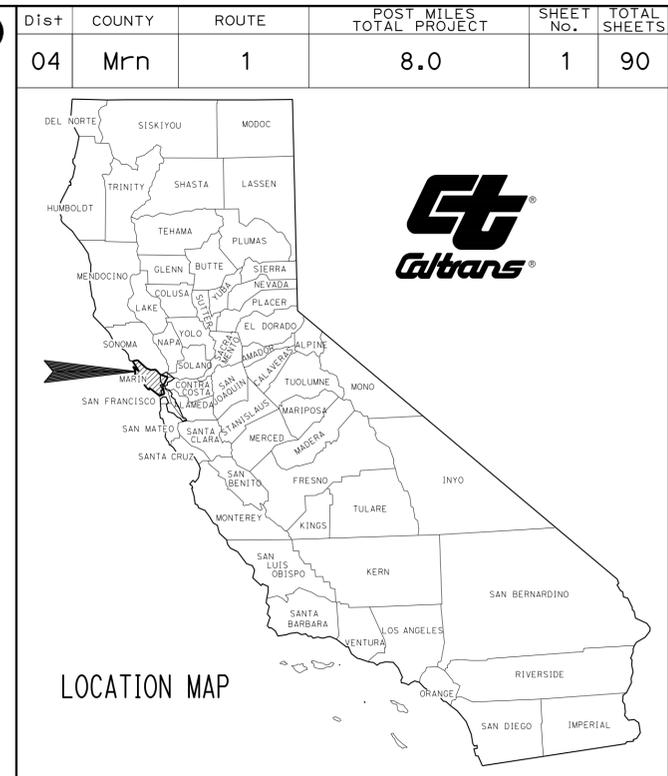


STATE OF CALIFORNIA  
**DEPARTMENT OF TRANSPORTATION**  
**PROJECT PLANS FOR CONSTRUCTION ON**  
**STATE HIGHWAY**  
**IN MARIN COUNTY**  
**NEAR MUIR BEACH**  
**AT 2.1 MILES NORTH OF MUIR WOODS ROAD**

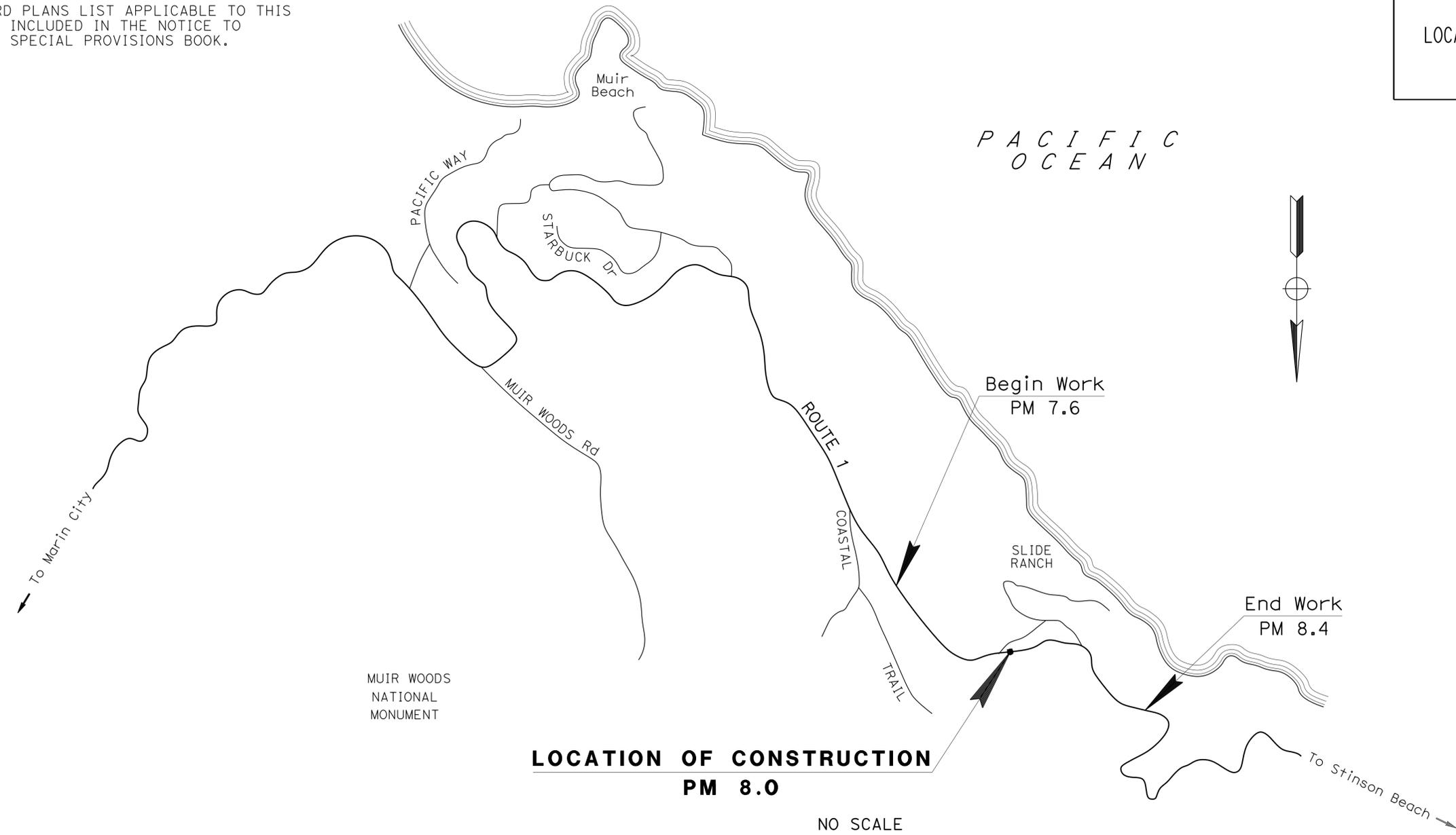
TO BE SUPPLEMENTED BY STANDARD PLANS DATED 2010



INDEX OF PLANS

| SHEET No.       | DESCRIPTION   |
|-----------------|---|
| 1               | TITLE SHEET AND LOCATION MAP                                |
| 2 - 5           | TYPICAL CROSS SECTIONS                                      |
| 6               | LAYOUT  |
| 7 - 9           | CONSTRUCTION DETAILS  |
| 10              | TEMPORARY WATER POLLUTION CONTROL PLAN                      |
| 11 - 15         | DRAINAGE PLAN, PROFILES, DETAILS AND QUANTITIES             |
| 16              | CONSTRUCTION AREA SIGNS                                     |
| 17 - 19         | STAGE CONSTRUCTION AND TRAFFIC HANDLING PLAN AND QUANTITIES |
| 20              | PAVEMENT DELINEATION, SIGN PLAN AND QUANTITIES              |
| 21              | SUMMARY OF QUANTITIES                                       |
| 22 - 23         | EROSION CONTROL LEGEND AND PLAN                             |
| 24 - 28         | ELECTRICAL PLANS  |
| 29 - 32         | SPECIAL ELECTRICAL STRUCTURES                               |
| 33 - 76         | REVISED STANDARD PLANS                                      |
| STRUCTURE PLANS |   |
| 77 - 90         | RETAINING WALL PLANS  |

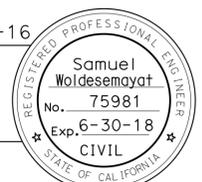
THE STANDARD PLANS LIST APPLICABLE TO THIS CONTRACT IS INCLUDED IN THE NOTICE TO BIDDERS AND SPECIAL PROVISIONS BOOK.



**LOCATION OF CONSTRUCTION**  
**PM 8.0**

|                                 |
|---------------------------------|
| PROJECT MANAGER<br>WAJAHAT NYAZ |
| DESIGN MANAGER<br>GHULAM POPAL  |

6-17-16  
 PROJECT ENGINEER DATE  
 REGISTERED CIVIL ENGINEER  
 June 23, 2016  
 PLANS APPROVAL DATE  
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



|              |                   |
|--------------|-------------------|
| CONTRACT No. | <b>04-2G8904</b>  |
| PROJECT ID   | <b>0400021259</b> |

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans**  
 DESIGN  
 FUNCTIONAL SUPERVISOR: GHULAM POPAL  
 CHECKED BY: GHULAM POPAL  
 DESIGNED BY: SAMMUEL WOLDESEMYAT  
 REVISIONS: SW 5-5-16

**NOTE:**

1. DIMENSIONS OF THE PAVEMENT STRUCTURES (STRUCTURAL SECTIONS) ARE SUBJECT TO TOLERANCES SPECIFIED IN THE STANDARD SPECIFICATIONS.

**LEGEND:**

No. STRUCTURAL SECTION NUMBER

**ABBREVIATIONS:**

ECS EMBANKMENT CONFINEMENT SYSTEM

|      |        |       |                          |           |              |
|------|--------|-------|--------------------------|-----------|--------------|
| Dist | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
| 04   | Mrn    | 1     | 8.0                      | 2         | 90           |

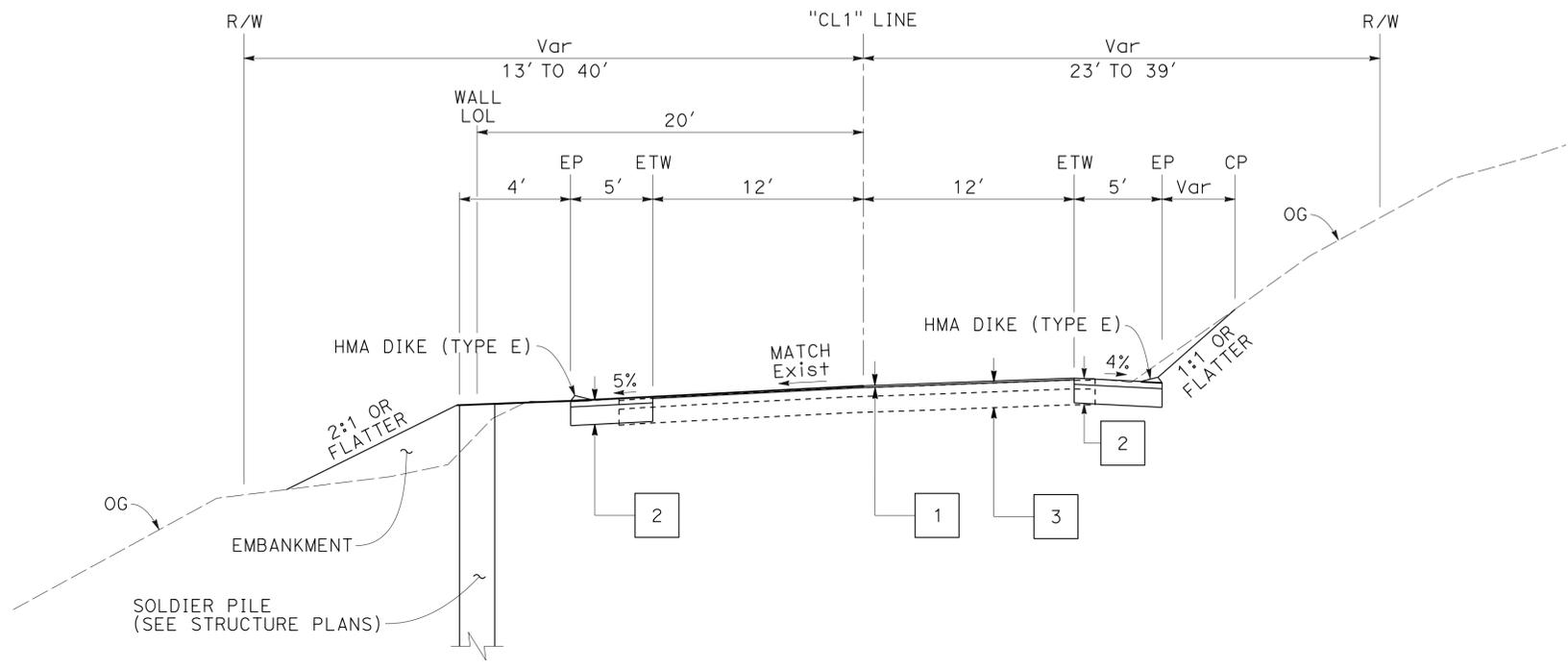
REGISTERED CIVIL ENGINEER DATE: 6-17-16  
 PLANS APPROVAL DATE: 6-23-16  
 Samuel Woldeemayat  
 No. 75981  
 Exp. 6-30-18  
 CIVIL  
 THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

**ROUTE 1  
 DESIGN DESIGNATION**  
 2017 ADT = 3,600 D = 89.19  
 2037 ADT = 4,200 T = 0.82  
 DHU = 220 V = 40 mph  
 ESAL = 25,000 TI = 6

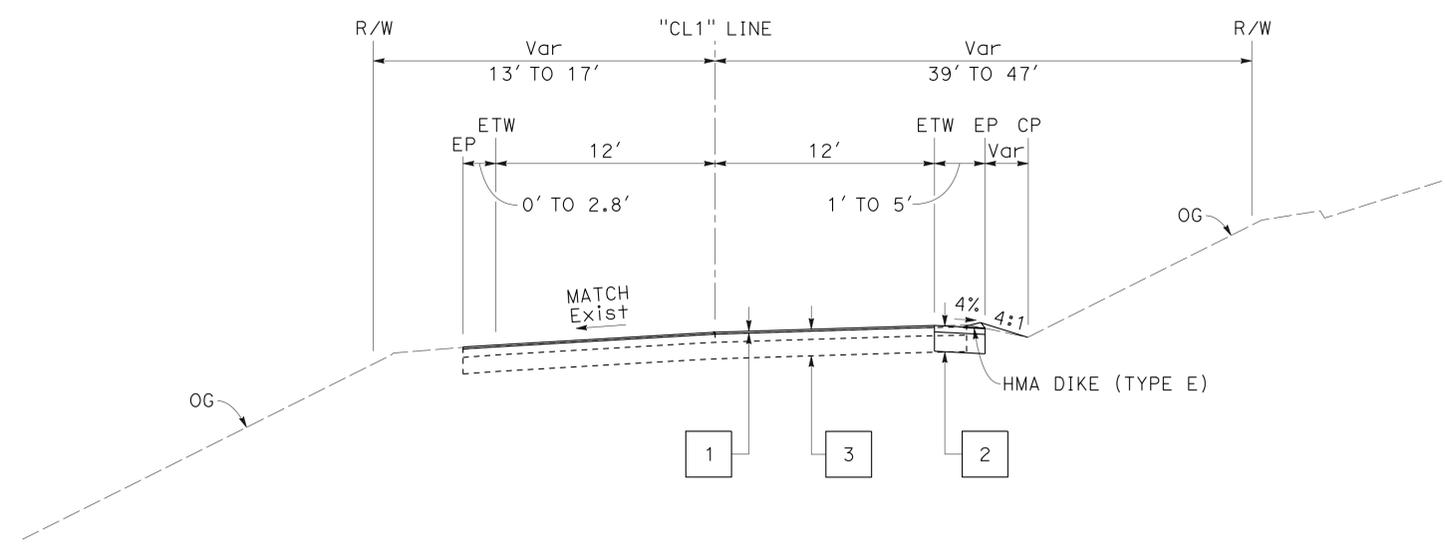
**CLIMATE REGION  
 NORTH COAST**

**TYPICAL PAVEMENT STRUCTURAL SECTIONS**

- 1 [ 0.10' COLD PLANE AC Pvm+  
0.10' HMA (TYPE A)
- 2 [ 0.35' HMA (TYPE A)  
1.05' CI 2 AB
- 3 [ Exist  
0.10' BWC  
0.55' AC  
Var 0' TO 1' AB
- 4 [ Exist  
0.55' AC



"CL1" 403+97.73 TO 404+50



"CL1" 403+54.71 TO 403+97.73

**ROUTE 1**

**TYPICAL CROSS SECTIONS  
 NO SCALE**

**X-1**

LAST REVISION DATE PLOTTED => 13-OCT-2016  
 05-05-16 TIME PLOTTED => 13:40

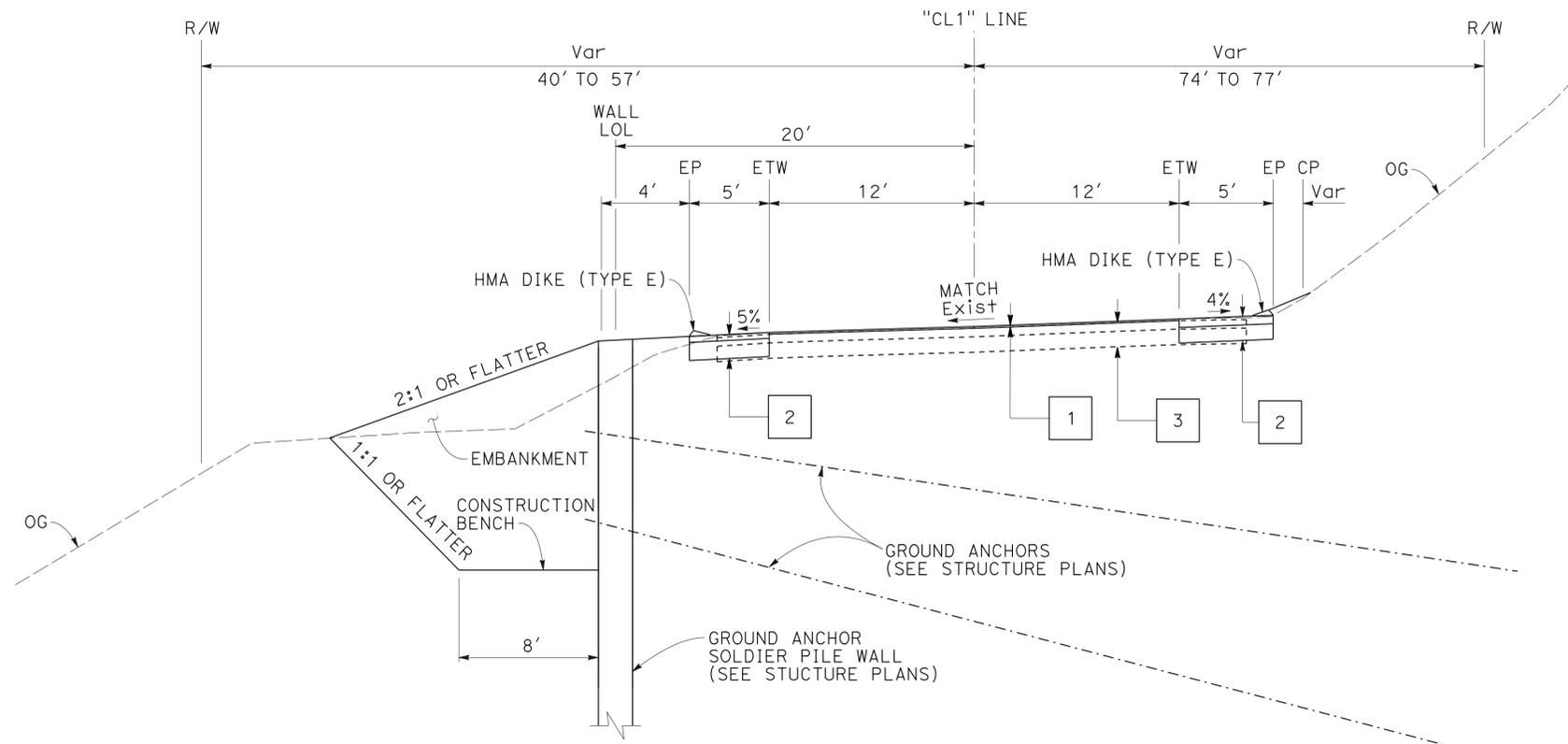
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans**  
 DESIGN  
 FUNCTIONAL SUPERVISOR: GHULAM POPAL  
 REVISIONS:  
 SW 5-5-16  
 REVISOR: SW  
 DATE: 5-5-16  
 SAMMUEL WOLDESEMYAT  
 GHULAM POPAL  
 CALCULATED/DESIGNED BY: GHULAM POPAL  
 CHECKED BY:

|      |        |       |                          |           |              |
|------|--------|-------|--------------------------|-----------|--------------|
| Dist | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
| 04   | Mrn    | 1     | 8.0                      | 3         | 90           |

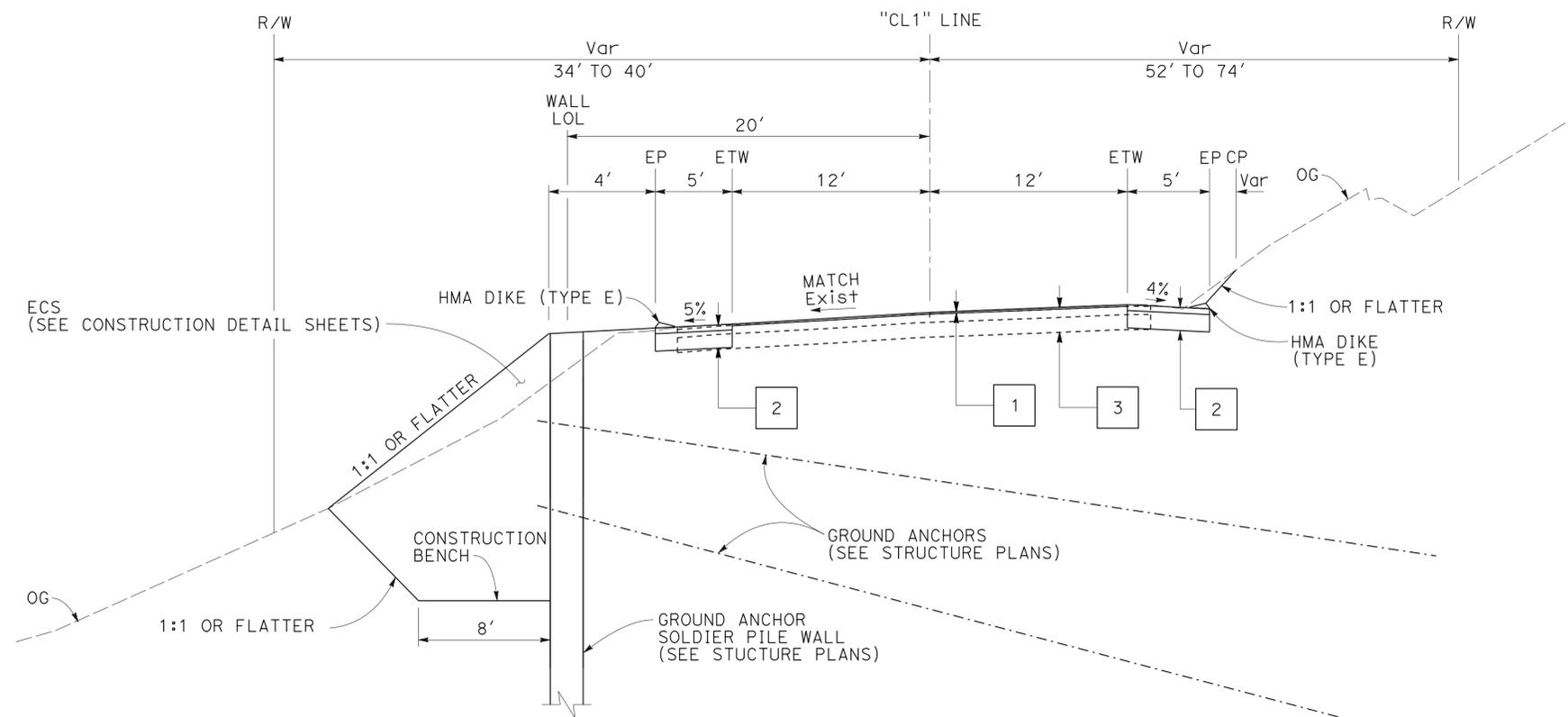
REGISTERED CIVIL ENGINEER DATE: 6-17-16  
 6-23-16  
 PLANS APPROVAL DATE

Samuel Woldeseyamat  
 No. 75981  
 Exp. 6-30-18  
 CIVIL

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



"CL1" 405+60 TO 406+11.20



"CL1" 404+50 TO 405+60

**TYPICAL CROSS SECTIONS**  
 NO SCALE

**ROUTE 1**

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

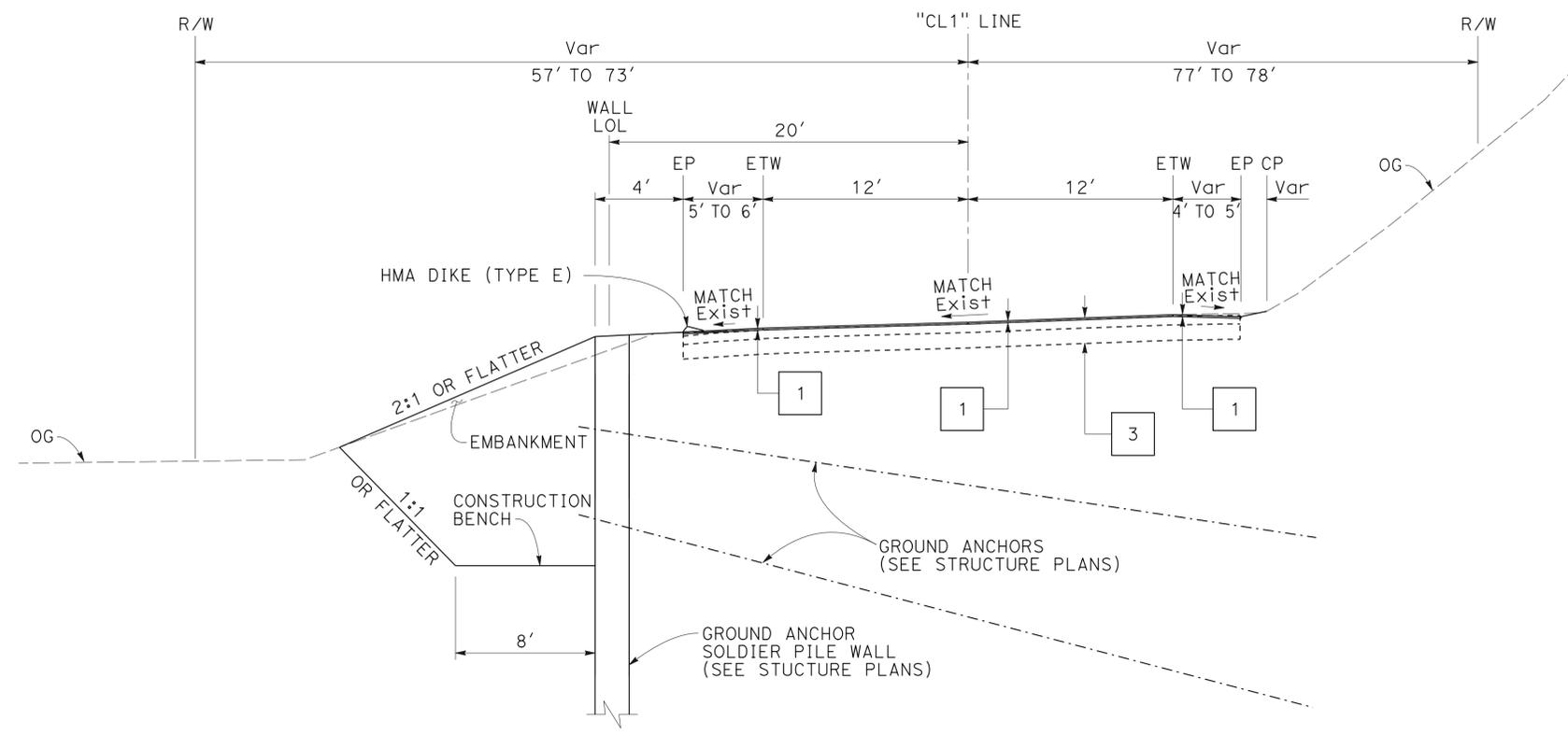
|      |        |       |                          |           |              |
|------|--------|-------|--------------------------|-----------|--------------|
| Dist | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
| 04   | Mrn    | 1     | 8.0                      | 4         | 90           |

REGISTERED CIVIL ENGINEER DATE 6-17-16  
 6-23-16  
 PLANS APPROVAL DATE

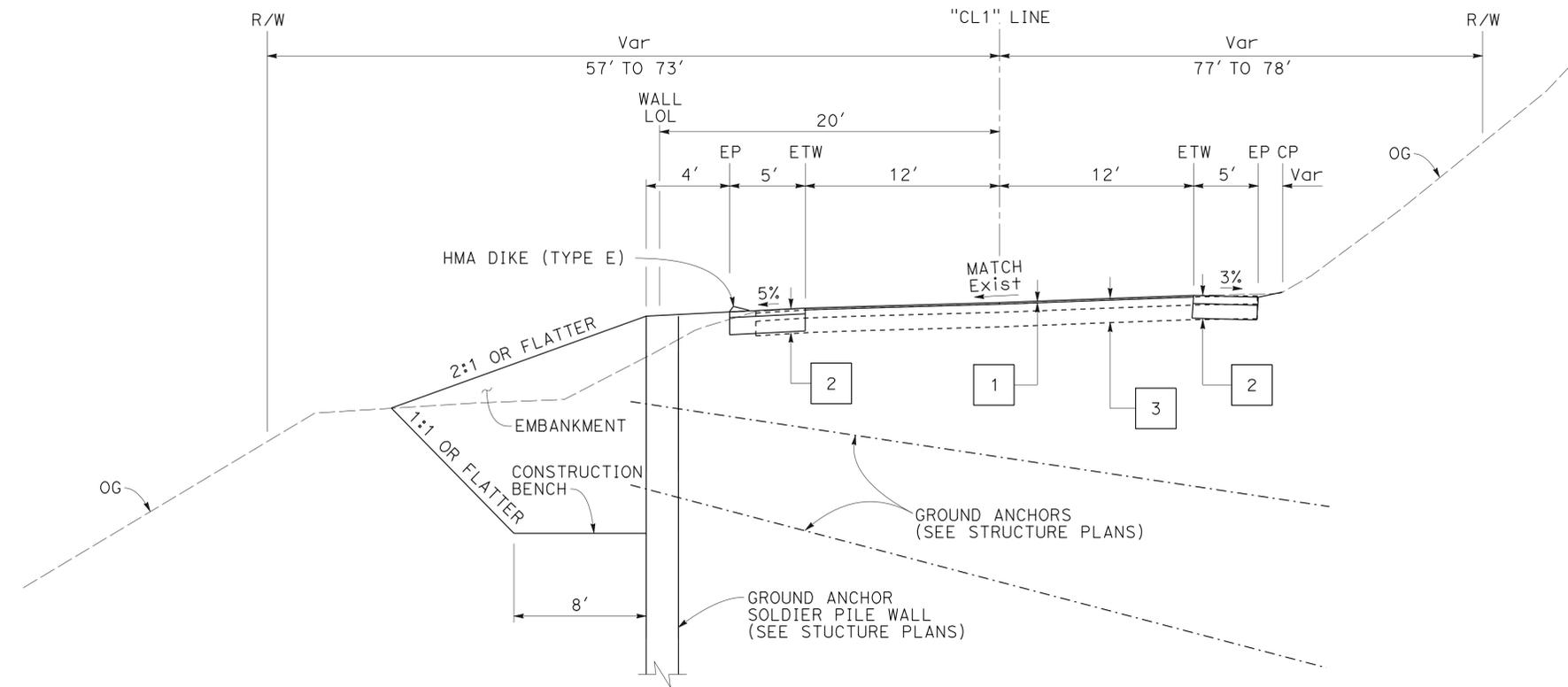
REGISTERED PROFESSIONAL ENGINEER  
 Samuel Woldesemayat  
 No. 75981  
 Exp. 6-30-18  
 CIVIL  
 STATE OF CALIFORNIA

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

|  |                       |             |        |
|--|-----------------------|-------------|--------|
| STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION | FUNCTIONAL SUPERVISOR | REVISOR     | DATE   |
| Caltrans   | GHULAM POPAL          | SW          | 5-5-16 |
|  | GHULAM POPAL          |             |        |
| DESIGN   | CHECKED BY            | DESIGNED BY |        |
|  |                       |             |        |



"CL1" 406+70 TO 407+10

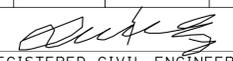
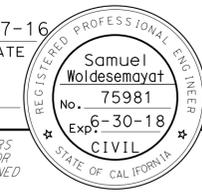


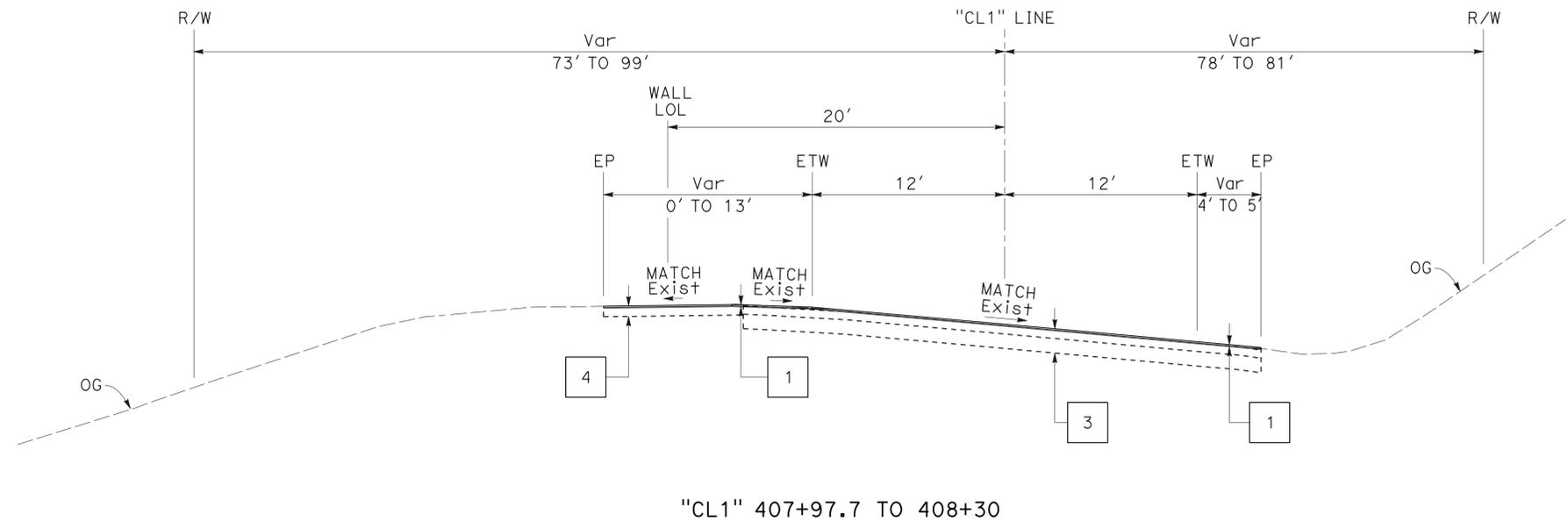
"CL1" 406+11.20 TO 406+70

ROUTE 1

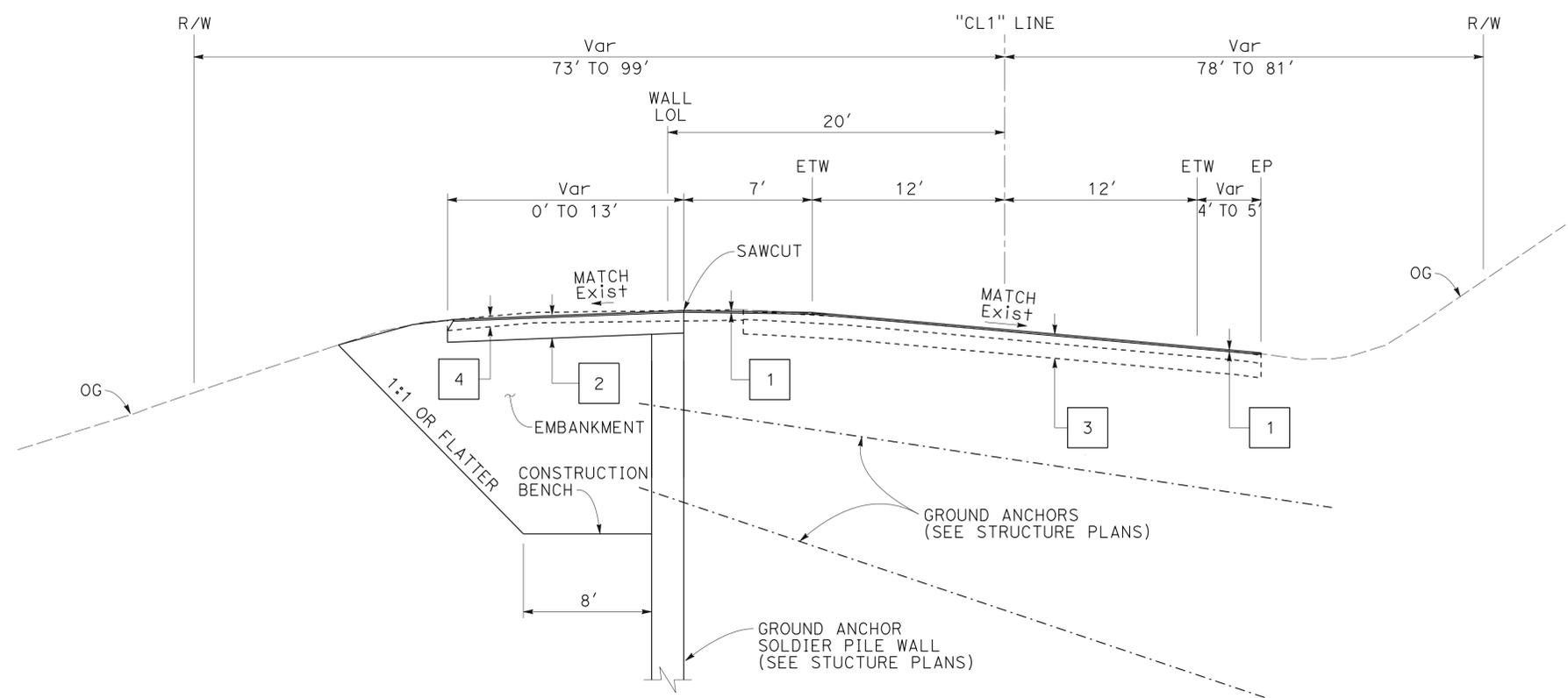
TYPICAL CROSS SECTIONS  
NO SCALE

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

|  |        |       |                          |           |              |
|--|--------|-------|--------------------------|-----------|--------------|
| Dist   | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
| 04   | Mrn    | 1     | 8.0                      | 5         | 90           |
|   |        |       | 6-17-16                  | DATE      |              |
| REGISTERED CIVIL ENGINEER  |        |       | DATE                     |           |              |
| 6-23-16  |        |       | PLANS APPROVAL DATE      |           |              |
|   |        |       |                          |           |              |
| <small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small> |        |       |                          |           |              |



"CL1" 407+97.7 TO 408+30



"CL1" 407+10 TO 407+97.7

**ROUTE 1**

**TYPICAL CROSS SECTIONS**  
NO SCALE

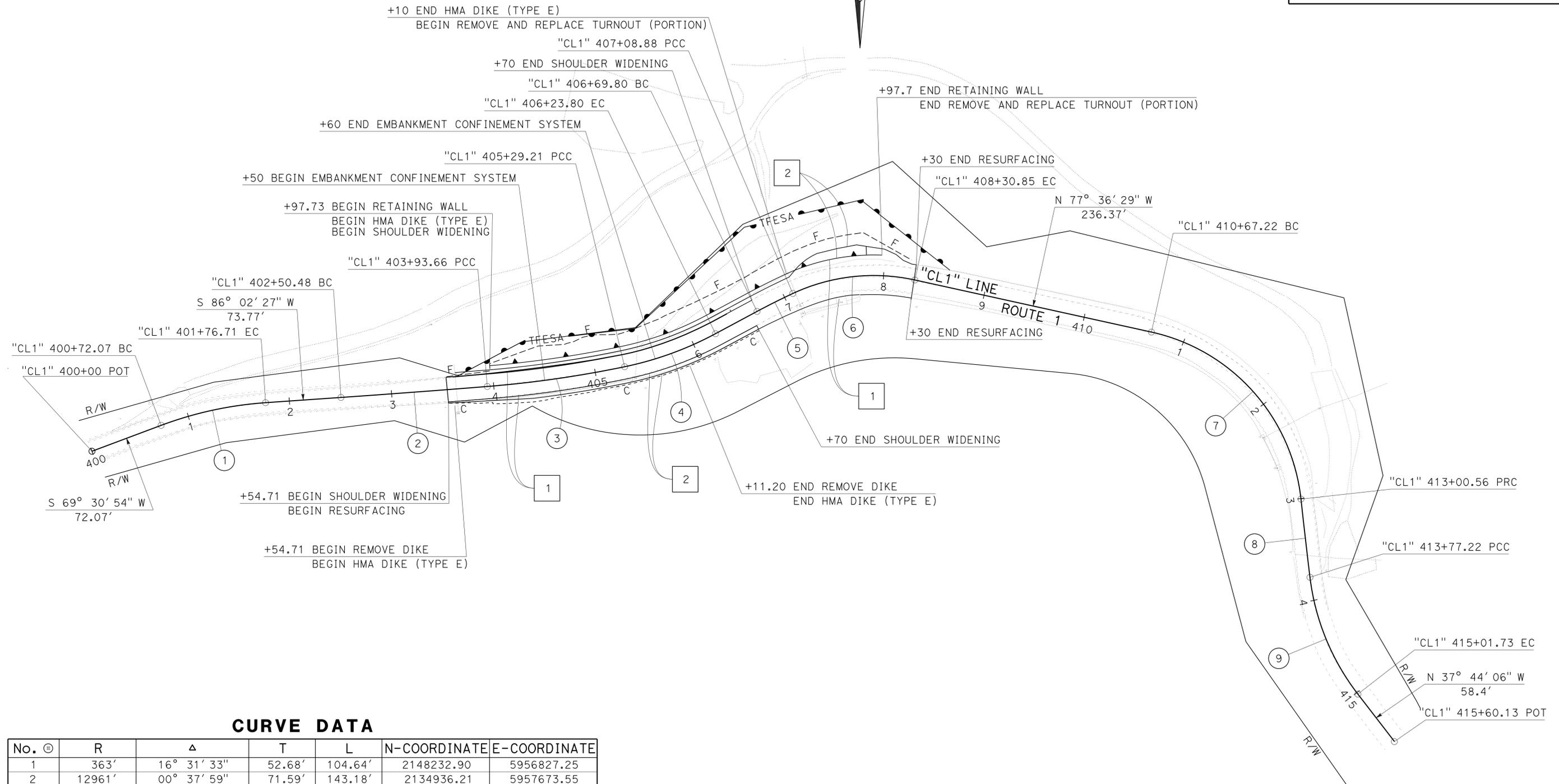
FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET X-1

|  |              |
|--|--------------|
| STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION | DESIGN       |
| FUNCTIONAL SUPERVISOR                              | GHULAM POPAL |
| CALCULATED/DESIGNED BY                             | CHECKED BY   |
| SAMUEL WOLDESEMAYAT                                | GHULAM POPAL |
| REVISED BY   | DATE REVISED |
| SW   | 5-5-16       |

|  |        |       |                          |           |              |
|--|--------|-------|--------------------------|-----------|--------------|
| Dist   | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
| 04   | Mrn    | 1     | 8.0                      | 6         | 90           |
| REGISTERED CIVIL ENGINEER  |        |       | DATE                     | 6-17-16   |              |
| PLANS APPROVAL DATE  |        |       | 6-23-16                  |           |              |
|  |        |       |                          |           |              |
| <small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small> |        |       |                          |           |              |

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

**NOTE:**  
1. FOR RETAINING WALL DETAILS, SEE STRUCTURE PLANS.



**CURVE DATA**

| No. Ⓣ | R      | Δ           | T       | L       | N-COORDINATE | E-COORDINATE |
|-------|--------|-------------|---------|---------|--------------|--------------|
| 1     | 363'   | 16° 31' 33" | 52.68'  | 104.64' | 2148232.90   | 5956827.25   |
| 2     | 12961' | 00° 37' 59" | 71.59'  | 143.18' | 2134936.21   | 5957673.55   |
| 3     | 1087'  | 07° 08' 38" | 67.86'  | 135.55' | 2146771.58   | 5956722.95   |
| 4     | 330'   | 16° 25' 21" | 47.62'  | 94.59'  | 2147512.89   | 5956568.95   |
| 5     | 704'   | 03° 10' 56" | 19.55'  | 39.08'  | 2148402.48   | 5956040.61   |
| 6     | 187'   | 37° 22' 06" | 63.24'  | 121.97' | 2147934.17   | 5956258.75   |
| 7     | 187'   | 71° 24' 32" | 134.55' | 233.34' | 2147985.09   | 5956027.92   |
| 8     | 5966'  | 00° 44' 10" | 38.33'  | 76.66'  | 2147320.65   | 5949910.58   |
| 9     | 232'   | 30° 47' 59" | 63.80'  | 124.51' | 2148013.07   | 5955603.12   |

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

**L-1**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION DESIGN  
 GULAM POPAL  
 GULAM POPAL  
 SAMUEL WOLDESEMAT  
 GULAM POPAL  
 SW  
 4-19-16

USERNAME => s127688  
DGN FILE => 0400021259ea001.dgn

RELATIVE BORDER SCALE IS IN INCHES  
0 1 2 3

UNIT 0708

PROJECT NUMBER & PHASE

04000212591

LAST REVISION | DATE PLOTTED => 13-OCT-2016  
 04-19-16 | TIME PLOTTED => 13:40

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans**  
 DESIGN  
 FUNCTIONAL SUPERVISOR: GHULAM POPAL  
 CHECKED BY: DAVID YAM  
 DESIGNED BY: ALEX McDONALD  
 REVISIONS: SW 3-28-16

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

**NOTE:**  
 1. SELECTED MATERIAL EXCAVATION MUST BE THE  
 TOP 6" TO 8" OF OG WITHIN LIMITS OF EARTHWORK.

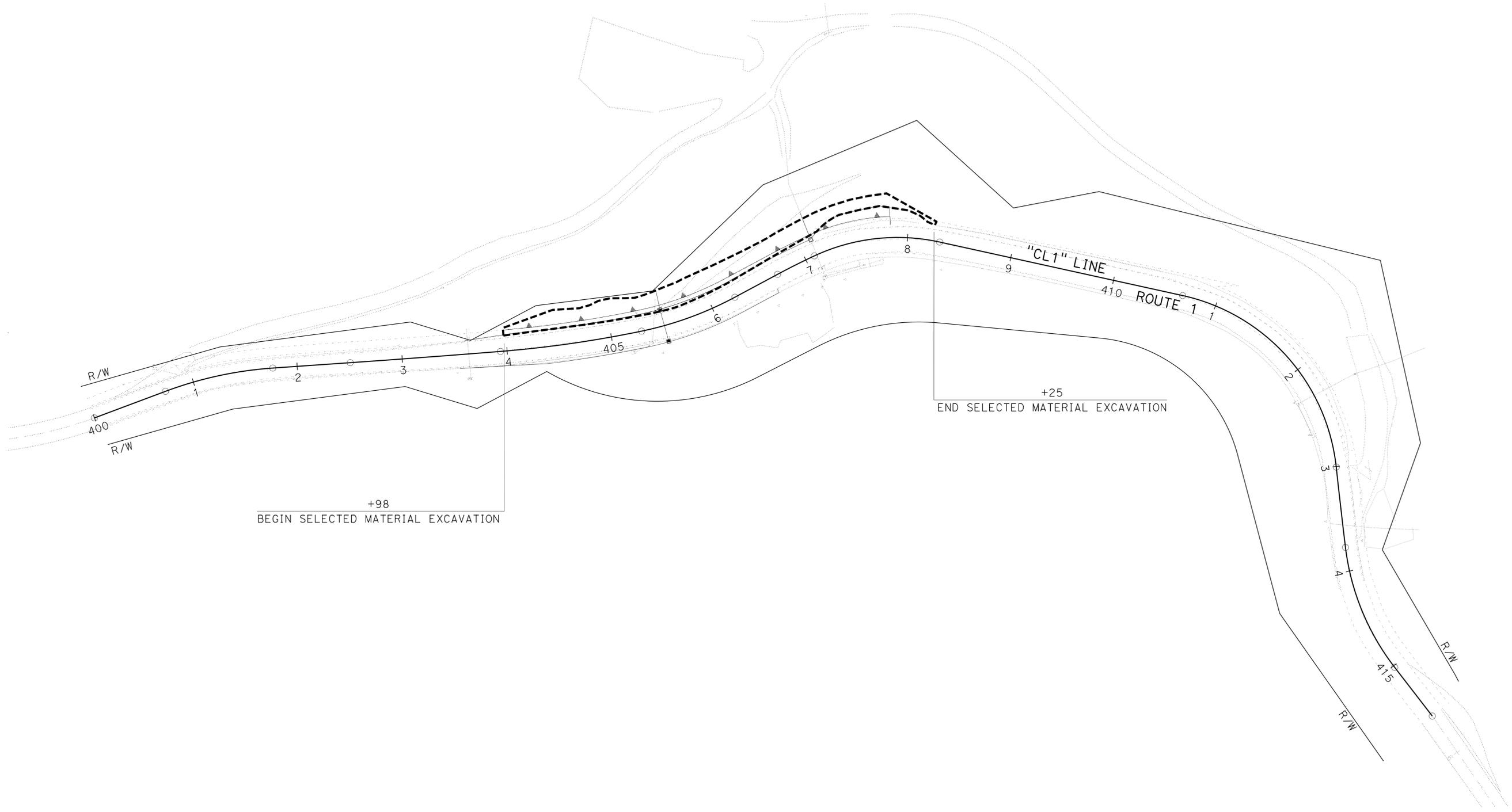
**LEGEND:**  
 SELECTED MATERIAL LIMIT

|      |        |       |                             |              |                 |
|------|--------|-------|-----------------------------|--------------|-----------------|
| Dist | COUNTY | ROUTE | POST MILES<br>TOTAL PROJECT | SHEET<br>No. | TOTAL<br>SHEETS |
| 04   | Mrn    | 1     | 8.0                         | 7            | 90              |

REGISTERED CIVIL ENGINEER DATE: 6-17-16  
 PLANS APPROVAL DATE: 6-23-16

Samuel Woldesemayat  
 No. 75981  
 Exp. 6-30-18  
 CIVIL

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



**CONSTRUCTION DETAILS**  
 SCALE : 1" = 50'

**C-1**

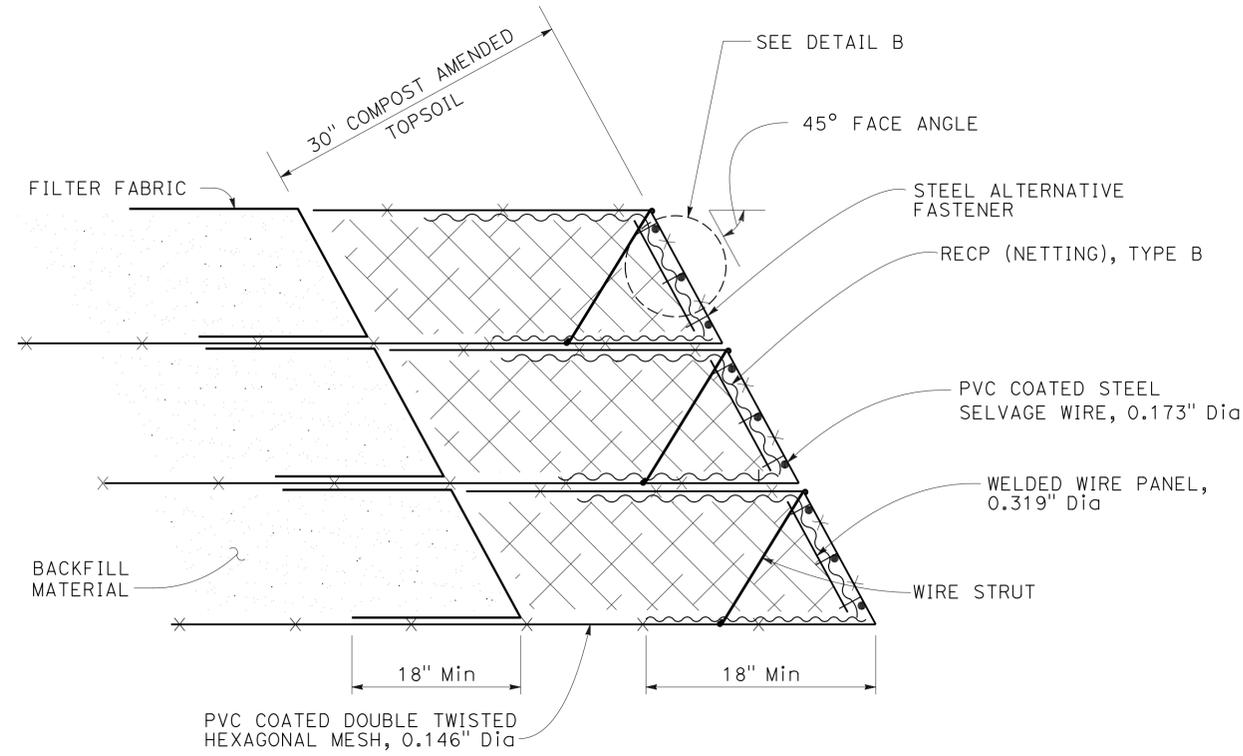
LAST REVISION DATE PLOTTED => 13-OCT-2016 03-28-16 TIME PLOTTED => 13:40

|   |        |                     |                          |   |              |
|---|--------|---------------------|--------------------------|---|--------------|
| Dist  | COUNTY | ROUTE               | POST MILES TOTAL PROJECT | SHEET No.   | TOTAL SHEETS |
| 04  | Mrn    | 1                   | 8.0                      | 8   | 90           |
| M. Momenzadeh   |        | 6-17-16             |                          | REGISTERED CIVIL ENGINEER DATE                          |              |
| 6-23-16   |        | PLANS APPROVAL DATE |                          | Mahmood Momenzadeh<br>No. 2685<br>Exp. 2-31-17<br>CIVIL |              |
| THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET. |        |                     |                          |   |              |

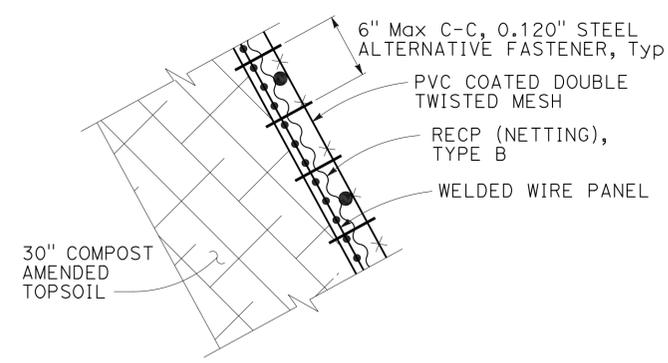
- NOTES:**
- COMPOST AMENDED TOPSOIL IS 35% FINE COMPOST AND 65% TOPSOIL, UNIFORMLY MIXED BEFORE BEING PLACED IN EMBANKMENT CONFINEMENT SYSTEM.
  - USE COMMERCIALY AVAILABLE LENGTHS. TRIM, OVERLAP OR BEND ECS PANELS TO ACCOMMODATE FIELD CONDITIONS. DO NOT SPLICE EMBEDMENT LENGTH.
  - FOR DETAILS NOT SHOWN, SEE S+D PLANS D100A AND D100B.

**ABBREVIATIONS:**

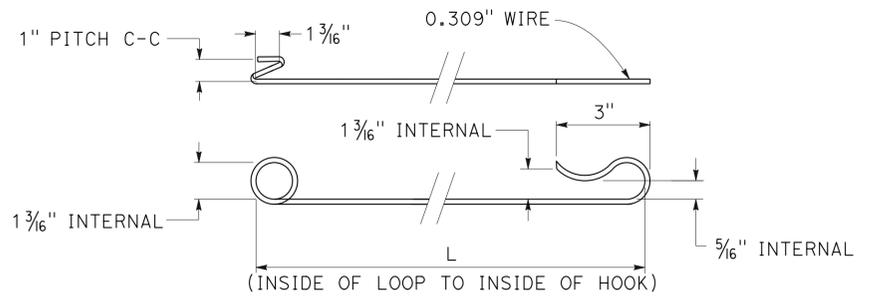
ECS EMBANKMENT CONFINEMENT SYSTEM  
RECP ROLLED EROSION CONTROL PRODUCT



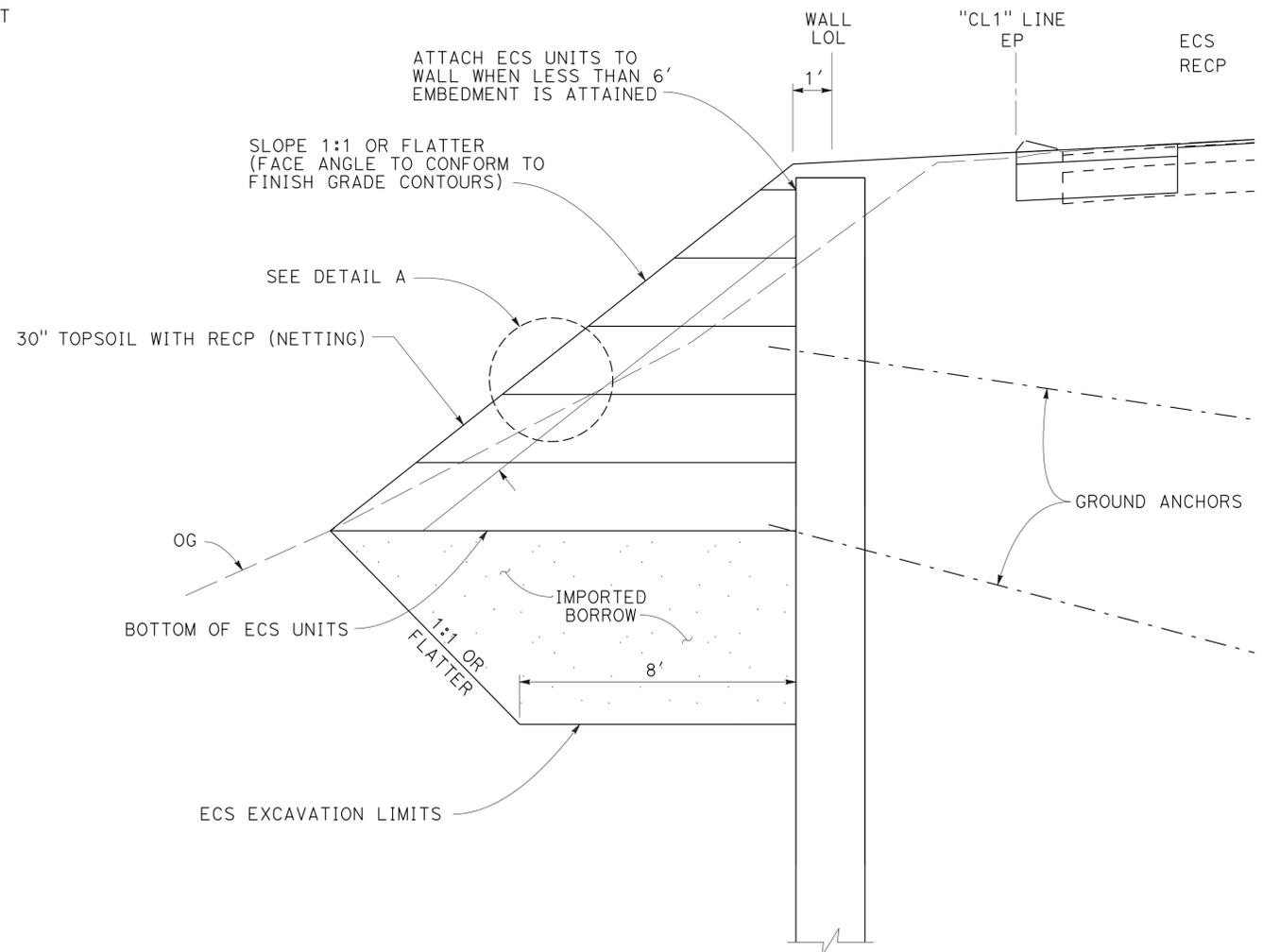
**TYPICAL SECTION DETAIL A**



**DETAIL B**



**WIRE STRUT DETAIL**



**TYPICAL SECTION EMBANKMENT CONFINEMENT SYSTEM (ECS)**

"CL1" 404+50 TO 405+60

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
DESIGN  
FUNCTIONAL SUPERVISOR: TIMOTHY POKRYWKA  
CALCULATED/DESIGNED BY: ALEX McDONALD  
CHECKED BY: TUNG NGUYEN  
REVISOR: SW  
DATE REVISED: 5-20-16

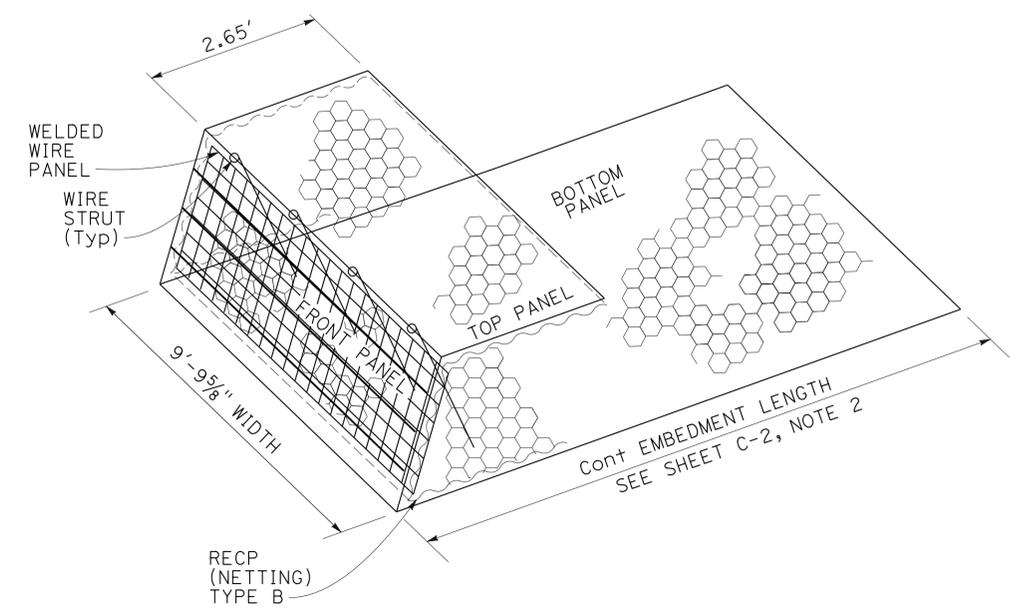
|      |        |       |                          |           |              |
|------|--------|-------|--------------------------|-----------|--------------|
| Dist | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
| 04   | Mrn    | 1     | 8.0                      | 9         | 90           |

*M. Momenzadeh*, 6-17-16  
 REGISTERED CIVIL ENGINEER DATE  
 6-23-16  
 PLANS APPROVAL DATE

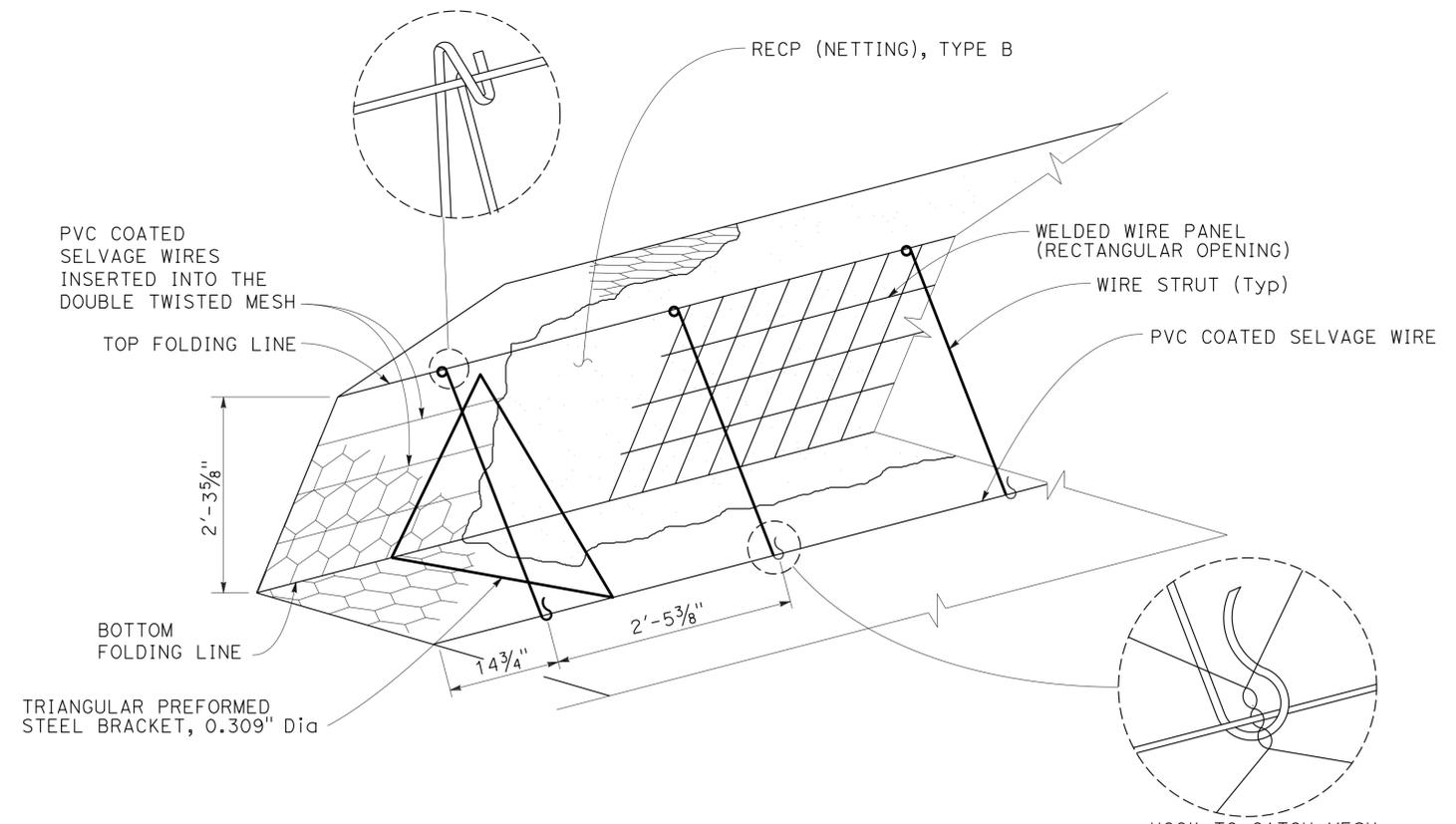
REGISTERED PROFESSIONAL ENGINEER  
 Mahmood Momenzadeh  
 No. 2685  
 Exp. 2-31-17  
 CIVIL  
 STATE OF CALIFORNIA

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.

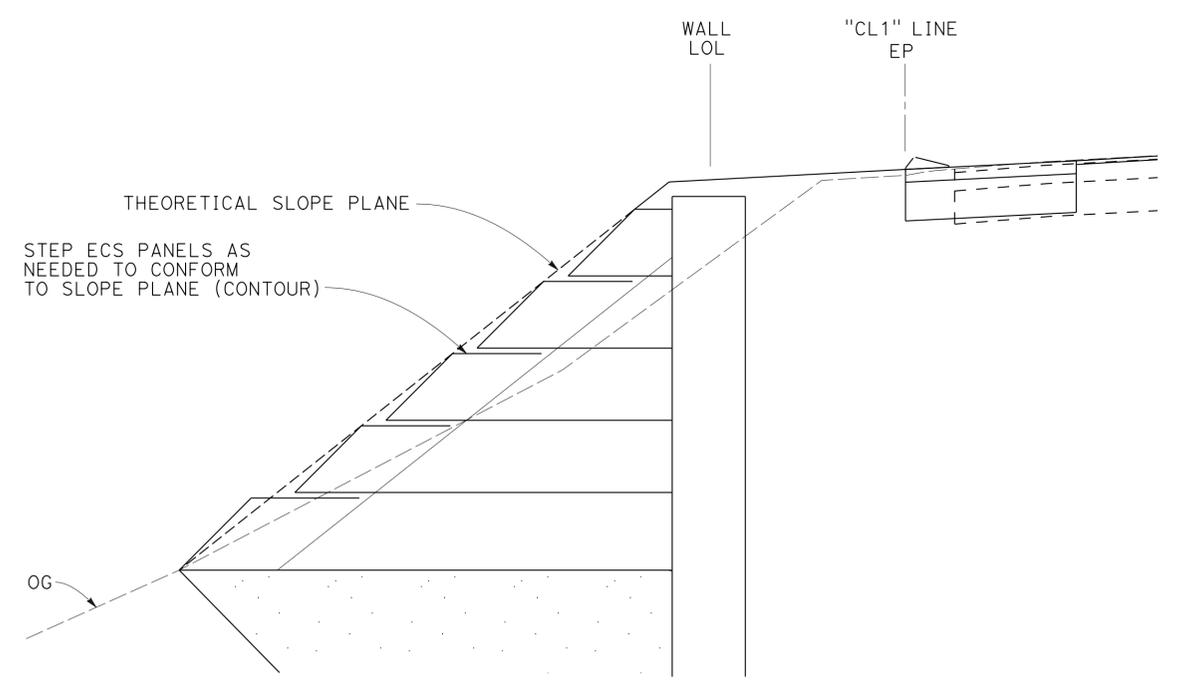
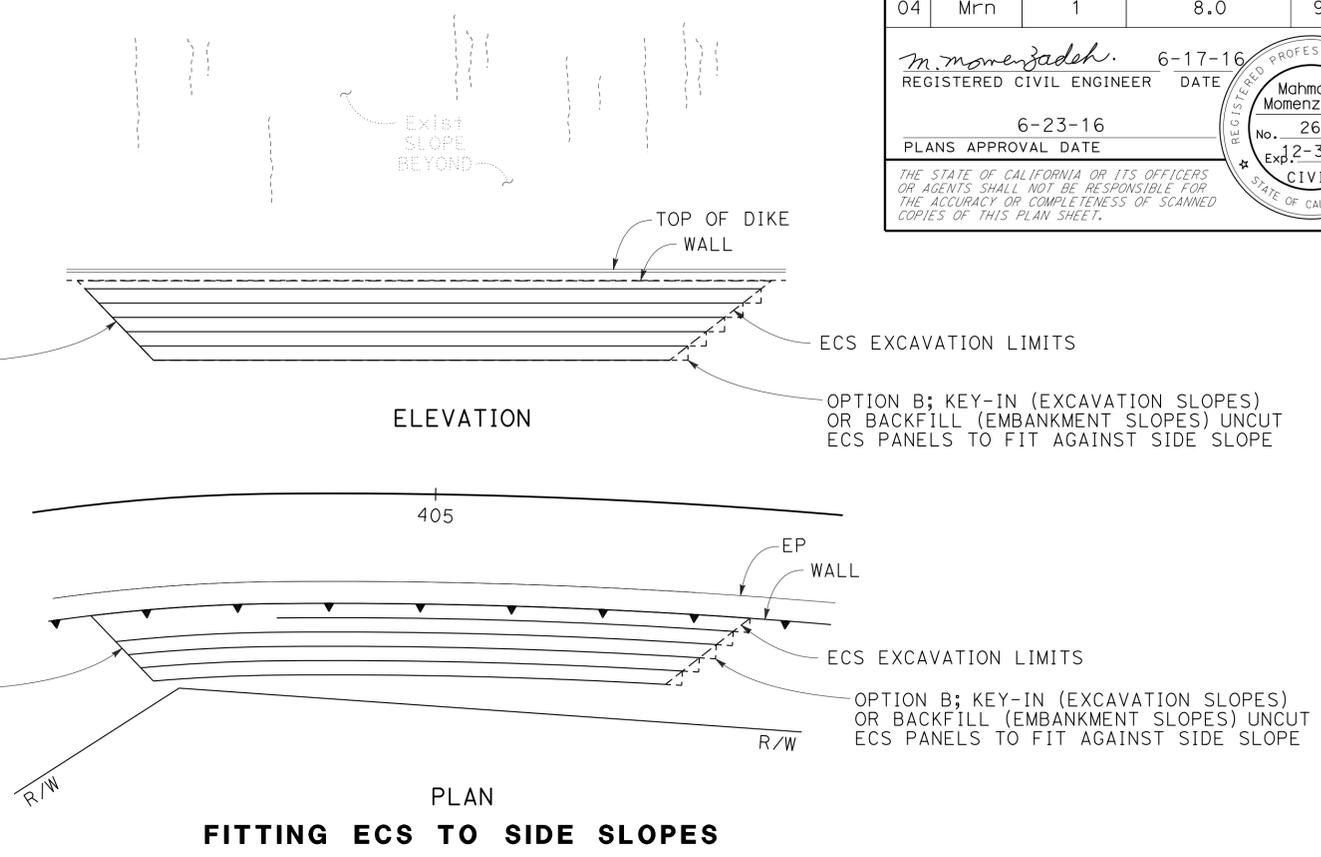
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans**  
 DESIGN  
 FUNCTIONAL SUPERVISOR: TIMOTHY POKRYWKA  
 CALCULATED/DESIGNED BY: ALEX McDONALD  
 CHECKED BY: TUNG NGUYEN  
 REVISED BY: SW  
 DATE REVISED: 5-20-16



ISOMETRIC  
ECS PANEL  
SEE SHEET C-2, NOTE 3



PERSPECTIVE  
ECS PANEL  
SEE SHEET C-2, NOTE 3



FOR NOTES AND ABBREVIATIONS, SEE SHEET C-2

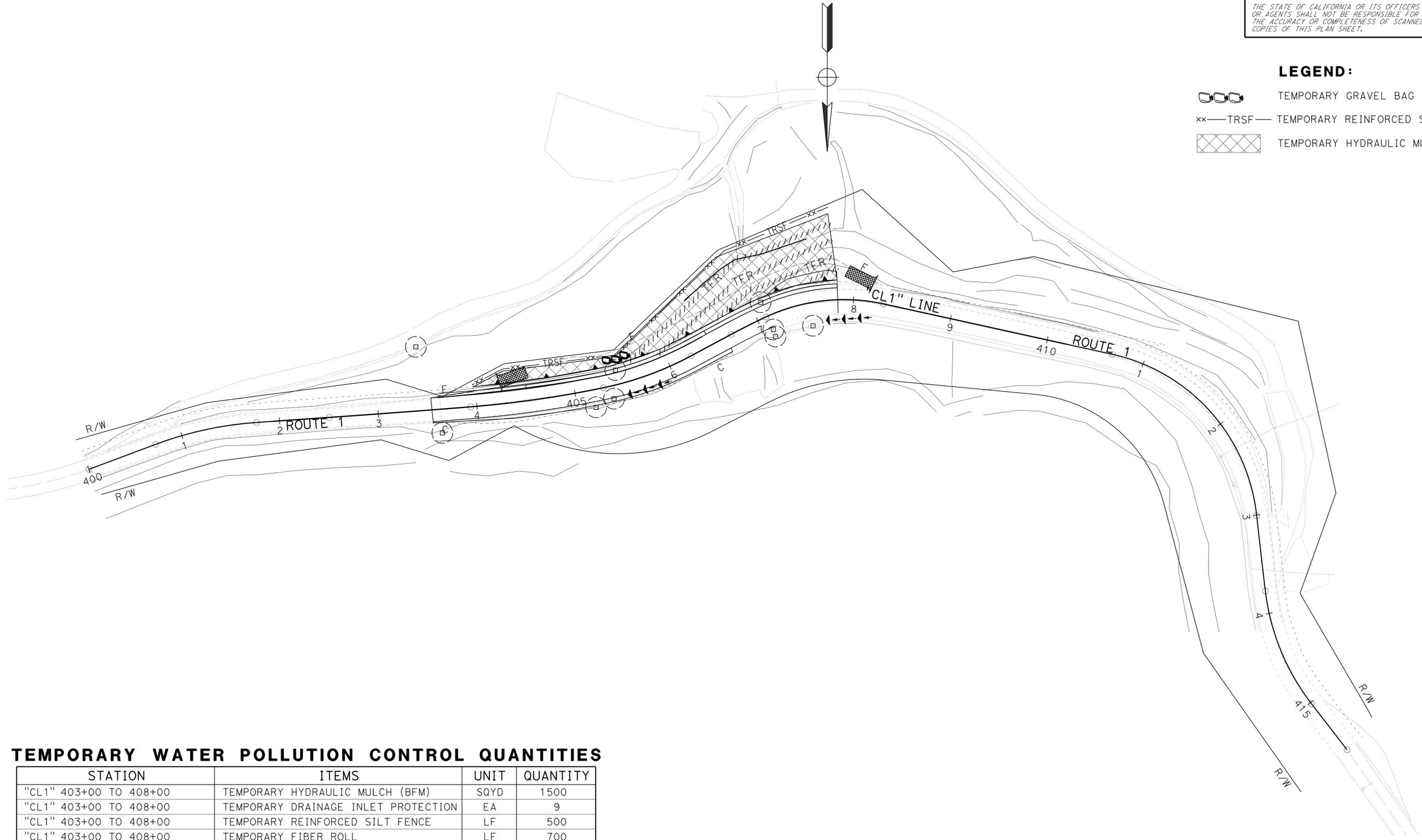
**CONSTRUCTION DETAILS**  
NO SCALE

|      |        |       |                             |              |                 |
|------|--------|-------|-----------------------------|--------------|-----------------|
| Dist | COUNTY | ROUTE | POST MILES<br>TOTAL PROJECT | SHEET<br>No. | TOTAL<br>SHEETS |
| 04   | Mrn    | 1     | 8.0                         | 10           | 90              |

REGISTERED CIVIL ENGINEER DATE 6-17-16  
 REGISTERED CIVIL ENGINEER No. 77248 Exp. 6-30-17  
 PLANS APPROVAL DATE 6-23-16  
 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.

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

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** WATER QUALITY  
 FUNCTIONAL SUPERVISOR: KAMRAN NAKHJURI  
 CALCULATED/DESIGNED BY: CHECKED BY:  
 JENNIFER CHEN KAMRAN NAKHJURI  
 REVISED BY: DATE REVISED:  
 JC 3-28-16



- LEGEND:**
- TEMPORARY GRAVEL BAG BERM
  - TEMPORARY REINFORCED SILT FENCE
  - TEMPORARY HYDRAULIC MULCH (BFM)

**TEMPORARY WATER POLLUTION CONTROL QUANTITIES**

| STATION                | ITEMS                               | UNIT | QUANTITY |
|------------------------|-------------------------------------|------|----------|
| "CL1" 403+00 TO 408+00 | TEMPORARY HYDRAULIC MULCH (BFM)     | SQYD | 1500     |
| "CL1" 403+00 TO 408+00 | TEMPORARY DRAINAGE INLET PROTECTION | EA   | 9        |
| "CL1" 403+00 TO 408+00 | TEMPORARY REINFORCED SILT FENCE     | LF   | 500      |
| "CL1" 403+00 TO 408+00 | TEMPORARY FIBER ROLL                | LF   | 700      |
| "CL1" 403+00 TO 408+00 | TEMPORARY CHECK DAM                 | LF   | 60       |
| "CL1" 403+00 TO 408+00 | TEMPORARY GRAVEL BAG BERM           | LF   | 10       |
| "CL1" 403+00 TO 408+00 | TEMPORARY CONSTRUCTION ENTRANCE     | EA   | 2        |

**TEMPORARY WATER POLLUTION CONTROL PLAN**  
 SCALE: 1" = 50'

APPROVED FOR TEMPORARY WATER POLLUTION CONTROL WORK ONLY

**WPC-1**

LAST REVISION DATE PLOTTED => 13-OCT-2016  
 03-28-16 TIME PLOTTED => 13:40

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

FUNCTIONAL SUPERVISOR: JOSEPH PETERSON  
 CALCULATED/DESIGNED BY: SHARON PATCH  
 CHECKED BY: CHARLOTTE CASHIN  
 REVISED BY: SP  
 DATE REVISED: 4-1-16

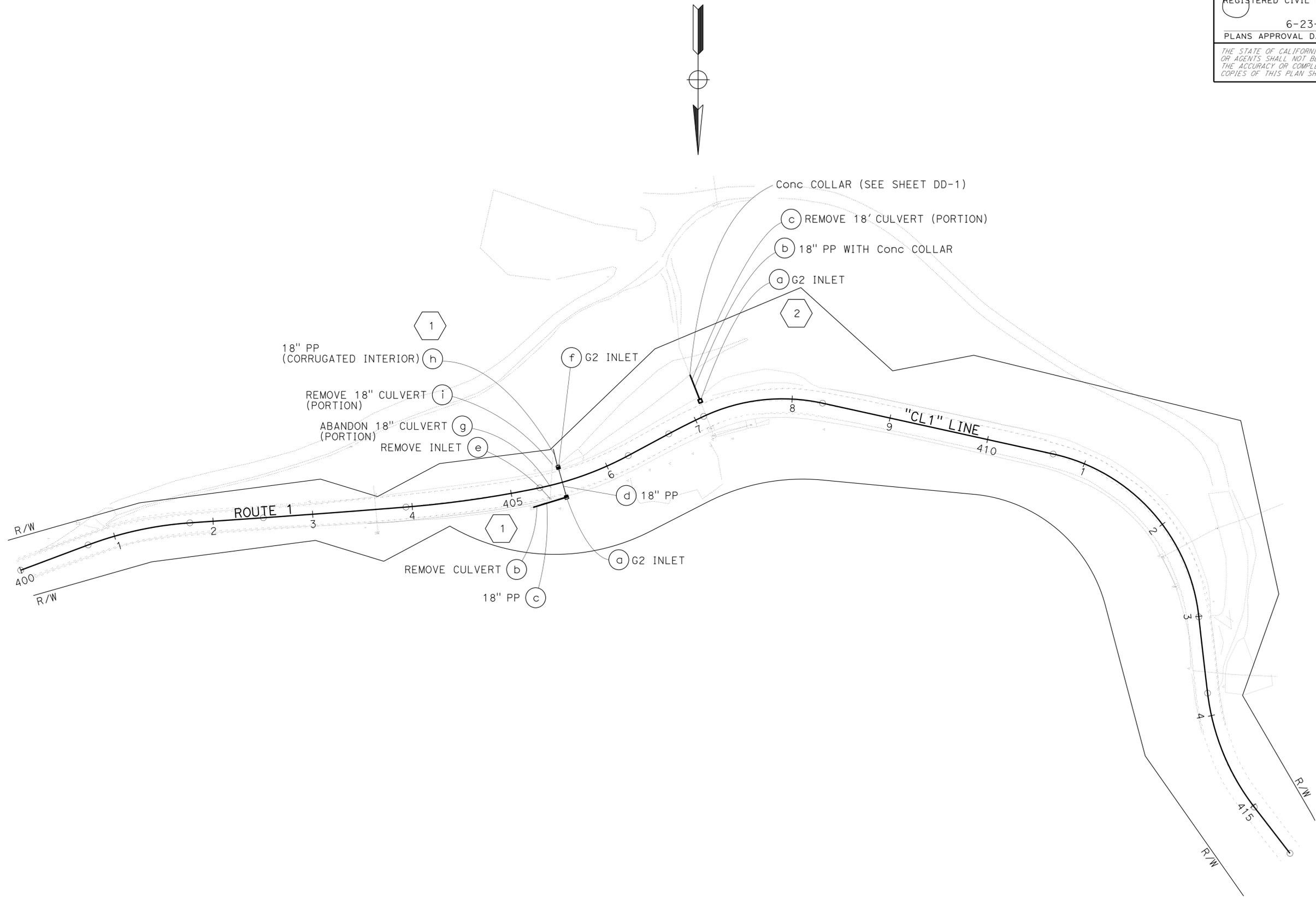
**NOTE:**  
 FOR ACCURATE RIGHT OF WAY DATA, CONTACT  
 RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

|      |        |       |                          |           |              |
|------|--------|-------|--------------------------|-----------|--------------|
| Dist | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
| 04   | Mrn    | 1     | 8.0                      | 11        | 90           |

REGISTERED CIVIL ENGINEER: Sharon L. Patch  
 No. 44896  
 Exp. 3-31-18  
 CIVIL

DATE: 6-17-16  
 PLANS APPROVAL DATE: 6-23-16

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



APPROVED FOR DRAINAGE WORK ONLY

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

**D-1**



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

FUNCTIONAL SUPERVISOR  
 GHULAM POPAL

CALCULATED/DESIGNED BY  
 CHECKED BY

SAMUEL WOLDESEMATYAT  
 SHARON PATCH

REVISOR BY  
 DATE REVISED

SW  
 3-8-16

285

280

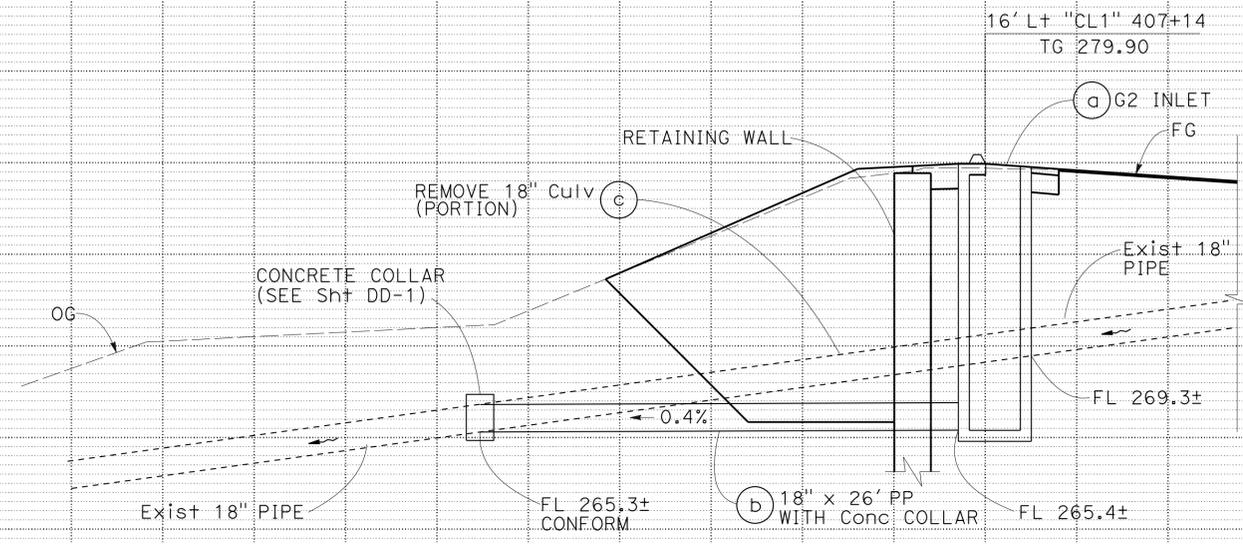
275

270

265

260

255



**DRAINAGE SYSTEM No. 2**

|   |        |       |                          |           |              |
|---|--------|-------|--------------------------|-----------|--------------|
| Dist  | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
| 04  | Mrn    | 1     | 8.0                      | 13        | 90           |
|   |        |       |                          | 6-17-16   |              |
| REGISTERED CIVIL ENGINEER   |        |       |                          | DATE      |              |
|   |        |       |                          | 6-23-16   |              |
| PLANS APPROVAL DATE   |        |       |                          |           |              |
| THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET. |        |       |                          |           |              |



**DRAINAGE PROFILES**  
 SCALE: Horiz 1" = 5'  
 Vert 1" = 5'  
**DP-2**

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

FUNCTIONAL SUPERVISOR  
 GHULAM POPAL

CALCULATED/DESIGNED BY  
 CHECKED BY

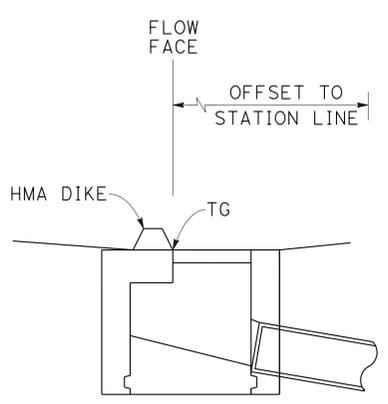
SHARON PATCH  
 CHARLOTTE CASHIN

REVISOR BY  
 DATE REVISED

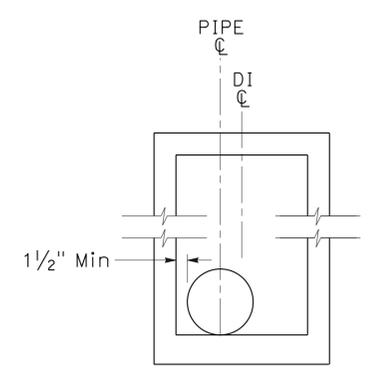
SP  
 6-17-16

**NOTE:**

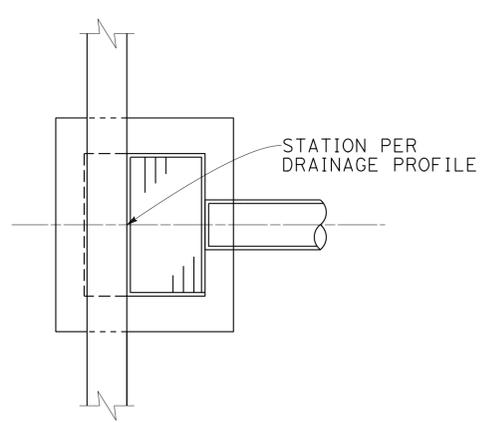
1. FOR INFORMATION NOT SHOWN, SEE STANDARD PLAN RSP D72B, RSP D72C, RSP D73B, RSP D73C AND RSP D74.



ELEVATION

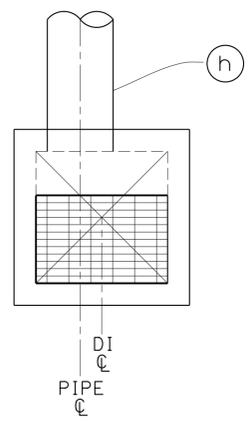


ELEVATION



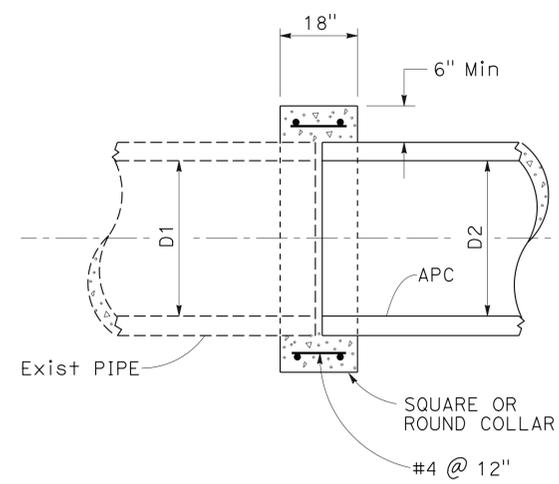
PLAN

**INLET ADJACENT TO AC DIKE**



PLAN

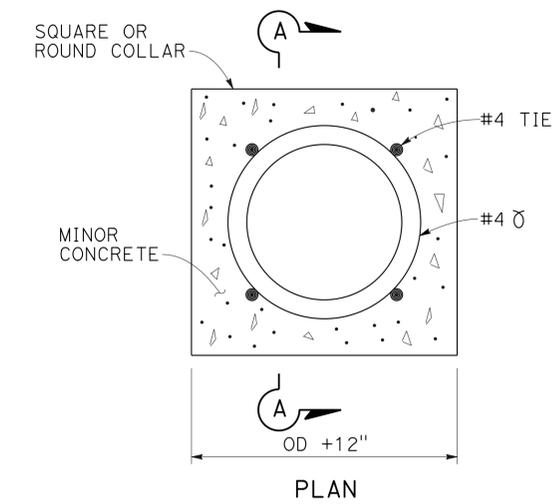
**PIPE OFFSET AT INLET DETAIL**



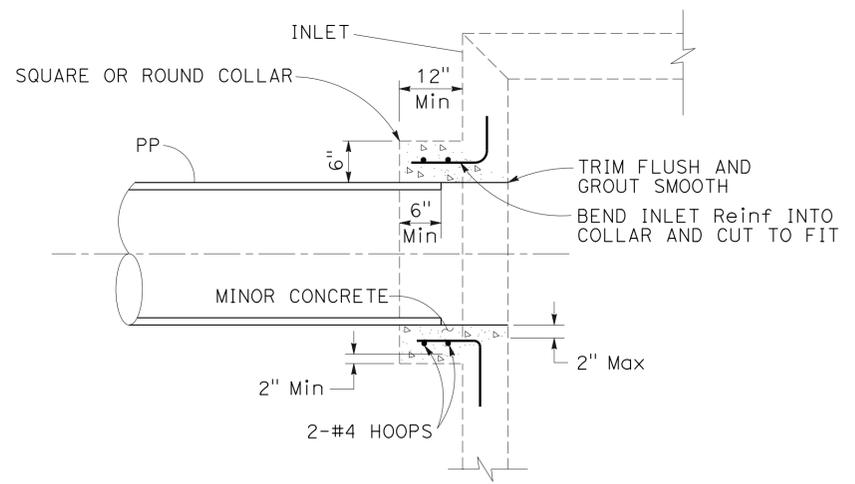
SECTION A-A

**CONCRETE COLLAR DETAIL**

2 b

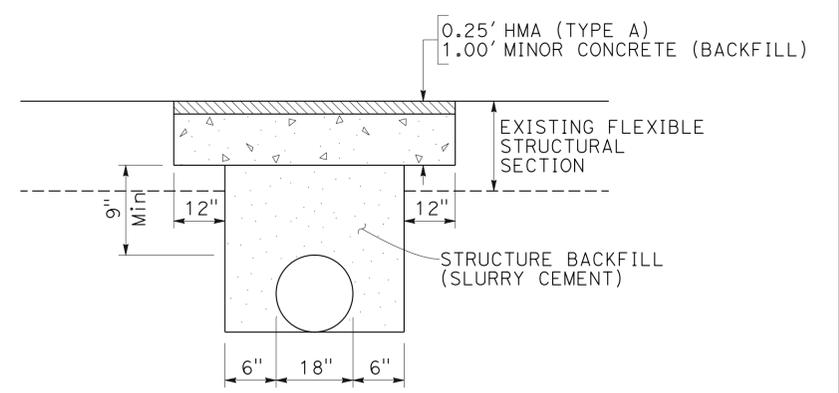


PLAN



**PIPE CONNECTION TO EXISTING DRAINAGE INLET**

1 c 2 a



**TRENCH PAVING DETAIL**

1 d

**DRAINAGE DETAILS**

NO SCALE

**DD-1**

|                           |        |       |                          |           |              |
|---------------------------|--------|-------|--------------------------|-----------|--------------|
| Dist                      | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
| 04                        | Mrn    | 1     | 8.0                      | 14        | 90           |
| REGISTERED CIVIL ENGINEER |        |       | DATE                     | 6-17-16   |              |
| PLANS APPROVAL DATE       |        |       | 6-23-16                  |           |              |

REGISTERED PROFESSIONAL ENGINEER  
 Samuel Woldesemayat  
 No. 75981  
 Exp. 6-30-18  
 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.

FUNCTIONAL SUPERVISOR  
 GHULAM POPAL

CALCULATED/DESIGNED BY  
 CHECKED BY  
 SAMUEL WOLDESEMAT  
 GHULAM POPAL

REVISED BY  
 DATE REVISED  
 SW  
 5-5-16

**ABBREVIATION:**  
 S STANDARD JOINT TYPE

|      |        |       |                          |           |              |
|------|--------|-------|--------------------------|-----------|--------------|
| Dist | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
| 04   | Mrn    | 1     | 8.0                      | 15        | 90           |

6-17-16  
 REGISTERED CIVIL ENGINEER DATE

6-23-16  
 PLANS APPROVAL DATE

Samuel Woldeemayat  
 No. 75981  
 Exp. 6-30-18  
 CIVIL

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

**DRAINAGE QUANTITIES**

| DRAINAGE SHEET No. | DRAINAGE SYSTEM No. | DRAINAGE UNIT | REMOVE CULVERT | REMOVE INLET | STRUCTURAL CONCRETE (DRAINAGE INLET) | STRUCTURE BACKFILL (SLURRY CEMENT) | MINOR CONCRETE (BACKFILL) | HEIGHT OF INLET (N) | HMA (TYPE A) | Misc IRON AND STEEL | Max COVER (N) | 18" PP | 18" PP (CORRUGATED INTERIOR) | ABANDON CULVERT | SAND BACKFILL (N) | DRAINAGE INLET MARKER | FRAME, GRATE AND COVER 24-12X (N) | PIPE JOINT CLASSIFICATION (N) | DESCRIPTION                   | STATION                                  | DRAINAGE SYSTEM No. | DRAINAGE UNIT |
|--------------------|---------------------|---------------|----------------|--------------|--------------------------------------|------------------------------------|---------------------------|---------------------|--------------|---------------------|---------------|--------|------------------------------|-----------------|-------------------|-----------------------|-----------------------------------|-------------------------------|-------------------------------|--|---------------------|---------------|
| D-1                | 1                   | a             | LF             | EA           | CY                                   | CY                                 | CY                        | ft                  | TON          | LB                  | ft            | ft     | LF                           | CY              | EA                | EA                    |                                   |                               |                               |  |                     |               |
|                    | b                   | 17            |                |              | 2.82                                 |                                    |                           | 5                   |              | 239                 |               |        |                              |                 |                   |                       |                                   |                               | G2 INLET                      | 16' Rt "CL1" 405+52.5                    | 1                   | a             |
|                    | c                   |               |                |              |                                      |                                    |                           |                     |              |                     | 3.5           | 36     |                              |                 |                   |                       |                                   | S                             | REMOVE 18" CULVERT            | 18' Rt "CL1" 405+19 TO 16' Rt 405+35     |                     | b             |
|                    | d                   |               |                |              |                                      | 10.2                               | 4.4                       |                     | 2.7          |                     | 4.8           | 32     |                              |                 |                   |                       |                                   | S                             | 18" PP                        | 18' Rt "CL1" 405+19 TO 16' Rt 405+52.5   |                     | c             |
|                    | e                   |               | 1              |              |                                      |                                    |                           |                     |              |                     |               |        |                              |                 |                   |                       |                                   |                               | REMOVE INLET                  | 16' Rt "CL1" 405+52.5 TO 16' Lt 405+52.5 |                     | d             |
|                    | f                   |               |                |              | 3.97                                 |                                    |                           | 7.8                 |              | 239                 |               |        |                              |                 |                   |                       |                                   |                               | G2 INLET                      | 13' Rt "CL1" 405+37                      |                     | e             |
|                    | g                   |               |                |              |                                      |                                    |                           |                     |              |                     |               |        |                              | 31              | 2                 |                       |                                   |                               | ABANDON 18" CULVERT (PORTION) | 16' Lt "CL1" 405+52.5                    |                     | f             |
|                    | h                   |               |                |              |                                      |                                    |                           |                     |              |                     | 6.2           |        | 18                           |                 |                   |                       |                                   |                               | 18" PP (CORRUGATED INTERIOR)  | 13' Rt "CL1" 405+37 TO 18' Lt 405+49     |                     | g             |
|                    | i                   | 14            |                |              |                                      |                                    |                           |                     |              |                     |               |        |                              |                 |                   |                       |                                   |                               | REMOVE 18" CULVERT (PORTION)  | 16' Lt "CL1" 405+52.5 TO 34' Lt 405+52.5 |                     | h             |
|                    |                     |               |                |              |                                      |                                    |                           |                     |              |                     |               |        |                              |                 |                   |                       |                                   |                               | REMOVE 18" CULVERT (PORTION)  | 18' Lt "CL1" 405+49 TO 32' Lt 405+52     |                     | i             |
|                    | 2                   | a             |                |              | 8.48                                 |                                    |                           | 14.5                |              | 239                 |               |        |                              |                 |                   |                       |                                   |                               | G2 INLET                      | 16' Lt "CL1" 407+14                      | 2                   | a             |
|                    | b                   |               |                |              |                                      |                                    |                           |                     |              |                     | 13            | 26     |                              |                 |                   |                       |                                   | S                             | 18" PP WITH Conc COLLAR       | 17' Lt "CL1" 407+14 TO 44' Lt 407+15     |                     | b             |
|                    | c                   | 30            |                |              |                                      |                                    |                           |                     |              |                     |               |        |                              |                 |                   |                       |                                   |                               | REMOVE 18" CULVERT (PORTION)  | 17' Lt "CL1" 407+14 TO 44' Lt 407+15     |                     | c             |
| <b>SHEET TOTAL</b> |                     |               | 61             | 1            | 15.27                                | 10.2                               | 4.4                       |                     | 2.7          | 717                 |               | 94     | 18                           | 31              |                   | 3                     |                                   |                               | <b>SHEET TOTAL</b>            |  |                     |               |

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

**DRAINAGE QUANTITIES DQ-1**

LAST REVISION DATE PLOTTED => 13-OCT-2016 05-05-16 TIME PLOTTED => 13:40

# STATIONARY MOUNTED CONSTRUCTION AREA SIGNS

| SIGN No. | MUTCD CODE | SIGN MESSAGE    | PANEL SIZE | NUMBER OF POSTS AND SIZE | No. OF SIGNS |
|----------|------------|-----------------|------------|--------------------------|--------------|
| 1        | W20-1      | ROAD WORK AHEAD | 48" x 48"  | 1 - 4" x 6"              | 2            |
| 2        | G20-2      | END ROAD WORK   | 36" x 18"  | 1 - 4" x 4"              | 2            |

## NOTE:

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

## LEGEND:

No. CONSTRUCTION AREA SIGN NUMBER

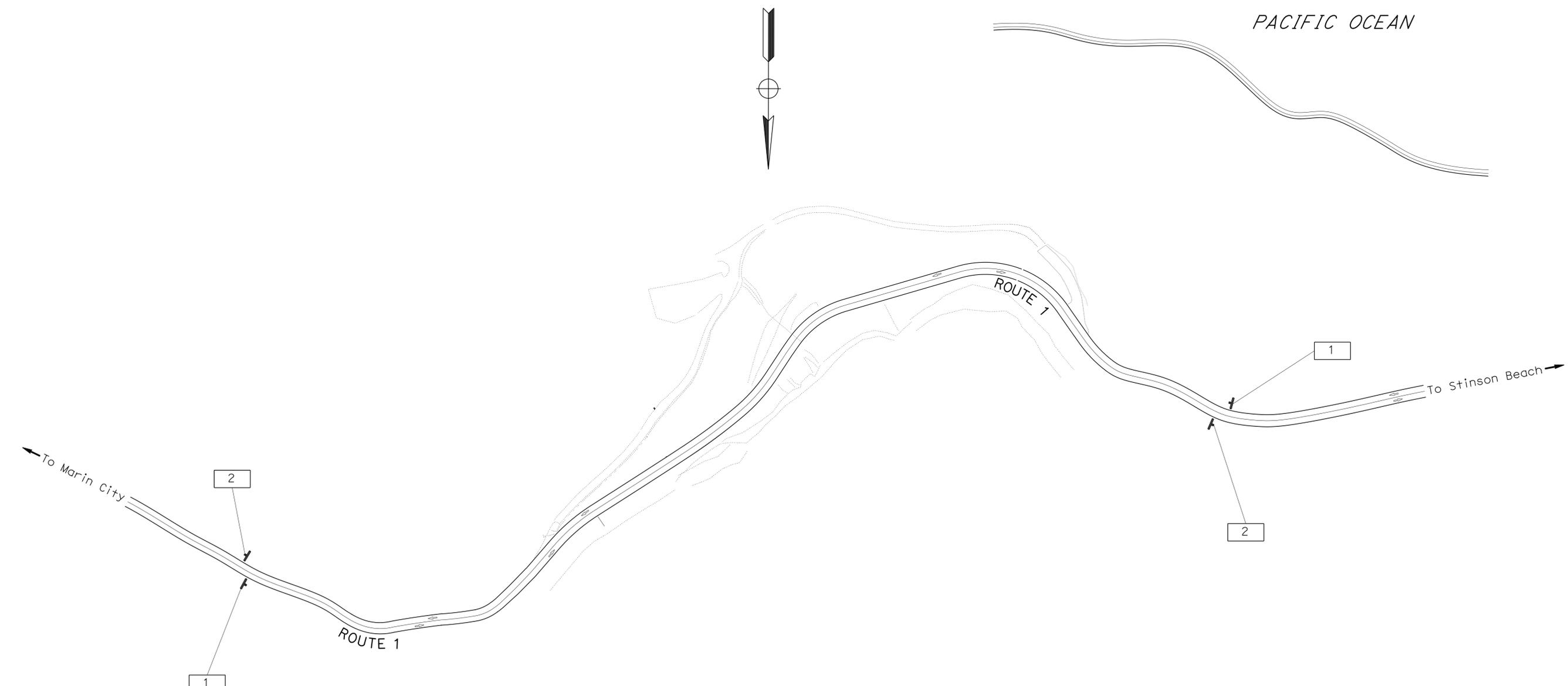
|      |        |       |                          |           |              |
|------|--------|-------|--------------------------|-----------|--------------|
| Dist | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
| 04   | Mrn    | 1     | 8.0                      | 16        | 90           |

*Rajesh Oberoi* 6-17-16  
 REGISTERED CIVIL ENGINEER DATE  
 6-23-16  
 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER  
 Rajesh Oberoi  
 No. 46046  
 Exp. 2-31-16  
 CIVIL  
 STATE OF CALIFORNIA

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

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans**  
 TRAFFIC  
 FUNCTIONAL SUPERVISOR  
 ROLAND AU-YEUNG  
 CALCULATED/DESIGNED BY  
 CHECKED BY  
 HENRY TAM  
 RAJESH OBEROI  
 REVISED BY  
 DATE REVISED  
 HT  
 4-25-16



# CONSTRUCTION AREA SIGNS

NO SCALE

APPROVED FOR CONSTRUCTION AREA SIGN WORK ONLY

**CS-1**

LAST REVISION | DATE PLOTTED => 13-OCT-2016 | 04-25-16 | TIME PLOTTED => 13:40

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

FUNCTIONAL SUPERVISOR: GHULAM POPAL  
 CALCULATED/DESIGNED BY: GHULAM POPAL  
 CHECKED BY:  
 REVISIONS:  
 SW 4-19-16  
 REVISED BY: DATE REVISION

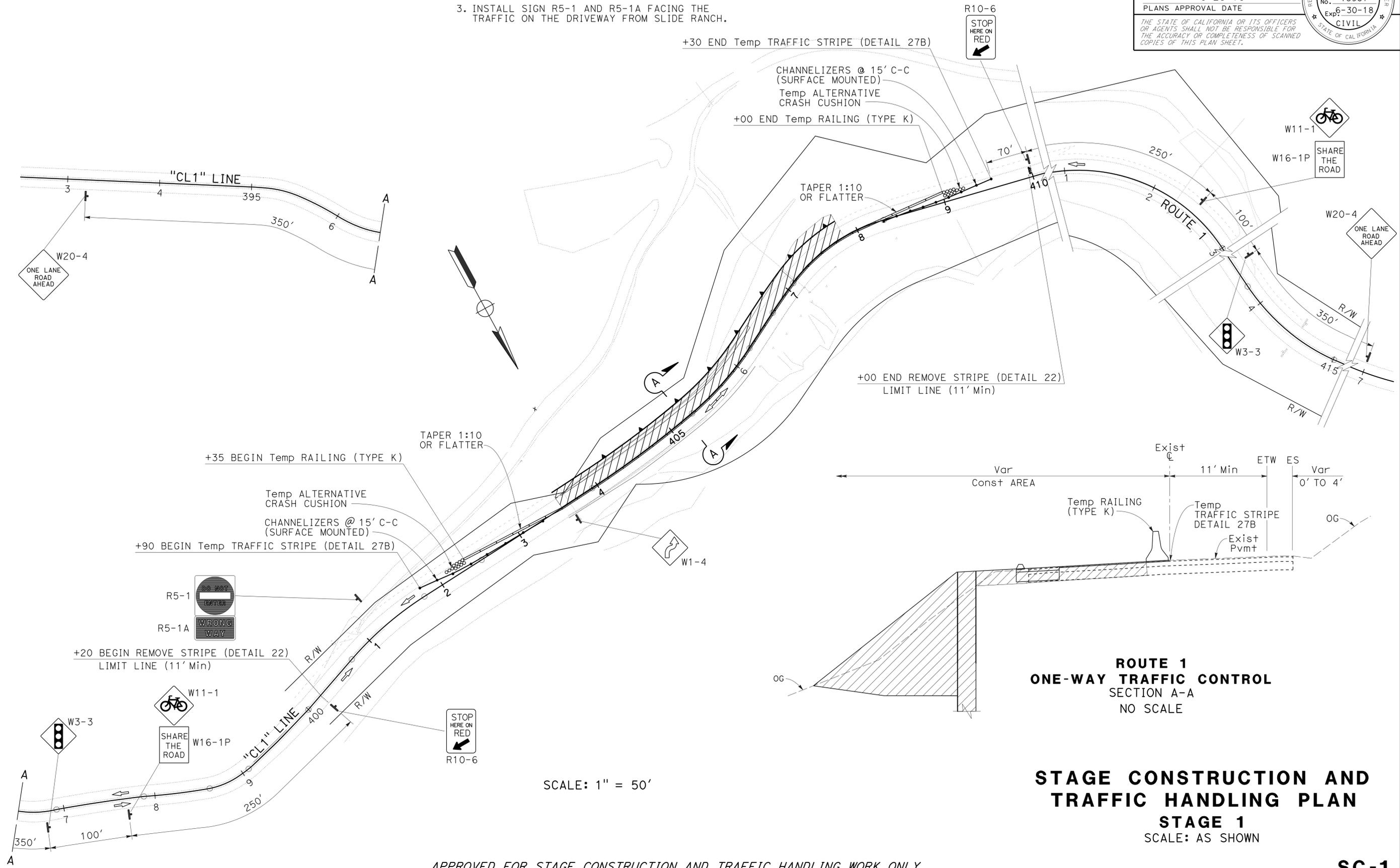
**NOTE:**  
 FOR ACCURATE RIGHT OF WAY DATA, CONTACT  
 RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

- NOTES:**
1. FOR ADDITIONAL CONSTRUCTION AREA SIGNS, SEE SHEET CS-1.
  2. FOR TEMPORARY ELECTRICAL SYSTEM WORK, SEE ELECTRICAL SHEETS.
  3. INSTALL SIGN R5-1 AND R5-1A FACING THE TRAFFIC ON THE DRIVEWAY FROM SLIDE RANCH.

- LEGEND:**
- CHANNELIZERS (SURFACE MOUNTED)
  - ▨ CONSTRUCTION AREA

|      |        |       |                          |           |              |
|------|--------|-------|--------------------------|-----------|--------------|
| Dist | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
| 04   | Mrn    | 1     | 8.0                      | 17        | 90           |

REGISTERED CIVIL ENGINEER DATE: 6-17-16  
 Samuel Woldeemayat No. 75981 Exp. 6-30-18  
 PLANS APPROVAL DATE: 6-23-16  
 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.



**ROUTE 1  
 ONE-WAY TRAFFIC CONTROL  
 SECTION A-A  
 NO SCALE**

**STAGE CONSTRUCTION AND  
 TRAFFIC HANDLING PLAN  
 STAGE 1  
 SCALE: AS SHOWN**

APPROVED FOR STAGE CONSTRUCTION AND TRAFFIC HANDLING WORK ONLY

**SC-1**

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

FUNCTIONAL SUPERVISOR: GHULAM POPAL  
 CHECKED BY: GHULAM POPAL  
 DESIGNED BY: SAMMUEL WOLDESEMAT  
 REVISIONS:  
 SW 4-1-16  
 REVISOR: SW  
 DATE: 4-1-16

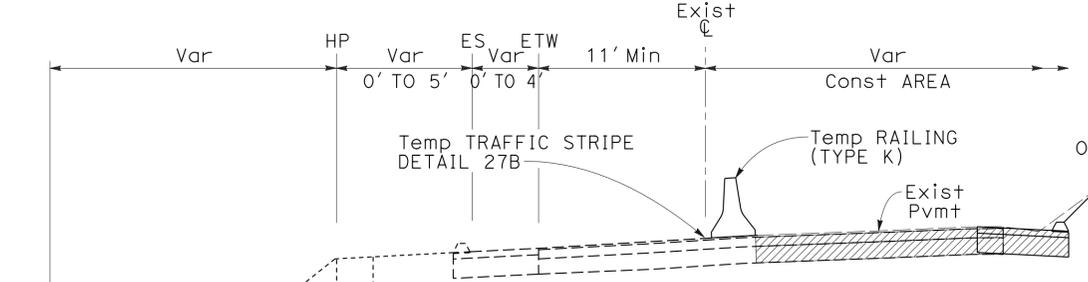
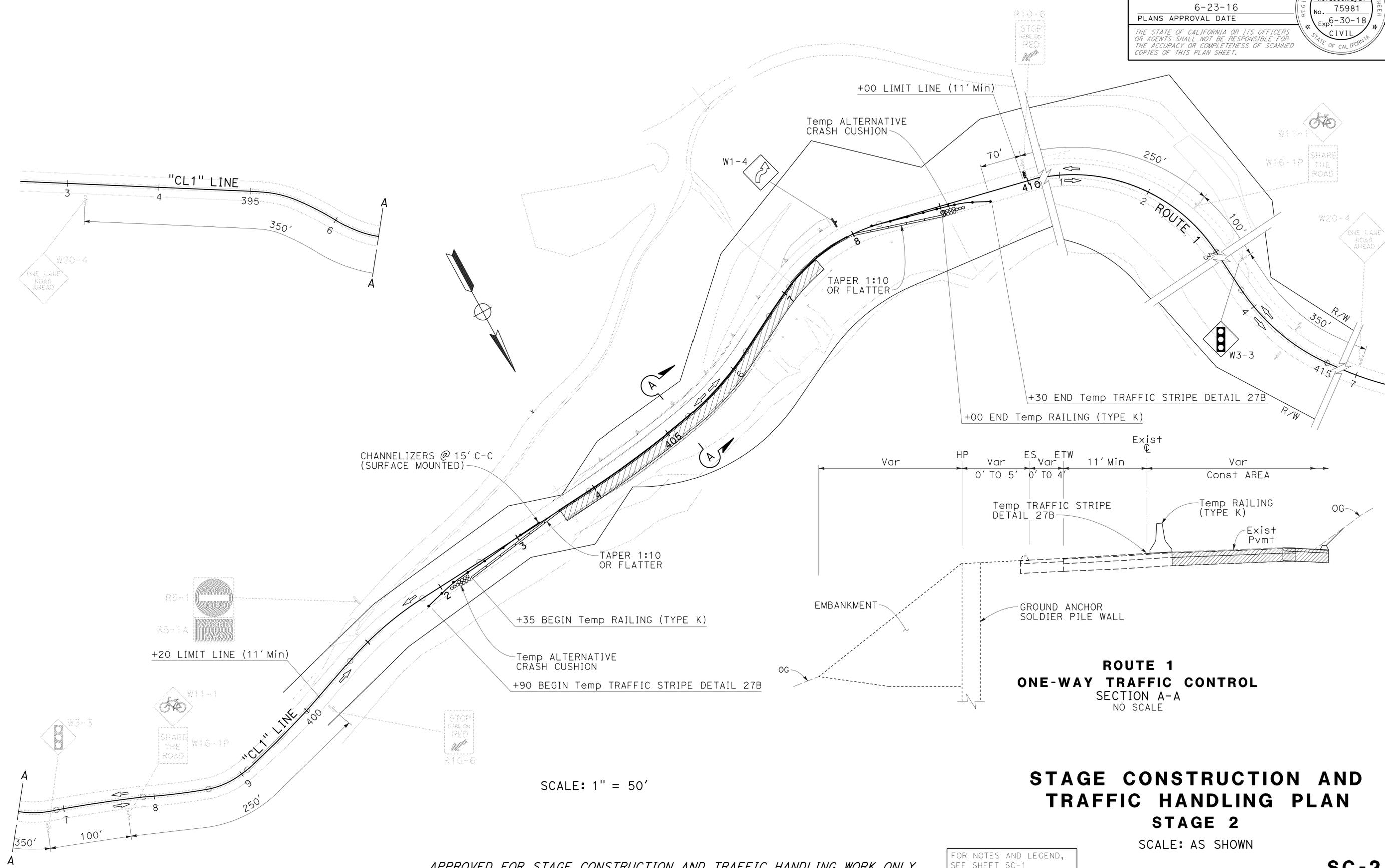
**NOTE:**  
 FOR ACCURATE RIGHT OF WAY DATA, CONTACT  
 RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

|      |        |       |                          |           |              |
|------|--------|-------|--------------------------|-----------|--------------|
| Dist | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
| 04   | Mrn    | 1     | 8.0                      | 18        | 90           |

REGISTERED CIVIL ENGINEER: Samuel Woldeemayat  
 No. 75981  
 Exp. 6-30-18  
 CIVIL

DATE: 6-17-16  
 DATE: 6-23-16  
 PLANS APPROVAL DATE

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



**ROUTE 1  
 ONE-WAY TRAFFIC CONTROL  
 SECTION A-A  
 NO SCALE**

**STAGE CONSTRUCTION AND  
 TRAFFIC HANDLING PLAN  
 STAGE 2  
 SCALE: AS SHOWN**

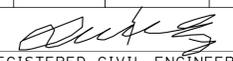
SCALE: 1" = 50'

APPROVED FOR STAGE CONSTRUCTION AND TRAFFIC HANDLING WORK ONLY

FOR NOTES AND LEGEND,  
 SEE SHEET SC-1

**SC-2**

|      |        |       |                             |              |                 |
|------|--------|-------|-----------------------------|--------------|-----------------|
| Dist | COUNTY | ROUTE | POST MILES<br>TOTAL PROJECT | SHEET<br>No. | TOTAL<br>SHEETS |
| 04   | Mrn    | 1     | 8.0                         | 19           | 90              |

 6-17-16  
 REGISTERED CIVIL ENGINEER DATE

6-23-16  
 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER  
 Samuel Woldesemayat  
 No. 75981  
 Exp. 6-30-18  
 CIVIL  
 STATE OF CALIFORNIA

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### STATIONARY MOUNTED CONSTRUCTION AREA SIGNS (TRAFFIC HANDLING)

| SHEET No. | SIGN No.  | SIGN MESSAGE        | PANEL SIZE | NUMBER OF POSTS AND SIZE | No. OF SIGNS | REMARKS                   |
|-----------|-----------|---------------------|------------|--------------------------|--------------|---------------------------|
| SC-1      | W11-1     | BICYCLE             | 18" x 18"  | 1 - 4" x 4"              | 2            |                           |
|           | W16-1P    | SHARE THE ROAD      | 24" x 30"  |                          | 2            |                           |
|           | W20-4     | ONE LANE ROAD AHEAD | 36" x 36"  | 1 - 4" x 4"              | 2            |                           |
|           | W3-3      | SIGNAL AHEAD        | 36" x 36"  |                          | 2            | SEE DETAIL 2 ON SHEET E-4 |
|           | R10-6     | STOP HERE ON RED    | 36" x 36"  |                          | 2            | SEE DETAIL 4 ON SHEET E-4 |
|           | W1-4      | REVERSE CURVE       | 30" x 30"  | 1 - 4" x 4"              | 1            |                           |
|           | R5-1      | DO NOT ENTER        | 30" x 30"  | 1 - 4" x 4"              | 1            |                           |
| R5-1A     | WRONG WAY | 36" x 24"           | 1          |                          |              |                           |
| SC-2      | W1-4      | REVERSE CURVE       | 30" x 30"  | 1 - 4" x 4"              | 1            |                           |

### TEMPORARY TRAFFIC HANDLING AND STAGE CONSTRUCTION QUANTITIES

| SHEET No.    | STATION                | TEMPORARY RAILING (TYPE K) | TEMPORARY TRAFFIC STRIPE (PAINT) | REMOVE YELLOW THERMOPLASTIC TRAFFIC STRIPE (HAZARDOUS WASTE) | REMOVE PAINTED TRAFFIC STRIPE | TEMPORARY ALTERNATIVE CRASH CUSHION | REMOVE PAVEMENT MARKER | CHANNELIZERS (SURFACE MOUNTED) | TEMPORARY PAVEMENT MARKING (PAINT) | REMOVE PAINTED PAVEMENT MARKING |
|--------------|------------------------|----------------------------|----------------------------------|--|-------------------------------|-------------------------------------|------------------------|--------------------------------|------------------------------------|---------------------------------|
|              |                        | LF                         |                                  |  | EA                            |                                     |                        | SQ FT                          |                                    |                                 |
| SC-1         | "CL1" 402+00 TO 410+00 | 680                        | 800                              | 1960   | 800                           | 2                                   | 84                     | 22                             | 24                                 |                                 |
| SC-2         | "CL1" 402+00 TO 410+00 | 680                        | 800                              |  | 800                           | 2                                   |                        | 22                             |                                    | 24                              |
| <b>TOTAL</b> |                        | 1360                       | 1600                             | 1960   | 1600                          | 4                                   | 84                     | 44                             | 24                                 | 24                              |

### STAGE CONSTRUCTION AND TRAFFIC HANDLING QUANTITIES

SCQ-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans**  
 DESIGN  
 FUNCTIONAL SUPERVISOR  
 GHULAM POPAL  
 CALCULATED/DESIGNED BY  
 CHECKED BY  
 SAMUEL WOLDESEMAT  
 GHULAM POPAL  
 REVISED BY  
 DATE REVISED  
 SW  
 4-19-16



|      |        |       |                          |           |              |
|------|--------|-------|--------------------------|-----------|--------------|
| Dist | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
| 04   | Mrn    | 1     | 8.0                      | 21        | 90           |

6-17-16  
 REGISTERED CIVIL ENGINEER DATE  
 6-23-16  
 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER  
 Samuel Woldesemayat  
 No. 75981  
 Exp. 6-30-18  
 CIVIL  
 STATE OF CALIFORNIA

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### EARTHWORK QUANTITIES

| SHEET No.    | STATION                      | SIDE   | ROADWAY EXCAVATION | EMBANKMENT     |                 |                         |                               |   |             |             |                   |
|--------------|------------------------------|--------|--------------------|----------------|-----------------|-------------------------|-------------------------------|---|-------------|-------------|-------------------|
|              |                              |        |                    | (N) EMBANKMENT | IMPORTED BORROW | (N) SELECTED MATERIAL * | EMBANKMENT CONFINEMENT SYSTEM |   |             |             |                   |
|              |                              |        |                    |                |                 |                         | EMBANKMENT CONFINEMENT SYSTEM | (N) ROLLED EROSION CONTROL PRODUCT (NETTING) TYPE B | (N) COMPOST | (N) TOPSOIL | (N) FILTER FABRIC |
| CY           |                              |        |                    | SQFT           | CY              |                         | SQYD                          |   |             |             |                   |
| L-1          | "CL1" 403+54.71 TO 408+24.34 | Rt, Lt | 1630               | 1170           |                 |                         |                               |   |             |             |                   |
| C-1          | "CL1" 403+98 TO 408+25       | Lt     | 95                 |                | 95              |                         |                               |   |             |             |                   |
| C-2          | "CL1" 404+50 TO 405+60       | Lt     |                    |                | 150             | 300                     | 3960                          | 51  | 95          | 440         |                   |
| <b>TOTAL</b> |                              |        | 1725               | 1170           | 150             | 300                     |                               |   |             |             |                   |

(N) NOT A SEPARATE PAY ITEM, FOR INFORMATION ONLY  
 \* DERIVED FROM ROADWAY EXCAVATION

### ROADWAY STRUCTURE QUANTITIES

| SHEET No.    | STATION                | COLD PLANE ASPHALT CONCRETE PAVEMENT | HOT MIX ASPHALT (TYPE A) | TACK COAT | AGGREGATE BASE (CLASS 2) | REMOVE AC DIKE |
|--------------|------------------------|--------------------------------------|--------------------------|-----------|--------------------------|----------------|
|              |                        | SQYD                                 | TON                      |           | CY                       | LF             |
| L-1          | "CL1" 403+54 TO 403+98 | 118                                  | 11.5                     | 0.6       | 6                        | 44             |
|              | "CL1" 403+98 TO 404+50 | 139                                  | 22.4                     | 0.8       | 21                       | 52             |
|              | "CL1" 404+50 TO 405+60 | 294                                  | 47.1                     | 1.7       | 43                       | 110            |
|              | "CL1" 405+60 TO 406+12 | 139                                  | 21.6                     | 0.8       | 20                       | 52             |
|              | "CL1" 406+12 TO 406+70 | 155                                  | 22.5                     | 1.1       | 21                       |                |
|              | "CL1" 406+70 TO 408+30 | 680                                  | 62.1                     | 3.2       | 30                       |                |
| <b>TOTAL</b> |                        | 1525                                 | 187.2                    | 8.2       | 141                      | 258            |

### TEMPORARY FENCE AND CHAIN LINK GATE

| SHEET No. | TEMPORARY FENCE (TYPE CL-6) | TEMPORARY 4' CHAIN LINK GATE (TYPE CL-6) |
|-----------|-----------------------------|--|
|           | LF                          | EA                                       |
| E-4       | 60                          | 1  |

### TEMPORARY FENCE (TYPE ESA)

| SHEET No. | STATION                | LF  |
|-----------|------------------------|-----|
| L-1       | "CL1" 403+00 TO 408+00 | 550 |

### PLACE HOT MIX ASPHALT DIKE

| SHEET No.    | STATION                | (TYPE E) | HOT MIX ASPHALT (TYPE A) |
|--------------|------------------------|----------|--------------------------|
|              |                        | LF       | TON                      |
| L-1          | "CL1" 403+54 TO 403+98 | 44       | 1.1                      |
|              | "CL1" 403+98 TO 404+50 | 104      | 2.7                      |
|              | "CL1" 404+50 TO 405+60 | 220      | 5.6                      |
|              | "CL1" 405+60 TO 406+12 | 104      | 2.7                      |
|              | "CL1" 406+12 TO 406+70 | 56       | 1.4                      |
|              | "CL1" 406+70 TO 407+10 | 11       | 1.1                      |
| <b>TOTAL</b> |                        | 539      | 14.6                     |

## SUMMARY OF QUANTITIES

Q-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION DESIGN  
 SAMUEL WOLDESEMAYAT  
 GHULAM POPAL  
 SW  
 5-9-16  
 REVISOR BY DATE  
 GHULAM POPAL  
 CHECKED BY  
 GHULAM POPAL  
 SUPERVISOR



|      |        |       |                             |              |                 |
|------|--------|-------|-----------------------------|--------------|-----------------|
| Dist | COUNTY | ROUTE | POST MILES<br>TOTAL PROJECT | SHEET<br>No. | TOTAL<br>SHEETS |
| 04   | Mrn    | 1     | 8.0                         | 22           | 90              |

*Alex McDonald*  
 LICENSED LANDSCAPE ARCHITECT

6-23-16  
 PLANS APPROVAL DATE

8-31-16  
 Signature  
 5-6-16  
 Date

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

**EROSION CONTROL TYPE 1**

| SEQUENCE | ITEM                                     | MATERIAL                           |                       | APPLICATION RATE | DEPTH | REMARKS             |
|----------|--|------------------------------------|-----------------------|------------------|-------|---------------------|
|          |  | DESCRIPTION                        | TYPE                  |                  |       |                     |
| STEP 1   | ROLLED EROSION CONTROL PRODUCT (NETTING) | NETTING                            | TYPE A                | -                | -     | -                   |
| STEP 2   | FIBER ROLLS                              | RICE STRAW FILLED AND JUTE COVERED | 8 TO 10 INCHES IN Dia | -                | -     | INSTALLATION TYPE 2 |
| STEP 3   | COMPOST                                  | COMPOST                            | MEDIUM                | 68 CY/ACRE       | 0.5"  | -                   |
| STEP 4   | HYDROSEED                                | SEED                               | MIX 1                 | 70 LB/ACRE       | -     | -                   |
|          |  | FIBER                              | ALTERNATE             | 1,000 LB/ACRE    | -     |                     |
|          |  | FERTILIZER                         | ORGANIC               | 500 LB/ACRE      | -     |                     |
| STEP 5   | HYDROMULCH                               | FIBER                              | ALTERNATE             | 2,000 LB/ACRE    | -     | -                   |
|          |  | TACKIFIER                          | PSYLLIUM              | 200 LB/ACRE      | -     |                     |

**EMBANKMENT CONFINEMENT SYSTEM (ECS) EROSION CONTROL**

| SEQUENCE | ITEM                                     | MATERIAL                        |            | APPLICATION RATE | DEPTH | REMARKS   |
|----------|--|---------------------------------|------------|------------------|-------|---|
|          |  | DESCRIPTION                     | TYPE       |                  |       |   |
| STEP 1   | ROLLED EROSION CONTROL PRODUCT (NETTING) | 100% WOVEN COIR (COCONUT FIBER) | TYPE B (N) | -                | -     | SEE EARTHWORK QUANTITIES ON SUMMARY OF QUANTITIES |
| STEP 2   | INCORPORATE MATERIALS                    | TOPSOIL (N)                     | LOCAL      | 2,622 CY/ACRE    | 30"   |   |
|          |  | COMPOST (N)                     | FINE       | 1,412 CY/ACRE    |       |   |
| STEP 3   | EROSION CONTROL (DRY SEED)               | SEED                            | MIX 1      | 70 CY/ACRE       | -     | DRY SEED COMPOST AMENDED TOPSOIL                  |
| STEP 4   | HYDROSEED                                | SEED                            | MIX 1      | 70 LB/ACRE       | -     | -   |
|          |  | FIBER                           | ALTERNATE  | 1,000 LB/ACRE    | -     |   |
|          |  | FERTILIZER                      | ORGANIC    | 500 LB/ACRE      | -     |   |
| STEP 5   | HYDROMULCH                               | FIBER                           | ALTERNATE  | 1,000 LB/ACRE    | -     | -   |
|          |  | TACKIFIER                       | PSYLLIUM   | 200 LB/ACRE      | -     |   |

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

**SEED MIX**

| SEED  | BOTANICAL NAME (COMMON NAME)           | PERCENT GERMINATION (MINIMUM) | POUNDS PURE LIVE SEED PER ACRE (SLOPE MEASUREMENT) |
|-------|--|-------------------------------|--|
| MIX 1 | ELYMUS X TRITICUM (STERILE WHEATGRASS) | 10                            | 70   |

**EROSION CONTROL LEGEND**

**ECL-1**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION - WATER QUALITY

SENIOR LANDSCAPE ARCHITECT DAVID W. YAM

CALCULATED/DESIGNED BY CHECKED BY

ALEX McDONALD CHRIS PADICK

REVISED BY DATE REVISED

AKM 5-6-16

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** WATER QUALITY  
 SENIOR LANDSCAPE ARCHITECT DAVID W. YAM  
 CALCULATED/DESIGNED BY CHECKED BY  
 ALEX McDONALD CHRIS PADICK  
 REVISED BY DATE REVISED  
 AKM 5-6-16

**NOTES:**

1. FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.
2. ALL DISTURBED SOIL AREAS FROM CONSTRUCTION ACTIVITIES MUST RECEIVE EROSION CONTROL TYPE 1.
3. SEE CONSTRUCTION DETAILS FOR EMBANKMENT CONFINEMENT SYSTEM WITH RECP (NETTING) TYPE B.
4. APPLY HYDROSEED AND HYDROMULCH TO EMBANKMENT CONFINEMENT SYSTEM FACE SO THAT MATERIALS ARE WELL INTEGRATED INTO THE RECP (NETTING) TYPE B AND REACH COMPOST AMENDED TOPSOIL.

**LEGEND:**

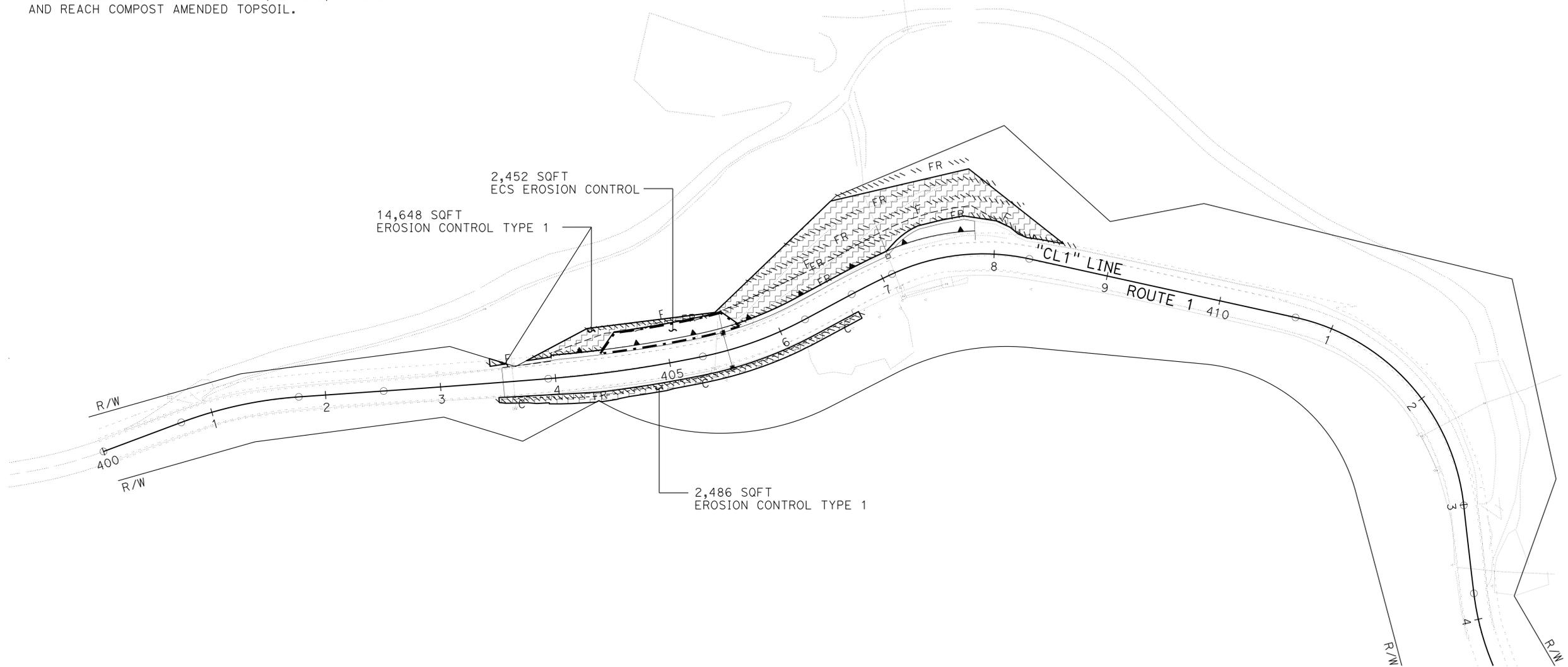
- EMBANKMENT CONFINEMENT SYSTEM (SEE CONSTRUCTION DETAILS AND NOTES 3 AND 4)
- EROSION CONTROL TYPE 1

|      |        |       |                          |           |              |
|------|--------|-------|--------------------------|-----------|--------------|
| Dist | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
| 04   | Mtn    | 1     | 8.0                      | 23        | 90           |

Alex McDonald  
 LICENSED LANDSCAPE ARCHITECT  
 6-23-16  
 PLANS APPROVAL DATE

8-31-16  
 Renewal Date  
 5-6-16  
 Date

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



**EROSION CONTROL QUANTITIES**

| SHEET        | DESCRIPTION                   | EROSION CONTROL (DRY SEED) | ROLLED EROSION CONTROL PRODUCT (NETTING) (TYPE A) | HYDROMULCH | FIBER ROLLS | HYDROSEED | COMPOST | INCORPORATE MATERIALS |
|--------------|-------------------------------|----------------------------|---|------------|-------------|-----------|---------|-----------------------|
|              |                               | SQFT                       | SQFT  |            | LF          | SQFT      |         |                       |
| EC-1         | EC TYPE 1                     | -                          | 17,134  | 17,134     | 1,575       | 17,134    | 17,134  | -                     |
|              | EMBANKMENT CONFINEMENT SYSTEM | 2,452                      | -   | 2,452      | -           | 2,452     | -       | 2,452                 |
| <b>TOTAL</b> |                               | 2,452                      | 17,134  | 19,586     | 1,575       | 19,586    | 17,134  | 2,452                 |

**EROSION CONTROL PLAN**

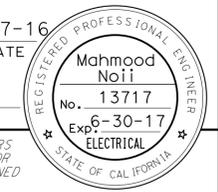
SCALE: 1" = 50'

APPROVED FOR EROSION CONTROL WORK ONLY

**EC-1**

LAST REVISION DATE PLOTTED => 13-OCT-2016 09-17-15 TIME PLOTTED => 13:41

|   |        |       |                          |           |              |
|---|--------|-------|--------------------------|-----------|--------------|
| Dist  | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
| 04  | Mrn    | 1     | 8.0                      | 24        | 90           |
| <br>REGISTERED ELECTRICAL ENGINEER                             |        |       | 6-17-16                  | DATE      |              |
| PLANS APPROVAL DATE   |        |       | 6-23-16                  |           |              |
| 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, NOTES, LEGEND AND ABBREVIATIONS
- E-2 TEMPORARY SIGNAL SYSTEM
- E-3, E-4 ELECTRICAL DETAILS
- E-5 ELECTRICAL QUANTITIES

**NOTES:**

1. PROVIDE GUY WIRE, GUY GUARDS AND ANCHOR AS REQUIRED.
2. ESTABLISH CONTINUOUS GROUND WITH SYSTEM GROUND TO ALL METAL PARTS IN SYSTEMS BY BONDING JUMPERS AND CONDUITS.
3. A GROUND ROD MUST BE INSTALLED IN THE PULLBOX ADJACENT TO WOOD POLES AND BOND TO RIGID METAL CONDUIT.
4. FOR TEMPORARY WOOD POLE INSTALLATION, SEE SHEETS SES-1 TO SES-4 AND USE CASE 2N ON SHEET SES-2.
5. THE LOWEST SAG POINT OF THE MESSENGER WIRE MUST BE 25' MINIMUM CLEARANCE FROM FINISHED GRADE/ROADWAY.
6. OVERHEAD ENTRANCE CONDUIT FITTING MUST BE INSTALLED IN SUCH A WAY SO THAT RAINWATER SHALL NOT SEEP INTO THE ELECTRICAL EQUIPMENT THROUGH THE ENTRANCE FITTING. FORM A DRIP LOOP AT THE ENTRANCE FITTING.
7. WHEN ONE OR MORE TRAFFIC SIGNAL DETECTOR(S) CONSIST OF A SEQUENCE OF 4 LOOPS IN A SINGLE LANE, THE FRONT LOOP CLOSEST TO THE LIMIT LINE SHALL BE LOCATED 1' FROM THE LINE. ALL FOUR LOOPS MUST BE CONNECTED IN SERIES.
8. GENERATORS MUST HAVE A NOISE LEVEL LESS THAN 80 dBA Lmax AT 50 FEET DISTANCE.
9. OVERHEAD CONDUCTORS SHALL BE TIED ON MESSENGER WIRE AT EVERY 3' MAXIMUM WITH SELF-CLINGING NYLON TIES.
10. **RS** MODEL 2070 CONTROLLER ASSEMBLY AND MODEL 332 CABINET UPON COMPLETION OF THE PROJECT.
11. **RC** ALL REMAINING TEMPORARY ELECTRICAL ITEMS INCLUDING WOOD, WOOD POLES AND GENERATORS, CONCRETE FOUNDATION AND CABINET FOUNDATION PLATFORM UPON COMPLETION. RESTORE THE ENVIRONMENT AND THE PULLOUT AREA, RESPECTIVELY TO THE NATURAL AND ORIGINAL CONDITIONS.
12. THE TEMPORARY SIGNAL SYSTEM INSTALLED AT STAGE 1 REMAINS IN OPERATION UNTIL THE END OF STAGE 2.
13. THE CONTROLLER CABINET, FUEL TANK AND GENERATORS MUST BE PROTECTED FROM TRAFFIC BY TEMPORARY RAILING (TYPE K)

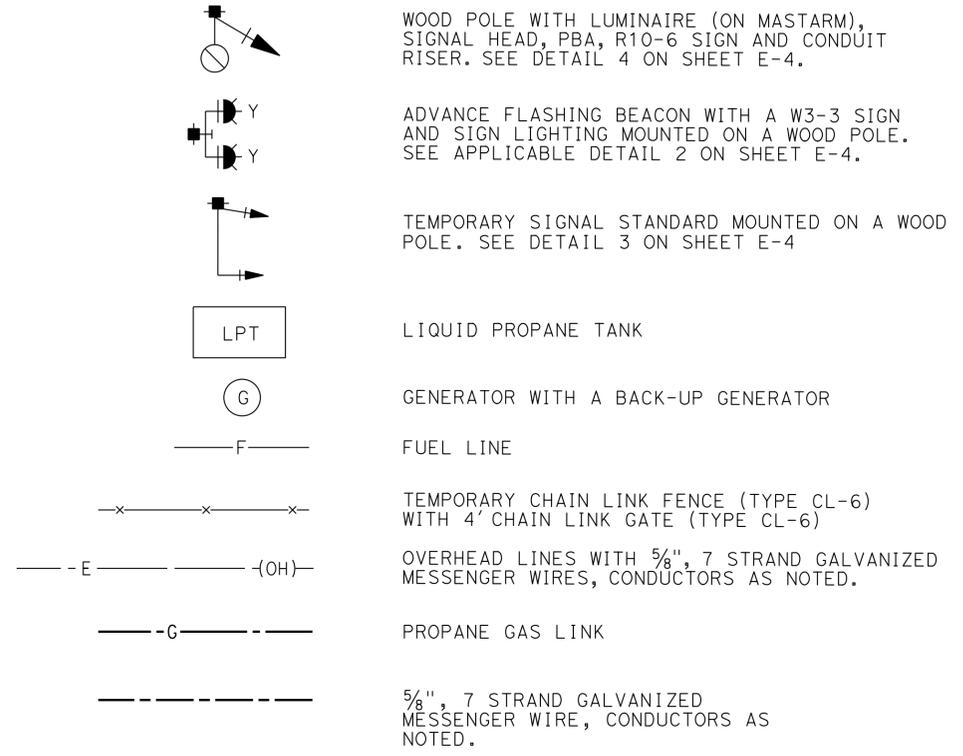
**LEGEND:**

- 1 7' x 11' x 4" (W x L x D) CONCRETE SLAB FOR PORTABLE GENERATORS AND SERVICE EQUIPMENT ENCLOSURE MOUNTING. SEE DETAIL 5 ON SHEET E-4. FRONT DOOR SHALL FACE EAST.
- 2 SEE DETAIL 5 ON SHEET E-4  
INSTALL TEMPORARY 4' CHAIN LINK GATE (TYPE CL-6), 53' TEMPORARY FENCE (TYPE CL-6), PART OF ROADWAY PAY ITEM.
- 3 INSTALL STATE-FURNISHED MODEL 2070 CONTROLLER ASSEMBLY WITH MODEL 332 CABINET. SEE TEMPORARY FOUNDATION PLATFORM DETAIL 6 ON SHEET E-4.
- 4 INSTALL 2#8 (120 V SB FLASHING BEACON).
- 5 INSTALL WOOD POLE WITH 165 W LED LUMINAIRE, TYPE B PBA WITH SIGN FOR BICYCLIST, SEE DETAIL 4 ON SHEET E-4.
- 6 INSTALL 1"C, 1 DLC.
- 7 INSTALL 2#8 (120 V SB FLASHING BEACON), 1 DLC.
- 8 INSTALL WOOD POLE WITH SIGNAL HEAD, SEE DETAIL 3 ON SHEET E-4.
- 9 INSTALL 2#8 (240 V LIGHTING),  
2#8 (120 V SB FLASHING BEACON),  
1#8 (120 V SIGNAL NEUTRAL),  
8#10 (3-Ø1, 2 PBA (Ø1), 3 SPARES),  
2 DLC

- 10 INSTALL 2#8 (240 V LIGHTING),  
2#8 (120 V SB FLASHING BEACON),  
1#8 (120 V SIGNAL NEUTRAL),  
8#10 (3-Ø2, 2 PBA (Ø2), 3 SPARES),  
2 DLC.
- 11 DETECTOR LOOP MUST HAVE 5 COILS.
- 12 INSTALL 2#8 (240 V LIGHTING),  
2#8 (120 V SB FLASHING BEACON),  
1#8 (120 V SIGNAL NEUTRAL),  
14#10 (9-Ø2, 2 PBA (Ø2), 3 SPARES),  
2 DLC.
- 13 INSTALL WOOD POLE WITH PEU AND NEMA 3R ENCLOSURE FOR ELECTRICAL SERVICE. SEE SERVICE WIRING DIAGRAM AND DETAIL D AND E ON SHEET E-3.
- 14 INSTALL 2#8 (120 V NB FLASHING BEACON)
- 15 INSTALL 2#8 (120 V SB FLASHING BEACON),  
1 DLC.
- 16 INSTALL 2"C, 2#8 (240 V LIGHTING),  
2#8 (120 V NB FLASHING BEACON),  
2#8 (120 V SB FLASHING BEACON),  
1#8 (120 V SIGNAL NEUTRAL),  
28#10 (9-Ø2, 2 PBA (Ø2), 9-Ø1, 2 PBA (Ø1), 6 SPARES),  
4 DLC.
- 17 INSTALL 2"C, 3#4 (SERVICE TO NEMA 3R ENCLOSURE),  
1#8 (GROUND).
- 18 INSTALL 2"C, 2#6 (SERVICE TO CONTROLLER),  
28#10 (9-Ø2, 2 PBA (Ø2), 9-Ø1, 2 PBA (Ø1), 6 SPARES),  
4 DLC.
- 19 INSTALL 2"C, 2#6 (SERVICE TO CONTROLLER),  
2#8 (240 V LIGHTING),  
2#8 (120 V NB FLASHING BEACON),  
2#8 (120 V SB FLASHING BEACON),  
1#8 (120 V SIGNAL NEUTRAL).
- 20 INSTALL A UPS IN THE CONTROLLER CABINET.
- 21 INSTALL 2#8 (240 V LIGHTING),  
2#8 (120 V SB FLASHING BEACON),  
1#8 (120 V SIGNAL NEUTRAL),  
14#10, (9-Ø1, 2 PBA (Ø1), 3 SPARES),  
2 DLC.

**LEGEND: (SEE RSP ES-1A, ES-1B AND ES-1C)**

**PROPOSED**



**ABBREVIATIONS:**

- LP LIQUID PROPANE
- UPS UNINTERRUPTIBLE POWER SUPPLY

**ELECTRICAL INDEX, NOTES, LEGEND AND ABBREVIATIONS**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans**  
 SOHEILA BANA  
 S. BOBBIE BABAK  
 BEHZAD GOLEMOHAMMADI  
 ELECTRICAL

SB  
 6-15-16  
 REVISOR  
 DATE  
 CALCULATED/DESIGNED BY  
 CHECKED BY  
 FUNCTIONAL SUPERVISOR

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

FUNCTIONAL SUPERVISOR  
 BEHZAD GOLEMOHAMMADI

CALCULATED/DESIGNED BY  
 CHECKED BY

SOHEILA BANA  
 S. BOBBIE BABAK

REVISOR BY  
 DATE REVISED

SB  
 6-15-16

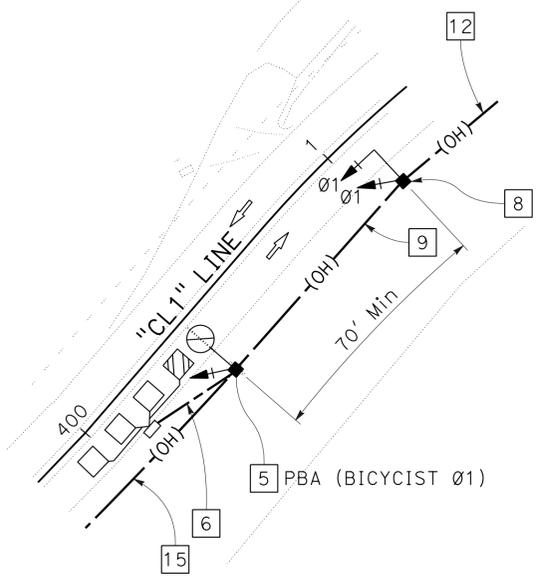
**NOTE:**  
 FOR ACCURATE RIGHT OF WAY DATA, CONTACT  
 RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

| Dist | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
|------|--------|-------|--------------------------|-----------|--------------|
| 04   | Mrn    | 1     | 8.0                      | 25        | 90           |

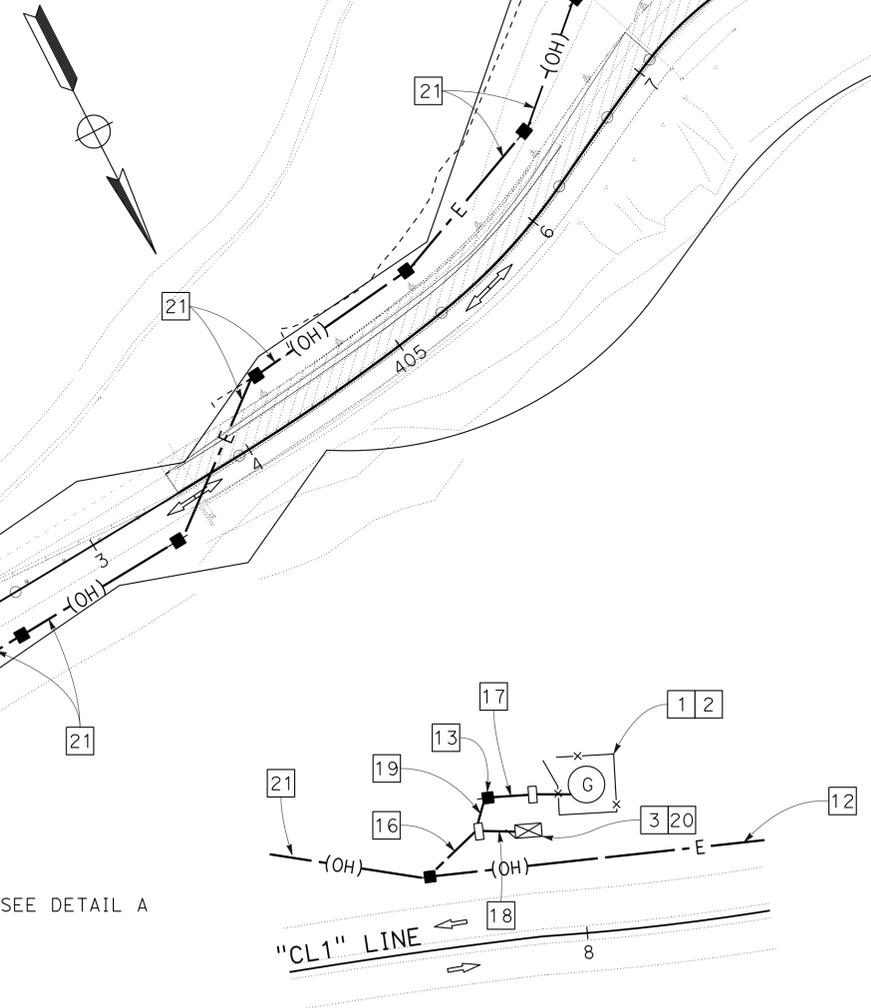
REGISTERED ELECTRICAL ENGINEER: *M. Now* 6-17-16  
 DATE: 6-17-16  
 PLANS APPROVAL DATE: 6-23-16  
 Mahmoed Noii  
 No. 13717  
 Exp. 6-30-17  
 ELECTRICAL  
 STATE OF CALIFORNIA

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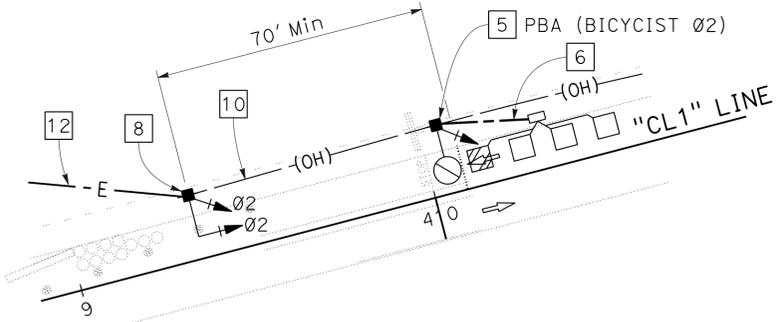
**PHASE DIAGRAM**



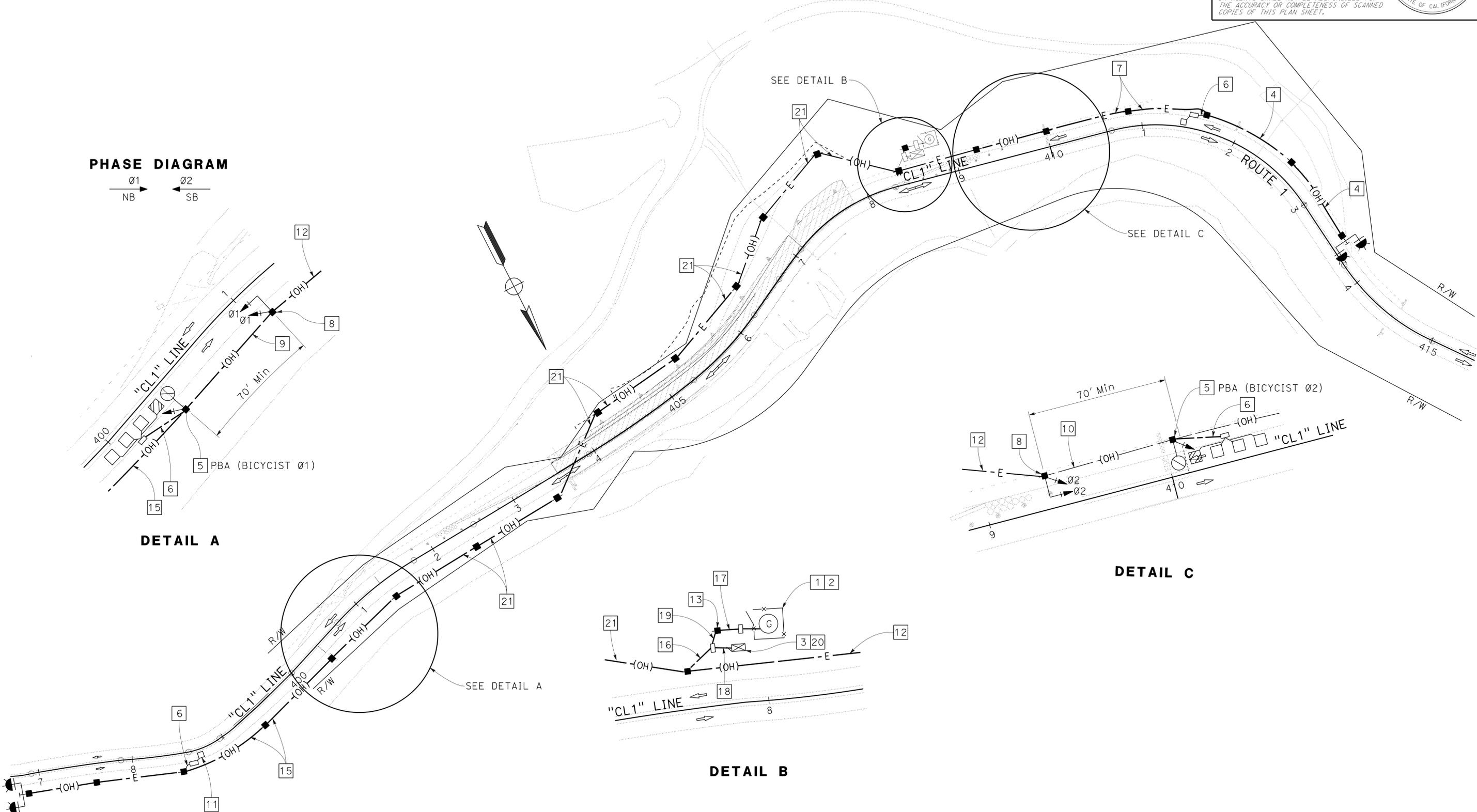
**DETAIL A**



**DETAIL B**



**DETAIL C**



**TEMPORARY SIGNAL SYSTEM**

SCALE: 1" = 50'

**E-2**

APPROVED FOR ELECTRICAL WORK ONLY

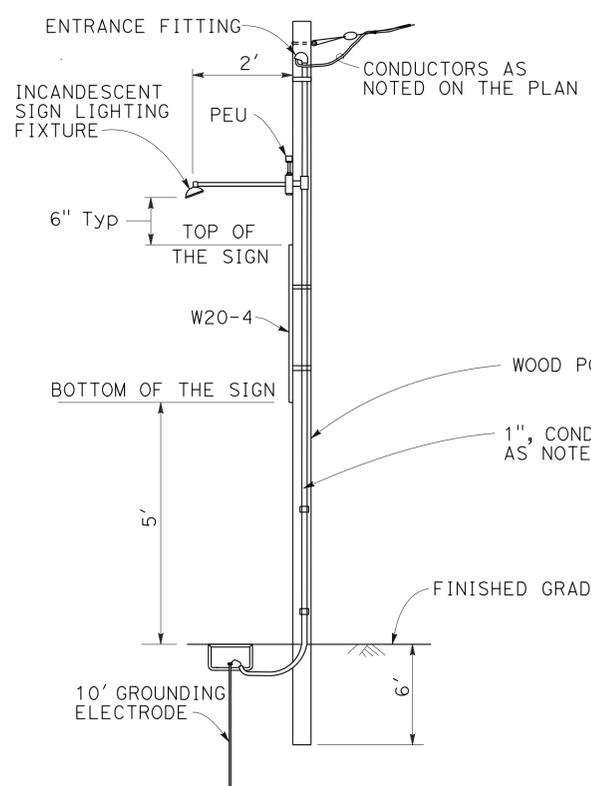
FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET E-1



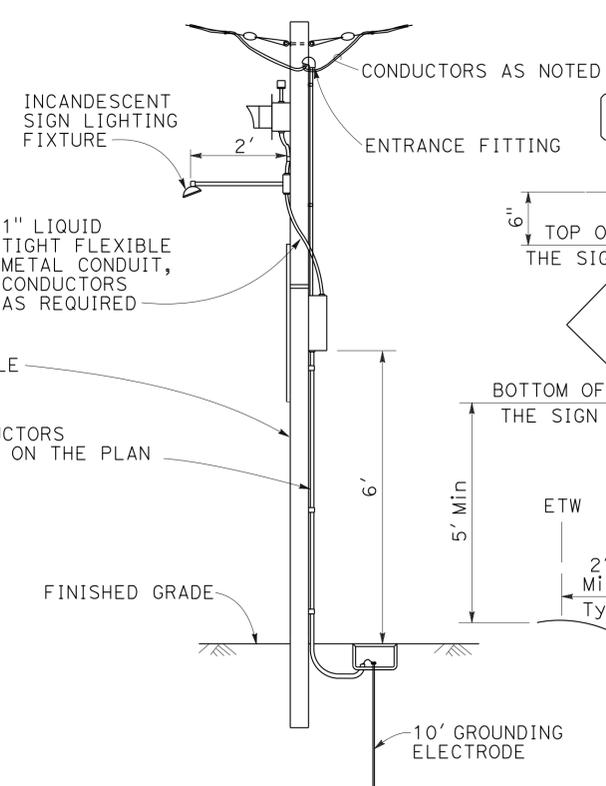
| Dist | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
|------|--------|-------|--------------------------|-----------|--------------|
| 04   | Mrn    | 1     | 8.0                      | 27        | 90           |

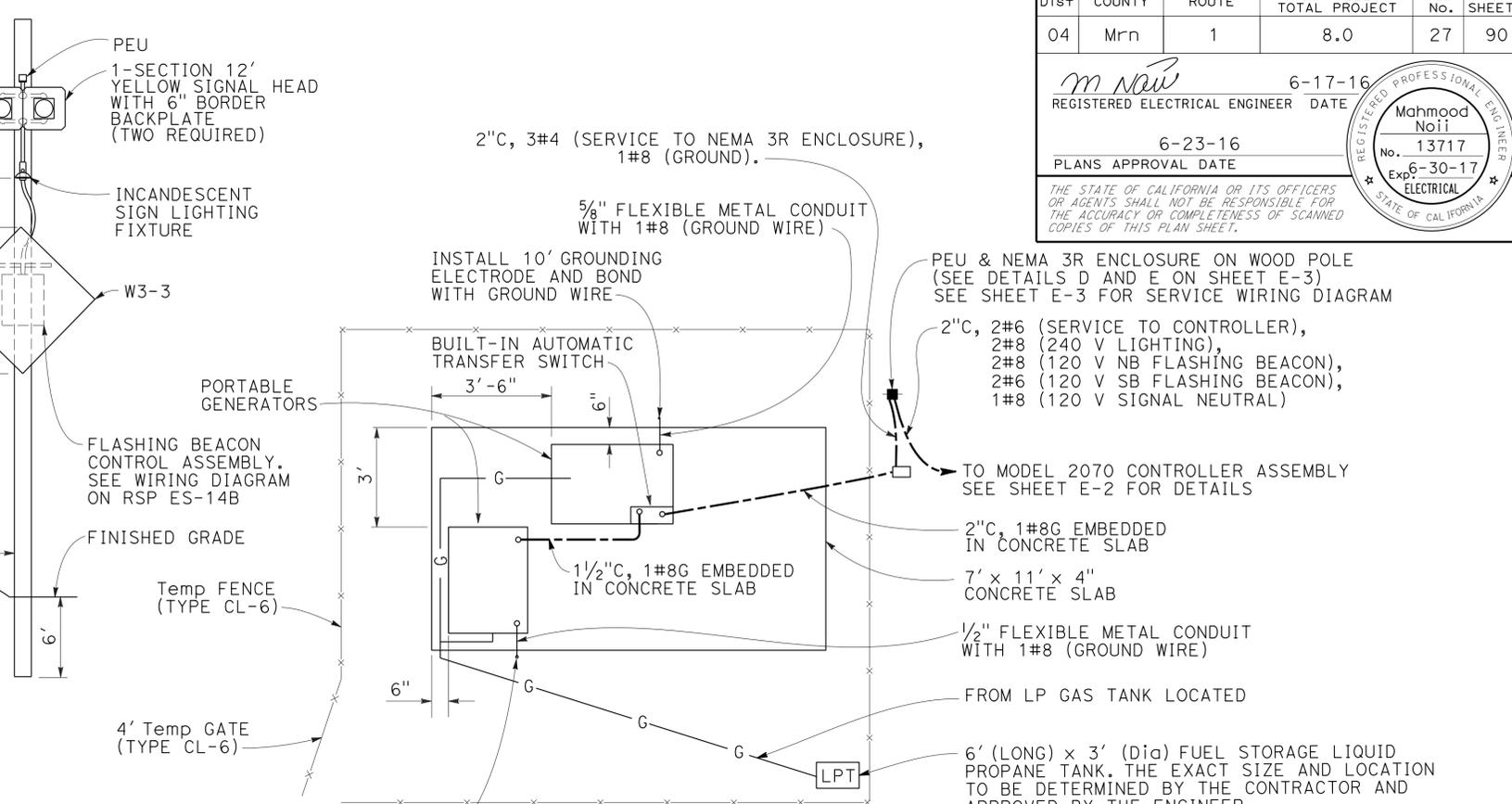
|  |              |
|--|--------------|
|  |              |
| REGISTERED ELECTRICAL ENGINEER   | DATE 6-17-16 |
| PLANS APPROVAL DATE  | 6-23-16      |
| <small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small> |              |



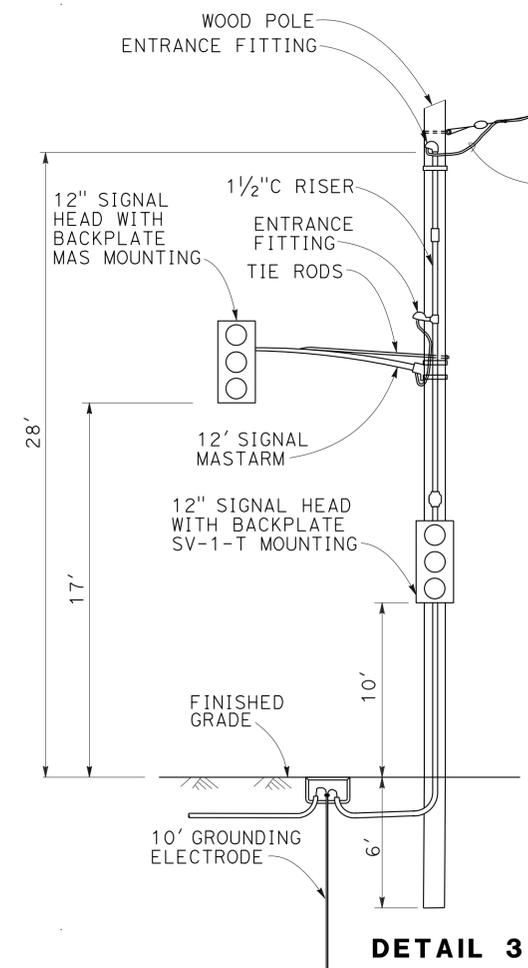
**DETAIL 1**



**DETAIL 2**

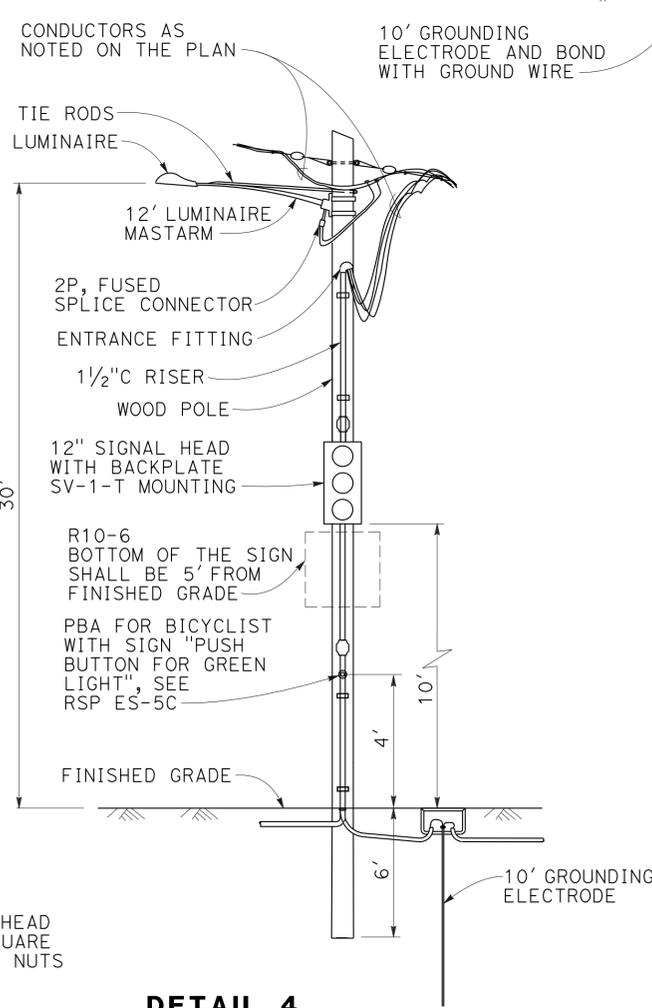
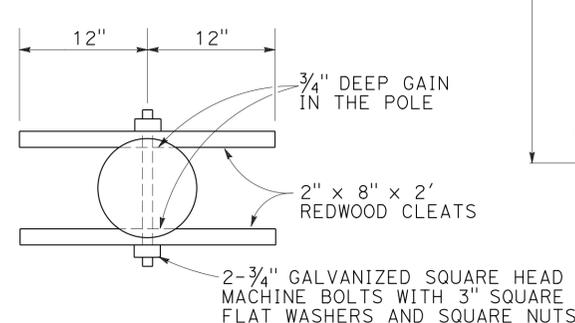


**DETAIL 5**

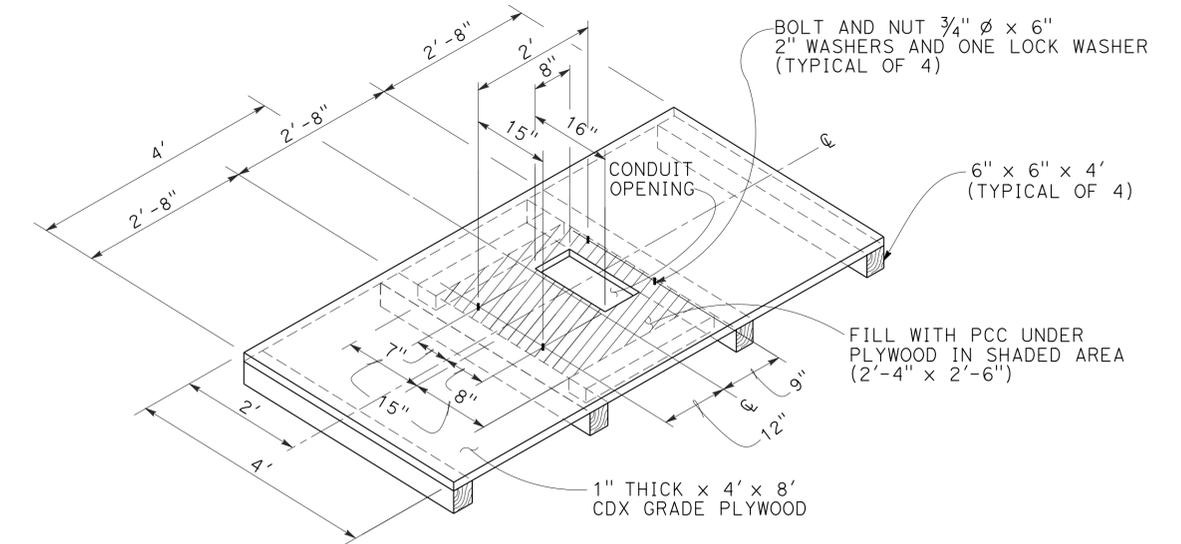


**DETAIL 3**

- NOTES:**
1. INSTALL REDWOOD CLEATS FOR WOODPOLE WITH MASTARM MOUNTED SIGNALS 1'-7" BELOW GRADE AT RIGHT ANGLES TO THE MASTARM, EXCEPT WHEN POLE IS PLACED IN SOLID ROCK.
  2. OVERHEAD HOME RUN SHOWN IN DETAIL IS FOR ALTERNATE INSTALLATION AS REQUIRED.



**DETAIL 4**



**TEMPORARY TYPE 332 CABINET FOUNDATION PLATFORM  
DETAIL 6**

**ELECTRICAL DETAILS**

NO SCALE

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans**  
 FUNCTIONAL SUPERVISOR: BEHZAD GOLEMOHAMMADI  
 REVISIONS: SB 6-15-16  
 REVISIONS: SOHEILA BANA, S. BOBBIE BABAK  
 CALCULATED/DESIGNED BY: CHECKED BY:

LAST REVISION: DATE PLOTTED => 13-OCT-2016  
 04-01-16 TIME PLOTTED => 13:41

|      |        |       |                          |           |              |
|------|--------|-------|--------------------------|-----------|--------------|
| Dist | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
| 04   | Mrn    | 1     | 8.0                      | 28        | 90           |

*M. Now* 6-17-16  
 REGISTERED ELECTRICAL ENGINEER DATE

6-23-16  
 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER  
 Mahmood Noii  
 No. 13717  
 Exp. 6-30-17  
 ELECTRICAL  
 STATE OF CALIFORNIA

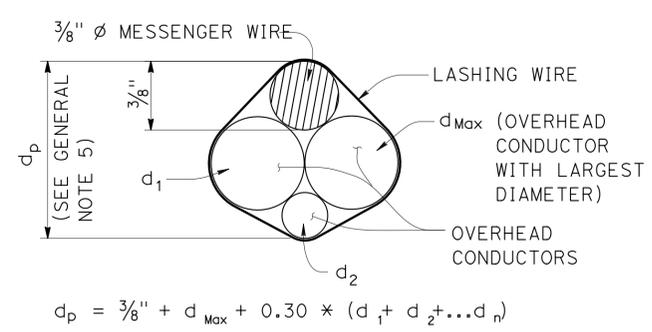
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**TEMPORARY SIGNAL SYSTEM**

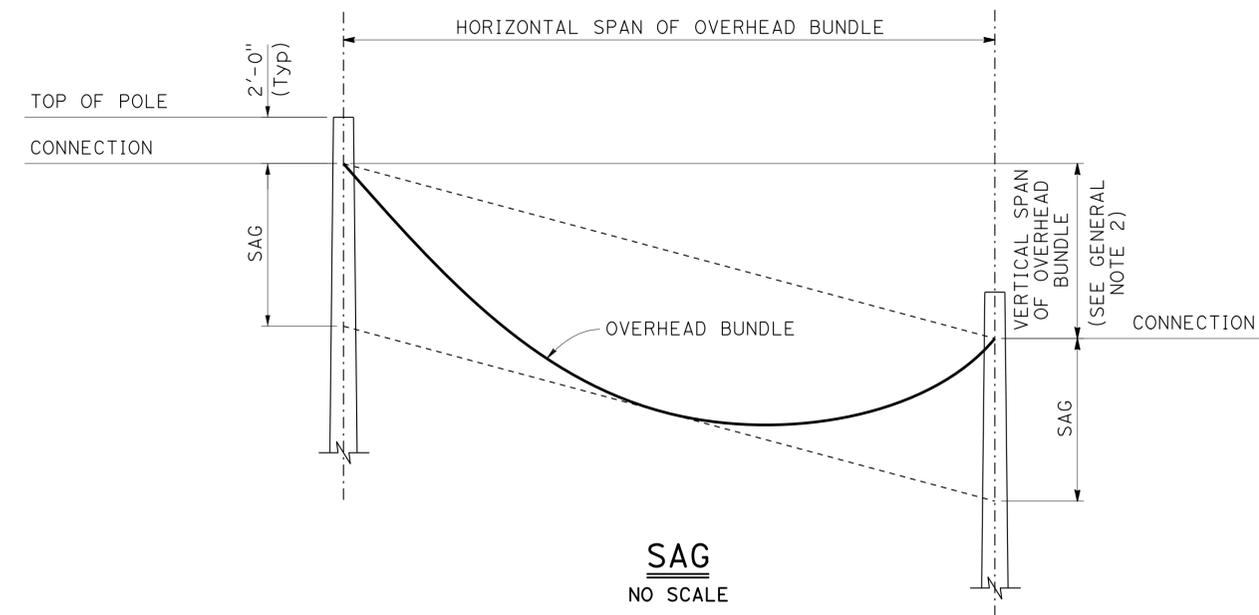
| SHEET No. | CONDUIT |     | CONDUCTOR |      |      |       |      | PEU | LPT | GENERATOR | PULL BOX | WOOD POLE | 12" FLASHING BEACON (LED) | 3-12" SIGNAL (LED) | PBA | WOOD POLE WITH LUMINAIRE |
|-----------|---------|-----|-----------|------|------|-------|------|-----|-----|-----------|----------|-----------|---------------------------|--------------------|-----|--------------------------|
|           | 1"      | 2"  | #4        | #6   | #8   | #10   | DLC  |     |     |           |          |           |                           |                    |     |                          |
| E-2       | 100     | 150 | 240       | 3800 | 4600 | 28400 | 3500 | 1   | 1   | 2         | 6        | 20        | 4                         | 6                  | 2   | 2                        |

ITEMS SHOWN IN THIS TABLE ARE NOT A SEPARATE PAY ITEM, FOR INFORMATION ONLY

**ELECTRICAL QUANTITIES**



**PROJECTED DEPTH OF OVERHEAD BUNDLE, (d<sub>p</sub>)**



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

**GROUP LOAD COMBINATIONS:**

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

**LOADING:**

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

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

**BASIC DESIGN VALUES:**

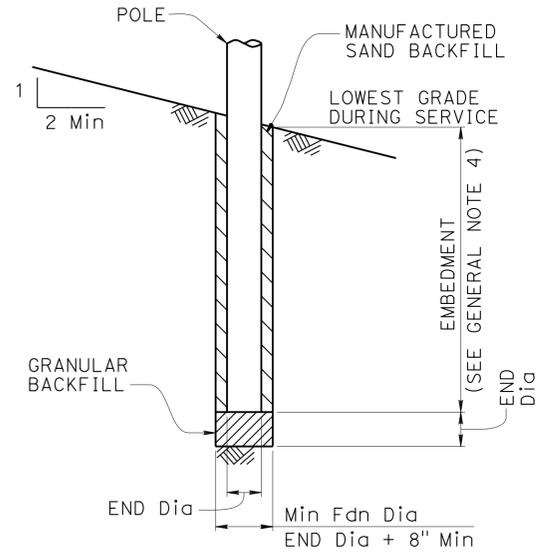
Timber Poles: F<sub>b</sub> = 1850 psi  
F<sub>v</sub> = 110 psi  
F<sub>cp</sub> = 230 psi  
F<sub>c</sub> = 950 psi  
E = 1500 x 10<sup>3</sup> psi

**DESIGN WIRE BREAKING STRENGTHS:**

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

**FOUNDATION DESIGN NOTES:**

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



**POLE FOUNDATION**

**GENERAL NOTES:**

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

**DIAMETERS AND SELF WEIGHT OF OVERHEAD CONDUCTORS**

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

NO SCALE

**SES-1**

STANDARD DRAWING

FILE NO. **xs18-010**

APPROVAL DATE November 2012

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES

BRIDGE NO. X

POST MILE X

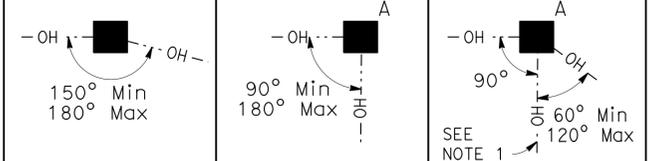
TEMPORARY WOOD POLES  
GENERAL NOTES

### POLE SELECTION TABLE

### LEGEND

- Wood Pole No Attachments
- <sup>A</sup> Wood Pole with Attachments
- OH- Overhead Bundle

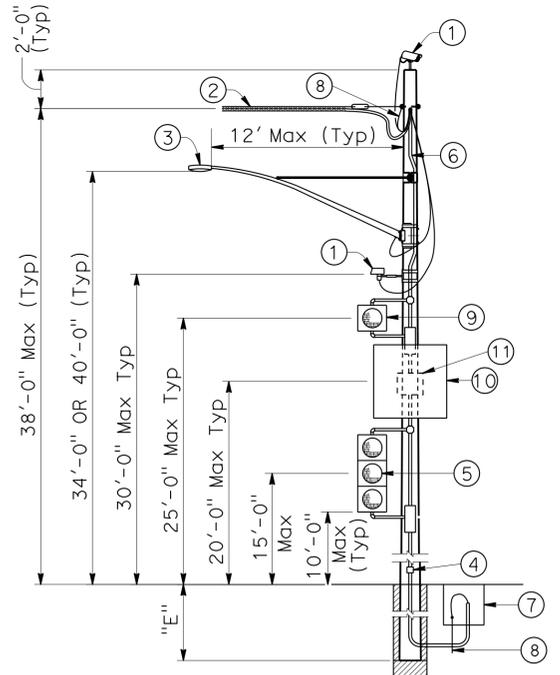
| OVERHEAD BUNDLE HORIZONTAL SPAN (Max) | MAXIMUM d <sub>p</sub> | CASE 1N            |      |      |      | CASE 2N |      |      |      | CASE 3N |      |      |      | CASE 4N |      |      |      | CASE 5N            |  |
|---------------------------------------|------------------------|--------------------|------|------|------|---------|------|------|------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



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

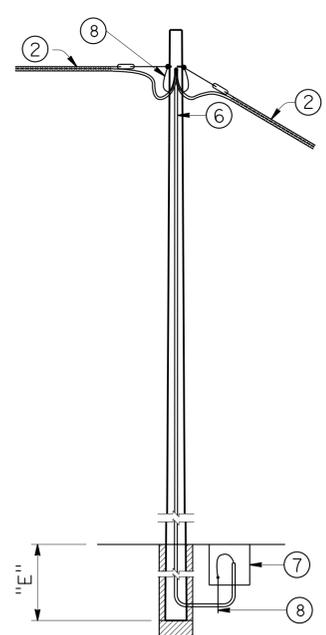
#### NOTES:

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

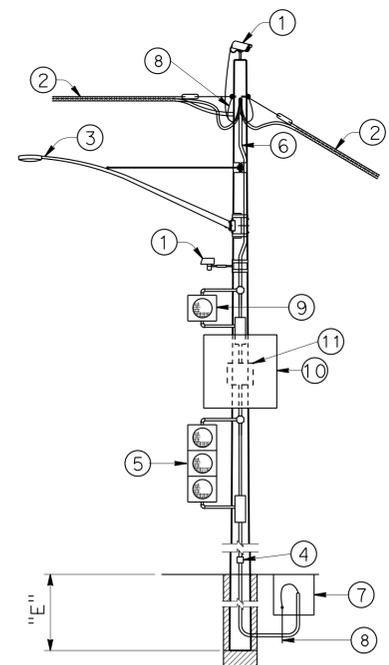


**CASE 1N  
POLE AT DEAD END  
WITH ATTACHMENTS**

SEE NOTE 2

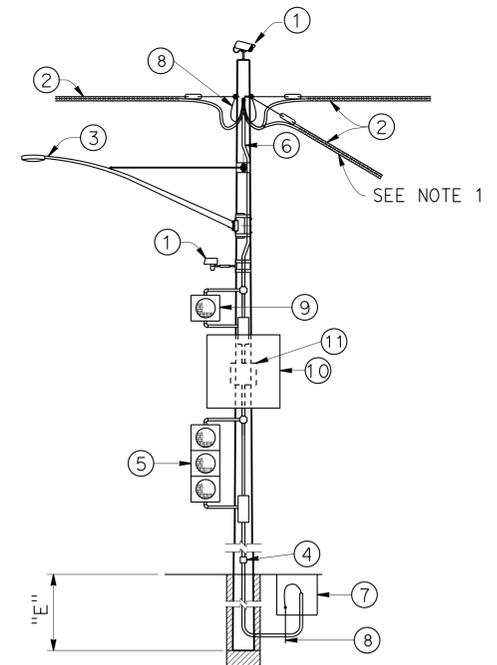


**CASE 2N  
POLE AT TANGENT  
WITHOUT ATTACHMENTS**



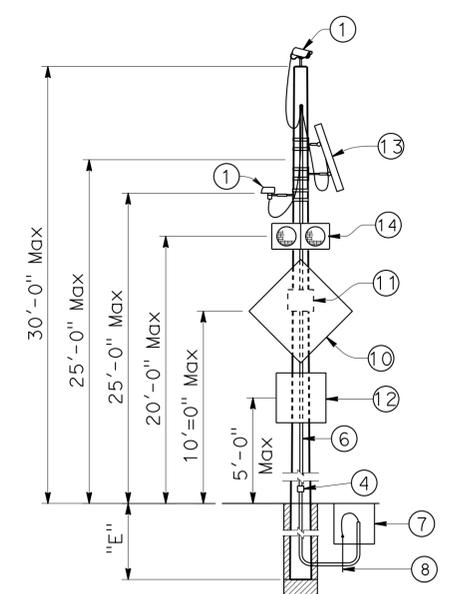
**CASE 3N  
POLE AT TANGENT OR CORNER  
WITH ATTACHMENTS**

SEE NOTE 2



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

SEE NOTE 2



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

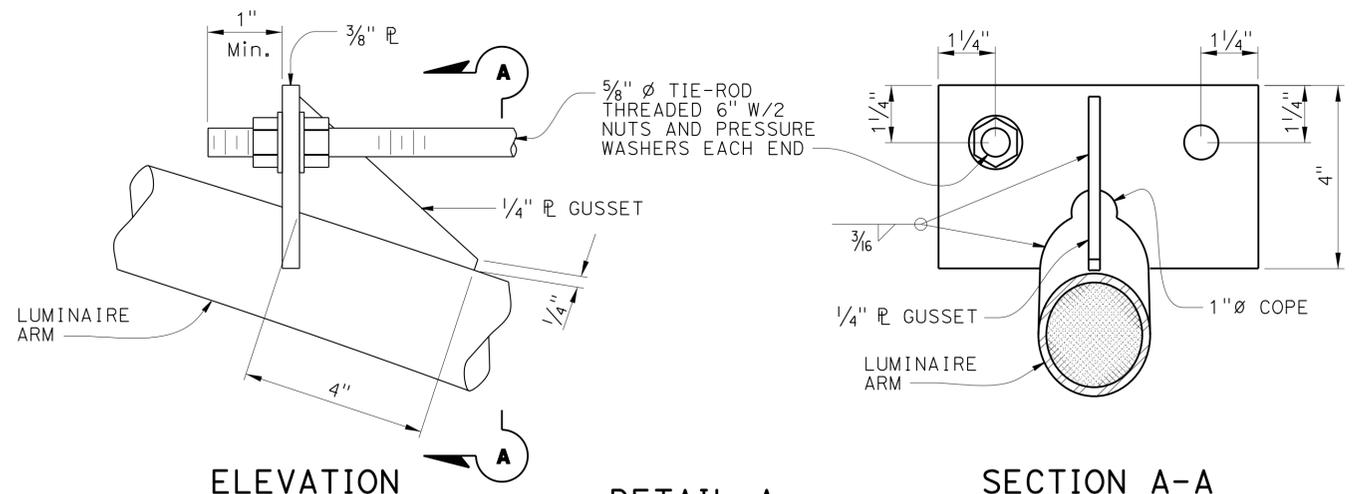
NO SCALE

**SES-2**

|                          |                                    |
|--------------------------|------------------------------------|
| STANDARD DRAWING         |                                    |
| FILE NO. <b>xs18-020</b> | APPROVAL DATE <u>November 2012</u> |

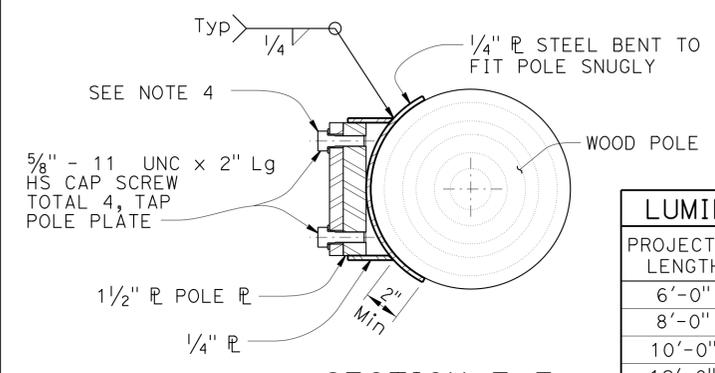
|   |                                  |
|---|----------------------------------|
| STATE OF CALIFORNIA<br>DEPARTMENT OF TRANSPORTATION | DIVISION OF ENGINEERING SERVICES |
| BRIDGE NO. X  | POST MILE X                      |

|   |              |
|---|--------------|
| TEMPORARY WOOD POLES<br>NON-GUYED - NO SIGNALS ON SPANS |              |
| REVISION DATES  | SHEET 2 OF 4 |



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

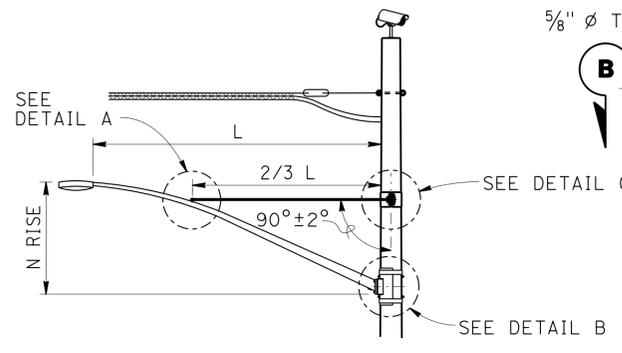
- NOTES:**
- Luminaire mast arms must be in compliance with Standard Plan ES-6A with noted modifications.
  - Verify pole dimensions at tie-rod attachment height. Fabricate 8" flat bar with "L" dimension to maintain an open gap between flanges in finished installation.
  - Not all screw heads and bolt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



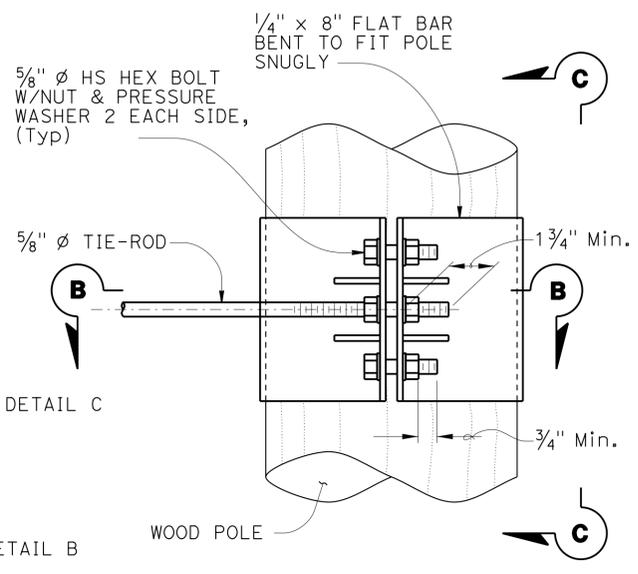
**LUMINAIRE MAST ARM DATA**

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

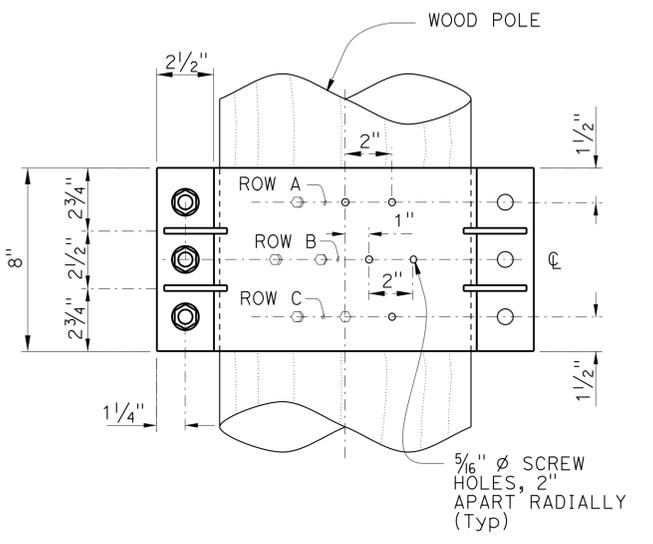
**SECTION E-E**



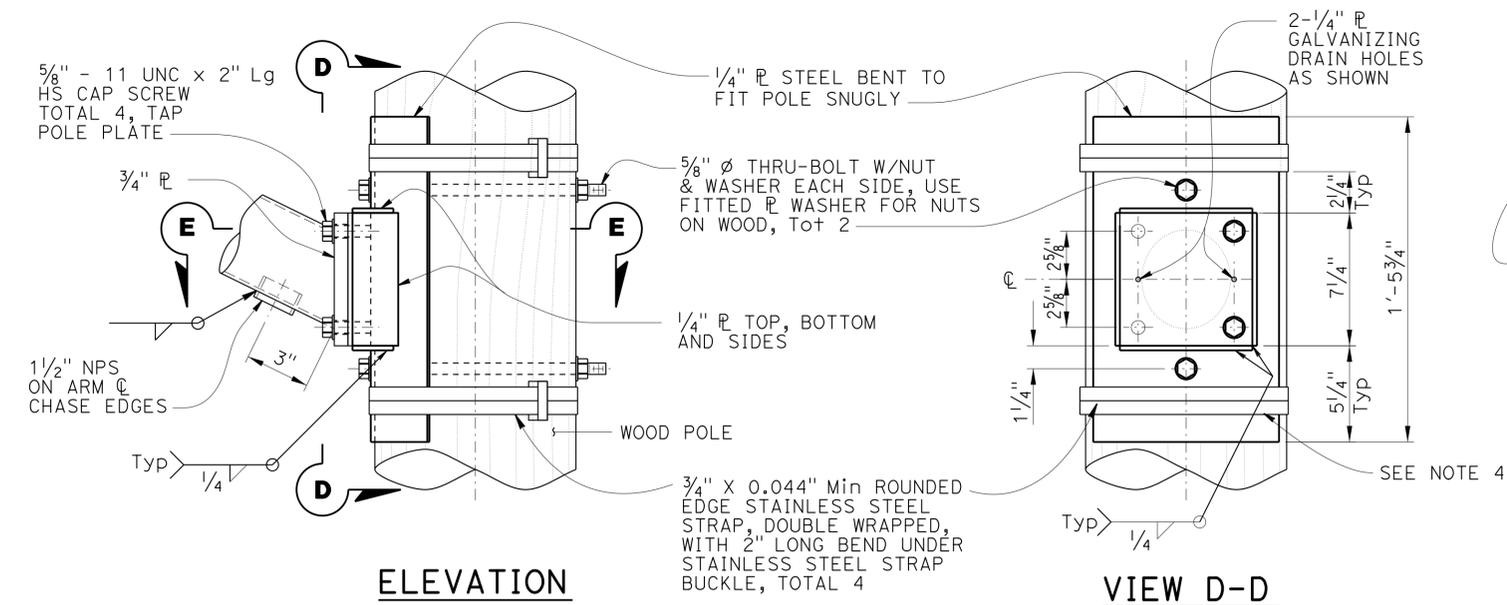
**LUMINAIRE MAST ARM**



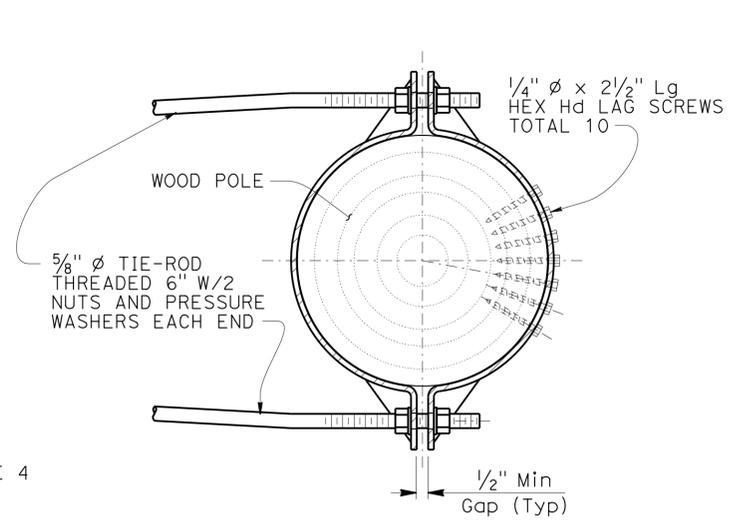
**ELEVATION**



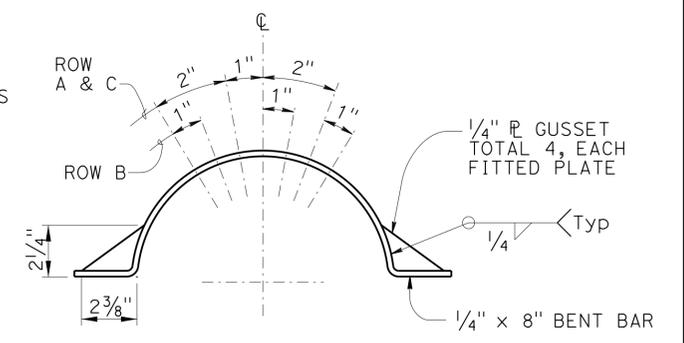
**VIEW C-C**



**ELEVATION**  
**VIEW D-D**  
**DETAIL B**  
**ARM CONNECTION DETAILS**  
NO SCALE



**SECTION B-B**



**LAG SCREW AND GUSSET PLATE LAYOUT**  
**DETAIL C**  
**TIE-ROD AT POLE**  
NO SCALE

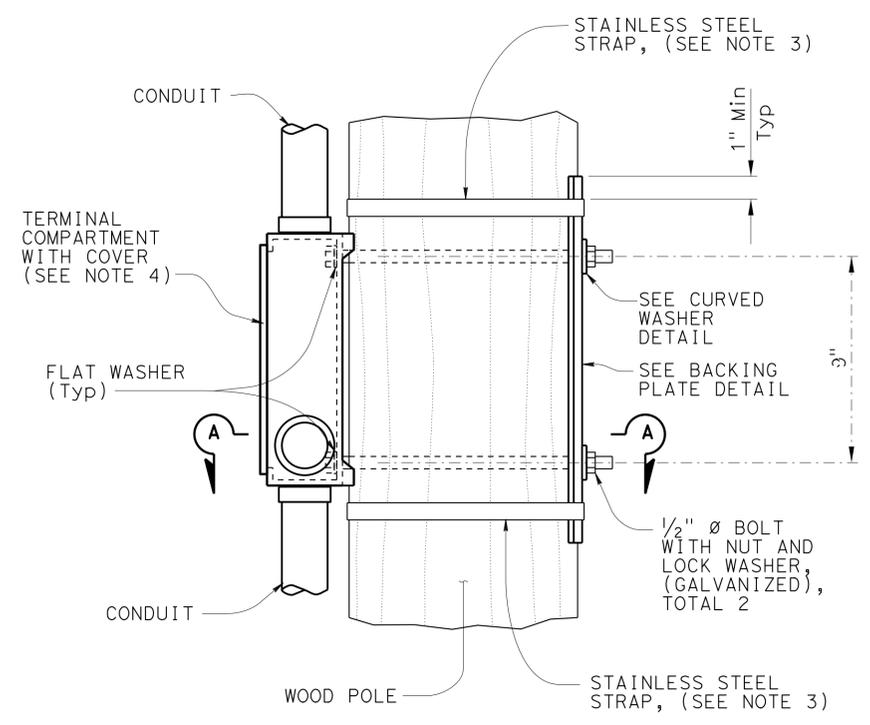
**SES-3**

|      |        |       |                          |           |              |
|------|--------|-------|--------------------------|-----------|--------------|
| DIST | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
| 04   | Mtn    | 1     | 8.0                      | 32        | 90           |

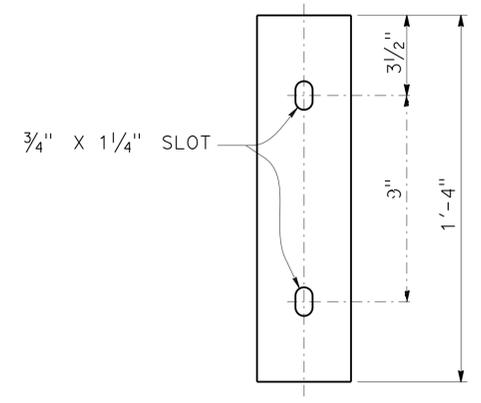
6-17-16  
 REGISTERED CIVIL ENGINEER DATE  
 6-23-16  
 PLANS APPROVAL DATE

Samuel Woldesemayat  
 No. 75981  
 Exp. 6-30-18  
 CIVIL  
 STATE OF CALIFORNIA

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ELEVATION

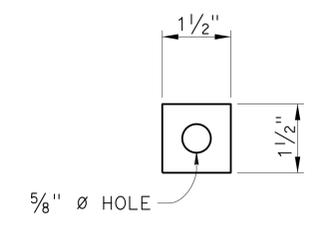


ELEVATION

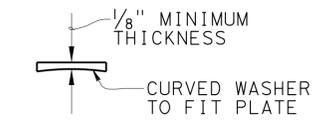


PLAN

BACKING PLATE DETAIL



ELEVATION

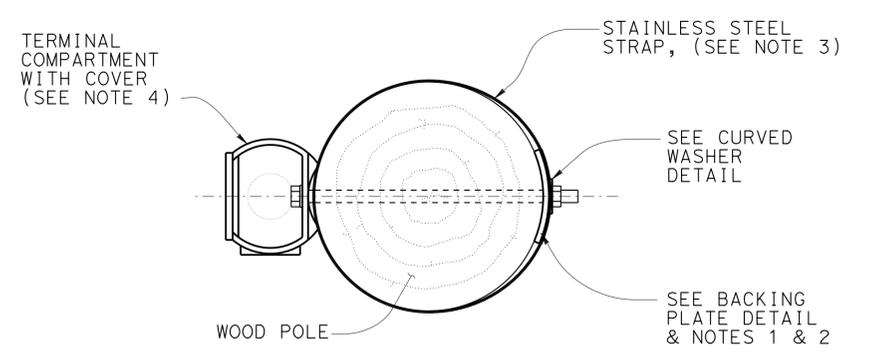


PLAN

CURVED WASHER DETAIL

NOTES:

1. Verify pole dimensions at terminal compartment for fabrication of backing plate and curved washer.
2. Backing plate to be galvanized after fabrication.
3. 3/4" x 0.044" minimum, rounded edge stainless steel straps, double wrapped with 2" long bend under stainless steel strap buckle.
4. For details not shown see Standard Plan ES-4D.



SECTION A-A

SIDE MOUNTING  
TERMINAL COMPARTMENT

NO SCALE

SES-4

|   |                                    |   |                                  |   |                                       |
|---|------------------------------------|---|----------------------------------|---|---------------------------------------|
| STANDARD DRAWING  |                                    | STATE OF CALIFORNIA<br>DEPARTMENT OF TRANSPORTATION | DIVISION OF ENGINEERING SERVICES | BRIDGE NO.  | TEMPORARY WOOD POLES<br>DETAILS No. 4 |
| FILE NO. <b>xs18-080-4</b>  | APPROVAL DATE <u>November 2012</u> |   |                                  | X   |                                       |
| DS OSD 2147A (ENGLISH STANDARD DRAWING "XS" BORDER REV. (02-02-11)) |                                    | ORIGINAL SCALE IN INCHES FOR REDUCED PLANS          |                                  | UNIT: 0708<br>PROJECT NUMBER & PHASE: 04000212591 | CONTRACT NO.: 04-268904               |
|   |                                    |   |                                  | REVISION DATES                                    | SHEET OF                              |
|   |                                    |   |                                  | 11/17/11 11/15/12 8/28/12 9/14/12                 | 4 4                                   |

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

USERNAME => s127688 DATE PLOTTED => 13-OCT-2016 TIME PLOTTED => 13:41

FILE => 0400021259uh004.dgn

|            |  |
|------------|--|
|            | <b>M</b>   |
| 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,<br>MODIFY                                    |
| Mon        | MONUMENT   |
| MP         | METAL PLATE  |
| MPGR       | METAL PLATE GUARD RAILING                              |
| MR         | MOVEMENT RATING  |
| MSE        | MECHANICALLY STABILIZED EMBANKMENT                     |
| Mt         | MOUNTAIN, MOUNT  |
| MtI        | MATERIAL   |
| MVP        | MAINTENANCE VEHICLE PULLOUT                            |
|            | <b>N</b>   |
| 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   |
|            | <b>O</b>   |
| Obir       | 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   |
|            | <b>P</b>   |
| p          | PAGE   |
| PAP        | PERFORATED ALUMINUM PIPE                               |
| PB         | PULL BOX   |
| PC         | POINT OF CURVATURE,<br>PRECAST                         |
| PCC        | POINT OF COMPOUND CURVE,<br>PORTLAND CEMENT CONCRETE   |
| PCMS       | PORTABLE CHANGEABLE MESSAGE SIGN                       |
| PCP        | PERFORATED CONCRETE PIPE,<br>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 MtI   | PERMEABLE MATERIAL                                     |

|         |   |
|---------|---|
|         | <b>P continued</b>                              |
| PG      | PROFILE GRADE                                   |
| PI      | POINT OF INTERSECTION                           |
| PJP     | PARTIAL JOINT PENETRATION                       |
| Pkwy    | PARKWAY   |
| PL, PL  | PLATE   |
| P/L     | PROPERTY LINE                                   |
| PM      | POST MILE,<br>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,<br>PLASTIC PIPE,<br>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  |
|         | <b>Q</b>  |
| Qty     | QUANTITY  |
|         | <b>R</b>  |
| 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,<br>REINFORCEMENT,<br>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,<br>REFERENCE POINT                |
| RR      | RAILROAD  |
| RSP     | ROCK SLOPE PROTECTION,<br>REVISED STANDARD PLAN |
| Rt      | RIGHT   |
| Rte     | ROUTE   |
| RW      | REDWOOD,<br>RETAINING WALL                      |
| R/W     | RIGHT OF WAY                                    |
| Rwy     | RAILWAY   |

|       |                                  |
|-------|----------------------------------|
|       | <b>S</b>                         |
| S     | SOUTH,<br>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,<br>SECTION               |
| Sep   | SEPARATION                       |
| SG    | SUBGRADE                         |
| Shld  | SHOULDER                         |
| Sht   | SHEET                            |
| Sim   | SIMILAR                          |
| SL    | STATION LINE                     |
| SM    | SELECTED MATERIAL                |
| Spec  | SPECIAL,<br>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,<br>SOUND WALL          |
| Swr   | SEWER                            |
| Sym   | SYMMETRICAL                      |
| S4S   | SURFACE 4 SIDES                  |
|       | <b>T</b>                         |
| T     | SEMI-TANGENT                     |
| Tan   | TANGENT                          |
| TBB   | THRIE BEAM BARRIER               |
| Tbr   | TIMBER                           |
| TC    | TOP OF CURB                      |
| TCB   | TRAFFIC CONTROL BOX              |
| TCE   | TEMPORARY CONSTRUCTION EASEMENT  |
| TeI   | TELEPHONE                        |
| Temp  | TEMPORARY                        |
| TG    | TOP OF GRADE                     |
| Tot   | TOTAL                            |
| TP    | TELEPHONE POLE                   |
| TPB   | TREATED PERMEABLE BASE           |
| TPM   | TREATED PERMEABLE MATERIAL       |
| Trans | TRANSITION                       |

|       |   |
|-------|---|
|       | <b>T continued</b>                              |
| TS    | TRANSVERSE,<br>TRAFFIC SIGNAL,<br>TUBULAR STEEL |
| Typ   | TYPICAL   |
|       | <b>U</b>  |
| UC    | UNDERCROSSING                                   |
| UD    | UNDERDRAIN                                      |
| UG    | UNDERGROUND                                     |
| UON   | UNLESS OTHERWISE NOTED                          |
| UP    | UNDERPASS                                       |
|       | <b>V</b>  |
| V     | VALVE,<br>DESIGN SPEED                          |
| Var   | VARIABLE,<br>VARIES                             |
| VC    | VERTICAL CURVE                                  |
| VCP   | VITRIFIED CLAY PIPE                             |
| Vert  | VERTICAL  |
| Via   | VIADUCT   |
| Vol   | VOLUME  |
|       | <b>W</b>  |
| W     | WEST,<br>WIDTH                                  |
| WB    | WESTBOUND                                       |
| WH    | WEEP HOLE                                       |
| WM    | WIRE MESH                                       |
| WS    | WATER SURFACE                                   |
| WSP   | WELDED STEEL PIPE                               |
| Wt    | WEIGHT  |
| WV    | WATER VALVE                                     |
| WW    | WINGWALL  |
| WWL   | WINGWALL LAYOUT LINE                            |
|       | <b>X</b>  |
| X Sec | CROSS SECTION                                   |
| Xing  | CROSSING  |
|       | <b>Y</b>  |
| Yr    | YEAR  |
| Yrs   | YEARS   |

|      |        |       |                             |              |                 |
|------|--------|-------|-----------------------------|--------------|-----------------|
| Dist | COUNTY | ROUTE | POST MILES<br>TOTAL PROJECT | SHEET<br>No. | TOTAL<br>SHEETS |
| 04   | Mrn    | 1     | 8.0                         | 33           | 90              |

*Grace M. Tsushima*  
REGISTERED CIVIL ENGINEER

July 19, 2013  
PLANS APPROVAL DATE



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

TO ACCOMPANY PLANS DATED 6-23-16

**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 <sup>3</sup> , pcf | POUNDS PER CUBIC FOOT  |
| tsf                      | TONS PER SQUARE FOOT   |
| mph, MPH *               | MILES PER HOUR         |
| ø                        | NOMINAL DIAMETER       |
| oz                       | OUNCE                  |
| lb                       | POUND                  |
| kíp                      | 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)**

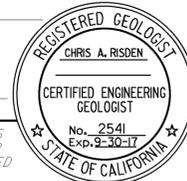
NO SCALE

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

2010 REVISED STANDARD PLAN RSP A10B

|      |        |       |                          |           |              |
|------|--------|-------|--------------------------|-----------|--------------|
| Dist | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
| 04   | Mrn    | 1     | 8.0                      | 34        | 90           |

  
 CERTIFIED ENGINEERING GEOLOGIST  
 October 30, 2015  
 PLANS APPROVAL DATE  
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



| CEMENTATION |   |
|-------------|---|
| DESCRIPTION | CRITERIA  |
| WEAK        | CRUMBLES OR BREAKS WITH HANDLING OR LITTLE FINGER PRESSURE. |
| MODERATE    | CRUMBLES OR BREAKS WITH CONSIDERABLE FINGER PRESSURE.       |
| STRONG      | WILL NOT CRUMBLE OR BREAK WITH FINGER PRESSURE.             |

**ABBREVIATION:**

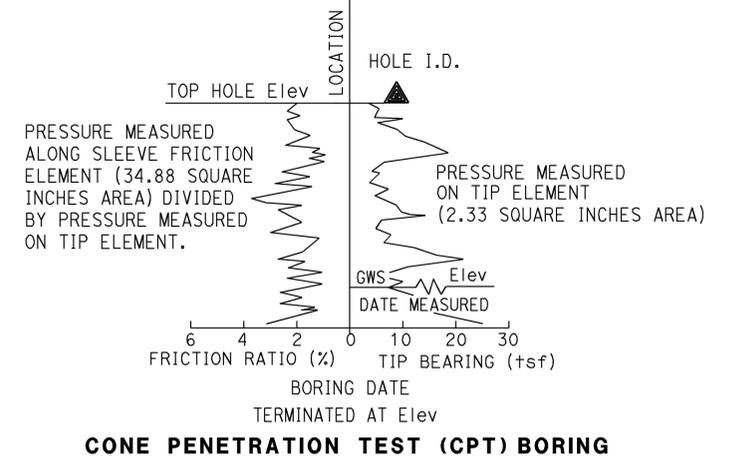
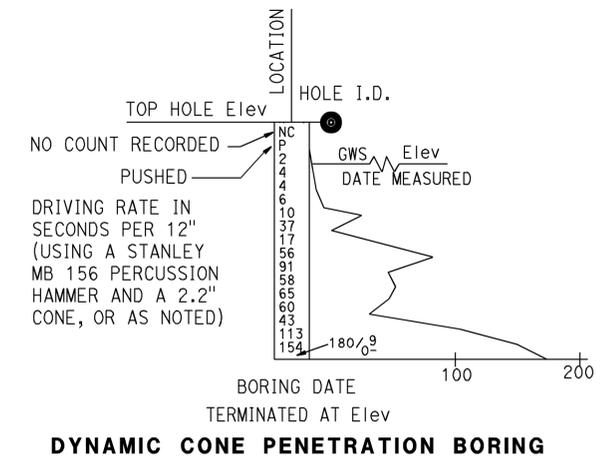
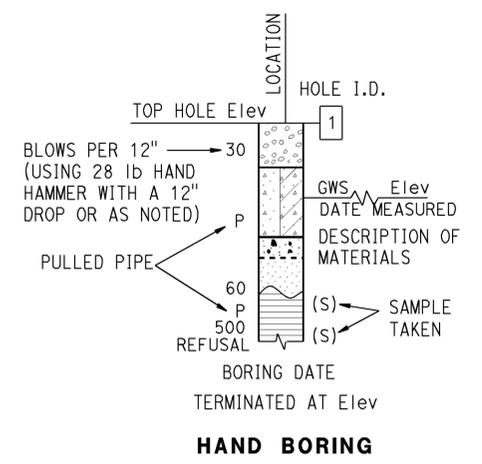
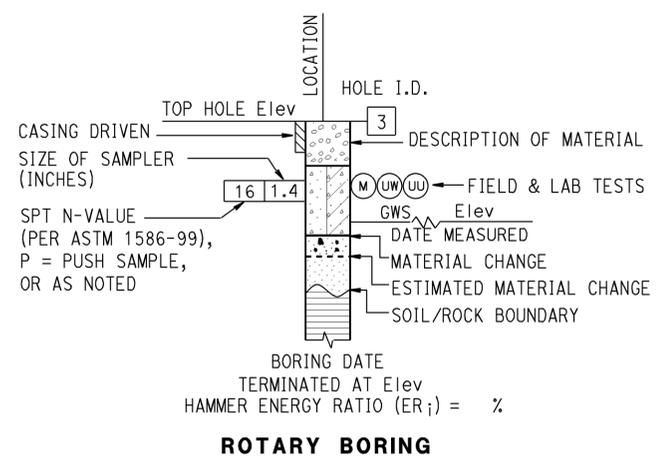
GWS = Ground Water Surface

TO ACCOMPANY PLANS DATED 6-23-16

| BOREHOLE IDENTIFICATION   |           |  |
|---|-----------|--|
| SYMBOL  | HOLE TYPE | DESCRIPTION  |
|    | A         | AUGER BORING (HOLLOW OR SOLID STEM BUCKET)                   |
|    | R         | ROTARY DRILLED BORING (CONVENTIONAL)                         |
|   | RW        | ROTARY DRILLED WITH SELF-CASING WIRE-LINE                    |
|   | RC        | ROTARY CORE WITH CONTINUOUSLY-SAMPLED, SELF-CASING WIRE-LINE |
|   | P         | ROTARY PERCUSSION BORING (AIR)                               |
|    | R         | ROTARY DRILLED DIAMOND CORE                                  |
|   | RC        | ROTARY DRILLED DIAMOND CORE, CONTINUOUSLY SAMPLED            |
|    | HD        | HAND DRIVEN (1-INCH SOIL TUBE)                               |
|   | HA        | HAND AUGER   |
|    | D         | DYNAMIC CONE PENETRATION BORING                              |
|   | CPT       | CONE PENETRATION TEST (ASTM D 5778)                          |
|  | O         | OTHER (NOTE ON LOTB)   |

Note: Size in inches.

| CONSISTENCY OF COHESIVE SOILS |                      |  |                                |                                   |
|-------------------------------|----------------------|--|--------------------------------|-----------------------------------|
| DESCRIPTION                   | SHEAR STRENGTH (tsf) | POCKET PENETROMETER MEASUREMENT, PP, (tsf) | TORVANE MEASUREMENT, TV, (tsf) | VANE SHEAR MEASUREMENT, VS, (tsf) |
| VERY SOFT                     | LESS THAN 0.12       | LESS THAN 0.25                             | LESS THAN 0.12                 | LESS THAN 0.12                    |
| SOFT                          | 0.12 - 0.25          | 0.25 - 0.5                                 | 0.12 - 0.25                    | 0.12 - 0.25                       |
| MEDIUM STIFF                  | 0.25 - 0.5           | 0.5 - 1                                    | 0.25 - 0.5                     | 0.25 - 0.5                        |
| STIFF                         | 0.5 - 1              | 1 - 2                                      | 0.5 - 1                        | 0.5 - 1                           |
| VERY STIFF                    | 1 - 2                | 2 - 4                                      | 1 - 2                          | 1 - 2                             |
| HARD                          | GREATER THAN 2       | GREATER THAN 4                             | GREATER THAN 2                 | GREATER THAN 2                    |



STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**LEGEND - SOIL (SHEET 1 OF 2)**  
 NO SCALE

RSP A10F DATED OCTOBER 30, 2015 SUPERSEDES STANDARD PLAN A10F DATED MAY 20, 2011 - PAGE 6 OF THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP A10F**

2010 REVISED STANDARD PLAN RSP A10F

|      |        |       |                          |           |              |
|------|--------|-------|--------------------------|-----------|--------------|
| Dist | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
| 04   | Mirn   | 1     | 8.0                      | 35        | 90           |

*Chris A. Risden*  
 CERTIFIED ENGINEERING GEOLOGIST  
 October 30, 2015  
 PLANS APPROVAL DATE

REGISTERED GEOLOGIST  
 CHRIS A. RISDEN  
 CERTIFIED ENGINEERING GEOLOGIST  
 No. 2541  
 Exp. 9-30-17  
 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 6-23-16

| GROUP SYMBOLS AND NAMES |             |  |             |                |   |
|-------------------------|-------------|--|-------------|----------------|---|
| GRAPHIC/SYMBOL          | GROUP NAMES | GRAPHIC/SYMBOL   | GROUP NAMES | GRAPHIC/SYMBOL | GROUP NAMES                             |
|                         | GW          | WELL-GRADED GRAVEL   |             | CL             | LEAN CLAY                               |
|                         |             | WELL-GRADED GRAVEL WITH SAND                                       |             |                | LEAN CLAY WITH SAND                     |
|                         | GP          | POORLY-GRADED GRAVEL   |             | CL-ML          | LEAN CLAY WITH GRAVEL                   |
|                         |             | POORLY-GRADED GRAVEL WITH SAND                                     |             |                | SANDY LEAN CLAY                         |
|                         | GW-GM       | WELL-GRADED GRAVEL WITH SILT                                       |             | ML             | SANDY LEAN CLAY WITH GRAVEL             |
|                         |             | WELL-GRADED GRAVEL WITH SILT AND SAND                              |             |                | GRAVELLY LEAN CLAY                      |
|                         | GW-GC       | WELL-GRADED GRAVEL WITH CLAY (OR SILTY CLAY)                       |             | OL             | GRAVELLY LEAN CLAY WITH SAND            |
|                         |             | WELL-GRADED GRAVEL WITH CLAY AND SAND (OR SILTY CLAY AND SAND)     |             |                | SILTY CLAY                              |
|                         | GP-GM       | POORLY-GRADED GRAVEL WITH SILT                                     |             | OH             | SILTY CLAY WITH SAND                    |
|                         |             | POORLY-GRADED GRAVEL WITH SILT AND SAND                            |             |                | SILTY CLAY WITH GRAVEL                  |
|                         | GP-GC       | POORLY-GRADED GRAVEL WITH CLAY (OR SILTY CLAY)                     |             | MH             | SANDY SILTY CLAY                        |
|                         |             | POORLY-GRADED GRAVEL WITH CLAY AND SAND (OR SILTY CLAY AND SAND)   |             |                | SANDY SILTY CLAY WITH GRAVEL            |
|                         | GM          | SILTY GRAVEL   |             | OH             | GRAVELLY SILTY CLAY                     |
|                         |             | SILTY GRAVEL WITH SAND   |             |                | GRAVELLY SILTY CLAY WITH SAND           |
|                         | GC          | CLAYEY GRAVEL  |             | OL/OH          | ORGANIC LEAN CLAY                       |
|                         |             | CLAYEY GRAVEL WITH SAND  |             |                | ORGANIC LEAN CLAY WITH SAND             |
|                         | GC-GM       | SILTY, CLAYEY GRAVEL   |             | OH             | ORGANIC LEAN CLAY WITH GRAVEL           |
|                         |             | SILTY, CLAYEY GRAVEL WITH SAND                                     |             |                | SANDY ORGANIC LEAN CLAY                 |
|                         | SW          | WELL-GRADED SAND   |             | CH             | SANDY ORGANIC LEAN CLAY WITH GRAVEL     |
|                         |             | WELL-GRADED SAND WITH GRAVEL                                       |             |                | GRAVELLY ORGANIC LEAN CLAY              |
|                         | SP          | POORLY-GRADED SAND   |             | MH             | GRAVELLY ORGANIC LEAN CLAY WITH SAND    |
|                         |             | POORLY-GRADED SAND WITH GRAVEL                                     |             |                | FAT CLAY                                |
|                         | SW-SM       | WELL-GRADED SAND WITH SILT   |             | OH             | FAT CLAY WITH SAND                      |
|                         |             | WELL-GRADED SAND WITH SILT AND GRAVEL                              |             |                | FAT CLAY WITH GRAVEL                    |
|                         | SW-SC       | WELL-GRADED SAND WITH CLAY (OR SILTY CLAY)                         |             | OH             | SANDY FAT CLAY                          |
|                         |             | WELL-GRADED SAND WITH CLAY AND GRAVEL (OR SILTY CLAY AND GRAVEL)   |             |                | SANDY FAT CLAY WITH GRAVEL              |
|                         | SP-SM       | POORLY-GRADED SAND WITH SILT                                       |             | OH             | GRAVELLY FAT CLAY                       |
|                         |             | POORLY-GRADED SAND WITH SILT AND GRAVEL                            |             |                | GRAVELLY FAT CLAY WITH SAND             |
|                         | SP-SC       | POORLY-GRADED SAND WITH CLAY (OR SILTY CLAY)                       |             | OH             | ELASTIC SILT                            |
|                         |             | POORLY-GRADED SAND WITH CLAY AND GRAVEL (OR SILTY CLAY AND GRAVEL) |             |                | ELASTIC SILT WITH SAND                  |
|                         | SM          | SILTY SAND   |             | OH             | ELASTIC SILT WITH GRAVEL                |
|                         |             | SILTY SAND WITH GRAVEL   |             |                | SANDY ELASTIC SILT                      |
|                         | SC          | CLAYEY SAND  |             | OH             | SANDY ELASTIC SILT WITH GRAVEL          |
|                         |             | CLAYEY SAND WITH GRAVEL  |             |                | GRAVELLY ELASTIC SILT                   |
|                         | SC-SM       | SILTY, CLAYEY SAND   |             | OH             | GRAVELLY ELASTIC SILT WITH SAND         |
|                         |             | SILTY, CLAYEY SAND WITH GRAVEL                                     |             |                | ORGANIC FAT CLAY                        |
|                         | PT          | PEAT   |             | OH             | ORGANIC FAT CLAY WITH SAND              |
|                         |             |  |             |                | ORGANIC FAT CLAY WITH GRAVEL            |
|                         |             | COBBLES  |             | OH             | SANDY ORGANIC FAT CLAY                  |
|                         |             | COBBLES AND BOULDERS   |             |                | GRAVELLY ORGANIC FAT CLAY               |
|                         |             | BOULDERS   |             | OH             | GRAVELLY ORGANIC FAT CLAY WITH SAND     |
|                         |             |  |             |                | ORGANIC ELASTIC SILT                    |
|                         |             |  |             | OH             | ORGANIC ELASTIC SILT WITH SAND          |
|                         |             |  |             |                | ORGANIC ELASTIC SILT WITH GRAVEL        |
|                         |             |  |             | OH             | SANDY ORGANIC ELASTIC SILT              |
|                         |             |  |             |                | SANDY ORGANIC ELASTIC SILT WITH GRAVEL  |
|                         |             |  |             | OH             | GRAVELLY ORGANIC ELASTIC SILT           |
|                         |             |  |             |                | GRAVELLY ORGANIC ELASTIC SILT WITH SAND |
|                         |             |  |             | OH             | ORGANIC SOIL                            |
|                         |             |  |             |                | ORGANIC SOIL WITH SAND                  |
|                         |             |  |             | OH             | ORGANIC SOIL WITH GRAVEL                |
|                         |             |  |             |                | SANDY ORGANIC SOIL                      |
|                         |             |  |             | OH             | SANDY ORGANIC SOIL WITH GRAVEL          |
|                         |             |  |             |                | GRAVELLY ORGANIC SOIL                   |
|                         |             |  |             | OH             | GRAVELLY ORGANIC SOIL WITH SAND         |
|                         |             |  |             |                |   |

| FIELD AND LABORATORY TESTING |  |
|------------------------------|--|
| (C)                          | CONSOLIDATION (ASTM D2435)                                   |
| (CL)                         | COLLAPSE POTENTIAL (ASTM D4546)                              |
| (CP)                         | COMPACTION CURVE (CTM 216)                                   |
| (CR)                         | CORROSIVITY TESTING (CTM 643, CTM 422, CTM 417)              |
| (CU)                         | CONSOLIDATED UNDRAINED TRIAXIAL (ASTM D4767)                 |
| (DS)                         | DIRECT SHEAR (ASTM D3080)                                    |
| (EI)                         | EXPANSION INDEX (ASTM D4829)                                 |
| (M)                          | MOISTURE CONTENT (ASTM D2216)                                |
| (OC)                         | ORGANIC CONTENT-% (ASTM D2974)                               |
| (P)                          | PERMEABILITY (CTM 220)                                       |
| (PA)                         | PARTICLE SIZE ANALYSIS (ASTM D422)                           |
| (PI)                         | PLASTICITY INDEX (AASHTO T 90)<br>LIQUID LIMIT (AASHTO T 89) |
| (PL)                         | POINT LOAD INDEX (ASTM D5731)                                |
| (PM)                         | PRESSURE METER   |
| (R)                          | R-VALUE (CTM 301)  |
| (SE)                         | SAND EQUIVALENT (CTM 217)                                    |
| (SG)                         | SPECIFIC GRAVITY (AASHTO T 100)                              |
| (SL)                         | SHRINKAGE LIMIT (ASTM D4943)                                 |
| (SW)                         | SWELL POTENTIAL (ASTM D4546)                                 |
| (UC)                         | UNCONFINED COMPRESSION-SOIL (ASTM D2166)                     |
| (UU)                         | UNCONFINED COMPRESSION-ROCK (ASTM D7012 - METHOD C)          |
| (UU)                         | UNCONSOLIDATED UNDRAINED TRIAXIAL (ASTM D2850)               |
| (UW)                         | UNIT WEIGHT (ASTM D7263 - METHOD B)                          |

| APPARENT DENSITY OF COHESIONLESS SOILS |   |
|--|---|
| DESCRIPTION                            | SPT N <sub>60</sub> (BLOWS / 12 INCHES) |
| VERY LOOSE                             | 0 - 5                                   |
| LOOSE                                  | 5 - 10                                  |
| MEDIUM DENSE                           | 10 - 30                                 |
| DENSE                                  | 30 - 50                                 |
| VERY DENSE                             | GREATER THAN 50                         |

| MOISTURE    |                                     |
|-------------|-------------------------------------|
| DESCRIPTION | CRITERIA                            |
| DRY         | NO DISCERNABLE MOISTURE             |
| MOIST       | MOISTURE PRESENT, BUT NO FREE WATER |
| WET         | VISIBLE FREE WATER                  |

| PERCENT OR PROPORTION OF SOILS |  |
|--------------------------------|--|
| DESCRIPTION                    | CRITERIA   |
| TRACE                          | PARTICLES ARE PRESENT BUT ESTIMATED TO BE LESS THAN 5% |
| FEW                            | 5% - 10%   |
| LITTLE                         | 15% - 25%  |
| SOME                           | 30% - 45%  |
| MOSTLY                         | 50% - 100%   |

| PARTICLE SIZE |                  |                |
|---------------|------------------|----------------|
| DESCRIPTION   | SIZE             |                |
| BOULDER       | GREATER THAN 12" |                |
| COBBLE        | 3" - 12"         |                |
| GRAVEL        | COARSE           | 3/4" - 3"      |
|               | FINE             | 1/5" - 3/4"    |
| SAND          | COARSE           | 1/16" - 1/5"   |
|               | MEDIUM           | 1/64" - 1/16"  |
|               | FINE             | 1/300" - 1/64" |
| SILT AND CLAY | LESS THAN 1/300" |                |

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**LEGEND - SOIL**  
**(SHEET 2 OF 2)**  
 NO SCALE

RSP A10G DATED OCTOBER 30, 2015 SUPERSEDES STANDARD PLAN A10G DATED MAY 20, 2011 - PAGE 7 OF THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP A10G**

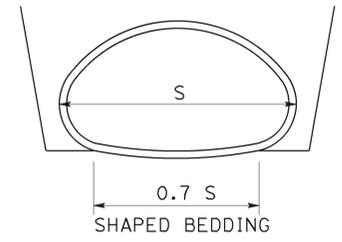
2010 REVISED STANDARD PLAN RSP A10G

|      |        |       |                          |           |              |
|------|--------|-------|--------------------------|-----------|--------------|
| Dist | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
| 04   | Mrn    | 1     | 8.0                      | 36        | 90           |

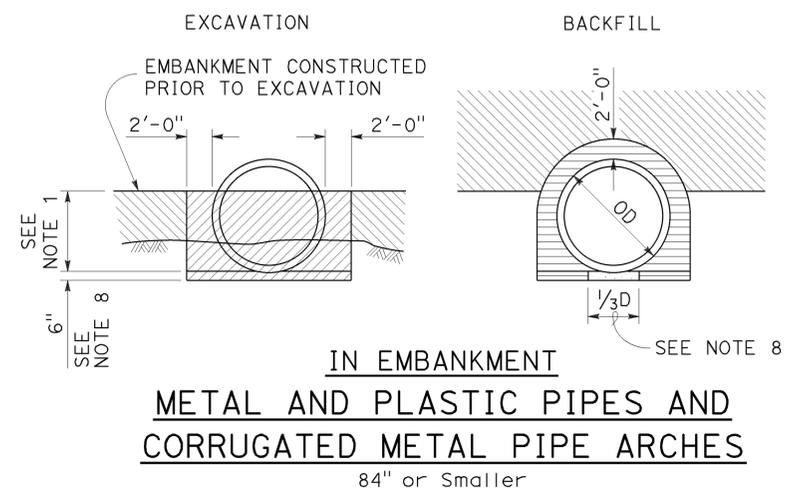
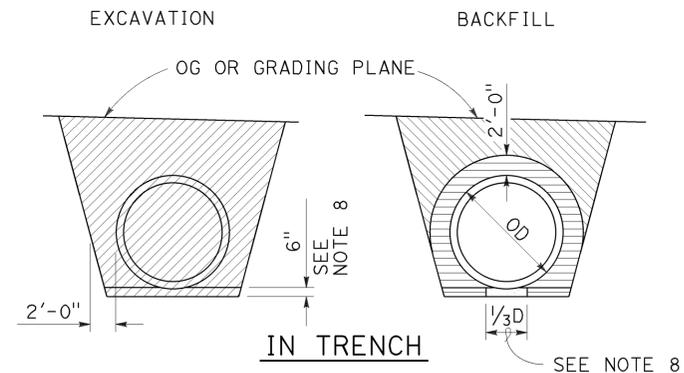
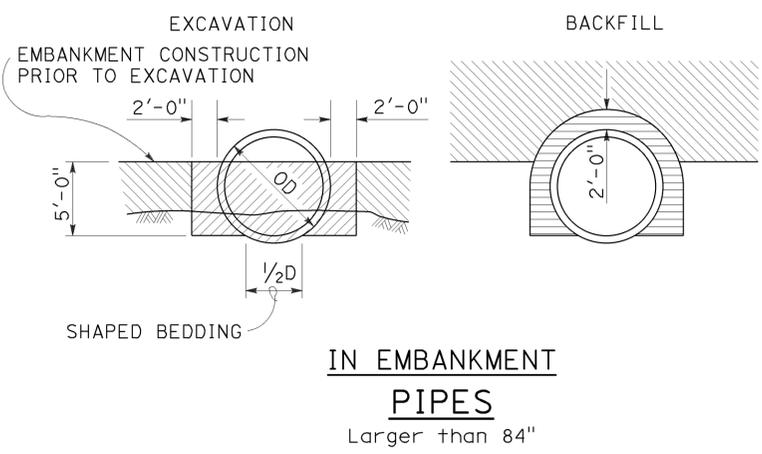
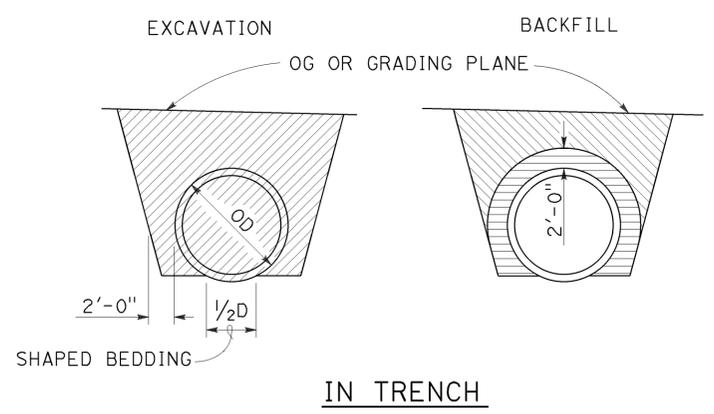
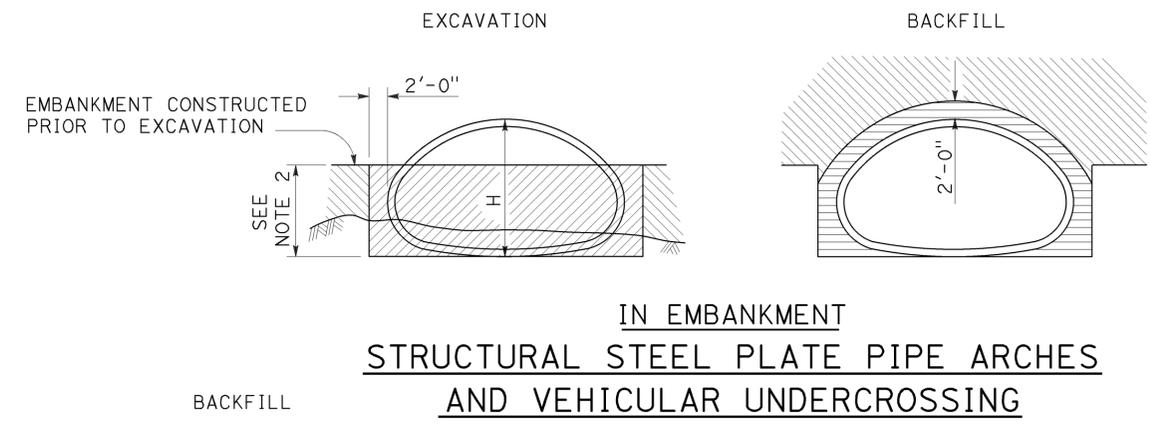
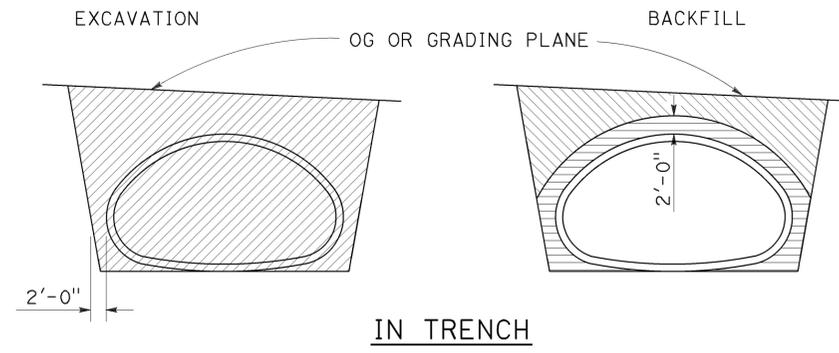
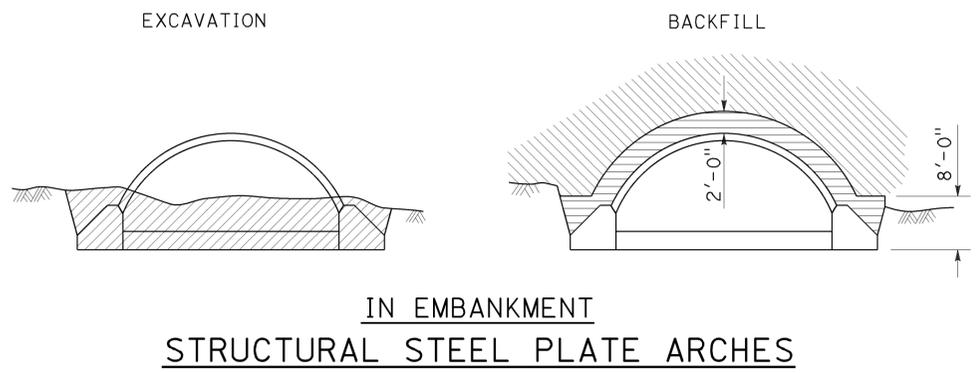
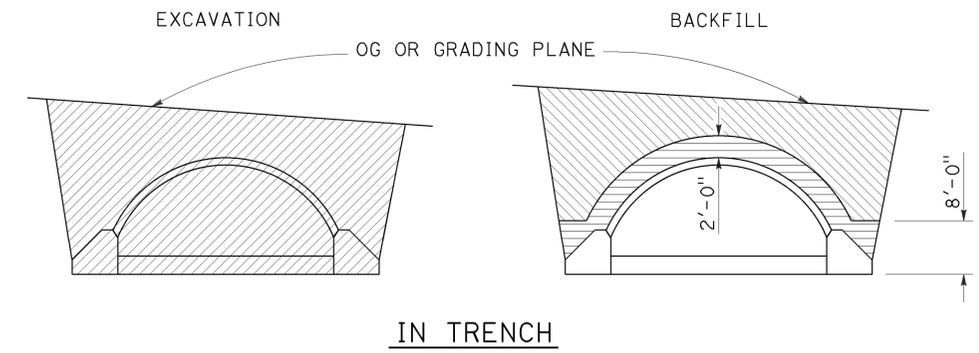
REGISTERED CIVIL ENGINEER  
 October 30, 2015  
 PLANS APPROVAL DATE  
 THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

REGISTERED PROFESSIONAL ENGINEER  
 Carl M. Duan  
 No. C59976  
 Exp. 6-30-16  
 CIVIL  
 STATE OF CALIFORNIA

TO ACCOMPANY PLANS DATED 6-23-16



SHAPED BEDDING  
S = Larger than 84"



**NOTES:**

1. PIPES: 30" minimum for diameters up to and including 42" then 2/3 diameter but no more than 60" required. CORRUGATED METAL PIPE ARCHES: 30" maximum.
2. 2/3 H up to 60" maximum.
3. Slope or shore excavation sides as necessary.
4. Backfill shall be placed full width of excavation except as noted.
5. Diagrams do not apply to overside drains.
6. Dimensions shown are minimum.
7. Construction strutting of structural steel plate pipe, arches and vehicular undercrossing to be used when shown on the project plans. When shown, see Standard Plan D88A for strutting requirements.
8. Excavation below pipe and 80% relative compaction requirements for plastic pipes only.
9. D is the inside diameter (ID) of the pipe.

**LEGEND**

|  |   |  |   |
|--|---|--|---|
|  | STRUCTURE EXCAVATION (CULVERT)                          |  | ROADWAY EMBANKMENT                                      |
|  | STRUCTURE BACKFILL (CULVERT)<br>95% RELATIVE COMPACTION |  | STRUCTURE BACKFILL (CULVERT)<br>80% RELATIVE COMPACTION |

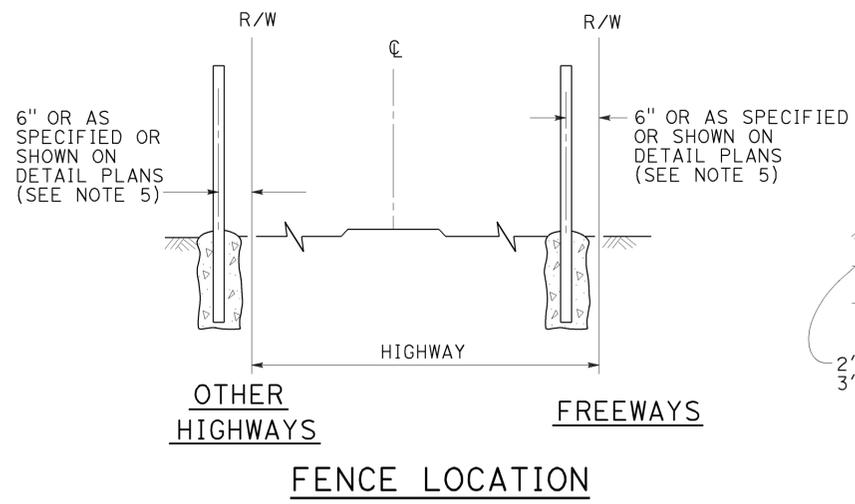
STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**EXCAVATION AND BACKFILL  
METAL AND PLASTIC CULVERTS**  
NO SCALE

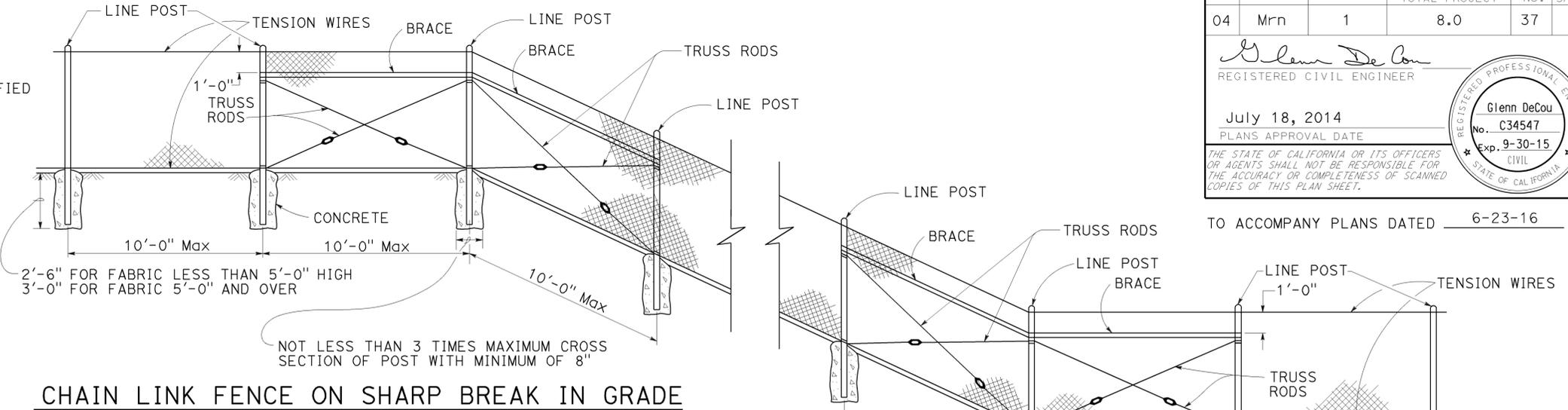
RSP A62F DATED OCTOBER 30, 2015 SUPERSEDES STANDARD PLAN A62F DATED MAY 20, 2011 - PAGE 26 OF THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP A62F**

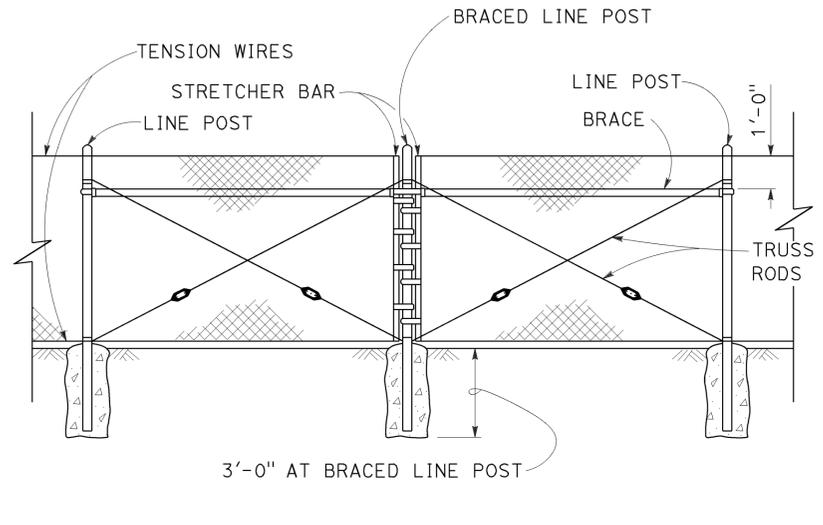
2010 REVISED STANDARD PLAN RSP A62F



**FENCE LOCATION**

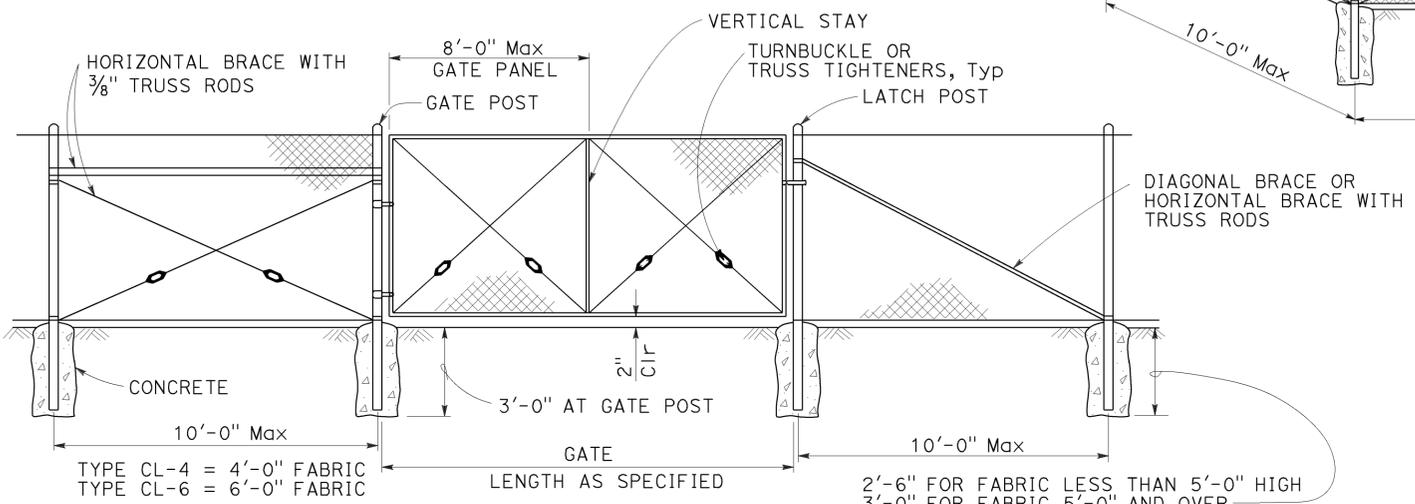


**CHAIN LINK FENCE ON SHARP BREAK IN GRADE**



**BRACED LINE POST INSTALLATION**

Braced line post at intervals not exceeding 1000'



**CHAIN LINK GATE INSTALLATION**

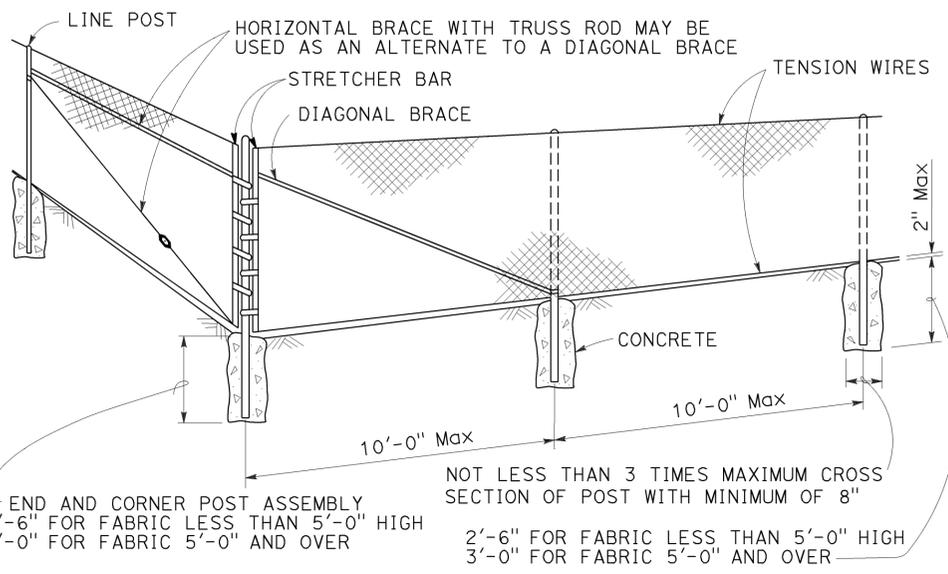
| GATE POST               |                           |               |                |
|-------------------------|---------------------------|---------------|----------------|
| FENCE HEIGHT            | GATE WIDTHS               | ROUND OD PIPE | WEIGHT (lb/ft) |
| 6'-0" AND LESS          | UP THRU 6'-0"             | 2.875"        | 5.80           |
|                         | OVER 6'-0" THRU 12'-0"    | 4.500"        | 10.80          |
|                         | OVER 12'-0" THRU 18'-0"   | 5.563"        | 14.63          |
| OVER 6'-0" TO 8'-0" Max | OVER 18'-0" TO 24'-0" Max | 6.625"        | 18.99          |
|                         | UP THRU 6'-0"             | 3.500"        | 7.58           |
|                         | OVER 6'-0" THRU 12'-0"    | 5.563"        | 14.63          |
|                         | OVER 12'-0" THRU 18'-0"   | 6.625"        | 18.99          |
|                         | OVER 18'-0" TO 24'-0" Max | 8.625"        | 28.58          |

Above post dimensions and weights are minimums. Larger sizes may be used upon approval.

**NOTES:**

- The table below shows minimum sized posts and braces complying with the specifications. Larger or heavier post and brace sizes may be used upon approval.
- Sections shown in the tables must also comply with the strength requirements and other provisions of the Specifications.
- Other sections which comply with the strength requirements and other provisions of the Specifications may be used upon approval.
- Options exercised shall be uniform on any one project.
- Offset to be 2'-0" at monument locations, measured at right angles to R/W lines. Taper to achieve offset to be at least 20'-0" long.
- See Revised Standard Plan RSP A85B for Brace, Stretcher Bar, and Truss Tightener Details.

| FENCE HEIGHT            | TYPICAL MEMBER DIMENSIONS (See Notes) |                |                 |                |               |                             |               |                |                |                |
|-------------------------|---------------------------------------|----------------|-----------------|----------------|---------------|-----------------------------|---------------|----------------|----------------|----------------|
|                         | LINE POSTS                            |                |                 |                |               | END, LATCH AND CORNER POSTS |               | BRACES         |                |                |
|                         | ROUND OD PIPE                         | WEIGHT (lb/ft) | ROLL FORMED     |                | ROUND OD PIPE | WEIGHT (lb/ft)              | ROUND OD PIPE | WEIGHT (lb/ft) | ROLL FORMED    |                |
|                         |                                       |                | SECTION         | WEIGHT (lb/ft) |               |                             |               |                | SECTION        | WEIGHT (lb/ft) |
| 6'-0" AND LESS          | 1.900"                                | 2.72           | 1.875" x 1.625" | 1.85           | 2.375"        | 3.65                        | 1.66"         | 2.27           | 1.625" x 1.25" | 1.35           |
| OVER 6'-0" TO 8'-0" Max | 2.375"                                | 3.65           | 2.25" x 1.70"   | 2.78           | 2.875"        | 5.80                        | 1.66"         | 2.27           | 1.625" x 1.25" | 1.35           |



**CORNER POST**

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

RSP A85 DATED JULY 18, 2014 SUPERSEDES STANDARD PLAN A85  
DATED MAY 20, 2011 - PAGE 112 OF THE STANDARD PLANS BOOK DATED 2010.

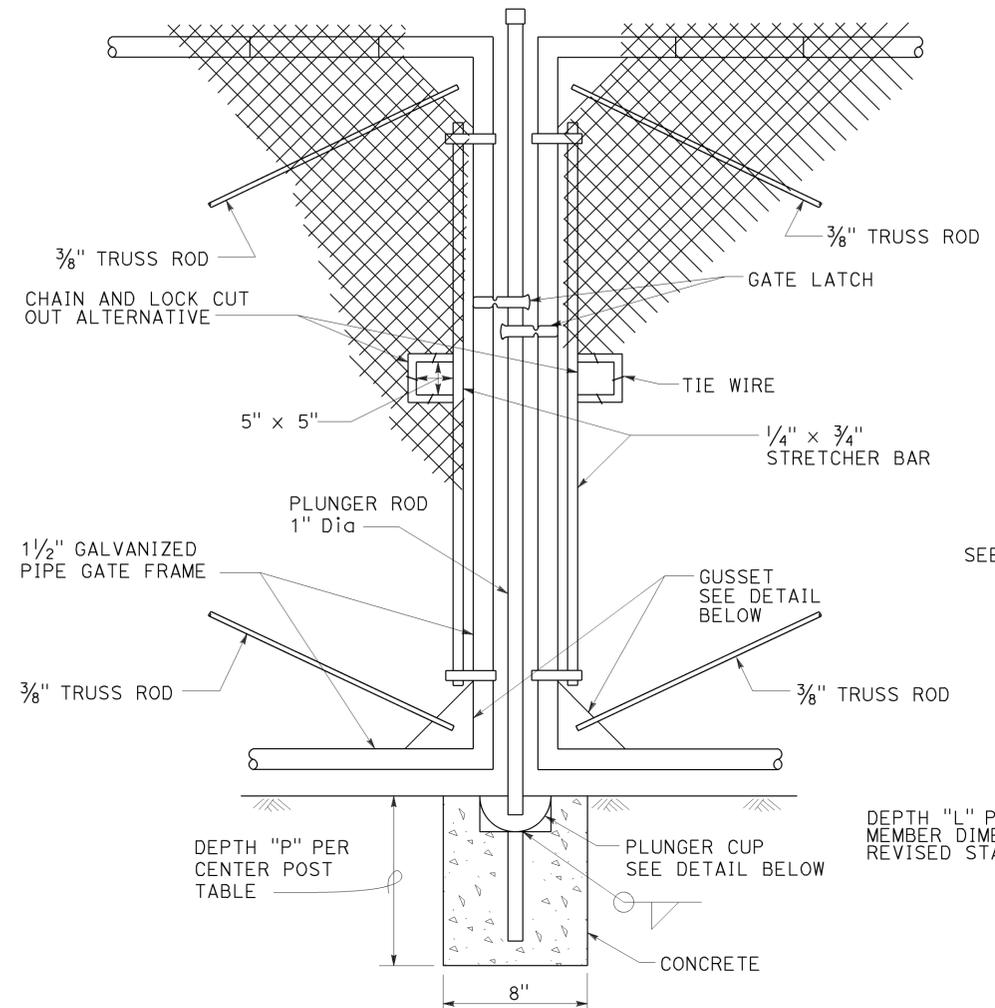
**REVISED STANDARD PLAN RSP A85**

2010 REVISED STANDARD PLAN RSP A85

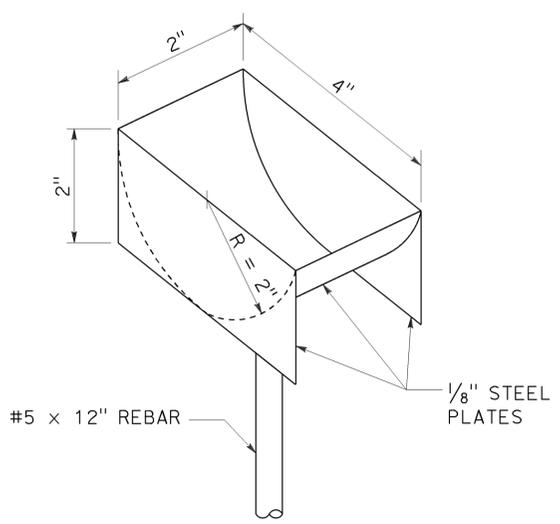
TO ACCOMPANY PLANS DATED 6-23-16

| CENTER POST        |         |       |
|--------------------|---------|-------|
| FENCE HEIGHT (Max) | SLATTED | P     |
| ALL HEIGHTS        | NO      | 1'-6" |
| 5'-0"              | YES     | 3'-0" |
| 6'-0"              | YES     | 3'-0" |
| 8'-0"              | YES     | 3'-6" |
| 10'-0"             | YES     | 4'-0" |

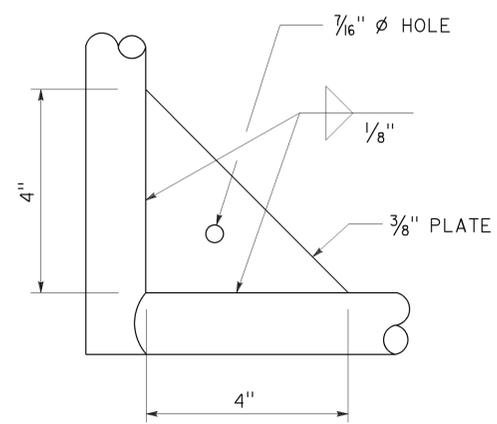
- NOTES:**
1. B is not less than 3 times maximum cross section of post with minimum of 8".
  2. See Revised Standard Plan RSP A85 for Chain Link Fencing dimensions.
  3. See Detail A on Standard Plan A86B for connection at headwall.
  4. See Detail D on Standard Plan A86B for connection at headwall.



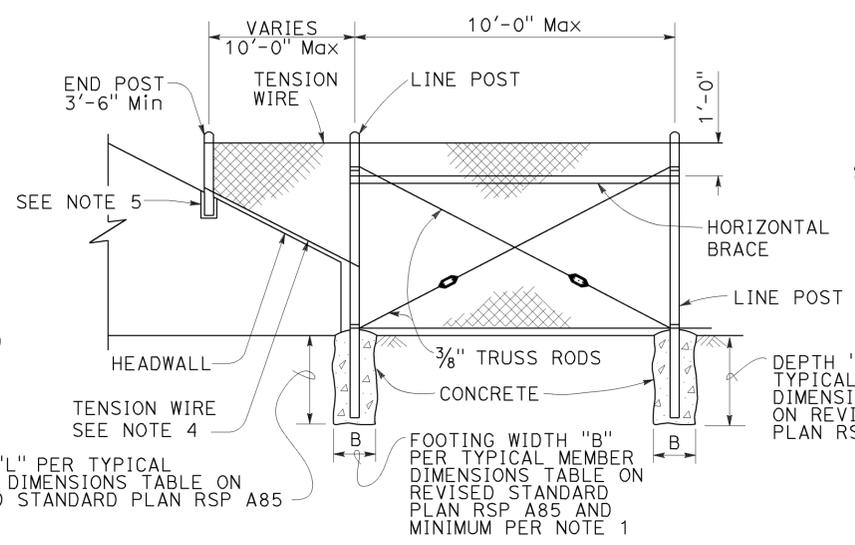
**DOUBLE GATE  
REMOVABLE CENTER POST**



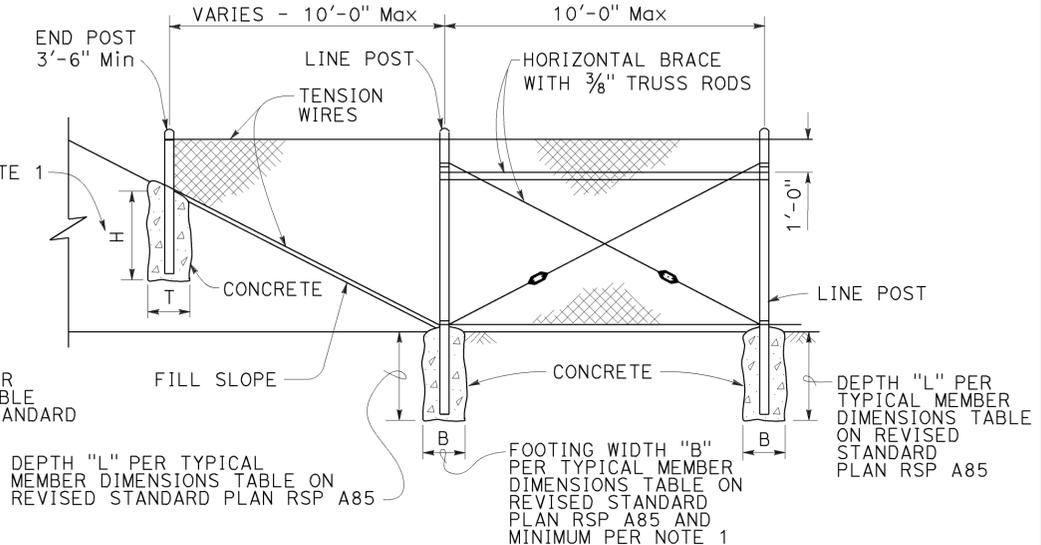
**PLUNGER CUP DETAIL**



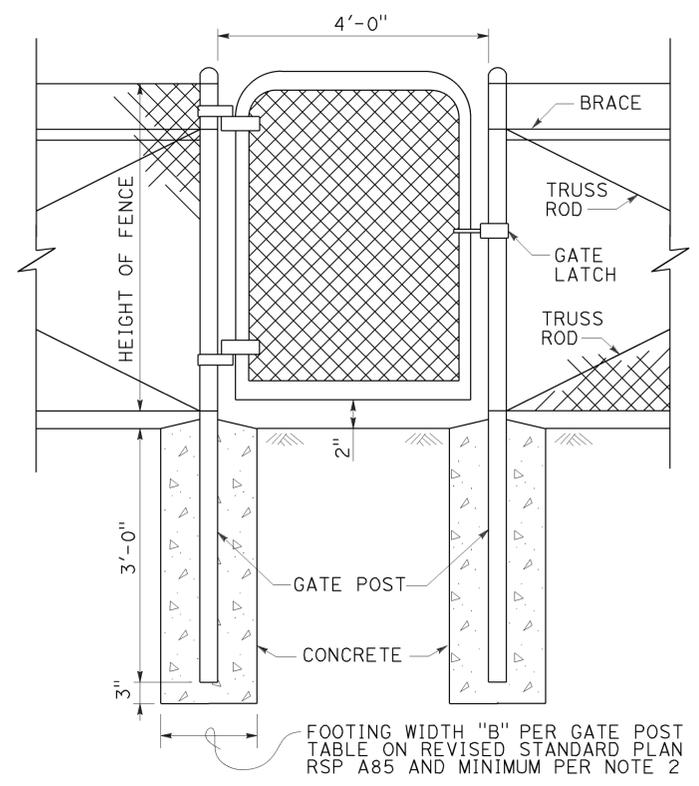
**GUSSET DETAIL**



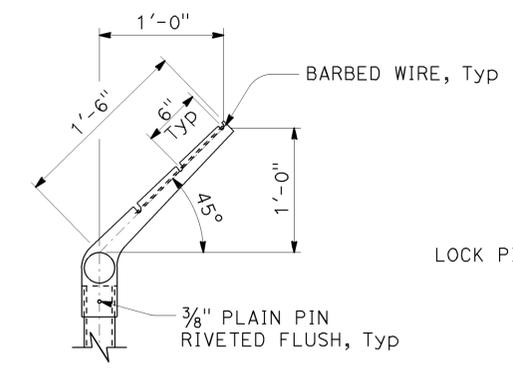
**METHOD OF TYING FENCE TO HEADWALL**



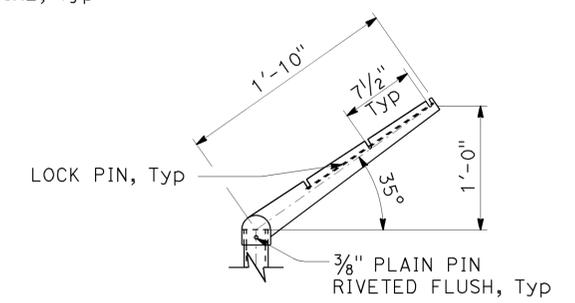
**METHOD OF ERECTING FENCE FOR FILL SLOPE**



**WALK GATE**



**LINE POST**



**CORNER POST**

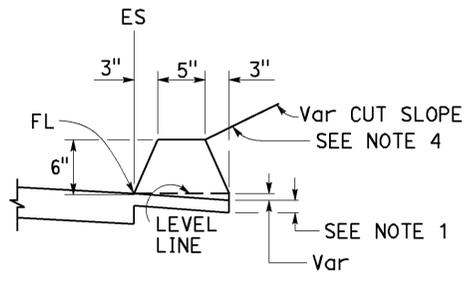
**BARBED WIRE POST TOP**

**CHAIN LINK FENCE DETAILS  
NO SCALE**

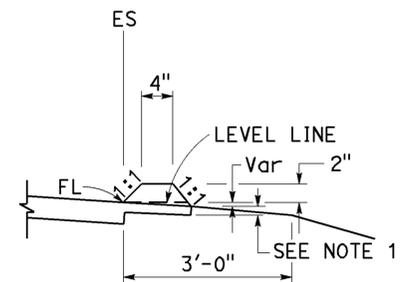
RSP A85A DATED JULY 15, 2016 SUPERSEDES STANDARD PLAN A85A DATED MAY 20, 2011 - PAGE 113 OF THE STANDARD PLANS BOOK DATED 2010.

2010 REVISED STANDARD PLAN RSP A85A

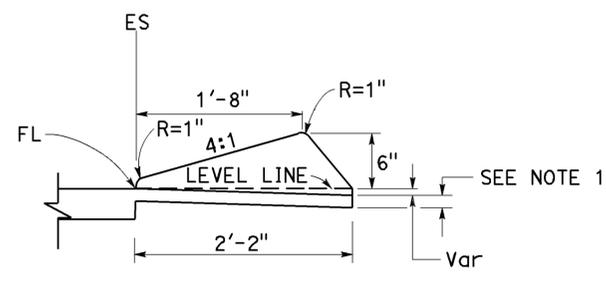
TO ACCOMPANY PLANS DATED 6-23-16



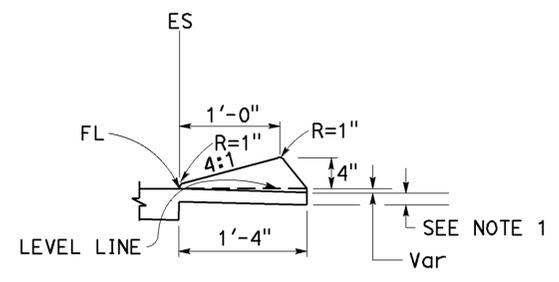
**TYPE A**  
See Notes 3 and 5



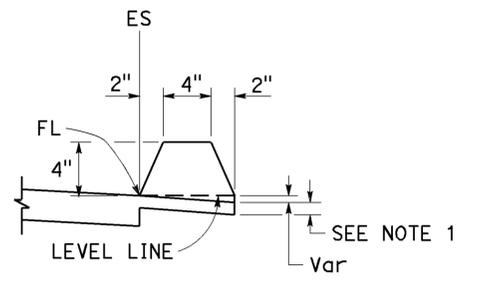
**TYPE C**



**TYPE D**

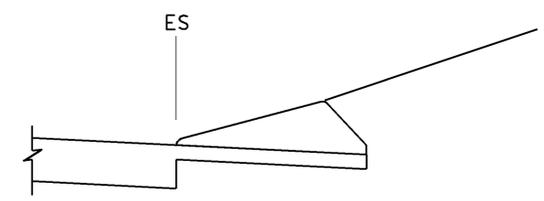


**TYPE E**

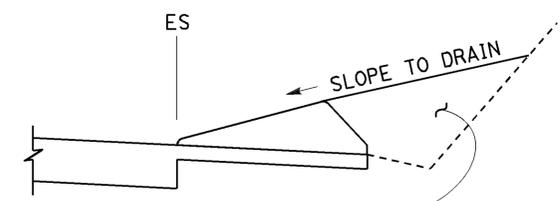


**TYPE F**  
See Note 5

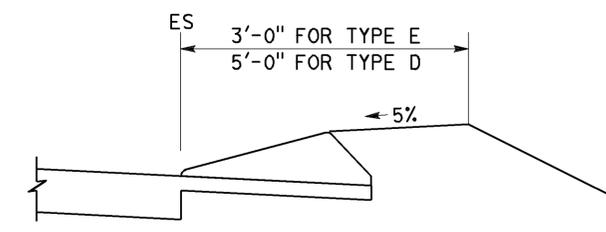
**DIKES**



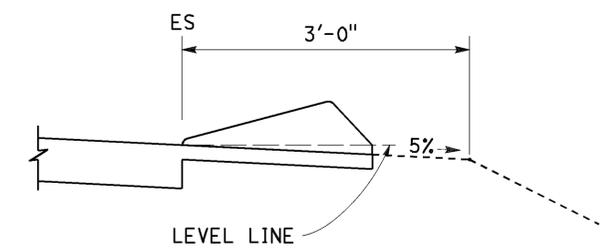
**CASE C-1**  
Cut Slope



**CASE C-2**  
Cut Slope



**CASE F**



**CASE R**  
See Note 2

**TYPE D AND E BACKFILL DETAILS**

**NOTES:**

- For HMA shoulders only, extend top layer of HMA placed on the shoulder under dike with no joint at the ES. For projects with OGFC shoulders, do not extend OGFC under dike. See project plans for modified dike detail.
- Case R applies to retrofit only projects where restrictive conditions do not provide enough width for Case F backfill.
- Type A dike only to be used where restrictive slope conditions do not provide enough width to use Type D or Type E dike.
- Fill and compact with excavated material to top of dike.
- Use Type A or F dike, where dike is required with guardrail installations. See Revised Standard Plan RSP A77N4 for dike positioning details. See Revised Standard Plan RSP A77N3 for hinge point offsets with guardrail.

**DIKE QUANTITIES**

| TYPE | CUBIC YARDS<br>PER LINEAR FOOT |
|------|--------------------------------|
| A    | 0.0135                         |
| C    | 0.0038                         |
| D    | 0.0293                         |
| E    | 0.0130                         |
| F    | 0.0066                         |

Quantities based on 5% cross slope.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**HOT MIX ASPHALT DIKES**

NO SCALE

RSP A87B DATED JANUARY 15, 2016 SUPERSEDES RSP A87B DATED JULY 19, 2013 AND STANDARD PLAN A87B DATED MAY 20, 2011 - PAGE 120 OF THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP A87B**

2010 REVISED STANDARD PLAN RSP A87B

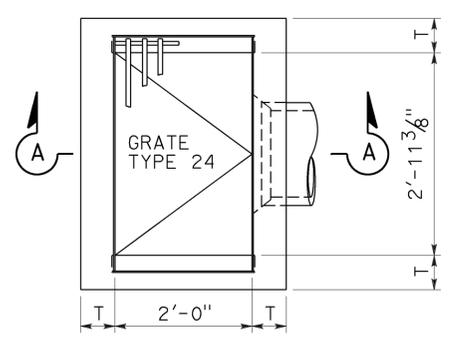
|      |        |       |                          |           |              |
|------|--------|-------|--------------------------|-----------|--------------|
| Dist | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
| 04   | Mrn    | 1     | 8.0                      | 40        | 90           |

REGISTERED CIVIL ENGINEER  
 July 15, 2016  
 PLANS APPROVAL DATE  
 THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

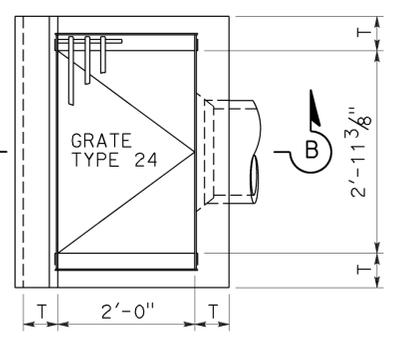
TO ACCOMPANY PLANS DATED 6-23-16

**NOTE:**  
 1. For notes and Table 2, See Revised Standard Plan RSP D72C.

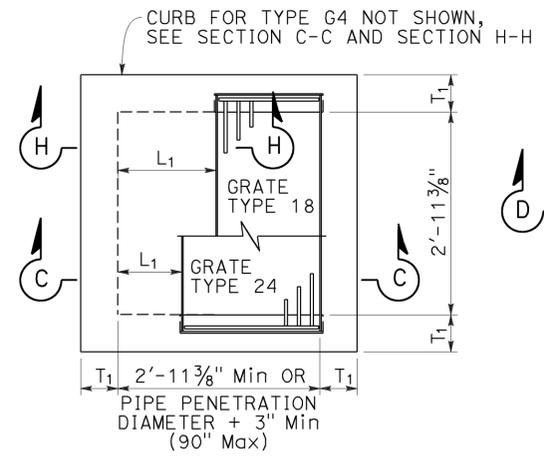
|  | T <sub>1</sub> | Vert BARS |
|--|----------------|-----------|
| L <sub>1</sub> AND L <sub>2</sub> < 2'-10" | 9"             | #4 @ 12   |
| L <sub>1</sub> OR L <sub>2</sub> > 2'-10"  | 12"            | #5 @ 12   |



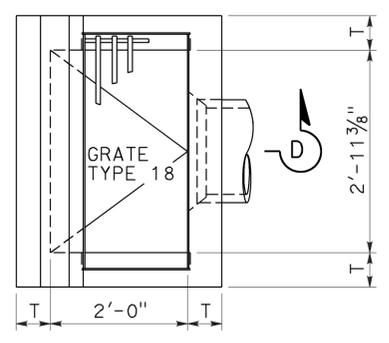
**PLAN TYPE G1**



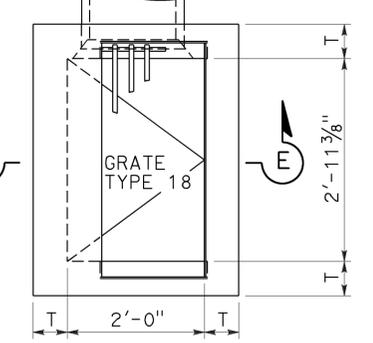
**PLAN TYPE G3**



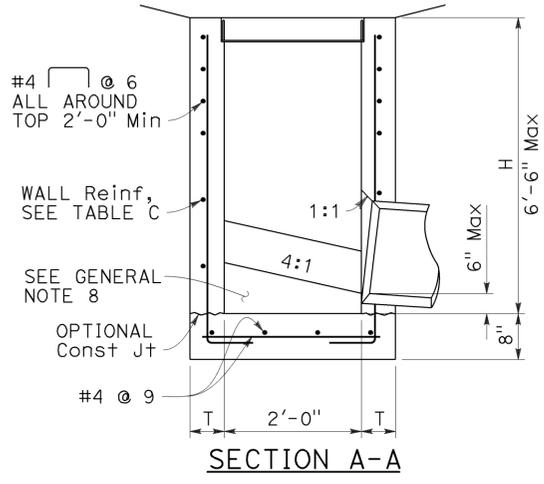
**PLAN STANDARD TYPE G2 OR G4**



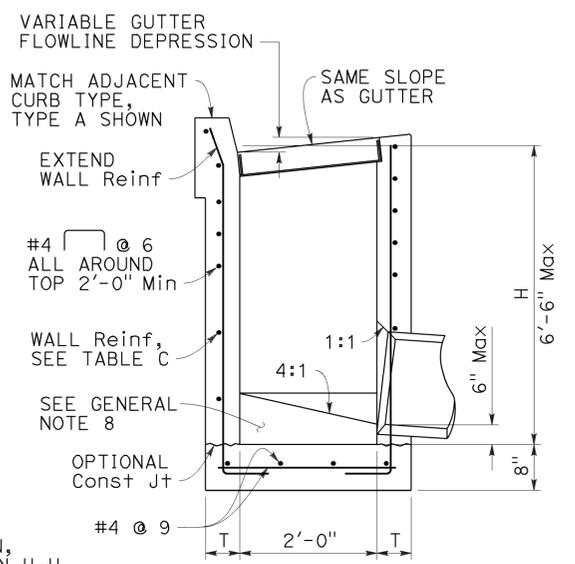
**PLAN TYPE G5**



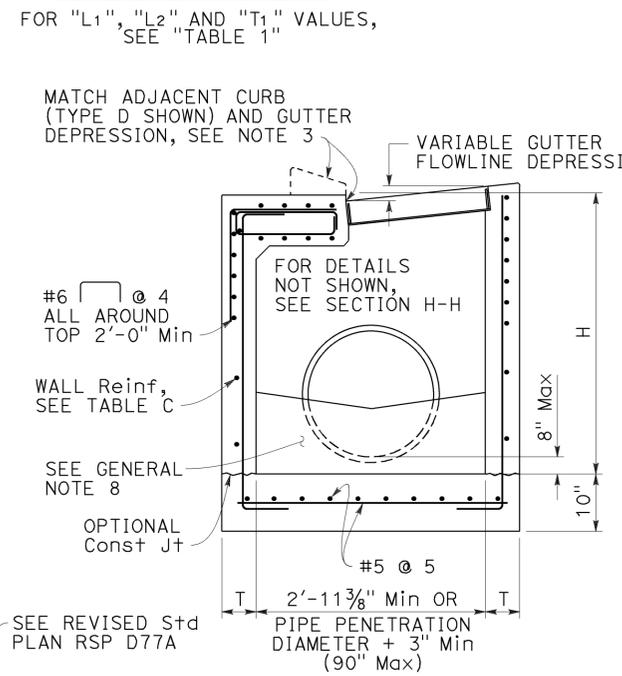
**PLAN TYPE G6**



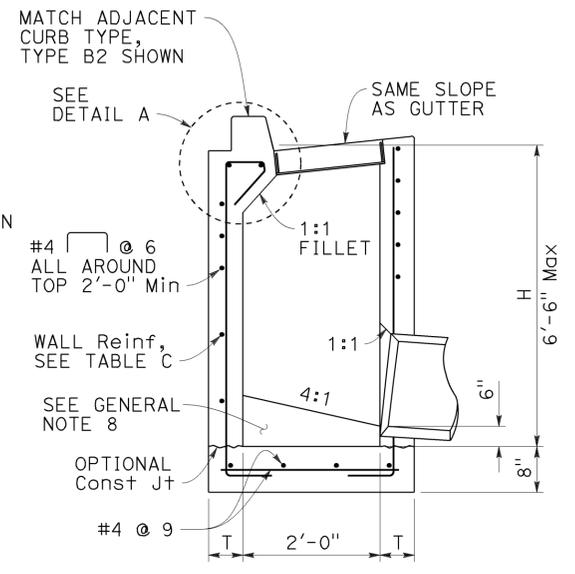
**SECTION A-A**



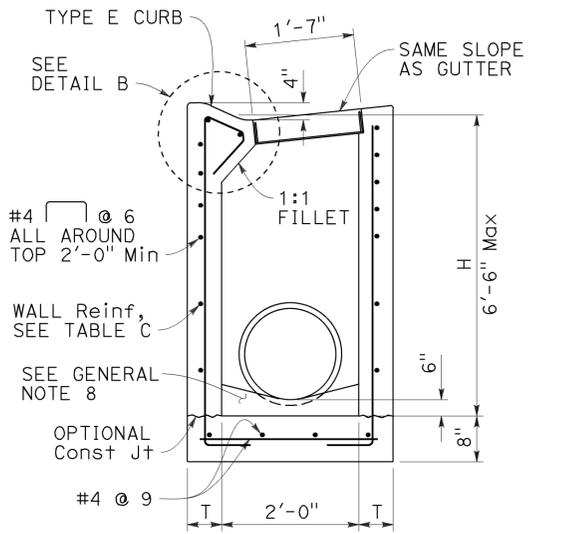
**SECTION B-B**



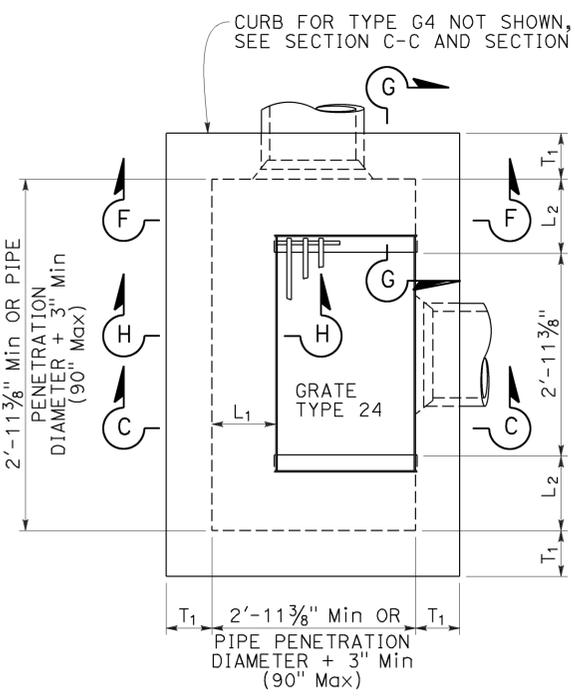
**SECTION C-C**



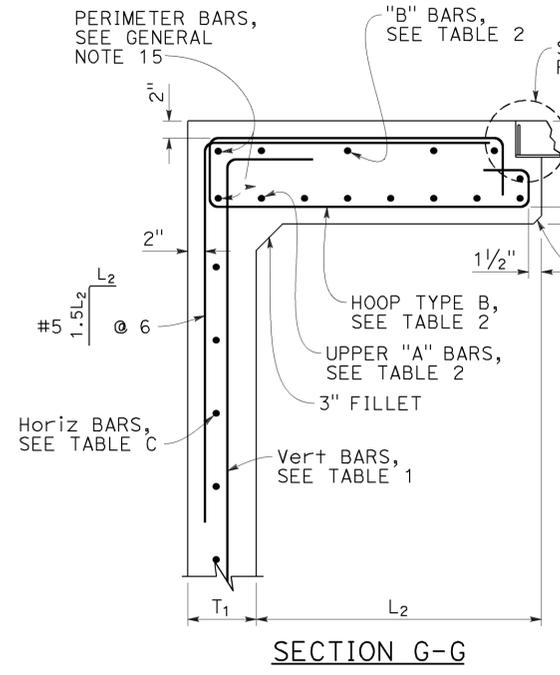
**SECTION D-D**



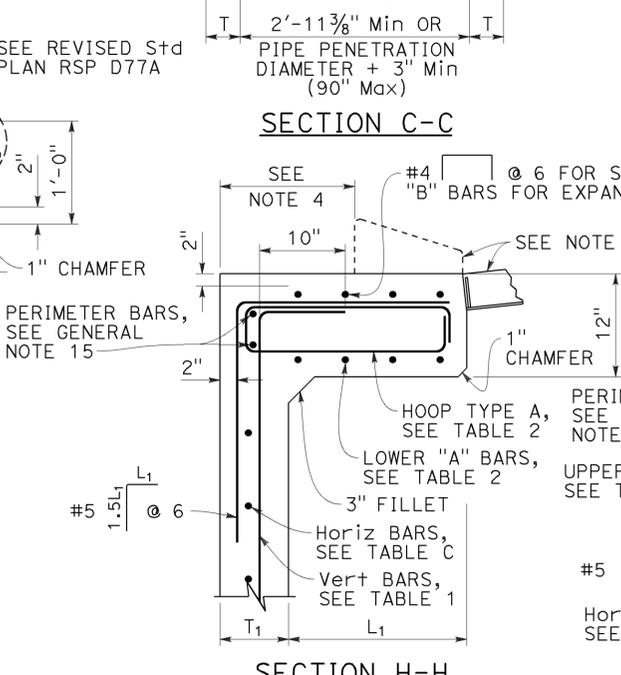
**SECTION E-E**



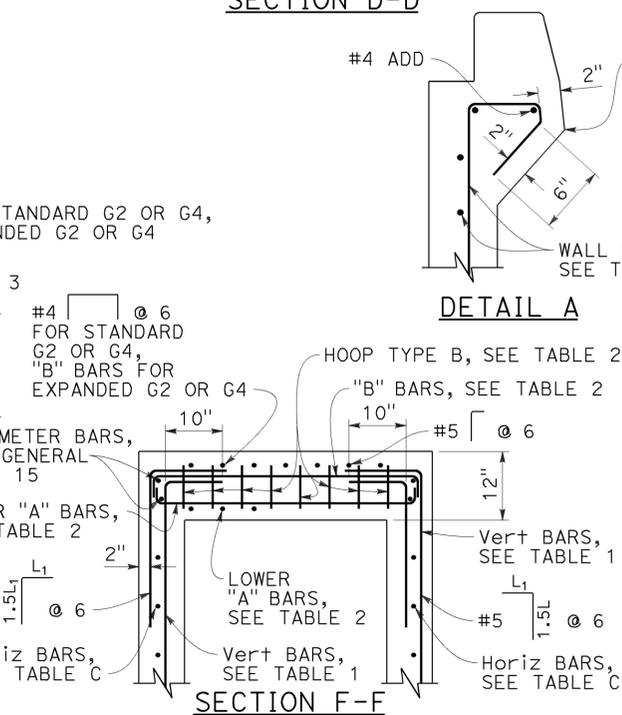
**PLAN EXPANDED TYPE G2 OR G4**



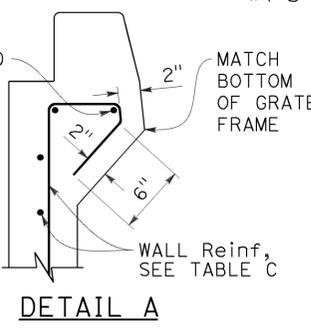
**SECTION G-G**



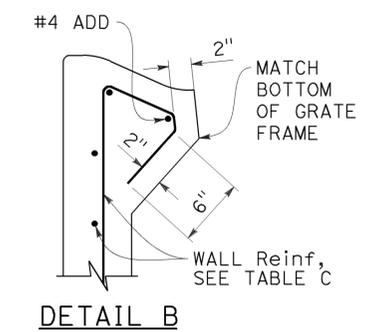
**SECTION H-H**



**SECTION F-F**



**DETAIL A**



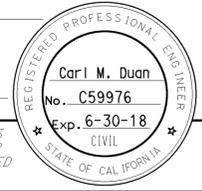
**DETAIL B**

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**CIP DRAINAGE INLETS  
 TYPES G1, G2, G3,  
 G4, G5 AND G6**  
 NO SCALE

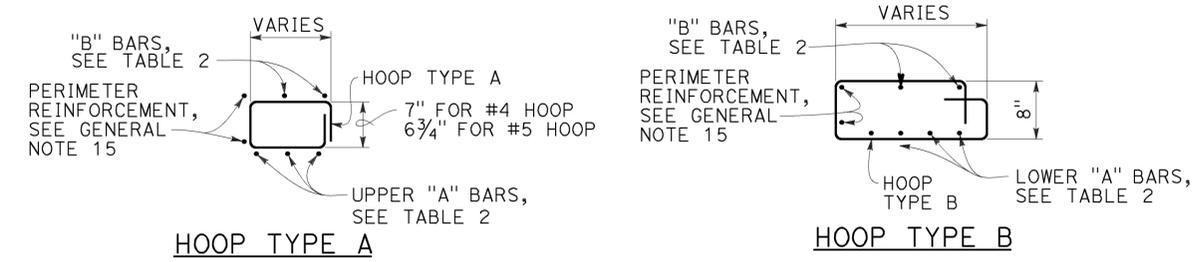
RSP D72A DATED JULY 15, 2016 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP D72B**

2010 REVISED STANDARD PLAN RSP D72B



TO ACCOMPANY PLANS DATED 6-23-16



**NOTES:**

1. See Revised Standard Plan RSP D72F for General Notes and additional details. See Revised Standard Plan RSP D72G for tables and quantities.
2. Type G4 inlet can use Gate Type 18 or 24. Type G2 inlet uses Gate Type 24.
3. Type G4 inlet details are similar to Type G2 inlet details, except for the addition of a curb and sloped grate to match the adjacent curb and gutter depression.
4. Dimension will vary with different grates, curb types, box width and wall thickness.

**TABLE 2 - TOP SLAB REINFORCEMENT**

|                   | W/ CURB                 | W/O CURB                |
|-------------------|-------------------------|-------------------------|
| "A" BARS          | #4 @ 5<br>(2 BARS Min)  | #5 @ 5<br>(3 BARS Min)  |
| "B" BARS          | #4 @ 10<br>(2 BARS Min) | #4 @ 12<br>(2 BARS Min) |
| HOOPS ("A" & "B") | #4 @ 5                  | #5 @ 5                  |

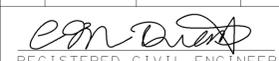
ROTATE "A" AND "B" BARS SO HOOKED ENDS WILL MAINTAIN 2" CLEAR COVERAGE.

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**CIP DRAINAGE INLETS**  
**TYPES G1, G2, G3,**  
**G4, G5 AND G6**  
 NO SCALE

2010 REVISED STANDARD PLAN RSP D72C

| Dist | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
|------|--------|-------|--------------------------|-----------|--------------|
| 04   | Mrn    | 1     | 8.0                      | 42        | 90           |

|  |  |   |
|--|--|---|
| <br>REGISTERED CIVIL ENGINEER   |  |  |
| July 15, 2016<br>PLANS APPROVAL DATE   |  |   |
| <small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small> |  |   |

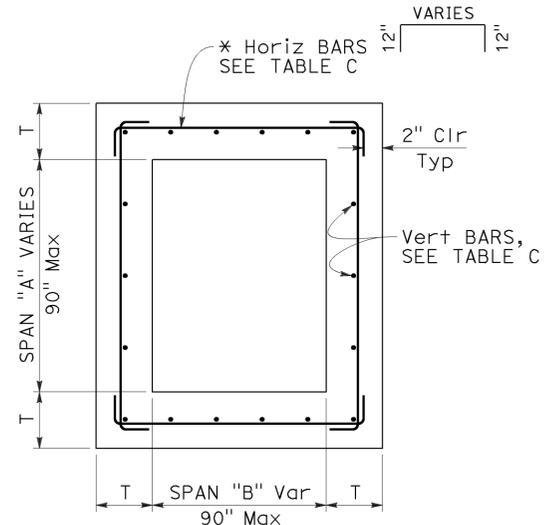
**GENERAL NOTES:**

- "H" is measured from top of bottom slab to the normal gutter grade line undepressed at the curb face.
- For "T" wall thickness and reinforcement, see Table C on Revised Standard Plan RSP D72G.
- Wall reinforcement must be placed in the center of the wall thickness with horizontal bars placed on the exterior face. Bottom slab concrete cover must be 3" clear on the interior face unless otherwise noted. Top slab concrete cover must be 2" clear on the exterior face unless otherwise noted. Reinforcement spacing is in inches unless otherwise noted.
- Steps - None required where "H" is less than 2'-6". Where "H" is 2'-6" or more, install steps with lowest rung 1'-0" above the floor and highest rung not more than 6" below bottom of lid. The distance between steps must not exceed 1'-0" and be uniform throughout the length of the wall. Place steps in the wall without an opening. Steps inserts may be substituted for the bar steps. Step inserts must comply with State Industrial Safety Requirements. See Revised Standard Plan RSP D74 for step details.
- Pipe(s) can be placed in any wall. Adjacent to each side of the opening, place additional reinforcement equivalent to half the interrupted main reinforcement. For larger pipes greater than or equal to 42" diameter, also add 4 diagonal bars, 1 bar each side. Bars must be the same size as the larger of the main vertical or horizontal bars. Extend bars one development length past the intersection with the adjacent diagonal bar, or where bars intersect mid thickness of adjacent wall bottom or top of non-continuous wall, bend ends as required into same plane.
- Set inlet so that grate bars are parallel to direction of principal surface flow.
- Curb section must match adjacent curb.
- Except for inlets used as junction boxes, basin floors must have wood trowel finish and a minimum slope of 4:1, unless otherwise noted, from all directions toward outlet pipe by casting grout fill on top of the bottom slab. The additional volume to achieve the 4:1 slope may also be achieved by casting the bottom slab and fill as a composite concrete element.
- See Revised Standard Plans RSP D77A and RSP D77B for grate and frame details and weights of miscellaneous iron and steel.
- See Standard Plans D78A and D78B for gutter depression details.
- See Revised Standard Plans RSP A87A and RSP A87B for curb and dike details.
- Details shown apply to metal, concrete and plastic pipe(s).
- The Contractor may use WWR instead of bar reinforcement. The ratio of bar reinforcement to WWR shall be based on the yield strength ratio.
- Cast-in-place (CIP) inlets to be formed around all pipes/stubs intersecting the inlet, and concrete poured in one continuous operation.
- Perimeter reinforcement must not be smaller than main bars and #4 and serves as a rigid frame to position and attach the required structural reinforcement and may be tack welded at outer corners when using ASTM A706 weldable bars.

**DESIGN NOTES:**

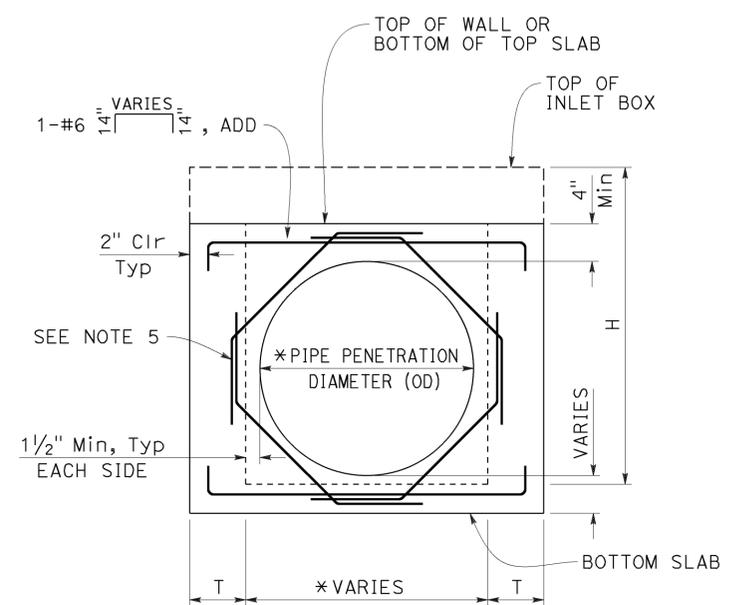
- Design Specifications: AASHTO LRFD Bridge Design Specifications, 6th edition with 2012 Interims and Errata and CA Amendments.
- Live Load (AASHTO LRFD 3.6.1.2): HL-93, consists of design truck or tandem, and design lane load. Dynamic Load Allowance, IM = 33%. Multiple Presence Factor, m = 1.0. Design lane load was excluded in Top Slab design. A wheel load of 8 kips without impact factor was used for top slabs that are above a curb.
- Earth Load:  
Vertical pressure = 140 pcf  
Lateral pressure:  
= 100 pcf for walls with flat embankment  
= 140 pcf For walls with slope embankment, 1.5:1 Max
- Downdrag:  $\phi = 34^\circ$  and  $\gamma_E = 120$  pcf.
- Buoyancy:  $\gamma_w = 62.4$  pcf to finished grade
- Reinforced Concrete:  $f'_c = 3.6$  ksi,  $f_y = 60.0$  ksi.
- Soil pressures shown are factored per AASHTO LRFD and include self-weight, live load and downdrag.

TO ACCOMPANY PLANS DATED 6-23-16



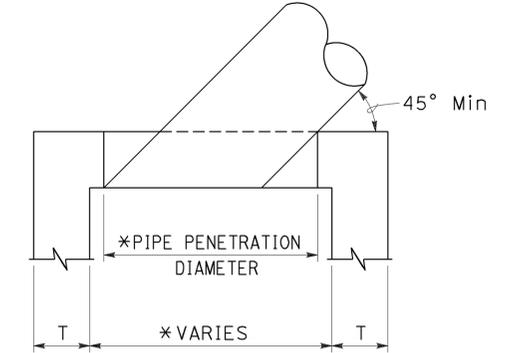
**TYPICAL INLET PLAN**

\* ALTERNATIVE HORIZONTAL BARS



**TYPICAL WALL W/ PIPE OPENING**

\* SEE "SKEWED PIPE PLAN"



**SKEWED PIPE PLAN**

\* ADJUST PIPE PENETRATION AND BOX WIDTH FOR SKEWED PIPES.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

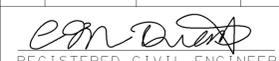
**CIP DRAINAGE INLET NOTES**  
NO SCALE

RSP D72F DATED JULY 15, 2016 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP D72F**

2010 REVISED STANDARD PLAN RSP D72F

|      |        |       |                             |              |                 |
|------|--------|-------|-----------------------------|--------------|-----------------|
| Dist | COUNTY | ROUTE | POST MILES<br>TOTAL PROJECT | SHEET<br>No. | TOTAL<br>SHEETS |
| 04   | Mrn    | 1     | 8.0                         | 43           | 90              |

  
 REGISTERED CIVIL ENGINEER  
 July 15, 2016  
 PLANS APPROVAL DATE  
  
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TO ACCOMPANY PLANS DATED 6-23-16

| TYPE          | H=3'-0" TO 8'-0" |                                   | H=8'-1" TO 20'-0" |                                   |
|---------------|------------------|-----------------------------------|-------------------|-----------------------------------|
|               | H=3'-0" (CY)     | ADDITIONAL CONCRETE PER FOOT (CY) | H=8'-1" (CY)      | ADDITIONAL CONCRETE PER FOOT (CY) |
| G1            | 0.95             | 0.220                             | SEE NOTE 2        | SEE NOTE 2                        |
| G2*           | 2.00             | 0.411                             | 5.11              | 0.525                             |
| G3            | 1.03             | 0.220                             | SEE NOTE 2        | SEE NOTE 2                        |
| G4 (TYPE 18)* | 2.02             | 0.411                             | 5.14              | 0.525                             |
| G4 (TYPE 24)* | 1.99             | 0.411                             | 5.10              | 0.525                             |
| G5            | 1.02             | 0.220                             | SEE NOTE 2        | SEE NOTE 2                        |
| G6            | 1.04             | 0.220                             | SEE NOTE 2        | SEE NOTE 2                        |
| OS            | 1.53             | 0.278                             | 5.08              | 0.504                             |
| OL7           | 2.06             | 0.278                             | 6.17              | 0.566                             |
| OL10          | 2.85             | 0.278                             | 6.85              | 0.566                             |
| OL14          | 3.81             | 0.278                             | 7.78              | 0.566                             |
| OL21          | 5.71             | 0.278                             | 9.62              | 0.566                             |
| GOL7          | 2.48             | 0.313                             | 6.89              | 0.630                             |
| GOL10         | 3.41             | 0.313                             | 7.85              | 0.630                             |
| GT1           | 1.72             | 0.248                             | SEE NOTE 2        | SEE NOTE 2                        |
| GT2           | 2.93             | 0.530                             | 7.73              | 0.762                             |
| GT3           | 1.74             | 0.348                             | SEE NOTE 2        | SEE NOTE 2                        |
| GT4           | 2.83             | 0.530                             | 7.62              | 0.762                             |
| GO            | 1.26             | 0.245                             | 4.90              | 0.506                             |
| GDO           | 1.74             | 0.322                             | 6.33              | 0.647                             |

\* Quantities are based on the minimum interior dimensions.

| TYPE          | H=3'-0" TO 8'-0" |  | H=8'-1" TO 20'-0" |  |
|---------------|------------------|--|-------------------|--|
|               | H=3'-0" (LB)     | ADDITIONAL REINFORCEMENT PER FOOT (LB) | H=8'-1" (LB)      | ADDITIONAL REINFORCEMENT PER FOOT (LB) |
| G1            | 118              | 22.20                                  | SEE NOTE 2        | SEE NOTE 2                             |
| G2*           | 729              | 86.48                                  | 1794              | 171.79                                 |
| G3            | 118              | 22.20                                  | SEE NOTE 2        | SEE NOTE 2                             |
| G4 (TYPE 18)* | 647              | 86.48                                  | 1675              | 171.79                                 |
| G4 (TYPE 24)* | 647              | 86.48                                  | 1675              | 171.79                                 |
| G5            | 118              | 22.20                                  | SEE NOTE 2        | SEE NOTE 2                             |
| G6            | 118              | 22.20                                  | SEE NOTE 2        | SEE NOTE 2                             |
| OS            | 245              | 49.88                                  | 1057              | 120.77                                 |
| OL7           | 458              | 50.53                                  | 1324              | 126.75                                 |
| OL10          | 729              | 50.53                                  | 1595              | 126.75                                 |
| OL14          | 982              | 50.53                                  | 1849              | 126.75                                 |
| OL21          | 1453             | 50.53                                  | 2320              | 126.75                                 |
| GOL7          | 644              | 83.57                                  | 1969              | 148.79                                 |
| GOL10         | 883              | 83.57                                  | 2208              | 148.79                                 |
| GT1           | 486              | 96.91                                  | SEE NOTE 2        | SEE NOTE 2                             |
| GT2           | 1040             | 117.08                                 | 2543              | 233.37                                 |
| GT3           | 486              | 96.91                                  | SEE NOTE 2        | SEE NOTE 2                             |
| GT4           | 1001             | 117.08                                 | 2556              | 237.88                                 |
| GO            | 308              | 32.44                                  | 1013              | 96.56                                  |
| GDO           | 519              | 57.09                                  | 1654              | 165.66                                 |

\* Quantities are based on the minimum interior dimensions.

| INLET        | CURB USED IN QUANTITIES |
|--------------|-------------------------|
| G1           | -                       |
| G2           | -                       |
| G3           | A1-6                    |
| G4 (Type 18) | A1-6                    |
| G4 (Type 24) | A1-6                    |
| G5           | B1-4                    |
| G6           | 1/2E                    |
| OS           | -                       |
| OL7          | -                       |
| OL10         | -                       |
| OL14         | -                       |
| OL21         | -                       |
| GOL7         | -                       |
| GOL10        | -                       |
| GT1          | D-6                     |
| GT2          | E                       |
| GT3          | A2-8                    |
| GT4          | A2-8                    |
| GO           | -                       |
| GDO          | -                       |

| TYPE         | H≤8 (T=6",UON) |          | 8<H≤20 (T=11",UON) |          |
|--------------|----------------|----------|--------------------|----------|
|              | HORIZ          | VERTICAL | HORIZ              | VERTICAL |
| OS           | #4 @ 8         | #4 @ 6   | #5 @ 6             | #6 @ 4.5 |
| OL           | #4 @ 6         | #4 @ 6   | #5 @ 6             | #6 @ 4.5 |
| GOL          | #5 @ 6         | #5 @ 8   | #6 @ 5             | #6 @ 4.5 |
| G1 (H≤6-6")  | #3 @ 6         | #3 @ 6   | -                  | -        |
| G2           | T=9" #5 @ 5    | #5 @ 5   | T=11" #6 @ 4       | #6 @ 4.5 |
| G3 (H≤6-6")  | #3 @ 6         | #3 @ 6   | -                  | -        |
| G4           | T=9" #5 @ 5    | #5 @ 5   | T=11" #6 @ 4       | #6 @ 4.5 |
| G5 (H≤6-6")  | #3 @ 6         | #3 @ 6   | -                  | -        |
| G6 (H≤6-6")  | #3 @ 6         | #3 @ 6   | -                  | -        |
| GT1 (H≤6-6") | #5 @ 6         | #5 @ 6   | -                  | -        |
| GT2          | T=8" #5 @ 6    | #5 @ 6   | #6 @ 4             | #6 @ 4.5 |
| GT3 (H≤6-6") | #5 @ 6         | #5 @ 6   | -                  | -        |
| GT4          | T=8" #5 @ 6    | #5 @ 6   | #6 @ 4             | #6 @ 4.5 |
| GO           | #4 @ 9         | #4 @ 6   | #4 @ 6             | #6 @ 4.5 |
| GDO          | #4 @ 6         | #4 @ 6   | #5 @ 4             | #6 @ 4.5 |

| SOIL PRESSURE BELOW BASE SLAB (ksf) |         |                    |
|-------------------------------------|---------|--------------------|
| TYPE                                | H=8'-0" | 8'-0" < H ≤ 20'-0" |
| OS                                  | 2.93    | 5.56               |
| OL*                                 | 2.93    | 5.56               |
| GOL*                                | 2.50    | 5.06               |
| G1                                  | 3.67    | -                  |
| G2                                  | 2.99    | 5.91               |
| G3                                  | 3.67    | -                  |
| G4                                  | 2.99    | 5.91               |
| G5                                  | 3.67    | -                  |
| G6                                  | 3.67    | -                  |
| GT1                                 | 3.66    | -                  |
| GT2                                 | 3.91    | 6.07               |
| GT3                                 | 3.86    | -                  |
| GT4                                 | 3.91    | 6.07               |
| GO                                  | 3.42    | 6.11               |
| GDO                                 | 2.52    | 6.95               |

\* Main Box

**NOTES:**

1. No deduction or adjustment was made to the quantities of concrete and reinforcement for pipe openings, floor alternatives or curb type.
2. Maximum allowable height is 6'-6".
3. Quantities are approximate and for design purposes only.
4. Design is based on envelope of level and sloped ground.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**CIP DRAINAGE INLET TABLES**

NO SCALE

RSP D72G DATED JULY 15, 2016 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP D72G**

2010 REVISED STANDARD PLAN RSP D72G

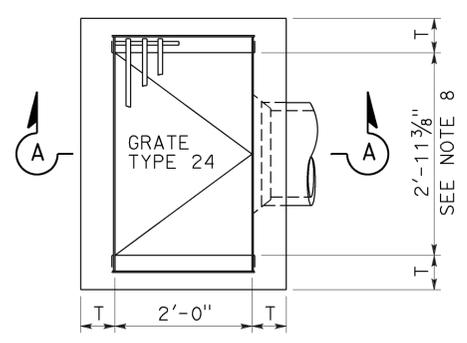
| Dist | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
|------|--------|-------|--------------------------|-----------|--------------|
| 04   | Mrn    | 1     | 8.0                      | 44        | 90           |

REGISTERED CIVIL ENGINEER  
 July 15, 2016  
 PLANS APPROVAL DATE  
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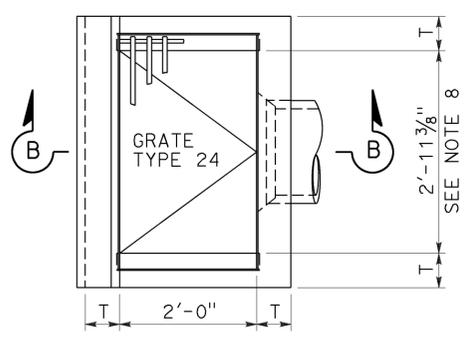
TO ACCOMPANY PLANS DATED 6-23-16

**NOTE:**  
 1. For notes and Table 2, See Revised Standard Plan RSP D73C.

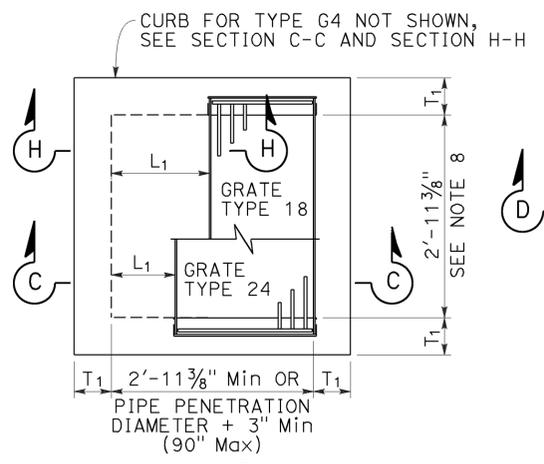
|  | T <sub>1</sub> | Vert BARS |
|--|----------------|-----------|
| L <sub>1</sub> AND L <sub>2</sub> < 2'-10" | 8"             | #4 @ 12   |
| L <sub>1</sub> OR L <sub>2</sub> > 2'-10"  | 12"            | #5 @ 12   |



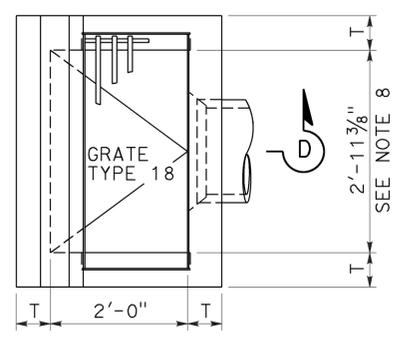
**PLAN TYPE G1**



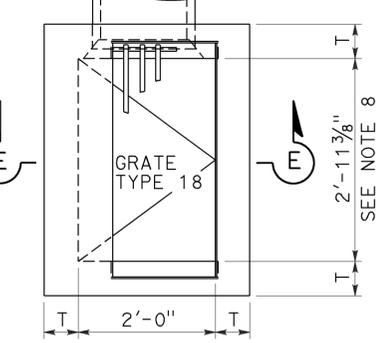
**PLAN TYPE G3**



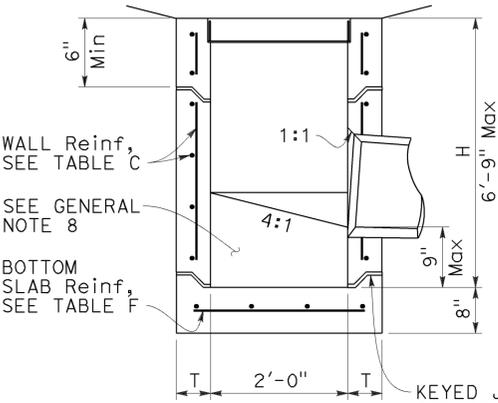
**PLAN STANDARD TYPE G2 OR G4**  
 (INTEGRAL TOP ALTERNATIVE)  
 FOR "L" AND "T" VALUES, SEE TABLE 1



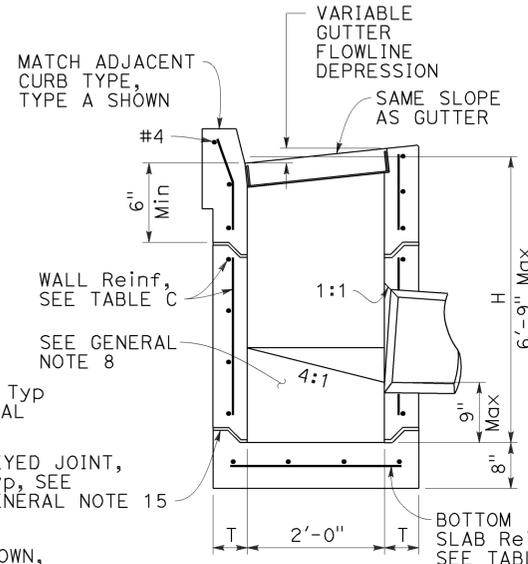
**PLAN TYPE G5**



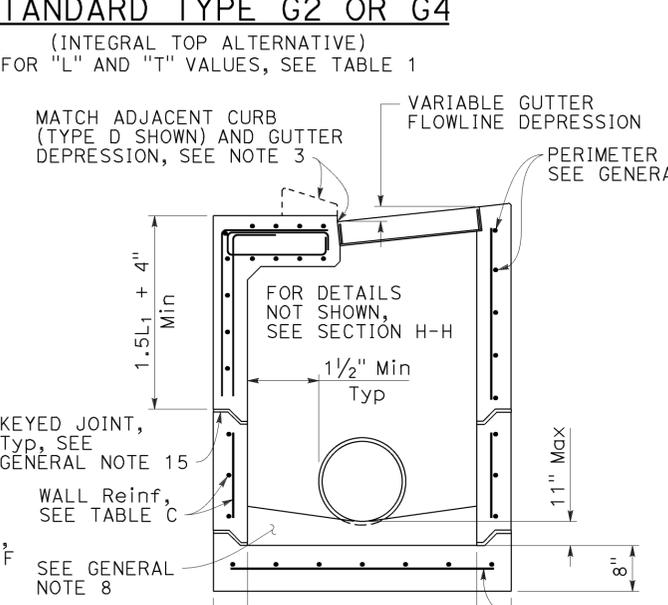
**PLAN TYPE G6**



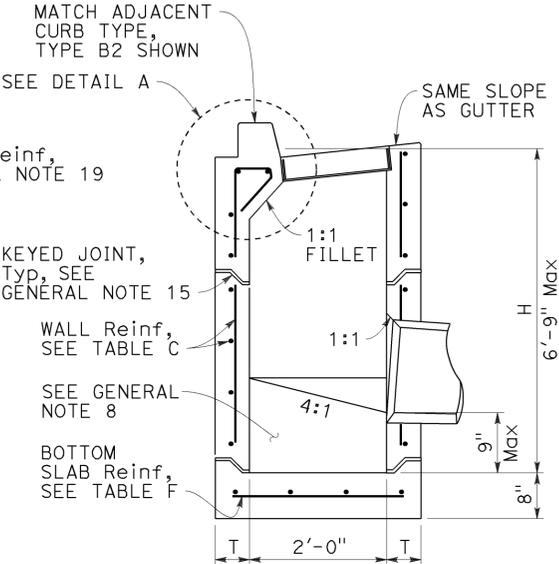
**SECTION A-A**



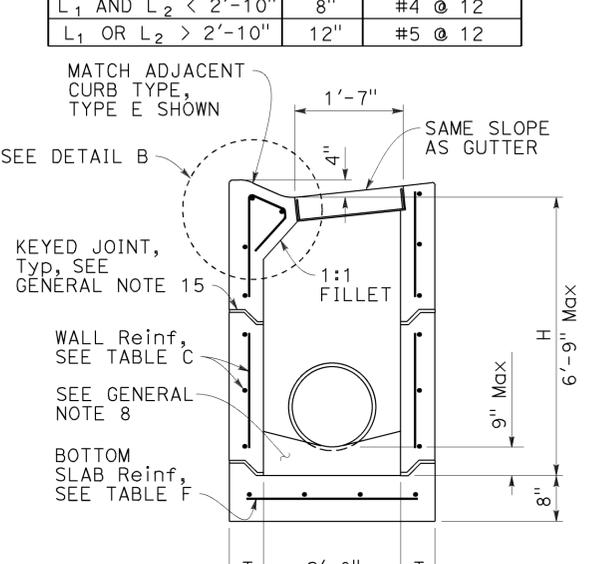
**SECTION B-B**



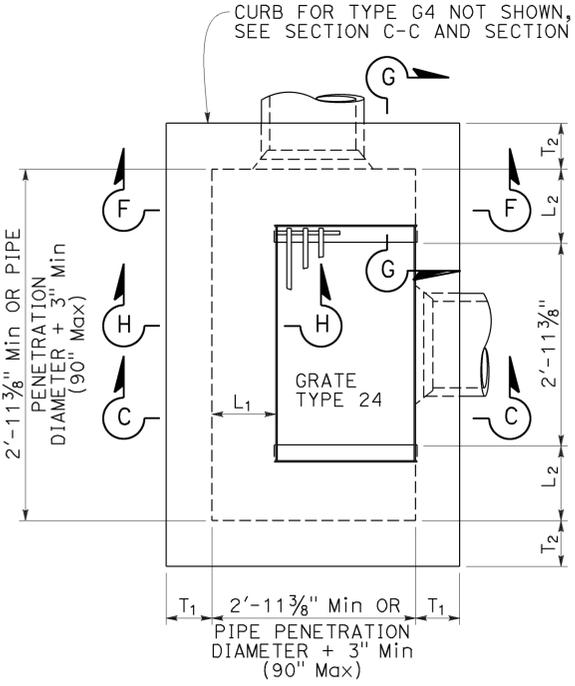
**SECTION C-C**  
 FOR "L<sub>1</sub>", "L<sub>2</sub>" AND "T<sub>1</sub>" VALUES, SEE "TABLE 1"



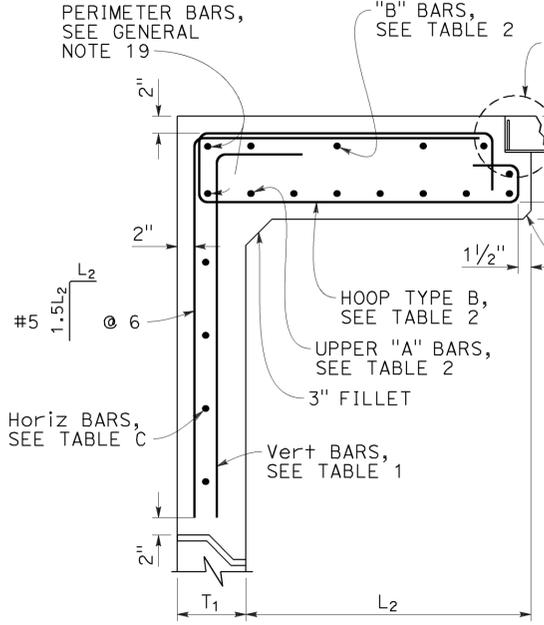
**SECTION D-D**



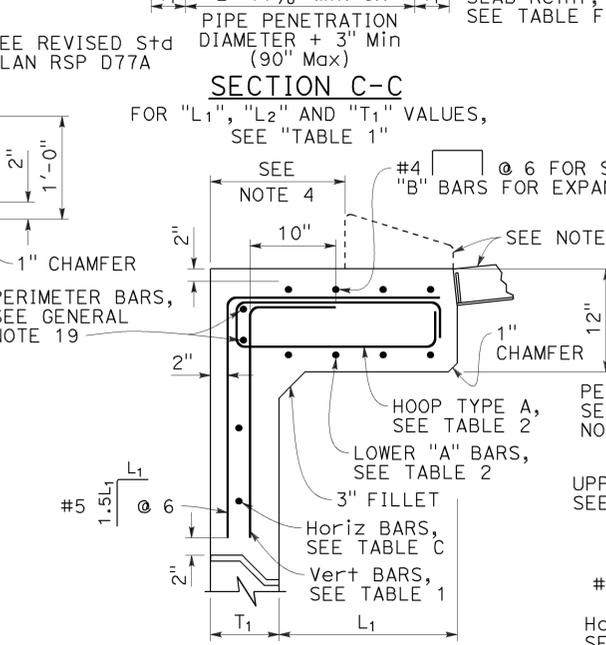
**SECTION E-E**



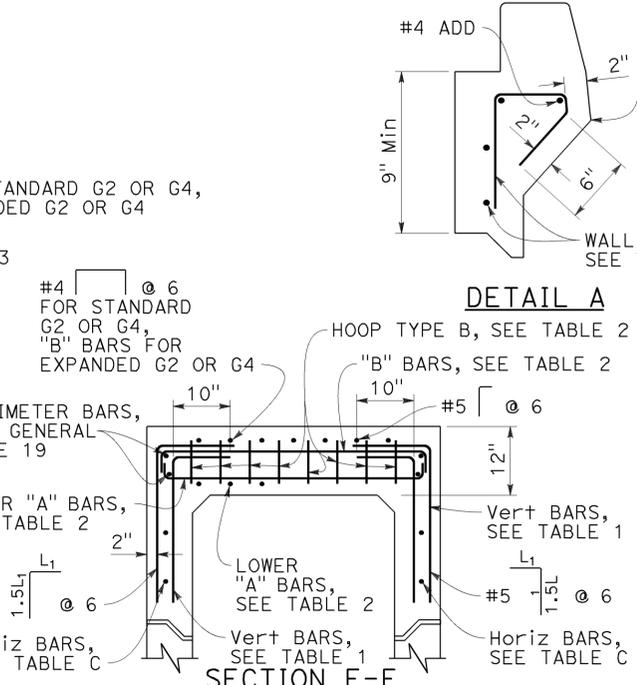
**PLAN EXPANDED TYPE G2 OR G4**  
 (INTEGRAL TOP ALTERNATIVE)  
 FOR "L<sub>1</sub>", "L<sub>2</sub>" AND "T<sub>1</sub>" VALUES, SEE "TABLE 1"



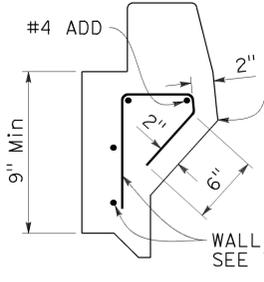
**SECTION G-G**  
 FOR "L<sub>1</sub>", "L<sub>2</sub>" AND "T<sub>1</sub>" VALUES, SEE "TABLE 1"



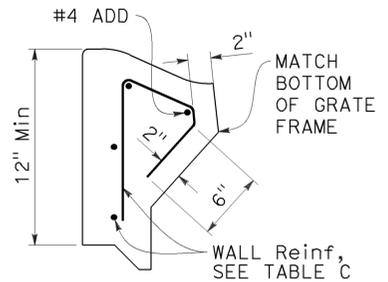
**SECTION H-H**  
 FOR "L<sub>1</sub>", "L<sub>2</sub>" AND "T<sub>1</sub>" VALUES, SEE "TABLE 1"



**SECTION F-F**  
 FOR "L<sub>1</sub>", "L<sub>2</sub>" AND "T<sub>1</sub>" VALUES, SEE "TABLE 1"



**DETAIL A**



**DETAIL B**

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION

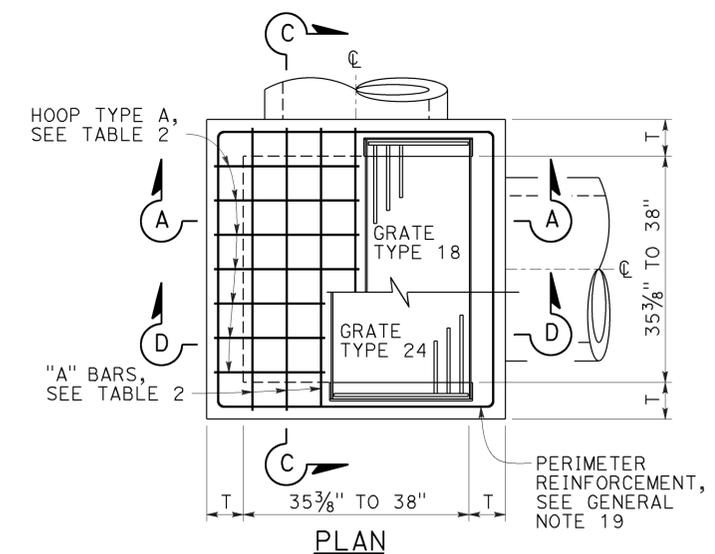
**PRECAST DRAINAGE INLETS TYPES G1, G2, G3, G4, G5 AND G6**

NO SCALE

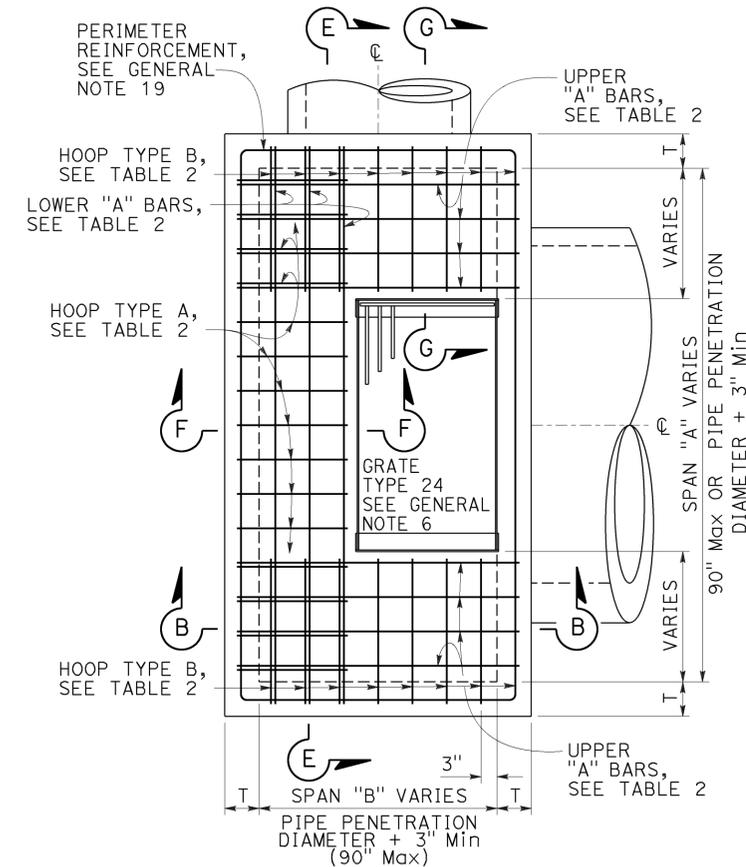
RSP D73B DATED JULY 15, 2016 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP D73B**

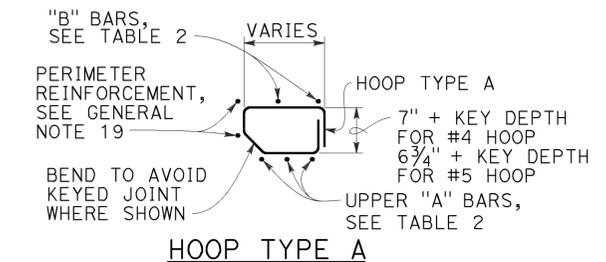
2010 REVISED STANDARD PLAN RSP D73B



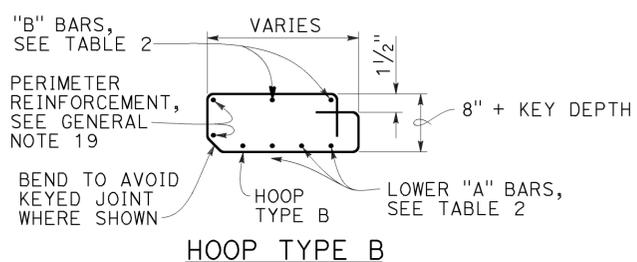
**PLAN  
STANDARD TYPE G2 OR G4**



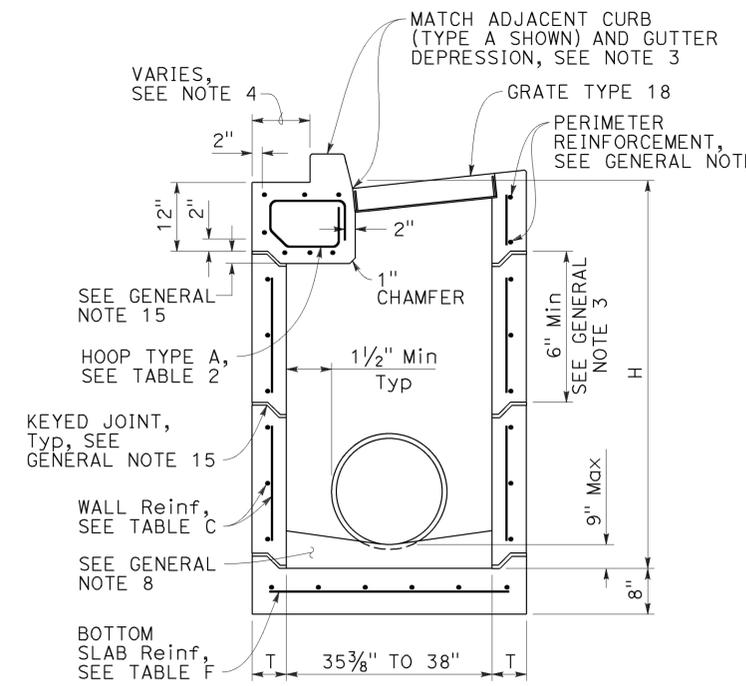
**PLAN  
EXPANDED  
TYPE G2 OR G4  
(TOP REBAR NOT SHOWN)**



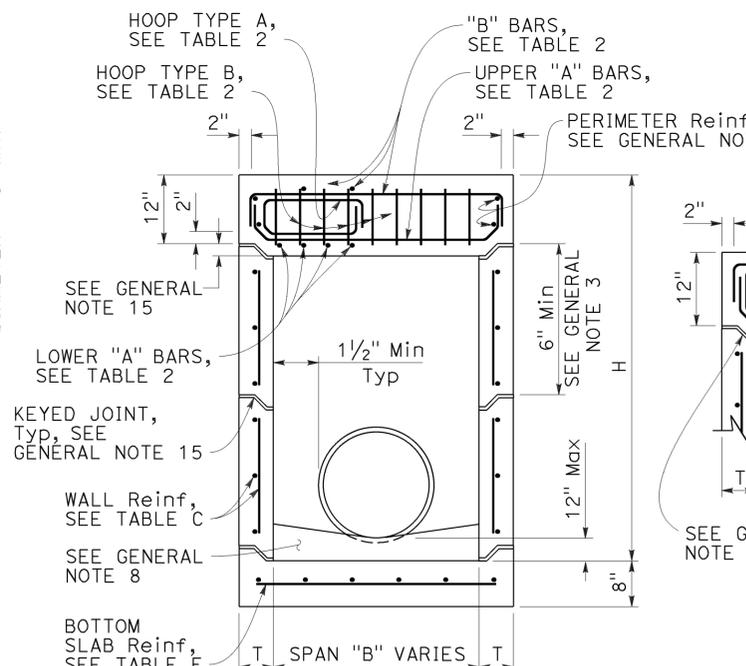
**HOOP TYPE A**



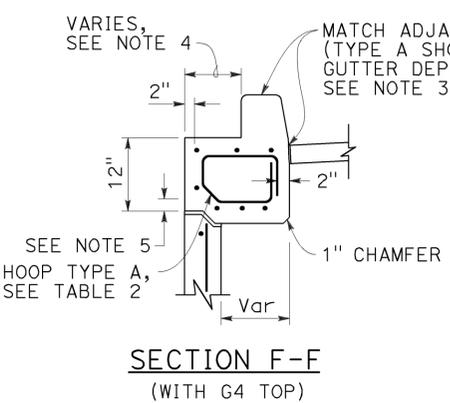
**HOOP TYPE B**



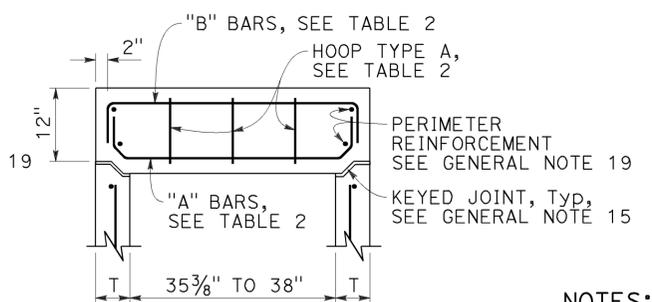
**SECTION A-A  
(WITH G4 TOP)**



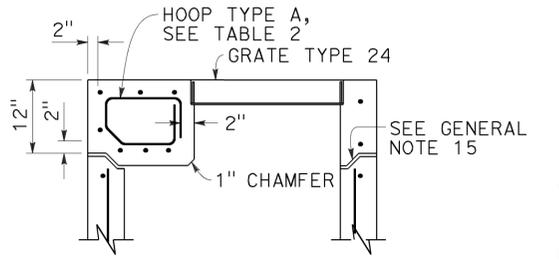
**SECTION B-B  
(WITH G2 TOP)**



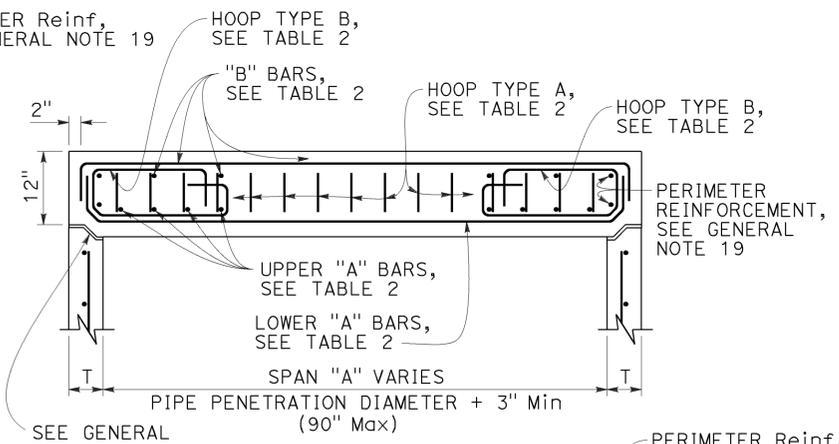
**SECTION F-F  
(WITH G4 TOP)**



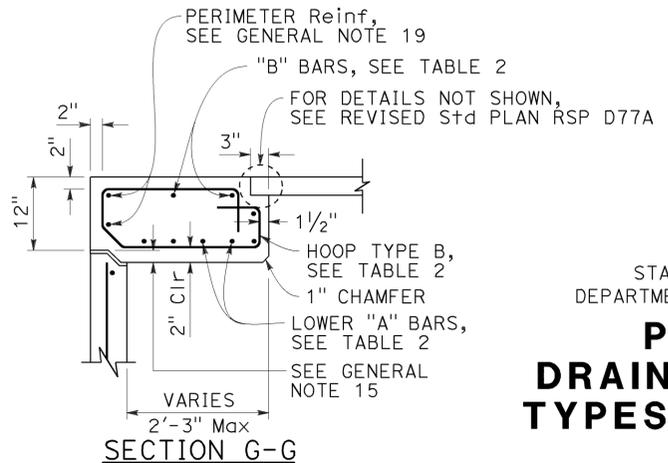
**SECTION C-C**



**SECTION D-D  
(WITH G2 TOP)**



**SECTION E-E**



**SECTION G-G**

**NOTES:**

1. See Revised Standard Plan RSP D73F for General Notes and additional details. See Revised Standard Plan RSP D73G for additional tables, wall thickness "T" and quantities.
2. Type G4 inlet can use Grate Type 18 or 24. Type G2 inlet uses Grate Type 24.
3. G4 inlet details are the same as the G2 with the addition of a curb and sloped grate that matches the adjacent curb and gutter depression.
4. Dimension will vary with different grates, curb types, box width and wall thickness.
5. 2" unless inlet is expanded in the Span "A" direction, then clearance is 2" plus the diameter of the lower "A" bar.
6. See Revised Standard Plan RSP D73B for integral top slab alternative.
7. Interior dimension of lower sections of inlet may be 3'-0" provided top section conforms to the requirements for frame and grate types on Revised Standard Plan RSP D77A. The wall thickness of top sections may transition from "T" to "T"+5/16" to meet this requirement. Minimum height of thickened wall shall = "T".

TO ACCOMPANY PLANS DATED 6-23-16

| 16 BAR DIAMETERS  | "A" & "B" BARS          |                         |
|-------------------|-------------------------|-------------------------|
|                   | W/ CURB                 | W/O CURB                |
| "A" BARS          | #4 @ 5<br>(2 BARS Min)  | #5 @ 5<br>(3 BARS Min)  |
| "B" BARS          | #4 @ 10<br>(2 BARS Min) | #4 @ 10<br>(2 BARS Min) |
| HOOPS ("A" & "B") | #4 @ 5                  | #5 @ 5                  |

ROTATE "A" AND "B" BARS SO HOOKED ENDS WILL MAINTAIN 2" CLEAR COVERAGE.

**GENERAL NOTES:**

- "H" is measured from top of bottom slab to the normal gutter grade line undeformed at the curb face.
- For "T" wall thickness and reinforcement, see Table C on Revised Standard Plan RSP D73G.
- Wall reinforcement must be placed at the center of wall thickness with horizontal bars placed on the exterior face. Bottom slab concrete cover must be 3" clear on the interior side face unless otherwise noted. Top slab concrete cover must be 2" clear on the exterior face unless otherwise noted. Short independent wall sections or height adjustment rings 6" to 24" high must have a minimum of two #4 horizontal bars. Reinforcement spacing is in inches unless otherwise noted.
- Steps - None required where "H" is less than 2'-6". Where "H" is 2'-6" or more, install steps with lowest rung 1'-0" above the floor and highest rung not more than 6" below bottom of lid. The distance between steps must not exceed 1'-0" and be uniform throughout the length of the wall. Place steps in the wall without an opening. Steps inserts may be substituted for the bar steps. Step inserts must comply with State Industrial Safety Requirements. See Revised Standard Plan RSP D74 for step details.
- Pipe(s) can be placed in any wall. Adjacent to each side of the opening, place additional reinforcement equivalent to half the interrupted main reinforcement. For larger pipes greater than or equal to 42" diameter, also add 4 diagonal bars, 1 bar each side. Bars must be the same size as the larger of the main vertical or horizontal bars. Extend bars one development length past the intersection with the adjacent diagonal bar, or where bars intersect mid thickness of adjacent wall bottom or top of non-continuous wall, bend ends as required into same plane.
- Set inlet so that grate bars are parallel to direction of principal surface flow.
- Curb section must match adjacent curb.
- Except for inlets used as junction boxes, basin floors must have wood trowel finish and a minimum slope of 4:1, unless otherwise noted, from all directions toward outlet pipe by casting grout on top of the bottom slab. Grout must be placed prior to backfill.
- See Revised Standard Plans RSP D77A and RSP D77B for grate and frame details and weights of miscellaneous iron and steel.
- See Standard Plans D78A and D78B for gutter depression details.
- See Revised Standard Plans RSP A87A and RSP A87B for curb and dike details.
- Details shown apply to metal, concrete and plastic pipe(s).
- The Contractor may use WWR instead of bar reinforcement. The ratio of bar reinforcement to WWR shall be based on the yield strength ratio.
- Seal precast inlets connection openings between wall and pipe with non-shrink grout or resilient connectors as specified in the Special Provisions. Precast inlets shall have mortared connections conforming to details for Type GCP Inlet shown on Revised Standard Plan RSP D75B. See Standard Specifications for mortar composition.
- Where shown, provide precast inlets with separate top sections for final grade adjustment. Provide keyed joints with butyl rubber sealant between the top section and wall, multiple wall sections, and wall and bottom slab. Joint design may vary but must be 1" to 3" in depth. For tongue type joints, tongue down orientation is not allowed. For keyed joints, keyway up, keyway down or tongue up configurations are allowed. Only one key type is allowed for each drainage inlet.
- Non-shrink grout can be used for upper most joint to facilitate final top grade adjustment.
- Provide a level and firm sand bedding on which to place precast inlets. Extend sand bedding under all structure backfill.
- For Integral Base, see Detail "A".
- Perimeter reinforcement must not be smaller than main bars and #4 and serves as a rigid frame to position and attach the required structural reinforcement and may be tack welded at outer corners when using ASTM A706 weldable bars.
- Inlet extensions may be cast in place after placement of main box and placement and compaction of backfill. Concrete strength must be 3.6 ksi minimum. All slab and wall thicknesses must be per Revised Standard Plan RSP D72A. All reinforcement shall extend a minimum of 24" from precast main inlet box.

**DESIGN NOTES:**

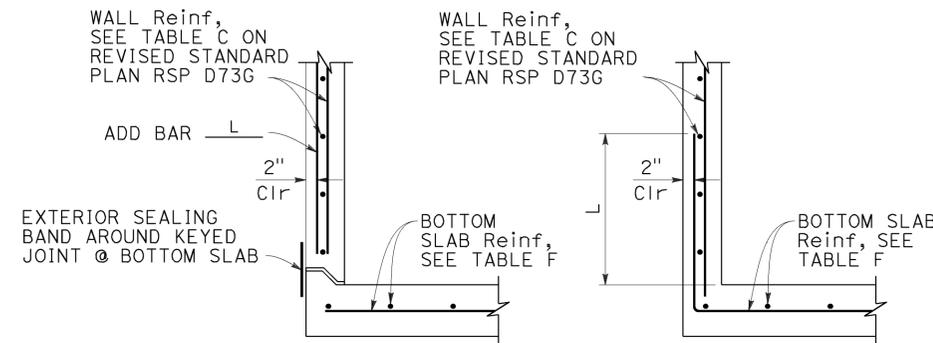
- Design Specifications: AASHTO LRFD Bridge Design Specifications, 6th edition with 2012 Interims and Errata and CA Amendments.
- Live Load (AASHTO LRFD 3.6.1.2): HL-93, consists of design truck or tandem, and design lane load. Dynamic Load Allowance, IM = 33% Multiple Presence Factor, m = 1.0 Design lane load was excluded in Top Slab design. A wheel load of 8 kips without impact factor was used for top slabs that are above a curb.
- Earth Load:  
Vertical pressure = 140 pcf  
Lateral pressure:  
= 100 pcf for walls with flat embankment  
= 140 pcf For walls with slope embankment, 1.5:1 Max
- Downdrag:  $\phi = 34^\circ$  and  $\gamma_E = 120$  pcf.
- Buoyancy:  $\gamma_w = 62.4$  pcf to finished grade.
- Reinforced Concrete:  $f'_c = 5.0$  ksi,  $f_y = 60.0$  ksi.
- Tables are based on the worst case from the level ground and sloped ground.
- Soil pressures shown are factored per AASHTO LRFD and include self-weight, live load and downdrag.

| Dist | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
|------|--------|-------|--------------------------|-----------|--------------|
| 04   | Mrn    | 1     | 8.0                      | 46        | 90           |

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 July 15, 2016  
 PLANS APPROVAL DATE  
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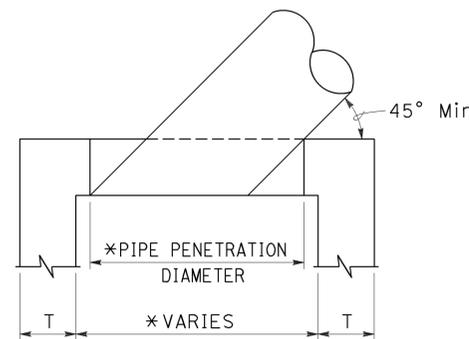
| SPAN "A" OR "B" (IN) | L (IN) |
|----------------------|--------|
| <38                  | 34     |
| 38 TO 50             | 40     |
| 51 TO 64             | 47     |
| 65 TO 76             | 53     |
| 77 TO 90             | 60     |

TO ACCOMPANY PLANS DATED 6-23-16



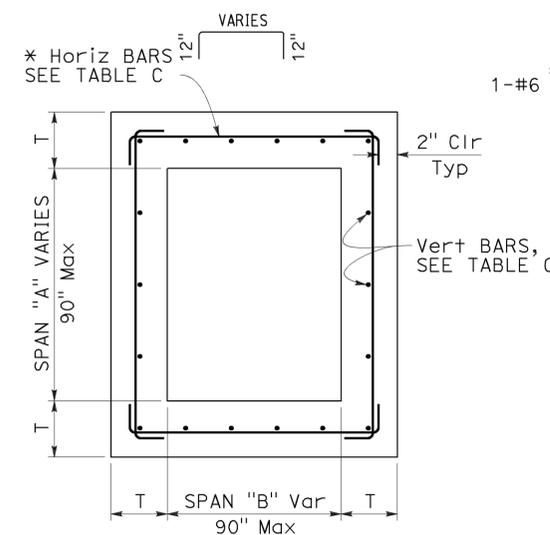
**BASE WITH KEYED JOINT**      **INTEGRAL BASE**  
**DETAIL "A"**

FOR INTEGRAL BASE, CLEARANCE BETWEEN PIPE PENETRATION AND BASE SLAB MAY BE AS SHOWN IN CIP ALTERNATIVE STANDARD PLAN SHEET.



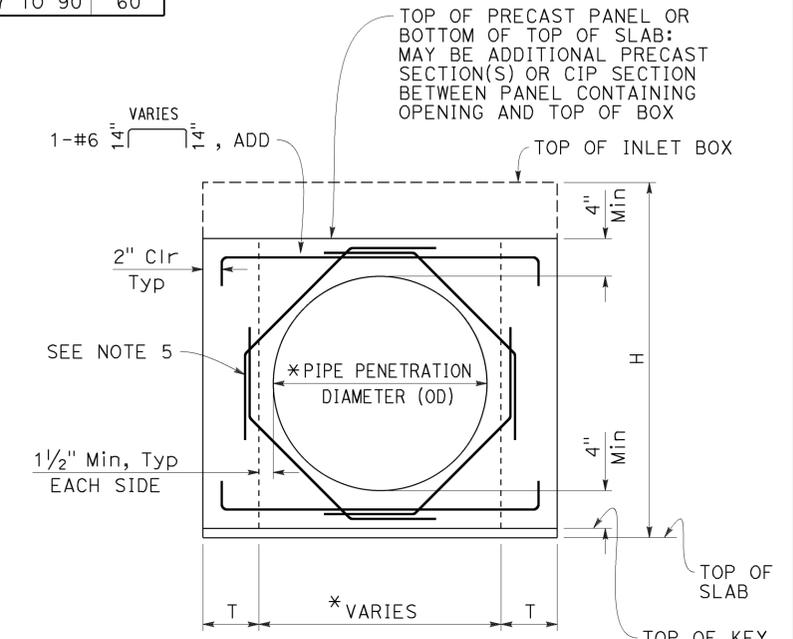
**SKewed PIPE PLAN**

\* ADJUST PIPE PENETRATION AND BOX WIDTH FOR SKEWED PIPES.

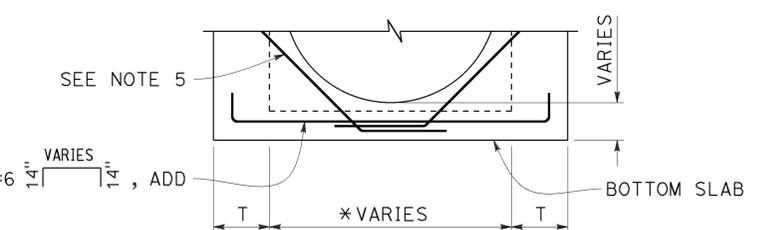


**TYPICAL INLET PLAN**

\* ALTERNATIVE HORIZONTAL BARS



**BASE WITH KEYED JOINT**



**INTEGRAL BASE**

FOR DETAILS NOT SHOWN, SEE "BASE WITH KEYED JOINT"

**TYPICAL WALL W/ PIPE OPENING**

\* SEE "SKEWED PIPE PLAN"

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION

**PRECAST DRAINAGE INLET NOTES**

NO SCALE

RSP D73F DATED JULY 15, 2016 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP D73F**

2010 REVISED STANDARD PLAN RSP D73F

|      |        |       |                          |           |              |
|------|--------|-------|--------------------------|-----------|--------------|
| Dist | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
| 04   | Mrn    | 1     | 8.0                      | 47        | 90           |

  
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TO ACCOMPANY PLANS DATED 6-23-16

| TYPE          | H=3'-0" TO 8'-0" |                                   | H=8'-1" TO 20'-0" |                                   |
|---------------|------------------|-----------------------------------|-------------------|-----------------------------------|
|               | H=3'-0" (CY)     | ADDITIONAL CONCRETE PER FOOT (CY) | H=8'-1" (CY)      | ADDITIONAL CONCRETE PER FOOT (CY) |
| G1            | 0.95             | 0.220                             | SEE NOTE 2        | SEE NOTE 2                        |
| G2*           | 1.25             | 0.255                             | 2.55              | 0.255                             |
| G3            | 1.06             | 0.220                             | SEE NOTE 2        | SEE NOTE 2                        |
| G4 (TYPE 18)* | 1.41             | 0.255                             | 2.71              | 0.255                             |
| G4 (TYPE 24)* | 1.36             | 0.255                             | 2.65              | 0.255                             |
| G5            | 1.09             | 0.220                             | SEE NOTE 2        | SEE NOTE 2                        |
| G6            | 1.14             | 0.220                             | SEE NOTE 2        | SEE NOTE 2                        |
| OS            | 1.28             | 0.278                             | 2.69              | 0.278                             |
| OL7           | 1.92             | 0.278                             | 3.33              | 0.278                             |
| OL10          | 2.43             | 0.278                             | 3.84              | 0.278                             |
| OL14          | 3.16             | 0.278                             | 4.57              | 0.278                             |
| OL21          | 4.58             | 0.278                             | 5.99              | 0.278                             |
| GOL7          | 2.36             | 0.313                             | 4.04              | 0.434                             |
| GOL10         | 2.84             | 0.313                             | 4.53              | 0.434                             |
| GT1           | 2.30             | 0.480                             | SEE NOTE 2        | SEE NOTE 2                        |
| GT2           | 2.71             | 0.530                             | 5.40              | 0.530                             |
| GT3           | 2.29             | 0.480                             | SEE NOTE 2        | SEE NOTE 2                        |
| GT4           | 2.69             | 0.530                             | 5.39              | 0.530                             |
| GO            | 1.25             | 0.245                             | 2.37              | 0.245                             |
| GDO           | 1.64             | 0.322                             | 3.37              | 0.446                             |

\* Quantities are based on the minimum interior dimensions.

| TYPE          | H=3'-0" TO 8'-0" |  | H=8'-1" TO 20'-0" |  |
|---------------|------------------|--|-------------------|--|
|               | H=3'-0" (LB)     | ADDITIONAL REINFORCEMENT PER FOOT (LB) | H=8'-1" (LB)      | ADDITIONAL REINFORCEMENT PER FOOT (LB) |
| G1            | 88.5             | 21.90                                  | SEE NOTE 2        | SEE NOTE 2                             |
| G2*           | 151.5            | 24.54                                  | 277.4             | 38.64                                  |
| G3            | 92.9             | 21.90                                  | SEE NOTE 2        | SEE NOTE 2                             |
| G4 (TYPE 18)* | 134.4            | 24.54                                  | 260.3             | 38.64                                  |
| G4 (TYPE 24)* | 125.1            | 24.54                                  | 251.0             | 38.64                                  |
| G5            | 92.5             | 21.90                                  | SEE NOTE 2        | SEE NOTE 2                             |
| G6            | 92.5             | 21.90                                  | SEE NOTE 2        | SEE NOTE 2                             |
| OS            | 145.8            | 35.57                                  | 327.8             | 49.60                                  |
| OL7           | 328.0            | 35.57                                  | 510.0             | 49.60                                  |
| OL10          | 467.5            | 35.57                                  | 649.5             | 49.60                                  |
| OL14          | 667.5            | 35.57                                  | 849.5             | 49.60                                  |
| OL21          | 1056.1           | 35.57                                  | 1238.1            | 49.60                                  |
| GOL7          | 474.7            | 45.17                                  | 706.8             | 74.02                                  |
| GOL10         | 604.9            | 45.17                                  | 836.9             | 74.02                                  |
| GT1           | 349.0            | 80.48                                  | SEE NOTE 2        | SEE NOTE 2                             |
| GT2           | 403.7            | 86.82                                  | 849.1             | 135.15                                 |
| GT3           | 347.0            | 80.48                                  | SEE NOTE 2        | SEE NOTE 2                             |
| GT4           | 403.7            | 86.82                                  | 849.1             | 135.15                                 |
| GO            | 99.8             | 23.75                                  | 221.7             | 37.46                                  |
| GDO           | 208.8            | 46.22                                  | 446.2             | 75.61                                  |

\* Quantities are based on the minimum interior dimensions.

| INLET        | CURB USED IN QUANTITIES |
|--------------|-------------------------|
| G1           | -                       |
| G2           | -                       |
| G3           | A1-6                    |
| G4 (Type 18) | A1-6                    |
| G4 (Type 24) | A1-6                    |
| G5           | B1-4                    |
| G6           | 1/2E                    |
| OS           | -                       |
| OL7          | -                       |
| OL10         | -                       |
| OL14         | -                       |
| OL21         | -                       |
| GOL7         | -                       |
| GOL10        | -                       |
| GT1          | D-6                     |
| GT2          | E                       |
| GT3          | A2-8                    |
| GT4          | A2-8                    |
| GO           | -                       |
| GDO          | -                       |

| TYPE                      | H ≤ 8'-0" (T=6", UON) |          |      | 8'-0" < H ≤ 20'-0" (T=8", UON) |          |      |
|---------------------------|-----------------------|----------|------|--------------------------------|----------|------|
|                           | HORIZONTAL            | VERTICAL | *ADD | HORIZONTAL                     | VERTICAL | *ADD |
| OS                        | #4@6                  | #3@8     | #3@8 | #4@4 (T=6")                    | #3@8     | #3@8 |
| OL                        | #4@6                  | #3@8     | #3@8 | #4@4 (T=6")                    | #3@8     | #3@8 |
| GOL                       | #4@5                  | #3@8     | #3@8 | #5@5                           | #3@6     | #3@6 |
| G1 (H ≤ 6'-9")            | #4@9                  | #3@8     | #3@8 | -                              | -        | -    |
| G2 & G4 (a** ≤ 38")       | #4@9                  | #3@8     | #3@8 | #4@5 (T=6")                    | #3@8     | #3@8 |
| G2 & G4 (38" < a** ≤ 50") | #4@6                  | #3@8     | #3@8 | #4@4 (T=6")                    | #3@8     | #3@8 |
| G2 & G4 (50" < a** ≤ 64") | #4@5                  | #3@8     | #3@8 | #5@5                           | #3@6     | #3@6 |
| G2 & G4 (64" < a** ≤ 76") | #5@7 (T=8")           | #3@6     | #3@6 | #5@4                           | #3@6     | #5@6 |
| G2 & G4 (76" < a** ≤ 90") | #5@5 (T=8")           | #3@6     | #3@6 | #5@3                           | #3@6     | #5@6 |
| G3 (H ≤ 6'-9")            | #4@9                  | #3@8     | #3@8 | -                              | -        | -    |
| G5 (H ≤ 6'-9")            | #4@9                  | #3@8     | #3@8 | -                              | -        | -    |
| G6 (H ≤ 6'-9")            | #4@9                  | #3@8     | #3@8 | -                              | -        | -    |
| GT1 (H ≤ 6'-9")           | #5@5 (T=8")           | #3@6     | #3@6 | -                              | -        | -    |
| GT2                       | #5@5 (T=8")           | #3@6     | #3@6 | #5@3                           | #3@6     | #5@6 |
| GT3 (H ≤ 6'-9")           | #5@5 (T=8")           | #3@6     | #3@6 | -                              | -        | -    |
| GT4                       | #5@5 (T=8")           | #3@6     | #3@6 | #5@3                           | #3@6     | #5@6 |
| GO                        | #4@9                  | #3@8     | #3@8 | #4@5 (T=6")                    | #3@8     | #3@8 |
| GDO                       | #4@5                  | #3@8     | #3@8 | #5@5                           | #3@6     | #3@6 |

\* See Detail A on Revised Standard Plan RSP D73F for additional vertical bars at the base.  
 \*\* a = Larger interior span

| SOIL PRESSURE BELOW BASE SLAB (ksf) |           |                    |
|-------------------------------------|-----------|--------------------|
| TYPE                                | H ≤ 8'-0" | 8'-0" < H ≤ 20'-0" |
| OS                                  | 2.89      | 5.68               |
| OL*                                 | 2.89      | 5.68               |
| GOL*                                | 2.36      | 4.93               |
| G1 (H ≤ 6'-9")                      | 3.51      | -                  |
| G2 & G4 (a** ≤ 38")                 | 2.96      | 5.79               |
| G2 & G4 (38" < a** ≤ 50")           | 2.21      | 4.51               |
| G2 & G4 (50" < a** ≤ 64")           | 3.19      | 4.89               |
| G2 & G4 (64" < a** ≤ 76")           | 2.50      | 4.23               |
| G2 & G4 (76" < a** ≤ 90")           | 2.04      | 3.56               |
| G3 (H ≤ 6'-9")                      | 3.51      | -                  |
| G5 (H ≤ 6'-9")                      | 3.51      | -                  |
| G6 (H ≤ 6'-9")                      | 3.51      | -                  |
| GT1 (H ≤ 6'-9")                     | 3.41      | -                  |
| GT2                                 | 3.60      | 6.42               |
| GT3 (H ≤ 6'-9")                     | 3.41      | -                  |
| GT4                                 | 3.60      | 6.42               |
| GO                                  | 3.37      | 6.46               |
| GDO                                 | 2.48      | 7.30               |

\* Main Box  
 \*\* a = Larger interior span

**NOTES:**

- No deduction or adjustment was made to the quantities of concrete and reinforcement for pipe openings, floor alternatives or curb type.
- Maximum allowable height is 6'-9".
- Quantities are approximate and for design purposes only.
- Design is based on envelope of level and sloped ground.

| BASE SLAB REINFORCEMENT (T=8", UON) |            |                    |
|-------------------------------------|------------|--------------------|
| TYPE                                | H ≤ 8'-0"  | 8'-0" < H ≤ 20'-0" |
| OS                                  | #4@8 (EW)  | #4@5 (EW)          |
| OL*                                 | #4@8 (EW)  | #4@5 (EW)          |
| GOL*                                | #4@6 (EW)  | #4@4 (EW)          |
| G1 (H ≤ 6'-9")                      | #4@10 (EW) | -                  |
| G2 & G4 (a** ≤ 38")                 | #4@10 (EW) | #4@6 (EW)          |
| G2 & G4 (38" < a** ≤ 50")           | #4@8 (EW)  | #4@5 (EW)          |
| G2 & G4 (50" < a** ≤ 64")           | #4@6 (EW)  | #4@4 (EW)          |
| G2 & G4 (64" < a** ≤ 76")           | #4@5 (EW)  | #4@3 (EW)          |
| G2 & G4 (76" < a** ≤ 90")           | #4@4 (EW)  | #5@3 (EW)          |
| G3 (H ≤ 6'-9")                      | #4@10 (EW) | -                  |
| G5 (H ≤ 6'-9")                      | #4@10 (EW) | -                  |
| G6 (H ≤ 6'-9")                      | #4@10 (EW) | -                  |
| GT1 (H ≤ 6'-9")                     | #4@4 (EW)  | -                  |
| GT2                                 | #4@4 (EW)  | #5@3 (EW)          |
| GT3 (H ≤ 6'-9")                     | #4@4 (EW)  | -                  |
| GT4                                 | #4@4 (EW)  | #5@3 (EW)          |
| GO                                  | #4@10 (EW) | #4@6 (EW)          |
| GDO                                 | #4@6 (EW)  | #4@4 (EW)          |

(EW) Each Way  
 \* Main Box  
 \*\* a = Larger interior span

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**PRECAST  
 DRAINAGE INLET TABLES**  
 NO SCALE

RSP D73G DATED JULY 15, 2016 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP D73G**

2010 REVISED STANDARD PLAN RSP D73G

|      |        |       |                             |              |                 |
|------|--------|-------|-----------------------------|--------------|-----------------|
| Dist | COUNTY | ROUTE | POST MILES<br>TOTAL PROJECT | SHEET<br>No. | TOTAL<br>SHEETS |
| 04   | Mrn    | 1     | 8.0                         | 48           | 90              |

*Carl M. Duan*  
REGISTERED CIVIL ENGINEER

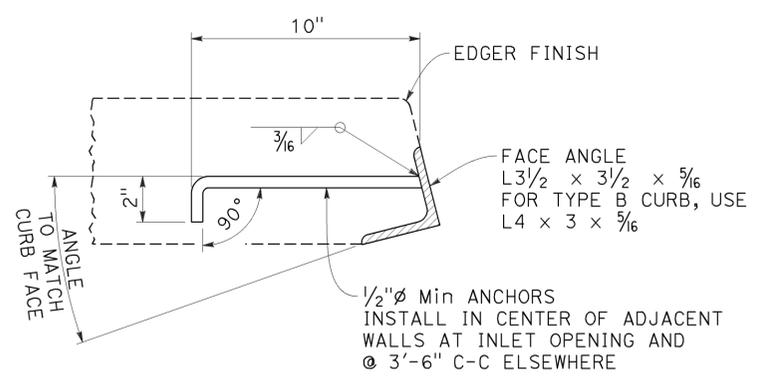
July 15, 2016  
PLANS APPROVAL DATE

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

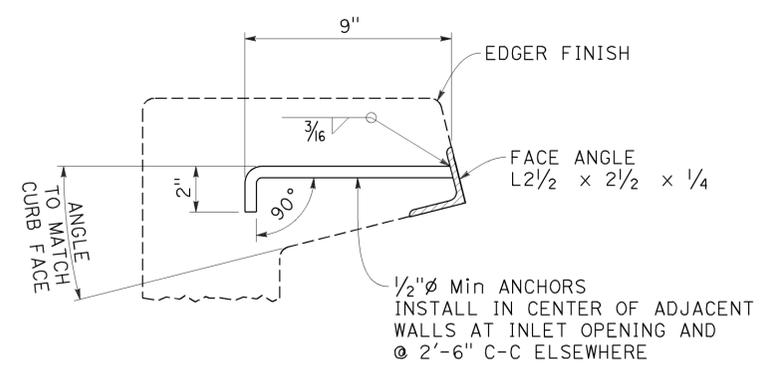
REGISTERED PROFESSIONAL ENGINEER  
Carl M. Duan  
No. C59976  
Exp. 6-30-18  
CIVIL  
STATE OF CALIFORNIA

TO ACCOMPANY PLANS DATED 6-23-16

| FACE ANGLE DETAIL "A"  |                |
|------------------------|----------------|
| LENGTH OF CURB OPENING | No. OF ANCHORS |
| 3'-6" OR LESS          | 2              |
| 7'-0"                  | 3              |
| 10'-0"                 | 4              |
| 14'-0"                 | 5              |
| 21'-0"                 | 7              |



DETAIL "A"

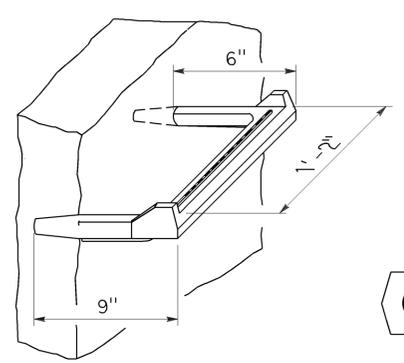


DETAIL "B"

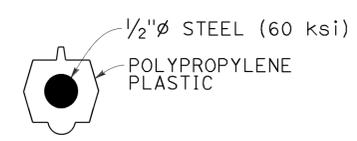
FACE ANGLE AND ANCHOR

NOTE:

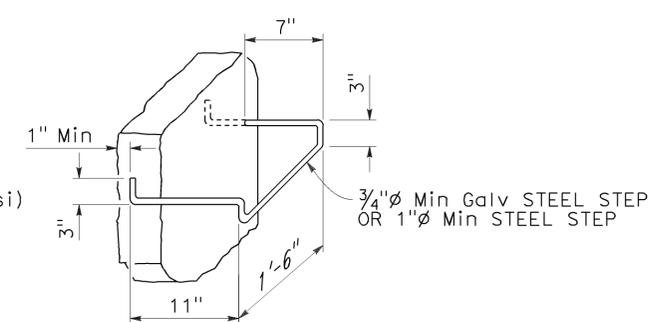
- When shown on the project plans, place a 3/4 inch diameter plain round protection bar horizontally across the length of the opening and bend back 4 inches into the inlet wall on each side.



STEP INSERT

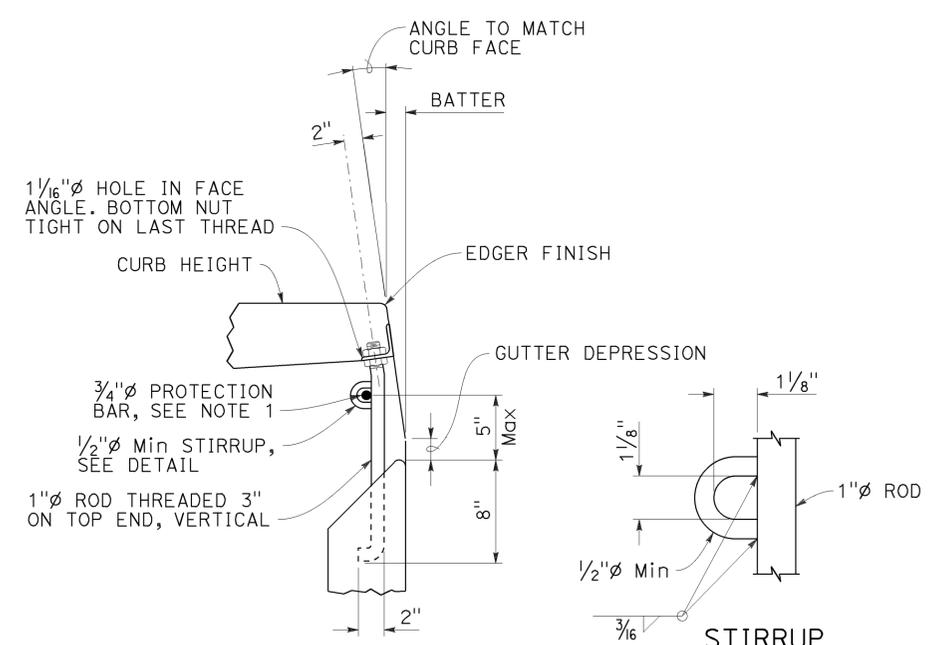


TYPICAL SECTION  
(STEP INSERT)



BAR STEP

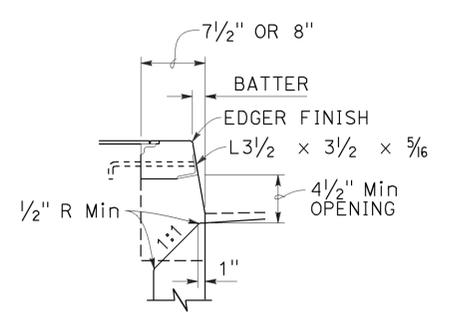
STEP DETAILS



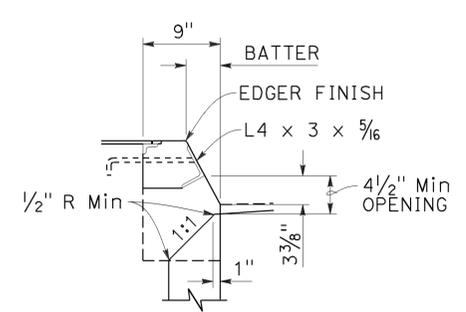
DETAIL "C"

CURB SUPPORT

CURB SUPPORTS SHALL BE EVENLY SPACED AND MINIMAL IN NUMBER SUCH THAT MAXIMUM SPAN OF UNSUPPORTED CURB IS 7'-0".



TYPE A CURBS



TYPE B CURBS

CURB OPENING DETAILS

DRAINAGE INLET DETAILS

NO SCALE

RSP D74 DATED JULY 15, 2016 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.

REVISED STANDARD PLAN RSP D74

2010 REVISED STANDARD PLAN RSP D74



*Gregory A. Balzer*  
 LICENSED LANDSCAPE ARCHITECT

July 19, 2013  
 PLANS APPROVAL DATE

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TO ACCOMPANY PLANS DATED 6-23-16

2010 REVISED STANDARD PLAN RSP H1

**A**

AB AGGREGATE BASE  
 ABS ACRYLONITRILE-BUTADIENE-STYRENE  
 AC ASPHALT CONCRETE  
 ACC ARMOR-CLAD CONDUCTORS  
 Adj ADJACENT/ADJUSTABLE  
 AIC AUXILIARY IRRIGATION CONTROLLER  
 Alt ALTERNATIVE  
 AMEND AMENDMENT  
 ARV AIR RELEASE VALVE  
 AUTO AUTOMATIC  
 AUX AUXILIARY  
 AVB ATMOSPHERIC VACUUM BREAKER

**B**

B&B BALLED AND BURLAPPED  
 B/B BRASS/BRONZE  
 B/B/PL BRASS/BRONZE/PLASTIC  
 B/PL BRASS/PLASTIC  
 BFM BONDED FIBER MATRIX  
 Bit Ctd BITUMINOUS COATED  
 BP BOOSTER PUMP  
 BPA BACKFLOW PREVENTER ASSEMBLY  
 BPE BACKFLOW PREVENTER ENCLOSURE  
 BV BALL VALVE

**C**

C CONDUIT  
 CAP CORRUGATED ALUMINUM PIPE  
 CARV COMBINATION AIR RELEASE VALVE  
 CB COUPLING BAND  
 CCA CAM COUPLER ASSEMBLY  
 CEC CONTROLLER ENCLOSURE CABINET  
 CHDPE CORRUGATED HIGH DENSITY POLYETHYLENE  
 CL CHAIN LINK  
 CNC CONTROL AND NEUTRAL CONDUCTORS  
 Conc CONCRETE  
 CP COPPER PIPE  
 CS COMPOST SOCK  
 CSP CORRUGATED STEEL PIPE  
 CST CENTER STRIP  
 CV CHECK VALVE

**D**

Dia DIAMETER  
 DIP DUCTILE IRON PIPE  
 DIT DRIP IRRIGATION TUBING  
 DG DECOMPOSED GRANITE  
 DN DIAMETER NOMINAL  
 DVA DRIP VALVE ASSEMBLY

**E**

EC EROSION CONTROL  
 ECTC EROSION CONTROL TECHNOLOGY COUNCIL  
 ElecT ELECTRIC/ELECTRICAL  
 Elev ELEVATION  
 ELL ELBOW  
 ENCL ENCLOSURE  
 EP EDGE OF PAVEMENT  
 ES EDGE OF SHOULDER  
 EST END STRIP  
 ESTB ESTABLISHMENT  
 ETW EDGE OF TRAVELED WAY

**F**

F FULL CIRCLE  
 F/P FULL/PART CIRCLE  
 FCV FLOW CONTROL VALVE  
 FERT FERTILIZER  
 FG FINISHED GRADE  
 FH FLEXIBLE HOSE  
 FIPT FEMALE IRON PIPE THREAD  
 FIS FERTILIZER INJECTOR SYSTEM  
 FL FLOW LINE  
 FR FIBER ROLL  
 FS FLOW SENSOR  
 FSC FLOW SENSOR CABLE  
 FV FLUSH VALVE

**G**

Galv GALVANIZED  
 GARV GARDEN VALVE  
 GARVA GARDEN VALVE ASSEMBLY  
 GM GRAVEL MULCH  
 GPH GALLONS PER HOUR  
 GPM GALLONS PER MINUTE  
 GSP GALVANIZED STEEL PIPE  
 GV GATE VALVE

**H**

H HALF CIRCLE  
 HDPE HIGH DENSITY POLYETHYLENE  
 HP HORSEPOWER/HINGE POINT  
 HPL HIGH PRESSURE LINE  
 Hwy HIGHWAY

**I**

IC IRRIGATION CONTROLLER  
 ICC IRRIGATION CONTROLLER(S) IN CONTROLLER ENCLOSURE CABINET  
 ID INSIDE DIAMETER  
 IFS IRRIGATION FILTRATION SYSTEM  
 IPS IRON PIPE SIZE  
 IPT IRON PIPE THREAD  
 Irr IRRIGATION

**L**

L LENGTH

**M**

Max MAXIMUM  
 MBGR METAL BEAM GUARD RAILING  
 MCV MANUAL CONTROL VALVE  
 MIC MASTER IRRIGATION CONTROLLER  
 Min MINIMUM  
 MIPT MALE IRON PIPE THREAD  
 Misc MISCELLANEOUS  
 MtI MATERIAL  
 MVP MAINTENANCE VEHICLE PULLOUT

**N**

NCN NO COMMON NAME  
 NL NOZZLE LINE  
 No. NUMBER  
 NPT NATIONAL PIPE THREAD

**O**

O/C ON CENTER  
 OD OUTSIDE DIAMETER  
 OL OVERLAP

**P**

P PART CIRCLE  
 PB PULL BOX  
 PCC PORTLAND CEMENT CONCRETE  
 PE POLYETHYLENE  
 Pkt+ PACKET  
 PL PLASTIC  
 PLS PURE LIVE SEED  
 PLT PLANT/PLANTING  
 PLT ESTB PLANT ESTABLISHMENT  
 PM POST MILE  
 PR PRESSURE RATED  
 PRLV PRESSURE RELIEF VALVE  
 PRV PRESSURE REGULATING VALVE  
 PVC POLYVINYL CHLORIDE  
 Pvm+ PAVEMENT

**Q**

Q QUARTER CIRCLE  
 QCV QUICK COUPLING VALVE

**NOTE:**  
 For additional abbreviations, see Standard Plans A10A and A10B.

**R**

R RADIUS  
 RCP REINFORCED CONCRETE PIPE  
 RCV REMOTE CONTROL VALVE  
 RCVM REMOTE CONTROL VALVE (MASTER)  
 RCVMF REMOTE CONTROL VALVE (MASTER) W/FLOW SENSOR  
 RCVP REMOTE CONTROL VALVE W/PRESSURE REGULATOR  
 RCW RECYCLED WATER  
 RECP ROLLED EROSION CONTROL PRODUCT  
 REQ REQUIRED  
 RICS REMOTE IRRIGATION CONTROL SYSTEM  
 R/W RIGHT OF WAY

**S**

S SLIP  
 SCH SCHEDULE  
 SF STATE-FURNISHED  
 Shld SHOULDER  
 Sq SQUARE  
 SST SIDE STRIP  
 Sta STATION  
 Std STANDARD  
 SW SIDEWALK/SOUND WALL

**T**

T THIRD CIRCLE/THREAD  
 TLS TRUCK LOADING STANDPIPE  
 TQ THREE QUARTER CIRCLE  
 TRM TURF REINFORCEMENT MAT  
 TT TWO-THIRDS CIRCLE  
 TWSA TREE WELL SPRINKLER ASSEMBLY  
 Typ TYPICAL

**U**

UG UNDERGROUND

**W**

W WIDTH  
 W/ WITH  
 WM WATER METER  
 WS WYE STRAINER  
 WSA WYE STRAINER ASSEMBLY  
 WSP WELDED STEEL PIPE  
 WWM WELDED WIRE MESH

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**LANDSCAPE AND EROSION CONTROL ABBREVIATIONS**  
 NO SCALE

RSP H1 DATED JULY 19, 2013 SUPERSEDES STANDARD PLAN H1 DATED MAY 20, 2011 - PAGE 218 OF THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP H1**

TO ACCOMPANY PLANS DATED 6-23-16

TABLE 1

| TAPER LENGTH CRITERIA AND CHANNELIZING DEVICE SPACING |   |              |                 |                 |  |         |          |
|---|---|--------------|-----------------|-----------------|--|---------|----------|
| SPEED<br>(S)  | MINIMUM TAPER LENGTH *<br>FOR WIDTH OF OFFSET 12 FEET (W) |              |                 |                 | MAXIMUM CHANNELIZING<br>DEVICE SPACING |         |          |
|   | TANGENT<br>2L   | MERGING<br>L | SHIFTING<br>L/2 | SHOULDER<br>L/3 | X                                      | Y       | Z **     |
|   |   |              |                 |                 | 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% |
|   |          | 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 recommended 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.

2010 REVISED STANDARD PLAN RSP T9

|      |        |       |                          |           |              |
|------|--------|-------|--------------------------|-----------|--------------|
| Dist | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
| 04   | Mrn    | 1     | 8.0                      | 52        | 90           |

Devinder Singh  
 REGISTERED CIVIL ENGINEER  
 October 30, 2015  
 PLANS APPROVAL DATE  
 No. C50470  
 Exp. 6-30-17  
 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:**

See Revised Standard Plan RSP T9 for tables.

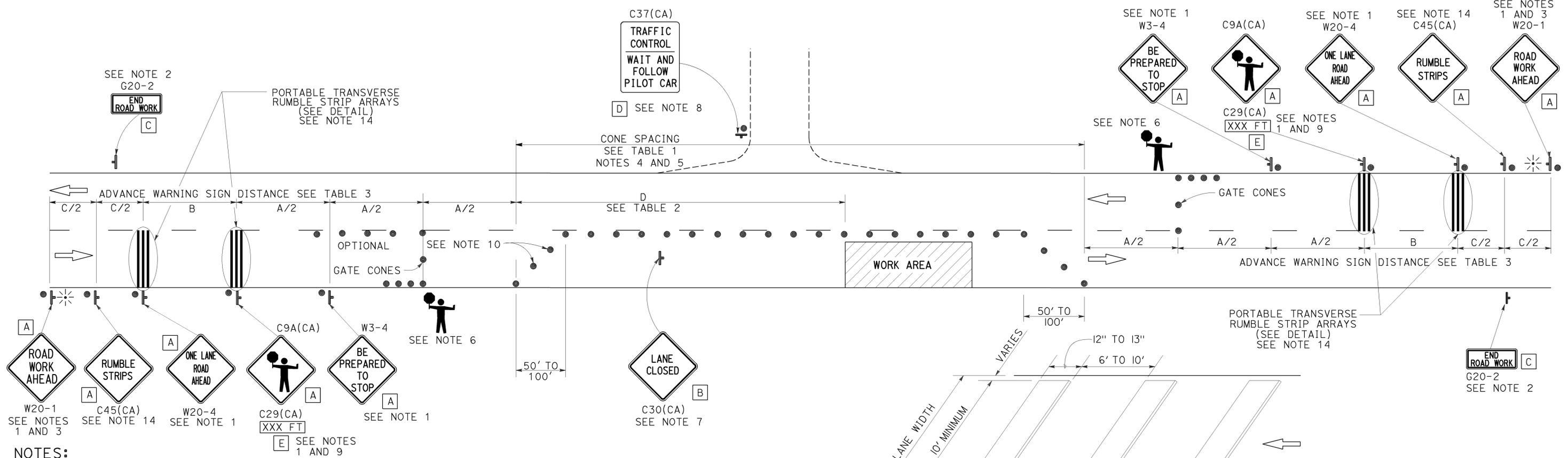
Use cone spacing X for taper segment, Y for tangent segment or Z for conflict situations, as appropriate, per Table 1, unless X, Y, or Z cone spacing is shown on this sheet.

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.

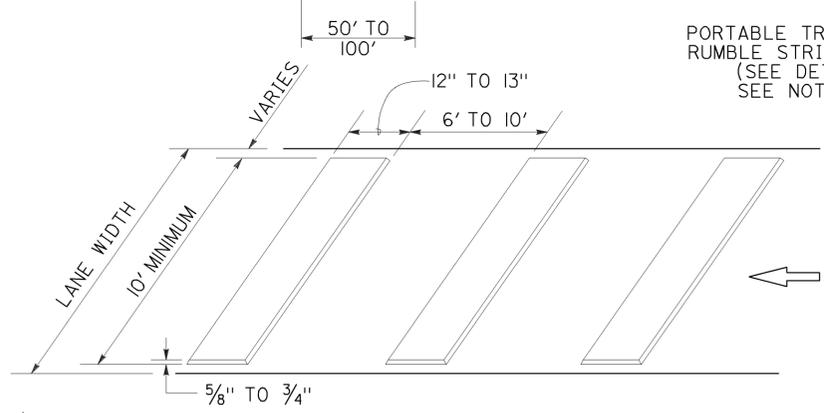
**TYPICAL LANE CLOSURE WITH REVERSIBLE CONTROL**

TO ACCOMPANY PLANS DATED 6-23-16



- NOTES:**
- Each advance warning sign in each direction of travel 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.
  - A G20-2 "END ROAD WORK" sign, as appropriate, shall be placed at the end of the lane control unless the end of work area is obvious, or ends within a larger project's limits.
  - If the W20-1 sign would follow within 2000' of a stationary W20-1 or G20-1 "ROAD WORK NEXT \_\_\_\_\_ MILES", use a W20-4 sign for the first advance warning sign.
  - All cones used for lane closures during the hours of darkness shall be fitted with retroreflective bands (or sleeves) as specified in the specifications.
  - Portable delineators, placed at one-half the spacing indicated for traffic cones, may be used instead of cones for daytime closures only.
  - Additional advance flaggers may be required. Flagger should stand in a conspicuous place, be visible to approaching traffic as well as approaching vehicles after the first vehicle has stopped. During the hours of darkness, the flagging-station and flagger shall be illuminated and clearly visible to approaching traffic. The illumination footprint of the lighting on the ground shall be at least 20' in diameter. Place a minimum of four cones at 50' intervals in advance of flagger station as shown.

- Place C30(CA) "LANE CLOSED" sign at 500' to 1000' intervals throughout extended work areas. They are optional if the work area is visible from the flagger station.
- When a pilot car is used, place a C37(CA) "TRAFFIC CONTROL-WAIT AND FOLLOW PILOT CAR" sign with black legend on white background at all intersections, driveways and alleys without a flagger within traffic control area. Signs shall be clean and visible at all times. Where traffic can not be effectively self-regulated, at least one flagger shall be used at each intersection within traffic control area.
- An optional C29(CA) sign may be placed below the C9A(CA) sign.
- Either traffic cones or barricades shall be placed on the taper. Barricades shall be Type I, II, or III.
- The color of the portable transverse rumble strips shall be black or orange. Use 2 arrays, each array shall consist of 3 rumble strips.
- Portable transverse rumble strips shall not be placed on sharp horizontal or vertical curves nor shall they be placed through pedestrian crossings.
- If the portable transverse rumble strips become out of alignment (skewed) by more than 6 inches, measured from one end to the other, they shall be readjusted to bring the placement back to the original location.
- Portable transverse rumble strips are not required if any one of the following conditions is satisfied:
  - Work duration occupies a location for four hours or less
  - Posted speed limit is below 45 MPH
  - Work is of emergency nature
  - Work zone is in snow or icy weather conditions



**PORTABLE TRANSVERSE RUMBLE STRIP ARRAY DETAIL**

**SIGN PANEL SIZE (Min)**

- A 48" x 48"
- B 30" x 30"
- C 36" x 18"
- D 36" x 42"
- E 20" x 7"

**LEGEND**

- TRAFFIC CONE
- ⊥ TEMPORARY TRAFFIC CONTROL SIGN
- ⚡ PORTABLE FLASHING BEACON
- 🚧 FLAGGER

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**TRAFFIC CONTROL SYSTEM FOR LANE CLOSURE ON TWO LANE CONVENTIONAL HIGHWAYS**

NO SCALE

RSP T13 DATED OCTOBER 30, 2015 SUPERSEDES RSP T13 DATED OCTOBER 17, 2014, RSP T13 DATED JULY 18, 2014 AND RSP T13 DATED APRIL 19, 2013 AND STANDARD PLAN T13 DATED MAY 20, 2011 - PAGE 241 OF THE STANDARD PLANS BOOK DATED 2010.

2010 REVISED STANDARD PLAN RSP T13

**LEGEND:**

|            |  |
|------------|--|
| <b>AB</b>  | ABANDON. IF APPLIED TO CONDUIT, REMOVE CONDUCTORS  |
| <b>BC</b>  | INSTALL PULL BOX IN EXISTING CONDUIT RUN   |
| <b>BP</b>  | PEDESTRIAN BARRICADE, TYPE AS INDICATED ON PLAN  |
| <b>CB</b>  | INSTALL CONDUIT INTO EXISTING PULL BOX   |
| <b>CC</b>  | CONNECT NEW AND EXISTING CONDUIT. REMOVE EXISTING CONDUCTORS AND INSTALL CONDUCTORS AS INDICATED |
| <b>CF</b>  | CONDUIT TO REMAIN FOR FUTURE USE. REMOVE CONDUCTORS. INSTALL PULL TAPE                           |
| <b>DH</b>  | DETECTOR HANDHOLE  |
| <b>FA</b>  | FOUNDATION TO BE ABANDONED   |
| <b>IS</b>  | INSTALL SIGN ON SIGNAL MAST ARM  |
| <b>NS</b>  | NO SLIP BASE ON STANDARD   |
| <b>PEC</b> | PHOTOELECTRIC CONTROL  |
| <b>PEU</b> | PHOTOELECTRIC UNIT   |
| <b>RC</b>  | EQUIPMENT OR MATERIAL TO BE REMOVED AND BECOME THE PROPERTY OF THE CONTRACTOR                    |
| <b>RE</b>  | REMOVE ELECTROLIER, FUSES AND BALLAST. TAPE ENDS OF CONDUCTORS                                   |
| <b>RL</b>  | RELOCATE EQUIPMENT   |
| <b>RR</b>  | REMOVE AND REUSE EQUIPMENT   |
| <b>RS</b>  | REMOVE AND SALVAGE EQUIPMENT   |
| <b>SC</b>  | SPLICE NEW TO EXISTING CONDUCTORS  |
| <b>SD</b>  | SERVICE DISCONNECT   |
| <b>TSP</b> | TELEPHONE SERVICE POINT  |

**ABBREVIATIONS**

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

|      |        |       |                          |           |              |
|------|--------|-------|--------------------------|-----------|--------------|
| Dist | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
| 04   | Mrn    | 1     | 8.0                      | 53        | 90           |

*Theresa Gabriel*  
REGISTERED ELECTRICAL ENGINEER

October 30, 2015  
PLANS APPROVAL DATE

Theresa  
Aziz Gabriel  
No. E15129  
Exp. 6-30-16  
ELECTRICAL

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 6-23-16

**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
- 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:**
- 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.
  - 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

|      |        |       |                          |           |              |
|------|--------|-------|--------------------------|-----------|--------------|
| Dist | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
| 04   | Mirn   | 1     | 8.0                      | 54        | 90           |

*Theresa Gabriel*  
REGISTERED ELECTRICAL ENGINEER  
October 30, 2015  
PLANS APPROVAL DATE

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

TO ACCOMPANY PLANS DATED 6-23-16

**CONDUIT**

**SIGNAL EQUIPMENT**

| NEW      | EXISTING |   |
|----------|----------|---|
| ---      | ---      | LIGHTING CONDUIT, UNLESS OTHERWISE INDICATED OR NOTED   |
| ---      | ---      | TRAFFIC SIGNAL CONDUIT                                  |
| ---C---  | ---c---  | COMMUNICATION CONDUIT                                   |
| ---T---  | ---t---  | TELEPHONE CONDUIT                                       |
| ---F---  | ---f---  | FIRE ALARM CONDUIT                                      |
| ---FO--- | ---fo--- | FIBER OPTIC CONDUIT                                     |
| ---      | ---      | CONDUIT TERMINATION                                     |
|          |          | CONDUIT RISER ATTACHED TO THE STRUCTURE OR SERVICE POLE |

| NEW | EXISTING |   |
|-----|----------|---|
|     |          | PEDESTRIAN SIGNAL HEAD  |
|     |          | PUSH BUTTON ASSEMBLY POST   |
|     |          | PEDESTRIAN BARRICADE  |
|     |          | VEHICLE SIGNAL HEAD (WITH BACKPLATE AND 3-SECTIONS: RED, YELLOW AND GREEN)  |
|     |          | VEHICLE SIGNAL HEAD WITH ANGLE VISOR  |
|     |          | MODIFICATIONS OF BASIC SYMBOL:<br>"L" INDICATES ALL NON-ARROW SECTIONS LOUVERED<br>"LG" INDICATES LOUVERED GREEN SECTION ONLY<br>"PV" INDICATES ALL 12" SECTIONS PROGRAMMED VISIBILITY<br>"8" INDICATES ALL 8" SECTIONS (ONLY WHEN SPECIFIED) |

**SIGNAL EQUIPMENT Cont**

| NEW | EXISTING |  |
|-----|----------|--|
|     |          | GUARD POST   |
|     |          | TYPE 1 STANDARD WITH RAMP METERING SIGN              |
|     |          | OPTICAL DETECTOR FOR THE EMERGENCY VEHICLE DETECTION |

**SERVICE EQUIPMENT**

| NEW      | EXISTING |   |
|----------|----------|---|
| ---OH--- | ---oh--- | OVERHEAD LINES  |
|          |          | WOOD POLE, "U" INDICATES UTILITY OWNED                              |
|          |          | POLE GUY WITH ANCHOR  |
|          |          | UTILITY TRANSFORMER - GROUND MOUNTED                                |
|          |          | SERVICE EQUIPMENT ENCLOSURE TYPE. DOOR INDICATES FRONT OF ENCLOSURE |
|          |          | TELEPHONE DEMARCATION CABINET                                       |

**POLE-MOUNTED SERVICE DESIGNATION**

|  |                         |  |
|--|-------------------------|--|
|  | TYPE H SERVICE, 28'-10" | TYPE OF INSTALLATION AND POLE HEIGHT ABOVE GRADE |
|--|-------------------------|--|

**FLASHING BEACON**

| NEW | EXISTING |  |
|-----|----------|--|
|     |          | FLASHING BEACON (ONE VEHICLE SIGNAL HEAD WITH BACKPLATE AND VISOR)<br>"R" INDICATES RED INDICATION,<br>"Y" INDICATES YELLOW INDICATION |
|     |          | FLASHING BEACON WITH TYPE 15-FBS STANDARD AND A SIGN.  |
|     |          | FLASHING BEACON WITH TYPES 9, 9A OR 9B SIGN UNLESS OTHERWISE SPECIFIED OR INDICATED  |

|  |  |   |
|--|--|---|
|  |  | VEHICLE SIGNAL HEAD CONSISTING OF RED, YELLOW AND GREEN LEFT ARROW SECTIONS   |
|  |  | VEHICLE SIGNAL HEAD CONSISTING OF RED AND YELLOW SECTIONS WITH AN UP GREEN ARROW SECTION                                |
|  |  | VEHICLE SIGNAL HEAD (5 SECTION) CONSISTING OF RED, YELLOW AND GREEN SECTIONS WITH YELLOW AND GREEN RIGHT ARROW SECTIONS |
|  |  | TYPE 15TS STANDARD WITH VEHICLE SIGNAL HEAD AND LUMINAIRE   |
|  |  | TYPE 21TS STANDARD WITH VEHICLE SIGNAL HEAD AND LUMINAIRE   |
|  |  | STANDARD WITH LUMINAIRE AND SIGNAL MAST ARMS AND ATTACHED VEHICLE SIGNAL HEADS  |
|  |  | TYPE 1 STANDARD WITH ATTACHED VEHICLE SIGNAL HEADS  |
|  |  | STANDARD WITH A SIGNAL MAST ARM, ATTACHED VEHICLE SIGNAL HEADS AND INTERNALLY ILLUMINATED STREET NAME SIGN              |
|  |  | CONTROLLER ASSEMBLY. DOOR INDICATES FRONT OF CABINET  |

**NOTES:**

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

**ILLUMINATED OVERHEAD SIGN**

| NEW | EXISTING |  |
|-----|----------|--|
|     |          | SINGLE POST, SINGLE ILLUMINATED SIGN, BALANCED BUTTERFLY |
|     |          | SINGLE POST, DOUBLE ILLUMINATED SIGN, BALANCED BUTTERFLY |
|     |          | SINGLE POST, SINGLE ILLUMINATED SIGN, FULL CANTILEVER    |
|     |          | DOUBLE POST, SINGLE ILLUMINATED SIGN                     |
|     |          | SINGLE ILLUMINATED SIGN MOUNTED ON STRUCTURE             |
|     |          | DOUBLE POST, SINGLE ILLUMINATED SIGN WITH ELECTROLIER    |

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**ELECTRICAL SYSTEMS  
(LEGEND AND ABBREVIATIONS)**

NO SCALE

RSP ES-1B DATED OCTOBER 30, 2015 SUPERSEDES RSP ES-1B DATED JULY 19, 2013 AND STANDARD PLAN ES-1B DATED MAY 20, 2011 - PAGE 426 OF THE STANDARD PLANS BOOK DATED 2010.

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

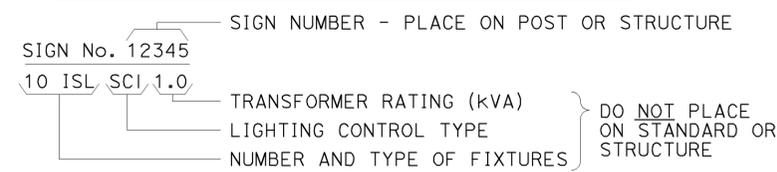
2010 REVISED STANDARD PLAN RSP ES-1B



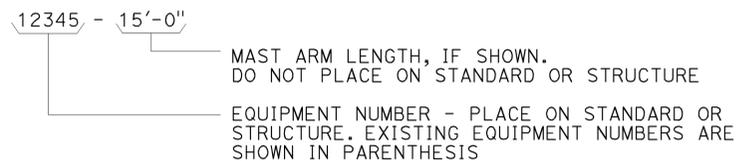
TO ACCOMPANY PLANS DATED 6-23-16

### EQUIPMENT IDENTIFICATION

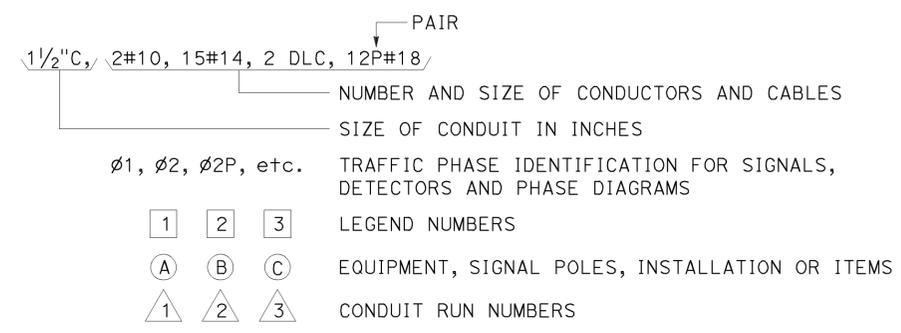
#### ILLUMINATED SIGN IDENTIFICATION NUMBER:



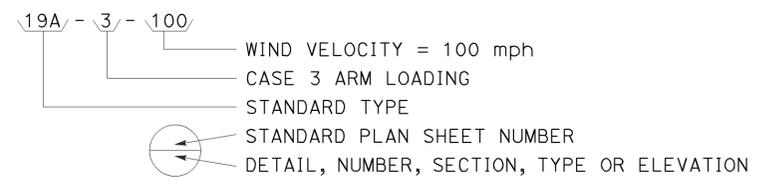
#### ELECTROLIER OR EQUIPMENT IDENTIFICATION NUMBER:



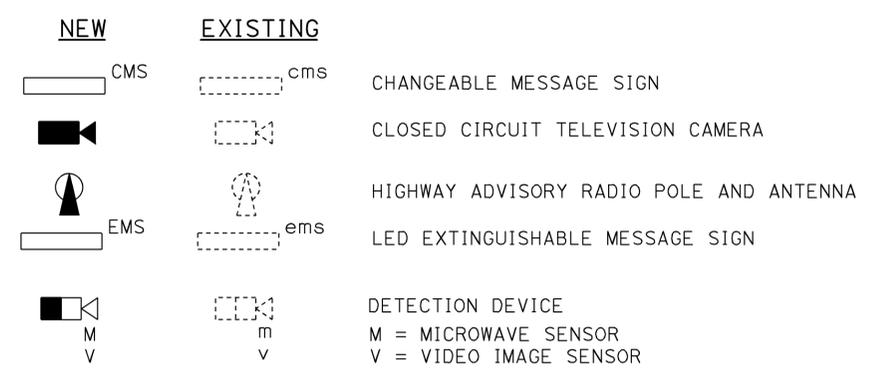
#### CONDUIT AND CONDUCTOR IDENTIFICATION:



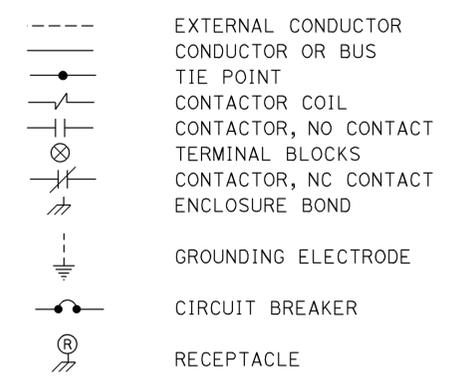
#### SIGNAL AND LIGHTING STANDARD (TYPICAL DESIGNATION):



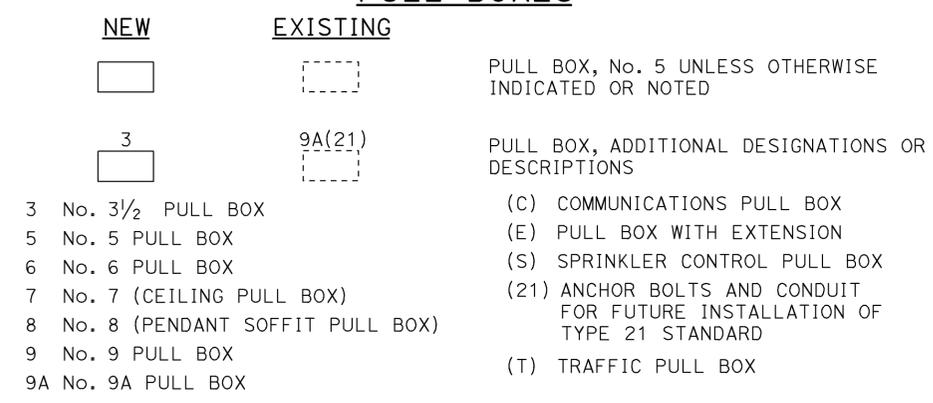
### MISCELLANEOUS EQUIPMENT



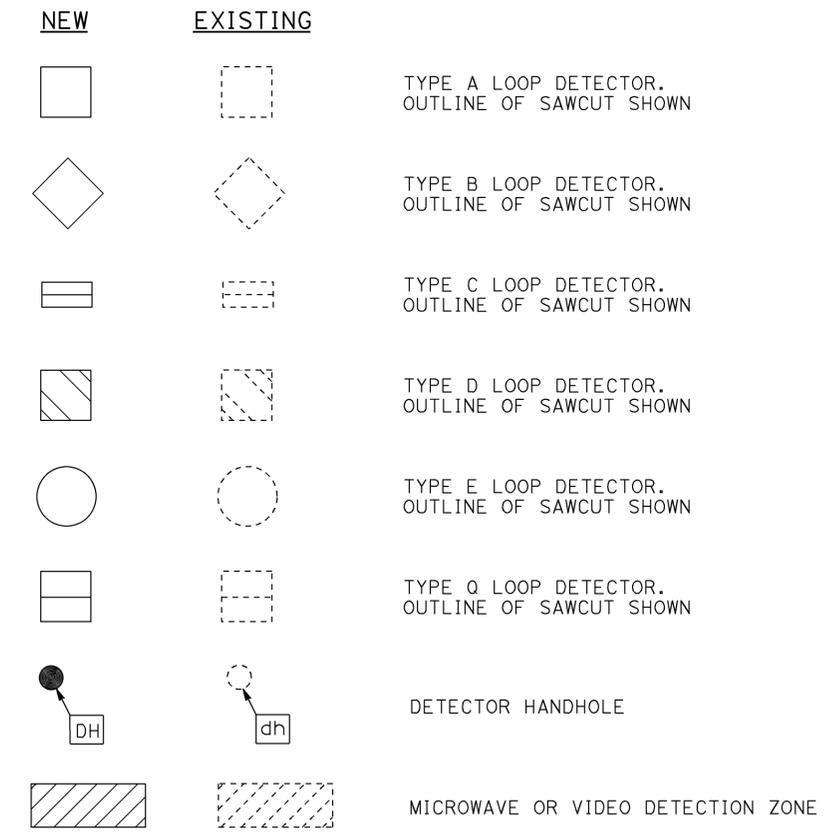
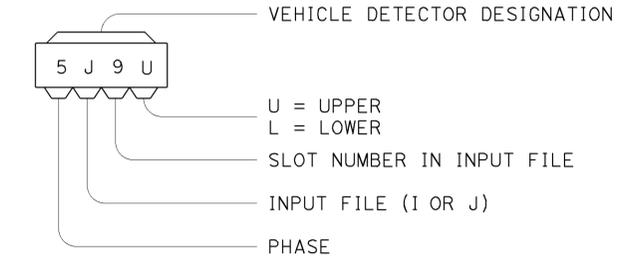
### WIRING DIAGRAM LEGEND



### PULL BOXES



### VEHICLE DETECTORS



STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

## ELECTRICAL SYSTEMS (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.

2010 REVISED STANDARD PLAN RSP ES-1C

| Dist | COUNTY | ROUTE | POST MILES<br>TOTAL PROJECT | SHEET<br>No. | TOTAL<br>SHEETS |
|------|--------|-------|-----------------------------|--------------|-----------------|
| 04   | Mrn    | 1     | 8.0                         | 56           | 90              |

*Theresa Gabriel*  
REGISTERED ELECTRICAL ENGINEER

October 30, 2015  
PLANS APPROVAL DATE



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TO ACCOMPANY PLANS DATED 6-23-16

NOTES:

1. The plan shows the approximate location of devices within the enclosure. Components may be rearranged, however, the "working" clearances within the service equipment enclosure shall be maintained.
2. In unpaved areas a raised portland cement concrete pad 2'-0" x 4" x width of foundation shall be constructed in front of new service equipment enclosure installation. Pad shall be set to elevation of foundation.
3. Plug-in circuit breakers may be mounted in the vertical or horizontal position. Cable-in/cable-out circuit breakers shall be mounted in the vertical position.
4. Type III-AF and Type III-BF service equipment enclosures shall have the meter viewing windows located on the front side of the service equipment enclosures.
5. Type III-AR and Type III-BR service equipment enclosure shall be similarly constructed as Type III-AF and Type III-BF respectively, except the meter viewing windows shall be located on the back side of the service equipment enclosures.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

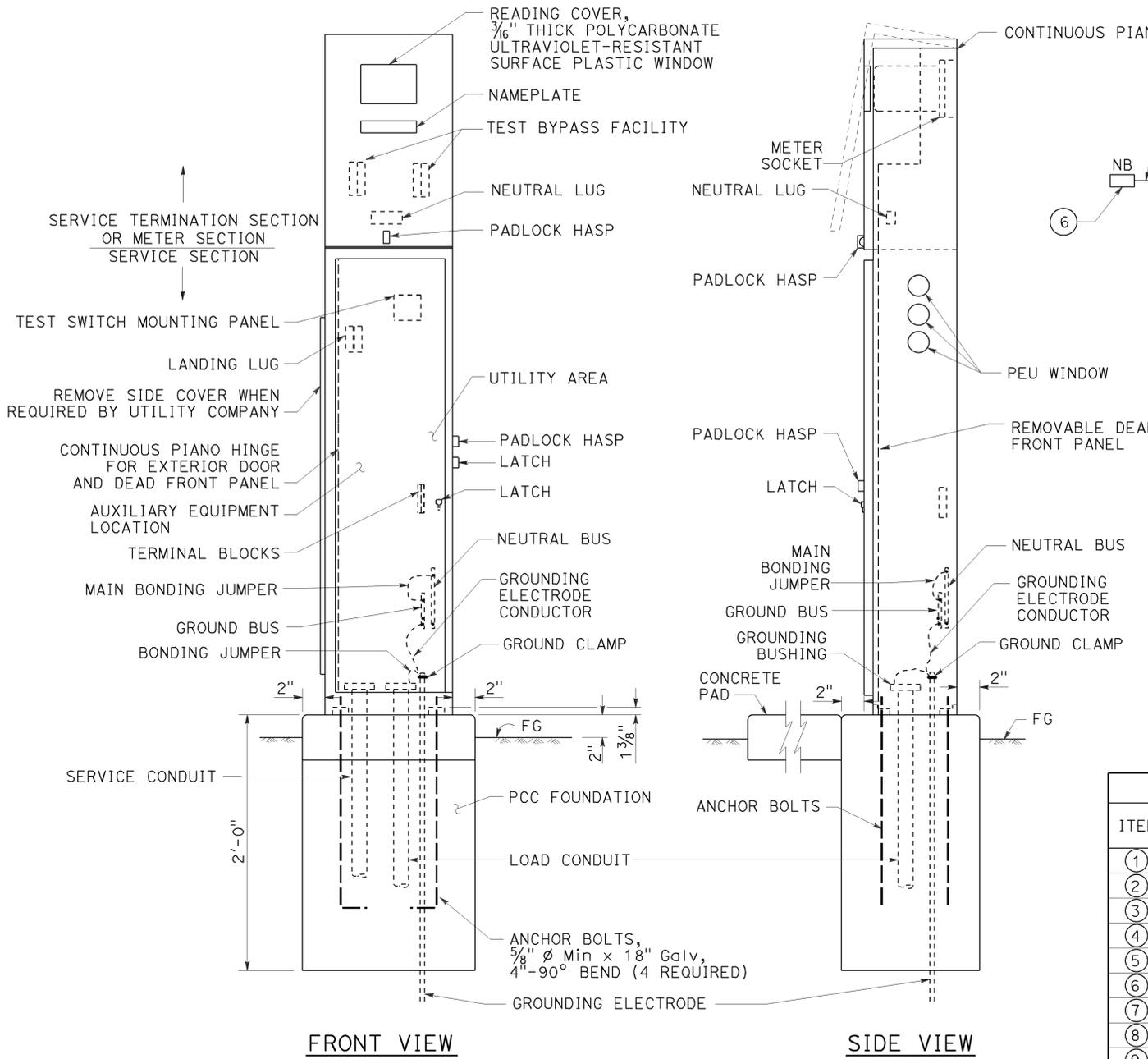
**ELECTRICAL SYSTEMS  
(SERVICE EQUIPMENT ENCLOSURE  
NOTES TYPE III SERIES)**

NO SCALE

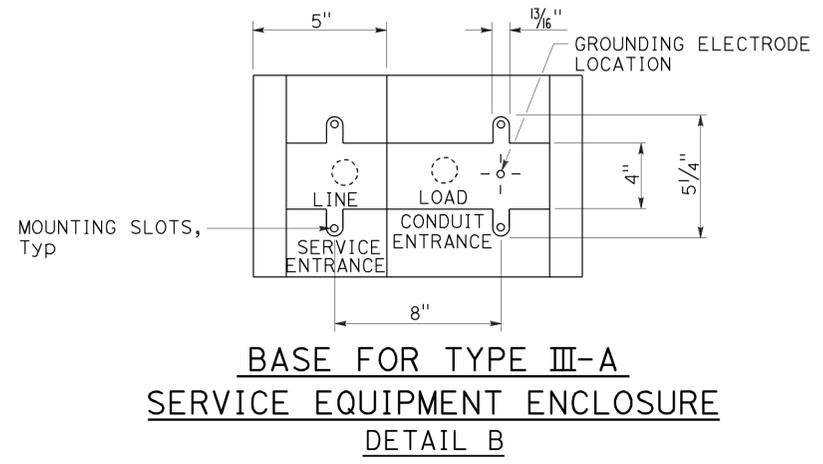
RSP ES-2C DATED OCTOBER 30, 2015 SUPERSEDES STANDARD PLAN ES-2C DATED MAY 20, 2011 - PAGE 430 OF THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP ES-2C**

2010 REVISED STANDARD PLAN RSP ES-2C

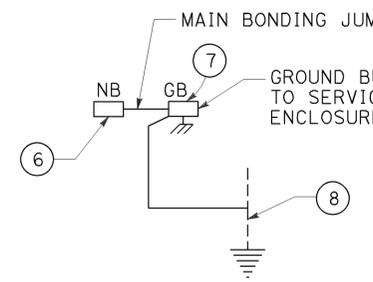


**TYPE III-AF SERVICE EQUIPMENT ENCLOSURE (TYPICAL)**  
DETAIL A

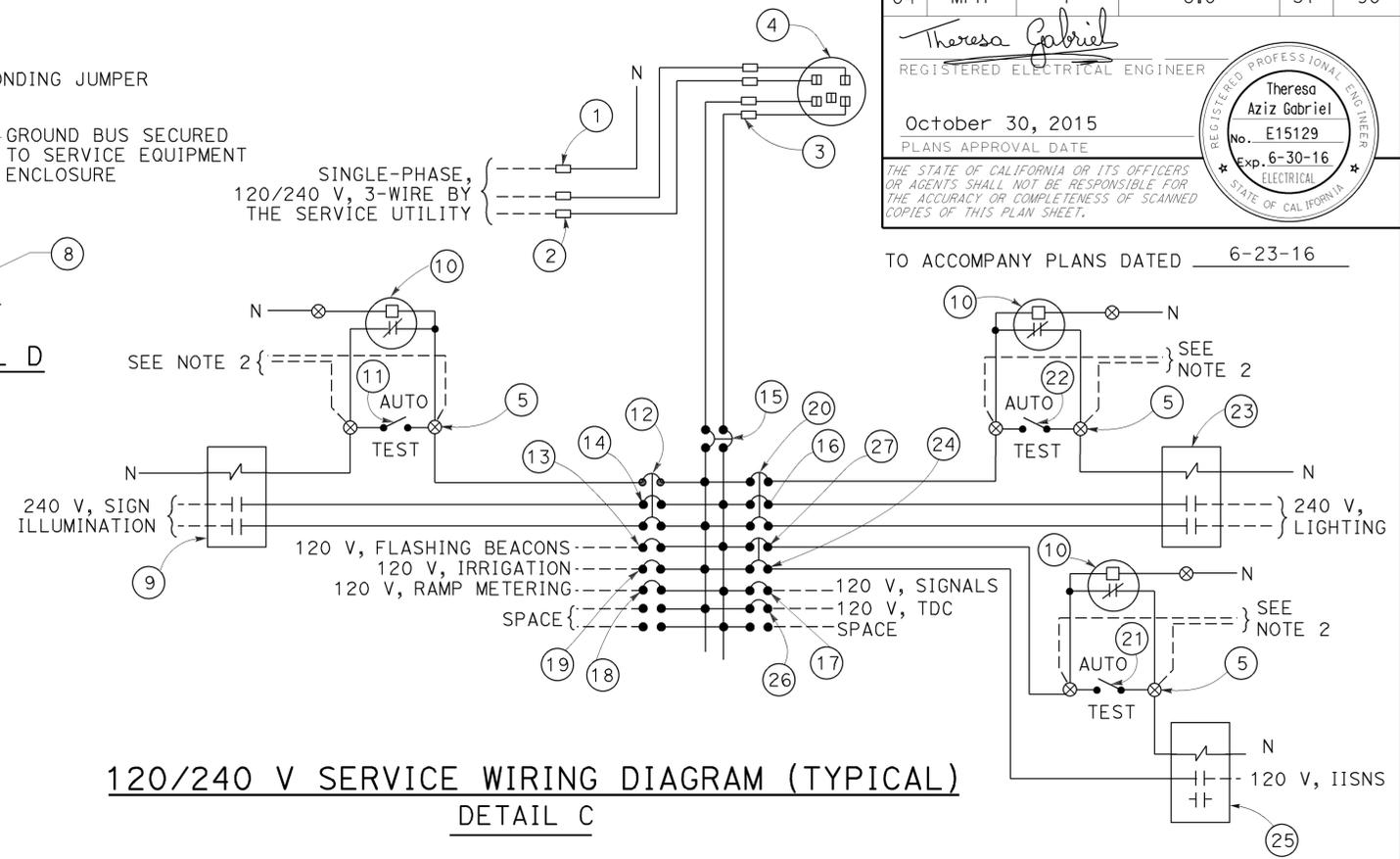


**BASE FOR TYPE III-A SERVICE EQUIPMENT ENCLOSURE**  
DETAIL B

**DETAIL D**



**120/240 V SERVICE WIRING DIAGRAM (TYPICAL)**  
DETAIL C



| TYPE III-A SERVICE EQUIPMENT ENCLOSURE LEGEND (120/240 V) |                             |                               |      |                        |                               |
|---|-----------------------------|-------------------------------|------|------------------------|-------------------------------|
| ITEM  | COMPONENT                   | NAMEPLATE DESCRIPTION         | ITEM | COMPONENT              | NAMEPLATE DESCRIPTION         |
| ①   | NEUTRAL LUG                 |                               | ⑭    | 30 A, 240 V, 2P, CB    | SIGN ILLUMINATION             |
| ②   | LANDING LUG                 |                               | ⑮    | 100 A, 240 V, 2P, CB   | MAIN BREAKER                  |
| ③   | TEST BYPASS FACILITY        |                               | ⑯    | 30 A, 240 V, 2P, CB    | LIGHTING                      |
| ④   | METER SOCKET AND SUPPORT    |                               | ⑰    | 50 A, 120 V, 1P, CB    | SIGNALS                       |
| ⑤   | TERMINAL BLOCKS             |                               | ⑱    | 30 A, 120 V, 1P, CB    | RAMP METERING                 |
| ⑥   | NEUTRAL BUS                 |                               | ⑲    | 20 A, 120 V, 1P, CB    | IRRIGATION                    |
| ⑦   | GROUND BUS                  |                               | ⑳    | 15 A, 120 V, 1P, CB    | LIGHTING CONTROL              |
| ⑧   | GROUNDING ELECTRODE         |                               | ㉑    | 15 A, 1P, TEST SWITCH  | IISNS TEST SWITCH             |
| ⑨   | 30 A, 2P, NO CONTACTOR      | SIGN ILLUMINATION             | ㉒    | 15 A, 1P, TEST SWITCH  | LIGHTING TEST SWITCH          |
| ⑩   | PHOTOELECTRIC UNIT (NOTE 4) | PEU                           | ㉓    | 60 A, 2P, NO CONTACTOR | LIGHTING                      |
| ⑪   | 15 A, 1P, TEST SWITCH       | SIGN ILLUMINATION TEST SWITCH | ㉔    | 15 A, 120 V, 1P, CB    | IISNS                         |
| ⑫   | 15 A, 120 V, 1P, CB         | SIGN ILLUMINATION CONTROL     | ㉕    | 30 A, 2P, NO CONTACTOR | IISNS                         |
| ⑬   | 15 A, 120 V, 1P, CB         | FLASHING BEACON               | ㉖    | 20 A, 120 V, 1P, CB    | TELEPHONE DEMARCATION CABINET |
|   |                             |                               | ㉗    | 15 A, 120 V, 1P, CB    | IISNS CONTROL                 |

**NOTES:**

1. Unless otherwise indicated on the plans, service equipment items shall be provided for each service equipment enclosure as shown.
2. Connect to remote test switch mounted on lighting standards, sign post or structure when required.
3. Items ① and ⑥ shall be isolated from the service equipment enclosure.
4. Type I photoelectric control shall be used unless otherwise indicated on the plans.
5. Item ⑫, ⑳ and ㉗ shall be ganged operated CB.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**ELECTRICAL SYSTEMS  
(SERVICE EQUIPMENT ENCLOSURE  
AND TYPICAL WIRING DIAGRAM,  
TYPE III-A SERIES)**

NO SCALE

RSP ES-2D DATED OCTOBER 30, 2015 SUPERSEDES STANDARD PLAN ES-2D DATED MAY 20, 2011 - PAGE 431 OF THE STANDARD PLANS BOOK DATED 2010.

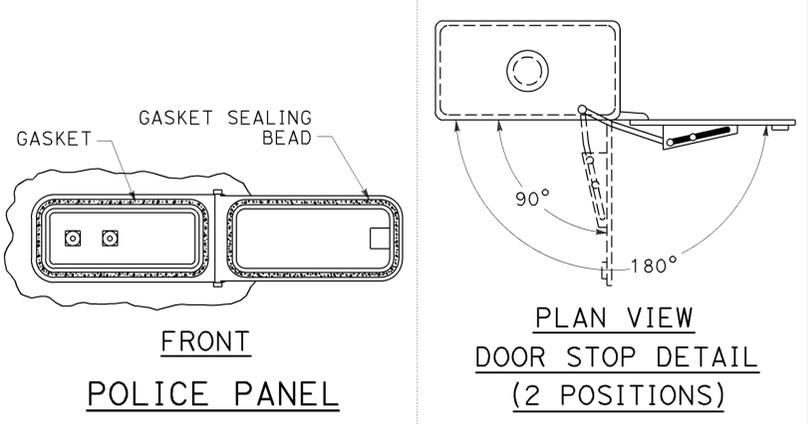
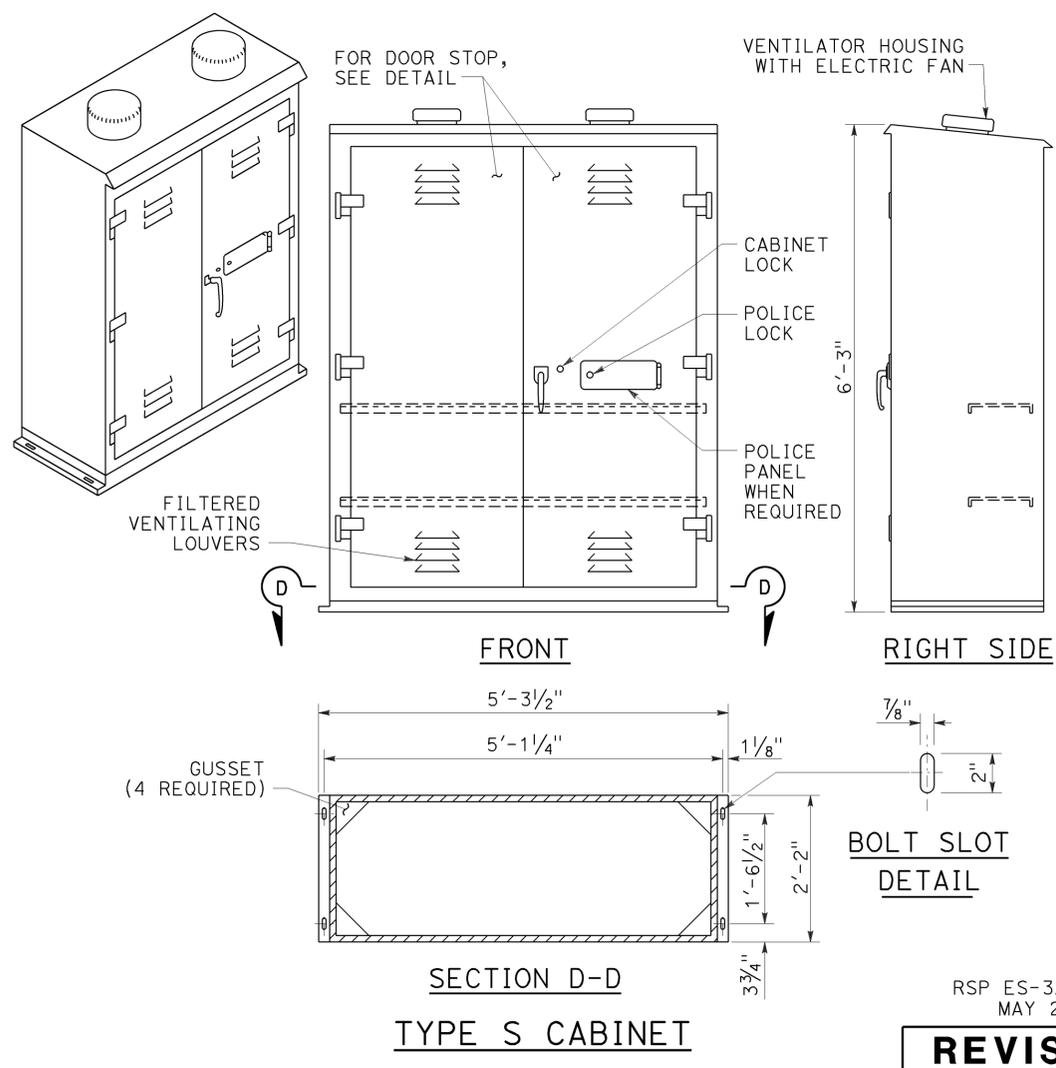
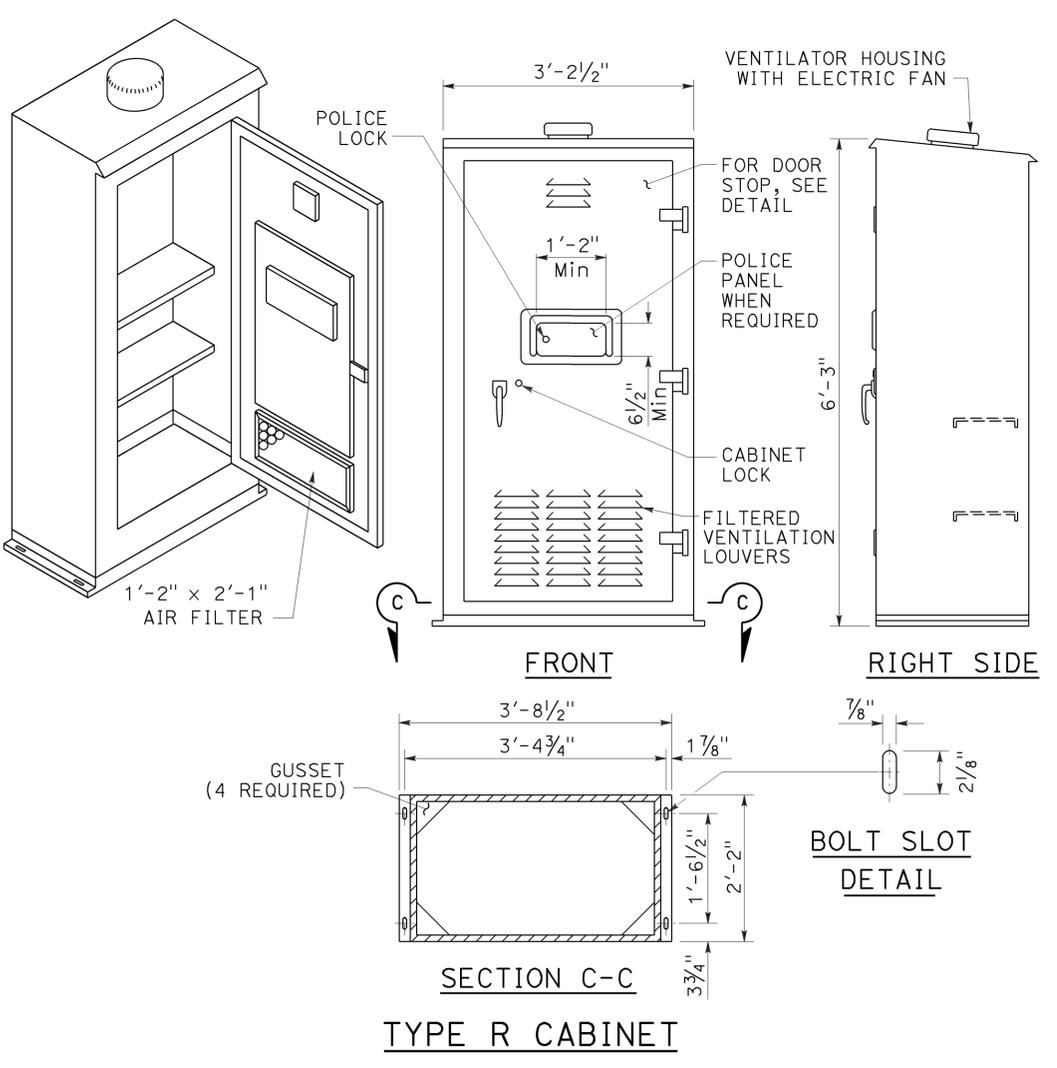
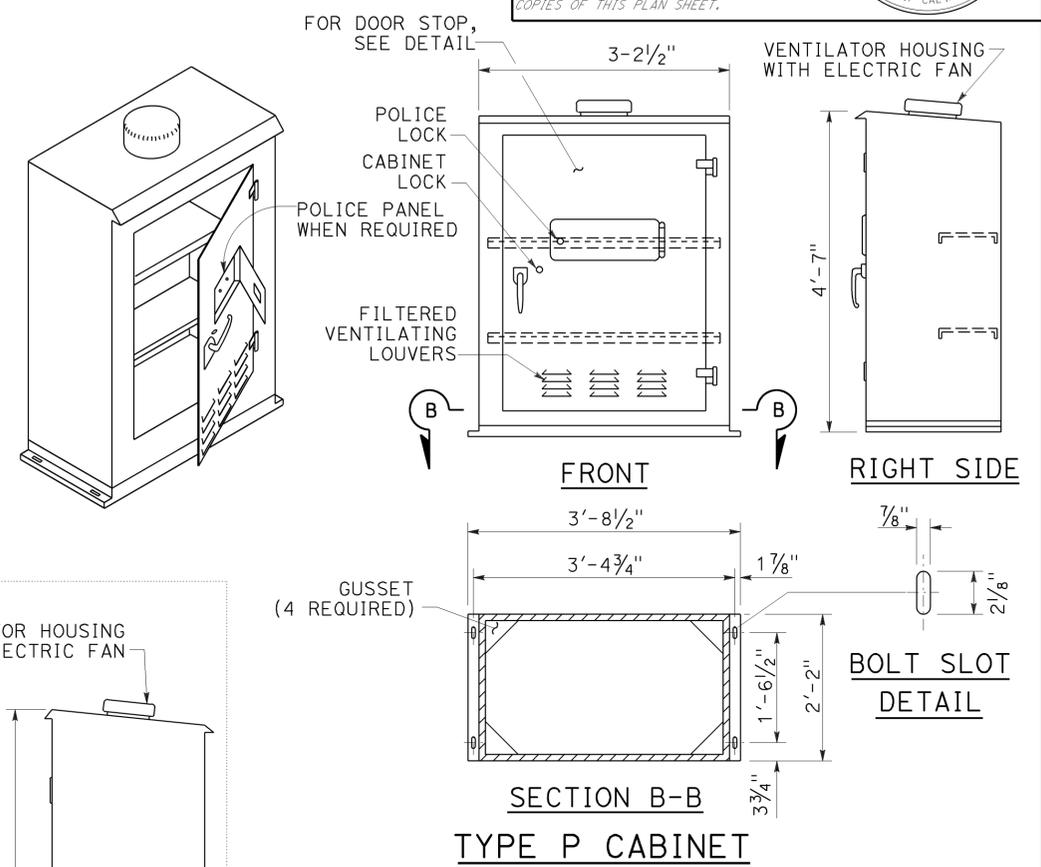
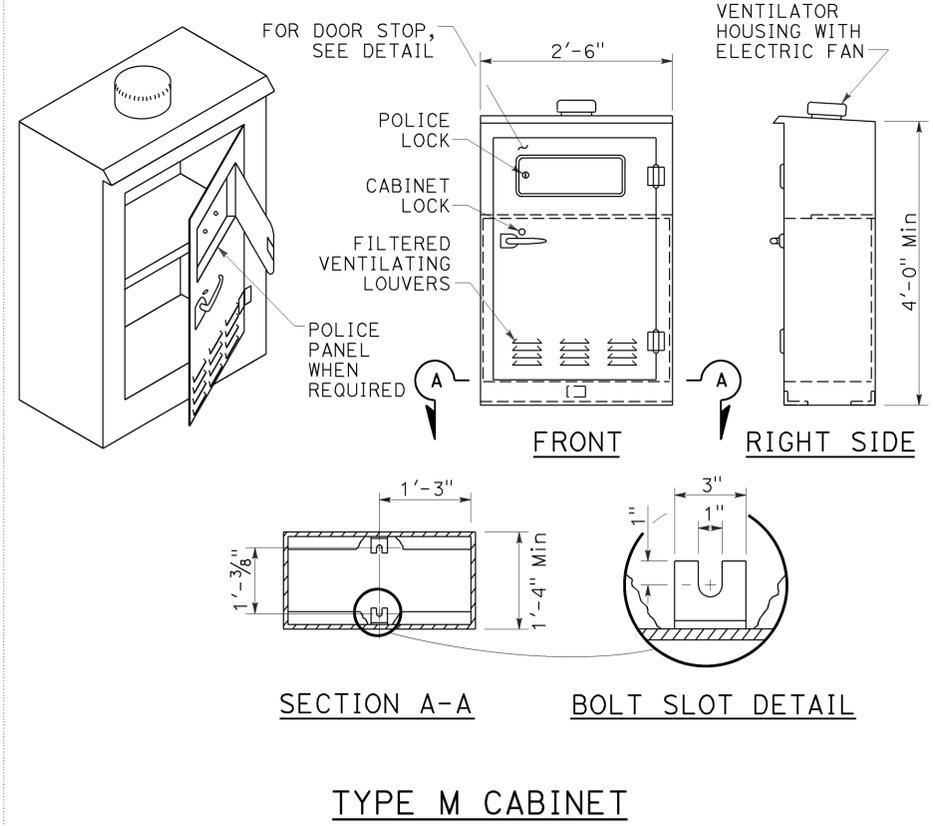
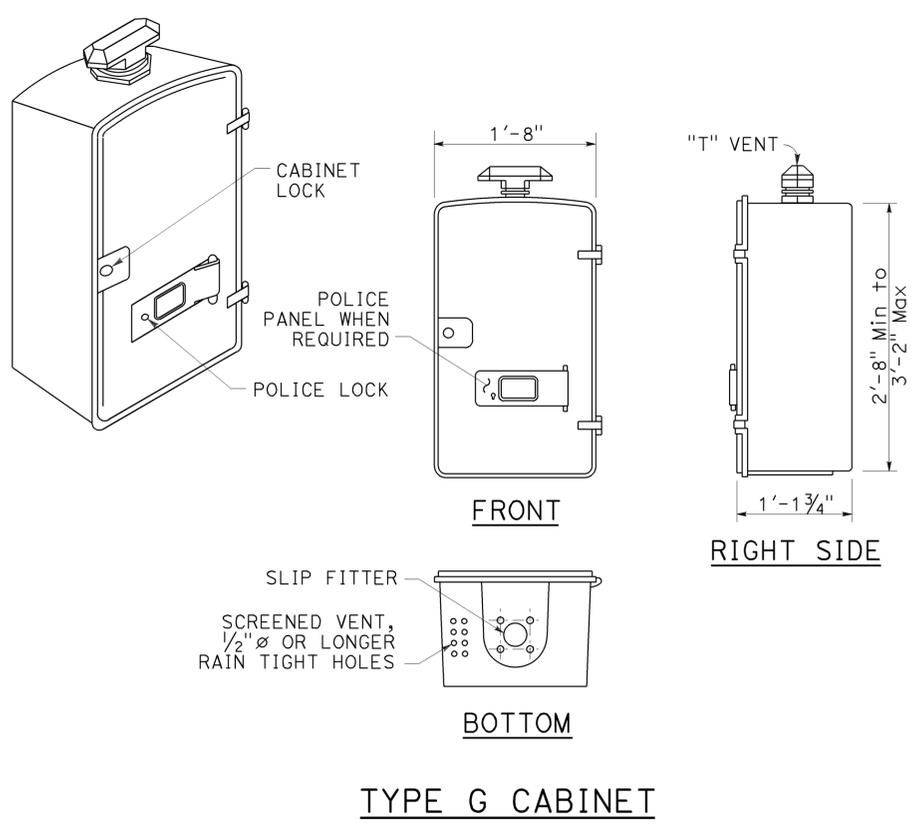
2010 REVISED STANDARD PLAN RSP ES-2D

| Dist | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
|------|--------|-------|--------------------------|-----------|--------------|
| 04   | Mirn   | 1     | 8.0                      | 58        | 90           |

Theresa Gabriel  
 REGISTERED ELECTRICAL ENGINEER  
 October 30, 2015  
 PLANS APPROVAL DATE  
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

TO ACCOMPANY PLANS DATED 6-23-16

- NOTES:**
- Cabinet dimensions are nominal.
  - Cabinet fan may be installed at an alternate location near the top of the cabinet when approved by the Engineer.



STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**ELECTRICAL SYSTEMS  
(CONTROLLER CABINET  
DETAILS)**

NO SCALE  
RSP ES-3A DATED OCTOBER 30, 2015 SUPERSEDES STANDARD PLAN ES-3A DATED MAY 20, 2011 - PAGE 435 OF THE STANDARD PLANS BOOK DATED 2010.

2010 REVISED STANDARD PLAN RSP ES-3A

**NOTES:**

1. Foundation shall be located to provide 2'-0" minimum clearance between face of curb and any portion of cabinet.
2. Controller units, plug-mounted equipment, shelf-mounted equipment and wall-mounted equipment shall be located to permit safe and easy removal or replacement without removing any other piece of equipment.
3. Cabinet fan may be installed at an alternate location near the top of the cabinet when approved by the Engineer.
4. Where telephone interconnect is required, a minimum of 5" clear vertical space shall be provided inside the cabinet for the equipment.
5. Telephone interconnect conductors shall be enclosed in a 3/4" or larger conduit through the foundation. Type 4 conduit shall be used to separate telephone and power conductors in cabinets.

|      |        |       |                          |           |              |
|------|--------|-------|--------------------------|-----------|--------------|
| Dist | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
| 04   | Mrn    | 1     | 8.0                      | 59        | 90           |

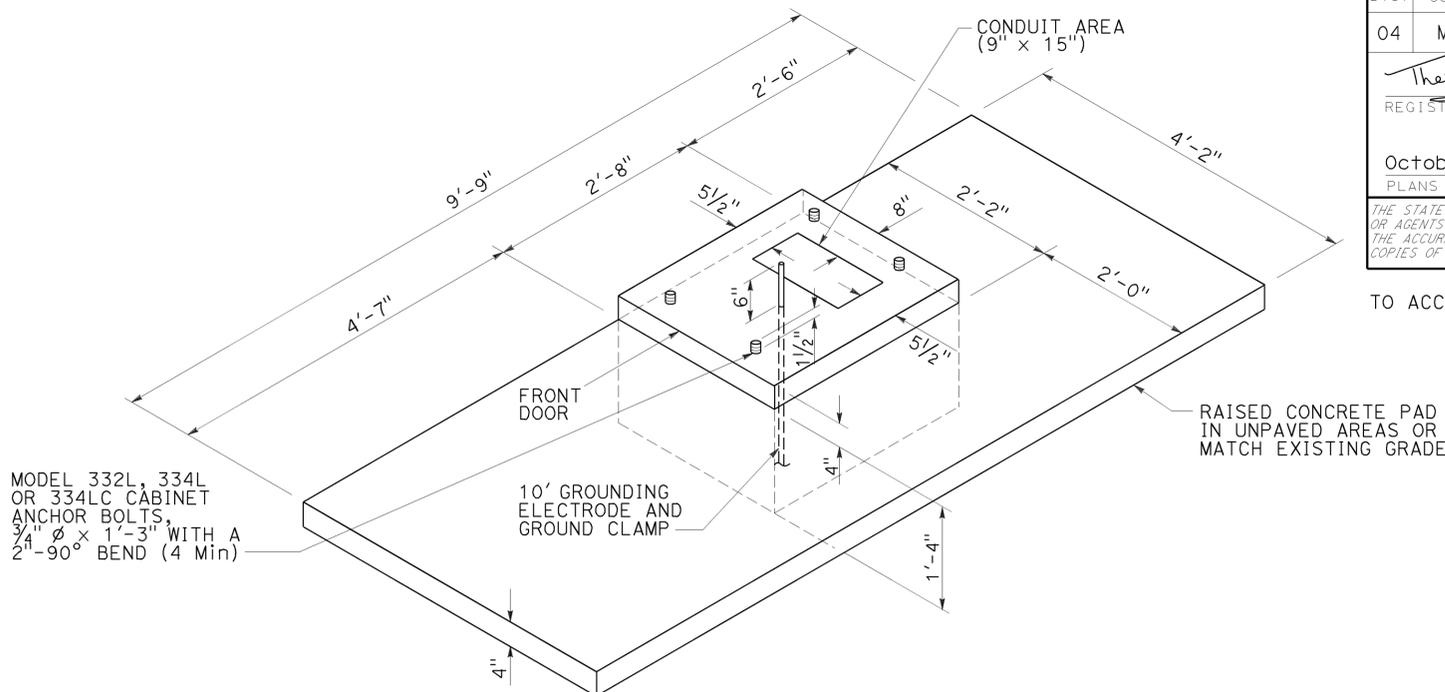
Theresa Gabriel  
REGISTERED ELECTRICAL ENGINEER

October 30, 2015  
PLANS APPROVAL DATE

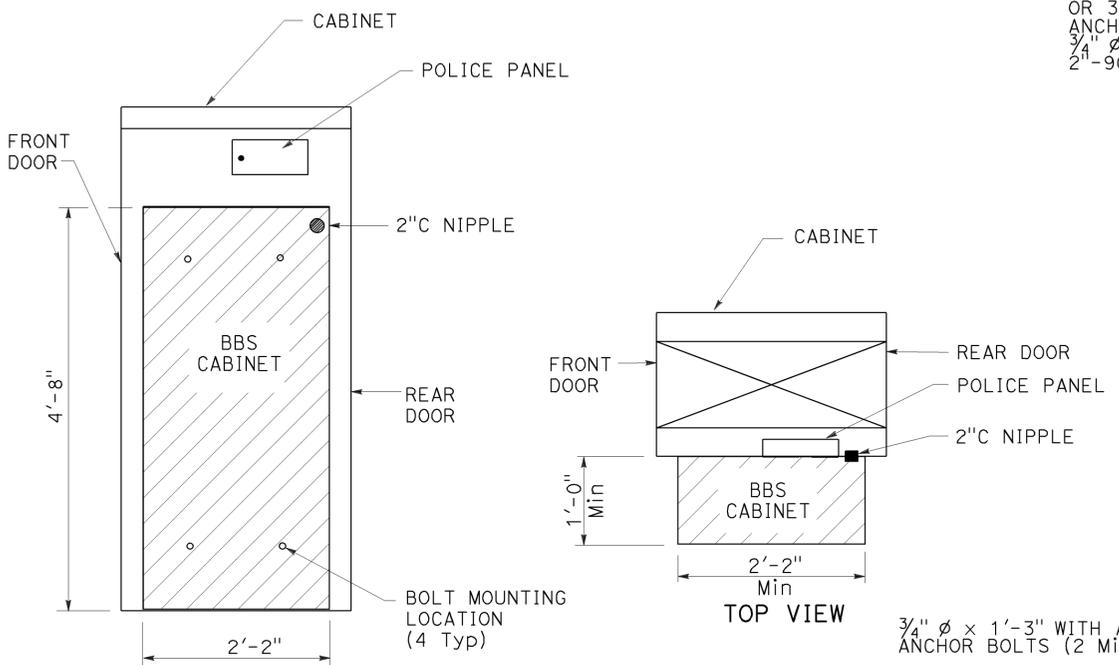
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

TO ACCOMPANY PLANS DATED 6-23-16

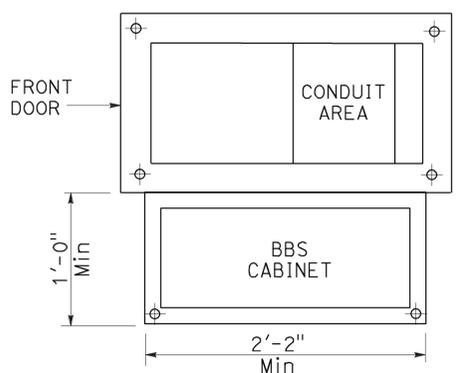
Theresa Aziz Gabriel  
REGISTERED PROFESSIONAL ENGINEER  
No. E15129  
Exp. 6-30-16  
ELECTRICAL  
STATE OF CALIFORNIA



**FOUNDATION AND PAD DETAIL**  
Model 332L, 334L and 334LC

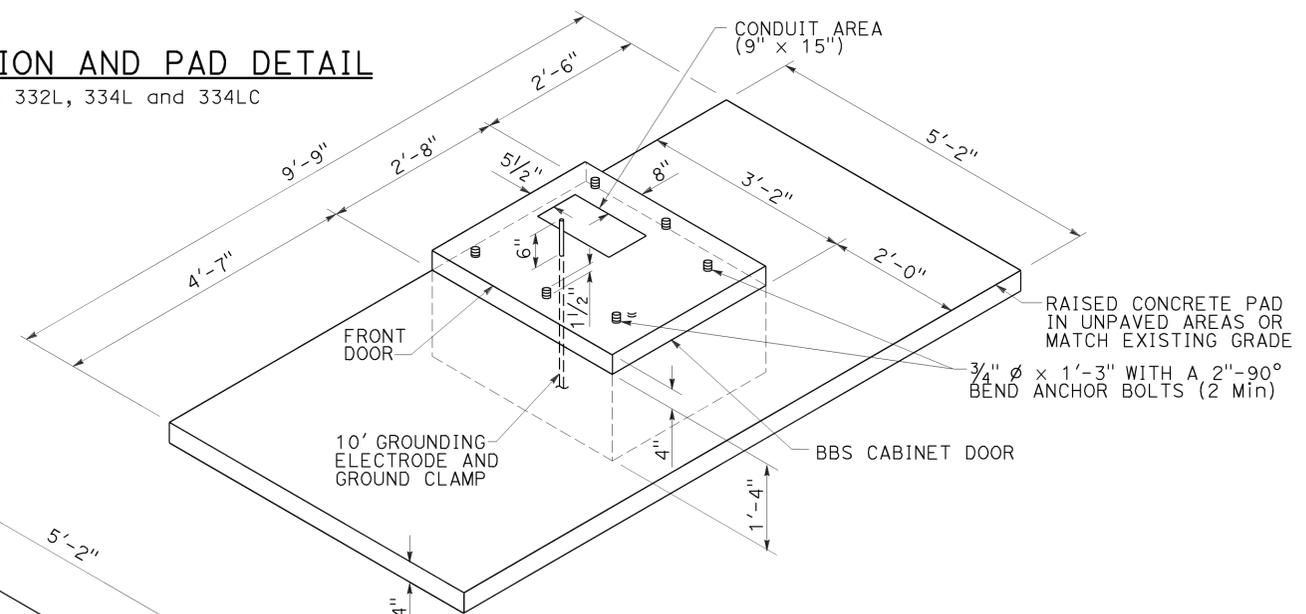


**BBS CABINET MOUNTED TO THE MODEL 332L CABINET**

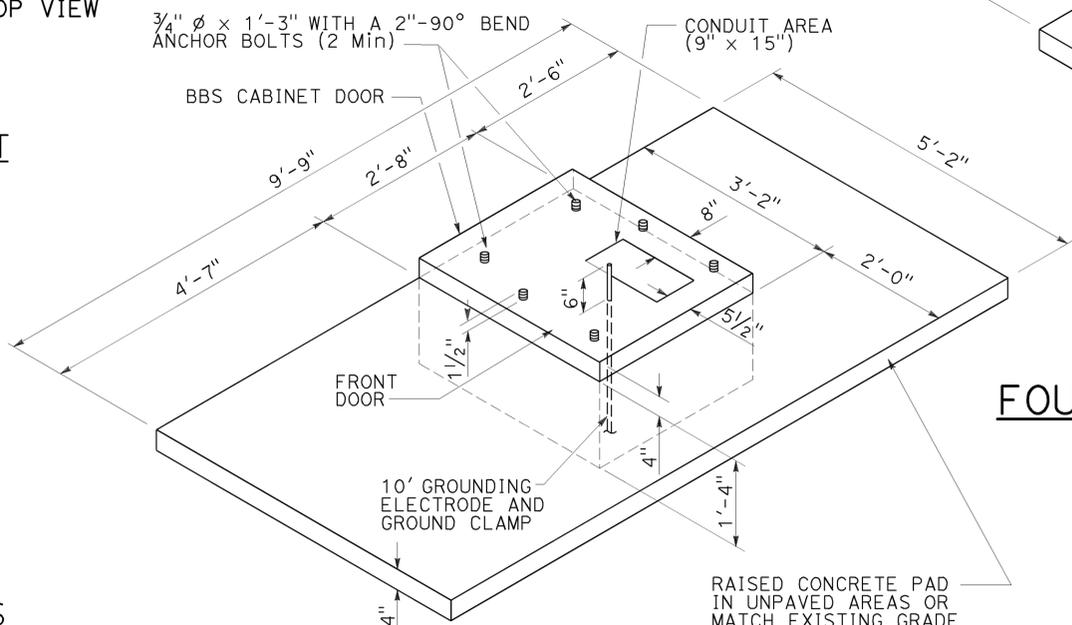


**BASE PLAN FOR BBS MOUNTED TO THE MODEL 332L CABINET**

(FOR DIMENSIONS AND DETAILS NOT SHOWN, SEE CABINET HOUSING DETAILS OF THE TRANSPORTATION ELECTRICAL EQUIPMENT SPECIFICATION (TEES))



**RIGHT SIDE INSTALLATION**  
DETAIL B



**LEFT SIDE INSTALLATION**  
DETAIL A

**MODIFIED MODEL 332L CABINET**  
**FOUNDATION DETAIL FOR BATTERY BACKUP SYSTEM**

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**ELECTRICAL SYSTEMS**  
**(CONTROLLER CABINET**  
**FOUNDATION AND PAD DETAILS)**  
NO SCALE

RSP ES-3C DATED OCTOBER 30, 2015 SUPERSEDES STANDARD PLAN ES-3C DATED MAY 20, 2011 - PAGE 437 OF THE STANDARD PLANS BOOK DATED 2010.

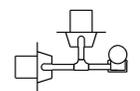
**REVISED STANDARD PLAN RSP ES-3C**

2010 REVISED STANDARD PLAN RSP ES-3C

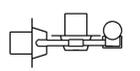
|  |        |       |                             |              |                 |
|--|--------|-------|-----------------------------|--------------|-----------------|
| Dist   | COUNTY | ROUTE | POST MILES<br>TOTAL PROJECT | SHEET<br>No. | TOTAL<br>SHEETS |
| 04   | Mrn    | 1     | 8.0                         | 60           | 90              |
| <i>Theresa Gabriel</i><br>REGISTERED ELECTRICAL ENGINEER   |        |       |                             |              |                 |
| October 30, 2015<br>PLANS APPROVAL DATE  |        |       |                             |              |                 |
| <small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small> |        |       |                             |              |                 |

TO ACCOMPANY PLANS DATED 6-23-16

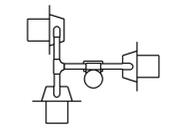
2010 REVISED STANDARD PLAN RSP ES-4A



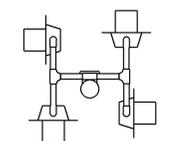
SV-2-TD



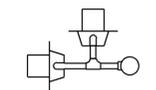
SV-2-TC



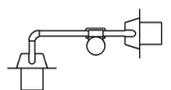
SV-3-TC



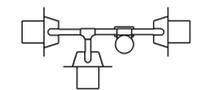
SV-4-TC



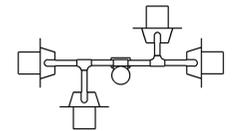
SV-2B



SV-2-TB

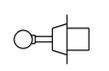


SV-3-TB



SV-4-TB

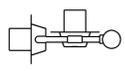
PLAN VIEW OF OTHER  
SIDE MOUNTINGS



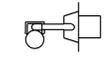
SV



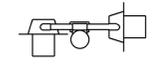
SV-1



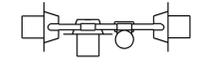
SV-2A



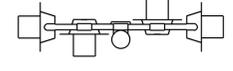
SV-1-T



SV-2-TA



SV-3-TA



SV-4-TA

SIDE MOUNTINGS

ABBREVIATIONS:

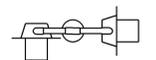
- SV SIDE MOUNTED SIGNAL HEADS
- T TERMINAL COMPARTMENT
- TV TOP MOUNTED SIGNAL HEADS
- 1, 2, 3, 4 NUMBER OF SIGNAL FACES  
(3 - SECTION, UNLESS OTHERWISE INDICATED)
- A, B, C, D CONFIGURATION OF SIGNALS

NOTES:

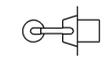
1. Mountings shall be oriented to provide maximum horizontal clearance to adjacent roadway.
2. Bracket arms shall be long enough to permit proper alignment of signals and backplate installation.
3. See Revised Standard Plans RSP ES-4D and RSP ES-4E for attachment fitting details.



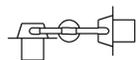
TV-1



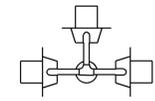
TV-2



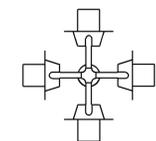
TV-1-T



TV-2-T



TV-3-T



TV-4-T

PLAN VIEW OF  
TOP MOUNTINGS

TOP MOUNTINGS

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**ELECTRICAL SYSTEMS  
(SIGNAL HEADS AND MOUNTINGS)**  
NO SCALE

RSP ES-4A DATED OCTOBER 30, 2015 SUPERSEDES RSP ES-4A DATED JULY 19, 2013 AND  
STANDARD PLAN ES-4A DATED MAY 20, 2011 - PAGE 443 OF THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP ES-4A**

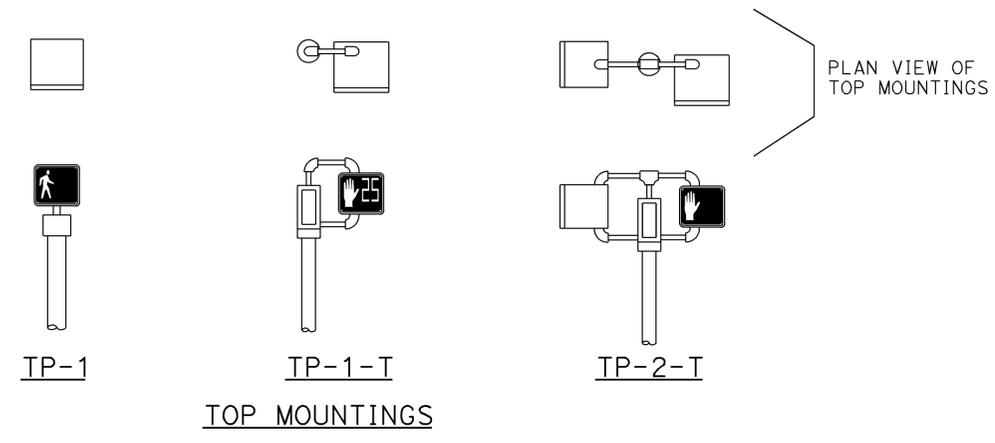
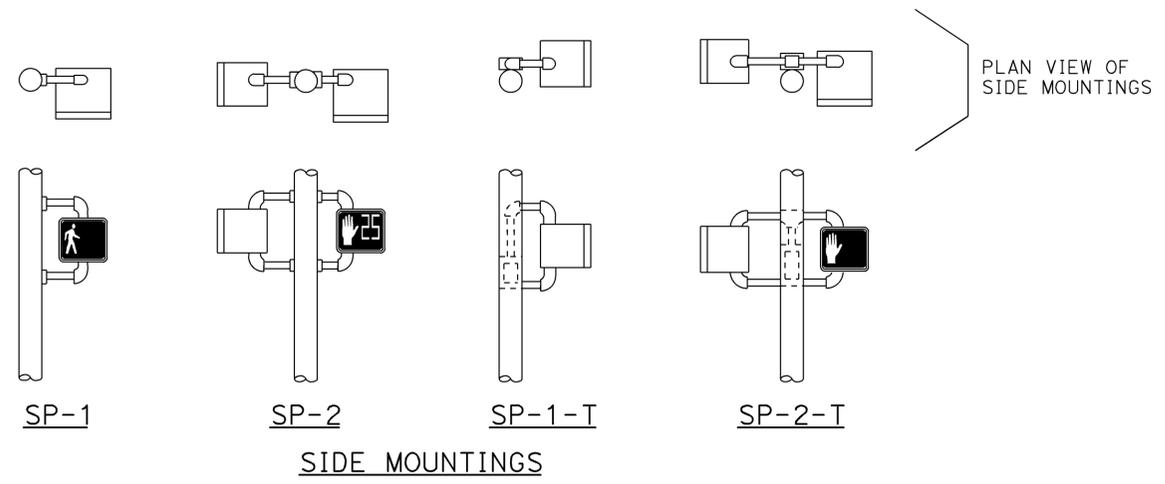
| Dist | COUNTY | ROUTE | POST MILES<br>TOTAL PROJECT | SHEET<br>No. | TOTAL<br>SHEETS |
|------|--------|-------|-----------------------------|--------------|-----------------|
| 04   | Mrn    | 1     | 8.0                         | 61           | 90              |

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

October 30, 2015  
 PLANS APPROVAL DATE

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

TO ACCOMPANY PLANS DATED 6-23-16



PEDESTRIAN SIGNAL HEAD MOUNTINGS  
DETAIL A



PERSON WALKING INTERVAL    FLASHING UPRAISED HAND INTERVAL    STEADY UPRAISED HAND INTERVAL

LED COUNTDOWN PEDESTRIAN SIGNAL FACE MODULE  
DETAIL B

NOTES:

1. Mounting shall be oriented to provide maximum horizontal clearance to adjacent roadway.
2. Bracket arms shall be long enough to permit proper alignment of signals.
3. See Revised Standard Plan RSP ES-4D for attachment fittings details.

ABBREVIATIONS:

- 1, 2    NUMBER OF SIGNAL FACES
- SP    SIDE MOUNTED PEDESTRIAN SIGNAL
- T    TERMINAL COMPARTMENT
- TP    TOP MOUNTED PEDESTRIAN SIGNAL

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**ELECTRICAL SYSTEMS  
(PEDESTRIAN SIGNAL HEADS)**

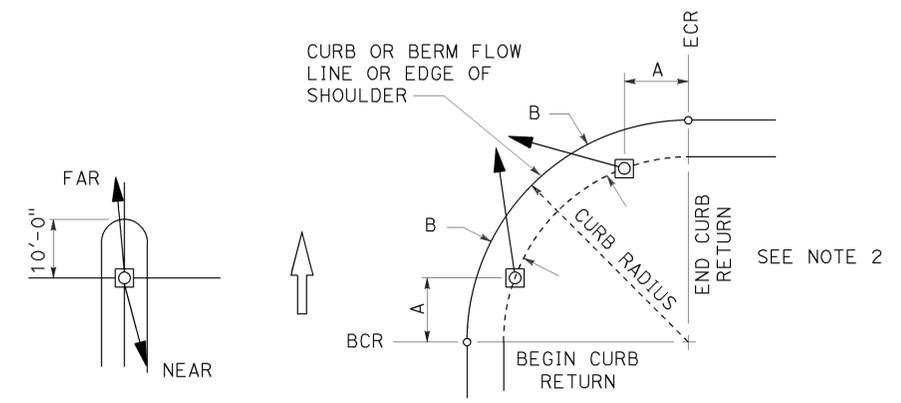
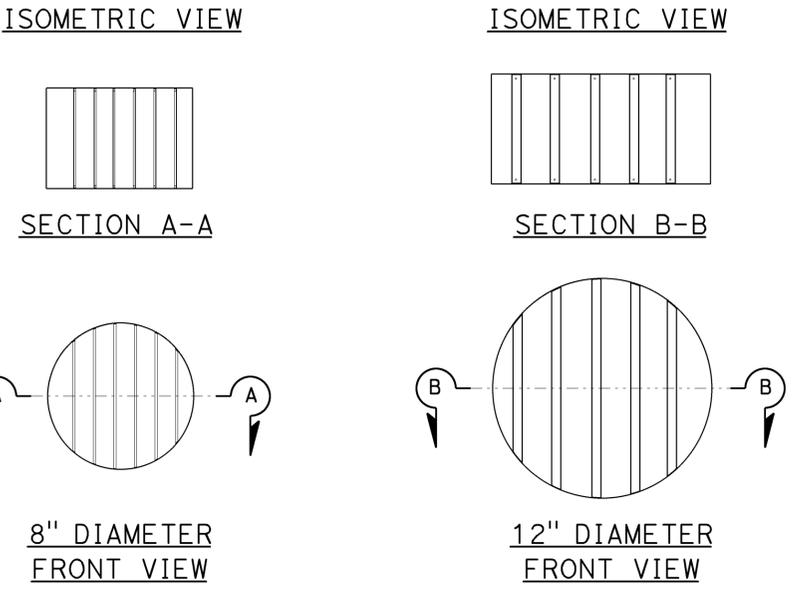
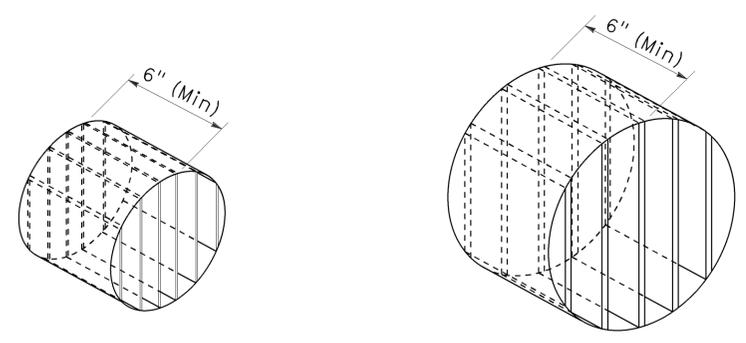
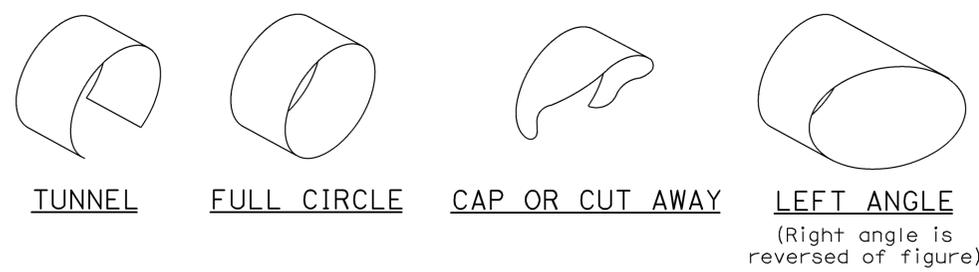
NO SCALE

RSP ES-4B DATED OCTOBER 30, 2015 SUPERSEDES RSP ES-4B DATED JULY 19, 2013 AND STANDARD PLAN ES-4B DATED MAY 20, 2011 - PAGE 444 OF THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP ES-4B**

2010 REVISED STANDARD PLAN RSP ES-4B

| Dist  | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
|---|--------|-------|--------------------------|-----------|--------------|
| 04  | Mrn    | 1     | 8.0                      | 62        | 90           |
| <i>Theresa Gabriel</i><br>REGISTERED ELECTRICAL ENGINEER<br>October 30, 2015<br>PLANS APPROVAL DATE<br><small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small> |        |       |                          |           |              |
|   |        |       |                          |           |              |
| TO ACCOMPANY PLANS DATED 6-23-16  |        |       |                          |           |              |

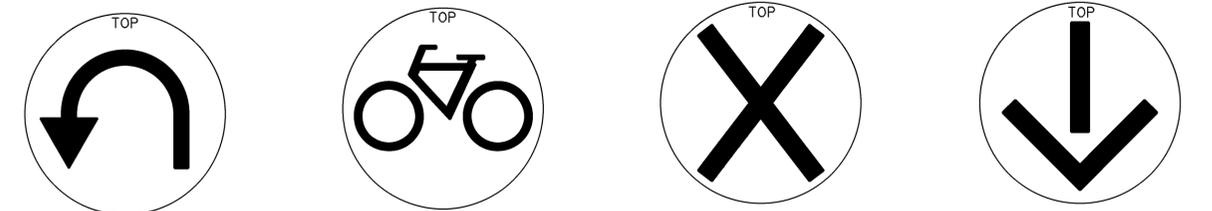
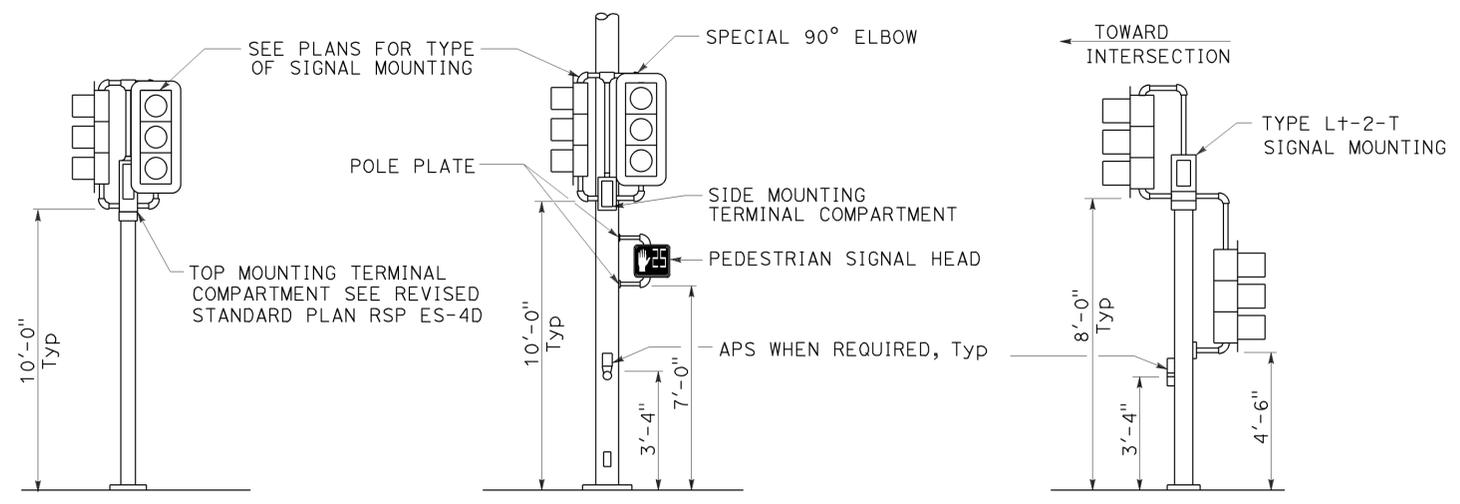


- NOTES:**
1. Typical signal pole placement unless dimensioned on plans.
  2. For A and B dimensions, see Pole Schedule.

**DIRECTIONAL LOUVER**

Directional louvers shall be oriented and secured in place with one plated brass machine screw and nut.

**SIGNAL STANDARD PLACEMENT DIMENSIONS AND EQUIPMENT LOCATIONS**



**SIGNAL FACES**

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

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

NO SCALE

RSP ES-4C DATED OCTOBER 30, 2015 SUPERSEDES RSP ES-4C DATED JULY 19, 2013 AND STANDARD PLAN ES-4C DATED MAY 20, 2011 - PAGE 445 OF THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP ES-4C**

**TYPICAL SIGNAL HEAD INSTALLATIONS**

Type 1-A, 1-B, 1-C and 1-D standard as indicated on the plans

Normally used on standards with luminaire or signal mast arm

Type 1-A, 1-B, 1-C and 1-D standard as indicated on plans

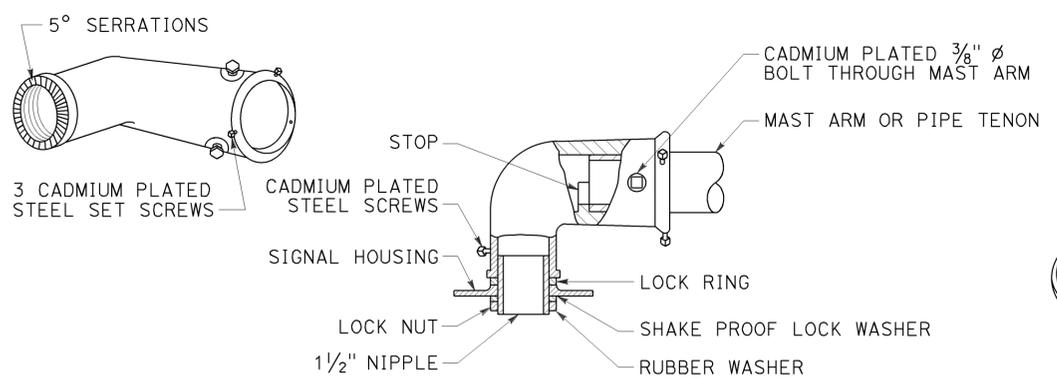
2010 REVISED STANDARD PLAN RSP ES-4C

| Dist | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
|------|--------|-------|--------------------------|-----------|--------------|
| 04   | Mrn    | 1     | 8.0                      | 63        | 90           |

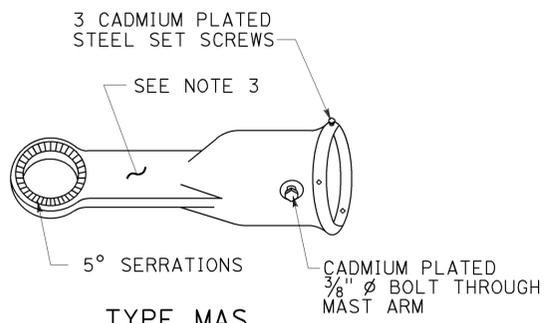
Theresa Gabriel  
 REGISTERED ELECTRICAL ENGINEER  
 October 30, 2015  
 PLANS APPROVAL DATE  
 THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



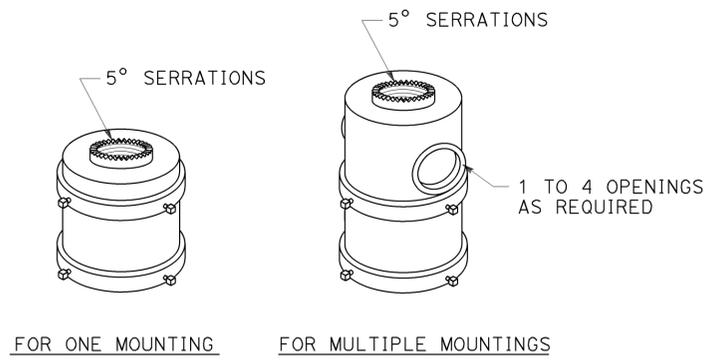
TO ACCOMPANY PLANS DATED 6-23-16



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

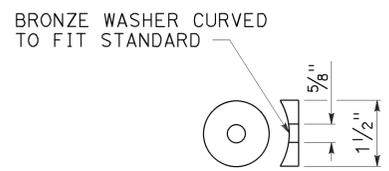


**TYPE MAS**  
**MAST ARM MOUNTING**  
For 2 NPS pipe, see Note 1.

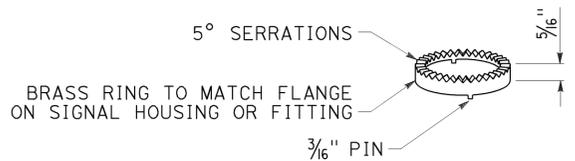


**TOP MOUNTINGS**  
For 4 NPS pipe, see Note 2.

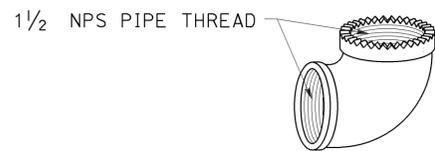
**SIGNAL SLIP FITTERS**



**DETAIL C**



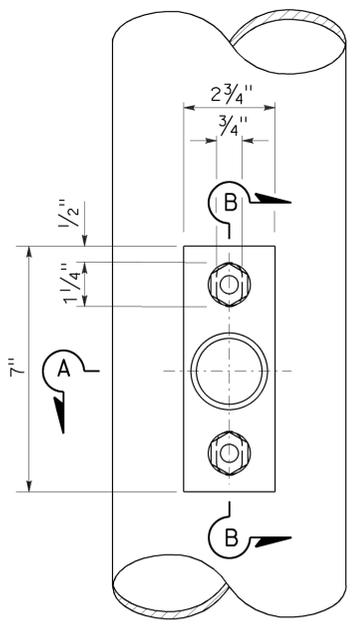
**LOCK RING**  
Use where locking ring is not integral with signal housing or fitting.



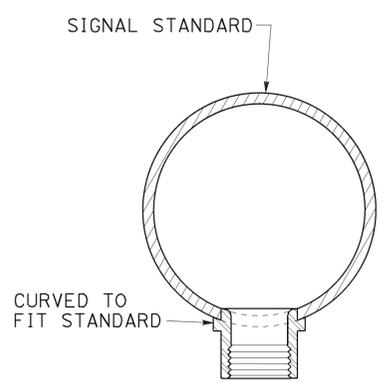
**SPECIAL 90° ELBOW**  
One for each signal head, except those with special slip fitter mounting

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

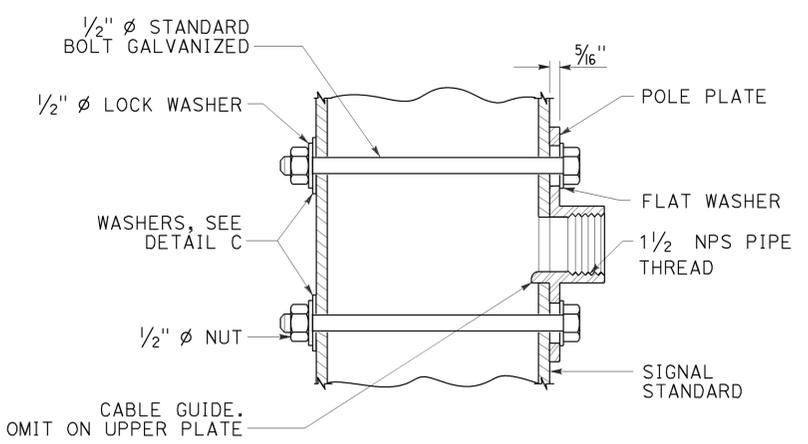
**MISCELLANEOUS MOUNTING HARDWARE**



**TOP VIEW**

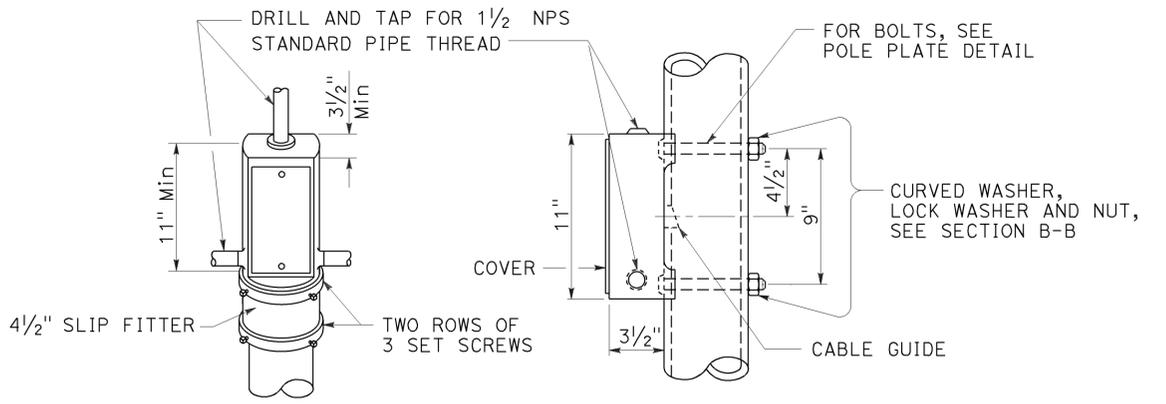


**SECTION A-A**



**SECTION B-B**

**POLE PLATE FOR SIDE MOUNTED SIGNAL HEAD WITHOUT TERMINAL COMPARTMENT**



**TERMINAL COMPARTMENT**

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**ELECTRICAL SYSTEMS**  
**(SIGNAL HEAD MOUNTING)**  
NO SCALE

RSP ES-4D DATED OCTOBER 30, 2015 SUPERSEDES STANDARD PLAN ES-4D DATED MAY 20, 2011 - PAGE 446 OF THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP ES-4D**

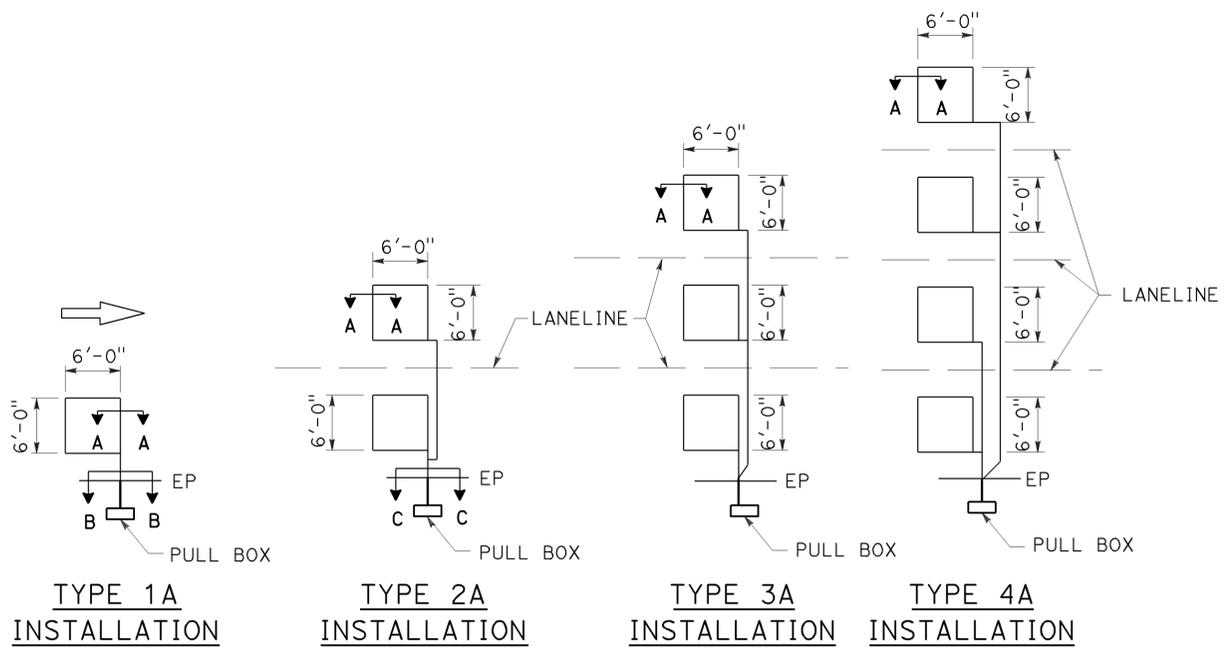
2010 REVISED STANDARD PLAN RSP ES-4D

|      |        |       |                          |           |              |
|------|--------|-------|--------------------------|-----------|--------------|
| Dist | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
| 04   | Mrn    | 1     | 8.0                      | 64        | 90           |

Theresa Gabriel  
 REGISTERED ELECTRICAL ENGINEER  
 October 30, 2015  
 PLANS APPROVAL DATE  
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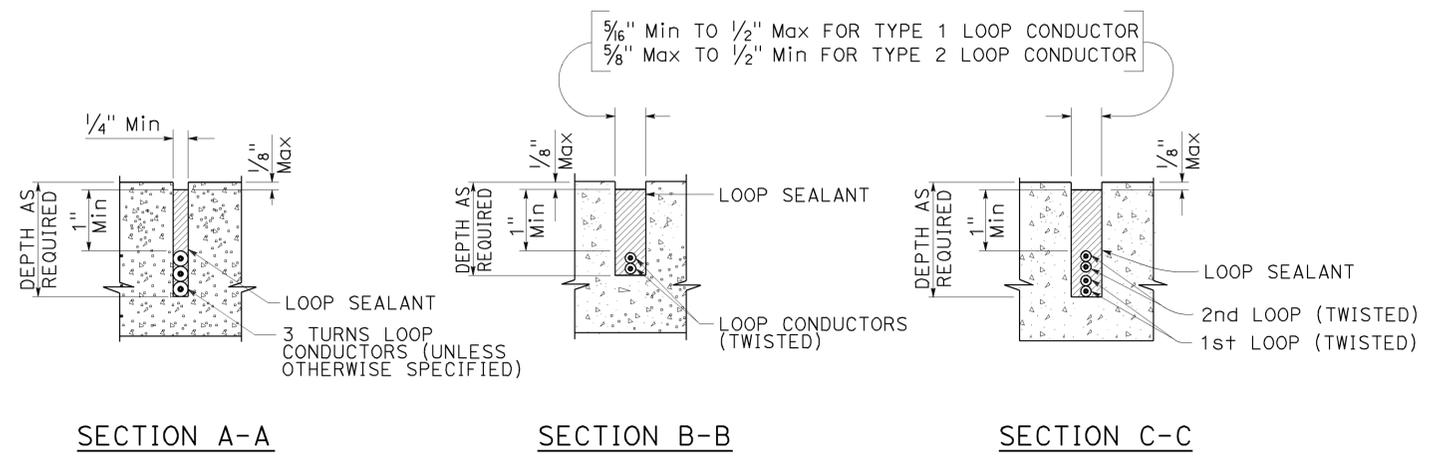


TO ACCOMPANY PLANS DATED 6-23-16

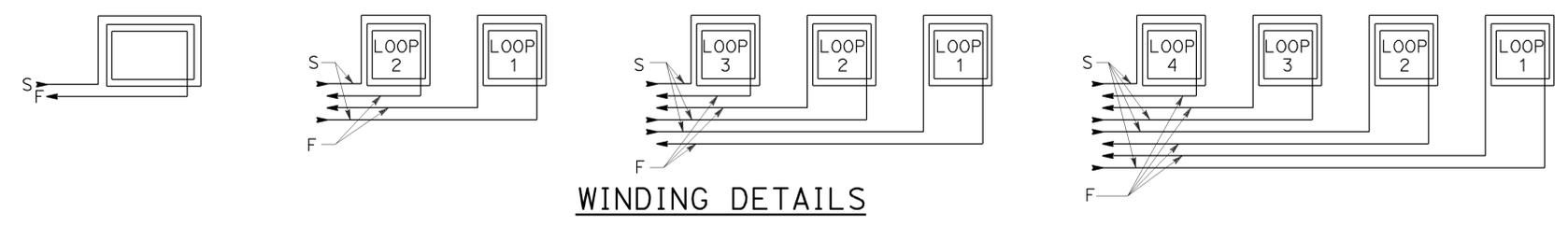


**SAWCUT DETAILS**

- Type A loop detector configurations illustrated
- 1A thru 4A = 1 Type A loop configuration in each lane.
  - 1B thru 4B = 1 Type B loop configuration in each lane.
  - 1C = 1 Type C loop configuration entering lanes as required.
  - 1D thru 4D = 1 Type D loop configuration in each lane.
  - 1E thru 4E = 1 Type E loop configuration in each lane.
  - 1Q thru 4Q = 1 Type Q loop configuration in each lane.
- Use Type A, B, C, D, E or Q loop detector configurations only when specified or shown on plans.

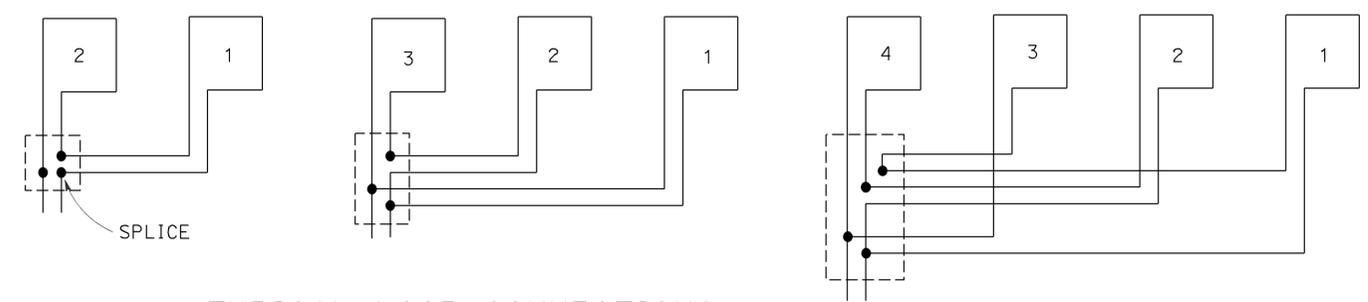


**SLOT DETAILS - TYPE 1 AND TYPE 2 LOOP CONDUCTOR**



**WINDING DETAILS**

**ABBREVIATIONS:**  
 S - START  
 F - FINISH



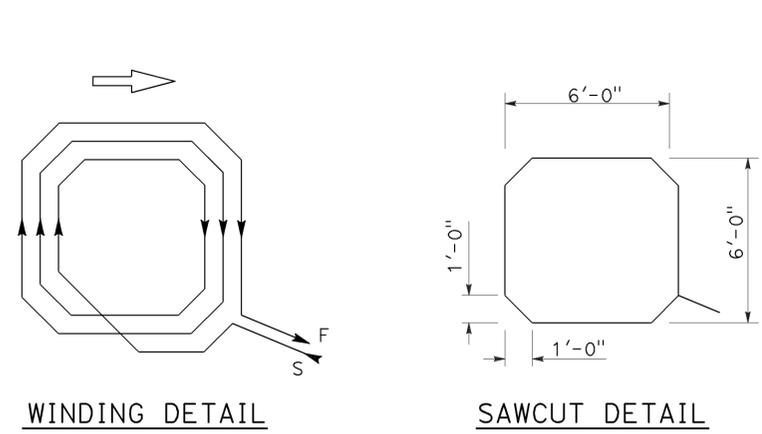
**TYPICAL LOOP CONNECTIONS**  
 Dashed lines represent the pull box

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**ELECTRICAL SYSTEMS  
 (LOOP DETECTORS)**  
 NO SCALE

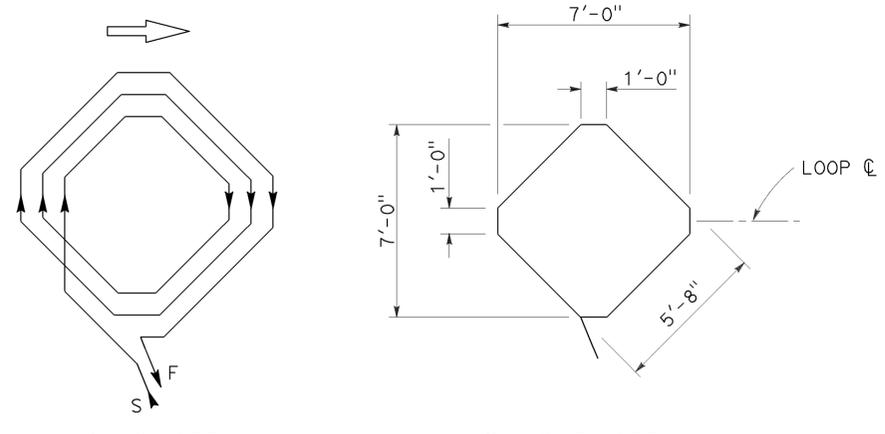
RSP ES-5A DATED OCTOBER 30, 2015 SUPERSEDES STANDARD PLAN ES-5A DATED MAY 20, 2011 - PAGE 448 OF THE STANDARD PLANS BOOK DATED 2010.

2010 REVISED STANDARD PLAN RSP ES-5A

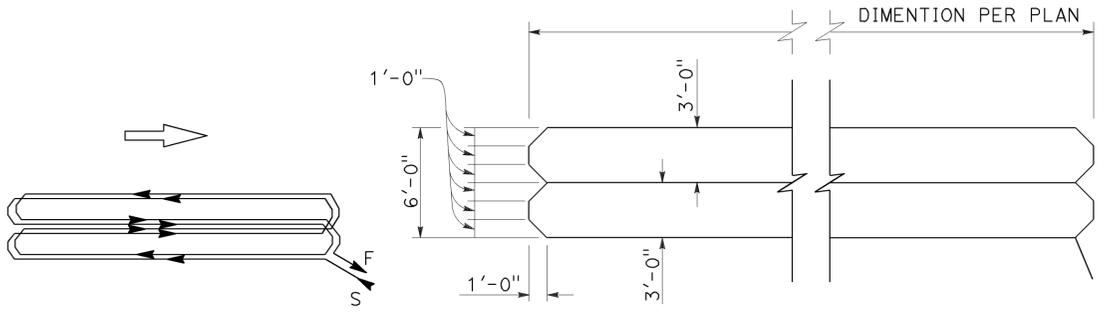
|   |        |       |                          |           |              |
|---|--------|-------|--------------------------|-----------|--------------|
| Dist  | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
| 04  | Mrn    | 1     | 8.0                      | 65        | 90           |
| <i>Theresa Gabriel</i><br>REGISTERED ELECTRICAL ENGINEER<br>October 30, 2015<br>PLANS APPROVAL DATE<br><small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small> |        |       |                          |           |              |
|   |        |       |                          |           |              |
| TO ACCOMPANY PLANS DATED 6-23-16  |        |       |                          |           |              |



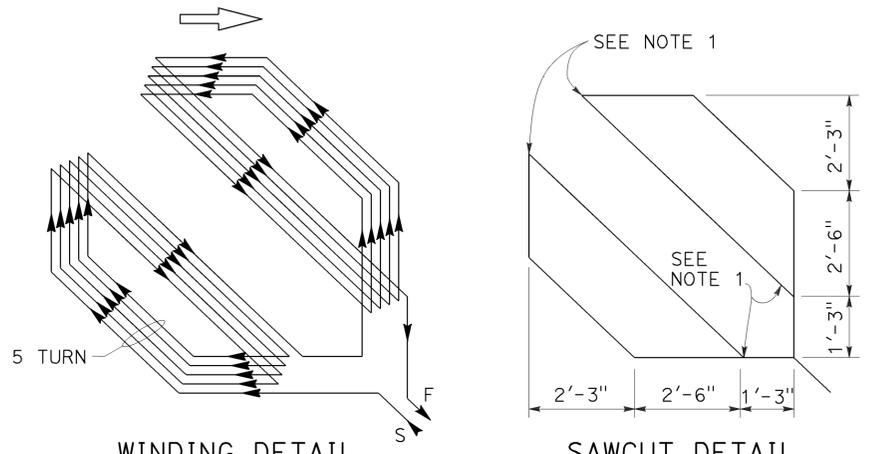
WINDING DETAIL  
SAWCUT DETAIL  
**TYPE A LOOP DETECTOR CONFIGURATION**



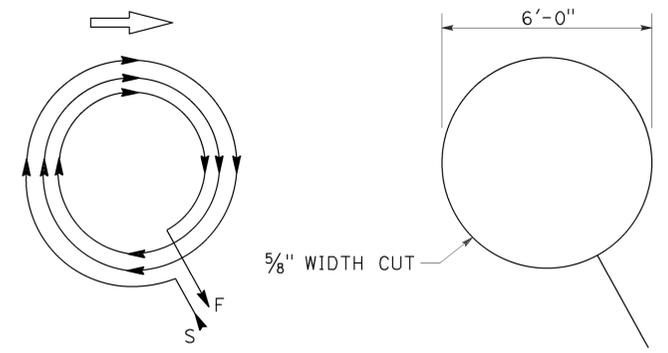
WINDING DETAIL  
SAWCUT DETAIL  
**TYPE B LOOP DETECTOR CONFIGURATION**



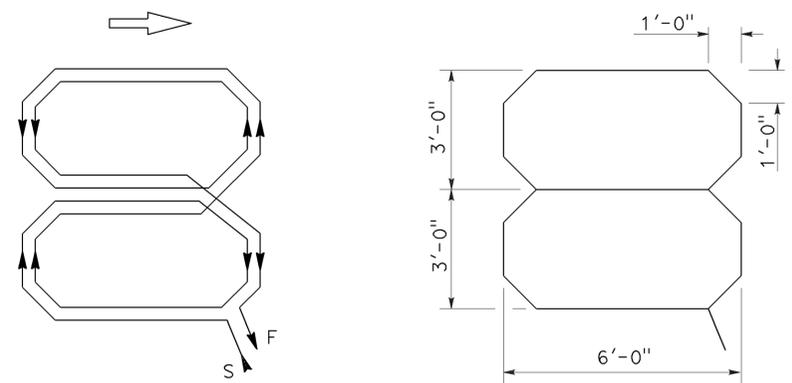
WINDING DETAIL  
SAWCUT DETAIL  
**TYPE C LOOP DETECTOR CONFIGURATION**



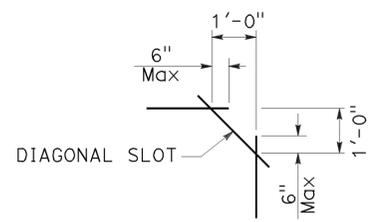
WINDING DETAIL  
SAWCUT DETAIL  
**TYPE D LOOP DETECTOR CONFIGURATION**



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.

**2010 REVISED STANDARD PLAN RSP ES-5B**

| DIST | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
|------|--------|-------|--------------------------|-----------|--------------|
| 04   | Mrn    | 1     | 8.0                      | 66        | 90           |

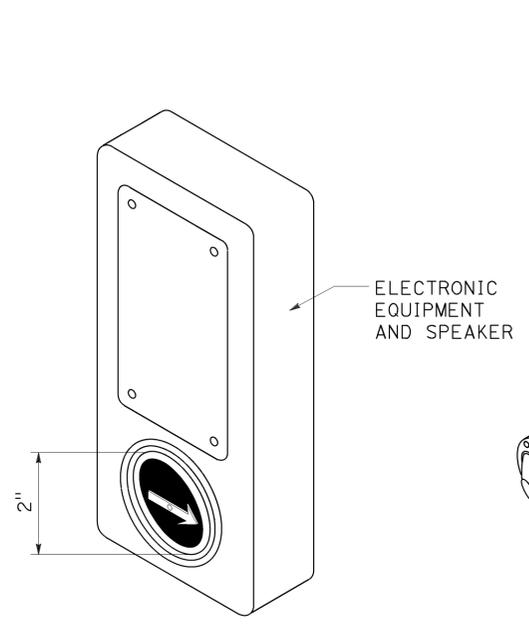
*Theresa Gabriel*  
 REGISTERED ELECTRICAL ENGINEER  
 October 30, 2015  
 PLANS APPROVAL DATE

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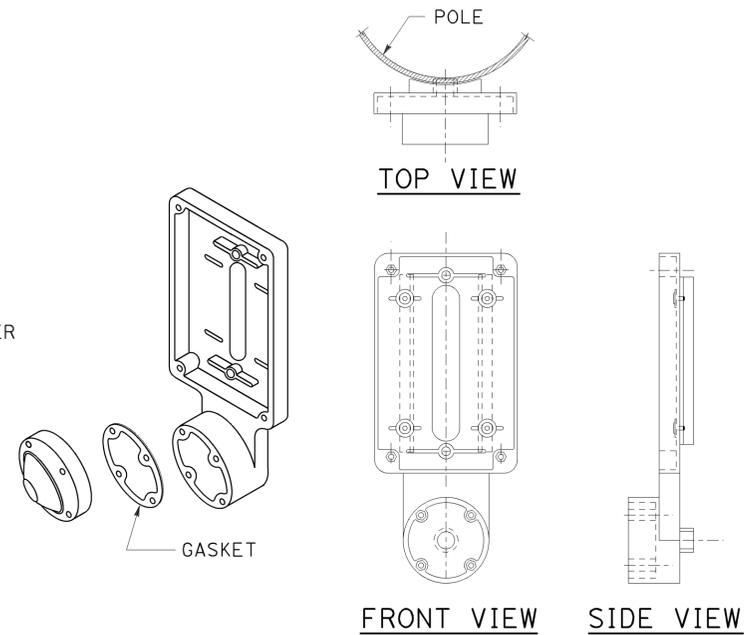
TO ACCOMPANY PLANS DATED 6-23-16

**NOTES:**

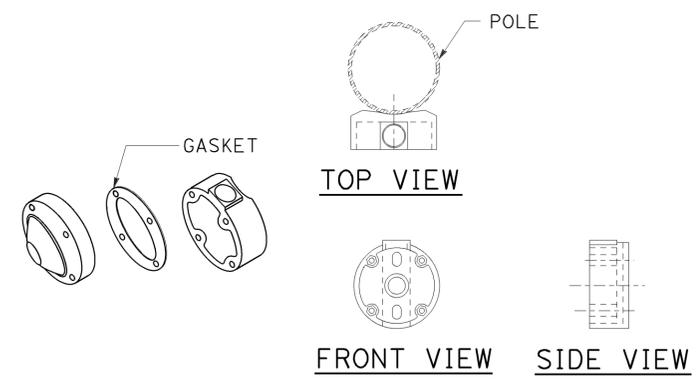
1. Back casting shape to fit curvature of pole.
2. Provide cover fitting for top of post, when PBA is mounted on push button assembly post.
3. Install push button on crosswalk side of standard.
4. Use R10 series regulatory signs and plaques for pedestrian and bicycle facilities.



ACCESSIBLE PEDESTRIAN SIGNAL  
DETAIL A



TYPE B PUSH BUTTON ASSEMBLY  
DETAIL B



TYPE C PUSH BUTTON ASSEMBLY  
DETAIL C

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**ELECTRICAL SYSTEMS  
(ACCESSIBLE PEDESTRIAN SIGNAL  
AND PUSH BUTTON ASSEMBLIES)**

NO SCALE

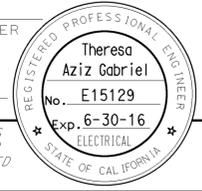
RSP ES-5C DATED OCTOBER 30, 2015 SUPERSEDES RSP ES-5C DATED JULY 19, 2013 AND STANDARD PLAN ES-5C DATED MAY 20, 2011 - PAGE 450 OF THE STANDARD PLANS BOOK DATED 2010.

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

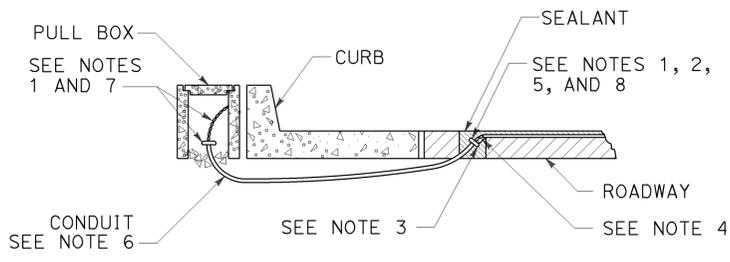
2010 REVISED STANDARD PLAN RSP ES-5C

|      |        |       |                          |           |              |
|------|--------|-------|--------------------------|-----------|--------------|
| Dist | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
| 04   | Mirn   | 1     | 8.0                      | 67        | 90           |

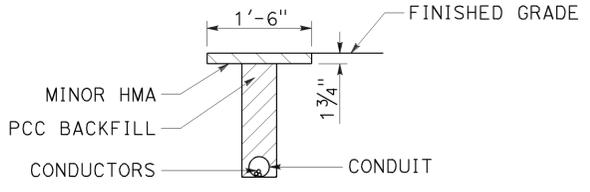
Theresa Gabriel  
 REGISTERED ELECTRICAL ENGINEER  
 October 30, 2015  
 PLANS APPROVAL DATE  
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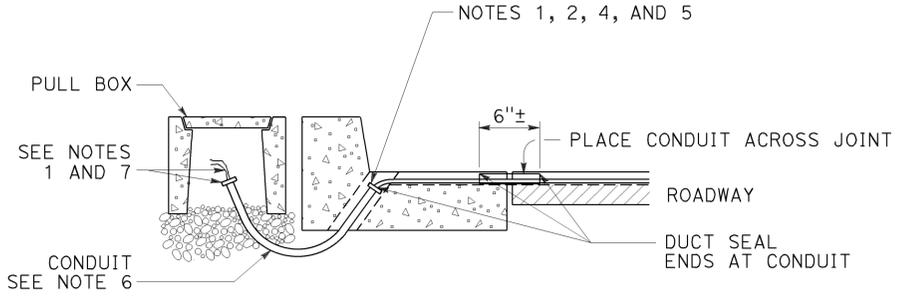
TO ACCOMPANY PLANS DATED 6-23-16



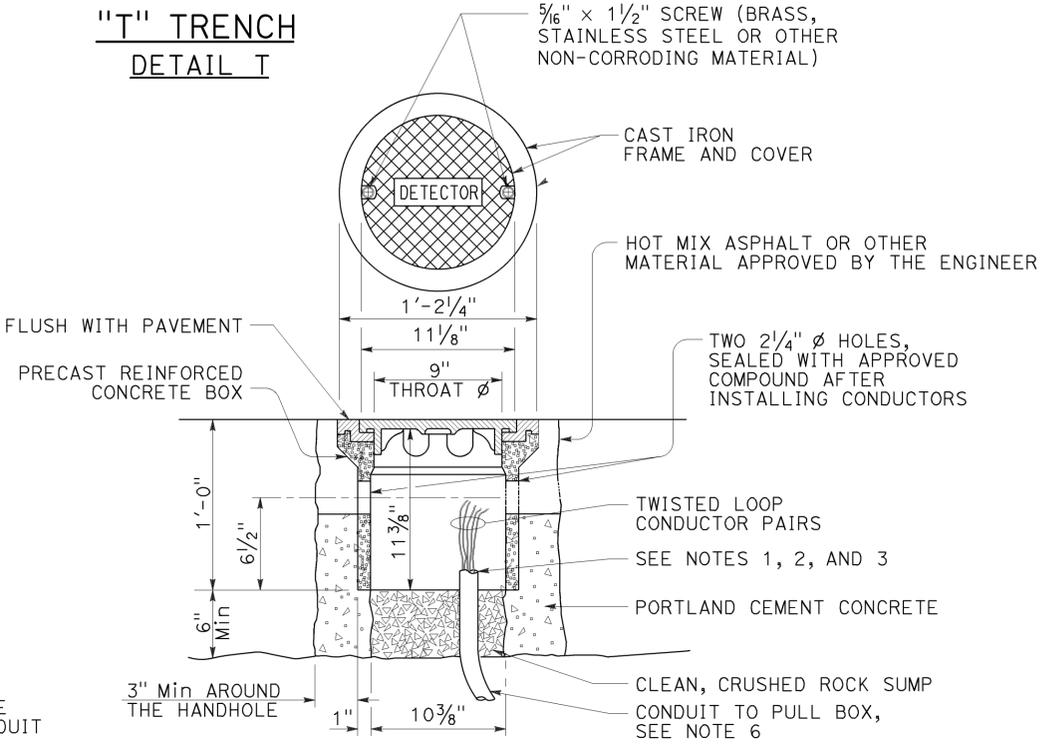
**TYPE A  
CURB TERMINATION DETAIL**



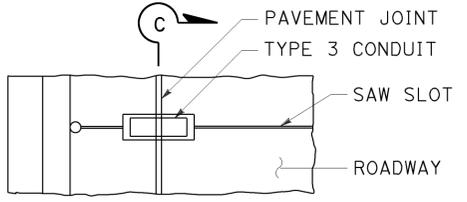
**"T" TRENCH  
DETAIL 1**



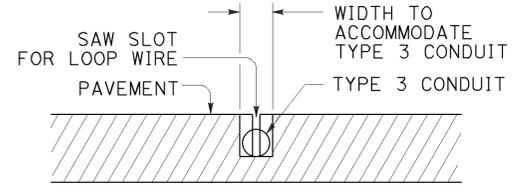
**CROSS SECTION**



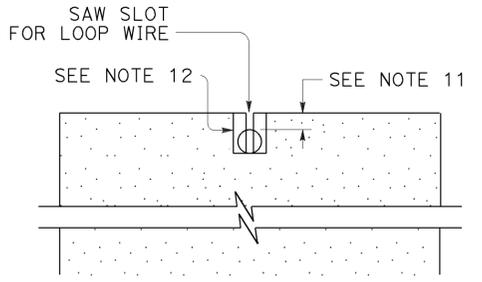
**DETECTOR HANDHOLE DETAIL**



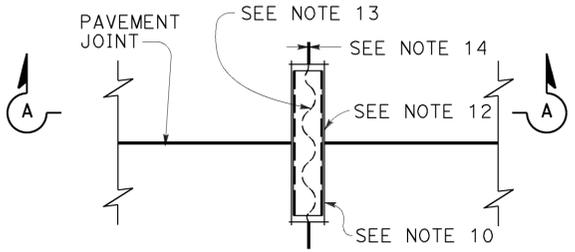
**PLAN VIEW**



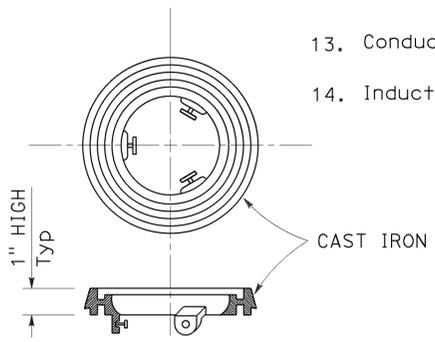
**SECTION C-C**



**SECTION A-A**



**PLAN VIEW  
TYPICAL LOOP LEAD-IN DETAIL  
AT PAVEMENT JOINT**



**LOCKING GRADE RING**

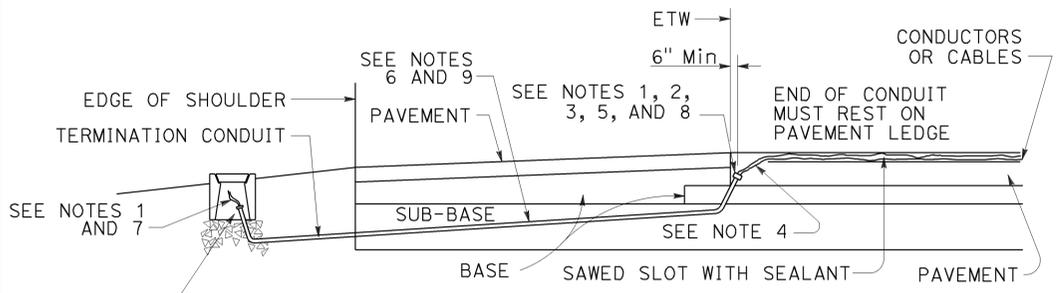
STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

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

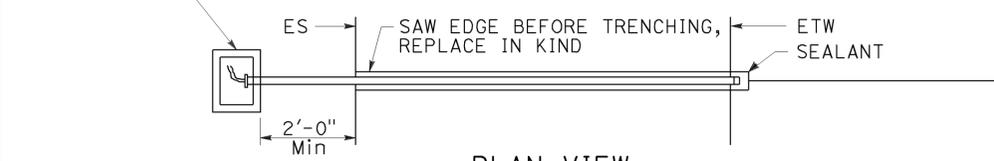
NO SCALE

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**



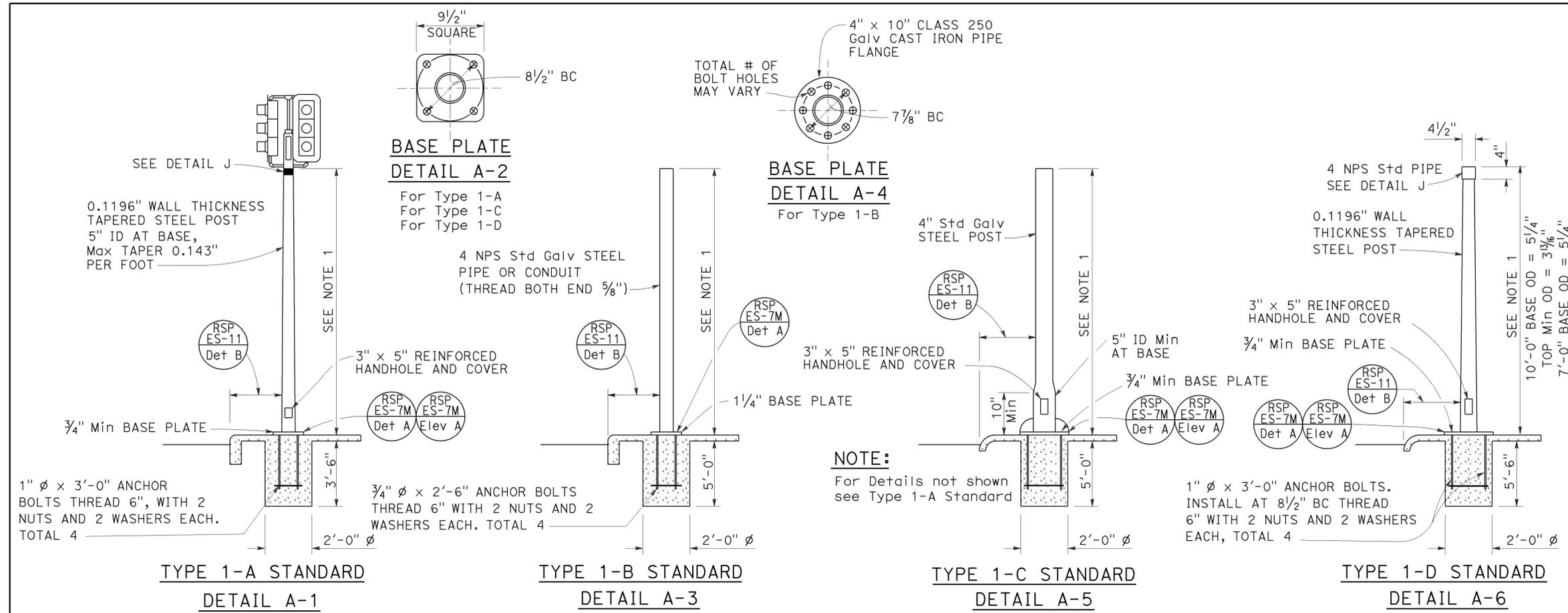
**CROSS SECTION**



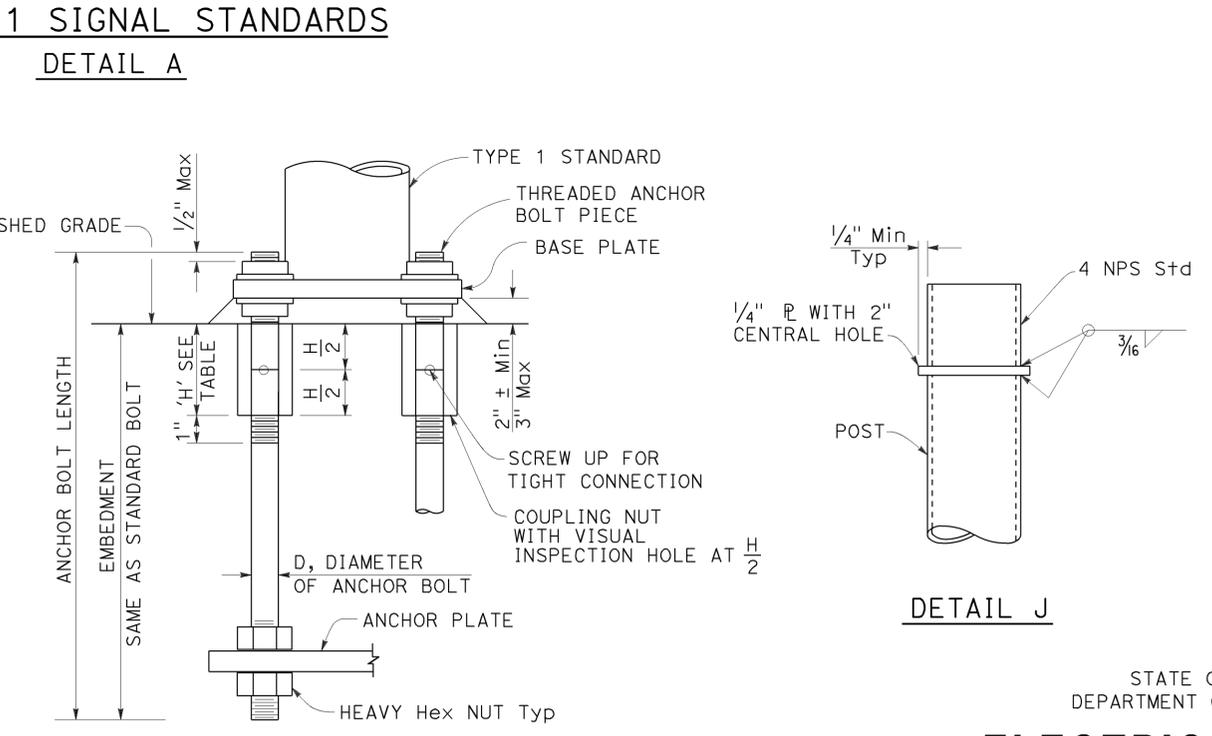
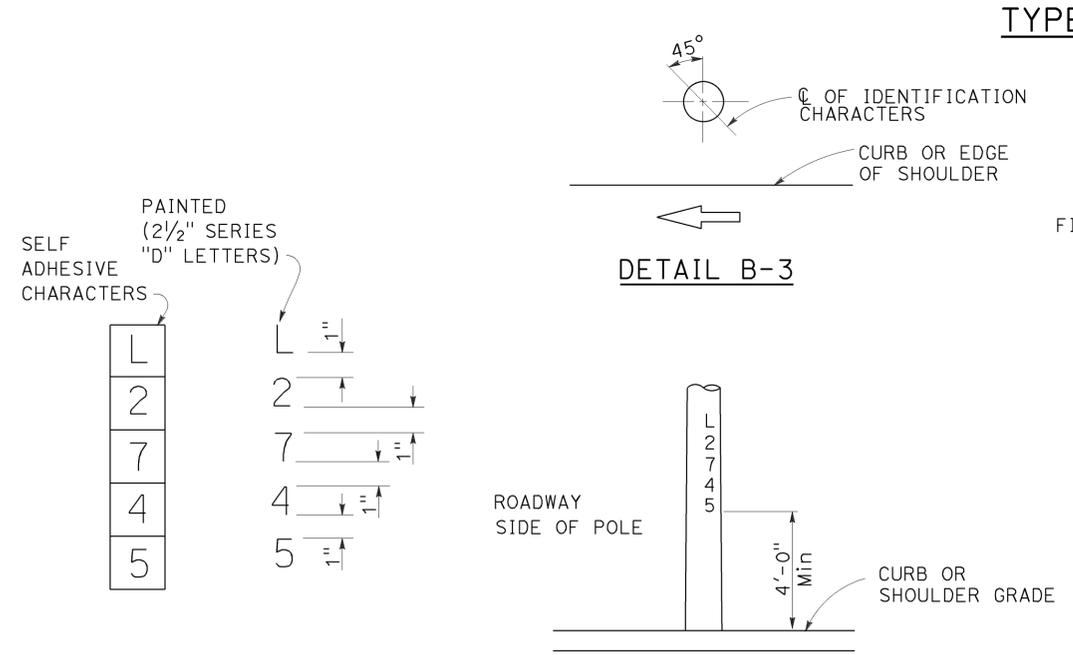
**PLAN VIEW  
SHOULDER TERMINATION DETAILS**

2010 REVISED STANDARD PLAN RSP ES-5D

2010 REVISED STANDARD PLAN RSP ES-7B



- NOTES:**
- Standards shall be 10'-0" ± 2" for vehicle signals and 7'-0" ± 2" for pedestrian signals unless shorter pole is noted on project plans.
  - Top of standards shall be 4 1/2" OD.
  - Conduits shall extend 2" maximum above finished surface of foundation and for Types 1-A, 1-C and 1-D shall be sloped toward handhole.
  - Anchor bolts shall be bonded to conduit or grounding conductor.
  - For additional notes and details, see Revised Standard Plans RSP ES-7M and RSP ES-7N.
  - Pour foundation concrete against undisturbed soil.
  - For standards with handhole, locate in the downstream side of traffic.
  - Coupling nuts to be used only when shown or specified on project plans.



**COUPLING NUT TABLE**

| BOLT DIAMETER | NUT TABLE THICKNESS 'H' |
|---------------|-------------------------|
| 3/4"          | 2 1/4"                  |
| 1"            | 3"                      |

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**ELECTRICAL SYSTEMS  
(SIGNAL AND LIGHTING STANDARD, TYPE 1  
AND EQUIPMENT IDENTIFICATION CHARACTERS)**

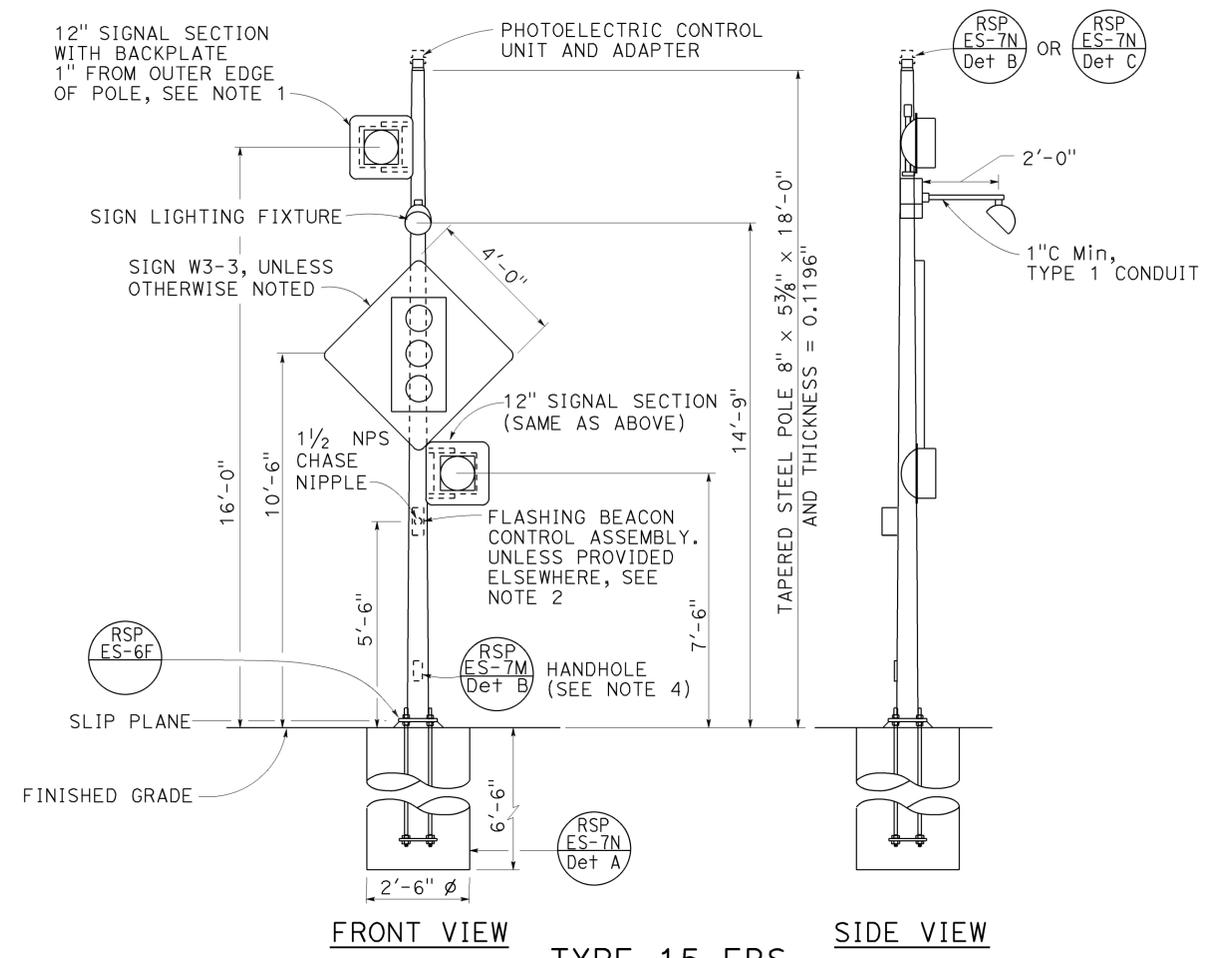
NO SCALE

RSP ES-7B DATED OCTOBER 30, 2015 SUPERSEDES STANDARD PLAN ES-7B DATED MAY 20, 2011 - PAGE 463 OF THE STANDARD PLANS BOOK DATED 2010.

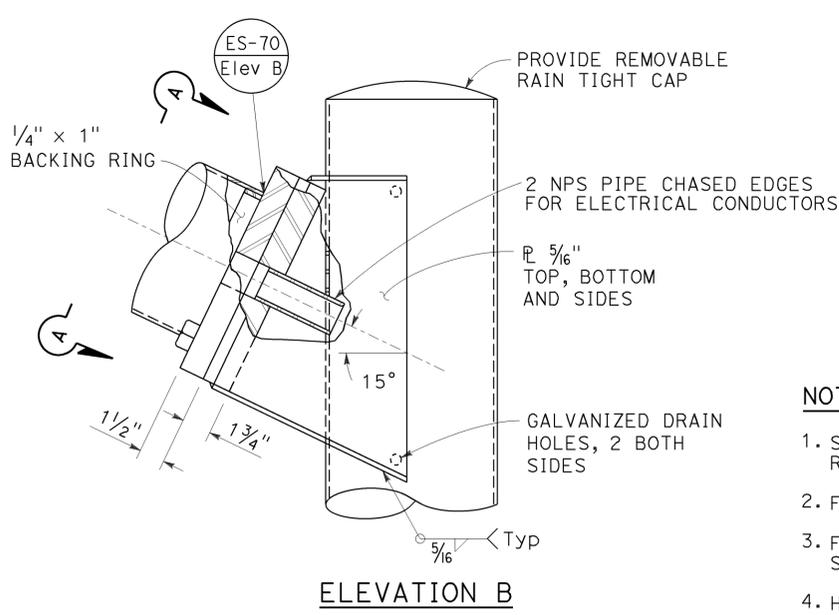
|      |        |       |                          |           |              |
|------|--------|-------|--------------------------|-----------|--------------|
| Dist | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
| 04   | Mirn   | 1     | 8.0                      | 69        | 90           |

Stanley P. Johnson  
 REGISTERED CIVIL ENGINEER  
 October 30, 2015  
 PLANS APPROVAL DATE  
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

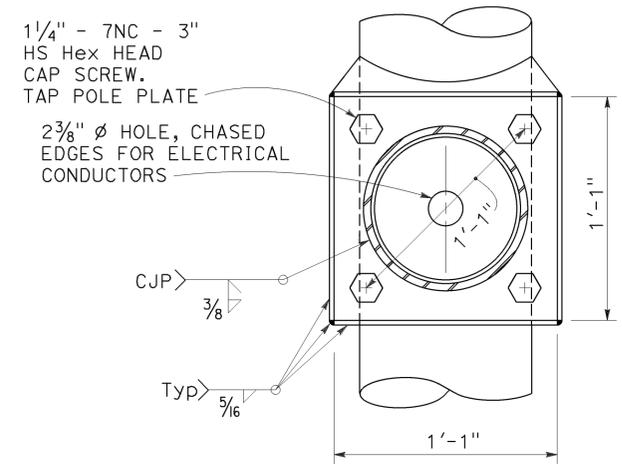
TO ACCOMPANY PLANS DATED 6-23-16



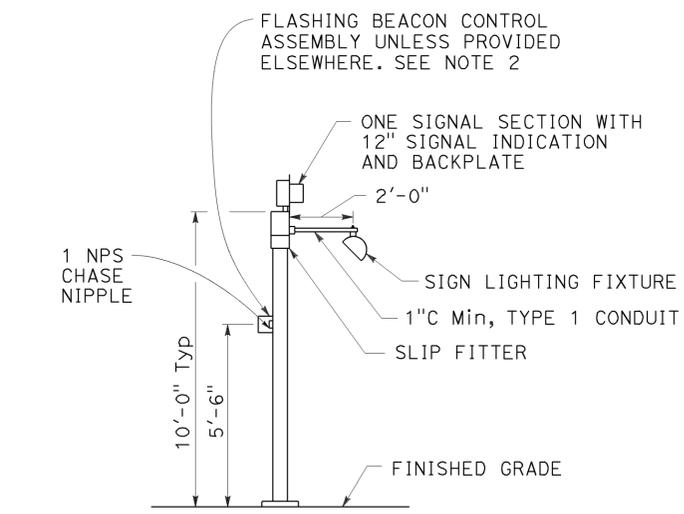
**TYPE 15-FBS**  
**ADVANCE FLASHING BEACON WITH SLIP BASE INSTALLATION**  
**DETAIL A**



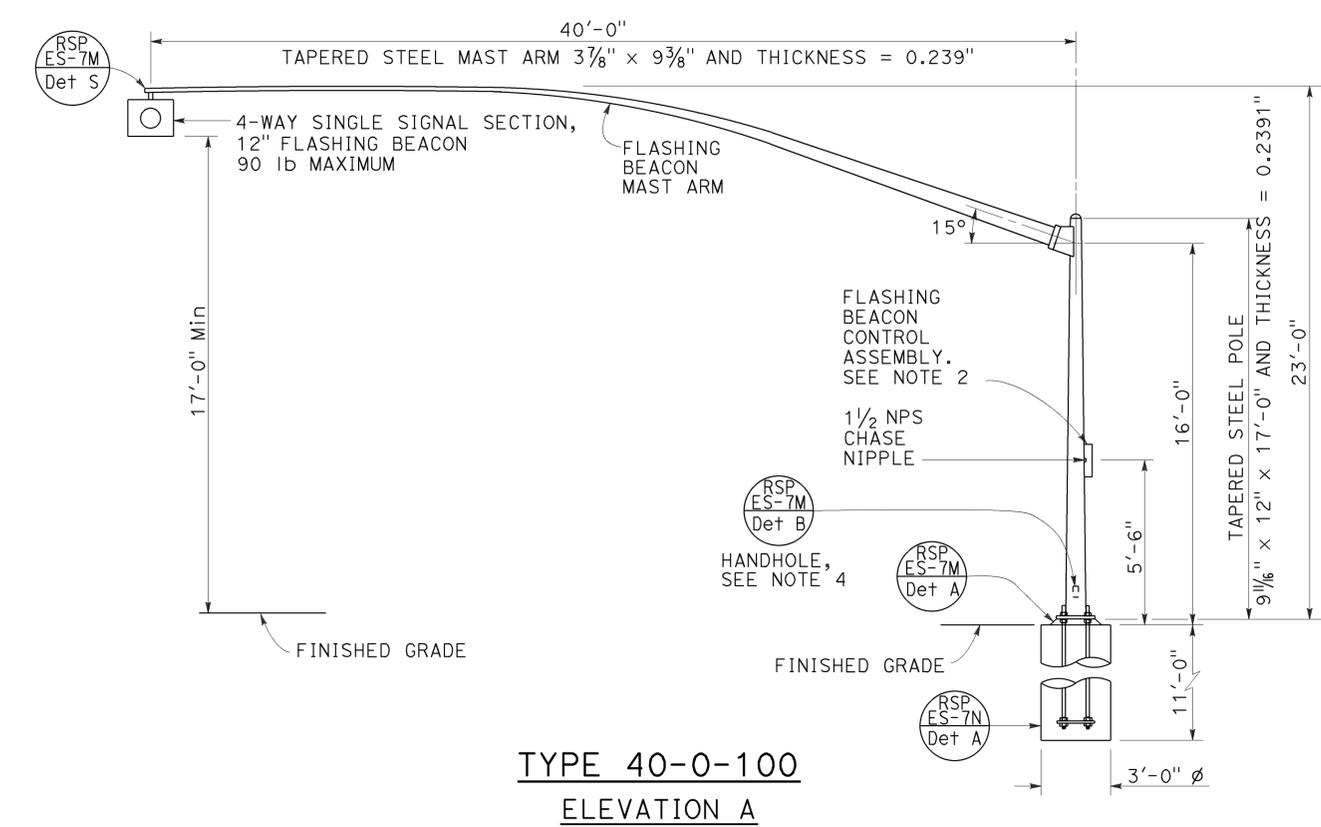
**ELEVATION B**



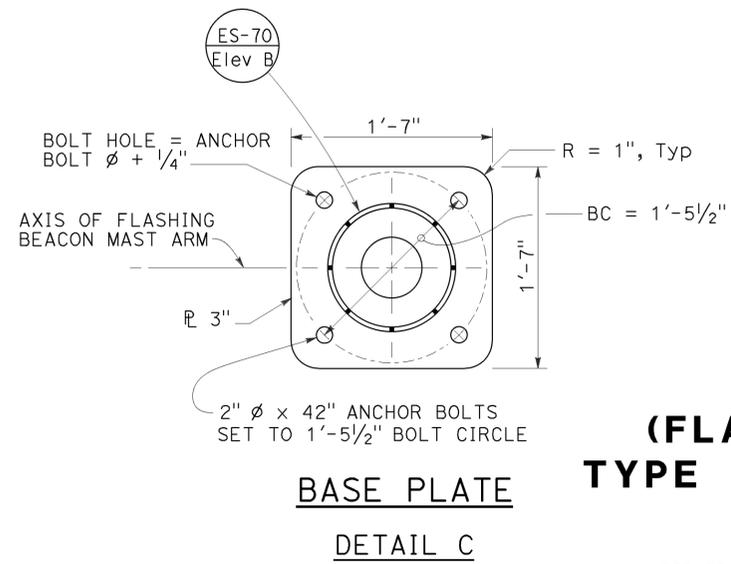
**VIEW A-A**  
**FLASHING BEACON MAST ARM**  
**CONNECTION DETAIL**  
**DETAIL B**



**TYPE 1-A, 1-B, 1-C, AND 1-D**  
**ADVANCE FLASHING**  
**BEACON INSTALLATION**  
**DETAIL D**  
 See Note 5



**TYPE 40-0-100**  
**ELEVATION A**



**BASE PLATE**  
**DETAIL C**

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**ELECTRICAL SYSTEMS**  
**(FLASHING BEACON ON A TYPE 1, TYPE 15-FBS, AND TYPE 40 STANDARD)**  
 NO SCALE

RSP ES-7J DATED OCTOBER 30, 2015 SUPERSEDES RSP ES-7J DATED JULY 19, 2013 AND STANDARD PLAN ES-7J DATED MAY 20, 2011 - PAGE 471 OF THE STANDARD PLANS BOOK DATED 2010.

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

2010 REVISED STANDARD PLAN RSP ES-7J

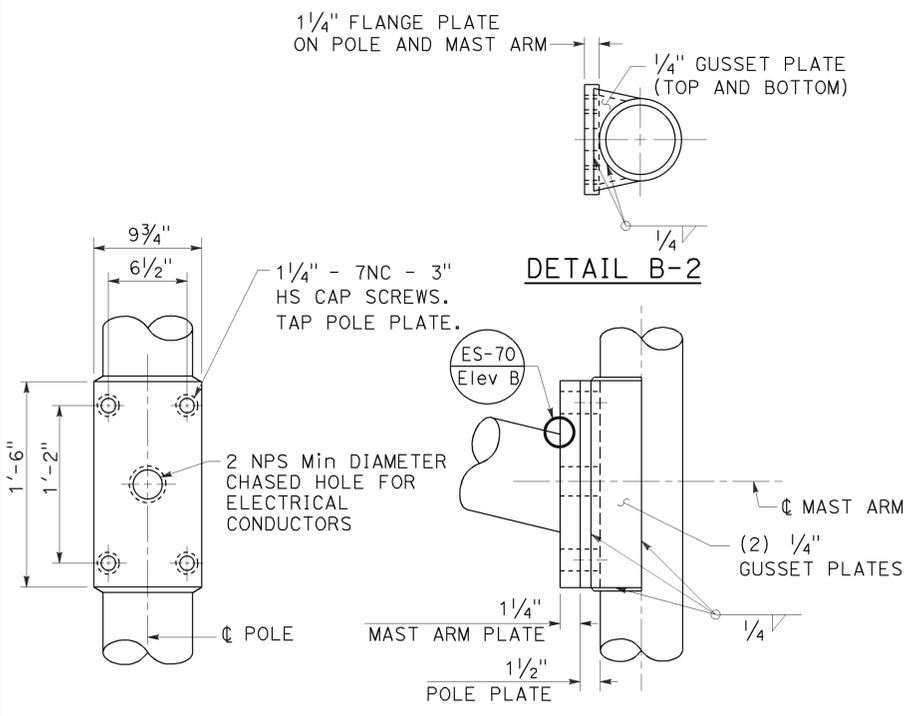


| Dist | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
|------|--------|-------|--------------------------|-----------|--------------|
| 04   | Mrn    | 1     | 8.0                      | 71        | 90           |

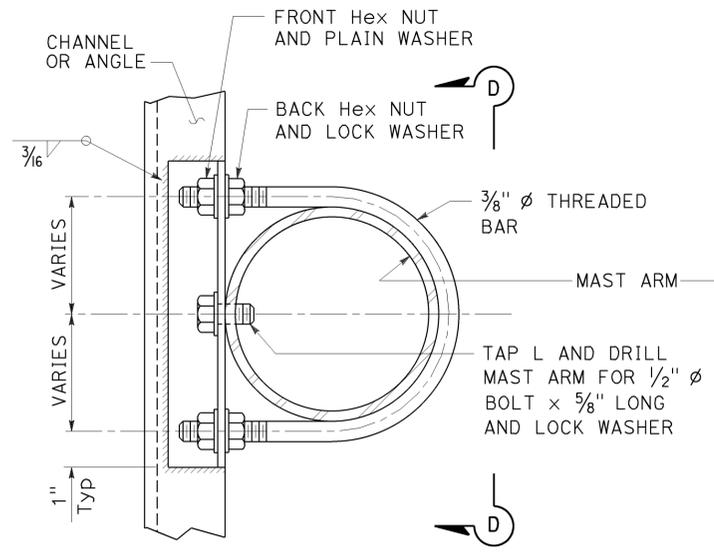
Stanley P. Johnson  
 REGISTERED CIVIL ENGINEER  
 October 30, 2015  
 PLANS APPROVAL DATE  
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

TO ACCOMPANY PLANS DATED 6-23-16

2010 REVISED STANDARD PLAN RSP ES-7L

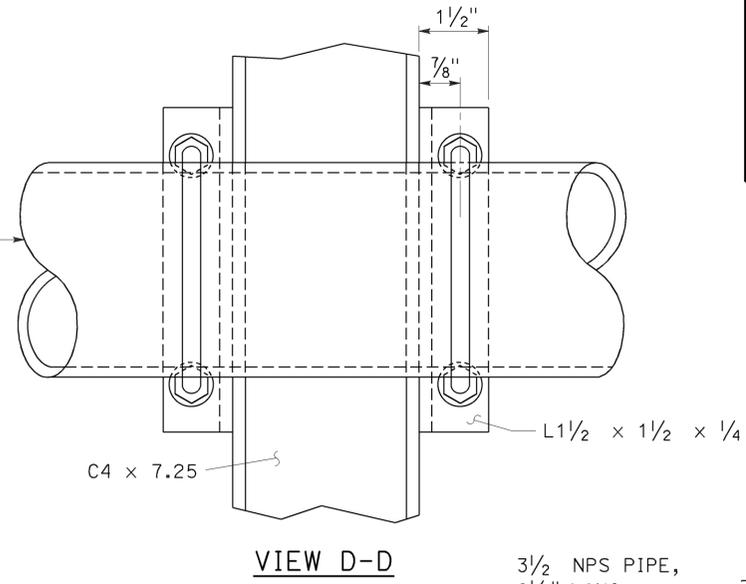


**FLASHING BEACON MAST ARM CONNECTION DETAILS**  
DETAIL B-1

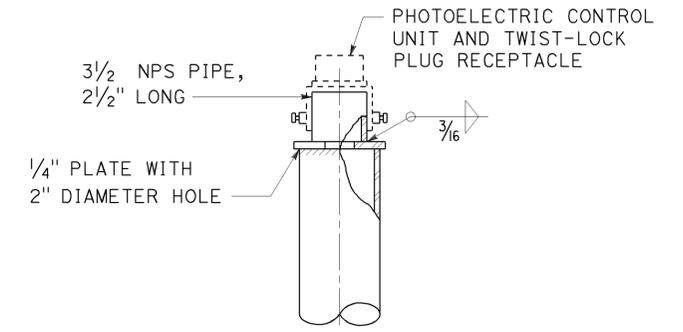


**DETAIL B-3**  
NOTE: Tighten front Hex nuts first, then tighten back Hex nuts.

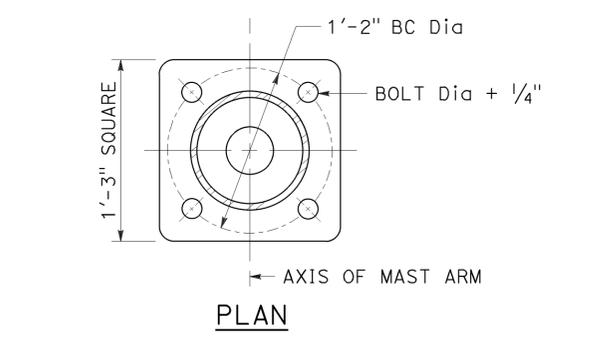
**SIGN FRAME MOUNTING DETAILS**  
All types  
DETAIL B



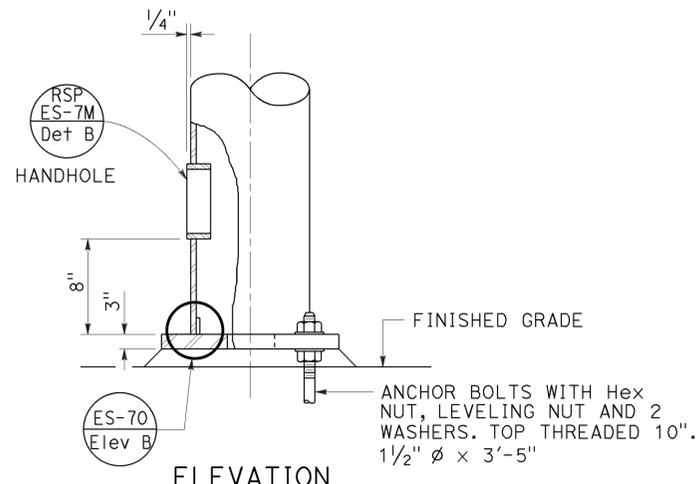
**VIEW D-D**



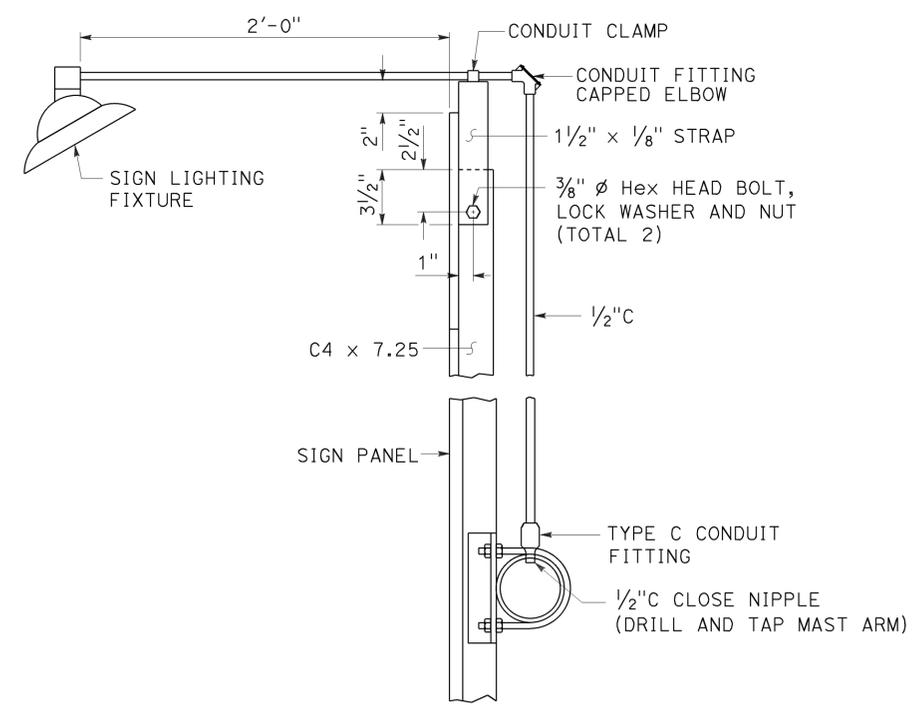
**POLE TOP DETAIL**  
DETAIL E



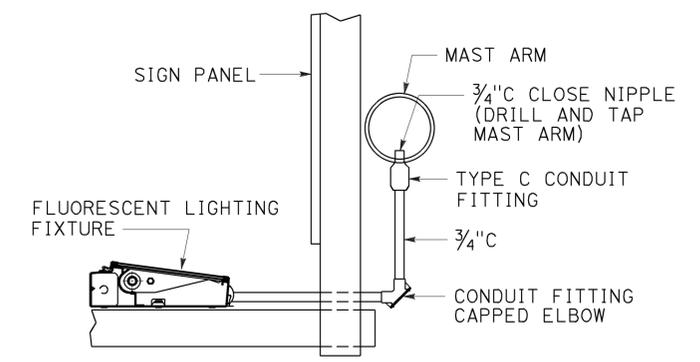
**PLAN**



**BASE PLATE AND ANCHORAGE DETAIL**  
DETAIL C



**SIGN LIGHTING FIXTURE TYPES 9A AND 9B**  
DETAIL D

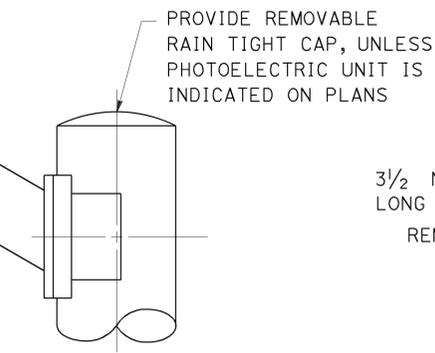
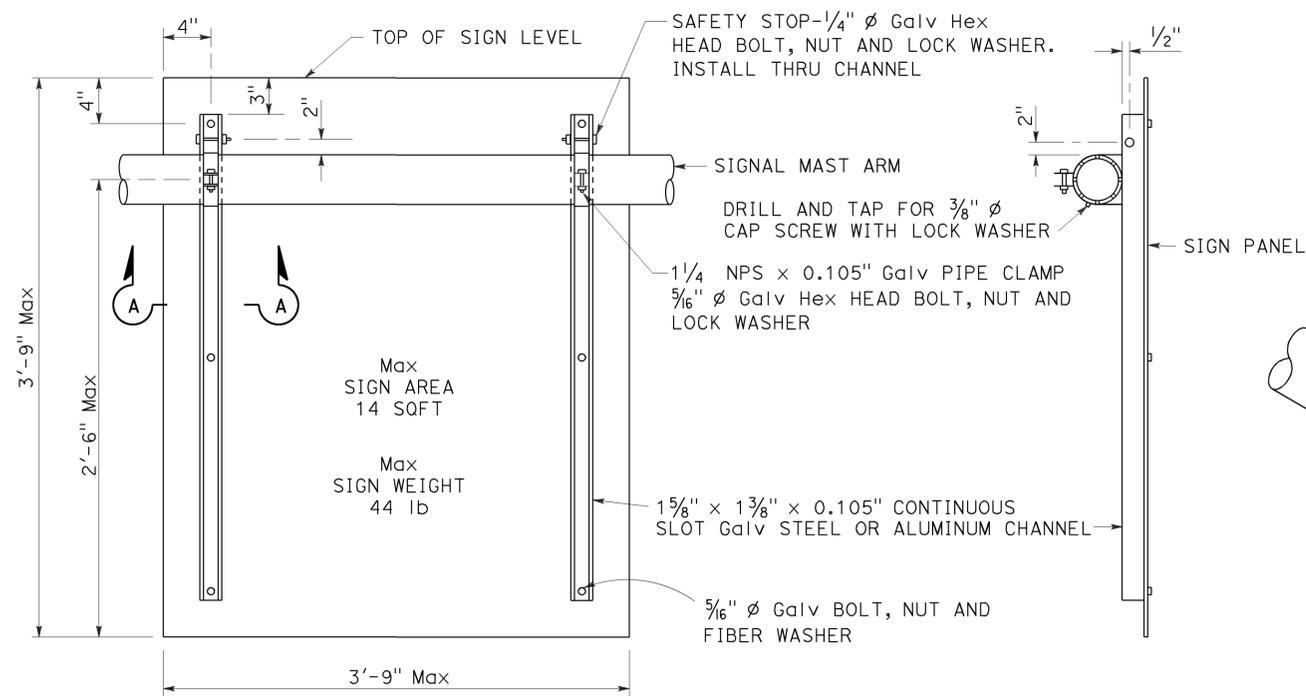


**SIGN LIGHTING FIXTURE TYPE 9 FRAME**  
DETAIL F

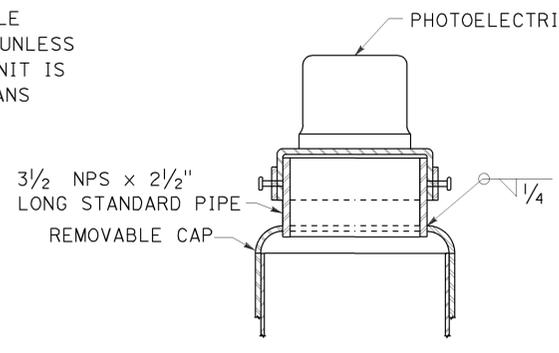
STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**ELECTRICAL SYSTEMS (FLASHING BEACON WITH TYPE 9, 9A AND 9B SIGN)**  
NO SCALE

RSP ES-7L DATED OCTOBER 30, 2015 SUPERSEDES STANDARD PLAN ES-7L DATED MAY 20, 2011 - PAGE 473 OF THE STANDARD PLANS BOOK DATED 2010.

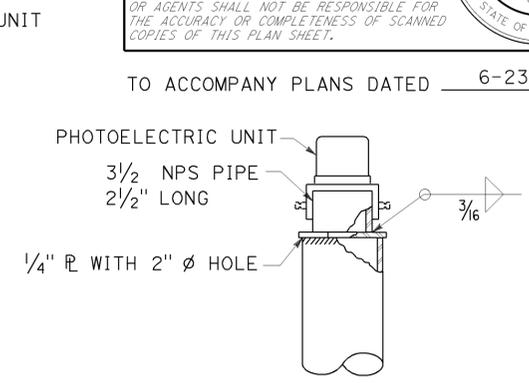
**REVISED STANDARD PLAN RSP ES-7L**



STANDARD TOP  
DETAIL B-1



MOUNTING ADAPTER FOR  
PHOTOELECTRIC UNIT  
DETAIL B-2



ALTERNATIVE  
MOUNTING ADAPTER  
DETAIL B-3

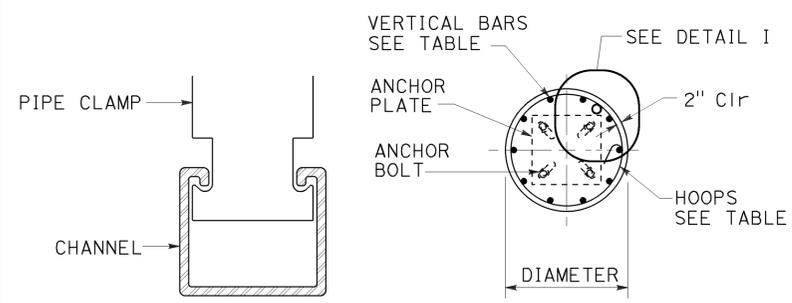
POLE TOP DETAILS  
DETAIL B

TO ACCOMPANY PLANS DATED 6-23-16

REAR VIEW

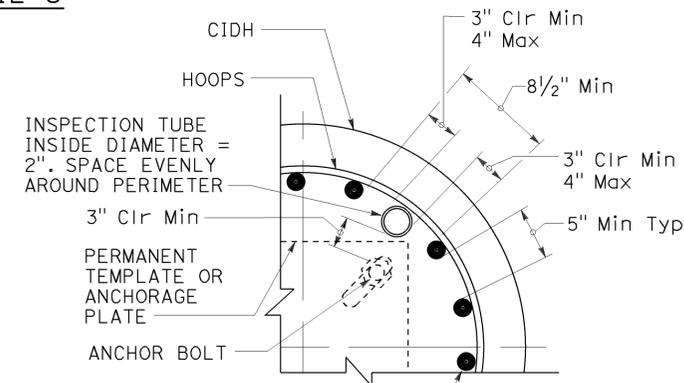
SIDE VIEW

SIGN MOUNTING DETAILS  
DETAIL U



SECTION A-A

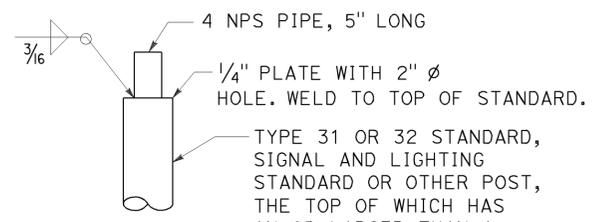
SECTION B-B



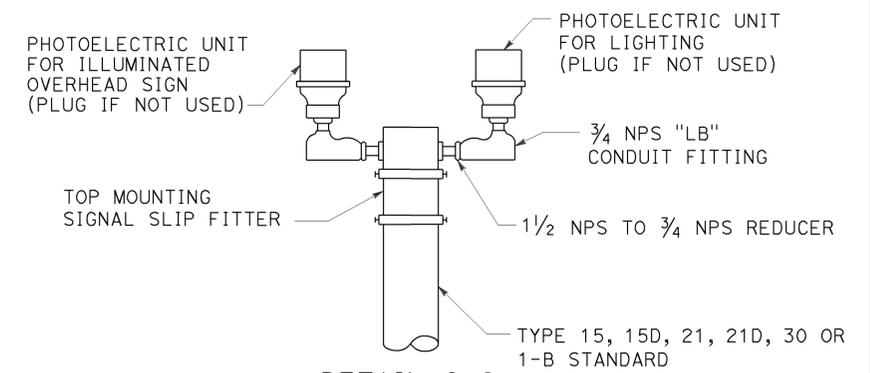
INSPECTION TUBE PLACEMENT  
DETAIL I

| CIDH DIAMETER | VERTICAL BARS | HOOPS (WELDED) | INSPECTION TUBE |
|---------------|---------------|----------------|-----------------|
| 2 ft          | 8-#5          | #4 AT 6        | 2               |
| 2.5 ft        | 10-#6         |                | 4*              |
| 3 ft          | 12-#7         | #5 AT 6        | 4               |
| 3.5 ft        | 14-#8         |                | 5               |
| 4 ft          | 18-#9         | 2-#4 AT 7      | 6               |
| 5 ft          | 22-#10        | 2-#5 AT 7      | 7               |
| 6 ft          | 26-#11        | 2-#6 AT 7      | 7               |

\* FOR SLIP BASE VERSIONS WITH 3 ANCHOR BOLTS USE 3 INSPECTION TUBES.



DETAIL C-1



DUAL PHOTOELECTRIC UNIT MOUNTING DETAIL  
DETAIL C

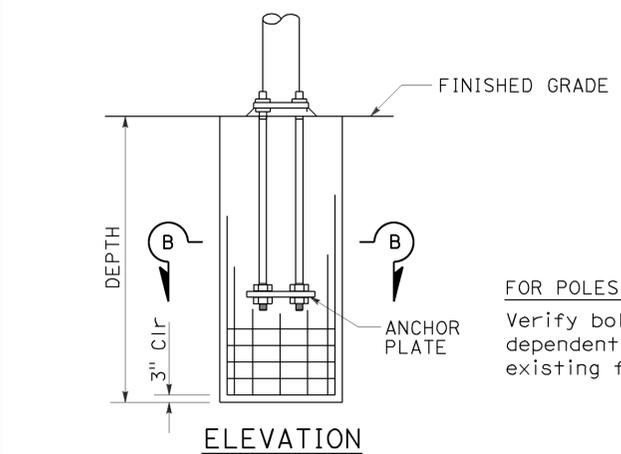
STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**ELECTRICAL SYSTEMS  
(SIGNAL AND LIGHTING STANDARD,  
DETAIL No. 2)**

NO SCALE

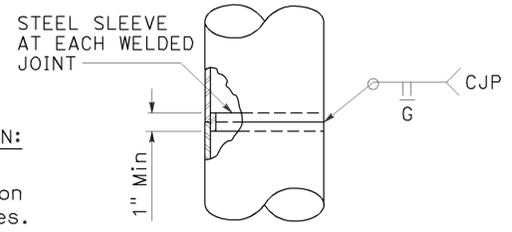
RSP ES-7N DATED OCTOBER 30, 2015 SUPERSEDES STANDARD PLAN ES-7N DATED MAY 20, 2011 - PAGE 475 OF THE STANDARD PLANS BOOK DATED 2010.

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

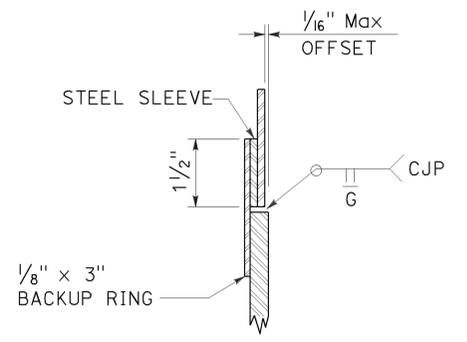


ELEVATION

CAST-IN-DRILLED-HOLE PILE FOUNDATION,  
REINFORCED PILE  
DETAIL A



FOR UNIFORM TUBE THICKNESS  
DETAIL T-1



AT TUBE THICKNESS CHANGE  
DETAIL T-2

POLE SPLICES  
DETAIL T

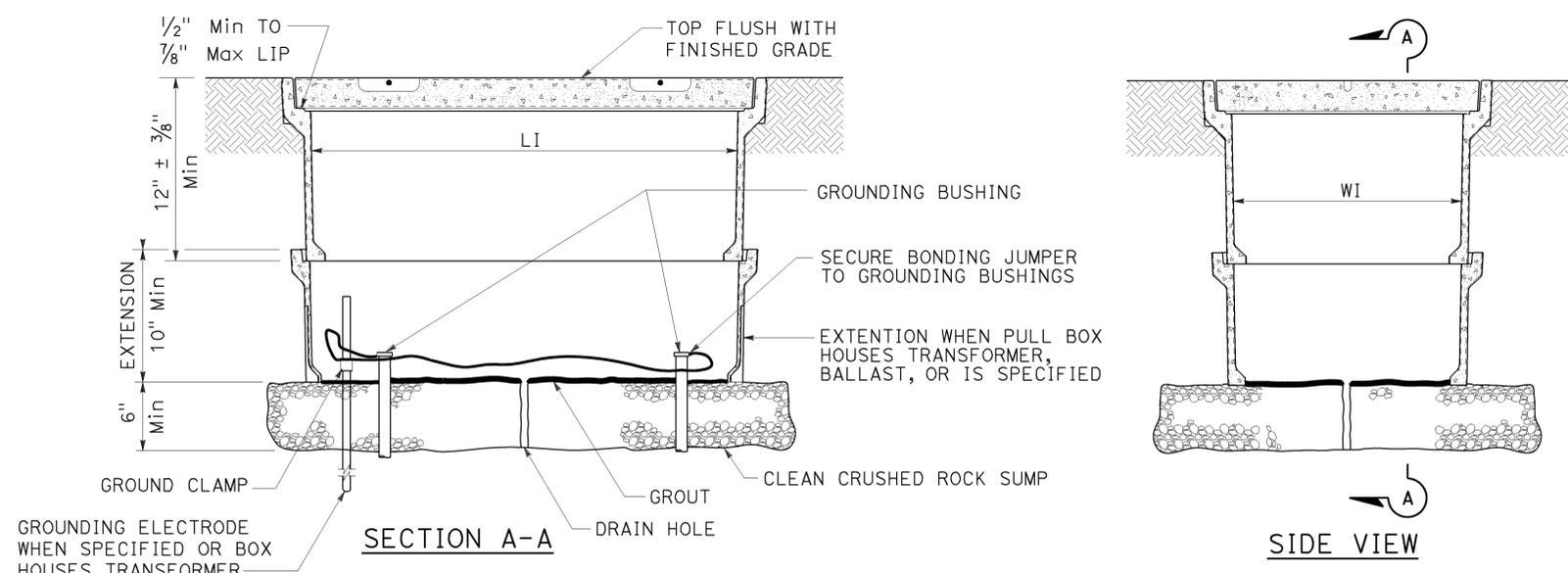
2010 REVISED STANDARD PLAN RSP ES-7N

|      |        |       |                          |           |              |
|------|--------|-------|--------------------------|-----------|--------------|
| DIST | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET NO. | TOTAL SHEETS |
| 04   | Mrn    | 1     | 8.0                      | 73        | 90           |

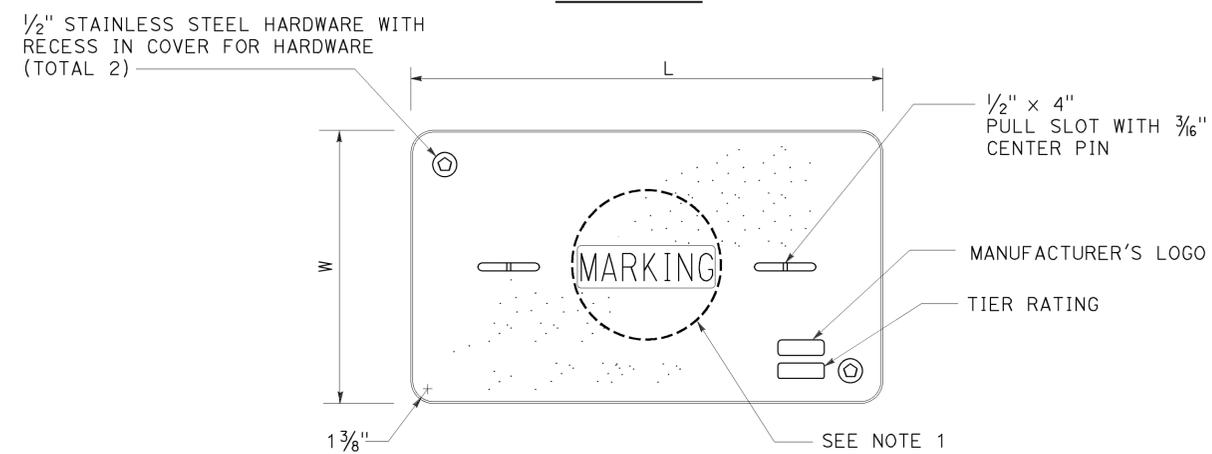
Theresa Gabriel  
 REGISTERED ELECTRICAL ENGINEER  
 October 30, 2015  
 PLANS APPROVAL DATE  
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

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

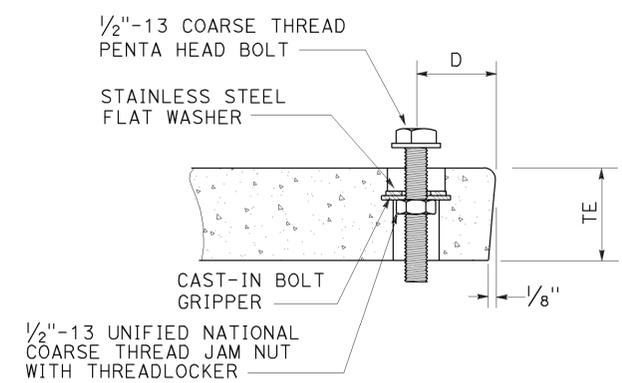
TO ACCOMPANY PLANS DATED 6-23-16



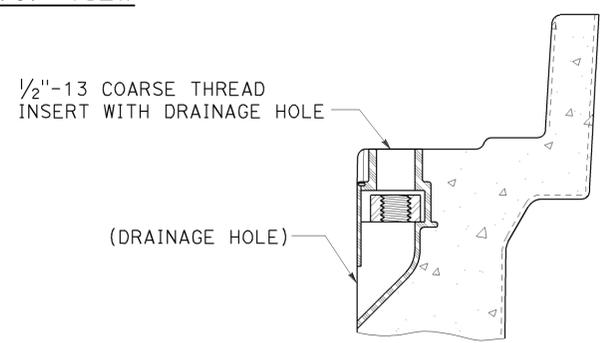
**INSTALLATION DETAILS**  
**DETAIL A**



**COVER TOP VIEW**



**TYPICAL COVER CAPTIVE BOLT**  
**OR SIMILAR**



**TYPICAL THREADED INSERT**  
**OR SIMILAR**

**NOTES:**

- Pull box covers shall be marked as follows: "SERVICE" Service circuits between service point and service disconnect; "SPRINKLER-CONTROL" sprinkler control circuits, 50 V or less; "CALTRANS" on all pull boxes, except pull boxes marked "SPRINKLER-CONTROL"; and "TELEPHONE" Telephone service;
  - No. 3 1/2 pull box.
    - "SIGNAL" - Traffic signal circuits with or without lighting or sign lighting circuits.
    - "LIGHTING" - Lighting or sign lighting circuits where voltage is under 600 V.
  - No. 5, 6, 9 or 9A pull box.
    - "TRAFFIC SIGNAL" - Traffic signal circuits with or without lighting or sign lighting circuits.
    - "LIGHTING" - Lighting or sign lighting circuits where voltage is under 600 V.
    - "LIGHTING-HIGH VOLTAGE" - Lighting or sign lighting circuits where voltage is above 600 V.
    - "IRRIGATION" - Circuits to irrigation controller 120 V or more.
    - "RAMP METER" - Ramp meter circuits.
    - "COUNT STATION" - Count or speed monitor circuits.
    - "COMMUNICATIONS" - Communication circuits.
    - "TOS COMMUNICATIONS" - TOS communication line.
    - "TOS POWER" - TOS power.
    - "TDC POWER" - Telephone demarcation cabinet power.
    - "CCTV" - Closed circuit television circuits.
    - "TMS" - Traffic monitoring station circuits.
    - "CMS" - Changeable message sign circuits.
    - "HAR" - Highway advisory radio circuits.
    - "BOOSTER PUMP" - Booster pump circuit.
- The nominal dimensions of the opening in which the cover sets shall be the same as the cover dimensions except the length and width dimensions shall be 1/8" greater.
- Covers and boxes shall be interchangeable with California standard male and female gages. When interchanged with a standard male or female gage, the top surfaces shall be flush within 1/8". Top outside radius of covers and pull boxes shall have a 1/8" radius.
- Pull box extension may be another pull box as long as the bottom edge of the pull box can fit into the cover opening.
- Dimensions for the cover for non-traffic pull box are nominal values.

| DIMENSION TABLE |                   |                         |                |             |             |        |        |                       |               |                |
|-----------------|-------------------|-------------------------|----------------|-------------|-------------|--------|--------|-----------------------|---------------|----------------|
| PULL BOX        | PULL BOX          |                         |                |             | COVER       |        |        |                       |               |                |
|                 | MINIMUM DEPTH BOX | MINIMUM DEPTH EXTENSION | MINIMUM WEIGHT | LI Min      | WI Min      | TE     | D      | L                     | W             | MINIMUM WEIGHT |
| No. 3 1/2       | 12"               | N/A                     | 40 lb          | 1' - 3"     | 9"          | 1 3/4" | 1 3/4" | 1'-3 1/4" - 1'-3 3/8" | 10" - 10 1/8" | 30 lb          |
| No. 5           | 12"               | 10"                     | 55 lb          | 1' - 8"     | 11"         | 2"     | 1 3/4" | 1'-11 1/4"            | 1'-1 3/4"     | 60 lb          |
| No. 6           | 12"               | 10"                     | 70 lb          | 2' - 4 1/4" | 1' - 3 1/4" | 2"     | 2"     | 2'-6 1/2"             | 1'-5 1/2"     | 85 lb          |

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**ELECTRICAL SYSTEMS**  
**(NON-TRAFFIC PULL BOX)**  
NO SCALE

RSP ES-8A DATED OCTOBER 30, 2015 SUPERSEDES RSP ES-8A DATED JULY 19, 2013 AND RSP ES-8A DATED JANUARY 20, 2012 THAT SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP ES-8A**

2010 REVISED STANDARD PLAN RSP ES-8A

| DIST | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
|------|--------|-------|--------------------------|-----------|--------------|
| 04   | Mrn    | 1     | 8.0                      | 74        | 90           |

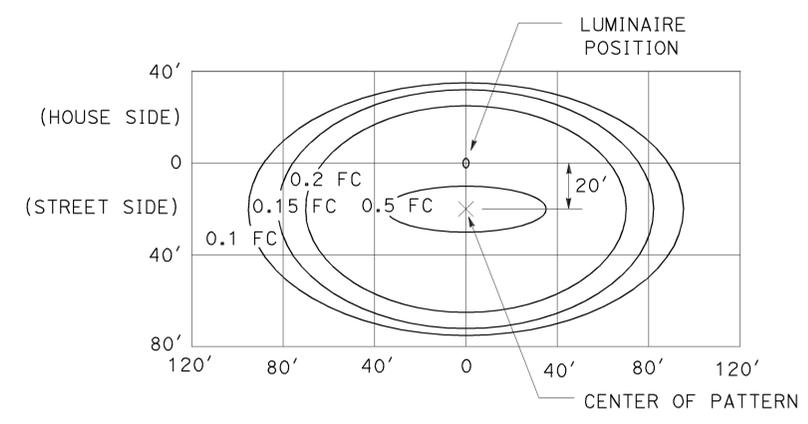
*Theresa Gabriel*  
 REGISTERED ELECTRICAL ENGINEER  
 Theresa Aziz Gabriel  
 No. E15129  
 Exp. 6-30-16  
 ELECTRICAL  
 STATE OF CALIFORNIA

October 30, 2015  
 PLANS APPROVAL DATE

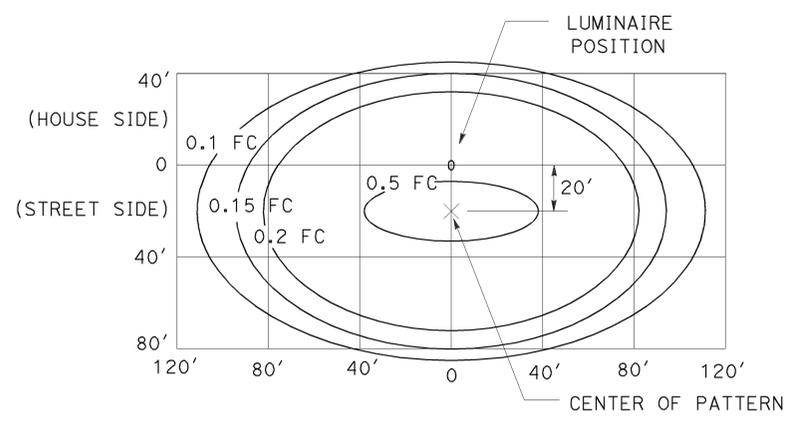
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TO ACCOMPANY PLANS DATED 6-23-16

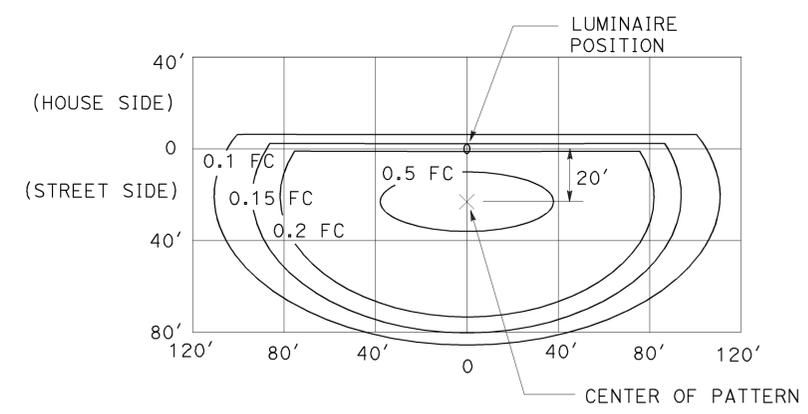
**NOTE:**  
Curves represent the minimum footcandle (FC).



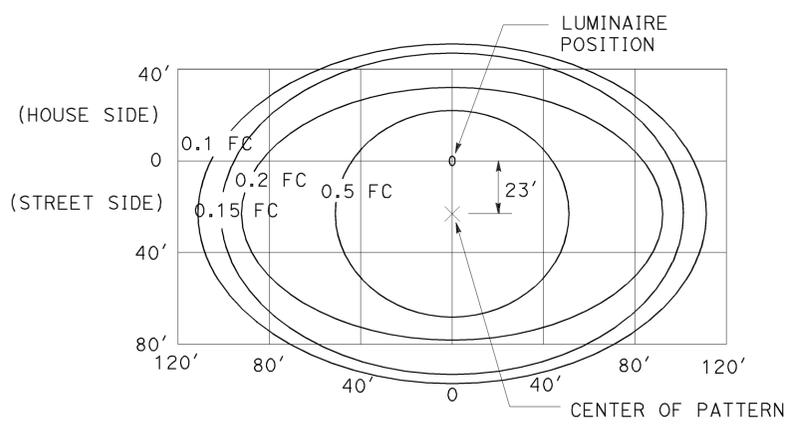
**LED LUMINAIRE 165 W**  
34' Mounting Height



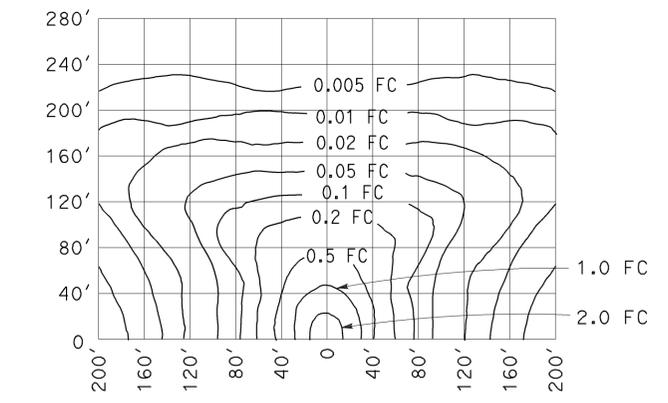
**LED LUMINAIRE 235 W**  
40' Mounting Height



**LED LUMINAIRE 235 W**  
40' Mounting Height  
with back side control



**LED LUMINAIRE 300 W**  
40' Mounting Height



**LOW-PRESSURE SODIUM LUMINAIRE 180 W**  
40' Mounting Height  
Lamp operated at 33,000 lm

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**ELECTRICAL SYSTEMS  
(ISOFOOTCANDLE CURVES)**

NO SCALE

RSP ES-10A DATED OCTOBER 30, 2015 SUPERSEDES RSP ES-10A DATED JULY 19, 2013 THAT SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP ES-10A**

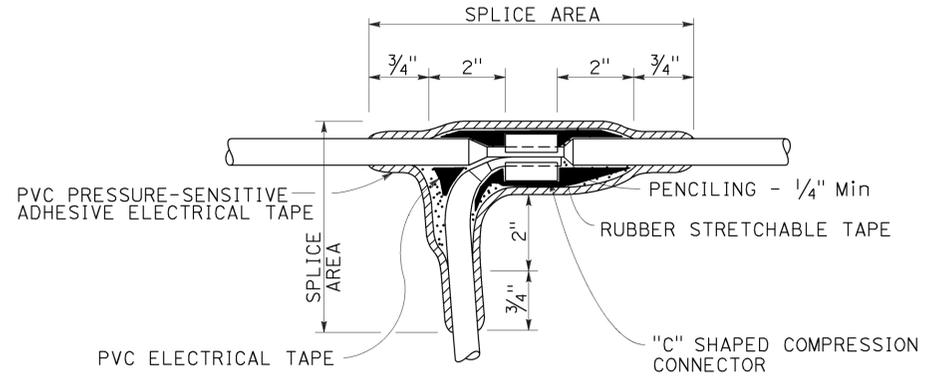
2010 REVISED STANDARD PLAN RSP ES-10A

| Dist | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
|------|--------|-------|--------------------------|-----------|--------------|
| 04   | Mrn    | 1     | 8.0                      | 75        | 90           |

*Theresa Gabriel*  
 REGISTERED ELECTRICAL ENGINEER  
 October 30, 2015  
 PLANS APPROVAL DATE

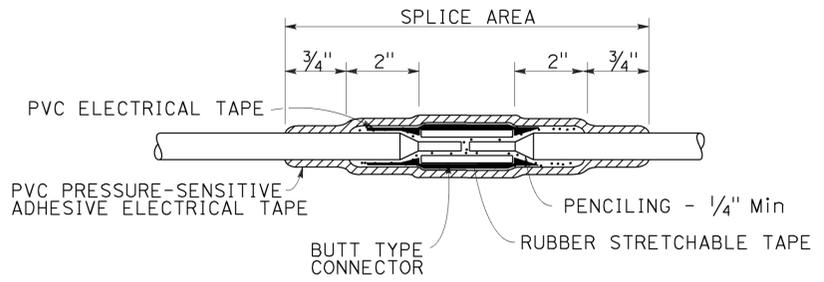
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TO ACCOMPANY PLANS DATED 6-23-16



**TYPE C SPLICE**

See Note 3

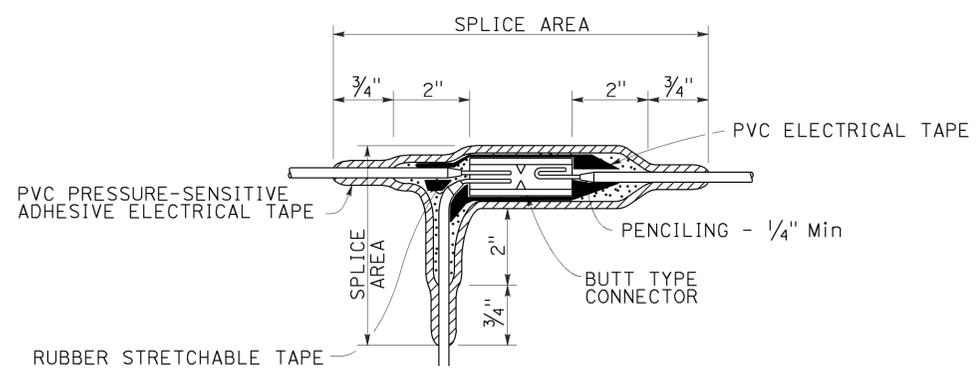


**TYPE S SPLICE**

See Note 4

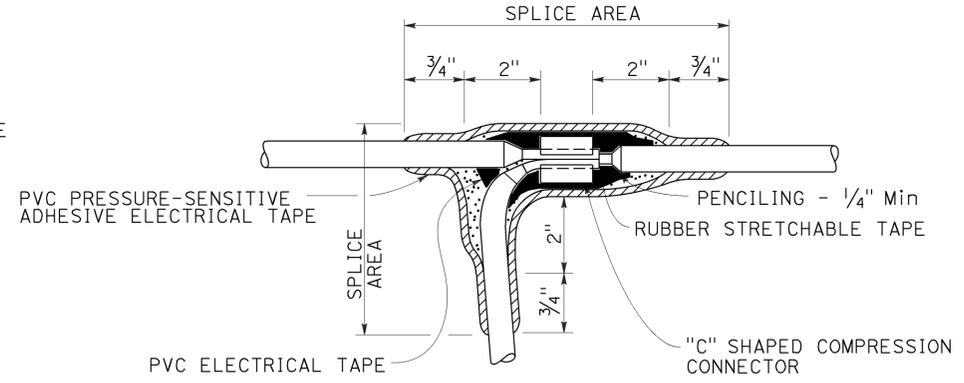
**NOTES:**

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.



**TYPE ST SPLICE**

See Note 5



**TYPE T SPLICE**

See Note 5

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

|      |        |       |                          |           |              |
|------|--------|-------|--------------------------|-----------|--------------|
| Dist | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
| 04   | Mirn   | 1     | 8.0                      | 76        | 90           |

*Theresa Gabriel*  
 REGISTERED ELECTRICAL ENGINEER  
 April 15, 2016  
 PLANS APPROVAL DATE

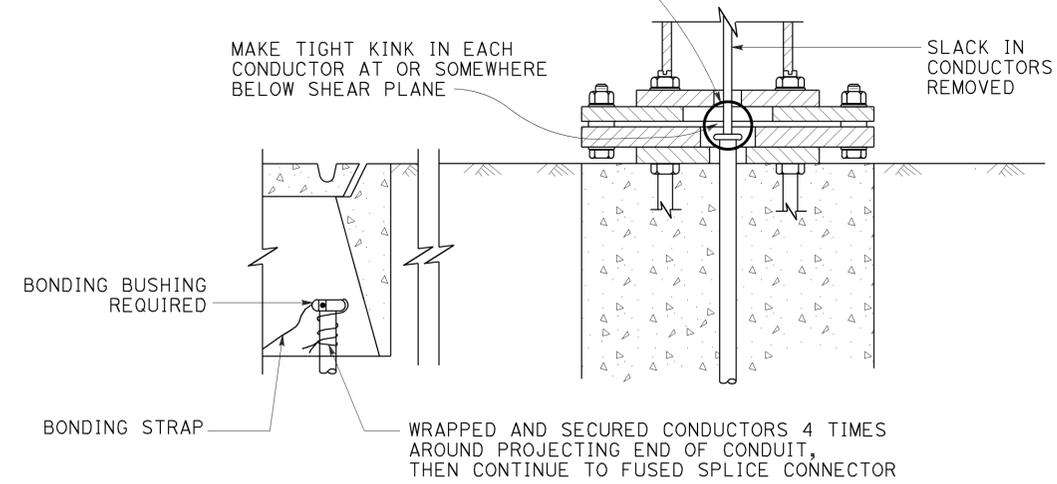
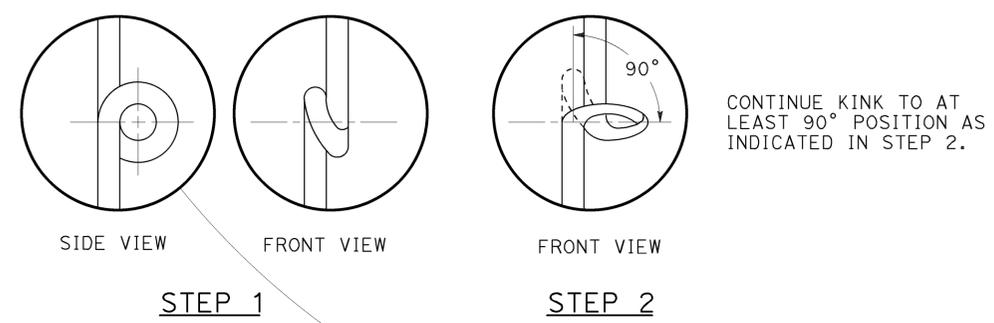
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

TO ACCOMPANY PLANS DATED 6-23-16

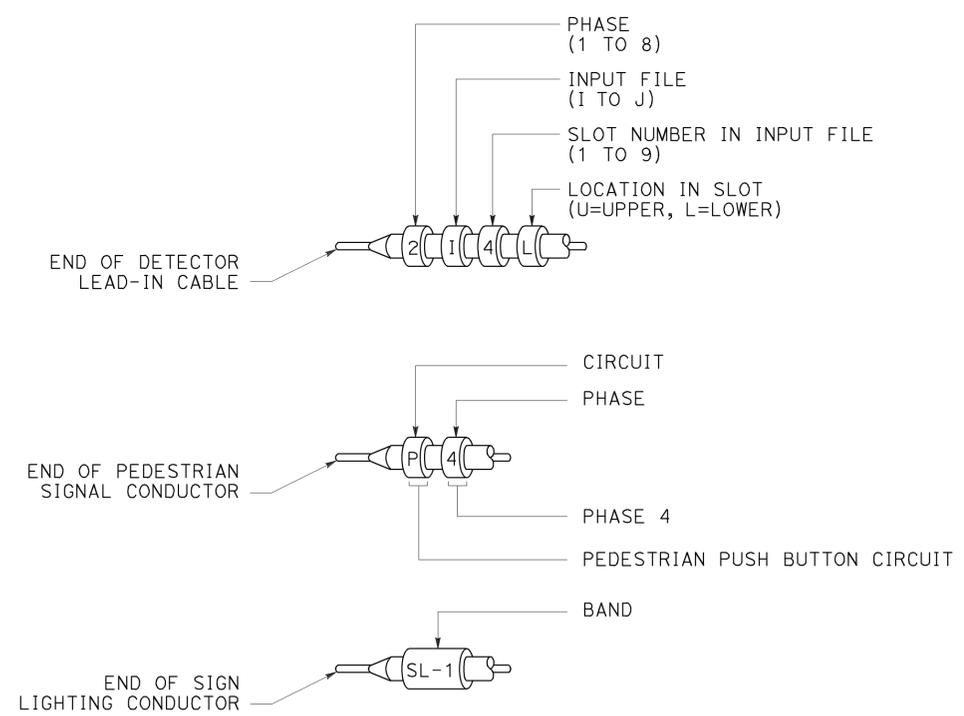
| CIRCUIT VOLTAGE | FUSE VOLTAGE RATING | FUSE CURRENT RATING |       |                             |                         |   |       |       |
|-----------------|---------------------|---------------------|-------|-----------------------------|-------------------------|---|-------|-------|
|                 |                     | HPS LAMP BALLAST    |       | LOW PRESSURE SODIUM BALLAST | INDUCTION SIGN LIGHTING | SINGLE PHASE (TWO WIRE) TRANSFORMERS (PRIMARY SIDE) |       |       |
|                 |                     | 70 W                | 100 W | 180 W                       | 85 W                    | 1 KVA   | 2 KVA | 3 KVA |
| 120 V           | 250 V               | 5 A                 | 5 A   | 5 A                         | 5 A                     | 10 A  | 20 A  | 30 A  |
| 240 V           | 250 V               | 5 A                 | 5 A   | 5 A                         | 5 A                     | 6 A   | 10 A  | 20 A  |
| 480 V           | 500-600 V           | 5 A                 | 5 A   | 3 A                         | 1 A<br>(SEE NOTE 2)     | 3 A   | 6 A   | 10 A  |

- NOTES:**
- Primary lines of multiple ballasts shall be provided with fused connectors. Fuse ratings shall be as noted above.
  - See Revised Standard Plan RSP ES-15D, Type SC3 control.

**FUSE RATINGS FOR FUSED CONNECTORS**



**KINKING DETAIL FOR SLIP BASE STANDARDS**  
DETAIL A



**TYPICAL BANDING DETAILS**  
DETAIL B

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**ELECTRICAL SYSTEMS  
 (FUSE RATING, KINKING AND BANDING DETAIL)**

NO SCALE

RSP ES-13B DATED APRIL 15, 2016 SUPERSEDES STANDARD PLAN ES-13B DATED MAY 20, 2011 - PAGE 492 OF THE STANDARD PLANS BOOK DATED 2010.

2010 REVISED STANDARD PLAN RSP ES-13B

|      |        |       |                          |           |              |
|------|--------|-------|--------------------------|-----------|--------------|
| Dist | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
| 04   | Mrn    | 1     | 8.0                      | 77        | 90           |

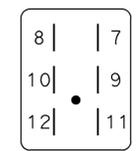
*Theresa Gabriel*  
 REGISTERED ELECTRICAL ENGINEER  
 April 15, 2016  
 PLANS APPROVAL DATE

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

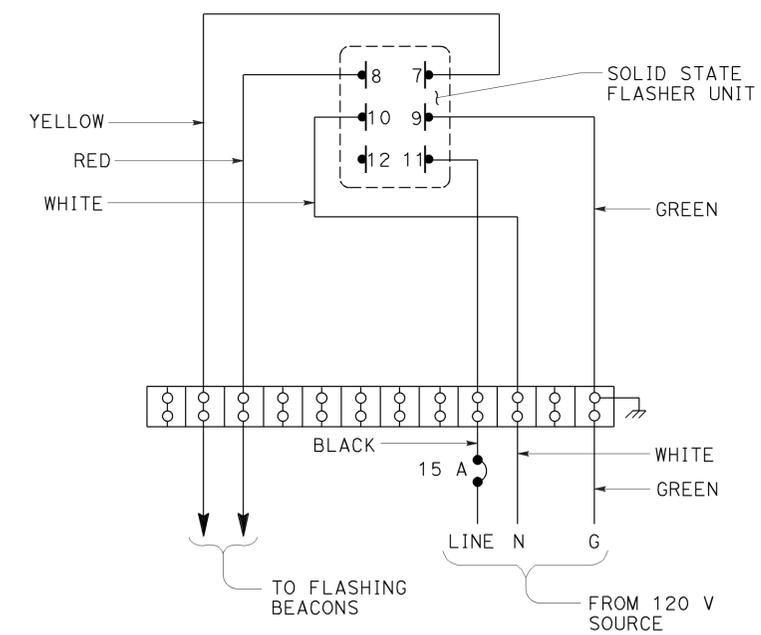
TO ACCOMPANY PLANS DATED 6-23-16

THE FLASHER SHALL MATE WITH A CINCH-JONES SOCKET S-406-SB OR EQUAL AND CONNECTED AS FOLLOWS:

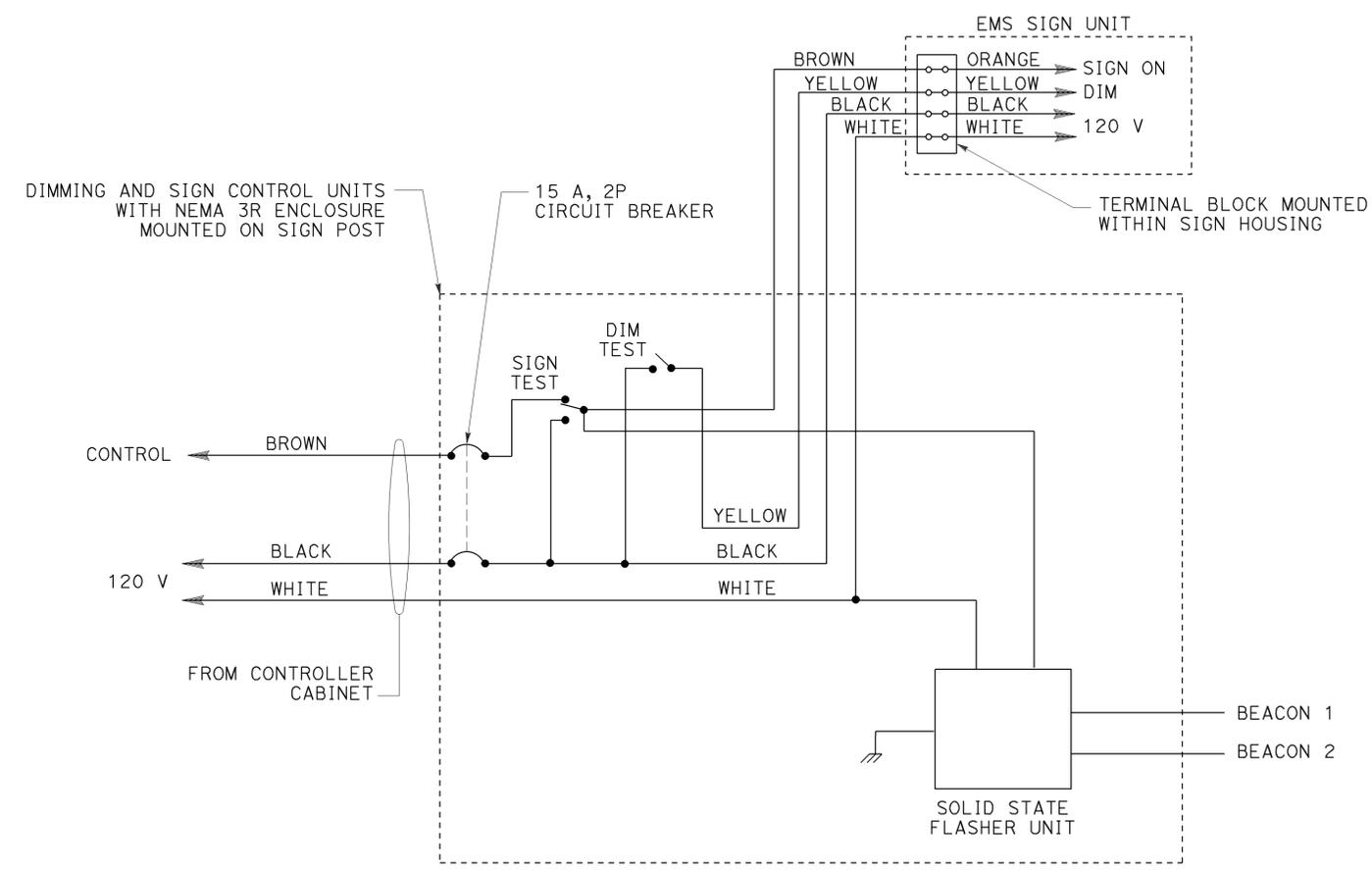
| PIN | CIRCUIT        | PIN | CIRCUIT  |
|-----|----------------|-----|----------|
| 7   | LOAD           | 10  | NEUTRAL  |
| 8   | LOAD           | 11  | LINE     |
| 9   | CHASSIS GROUND | 12  | NOT USED |



**CONNECTOR SOCKET  
SOLID STATE FLASHER UNIT**



**WIRING DIAGRAM  
FLASHING BEACON CONTROL ASSEMBLY  
DETAIL B**



**WIRING DIAGRAM  
LED EXTINGUISHABLE MESSAGE SIGN  
DETAIL A**

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**ELECTRICAL SYSTEMS  
 (CONTROL ASSEMBLY  
 WIRING DIAGRAMS)**

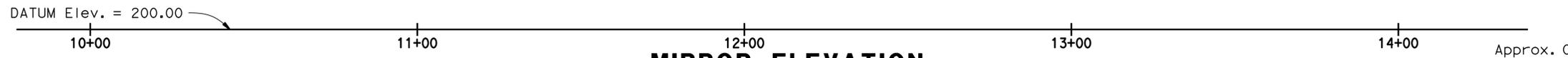
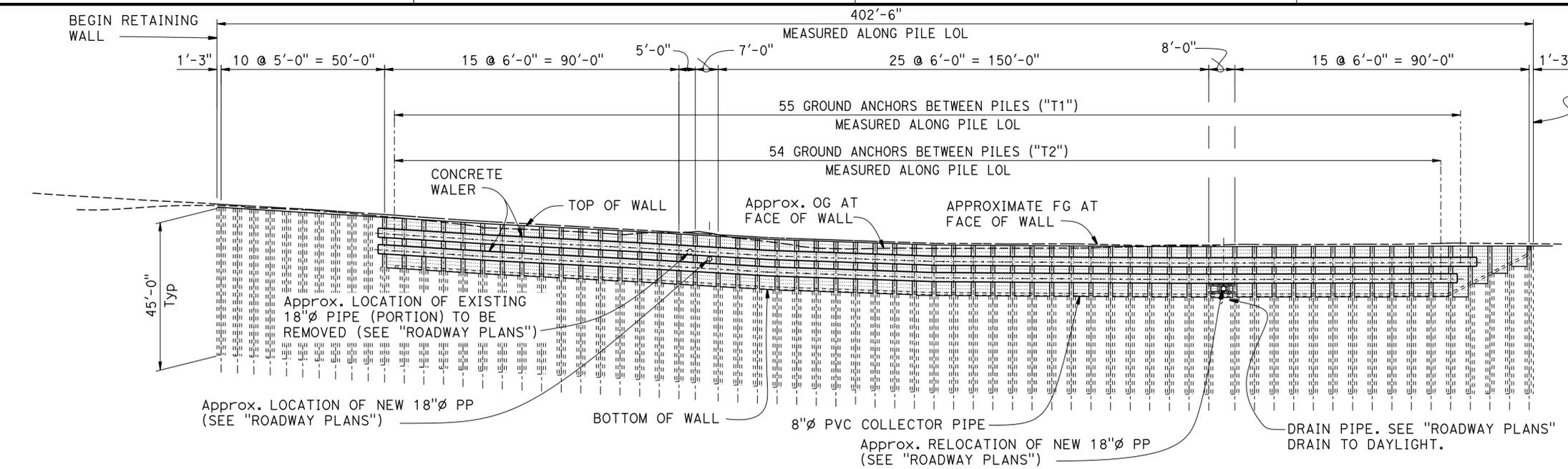
NO SCALE

RSP ES-14B DATED APRIL 15, 2016 SUPERSEDES STANDARD PLAN ES-14B DATED MAY 20, 2011 - PAGE 494 OF THE STANDARD PLANS BOOK DATED 2010.

2010 REVISED STANDARD PLAN RSP ES-14B

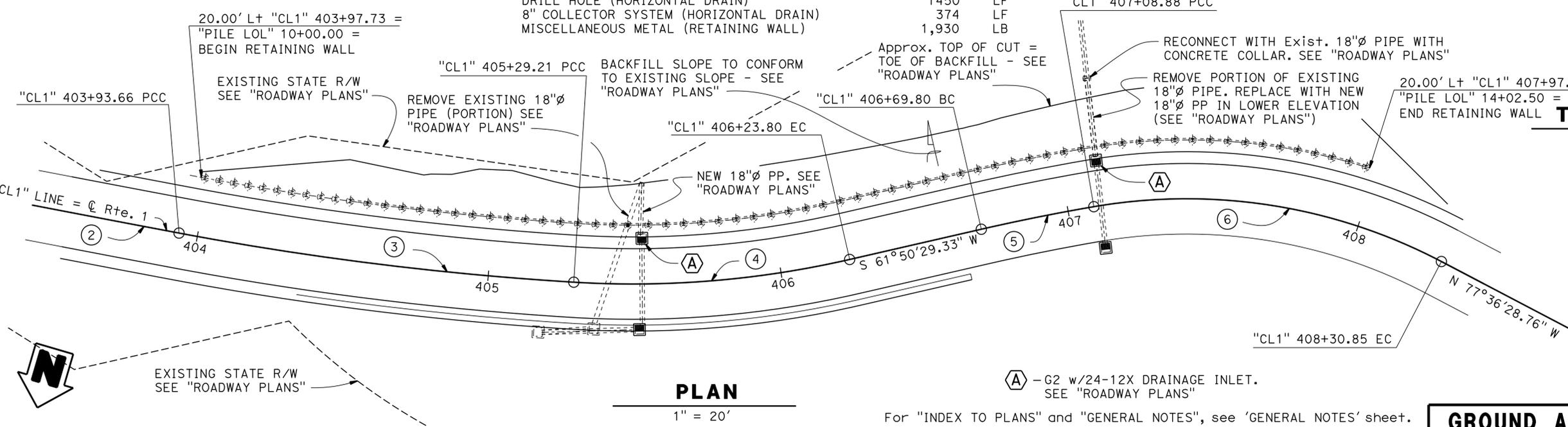
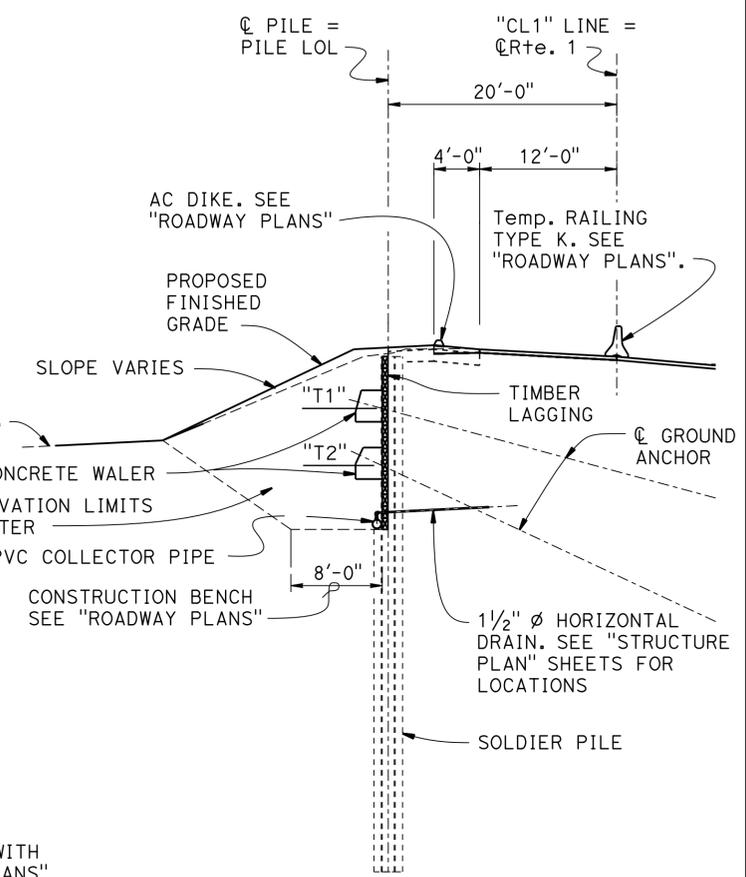
| DIST | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
|------|--------|-------|--------------------------|-----------|--------------|
| 04   | Mrn    | 1     | 8.0                      | 78        | 90           |

3-1-16  
 REGISTERED CIVIL ENGINEER DATE  
 6-23-16  
 PLANS APPROVAL DATE  
 BANG H. NGUYEN  
 No. 62080  
 Exp. 9-30-17  
 CIVIL  
 STATE OF CALIFORNIA  
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| No. | ⊕ | R         | Δ            | T      | L       |
|-----|---|-----------|--------------|--------|---------|
| 2   |   | 12960.62' | 00°37'58.71" | 71.59' | 143.18' |
| 3   |   | 1087.13'  | 07°08'37.92" | 67.86' | 135.55' |
| 4   |   | 330.00'   | 16°25'21.36" | 47.62' | 94.59'  |
| 5   |   | 703.64'   | 03°10'56.14" | 19.55' | 39.08'  |
| 6   |   | 187.01'   | 37°22'05.77" | 63.24' | 121.97' |

|   |        |          |
|---|--------|----------|
| STRUCTURE EXCAVATION (SOLDIER PILE WALL)          | 835    | CY       |
| STRUCTURE BACKFILL (SOLDIER PILE WALL)            | 535    | CY       |
| CONCRETE BACKFILL (SOLDIER PILE WALL)             | 188    | CY       |
| LEAN CONCRETE BACKFILL                            | 380    | CY       |
| GROUND ANCHOR (SUBHORIZONTAL)                     | 109    | EA       |
| STEEL SOLDIER PILE (W 14 X 120)                   | 3,105  | LF       |
| 30" DRILLED HOLE                                  | 3,105  | LF       |
| STRUCTURAL CONCRETE (WALER)                       | 142    | CY       |
| BAR REINFORCING STEEL (WALER)                     | 68,836 | LB       |
| TIMBER LAGGING                                    | 31     | MFBM     |
| CLEAN AND PAINT STEEL SOLDIER PILING              |        | LUMP SUM |
| FURNISH AND INSTALL DRAIN PIPE (HORIZONTAL DRAIN) | 1450   | LF       |
| DRILL HOLE (HORIZONTAL DRAIN)                     | 1450   | LF       |
| 8" COLLECTOR SYSTEM (HORIZONTAL DRAIN)            | 374    | LF       |
| MISCELLANEOUS METAL (RETAINING WALL)              | 1,930  | LB       |



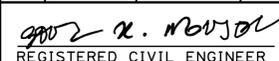
**TYPICAL SECTION**  
1/8" = 1'-0"

DESIGN: Ben Nguyen  
 DETAILS: Jeff Thorne  
 QUANTITIES: Amador Alcantara  
 CHECKED: Amador Alcantara  
 CHECKED: Amador Alcantara  
 CHECKED: Rafael Salazar  
 LOAD & RESISTANCE FACTOR DESIGN  
 LAYOUT: Ben Nguyen  
 SPECIFICATIONS: X  
 LIVE LOADING: HL93 W/"LOW-BOY"; PERMIT DESIGN VEHICLE  
 CHECKED: Amador Alcantara  
 PLANS AND SPECS COMPARED: X  
 ORIGINAL SCALE IN INCHES FOR REDUCED PLANS: 0 1 2 3

**GROUND ANCHOR SOLDIER PILE WALL**  
**RETAINING WALL AT P.M. 8.05**  
**GENERAL PLAN**  
 BRIDGE NO. 27E0072  
 POST MILE 8.05  
 DIVISION OF ENGINEERING SERVICES  
 STRUCTURE DESIGN  
**DESIGN BRANCH 4**

| DIST | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
|------|--------|-------|--------------------------|-----------|--------------|
| 04   | Mrn    | 1     | 8.0                      | 79        | 90           |

|  |  |                |
|--|--|----------------|
| <br>REGISTERED CIVIL ENGINEER |  | 3-1-16<br>DATE |
| 6-23-16<br>PLANS APPROVAL DATE   |  |                |

|   |  |
|---|--|
| BANG H. NGUYEN<br>No. 62080<br>Exp. 9-30-17<br>CIVIL<br>STATE OF CALIFORNIA |  |
|---|--|

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**GENERAL NOTES**  
**LOAD AND RESISTANCE FACTOR DESIGN**

**DESIGN:**  
\* AASHTO LRFD Bridge Design Specifications, 4th edition with the 2010, 2011, Interims and the California Amendments v

**LIVE LOADING:**  
2'-0" Soil Surcharge

**SEISMIC LOADING:**  
Ground Anchor - 22 kips/ft

**CONCRETE:**  
f<sub>y</sub> = 60 ksi  
f'c = 3.6 ksi

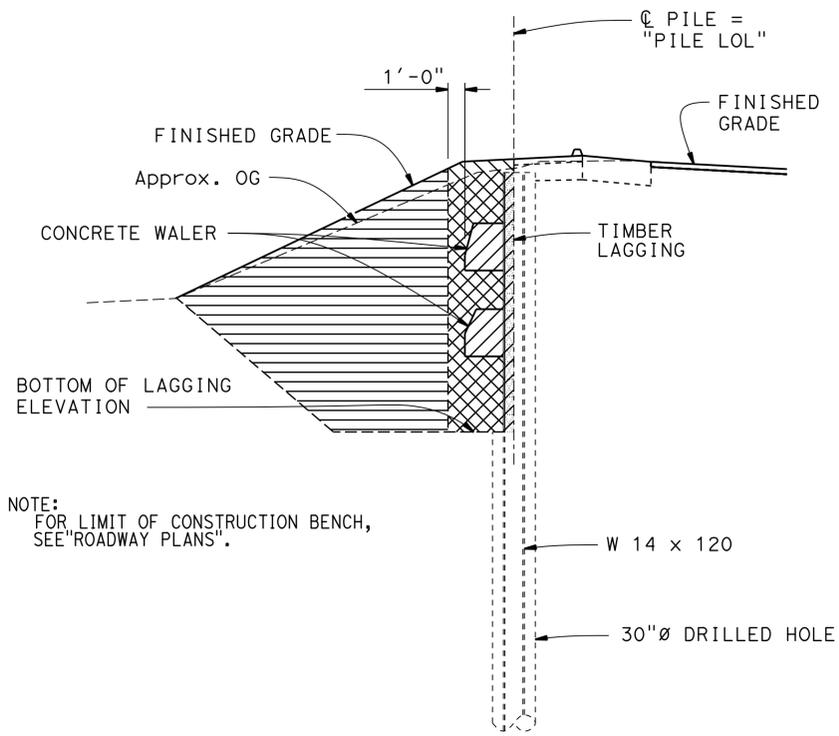
**STRUCTURAL STEEL (new construction):**  
f<sub>y</sub> = Grade 36

**STRUCTURAL TIMBER:**  
Timber Lagging Size: 6" (deep) x 12" (wide)

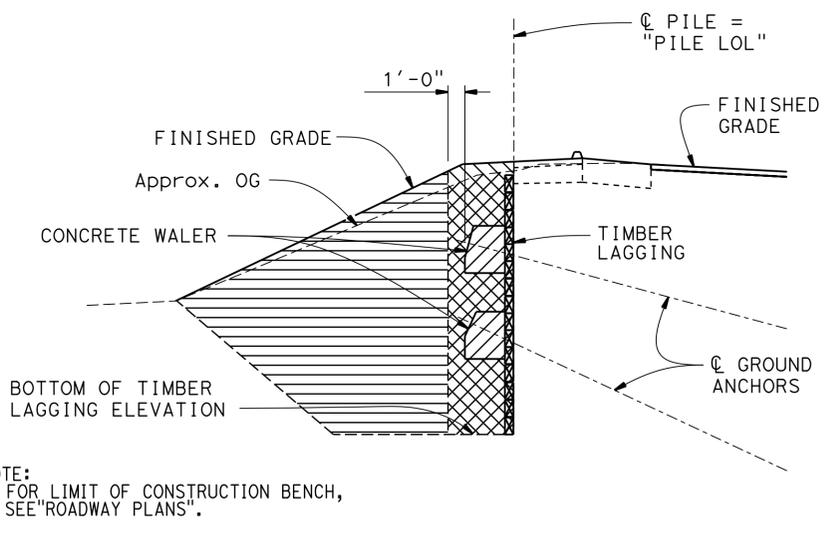
**SOIL PARAMETERS:**

GROUND ANCHOR WALL:  
SLIDE ROCK -  $\phi = 16^\circ$     C = 0 psf     $\gamma = 130$  pcf  
FOUNDATION ROCK -  $\phi = 32^\circ$     C = 0 psf     $\gamma = 135$  pcf

**PRESTRESSING STEEL (GROUND ANCHOR):**  
See 'SUB HORIZONTAL GROUND ANCHOR DETAILS' sheet



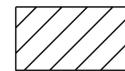
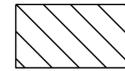
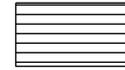
**TYPICAL SECTION AT SOLDIER PILE**



**TYPICAL SECTION BETWEEN SOLDIER PILES**

**LIMITS OF EXCAVATION AND BACKFILL**  
NO SCALE

**LEGEND :**

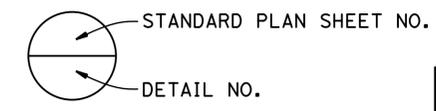
-  Structure Excavation (SOLDIER PILE WALL)
-  Structure Backfill (SOLDIER PILE WALL)
-  Roadway Excavation & Embankment

**INDEX TO PLANS**

1. GENERAL PLAN
2. GENERAL NOTES
3. STRUCTURE PLAN NO. 1
4. STRUCTURE PLAN NO. 2
5. TYPICAL SECTION
6. MISCELLANEOUS DETAILS NO. 1
7. MISCELLANEOUS DETAILS NO. 2
8. MISCELLANEOUS DETAILS NO. 3
9. MISCELLANEOUS DETAILS NO. 4
10. RETAINING WALL DETAILS
11. SUB HORIZONTAL GROUND ANCHOR DETAILS
12. SOLDIER PILE WALL LAGGING DETAILS
13. LOG OF TEST BORINGS 1 of 1

**STANDARD PLANS DATED 2010**

- A10A ACRONYMS AND ABBREVIATIONS (SHEET 1 OF 2)
- RSP A10B ACRONYMS AND ABBREVIATIONS (SHEET 2 OF 2)
- RSP A10F LEGEND - SOIL (SHEET 1 OF 2)
- RSP A10G LEGEND - SOIL (SHEET 2 OF 2)



|  |  |   |  |                |  |
|--|--|---|--|----------------|--|
| DESIGN BY Ben Nguyen    CHECKED Amador Alcantara         |  | <b>STATE OF CALIFORNIA</b><br><b>DEPARTMENT OF TRANSPORTATION</b> | DIVISION OF ENGINEERING SERVICES<br>STRUCTURE DESIGN<br><b>DESIGN BRANCH 4</b> | BRIDGE NO.     | <b>GROUND ANCHOR SOLDIER PILE WALL</b><br><b>RETAINING WALL AT P.M. 8.05</b><br><b>GENERAL NOTES</b> |
| DETAILS BY Jeff Thorne    CHECKED Amador Alcantara       |  |   |  | 27E0072        |  |
| QUANTITIES BY Amador Alcantara    CHECKED Rafael Salazar |  |   |  | POST MILE 8.05 |  |

|  |  |   |   |   |   |               |                                      |                         |   |  |         |       |
|--|--|---|---|---|---|---------------|--------------------------------------|-------------------------|---|--|---------|-------|
| STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 09-01-10) | ORIGINAL SCALE IN INCHES FOR REDUCED PLANS | 0 | 1 | 2 | 3 | UNIT: 59-3579 | PROJECT NUMBER & PHASE: 0400021259 1 | CONTRACT NO.: 04-268904 | DISREGARD PRINTS BEARING EARLIER REVISION DATES | REVISION DATES<br>4-18-16    5-19-16    3-28-16    4-15-16 | SHEET 2 | OF 13 |
|--|--|---|---|---|---|---------------|--------------------------------------|-------------------------|---|--|---------|-------|

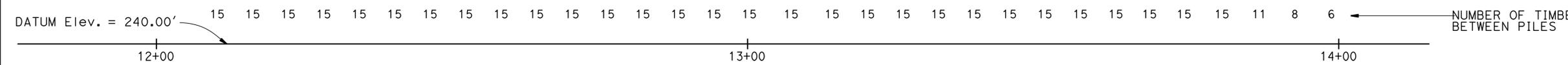
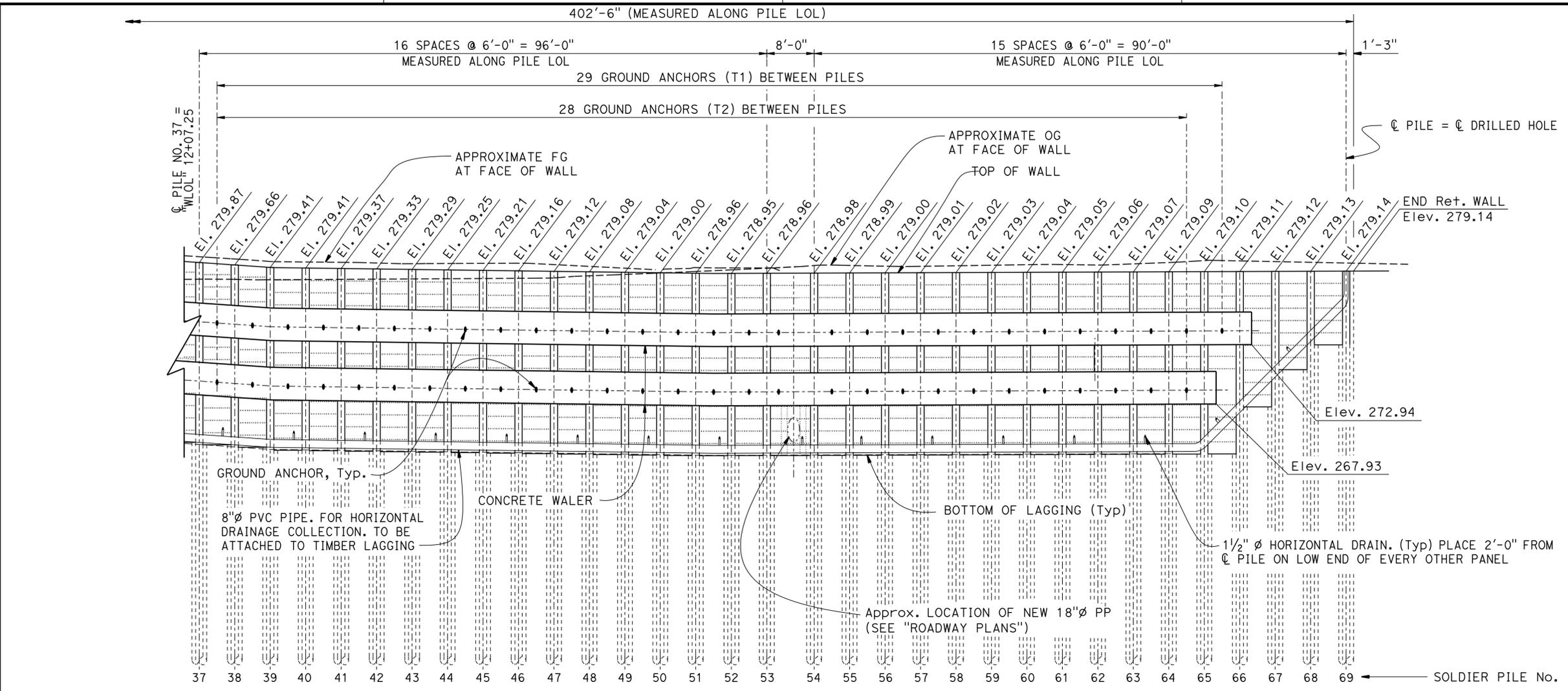
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13445  
 TIME PLOTTED =>  
 13-OCT-2016  
 DATE PLOTTED =>  
 8127688  
 USERNAME =>



| DIST | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
|------|--------|-------|--------------------------|-----------|--------------|
| 04   | Mrn    | 1     | 8.0                      | 81        | 90           |

3-1-16  
 REGISTERED CIVIL ENGINEER DATE  
 6-23-16  
 PLANS APPROVAL DATE  
 BANG H. NGUYEN  
 No. 62080  
 Exp. 9-30-17  
 CIVIL  
 STATE OF CALIFORNIA  
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**PART MIRROR ELEVATION**

HORIZONTAL : 1" = 10'  
 VERTICAL : 1" = 5'

**PART PLAN**

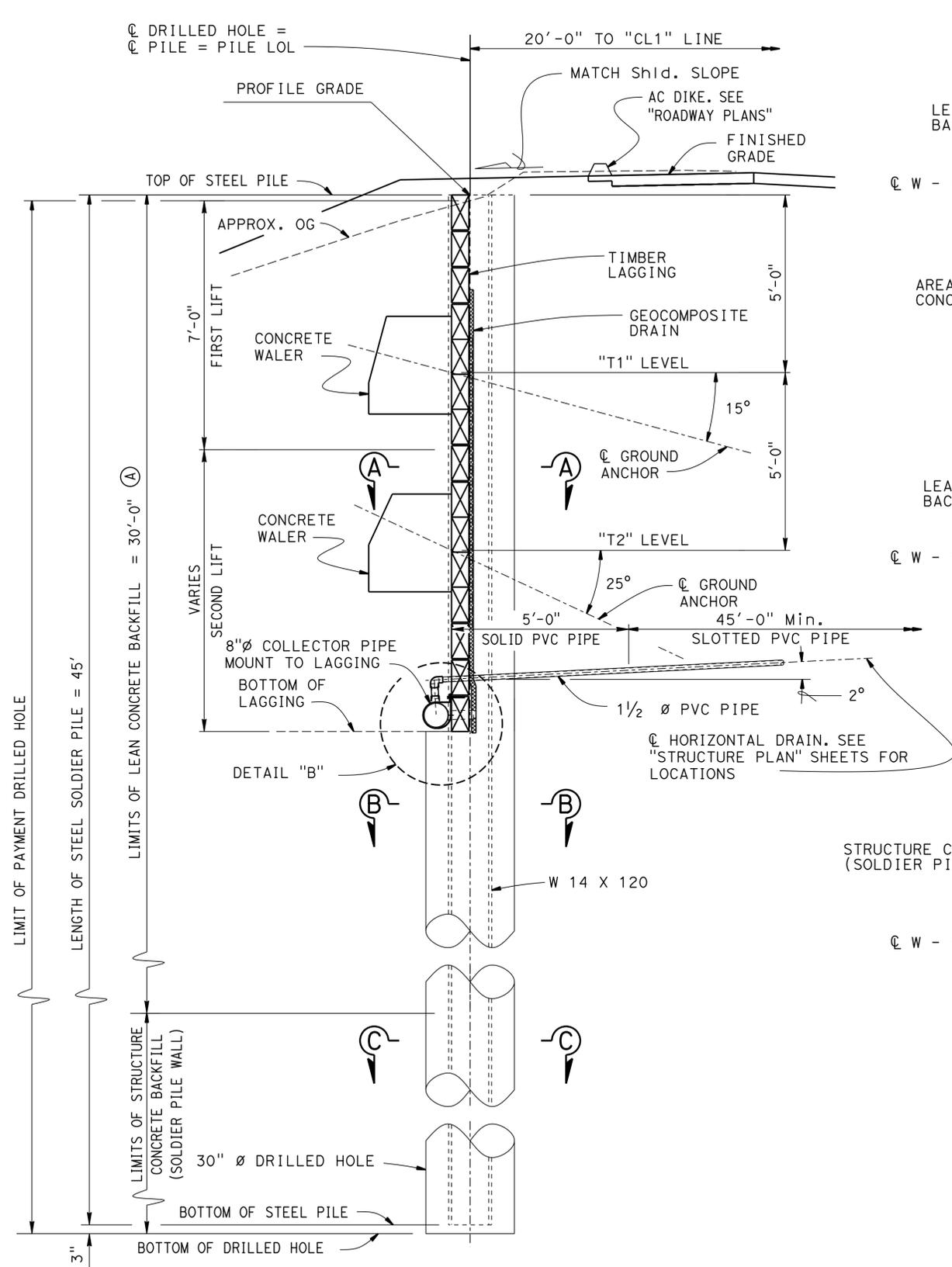
1" = 10'

|  |  |   |   |                    |   |
|--|--|---|---|--------------------|---|
| DESIGN BY Ben Nguyen<br>CHECKED Amador Alcantara         |  | <b>STATE OF CALIFORNIA</b><br><b>DEPARTMENT OF TRANSPORTATION</b> | DIVISION OF ENGINEERING SERVICES<br><b>STRUCTURE DESIGN</b><br><b>DESIGN BRANCH 4</b> | BRIDGE NO. 27E0072 | <b>GROUND ANCHOR SOLDIER PILE WALL</b><br><b>RETAINING WALL AT P.M. 8.05</b><br><b>STRUCTURE PLAN NO. 2</b> |
| DETAILS BY Jeff Thorne<br>CHECKED Amador Alcantara       |  |   |   | POST MILE 8.05     |   |
| QUANTITIES BY Amador Alcantara<br>CHECKED Rafael Salazar |  |   |   |                    |   |

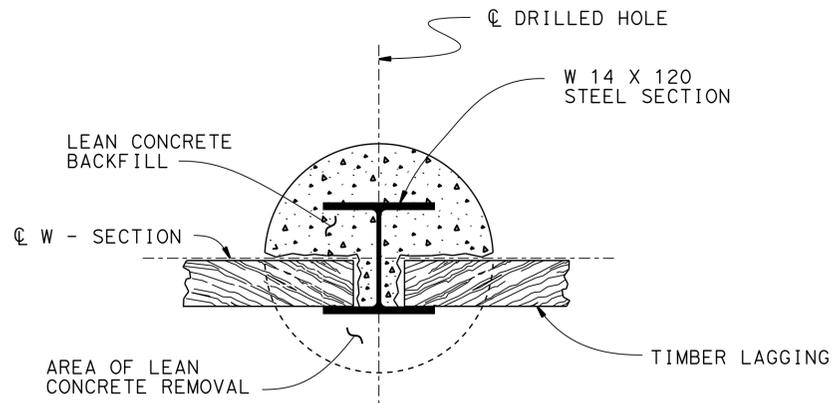
STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 09-01-10) ORIGINAL SCALE IN INCHES FOR REDUCED PLANS  
 UNIT: 59-3579 PROJECT NUMBER & PHASE: 0400021259 1 CONTRACT NO.: 04-268904  
 DISREGARD PRINTS BEARING EARLIER REVISION DATES  
 REVISION DATES: 5-28-16, 5-31-16, 6-1-16, 6-10-16  
 SHEET 4 OF 13

|      |        |       |                          |           |              |
|------|--------|-------|--------------------------|-----------|--------------|
| DIST | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
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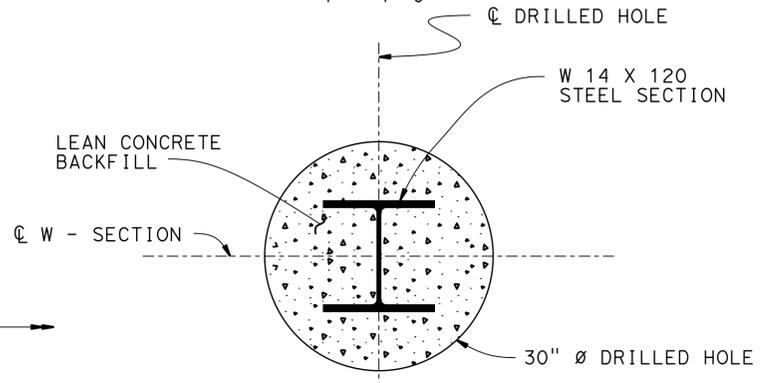
3-1-16  
 REGISTERED CIVIL ENGINEER DATE  
 BANG H. NGUYEN  
 No. 62080  
 Exp. 9-30-17  
 CIVIL  
 STATE OF CALIFORNIA  
 REGISTERED PROFESSIONAL ENGINEER  
 6-23-16  
 PLANS APPROVAL DATE  
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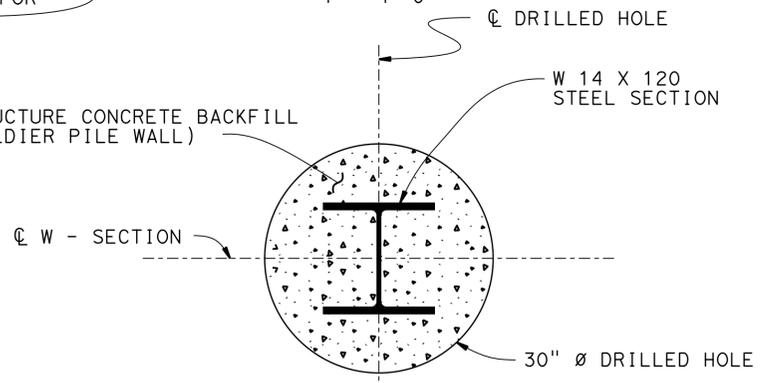
**TYPICAL SECTION**  
1/2" = 1'-0"



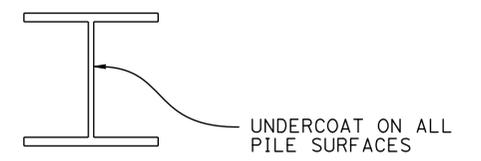
**SECTION A-A**  
1" = 1'-0"



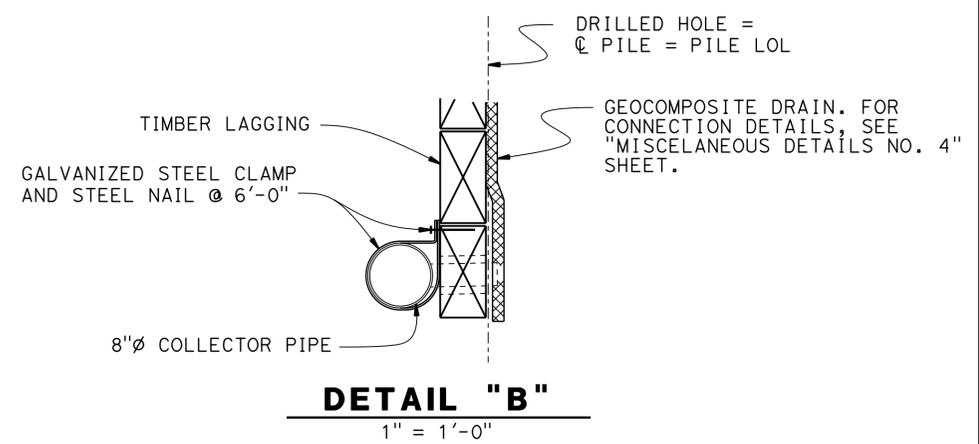
**SECTION B-B**  
1" = 1'-0"



**SECTION C-C**  
1" = 1'-0"



**LIMITS OF CLEAN & PAINT STEEL SOLDIER PILE**  
NO SCALE



**DETAIL "B"**  
1" = 1'-0"

- NOTES:
- (A) Clean and paint undercoat on all steel soldier pile surfaces from top of pile to 5 feet (Min.) below bottom of lagging.
  - For lagging details see "RETAINING WALL DETAILS" and "SOLDIER PILE WALL LAGGING DETAILS" sheets.

|  |  |                          |  |                    |  |                         |  |
|--|--|--------------------------|--|--------------------|--|-------------------------|--|
| DESIGN BY Ben Nguyen                                     |  | CHECKED Amador Alcantara | <b>STATE OF CALIFORNIA</b><br>DEPARTMENT OF TRANSPORTATION<br>DIVISION OF ENGINEERING SERVICES<br>STRUCTURE DESIGN<br><b>DESIGN BRANCH 4</b> | BRIDGE NO. 27E0072 | <b>GROUND ANCHOR SOLDIER PILE WALL</b><br><b>RETAINING WALL AT P.M. 8.05</b><br><b>TYPICAL SECTION</b> |                         |  |
| DETAILS BY Jeff Thorne                                   |  | CHECKED Amador Alcantara |  | POST MILE 8.05     |  |                         |  |
| QUANTITIES BY Amador Alcantara                           |  | CHECKED Rafael Salazar   |  |                    |  |                         |  |
| STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 09-01-10) |  |                          | ORIGINAL SCALE IN INCHES FOR REDUCED PLANS   | UNIT: 59-3579      | PROJECT NUMBER & PHASE: 0400021259 4   | CONTRACT NO.: 04-268904 | DISREGARD PRINTS BEARING EARLIER REVISION DATES<br>REVISION DATES: 12-14-15, 4-28-16, 5-22-16, 6-1-16<br>SHEET 5 OF 13 |

FILE => 04-2g8904-b-typ.dgn

|      |        |       |                          |           |              |
|------|--------|-------|--------------------------|-----------|--------------|
| DIST | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
| 04   | Mrn    | 1     | 8.0                      | 83        | 90           |

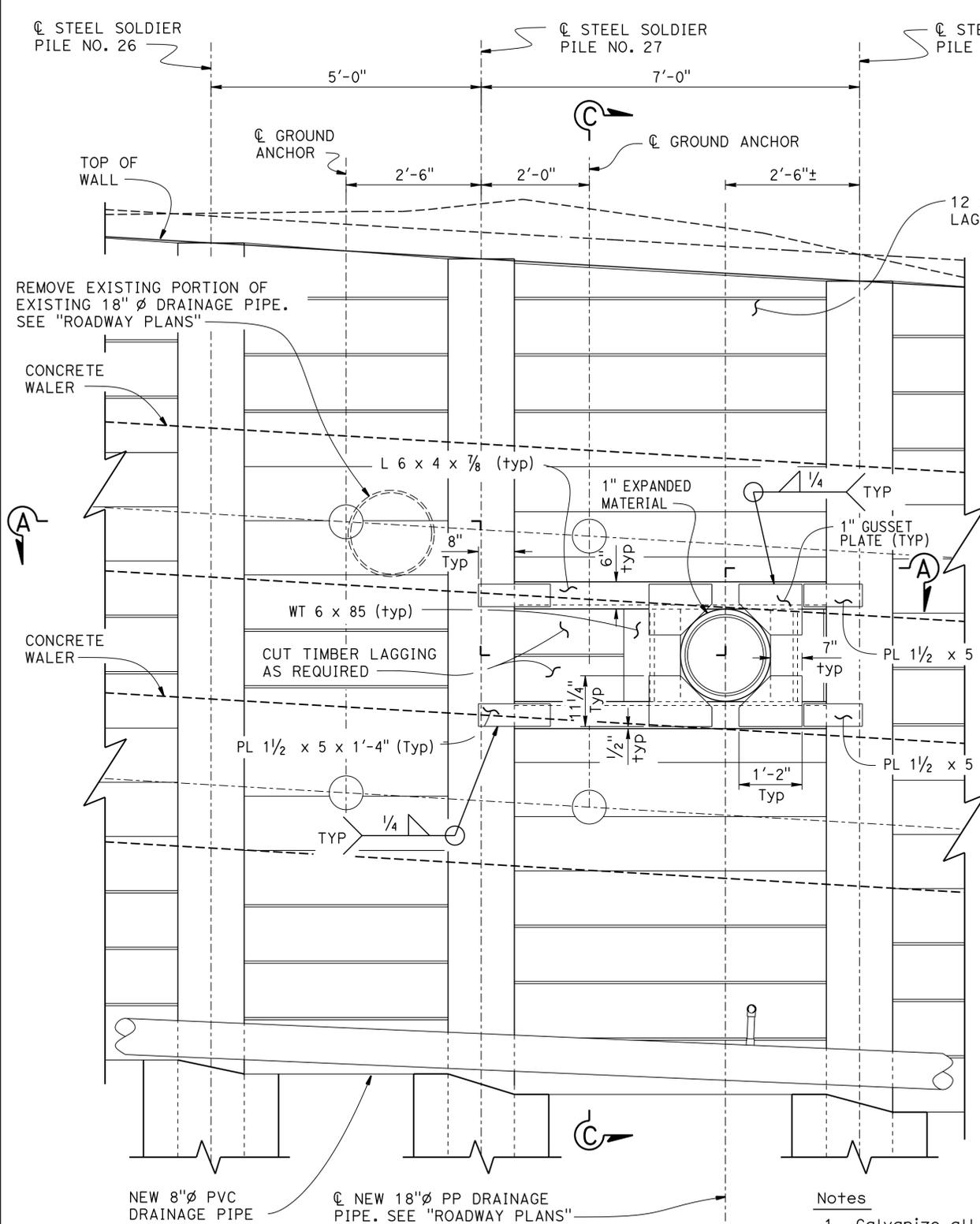
  

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|---------------------------|------|
| 3-1-16                    |      |
| REGISTERED CIVIL ENGINEER | DATE |
| 6-23-16                   |      |
| PLANS APPROVAL DATE       |      |

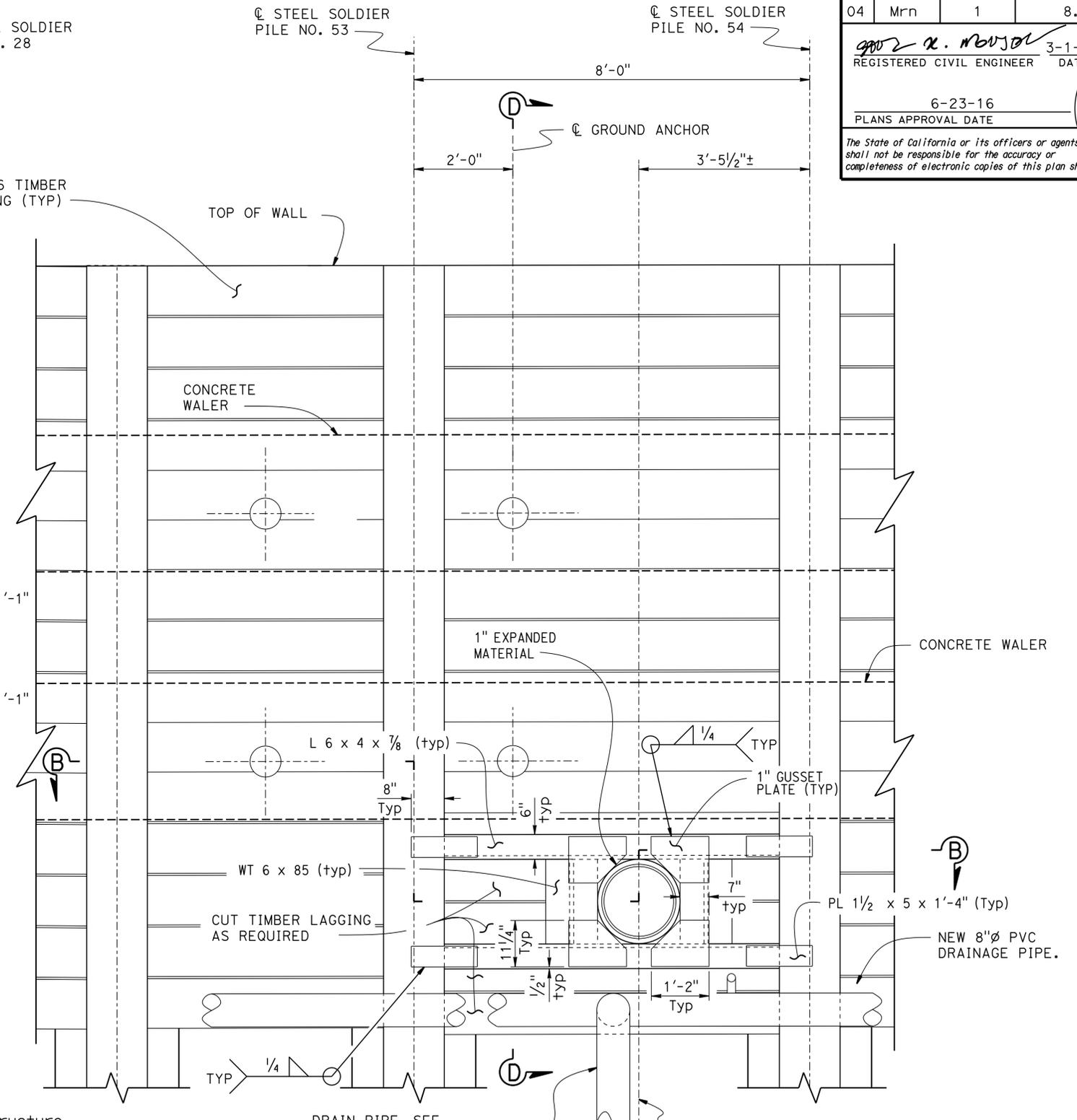
  

|                     |              |
|---------------------|--------------|
| BANG H. NGUYEN      |              |
| No. 62080           | Exp. 9-30-17 |
| CIVIL               |              |
| STATE OF CALIFORNIA |              |

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**MIRROR PART ELEVATION AT Sta. 405+52.51 18" DIA. PIPE OPENING**  
 $\frac{3}{4}'' = 1'-0''$



**MIRROR PART ELEVATION AT Sta. 407+11.00 18" DIA. PIPE OPENING**  
 $\frac{3}{4}'' = 1'-0''$

- Notes**
- Galvanize all structure plates, angles and tees.
  - For "SECTIONS "A-A", "B-B" "C-C" and "D-D" and details and dimensions not shown, see "MISCELLANEOUS DETAILS NO. 2" and "MISCELLANEOUS DETAILS NO. 3" sheets.

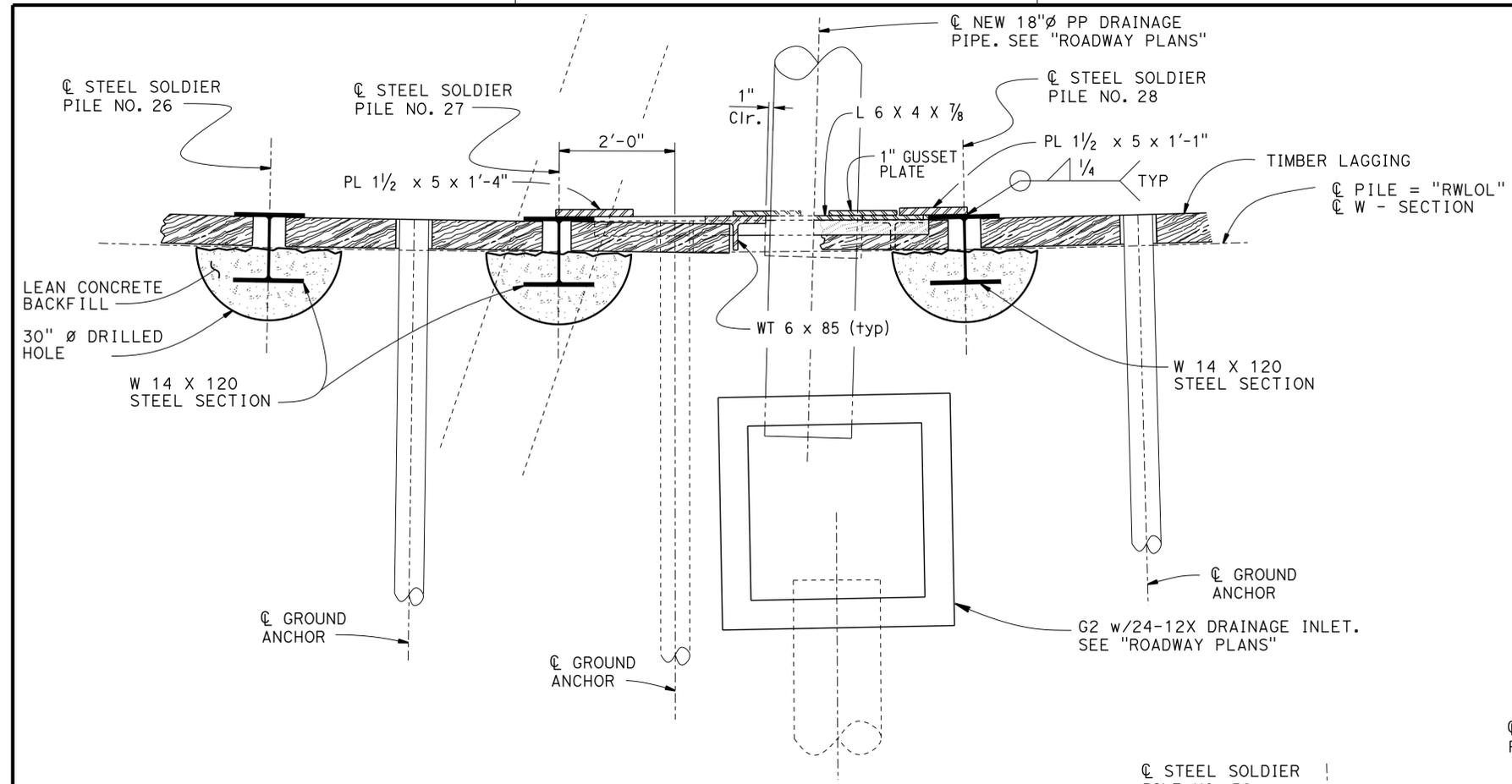
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|--------|--------------------------------|--------------------------|---|---|--------------------|---|
| DESIGN | BY Ben Nguyen                  | CHECKED Amador Alcantara | STATE OF CALIFORNIA<br>DEPARTMENT OF TRANSPORTATION | DIVISION OF ENGINEERING SERVICES<br>STRUCTURE DESIGN<br>DESIGN BRANCH 4 | BRIDGE NO. 27E0072 | GROUND ANCHOR SOLDIER PILE WALL<br>RETAINING WALL AT P.M. 8.05<br>MISCELLANEOUS DETAILS NO. 1 |
|        | DETAILS BY Jeff Thorne         | CHECKED Amador Alcantara |   |   | POST MILE 8.05     |   |
|        | QUANTITIES BY Amador Alcantara | CHECKED Rafael Salazar   |   |   |                    |   |

|      |        |       |                          |           |              |
|------|--------|-------|--------------------------|-----------|--------------|
| DIST | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
| 04   | Mrn    | 1     | 8.0                      | 84        | 90           |

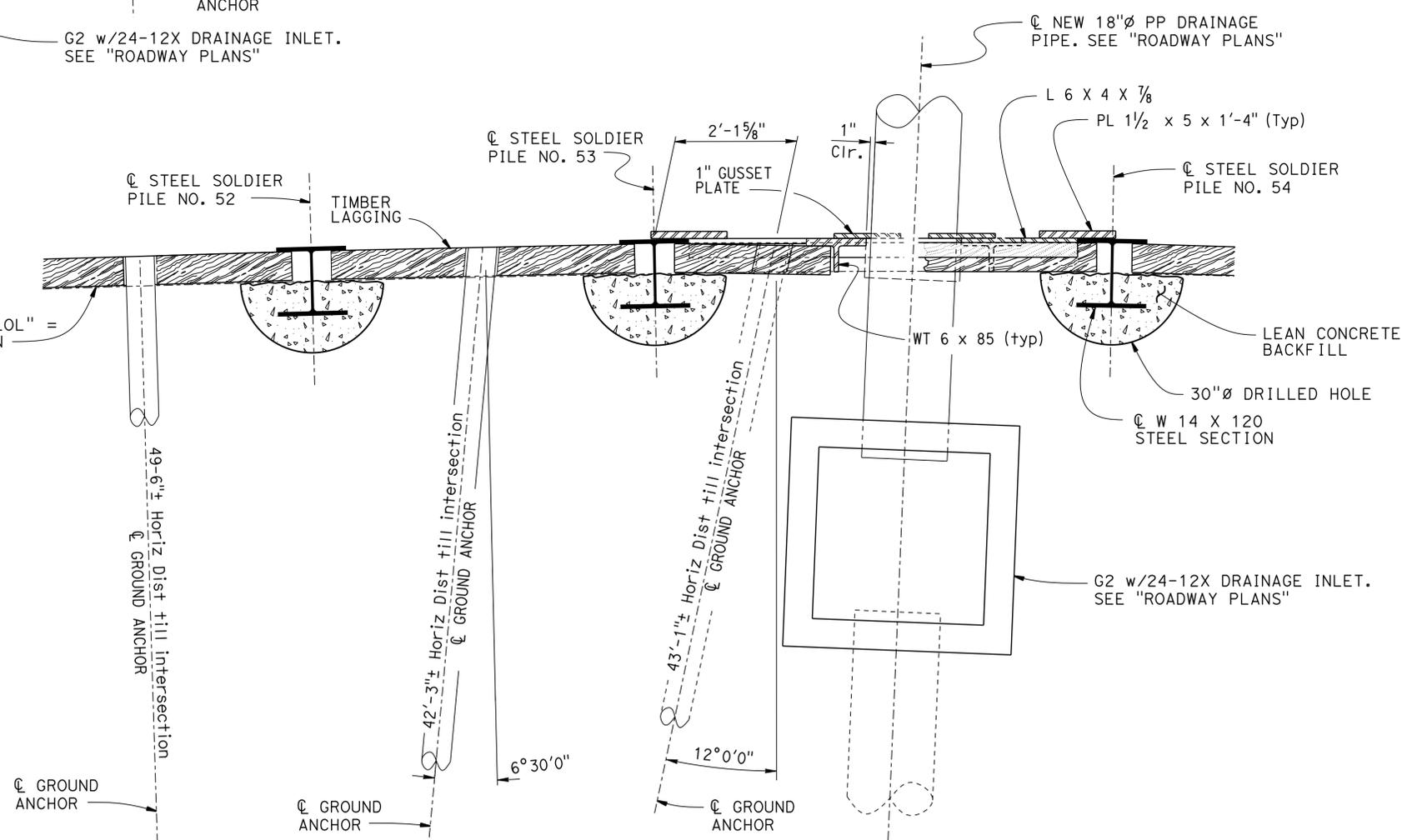
  

|  |                                |
|--|--------------------------------|
|  |                                |
| 3-1-16<br>REGISTERED CIVIL ENGINEER DATE | 6-23-16<br>PLANS APPROVAL DATE |

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**SECTION A-A**  
 $\frac{3}{4}'' = 1'-0''$



**SECTION B-B**  
 $\frac{3}{4}'' = 1'-0''$

**GROUND ANCHOR SOLDIER PILE WALL  
 RETAINING WALL AT P.M. 8.05  
 MISCELLANEOUS DETAILS NO. 2**

|            |                     |                          |
|------------|---------------------|--------------------------|
| DESIGN     | BY Ben Nguyen       | CHECKED Amador Alcantara |
| DETAILS    | BY Jeff Thorne      | CHECKED Amador Alcantara |
| QUANTITIES | BY Amador Alcantara | CHECKED Rafael Salazar   |

**STATE OF CALIFORNIA**  
 DEPARTMENT OF TRANSPORTATION

**DIVISION OF ENGINEERING SERVICES  
 STRUCTURE DESIGN  
 DESIGN BRANCH 4**

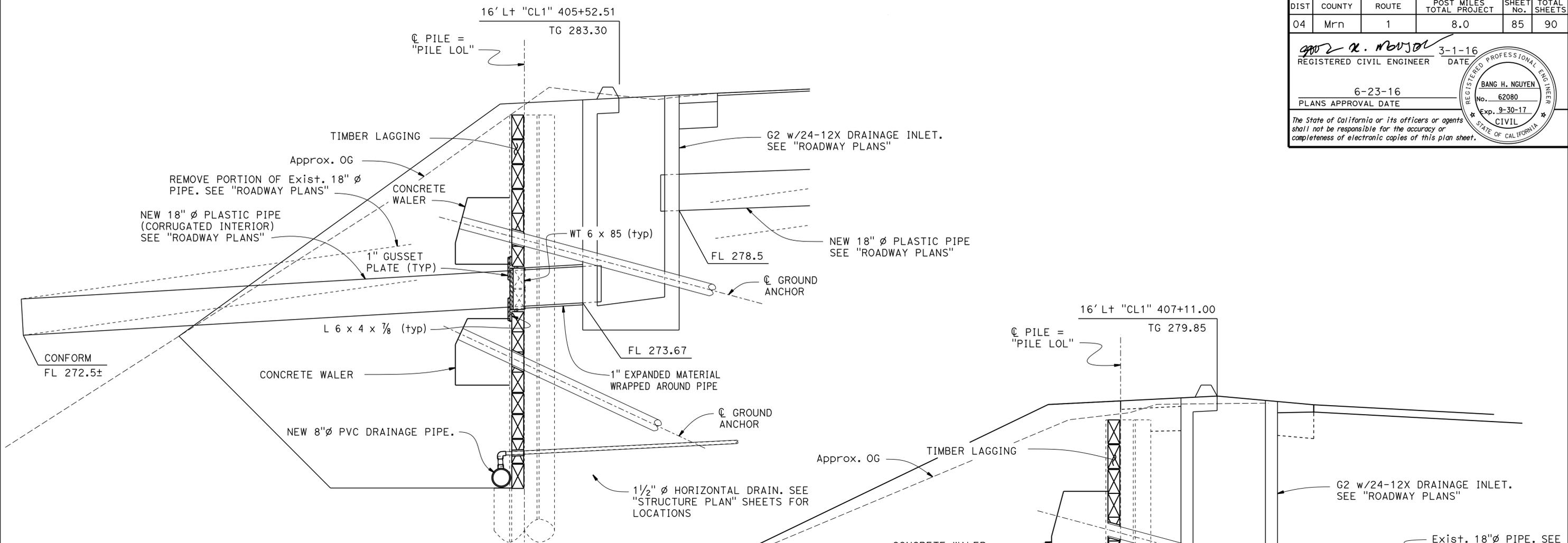
|            |         |
|------------|---------|
| BRIDGE NO. | 27E0072 |
| POST MILE  | 8.05    |

| DIST | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
|------|--------|-------|--------------------------|-----------|--------------|
| 04   | Mrn    | 1     | 8.0                      | 85        | 90           |

3-1-16  
 REGISTERED CIVIL ENGINEER DATE  
 6-23-16  
 PLANS APPROVAL DATE

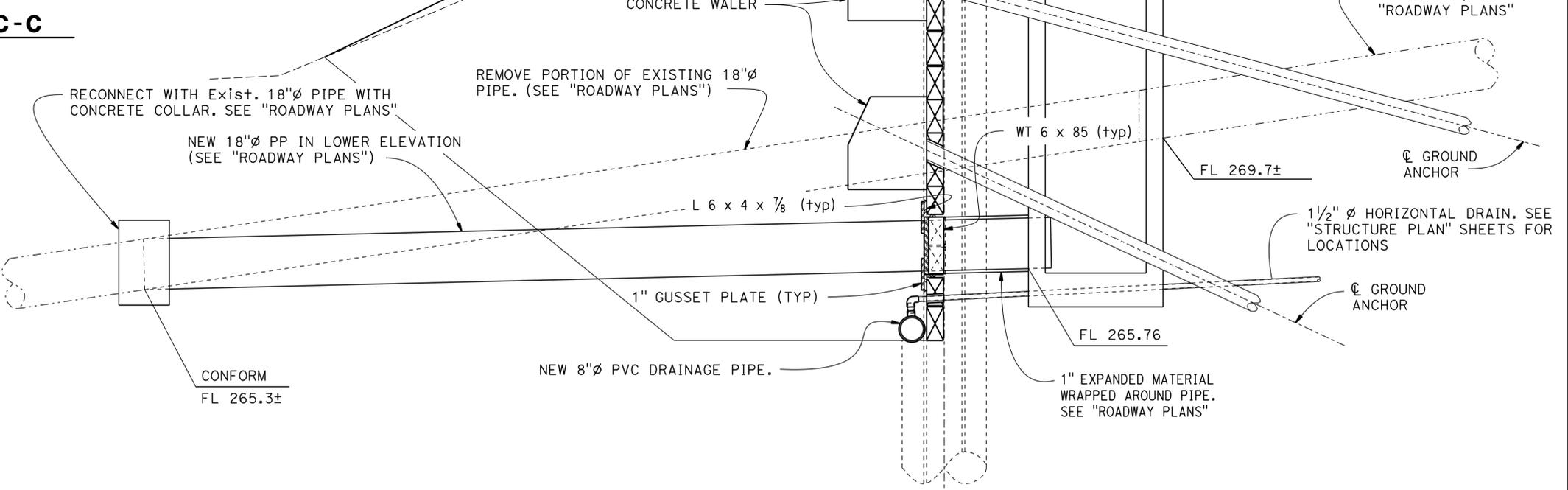
BANG H. NGUYEN  
 No. 62080  
 Exp. 9-30-17  
 CIVIL  
 STATE OF CALIFORNIA

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**SECTION C-C**  
1/2" = 1'-0"

- Notes**
- All structure plates, angles and tees shall be galvanized and painted.
  - G2 w/24 - 12X Drainage Inlet shall be constructed before installing ground anchors.



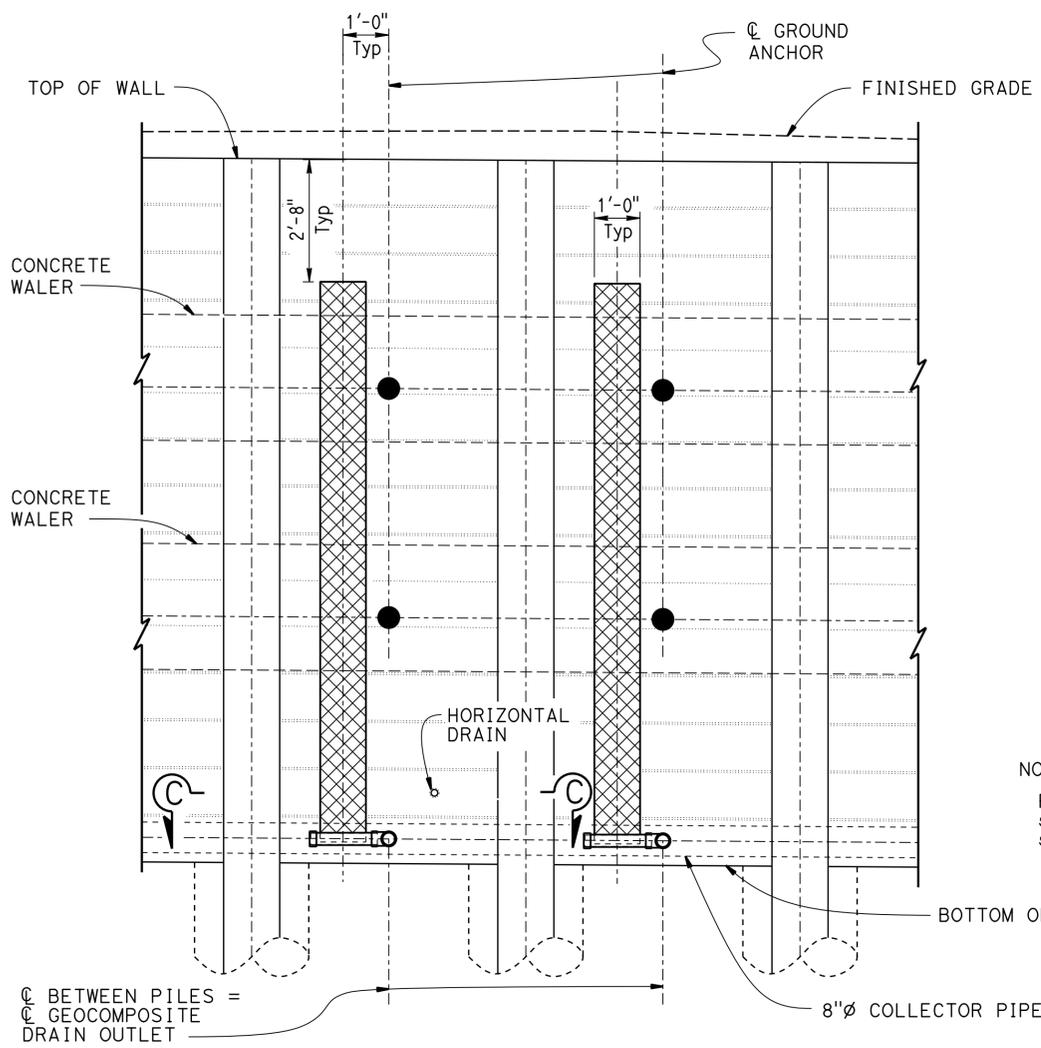
**SECTION D-D**  
1/2" = 1'-0"

**GROUND ANCHOR SOLDIER PILE WALL  
RETAINING WALL AT P.M. 8.05  
MISCELLANEOUS DETAILS NO. 3**

|            |                     |                          |   |  |            |         |
|------------|---------------------|--------------------------|---|--|------------|---------|
| DESIGN     | BY Ben Nguyen       | CHECKED Amador Alcantara | <b>STATE OF CALIFORNIA</b><br><b>DEPARTMENT OF TRANSPORTATION</b> | <b>DIVISION OF ENGINEERING SERVICES</b><br><b>STRUCTURE DESIGN</b><br><b>DESIGN BRANCH 4</b> | BRIDGE NO. | 27E0072 |
| DETAILS    | BY Jeff Thorne      | CHECKED Amador Alcantara |   |  | POST MILE  | 8.05    |
| QUANTITIES | BY Amador Alcantara | CHECKED Rafael Salazar   |   |  |            |         |

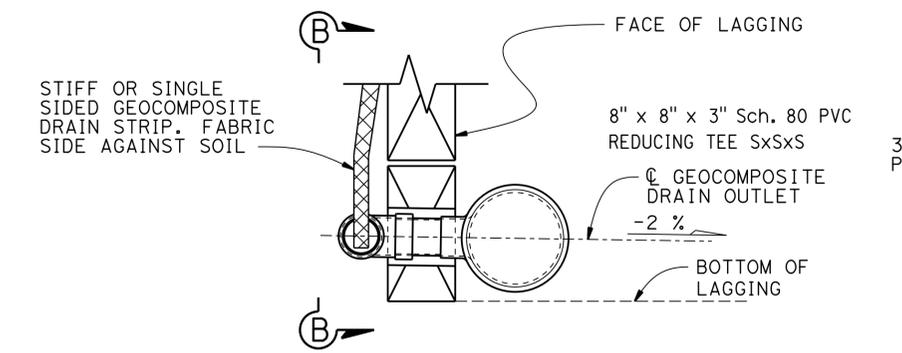
| DIST | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
|------|--------|-------|--------------------------|-----------|--------------|
| 04   | Mrn    | 1     | 8.0                      | 86        | 90           |

3-1-16  
 REGISTERED CIVIL ENGINEER DATE  
 6-23-16  
 PLANS APPROVAL DATE  
 BANG H. NGUYEN  
 No. 62080  
 Exp. 9-30-17  
 CIVIL  
 STATE OF CALIFORNIA  
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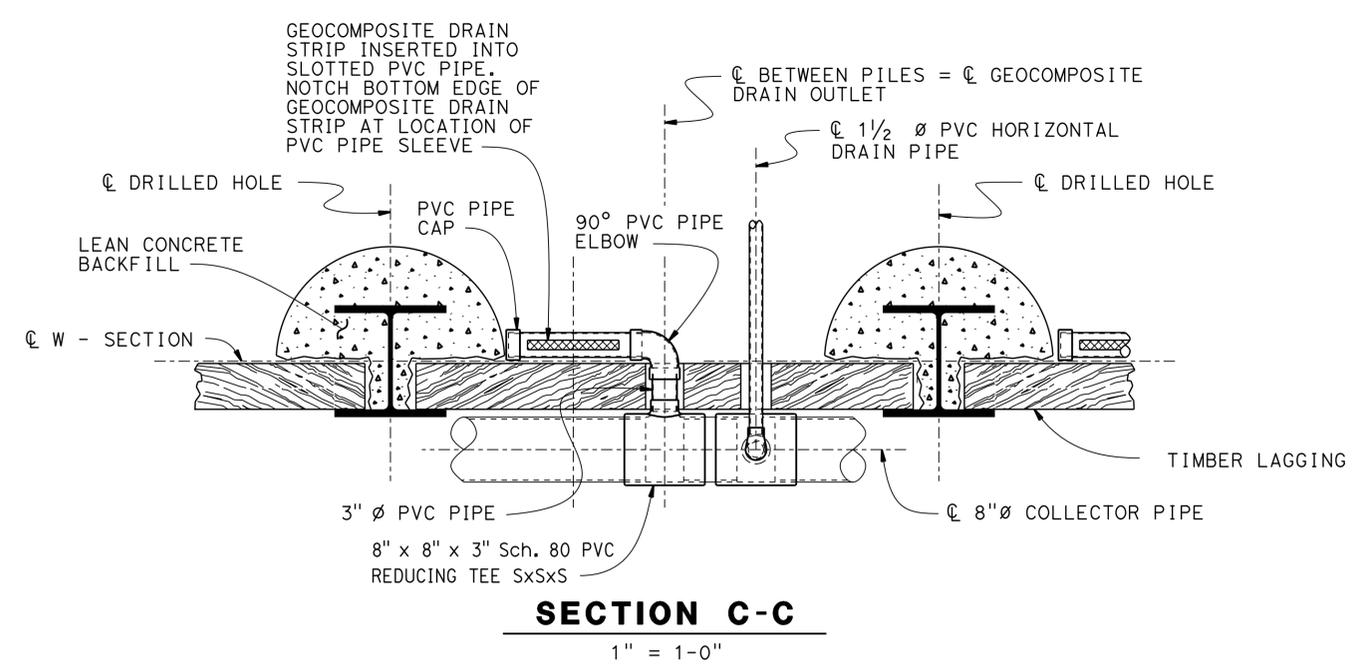
**PART ELEVATION - GEOCOMPOSITE DRAIN**

No Scale



**WALL DRAIN DETAIL AT WEEPHOLE**

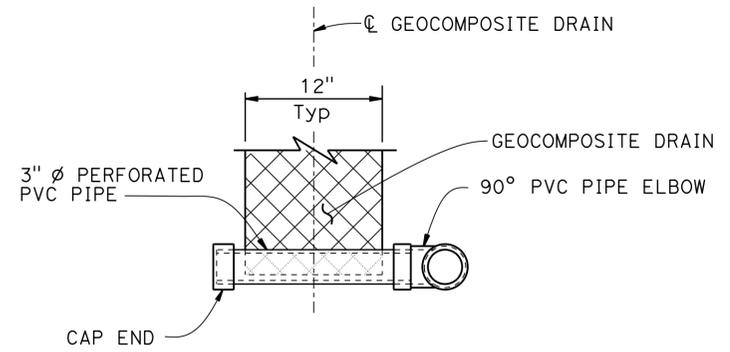
1 1/2" = 1'-0"



**SECTION C-C**

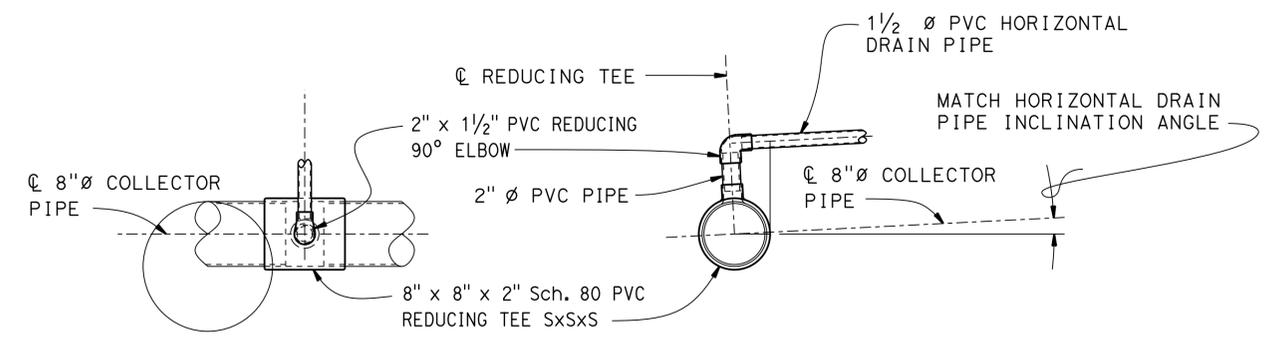
1" = 1'-0"

NOTE:  
For details and dimensions not shown, see "TYPICAL SECTION" sheet.



**VIEW B-B**

No Scale



**PLAN**

**SECTION**

**HORIZONTAL DRAIN CONNECTION DETAIL**

1" = 1'-0"

NOTE:  
1. Elevation of drains and weepholes as shown elsewhere on plans

|            |                     |                          |
|------------|---------------------|--------------------------|
| DESIGN     | BY Ben Nguyen       | CHECKED Amador Alcantara |
| DETAILS    | BY Jeff Thorne      | CHECKED Amador Alcantara |
| QUANTITIES | BY Amador Alcantara | CHECKED Rafael Salazar   |

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES  
STRUCTURE DESIGN  
DESIGN BRANCH 4

|            |         |
|------------|---------|
| BRIDGE NO. | 27E0072 |
| POST MILE  | 8.05    |

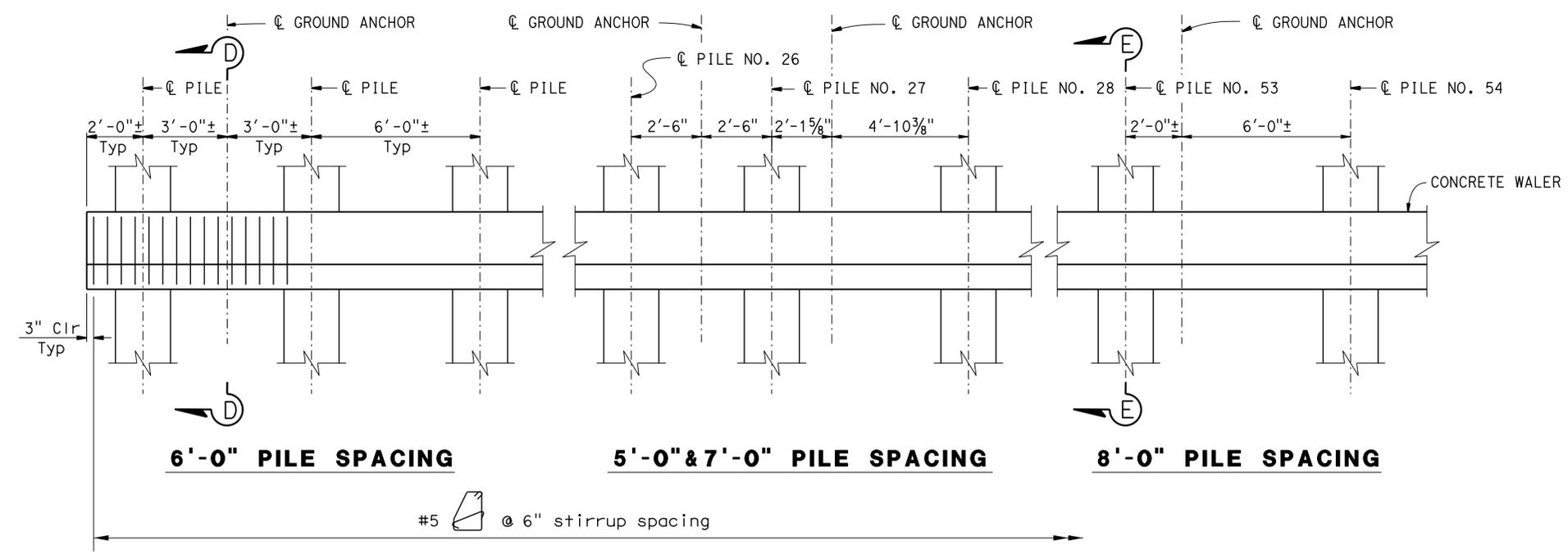
**GROUND ANCHOR SOLDIER PILE WALL  
RETAINING WALL AT P.M. 8.05  
MISCELLANEOUS DETAILS NO. 4**

|      |        |       |                          |           |              |
|------|--------|-------|--------------------------|-----------|--------------|
| DIST | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
| 04   | Mrn    | 1     | 8.0                      | 87        | 90           |

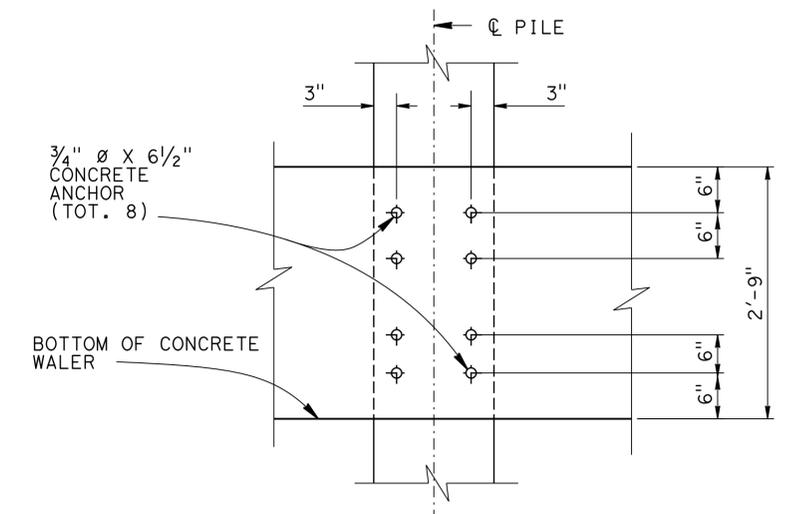
3-1-16  
 REGISTERED CIVIL ENGINEER DATE  
 6-23-16  
 PLANS APPROVAL DATE

BANG H. NGUYEN  
 No. 62080  
 Exp. 9-30-17  
 CIVIL  
 STATE OF CALIFORNIA

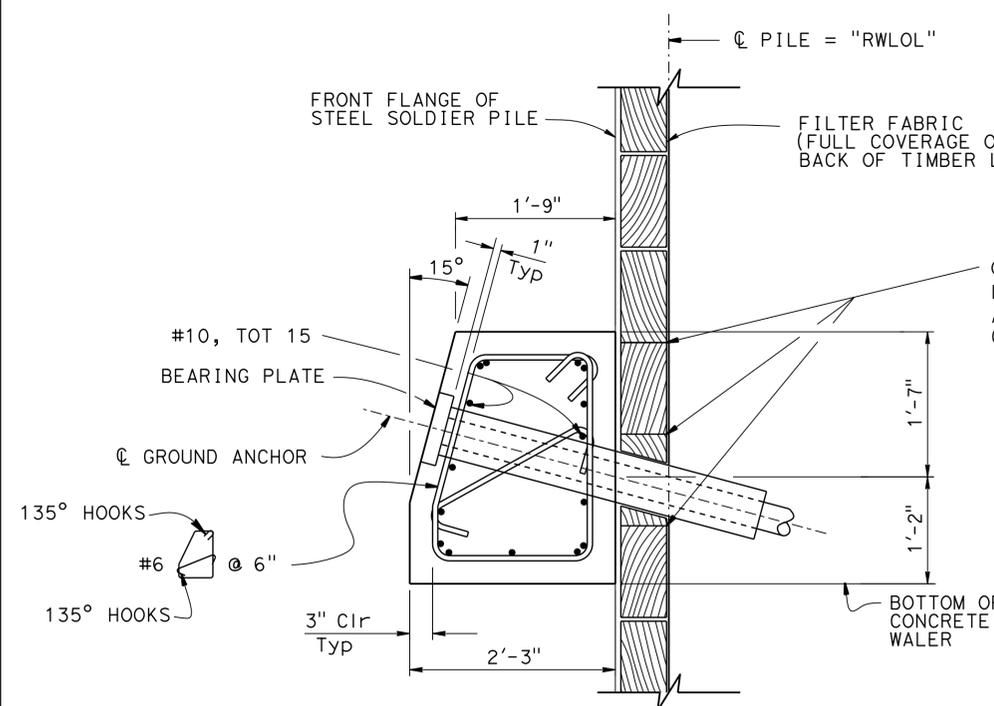
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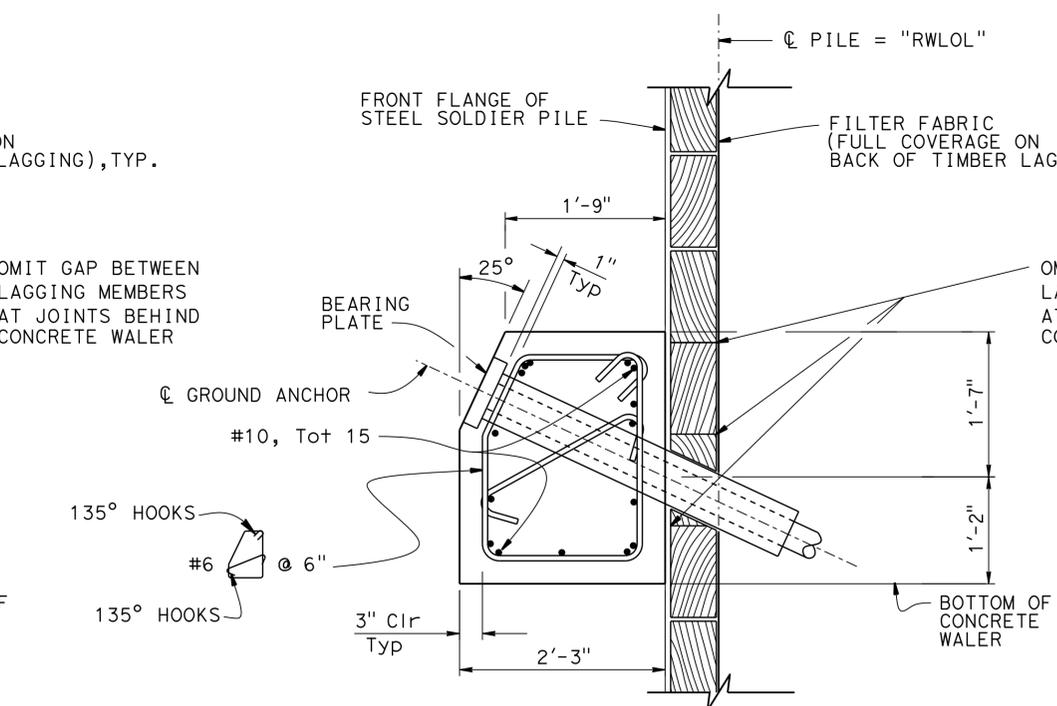
**PART ELEVATION**  
No scale  
Note: Timber lagging not shown



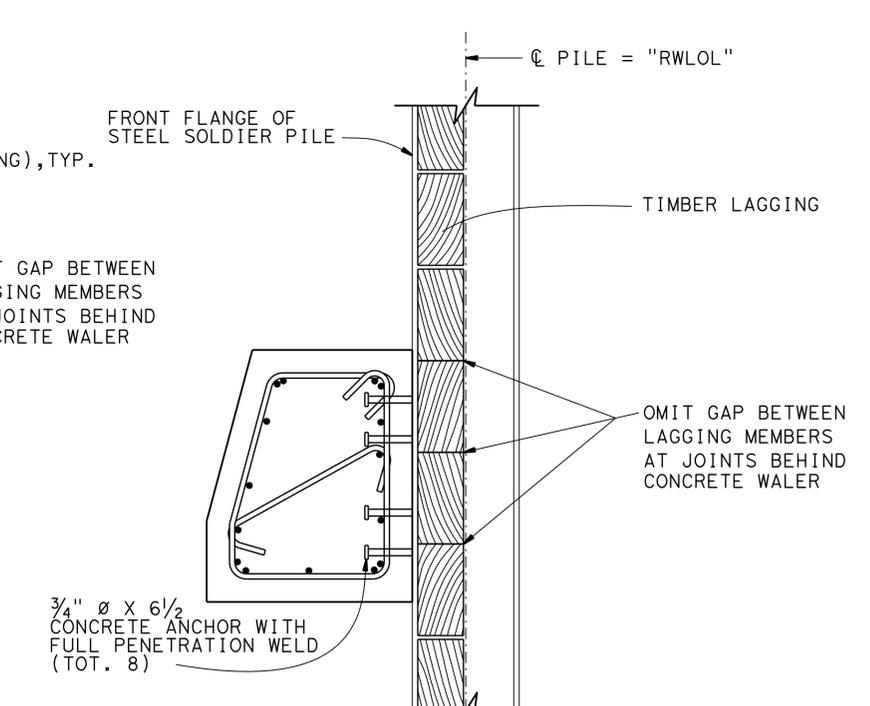
**CONCRETE ANCHOR PLACEMENT**  
No Scale



**SECTION D-D "T1" UPPER WALER**  
No scale



**SECTION D-D "T2" LOWER WALER**  
No scale



**SECTION E-E**  
No scale

NOTE:  
THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

NOTE:  
1. Treat the hole surface after cutting the lagging for Ground Anchors.

Note:  
For details and dimensions not shown. See "SECTION D-D"

|                                |  |                          |   |   |                |  |
|--------------------------------|--|--------------------------|---|---|----------------|--|
| DESIGN BY Ben Nguyen           |  | CHECKED Amador Alcantara | STATE OF CALIFORNIA<br>DEPARTMENT OF TRANSPORTATION | DIVISION OF ENGINEERING SERVICES<br>STRUCTURE DESIGN<br>DESIGN BRANCH 4 | BRIDGE NO.     | GROUND ANCHOR SOLDIER PILE WALL<br>RETAINING WALL AT P.M. 8.05<br>RETAINING WALL DETAILS |
| DETAILS BY Jeff Thorne         |  | CHECKED Amador Alcantara |   |   | 27E0072        |  |
| QUANTITIES BY Amador Alcantara |  | CHECKED Rafael Salazar   |   |   | POST MILE 8.05 |  |

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 09-01-10) ORIGINAL SCALE IN INCHES FOR REDUCED PLANS  
 UNIT: 59-3579 PROJECT NUMBER & PHASE: 0400021259 4 CONTRACT NO.: 04-268904  
 DISREGARD PRINTS BEARING EARLIER REVISION DATES

|                                  |       |    |
|----------------------------------|-------|----|
| REVISION DATES                   | SHEET | OF |
| 3-24-15 12-28-15 2-22-16 5-23-16 | 10    | 13 |

USERNAME => s127688 DATE PLOTTED => 13-OCT-2016 TIME PLOTTED => 13:45

# GENERAL NOTES

**DESIGN:**  
AASHTO LRFD Bridge Design Specifications,  
4th Edition with California Amendments.

**PRESTRESSING STEEL:**

Bars - ASTM Designation: A722 Type II (150 ksi)

Strand Tendons-ASTM Designation: A416  
(270 Ksi Low Relaxation steel)

FTL = Factored Test Load per anchor (Kips)

fpu = Minimum tensile strength of prestressing steel

As = Minimum cross sectional area of prestressing  
steel in ground anchor (square inch)

$$As(\text{Min}) = \frac{1.0 \text{ FTL}}{0.75 \text{ fpu}} \text{ (Strands)}$$

$$As(\text{Min}) = \frac{1.0 \text{ FTL}}{0.80 \text{ fpu}} \text{ (Bars)}$$

**NOTES:**

- (A) Level of initial grouting for drilled hole 6" in diameter or smaller
- (B) Level of secondary grouting
- (C) Level of initial grouting inside corrugated sheathing
- (D) Bonded length shall be determined by the contractor
- (E) For unbonded length, see PROJECT PLANS
- (F) For inclination, see PROJECT PLANS
- (G) Face of Wall Excavation

**NOTES:**

1. Anchorage enclosure shall only be used when anchor head assembly is not enclosed in concrete.
2. Anchorage enclosure shall have provisions to allow injecting grout at low end and venting at high end. Galvanize after fabrication.
3. Silicone sealant to cover full width of flange.
4. Steel tube (Min thickness = 1/4") welded to bearing plate. Galvanize assembly after fabrication
5. Steel tube welded to bearing plate. Inside diameter of steel tube (Min thickness = 1/4") to be 1" greater than outside diameter of smooth sheathing.
6. Galvanize assembly after fabrication.
7. For other wall details, see PROJECT PLANS.

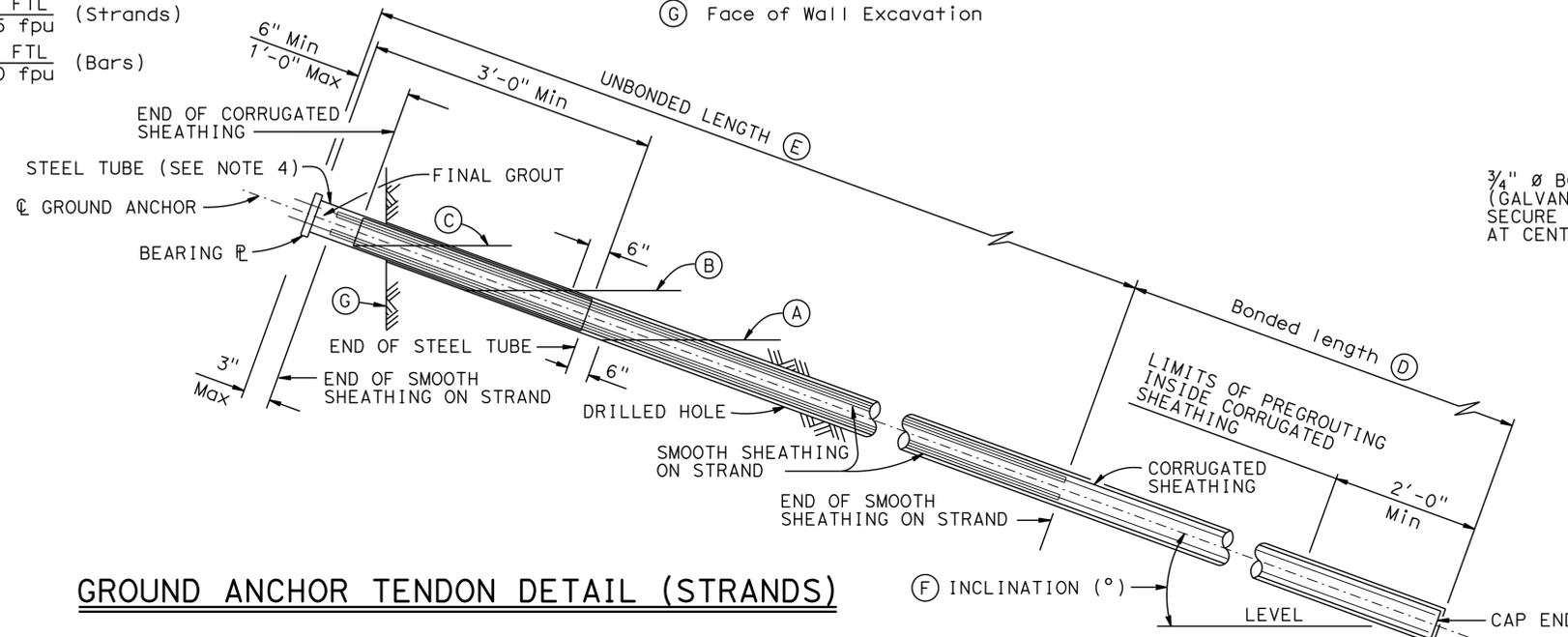
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|------|--------|-------|--------------------------|-----------|--------------|
| DIST | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No. | TOTAL SHEETS |
| 04   | Mrn    | 1     | 8.0                      | 88        | 90           |

3-1-16  
 REGISTERED CIVIL ENGINEER DATE  
 BANG H. NGUYEN  
 No. 62080  
 Exp. 9-30-17  
 CIVIL  
 STATE OF CALIFORNIA

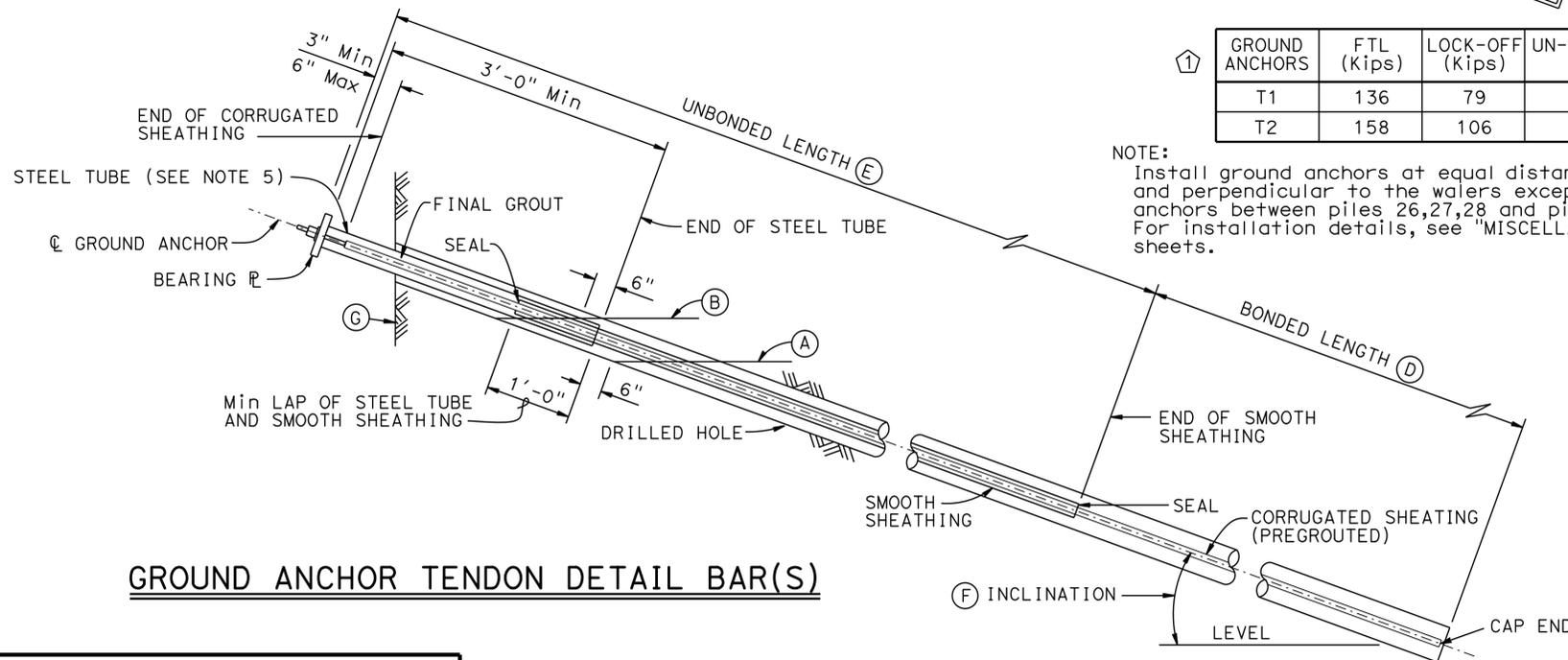
6-23-16  
PLANS APPROVAL DATE

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

*The components of this Bridge Standard Drawing have been prepared under the responsible charge of the Technical Owner, a registered civil engineer in the State of California. Refer to: <http://www.dot.ca.gov/hq/esc/techpubs/manual/bridgemanuals/bridge-standard-detail-sheets/index.html>. The selection and proper application of the component design and any modifications shown have been prepared under the responsible charge of the registered civil engineer for the project.*



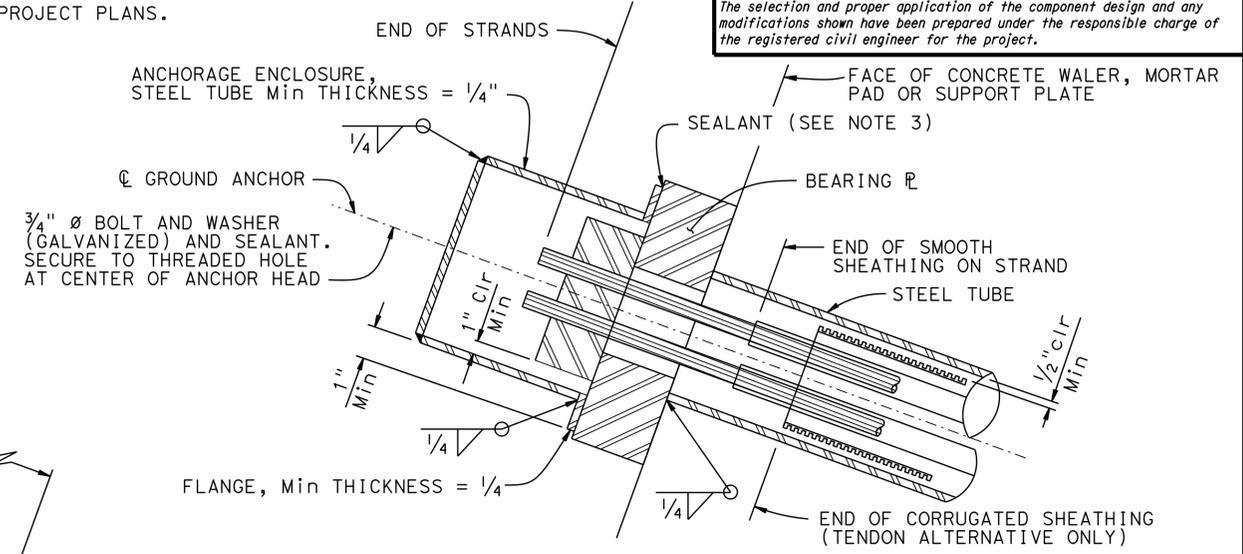
**GROUND ANCHOR TENDON DETAIL (STRANDS)**



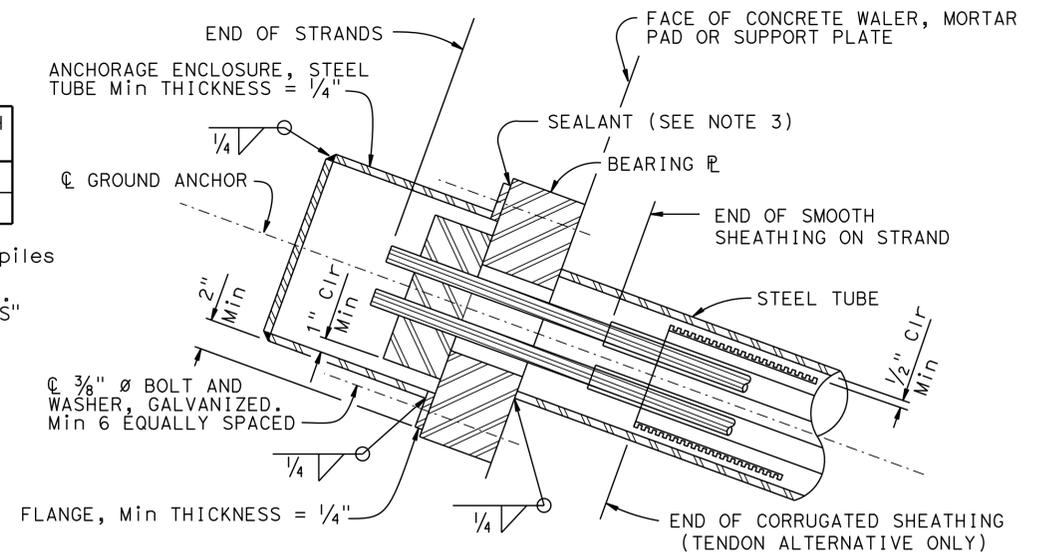
**GROUND ANCHOR TENDON DETAIL BAR(S)**

| GROUND ANCHORS | FTL (Kips) | LOCK-OFF (Kips) | UN-BONDED LENGTH (Ft) |
|----------------|------------|-----------------|-----------------------|
| T1             | 136        | 79              | 35                    |
| T2             | 158        | 106             | 26                    |

**NOTE:**  
Install ground anchors at equal distances between piles and perpendicular to the walers except for ground anchors between piles 26,27,28 and piles 53 and 54. For installation details, see "MISCELLANEOUS DETAILS" sheets.



**ALTERNATIVE X**



**ALTERNATIVE Y**

**ANCHORAGE ENCLOSURE DETAILS**

NO SCALE

**SPECIAL DETAILS**

**GROUND ANCHOR SOLDIER PILE WALL**

**RETAINING WALL AT P.M. 8.05**

**SUB HORIZONTAL GROUND ANCHOR DETAILS**

**MODIFIED STANDARD DRAWING**

FILE NO. **xs12-040**

APPROVAL DATE July 2014

ADDED GROUND ANCHOR TABLE

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES

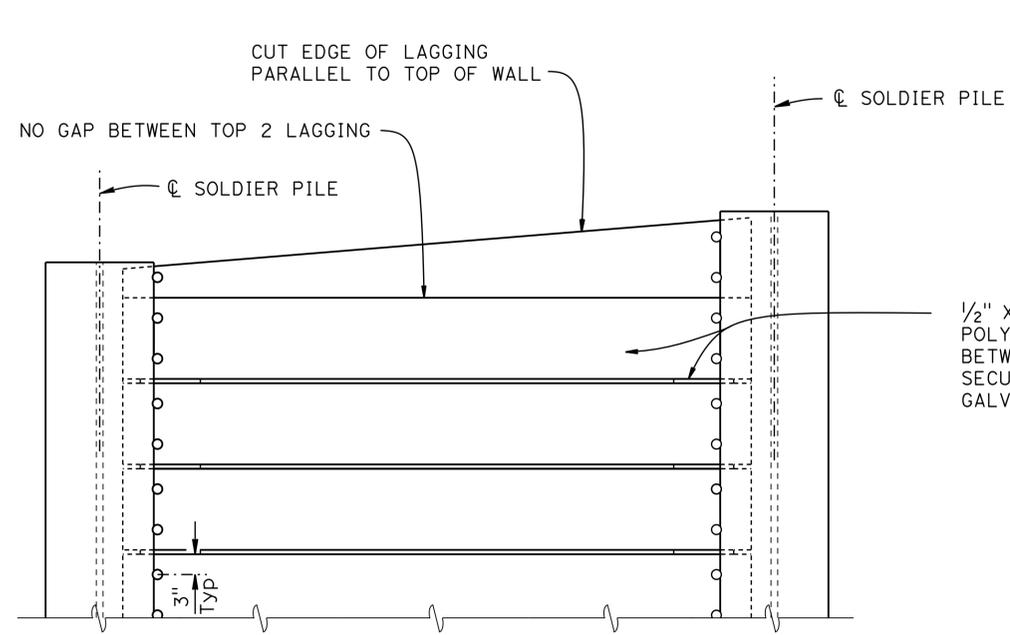
BRIDGE NO. 27E0072  
POST MILE 8.05

UNIT: 59-3579  
PROJECT NUMBER & PHASE: 0400021259 4  
CONTRACT NO.: 04-2G8904

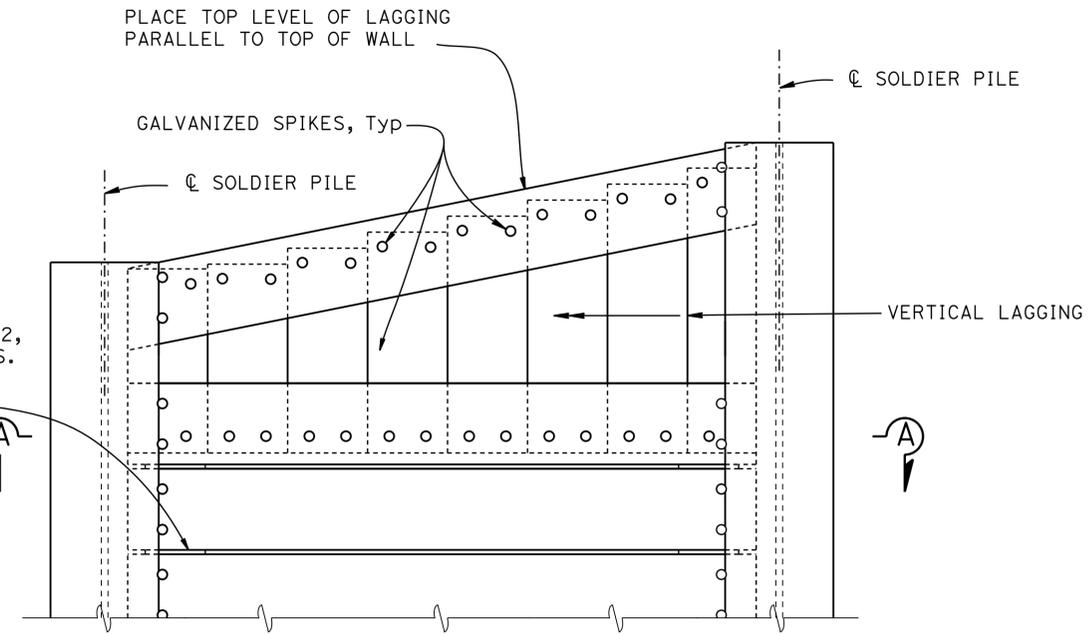
DISREGARD PRINTS BEARING EARLIER REVISION DATES

|                 |       |    |
|-----------------|-------|----|
| REVISION DATES  | SHEET | OF |
| 6-24-14 4-28-16 | 11    | 13 |

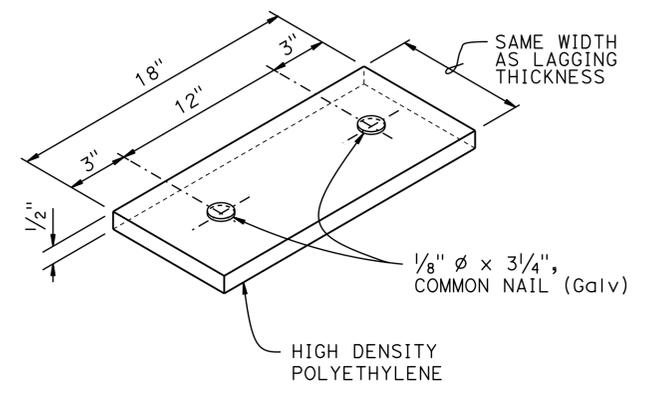
|  |        |       |                          |                                |              |
|--|--------|-------|--------------------------|--------------------------------|--------------|
| DIST   | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No.                      | TOTAL SHEETS |
| 04   | Mrn    | 1     | 8.0                      | 89                             | 90           |
| 3-1-16<br>REGISTERED CIVIL ENGINEER DATE   |        |       |                          | 6-23-16<br>PLANS APPROVAL DATE |              |
| BANG H. NGUYEN<br>No. 62080<br>Exp. 9-30-17<br>CIVIL<br>STATE OF CALIFORNIA  |        |       |                          |                                |              |
| The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet. |        |       |                          |                                |              |



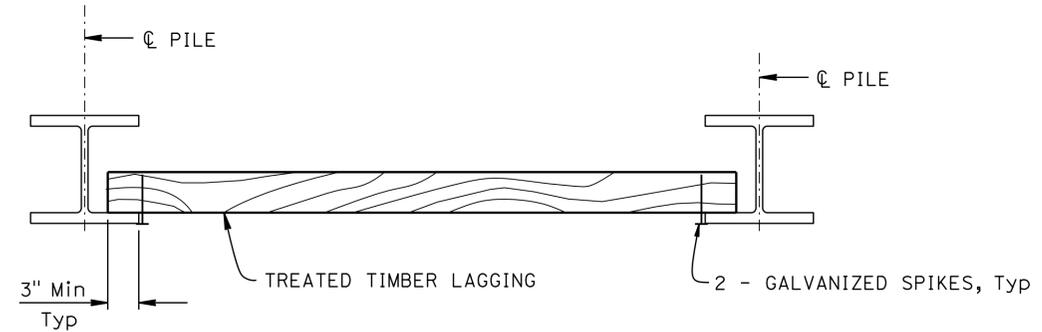
**PART ELEVATION**  
**LAGGING DETAILS (ALTERNATIVE 1)**  
 NO SCALE



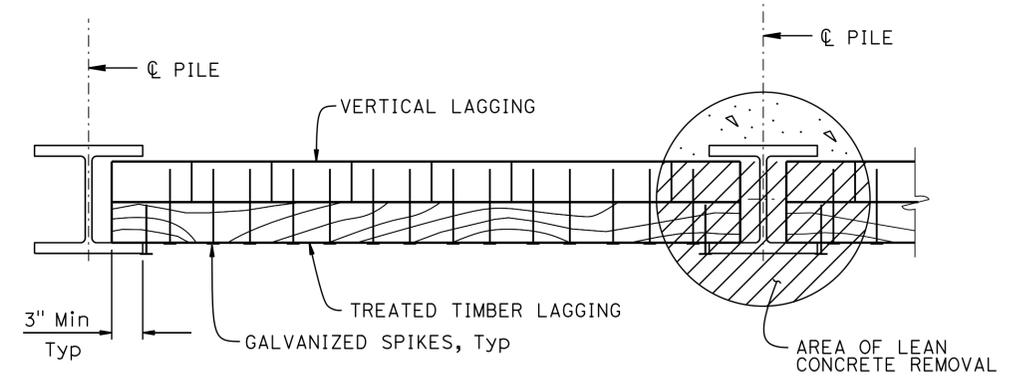
**PART ELEVATION**  
**LAGGING DETAILS (ALTERNATIVE 2)**  
 NO SCALE



**SHIM DETAIL**  
 NO SCALE



**PART PLAN**  
 NO SCALE



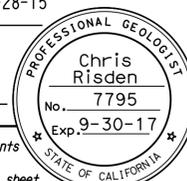
**SECTION A-A**  
 NO SCALE

- NOTES:
1. No clipping of timber lagging corners allowed
  2. Use 16d Galv wire spikes for 4 x 12 lagging, and 40d Galv wire spikes for 6 x 12 lagging
  3. Spikes shall not be bent

|   |                         |   |  |   |  |                         |  |   |  |
|---|-------------------------|---|--|---|--|-------------------------|--|---|--|
| STANDARD DRAWING  |                         | STATE OF CALIFORNIA<br>DEPARTMENT OF TRANSPORTATION |  | DIVISION OF ENGINEERING SERVICES                      |  | BRIDGE NO.<br>27E0072   |  | <b>GROUND ANCHOR SOLDIER PILE WALL</b>          |  |
| FILE NO. <b>xs12-080</b>  | APPROVAL DATE July 2014 |   |  |   |  | POST MILE<br>8.05       |  | <b>RETAINING WALL AT P.M. 8.05</b>              |  |
|   |                         |   |  |   |  |                         |  | <b>SOLDIER PILE WALL LAGGING DETAILS</b>        |  |
| DS OSD 2147A (ENGLISH STANDARD DRAWING "XS" BORDER REV. (02-02-11)) |                         | ORIGINAL SCALE IN INCHES FOR REDUCED PLANS          |  | UNIT: 59-3579<br>PROJECT NUMBER & PHASE: 0400021259 4 |  | CONTRACT NO.: 04-268904 |  | DISREGARD PRINTS BEARING EARLIER REVISION DATES |  |
|   |                         |   |  | 0 1 2 3   |  |                         |  | REVISION DATES<br>6-24-14                       |  |
|   |                         |   |  |   |  |                         |  | SHEET OF<br>12 13                               |  |

FILE => 04-2g8904-k-xs12-080.dgn

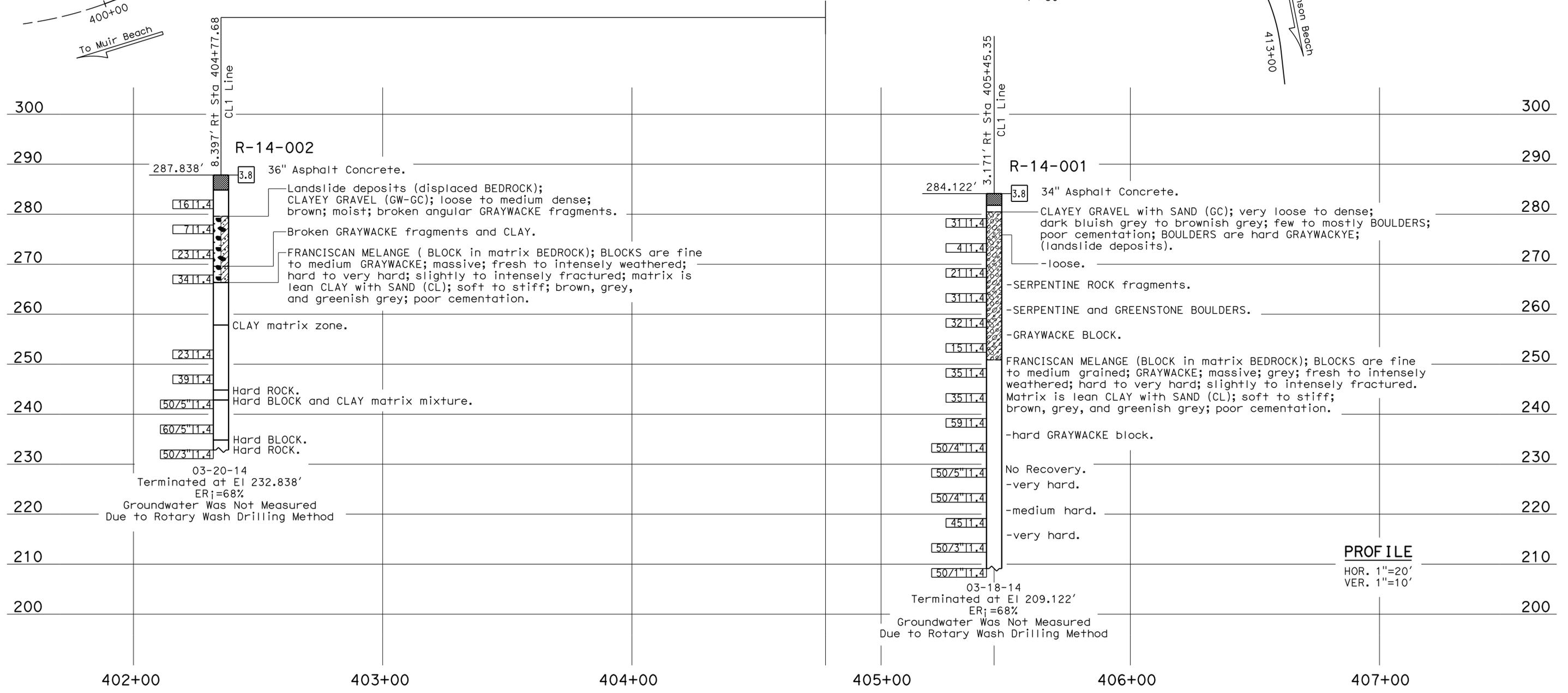
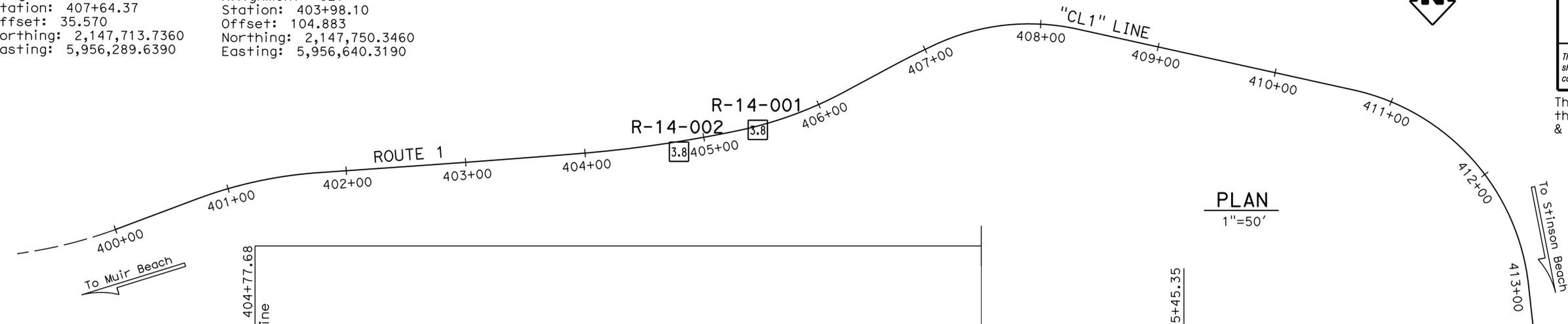
USERNAME => s127688 DATE PLOTTED => 13-OCT-2016 TIME PLOTTED => 13:45

| DIST  | COUNTY | ROUTE | POST MILES TOTAL PROJECT | SHEET No | TOTAL SHEETS |
|---|--------|-------|--------------------------|----------|--------------|
| 04  | Mrn    | 1     | 8.0                      | 90       | 90           |
|    |        |       | 10-28-15                 |          |              |
| PROFESSIONAL GEOLOGIST  |        |       |                          |          |              |
| 6-23-16   |        |       |                          |          |              |
| PLANS APPROVAL DATE   |        |       |                          |          |              |
| <small>The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.</small> |        |       |                          |          |              |

This LOTB sheet was prepared in accordance with the Caltrans Soil & Rock Logging, Classification, & Presentation Manual (2010 Edition).

**BENCH MARK**

|   |   |
|---|---|
| PRHV202<br>Elev. 279.605<br>Alignment: CL1<br>Station: 407+64.37<br>Offset: 35.570<br>Northing: 2,147,713.7360<br>Easting: 5,956,289.6390 | PRHV5<br>Elev. 259.58<br>Alignment: CL1<br>Station: 403+98.10<br>Offset: 104.883<br>Northing: 2,147,750.3460<br>Easting: 5,956,640.3190 |
|---|---|



|                                     |  |  |  |  |  |   |  |   |  |
|-------------------------------------|--|--|--|--|--|---|--|---|--|
| <b>ENGINEERING SERVICES</b>         |  | <b>GEOTECHNICAL SERVICES</b>               |  | <b>STATE OF CALIFORNIA</b>                                   |  | <b>DIVISION OF ENGINEERING SERVICES</b>         |  | <b>RETAINING WALL EAST OF SLIDE RANCH</b> |  |
| FUNCTIONAL SUPERVISOR               |  | DRAWN BY: M. Reynolds 06/14                |  | DEPARTMENT OF TRANSPORTATION                                 |  | OFFICE OF GEOTECHNICAL                          |  | <b>LOG OF TEST BORINGS 1 of 1</b>         |  |
| NAME: M. Momenzadeh                 |  | CHECKED BY: E. Ortega                      |  | FIELD INVESTIGATION BY: R. Karpowicz                         |  | DESIGN BRANCH                                   |  |   |  |
| 06S CIVIL LOG OF TEST BORINGS SHEET |  | ORIGINAL SCALE IN INCHES FOR REDUCED PLANS |  | UNIT: 3660   |  | BRIDGE NO. 27E0072                              |  | REVISION DATES                            |  |
|                                     |  |  |  | PROJECT NUMBER & PHASE: 0400021259 4 CONTRACT NO.: 04-2G8904 |  | POST MILES 8.05                                 |  | SHEET 13 OF 13                            |  |
|                                     |  |  |  | FILE => 04-2g8904-x-lotb.dgn                                 |  | DISREGARD PRINTS BEARING EARLIER REVISION DATES |  |   |  |

DATE PLOTTED => 13-OCT-2016 USERNAME => s127688