

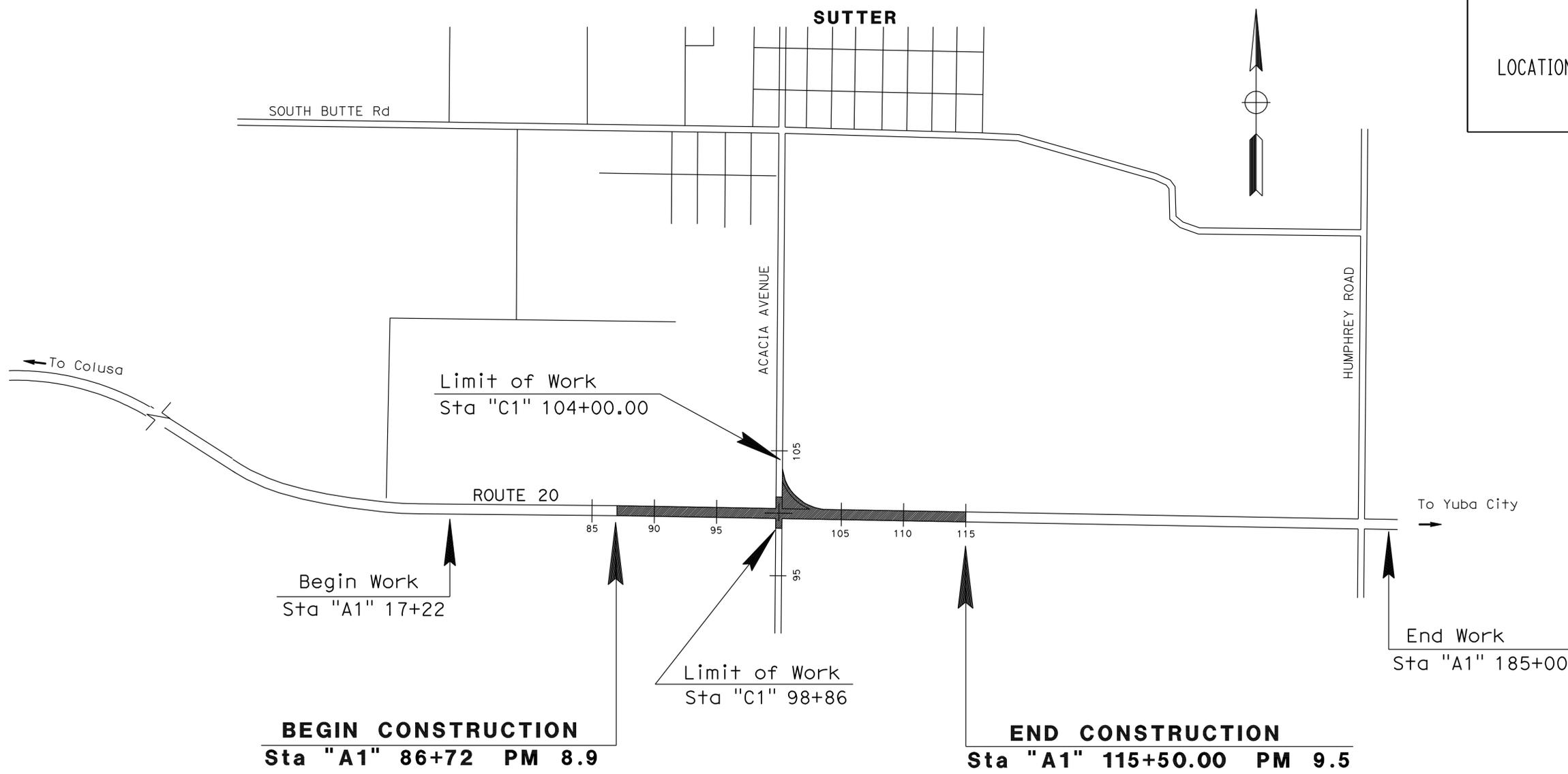
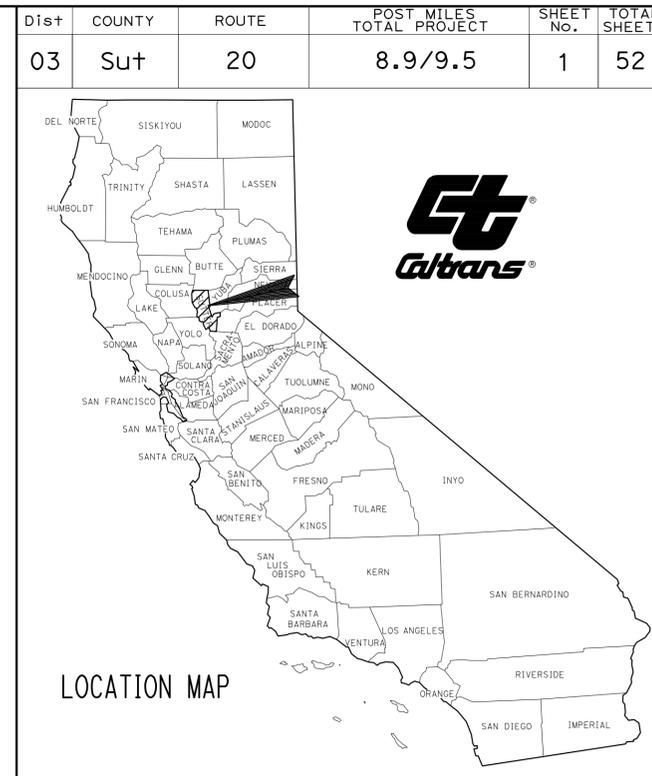
INDEX OF PLANS

SHEET No.	DESCRIPTION
1	TITLE AND LOCATION MAP
2-4	TYPICAL CROSS SECTIONS
5-7	LAYOUTS
8-9	CONSTRUCTION DETAILS
10-13	EROSION CONTROL PLANS AND DETAILS
14-17	DRAINAGE DETAILS
18	CONSTRUCTION AREA SIGNS
19-21	PAVEMENT DELINEATION AND SIGN PLANS
22	PAVEMENT DELINEATION QUANTITIES
23-24	SIGN DETAILS AND QUANTITIES
25	SUMMARY OF QUANTITIES
26-29	ELECTRICAL PLANS
30-52	REVISED AND NEW STANDARD PLANS

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

TO BE SUPPLEMENTED BY STANDARD PLANS DATED MAY 2006

STATE OF CALIFORNIA HSNHG-P020(160)E  
**DEPARTMENT OF TRANSPORTATION**  
**PROJECT PLANS FOR CONSTRUCTION ON**  
**STATE HIGHWAY**  
**IN SUTTER COUNTY**  
**NEAR SUTTER**  
**AT ACACIA AVENUE**



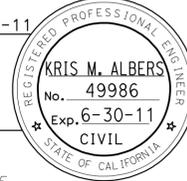
PROJECT MANAGER  
NAJED DAKAK

DESIGN ENGINEER  
LAURIE LAMERT

*Kris M. Albers* 4-18-11  
 PROJECT ENGINEER DATE  
 REGISTERED CIVIL ENGINEER

April 25, 2011  
 PLANS APPROVAL DATE

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



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

NO SCALE

CONTRACT No.	<b>03-1F0204</b>
PROJECT ID	<b>0300020123</b>

DATE PLOTTED => 19-MAY-2011 TIME PLOTTED => 07:30

**NOTES:**

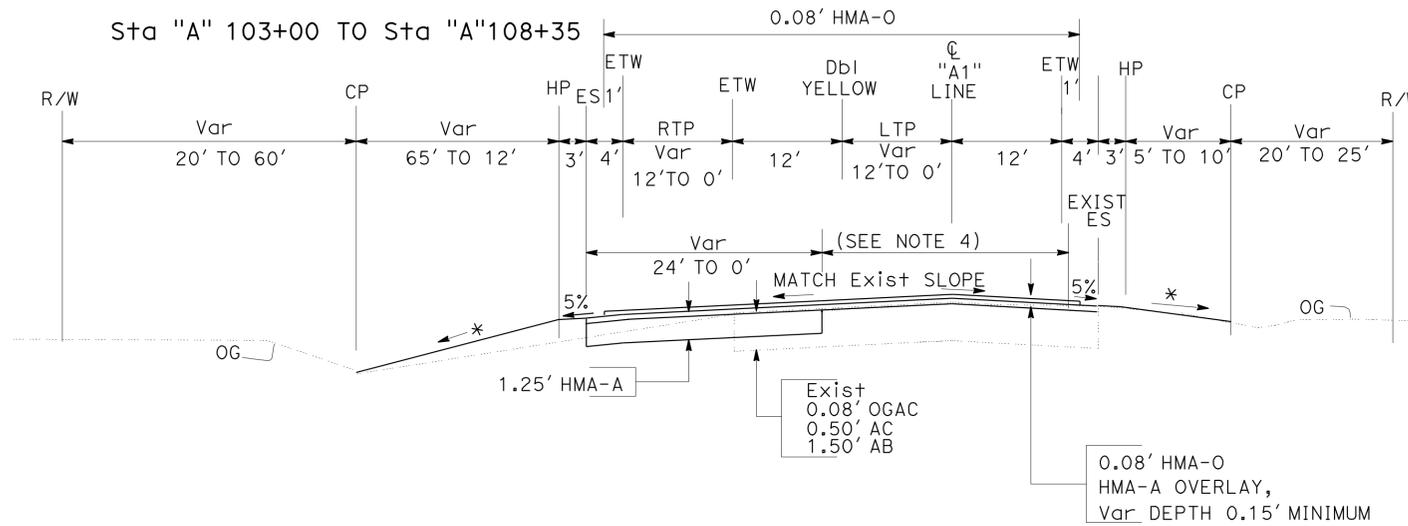
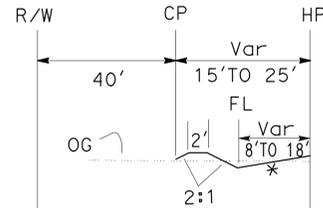
1. DIMENSIONS OF THE PAVEMENT STRUCTURES (STRUCTURAL SECTIONS) ARE SUBJECT TO TOLERANCES SPECIFIED IN THE STANDARD SPECIFICATIONS.
2. SUPERELEVATION AS SHOWN OR AS DIRECTED BY THE ENGINEER.  
COLD PLANE AC Pvm+ (0.08' Max) APPROXIMATELY 1' OUTSIDE EXISTING ETW.
3. SAWCUT 1' INSIDE Exist EP
4. LIMITS OF COLD PLANE AC Pvm+ (.15' MAXIMUM)

**ABBREVIATIONS**

- HMA-O HOT MIX ASPHALT (OPEN GRADED)
- LL LANE LINE
- CP CATCH POINT
- HMA-A HOT MIX ASPHALT (TYPE A)
- LTP LEFT TURN POCKET
- RTP RIGHT TURN POCKET

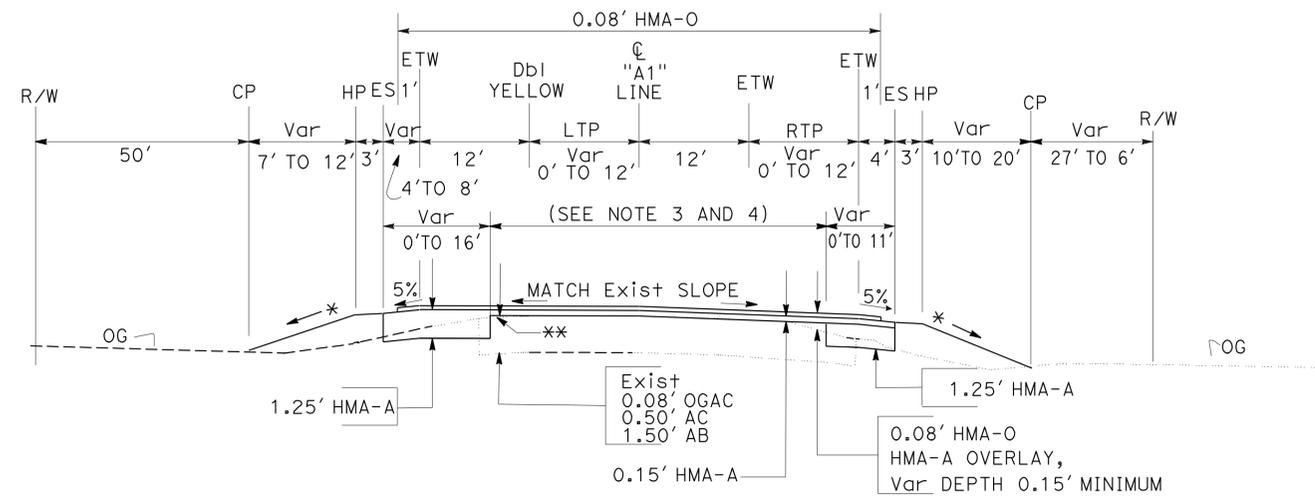
**LEGEND**

- \* - 4:1 OR FLATTER
- \*\* HMA OVERLAY, VAR DEPTH, 0.15' Min



Sta "A1" 101+06.20 TO Sta "A1" 108+35

**ROUTE 20**



Sta "A1" 86+72 TO Sta "A1" 98+57.22

**ROUTE 20**

**TYPICAL CROSS SECTIONS**

NO SCALE

**X-1**

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sut	20	8.9/9.5	2	52

*Kris M. Albers*  
REGISTERED CIVIL ENGINEER DATE 4-18-11

4-25-11  
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER  
No. 49986  
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 SCANNED COPIES OF THIS PLAN SHEET.

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

FUNCTIONAL SUPERVISOR  
LAURIE LAMMERT

REVISOR BY  
KRIS ALBERS

AL CHIN

CHECKED BY

DESIGNED BY

DATE REVISOR

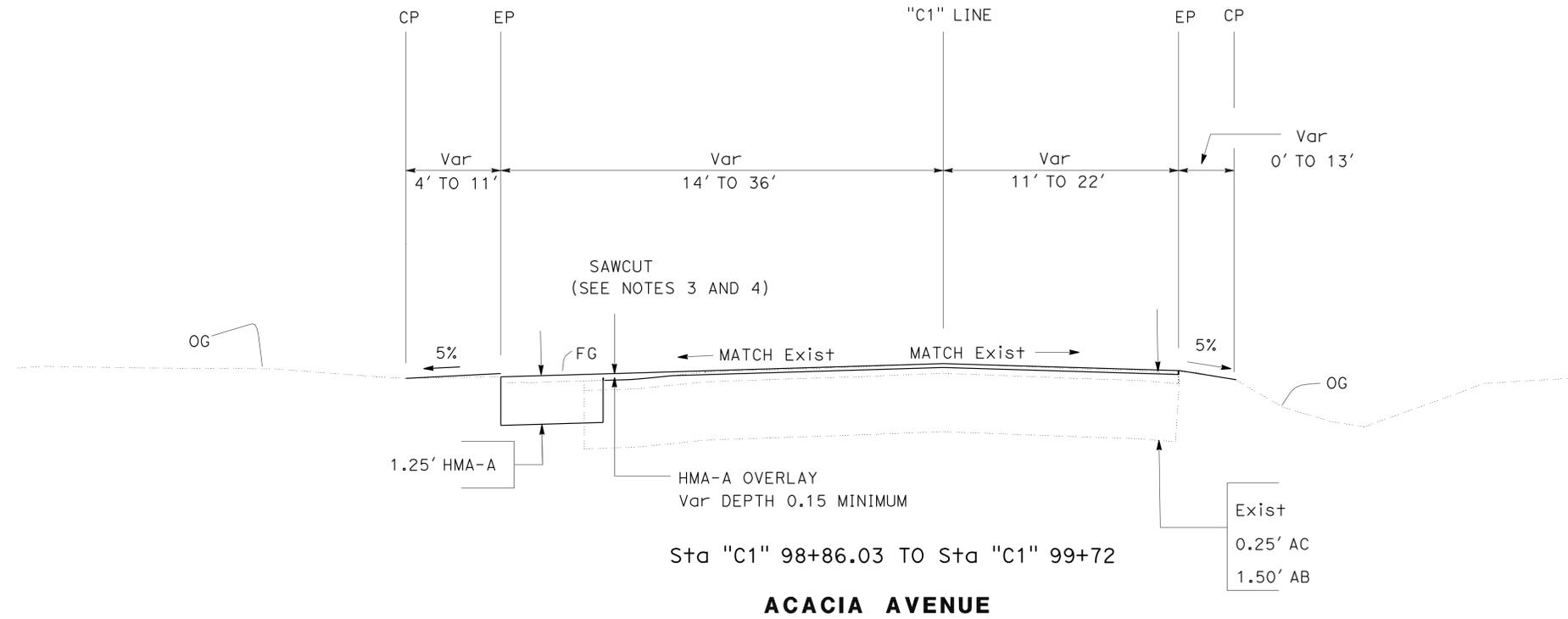
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	FUNCTIONAL SUPERVISOR	CALCULATED-DESIGNED BY	KRIS ALBERS	REVISED BY	
<b>Caltrans</b>	LAURIE LAMMERT	CHECKED BY	AL CHIN	DATE REVISED	

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sut	20	8.9/9.5	52	52

KRIS M. ALBERS 4-18-11  
 REGISTERED CIVIL ENGINEER DATE  
 4-25-11  
 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  
 KRIS M. ALBERS  
 No. 49986  
 Exp. 6-30-11  
 CIVIL  
 STATE OF CALIFORNIA



**TYPICAL CROSS SECTIONS**  
NO SCALE

LAST REVISION | DATE PLOTTED => 19-MAY-2011 03-22-11 TIME PLOTTED => 07:23

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sut	20	8.9/9.5	4	52

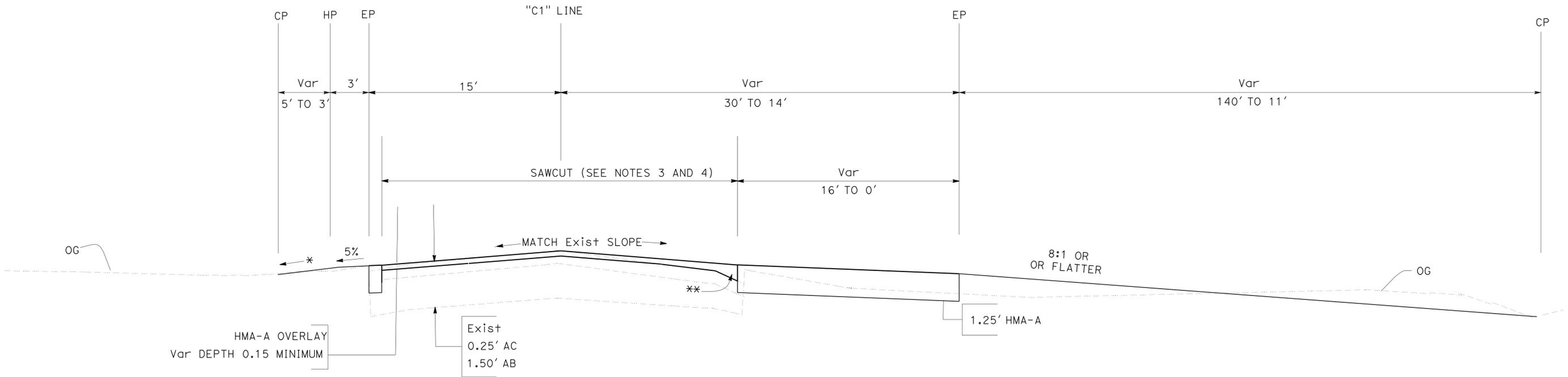
  

<i>Kris M. Albers</i> REGISTERED CIVIL ENGINEER	4-18-11 DATE
4-25-11 PLANS APPROVAL DATE	

REGISTERED PROFESSIONAL ENGINEER  
**KRIS M. ALBERS**  
 No. 49986  
 Exp. 6-30-11  
 CIVIL  
 STATE OF CALIFORNIA

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STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	FUNCTIONAL SUPERVISOR	CALCULATED-DESIGNED BY	REVISOR
<b>Caltrans</b>	LAURIE LAMMERT	LAURIE LAMMERT	KRIS ALBERS
TRAFFIC		AL CHIN	



Sta "C1" 100+40 TO Sta "C1" 101+30.04

**ACACIA AVENUE**

**TYPICAL CROSS SECTIONS**

NO SCALE

**X-3**

**NOTES:**

- FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.
- WHERE NO ROADWAY WIDENING OCCURS OVERLAY TO EXIST EP.

**ABBREVIATIONS**

- HMA-O - HOT MIX ASPHALT (OPEN GRADED)  
 HMA-A - HOT MIX ASPHALT (TYPE A)

**LEGEND**

- DRAINAGE SYSTEM No.
- DRAINAGE UNIT No.
- OBLITERATE SURFACING

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sut	20	8.9/9.5	5	52

*Kris M. Albers*  
 REGISTERED CIVIL ENGINEER DATE 4-18-11

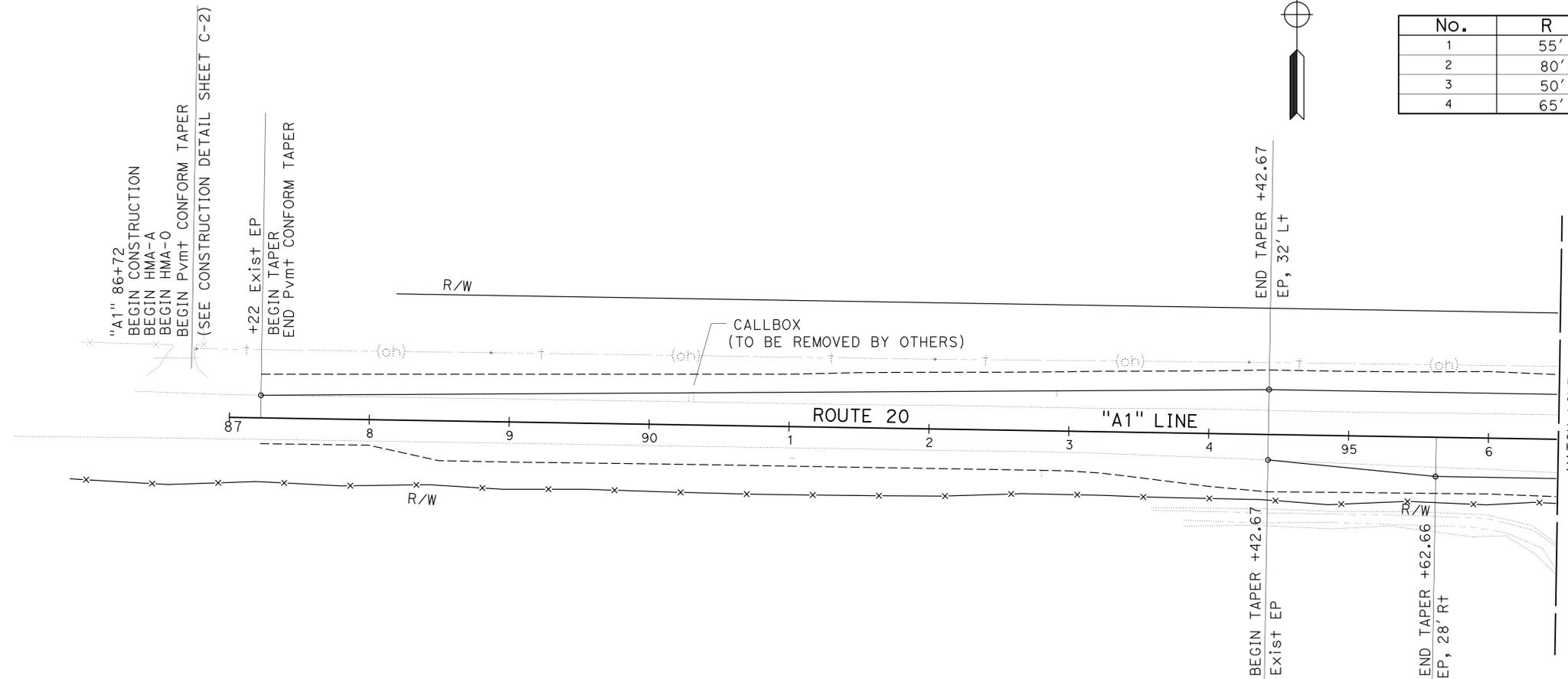
4-25-11  
 PLANS APPROVAL DATE

**KRIS M. ALBERS**  
 No. 49986  
 Exp. 6-30-11  
 CIVIL

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

**CURVE DATA**

No.	R	Δ	T	L
1	55'	83°35'12"	49.16'	80.24'
2	80'	63°13'25"	49.24'	88.28'
3	50'	87°29'05"	47.85'	76.34'
4	65'	75°41'00"	50.49'	85.86'



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

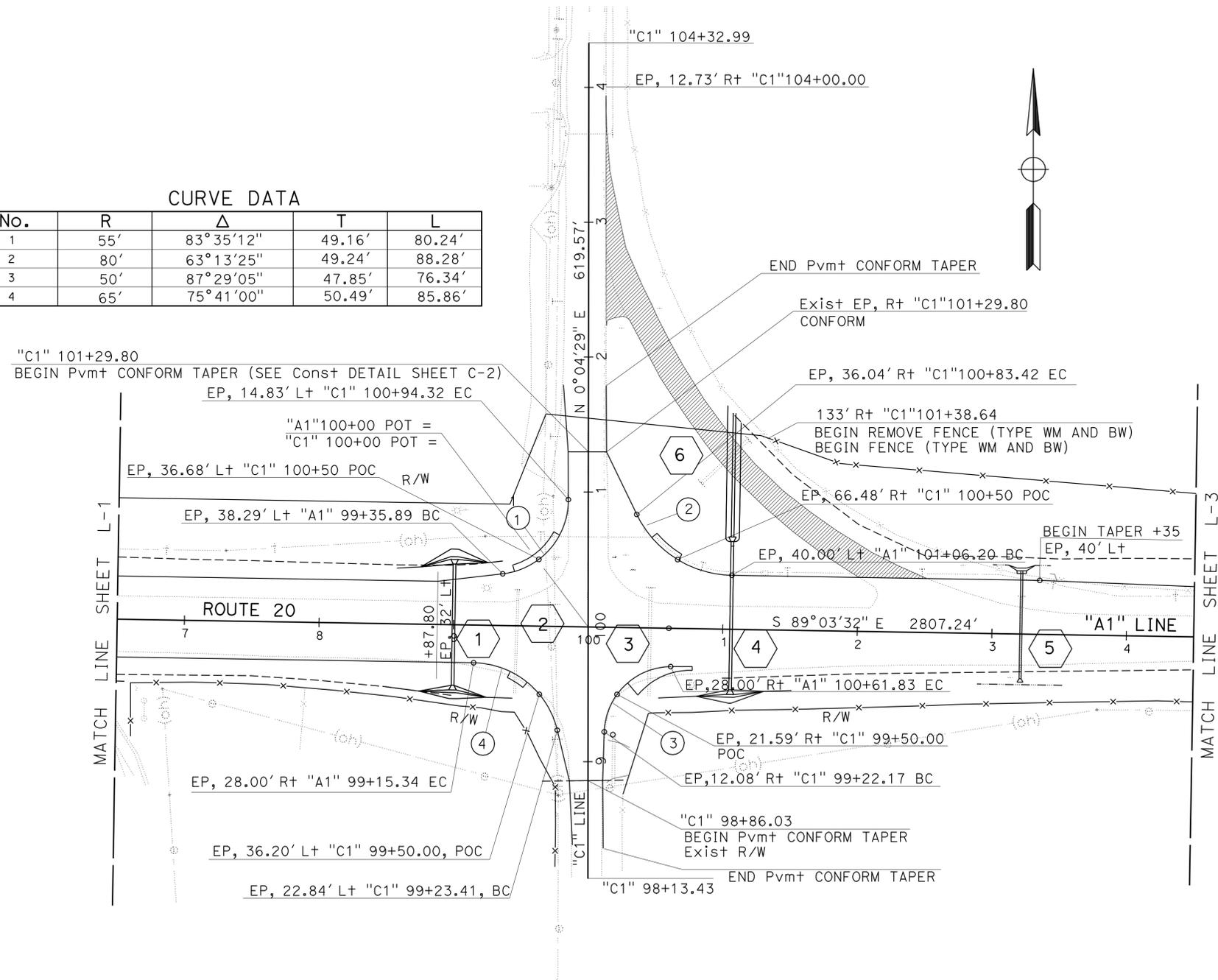
**L-1**

**NOTES:**

- FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.
- FOR DRAINAGE SYSTEMS 1 THROUGH 6, SEE DRAINAGE DETAILS ON SHEETS DD-1, DD-2, DD-3 AND DD-4.

**CURVE DATA**

No.	R	$\Delta$	T	L
1	55'	83°35'12"	49.16'	80.24'
2	80'	63°13'25"	49.24'	88.28'
3	50'	87°29'05"	47.85'	76.34'
4	65'	75°41'00"	50.49'	85.86'



STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans**  
 FUNCTIONAL SUPERVISOR: LAURIE LAMMERT  
 CALCULATED/DESIGNED BY: KRIS ALBERS  
 CHECKED BY: AL CHIN  
 REVISED BY: KRIS ALBERS  
 DATE REVISED:

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

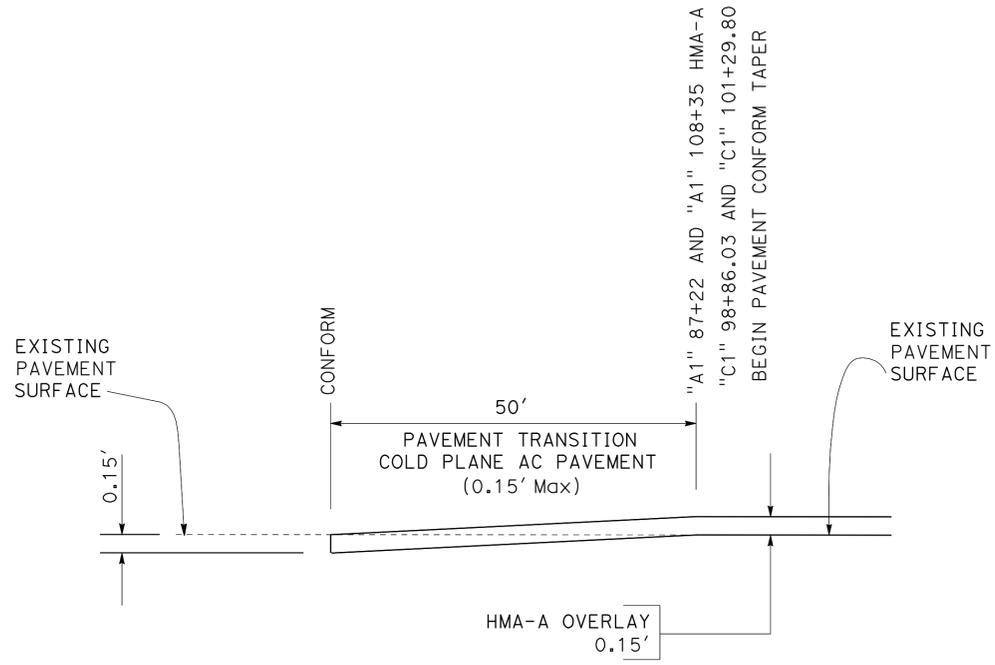
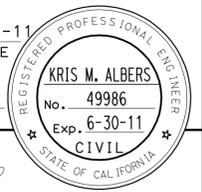
**L-2**





STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	FUNCTIONAL SUPERVISOR	CALCULATED-DESIGNED BY	KRIS ALBERS	REVISED BY	
<b>Caltrans</b>	LAURIE LAMMERT	CHECKED BY	DEANN SPANGLER	DATE	
<b>TRAFFIC</b>					

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sut	20	8.9/9.5	9	52
Kris M. Albers		4-18-11		REGISTERED CIVIL ENGINEER DATE	
4-25-11		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.					



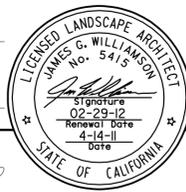
**PAVEMENT CONFORM TAPER DETAIL**

**CONSTRUCTION DETAILS**  
NO SCALE  
**C-2**

LAST REVISION | DATE PLOTTED => 19-MAY-2011 03-22-11 | TIME PLOTTED => 07:23

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sut	20	8.9/9.5	10	52

  
 LICENSED LANDSCAPE ARCHITECT  
 4-25-11  
 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.

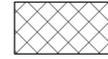


**LEGEND**



- EROSION CONTROL (TYPE 1)

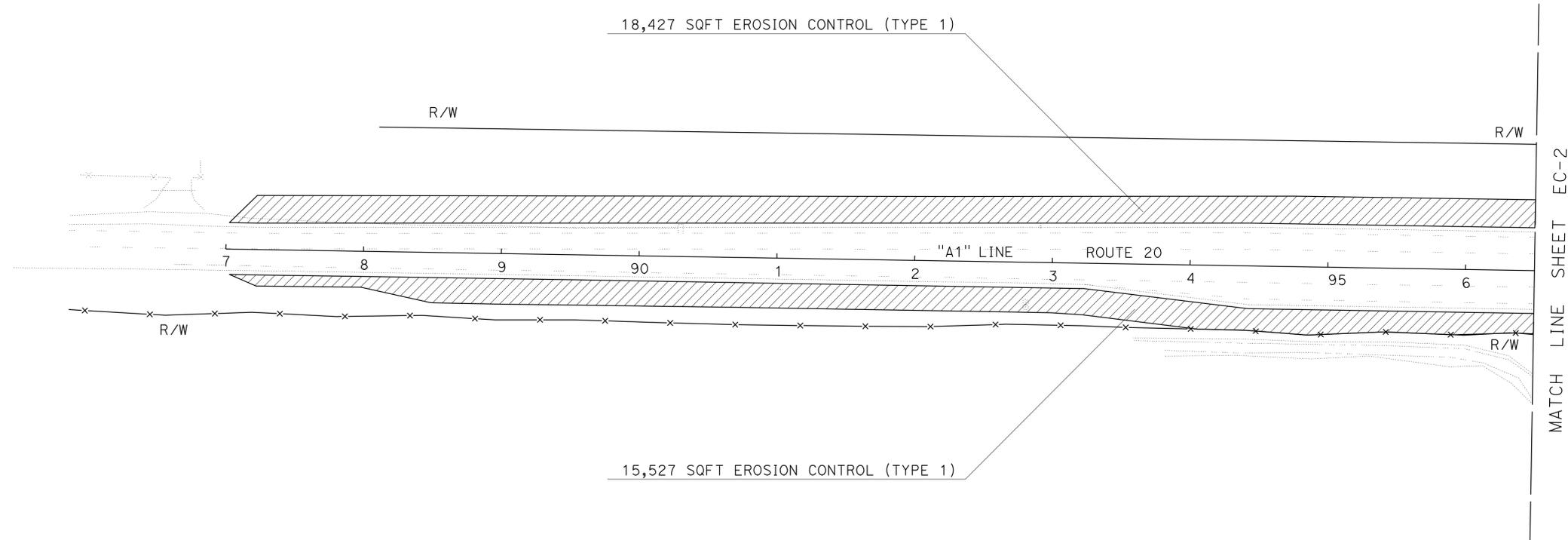
- EROSION CONTROL (HYDROSEED)



- EROSION CONTROL (TYPE 2)

- EROSION CONTROL (HYDROSEED)

- ROLLED EROSION CONTROL PRODUCT (NETTING)



MATCH LINE SHEET EC-2

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	LANDSCAPE ARCHITECTURE	SENIOR LANDSCAPE ARCHITECT	KENNETH MURRAY	CALCULATED-DESIGNED BY	CHECKED BY	J. WILLIAMSON	REVISED BY	DATE	REVISED
--	------------------------	----------------------------	----------------	------------------------	------------	---------------	------------	------	---------



**EROSION CONTROL PLAN**

SCALE: 1" = 50'

**EC-1**

THIS PLAN ACCURATE FOR EROSION CONTROL WORK ONLY

USERNAME => s113559  
DGN FILE => 03000201231ge001.dgn



UNIT 0381

PROJECT NUMBER & PHASE

03000201231

BORDER LAST REVISED 7/2/2010

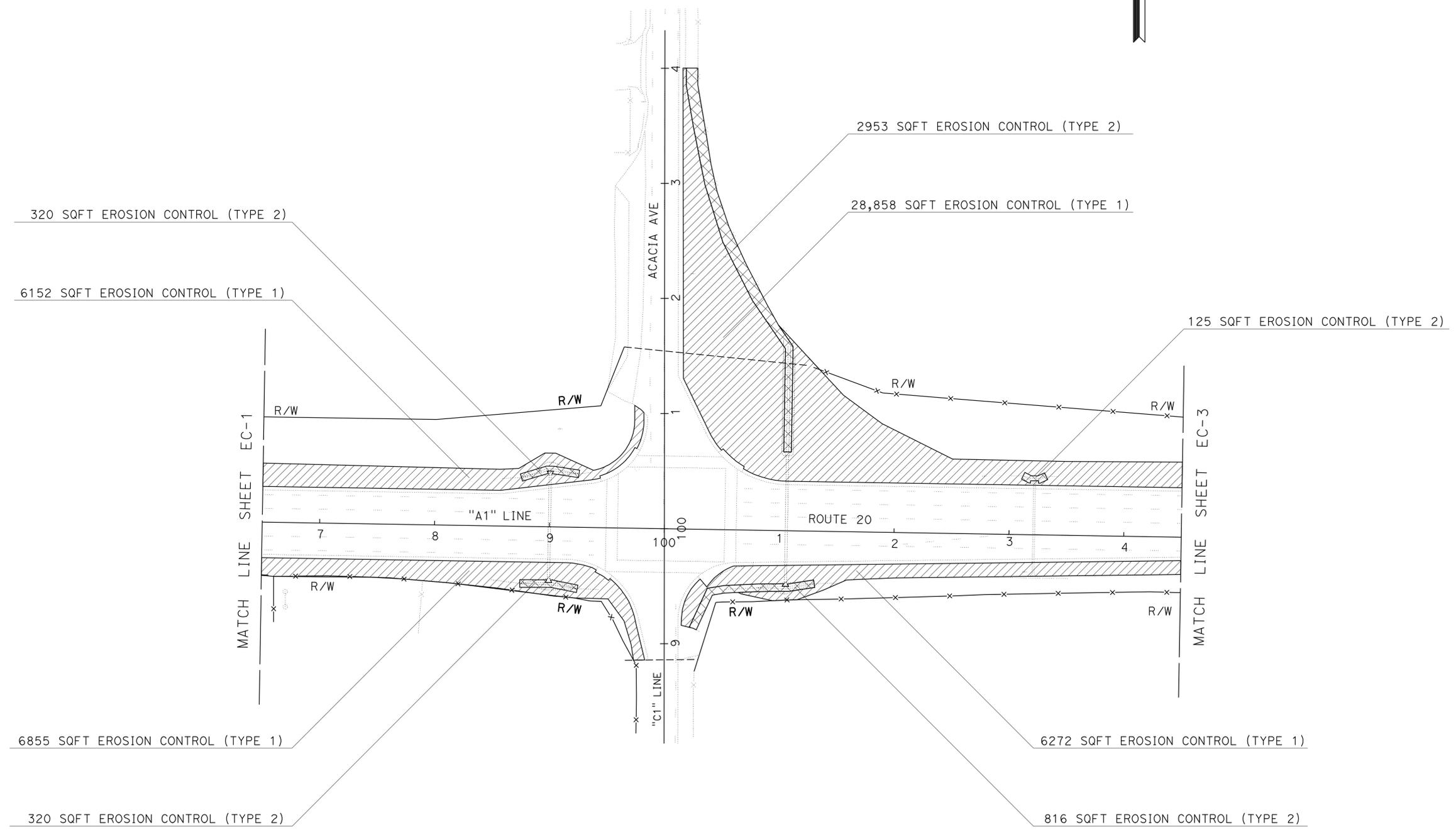
LAST REVISION | DATE PLOTTED => 19-MAY-2011  
11-29-10 TIME PLOTTED => 07:23

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** LANDSCAPE ARCHITECTURE  
 SENIOR LANDSCAPE ARCHITECT  
 KENNETH MURRAY  
 J. WILLIAMSON  
 REVISOR BY  
 DATE REVISOR  
 CALCULATED-DESIGNED BY  
 CHECKED BY

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sut	20	8.9/9.5	11	52

4-25-11  
 PLANS APPROVAL DATE  
 LICENSED LANDSCAPE ARCHITECT  
 JAMES G. WILLIAMSON  
 No. 5415  
 Signature  
 02-29-12  
 Renewal Date  
 4-14-11  
 Date  
 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.



**EROSION CONTROL PLAN**  
 SCALE: 1" = 50'  
**EC-2**

THIS PLAN ACCURATE FOR EROSION CONTROL WORK ONLY

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sut	20	8.9/9.5	12	52

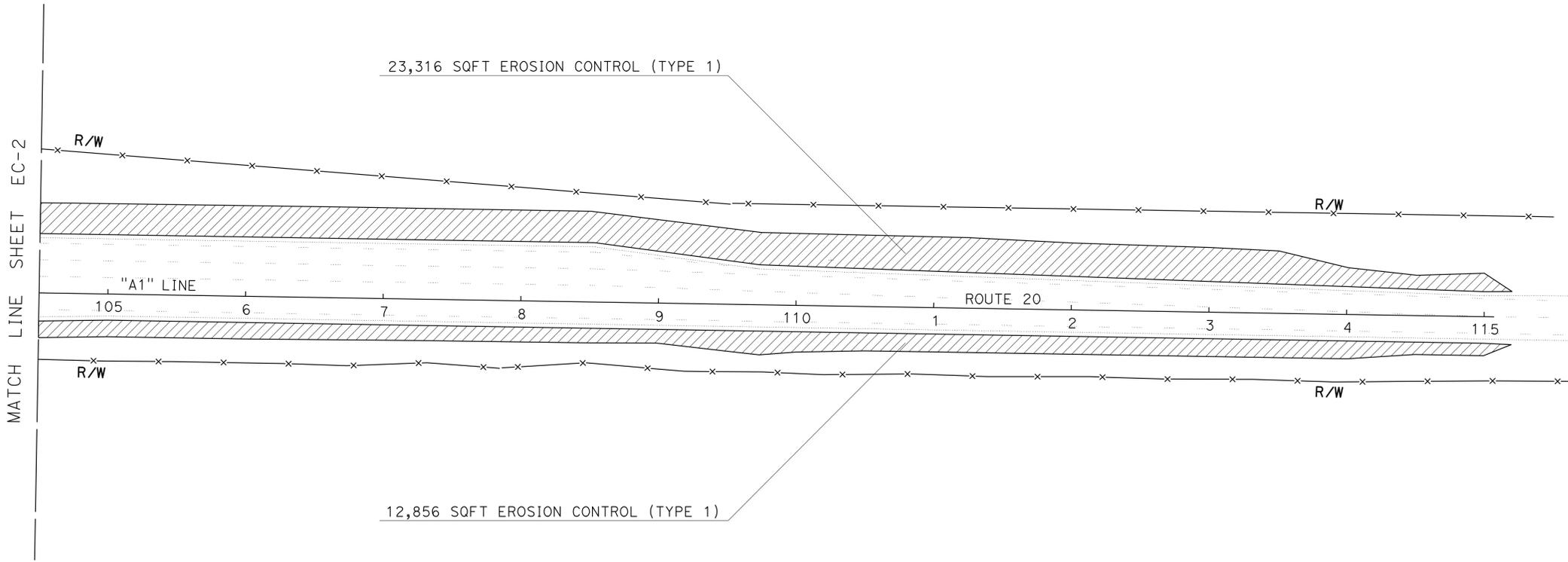
  
 LICENSED LANDSCAPE ARCHITECT  
 4-25-11  
 PLANS APPROVAL DATE



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.



STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	SENIOR LANDSCAPE ARCHITECT	CALCULATED-DESIGNED BY	REVISER BY
<b>Caltrans</b> LANDSCAPE ARCHITECTURE	KENNETH MURRAY	CHECKED BY	DATE REVISED
	J. WILLIAMSON		



**EROSION CONTROL PLAN**  
SCALE : 1"=50'

**EC-3**

THIS PLAN ACCURATE FOR EROSION CONTROL WORK ONLY

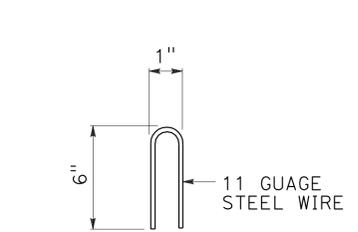
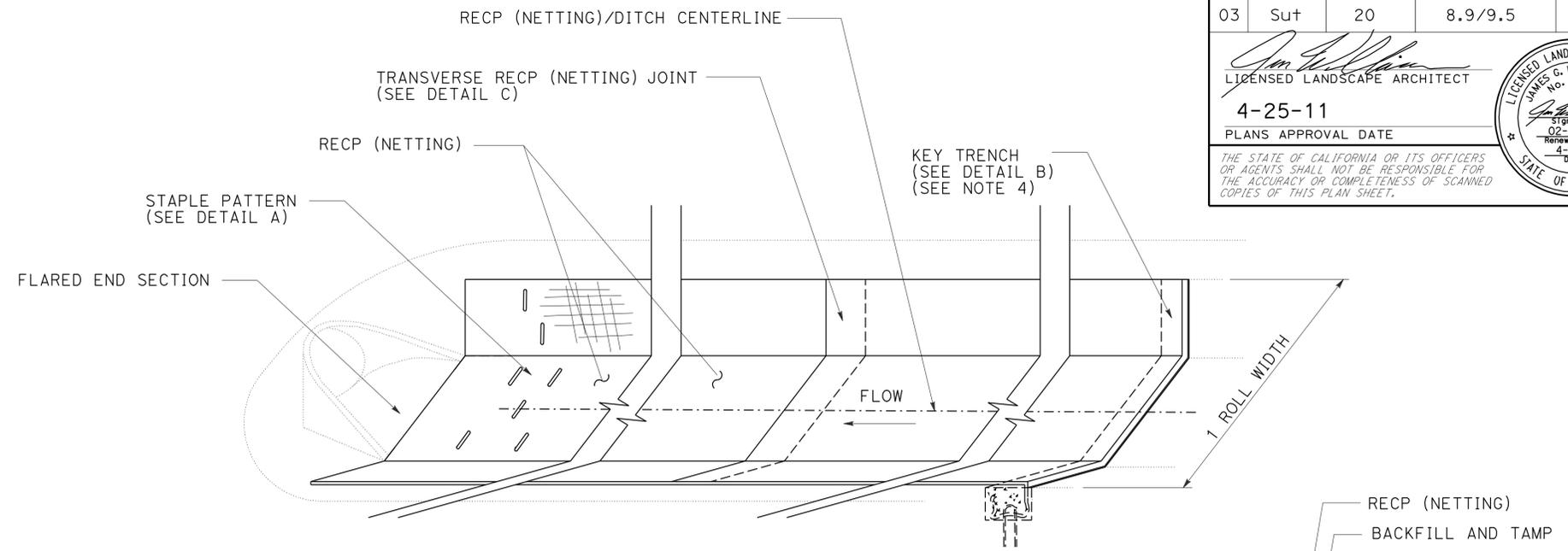
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sut	20	8.9/9.5	13	52

LICENSED LANDSCAPE ARCHITECT  
 4-25-11  
 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.

### EROSION CONTROL ITEMS

STATION	LOCATION	EROSION CONTROL TYPE (N)	EROSION CONTROL	
			EROSION CONTROL (HYDROSEED)	ROLLED EROSION CONTROL PRODUCT (NETTING)
			SQFT	SQFT
"A" 87+02 to "A" 96+50	L+	1	18,427	
"A" 87+02 to "A" 96+50	R+	1	15,527	
"A" 96+50 to "A" 99+81	L+	1	6,152	
"A" 96+50 to "A" 99+85	R+	1	6,855	
"A" 98+75 to "A" 99+25	L+	2	320	320
"A" 98+75 to "A" 99+25	R+	2	320	320
"A" 100+10 to "A" 104+50	L+	1	28,858	
"A" 100+16 to "A" 104+50	R+	1	6,272	
"A" 100+23 to "A" 101+32	R+	2	816	816
"A" 103+10 to "A" 103+33	L+	2	125	125
"C" 100+67 to "C" 104+00	R+	2	2,953	2,953
"A" 104+50 to "A" 115+20	L+	1	23,316	
"A" 104+50 to "A" 115+20	R+	1	12,856	
<b>TOTAL</b>			<b>122,797</b>	<b>4,534</b>

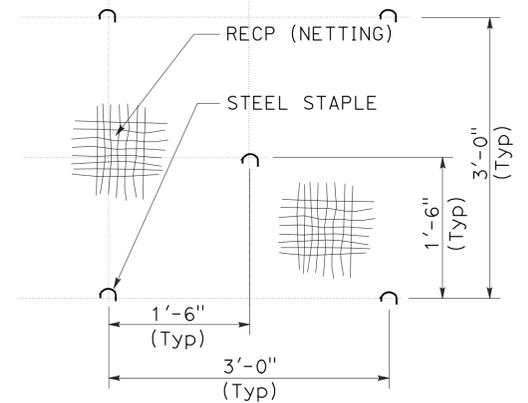
(N) - NOT A SEPARATE PAY ITEM, FOR INFORMATION ONLY



### STAPLE DETAIL

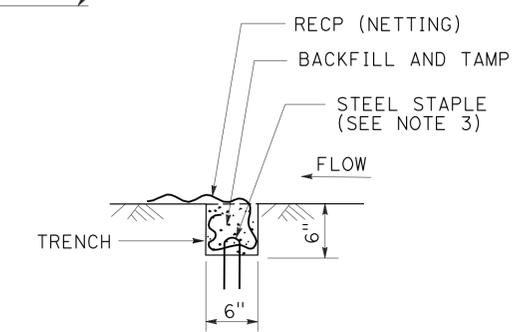
### RECP (NETTING) DETAIL AT END OF DITCH LOCATION

PERSPECTIVE



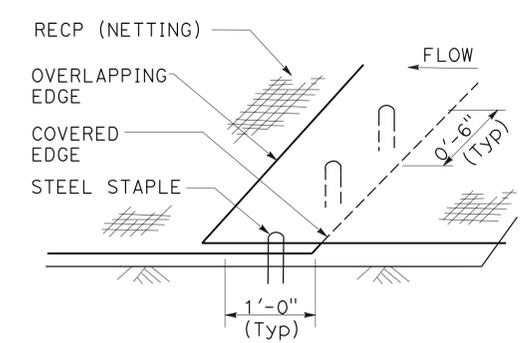
### DETAIL A STAPLE PATTERN

PLAN



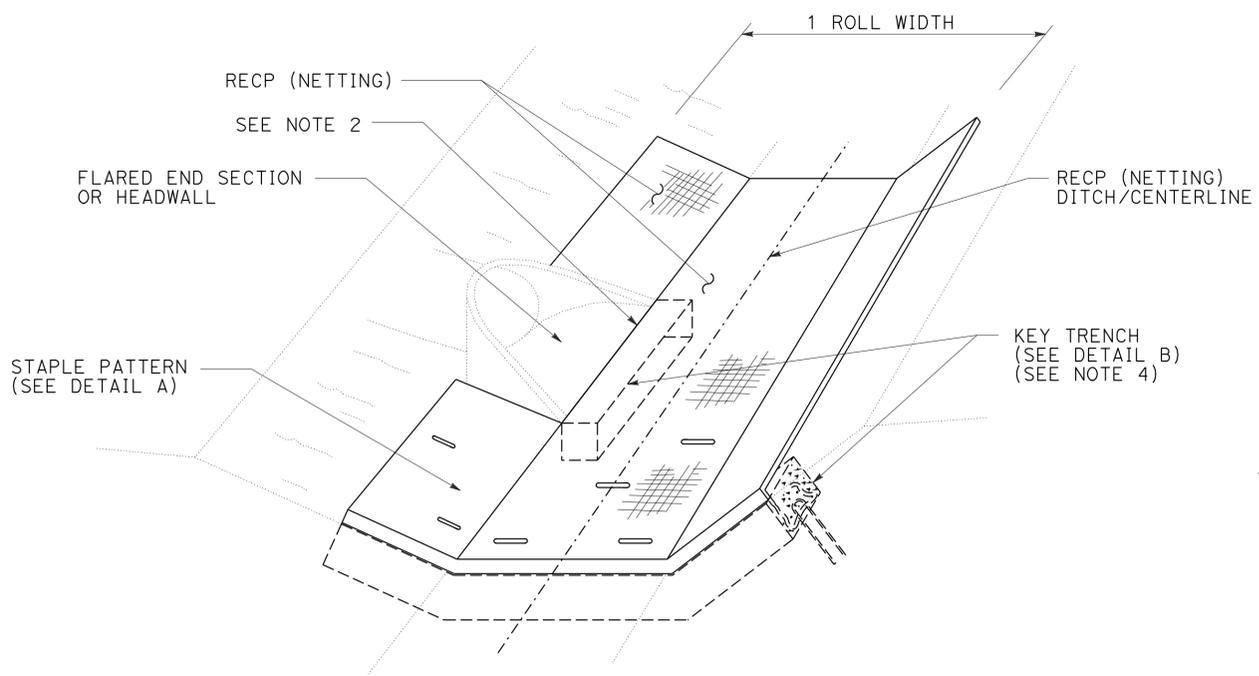
### DETAIL B KEY TRENCH

SECTION



### DETAIL C TRANSVERSE RECP (NETTING) JOINT

PERSPECTIVE



### RECP (NETTING) DETAIL AT SIDE DITCH LOCATIONS

PERSPECTIVE

### NOTES:

- FOR CLARITY, PERSPECTIVE VIEW DOES NOT SHOW ALL STAPLES.
- NOTCH RECP (NETTING) AROUND FLARED END SECTION AND HEADWALL AT SIDE DITCH LOCATIONS.
- STEEL STAPLES TO BE PLACED 0'-6" ON CENTER ALONG THE LENGTH OF THE KEY.
- KEY TRENCH SHALL BE PLACED AT THE UPSTREAM END OF THE RECP (NETTING) ONLY.

### LEGEND:

RECP = ROLLED EROSION CONTROL PRODUCT

### EROSION CONTROL DETAILS

NO SCALE

ECD-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
 LANDSCAPE ARCHITECTURE  
 KENNETH MURRAY  
 SENIOR LANDSCAPE ARCHITECT  
 J. WILLIAMSON  
 CALCULATED/DESIGNED BY  
 CHECKED BY  
 REVISED BY  
 DATE REVISED

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans**  
 FUNCTIONAL SUPERVISOR: LAURIE LAMMERT  
 TRAFFIC

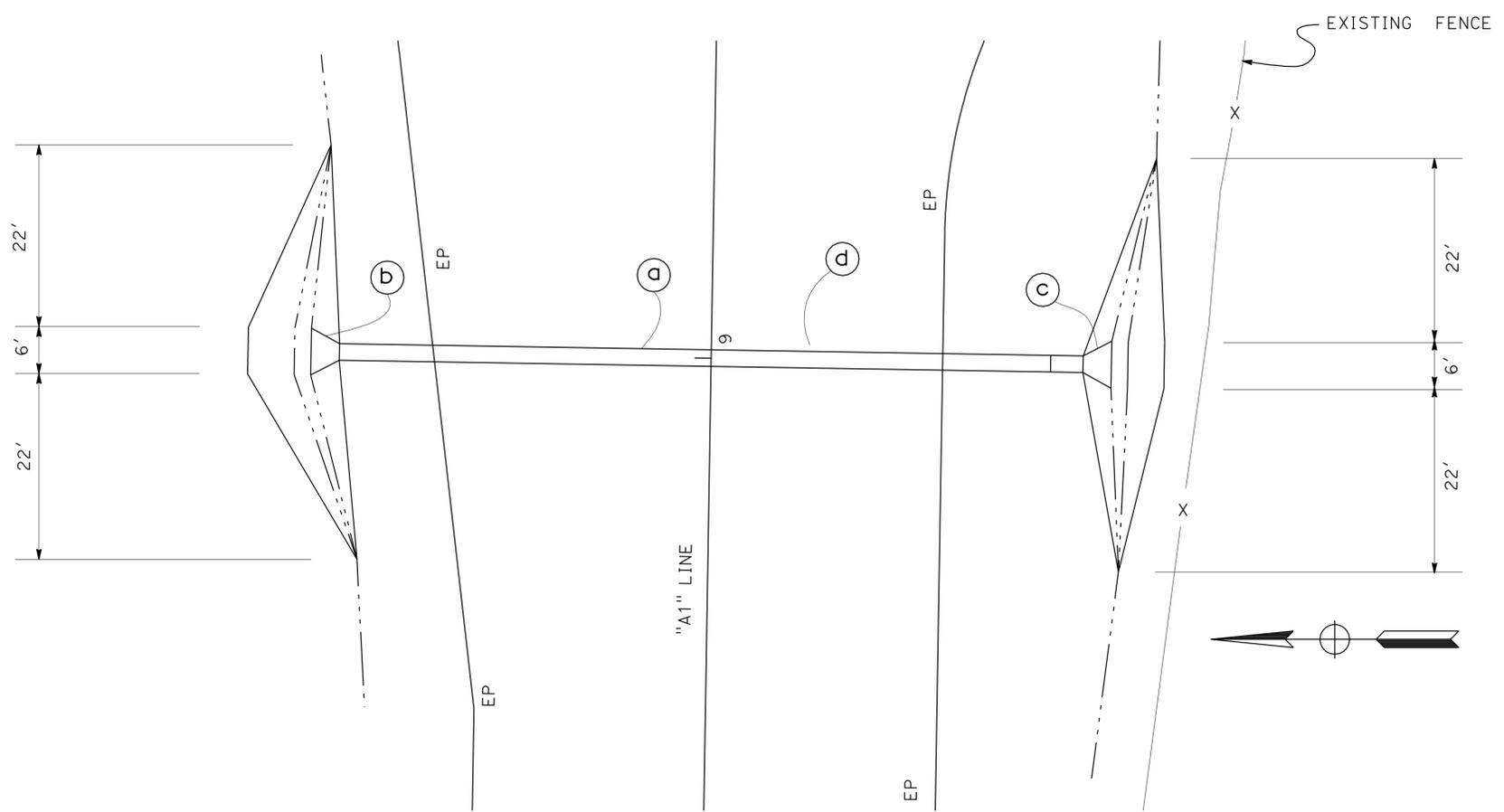
REVISOR: A. G. CHIN  
 CHECKED BY: KRIS ALBERS

DESIGNED BY: A. G. CHIN  
 DATE: 4-25-11

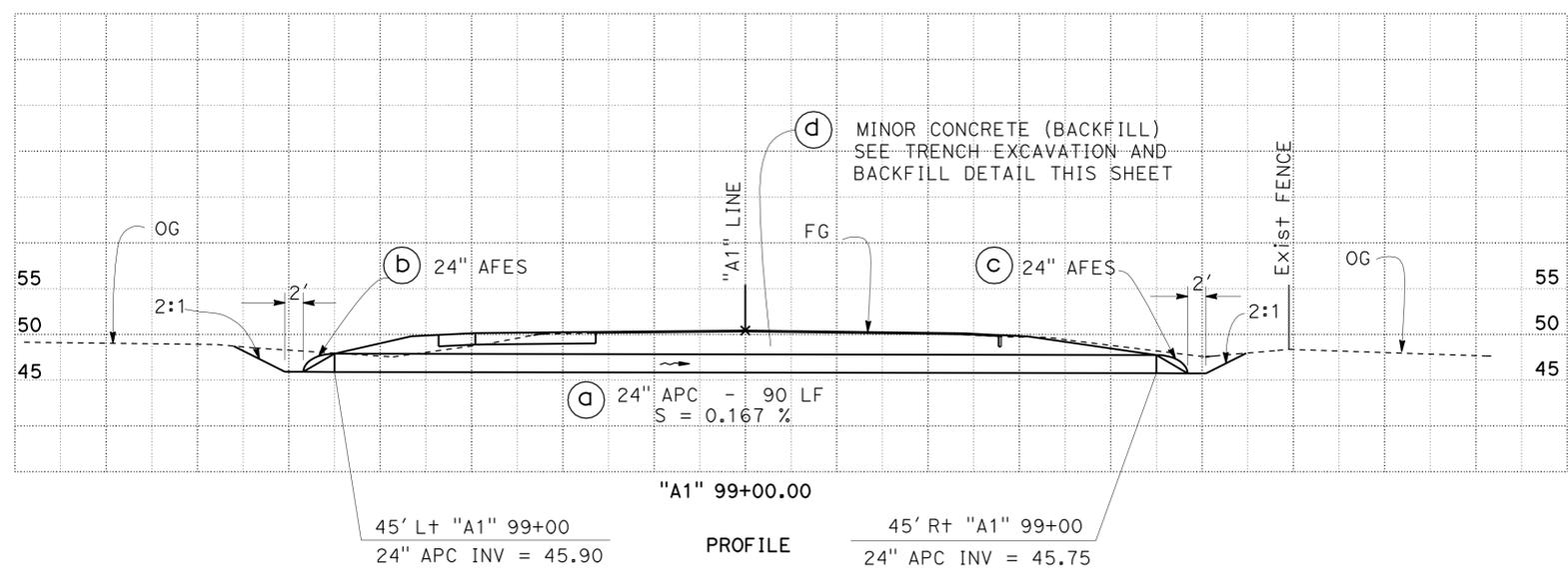
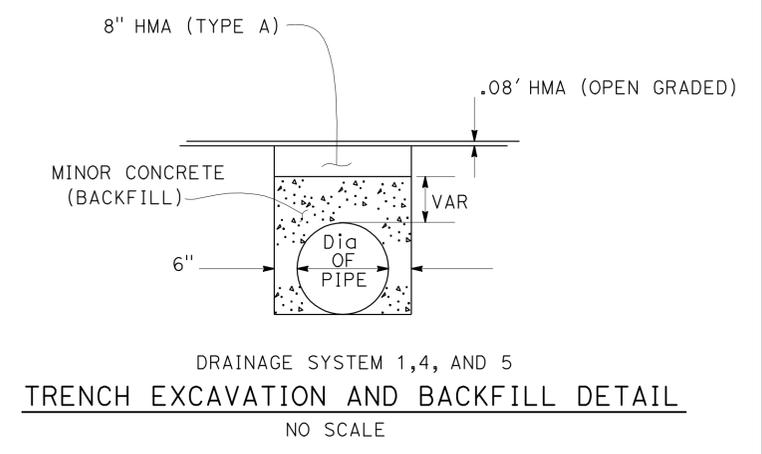
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sut	20	8.9/9.5	14	52

*Kris M. Albers* 4-18-11  
 REGISTERED CIVIL ENGINEER DATE  
 4-25-11  
 PLANS APPROVAL DATE  
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REGISTERED PROFESSIONAL ENGINEER  
**KRIS M. ALBERS**  
 No. 49986  
 Exp. 6-30-11  
 CIVIL  
 STATE OF CALIFORNIA



PLAN  
 SCALE : 1" = 10'



DRAINAGE SYSTEM **1**  
 SCALE : 1" = 10' Horiz AND Vert

**DRAINAGE DETAILS**  
 SCALE AS SHOWN  
**DD-1**

LAST REVISION: DATE PLOTTED => 02-JUN-2011  
 03-22-11 TIME PLOTTED => 12:36

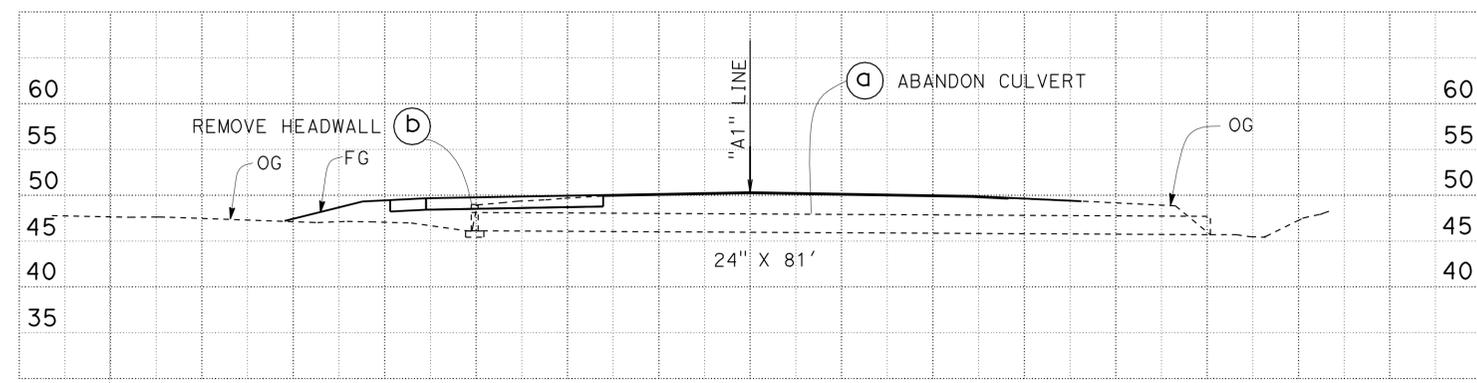
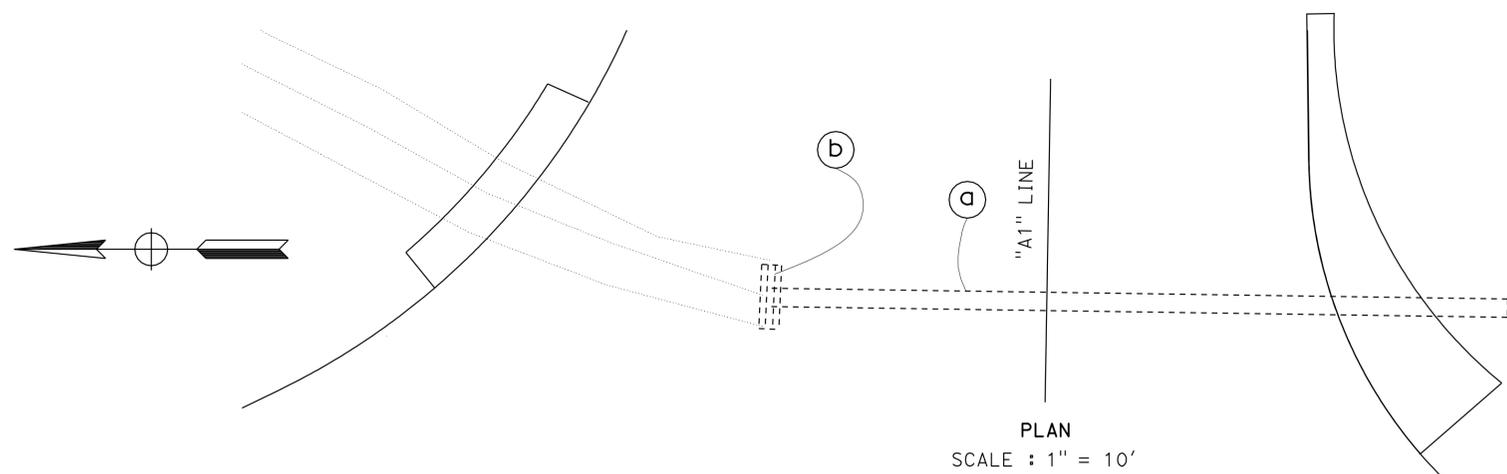
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sut	20	8.9/9.5	15	52

*Kris M. Albers* 4-18-11  
 REGISTERED CIVIL ENGINEER DATE

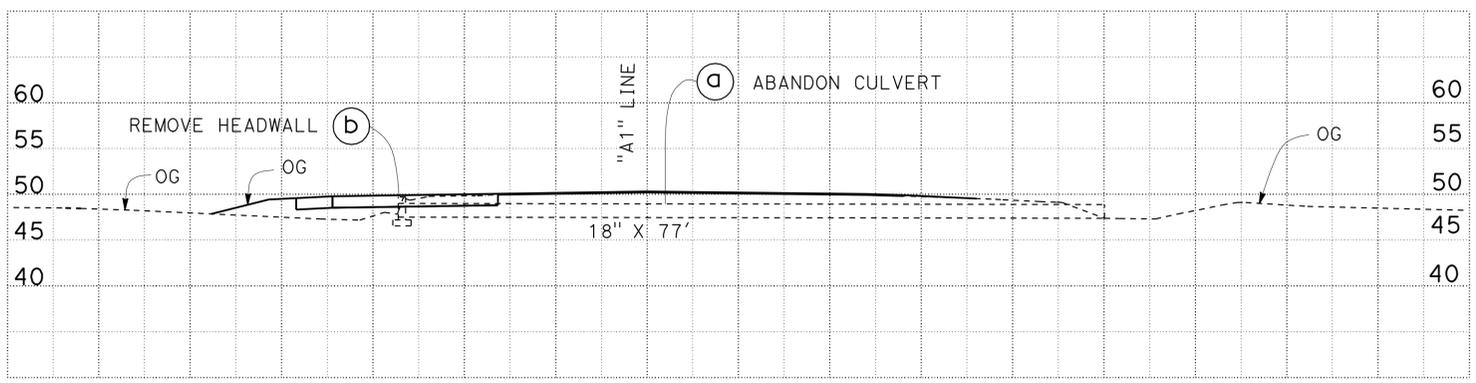
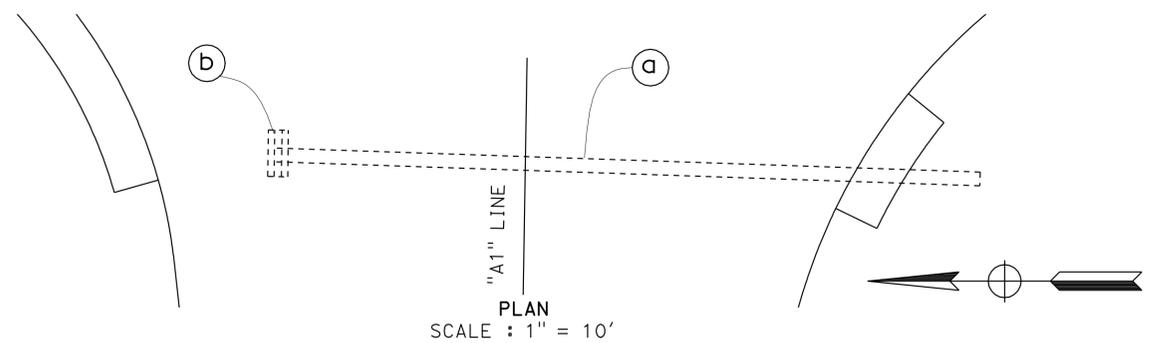
4-25-11  
 PLANS APPROVAL DATE

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REGISTERED PROFESSIONAL ENGINEER  
 KRIS M. ALBERS  
 No. 49986  
 Exp. 6-30-11  
 CIVIL  
 STATE OF CALIFORNIA



DRAINAGE SYSTEM 3  
 SCALE : 1" = 10' Horiz AND Vert



DRAINAGE SYSTEM 2  
 SCALE : 1" = 10' Horiz AND Vert

**DRAINAGE DETAILS**  
 SCALE AS SHOWN  
**DD-2**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	FUNCTIONAL SUPERVISOR	REVISOR	DATE
<b>Caltrans</b>	Laurie Lammert	A. G. CHIN	
TRAFFIC		KRIS ALBERS	
	CALCULATED-DESIGNED BY	CHECKED BY	DATE REVISED

LAST REVISION DATE PLOTTED => 19-MAY-2011 03-22-11 TIME PLOTTED => 07:24

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sut	20	8.9/9.5	16	52

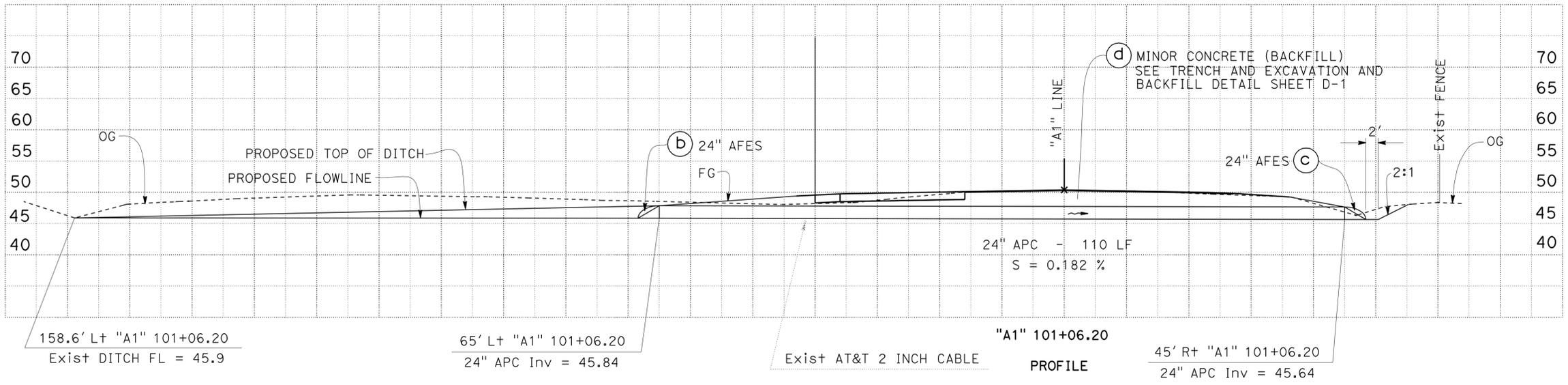
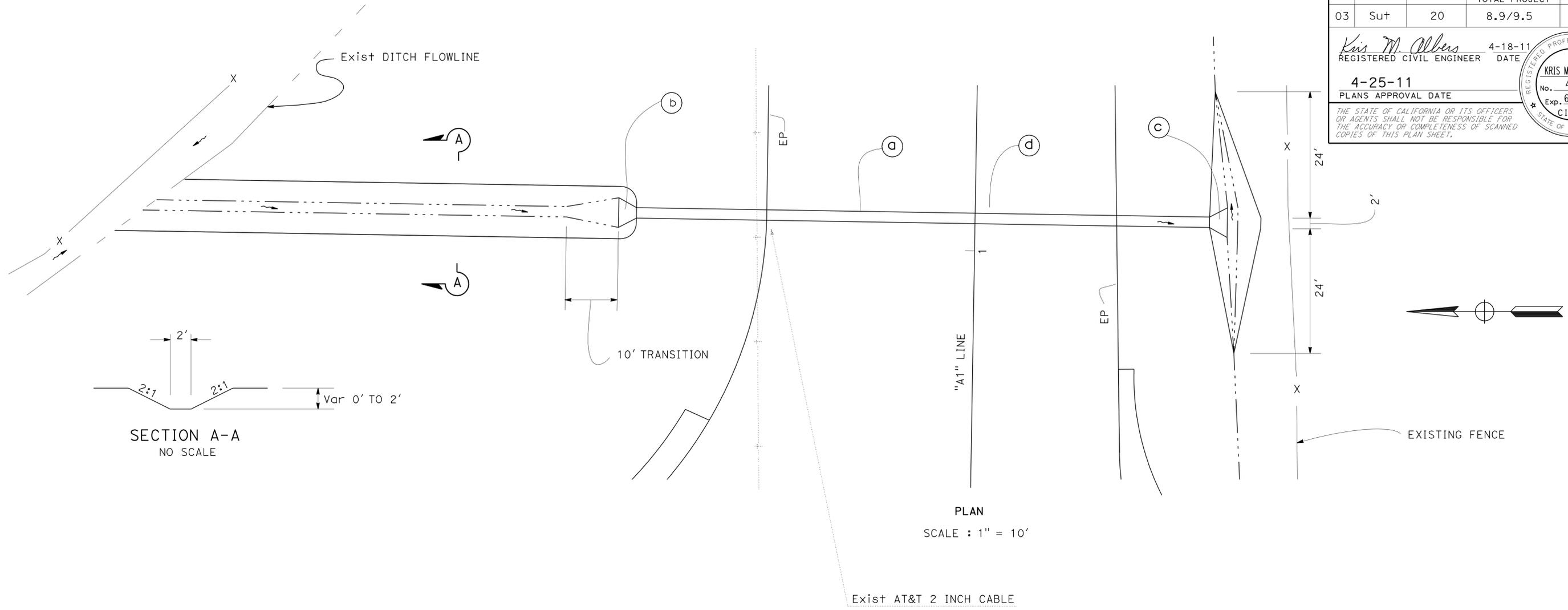
  

<i>Kris M. Albers</i>	4-18-11
REGISTERED CIVIL ENGINEER	DATE
<b>4-25-11</b>	
PLANS APPROVAL DATE	

REGISTERED PROFESSIONAL ENGINEER
<b>KRIS M. ALBERS</b>
No. 49986
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 SCANNED COPIES OF THIS PLAN SHEET.



DRAINAGE SYSTEM 4

SCALE : 1" = 10' Horiz AND Vert

**DRAINAGE DETAILS**  
SCALE AS SHOWN  
**DD-3**

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

FUNCTIONAL SUPERVISOR  
LAURIE LAMMERT

TRAFFIC

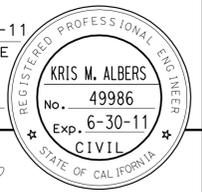
REVISOR  
A. G. CHIN

DATE  
KRTS ALBERS

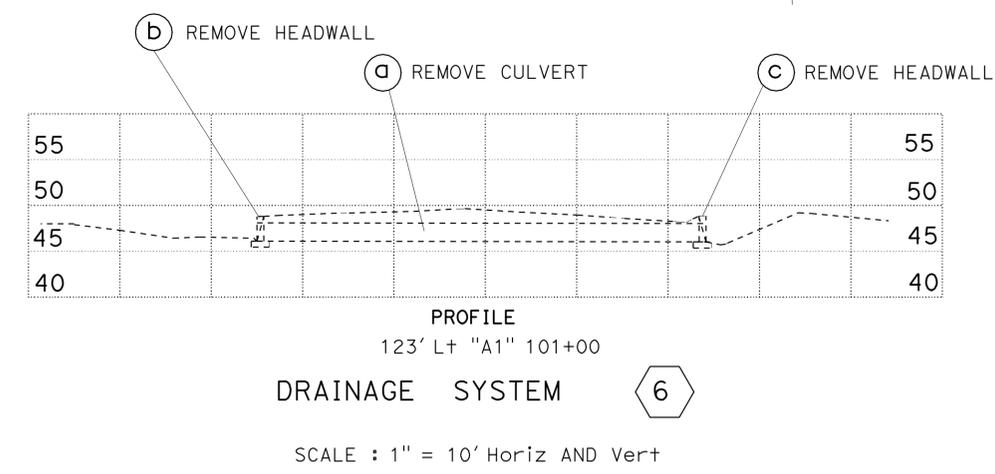
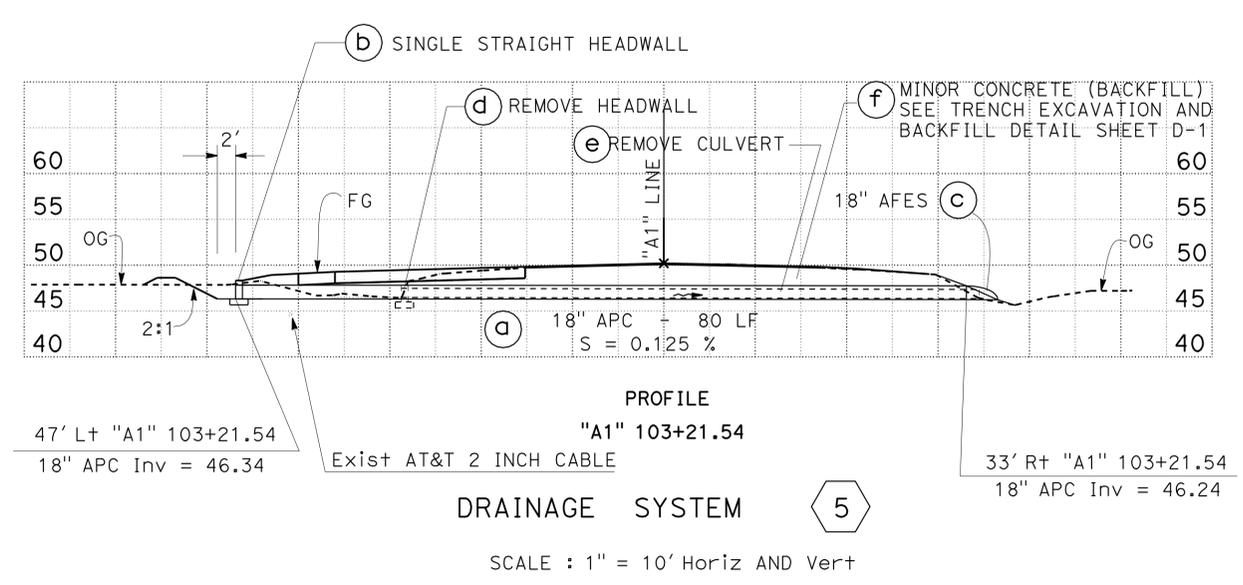
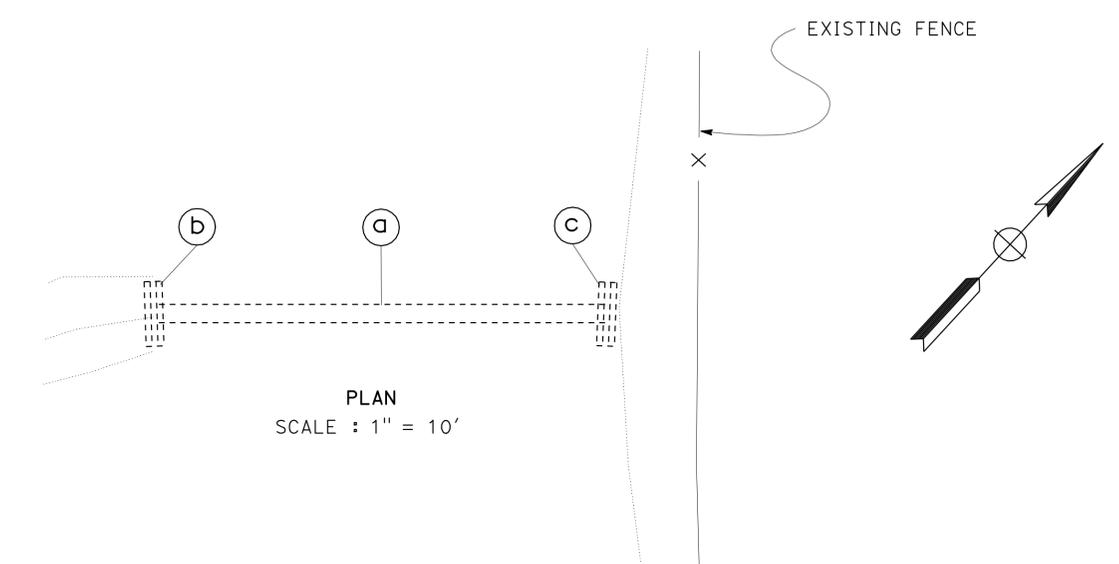
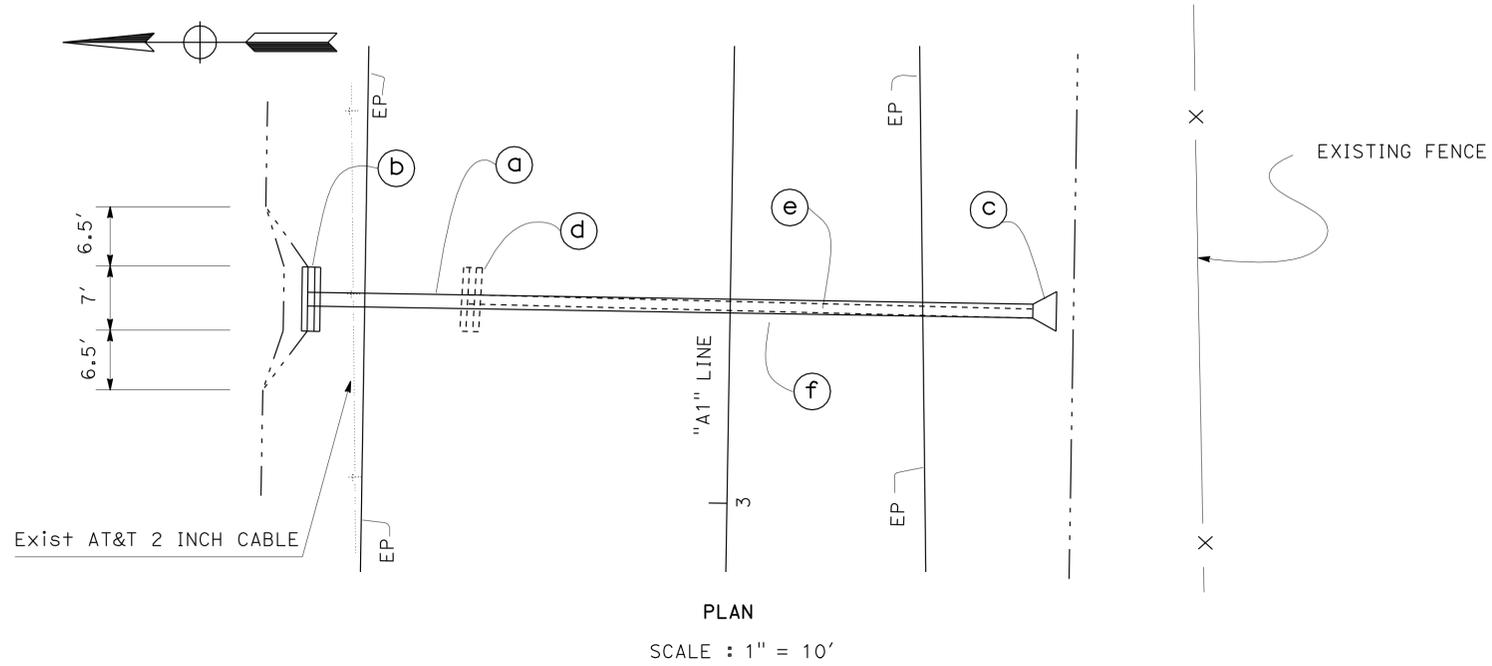
DESIGNER  
CALCULATED-DESIGNED BY

CHECKED BY

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sut	20	8.9/9.5	17	52
Kris M. Albers			4-18-11		
REGISTERED CIVIL ENGINEER			DATE		
4-25-11			PLANS APPROVAL DATE		
<small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small>					



STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans**  
 FUNCTIONAL SUPERVISOR: LAURIE LAMMERT  
 TRAFFIC  
 CALCULATED/DESIGNED BY: A. G. CHIN  
 CHECKED BY: KRIS ALBERS  
 REVISOR: A. G. CHIN  
 DATE: 7/1/2010



**DRAINAGE DETAILS**  
 SCALE AS SHOWN

**DD-4**

LAST REVISION DATE PLOTTED => 02-JUN-2011 03-22-11 TIME PLOTTED => 12:36

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sut	20	8.9/9.5	18	52

*Kris M. Albers* 4-18-11  
REGISTERED CIVIL ENGINEER DATE

**4-25-11**  
PLANS APPROVAL DATE

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**KRIS M. ALBERS**  
No. 49986  
Exp. 6-30-11  
CIVIL  
STATE OF CALIFORNIA

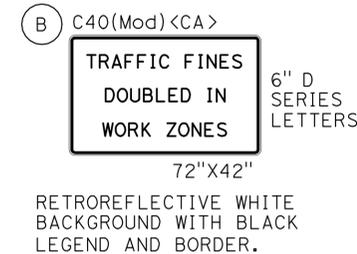
**STATIONARY MOUNTED CONSTRUCTION AREA SIGNS**

SIGN LETTER	SIGN CODE		PANEL SIZE	SIGN MESSAGE	NUMBER OF POST AND SIZE	NUMBER OF SIGNS
	FEDERAL	CALIFORNIA				
A	W20-1	C23	48" X 48"	ROAD WORK AHEAD	1 - 6" X 6"	4
B		C40(MOD)	72" X 42"	TRAFFIC FINES DOUBLED IN WORK ZONES	2 - 4" X 6"	2
C	G20-2	C14	36" X 18"	END ROAD WORK	1 - 4" X 4"	4

**NOTES:**

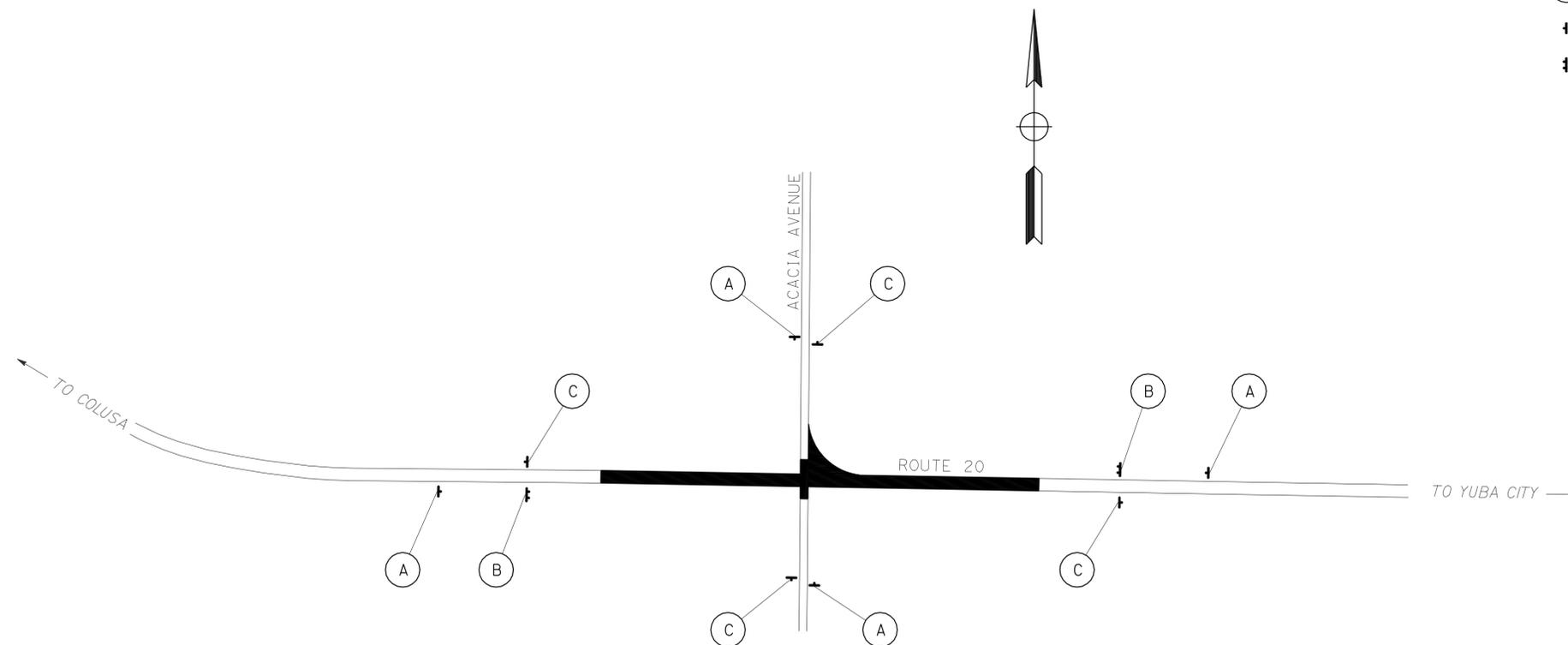
1. EXACT SIGN LOCATIONS TO BE DETERMINED BY THE ENGINEER.
2. ALL SIGN CODES SHOWN ARE FEDERAL SIGN CODES UNLESS OTHERWISE DESIGNATED AS CALIFORNIA <CA> SIGN CODES.
3. THIS PLAN ACCURATE FOR CONSTRUCTION AREA SIGN WORK ONLY.

**SIGN DETAILS**



**LEGEND**

- (X) CONSTRUCTION AREA SIGN LETTER
- ↑ SIGN - SINGLE POST
- ↑↑ SIGN - TWO POST



**CONSTRUCTION  
AREA SIGNS**  
NO SCALE

**CS-1**

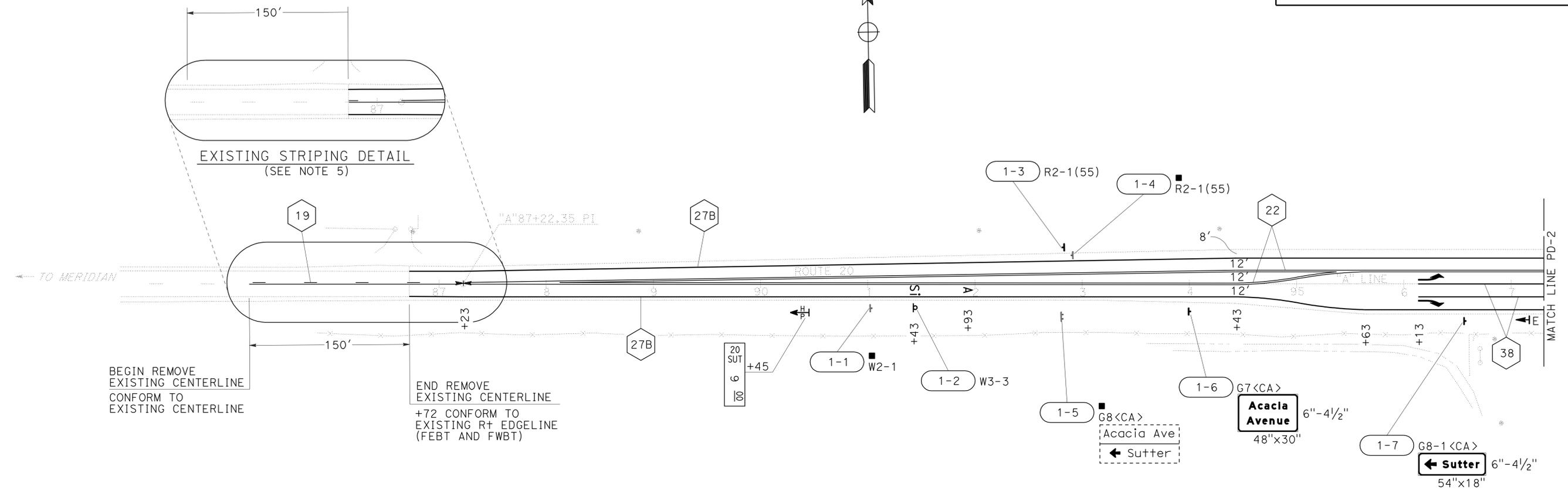
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans**  
 FUNCTIONAL SUPERVISOR: LAURIE LAMMERT  
 TRAFFIC  
 JACK KEMMERLY  
 CHUCK COOK  
 REVISOR: JACK KEMMERLY  
 DATE: 7/2/2010  
 CALCULATED/DESIGNED BY: JACK KEMMERLY  
 CHECKED BY: CHUCK COOK

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sut	20	8.9/9.5	19	52

*Kris M. Albers* 4-18-11  
 REGISTERED CIVIL ENGINEER DATE  
 4-25-11  
 PLANS APPROVAL DATE

KRIS M. ALBERS  
 No. 49986  
 Exp. 6-30-11  
 CIVIL

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



BEGIN REMOVE EXISTING CENTERLINE CONFORM TO EXISTING CENTERLINE  
 END REMOVE EXISTING CENTERLINE +72 CONFORM TO EXISTING RT EDGELINE (FEBT AND FWBT)

LEGEND

- CHANGE IN STRIPING PATTERN
- PAVEMENT DELINEATION DETAIL NUMBER
- LIMIT LINE
- DELINEATOR (CLASS 1) OR OBJECT MARKER
- HIGHWAY POST MARKER
- TYPE 1(24') ARROW
- TYPE III ARROW
- "SIGNAL" PAVEMENT MARKING
- "AHEAD" PAVEMENT MARKING
- ROADSIDE SIGN NUMBER
- CALIFORNIA SIGN CODE
- SIGN - SINGLE POST
- SIGN - SSBM
- REMOVE ROADSIDE SIGN

NOTES:

1. ALL LANES SHALL BE 12' WIDE UNLESS OTHERWISE SHOWN.
2. ALL DELINEATORS (CLASS 1) SHALL BE PLACE ON 100' CENTERS.
3. ALL EXISTING SIGNS NOT SHOWN FOR REMOVAL SHALL REMAIN IN PLACE.
4. ALL SIGN CODES SHOWN ARE FEDERAL SIGN CODES UNLESS OTHERWISE DESIGNATED AS CALIFORNIA SIGN CODES.
5. THE REMOVAL LENGTH SHOWN REPRESENTS LINEAR MEASUREMENT, NOT PAY QUANTITY.
6. THIS PLAN ACCURATE FOR PAVEMENT DELINEATION AND SIGN WORK ONLY.

**PAVEMENT DELINEATION AND SIGN PLAN**

SCALE: 1"=50'

PD-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
 TRAFFIC  
 Et Caltrans®  
 FUNCTIONAL SUPERVISOR LAURIE LAMMERT  
 CALCULATED/DESIGNED BY JACK KEMMERLY  
 CHECKED BY CHUCK COOK  
 REVISED BY JACK KEMMERLY  
 DATE REVISED  
 USERNAME => s113559  
 DGN FILE => 03000201231na001.dgn



UNIT 0390

PROJECT NUMBER & PHASE

03000201231

LAST REVISION DATE PLOTTED => 19-MAY-2011  
 TIME PLOTTED => 07:24

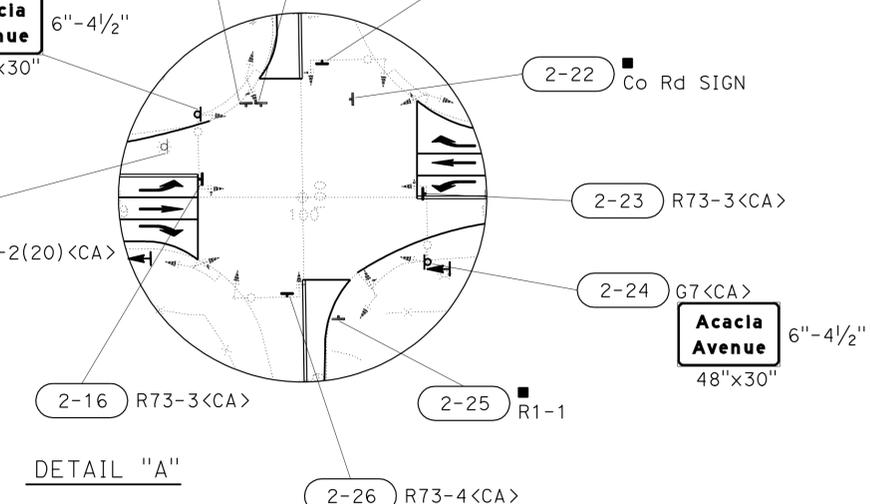
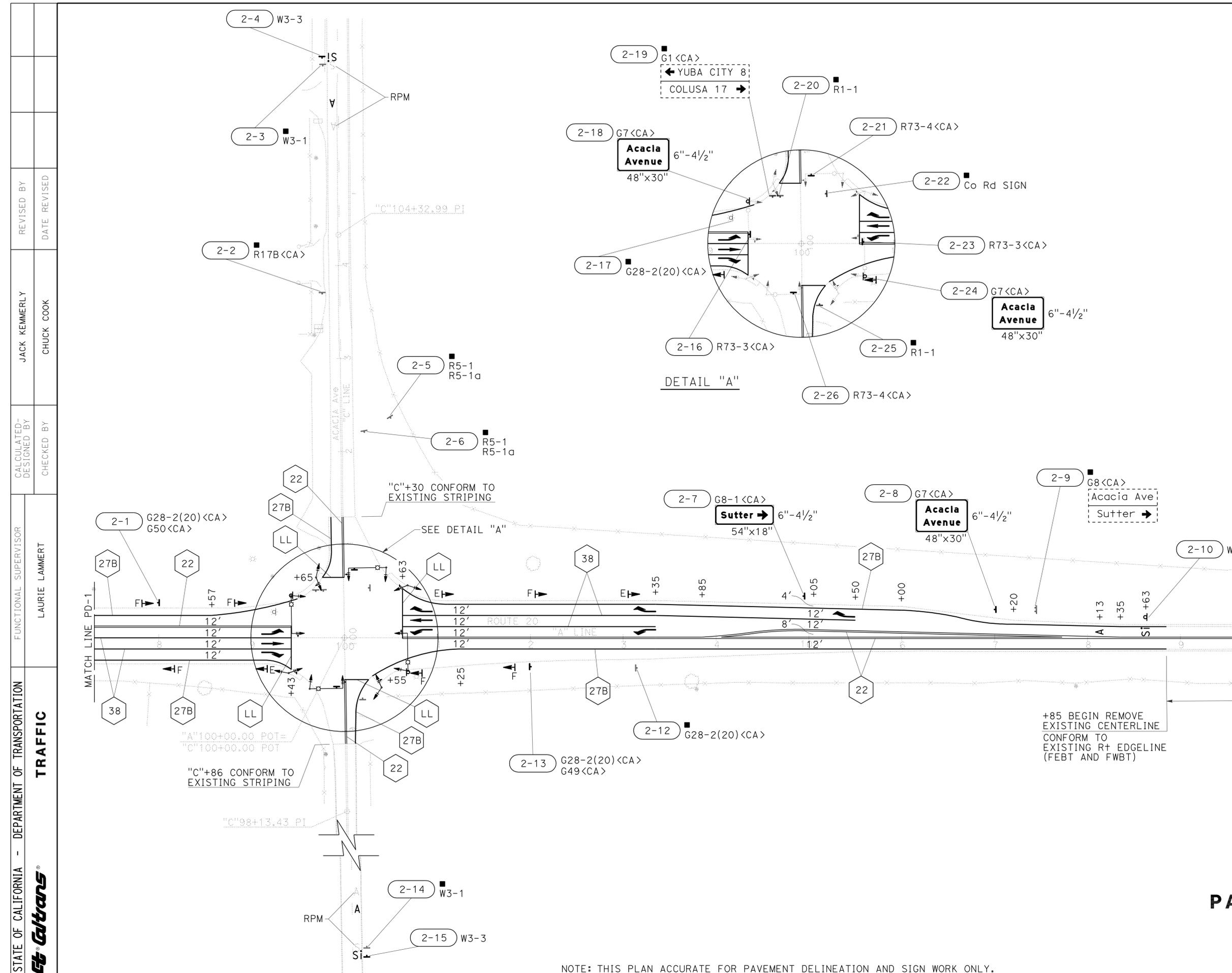
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sut	20	8.9/9.5	20	52

<i>Kris M. Albers</i>	4-18-11
REGISTERED CIVIL ENGINEER	DATE
<b>4-25-11</b>	
PLANS APPROVAL DATE	

REGISTERED PROFESSIONAL ENGINEER  
**KRIS M. ALBERS**  
 No. 49986  
 Exp. 6-30-11  
 CIVIL  
 STATE OF CALIFORNIA

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# PAVEMENT DELINEATION AND SIGN PLAN

SCALE: 1"=50'

## PD-2

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans**  
 TRAFFIC  
 FUNCTIONAL SUPERVISOR: LAURIE LAMMERT  
 REVISIONS: JACK KEMMERLY, CHUCK COOK, REVISOR, DATE, REVISION  
 CALCULATED/DESIGNED BY: CHECKED BY:

NOTE: THIS PLAN ACCURATE FOR PAVEMENT DELINEATION AND SIGN WORK ONLY.



DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sut	20	8.9/9.5	22	52

*Kris M. Albers* 4-18-11  
REGISTERED CIVIL ENGINEER DATE

4-25-11  
PLANS APPROVAL DATE

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4" THERMOPLASTIC TRAFFIC STRIPE

DETAIL NUMBER	LINEAR FEET
19	200
22	9,136
27B	4,220
TOTAL	13,556

THERMOPLASTIC PAVEMENT MARKING

DESCRIPTION	NUMBER	SQUARE FEET
"SIGNAL"	4 @ 32 SQFT	128
"AHEAD"	4 @ 31 SQFT	124
TYPE I(24) ARROW	2 @ 31 SQFT	62
TYPE III ARROW	9 @ 42 SQFT	378
LIMIT LINE	4	165
TOTAL		857

4" THERMOPLASTIC TRAFFIC STRIPE  
(BROKEN 36-12)

DETAIL NUMBER	LINEAR FEET
19	200
TOTAL	200

REMOVE THERMOPLASTIC PAVEMENT MARKING

DESCRIPTION	NUMBER	SQUARE FEET
"STOP"	2 @ 22 SQFT	44
"AHEAD"	2 @ 31 SQFT	62
TOTAL		106

DELINEATOR - HIGHWAY POST MARKER

SHEET NUMBER	DELINEATOR (CLASS 1)		HIGHWAY POST MARKER (EACH)
	TYPE E (EACH)	TYPE F (EACH)	
PD-1	1		1
PD-2	3	6	
SUBTOTAL	4	6	1
TOTAL	10		1

8" THERMOPLASTIC TRAFFIC STRIPE

DETAIL NUMBER	LINEAR FEET
38	1,419
TOTAL	1,419

REMOVE YELLOW THERMOPLASTIC TRAFFIC STRIPE  
(HAZARDOUS WASTE)

DESCRIPTION	LINEAR FEET
CENTERLINE (PASSING ZONE)	279
CENTERLINE (NO PASSING ZONE - ONE DIRECTION)	232
TOTAL	511

PAVEMENT MARKER (RETROREFLECTIVE)

DETAIL NUMBER	TYPE D (EACH)	TYPE G (EACH)	TYPE H (EACH)
19	5		10
22	382		
38		60	
SUBTOTAL	387	60	10
TOTAL	457		

PAVEMENT DELINEATION QUANTITIES

PDQ-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

**Caltrans**

TRAFFIC

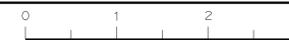
FUNCTIONAL SUPERVISOR: LAURIE LAMMERT

DESIGNED BY: JACK KEMMERLY

CHECKED BY: CHUCK COOK

REVISOR: JACK KEMMERLY

DATE: 7/2/2010



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sut	20	8.9/9.5	23	52

*Kris M. Albers* 4-18-11  
REGISTERED CIVIL ENGINEER DATE

**4-25-11**  
PLANS APPROVAL DATE

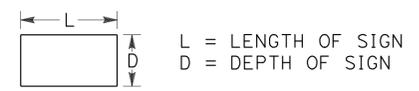
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

REGISTERED PROFESSIONAL ENGINEER  
Kris M. ALBERS  
No. 49986  
Exp. 6-30-11  
CIVIL  
STATE OF CALIFORNIA

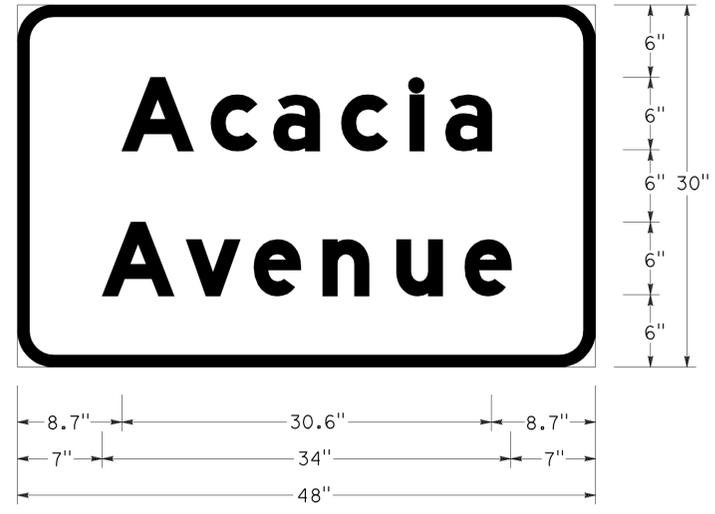
ROADSIDE SIGN PANEL QUANTITIES (CONTRACTOR-FURNISHED)

SIGN CODE	SIGN MESSAGE/DESCRIPTION	SIGN SIZE L X D  (INCHES)	SIGN AREA  (SQFT)	NUMBER OF SIGNS	BACKGROUND		LEGEND		PROTECTIVE OVERLAY	FURNISH SINGLE SHEET ALUMINUM SIGN	
					SHEETING COLOR	RETROREFLECTIVE ASTM TYPE	SHEETING COLOR	RETROREFLECTIVE ASTM TYPE	PREMIUM	UNFRAMED	
										0.063"	0.080"
										SQFT	SQFT
G7<CA>	STREET NAME	48 X 30	10.00	4	GREEN	III	WHITE	IX	X		40.00
G8-1<CA>	DESTINATION WITH ARROW	54 X 18	6.75	2	GREEN	III	WHITE	IX	X		13.50
G28-2(20)<CA>	STATE ROUTE MARKER	24 X 25	4.17	2	GREEN	III	WHITE	III	X	8.34	
G49<CA>	EAST	21 X 9	1.31	1	GREEN	III	WHITE	III	X	1.31	
G50<CA>	WEST	21 X 9	1.31	1	GREEN	III	WHITE	III	X	1.31	
R2-1(55)	SPEED LIMIT SIGN	36 X 48	12.00	1	WHITE	III	BLACK		X	12.00	
R73-3<CA>	INTERSECTION LANE CONTROL SIGN	36 X 36	9.00	2	WHITE	III	BLACK		X	18.00	
R73-4<CA>	INTERSECTION LANE CONTROL SIGN	36 X 45	11.25	2	WHITE	III	BLACK		X	22.50	
W3-3	SIGNAL AHEAD SYMBOL SIGN	48 X 48	16.00	4	YELLOW	IX	RED GREEN BLACK	IX IX	X		64.00
TOTAL										63.46	117.50

NOTE: ALL SIGN CODES ARE FEDERAL SIGN CODES UNLESS OTHERWISE DESIGNATED AS CALIFORNIA <CA> SIGN CODES.

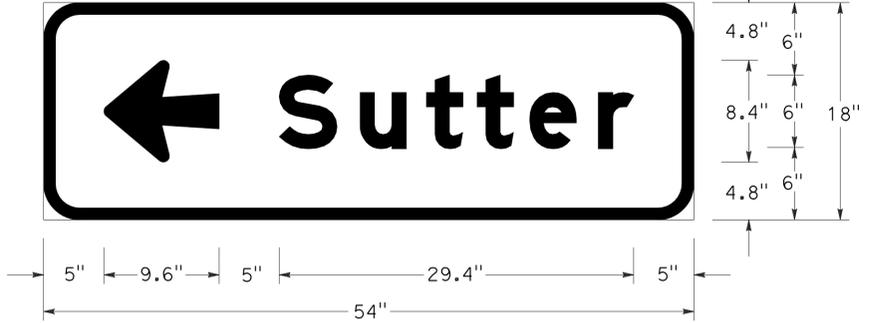


G7<CA>



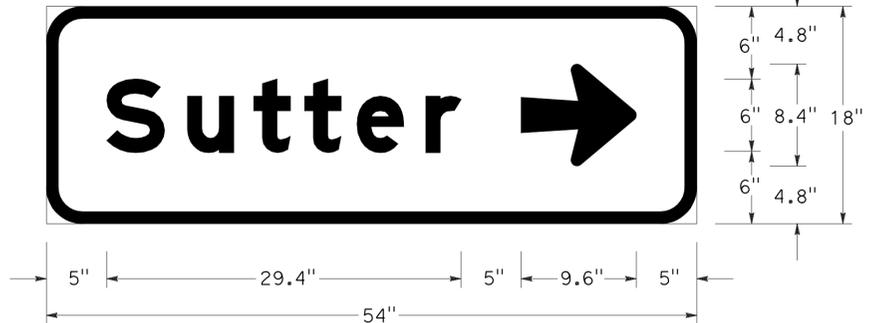
1" BORDER WITH 3" RADIUS  
SIGN NUMBERS 1-6, 2-8, 2-18 AND 2-24

G8-1<CA>



1" BORDER WITH 3" RADIUS  
ARROW - 6"UC-1L - 9.6" 180°  
SIGN NUMBER 1-7

G8-1<CA>



1" BORDER WITH 3" RADIUS  
ARROW - 6"UC-1L - 9.6" 0°  
SIGN NUMBER 2-7

SIGN DETAILS AND QUANTITIES

SD-1

NOTE: ALL LEGENDS SHALL BE E Mod LETTERING.

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION - TRAFFIC

FUNCTIONAL SUPERVISOR: LAURIE LAMMERT

REVISOR: JACK KEMMERLY, CHUCK COOK

REVISIONS: REVISED BY, DATE REVISED

CALCULATED/DESIGNED BY, CHECKED BY

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sut	20	8.9/9.5	24	52

*Kris M. Albers* 4-18-11  
REGISTERED CIVIL ENGINEER DATE

4-25-11  
PLANS APPROVAL DATE

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

ROADSIDE SIGN QUANTITIES

SIGN NUMBER (SHT-NO.)	SIGN CODE		PANEL SIZE (INCHES)	"C" DIM IN FEET	POST SIZE AND LENGTH		ROADSIDE SIGN ONE POST (EACH)	INSTALL SIGN (SSBM) (EACH)	REMOVE ROADSIDE SIGN (EACH)	REMARKS	
	FEDERAL	CALIFORNIA			4" X 4"	4" X 6"					
1-1	W2-1								1		
1-2	W3-3		48 X 48							SEE NOTES 5 AND 7	
1-3	R2-1(55)		36 X 48	5		14'		1			
1-4	R2-1(55)								1		
1-5		G8							1		
1-6		G7	48 X 30	5		12'		1			
1-7		G8-1	54 X 18	5		10'		1			
2-1		G28-2(20) G50	24 X 25 21 X 9	4		12'		1			
2-2		R17B							1		
2-3	W3-1								1		
2-4	W3-3		48 X 48	5		16'		1			
2-5	R5-1 R5-1a								1		
2-6	R5-1 R5-1a								1		
2-7		G8-1	54 X 18	5		10'		1			
2-8		G7	48 X 30	5		12'		1			
2-9		G8							1		
2-10	W3-3		48 X 48							SEE NOTES 5 AND 7	
2-11	W2-1								1		
2-12		G28-2(20)							1		
2-13		G28-2(20) G49	24 X 25 21 X 9	4		12'		1			
2-14	W3-1								1		
2-15	W3-3		48 X 48	5		16'		1			
2-16		R73-3	36 X 36							SEE NOTES 5 AND 6	
2-17		G28-2(20)							1		
2-18		G7	48 X 30					1		SEE NOTE 4	
2-19		G1							1		
2-20	R1-1								1		
2-21		R73-4	36 X 45							SEE NOTES 5 AND 6	
2-22		Co Rd SIGN							1		
2-23		R73-3	36 X 36							SEE NOTES 5 AND 6	
2-24		G7	48 X 30					1		SEE NOTE 4	
2-25	R1-1								1		
2-26		R73-4	36 X 45							SEE NOTES 5 AND 6	
TOTAL								9	2	16	

NOTES:

- EXACT LOCATION AND POSITION OF ROADSIDE SIGNS TO BE DETERMINED BY THE ENGINEER.
- POST LENGTHS GIVEN ARE APPROXIMATE.
- "C" DIM = VERTICAL CLEARANCE EP TO BOTTOM OF SIGN PANEL.
- SIGN PANEL TO BE MOUNTED ON SIGNAL STANDARD DIRECTLY ABOVE THE SIGNAL MAST ARM CONNECTION.
- (N) - NOT A SEPARATE PAY ITEM.
- SIGN PANEL TO BE MOUNTED ON SIGNAL MAST ARM.
- SIGN PANEL TO BE MOUNTED ON FLASHING BEACON STANDARD. SEE ELECTRICAL PLANS FOR ADDITIONAL DETAILS.

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

**Caltrans**

FUNCTIONAL SUPERVISOR: LAURIE LAMMERT

REVISOR: JACK KEMMERLY, CHUCK COOK

DESIGNER: CALCULATED/DESIGNED BY, CHECKED BY

DATE: 7/2/2010

SIGN QUANTITIES

SQ-1

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sut	20	8.9/9.5	25	52

*Kris M. Albers* 4-18-11  
 REGISTERED CIVIL ENGINEER DATE

**4-25-11**  
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KRIS M. ALBERS  
 No. 49986  
 Exp. 6-30-11  
 CIVIL

- NOTES: 1. CLASS DESIGNATION OF RCP MUST MEET THE LIMITS IN THE STANDARD PLANS AS DETERMINED BY THE BACKFILL METHOD AND HEIGHT OF COVER.  
 2. ALL PIPE CULVERT JOINTS ARE STANDARD JOINT TYPE.  
 3. LIMITS OF MINOR CONCRETE (BACKFILL) IS FROM EP TO EP.

APC ALLOWABLE PIPE MATERIALS
1. RCP 2. HDPE (TYPE S)** 3. SSRP (0.109" THICK)

\*\* HDPE = HIGH DENSITY POLYETHYLENE CORRUGATED PIPE, SMOOTH INTERIOR.

**DRAINAGE QUANTITIES**

DRAINAGE SYSTEM No.	DRAINAGE UNIT	ALTERNATIVE PIPE CULVERT		ALTERNATIVE FLARED END SECTION		MINOR CONCRETE (MINOR STRUCTURE)	(N) STRAIGHT SINGLE HEADWALL	ABANDON CULVERT	REMOVE CULVERT	REMOVE HEADWALL	MINOR CONCRETE (BACKFILL) (SEE NOTE 3)
		18"	24"	18"	24"						
		LF	EA	EA	CY						
1	a		90								
	b				1						
	c				1						
	d										27
2	a							1			
	b								1		
3	a							1			
	b									1	
4	a		110								
	b				1						
	c				1						
	d										30
5	a	80									
	b					1.35	1				
	c				1						
	d									1	
	e								1		
	f										13
6	a								1		
	b									1	
	c									1	
TOTAL		80	200	1	4	1.35	1	2	2	5	70

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

**ROADWAY QUANTITIES**

LOCATION	HOT MIX ASPHALT (TYPE A)		HOT MIX ASPHALT (OPEN GRADED)	ROADWAY EXCAVATION	(N) ROADWAY EMBANKMENT	OBLITERATE SURFACING	COLD PLANE ASPHALT CONCRETE PAVEMENT	MINOR CONCRETE (SIDEWALK)	TACK COAT	REPLACE ASPHALT CONCRETE SURFACING
	WIDENING	OVERLAY								
	TON	TON								
Rte 20	3400	910	450	1100	1340	800	8100	7.2	8.1	
ACACIA AVENUE	700	90		570	250				0.3	40
TOTAL	5100		450	1670	1590	800	8100	7.2	8.4	40

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

**FENCE QUANTITIES**

	FENCE (TYPE WM AND BW)	REMOVE FENCE (TYPE BW)
133' Rt "C1" 101+39 TO 95' Lt "A1" 115+50.00	LF	LF
	1400	1400

**SUMMARY OF QUANTITIES**

Q-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

**Caltrans**

TRAFFIC

FUNCTIONAL SUPERVISOR: LAURIE LAMMERT

CALCULATED/DESIGNED BY: A. G. CHIN

CHECKED BY: KRIS ALBERS

REVISOR: REVISED BY: DATE

DATE REVISED:

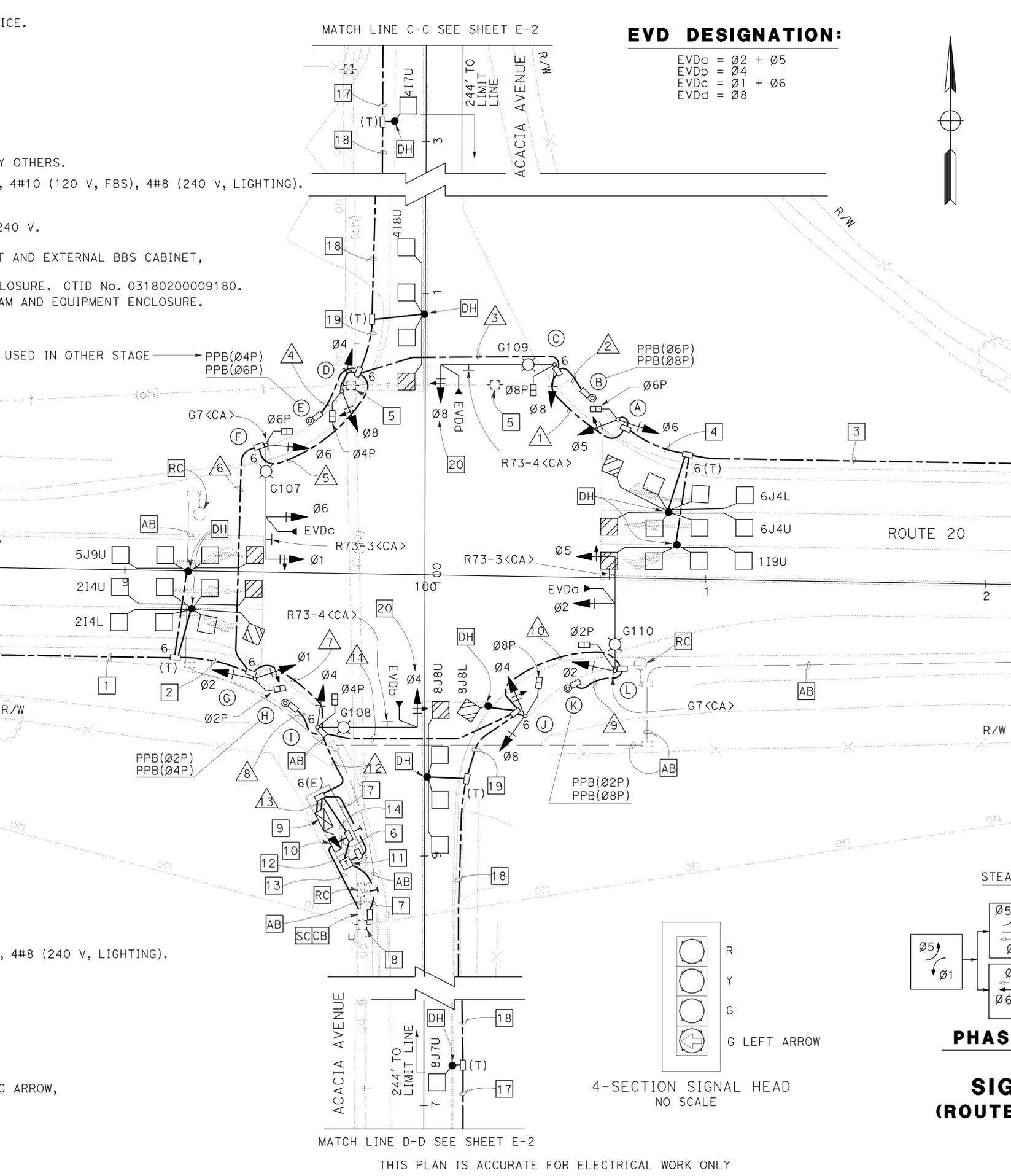
LAST REVISION DATE PLOTTED => 02-JUN-2011 04-11-11 TIME PLOTTED => 12:37

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

FOR ACCURATE RIGHT OF WAY AND ACCESS DATA,  
 CONTACT RIGHT OF WAY ENGINEERING AT DISTRIC OFFICE.

**PROJECT NOTES (THIS SHEET ONLY):**

- 2" C, 4 DLC, 2#10 (120 V, FB).
- 2" C, 7 DLC, 2#10 (120 V, FB).
- 2" C, 6 DLC, 2#10 (120 V, FB).
- 2" C, 8 DLC, 2#10 (120 V, FB).
- EXIST UTILITY POLE SHALL BE RELOCATED BY OTHERS.
- 2" C, 2#10 (120 V, TDC), 2#8 (120 V, SIGNAL), 4#10 (120 V, FBS), 4#8 (240 V, LIGHTING).
- 1 1/2" C, 1 TELEPHONE CABLE.
- EXIST SP, ELECTRIC UTILITY COMPANY, 120/240 V. INSTALL TYPE H RISER FOR TELEPHONE.
- INSTALL STATE FURNISHED MODEL 332 CABINET AND EXTERNAL BBS CABINET, AND MODEL 2070 CONTROLLER ASSEMBLY.
- INSTALL TYPE III-AF SERVICE EQUIPMENT ENCLOSURE. CTID No. 03180200009180. SEE STANDARD PLAN ES-2D FOR WIRING DIAGRAM AND EQUIPMENT ENCLOSURE. LOAD: 4-200 W HPS LUMINAIRES  
4-150 W FBS  
1000 W TRAFFIC SIGNAL
- INSTALL TYPE B TDC. SEE STANDARD PLAN ES-3E.
- 1 1/2" C, 2#10 (120 V, TDC).
- 2" C, 3#2 (SERVICE).
- 2" C, 2#8 (120 V, SIGNAL), 4#10 (120 V, FBS), 4#8 (240 V, LIGHTING).
- 1 1/2" C, 1 DLC, 2#10 (120 V, FB).
- 2" C, 3 DLC, 2#10 (120 V, FB).
- 1 1/2" C, 1 DLC.
- 1 1/2" C, 2 DLC.
- 2" C, 3 DLC.
- INSTALL 4 SECTION SIGNAL HEAD R-Y-G AND G ARROW, SEE DETAIL THIS SHEET.



**EVD DESIGNATION:**

- EVDa = Ø2 + Ø5
- EVDb = Ø4
- EVDc = Ø1 + Ø6
- EVDd = Ø8

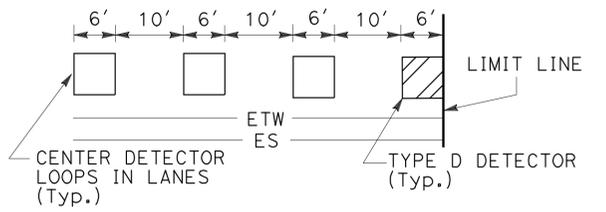


Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Su+	20	9.176	26	52

4-15-11  
 REGISTERED ELECTRICAL ENGINEER  
 4-25-11  
 PLANS APPROVAL DATE

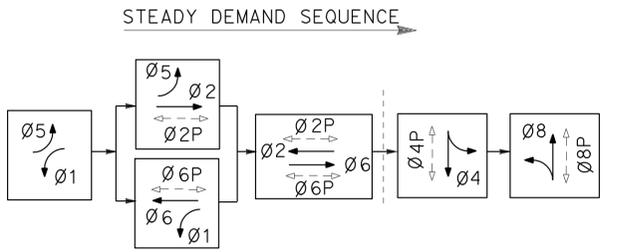
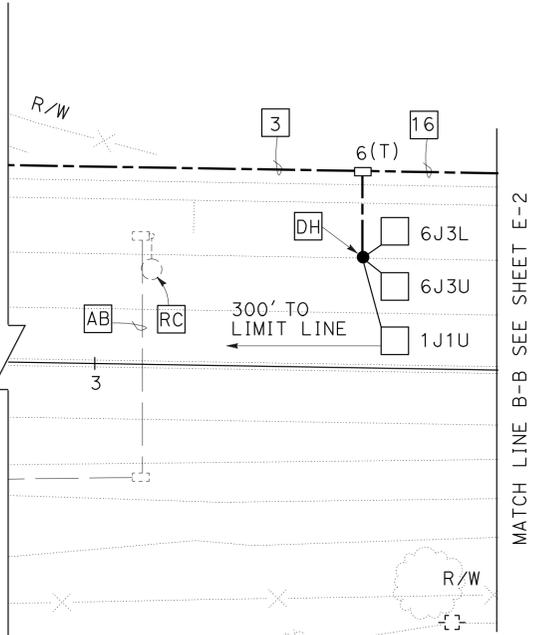
REGISTERED PROFESSIONAL ENGINEER  
 HABIB GOLBAN  
 No. E-17928  
 Exp. 9-30-12  
 ELECTRICAL  
 STATE OF CALIFORNIA

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



**TYPICAL LOOP DETAIL**

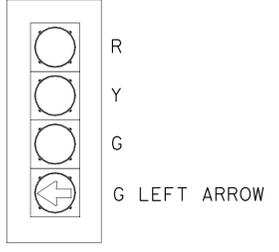
SEE DETAIL "A" SHEET E-3 FOR LOOP CONNECTION.



**PHASE DIAGRAM**

**SIGNAL AND LIGHTING (ROUTE 20 AND ACACIA AVENUE)**

SCALE : 1" = 20'



4-SECTION SIGNAL HEAD  
 NO SCALE

MATCH LINE D-D SEE SHEET E-2  
 THIS PLAN IS ACCURATE FOR ELECTRICAL WORK ONLY

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

FUNCTIONAL SUPERVISOR  
 STEVE S. LEE

CALCULATED-DESIGNED BY  
 CHECKED BY

YOUNG TON  
 HABIB GOLBAN

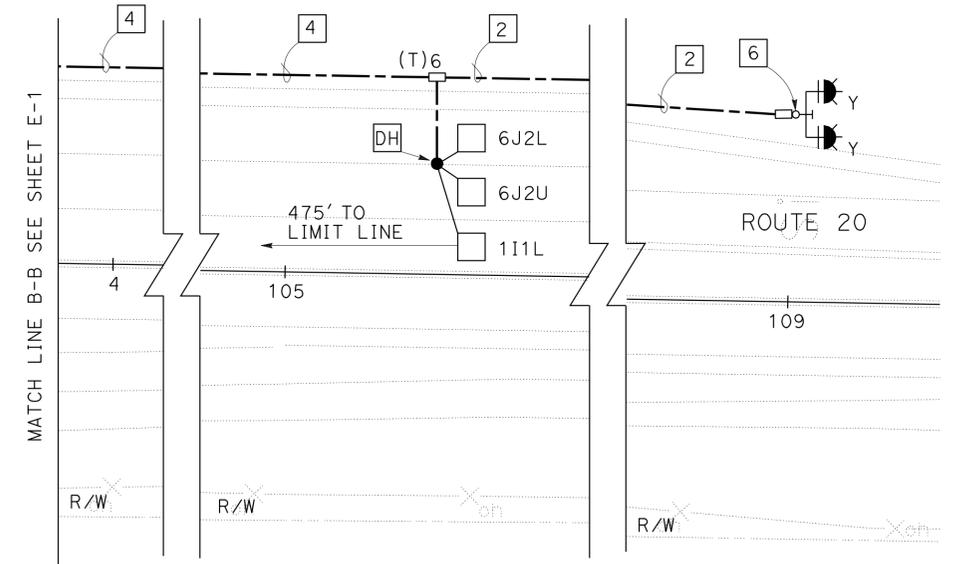
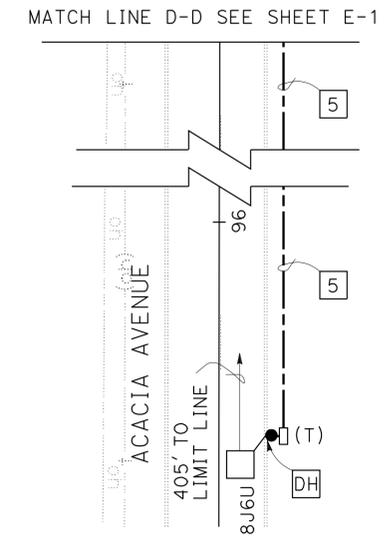
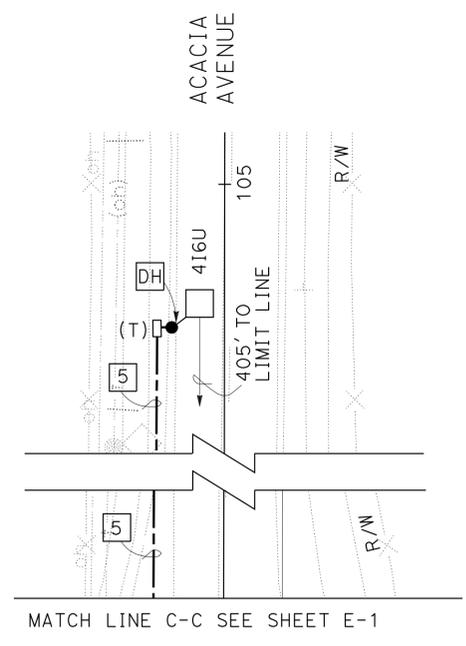
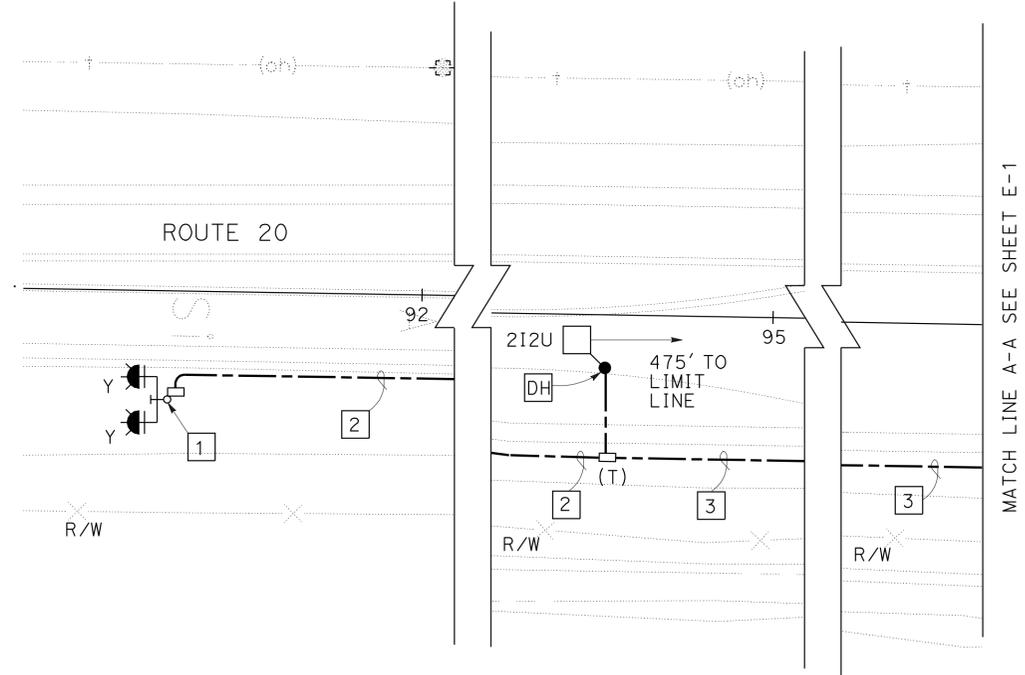
REVISED BY  
 DATE REVISED

03-21-11  
 03-21-11

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

**PROJECT NOTES** (THIS SHEET ONLY):

- 1 INSTALL TYPE 15-FBS PER DETAIL ES-7J AT 800 ' TO LIMIT LINE.
- 2 1 1/2"C, 2#10 (120 V, FB).
- 3 1 1/2"C, 2#10 (120 V, FB), 1 DLC.
- 4 2"C, 2#10 (120 V, FB), 3 DLC.
- 5 1 1/2"C, 1 DLC.
- 6 INSTALL TYPE 15-FBS PER DETAIL ES-7J AT 840 ' TO LIMIT LINE.



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sut	20	9.176	27	52

4-15-11  
 REGISTERED ELECTRICAL ENGINEER

4-25-11  
 PLANS APPROVAL DATE

HABIB GOLBAN  
 No. E-17928  
 Exp. 9-30-10  
 ELECTRICAL  
 STATE OF CALIFORNIA

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**SIGNAL AND LIGHTING  
 (ROUTE 20 AND ACACIA AVENUE)**

SCALE : 1" = 20'

THIS PLAN IS ACCURATE FOR ELECTRICAL WORK ONLY

**E-2**



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	Sut	20	9.176	28	52

4-15-11  
 REGISTERED ELECTRICAL ENGINEER  
**4-25-11**  
 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.



### CONDUCTOR AND CONDUIT SCHEDULE

AWG OR CABLE	Std	PHASE	NUMBER OF CONDUCTORS IN CONDUIT RUN NUMBERS															
			1	2	3	4	5	6	7	8	9	10	11	12	13			
VEH-PED 12CSC	POLE (A)	5,6,6P	1		1		1	1	1					1	1			
	POLE (B)	6,8		1	1		1	1	1					1	1			
	POLE (C)	8,8P			1		1	1	1					1	1			
	POLE (D)	4,8,4P					2	2	2					2	2			
	POLE (E)	4,6					1	1	1	1				1	1			
	POLE (F)	1,6,6P							1	1				1	1			
	POLE (G)	1,2,2P								1				1	1			
	POLE (H)	2,4									1			1	1			
	POLE (I)	4,4P												1	1			
	POLE (J)	4,8,8P											2	2	2			
	POLE (K)	2,8										1	1	1	1			
	PPB 3CSC	POLE (L)	2,5,2P	1									1	1	1			
TOTAL CABLES 12/3 CONDUCTORS			1	1	2	1	4	2	5	2	6	2	1	1	3	10	10	4
#8	LUMINAIRES				2		2	4	4				2	2	4			
#10	FBS				2		2	2	2						4			
DLC	Ø1				3		3	3	3						3	3		
	Ø2								5						5	5		
	Ø4						3	3	3						3	3		
	Ø5								2						2	2		
	Ø6				6		6	6	6	6					6	6		
	Ø8													4	4	4		
	TOTAL DLC				9		9	12	12	19				4	23	23		
EVC					1		1	2	2				1	1	4	4		
CONDUIT SIZE			2"	1 1/2"	3"	1 1/2"	2-3"	2-3"	2-3"	1 1/2"	1 1/2"	2"	3"	2-4"	2-4"			

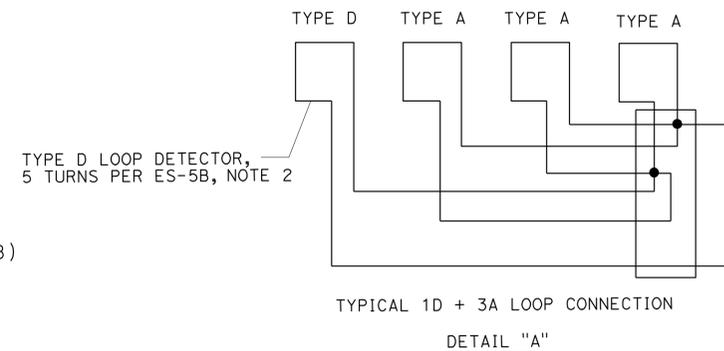
### POLE AND EQUIPMENT SCHEDULE

No.	STANDARD		VEH SIG MTG			PED SIGNAL		PPB		HPS LUM (WATTS)	SPECIAL REQUIREMENTS
	TYPE	SMA (FEET)	LMA (FEET)	Ø	MAST ARM	POLE	Ø	MTG	Ø		
(A)	1-B			5/6		TV-2-T	6	SP-1-T			
(B)	PEDESTRIAN PUSH BUTTON POST								6/8	← →	
(C)	26-3-100	40	12	8/8	MAT	SV-1-T	8	SP-1-T			200
(D)	1-B			4/8		TV-2-T	4	SP-1-T			
(E)	PEDESTRIAN PUSH BUTTON POST								4/6	← →	
(F)	26-4-100	40	12	1/6/6	MAT MAS	SV-1-T	6	SP-1-T			200
(G)	1-B			1/2		TV-2-T	2	SP-1-T			
(H)	PEDESTRIAN PUSH BUTTON POST								2/4	← →	
(I)	24-3-100	35	12	4/4	MAT	SV-1-T	4	SP-1-T			200
(J)	1-B			4/8		TV-2-T	8	SP-1-T			
(K)	PEDESTRIAN PUSH BUTTON POST								2/8	← →	
(L)	26-4-100	40	12	5/2/2	MAT MAS	SV-1-T	2	SP-1-T			200

### TYPE III-AF SERVICE (120/240 V) EQUIPMENT LEGEND

CTID No. 03180200009180

- ① Neutral lug    ② Landing lug    ③ Test bypass facility    ④ Meter socket and support
- ⑤ Terminal blocks    ⑥ Neutral bus    ⑦ Ground bus    ⑪ 15 A, 1P, Test switch    ⑬ 15 A, 120 V, 1P, CB (WB and EB)
- ⑮ 100 A, 240 V, 3P, CB (Main breaker)    ⑯ 30 A, 240 V, 2P, CB (Lighting)
- ⑰ 50 A, 120 V, 1P, CB (Signal)    ⑲ Protoelectric unit    ⑳ 15 A, 120 V, 1P, Test switch
- ㉓ 60 A, 2PNO Contactor (Lighting)



### SIGNAL AND LIGHTING (ROUTE 20 AND ACACIA AVENUE)

NO SCALE

THIS PLAN IS ACCURATE FOR ELECTRICAL WORK ONLY

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

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

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	SUT	20	9.176	29	52

4-15-11  
REGISTERED ELECTRICAL ENGINEER

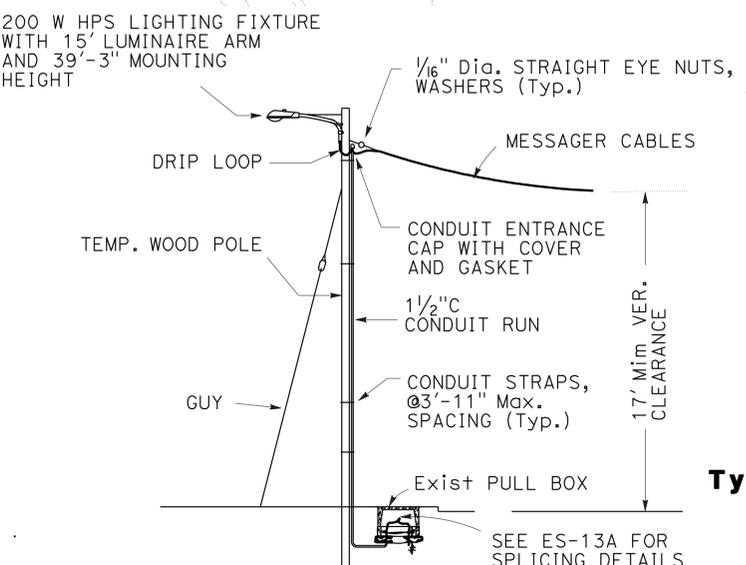
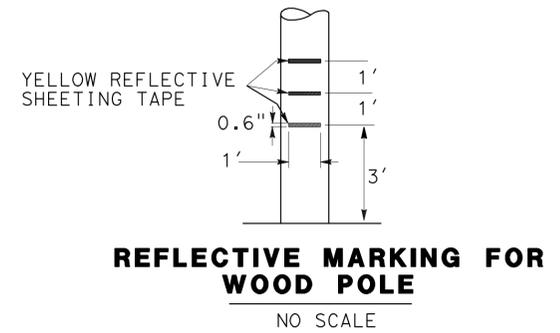
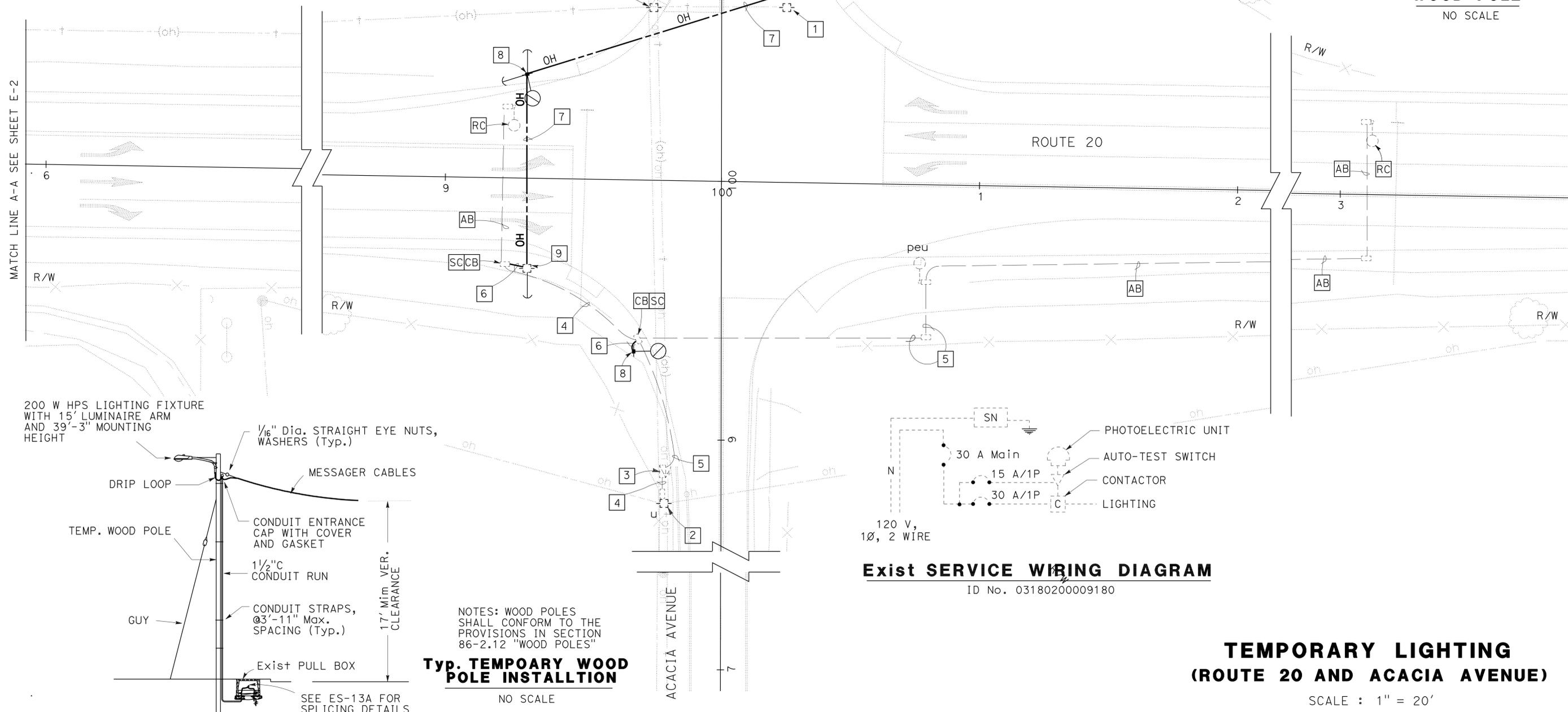
4-25-11  
PLANS APPROVAL DATE

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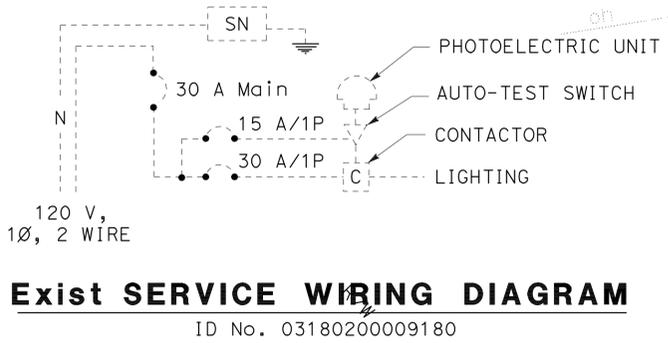
**PROJECT NOTES** (THIS SHEET ONLY):

- 1 Exist UTILITY POLE SHALL BE RELOCATED BY OTHERS.
- 2 Exist SP, ELECTRIC UTILITY COMPANY, 120/240 V.
- 3 Exist TYPE III SERVICIE EQUIPMENT ENCLOSURE. CTID No. 03180200009180. LOAD AFTER MODIFICATION: 4-200 W HPS LUMINAIRES
- 4 Exist 1/2"C, 2#10.
- 5 Exist 1/2"C, 2#10, 3#14.
- 6 1/2"C, 2#10 (120 V, LIGHTING).
- 7 MESSEGER CABLE 7-3/8" Min. Dia. GAL STEEL, 2#10 (120 V, LIGHTING).
- 8 TEMPORARY WOOD POLE WITH 200 W HPS LIGHTING FIXTURE. SEE Typ. WOOD POLE INSTALLATION AND REFLECTIVE MARKING DETAILS FOR WOOD POLE ON THIS SHEET.
- 9 TEMPORARY WOOD POLE. SEE Typ. WOOD POLE INSTALLATION AND REFLECTIVE MARKING DETAILS FOR WOOD POLE ON THIS SHEET.

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
TRAFFIC ELECTRICAL DESIGN MARYSVILLE  
Caltrans



NOTES: WOOD POLES SHALL CONFORM TO THE PROVISIONS IN SECTION 86-2.12 "WOOD POLES"  
**Typ. TEMPOARY WOOD POLE INSTALLTION**  
NO SCALE



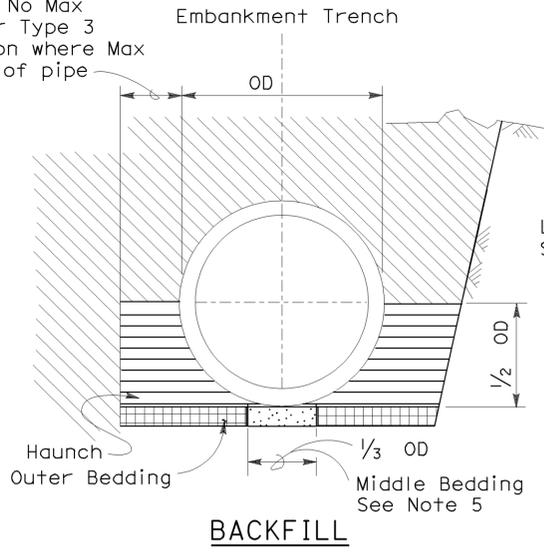
**TEMPORARY LIGHTING (ROUTE 20 AND ACACIA AVENUE)**

SCALE : 1" = 20'

THIS PLAN IS ACCURATE FOR ELECTRICAL WORK ONLY

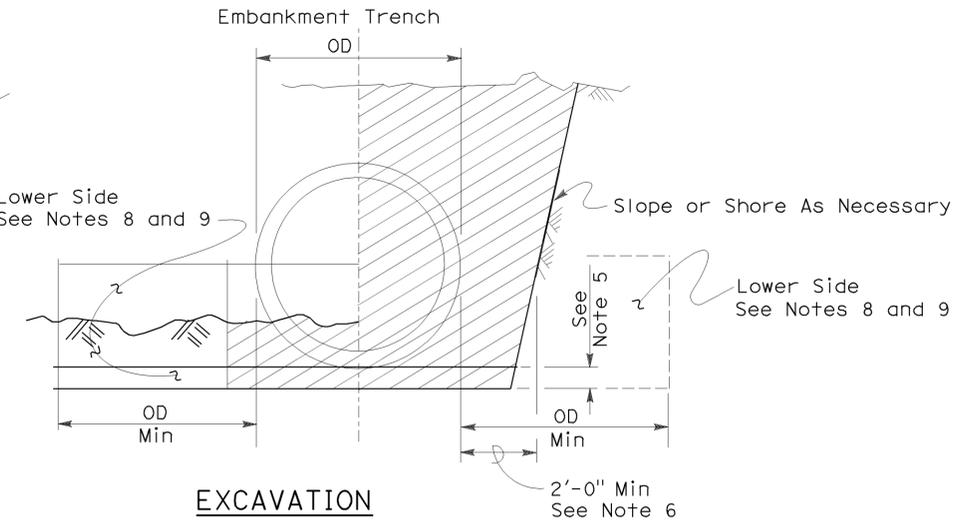
To accompany plans dated 4-25-11

2'-0" Min; No Max except for Type 3 Installation where Max Equals OD of pipe



**BACKFILL**

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



**EXCAVATION**

- Excavation Structure (Culvert)

**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.

**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'

**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.

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
03	Sut	20	8.9/9.5	31	52

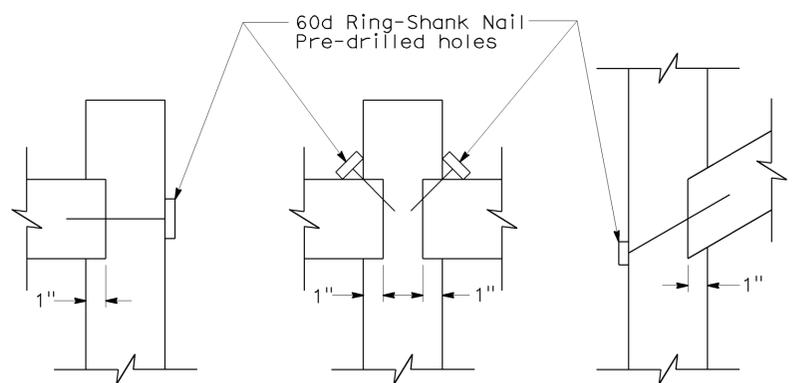
Glenn DeCou  
 REGISTERED CIVIL ENGINEER  
 No. C34547  
 Exp. 9-30-09  
 STATE OF CALIFORNIA

June 5, 2009  
 PLANS APPROVAL DATE

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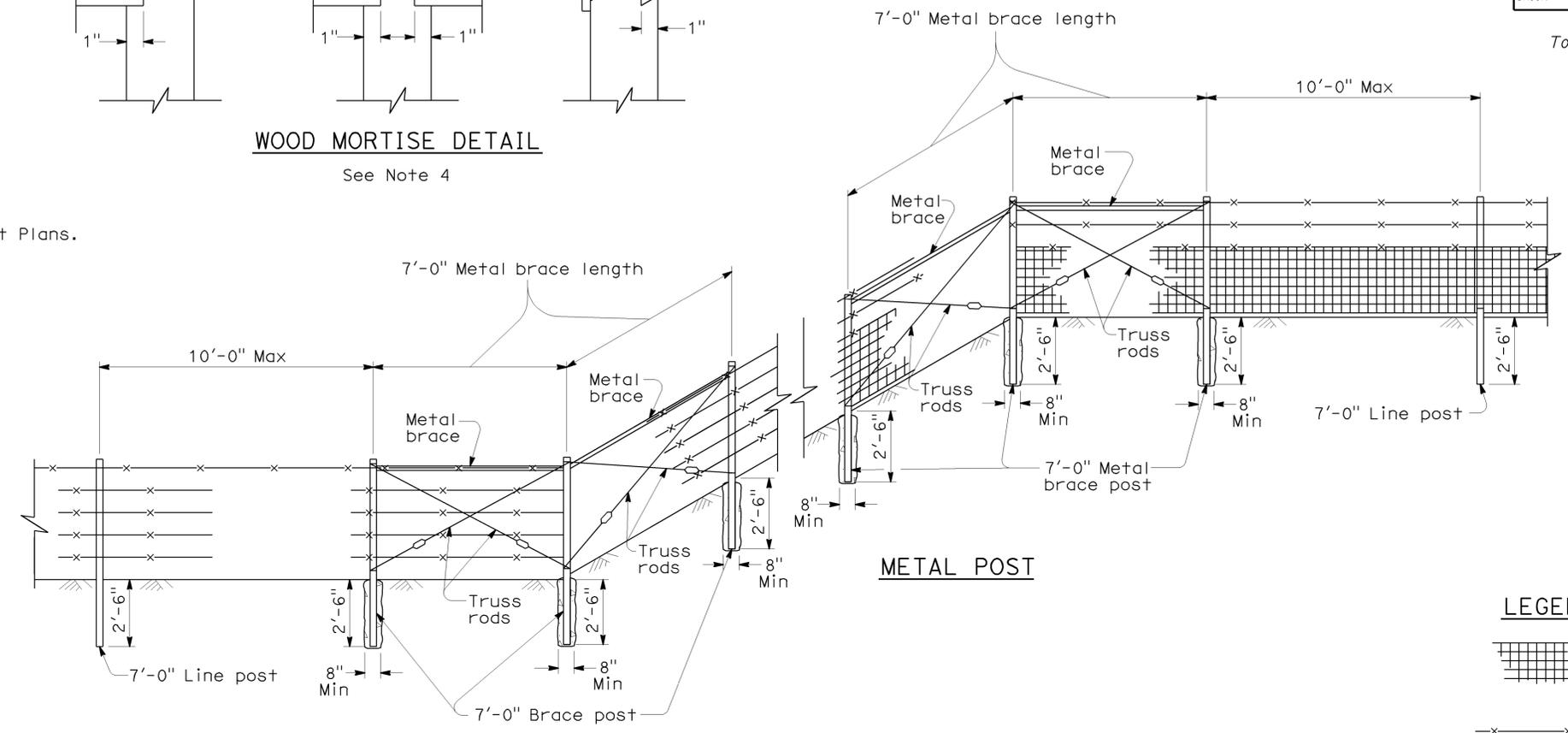
**NOTES:**

1. 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.
2. Line post spacing for wood post equals 12'-0" maximum. Line post spacing for metal post equals 10'-0" maximum.
3. See Standard Plan A86 for Barbed Wire and Wire Mesh dimensions and for steel post and wood post dimensions and weight.
4. Use wood posts when specified in the Special Provisions or shown on the Project Plans.

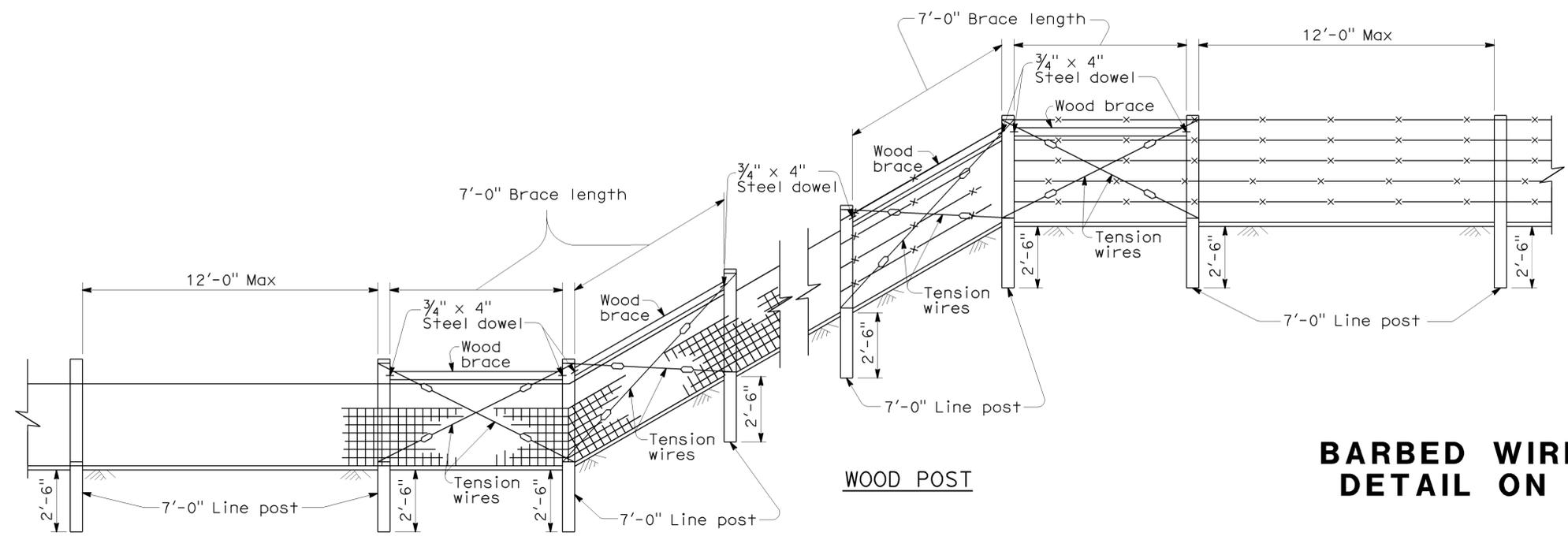


**WOOD MORTISE DETAIL**

See Note 4



**METAL POST**



**WOOD POST**

**FENCE ON SHARP BREAK IN GRADE**

To accompany plans dated 4-25-11

**LEGEND**

- Wire Mesh fencing
- Barbed Wire fencing

**BARBED WIRE AND WIRE MESH FENCE  
DETAIL ON SHARP BREAK IN GRADE**

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

NO SCALE

NSP A86A DATED JUNE 5, 2009 SUPPLEMENTS THE  
STANDARD PLANS BOOK DATED MAY 2006.

**NEW STANDARD PLAN NSP A86A**

2006 NEW STANDARD PLAN NSP A86A

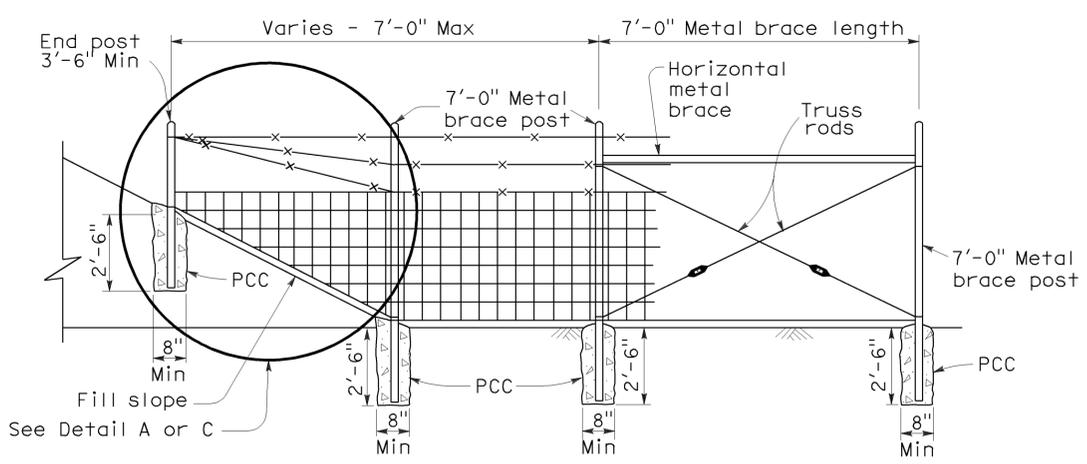
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
03	Sut	20	8.9/9.5	32	52

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

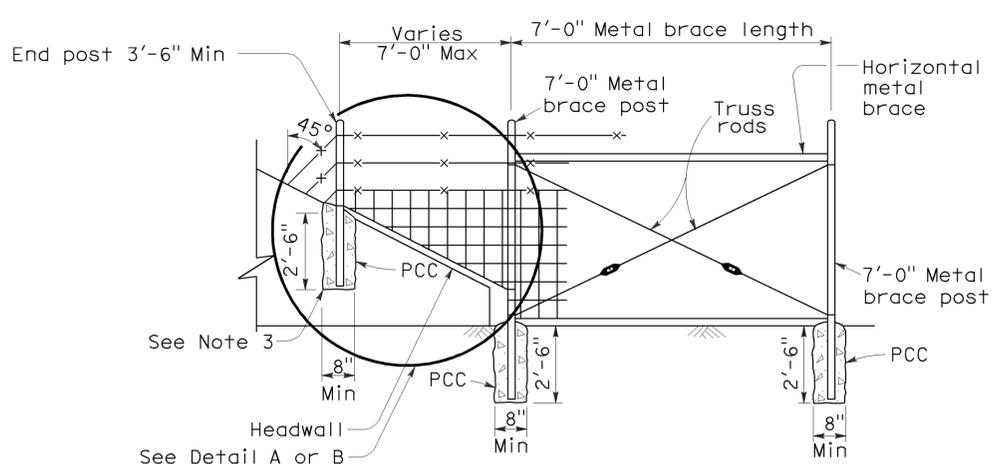
June 5, 2009  
 PLANS APPROVAL DATE

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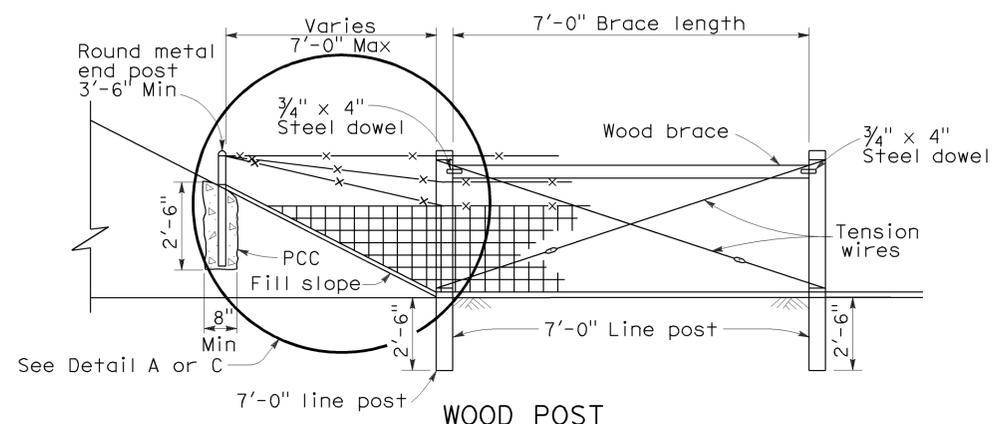
To accompany plans dated 4-25-11



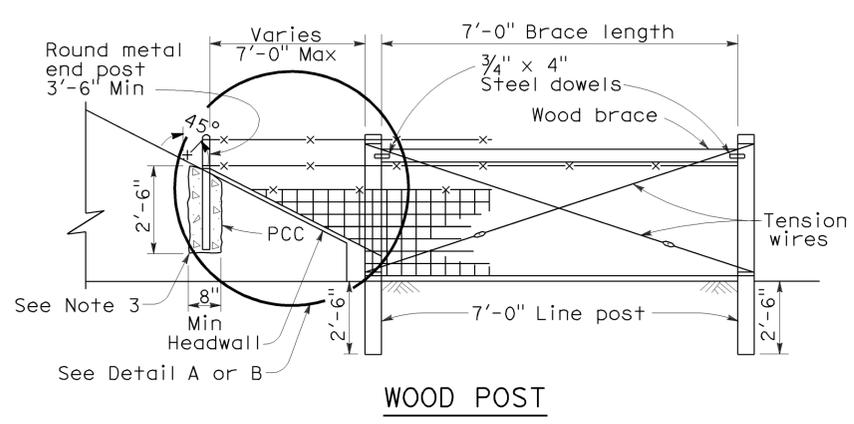
METAL POST



METAL POST



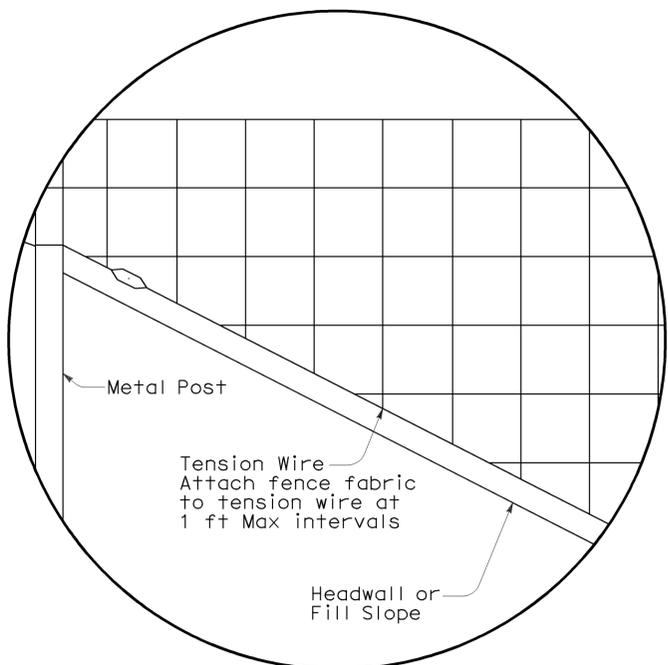
WOOD POST



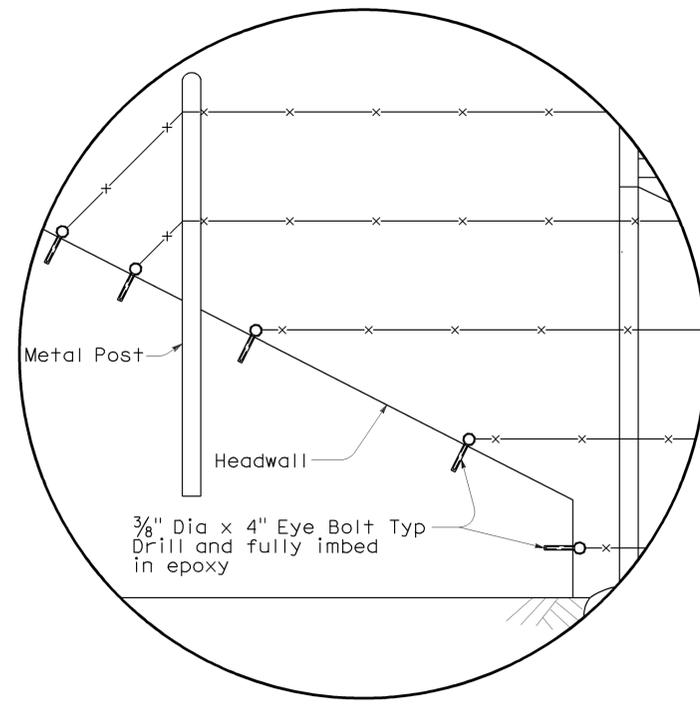
WOOD POST

METHOD OF ERECTING FENCE FOR FILL SLOPE

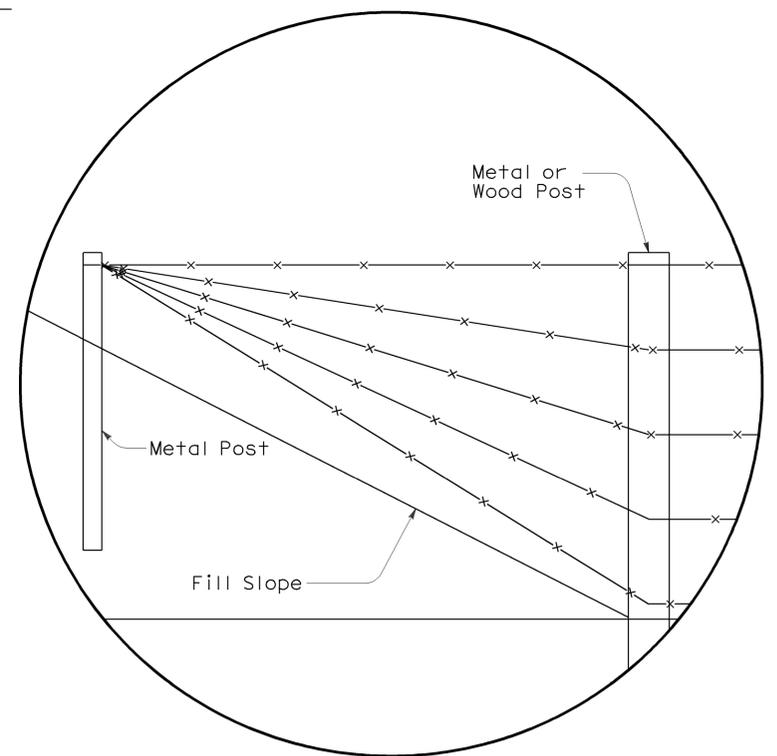
METHOD OF TYING FENCE TO HEADWALL



DETAIL A



DETAIL B



DETAIL C

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

NSP A86B DATED JUNE 5, 2009 SUPPLEMENTS THE STANDARD PLANS BOOK DATED MAY 2006.

**NEW STANDARD PLAN NSP A86B**

2006 NEW STANDARD PLAN NSP A86B

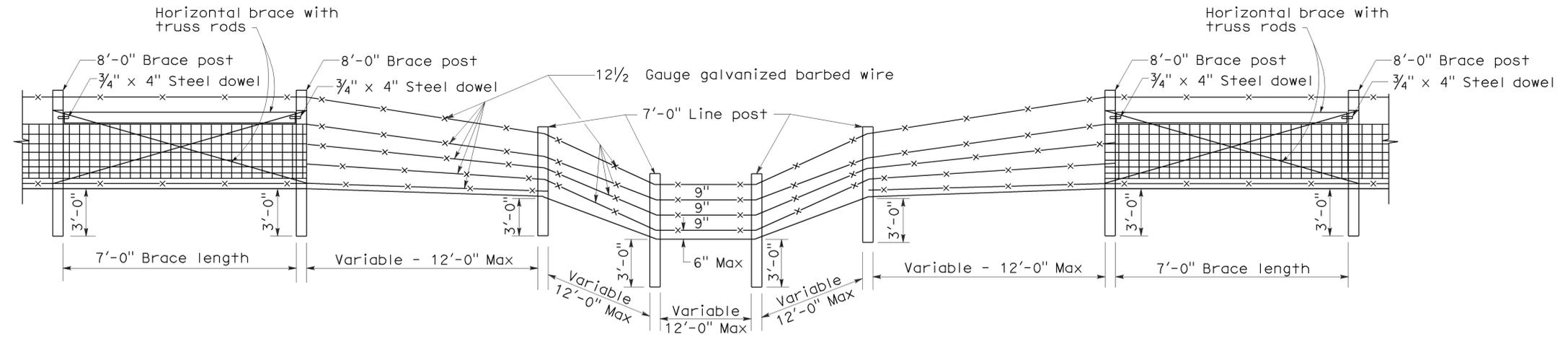
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
03	Sut	20	8.9/9.5	33	52

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

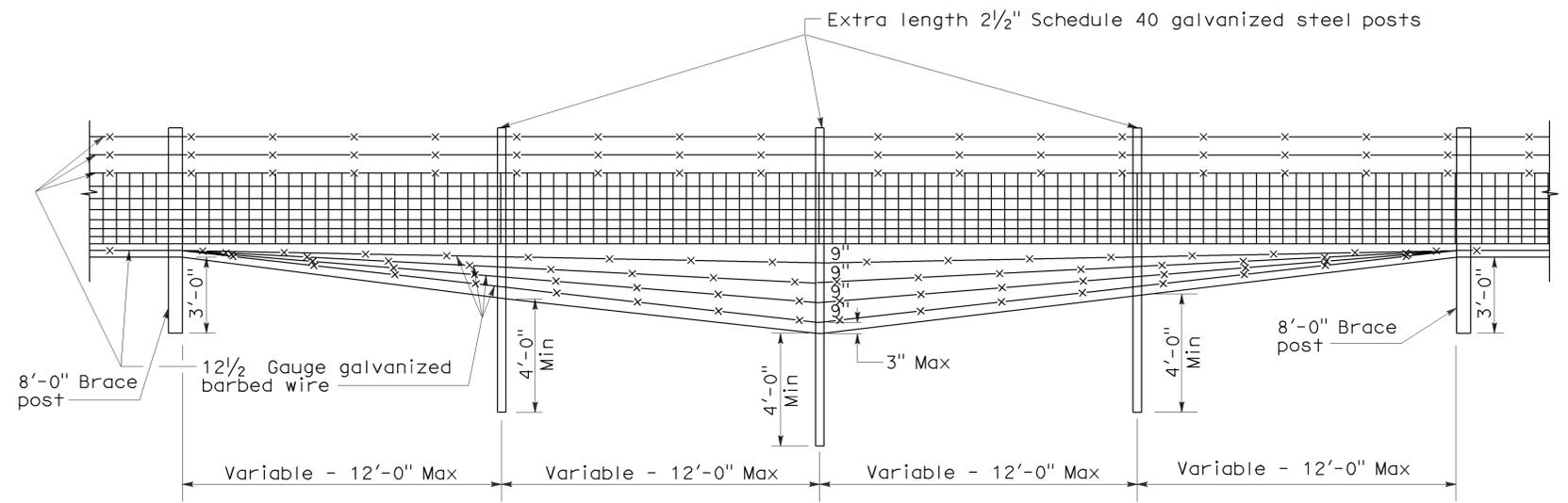
June 5, 2009  
 PLANS APPROVAL DATE

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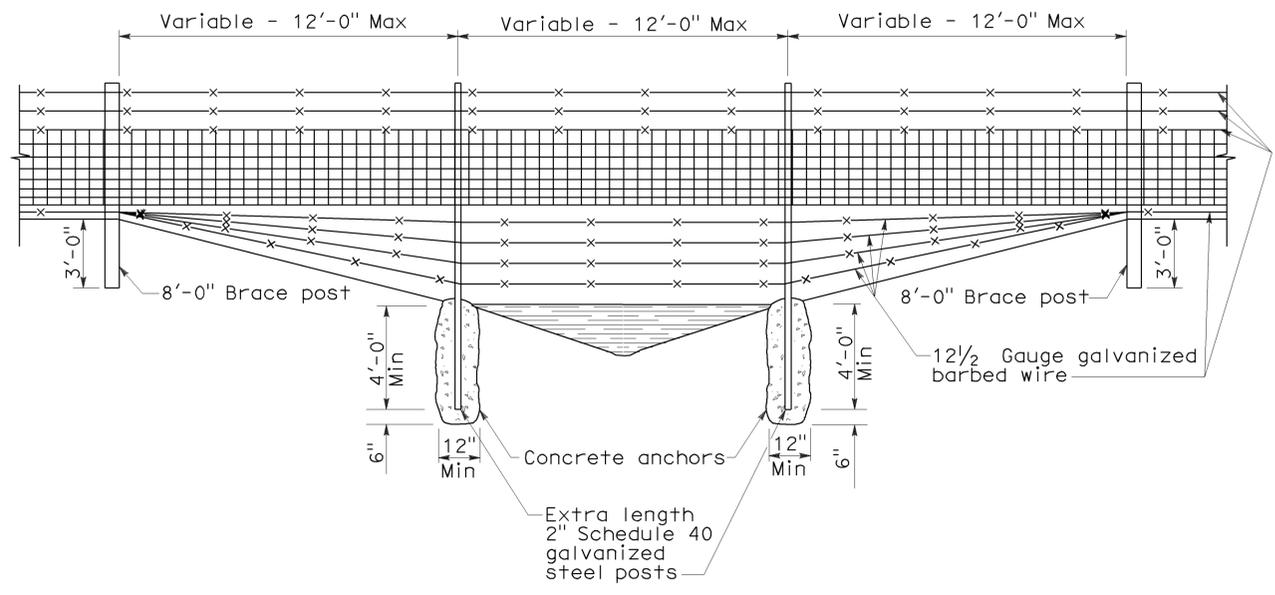
To accompany plans dated 4-25-11



**TYPE I**



**TYPE II**



**TYPE III**

**DITCH CROSSINGS**

**NOTES:**

1. Type I Ditch Crossing shows wood posts. Steel posts may be used in place of wood.
2. Ditch crossing show Wire Mesh fencing. Barbed Wire fencing may be used in place of Wire Mesh.
3. See Standard Plan A86 for Wire Mesh and Barbed Wire fence dimensions.
4. See Standard Plan A86 for steel post installation.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**BARBED WIRE AND WIRE MESH FENCE DETAILS AT DITCH CROSSING**

NO SCALE

NSP A86C DATED JUNE 5, 2009 SUPPLEMENTS THE STANDARD PLANS BOOK DATED MAY 2006.

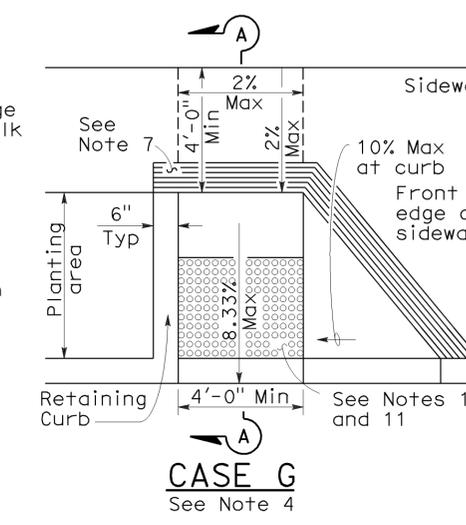
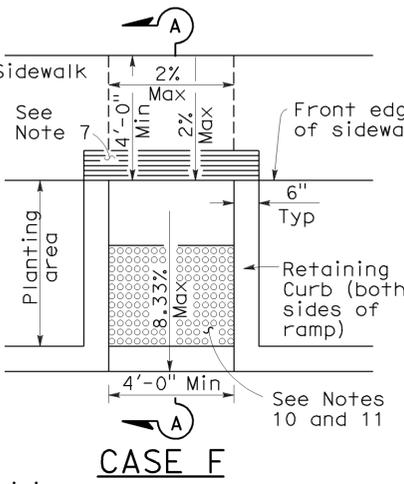
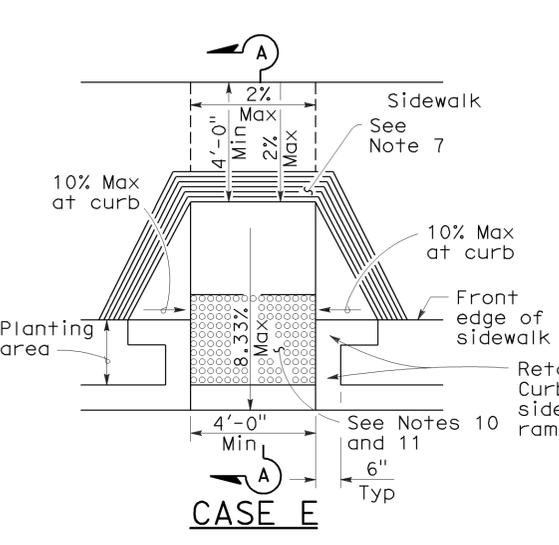
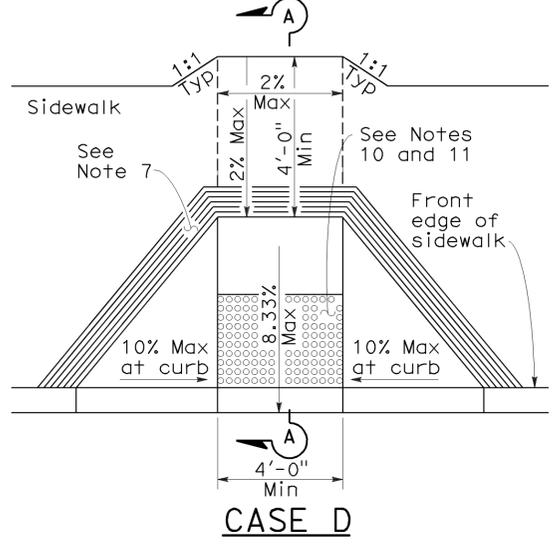
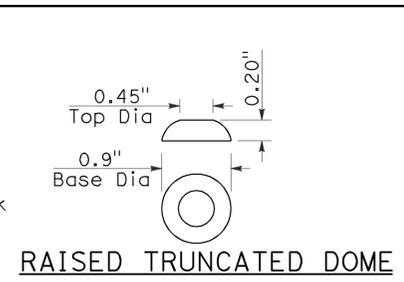
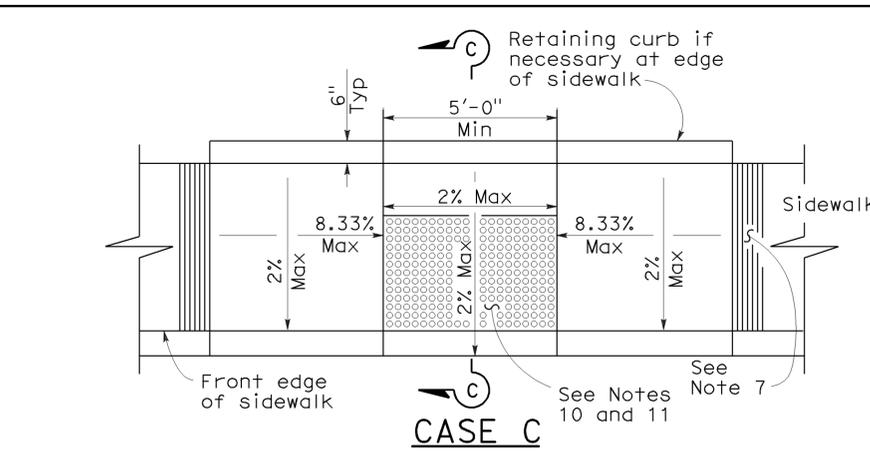
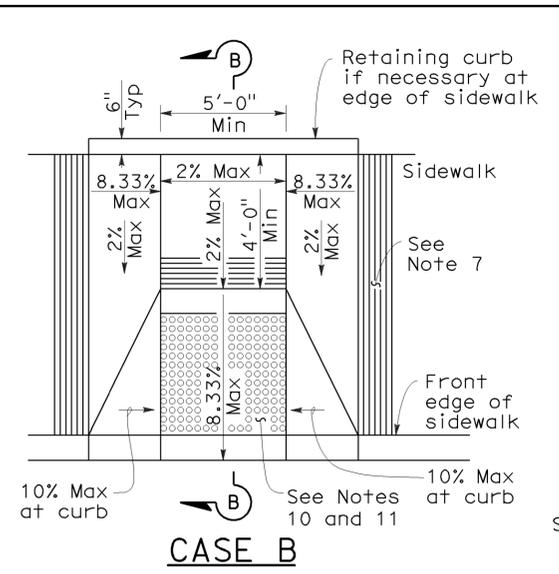
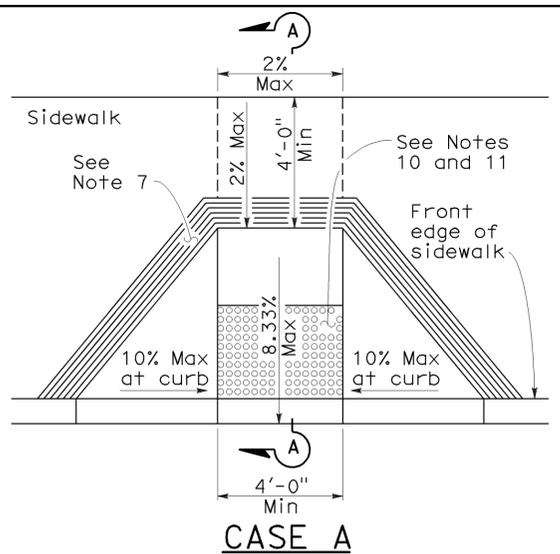
**NEW STANDARD PLAN NSP A86C**

2006 NEW STANDARD PLAN NSP A86C

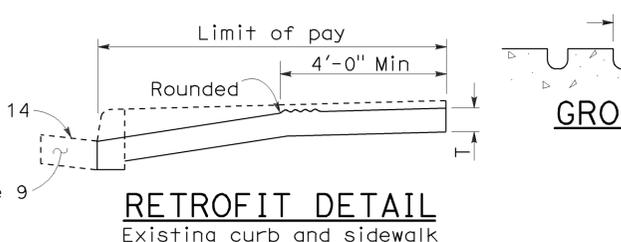
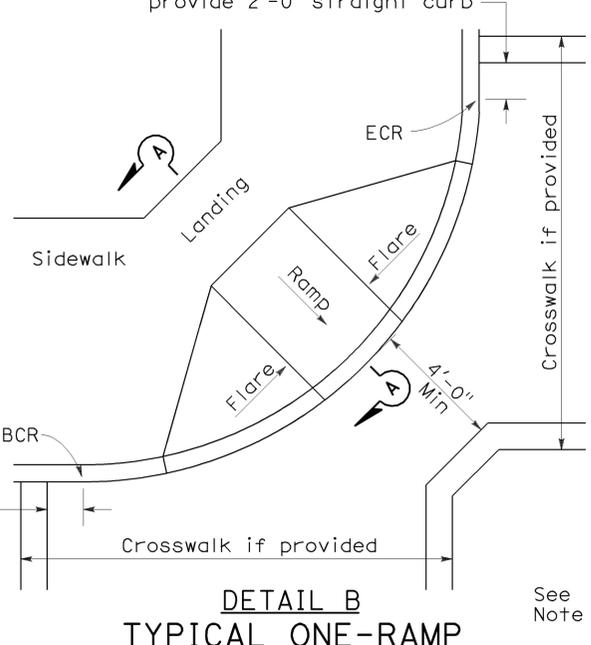
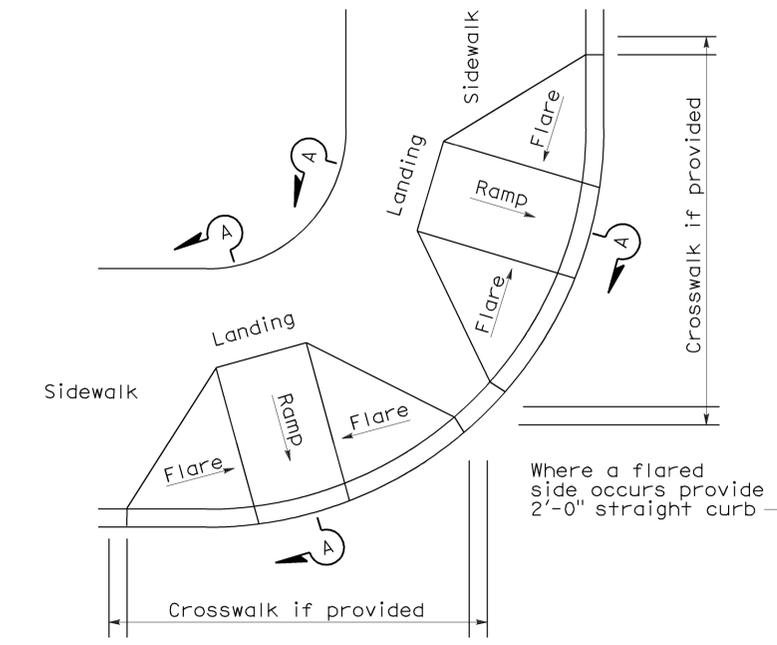
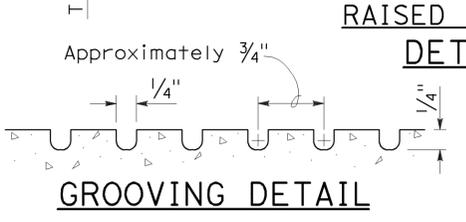
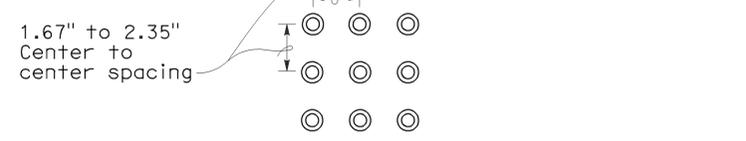
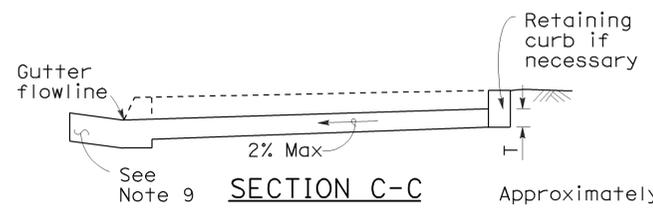
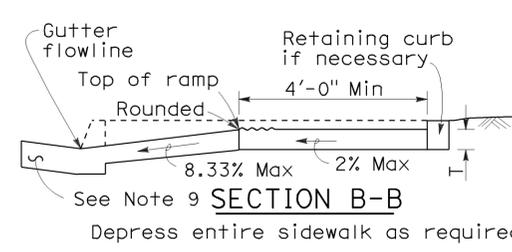
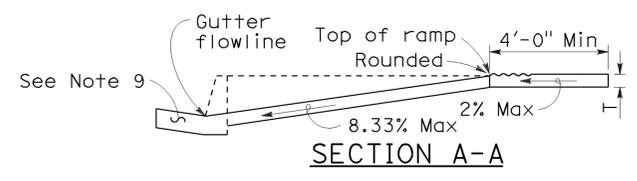
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
03	Sut	20	8.9/9.5	34	52

H. David Cordova  
 REGISTERED CIVIL ENGINEER  
 September 1, 2006  
 PLANS APPROVAL DATE  
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REGISTERED PROFESSIONAL ENGINEER  
 Hector David Cordova  
 No. C41957  
 Exp. 3-31-08  
 CIVIL  
 STATE OF CALIFORNIA



- NOTES:**
- To accompany plans dated 4-25-11
- 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.



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

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

**RETROFIT DETAIL**  
Existing curb and sidewalk

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

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

**REVISED STANDARD PLAN RSP A88A**

2006 REVISED STANDARD PLAN RSP A88A

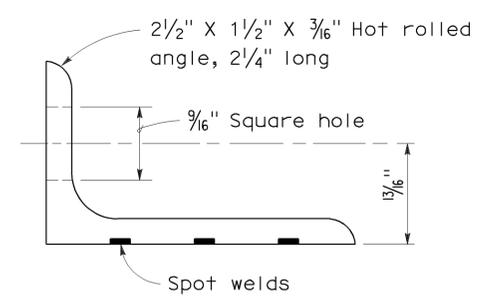
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
03	Sut	20	8.9/9.5	35	52

Raymond Don Tsztoo  
 REGISTERED CIVIL ENGINEER  
 June 6, 2008  
 PLANS APPROVAL DATE

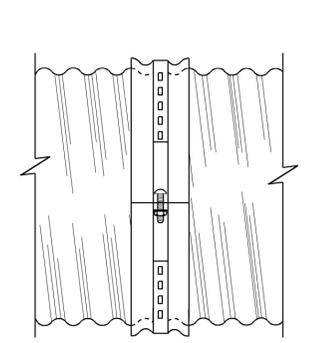
REGISTERED PROFESSIONAL ENGINEER  
 Raymond Don Tsztoo  
 No. C37332  
 Exp. 6-30-08  
 CIVIL  
 STATE OF CALIFORNIA

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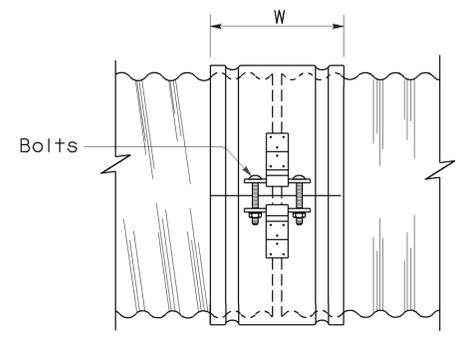
To accompany plans dated 4-25-11



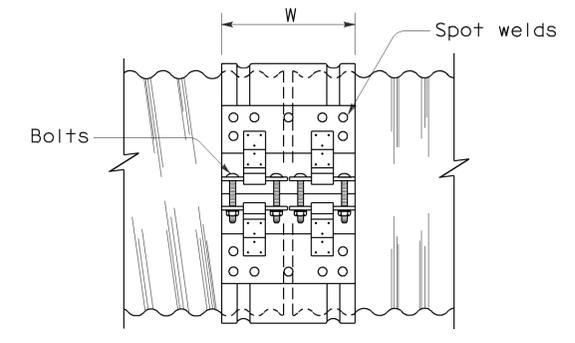
ANGLE



SIDE VIEW  
ANGLE



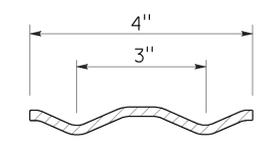
SIDE VIEW  
SINGLE BAR AND STRAP



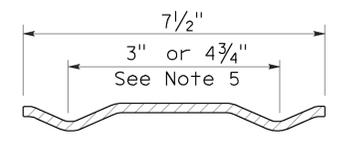
SIDE VIEW  
DOUBLE BAR AND STRAP

NOTES:

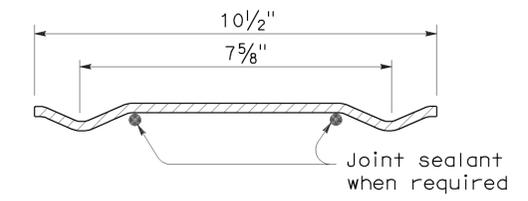
1. All ferrous metal coupling band connection hardware shall be galvanized or electroplated in accordance with the Standard Specifications.
2. Dimensions and thicknesses shown are minimum.
3. Spot welds shall develop minimum required strength of strap.
4. Fillet welds of equivalent strength may be substituted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



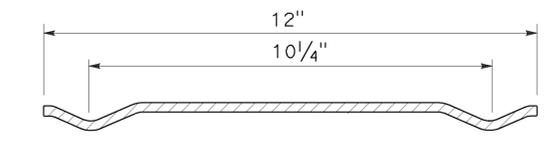
SECTION  
H-4 HUGGER BAND



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"		0.064"									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	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"		
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"	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"	THROUGH 72"	10 1/2"	0.052"-0.168"		0.052"		0.079"	1/2"	7/8"	32 ksi									
		78"-84"	10 1/2"	0.168"		0.079"		0.109"	1/2"	7/8"	45 ksi									
		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									
	5" x 1"	REROLLED END	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"	
			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								
REROLLED END	48"-84"	12" NOTE	0.138"		0.064"		0.079"	1/2"	7/8"	32 ksi										
	90"-120"	12" 11	0.138"		0.064"		0.079"	1/2"	7/8"	32 ksi										
	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.

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
03	Sut	20	8.9/9.5	36	52

Raymond Don Tsztou  
REGISTERED CIVIL ENGINEER

June 6, 2008  
PLANS APPROVAL DATE

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

- NOTES: To accompany plans dated 4-25-11
- 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 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**

2006 REVISED STANDARD PLAN RSP D97E

ANNULAR AND HELICAL PROFILE

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
03	Sut	20	8.9/9.5	37	52

Raymond Don Tsztou  
REGISTERED CIVIL ENGINEER

June 6, 2008  
PLANS APPROVAL DATE

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

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"				
	2 2/3" x 1/2"	12"-24"	12"		0.060"-0.105"		0.060"								3-1/2"				
UNIVERSAL	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"		
ANNULAR	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"-60"	12"	0.064"-0.079"		0.064"							2" x 2" x 3/16"		3-1/2"		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"-72"	24"		0.164"		0.105"						2" x 2" x 1/4"	2" x 2" x 1/4"	5-1/2"	5-1/2"		5-1/2"	
		66"-84"	24"	0.109"-0.168"		0.064"							2" x 2" x 1/4"		5-1/2"		7-3/8"		
		42"-54"	12"		0.060"-0.105"		0.060"						2" x 2" x 3/16"		3-1/2"		3-3/8"		
	3" x 1"	48"-60"	14"	0.064"-0.079"		0.064"							2" x 2" x 3/16"		3-1/2"		3-3/8"		5-1/2"
		48"-60"	14"	0.109"		0.064"							2" x 2" x 3/16"		3-1/2"		5-3/8"		
		66"-120"	25"	0.064"-0.109"		0.064"							2" x 2" x 3/16"		5-1/2"		9-3/8"		
		42"-60"	14"		0.060"-0.105"		0.060"						2" x 2" x 3/16"		3-1/2"		5-3/8"		
		42"-60"	14"		0.135"		0.075"						2" x 2" x 1/4"		3-1/2"		5-3/8"		
		66"-96"	25"		0.060"-0.135"		0.060"						2" x 2" x 1/4"		5-1/2"		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"		3-1/2"		3-3/8"		
42"-60"			12"	0.064"-0.079"		0.064"							2" x 2" x 3/16"		3-1/2"		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"							2" x 2" x 1/4"		5-1/2"		7-3/8"		
66"-72"		24"		0.164"		0.105"						2" x 2" x 1/4"		5-1/2"		7-3/8"		5-3/8"	
3" x 1"		48"-60"	14"	0.064"-0.079"		0.064"							2" x 2" x 3/16"		3-1/2"		3-3/8"		5-1/2"
		48"-60"	14"	0.109"		0.064"							2" x 2" x 3/16"		3-1/2"		5-3/8"		
		66"-120"	25"	0.064"-0.109"		0.064"							2" x 2" x 3/16"		5-1/2"		9-3/8"		
		42"-60"	14"		0.060"-0.105"		0.060"						2" x 2" x 3/16"		3-1/2"		5-3/8"		
	42"-60"	14"		0.135"		0.075"						2" x 2" x 1/4"		3-1/2"		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								
	THROUGH 72"	10 1/2"	0.168"		0.109"		DOUBLE 0.109"	1/2"	7/8"	45 ksi									
	3" x 1" REROLLED END	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								
90"-120"		10 1/2"	0.109"		0.109"		DOUBLE 0.109"	1/2"	7/8"	45 ksi									

To accompany plans dated 4-25-11

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.

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.

**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

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
03	Sut	20	8.9/9.5	38	52

*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

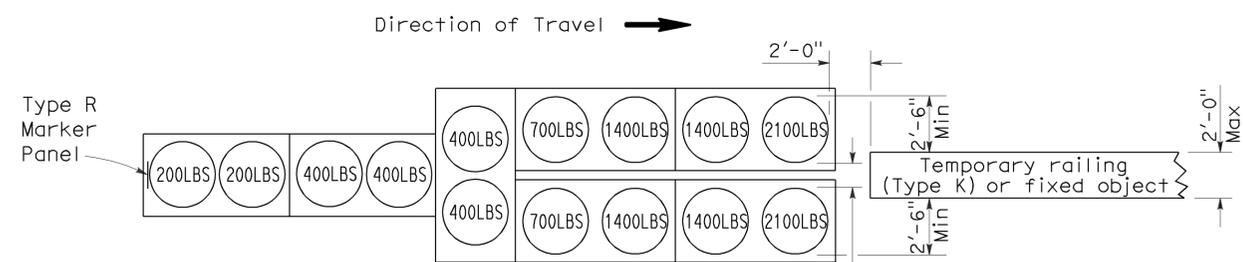
June 6, 2008  
PLANS APPROVAL DATE

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

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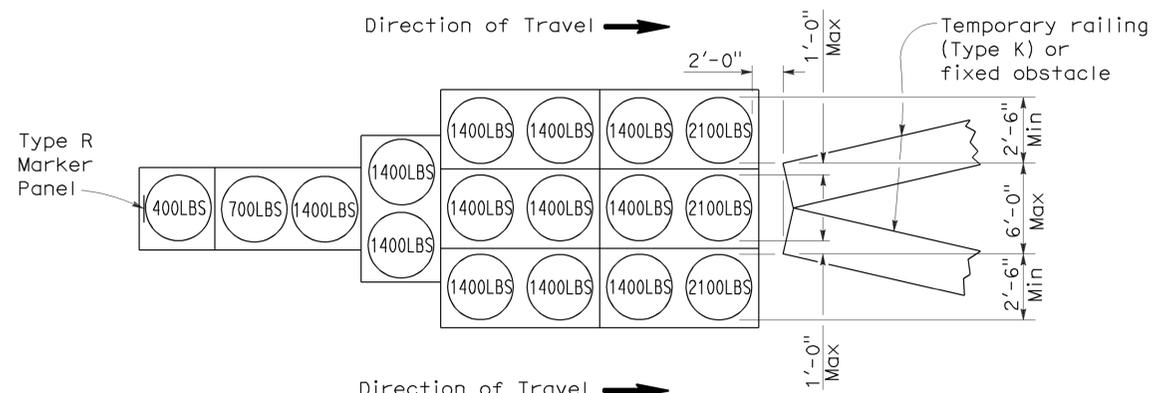
To accompany plans dated 4-25-11

2006 REVISED STANDARD PLAN RSP T1A



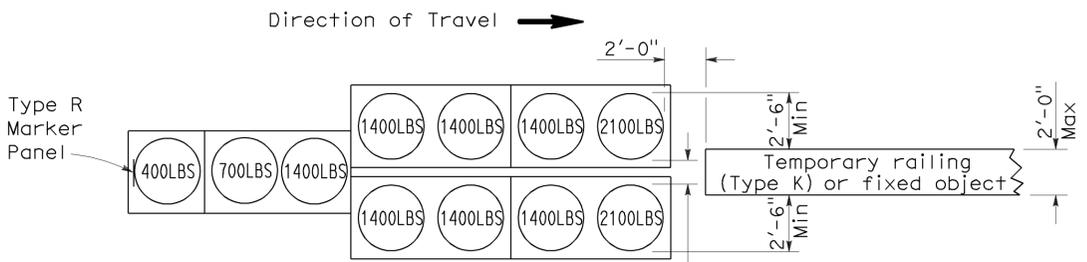
**ARRAY 'TU14'**

Approach speed 45 mph or more



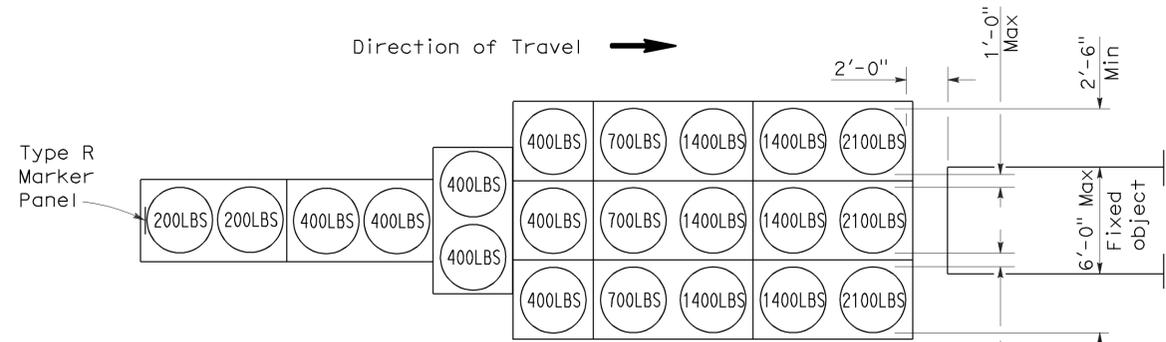
**ARRAY 'TU17'**

Approach speed less than 45 mph



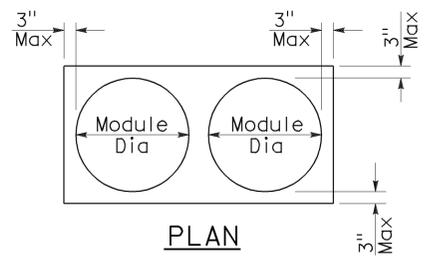
**ARRAY 'TU11'**

Approach speed less than 45 mph

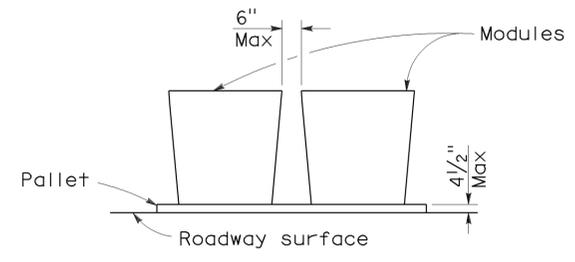


**ARRAY 'TU21'**

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**

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
03	Sut	20	8.9/9.5	39	52

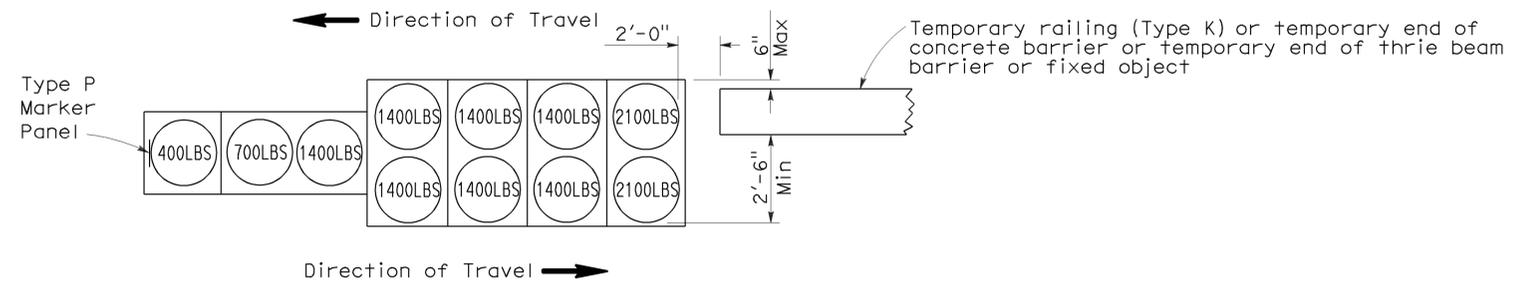
Randell D. Hiatt  
REGISTERED CIVIL ENGINEER

June 6, 2008  
PLANS APPROVAL DATE

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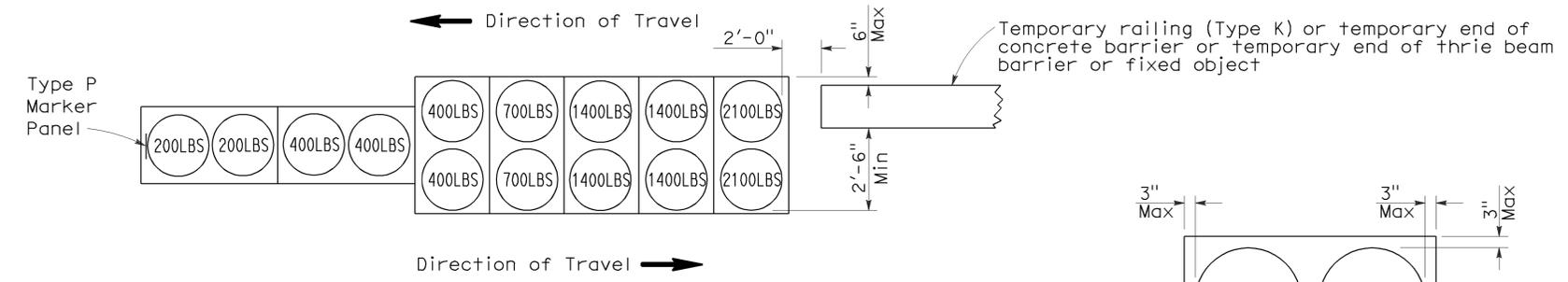
Randell D. Hiatt  
No. C50200  
Exp. 6-30-09  
CIVIL  
STATE OF CALIFORNIA

To accompany plans dated 4-25-11



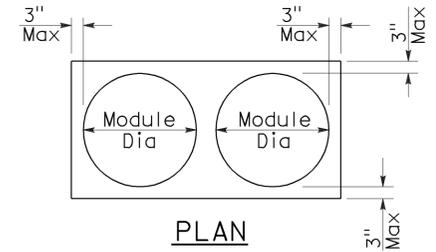
**ARRAY 'TB11'**

Approach speed less than 45 mph

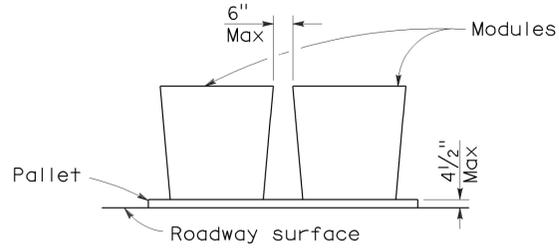


**ARRAY 'TB14'**

Approach speed 45 mph or more



PLAN



ELEVATION

**CRASH CUSHION PALLET DETAIL**

See Note 7

**NOTES:**

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

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

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

NO SCALE

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

**REVISED STANDARD PLAN RSP T1B**

2006 REVISED STANDARD PLAN RSP T1B

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
03	Sut	20	8.9/9.5	40	52

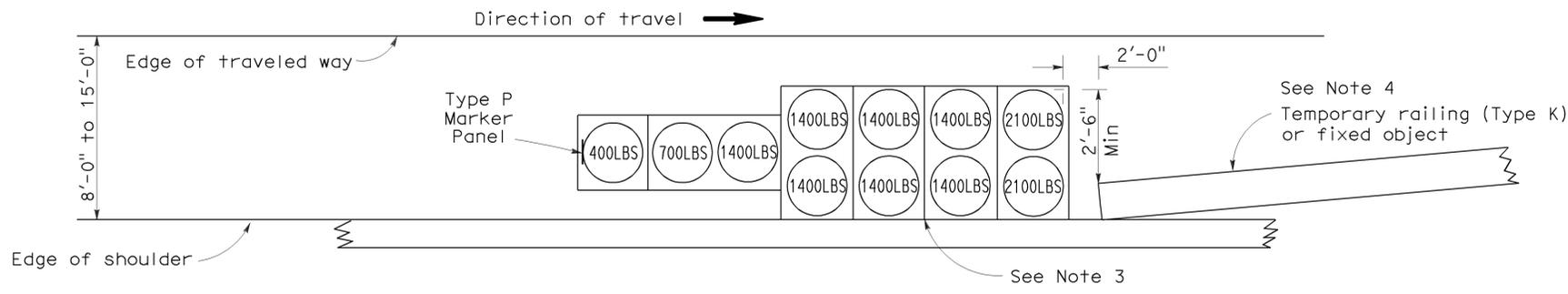
*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

June 6, 2008  
PLANS APPROVAL DATE

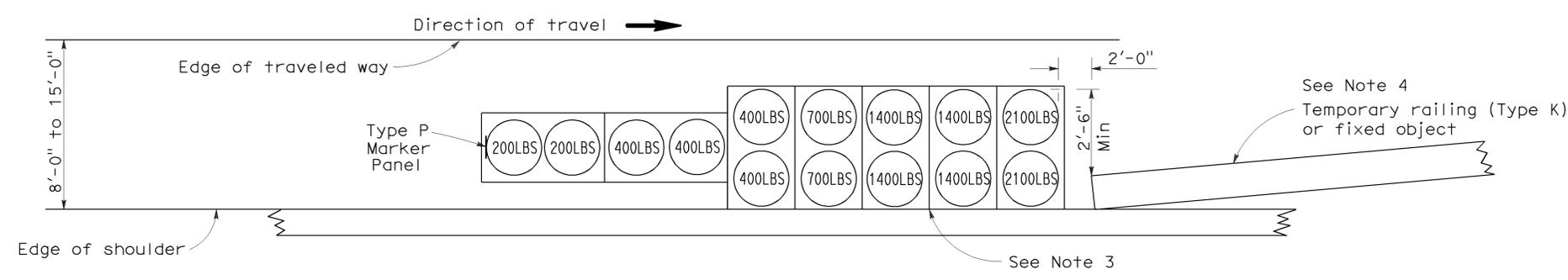
*Randell D. Hiatt*  
REGISTERED PROFESSIONAL ENGINEER  
No. C50200  
Exp. 6-30-09  
CIVIL  
STATE OF CALIFORNIA

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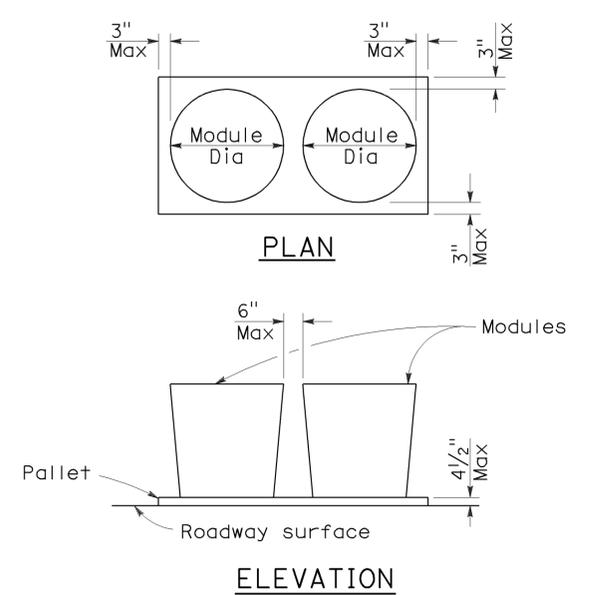
To accompany plans dated 4-25-11



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



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



**CRASH CUSHION PALLET DETAIL**  
See Note 11

**NOTES:**

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

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**TEMPORARY CRASH CUSHION,  
SAND FILLED  
(SHOULDER INSTALLATIONS)**

NO SCALE

RSP T2 DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN T2  
DATED MAY 1, 2006 - PAGE 213 OF THE STANDARD PLANS BOOK DATED MAY 2006.

**REVISED STANDARD PLAN RSP T2**

2006 REVISED STANDARD PLAN RSP T2

# ELECTROLIERS

STANDARD TYPES	Symbol	Description
15, 15D		High mast light pole
15 STRUCTURE		Double Arm lighting standard
21, 21D STRUCTURE		Existing electrolier
30		Electrolier foundation (Future installation)
31		<b>NOTES:</b> 1. Luminaires shall be 310 W HPS when installed on Type 21, 21D, 30, 31, 32, 35 and 36-20A Standards, unless otherwise specified. Luminaires shall be 200 W HPS when installed on other type standards or poles, unless otherwise specified. 2. Luminaires shall be the cutoff type, ANSI Type III medium cutoff lighting distribution, unless otherwise specified. 3. Variations noted adjacent to symbol on project plans.
32		
35		
36-20A		

- Electrolier (see project notes or project plans)
- Luminaire on wood pole

## 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

PROPOSED	EXISTING	Description
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	Mast arm mounting vehicle signal faces, side attachment - 4 signal section
MAS-4C	mas-4C	Mast arm mounting vehicle signal faces, side attachment - 4 signal section
MAS-5A	mas-5A	Mast arm mounting vehicle signal faces, side attachment - 5 signal section
MAS-5B	mas-5B	Mast arm mounting vehicle signal faces, side attachment - 5 signal section
MC	mc	Mercury contactor
M/M	m/m	Multiple to multiple transformer
MT	mt	Conduit with pull wire or rope only
MTG	mtg	Mounting
N	N	Mercury vapor lighting fixture
NC	NC	Neutral (Grounded Conductor)
NO	NO	Normally closed
PB	pb	Normally open
PEC	pec	Pull box
PEC	pec	Photoelectric control (Type I, II, III, IV or V as shown)
PED	ped	Pedestrian
PEU	peu	Photoelectric unit
PPB	ppb	Pedestrian push button
RL	rl	Relocated equipment
RM	rm	Ramp metering
SB	sb	Slip base
SIC	sic	Signal interconnect cable
SIG	sig	Signal
SMA	sma	Signal mast arm
SNS	sns	Street name sign
SP	sp	Service point
TDC	tdc	Telephone demarcation cabinet
TMS	tms	Traffic monitoring station
TOS	tos	Traffic Operations System
VEH	veh	Vehicle
XFMR	xfmr	Transformer
COMM	comm	Communication
RWIS	rwis	Roadway weather information system

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
03	Sut	20	8.9/9.5	41	52

*Jeffrey G. McRae*  
REGISTERED ELECTRICAL ENGINEER

October 5, 2007  
PLANS APPROVAL DATE

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

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To accompany plans dated 4-25-11

## SOFFIT AND WALL MOUNTED LUMINAIRES

- Pendant, 70 W HPS unless otherwise specified.
- Flush, 70 W HPS unless otherwise specified.
- Wall surface, 70 W HPS unless otherwise specified.
- Existing soffit or wall luminaire to remain unmodified.
- Existing soffit or wall luminaire to be modified as specified.

### NOTE:

Arrow indicates "street side" of luminaire.

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
03	Sut	20	8.9/9.5	42	52

*Jeffrey G. McRae*  
 REGISTERED ELECTRICAL ENGINEER  
 October 5, 2007  
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REGISTERED PROFESSIONAL ENGINEER  
 Jeffrey G. McRae  
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 STATE OF CALIFORNIA

### 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

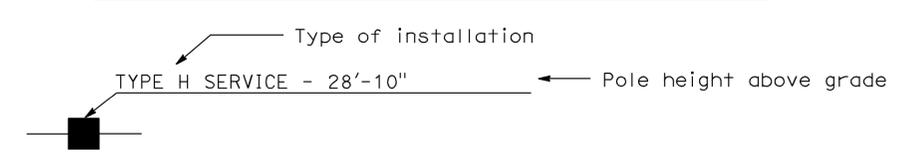
### SIGNAL EQUIPMENT

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:

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

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

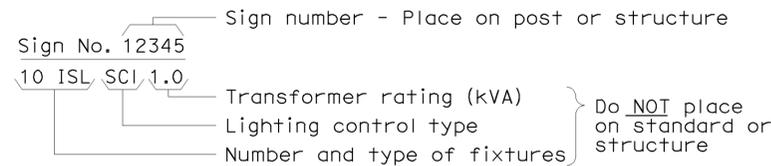
RSP ES-1B DATED OCTOBER 5, 2007 SUPERCEDES STANDARD PLAN ES-1B  
 DATED MAY 1, 2006 - PAGE 401 OF THE STANDARD PLANS BOOK DATED MAY 2006.

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

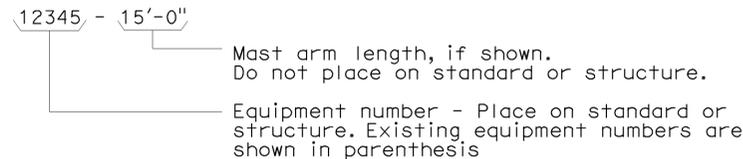
2006 REVISED STANDARD PLAN RSP ES-1B

### EQUIPMENT IDENTIFICATION

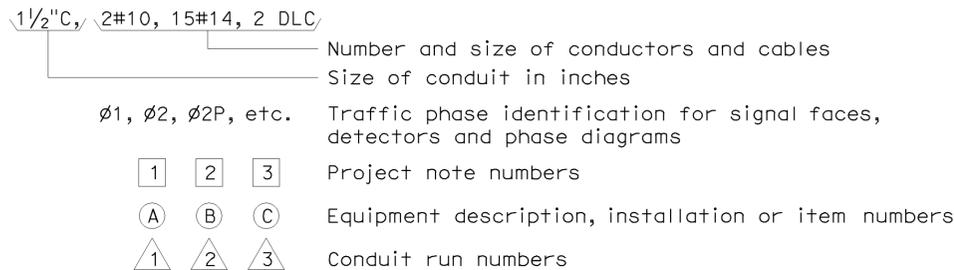
#### ILLUMINATED SIGN IDENTIFICATION NUMBER:



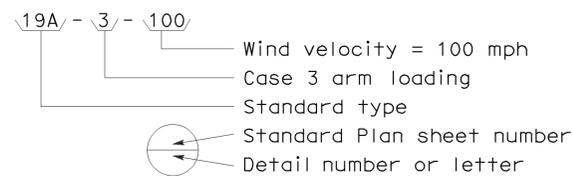
#### ELECTROLIER OR EQUIPMENT IDENTIFICATION NUMBER:



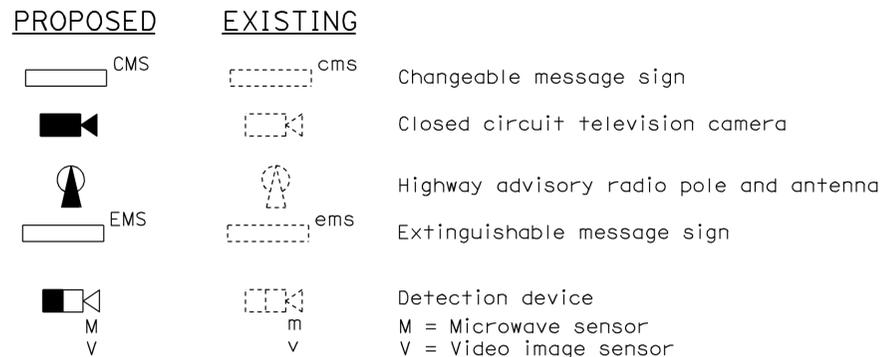
#### CONDUIT AND CONDUCTOR IDENTIFICATION:



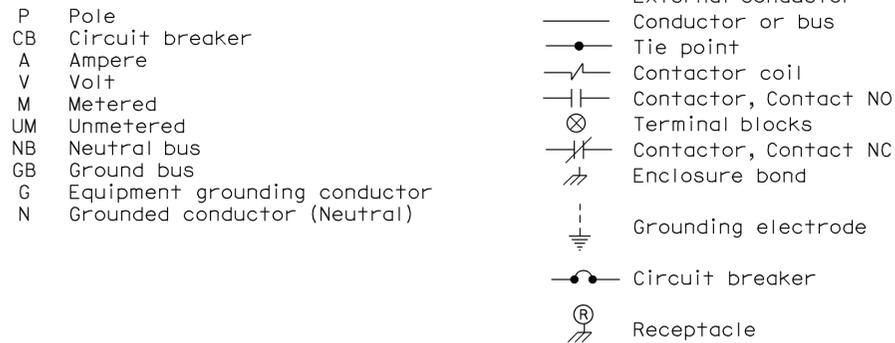
#### SIGNAL AND LIGHTING STANDARD (TYPICAL DESIGNATION):



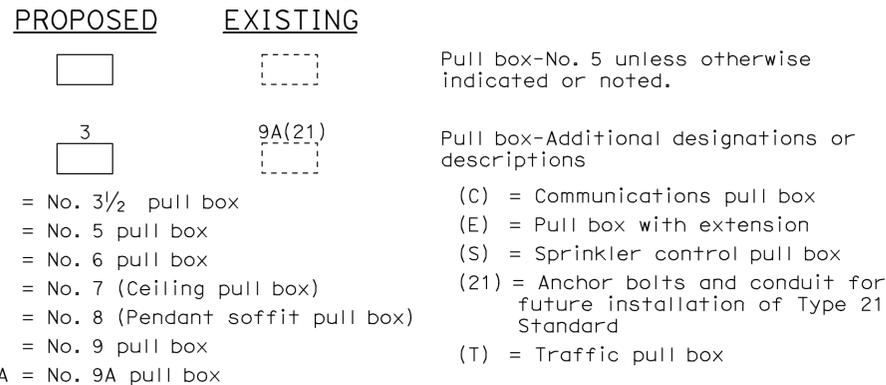
### MISCELLANEOUS EQUIPMENT



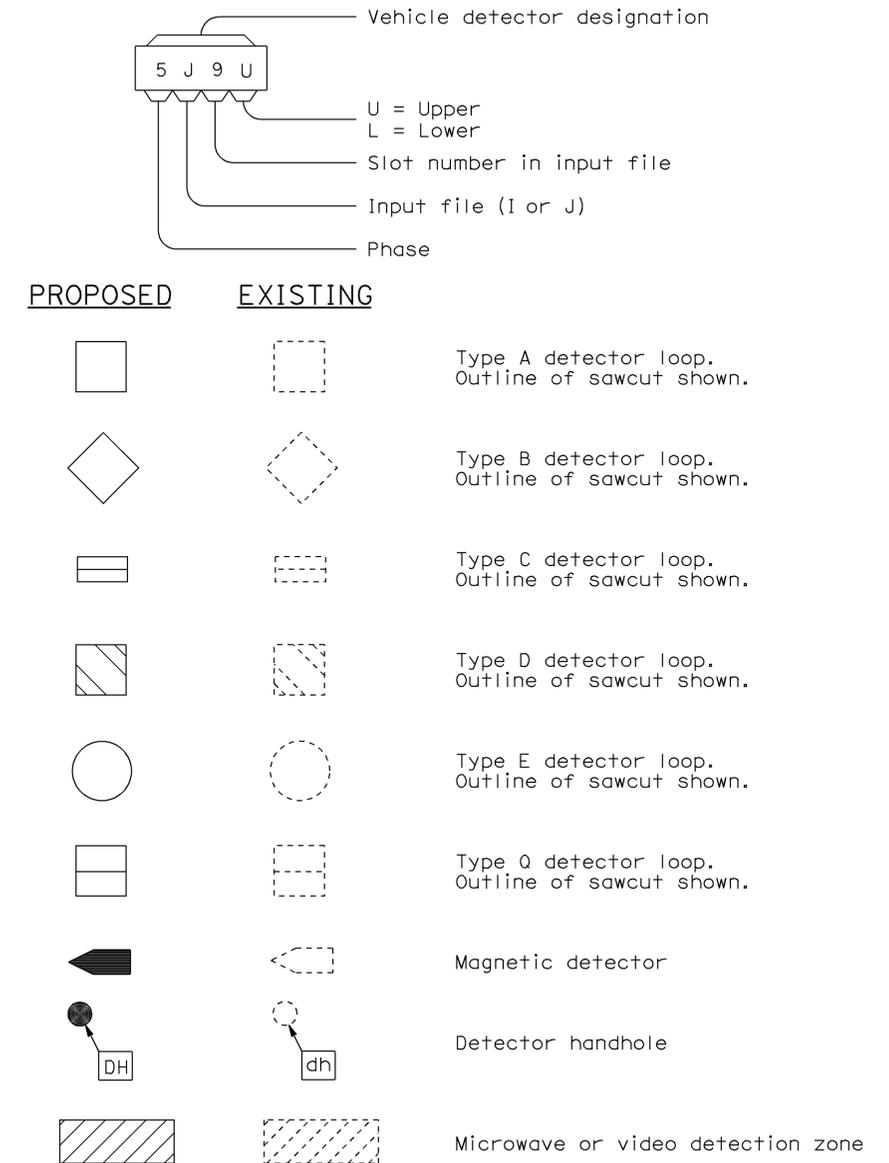
### WIRING DIAGRAM LEGEND



### PULL BOXES



### VEHICLE DETECTORS



STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION

## ELECTRICAL SYSTEMS (SYMBOLS AND ABBREVIATIONS)

NO SCALE

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

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

2006 REVISED STANDARD PLAN RSP ES-1C

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
03	Sut	20	8.9/9.5	44	52

*Jeffery G. McRae*  
 REGISTERED ELECTRICAL ENGINEER

October 5, 2007  
 PLANS APPROVAL DATE

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

**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 4-25-11

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

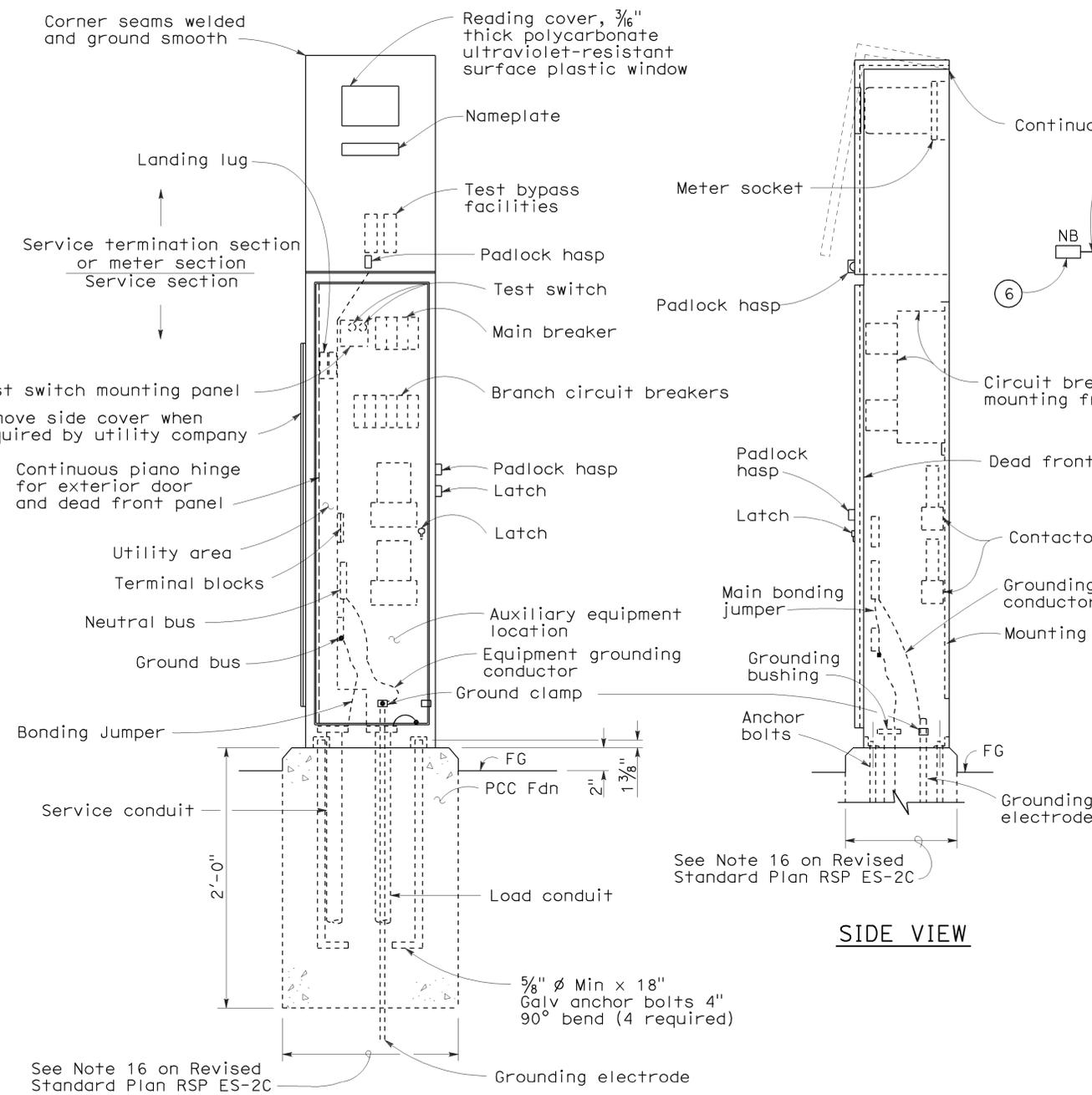
**ELECTRICAL SYSTEMS  
(SERVICE EQUIPMENT NOTES  
TYPE III SERIES)**

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**

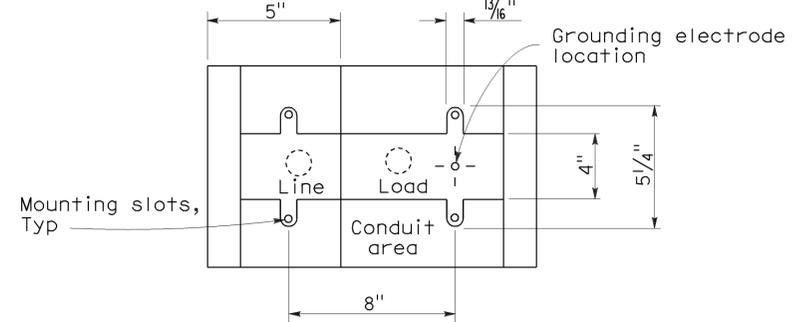
2006 REVISED STANDARD PLAN RSP ES-2C



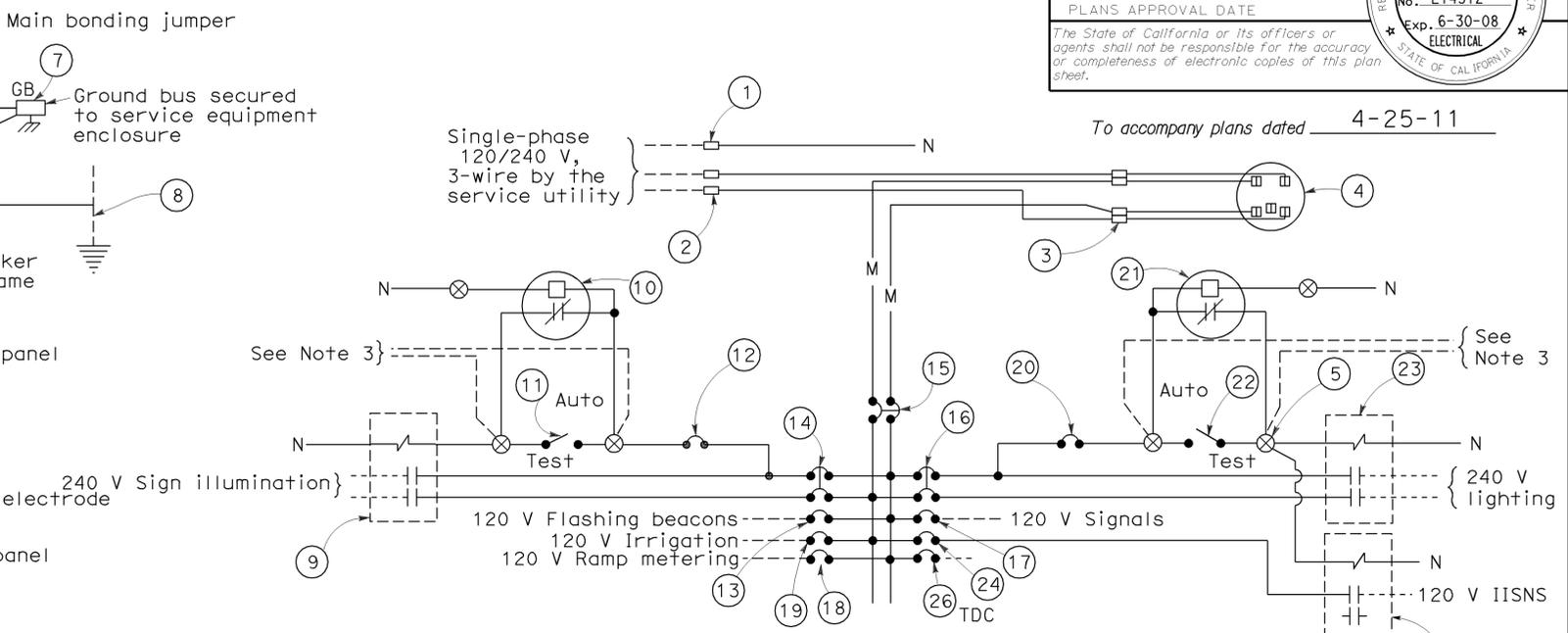
**TYPE III-AF SERVICE EQUIPMENT ENCLOSURE (TYPICAL)**

**FRONT VIEW**

**SIDE VIEW**



**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.

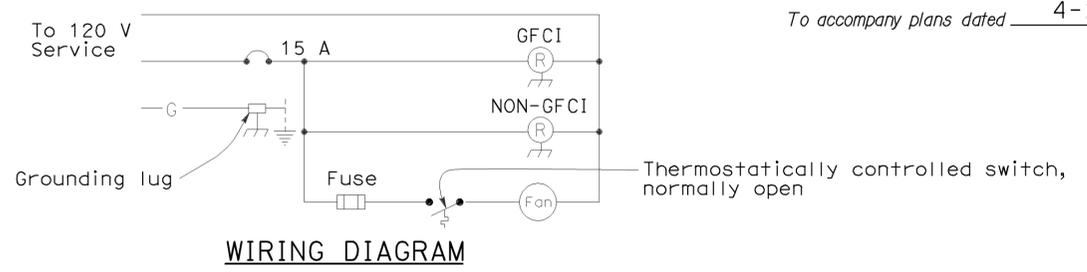
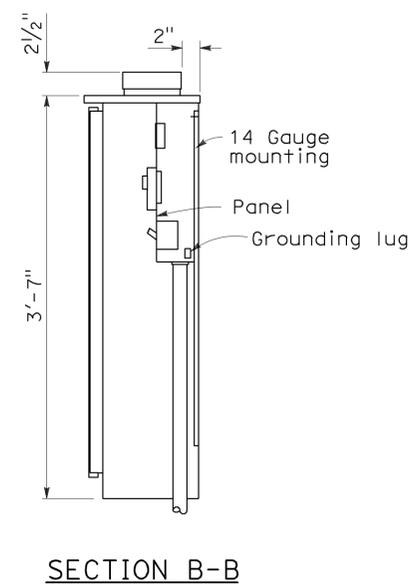
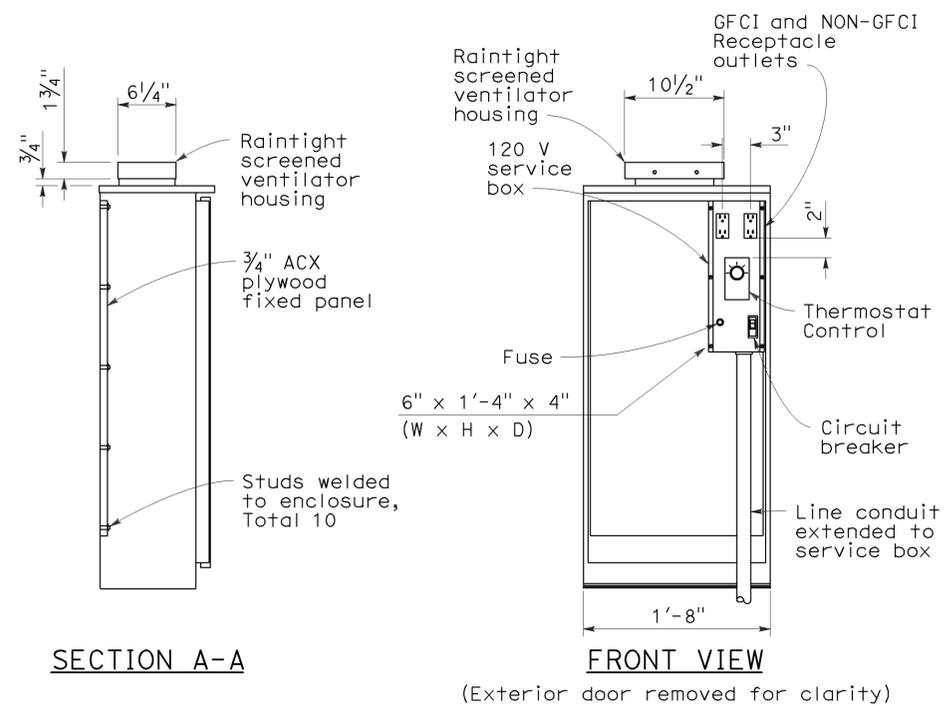
2006 REVISED STANDARD PLAN RSP ES-2D

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
03	Sut	20	8.9/9.5	46	52

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

October 5, 2007  
 PLANS APPROVAL DATE

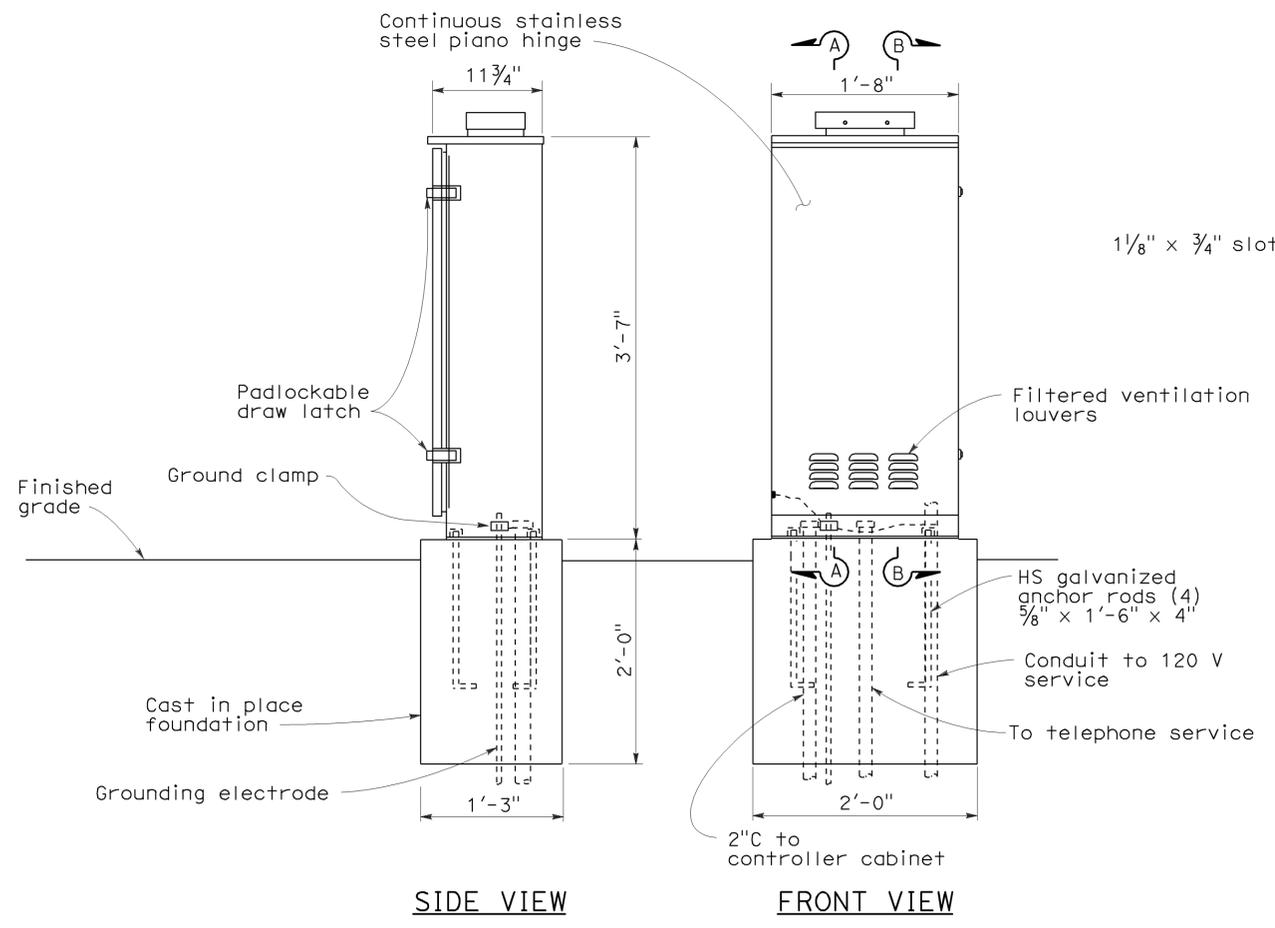
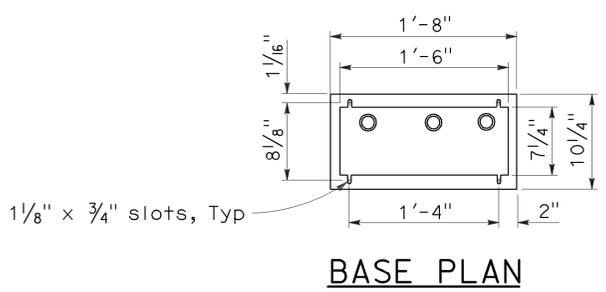
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To accompany plans dated 4-25-11

**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"  $\phi$  x 1" studs welded to enclosure.



STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**ELECTRICAL SYSTEMS  
 (TELEPHONE DEMARCATON  
 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**

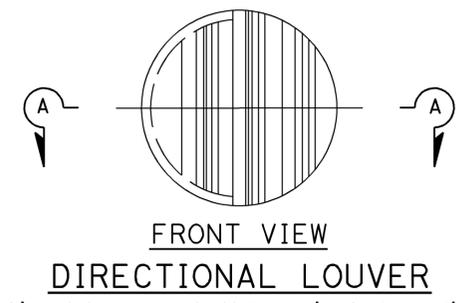
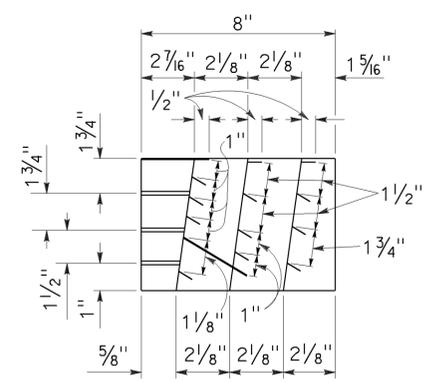
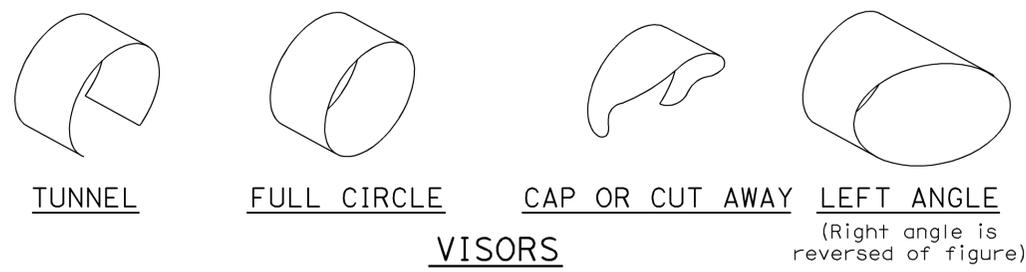
2006 REVISED STANDARD PLAN RSP ES-3E

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
03	Sut	20	8.9/9.5	47	52

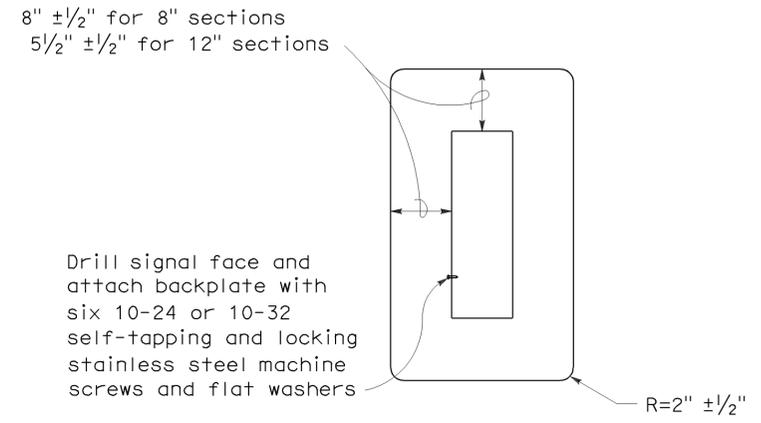
*Jeffery G. McRae*  
 REGISTERED ELECTRICAL ENGINEER  
 No. E14512  
 Exp. 6-30-10  
 ELECTRICAL  
 STATE OF CALIFORNIA

June 6, 2008  
 PLANS APPROVAL DATE

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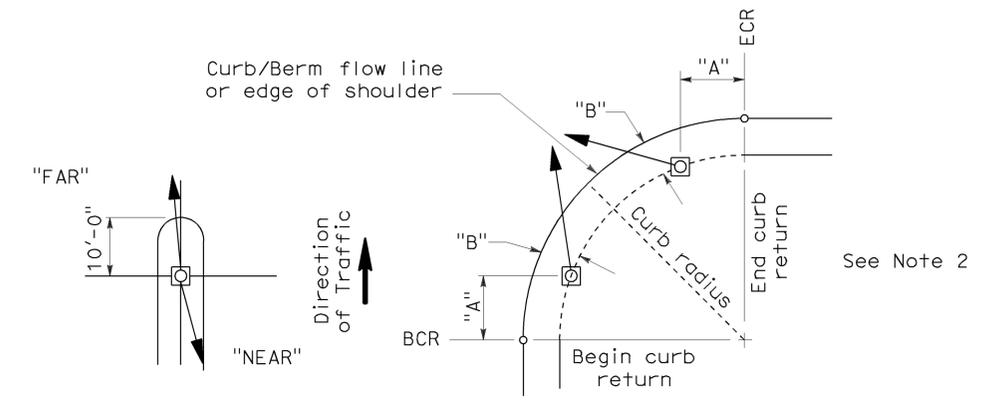


Directional louvers shall be oriented as directed by the Engineer and secured in place with one plated brass machine screw and nut.



**8" AND 12" SECTIONS**

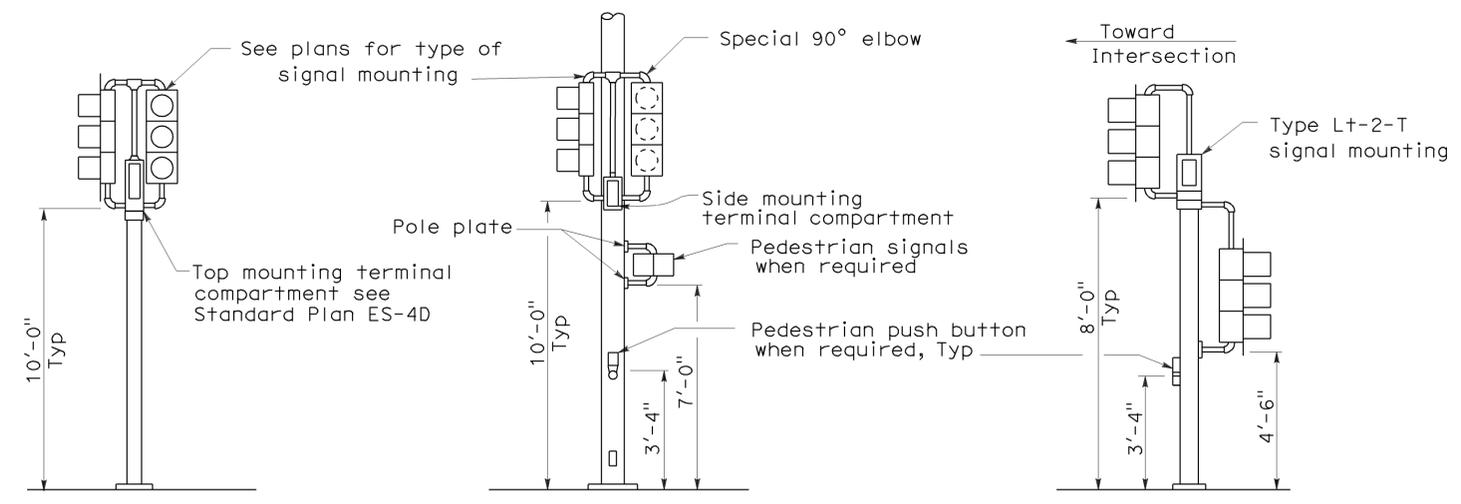
**BACKPLATE**  
 1/16" minimum thickness  
 3001-14 aluminum, or plastic when specified



**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.

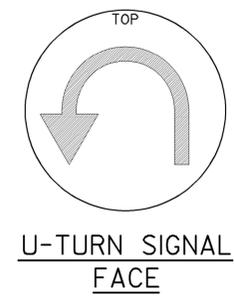
**SIGNAL STANDARD PLACEMENT DIMENSIONS AND EQUIPMENT LOCATIONS**



**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**

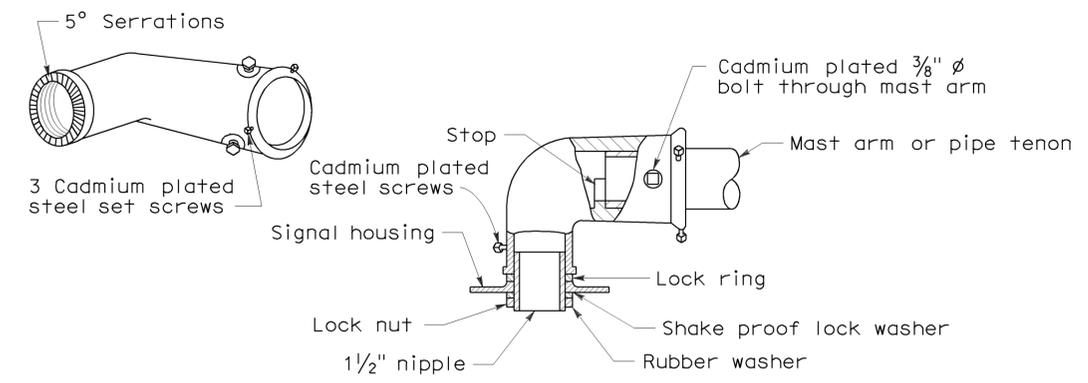
2006 REVISED STANDARD PLAN RSP ES-4C

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
03	Sut	20	8.9/9.5	48	52

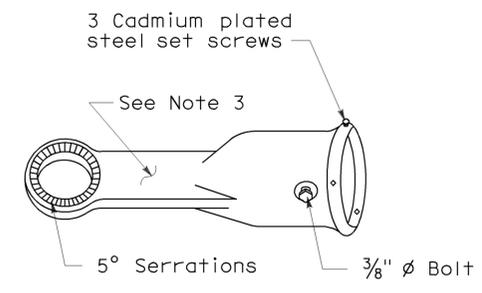
Jeffrey B. McRae  
 REGISTERED ELECTRICAL ENGINEER  
 June 6, 2008  
 PLANS APPROVAL DATE  
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REGISTERED PROFESSIONAL ENGINEER  
 Jeffrey G. McRae  
 No. E14512  
 Exp. 6-30-10  
 ELECTRICAL  
 STATE OF CALIFORNIA

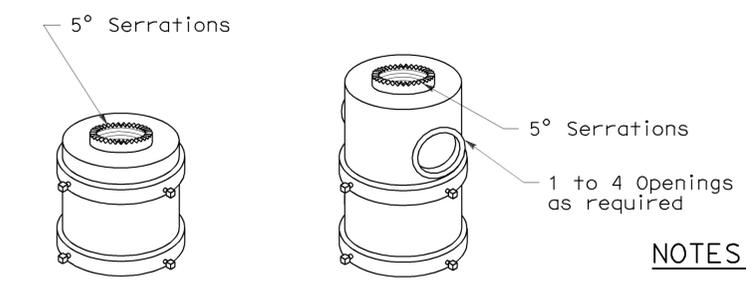
To accompany plans dated 4-25-11



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



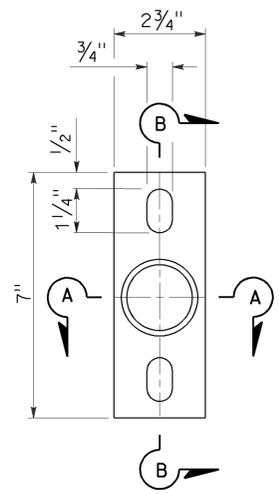
**MAST ARM MOUNTING - TYPE "MAS"**  
For 2 NPS pipe. See Note 1.



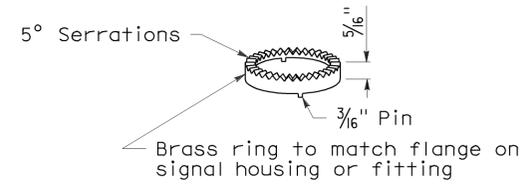
For one mounting For multiple mountings  
**TOP MOUNTINGS**  
For 4 NPS pipe, see Note 2.

- NOTES:**
- After mast arm signal has been plumbed and secured, drill 7/16" hole through mast arm tenon in line with slip fitter hole. Place a cadmium plated 3/8" ø galvanized bolt with washer under bolt head through hole and secure with washer, nut, and locknut. Seal openings between mast arm mountings and mast arm with mastic.
  - (a) Threaded top mounted slip fitter openings shall be 1/2" NPS.  
(b) Serrations in fittings shall match those on bottom of signal heads or in lock ring.  
(c) Top opening shall be offset when backplate is used.
  - Wireway shall have a cross section area of 0.95 square inch minimum. Minimum width of 1/2".

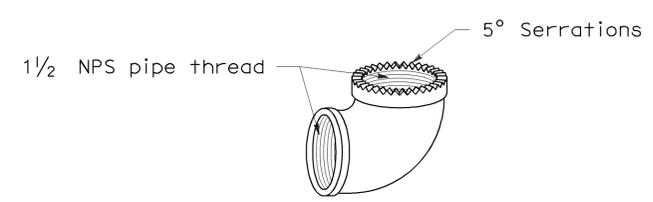
**SIGNAL SLIP FITTERS**



**POLE PLATE**  
For side mountings

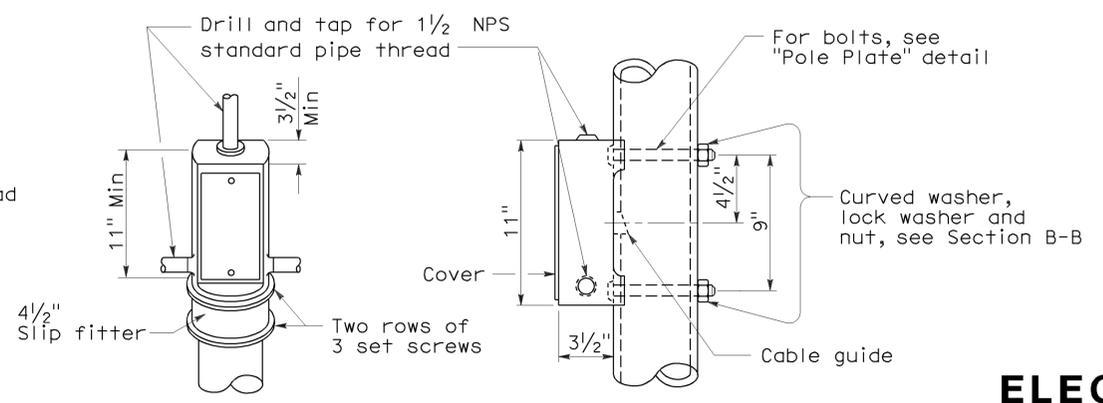
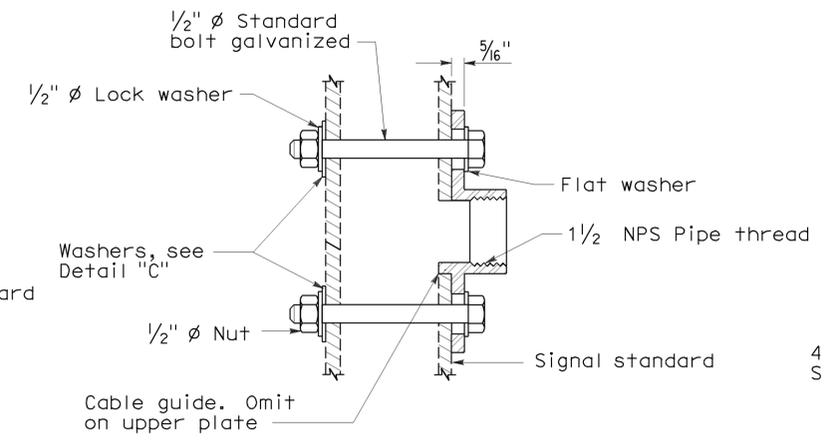
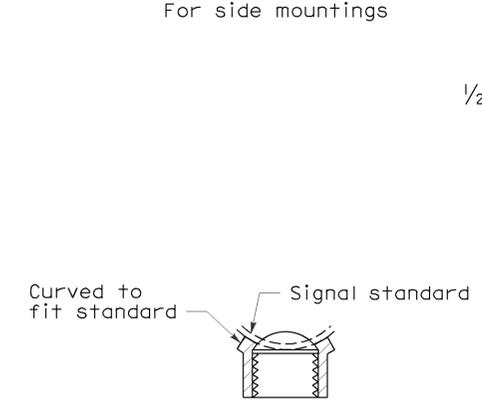
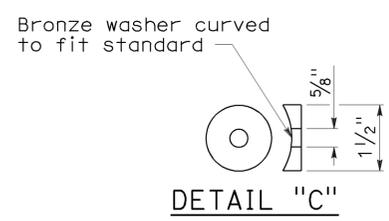


**LOCK RING**  
Use where locking ring is not integral with signal housing or fitting.



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

**MISCELLANEOUS MOUNTING HARDWARE**



**TOP MOUNTING**  
**SIDE MOUNTING**  
**TERMINAL COMPARTMENTS**

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

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

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
03	Sut	20	8.9/9.5	49	52

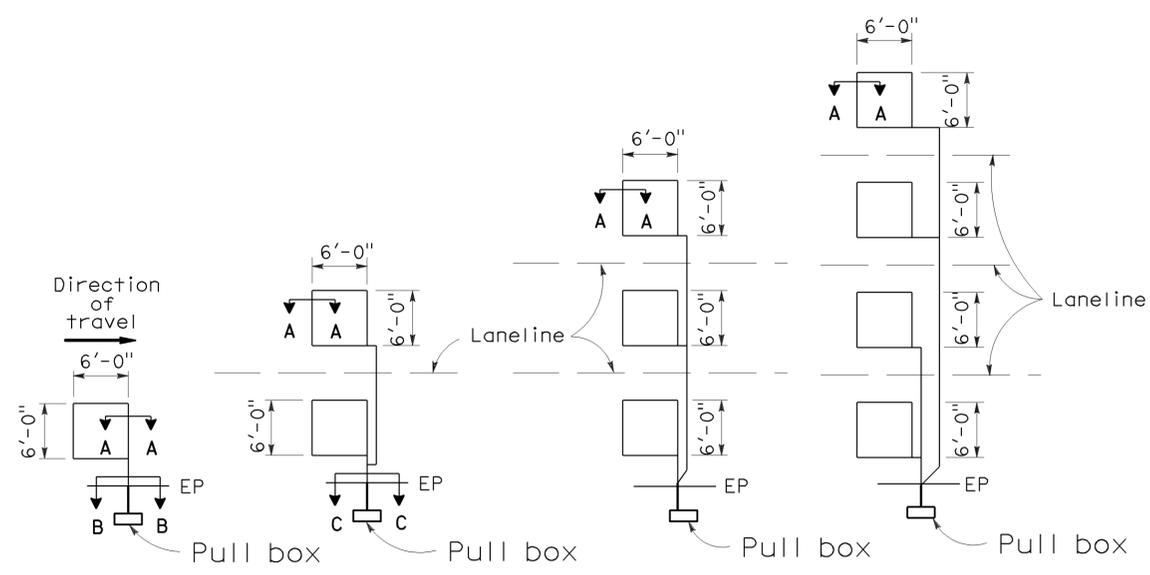
*Jeffery G. McRae*  
 REGISTERED ELECTRICAL ENGINEER  
 October 5, 2007  
 PLANS APPROVAL DATE  
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

To accompany plans dated 4-25-11

2006 REVISED STANDARD PLAN RSP ES-5A

## LOOP INSTALLATION PROCEDURE

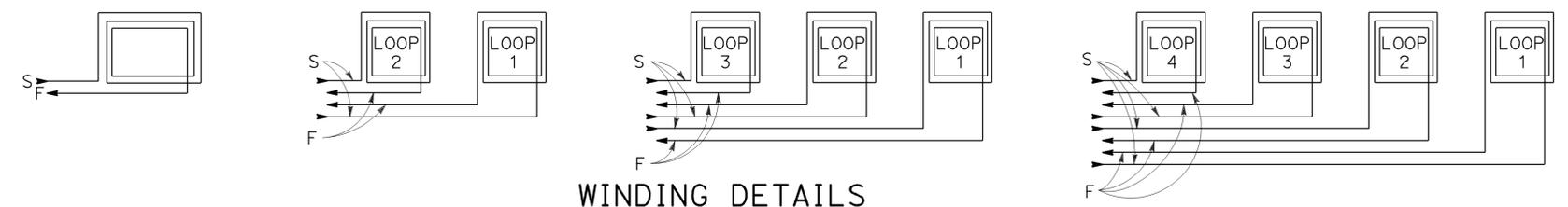
- Loops shall be centered in lanes.
- Saw slots in pavement for loop conductors as shown in details.
- Distance between side of loop and a lead-in saw cut from adjacent detectors shall be 2'-0" minimum. Distance between lead-in saw cuts shall be 6" minimum.
- Bottom of saw slot shall be smooth with no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



**TYPE 1A INSTALLATION**    **TYPE 2A INSTALLATION**    **TYPE 3A INSTALLATION**    **TYPE 4A INSTALLATION**

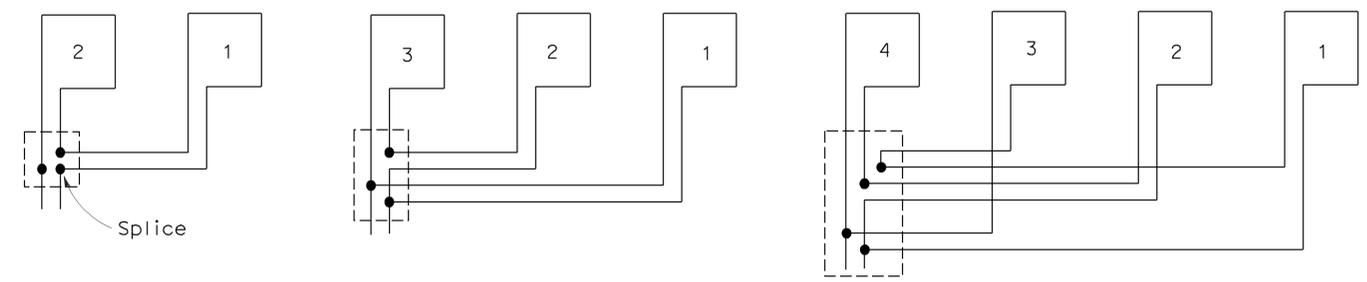
### SAWCUT DETAILS

- (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)



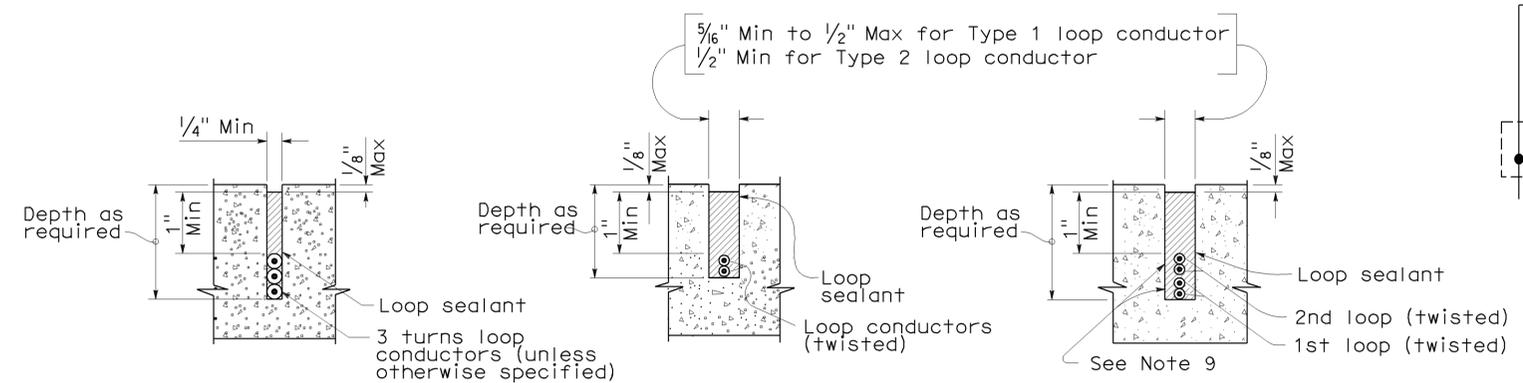
### WINDING DETAILS

See Notes 6 and 7



### 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.

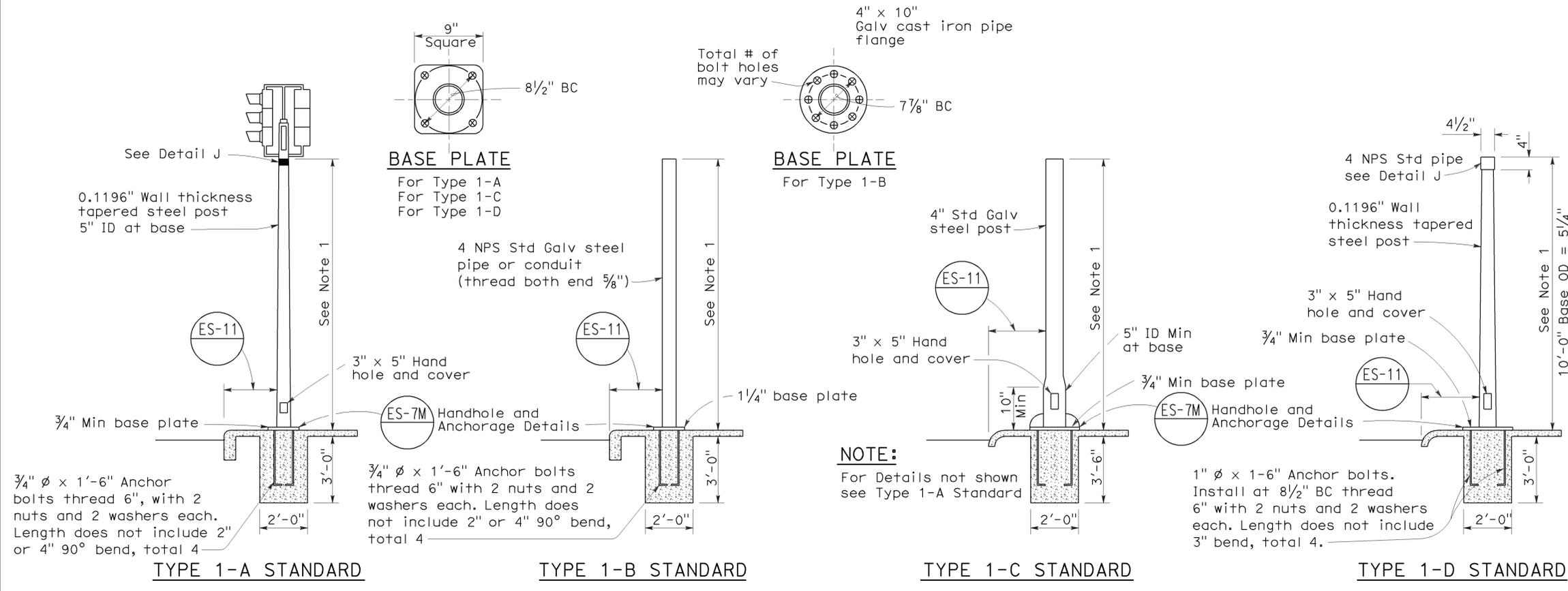
**REVISED STANDARD PLAN RSP ES-5A**

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
03	Sut	20	8.9/9.5	50	52

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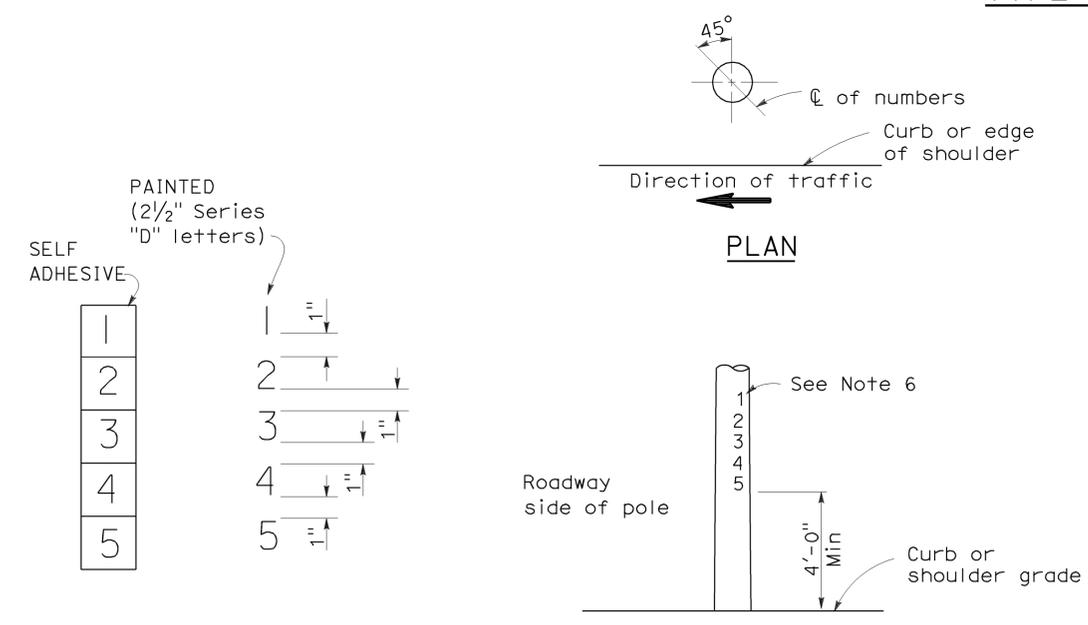
REGISTERED PROFESSIONAL ENGINEER  
 Stanley P. Johnson  
 No. C57793  
 Exp. 3-31-08  
 CIVIL  
 STATE OF CALIFORNIA

To accompany plans dated 4-25-11

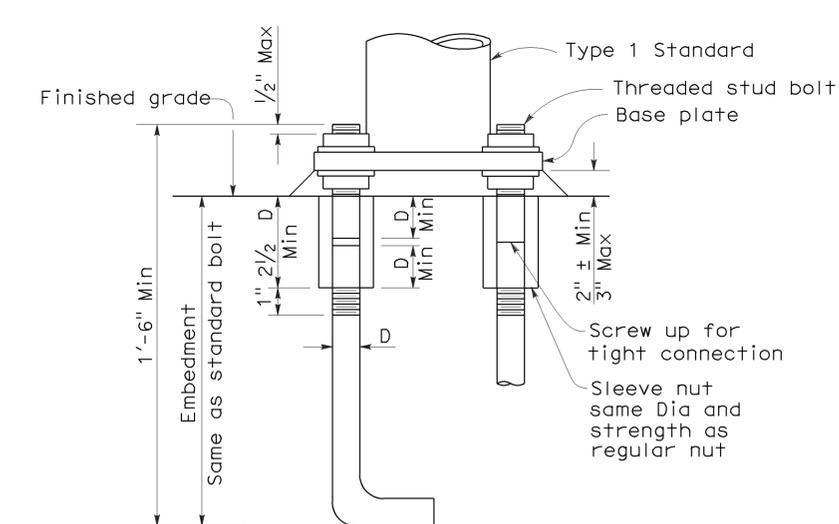


- NOTES:**
- Standards shall be 10'-0" ± 2" for vehicle signals and 7'-0" ± 2" for pedestrian signals unless otherwise noted on plans.
  - Top of standards shall be 4 1/2" OD.
  - Conduits shall extend 2" maximum above finished surface of foundation and for Types 1-A, 1-C and 1-D shall be sloped toward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

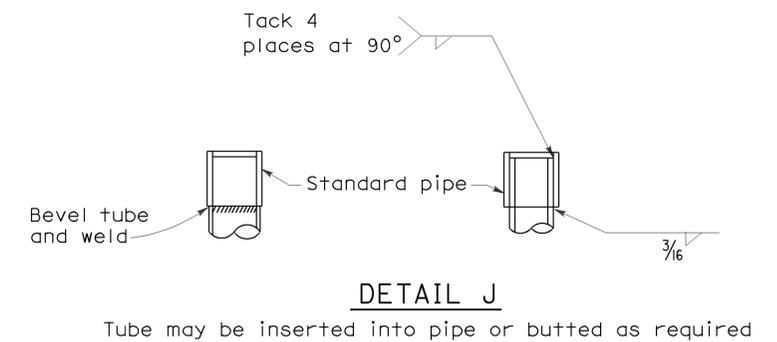
**TYPE 1 SIGNAL STANDARDS**



**LOCATION OF EQUIPMENT NUMBERS ON STANDARDS AND POSTS**



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



**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.

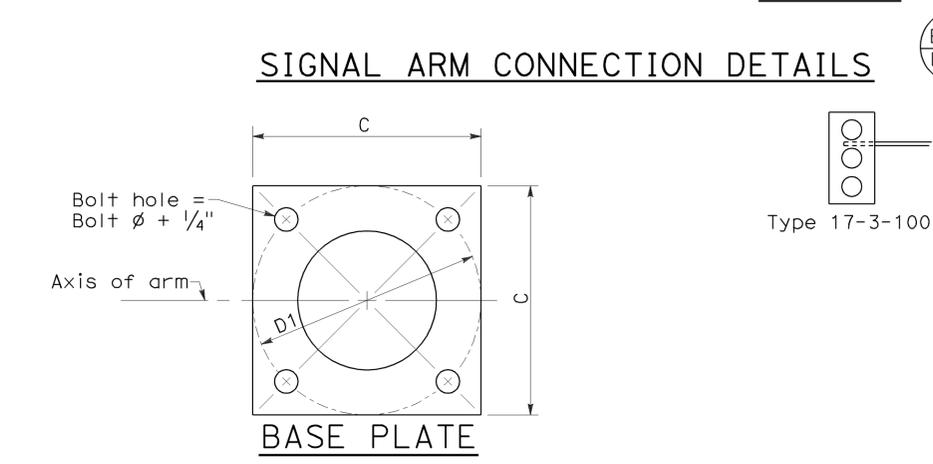
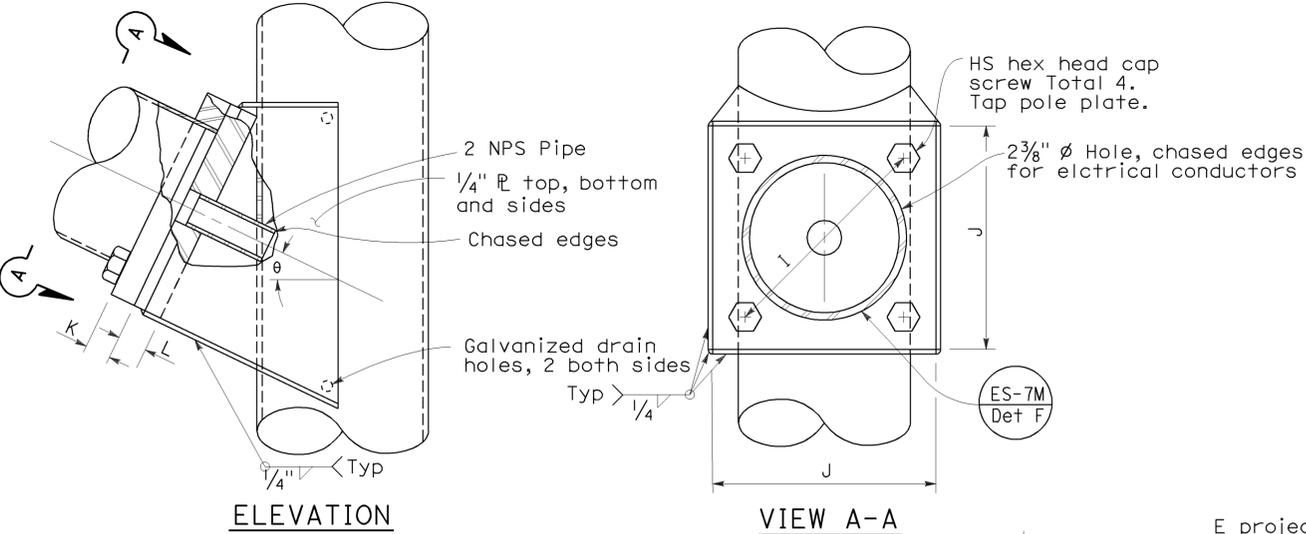
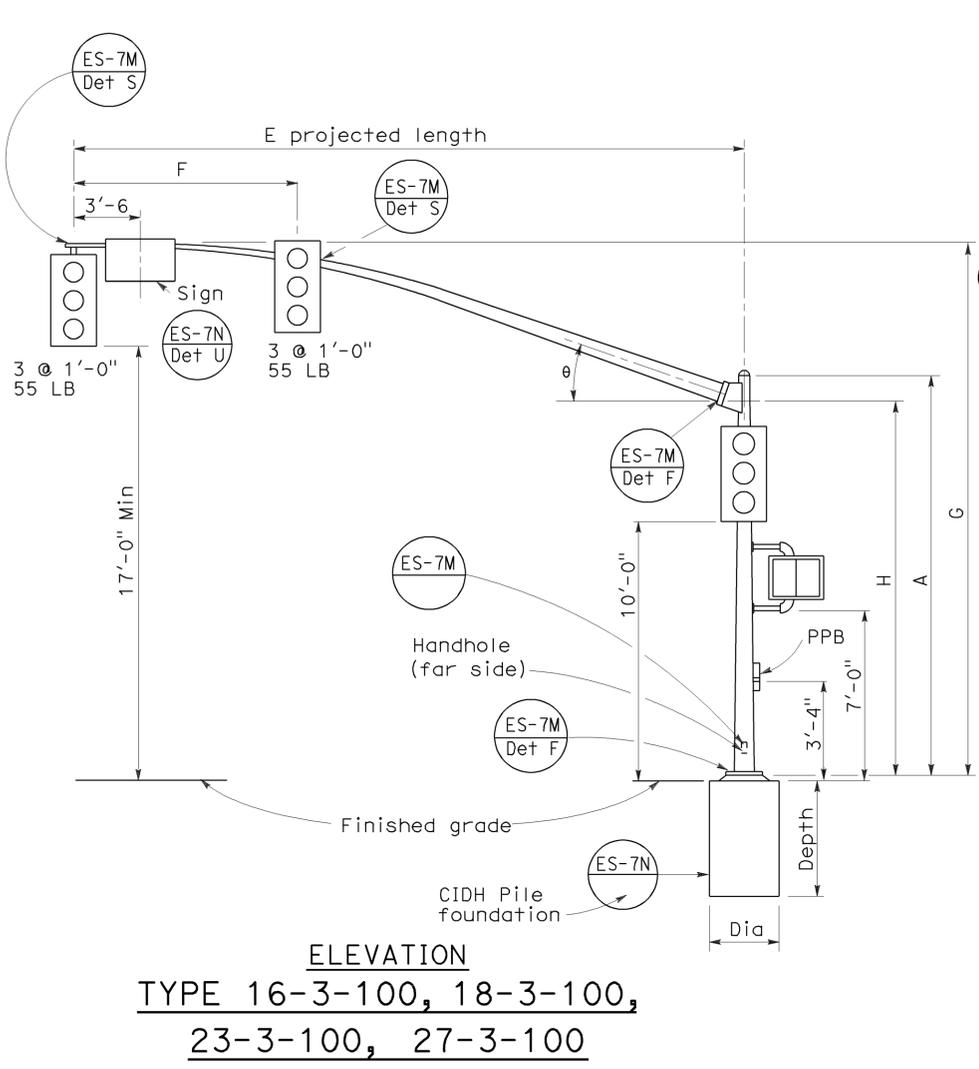
**REVISED STANDARD PLAN RSP ES-7B**

2006 REVISED STANDARD PLAN RSP ES-7B

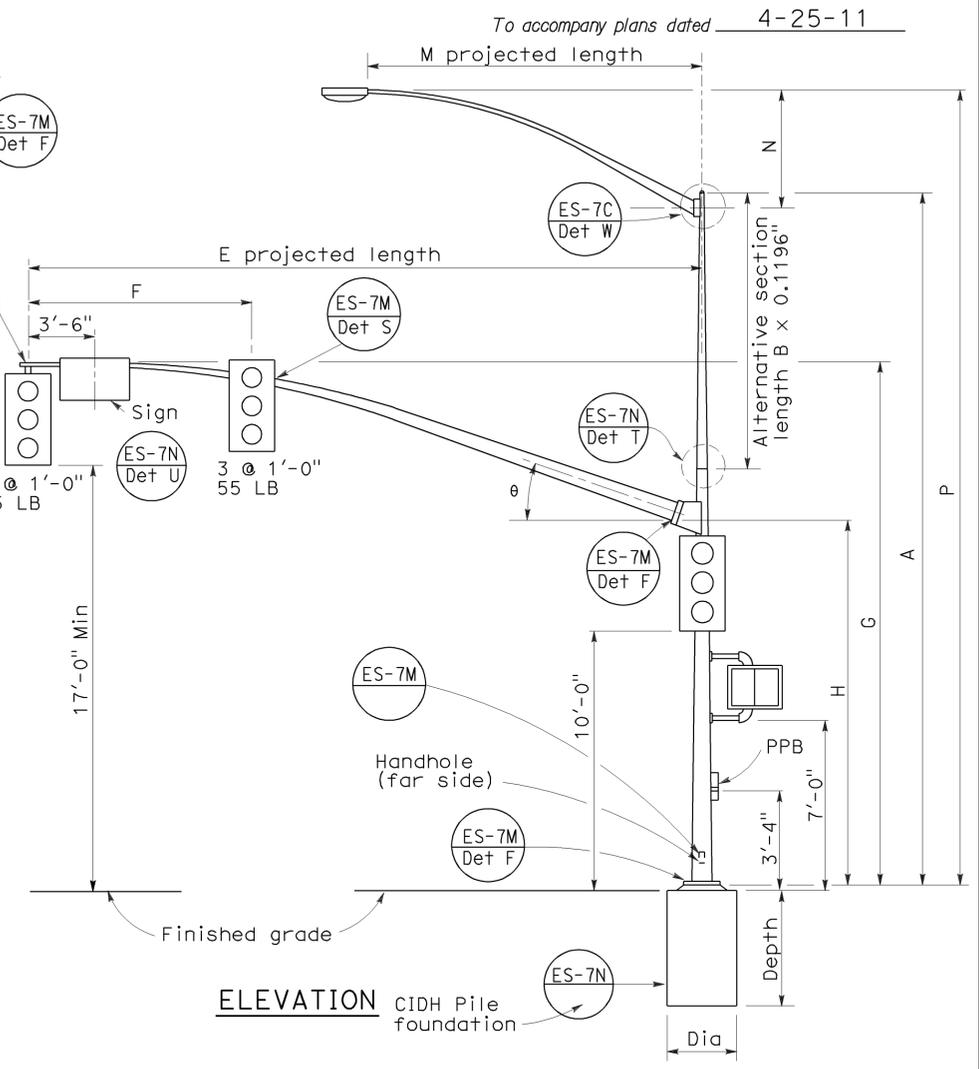
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
03	Sut	20	8.9/9.5	51	52

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



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



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

E Projected Length	F Min Spacing	G Mounting Height	H	Min OD At Pole	Thickness	I Bolt Circle	HS Cap Screws	J Plate Size	K Arm R Thickness	L Pole R Thickness	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"		32'-9"±	37'-9"±
12'-0"	4'-3"±	4"		33'-9"±	38'-9"±
15'-0"	4'-9"±	4 1/4"		34'-3"±	39'-3"±

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

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION

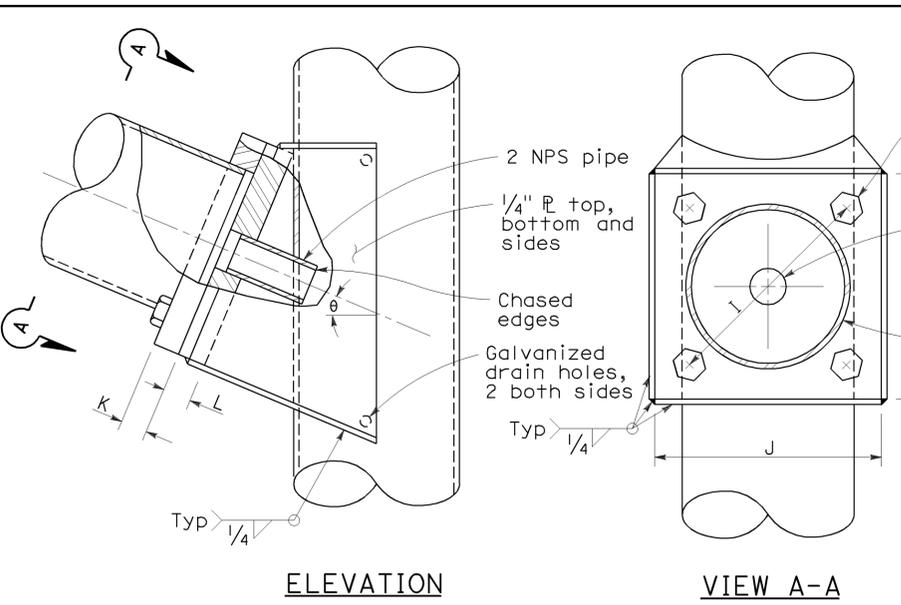
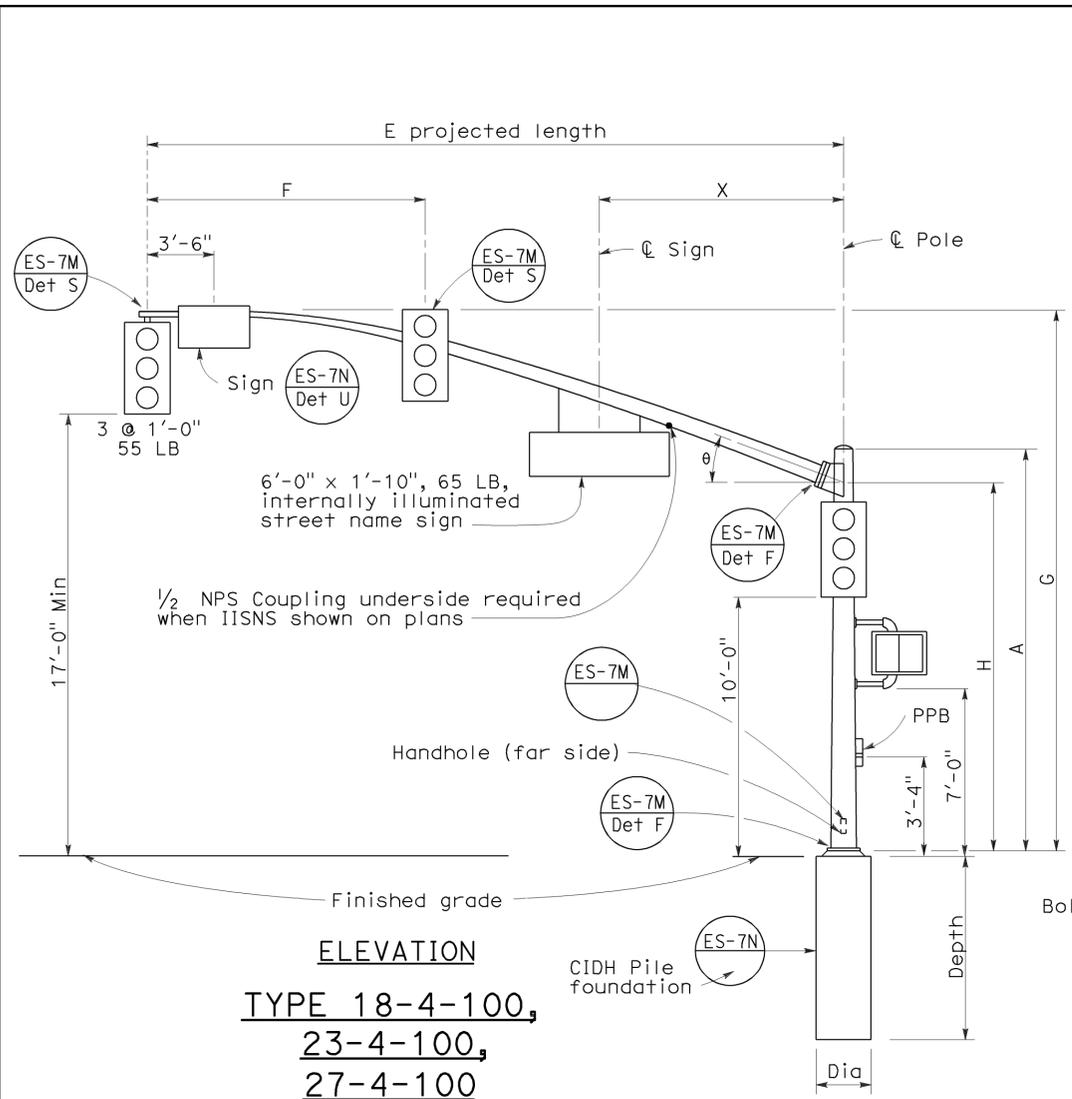
**ELECTRICAL SYSTEMS  
 (SIGNAL AND LIGHTING STANDARD  
 CASE 3 ARM LOADING  
 WIND VELOCITY=100 MPH  
 ARM LENGTHS 15' TO 45')**

NO SCALE

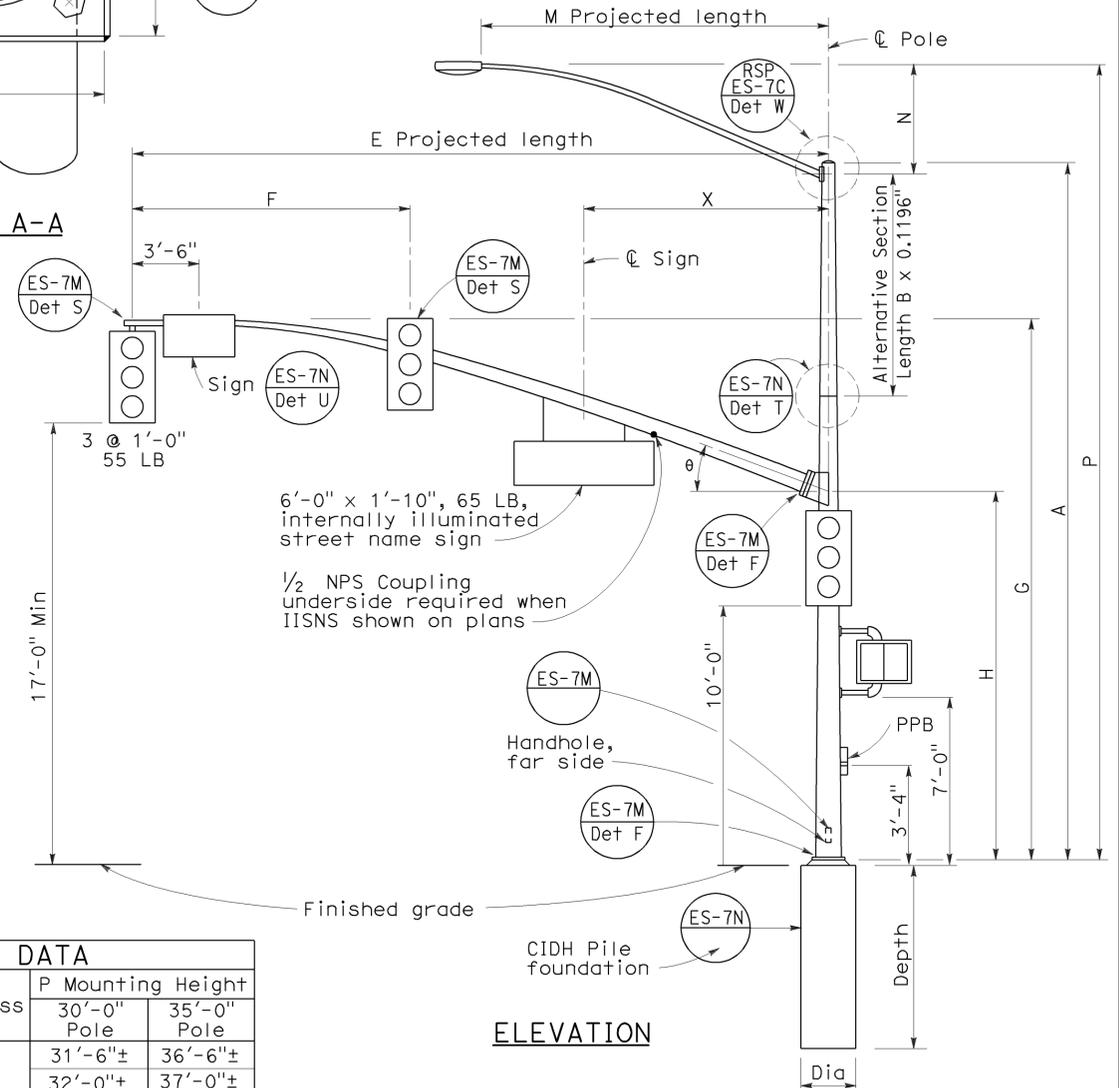
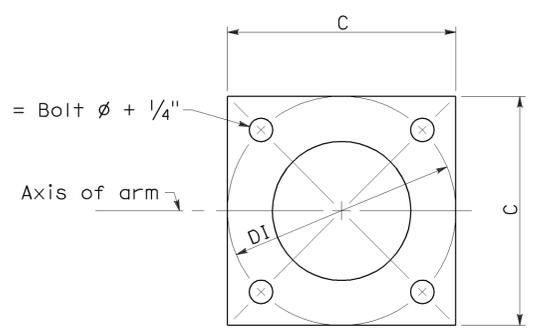
RSP ES-7E DATED JUNE 30, 2006 SUPERSEDES STANDARD PLAN DATED MAY 1, 2006 -  
 PAGE 441 OF THE STANDARD PLANS BOOK DATED MAY 2006.

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

2006 REVISED STANDARD PLAN RSP ES-7E



**SIGNAL ARM CONNECTION DETAILS**



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"	23'-0"±		8"								
35'-0"	14'-0"	23'-0"±		8 1/16"								
40'-0"	15'-0"	23'-8"±		9 3/8"								
45'-0"		23'-8"±		10 1/4"								

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 Base	Min OD Top	Thickness	Alternative Section B Length	Alternative Section Bottom	Alternative Section Top			C	DI Bolt Circle	Thickness	Anchor Bolts Size	Dia
18-4-100	4	100	17'-0"	12"	9"	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"		10'-0"		8"							
19A-4-100			35'-0"		7 5/16"		15'-0"		7 5/16"							
23-4-100			17'-0"		9"		None		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"	12 1/2"	0.3125"	9 3/4"	7 1/16"						
26A-4-100			35'-0"	7 5/16"	15'-0"	7 1/16"										
27-4-100			17'-0"	9 3/4"	None	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.

2006 REVISED STANDARD PLAN RSP ES-7F