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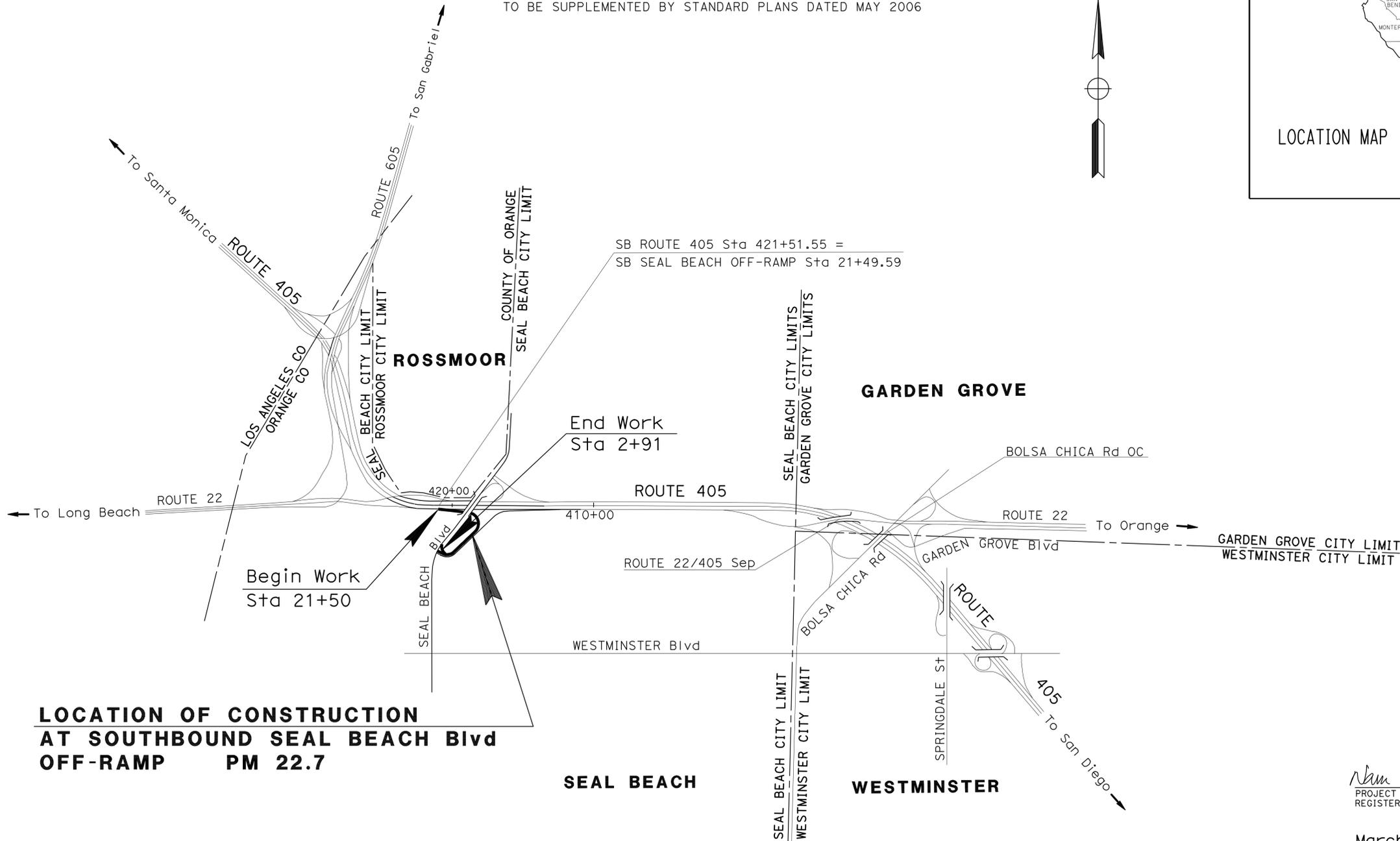
THE STANDARD PLANS LIST APPLICABLE TO THIS CONTRACT IS INCLUDED IN THE NOTICE TO BIDDERS AND SPECIAL PROVISIONS BOOK.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

PROJECT PLANS FOR CONSTRUCTION ON  
STATE HIGHWAY

IN ORANGE COUNTY  
IN SEAL BEACH  
AT SOUTHBOUND SEAL BEACH BOULEVARD OFF-RAMP

TO BE SUPPLEMENTED BY STANDARD PLANS DATED MAY 2006



**LOCATION OF CONSTRUCTION  
AT SOUTHBOUND SEAL BEACH Blvd  
OFF-RAMP PM 22.7**

SEAL BEACH

WESTMINSTER

NO SCALE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Oran	405	22.7	1	21

Caltrans

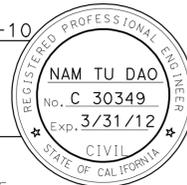
LOCATION MAP

PROJECT MANAGER BERC IKYZIAN
DESIGN ENGINEER MILI LIM STAMATION

*Nam Tu Dao* 02-01-10  
PROJECT ENGINEER DATE  
REGISTERED CIVIL ENGINEER

March 1, 2010  
PLANS APPROVAL DATE

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



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



DATE PLOTTED => 02-MAR-2010  
TIME PLOTTED => 06:13  
LAST REVISION  
02-01-10

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	405	22.7	2	21

<i>Nam Tu Dao</i> 02-01-10 REGISTERED CIVIL ENGINEER DATE	
3-1-10 PLANS APPROVAL DATE	

REGISTERED PROFESSIONAL ENGINEER <b>NAM TU DAO</b> No. C 30349 Exp. 3-31-12 CIVIL STATE OF CALIFORNIA
--

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

**TYPICAL STRUCTURAL SECTIONS:**

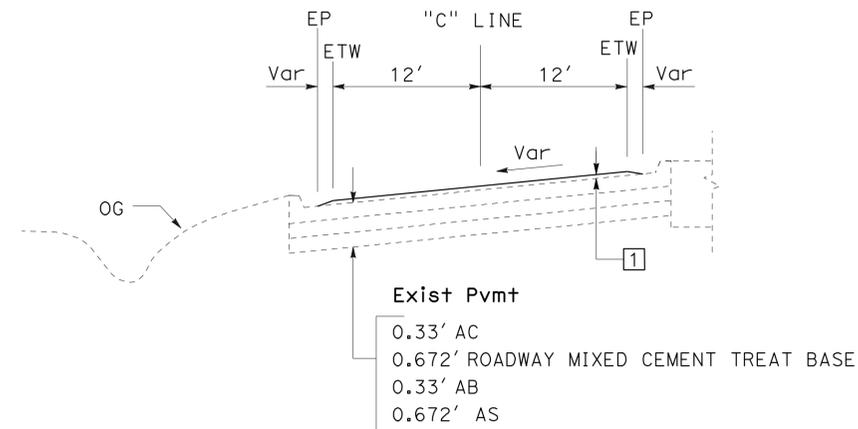
1 0.1' HOT MIX ASPHALT (OPEN GRADED)

**NOTES:**

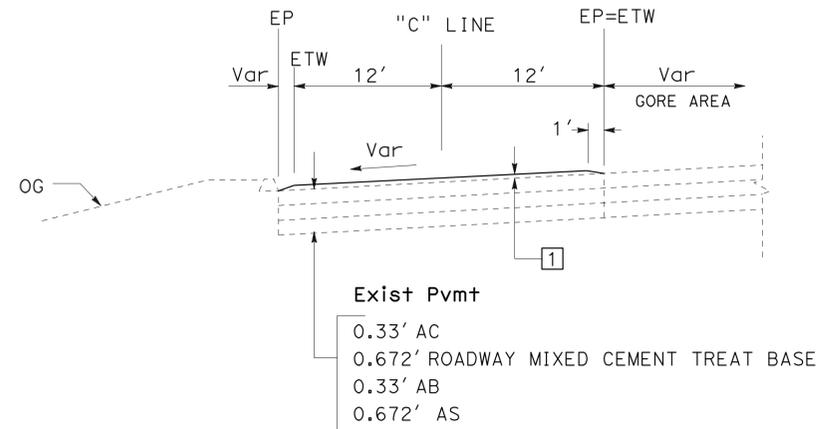
- DIMENSIONS OF THE STRUCTURAL SECTIONS ARE SUBJECT TO TOLERANCES SPECIFIED IN THE STANDARD SPECIFICATIONS.
- SUPERELEVATION AS SHOWN OR AS DIRECTED BY THE ENGINEER.

**LEGEND:**

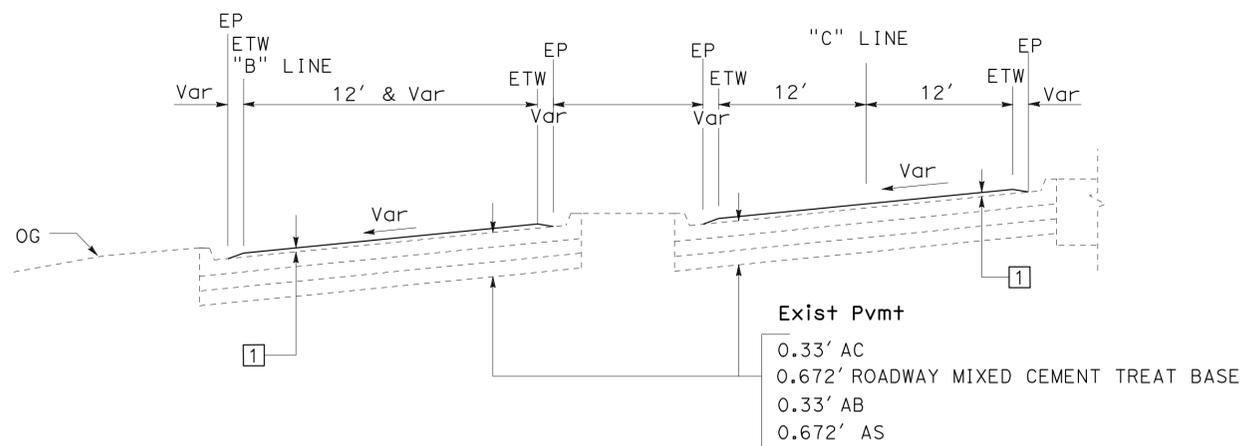
1 STRUCTURAL SECTION NUMBER



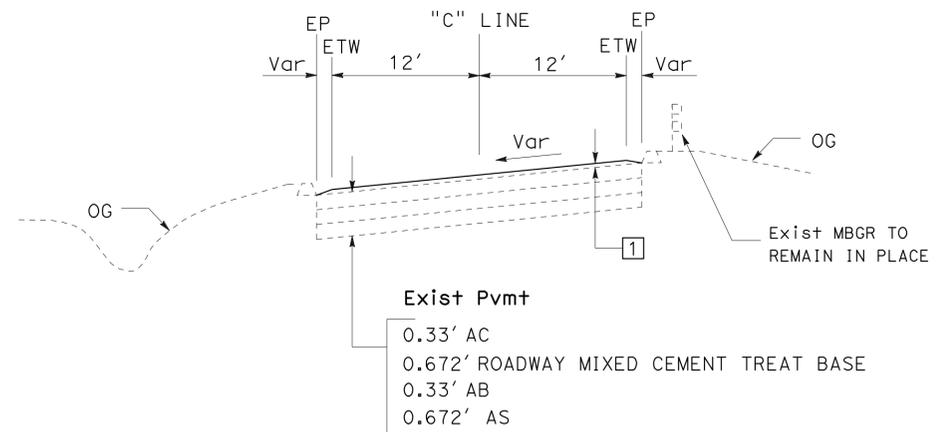
"C" 5+00 TO "C" 11+30



"C" 16+60 TO "C" 21+49.59



"C" 2+91 TO "C" 5+00



"C" 11+30 TO "C" 16+60

**SOUTHBOUND SEAL BEACH OFF-RAMP**

**TYPICAL CROSS SECTIONS**

NO SCALE

**X-1**

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

FUNCTIONAL SUPERVISOR  
 MILLI LIM

CALCULATED-DESIGNED BY  
 CHECKED BY

RAMPHA REAO  
 NAM TU DAO

REVISOR BY  
 DATE REVISED

NTD  
 01-20-10

**NOTES:**

- FOR COMPLETE RIGHT OF WAY AND ACCURATE ACCESS DATA, SEE RIGHT OF WAY RECORD MAPS AT DISTRICT OFFICE.
- ALL LOCALIZED FAILURE AND RUTTING, CRACKS WIDER THAN 0.25 INCH SHALL BE REPAIRED AND TACK COAT APPLIED TO THE SURFACE PRIOR TO PLACING THE HOT MIX ASPHALT (OPEN GRADED).

**LEGEND:**

- CURVE DATA NUMBER
- STRUCTURAL SECTION NUMBER

**CURVE DATA**

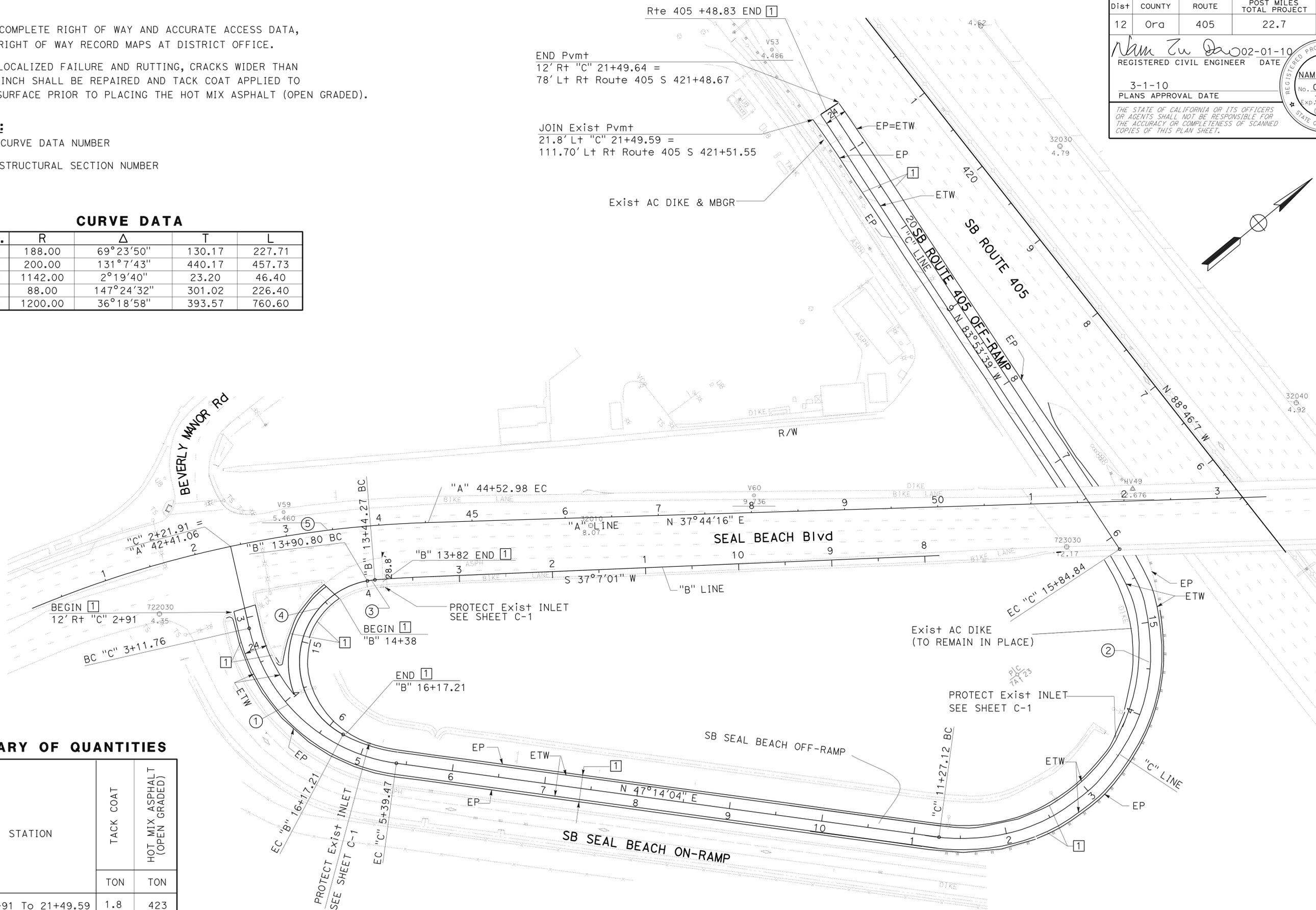
No.	R	Δ	T	L
①	188.00	69°23'50"	130.17	227.71
②	200.00	131°7'43"	440.17	457.73
③	1142.00	2°19'40"	23.20	46.40
④	88.00	147°24'32"	301.02	226.40
⑤	1200.00	36°18'58"	393.57	760.60

**SUMMARY OF QUANTITIES**

SHEET	STATION	TACK COAT	HOT MIX ASPHALT (OPEN GRADED)
		TON	TON
L-1	"C" 2+91 To 21+49.59	1.8	423
	"B" 14+38 To 16+17.21	0.2	32
TOTAL		2	455

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	405	22.7	3	21

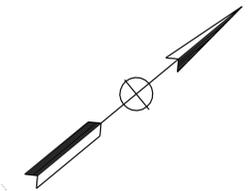
Nam Tu Dao 02-01-10  
 REGISTERED CIVIL ENGINEER DATE  
 3-1-10  
 PLANS APPROVAL DATE  
 No. C 30349  
 Exp. 3-31-12  
 CIVIL  
 STATE OF CALIFORNIA



Exist AC DIKE & MBGR

END Pvm+  
 12' Rt "C" 21+49.64 =  
 78' Lt Rt Route 405 S 421+48.67

JOIN Exist Pvm+  
 21.8' Lt "C" 21+49.59 =  
 111.70' Lt Rt Route 405 S 421+51.55



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

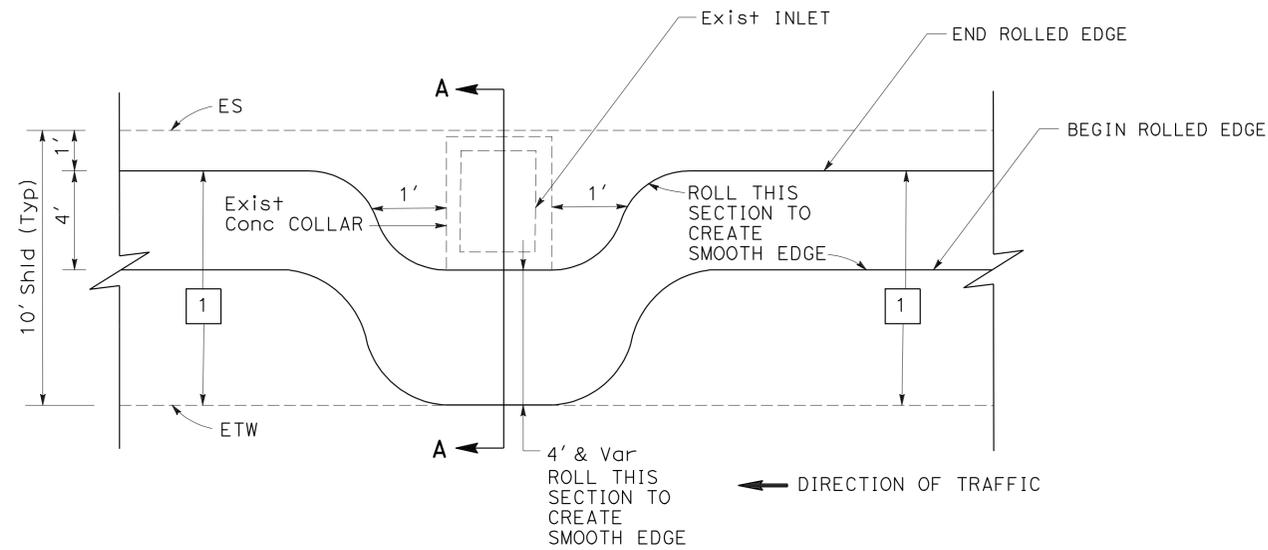
**L-1**

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	405	22.7	4	21
<i>Nam Tu Dao</i> 02-01-10 REGISTERED CIVIL ENGINEER DATE			REGISTERED PROFESSIONAL ENGINEER <b>NAM TU DAO</b> No. C 30349 Exp. 3-31-12 CIVIL STATE OF CALIFORNIA		
3-1-10			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>					

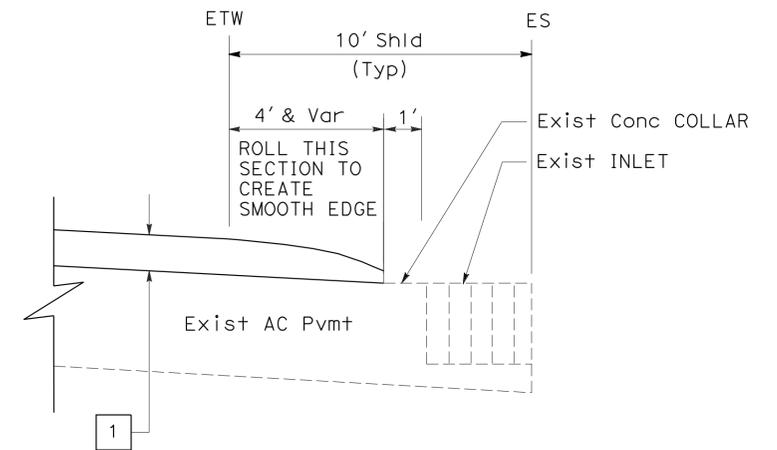
**LEGEND:**

□ STRUCTURE SECTION NUMBER

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	DESIGN DIVISION
FUNCTIONAL SUPERVISOR	MILLI LIM
CALCULATED-DESIGNED BY	CHECKED BY
RAMPHA REAO	NAM TU DAO
REVISOR	DATE
R R	01-07-10



**DETAIL A**  
**OVERLAY DETAIL OUTSIDE SHOULDER WITH INLET**



**SECTION A-A**

**CONSTRUCTION DETAILS**

NO SCALE

**C-1**



STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** DESIGN DIVISION  
 FUNCTIONAL SUPERVISOR: MILLI LIM  
 CALCULATED-DESIGNED BY: CHECKED BY:  
 RAMPHA REAO: NAM TU DAO  
 REVISED BY: DATE REVISED: R R: 01-07-10

**NOTES:**

1. FOR COMPLETE RIGHT OF WAY AND ACCURATE ACCESS DATA, SEE RIGHT OF WAY RECORD MAPS AT DISTRICT OFFICE.
2. LOCATIONS OF UTILITIES FACILITIES SHOWN ON THESE PLANS ARE APPROXIMATE AND SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION.
3. ALL UTILITIES SHALL BE PROTECTED IN PLACE UNLESS OTHERWISE SHOWN.

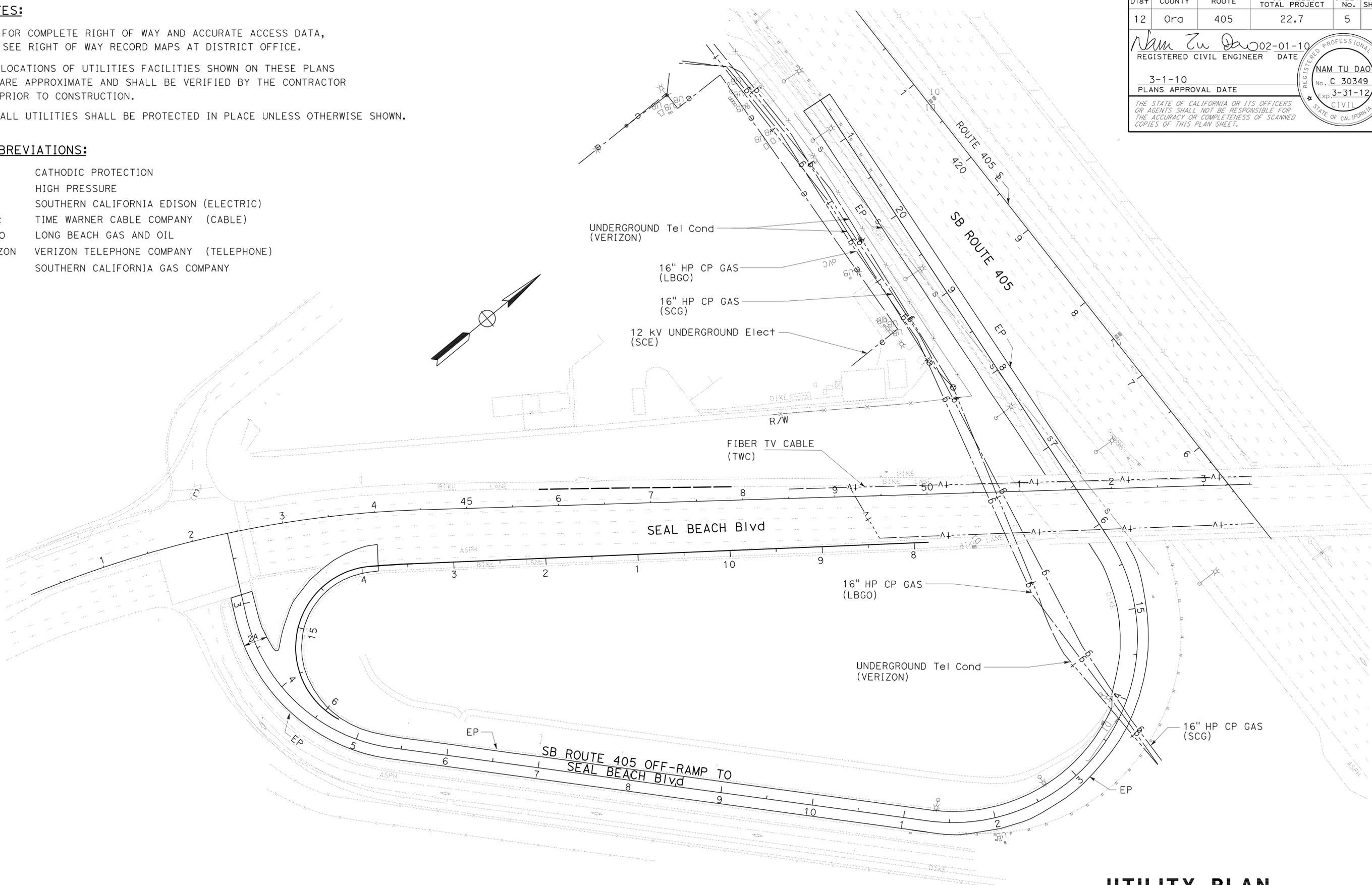
**ABBREVIATIONS:**

- CP CATHODIC PROTECTION
- HP HIGH PRESSURE
- SCE SOUTHERN CALIFORNIA EDISON (ELECTRIC)
- TWC TIME WARNER CABLE COMPANY (CABLE)
- LBGO LONG BEACH GAS AND OIL
- VERIZON VERIZON TELEPHONE COMPANY (TELEPHONE)
- SCG SOUTHERN CALIFORNIA GAS COMPANY

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	405	22.7	5	21

Nam Tu Dao 02-01-10  
 REGISTERED CIVIL ENGINEER DATE  
 3-1-10  
 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  
 NAM TU DAO  
 No. C 30349  
 Exp. 3-31-12  
 CIVIL  
 STATE OF CALIFORNIA



**UTILITY PLAN  
 (EXISTING UTILITIES)**

SCALE: 1" = 50'

**U-1**

THIS PLAN ACCURATE FOR UTILITY WORK ONLY

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	405	22.7	6	21

Nam Tu Dao 02-01-10  
 REGISTERED CIVIL ENGINEER DATE  
 3-1-10  
 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER  
 NAM TU DAO  
 No. C 30349  
 Exp. 3-31-12  
 CIVIL  
 STATE OF CALIFORNIA

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

**NOTE:**

1. LOCATION OF CONSTRUCTION AREA SIGNS SHOWN ARE APPROXIMATE. EXACT LOCATION TO BE DETERMINED BY THE ENGINEER.

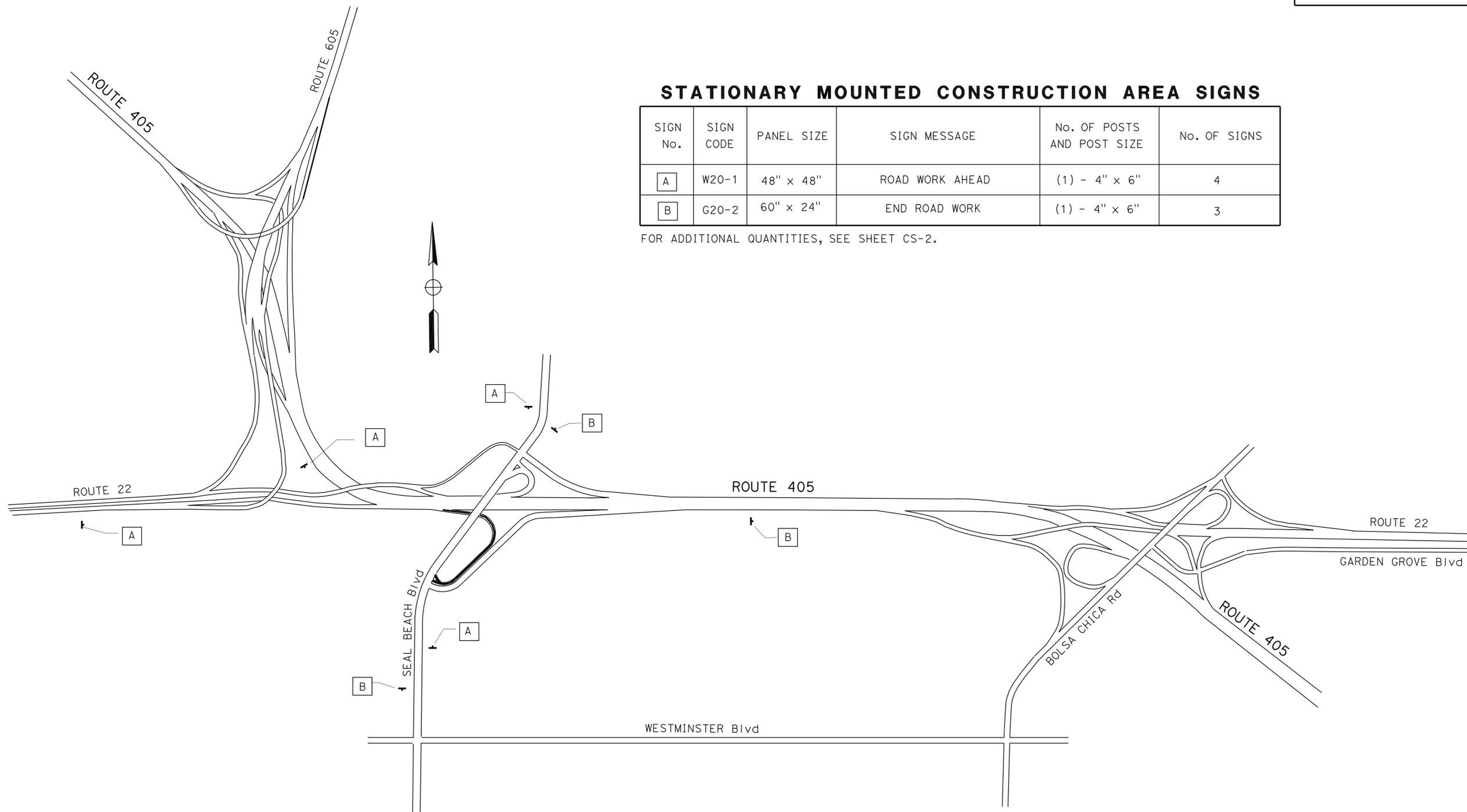
**LEGEND:**

- CONSTRUCTION AREA SIGN
- ↓ CONSTRUCTION AREA SIGN, 1-POST

**STATIONARY MOUNTED CONSTRUCTION AREA SIGNS**

SIGN No.	SIGN CODE	PANEL SIZE	SIGN MESSAGE	No. OF POSTS AND POST SIZE	No. OF SIGNS
A	W20-1	48" x 48"	ROAD WORK AHEAD	(1) - 4" x 6"	4
B	G20-2	60" x 24"	END ROAD WORK	(1) - 4" x 6"	3

FOR ADDITIONAL QUANTITIES, SEE SHEET CS-2.



**CONSTRUCTION AREA SIGNS**

NO SCALE

**CS-1**

THIS PLAN ACCURATE FOR CONSTRUCTION AREA SIGN WORK ONLY.

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** DESIGN DIVISION  
 FUNCTIONAL SUPERVISOR: MILLI LIM  
 RAMPHA REAO  
 REVISOR: NAM TU DAO  
 R R  
 DATE REVISOR: 01-07-10  
 CALCULATED-DESIGNED BY: CHECKED BY:

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	405	22.7	7	21

Nam Tu Dao 02-01-10  
 REGISTERED CIVIL ENGINEER DATE  
 3-1-10  
 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER  
 NAM TU DAO  
 No. C 30349  
 Exp. 3-31-12  
 CIVIL  
 STATE OF CALIFORNIA

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

**NOTE:**

1. LOCATION OF CONSTRUCTION AREA DETOUR SIGNS SHOWN ARE APPROXIMATE. EXACT LOCATION TO BE DETERMINED BY THE ENGINEER.

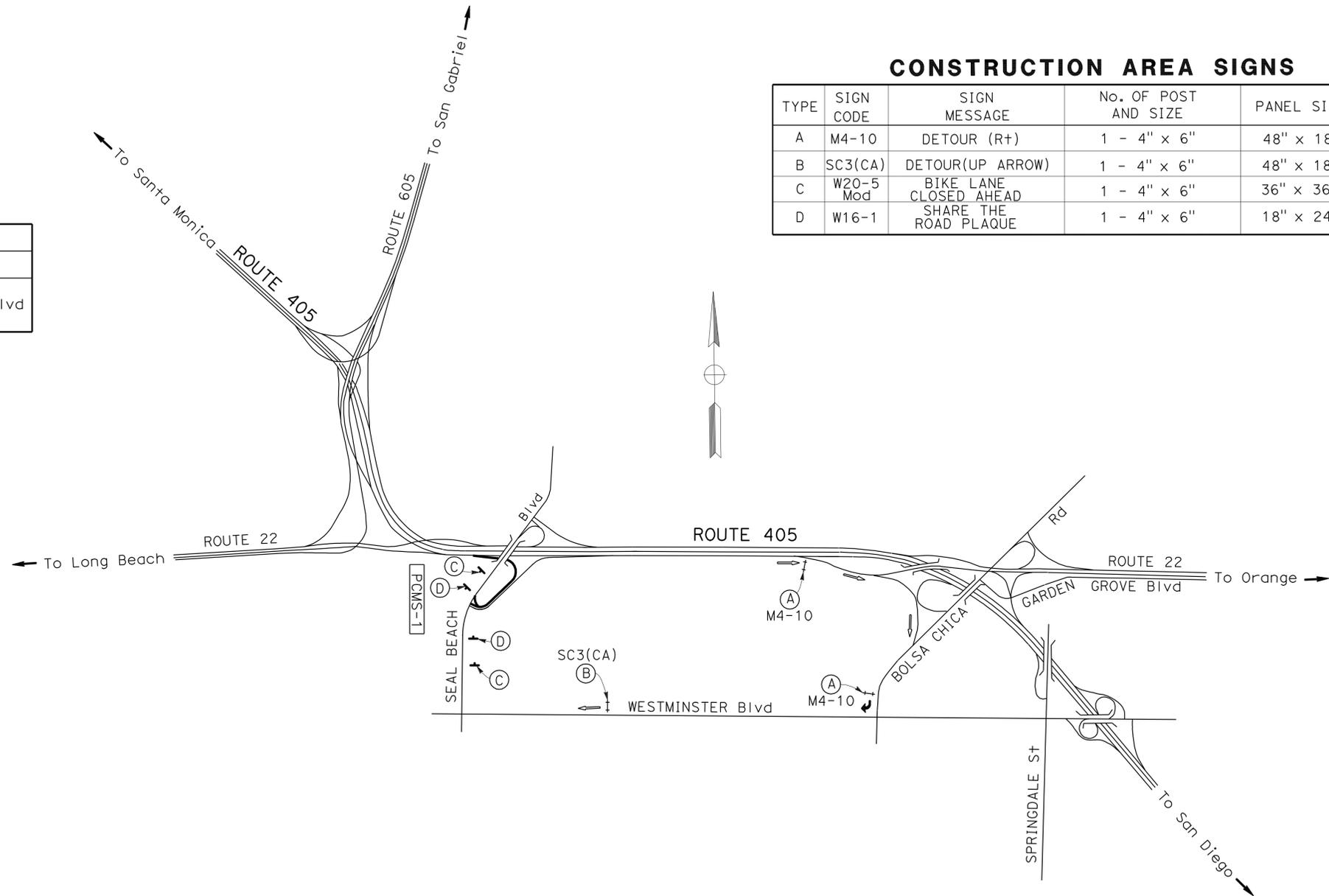
**LEGEND:**

- DIRECTION OF TRAFFIC
- PCMS-1 PORTABLE CHANGEABLE MESSAGE SIGN
- ⊗ CONSTRUCTION SIGN NUMBER (MOUNTED ON BARRICADE)
- ↑ TYPE II BARRICADE
- ↑ SINGLE SIGN POST

PCMS No.	MESSAGE	
	1ST FRAME	2ND FRAME
PCMS-1	SEAL BEACH OFF-RAMP CLOSED EXIT BOLSA CHICA	TO SEAL BEACH Blvd

**CONSTRUCTION AREA SIGNS**

TYPE	SIGN CODE	SIGN MESSAGE	No. OF POST AND SIZE	PANEL SIZE	No. OF SIGNS
A	M4-10	DETOUR (R+)	1 - 4" x 6"	48" x 18"	2
B	SC3(CA)	DETOUR(UP ARROW)	1 - 4" x 6"	48" x 18"	1
C	W20-5 Mod	BIKE LANE CLOSED AHEAD	1 - 4" x 6"	36" x 36"	2
D	W16-1	SHARE THE ROAD PLAQUE	1 - 4" x 6"	18" x 24"	2



**CLOSURE:**

SOUTHBOUND SEAL BEACH Blvd OFF-RAMP

**DETOUR:**

EASTBOUND ROUTE 22 GARDEN GROVE Fwy  
EXIT BOLSA CHICA Rd OFF-RAMP TO WESTMINSTER Blvd

**CONSTRUCTION AREA SIGNS  
SOUTHBOUND SEAL BEACH OFF-RAMP DETOUR  
BIKE LANE DETOUR  
NO SCALE**

**CS-2**

THIS PLAN ACCURATE FOR CONSTRUCTION AREA SIGN (DETOUR) WORK ONLY

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION DESIGN DIVISION  
 RAMPHA REAO  
 NAM TU DAO  
 REVISED BY  
 DATE REVISED  
 01-07-10  
 R R  
 CALCULATED-DESIGNED BY  
 CHECKED BY  
 FUNCTIONAL SUPERVISOR  
 MILLI LIM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	405	22.7	8	21

Nam Tu Dao 02-01-10  
 REGISTERED CIVIL ENGINEER DATE  
 3-1-10  
 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
NAM TU DAO
No. C 30349
Exp. 3-31-12
CIVIL

**LEGEND:**

- (X) PAVEMENT DELINEATION DETAIL NUMBER
- +— CHANGE IN PAVEMENT DELINEATION

**NOTES:**

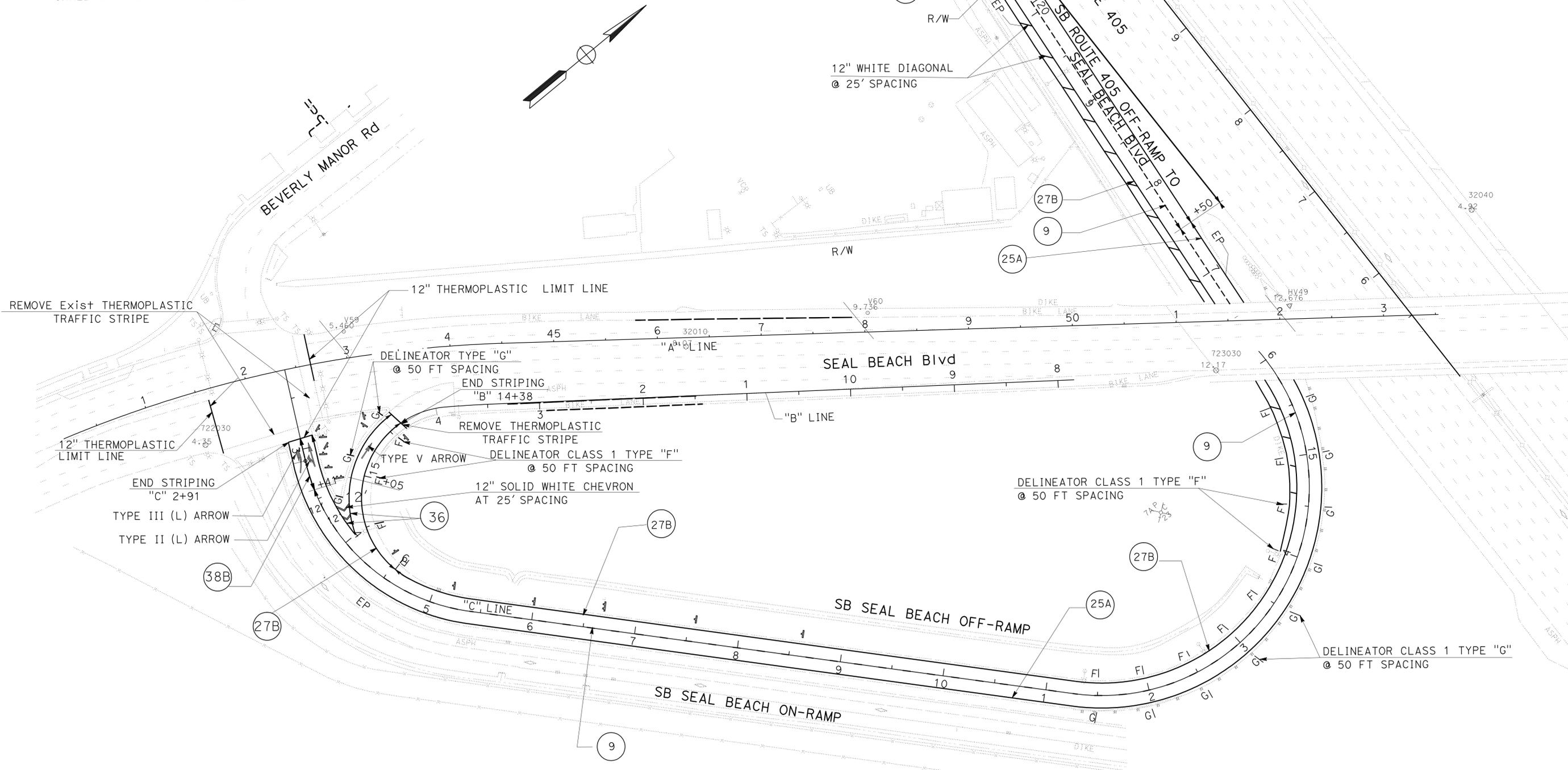
1. ALL TRAFFIC STRIPE, PAVEMENT MARKINGS, AND PAVEMENT MARKERS SHALL BE REMOVED PRIOR TO PAVING.
2. ALL TRAFFIC STRIPES AND PAVEMENT MARKINGS SHALL BE THERMOPLASTIC UNLESS OTHERWISE NOTED.

JOIN Exist Pvmt  
 21.8' Lt "C" 21+49.59 =  
 111.70' Lt Rt Route 405 S 421+51.55

JOINT Exist STRIPING  
 LINE "C" 21+49.59 =  
 SB ROUTE 405 421+51.55

Exist AC DIKE & MBGR

12" WHITE DIAGONAL  
 @ 25' SPACING



STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** DESIGN DIVISION  
 FUNCTIONAL SUPERVISOR: MILLI LIM  
 RAMPHA REAO: NAM TU DAO  
 REVISOR: R R  
 DATE: 01-07-10

**PAVEMENT DELINEATION PLAN**

SCALE: 1" = 50'

**PD-1**

THIS PLAN ACCURATE FOR PAVEMENT DELINEATION ONLY



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	405	22.7	9	21

Nam Tu Dao 02-01-10  
 REGISTERED CIVIL ENGINEER DATE

3-1-10  
 PLANS APPROVAL DATE

NAM TU DAO  
 No. C 30349  
 Exp. 3-31-12  
 CIVIL ENGINEER  
 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.

### PAVEMENT DELINEATION QUANTITIES

SHEET No.	STATION	THERMOPLASTIC TRAFFIC STRIPE				THERMOPLASTIC PAVEMENT MARKING			DELINEATOR CLASS I		PAVEMENT MARKER		REMOVE					
		DETAIL 38B 8" SOLID WHITE	DET 25A 4" SOLID YELLOW	DET 27B 4" SOLID WHITE	DETAIL 9 4" BROKEN WHITE (17-7)	DETAIL 36 8" SOLID WHITE	12" SOLID WHITE DIAGONAL, CHEVRON AND LIMIT LINE	ARROW	TYPE F	TYPE G	RETROREFLECTIVE TYPE G	RETROREFLECTIVE TYPE H	THERMOPLASTIC TRAFFIC STRIPE	YELLOW THERMOPLASTIC TRAFFIC STRIPE (HAZARDOUS WASTE)	PAVEMENT MARKER	THERMOPLASTIC PAVEMENT MARKING	THERMOPLASTIC PAVEMENT MARKING CROSSWALK	DELINEATOR
		LF	LF	LF	LF	SQFT			EA	EA	EA	EA	LF	LF	EA	SQFT	SQFT	EA
PD-1	2+91 TO 21+49.59 "C" LINE	50	1859	1600	1809	534	250	33	9	9	50	83	3459	1859	83	817		8
	14+38 TO 16+17.21 "B" LINE			162		121	36	87	4	3			162			244		2
																	176	
	SUB-TOTAL	50	1859	1762		655	286	120	13	12	50	83				1061	176	
	TOTAL	50	3621		1809		1061		25		133		3621	1859	83	1237		10

### PAVEMENT DELINEATION QUANTITIES PDQ-1

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	405	22.7	10	21

Nam Tu Dao 02-01-10	
REGISTERED CIVIL ENGINEER	DATE
3-1-10	
PLANS APPROVAL DATE	

REGISTERED PROFESSIONAL ENGINEER	
No. C 30349	
Exp. 3-31-12	
CIVIL	
STATE OF CALIFORNIA	

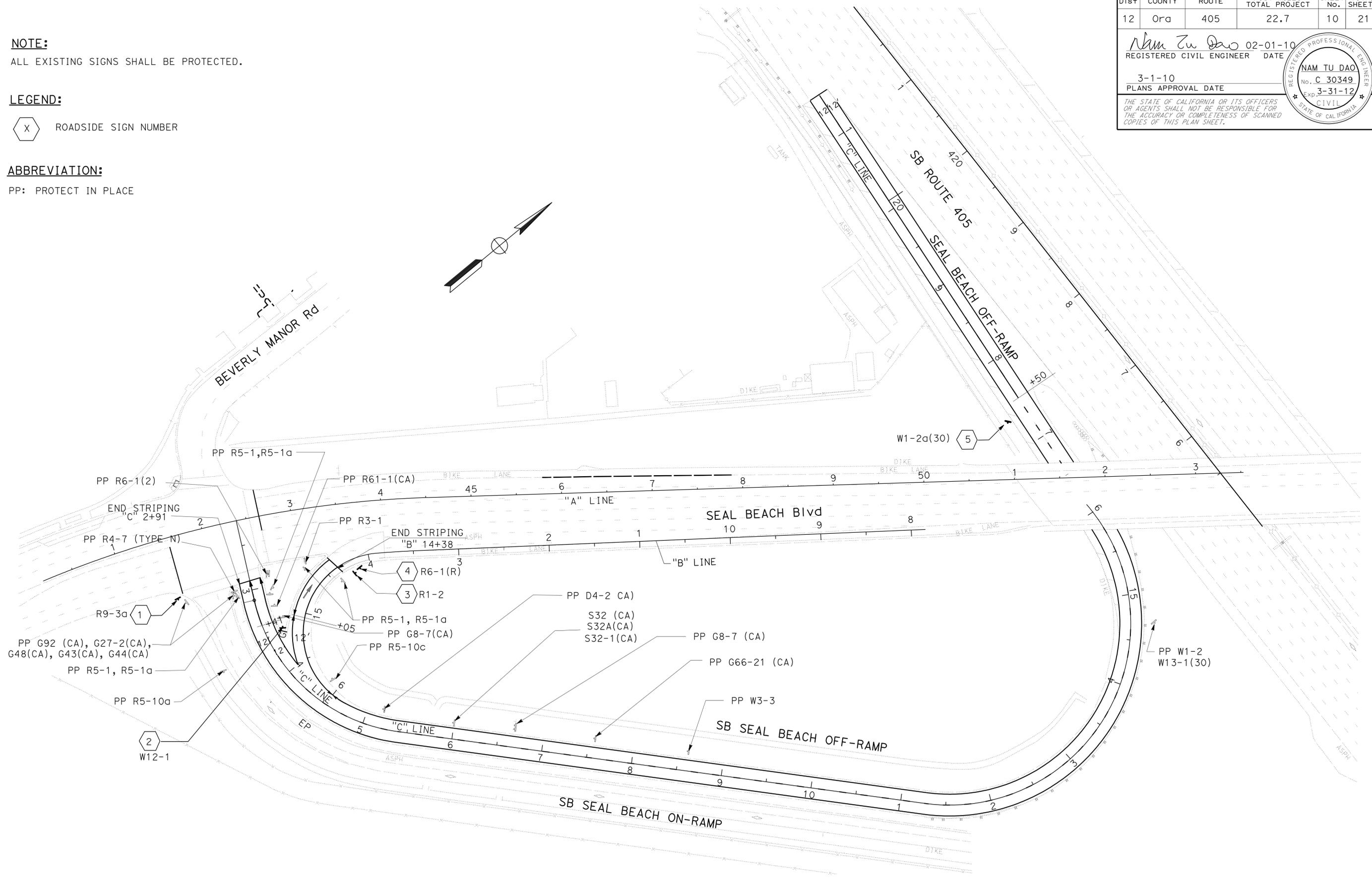
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

**NOTE:**  
ALL EXISTING SIGNS SHALL BE PROTECTED.

**LEGEND:**  
 ROADSIDE SIGN NUMBER

**ABBREVIATION:**  
PP: PROTECT IN PLACE

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** DESIGN DIVISION  
 FUNCTIONAL SUPERVISOR: MILLI LIM  
 RAMPHA REAO  
 REVISED BY: NAM TU DAO  
 R R  
 01-07-10  
 CALCULATED-DESIGNED BY: CHECKED BY:



**SIGN PLAN**  
SCALE: 1" = 50'  
**S-1**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** DESIGN DIVISION  
 FUNCTIONAL SUPERVISOR MILI LIM  
 CALCULATED-DESIGNED BY CHECKED BY  
 RAMPHA REAO NAM TU DAO  
 REVISED BY DATE REVISED  
 R R 01-07-10

**LEGEND:**

- BLK = BLACK
- Y = YELLOW
- W = WHITE
- NON = NON-REFLECTIVE
- R = RED

**ROADSIDE SIGN QUANTITIES**

SHEET No.	SIGN No. 	SIGN CODE	PANEL SIZE	ROADSIDE SIGN ONE POST
				EA
S-1	1	R9-3a	30" x 30"	1
S-1	2	W12-1	30" x 30"	1
S-1	3	R1-2	60" x 60"	1
S-1	4	R6-1(R)	36" x 12"	1
S-1	5	W1-2aR(30)	48" x 48"	1
TOTAL				5

**MATERIAL SUMMARY-CONTRACTOR FURNISHED SIGNS**

SHEET No.	SIGN No. 	SIGN CODE	PANEL SIZE	SIGN AREA SQFT	SINGLE FACED	BACKGROUND		LEGEND		PROTECTIVE FILM		ROADSIDE SIGN	
						SHEETING COLOR	RETROREFLECTIVE ASTM TYPE	SHEETING COLOR	RETROREFLECTIVE ASTM TYPE	STANDARD	PREMIUM	SINGLE SHEET UNFRAMED ALUMINUM	
												0.063 INCH	0.080 INCH
						SQFT	SQFT			SQFT	SQFT		
PD-1	1	R9-3a	30" x 30"	6.25	X	W	III	R/BLK	III/NON	X		6.25	
	2	W12-1	30" x 30"	6.25	X	Y	III	Blk		X		6.25	
	3	R1-2	48" x 48"	6.93	X	W	IX	R			X		6.93
	4	R6-1(R)	36" x 12"	3	X	Blk	NON	W		X		3	
	5	W1-2aR(30)	48" x 48"	16	X	Y	III	Blk		X			16
TOTAL				38.43								15.50	22.93

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	405	22.7	11	21

Nam Tu Dao 02-01-10  
 REGISTERED CIVIL ENGINEER DATE

3-1-10  
 PLANS APPROVAL DATE

No. C 30349  
 Exp. 3-31-12  
 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.

**SIGN QUANTITY**  
**SQ-1**

LAST REVISION | DATE PLOTTED => 02-MAR-2010 | TIME PLOTTED => 06:15

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	405	22.7	12	21

02-01-10  
REGISTERED ELECTRICAL ENGINEER

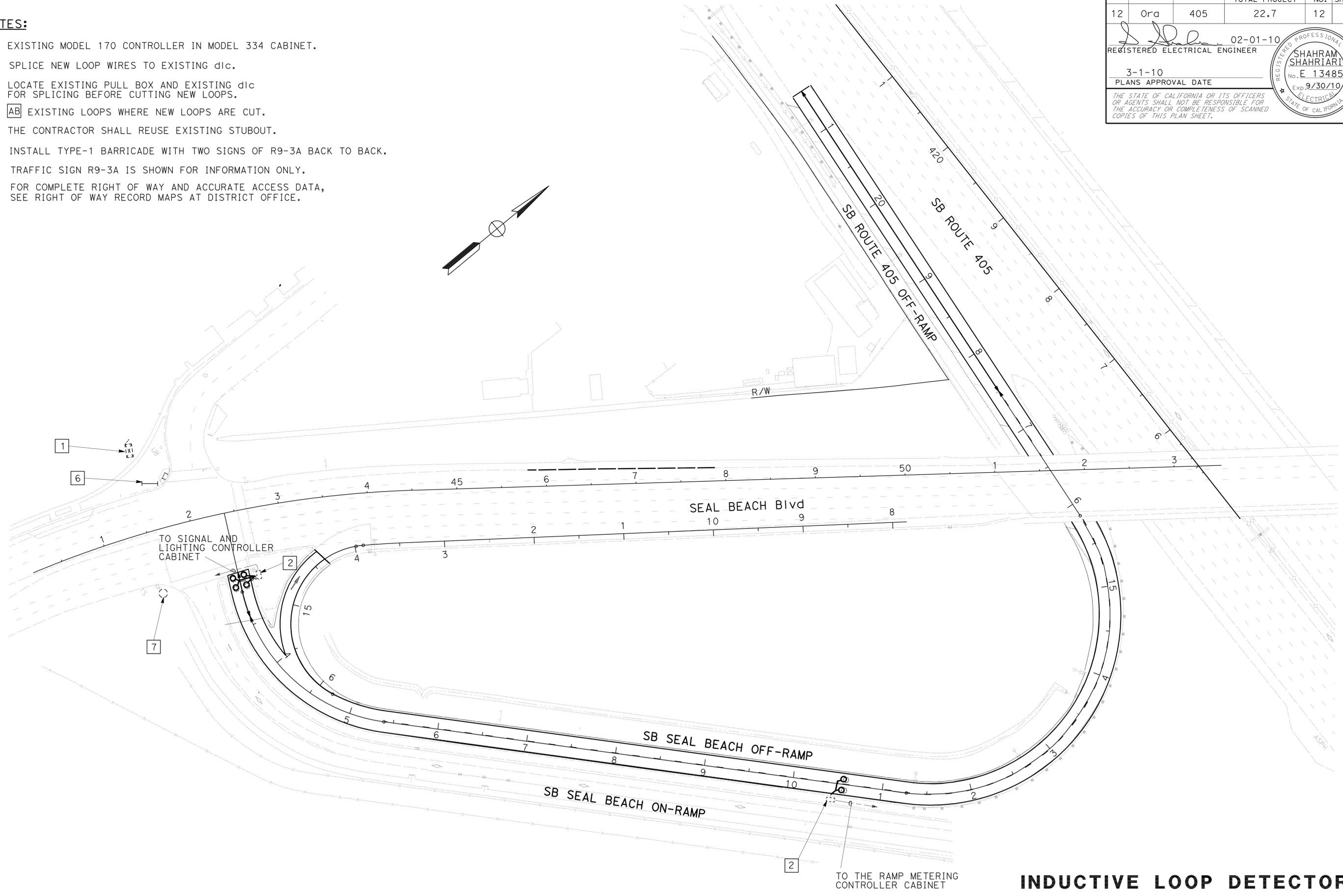
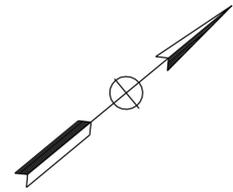
3-1-10  
PLANS APPROVAL DATE

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REGISTERED PROFESSIONAL ENGINEER  
SHAHRAM SHAHRIARI  
No. E 13485  
EXP. 9/30/10  
ELECTRICAL  
STATE OF CALIFORNIA

**NOTES:**

- 1 EXISTING MODEL 170 CONTROLLER IN MODEL 334 CABINET.
- 2 SPLICE NEW LOOP WIRES TO EXISTING d/c.
3. LOCATE EXISTING PULL BOX AND EXISTING d/c FOR SPLICING BEFORE CUTTING NEW LOOPS.
4. **AB** EXISTING LOOPS WHERE NEW LOOPS ARE CUT.
5. THE CONTRACTOR SHALL REUSE EXISTING STUBOUT.
- 6 INSTALL TYPE-1 BARRICADE WITH TWO SIGNS OF R9-3A BACK TO BACK.
- 7 TRAFFIC SIGN R9-3A IS SHOWN FOR INFORMATION ONLY.
8. FOR COMPLETE RIGHT OF WAY AND ACCURATE ACCESS DATA, SEE RIGHT OF WAY RECORD MAPS AT DISTRICT OFFICE.



**INDUCTIVE LOOP DETECTOR**  
SCALE: 1" = 50'  
**E-1**

THIS PLAN IS ACCURATE FOR ELECTRICAL WORK ONLY.

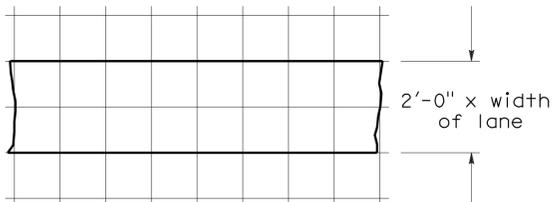
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** ELECTRICAL DESIGN  
FUNCTIONAL SUPERVISOR: SHAHRAM SHAHRIARI  
CALCULATED-DESIGNED BY: SHAHRAM SHAHRIARI  
CHECKED BY: SHAHRAM SHAHRIARI  
REVISED BY: SHAHRAM SHAHRIARI  
DATE REVISED: 01-19-10

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
12	Ora	405	22.7	13	21

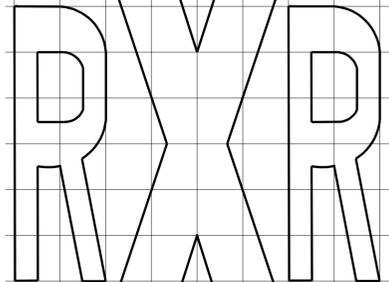
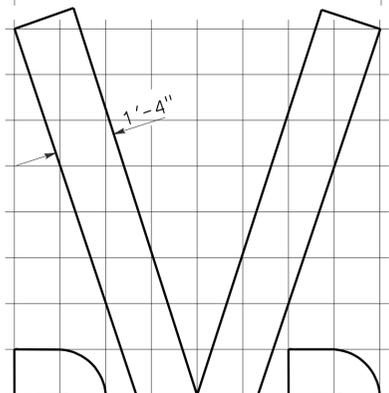
Donald E. Howe  
 REGISTERED CIVIL ENGINEER  
 June 6, 2008  
 PLANS APPROVAL DATE  
 The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

REGISTERED PROFESSIONAL ENGINEER  
 Donald E. Howe  
 No. C46402  
 Exp. 3-31-09  
 CIVIL  
 STATE OF CALIFORNIA

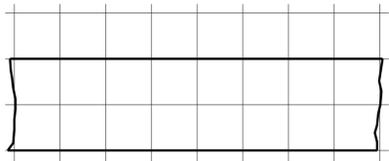
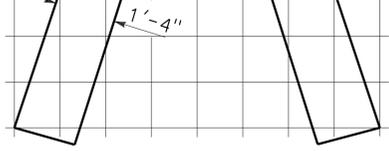
To accompany plans dated 3-1-10



8'-0"



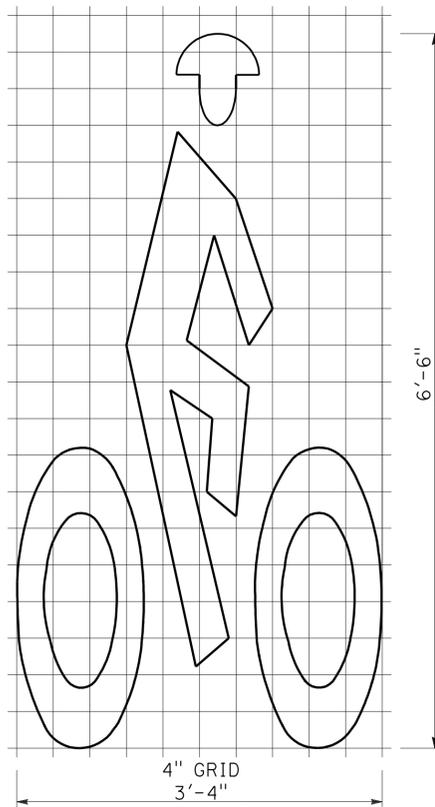
20'-0"



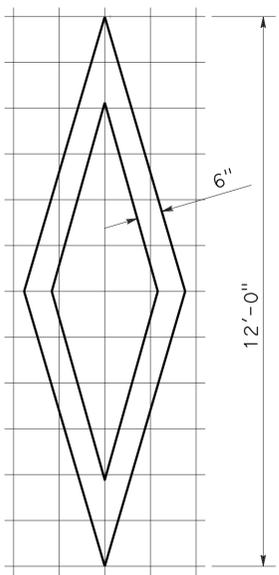
1'-0" GRID  
A=70 sq ft \*

**RAILROAD CROSSING SYMBOL**

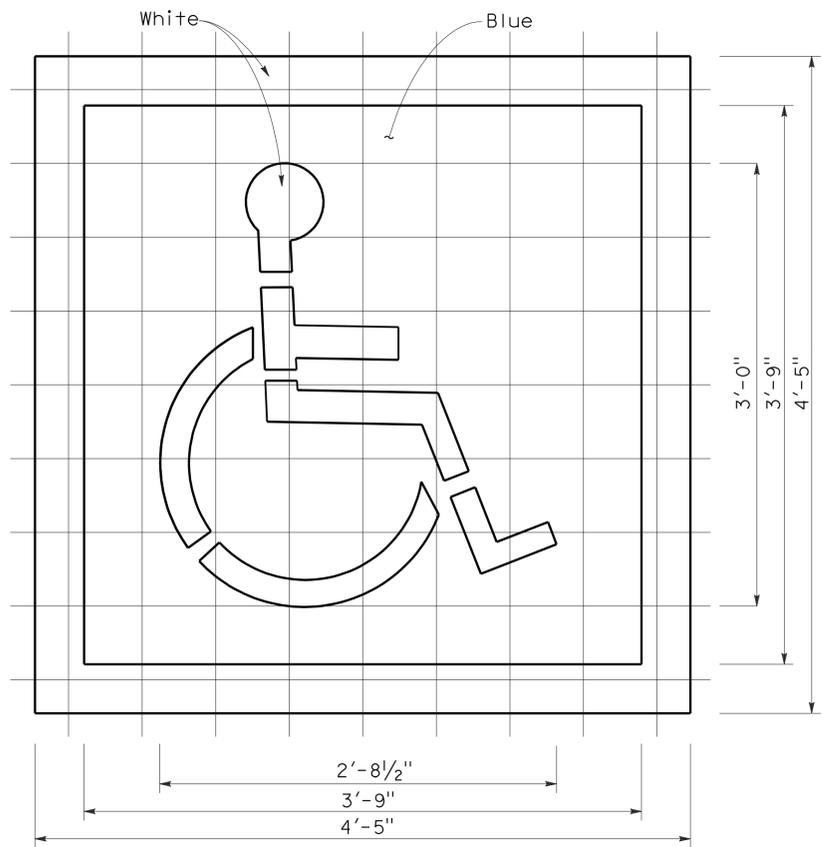
\*70 sq ft DOES NOT INCLUDE THE 2'-0" x VARIABLE WIDTH TRANSVERSE LINES.



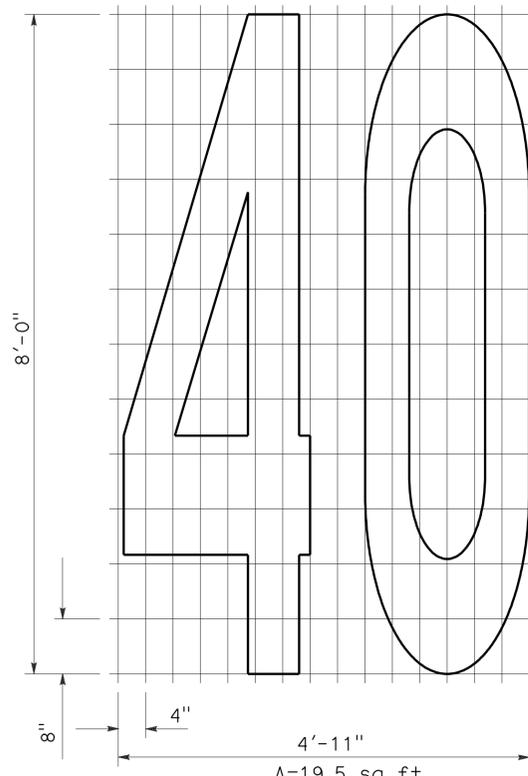
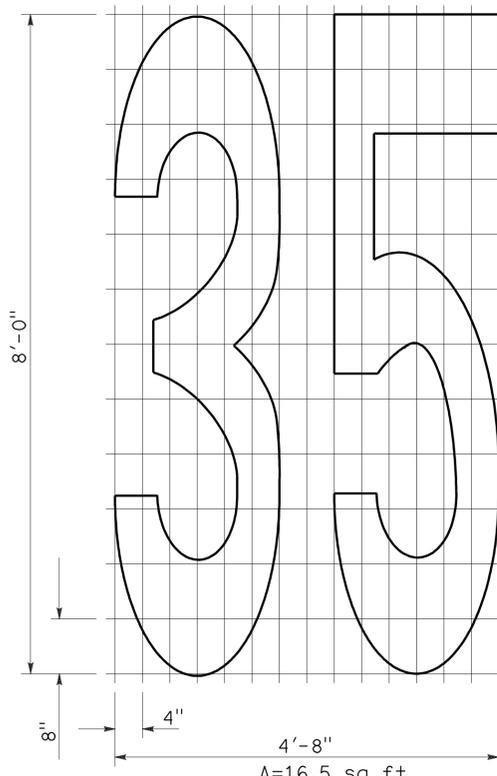
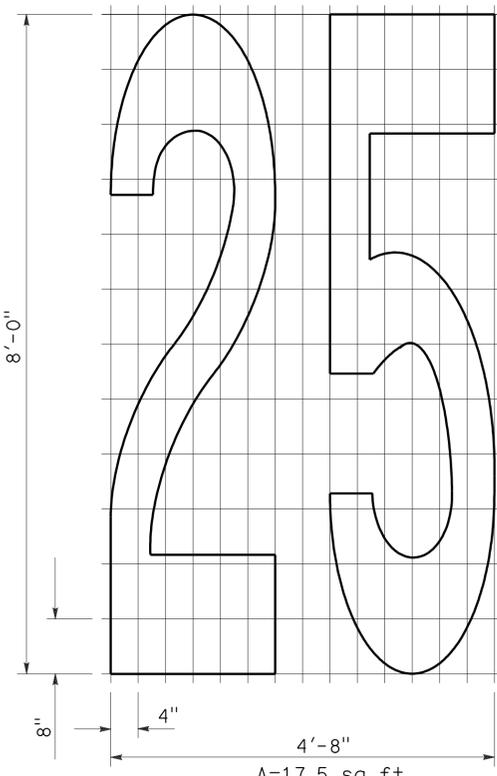
**BIKE LANE SYMBOL**



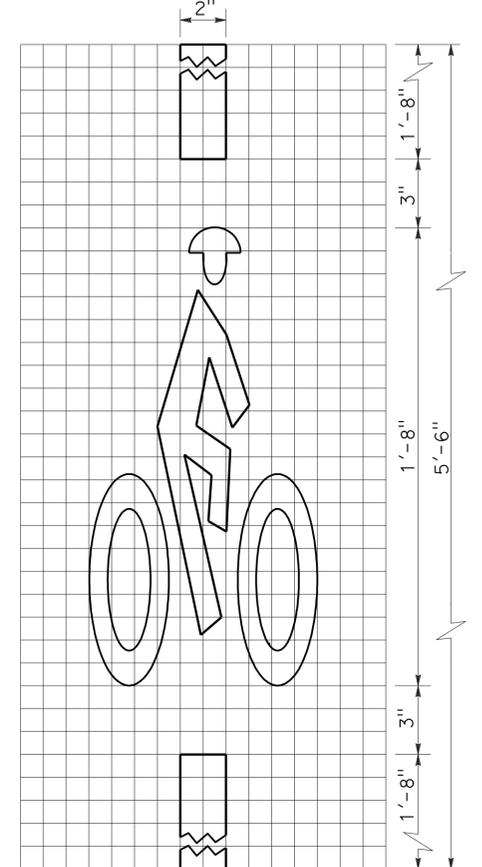
**DIAMOND SYMBOL**



**INTERNATIONAL SYMBOL OF ACCESSIBILITY MARKING**



**NUMERALS**



**BICYCLE LOOP DETECTOR SYMBOL**

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

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**PAVEMENT MARKINGS SYMBOLS AND NUMERALS**

NO SCALE

**REVISED STANDARD PLAN RSP A24C**

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

2006 REVISED STANDARD PLAN RSP A24C

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
12	Ora	405	22.7	14	21

*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

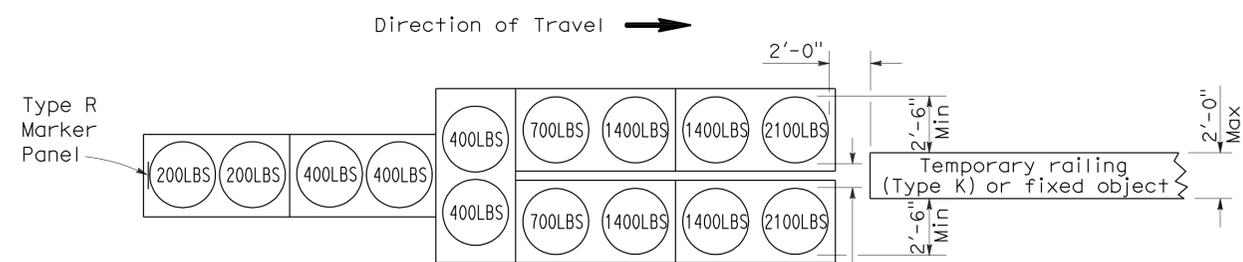
June 6, 2008  
PLANS APPROVAL DATE

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

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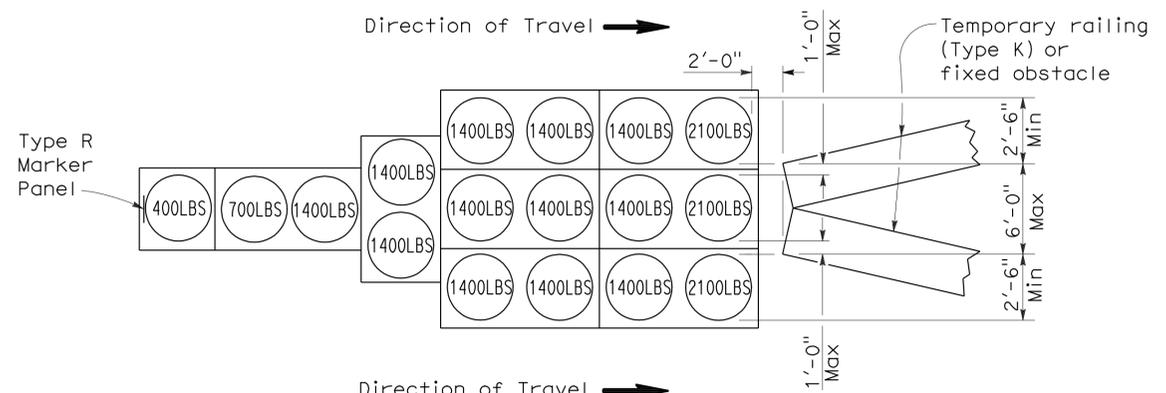
To accompany plans dated 3-1-10

2006 REVISED STANDARD PLAN RSP T1A



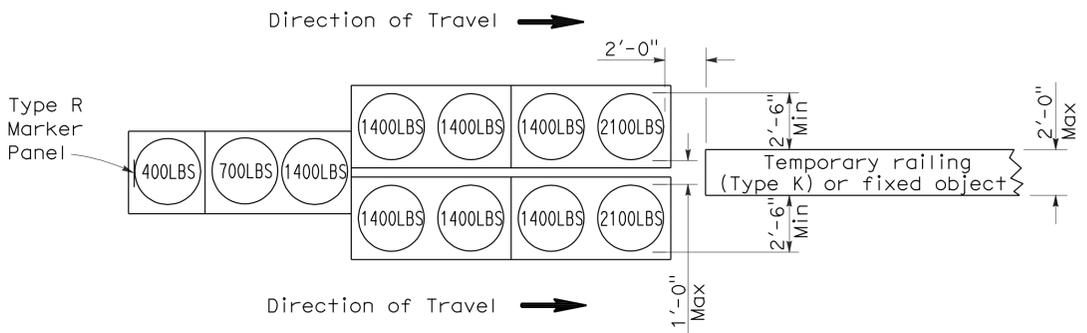
**ARRAY 'TU14'**

Approach speed 45 mph or more



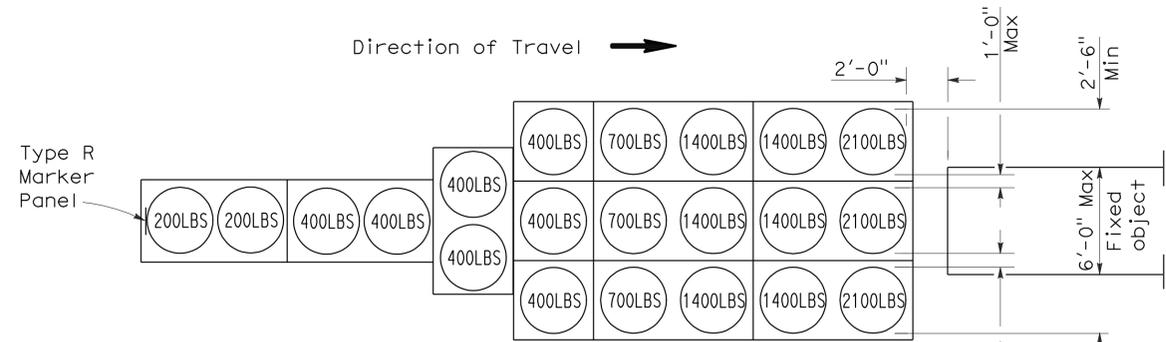
**ARRAY 'TU17'**

Approach speed less than 45 mph



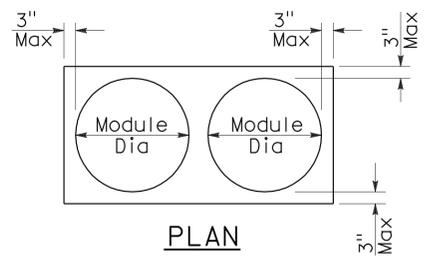
**ARRAY 'TU11'**

Approach speed less than 45 mph

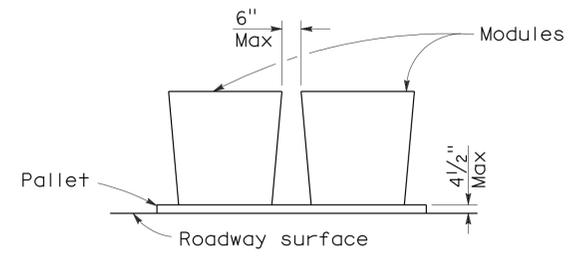


**ARRAY 'TU21'**

Approach speed 45 mph or more



**PLAN**



**ELEVATION**

**CRASH CUSHION PALLET DETAIL**

See Note 7

**NOTES:**

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

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

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

NO SCALE

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

**REVISED STANDARD PLAN RSP T1A**

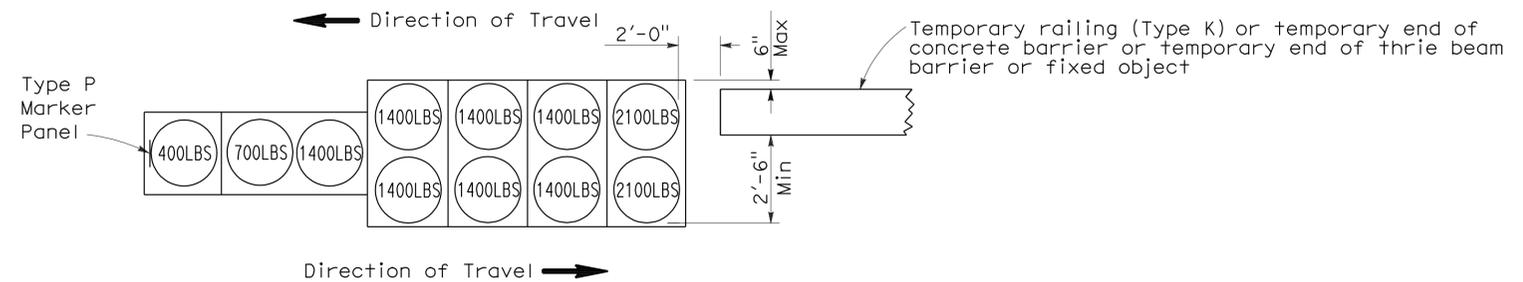
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
12	Ora	405	22.7	15	21

*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

June 6, 2008  
PLANS APPROVAL DATE

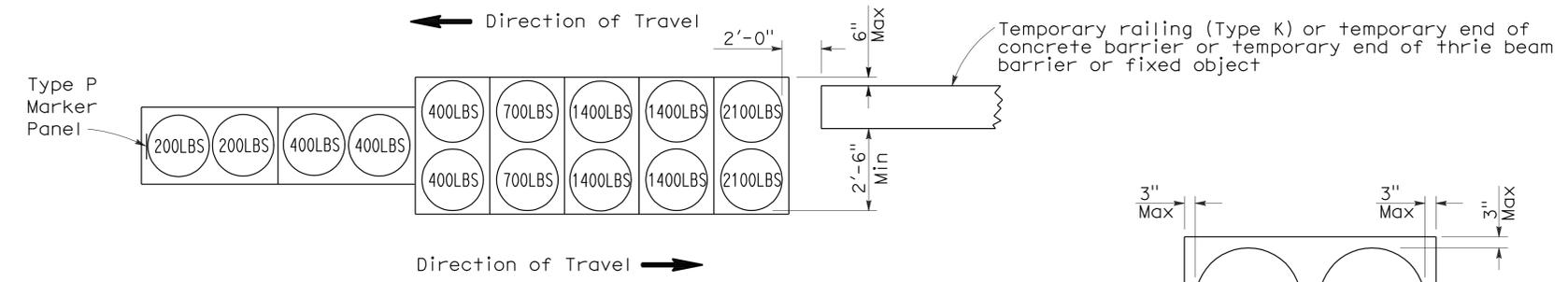
*The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.*

To accompany plans dated 3-1-10



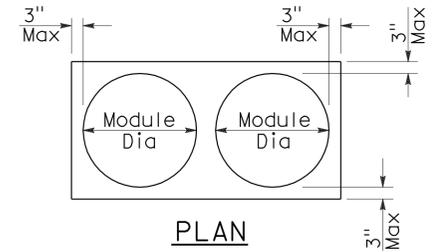
**ARRAY 'TB11'**

Approach speed less than 45 mph

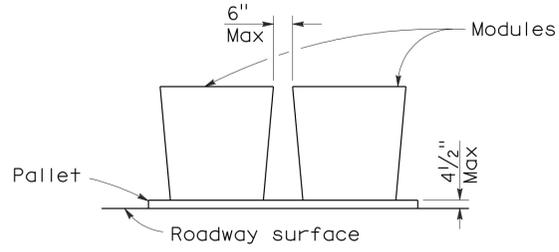


**ARRAY 'TB14'**

Approach speed 45 mph or more



PLAN



ELEVATION

**CRASH CUSHION PALLET DETAIL**

See Note 7

**NOTES:**

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

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

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

NO SCALE

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

**REVISED STANDARD PLAN RSP T1B**

2006 REVISED STANDARD PLAN RSP T1B

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
12	Ora	405	22.7	16	21

*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

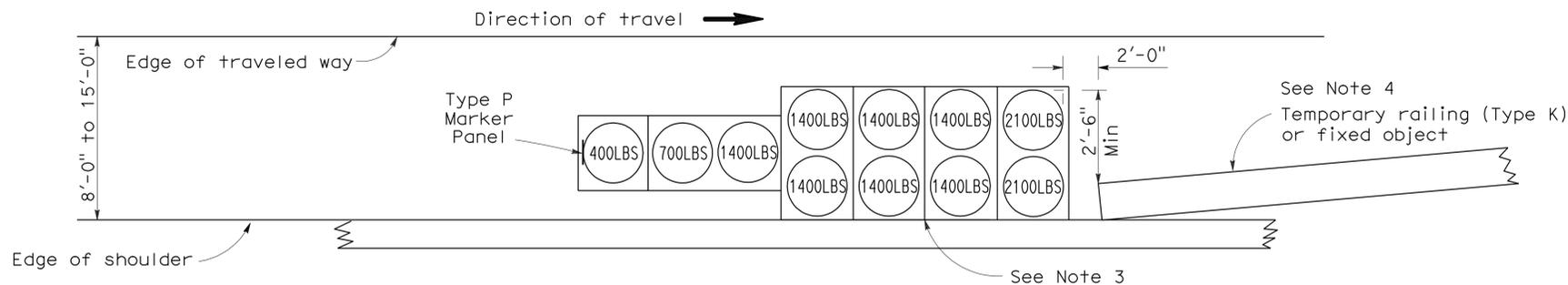
June 6, 2008  
PLANS APPROVAL DATE

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

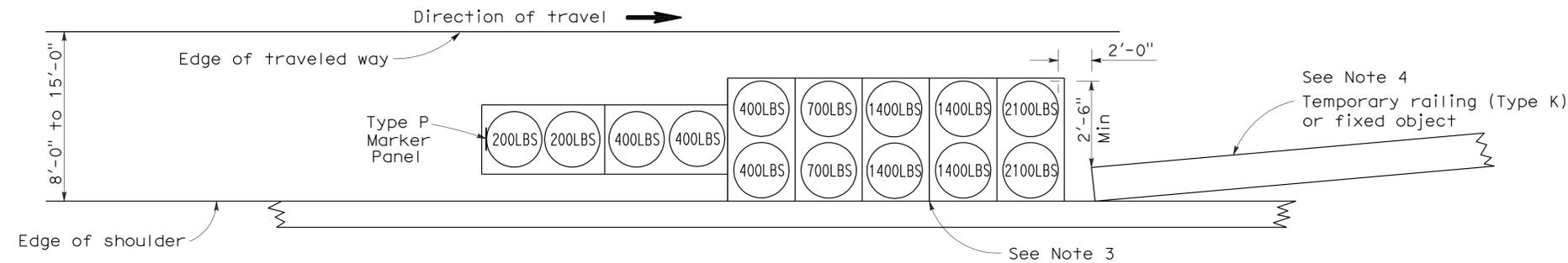
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To accompany plans dated 3-1-10

2006 REVISED STANDARD PLAN RSP T2



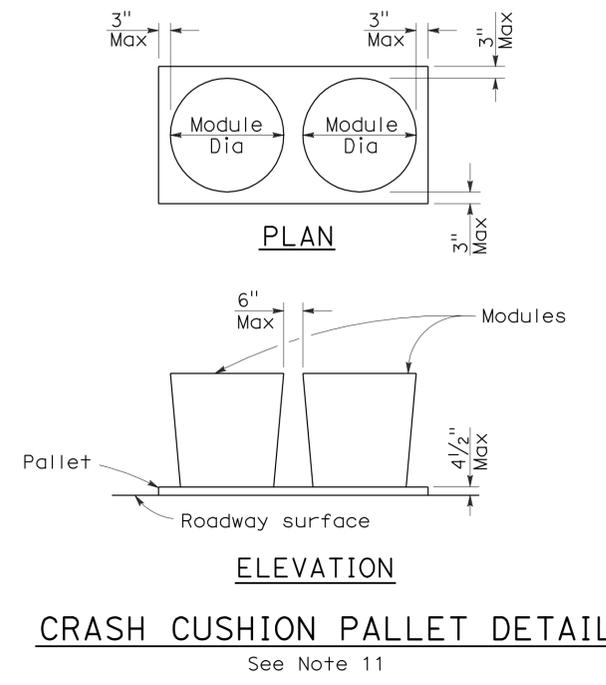
**ARRAY 'TS11'**  
Approach speed less than 45 mph  
See Note 9



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

**NOTES:**

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



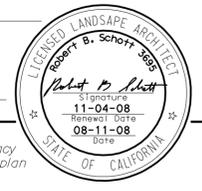
STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

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

NO SCALE

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

**REVISED STANDARD PLAN RSP T2**

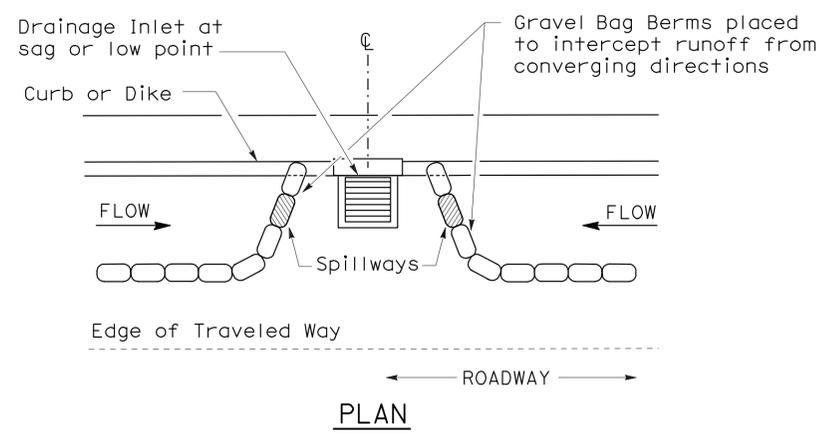


To accompany plans dated 3-1-10

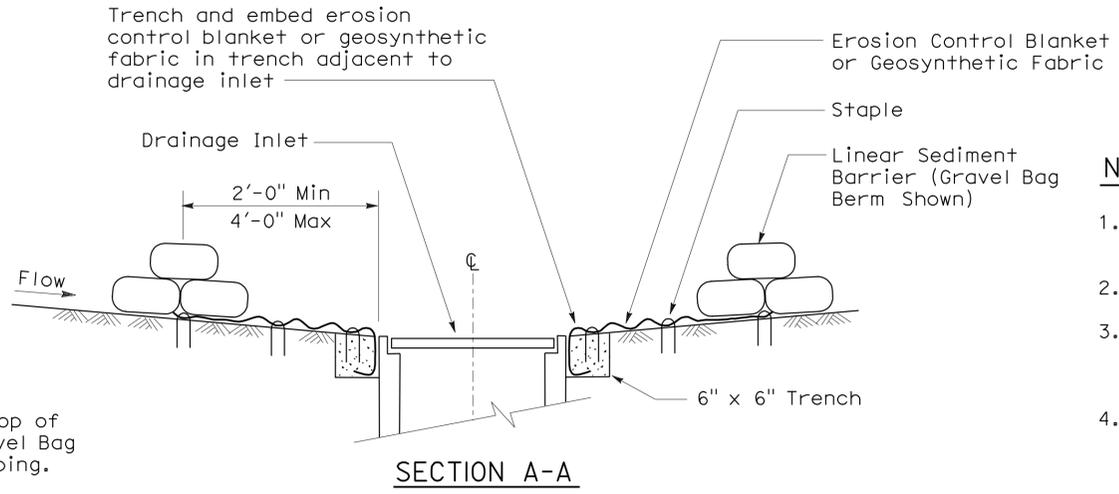
### GRAVEL BAG BERM (TYPE 3A) SPACING TABLE

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

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



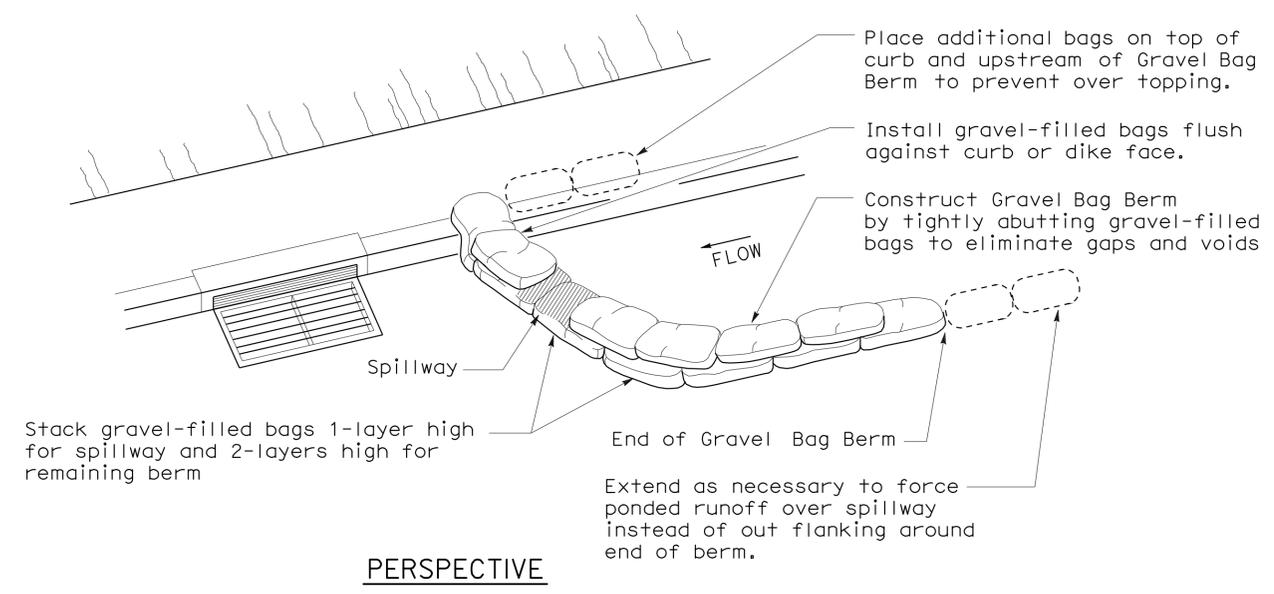
**PLAN**  
**CONFIGURATION FOR SAG POINT INLET (GRAVEL BAG BERM)**



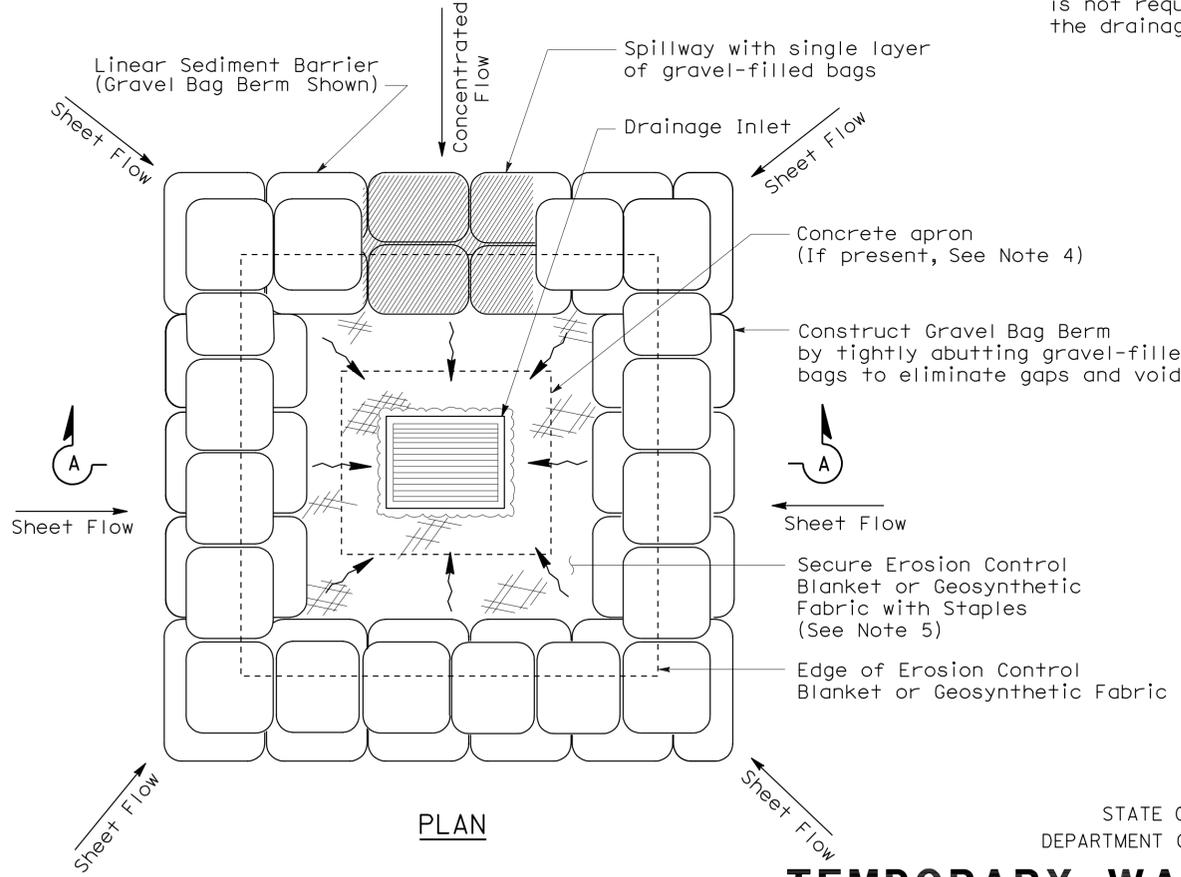
**SECTION A-A**

**NOTES:**

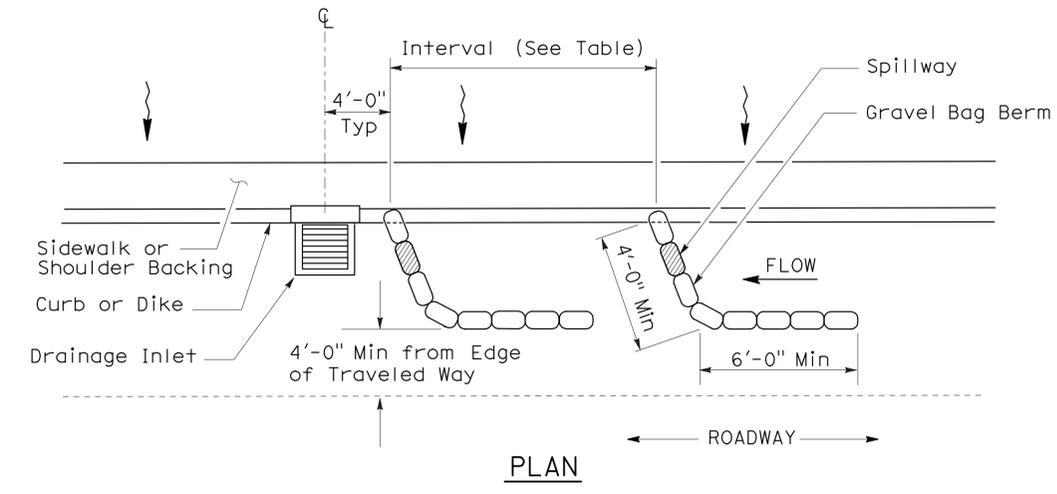
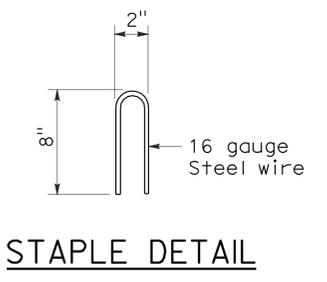
1. Place safety cones adjacent to drainage inlet protection.
2. Dimensions may vary to fit field conditions.
3. Install a minimum of 3 gravel bag berms upstream of each drainage inlet to be protected.
4. Position erosion control blanket or geosynthetic fabric at edge of concrete apron and secure in trench.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



**PERSPECTIVE**



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

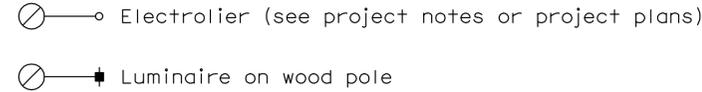
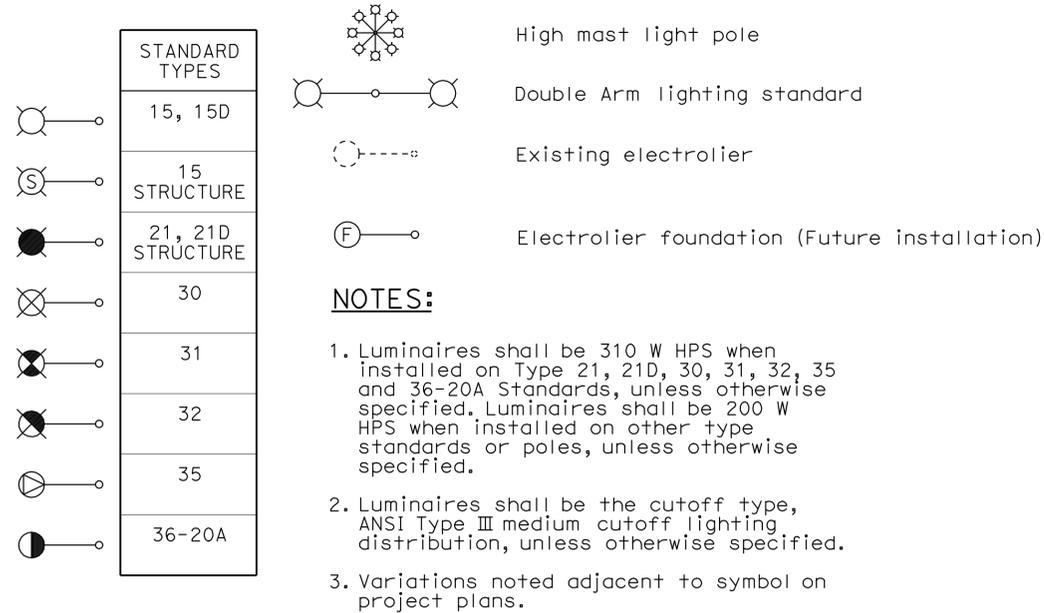


**PLAN**  
**TEMPORARY DRAINAGE INLET PROTECTION (TYPE 3A) (GRAVEL BAG BERM)**

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

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

# ELECTROLIERS



## STANDARD NOTES:

- AB** Abandon. If applied to conduit, remove conductors.
- BC** Install pull box in existing conduit run.
- BP** Pedestrian barricade, type as indicated on plan.
- CB** Install conduit into existing pull box.
- CC** Connect new and existing conduit. Remove existing conductors and install conductors as indicated.
- CF** Conduit to remain for future use. Remove conductors. Install pull wire or rope.
- DH** Detector handhole.
- FA** Foundation to be abandoned.
- IS** Install sign on signal mast arm.
- NS** No slip base on standard.
- PEC** Photoelectric control.
- PEU** Photoelectric unit.
- RC** Equipment or material to be removed and become the property of the Contractor.
- RE** Remove electrolier, fuses and ballast. Tape ends of conductors.
- RL** Relocate equipment.
- RR** Remove and reuse equipment.
- RS** Remove and salvage equipment.
- SC** Splice new to existing conductors.
- SD** Service disconnect.
- SF** Standard to remain for future use. Remove luminaire, pole conductors, fuses and ballast.
- TSP** Telephone service point.

# ABBREVIATIONS AND EQUIPMENT DESIGNATIONS

## PROPOSED EXISTING

BBS	bbs	Battery backup system
BC	bc	Bolt circle
C	C	Conduit
CCTV	cctv	Closed circuit television
CKT	ckt	Circuit
CMS	cms	Changeable message sign
DLC	dlc	Loop detector lead-in cable
EMS	ems	Extinguishable message sign
EVC	evc	Emergency vehicle cable
EVD	evd	Emergency vehicle detector
FB	fb	Flashing beacon
FBCA	fbca	Flashing beacon control assembly
FBS	fbs	Flashing beacon with slip base
FO	fo	Fiber optic
G	G	Ground (Equipment Grounding Conductor)
GFCI	GFCI	Ground fault circuit interrupt
HAR	har	Highway advisory radio
HEX	hex	Hexagonal
HPS	hps	High pressure sodium
IISNS	iisns	Internally illuminated street name sign
ISL	isl	Induction sign lighting
LED	led	Light emitting diode
LMA	lma	Luminaire mast arm
LPS	lps	Low pressure sodium
LTG	ltg	Lighting
LUM	lum	Luminaire
MAT	mat	Mast arm mounting vehicle signal faces, top attachment
MAS	mas	Mast arm mounting vehicle signal faces, side attachment
MAS-4A	mas-4A	Mast arm mounting vehicle signal faces, side attachment - 4 signal section
MAS-4B	mas-4B	
MAS-4C	mas-4C	
MAS-5A	mas-5A	Mast arm mounting vehicle signal faces, side attachment - 5 signal section
MAS-5B	mas-5B	
MC	mc	Mercury contactor
M/M	m/m	Multiple to multiple transformer
MT	mt	Conduit with pull wire or rope only
MTG	mtg	Mounting
	mv	Mercury vapor lighting fixture
N	N	Neutral (Grounded Conductor)
NC	NC	Normally closed
NO	NO	Normally open
PB	pb	Pull box
PEC	pec	Photoelectric control (Type I, II, III, IV or V as shown)
PED	ped	Pedestrian
PEU	peu	Photoelectric unit
PPB	ppb	Pedestrian push button
RL		Relocated equipment
RM	rm	Ramp metering
SB	sb	Slip base
SIC	sic	Signal interconnect cable
SIG	sig	Signal
SMA	sma	Signal mast arm
SNS	sns	Street name sign
SP	sp	Service point
TDC	tdc	Telephone demarcation cabinet
TMS	tms	Traffic monitoring station
TOS	tos	Traffic Operations System
VEH	veh	Vehicle
XFMR	xfmr	Transformer
COMM	comm	Communication
RWIS	rwis	Roadway weather information system

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
12	Ora	405	22.7	18	21

*Jeffery G. McRae*  
REGISTERED ELECTRICAL ENGINEER

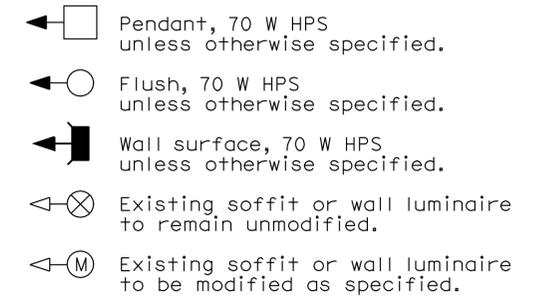
October 5, 2007  
PLANS APPROVAL DATE

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

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

To accompany plans dated 3-1-10

## SOFFIT AND WALL MOUNTED LUMINAIRES



### NOTE:

Arrow indicates "street side" of luminaire.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

# ELECTRICAL SYSTEMS (SYMBOLS AND ABBREVIATIONS)

NO SCALE

RSP ES-1A DATED OCTOBER 5, 2007 SUPERSEDES STANDARD PLAN ES-1A DATED MAY 1, 2006 - PAGE 400 OF THE STANDARD PLANS BOOK DATED MAY 2006.

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

2006 REVISED STANDARD PLAN RSP ES-1A

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
12	Ora	405	22.7	19	21

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

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

To accompany plans dated 3-1-10

### CONDUIT

PROPOSED	EXISTING	
---	---	Lighting Conduit, unless otherwise indicated or noted
---	---	Traffic signal conduit
-C-	-c-	Communication conduit
-T-	-t-	Telephone conduit
-F-	-f-	Fire alarm conduit
-FO-	-fo-	Fiber optic conduit
---	---	Conduit termination
		Conduit riser in/on structure or service pole

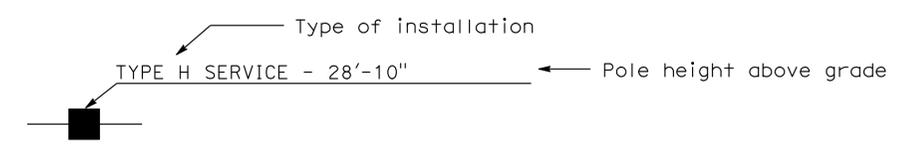
### SIGNAL EQUIPMENT

PROPOSED	EXISTING	
		Pedestrian signal face
		Pedestrian push button post
		Pedestrian barricade
		Vehicle signal face (with backplate, 3-Section: red, yellow and green)
		Vehicle signal face with angle visors
		Modifications of basic symbols: "L" indicates all non-arrow sections louvered "LG" indicates louvered green section only "PV" indicates 12" programmed visibility sections "8" indicates all 8" sections (only when specified)
		Type 15TS and Vehicle signal face
		Vehicle signal face with red, yellow and green left arrow sections
		Vehicle signal face with red and yellow sections and up green arrow
		Vehicle signal face (5 Section) with red, yellow and green sections and yellow and green right arrows
		Type 1 Standard and attached vehicle signal faces
		Standard with signal mast arm only and attached vehicle signal faces and internally illuminated street name sign
		Type 33 Standard, Left-turn vehicle signal face and sign
		Standard with luminaire and signal mast arms and attached vehicle signal faces
		Cantilever flashing beacon Type 9 Frame, with a sign unless otherwise specified or indicated
		Type 15-FBS Standard with two vehicle signal face sections with lens, backplate and visor with a sign
		Flashing beacon. One vehicle signal face section with lens, backplate and visor. "R" indicates red indication, "Y" indicates yellow indication
		Controller assembly. Door indicates front of cabinet

### SERVICE EQUIPMENT

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

### POLE-MOUNTED SERVICE DESIGNATION



### ILLUMINATED OVERHEAD SIGN

PROPOSED	EXISTING	
		Overhead sign - Single post
		Overhead sign - Two post
		Overhead sign - Mounted on structure
		Overhead sign with electrolier

### SIGNAL EQUIPMENT Cont

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

### NOTES:

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

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

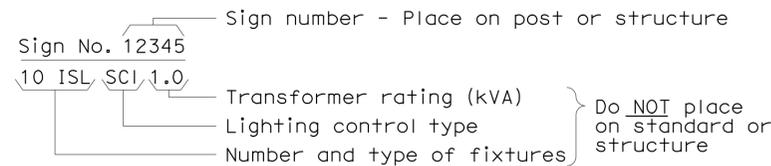
RSP ES-1B DATED OCTOBER 5, 2007 SUPERCEDES STANDARD PLAN ES-1B  
 DATED MAY 1, 2006 - PAGE 401 OF THE STANDARD PLANS BOOK DATED MAY 2006.

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

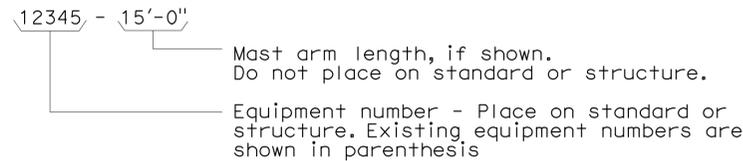
2006 REVISED STANDARD PLAN RSP ES-1B

### EQUIPMENT IDENTIFICATION

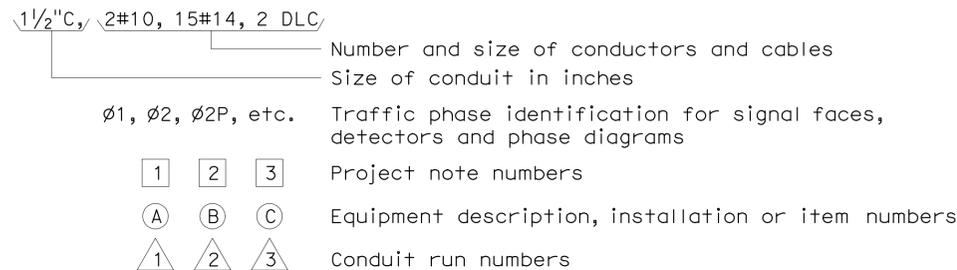
#### ILLUMINATED SIGN IDENTIFICATION NUMBER:



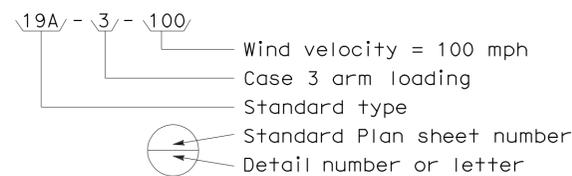
#### ELECTROLIER OR EQUIPMENT IDENTIFICATION NUMBER:



#### CONDUIT AND CONDUCTOR IDENTIFICATION:



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



### MISCELLANEOUS EQUIPMENT

PROPOSED	EXISTING	
CMS	cms	Changeable message sign
		Closed circuit television camera
EMS	ems	Highway advisory radio pole and antenna
		Extinguishable message sign
M V	m v	Detection device M = Microwave sensor V = Video image sensor

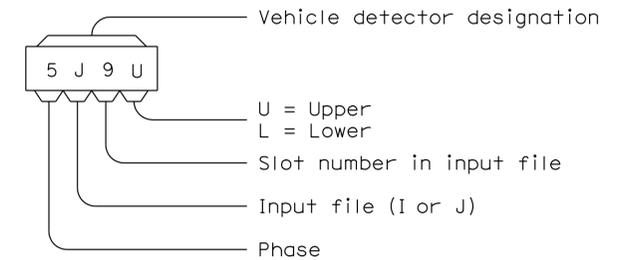
### WIRING DIAGRAM LEGEND

P Pole	---- External conductor
CB Circuit breaker	— Conductor or bus
A Ampere	• Tie point
V Volt	— Contactor coil
M Metered	— Contactor, Contact NO
UM Unmetered	⊗ Terminal blocks
NB Neutral bus	— Contactor, Contact NC
GB Ground bus	— Enclosure bond
G Equipment grounding conductor	⊥ Grounding electrode
N Grounded conductor (Neutral)	— Circuit breaker
	Ⓡ Receptacle

### PULL BOXES

PROPOSED	EXISTING	
		Pull box-No. 5 unless otherwise indicated or noted.
		Pull box-Additional designations or descriptions
3 = No. 3 1/2 pull box		(C) = Communications pull box
5 = No. 5 pull box		(E) = Pull box with extension
6 = No. 6 pull box		(S) = Sprinkler control pull box
7 = No. 7 (Ceiling pull box)		(21) = Anchor bolts and conduit for future installation of Type 21 Standard
8 = No. 8 (Pendant soffit pull box)		(T) = Traffic pull box
9 = No. 9 pull box		
9A = No. 9A pull box		

### VEHICLE DETECTORS



PROPOSED	EXISTING	
		Type A detector loop. Outline of sawcut shown.
		Type B detector loop. Outline of sawcut shown.
		Type C detector loop. Outline of sawcut shown.
		Type D detector loop. Outline of sawcut shown.
		Type E detector loop. Outline of sawcut shown.
		Type Q detector loop. Outline of sawcut shown.
		Magnetic detector
		Detector handhole
		Microwave or video detection zone

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

## ELECTRICAL SYSTEMS (SYMBOLS AND ABBREVIATIONS)

NO SCALE

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

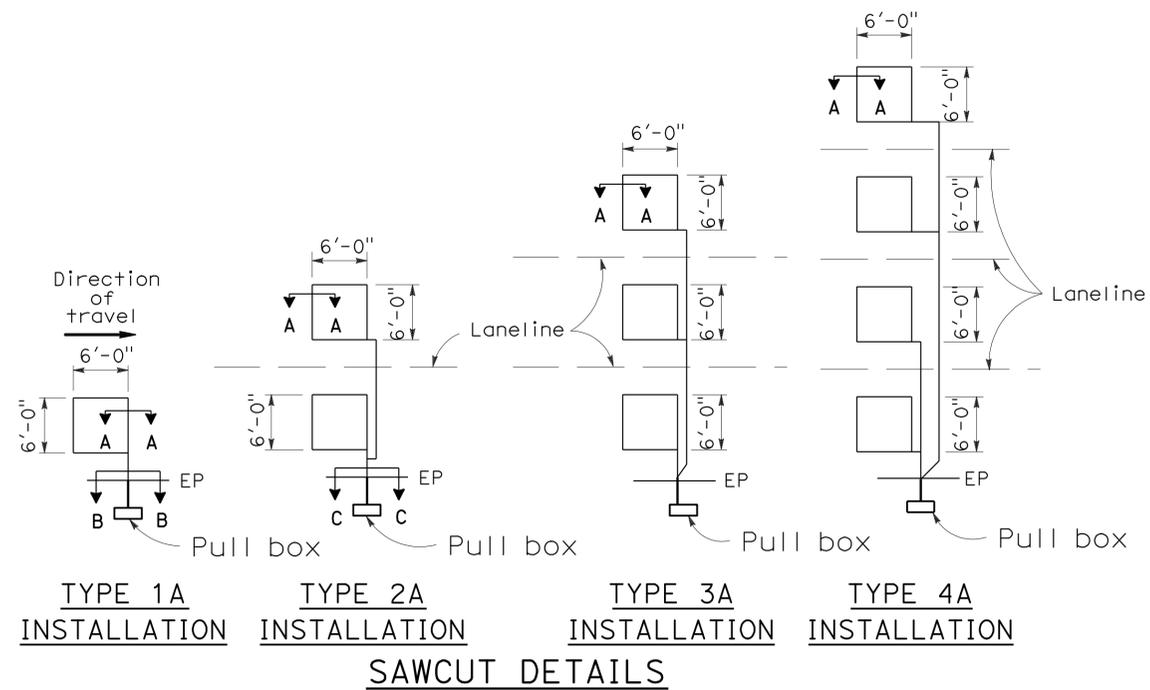
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
12	Ora	405	22.7	21	21

Jeffrey G. McRae  
 REGISTERED ELECTRICAL ENGINEER  
 October 5, 2007  
 PLANS APPROVAL DATE  
 The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.  
 To accompany plans dated 3-1-10

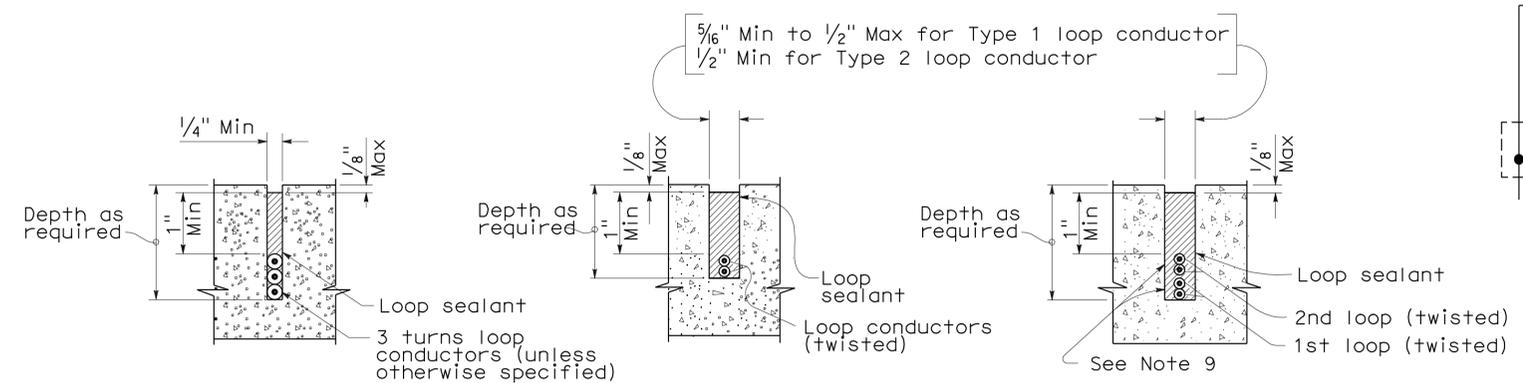
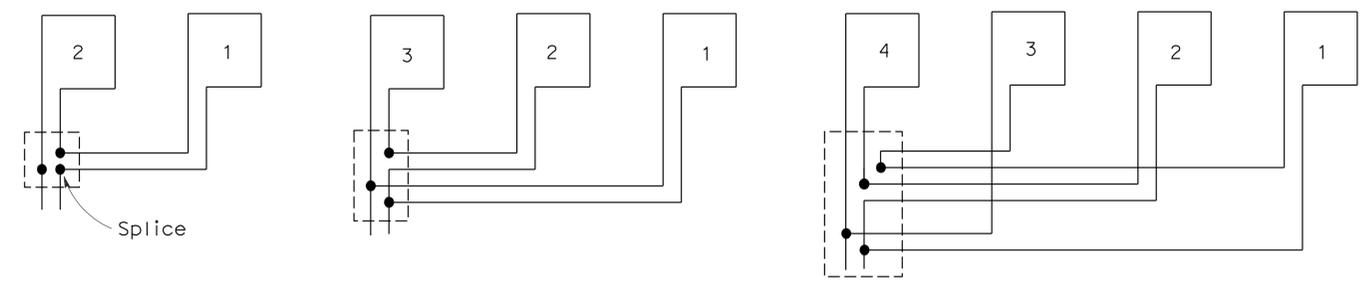
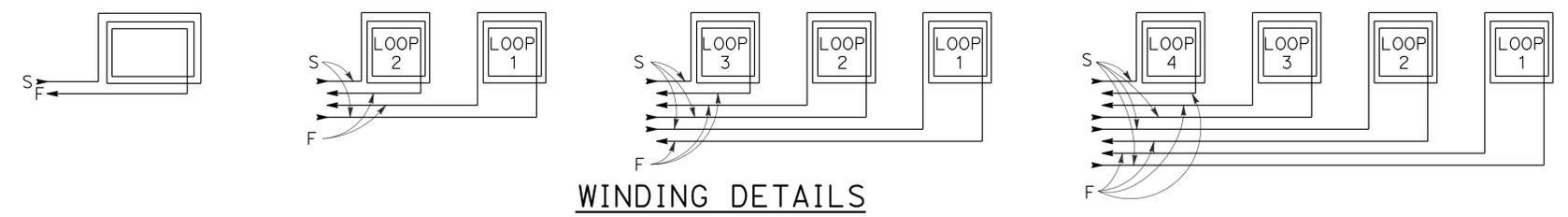
REGISTERED PROFESSIONAL ENGINEER  
 Jeffrey G. McRae  
 No. E14512  
 Exp. 6-30-08  
 ELECTRICAL  
 STATE OF CALIFORNIA

## LOOP INSTALLATION PROCEDURE

- Loops shall be centered in lanes.
- Saw slots in pavement for loop conductors as shown in details.
- Distance between side of loop and a lead-in saw cut from adjacent detectors shall be 2'-0" minimum. Distance between lead-in saw cuts shall be 6" minimum.
- Bottom of saw slot shall be smooth with no sharp edges.
- Slots shall be washed until clean, blown out and thoroughly dried before installing loop conductors.
- Adjacent loops on the same sensor unit channel shall be wound in opposite directions.
- Identify and tag loop circuit pairs in the pull box with loop number, start (S) and finish (F) of conductor. Identify and tag lead-in-cable with sensor number and phase.
- Install loop conductor in slot using a 3/16" to 1/4" thick wood paddle. Hold loop conductors with wood paddles (at the bottom of the sawed slot) during sealant placement.
- No more than 2 twisted pairs shall be installed in one sawed slot.
- Allow additional 5'-0" of slack length of conductor for the lead-in run to pull box.
- The additional length of each conductor for each loop shall be twisted together into a pair (6 turns per 3'-4" minimum) before being placed in the slot and conduit leading to pull box.
- Test each loop circuit for continuity, circuit resistance and insulation resistance at the pull box before filling slots.
- Fill slots as shown in details.
- Splice loop conductors to lead-in-cable. Splices shall be soldered.
- End of lead-in-cable and Type 2 loop conductor shall be waterproofed prior to installing in conduit to prevent moisture from entering the cable.
- Lead-in-cable shall not be spliced between the pull box and the controller cabinet terminals.
- Test each loop circuit for continuity, circuit resistance and insulation resistance at the controller cabinet location.
- Where loop conductors are not to be spliced to a lead-in-cable, the ends of the conductors shall be taped and waterproofed with electrical insulating coating.



- 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)



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

RSP ES-5A DATED OCTOBER 5, 2007 SUPERCEDES STANDARD PLAN ES-5A DATED MAY 1, 2006 - PAGE 423 OF THE STANDARD PLANS BOOK DATED MAY 2006.

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

2006 REVISED STANDARD PLAN RSP ES-5A