Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	91,110	6.1/R11.4, 9.6/10.3	1	58

NHP-X037(193)E

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

PROJECT PLANS FOR CONSTRUCTION ON
STATE HIGHWAY
IN LOS ANGELES COUNTY
ON ROUTE 91 FROM 0.1 MILE EAST OF VERMONT AVENUE TO BUTLER AVENUE UNDERCROSSING AND ON ROUTE 110 FROM 0.3 MILE SOUTH TO 0.4 MILE NORTH OF ROUTE 110/91 SEPARATION

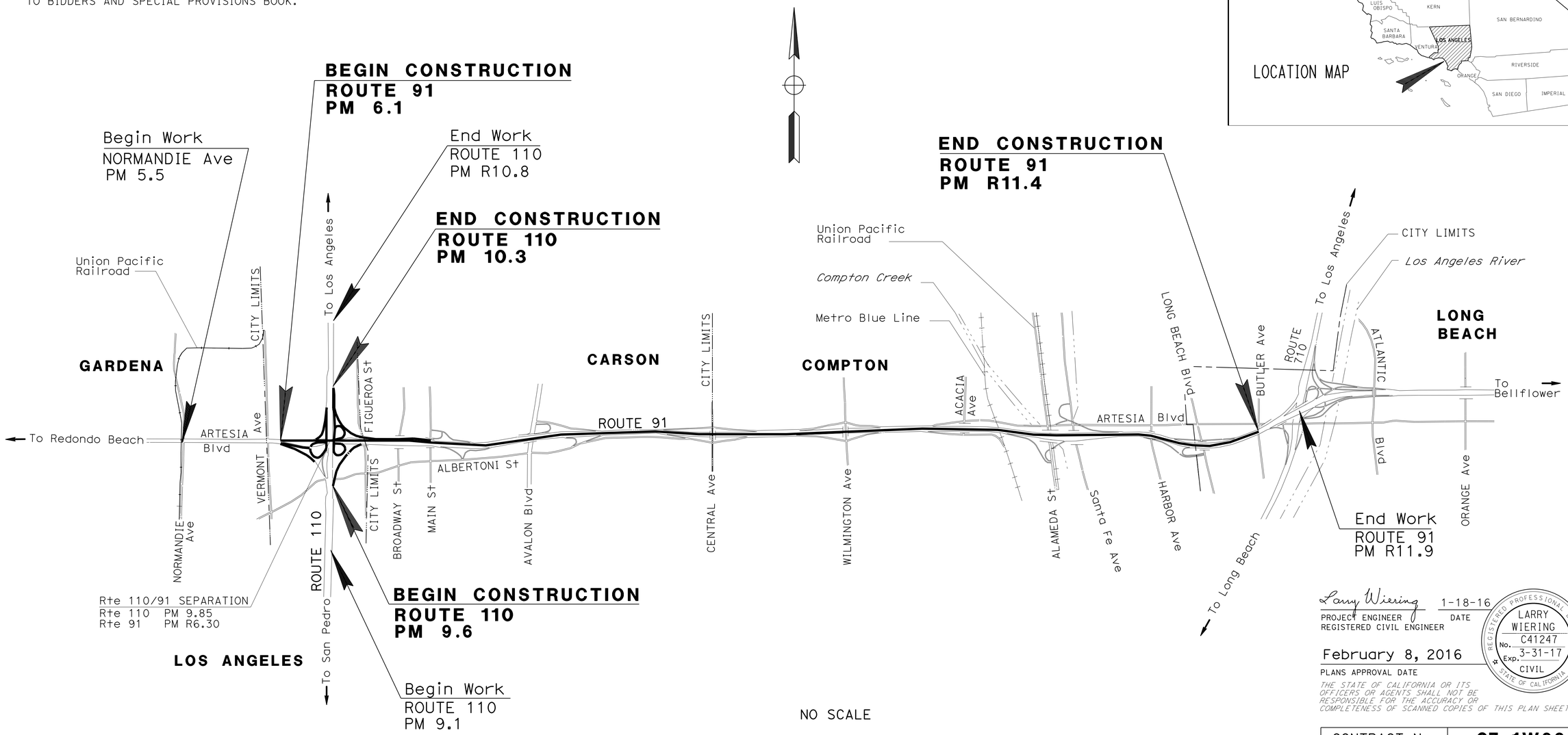
TO BE SUPPLEMENTED BY STANDARD PLANS DATED 2010

INDEX OF PLANS

SHEET No.	DESCRIPTION
1	TITLE AND LOCATION MAP
2-5	TYPICAL CROSS SECTIONS
6-13	CONSTRUCTION DETAILS
14	CONSTRUCTION AREA SIGNS
15-26	TRAFFIC HANDLING DETAILS
27	PAVEMENT DELINEATION DETAILS
28-30	PAVEMENT DELINEATION QUANTITIES
31-34	SUMMARY OF QUANTITIES
35	ELECTRICAL PLANS
36-58	REVISED STANDARD PLANS

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

LOCATION MAP



Larry Wiering 1-18-16
PROJECT ENGINEER DATE
REGISTERED CIVIL ENGINEER

February 8, 2016
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER LARRY WIERING No. C41247 Exp. 3-31-17 CIVIL STATE OF CALIFORNIA

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

PROJECT MANAGER GARY KEVORKIAN
DESIGN MANAGER PAUL CRISPI

CONTRACT No.	07-1W9804
PROJECT ID	0713000082

LAST REVISION 02-08-16
DATE PLOTTED => 26-FEB-2016
TIME PLOTTED => 14:44

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	91,110	6.1/R11.4, 9.6/10.3	2	58

Larry Wiering 1-18-16
REGISTERED CIVIL ENGINEER DATE

2-8-16
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER LARRY WIERING No. C41247 Exp. 3-31-17 CIVIL STATE OF CALIFORNIA

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

NOTES:

1. DIMENSIONS OF THE PAVEMENT STRUCTURAL SECTIONS ARE SUBJECT TO TOLERANCES SPECIFIED IN THE STANDARD SPECIFICATIONS.
2. EXISTING DRAINAGE INLETS HAVE BEEN PLOTTED.
3. EXISTING UTILITY FACILITIES ARE NOT INCLUDED ON THESE PLANS.
4. THERE IS NO WORK ON HOV LANE AND BRIDGES DECKS.
5. THE NUMBER AND LOCATIONS OF THE BROKEN SLABS ARE APPROXIMATE, THE EXACT NUMBER AND LOCATIONS WILL BE DETERMINED BY THE ENGINEER.

PROPOSED PAVEMENT STRUCTURAL SECTIONS

B: 0.65' ISR (RSC)
--- BOND BREAKER

C: 0.70' ISR (RSC)
--- BOND BREAKER

D: 0.75' ISR (RSC)
--- BOND BREAKER

E: 0.10' COLD PLANE AC PAVEMENT
0.10' RHMA-G

F: 0.30' COLD PLANE AC PAVEMENT
0.30' HOT MIX ASPHALT (TYPE A)

ABBREVIATIONS:

RHMA-G	RUBBERIZED HOT MIX ASPHALT (GAP GRADED)
ISR	INDIVIDUAL SLAB REPLACEMENT
RSCCB	RAPID SETTING CEMENT CONCRETE BASE

PAVEMENT CLIMATE REGION

INLAND VALLEY

EXISTING PAVEMENT STRUCTURAL SECTIONS

1: 1' PCC
0.5' LCB
0.7' CL 3 AB

2: 0.65' PCC
0.45' CL A CTB
0.6' CL 3 AB

3: 0.7' PCC
0.4' CL A CTB
0.55' CL 3 AB

3A: 0.45'AC
0.4' CL A CTB
0.55' CL 3 AB

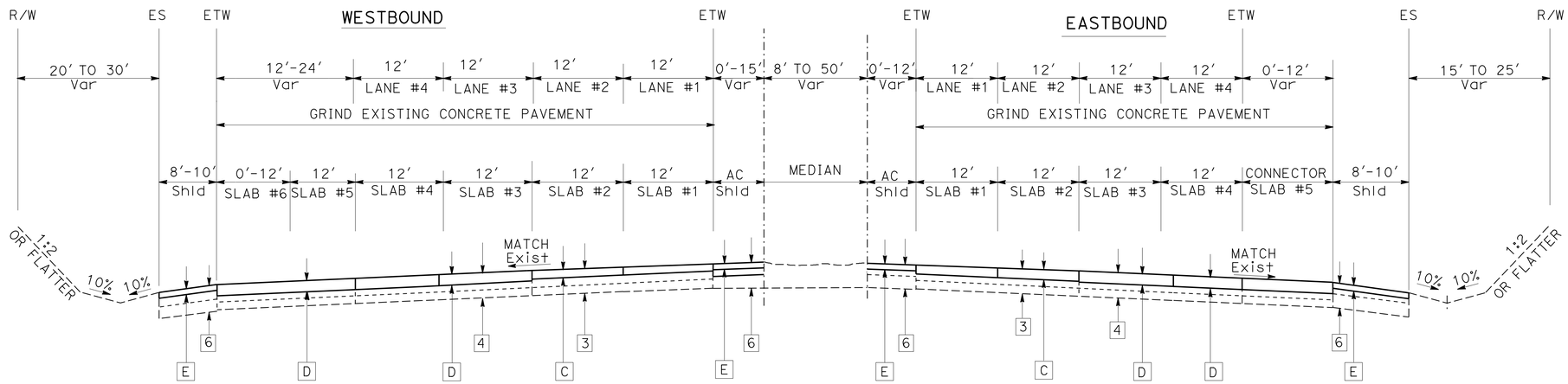
4: 0.75' PCC
0.45' CL A CTB
0.5' CL 3 AB

5: 0.35' AC
0.65' CL A CTB
0.35'CL 3 AB
0.85' CL 4 AS

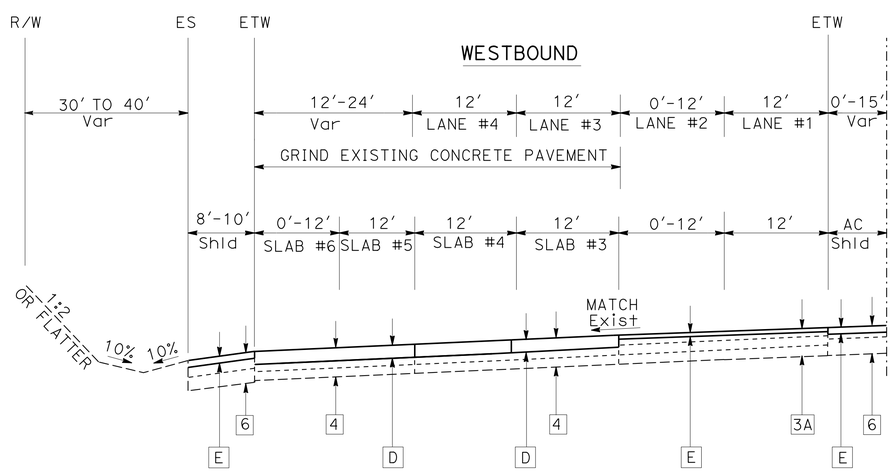
6: 0.25'-0.35' AC
0.4'-0.55' CL 2 AB
VAR CL 4 AS

7: 0.70' PCC
0.40' PCCB
0.50' CI 3 AB

8: 0.30' AC
0.40' CI 2 AB
Var CI 4 AS



PM 6.3 TO PM R6.5



PM 6.1 TO PM R6.3

ROUTE 91

TYPICAL CROSS SECTIONS

NO SCALE

X-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans MAINTENANCE ENGINEERING

FUNCTIONAL SUPERVISOR: PAUL CRISPI
CALCULATED-DESIGNED BY: GEHAN ATTALAH
CHECKED BY: LARRY WIERING
REVISED BY
DATE REVISED

LAST REVISION 02-08-16
DATE PLOTTED => 26-FEB-2016
TIME PLOTTED => 14:44

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	91,110	6.1/R11.4, 9.6/10.3	3	58

Larry Wiering 1-18-16
REGISTERED CIVIL ENGINEER DATE

2-8-16
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
LARRY WIERING
No. C41247
Exp. 3-31-17
CIVIL
STATE OF CALIFORNIA

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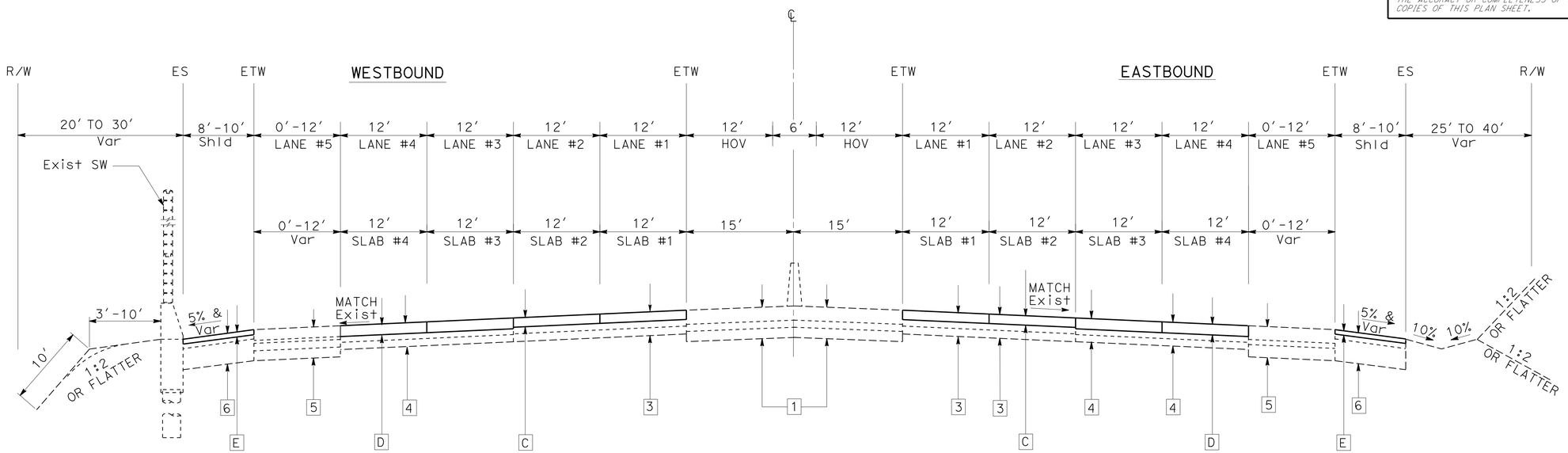
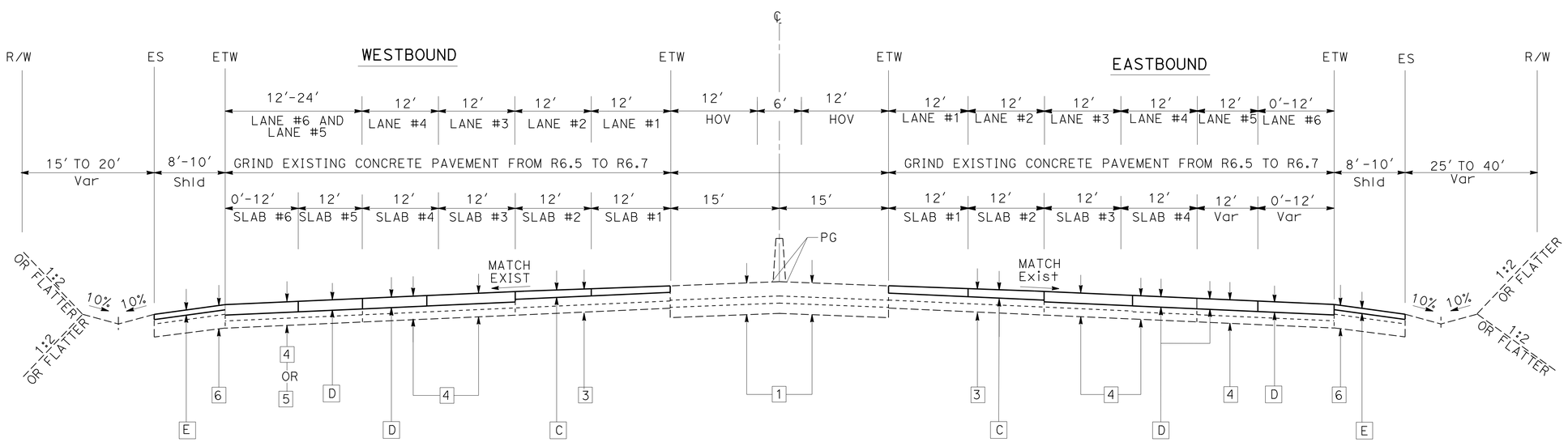


FROM PM R7.5 TO PM R9.0



PM R6.5 TO PM R7.5

ROUTE 91

TYPICAL CROSS SECTIONS

NO SCALE

X-2

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans MAINTENANCE ENGINEERING

FUNCTIONAL SUPERVISOR: PAUL CRISPI
CALCULATED-DESIGNED BY: GEHAN ATTALAH
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REVISED BY
DATE REVISED

LAST REVISION 02-08-16
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07	LA	91,110	6.1/R11.4, 9.6/10.3	4	58

Larry Wiering 1-18-16
REGISTERED CIVIL ENGINEER DATE

2-8-16
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
LARRY WIERING
No. C41247
Exp. 3-31-17
CIVIL
STATE OF CALIFORNIA

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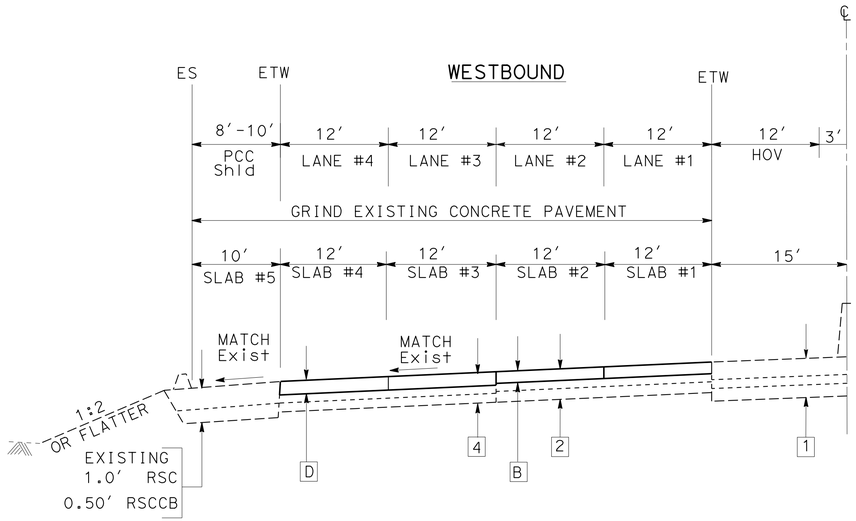
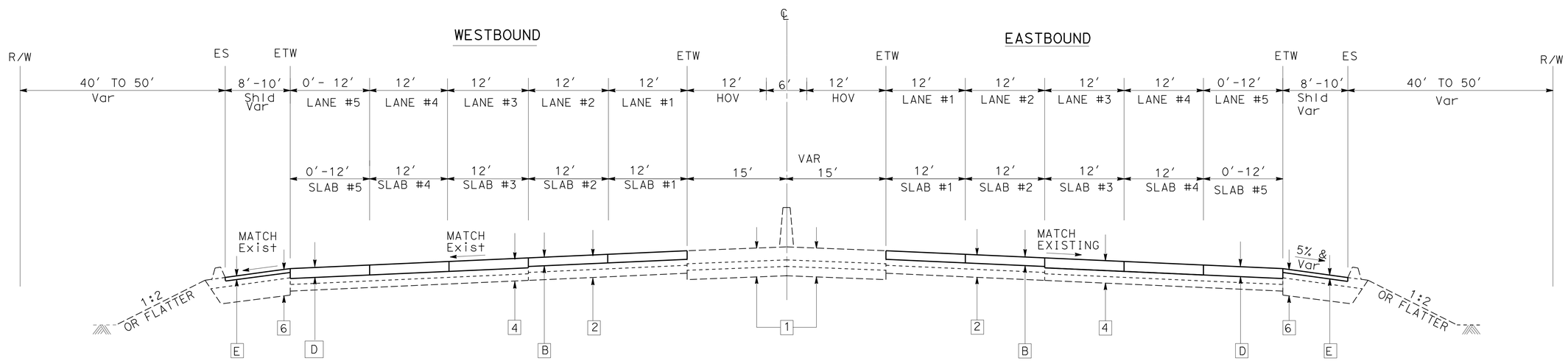


PM R9.6 TO PM R9.8



PM R9.0 TO R10.0

ROUTE 91

TYPICAL CROSS SECTIONS

NO SCALE

X-3

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans MAINTENANCE ENGINEERING

FUNCTIONAL SUPERVISOR: PAUL CRISPI
CALCULATED-DESIGNED BY: GEHAN ATTALAH
CHECKED BY: LARRY WIERING
REVISED BY
DATE REVISED

LAST REVISION 02-08-16
DATE PLOTTED => 26-FEB-2016
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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	91,110	6.1/R11.4, 9.6/10.3	5	58

Larry Wiering 1-18-16
REGISTERED CIVIL ENGINEER DATE

2-8-16
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REGISTERED PROFESSIONAL ENGINEER
LARRY WIERING
No. C41247
Exp. 3-31-17
CIVIL
STATE OF CALIFORNIA

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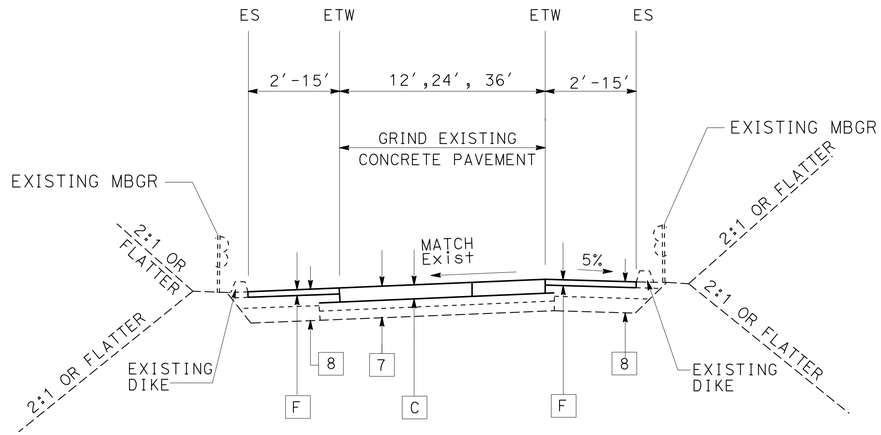
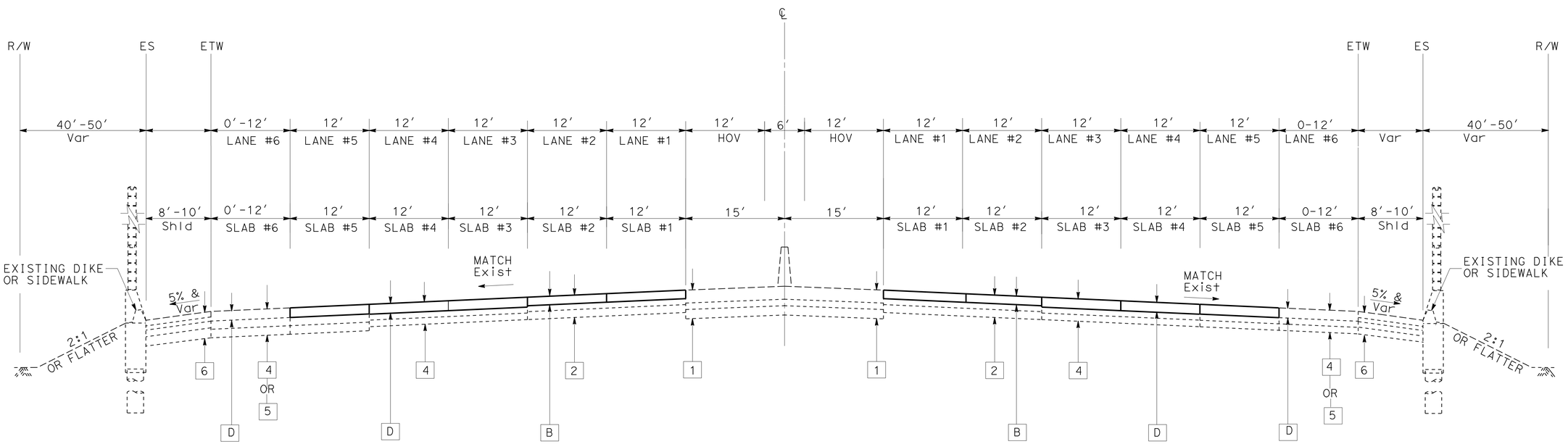


CONNECTOR No. 1, 2, 3, 4, 5, 6 AND 7



WESTBOUND

PM R10.0 TO PM R11.4

EASTBOUND

ROUTE 91

TYPICAL CROSS SECTION

NO SCALE

X-4

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans MAINTENANCE ENGINEERING

FUNCTIONAL SUPERVISOR: PAUL CRISPI

CALCULATED-DESIGNED BY: GEHAN ATTALAH
CHECKED BY: LARRY WIERING

REVISED BY
DATE REVISED

LAST REVISION 02-08-16
DATE PLOTTED => 26-FEB-2016
TIME PLOTTED => 14:44

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	91,110	6.1/R11.4, 9.6/10.3	6	58

Larry Wiering 1-18-16
REGISTERED CIVIL ENGINEER DATE

2-8-16
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
LARRY WIERING
No. C41247
Exp. 3-31-17
CIVIL
STATE OF CALIFORNIA

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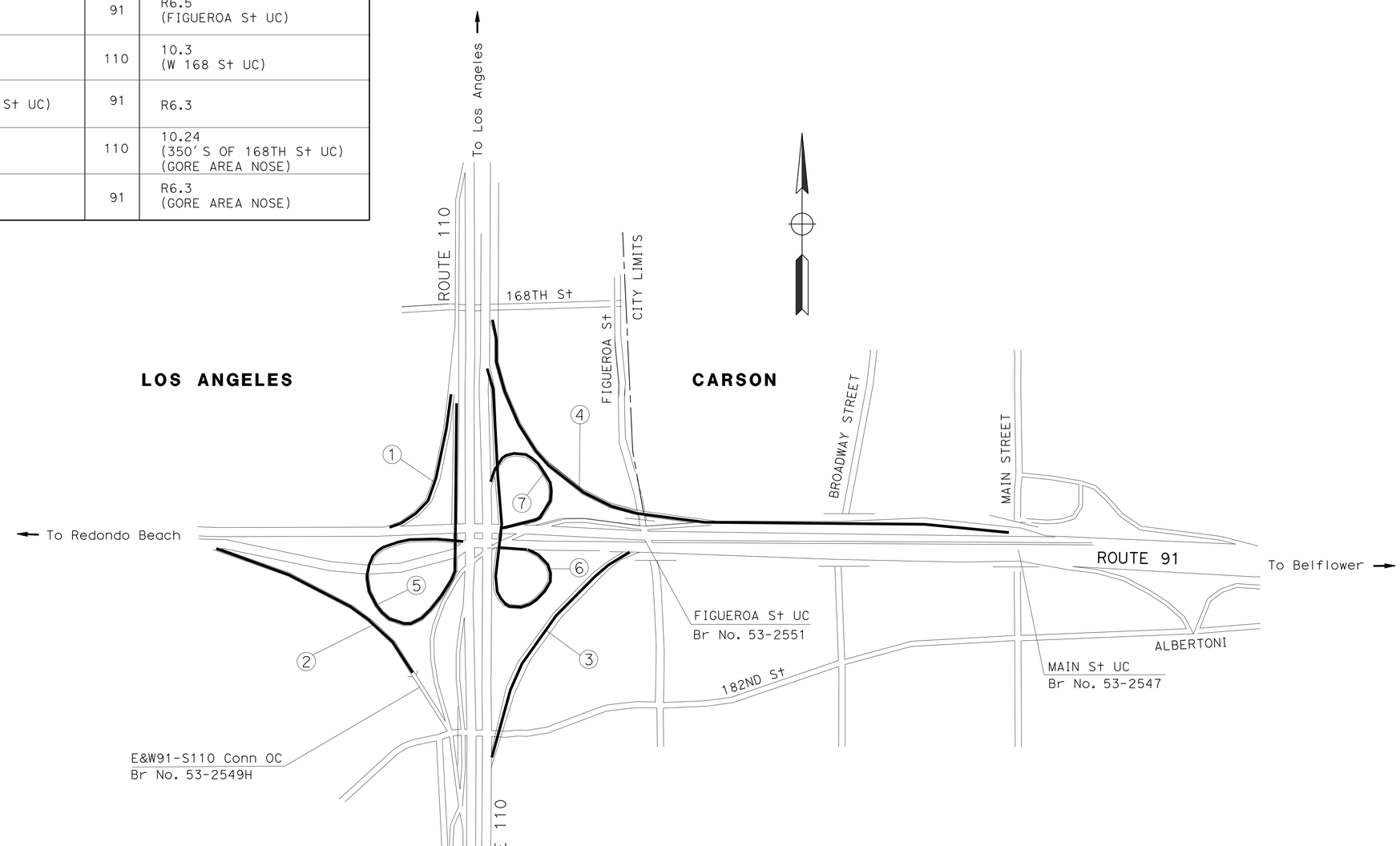
Conn No. (#)	LOCATIONS	BEGIN		END	
		Rte	APPROXIMATE PM	Rte	APPROXIMATE PM
1	S110-W91	110	10.14 (OH SIGN) (0.18 MILE S OF W 168th St UC)	91	6.27 (GORE AREA NOSE)
2	E91-S110	91	6.1 (90' W OF OH SIGN)	110	9.7 (BEGIN E&W91-S110 OC)
3	N110-E91	110	9.6 (85' S OF 182ND UC) (GORE AREA)	91	R6.5 (FIGUEROA St UC)
4	W91-N110	91	R6.9 (S MAIN St UC)	110	10.3 (W 168 St UC)
5	S110-E91	110	10.09 (0.2 MILE S OF 168TH St UC) (GORE AREA NOSE)	91	R6.3
6	E91-N110	91	R6.3 (GORE AREA NOSE)	110	10.24 (350' S OF 168TH St UC) (GORE AREA NOSE)
7	N110-W91	110	9.9 (GORE AREA NOSE)	91	R6.3 (GORE AREA NOSE)



CONSTRUCTION DETAILS

NO SCALE

C-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans MAINTENANCE ENGINEERING

FUNCTIONAL SUPERVISOR: PAUL CRISPI
CALCULATED-DESIGNED BY: GEHAN ATTALAH
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DATE REVISED

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07	LA	91,110	6.1/R11.4, 9.6/10.3	7	58

Larry Wiering 1-18-16
REGISTERED CIVIL ENGINEER DATE

2-8-16
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LARRY WIERING
No. C41247
Exp. 3-31-17
CIVIL
STATE OF CALIFORNIA

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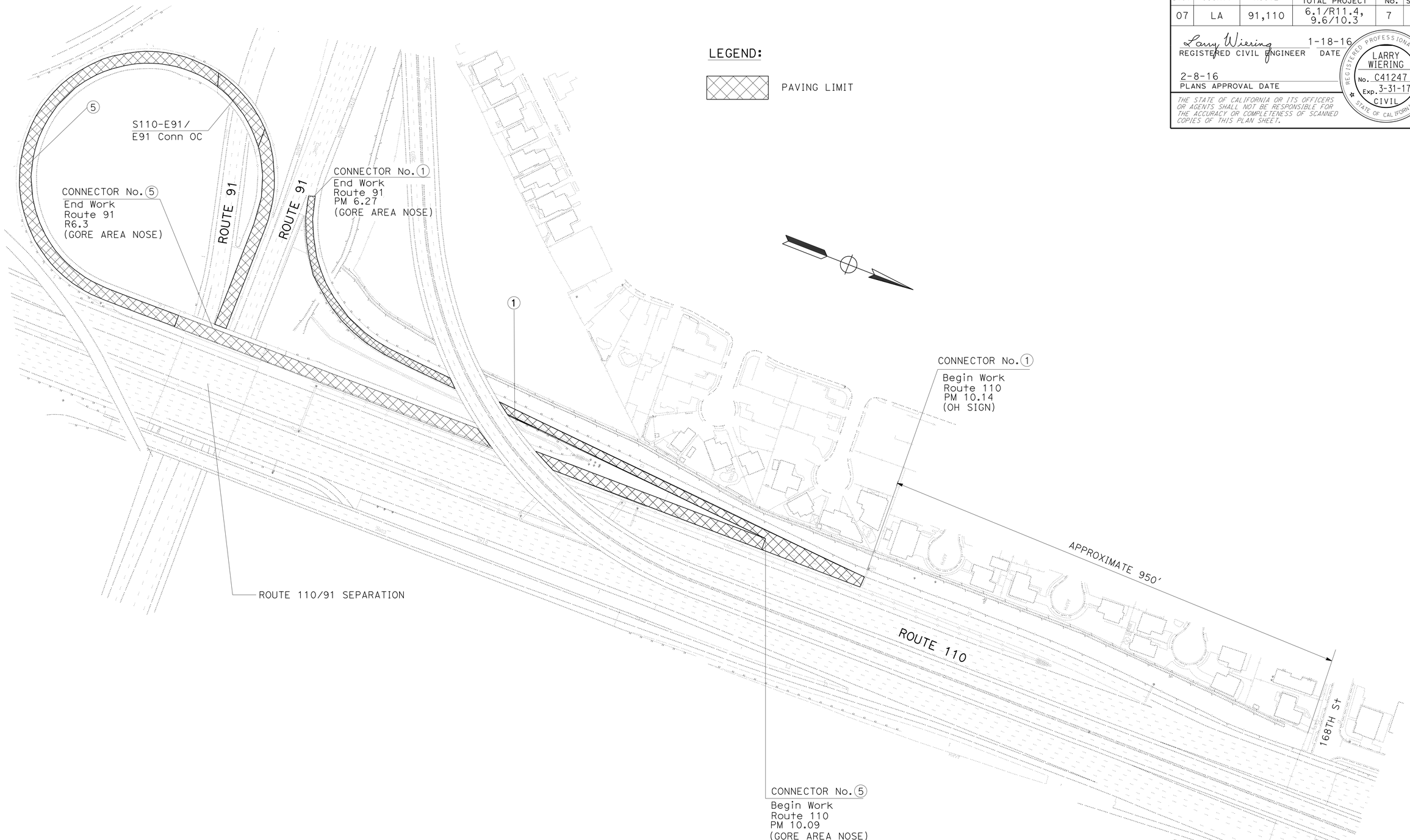

PAVING LIMITS DETAILS
CONNECTOR No. 1 AND CONNECTOR No. 5

CONSTRUCTION DETAILS
NO SCALE

C-2

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans MAINTENANCE ENGINEERING

FUNCTIONAL SUPERVISOR: PAUL CRISPI
CALCULATED-DESIGNED BY: GEHAN ATTALAH
CHECKED BY: LARRY WIERING
REVISED BY
DATE REVISED

LAST REVISION 02-08-16
DATE PLOTTED => 26-FEB-2016
TIME PLOTTED => 14:44

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	91,110	6.1/R11.4, 9.6/10.3	8	58

Larry Wiering 1-18-16
REGISTERED CIVIL ENGINEER DATE

2-8-16
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
LARRY WIERING
No. C41247
Exp. 3-31-17
CIVIL
STATE OF CALIFORNIA

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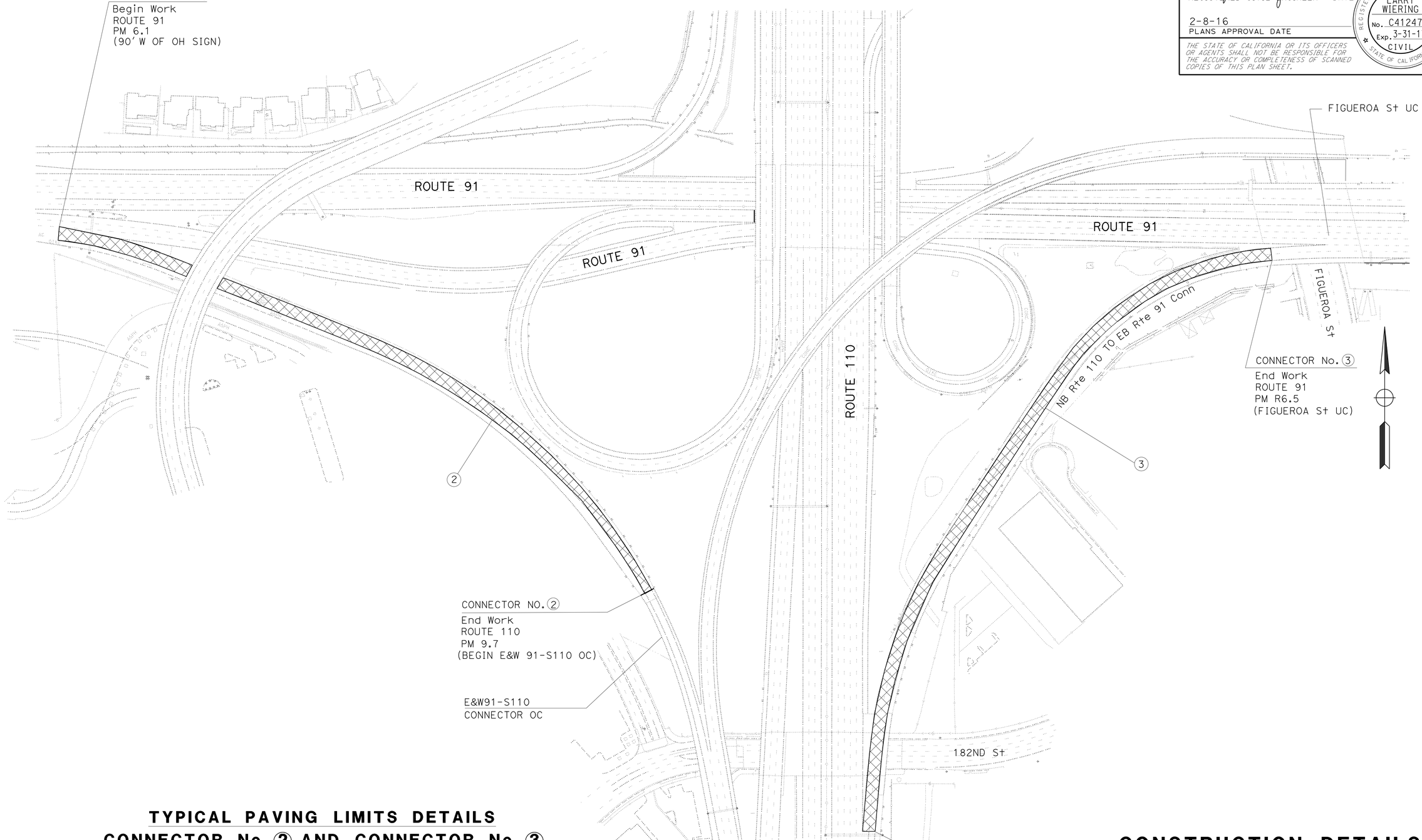

TYPICAL PAVING LIMITS DETAILS
CONNECTOR No. 2 AND CONNECTOR No. 3

CONSTRUCTION DETAILS
NO SCALE

C-3

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans MAINTENANCE ENGINEERING

FUNCTIONAL SUPERVISOR: PAUL CRISPI
CALCULATED-DESIGNED BY: GEHAN ATTALAH
CHECKED BY: LARRY WIERING
REVISED BY
DATE REVISED

LAST REVISION 02-08-16
DATE PLOTTED => 26-FEB-2016
TIME PLOTTED => 14:44

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	91,110	6.1/R11.4, 9.6/10.3	9	58

Larry Wiering 1-18-16
REGISTERED CIVIL ENGINEER DATE

2-8-16
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
LARRY WIERING
No. C41247
Exp. 3-31-17
CIVIL
STATE OF CALIFORNIA

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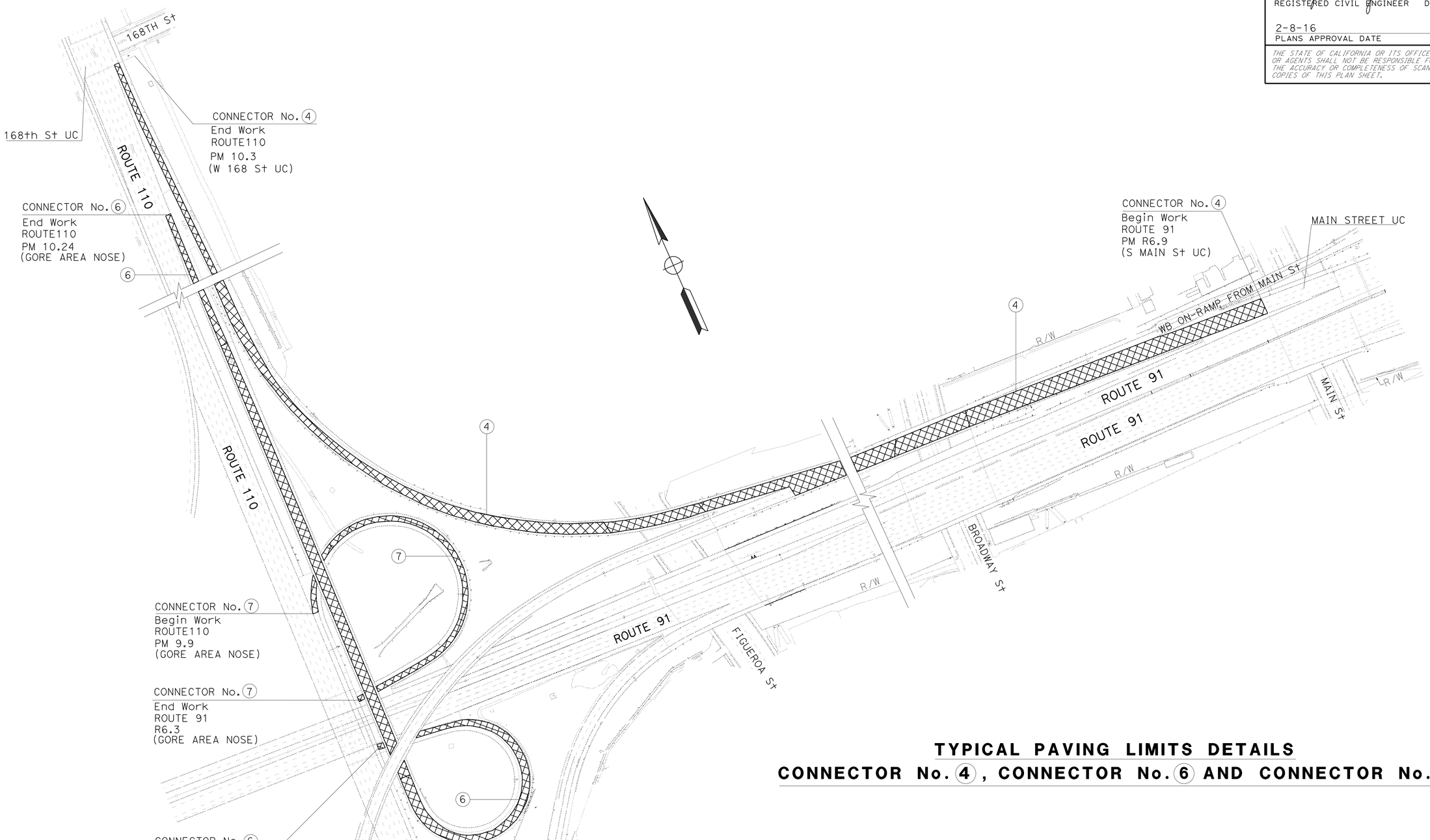

TYPICAL PAVING LIMITS DETAILS
CONNECTOR No. 4, CONNECTOR No. 6 AND CONNECTOR No. 7

CONSTRUCTION DETAILS
NO SCALE

C-4

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans MAINTENANCE ENGINEERING

FUNCTIONAL SUPERVISOR: PAUL CRISPI
CALCULATED-DESIGNED BY: GEHAN ATTALAH
CHECKED BY: LARRY WIERING
REVISED BY
DATE REVISED

LAST REVISION 02-08-16
DATE PLOTTED => 26-FEB-2016
TIME PLOTTED => 14:44

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	91,110	6.1/R11.4, 9.6/10.3	10	58

Larry Wiering 1-18-16
REGISTERED CIVIL ENGINEER DATE

2-8-16
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
LARRY WIERING
No. C41247
Exp. 3-31-17
CIVIL
STATE OF CALIFORNIA

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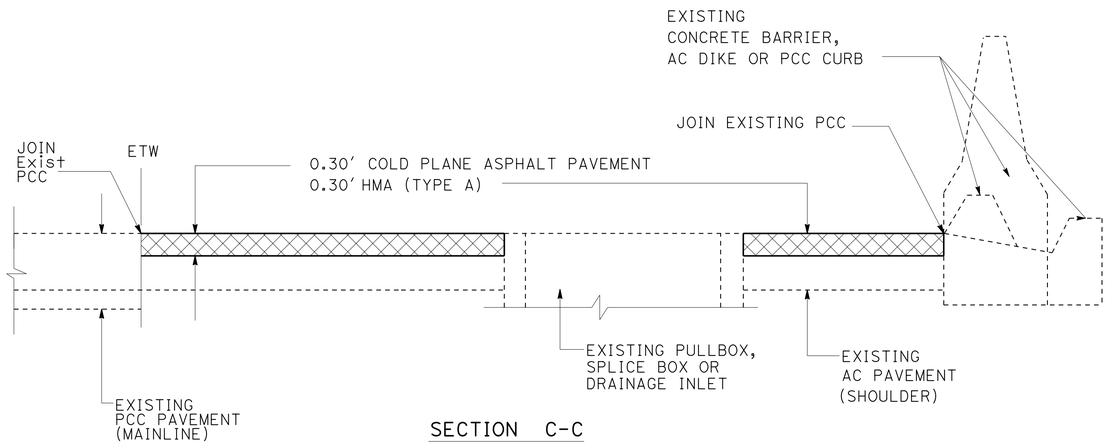
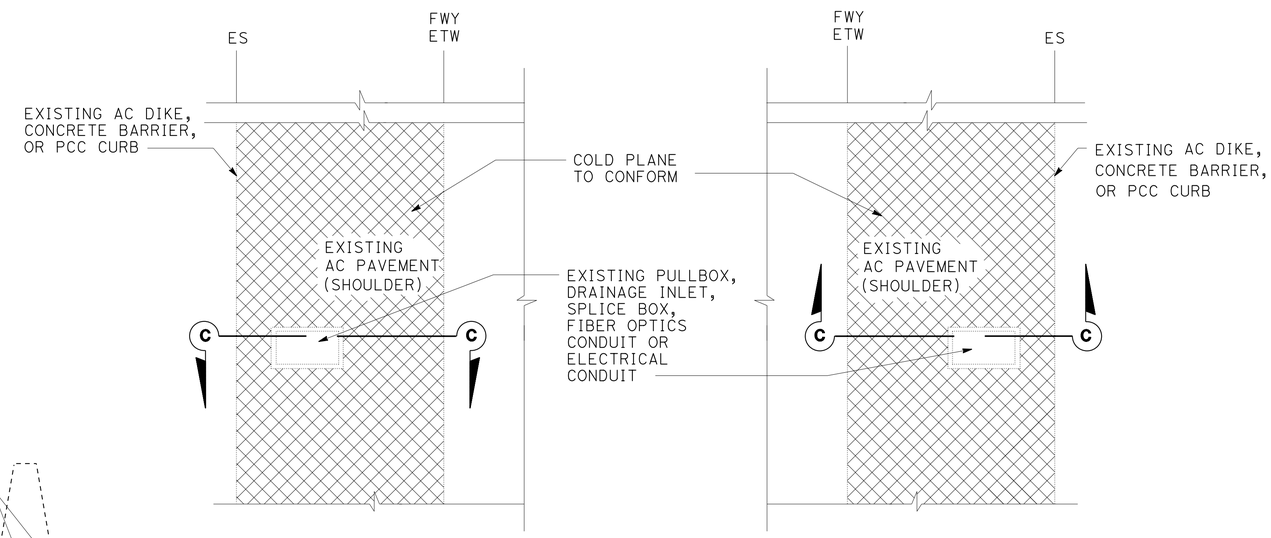
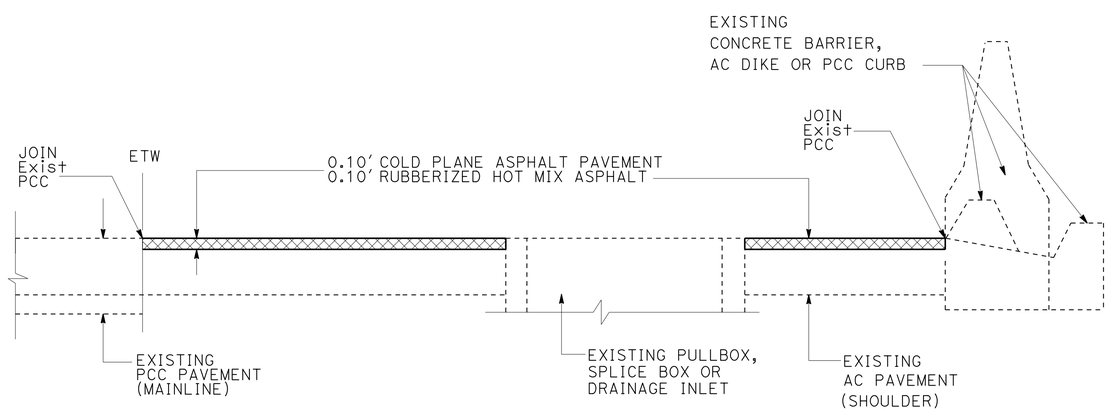


SECTION C-C

CONNECTORS
(ROUTE 110)



FIBER OPTIC
PULLBOX, DRAINAGE INLET OR SPLICEBOX
(VARIOUS LOCATIONS)



SECTION C-C

EASTBOUND OR WESTBOUND
(ROUTE 91)

CONSTRUCTION DETAILS

NO SCALE

C-5

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans MAINTENANCE ENGINEERING

FUNCTIONAL SUPERVISOR: PAUL CRISPI
CALCULATED-DESIGNED BY: GEHAN ATTALAH
CHECKED BY: LARRY WIERING
REVISED BY
DATE REVISED

LAST REVISION 02-08-16
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07	LA	91,110	6.1/R11.4, 9.6/10.3	11	58

Larry Wiering 1-18-16
REGISTERED CIVIL ENGINEER DATE

2-8-16
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER LARRY WIERING No. C41247 Exp. 3-31-17 CIVIL STATE OF CALIFORNIA

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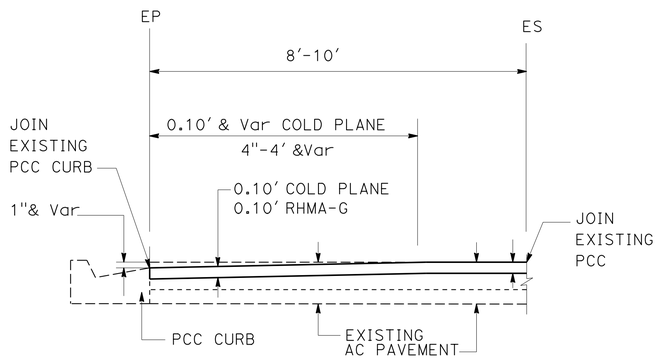
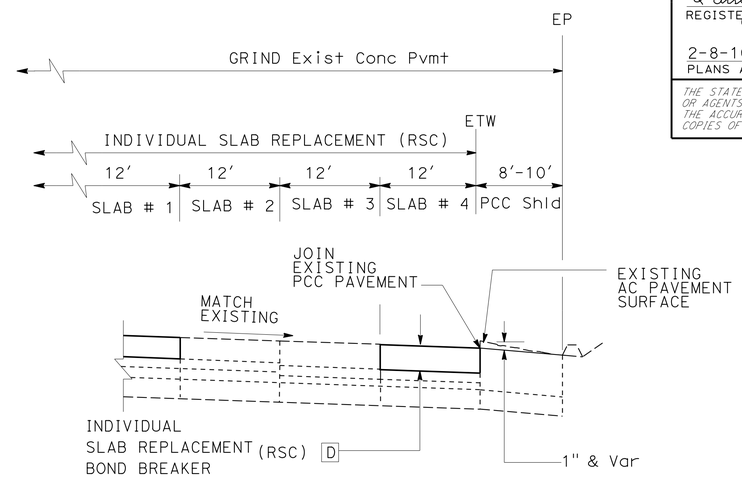
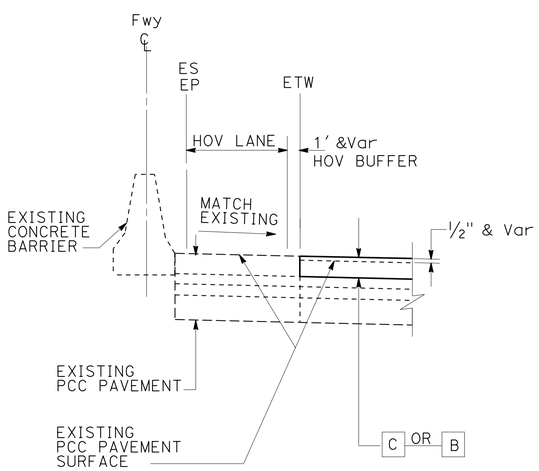
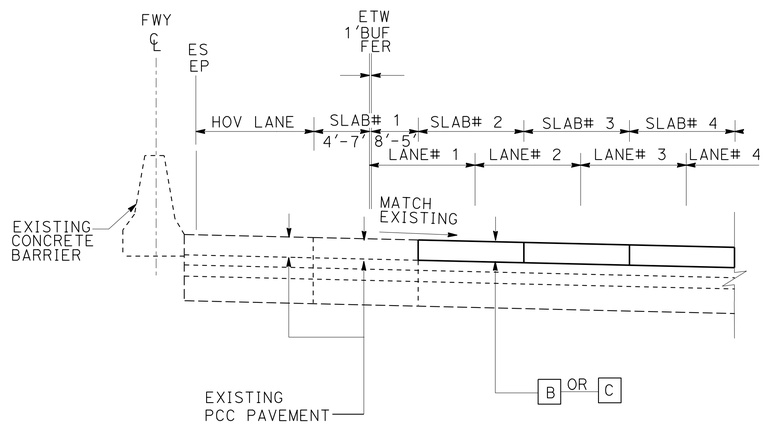


TYPICAL PAVING DETAILS OF EB AND WB SHOULDER AT PCC CURB

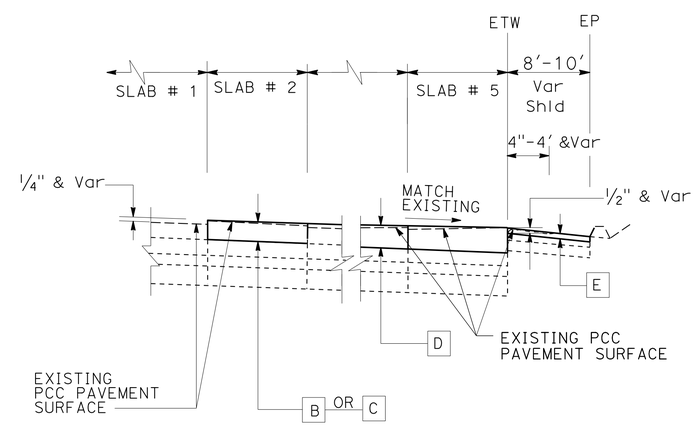


TYPICAL DETAILS FOR PCC SHOULDER AT VARIOUS LOCATIONS (ROUTE 91)





(BETWEEN WILMINGTON Ave OC AND ACACIA Ave OC)
(EASTBOUND AND WESTBOUND)



TYPICAL DETAILS FOR ISR (RSC) AT VARIOUS LOCATIONS (ROUTE 91)

CONSTRUCTION DETAILS

NO SCALE

C-6

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans MAINTENANCE ENGINEERING

FUNCTIONAL SUPERVISOR: PAUL CRISPI
CALCULATED-DESIGNED BY: GEHAN ATTALAH
CHECKED BY: LARRY WIERING
REVISED BY
DATE REVISED

LAST REVISION 02-08-16
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07	LA	91,110	6.1/R11.4, 9.6/10.3	12	58

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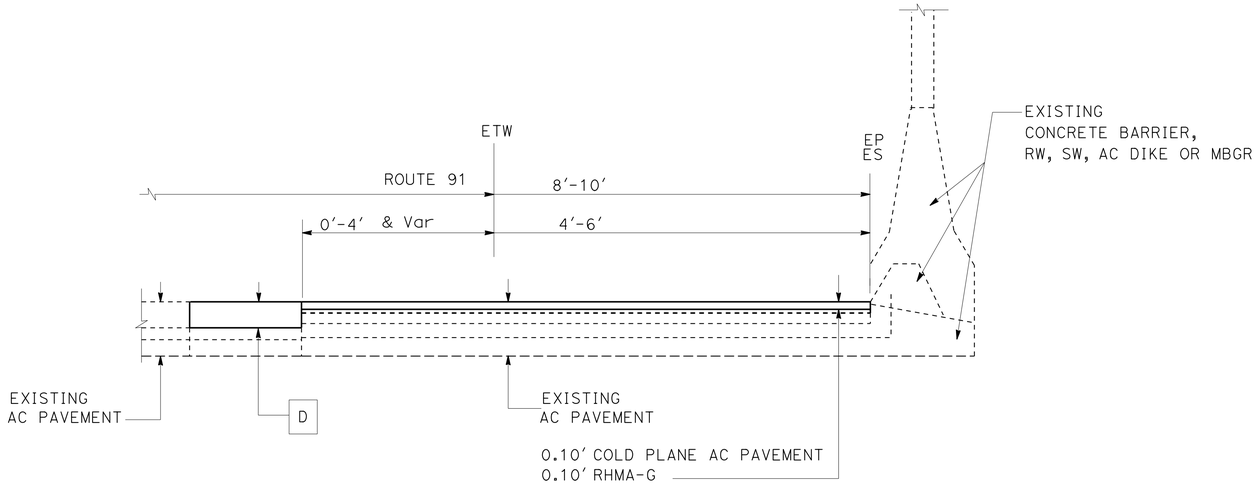
2-8-16
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER LARRY WIERING No. C41247 Exp. 3-31-17 CIVIL STATE OF CALIFORNIA

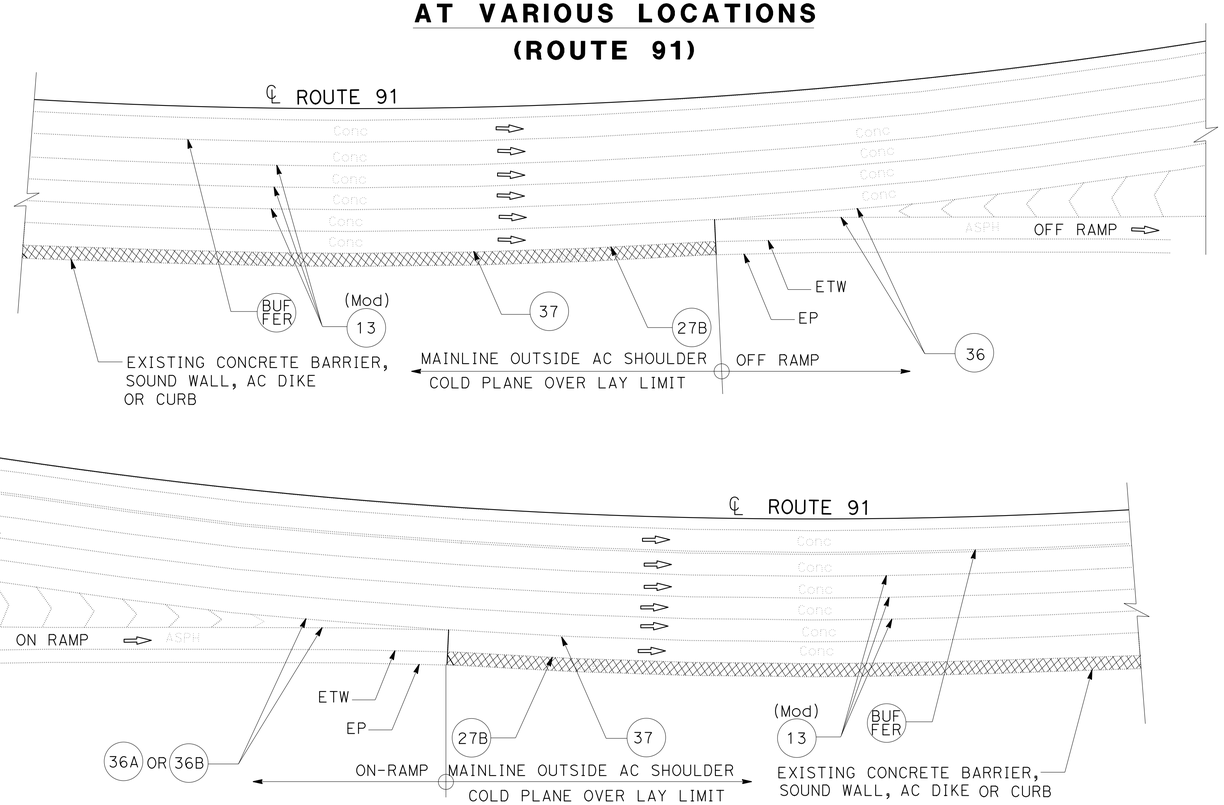
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

LEGEND:

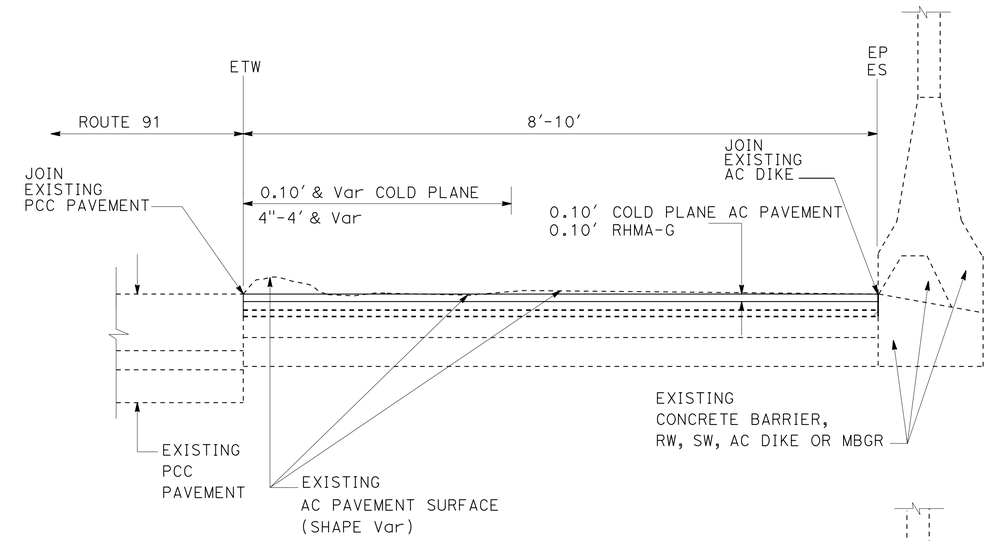
PAVING LIMITS BETWEEN OFF-RAMP AND ON-RAMP

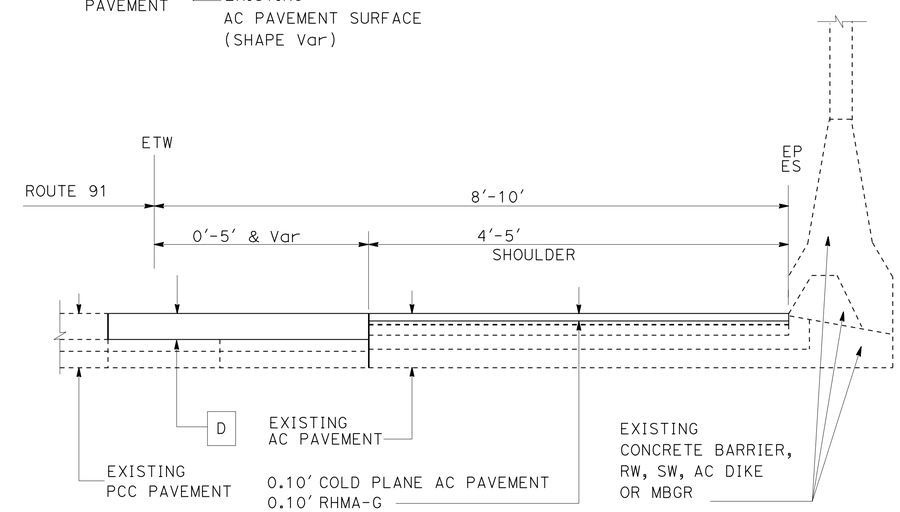


TYPICAL PAVING DETAILS OF EB AND WB SHOULDER AT VARIOUS LOCATIONS (ROUTE 91)



TYPICAL MAINLINE AC SHOULDER PAVING LIMITS BETWEEN ON-RAMP AND OFF-RAMP





TYPICAL PAVING DETAILS OF EB AND WB SHOULDER AT VARIOUS LOCATIONS (ROUTE 91)

CONSTRUCTION DETAILS

NO SCALE

C-7

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans MAINTENANCE ENGINEERING

FUNCTIONAL SUPERVISOR: PAUL CRISPI
CALCULATED-DESIGNED BY: GEHAN ATTALAH
CHECKED BY: LARRY WIERING
REVISED BY
DATE REVISED

LAST REVISION 02-08-16
DATE PLOTTED => 26-FEB-2016
TIME PLOTTED => 14:44

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	91,110	6.1/R11.4, 9.6/10.3	13	58

Larry Wiering 1-18-16
REGISTERED CIVIL ENGINEER DATE

2-8-16
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER LARRY WIERING No. C41247 Exp. 3-31-17 CIVIL STATE OF CALIFORNIA

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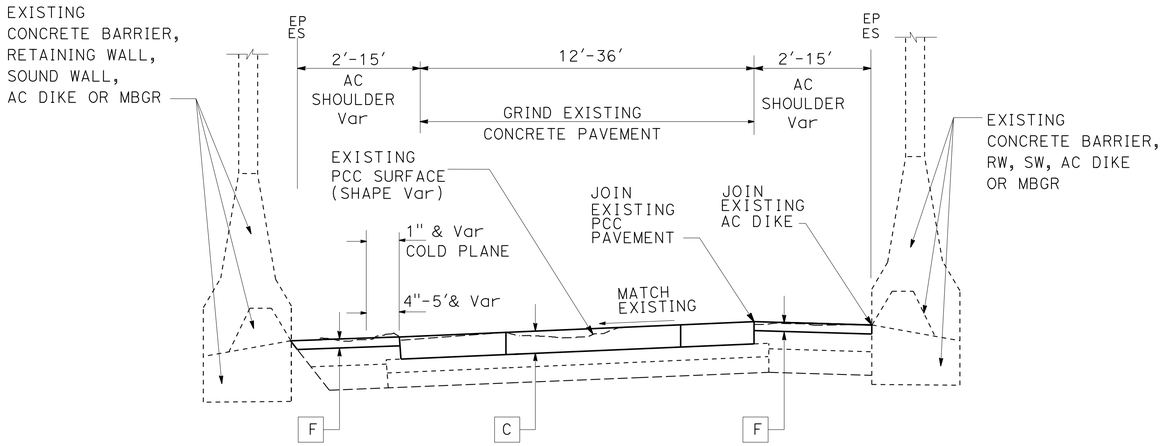
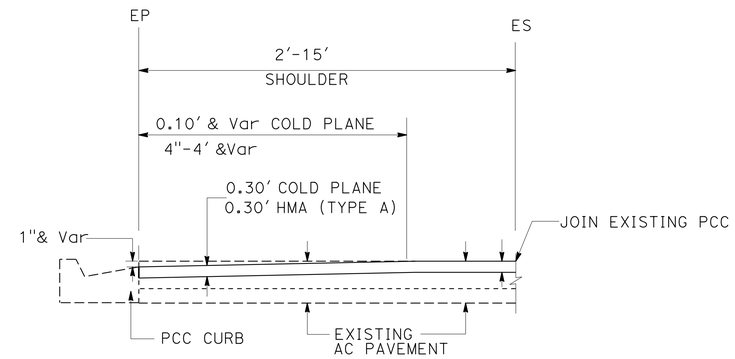
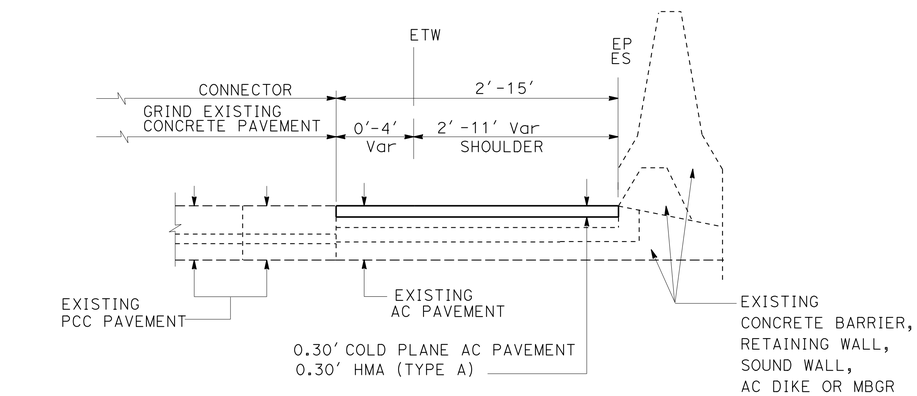
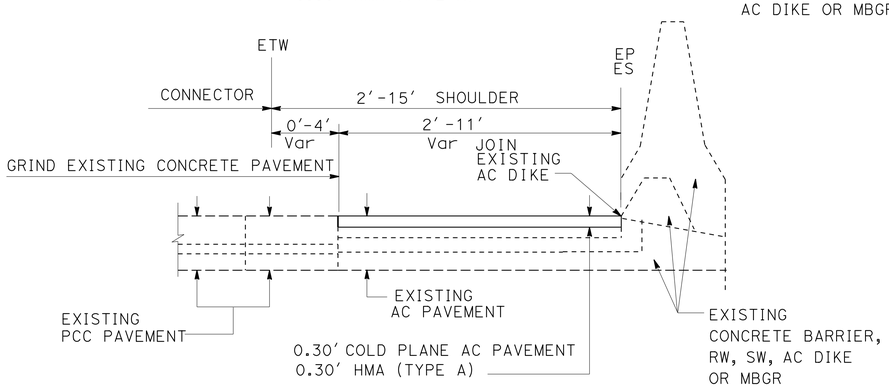


TYPICAL PAVING DETAILS OF SHOULDERS AND TRAVEL WAY AT VARIOUS LOCATIONS CONNECTORS

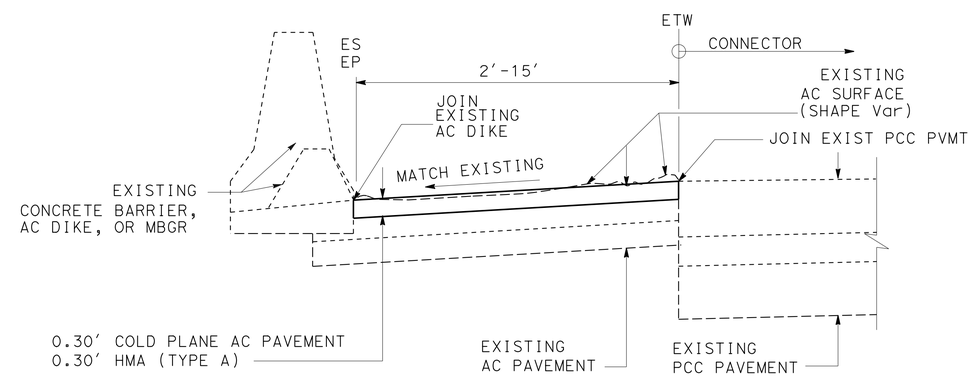


TYPICAL PAVING DETAILS OF SHOULDER AT PCC CURB (CONNECTORS)





TYPICAL PAVING DETAILS BETWEEN SHOULDERS AND TRAVEL WAY (CONNECTORS)



TYPICAL PAVING DETAILS OF SHOULDERS AT VARIOUS LOCATIONS CONNECTORS

CONSTRUCTION DETAILS

NO SCALE

C-8

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans MAINTENANCE ENGINEERING

FUNCTIONAL SUPERVISOR: PAUL CRISPI
CALCULATED-DESIGNED BY: GEHAN ATTALAH
CHECKED BY: LARRY WIERING
REVISED BY
DATE REVISED

LAST REVISION 02-08-16 | DATE PLOTTED => 26-FEB-2016 | TIME PLOTTED => 14:44

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	91,110	6.1/R11.4, 9.6/10.3	14	58

Larry Wiering 1-18-16
REGISTERED CIVIL ENGINEER DATE

2-8-16
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
LARRY WIERING
No. C41247
Exp. 3-31-17
CIVIL
STATE OF CALIFORNIA

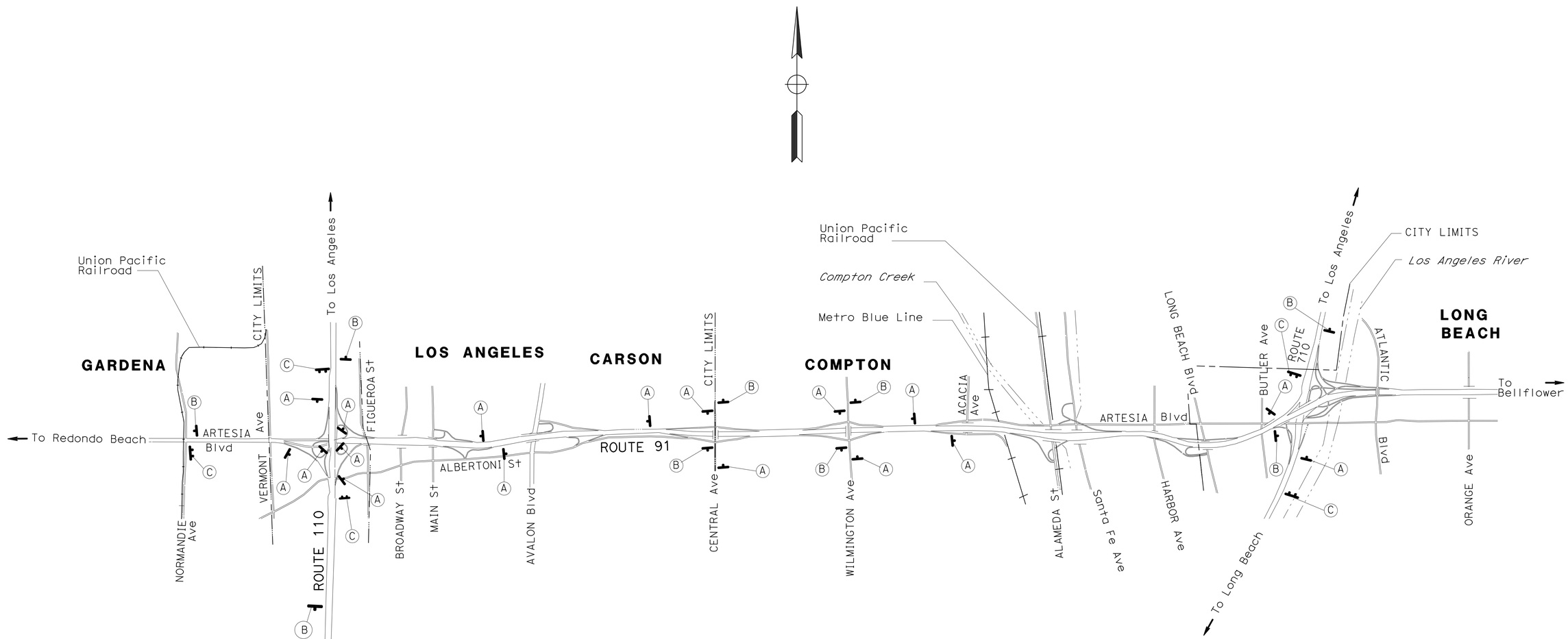
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

NOTES:

1. LOCATIONS OF CONSTRUCTION AREA SIGNS SHOWN ARE APPROXIMATE. EXACT LOCATIONS WILL BE DETERMINED BY THE ENGINEER.
2. C40 SIGNS SHALL BE PLACED APPROXIMATELY 500' IN ADVANCE OF W20-1 SIGNS OR AS DIRECTED BY THE ENGINEER.

STATIONARY MOUNTED CONSTRUCTION AREA SIGNS

SIGN No. (X)	FEDERAL	CALIFORNIA	PANEL SIZE	SIGN MESSAGE	NUMBER OF POSTS AND SIZE	NUMBER OF SIGNS
A	W20-1		48" x 48"	ROAD WORK AHEAD	1 - 6" x 6"	18
B	G20-2		48" X 24"	END ROAD WORK	1 - 4" x 6"	10
C		C40(CA)	144" x 60"	TRAFFIC FINES DOUBLED IN CONSTRUCTION ZONES	2 - 6" x 8"	5



CONSTRUCTION AREA SIGNS

NO SCALE

APPROVED FOR CONSTRUCTION AREA SIGN WORK ONLY

CS-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans MAINTENANCE ENGINEERING

FUNCTIONAL SUPERVISOR: PAUL CRISPI
CALCULATED-DESIGNED BY: GEHAN ATTALAH
CHECKED BY: LARRY WIERING
REVISED BY
DATE REVISED

LAST REVISION 02-08-16
DATE PLOTTED => 26-FEB-2016
TIME PLOTTED => 14:44

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	91,110	6.1/R11.4, 9.6/10.3	15	58

Duke M Huynh 11-30-15
REGISTERED CIVIL ENGINEER DATE

2-8-16
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER DUKE HUYNH No. C65591 Exp. 9-30-17 CIVIL STATE OF CALIFORNIA

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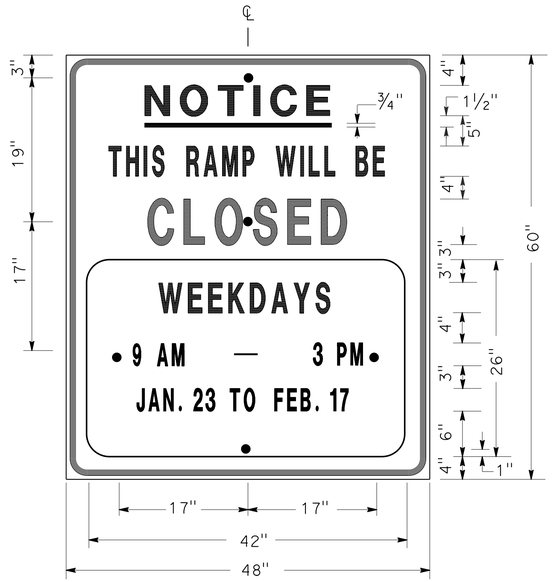
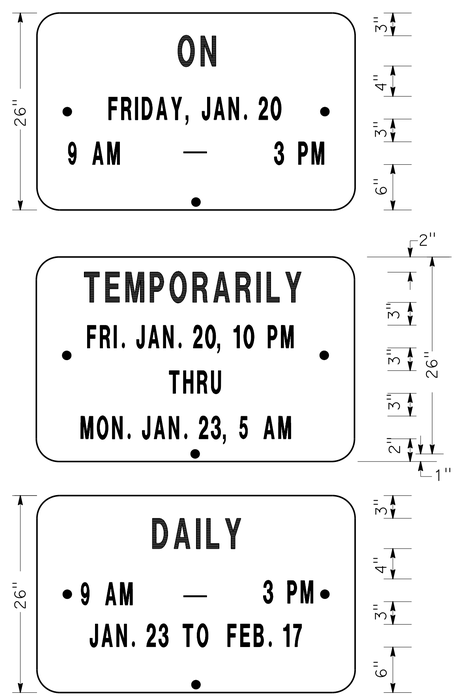


SIGN SP-1



ALTERNATE OVERLAY PANELS (TYPICAL)

SPECIAL ADVANCE NOTICE PUBLICITY SIGN

NOTES: SIGN SP-1

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

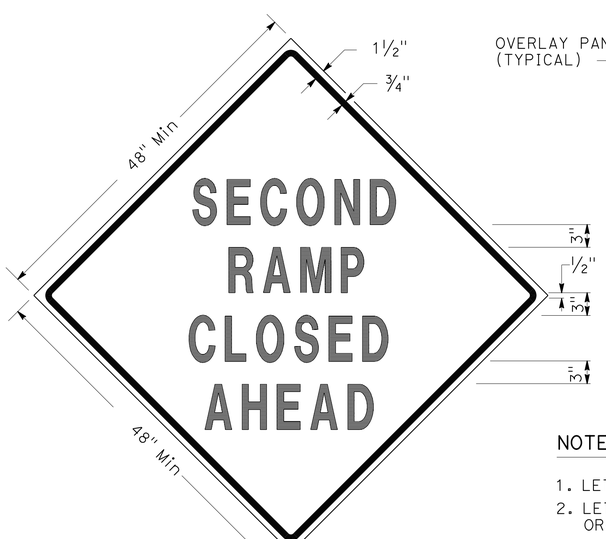
SIZE	BORDER WIDTH	MARGIN WIDTH	LETTER SIZE					CORNER RADIUS
			LINE 1	LINE 2*	LINE 3	LINE 4	LINE 5, 6, & 7*	
48"x60"	1 1/4"	3/4"	4E	4D	6E	4D		3"
42"x26"	OVERLAY						3D	1 1/2"
* CONDENSED SPACING IF NECESSARY								

SIGN SP-4

NOTES: SIGN SP-4

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

SPECIAL SIGN FOR ENTRANCE RAMP CLOSURES



SIGN SP-3

SIGN SP-5

NOTES: SIGNS SP-3 & SP-5

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

SPECIAL SIGNS FOR EXIT RAMP CLOSURES

TRAFFIC HANDLING DETAILS
TRAFFIC CONTROL SYSTEM FOR RAMP CLOSURES, DETOUR SIGNS, AND MISCELLANEOUS DETAILS
SHEET 1 OF 2

NO SCALE

THD-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans DTM

FUNCTIONAL SUPERVISOR: DENIS S KATAYAMA
CALCULATED-DESIGNED BY: ALBERT K YU
CHECKED BY: JOCELYN C CHIANG
REVISED BY: JC
DATE REVISED: 2/14

LAST REVISION: 02-08-16
DATE PLOTTED => 26-FEB-2016
TIME PLOTTED => 14:44

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	91,110	6.1/R11.4, 9.6/10.3	16	58

Duke M Huynh 11-30-15
REGISTERED CIVIL ENGINEER DATE

2-8-16
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER DUKE HUYNH No. C65591 Exp. 9-30-17 CIVIL STATE OF CALIFORNIA

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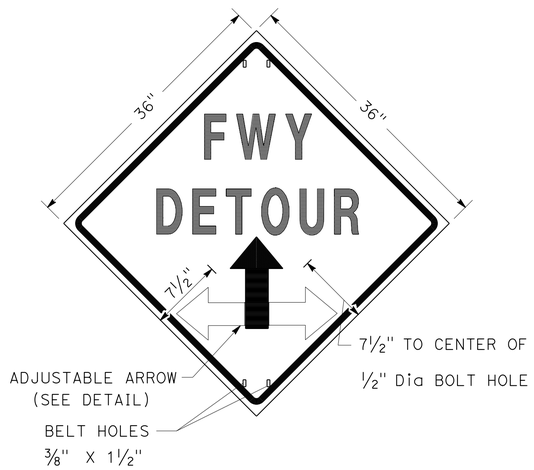
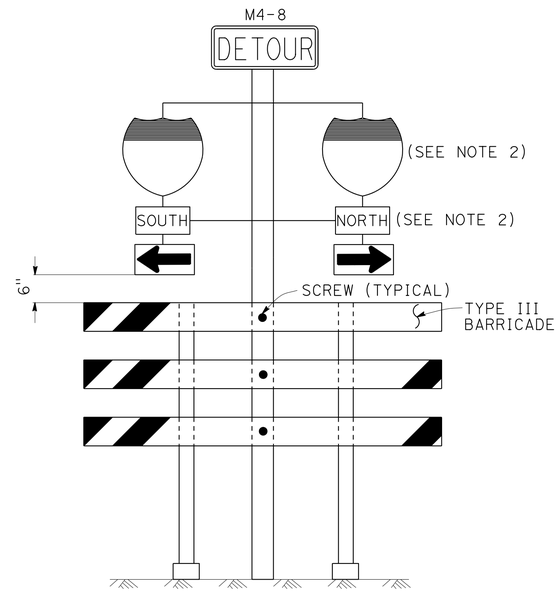
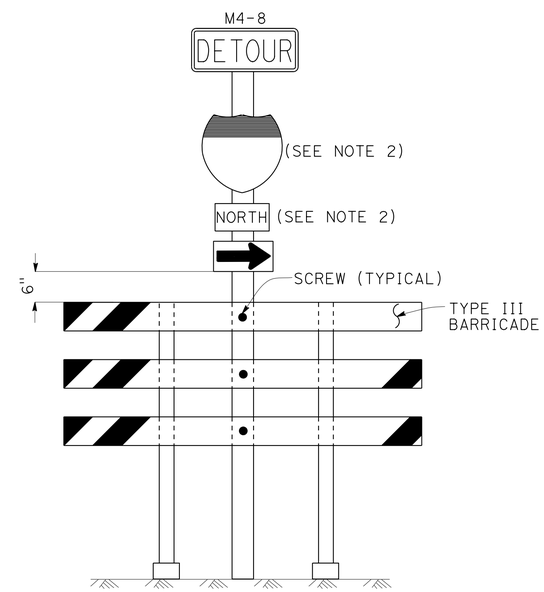


SIGN SP-2



SIGN SP-6 (SEE NOTE 1)



SIGN SP-7 (SEE NOTE 1)

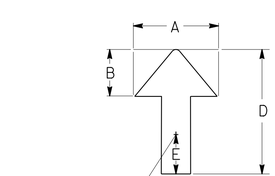
NOTES: SIGN SP-2

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

NOTES: SIGNS SP-6 & SP-7

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

SPECIAL PORTABLE FREEWAY DETOUR SIGNS



DIMENSIONS				
A	B	C	D	E
6"	3"	2"	8"	1"

ADJUSTABLE ARROW DETAIL

ABBREVIATION

(CA) CALIFORNIA CODE

TRAFFIC HANDLING DETAILS

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

SHEET 2 OF 2

NO SCALE

THD-2

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® DTM

FUNCTIONAL SUPERVISOR: DENIS S KATAYAMA
CALCULATED-DESIGNED BY: ALBERT K YU
CHECKED BY: JOCELYN C CHIANG
REVISED BY: JC
DATE REVISED: 2/14

LAST REVISION 02-08-16 | DATE PLOTTED => 26-FEB-2016 | TIME PLOTTED => 14:44

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	91,110	6.1/R11.4, 9.6/10.3	17	58

Duke M Huynh 11-30-15
REGISTERED CIVIL ENGINEER DATE

2-8-16
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
DUKE HUYNH
No. C65591
Exp. 9-30-17
CIVIL
STATE OF CALIFORNIA

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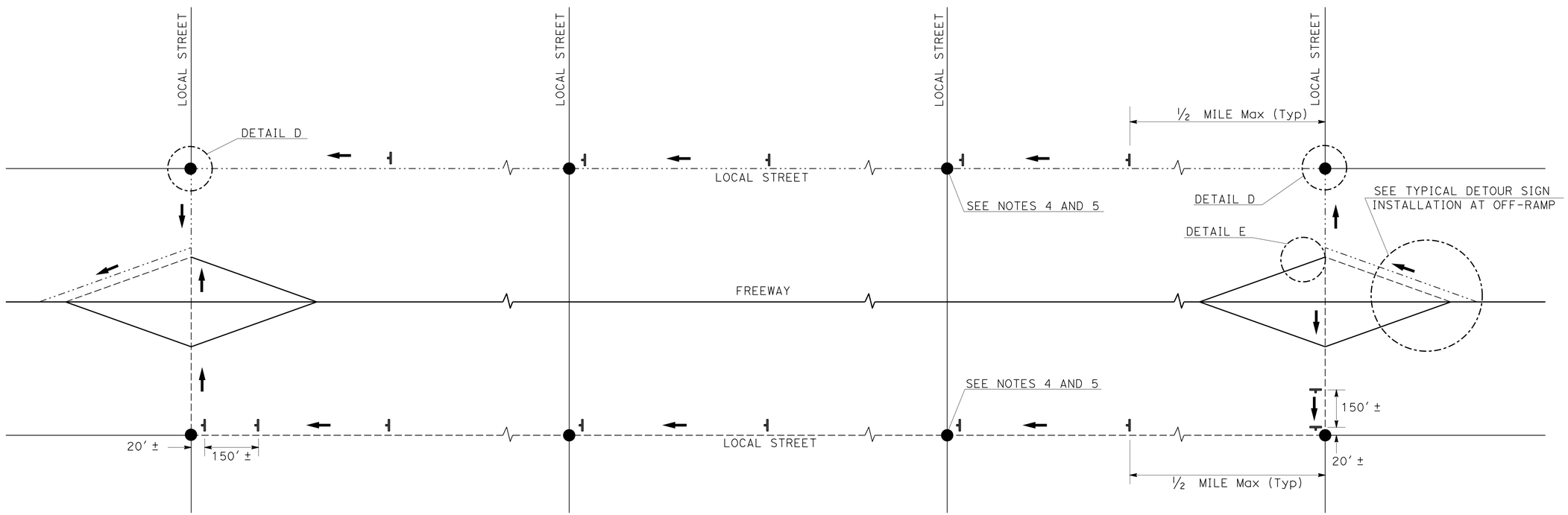
LEGEND

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

NOTES:

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



TYPICAL DETOUR SIGN INSTALLATION ALONG DESIGNATED DETOUR ROUTE

TRAFFIC HANDLING DETAILS

TRAFFIC CONTROL SYSTEM FOR DETOUR SIGN INSTALLATION ALONG DESIGNATED DETOUR ROUTE

SHEET 1 OF 3

NO SCALE

THD-3

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	Caltrans® DTM
FUNCTIONAL SUPERVISOR	DENIS S KATAYAMA
CALCULATED-DESIGNED BY	ALBERT K YU
CHECKED BY	JOCELYN C CHIANG
REVISED BY	JC
DATE REVISED	2/14

LAST REVISION 02-08-16 | DATE PLOTTED => 26-FEB-2016 | TIME PLOTTED => 14:44

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	91,110	6.1/R11.4, 9.6/10.3	18	58

Duke M Huynh 11-30-15
REGISTERED CIVIL ENGINEER DATE

2-8-16
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER DUKE HUYNH No. C65591 Exp. 9-30-17 CIVIL STATE OF CALIFORNIA

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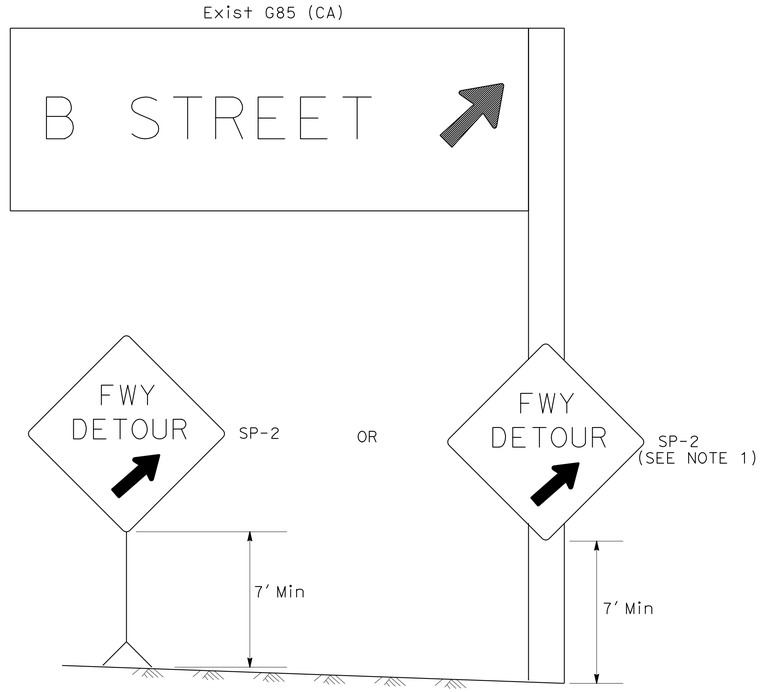
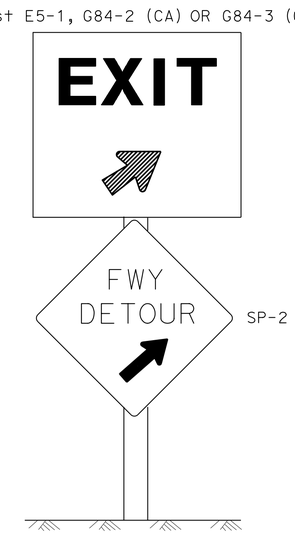
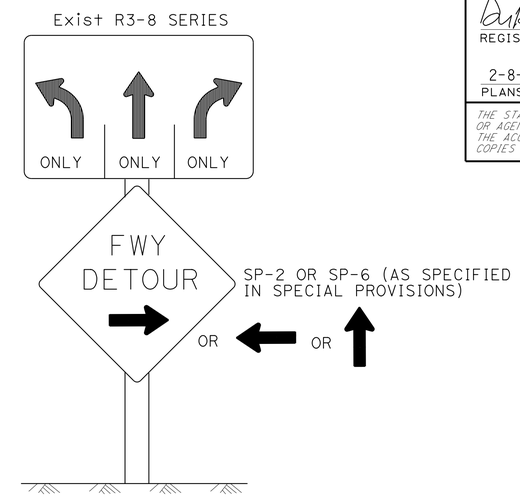


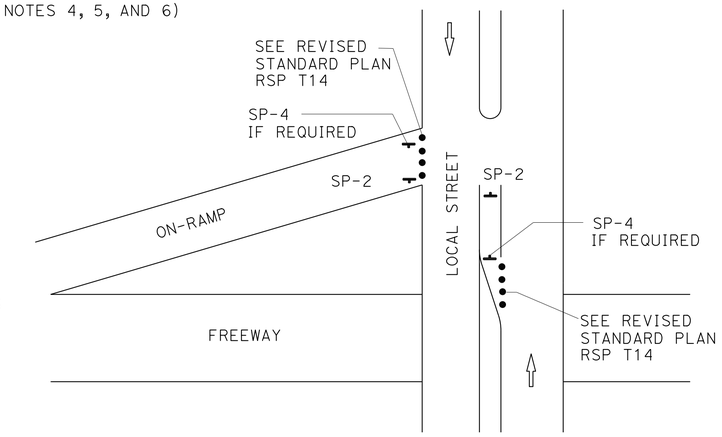
DETAIL A (SEE NOTE 3)



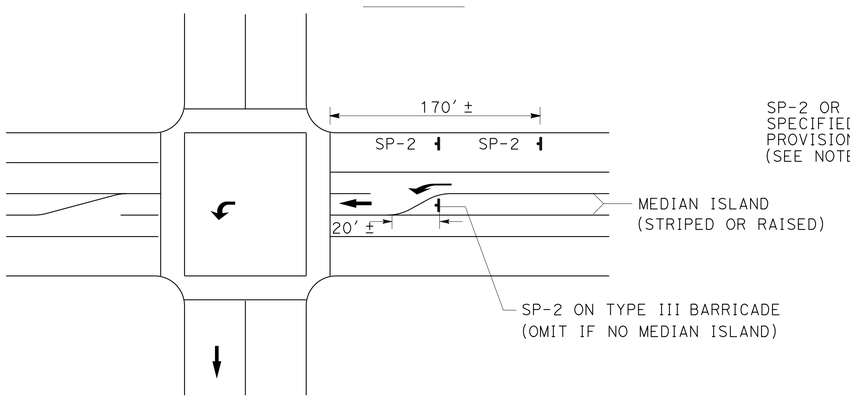
DETAIL B (SEE NOTE 3)



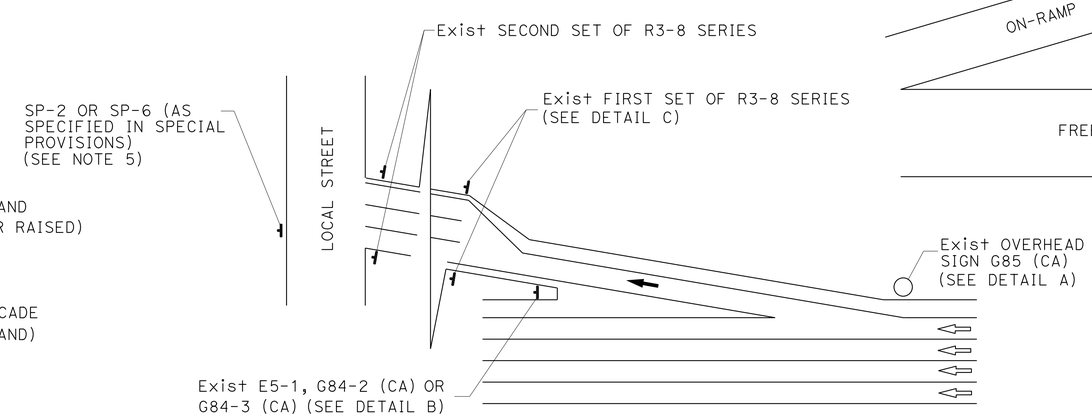
DETAIL C (SEE NOTES 4, 5, AND 6)



DETAIL E



DETAIL D



TYPICAL DETOUR SIGN INSTALLATION AT OFF-RAMP

LEGEND

- • TRAFFIC CONE
- TEMPORARY TRAFFIC CONTROL SIGN
- → DETOUR DIRECTION
- ○ EXISTING OVERHEAD SIGN

NOTES: SIGN SP-2

1. SP-2 SIGNS MAY BE STRAPPED ON EXISTING ELECTROLIER, SIGNAL POST OR SIGN POST.
2. SP-2 SIGNS MUST NOT BE INSTALLED ON BARRICADES EXCEPT AS OTHERWISE SHOWN.
3. OMIT DETAILS A AND B FOR FULL FREEWAY CLOSURES.
4. SEE TRAFFIC HANDLING DETAILS-TRAFFIC CONTROL SYSTEM FOR RAMP CLOSURES, DETOUR SIGNS, AND MISCELLANEOUS DETAILS PLAN SHEET 2 OF 2 FOR SP-6 SIGN DETAILS.
5. IF R3-8 SERIES SIGNS ARE NOT PRESENT AT THE OFF-RAMP, SP-2 OR SP-6 SIGNS MUST BE FASTENED ONTO EXISTING ELECTROLIER, SIGNAL POST OR SIGN POST.
6. EXCEPT FOR DETAILS A & B, OMIT SP-2 SIGNS IF RAMP HAS MANDATORY SINGLE MOVE.

SIGN CODE LEGEND

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

XXYY-Y (CA): CALIFORNIA SIGN CODE PER CALIFORNIA MUTCD

TRAFFIC HANDLING DETAILS
TRAFFIC CONTROL SYSTEM FOR DETOUR SIGN INSTALLATION ALONG DESIGNATED DETOUR ROUTE SHEET 2 OF 3

NO SCALE

THD-4

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans DTM

FUNCTIONAL SUPERVISOR: DENIS S KATAYAMA
CALCULATED-DESIGNED BY: ALBERT K YU
CHECKED BY: JOCELYN C CHIANG
REVISED BY: JC
DATE REVISED: 2/14

LAST REVISION 02-08-16 DATE PLOTTED => 26-FEB-2016 TIME PLOTTED => 14:44

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Duke M Huynh 11-30-15
REGISTERED CIVIL ENGINEER DATE

2-8-16
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REGISTERED PROFESSIONAL ENGINEER
DUKE HUYNH
No. C65591
Exp. 9-30-17
CIVIL
STATE OF CALIFORNIA

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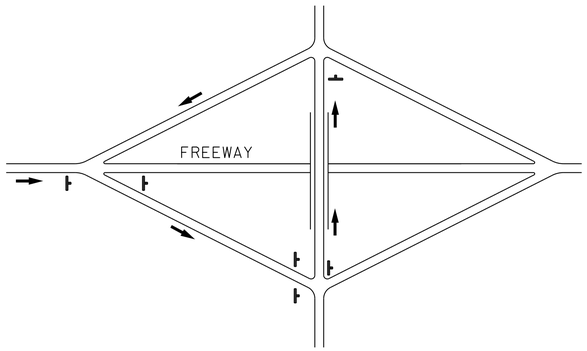
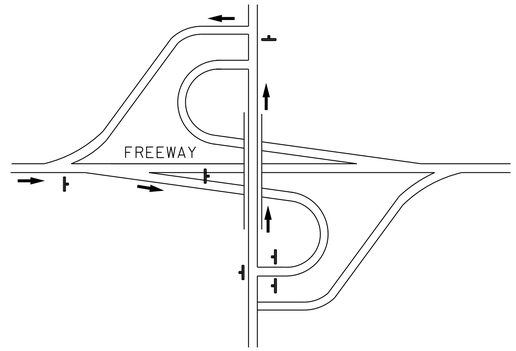


TYPE I



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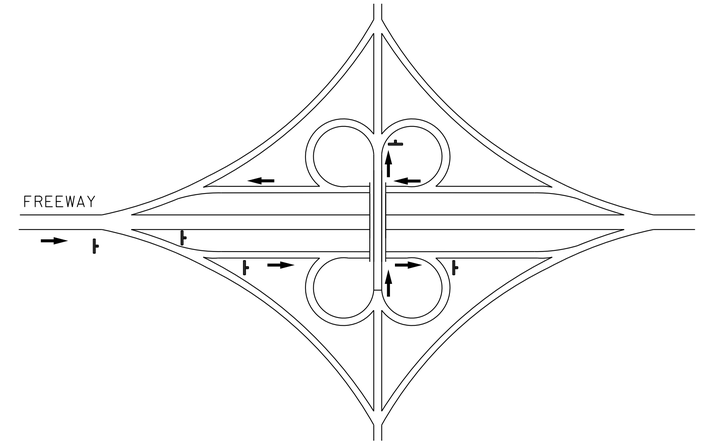
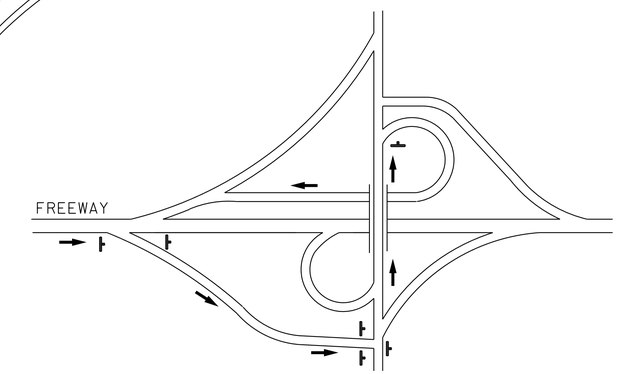
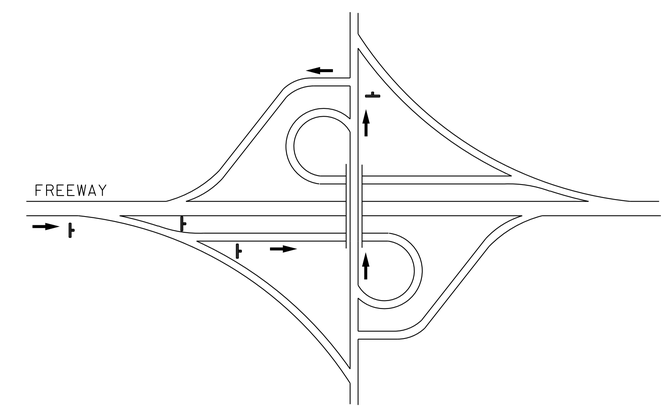


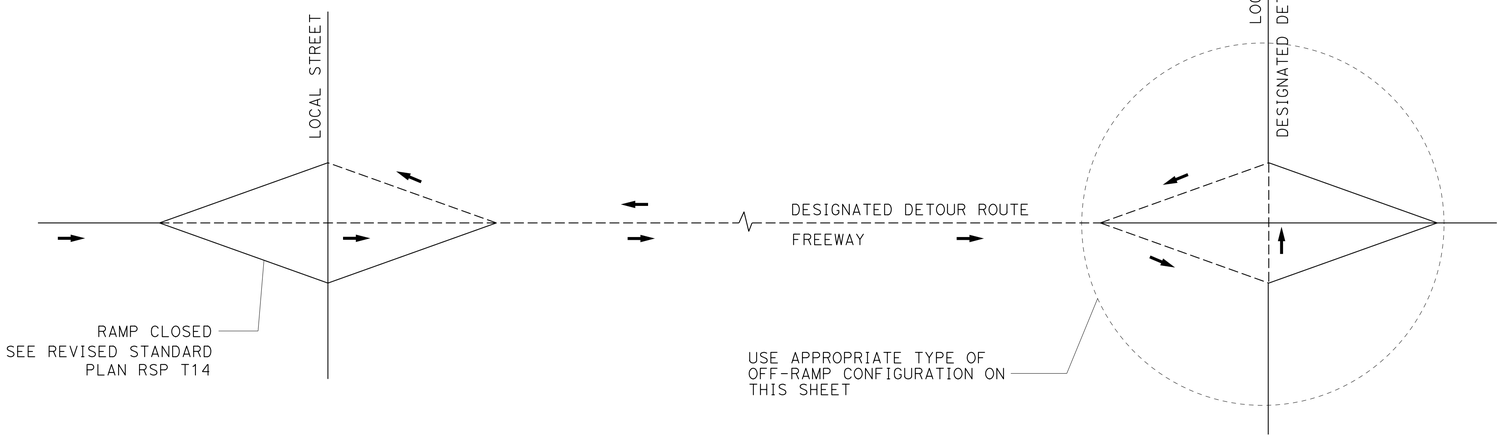
TYPE III



TYPE IV



TYPE V



TYPE OF OFF-RAMP CONFIGURATION	MINIMUM No. OF SP-2
TYPE I	6
TYPE II	6
TYPE III	5
TYPE IV	6
TYPE V	4

TYPICAL DETOUR SIGN INSTALLATION FOR OFF-RAMP CLOSURE

NOTES:

1. FOR RAMP CONFIGURATIONS NOT SHOWN, THE EXACT LOCATIONS AND MINIMUM NUMBER OF SP-2 SIGNS MUST BE DETERMINED BY THE ENGINEER.
2. SEE TRAFFIC HANDLING DETAILS-TRAFFIC CONTROL SYSTEM FOR RAMP CLOSURES, DETOUR SIGNS, AND MISCELLANEOUS DETAILS PLAN SHEET 2 OF 2 FOR SP-2 SIGN DETAILS.

LEGEND

- SIGN SP-2
- DETOUR DIRECTION
- ----- DESIGNATED DETOUR ROUTE

TRAFFIC HANDLING DETAILS
TRAFFIC CONTROL SYSTEM FOR DETOUR SIGN INSTALLATION ALONG DESIGNATED DETOUR ROUTE
SHEET 3 OF 3

NO SCALE

THD-5

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
DTM

FUNCTIONAL SUPERVISOR: DENIS S KATAYAMA
CALCULATED-DESIGNED BY: ALBERT K YU
CHECKED BY: JOCELYN C CHIANG
REVISED BY: JC
DATE REVISED: 2/14

LAST REVISION 02-08-16 | DATE PLOTTED => 26-FEB-2016 | TIME PLOTTED => 14:44

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	91,110	6.1/R11.4, 9.6/10.3	20	58

Duke M Huynh 11-30-15
REGISTERED CIVIL ENGINEER DATE

2-8-16
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER DUKE HUYNH No. C65591 Exp. 9-30-17 CIVIL STATE OF CALIFORNIA

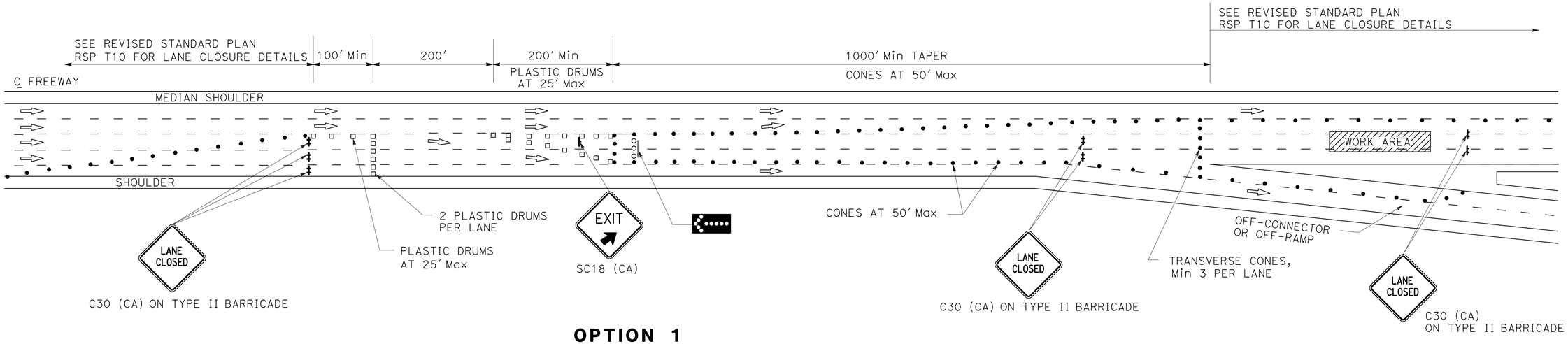
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

LEGEND

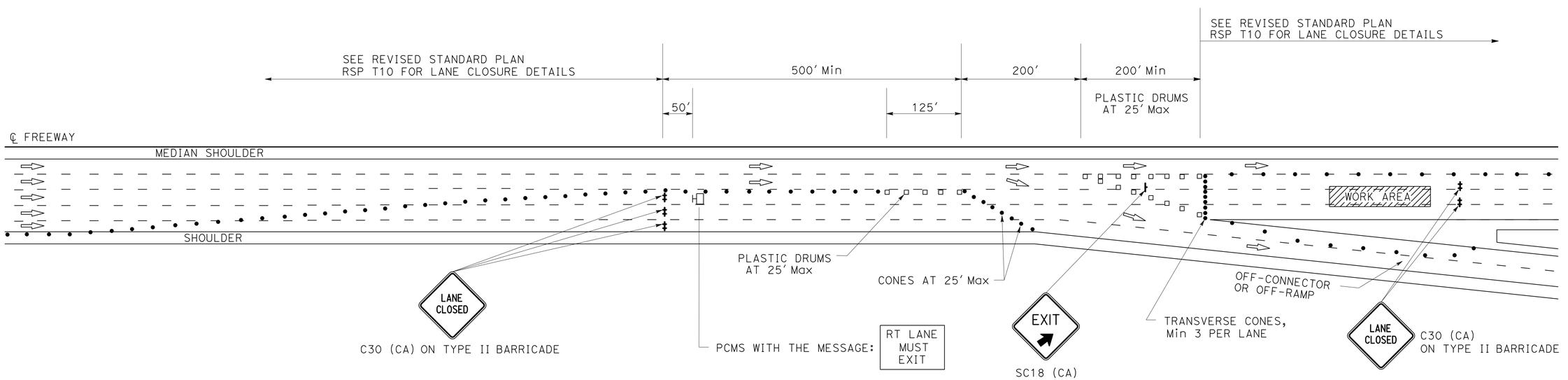
- TRAFFIC CONE
- TRAFFIC PLASTIC DRUM
- TEMPORARY TRAFFIC CONTROL SIGN
- BARRICADES
- PCMS
- FLASHING ARROW SIGN (FAS)
- FAS SUPPORT OR TRAILER

ABBREVIATIONS

(CA) CALIFORNIA CODE



OPTION 1



OPTION 2

TRAFFIC HANDLING DETAILS

TRAFFIC CONTROL SYSTEM FOR SLIP-RAMP AT OFF-CONNECTOR OR OFF-RAMP

NO SCALE

THD-6

REVISED BY	DATE REVISED
JC	2/14

ALBERT K YU — JOCELYN C CHIANG

CALCULATED-DESIGNED BY — CHECKED BY

FUNCTIONAL SUPERVISOR: DENIS S KATAYAMA

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION — DTM — Caltrans

LAST REVISION 02-08-16 — DATE PLOTTED => 26-FEB-2016 — TIME PLOTTED => 14:44

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	91,110	6.1/R11.4, 9.6/10.3	21	58

Duke M Huynh 11-30-15
REGISTERED CIVIL ENGINEER DATE

2-8-16
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER DUKE HUYNH No. C65591 Exp. 9-30-17 CIVIL STATE OF CALIFORNIA

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

NOTES:

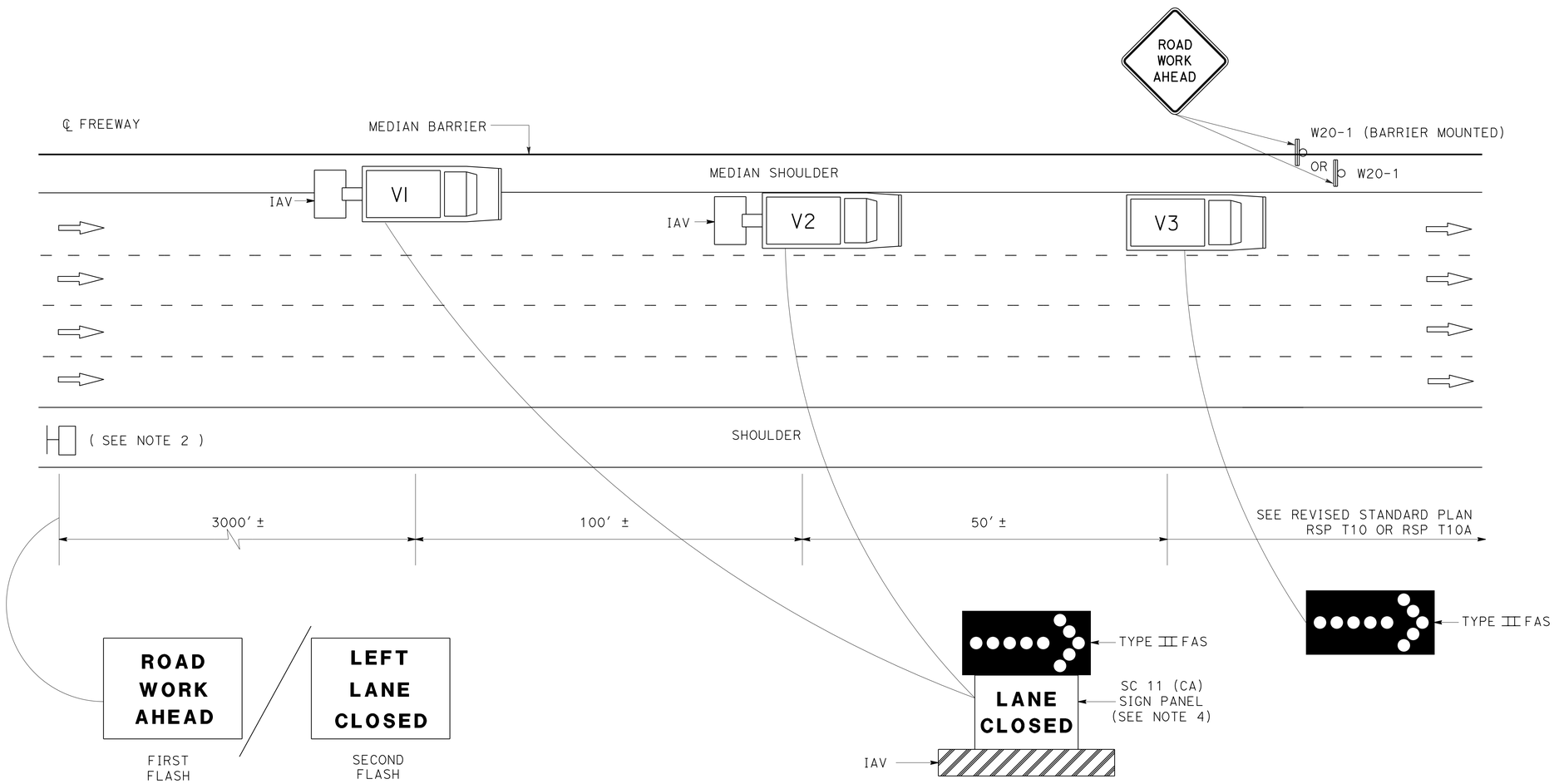
1. LANE CLOSURES MUST NOT BE PLACED ON CREST VERTICAL CURVES OR ON HORIZONTAL CURVES.
2. PCMS MUST BE ACTIVATED PRIOR TO TRAFFIC CONTROL ACTIVITIES ON THE LANE.
3. A MINIMUM SIGHT DISTANCE OF 1500′ MUST BE PROVIDED IN ADVANCE OF PCMS.
4. VEHICLE-MOUNTED SIGN PANELS MUST BE TYPE III OR IV RETROREFLECTORIZED SHEETING, BLACK ON WHITE OR BLACK ON ORANGE WITH 8" MINIMUM SERIES D LETTERS PER CALTRANS SIGN SPECIFICATIONS.

LEGEND

V1, V2	SHADOW VEHICLES
V3	WORK/APPLICATION VEHICLE
	PCMS
	TEMPORARY TRAFFIC CONTROL SIGN
	FLASHING ARROW SIGN (FAS)

ABBREVIATIONS

IAV	IMPACT ATTENUATOR VEHICLE
(CA)	CALIFORNIA CODE



PCMS OR TRUCK MOUNTED CMS MESSAGE

TRAFFIC HANDLING DETAILS
TRAFFIC CONTROL SYSTEM
FOR MEDIAN SHOULDERS LESS THAN 8 FEET

NO SCALE

THD-7

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
DTM

FUNCTIONAL SUPERVISOR: DENIS S KATAYAMA
CALCULATED-DESIGNED BY: ALBERT K YU
CHECKED BY: JOCELYN C CHIANG
REVISED BY: JC
DATE REVISED: 2/14

LAST REVISION 02-08-16
DATE PLOTTED => 26-FEB-2016
TIME PLOTTED => 14:44

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	91,110	6.1/R11.4, 9.6/10.3	22	58

Duke M Huynh 11-30-15
REGISTERED CIVIL ENGINEER DATE

2-8-16
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER DUKE HUYNH No. C65591 Exp. 9-30-17 CIVIL STATE OF CALIFORNIA

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

NOTES:

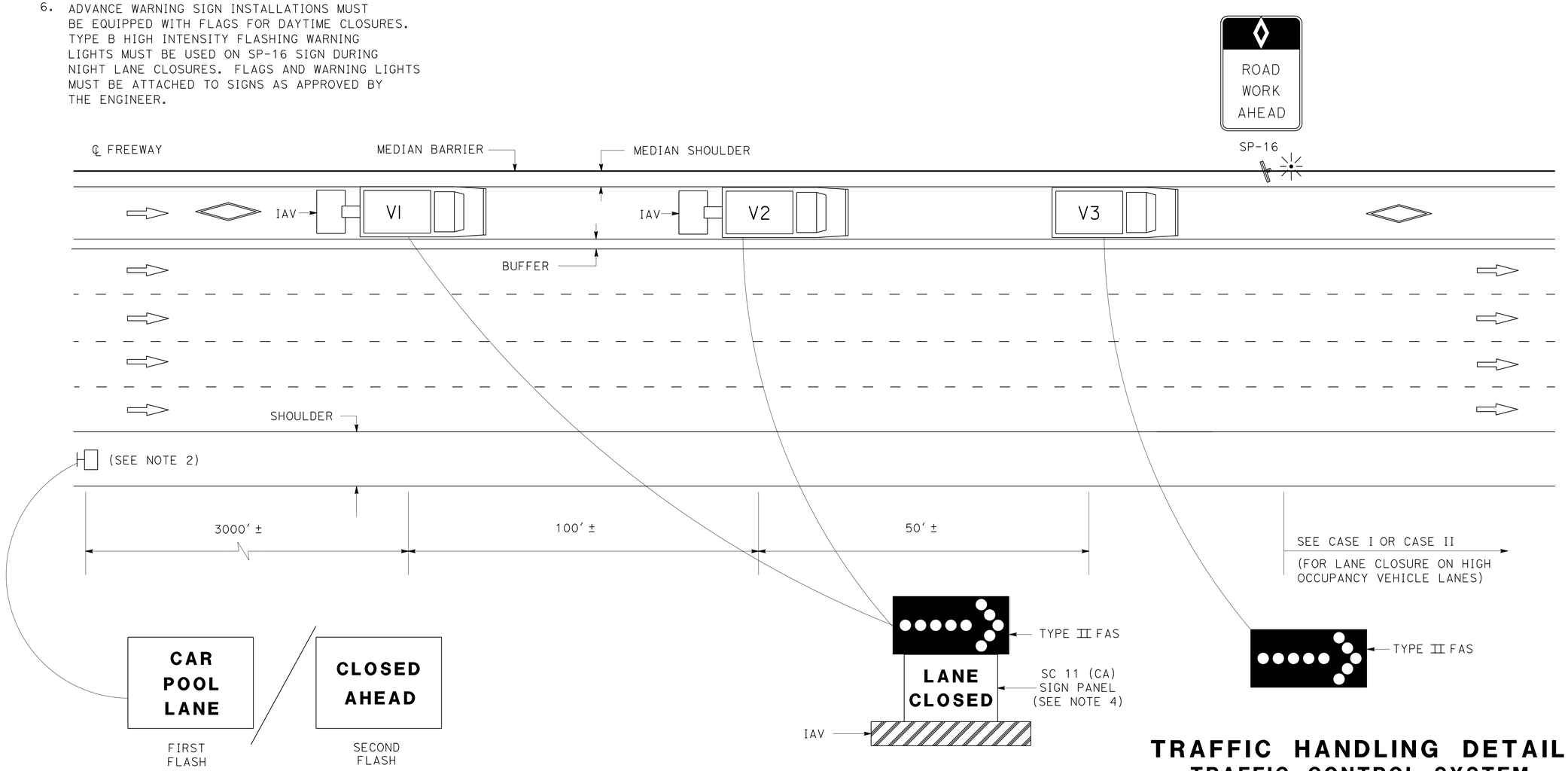
1. LANE CLOSURES MUST NOT BE PLACED ON CREST VERTICAL CURVES OR ON HORIZONTAL CURVES.
2. PCMS MUST BE ACTIVATED PRIOR TO TRAFFIC CONTROL ACTIVITIES ON THE HOV LANE.
3. A MINIMUM SIGHT DISTANCE OF 1500′ MUST BE PROVIDED IN ADVANCE OF PCMS.
4. VEHICLE-MOUNTED SIGN PANELS MUST BE TYPE III OR IV RETROREFLECTORIZED SHEETING, BLACK ON WHITE OR BLACK ON ORANGE WITH 8" MINIMUM SERIES D LETTERS PER CALTRANS SIGN SPECIFICATIONS.
5. PLACE PCMS ON THE MEDIAN SHOULDER WHERE SUFFICIENT ROOM (SUCH AS CHP ENFORCEMENT AREAS) EXISTS.
6. ADVANCE WARNING SIGN INSTALLATIONS MUST BE EQUIPPED WITH FLAGS FOR DAYTIME CLOSURES. TYPE B HIGH INTENSITY FLASHING WARNING LIGHTS MUST BE USED ON SP-16 SIGN DURING NIGHT LANE CLOSURES. FLAGS AND WARNING LIGHTS MUST BE ATTACHED TO SIGNS AS APPROVED BY THE ENGINEER.

LEGEND

V1, V2	SHADOW VEHICLES
V3	WORK/APPLICATION VEHICLE
	PCMS
	PORTABLE FLASHING BEACON
	TEMPORARY TRAFFIC CONTROL SIGN
	FLASHING ARROW SIGN (FAS)

ABBREVIATIONS

IAV	IMPACT ATTENUATOR VEHICLE
(CA)	CALIFORNIA CODE
CHP	CALIFORNIA HIGHWAY PATROL



PCMS OR TRUCK MOUNTED CMS MESSAGE

(SEE NOTE 5)

TRAFFIC HANDLING DETAILS
TRAFFIC CONTROL SYSTEM FOR HIGH OCCUPANCY VEHICLE LANES WITH MEDIAN SHOULDERS LESS THAN 8 FEET

NO SCALE

THD-8

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® DTM

FUNCTIONAL SUPERVISOR: DENIS S KATAYAMA
CALCULATED-DESIGNED BY: ALBERT K YU
CHECKED BY: JOCELYN C CHIANG
REVISED BY: JC
DATE REVISED: 2/14

LAST REVISION 02-08-16 | DATE PLOTTED => 26-FEB-2016 | TIME PLOTTED => 14:44

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	91,110	6.1/R11.4, 9.6/10.3	23	58

Duke M Huynh 11-30-15
REGISTERED CIVIL ENGINEER DATE

2-8-16
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER DUKE HUYNH No. C65591 Exp. 9-30-17 CIVIL STATE OF CALIFORNIA

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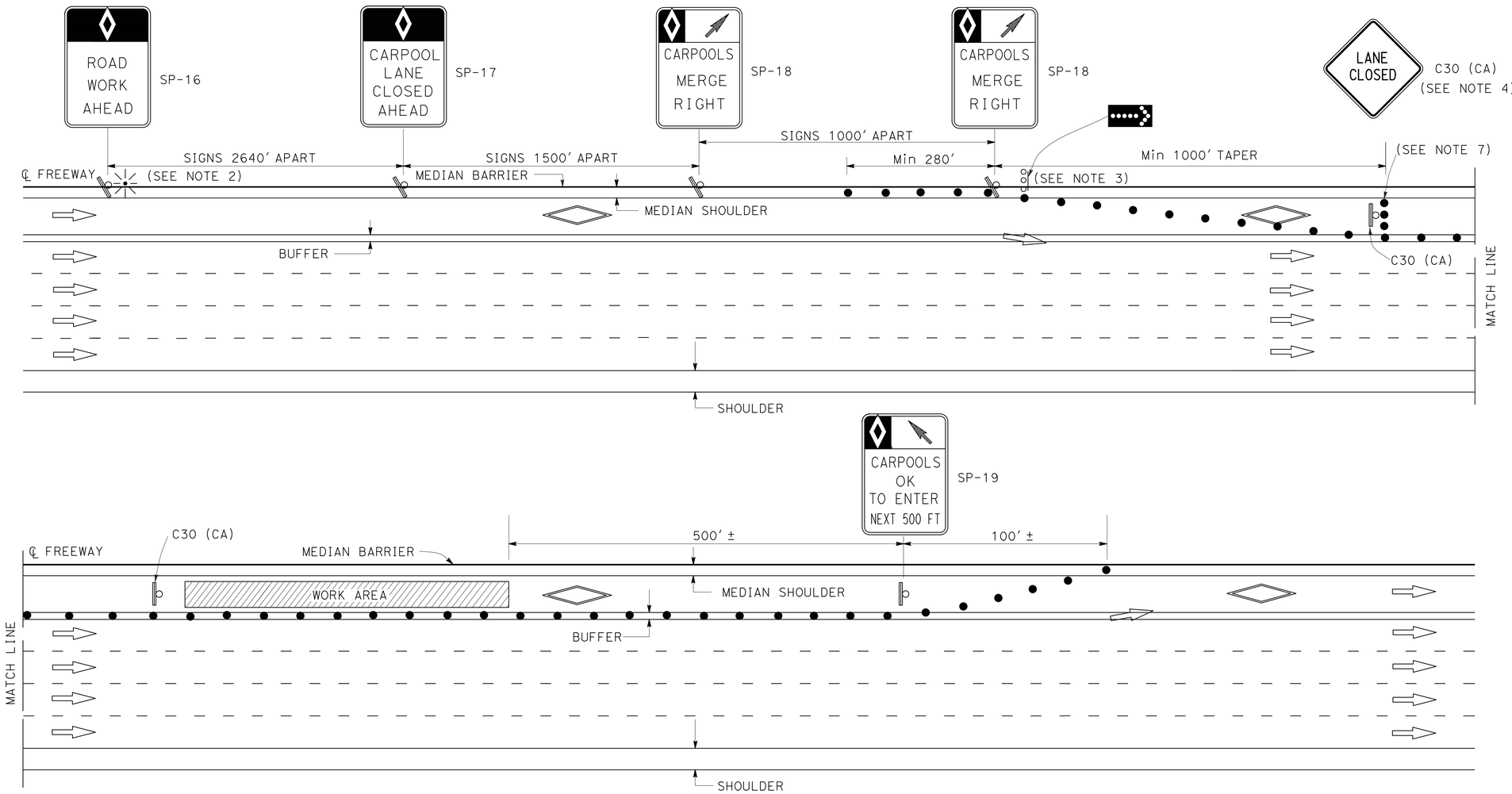

LEGEND

- TRAFFIC CONE
- PORTABLE FLASHING BEACON
- TEMPORARY TRAFFIC CONTROL SIGN
- FLASHING ARROW SIGN (FAS)
- FAS SUPPORT OR TRAILER

ABBREVIATIONS

(CA) CALIFORNIA CODE

SIGN PANEL

	SIZE (MIN)
SP-16	36" X 54"
SP-17	36" X 54"
SP-18	36" X 48"
SP-19	36" X 60"
C30 (CA)	30" X 30"
G20-2	48" X 24"

NOTES: FOR CASE I AND CASE II

1. AT LEAST ONE PERSON MUST BE ASSIGNED TO FULL TIME MAINTENANCE OF TRAFFIC CONTROL DEVICES ON NIGHT LANE CLOSURES OR DAY-TIME CLOSURES EXCEEDING 1 MILE LENGTH, INCLUDING TAPERS.
2. ADVANCE WARNING SIGN INSTALLATIONS MUST BE EQUIPPED WITH FLAGS FOR DAYTIME CLOSURES. TYPE B HIGH INTENSITY FLASHING WARNING LIGHTS MUST BE USED ON SP-16 SIGN DURING NIGHT LANE CLOSURES. FLAGS AND WARNING LIGHTS MUST BE ATTACHED TO SIGNS AS APPROVED BY THE ENGINEER.
3. THE FLASHING ARROW SIGN MUST BE TYPE I.
4. PLACE C30 (CA) SIGNS EVERY 2000' THROUGHOUT THE LENGTH OF LANE CLOSURE.
5. A MINIMUM 1500' OF SIGHT DISTANCE MUST BE PROVIDED WHERE POSSIBLE FOR VEHICLES APPROACHING THE FLASHING ARROW SIGN. LANE CLOSURES MUST NOT BE PLACED ON CREST VERTICAL CURVES OR ON HORIZONTAL CURVES.
6. PORTABLE DELINEATORS PLACED AT ONE-HALF THE SPACING INDICATED FOR TRAFFIC CONES MAY BE USED INSTEAD OF CONES FOR DAYTIME CLOSURES.
7. A MINIMUM OF 3 CONES MUST BE PLACED TRANSVERSELY ACROSS CLOSED LANES WHERE TAPERS END AND EVERY 2000'. TWO TYPE II BARRICADES MAY BE USED INSTEAD OF 3 CONES. THE ALIGNMENT OF CONES OR BARRICADES MAY BE SHIFTED FROM THE TRANSVERSE ALIGNMENT TO PROVIDE ACCESS TO WORK.
8. IF AN INGRESS/EGRESS AREA IS WITHIN 5250' UPSTREAM OR DOWNSTREAM OF THE WORK AREA, LANE CLOSURES MUST BE EXTENDED TO THAT AREA AS SHOWN IN CASE II.
9. SIGNS SP-16, 17, 18, AND 19 MAY BE OVERLAID ON EXISTING CARPOOL SIGNS IN MEDIANS AS APPROVED BY THE ENGINEER.
10. SIGNS SP-16, 17, 18, AND C30 (CA) MUST BE BLACK ON ORANGE BACKGROUND. SIGN SP-19 MUST BE BLACK ON WHITE BACKGROUND. DIAMONDS ON SIGNS MUST BE WHITE.
11. FOR CLOSURE OF LANE(S) ADJACENT TO HOV LANES, SEE CASE II.
12. THE MAXIMUM SPACING BETWEEN CONES MUST BE APPROXIMATELY 50' IN TAPERS AND 100' ON TANGENTS.

TRAFFIC HANDLING DETAILS
TRAFFIC CONTROL SYSTEM FOR HIGH OCCUPANCY VEHICLE LANES AT NON-INGRESS/EGRESS AREAS
CASE I

NO SCALE

THD-9

CALCULATED-DESIGNED BY	JC
CHECKED BY	2/14
REVISED BY	DATE REVISED
FUNCTIONAL SUPERVISOR	DENIS S KATAYAMA
ALBERT K YU	JOCELYN C CHIANG

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® DTM

LAST REVISION 02-08-16 | DATE PLOTTED => 26-FEB-2016 | TIME PLOTTED => 14:44

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	91,110	6.1/R11.4, 9.6/10.3	24	58

Duke M Huynh 11-30-15
REGISTERED CIVIL ENGINEER DATE

2-8-16
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER DUKE HUYNH No. C65591 Exp. 9-30-17 CIVIL STATE OF CALIFORNIA

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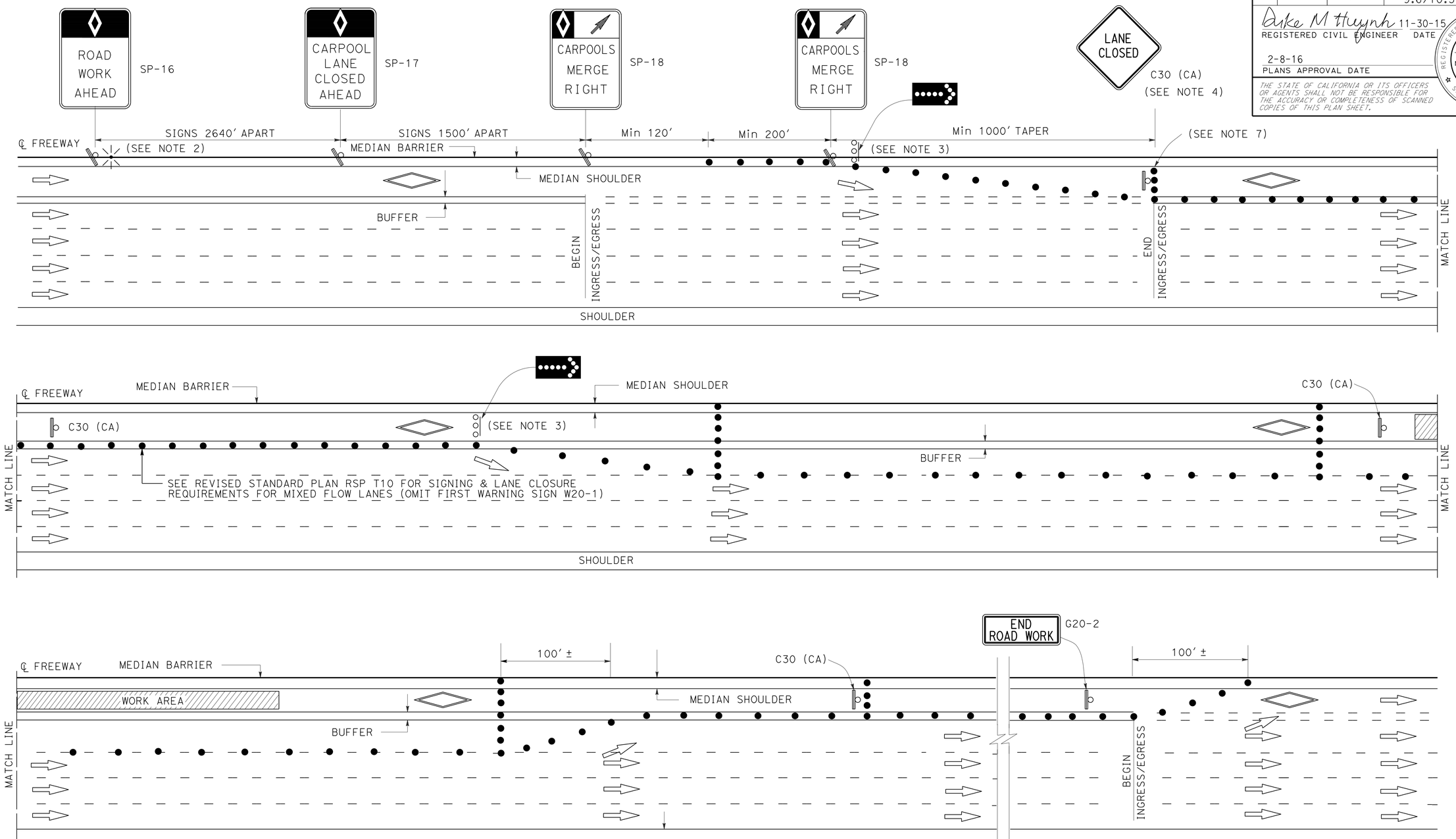


NOTES:

1. SEE CASE I FOR NOTES, LEGEND, SIGN PANEL, AND ABBREVIATIONS FOR THIS SHEET.
2. CLOSURES OF ONE MIXED FLOW TRAFFIC LANE ADJACENT TO HOV LANE SHOWN ON THIS SHEET. MULTIPLE MIXED FLOW LANE CLOSURES ARE SIMILAR.

TRAFFIC HANDLING DETAILS
TRAFFIC CONTROL SYSTEM FOR HIGH OCCUPANCY VEHICLE LANES AND ADJACENT FREEWAY LANES BETWEEN INGRESS/EGRESS AREAS
CASE II

NO SCALE

THD-10

REVISED BY	DATE REVISED
JC	2/14

CALCULATED-DESIGNED BY: ALBERT K YU
CHECKED BY: JOCELYN C CHIANG
FUNCTIONAL SUPERVISOR: DENIS S KATAYAMA

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
DTM

LAST REVISION 02-08-16 | DATE PLOTTED => 26-FEB-2016 | TIME PLOTTED => 14:44

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	91,110	6.1/R11.4, 9.6/10.3	25	58

Duke M Huynh 11-30-15
REGISTERED CIVIL ENGINEER DATE

2-8-16
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
DUKE HUYNH
No. C65591
Exp. 9-30-17
CIVIL
STATE OF CALIFORNIA

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

NOTES:

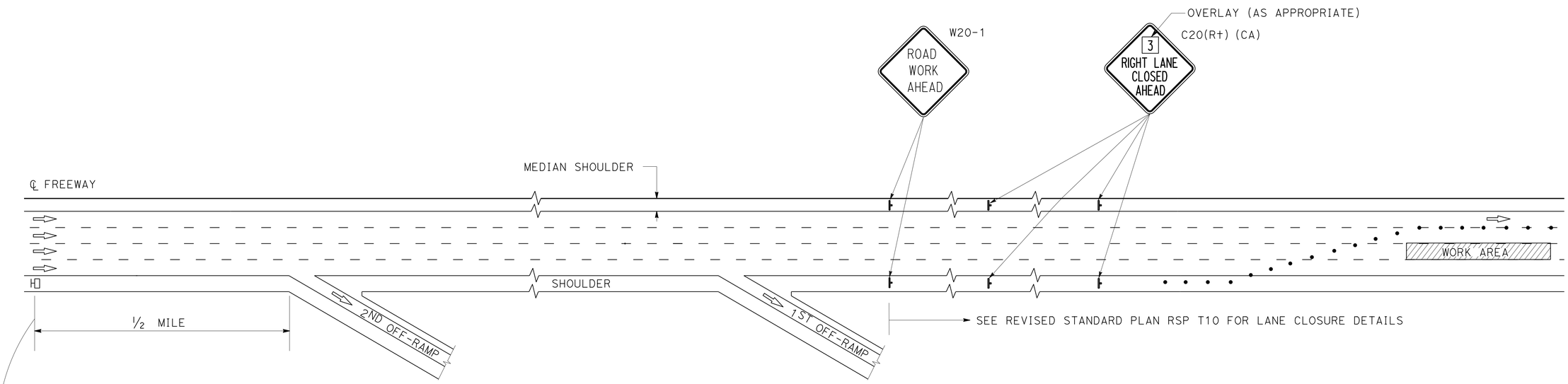
1. EXACT LOCATION OF PCMS WILL BE DETERMINED BY THE ENGINEER TO PROVIDE ADEQUATE VISIBILITY.
2. PCMS MESSAGE DISPLAYED WILL BE APPROVED BY THE ENGINEER.
3. PCMS MESSAGE MUST BE CHANGED AT THE BEGINNING OF CURE PERIOD TO REFLECT NUMBER OF CLOSED LANES.

ABBREVIATIONS

(CA) CALIFORNIA CODE

LEGEND

- TRAFFIC CONE
- TEMPORARY TRAFFIC CONTROL SIGN
- PCMS



FIRST FLASH	X (NO OF LANES)RIGHT/LEFT	1ST LINE (TYPICAL)
	LANES	2ND LINE (TYPICAL)
	CLOSED	3RD LINE (TYPICAL)
SECOND FLASH	A ST	LIMIT OF CLOSURE (TYPICAL)
	TO	
	B DR	LIMIT OF CLOSURE (TYPICAL)

WORDING FORMAT FOR PCMS MESSAGE

TRAFFIC HANDLING DETAILS
TRAFFIC CONTROL SYSTEM FOR CONCRETE PAVEMENT AND APPROACH SLAB REPLACEMENT

NO SCALE

THD-11

REVISED BY	DATE REVISED
JC	2/14

CALCULATED-DESIGNED BY: ALBERT K YU
CHECKED BY: JOCELYN C CHIANG
FUNCTIONAL SUPERVISOR: DENIS S KATAYAMA

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
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LAST REVISION 02-08-16
DATE PLOTTED => 26-FEB-2016
TIME PLOTTED => 14:44

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	91,110	6.1/R11.4, 9.6/10.3	26	58

Duke M Huynh 11-30-15
REGISTERED CIVIL ENGINEER DATE

2-8-16
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
DUKE HUYNH
No. C65591
Exp. 9-30-17
CIVIL
STATE OF CALIFORNIA

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LEGEND

- IAV — V1 — TRAFFIC CONTROL CREW No. 1
- IAV — V2 — TRAFFIC CONTROL CREW No. 2
- CHP — CHP CAR
- ● TRAFFIC CONES FOR INITIAL LANE CLOSURE
- △ TRAFFIC CONES FOR SECOND STAGE LANE CLOSURE
- 1 — DIRECTION OF TRAVEL FOR INITIAL LANE CLOSURE
- 2 — DIRECTION OF TRAVEL FOR SECOND STAGE LANE CLOSURE
- FLASHING ARROW SIGN (FAS)
- TEMPORARY TRAFFIC CONTROL SIGN
- PCMS
- FAS SUPPORT OR TRAILER

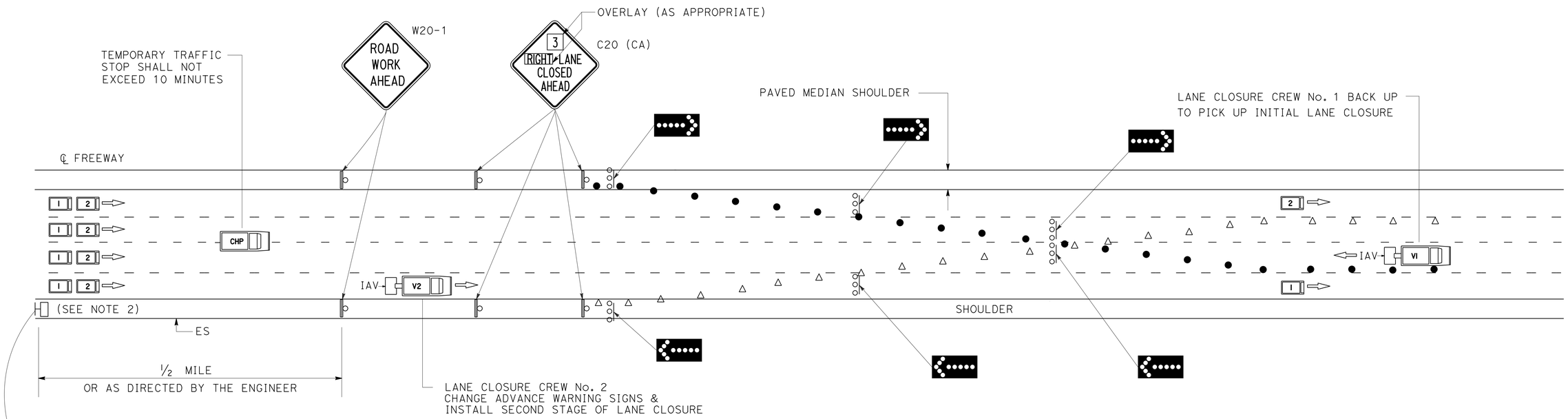
NOTES:

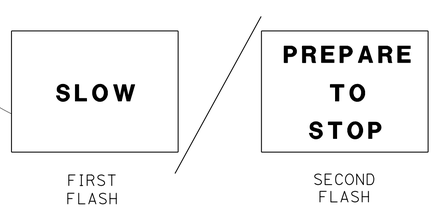
1. SEE REVISED STANDARD PLAN RSP T10 FOR LANE CLOSURE DETAILS NOT SHOWN.
2. ACTIVATE PCMS ONLY DURING SECOND STAGE LANE CLOSURE INSTALLATION.
3. CLOSE ALL ON-RAMPS BETWEEN CHP CAR AND THE CLOSURE.

ABBREVIATIONS

(CA) CALIFORNIA CODE

CHP CALIFORNIA HIGHWAY PATROL





PCMS MESSAGE

TRAFFIC HANDLING DETAILS
TRAFFIC CONTROL SYSTEM FOR "FLIP-FLOP" OPERATIONS

NO SCALE

THD-12

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
DTM

FUNCTIONAL SUPERVISOR: DENIS S KATAYAMA
CALCULATED-DESIGNED BY: ALBERT K YU
CHECKED BY: JOCELYN C CHIANG
REVISED BY: JC
DATE REVISED: 2/14

LAST REVISION 02-08-16
DATE PLOTTED => 26-FEB-2016
TIME PLOTTED => 14:44

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	91,110	6.1/R11.4, 9.6/10.3	27	58

Larry Wiering 1-18-16
REGISTERED CIVIL ENGINEER DATE

2-8-16
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
LARRY WIERING
No. C41247
Exp. 3-31-17
CIVIL
STATE OF CALIFORNIA

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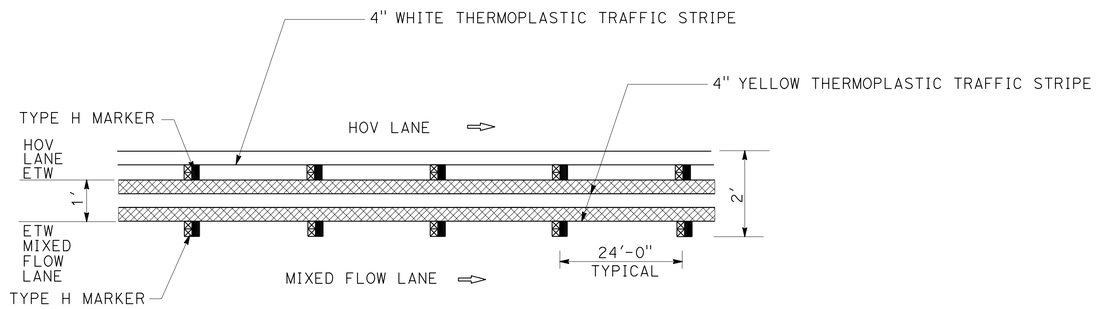
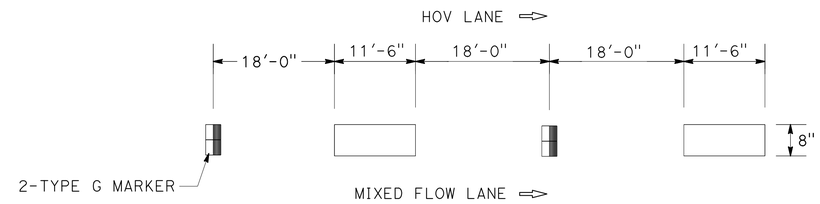
NOTE:

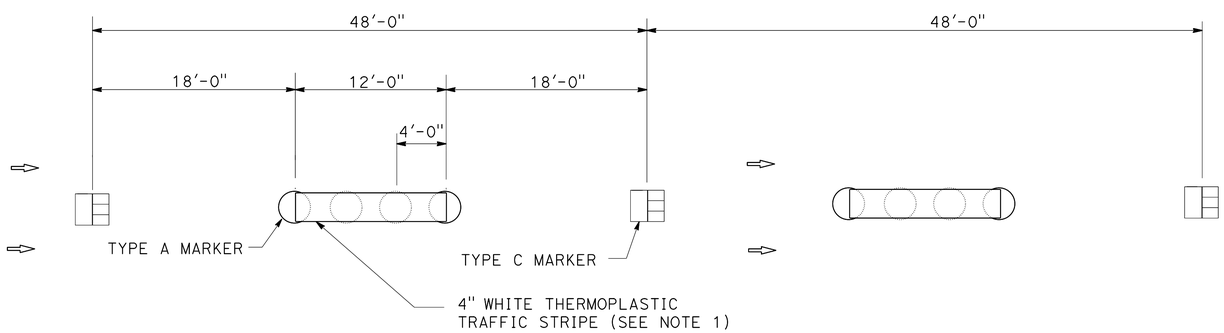
1. APPLY 4" WIDE THERMOPLASTIC TRAFFIC STRIPE ON TOP OF TYPE A NON-REFLECTIVE MARKERS.



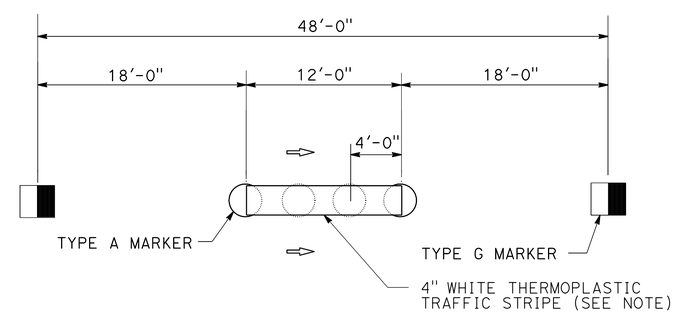
DETAIL A - HOV BUFFER STRIPING



DETAIL D - INGRESS/EGRESS STRIPING



DETAIL 14 (MODIFIED)



DETAIL 13 (MODIFIED)

PAVEMENT DELINEATION DETAILS

NO SCALE

APPROVED FOR PAVEMENT DELINEATION WORK ONLY

PDD-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans MAINTENANCE ENGINEERING

FUNCTIONAL SUPERVISOR: PAUL CRISPI
CALCULATED-DESIGNED BY: GEHAN ATTALAH
CHECKED BY: LARRY WIERING
REVISED BY
DATE REVISED

LAST REVISION 02-08-16
DATE PLOTTED => 26-FEB-2016
TIME PLOTTED => 14:44

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	91,110	6.1/R11.4, 9.6/10.3	28	58

Larry Wiering 1-18-16
REGISTERED CIVIL ENGINEER DATE

2-8-16
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER LARRY WIERING No. C41247 Exp. 3-31-17 CIVIL STATE OF CALIFORNIA

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

SUMMARY OF PAVEMENT DELINEATION QUANTITIES (ROUTE 91-EB AND WB)

LOCATION		THERMOPLASTIC TRAFFIC STRIPE												THERMOPLASTIC PAVEMENT MARKING			PAVEMENT MARKER					REMOVE			
		4 INCHES							8 INCHES								RETROREFLECTIVE								
		WHITE BROKEN		SOLID		HOV LANE (DETAIL A)		BROKEN	WHITE SOLID				BROKEN												
		DETAIL 13M (36-12)	DETAIL 14M (36-12)	DETAIL 25A YELLOW STRIPE	DETAIL 27B WHITE STRIPE	4" WHITE STRIPE	4" YELLOW STRIPE	DETAIL "D" (36-11.5)	DETAIL 36	DETAIL 36B	DETAIL 36A	DETAIL 38B	DETAIL 37 (12-3)	ARROW	WORDS	DIAGONALS	TYPE C	TYPE G	TYPE H	TYPE HR	NON-REFLECTIVE TYPE A	THERMOPLASTIC TRAFFIC STRIPE	YELLOW THERMOPLASTIC TRAFFIC STRIPE (HAZARDOUS WASTE)	THERMOPLASTIC PAVEMENT MARKING	PAVEMENT MARKER
FROM	TO	LF	LF	LF	LF	LF	LF	LF	LF	LF	LF	LF	LF	SQFT	SQFT	SQFT	EA	EA	EA	EA	EA	LF	LF	SQFT	EA
PM 6.1	PM R6.5	8,685		4,224	4,224					535			635	216	63	55	42	203	176		724	7,865	4,224	334	1,145
PM R6.5	PM R7.5	27,422	1,154	600	6,056	2,525	5,050	1,985	1,352		246	1,046	2,275	126		198	160	864	274		2,383	21,769	5,651	324	3,681
PM R7.5	PM R9.0	46,356	1,371		7,200			3,148	2,448	613	733	168	5,487			1,063	376	1,371	892	21	3,977	27,208		1,063	6,638
PM R9.0	PM R10.0	30,904	915		4,800			2,100	1,632	410	488	112	3,658			710	250	914	595	15	2,652	18,139		710	4,425
PM R10.0	PM R11.4	58,671	2,508		12,000			2,788	2,960		2,310	280	6,417			810	445	1,705	1,165	60	5,098	36,606		810	8,473
SUBTOTAL		172,038	5,948	4,824	34,280	2,525	5,050	10,021	8,392	1,558	3,777	1,606	18,472	342	63	2,836	1,273	5,057	3,102	96	14,834	111,587	9,875	3,241	24,362
TOTAL		177,986		46,679				10,021	15,333				18,472	3,241			9,528				14,834	111,587	9,875	3,241	24,362

PAVEMENT DELINEATION QUANTITIES

PDQ-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans MAINTENANCE ENGINEERING

FUNCTIONAL SUPERVISOR: PAUL CRISPI
CALCULATED-DESIGNED BY: GEHAN ATTALAH
CHECKED BY: LARRY WIERING
REVISED BY
DATE REVISED

LAST REVISION 02-08-16
DATE PLOTTED => 26-FEB-2016
TIME PLOTTED => 14:44

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	91,110	6.1/R11.4, 9.6/10.3	29	58

Larry Wiering 1-18-16
REGISTERED CIVIL ENGINEER DATE

2-8-16
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER LARRY WIERING No. C41247 Exp. 3-31-17 CIVIL STATE OF CALIFORNIA

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

SUMMARY OF PAVEMENT DELINEATION QUANTITIES (CONNECTORS)

CONNECTOR No. (#)	LOCATION	THERMOPLASTIC TRAFFIC STRIPE					THERMOPLASTIC PAVEMENT MARKING		PAVEMENT MARKER RETROREFLECTIVE			REMOVE		
		4 INCHES			8 INCHES									
		WHITE BROKEN	SOLID		WHITE SOLID									
		DETAIL 13M (36-12)	DETAIL 25A YELLOW STRIPE	DETAIL 27B WHITE STRIPE	DETAIL 36	DETAIL 36B	ARROW	DIAGONALS	TYPE G	TYPE H	NON-REFLECTIVE TYPE A	YELLOW THERMOPLASTIC TRAFFIC STRIPE (HAZARDOUS WASTE)	THERMOPLASTIC PAVEMENT MARKINGS	PAVEMENT MARKER
		LF	LF	LF	LF	LF	SQFT	SQFT	EA	EA	EA	LF	SQFT	EA
1	S110-W91		550	1,470						47		550		80
2	E91-S110	680	1,975	2,170	370				47	167	60	1,975		300
3	N110-E91	1,630	1,235	1,630	230				55	110	136	1,235		350
4	W91-N110	730	2,340	2,980	235		168	756	40	396	64	2,340	924	550
5	S110-E91	2,200	2,160	2,160					46	360	190	2,160		650
6	E91-N110	700	2,200	2,970	230				40	375	60	2,200		525
7	N110-W91		800	1,000		115			10	136		800		170
SUBTOTAL		5,940	11,260	14,380	1,060	115	168	756	238	1,591	510	11,260	924	2,625
TOTAL		5,940	25,640		1,175		924		1,829		510	11,260	924	2,625

PAVEMENT DELINEATION QUANTITIES

PDQ-2

REVISED BY	DATE REVISED

CALCULATED-DESIGNED BY	CHECKED BY
GEHAN ATTALAH	LARRY WIERING

FUNCTIONAL SUPERVISOR: PAUL CRISPI

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans MAINTENANCE ENGINEERING

LAST REVISION 02-08-16 | DATE PLOTTED => 26-FEB-2016 | TIME PLOTTED => 14:44

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	91,110	6.1/R11.4, 9.6/10.3	30	58

Larry Wiering 1-18-16
REGISTERED CIVIL ENGINEER DATE

2-8-16
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
LARRY WIERING
No. C41247
Exp. 3-31-17
CIVIL
STATE OF CALIFORNIA

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

SUMMARY OF PAVEMENT DELINEATION QUANTITIES (MAINLINE AND CONNECTORS)

SHEET No.	LOCATION	THERMOPLASTIC TRAFFIC STRIPE												THERMOPLASTIC PAVEMENT MARKING			PAVEMENT MARKER					REMOVE			
		4 INCHES						8 INCHES									RETROREFLECTIVE								
		WHITE BROKEN		SOLID		HOV LANE (DETAIL A)		BROKEN	WHITE SOLID				BROKEN												
		DETAIL 13M (36-12)	DETAIL 14M (36-12)	DETAIL 25A YELLOW STRIPE	DETAIL 27B WHITE STRIPE	4" WHITE STRIPE	4" YELLOW STRIPE	DETAIL "D" (36-11.5)	DETAIL 36	DETAIL 36B	DETAIL 36A	DETAIL 38B	DETAIL 37 (12-3)	ARROW	WORDS	DIAGONALS	TYPE C	TYPE G	TYPE H	TYPE HR	NON-REFLECTIVE TYPE A	THERMOPLASTIC TRAFFIC STRIPE	YELLOW THERMOPLASTIC TRAFFIC STRIPE (HAZARDOUS WASTE)	THERMOPLASTIC PAVEMENT MARKING	PAVEMENT MARKER
		LF	LF	LF	LF	LF	LF	LF	LF	LF	LF	LF	LF	SQFT	SQFT	SQFT	EA	EA	EA	EA	EA	LF	LF	SQFT	EA
PDQ-1	PM 6.1-PM R11.4	177,986		46,679				10,021	15,333				18,472	3,241			1,273	5,057	3,102	96	14,834	111,587	9,875	3,241	24,362
PDQ-2	CONNECTORS	5,940		25,640					1,175					924			0	238	1,591		510	0	11,260	924	2,625
PDQ-3	TOTAL	183,926		72,319				10,021	16,508				18,472	4,165			11,357				15,344	111,587	21,135	4,165	26,987

PAVEMENT DELINEATION QUANTITIES

PDQ-3

REVISED BY | DATE REVISED
GEHAN ATTALAH | LARRY WIERING
CALCULATED-DESIGNED BY | CHECKED BY
FUNCTIONAL SUPERVISOR
PAUL CRISPI

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans MAINTENANCE ENGINEERING

LAST REVISION 02-08-16 | DATE PLOTTED => 26-FEB-2016 | TIME PLOTTED => 14:44

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	91,110	6.1/R11.4, 9.6/10.3	31	58

Larry Wiering 1-18-16
REGISTERED CIVIL ENGINEER DATE

2-8-16
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER LARRY WIERING No. C41247 Exp. 3-31-17 CIVIL STATE OF CALIFORNIA

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

SUMMARY OF ROADWAY QUANTITIES
(EB)

LOCATION FROM PM	LOCATION TO PM	NUMBER OF SLABS (N) LANE No. 1 EA	2 EA	3 EA	4 EA	5 EA	INDIVIDUAL SLAB REPLACEMENT (RSC) CY	DRILL AND BOND (DOWEL BARS) EA	JOINT SEAL (PREFORMED COMPRESSION) LF	BOND BREAKER (N) SQYD	REMOVE CONCRETE PAVEMENT (N) SQYD	GRIND EXISTING CONCRETE PAVEMENT SQYD
6.1	R6.5	2	2	10	11	8	164	422	11,597	660	660	19,950
R6.5	R7.5	1	6	19	19	12	283	730		1,140	1,140	
R7.5	R9.0	1	11	45	66	0	613	1,574		2,460	2,460	
R9.0	R10.0	1	1	27	44	0	364	934		1,460	1,460	
R10.0	R11.4	1	5	11	8	0	121	320		500	500	
SUBTOTAL		6	25	112	148	20	1,545	3,980		6,220	6,220	
TOTAL		311					1,545	3,980	11,597	6,220	6,220	19,950

SUMMARY OF ROADWAY QUANTITIES
(WB)

LOCATION FROM PM	LOCATION TO PM	NUMBER OF SLABS (N) LANE No. 1 EA	2 EA	3 EA	4 EA	5 EA	INDIVIDUAL SLAB REPLACEMENT (RSC) CY	DRILL AND BOND (DOWEL BARS) EA	JOINT SEAL (PREFORMED COMPRESSION) LF	BOND BREAKER (N) SQYD	REMOVE CONCRETE PAVEMENT (N) SQYD	GRIND EXISTING CONCRETE PAVEMENT SQYD
6.1	R6.5	0	0	0	0	0	0	0	17,363	0	0	13,635
R6.5	R7.5	2	7	10	12	0	152	397		620	620	
R7.5	R9.0	0	4	21	40	0	324	832		1,300	1,300	
R9.0	R10.0	0	3	33	37	0	364	934	6,463	1,460	1,460	8,712
R10.0	R11.4	0	0	4	11	5	100	256		400	400	
SUBTOTAL		2	14	68	100	5	940	2,419		3,780	3,780	
TOTAL		189					940	2,419	23,826	3,780	3,780	22,347

EB/WB

LOCATION	No. OF SLABS (N) EA	INDIVIDUAL SLAB REPLACEMENT (RSC) CY	DRILL AND BOND (DOWEL BARS) EA	JOINT SEAL (PREFORMED COMPRESSION) LF	BOND BREAKER (N) SQYD	REMOVE CONCRETE PAVEMENT (N) SQYD	GRIND EXISTING CONCRETE PAVEMENT SQYD
EB	311	1,545	3,980	11,597	6,220	6,220	19,950
WB	189	940	2,419	23,826	3,780	3,780	22,347
TOTAL	500	2,485	6,399	35,423	10,000	10,000	42,297

NOTES:

1. GRINDING EXISTING CONCRETE PAVEMENT WILL BE FROM PM 6.1 TO PM R6.7 (WB-EB) AND FROM R9.6 TO R9.8 WESBOUND ONLY.
2. JOINT SEAL WILL BE FROM PM 6.1 TO PM R6.7 AND FROM PM R9.6 TO PM R9.8 WESTBOUND ONLY.
3. SLAB NUMBER AND LOCATION IS APPROXIMATE. THE EXACT NUMBER WILL BE DETERMINED BY THE ENGINNER.

ABBREVIATION:

RSC RAPID STRENGTH CONCRETE

LEGENDS:

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

SUMMARY OF QUANTITIES

Q-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans MAINTENANCE ENGINEERING

FUNCTIONAL SUPERVISOR: PAUL CRISPI
CALCULATED-DESIGNED BY: GEHAN ATTALAH
CHECKED BY: LARRY WIERING
REVISED BY
DATE REVISED

LAST REVISION 02-08-16 DATE PLOTTED => 26-FEB-2016 TIME PLOTTED => 14:44

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	91,110	6.1/R11.4, 9.6/10.3	32	58

Larry Wiering 1-18-16
REGISTERED CIVIL ENGINEER DATE

2-8-16
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
LARRY WIERING
No. C41247
Exp. 3-31-17
CIVIL
STATE OF CALIFORNIA

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

SUMMARY OF ROADWAY QUANTITIES (CONNECTORS)

CONNECTOR No. (#)	LOCATION	NUMBER OF SLABS (N)	INDIVIDUAL SLAB REPLACEMENT (RSC)	GRIND EXISTING CONCRETE PAVEMENT	DRILL AND BOND (DOWEL BARS)	JOINT SEAL (PREFORMED COMPRESSION)	REMOVE CONCRETE PAVEMENT (N)	BOND BREAKER (N)
		EA	CY	SQYD	EA	LF	SQYD	SQYD
1	S110-W91	35	165	2,400	392	1,850	700	700
2	E91-S110	20	95	3,830	224	2,541	400	400
3	N110-E91	90	420	3,400	1,008	3,536	1,800	1,800
4	W91-N110	120	560	8,600	1,344	12,330	2,400	2,400
5	S110-E91	90	420	6,400	1,008	5,510	1,800	1,800
6	E91-N110	40	190	3,420	448	2,230	800	800
7	N110-W91	35	165	1,600	392	800	700	700
TOTAL		430	2,015	29,650	4,816	28,797	8,600	8,600

SUMMARY OF QUANTITIES

Q-2

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans MAINTENANCE ENGINEERING

FUNCTIONAL SUPERVISOR: PAUL CRISPI
CALCULATED-DESIGNED BY: GEHAN ATTALAH
CHECKED BY: LARRY WIERING
REVISED BY
DATE REVISED

LAST REVISION 02-08-16 | DATE PLOTTED => 26-FEB-2016 | TIME PLOTTED => 14:44

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	91,110	6.1/R11.4, 9.6/10.3	33	58

Larry Wiering 1-18-16
REGISTERED CIVIL ENGINEER DATE

2-8-16
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER LARRY WIERING No. C41247 Exp. 3-31-17 CIVIL STATE OF CALIFORNIA

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

SUMMARY OF ROADWAY QUANTITIES (EB/WB AND CONNECTORS)

SHEET No.	LOCATION	NUMBER OF SLABS (N)	INDIVIDUAL SLAB REPLACEMENT (RSC)	GRIND EXISTING CONCRETE PAVEMENT	JOINT SEAL (PREFORMED COMPRESSION)	DRILL AND BOND (DOWEL BAR)	BOND BREAKER (N)	REMOVE CONCRETE PAVEMENT (N)
		EA	CY	SQYD	LF	EA	SQYD	SQYD
Q1	EB/WB	500	2,485	42,297	35,423	6,399	10,000	10,000
Q2	CONNECTORS	430	2,015	29,650	28,797	4,816	8,600	8,600
Q3	TOTAL	930	4,500	71,947	64,220	11,215	18,600	18,600

SUMMARY OF QUANTITIES

Q-3

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans MAINTENANCE ENGINEERING

FUNCTIONAL SUPERVISOR: PAUL CRISPI
CALCULATED-DESIGNED BY: GEHAN ATTALAH
CHECKED BY: LARRY WIERING
REVISED BY
DATE REVISED

LAST REVISION 02-08-16 | DATE PLOTTED => 26-FEB-2016 | TIME PLOTTED => 14:44

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	91,110	6.1/R11.4, 9.6/10.3	34	58

Larry Wiering 1-18-16
REGISTERED CIVIL ENGINEER DATE

2-8-16
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER LARRY WIERING No. C41247 Exp. 3-31-17 CIVIL STATE OF CALIFORNIA

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

ABBREVIATION:

RHMA - G RUBBERIZED HOT MIX ASPHALT (GAP GRADED)

ROADWAY QUANTITIES (EB)

LOCATION	FROM	TO	COLD PLANE ASPHALT CONCRETE PAVEMENT	(RHMA-G)	TACK COAT
			SQYD	TON	TON
EB	6.1	R6.5	3,620	249	0.7
EB	R6.5	R7.5	3,240	223	0.6
EB	R7.5	R9.0	6,000	410	1.1
EB	R9.0	R10.0	1,000	68	0.2
EB	R10.0	R11.4	0	0	0
TOTAL			13,860	950	2.6

ROADWAY QUANTITIES (WB)

LOCATION	FROM	TO	COLD PLANE ASPHALT CONCRETE PAVEMENT	RHMA-G	TACK COAT
			SQYD	TON	TON
WB	6.1	R6.5	6,648	470	1.2
WB	R6.5	R7.5	2,318	159	0.4
WB	R7.5	R9.0	4,889	337	0.9
WB	R9.0	R10.0	2,500	169	0.4
WB	R10.0	R11.4	0	0	0
TOTAL			16,355	1,135	2.9

ROADWAY QUANTITIES (CONNECTORS)

CONNECTOR No. (#)	LOCATION	COLD PLANE ASPHALT CONCRETE PAVEMENT	HOT MIX ASPHALT (TYPE A)	TACK COAT
		SQYD	TON	TON
1	S110-W91	2,420	495	0.9
2	E91-S110	2,200	450	0.8
3	N110-E91	1,860	380	0.6
4	W91-N110	4,548	925	1.5
5	S110-E91	3,787	770	1.3
6	E91-N110	2,515	510	0.9
7	N110-W91	1,680	340	0.6
TOTAL		19,010	3,870	6.6

SUMMARY OF ROADWAY QUANTITIES

LOCATION	COLD PLANE ASPHALT CONCRETE PAVEMENT	RHMA-G	HOT MIX ASPHALT (TYPE A)	TACK COAT
	SQYD	TON	TON	TON
EB	13,860	950	0	2.6
WB	16,355	1,135	0	2.9
CONNECTORS	19,010	0	3,870	6.6
TOTAL	49,225	2,085	3,870	12.1

SUMMARY OF QUANTITIES

Q-4

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans MAINTENANCE ENGINEERING

FUNCTIONAL SUPERVISOR: PAUL CRISPI
CALCULATED-DESIGNED BY: GEHAN ATTALAH
CHECKED BY: LARRY WIERING
REVISED BY
DATE REVISED

LAST REVISION 02-08-16
DATE PLOTTED => 26-FEB-2016
TIME PLOTTED => 14:44

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	91,110	6.1/R11.4, 9.6/10.3	35	58

Stanley L. Johnson 11-30-15
REGISTERED ELECTRICAL ENGINEER DATE

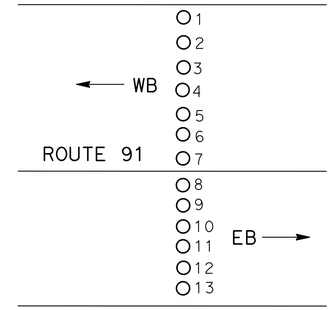
2-8-16
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER STANLEY L. JOHNSON No. E 16761 Exp. 09/30/16 ELECTRICAL STATE OF CALIFORNIA

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

INDUCTIVE LOOP DETECTOR SCHEDULE (ROUTE 91)

PM	LOCATION DETAIL "A"	APPROXIMATE STATION	SEE DETAIL "A" THIS SHEET FOR TYPICAL LOCATION OF LOOP DETECTORS													No. OF STUB OUTS
			1	2	3	4	5	6	7	8	9	10	11	12	13	
6.08	EAST OF VERMONT Ave	272+00	X	X	X	X										1
6.08	EAST OF VERMONT Ave	272+00	X	X	X	X										1
R6.47	WEST OF FIGUROA St	294+00	X	X	X											1
R6.47	WEST OF FIGUROA St	294+00								X	X	X	X			2
R6.49	EAST OF FIGUROA St	297+00	X	X												1
R6.82	WEST OF MAIN St	312+50	X	X	X					X	X	X				2
R6.95	EAST OF MAIN St	319+15	X													1
R7.15	WEST OF AVALON Blvd	330+00								X	X	X	X	X	X	1
R7.70	EAST OF AVALON Blvd	350+00	X	X	X	X	X			X	X	X	X	X	X	2
R8.27	EAST OF AVALON Blvd	364+15	X	X	X	X	X			X	X	X	X	X		2
R8.59	WEST OF CENTRAL Ave	388+30	X	X	X	X	X			X	X	X	X	X		2
R9.01	EAST OF CENTRAL Ave	405+20	X	X	X	X	X			X	X	X	X	X		2
R9.29	WEST OF WILMINGTON Ave	427+50	X	X	X	X	X			X	X	X	X	X		2
R9.65	EAST OF WILMINGTON Ave	442+15	X	X	X	X	X			X	X	X	X	X		2
R10.12	WEST OF ACACIA Ave	262+00	X	X	X	X	X			X	X	X	X	X		2
R10.47	WEST OF ALAMEDA St	287+15	X	X	X	X	X			X	X	X	X	X		2
R6.47	EAST OF SANTA Fe Ave	305+00	X	X	X	X	X			X	X	X	X	X	X	2
R10.60	EAST OF SANTA Fe Ave	311+30	X	X	X	X	X			X	X	X	X	X	X	2
R11.01	WEST OF LONG BEACH Blvd	333+00	X	X	X	X	X			X	X	X	X	X	X	2
R11.37	WEST OF BUTLER Ave	352+20	X	X	X	X	X	X	X	X	X	X	X	X	X	2



DETAIL "A"

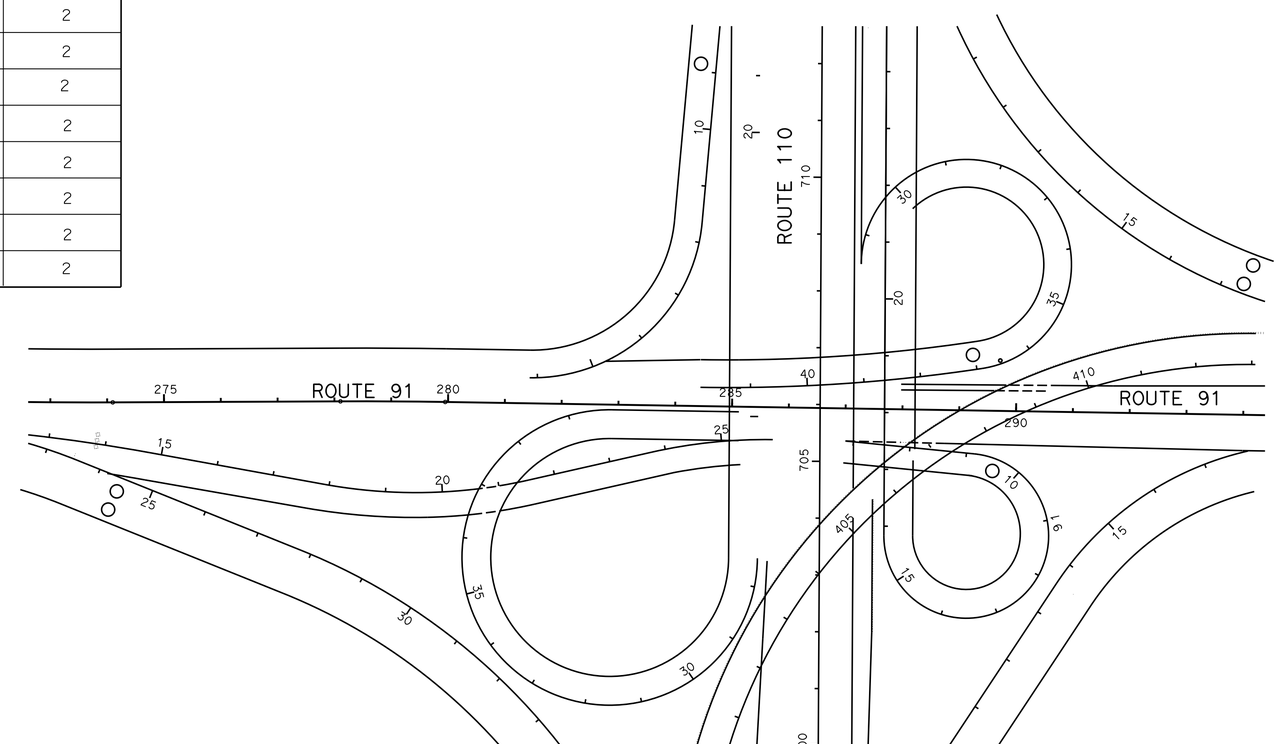
DETAIL FOR TYPICAL LOOP DETECTOR INSTALLATION ON HIGHWAY

NOTES:

1. NEW STUB OUTS MUST BE 2". ABANDON EXISTING STUB OUTS.
2. PRIOR TO CONSTRUCTION, CONTRACTOR MUST LOCATE EXISTING INDUCTIVE LOOP DETECTORS.
3. NEW INDUCTIVE LOOP DETECTOR SHALL BE SPLICED TO EXISTING DLC IN ADJACENT PULL BOX.
4. TAG EXISTING DLC IN ADJACENT PULL BOX AND AT CONTROLLER CABINET.

INDUCTIVE LOOP DETECTOR SCHEDULE (CONNECTORS110/91)

PM	LOCATION DETAIL "B"	No. OF LOOPS (X)	No. OF STUB OUTS
R6.34	CONNECTORS 110/91	9	6



DETAIL "B"

LEGEND:

X - INSTALL TYPE E INDUCTIVE LOOP DETECTOR. ABANDON EXISTING INDUCTIVE LOOP DETECTOR AT SAME LOCATION.

INDUCTIVE LOOP DETECTOR

NO SCALE

E-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® TRAFFIC DESIGN

FUNCTIONAL SUPERVISOR: OSWALD ELIZONDO
CALCULATED-DESIGNED BY: MARTY MORTAZEVI
CHECKED BY: STANLEY L. JOHNSON
REVISED BY
DATE REVISED

LAST REVISION 02-08-16
DATE PLOTTED => 26-FEB-2016
TIME PLOTTED => 14:44

M

Maint	MAINTENANCE
Max	MAXIMUM
MB	METAL BEAM
MBB	METAL BEAM BARRIER
MBGR	METAL BEAM GUARD RAILING
Med	MEDIAN
MGS	MIDWEST GUARDRAIL SYSTEM
MH	MANHOLE
Min	MINIMUM
Misc	MISCELLANEOUS
Misc I & S	MISCELLANEOUS IRON AND STEEL
Mkr	MARKER
Mod	MODIFIED,
	MODIFY
Mon	MONUMENT
MP	METAL PLATE
MPGR	METAL PLATE GUARD RAILING
MR	MOVEMENT RATING
MSE	MECHANICALLY STABILIZED EMBANKMENT
Mt	MOUNTAIN, MOUNT
Mtl	MATERIAL
MVP	MAINTENANCE VEHICLE PULLOUT

N

N	NORTH
NB	NORTHBOUND
No.	NUMBER (MUST HAVE PERIOD)
Nos.	NUMBERS (MUST HAVE PERIOD)
NPS	NOMINAL PIPE SIZE
NS	NEAR SIDE
NSP	NEW STANDARD PLAN
NTS	NOT TO SCALE

O

Oblr	OBLITERATE
OC	OVERCROSSING
OD	OUTSIDE DIAMETER
OF	OUTSIDE FACE
OG	ORIGINAL GROUND
OGAC	OPEN GRADED ASPHALT CONCRETE
OGFC	OPEN GRADED FRICTION COURSE
OH	OVERHEAD
OHWM	ORDINARY HIGH WATER MARK
O-O	OUT TO OUT
Opp	OPPOSITE
OSD	OVERSIDE DRAIN

P

P	PAGE
PAP	PERFORATED ALUMINUM PIPE
PB	PULL BOX
PC	POINT OF CURVATURE,
	PRECAST
PCC	POINT OF COMPOUND CURVE,
	PORTLAND CEMENT CONCRETE
PCMS	PORTABLE CHANGEABLE MESSAGE SIGN
PCP	PERFORATED CONCRETE PIPE,
	PRESTRESSED CONCRETE PIPE
PCVC	POINT OF COMPOUND VERTICAL CURVE
PEC	PERMIT TO ENTER AND CONSTRUCT
Ped	PEDESTRIAN
Ped OC	PEDESTRIAN OVERCROSSING
Ped UC	PEDESTRIAN UNDERCROSSING
Perm Mtl	PERMEABLE MATERIAL

P continued

PG	PROFILE GRADE
PI	POINT OF INTERSECTION
PJP	PARTIAL JOINT PENETRATION
Pkwy	PARKWAY
ℙ,PL	PLATE
P/L	PROPERTY LINE
PM	POST MILE,
	TIME FROM NOON TO MIDNIGHT
PN	PAVING NOTCH
POC	POINT OF HORIZONTAL CURVE
POT	POINT OF TANGENT
POVC	POINT OF VERTICAL CURVE
PP	PIPE PILE,
	PLASTIC PIPE,
	POWER POLE
PPL	PREFORMED PERMEABLE LINER
PPP	PERFORATED PLASTIC PIPE
PRC	POINT OF REVERSE CURVE
PRF	PAVEMENT REINFORCING FABRIC
PRVC	POINT OF REVERSE VERTICAL CURVE
PS&E	PLANS, SPECIFICATIONS AND ESTIMATES
PS, P/S	PRESTRESSED
PSP	PERFORATED STEEL PIPE
PT	POINT OF TANGENCY
PVC	POLYVINYL CHLORIDE
Pvmt	PAVEMENT

Q

Qty	QUANTITY

R

R	RADIUS
R & D	REMOVE AND DISPOSE
R & S	REMOVE AND SALVAGE
R/C	RATE OF CHANGE
RCA	REINFORCED CONCRETE ARCH
RCB	REINFORCED CONCRETE BOX
RCP	REINFORCED CONCRETE PIPE
RCPA	REINFORCED CONCRETE PIPE ARCH
Rd	ROAD
Reinf	REINFORCED,
	REINFORCEMENT,
	REINFORCING
Rel	RELOCATE
Repl	REPLACEMENT
Ret	RETAINING
Rev	REVISED, REVISION
Rdwy	ROADWAY
RHMA	RUBBERIZED HOT MIX ASPHALT
Riv	RIVER
RM	ROAD-MIXED
RP	RADIUS POINT,
	REFERENCE POINT
RR	RAILROAD
RSP	ROCK SLOPE PROTECTION,
	REVISED STANDARD PLAN
Rt	RIGHT
Rte	ROUTE
RW	REDWOOD,
	RETAINING WALL
R/W	RIGHT OF WAY
Rwy	RAILWAY

S

S	SOUTH,
	SUPPLEMENT
SAE	STRUCTURE APPROACH EMBANKMENT
Salv	SALVAGE
SAPP	STRUCTURAL ALUMINUM PLATE PIPE
SB	SOUTHBOUND
SC	SAND CUSHION
SCSP	SLOTTED CORRUGATED STEEL PIPE
SD	STORM DRAIN
Sec	SECOND,
	SECTION
Sep	SEPARATION
SG	SUBGRADE
Shld	SHOULDER
Sht	SHEET
Sim	SIMILAR
℄	STATION LINE
SM	SELECTED MATERIAL
Spec	SPECIAL,
	SPECIFICATIONS
SPP	SLOTTED PLASTIC PIPE
SS	SLOPE STAKE
SSBM	STRAP AND SADDLE BRACKET METHOD
SSD	STRUCTURAL SECTION DRAIN
SSPA	STRUCTURAL STEEL PLATE ARCH
SSPP	STRUCTURAL STEEL PLATE PIPE
SSPPA	STRUCTURAL STEEL PLATE PIPE ARCH
SSRP	STEEL SPIRAL RIB PIPE
St	STREET
Sta	STATION
STBB	SINGLE THRIE BEAM BARRIER
Std	STANDARD
Str	STRUCTURE
Surf	SURFACING
SW	SIDEWALK,
	SOUND WALL
Swr	SEWER
Sym	SYMMETRICAL
S4S	SURFACE 4 SIDES

T

T	SEMI-TANGENT
Tan	TANGENT
TBB	THRIE BEAM BARRIER
Tbr	TIMBER
TC	TOP OF CURB
TCB	TRAFFIC CONTROL BOX
TCE	TEMPORARY CONSTRUCTION EASEMENT
Tel	TELEPHONE
Temp	TEMPORARY
TG	TOP OF GRADE
Tot	TOTAL
TP	TELEPHONE POLE
TPB	TREATED PERMEABLE BASE
TPM	TREATED PERMEABLE MATERIAL
Trans	TRANSITION

T continued

TS	TRANSVERSE,
	TRAFFIC SIGNAL,
	TUBULAR STEEL
Typ	TYPICAL

U

UC	UNDERCROSSING
UD	UNDERDRAIN
UG	UNDERGROUND
UON	UNLESS OTHERWISE NOTED
UP	UNDERPASS

V

V	VALVE,
	DESIGN SPEED
Var	VARIABLE,
	VARIES
VC	VERTICAL CURVE
VCP	VITRIFIED CLAY PIPE
Vert	VERTICAL
Via	VIADUCT
Vol	VOLUME

W

W	WEST,
	WIDTH
WB	WESTBOUND
WH	WEEP HOLE
WM	WIRE MESH
WS	WATER SURFACE
WSP	WELDED STEEL PIPE
Wt	WEIGHT
WV	WATER VALVE
WW	WINGWALL
WWLOL	WINGWALL LAYOUT LINE

X

X Sec	CROSS SECTION
Xing	CROSSING

Y

Yr	YEAR
Yrs	YEARS

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	91,110	6.1/R11.4, 9.6/10.3	36	58

Grace M. Tsushima
REGISTERED CIVIL ENGINEER

July 19, 2013
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
Grace M. Tsushima
No. C49814
Exp. 9-30-14
CIVIL
STATE OF CALIFORNIA

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TO ACCOMPANY PLANS DATED 2-8-16

2010 REVISED STANDARD PLAN RSP A10B

UNIT OF MEASUREMENT SYMBOLS:

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

TABLE A

SYMBOL USED	DEFINITIONS
ACRE	ACRE
CF	CUBIC FOOT
CY	CUBIC YARD
EA	EACH
GAL	GALLON
LB	POUND
LF	LINEAR FOOT
SQFT	SQUARE FOOT
SQYD	SQUARE YARD
STA	100 FEET
TAB	TABLET
TON	2,000 POUNDS

Some of the symbols used in the plans other than in the project plan quantity tables are:

TABLE B

SYMBOL USED	DEFINITIONS
ksi	KIPS PER SQUARE INCH
ksf	KIPS PER SQUARE FOOT
psi	POUNDS PER SQUARE INCH
psf	POUNDS PER SQUARE FOOT
lb/ft^3, pcf	POUNDS PER CUBIC FOOT
tsf	TONS PER SQUARE FOOT
mph, MPH *	MILES PER HOUR
ø	NOMINAL DIAMETER
oz	OUNCE
lb	POUND
kip	1,000 POUNDS
cal	CALORIE
ft	FOOT OR FEET
gal	GALLON

* For use on a sign panel only

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

ABBREVIATIONS (SHEET 2 OF 2)

NO SCALE

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

REVISED STANDARD PLAN RSP A10B

6-7-13

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	91,110	6.1/R11.4, 9.6/10.3	37	58

REGISTERED CIVIL ENGINEER

July 19, 2013
PLANS APPROVAL DATE

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

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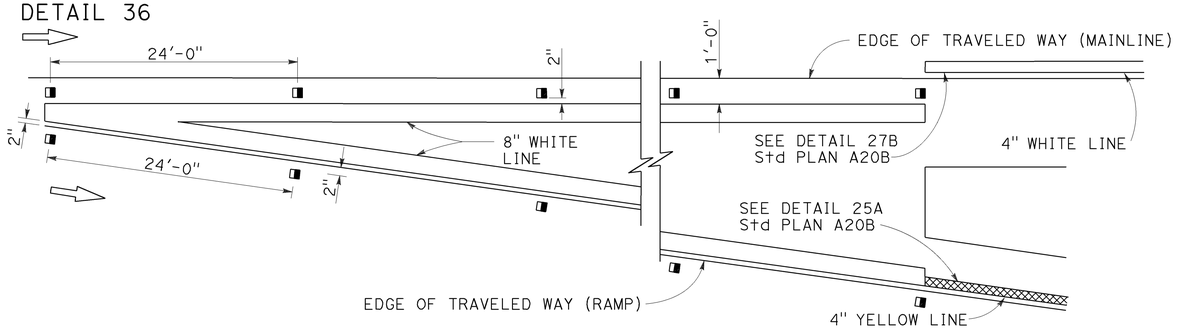
TO ACCOMPANY PLANS DATED 2-8-16

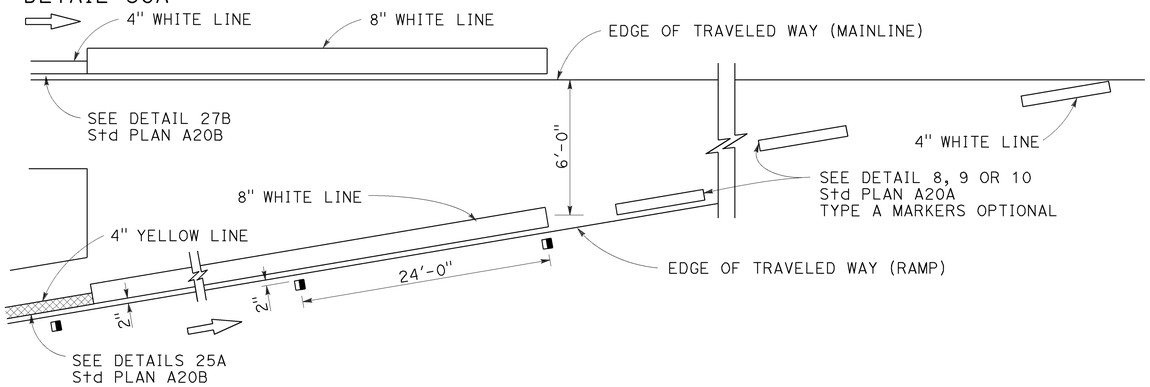
EXIT RAMP NEUTRAL AREA (GORE) TREATMENT

DETAIL 36



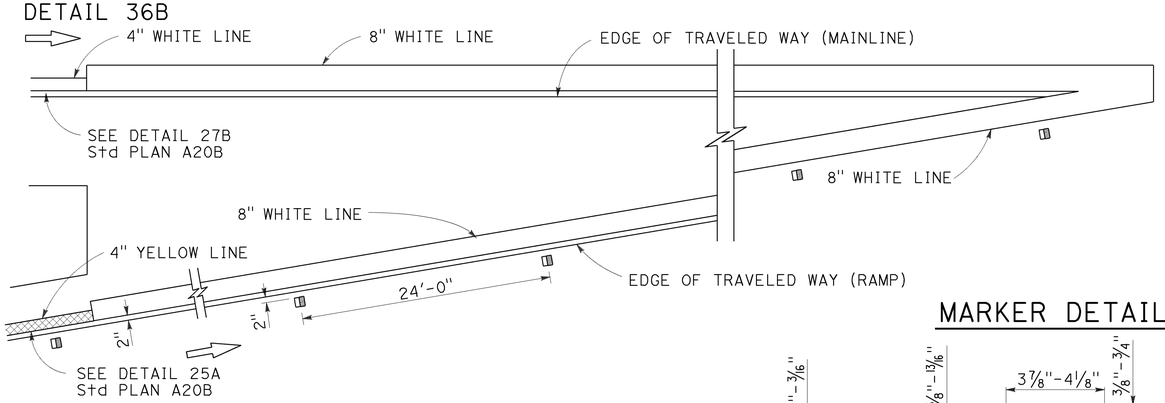
ENTRANCE RAMP NEUTRAL AREA (MERGE) TREATMENT

DETAIL 36A



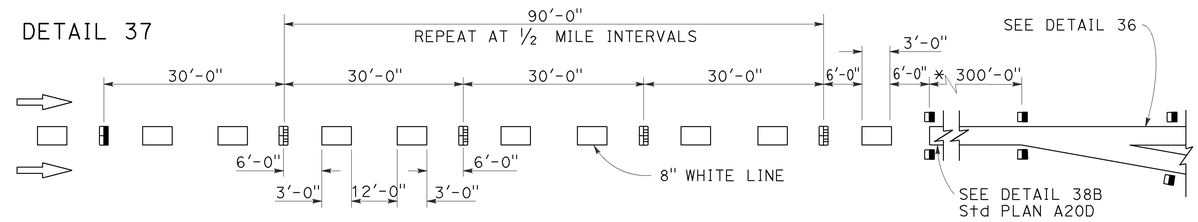
ENTRANCE RAMP NEUTRAL AREA (ACCELERATION LANE) TREATMENT

DETAIL 36B

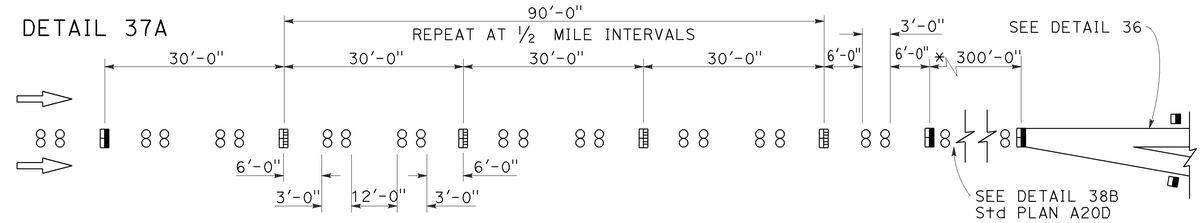


LANE DROP AT EXIT RAMPS

DETAIL 37



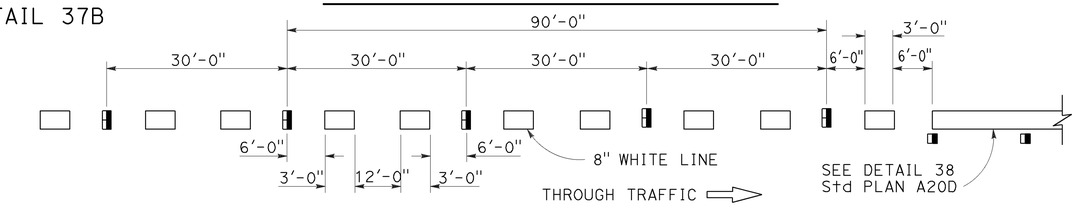
DETAIL 37A



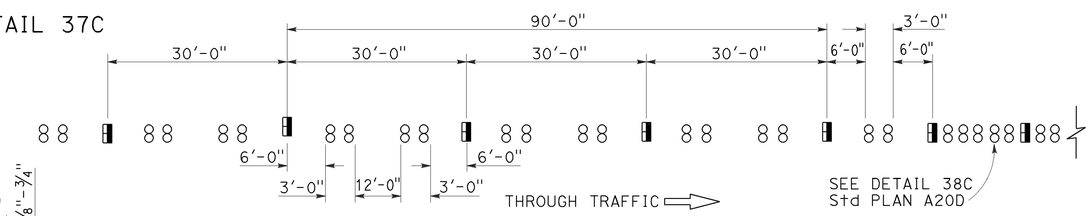
* The solid channelizing line shown may be omitted on short auxiliary lanes where weaving length is critical.

LANE DROP AT INTERSECTIONS

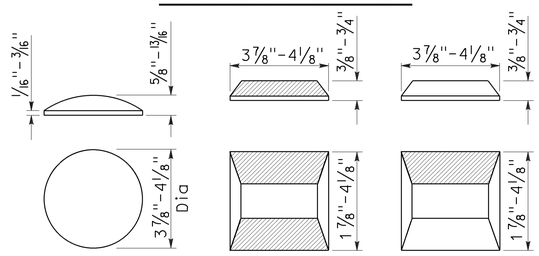
DETAIL 37B



DETAIL 37C



MARKER DETAILS



RETROREFLECTIVE FACE

LEGEND:

MARKERS

- ○ TYPE A WHITE NON-REFLECTIVE
- ⊞ TYPE C RED-CLEAR RETROREFLECTIVE
- ◨ TYPE G ONE-WAY CLEAR RETROREFLECTIVE

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

PAVEMENT MARKERS AND TRAFFIC LINE TYPICAL DETAILS

NO SCALE

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

REVISED STANDARD PLAN RSP A20C

2010 REVISED STANDARD PLAN RSP A20C

4-29-13

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	91,110	6.1/R11.4, 9.6/10.3	38	58

REGISTERED CIVIL ENGINEER

April 20, 2012
PLANS APPROVAL DATE

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

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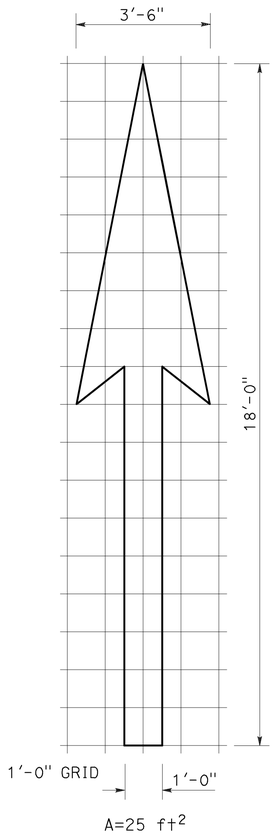
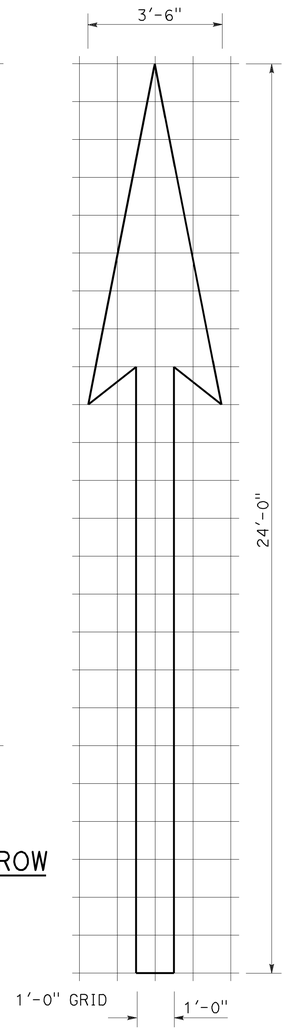
TO ACCOMPANY PLANS DATED 2-8-16



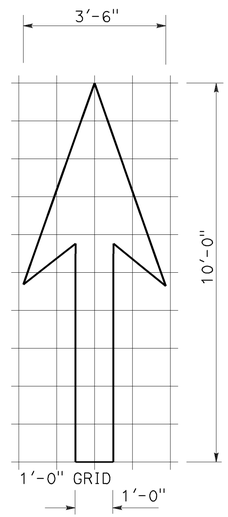
A=25 ft^2

TYPE I 18'-0" ARROW



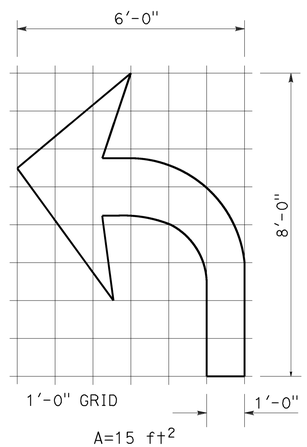
A=31 ft^2

TYPE I 24'-0" ARROW



A=14 ft^2

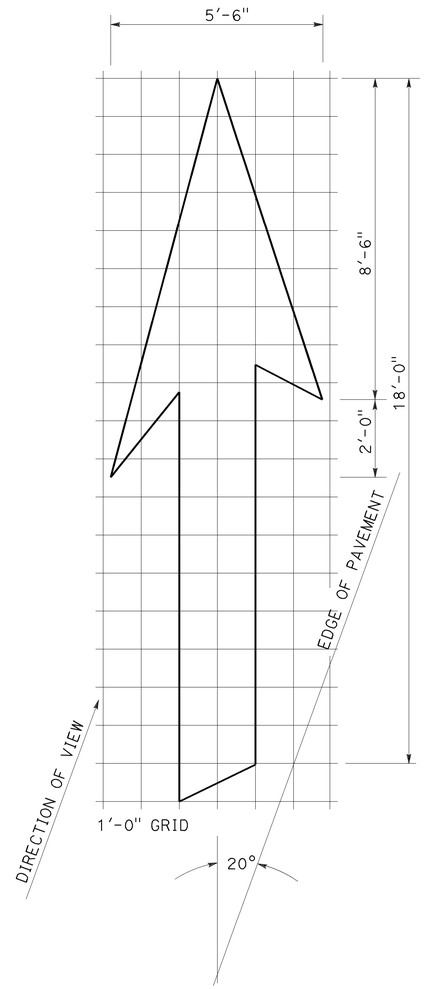
TYPE I 10'-0" ARROW



A=15 ft^2

TYPE IV (L) ARROW

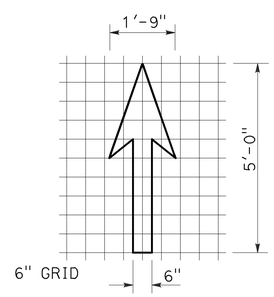
(For Type IV (R) arrow, use mirror image)



A=42 ft^2

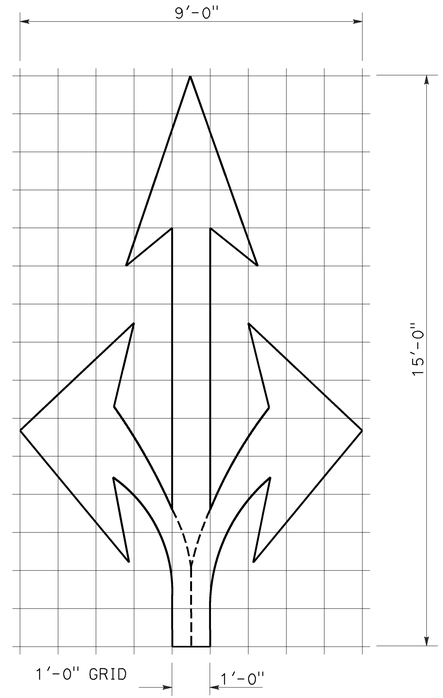
TYPE VI ARROW

Right lane drop arrow
(For left lane, use mirror image)



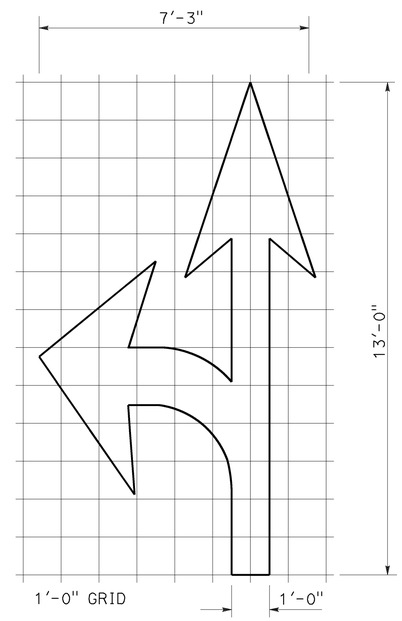
A=3.5 ft^2

BIKE LANE ARROW



A=36 ft^2

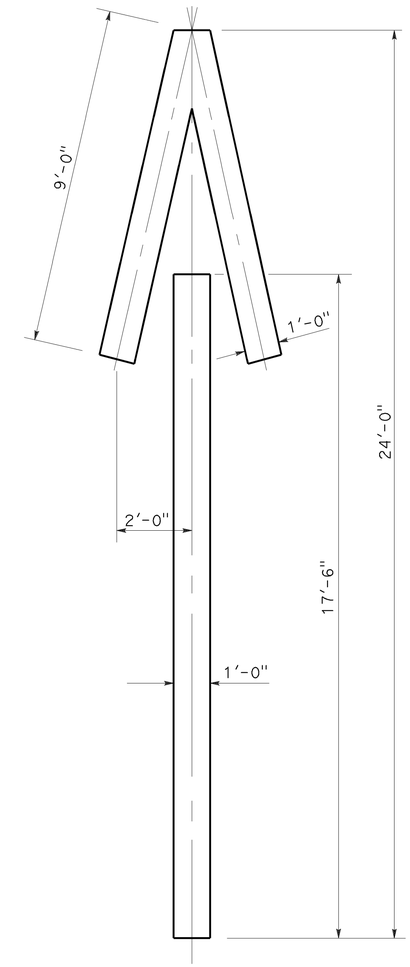
TYPE VIII ARROW



A=27 ft^2

TYPE VII (L) ARROW

(For Type VII (R) arrow, use mirror image)



A=33 ft^2

TYPE V ARROW

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

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

PAVEMENT MARKINGS ARROWS

NO SCALE

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

REVISED STANDARD PLAN RSP A24A

2010 REVISED STANDARD PLAN RSP A24A

3-14-12

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	91,110	6.1/R11.4, 9.6/10.3	39	58

REGISTERED CIVIL ENGINEER

October 19, 2012
PLANS APPROVAL DATE

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

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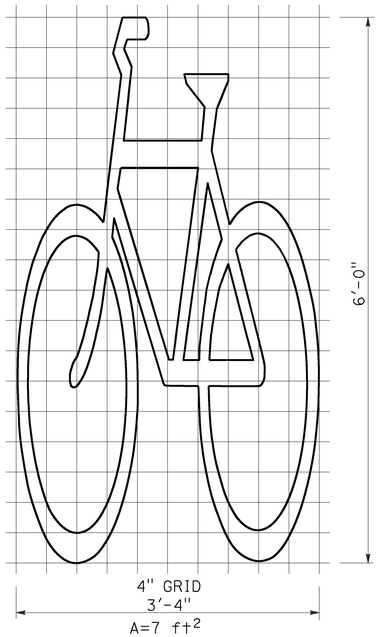
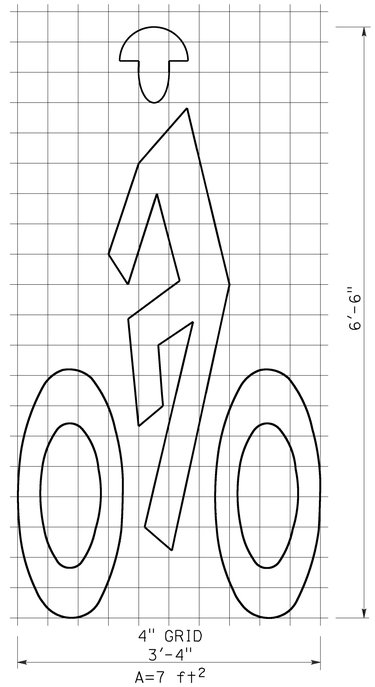
NOTE: TO ACCOMPANY PLANS DATED 2-8-16

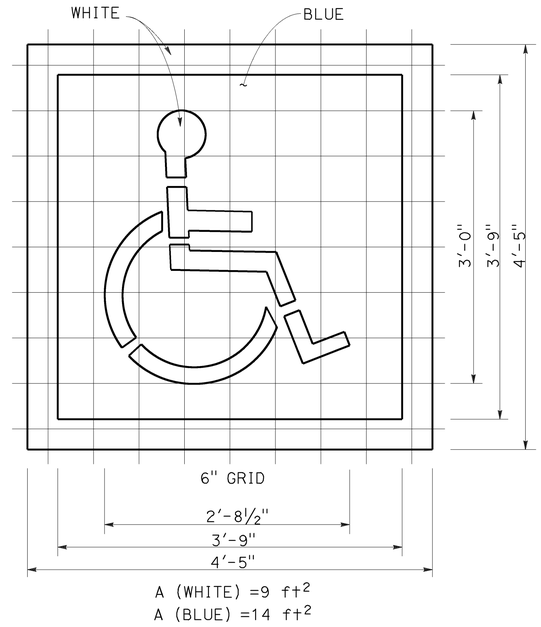
Minor variations in dimensions may be accepted by the Engineer.



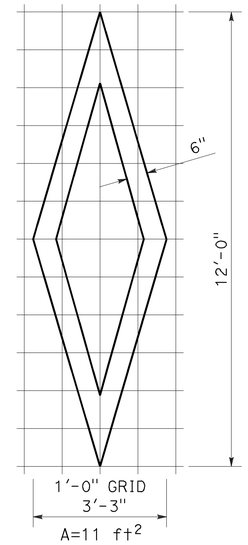
BIKE LANE SYMBOL WITHOUT PERSON



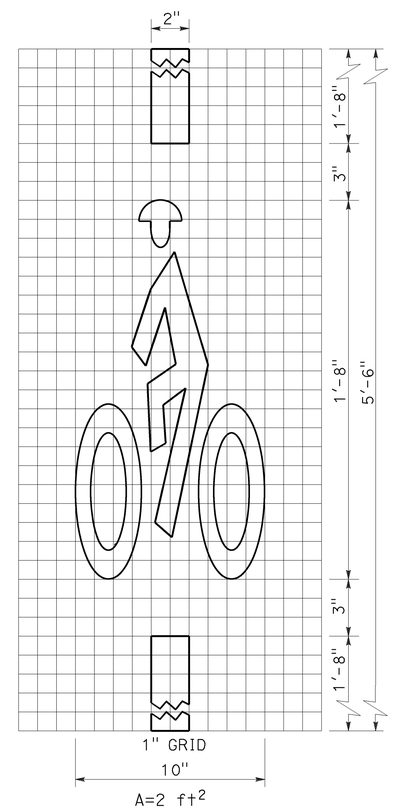
BIKE LANE SYMBOL WITH PERSON



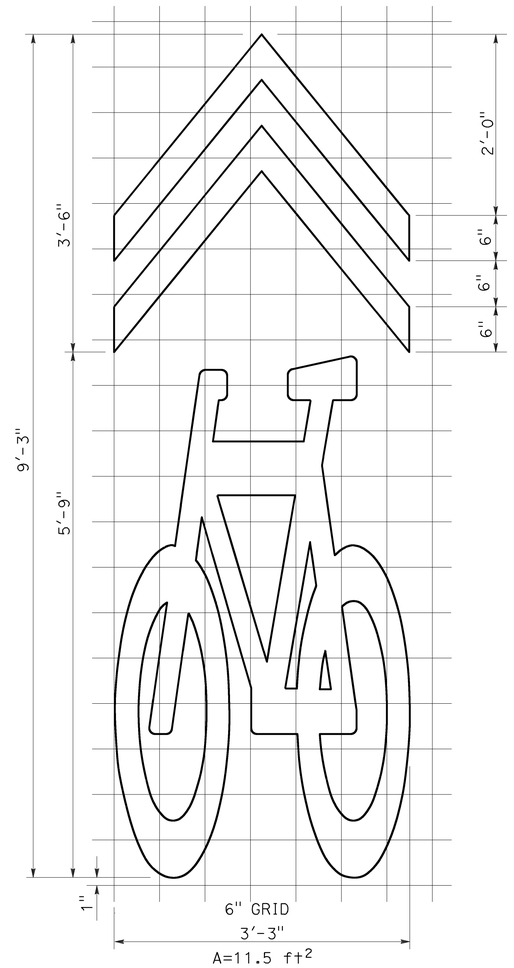
INTERNATIONAL SYMBOL OF ACCESSIBILITY (ISA) MARKING



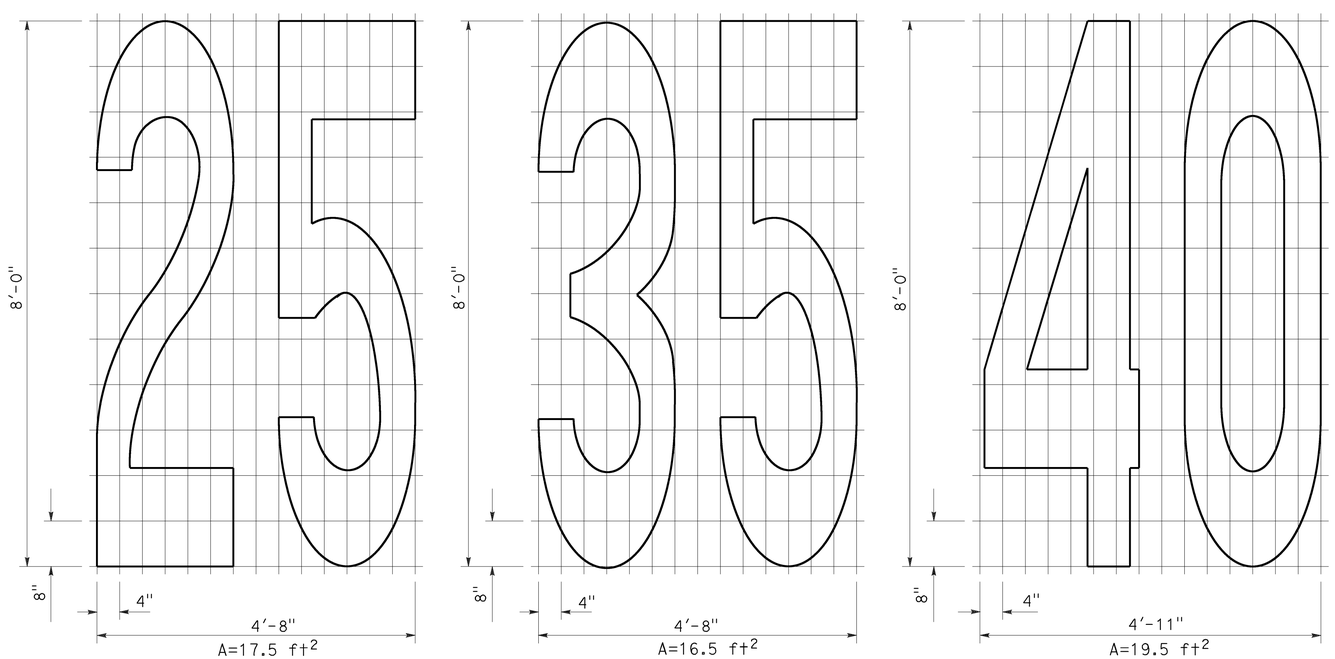
DIAMOND SYMBOL



BICYCLE LOOP DETECTOR SYMBOL



SHARED ROADWAY BICYCLE MARKING



NUMERALS

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

PAVEMENT MARKINGS SYMBOLS AND NUMERALS

NO SCALE

RSP A24C DATED OCTOBER 19, 2012 SUPERSEDES STANDARD PLAN A24C DATED MAY 20, 2011 - PAGE 15 OF THE STANDARD PLANS BOOK DATED 2010.

REVISED STANDARD PLAN RSP A24C

2010 REVISED STANDARD PLAN RSP A24C

6-28-12

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	91,110	6.1/R11.4, 9.6/10.3	40	58

REGISTERED CIVIL ENGINEER

July 20, 2012
PLANS APPROVAL DATE

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

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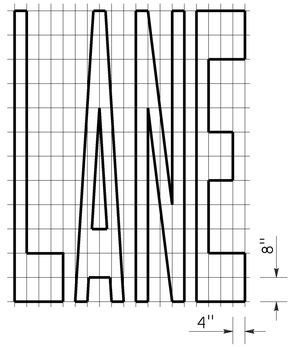
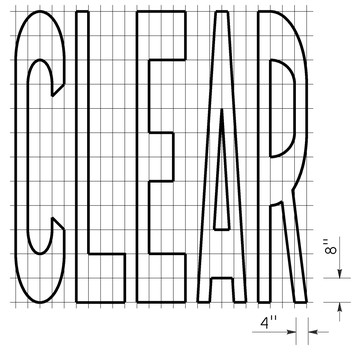
TO ACCOMPANY PLANS DATED 2-8-16



A=24 ft^2



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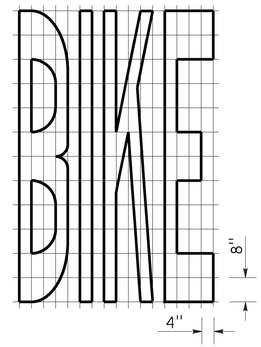

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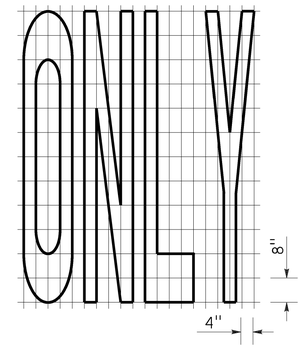

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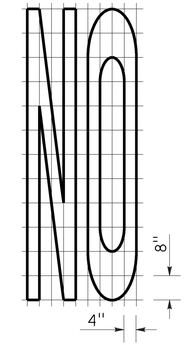

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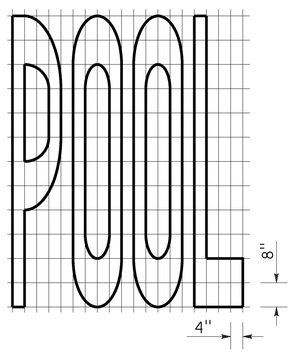

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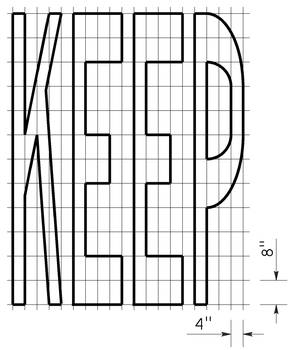

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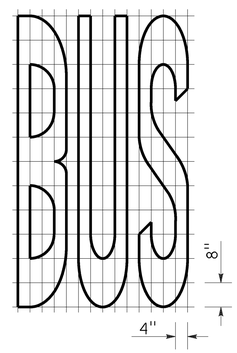

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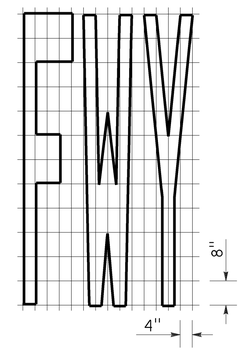

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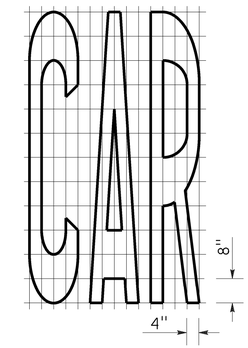
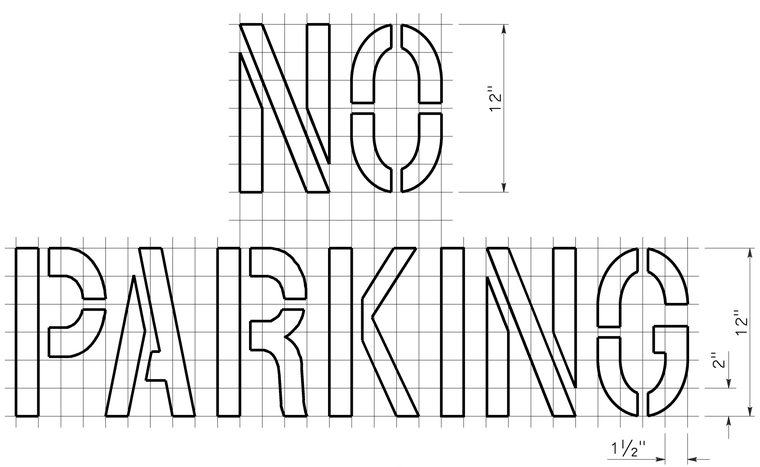
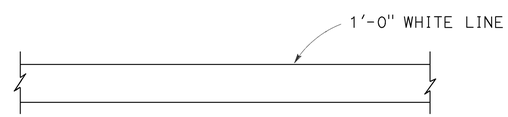


A=17 ft^2

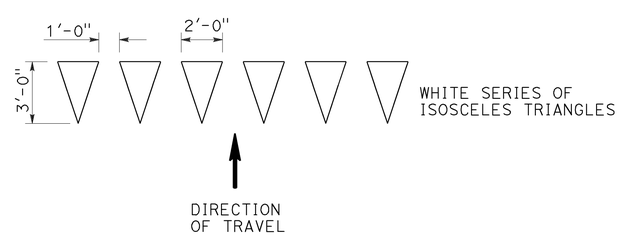
WORD MARKINGS			
ITEM	ft^2	ITEM	ft^2
LANE	24	NO	14
POOL	23	BIKE	21
CAR	17	BUS	20
CLEAR	27	ONLY	22
KEEP	24	FWY	16



A=2 ft^2
See Notes 6 and 7



LIMIT LINE (STOP LINE)



YIELD LINE

NOTES:

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

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

PAVEMENT MARKINGS WORDS, LIMIT AND YIELD LINES

NO SCALE

RSP A24E DATED JULY 20, 2012 SUPERSEDES STANDARD PLAN A24E
DATED MAY 20, 2011 - PAGE 17 OF THE STANDARD PLANS BOOK DATED 2010.

REVISED STANDARD PLAN RSP A24E

2010 REVISED STANDARD PLAN RSP A24E

6-12-12

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	91,110	6.1/R11.4, 9.6/10.3	41	58

REGISTERED CIVIL ENGINEER

July 20, 2012
PLANS APPROVAL DATE

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

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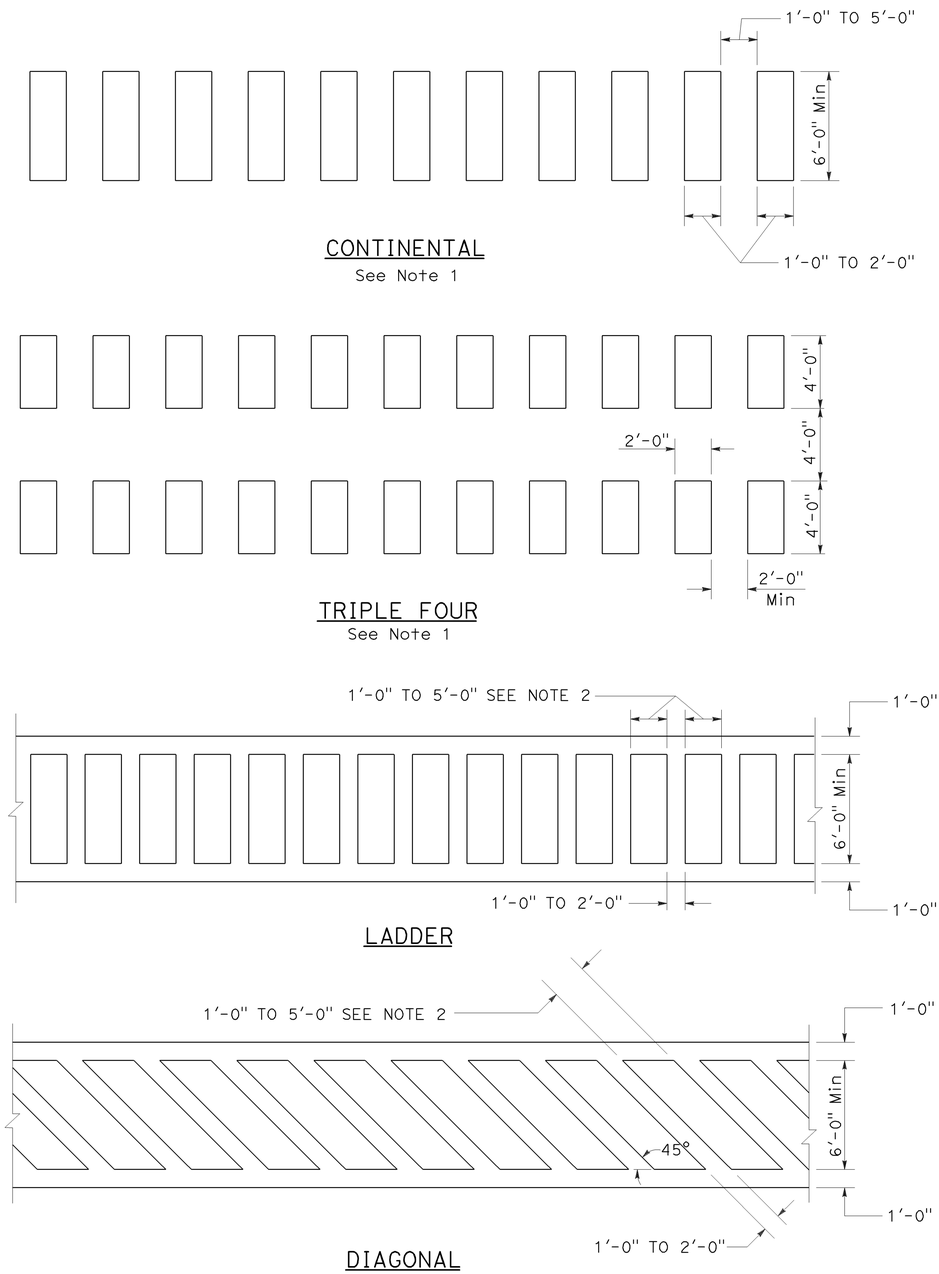
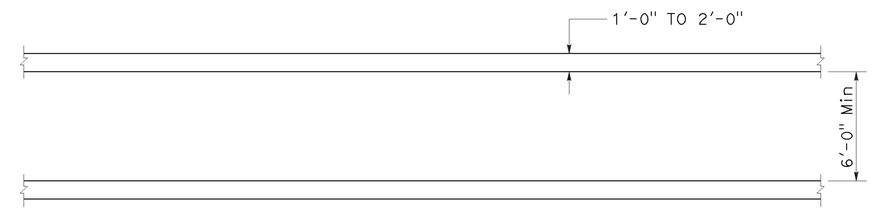
TO ACCOMPANY PLANS DATED 2-8-16



HIGHER VISIBILITY CROSSWALKS

NOTES:

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



BASIC

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

PAVEMENT MARKINGS CROSSWALKS

NO SCALE

RSP A24F DATED JULY 20, 2012 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.

REVISED STANDARD PLAN RSP A24F

2010 REVISED STANDARD PLAN RSP A24F

6-28-12

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	91,110	6.1/R11.4, 9.6/10.3	42	58

William K. Farnbach
REGISTERED CIVIL ENGINEER

July 19, 2013
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER William K. Farnbach No. C49042 Exp. 9-30-14 CIVIL STATE OF CALIFORNIA

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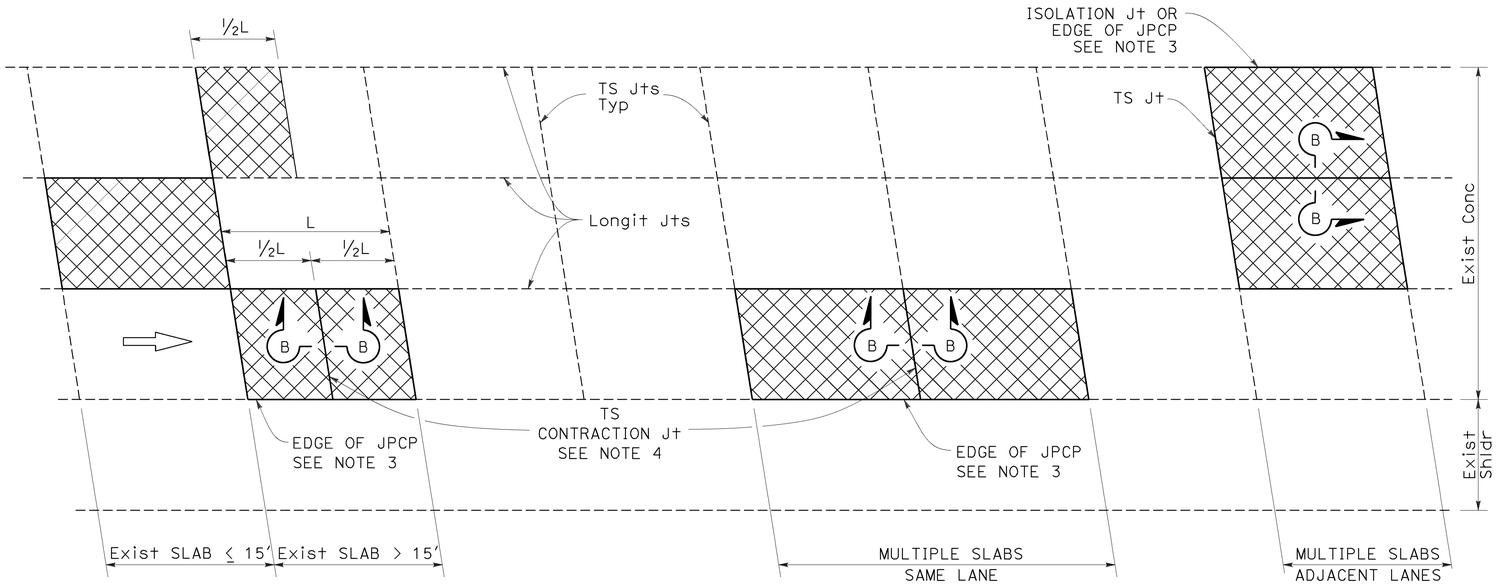
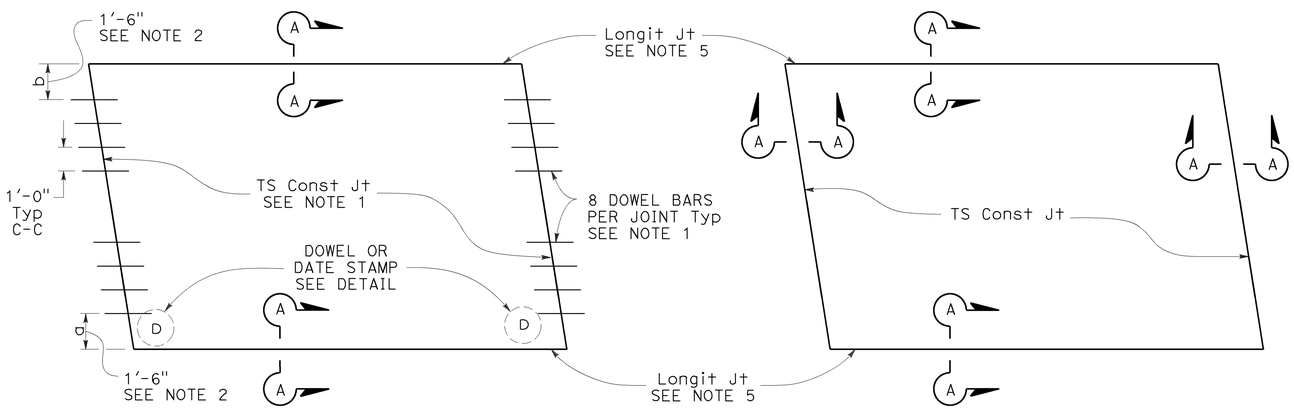
TO ACCOMPANY PLANS DATED 2-8-16



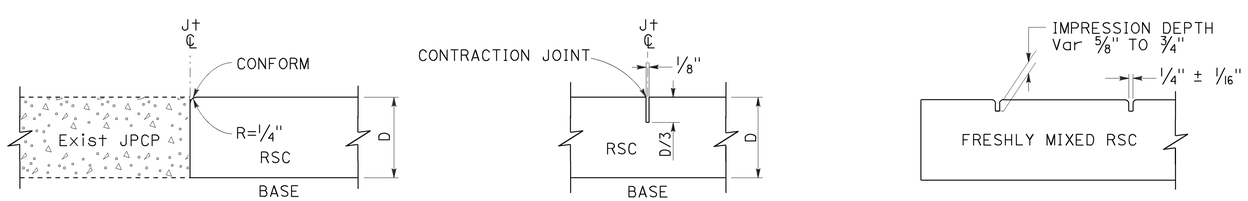
PLAN



TYPE I
See Design Note 1

TYPE II
See Design Note 2

SLAB LAYOUT



SECTION A-A

SECTION B-B

SECTION C-C

LEGEND:

RSC RAPID STRENGTH CONCRETE

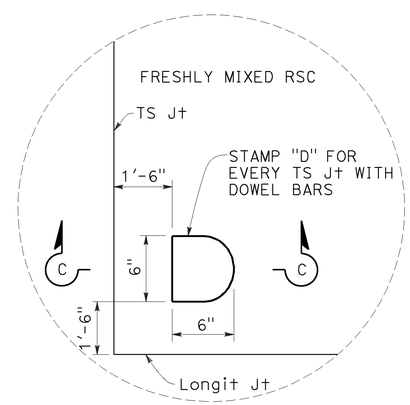
INDIVIDUAL SLAB REPLACEMENT WITH RSC

NOTES:

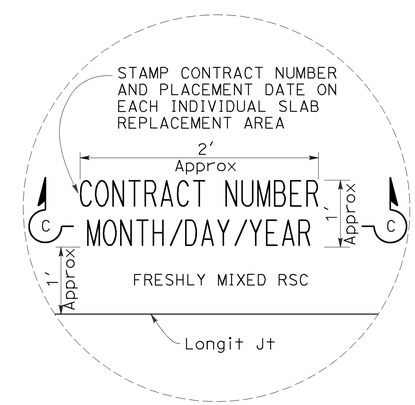
1. For details not shown, see Revised Standard Plan RSP P10.
2. Where the existing outside shoulder is asphalt concrete pavement, "a" = 1'-0" and "b" = 2'-0".
3. Use side forms where edge of RSC pavement is adjacent to asphalt concrete.
4. Transverse contraction joint to match skew of existing joint. Omit dowel bars.
5. Do not place tie bars at longitudinal joints.

DESIGN NOTES:

1. For concrete slab repair with at least 5 years design life.
2. For short term repairs < 5 yrs design life or for slab replacements with cracking and seating.



DOWEL STAMP DETAIL



DATE STAMP DETAIL

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

INDIVIDUAL SLAB REPLACEMENT WITH RAPID STRENGTH CONCRETE

NO SCALE

RSP P8 DATED JULY 19, 2013 SUPERSEDES RSP P8 DATED APRIL 20, 2012 AND STANDARD PLAN P8 DATED MAY 20, 2011 - PAGE 130 OF THE STANDARD PLANS BOOK DATED 2010.

REVISED STANDARD PLAN RSP P8

2010 REVISED STANDARD PLAN RSP P8

5-31-13

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	91,110	6.1/R11.4, 9.6/10.3	43	58

William K. Farnbach
REGISTERED CIVIL ENGINEER

July 19, 2013
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER William K. Farnbach No. C49042 Exp. 9-30-14 CIVIL STATE OF CALIFORNIA

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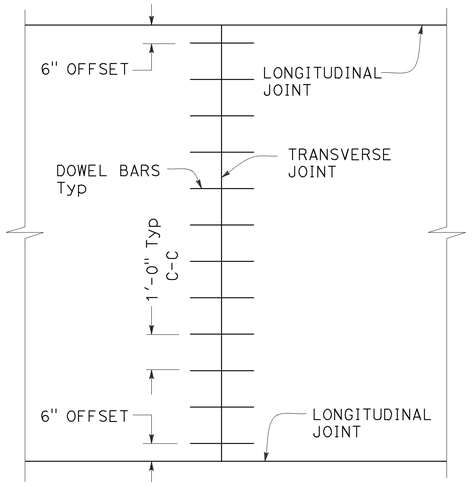
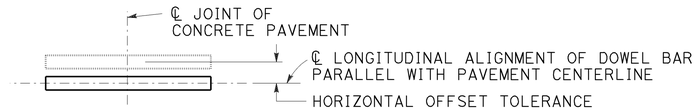
TO ACCOMPANY PLANS DATED 2-8-16

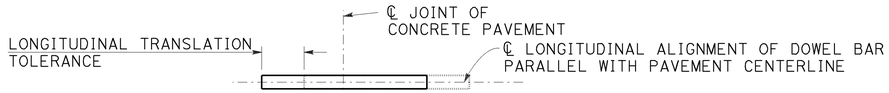


TRANSVERSE JOINT DOWEL BAR LAYOUT



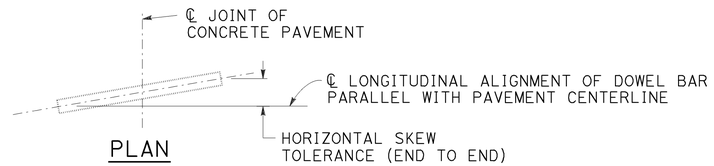
PLAN

HORIZONTAL OFFSET TOLERANCE



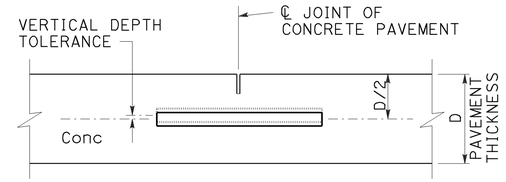
PLAN

LONGITUDINAL TRANSLATION TOLERANCE



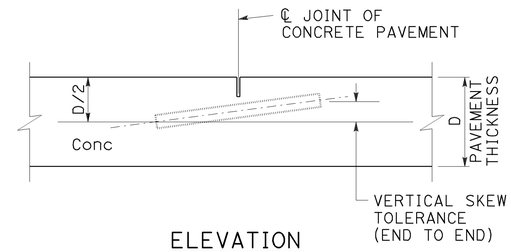
PLAN

HORIZONTAL SKEW TOLERANCE



ELEVATION

VERTICAL DEPTH TOLERANCE

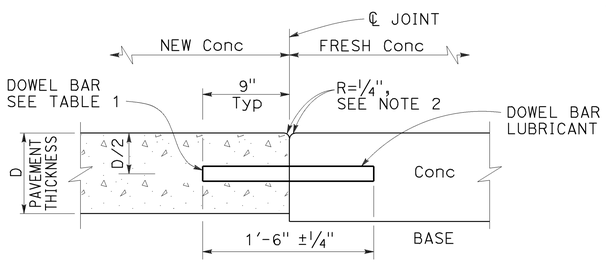


ELEVATION

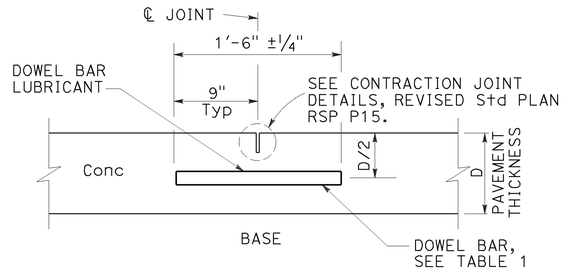
VERTICAL SKEW TOLERANCE

NOTES:

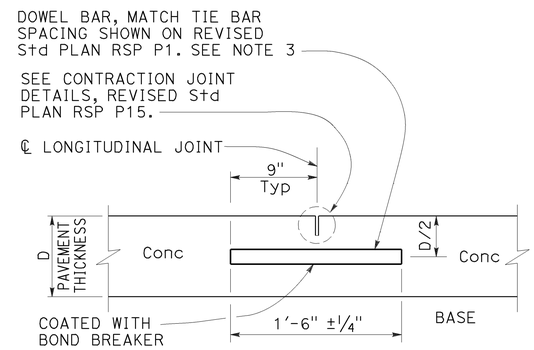
1. See Revised Standard Plan RSP P1 for typical dowel bar placement and locations.
2. Where fresh concrete pavement is placed against new concrete or existing concrete pavement, rounding the corner of the existing concrete pavement is not required.
3. May also use ¾" Dia dowel bars 2'-4" ± ¼" in length. Center the length of dowel bars at the centerline of longitudinal joint.



TRANSVERSE CONSTRUCTION JOINT DETAIL



TRANSVERSE CONTRACTION JOINT



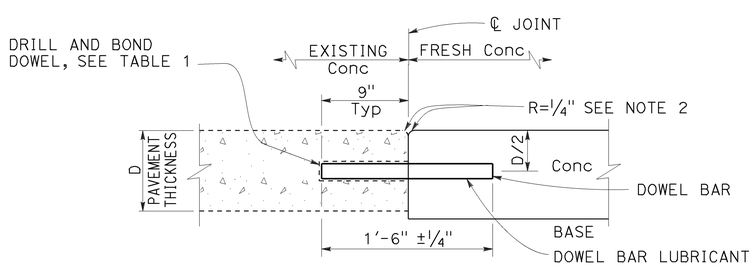
LONGITUDINAL CONTRACTION JOINT WITH DOWEL BARS

See Revised Std Plan RSP P18

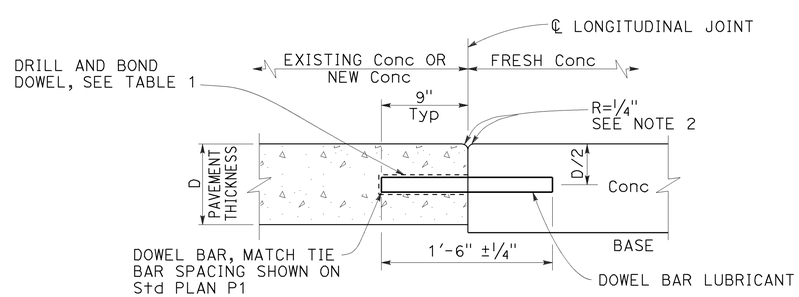
TABLE 1

DOWEL BAR DIAMETER TABLE			
PAVEMENT THICKNESS	0.65'	> 0.65' - 0.85'	> 0.85'
MINIMUM DOWEL * BAR DIAMETER	1"	1¼"	1½"

* The drilled hole diameter must be ⅛" to 3/16" larger than the bar diameter.



TRANSVERSE CONSTRUCTION JOINT FOR EXISTING CONCRETE PAVEMENT



LONGITUDINAL CONSTRUCTION JOINT WITH DOWEL BARS

See Revised Std Plan RSP P18

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

CONCRETE PAVEMENT DOWEL BAR DETAILS

NO SCALE

RSP P10 DATED JULY 19, 2013 SUPERSEDES RSP P10 DATED APRIL 20, 2012 AND STANDARD PLAN P10 DATED MAY 20, 2011 - PAGE 131 OF THE STANDARD PLANS BOOK DATED 2010.

REVISED STANDARD PLAN RSP P10

2010 REVISED STANDARD PLAN RSP P10

5-31-13

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	91,110	6.1/R11.4, 9.6/10.3	44	58

William K. Farnbach
REGISTERED CIVIL ENGINEER

July 19, 2013
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER William K. Farnbach No. C49042 Exp. 9-30-14 CIVIL STATE OF CALIFORNIA

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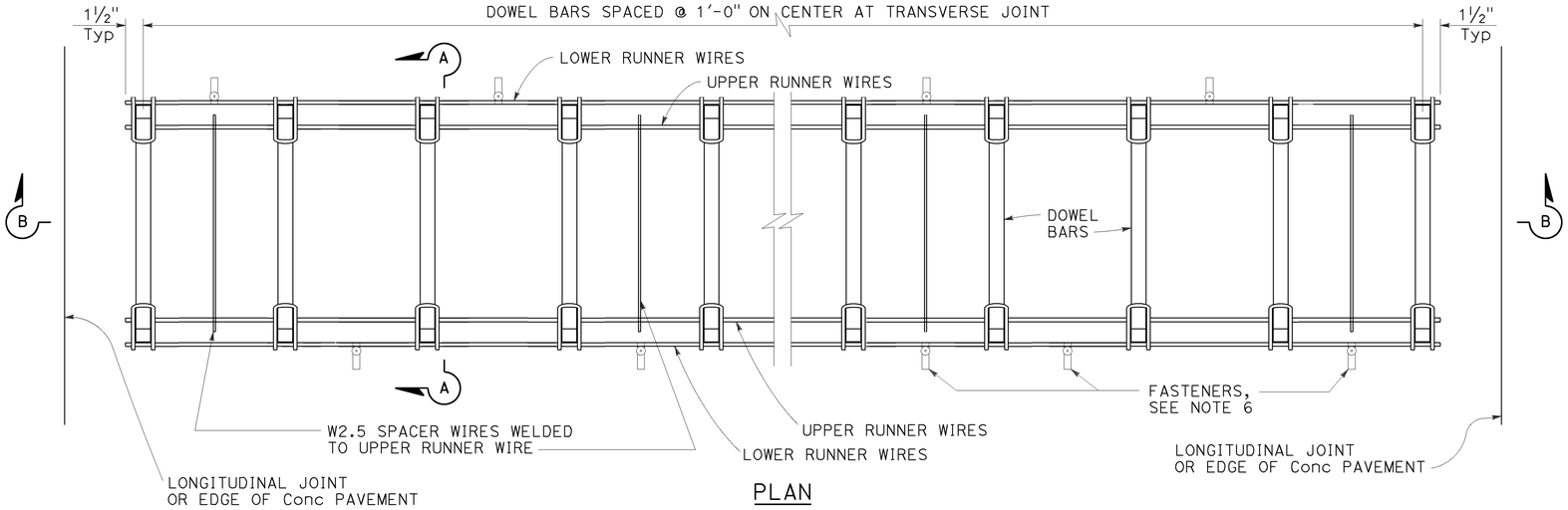
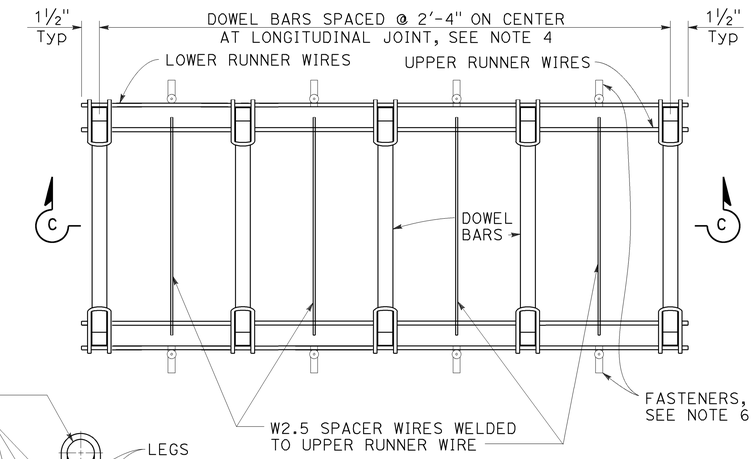
TO ACCOMPANY PLANS DATED 2-8-16



PLAN

DOWEL BAR BASKET (TRANSVERSE JOINT)

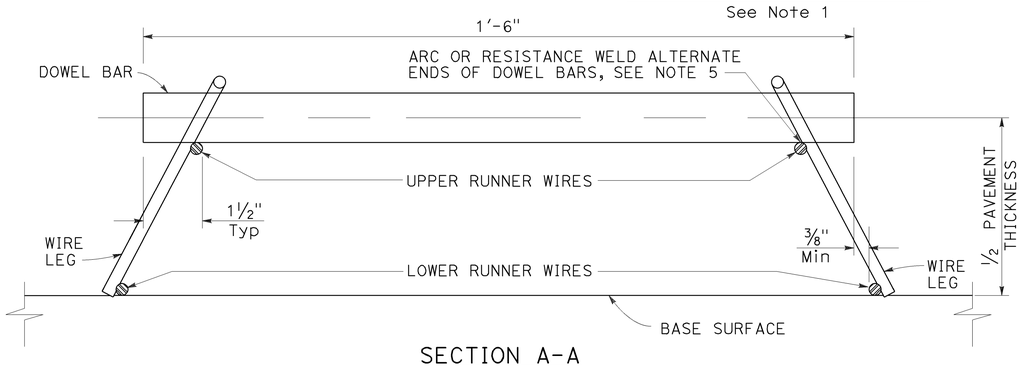
See Note 1



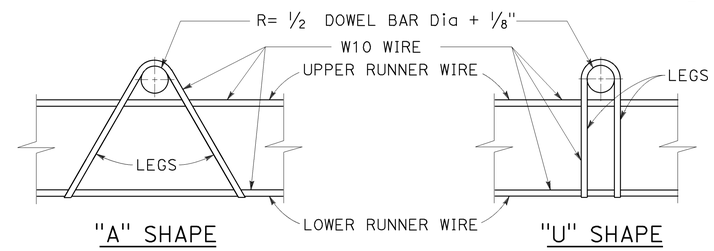
PLAN

DOWEL BAR BASKET (LONGITUDINAL JOINT)

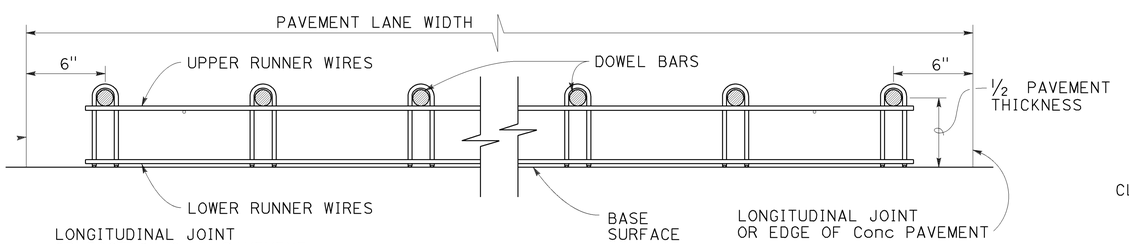
See Note 1



SECTION A-A

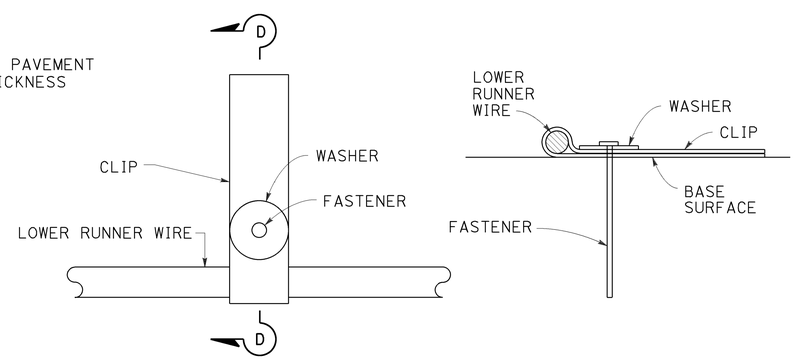


ASSEMBLY FRAME DETAILS



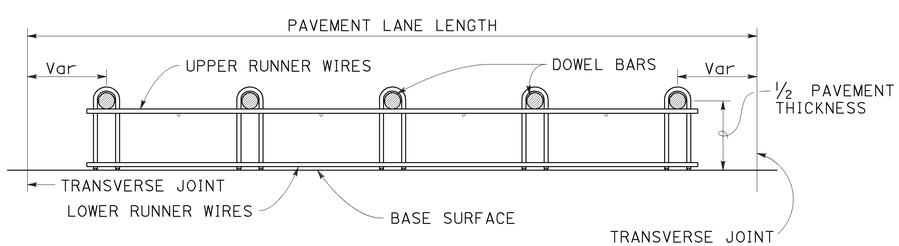
SECTION B-B

See Note 1



FASTENER DETAIL

See Note 6



SECTION C-C

See Notes 1 and 4

NOTES:

1. "U" frame shape assembly shown. Use either "U" frame shape or "A" frame shape.
2. Wire sizes shown are the minimum required.
3. All wire intersections must be resistance welded.
4. Use tie bar spacing for longitudinal dowel bar locations. See Revised Standard Plans RSP P1, RSP P2, RSP P3A, and RSP P3B for tie bar requirements.
5. Weld may be at the top or bottom of the dowel bar.
6. Use anchor pins where soil or granular base is used. See Revised Standard Plan RSP P17 for Anchor Pin Detail.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

CONCRETE PAVEMENT DOWEL BAR BASKET DETAILS

NO SCALE

RSP P12 DATED JULY 19, 2013 SUPERSEDES STANDARD PLAN P12
DATED MAY 20, 2011 - PAGE 132 OF THE STANDARD PLANS BOOK DATED 2010.

REVISED STANDARD PLAN RSP P12

2010 REVISED STANDARD PLAN RSP P12

5-31-13

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	91,110	6.1/R11.4, 9.6/10.3	45	58

William K. Farnbach
REGISTERED CIVIL ENGINEER

July 19, 2013
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER William K. Farnbach No. C49042 Exp. 9-30-14 CIVIL STATE OF CALIFORNIA

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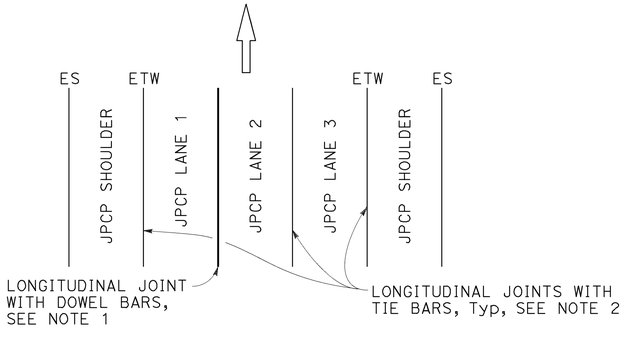
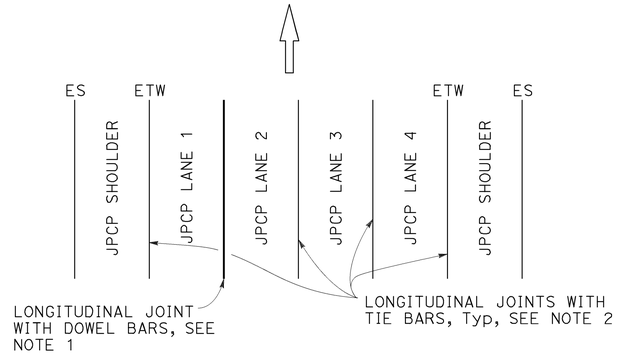
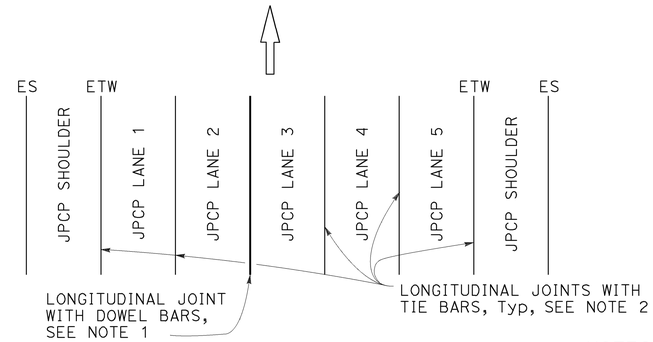
TO ACCOMPANY PLANS DATED 2-8-16



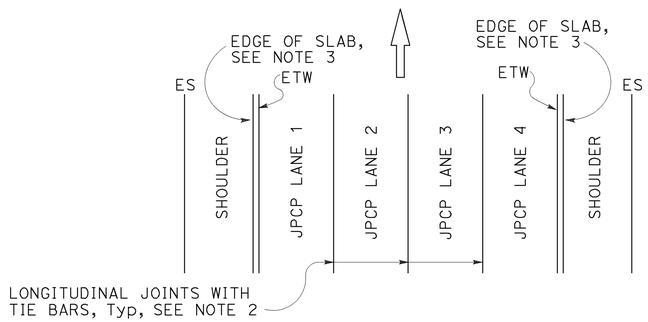
3 LANES WITH CONCRETE SHOULDERS
PLAN



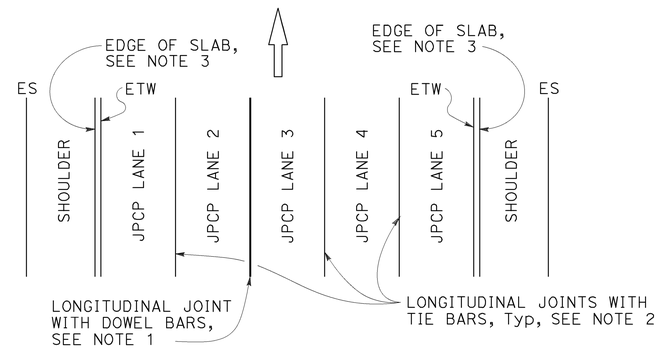
4 LANES WITH CONCRETE SHOULDERS
PLAN



5 LANES WITH CONCRETE SHOULDERS
PLAN



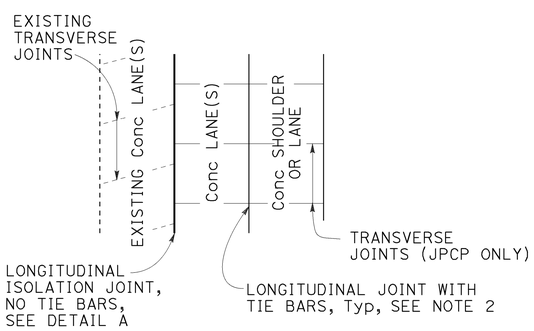
4 LANES OR LESS WITH AC SHOULDERS
PLAN



5 LANES WITH AC SHOULDERS
PLAN

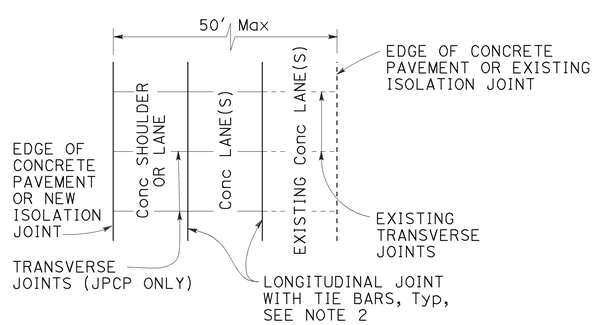
NEW CONSTRUCTION

Location of Longitudinal Joints
For JPCP



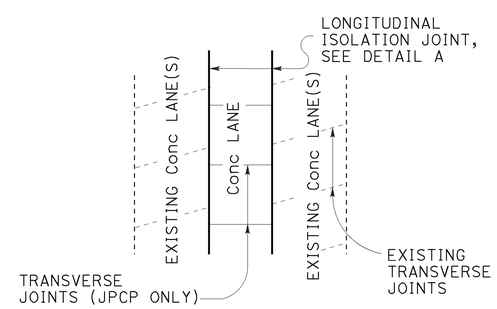
CASE 1
PLAN

Transverse Joints do not align between new and existing.



CASE 2
PLAN

Transverse Joints align between new and existing.
(For JPCP only)



CASE 3 (INTERIOR LANE REPLACEMENT)
PLAN

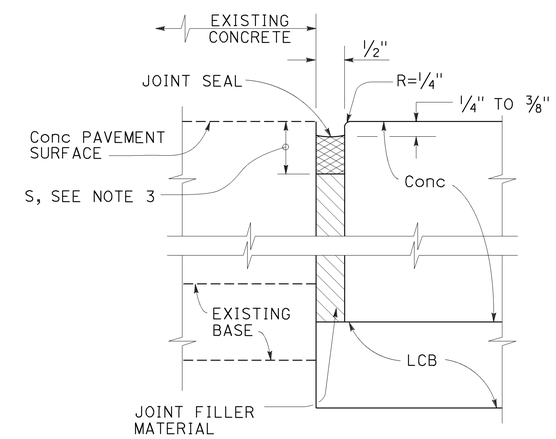
Transverse Joints do not align between new and existing.

LANE/SHOULDER ADDITION OR RECONSTRUCTION

For JPCP and CRCP

NOTES:

1. See Revised Standard Plan RSP P10 for longitudinal joint with dowel bars.
2. See Revised Standard Plan RSP P15 for longitudinal joint with tie bars.
3. S= Reservoir depth.
   S= 7/8" ± 1/16" for asphalt rubber seals
   S= 9/16" ± 1/16" for silicone seals
   Preformed compression seals must be 13/16" wide and S= 1 11/16" ± 1/16"



DETAIL "A"

ISOLATION JOINT

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

CONCRETE PAVEMENT LANE SCHEMATICS AND ISOLATION JOINT DETAIL

NO SCALE

RSP P18 DATED JULY 19, 2013 SUPERSEDES RSP P18 DATED APRIL 20, 2012 AND STANDARD PLAN P18 DATED MAY 20, 2011 - PAGE 135 OF THE STANDARD PLANS BOOK DATED 2010.

REVISED STANDARD PLAN RSP P18

2010 REVISED STANDARD PLAN RSP P18

5-31-13

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	91,110	6.1/R11.4, 9.6/10.3	46	58

William K. Farnbach
REGISTERED CIVIL ENGINEER

July 19, 2013
PLANS APPROVAL DATE

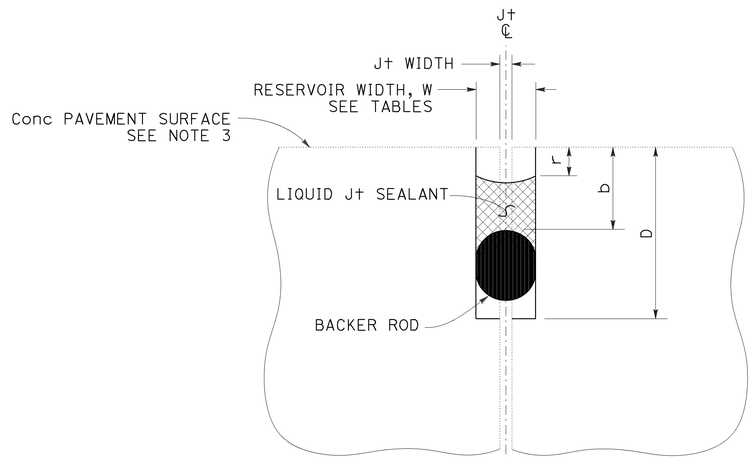
REGISTERED PROFESSIONAL ENGINEER
William K. Farnbach
No. C49042
Exp. 9-30-14
CIVIL
STATE OF CALIFORNIA

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

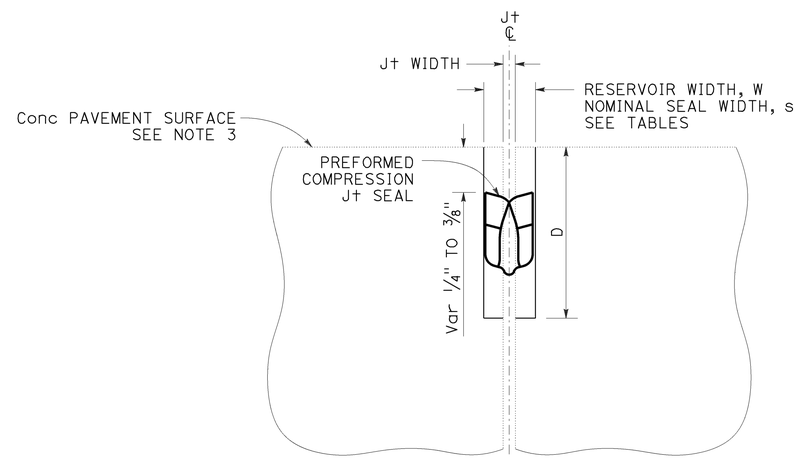
TO ACCOMPANY PLANS DATED 2-8-16

NOTES:

1. Details do not apply to isolation joints and longitudinal construction joints.
2. Tie bars, dowel bars, and bar reinforcement are not shown.
3. Depths are measured from the final concrete pavement surface elevation after any grinding.



LIQUID JOINT SEALANT



PREFORMED COMPRESSION JOINT SEAL

Const SEASON	Min RESERVOIR WIDTH * W ± 1/16"
WINTER	1/4"
SPRING	3/8"
SUMMER	3/8"
FALL	3/8"

* Minimum reservoir width for replace joint seal = existing joint width + 1/8"

RESERVOIR WIDTH W ±1/16"	LIQUID JOINT SEALANT DIMENSIONS					
	BACKER ROD NOMINAL Dia *	DEPTHS (ASPHALT RUBBER) **		DEPTHS (SILICONE)		
		RESERVOIR D ± 1/4"	BACKER ROD b ± 1/16"	RESERVOIR D ± 1/4"	BACKER ROD b ± 1/16"	RECESS r ± 1/16"
1/4"	3/8"	1 3/4"	7/8"	1 3/8"	1/2"	1/4"
3/8"	1/2"	1 7/8"	7/8"	1 1/2"	1/2"	1/4"
1/2"	3/4"	2"	7/8"	1 3/4"	9/16"	5/16"
5/8"	7/8"	2 1/4"	1"	2"	5/8"	5/16"
3/4"	1"	2 3/4"	1 1/8"	2 1/4"	3/4"	3/8"
7/8"	1 1/4"	3"	1 1/4"	2 1/2"	13/16"	3/8"
1"	1 1/2"	3 1/4"	1 3/8"	2 5/8"	7/8"	3/8"
1 1/8"	1 1/2"	3 1/2"	1 1/2"	2 13/16"	1"	1/2"

* Larger diameter backer rods may be substituted according to manufacturer recommendations if reservoir depth is increased equivalently.

** Asphalt rubber sealant recess depth "r" varies from 1/4" to 3/8"

RESERVOIR WIDTH W ±1/16"	PREFORMED COMPRESSION JOINT SEAL DIMENSIONS	
	NOMINAL SEAL WIDTH s	RESERVOIR DEPTH D ± 1/4"
1/4"	7/16"	1 1/4"
3/8"	11/16"	1 7/16"
1/2"	13/16"	1 11/16"
5/8"	1"	1 7/8"
3/4"	1 1/4"	2 1/8"
7/8"	1 5/8"	2 5/8"
1"	1 5/8"	2 5/8"
1 1/8"	2"	2 7/8"

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

JOINT SEALS

NO SCALE

RSP P20 DATED JULY 19, 2013 SUPERSEDES STANDARD PLAN P20
DATED MAY 20, 2011 - PAGE 136 OF THE STANDARD PLANS BOOK DATED 2010.

REVISED STANDARD PLAN RSP P20

2010 REVISED STANDARD PLAN RSP P20

6-17-13

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	91,110	6.1/R11.4, 9.6/10.3	47	58

REGISTERED CIVIL ENGINEER

July 19, 2013
PLANS APPROVAL DATE

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

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

TO ACCOMPANY PLANS DATED 2-8-16

TABLE 1

TAPER LENGTH CRITERIA AND CHANNELIZING DEVICE SPACING

SPEED (S)	MINIMUM TAPER LENGTH * FOR WIDTH OF OFFSET 12 FEET (W)				MAXIMUM CHANNELIZING DEVICE SPACING		
					X	Y	Z **
	TANGENT 2L	MERGING L	SHIFTING L/2	SHOULDER L/3	TAPER	TANGENT	CONFLICT
mph	ft	ft	ft	ft	ft	ft	ft
20	160	80	40	27	20	40	10
25	250	125	63	42	25	50	12
30	360	180	90	60	30	60	15
35	490	245	123	82	35	70	17
40	640	320	160	107	40	80	20
45	1080	540	270	180	45	90	22
50	1200	600	300	200	50	100	25
55	1320	660	330	220	55	110	27
60	1440	720	360	240	60	120	30
65	1560	780	390	260	65	130	32
70	1680	840	420	280	70	140	35

* - For other offsets, use the following merging taper length formula for L:
For speed of 40 mph or less, $L = WS^2/60$
For speed of 45 mph or more, $L = WS$

Where: L = Taper length in feet
W = Width of offset in feet
S = Posted speed limit, off-peak 85th-percentile speed prior to work starting, or the anticipated operating speed in mph

** - Use for taper and tangent sections where there are no pavement markings or where there is a conflict between existing pavement markings and channelizers (CA).

TABLE 2

LONGITUDINAL BUFFER SPACE AND FLAGGER STATION SPACING

SPEED *	Min D **	DOWNGRADE Min D ***		
		-3%	-6%	-9%
mph	ft	ft	ft	ft
20	115	116	120	126
25	155	158	165	173
30	200	205	215	227
35	250	257	271	287
40	305	315	333	354
45	360	378	400	427
50	425	446	474	507
55	495	520	553	593
60	570	598	638	686
65	645	682	728	785
70	730	771	825	891

* - Speed is posted speed limit, off-peak 85th-percentile speed prior to work starting, or the anticipated operating speed in mph

** - Longitudinal buffer space or flagger station spacing

*** - Use on sustained downgrade steeper than -3 percent and longer than 1 mile.

TABLE 3

ADVANCE WARNING SIGN SPACING

ROAD TYPE	DISTANCE BETWEEN SIGNS *		
	A	B	C
	ft	ft	ft
URBAN - 25 mph OR LESS	100	100	100
URBAN - MORE THAN 25 mph TO 40 mph	250	250	250
URBAN - MORE THAN 40 mph	350	350	350
RURAL	500	500	500
EXPRESSWAY / FREEWAY	1000	1500	2640

* - The distances are approximate, are intended for guidance purposes only, and should be applied with engineering judgment. These distances should be adjusted by the Engineer for field conditions, if necessary, by increasing or decreasing the recommmended distances.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL SYSTEM TABLES FOR LANE AND RAMP CLOSURES

NO SCALE

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

REVISED STANDARD PLAN RSP T9

2010 REVISED STANDARD PLAN RSP T9

4-30-13

TO ACCOMPANY PLANS DATED 2-8-16

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	91,110	6.1/R11.4, 9.6/10.3	48	58

REGISTERED CIVIL ENGINEER

April 19, 2013
PLANS APPROVAL DATE

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

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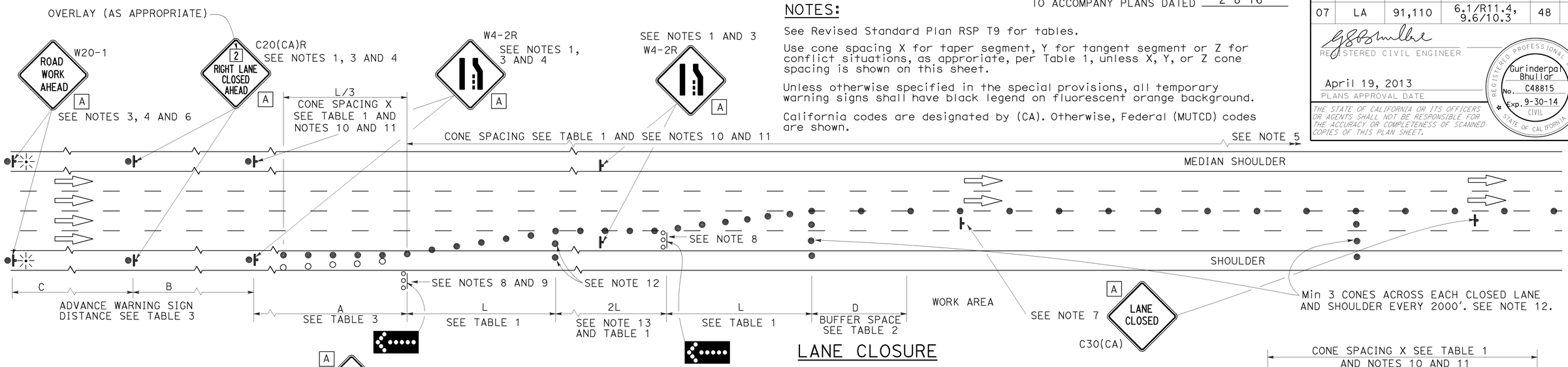
NOTES:

See Revised Standard Plan RSP T9 for tables.

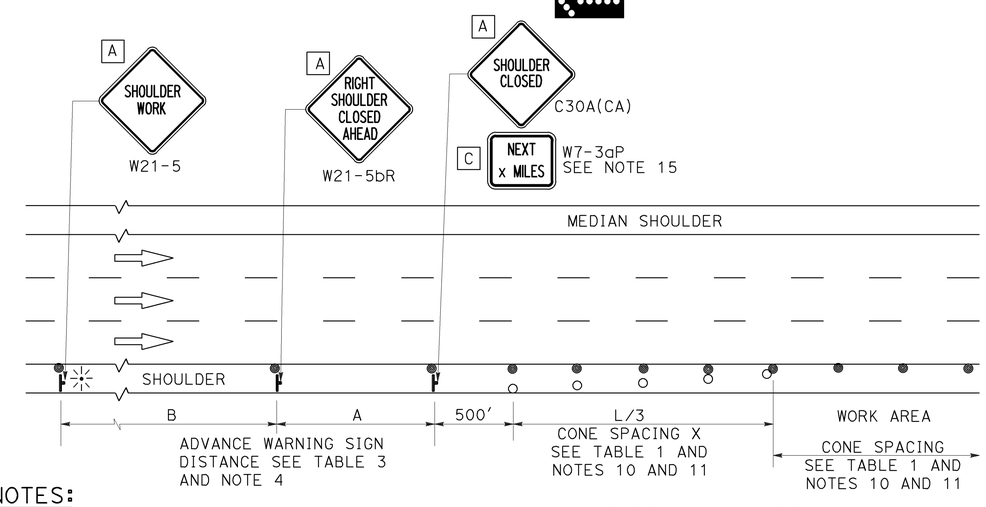
Use cone spacing X for taper segment, Y for tangent segment or Z for conflict situations, as approriate, per Table 1, unless X, Y, or Z cone spacing is shown on this sheet.

Unless otherwise specified in the special provisions, all temporary warning signs shall have black legend on fluorescent orange background.

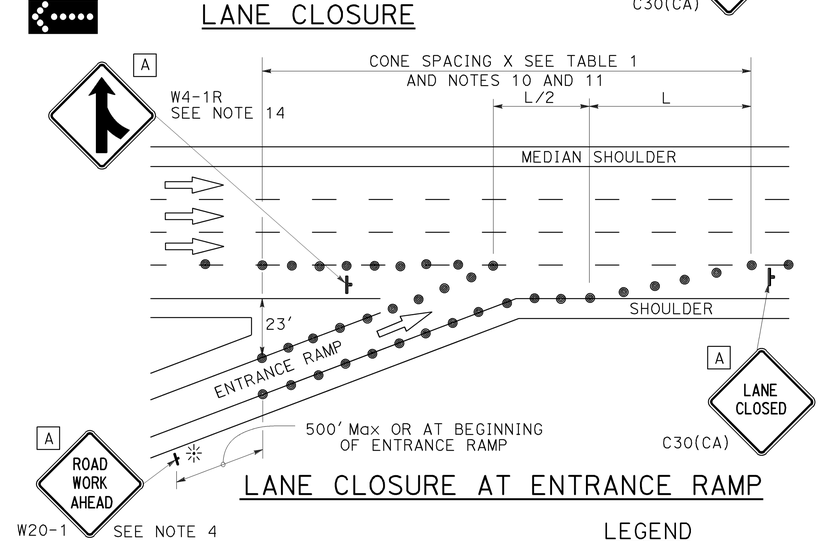
California codes are designated by (CA). Otherwise, Federal (MUTCD) codes are shown.



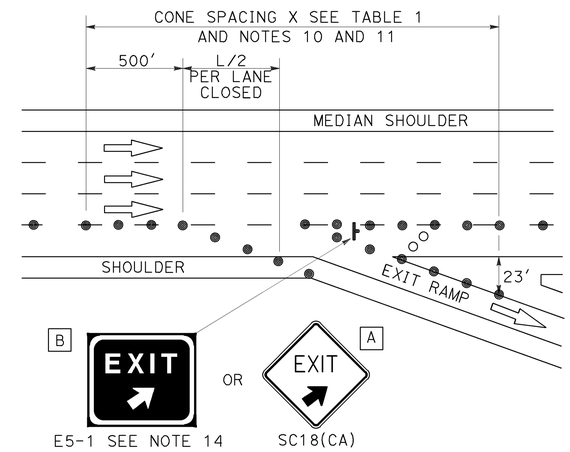
LANE CLOSURE



SHOULDER CLOSURE



LANE CLOSURE AT ENTRANCE RAMP



LANE CLOSURE AT EXIT RAMP

NOTES:

1. Median lane closures shall conform to the details as shown except that C20(CA)L and W4-2L signs shall be used.
2. At least one person shall be assigned to provide full time maintenance of traffic control devices for lane closures.
3. Duplicate sign installations are not required:
   a) On opposite shoulder if at least one-half of the available lanes remain open to traffic.
   b) In the median if the width of the median shoulder is less than 8' and the outside lanes are to be closed.
4. Each advance warning sign on each side of the roadway shall be equipped with at least two flags for daytime closure. Each flag shall be at least 16" x 16" in size and shall be orange or fluorescent red-orange in color. Flashing beacons shall be placed at the locations indicated for lane closure during hours of darkness.
5. A G20-2 "END ROAD WORK" sign, with minimum size of 48" x 24" as appropriate, shall be placed at the end of the lane closure unless the end of work area is obvious or ends within a larger project's limits.
6. If the W20-1 sign would follow within 2000' of a stationary W20-1 or G20-1 "ROAD WORK NEXT _____ MILES", use a C20(CA) sign for the first advance warning sign.
7. Place a C30(CA) sign every 2000' throughout length of lane closure.
8. One flashing arrow sign for each lane closed. The flashing arrow signs shall be Type I.
9. A minimum 1500' of sight distance shall be provided where possible for vehicles approaching the first flashing arrow sign. Lane closures shall not begin at top of crest vertical curve or on a horizontal curve.
10. All cones used for lane closures during the hours of darkness shall be fitted with retroreflective bands (or sleeves) as specified in the specifications.
11. Portable delineators, placed at one-half the spacing indicated for traffic cones may be used instead of cones for daytime closures only.
12. Unless otherwise specified in the special provisions, a minimum of 3 cones shall be placed transversely across each closed lane and shoulder at each location where a taper across a traffic lane ends and every 2000' as shown on the "Lane Closure" detail. Two Type II barricades may be used instead of the 3 cones. The transverse alignment of the cones or barricades on the closed shoulder may be shifted from the transverse alignment to provide access to the work.
13. Unless otherwise specified in the special provisions, the 2L tangent shown along lane lines shall be used between the L tapers required for each closed traffic lane.
14. Unless otherwise specified in the special provisions, the E5-1 or SC18(CA) and W4-1 signs shall be used as shown.
15. A W7-3aP "NEXT____ MILES" plaque must be used if theshoulder closure extends beyond the distance that can be perceived by road users.

LEGEND

- TRAFFIC CONE
- TRAFFIC CONE (OPTIONAL TAPER)
- TEMPORARY TRAFFIC CONTROL SIGN
- FLASHING ARROW SIGN (FAS)
- FAS SUPPORT OR TRAILER
- PORTABLE FLASHING BEACON

SIGN PANEL SIZE (Min)

A	48" x 48"
B	72" x 60"
C	36" x 30"

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL SYSTEM FOR LANE CLOSURE ON FREEWAYS AND EXPRESSWAYS

NO SCALE

RSP T10 DATED APRIL 19, 2013 SUPERSEDES STANDARD PLAN T10 DATED MAY 20, 2011 - PAGE 237 OF THE STANDARD PLANS BOOK DATED 2010.

REVISED STANDARD PLAN RSP T10

2010 REVISED STANDARD PLAN RSP T10

12-18-12

TO ACCOMPANY PLANS DATED 2-8-16

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	91,110	6.1/R11.4, 9.6/10.3	49	58

REGISTERED CIVIL ENGINEER

April 19, 2013
PLANS APPROVAL DATE

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

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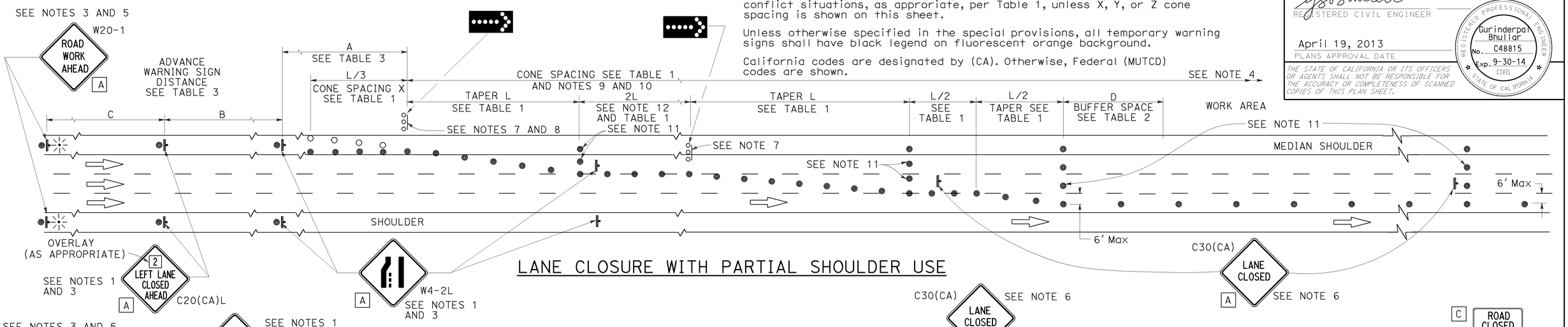
NOTES: See Revised Standard Plan RSP T9 for tables.

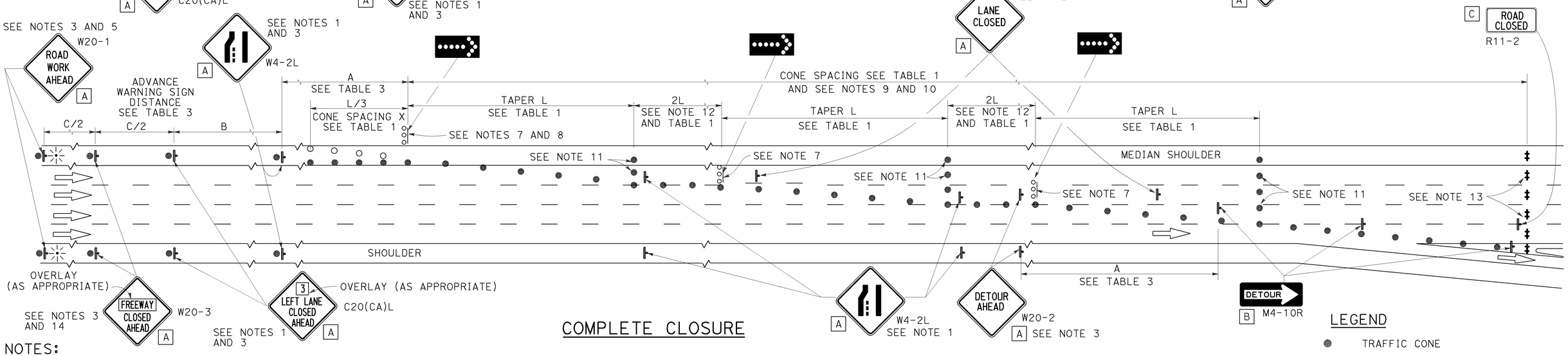
Use cone spacing X for taper segment, Y for tangent segment or Z for conflict situations, as approriate, per Table 1, unless X, Y, or Z cone spacing is shown on this sheet.

Unless otherwise specified in the special provisions, all temporary warning signs shall have black legend on fluorescent orange background.

California codes are designated by (CA). Otherwise, Federal (MUTCD) codes are shown.



LANE CLOSURE WITH PARTIAL SHOULDER USE



COMPLETE CLOSURE

NOTES:

1. Lane closures on the right side using partial median shoulder as a traffic lane shall conform to the details as shown except that C20(CA)R and W4-2R signs shall be used.
2. At least one person shall be assigned to provide full time maintenance of traffic control devices for lane closures.
3. Each advance warning sign on each side of the roadway shall be equipped with at least two flags for daytime closure. Each flag shall be at least 16" X 16" in size and shall be orange or fluorescent red-orange in color. Flashing beacons shall be placed at the locations indicated for lane closure during hours of darkness.
4. A G20-2 "END ROAD WORK" sign, with minimum size of 48" x 24" as appropriate, shall be placed at the end of the lane closure unless the end of work area is obvious or ends within a larger project's limits.
5. If the W20-1 sign would follow within 2000' of a stationary W20-1 or G20-1 "ROAD WORK NEXT ___ MILES", use a C20(CA) sign for the first advance warning sign.
6. Place a C30(CA) sign every 2000' throughout length of lane closure.
7. One flashing arrow sign for each lane closed. The flashing arrow signs shall be Type I.
8. A minimum 1500' of sight distance shall be provided where possible for vehicles approaching the first flashing arrow sign. Lane closures shall not begin at the top of crest vertical curve or on a horizontal curve.
9. All cones used for lane closures during the hours of darkness shall be fitted with retroreflective bands (or sleeves) as specified in the specifications.
10. Portable delineators, placed at one-half the spacing indicated for traffic cones, may be used instead of cones for daytime closures only.
11. Unless otherwise specified in the special provisions, a minimum of 3 cones shall be placed transversely across each closed lane and shoulder at each location where a taper across a traffic lane ends and every 2000' as shown on the "Lane Closure With Partial Shoulder Use" detail. Two Type II barricades may be used instead of the 3 cones. The transverse alignment of the cones or barricades on the closed shoulder may be shifted from the transverse alignment to provide access to the work.
12. Unless otherwise specified in the special provisions, the 2L tangent shown along lane lines shall be used between the L tapers required for each closed traffic lane.
13. A minimum of Two Type II or III barricades shall be placed across each closed lane and shoulder at the location shown and every 2000' within the complete closure area. Within the complete closure area, the transverse alignment of the barricades on the closed shoulder may be shifted from the transverse alignment to provide access to the work.
14. When specified in the special provisions, a W20-2 "DETOUR AHEAD" sign is to be used in place of the W20-3 "FREEWAY CLOSED AHEAD" sign.

SIGN PANEL SIZE (Min)

A	48" x 48"
B	48" x 18"
C	48" x 30"

LEGEND

- TRAFFIC CONE
- TRAFFIC CONE (OPTIONAL TAPER)
- TEMPORARY TRAFFIC CONTROL SIGN
- FLASHING ARROW SIGN (FAS)
- FAS SUPPORT OR TRAILER
- PORTABLE FLASHING BEACON

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL SYSTEM FOR LANE CLOSURES ON FREEWAYS AND EXPRESSWAYS

NO SCALE

RSP T10A DATED APRIL 19, 2013 SUPERSEDES STANDARD PLAN T10A DATED MAY 20, 2011 - PAGE 238 OF THE STANDARD PLANS BOOK DATED 2010.

REVISED STANDARD PLAN RSP T10A

2010 REVISED STANDARD PLAN RSP T10A

12-18-13

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	91,110	6.1/R11.4, 9.6/10.3	50	58

REGISTERED CIVIL ENGINEER

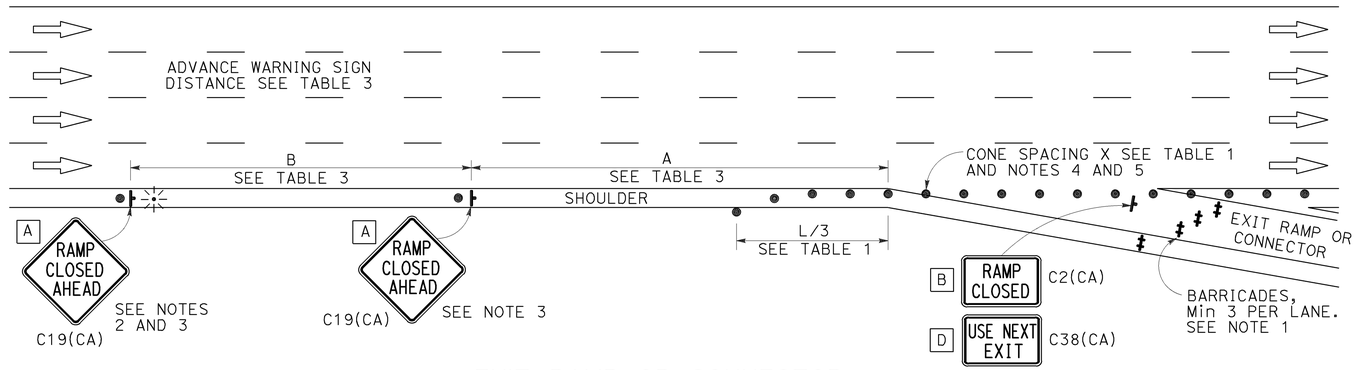
April 19, 2013
PLANS APPROVAL DATE

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

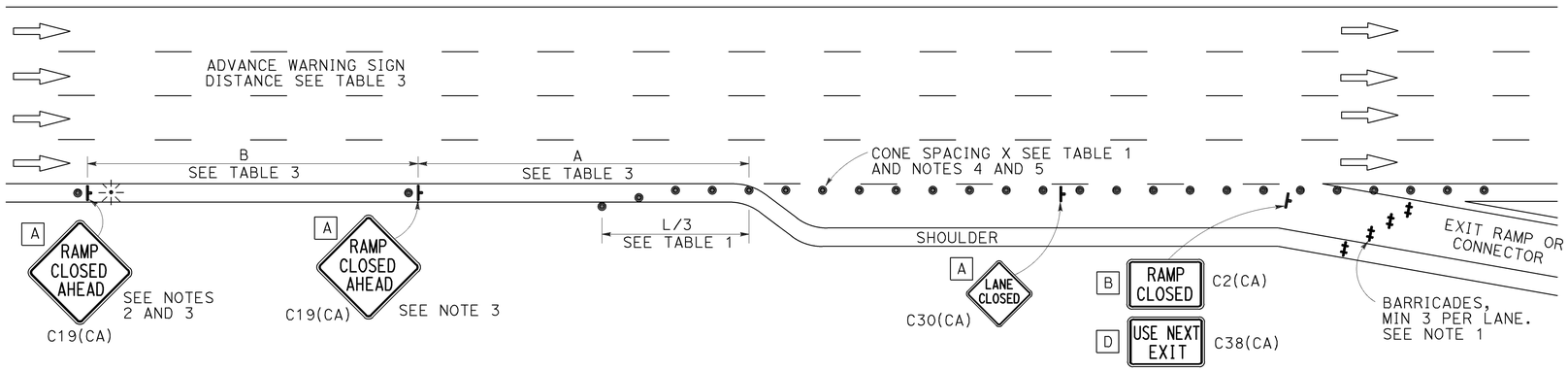
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

TO ACCOMPANY PLANS DATED 2-8-16

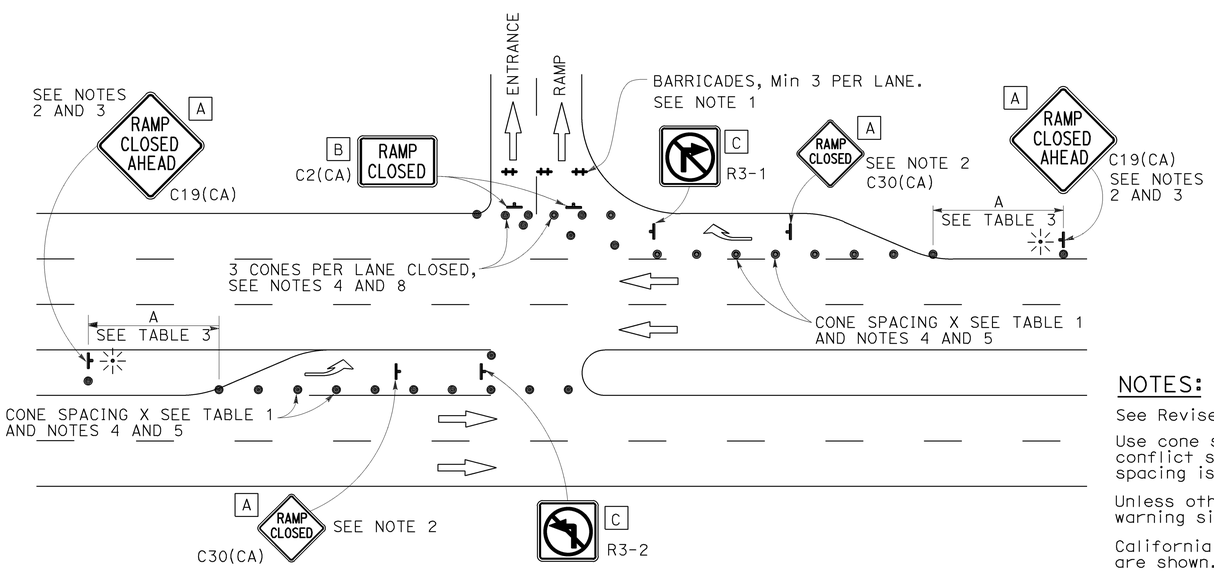
TYPICAL RAMP CLOSURES



EXIT RAMP OR CONNECTOR



EXIT RAMP OR CONNECTOR WITH ADDITIONAL LANE



ENTRANCE RAMP WITH TURNING POCKETS

SIGN PANEL SIZE (Min)

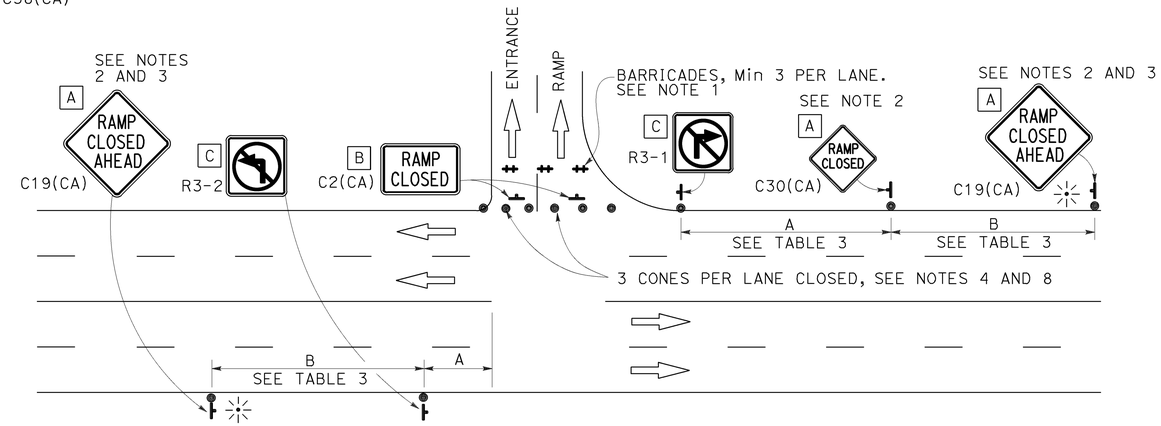
- A 48" × 48"
- B 48" × 30"
- C 36" × 36"
- D 48" × 36"

LEGEND

- TRAFFIC CONE
- TEMPORARY TRAFFIC CONTROL SIGN
- BARRICADES
- PORTABLE FLASHING BEACON

NOTES:

1. Barricades shall be Type I, II, or III for closures lasting one week or less and Type III for closures lasting longer than one week.
2. In addition to placing the C19(CA) "RAMP CLOSED AHEAD" and C30(CA) "RAMP CLOSED" signs, black on orange overlay plates with the word "CLOSED" may be mounted, as directed by the Engineer, on all guide signs that refer to the closed ramp. The letter size on the overlay shall be the same as the guide sign.
3. Each advance C19(CA) "RAMP CLOSED AHEAD" sign shall be equipped with at least two flags for daytime closure. Each flag shall be at least 16" × 16" in size and shall be orange or fluorescent red-orange in color. A flashing beacon shall be placed on top of the first C19(CA) sign during hours of darkness.
4. All cones used for ramp closures during the hours of darkness shall be fitted with retroreflective bands (or sleeves) as specified in the specifications.
5. Portable delineators, placed at one-half the spacing indicated for traffic cones, may be used instead of cones for daytime ramp closures only.
6. At least one person shall be assigned to provide full time maintenance of traffic control devices, unless otherwise directed by the Engineer.
7. The existing "EXIT" signs shall be covered during ramp closures.
8. A minimum of 3 cones shall be placed transversely across each closed lane and shoulder.



ENTRANCE RAMP WITHOUT TURNING POCKETS

NOTES:

See Revised Standard Plan RSP T9 for tables.

Use cone spacing X for taper segment, Y for tangent segment or Z for conflict situations, as approriate, per Table 1, unless X, Y, or Z cone spacing is shown on this sheet.

Unless otherwise specified in the special provisions, all temporary warning signs shall have black legend on fluorescent orange background.

California codes are designated by (CA). Otherwise, Federal (MUTCD) codes are shown.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL SYSTEM FOR RAMP CLOSURE

NO SCALE

RSP T14 DATED APRIL 19, 2013 SUPERSEDES STANDARD PLAN T14 DATED MAY 20, 2011 - PAGE 242 OF THE STANDARD PLANS BOOK DATED 2010.

REVISED STANDARD PLAN RSP T14

2010 REVISED STANDARD PLAN RSP T14

12-18-12

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	91,110	6.1/R11.4, 9.6/10.3	51	58

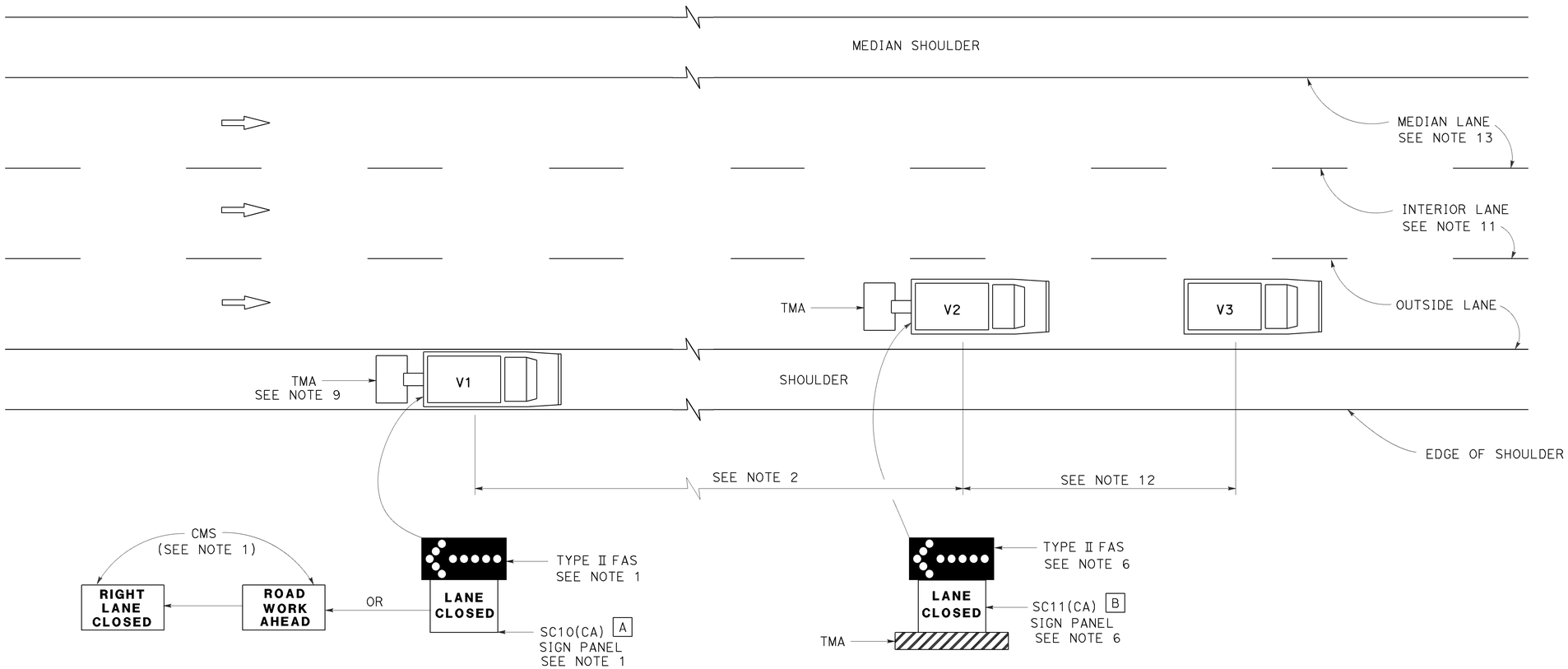
REGISTERED CIVIL ENGINEER

April 19, 2013
PLANS APPROVAL DATE

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

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

TO ACCOMPANY PLANS DATED 2-8-16



MOVING LANE CLOSURE ON MEDIAN LANE OR OUTSIDE LANE OF MULTILANE HIGHWAYS

SIGN PANEL SIZE (Min)

A 66" x 36"

B 54" x 42"

LEGEND

V1	SIGN VEHICLE
V2	SHADOW VEHICLE
V3	WORK/APPLICATION VEHICLE
	FLASHING ARROW SIGN (FAS)
CMS	CHANGEABLE MESSAGE SIGN
TMA	TRUCK-MOUNTED ATTENUATOR

NOTES:

1. Either a changeable message sign or a SC10(CA) sign panel and a Type II flashing arrow sign shall be mounted on the rear of sign vehicle V1. The changeable message sign shall be sequenced to show the "ROAD WORK AHEAD" message first, followed by the "RIGHT LANE CLOSED" message. For median lane closure, the flashing arrow symbol shall be reversed with the arrowhead on the right and the changeable message sign shall show "LEFT LANE CLOSED".
2. If traffic queues develop, sign vehicle V1 should be positioned upstream from the end of queue. Sign vehicle V1 shall be positioned where highly visible when shoulders are not available.
3. A minimum sight distance of 1500′ should be provided in advance of sign vehicle V1.
4. Sign vehicle V1 should remain at the beginning of horizontal or vertical curves until the other vehicles (V2 and V3) are far enough beyond the curve to resume the minimum sight distance of 1500′.
5. Vehicle-mounted sign panels shall have Type III or above retroreflective sheeting, black on white, or black on fluorescent orange, with 6" minimum series D letters per Caltrans sign specifications.
6. Shadow vehicle V2 shall be equipped with a truck-mounted attenuator. The sign panel shown and a Type II flashing arrow sign shall be mounted on the rear of shadow vehicle V2. For median lane closure the flashing arrow sign symbol shall be displayed with the arrowhead on the right.
7. All vehicles used for lane closures shall be equipped with two-way radios, and the vehicle operators shall maintain communication during the work or application operation.
8. All vehicles shall be equipped with flashing or rotating amber lights.
9. If sign vehicle V1 encroaches into the traffic lane due to insufficient shoulder width, sign vehicle V1 shall be equipped with a truck-mounted attenuator. Sign vehicle V1 shall stay as close to the edge of shoulder as practicable.
10. Where workers would be on foot in the work area, a stationary type lane closure (Revised Standard Plan T10, T11, etc., as applicable) shall be used instead of this plan.
11. For moving lane closure on interior lane of multilane highways, use Revised Standard Plan T16.
12. The spacing between work vehicle(s) and the shadow vehicles, and between each shadow vehicle should be minimized to deter road users from driving in between.
13. When the work/application vehicle V3 occupies the median lane, sign vehicle V1 should drive in the median shoulder and indicate left lane closed ahead.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL SYSTEM FOR MOVING LANE CLOSURE ON MULTILANE HIGHWAYS

NO SCALE

RSP T15 DATED APRIL 19, 2013 SUPERSEDES STANDARD PLAN T15
DATED MAY 20, 2011 - PAGE 243 OF THE STANDARD PLANS BOOK DATED 2010.

REVISED STANDARD PLAN RSP T15

2010 REVISED STANDARD PLAN RSP T15

12-18-12

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	91,110	6.1/R11.4, 9.6/10.3	52	58

REGISTERED CIVIL ENGINEER

April 19, 2013
PLANS APPROVAL DATE

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

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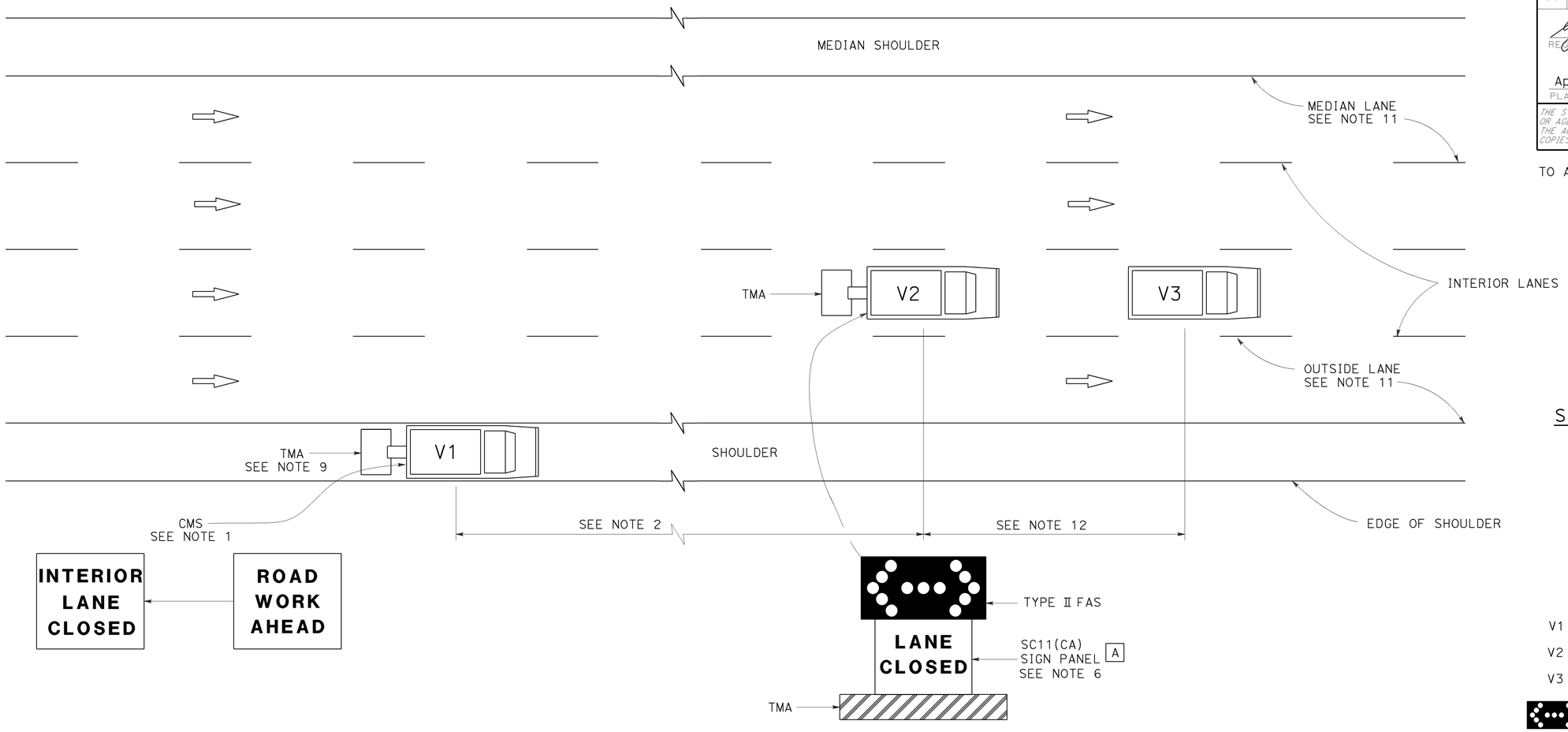
TO ACCOMPANY PLANS DATED 2-8-16

2010 REVISED STANDARD PLAN RSP T16



SIGN PANEL SIZE (Min)

A 54" x 42"

LEGEND

V1	SIGN VEHICLE
V2	SHADOW VEHICLE
V3	WORK/APPLICATION VEHICLE
	FLASHING ARROW SIGN (FAS) IN FLASHING DOUBLE ARROW MODE
CMS	CHANGEABLE MESSAGE SIGN
TMA	TRUCK-MOUNTED ATTENUATOR

MOVING LANE CLOSURE ON INTERIOR LANE OF MULTILANE HIGHWAYS

NOTES:

1. A changeable message sign shall be mounted on the rear of sign vehicle V1. The changeable message sign shall be sequenced to show the "ROAD WORK AHEAD" message first, followed by the "INTERIOR LANE CLOSED" message. The message "CENTER LANE CLOSED" may be used in place of the "INTERIOR LANE CLOSED" message.
2. If traffic queues develop, sign vehicle V1 should be positioned upstream from the end of queue. Sign vehicle V1 shall be positioned where highly visible when shoulders are not available.
3. A minimum sight distance of 1500′ should be provided in advance of sign vehicle V1.
4. Sign vehicle V1 should remain at the beginning of horizontal or vertical curves until the other vehicles (V2 and V3) are far enough beyond the curve to resume the minimum sight distance of 1500′.
5. Vehicle-mounted sign panels shall have Type III or above retroreflective sheeting, black on white, or black on fluorescent orange, with 6" minimum series D letters per Caltrans sign specifications.
6. Shadow vehicle V2 shall be equipped with a truck-mounted attenuator. The sign panel shown and a Type II flashing arrow sign shall be mounted on the rear of shadow vehicle V2.
7. All vehicles used for lane closures shall be equipped with two-way radios, and the vehicle operators shall maintain communication during the work or application operation.
8. All vehicles shall be equipped with flashing or rotating amber lights.
9. If sign vehicle V1 encroaches into the traffic lane due to insufficient shoulder width, sign vehicle V1 shall be equipped with a truck-mounted attenuator. Sign vehicle V1 shall stay as close to the edge of shoulder as practicable.
10. Where workers would be on foot in the work area, a stationary type lane closure (Revised Standard Plan T10, T11 etc., as applicable) shall be used instead of this plan.
11. For moving lane closure on median lane or outside lane of multilane highways, use Revised Standard Plan T15.
12. The spacing between work vehicle(s) and the shadow vehicles, and between each shadow vehicle should be minimized to deter road users from driving in between.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL SYSTEM FOR MOVING LANE CLOSURE ON MULTILANE HIGHWAYS

NO SCALE

RSP T16 DATED APRIL 19, 2013 SUPERSEDES STANDARD PLAN T16
DATED MAY 20, 2011 - PAGE 244 OF THE STANDARD PLANS BOOK DATED 2010.

REVISED STANDARD PLAN RSP T16

12-18-12

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	91,110	6.1/R11.4, 9.6/10.3	53	58

Theresa Gabriel
REGISTERED ELECTRICAL ENGINEER

October 30, 2015
PLANS APPROVAL DATE

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

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

TO ACCOMPANY PLANS DATED 2-8-16

LEGEND:

- 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 TAPE
- 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
- TSP — TELEPHONE SERVICE POINT

ABBREVIATIONS

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

SOFFIT AND WALL-MOUNTED LUMINAIRES

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

NOTE:
Arrow indicates "street side" of luminaire.

COMMONLY USED SYMBOLS FOR UNITED STATES CUSTOMARY UNITS OF MEASUREMENT:

SYMBOL	DEFINITIONS
Ω	OHMS
min	MINUTE
s	SECOND
bps	BITS PER SECOND
Bps	BYTES PER SECOND
A	AMPERE
V	VOLT
V(dc)	VOLT (DIRECT CURRENT)
V(ac)	VOLT (ALTERNATING CURRENT)
FC	FOOT - CANDLE
W	WATTS
VA	VOLT-AMPERE
M	MEGA
k	KILO
m	MILLI
μ	MICRO
P	PICO
Hz	HERTZ

MISCELLANEOUS ELECTROLIERS

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

NOTES:

1. LED luminaires shall be 235 W when installed on Type 21, 21D, 30, 31 and 32 Standards, unless otherwise specified. LED luminaires shall be 165 W when installed on other type standards or poles, unless otherwise specified.
2. Luminaires shall be the cutoff type, ANSI Type III medium cutoff lighting distribution, unless otherwise specified.

STANDARD ELECTROLIER

NEW	EXISTING	STANDARD TYPE
		15
		15D
		15 STRUCTURE
		15D STRUCTURE
		21
		21D
		21 STRUCTURE
		21D STRUCTURE
		30
		31
		32

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

ELECTRICAL SYSTEMS (LEGEND AND ABBREVIATIONS)

NO SCALE

RSP ES-1A DATED OCTOBER 30, 2015 SUPERSEDES RSP ES-1A DATED JULY 19, 2013 AND STANDARD PLAN ES-1A DATED MAY 20, 2011 - PAGE 425 OF THE STANDARD PLANS BOOK DATED 2010.

REVISED STANDARD PLAN RSP ES-1A

2010 REVISED STANDARD PLAN RSP ES-1A

9-29-15

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	91,110	6.1/R11.4, 9.6/10.3	54	58

Theresa Gabriel
REGISTERED ELECTRICAL ENGINEER

October 30, 2015
PLANS APPROVAL DATE

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

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TO ACCOMPANY PLANS DATED 2-8-16

EQUIPMENT IDENTIFICATION

ILLUMINATED SIGN IDENTIFICATION NUMBER:

SIGN No. 12345
10 ISL SCI 1.0

- SIGN NUMBER - PLACE ON POST OR STRUCTURE
- TRANSFORMER RATING (kVA)
- LIGHTING CONTROL TYPE
- NUMBER AND TYPE OF FIXTURES

} DO NOT PLACE ON STANDARD OR STRUCTURE

ELECTROLIER OR EQUIPMENT IDENTIFICATION NUMBER:

12345 - 15'-0"

- MAST ARM LENGTH, IF SHOWN. DO NOT PLACE ON STANDARD OR STRUCTURE
- EQUIPMENT NUMBER - PLACE ON STANDARD OR STRUCTURE. EXISTING EQUIPMENT NUMBERS ARE SHOWN IN PARENTHESIS

CONDUIT AND CONDUCTOR IDENTIFICATION:

1½"C, 2#10, 15#14, 2 DLC, 12P#18 (PAIR)

- NUMBER AND SIZE OF CONDUCTORS AND CABLES
- SIZE OF CONDUIT IN INCHES

ø1, ø2, ø2P, etc.	TRAFFIC PHASE IDENTIFICATION FOR SIGNALS, DETECTORS AND PHASE DIAGRAMS
1 2 3	LEGEND NUMBERS
A B C	EQUIPMENT, SIGNAL POLES, INSTALLATION OR ITEMS
1 2 3	CONDUIT RUN NUMBERS

SIGNAL AND LIGHTING STANDARD (TYPICAL DESIGNATION):

19A - 3 - 100

- WIND VELOCITY = 100 mph
- CASE 3 ARM LOADING
- STANDARD TYPE
- STANDARD PLAN SHEET NUMBER
- DETAIL, NUMBER, SECTION, TYPE OR ELEVATION

MISCELLANEOUS EQUIPMENT

NEW	EXISTING	
CMS	cms	CHANGEABLE MESSAGE SIGN
		CLOSED CIRCUIT TELEVISION CAMERA
		HIGHWAY ADVISORY RADIO POLE AND ANTENNA
EMS	ems	LED EXTINGUISHABLE MESSAGE SIGN
M V	m v	DETECTION DEVICE M = MICROWAVE SENSOR V = VIDEO IMAGE SENSOR

WIRING DIAGRAM LEGEND

----	EXTERNAL CONDUCTOR
——	CONDUCTOR OR BUS
	TIE POINT
	CONTACTOR COIL
	CONTACTOR, NO CONTACT
	TERMINAL BLOCKS
	CONTACTOR, NC CONTACT
	ENCLOSURE BOND
	GROUNDING ELECTRODE
	CIRCUIT BREAKER
	RECEPTACLE

PULL BOXES

NEW	EXISTING	
		PULL BOX, No. 5 UNLESS OTHERWISE INDICATED OR NOTED
3	9A(21)	PULL BOX, ADDITIONAL DESIGNATIONS OR DESCRIPTIONS

3 No. 3½ PULL BOX
5 No. 5 PULL BOX
6 No. 6 PULL BOX
7 No. 7 (CEILING PULL BOX)
8 No. 8 (PENDANT SOFFIT PULL BOX)
9 No. 9 PULL BOX
9A No. 9A PULL BOX

(C) COMMUNICATIONS PULL BOX
(E) PULL BOX WITH EXTENSION
(S) SPRINKLER CONTROL PULL BOX
(21) ANCHOR BOLTS AND CONDUIT FOR FUTURE INSTALLATION OF TYPE 21 STANDARD
(T) TRAFFIC PULL BOX

VEHICLE DETECTORS

5 J 9 U

- VEHICLE DETECTOR DESIGNATION
- U = UPPER
  L = LOWER
- SLOT NUMBER IN INPUT FILE
- INPUT FILE (I OR J)
- PHASE

NEW	EXISTING	
		TYPE A LOOP DETECTOR. OUTLINE OF SAWCUT SHOWN
		TYPE B LOOP DETECTOR. OUTLINE OF SAWCUT SHOWN
		TYPE C LOOP DETECTOR. OUTLINE OF SAWCUT SHOWN
		TYPE D LOOP DETECTOR. OUTLINE OF SAWCUT SHOWN
		TYPE E LOOP DETECTOR. OUTLINE OF SAWCUT SHOWN
		TYPE Q LOOP DETECTOR. OUTLINE OF SAWCUT SHOWN
DH	dh	DETECTOR HANDHOLE
		MICROWAVE OR VIDEO DETECTION ZONE

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

ELECTRICAL SYSTEMS (LEGEND AND ABBREVIATIONS)

NO SCALE

RSP ES-1C DATED OCTOBER 30, 2015 SUPERSEDES RSP ES-1C DATED JULY 19, 2013 AND STANDARD PLAN ES-1C DATED MAY 20, 2011 - PAGE 427 OF THE STANDARD PLANS BOOK DATED 2010.

REVISED STANDARD PLAN RSP ES-1C

2010 REVISED STANDARD PLAN RSP ES-1C

8-19-15

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	91,110	6.1/R11.4, 9.6/10.3	55	58

Theresa Gabriel
REGISTERED ELECTRICAL ENGINEER

October 30, 2015
PLANS APPROVAL DATE

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

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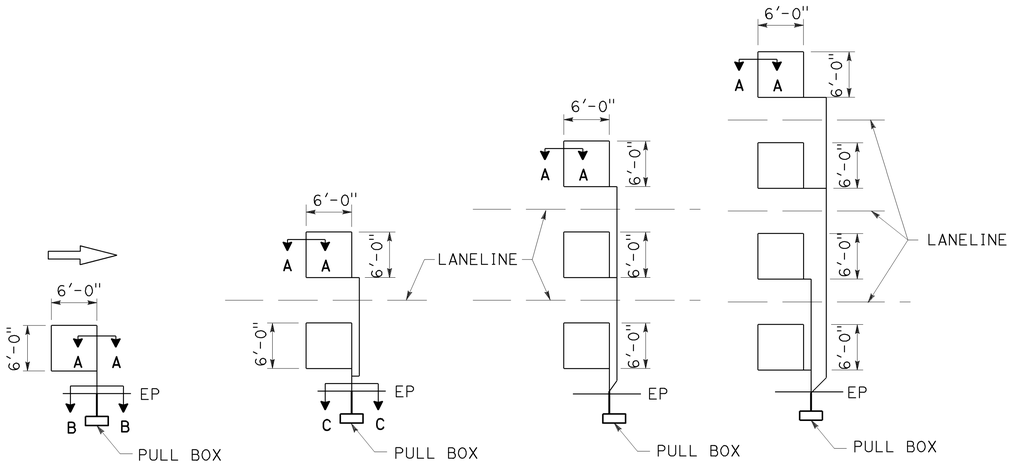
TO ACCOMPANY PLANS DATED 2-8-16



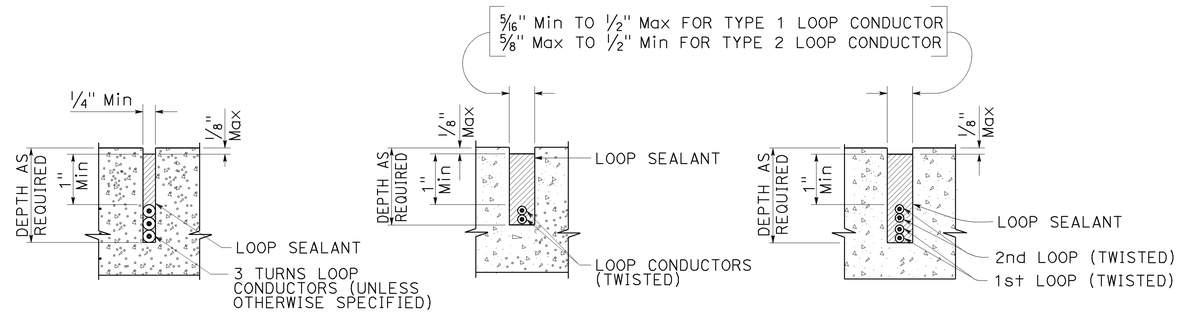
TYPE 1A INSTALLATION | TYPE 2A INSTALLATION | TYPE 3A INSTALLATION | TYPE 4A INSTALLATION

SAWCUT DETAILS

Type A loop detector configurations illustrated

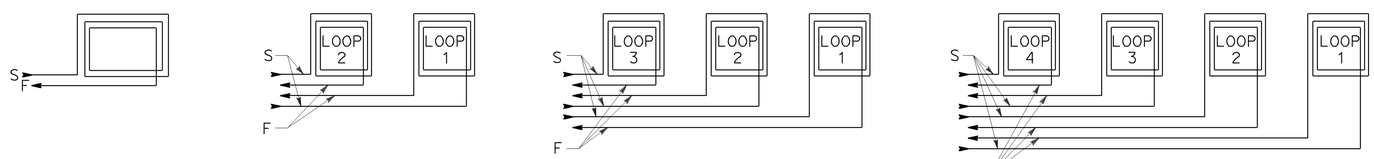
1. 1A thru 4A = 1 Type A loop configuration in each lane.
2. 1B thru 4B = 1 Type B loop configuration in each lane.
3. 1C = 1 Type C loop configuration entering lanes as required.
4. 1D thru 4D = 1 Type D loop configuration in each lane.
5. 1E thru 4E = 1 Type E loop configuration in each lane.
6. 1Q 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.

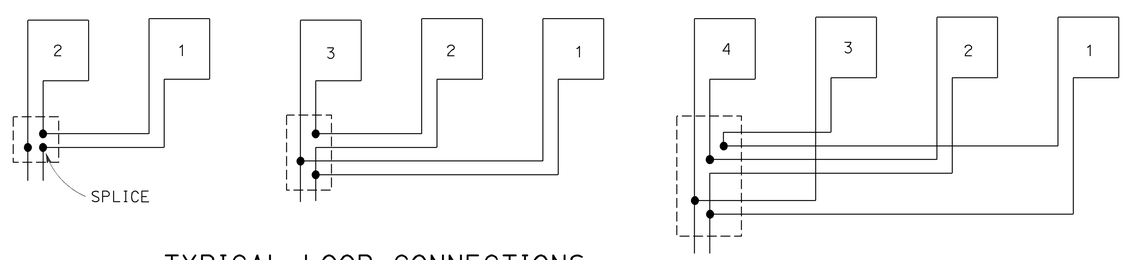


SECTION A-A | SECTION B-B | SECTION C-C

SLOT DETAILS - TYPE 1 AND TYPE 2 LOOP CONDUCTOR



WINDING DETAILS



TYPICAL LOOP CONNECTIONS

Dashed lines represent the pull box

ABBREVIATIONS:

S - START
F - FINISH

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

ELECTRICAL SYSTEMS (LOOP DETECTORS)

NO SCALE

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

REVISED STANDARD PLAN RSP ES-5A

2010 REVISED STANDARD PLAN RSP ES-5A

8-24-15

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	91,110	6.1/R11.4, 9.6/10.3	56	58

Theresa Gabriel
REGISTERED ELECTRICAL ENGINEER

October 30, 2015
PLANS APPROVAL DATE

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

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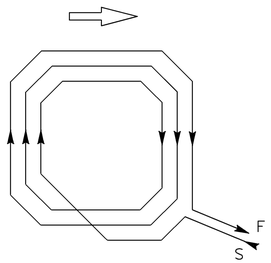
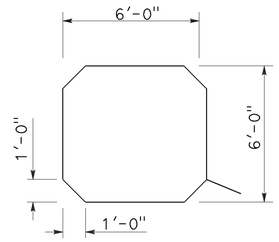
TO ACCOMPANY PLANS DATED 2-8-16

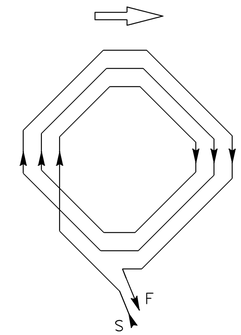


WINDING DETAIL

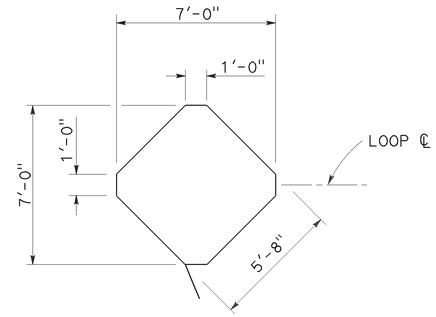


SAWCUT DETAIL

TYPE A LOOP DETECTOR CONFIGURATION

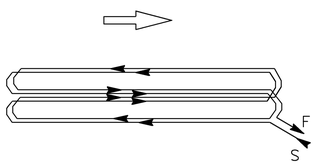


WINDING DETAIL

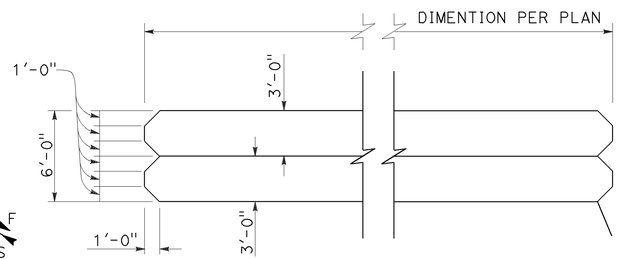


SAWCUT DETAIL

TYPE B LOOP DETECTOR CONFIGURATION

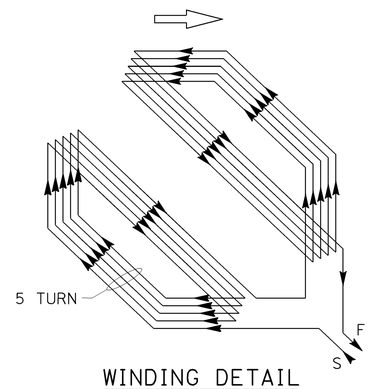


WINDING DETAIL

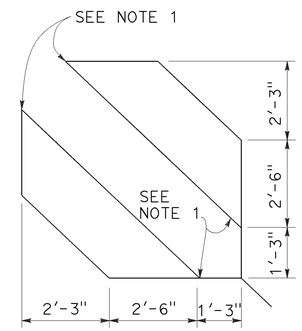


SAWCUT DETAIL

TYPE C LOOP DETECTOR CONFIGURATION

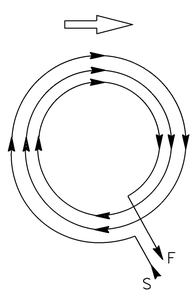


WINDING DETAIL

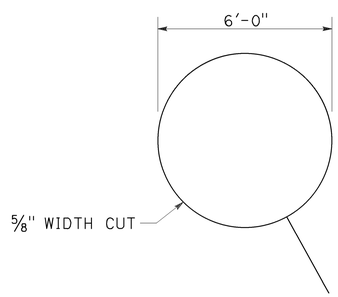


SAWCUT DETAIL

TYPE D LOOP DETECTOR CONFIGURATION

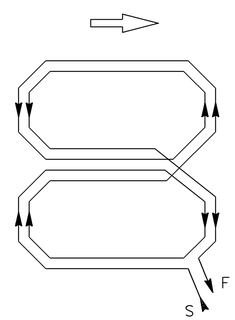


WINDING DETAIL

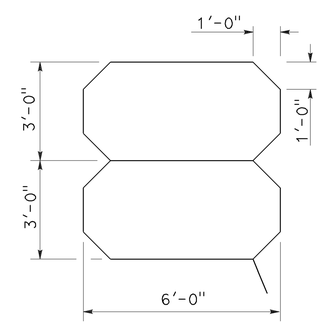


SAWCUT DETAIL

TYPE E LOOP DETECTOR CONFIGURATION

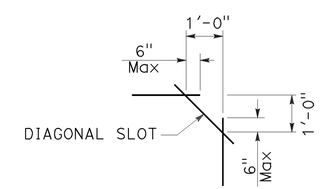


WINDING DETAIL



SAWCUT DETAIL

TYPE Q LOOP DETECTOR CONFIGURATION



PLAN VIEW OF DIAGONAL SLOT AT CORNERS

NOTES:

1. Round corners of acute angle sawcuts to prevent damage to conductors.
2. Typical distance separating loops from edge to edge is 10' for Type A, B, D and E installation in single lane.
3. Use Type D loops for limit line detector installations in left turn and bicycle lanes.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

ELECTRICAL SYSTEMS (DETECTORS)

NO SCALE

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

REVISED STANDARD PLAN RSP ES-5B

2010 REVISED STANDARD PLAN RSP ES-5B

9-25-15

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	91,110	6.1/R11.4, 9.6/10.3	57	58

Theresa Gabriel
REGISTERED ELECTRICAL ENGINEER

October 30, 2015
PLANS APPROVAL DATE

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

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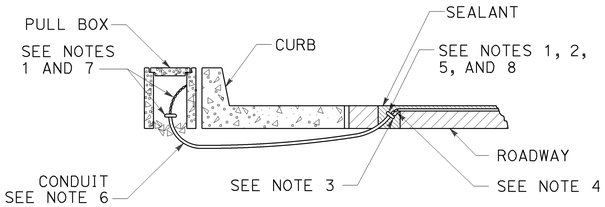
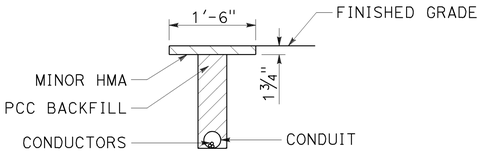
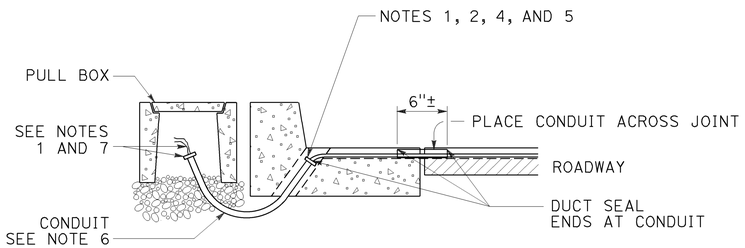
TO ACCOMPANY PLANS DATED 2-8-16



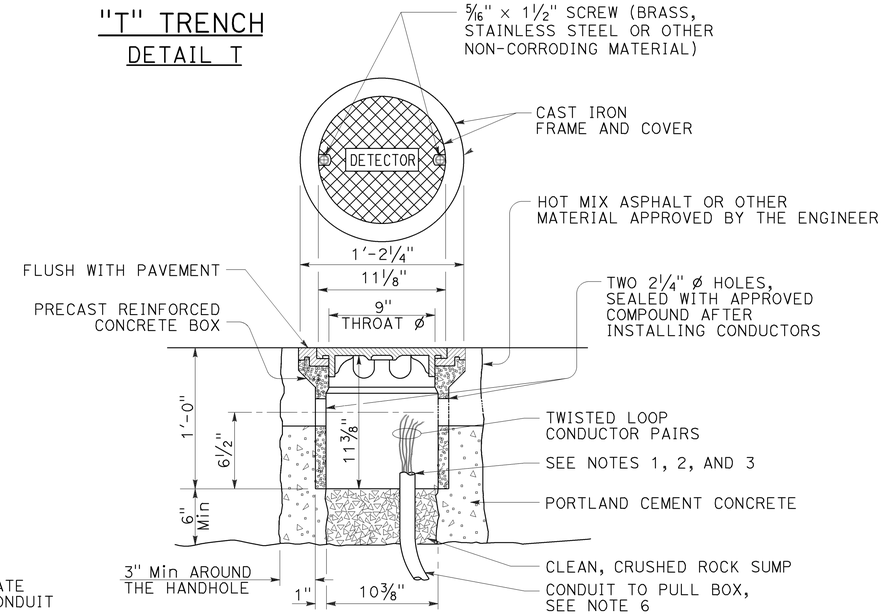
TYPE A
CURB TERMINATION DETAIL



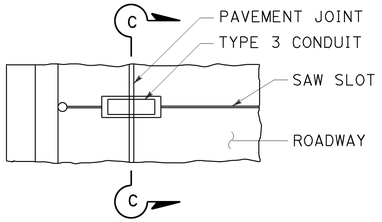
"T" TRENCH DETAIL T



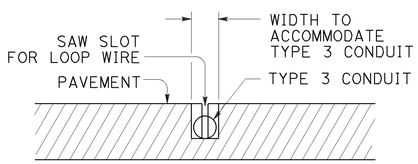
CROSS SECTION



DETECTOR HANDHOLE DETAIL

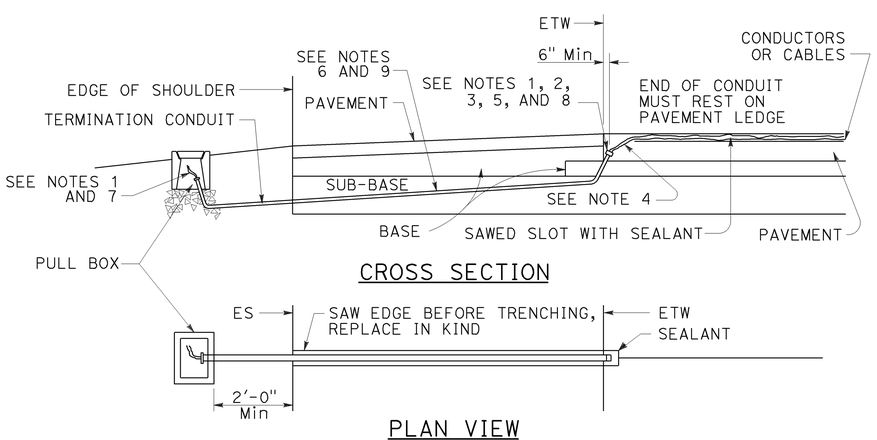


PLAN VIEW



SECTION C-C

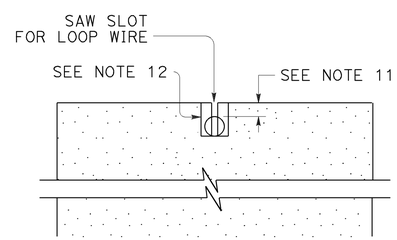
TYPE B
CURB TERMINATION DETAIL



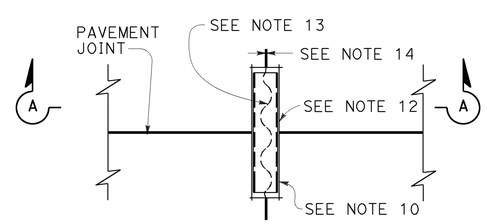
CROSS SECTION

PLAN VIEW

SHOULDER TERMINATION DETAILS

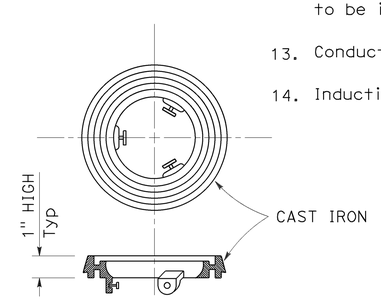


SECTION A-A



PLAN VIEW

TYPICAL LOOP LEAD-IN DETAIL AT PAVEMENT JOINT



LOCKING GRADE RING

NOTES:

1. Bushing shall be used at end of conduit.
2. Tape detector conductors or cables 3" each side of bushings.
3. Install duct seal compound to each end of termination conduit before installing sealant.
4. Round all sharp edges where detector conductors or cables have to pass.
5. End of conduit shall be 3⅛" below roadway surface.
6.

Conduit size	Loop conductors
1"C minimum	1 to 2 pairs
1½"C minimum	3 to 4 pairs
2"C minimum	5 or more pairs

7. Splice detector conductors or cables to detector lead-in-cable.
8. Location of detector handhole when shown on plans.
9. When the shoulder and traveled way are paved with the same material and there is no joint between them, the conduit shall extend only 2'-0" into the shoulder pavement.
10. ¾"C, Type 3 conduit 6" long minimum, plug both ends with duct compound to keep out sealant.
11. ½" Minimum between top of conduit and pavement surface.
12. Sawcut shall not exceed 1" in width and ⅛" longer than conduit to be installed.
13. Conductors with ½" minimum slack inside conduit.
14. Inductive loop detector saw slot.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

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

NO SCALE

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

REVISED STANDARD PLAN RSP ES-5D

2010 REVISED STANDARD PLAN RSP ES-5D

8-19-15

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	91,110	6.1/R11.4, 9.6/10.3	58	58

Theresa Gabriel
REGISTERED ELECTRICAL ENGINEER

October 30, 2015
PLANS APPROVAL DATE

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

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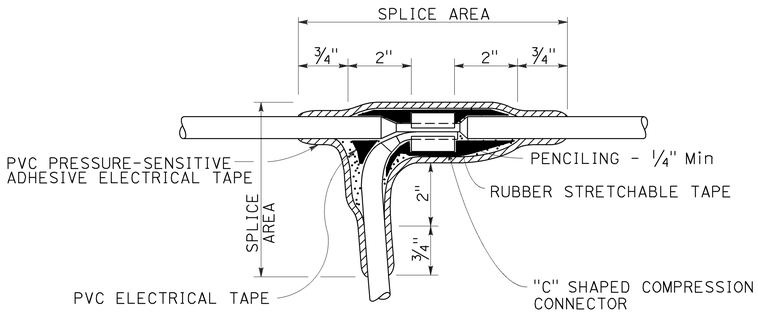
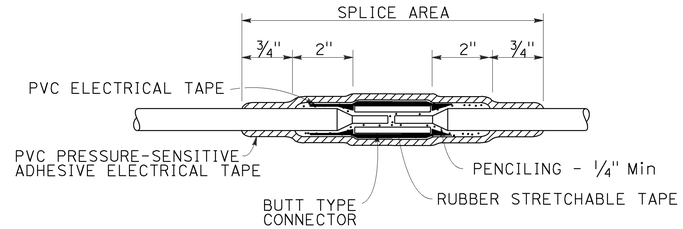
TO ACCOMPANY PLANS DATED 2-8-16



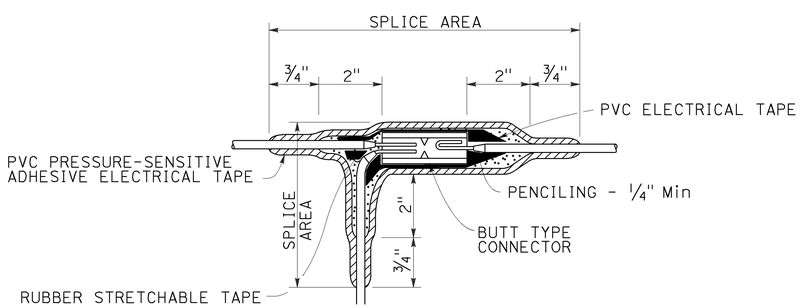
TYPE C SPLICE

See Note 3



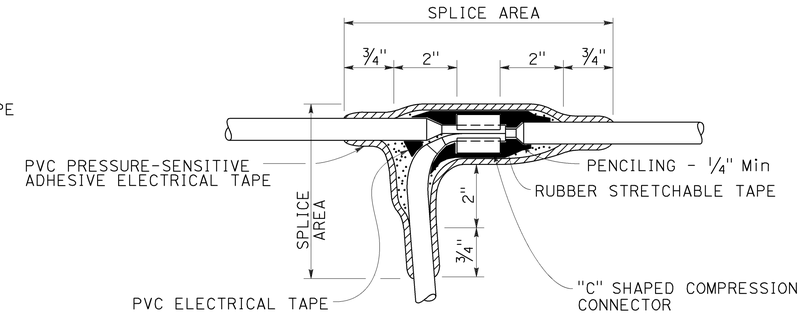
TYPE S SPLICE

See Note 4



TYPE ST SPLICE

See Note 5



TYPE T SPLICE

See Note 5

NOTES:

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

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

ELECTRICAL SYSTEMS (SPLICING DETAILS)

NO SCALE

RSP ES-13A DATED OCTOBER 30, 2015 SUPERSEDES STANDARD PLAN ES-13A DATED MAY 20, 2011 - PAGE 491 OF THE STANDARD PLANS BOOK DATED 2010.

REVISED STANDARD PLAN RSP ES-13A

2010 REVISED STANDARD PLAN RSP ES-13A

9-28-15