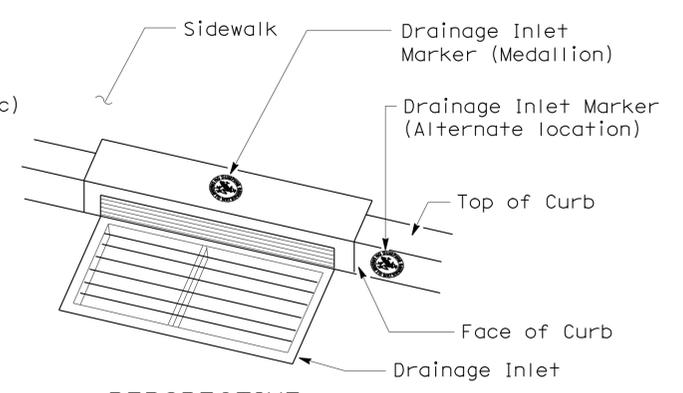
PERSPECTIVE
DRAINAGE INLET MARKER ON
CONCRETE LINED DITCH



PLAN
DRAINAGE INLET MARKER ON
DRAINAGE INLET APRON



PERSPECTIVE
DRAINAGE INLET MARKER ON
DRAINAGE INLET



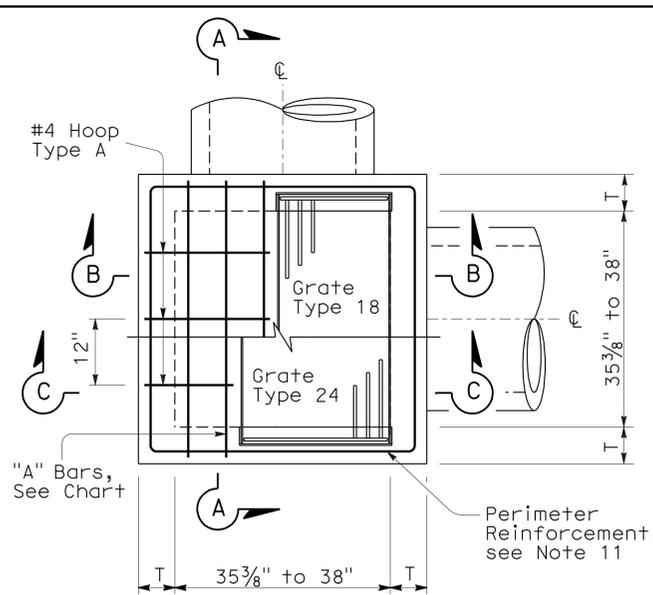
PERSPECTIVE
DRAINAGE INLET MARKER (MEDALLION)
ON DRAINAGE INLET

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
DRAINAGE INLET MARKERS
NO SCALE
NSP D71 DATED APRIL 3, 2009 SUPPLEMENTS
THE STANDARD PLANS BOOK DATED MAY 2006.

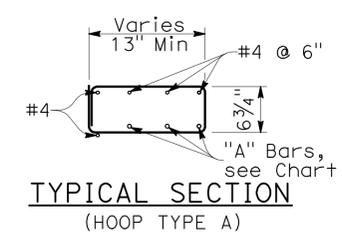
To accompany plans dated 4-8-13

NOTES:

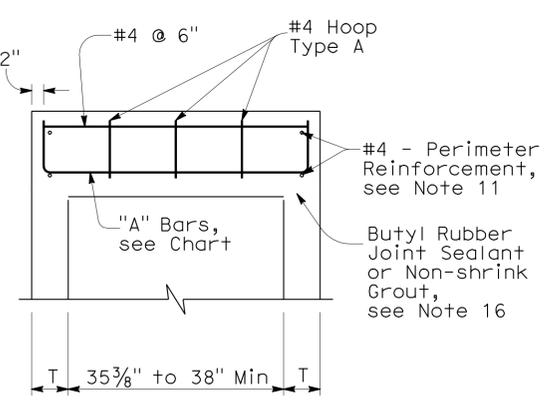
- "H" is the difference in elevation between the outlet pipe flow line and the normal gutter grade line undepressed.
- For "T" wall thickness: T=6" when "H" is 8' or less. T=8" when "H" is over 8'.
- Wall reinforcing not required when "H" is 8' or less and the unsupported width or length is 6'-0" or less. Reinforce wall exceeding these limits with #4 bars @ 1'-6" ± centers placed 2" clear to the inside of inlet unless otherwise shown. Short independent wall sections or height adjustment rings 6" to 24" high must have a minimum of two #4 horizontal bars.
- Seal pre-cast inlets connection openings between wall and pipe with non-shrink grout or resilient connectors as specified in the Special Provisions.
- Steps - None required where "H" is less than 2'-6". Where "H" is 2'-6" or more, install steps with lowest rung 1'-0" above the floor and highest rung not more than 6" below bottom of lid. The distance between steps must not exceed 1'-0" and be uniform throughout the length of the wall. Place steps in the wall without an opening. Steps inserts may be substituted for the bar steps. Step inserts must comply with State Industrial Safety Requirements. See Standard Plan D74C for step details.
- Pipe(s) can be placed in any wall.
- Set inlet so that grate bars are parallel to direction of principal surface flow.
- Type G4 inlet can use Grate Type 18 or 24. Type G2 inlet uses Grate Type 24. See Revised Standard Plan RSP D77A and Standard Plan D77B for grate and frame details and weights of miscellaneous Iron and Steel.
- G4 inlet details are the same as the G2 with the addition of a curb and sloped grate that matches the adjacent curb and gutter depression. See Standard Plans D78A & D78B for gutter and inlet depression details. See Revised Standard Plan RSP A87A & Standard Plan A87B for Curb and Dike Details.
- Provide pre-cast inlets with separate top sections for final grade adjustment under Standard Specification Section 51-1.02. Provide keyed joints between the top and wall and multiple wall sections. Joint design may vary but must be 1" to 3" in depth.
- Perimeter reinforcement serves as a rigid frame to position and attach the required structural reinforcement and may be tack welded at outer corners when using ASTM A706 weldable bars.
- This dimension will vary with different grates, curbs types, box width and wall thickness.
- 2" unless inlet is expanded in the Span "A" direction, then clearance is 2" plus the diameter of the lower "A" bar.
- Place "A" Bars at an angle so hooked ends will maintain 2" clear coverage.
- Refer to Standard Plan D73, Table A for concrete quantities.
- Non-shrink grout can be used for upper most joint to facilitate final top grade adjustment.
- Slope inlet floors 4:1 towards the outlet pipe. Pre-cast inlets may have monolithic sloped floors, flat floors, or no floors in which case a sloped floor must be cast in the field. Inlet floors do not require reinforcing.
- Extend sand bedding under all structure backfill.



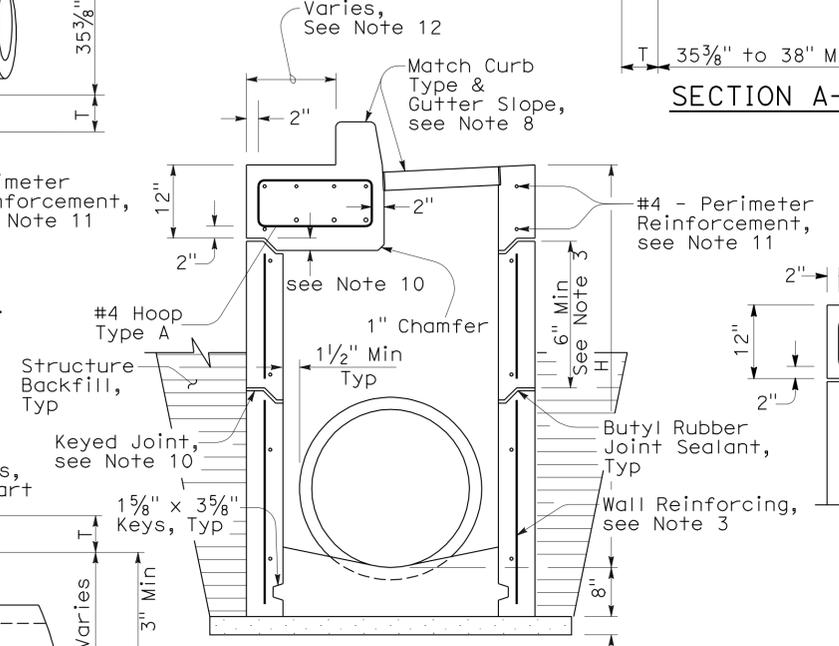
STANDARD TYPE G2 OR G4



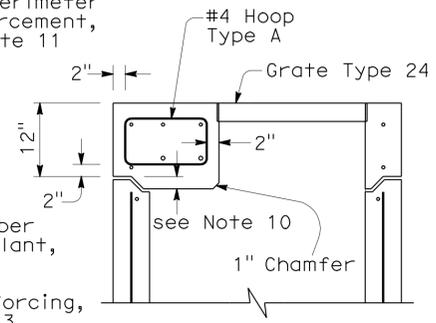
TYPICAL SECTION (HOOP TYPE A)



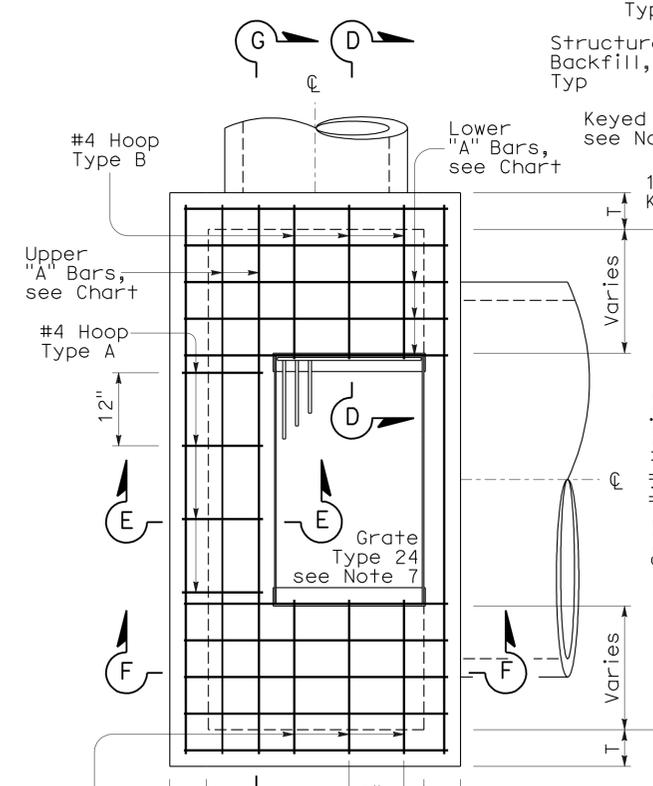
SECTION A-A



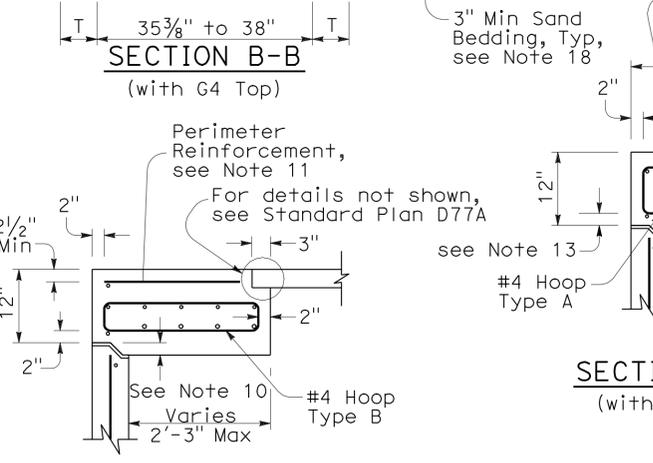
SECTION B-B (with G4 Top)



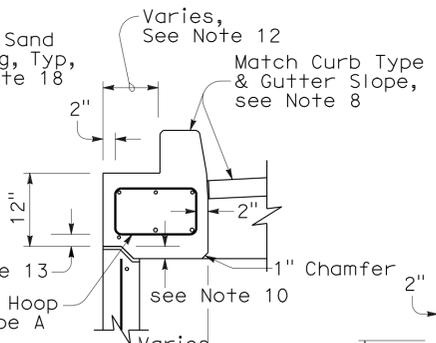
SECTION C-C (with G2 Top)



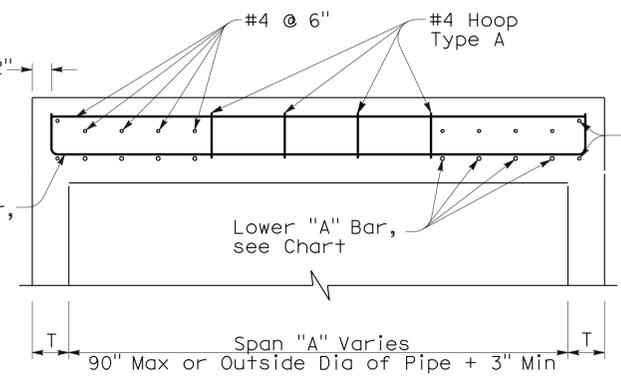
EXPANDED TYPE G2 OR G4 (Top Rebar Not Shown)



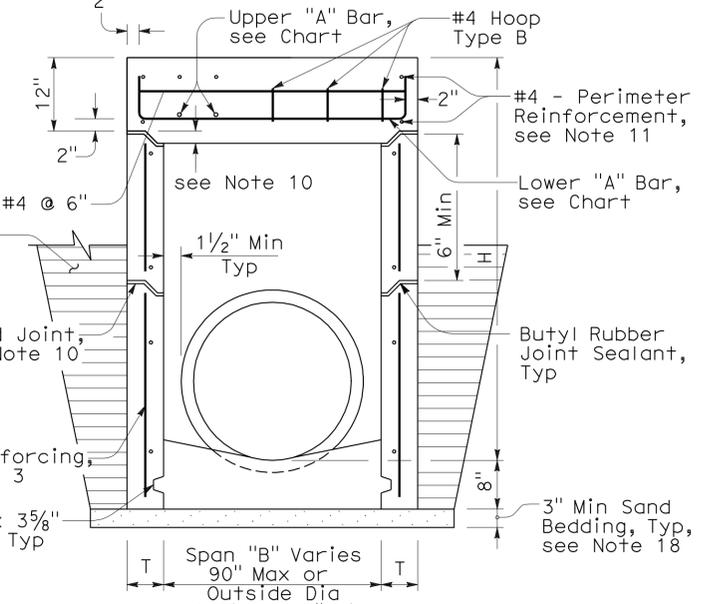
SECTION D-D



SECTION E-E (with G4 Top)



SECTION G-G



SECTION F-F (with G2 Top)

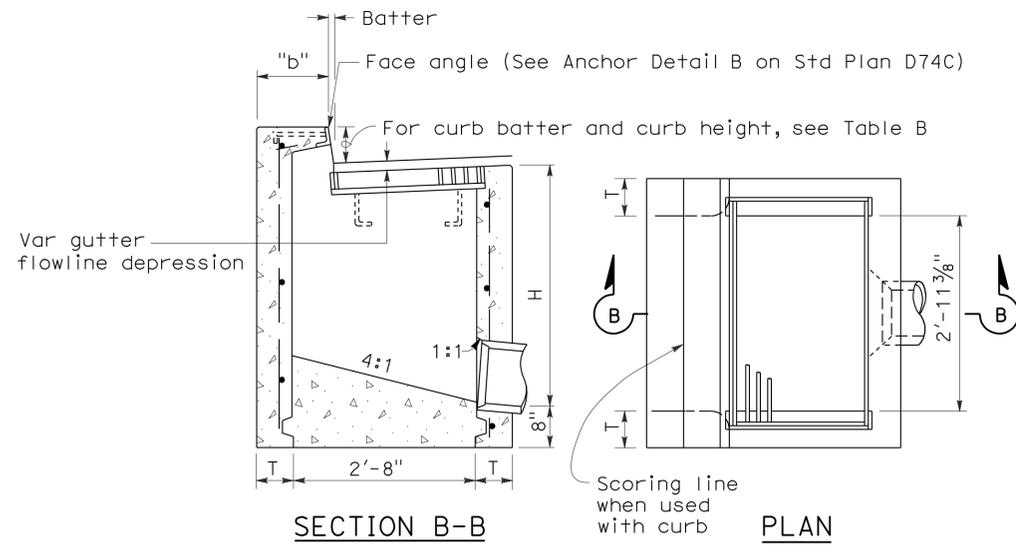
Span	"A" Bars	Required steel area per foot (in ² /ft)
Under 38" with Type 24 Grate	#5 @ 7" C-C 2-#5 Min	0.525
Under 38" with Type 18 Grate	#5 @ 7" C-C 3-#5 Min	0.525
38"-60"	#5 @ 6" C-C	0.621
61"-72"	#5 @ 5" C-C	0.744
73"-90"	#6 @ 6" C-C	0.811

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
DRAINAGE INLETS (PRECAST)

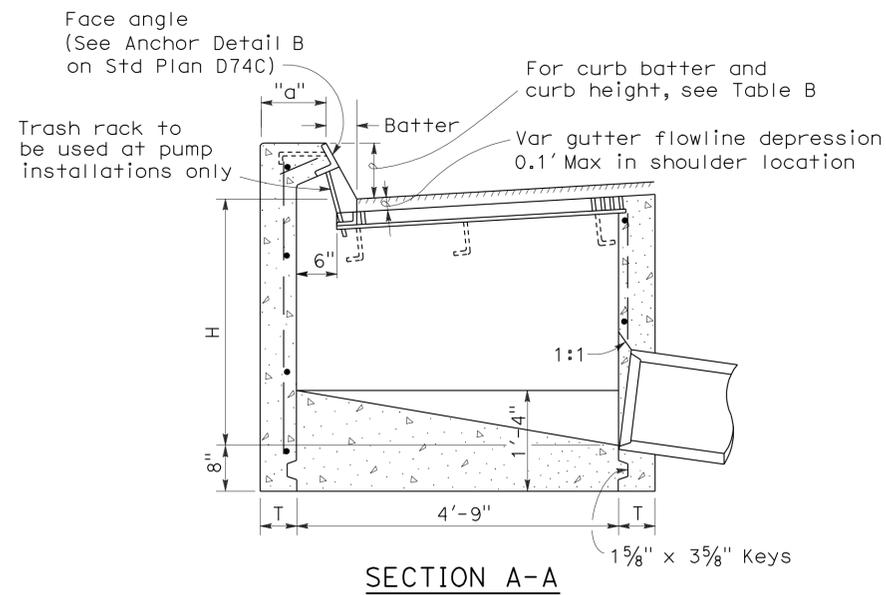
NO SCALE

NSP D73A DATED JUNE 5, 2009 SUPPLEMENTS THE STANDARD PLANS BOOK DATED MAY 2006.

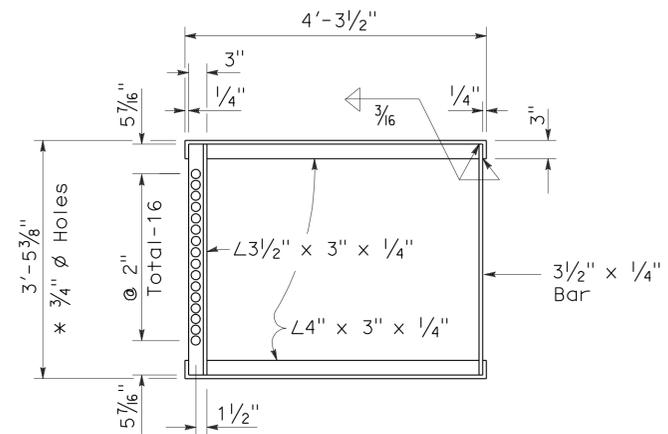
To accompany plans dated 4-8-13



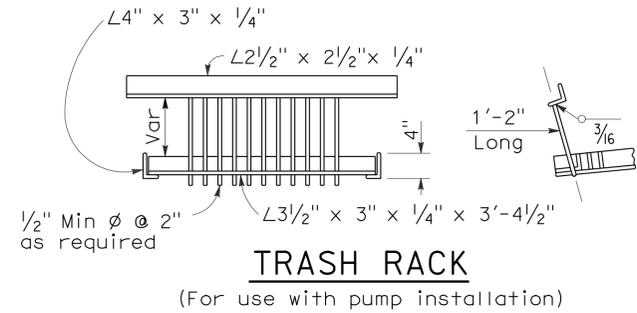
TYPE GO



SECTION A-A



GRATE FRAME FOR TYPE GDO INLET

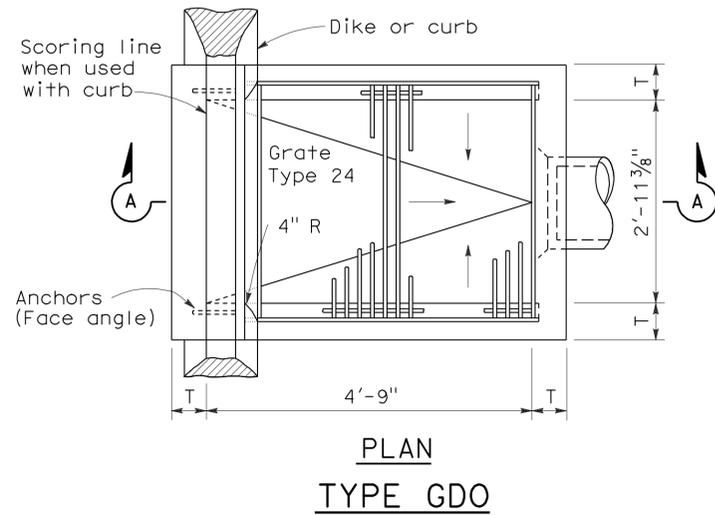


TRASH RACK
(For use with pump installation)

TABLE A
CONCRETE QUANTITIES

TYPE	H=3'-0" TO 8'-0" (T=6")	H=8'-1" TO 20'-0" (T=8")	
	ADDITIONAL PCC PER FOOT (CY)	H=8'-1" (CY)	ADDITIONAL PCC PER FOOT (CY)
GO	1.24	3.39	0.346
GDO	1.62	4.36	0.446

Table based on 8" floor slab, no deduction for pipe openings, and curb type giving highest quantity of concrete. No deductions or adjustments are to be made to these quantities because of pipe openings, different floor alternatives or different curb type.



PLAN
TYPE GDO

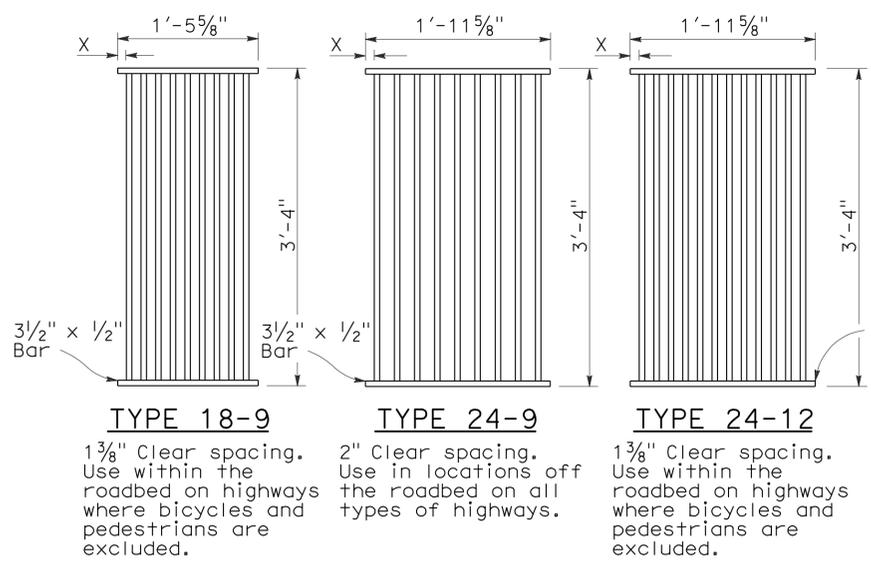
TABLE B

CURB TYPE	NORMAL CURB HEIGHT	CURB BATTER	"a" DIMENSION	"b" DIMENSION
A1-6	6"	1 1/2"	T+7 1/2"	T+6 1/2"
A1-8	8"	2"	T+7"	T+6"
B1-6	6"	4"	T+5"	T+4"
Type A Dike	6"	3"	T+6"	T+5"

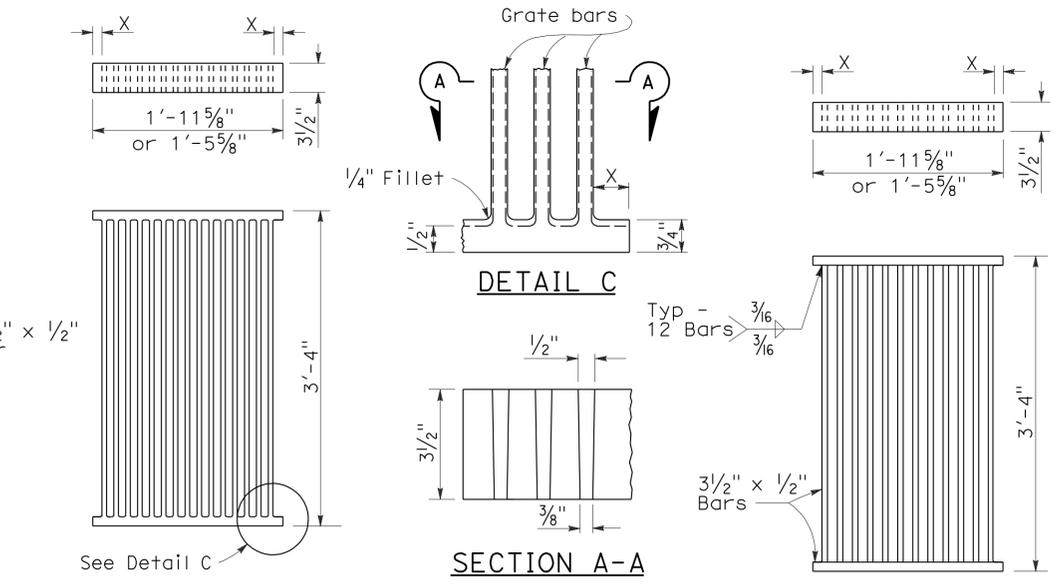
NOTES:

- "H" is the difference in elevation between the outlet pipe flow line and the normal gutter grade line undepressed.
- For "T" wall thickness, see Table A below.
- Wall reinforcing not required when "H" is 8'-0" or less and the unsupported width or length is 7'-0" or less. Walls exceeding these limits shall be reinforced with #4 @ 18"± centers placed 1/2" clear to inside of box unless otherwise shown.
- Inlet bottom reinforcing not required. See Standard Plan D74C for alternative reinforced bottom.
- Steps - None required where "H" is less than 2'-6". Where "H" is 2'-6" or more, install steps with lowest rung 1'-0" above the floor and highest rung not more than 6" below top of inlet. The distance between steps shall not exceed 1'-0" and shall be uniform throughout the length of the wall. Place steps in the wall without an opening. Step inserts may be substituted for the bar steps. Step Inserts shall comply with State Industrial Safety requirements. See Standard Plan D74C for step details.
- When shown on the project plans, place a 3/4" plain round protection bar horizontally across the length of the opening and bend back 4" into the inlet wall on each side.
- Pipe(s) can be placed in any wall.
- Curb section shall match adjacent curb.
- Basin floors shall have wood trowel finish and shall slope toward the outlet pipe as shown.
- Galvanizing - See Standard Specifications or Special Provisions.
- See Standard Plan D77A and D77B for grate and frame details and weights of miscellaneous iron and Steel.
- See Standard Plan D78A for gutter depression details.
- Full penetration butt welds may be substituted for the fillet welds on all anchors.
- Standard square, hexagon, round or equivalent headed anchors may be substituted for the right angle hooks on the anchors shown on this plan.
- Cast-in-place or precast alternative is optional with contractor. See Standard Specifications.
- Cast-in-place inlets to be formed around all pipes/stubs intersecting the inlet and concrete poured in one continuous operation. Precast inlets shall have mortared pipe connections conforming to details for Type GCP inlets on Standard Plan D75B. See Standard Specifications for mortar composition.

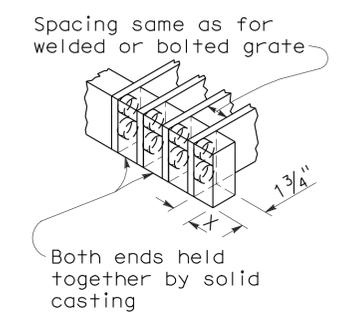
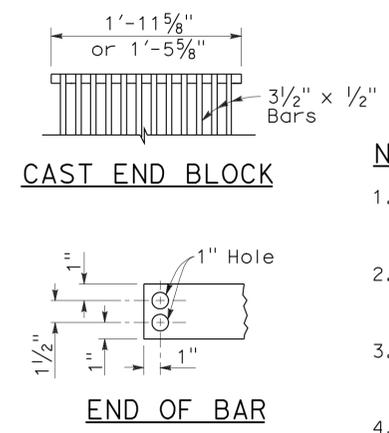
STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
DRAINAGE INLETS
NO SCALE



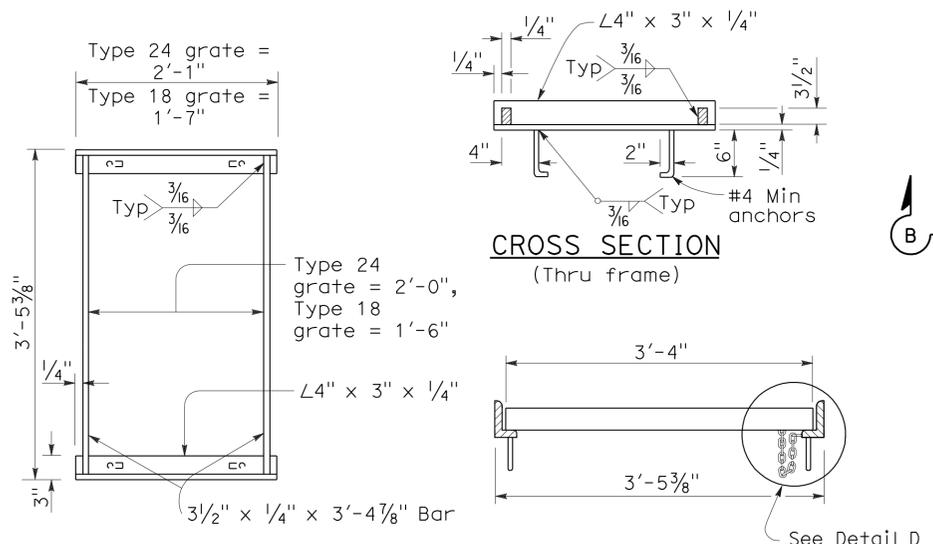
RECTANGULAR GRATE DETAILS
(See table below)



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



ALTERNATIVE CAST DUCTILE IRON OR CAST CARBON STEEL END BLOCK GRATE

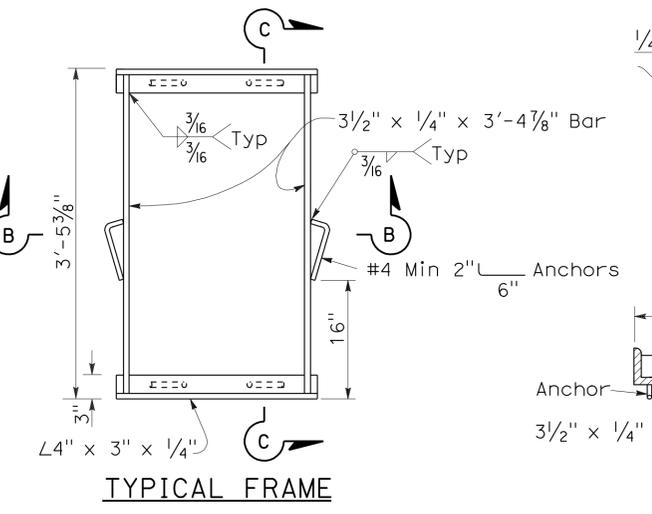


RECTANGULAR FRAME DETAILS
(For all rectangular grates)

GRATE BAR SPACING TABLE

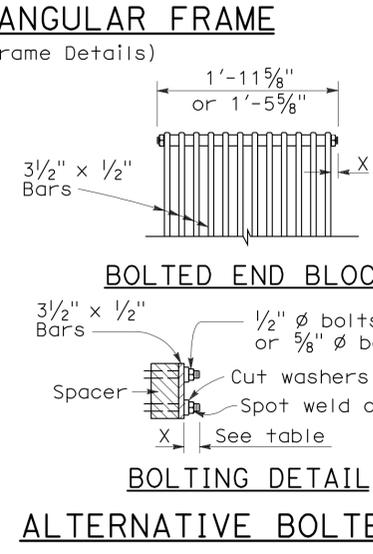
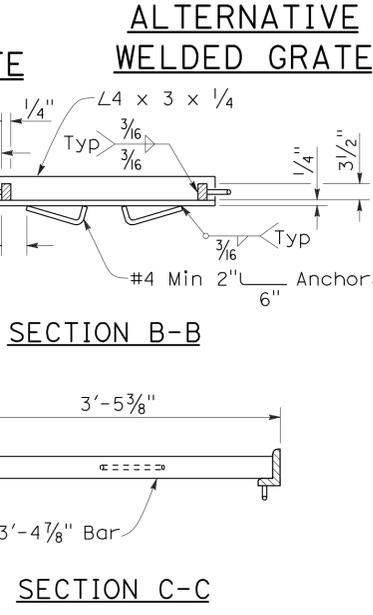
TYPE	NO. OF BARS	CLEAR BAR SPACING	X
18-9	9	1 3/8"	1 1/16"
24-9	9	2"	1 9/16"
24-12	12	1 3/8"	1 1/4"

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

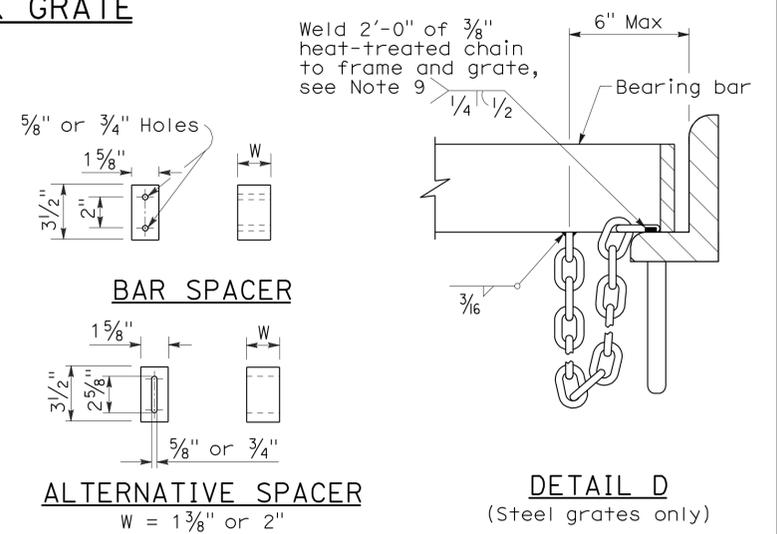


ALTERNATIVE ANCHOR FOR RECTANGULAR FRAME
(For details not shown, See Rectangular Frame Details)

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



ALTERNATIVE BOLTED GRATE



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

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
GRATE DETAILS
NO SCALE

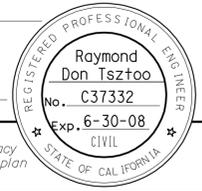
BASIS FOR MISC IRON & STEEL FINAL PAY WEIGHTS FOR DRAINAGE INLETS
(See Note 8)

RSP D77A DATED JULY 20, 2012 SUPERSEDES RSP D77A DATED JANUARY 18, 2008 AND STANDARD PLAN D77A DATED MAY 1, 2006 - PAGE 155 OF THE STANDARD PLANS BOOK DATED MAY 2006.

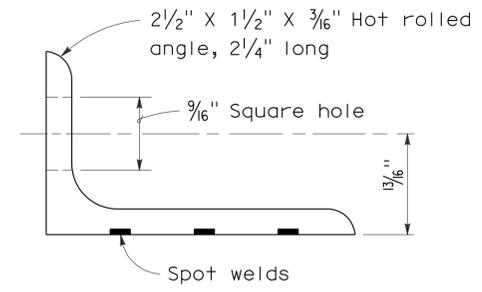
2006 REVISED STANDARD PLAN RSP D77A

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	880	28.4/29.2	464	789

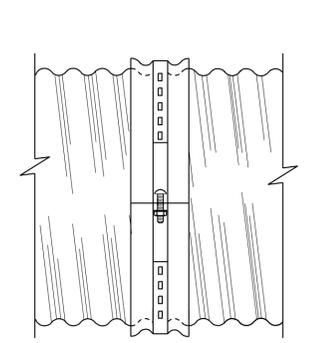
Raymond Don Tsztoo
 REGISTERED CIVIL ENGINEER
 June 6, 2008
 PLANS APPROVAL DATE
 The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.



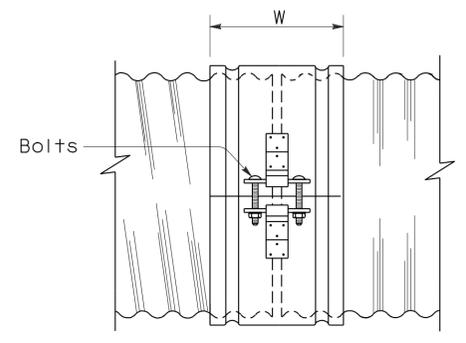
To accompany plans dated 4-8-13



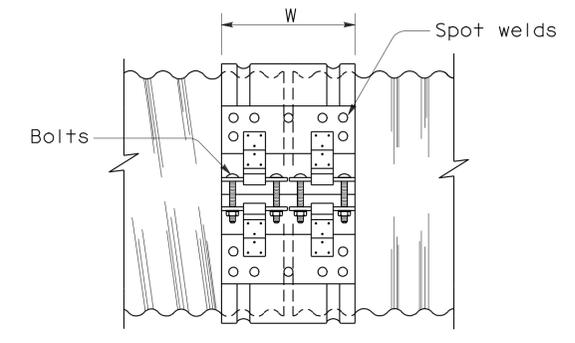
ANGLE



SIDE VIEW ANGLE



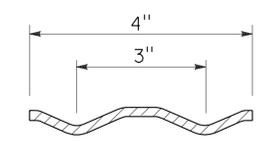
SIDE VIEW SINGLE BAR AND STRAP



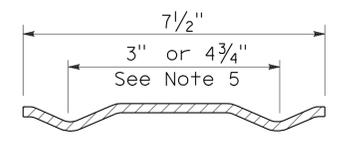
SIDE VIEW DOUBLE BAR AND STRAP

NOTES:

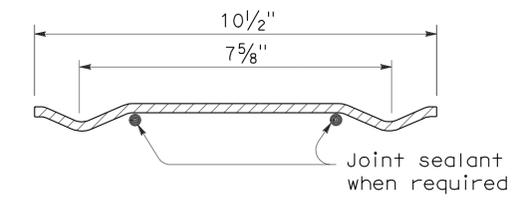
1. All ferrous metal coupling band connection hardware shall be galvanized or electroplated in accordance with the Standard Specifications.
2. Dimensions and thicknesses shown are minimum.
3. Spot welds shall develop minimum required strength of strap.
4. Fillet welds of equivalent strength may be substituted for spot welds or rivets.
5. Dimension depends upon whether end condition is lips up or lips down.



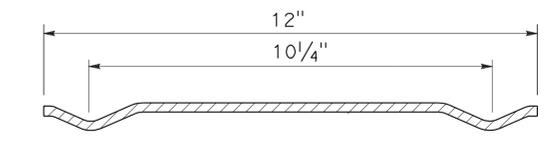
SECTION H-4 HUGGER BAND



SECTION H-7 HUGGER BAND



SECTION H-10 HUGGER BAND



SECTION H-12 HUGGER BAND

HUGGER COUPLING BANDS

STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION
**CORRUGATED METAL PIPE
 COUPLING DETAILS No. 4
 HUGGER COUPLING BANDS**

NO SCALE

RSP D97D DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN D97D
 DATED MAY 1, 2006 - PAGE 186 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP D97D

2006 REVISED STANDARD PLAN RSP D97D

ANNULAR AND HELICAL PROFILE

COUPLING TYPE	PIPE CORRUGATION	PIPE SIZE	W OR A	PIPE WALL THICKNESS				BAR AND STRAP (CSP ONLY)				ANGLE								
				CSP		CAP		STRAP THICKNESS	BOLTS Dia	BAR Dia	BAR YIELD STRENGTH	DIMENSIONS		BOLTS (No.- Dia)		RIVETS ANGLE TO BAND		SPOT WELDS ANGLE TO BAND		
				CSP	CAP	CSP	CAP					CSP	CAP	CSP	CAP	CSP	CAP	CSP		
TWO PIECE INTEGRAL FLANGE	1 1/2' x 1/4"	6"-10"	7"	0.052"-0.079"	0.048"-0.060"	0.052"	0.060"							2-3/8"	2-3/8"					
				12"-18"	7"	0.052"-0.079"										2-1/2"				
				2 2/3" x 1/2"	12"-24"	7"	0.052"-0.079"	0.060"-0.105"	0.064"	0.060"							2-1/2"	2-1/2"		
UNIVERSAL	2 2/3" x 1/2"	THROUGH 36"	12"	0.052"-0.138"	0.060"-0.135"	0.052"	0.060"						2" x 2" x 3/16"	2" x 2" x 3/16"	3-1/2"	3-1/2"	3-3/8"	3-3/8"	3-1/2"	
		42"-60"	12"	0.052"-0.168"	0.075"-0.164"	0.052"	0.060"							2" x 2" x 3/16"	2" x 2" x 3/16"	3-1/2"	3-1/2"	3-3/8"	3-3/8"	5-1/2"
		THROUGH 72"	12"	0.052"-0.168"	0.164"	0.052"	0.105"	0.079"	1/2"	7/8"	32 ksi	2" x 2" x 3/16"	2" x 2" x 3/16"	3-1/2"	3-1/2"	3-3/8"	3-3/8"	5-1/2"		
		78"-84"	16 1/4"	0.168"		0.079"		DOUBLE 0.079"	1/2"	7/8"	32 ksi									
ANNULAR	2 2/3" x 1/2"	THROUGH 36"	7"	0.064"-0.138"	0.060"-0.135"	0.052"	0.060"	0.079"	1/2"	7/8"	32 ksi	2" x 2" x 3/16"	2" x 2" x 3/16"	2-1/2"	2-1/2"	3-3/8"	3-3/8"	3-1/2"		
		42"-72"	12"	0.064"-0.168"	0.075"-0.164"	0.052"	0.105"	0.079"	1/2"	7/8"	32 ksi	2" x 2" x 3/16"	2" x 2" x 3/16"	3-1/2"	3-1/2"	3-3/8"	3-3/8"	5-1/2"		
		78"-84"	12"	0.168"		0.079"		0.109"	1/2"	7/8"	45 ksi	2" x 2" x 3/16"		3-1/2"		3-3/8"		5-1/2"		
	3" x 1"	48"-90"	14"	0.064"-0.109"		0.052"		0.079"	1/2"	7/8"	32 ksi	2" x 2" x 3/16"		3-1/2"		3-3/8"		5-1/2"		
		96"-120"	14"	0.079"-0.109"		0.052"		0.109"	1/2"	7/8"	45 ksi	2" x 2" x 3/16"		3-1/2"		4-3/8"				
		42"-108"	14"		0.060"-0.135"		0.060"					2" x 2" x 3/16"		3-1/2"		3-3/8"				
HELICAL	2 2/3" x 1/2"	THROUGH 36"	12"	0.052"-0.138"	0.060"-0.135"	0.052"	0.060"	0.079"	1/2"	7/8"	32 ksi	2" x 2" x 3/16"	2" x 2" x 3/16"	3-1/2"	3-1/2"	3-3/8"	3-3/8"	3-1/2"		
		42"-72"	12"	0.052"-0.168"	0.075"-0.164"	0.052"	0.060"	0.079"	1/2"	7/8"	32 ksi	2" x 2" x 3/16"	2" x 2" x 3/16"	3-1/2"	3-1/2"	3-3/8"	3-3/8"	5-1/2"		
		78"-84"	12"	0.168"		0.079"		0.109"	1/2"	7/8"	45 ksi	2" x 2" x 3/16"		3-1/2"		3-3/8"		5-1/2"		
	3" x 1"	48"-90"	14"	0.064"-0.109"		0.052"		0.079"	1/2"	7/8"	32 ksi	2" x 2" x 3/16"		3-1/2"		3-3/8"		5-1/2"		
		96"-120"	14"	0.079"-0.109"		0.052"		0.109"	1/2"	7/8"	45 ksi	2" x 2" x 3/16"		3-1/2"		4-3/8"				
		42"-108"	14"		0.060"-0.135"		0.060"					2" x 2" x 3/16"		3-1/2"		3-3/8"				
HUGGER	2 2/3" x 1/2"	REROLLED END	12"-54"	4"	0.052"-0.109"		0.052"					2 1/2" x 1 1/2" x 3/16"	2 1/2" x 1 1/2" x 3/16"	1-1/2"				3-1/2"		
			60"-66"	4"	0.109"		0.064"						2 1/2" x 1 1/2" x 3/16"	2 1/2" x 1 1/2" x 3/16"	1-1/2"			3-1/2"		
			36"-48"	4"	0.138"		0.064"						2 1/2" x 1 1/2" x 3/16"	2 1/2" x 1 1/2" x 3/16"	1-1/2"			3-1/2"		
			THROUGH 72"	10 1/2"	0.052"-0.168"		0.052"		0.079"	1/2"	7/8"	32 ksi								
	3" x 1"	REROLLED END	48"-90"	10 1/2"	0.064"-0.109"		0.052"		0.079"	1/2"	7/8"	32 ksi								
			96"-120"	10 1/2"	0.079"-0.109"		0.052"		0.109"	1/2"	7/8"	45 ksi								
			48"-66"	7 1/2"	0.064"-0.109"		0.064"		0.079"	1/2"	7/8"	32 ksi	2 1/2" x 1 1/2" x 3/16"	2 1/2" x 1 1/2" x 3/16"	1-1/2"				3-1/2"	
	5" x 1"	REROLLED END	72"-90"	7 1/2"	0.064"-0.079"		0.064"		0.079"	1/2"	7/8"	32 ksi	2 1/2" x 1 1/2" x 3/16"	2 1/2" x 1 1/2" x 3/16"	1-1/2"				3-1/2"	
			48"-90"	7 1/2"	0.064"-0.138"		0.064"		0.079"	1/2"	7/8"	32 ksi								
			48"-120"	12" SEE	0.064"-0.109"		0.064"		0.079"	1/2"	7/8"	32 ksi								
48"-84"			12" NOTE	0.138"		0.064"		0.079"	1/2"	7/8"	32 ksi									
		90"-120"	12" 11	0.138"		0.064"		DOUBLE 0.079"	1/2"	7/8"	32 ksi									

SPIRAL RIB PROFILE

COUPLING TYPE	PIPE CORRUGATION	PIPE SIZE	W	PIPE WALL THICKNESS				BAR AND STRAP (SSRP ONLY)				ANGLE						
				SSRP		ASRP		STRAP THICKNESS	BOLTS Dia	BAR Dia	BAR YIELD STRENGTH	DIMENSIONS		BOLTS (No.- Dia)		RIVETS ANGLE TO BAND		SPOT WELDS ANGLE TO BAND
				SSRP	ASRP	SSRP	ASRP					SSRP	ASRP	SSRP	ASRP	SSRP	ASRP	SSRP
ANNULAR	2 2/3" x 1/2" * REROLLED END	24"-36"	12"	0.064"-0.109"	0.060"-0.105"	0.052"	0.060"	0.079"	1/2"	7/8"	32 ksi	2" x 2" x 3/16"	2" x 2" x 3/16"	3-1/2"	3-1/2"	3-3/8"	3-3/8"	5-1/2"
		42"-60"	12"	0.064"-0.109"	0.075"-0.105"	0.052"	0.105"	0.079"	1/2"	7/8"	32 ksi	2" x 2" x 3/16"	2" x 2" x 3/16"	3-1/2"	3-1/2"	3-3/8"	3-3/8"	5-1/2"
		66"-72"	12"	0.064"-0.109"		0.052"		0.079"	1/2"	7/8"	32 ksi	2" x 2" x 3/16"	2" x 2" x 3/16"	3-1/2"	3-1/2"	3-3/8"	3-3/8"	5-1/2"
		78"-114"	12"	0.079"-0.109"		0.079"		0.109"	1/2"	7/8"	45 ksi	2" x 2" x 3/16"	2" x 2" x 3/16"	3-1/2"	3-1/2"	3-3/8"	3-3/8"	5-1/2"
HUGGER	2 2/3" x 1/2" * REROLLED END	24"-72"	10 1/2"	0.064"-0.109"		0.052"		0.079"	1/2"	7/8"	32 ksi							
		78"-84"	10 1/2"	0.109"		0.079"		0.109"	1/2"	7/8"	45 ksi							

* See Note 14.

14. All profiles of Spiral Rib Pipe (3/4" x 3/4" ribs at 7 1/2" pitch and 3/4" x 1" ribs at 11 1/2" pitch in both steel and aluminum and 3/4" x 1" ribs at 8 1/2" pitch in steel only) shall be manufactured with rerolled ends. Corrugation profile of the rerolled ends shall be 2 2/3" x 1/2" annual corrugations with a minimum of two full corrugations at each end.

- NOTES:** To accompany plans dated 4-8-13
- All ferrous metal coupling band connection hardware shall be galvanized or electro-plated in accordance with the Standard Specifications.
 - For helically corrugated coupling bands, the connection angles may be oriented parallel to the pipe axis, provided connecting holes are slotted lengthwise sufficiently to allow adjustment for the helix angle.
 - Tension strap may be connected to band with either spot welds or fillet welds that develop minimum required strength of strap.
 - Use 1/4" gage line dimension on attached angle leg for rivets and spot welds.
 - Band thickness shall not be less than:
 - 3 standard thicknesses lighter than the thickness of the pipe for Corrugated Steel Pipe.
 - 2 standard thicknesses lighter than the thickness of the pipe and in no case lighter than 0.060" for Corrugated Aluminum Pipe.
 - Dimensions, thicknesses and strengths shown are minimum.
 - For pipe arches use same width band as for round pipe of equal periphery.
 - Fillet welds of equivalent strength may be substituted for spot welds or rivets.
 - Spot welds shall develop minimum required strength of strap.
 - Pipe with rerolled ends having at least two 2 2/3" x 1/2" annular corrugations at each end with or without an upturned flange may be connected with any of the annular coupling bands shown for pipe of the same diameter and wall thickness and having 2 2/3" x 1/2" corrugations.
 - In the case of H-12 huggerbands, two piece bands are required for diameters through 96" and three piece bands are required for diameters 102" through 120".
 - Two piece bands are required for pipes greater than 42" diameter.
 - The 2 1/4" x 2" x 0.109" thick galvanized die-formed angle connector may be used in lieu of the 2" x 2" x 3/16" angle connector for standard joints only on pipes through 72" diameter.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
**CORRUGATED METAL PIPE
COUPLING DETAILS No. 5
STANDARD JOINT**
NO SCALE

RSP D97E DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN D97E
DATED MAY 1, 2006 - PAGE 187 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP D97E

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	880	28.4/29.2	465	789

Raymond Don Tszto
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.

REGISTERED PROFESSIONAL ENGINEER
Raymond Don Tszto
No. C37332
Exp. 6-30-08
CIVIL
STATE OF CALIFORNIA

2006 REVISED STANDARD PLAN RSP D97E

ANNULAR AND HELICAL PROFILE

COUPLING TYPE	PIPE CORRUGATION	PIPE SIZE	W OR A	PIPE WALL THICKNESS				BAR AND STRAP (CSP ONLY)				ANGLE							
				CSP		CAP		STRAP THICKNESS	BOLTS Dia	BAR Dia	BAR YIELD STRENGTH	DIMENSIONS		BOLTS (No. - Dia)		RIVETS ANGLE TO BAND		SPOT WELDS ANGLE TO BAND	
				CSP	CAP	CSP	CAP					CSP	CAP	CSP	CAP	CSP	CAP	CSP	
TWO PIECE INTEGRAL FLANGE	1 1/2" x 1/4"	6"-10"	7"	0.064"-0.079"	0.060"	0.064"	0.060"							2-3/8"	2-3/8"				
UNIVERSAL	2 2/3" x 1/2"	12"-24"	12"		0.060"-0.105"		0.060"								3-1/2"				
ANNULAR	2 2/3" x 1/2"	THROUGH 36"	12"	0.064"-0.138"	0.060"-0.135"	0.064"	0.060"	0.079"	1/2"	7/8"	32 ksi	2" x 2" x 3/16"	2" x 2" x 3/16"	3-1/2"	3-1/2"	3-3/8"	3-3/8"	5-1/2"	
		42"-60"	16 1/4"	0.064"-0.168"	0.060"-0.164"	0.064"	0.060"	DOUBLE 0.079"	1/2"	7/8"	32 ksi	2" x 2" x 1/4"	2" x 2" x 1/4"	4-1/2"	4-1/2"	5-3/8"	5-3/8"		
		42"-60"	12"	0.064"-0.079"		0.064"							2" x 2" x 3/16"	2" x 2" x 3/16"	3-1/2"	3-1/2"	3-3/8"	3-3/8"	5-1/2"
		42"-60"	12"	0.109"-0.168"	0.135"-0.164"	0.064"	0.075"						2" x 2" x 1/4"	2" x 2" x 1/4"	3-1/2"	3-1/2"	5-3/8"	5-3/8"	
		66"-84"	24"	0.109"-0.168"		0.064"	0.105"						2" x 2" x 1/4"	2" x 2" x 1/4"	5-1/2"	5-1/2"	7-3/8"	7-3/8"	
		42"-54"	12"		0.060"-0.105"		0.060"						2" x 2" x 3/16"	2" x 2" x 3/16"	3-1/2"	3-1/2"	3-3/8"	3-3/8"	
	3" x 1"	48"-60"	14"	0.064"-0.079"		0.064"							2" x 2" x 3/16"	2" x 2" x 3/16"	3-1/2"	3-1/2"	3-3/8"	3-3/8"	5-1/2"
		48"-60"	14"	0.109"		0.064"							2" x 2" x 3/16"	2" x 2" x 3/16"	3-1/2"	3-1/2"	5-3/8"	5-3/8"	
		66"-120"	25"	0.064"-0.109"		0.064"							2" x 2" x 3/16"	2" x 2" x 3/16"	5-1/2"	5-1/2"	9-3/8"	9-3/8"	
		42"-60"	14"		0.060"-0.105"		0.060"						2" x 2" x 3/16"	2" x 2" x 3/16"	3-1/2"	3-1/2"	5-3/8"	5-3/8"	
		42"-60"	14"		0.135"		0.075"						2" x 2" x 1/4"	2" x 2" x 1/4"	3-1/2"	3-1/2"	5-3/8"	5-3/8"	
		66"-96"	25"		0.060"-0.135"		0.060"						2" x 2" x 1/4"	2" x 2" x 1/4"	5-1/2"	5-1/2"	7-3/8"	7-3/8"	
	HELICAL	2 2/3" x 1/2"	THROUGH 36"	12"	0.064"-0.138"	0.060"-0.135"	0.064"	0.060"					2" x 2" x 3/16"	2" x 2" x 3/16"	3-1/2"	3-1/2"	3-3/8"	3-3/8"	5-1/2"
			42"-54"	12"		0.060"-0.105"		0.060"					2" x 2" x 3/16"	2" x 2" x 3/16"	3-1/2"	3-1/2"	3-3/8"	3-3/8"	
42"-60"			12"	0.064"-0.079"		0.064"							2" x 2" x 3/16"	2" x 2" x 3/16"	3-1/2"	3-1/2"	3-3/8"	3-3/8"	5-1/2"
42"-60"			12"	0.109"-0.168"	0.135"-0.164"	0.064"	0.075"						2" x 2" x 1/4"	2" x 2" x 1/4"	3-1/2"	3-1/2"	5-3/8"	5-3/8"	
66"-84"			24"	0.109"-0.168"		0.064"	0.105"						2" x 2" x 1/4"	2" x 2" x 1/4"	5-1/2"	5-1/2"	7-3/8"	7-3/8"	
3" x 1"		48"-60"	14"	0.064"-0.079"		0.064"							2" x 2" x 3/16"	2" x 2" x 3/16"	3-1/2"	3-1/2"	3-3/8"	3-3/8"	5-1/2"
		48"-60"	14"	0.109"		0.064"							2" x 2" x 3/16"	2" x 2" x 3/16"	3-1/2"	3-1/2"	5-3/8"	5-3/8"	
		66"-120"	25"	0.064"-0.109"		0.064"							2" x 2" x 3/16"	2" x 2" x 3/16"	5-1/2"	5-1/2"	9-3/8"	9-3/8"	
		42"-60"	14"		0.060"-0.105"		0.060"						2" x 2" x 3/16"	2" x 2" x 3/16"	3-1/2"	3-1/2"	5-3/8"	5-3/8"	
		42"-60"	14"		0.135"		0.075"						2" x 2" x 1/4"	2" x 2" x 1/4"	3-1/2"	3-1/2"	5-3/8"	5-3/8"	
HUGGER	2 2/3" x 1/2" REROLLED END	THROUGH 48"	10 1/2"	0.109"		0.064"		0.079"	1/2"	7/8"	32 ksi								
		54"-66"	10 1/2"	0.109"		0.064"		DOUBLE 0.079"	1/2"	7/8"	32 ksi								
		THROUGH 54"	10 1/2"	0.064"-0.079"		0.064"		0.079"	1/2"	7/8"	32 ksi								
		THROUGH 60"	10 1/2"	0.138"		0.079"		DOUBLE 0.079"	1/2"	7/8"	32 ksi								
		66"-72"	10 1/2"	0.138"		0.109"		DOUBLE 0.079"	1/2"	7/8"	32 ksi								
	3" x 1" REROLLED END	THROUGH 72"	10 1/2"	0.168"		0.109"		DOUBLE 0.109"	1/2"	7/8"	45 ksi								
		48"-84"	10 1/2"	0.109"		0.079"		DOUBLE 0.079"	1/2"	7/8"	32 ksi								
		48"-90"	10 1/2"	0.064"-0.079"		0.064"		DOUBLE 0.079"	1/2"	7/8"	32 ksi								
		96"-102"	10 1/2"	0.079"		0.079"		DOUBLE 0.079"	1/2"	7/8"	32 ksi								
96"-120"	10 1/2"	0.109"		0.109"		DOUBLE 0.109"	1/2"	7/8"	45 ksi										

SPIRAL RIB PROFILE

COUPLING TYPE	PIPE CORRUGATION	PIPE SIZE	W	PIPE WALL THICKNESS				BAR AND STRAP (SSRP ONLY)				ANGLE						
				SSRP		ASRP		STRAP THICKNESS	BOLTS Dia	BAR Dia	BAR YIELD STRENGTH	DIMENSIONS		BOLTS (No.- Dia)		RIVETS ANGLE TO BAND		SPOT WELDS ANGLE TO BAND
				SSRP	ASRP	SSRP	ASRP					SSRP	ASRP	SSRP	ASRP	SSRP	ASRP	SSRP
ANNULAR	2 2/3" x 1/2" * REROLLED END	24"-36"	12"	0.064"-0.109"	0.060"-0.105"	0.064"	0.060"	0.079"	1/2"	7/8"	32 ksi	2" x 2" x 3/16"	2" x 2" x 3/16"	3-1/2"	3-1/2"	3-3/8"	3-3/8"	5-1/2"
		42"-60"	12"	0.064"-0.079"	0.075"-0.105"	0.064"	0.075"	0.079"	1/2"	7/8"	32 ksi	2" x 2" x 3/16"	2" x 2" x 3/16"	3-1/2"	3-1/2"	3-3/8"	3-3/8"	5-1/2"
		42"-60"	12"	0.109"		0.064"		0.079"	1/2"	7/8"	32 ksi	2" x 2" x 1/4"		3-1/2"		5-3/8"		
		66"-84"	24"	0.109"		0.064"		0.079"	1/2"	7/8"	32 ksi	2" x 2" x 1/4"		5-1/2"		7-3/8"		
HUGGER	2 2/3" x 1/2" * REROLLED END	24"-54"	10 1/2"	0.064"-0.079"		0.064"		0.079"	1/2"	7/8"	32 ksi							
		24"-48"	10 1/2"	0.109"		0.064"		0.079"	1/2"	7/8"	32 ksi							
		54"-66"	10 1/2"	0.109"		0.064"		Double 0.079"	1/2"	7/8"	32 ksi							

* See Note 13.

13. All profiles of Spiral Rib Pipe (3/4" x 3/4" ribs at 7 1/2" pitch and 3/4" x 1" ribs at 11 1/2" pitch in both steel and aluminum and 3/4" x 1" ribs at 8 1/2" pitch in steel only) shall be manufactured with rerolled ends. Corrugation profile of the rerolled ends shall be 2 2/3" x 1/2" annual corrugations with a minimum of two full corrugations at each end.

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	880	28.4/29.2	466	789

Raymond Don Tsztsoo
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.

REGISTERED PROFESSIONAL ENGINEER
Raymond Don Tsztsoo
No. C37332
Exp. 6-30-08
STATE OF CALIFORNIA

To accompany plans dated 4-8-13

NOTES:

- All ferrous metal coupling band connection hardware shall be galvanized or electroplated in accordance with the Standard Specifications.
- For helically corrugated coupling bands, the connection angles may be oriented parallel to the pipe axis, provided connecting holes are slotted lengthwise sufficiently to allow adjustment for the helix angle.
- Tension strap may be connected to band with either spot welds or fillet welds that develop minimum required strength of strap.
- Use 1/4" gage line dimension on attached angle leg for rivets and spot welds.
- Band thickness shall not be less than:
 - 3 standard thicknesses lighter than the thickness of the pipe for Corrugated Steel Pipe.
 - 2 standard thicknesses lighter than the thickness of the pipe and in no case lighter than 0.060" for Corrugated Aluminum Pipe.
- Dimensions, thicknesses and strengths shown are minimum.
- For pipe arches use same width band as for round pipe of equal periphery.
- Fillet welds of equivalent strength may be substituted for spot welds or rivets.
- Spot welds shall develop minimum required strength of strap.
- Pipe with rerolled ends having at least two 2 2/3" x 1/2" annular corrugations at each end with or without an upturned flange may be connected with any of the annular coupling bands shown for pipe of the same diameter and wall thickness and having 2 2/3" x 1/2" corrugations.
- In the case of H-12 huggerbands, two piece bands are required for diameters through 96" and three piece bands are required for diameters 102" through 120".
- Two piece bands are required for pipes greater than 42" diameter.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

CORRUGATED METAL PIPE COUPLING DETAILS No. 6 POSITIVE JOINT

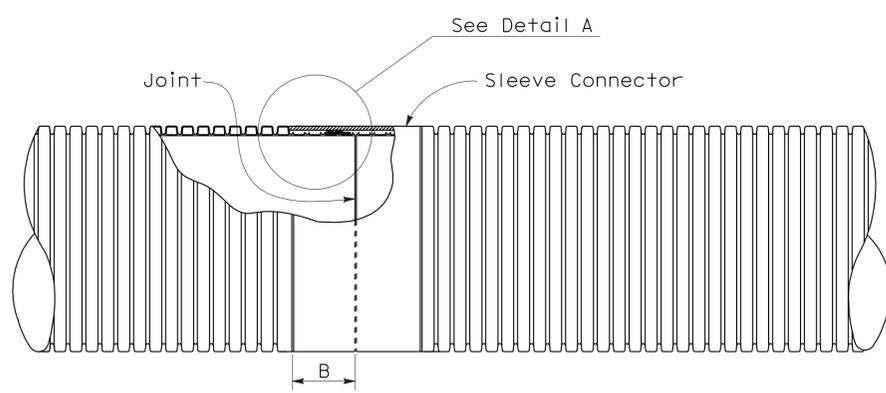
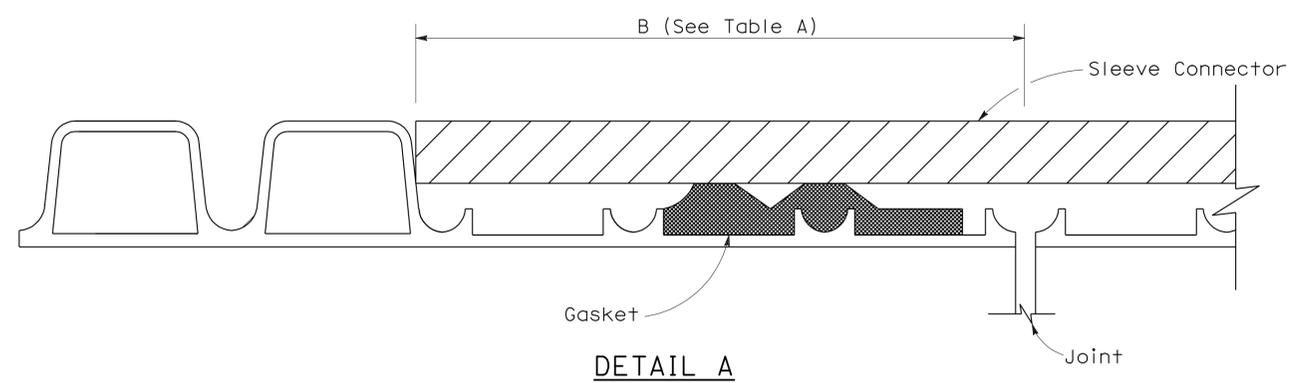
NO SCALE

RSP D97F DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN D97F
DATED MAY 1, 2006 - PAGE 188 OF THE STANDARD PLANS BOOK DATED MAY 2006.

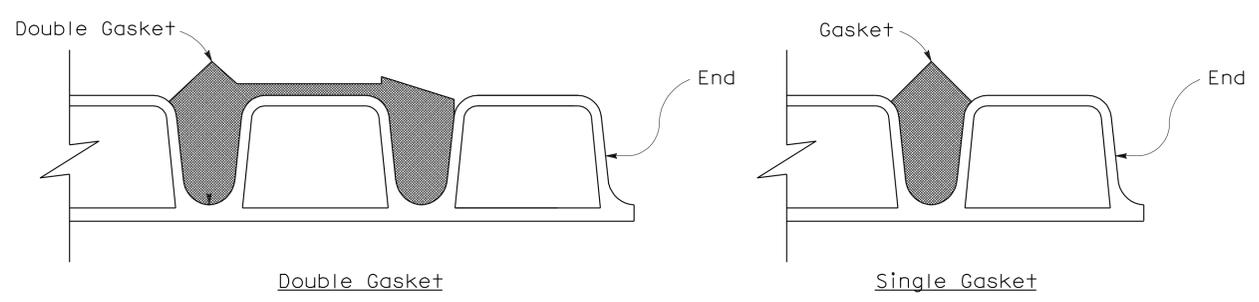
REVISED STANDARD PLAN RSP D97F

2006 REVISED STANDARD PLAN RSP D97F

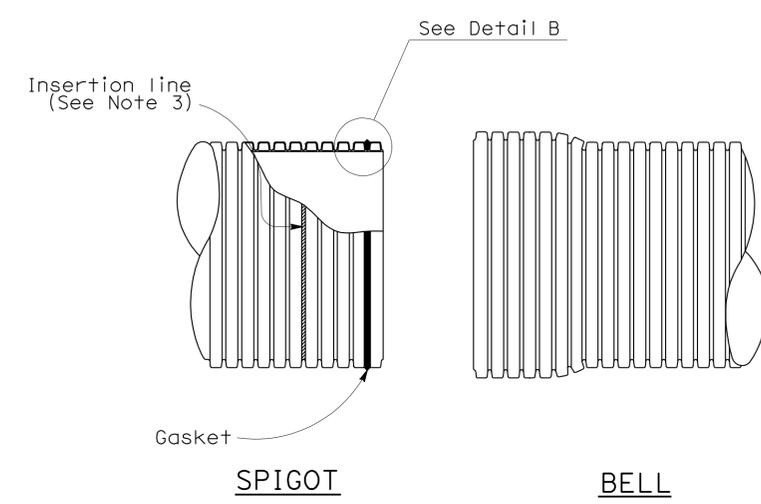
To accompany plans dated 4-8-13



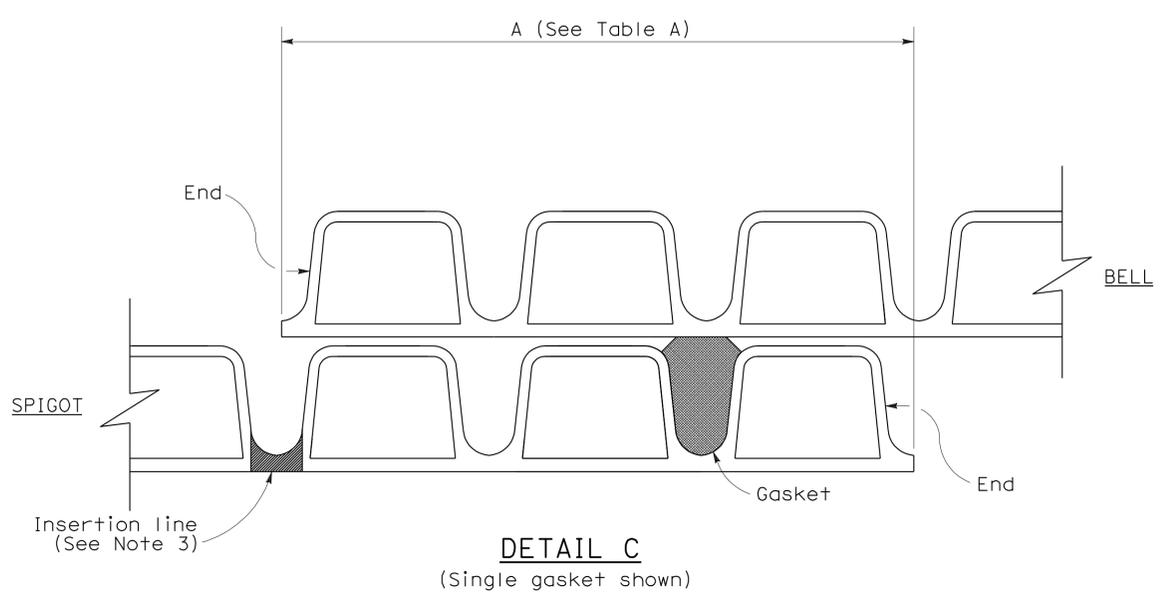
PLAN VIEW
Liner Insert
See Note 4



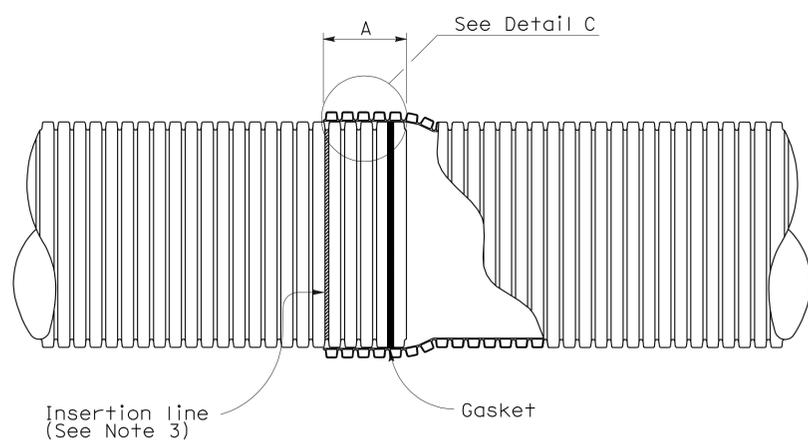
DETAIL B



SPIGOT **BELL**



DETAIL C
(Single gasket shown)



BELL AND SPIGOT JOINT

NOTES:

1. For pipe sections installed on straight alignment, the pipe sections shall be joined to achieve maximum joint overlap at all points on the periphery as indicated in Table A where the plans call for positive or watertight joints. Maximum joint overlap is recommended where the plans call for standard joints, but in no case shall the joint overlap be less than 3 1/2".
2. For pipe sections installed on curved alignment, the maximum angle of deflection from straight alignment at any joint shall not exceed two degrees. Where the plans call for watertightness, field testing for compliance is required. Where plans call for positive joints, the pipe sections shall be joined to achieve Table A Dimensions on one side of the joint. Joints classified as standard shall have no less than 3 1/2" joint overlap at any point on the periphery.
3. Factory applied insertion line limit shall be placed on spigot.
4. Liner insert to be used inside of existing pipe.

TABLE A

JOINT OVERLAP DIMENSIONS		
PIPE Dia (NOMINAL)	A	B
12"	5 3/4"	4 1/4"
15"	6 3/4"	5 5/8"
18"	6 3/4"	5 5/8"
21"	8 1/2"	5 5/8"
24"	8 1/2"	6 1/8"
30"	8 1/2"	7 1/8"
36"	8 1/2"	8 1/8"

STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION
CORRUGATED POLYVINYL CHLORIDE PIPE
WITH SMOOTH INTERIOR
STANDARD AND POSITIVE JOINTS

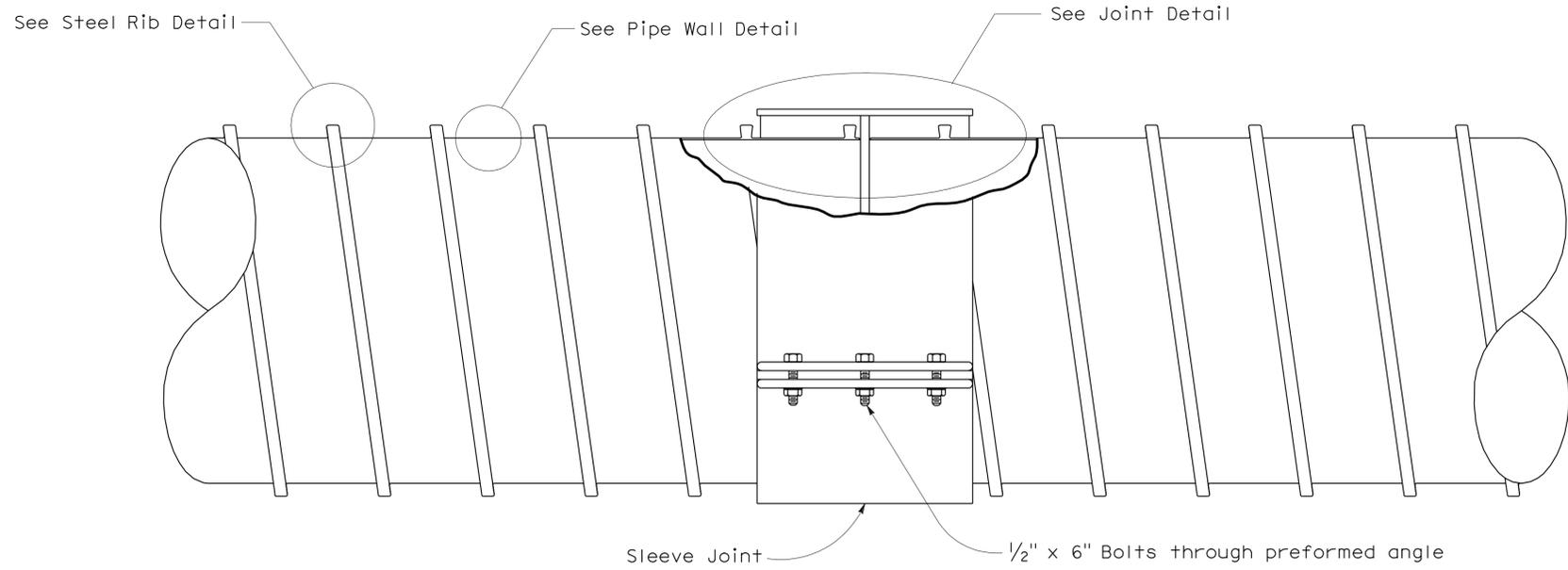
NO SCALE
 NSP D97I DATED MARCH 7, 2008 SUPPLEMENTS THE STANDARD
 PLANS BOOK DATED MAY 2006.

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	880	28.4/29.2	468	789

Raymond Don Tsztou
 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.

REGISTERED PROFESSIONAL ENGINEER
 Raymond Don Tsztou
 No. C37332
 Exp. 6-30-08
 CIVIL
 STATE OF CALIFORNIA

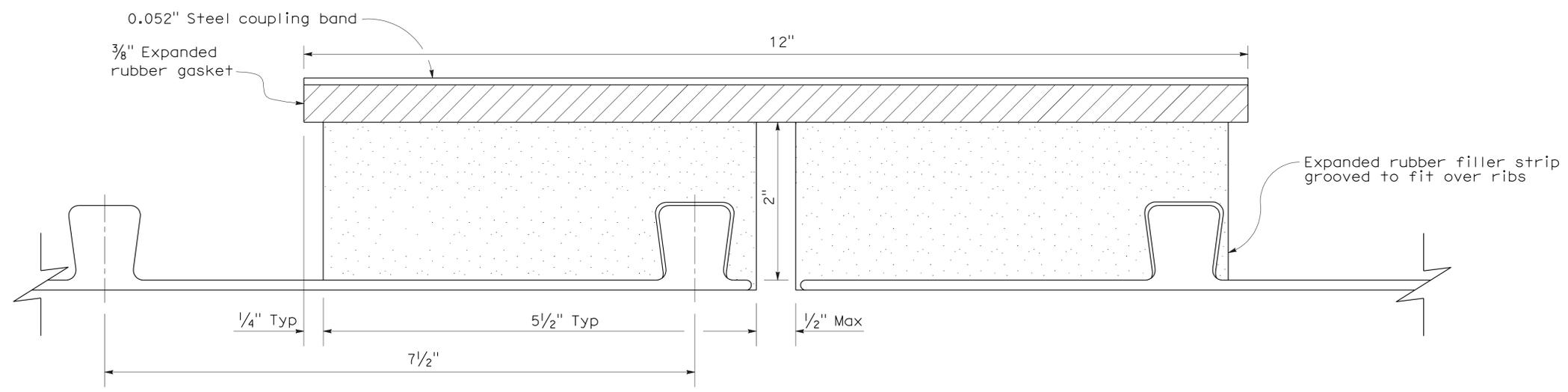
To accompany plans dated 4-8-13



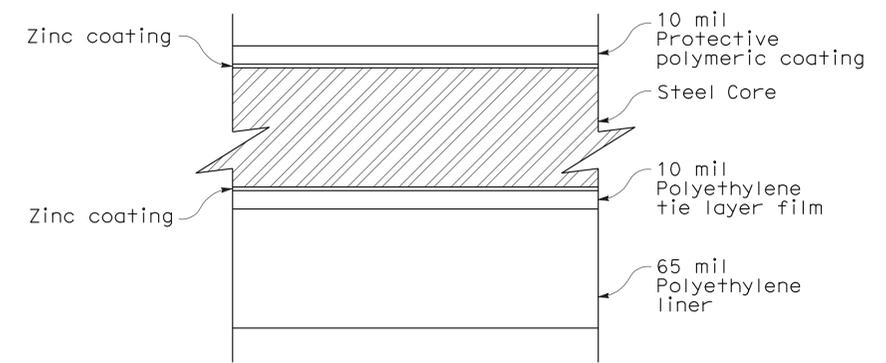
COMPOSITE STEEL SPIRAL RIB PIPE

NOTES:

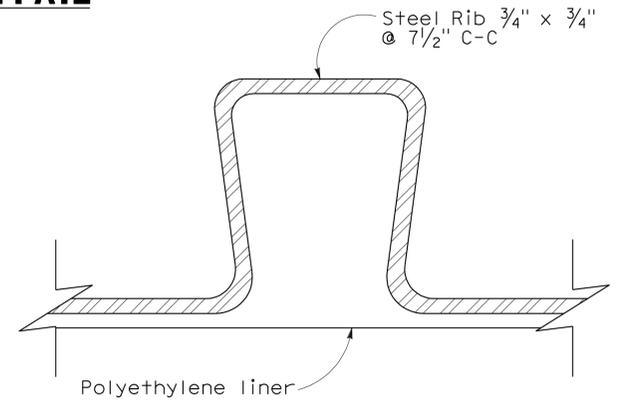
1. Pipe to conform to ASTM A 978.
2. See Standard Plan A62F for backfill details.
3. Protective polymer film to conform to ASTM A 742 and AASHTO M 246.
4. See Standard Plan D97C for Universal Coupling details.
5. Strap joint connection shall consist of 2 separate bolted preformed connectors joined to form one strap when pipe inside diameter is greater than or equal to 60".



JOINT DETAIL



PIPE WALL DETAIL



STEEL RIB DETAIL

STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION
**COMPOSITE STEEL SPIRAL RIB PIPE
 WITH SMOOTH INTERIOR
 STANDARD JOINT**

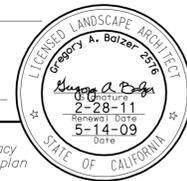
NO SCALE
 NSP D97J DATED JUNE 6, 2008 SUPPLEMENTS THE
 STANDARD PLANS BOOK DATED MAY 2006.

NEW STANDARD PLAN NSP D97J

2006 NEW STANDARD PLAN NSP D97J

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	880	28.4/29.2	469	789

Gregory A. Balzer
 LICENSED LANDSCAPE ARCHITECT
 June 5, 2009
 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 4-8-13

2006 REVISED STANDARD PLAN RSP H1

A

AB aggregate base
 ABS acrylonitrile-butadiene-styrene
 AC asphalt concrete
 Adj adjacent/adjustable
 AIC auxiliary irrigation controller
 Alt alternative
 AMEND amendment
 ARV air release valve
 AUTO automatic
 AUX auxiliary
 AVB atmospheric vacuum breaker

B

B&B balled and burlapped
 B/B brass/bronze
 B/B/PL brass/bronze/plastic
 B/PL brass/plastic
 BFM bonded fiber matrix
 Bit C+D bituminous coated
 BP booster pump
 BPA backflow preventer assembly
 BPAE backflow preventer assembly in enclosure
 BPE backflow preventer enclosure
 BV ball valve

C

CAP corrugated aluminum pipe
 CARV combination air release valve
 CCA cam coupler assembly
 CEC controller enclosure cabinet
 CHDPE corrugated high density polyethylene
 CL chain link
 CNC control and neutral conductors
 Conc concrete
 Cond conduit
 CSP corrugated steel pipe
 CST center strip
 CV check valve

D

Dia diameter
 DIP ductile iron pipe
 DN diameter nominal

E

EA each
 Elect electric/electrical
 Elev elevation
 ENCL enclosure
 EP edge of pavement
 ES edge of shoulder
 EST end strip
 ESTB establishment
 ETW edge of traveled way

F

F full circle
 F/P full/part circle
 FAU filter assembly unit
 FCV flow control valve
 FERT fertilizer
 FG finished grade
 FIPT female iron pipe thread
 FIS fertilizer injector system
 FL flow line
 FM flow monitor
 FS flow sensor
 Ft foot/feet
 FV flush valve

G

GAL Gallon(s)
 Galv galvanized
 GARV garden valve
 GPH gallons per hour
 GPM gallons per minute
 GSP galvanized steel pipe
 GV gate valve

H

H half circle
 HB hose bib
 HDPE high density polyethylene
 HP horsepower/hinge point
 HPL high pressure line
 Hwy highway

I

IC irrigation controller
 ICC irrigation controller(s) in controller enclosure cabinet
 ID inside diameter
 In inches
 IFS irrigation filtration system
 IPS iron pipe size
 IPT iron pipe thread
 Irr irrigation

L

L length
 LF linear foot

M

Max maximum
 MBGR metal beam guard railing
 MCV manual control valve
 MIC master irrigation controller
 Min minimum
 MIPT male iron pipe thread
 Misc miscellaneous
 M+I material
 MVP maintenance vehicle pullout

N

NCN no common name
 NL nozzle line
 No. number
 NPT national pipe thread

O

O/C on center
 OD outside diameter
 Oz ounce

P

P part circle
 PB pull box
 PCC portland cement concrete
 PE polyethylene
 PK+ packet
 PL plastic
 PLT plant/planting
 PLT ESTB plant establishment
 PM post mile
 PR pressure rated
 PRLV pressure relief valve
 PSFM polymer stabilized fiber matrix
 PSI pounds per square inch
 PRV pressure reducing valve
 PVC polyvinyl chloride
 Pvm+ pavement

Q

Q quarter circle
 QCV quick coupling valve

R

R radius
 RCP reinforced concrete pipe
 RCV remote control valve
 RCVM remote control valve (master)
 RCVMF remote control valve (master) w/ flow meter
 RCW recycled/reclaimed water
 RECP rolled erosion control product
 REQ required
 R/W right of way

S

S slip
 SCC sprinkler control conduit
 SCH schedule
 SF state-furnished
 Shld shoulder
 SQFT square foot/feet
 SQYD square yard(s)
 SST side strip
 Sta station
 Std standard
 SW sidewalk/sound wall

T

T third circle/thread
 TLS truck loading standpipe
 TQ three quarter circle
 TRM turf reinforcement mat
 TRVD traveled
 TT two third circle
 Typ typical

U

UG underground

V

VAU valve assembly unit

W

W width
 W/ with
 WM water meter
 WS wye strainer
 WSP welded steel pipe
 WWM welded wire mesh

NOTE:

FOR ADDITIONAL ABBREVIATIONS, SEE STANDARD PLANS A10A AND A10B.

PLANTING AND IRRIGATION ABBREVIATIONS

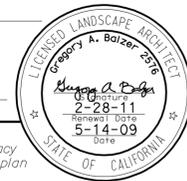
NO SCALE

RSP H1 DATED JUNE 5, 2009 SUPERSEDES STANDARD PLAN H1 DATED MAY 1, 2006 - PAGE 201 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP H1

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	880	28.4/29.2	470	789

Gregory A. Balzer
 LICENSED LANDSCAPE ARCHITECT
 June 5, 2009
 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.

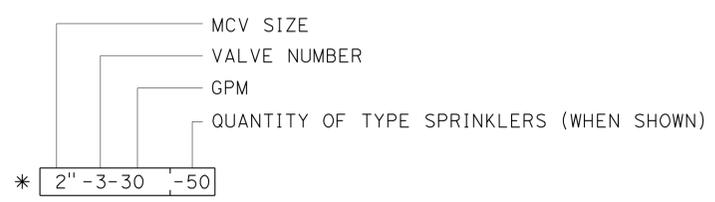
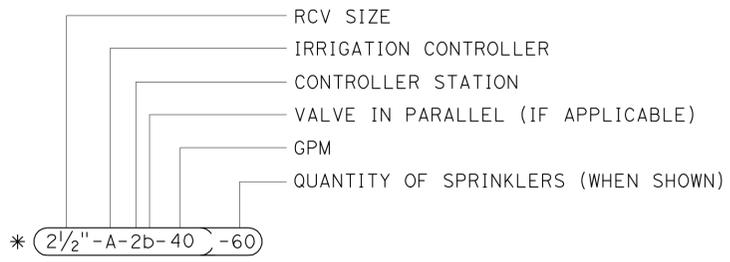


To accompany plans dated 4-8-13

EXISTING	PROPOSED	ITEM DESCRIPTION
		WATER METER (WM)
		BACKFLOW PREVENTER ASSEMBLY (BPA)
		BACKFLOW PREVENTER ASSEMBLY IN ENCLOSURE (BPAE)
		BACKFLOW PREVENTER ENCLOSURE (BPE)
		BOOSTER PUMP (BP)
		TRUCK LOADING STANDPIPE (TLS)
		FLOW SENSOR (FS)
		MASTER IRRIGATION CONTROLLER (MIC)
		AUXILIARY IRRIGATION CONTROLLER (AIC)
		IRRIGATION CONTROLLER (IC)/ IRRIGATION CONTROLLER (IC) (BATTERY) IRRIGATION CONTROLLER (IC) (SOLAR)
		IRRIGATION CONTROLLER(S) IN CONTROLLER ENCLOSURE CABINET (ICC)
		CONTROL AND NEUTRAL CONDUCTORS (CNC)
		SPRINKLER CONTROL CONDUIT (SCC)
		IRRIGATION CROSSOVER
		EXTEND IRRIGATION CROSSOVER
		IRRIGATION SLEEVE
		DUCTILE IRON PIPE (SUPPLY LINE) (MAIN) (DIP)
		GALVANIZED STEEL PIPE (SUPPLY LINE) (MAIN) (GSP)
		GALVANIZED STEEL PIPE (SUPPLY LINE) (LATERAL) (GSP)
		PLASTIC PIPE (PR 200) (SUPPLY LINE) (MAIN)
		PLASTIC PIPE (PR 200) (SUPPLY LINE) (LATERAL)
		PLASTIC PIPE (IRRIGATION LINE)
		REMOTE CONTROL VALVE (RCV) REMOTE CONTROL VALVE (MASTER) (RCVM) REMOTE CONTROL VALVE (MASTER) W/FLOW METER (RCVMF)
		MANUAL CONTROL VALVE (MCV)
		VALVE ASSEMBLY UNIT (VAU)
		WYE STRAINER (WS)
		FILTER ASSEMBLY UNIT (FAU)
		GATE VALVE (GV)
		BALL VALVE (BV)

EXISTING	PROPOSED	ITEM DESCRIPTION
		QUICK COUPLING VALVE (QCV)
		CAM COUPLER ASSEMBLY (CCA)
		PRESSURE REDUCING VALVE (PRV)
		PRESSURE RELIEF VALVE (PRLV)
		FLOW CONTROL VALVE (FCV)
		COMBINATION AIR RELEASE VALVE (CARV)
		CHECK VALVE (CV)
		FLUSH VALVE (FV)
		NOZZLE LINE W/TURNING UNION
		IRRIGATION SYSTEM
		IRRIGATION SYSTEM TO BE REMOVED
		CHAIN LINK GATE
		QUICK COUPLING VALVE W/SPRINKLER PROTECTOR
		SPRINKLER W/SPRINKLER PROTECTOR
		CONNECT TO EXISTING SYSTEM
		CAP
		CAP EXISTING

VALVE CODE



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

PLANTING AND IRRIGATION SYMBOLS

NO SCALE

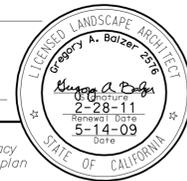
RSP H2 DATED JUNE 5, 2009 SUPERSEDES RSP H2 DATED MARCH 7, 2008 AND STANDARD PLAN H2 DATED MAY 1, 2006 - PAGE 202 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP H2

2006 REVISED STANDARD PLAN RSP H2

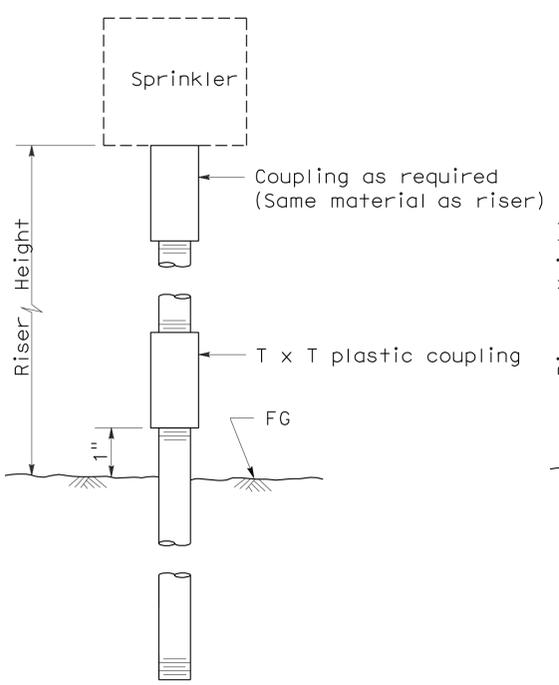
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	880	28.4/29.2	471	789

Gregory A. Balzer
 LICENSED LANDSCAPE ARCHITECT
 June 5, 2009
 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.

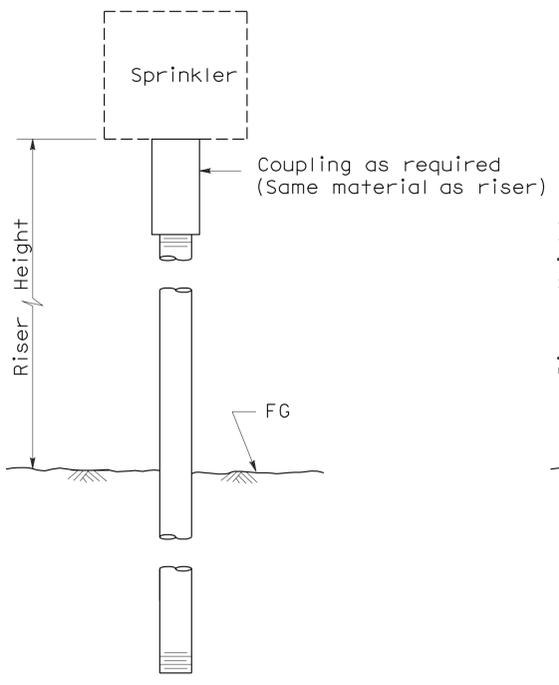


To accompany plans dated 4-8-13

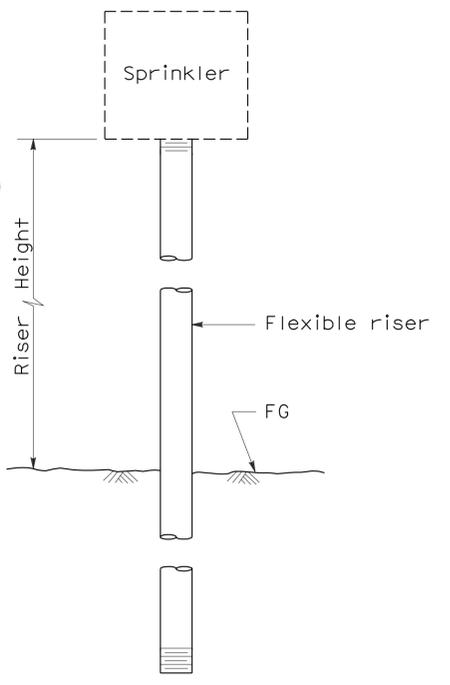
2006 REVISED STANDARD PLAN RSP H5



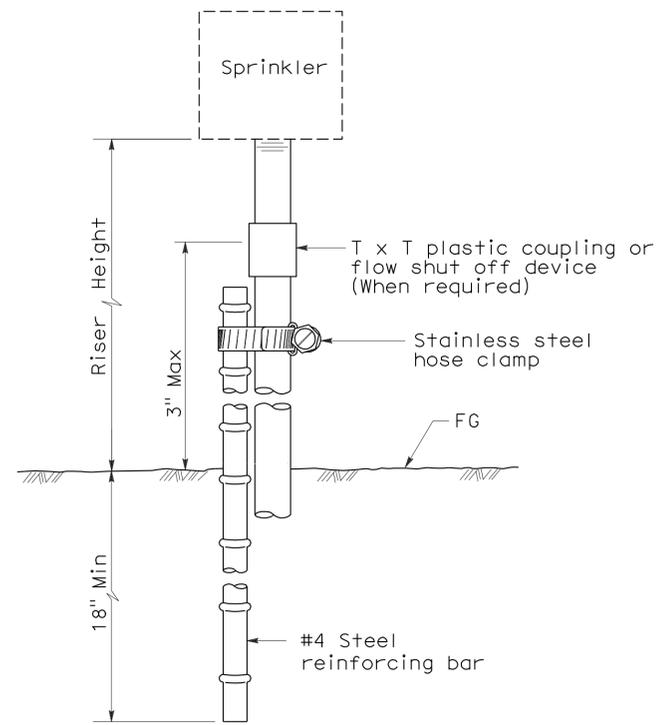
ELEVATION
RISER TYPE I



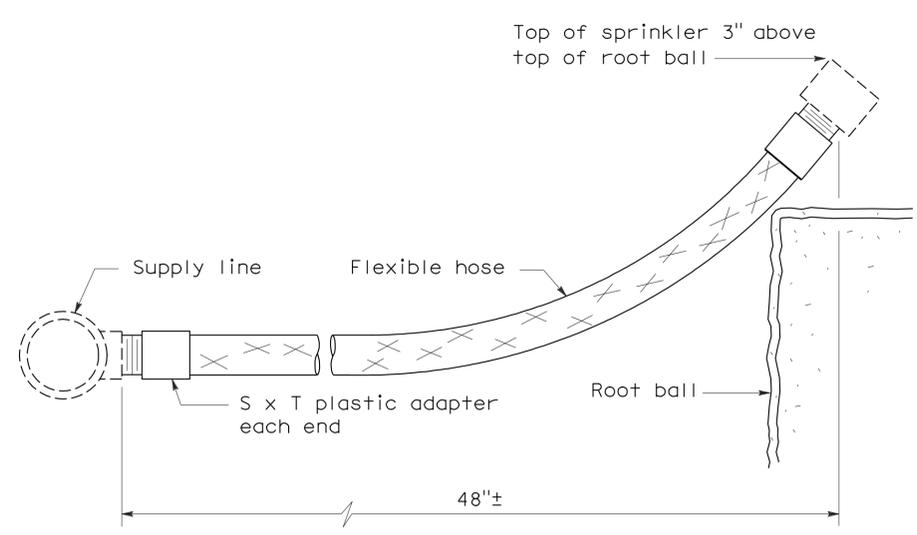
ELEVATION
RISER TYPE II



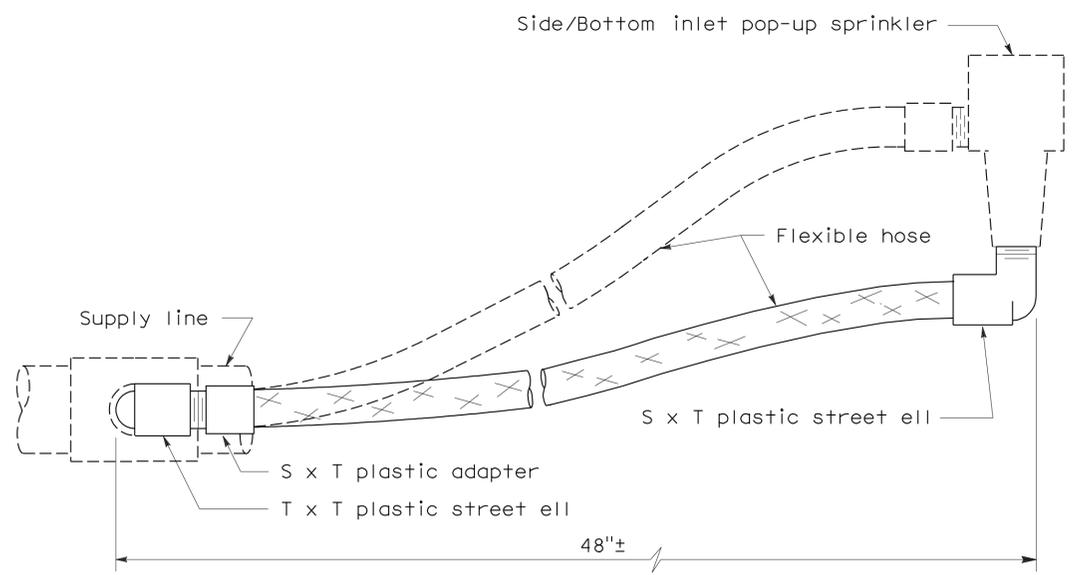
ELEVATION
RISER TYPE III



ELEVATION
RISER TYPE IV



ELEVATION
RISER TYPE V



ELEVATION
RISER TYPE VI

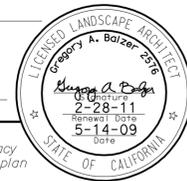
STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
**PLANTING AND IRRIGATION
DETAILS**
NO SCALE

RSP H5 DATED JUNE 5, 2009 SUPERSEDES STANDARD PLAN H5
DATED MAY 1, 2006 - PAGE 205 OF THE STANDARD PLANS BOOK DATED MAY 2006.

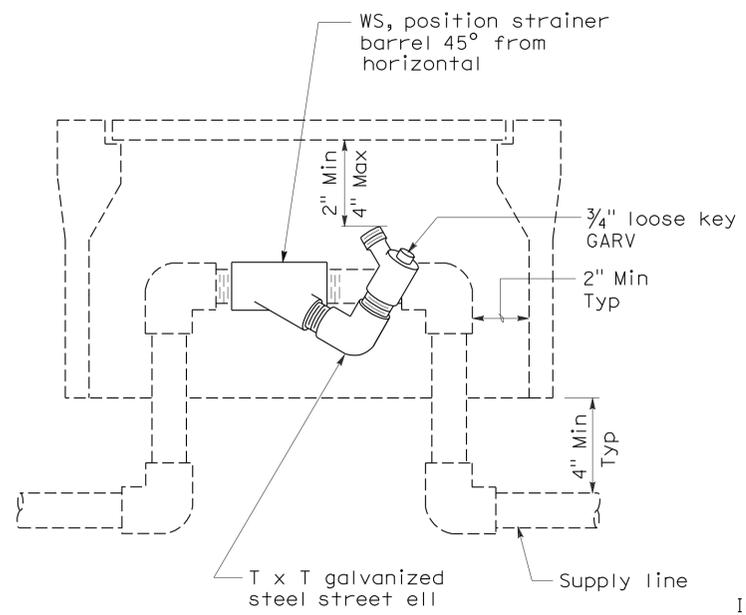
REVISED STANDARD PLAN RSP H5

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	880	28.4/29.2	472	789

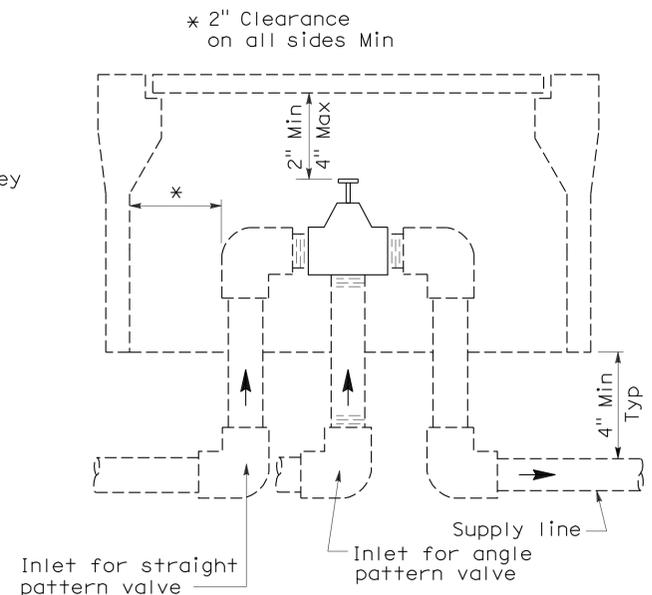
Gregory A. Balzer
 LICENSED LANDSCAPE ARCHITECT
 June 5, 2009
 PLANS APPROVAL DATE
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.



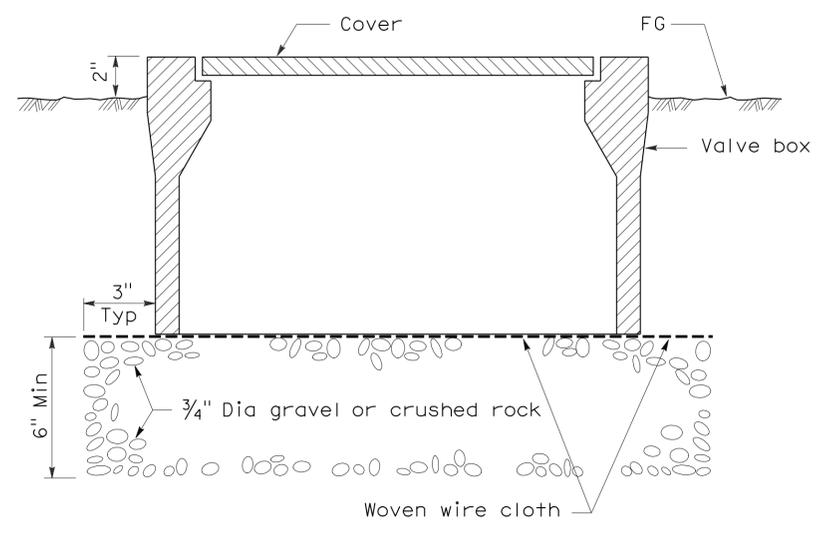
To accompany plans dated 4-8-13



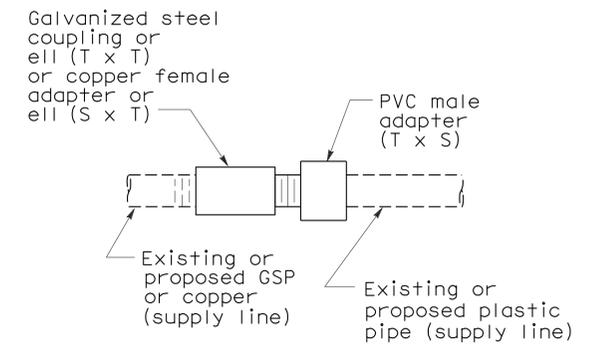
**ELEVATION
WYE STRAINER**



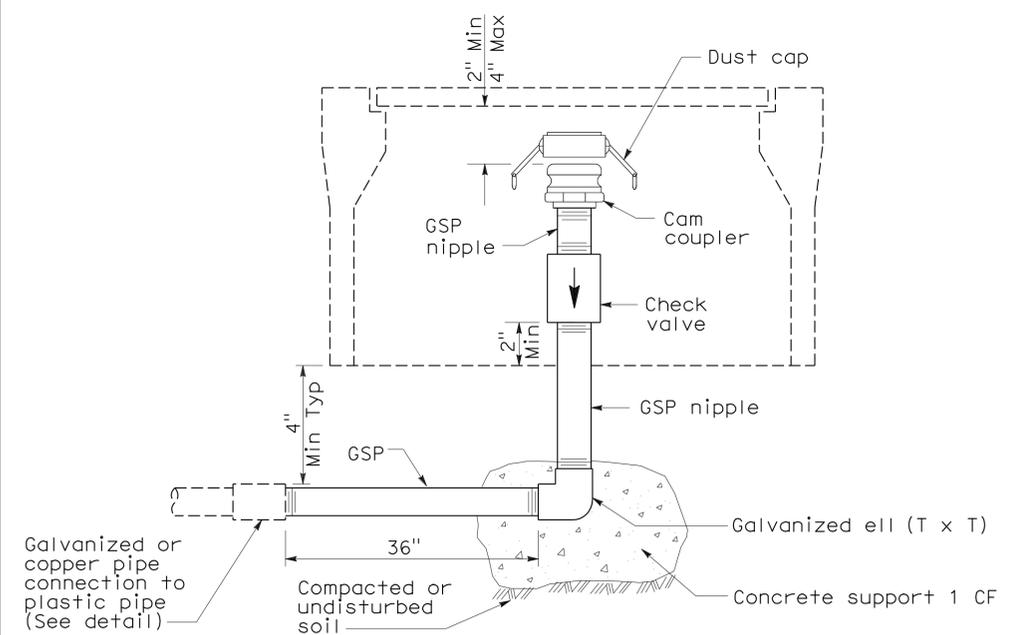
**ELEVATION
VALVE**



**SECTION
VALVE BOX**

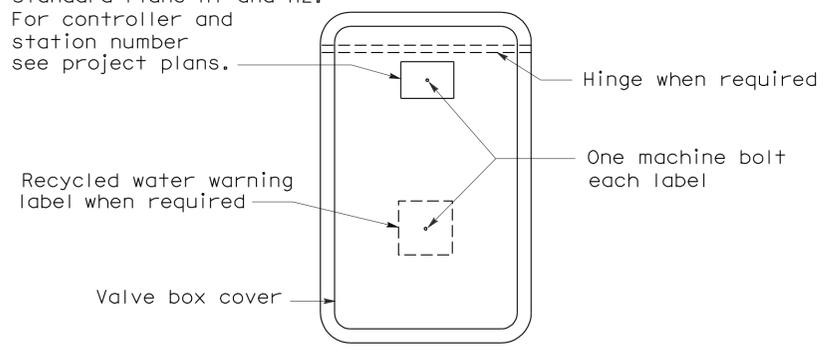


**PLAN
GALVANIZED OR COPPER PIPE
CONNECTION TO PLASTIC PIPE**

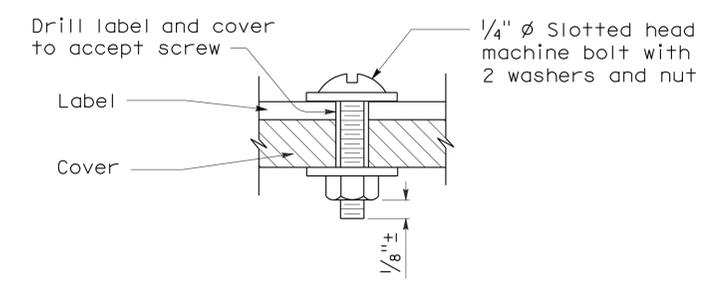


**ELEVATION
CAM COUPLER ASSEMBLY**

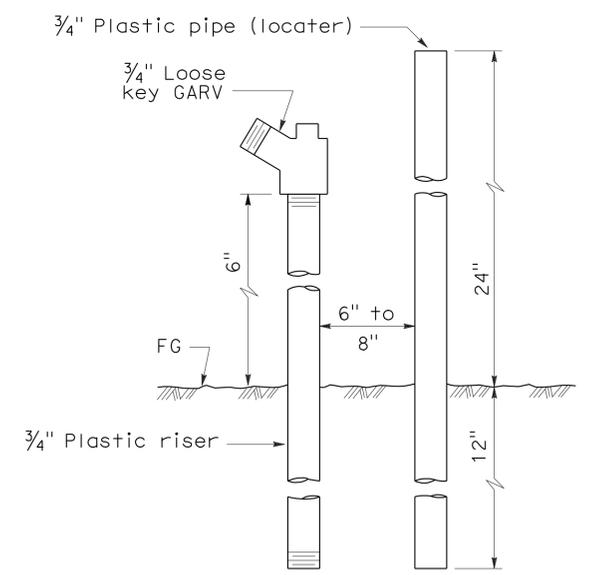
Identification label:
 For abbreviations see Revised Standard Plans H1 and H2.
 For controller and station number see project plans.



PLAN



**SECTION
VALVE BOX IDENTIFICATION**



**ELEVATION
FLUSH VALVE**

STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION

**PLANTING AND IRRIGATION
DETAILS**

NO SCALE

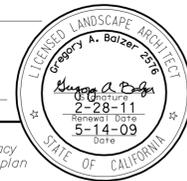
RSP H7 DATED JUNE 5, 2009 SUPERSEDES STANDARD PLAN H7
 DATED MAY 1, 2006 - PAGE 207 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP H7

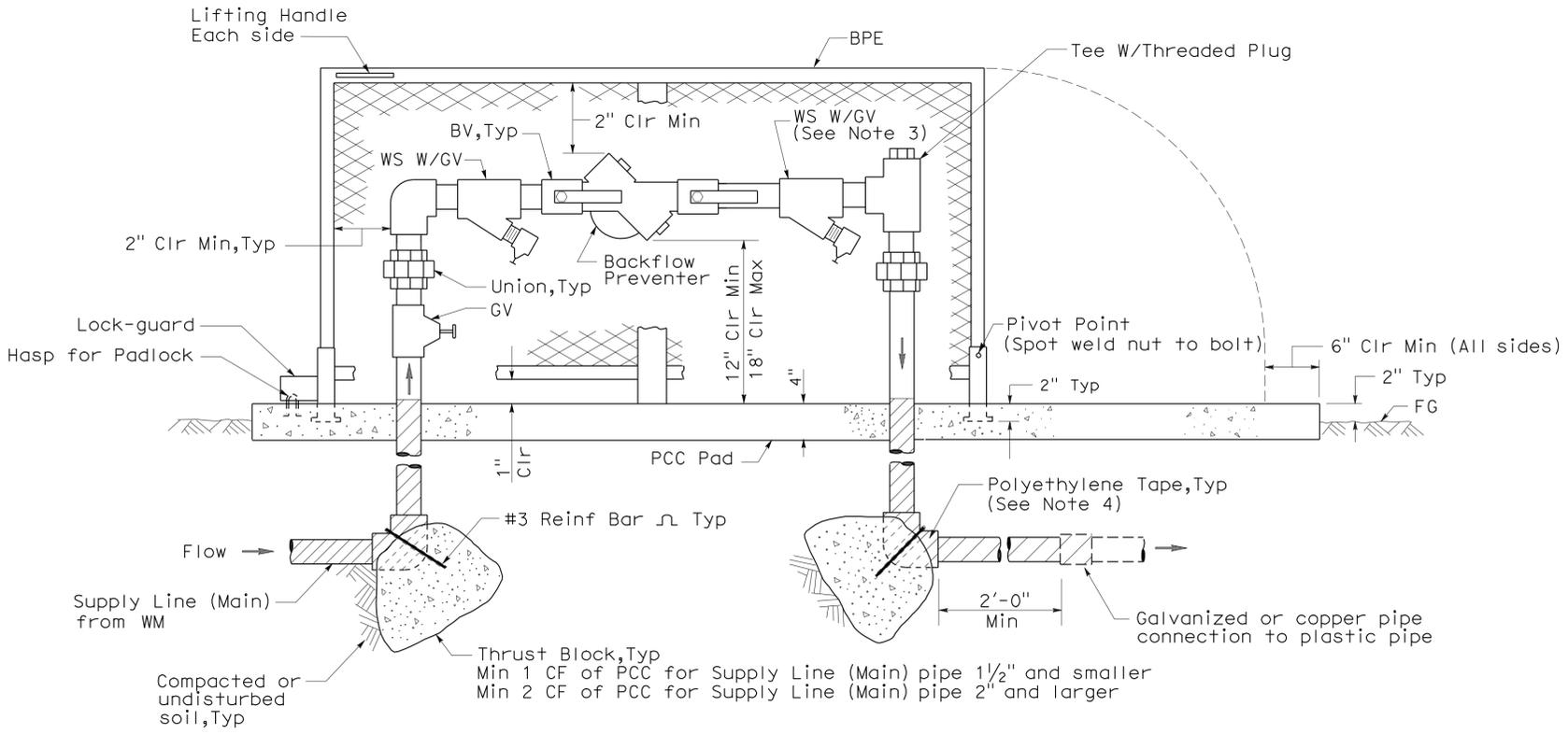
2006 REVISED STANDARD PLAN RSP H7

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	880	28.4/29.2	473	789

Gregory A. Balzer
 LICENSED LANDSCAPE ARCHITECT
 June 5, 2009
 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 4-8-13

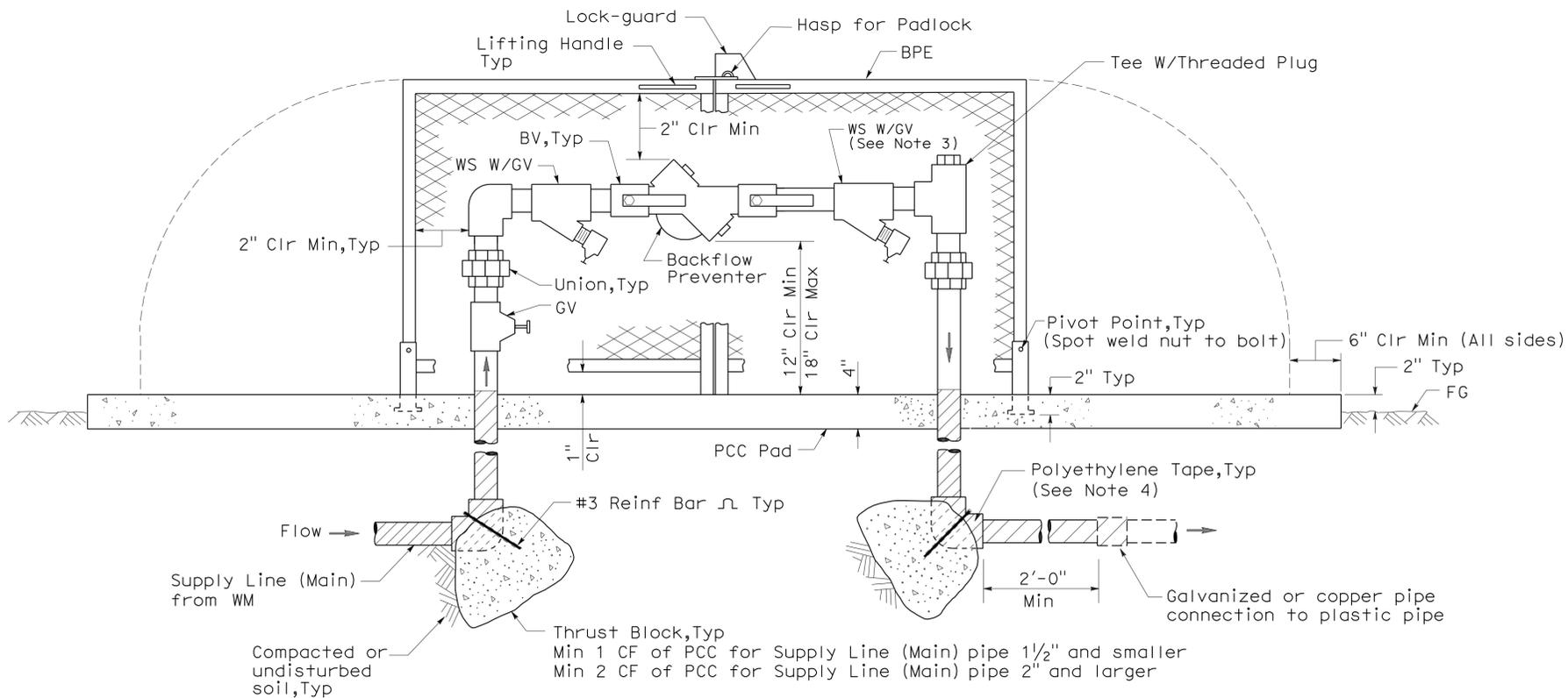


ELEVATION

BACKFLOW PREVENTER ASSEMBLY IN ENCLOSURE (ONE PIECE)

NOTES:

1. Wye strainer and fittings must be the same size as the backflow preventer shown on the plans.
2. Backflow preventer assembly manifold pipe must be the same pipe as the supply line (main) pipe to be installed from the water meter to the backflow preventer assembly.
3. Wye strainer location shown downstream of the backflow preventer is for District 11 projects only.
4. All metal in contact with soil and Portland Cement Concrete must be polyethylene wrapped using 2" wide plastic backed adhesive tape 20 mil thick with 1/2" overlap.



ELEVATION

BACKFLOW PREVENTER ASSEMBLY IN ENCLOSURE (TWO PIECE)

STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION
**PLANTING AND IRRIGATION
 DETAILS**

NO SCALE

RSP H8 DATED JUNE 5, 2009 SUPERSEDES STANDARD PLAN H8
 DATED MAY 1, 2006 - PAGE 208 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP H8

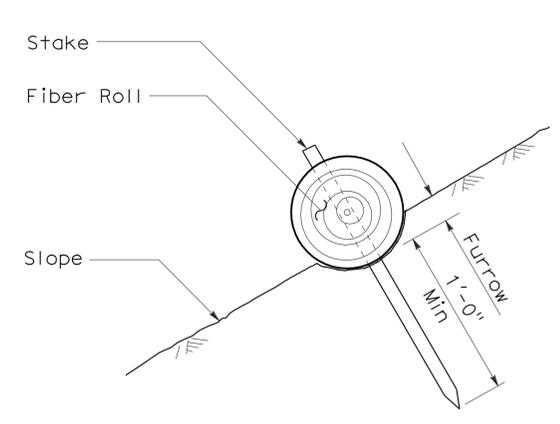
2006 REVISED STANDARD PLAN RSP H8

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	880	28.4/29.2	474	789

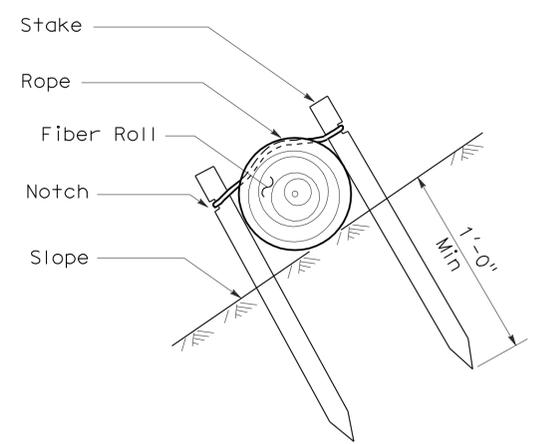
Gregory A. Balzer
 LICENSED LANDSCAPE ARCHITECT
 April 3, 2009
 PLANS APPROVAL DATE
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

To accompany plans dated 4-8-13

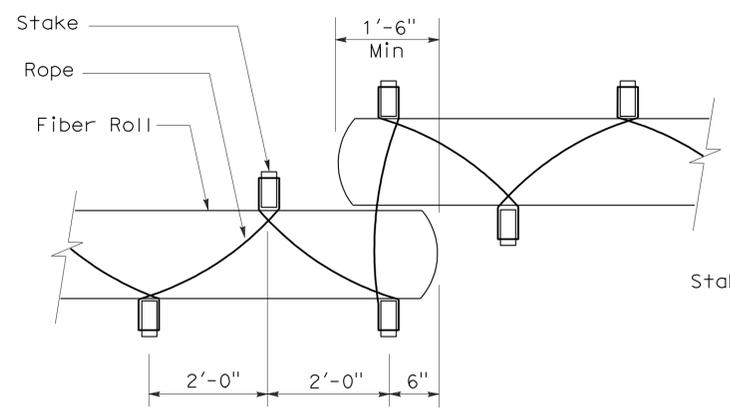
- NOTES:**
1. Fiber roll spacing varies depending upon slope inclination.
 2. Installations shown in the perspectives are for slope inclination of 10:1 and steeper.



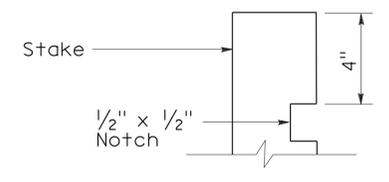
SECTION
FIBER ROLL
(TYPE 1)



SECTION

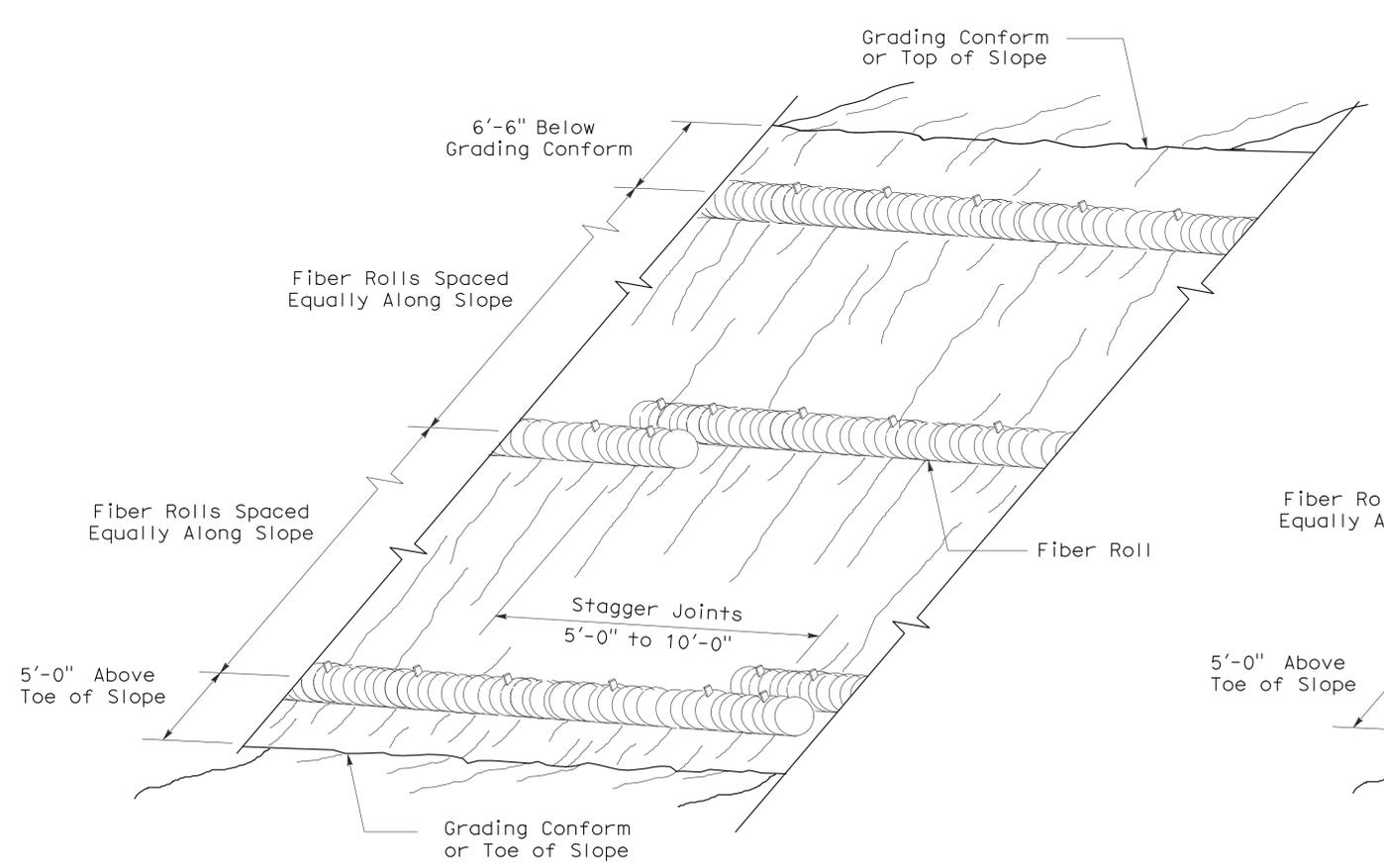


PLAN

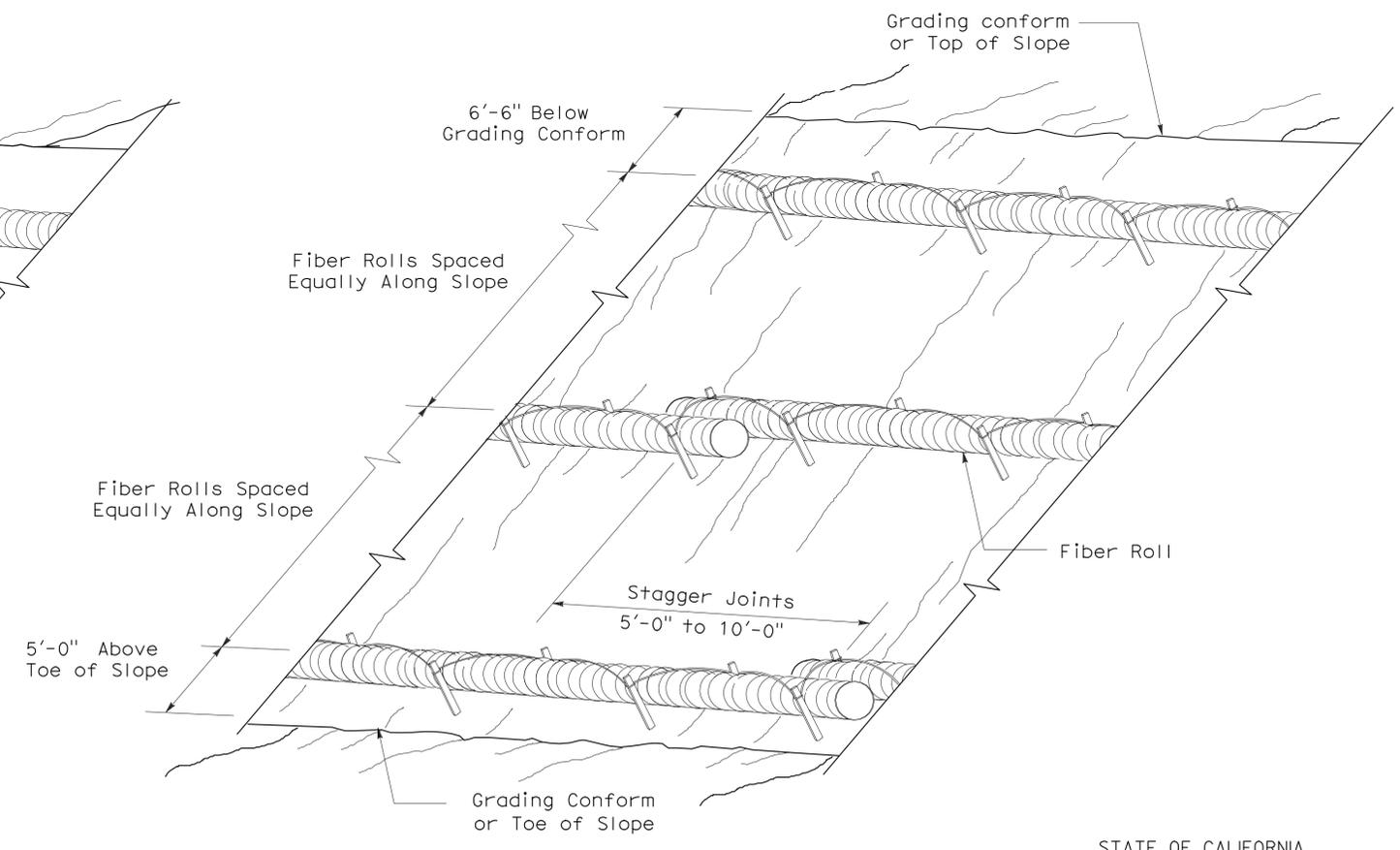


ELEVATION
STAKE NOTCH DETAIL

FIBER ROLL
(TYPE 2)



PERSPECTIVE
FIBER ROLL (TYPE 1)



PERSPECTIVE
FIBER ROLL (TYPE 2)

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
EROSION CONTROL DETAILS
(FIBER ROLL)

NO SCALE
RNSP H51 DATED APRIL 3, 2009 SUPERSEDES NSP H51 DATED DECEMBER 1, 2006 THAT SUPPLEMENTS THE STANDARD PLANS BOOK DATED MAY 2006.

2006 REVISED NEW STANDARD PLAN RNSP H51

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	880	28.4/29.2	475	789

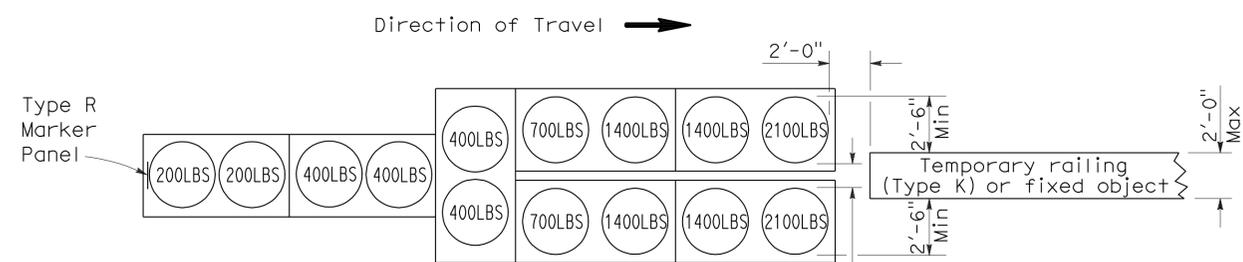
Randell D. Hiatt
REGISTERED CIVIL ENGINEER

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.

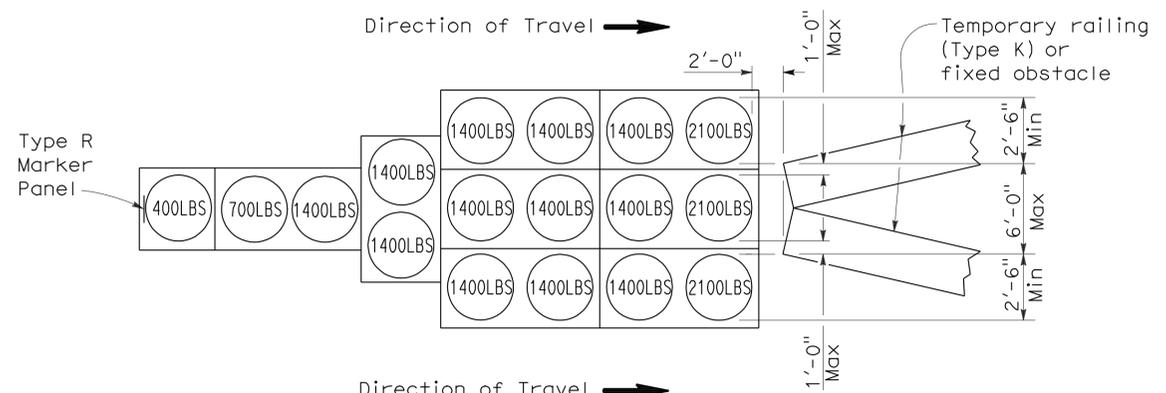
REGISTERED PROFESSIONAL ENGINEER
Randell D. Hiatt
No. C50200
Exp. 6-30-09
CIVIL
STATE OF CALIFORNIA

To accompany plans dated 4-8-13



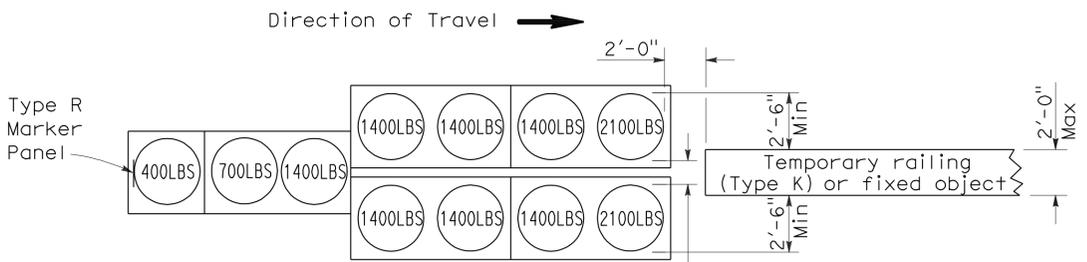
ARRAY 'TU14'

Approach speed 45 mph or more



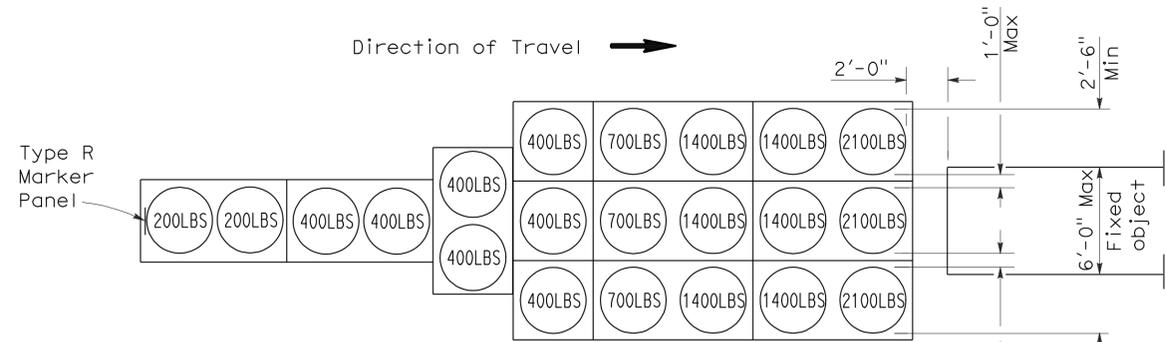
ARRAY 'TU17'

Approach speed less than 45 mph



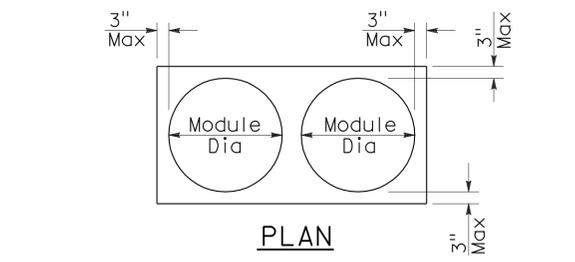
ARRAY 'TU11'

Approach speed less than 45 mph

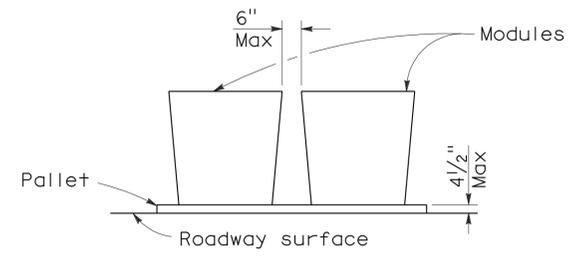


ARRAY 'TU21'

Approach speed 45 mph or more



PLAN



ELEVATION

CRASH CUSHION PALLET DETAIL

See Note 7

NOTES:

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

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

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

NO SCALE

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

REVISED STANDARD PLAN RSP T1A

2006 REVISED STANDARD PLAN RSP T1A

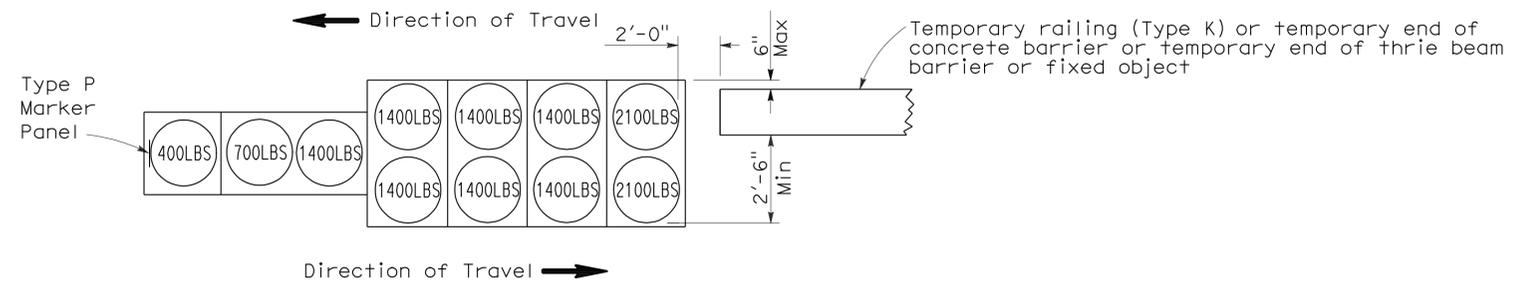
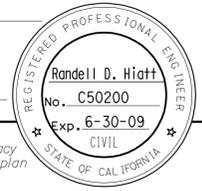
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	880	28.4/29.2	476	789

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

June 6, 2008
PLANS APPROVAL DATE

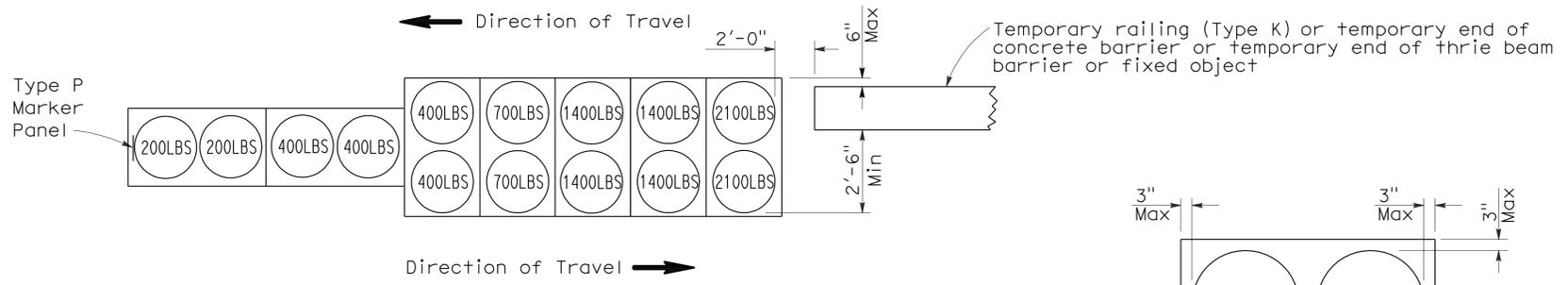
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

To accompany plans dated 4-8-13



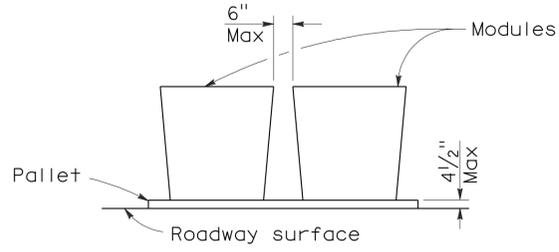
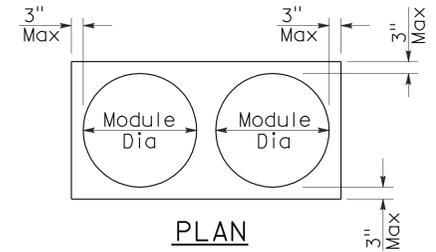
ARRAY 'TB11'

Approach speed less than 45 mph



ARRAY 'TB14'

Approach speed 45 mph or more



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
04	Ala	880	28.4/29.2	477	789

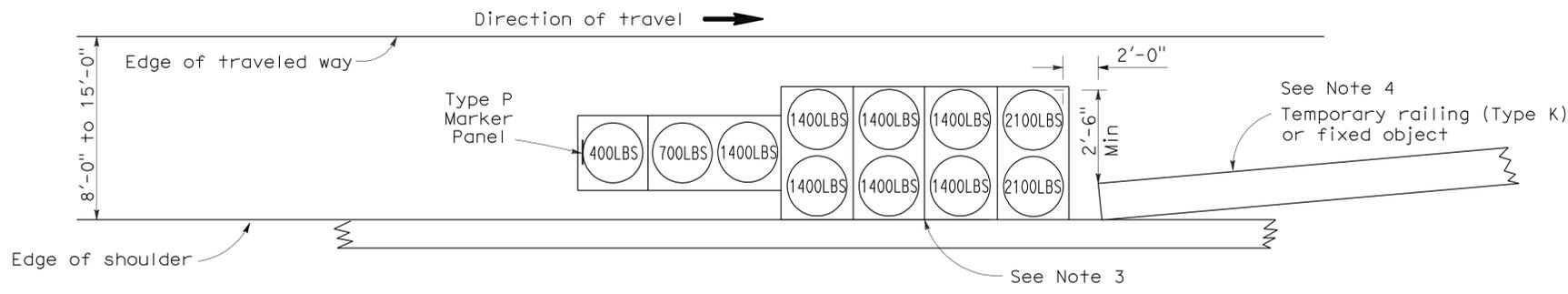
Randell D. Hiatt
REGISTERED CIVIL ENGINEER

June 6, 2008
PLANS APPROVAL DATE

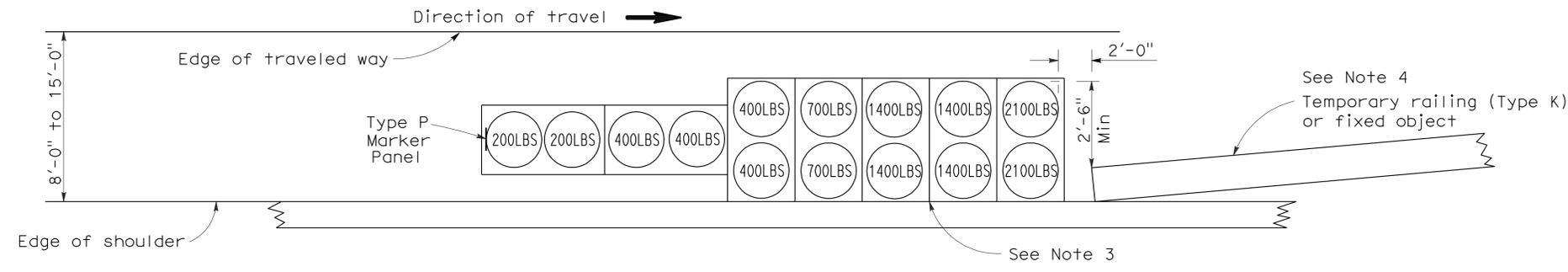
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.



To accompany plans dated 4-8-13



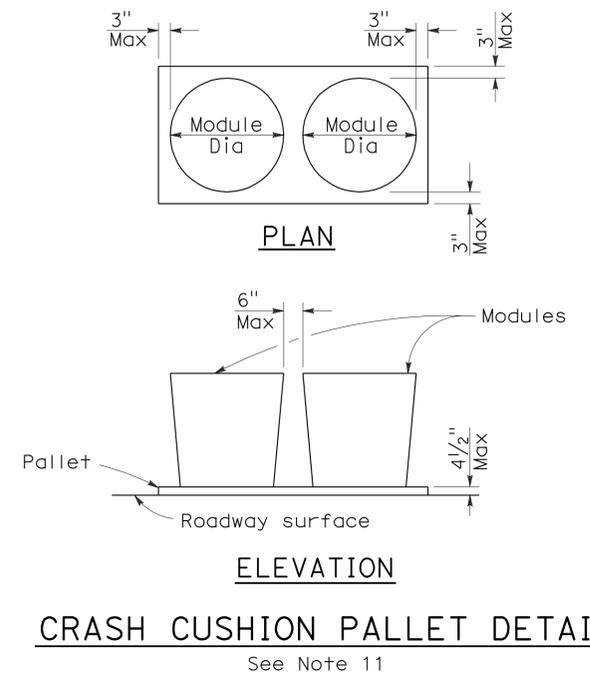
ARRAY 'TS11'
Approach speed less than 45 mph
See Note 9



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

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. 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.
4. 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.
5. Temporary crash cushion arrays shall not encroach on the traveled way.
6. Arrays for median shoulders shall conform to details shown on this plan for outside shoulders.
7. Place the Type P marker panel so that the bottom of the panel rests upon the pallet and faces traffic.
8. Refer to Standard Plan A73B for marker details.
9. 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.
10. Approach speeds indicated conform to NCHRP 350 Report criteria.
11. 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

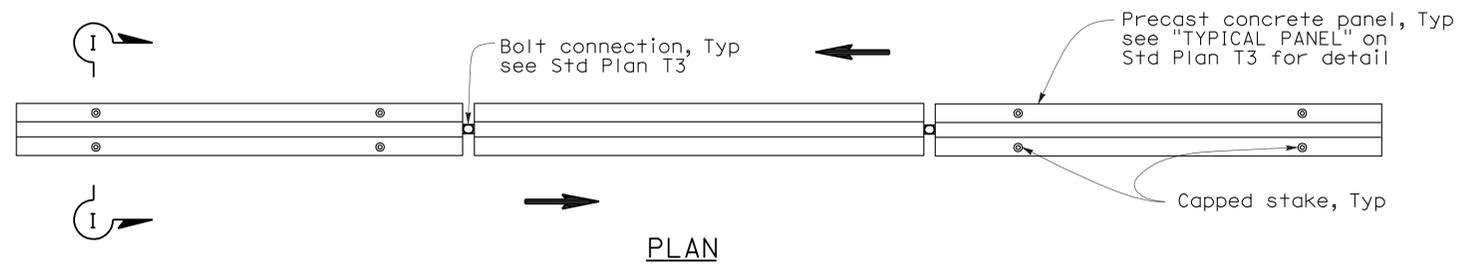
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	880	28.4/29.2	478	789

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

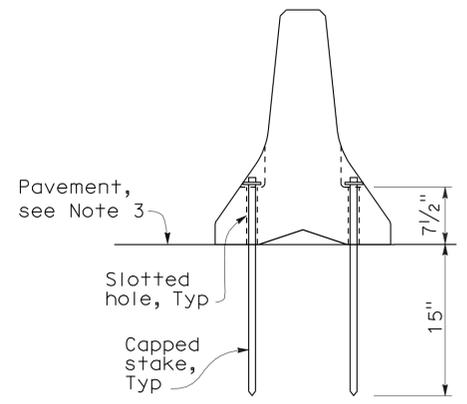
May 20, 2011
PLANS APPROVAL DATE

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 4-8-13

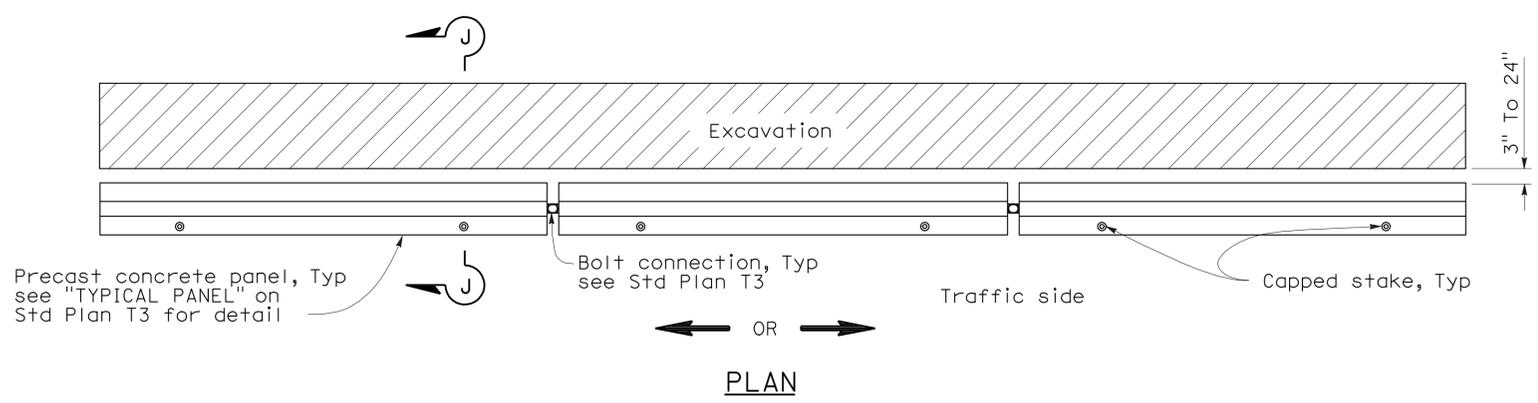


RAILING STAKING CONFIGURATION FOR TWO-WAY TRAFFIC
See Note 1

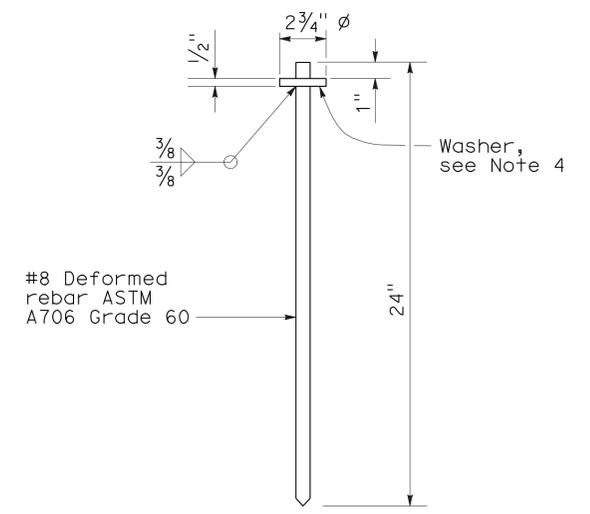
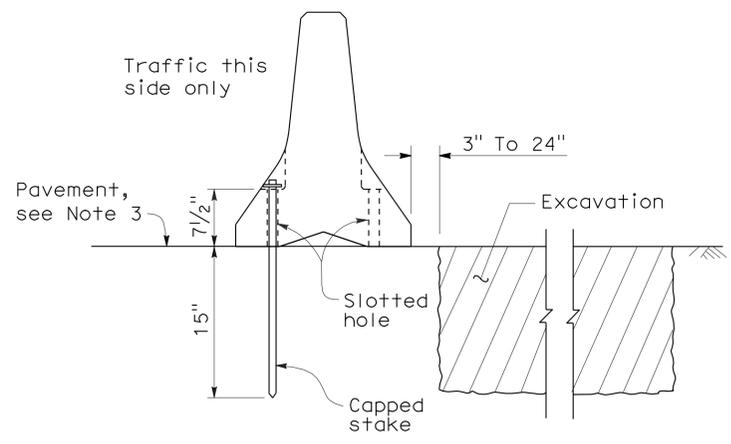


NOTES:

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



STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

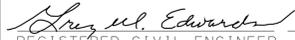
**TEMPORARY RAILING
(TYPE K)**

NO SCALE

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

2006 NEW STANDARD PLAN NSP T3A

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	880	28.4/29.2	479	789


 REGISTERED CIVIL ENGINEER
 November 17, 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

Greg W. Edwards

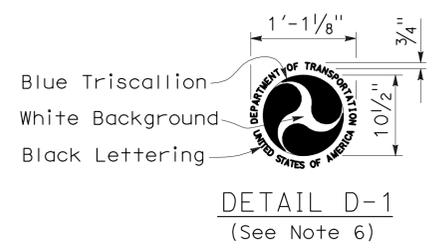
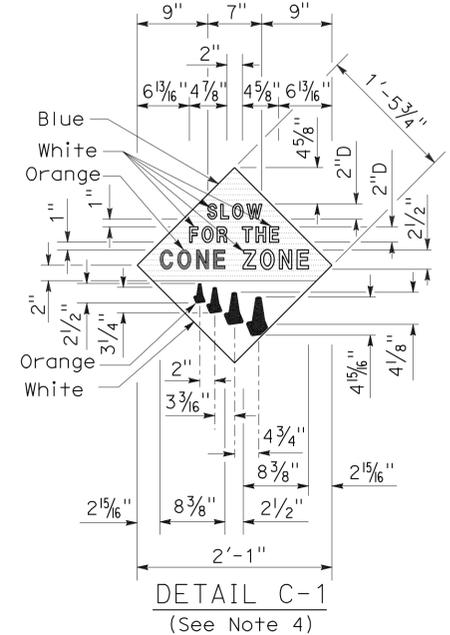
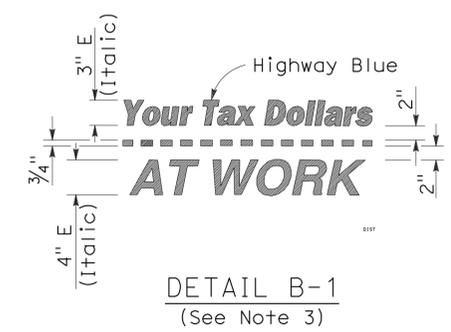
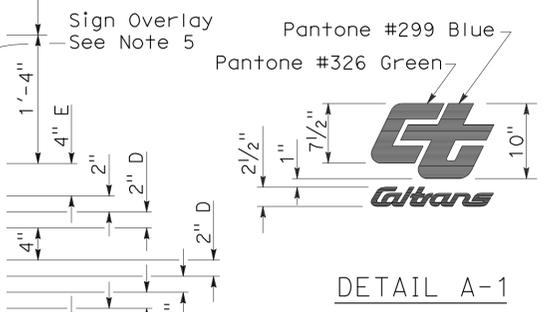
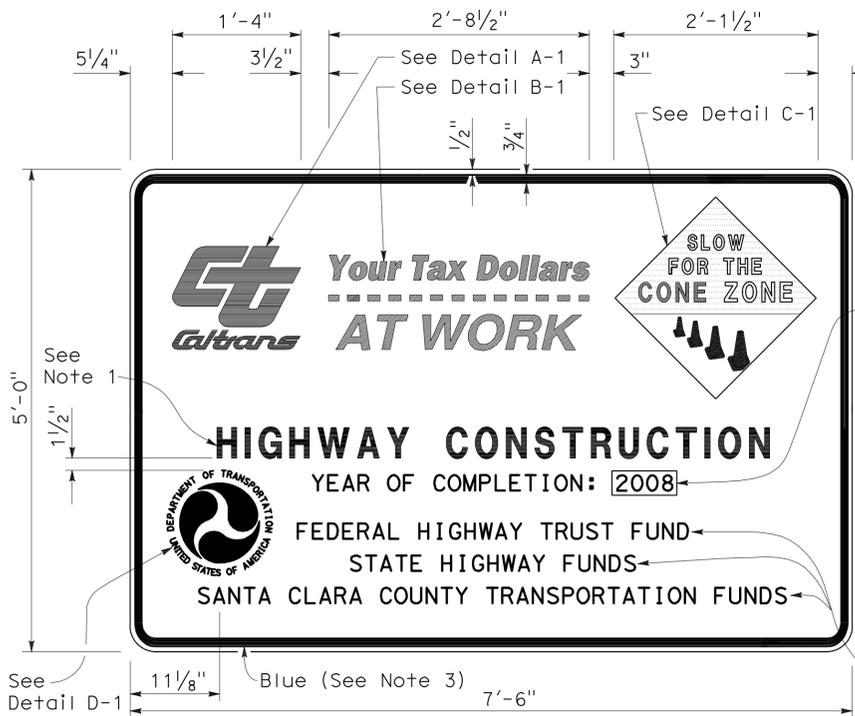
No. C36386

Exp. 6-30-08

CIVIL

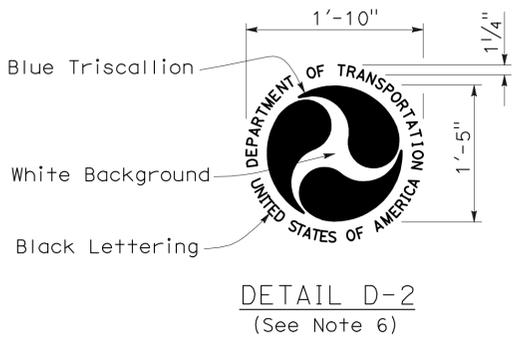
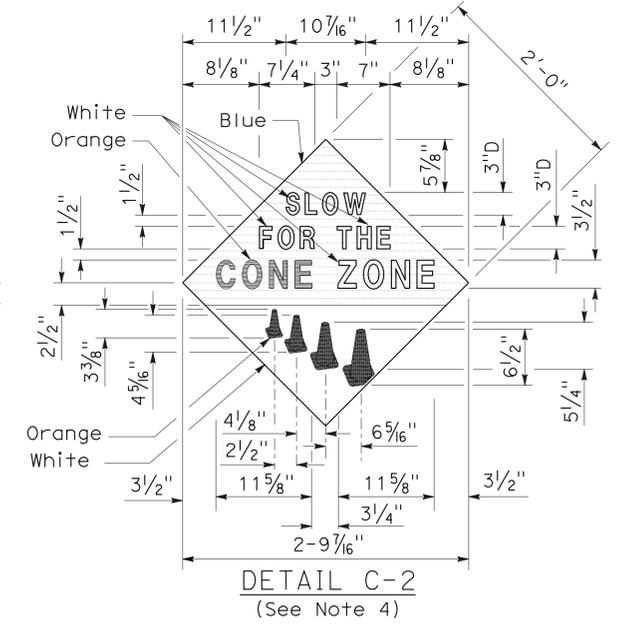
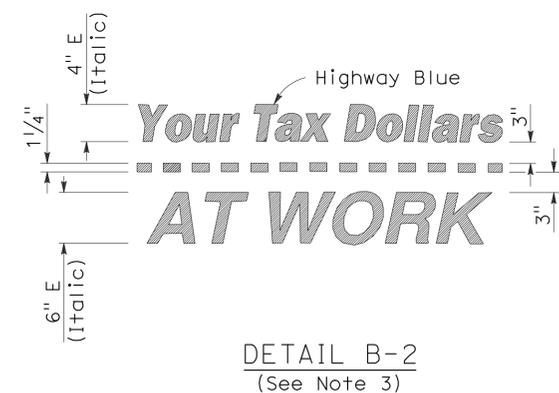
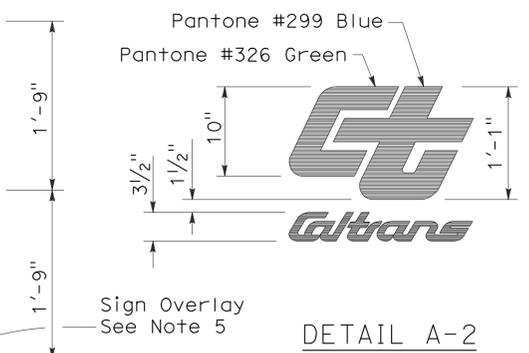
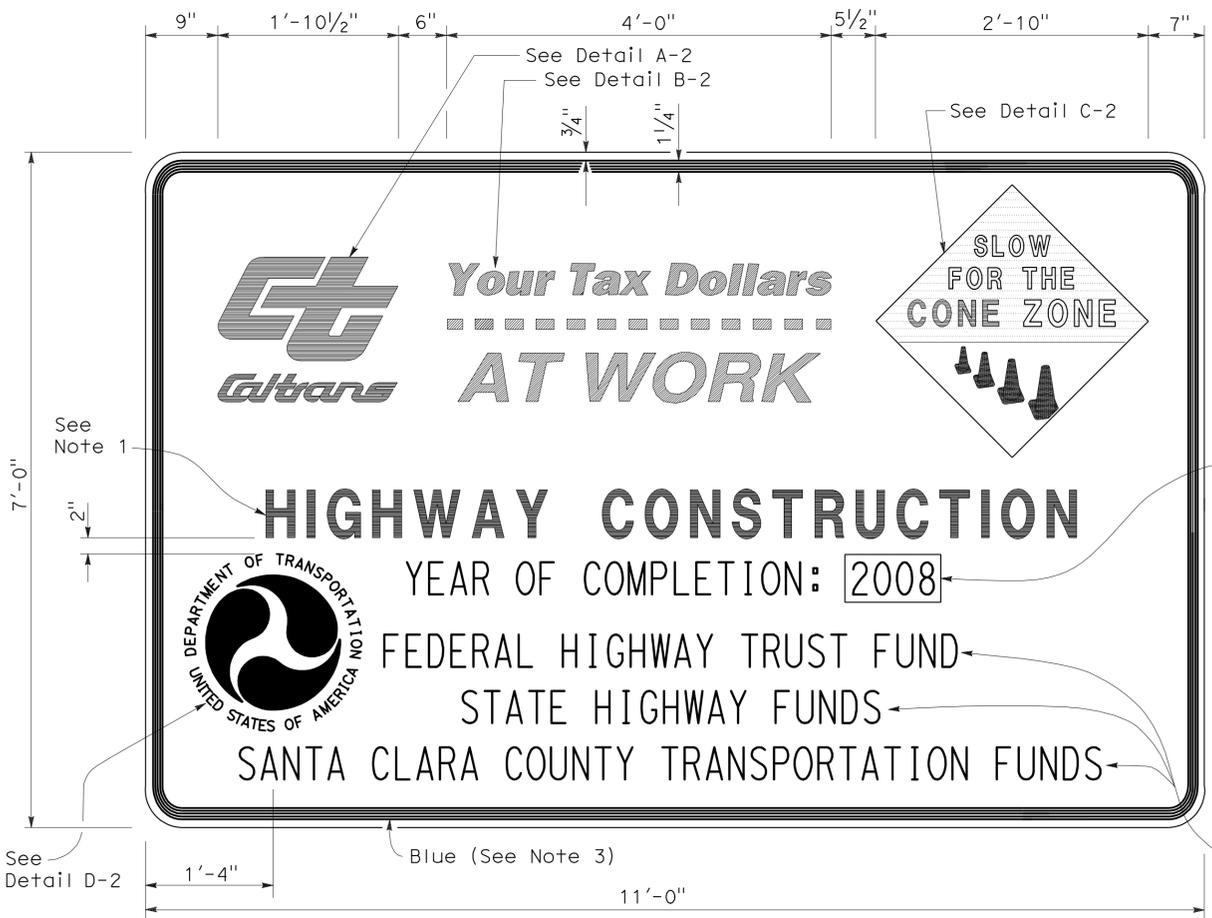
STATE OF CALIFORNIA

To accompany plans dated 4-8-13



NOTES:

1. The sign messages shown for type of project and fund types are examples only. See the Special Provisions for the applicable type of project and fund type messages to be used.
2. Except as otherwise shown, the legend of sign shall be black on a white background (non-reflective).
3. The border of the signs and details "B-1" and "B-2" shall be blue (non-reflective).
4. The diamond in details "C-1" and "C-2" shall be blue for the background of message, "SLOW FOR THE CONE ZONE", and white background for the orange cones. The color and type of font for the "SLOW FOR THE CONE ZONE" message shall be: "SLOW" white D; "FOR THE" white D; "CONE" orange Arial font; "ZONE" white Arial font.
5. Year of completion of project construction shown on the overlay is an example only. See the Special Provisions.
6. Use when the Project involves Federal Highway Trust Fund.



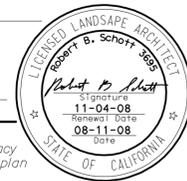
STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION
CONSTRUCTION PROJECT FUNDING IDENTIFICATION SIGNS

NO SCALE
 RSP T7 DATED NOVEMBER 17, 2006 SUPERSEDES STANDARD PLAN T7
 DATED MAY 1, 2006 - PAGE 217 OF THE STANDARD PLANS BOOK DATED MAY 2006.

2006 REVISED STANDARD PLAN RSP T7

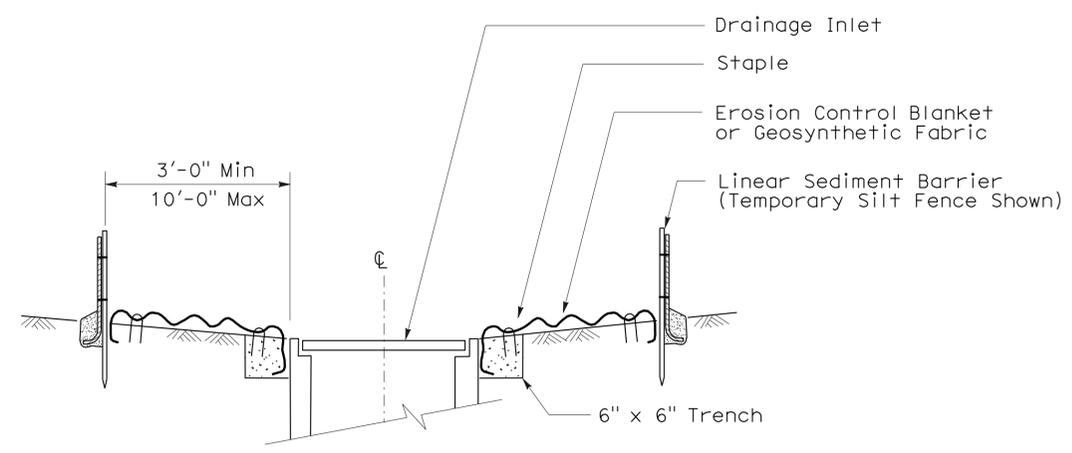
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	880	28.4/29.2	480	789

Robert B. Schott
 LICENSED LANDSCAPE ARCHITECT
 August 15, 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.

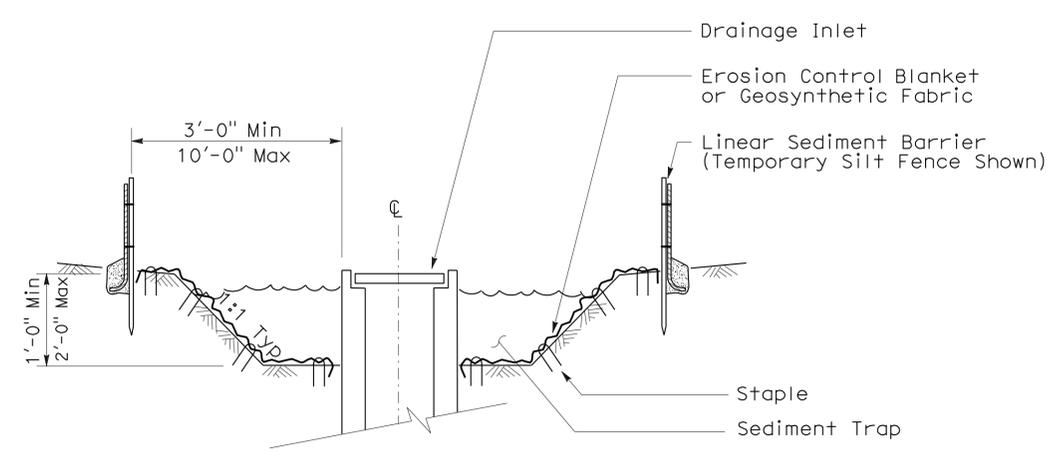


To accompany plans dated 4-8-13

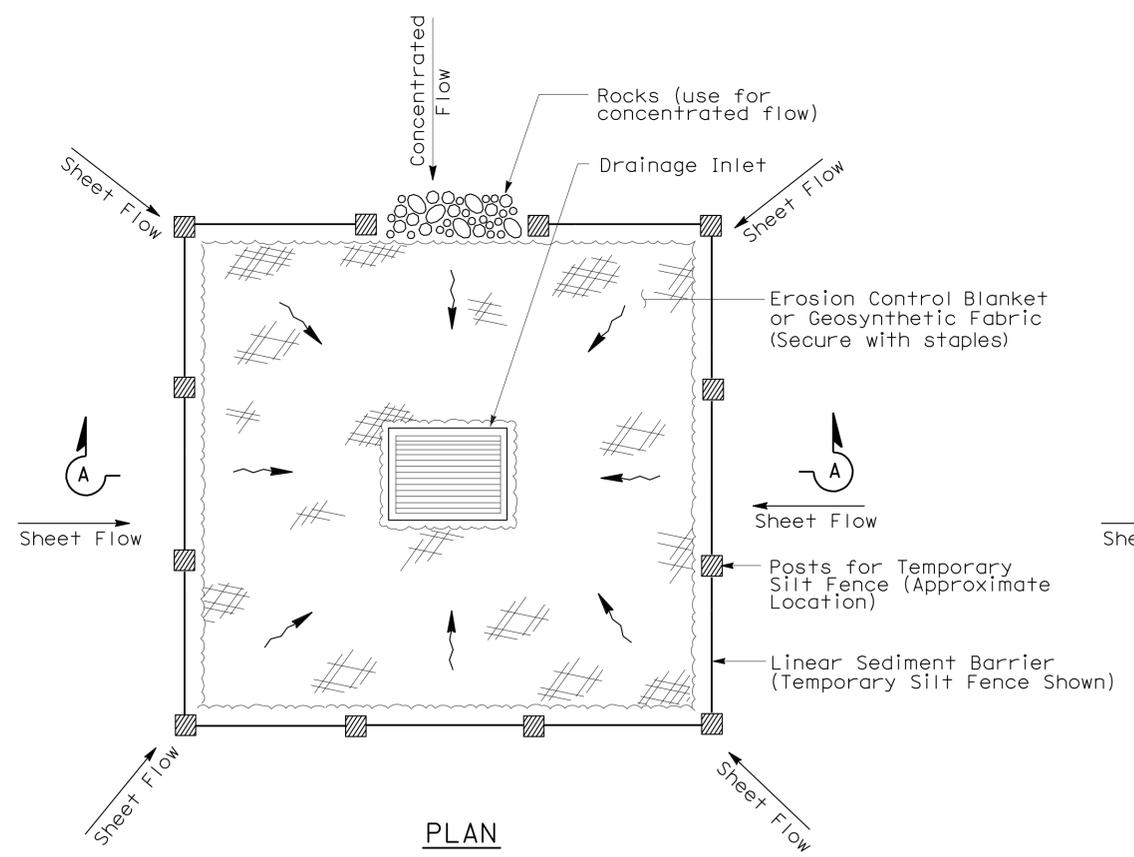
- NOTES:**
- See Standard Plan T51 for Temporary Silt Fence.
 - Dimensions may vary to fit field conditions.



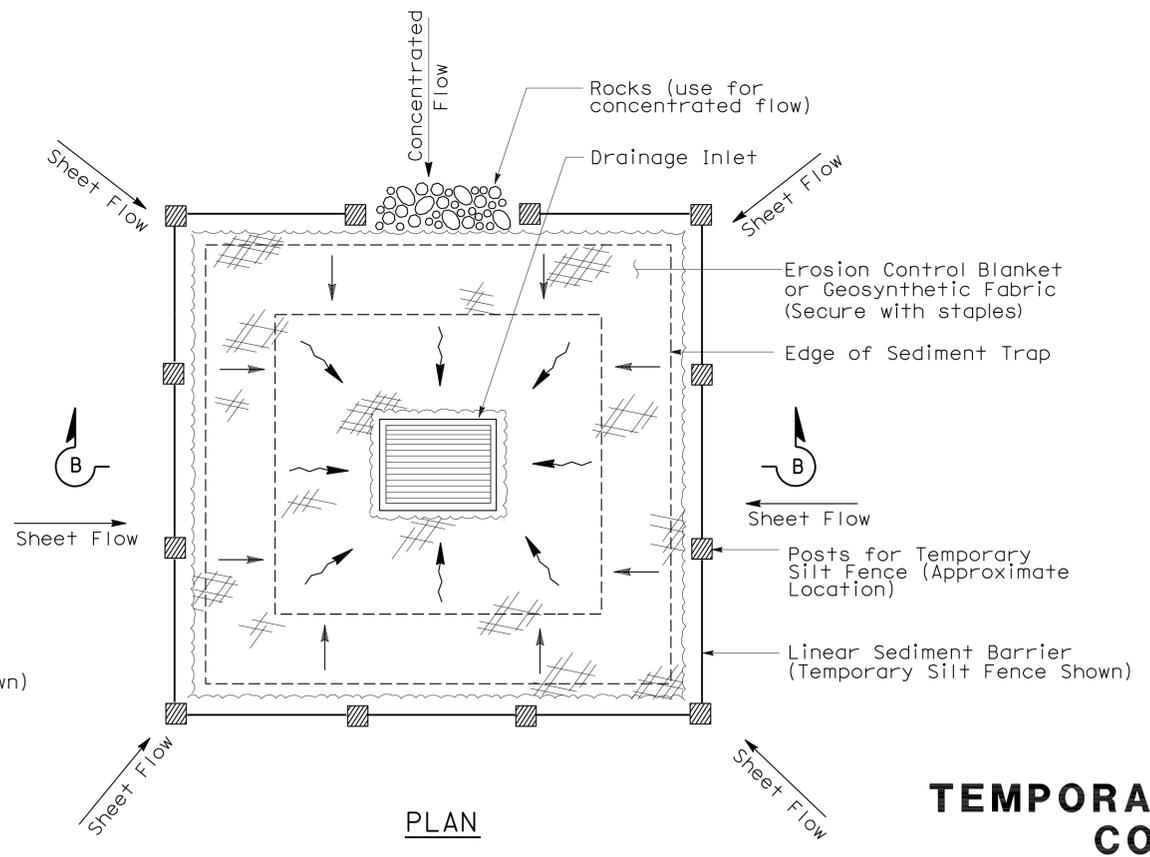
SECTION A-A



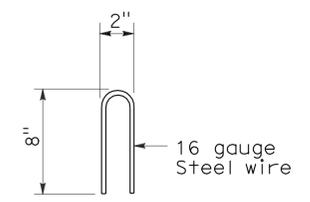
SECTION B-B



TEMPORARY DRAINAGE INLET PROTECTION (TYPE 1)



TEMPORARY DRAINAGE INLET PROTECTION (TYPE 2) (EXCAVATED SEDIMENT TRAP)



STAPLE DETAIL

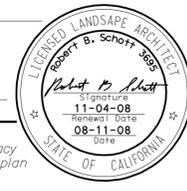
STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION
TEMPORARY WATER POLLUTION CONTROL DETAILS
(TEMPORARY DRAINAGE INLET PROTECTION)
 NO SCALE

NSP T61 DATED AUGUST 15, 2008 SUPPLEMENTS THE STANDARD PLANS BOOK DATED MAY 2006.

2006 NEW STANDARD PLAN NSP T61

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	880	28.4/29.2	481	789

Robert B. Schott
 LICENSED LANDSCAPE ARCHITECT
 August 15, 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 4-8-13

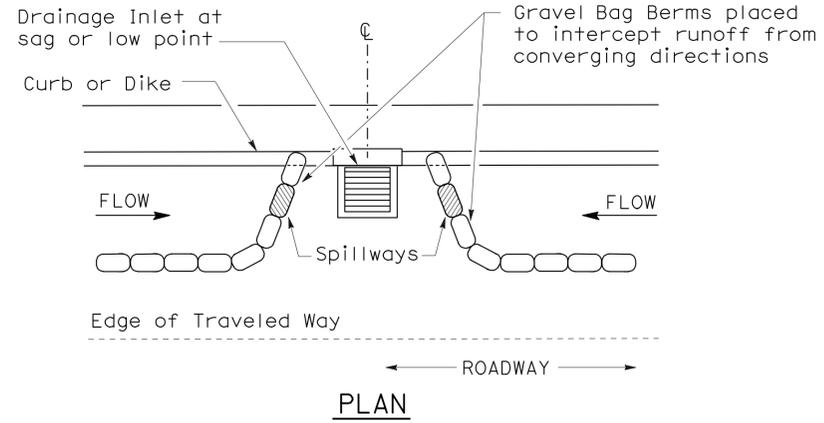
NOTES:

1. Place safety cones adjacent to drainage inlet protection.
2. Dimensions may vary to fit field conditions.
3. Install a minimum of 3 gravel bag berms upstream of each drainage inlet to be protected.
4. Position erosion control blanket or geosynthetic fabric at edge of concrete apron and secure in trench.
5. Erosion control blanket or geosynthetic fabric is not required if the area adjacent to the drainage inlet is vegetated or paved.

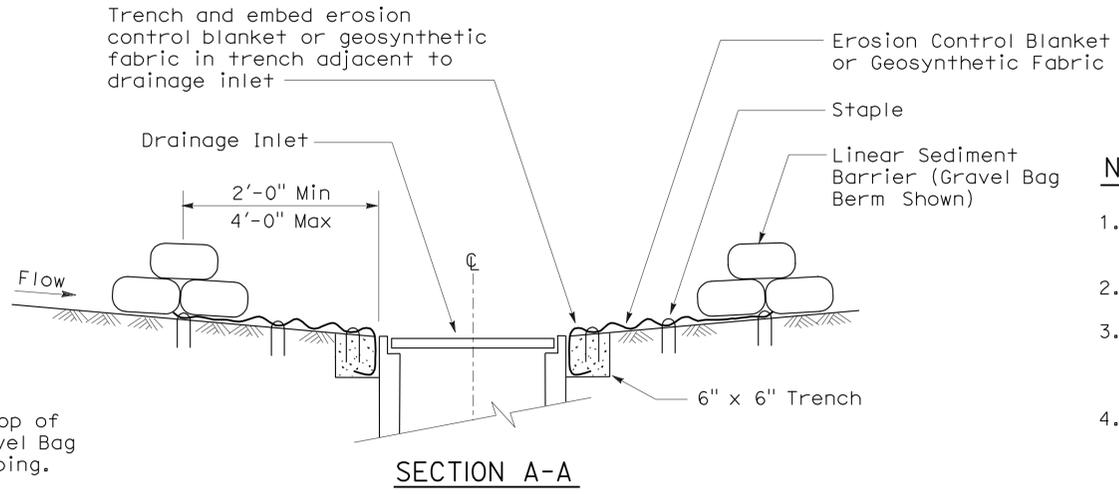
GRAVEL BAG BERM (TYPE 3A) SPACING TABLE

SLOPE OF ROADWAY (PERCENT)	1 to 3.9	4 to 5.9	6 to 7.9	8 to 10	10+
INTERVAL BETWEEN BERM	100'	75'	50'	25'	12'

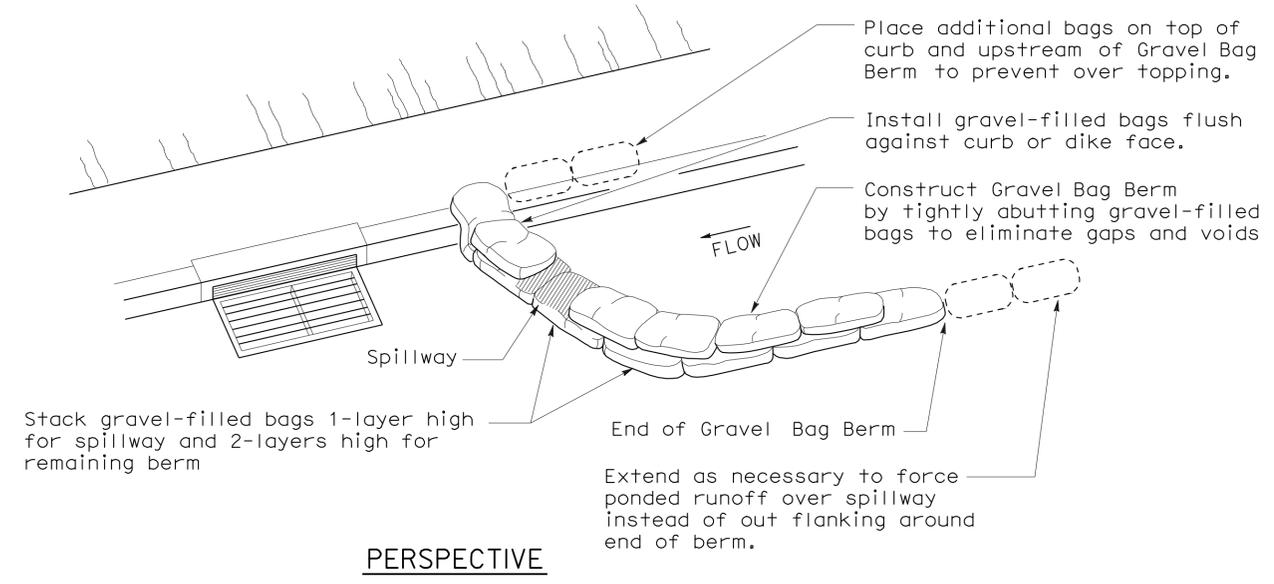
For slope of less than 1%, install barriers only if erosion/sediment is prevalent



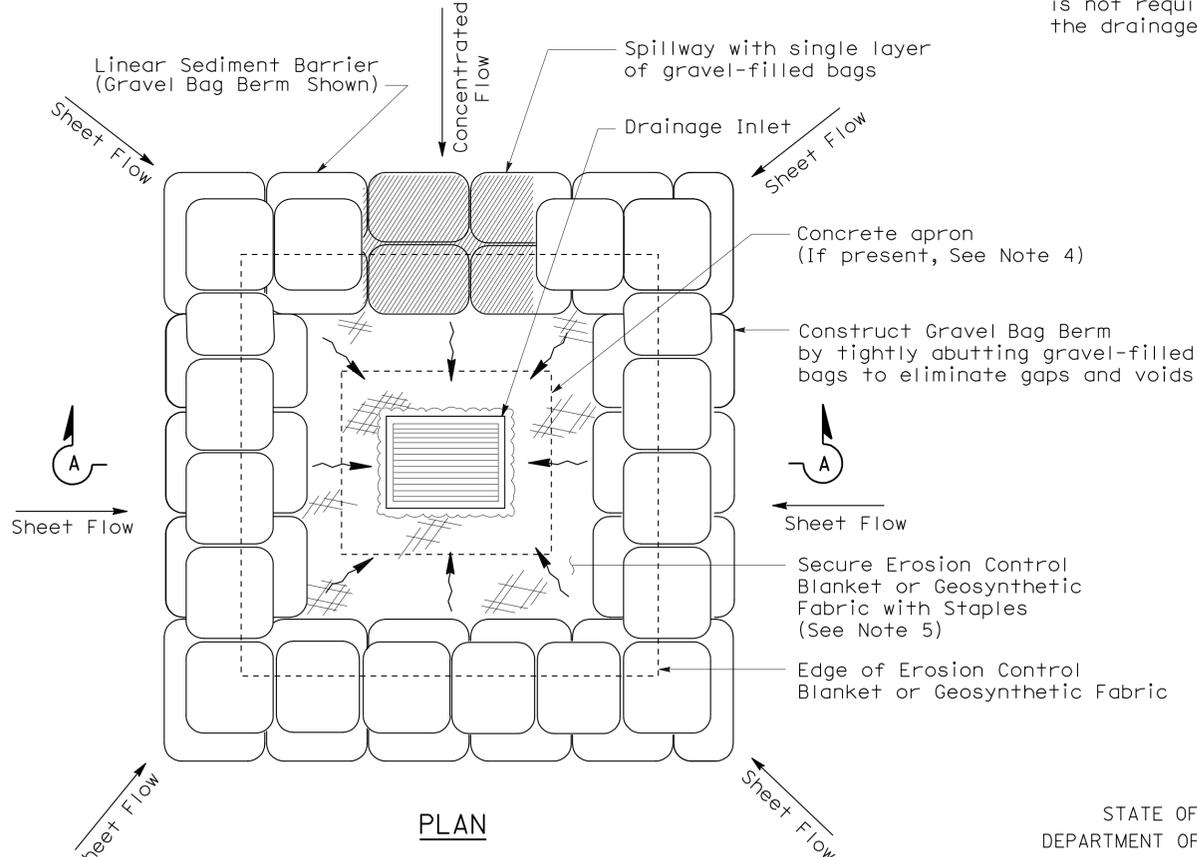
**PLAN
CONFIGURATION FOR SAG POINT INLET
(GRAVEL BAG BERM)**



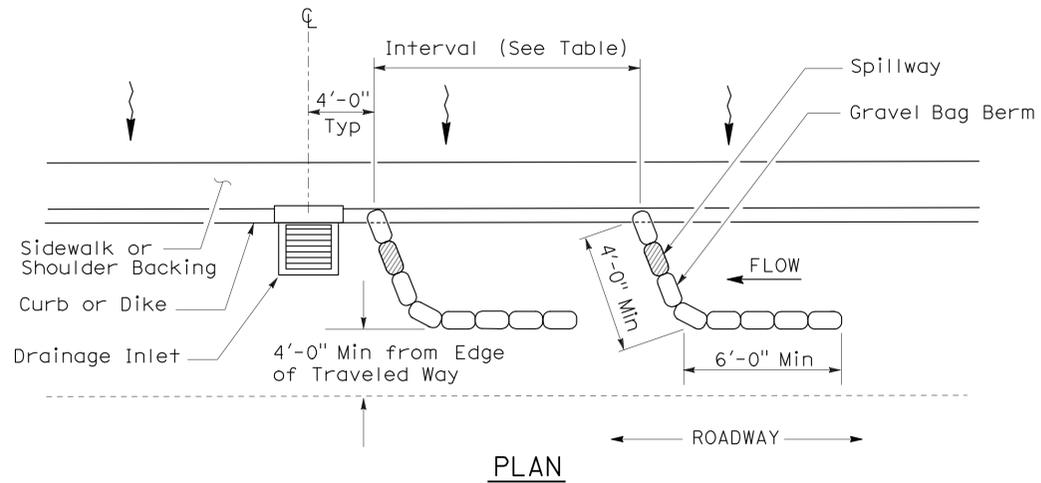
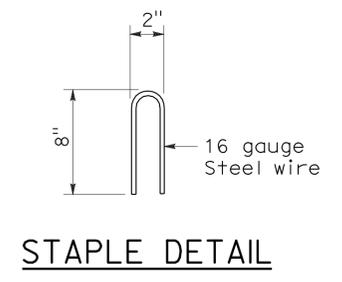
SECTION A-A



PERSPECTIVE



**PLAN
TEMPORARY DRAINAGE
INLET PROTECTION (TYPE 3B)**



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

**STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
TEMPORARY WATER POLLUTION
CONTROL DETAILS
(TEMPORARY DRAINAGE
INLET PROTECTION)**

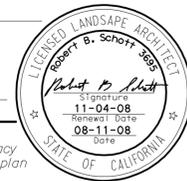
NO SCALE
NSP T62 DATED AUGUST 15, 2008 SUPPLEMENTS
THE STANDARD PLANS BOOK DATED MAY 2006.

2006 NEW STANDARD PLAN NSP T62

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	880	28.4/29.2	482	789

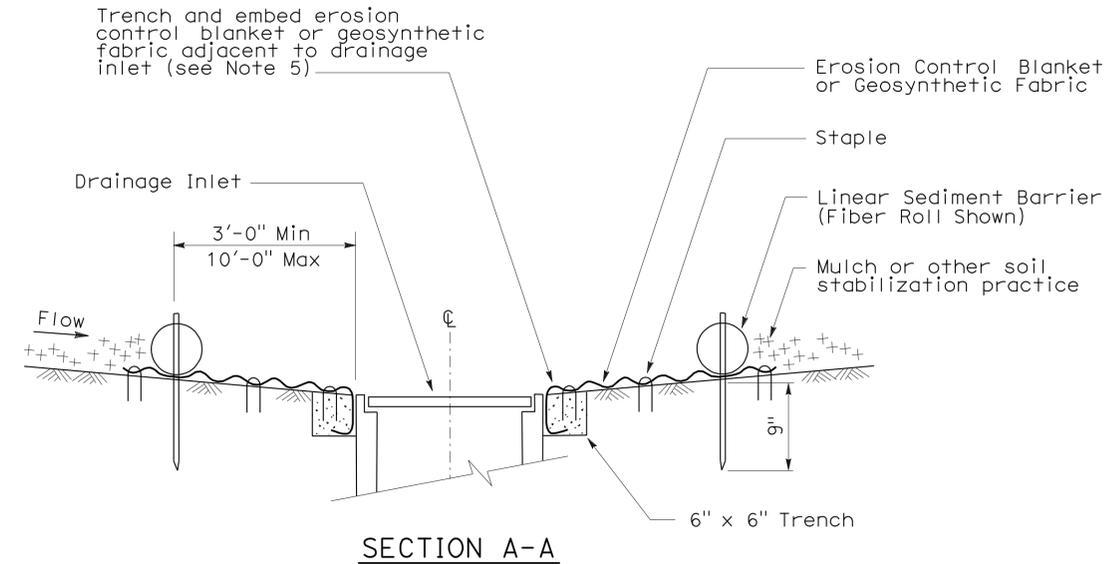
August 15, 2008
 PLANS APPROVAL DATE

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.

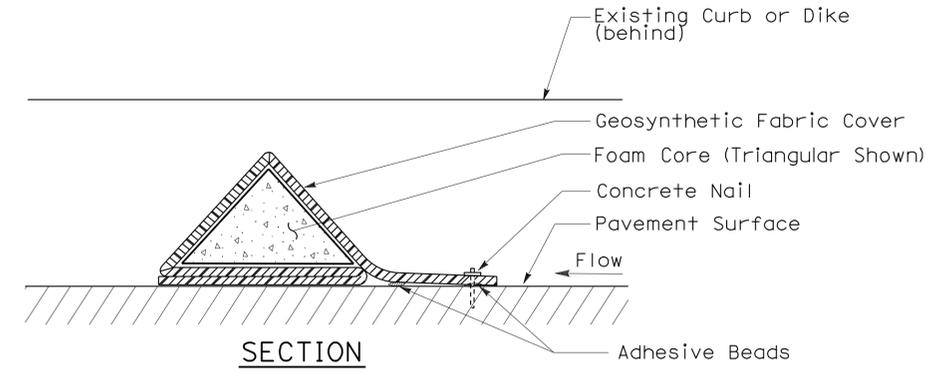


FLEXIBLE SEDIMENT BARRIER SPACING TABLE

SLOPE OF ROADWAY (PERCENT)	0 to 0.9	1 to 1.9	2 to 2.9	3 to 4	5+
INTERVAL BETWEEN BARRIERS	50'	35'	30'	25'	20'
ANGLE FROM FACE OF CURB	70°	70°	70°	45°	45°
SUGGESTED BARRIER LENGTH	6'	6'	6'	6'	6'



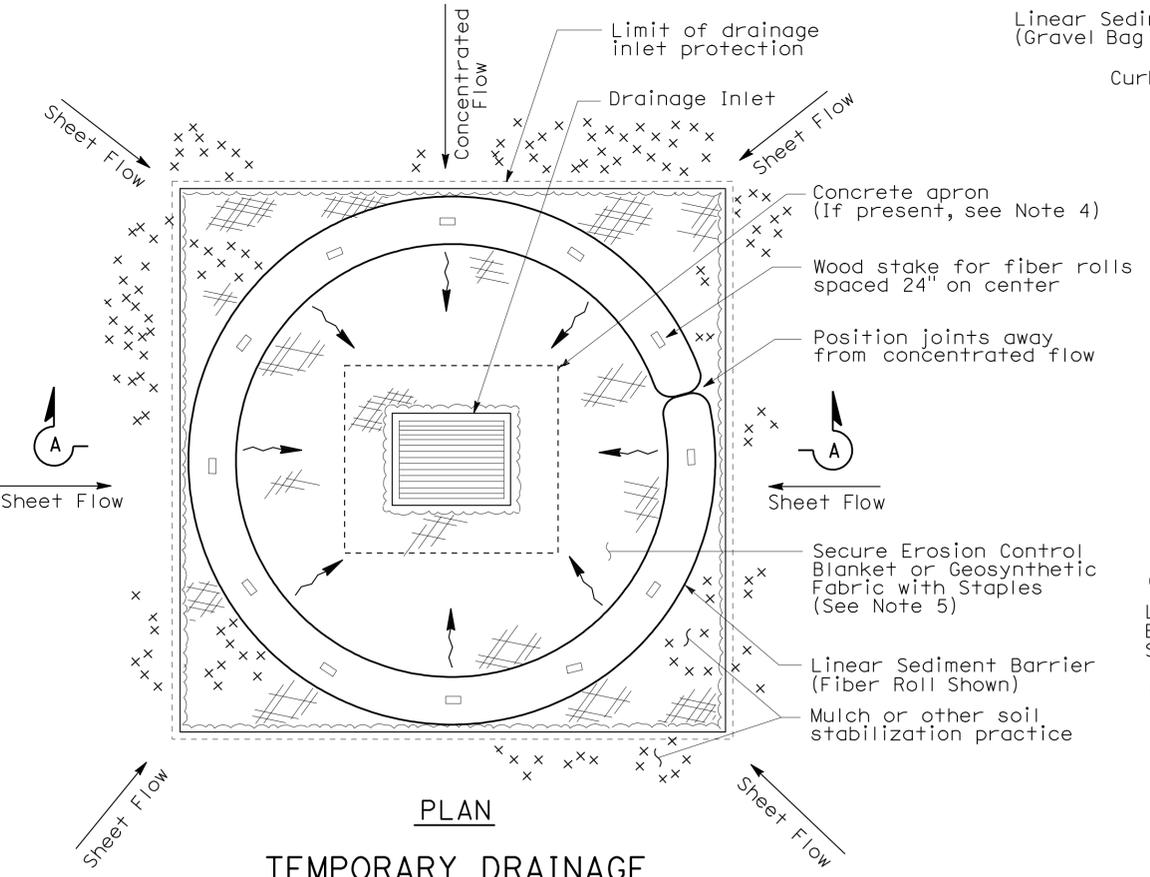
SECTION A-A



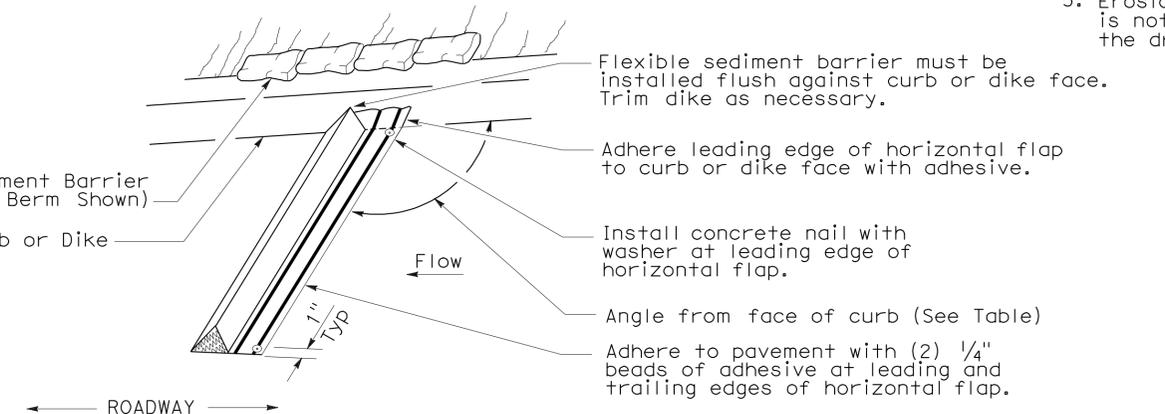
SECTION FLEXIBLE SEDIMENT BARRIER DETAIL (FOAM BARRIER SHOWN)

NOTES:

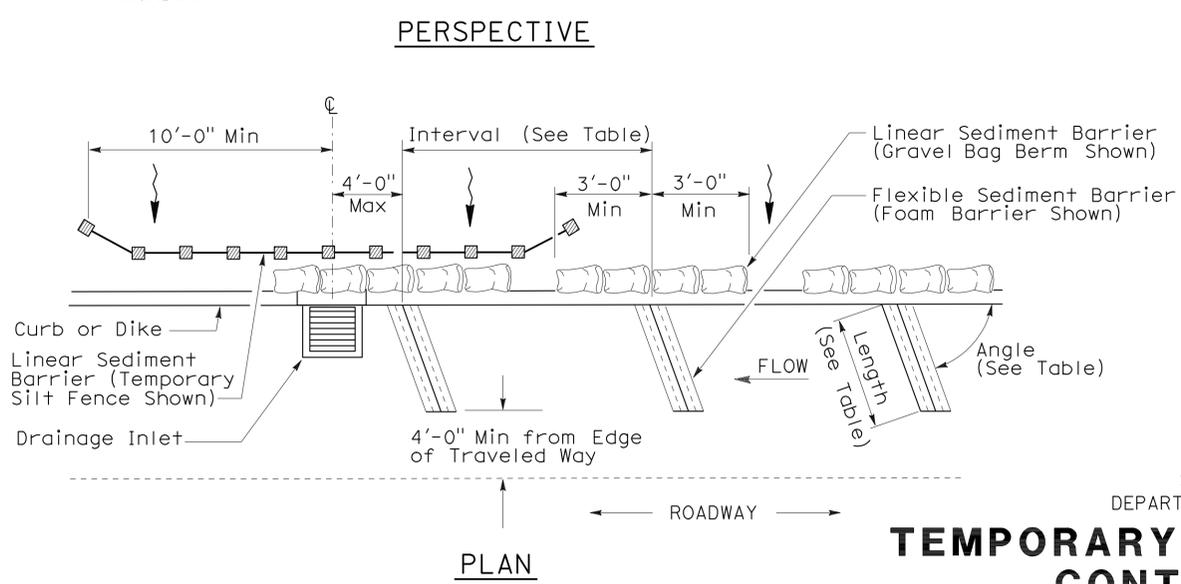
1. See Standard Plan T51 for Temporary Silt Fence.
2. Dimensions may vary to fit field conditions.
3. Install a minimum of 3 flexible sediment barriers upstream of each drainage inlet to be protected.
4. Position erosion control blanket or geosynthetic fabric at edge of concrete apron and secure in trench.
5. Erosion control blanket or geosynthetic fabric is not required if the area adjacent to the drainage inlet is vegetated.



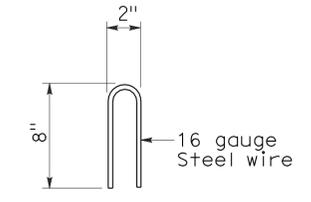
PLAN TEMPORARY DRAINAGE INLET PROTECTION (TYPE 4A)



PERSPECTIVE



PLAN TEMPORARY DRAINAGE INLET PROTECTION (TYPE 4B) FLEXIBLE SEDIMENT BARRIER



STAPLE DETAIL

STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION
TEMPORARY WATER POLLUTION CONTROL DETAILS (TEMPORARY DRAINAGE INLET PROTECTION)

NO SCALE
 NSP T63 DATED AUGUST 15, 2008 SUPPLEMENTS THE STANDARD PLANS BOOK DATED MAY 2006.

2006 NEW STANDARD PLAN NSP T63

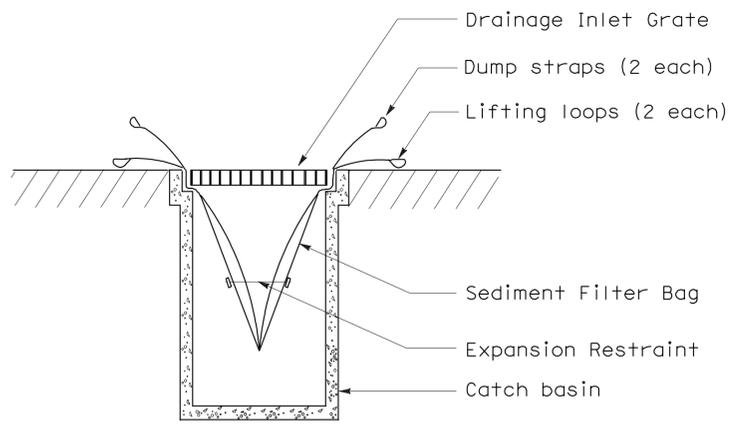
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	880	28.4/29.2	483	789

Robert B. Schott
 LICENSED LANDSCAPE ARCHITECT

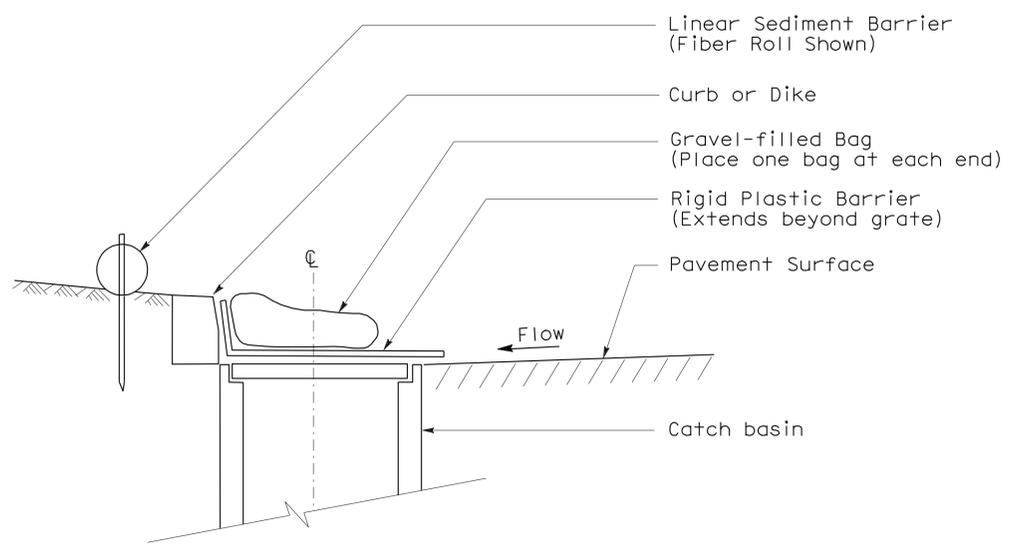
August 15, 2008
 PLANS APPROVAL DATE

Robert B. Schott
 LICENSED LANDSCAPE ARCHITECT
 Signature Date: 11-04-08
 Renewal Date: 08-11-08
 Date

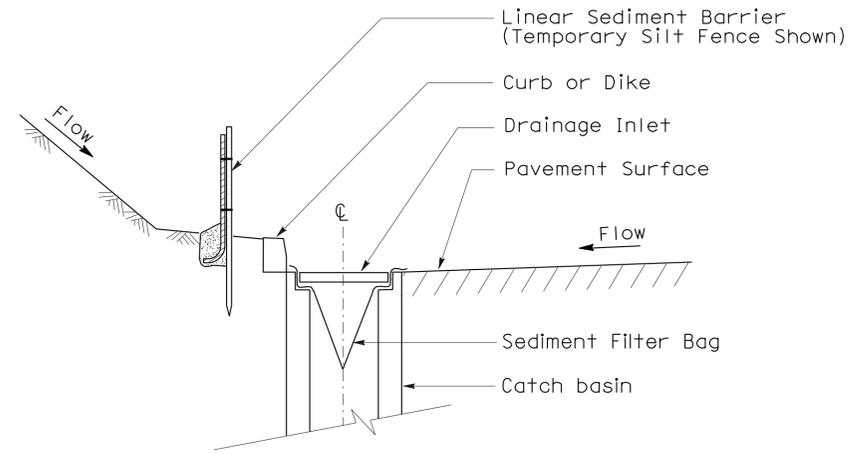
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.



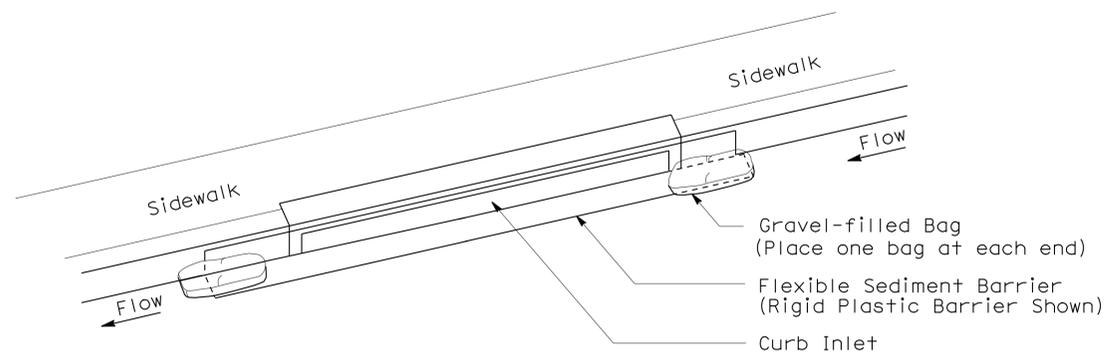
SECTION B-B
SEDIMENT FILTER BAG DETAIL



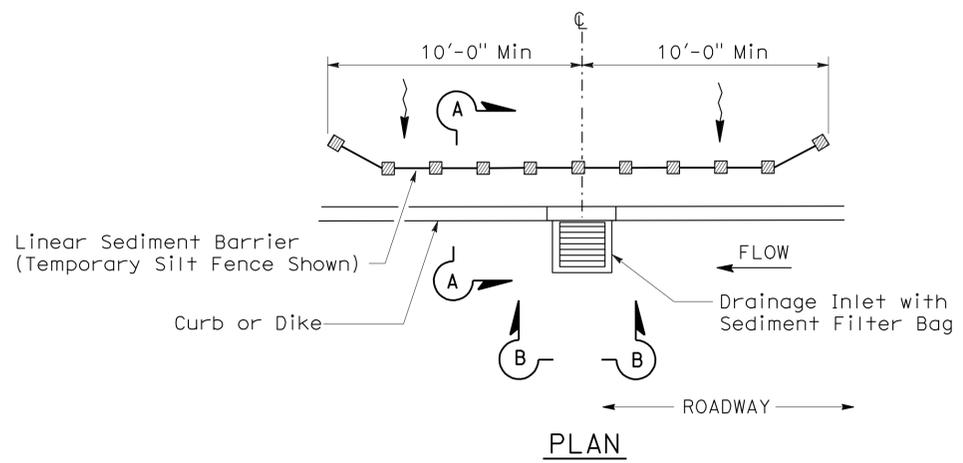
SECTION
TEMPORARY DRAINAGE
INLET PROTECTION (TYPE 6A)
(CATCH BASIN WITH GRATE)



SECTION A-A



PERSPECTIVE
TEMPORARY DRAINAGE
INLET PROTECTION (TYPE 6B)
(CURB INLET WITHOUT GRATE)



PLAN
TEMPORARY DRAINAGE
INLET PROTECTION (TYPE 5)
(SEDIMENT FILTER BAG)

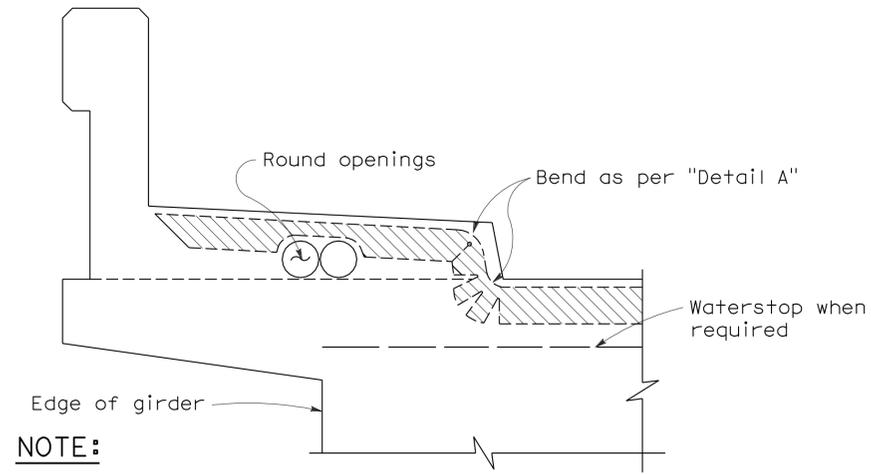
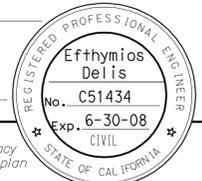
- NOTES:**
1. See Standard Plan T51 for Temporary Silt Fence.
 2. Dimensions may vary to fit field conditions.

To accompany plans dated 4-8-13

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

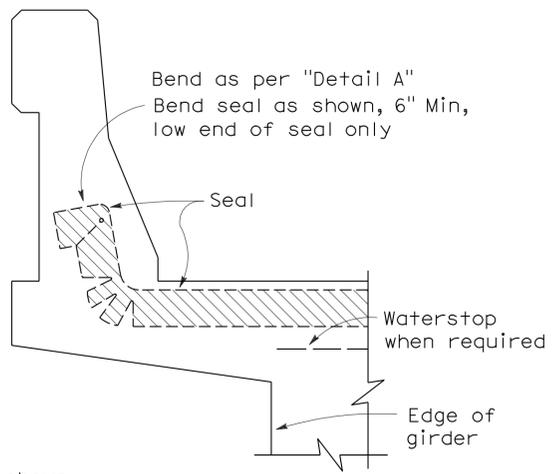
**TEMPORARY WATER POLLUTION
CONTROL DETAILS
(TEMPORARY DRAINAGE
INLET PROTECTION)**

NO SCALE
NSP T64 DATED AUGUST 15, 2008 SUPPLEMENTS
THE STANDARD PLANS BOOK DATED MAY 2006.

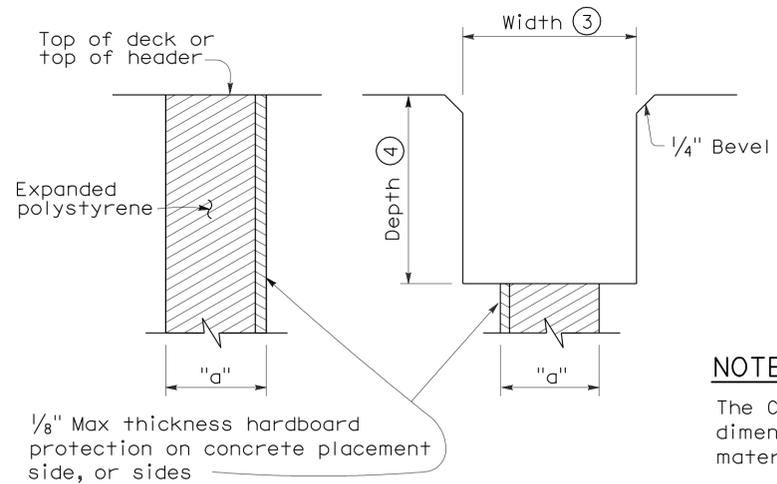


NOTE:
 Type "B" seal shown. Type "A" seals to conform to the general path of seal shown, cuts for bending not required. Bend Type "A" seals 3" up into curb or barrier rail on only the low end of the seal.

CONCRETE BARRIER AND SIDEWALK



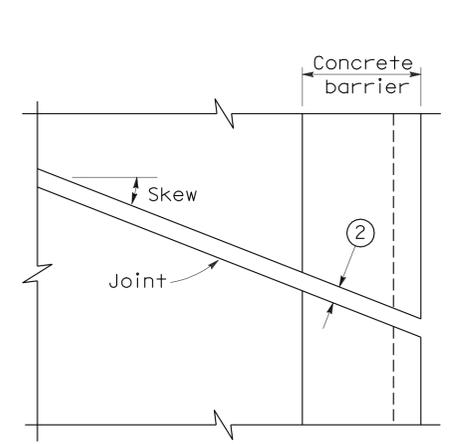
CONCRETE BARRIER



FORMING DETAIL SAWCUT DETAIL

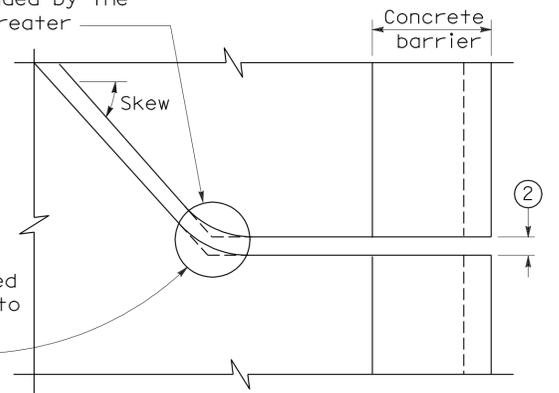
NOTE:
 The Contractor shall verify all controlling field dimensions before ordering or fabricating any material.

JOINT SEALS DETAILS



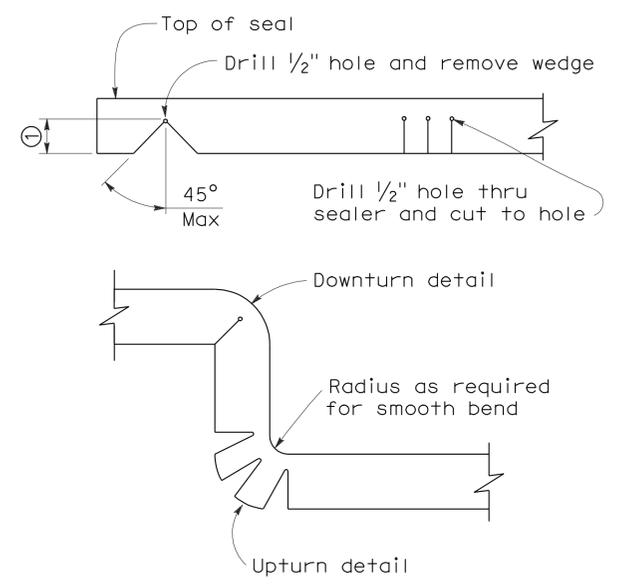
PLAN OF JOINT (SKEW ≤ 20°)

Min ϕ radius to be 4 times uncompressed width of seal or as recommended by the manufacturer, whichever is greater



PLAN OF JOINT (SKEW > 20°)

In lieu of saw cutting, this area may be blocked out and reconstructed to match saw cutting on both sides.



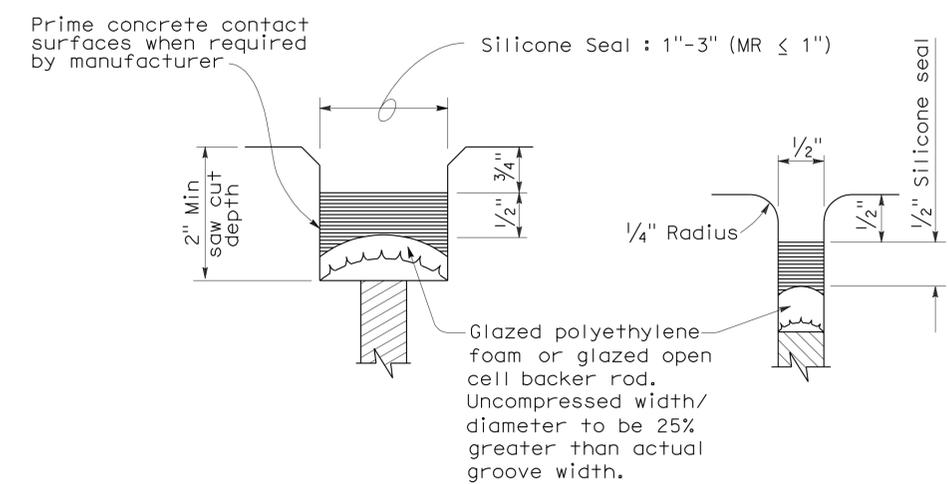
DETAIL A

NOTES:

- Make smooth cuts from the bottom of seal to 1 1/2" clear of top leaving at least one complete cell between the top of the cut and top of the seal. When necessary cut back of seal to clear conduit and round openings.
- Opening in barrier to match width of sawn deck joint.
- Sawcut groove widths shall be as ordered by the Engineer.
- Depth of sawcut: Type A - Depth to be 2" minimum. Type B - Depth to be equal to or greater than the depth of seal measured along the contact surface, when compressed to minimum width position (W₂) plus dimensions shown.
- MR (movement rating) as shown on other plan sheets.
- Other depths must be approved by the Engineer.

DIMENSIONS "a" OF JOINT REQUIRED

Movement Rating (MR) (5)	Bridge Type	"a" Dimension		
		Deck Concrete Placed		
		Winter	Fall-Spring	Summer
2"	All except CIP/PS	1 1/2"	1 1/4"	3/4"
	CIP/PS	1 1/4"	1"	1/2"
1 1/2"	All except CIP/PS	1 1/4"	1"	1/2"
	CIP/PS	1"	3/4"	1/2"
1"	All except CIP/PS	1"	3/4"	1/2"
	CIP/PS	3/4"	1/2"	1/2"
1/2"	All except CIP/PS	3/4"	3/4"	1/2"
	CIP/PS	1/2"	1/2"	1/2"

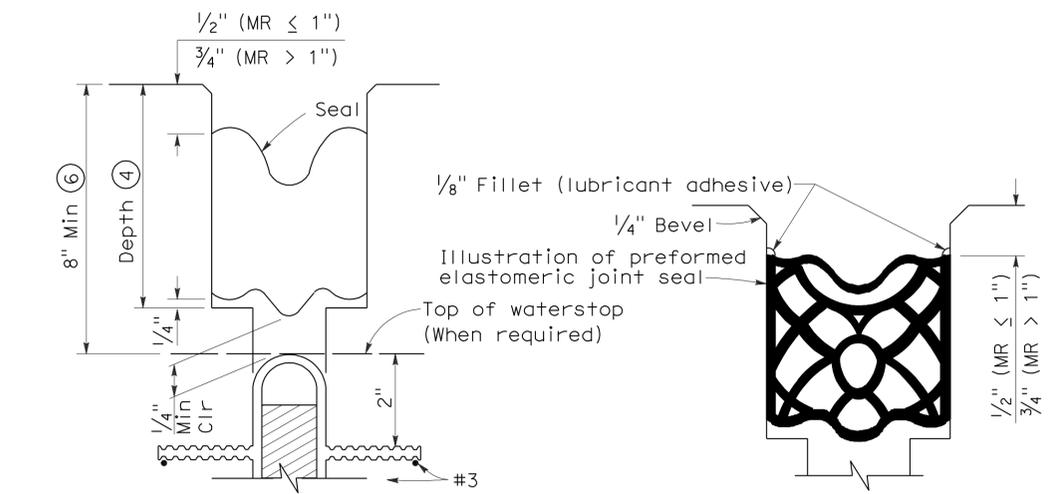


TYPE A SEAL

Movement rating : Silicone = 1" Max

TYPE AL SEAL

Longitudinal joints only



TYPE B JOINT SEAL IN MINIMUM WIDTH POSITION (W₂)

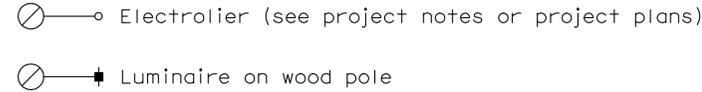
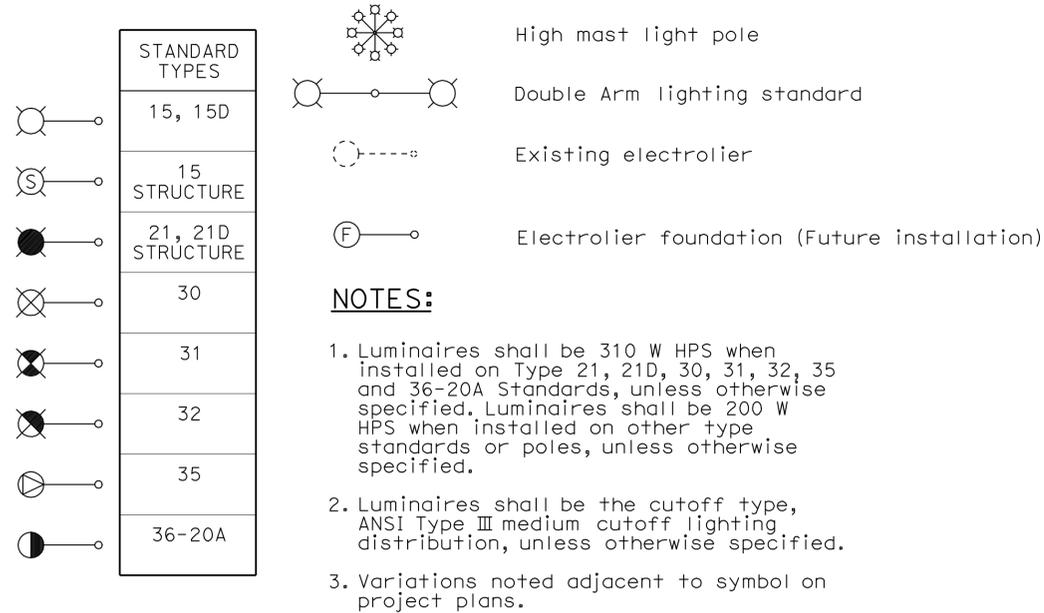
TYPE B SEAL

Movement Rating ≤ 2"

STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION
JOINT SEALS
(MAXIMUM MOVEMENT RATING = 2")
 NO SCALE

RSP B6-21 DATED OCTOBER 5, 2007 SUPERSEDES STANDARD PLAN B6-21 DATED MAY 1, 2006 - PAGE 258 OF THE STANDARD PLANS BOOK DATED MAY 2006.

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, side attachment - 4 signal section
MAS-4B	mas-4B	
MAS-4C	mas-4C	
MAS-5A	mas-5A	Mast arm mounting vehicle signal faces, side attachment - 5 signal section
MAS-5B	mas-5B	
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		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
04	Ala	880	28.4/29.2	485	789

Jeffery G. McRae
REGISTERED ELECTRICAL ENGINEER

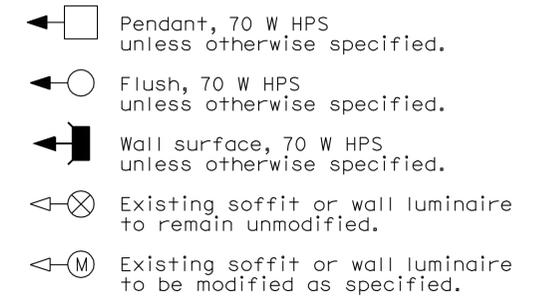
October 5, 2007
PLANS APPROVAL DATE

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

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

To accompany plans dated 4-8-13

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
04	Ala	880	28.4/29.2	486	789

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

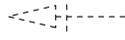
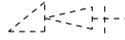
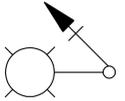
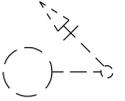
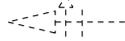
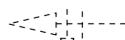
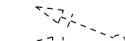
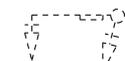
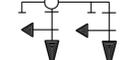
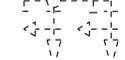
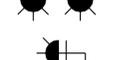
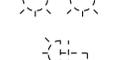
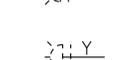
October 5, 2007
 PLANS APPROVAL DATE

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.

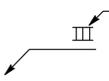
CONDUIT

PROPOSED	EXISTING	
---	---	Lighting Conduit, unless otherwise indicated or noted
---	---	Traffic signal conduit
-C-	-c-	Communication conduit
-T-	-t-	Telephone conduit
-F-	-f-	Fire alarm conduit
-FO-	-fo-	Fiber optic conduit
---	---	Conduit termination 
		Conduit riser in/on structure or service pole

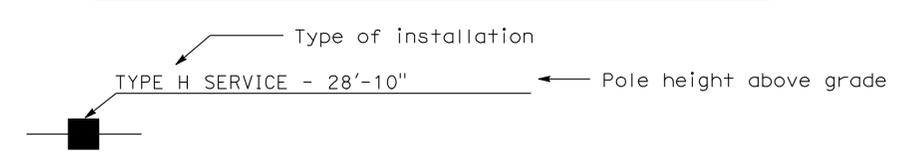
SIGNAL EQUIPMENT

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	
---OH---	---oh---	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

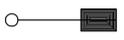
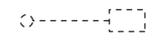
POLE-MOUNTED SERVICE DESIGNATION



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:

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

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

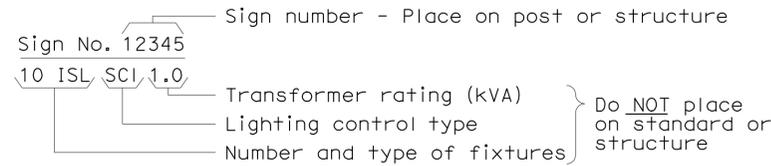
RSP ES-1B DATED OCTOBER 5, 2007 SUPERCEDES STANDARD PLAN ES-1B
 DATED MAY 1, 2006 - PAGE 401 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP ES-1B

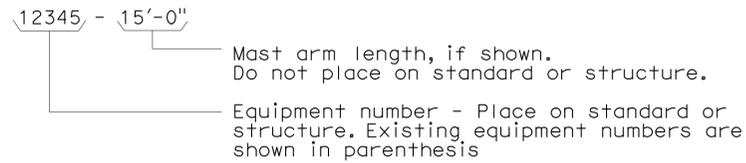
2006 REVISED STANDARD PLAN RSP ES-1B

EQUIPMENT IDENTIFICATION

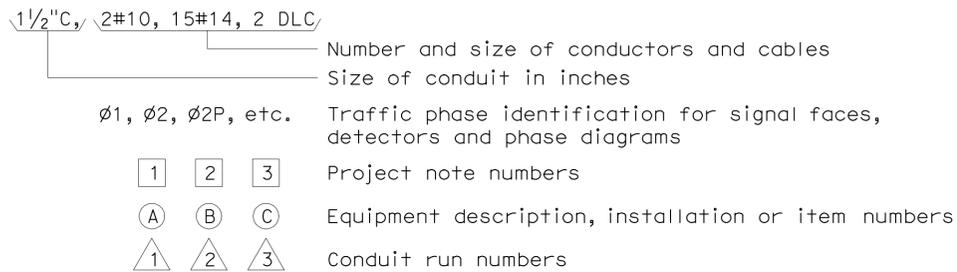
ILLUMINATED SIGN IDENTIFICATION NUMBER:



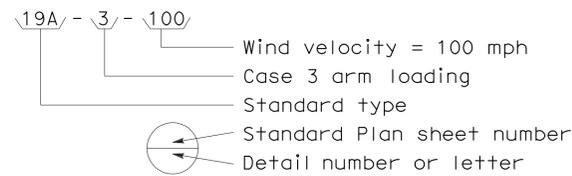
ELECTROLIER OR EQUIPMENT IDENTIFICATION NUMBER:



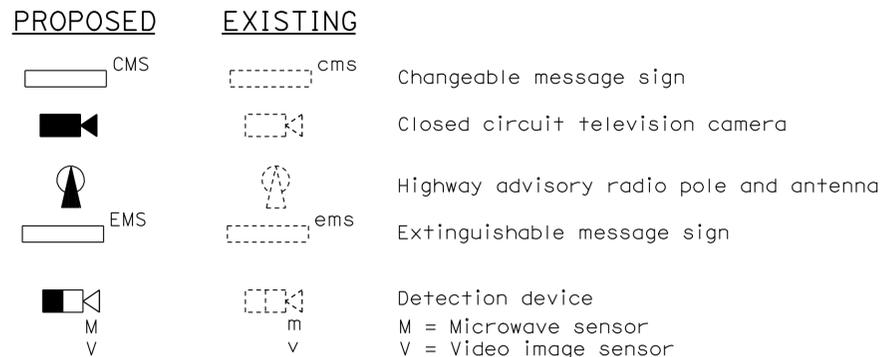
CONDUIT AND CONDUCTOR IDENTIFICATION:



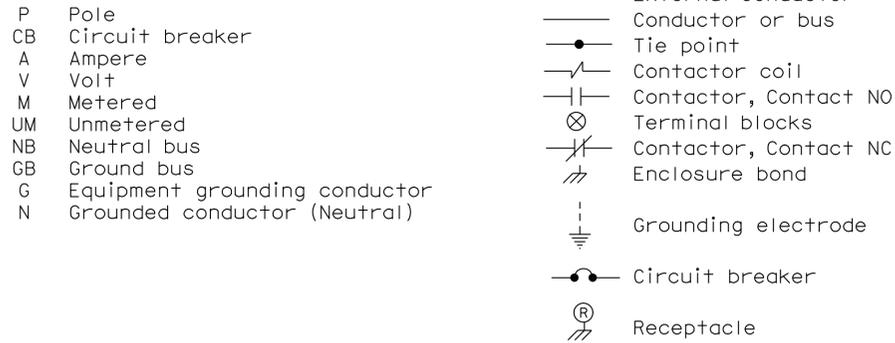
SIGNAL AND LIGHTING STANDARD (TYPICAL DESIGNATION):



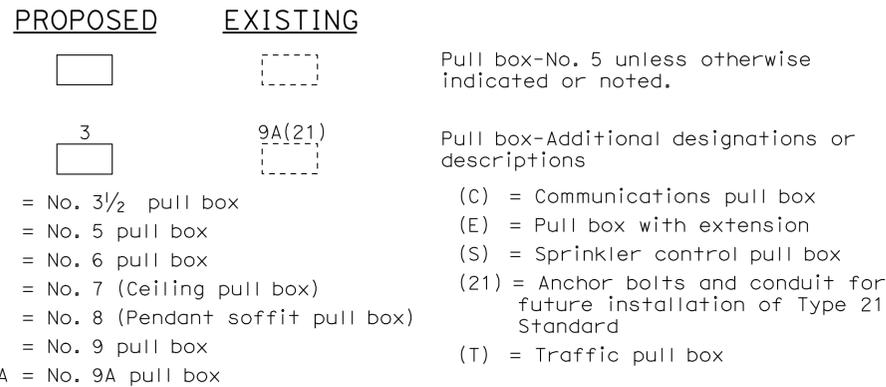
MISCELLANEOUS EQUIPMENT



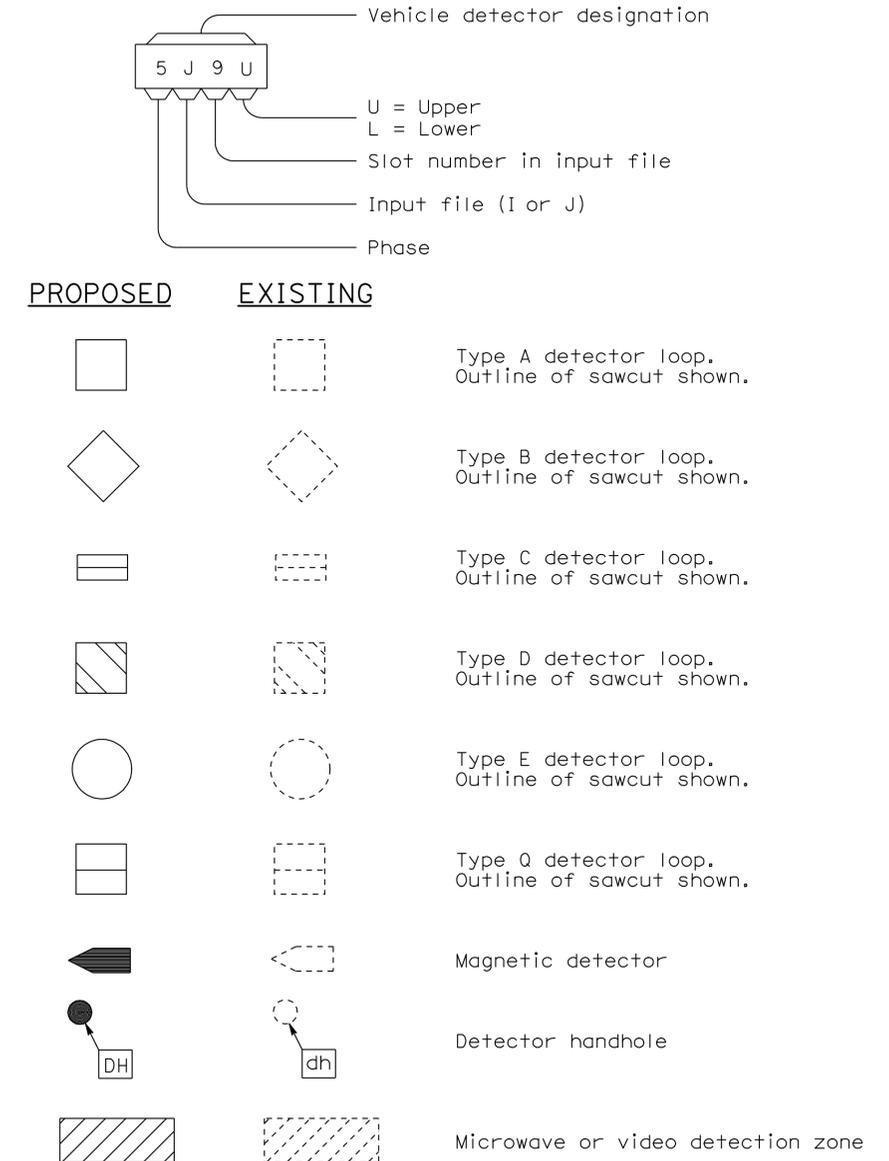
WIRING DIAGRAM LEGEND



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
04	Ala	880	28.4/29.2	488	789

Jeffery G. McRae
 REGISTERED ELECTRICAL ENGINEER

October 5, 2007
 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
 Jeffery G. McRae
 No. E14512
 Exp. 6-30-08
 ELECTRICAL
 STATE OF CALIFORNIA

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)."

To accompany plans dated 4-8-13

STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION

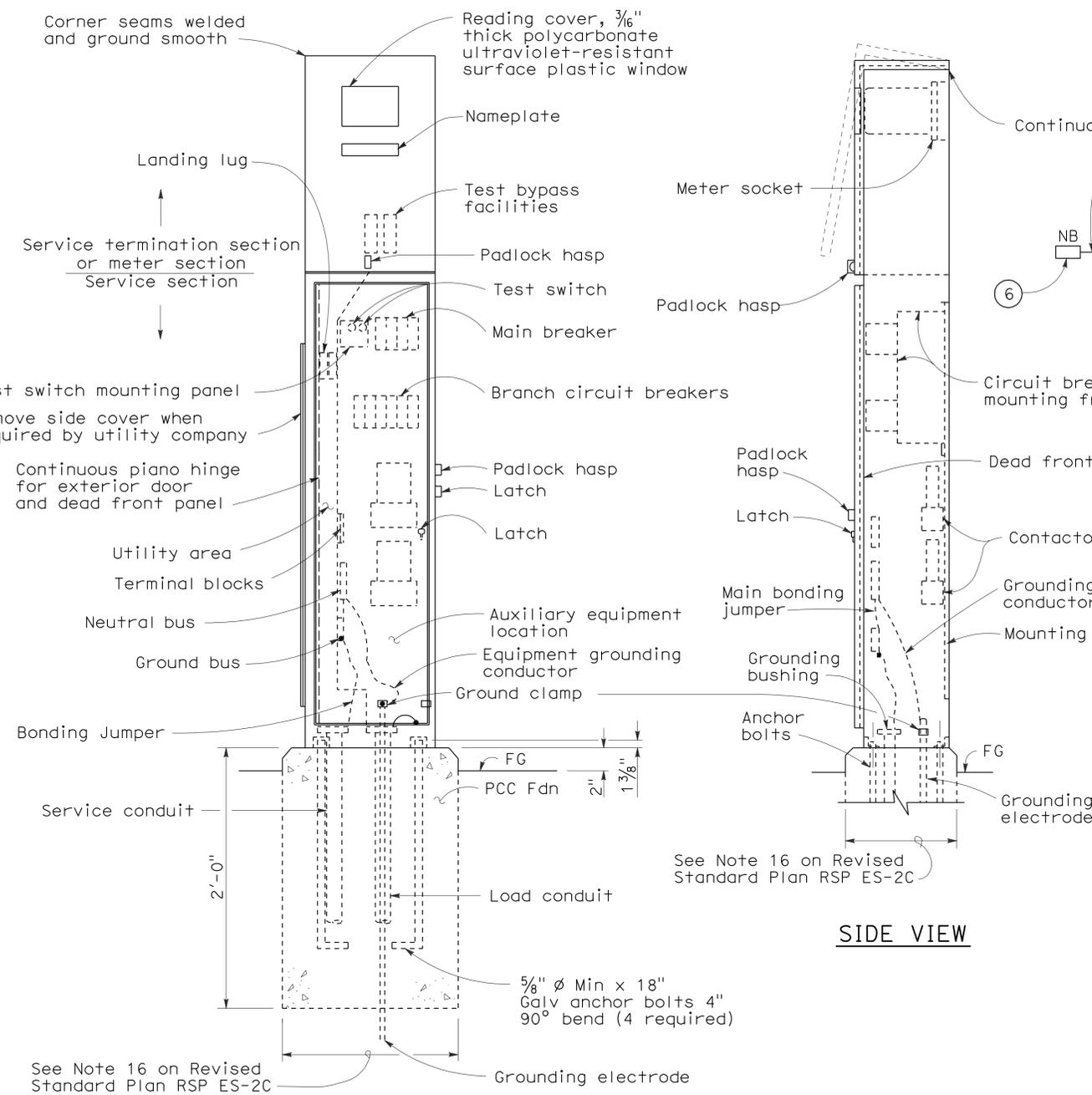
**ELECTRICAL SYSTEMS
 (SERVICE EQUIPMENT NOTES
 TYPE III SERIES)**

NO SCALE

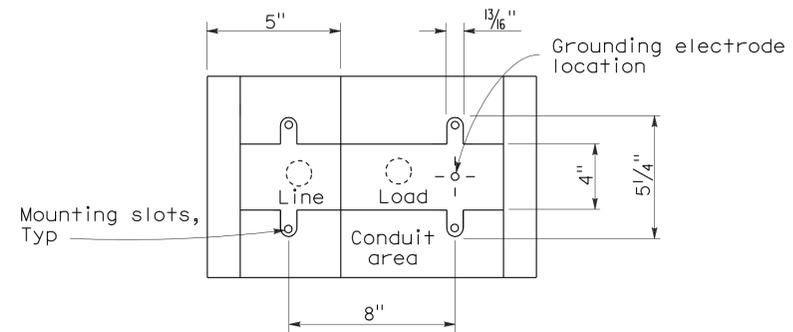
RSP ES-2C DATED OCTOBER 5, 2007 SUPERCEDES STANDARD PLAN ES-2C
 DATED MAY 1, 2006 - PAGE 405 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP ES-2C

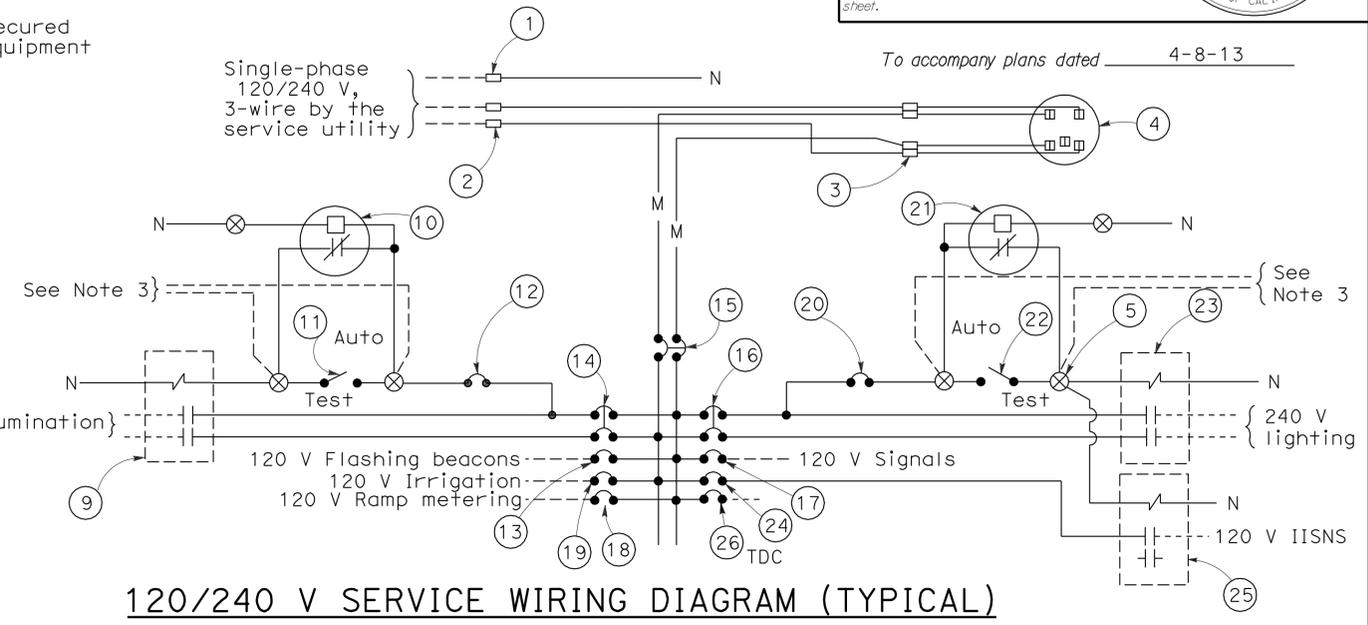
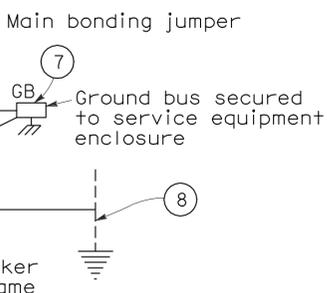
2006 REVISED STANDARD PLAN RSP ES-2C



TYPE III-AF SERVICE EQUIPMENT ENCLOSURE (TYPICAL)



BASE FOR TYPE III-A SERVICE EQUIPMENT ENCLOSURE



120/240 V SERVICE WIRING DIAGRAM (TYPICAL)

TYPE III-A 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 Test Switch
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 - A SERIES)**

NO SCALE

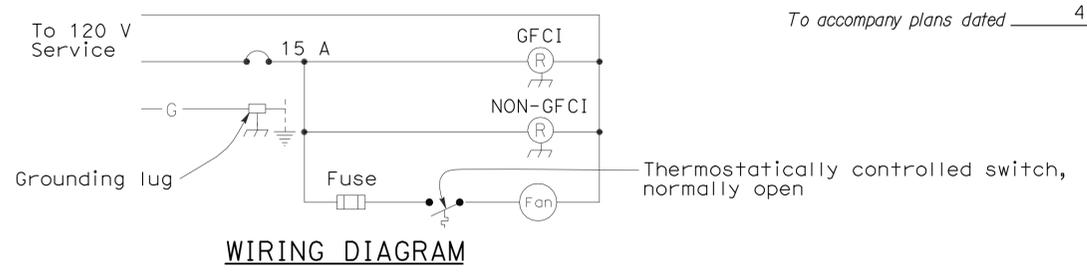
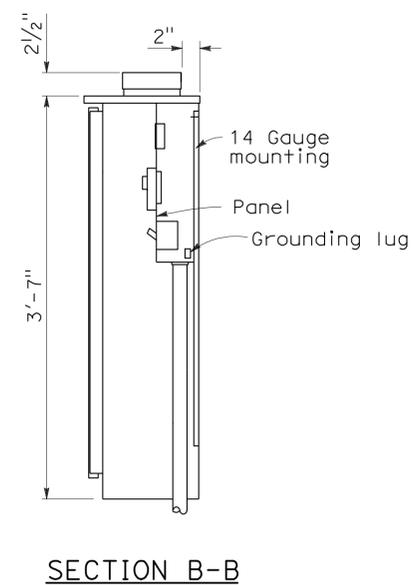
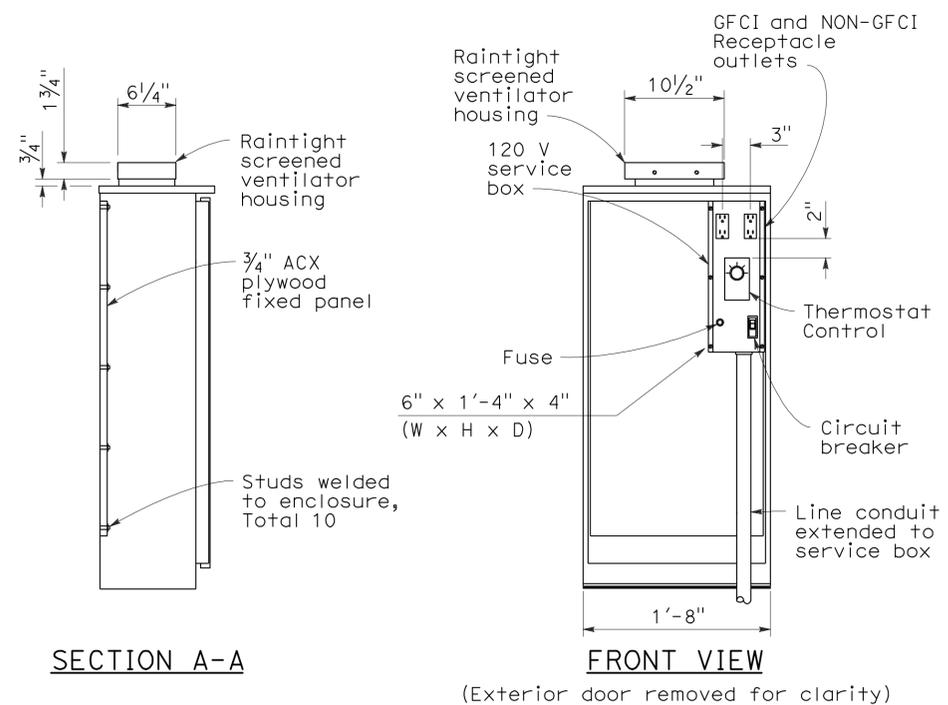
RSP ES-2D DATED OCTOBER 5, 2007 SUPERCEDES STANDARD PLAN ES-2D DATED MAY 1, 2006 - PAGE 406 OF THE STANDARD PLANS BOOK DATED MAY 2006.

2006 REVISED STANDARD PLAN RSP ES-2D

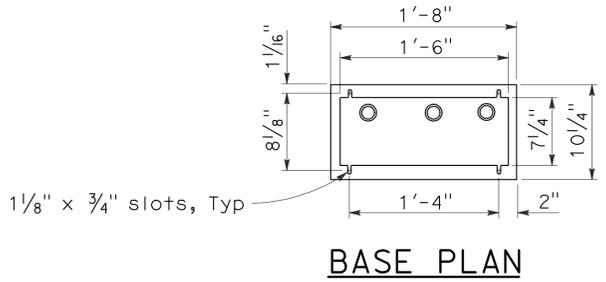
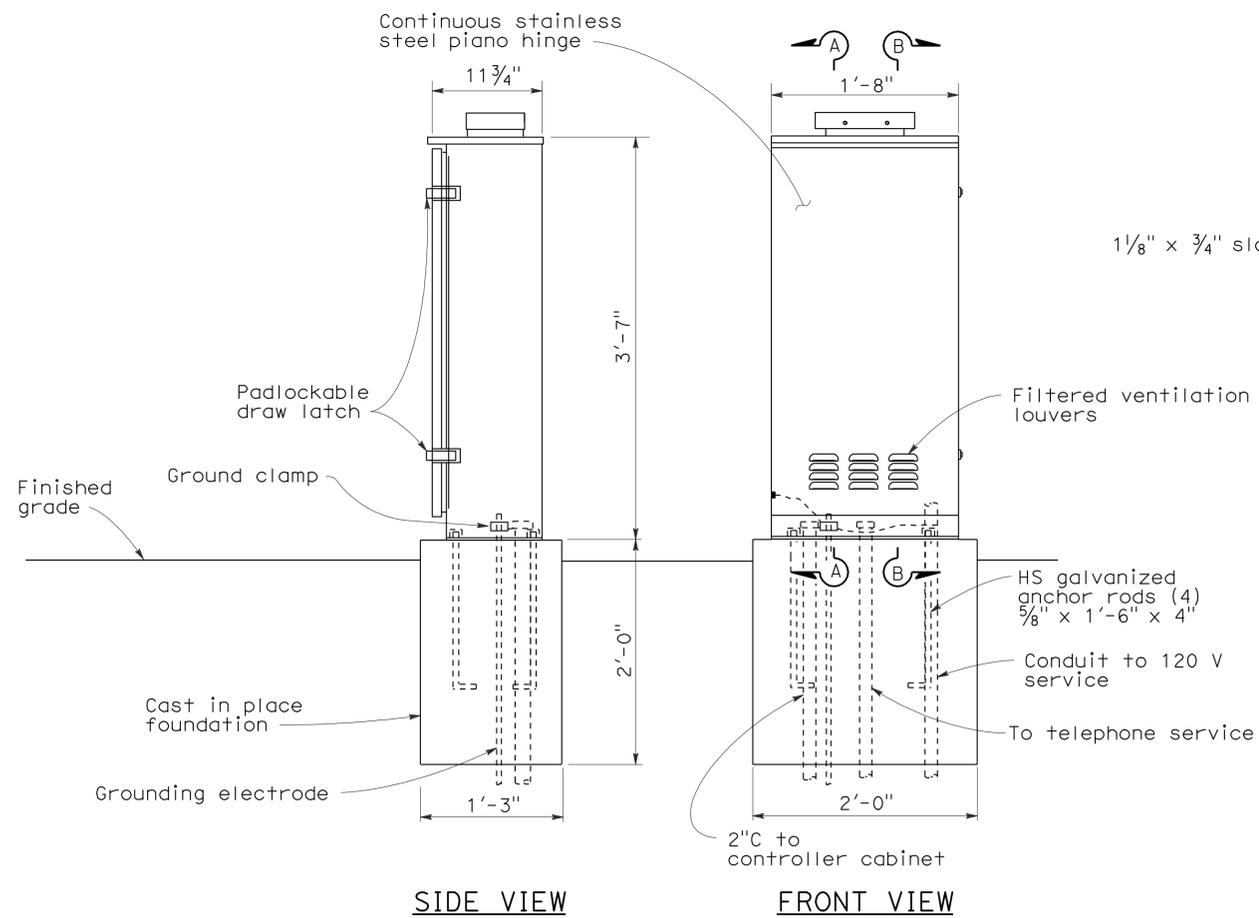
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	880	28.4/29.2	490	789

Jeffery G. McRae
 REGISTERED ELECTRICAL ENGINEER
 October 5, 2007
 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
 Jeffery G. McRae
 No. E14512
 Exp. 6-30-08
 ELECTRICAL
 STATE OF CALIFORNIA



- NOTES:**
- Telephone demarcation cabinet shall be furnished with a mounting panel, outlets, circuit breaker and deadfront plates in place. Dimensions are nominal.
 - An approved mastic or caulking compound shall be placed on the foundation prior to placing the cabinet to seal openings between the bottom of the cabinet and the foundation.
 - In unpaved areas, a raised PCC pad shall be placed in front of the telephone demarcation cabinet. Pad shall be 2'-0" x 1'-10" x 4" thick, with 2" above the finished grade.
 - All conduits shall be bonded to the enclosure.
 - Telephone demarcation cabinet:
 - Material shall be anodized aluminum (1/8" thick).
 - Fabrication shall conform to the requirements of the Standard Specifications.
 - The exterior door shall be side hung and secured with a padlockable draw latch, the padlock hole shall be a minimum diameter of 1/16" to receive a padlock.
 - Ventilation louvers shall be located on the door.
 - Fan shall be mounted in a ventilator housing.
 - Fan shall be thermostatically controlled and adjustable to turn on between 80°F and 130°F.
 - Fan circuit shall be fused at 175 percent of the fan motor capacity.
 - Fan capacity shall be at least 25 cubic feet per minute.
 - Fasten fixed mounting panels with nuts, lock and flat washers to 3/16" ø x 1" studs welded to enclosure.



STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION

**ELECTRICAL SYSTEMS
 (TELEPHONE DEMARCATIION
 CABINET, TYPE B)**

NO SCALE

RSP ES-3E DATED OCTOBER 5, 2007 SUPERCEDES STANDARD PLAN ES-3E
 DATED MAY 1, 2006 - PAGE 414 OF THE STANDARD PLANS BOOK DATED MAY 2006.

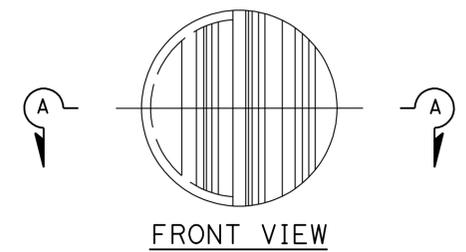
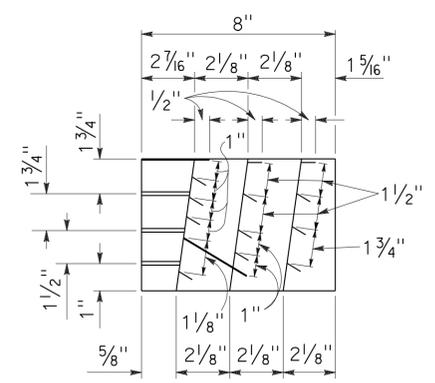
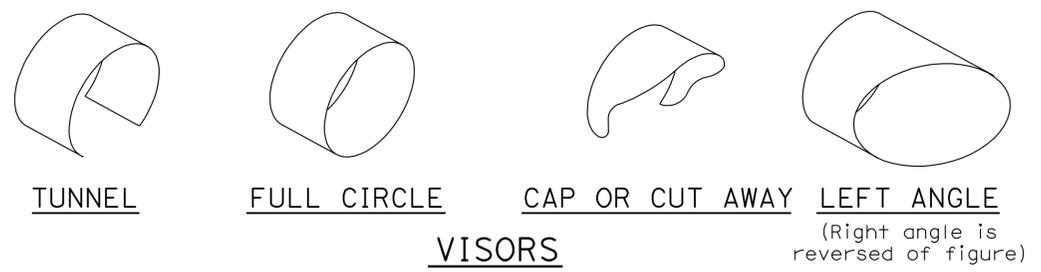
REVISED STANDARD PLAN RSP ES-3E

2006 REVISED STANDARD PLAN RSP ES-3E

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	880	28.4/29.2	491	789

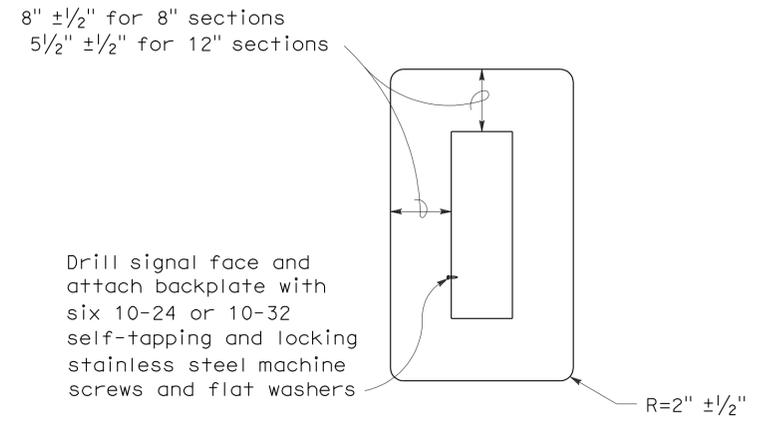
Jeffrey G. McRae
 REGISTERED ELECTRICAL ENGINEER
 June 6, 2008
 PLANS APPROVAL DATE
 The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.
 REGISTERED PROFESSIONAL ENGINEER
 Jeffrey G. McRae
 No. E14512
 Exp. 6-30-10
 ELECTRICAL
 STATE OF CALIFORNIA

To accompany plans dated 4-8-13



DIRECTIONAL LOUVER

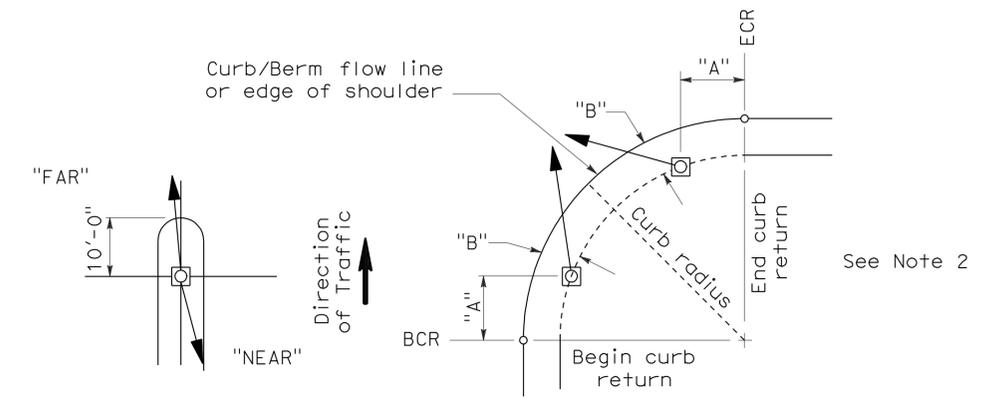
Directional louvers shall be oriented as directed by the Engineer and secured in place with one plated brass machine screw and nut.



8" AND 12" SECTIONS

BACKPLATE

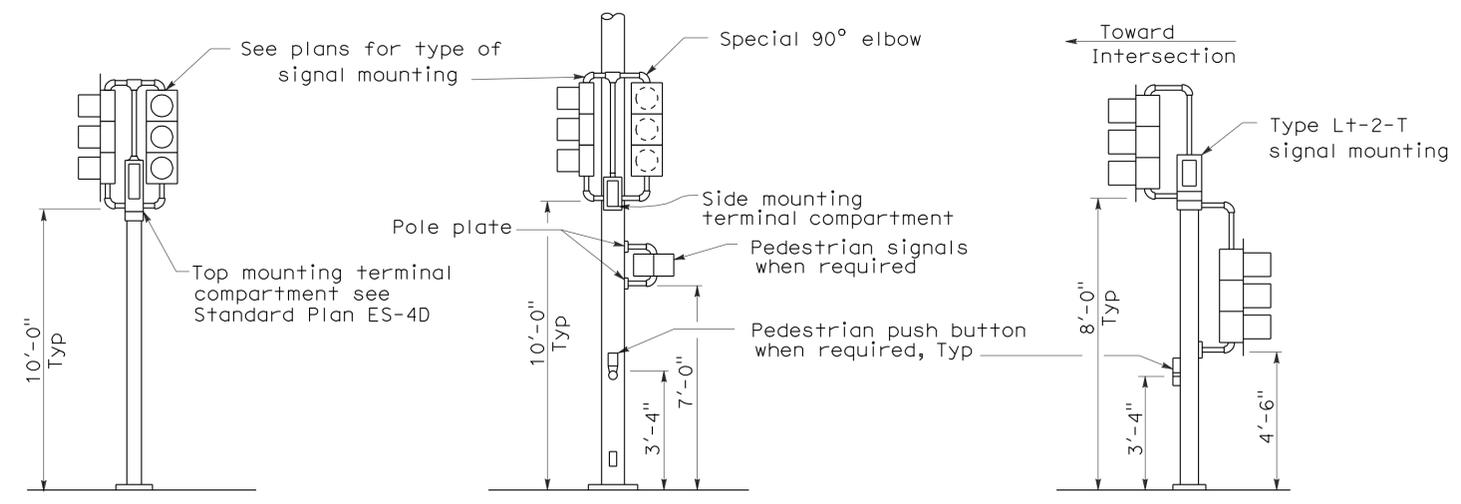
1/16" minimum thickness
 3001-14 aluminum, or plastic when specified



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

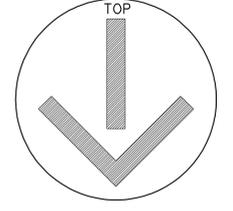
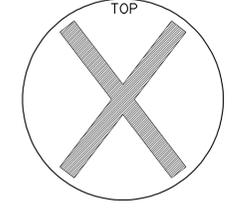
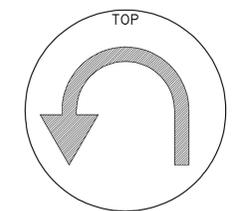
SIDE MOUNTED SIGNALS (SV AND SP)

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

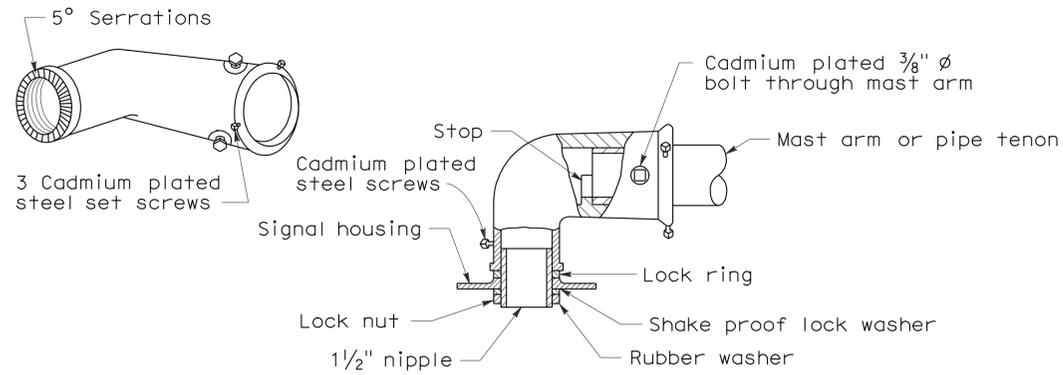
2006 REVISED STANDARD PLAN RSP ES-4C

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	880	28.4/29.2	492	789

Jeffrey G. McRae
 REGISTERED ELECTRICAL ENGINEER
 No. E14512
 Exp. 6-30-10
 ELECTRICAL
 STATE OF CALIFORNIA

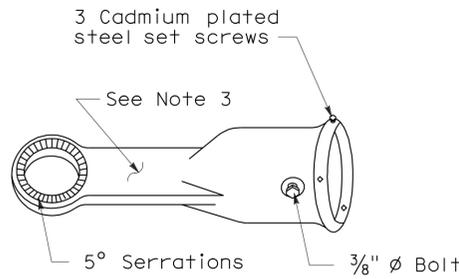
June 6, 2008
 PLANS APPROVAL DATE

To accompany plans dated 4-8-13



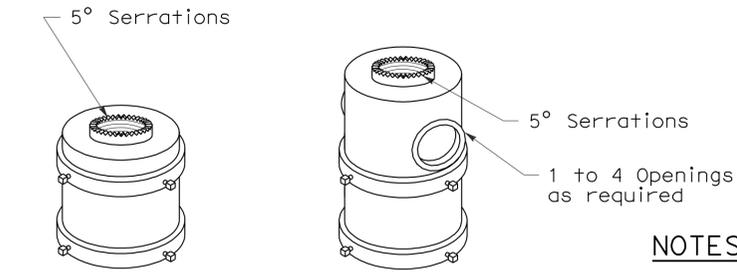
MAST ARM MOUNTING - TYPE "MAT"

For 2 NPS pipe, see Note 1.



MAST ARM MOUNTING - TYPE "MAS"

For 2 NPS pipe. See Note 1.

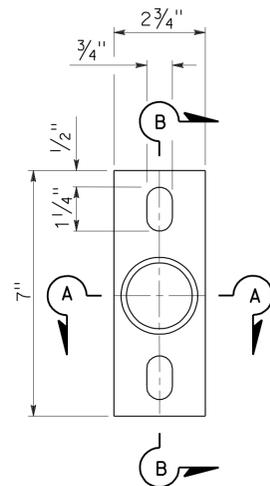


For one mounting For multiple mountings

TOP MOUNTINGS

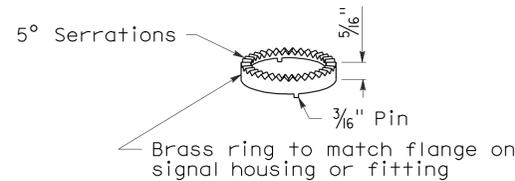
For 4 NPS pipe, see Note 2.

SIGNAL SLIP FITTERS



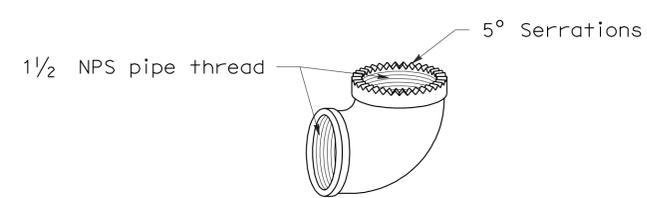
POLE PLATE

For side mountings



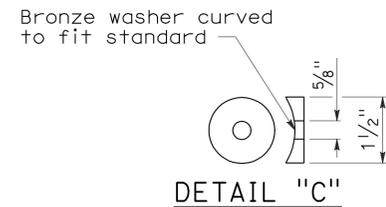
LOCK RING

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



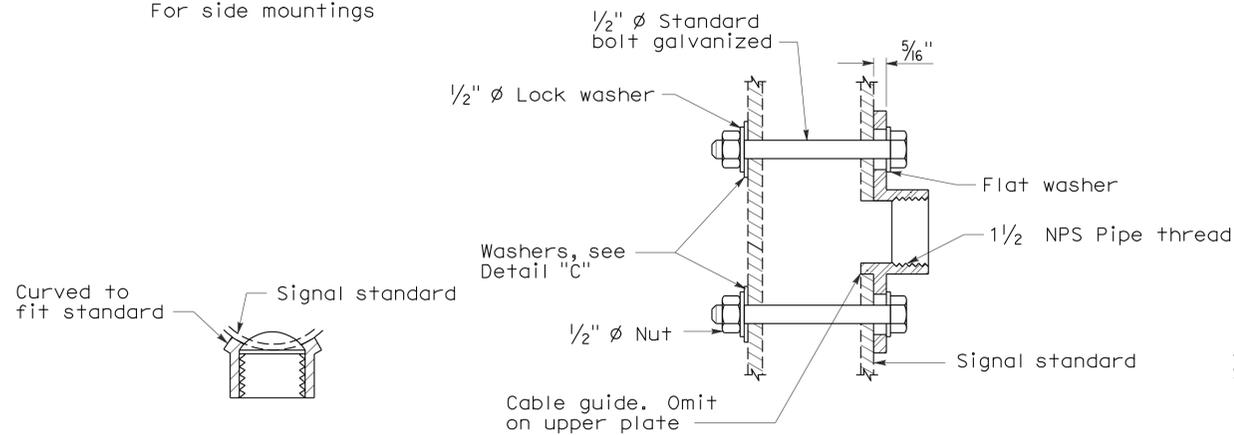
SPECIAL 90° ELBOW

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

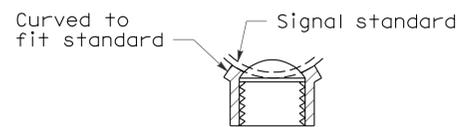


DETAIL "C"

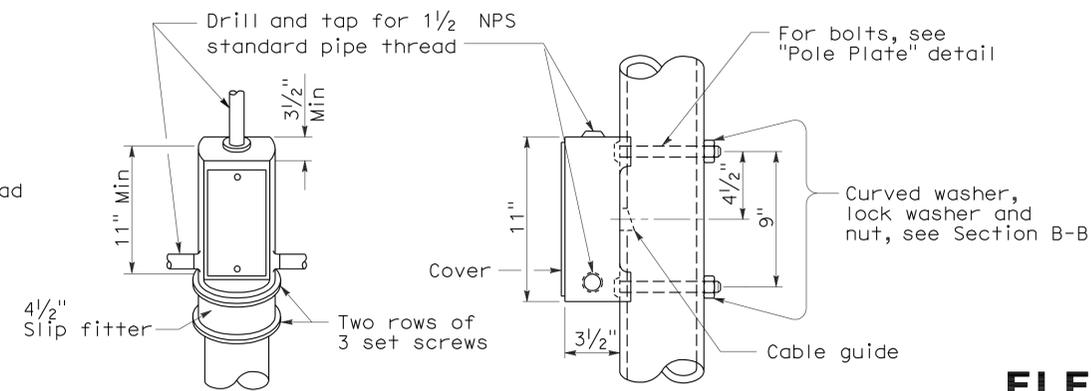
MISCELLANEOUS MOUNTING HARDWARE



SECTION B-B



SECTION A-A



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

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	880	28.4/29.2	493	789

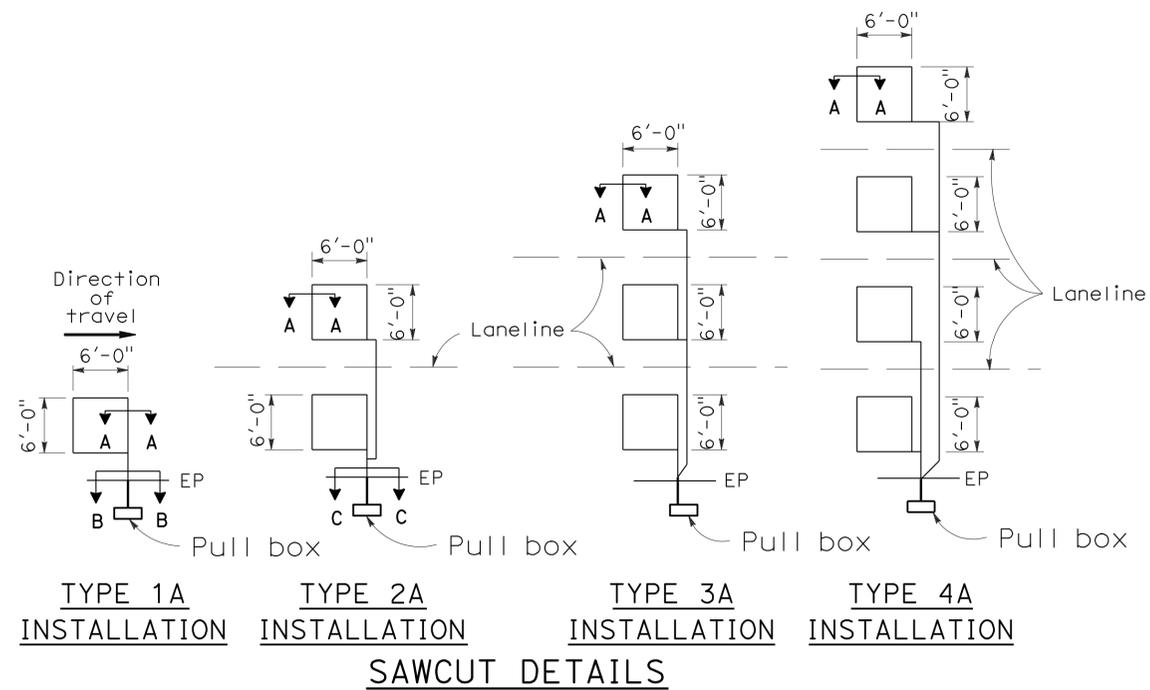
Jeffery G. McRae
 REGISTERED ELECTRICAL ENGINEER
 No. E14512
 Exp. 6-30-08
 ELECTRICAL
 STATE OF CALIFORNIA

October 5, 2007
 PLANS APPROVAL DATE

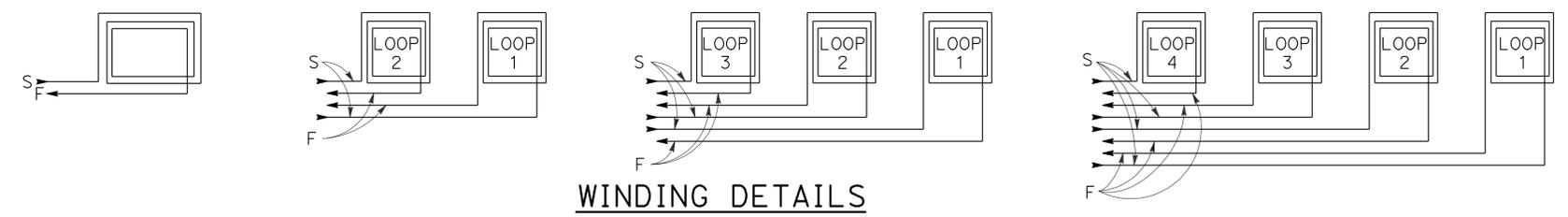
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

LOOP INSTALLATION PROCEDURE

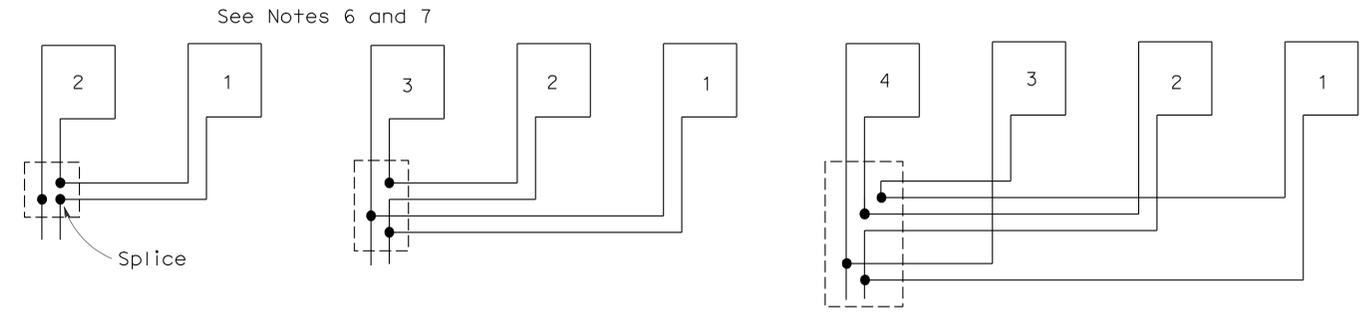
- Loops shall be centered in lanes.
- Saw slots in pavement for loop conductors as shown in details.
- Distance between side of loop and a lead-in saw cut from adjacent detectors shall be 2'-0" minimum. Distance between lead-in saw cuts shall be 6" minimum.
- Bottom of saw slot shall be smooth with no 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.



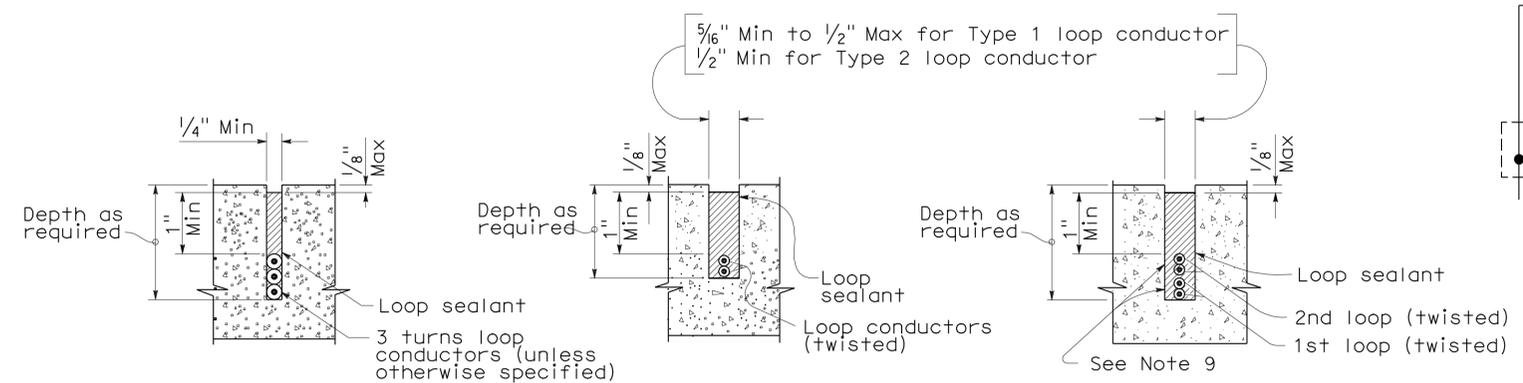
- SAWCUT DETAILS**
(Type A loop detector configurations illustrated)
- 1A thru 4A = 1 Type A loop configuration in each lane.
 - 1B thru 4B = 1 Type B loop configuration in each lane.
 - 1C = 1 Type C loop configuration entering lanes as required.
 - 1D thru 4D = 1 Type D loop configuration in each lane.
 - 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)



TYPICAL LOOP CONNECTIONS



(Dashed lines represent the pull box)



SECTION A-A SECTION B-B SECTION C-C
SLOT DETAILS - TYPE 1 AND TYPE 2 LOOP CONDUCTOR

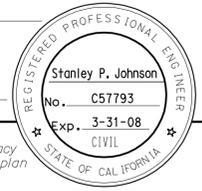
ELECTRICAL SYSTEMS (DETECTORS)

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

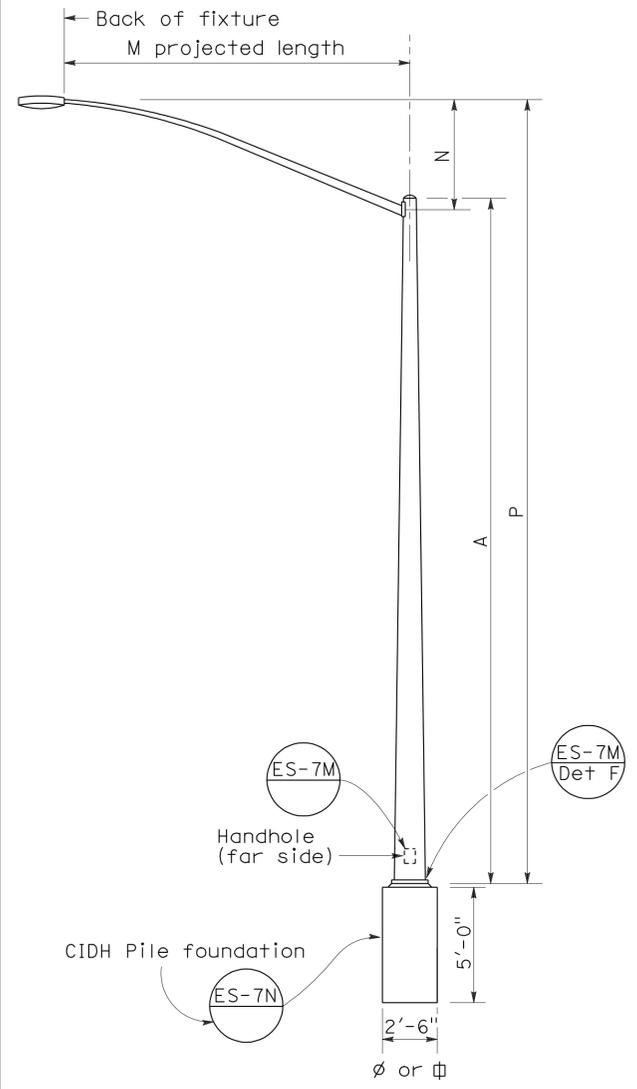
NO SCALE

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.

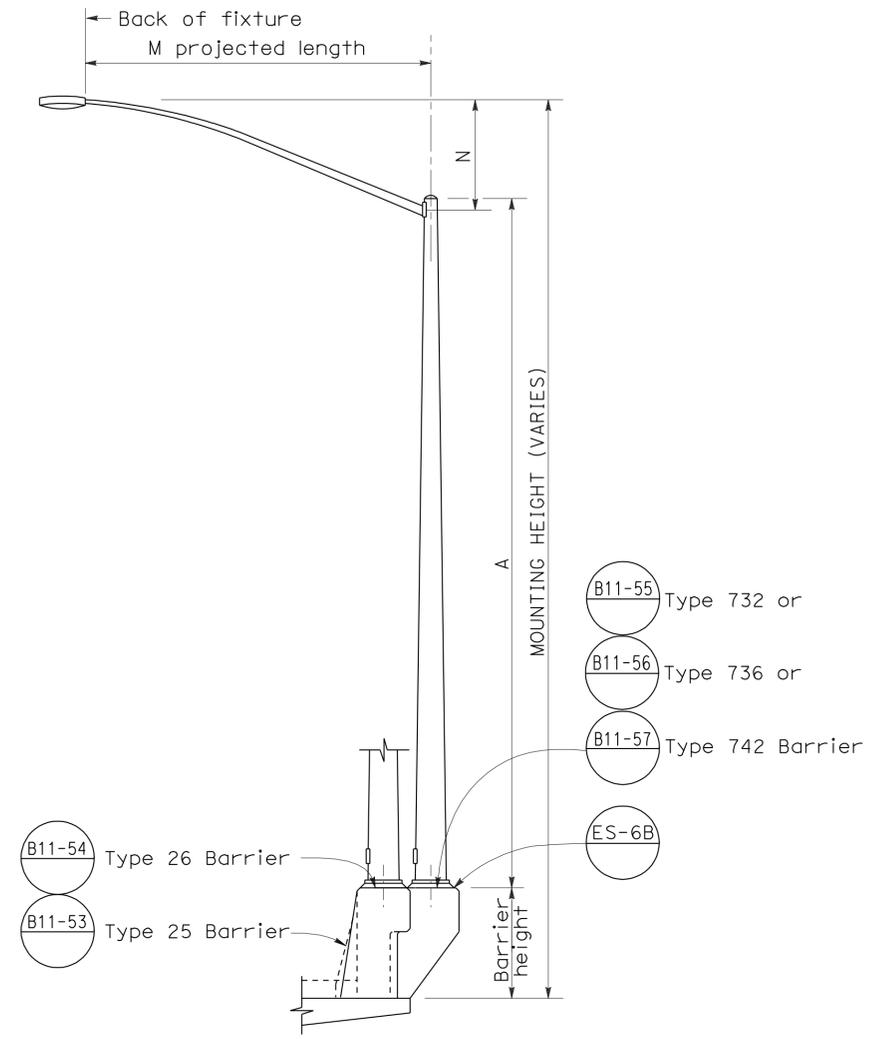
2006 REVISED STANDARD PLAN RSP ES-5A



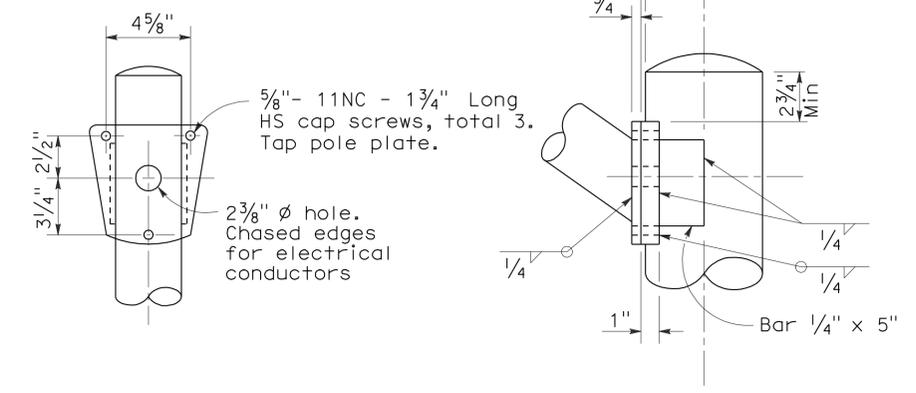
To accompany plans dated 4-8-13



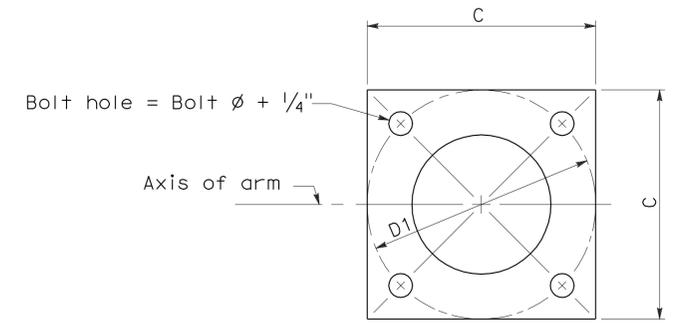
ELEVATION
TYPE 15 AND TYPE 21



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" ϕ 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" ϕ 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 3/8"	0.1196"	32'-9"±	37'-9"±
12'-0"	4'-3"±	3 3/8"	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)

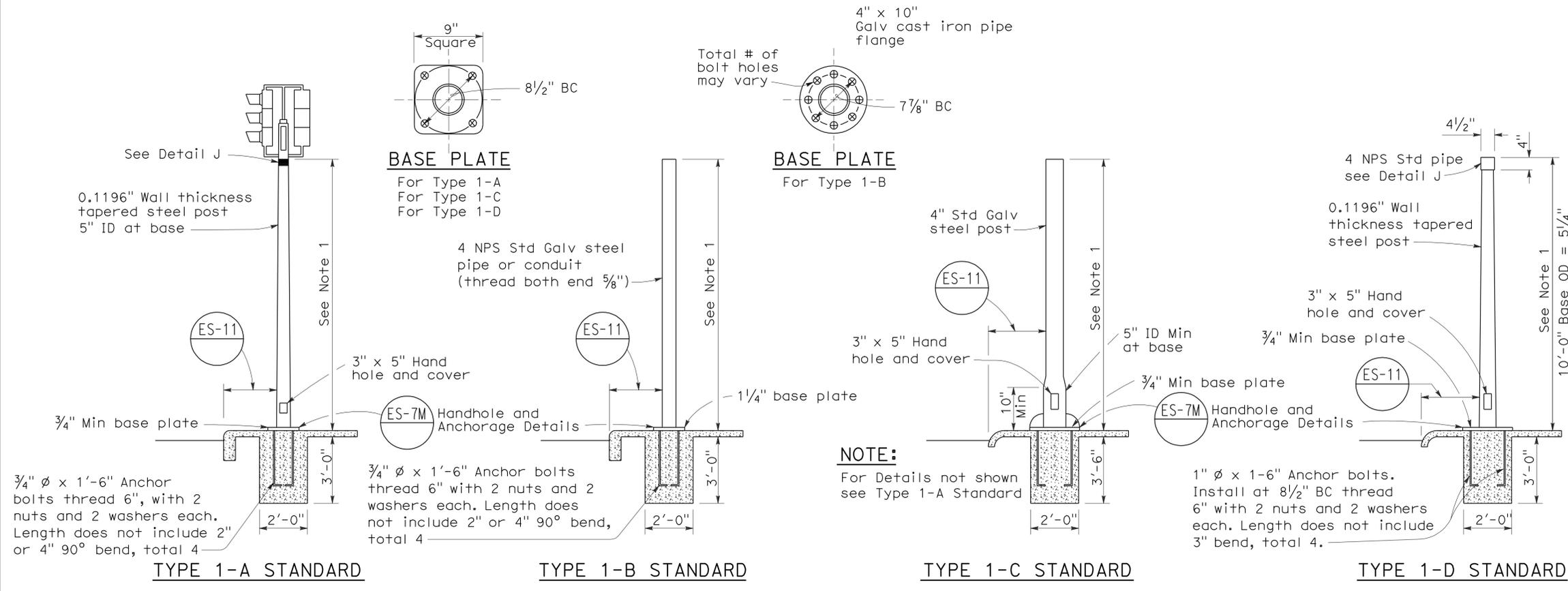
NO SCALE

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.

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	880	28.4/29.2	495	789

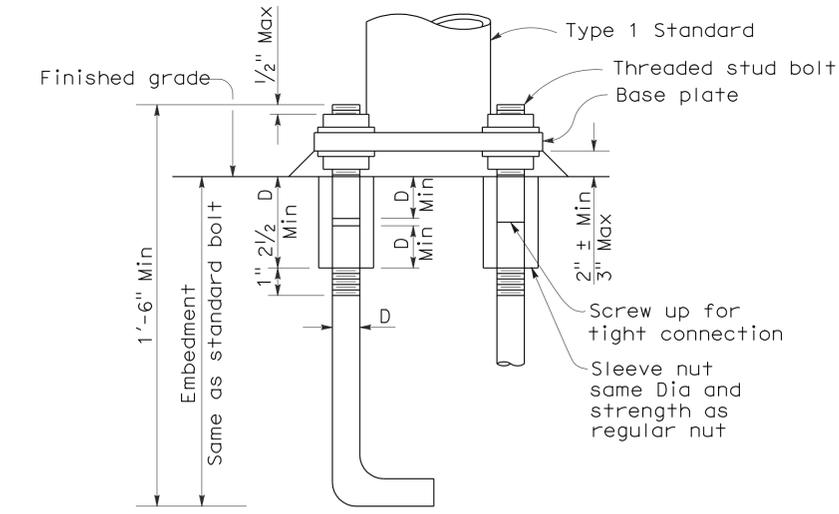
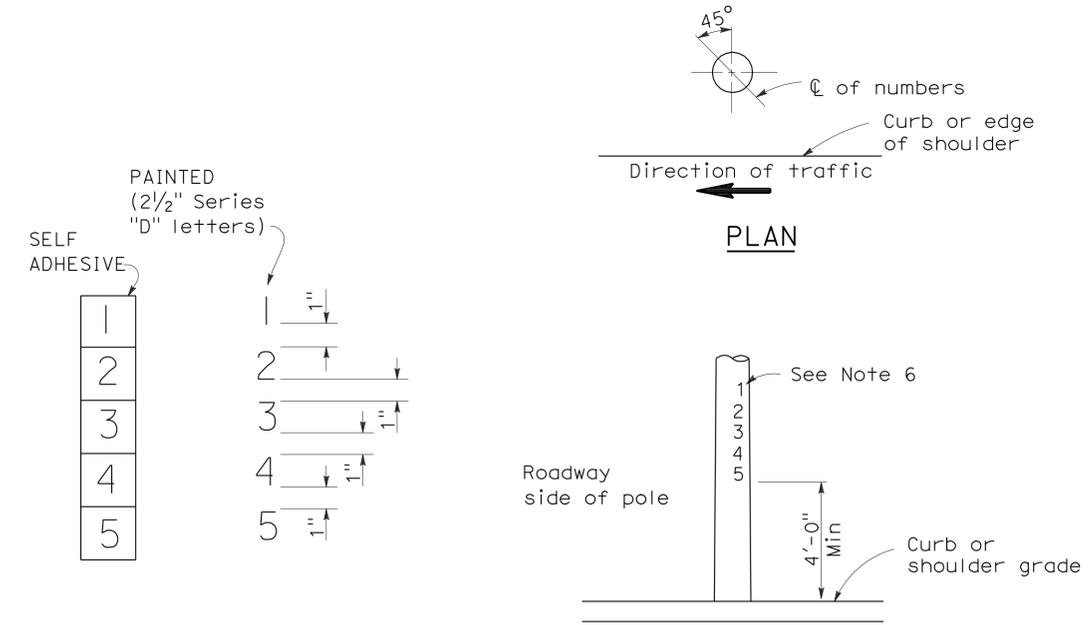
Stanley P. Johnson
 REGISTERED CIVIL ENGINEER
 October 5, 2007
 PLANS APPROVAL DATE
 The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.
 REGISTERED PROFESSIONAL ENGINEER
 Stanley P. Johnson
 No. C57793
 Exp. 3-31-08
 CIVIL
 STATE OF CALIFORNIA

To accompany plans dated 4-8-13



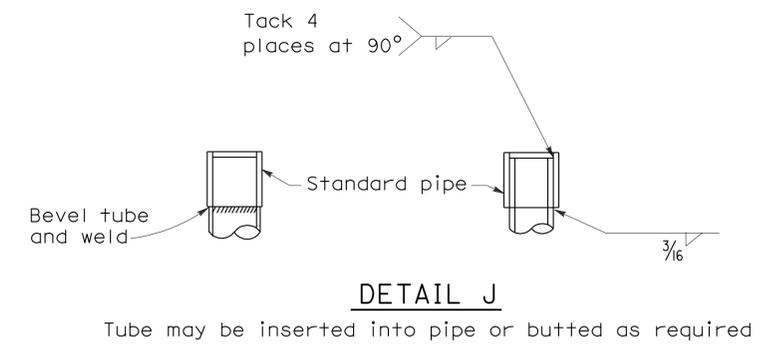
- NOTES:**
- Standards shall be 10'-0" \pm 2" for vehicle signals and 7'-0" \pm 2" for pedestrian signals unless otherwise noted on plans.
 - Top of standards shall be 4 1/2" OD.
 - Conduits shall extend 2" maximum above finished surface of foundation and for Types 1-A, 1-C and 1-D shall be sloped toward 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



ANCHOR BOLTS WITH SLEEVE NUTS

Sleeve nuts to be used only when shown or specified on Project Plans
D = Diameter of anchor bolt



DETAIL J

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

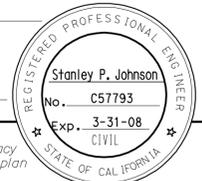
ELECTRICAL SYSTEMS (SIGNAL AND LIGHTING STANDARD TYPE 1 STANDARD AND EQUIPMENT NUMBERING)

NO SCALE

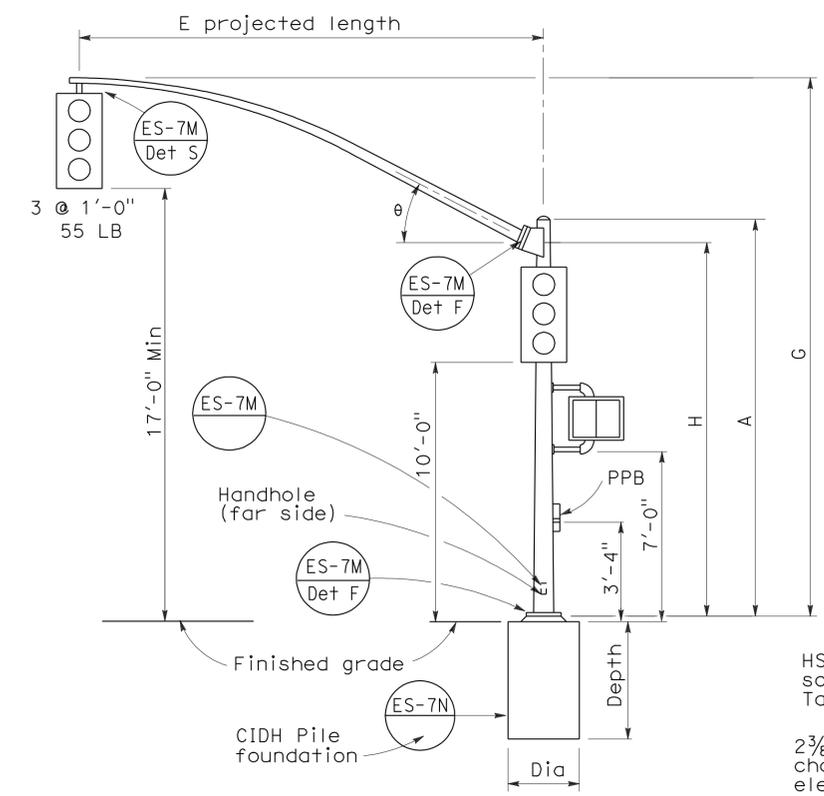
RSP ES-7B DATED OCTOBER 5, 2007 SUPERCEDES STANDARD PLAN ES-7B DATED MAY 1, 2006 - PAGE 438 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP ES-7B

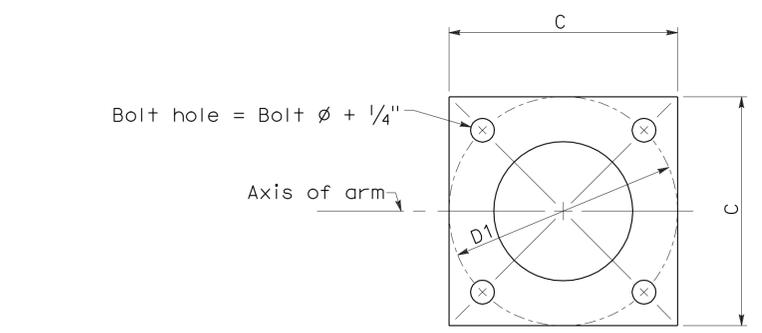
2006 REVISED STANDARD PLAN RSP ES-7B



To accompany plans dated 4-8-13

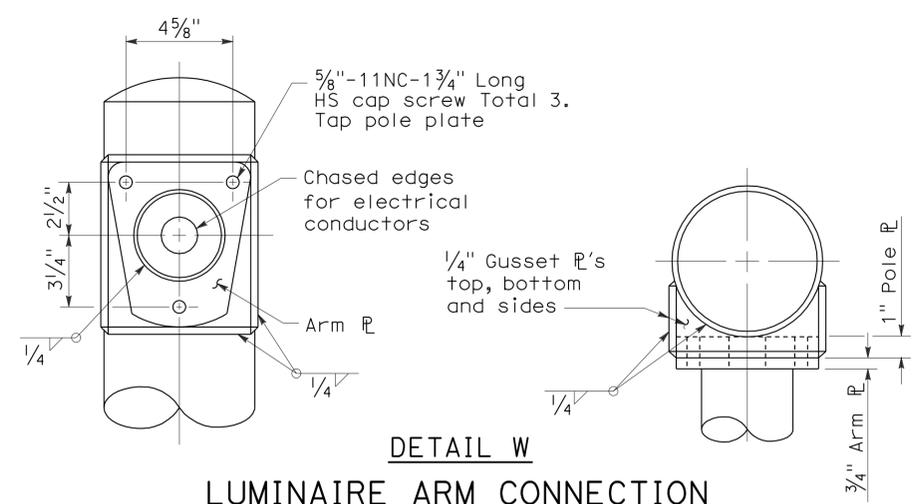


ELEVATION
TYPE 16-1-100, 18-1-100

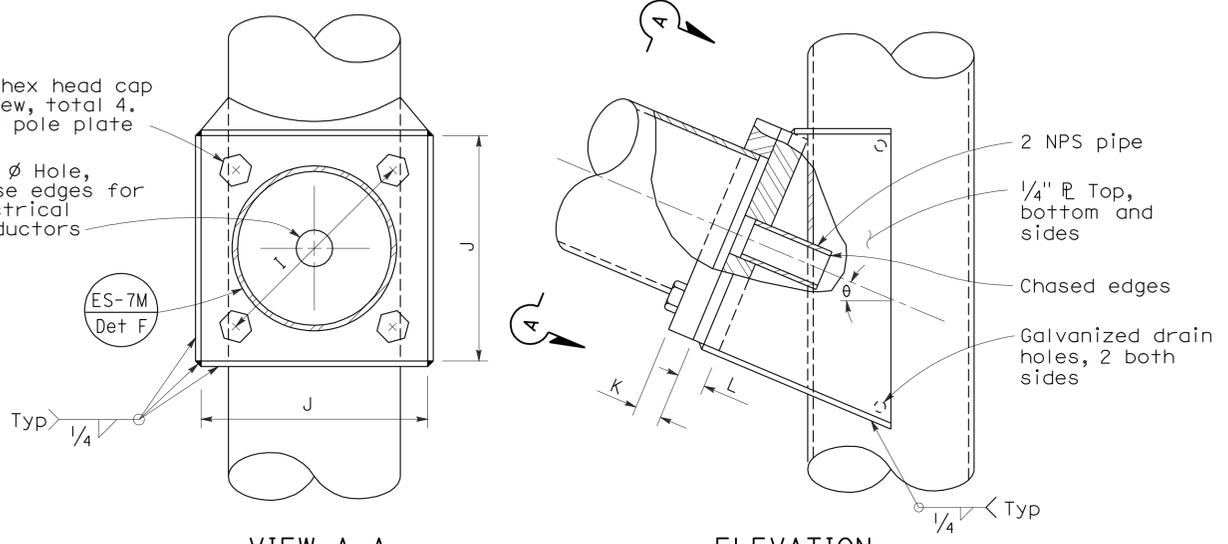


BASE PLATE

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
15'-0"	21'-8"±	17'-6"	7"	0.1196"	12"	1 1/4"-7NC-3"	1'-0"	1 1/4"	1 1/2"	23°
20'-0"	21'-8"±	7 7/8"								
25'-0"	22'-8"±	7 5/8"								
30'-0"	23'-0"±	8"								

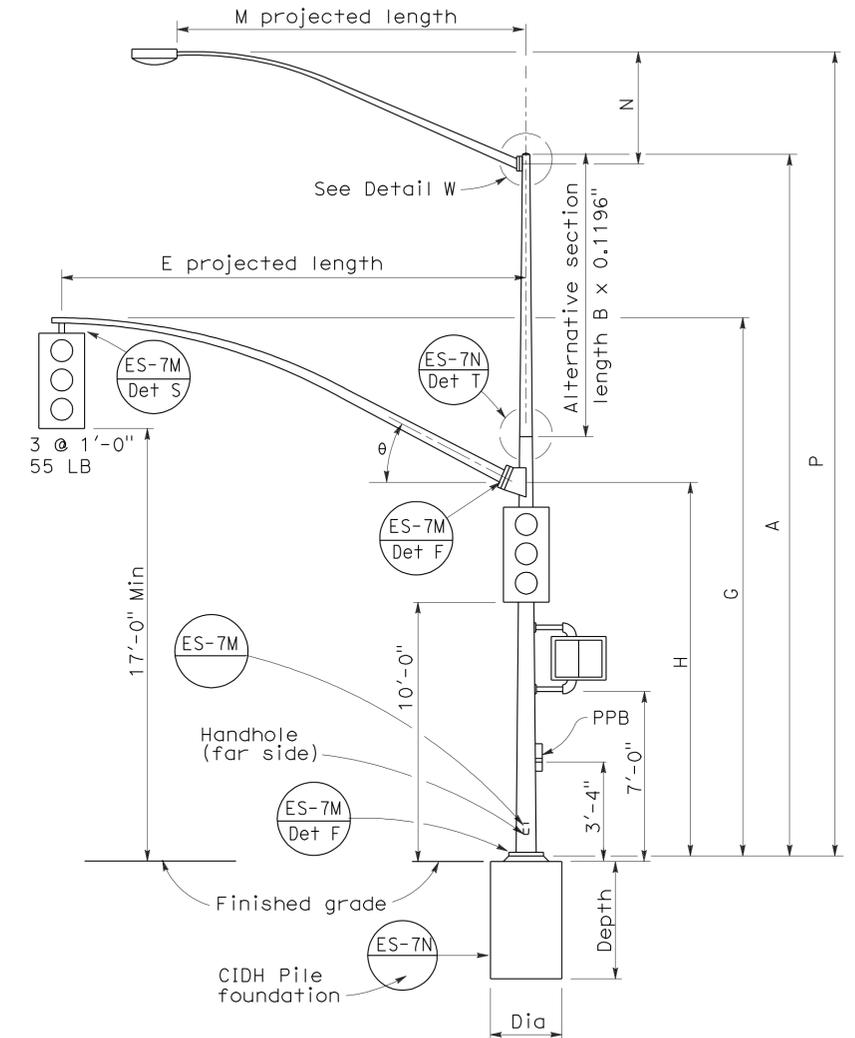


DETAIL W
LUMINAIRE ARM CONNECTION



VIEW A-A
SIGNAL ARM CONNECTION DETAILS

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



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

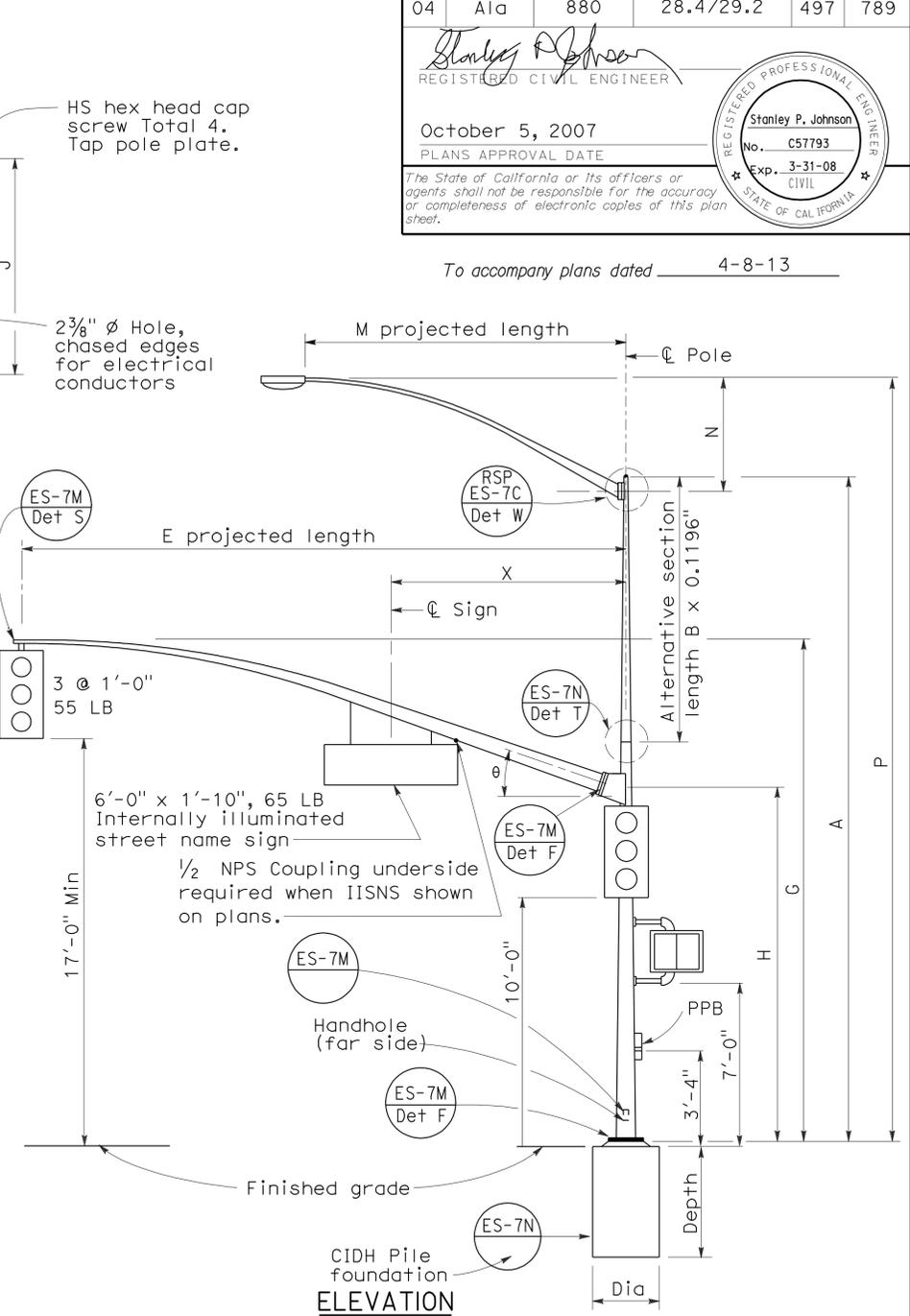
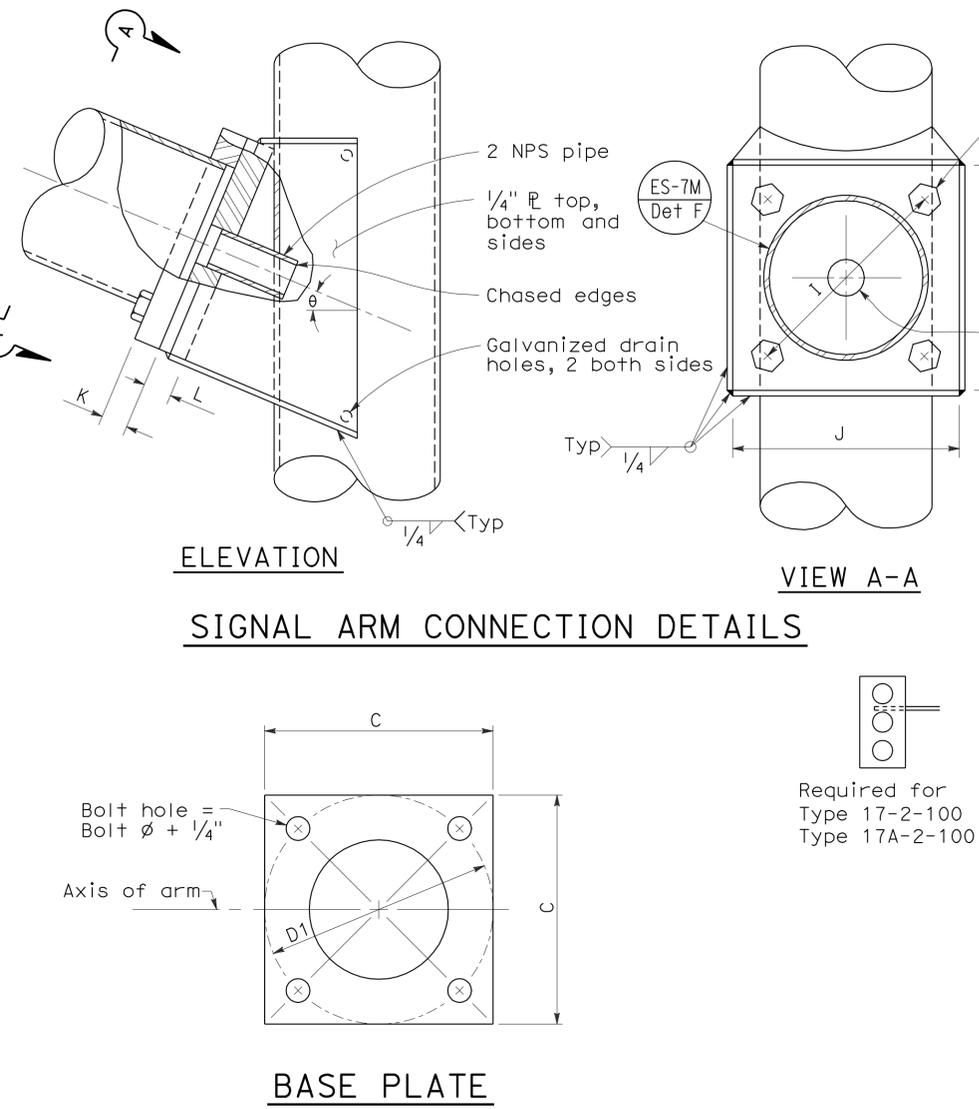
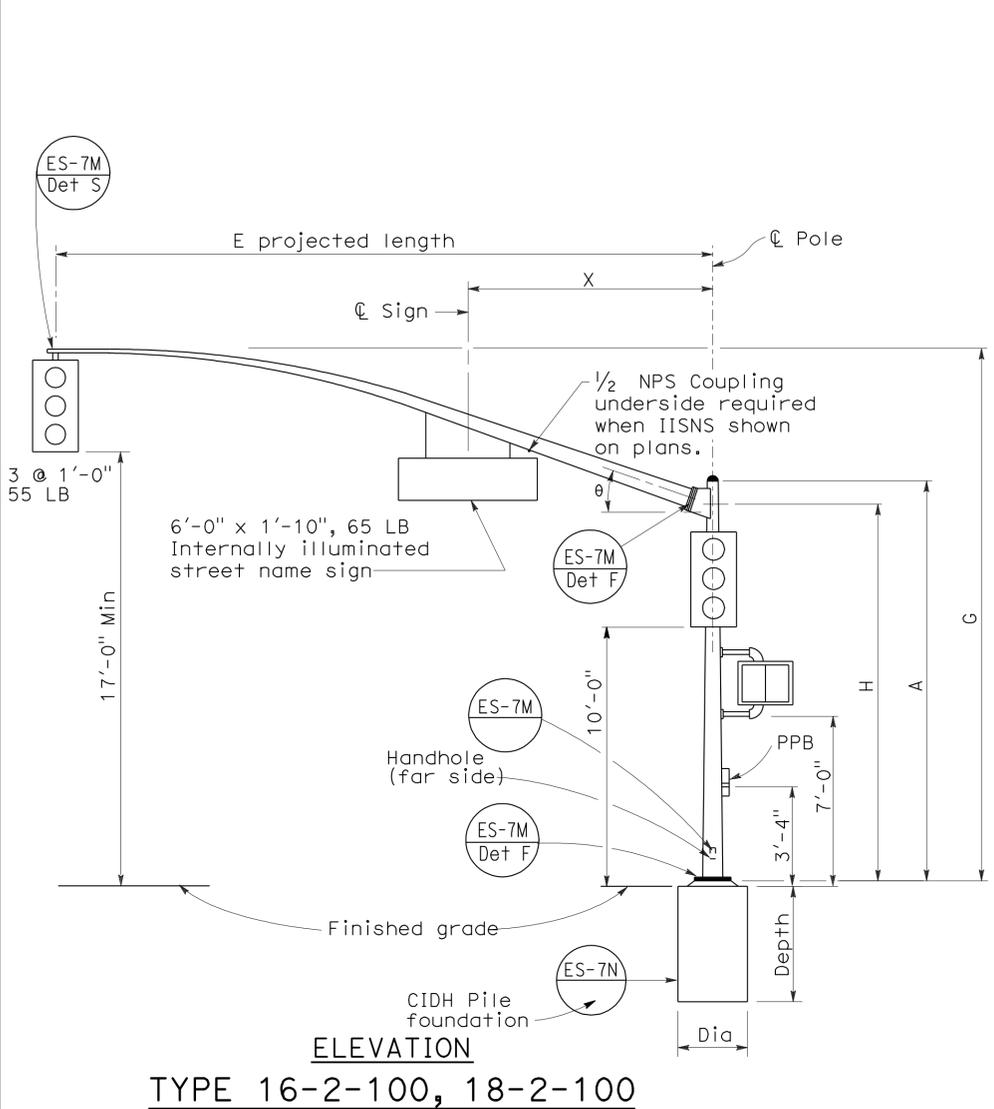
Pole Type	Load Case	Wind Velocity mph	POLE DATA			BASE PLATE DATA				CIDH PILE FOUNDATION									
			A Height	Min OD	Thickness	B Length	Bottom	Top	C	D1 Bolt Circle	Thickness	Anchor Bolts Size	Luminaire Arm	Signal Arm	Diameter	Depth	Reinforced		
16-1-100	1	100	18'-6"	8 1/4"	0.1793"	None			1'-6"	1'-5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

STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION
ELECTRICAL SYSTEMS
(SIGNAL AND LIGHTING STANDARD
CASE 1 ARM LOADING
WIND VELOCITY = 100 MPH
ARM LENGTHS 15' TO 30')
 NO SCALE

RSP ES-7C DATED JUNE 15, 2007 SUPERSEDES STANDARD PLAN ES-7C DATED MAY 1, 2006 - PAGE 439 OF THE STANDARD PLANS BOOK DATED MAY 2006.

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

2006 REVISED STANDARD PLAN RSP ES-7C



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"±	16'-0"	6 5/8"								15'-0"	6 5/8"
25'-0"	22'-8"±		7 5/16"								5 15/16"	
30'-0"	23'-0"±		8"								5 1/2"	

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

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"			10'-0"												6 5/8"
17A-2-100			35'-0"			15'-0"												5 15/16"
18-2-100			17'-0"			None												8 7/16"
19-2-100			30'-0"			10'-0"												6 5/8"
19A-2-100			35'-0"			15'-0"												5 1/2"

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

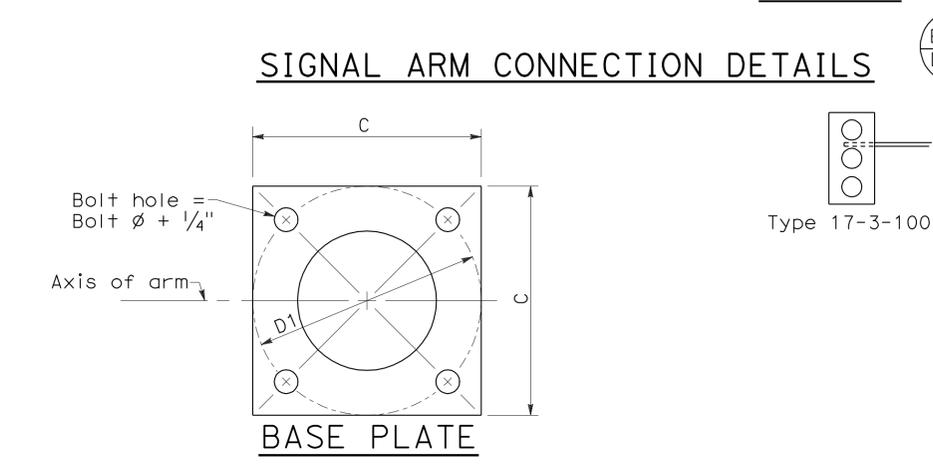
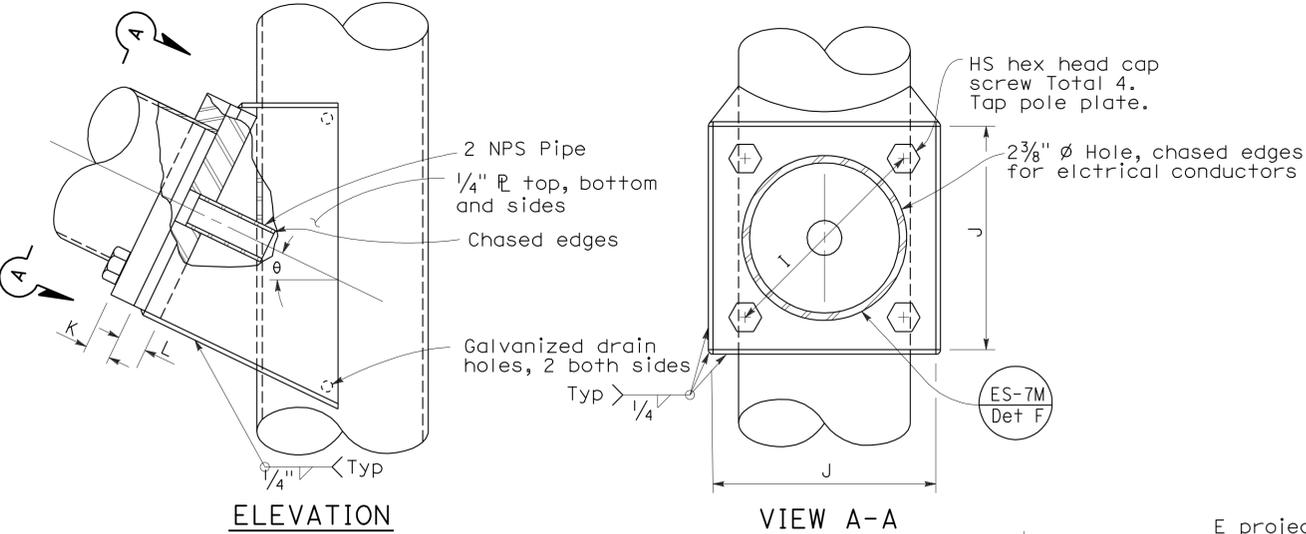
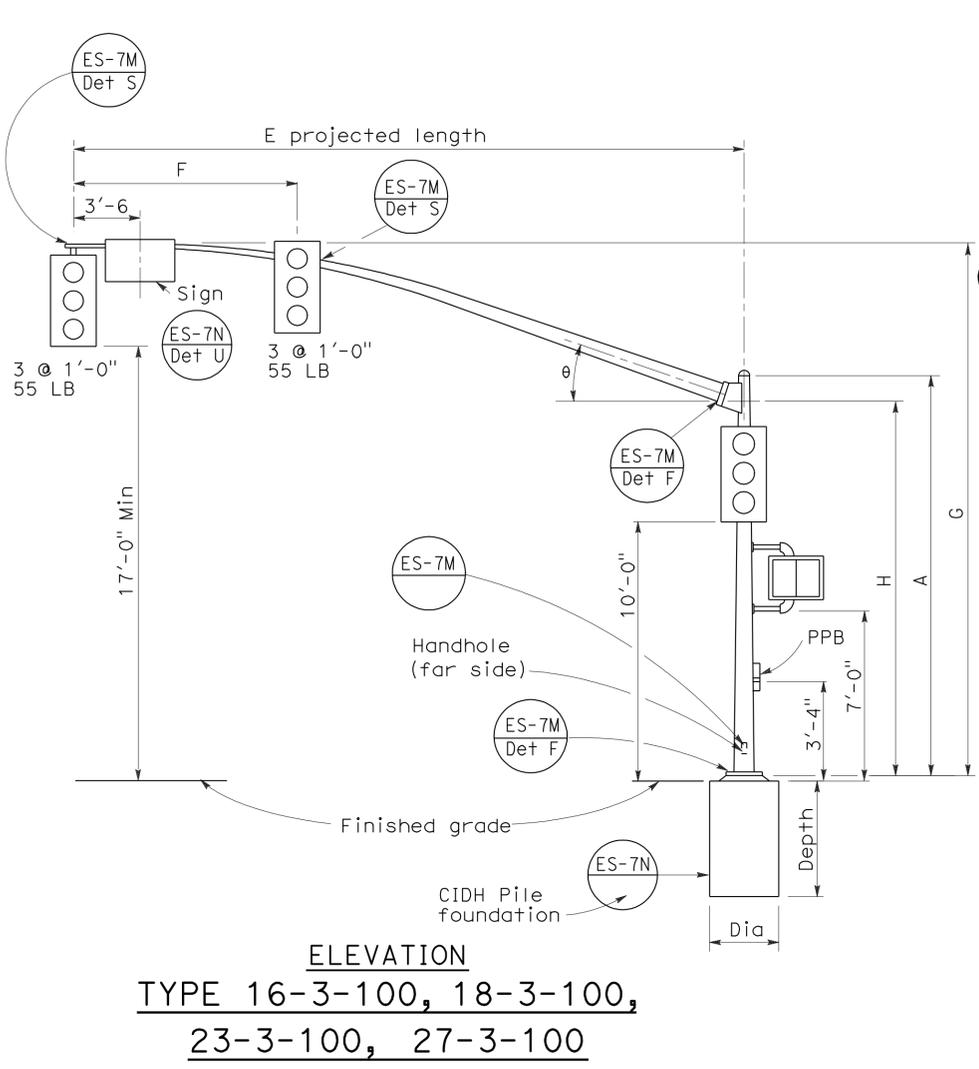
STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION
ELECTRICAL SYSTEMS
(SIGNAL AND LIGHTING STANDARD
CASE 2 ARM LOADING
WIND VELOCITY=100 MPH
ARM LENGTHS 15' TO 30')
 NO SCALE
 RSP ES-7D DATED OCTOBER 5, 2007 SUPERCEDES STANDARD PLAN ES-7D
 DATED MAY 1, 2006 - PAGE 440 OF THE STANDARD PLANS BOOK DATED MAY 2006.

2006 REVISED STANDARD PLAN RSP ES-7D

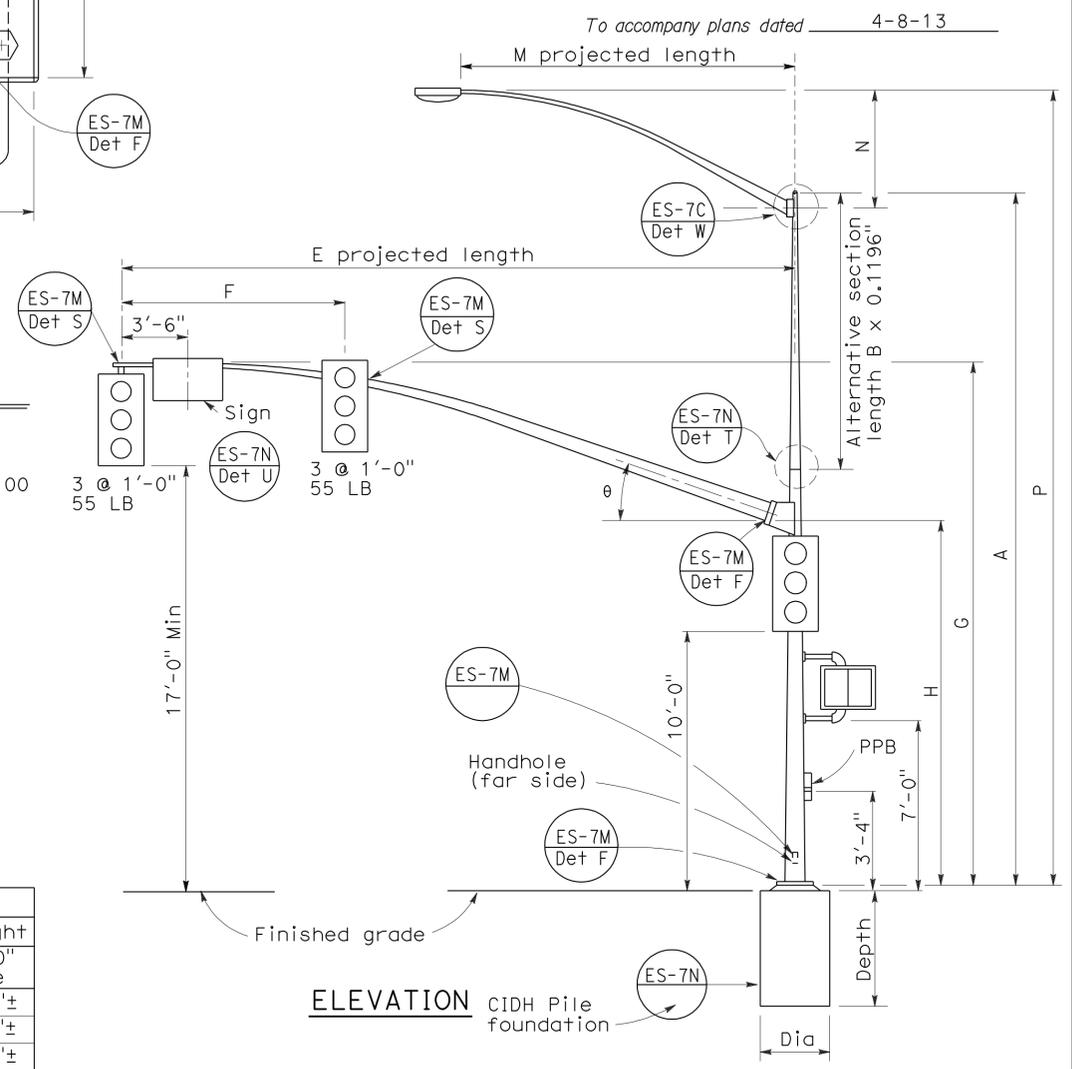
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	880	28.4/29.2	498	789

REGISTERED CIVIL ENGINEER
 June 30, 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
 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 Thickness	L Pole Thickness	θ
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"		22'-8"±		7 5/8"							
30'-0"	12'-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"±			33'-9"±	38'-9"±
15'-0"	4'-9"±	4 1/4"		34'-3"±	39'-3"±

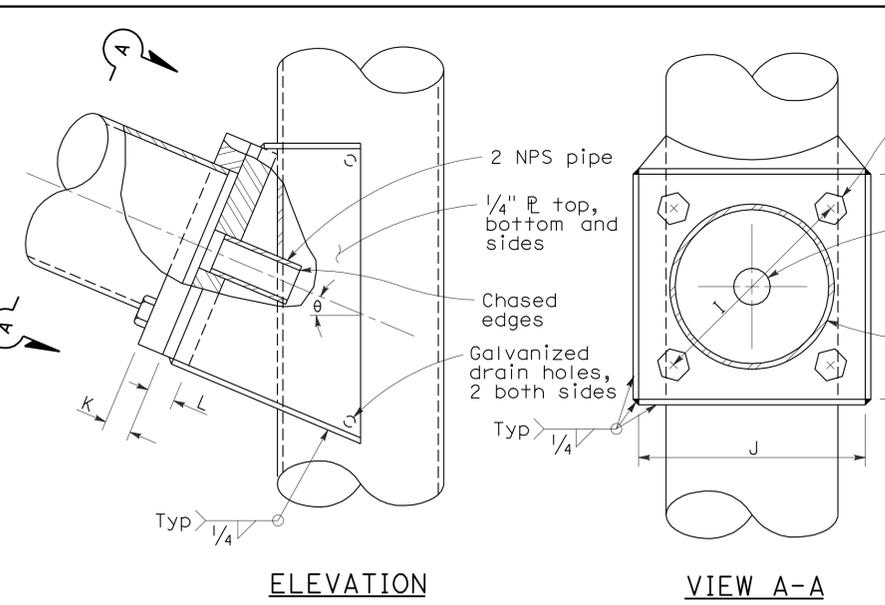
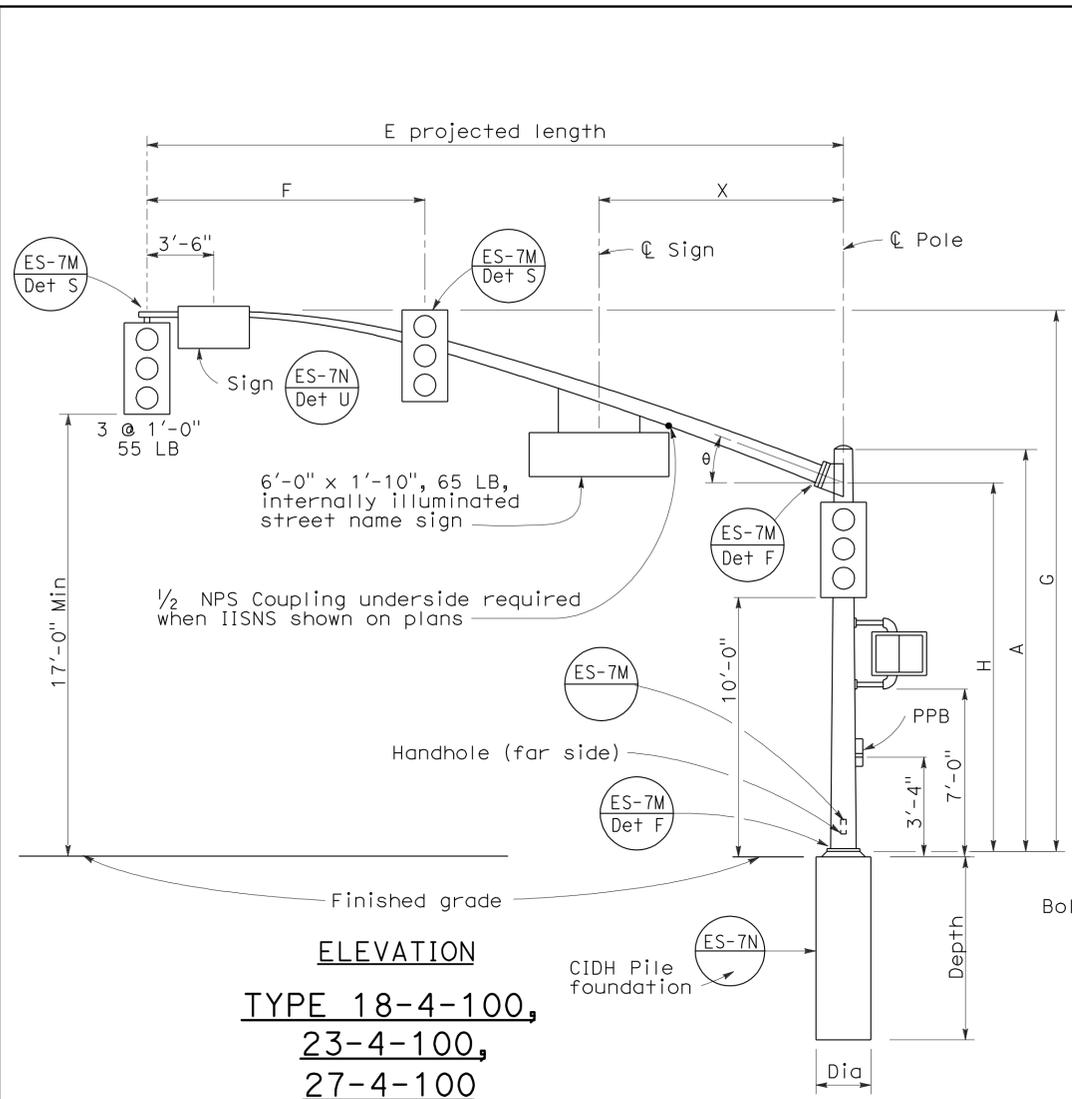
Pole Type	Load Case	Wind Velocity mph	POLE DATA				BASE PLATE DATA				Luminaire Arm	Signal Arm	CIDH PILE FOUNDATION					
			A Height	Min OD		Thickness	Alternative Section			C			D1 Bolt Circle	Thickness	Anchor Bolts Size	Diameter	Depth	Reinforced
				Base	Top		B Length	Bottom	Top									
16-3-100	3	100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

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

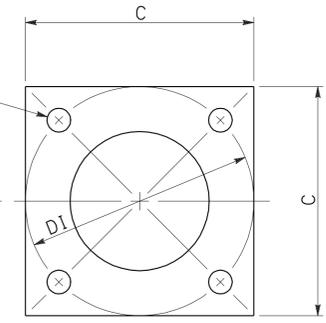
REVISED STANDARD PLAN RSP ES-7E

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

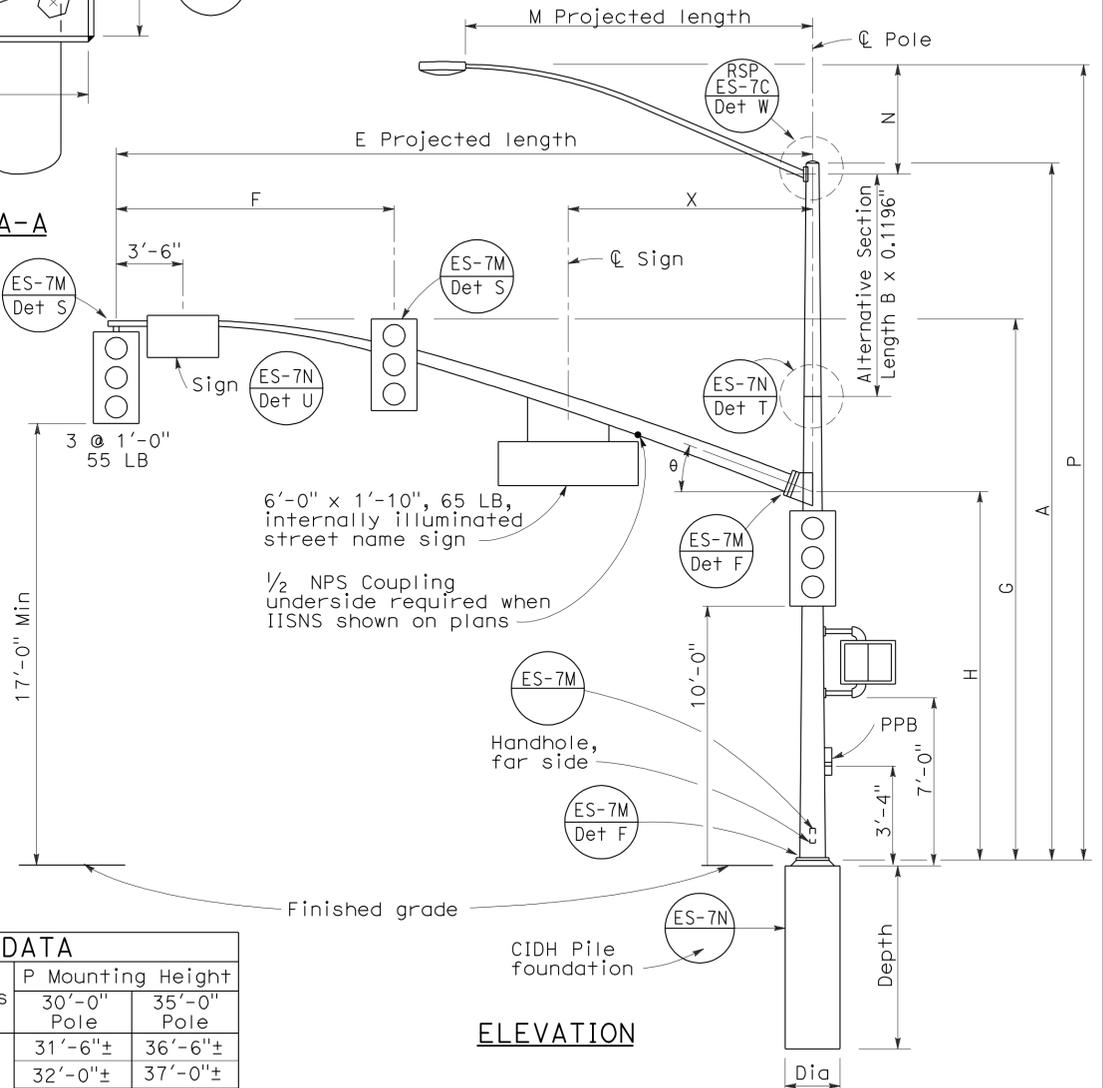
2006 REVISED STANDARD PLAN RSP ES-7E



SIGNAL ARM CONNECTION DETAILS



BASE PLATE



ELEVATION

TYPE 19-4-100, 19A-4-100,
 24-4-100, 24A-4-100,
 26-4-100, 26A-4-100

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	θ	X Max
25'-0"	10'-0"	22'-8"±	16'-0"	7 5/16"	0.2391"	12"	1 1/4"-7NC-3"	1'-0"	1 1/4"	1 1/2"	23°	10'-6"
30'-0"	12'-0"	8"										
35'-0"	14'-0"	8 1/16"										
40'-0"	15'-0"	9 3/8"										
45'-0"	15'-0"	23'-8"±		10 1/4"		13 1/2"		1'-1 1/2"	1 1/2"	1 3/4"	15°	13'-0"

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"±			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	DI Bolt Circle	Thickness			Anchor Bolts Size	Dia	Depth	Reinforced
				Base	Top		B Length	Bottom	Top									
18-4-100	4	100	17'-0"	12"	0.2391"	None	9 3/8"	8"	1'-6"	1'-6"	1 1/2"	2" Ø x 42" x 6"	3'-0"	9'-0"	Yes			
19-4-100			30'-0"			8"										None	8"	
19A-4-100			35'-0"			7 5/16"										15'-0"	7 5/16"	
23-4-100			17'-0"			9"										None		
24-4-100			30'-0"	8"	10'-0"	8"												
24A-4-100			35'-0"	7 5/16"	15'-0"	7 5/16"												
26-4-100			30'-0"	8"	10'-0"	8 3/8"												
26A-4-100			35'-0"	7 5/16"	15'-0"	9 3/4"	7 1/16"											
27-4-100			17'-0"	9 3/4"	None													

STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION
**ELECTRICAL SYSTEMS
 (SIGNAL AND LIGHTING STANDARD
 CASE 4 ARM LOADING
 WIND VELOCITY=100 MPH
 ARM LENGTHS 25' TO 45')**
 NO SCALE
 RSP ES-7F DATED OCTOBER 5, 2007 SUPERCEDES RSP ES-7F DATED
 NOVEMBER 17, 2006 AND STANDARD PLAN ES-7F DATED MAY 1, 2006 -
 PAGE 442 OF THE STANDARD PLANS BOOK DATED MAY 2006.

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

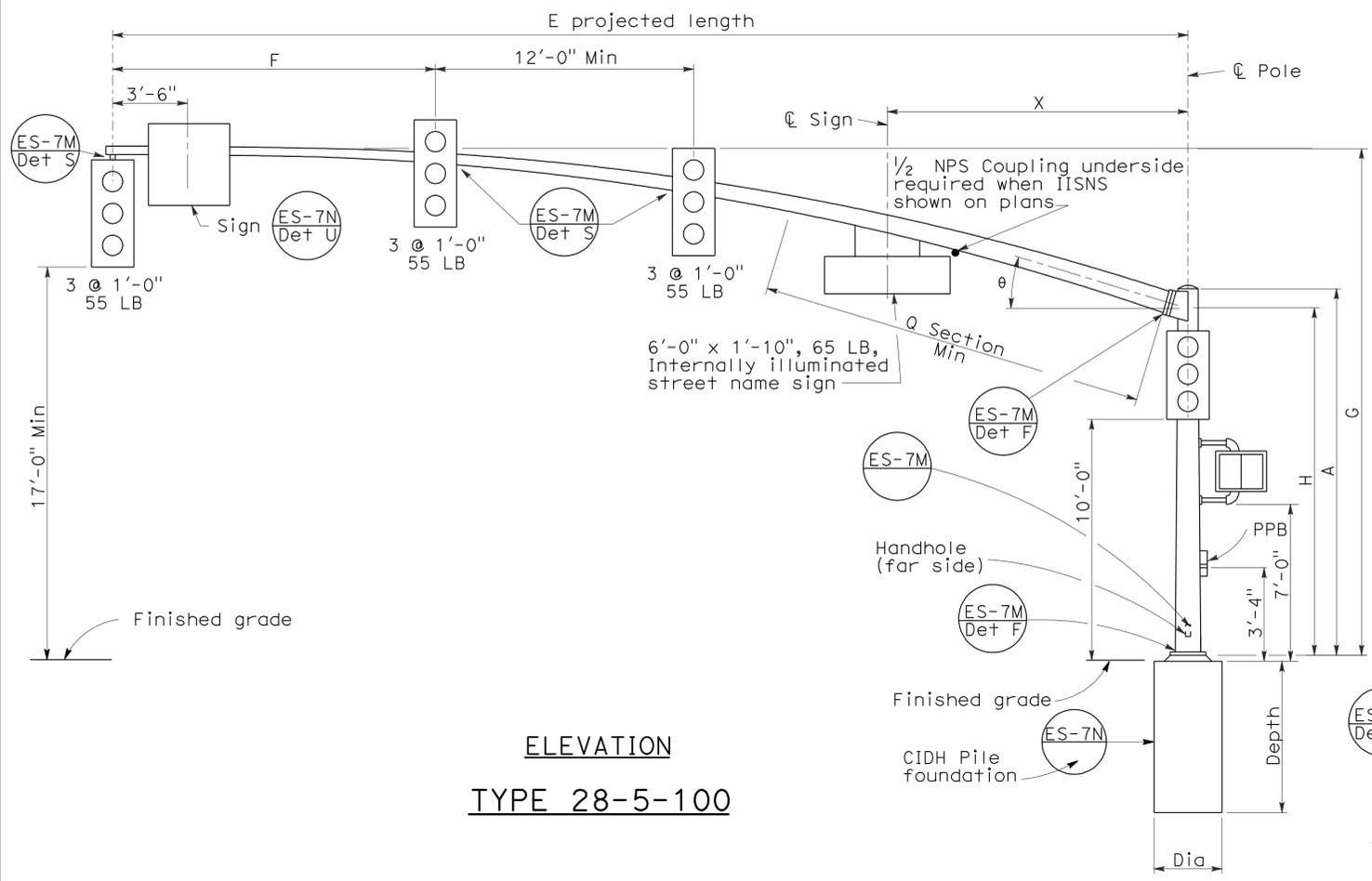
REVISED STANDARD PLAN RSP ES-7F

2006 REVISED STANDARD PLAN RSP ES-7F

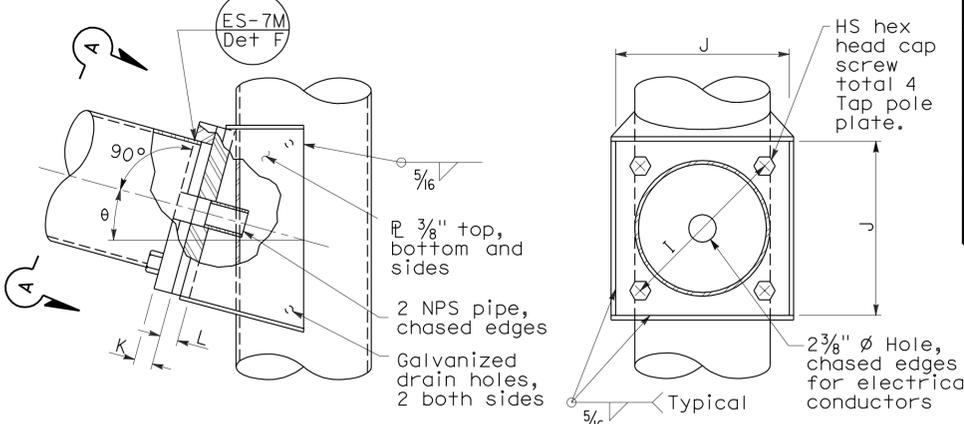
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	880	28.4/29.2	500	789

Stanley P. Johnson
 REGISTERED CIVIL ENGINEER
 November 17, 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.
 To accompany plans dated 4-8-13

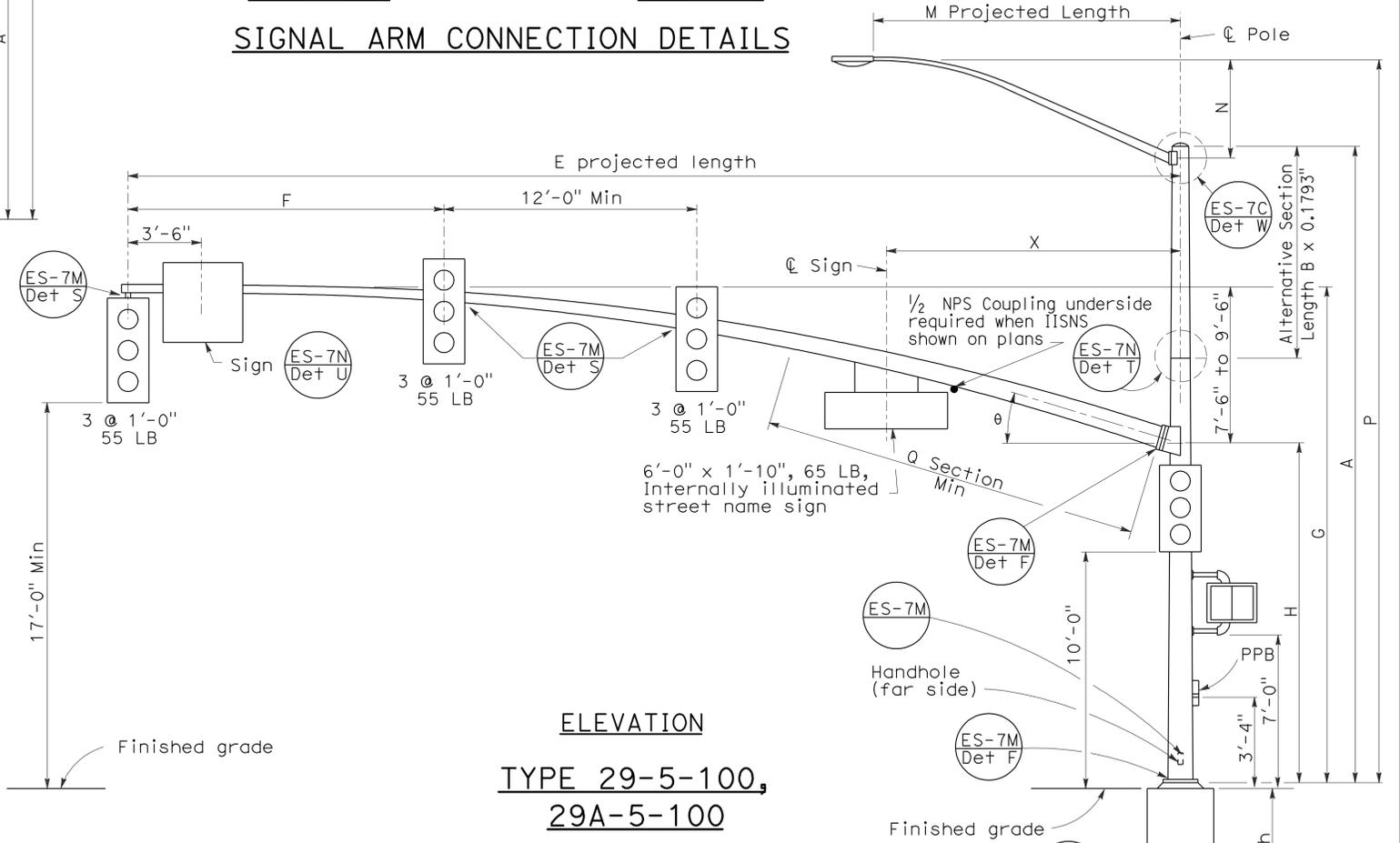
REGISTERED PROFESSIONAL ENGINEER
 Stanley P. Johnson
 No. C57793
 Exp. 03-31-08
 CIVIL
 STATE OF CALIFORNIA



ELEVATION
TYPE 28-5-100

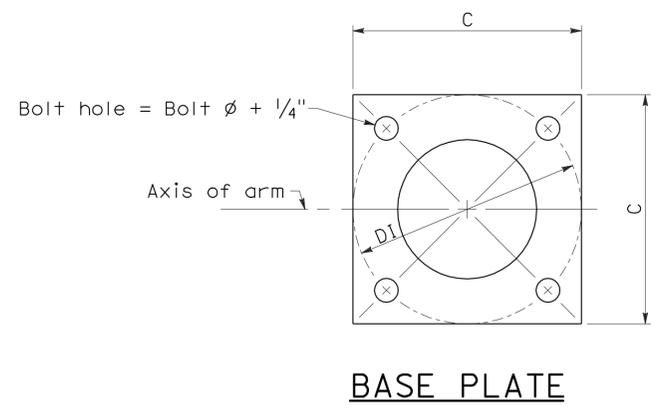


ELEVATION
SIGNAL ARM CONNECTION DETAILS



ELEVATION
TYPE 29-5-100,
29A-5-100

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



BASE PLATE

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 Thickness	L Pole Thickness	θ	Q Section		X Max
												Length	Thickness	
50'-0"	15'-0"	23'-7"± to 25'-7"±	16'-0"	11 11/16"	0.1793"	16"	1 1/2"-6NC-3 1/4"	1'-4"	1 3/4"	1 3/4"	15°	18'-0"	0.2391"	14'-0"
55'-0"												23'-0"		

Pole Type	Load Case	Wind Velocity mph	POLE DATA				BASE PLATE DATA				Luminaire Arm	Signal Arm	CIDH PILE FOUNDATION								
			A Height	Min OD		Thickness	C	DI Bolt Circle	Thickness	Anchor Bolts Size			Dia	Depth	Reinforced						
				Base	Top											Alternative Section B Length	Bottom	Top			
28-5-100	5	100	17'-0"	14"	11 11/16"	21"	21"	1 3/4"	2" ø x 42" x 6"	6'-15'	15'-0"	50'-0", 55'-0"	3'-0"	9'-2"	Yes						
29-5-100			30'-0"													9 7/8"	10'-0"	11 1/4"	9 7/8"	23"	23"
29A-5-100			35'-0"													9 3/16"	15'-0"	9 3/16"	23"	23"	

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

STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION
ELECTRICAL SYSTEMS
(SIGNAL AND LIGHTING STANDARD
CASE 5 ARM LOADING
WIND VELOCITY=100 MPH,
ARM LENGTHS 50' TO 55')
 NO SCALE

RSP ES-7G DATED NOVEMBER 17, 2006 SUPERSEDES STANDARD PLAN ES-7G
 DATED MAY 1, 2006 - PAGE 443 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP ES-7G

2006 REVISED STANDARD PLAN RSP ES-7G