| Dist | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
|---|---|---|---|---|---|
| 04 | CC | 680 | R12.7/R17.5 | 1 | 22 |

STATE OF CALIFORNIA

# DEPARTMENT OF TRANSPORTATION

**ACIM-680-1(070)E**

## PROJECT PLANS FOR CONSTRUCTION ON

# STATE HIGHWAY

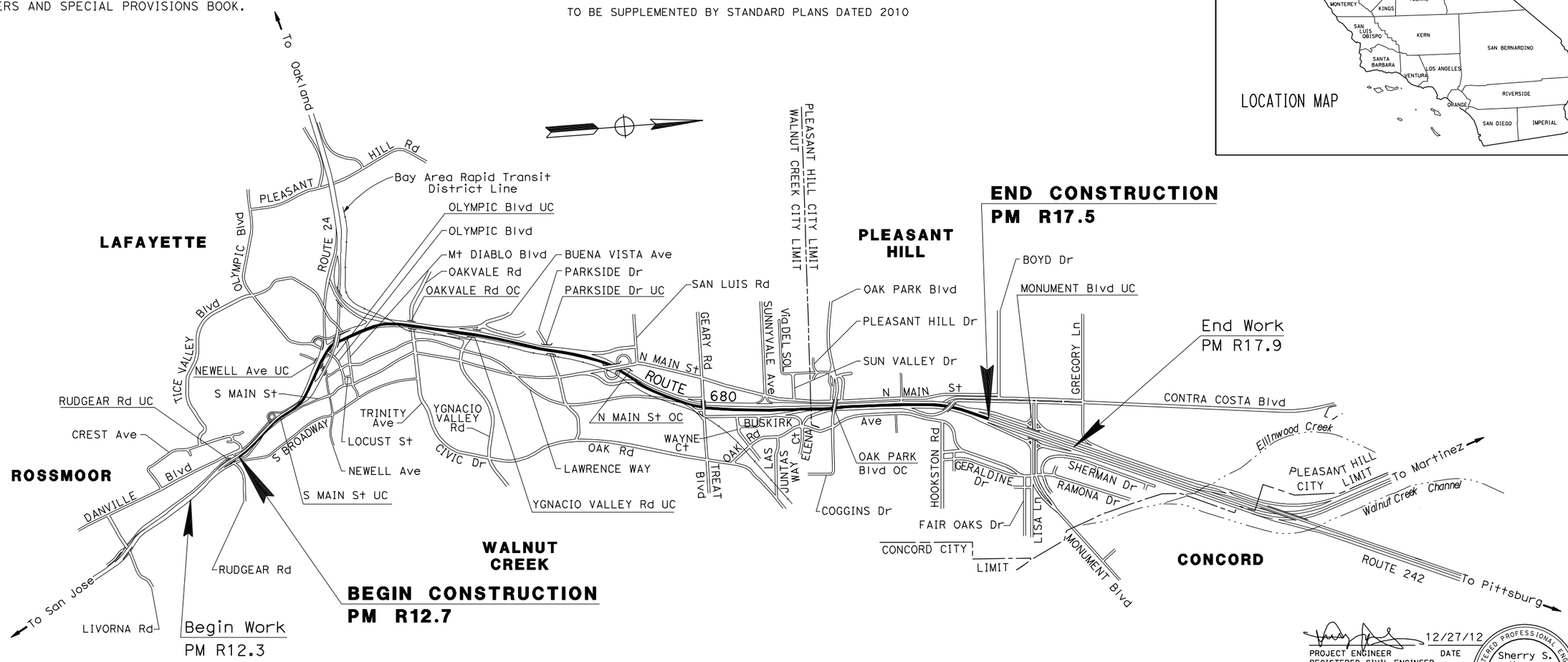
## IN CONTRA COSTA COUNTY IN WALNUT CREEK AND PLEASANT HILL FROM RUDGEAR ROAD UNDERCROSSING TO 0.2 MILE SOUTH OF MONUMENT BOULEVARD UNDERCROSSING

TO BE SUPPLEMENTED BY STANDARD PLANS DATED 2010

INDEX OF PLANS


| SHEET No. | DESCRIPTION |
|---|---|
| 1 | TITLE AND LOCATION MAP |
| 2 | TYPICAL CROSS SECTIONS |
| 3 & 4 | CONSTRUCTION DETAILS |
| 5-10 | CONSTRUCTION AREA SIGNS |
| 11 & 12 | PAVEMENT DELINEATION DETAILS & QUANTITIES |
| 13 & 14 | SUMMARY OF QUANTITIES |
| 15-18 | ELECTRICAL PLANS |
| 19-22 | TRAFFIC CONTROL SYSTEM PLANS |


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




PROJECT ENGINEER REGISTERED CIVIL ENGINEER — DATE 12/27/12

January 22, 2013
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — Sherry S. Huang — No. 75529 — Exp. 6-30-14 — 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.*

PROJECT MANAGER: RAMSES SARGISS

DESIGN ENGINEER: ROBERT CAMARGO

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

NO SCALE

| CONTRACT No. | 04-3E4304 |
|---|---|
| PROJECT ID | 0412000306 |

LAST REVISION 12-27-12 — DATE PLOTTED => 22-FEB-2013 — TIME PLOTTED => 08:58

| Dist | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
|---|---|---|---|---|---|
| 04 | CC | 680 | R12.7/R17.5 | 2 | 22 |

REGISTERED CIVIL ENGINEER 12/27/12 DATE

1-22-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER Sherry S. Huang No. 75529 Exp. 6-30-14 CIVIL STATE OF CALIFORNIA

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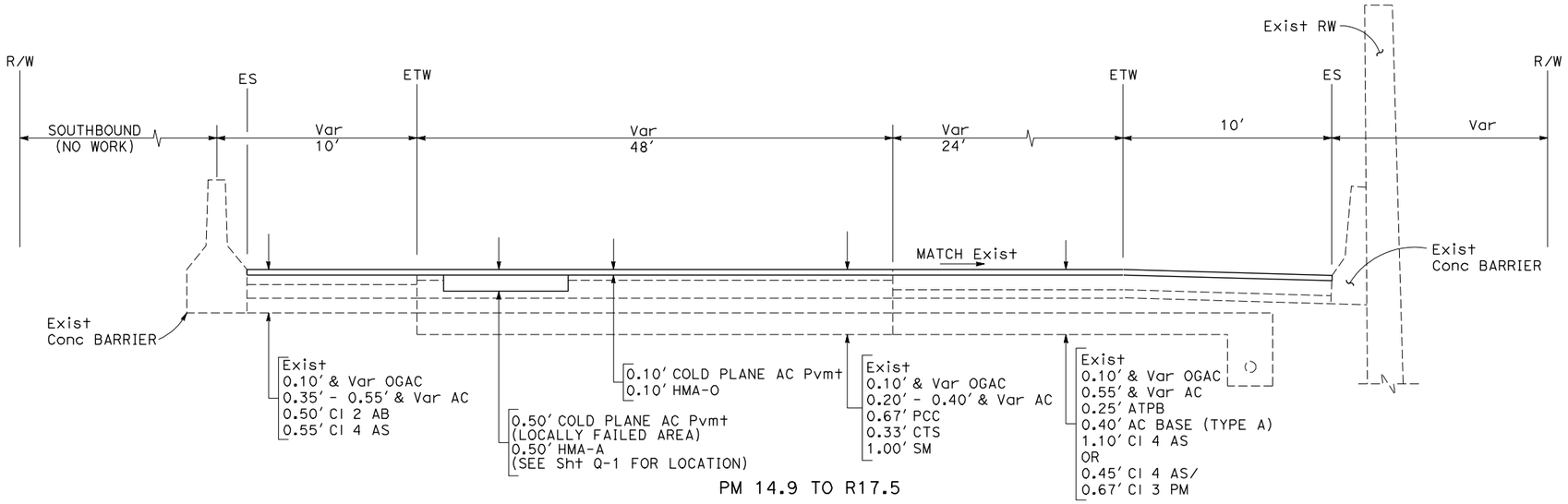
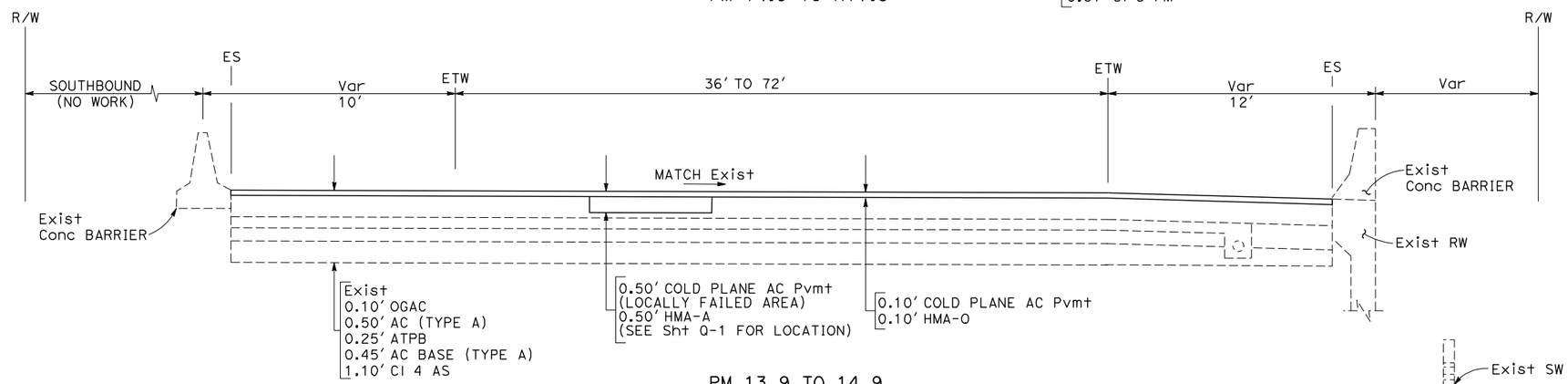
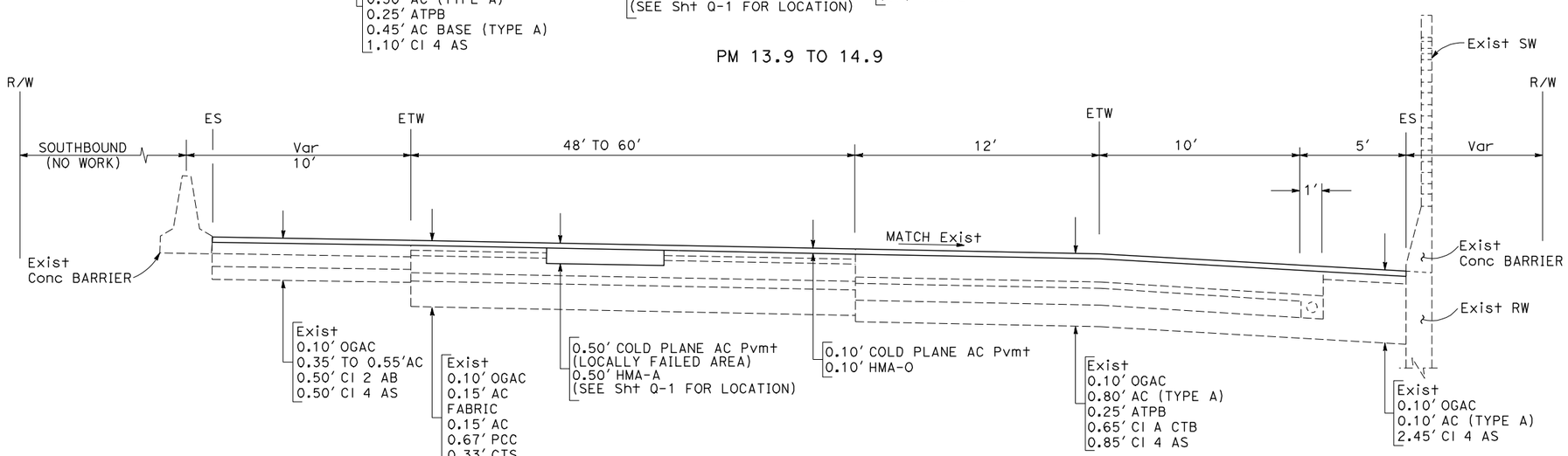



PM 14.9 TO R17.5




PM 13.9 TO 14.9




PM R12.7 TO 13.9
**ROUTE 680**
(NORTHBOUND)

## ABBREVIATIONS

| | |
|---|---|
| CTS | CEMENT TREATED SUBGRADE |
| HMA-A | HOT MIX ASPHALT (TYPE A) |

## NOTES

1. FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.
2. DIMENSIONS OF THE PAVEMENT STRUCTURES (STRUCTURAL SECTIONS) ARE SUBJECT TO TOLERANCES SPECIFIED IN THE STANDARD SPECIFICATIONS.
3. EXISTING UTILITIES HAVE NOT BEEN PLOTTED ON THESE PLANS.

# TYPICAL CROSS SECTIONS
NO SCALE

**X-1**

| REVISED BY | DATE REVISED |
|---|---|
| SH | 6/1/12 |

CALCULATED-DESIGNED BY: SHERRY HUANG
CHECKED BY: ROBERT CAMARGO
FUNCTIONAL SUPERVISOR: ROBERT CAMARGO

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
DESIGN

LAST REVISION 12-27-12
DATE PLOTTED => 22-FEB-2013
TIME PLOTTED => 08:58

| Dist | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
|---|---|---|---|---|---|
| 04 | CC | 680 | R12.7/R17.5 | 3 | 22 |

REGISTERED CIVIL ENGINEER 12/27/12 DATE

1-22-13
PLANS APPROVAL DATE

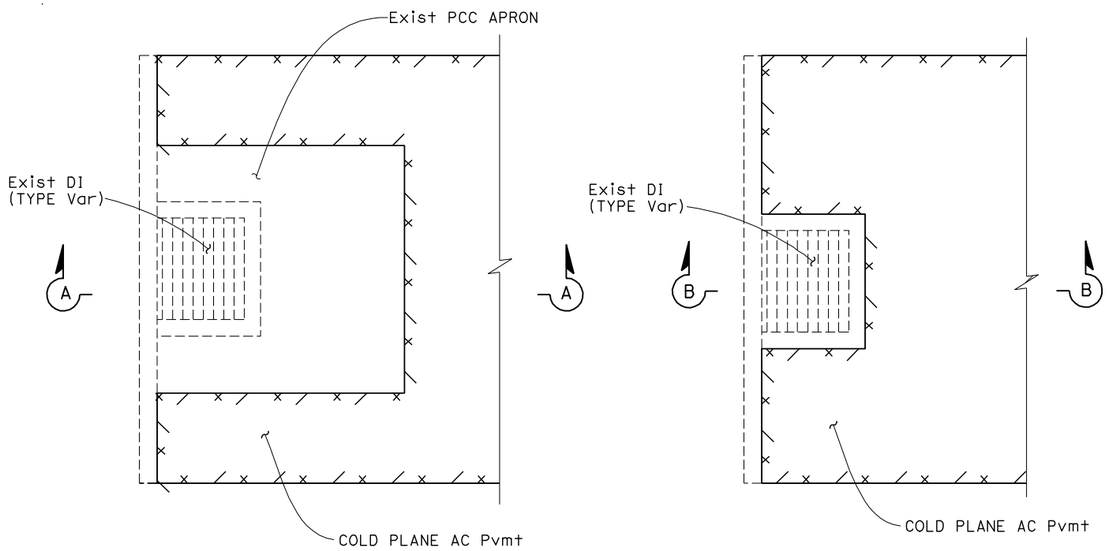
REGISTERED PROFESSIONAL ENGINEER Sherry S. Huang No. 75529 Exp. 6-30-14 CIVIL STATE OF CALIFORNIA

*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.*

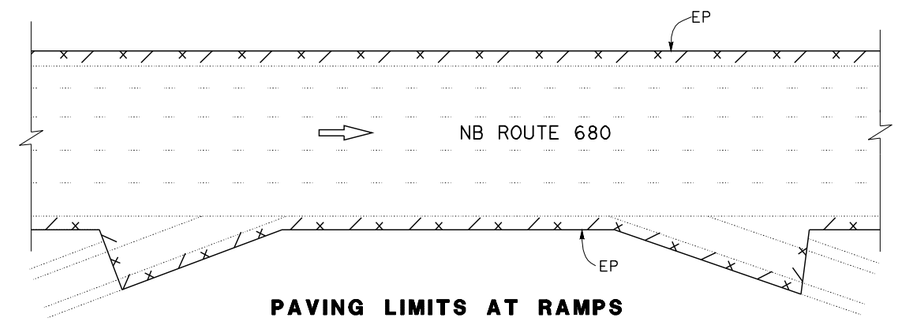
## LEGEND

DIRECTION OF TRAVEL

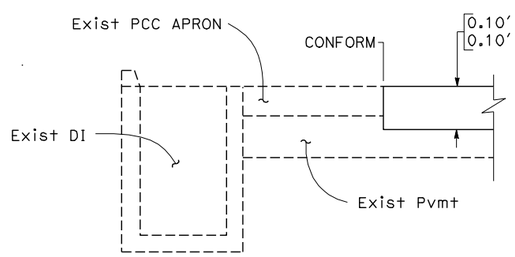
COLD PLANE AC PAVEMENT AND 0.10' HMA-O




**PLAN** **PLAN**

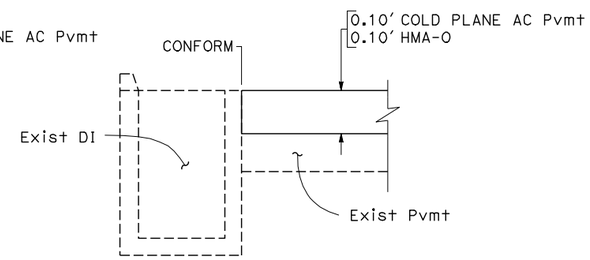



**PAVING LIMITS AT RAMPS**



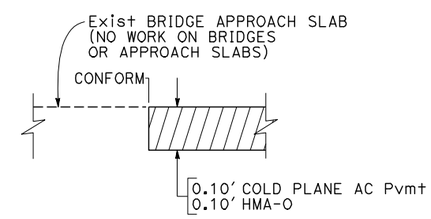

SECTION A-A

**PAVING CONFORM AT INLET WITH PCC APRON**

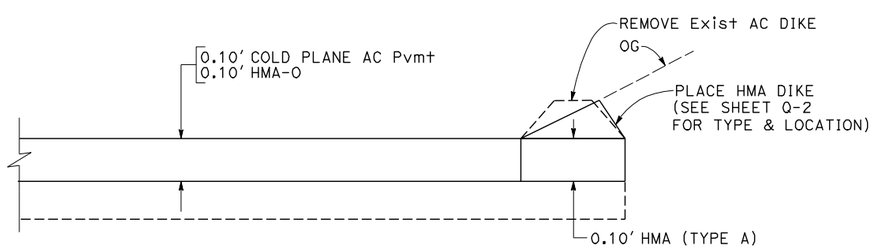



SECTION B-B

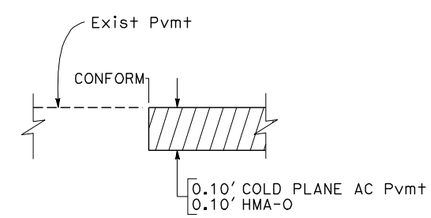
**PAVING CONFORM AT INLET**




**PAVING CONFORM AT BRIDGES**




**PAVING CONFORM AT DIKE**




**PAVING CONFORM AT BEGIN AND END CONSTRUCTION**

# CONSTRUCTION DETAILS
**(TYPICAL)**
NO SCALE

**C-1**

| REVISED BY | DATE REVISED |
|---|---|
| SH | 6/1/12 |

CALCULATED-DESIGNED BY: SHERRY HUANG
CHECKED BY: ROBERT CAMARGO
FUNCTIONAL SUPERVISOR: ROBERT CAMARGO

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
DESIGN

LAST REVISION 12-27-12 | DATE PLOTTED => 22-FEB-2013 | TIME PLOTTED => 08:58

| Dist | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
|---|---|---|---|---|---|
| 04 | CC | 680 | R12.7/R17.5 | 4 | 22 |

REGISTERED CIVIL ENGINEER 12/27/12 DATE

1-22-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER Sherry S. Huang No. 75529 Exp. 6-30-14 CIVIL STATE OF CALIFORNIA

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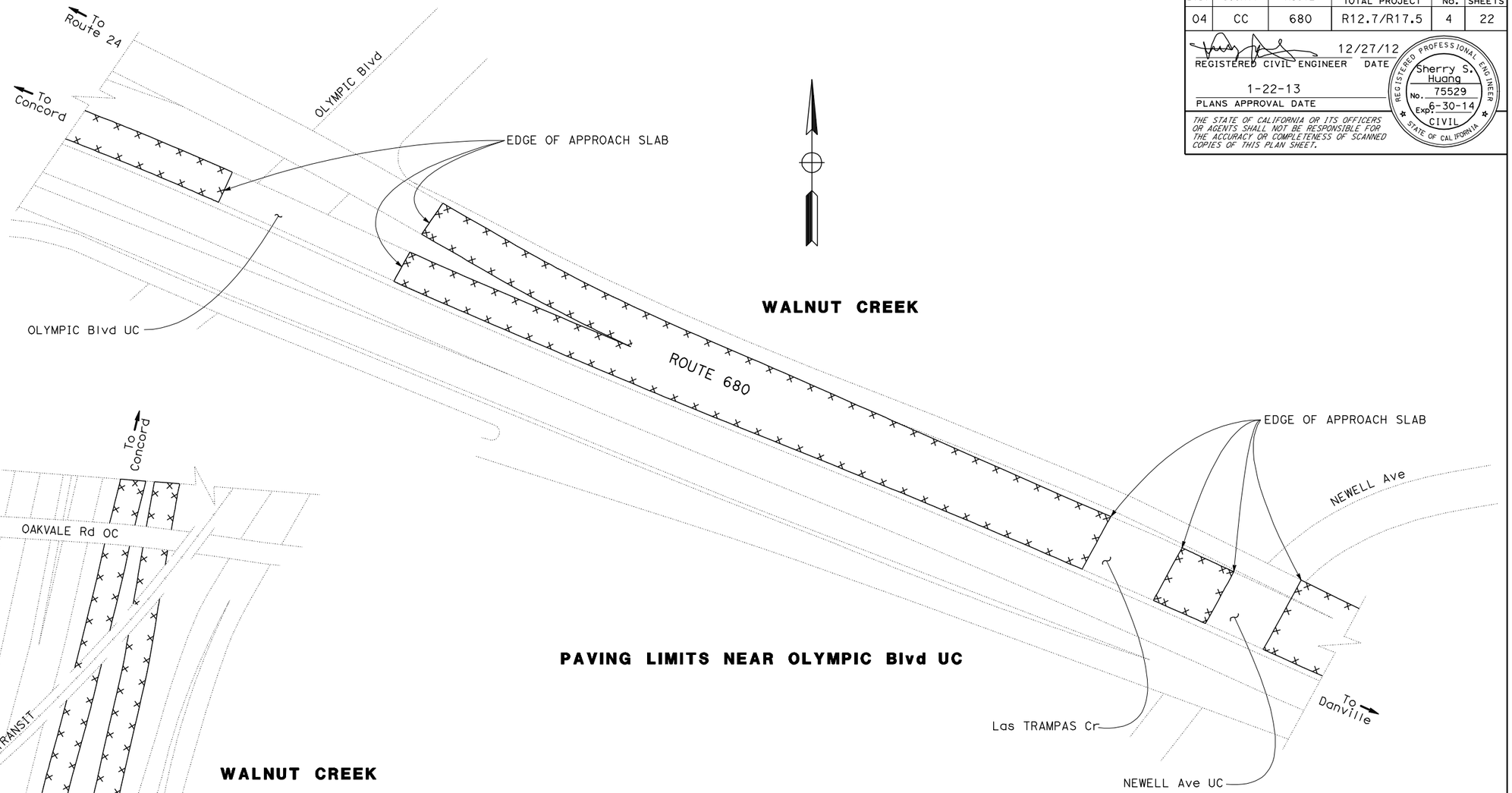
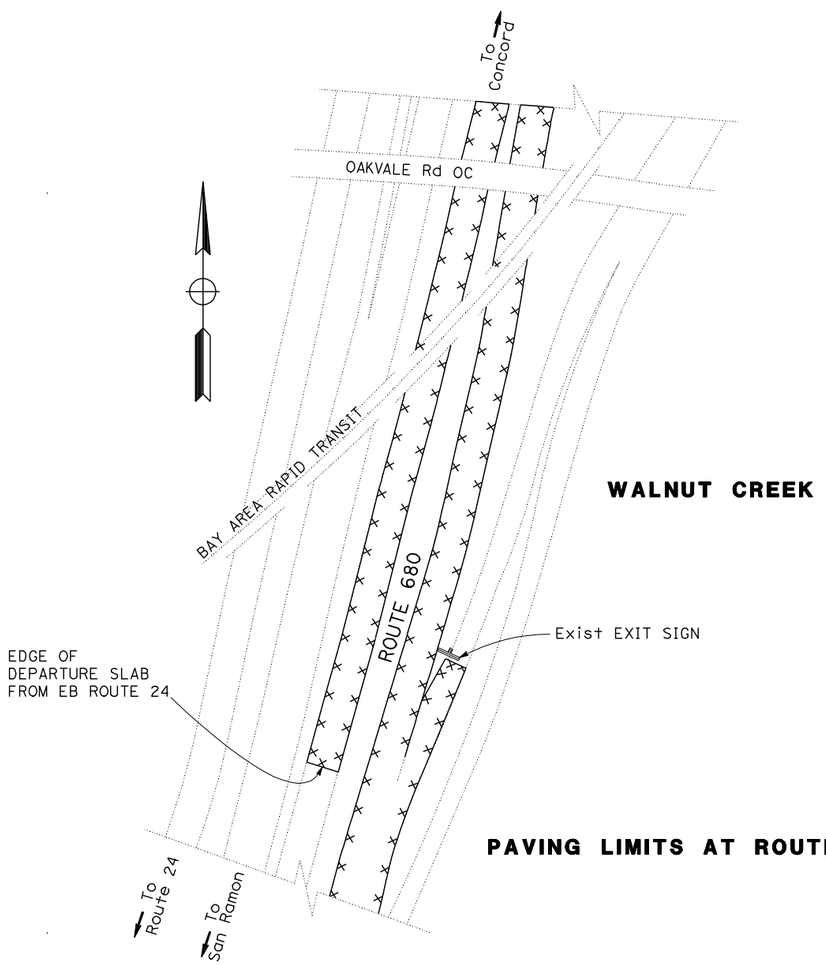



PAVING LIMITS NEAR OLYMPIC Blvd UC




PAVING LIMITS AT ROUTE 24 MERGING ROUTE NB 680

# CONSTRUCTION DETAILS

NO SCALE

C-2

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans DESIGN

FUNCTIONAL SUPERVISOR: ROBERT CAMARGO
CALCULATED-DESIGNED BY: SHERRY HUANG
CHECKED BY: ROBERT CAMARGO
REVISED BY: SH
DATE REVISED: 6/1/12

LAST REVISION 12-27-12
DATE PLOTTED => 22-FEB-2013
TIME PLOTTED => 08:59

| Dist | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
|---|---|---|---|---|---|
| 04 | CC | 680 | R12.7/R17.5 | 5 | 22 |

Lourdes David 12/27/12
REGISTERED CIVIL ENGINEER DATE

1-22-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER Lourdes David No. 51428 Exp. 6-30-14 CIVIL STATE OF CALIFORNIA

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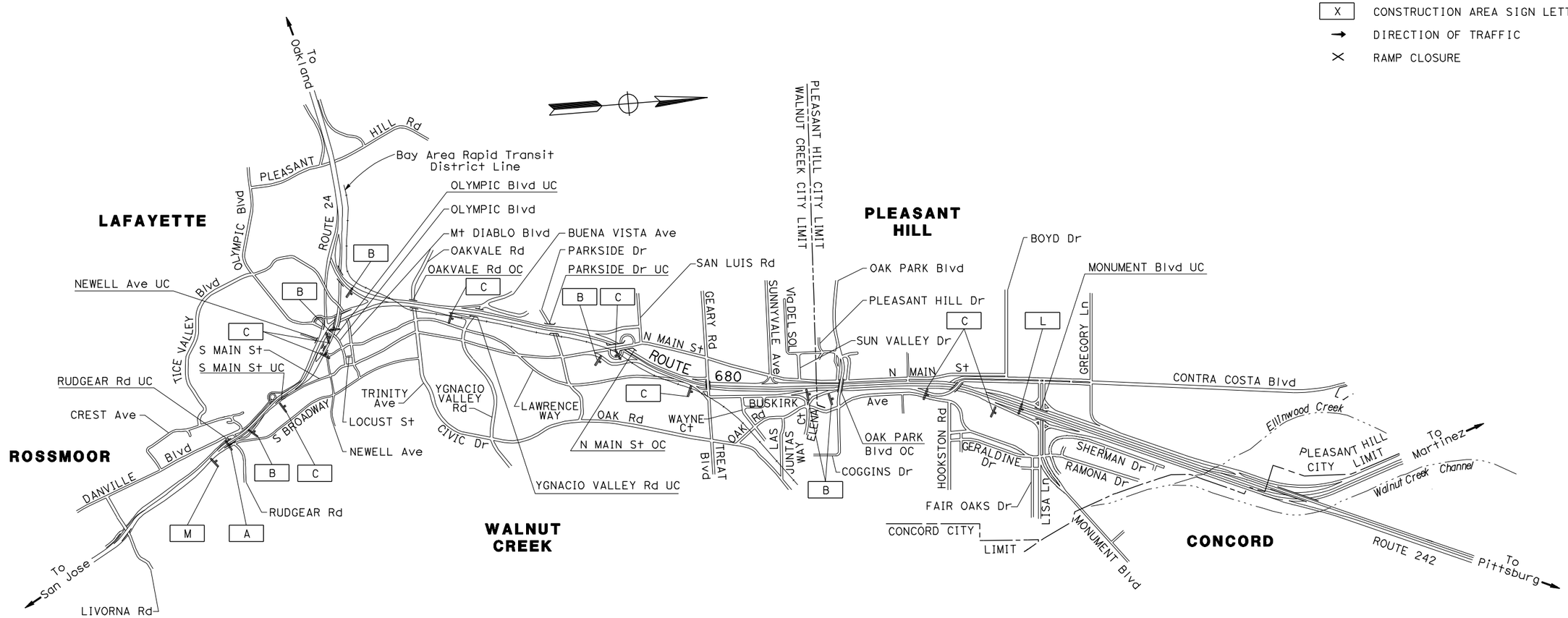
## NOTE

EXACT LOCATION AND POSITION OF CONSTRUCTION AREA SIGNS TO BE DETERMINED BY THE ENGINEER.

## LEGEND

- [X] CONSTRUCTION AREA SIGN LETTER
- → DIRECTION OF TRAFFIC
- ✕ RAMP CLOSURE




## CONSTRUCTION AREA SIGNS

NO SCALE

*APPROVED FOR CONSTRUCTION AREA SIGN WORK ONLY*

**CS-1**

| | |
|---|---|
| CALCULATED-DESIGNED BY | CLAUDIA FANG |
| CHECKED BY | FLORANTE PEREZ |
| REVISED BY | SH |
| DATE REVISED | 6/1/12 |
| FUNCTIONAL SUPERVISOR | ROLAND AU-YEUNG |

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
TRAFFIC

LAST REVISION 12-27-12
DATE PLOTTED => 22-FEB-2013
TIME PLOTTED => 08:59

| Dist | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
|---|---|---|---|---|---|
| 04 | CC | 680 | R12.7/R17.5 | 6 | 22 |

Lourdes David 12/27/12
REGISTERED CIVIL ENGINEER DATE

1-22-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER Lourdes David No. 51428 Exp. 6-30-14 CIVIL STATE OF CALIFORNIA

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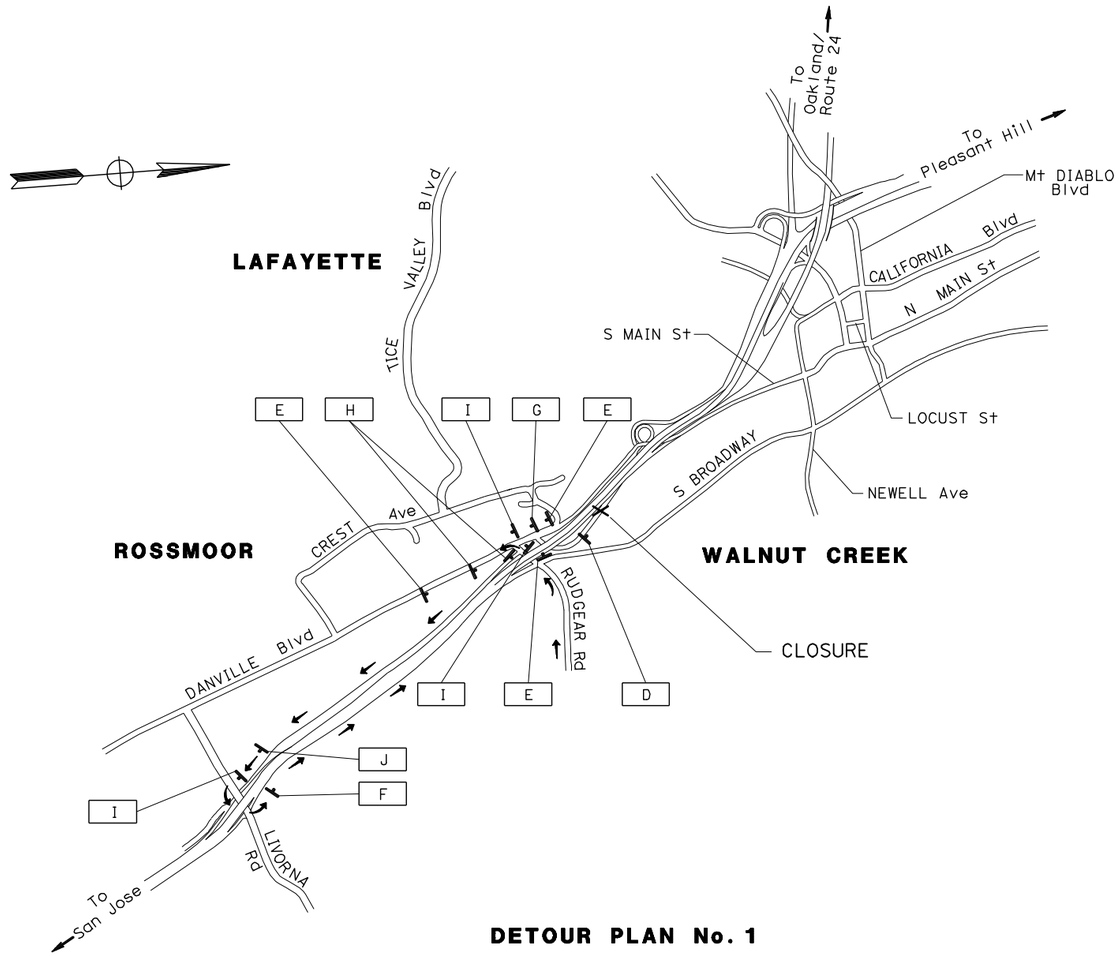


## DETOUR PLAN No. 1

NB ROUTE 680 ON FROM RUDGEAR Rd
CLOSED

Via:
WB RUDGEAR Rd ON TO SB 680;
SB 680 OFF TO LIVORNIA Rd;
NB ON FROM LIVORNA Rd.

# CONSTRUCTION AREA SIGNS

NO SCALE

*APPROVED FOR CONSTRUCTION AREA SIGN WORK ONLY*

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

**CS-2**

| | |
|---|---|
| REVISED BY | SH |
| DATE REVISED | 6/1/12 |
| CALCULATED-DESIGNED BY | CLAUDIA FANG |
| CHECKED BY | FLORANTE PEREZ |
| FUNCTIONAL SUPERVISOR | ROLAND AU-YEUNG |

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
TRAFFIC

LAST REVISION 12-27-12 | DATE PLOTTED => 22-FEB-2013 | TIME PLOTTED => 08:59

| Dist | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
|---|---|---|---|---|---|
| 04 | CC | 680 | R12.7/R17.5 | 7 | 22 |

Lourdes David 12/27/12
REGISTERED CIVIL ENGINEER DATE

1-22-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER Lourdes David No. 51428 Exp. 6-30-14 CIVIL STATE OF CALIFORNIA

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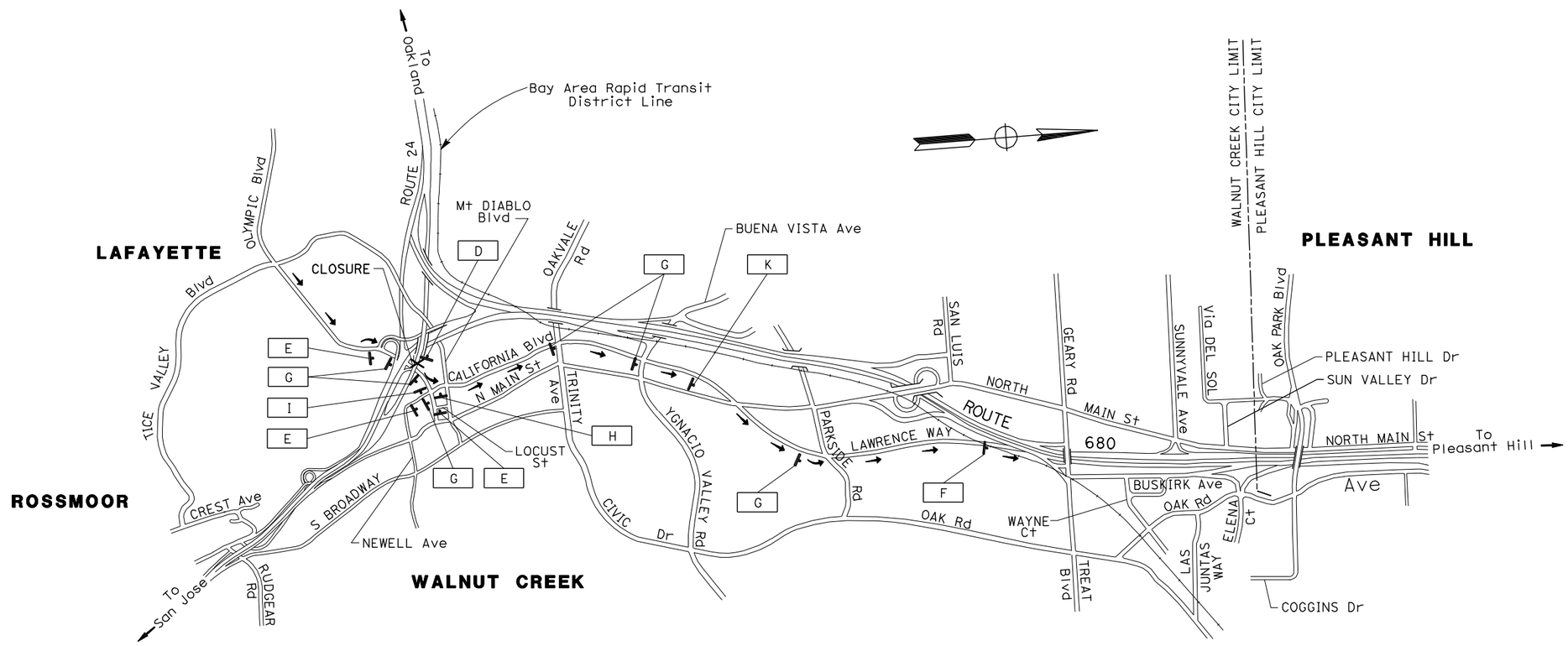


## DETOUR PLAN No. 2

NB ROUTE 680 ON FROM OLYMPIC Blvd
CLOSED

Via:
EB OLYMPIC Blvd;
NB CALIFORNIA Blvd;
NB LAWRENCE WAY;
NB ON FROM NORTH MAIN St.

*APPROVED FOR CONSTRUCTION AREA SIGN WORK ONLY*

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

# CONSTRUCTION AREA SIGNS

NO SCALE

**CS-3**

| REVISED BY | DATE REVISED |
|---|---|
| SH | 6/1/12 |

CALCULATED-DESIGNED BY: CLAUDIA FANG
CHECKED BY: FLORANTE PEREZ
FUNCTIONAL SUPERVISOR: ROLAND AU-YEUNG

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
TRAFFIC

LAST REVISION 12-27-12
DATE PLOTTED => 22-FEB-2013
TIME PLOTTED => 08:59

| Dist | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
|---|---|---|---|---|---|
| 04 | CC | 680 | R12.7/R17.5 | 8 | 22 |

Lourdes David 12/27/12
REGISTERED CIVIL ENGINEER DATE

1-22-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER Lourdes David No. 51428 Exp. 6-30-14 CIVIL STATE OF CALIFORNIA

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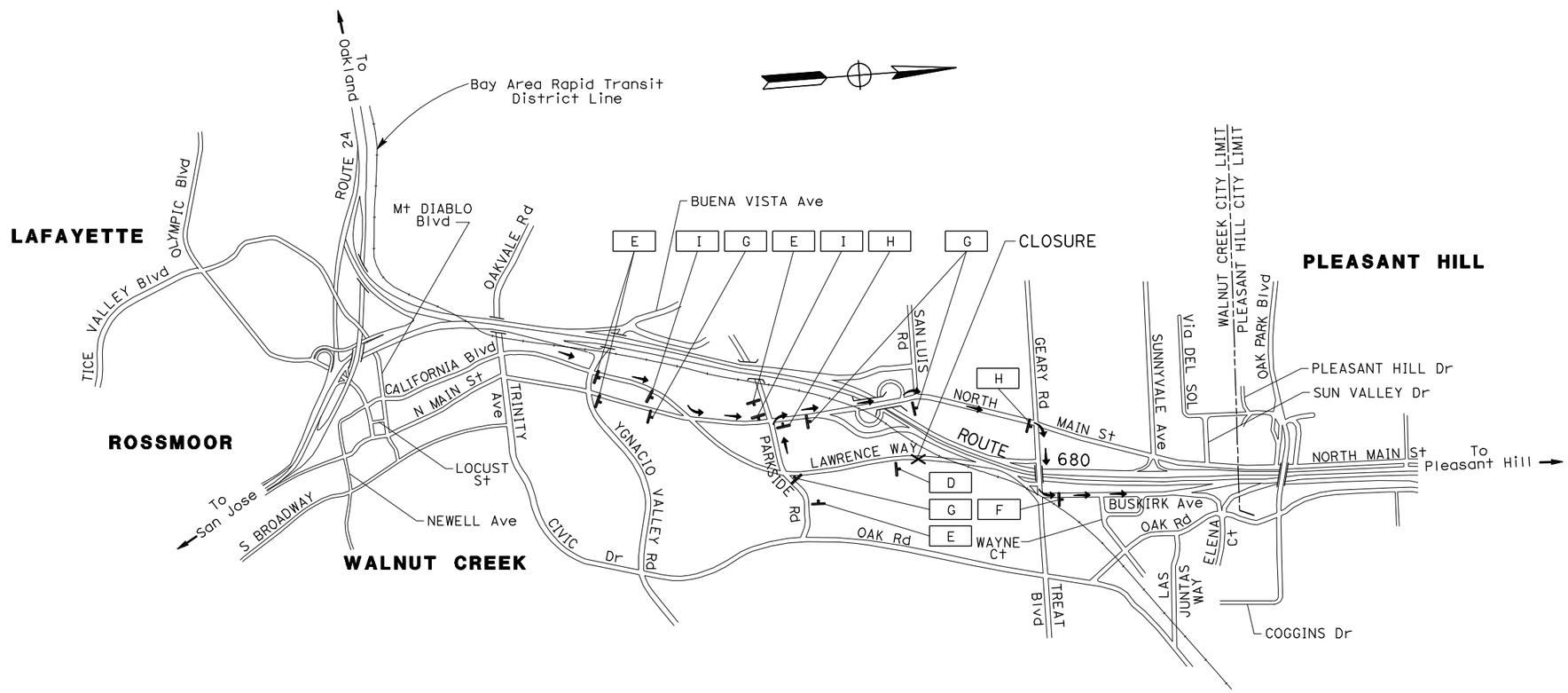


## DETOUR PLAN No. 3

NB ROUTE 680 ON FROM NORTH MAIN St
CLOSED

Via:
NB NORTH MAIN St;
EB TREAT Blvd;
NB BUSKIRK Ave;
NB ON FROM TREAT Blvd/BUSKIRK Ave.

# CONSTRUCTION AREA SIGNS

NO SCALE

*APPROVED FOR CONSTRUCTION AREA SIGN WORK ONLY*

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

**CS-4**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
TRAFFIC

FUNCTIONAL SUPERVISOR: ROLAND AU-YEUNG
CALCULATED-DESIGNED BY: CLAUDIA FANG
CHECKED BY: FLORANTE PEREZ
REVISED BY: SH
DATE REVISED: 6/1/12

LAST REVISION 12-27-12
DATE PLOTTED => 22-FEB-2013
TIME PLOTTED => 08:59

| Dist | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
|---|---|---|---|---|---|
| 04 | CC | 680 | R12.7/R17.5 | 9 | 22 |

Lourdes David 12/27/12
REGISTERED CIVIL ENGINEER DATE

1-22-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER Lourdes David No. 51428 Exp. 6-30-14 CIVIL STATE OF CALIFORNIA

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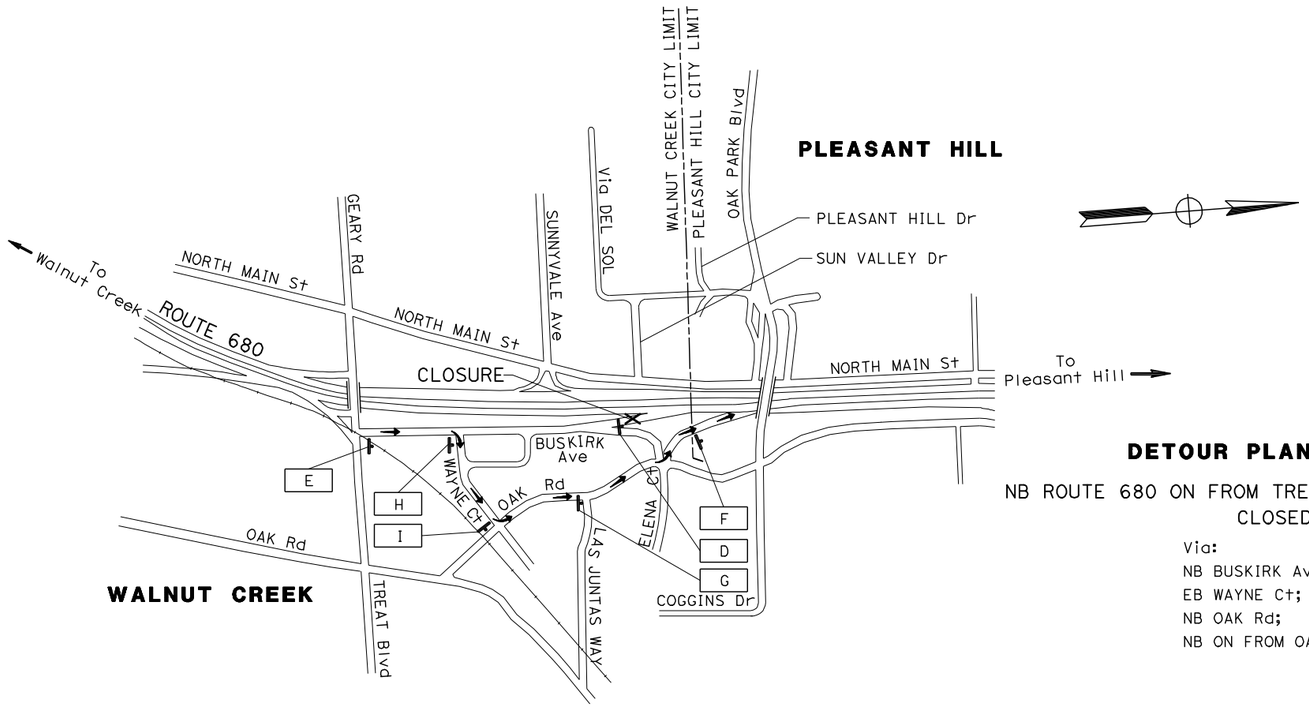
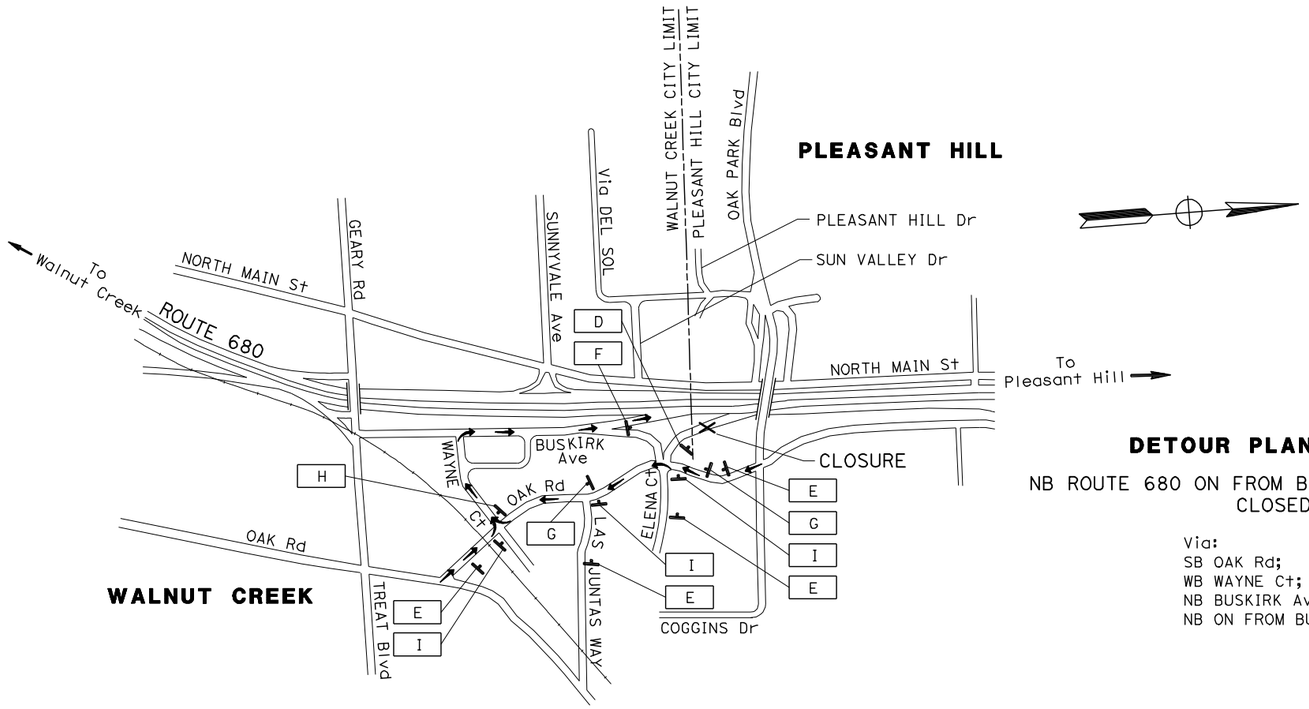



## DETOUR PLAN No. 4

NB ROUTE 680 ON FROM TREAT Blvd/BUSKIRK Ave
CLOSED

Via:
NB BUSKIRK Ave;
EB WAYNE Ct;
NB OAK Rd;
NB ON FROM OAK Rd.




## DETOUR PLAN No. 5

NB ROUTE 680 ON FROM BUSKIRK/COGGINS Dr
CLOSED

Via:
SB OAK Rd;
WB WAYNE Ct;
NB BUSKIRK Ave;
NB ON FROM BUSKIRK Ave.

# CONSTRUCTION AREA SIGNS

NO SCALE

*APPROVED FOR CONSTRUCTION AREA SIGN WORK ONLY*

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

**CS-5**

| | |
|---|---|
| CALCULATED-DESIGNED BY | CLAUDIA FANG |
| CHECKED BY | FLORANTE PEREZ |
| REVISED BY | SH |
| DATE REVISED | 6/1/12 |
| FUNCTIONAL SUPERVISOR | ROLAND AU-YEUNG |

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
TRAFFIC

LAST REVISION 12-27-12
DATE PLOTTED => 22-FEB-2013
TIME PLOTTED => 08:59

| Dist | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
|---|---|---|---|---|---|
| 04 | CC | 680 | R12.7/R17.5 | 10 | 22 |

Lourdes David 12/27/12
REGISTERED CIVIL ENGINEER DATE

1-22-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER Lourdes David No. 51428 Exp. 6-30-14 CIVIL STATE OF CALIFORNIA

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# STATIONARY MOUNTED CONSTRUCTION AREA SIGNS

| SIGN X | SIGN CODE | SIGN MESSAGE | PANEL SIZE | NUMBER OF POSTS AND SIZE | NUMGER OF SIGNS |
|---|---|---|---|---|---|
| A | W20-1 | ROAD WORK AHEAD | 48" x 48" | 2 - 4" x 6" | 1 |
| B | W20-1 | ROAD WORK AHEAD | 36" x 36" | 1 - 4" x 4" | 6 |
| C | G20-2 | END ROAD WORK | 36" x 18" | 1 - 4" x 4" | 8 |
| D | SC6-4(CA) | RAMP CLOSED | 48" x 60" | 1 - 6" x 6" | 5 |
| E | W20-2 | DETOUR AHEAD | 36" x 36" | 1 - 4" x 6" | 15 |
| F | M4-8A | END DETOUR | 24" x 18" | 1 - 4" x 4" | 5 |
| G | M4-8 | DETOUR | 30" x 15" | 1 - 6" x 6" | 14 |
| | G27-2(680)(CA) | ROUTE 680 SHIELD | 30" x 25" | | |
| | M3-1 | NORTH | 30" x 15" | | |
| | M6-3 (↑) | STRAIGHT UP ARROW | 21" x 15" | | |
| H | M4-8 | DETOUR | 30" x 15" | 1 - 6" x 6" | 7 |
| | G27-2(680)(CA) | ROUTE 680 SHIELD | 30" x 25" | | |
| | M3-1 | NORTH | 30" x 15" | | |
| | M6-1 (→) | RIGHT ARROW | 21" x 15" | | |
| I | M4-8 | DETOUR | 30" x 15" | 1 - 6" x 6" | 10 |
| | G27-2(680)(CA) | ROUTE 680 SHIELD | 30" x 25" | | |
| | M3-1 | NORTH | 30" x 15" | | |
| | M6-1 (←) | LEFT ARROW | 21" x 15" | | |
| J | M4-8 | DETOUR | 30" x 15" | 1 - 6" x 6" | 1 |
| | G27-2(680)(CA) | ROUTE 680 SHIELD | 30" x 25" | | |
| | M3-1 | NORTH | 30" x 15" | | |
| | M6-2 (↗) | UP RIGHT ARROW | 21" x 15" | | |
| K | M4-8 | DETOUR | 30" x 15" | 1 - 6" x 6" | 1 |
| | G27-2(680)(CA) | ROUTE 680 SHIELD | 30" x 25" | | |
| | M3-1 | NORTH | 30" x 15" | | |
| | M6-2 (↖) | UP LEFT ARROW | 21" x 15" | | |
| L | G20-2 | END ROAD WORK | 48" x 24" | 1 - 4" x 6" | 1 |
| M | C40(CA) | TRAFFIC FINES DOUBLED IN CONSTRUCTION ZONES | 144" x 60" | 1 - 6" x 8" | 1 |

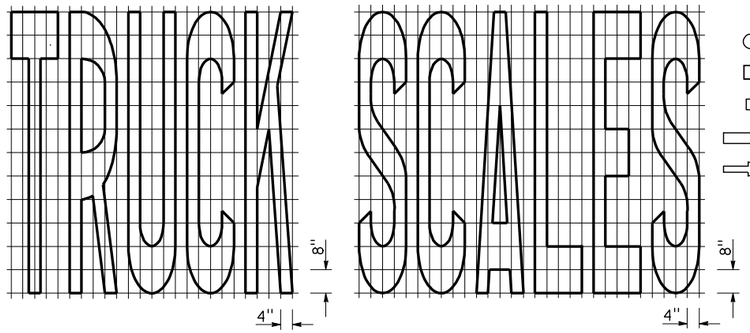
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans TRAFFIC

FUNCTIONAL SUPERVISOR: ROLAND AU-YEUNG
CALCULATED-DESIGNED BY: CLAUDIA FANG
CHECKED BY: FLORANTE PEREZ
REVISED BY: SH
DATE REVISED: 6/1/12

## CONSTRUCTION AREA SIGNS

CS-6

LAST REVISION 12-27-12
DATE PLOTTED => 22-FEB-2013
TIME PLOTTED => 08:59




**PAVEMENT MARKING DETAIL "TRUCK SCALES"**
TOTAL AREA: A=54 SQFT

## LEGEND

- TYPE A WHITE NON-REFLECTIVE MARKER
- TYPE G ONE-WAY CLEAR RETROREFLECTIVE MARKER
- TYPE C RED-CLEAR RETROREFLECTIVE MARKER
- 4" WHITE
- DIRECTION OF TRAVEL

## NOTES

1. INSTALL 4" WHITE AFTER INSTALLING PAVEMENT MARKERS.
2. DETAIL 14M TO BE USED IN COMBINATION WITH DETAIL 13M.
3. IF A MESSAGE CONSISTS OF MORE THAN ONE WORD, IT SHOULD READ "UP" i.e., THE FIRST WORD SHOULD BE NEAREST THE DRIVER.
4. 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.
5. MINOR VARIATIONS IN DIMENSIONS MAY BE ACCEPTED BY THE ENGINEER.
6. PORTIONS OF A LETTER, NUMBER OR SYMBOL MAY BE SEPARATED BY CONNECTING SEGMENTS NOT TO EXCEED 2" IN WIDTH.
7. ALL EXISTING PAVEMENT DELINEATIONS SHALL BE REPLACED IN KIND OR AS DIRECTED BY THE ENGINEER.

| Dist | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
|---|---|---|---|---|---|
| 04 | CC | 680 | R12.7/R17.5 | 11 | 22 |

REGISTERED CIVIL ENGINEER 12/27/12 DATE

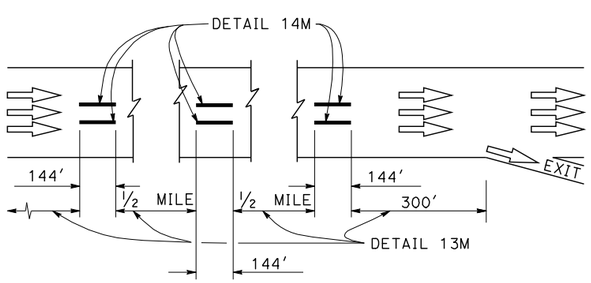
1-22-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER Sherry S. Huang No. 75529 Exp. 6-30-14 CIVIL STATE OF CALIFORNIA

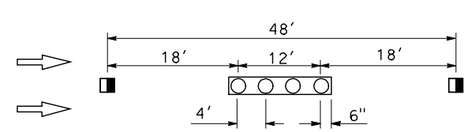
*THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.*

## TRAFFIC STRIPES, PAVEMENT MARKINGS AND PAVEMENT MARKERS

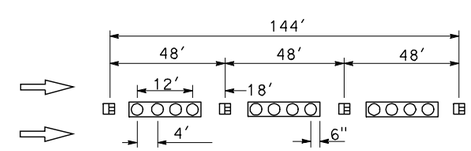
| LOCATION | PM | DETAIL No. | THERMOPLASTIC TRAFFIC STRIPE | | | | | | PAVEMENT MARKER | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 4" WHITE | 4" YELLOW | 4" WHITE (BROKEN 17-7) | 4" WHITE (BROKEN 35-13) | 8" WHITE | 8" WHITE (BROKEN 12-3) | NON-REFLECTIVE | RETROREFLECTIVE | | |
| | | | | | | | | | TYPE A | TYPE C | TYPE G | TYPE H |
| | | | LF | | | | | | EA | | | |
| RUDGEAR Rd UC TO SOUTH MAIN St UC | R12.7-13.1 | 13M | | | | 8640 | | | 724 | | 180 | |
| | | 14M | | | | 576 | | | 48 | 16 | | |
| | | 25 | | 2482 | | | | | | | | 53 |
| | | 25A | | 112 | | | | | | | | 6 |
| | | 27B | 2482 | | | | | | | | | |
| | | 36 | | | | | 484 | | | | 22 | |
| | | 36A | | | | | 103 | | | | 4 | |
| SOUTH MAIN St UC TO OLYMPIC Blvd UC | 13.1-13.9 | 13M | | | | 12640 | | | 1060 | | 263 | |
| | | 14M | | | | 864 | | | 72 | 24 | | |
| | | 25 | | 4388 | | | | | | | | 93 |
| | | 25A | | 225 | | | | | | | | 11 |
| | | 27B | 4388 | | | | | | | | | |
| | | 36 | | | | | 1752 | | | | 74 | |
| | | 37 | | | | | | 2327 | | 156 | | |
| | | 38B | | | | | 303 | | | | 28 | |
| OLYMPIC Blvd UC TO YGNACIO VALLEY Rd UC | 13.9-14.9 | 9 | | | 325 | | | | | | 8 | |
| | | 13M | | | | 13130 | | | 1096 | | 285 | |
| | | 14M | | | | 1296 | | | 108 | 36 | | |
| | | 25 | | 5380 | | | | | | | | 114 |
| | | 27B | 5380 | | | | | | | | | |
| | | 36 | | | | | 634 | | | | 28 | |
| | | 36B | | | | | 2030 | | | | 88 | |
| | | 37 | | | | | | 527 | | 36 | | |
| | | 38B | | | | | 518 | | | | 48 | |
| SUBTOTAL | | | 12250 | 12587 | 325 | 37146 | 5824 | 2854 | 3108 | 268 | 1028 | 277 |




**TYPICAL LANE LINE DELINEATION IN ADVANCE OF EXIT RAMP**




**DETAIL 13M**




**DETAIL 14M**

# PAVEMENT DELINEATION DETAILS AND QUANTITIES

**PDD-1**

| REVISED BY | DATE REVISED |
|---|---|
| SH | 6/1/12 |

SHERRY HUANG — CALCULATED-DESIGNED BY
ROBERT CAMARGO — CHECKED BY
ROBERT CAMARGO — FUNCTIONAL SUPERVISOR

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® DESIGN

LAST REVISION 12-27-12 | DATE PLOTTED => 22-FEB-2013 | TIME PLOTTED => 08:59

| Dist | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
|---|---|---|---|---|---|
| 04 | CC | 680 | R12.7/R17.5 | 12 | 22 |

REGISTERED CIVIL ENGINEER 12/27/12 DATE

1-22-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER Sherry S. Huang No. 75529 Exp. 6-30-14 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.*

# TRAFFIC STRIPES, PAVEMENT MARKINGS AND PAVEMENT MARKERS

| LOCATION | PM | DETAIL No. OR PAVEMENT MARKING | THERMOPLASTIC TRAFFIC STRIPE | | | | | | PAVEMENT MARKER | | | | THERMOPLASTIC PAVEMENT MARKING |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 4" WHITE | 4" YELLOW | 4" WHITE (BROKEN 17-7) | 4" WHITE (BROKEN 35-13) | 8" WHITE | 8" WHITE (BROKEN 12-3) | NON-REFLECTIVE | RETROREFLECTIVE | | | |
| | | | | | | | | | TYPE A | TYPE C | TYPE G | TYPE H | WORDS |
| | | | LF | | | | | | EA | | | | SQFT |
| YGNACIO VALLEY Rd UC TO GEARY Rd OC | 14.9-16.4 | 9 | | | 190 | | | | | | 5 | | |
| | | 13M | | | | 31931 | | | 2664 | | 654 | | |
| | | 14M | | | | 2448 | | | 204 | 68 | | | |
| | | 25 | | 8100 | | | | | | | | 170 | |
| | | 27B | 8100 | | | | | | | | | | |
| | | 36 | | | | | 884 | | | | 42 | | |
| | | 36A | | | | | 178 | | | | 8 | | |
| | | 37 | | | | | | 2555 | | 170 | | | |
| | | 38B | | | | | 616 | | | | 56 | | |
| | | TRUCK SCALES (3 EA) | | | | | | | | | | | 162 |
| GEARY Rd OC TO END OF CONSTRUCTION | 16.4-R17.5 | 8 | | | 414 | | | | | | | | |
| | | 13M | | | | 22994 | | | 1916 | | 476 | | |
| | | 14M | | | | 1152 | | | 96 | 32 | | | |
| | | 25 | | 5856 | | | | | | | | 123 | |
| | | 25A | | 170 | | | | | | | | 8 | |
| | | 27B | 5856 | | | | | | | | | | |
| | | 36 | | | | | 1378 | | | | 60 | | |
| | | 36A | | | | | 533 | | | | 24 | | |
| | | 37 | | | | | | 4043 | | 270 | | | |
| | | 38B | | | | | 366 | | | | 32 | | |
| SUBTOTAL | | | 13956 | 14126 | 604 | 58525 | 3955 | 6598 | 4880 | 540 | 1357 | 301 | 162 |
| SUBTOTAL FROM PDD-1 | | | 12250 | 12587 | 325 | 37146 | 5824 | 2854 | 3108 | 268 | 1028 | 277 | |
| TOTAL | | | 52919 | | 929 | 95671 | 9779 | 9452 | 7988 | 3771 | | | 162 |

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans DESIGN

FUNCTIONAL SUPERVISOR: ROBERT CAMARGO
CALCULATED-DESIGNED BY: SHERRY HUANG
CHECKED BY: ROBERT CAMARGO
REVISED BY: SH
DATE REVISED: 6/1/12

# PAVEMENT DELINEATION DETAILS AND QUANTITIES

PDD-2

LAST REVISION 12-27-12
DATE PLOTTED => 22-FEB-2013
TIME PLOTTED => 08:59

| Dist | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
|---|---|---|---|---|---|
| 04 | CC | 680 | R12.7/R17.5 | 13 | 22 |

REGISTERED CIVIL ENGINEER 12/27/12 DATE

1-22-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER Sherry S. Huang No. 75529 Exp. 6-30-14 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.*

## COLD PLANE AC PAVEMENT (LOCALLY FAILED AREA) *

| PM | LANE No. | LENGTH | WIDTH | COLD PLANE AC Pvmt (LOCALLY FAILED AREA) (N) | HMA (TYPE A) (N) |
|---|---|---|---|---|---|
| | | LF | | SQYD | TON |
| R12.7 | 1, 2, 3 | 60 | 12 | 240 | 81 |
| 12.8 | 4 | 20 | 12 | 27 | 9 |
| 13.0 | 2 | 50 | 12 | 67 | 23 |
| 13.1 | 3 | 150 | 12 | 200 | 68 |
| 13.2 | 3 | 80 | 12 | 107 | 36 |
| 13.3 | 3 | 250 | 12 | 333 | 113 |
| 13.6 | 1, 2 | 150 | 12 | 400 | 135 |
| 13.7 | 4 | 75 | 12 | 100 | 34 |
| 13.8 | 2, 3 | 150 | 12 | 400 | 135 |
| 13.9 | 3 | 100 | 12 | 133 | 45 |
| 14.2 | 3 | 60 | 12 | 80 | 27 |
| 14.3 | 2, 3, 4 | 50 | 12 | 200 | 68 |
| 14.4 | 3, 4 | 50 | 12 | 133 | 45 |
| 14.5 | 3 | 100 | 12 | 133 | 45 |
| 14.9 | 4, 5 | 50 | 12 | 133 | 45 |
| 15.0 | 2 | 50 | 12 | 67 | 23 |
| 15.3 | 1, 2, 3, 4, 5 | 70 | 12 | 467 | 158 |
| 15.4 | 4 | 50 | 12 | 67 | 23 |
| 15.6 | 5 | 60 | 12 | 80 | 27 |
| 15.7 | 4 | 60 | 12 | 80 | 27 |
| 16.2 | 5 | 80 | 12 | 107 | 36 |
| 16.4 | 4 | 100 | 12 | 133 | 45 |
| 16.7 | 2 | 80 | 12 | 107 | 36 |
| 16.8 | 2, 3, 4 | 100 | 12 | 400 | 135 |
| 16.9 | 4 | 200 | 12 | 267 | 90 |
| 17.0 | 4, 5 | 150 | 12 | 400 | 135 |
| R17.1 | 2, 3 | 40 | 12 | 107 | 36 |
| R17.2 | 4 | 250 | 12 | 333 | 113 |
| TOTAL | | | | 5300 | 1789 |

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

*QUANTITIES ARE SHOWN IN ROADWAY QUANTITIES TABLE

## ROADWAY QUANTITIES

| LOCATION | PM | COLD PLANE AC Pvmt | HMA-O | TACK COAT | SHOULDER BACKING | HMA (TYPE A) |
|---|---|---|---|---|---|---|
| | | SQYD | TON | | | |
| RUDGEAR Rd UC TO SOUTH MAIN St UC | R12.7 TO 13.1 | 20718 | 1419 | 9 | 10.9 | |
| SOUTH MAIN St UC TO OLYMPIC Blvd UC | 13.1 TO 13.9 | 41733 | 2859 | 17 | | |
| OLYMPIC Blvd UC TO YGNACIO VALLEY Rd UC | 13.9 TO 14.9 | 42606 | 2919 | 18 | | |
| YGNACIO VALLEY Rd UC TO GEARY Rd OC | 14.9 TO 16.4 | 86357 | 5917 | 36 | 11.7 | |
| GEARY Rd OC TO END OF CONSTRUCTION | 16.4 TO R17.5 | 55215 | 3783 | 23 | 10.9 | |
| SUBTOTAL | | 246630 | 16897 | 103 | 33.0 | |
| SUBTOTAL COLD PLANE AC Pvmt (LOCALLY FAILED AREA) | | 5300 | | | | 1789 |
| SUBTOTAL HOT MIX ASPHALT DIKE (SHEET Q-2) | | | | | | 315 |
| TOTAL | | 251930 | 16897 | 103 | 33.0 | 2104 |

# SUMMARY OF QUANTITIES

Q-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans DESIGN

FUNCTIONAL SUPERVISOR ROBERT CAMARGO
CALCULATED-DESIGNED BY SHERRY HUANG
CHECKED BY ROBERT CAMARGO
REVISED BY SH
DATE REVISED 6/1/12

LAST REVISION 12-27-12
DATE PLOTTED => 22-FEB-2013
TIME PLOTTED => 08:59

| Dist | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
|---|---|---|---|---|---|
| 04 | CC | 680 | R12.7/R17.5 | 14 | 22 |

REGISTERED CIVIL ENGINEER 12/27/12 DATE

1-22-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER Sherry S. Huang No. 75529 Exp. 6-30-14 CIVIL STATE OF CALIFORNIA

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## GUARD RAILING DELINEATORS AND OBJECT MARKERS

| LOCATION | PM | GUARD** RAILING DELINEATOR | OBJECT MARKER** (TYPE L-1) | OBJECT MARKER** (TYPE P) |
|---|---|---|---|---|
| | | EA | | |
| N MAIN St OFF-RAMP | 15.6 | 4 | 1 | |
| SOUTH OF CONTRA COSTA Blvd OFF-RAMP | R17.2 | 8 | 1 | |
| SOUTH OF CONTRA COSTA Blvd OFF-RAMP SEPARATION | R17.4 | 4 | 1 | |
| OAKVALE Rd OC | 14.6 | | | 1 |
| OAK PARK Blvd OC | 16.9 | | | 1 |
| CONTRA COSTA Blvd OFF-RAMP SEPARATION | R17.4 | | | 1 |
| TOTAL | | 16 | 3 | 3 |

**GUARD RAILING DELINEATORS TO BE INSTALLED AT 25 FEET SPACING, MINIMUM OF 3 FOR EACH METAL BEAM GUARD RAILING LOCATION
TYPE L-1 OBJECT MARKERS TO BE INSTALLED AT APPROACH END OF EACH TERMINAL SYSTEM
TYPE P OBJECT MARKERS TO BE INSTALLED AT APPROACH END OF EACH BRIDGE RAILING WHERE SHOULDER IS 8' OR LESS

## ROADSIDE DELINEATORS AND CONCRETE BARRIER MARKERS

| LOCATION | PM | DELINEATOR (CLASS 1) TYPE F | CONCRETE BARRIER MARKER |
|---|---|---|---|
| | | EA | |
| RUDGEAR Rd UC TO SOUTH MAIN St UC | R12.7-13.1 | 5 | 24 |
| SOUTH MAIN St UC TO OLYMPIC Blvd UC | 13.1-13.9 | 2 | 91 |
| OLYMPIC Blvd UC TO YGNACIO VALLEY Rd UC | 13.9-14.9 | 15 | 9 |
| YGNACIO VALLEY Rd UC TO GEARY Rd OC | 14.9-16.4 | 5 | 96 |
| GEARY Rd OC TO END OF CONSTRUCTION | 16.4-R17.5 | 30 | 12 |
| TOTAL | | 57 | 232 |

## CRACK TREATMENT

| LOCATION | PM | LNMI |
|---|---|---|
| RUDGEAR Rd UC TO END OF CONSTRUCTION | R12.7-R17.5 | 5 |

## HOT MIX ASPHALT DIKE

| LOCATION | PM | REMOVE AC DIKE | PLACE HOT MIX ASPHALT DIKE TYPE C | TYPE D | TYPE E | TYPE F | HMA (TYPE A) (N) * |
|---|---|---|---|---|---|---|---|
| | | LF | | | | | TON |
| SOUTH MAIN St OFF-RAMP TO SOUTH MAIN St UC | 13.0 | 352 | 63 | | 227 | 62 | 7.3 |
| 250 Ft SOUTH OF OLYMPIC Blvd UC TO OLYMPIC Blvd UC | 13.9 | 230 | 63 | 142 | | 25 | 9.2 |
| OLYMPIC Blvd UC TO OLYMPIC BLVD ON-RAMP | 14.0 | 659 | 126 | 456 | | 77 | 29.1 |
| OLYMPIC Blvd ON-RAMP TO MOUNT DIABLO Blvd UC | 14.1 | 518 | 121 | 290 | | 108 | 19.5 |
| MOUNT DIABLO Blvd UC TO YGNACIO VALLEY Rd OFF-RAMP | 14.3 | 1116 | | 388 | | 728 | 32.8 |
| EXIT 46B SIGN TO BART TRACK CROSSING | 14.4 | 420 | 77 | 343 | | | 20.9 |
| 500 Ft NORTH OF OAKVALE Rd OC TO YGNACIO VALLEY Rd UC | 14.7 | 549 | 63 | 137 | | 349 | 13.3 |
| NORTH MAIN St OFF-RAMP GORE | 15.5 | 241 | | 206 | | 35 | 12.7 |
| NORTH MAIN St OC | 15.6 | 260 | | | | 260 | 3.5 |
| BUSKIRK Ave ON-RAMP TO 260 Ft SOUTH OF OAK PARK Blvd OC | 16.8 | 852 | | 740 | | 112 | 45.4 |
| OAK PARK Blvd OC | 16.9 | 322 | | | 322 | | 8.5 |
| 180 Ft NORTH OF OAK PARK Blvd OC TO CONTRA COSTA Blvd OFF-RAMP | 16.9 | 1740 | | 1740 | | | 103.2 |
| CONTRA COSTA Blvd OFF-RAMP SEPARATION | R17.4 | 413 | 88 | | 325 | | 9.2 |
| TOTAL | | 7672 | 601 | 4442 | 874 | 1756 | 315.0 |

(N) = NOT A SEPARATE PAY ITEM, FOR INFORMATION ONLY
* QUANTITIES ARE SHOWN IN ROADWAY QUANTITIES TABLE

# SUMMARY OF QUANTITIES

Q-2

| REVISED BY | DATE REVISED |
|---|---|
| SH | 6/1/12 |

| CALCULATED-DESIGNED BY | CHECKED BY |
|---|---|
| SHERRY HUANG | ROBERT CAMARGO |

FUNCTIONAL SUPERVISOR: ROBERT CAMARGO

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans DESIGN

LAST REVISION 12-27-12 | DATE PLOTTED => 22-FEB-2013 | TIME PLOTTED => 08:59

| Dist | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
|---|---|---|---|---|---|
| 04 | CC | 680 | R12.7/R17.5 | 15 | 22 |

REGISTERED ELECTRICAL ENGINEER 1/4/13 DATE

1-22-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER Parwiz A. Khazi No. 17624 Exp. 9-30-13 ELECT STATE OF CALIFORNIA

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

## ELECTRICAL INDEX


| | |
|---|---|
| E-1 | ELECTRICAL INDEX AND NOTES |
| E-2 & E-3 | LOOP DETECTOR REPLACEMENT (TRAFFIC MONITORING STATION) |
| E-4 | ELECTRICAL DETAILS |


## GENERAL NOTES

AT LEAST THREE WORKING DAYS PRIOR TO PERFORMING ANY WORK ON EACH EXISTING SYSTEM, THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF TRANSPORTATION, ELECTRICAL AND SIGNAL MAINTENANCE SUPERINTENDENT, PHONE (415) 330-6500.

THE CONTRACTOR SHALL VERIFY THE LOCATION OF THE LOOP DETECTORS TO BE REPLACED PRIOR TO REPAVING.

THE CONTRACTOR SHALL PROVIDE TWO REPORTS PER LOCATION ON THE STATUS OF EACH DETECTOR LOOP REPLACEMENT SHOWING CONTINUITY AND INSULATION RESISTANCE READINGS. THE REPORTS SHALL BE SUBMITTED TO THE ENGINEER, ONE BEFORE STARTING WORK AND THE OTHER AFTER WORK HAS BEEN COMPLETED AT EACH LOCATION.

FOR INSTALLING DETECTOR LOOP IN PRECASE CONCRETE PAVEMENT OR PRECASTE POST-TENSION CONCRETE PAVEMENT, SLOTS SHALL BE FILLED WITH EPOXY.

## PROJECT NOTES

1 AB EXISTING DETECTORS AND INSTALL NEW DETECTORS.
SPLICE NEW LOOP CONDUCTORS TO CORRESPONDING dic IN TERMINATION PULL BOX.
VERIFY IDENTIFICATION OF dic BEFORE CONNECTING TO THE CORRESPONDING LOOP CONDUCTORS.

# ELECTRICAL INDEX AND NOTES

E-1

| | |
|---|---|
| CALCULATED-DESIGNED BY | PARWIZ KHAZI |
| CHECKED BY | MAHMOOD NOII |
| REVISED BY | PK |
| DATE REVISED | 7/6/12 |
| FUNCTIONAL SUPERVISOR | LAI HONG CHIU |

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
ELECTRICAL

LAST REVISION 12-27-12 | DATE PLOTTED => 22-FEB-2013 | TIME PLOTTED => 08:59

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|---|---|---|---|---|---|
| 04 | CC | 680 | R12.7/R17.5 | 16 | 22 |

REGISTERED ELECTRICAL ENGINEER — DATE 1/4/13

1-22-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — Parwiz A. Khazi — No. 17624 — Exp. 9-30-13 — ELECT — STATE OF CALIFORNIA

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| | SOUTH MAIN St/SUNNY Ct | 1000' RUDGEAR Rd ON-RAMP | NEWELL AVENUE | OLYMPIC Blvd (RM-N-Diag) | MOUNT DIABLO | |
|---|---|---|---|---|---|---|
| COUNTY - ROUTE - PM | CC 680 12.70 (LOCATION 1) | CC 680 13.00 (LOCATION 2) | CC 680 13.68 (LOCATION 3) | CC 680 14.10 (LOCATION 4) | CC 680 14.20 (LOCATION 5) | |
| DETECTORS: A = TMS-MAINLINE, B = ON RAMP-QUEUE, C = ON RAMP-RM, D = OFF RAMP-QUEUE | A | A | A | A | A | |
| NUMBER OF LANES/ DIRECTION OF TRAFFIC: (#/NB, #/SB, #/EB, #/WB) | 5/NB | 5/NB | 5/NB | 3/NB | 5/NB | |
| DETECTOR INSTALLATION DETAIL: A= SEE SHEET E-4 | A | A | A | A | A | |
| PULL BOX LOCATION: A = LEFT SHOULDER, B = MEDIAN, C = RIGHT SHOULDER | C | C | C | C | C | TOTAL DETECTORS |
| PULL BOX REPLACEMENT: Y=YES, N=NO | N | N | N | N | N | |
| NUMBER OF DETECTORS: | 10 | 10 | 10 | 6 | 10 | 46 |
| COMMENTS | 1 | 1 | 1 | 1 | 1 | |

| | OAKLAND Blvd/ALMOND Ave | OFF-RAMP TO YGNACIO VALLEY NEXT TO EXIT SIGN 46B | OAKLAND/TRINITY AVENUE | NORTH MAIN STREET (OFF-N-LOOP) | NORTH MAIN STREET (RM-N-Diag) | | |
|---|---|---|---|---|---|---|---|
| COUNTY - ROUTE - PM | CC 680 14.53 (LOCATION 6) | CC 680 14.56 (LOCATION 7) | CC 680 14.73 (LOCATION 8) | CC 680 15.46 (LOCATION 9) | CC 680 15.82 (LOCATION 10) | | |
| DETECTORS: A = TMS-MAINLINE, B = ON RAMP-QUEUE, C = ON RAMP-RM, D = OFF RAMP-QUEUE | A | D | A | A | A | | |
| NUMBER OF LANES/ DIRECTION OF TRAFFIC: (#/NB, #/SB, #/EB, #/WB) | 5/NB | 2/NB | 6/NB | 6/NB | 5/NB | | |
| DETECTOR INSTALLATION DETAIL: A= SEE SHEET E-4 | A | A | A | A | A | | |
| PULL BOX LOCATION: A = LEFT SHOULDER, B = MEDIAN, C = RIGHT SHOULDER | C | A | C | C | C | TOTAL DETECTORS | TOTAL DETECTORS (E-2) |
| PULL BOX REPLACEMENT: Y=YES, N=NO | N | N | N | N | N | | |
| NUMBER OF DETECTORS: | 10 | 2 | 12 | 12 | 10 | 46 | 92 |
| COMMENTS | 1 | 1 | 1 | 1 | 1 | | |

# LOOP DETECTOR REPLACEMENT (TRAFFIC MONITORING STATION)

**E-2**

| REVISED BY | DATE REVISED |
|---|---|
| PK | 7/6/12 |

CALCULATED-DESIGNED BY: PARWIZ KHAZI — CHECKED BY: MAHMOOD NOII

FUNCTIONAL SUPERVISOR: LAI HONG CHIU

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION — Caltrans — ELECTRICAL

LAST REVISION 12-27-12 — DATE PLOTTED => 22-FEB-2013 — TIME PLOTTED => 08:59

| Dist | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
|---|---|---|---|---|---|
| 04 | CC | 680 | R12.7/R17.5 | 17 | 22 |

REGISTERED ELECTRICAL ENGINEER — DATE 1/4/13

1-22-13
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — Parwiz A. Khazi — No. 17624 — Exp. 9-30-13 — ELECT — STATE OF CALIFORNIA

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

| | BETWEEN TREAT AND MAIN | | | | | | TREAT Blvd/GEARY Rd Diag | | | | | | TREAT Blvd/GEARY Rd Diag | | | | | | BUSKIRK AVENUE Diag | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| COUNTY - ROUTE - PM | CC 680 16.05 (LOCATION 11) | | | | | | CC 680 16.38 (LOCATION 12) | | | | | | CC 680 16.40 (LOCATION 13) | | | | | | CC 680 16.80 (LOCATION 14) | | | | | | |
| DETECTORS: A = TMS-MAINLINE, B = ON RAMP-QUEUE, C = ON RAMP-RM, D = OFF RAMP-QUEUE | A | | | | | | A | | | | | | A | | | | | | A | | | | | | |
| NUMBER OF LANES/ DIRECTION OF TRAFFIC: (#/NB, #/SB, #/EB, #/WB) | 6/NB | | | | | | 4/NB | | | | | | 4/NB | | | | | | 6/NB | | | | | | |
| DETECTOR INSTALLATION DETAIL: A= SEE SHEET E-4 | A | | | | | | A | | | | | | A | | | | | | A | | | | | | |
| PULL BOX LOCATION: A = LEFT SHOULDER, B = MEDIAN, C = RIGHT SHOULDER | C | | | | | | C | | | | | | C | | | | | | C | | | | | | |
| PULL BOX REPLACEMENT: Y=YES, N=NO | N | | | | | | N | | | | | | N | | | | | | N | | | | | | |
| NUMBER OF DETECTORS: | 12 | | | | | | 8 | | | | | | 8 | | | | | | 12 | | | | | | |
| COMMENTS | 1 | | | | | | 1 | | | | | | 1 | | | | | | 1 | | | | | | |

| TOTAL DETECTORS |
|---|
| 40 |

| | OAK PARK ROAD/COFFINS Dr | | | | | | 100' N OF OAK PARK Blvd | | | | | | CONTRA COSTA Blvd | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| COUNTY - ROUTE - PM | CC 680 16.81 (LOCATION 16) | | | | | | CC 680 17.01 (LOCATION 17) | | | | | | CC 680 17.50 (LOCATION 18) | | | | | |
| DETECTORS: A = TMS-MAINLINE, B = ON RAMP-QUEUE, C = ON RAMP-RM, D = OFF RAMP-QUEUE | A | | | | | | A | | | | | | A | | | | | |
| NUMBER OF LANES/ DIRECTION OF TRAFFIC: (#/NB, #/SB, #/EB, #/WB) | 4/NB | | | | | | 5/NB | | | | | | 6/NB | | | | | |
| DETECTOR INSTALLATION DETAIL: A= SEE SHEET E-4 | A | | | | | | A | | | | | | A | | | | | |
| PULL BOX LOCATION: A = LEFT SHOULDER, B = MEDIAN, C = RIGHT SHOULDER | C | | | | | | C | | | | | | C | | | | | |
| PULL BOX REPLACEMENT: Y=YES, N=NO | N | | | | | | N | | | | | | N | | | | | |
| NUMBER OF DETECTORS: | 8 | | | | | | 10 | | | | | | 12 | | | | | |
| COMMENTS | 1 | | | | | | 1 | | | | | | 1 | | | | | |

| TOTAL DETECTORS | TOTAL DETECTORS (E-3) | TOTAL DETECTORS (E-2 & E-3) |
|---|---|---|
| 30 | 70 | 162 |

# LOOP DETECTOR REPLACEMENT (TRAFFIC MONITORING STATION)

E-3

| REVISED BY | DATE REVISED |
|---|---|
| PK | 7/6/12 |

PARWIZ KHAZI — MAHMOOD NOII — CALCULATED-DESIGNED BY — CHECKED BY

FUNCTIONAL SUPERVISOR: LAI HONG CHIU

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION — Caltrans — ELECTRICAL

LAST REVISION 12-27-12 — DATE PLOTTED => 22-FEB-2013 — TIME PLOTTED => 08:59

| Dist | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
|---|---|---|---|---|---|
| 04 | CC | 680 | R12.7/R17.5 | 18 | 22 |

REGISTERED ELECTRICAL ENGINEER — DATE 1/4/13

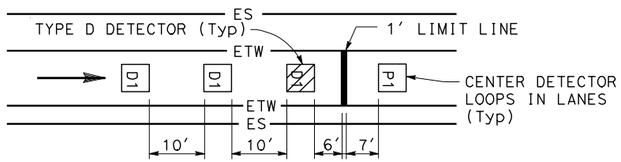
PLANS APPROVAL DATE 1-22-13

REGISTERED PROFESSIONAL ENGINEER Ray C. Duschane No. 14758 Exp. 6-30-13 ELECT STATE OF CALIFORNIA

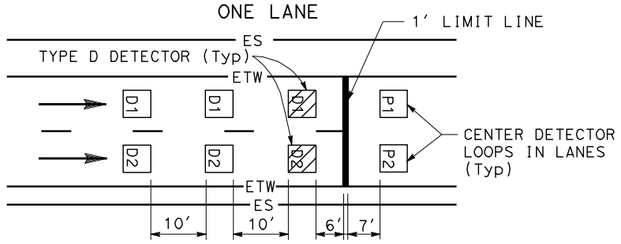
*THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.*

## RAMP METERING STATION NOTES

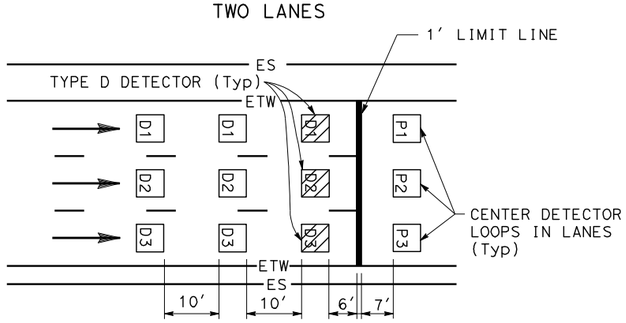
1. SEE ES-5A, ES-5B, AND ES-13A FOR ADDITIONAL DETAILS.
2. DLC CONDUCTORS SHALL BE SPLICED TO THE LOOP CONDUCTORS IN THE NEAREST PULLBOX.
3. ALL SPLICES SHALL BE TYPE "S" OR TYPE "ST" AS REQUIRED.




ONE LANE

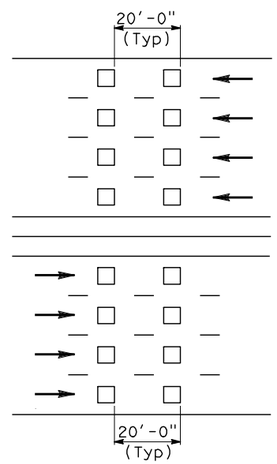



TWO LANES




THREE LANES

## DETAIL "RM"
## RAMP METERING STATION




### TRAFFIC MONITORING STATION NOTES

FREEWAY MAINLINE DETECTOR DESIGNATION:

- N=NORTHBOUND LANES (NB)
- S=SOUTHBOUND LANES (SB)
- E=EASTBOUND LANES (EB)
- W=WESTBOUND LANES (WB)

NUMBER OF LANES FROM LEFT WITH RESPECT TO DIRECTION OF TRAFFIC:

- 1=FIRST LANE FROM LEFT
- 2=SECOND LANE FROM LEFT
- 3=THIRD LANE FROM LEFT
- 4=FOURTH LANE FROM LEFT

NUMBER OF DETECTOR IN THE SAME LANE:

- 1=ENTERING DETECTOR
- 2=LEAVING DETECTOR

N 3-2

### RAMP DETECTOR DESIGNATION:

- D=DEMAND DETECTOR
- P=PASSAGE DETECTOR
- Q=QUEUE DETECTOR
- F=OFFRAMP DETECTOR

- 1=FIRST LANE FROM LEFT
- 2=SECOND LANE FROM LEFT

D-2

## DETAIL "TM"
## TRAFFIC MONITORING STATION

# ELECTRICAL DETAILS

**(RAMP METERING AND TRAFFIC MONITORING DETECTOR SPACING AND DESIGNATION)**

NO SCALE

**E-4**

| REVISED BY | DATE REVISED |
|---|---|
| PK | 7/6/12 |

CALCULATED-DESIGNED BY: PARWIZ KHAZI — CHECKED BY: MAHMOOD NOII

FUNCTIONAL SUPERVISOR: LAI HONG CHIU

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION — Caltrans — ELECTRICAL

LAST REVISION 12-27-12 — DATE PLOTTED => 22-FEB-2013 — TIME PLOTTED => 08:59

| Dist | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
|---|---|---|---|---|---|
| 04 | CC | 680 | R12.7/R17.5 | 19 | 22 |

REGISTERED CIVIL ENGINEER 12-7-12 DATE

1-22-13
PLANS APPROVAL DATE

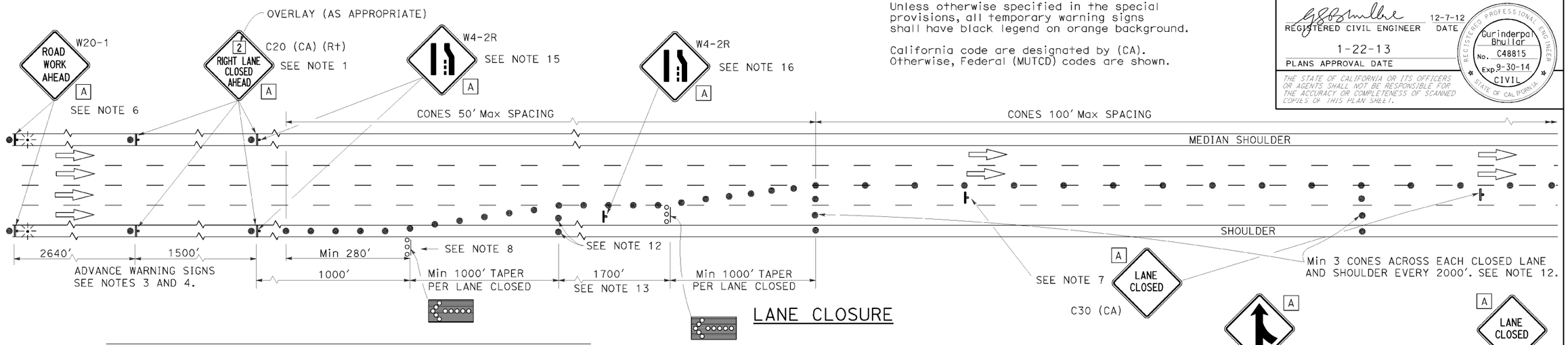
REGISTERED PROFESSIONAL ENGINEER Gurinderpal Bhullar No. C48815 Exp. 9-30-14 CIVIL STATE OF CALIFORNIA

*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.*

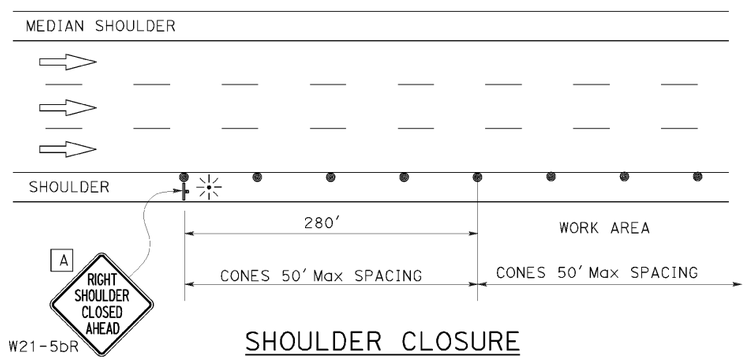
## NOTES:

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

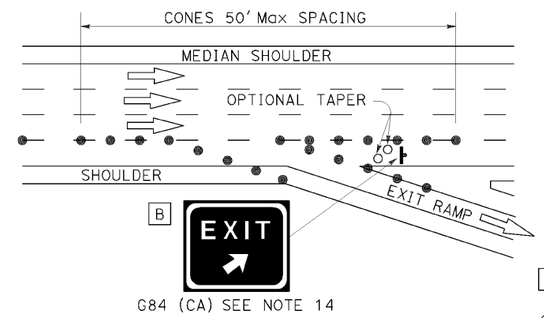
California code are designated by (CA). Otherwise, Federal (MUTCD) codes are shown.



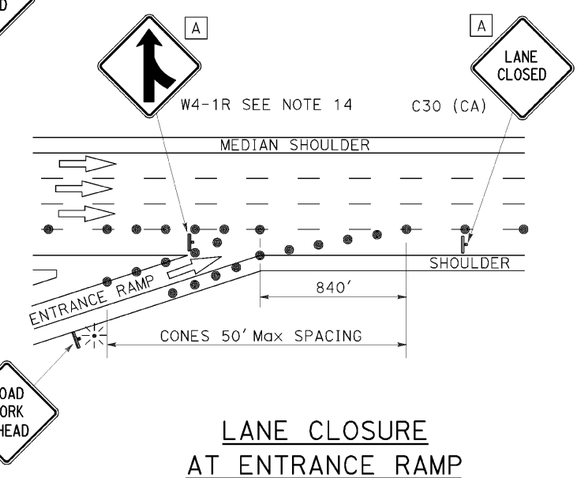

## LANE CLOSURE




## SHOULDER CLOSURE




## LANE CLOSURE AT EXIT RAMP




## LANE CLOSURE AT ENTRANCE RAMP

## NOTES:

1. Median lane closures shall conform to the details for outside lane closures except that C20 (CA) (Lt) 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 C14 (CA) "END ROAD WORK" sign, 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 C11 (CA) "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 first flashing arrow sign shall be Type I. All others may be either Type I or Type II.
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 1700' tangent shown along lane lines shall be used between the 1000' tapers required for each closed traffic lane.
14. Unless otherwise specified in the special provisions, the G84 (CA) and W4-1 signs shall be used as shown.
15. When specified in the special provisions, a W4-2 "LANE ENDS" symbol sign is to be used in place of the C20 (CA) "RIGHT LANE CLOSED AHEAD" sign.
16. The W4-2 "LANE ENDS" symbol sign shown at this location is to be used where the W4-2 sign is used as advance warning as described in Note 15.

## SIGN PANEL SIZE (Min)

| | |
|---|---|
| A | 48" x 48" |
| B | 54" x 48" |

## LEGEND

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

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

# TRAFFIC CONTROL SYSTEM FOR LANE CLOSURE ON FREEWAYS AND EXPRESSWAYS

NO SCALE

**TCS-1**

REVISED BY | DATE REVISED | CALCULATED-DESIGNED BY | CHECKED BY | FUNCTIONAL SUPERVISOR

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

LAST REVISION 00-00-00 | DATE PLOTTED => 10-DEC-2012 | TIME PLOTTED => 09:45

| Dist | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
|---|---|---|---|---|---|
| 04 | CC | 680 | R12.7/R17.5 | 20 | 22 |

REGISTERED CIVIL ENGINEER 12-7-12 DATE

1-22-13
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.

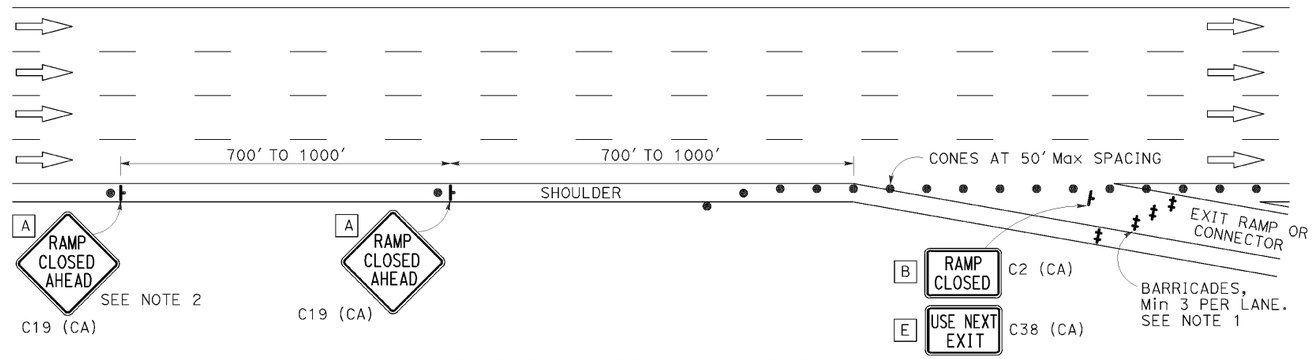
# TYPICAL RAMP CLOSURES

## SIGN PANEL SIZE (Min)

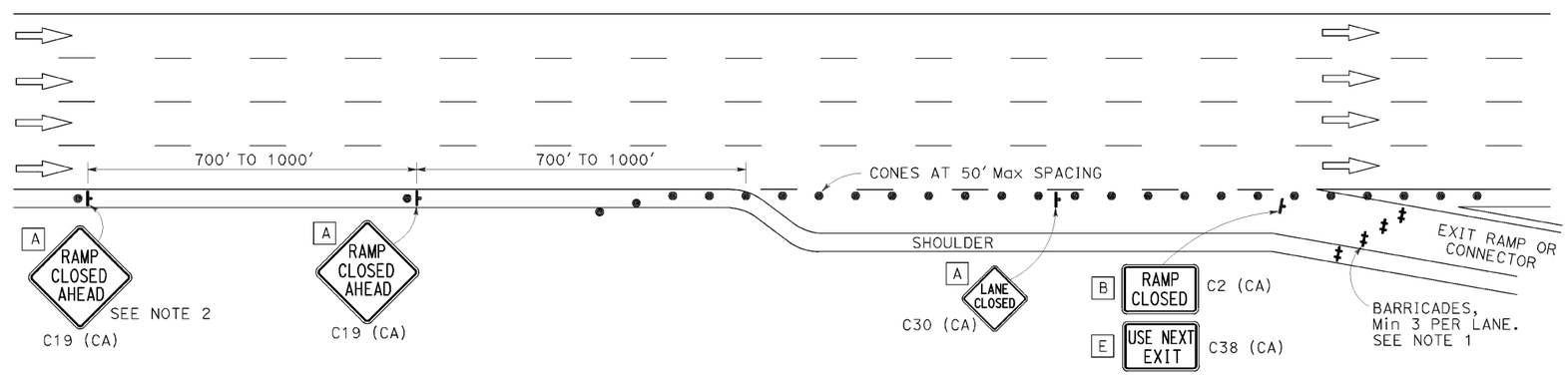
- A 48" x 48"
- B 48" x 30"
- C 30" x 30"
- D 48" x 48" - SPEED OF 50 mph OR MORE
  36" x 36" - SPEED LESS THAN 50 mph
- E 48" x 36"

## LEGEND

- TRAFFIC CONE
- TEMPORARY SIGN
- BARRICADES



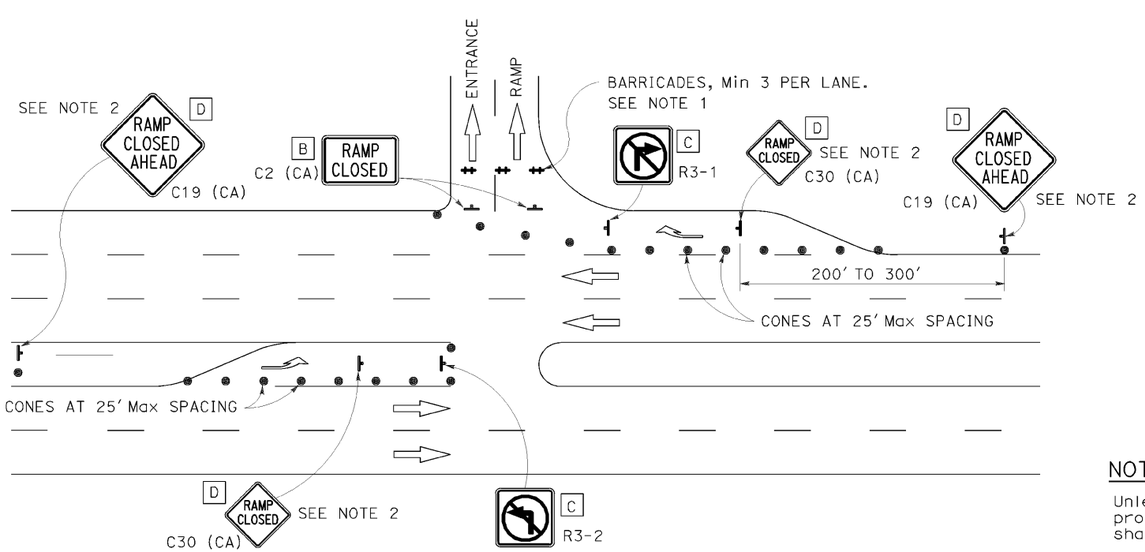

EXIT RAMP OR CONNECTOR



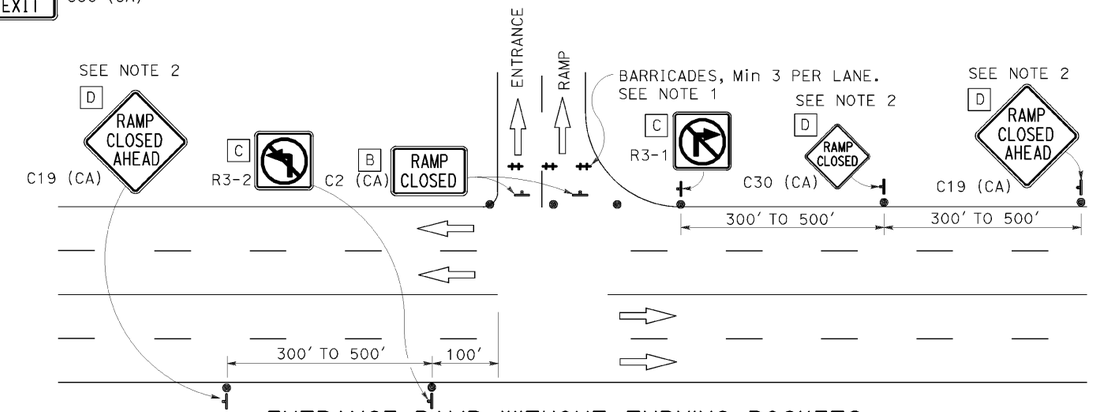

EXIT RAMP OR CONNECTOR WITH ADDITIONAL LANE

## 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" x 16" in size and shall be orange or fluorescent red-orange in color.
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" sign in the gore area shall be covered during ramp closures.




ENTRANCE RAMP WITH TURNING POCKETS




ENTRANCE RAMP WITHOUT TURNING POCKETS

## NOTES:

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

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

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

# TRAFFIC CONTROL SYSTEM FOR RAMP CLOSURE

NO SCALE

**TCS-2**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

REVISED BY | DATE REVISED
CALCULATED-DESIGNED BY | CHECKED BY
FUNCTIONAL SUPERVISOR

LAST REVISION 00-00-00 | DATE PLOTTED => 10-DEC-2012 | TIME PLOTTED => 09:45

| Dist | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
|---|---|---|---|---|---|
| 04 | CC | 680 | R12.7/R17.5 | 21 | 22 |

REGISTERED CIVIL ENGINEER 12-7-12 DATE

1-22-13
PLANS APPROVAL DATE

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

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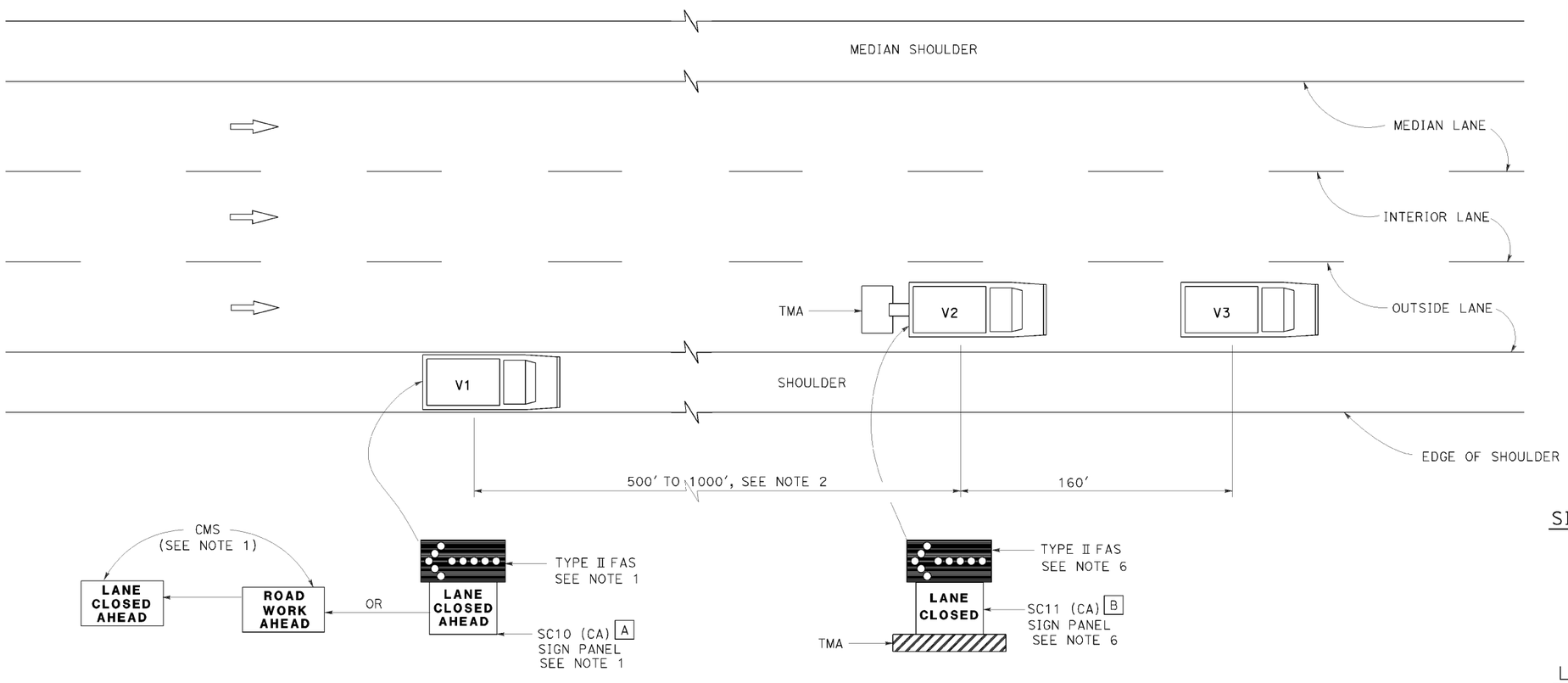


## SIGN PANEL SIZE (Min)

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 |

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

## 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. A Type II flashing arrow sign shall be mounted on the rear of sign vehicle V1 and used with the SC10 (CA) sign panel. A Type II flashing arrow sign will not be required with the changeable message sign provided the flashing arrow sign symbol is displayed on the changeable message sign board. The changeable message sign shall be sequenced to show the "ROAD WORK AHEAD" message first, followed by the "LANE CLOSED AHEAD" message and then the flashing arrow sign symbol. For median lane closure, the flashing arrow symbol shall be reversed with the arrowhead on the right.

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 be Type III, IV, VII, VIII or IX retroreflective sheeting, black on white, black on orange, or black on fluorescent orange, with 6" minimum series D letters per Caltrans sign specifications.

6. Gross Vehicle Weight of shadow vehicle V2 shall be a minimum of 20,000 pounds and 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.

9. Where sufficient shoulder width is not available, sign vehicle V1 may encroach into the traffic lane staying as close to the edge of shoulder as practicable. Both V1 and V2 shall be equipped with a truck-mounted attenuator. The Gross Vehicle Weight of V1 and V2 shall be at least 20,000 pounds, respectively.

10. When multiple work vehicles are used in close proximity to each other, only one shadow vehicle is required, and spacing between work vehicles shall be minimized in order to deter traffic from entering the closed lane.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

**TRAFFIC CONTROL SYSTEM FOR MOVING LANE CLOSURE ON MULTILANE HIGHWAYS (OUTSIDE AND MEDIAN LANES)**

NO SCALE

**TCS-3**

REVISED BY | DATE REVISED
CALCULATED-DESIGNED BY | CHECKED BY
FUNCTIONAL SUPERVISOR
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

LAST REVISION 00-00-00 | DATE PLOTTED => 10-DEC-2012 | TIME PLOTTED => 09:45

| Dist | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
|---|---|---|---|---|---|
| 04 | CC | 680 | R12.7/R17.5 | 22 | 22 |

REGISTERED CIVIL ENGINEER 12-7-12 DATE

1-22-13
PLANS APPROVAL DATE

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

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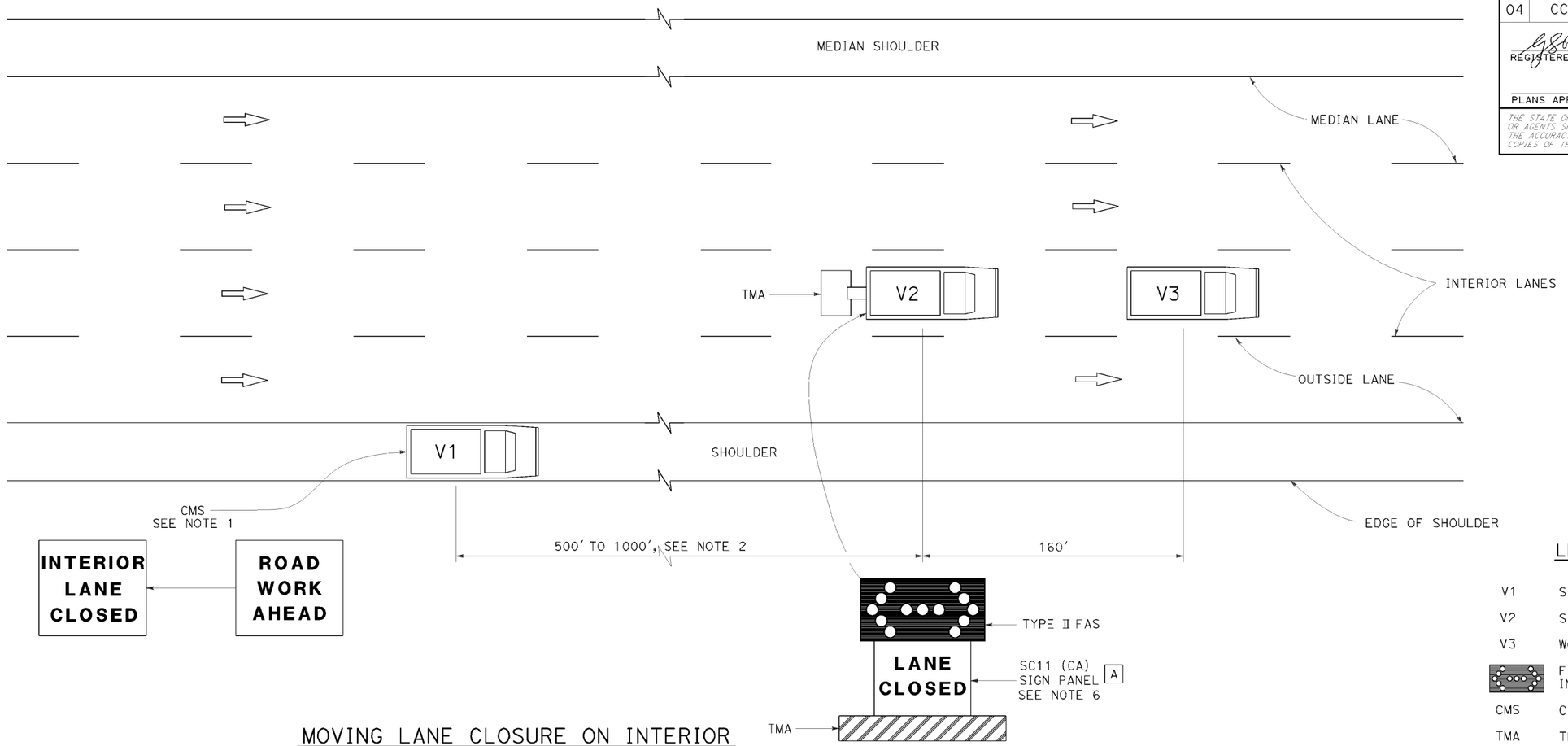


## MOVING LANE CLOSURE ON INTERIOR LANE OF MULTILANE HIGHWAYS

## 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 |

## 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 be Type III, IV, VII, VIII, or IX retroreflective sheeting, black on white, black on orange, or black on fluorescent orange, with 6" minimum series D letters per Caltrans sign specifications.
6. Gross Vehicle Weight of shadow vehicle V2 shall be a minimum of 20,000 pounds and 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. Where sufficient shoulder width is not available, sign vehicle V1 may encroach into the traffic lane staying as close to the edge of shoulder as practicable. Both V1 and V2 shall be equipped with a truck-mounted attenuator. The Gross Vehicle Weight of V1 and V2 shall be at least 20,000 pounds, respectively.
10. When multiple work vehicles are used in close proximity to each other, only one shadow vehicle is required, and spacing between work vehicles shall be minimized in order to deter traffic from entering the closed lane.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

# TRAFFIC CONTROL SYSTEM FOR MOVING LANE CLOSURE ON MULTILANE HIGHWAYS (INTERIOR LANES)

NO SCALE

**TCS-4**

REVISED BY | DATE REVISED
CALCULATED-DESIGNED BY | CHECKED BY
FUNCTIONAL SUPERVISOR
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

LAST REVISION 00-00-00 | DATE PLOTTED => 10-DEC-2012 TIME PLOTTED => 09:45