

INDEX OF PLANS

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

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

PROJECT PLANS FOR CONSTRUCTION ON  
STATE HIGHWAY

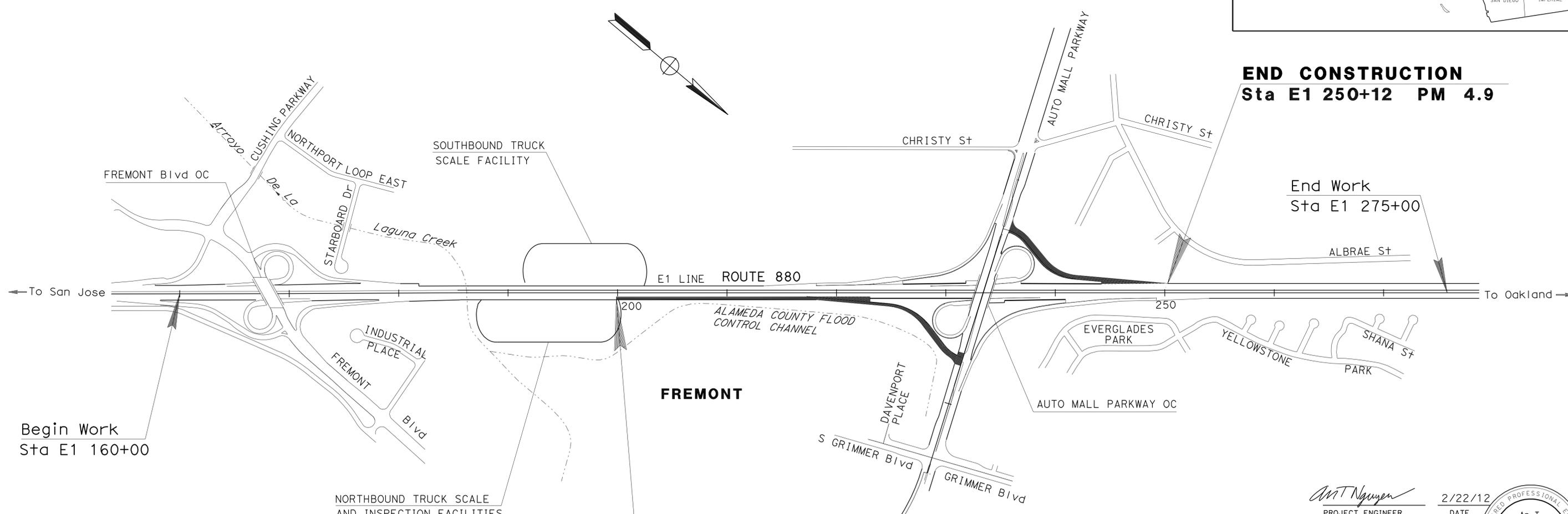
IN ALAMEDA COUNTY  
IN FREMONT

FROM 0.5 MILE NORTH OF FREMONT BOULEVARD OVERCROSSING  
TO 0.3 MILE NORTH OF AUTO MALL PARKWAY OVERCROSSING

TO BE SUPPLEMENTED BY STANDARD PLANS DATED MAY 2006

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	880	4.5/4.9	1	49

LOCATION MAP



NO SCALE

PROJECT MANAGER  
EMILY LANDIN-LOWE

DESIGN ENGINEER  
ARLISSA PANG

*An T. Nguyen* 2/22/12  
PROJECT ENGINEER REGISTERED CIVIL ENGINEER DATE

February 27, 2012  
PLANS APPROVAL DATE

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

CONTRACT No.	<b>04-1G2004</b>
PROJECT ID	<b>0400002017</b>

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	880	4.5/4.9	2	49

<i>An T. Nguyen</i>	2/22/12
REGISTERED CIVIL ENGINEER	DATE
An T. Nguyen	
No. 62776	
Exp. 6-30-12	
CIVIL	

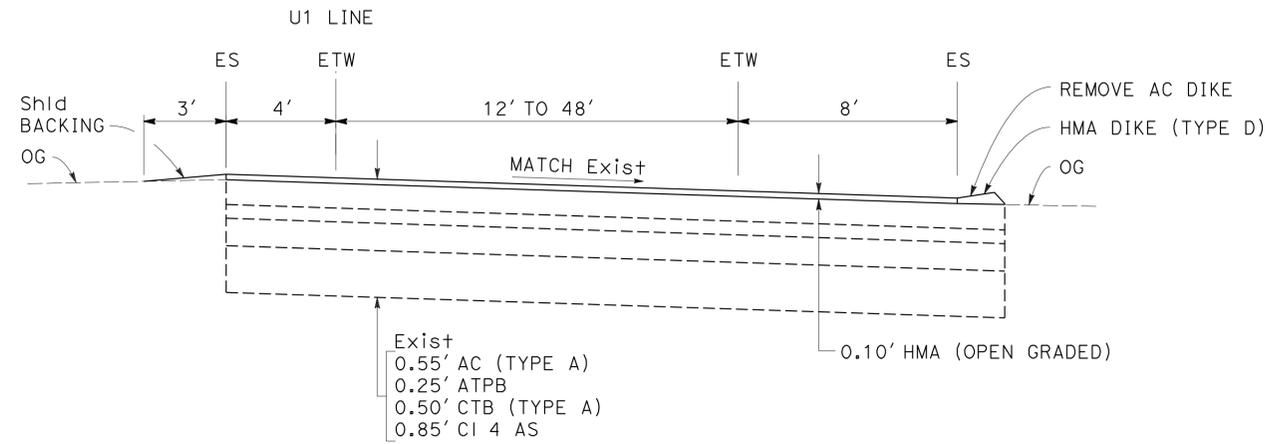
  

PLANS APPROVAL DATE: 2-27-12

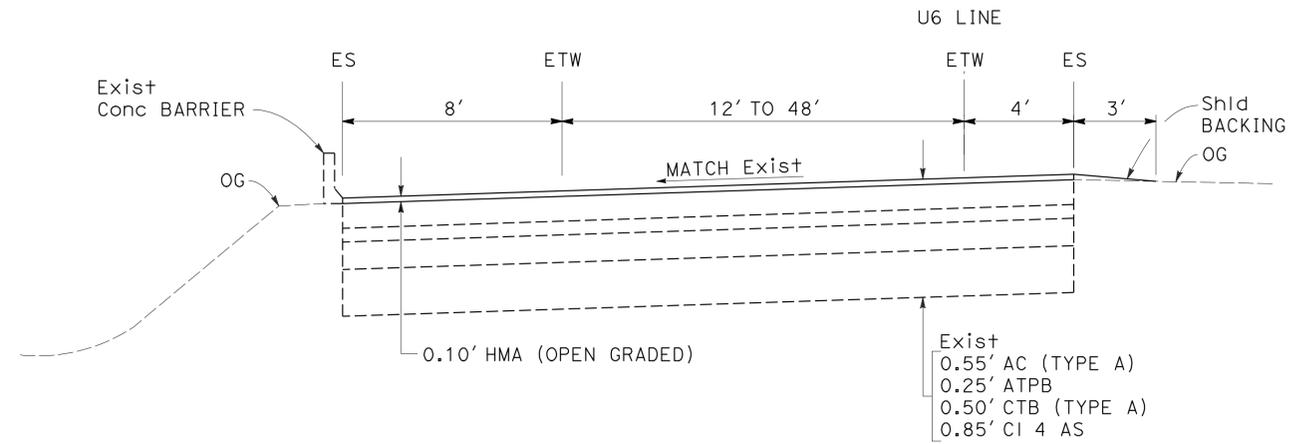
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

**NOTES:**

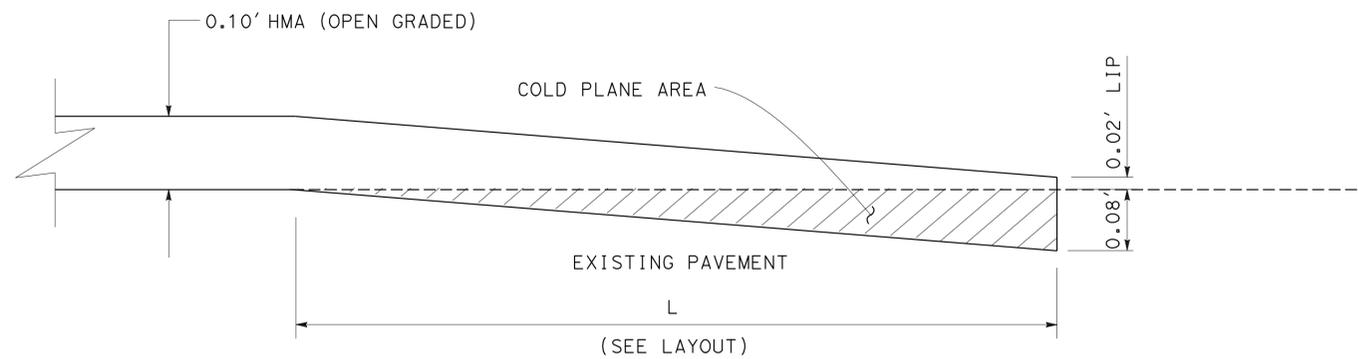
1. DIMENSIONS OF THE PAVEMENT STRUCTURES (STRUCTURAL SECTIONS) ARE SUBJECT TO TOLERANCES SPECIFIED IN THE STANDARD SPECIFICATIONS.
2. LOCATIONS AND TYPES OF HMA DIKE ARE SHOWN ON THE LAYOUTS.



**NORTHBOUND AUTO MALL PARKWAY OFF-RAMP**  
U1 20+50 TO U1 34+00



**SOUTHBOUND AUTO MALL PARKWAY OFF-RAMP**  
U6 35+50 TO U1 50+12.22



**DETAIL A**  
**PAVING CONFORM**

**TYPICAL CROSS SECTIONS**  
NO SCALE

**X-1**

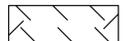
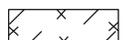
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	DESIGN
AN NGUYEN	ARLISSA PANG
ARLISSA PANG	ARLISSA PANG
ATN	2/16/12
REVISOR	DATE
CALCULATED/DESIGNED BY	CHECKED BY
FUNCTIONAL SUPERVISOR	

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** DESIGN  
 FUNCTIONAL SUPERVISOR: ARLISSA PANG  
 CALCULATED/DESIGNED BY: ARLISSA PANG  
 CHECKED BY: ARLISSA PANG  
 AN NGUYEN  
 ARLISSA PANG  
 REVISED BY: ARLISSA PANG  
 DATE REVISED: 2/16/12  
 ATN  
 2/16/12

**NOTES:**

1. FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.
2. FOR PAVEMENT CONFORM, SEE DETAIL A ON SHEET X-1.

**LEGEND:**

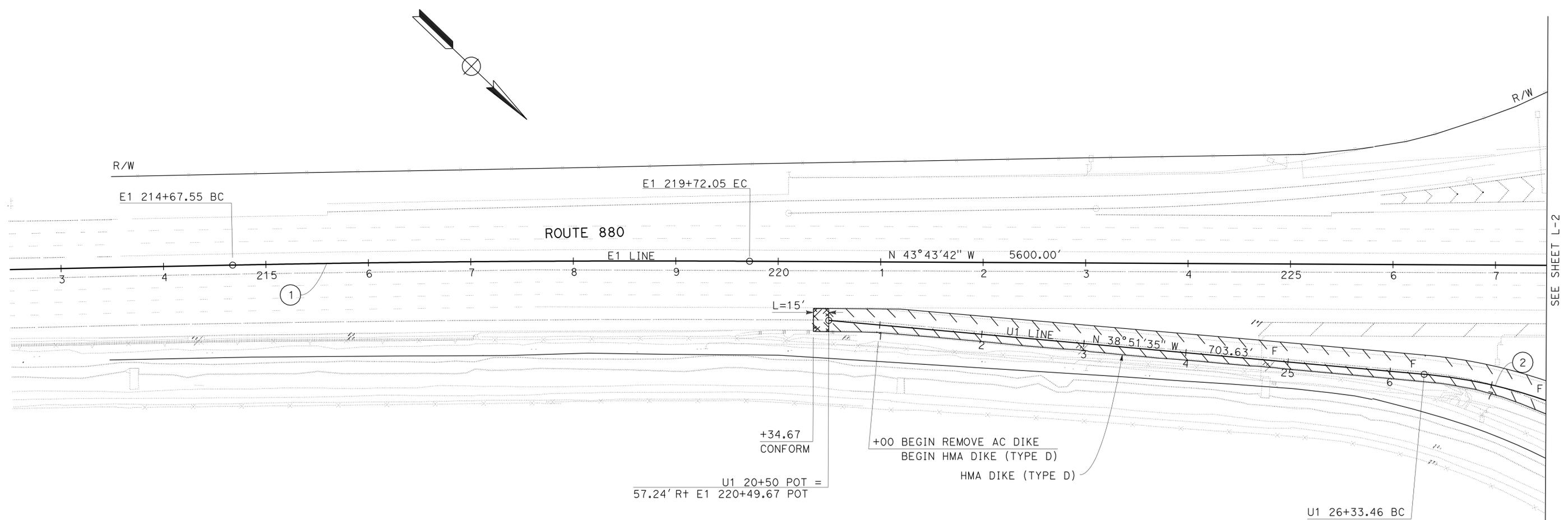
-  HMA (OPEN GRADED) SURFACING
-  COLD PLANING AND RESURFACING
-  CURVE NUMBER

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	880	4.5/4.9	3	49

 2/22/12  
 REGISTERED CIVIL ENGINEER DATE  
 2-27-12  
 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER  
 An T. Nguyen  
 No. 62776  
 Exp. 6-30-12  
 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.



**CURVE DATA**

No. (#)	R	Δ	T	L
1	20000'	01°26'43"	252.26'	504.50'
2	500'	47°29'43"	219.98'	414.47'

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

**L-1**

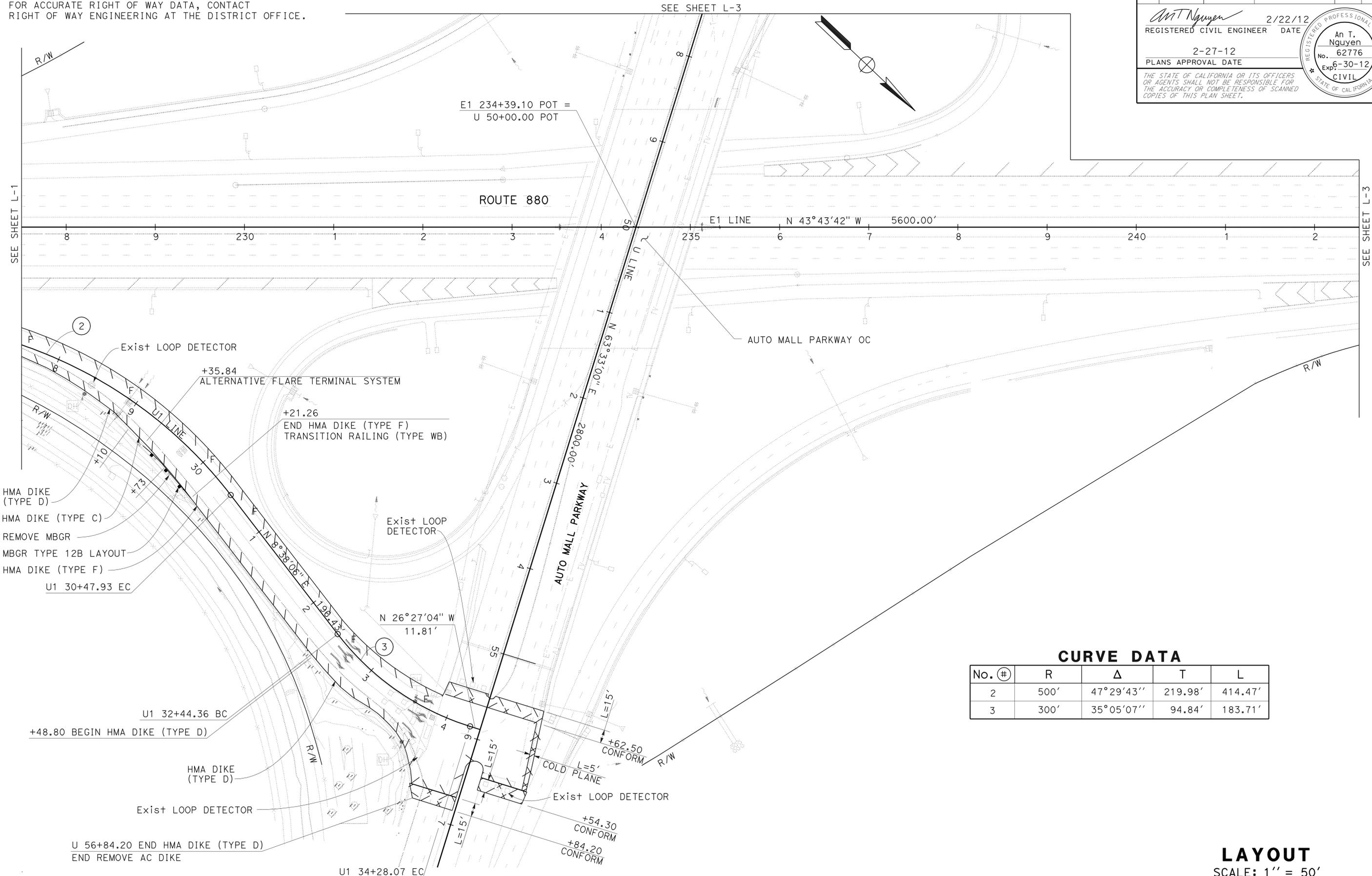
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	880	4.5/4.9	4	49

*An T. Nguyen* 2/22/12  
 REGISTERED CIVIL ENGINEER DATE  
 2-27-12  
 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER  
 An T. Nguyen  
 No. 62776  
 Exp. 6-30-12  
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 STATE OF CALIFORNIA

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



**CURVE DATA**

No. #	R	Δ	T	L
2	500'	47°29'43"	219.98'	414.47'
3	300'	35°05'07"	94.84'	183.71'

FOR NOTES, ABBREVIATIONS  
 AND LEGEND, SEE SHEET L-1

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

**L-2**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	FUNCTIONAL SUPERVISOR	REVISOR	DATE
<b>Caltrans</b>	ARLISSA PANG	AN NGUYEN	2/16/12
		ARLISSA PANG	
DESIGN	CHECKED BY	REVISIONS	

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

FUNCTIONAL SUPERVISOR: ARLISSA PANG  
 CHECKED BY: ARLISSA PANG  
 DESIGNED BY: ARLISSA PANG  
 REVISIONS:  
 2/16/12 ATN  
 2/16/12 ATN

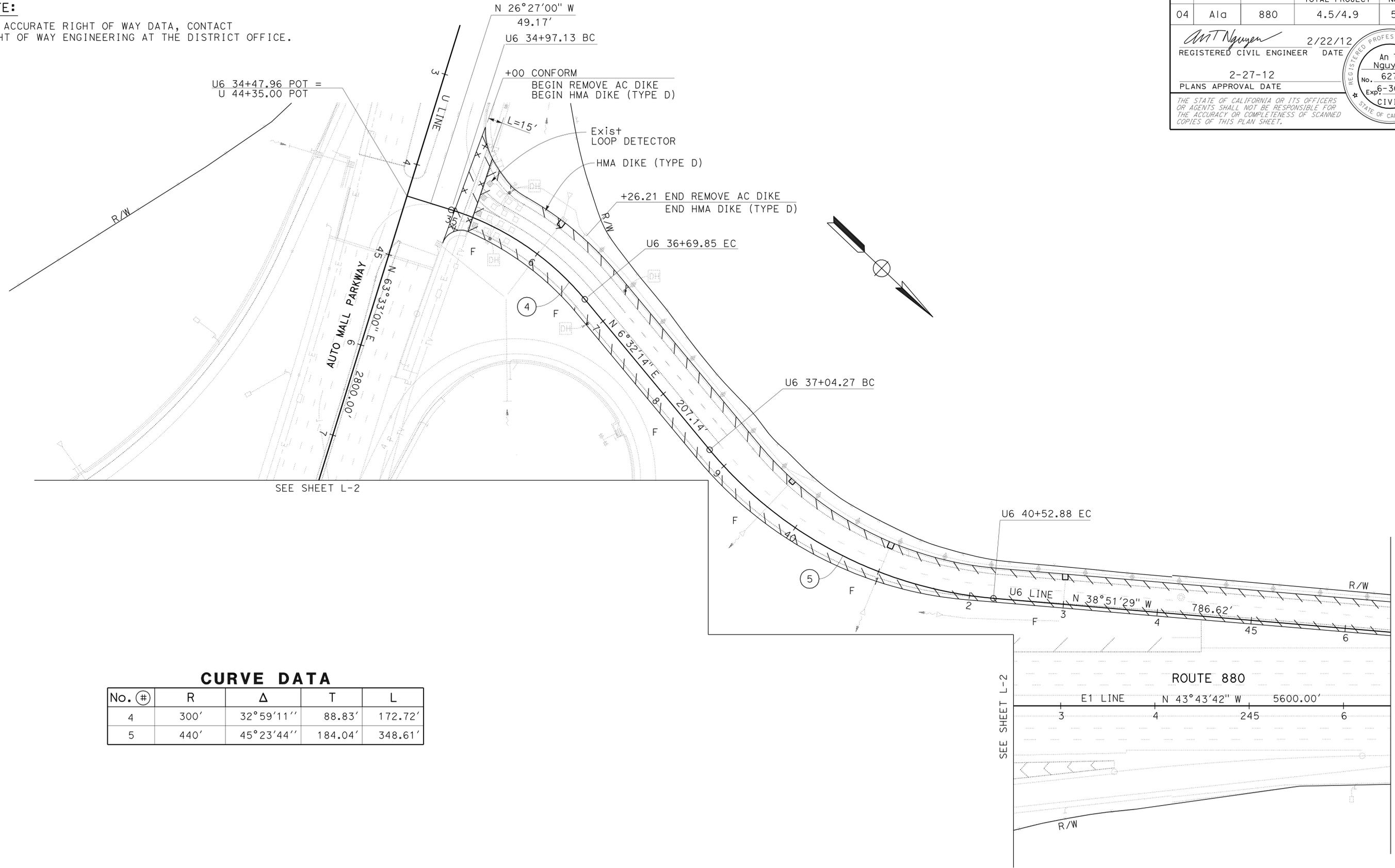
**NOTE:**  
 FOR ACCURATE RIGHT OF WAY DATA, CONTACT  
 RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	880	4.5/4.9	5	49

An T. Nguyen  
 REGISTERED CIVIL ENGINEER DATE 2/22/12  
 2-27-12  
 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER  
 An T. Nguyen  
 No. 62776  
 Exp. 6-30-12  
 CIVIL  
 STATE OF CALIFORNIA

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**CURVE DATA**

No. #	R	Δ	T	L
4	300'	32°59'11"	88.83'	172.72'
5	440'	45°23'44"	184.04'	348.61'

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET L-1



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

**L-3**

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

FUNCTIONAL SUPERVISOR  
 ARLISSA PANG

CALCULATED/DESIGNED BY  
 CHECKED BY

AN NGUYEN  
 ARLISSA PANG

REVISED BY  
 DATE REVISED

ATN  
 2/16/12

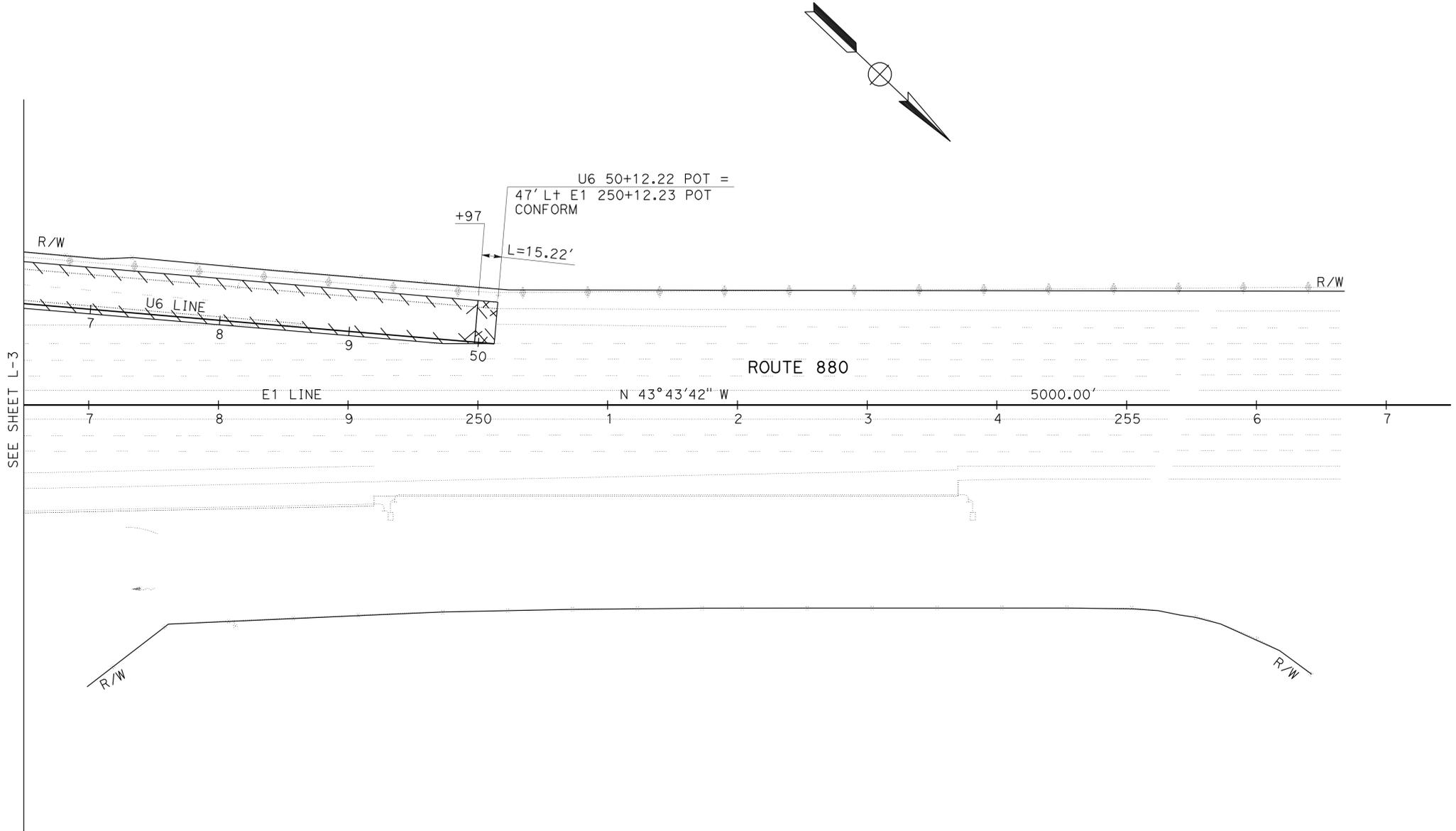
**NOTE:**  
 FOR ACCURATE RIGHT OF WAY DATA, CONTACT  
 RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	880	4.5/4.9	6	49

*An T. Nguyen* 2/22/12  
 REGISTERED CIVIL ENGINEER DATE  
 2-27-12  
 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER  
 An T. Nguyen  
 No. 62776  
 Exp. 6-30-12  
 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.



FOR NOTES, ABBREVIATIONS  
 AND LEGEND, SEE SHEET L-1



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

**L-4**

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

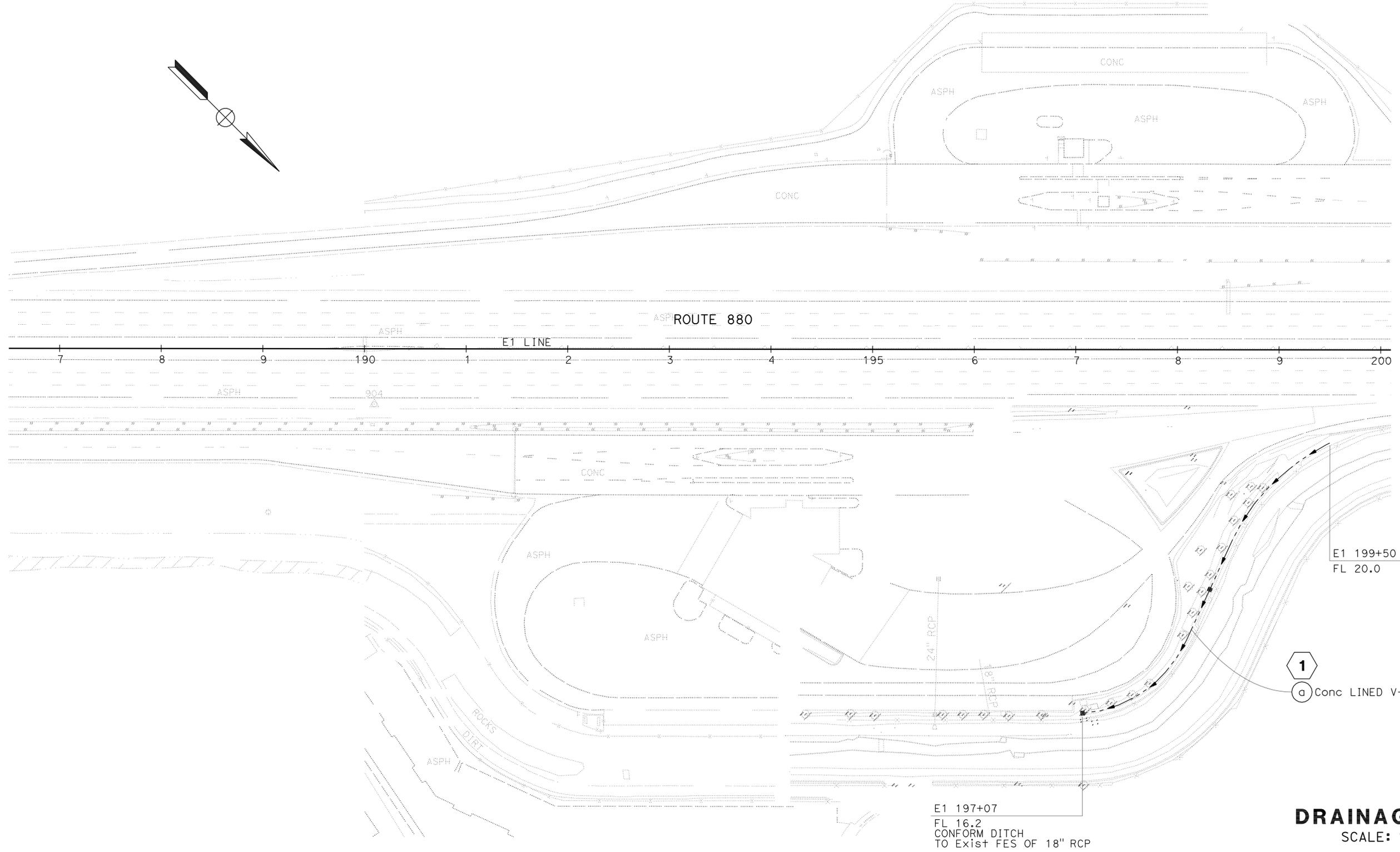
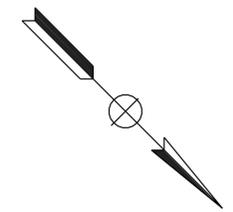
FUNCTIONAL SUPERVISOR	JOSEPH PETERSON
CALCULATED/DESIGNED BY	CHECKED BY
ERIC KAWAKITA	CRAIG TOMIMATSU
REVISOR	DATE
EK	1/24/12

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

**NOTE:**  
 SEE SHEET DD-1 FOR V-DITCH DETAILS.

**LEGEND:**  
 [Hexagon with No.] DRAINAGE SYSTEM NUMBER  
 [Circle with a] DRAINAGE UNIT  
 [Dashed line with arrow] GUTTER CENTER LINE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	880	4.5/4.9	7	49
Eric Kawakita		1/26/12		DATE	
REGISTERED CIVIL ENGINEER		No. 78480		Exp. 9-30-13	
2-27-12		PLANS APPROVAL DATE			
<small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small>					



APPROVED FOR DRAINAGE WORK ONLY

**DRAINAGE PLAN**  
 SCALE: 1" = 50'

**D-1**

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

FUNCTIONAL SUPERVISOR  
 JOSEPH PETERSON

CALCULATED/DESIGNED BY  
 CHECKED BY

ERIC KAWAKITA  
 CRAIG TOMIMATSU

REVISED BY  
 DATE REVISED

EK  
 1/24/12

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

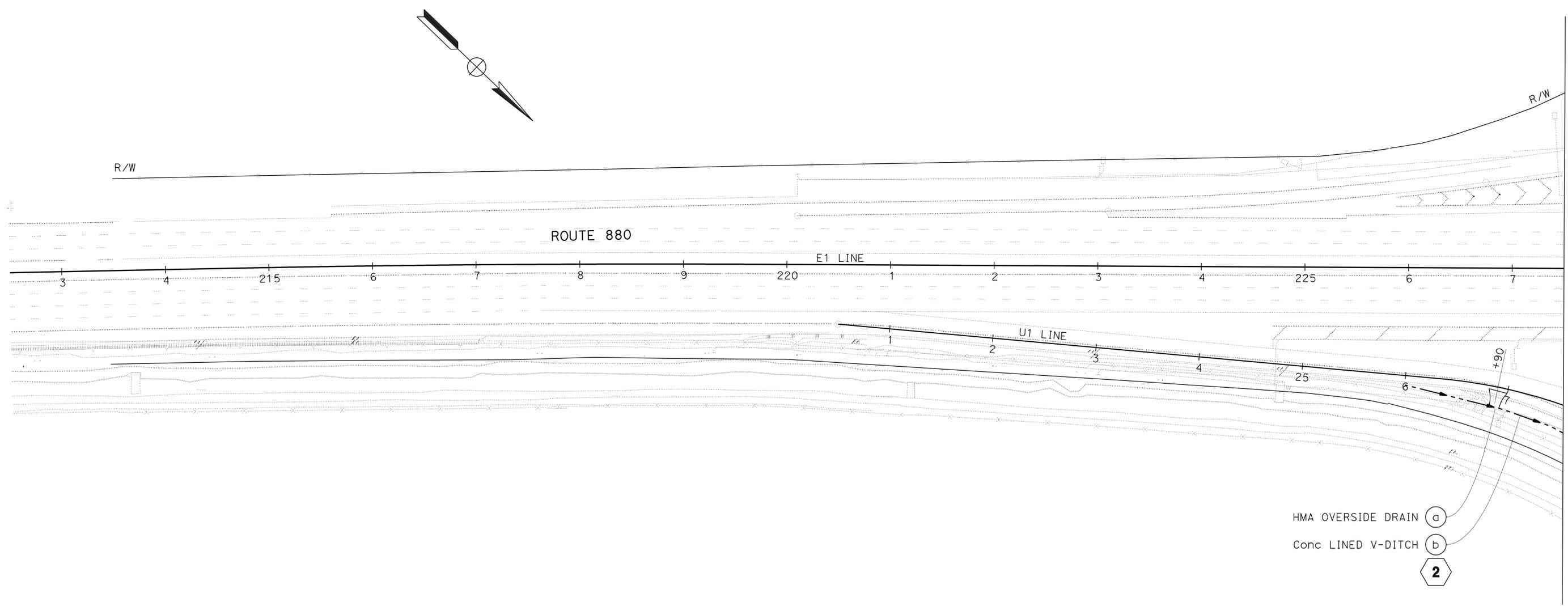
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	880	4.5/4.9	8	49

*Eric Kawakita* 1/26/12  
 REGISTERED CIVIL ENGINEER DATE

Eric S. Kawakita  
 No. 78480  
 Exp. 9-30-13  
 CIVIL

2-27-12  
 PLANS APPROVAL DATE

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



**DRAINAGE PLAN**  
 SCALE: 1" = 50'

APPROVED FOR DRAINAGE WORK ONLY

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET D-1

**D-2**

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	880	4.5/4.9	9	49

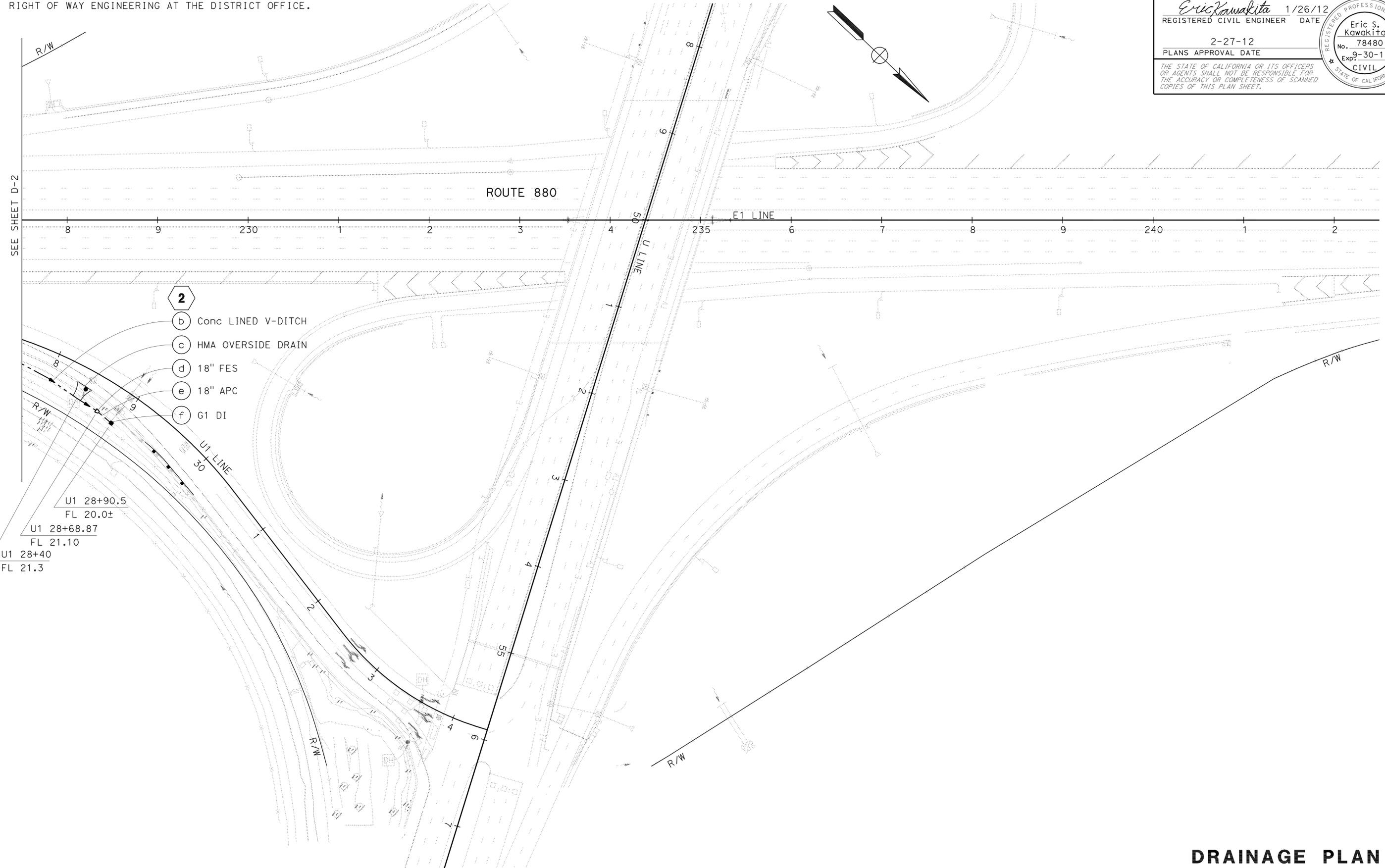
*Eric Kawakita* 1/26/12  
 REGISTERED CIVIL ENGINEER DATE

Eric S. Kawakita  
 No. 78480  
 Exp. 9-30-13  
 CIVIL

2-27-12  
 PLANS APPROVAL DATE

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



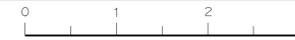
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	ERIC KAWAKITA	REVISOR BY	EK
HYDRAULICS	CRAIG TOMIMATSU	DATE REVISED	1/24/12
FUNCTIONAL SUPERVISOR	JOSEPH PETERSON	CALCULATED/DESIGNED BY	
		CHECKED BY	

APPROVED FOR DRAINAGE WORK ONLY

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET D-1

**DRAINAGE PLAN**  
 SCALE: 1" = 50'

**D-3**



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	880	4.5/4.9	10	49

<i>Eric Kawakita</i>	1/26/12
REGISTERED CIVIL ENGINEER	DATE
2-27-12	
PLANS APPROVAL DATE	

Eric S. Kawakita
No. 78480
Exp. 9-30-13
CIVIL

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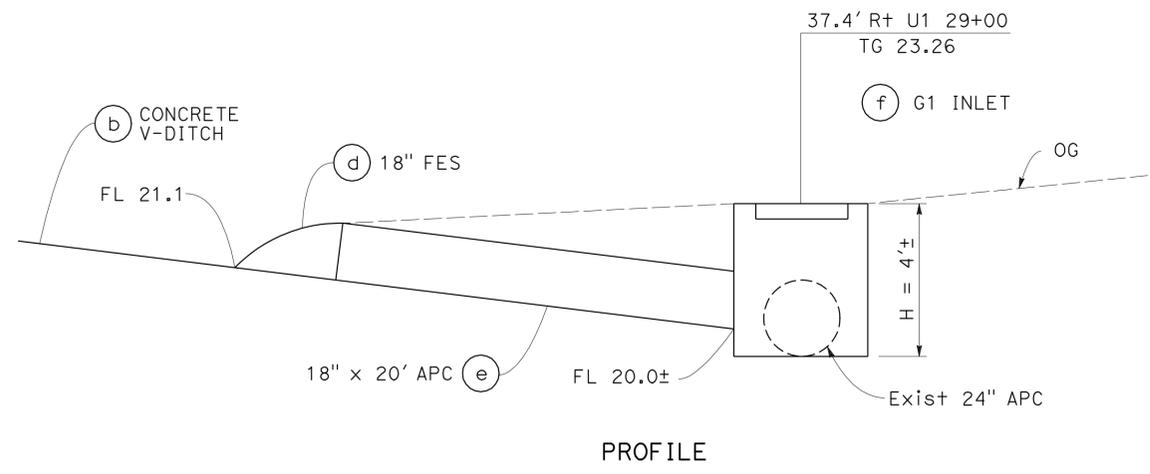
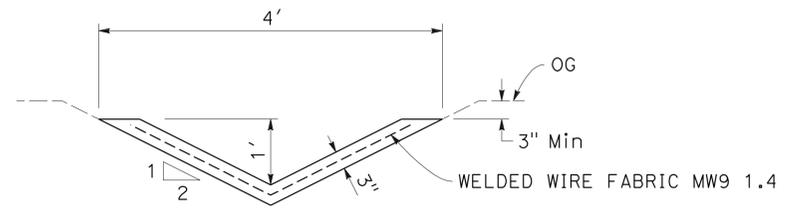
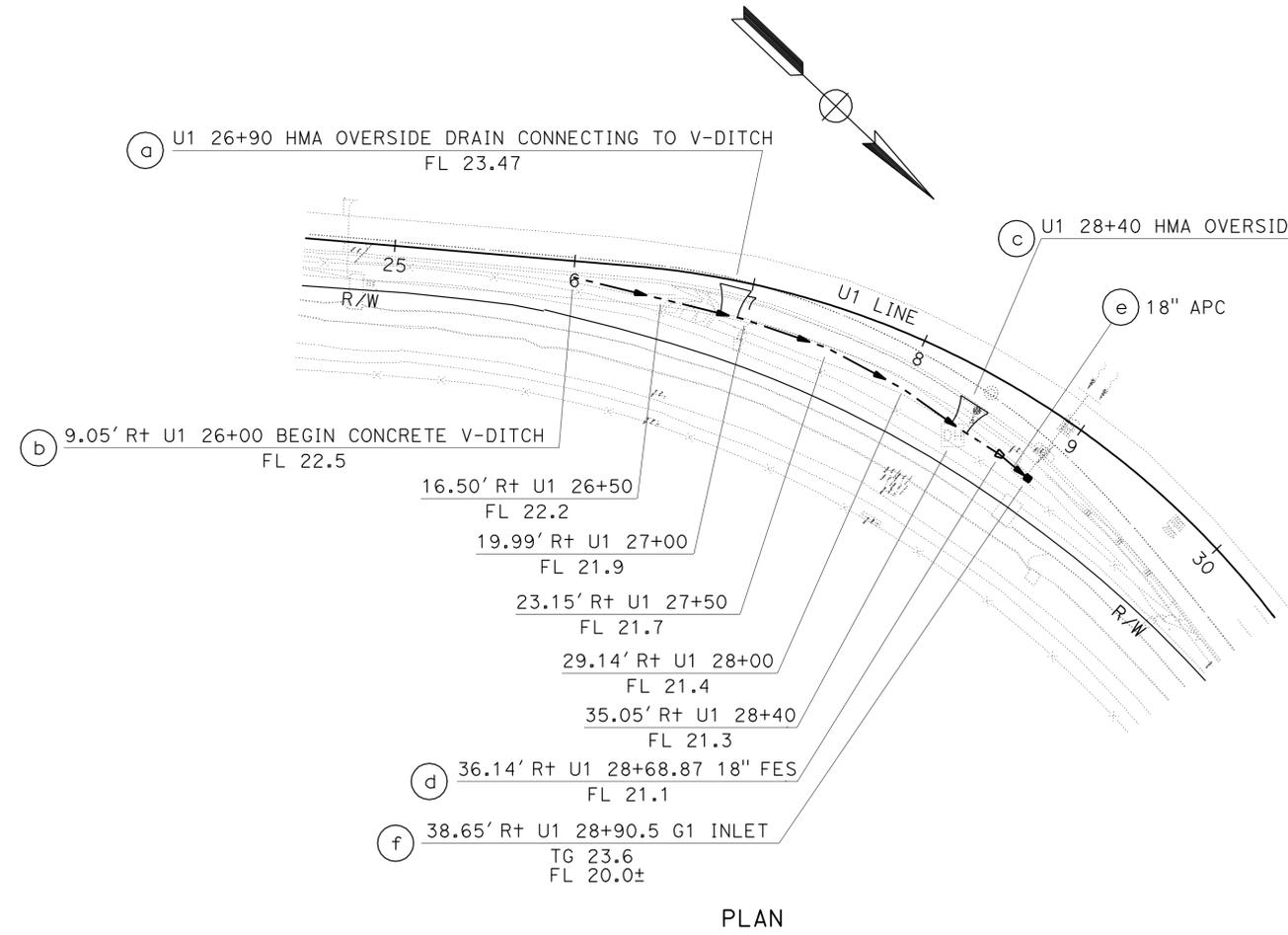
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION - HYDRAULICS

ERIC KAWAKITA  
CRAIG TOMIMATSU

FUNCTIONAL SUPERVISOR  
JOSEPH PETERSON

REVISOR  
E.K.

DATE  
1/24/12



**DRAINAGE SYSTEM No. 2**

**DRAINAGE DETAILS**  
NO SCALE

**DD-1**

ERIC KAWAKITA  
 CRAIG TOMIMATSU

CALCULATED-DESIGNED BY  
 CHECKED BY

FUNCTIONAL SUPERVISOR  
 JOSEPH PETERSON

REVISOR  
 EK  
 DATE  
 1/24/12

**NOTES:**

- ALLOWABLE PIPE MATERIALS ARE RCP AND SMOOTH INTERIOR WALLED PLASTIC PIPE.
- PIPE JOINTS SHALL BE STANDARD TYPE JOINTS.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	880	4.5/4.9	11	49

*Eric Kawakita* 1/26/12  
 REGISTERED CIVIL ENGINEER DATE

2-27-12  
 PLANS APPROVAL DATE

Eric S. Kawakita  
 No. 78480  
 Exp. 9-30-13  
 CIVIL

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**DRAINAGE QUANTITIES**

DRAINAGE SHEET No.	DRAINAGE SYSTEM No.	DRAINAGE UNIT	DITCH EXCAVATION										DESCRIPTION	STATION	DRAINAGE SYSTEM No.	DRAINAGE UNIT		
			CY	MINOR CONCRETE (MINOR STRUCTURE)	MISCELLANEOUS IRON AND STEEL	HEIGHT OF INLET (N)	18" APC	18" ALTERNATIVE FES	PLACE HOT MIX ASPHALT (Misc. AREA)	MINOR HMA	FRAME & GRATE (N) (TYPE 24-12)	EA					SQYD	TON
D-1	1	a	87	30											CONCRETE LINED V-DITCH	R+ E1 197+07 TO 199+50	1	a
D-2	2	a									3.7	0.6			HMA OVERSIDE DRAIN	R+ U1 26+90	2	a
		b	65	22											CONCRETE LINED V-DITCH	24.00' R+ U1 26+00 TO 28+80		b
		c									4.4	0.7			HMA OVERSIDE DRAIN	R+ U1 28+40		c
		d								1					18" ALTERNATIVE FES	37.36' R+ U1 28+80		d
		e							20						18" APC	R+ U1 28+80 TO 29+00		e
D-3	2	f			1.17	326	4.0						1	G1 DI	37.40' R+ U1 29+00		f	
<b>TOTAL</b>			152	52	1.17	326		20	1	8.1*	1.3*				<b>TOTAL</b>			

\* SEE SUMMARY OF QUANTITIES SHEET  
 (N) = NOT A SEPARATE PAY ITEM, FOR INFORMATION ONLY

**DRAINAGE QUANTITIES**  
**DQ-1**

LAST REVISION DATE PLOTTED => 25-MAY-2012 01-26-12 TIME PLOTTED => 08:35

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

FUNCTIONAL SUPERVISOR: ARLISSA PANG  
 CALCULATED/DESIGNED BY: ARLISSA PANG  
 CHECKED BY: ARLISSA PANG  
 AN NGUYEN  
 REVISED BY: ARLISSA PANG  
 DATE REVISED: 2/16/12  
 ATN

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

**ABBREVIATIONS**  
 ACWD ALAMEDA COUNTY WATER DISTRICT  
 AT&T AMERICAN TELEPHONE & TELEGRAPH  
 PG&E PACIFIC GAS & ELECTRIC

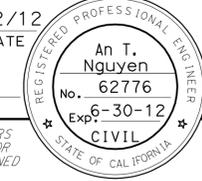
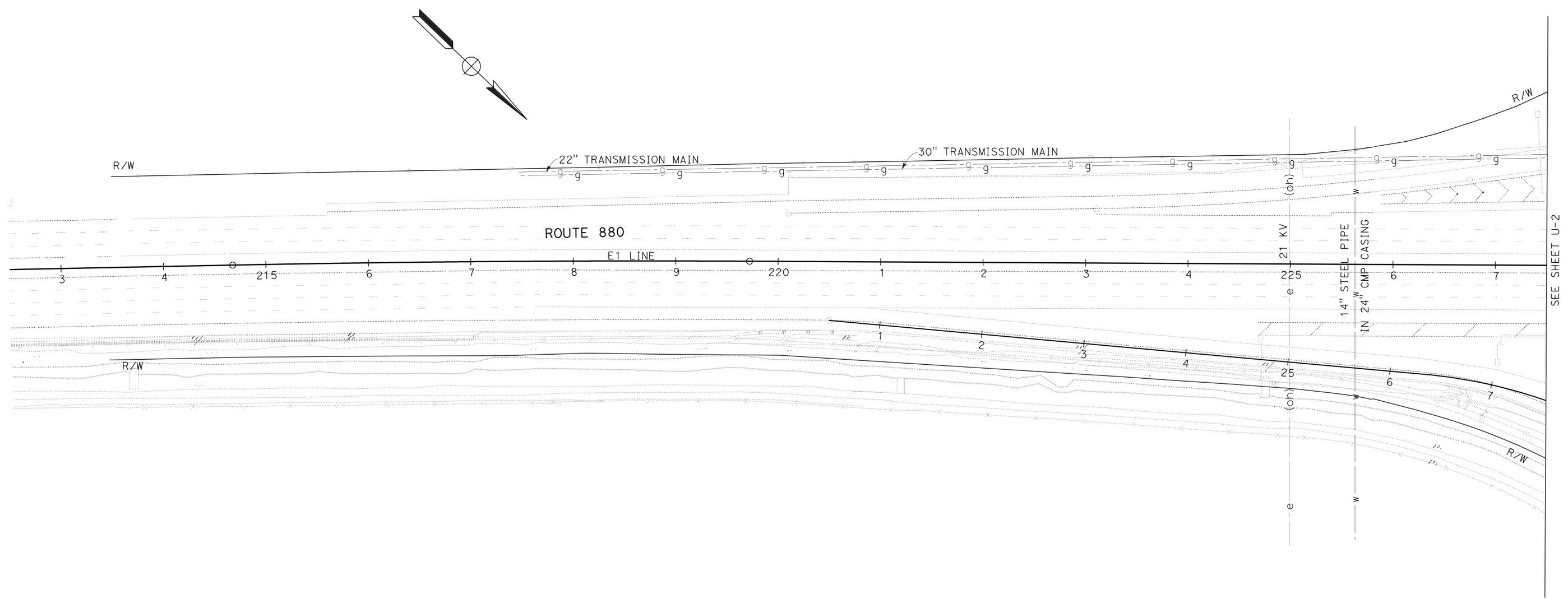
**LEGEND**

<b>UTILITIES</b>	---	tv	---	tv
CABLE TV	---	e	---	(oh)
ELECTRIC	---	g	---	g
GAS	---	t	---	t
TELEPHONE	---	w	---	w
WATER				

**OWNERSHIP**  
 COMCAST  
 PG&E  
 PG&E  
 AT&T  
 ACWD

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	880	4.5/4.9	12	49

*An T. Nguyen* 2/22/12  
 REGISTERED CIVIL ENGINEER DATE  
 2-27-12  
 PLANS APPROVAL DATE  
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SEE SHEET U-2

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

APPROVED FOR UTILITY INFORMATION ONLY

**U-1**

LAST REVISION | DATE PLOTTED => 25-MAY-2012 | 02-16-12 | TIME PLOTTED => 08:35

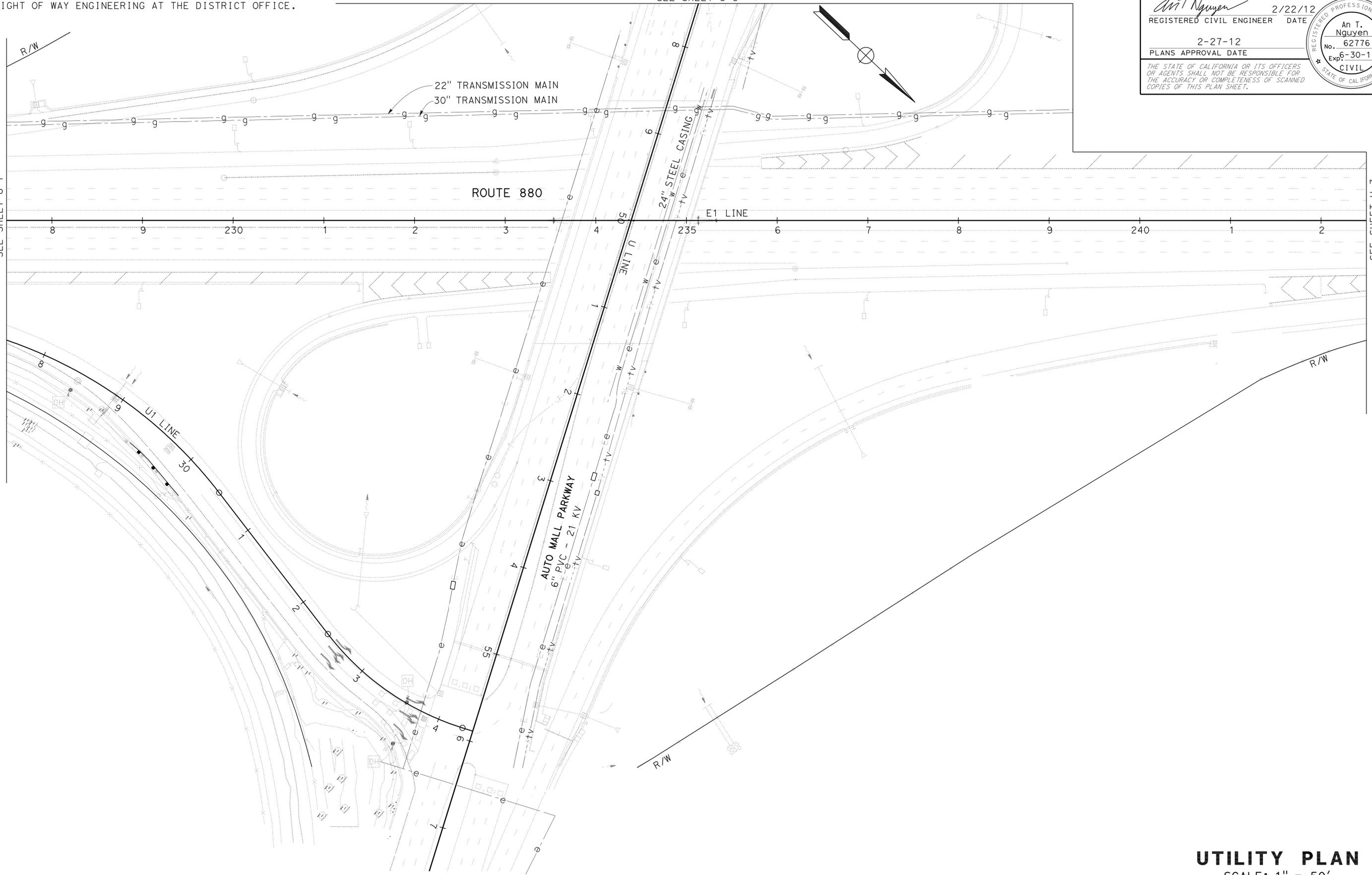
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** DESIGN

FUNCTIONAL SUPERVISOR: ARLISSA PANG  
 CALCULATED/DESIGNED BY: ARLISSA PANG  
 CHECKED BY: ARLISSA PANG  
 AN NGUYEN  
 ARLISSA PANG  
 REVISOR: ATN  
 DATE: 2/16/12

**NOTE:**  
 FOR ACCURATE RIGHT OF WAY DATA, CONTACT  
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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	880	4.5/4.9	13	49

*An T. Nguyen* 2/22/12  
 REGISTERED CIVIL ENGINEER DATE  
 2-27-12  
 PLANS APPROVAL DATE  
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APPROVED FOR UTILITY INFORMATION ONLY

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET U-1

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

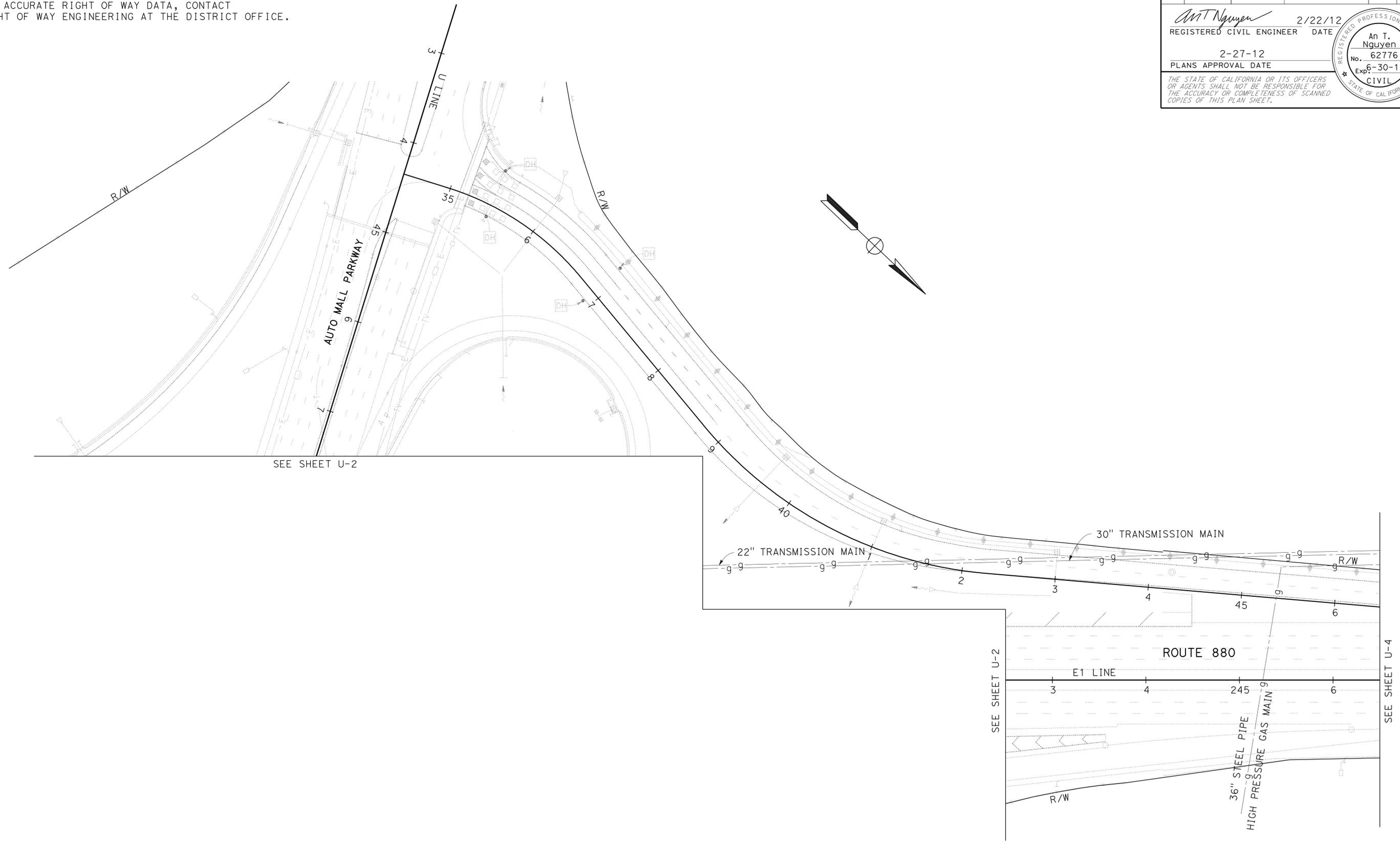
**U-2**

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

CALCULATED-DESIGNED BY	CHECKED BY	AN NGUYEN	ARLISSA PANG
FUNCTIONAL SUPERVISOR		AN NGUYEN	ARLISSA PANG
REVISOR	DATE	ATN	2/16/12

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

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	880	4.5/4.9	14	49
			2/22/12		
REGISTERED CIVIL ENGINEER			DATE		
PLANS APPROVAL DATE			2-27-12		
<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>					



APPROVED FOR UTILITY INFORMATION ONLY

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET U-1

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

**U-3**

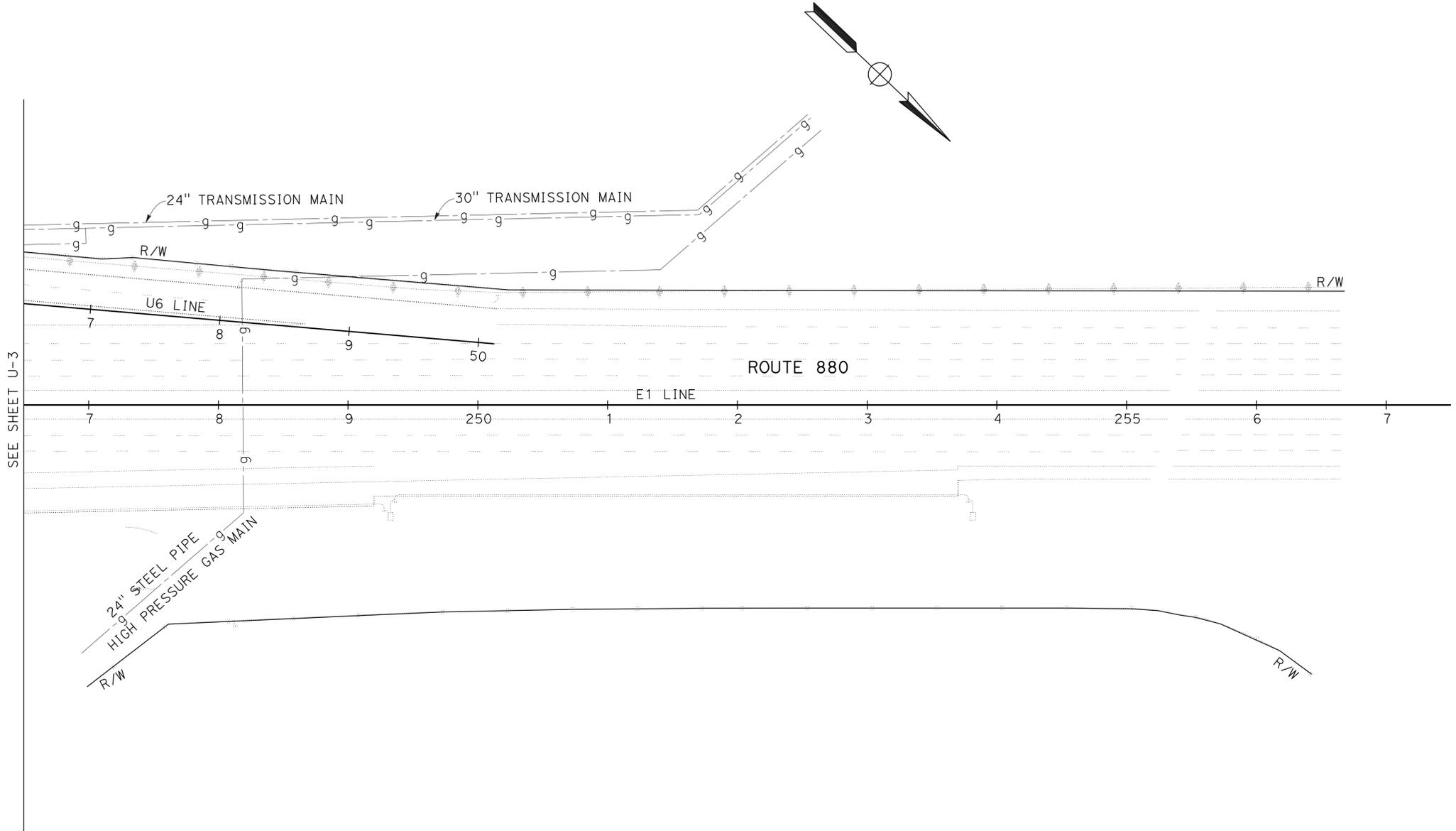
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** DESIGN

FUNCTIONAL SUPERVISOR: ARLISSA PANG  
 CALCULATED/DESIGNED BY: ARLISSA PANG  
 CHECKED BY: ARLISSA PANG  
 AN NGUYEN  
 ARLISSA PANG  
 REVISED BY: ARLISSA PANG  
 DATE REVISED: 2/16/12  
 ATN

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

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	880	4.5/4.9	15	49

*An T. Nguyen* 2/22/12  
 REGISTERED CIVIL ENGINEER DATE  
 2-27-12  
 PLANS APPROVAL DATE  
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



APPROVED FOR UTILITY INFORMATION ONLY

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET U-1

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

**U-4**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans**  
 FUNCTIONAL SUPERVISOR: LOURDES DAVID  
 CALCULATED/DESIGNED BY: LEOPOLDO BONGATO  
 CHECKED BY: MARIA LERMA  
 REVISED BY: ML  
 DATE REVISED: 1/19/12

**STATIONARY MOUNTED CONSTRUCTION AREA SIGNS**

SIGN No.	SIGN CODE	PANEL SIZE	SIGN MESSAGE	NUMBER OF POSTS AND SIZE	No. OF SIGNS
1	W20-1	60" x 60"	ROAD WORK AHEAD	2 - 4" x 6"	4
2	C40(CA)	108" x 42"	TRAFFIC FINES DOUBLED IN CONSTRUCTION ZONES	2 - 4" x 6"	2
3	G20-2	36" x 18"	END ROAD WORK	1 - 4" x 4"	2

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	880	4.5/4.9	16	49

*Maria Eida R. Lerma* 1/23/12  
 REGISTERED CIVIL ENGINEER DATE  
 2-27-12  
 PLANS APPROVAL DATE

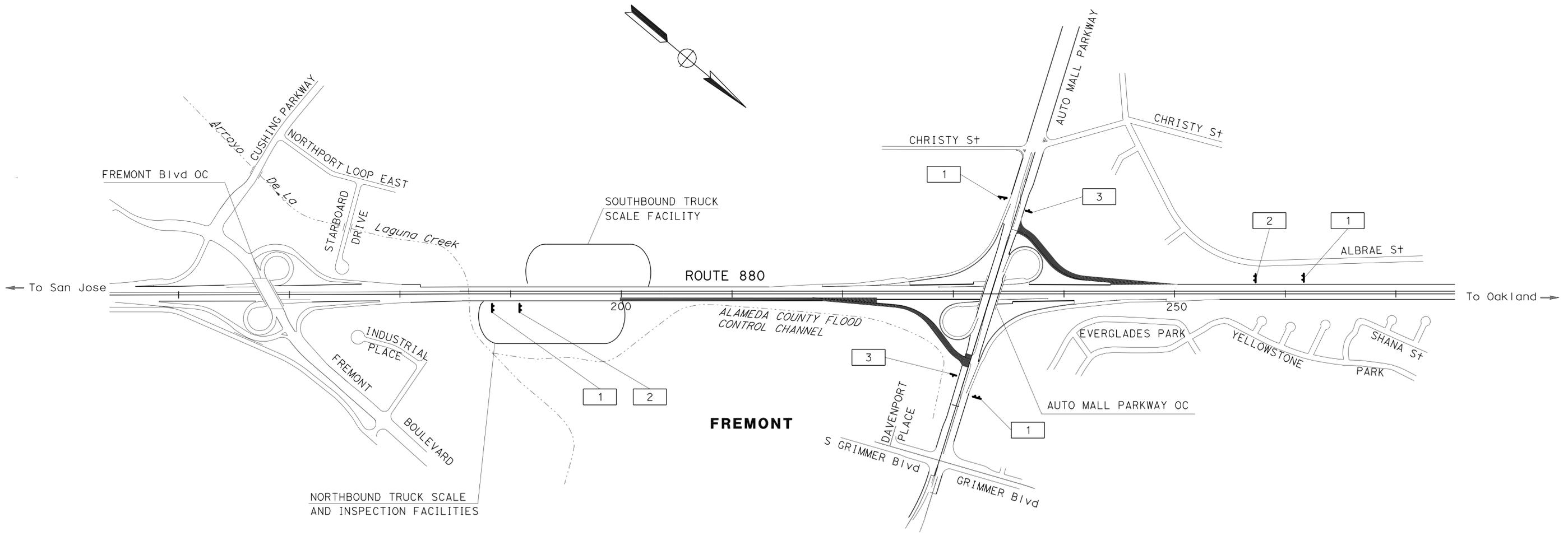
REGISTERED PROFESSIONAL ENGINEER  
 No. 75486  
 Exp. 6-30-12  
 CIVIL  
 STATE OF CALIFORNIA

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

- NOTES:**
- EXACT LOCATION AND POSITION OF CONSTRUCTION AREA SIGNS TO BE DETERMINED BY THE ENGINEER.
  - SIMULTANEOUS RAMP CLOSURES SHALL NOT BE ALLOWED UNLESS OTHERWISE APPROVED BY THE ENGINEER.

**LEGEND:**

No. [ ] CONSTRUCTION AREA SIGN NUMBER



**CONSTRUCTION AREA SIGNS**  
 NO SCALE

APPROVED FOR CONSTRUCTION AREA SIGN WORK ONLY

**CS-1**

LAST REVISION | DATE PLOTTED => 25-MAY-2012  
 01-19-12 | TIME PLOTTED => 08:36

**NOTES:**

1. FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.
2. ALL PAVEMENT DELINEATIONS AND MARKINGS SHALL BE THERMOPLASTIC.
3. ALL LANES 12' WIDE UNLESS OTHERWISE NOTED.

**LEGEND:**

-  PAVEMENT DELINEATION DETAIL NUMBER
-  CHANGE OF PAVEMENT DELINEATION DETAILS
-  TYPE III (L) ARROW
-  TYPE III (R) ARROW
-  TYPE III (B) ARROW
-  TYPE V ARROW

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	880	4.5/4.9	17	49

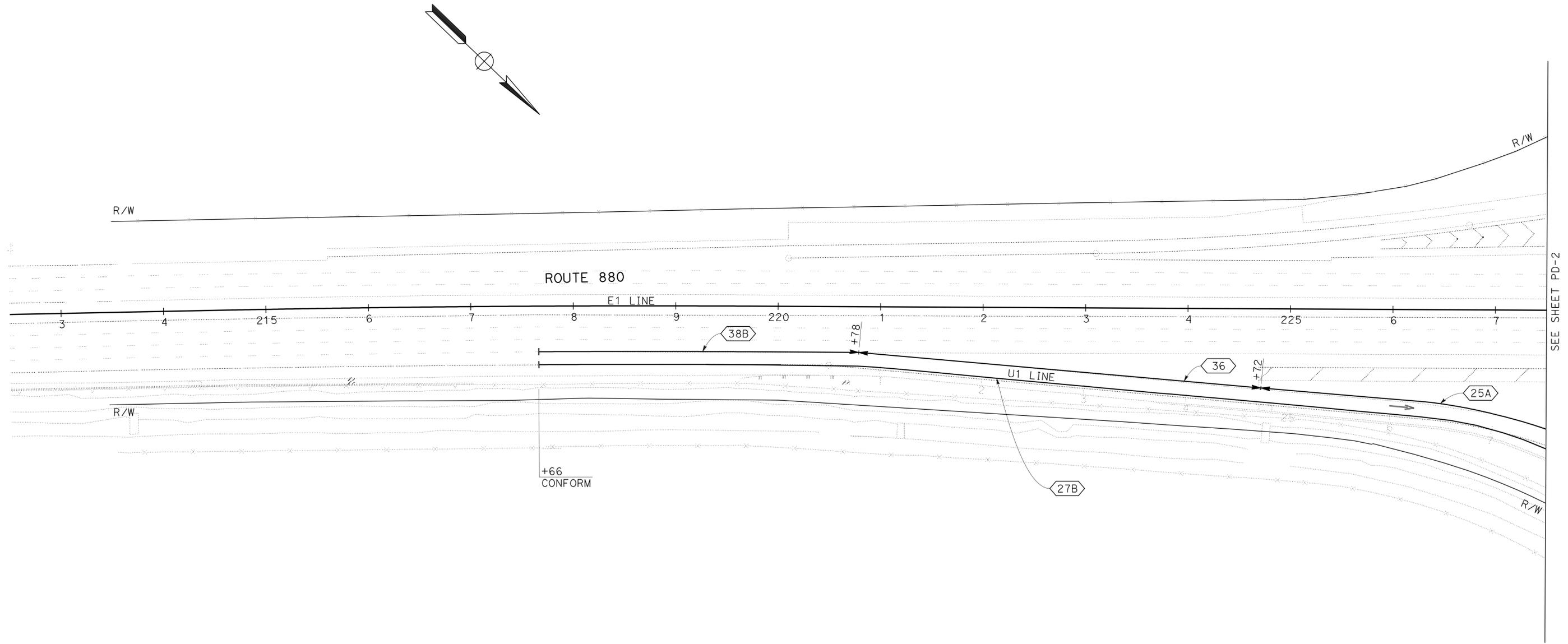
<i>S. Mamoon</i> 1/26/12	
REGISTERED CIVIL ENGINEER	DATE
2-27-12	
PLANS APPROVAL DATE	

REGISTERED PROFESSIONAL ENGINEER
SAIF MAMOON
No. 53427
Exp. 6-30-13
CIVIL

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

SM	1/24/12
REVISOR	DATE
SAIF MAMOON	EMILY TANG
DESIGNED BY	CHECKED BY
ROLAND AU-YEUNG	
FUNCTIONAL SUPERVISOR	
DEPARTMENT OF TRANSPORTATION	
TRAFFIC	



**PAVEMENT DELINEATION PLAN**  
SCALE: 1" = 50'

APPROVED FOR PAVEMENT DELINEATION WORK ONLY

**PD-1**

LAST REVISION | DATE PLOTTED => 25-MAY-2012  
01-24-12 | TIME PLOTTED => 08:36

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans**  
 FUNCTIONAL SUPERVISOR: ROLAND AU-YEUNG  
 CALCULATED/DESIGNED BY: SAIF MAMOON  
 CHECKED BY: EMILY TANG  
 REVISED BY: SM  
 DATE REVISED: 1/24/12

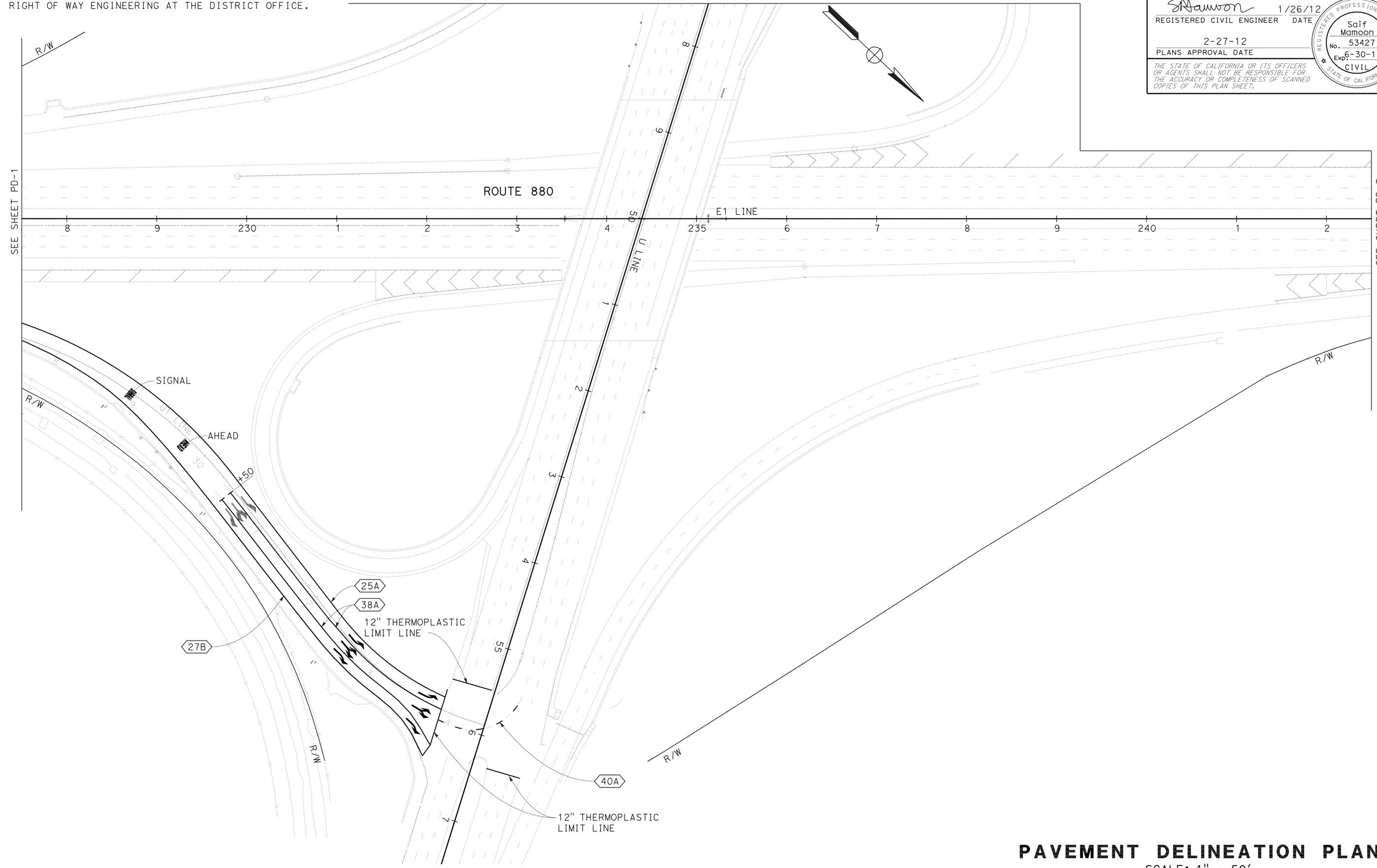
**NOTE:**  
 FOR ACCURATE RIGHT OF WAY DATA, CONTACT  
 RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	880	4.5/4.9	18	49

1/26/12  
 REGISTERED CIVIL ENGINEER DATE  
 2-27-12  
 PLANS APPROVAL DATE

Saif Mamoon  
 No. 53427  
 Exp. 6-30-13  
 CIVIL

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**PAVEMENT DELINEATION PLAN**  
 SCALE: 1" = 50'

APPROVED FOR PAVEMENT DELINEATION WORK ONLY

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET PD-1

**PD-2**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	FUNCTIONAL SUPERVISOR	ROLAND AU-YEUNG	CALCULATED-DESIGNED BY	SAIF MAMOON	REVISOR	SM
<b>Caltrans</b>	TRAFFIC		CHECKED BY	EMILY TANG	DATE REVISED	1/24/12

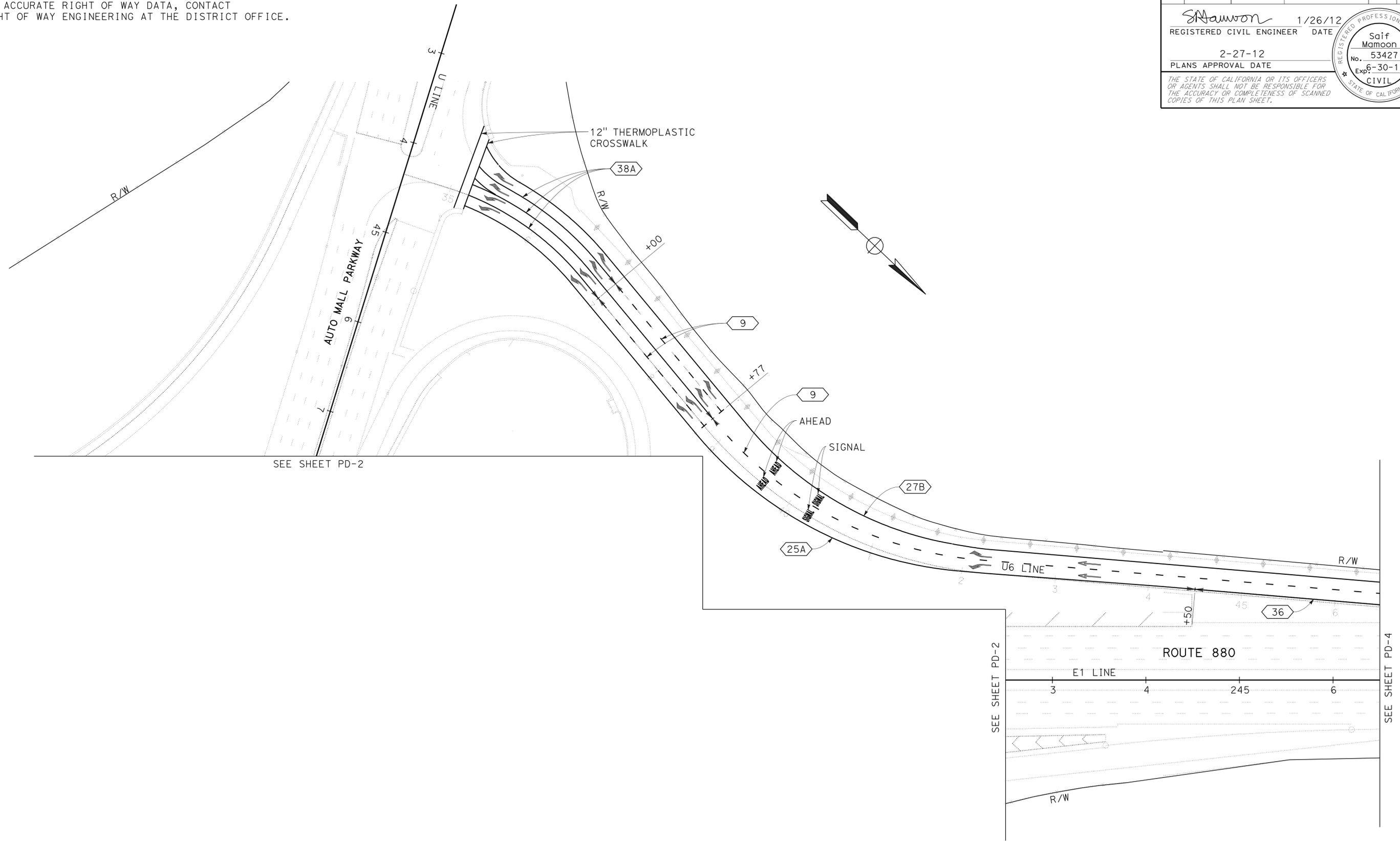
**NOTE:**  
FOR ACCURATE RIGHT OF WAY DATA, CONTACT  
RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	880	4.5/4.9	19	49

1/26/12  
 REGISTERED CIVIL ENGINEER DATE  
 2-27-12  
 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER  
 Saif Mamooun  
 No. 53427  
 Exp. 6-30-13  
 CIVIL  
 STATE OF CALIFORNIA

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**PAVEMENT DELINEATION PLAN**  
SCALE: 1" = 50'

APPROVED FOR PAVEMENT DELINEATION WORK ONLY

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET PD-1

**PD-3**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans**  
 FUNCTIONAL SUPERVISOR: ROLAND AU-YEUNG  
 CALCULATED/DESIGNED BY: SAIF MAMOON  
 CHECKED BY: EMILY TANG  
 REVISED BY: SM  
 DATE REVISED: 1/24/12

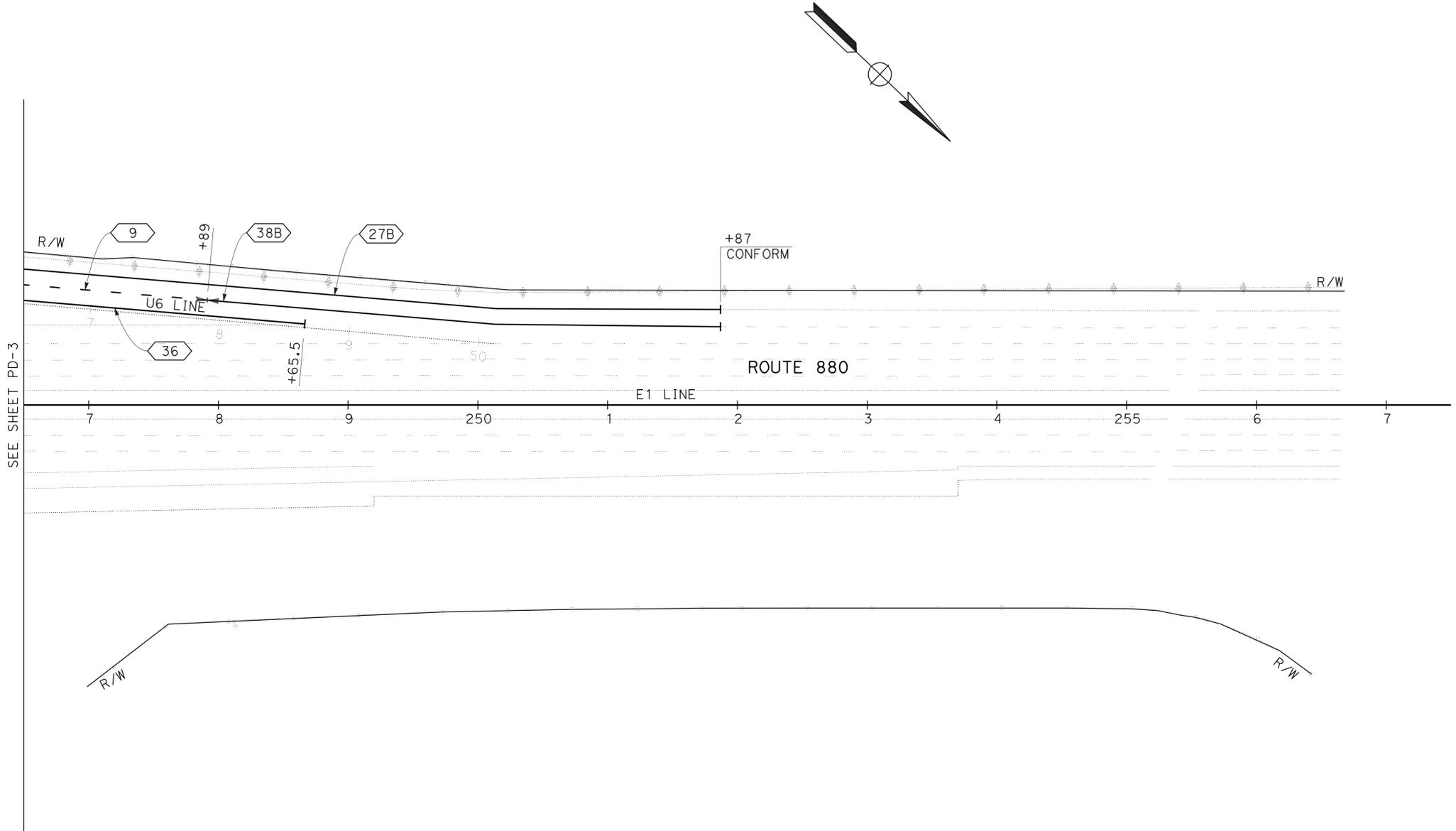
**NOTE:**  
 FOR ACCURATE RIGHT OF WAY DATA, CONTACT  
 RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	880	4.5/4.9	20	49

1/26/12  
 REGISTERED CIVIL ENGINEER DATE  
 2-27-12  
 PLANS APPROVAL DATE

Saif Mamooun  
 No. 53427  
 Exp. 6-30-13  
 CIVIL

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**PAVEMENT DELINEATION PLAN**  
 SCALE: 1" = 50'

APPROVED FOR PAVEMENT DELINEATION WORK ONLY

FOR NOTES, ABBREVIATIONS  
 AND LEGEND, SEE SHEET PD-1

**PD-4**

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	880	4.5/4.9	21	49

*An T. Nguyen* 2/22/12  
 REGISTERED CIVIL ENGINEER DATE  
 2-27-12  
 PLANS APPROVAL DATE

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### PAVEMENT MARKINGS

SHEET No.	STATION	DIRECTION	PAVEMENT MARKING	REMOVE THERMOPLASTIC PAVEMENT MARKING	THERMOPLASTIC PAVEMENT MARKING
				SQFT	SQFT
PD-1	U1 26+00	OFF-RAMP	TYPE V ARROW	33	33
PD-2	U1 28+10 TO U1 33+90	OFF-RAMP	SIGNAL	32	32
PD-2	U1 28+10 TO U1 33+90	OFF-RAMP	AHEAD	31	31
PD-2	U1 28+10 TO U1 33+90	OFF-RAMP	TYPE III (R) ARROW	126	126
PD-2	U1 28+10 TO U1 33+90	OFF-RAMP	TYPE III (B) ARROW	219	219
PD-2	U1 28+10 TO U1 33+90	OFF-RAMP	TYPE III (L) ARROW	126	126
PD-2	U1 30+90	OFF-RAMP	12" THERMOPLASTIC LIMIT LINE	70	70
PD-2	U 55+50	OFF-RAMP	12" THERMOPLASTIC LIMIT LINE		40
PD-2	U 60+30	OFF-RAMP	12" THERMOPLASTIC LIMIT LINE		40
PD-3	U6 40+20	OFF-RAMP	SIGNAL	64	64
PD-3	U6 39+60	OFF-RAMP	AHEAD	62	62
PD-3	U6 43+90	OFF-RAMP	TYPE V ARROW	66	66
PD-3	U6 35+10 TO U1 46+00	OFF-RAMP	TYPE III (R) ARROW	294	294
PD-3	U6 35+10 TO U1 46+00	OFF-RAMP	TYPE III (L) ARROW	294	294
PD-3	U6 35+00	OFF-RAMP	12" THERMOPLASTIC CROSSWALK	173	173
SUBTOTAL					
TOTAL				1590	1670

### TRAFFIC STRIPES AND PAVEMENT MARKERS

SHEET No.	STATION	DIRECTION	DETAIL No.	REMOVE THERMOPLASTIC TRAFFIC STRIPE	REMOVE YELLOW THERMOPLASTIC TRAFFIC STRIPE	REMOVE PAVEMENT MARKER (N)	THERMOPLASTIC TRAFFIC STRIPE			PAVEMENT MARKER (RETROREFLECTIVE)		PAVEMENT MARKER (NON-REFLECTIVE)
				LF	EA	EA	4" WHITE	4" YELLOW	8" WHITE	TYPE G	TYPE H	EA
							EA	EA	EA			
PD-1	U1 24+72 TO U1 27+55.0	OFF-RAMP	25A		283	13					13	
PD-1	60' Rt E1 217+66 TO U1 27+55.0	OFF-RAMP	27B	989			989					
PD-1	60' Rt E1 217+66 TO U1 22+78.0	OFF-RAMP	38B	624		28			312.0	28		
PD-1	U1 20+78 TO U1 24+72.0	OFF-RAMP	36	788		18			394.0	18		
PD-2	U1 27+55 TO U1 33+90.0	OFF-RAMP	25A		635	28		635			28	
PD-2	U1 30+50 TO U1 33+90.0	OFF-RAMP	38A	198					680.0			
PD-2	U1 27+55 TO U1 33+90.0	OFF-RAMP	27B	635			635					
PD-2	U1 55+49 TO U1 33+90.0		40A									20
PD-3	U6 35+10 TO U6 44+50.0	OFF-RAMP	25A		940	41		940			41	
PD-3	U6 35+10 TO U6 38+77.0	OFF-RAMP	38A	1500					750.0			
PD-3	U6 35+10 TO U6 46+50.0	OFF-RAMP	27B	1140			1140					
PD-3	U6 37+00 TO U6 46+50.0	OFF-RAMP	9	329		27	1127			27		
PD-3	U6 44+50 TO U6 46+50.0	OFF-RAMP	36	400		10			200.0	10		
PD-4	U6 46+50 TO E1 251+87.0	OFF-RAMP	27B	537			537					
PD-4	U6 46+50 TO U1 47+89.0	OFF-RAMP	9	41		4	140			4		
PD-4	U6 47+89 TO E1 251+87.0	OFF-RAMP	38B	796		36			398.0	36		
PD-4	U6 46+50 TO U1 48+65.5	OFF-RAMP	36	431		10			215.5	10		
SUBTOTAL							4568	1858		133	82	
TOTAL				8408	1858	215	6426	2949.5		215		20

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

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans**  
 FUNCTIONAL SUPERVISOR: ARLISSA PANG  
 DESIGN  
 CALCULATED/DESIGNED BY: NICOLETA PASCUA  
 CHECKED BY: AN NGUYEN  
 REVISED BY: ATN  
 DATE REVISED: 2/16/12

## PAVEMENT DELINEATION QUANTITIES

### PDQ-1



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	880	4.5/4.9	22	49

*An T. Nguyen* 2/22/12  
 REGISTERED CIVIL ENGINEER DATE  
 2-27-12  
 PLANS APPROVAL DATE

An T. Nguyen  
 No. 62776  
 Exp. 6-30-12  
 CIVIL

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**PAVEMENT STRUCTURE QUANTITIES**

SHEET No.	STATION	DIRECTION	COLD PLANE AC PAVEMENT	HMA (OPEN GRADED)	TACK COAT	SHOULDER BACKING
			SQYD	TON	TON	TON
L-1	U1 20+34.67 TO U1 27+55.00	OFF-RAMP	43	147	0.9	10.4
L-2	U1 27+55.00 TO U1 34+39.88	OFF-RAMP	450	330	2.3	25.3
L-3	U6 34+47.96 TO U6 46+48.29	OFF-RAMP	194	444	2.9	29.9
L-4	U6 46+48.29 TO U6 50+12.22	OFF-RAMP	68	99	0.7	
TOTAL			755	1020	6.8	65.6

**METAL BEAM GUARD RAILING**

STATION	LAYOUT TYPE (N)	ALTERNATIVE FLARE TERMINAL SYSTEM	TRANSITION RAILING (TYPE WB)	REMOVE METAL BEAM GUARDRAIL	MBGR (WOOD POST)
		EA			LF
U1 29+35.84 TO U1 30+21.26	12B	1	1	1	25
TOTAL		1	1	1	25

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

**HOT MIX ASPHALT DIKE AND MISCELLANEOUS AREAS**

SHEET No.	STATION	DIRECTION	HMA DIKE			MINOR HMA	REMOVE AC DIKE	PLACE HMA Misc AREA
			TYPE C	TYPE D	TYPE F			
			LF			TON	LF	SQYD
L-1	U1 20+34.67 TO U1 27+55.00	OFF-RAMP		720.3		40.7	720.3	
L-2	U1 27+55.00 TO U1 29+35.84	OFF-RAMP		180.8		10.2	180.8	
L-2	U1 29+35.84 TO U1 30+21.26	OFF-RAMP	60.4		25	3.7	85.4	
L-2	U1 32+48.80 TO U1 34+00.00	OFF-RAMP		187.2		10.6	187.2	
L-3	U6 35+00.00 TO U6 36+26.21	OFF-RAMP		126.2		7.1	126.2	
D2 AND D3	U1 226+60.00 AND U1 228+40.00	OFF-RAMP				1.3	8.1	
SUBTOTAL			60.4	1214.5	25			
TOTAL			60.4	1214.5	25	73.6	1299.9	

**SUMMARY OF QUANTITIES**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans**  
 DESIGN  
 FUNCTIONAL SUPERVISOR: ARLISSA PANG  
 CALCULATED/DESIGNED BY: NICOLETA PASCUA  
 CHECKED BY: AN NGUYEN  
 REVISED BY: ATN  
 DATE REVISED: 2/16/12

LAST REVISION: DATE PLOTTED => 25-MAY-2012    TIME PLOTTED => 08:36

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	880	4.5/4.9	23	49

*M Noii* 1/26/12  
 REGISTERED ELECTRICAL ENGINEER DATE

2-27-12  
 PLANS APPROVAL DATE

**Mahmood Noii**  
 No. 13717  
 Exp. 6-30-13  
 ELECT

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

**INDEX TO ELECTRICAL PLANS:**

- E-1 ELECTRICAL NOTES AND INDEX
- E-2 , E-3 LOOP DETECTOR REPLACEMENT (RAMP METERING)
- E-4 LOOP DETECTOR REPLACEMENT ( TRAFFIC SIGNAL)
- E-5 ELECTRICAL DETAILS (LOOP DETECTOR REPLACEMENT)

**PROJECT NOTES:**

1. INSTALL LOOP CONDUCTORS THROUGH THE EXISTING DETECTOR TERMINATION CONDUIT.
2. SPLICE NEW LOOP CONDUCTORS TO EXISTING dlc.
3. ABANDON EXISTING LOOP DETECTOR AND INSTALL NEW LOOP DETECTOR CENTERED IN LANE.

**GENERAL NOTES:**

1. NO ABOVE GROUND ELECTRICAL WORK SHALL BE PERFORMED ON ANY SYSTEM WITHIN THE PROJECT SITE UNTIL ALL CONTRACTOR-FURNISHED ELETRICAL MATERIALS FOR THE INDIVIDUAL SYSTEM HAVE BEEN TESTED AND DELIVERED TO CONTRACTOR.
2. THE CONTRACTOR SHALL VERIFY THE LOCATION OF THE LOOP DETECTORS TO BE REPLACED PRIOR TO REPAVING.
3. ALL LOOP DETECTORS AT EACH LOCATION SHALL BE REPLACED AND TESTED WITHIN THE TIME ALLOTTED FOR TRAFFIC SIGNAL SYSTEM SHUTDOWN AT THAT LOCATION.
4. SPLICE NEW LOOP CONDUCTORS TO CORESPONDING DLC IN TERMINATION PULL BOX. VERIFY IDENTIFICATION OF EXISTING DLC BEFORE CONNECTING TO THE CORESPONDING LOOP DETECTORS.
5. AT LEAST THREE WORKING DAYS PRIOR TO PERFORMING ANY WORK ON EACH EXISTING SYSTEM, THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF TRANSPORTATION, ELECTRICAL AND SIGNAL MAINTENANCE SUPERINTENDENT, PHONE (415 330-6500).
6. WHERE ONE OR MORE TRAFFIC SIGNAL DETECTOR(S) CONSIST OF A SEQUENCE OF 4 LOOPS IN A SINGLE LANE THE FRONT LOOP CLOSEST TO THE LIMIT LINE OR CROSSWALK SHALL BE LOCATED 1 FOOT FROM THE LINE. THE SET OF 3 LOOPS OR 4 LOOPS ASSIGNED TO THE SAME LOOP DETECTOR LEAD -IN CABLE (DLC) SHALL BE CONNECTED IN SERIES FOR TRAFFIC SIGNAL SYSTEM ONLY AND NOT FOR RAMP METERING SYSTEM.
7. THE CONTRACTOR SHALL PROVIDE TWO REPORTS PER LOCATION ON THE STATUS OF EACH DETECTOR LOOP REPLACEMENT SHOWING CONTINUITY AND INSULATION RESISTANCE READINGS. THE REPORTS SHALL BE SUBMITTED TO THE ENGINEER, ONE BEFORE STARTING WORK AND THE OTHER AFTER WORK HAS BEEN COMPLETED AT EACH LOCATION.

**INDEX AND ELECTRICAL NOTES**

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

FUNCTIONAL SUPERVISOR  
LAI HONG CHIU

CALCULATED/DESIGNED BY  
CHECKED BY

HAWA GARDIZI  
MAHMOOD NOII

REVISOR BY  
DATE REVISED

HG  
1/24/12

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

SEE SHEET E-5

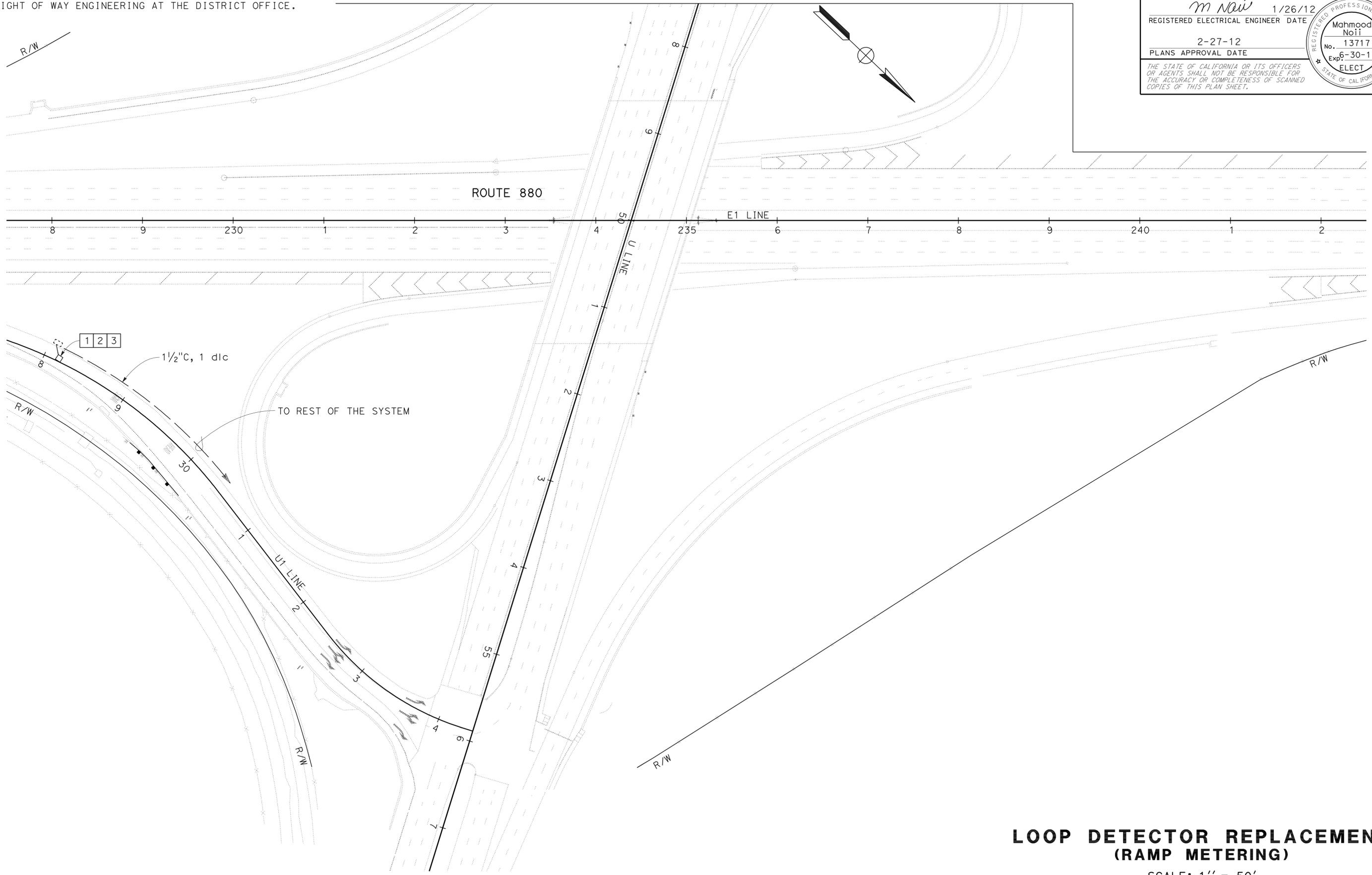
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	880	4.5/4.9	24	49

*M. Now* 1/26/12  
 REGISTERED ELECTRICAL ENGINEER DATE

2-27-12  
 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER  
 Mahmood Noii  
 No. 13717  
 Exp. 6-30-13  
 ELECT  
 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.



**LOOP DETECTOR REPLACEMENT  
 (RAMP METERING)**

SCALE: 1" = 50'

APPROVED FOR ELECTRICAL WORK ONLY

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

**E-2**

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

FUNCTIONAL SUPERVISOR  
 LAI HONG CHIU

CALCULATED-DESIGNED BY  
 CHECKED BY

HAWA GARDIZI  
 MAHMOOD NOII

REVISED BY  
 DATE REVISED

HG  
 1/24/12

**NOTE:**  
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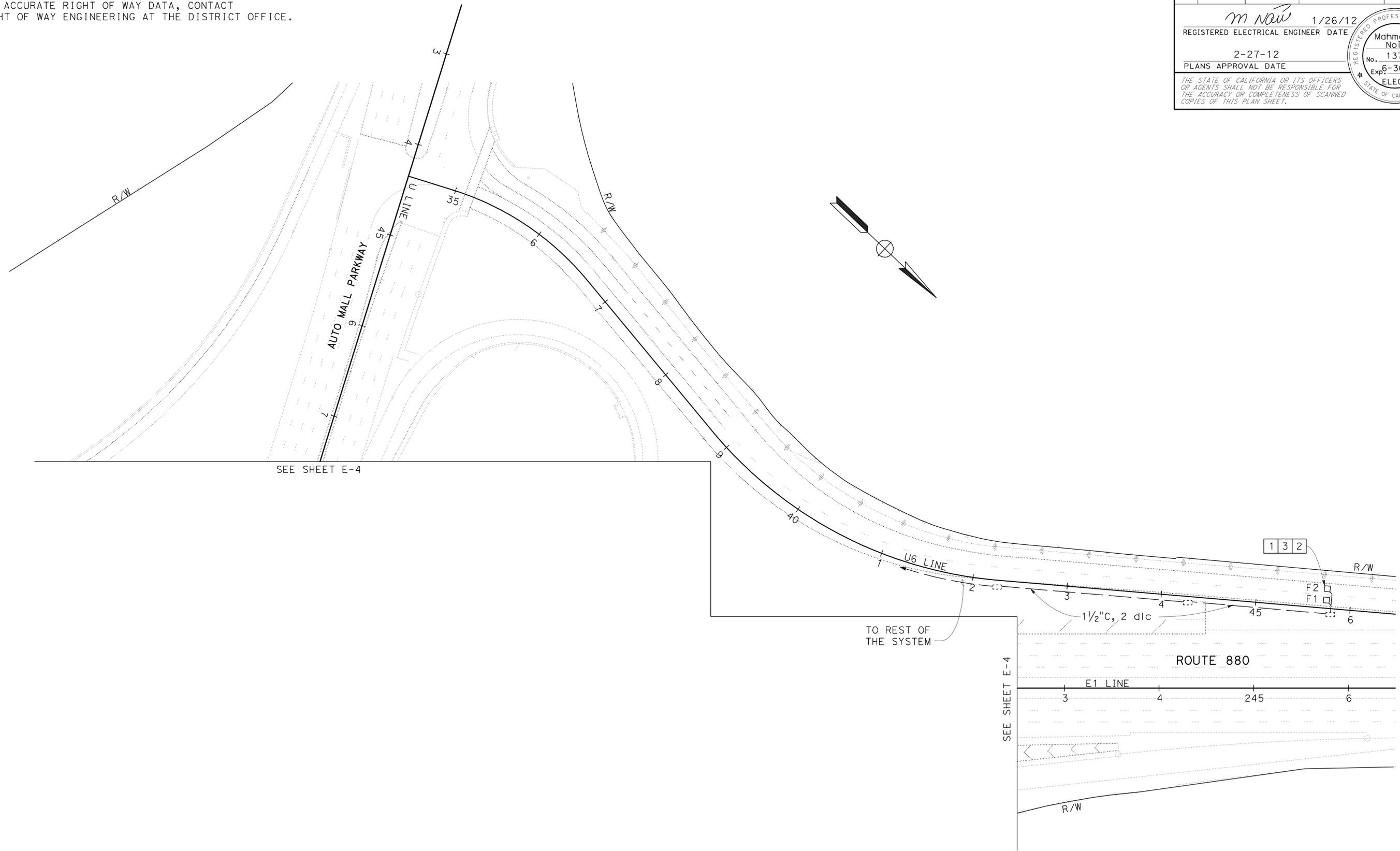
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	880	4.5/4.9	25	49

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2-27-12  
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REGISTERED PROFESSIONAL ENGINEER  
 Mahmood Noii  
 No. 13717  
 Exp. 6-30-13  
 ELECT  
 STATE OF CALIFORNIA

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**LOOP DETECTOR REPLACEMENT  
 (RAMP METERING)**

SCALE: 1" = 50'

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

APPROVED FOR ELECTRICAL WORK ONLY

**E-3**

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	880	4.5/4.9	26	49

*M Now* 1/26/12  
REGISTERED ELECTRICAL ENGINEER DATE

2-27-12  
PLANS APPROVAL DATE

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 Mahmood Noii  
 No. 13717  
 Exp. 6-30-13  
 ELECT  
 STATE OF CALIFORNIA

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AUTO MALL PARKWAY &  
ROUTE 880 SB OFF-RAMP

AUTO MALL PARKWAY &  
ROUTE 880 NB OFF-RAMP

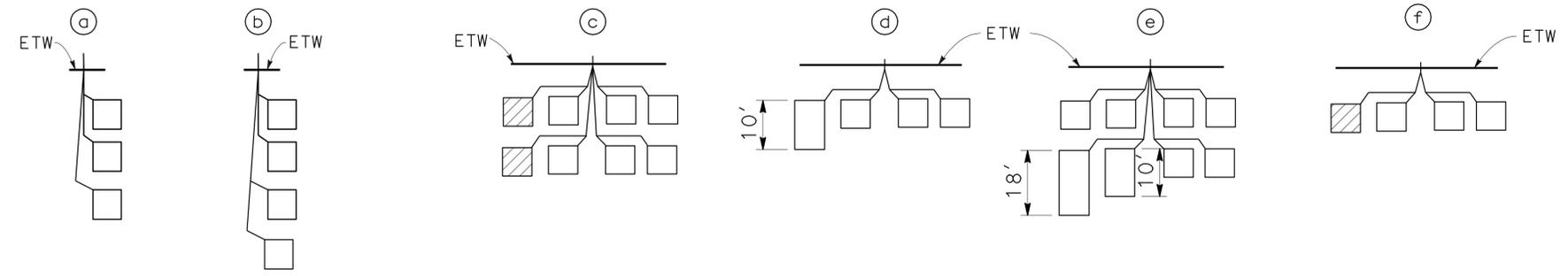
COUNTY	ROUTE	PM	Ala 880 4.5/4.9								Ala 880 4.5/4.9																												
			ADVANCE DETECTOR				INTERSECTION DETECTOR				ADVANCE DETECTOR			INTERSECTION DETECTOR																									
			RAMP				RAMP				RAMP			RAMP			AUTO MALL PARKWAY EB			AUTO MALL PARKWAY WB																			
LANE NUMBER	(FROM LEFT WITH RESPECT TO DIRECTION OF TRAFFIC. SEE E-5 FOR LANE DESCRIPTION)																																						
DISTANCE FROM LIMIT LINE (FEET)	185	185	185	185									185	185	185																								
DETECTORS	A. FRONT DETECTOR	B. BICYCLE DETECTOR	C. ADVANCE DETECTOR	D. INTERMEDIATE DETECTOR	C	C	C	C	A	A	A	A	C	C	C	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A									
PULL BOX LOCATION:	A. RIGHT SHOULDER	B. RIGHT SIDEWALK	C. MEDIAN	D. LEFT SHOULDER	E. LEFT SIDEWALK																																		
HANDHOLE LOCATION:	A. RIGHT SHOULDER/(RIGHT ETW)	B. LEFT SHOULDER/(LEFT ETW)	C. MEDIAN	D. PAINTED MEDIAN																																			
DETECTOR TYPE & QUANTITY	TYPE A LOOP DETECTOR	TYPE B LOOP DETECTOR	TYPE C LOOP DETECTOR	TYPE D LOOP DETECTOR	1	1	1	1	3	3	3	3	1	1	1	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3									
DETECTOR CONFIGURATION (SEE DETAIL A ON E-5)	a..f				b				c				c				a			e			d			f			C			C			f				
PULL BOX REPLACEMENT (Y=YES N=NO)	N				N				N				N			N			N			N			N			N			N			N			TOTAL		
HANDHOLE REPLACEMENT (Y=YES N=NO)	Y				Y				Y				Y			Y			Y			Y			Y			Y			Y			Y			10		
LOOP DETECTOR TOTAL	1	1	1	1	4	4	4	4	1	1	1	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	59
COMMENTS																																							

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans**  
 ELECTRICAL  
 HAWA GARDIZI  
 MAHMOOD NOII  
 CALCULATED/DESIGNED BY  
 CHECKED BY  
 FUNCTIONAL SUPERVISOR  
 LAI HONG CHIU  
 REVISOR BY  
 DATE REVISOR  
 HG  
 1/24/12

## LOOP DETECTOR REPLACEMENT (TRAFFIC SIGNAL)

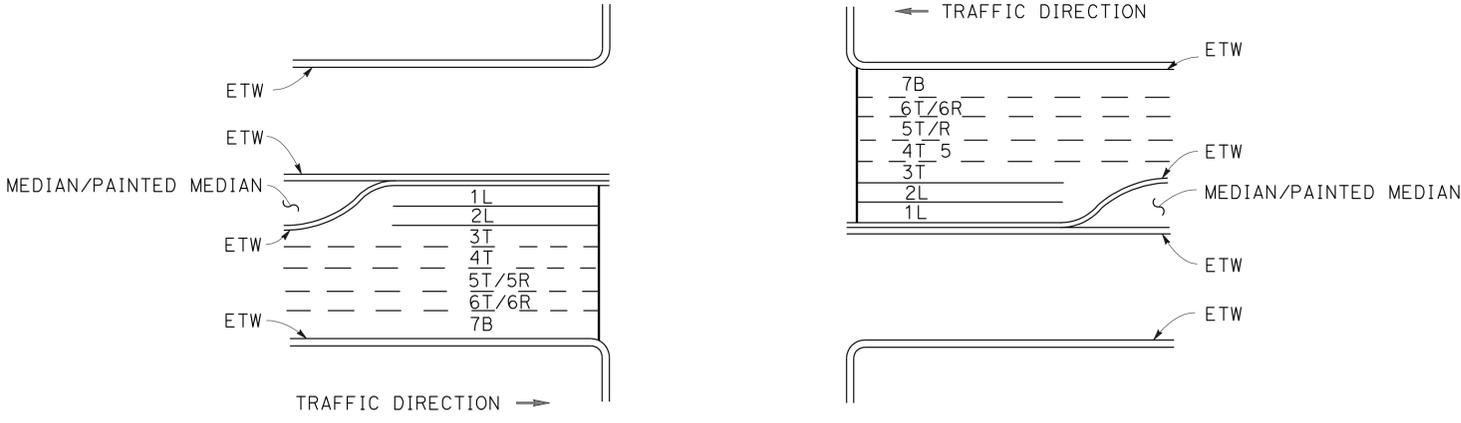
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 01-24-12 TIME PLOTTED => 08:36

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	880	4.5/4.9	27	49
M. Now REGISTERED ELECTRICAL ENGINEER DATE: 1/26/12 No. 13717 Exp. 6-30-13 ELECT STATE OF CALIFORNIA					
2-27-12 PLANS APPROVAL DATE					
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.					

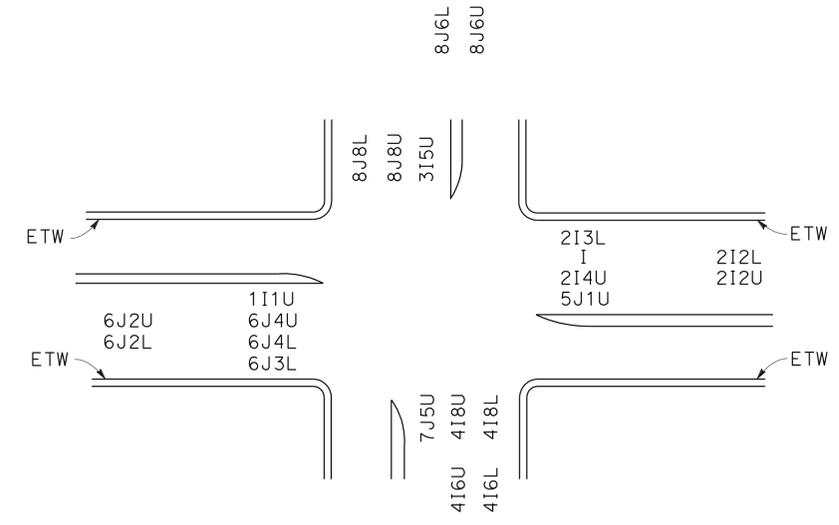


**DETAIL A  
 DETECTOR CONFIGURATIONS**

- LANE DESCRIPTION:**
- NUMBER OF LANE FROM LEFT WITH RESPECT TO TRAFFIC DIRECTION
- 1 = FIRST LANE FROM LEFT
  - 2 = SECOND LANE FROM LEFT
  - 3 = THIRD LANE FROM LEFT
  - 4 = FOURTH LANE FROM LEFT
  - 5 = FIFTH LANE FROM LEFT
  - T = THROUGH TRAFFIC MOVEMENT
  - L = LEFT TURN TRAFFIC MOVEMENT
  - R = RIGHT TURN TRAFFIC MOVEMENT
  - B = BICYCLE LANE



**LANE CONFIGURATION (TYPICAL)  
 TRAFFIC SIGNAL**



**DETECTOR IDENTIFICATION (TYPICAL)**

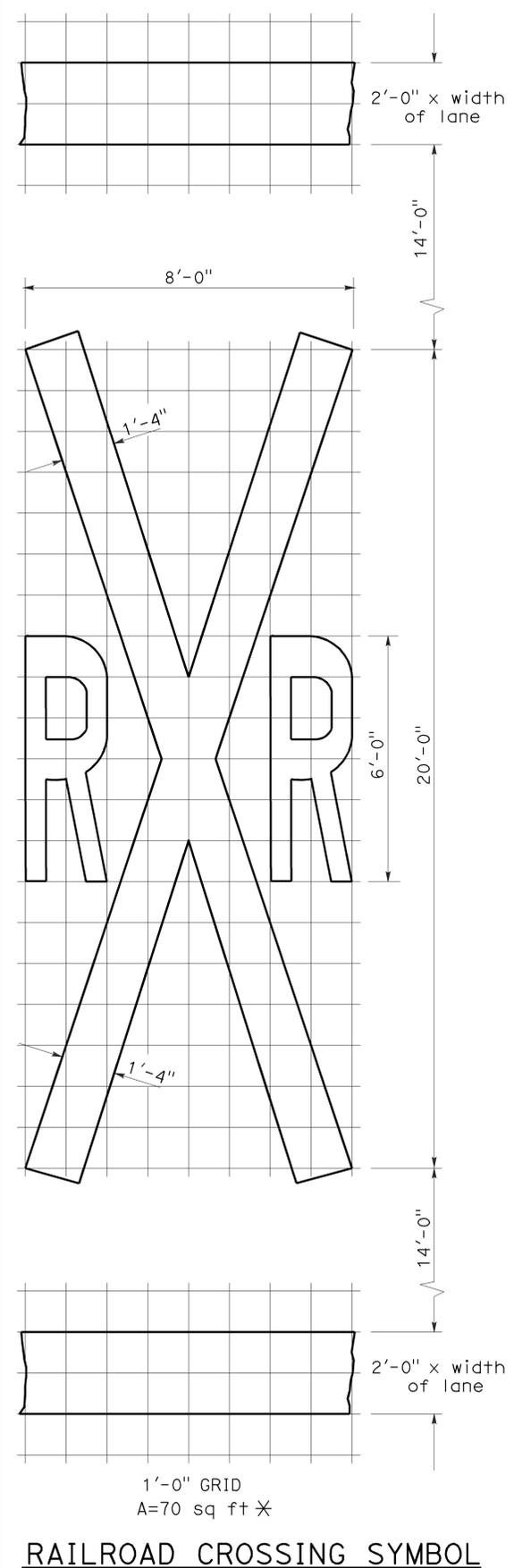
**ELECTRICAL DETAILS  
 (LOOP DETECTOR REPLACEMENT)  
 NO SCALE**

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
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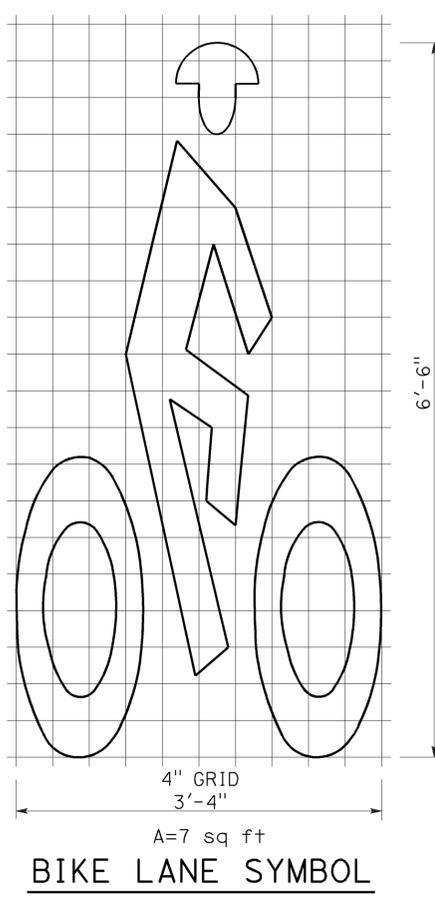
Donald E. Howe  
 REGISTERED CIVIL ENGINEER  
 June 6, 2008  
 PLANS APPROVAL DATE  
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REGISTERED PROFESSIONAL ENGINEER  
 Donald E. Howe  
 No. C46402  
 Exp. 3-31-09  
 CIVIL  
 STATE OF CALIFORNIA

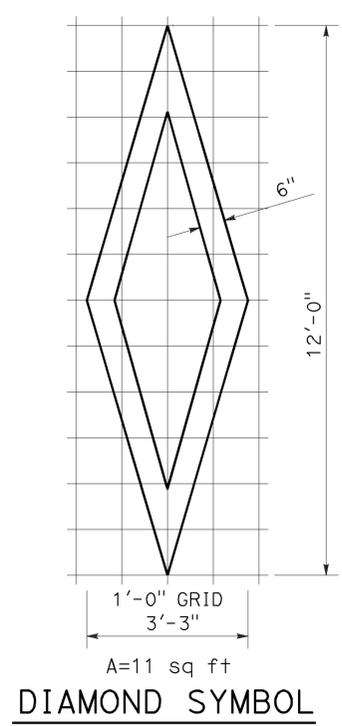
To accompany plans dated 2-27-12



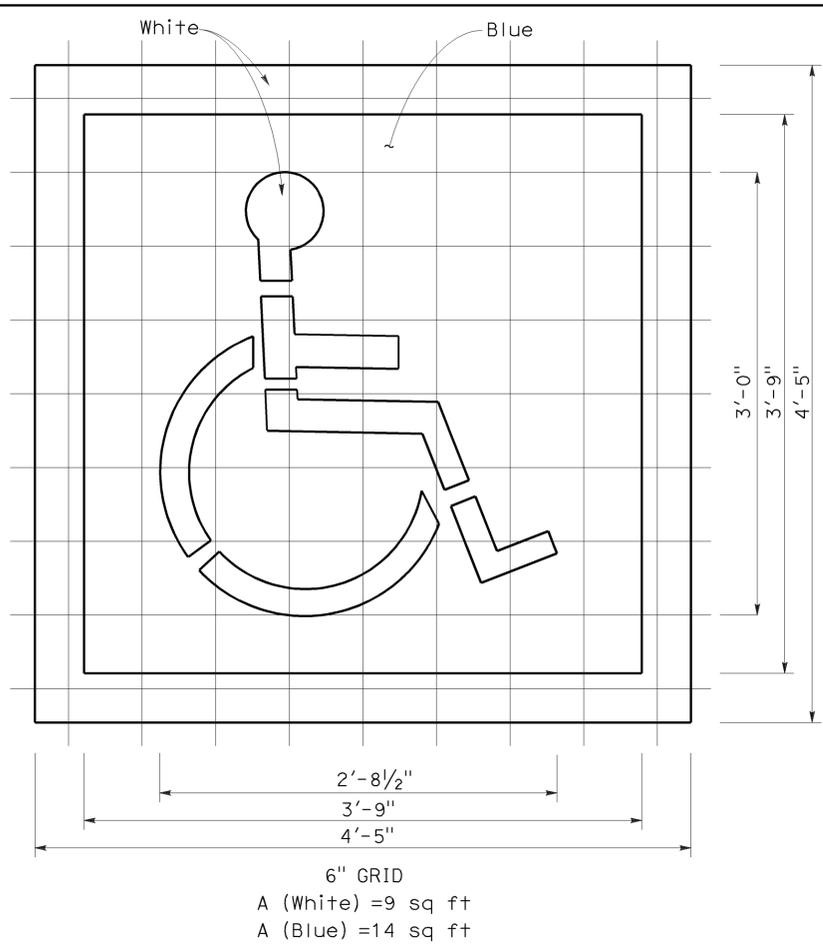
**RAILROAD CROSSING SYMBOL**  
 \*70 sq ft DOES NOT INCLUDE THE 2'-0" x VARIABLE WIDTH TRANSVERSE LINES.



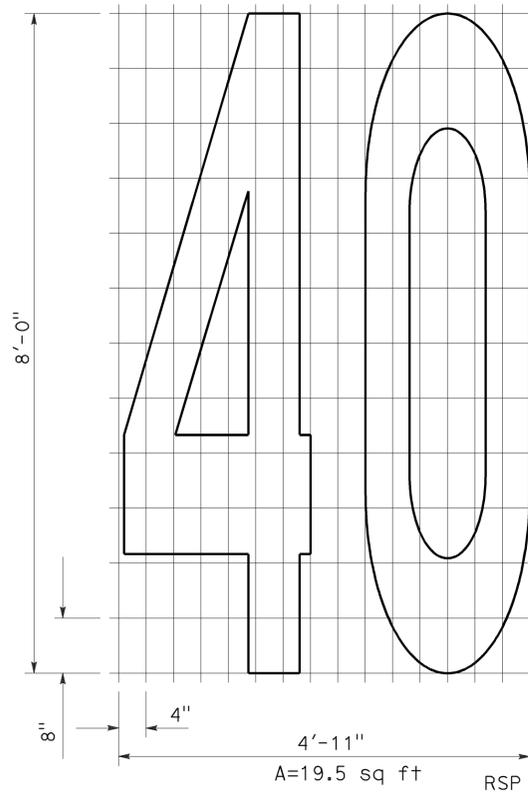
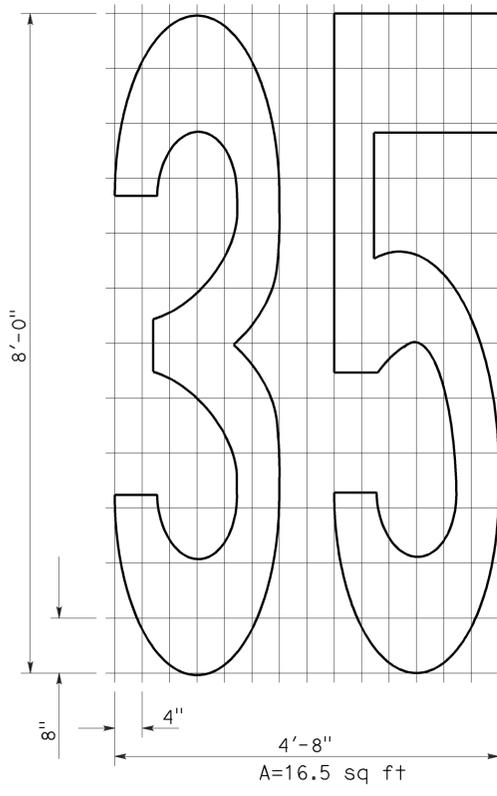
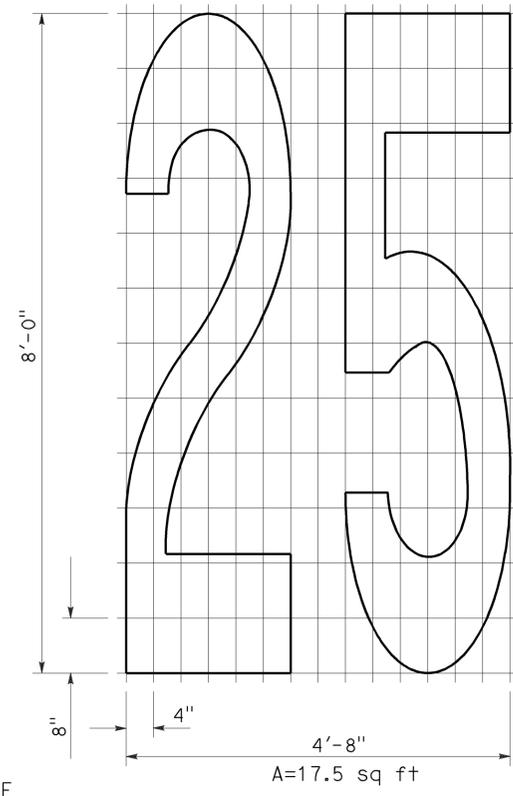
**BIKE LANE SYMBOL**



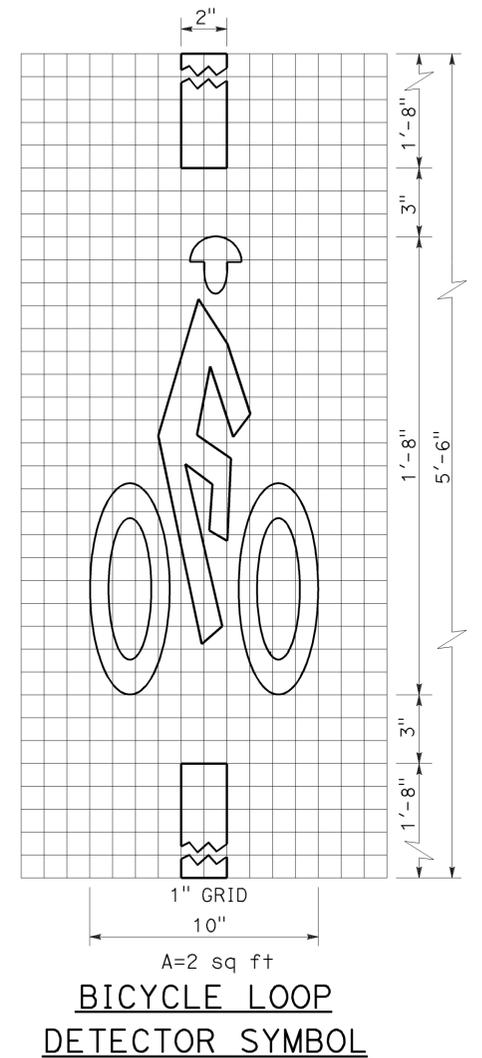
**DIAMOND SYMBOL**



**INTERNATIONAL SYMBOL OF ACCESSIBILITY MARKING**



**NUMERALS**



**BICYCLE LOOP DETECTOR SYMBOL**

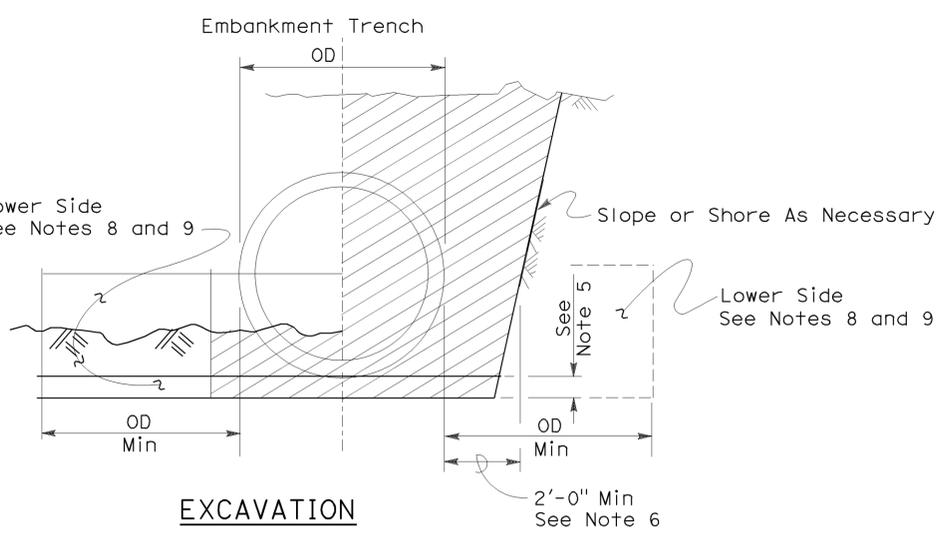
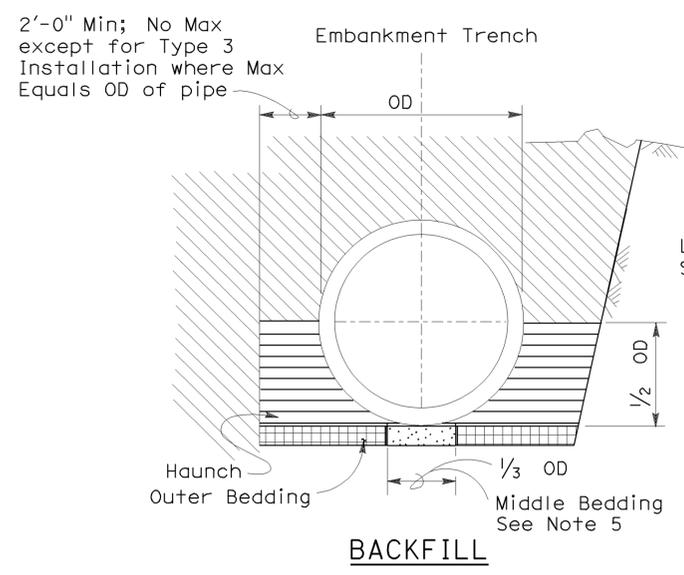
**NOTE:**  
 1. Minor variations in dimensions may be accepted by the Engineer.

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

**2006 REVISED STANDARD PLAN RSP A24C**

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

2006 REVISED STANDARD PLAN RSP A62DA



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

**TYPE 1 INSTALLATION:**

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

**TYPE 2 INSTALLATION:**

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

**TYPE 3 INSTALLATION:**

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

**NOTES:**

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

**INSTALLATION TYPE 1**

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

**INSTALLATION TYPE 2**

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

**INSTALLATION TYPE 3**

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

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**EXCAVATION AND BACKFILL  
 CONCRETE PIPE CULVERTS**  
 NO SCALE

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

**REVISED STANDARD PLAN RSP A62DA**

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	880	4.5/4.9	30	49

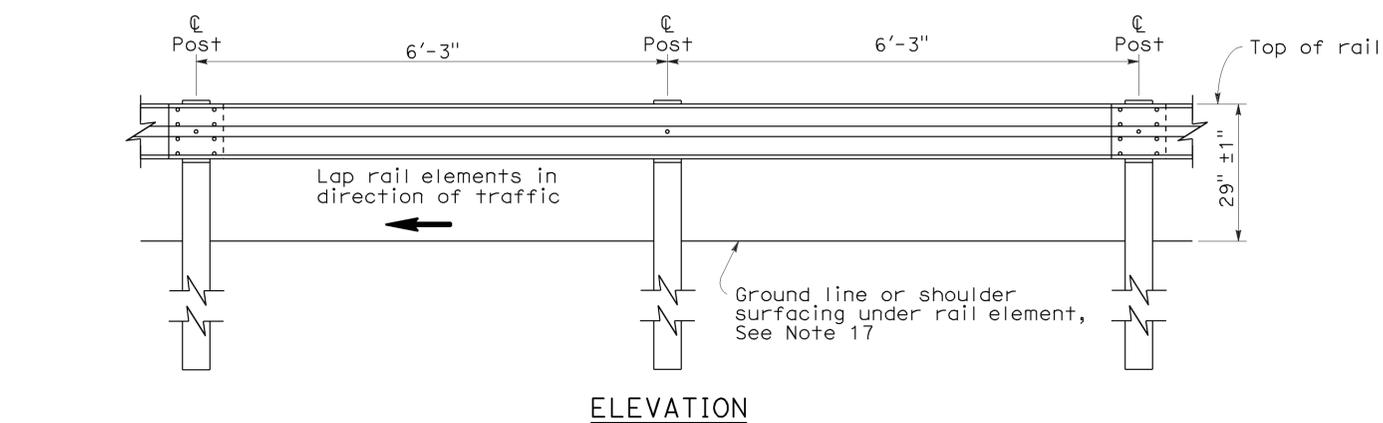
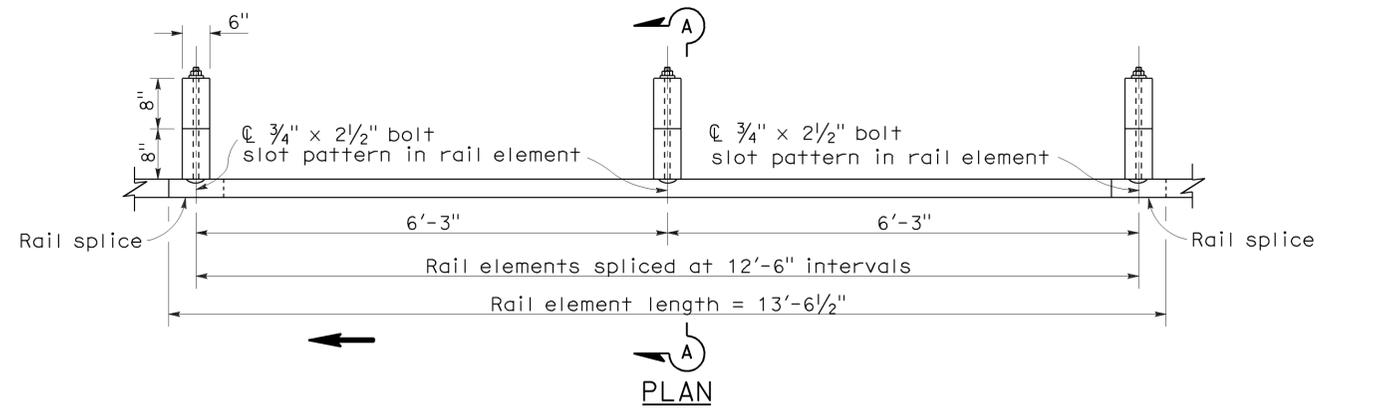
**Randell D. Hiatt**  
REGISTERED CIVIL ENGINEER

May 20, 2011  
PLANS APPROVAL DATE

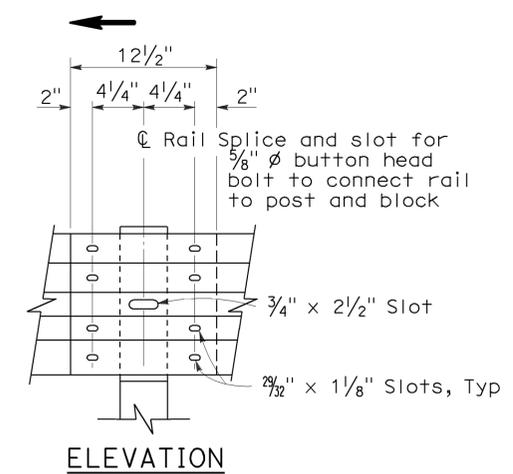
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STATE OF CALIFORNIA  
REGISTERED PROFESSIONAL ENGINEER  
No. C50200  
Exp. 6-30-11  
CIVIL

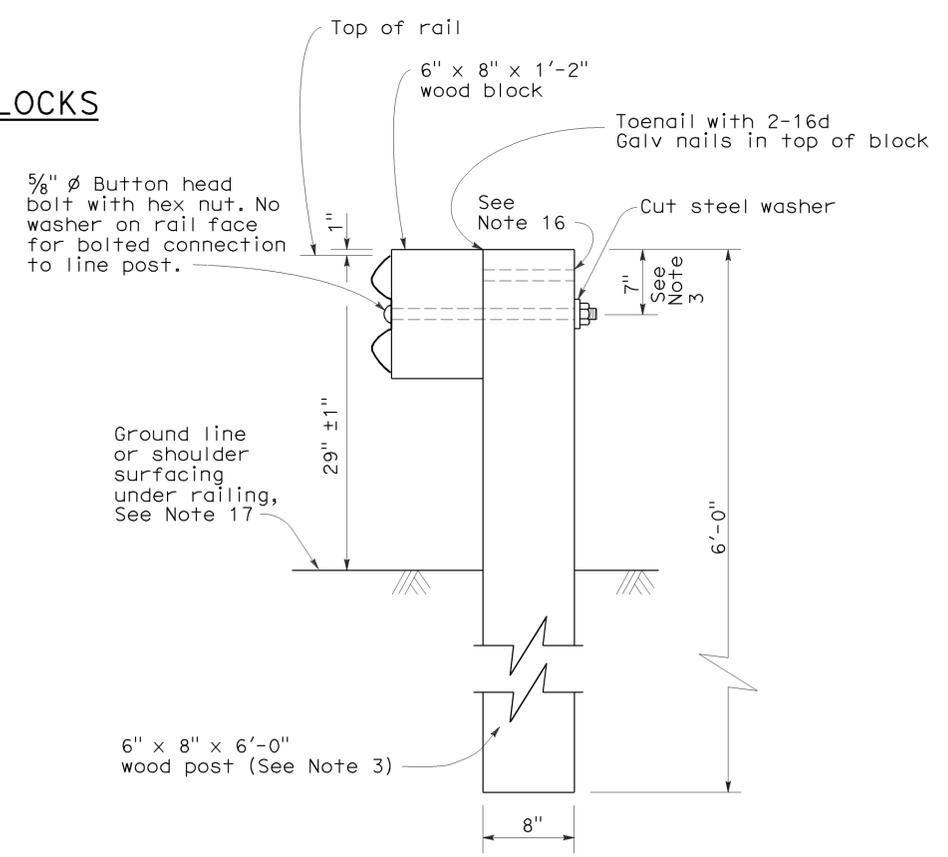
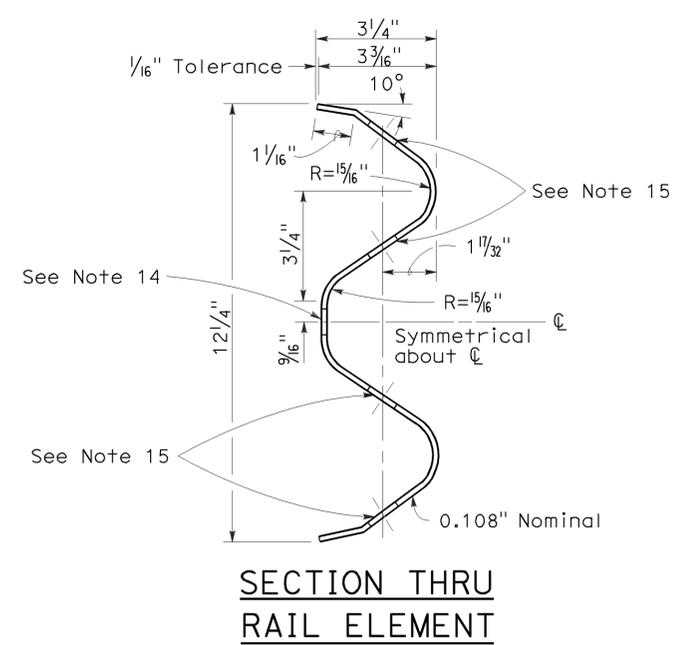
To accompany plans dated 2-27-12



**METAL BEAM GUARD RAILING WITH WOOD POST AND BLOCKS**



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



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

**NOTES:**

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

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

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

NO SCALE

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

**REVISED STANDARD PLAN RSP A77A1**

2006 REVISED STANDARD PLAN RSP A77A1

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
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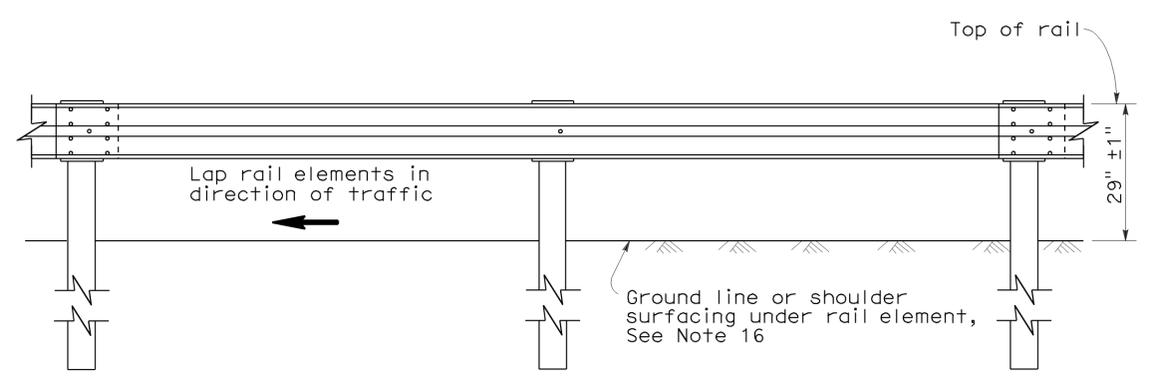
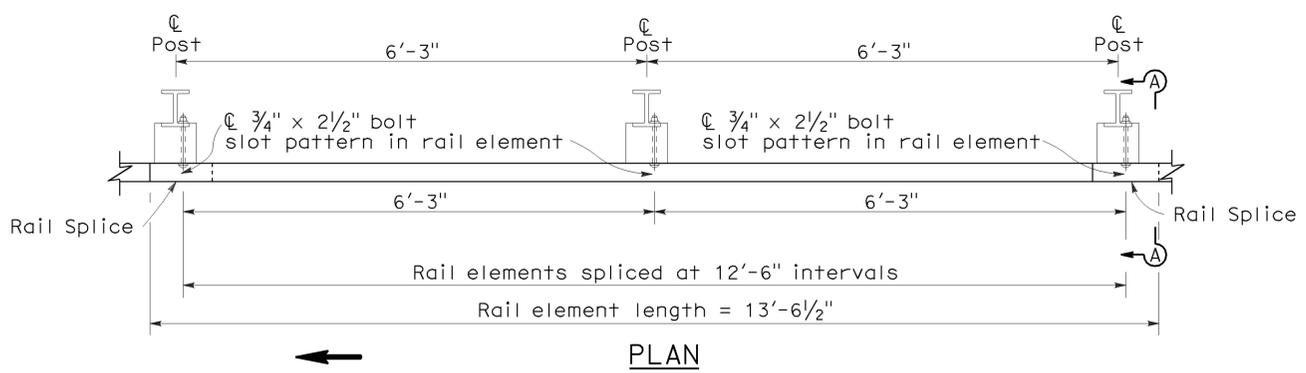
*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

May 20, 2011  
PLANS APPROVAL DATE

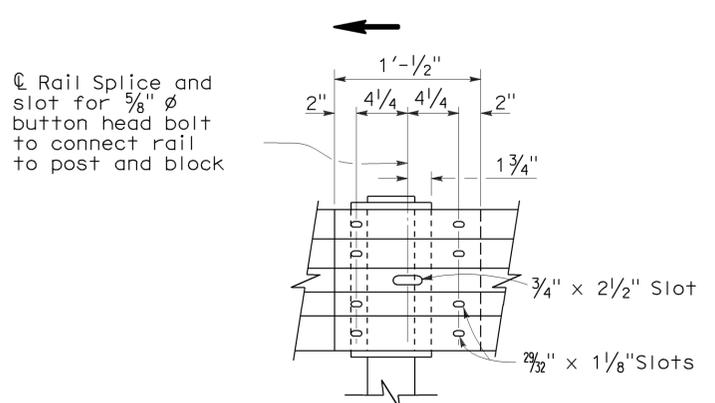
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To accompany plans dated 2-27-12

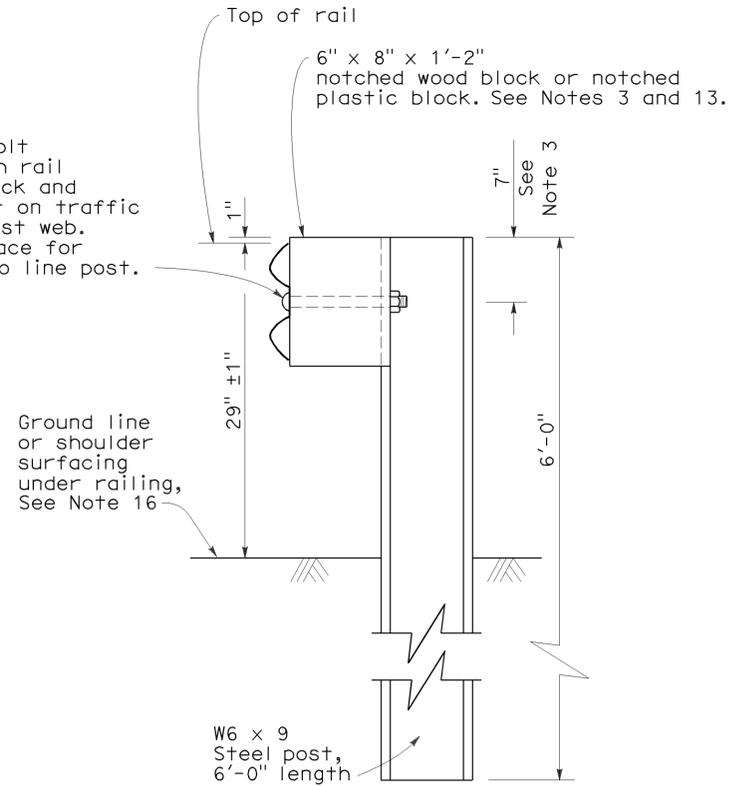
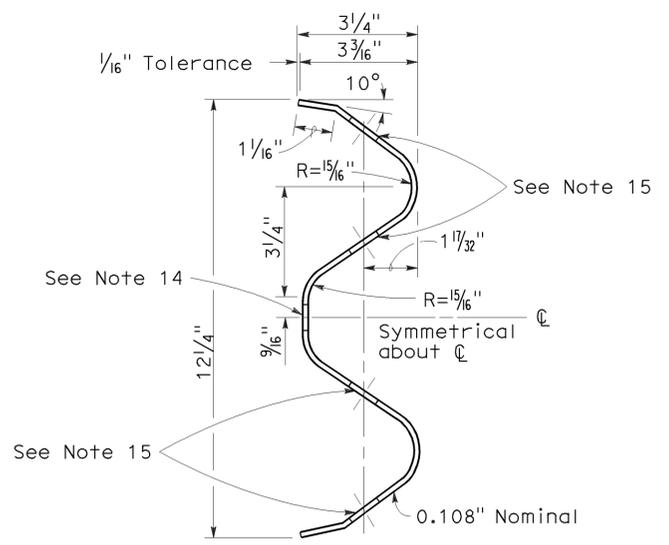
2006 REVISED STANDARD PLAN RSP A77A2



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



- Connect the overlapped end of the rail elements with  $\frac{5}{8}$ "  $\phi$  x  $1\frac{3}{8}$ " button head oval shoulder splice bolts inserted into the  $\frac{29}{32}$ " x  $\frac{1}{8}$ " slots and bolted together with  $\frac{5}{8}$ "  $\phi$  recessed hex nuts. Recess of hex nut points toward rail element. A total of 8 bolts and nuts are to be used at each rail splice connection.
- The ends of the rail elements are to be overlapped in the direction of traffic (see details).
- Where end cap is to be attached to the end of a rail element, a total of 4 of the above described splice bolts and nuts are to be used.



**NOTES:**

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

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

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

NO SCALE

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

**REVISED STANDARD PLAN RSP A77A2**

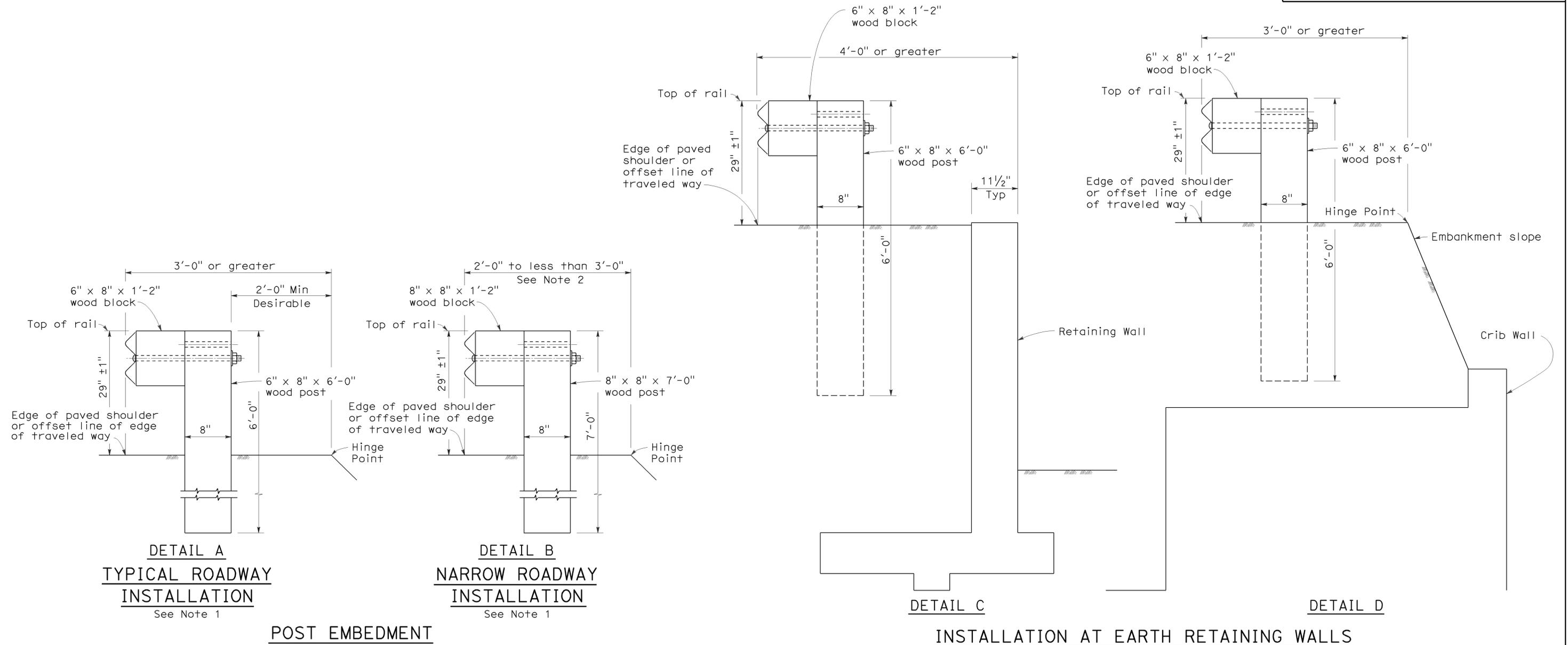
To accompany plans dated 2-27-12

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	880	4.5/4.9	32	49

Randell D. Hiatt  
REGISTERED CIVIL ENGINEER

May 20, 2011  
PLANS APPROVAL DATE

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**NOTES:**

1. These installation details also applicable to steel line post installations. For Detail A, C, and D, where steel line post installations are constructed, W6 x 9 steel post, 6'-0" in length, with 6" x 8" x 1'-2" notched wood blocks or notched recycled plastic blocks are to be used in place of the size of wood post and wood block shown. For Detail B, where steel line post installations are constructed, W6 x 9 steel post, 7'-0" in length, with 6" x 8" x 1'-2" notched wood blocks or notched recycled plastic blocks are to be used in place of the size of wood post and wood block shown. For additional installation details, see Standard Plans A77A1 and A77A2.
2. Where the distance between the face of the rail and the hinge point is less than 2'-0", see the Project Plans for special details.
3. For dike positioning with guard railing installations, see Standard Plan A77C4.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**METAL BEAM GUARD RAILING  
TYPICAL LINE POST  
EMBEDMENT AND  
HINGE POINT OFFSET DETAILS**

NO SCALE

RSP A77C3 DATED MAY 20, 2011 SUPERSEDES STANDARD PLAN A77C3  
DATED MAY 1, 2006 - PAGE 46 OF THE STANDARD PLANS BOOK DATED MAY 2006.

**REVISED STANDARD PLAN RSP A77C3**

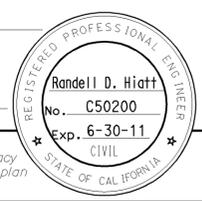
2006 REVISED STANDARD PLAN RSP A77C3

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	880	4.5/4.9	33	49

*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

May 20, 2011  
PLANS APPROVAL DATE

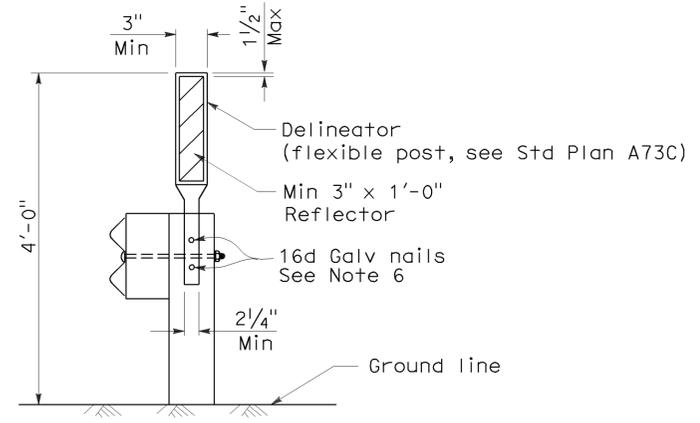
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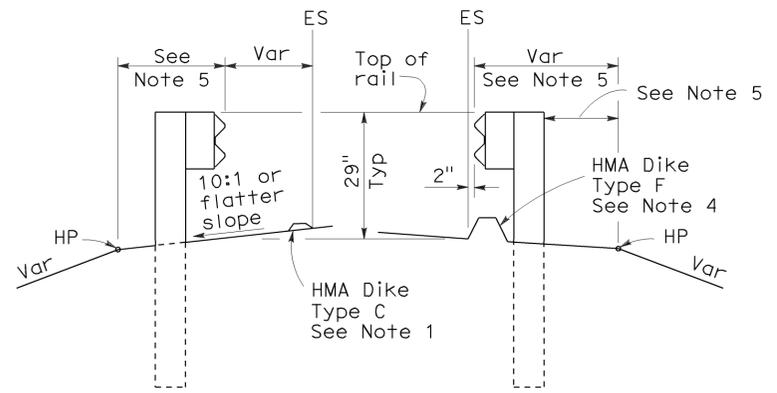
To accompany plans dated 2-27-12

**NOTES:**

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



**GUARD RAILING DELINEATION**  
See Note 3



**DIKE POSITIONING**  
See Note 1

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

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

NO SCALE

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

**REVISED STANDARD PLAN RSP A77C4**

2006 REVISED STANDARD PLAN RSP A77C4

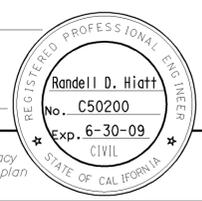
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	880	4.5/4.9	34	49

Randell D. Hiatt  
REGISTERED CIVIL ENGINEER

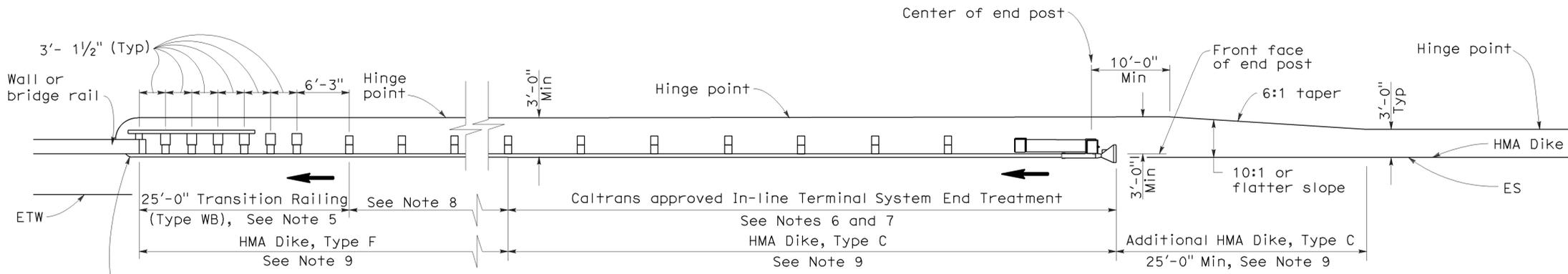
June 6, 2008  
PLANS APPROVAL DATE

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

To accompany plans dated 2-27-12

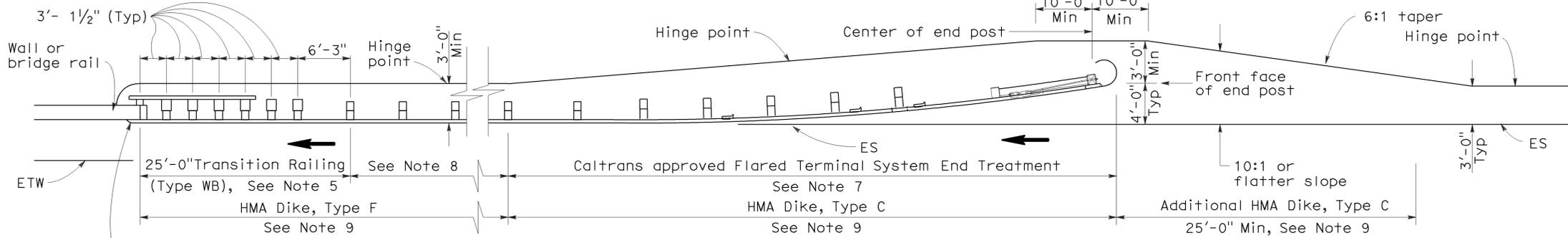


2006 REVISED STANDARD PLAN RSP A77F1



**TYPE 12A LAYOUT**

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



**TYPE 12B LAYOUT**

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

**NOTES:**

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

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

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

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

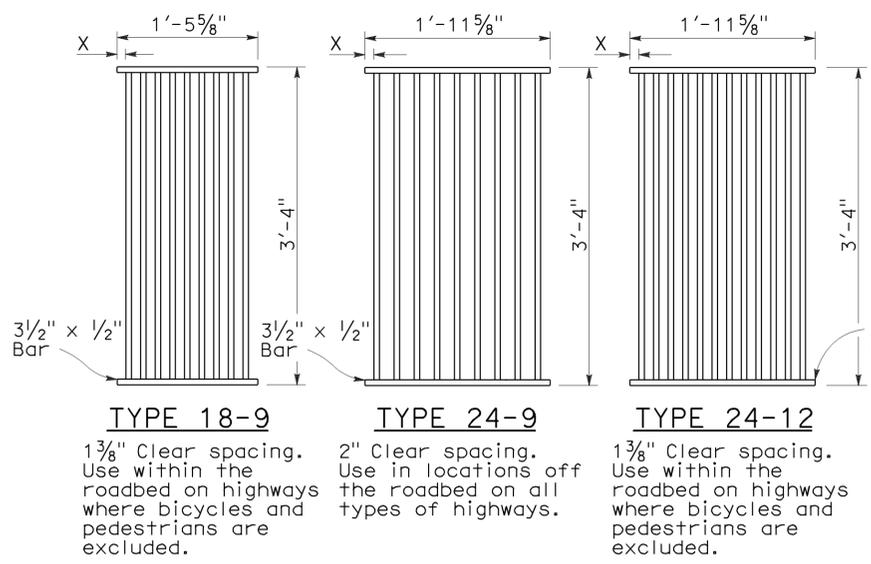
**METAL BEAM GUARD RAILING  
TYPICAL LAYOUTS FOR  
STRUCTURE APPROACH**

NO SCALE

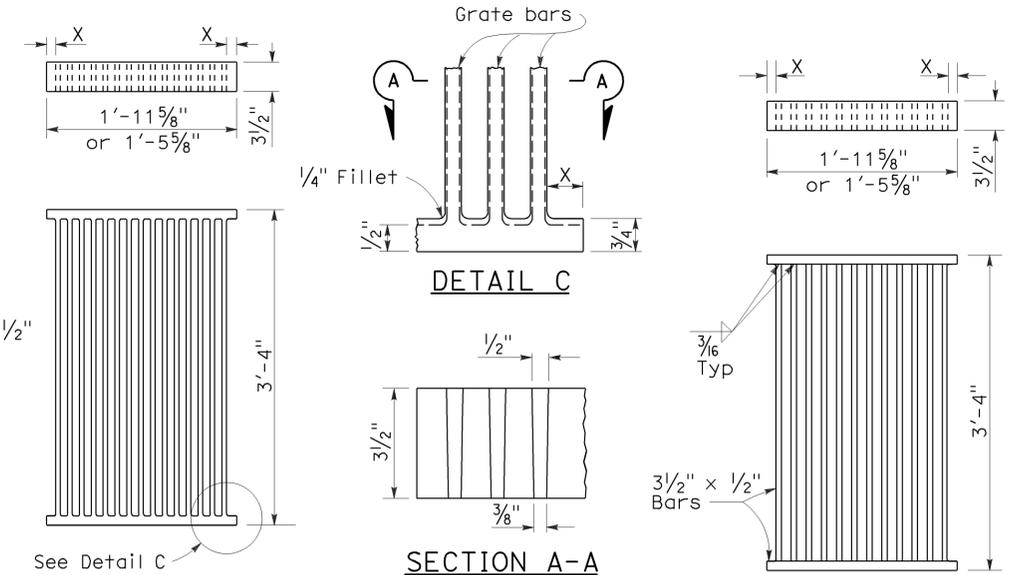
RSP A77F1 DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN A77F1  
DATED MAY 1, 2006 - PAGE 54 OF THE STANDARD PLANS BOOK DATED MAY 2006.

**REVISED STANDARD PLAN RSP A77F1**

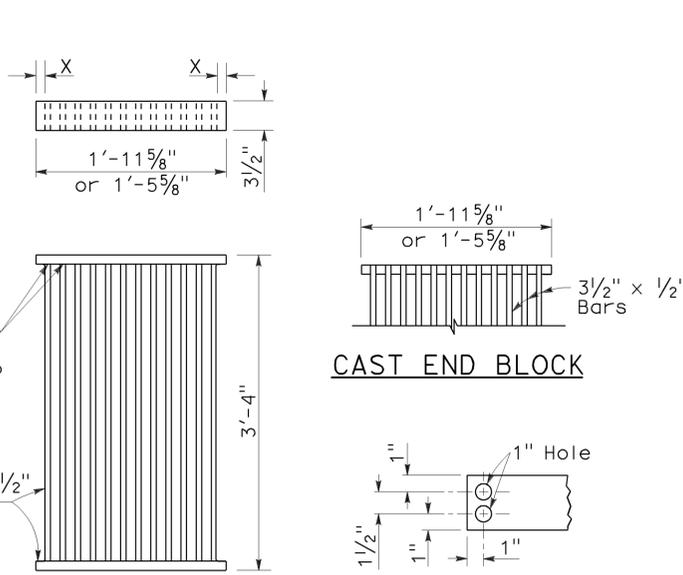




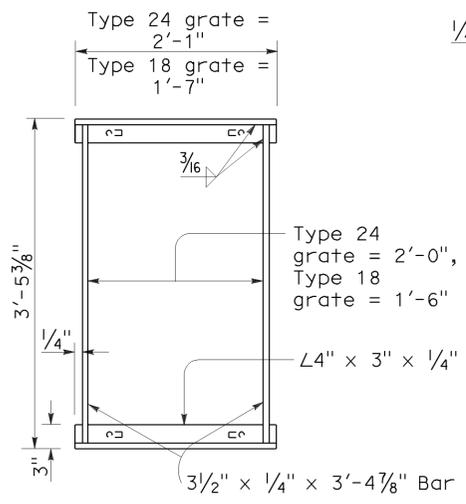
**RECTANGULAR GRATE DETAILS**  
(See table below)



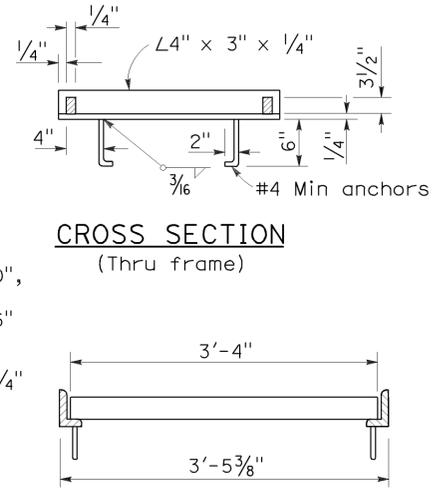
**ALTERNATIVE CAST NODULAR IRON GRATE OR CAST STEEL GRATE**



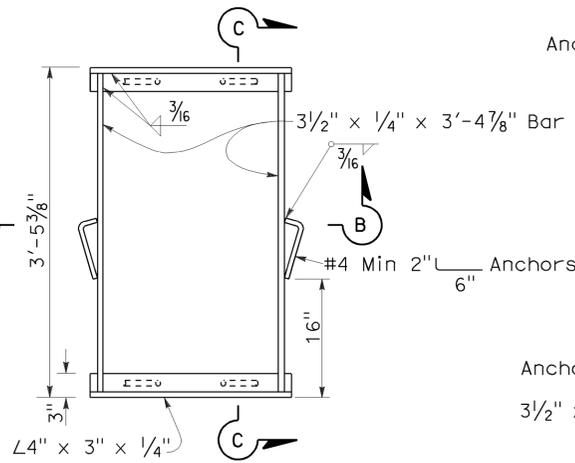
**ALTERNATIVE WELDED GRATE**



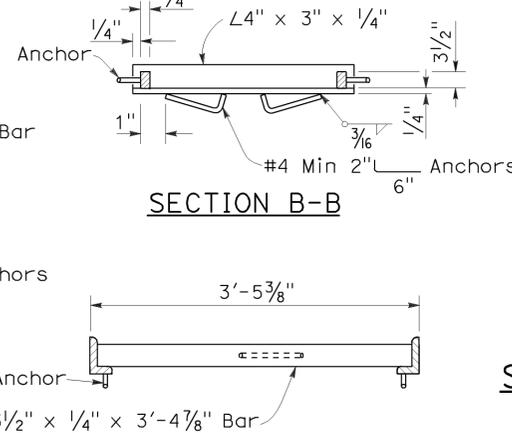
**TYPICAL FRAME**



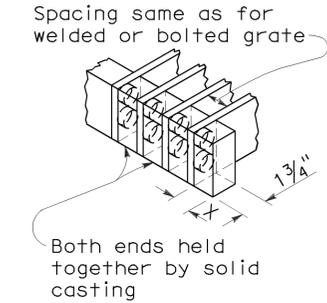
**LONGITUDINAL SECTION**  
(Thru frame and grate)



**TYPICAL FRAME**



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



**ALTERNATIVE CAST NODULAR IRON OR CAST STEEL END BLOCK GRATE**

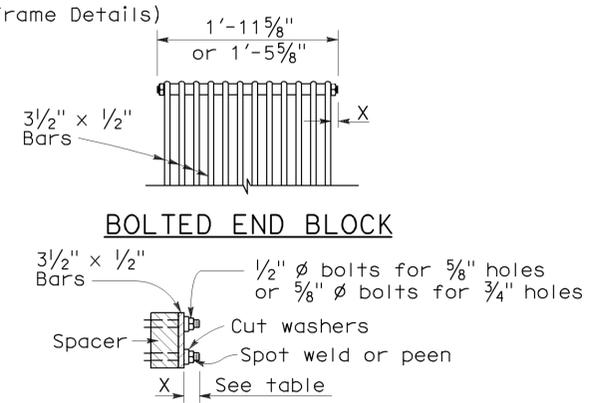
**RECTANGULAR FRAME DETAILS**  
(For all rectangular grates)

**GRATE BAR SPACING TABLE**

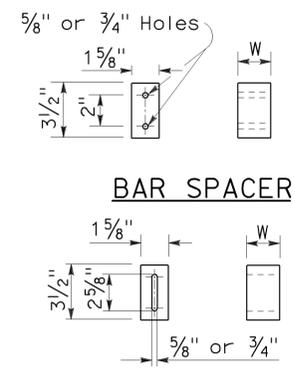
TYPE	NO. OF BARS	CLEAR BAR SPACING	X
18-9	9	1 3/8"	1 1/16"
24-9	9	2"	1 9/16"
24-12	12	1 3/8"	1 1/4"

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

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



**BOLTING DETAIL**  
**ALTERNATIVE BOLTED GRATE**



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

**BASIS FOR MISC IRON & STEEL FINAL PAY WEIGHTS FOR DRAINAGE INLETS**

(See General Notes, No 8)

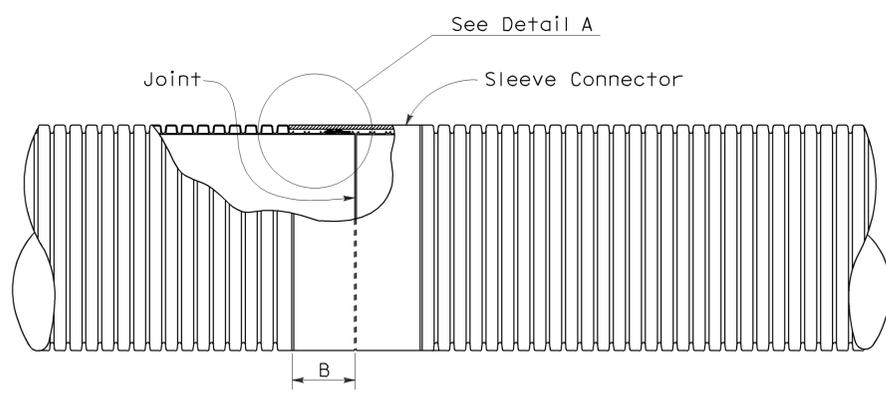
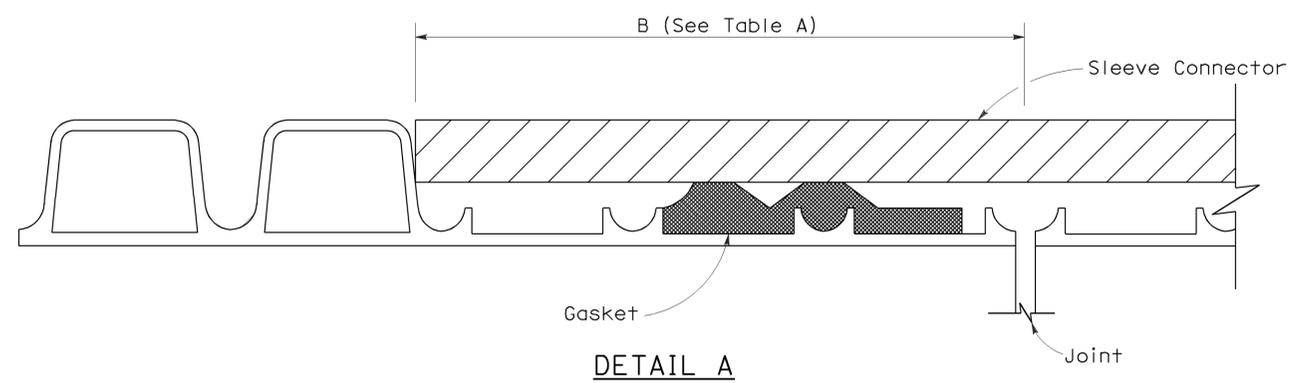
STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**GRATE DETAILS**  
NO SCALE

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

**REVISED STANDARD PLAN RSP D77A**

2006 REVISED STANDARD PLAN RSP D77A

To accompany plans dated 2-27-12



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

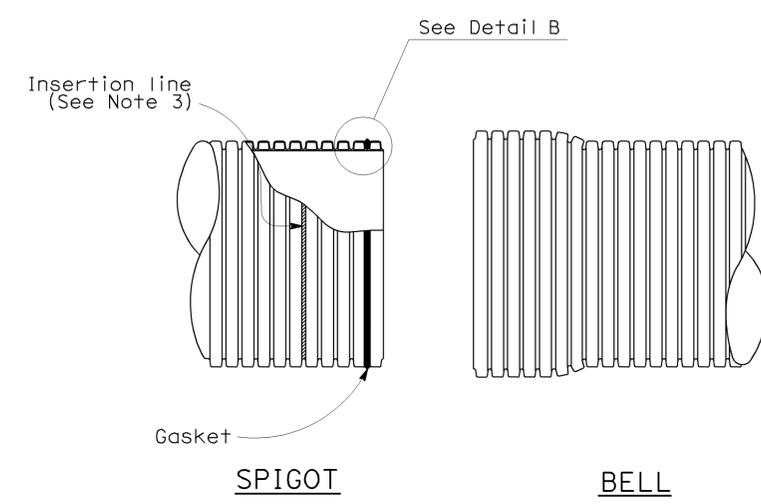
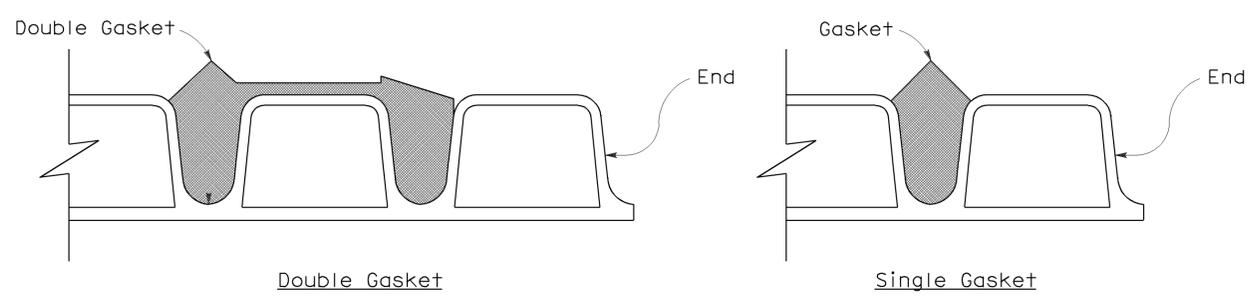
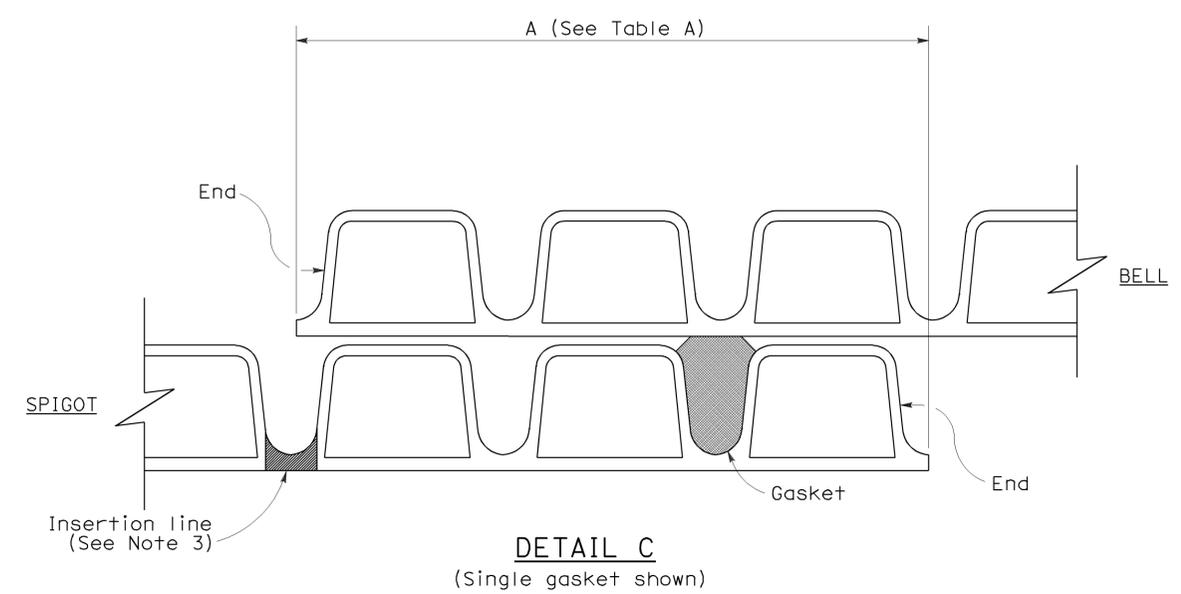
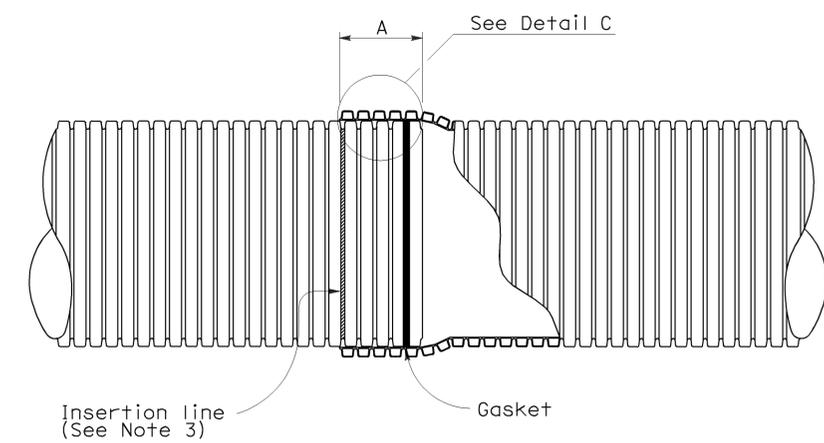


TABLE A

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



STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**CORRUGATED POLYVINYL CHLORIDE PIPE WITH SMOOTH INTERIOR STANDARD AND POSITIVE JOINTS**

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

2006 NEW STANDARD PLAN NSP D97I

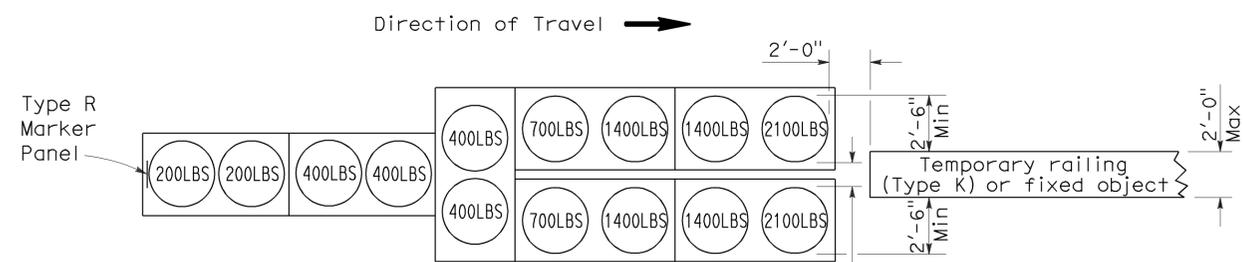
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	880	4.5/4.9	38	49

*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

June 6, 2008  
PLANS APPROVAL DATE

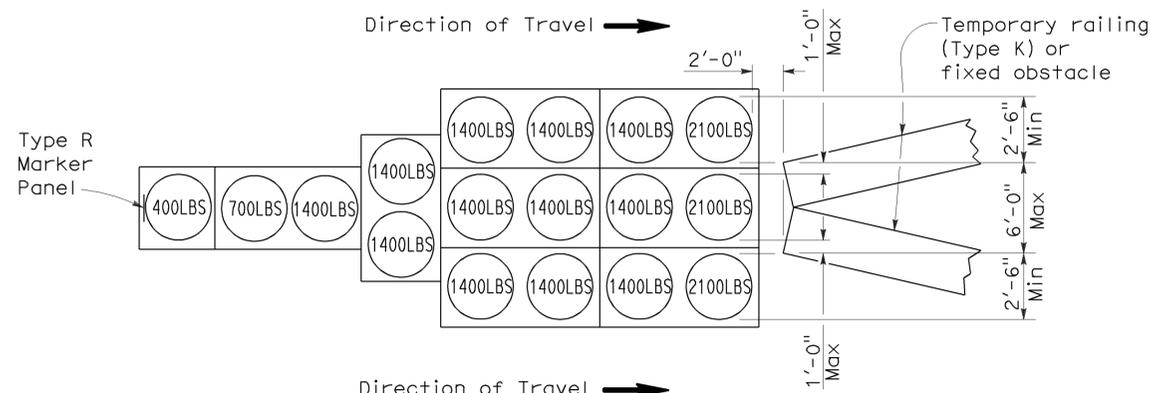
*The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.*

To accompany plans dated 2-27-12



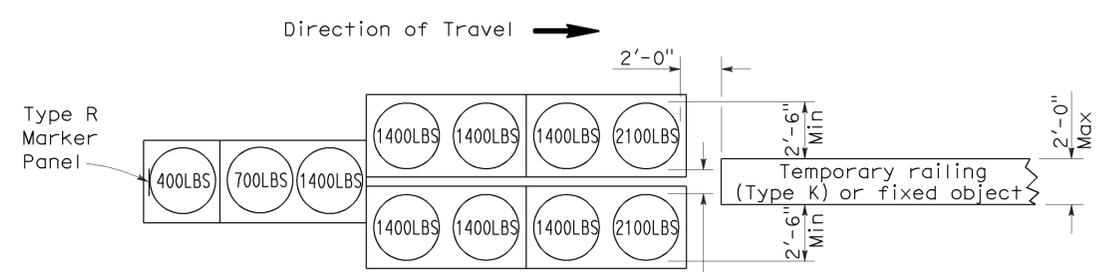
**ARRAY 'TU14'**

Approach speed 45 mph or more



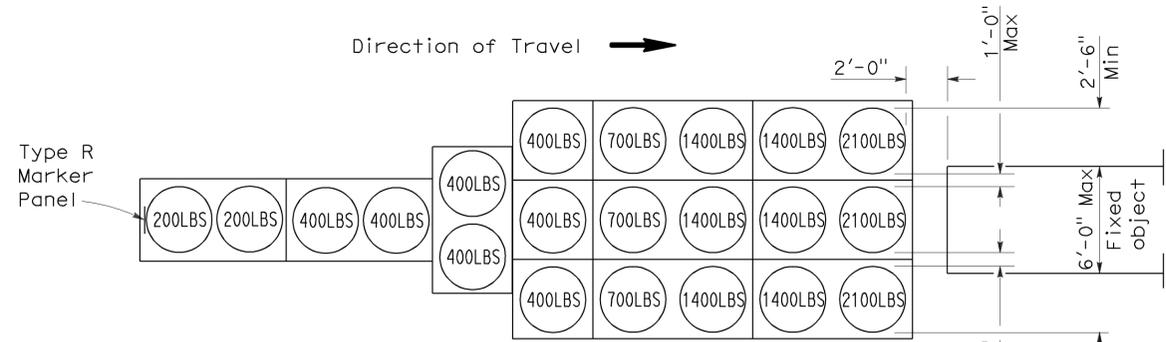
**ARRAY 'TU17'**

Approach speed less than 45 mph



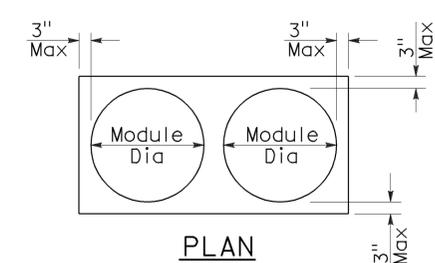
**ARRAY 'TU11'**

Approach speed less than 45 mph

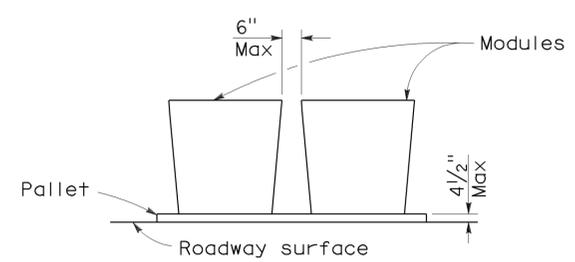


**ARRAY 'TU21'**

Approach speed 45 mph or more



**PLAN**



**ELEVATION**

**CRASH CUSHION PALLET DETAIL**

See Note 7

**NOTES:**

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

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

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

NO SCALE

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

**REVISED STANDARD PLAN RSP T1A**

2006 REVISED STANDARD PLAN RSP T1A

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	880	4.5/4.9	39	49

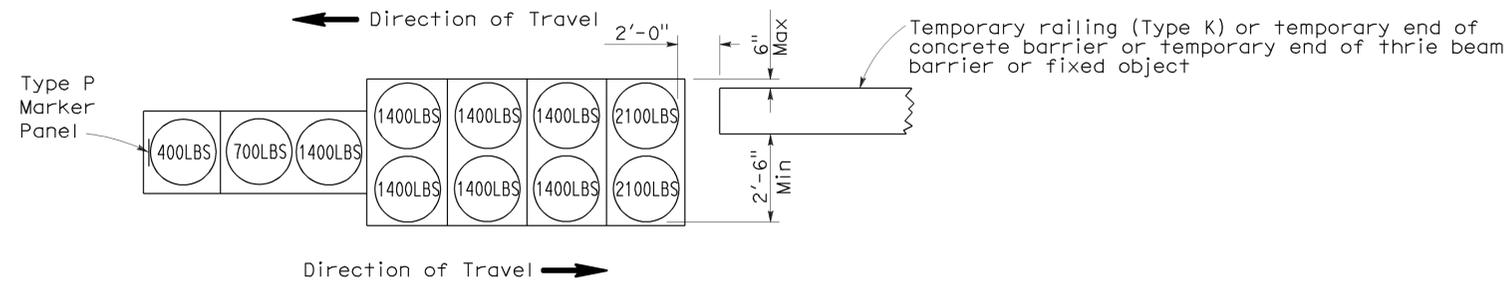
*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

June 6, 2008  
PLANS APPROVAL DATE

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

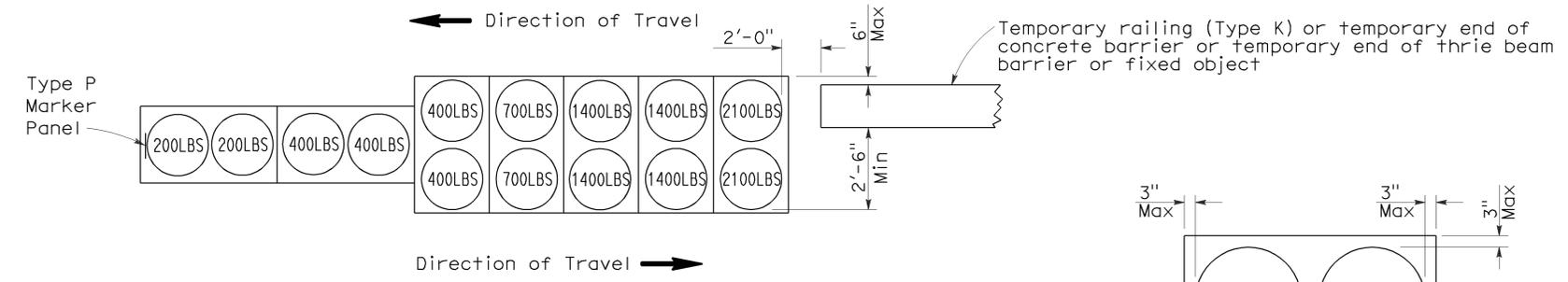
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To accompany plans dated 2-27-12



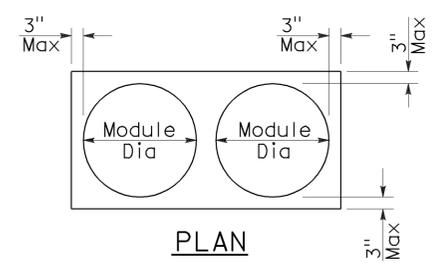
**ARRAY 'TB11'**

Approach speed less than 45 mph

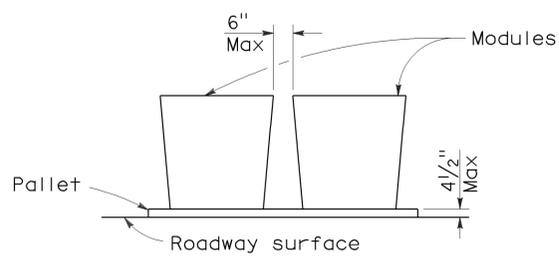


**ARRAY 'TB14'**

Approach speed 45 mph or more



PLAN



ELEVATION

**CRASH CUSHION PALLET DETAIL**

See Note 7

**NOTES:**

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

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

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

NO SCALE

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

**REVISED STANDARD PLAN RSP T1B**

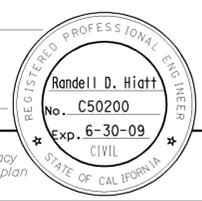
2006 REVISED STANDARD PLAN RSP T1B

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	880	4.5/4.9	40	49

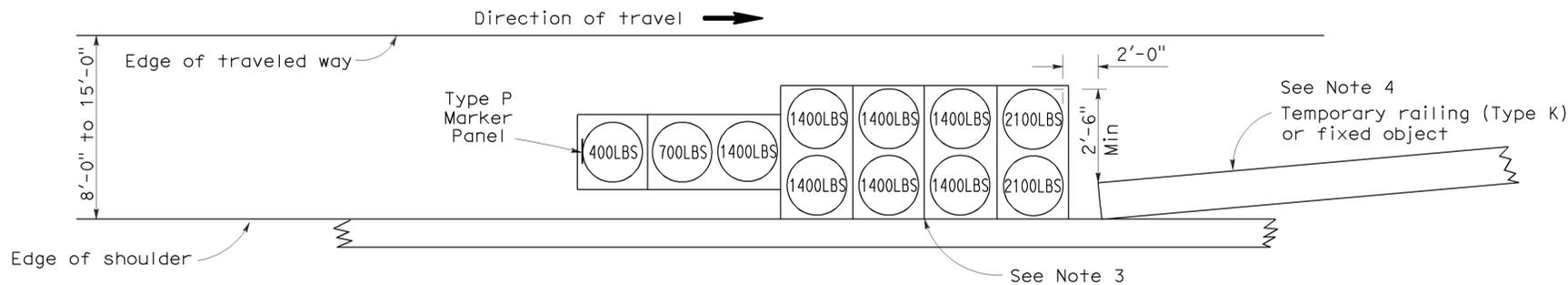
*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

June 6, 2008  
PLANS APPROVAL DATE

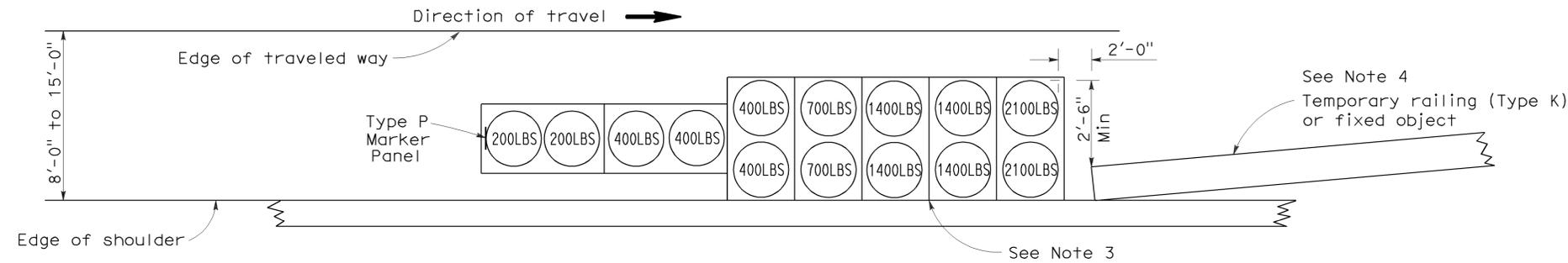
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To accompany plans dated 2-27-12



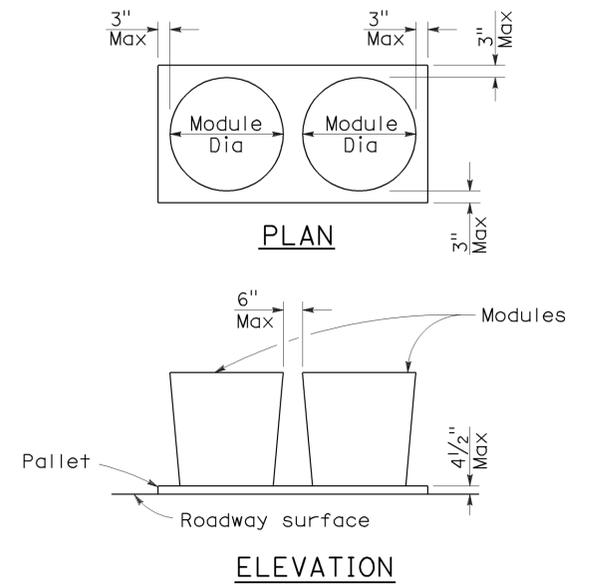
**ARRAY 'TS11'**  
Approach speed less than 45 mph  
See Note 9



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

**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.



**CRASH CUSHION PALLET DETAIL**  
See Note 11

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**TEMPORARY CRASH CUSHION,  
SAND FILLED  
(SHOULDER INSTALLATIONS)**  
NO SCALE

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

**REVISED STANDARD PLAN RSP T2**

2006 REVISED STANDARD PLAN RSP T2

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	880	4.5/4.9	41	49

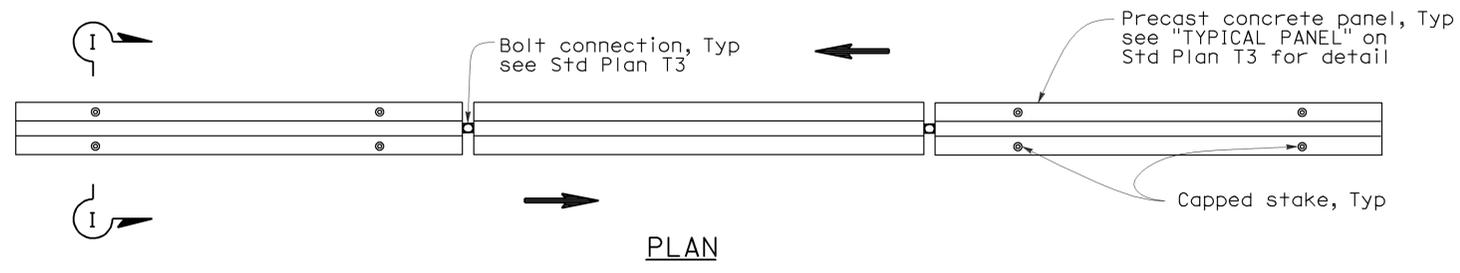
Randell D. Hiatt  
REGISTERED CIVIL ENGINEER

May 20, 2011  
PLANS APPROVAL DATE

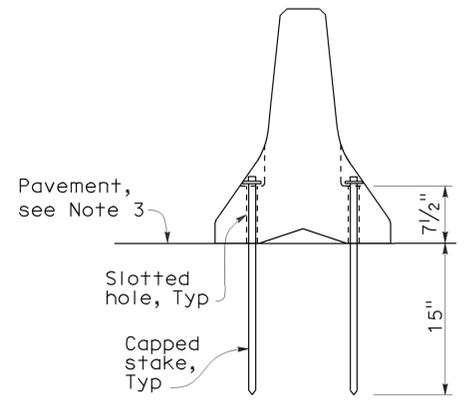
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

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

To accompany plans dated 2-27-12



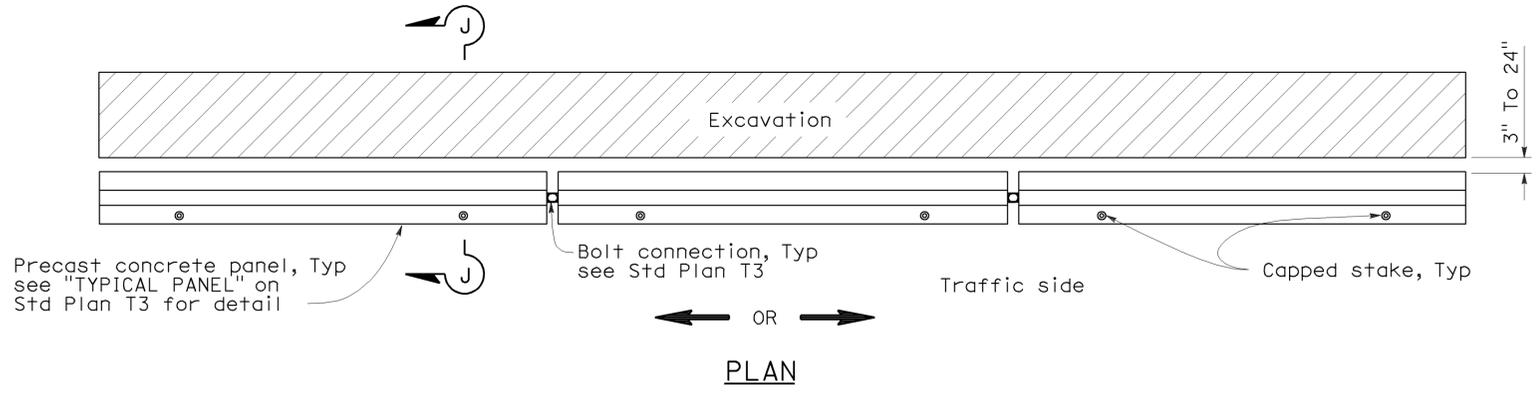
**RAILING STAKING CONFIGURATION FOR TWO-WAY TRAFFIC**  
See Note 1



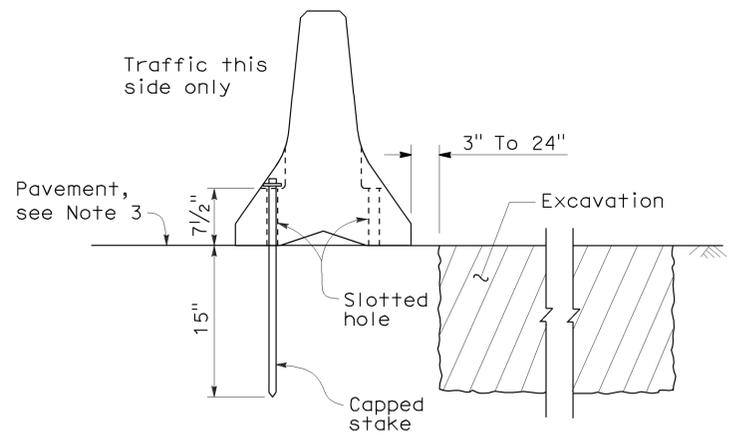
**SECTION I-I**

**NOTES:**

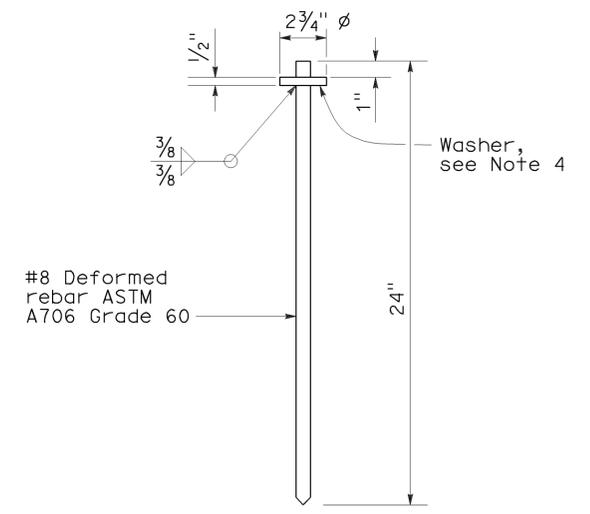
1. Where Type K Temporary Railing is placed as a temporary or long term barrier in two-way traffic on highways with less than 24" from the edge of traveled way, use four capped stakes per every other panel with end panels staked.
2. Where Type K Temporary Railing is placed 3" to 24" from the edge of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



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



**SECTION J-J**



**CAPPED STAKE DETAIL**

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**TEMPORARY RAILING  
(TYPE K)**

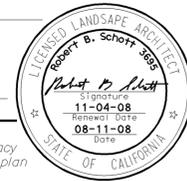
NO SCALE

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

2006 NEW STANDARD PLAN NSP T3A

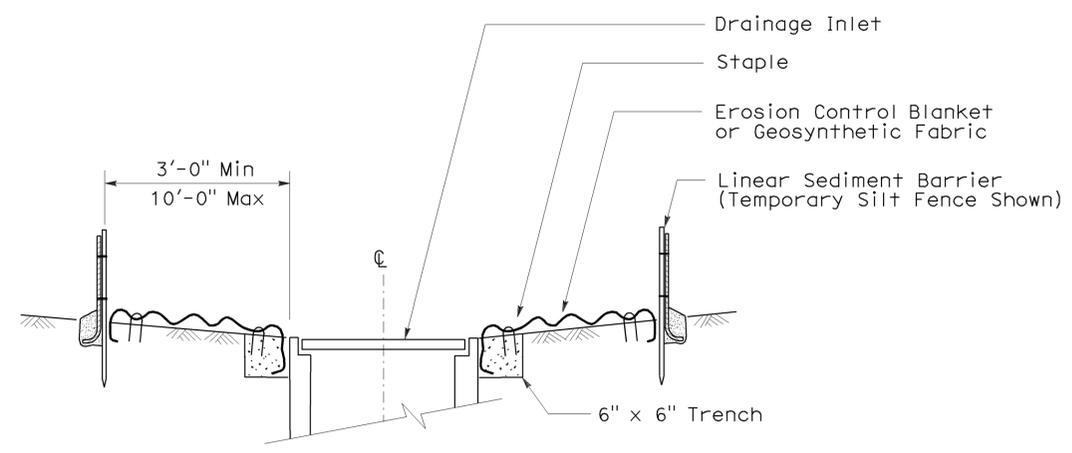
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	880	4.5/4.9	42	49

*Robert B. Schott*  
 LICENSED LANDSCAPE ARCHITECT  
 August 15, 2008  
 PLANS Approval DATE  
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

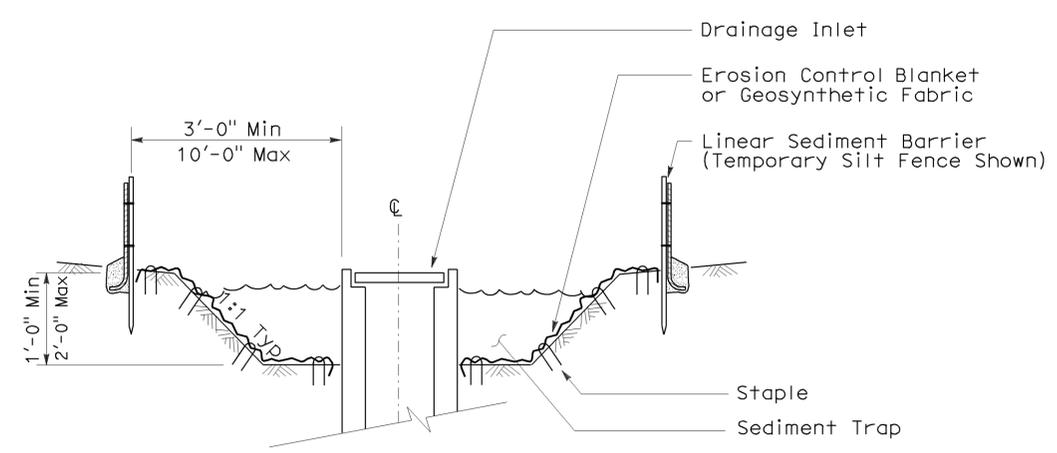


To accompany plans dated 2-27-12

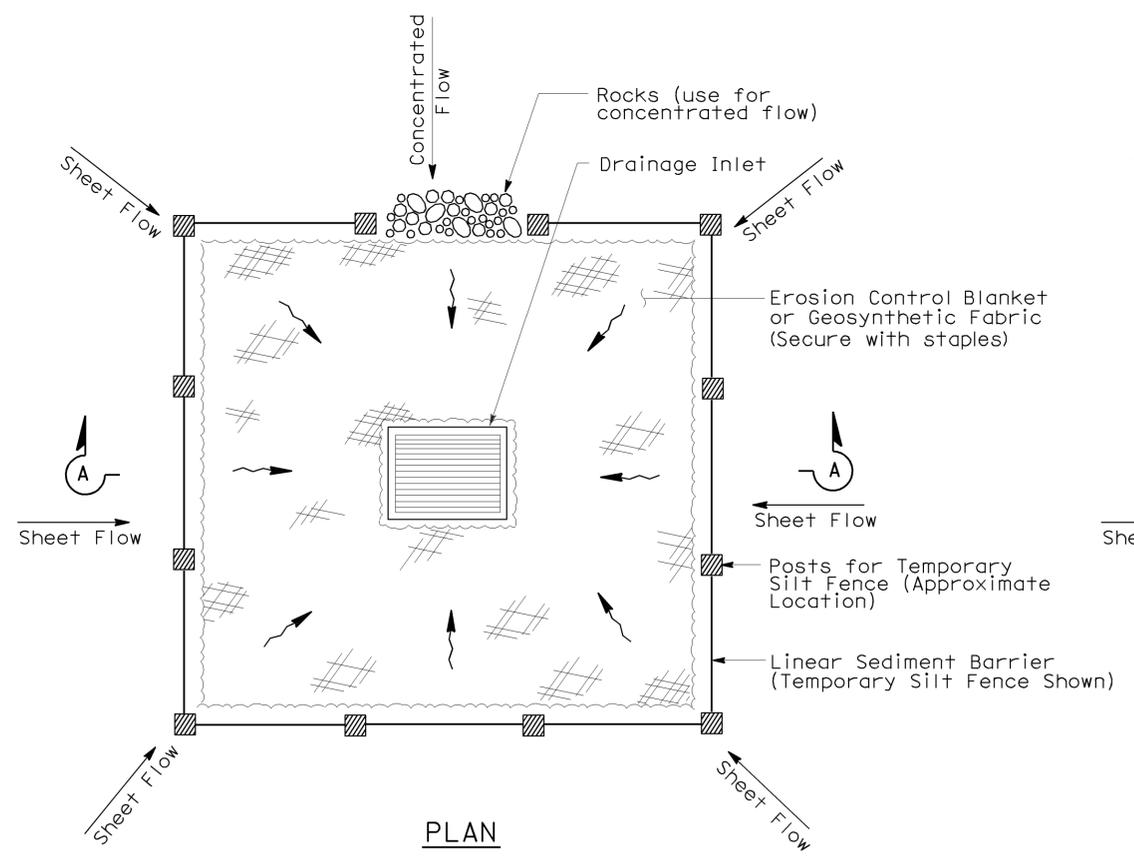
- NOTES:**
- See Standard Plan T51 for Temporary Silt Fence.
  - Dimensions may vary to fit field conditions.



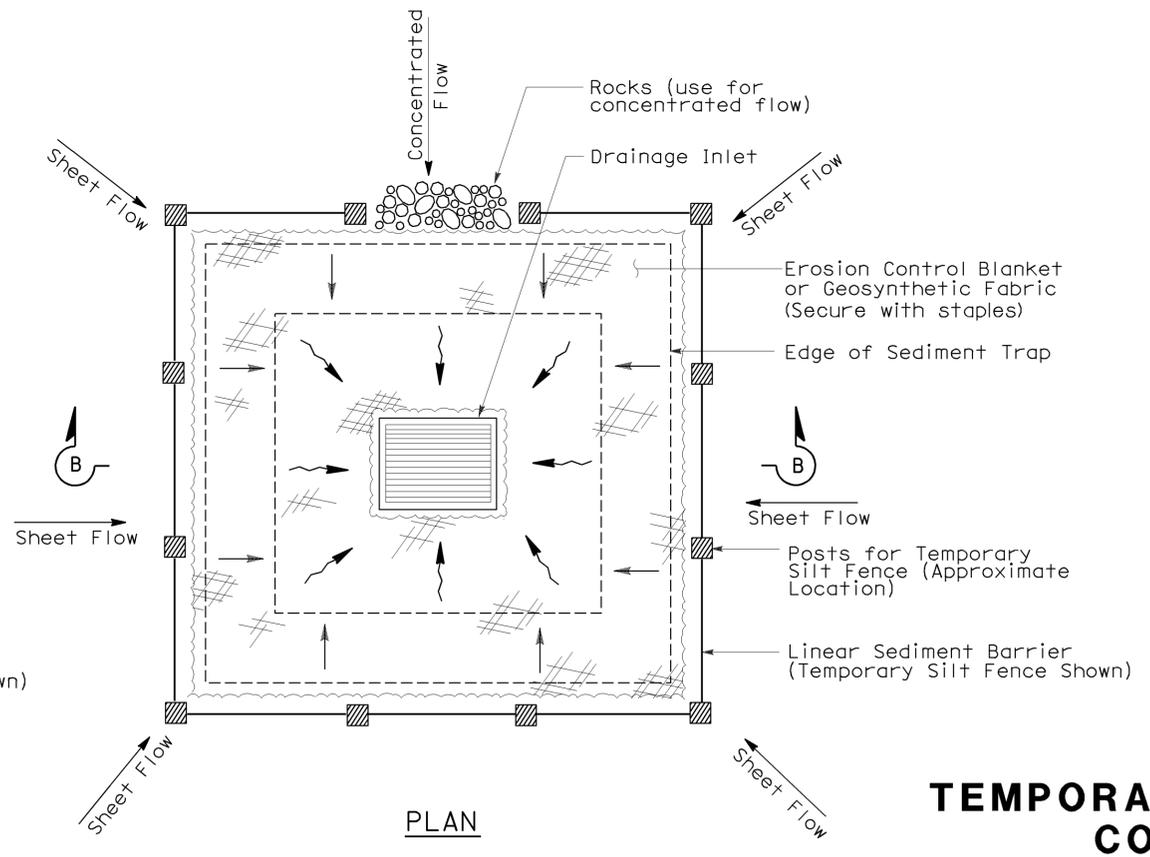
**SECTION A-A**



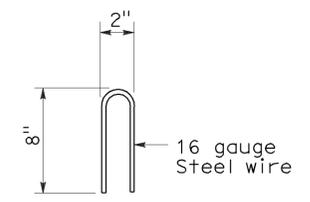
**SECTION B-B**



**TEMPORARY DRAINAGE INLET PROTECTION (TYPE 1)**



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



**STAPLE DETAIL**

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

Nsp t61 dated august 15, 2008 supplements the standard plans book dated may 2006.

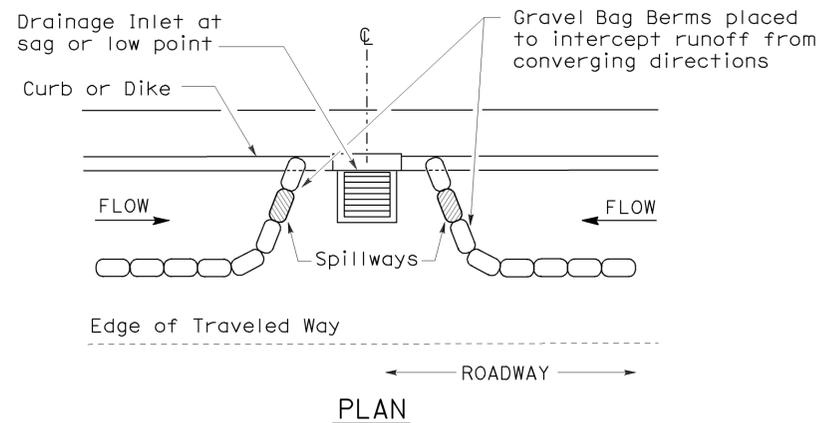
**2006 NEW STANDARD PLAN NSP T61**

2006 NEW STANDARD PLAN NSP T62

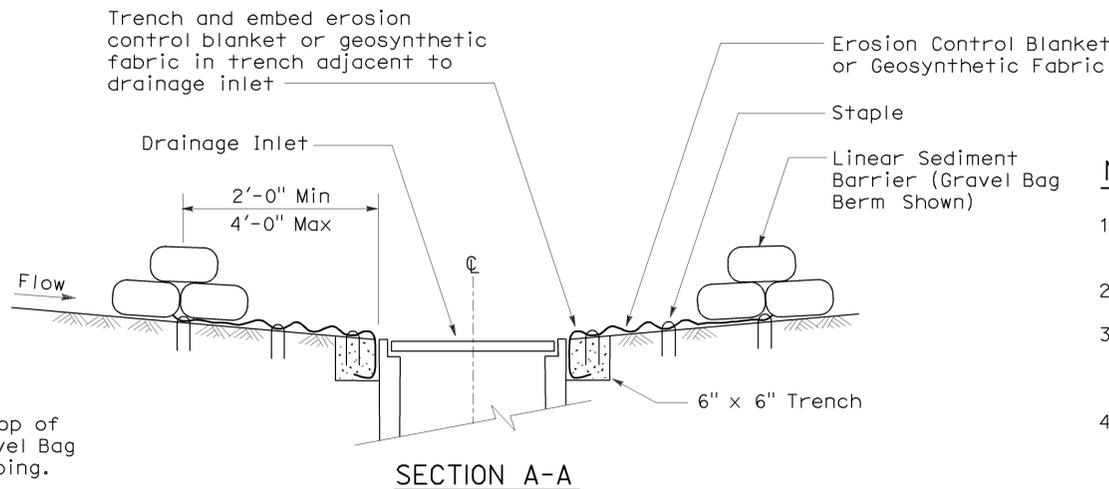
**GRAVEL BAG BERM (TYPE 3A) SPACING TABLE**

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

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



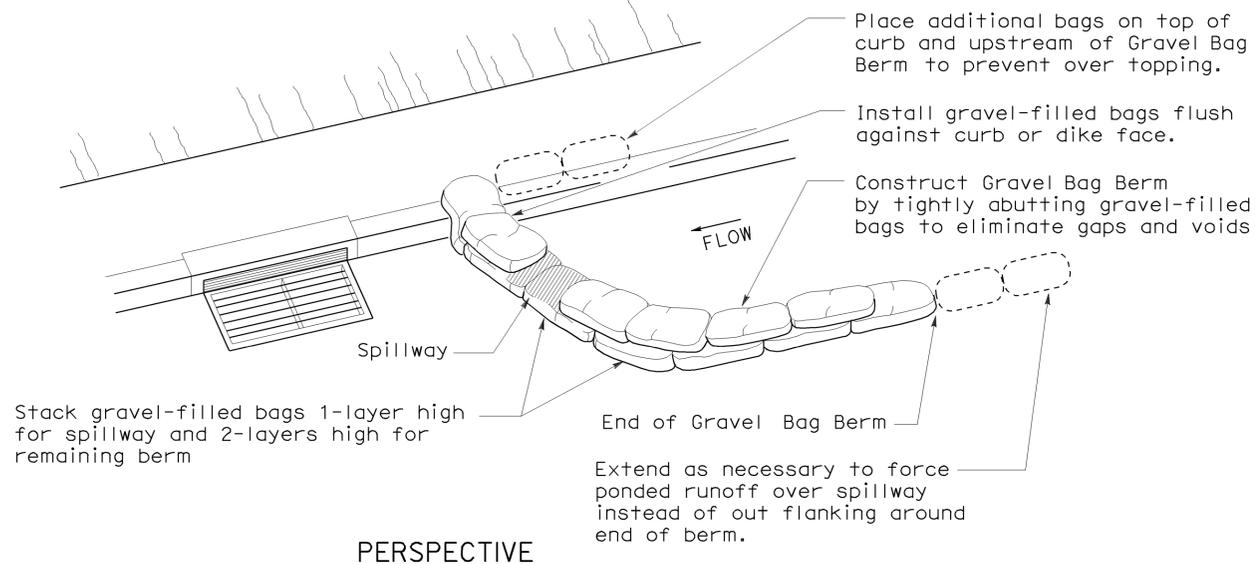
**PLAN  
CONFIGURATION FOR SAG POINT INLET  
(GRAVEL BAG BERM)**



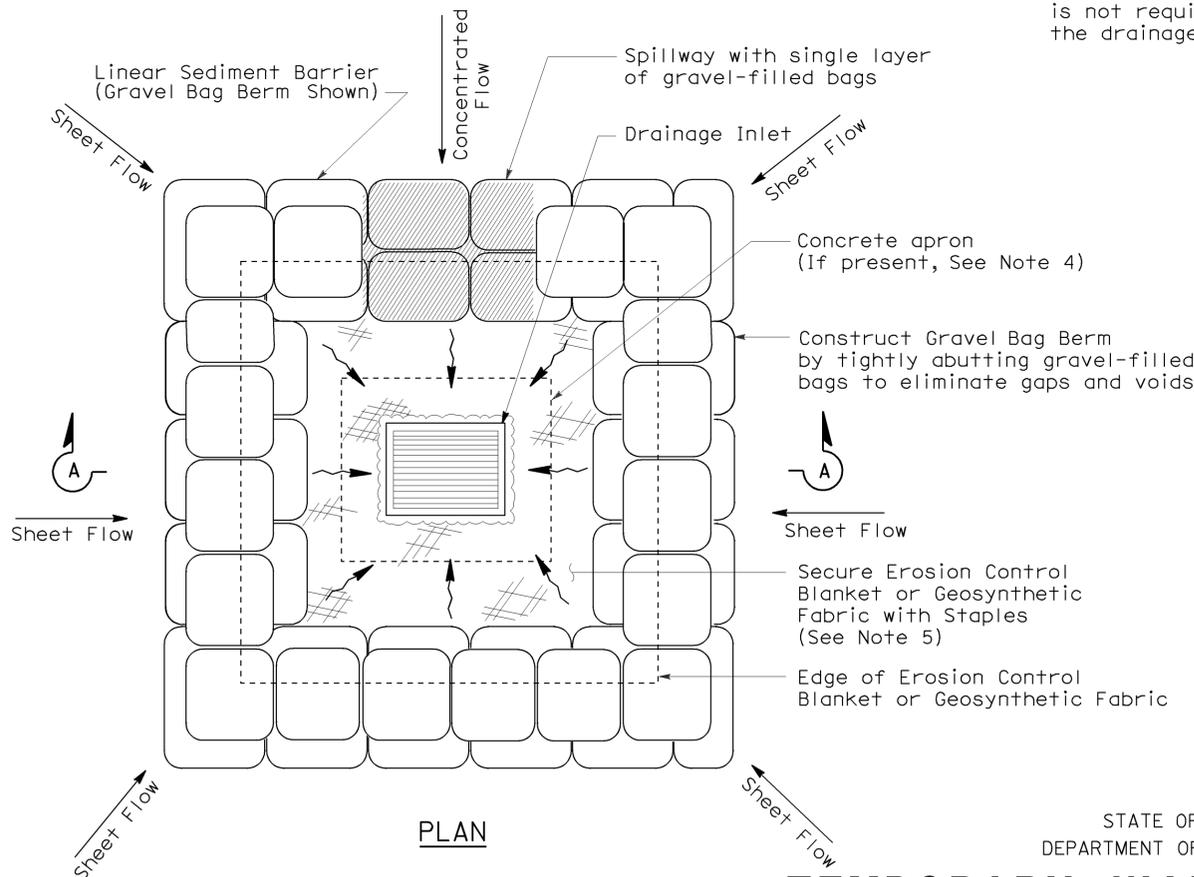
**SECTION A-A**

**NOTES:**

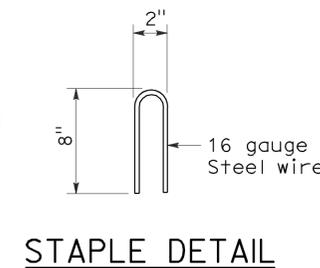
1. Place safety cones adjacent to drainage inlet protection.
2. Dimensions may vary to fit field conditions.
3. Install a minimum of 3 gravel bag berms upstream of each drainage inlet to be protected.
4. Position erosion control blanket or geosynthetic fabric at edge of concrete apron and secure in trench.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



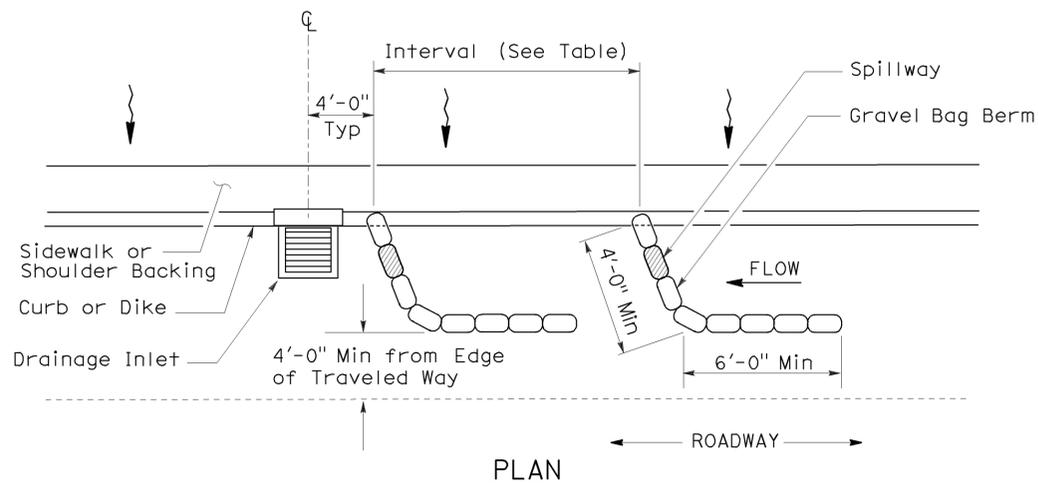
**PERSPECTIVE**



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



**STAPLE DETAIL**



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

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

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

FLEXIBLE SEDIMENT BARRIER SPACING TABLE

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

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	880	4.5/4.9	44	49

*Robert B. Schott*  
 LICENSED LANDSCAPE ARCHITECT

August 15, 2008  
 PLANS APPROVAL DATE

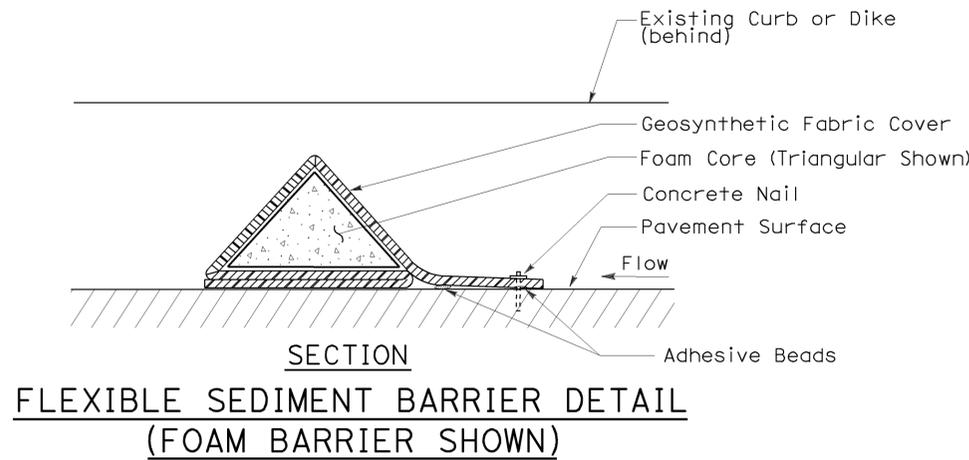
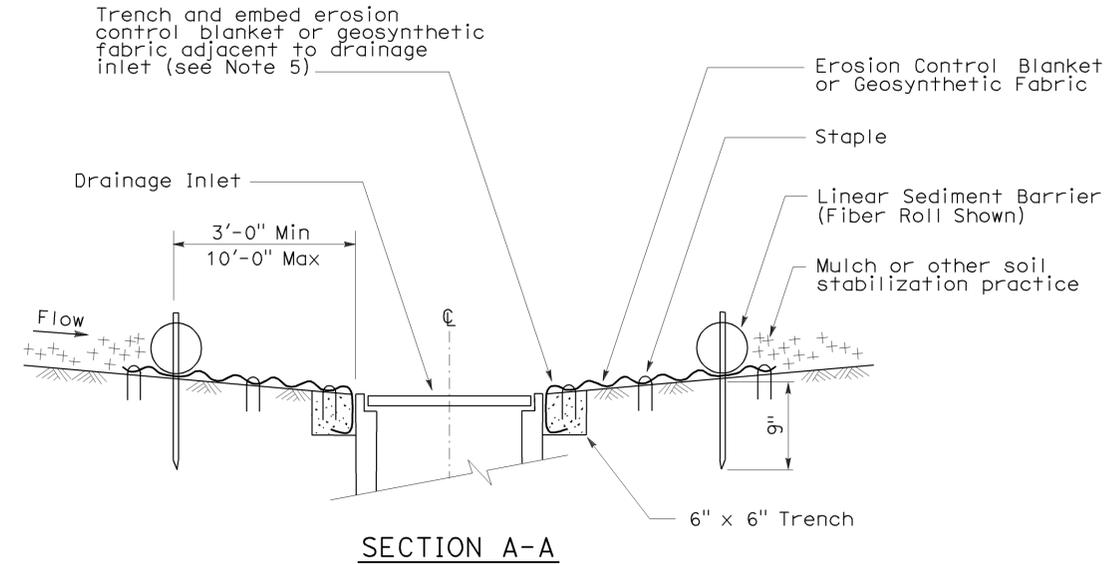
*Robert B. Schott*  
 11-04-08  
 08-11-08  
 STATE OF CALIFORNIA

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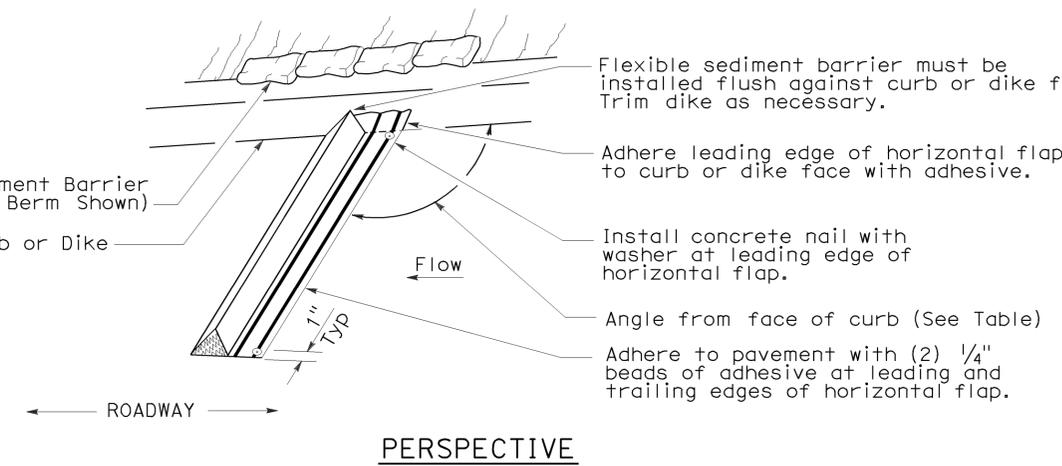
To accompany plans dated 2-27-12

NOTES:

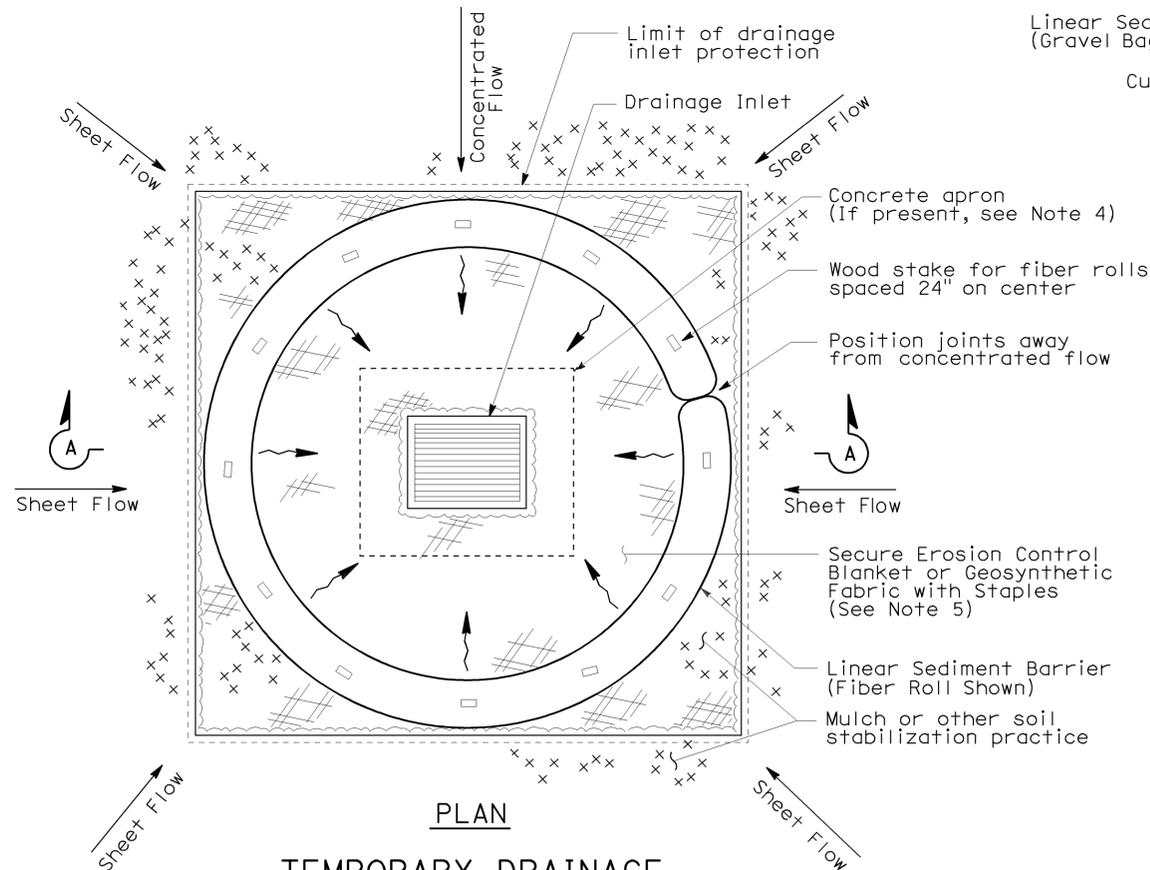
- See Standard Plan T51 for Temporary Silt Fence.
- Dimensions may vary to fit field conditions.
- Install a minimum of 3 flexible sediment barriers upstream of each drainage inlet to be protected.
- Position erosion control blanket or geosynthetic fabric at edge of concrete apron and secure in trench.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



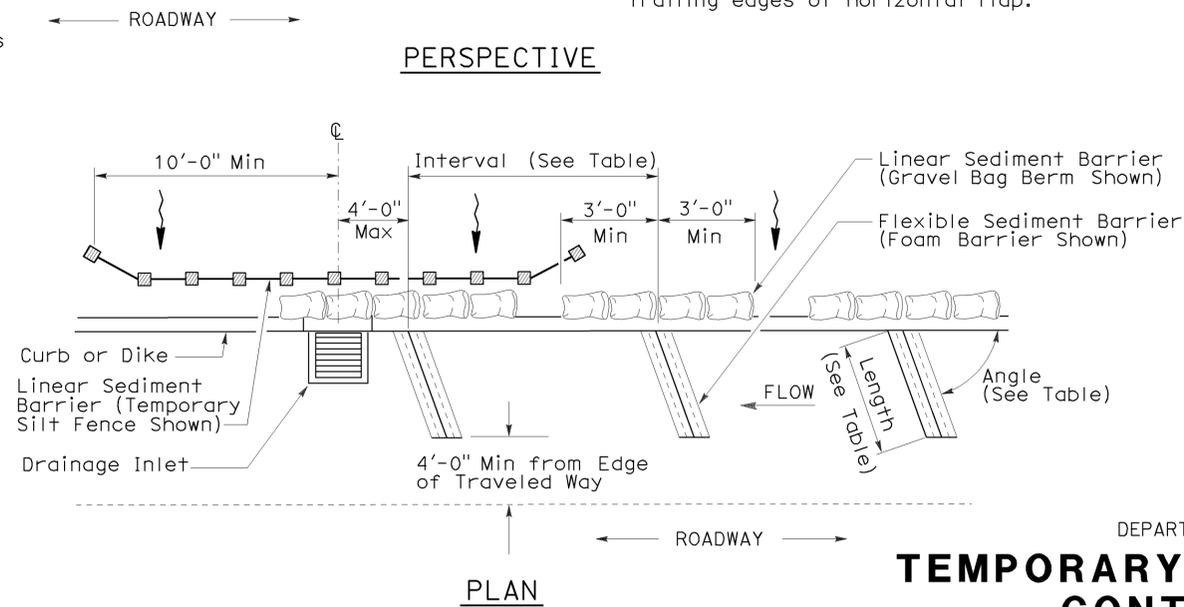
SECTION  
 FLEXIBLE SEDIMENT BARRIER DETAIL  
 (FOAM BARRIER SHOWN)



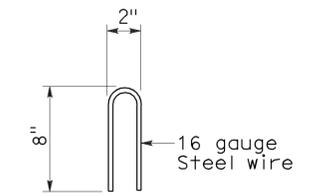
PERSPECTIVE



PLAN  
 TEMPORARY DRAINAGE  
 INLET PROTECTION (TYPE 4A)



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



STAPLE DETAIL

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION

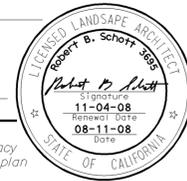
**TEMPORARY WATER POLLUTION  
 CONTROL DETAILS  
 (TEMPORARY DRAINAGE  
 INLET PROTECTION)**

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

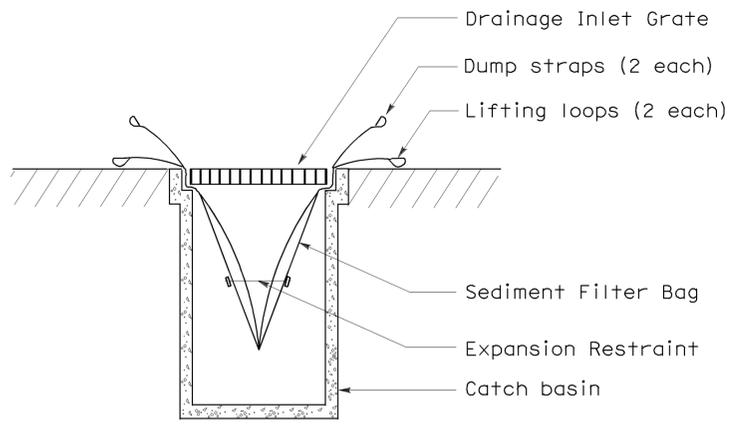
**NEW STANDARD PLAN NSP T63**

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
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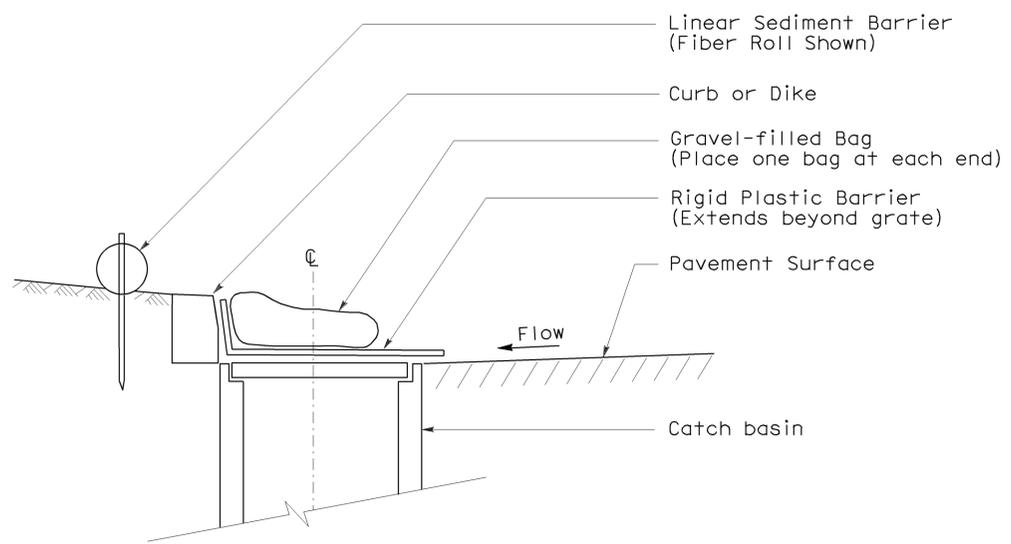
*Robert B. Schott*  
 LICENSED LANDSCAPE ARCHITECT  
 August 15, 2008  
 PLANS APPROVAL DATE  
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.



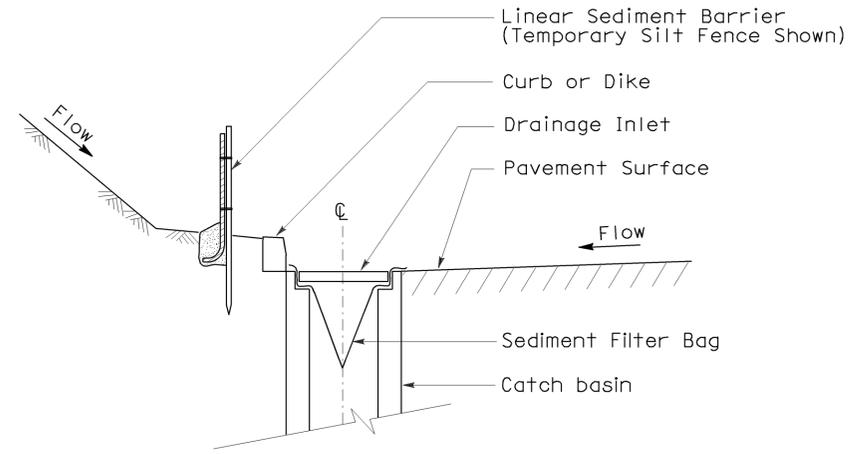
To accompany plans dated 2-27-12



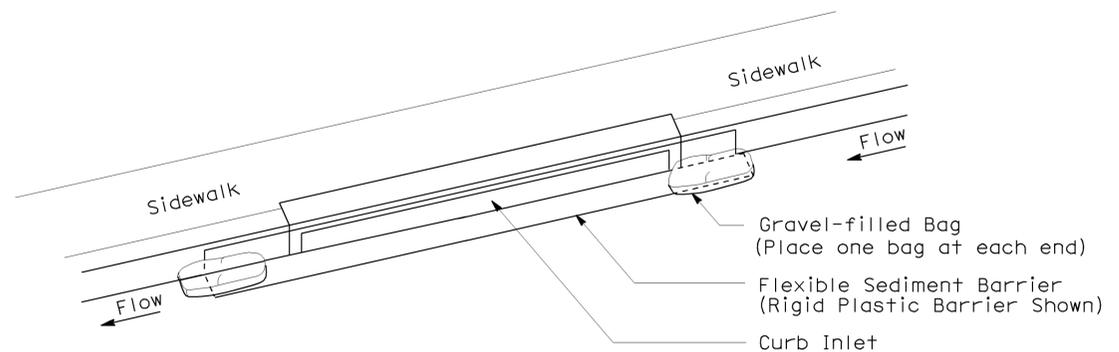
**SECTION B-B**  
**SEDIMENT FILTER BAG DETAIL**



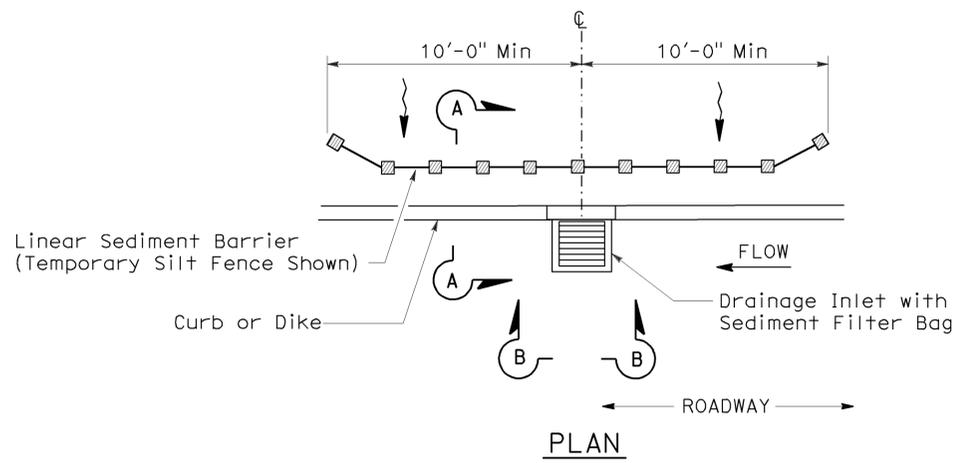
**SECTION**  
**TEMPORARY DRAINAGE INLET PROTECTION (TYPE 6A)**  
**(CATCH BASIN WITH GRATE)**



**SECTION A-A**



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



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

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

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

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

2006 NEW STANDARD PLAN NSP T64

# 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
NB	NB	Normally open
PB	pb	Pull box
PEC	pec	Photoelectric control (Type I, II, III, IV or V as shown)
PED	ped	Pedestrian
PEU	peu	Photoelectric unit
PPB	ppb	Pedestrian push button
RL	rl	Relocated equipment
RM	rm	Ramp metering
SB	sb	Slip base
SIC	sic	Signal interconnect cable
SIG	sig	Signal
SMA	sma	Signal mast arm
SNS	sns	Street name sign
SP	sp	Service point
TDC	tdc	Telephone demarcation cabinet
TMS	tms	Traffic monitoring station
TOS	tos	Traffic Operations System
VEH	veh	Vehicle
XFMR	xfmr	Transformer
COMM	comm	Communication
RWIS	rwis	Roadway weather information system

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	880	4.5/4.9	46	49

REGISTERED ELECTRICAL ENGINEER  
 October 5, 2007  
 PLANS APPROVAL DATE  
  
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To accompany plans dated 2-27-12

## 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
04	Ala	880	4.5/4.9	47	49

*Jeffery G. McRae*  
REGISTERED ELECTRICAL ENGINEER

October 5, 2007  
PLANS APPROVAL DATE

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

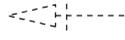
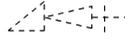
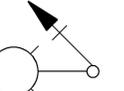
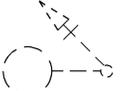
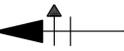
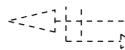
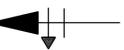
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To accompany plans dated 2-27-12

### 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

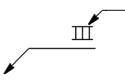
### SIGNAL EQUIPMENT Cont

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

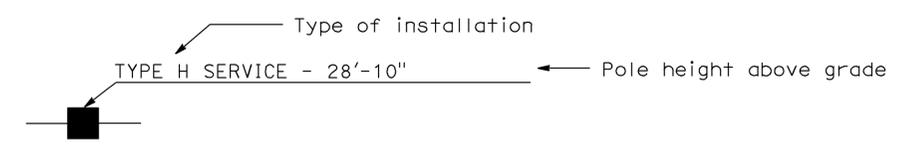
### NOTES:

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

### SERVICE EQUIPMENT

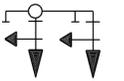
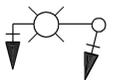
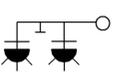
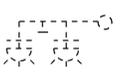
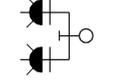
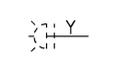
PROPOSED	EXISTING	
---OH---	---oh---	Overhead lines
		Wood pole "U" indicates utility owned
		Pole guy with anchor
		Utility transformer - ground mounted
		Service equipment enclosure type
		Service equipment enclosure door indicates front of enclosure
		Telephone demarcation cabinet

### 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

		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

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**ELECTRICAL SYSTEMS  
(SYMBOLS AND ABBREVIATIONS)**

NO SCALE

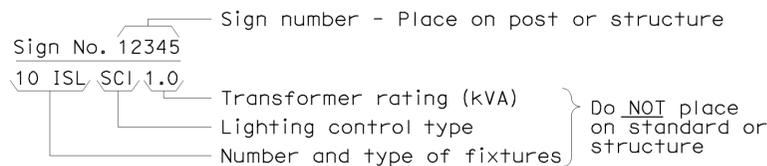
RSP ES-1B DATED OCTOBER 5, 2007 SUPERCEDES STANDARD PLAN ES-1B  
DATED MAY 1, 2006 - PAGE 401 OF THE STANDARD PLANS BOOK DATED MAY 2006.

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

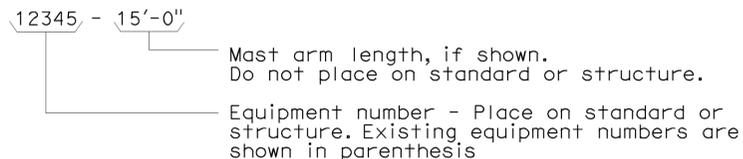
2006 REVISED STANDARD PLAN RSP ES-1B

### EQUIPMENT IDENTIFICATION

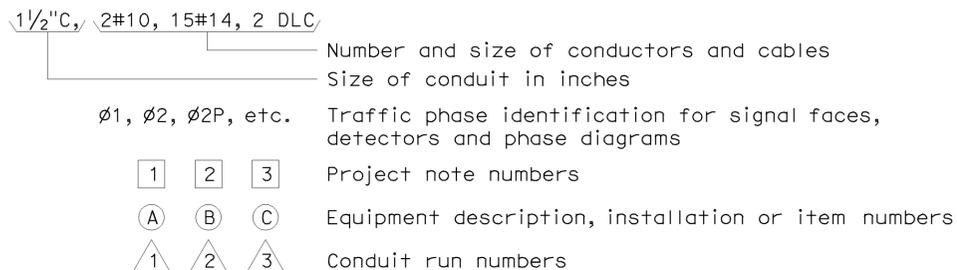
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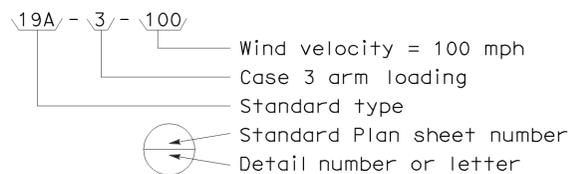
#### ELECTROLIER OR EQUIPMENT IDENTIFICATION NUMBER:



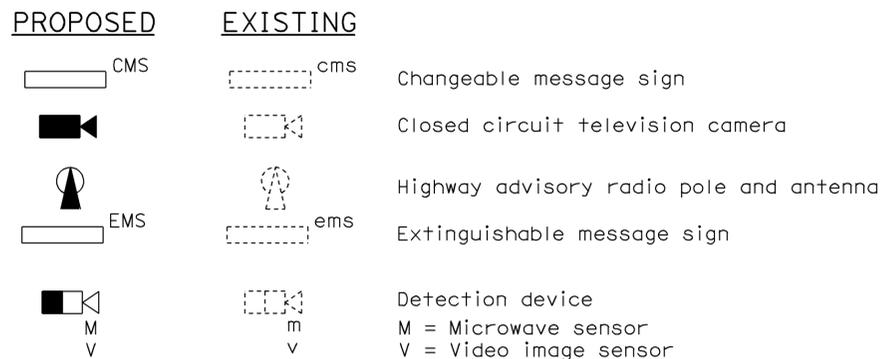
#### CONDUIT AND CONDUCTOR IDENTIFICATION:



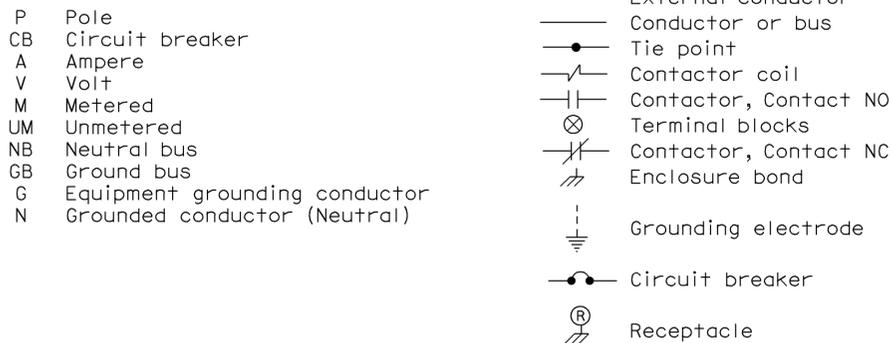
#### SIGNAL AND LIGHTING STANDARD (TYPICAL DESIGNATION):



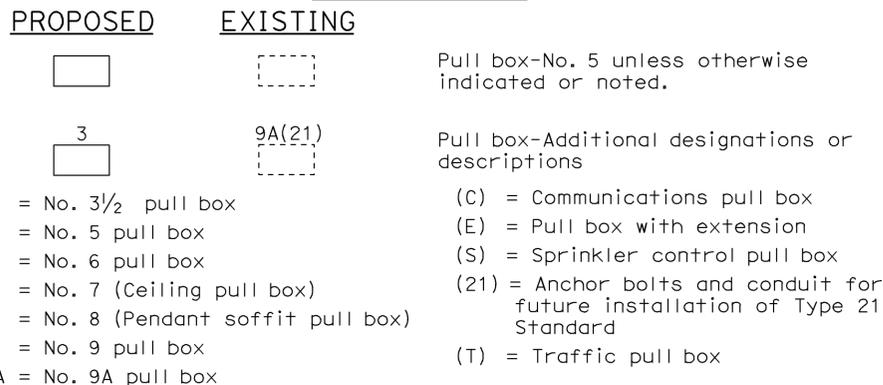
### MISCELLANEOUS EQUIPMENT



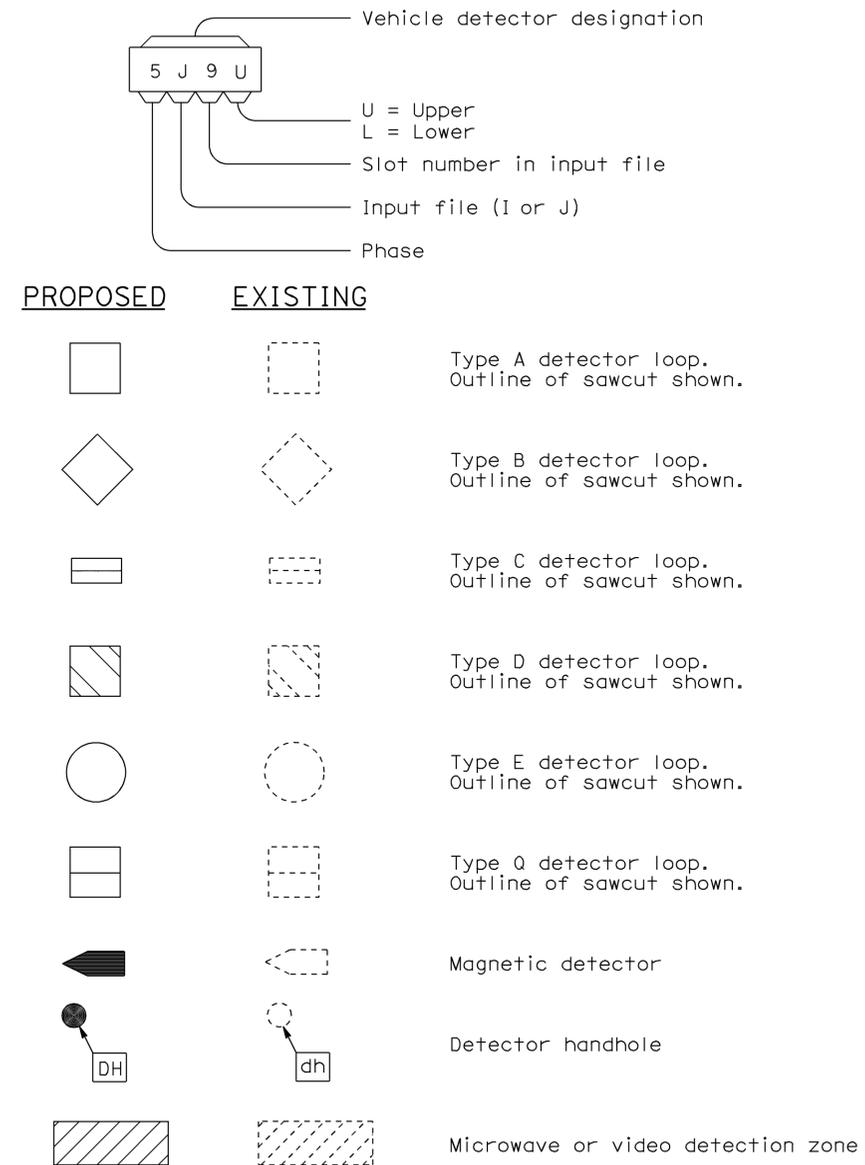
### WIRING DIAGRAM LEGEND



### PULL BOXES



### VEHICLE DETECTORS



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

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

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

2006 REVISED STANDARD PLAN RSP ES-1C

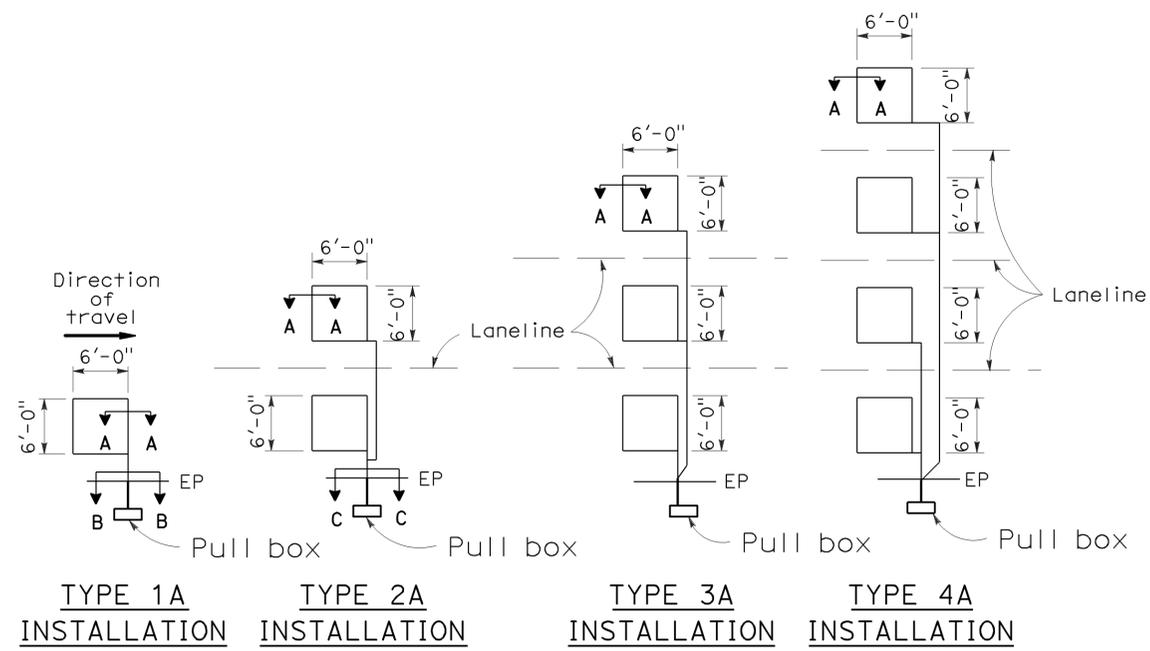
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	880	4.5/4.9	49	49

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 REGISTERED ELECTRICAL ENGINEER  
 October 5, 2007  
 PLANS APPROVAL DATE  
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To accompany plans dated 2-27-12

## LOOP INSTALLATION PROCEDURE

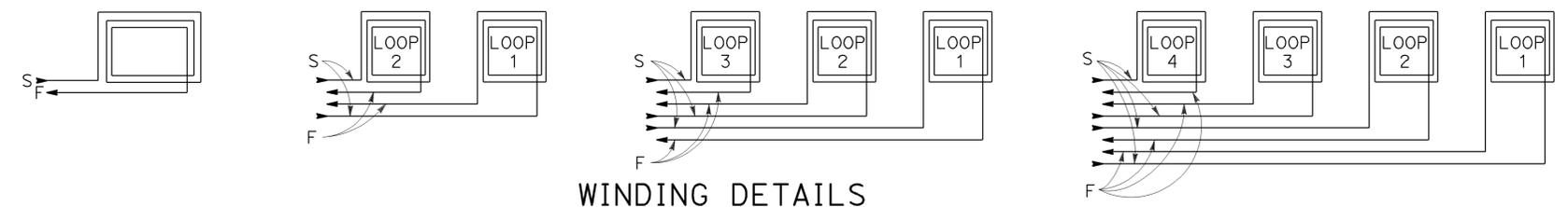
- Loops shall be centered in lanes.
- Saw slots in pavement for loop conductors as shown in details.
- Distance between side of loop and a lead-in saw cut from adjacent detectors shall be 2'-0" minimum. Distance between lead-in saw cuts shall be 6" minimum.
- Bottom of saw slot shall be smooth with no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

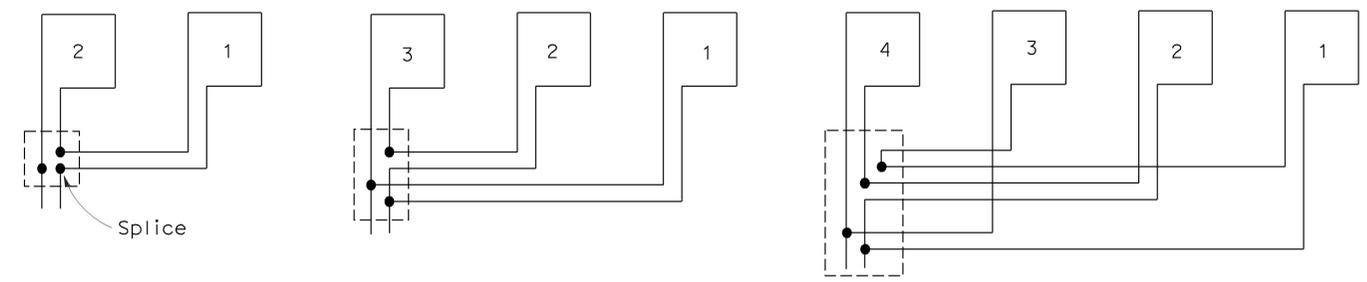
### SAWCUT DETAILS

- (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)



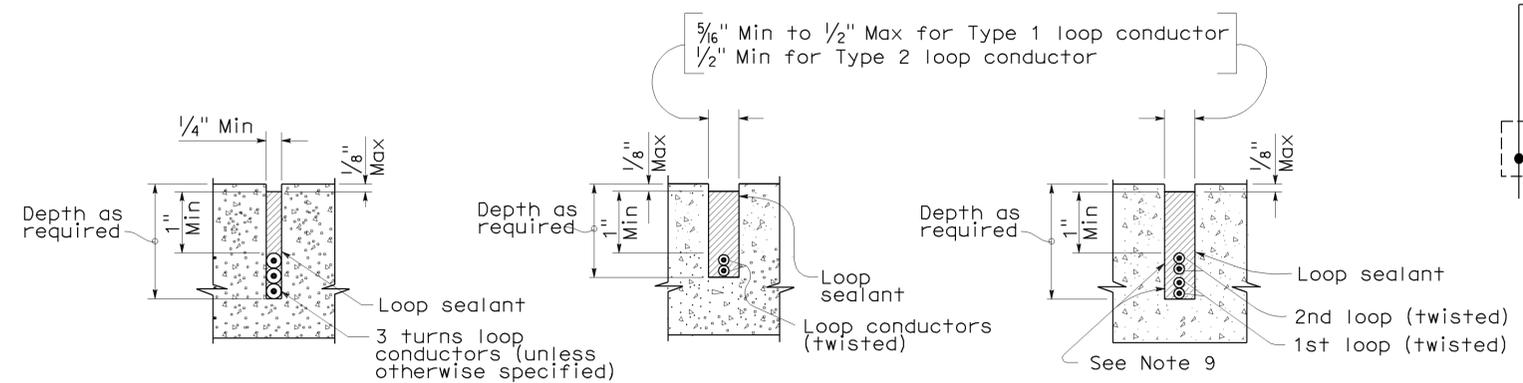
### WINDING DETAILS

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

2006 REVISED STANDARD PLAN RSP ES-5A