

INDEX OF PLANS

SHEET No.	DESCRIPTION
1	TITLE AND LOCATION MAP
2-3	TYPICAL CROSS SECTIONS
4	LAYOUTS
5	PROFILES AND SUPERELEVATION DIAGRAM
6-8	CONSTRUCTION DETAILS
9-11	EROSION CONTROL PLANS
12-13	DRAINAGE PROFILES AND QUANTITIES
14	CONSTRUCTION AREA SIGNS
15-16	STAGE CONSTRUCTION AND TRAFFIC HANDLING PLANS
17	PAVEMENT DELINEATION, SIGN PLAN AND QUANTITIES
18	SUMMARY OF QUANTITIES
19-22	ELECTRICAL PLANS
23-44	REVISED AND NEW STANDARD PLANS

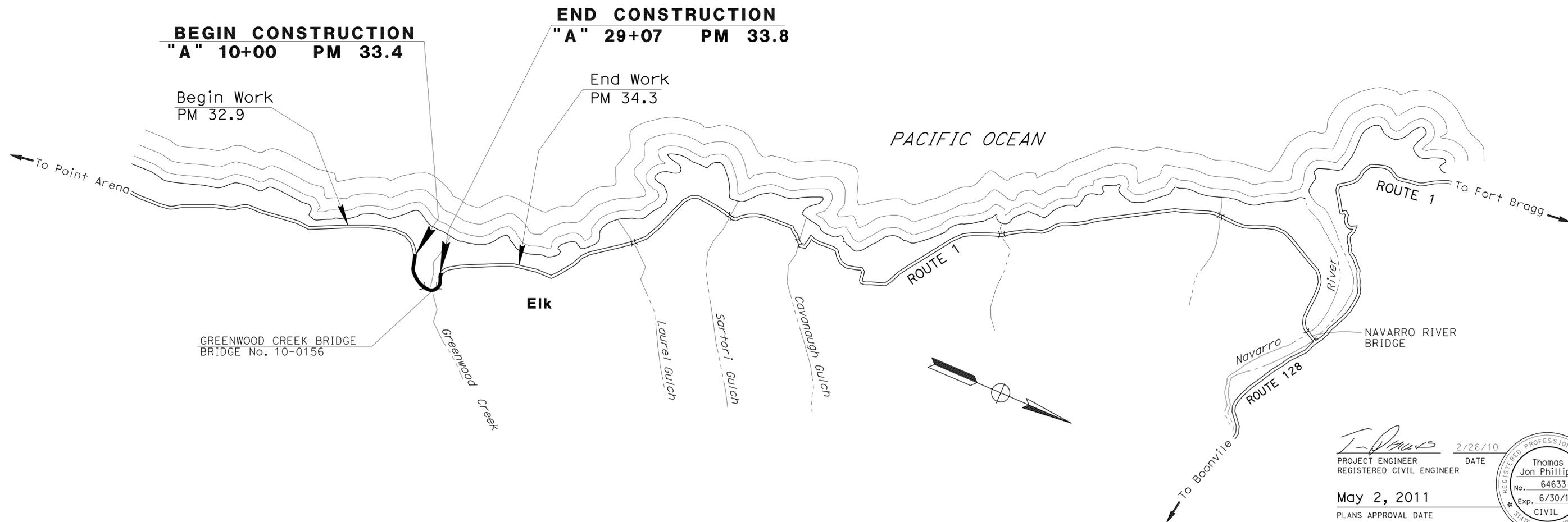
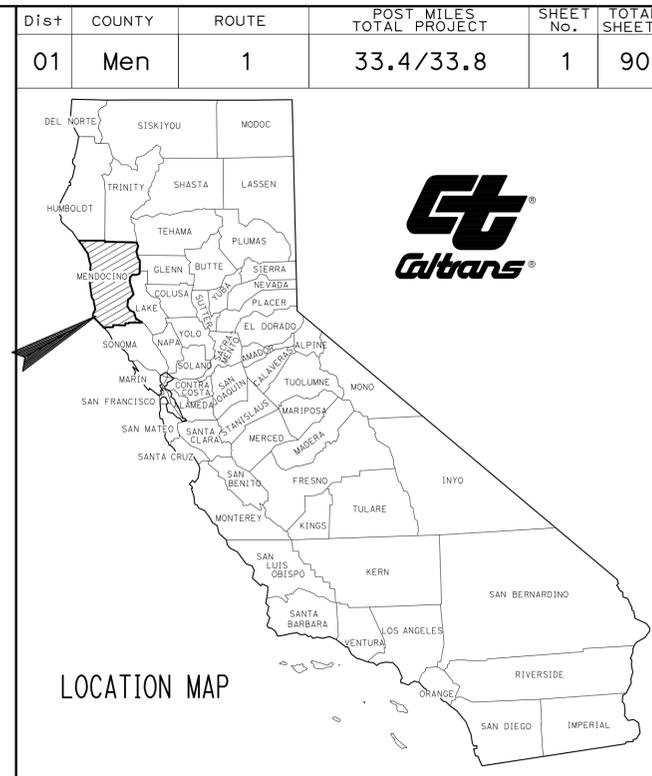
STRUCTURE PLANS

45-78	GREENWOOD CREEK BRIDGE (REPLACE) Br No. 10-0156
79-90	GREENWOOD CREEK RETAINING WALL Br No. 10E0021

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

STATE OF CALIFORNIA BRSTP-P001(559)E  
**DEPARTMENT OF TRANSPORTATION**  
**PROJECT PLANS FOR CONSTRUCTION ON**  
**STATE HIGHWAY**  
**IN MENDOCINO COUNTY**  
**NEAR ELK**  
**AT GREENWOOD CREEK BRIDGE**

TO BE SUPPLEMENTED BY STANDARD PLANS DATED MAY 2006

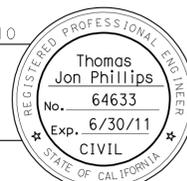


NO SCALE

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

PROJECT MANAGER	Steven Blair
DESIGN ENGINEER	Lucy Koszrzewa

2/26/10  
 PROJECT ENGINEER DATE  
 REGISTERED CIVIL ENGINEER  
**May 2, 2011**  
 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>01-310104</b>
PROJECT ID	<b>0100000095</b>



STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans**  
 DESIGN  
 FUNCTIONAL SUPERVISOR: Lucy Kostorzewa  
 CALCULATED/DESIGNED BY: [Blank]  
 CHECKED BY: [Blank]  
 REVISIONS: [Blank]  
 REVISOR: Andre Guimaraes  
 DATE: [Blank]  
 REVISOR: Tom Phillips  
 DATE: [Blank]

**NOTES:**

- DIMENSIONS OF THE PAVEMENT STRUCTURES (STRUCTURAL SECTION) ARE SUBJECT TO TOLERANCES SPECIFIED IN THE STANDARD SPECIFICATIONS.
- SUPERELEVATION AS SHOWN OR AS DIRECTED BY THE ENGINEER.
- SEE LAYOUT AND QUANTITIES FOR BARRIER TYPE AND PLACEMENT

**LEGEND**

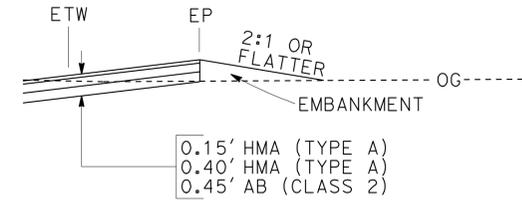
SR = SUPERELEVATION RATE  
 GPI = GEOSYNTHETIC PAVEMENT INTERLAYER

**DESIGN DESIGNATION (ROUTE 1)**

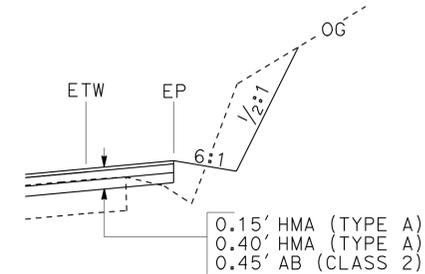
(2008) AADT= 1100 D= 60%  
 (2023) AADT= 1270 T= 8%  
 DHV= 150 V= 55 MPH

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Men	1	33.4/33.8	2	90

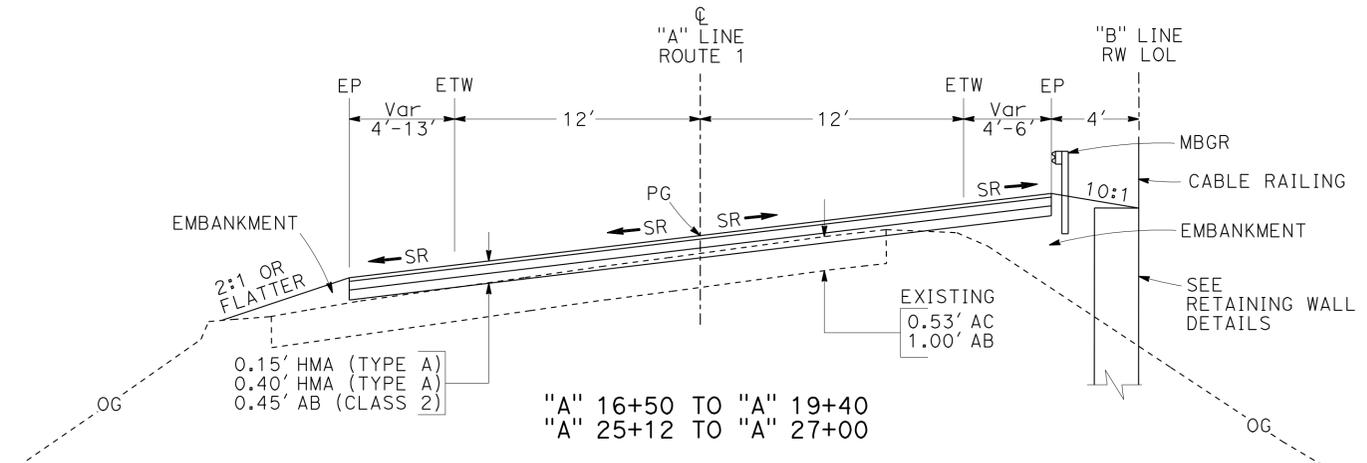
REGISTERED CIVIL ENGINEER: *T. Phillips* DATE: 2/26/10  
 5-2-11 PLANS APPROVAL DATE  
 Thomas Jon Phillips  
 No. 64633  
 Exp. 6/30/11  
 CIVIL  
 THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



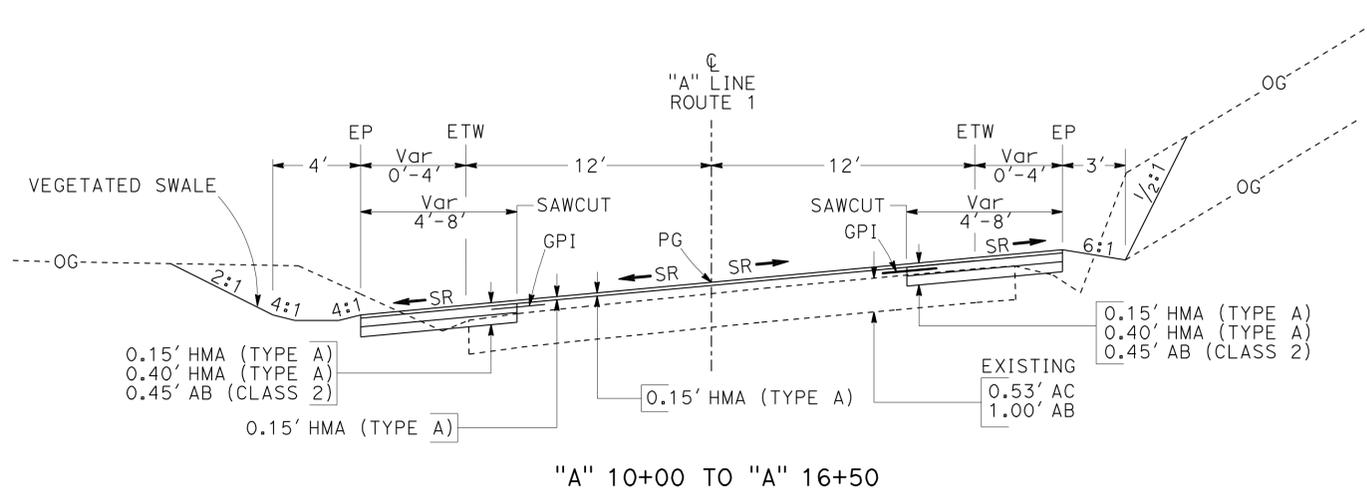
"A" 25+12 TO "A" 27+00



"A" 16+50 TO "A" 17+00



"A" 16+50 TO "A" 19+40  
 "A" 25+12 TO "A" 27+00



"A" 10+00 TO "A" 16+50

**TYPICAL CROSS SECTIONS X-1**  
 NO SCALE

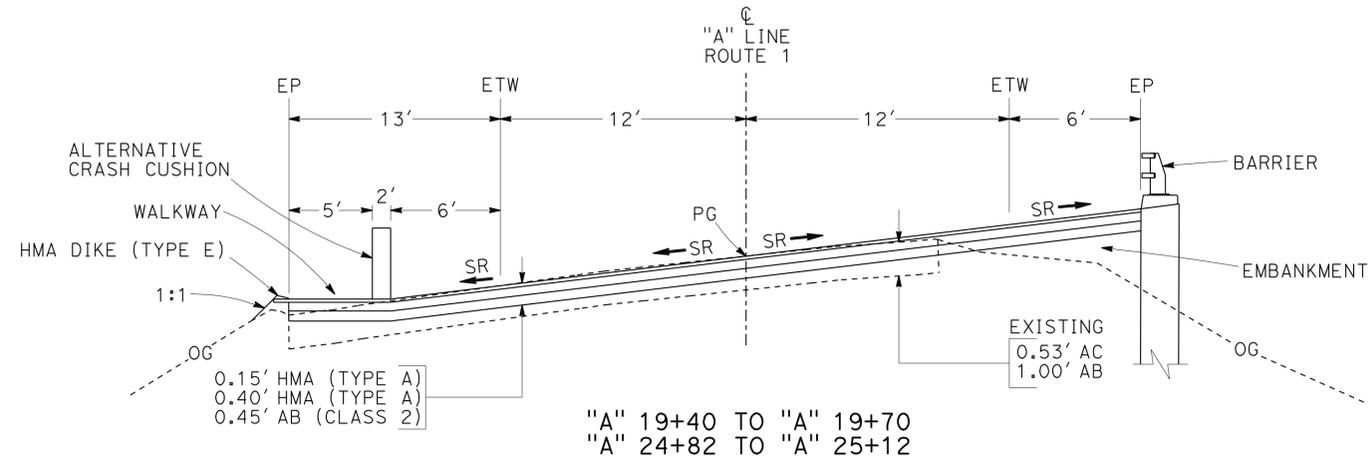
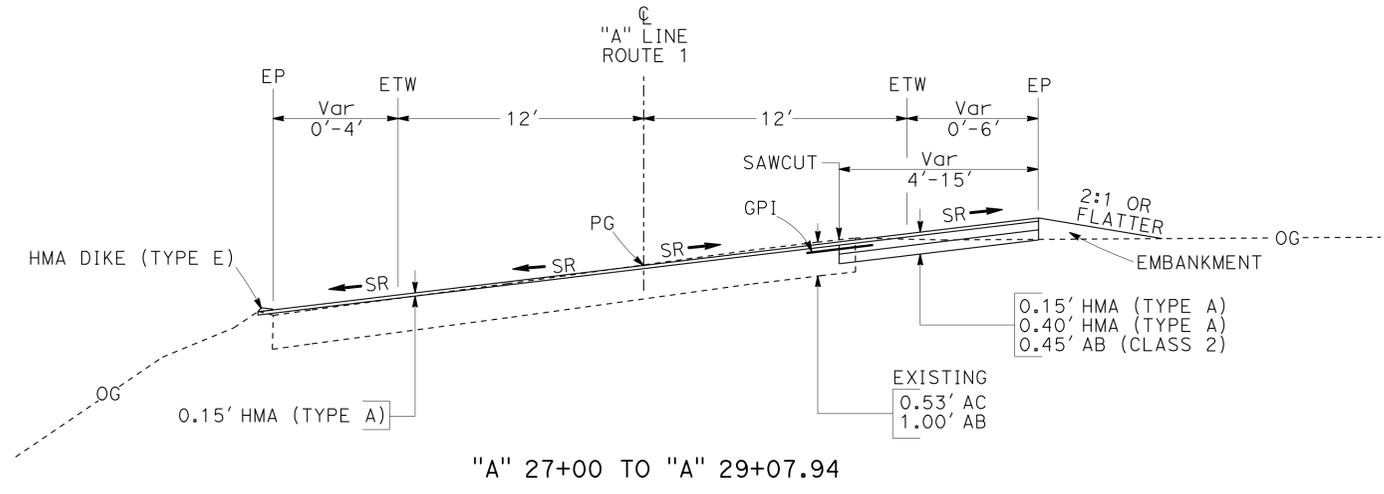
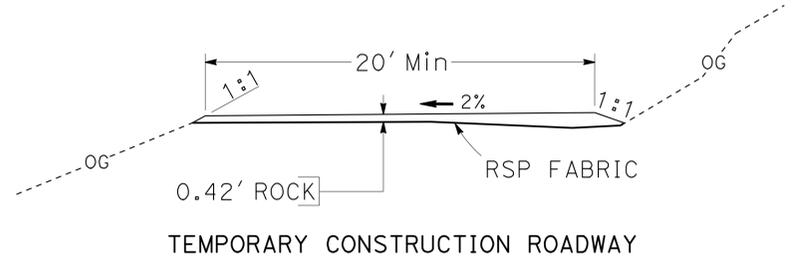
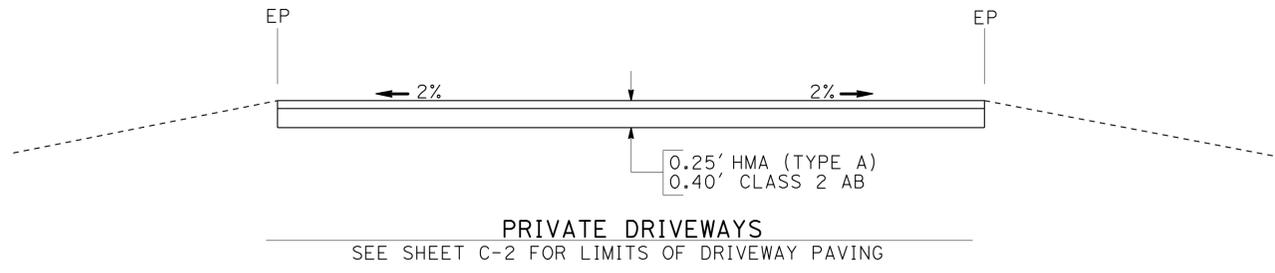
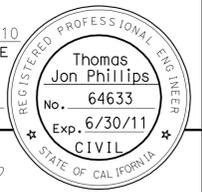
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Men	1	33.4/33.8	3	90

REGISTERED CIVIL ENGINEER	DATE	2/26/10
PLANS APPROVAL DATE	5-2-11	

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 CROSS SECTIONS X-2**

NO SCALE

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans**  
 DESIGN  
 FUNCTIONAL SUPERVISOR: Lucy Kostorzewa  
 CALCULATED/DESIGNED BY: [Blank]  
 CHECKED BY: [Blank]  
 REVISIONS BY: Andre Guimaraes, Tom Phillips  
 DATE REVISED: [Blank]

FOR COMPLETE RIGHT OF WAY DATA, SEE RIGHT OF WAY RECORD MAPS AT DISTRICT OFFICE.

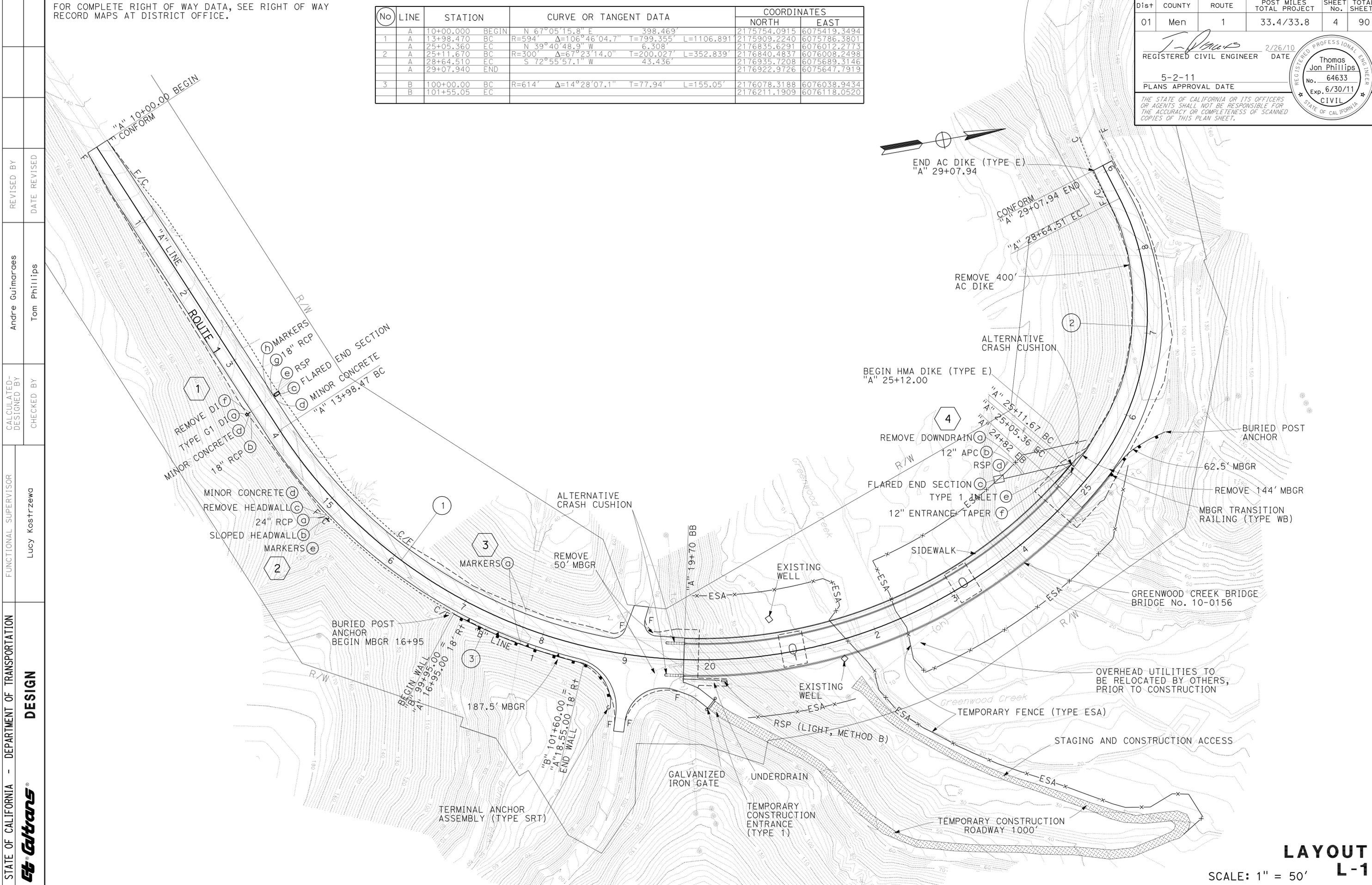
(No)	LINE	STATION	CURVE OR TANGENT DATA	COORDINATES			
				NORTH	EAST		
1	A	10+00.000	BEGIN	N 67°05'15.8" E	398.469'	2175754.0915	6075419.3494
	A	13+98.470	BC	R=594' Δ=106°46'04.7" T=799.355' L=1106.891'		2175909.2240	6075786.3801
	A	25+05.360	EC	N 39°40'48.9" W	6.308'	2176835.6291	6076012.2773
2	A	25+11.670	BC	R=300' Δ=67°23'14.0" T=200.027' L=352.839'		2176840.4837	6076008.2498
	A	28+64.510	EC	S 72°55'57.1" W	43.436'	2176935.7208	6075689.3146
	A	29+07.940	END			2176922.9726	6075647.7919
3	B	100+00.00	BC	R=614' Δ=14°28'07.1" T=77.94' L=155.05'		2176078.3188	6076038.9434
	B	101+55.05	EC			2176211.1909	6076118.0520

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Men	1	33.4/33.8	4	90

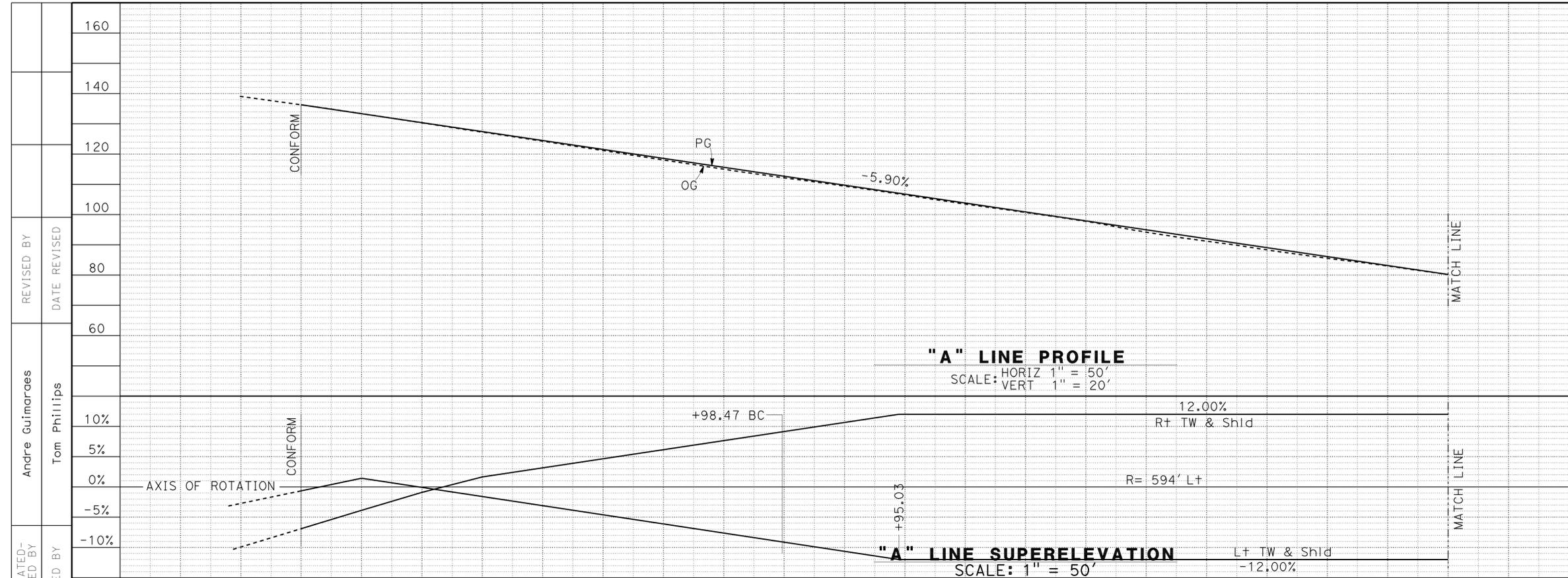
REGISTERED CIVIL ENGINEER DATE 2/26/10  
 5-2-11  
 PLANS APPROVAL DATE

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.

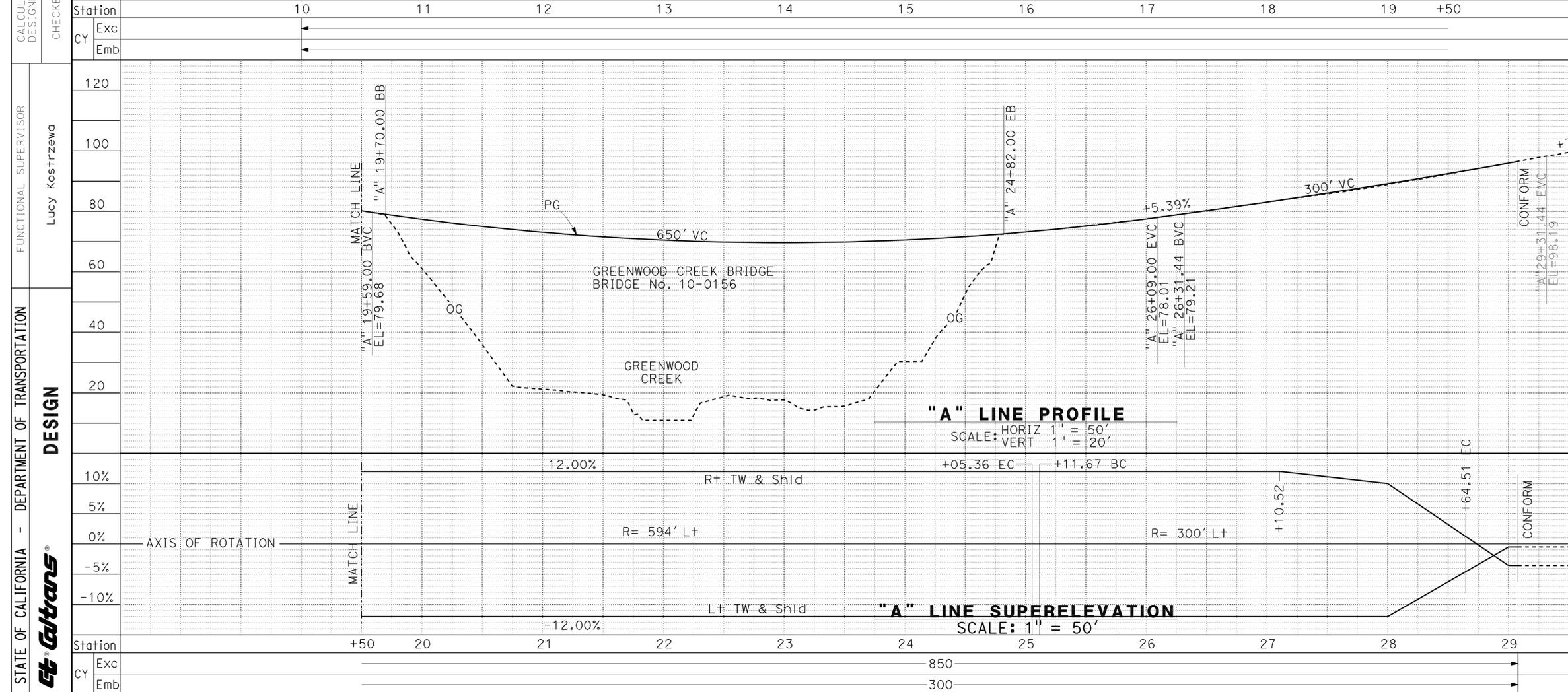
REGISTERED PROFESSIONAL ENGINEER  
 Thomas Jon Phillips  
 No. 64633  
 Exp. 6/30/11  
 CIVIL  
 STATE OF CALIFORNIA



REVISIONS:  
 1  
 2  
 3  
 4  
 5  
 6  
 7  
 8  
 9  
 10  
 11  
 12  
 13  
 14  
 15  
 16  
 17  
 18  
 19  
 20  
 21  
 22  
 23  
 24  
 25  
 26  
 27  
 28  
 29  
 30  
 31  
 32  
 33  
 34  
 35  
 36  
 37  
 38  
 39  
 40  
 41  
 42  
 43  
 44  
 45  
 46  
 47  
 48  
 49  
 50  
 51  
 52  
 53  
 54  
 55  
 56  
 57  
 58  
 59  
 60  
 61  
 62  
 63  
 64  
 65  
 66  
 67  
 68  
 69  
 70  
 71  
 72  
 73  
 74  
 75  
 76  
 77  
 78  
 79  
 80  
 81  
 82  
 83  
 84  
 85  
 86  
 87  
 88  
 89  
 90



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
160	Men	1	33.4/33.8	5	90
140	REGISTERED CIVIL ENGINEER		DATE	2/26/10	
120	5-2-11		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.					



**PROFILE & SUPERELEVATION DIAGRAM PS-1**  
SCALE AS SHOWN

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Men	1	33.4/33.8	6	90

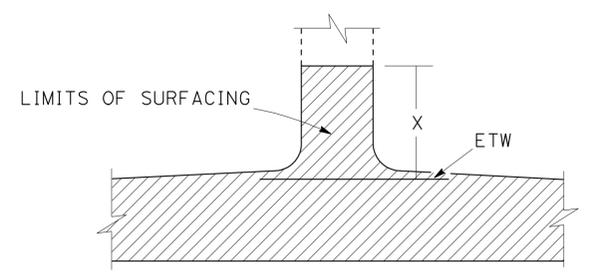
  

REGISTERED CIVIL ENGINEER	DATE
5-2-11	2/26/10
PLANS APPROVAL DATE	

REGISTERED PROFESSIONAL ENGINEER
Thomas Jon Phillips
No. 64633
Exp. 6/30/11
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.

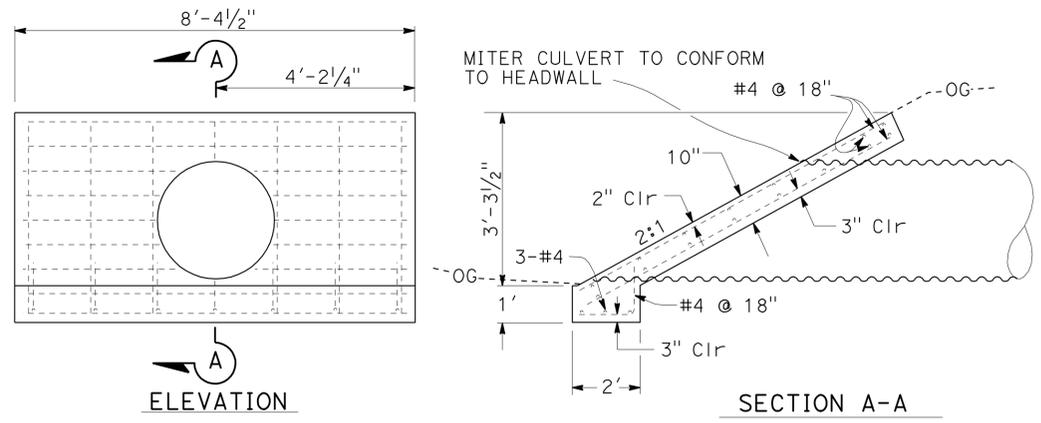


PRIVATE ROAD CONNECTION

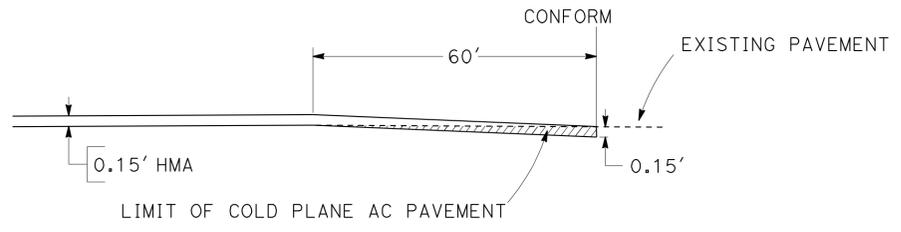
"A" 19+00 R+ X = 60'

"A" 19+00 L+ X = TO R/W

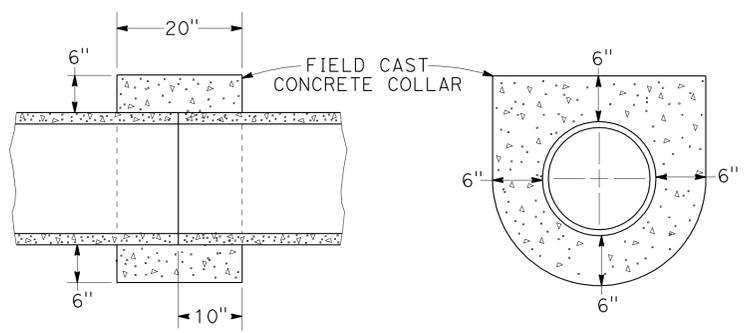
**LIMITS OF SURFACING**



**SLOPED HEADWALL**

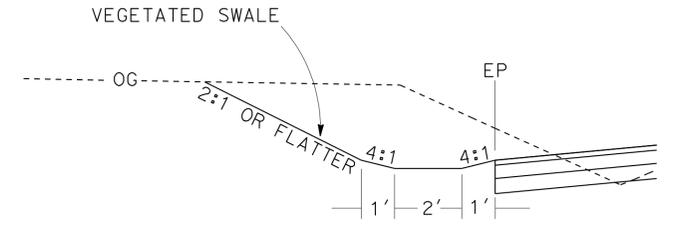


**PAVING CONFORM**



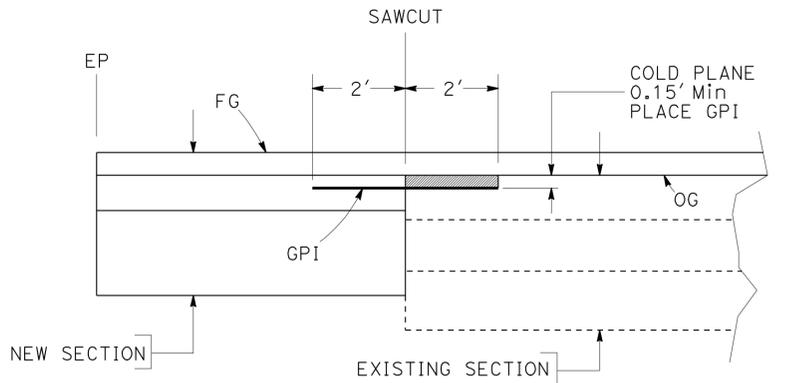
**FIELD CAST CONCRETE COLLAR**

1 2

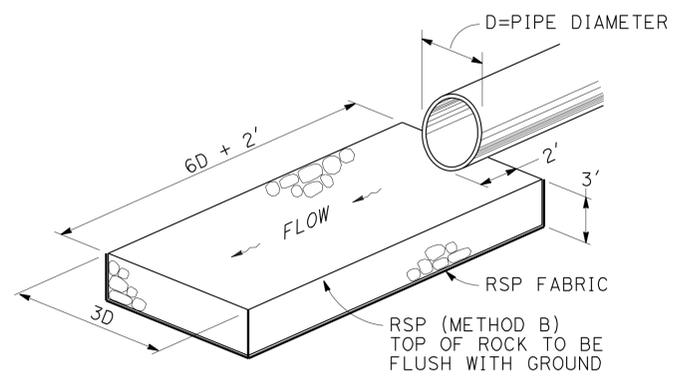


**VEGETATED SWALE**

"A" 10+50 TO "A" 17+00



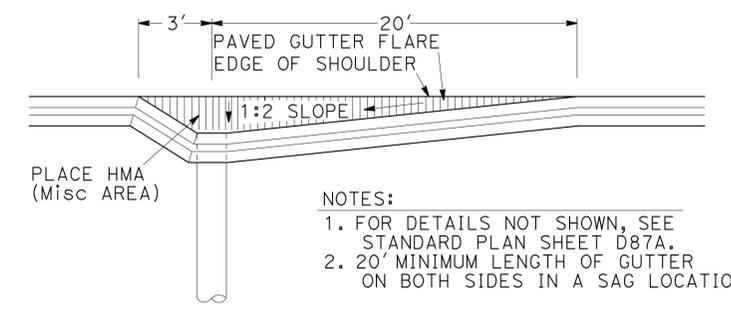
**GEOSYNTHETIC PAVEMENT INTERLAYER (GPI)**



NOTE: DIMENSIONS AS SHOWN OR AS DIRECTED BY THE ENGINEER.

**RSP (1/4 TON, METHOD B)**

1 4



**TYPE 1 OVERSIDE DRAIN**

- NOTES:
- FOR DETAILS NOT SHOWN, SEE STANDARD PLAN SHEET D87A.
  - 20' MINIMUM LENGTH OF GUTTER ON BOTH SIDES IN A SAG LOCATION.

4

NO SCALE

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DESIGN

Lucy Kostorzewa

FUNCTIONAL SUPERVISOR

Lucy Kostorzewa

CHECKED BY

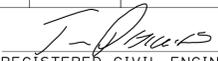
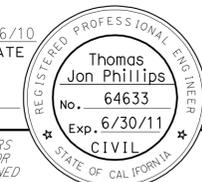
Andre Guimaraes

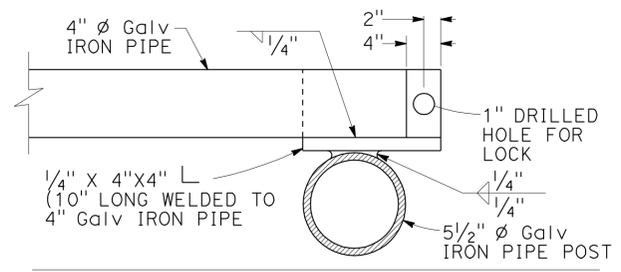
REVISOR

Tom Phillips

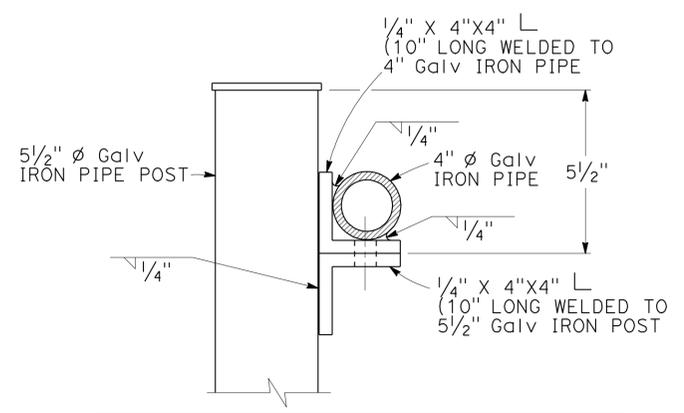
DATE

DATE

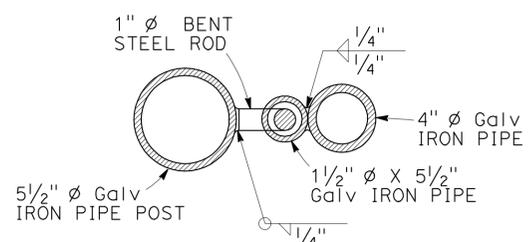
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Men	1	33.4/33.8	7	90
 REGISTERED CIVIL ENGINEER DATE 2/26/10					
5-2-11 PLANS APPROVAL DATE					
<small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small>					



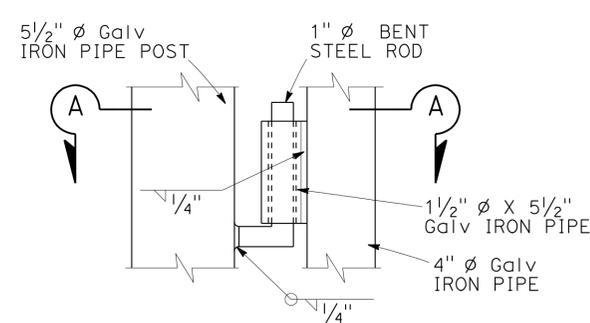
SECTION C-C



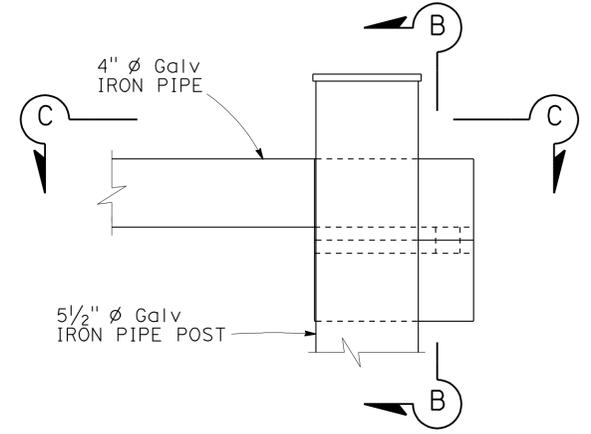
SECTION B-B



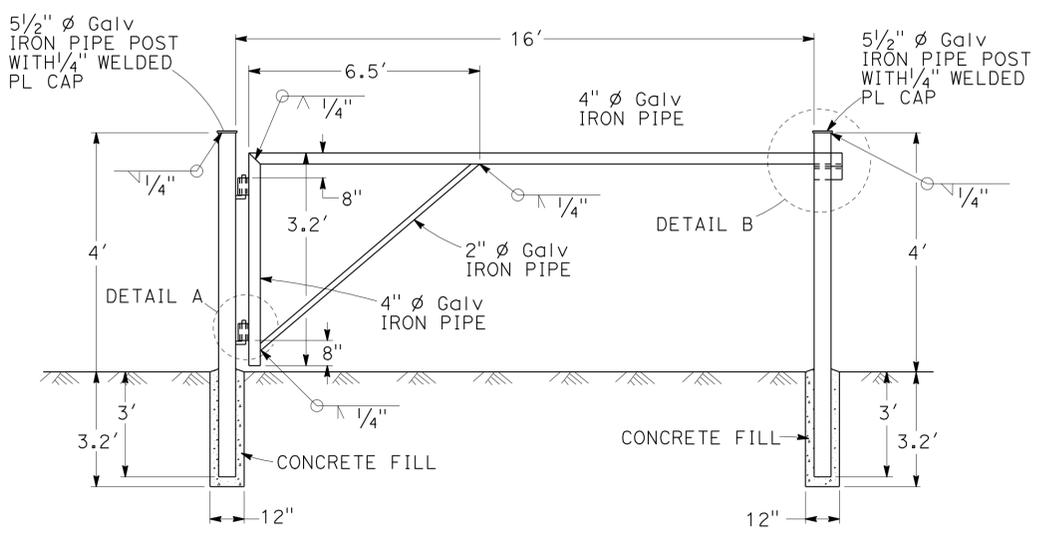
SECTION A-A



DETAIL A

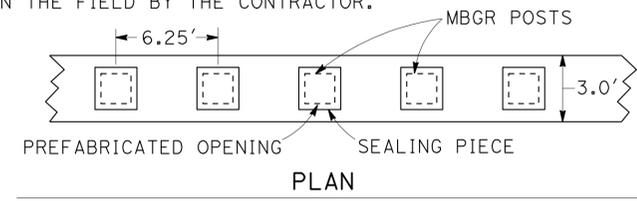


DETAIL B

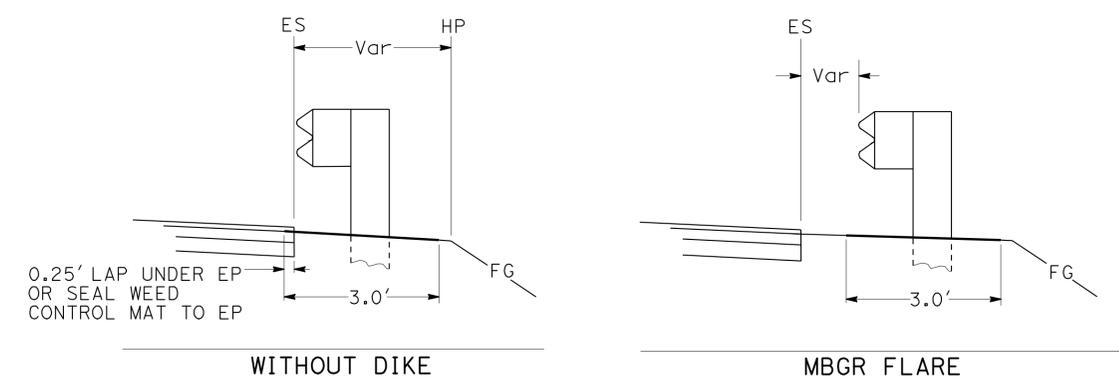


GALVANIZED IRON GATE

POST SPACING & OTHER DIMENSIONS TO BE VERIFIED IN THE FIELD BY THE CONTRACTOR.

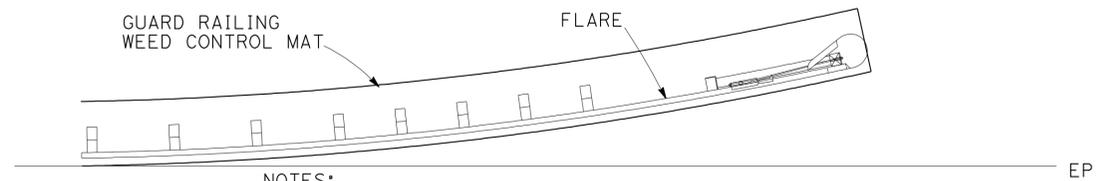


GUARD RAILING WEED CONTROL MAT



WITHOUT DIKE

MBGR FLARE



- NOTES:
1. FOR LOCATIONS SEE SUMMARY OF QUANTITIES SHEET Q-1.
  2. POST SPACING & OTHER DIMENSIONS TO BE VERIFIED IN THE FIELD BY THE CONTRACTOR.
  3. FOR DETAILS NOT SHOWN, SEE STD PLANS A77A, A77F & A77L.

WEED CONTROL MAT AT MBGR FLARE

CONSTRUCTION DETAILS  
C-2

NO SCALE

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
 Et Caltrans  
 FUNCTIONAL SUPERVISOR: Lucy Kostorzewa  
 CALCULATED/DESIGNED BY: Andre Guimaraes  
 CHECKED BY: Tom Phillips  
 REVISIONS: (None shown)  
 REVISOR: (None shown)  
 DATE: (None shown)

FOR COMPLETE RIGHT OF WAY DATA, SEE RIGHT OF WAY RECORD MAPS AT DISTRICT OFFICE.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Men	1	33.4/33.8	8	90

<i>T. Phillips</i>	2/26/10
REGISTERED CIVIL ENGINEER	DATE
5-2-11	
PLANS APPROVAL DATE	

REGISTERED PROFESSIONAL ENGINEER

Thomas  
Jon Phillips

No. 64633

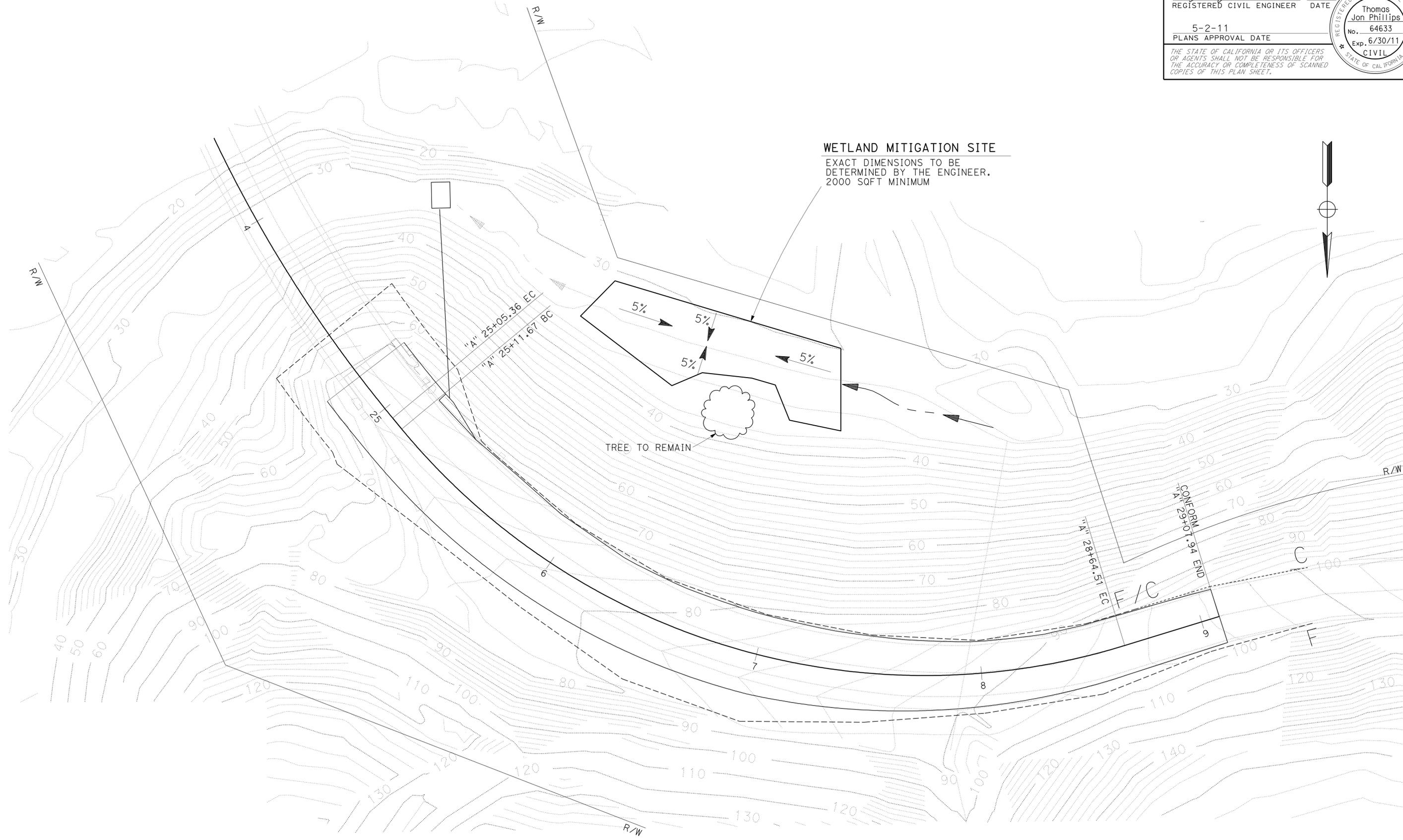
Exp. 6/30/11

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	DESIGN	FUNCTIONAL SUPERVISOR	CALCULATED/DESIGNED BY	REVISED BY
<b>Caltrans</b>		Lucy Kostorzewa	Andre Guimaraes	Tom Phillips
			CHECKED BY	DATE REVISED



**WETLAND MITIGATION SITE**

EXACT DIMENSIONS TO BE DETERMINED BY THE ENGINEER. 2000 SQFT MINIMUM

THIS PLAN ACCURATE FOR WETLAND MITIGATION WORK ONLY.

**CONSTRUCTION DETAILS**  
SCALE: 1" = 20' **C-3**

FOR COMPLETE RIGHT OF WAY DATA, SEE RIGHT OF WAY RECORD MAPS AT DISTRICT OFFICE.

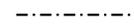
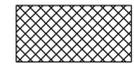
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Men	1	33.4/33.8	9	90

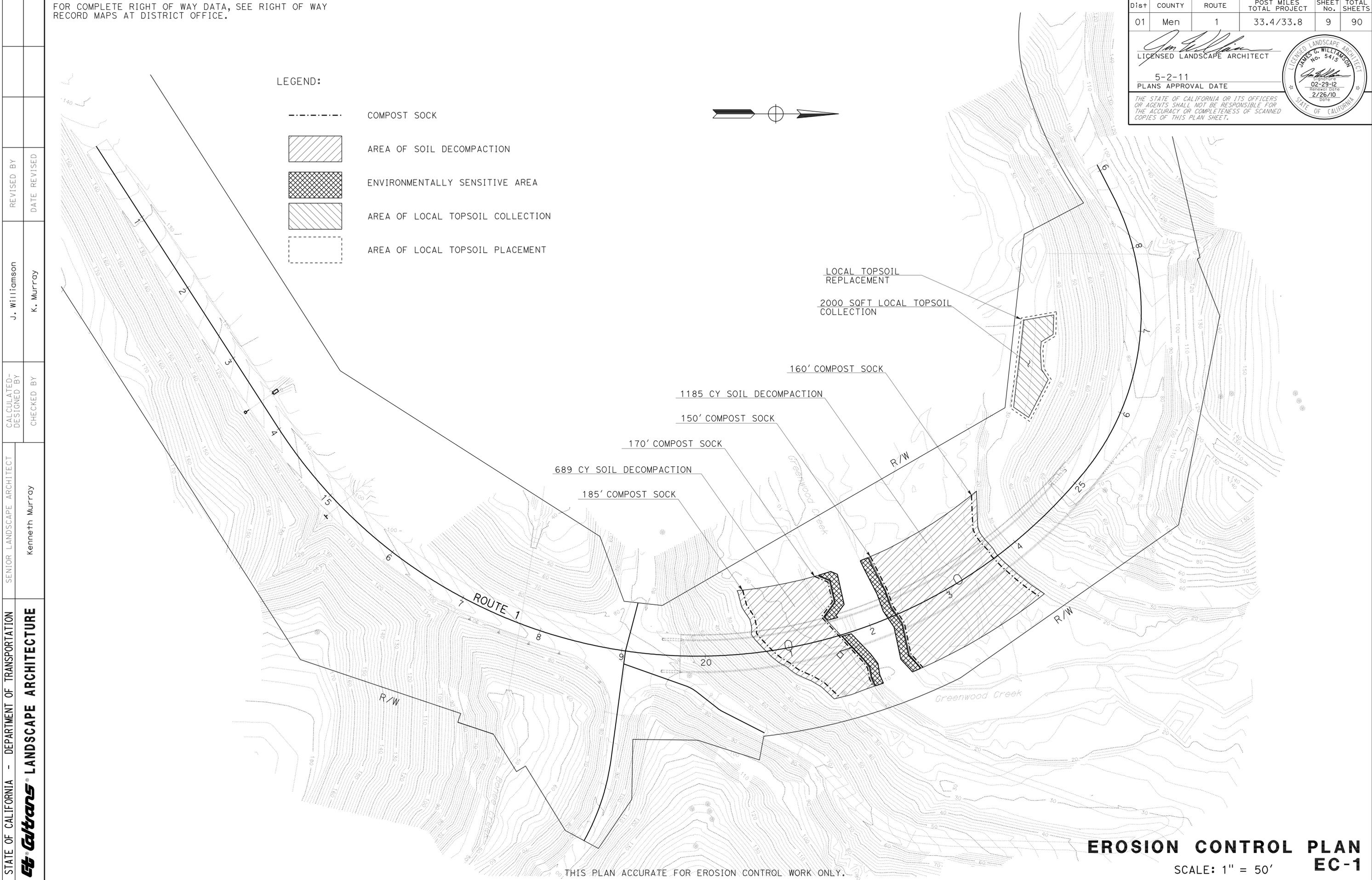
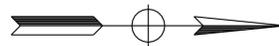
  
 LICENSED LANDSCAPE ARCHITECT  
 5-2-11  
 PLANS APPROVAL DATE

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.



LEGEND:

-  COMPOST SOCK
-  AREA OF SOIL DECOMPACTION
-  ENVIRONMENTALLY SENSITIVE AREA
-  AREA OF LOCAL TOPSOIL COLLECTION
-  AREA OF LOCAL TOPSOIL PLACEMENT



THIS PLAN ACCURATE FOR EROSION CONTROL WORK ONLY.

**EROSION CONTROL PLAN**  
**EC-1**

SCALE: 1" = 50'



STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** LANDSCAPE ARCHITECTURE

SENIOR LANDSCAPE ARCHITECT  
Kenneth Murray

CALCULATED, DESIGNED BY  
CHECKED BY

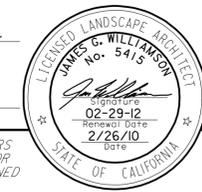
REVISOR BY  
DATE REVISED

J. Williamson  
K. Murray

FOR COMPLETE RIGHT OF WAY DATA, SEE RIGHT OF WAY RECORD MAPS AT DISTRICT OFFICE.

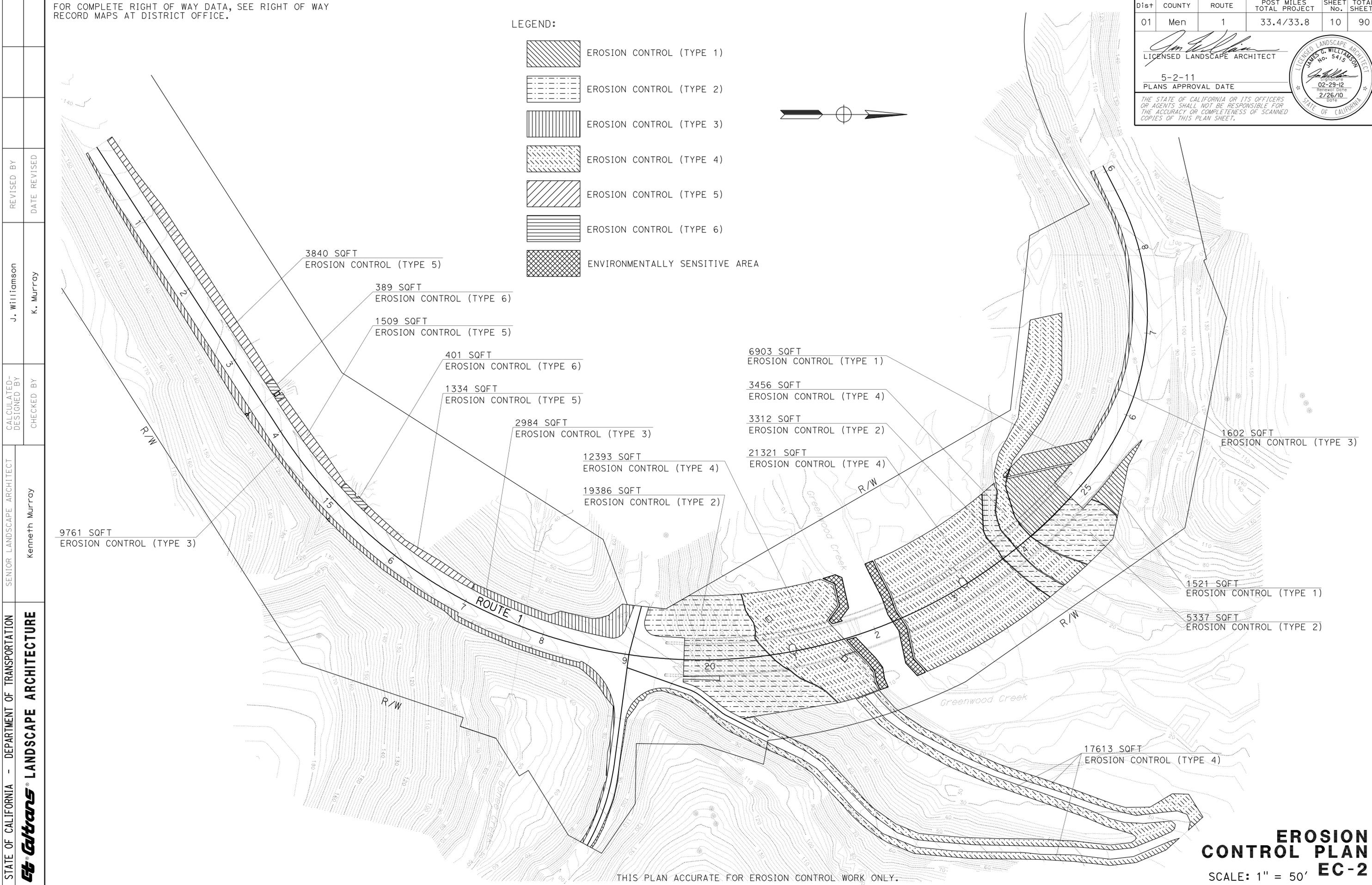
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Men	1	33.4/33.8	10	90

  
 LICENSED LANDSCAPE ARCHITECT  
 No. 5415  
 5-2-11  
 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.



LEGEND:

-  EROSION CONTROL (TYPE 1)
-  EROSION CONTROL (TYPE 2)
-  EROSION CONTROL (TYPE 3)
-  EROSION CONTROL (TYPE 4)
-  EROSION CONTROL (TYPE 5)
-  EROSION CONTROL (TYPE 6)
-  ENVIRONMENTALLY SENSITIVE AREA



STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** LANDSCAPE ARCHITECTURE

SENIOR LANDSCAPE ARCHITECT  
 Kenneth Murray

CALCULATED/DESIGNED BY  
 CHECKED BY

J. Williamson  
 K. Murray

REVISED BY  
 DATE REVISED

THIS PLAN ACCURATE FOR EROSION CONTROL WORK ONLY.

**EROSION CONTROL PLAN EC-2**

SCALE: 1" = 50'

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Men	1	33.4/33.8	11	90

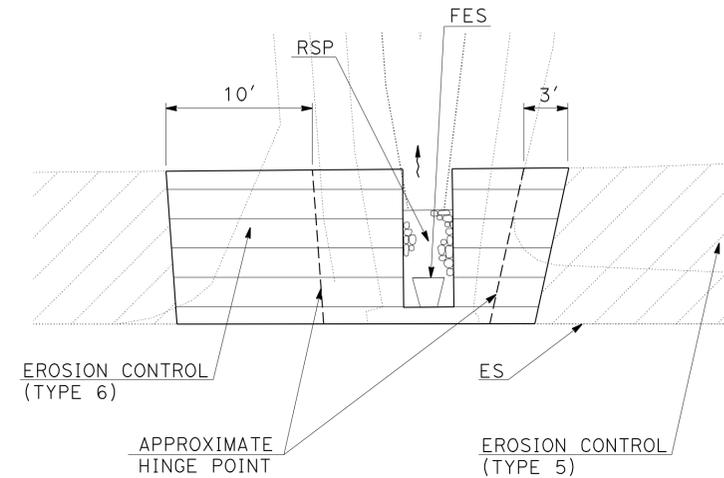
  
 LICENSED LANDSCAPE ARCHITECT  
 5-2-11  
 PLANS APPROVAL DATE

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.

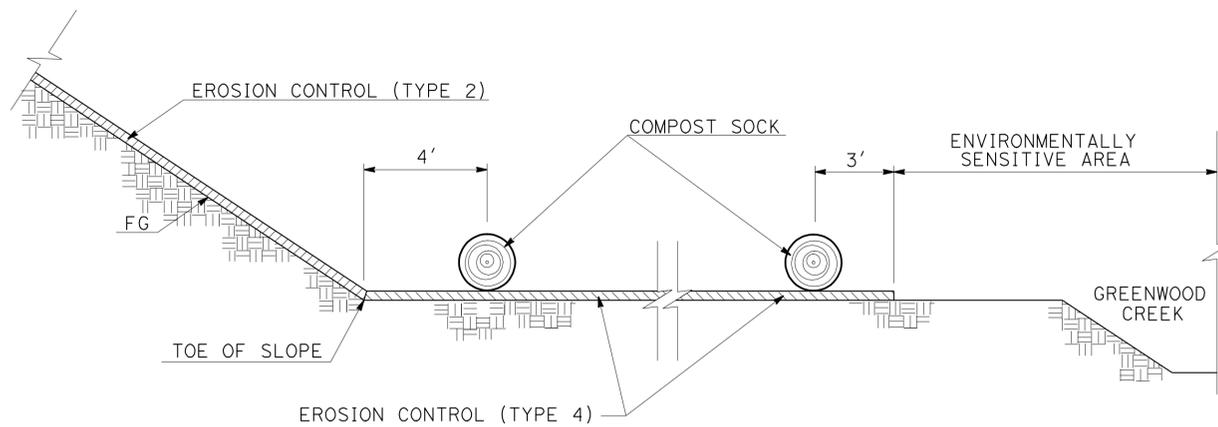
LICENSED LANDSCAPE ARCHITECT  
 JAMES G. WILLIAMSON  
 No. 5415  
 Signature  
 02-29-12  
 Renewal Date  
 2/26/10  
 STATE OF CALIFORNIA

EROSION CONTROL QUANTITIES								
STATION	EROSION CONTROL TYPE (N)	SEED MIX TYPE (N)	EROSION CONTROL (HYDROSEED)	ROLLED EROSION CONTROL PRODUCT (NETTING)	COMPOST, INCORPORATE	SOIL DECOMPACTION (N)	COMPOST SOCK	LOCAL TOPSOIL COLLECTION (N)
			SQFT	SQFT	SQYD	CY	LF	SQFT
"A" 10+00 TO "A" 13+43 Lt	5	1	3840		427			
"A" 13+43 TO "A" 13+69 Lt	6	1	389	389	43			
"A" 13+69 TO "A" 14+98 Lt	5	1	1509		168			
"A" 14+98 TO "A" 15+37 Lt	6	1	401	401	45			
"A" 15+37 TO "A" 17+00 Lt	5	1	1334		148			
"A" 17+00 TO "A" 19+02 Lt	3	1	2984					
"A" 10+00 TO "A" 19+01 Rt	3	1	9761					
"A" 18+94 TO "A" 23+79 Rt	4	2	17613					
"A" 19+17 TO "A" 21+36 Lt & Rt	2	2	19386	19386				
"A" 20+45 TO "A" 21+83 Lt & Rt	4	2	12393					
"A" 20+45 TO "A" 21+83 Lt & Rt						689	355	
"A" 22+30 TO "A" 24+03 Lt & Rt	4	2	21321					
"A" 22+30 TO "A" 24+03 Lt & Rt						1185	310	
"A" 23+74 TO "A" 24+26 Lt & Rt	2	2	3312	3312				
"A" 23+93 TO "A" 27+42 Lt & Rt	4	2	10035					
"A" 24+16 TO "A" 25+54 Lt	1	1	6903	6903				
"A" 24+16 TO "A" 25+01 Rt	2	2	5337	5337				
"A" 24+97 TO "A" 25+82 Rt	1	1	1521	1521				
"A" 25+43 TO "A" 27+42 Lt								2000
"A" 25+52 TO "A" 29+08 Lt	3	1	1602					
TOTAL			119641	37249	831	1874	665	2000

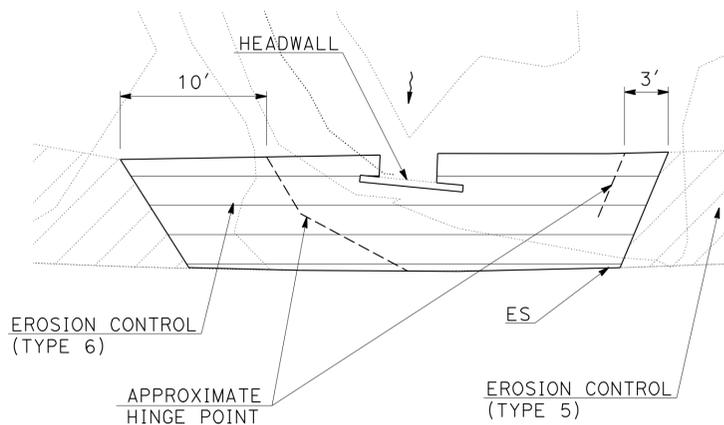
(N) NOT A SEPARATE PAY ITEM, FOR INFORMATION ONLY.



**EROSION CONTROL DETAIL  
DRAINAGE SYSTEM 1 PLAN**



**COMPOST SOCK DETAIL  
TYPICAL SECTION, BOTH SIDES OF CREEK**



**EROSION CONTROL DETAIL  
DRAINAGE SYSTEM 2 PLAN**

**EROSION CONTROL  
DETAILS AND QUANTITIES  
ECD-1**  
NO SCALE

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
 Kenneth Murray  
 SENIOR LANDSCAPE ARCHITECT  
 J. Williamson  
 K. Murray  
 REVISOR BY  
 DATE REVISOR  
 CALCULATED/DESIGNED BY  
 CHECKED BY  
 LANDSCAPE ARCHITECTURE



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Men	1	33.4/33.8	13	90

REGISTERED CIVIL ENGINEER DATE: 2/26/10  
 5-2-11 PLANS APPROVAL DATE  
 Thomas Jon Phillips  
 No. 64633  
 Exp. 6/30/11  
 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.

APC ALLOWABLE ALTERNATIVES			
GALVANIZED CSP 0.138" THICK	GALVANIZED POLYMER COATED CSP 0.079" THICK	PLASTIC (HDPE)	RCP

- NOTES:
- (N) NOT A SEPARATE PAY ITEM, FOR INFORMATION ONLY.
  - ALL CULVERT JOINTS SHALL BE POSITIVE.
  - THE JOINT CLASSIFICATION FOR DOWNDRAIN SHALL BE DOWNDRAIN.
  - LENGTH OF PIPES AND ANGLE OF ELBOWS SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR.
  - FOR MINIMUM ALLOWABLE CLASS OF RCP SEE STANDARD PLAN A62D.
  - ALL PLASTIC PIPE SHALL BE SMOOTH INTERIOR WALL TYPE.
  - DOWNDRAINS SHALL BE SAME MATERIAL AS CULVERT.

DRAINAGE QUANTITIES																					
REMOVE HEADWALL	REMOVE DOWNDRAIN	REMOVE DRAIN INLET	12" APC DD	18" RCP	24" RCP	12" ALTERNATIVE FLARED END SECTION	18" ALTERNATIVE FLARED END SECTION	12" ENTRANCE TAPER	RSP (1/4 T, METHOD B)	MINOR CONCRETE (MINOR STRUCTURE)	PLACE HMA (Misc AREA)	RSP FABRIC	MARKER (CULVERT)	Misc IRON AND STEEL	HEIGHT OF INLET "H"	TYPE OF INLET (N)	TYPE OF GRATE (N)	REMARKS	STATION	DRAINAGE UNIT	DRAINAGE SYSTEM NO.
EA	LF	EA	CY	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA				
	1.5					1			1.0					314	3.25	G1	24-12X	"A" 13+61.0	a	1	
		1						5.2	0.4			5.2						2-FIELD CAST CONCRETE COLLARS			
	7.7												2								
1			7.5						2.5									SLOPED HEADWALL	"A" 15+16.4	b	2
									0.3				2					FIELD CAST CONCRETE COLLAR		e	
													2						"A" 17+75.0	a	3
		1	100			1													"A" 25+19.9	a	4
							3.0				4	3.0						TYPE 1 OVERSIDE DRAIN		f	
1	1	1	100	9.2	7.5	1	1	1	8.2	4.2	4	8.2	6	314				TOTAL			

**DRAINAGE QUANTITIES**  
**DQ-1**  
 NO SCALE

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

FUNCTIONAL SUPERVISOR  
 Lucy Kostorzewa

CALCULATED/DESIGNED BY  
 CHECKED BY

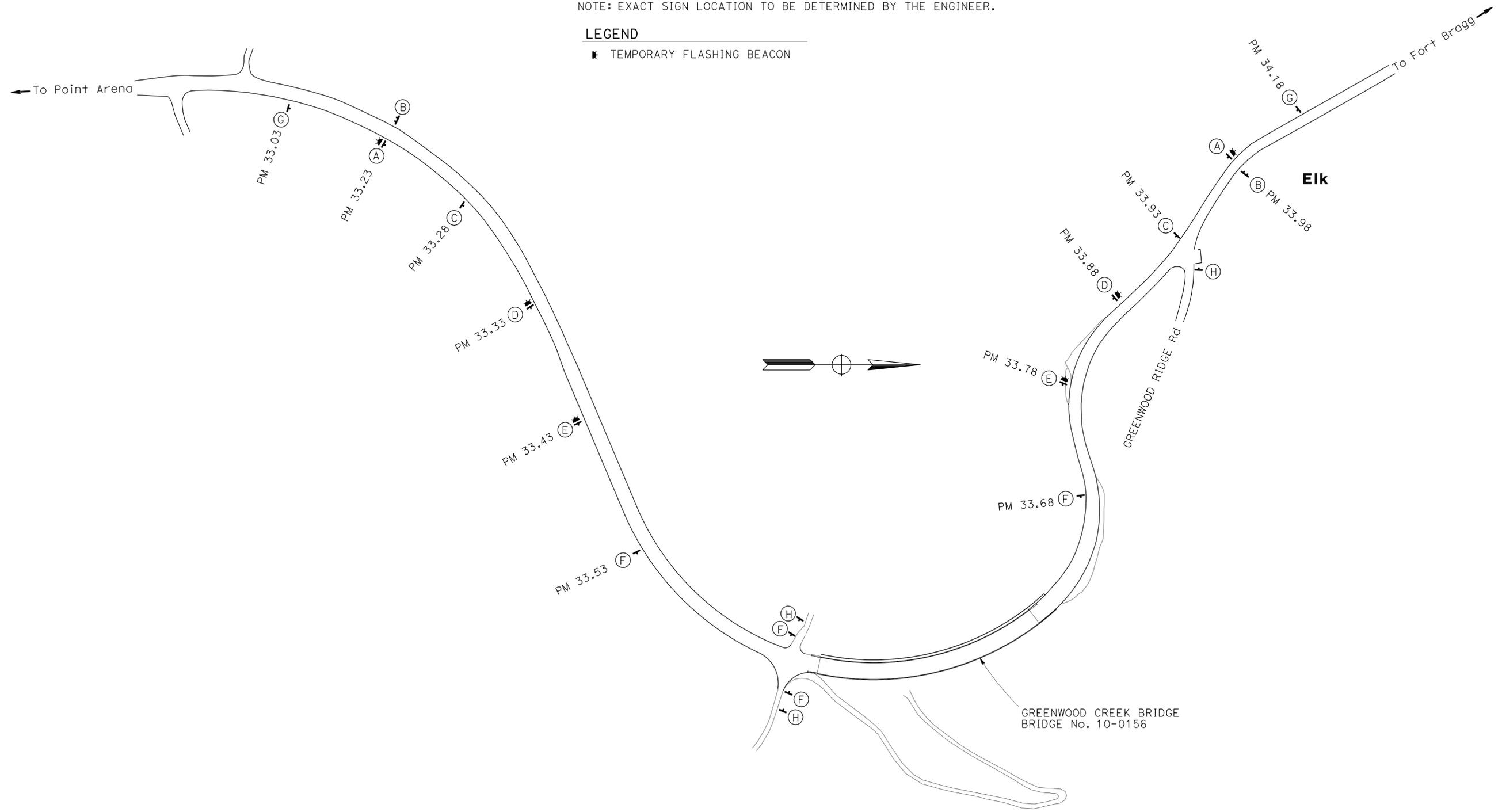
André Guimarães  
 Tom Phillips

REVISED BY  
 DATE REVISED

STATIONARY MOUNTED CONSTRUCTION AREA SIGNS					
SIGN CODE MUTCD	SIGN MESSAGE	PANEL SIZE	No. OF POSTS AND SIZE	No. OF SIGNS	
A W20-1	ROAD WORK AHEAD	48"x48"	CLASS 5	5	
B G20-2	END ROAD WORK	36"x18"	1-4"x4"	2	
C W11-1	BICYCLE (SYMBOL)	36"x36"	1-4"x6"	2	
W16-1	SHARE THE ROAD	36"x30"			
D W20-4	ONE LANE ROAD AHEAD	48"x48"	CLASS 5	3	
E W3-3	SIGNAL AHEAD (SYMBOL)	36"x36"	CLASS 5	2	
F R10-6	STOP HERE ON RED	36"x24"	1-4"x4"	4	
G C40 (CA)	TRAFFIC FINES DOUBLED IN CONSTRUCTION ZONES	108"x42"	2-6"x6"	2	
H W20-1	ROAD WORK AHEAD	36"x36"	1-4"x4"	3	

NOTE: EXACT SIGN LOCATION TO BE DETERMINED BY THE ENGINEER.

LEGEND  
 ■ TEMPORARY FLASHING BEACON



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Men	1	33.4/33.8	14	90

REGISTERED CIVIL ENGINEER DATE 2/26/10  
 5-2-11  
 PLANS APPROVAL DATE

Thomas Jon Phillips  
 No. 64633  
 Exp. 6/30/11  
 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 AREA SIGNS**  
**CS-1**

NO SCALE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Men	1	33.4/33.8	15	90

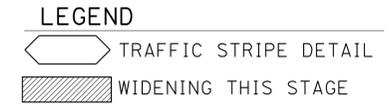
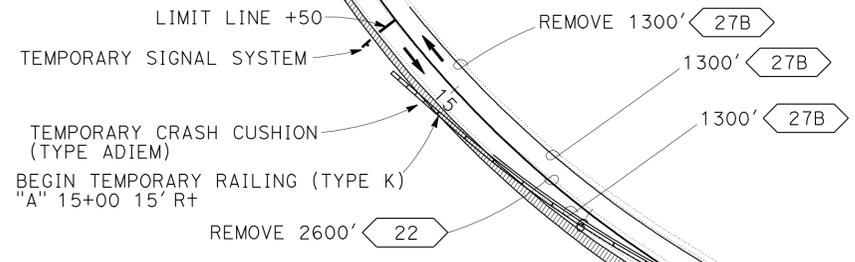
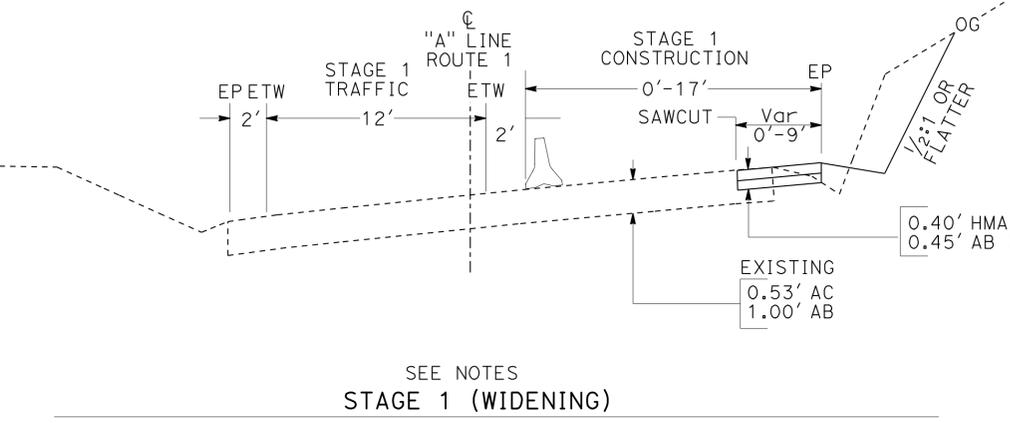
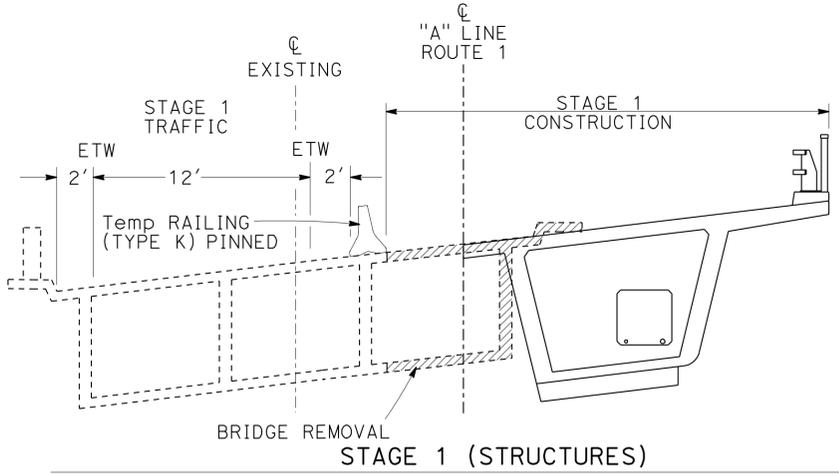
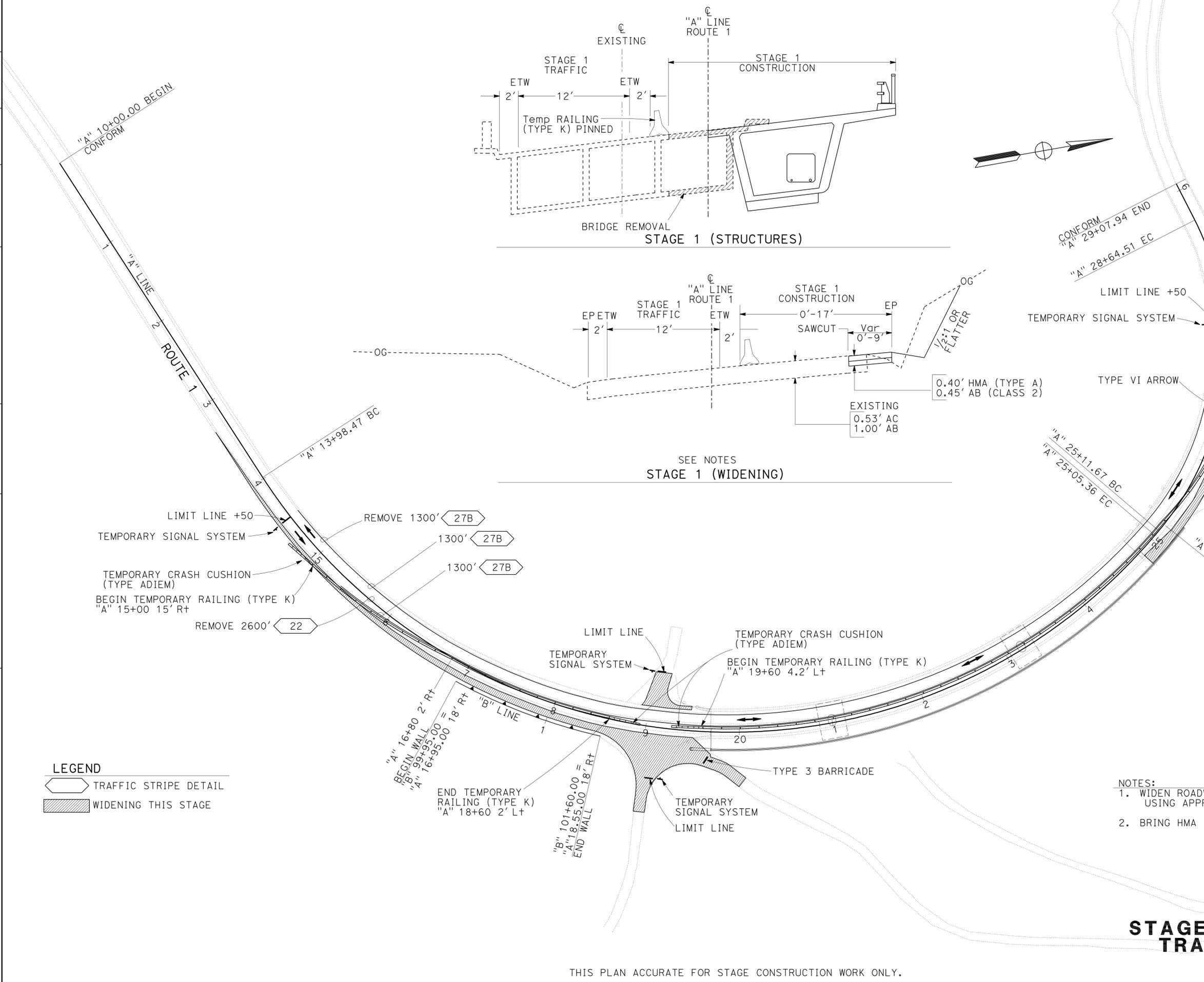
REGISTERED CIVIL ENGINEER	DATE 2/26/10
5-2-11	
PLANS APPROVAL DATE	

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.



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



- NOTES:
1. WIDEN ROADWAY AS PER TYPICAL CROSS SECTIONS USING APPROPRIATE LIMITS
  2. BRING HMA TO WITHIN 0.15' OF FINAL GRADE.

(STAGE 1)  
**STAGE CONSTRUCTION AND TRAFFIC HANDLING PLAN**  
 SC-1

THIS PLAN ACCURATE FOR STAGE CONSTRUCTION WORK ONLY.

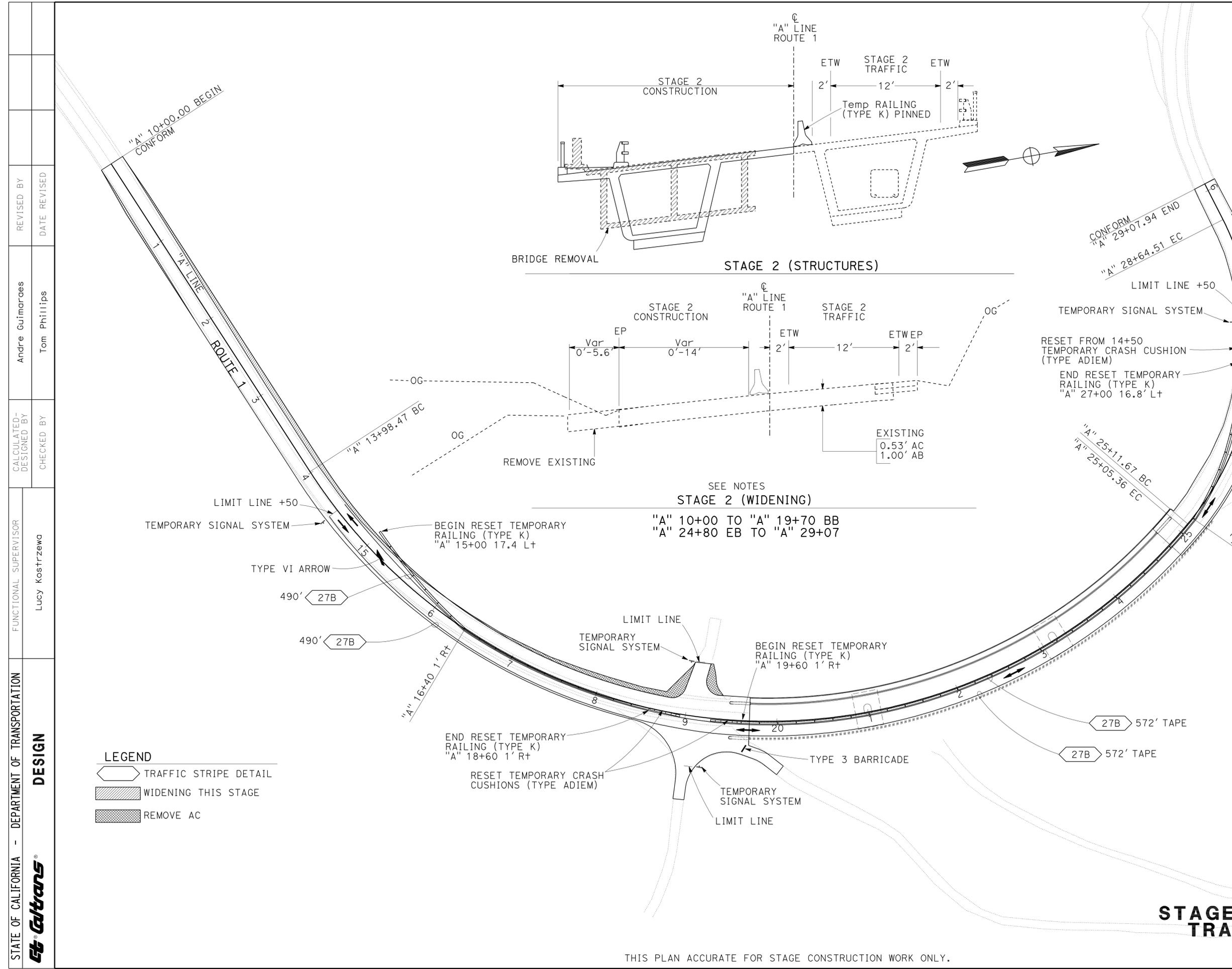
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Men	1	33.4/33.8	16	90

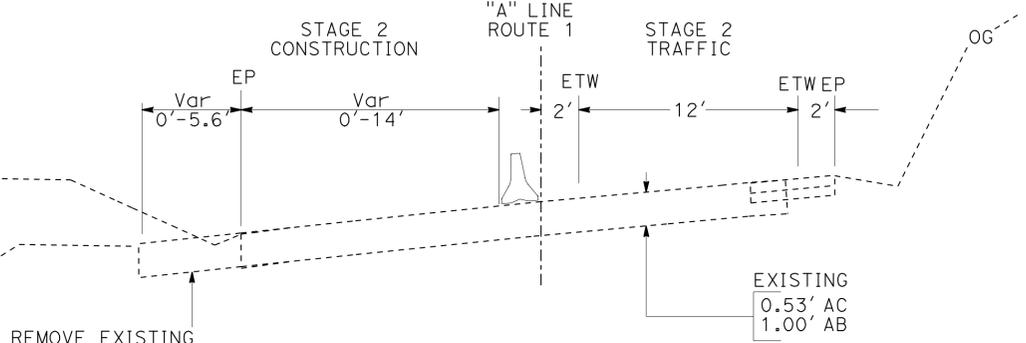
 REGISTERED CIVIL ENGINEER DATE 2/26/10	
5-2-11 PLANS APPROVAL DATE	

REGISTERED PROFESSIONAL ENGINEER  
 Thomas Jon Phillips  
 No. 64633  
 Exp. 6/30/11  
 CIVIL  
 STATE OF CALIFORNIA

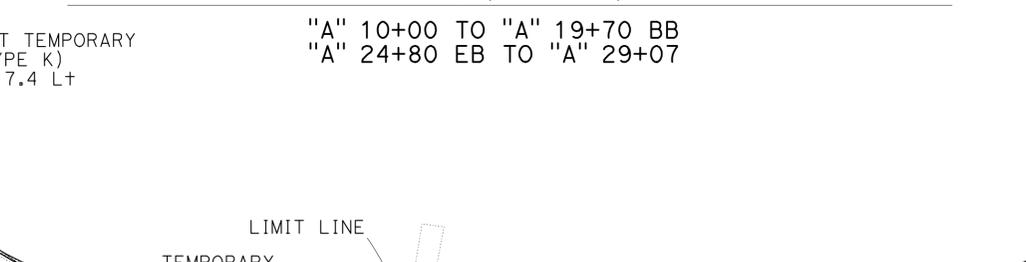
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



**STAGE 2 (STRUCTURES)**



**STAGE 2 (WIDENING)**



- LEGEND**
-  TRAFFIC STRIPE DETAIL
  -  WIDENING THIS STAGE
  -  REMOVE AC

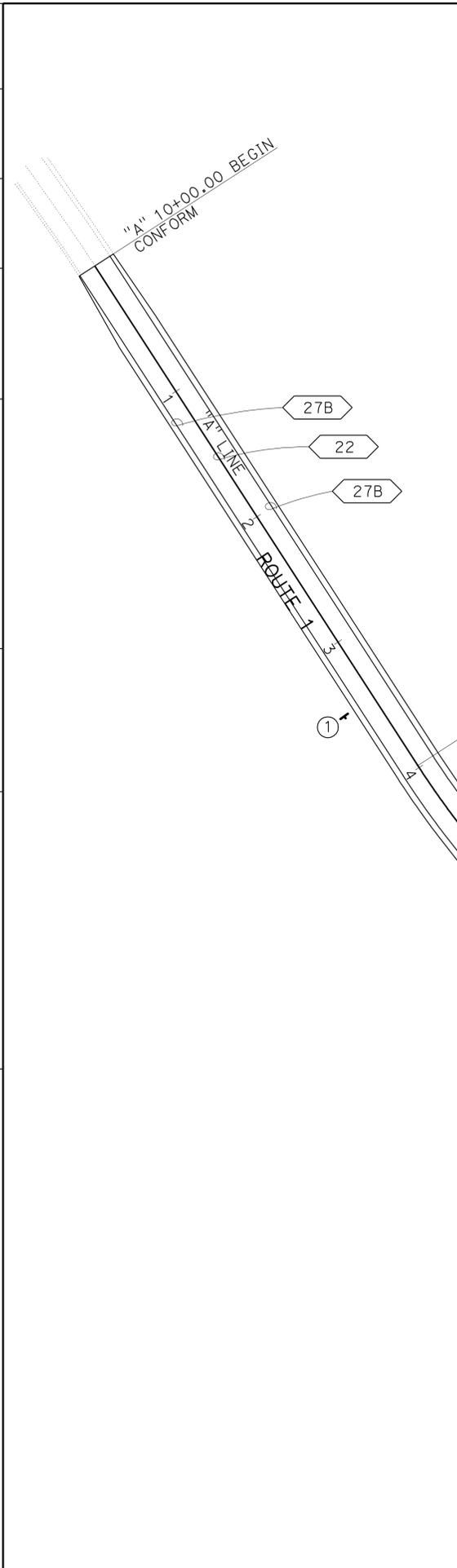
**(STAGE 2)**  
**STAGE CONSTRUCTION AND TRAFFIC HANDLING PLAN**  
**SC-2**

THIS PLAN ACCURATE FOR STAGE CONSTRUCTION WORK ONLY.

SCALE: 1" = 50'

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	DESIGN
Lucy Kostorzewa	FUNCTIONAL SUPERVISOR
Lucy Kostorzewa	CHECKED BY
André Guimarães	REVISOR
Tom Phillips	DATE
André Guimarães	REVISOR
Tom Phillips	DATE

LAST REVISION DATE PLOTTED => 09-MAY-2011  
 00-00-00 TIME PLOTTED => 07:33



ROADSIDE SIGN SUMMARY						
Circled No.	LOCATION	SIGN CODE	ROADSIDE SIGN (ONE POST)	RESET	REMOVE	DESCRIPTION
				ROADSIDE SIGN (ONE POST)	ROADSIDE SIGN (ONE POST)	
1	"A" 13+50 R+	W5-2 (CA)		EA	1	NARROW BRIDGE
2	"A" 25+10 R+	S32 (CA)		1		ADOPT-A-HIGHWAY
3	"A" 27+77 R+	S32-1 (CA)		1		LITTER SIGN
4	PM 33.83 Lt	R2-4 (CA)			1	30 ZONE AHEAD
5	"A" 19+00 Lt	W5-2 (CA)	1			NARROW BRIDGE
6	"A" 19+20 R+	R1-1	1			STOP
7	"A" 19+80 R+	R1-1	1		1	STOP
8	"A" 24+60 Lt	G11-41 (CA)	1		1	
		G11-41 (CA)	1		1	
		TOTAL	4	2	4	

NOTE: EXACT SIGN LOCATION TO BE DETERMINED BY THE ENGINEER

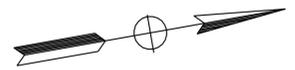
TRAFFIC STRIPE AND PAVEMENT MARKER QUANTITIES							
LOCATION		DETAIL No	DETAIL LENGTH	THERMOPLASTIC TRAFFIC STRIPE			PAVEMENT MARKER
FROM	TO			4" SOLID YELLOW	4" SOLID WHITE	4" BROKEN WHITE (3'-12')	TYPE D YELLOW (TWO-WAY) (RETROREFLECTIVE)
"A" 10+00.00 R+	"A" 18+44 R+	27B	844		844		
"A" 10+00.00	"A" 29+07.94	22	1908	3816		160	
"A" 10+00.00 Lt	"A" 18+79 Lt	27B	879		879		
"A" 18+44 R+	"A" 19+50 R+	27C	106		106		
"A" 18+79 R+	"A" 19+50 R+	27C	71		71		
"A" 19+50 R+	"A" 29+07.94 R+	27B	958		958		
"A" 19+50 Lt	"A" 29+07.94 R+	27B	958		958		
SUBTOTAL				3816	3639	177	
TOTAL				7632		160	

THERMOPLASTIC PAVEMENT MARKINGS			
LOCATION	ORIENTATION	PLACE TYPE/LEGEND	AREA SQFT
"A" 19+00	FEBT	LIMIT LINE	12
"A" 19+00	FEBT	"STOP" LEGEND	22
"A" 19+20	FWBT	LIMIT LINE	12
"A" 19+20	FWBT	"STOP" LEGEND	22
TOTAL			68

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Men	1	33.4/33.8	17	90

REGISTERED CIVIL ENGINEER DATE 2/26/10  
 5-2-11 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.

Thomas Jon Phillips  
 No. 64633  
 Exp. 6/30/11  
 CIVIL



LEGEND  
 Hexagon symbol: TRAFFIC STRIPE DETAIL  
 Circle symbol: SIGN NUMBER

**PAVEMENT DELINEATION, SIGN PLAN AND QUANTITIES PD-1**

THIS PLAN ACCURATE FOR CONSTRUCTION AREA SIGN WORK ONLY.

SCALE: 1" = 50'

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Men	1	33.4/33.8	18	90

REGISTERED CIVIL ENGINEER DATE 2/26/10  
 5-2-11 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.

STAGE CONSTRUCTION AND TRAFFIC HANDLING QUANTITIES												
LOCATION		REMOVE YELLOW THERMOPLASTIC TRAFFIC STRIPE	REMOVE THERMOPLASTIC TRAFFIC STRIPE	(N) REMOVE PAVEMENT MARKERS	TEMPORARY PAVEMENT MARKING (PAINT)	TEMPORARY TRAFFIC STRIPE (PAINT)	TEMPORARY TRAFFIC STRIPE (TAPE)	TEMPORARY RAILING (TYPE K)	TEMPORARY CRASH CUSHION (TYPE ADIEM)	RESET TEMPORARY CRASH CUSHION (TYPE ADIEM)	RESET TEMPORARY RAILING (TYPE K)	REMARKS
FROM	TO	LF	EA	EA	SQYD	EA	EA	EA	EA	EA	EA	
STAGE 1												
"A" 14+50 R+	"A" 27+50	2600	1300	160	1.33	2600			1			LIMIT LINE
"A" 14+50	"A" 18+60							360				
"A" 18+60	"A" 19+00 L+				1.33				1			LIMIT LINE
"A" 19+00 R+	"A" 19+60				1.33				1			LIMIT LINE
"A" 19+60	"A" 27+00							740				
"A" 27+50 L+					1.33							LIMIT LINE
STAGE 2												
"A" 15+00	"A" 18+60										360	
"A" 14+50	"A" 19+40					490						
"A" 14+50	"A" 19+40					490						
"A" 18+60	"A" 25+12							1144		1		
"A" 19+40	"A" 19+60									1		
"A" 19+60	"A" 27+00										740	
"A" 25+12	"A" 27+50					238						
"A" 25+12	"A" 27+50					238						
"A" 27+20										1		
TOTAL		2600	1300	160	5.3	4056	1144	1100	3	3	1100	

**LEGEND**  
 (N) - NOT A SEPARATE PAY ITEM, FOR INFORMATION ONLY.  
 BFM - BONDED FIBER MATRIX

ROADWAY														
LOCATION		HMA (TYPE A)	TACK COAT	COLD PLANE AC PAVEMENT	GEOSYNTHETIC PAVEMENT INTERLAYER	CLASS 2 ASPHALT BASE	ROADWAY EXCAVATION	(N) EMBANKMENT	REMOVE AC DIKE	ALTERNATIVE CRASH CUSHION	HMA DIKE (TYPE E)	CLEARING AND GRUBBING	MILE POST MARKER	REMARKS
FROM	TO	TON	TON	SQYD	SQYD	CY	CY	EA	EA	EA	EA	ACRE	EA	
"A" 10+00	"A" 10+60			213										
"A" 10+00	"A" 29+00			304	600									
"A" 10+00	"A" 29+08	1298.5	1.4			620	840	300				3.3	1	MAINLINE AND DRIVEWAYS "PM 33.50"
"A" 14+75										2				
"A" 19+70										1				
"A" 25+12	"A" 29+08							400			400			
"A" 25+12	"A" 29+08			213										
"A" 28+48	"A" 29+08													
FROM DRAINAGE		1.5												
TOTAL		1300	1.4	730	600	620	840	300	400	3	400	3.3	1	

MBGR									
LOCATION		REMOVE MBGR	MBGR (WOOD POST)	WEED CONTROL MAT (FIBER)	TRANSITION RAILING (TYPE WB)	(N) BURIED POST ANCHOR	TERMINAL ANCHOR ASSEMBLY (TYPE SFT)	GUARD RAILING DELINEATOR	REMARKS
FROM	TO	LF	EA	SQYD	EA	EA	EA	EA	
"A" 16+95	"A" 18+25		187	57		1		23	
"A" 18+25	"A" 19+78	56					1	2	
"A" 19+50	"A" 26+10		63	23	1			2	
"A" 25+50	"A" 25+78	144						3	
"A" 25+00	"A" 25+78					1			
"A" 26+10									
TOTAL		200	250	89	1	2	1	30	

BMPS												
LOCATION		TEMPORARY EROSION CONTROL BLANKET	TEMPORARY FIBER ROLL	TEMPORARY SILT FENCE	TEMPORARY CHECK DAM	TEMPORARY FENCE (TYPE ESA)	TEMPORARY DRAINAGE INLET PROTECTION	TEMPORARY HYDRAULIC MULCH (BFM)	TEMPORARY CONCRETE WASHOUT	TEMPORARY CONSTRUCTION ROADWAY	TEMPORARY CONSTRUCTION ENTRANCE (TYPE 1)	REMARKS
FROM	TO	SQYD	EA	EA	EA	EA	EA	SQYD	EA	EA	EA	
"A" 10+00	"A" 29+07.94	980	11100	1000	70			24970	8			
"A" 13+60							1					
"A" 19+70	"A" 25+12					2100				370	1	
"A" 20+00	"A" 21+50									370	1	
TOTAL		980	11100	1000	70	2100	1	24970	8	370	1	

# SUMMARY OF QUANTITIES Q-1

NO SCALE

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION DESIGN  
 Andre Guimaraes  
 Tom Phillips  
 Lucy Kostzewa  
 00-00-00 DATE PLOTTED => 06-MAY-2011 TIME PLOTTED => 15:32



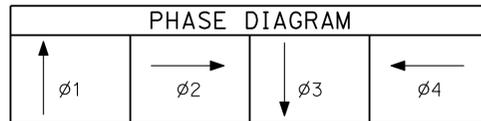
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Men	1	33.4/33.8	19	90

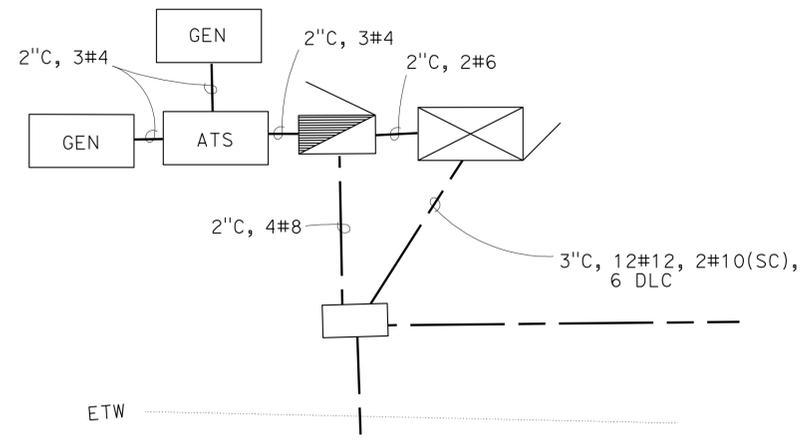
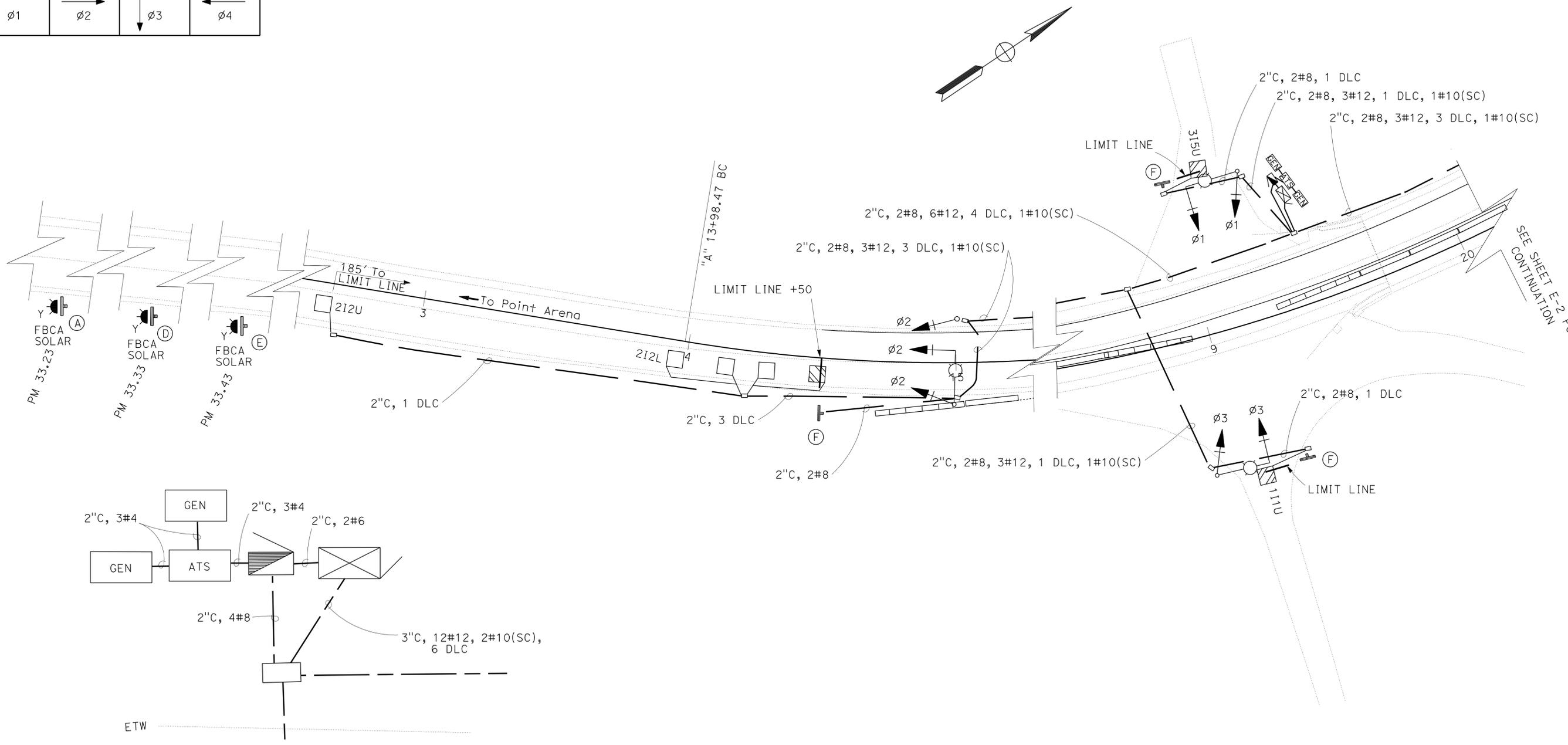
<i>Brian T. Finck</i> 2/26/10 REGISTERED ELECTRICAL ENGINEER DATE		
5-2-11 PLANS APPROVAL DATE		
<small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small>		

**LEGEND:**

- Y TEMPORARY FLASHING BEACON (YELLOW)
- ⊗ FOR SIGN DETAILS, SEE SHEET CS-1.
- GEN GENERATOR
- ATS AUTOMATIC TRANSFER SWITCH
- SC SIGNAL COMMON



STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** TRAFFIC ELECTRICAL  
 FUNCTIONAL SUPERVISOR: Troy A. Arseneau  
 CALCULATED/DESIGNED BY: [Blank]  
 CHECKED BY: [Blank]  
 REVISIONS: Brian Finck, Scott Shipman  
 REVISOR: [Blank]  
 DATE: [Blank]



NOTE:  
 AUTOMATIC TRANSFER SWITCH IN LOCKABLE NEMA 3R CABINET.  
 CONTROL & SENSOR WIRING PROVIDED BY CONTRACTOR PER  
 MANUFACTURER SPECIFICATIONS.  
 ADD CONTROL WIRES WHERE REQUIRED.

**GENERATOR AND AUTOMATIC TRANSFER SWITCH**  
 NO SCALE

**TEMPORARY SIGNAL SYSTEM**

THIS PLAN IS ACCURATE FOR ELECTRICAL WORK ONLY.

SCALE: 1" = 20'

**E-1**

FUNCTIONAL SUPERVISOR Troy A. Arseneau	CALCULATED/DESIGNED BY CHECKED BY	Brian Finck Scott Shipman	REVISED BY DATE

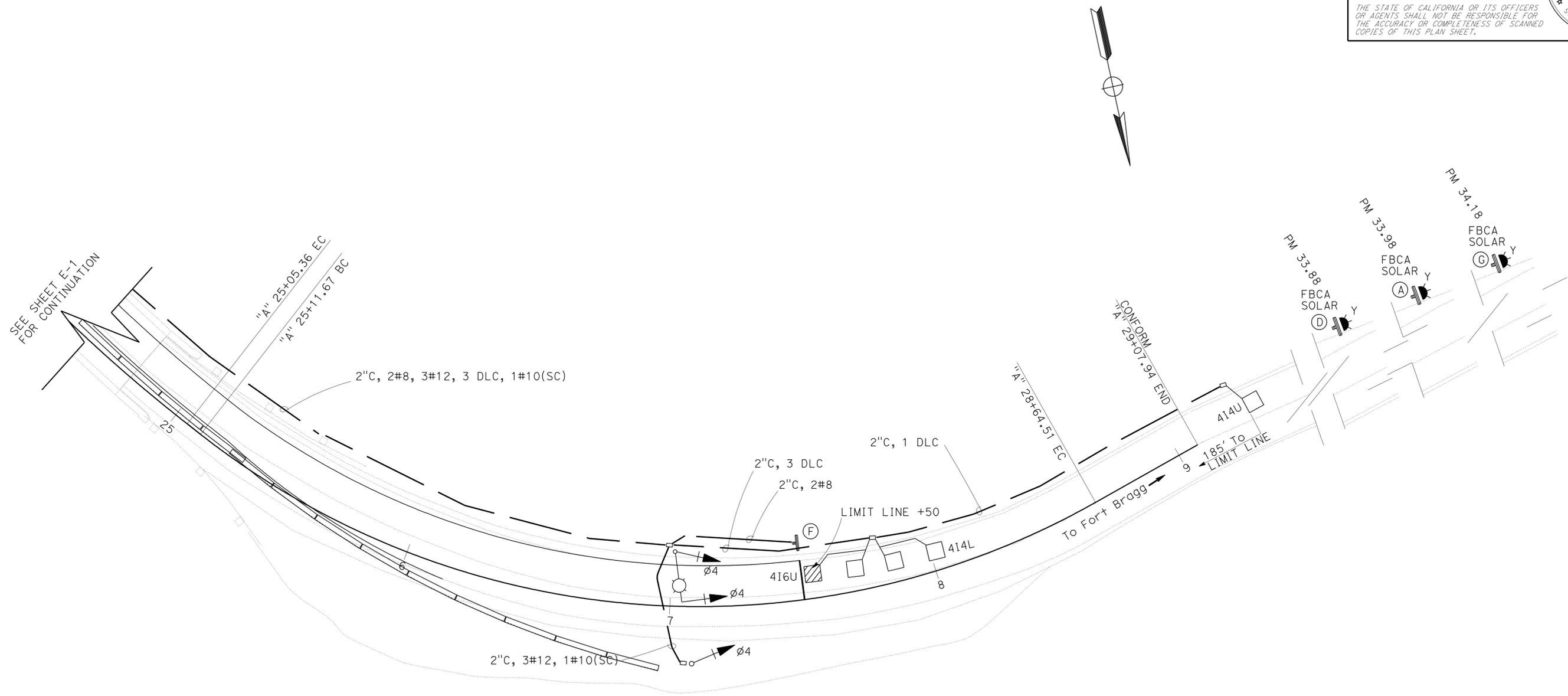
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Men	1	33.4/33.8	20	90

Brian T. Finck 2/26/10  
 REGISTERED ELECTRICAL ENGINEER DATE

5-2-11  
 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  
 BRIAN T. FINCK  
 No. 17756  
 Exp. 6-30-10  
 ELECTRICAL  
 STATE OF CALIFORNIA



# TEMPORARY SIGNAL SYSTEM

SCALE: 1" = 20'

E-2

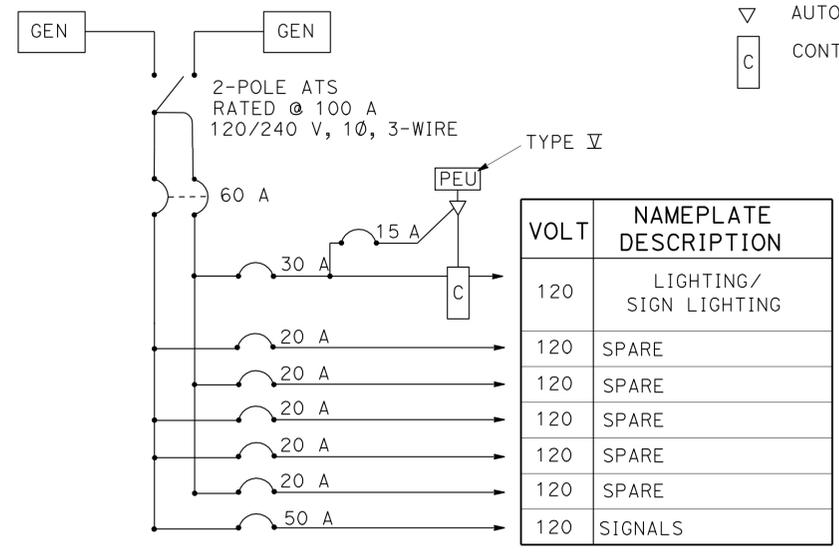
THIS PLAN IS ACCURATE FOR ELECTRICAL WORK ONLY.

**LEGEND:**

- ▽ AUTO-TEST SWITCH
- C CONTACTOR

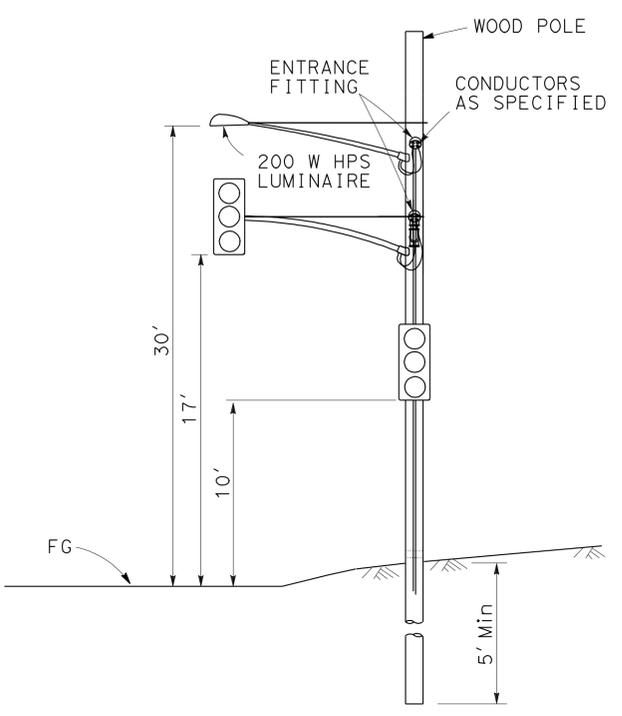
**NOTE:**

WOOD POLES SHALL BE LOCATED OUTSIDE THE CLEAR RECOVERY ZONE, MADE YEILDING OR PROTECTED IN PLACE.

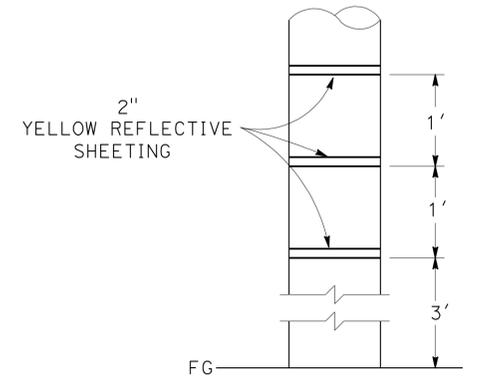


**SERVICE WIRING DIAGRAM**

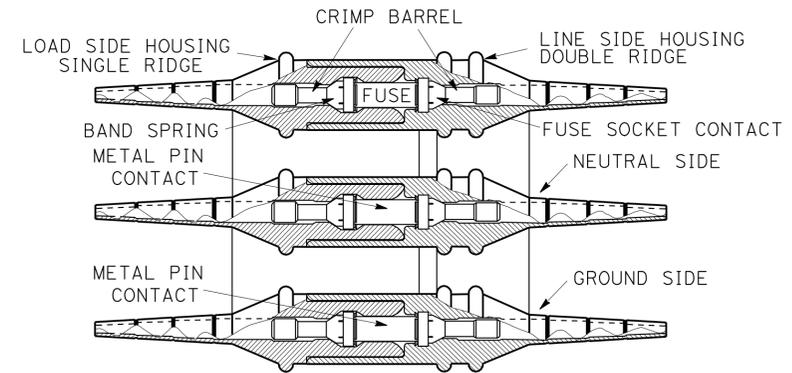
TYPE III-AF SERVICE EQUIPMENT ENCLOSURE



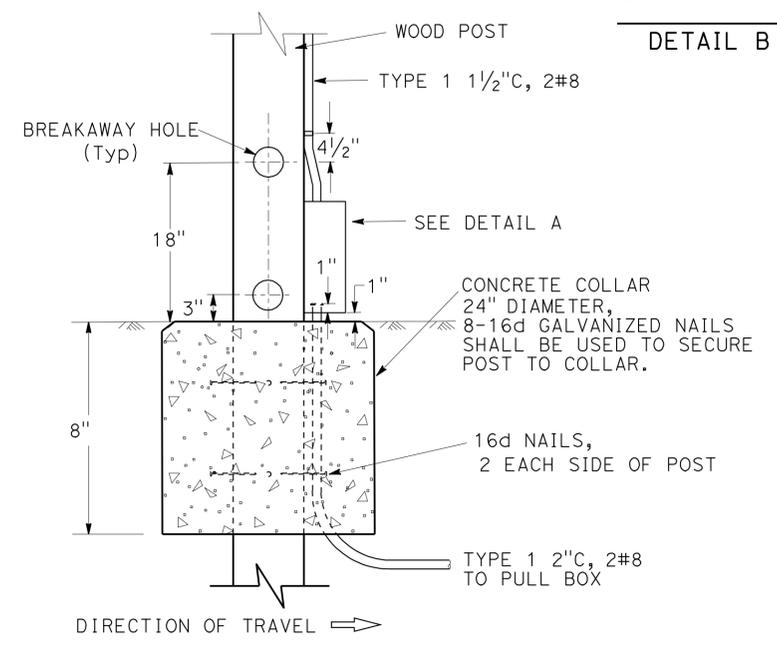
**TEMPORARY TRAFFIC SIGNAL**



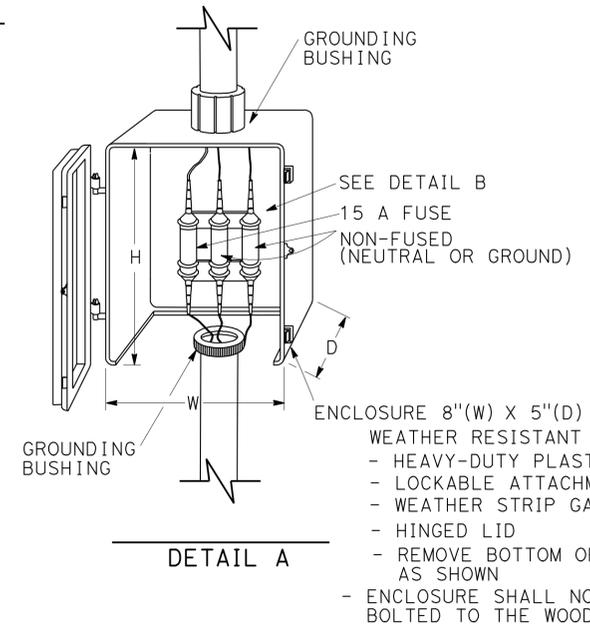
**REFLECTIVE MARKING FOR WOOD POLE/POST**



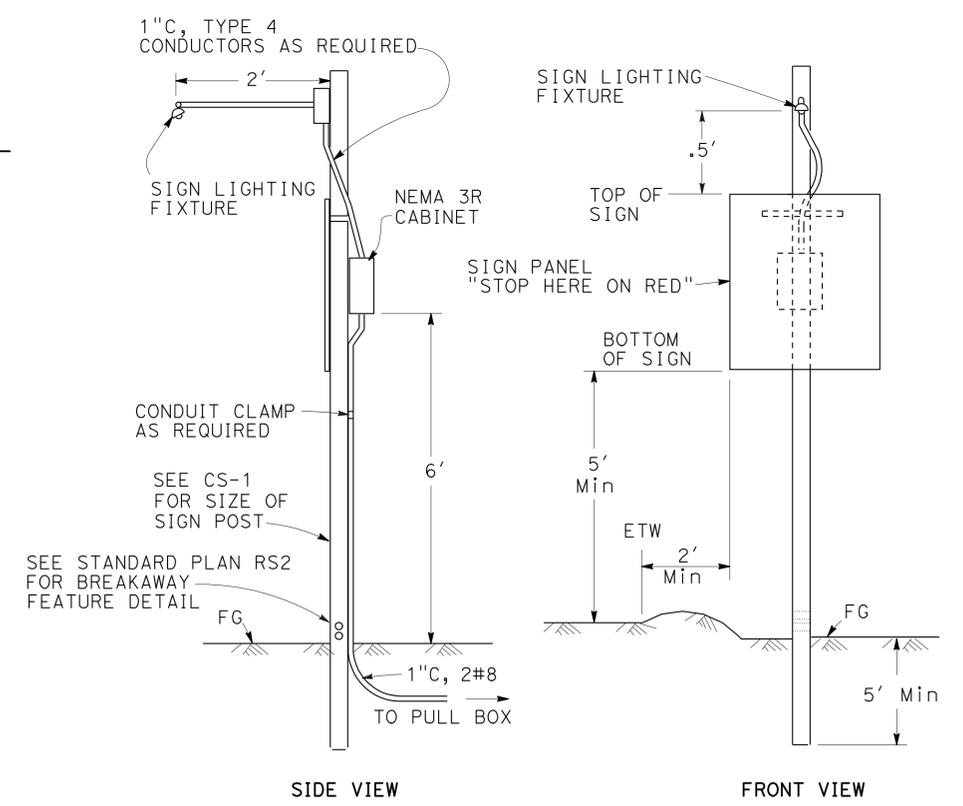
**DETAIL B**



**120 V(ac) POWER LINE BREAKAWAY POST DETAIL**



**DETAIL A**



**SIDE VIEW**

**FRONT VIEW**

**TYPICAL SIGN ILLUMINATION**

**DETAIL C**

**TEMPORARY SIGNAL SYSTEM DETAILS**

NO SCALE

**E-3**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** TRAFFIC ELECTRICAL  
 FUNCTIONAL SUPERVISOR: Troy A. Arseneau  
 REVISIONS: Brian Finck, Scott Shipman  
 BORDER LAST REVISED 4/11/2008

LAST REVISION DATE PLOTTED => 06-MAY-2011  
 00-00-00 TIME PLOTTED => 14:42

REVISOR	DATE	REVISION
Brian Finck		
Scott Shipman		
CALCULATED/DESIGNED BY	CHECKED BY	
Troy A. Arseneau		
FUNCTIONAL SUPERVISOR		

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Men	1	33.4/33.8	22	90

*Brian T. Finck* 2/26/10  
 REGISTERED ELECTRICAL ENGINEER DATE

5-2-11  
 PLANS APPROVAL DATE

**BRIAN T. FINCK**  
 No. 17756  
 Exp. 6-30-10  
 ELECTRICAL

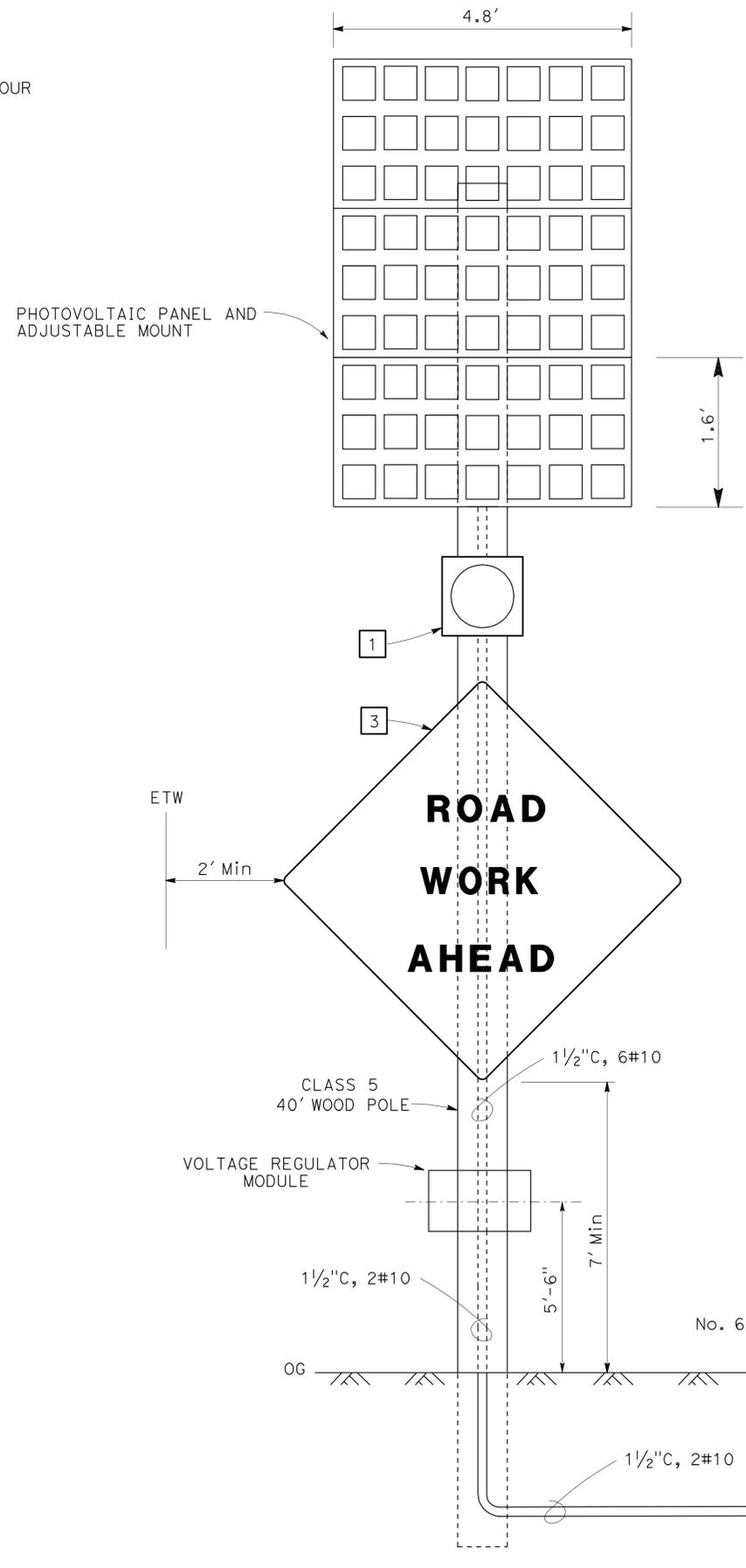
REGISTERED PROFESSIONAL ENGINEER  
 STATE OF CALIFORNIA

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.

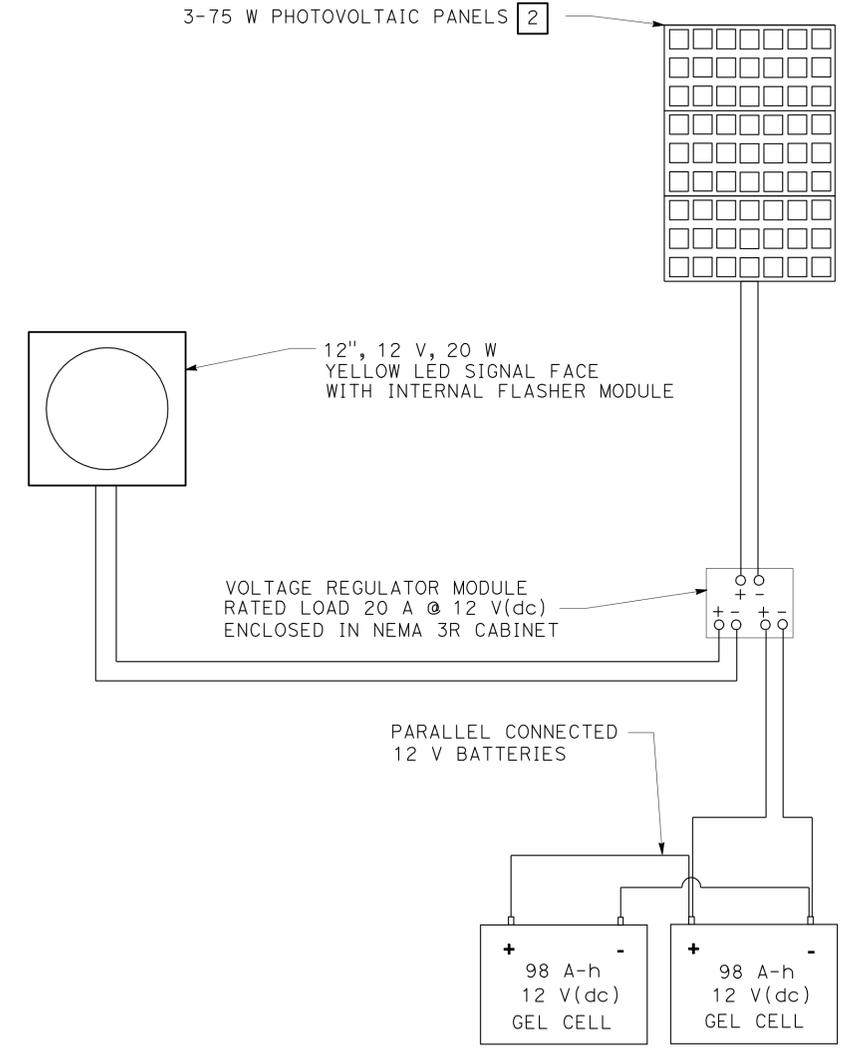
**LEGEND:**  
 A-h = AMPERE HOUR

**NOTES:** (THIS SHEET ONLY)

- 1 1-SECTION SIGNAL FACE WITH VISOR AND BACKPLATE.
- 2 THIS UNIT SHALL BE LOCATED IN AN UNSHADED AREA.
- 3 SEE SHEETS CS-1 FOR SIGNS A, D, AND E.
4. WOOD POLE SHALL BE LOCATED OUTSIDE THE CLEAR RECOVERY ZONE, MADE YIELDING OR PROTECTED IN PLACE.



**TEMPORARY FLASHING BEACON  
 (SOLAR POWERED)**



**CONNECTION DIAGRAM**

**TEMPORARY SIGNAL  
 SYSTEM DETAILS**

THIS PLAN IS ACCURATE FOR ELECTRICAL WORK ONLY.

NO SCALE

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
01	Men	1	33.4/33.8	23	90

*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

June 6, 2008  
PLANS APPROVAL DATE

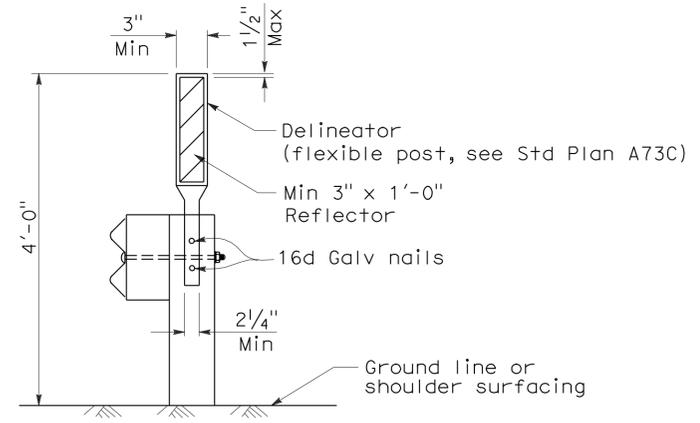
*The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.*

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

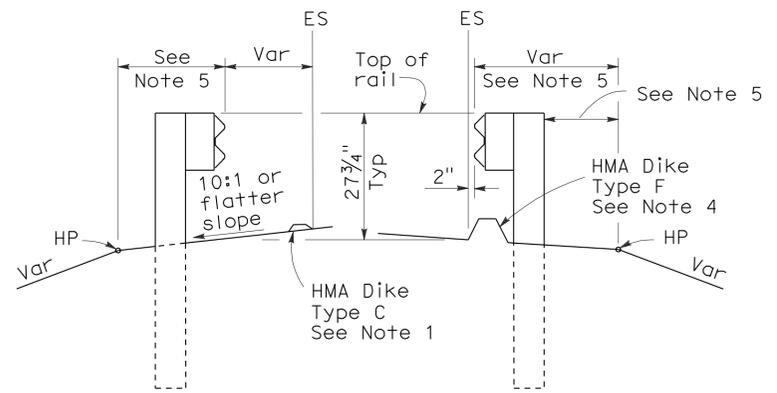
To accompany plans dated 5-2-11

**NOTES:**

1. When necessary to place dike in front of face of guard railing, only Type C dike may be used. For dike details, see Standard Plan A87B.
2. For standard railing post embedment, see Standard Plans A77C3.
3. Guard railing delineation to be used where shown on the Project Plans.
4. When dike or curb is placed under guard railing, the maximum height of the dike or curb shall be 4". Mountable dike should not be used. For dike and curb details, see Revised Standard Plans RSP A87A and Standard Plan A87B.
5. For details of typical distance between the face of rail and hinge point, see Standard Plan A77C3.



**GUARD RAILING DELINEATION**  
See Note 3



**DIKE POSITIONING**  
See Note 1

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

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

NO SCALE

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

**REVISED STANDARD PLAN RSP A77C4**

2006 REVISED STANDARD PLAN RSP A77C4

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
01	Men	1	33.4/33.8	24	90

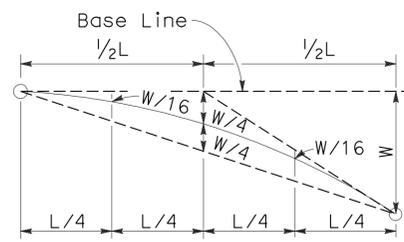
*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

June 6, 2008  
PLANS APPROVAL DATE

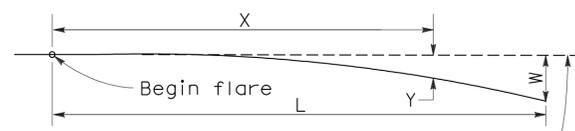
*The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.*

REGISTERED PROFESSIONAL ENGINEER  
No. C50200  
Exp. 6-30-09  
CIVIL  
STATE OF CALIFORNIA

To accompany plans dated 5-2-11



**TYPICAL PARABOLIC LAYOUT**

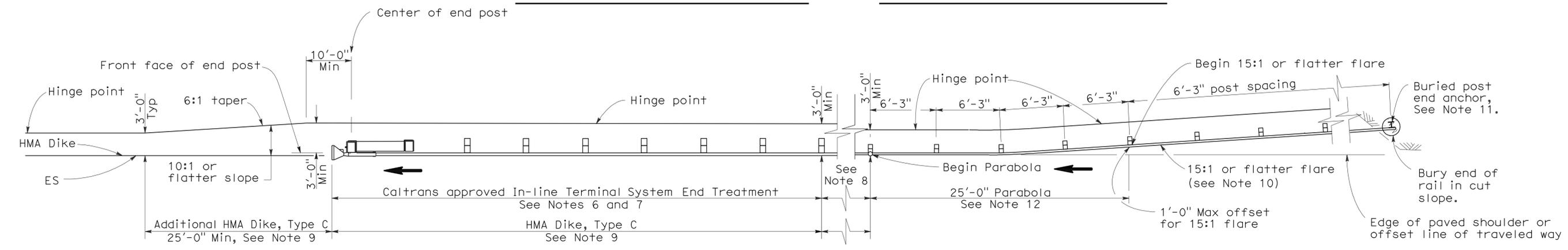


Base Line (Edge of paved shoulder or offset line of edge of traveled way)

$$Y = \frac{WX^2}{L^2}$$

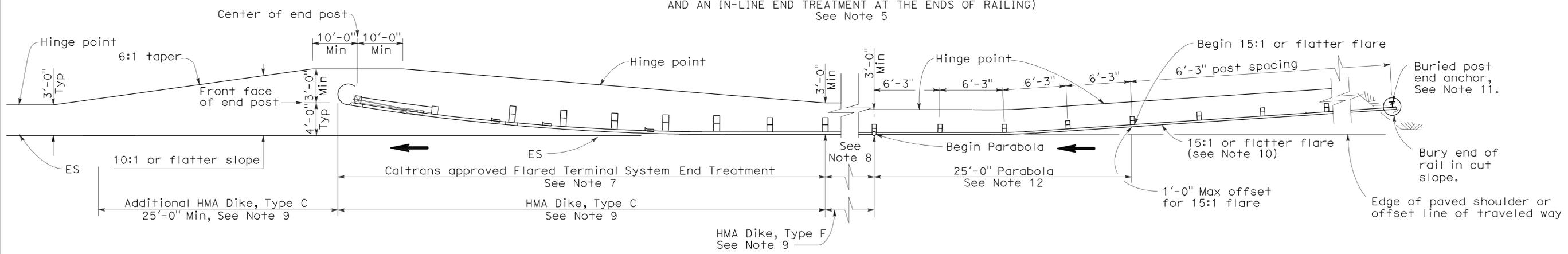
Y = Offset from base line  
W = Maximum offset  
X = Distance along base line  
L = Length of flare

**PARABOLIC FLARE OFFSETS**



**TYPE 11K LAYOUT**

(EMBANKMENT GUARD RAILING INSTALLATION WITH A BURIED END ANCHOR TREATMENT AND AN IN-LINE END TREATMENT AT THE ENDS OF RAILING)  
See Note 5



**TYPE 11L LAYOUT**

(EMBANKMENT GUARD RAILING INSTALLATION WITH A BURIED END ANCHOR TREATMENT AND A FLARED END TREATMENT AT THE ENDS OF RAILING)  
See Note 5

**NOTES:**

- Line post, blocks and hardware to be used are shown on Standard Plans A77A1, A77A2, A77B1, A77C1 and A77C2.
- Guard rail post spacing to be 6'-3" center to center, except as otherwise noted.
- Except as noted, line posts are 6" x 8" x 6'-0" wood with 6" x 8" x 1'-2" wood blocks. W6 x 9 steel posts, 6'-0" in length, with 6" x 8" x 1'-2" notched wood blocks or plastic blocks may be used for 6" x 8" x 6'-0" wood post with 6" x 8" x 1'-2" wood blocks where applicable and when specified.
- Direction of adjacent traffic indicated by →.
- Layout Types 11D through 11L, shown on the A77E Series of Revised Standard Plans, are typically used where guard railing is recommended to shield embankment slopes and a crashworthy end treatment is required for both directions of traffic.
- In-line Terminal System End Treatments are used where site conditions will not accommodate a flared end treatment.
- The type of terminal system end treatment to be used will be shown on the Project Plans.
- Dependent on site conditions (embankment height and side slope), construction of additional guard railing (length equal to multiples of 12'-6" with 6'-3" post spacing) may be advisable.
- Where placement of dike is required with guard railing installations, see Revised Standard Plan RSP A77C4 for dike positioning details.
- The 15:1 or flatter flare used with buried end anchors is based on the edge of the paved shoulder or offset line of edge of the traveled way. The length of guard railing within the 15:1 or flatter flare is based on site conditions and should be a length equal to multiples of 12'-6".
- For details of the buried post end anchor used with Type 11K and 11L Layouts, see Standard Plan A77I2.
- For typical flare offsets for 25'-0" length parabola with maximum offset of 1'-0", see Revised Standard Plan RSP A77E1.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**METAL BEAM GUARD RAILING  
TYPICAL LAYOUTS FOR  
EMBANKMENTS**

NO SCALE

RSP A77E6 DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN A77E6  
DATED MAY 1, 2006 - PAGE 53 OF THE STANDARD PLANS BOOK DATED MAY 2006.

**REVISED STANDARD PLAN RSP A77E6**

2006 REVISED STANDARD PLAN RSP A77E6

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
01	Men	1	33.4/33.8	25	90

*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

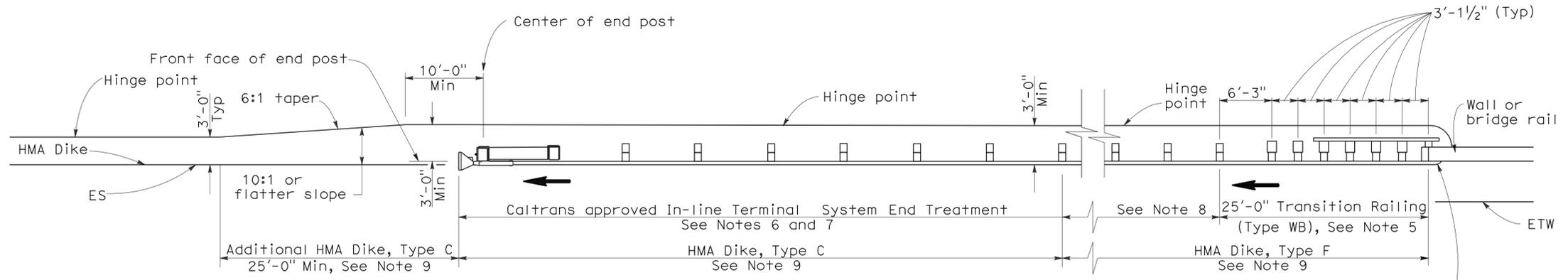
June 6, 2008  
PLANS APPROVAL DATE

*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.*

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

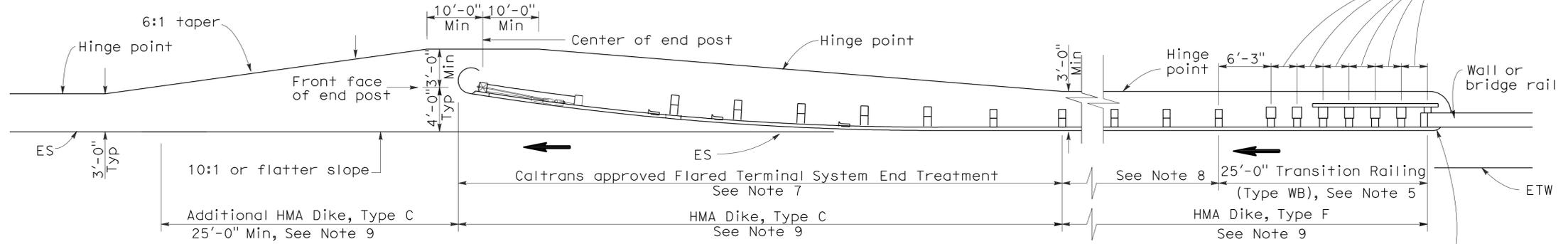
To accompany plans dated 5-2-11

2006 REVISED STANDARD PLAN RSP A77F4



**TYPE 12AA LAYOUT**

(GUARD RAILING INSTALLATION AT STRUCTURE DEPARTURE WITH AN IN-LINE END TREATMENT AT TRAILING END OF RAILING)  
See Notes 9 and 10



**TYPE 12BB LAYOUT**

(GUARD RAILING INSTALLATION AT STRUCTURE DEPARTURE WITH A FLARED END TREATMENT AT TRAILING END OF RAILING)  
See Notes 9 and 10

**NOTES:**

- Line post, blocks and hardware to be used are shown on Standard Plans A77A1, A77A2, A77B1, A77C1 and A77C2.
- Guard rail post spacing to be 6'-3" center to center, except as otherwise noted.
- Except as noted, line posts are 6" x 8" x 6'-0" wood with 6" x 8" x 1'-2" wood blocks. W6 x 9 steel posts, 6'-0" in length, with 6" x 8" x 1'-2" notched wood blocks or notched recycled plastic blocks may be used for 6" x 8" x 6'-0" wood posts with 6" x 8" x 1'-2" wood blocks where applicable and when specified.
- Direction of adjacent traffic indicated by  $\rightarrow$ .
- For Transition Railing (Type WB) details for Types 12AA and 12BB Layouts, see Standard Plan A77J4.
- In-line Terminal System Treatments are used where site conditions will not accommodate a flared end treatment.
- The type of terminal system to be used will be shown on the Project Plans.
- Dependent on site conditions (embankment height, side slopes, other fixed objects), it may be advisable to construct additional guard railing (a length equal to multiples of 12'-6" with 6'-3" post spacing) between the transition railing and end treatments.
- Where placement of dike is required with guard railing installations, see Revised Standard Plan RSP A77C4 for dike positioning details.
- Type 12AA or Type 12BB Layouts are typically used to the right of traffic departing a structure on two-way conventional highways where the roadbed width across the structure is less than 40 feet.
- For additional details of typical connections to bridge rail, see Connection Detail CC on Revised Standard Plan RSP A77J2 and Connection Detail HH on Standard Plans A77k2.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

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

NO SCALE

RSP A77F4 DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN A77F4  
DATED MAY 1, 2006 - PAGE 57 OF THE STANDARD PLANS BOOK DATED MAY 2006.

**REVISED STANDARD PLAN RSP A77F4**

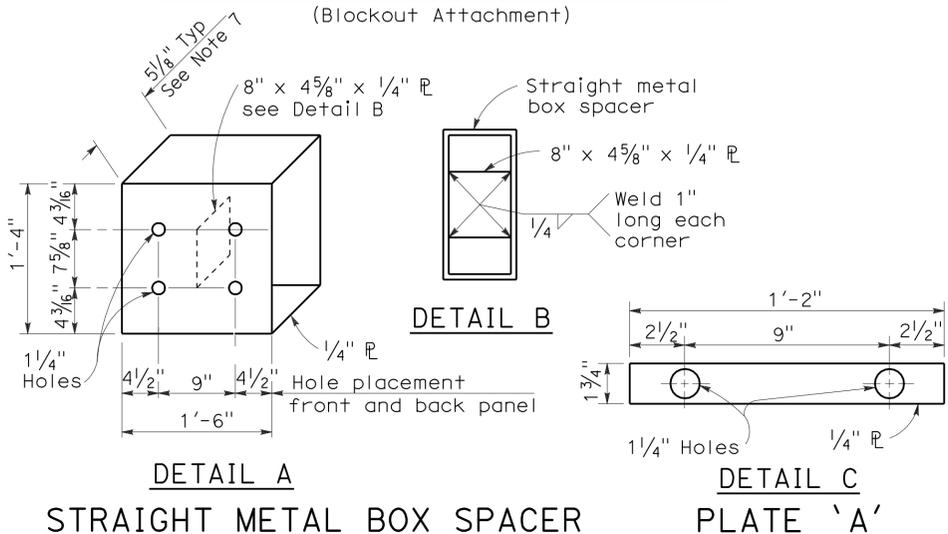
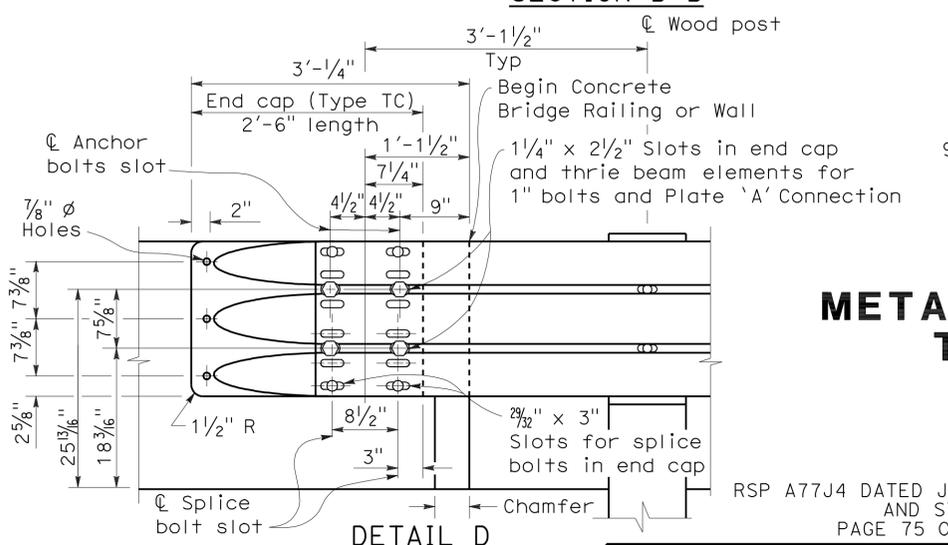
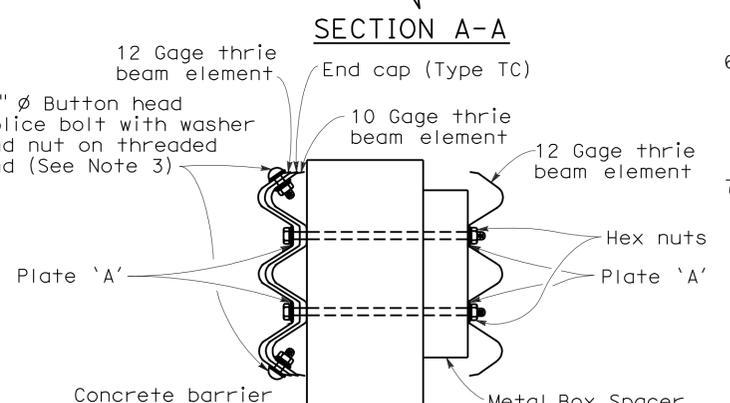
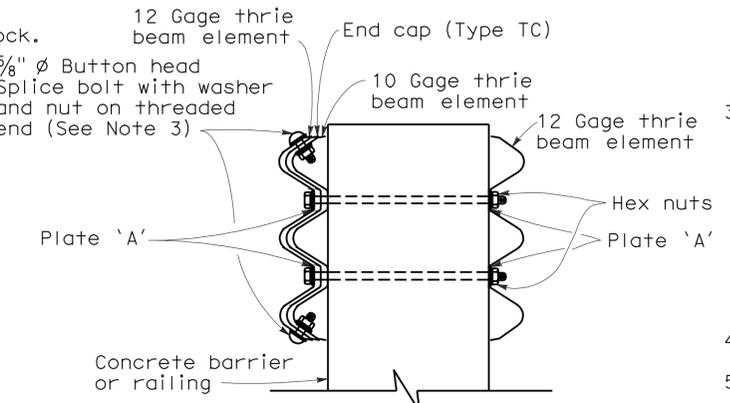
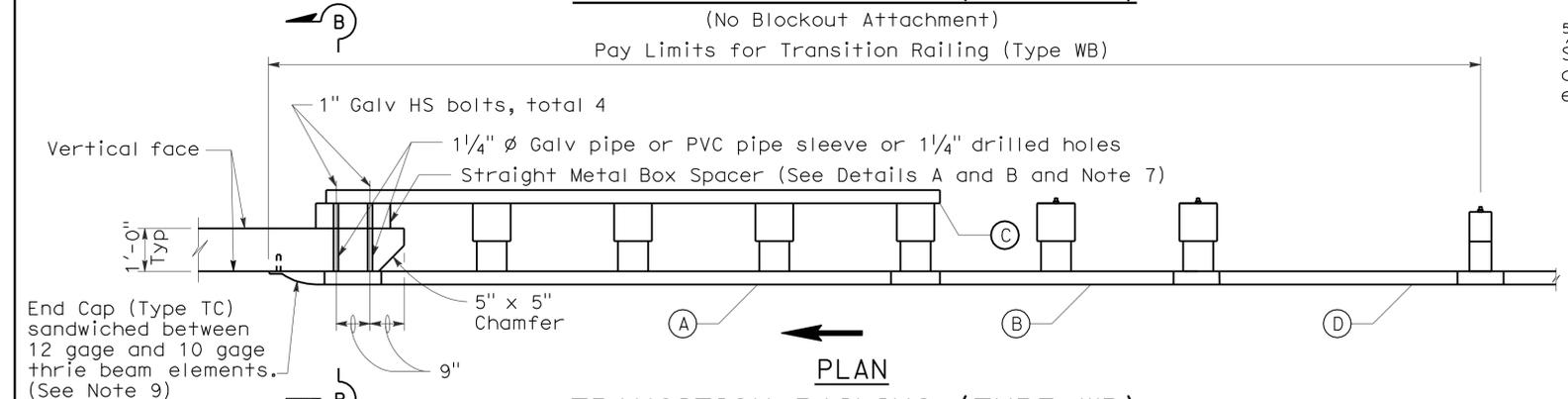
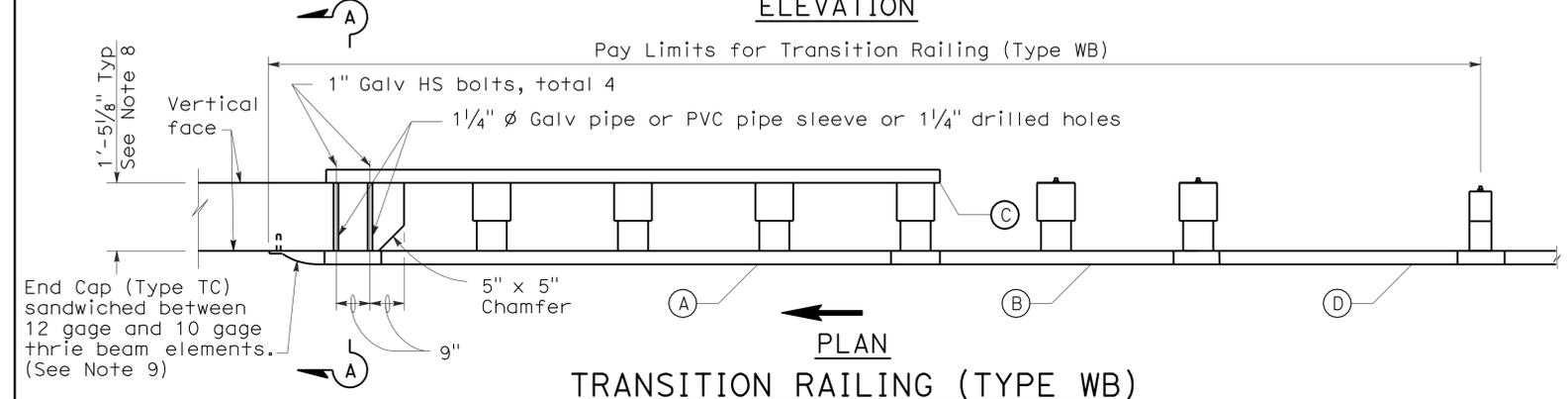
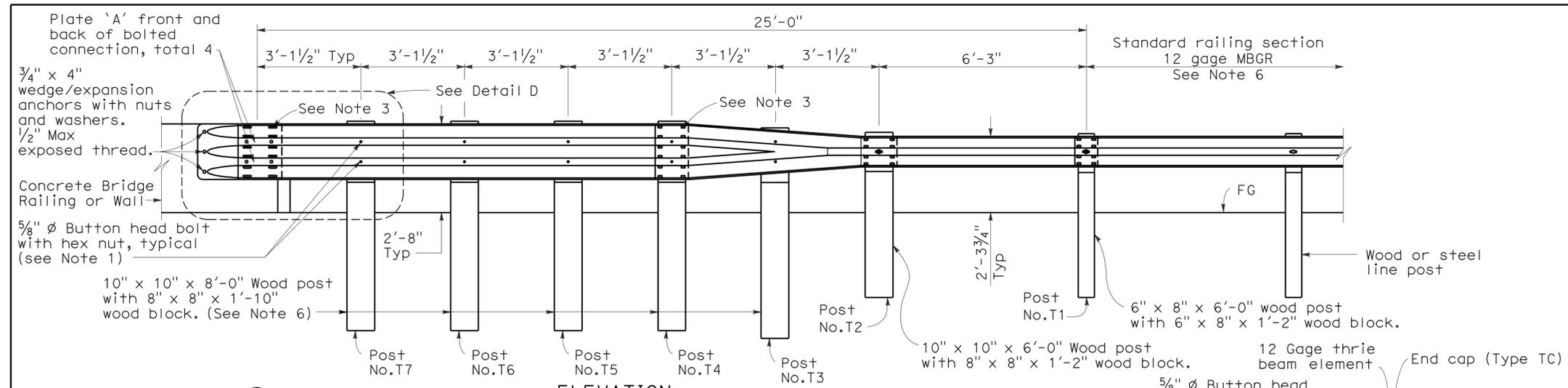
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
01	Men	1	33.4/33.8	26	90

**Randell D. Hiatt**  
REGISTERED CIVIL ENGINEER

June 5, 2009  
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  
No. C50200  
Exp. 6-30-09  
CIVIL  
STATE OF CALIFORNIA



- LEGEND**
- (A) Nested thrie beam elements (one 12 gage element nested over one 10 gage element).
  - (B) One 10 gage "W" beam to thrie beam element.
  - (C) One 12 gage thrie beam element.
  - (D) One 10 gage "W" beam rail element (7'-3 1/2" length)
- 10 gage = 0.135" thick  
12 gage = 0.108" thick

- NOTES:** To accompany plans dated 5-2-11
1. Use 5/8 "  $\phi$  Button head bolts and hex nuts for connections to posts. No washer on rail face for bolted connections to post.
  2. The nested rail elements, end cap, and "W" beam to thrie beam element may be spliced together prior to bolting the elements to the wood post and concrete barrier or railing.
  3. Exterior splice bolt holes for rail element splices at Post No.T4 and the connection to the concrete barrier or railing shall be the standard 29/32 " x 1 1/8 " slot size. Interior splice bolt holes at these locations may be increased up to 1 1/4 "  $\phi$ . Only the top 2 and the bottom 2 splice bolts with washers and nuts are required for rail splices at Post No.T4 and the connection to the concrete barrier or railing.
  4. Direction of adjacent traffic indicated by  $\rightarrow$ .
  5. The top elevation of Post Nos.T2 through T7 shall not project more than 1" above the top elevation of the rail element.
  6. Typically, the railing connected to Transition Railing (Type WB) will be either standard railing section of metal beam guard railing or an approved Caltrans end treatment attached to Post No.T1.
  7. The depth of the metal box spacer varies from the 5 1/8 " to 1 1/2 " and is dependent on the width of the concrete railing or wall. The combined dimension for the depth of the metal box spacer plus the width of railing or wall is typically 17 1/8 ". Where the space between the backside of the concrete railing or wall and the rear thrie beam element is less than 1 1/2 ", metal plates similar to Plate 'A' are to be used as spacers.
  8. Where the width of the concrete railing or wall is greater than 17 1/8 ", wood blocks are to be used to fill the space created between the backside of Posts No.4 through No.7 and the rear thrie beam element. These wood blocks shall be 8" in width and 1'-2" in length. The dimension between the front thrie beam element and the rear thrie beam element is to match the width of the concrete railing or wall.
  9. End cap may be installed over 12 gage and 10 gage thrie beam elements where transition railing is installed on the departure end of bridge railing.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**METAL BEAM GUARD RAILING  
TRANSITION RAILING  
(TYPE WB)**

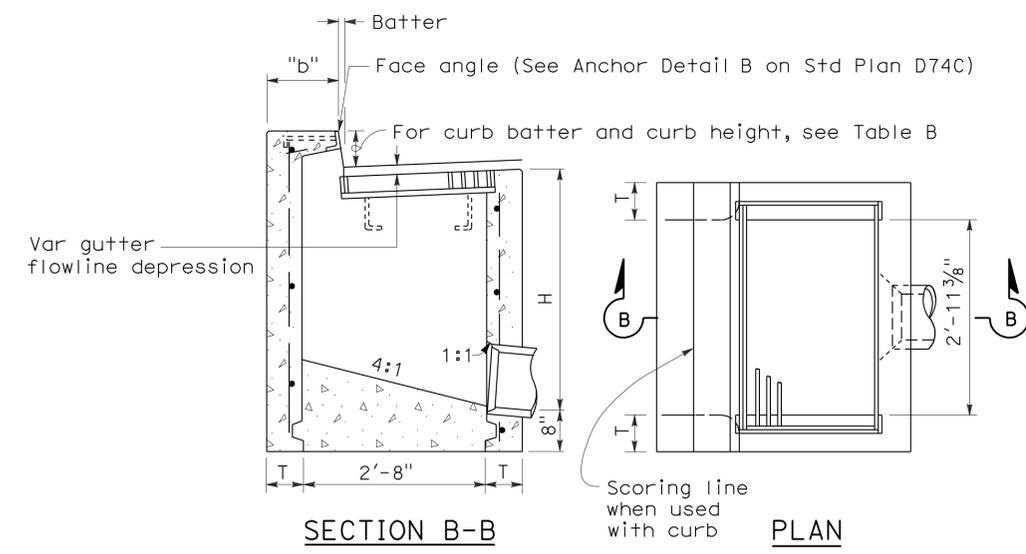
NO SCALE

RSP A77J4 DATED JUNE 5, 2009 SUPERSEDES RSP A77J4 DATED JUNE 6, 2008  
AND STANDARD PLAN A77J4 DATED MAY 1, 2006 -  
PAGE 75 OF THE STANDARD PLANS BOOK DATED MAY 2006.

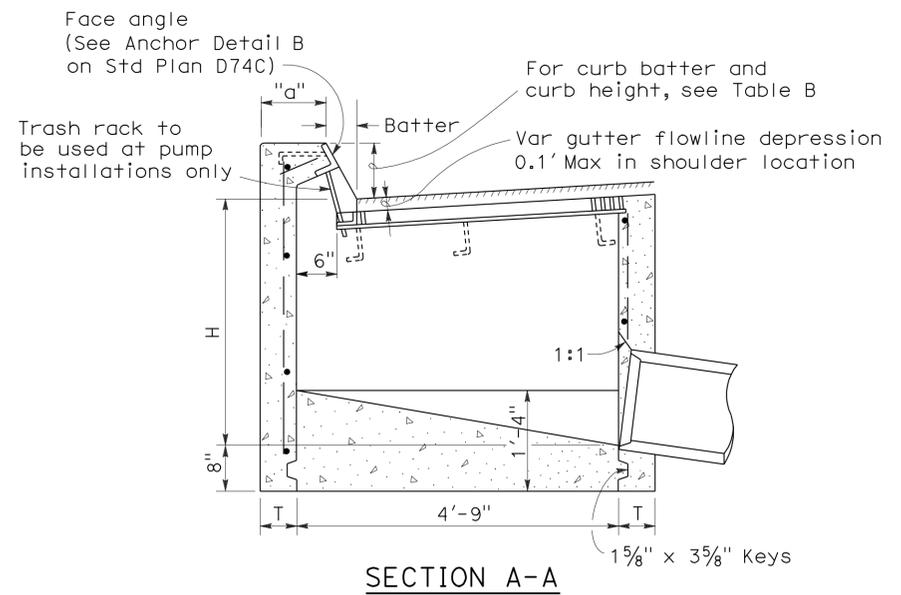
**REVISED STANDARD PLAN RSP A77J4**

2006 REVISED STANDARD PLAN RSP A77J4

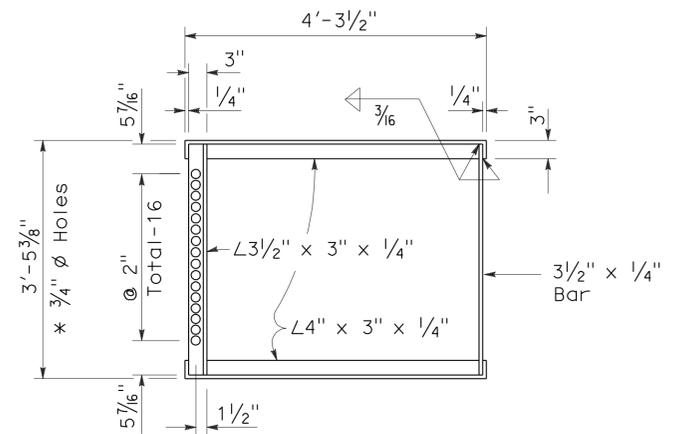
To accompany plans dated 5-2-11



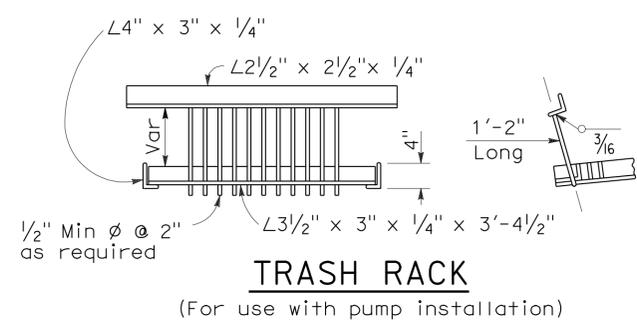
**TYPE GO**



**SECTION A-A**



**GRATE FRAME FOR TYPE GDO INLET**

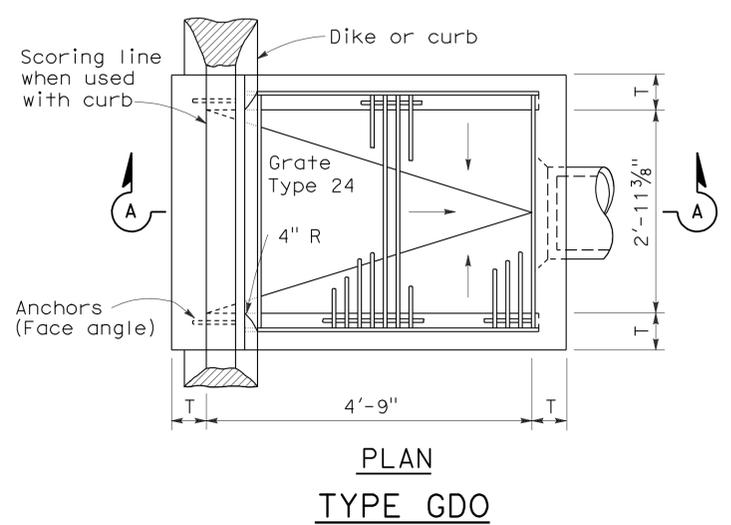


**TRASH RACK**

**TABLE A**  
CONCRETE QUANTITIES

TYPE	H=3'-0" TO 8'-0" (T=6")		H=8'-1" TO 20'-0" (T=8")	
	H=3'-0" (CY)	ADDITIONAL PCC PER FOOT (CY)	H=8'-1" (CY)	ADDITIONAL PCC PER FOOT (CY)
GO	1.24	0.245	3.39	0.346
GDO	1.62	0.322	4.36	0.446

Table based on 8" floor slab, no deduction for pipe openings, and curb type giving highest quantity of concrete. No deductions or adjustments are to be made to these quantities because of pipe openings, different floor alternatives or different curb type.



**PLAN TYPE GDO**

**TABLE B**

CURB TYPE	NORMAL CURB HEIGHT	CURB BATTER	"a" DIMENSION	"b" DIMENSION
A1-6	6"	1 1/2"	T+7 1/2"	T+6 1/2"
A1-8	8"	2"	T+7"	T+6"
B1-6	6"	4"	T+5"	T+4"
Type A Dike	6"	3"	T+6"	T+5"

**NOTES:**

- "H" is the difference in elevation between the outlet pipe flow line and the normal gutter grade line undeepressed.
- For "T" wall thickness, see Table A below.
- Wall reinforcing not required when "H" is 8'-0" or less and the unsupported width or length is 7'-0" or less. Walls exceeding these limits shall be reinforced with #4 @ 18"± centers placed 1/2" clear to inside of box unless otherwise shown.
- Inlet bottom reinforcing not required. See Standard Plan D74C for alternative reinforced bottom.
- 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 top of inlet. The distance between steps shall not exceed 1'-0" and shall be uniform throughout the length of the wall. Place steps in the wall without an opening. Step inserts may be substituted for the bar steps. Step Inserts shall comply with State Industrial Safety requirements. See Standard Plan D74C for step details.
- When shown on the project plans, place a 3/4" plain round protection bar horizontally across the length of the opening and bend back 4" into the inlet wall on each side.
- Pipe(s) can be placed in any wall.
- Curb section shall match adjacent curb.
- Basin floors shall have wood trowel finish and shall slope toward the outlet pipe as shown.
- Galvanizing - See Standard Specifications or Special Provisions.
- See Standard Plan D77A and D77B for grate and frame details and weights of miscellaneous iron and Steel.
- See Standard Plan D78A for gutter depression details.
- Full penetration butt welds may be substituted for the fillet welds on all anchors.
- Standard square, hexagon, round or equivalent headed anchors may be substituted for the right angle hooks on the anchors shown on this plan.
- Cast-in-place or precast alternative is optional with contractor. See Standard Specifications.
- Cast-in-place inlets to be formed around all pipes/stubs intersecting the inlet and concrete poured in one continuous operation. Precast inlets shall have mortared pipe connections conforming to details for Type GCP inlets on Standard Plan D75B. See Standard Specifications for mortar composition.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**DRAINAGE INLETS**  
NO SCALE

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
01	Men	1	33.4/33.8	28	90

Raymond Don Tsztso  
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.

ANNULAR AND HELICAL PROFILE

COUPLING TYPE	PIPE CORRUGATION	PIPE SIZE	W OR A	PIPE WALL THICKNESS				BAR AND STRAP (CSP ONLY)			ANGLE									
				CSP		CAP		STRAP THICKNESS	BOLTS Dia	BAR Dia	DIMENSIONS		BOLTS (No.- Dia)		RIVETS ANGLE TO BAND		SPOT WELDS ANGLE TO BAND			
				CSP	CAP	CSP	CAP				CSP	CAP	CSP	CAP	CSP	CAP	CSP			
TWO PIECE INTEGRAL FLANGE	1 1/2' x 1/4"	6"	7"	0.064"-0.168"		0.052"														
	1 1/2' x 1/4"	8"-10"	7"	0.064"-0.168"		0.064"-0.164"		0.064"	0.060"											
ANNULAR	2 2/3" x 1/2"	THROUGH 24"	12"	0.064"-0.168"		0.060"-0.164"		0.064"	0.060"											
HUGGER	2 2/3" x 1/2" REROLLED END	THROUGH 24"	10 1/2"	0.064"-0.168"		0.064"		0.079"	1/2"	7/8"										

- NOTES: To accompany plans dated 5-2-11
- All ferrous metal coupling band connection hardware shall be galvanized or electroplated in accordance with the Standard Specifications.
  - For helically corrugated coupling bands, the connection angles may be oriented parallel to the pipe axis, provided connecting holes are slotted lengthwise sufficiently to allow adjustment for the helix angle.
  - Tension strap may be connected to band with either spot welds or fillet welds that develop minimum required strength of strap.
  - Use 1 1/4" gage line dimension on attached angle leg for rivets and spot welds.
  - Band thickness shall not be less than:
    - 3 standard thicknesses lighter than the thickness of the pipe for Corrugated Steel Pipe.
    - 2 standard thicknesses lighter than the thickness of the pipe and in no case lighter than 0.060" for Corrugated Aluminum Pipe.
  - Dimensions, thicknesses and strengths shown are minimum.
  - For pipe arches use same width band as for round pipe of equal periphery.
  - Fillet welds of equivalent strenght may be substituted for spot welds or rivets.
  - Spot welds shall develop minimum required strength of strap.
  - Pipe with rerolled ends having at least two 2 2/3" x 1/2" annular corrugations at each end with or without an upturned flange may be connected with any of the annular coupling bands shown for pipe of the same diameter and wall thickness and having 2 2/3" x 1/2" corrugations.
  - For downdrain applications, two piece integral flange couplers shall have factory applied sleeve type rubber gaskets with a minimum length of 7" measured along the length of the pipe.

SPIRAL RIB PROFILE

COUPLING TYPE	PIPE CORRUGATION	PIPE SIZE	W	PIPE WALL THICKNESS				BAR AND STRAP (SSRP ONLY)			ANGLE									
				SSRP		ASRP		STRAP THICKNESS	BOLTS Dia	BAR Dia	DIMENSIONS		BOLTS (No.- Dia)		RIVETS ANGLE TO BAND		SPOT WELDS ANGLE TO BAND			
SSRP	ASRP	SSRP	ASRP	SSRP	ASRP	SSRP	ASRP				SSRP	ASRP	SSRP	ASRP	SSRP	ASRP	SSRP			
ANNULAR	2 2/3" x 1/2" * REROLLED END	24"	12"	0.064"-0.168"		0.060"-0.164"		0.064"	0.060"											
HUGGER	2 2/3" x 1/2" * REROLLED END	24"	10 1/2"	0.064"-0.168"		0.064"		0.079"	1/2"	7/8"										

\* See Note 12.

12. All profiles of Spiral Rib Pipe (3/4" x 3/4" ribs at 7 1/2" pitch and 3/4" x 1" ribs at 11 1/2" pitch in both steel and aluminum and 3/4" x 1" ribs at 8 1/2" pitch in steel only) shall be manufactured with rerolled ends. Corrugation profile of the rerolled ends shall be 2 2/3" x 1/2" annual corrugations with a minimum of two full corrugations at each end.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**CORRUGATED METAL PIPE  
COUPLING DETAILS No. 7  
DOWNDRAIN**

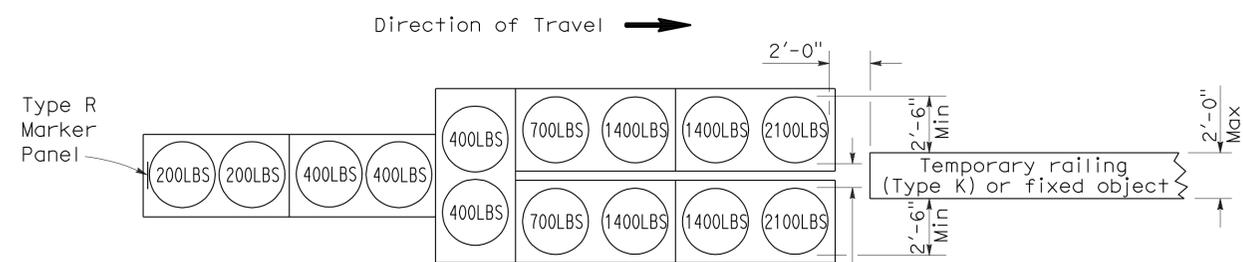
NO SCALE

RSP D97G DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN D97G  
DATED MAY 1, 2006 - PAGE 189 OF THE STANDARD PLANS BOOK DATED MAY 2006.

**REVISED STANDARD PLAN RSP D97G**

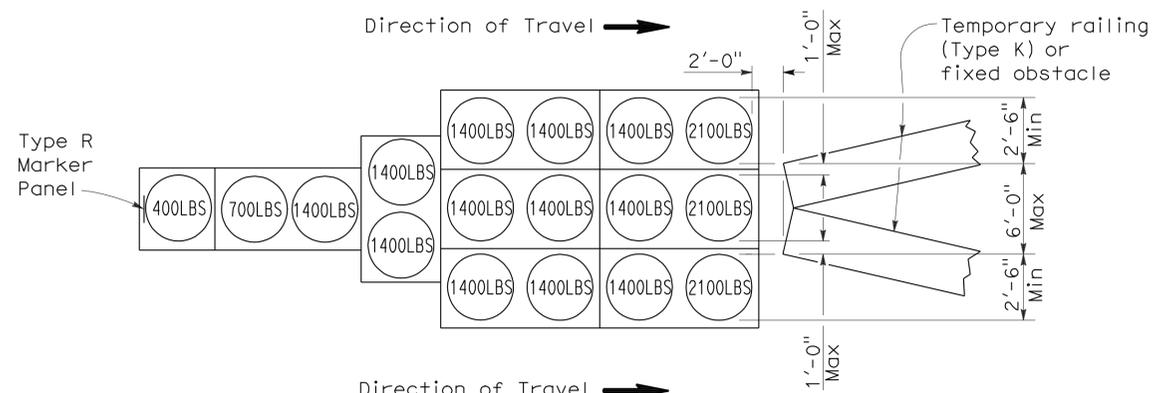
2006 REVISED STANDARD PLAN RSP D97G

To accompany plans dated 5-2-11



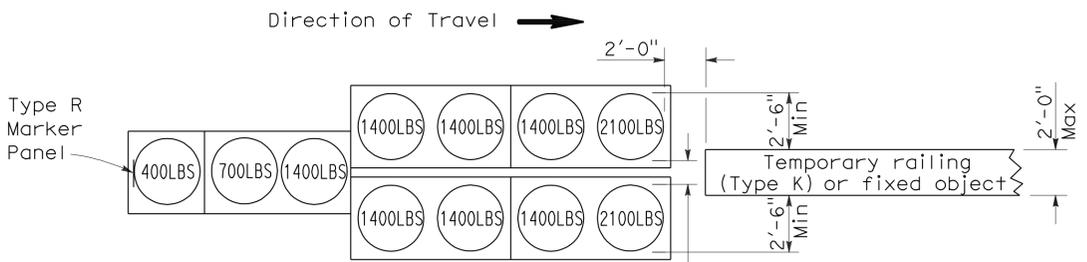
**ARRAY 'TU14'**

Approach speed 45 mph or more



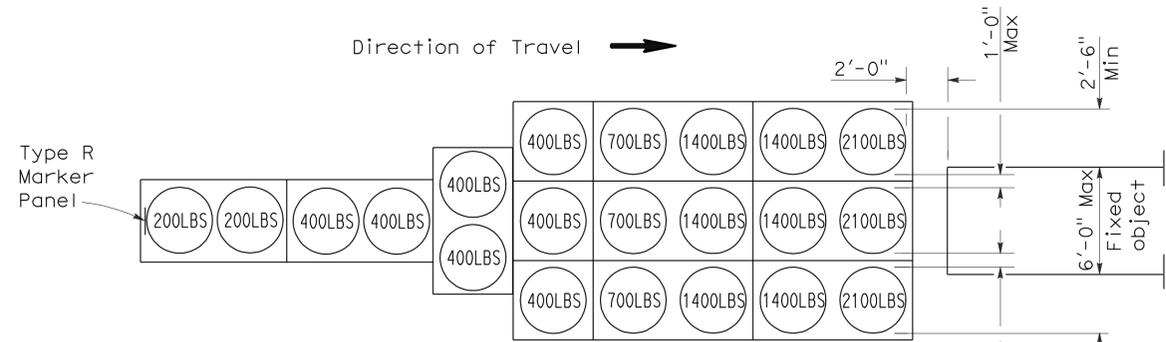
**ARRAY 'TU17'**

Approach speed less than 45 mph



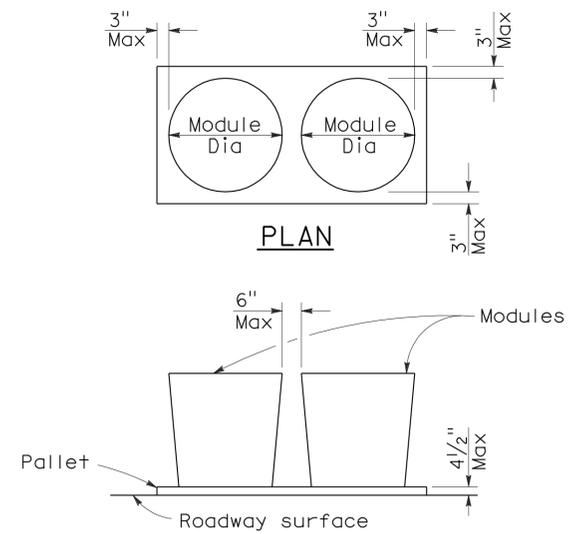
**ARRAY 'TU11'**

Approach speed less than 45 mph



**ARRAY 'TU21'**

Approach speed 45 mph or more



**CRASH CUSHION PALLET DETAIL**

See Note 7

**NOTES:**

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

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

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

NO SCALE

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

**REVISED STANDARD PLAN RSP T1A**

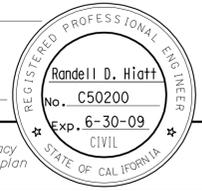
2006 REVISED STANDARD PLAN RSP T1A

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
01	Men	1	33.4/33.8	30	90

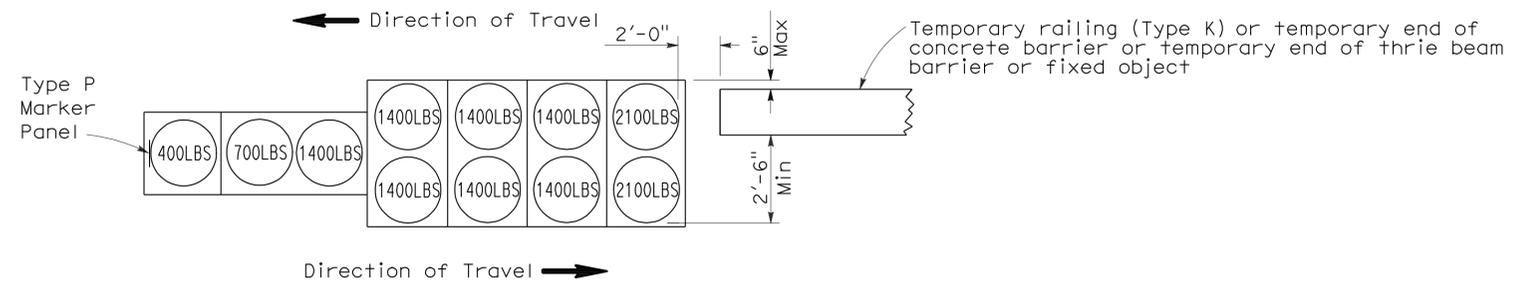
*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

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.*

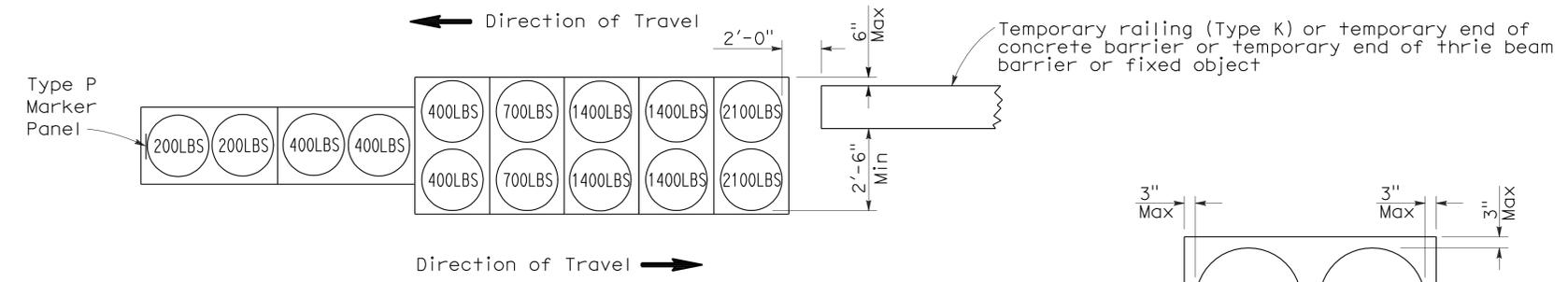


To accompany plans dated 5-2-11



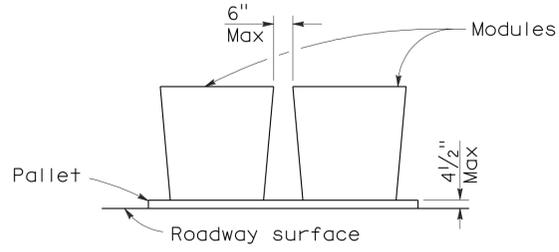
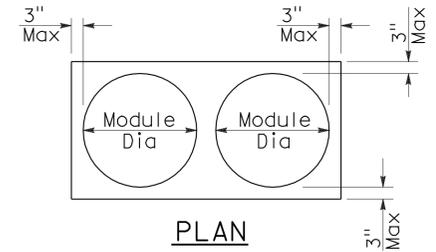
**ARRAY 'TB11'**

Approach speed less than 45 mph



**ARRAY 'TB14'**

Approach speed 45 mph or more



**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

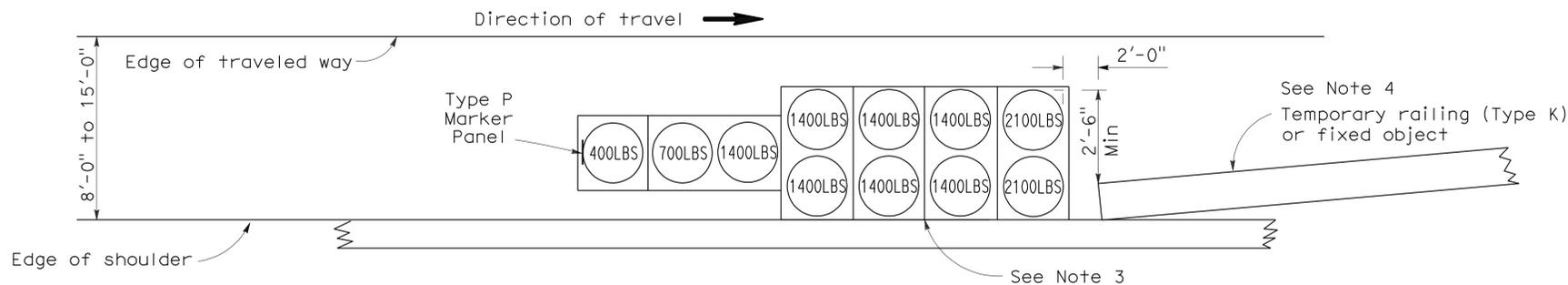
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
01	Men	1	33.4/33.8	31	90

*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

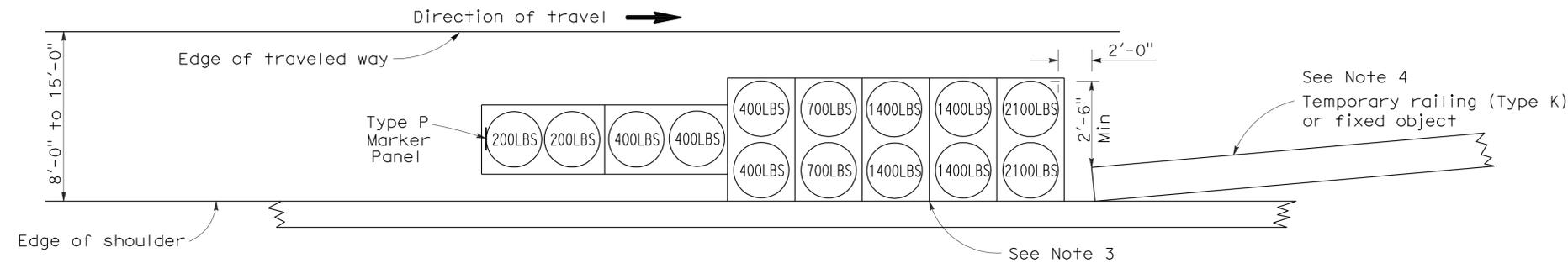
June 6, 2008  
PLANS APPROVAL DATE

*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 5-2-11



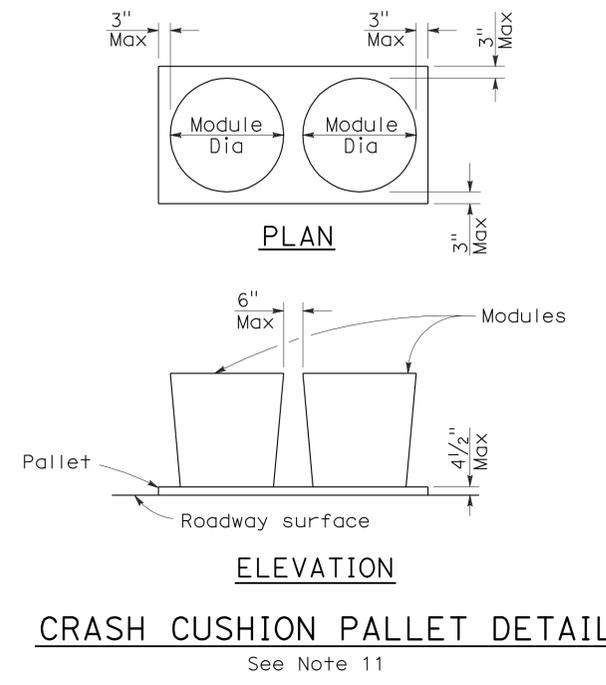
**ARRAY 'TS11'**  
Approach speed less than 45 mph  
See Note 9



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

**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. 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.
4. 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.
5. Temporary crash cushion arrays shall not encroach on the traveled way.
6. Arrays for median shoulders shall conform to details shown on this plan for outside shoulders.
7. Place the Type P marker panel so that the bottom of the panel rests upon the pallet and faces traffic.
8. Refer to Standard Plan A73B for marker details.
9. 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.
10. Approach speeds indicated conform to NCHRP 350 Report criteria.
11. Use of pallets is optional.



**CRASH CUSHION PALLET DETAIL**  
See Note 11

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

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

**REVISED STANDARD PLAN RSP T2**

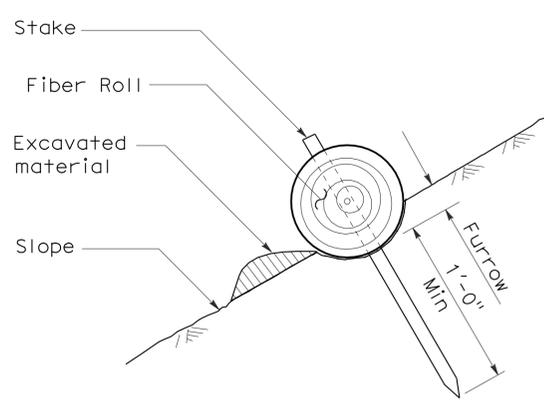
2006 REVISED STANDARD PLAN RSP T2



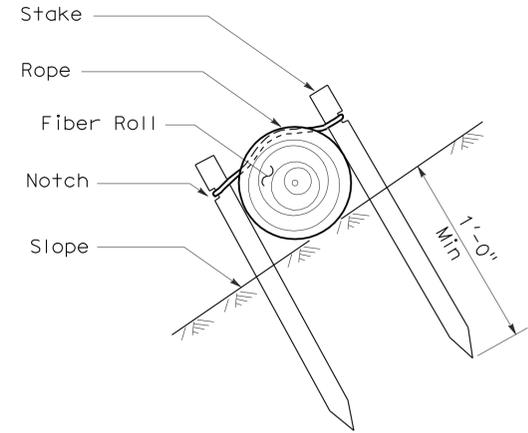
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
01	Men	1	33.4/33.8	33	90

*Robert B. Schott*  
 LICENSED LANDSCAPE ARCHITECT  
 April 3, 2009  
 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.

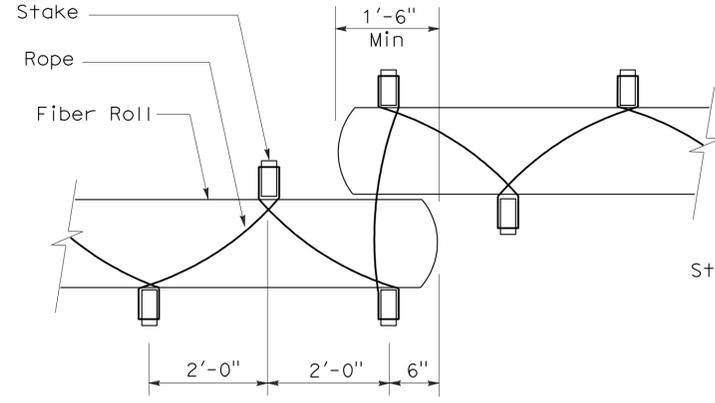
To accompany plans dated 5-2-11



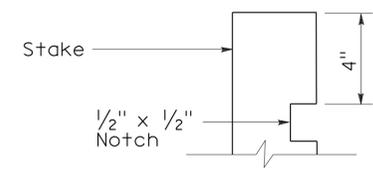
**SECTION**  
**TEMPORARY FIBER ROLL (TYPE 1)**



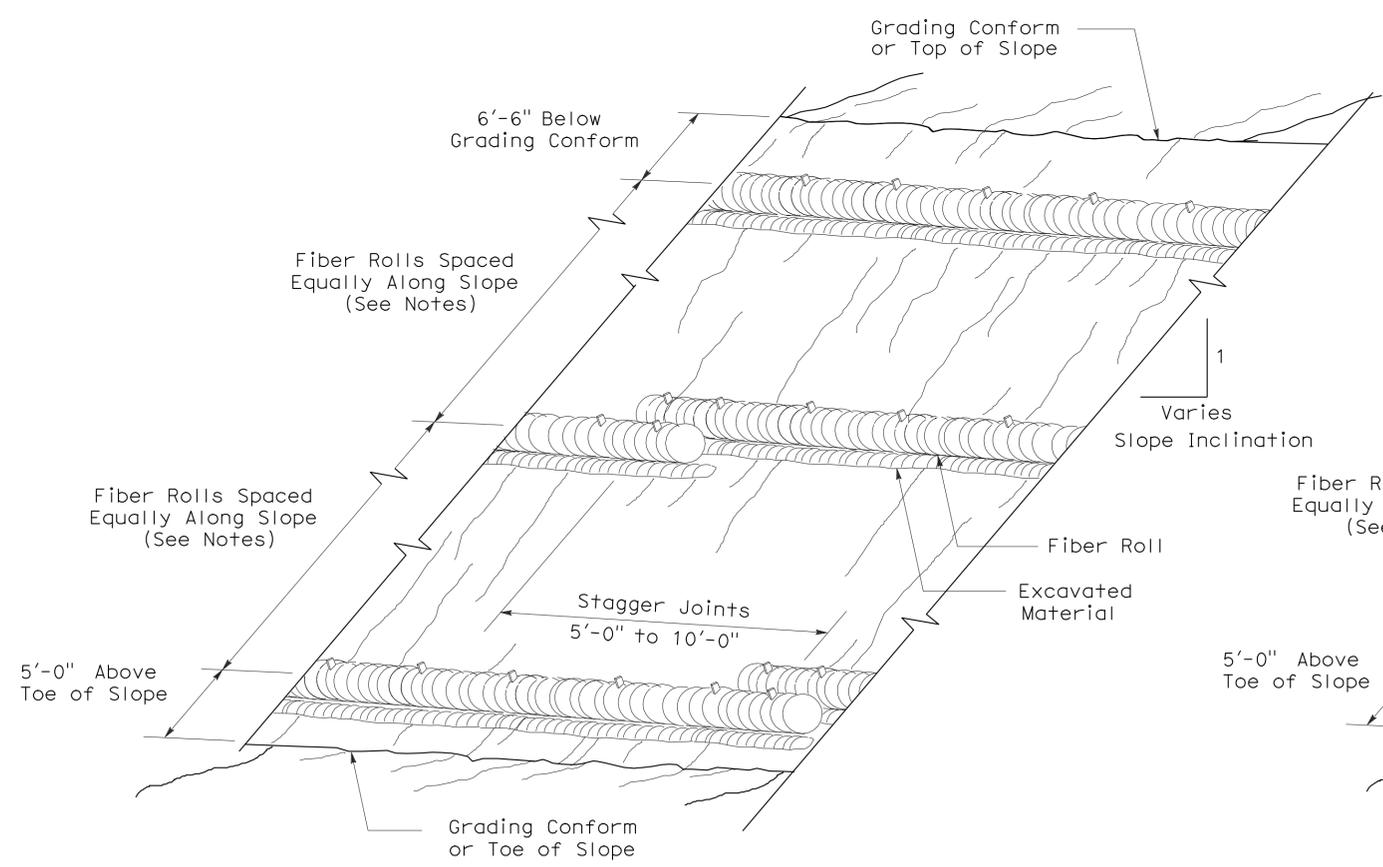
**SECTION**  
**TEMPORARY FIBER ROLL (TYPE 2)**



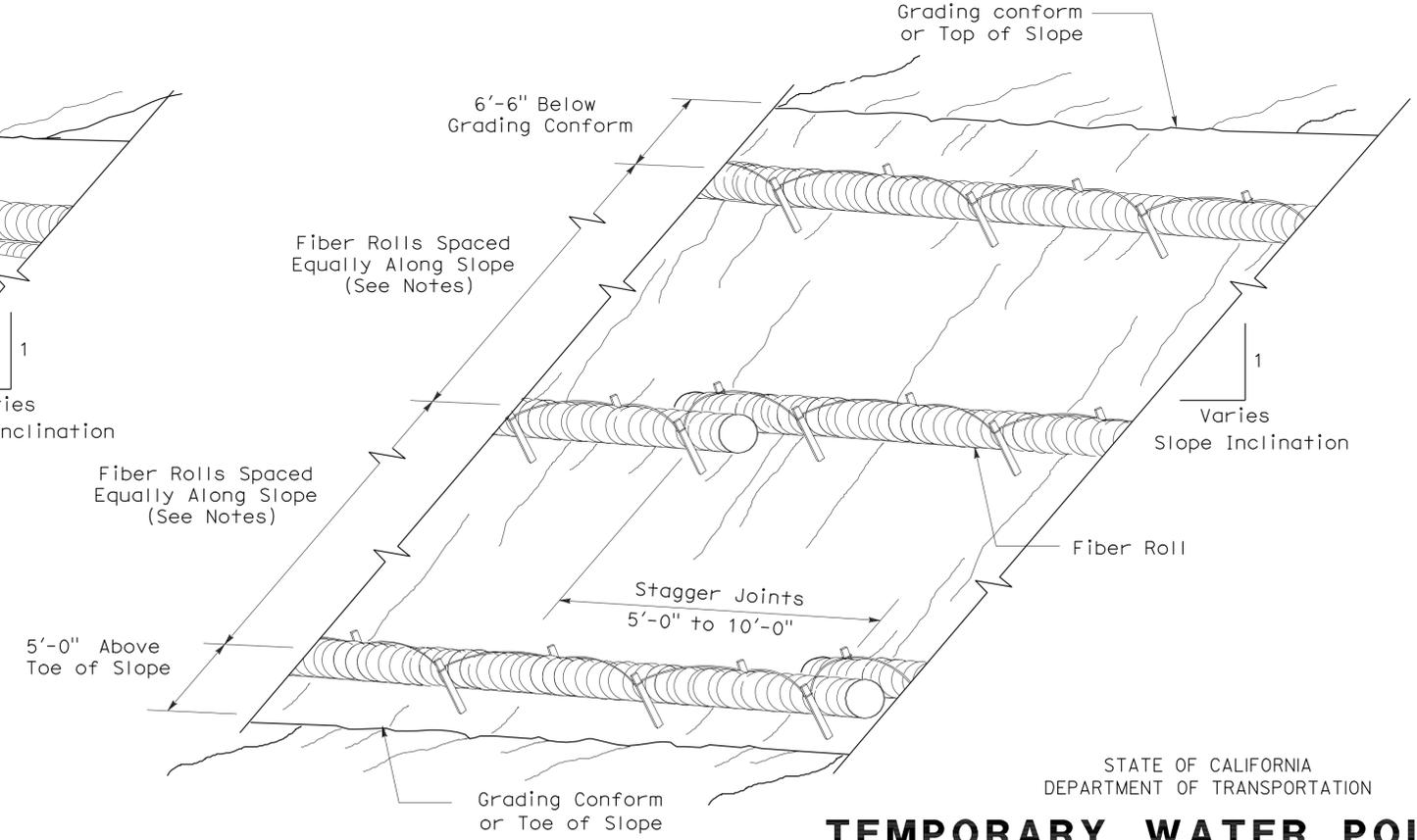
**PLAN**  
**ELEVATION**  
**STAKE NOTCH DETAIL**



- NOTES:**
1. Temporary fiber roll spacing varies depending upon slope inclination.
  2. Installations shown in the perspectives are for slope inclination of 10:1 and steeper.



**PERSPECTIVE**  
**TEMPORARY FIBER ROLL (TYPE 1)**



**PERSPECTIVE**  
**TEMPORARY FIBER ROLL (TYPE 2)**

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**TEMPORARY WATER POLLUTION CONTROL DETAILS (TEMPORARY FIBER ROLL)**  
 NO SCALE

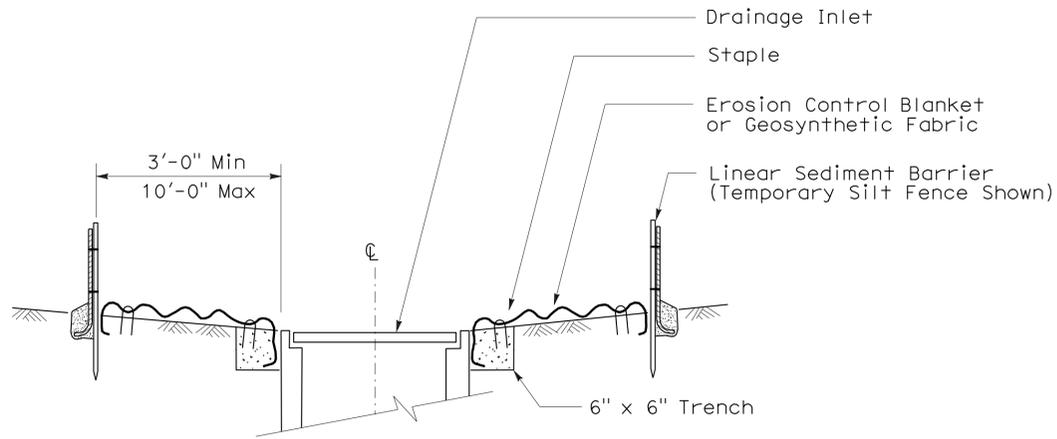
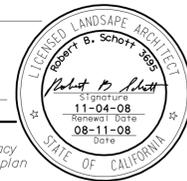
2006 REVISED STANDARD PLAN RSP T56

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
01	Men	1	33.4/33.8	34	90

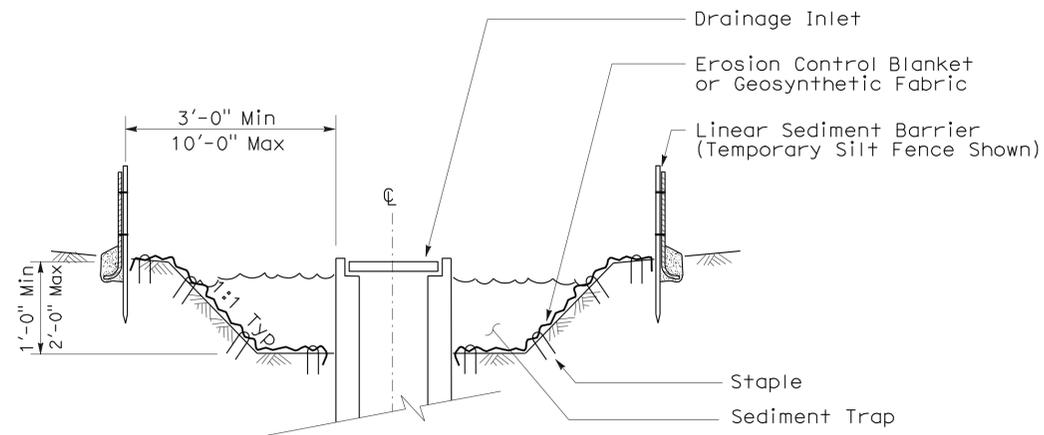
Robert B. Schott  
 LICENSED LANDSCAPE ARCHITECT  
 August 15, 2008  
 PLANS Approval DATE

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

To accompany plans dated 5-2-11



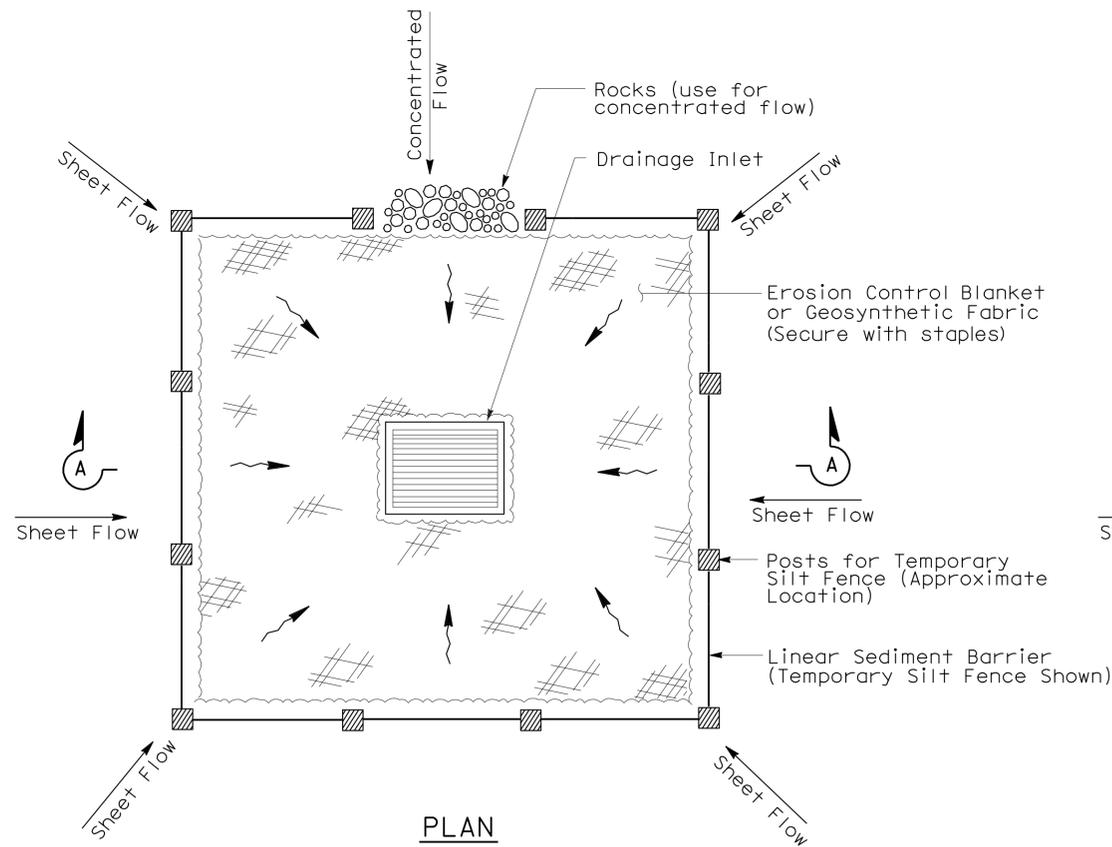
SECTION A-A



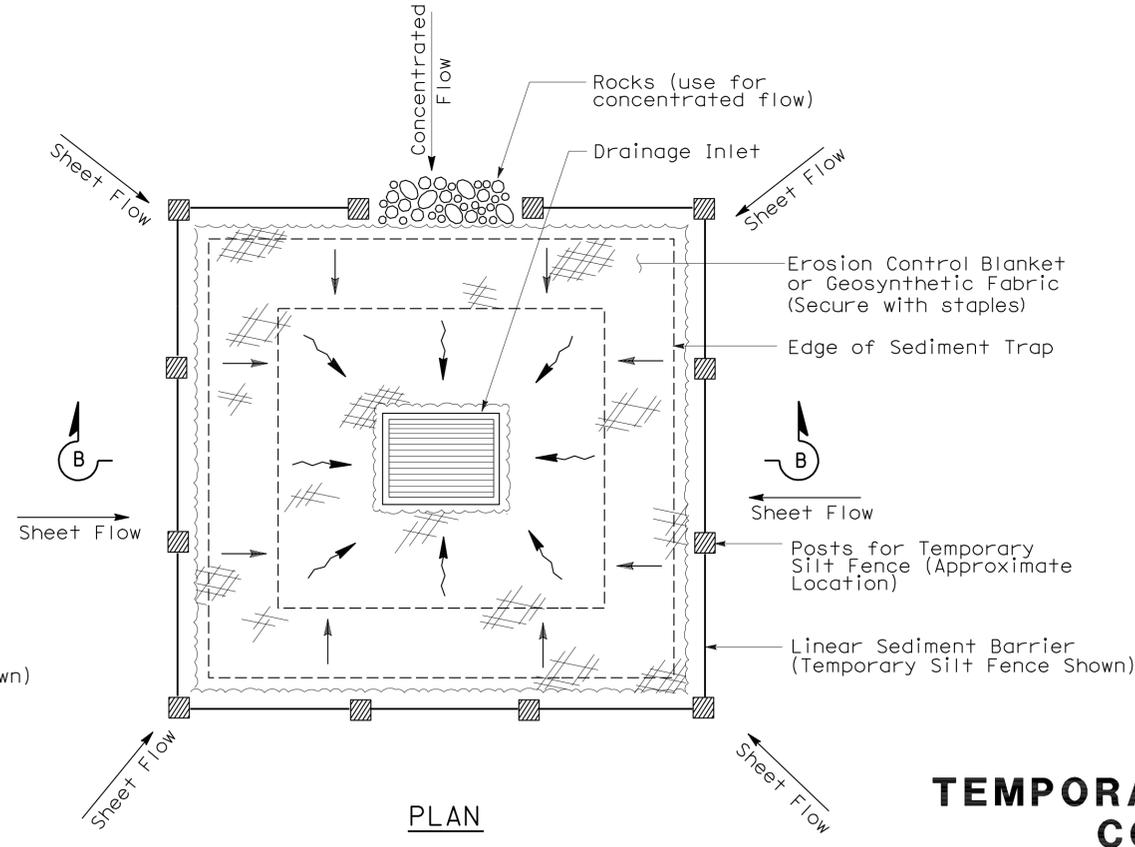
SECTION B-B

**NOTES:**

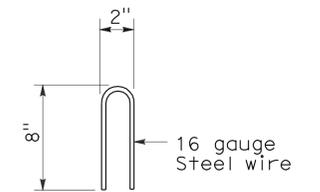
1. See Standard Plan T51 for Temporary Silt Fence.
2. Dimensions may vary to fit field conditions.



TEMPORARY DRAINAGE INLET PROTECTION (TYPE 1)



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



STAPLE DETAIL

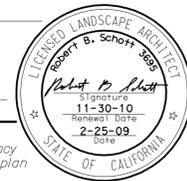
STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**TEMPORARY WATER POLLUTION CONTROL DETAILS (TEMPORARY DRAINAGE INLET PROTECTION)**

NO SCALE

NSP T61 DATED AUGUST 15, 2008 SUPPLEMENTS THE STANDARD PLANS BOOK DATED MAY 2006.

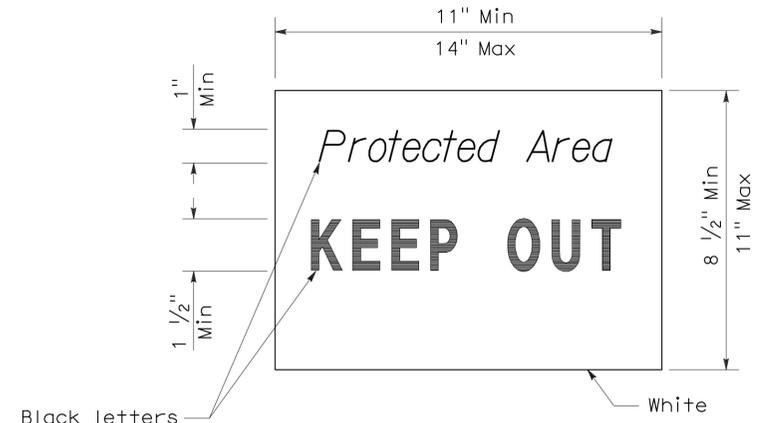
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
01	Men	1	33.4/33.8	35	90

*Robert B. Schott*  
 LICENSED LANDSCAPE ARCHITECT  
 April 3, 2009  
 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.

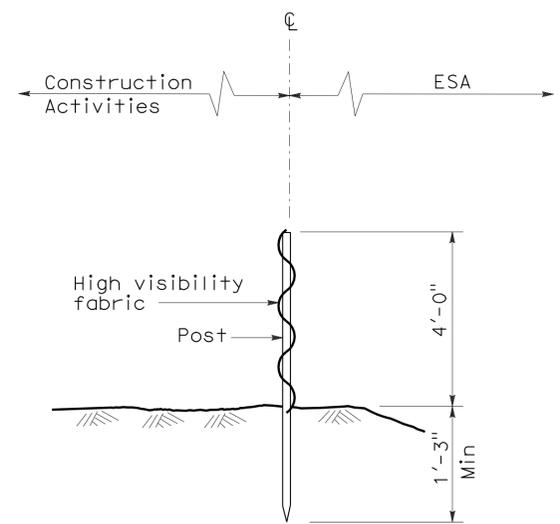


To accompany plans dated 5-2-11

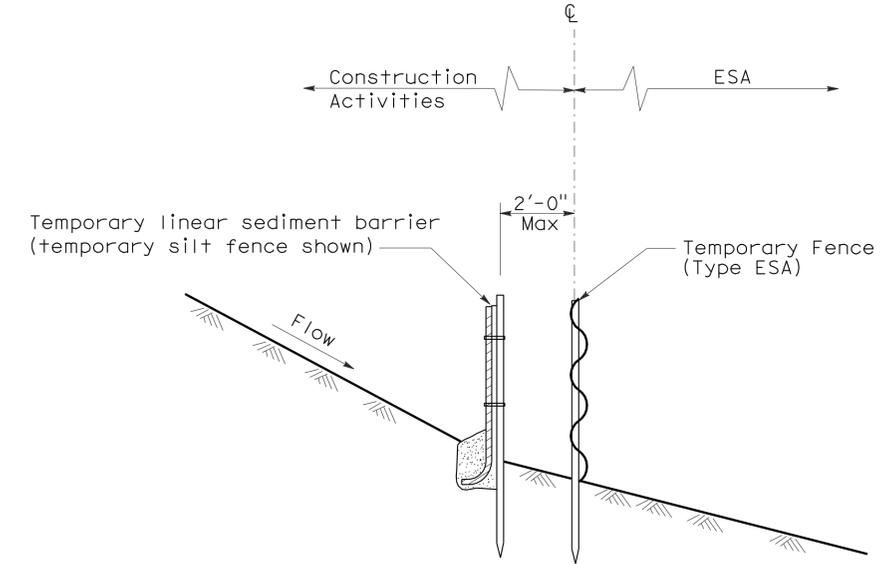
- NOTE:**
1. Temporary silt fence and temporary straw bale barrier shown for reference purposes only.



**SIGN DETAIL**

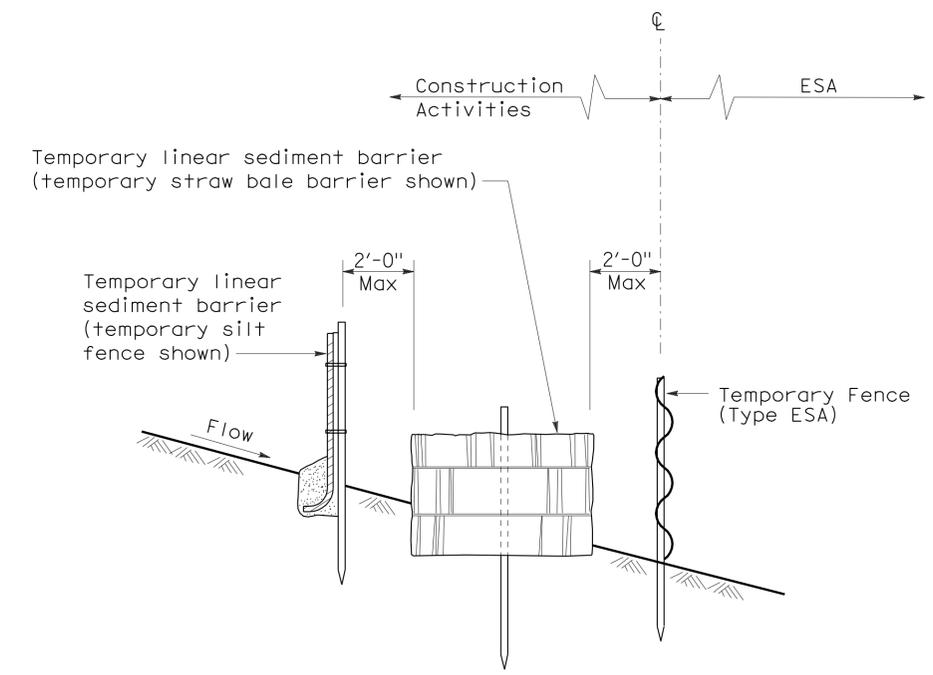


**SECTION TEMPORARY FENCE (TYPE ESA)**



**SECTION PLACEMENT DETAIL FOR TEMPORARY LINEAR SEDIMENT BARRIER USED WITH TEMPORARY FENCE (TYPE ESA)**

(See Note 1)



**SECTION PLACEMENT DETAIL FOR TEMPORARY SILT FENCE AND TEMPORARY STRAW BALE BARRIER USED WITH TEMPORARY FENCE (TYPE ESA)**

(See Note 1)

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**TEMPORARY WATER POLLUTION CONTROL DETAILS**  
**[TEMPORARY FENCE (TYPE ESA)]**  
 NO SCALE

NSP T65 DATED APRIL 3, 2009 SUPPLEMENTS  
 THE STANDARD PLANS BOOK DATED MAY 2006.

2006 NEW STANDARD PLAN NSP T65

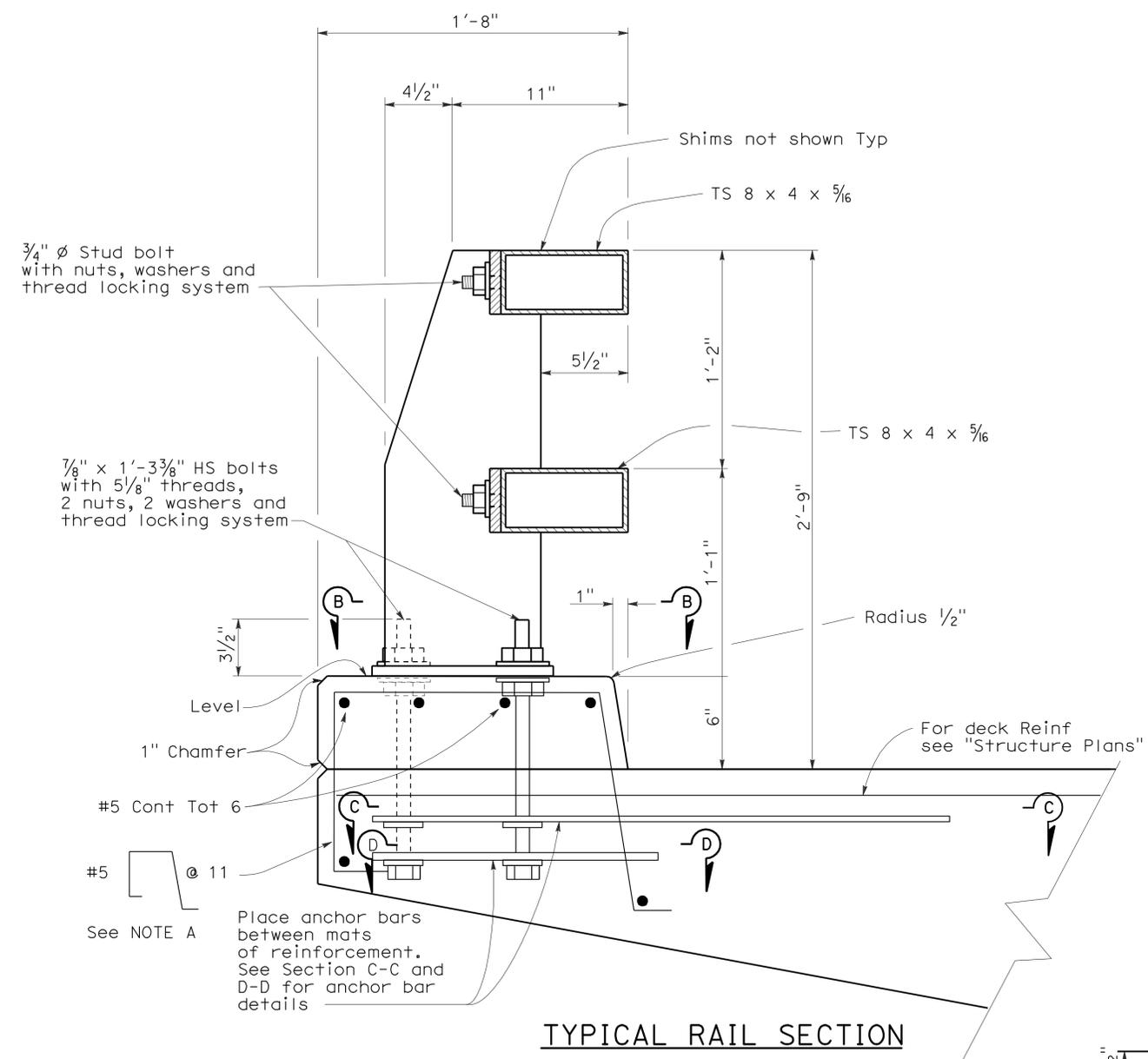
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
01	Men	1	33.4/33.8	36	90

REGISTERED CIVIL ENGINEER		
June 30, 2006		
PLANS APPROVAL DATE		

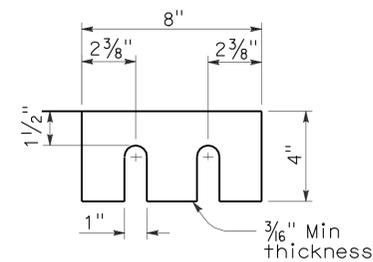
*The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.*

To accompany plans dated 5-2-11

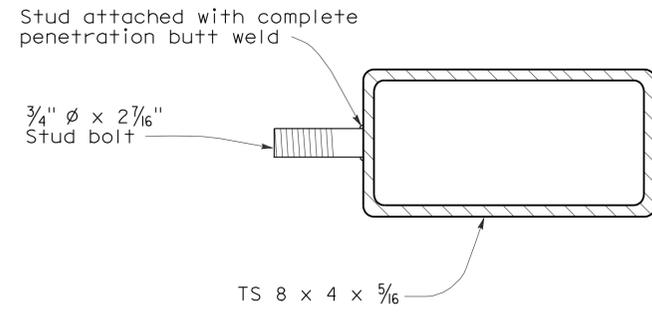


**NOTE A**  
Adjust spacing to clear scupper opening by 2" if applicable.

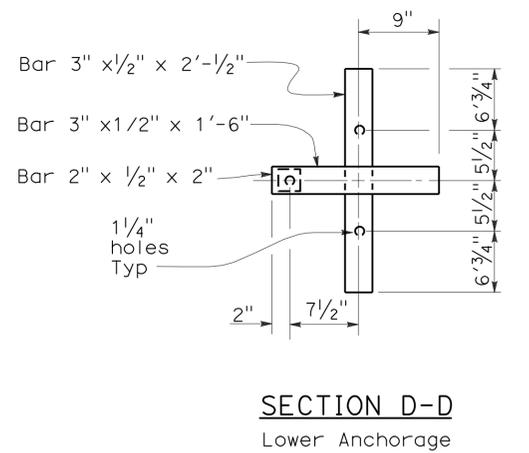
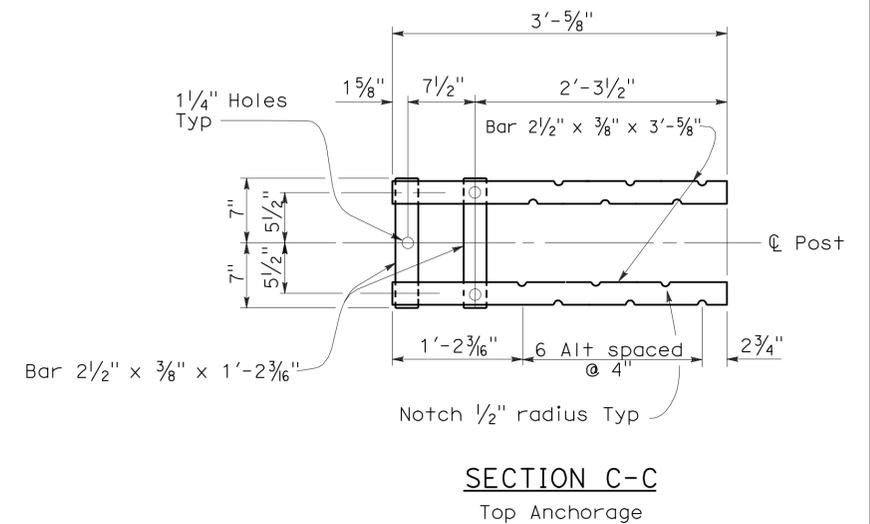
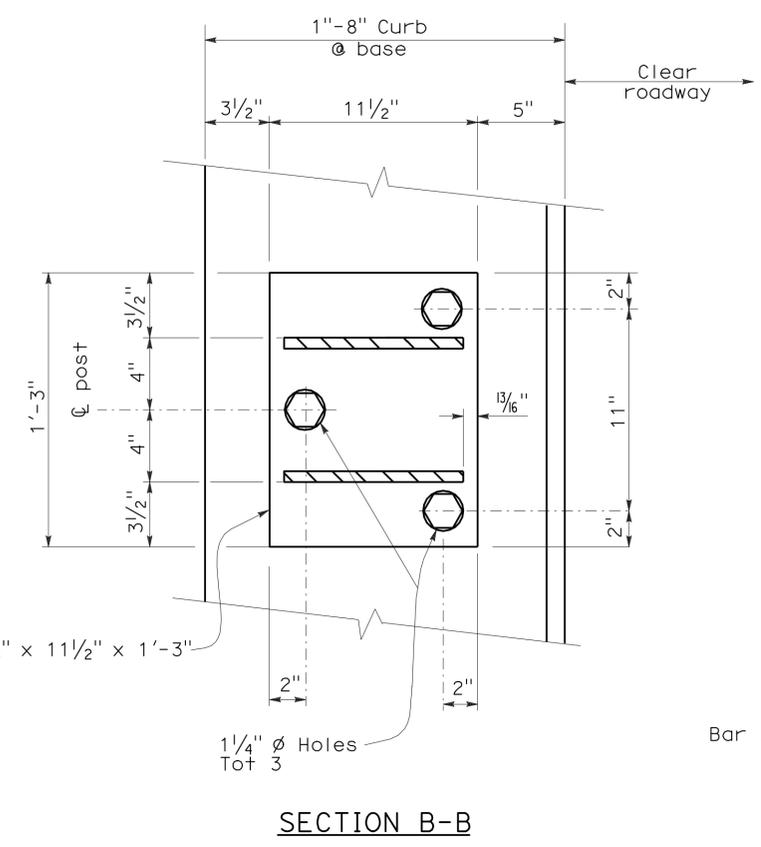
**SHIMS REQUIRED FOR TOP AND BOTTOM RAIL**



**STUD BOLT DETAIL**



**SECTION AT POST**



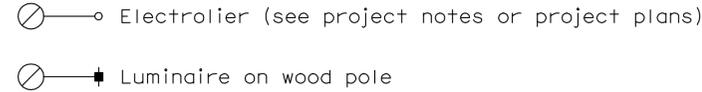
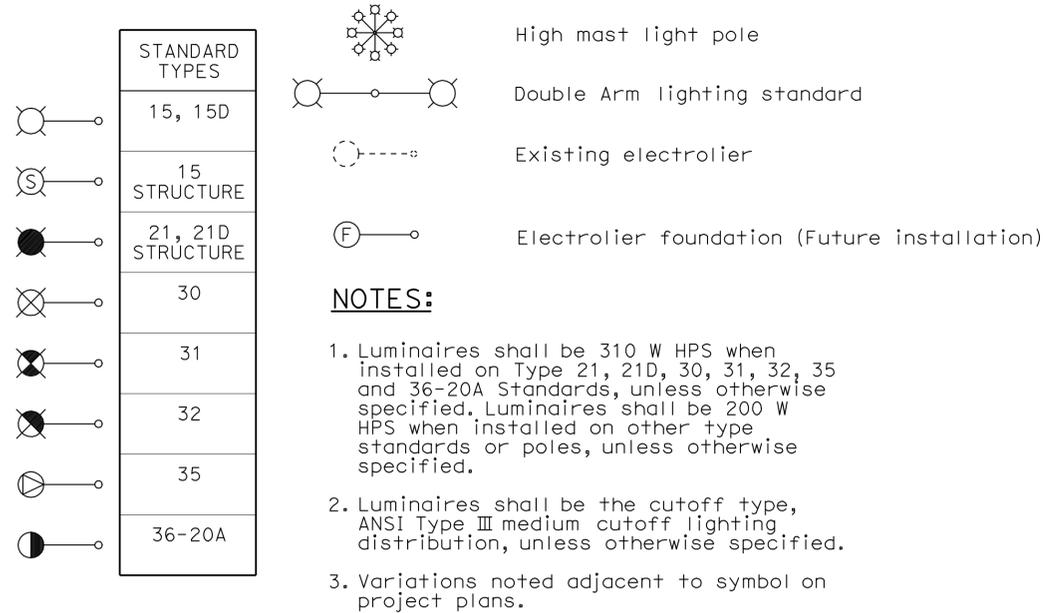
STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**CALIFORNIA ST-10  
BRIDGE RAIL  
(SHEET 1 OF 3)**  
NO SCALE

RSP B11-68 DATED JUNE 30, 2006 SUPERSEDES STANDARD PLAN DATED MAY 1, 2006 - PAGE 284 OF THE STANDARD PLANS BOOK DATED MAY 2006.

**REVISED STANDARD PLAN RSP B11-68**

2006 REVISED STANDARD PLAN RSP B11-68

# 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	Mast arm mounting vehicle signal faces, side attachment - 4 signal section
MAS-4C	mas-4C	Mast arm mounting vehicle signal faces, side attachment - 4 signal section
MAS-5A	mas-5A	Mast arm mounting vehicle signal faces, side attachment - 5 signal section
MAS-5B	mas-5B	Mast arm mounting vehicle signal faces, side attachment - 5 signal section
MC	mc	Mercury contactor
M/M	m/m	Multiple to multiple transformer
MT	mt	Conduit with pull wire or rope only
MTG	mtg	Mounting
	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	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
01	Men	1	33.4/33.8	37	90

*Jeffery G. McRae*  
REGISTERED ELECTRICAL ENGINEER

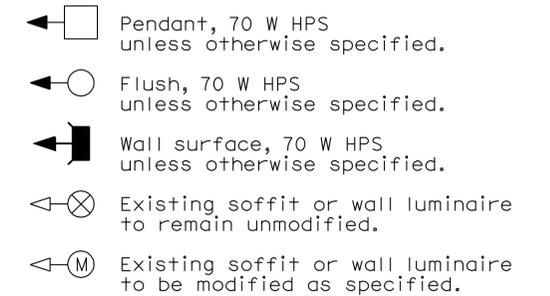
October 5, 2007  
PLANS APPROVAL DATE

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 5-2-11

## 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
01	Men	1	33.4/33.8	38	90

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

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 5-2-11

### CONDUIT

PROPOSED	EXISTING	
		Lighting Conduit, unless otherwise indicated or noted
		Traffic signal conduit
		Communication conduit
		Telephone conduit
		Fire alarm conduit
		Fiber optic conduit
		Conduit termination
		Conduit riser in/on structure or service pole

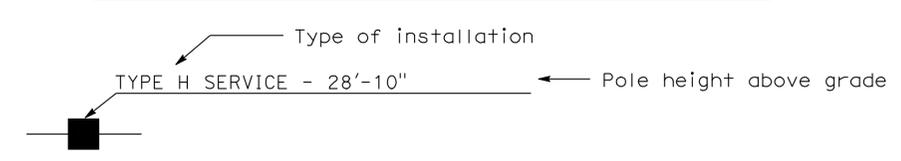
### SIGNAL EQUIPMENT

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	
		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:

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

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

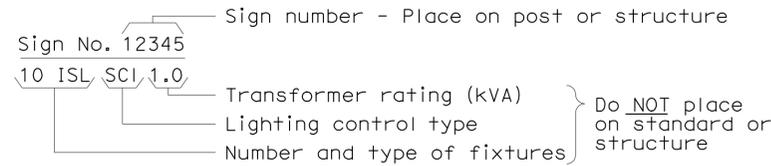
RSP ES-1B DATED OCTOBER 5, 2007 SUPERCEDES STANDARD PLAN ES-1B  
 DATED MAY 1, 2006 - PAGE 401 OF THE STANDARD PLANS BOOK DATED MAY 2006.

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

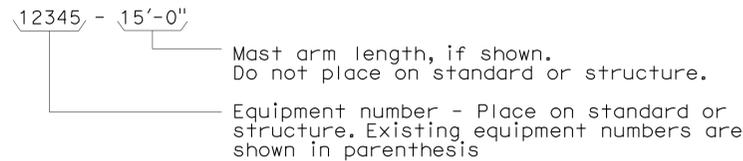
2006 REVISED STANDARD PLAN RSP ES-1B

### EQUIPMENT IDENTIFICATION

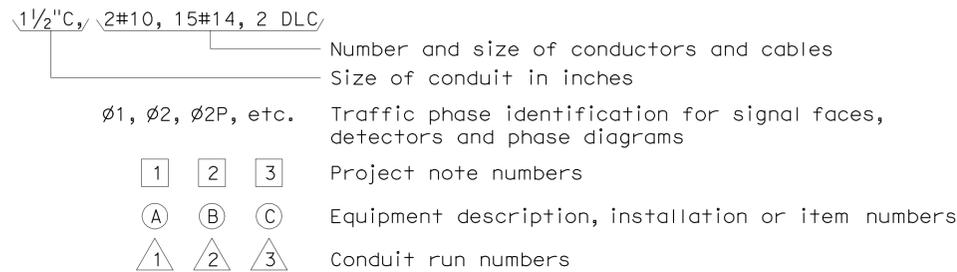
#### ILLUMINATED SIGN IDENTIFICATION NUMBER:



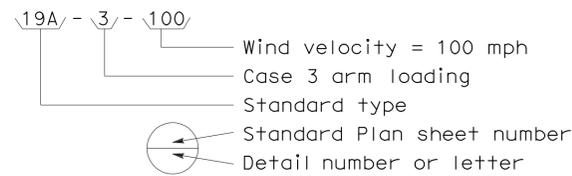
#### ELECTROLIER OR EQUIPMENT IDENTIFICATION NUMBER:



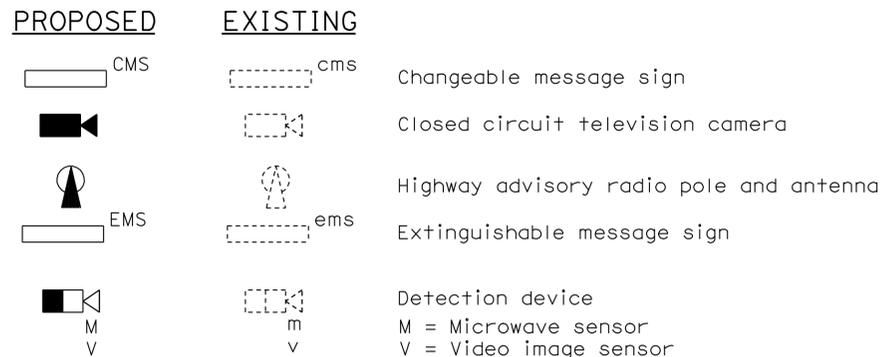
#### CONDUIT AND CONDUCTOR IDENTIFICATION:



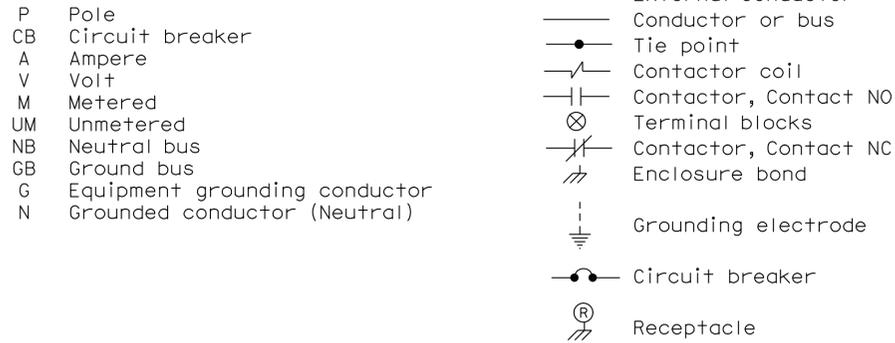
#### SIGNAL AND LIGHTING STANDARD (TYPICAL DESIGNATION):



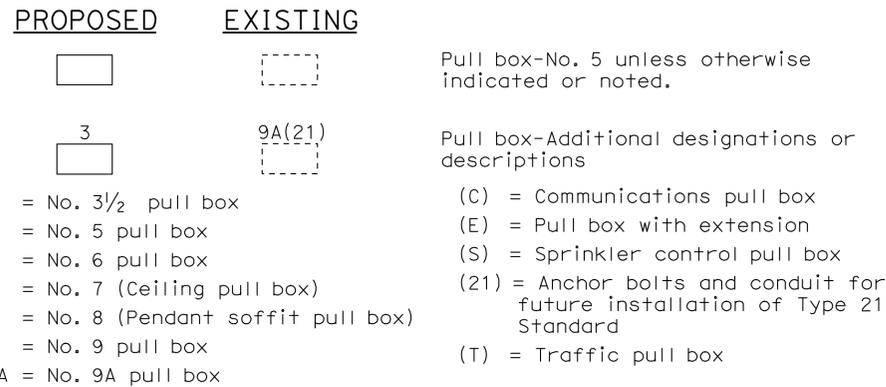
### MISCELLANEOUS EQUIPMENT



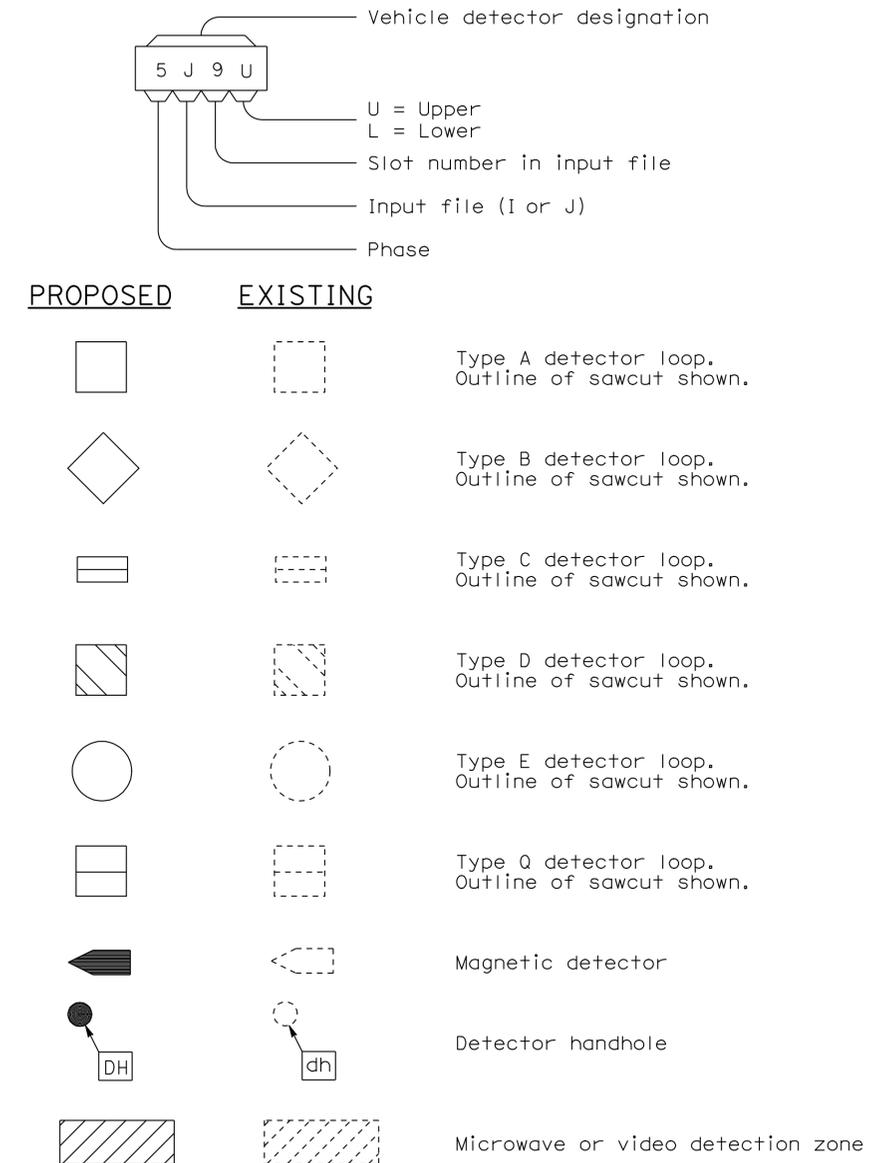
### WIRING DIAGRAM LEGEND



### PULL BOXES



### VEHICLE DETECTORS



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

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

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

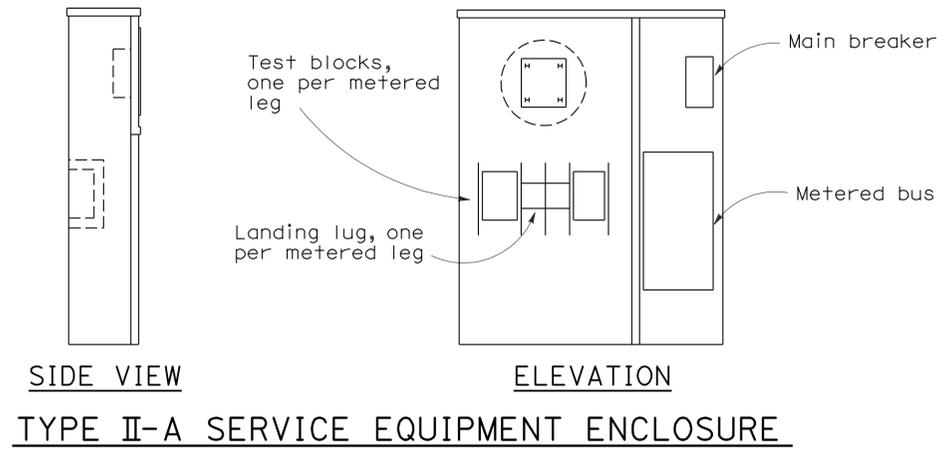
2006 REVISED STANDARD PLAN RSP ES-1C

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
01	Men	1	33.4/33.8	40	90

*Jeffery G. McRae*  
 REGISTERED ELECTRICAL ENGINEER  
 October 5, 2007  
 PLANS APPROVAL DATE

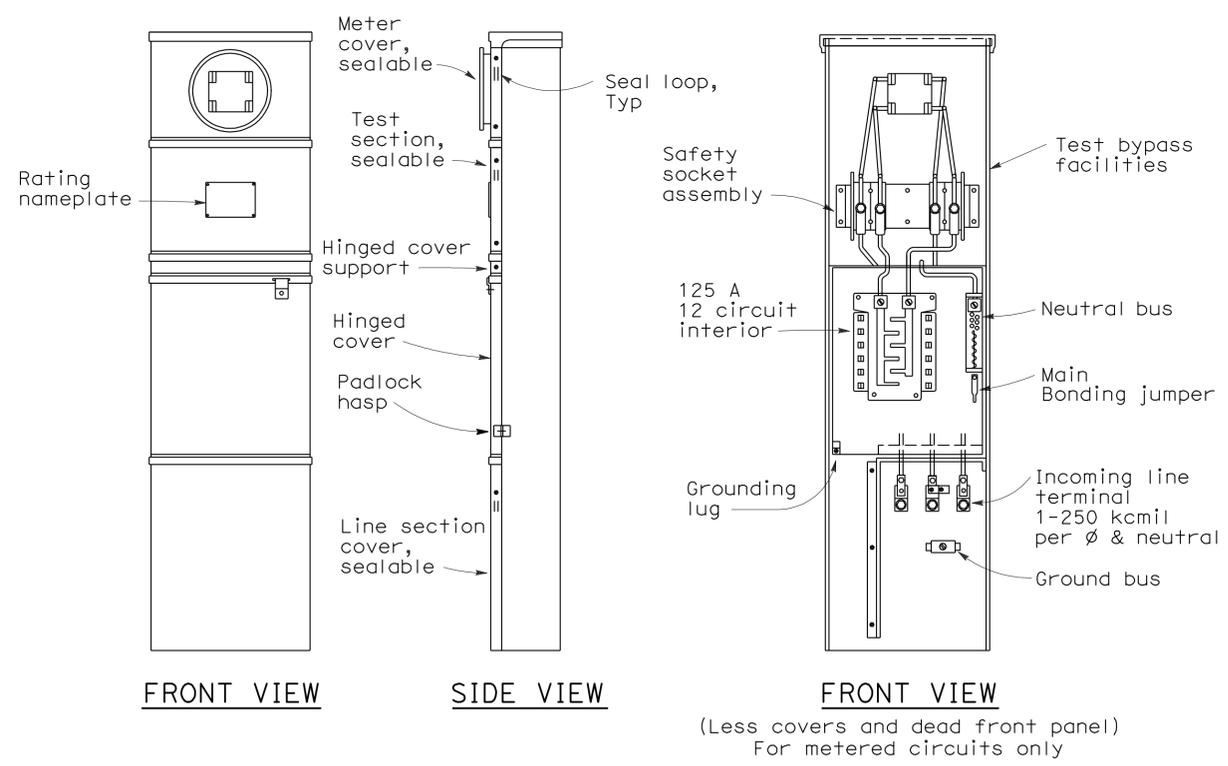
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

To accompany plans dated 5-2-11



**NOTES-TYPE II SERVICE EQUIPMENT ENCLOSURES:**

- Service equipment enclosures and metering equipment shall meet the requirements of the service utility.
- Service equipment enclosures shall be factory wired NEMA 3R construction and shall be provided with dead front panel and provisions for padlocking.
- Control wiring shall be 600 V, No. 14 AWG stranded (THHN) machine tool wire. Where subject to flexing, 19 strand wire shall be used.
- Main bus shall be rated for 125 A and shall be tin-plated copper.
- An engraved phenolic nameplate on the dead front panel indicating the function of each circuit or device shall be installed with stainless steel rivets or stainless steel screws:
  - Adjacent to the breaker or device with character size a minimum of 1/8".
  - At the top of the exterior door panel indicating system number, voltage level and number of phases with character size a minimum of 3/16".
- A plastic laminated wiring diagram shall be provided and attached to the inside of the front door.
- In unpaved areas, a raised portland cement concrete pad of 2'-0" x 4" x width of service equipment enclosure foundation or controller cabinet foundation shall be constructed in front of Type II service equipment enclosure.
- Internal bus, where shown, is typical only. Alternative designs of proposed service equipment enclosure shall be submitted to the Engineer for approval.
- Circuit breakers may be mounted in the vertical or horizontal position.
- Dimensions of service equipment enclosures shall meet the requirements of the service utility.
- Minimum clearance shall be required for front and back of service equipment enclosures per National Electrical Code, Article 110.26, "Spaces About Electrical Equipment (600 Volts, Nominal, or Less)."



STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**ELECTRICAL SYSTEMS  
 (SERVICE EQUIPMENT  
 TYPE II SERIES)**

NO SCALE

RSP ES-2B DATED OCTOBER 5, 2007 SUPERCEDES STANDARD PLAN ES-2B  
 DATED MAY 1, 2006 - PAGE 404 OF THE STANDARD PLANS BOOK DATED MAY 2006.

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

2006 REVISED STANDARD PLAN RSP ES-2B

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
01	Men	1	33.4/33.8	41	90

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

**NOTES-TYPE III SERVICE EQUIPMENT ENCLOSURES:**

1. Service equipment enclosure and metering equipment shall meet the requirements of the service utility. The meter area shall have a sealable, lockable, weathertight cover that can be removed without the use of tools.
2. Service equipment enclosures shall be factory wired and conform to NEMA standards.
3. Dimensions of service equipment enclosures shall meet the requirements of the service utility.
4. The dead front panels on Type III service equipment enclosures shall have a continuous stainless steel or aluminum piano hinge. The panel in front of the breakers shall be secured with a latch or captive screws. No live parts shall be mounted on the dead front panel.
5. The exterior door shall have provisions for padlocking. The padlock hole shall be a minimum diameter of  $\frac{1}{16}$ ".
6. Enclosures housing transformers of more than one kVA shall have effective screened ventilation louver of not less than 50 square inches. Screen shall be stainless steel No. 304, with a No. 10 size mesh. Framed screen shall be secured with at least four bolts.
7. Fasteners on the exterior of the enclosure shall be vandal-resistant and shall not be removable from the exterior. Exterior screws, nuts, bolts and washers shall be stainless steel.
8. Landing lugs for incoming service conductors shall be compatible with either copper or aluminum conductors sized to suit the conductors shown on the plan. Landing lugs shall be copper or tin-plated aluminum. Neutral bus shall be rated for 125 A and be suitable for copper or aluminum conductors unless otherwise specified. The terminal shall include but not be limited to:
  - a) Incoming terminals (landing lugs)
  - b) Neutral lugs
  - c) Solid neutral terminal strip
9. At least 6 standard single pole circuit breaker spaces,  $\frac{3}{4}$ " nominal, shall be provided for branch circuits. Circuit breaker interiors shall be copper. Interiors of enclosure shall accept plug-in or cable-in/cable-out circuit breakers.
10. Control wiring shall be 600 V, 14 stranded machine tool wire. Where subject to flexing, 19 strand wire shall be used.
11. Main bus shall be rated for 125 A and shall be tin-plated copper.
12. A plastic laminated wiring diagram shall be provided with brass mounting eyelets and attached to the inside of the enclosure and the wiring diagram shall be affixed to the interior with a UL or ETL approved method.

13. An engraved phenolic nameplate on the dead front panel indicating the function of each circuit or device shall be installed with stainless steel rivets or stainless steel screws:
  - a) Adjacent to the breaker or device with character size a minimum of  $\frac{1}{8}$ ".
  - b) At the top of the exterior door panel indicating State system number, voltage level and number of phases with character size a minimum of  $\frac{3}{16}$ ".
14. 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.
15. 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.
16. Foundation shall extend 2" minimum beyond edge of service equipment enclosure.
17. Internal bus, where shown, is typical only. Alternative design of proposed service equipment enclosure shall be submitted to the Engineer for approval.
18. 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.
19. 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.
20. Type III-AR and Type III-BR service equipment enclosures 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.
21. Minimum clearance shall be required for front and back of service equipment enclosure per National Electrical Code, Article 110.26, "Spaces About Electric Equipment (600 Volts, Nominal, or Less)."

To accompany plans dated 5-2-11

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION

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

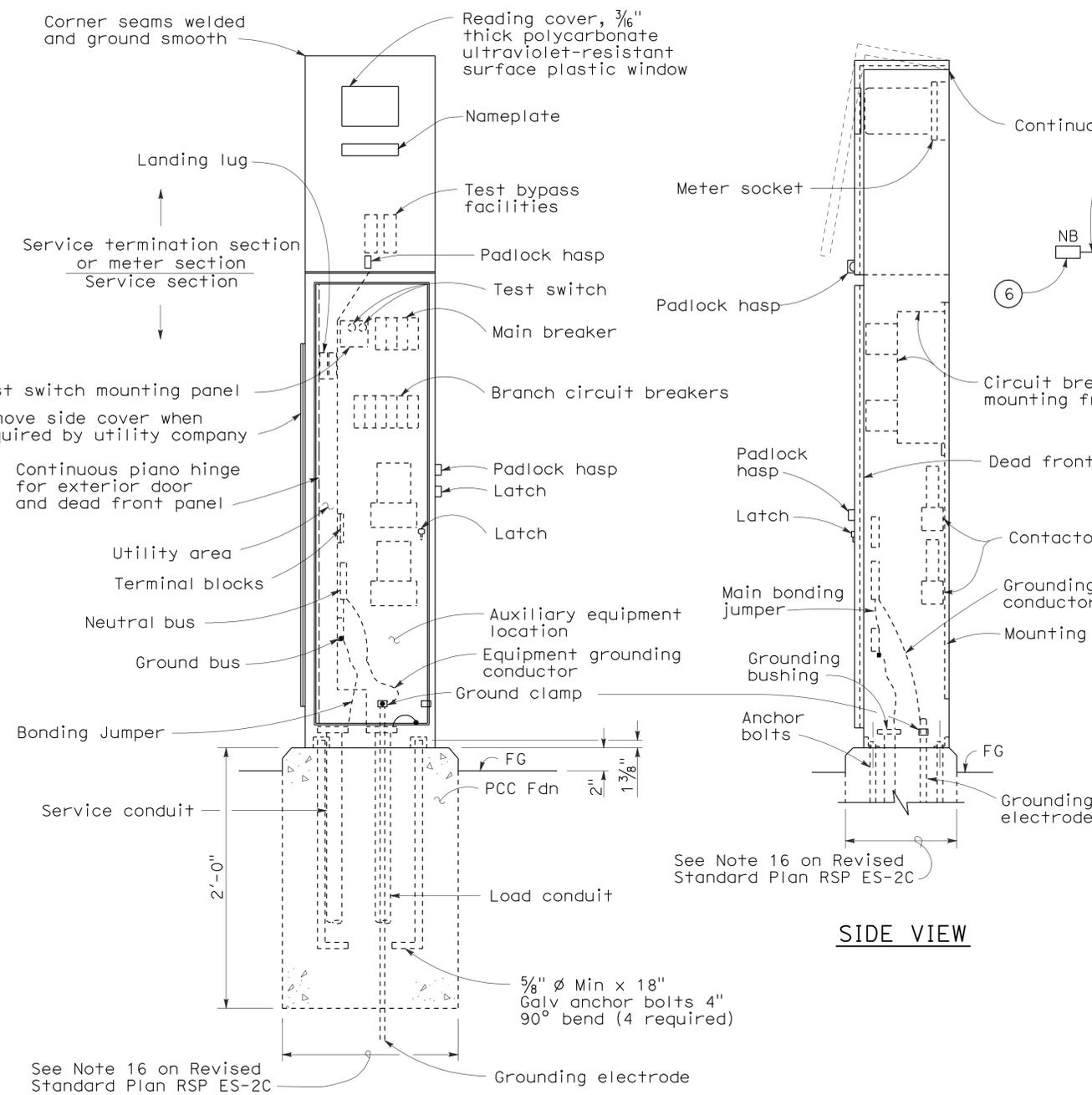
NO SCALE

RSP ES-2C DATED OCTOBER 5, 2007 SUPERCEDES STANDARD PLAN ES-2C  
 DATED MAY 1, 2006 - PAGE 405 OF THE STANDARD PLANS BOOK DATED MAY 2006.

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

2006 REVISED STANDARD PLAN RSP ES-2C

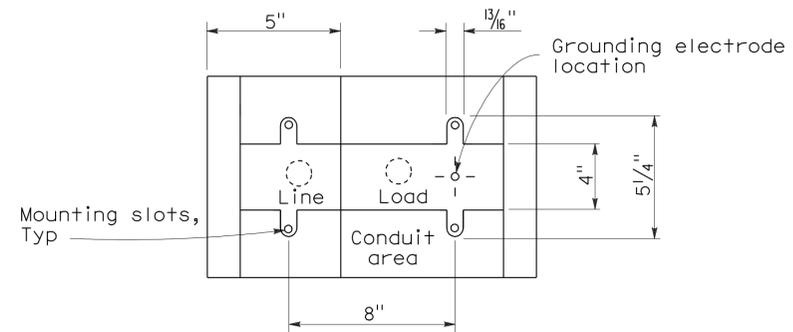
2006 REVISED STANDARD PLAN RSP ES-2D



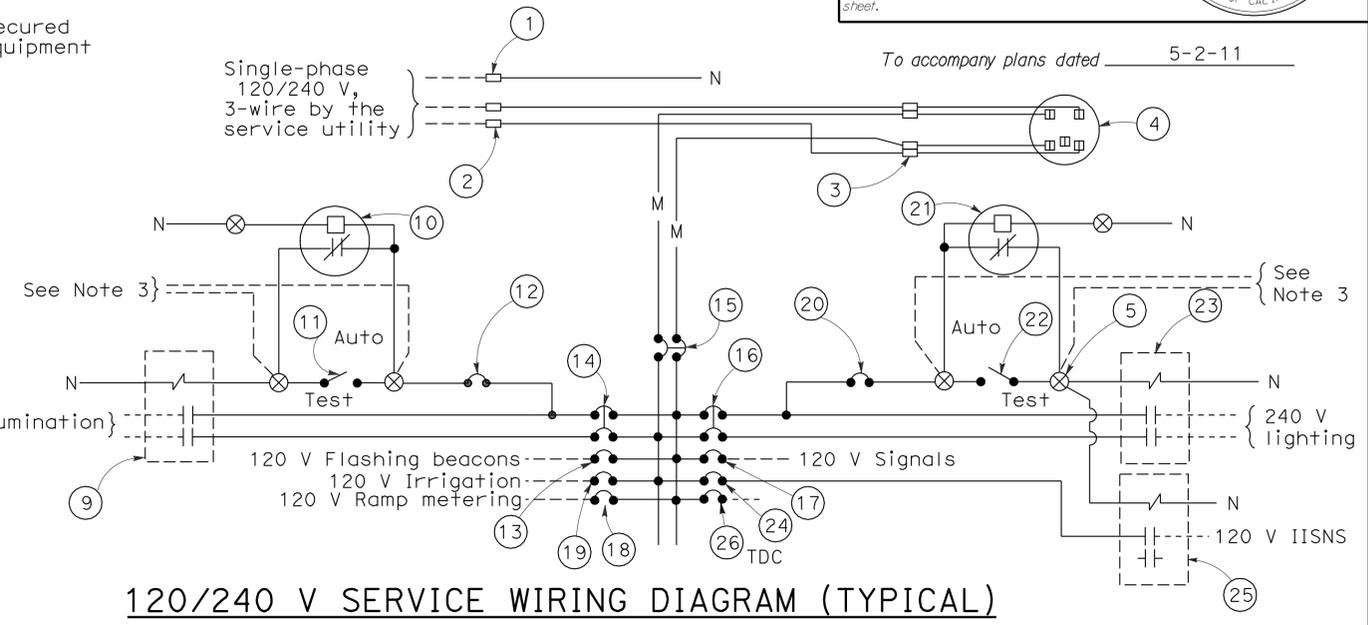
**TYPE III-AF SERVICE EQUIPMENT ENCLOSURE (TYPICAL)**

**FRONT VIEW**

**SIDE VIEW**



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



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

TYPE III-A SERVICE (120/240 V) EQUIPMENT LEGEND					
ITEM No.	COMPONENT	NAME PLATE DESCRIPTION	ITEM No.	COMPONENT	NAME PLATE DESCRIPTION
1	Neutral lug		14	30 A, 240 V, 2P, CB	Sign Illumination
2	Landing lug (Note 6)		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	Photoelectric unit (Note 7)	
9	30 A, 2PNO Contactor	Sign Illumination	22	15 A, 1P, Test switch	Lighting Test Switch
10	Photoelectric unit (Note 7)		23	60 A, 2PNO 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, 2PNO Contactor	IISNS
13	15 A, 120 V, 1P, CB	Flashing Beacon	26	20 A, 120 V, 1P, CB	Telephone Demarcation Cabinet

**NOTES: (FOR SERVICE EQUIPMENT ENCLOSURE)**

- Voltage ratings of service equipment shall conform to the service voltages indicated on the plans.
- Unless otherwise indicated on the plans, service equipment items shall be provided for each service equipment enclosure as shown.
- Connect to remote test switch mounted on lighting standards, sign post or structure when required.
- Items No. 1 and 6 shall be isolated from the service equipment enclosure.
- Meter sockets shall be 5 clip type.
- The landing lug shall be suitable for multiple conductors.
- Type I photoelectric control shall be used unless otherwise indicated on the plans.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

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

NO SCALE

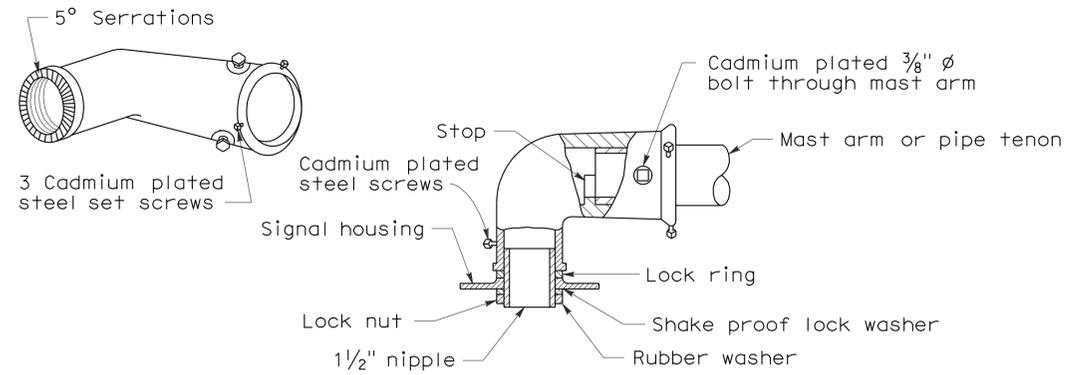
RSP ES-2D DATED OCTOBER 5, 2007 SUPERCEDES STANDARD PLAN ES-2D DATED MAY 1, 2006 - PAGE 406 OF THE STANDARD PLANS BOOK DATED MAY 2006.

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
01	Men	1	33.4/33.8	43	90

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.

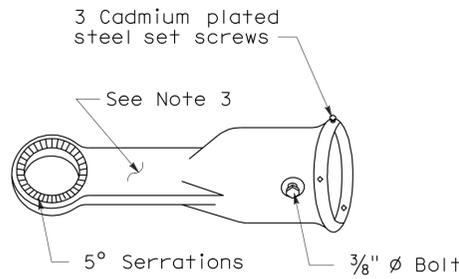
REGISTERED ELECTRICAL ENGINEER  
 REGISTERED PROFESSIONAL ENGINEER  
 Jeffrey G. McRae  
 No. E14512  
 Exp. 6-30-10  
 ELECTRICAL  
 STATE OF CALIFORNIA

To accompany plans dated 5-2-11



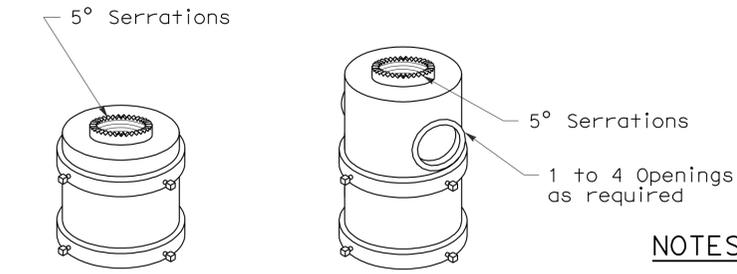
**MAST ARM MOUNTING - TYPE "MAT"**

For 2 NPS pipe, see Note 1.



**MAST ARM MOUNTING - TYPE "MAS"**

For 2 NPS pipe. See Note 1.

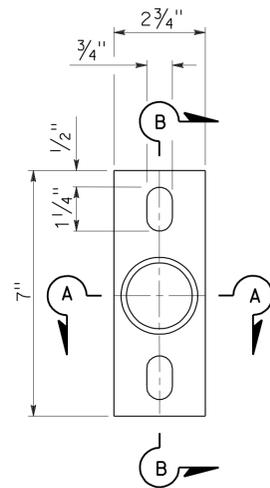


For one mounting For multiple mountings

**TOP MOUNTINGS**

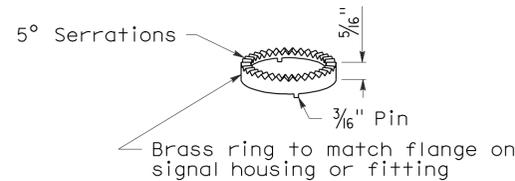
For 4 NPS pipe, see Note 2.

**SIGNAL SLIP FITTERS**



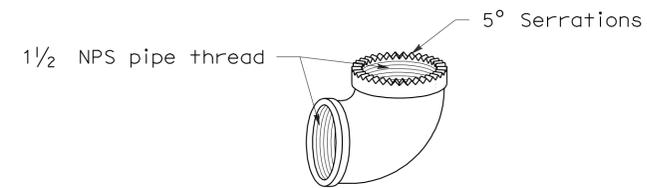
**POLE PLATE**

For side mountings



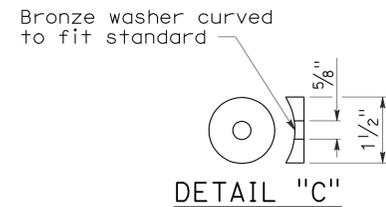
**LOCK RING**

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



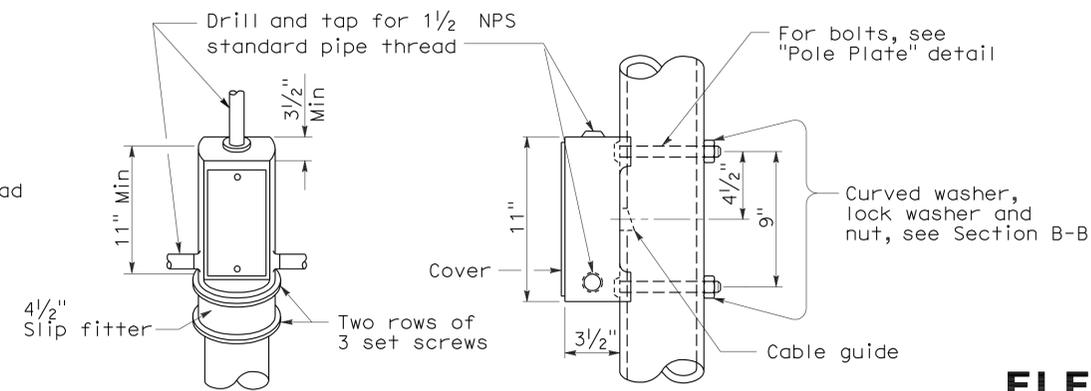
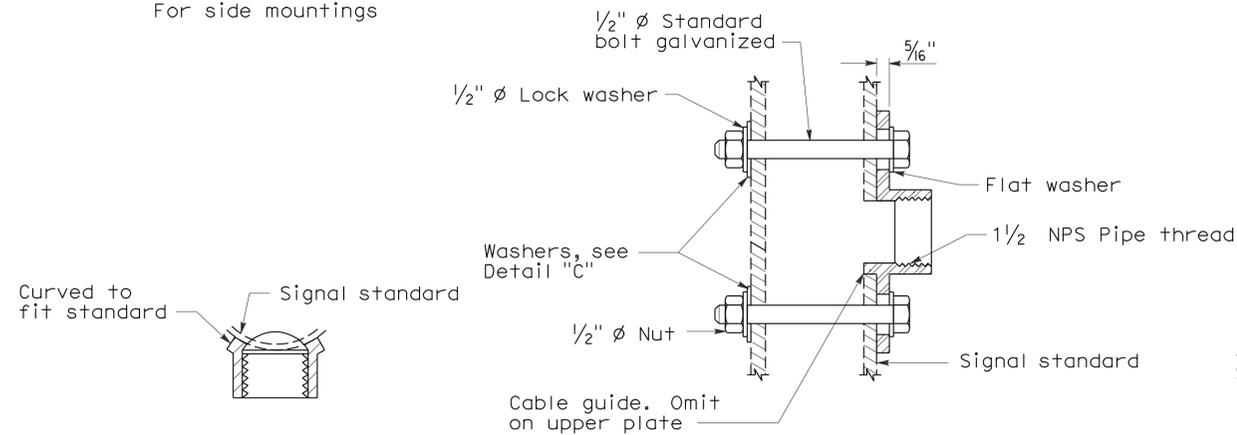
**SPECIAL 90° ELBOW**

One for each signal head, except those with special slip fitter mounting



**DETAIL "C"**

**MISCELLANEOUS MOUNTING HARDWARE**



**TOP MOUNTING**

**SIDE MOUNTING**

**TERMINAL COMPARTMENTS**

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

NO SCALE

RSP ES-4D DATED June 6, 2008 SUPERSEDES STANDARD PLAN ES-4D DATED MAY 1, 2006 - PAGE 421 OF THE STANDARD PLANS BOOK DATED MAY 2006.

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

2006 REVISED STANDARD PLAN RSP ES-4D

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
01	Men	1	33.4/33.8	44	90

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

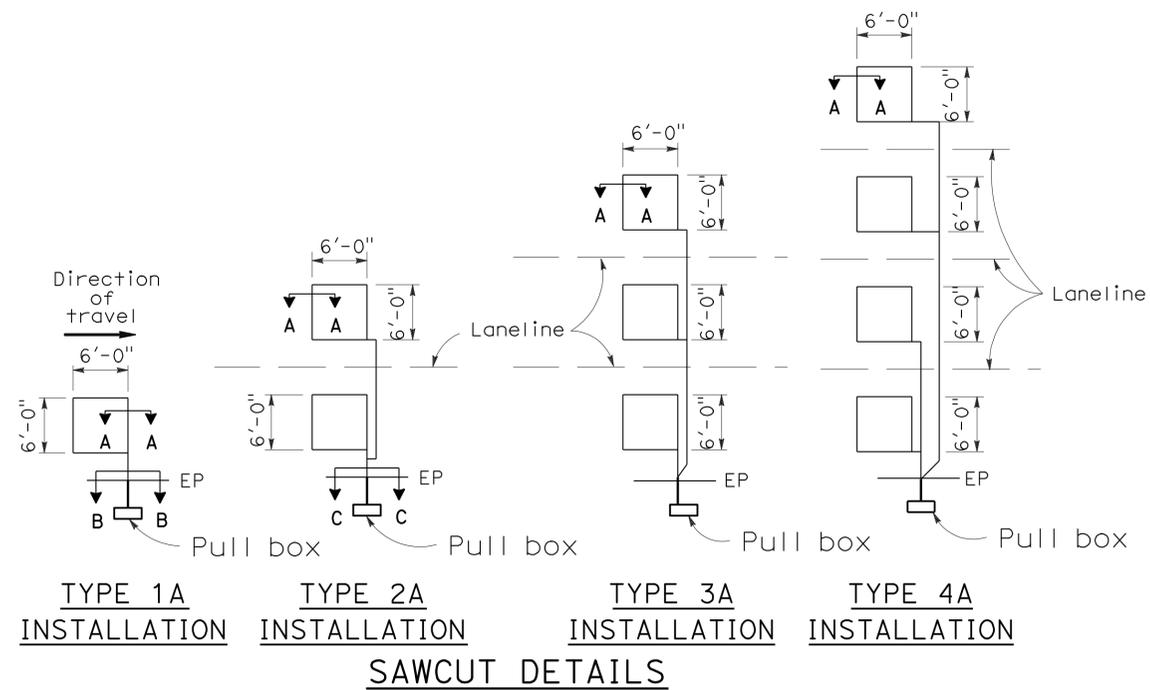
October 5, 2007  
 PLANS APPROVAL DATE

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.

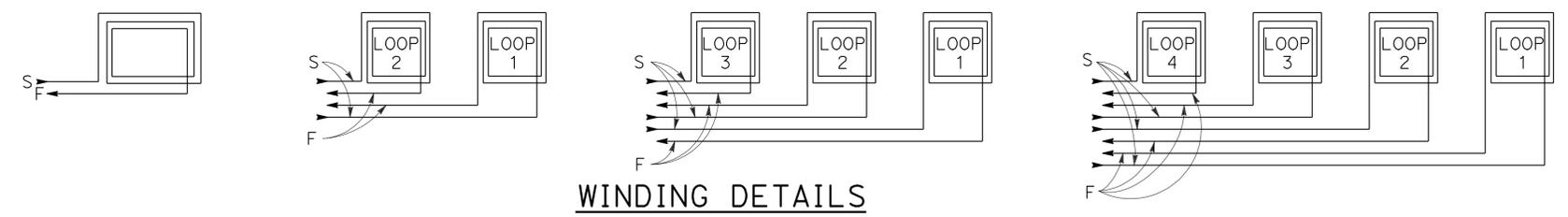
To accompany plans dated 5-2-11

## 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.

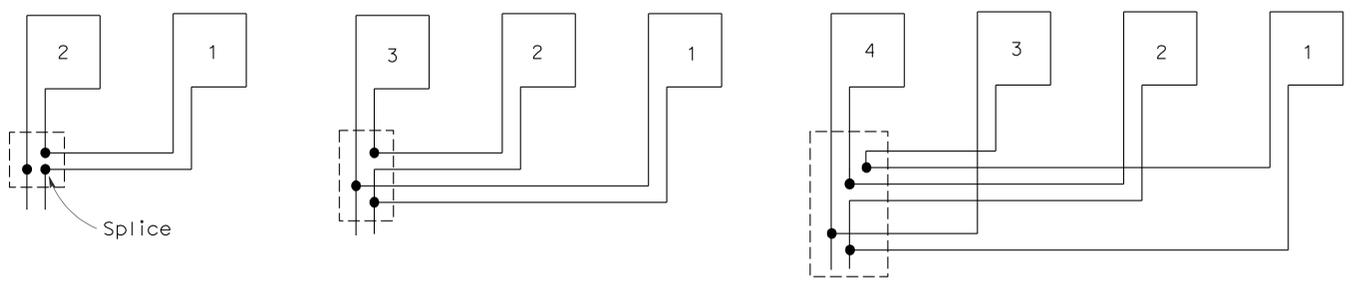


- SAWCUT DETAILS**  
(Type A loop detector configurations illustrated)
- 1A thru 4A = 1 Type A loop configuration in each lane.
  - 1B thru 4B = 1 Type B loop configuration in each lane.
  - 1C = 1 Type C loop configuration entering lanes as required.
  - 1D thru 4D = 1 Type D loop configuration in each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



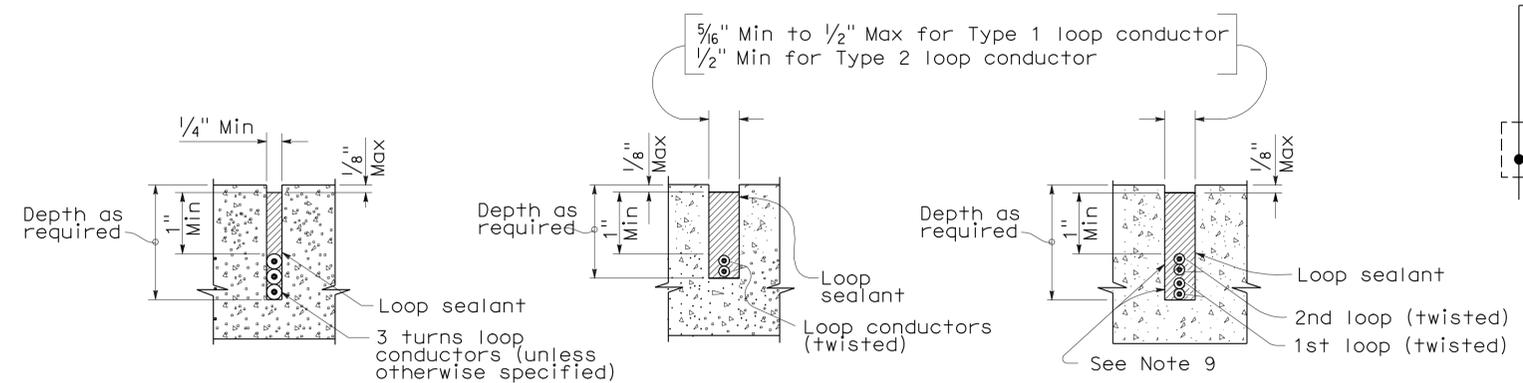
### WINDING DETAILS

See Notes 6 and 7



### TYPICAL LOOP CONNECTIONS

(Dashed lines represent the pull box)



SECTION A-A SECTION B-B SECTION C-C  
SLOT DETAILS - TYPE 1 AND TYPE 2 LOOP CONDUCTOR

## ELECTRICAL SYSTEMS (DETECTORS)

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

NO SCALE

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

2006 REVISED STANDARD PLAN RSP ES-5A

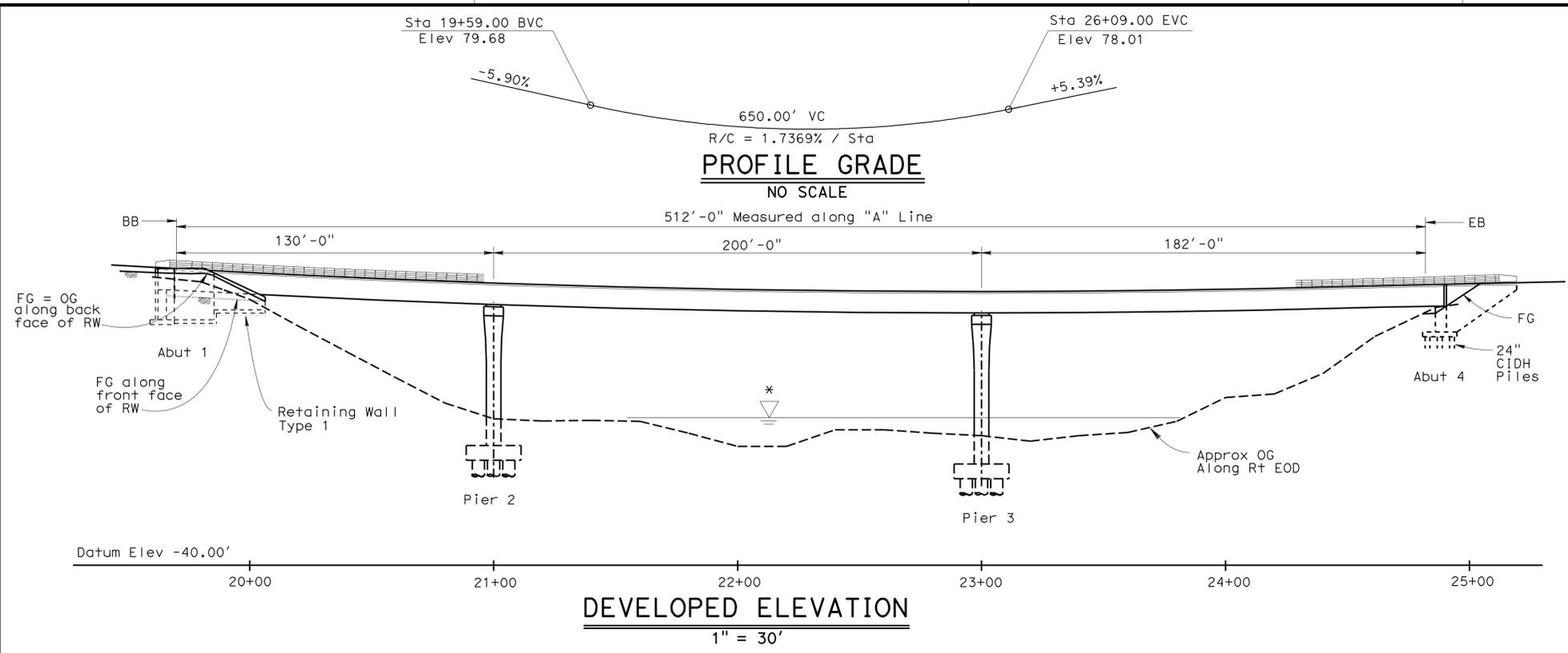
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Men	1	33.4/33.8	45	90

01/26/10  
REGISTERED CIVIL ENGINEER DATE

5-2-11  
PLANS APPROVAL DATE

Kyoung Hyeog Lee  
No. 60714  
Exp. 12/31/10  
CIVIL  
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.

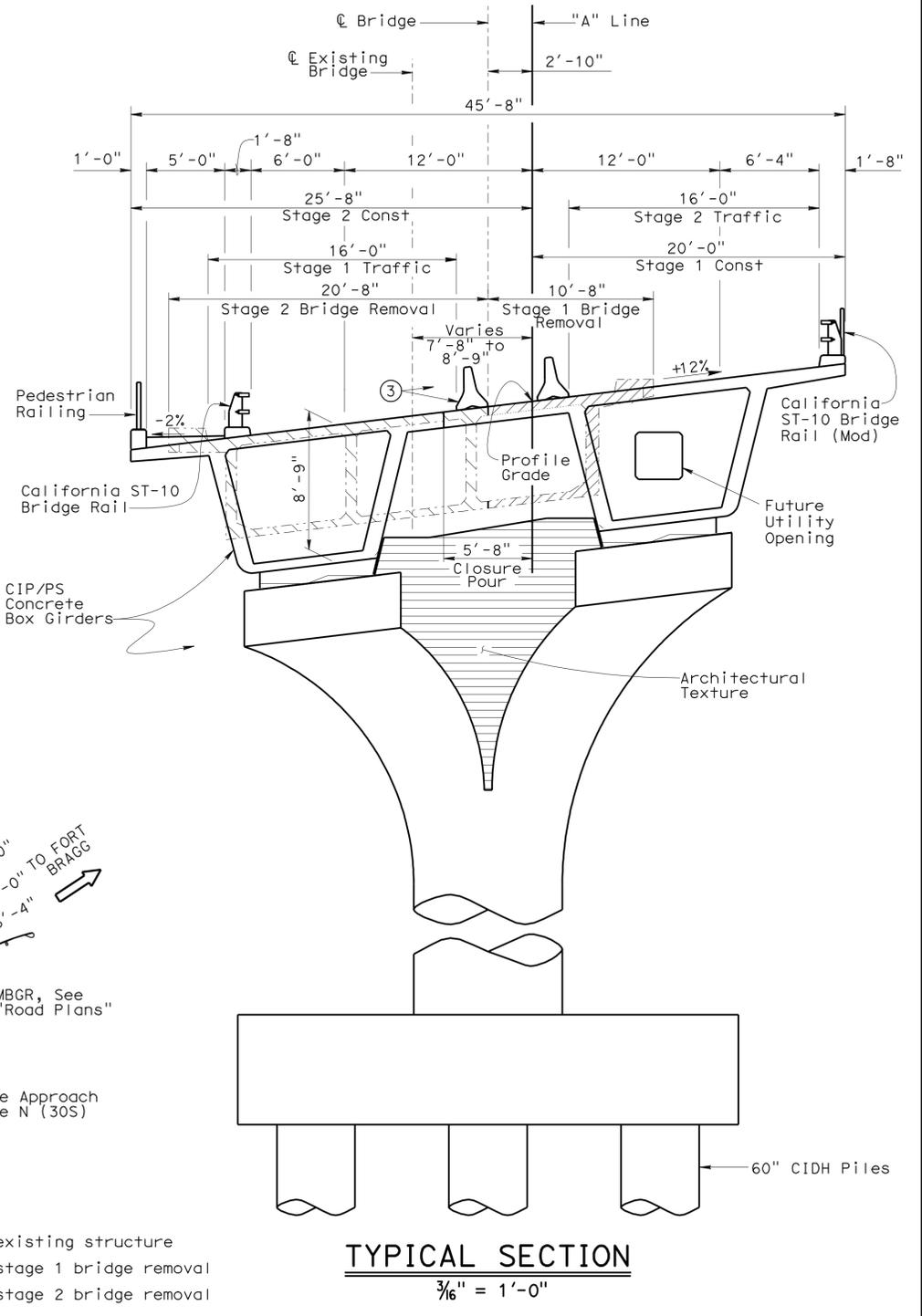
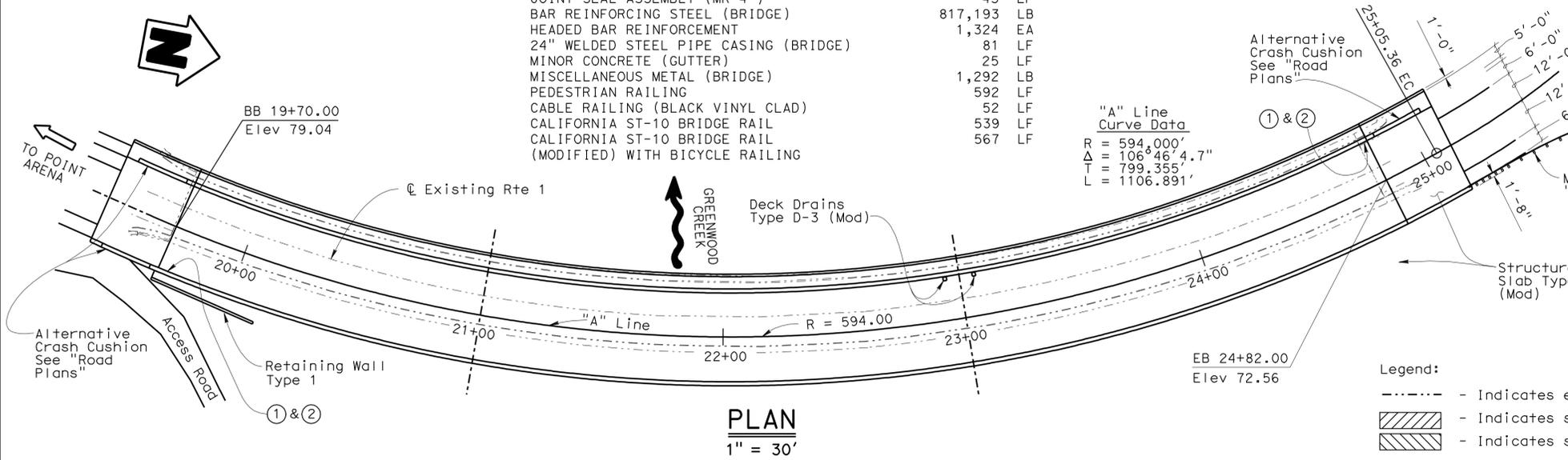


**QUANTITIES:**

TEMPORARY SUPPORT	LUMP SUM
BRIDGE REMOVAL	LUMP SUM
STRIPPING EXCAVATION	230 CY
STRUCTURE EXCAVATION (BRIDGE)	940 CY
STRUCTURE EXCAVATION (TYPE D)	1,158 CY
STRUCTURE BACKFILL (BRIDGE)	700 CY
24" CAST-IN-DRILLED-HOLE CONCRETE PILING	891 LF
60" CAST-IN-DRILLED-HOLE CONCRETE PILING	535 LF
PRESTRESSING CAST-IN-PLACE CONCRETE	LUMP SUM
STRUCTURAL CONCRETE, BRIDGE FOOTING	446 CY
STRUCTURAL CONCRETE, BRIDGE	2,397 CY
STRUCTURAL CONCRETE, APPROACH SLAB (TYPE N) (MODIFIED)	97 CY
FRACTURED RIB TEXTURE	432 SQFT
JOINT SEAL ASSEMBLY (MR 3")	43 LF
JOINT SEAL ASSEMBLY (MR 4")	43 LF
BAR REINFORCING STEEL (BRIDGE)	817,193 LB
HEADED BAR REINFORCEMENT	1,324 EA
24" WELDED STEEL PIPE CASING (BRIDGE)	81 LF
MINOR CONCRETE (GUTTER)	25 LF
MISCELLANEOUS METAL (BRIDGE)	1,292 LB
PEDESTRIAN RAILING	592 LF
CABLE RAILING (BLACK VINYL CLAD)	52 LF
CALIFORNIA ST-10 BRIDGE RAIL	539 LF
CALIFORNIA ST-10 BRIDGE RAIL (MODIFIED) WITH BICYCLE RAILING	567 LF

- Notes:
- Paint "Greenwood Creek Bridge"
  - Paint "Br. No. 10-0156"
  - Temporary Railing (Type K), see "Road Plans". Attach to deck, see "Temporary K Railing Attachment Detail" on "INDEX TO PLANS" sheet.

\* - For 'Hydrologic Summary' see "FOUNDATION PLAN NO. 1" sheet.



Jeff Sims DESIGN ENGINEER	DESIGN	BY Rizia da Cruz Ferreira	CHECKED Kyoung Lee	LOAD & RESISTANCE FACTOR DESIGN	LIVE LOADING: HL93 W/"LOW-BOY"; PERMIT DESIGN VEHICLE	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 1	BRIDGE NO.	10-0156	GREENWOOD CREEK BRIDGE (REPLACE) GENERAL PLAN	
	DETAILS	BY Jinrong Zhou	CHECKED Kyoung Lee	LAYOUT	BY Rizia da Cruz Ferreira			CHECKED Kyoung Lee	POST MILE		33.63
	QUANTITIES	BY Daniel Sessions	CHECKED A. Pearson/V. Shostak	SPECIFICATIONS	BY Mary Kopsa			PLANS AND SPECS COMPARED Mary Kopsa	REVISION DATES		01/23/08 05/14/09 1/08/09 1/28/09 7/13/09 11/16/09 01/12/10 03/11/09 03/16/09

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

CU 01  
EA 310101

DISREGARD PRINTS BEARING EARLIER REVISION DATES

SHEET 1 OF 34

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Men	1	33.4/33.8	46	90

01/26/10  
REGISTERED CIVIL ENGINEER DATE  
5-2-11  
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER  
Kyoung Hyeog Lee  
No. 60714  
Exp. 12/31/10  
CIVIL  
STATE OF CALIFORNIA

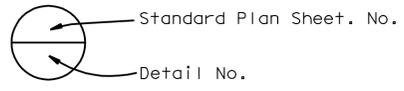
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

## INDEX TO PLANS

SHEET NO	TITLE
1	GENERAL PLAN
2	INDEX TO PLANS
3	DECK CONTOURS
4	FOUNDATION PLAN NO. 1
5	FOUNDATION PLAN NO. 2
6	ABUTMENT 1 LAYOUT
7	ABUTMENT 4 LAYOUT
8	ABUTMENT DETAILS NO. 1
9	ABUTMENT DETAILS NO. 2
10	RETAINING WALL LAYOUT
11	PIER LAYOUT
12	PIER DETAILS NO. 1
13	PIER DETAILS NO. 2
14	TYPICAL SECTION
15	SIDEWALK DETAILS
16	GIRDER LAYOUT
17	GIRDER REINFORCEMENT
18	MISCELLANEOUS DETAILS
19	END DIAPHRAGM DETAILS
20	DIAPHRAGM AT PIERS DETAILS
21	JOINT SEAL ASSEMBLY (MAX MR = 4")
22	DECK DRAIN DETAILS
23	STRUCTURE APPROACH TYPE N(30S) MODIFIED
24	STRUCTURE APPROACH DRAINAGE DETAILS
25	PEDESTRIAN RAILING DETAILS NO. 1
26	PEDESTRIAN RAILING DETAILS NO. 2
27	CALIFORNIA ST-10 BRIDGE RAIL (MOD) DETAILS NO. 1
28	CALIFORNIA ST-10 BRIDGE RAIL (MOD) DETAILS NO. 2
29	LOG OF TEST BORINGS NO. 1 OF 6
30	LOG OF TEST BORINGS NO. 2 OF 6
31	LOG OF TEST BORINGS NO. 3 OF 6
32	LOG OF TEST BORINGS NO. 4 OF 6
33	LOG OF TEST BORINGS NO. 5 OF 6
34	LOG OF TEST BORINGS NO. 6 OF 6

## STANDARD PLANS DATED MAY 2006

A10A	ACRONYMS & ABBREVIATIONS (1 OF 2)
A10B	ACRONYMS & ABBREVIATIONS (2 OF 2)
A62C	LIMITS OF PAYMENT FOR EXCAVATION AND BACKFILL BRIDGE
B0-1	BRIDGE DETAILS
B0-3	BRIDGE DETAILS
B0-5	BRIDGE DETAILS
B0-13	BRIDGE DETAILS
B2-3	16" AND 24" CIDH CONCRETE PILE
B3-1	RETAINING WALL TYPE 1, H = 4' THROUGH 30'
B3-8	RETAINING WALL DETAILS NO.1
B3-9	RETAINING WALL DETAILS NO.2
B6-1	T-BEAM DETAILS
B6-10	UTILITY OPENINGS, T-BEAM
B7-1	BOX GIRDER DETAILS
B7-7	DECK DRAIN TYPE D-3
B7-10	UTILITY OPENING BOX GIRDER
B8-5	CIP PRESTRESSED GIRDER DETAILS
B11-47	CABLE RAILING
RSP B11-68	CALIFORNIA ST - 10 BRIDGE RAIL (SHEET 1 OF 3)
B11-69	CALIFORNIA ST - 10 BRIDGE RAIL (SHEET 2 OF 3)
B11-70	CALIFORNIA ST - 10 BRIDGE RAIL (SHEET 3 OF 3)
B14-5	WATER SUPPLY LINE (DETAILS) ,(PIPE SIZES LESS THAN 4")



## PILE DATA TABLE

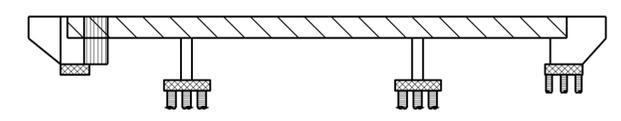
Location	Pile Type	Design Loading (Service) (Kips)	LRFD Nominal Resistance(kips)		Elevation(ft)		
			Compression	Tension	Cut-off	Design Tip	Specified Tip
Pier 2	60 in CIDH	N/A	3430	800	3.25	-54(1)	-54
Pier 3	60 in CIDH	N/A	3430	800	-4.3	-54(1)	-54
Abut 4	24 in CIDH	200	400	0	53.75	15(1)	15

Notes: Design tip elevation is controlled by the following demands:  
(1) Compression

## SPREAD FOOTING DATA TABLE

Location	Working Stress Design (WSD)		Load and Resistance Factor Design (LRFD)		
	Permissible Gross Contact Stress (ksf)	Allowable Gross Bearing Capacity (ksf)	Service Permissible Net Contact Stress (ksf)	Strength Factored Gross Nominal Bearing Resistance (ksf)	Extreme Event Factored Gross Nominal Bearing Resistance (ksf)
Abut 1	10	10	N/A	N/A	N/A

Note:  
The footings are anticipated to bear on rock. Elastic settlement of 0.5 inch is generally assumed for footings on rock, which is less than the Total Permissible Support Settlement of 1.0 inch. Therefore, Permissible Gross Contact Stress is taken to be no greater than the Allowable Gross Bearing Capacity of 10 ksf.



## CONCRETE STRENGTH AND TYPE LIMITS

NO SCALE

Legend:

- Structural Concrete, Bridge ( $f_c' = 3.6$  ksi @ 28 days)
- Structural Concrete, Bridge ( $f_c' = 5.0$  ksi @ 28 days)
- Structural Concrete, Bridge Footing ( $f_c' = 3.6$  ksi @ 28 days)
- Cast-in-Drilled-Hole Concrete Pile
- Structural Concrete, Retaining Wall

## GENERAL NOTES LOAD AND RESISTANCE FACTOR DESIGN

DESIGN: AASHTO LRFD Specifications, Fourth Edition with Caltrans Amendments.

SEISMIC DESIGN: Caltrans Seismic Design Criteria (SDC) Version 1.4, June 2006

SEISMIC LOADING: SDC ARC Curve for Soil Profile Type C ( $M = 8.0 \pm 0.25$ ) (Peak rock acceleration = 0.6g)

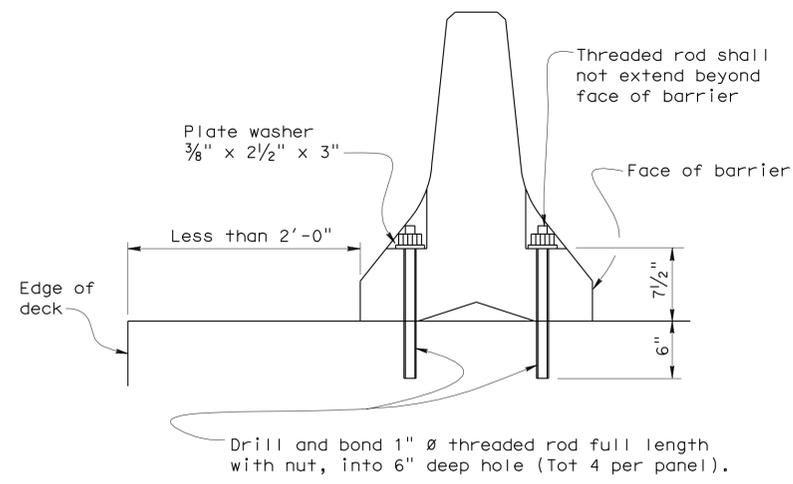
DEAD LOAD: Includes 35 psf for future wearing surface

LIVE LOADING: HL 93 and permit design vehicle

REINFORCED CONCRETE:  $f_y = 60$  ksi  
 $f_c' = 3.6$  ksi,  $n = 8$   
 $f_c' = 5.0$  ksi,  $n = 7$

PRESTRESSED CONCRETE: See "PRESTRESSING NOTES" on "GIRDER LAYOUT" sheet.

STRUCTURAL STEEL:  $f_y = 36$  ksi minimum unless otherwise noted



## TEMPORARY K RAILING ATTACHMENT DETAIL

NO SCALE

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 10/25/05)	DESIGN	BY Rizia da Cruz Ferreira	CHECKED Kyoung Lee	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 1	BRIDGE NO.	10-0156	GREENWOOD CREEK BRIDGE (REPLACE) INDEX TO PLANS
	DETAILS	BY Jinrong Zhou	CHECKED Kyoung Lee			POST MILE	33.63	
QUANTITIES	BY Daniel Sessions	CHECKED A. Pearson/V. Shostak				CU 01 EA 310101	DISREGARD PRINTS BEARING EARLIER REVISION DATES	

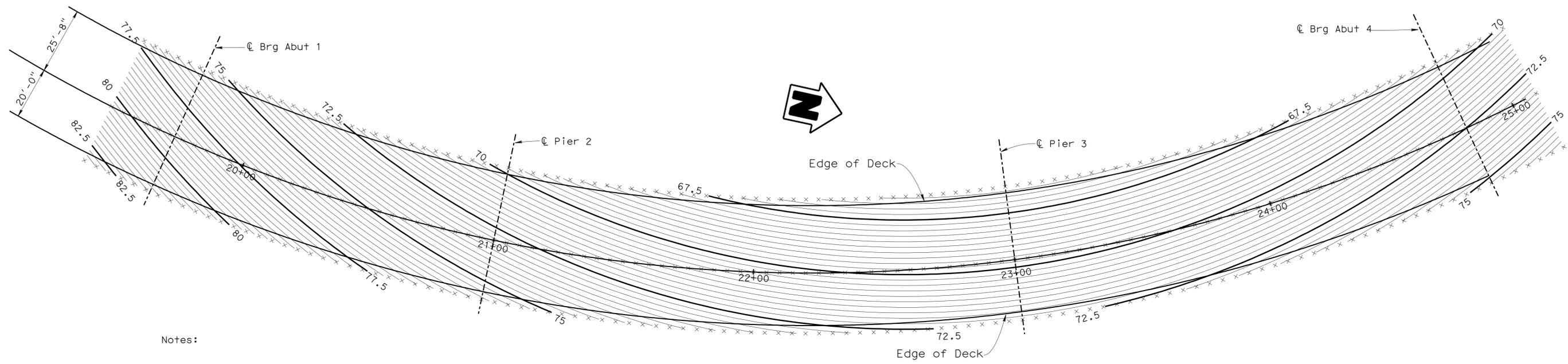
ORIGINAL SCALE IN INCHES FOR REDUCED PLANS: 0 1 2 3

FILE => 10-0156-a-1+p.dgn

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Men	1	33.4/33.8	47	90

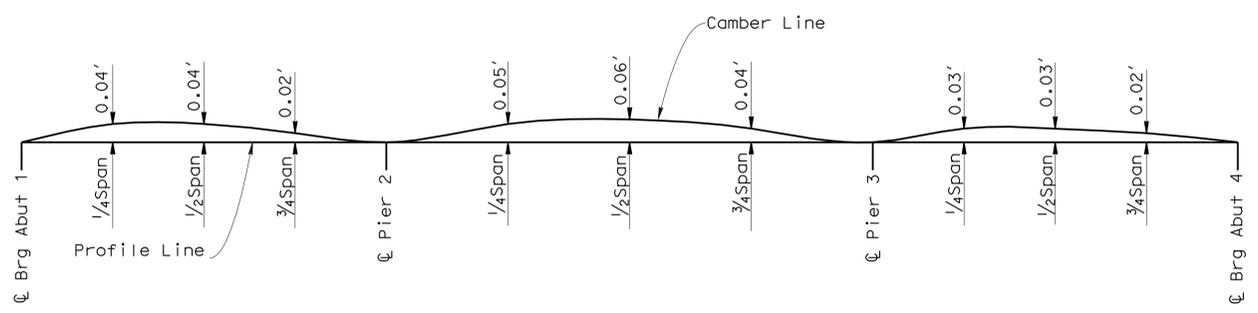
 01/26/10  
 REGISTERED CIVIL ENGINEER DATE  
 5-2-11  
 PLANS APPROVAL DATE  
 The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

REGISTERED PROFESSIONAL ENGINEER  
 Kyoung Hyeog Lee  
 No. 60714  
 Exp. 12/31/10  
 CIVIL  
 STATE OF CALIFORNIA



Notes:  
 X - Indicate 5.0 ft interval along station line.  
 Contours do not include camber.  
 Contour interval = 0.25 ft.

**DECK CONTOURS**  
 1" = 20'



**CAMBER DIAGRAM**  
 NO SCALE

Note:  
 Does not include allowance for falsework settlement.

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 10/25/05)	DESIGN	BY Rizia da Cruz Ferreira	CHECKED Kyoung Lee	<b>STATE OF CALIFORNIA</b> DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN <b>DESIGN BRANCH 1</b>	BRIDGE NO.	10-0156	<b>GREENWOOD CREEK BRIDGE (REPLACE)</b> <b>DECK CONTOURS</b>		
	DETAILS	BY Jinrong Zhou	CHECKED Kyoung Lee			POST MILE	33.63			
	QUANTITIES	BY Daniel Sessions	CHECKED A. Pearson/V. Shostak							
				ORIGINAL SCALE IN INCHES FOR REDUCED PLANS	0 1 2 3	CU 01 EA 310101		DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES 10/11/08 05/11/09 05/11/09 1/26/10 01/09/09	SHEET 3 OF 34

USERNAME => hmgp11n DATE PLOTTED => 06-MAY-2011 TIME PLOTTED => 14:39

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Men	1	33.4/33.8	48	90

01/26/10  
 REGISTERED CIVIL ENGINEER DATE

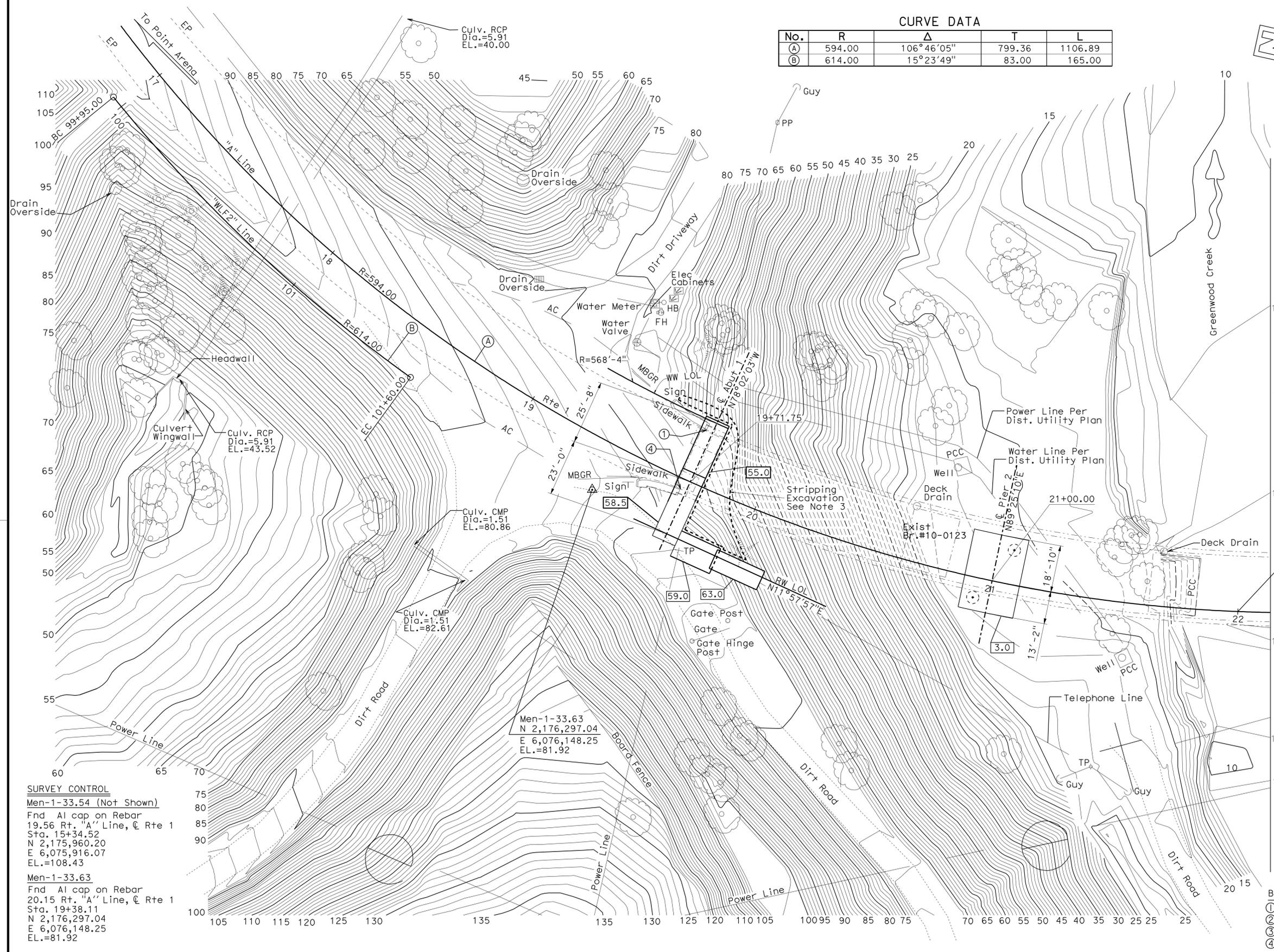
5-2-11  
 PLANS APPROVAL DATE

NOTE: 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  
 Kyoung Hyeog Lee  
 No. 60714  
 Exp. 12/31/10  
 CIVIL  
 STATE OF CALIFORNIA

**CURVE DATA**

No.	R	Δ	T	L
(A)	594.00	106°46'05"	799.36	1106.89
(B)	614.00	15°23'49"	83.00	165.00



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

**HYDROLOGIC SUMMARY**

Drainage Area: 25 mi<sup>2</sup>

Frequency	Design Flood 50 year Event	Base Flood 100 year Event	Overtopping Flood/Flood of Record
Discharge	9,000 cfs	10,000 cfs	N/A
WSEL @ Bridge	20.1	20.4	N/A

Flood plain data are based upon information available when plans were prepared and are shown to meet federal requirements. The accuracy of said information is not warranted by the State and interested or affected parties should make their own investigations.

**SURVEY CONTROL**

Men-1-33.54 (Not Shown)  
 Fnd Al cap on Rebar  
 19.56 Rt. "A" Line, C Rte 1  
 Sta. 15+34.52  
 N 2,175,960.20  
 E 6,075,916.07  
 EL.=108.43

Men-1-33.63  
 Fnd Al cap on Rebar  
 20.15 Rt. "A" Line, C Rte 1  
 Sta. 19+38.11  
 N 2,176,297.04  
 E 6,076,148.25  
 EL.=81.92

N 2,176,561.81  
 E 6,076,139.69

XX.X - Indicates Bottom of Footing Elev

- Notes:
- All Dia. of trees on construction class
  - Not all piles shown
  - For stripping excavation details, see 'Excavation Payment Limits' on "MISCELLANEOUS DETAILS" sheet.

Bridge Location #10-0123 (PN Points)

- ① - 21.70 Lt. "A" Line, Rte 1, Sta 19+69.08, EL.=76.31±
- ② - 20.13 Lt. "A" Line, Rte 1, Sta 24+78.39, EL.=69.77±
- ③ - 05.87 Rt. "A" Line, Rte 1, Sta 24+78.06, EL.=72.74±
- ④ - 04.31 Rt. "A" Line, Rte 1, Sta 19+69.33, EL.=79.31±

**PRELIMINARY INVESTIGATION SECTION**

SCALE	VERT. DATUM	NAVD 88	PHOTOGRAMMETRY AS OF: X
1"=20'	HORZ. DATUM	NAD 83(1991.35)	SURVEYED
ALIGNMENT TIES	Dist. Traverse Sheet	DRAFTED	BY Sharon Zheng 10/2008
CHECKED	BY John Borden 10/2008	CHECKED	BY T. Zolnikova 10/2008

DESIGN	BY Rizia da Cruz Ferreira	CHECKED Kyoung Lee
DETAILS	BY Jinrong Zhou	CHECKED Kyoung Lee
QUANTITIES	BY Daniel Sessions	CHECKED A. Pearson/V. Shostak

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES  
 STRUCTURE DESIGN  
**DESIGN BRANCH 1**

BRIDGE NO.  
 10-0156  
 POST MILE  
 33.4/33.9

**GREENWOOD CREEK BRIDGE (REPLACE)**  
**FOUNDATION PLAN NO. 1**

CURVE DATA				
No.	R	Δ	T	L
(C)	300.00	67°23'14"	200.03	352.84

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Men	1	33.4/33.8	49	90

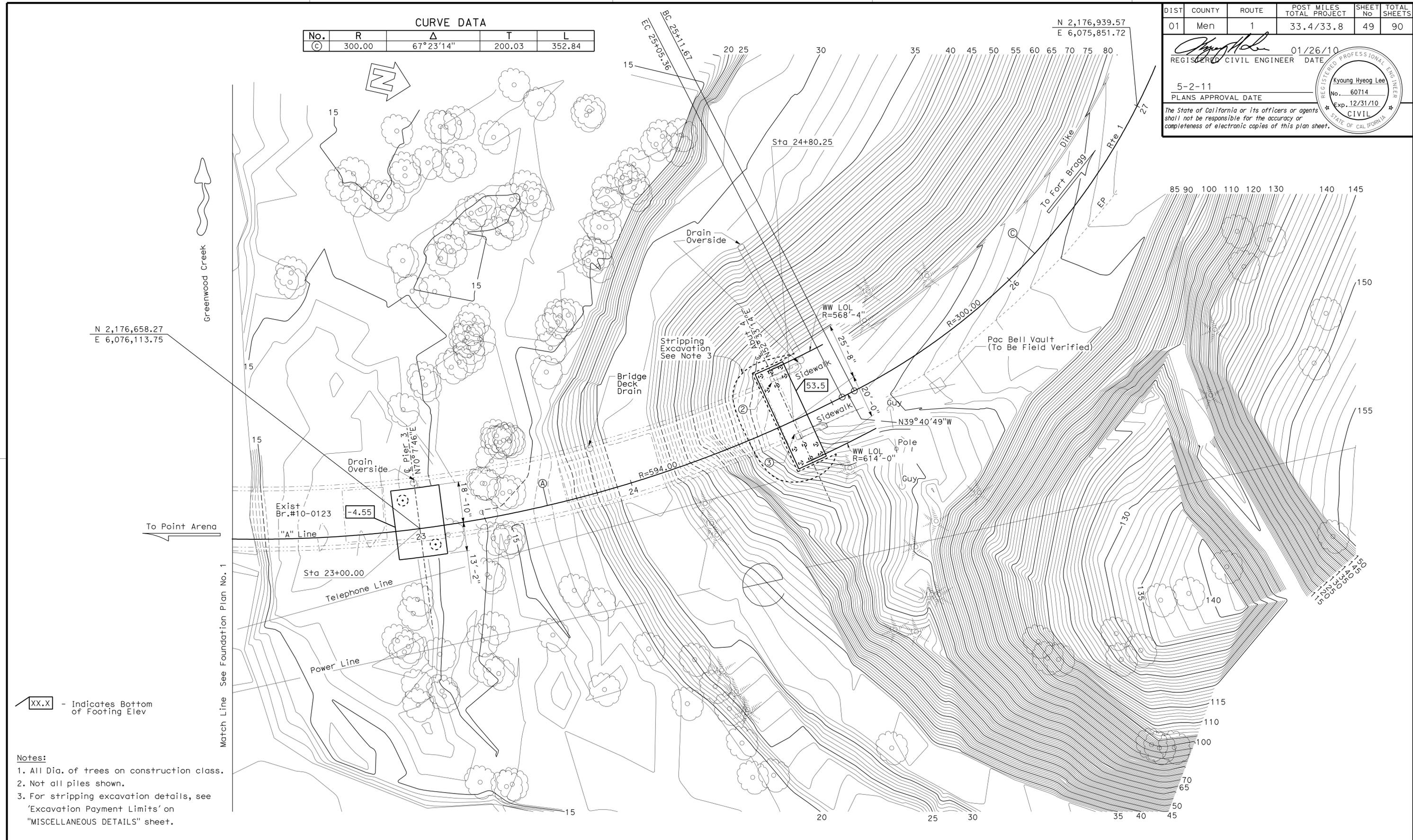
N 2,176,939.57  
 E 6,075,851.72

01/26/10  
 REGISTERED CIVIL ENGINEER DATE

5-2-11  
 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  
 Kyoung Hyeog Lee  
 No. 60714  
 Exp. 12/31/10  
 CIVIL  
 STATE OF CALIFORNIA



XX.X - Indicates Bottom of Footing Elev

- Notes:
- All Dia. of trees on construction class.
  - Not all piles shown.
  - For stripping excavation details, see 'Excavation Payment Limits' on "MISCELLANEOUS DETAILS" sheet.

<b>PRELIMINARY INVESTIGATION SECTION</b>				DESIGN BY Rizia da Cruz Ferreira CHECKED Kyoung Lee	<b>STATE OF CALIFORNIA</b> <b>DEPARTMENT OF TRANSPORTATION</b>	<b>DIVISION OF ENGINEERING SERVICES</b> <b>STRUCTURE DESIGN</b> <b>DESIGN BRANCH 1</b>	BRIDGE NO. 10-0156	<b>GREENWOOD CREEK BRIDGE (REPLACE)</b> <b>FOUNDATION PLAN NO. 2</b>
SCALE 1"=20' VERT. DATUM NAVD 88 PHOTOGRAMMETRY AS OF: X	SURVEYED BY District CHECKED BY John Borden 10/2008	DETAILS BY Jinrong Zhou CHECKED Kyoung Lee	POST MILE 33.4/33.9					
ALIGNMENT TIES Dist. Traverse Sheet DRAFTED BY Sharon Zheng 10/2008 CHECKED BY T. Zolnikova 09/2008	QUANTITIES BY Daniel Sessions CHECKED A. Pearson/V. Shostak	DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES: 12/11/08, 01/07/09, 02/11/09, 02/18/09, 3/12/09, 03/14/09, 10/09/09, 12/10/09					

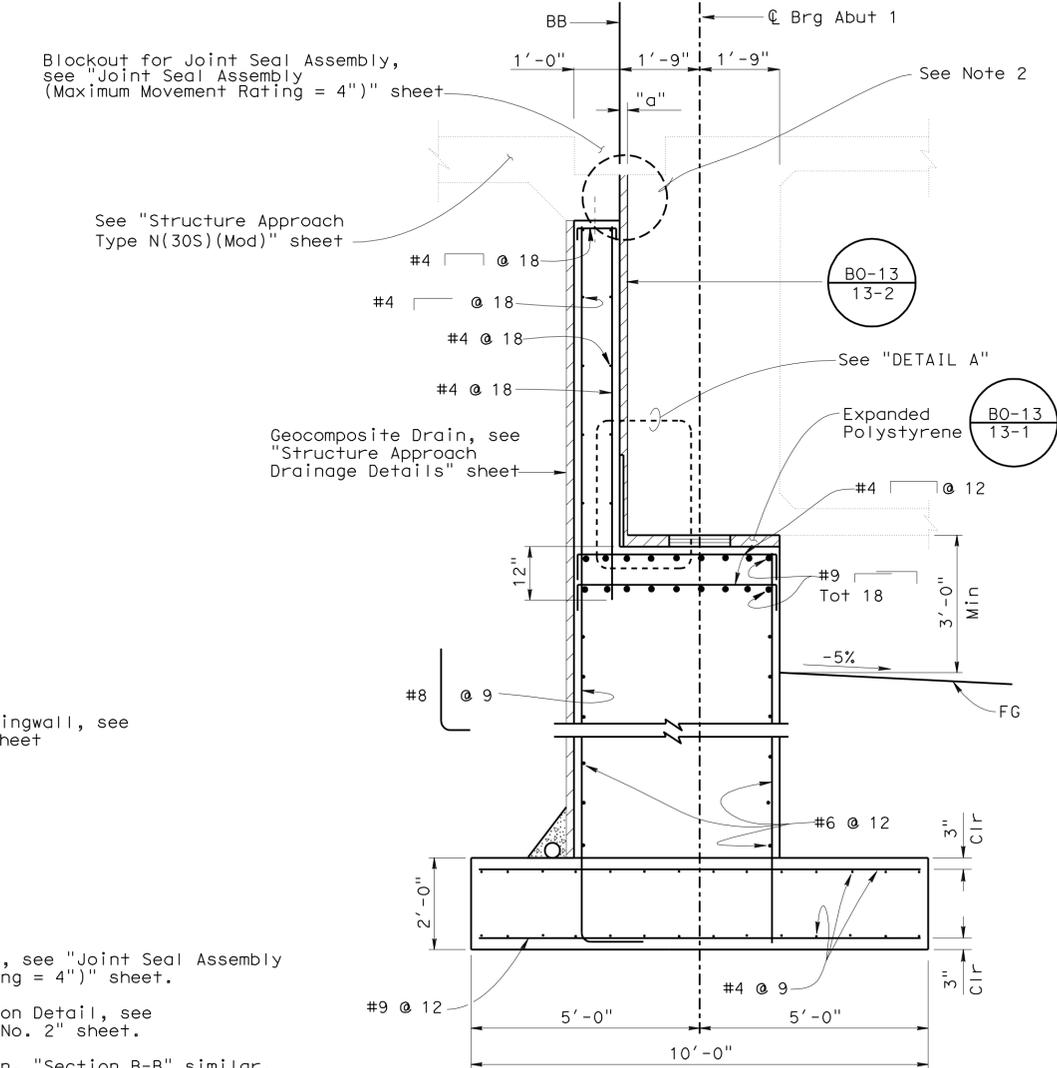
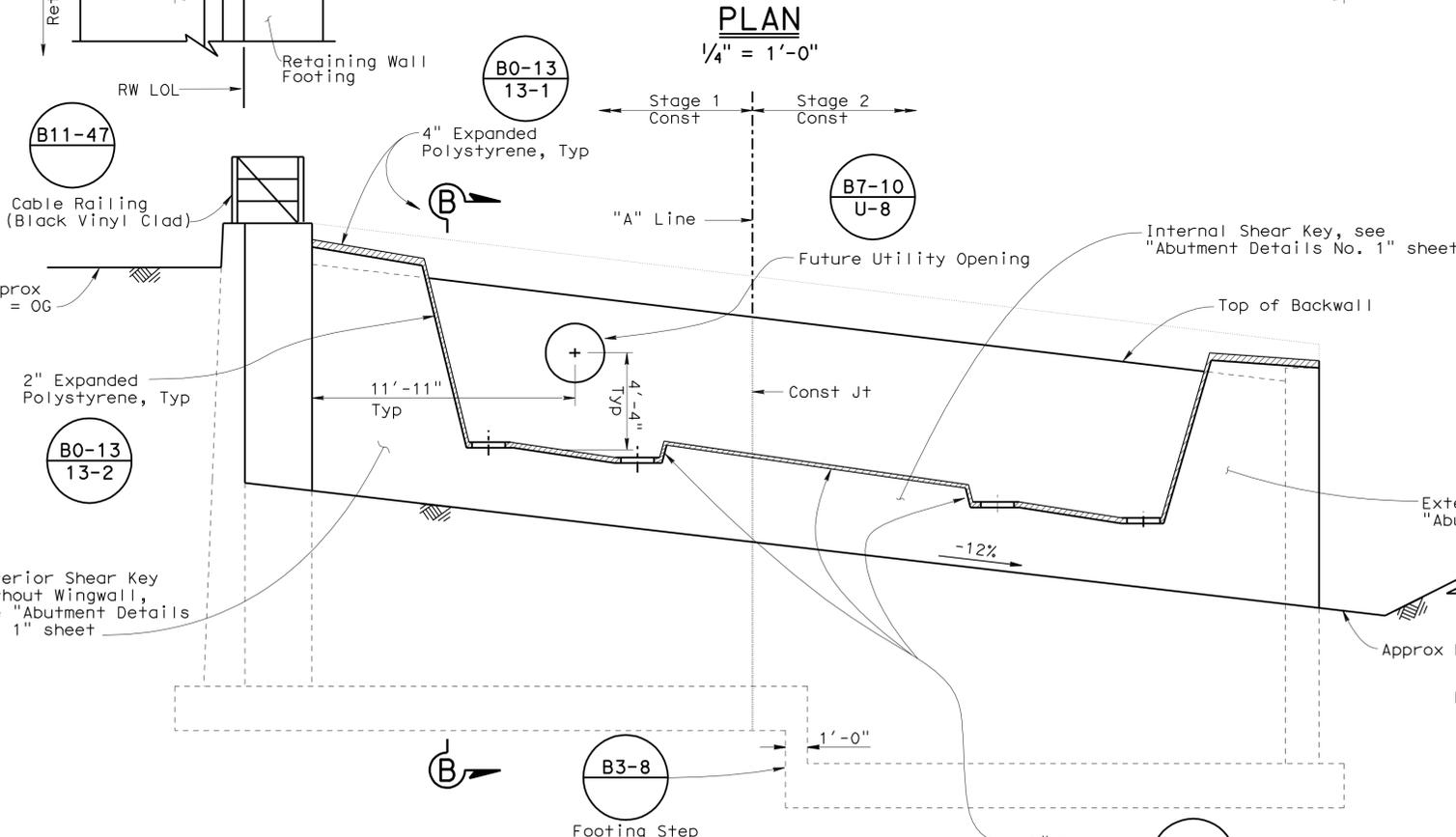
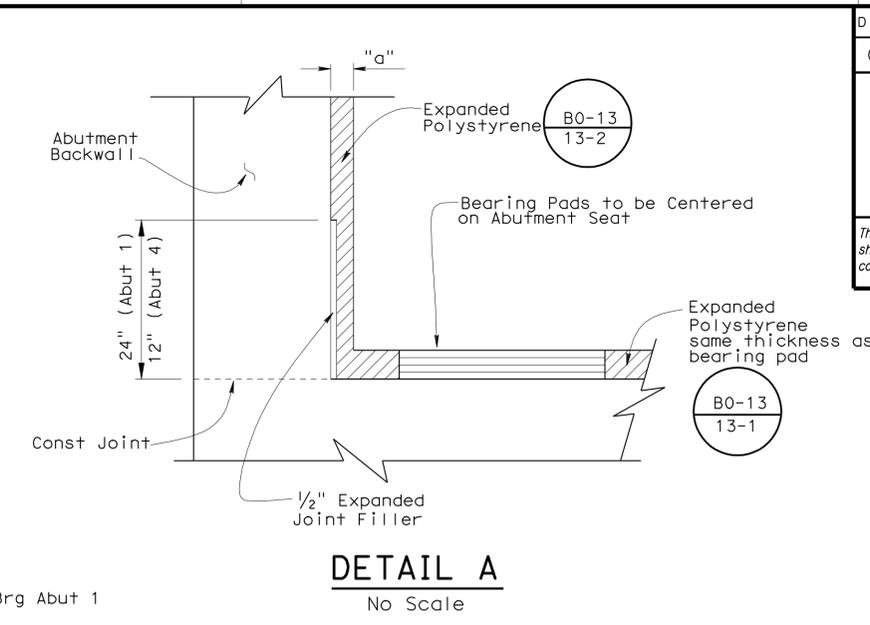
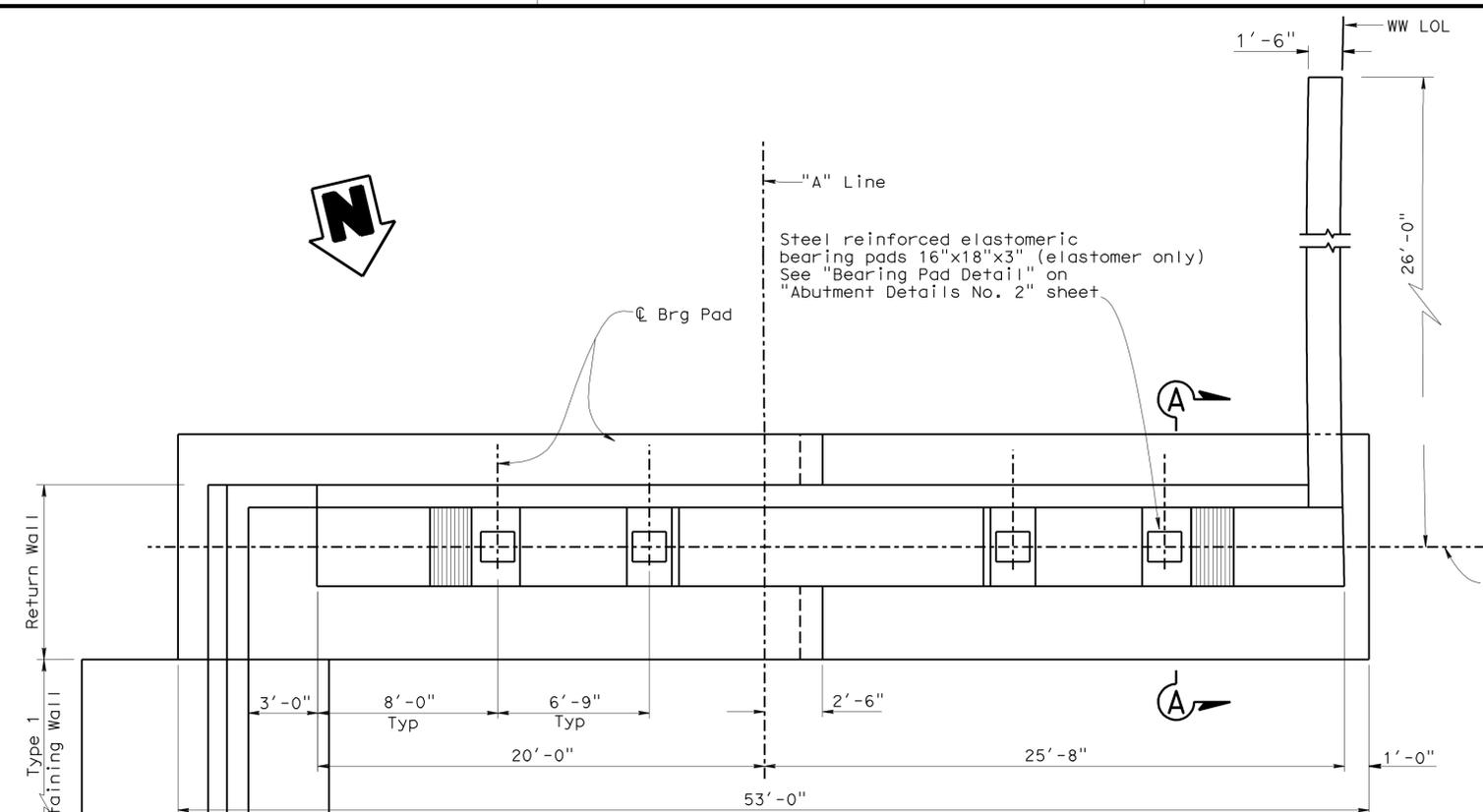
STRUCTURES FOUNDATION PLAN SHEET (ENGLISH) (REV. 10/25/05) ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

CU 01 EA 310101

FILE => 10-0156-e-fp102 .dgn

SHEET 5 OF 34

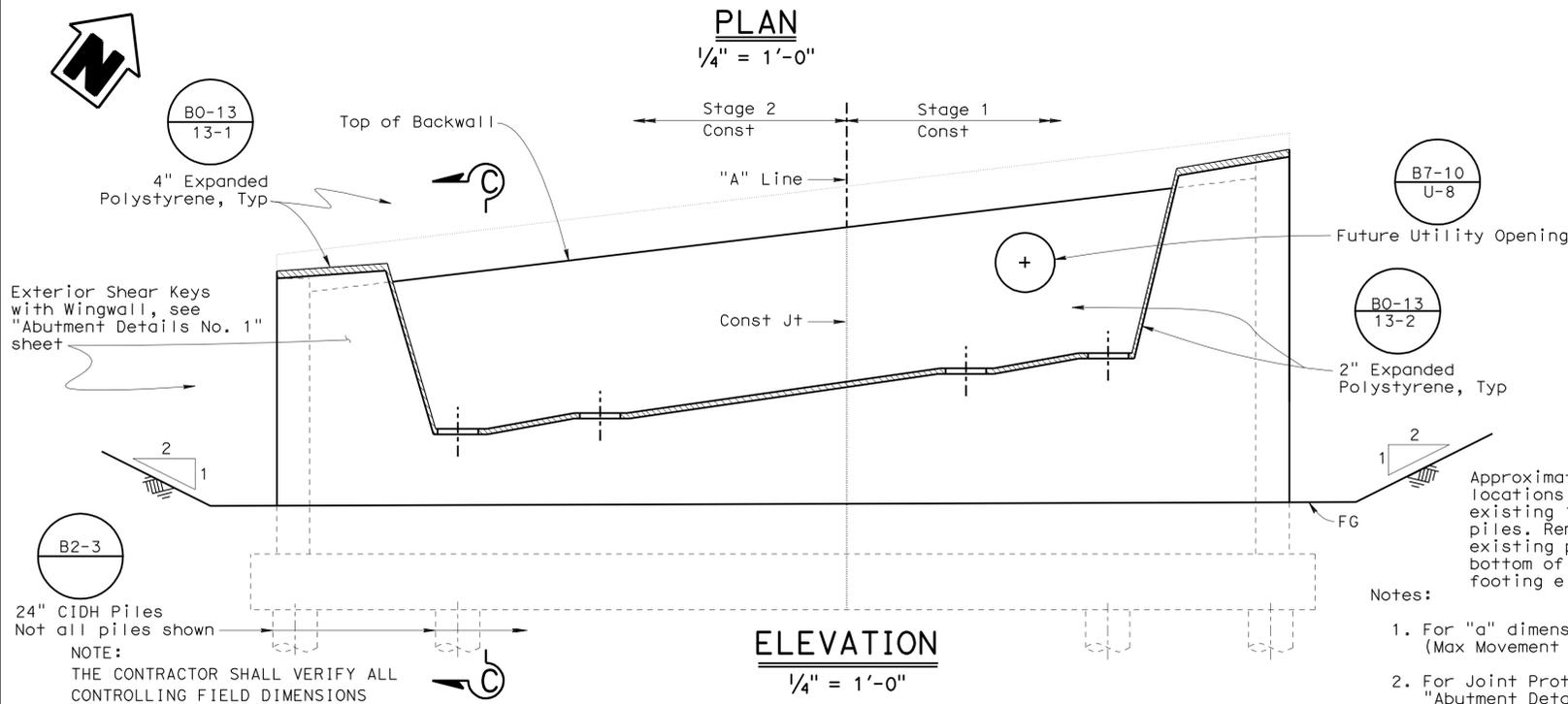
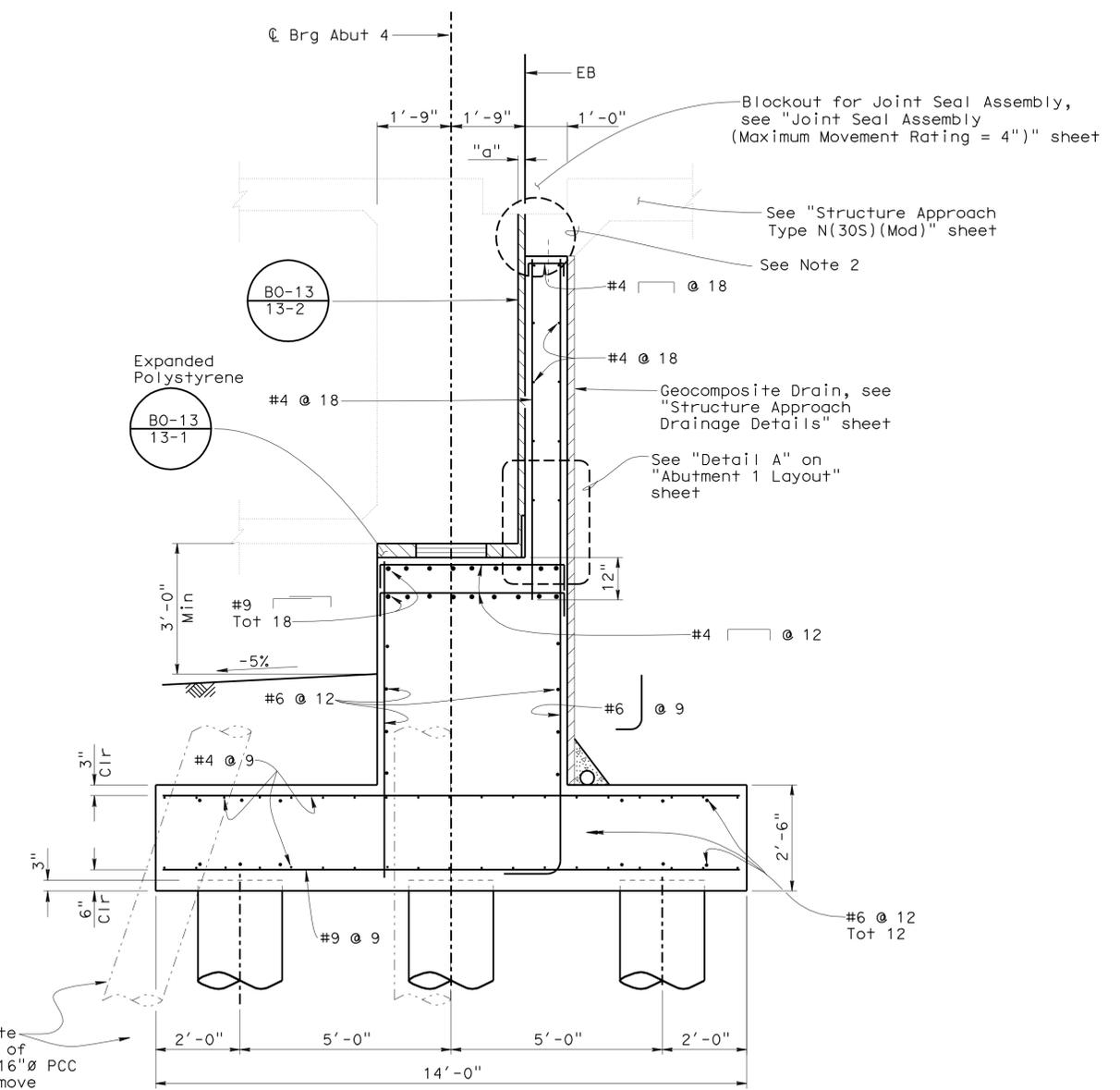
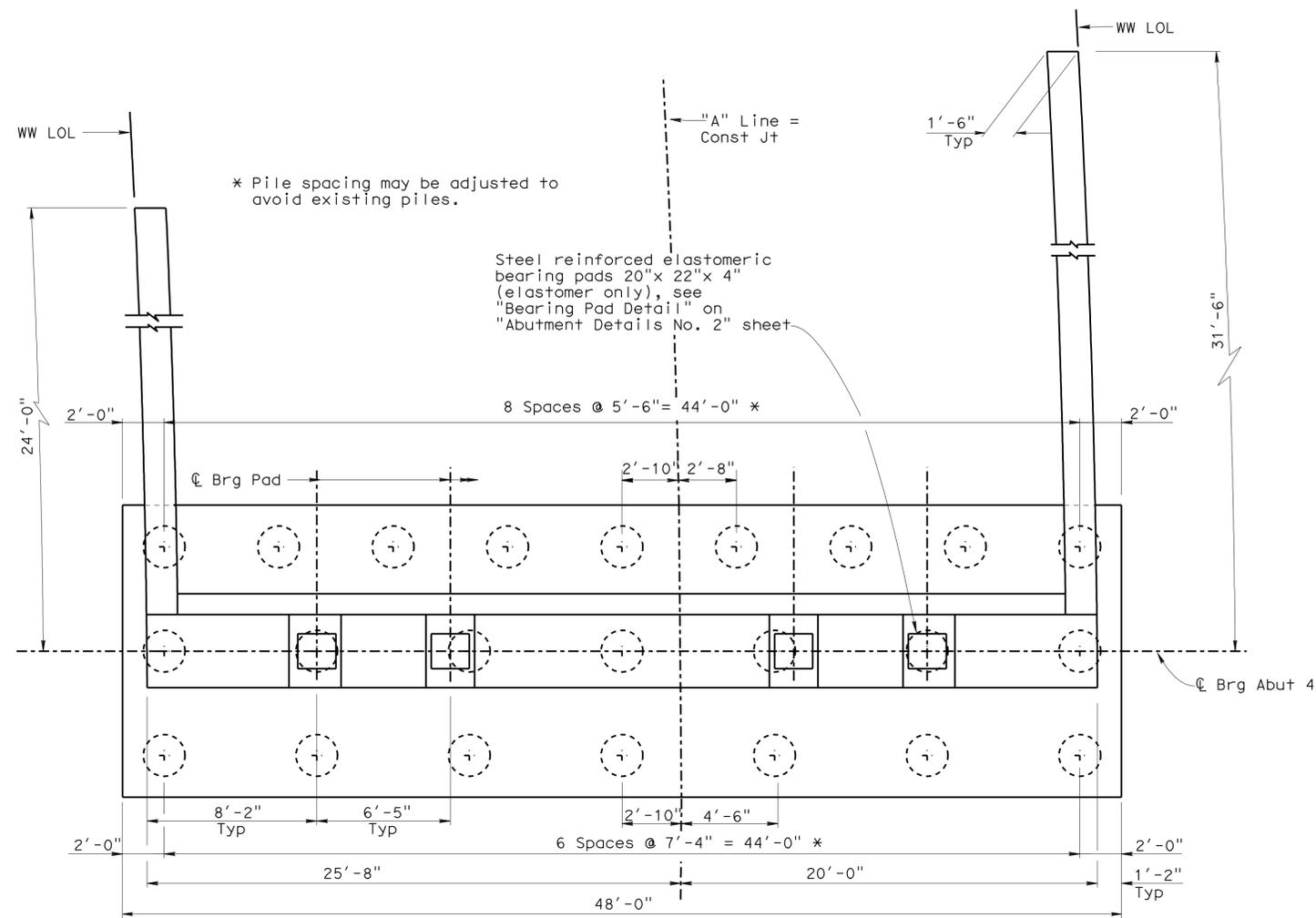
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Men	1	33.4/33.8	50	90
			01/26/10	REGISTERED CIVIL ENGINEER DATE	
			5-2-11	PLANS APPROVAL DATE	
			REGISTERED PROFESSIONAL ENGINEER No. 60714 Exp. 12/31/10 CIVIL STATE OF CALIFORNIA		
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.					



- Notes:
1. For "a" dimensions, see "Joint Seal Assembly (Max Movement Rating = 4)" sheet.
  2. For Joint Protection Detail, see "Abutment Details No. 2" sheet.
  3. "Section A-A" shown, "Section B-B" similar.
  4. For Return Wall Details, see "Abutment Details No. 1" sheet.

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 10/25/05)	DESIGN	BY Rizia da Cruz Ferreira	CHECKED Kyoung Lee	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 1	BRIDGE NO.	10-0156	GREENWOOD CREEK BRIDGE (REPLACE) ABUTMENT 1 LAYOUT
	DETAILS	BY Jinrong Zhou	CHECKED Kyoung Lee			POST MILE	33.63	
	QUANTITIES	BY Daniel Sessions	CHECKED A. Pearson/V.Shostak			REVISION DATES	12/22/08 16/11/09 02/22/09 03/14/09 05/07/09 07/16/09	
ORIGINAL SCALE IN INCHES FOR REDUCED PLANS				CU 01 EA 310101	DISREGARD PRINTS BEARING EARLIER REVISION DATES	SHEET 6 OF 34		FILE => 10-0156-f-a01_lo.dgn

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Men	1	33.4/33.8	51	90
			01/26/10	REGISTERED CIVIL ENGINEER DATE	
			5-2-11	PLANS APPROVAL DATE	
			Kyoung Hyeog Lee No. 60714 Exp. 12/31/10 CIVIL 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.					

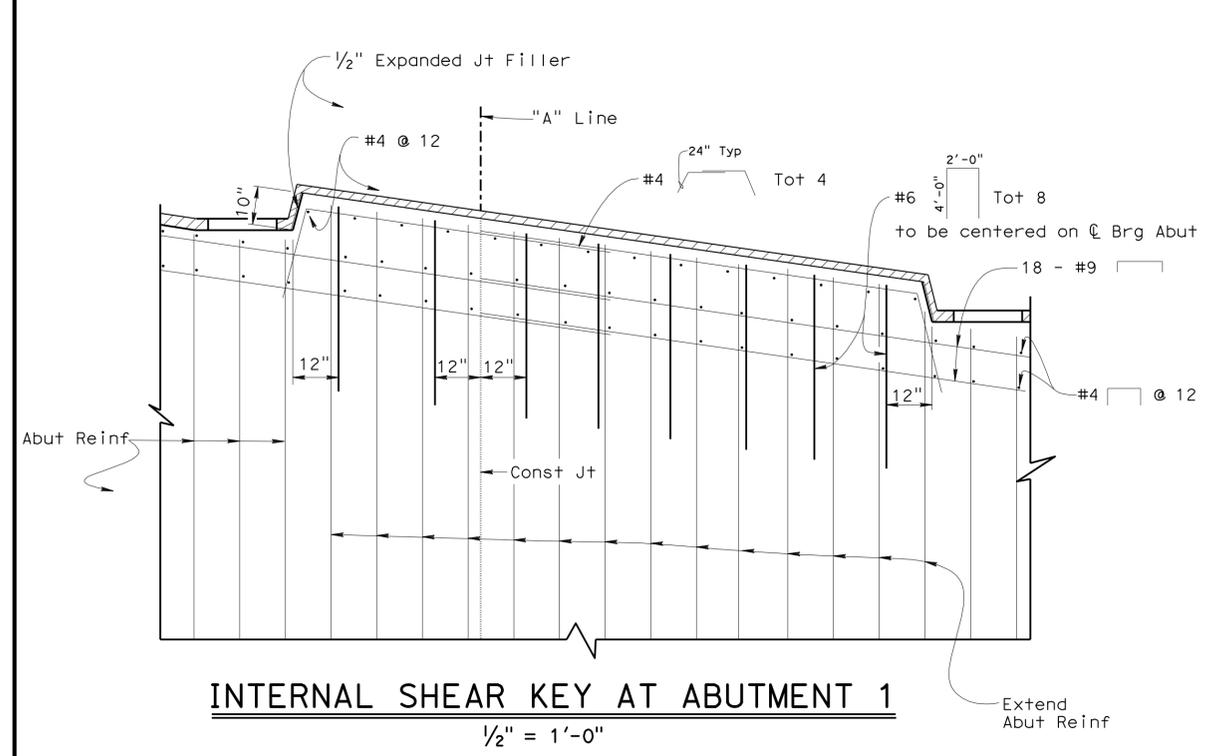


STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 10/25/05)	DESIGN	BY Rizia da Cruz Ferreira	CHECKED Kyoung Lee	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 1	BRIDGE NO.	10-0156	GREENWOOD CREEK BRIDGE (REPLACE) ABUTMENT 4 LAYOUT				
	DETAILS	BY Jinrong Zhou	CHECKED Kyoung Lee			POST MILE	33.63					
	QUANTITIES	BY Daniel Sessions	CHECKED A. Pearson/V. Shostak			CU 01 EA 310101	REVISION DATES		<table border="1"> <tr> <td>12/22/08</td> <td>01/26/10</td> <td>02/11/09</td> <td>02/24/09</td> <td>03/24/09</td> <td>05/24/09</td> <td>11/16/09</td> </tr> </table>	12/22/08	01/26/10	02/11/09
12/22/08	01/26/10	02/11/09	02/24/09	03/24/09	05/24/09	11/16/09						
ANY MATERIAL. THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.								SHEET 7 OF 34				

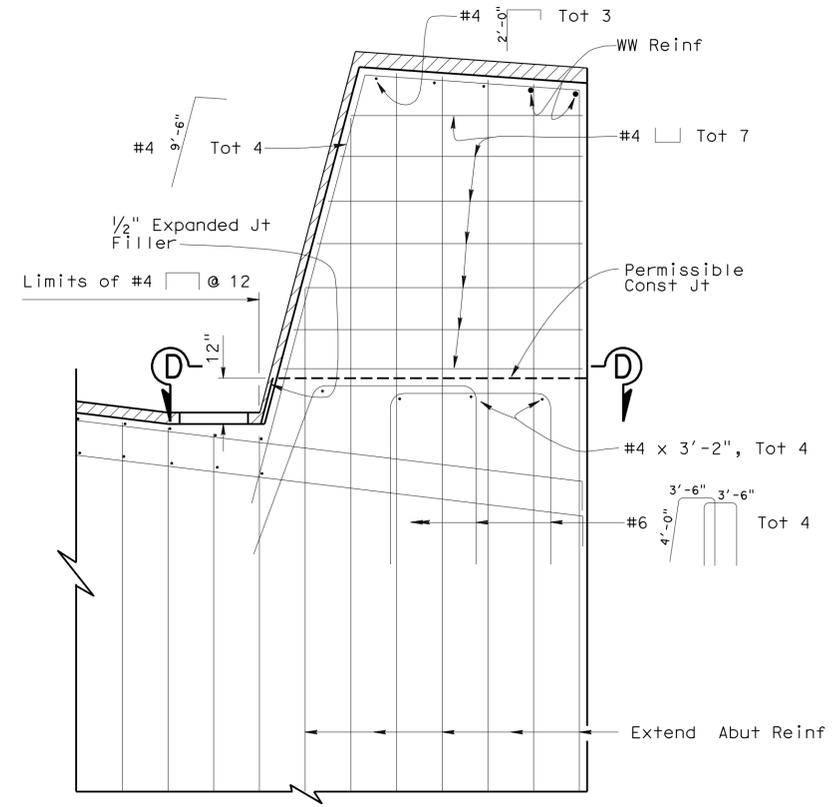
FILE => 10-0156-f-a04\_lo.dgn

USERNAME => hrmikes DATE PLOTTED => 06-MAY-2011 TIME PLOTTED => 1:31:16

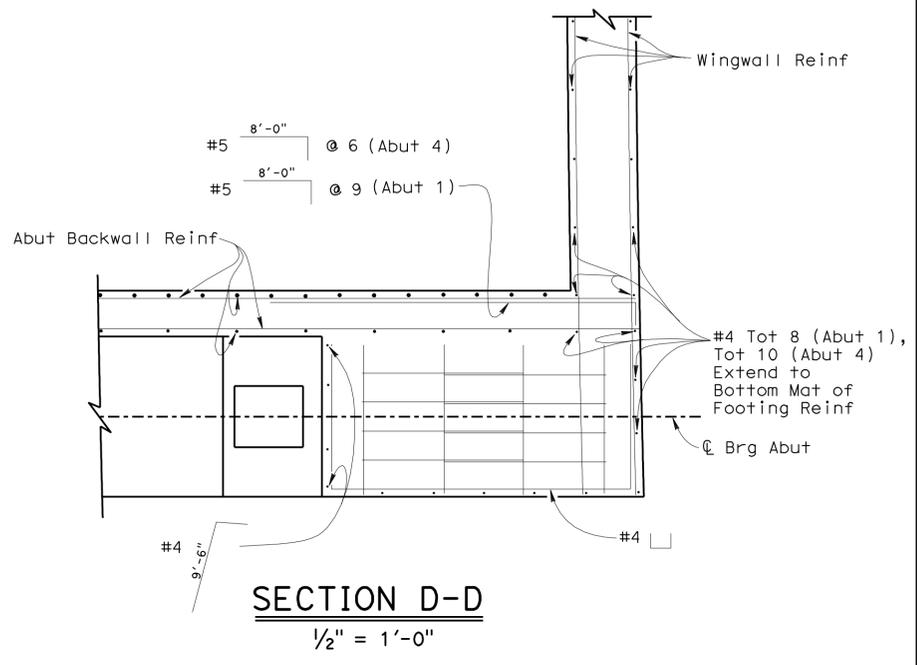
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Men	1	33.4/33.8	52	90
			01/26/10	REGISTERED CIVIL ENGINEER DATE	
			5-2-11	APPROVAL DATE	
			REGISTERED PROFESSIONAL ENGINEER Kyoung Hyeog Lee No. 60714 Exp. 12/31/10 CIVIL STATE OF CALIFORNIA		
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.					



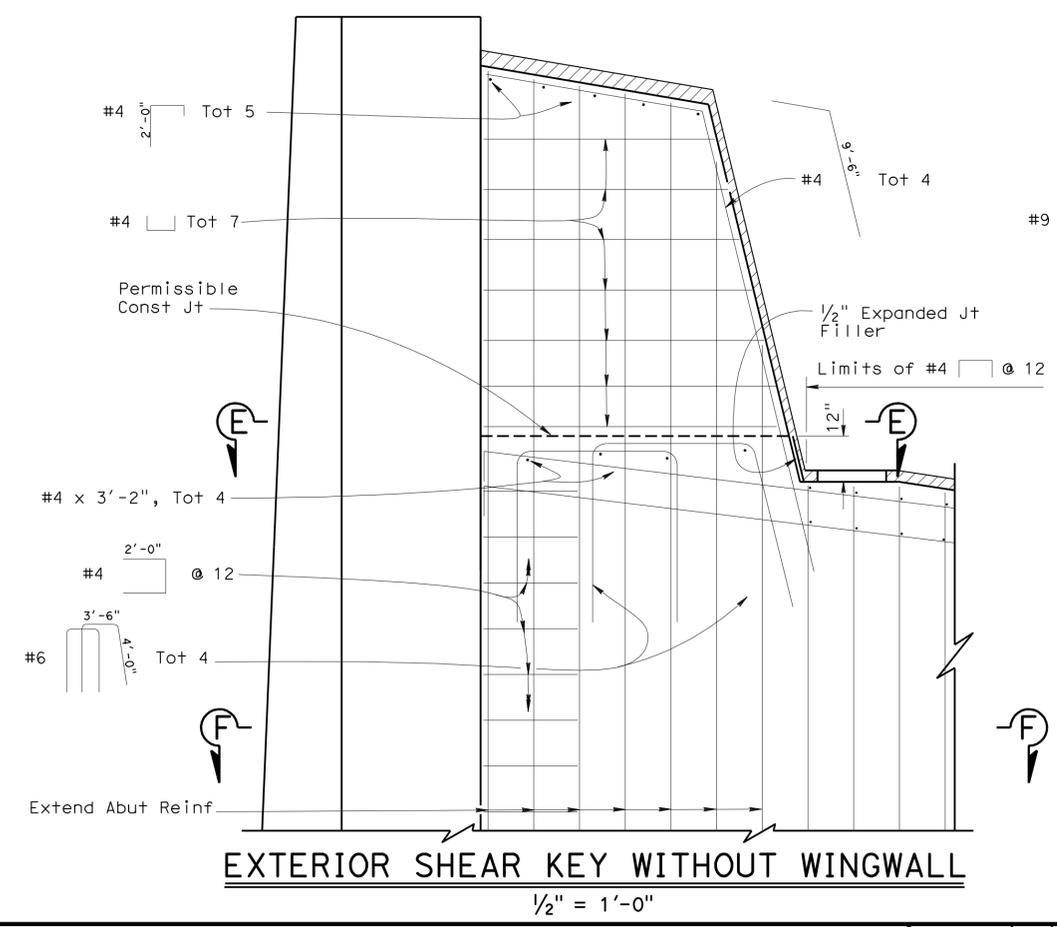
**INTERNAL SHEAR KEY AT ABUTMENT 1**  
1/2" = 1'-0"



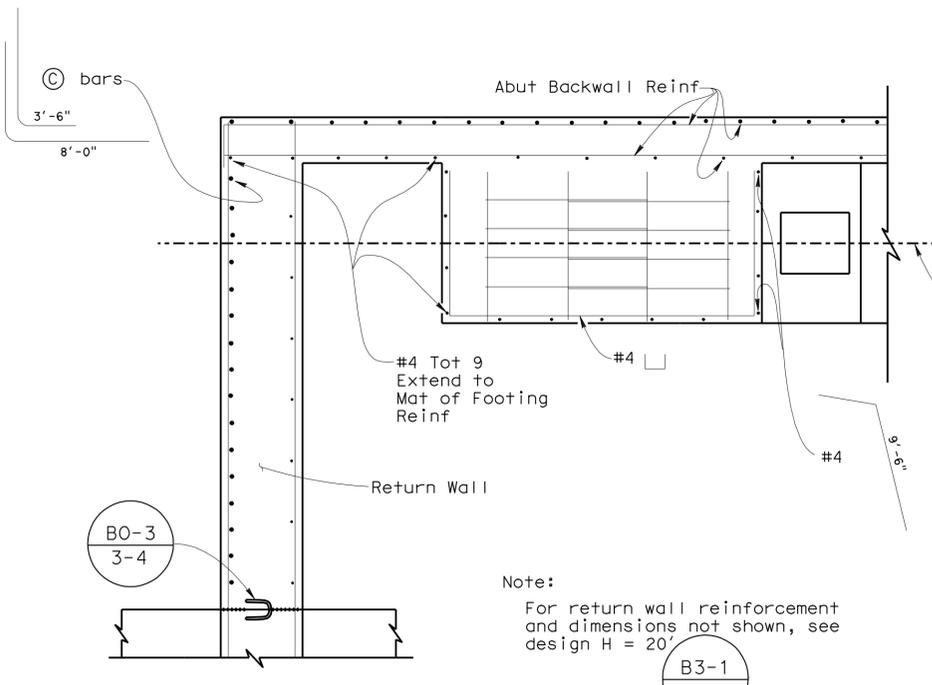
**EXTERIOR SHEAR KEY WITH WINGWALL**  
1/2" = 1'-0"



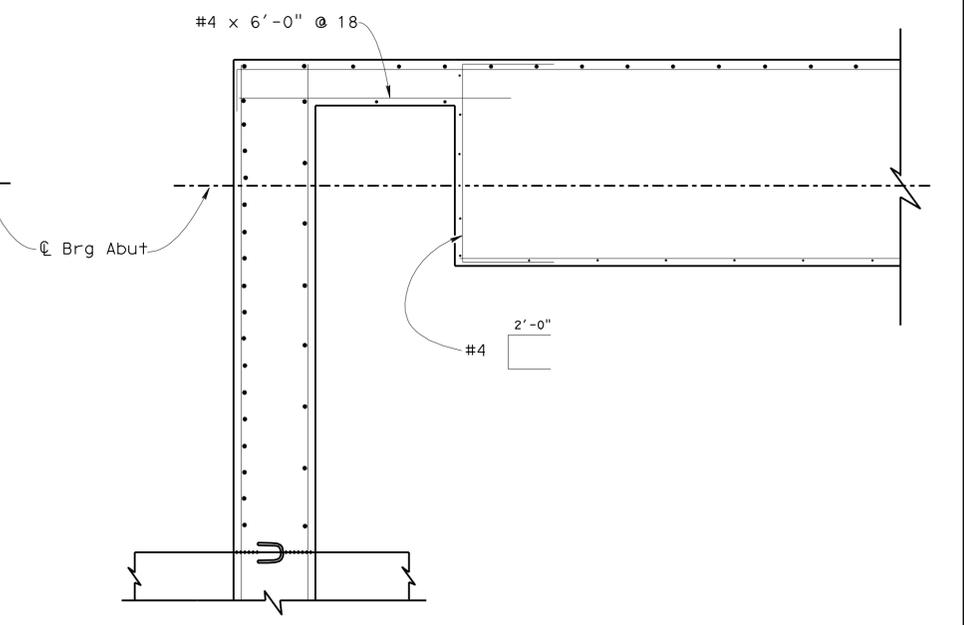
**SECTION D-D**  
1/2" = 1'-0"



**EXTERIOR SHEAR KEY WITHOUT WINGWALL**  
1/2" = 1'-0"



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



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

Note:  
For return wall reinforcement and dimensions not shown, see design H = 20'

DESIGN	BY Rizia da Cruz Ferreira	CHECKED Kyoung Lee	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 1	BRIDGE NO.	GREENWOOD CREEK BRIDGE (REPLACE)								
	DETAILS BY Jinrong Zhou	CHECKED Kyoung Lee			10-0156									
QUANTITIES	BY Daniel Sessions	CHECKED A. Pearson/V. Shostak	POST MILE	33.63	ABUTMENT DETAILS NO. 1									
STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 10/25/05)			ORIGINAL SCALE IN INCHES FOR REDUCED PLANS	CU 01 EA 310101	DISREGARD PRINTS BEARING EARLIER REVISION DATES	<table border="1"> <tr> <td>01/12/09</td> <td>02/12/09</td> <td>02/22/09</td> <td>02/27/09</td> <td>03/04/09</td> <td>03/27/09</td> <td>05/14/09</td> <td>11/16/09</td> </tr> </table>	01/12/09	02/12/09	02/22/09	02/27/09	03/04/09	03/27/09	05/14/09	11/16/09
01/12/09	02/12/09	02/22/09	02/27/09	03/04/09	03/27/09	05/14/09	11/16/09							
				FILE => 10-0156-f-adf01.dgn	SHEET 8	OF 34								

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Men	1	33.4/33.8	53	90

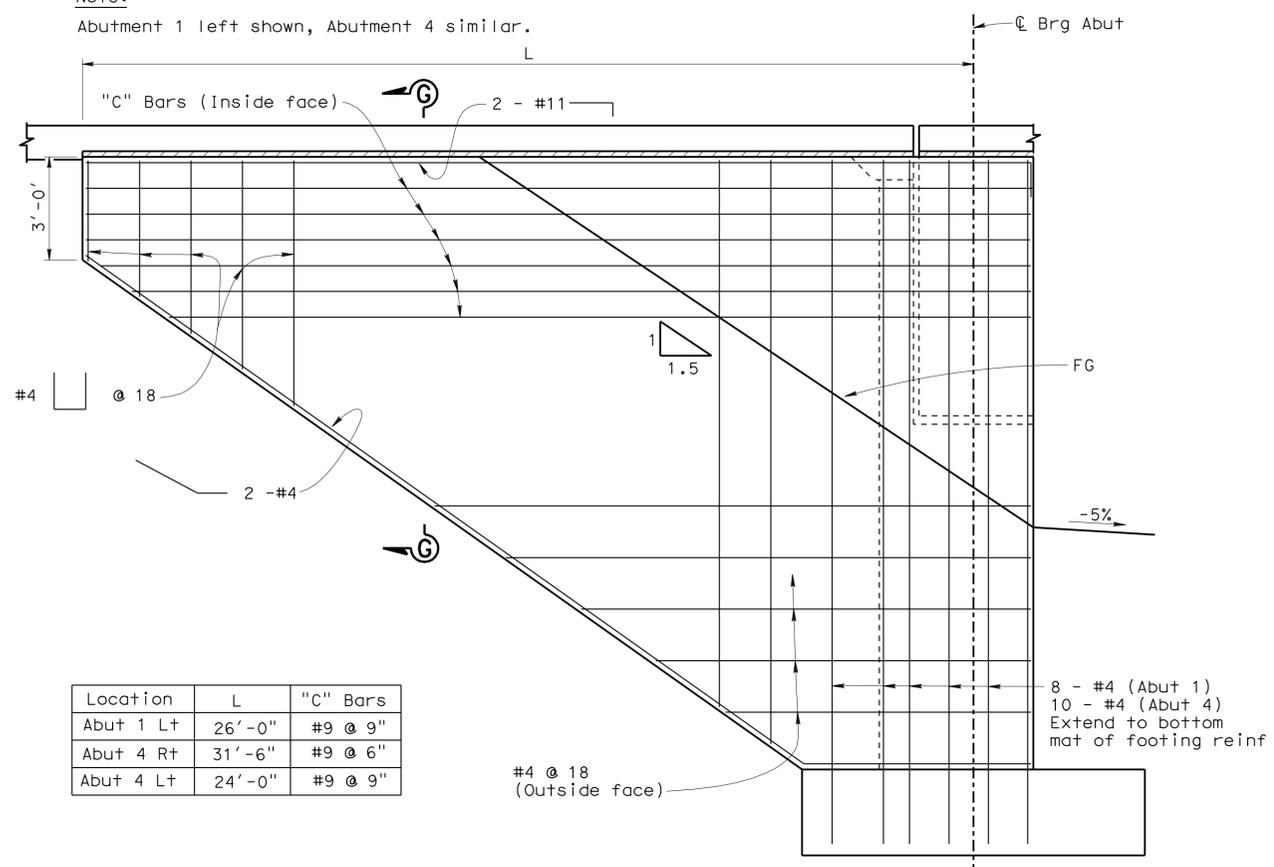
01/26/10  
REGISTERED CIVIL ENGINEER DATE

5-2-11  
APPROVAL DATE

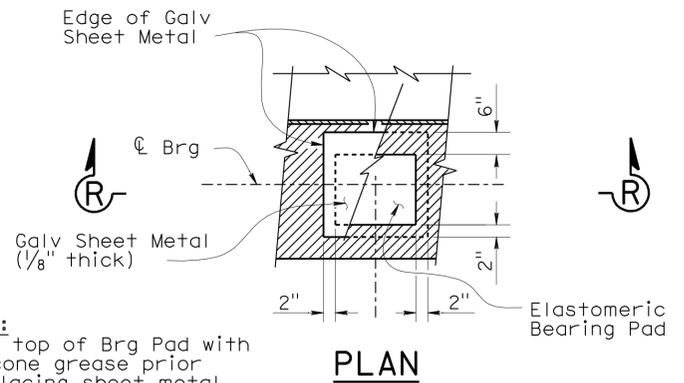
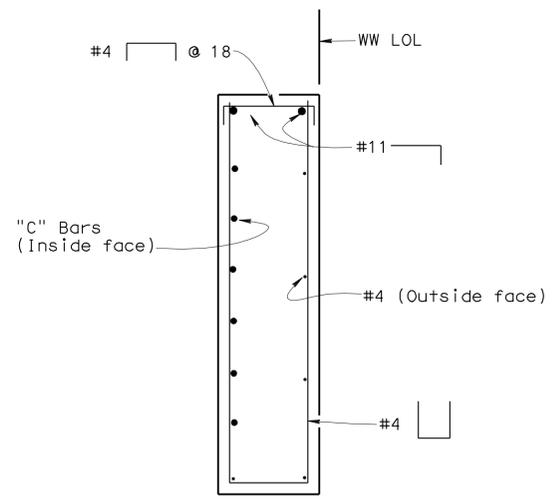
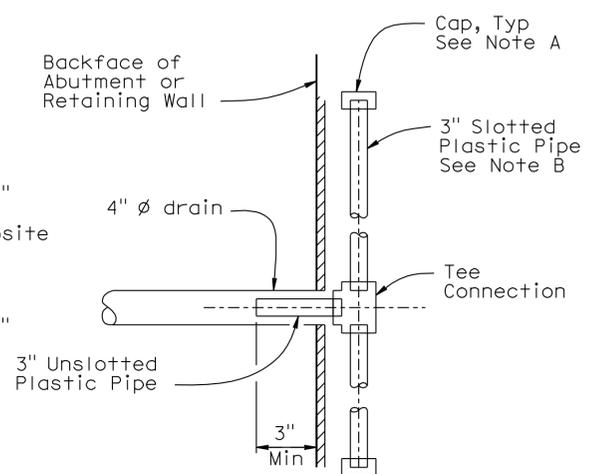
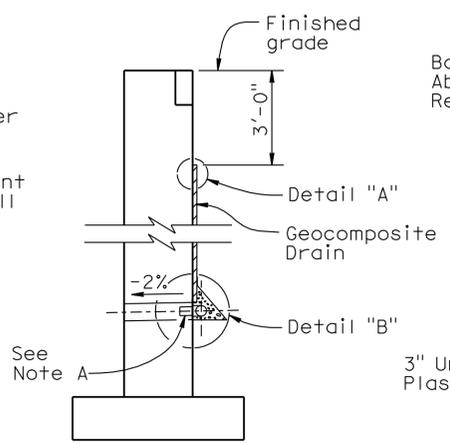
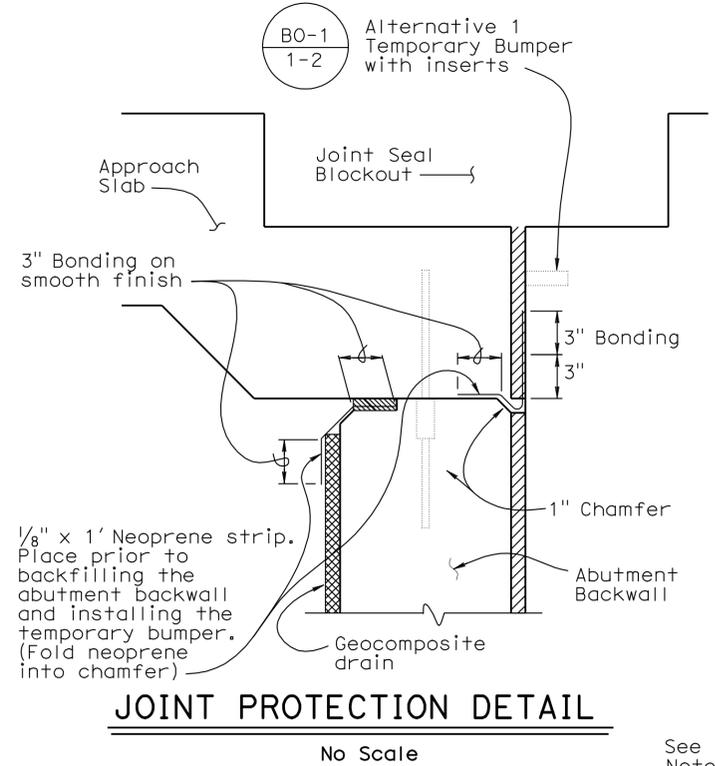
REGISTERED PROFESSIONAL ENGINEER  
Kyoung Hyeog Lee  
No. 60714  
Exp. 12/31/10  
CIVIL  
STATE OF CALIFORNIA

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.

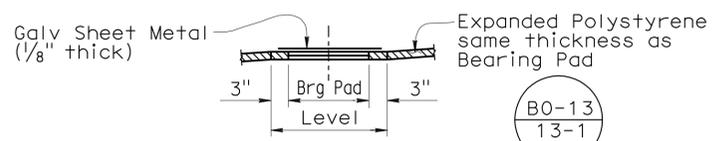
Note:  
Abutment 1 left shown, Abutment 4 similar.



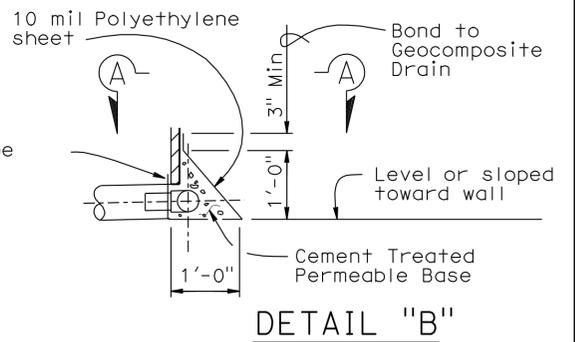
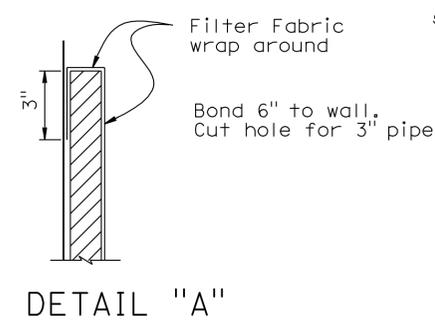
Location	L	"C" Bars
Abut 1 Lt	26'-0"	#9 @ 9"
Abut 4 Rt	31'-6"	#9 @ 6"
Abut 4 Lt	24'-0"	#9 @ 9"



Note:  
Coat top of Brg Pad with silicone grease prior to placing sheet metal.



BEARING PAD DETAIL  
No Scale  
Details typical at all bearing pads



WEEP HOLE AND GEOCOMPOSITE DRAIN

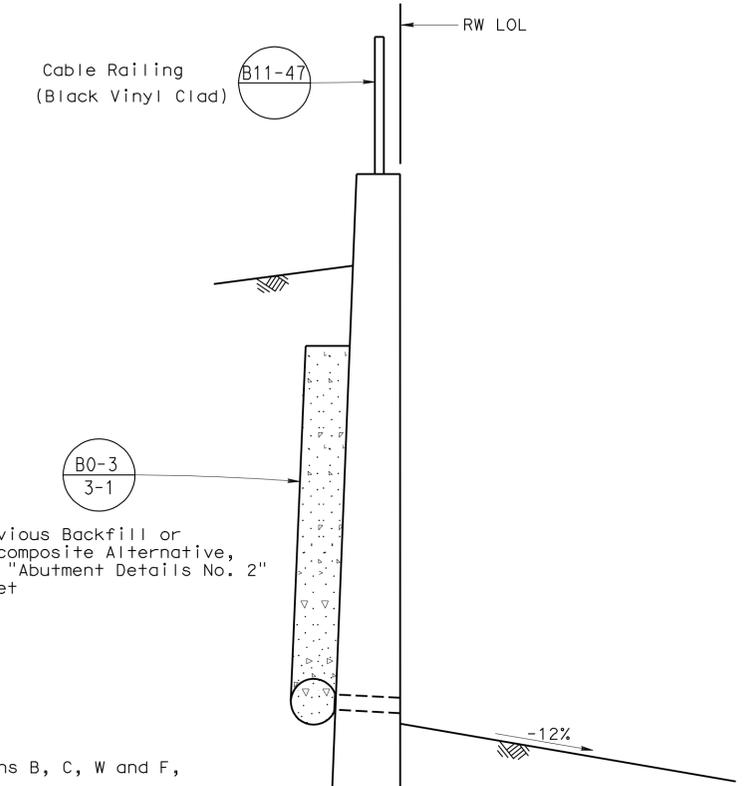
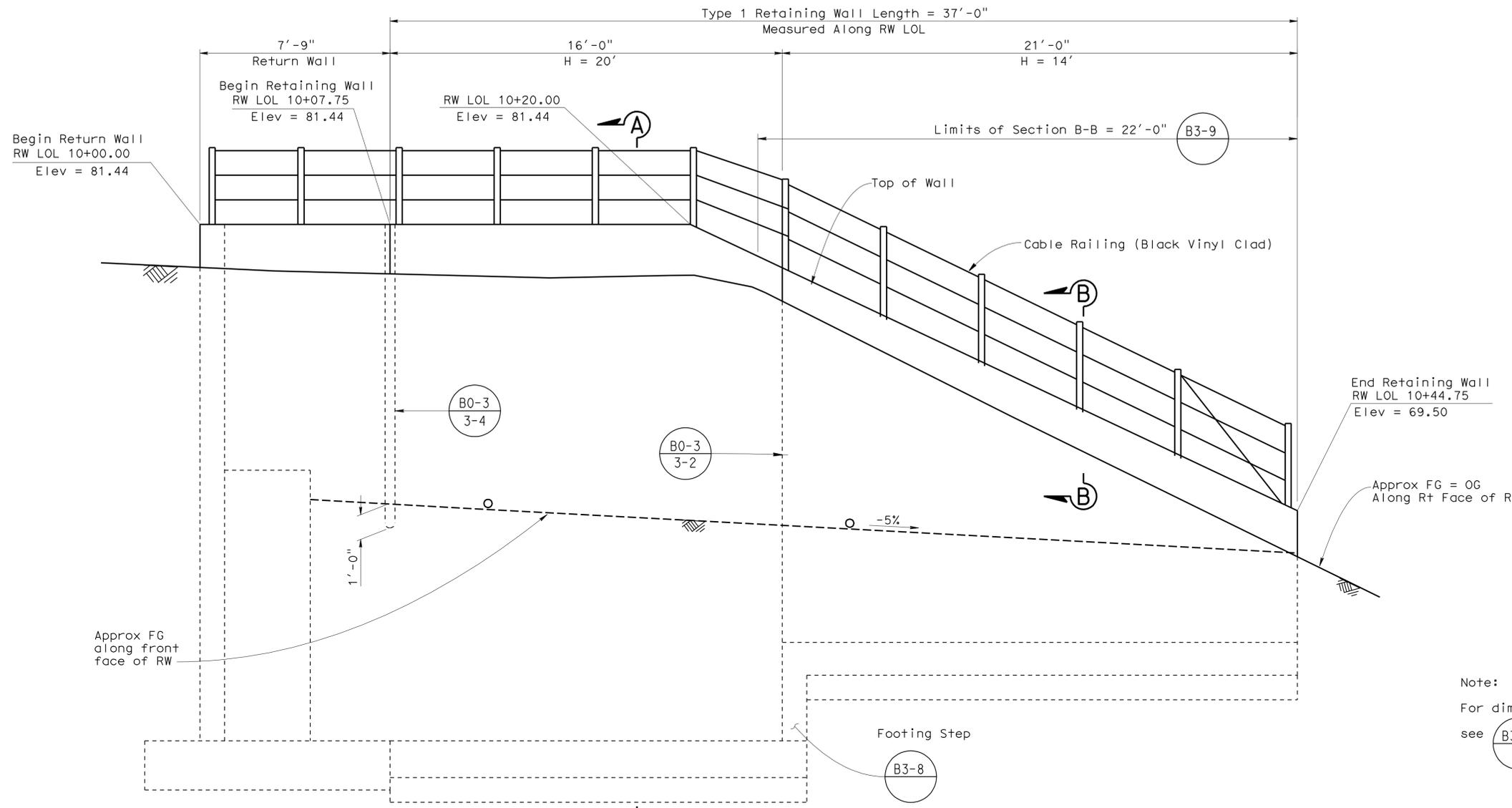
- ALTERNATIVE TO BRIDGE DETAIL (B0-3 3-1)
- Notes:
- A. Geocomposite drain, cement treated permeable base, and 3"Ø slotted plastic pipe continuous behind retaining wall or abutment. Cap ends of pipe. Provide "Tee" connection at each 4"Ø drain.
  - B. Connect the low end of plastic pipe to the main outlet pipe as applicable.

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 10/25/05)	DESIGN	BY Rizia da Cruz Ferreira	CHECKED Kyoung Lee	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 1	BRIDGE NO.	10-0156	GREENWOOD CREEK BRIDGE (REPLACE) ABUTMENT DETAILS NO. 2
	DETAILS	BY Jinrong Zhou	CHECKED Kyoung Lee			POST MILE	33.63	
	QUANTITIES	BY Daniel Sessions	CHECKED A. Pearson/V. Shostak			CU 01 EA 310101	REVISION DATES	
ORIGINAL SCALE IN INCHES FOR REDUCED PLANS				0 1 2 3	DISREGARD PRINTS BEARING EARLIER REVISION DATES	12/28/08 02/13/09 02/21/09 03/02/09 03/21/09 05/07/09 05/14/09 7/14/09	SHEET 9	OF 34

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Men	1	33.4/33.8	54	90

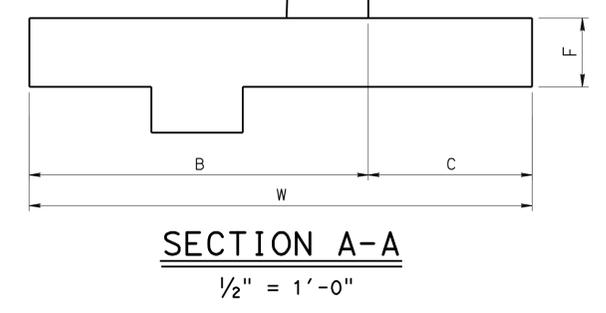
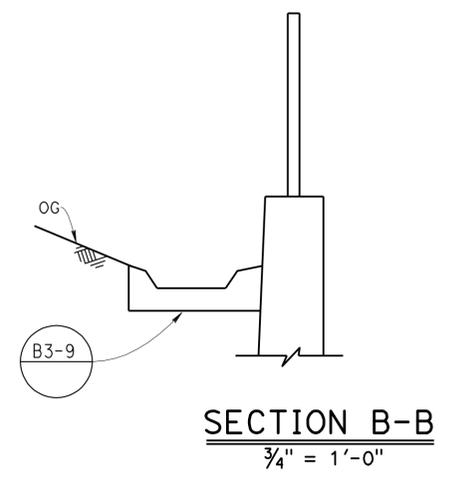
01/26/10  
 REGISTERED CIVIL ENGINEER DATE  
 5-2-11  
 PLANS APPROVAL DATE  
 The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

REGISTERED PROFESSIONAL ENGINEER  
 Kyoung Hyeog Lee  
 No. 60714  
 Exp. 12/31/10  
 CIVIL  
 STATE OF CALIFORNIA



Note:  
 For dimensions B, C, W and F, see (B3-1)

ELEVATION  
 $\frac{3}{8}'' = 1'-0''$



DESIGN	BY Rizia da Cruz Ferreira	CHECKED Kyoung Lee
DETAILS	BY Jinrong Zhou	CHECKED Kyoung Lee
QUANTITIES	BY Daniel Sessions	CHECKED A. Pearson/V. Shostak

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES  
 STRUCTURE DESIGN  
 DESIGN BRANCH 1

BRIDGE NO.	10-0156
POST MILE	33.63

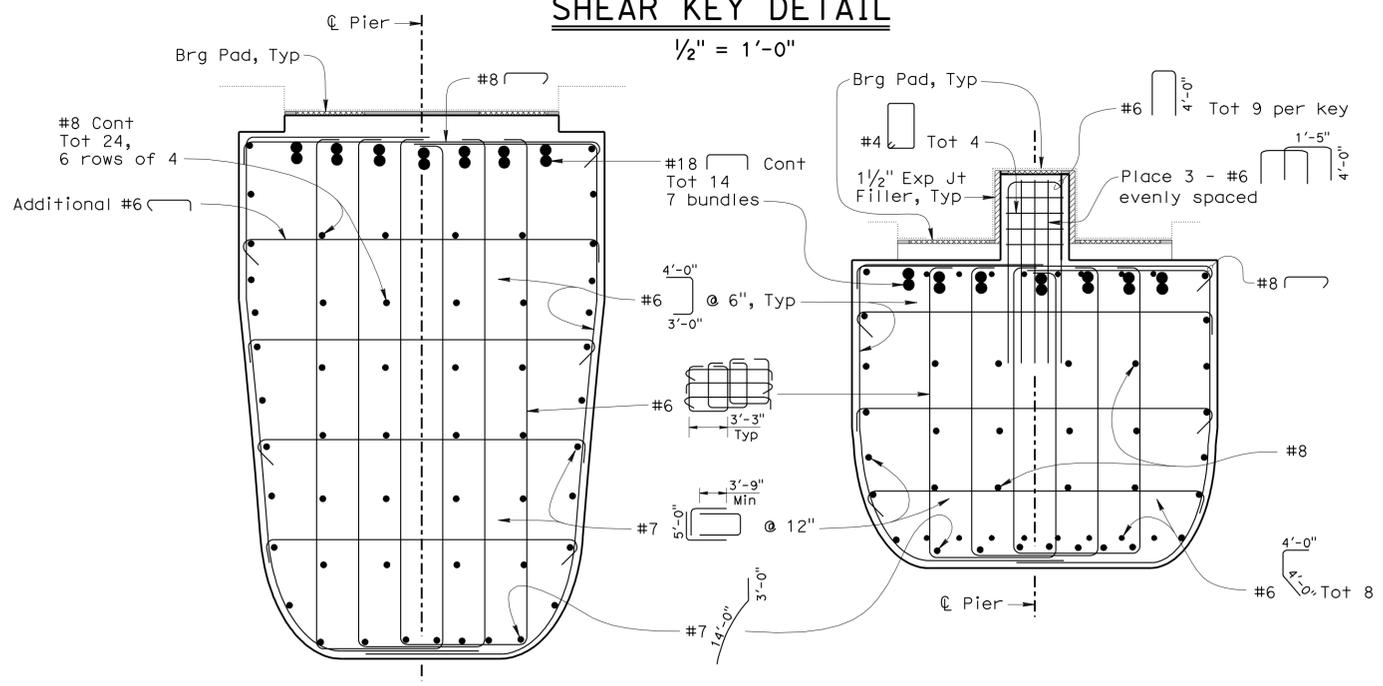
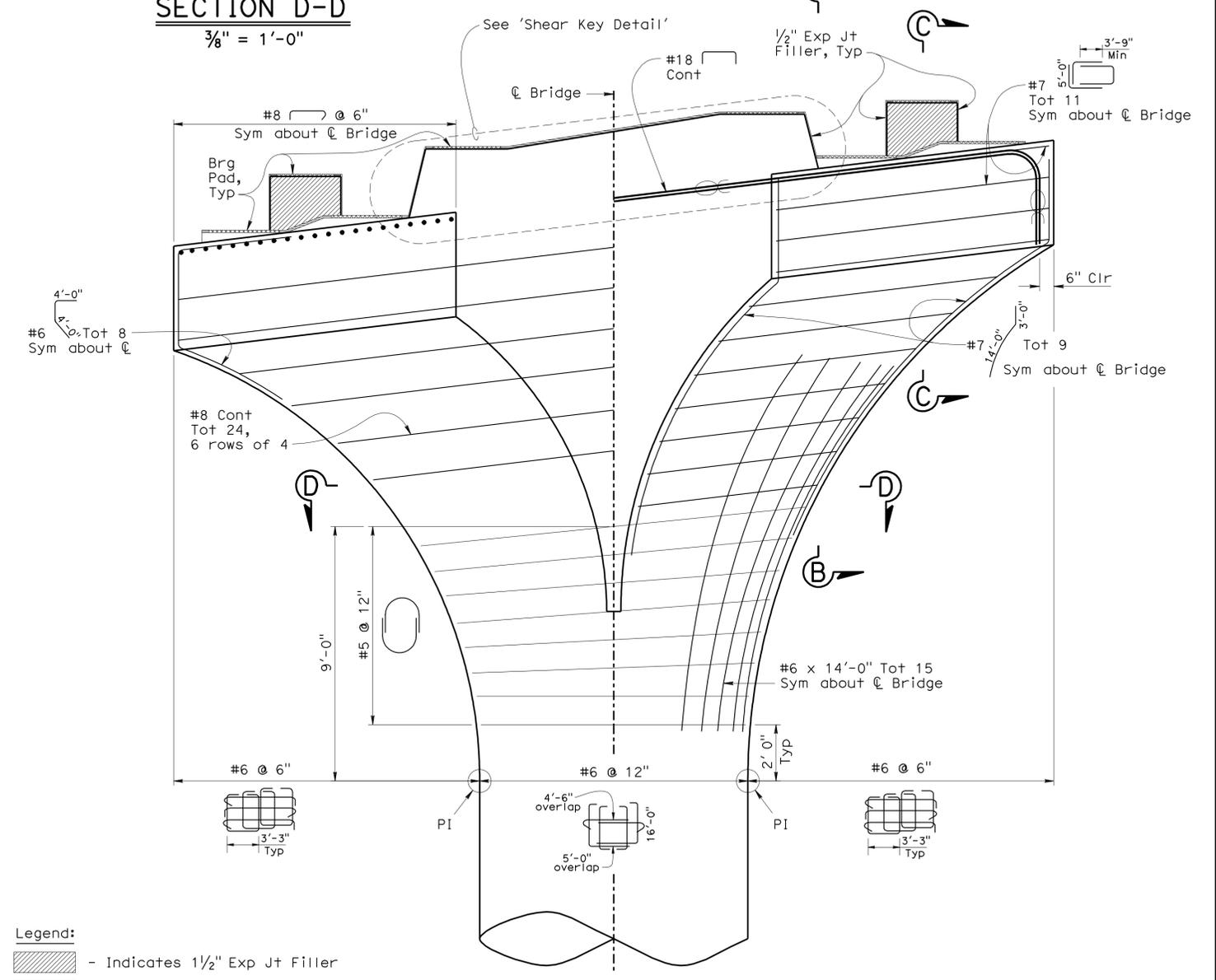
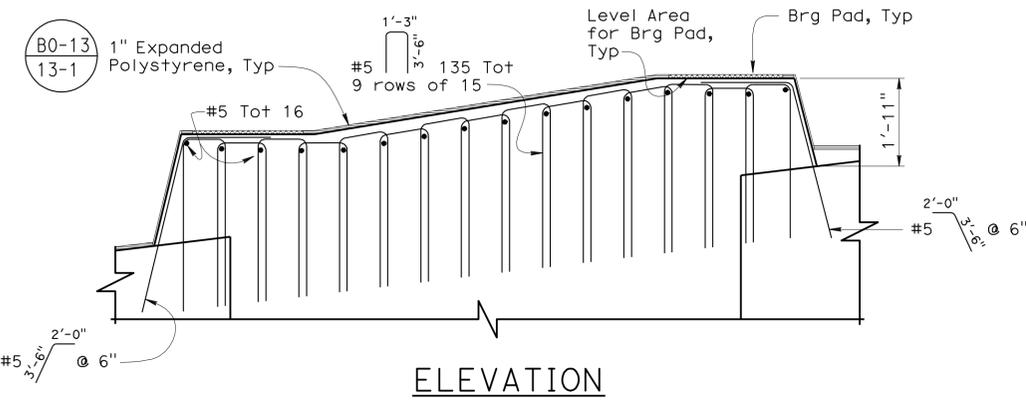
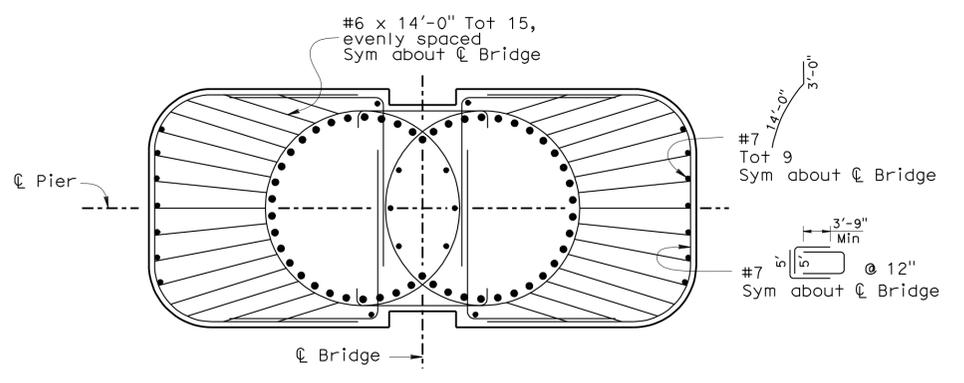
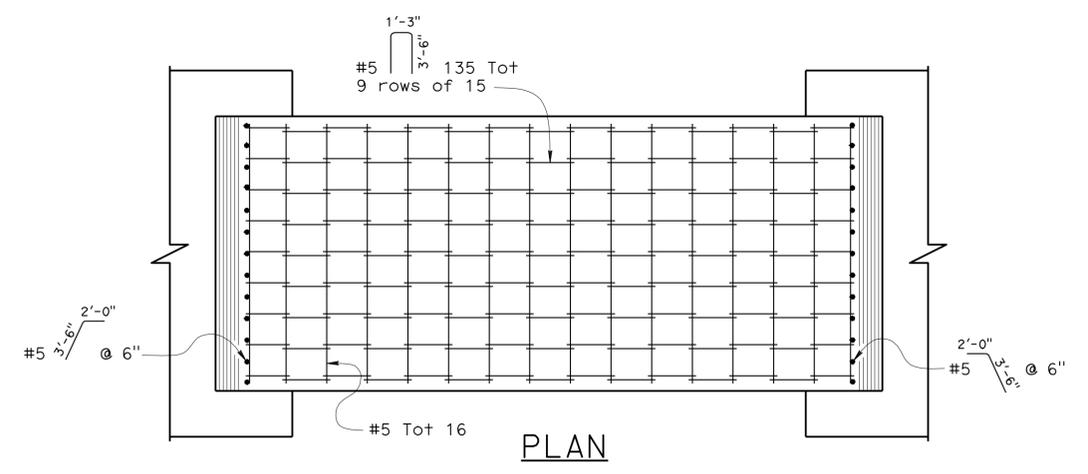
GREENWOOD CREEK BRIDGE (REPLACE)  
 RETAINING WALL LAYOUT



DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Men	1	33.4/33.8	56	90

01/26/10  
 REGISTERED CIVIL ENGINEER DATE  
 5-2-11  
 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  
 Kyoung Hyeog Lee  
 No. 60714  
 Exp. 12/31/10  
 CIVIL  
 STATE OF CALIFORNIA



- Legend:**
- Indicates 1/2" Exp Jt Filler
  - Indicates 1/2" Exp Jt Filler
  - Indicates 1" Expanded Polystyrene
  - Indicates Bearing Pad

DESIGN	BY Eric Watson	CHECKED Kyoung Lee	<b>STATE OF CALIFORNIA</b> <b>DEPARTMENT OF TRANSPORTATION</b>	<b>DIVISION OF ENGINEERING SERVICES</b> <b>STRUCTURE DESIGN</b> <b>DESIGN BRANCH 1</b>	BRIDGE NO.	10-0156	<b>GREENWOOD CREEK BRIDGE (REPLACE)</b> <b>PIER DETAILS NO. 1</b>
DETAILS	BY Bob Huddleston	CHECKED Kyoung Lee			POST MILE	33.63	
QUANTITIES	BY Daniel Sessions	CHECKED A. Pearson/V. Shostak					

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 10/25/05) ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

CU 01  
 EA 310101

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES	2/18/09	05/14/09	7/13/09	11/17/09	3/7/09	03/12/09	3/13/09	3/14/09	05/26/09
SHEET	12	OF	34						

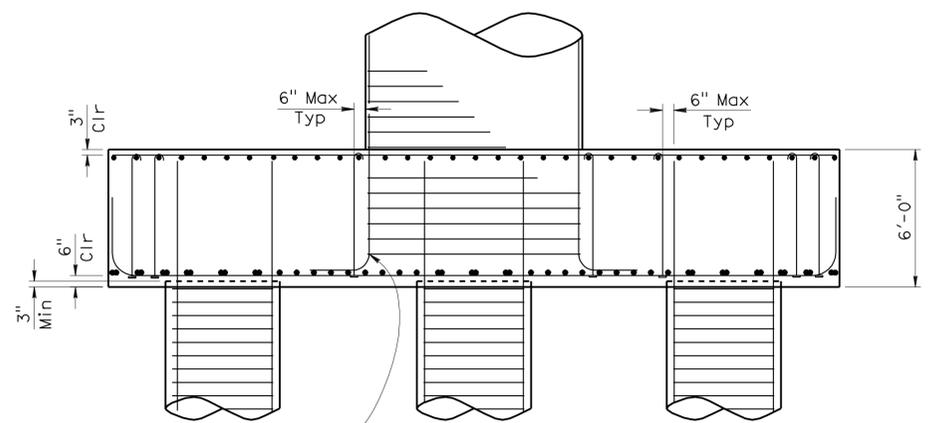
USERNAME => hrmikes DATE PLOTTED => 06-MAY-2011 TIME PLOTTED => 13:17

FILE => 10-0156-1-p01d101.dgn

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Men	1	33.4/33.8	57	90

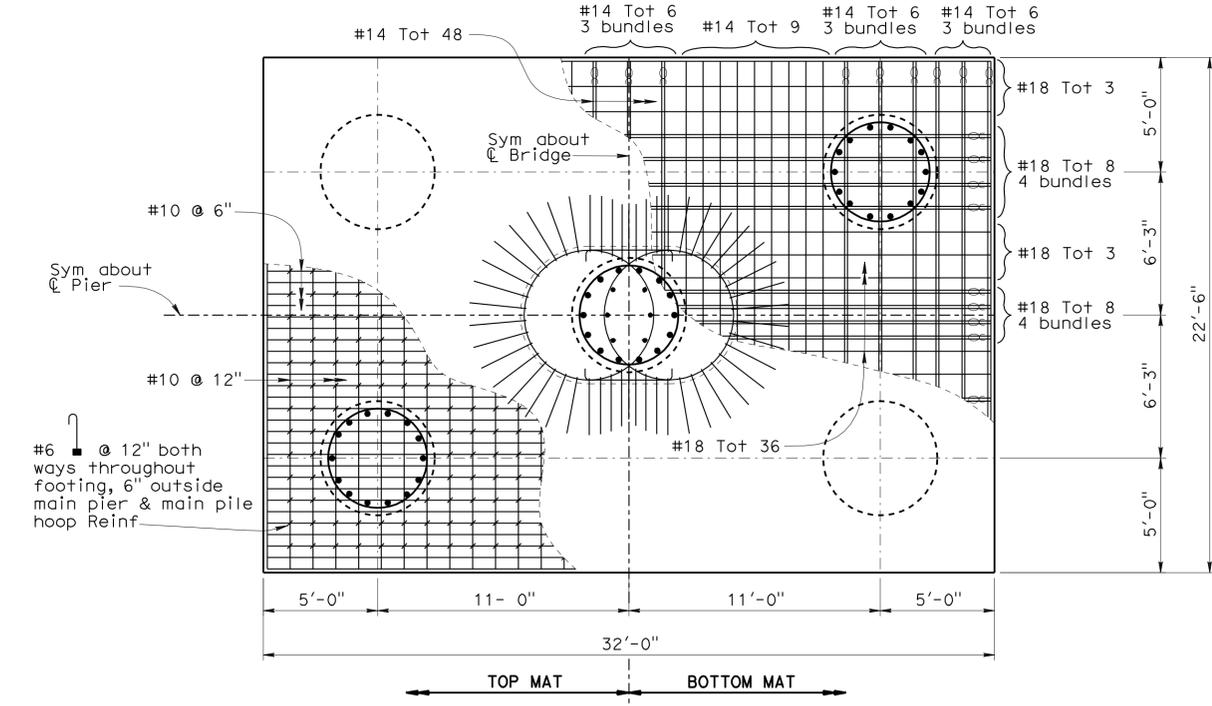
01/26/10  
 REGISTERED CIVIL ENGINEER DATE  
 5-2-11  
 PLANS APPROVAL DATE  
 The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

REGISTERED PROFESSIONAL ENGINEER  
 Kyoung Hyeog Lee  
 No. 60714  
 Exp. 12/31/10  
 CIVIL  
 STATE OF CALIFORNIA



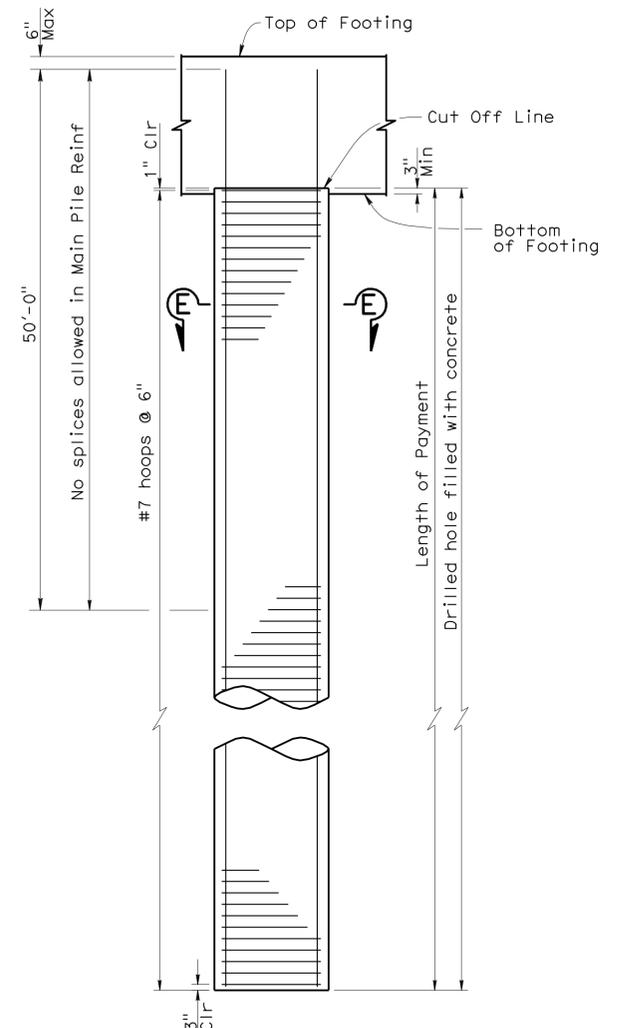
**ELEVATION**  
1/4" = 1'-0"

Reinf symmetrical about C Bridge & C Pier

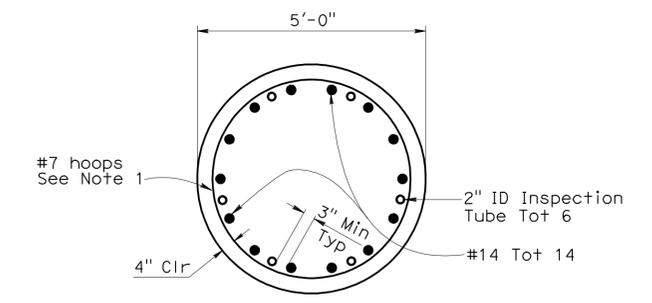


**FOOTING PLAN**  
1/4" = 1'-0"

**Legend:**  
 ∞ - Indicates bundles bars  
 U - Indicates headed tie with 180° hook



**ELEVATION**  
1/4" = 1'-0"



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

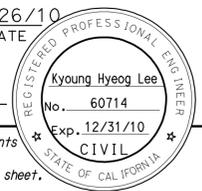
**Note:**  
All hoops are "Ultimate" butt spliced continuous.

**60" CIDH CONCRETE PILE**

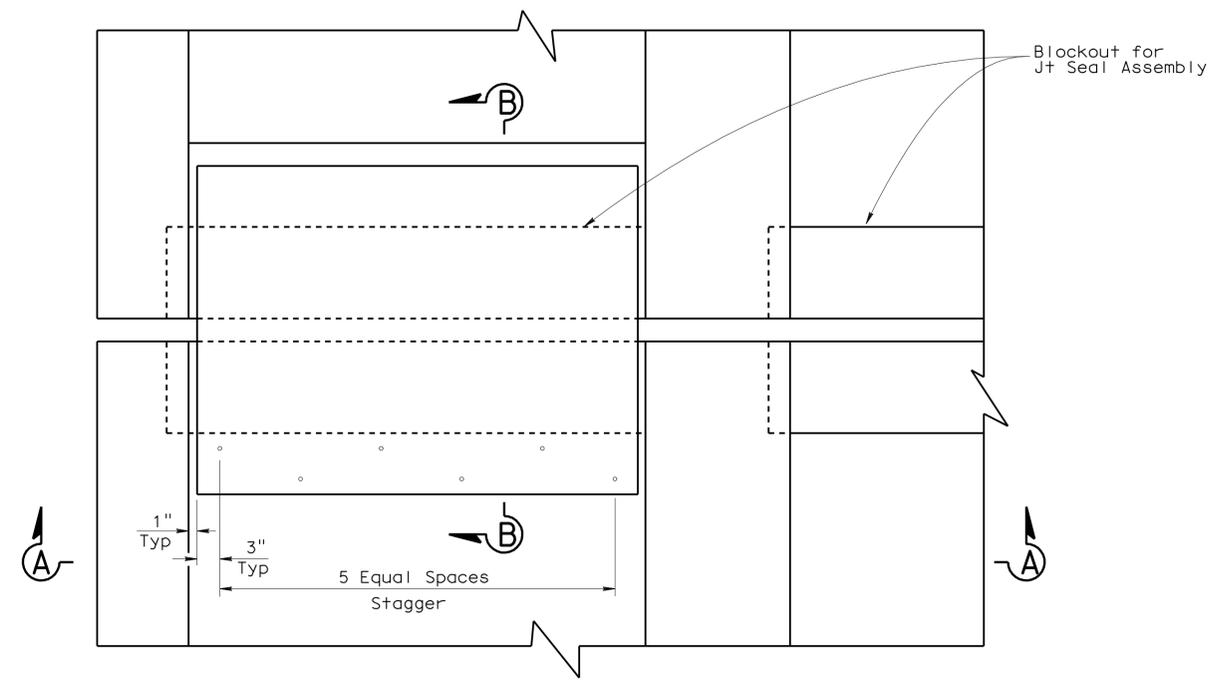
STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 10/25/05)	DESIGN	BY Eric Watson	CHECKED Kyoung Lee	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 1	BRIDGE NO.	10-0156	GREENWOOD CREEK BRIDGE (REPLACE) PIER DETAILS NO. 2
	DETAILS	BY Bob Huddleston	CHECKED Kyoung Lee			POST MILE	33.63	
	QUANTITIES	BY Daniel Sessions	CHECKED A. Pearson/V. Shostak			REVISION DATES	2/25/08 3/4/09 03/18/09 3/13/09 03/14/09 05/14/09 7/13/09 1/25/10	
ORIGINAL SCALE IN INCHES FOR REDUCED PLANS				CU 01 EA 310101	DISREGARD PRINTS BEARING EARLIER REVISION DATES	SHEET 13 OF 34		FILE => 10-0156-i-p01d102.dgn



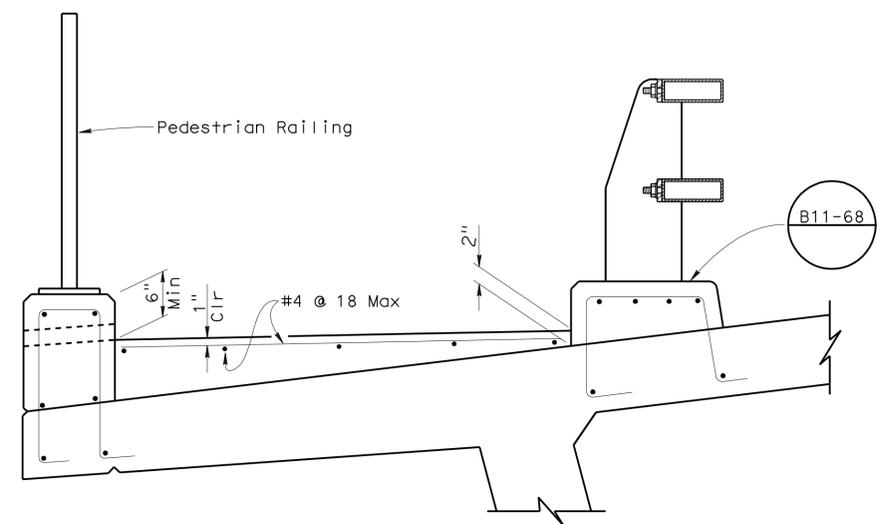
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Men	1	33.4/33.8	59	90
			01/26/10		
			REGISTERED CIVIL ENGINEER DATE		
			5-2-11		
			PLANS APPROVAL DATE		
			The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.		



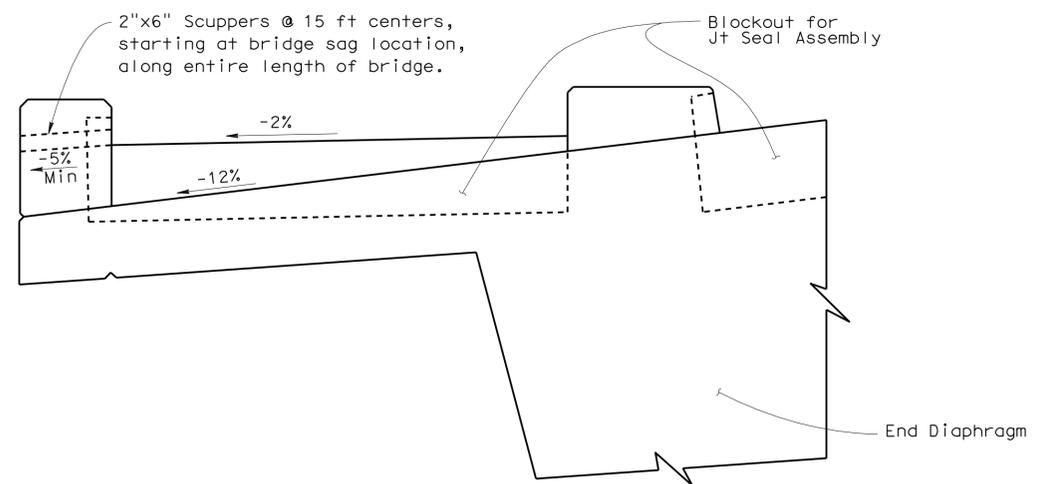
- Note:
1. For sidewalk profile details, see "Road Plans".
  2. For details not shown, see "Pedestrian Railing Details" sheets.



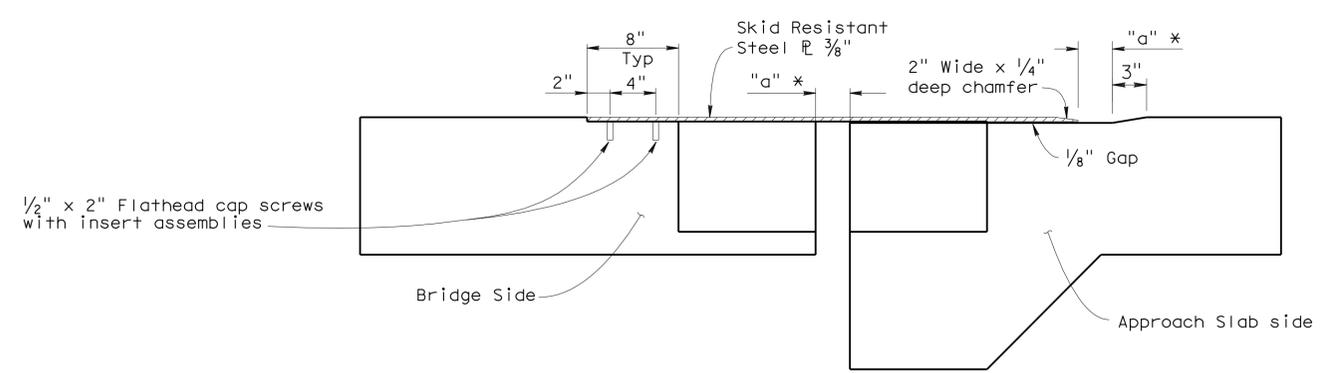
**PLAN - DECK JOINT**  
1" = 1'



**SIDEWALK DETAIL**  
1" = 1'



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



**SECTION B-B**  
1 1/2" = 1'

\* For "a" dimension, see "Joint Seal Assembly (Maximum Movement Rating = 4")" sheet

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 10/25/05)	DESIGN	BY Rizia da Cruz Ferreira	CHECKED Kyoung Lee	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 1	BRIDGE NO.	10-0156	GREENWOOD CREEK BRIDGE (REPLACE) SIDEWALK DETAILS					
	DETAILS	BY Jinrong Zhou	CHECKED Kyoung Lee			POST MILE	33.63						
	QUANTITIES	BY Daniel Sessions	CHECKED A. Pearson/V. Shostak			REVISION DATES	<table border="1"> <tr> <td>10/11/08</td> <td>11/17/09</td> <td>12/30/09</td> <td>03/02/09</td> <td>03/11/09</td> <td>03/12/09</td> <td>05/07/09</td> <td>05/14/09</td> <td>1/18/09</td> </tr> </table>		10/11/08	11/17/09	12/30/09	03/02/09	03/11/09
10/11/08	11/17/09	12/30/09	03/02/09	03/11/09	03/12/09	05/07/09	05/14/09	1/18/09					
ORIGINAL SCALE IN INCHES FOR REDUCED PLANS				CU 01 EA 310101	DISREGARD PRINTS BEARING EARLIER REVISION DATES	SHEET 15	OF 34						

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Men	1	33.4/33.8	60	90

01/26/10  
REGISTERED CIVIL ENGINEER DATE

5-2-11  
PLANS APPROVAL DATE

Kyoung Hyeog Lee  
No. 60714  
Exp. 12/31/10  
CIVIL  
STATE OF CALIFORNIA

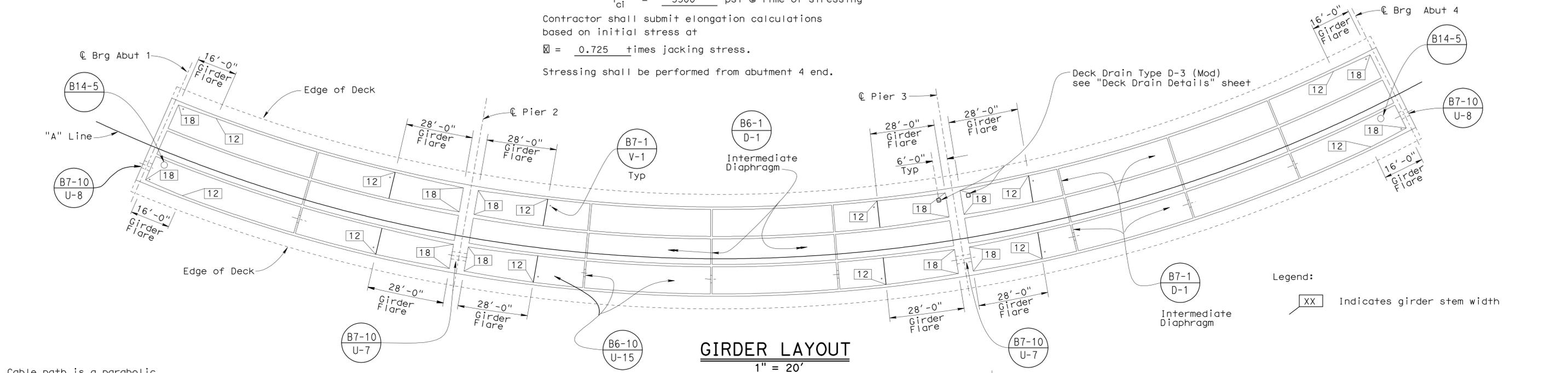
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

### PRESTRESSING NOTES

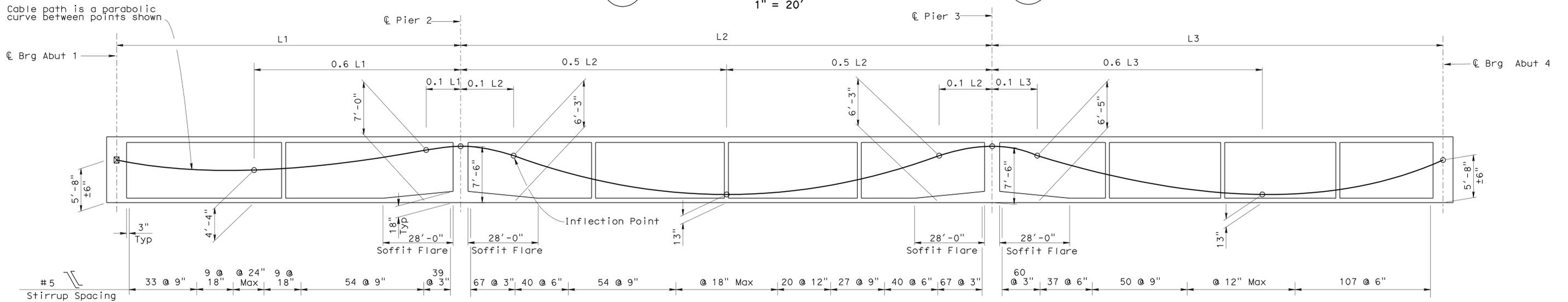
270 ksi Low Relaxation Strand:  
 $P_{jack}$  = 5400 kips (Stage 1), 5200 kips (Stage 2)  
 Anchor Set =  $\frac{3}{8}$  in  
 Total Number of Girders = 4

Distribution of prestress force ( $P_{jack}$ ) between girders shall not exceed the ratio of 4:5.  
 Maximum final force variation between girders shall not exceed 400 kips.  
 Concrete:  $f'_c$  = 5000 psi @ 28 days  
 $f'_{ci}$  = 3500 psi @ time of stressing

Contractor shall submit elongation calculations based on initial stress at  
 $\lambda = 0.725$  times jacking stress.  
 Stressing shall be performed from abutment 4 end.



**GIRDER LAYOUT**  
1" = 20'



**LONGITUDINAL SECTION**  
NO SCALE

DESIGN	BY Rizia da Cruz Ferreira	CHECKED Kyoung Lee
DETAILS	BY Jinrong Zhou	CHECKED Kyoung Lee
QUANTITIES	BY Daniel Sessions	CHECKED A. Pearson/V. Shostak

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES  
STRUCTURE DESIGN  
DESIGN BRANCH 1

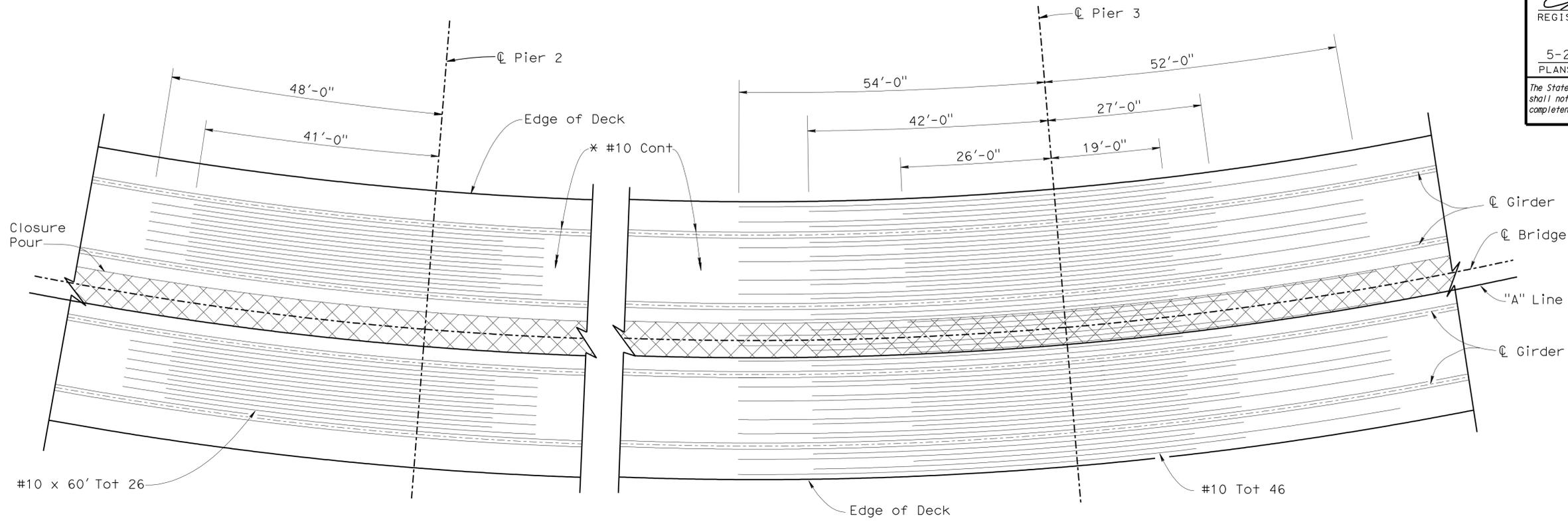
BRIDGE NO. 10-0156  
POST MILE 33.63

GREENWOOD CREEK BRIDGE (REPLACE)  
GIRDER LAYOUT

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Men	1	33.4/33.8	61	90

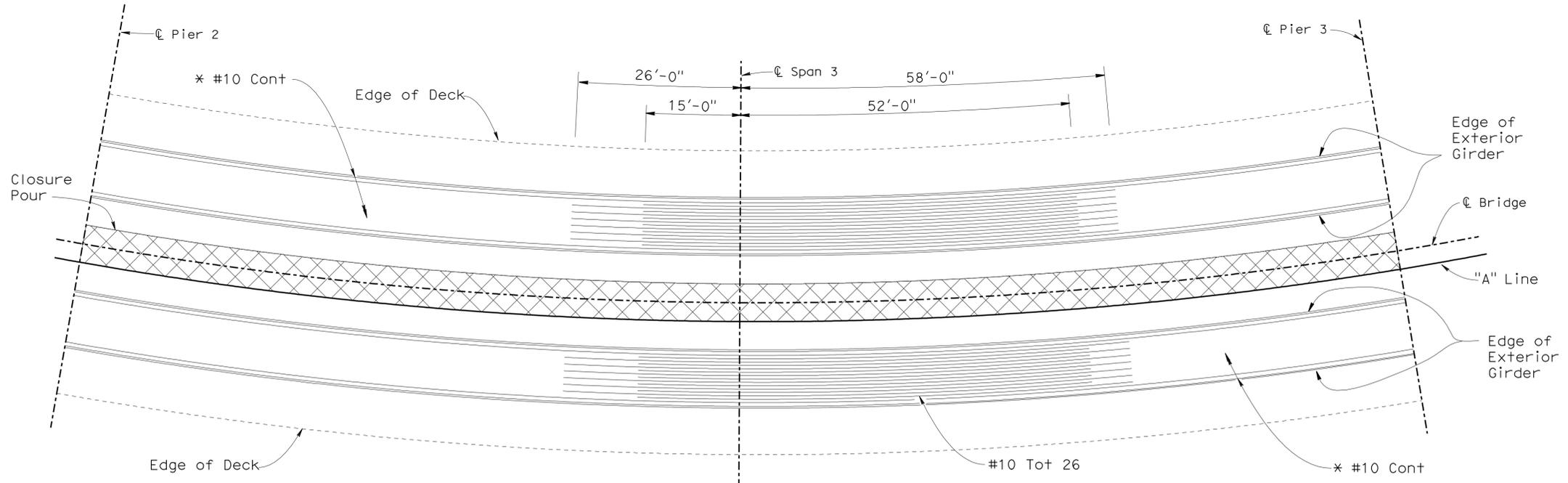
01/26/10  
 REGISTERED CIVIL ENGINEER DATE  
 5-2-11  
 PLANS APPROVAL DATE  
 The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

REGISTERED PROFESSIONAL ENGINEER  
 Kyoung Hyeog Lee  
 No. 60714  
 Exp. 12/31/10  
 CIVIL  
 STATE OF CALIFORNIA



**ADDITIONAL TOP LONGITUDINAL REINFORCEMENT**  
1" = 10'

- Notes:
- Lap splices are not allowed in additional top & bottom reinforcement.
  - All additional reinforcement symmetrical about centerline of bridge.



**ADDITIONAL BOTTOM LONGITUDINAL REINFORCEMENT**  
1" = 10'

**FALSEWORK RELEASE**

- Alternative 1:  
Falsework shall be released as soon as permitted by the specifications. Closure pour shall not be placed sooner than 60 days after the falsework has been released.
- Alternative 2:  
Falsework shall not be released less than 28 days after the last concrete has been placed. Closure pour shall not be placed sooner than 14 days after the falsework has been released.
- When Falsework Release Alternative 2 is used, camber values are 0.75 times those shown.

\* Typical Section Reinf shown for clarification. Lap splice not allowed.

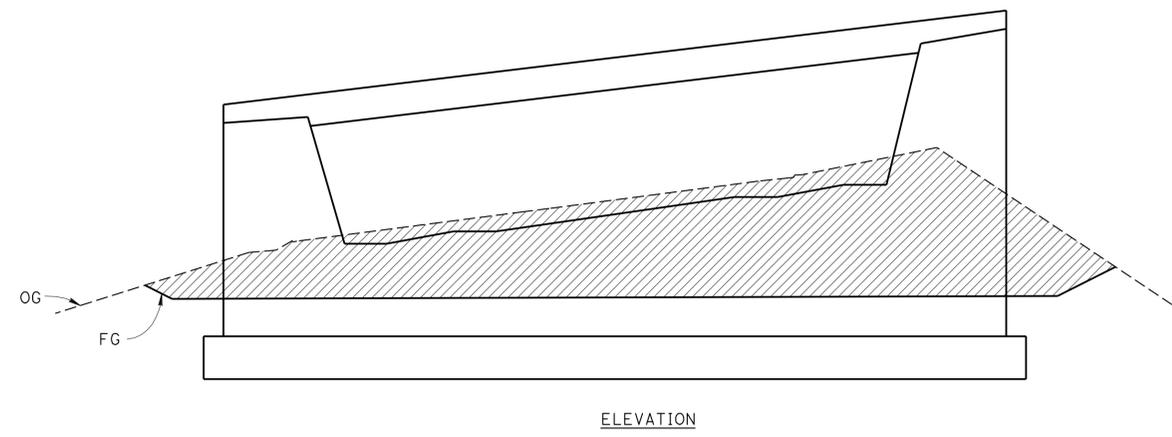
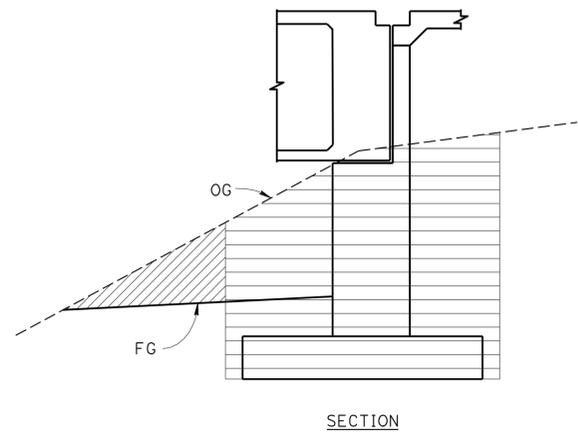
STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 10/25/05)	DESIGN	BY Rizia da Cruz Ferreira	CHECKED Kyoung Lee	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 1	BRIDGE NO.	10-0156	GREENWOOD CREEK BRIDGE (REPLACE) GIRDER REINFORCEMENT
	DETAILS	BY Jinrong Zhou	CHECKED Kyoung Lee			POST MILE	33.63	
	QUANTITIES	BY Daniel Sessions	CHECKED A. Pearson/V. Shostak			REVISION DATES	10/1/08 05/11/09 05/11/09 7/16/09	
ORIGINAL SCALE IN INCHES FOR REDUCED PLANS				0 1 2 3	CU 01 EA 310101	DISREGARD PRINTS BEARING EARLIER REVISION DATES	SHEET 17	OF 34

FILE => 10-0156-o-gr01.dgn

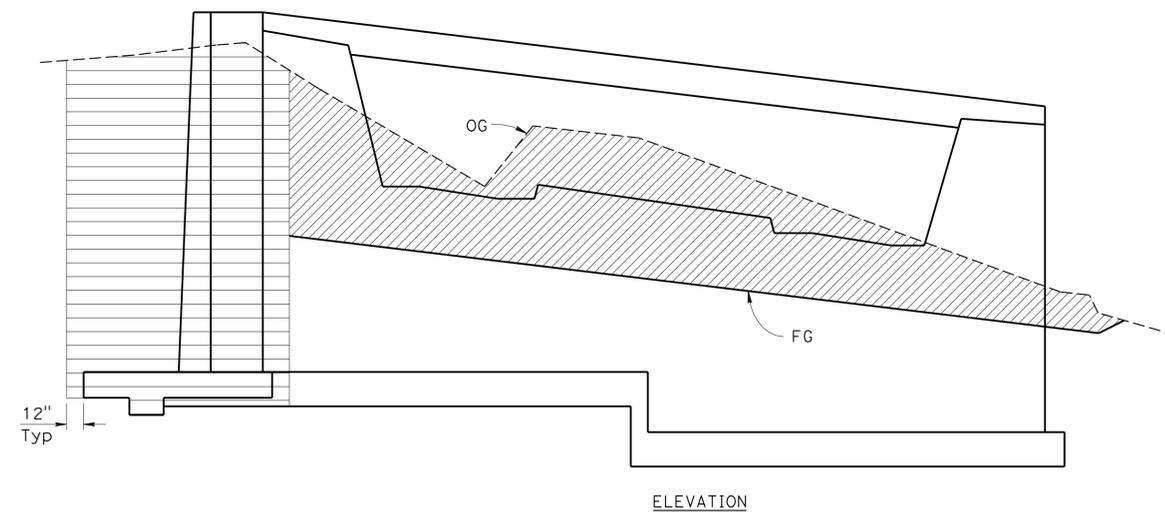
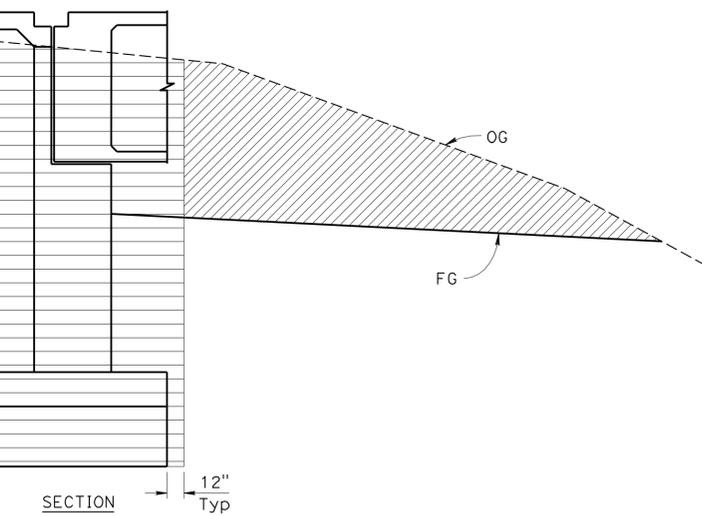
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Men	1	33.4/33.8	62	90

01/26/10  
 REGISTERED CIVIL ENGINEER DATE  
 5-2-11  
 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  
 Kyoung Hyeog Lee  
 No. 60714  
 Exp. 12/31/10  
 CIVIL  
 STATE OF CALIFORNIA



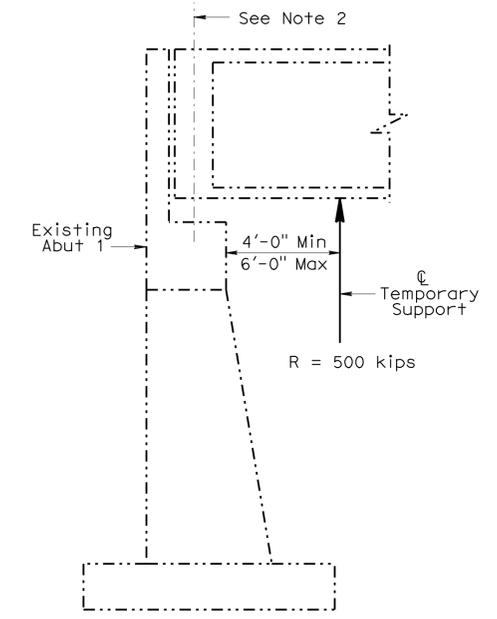
ABUT 4



ABUT 1

**EXCAVATION PAYMENT LIMITS**  
NO SCALE

- Legend:
- Indicates Structure Excavation
  - Indicates Stripping Excavation

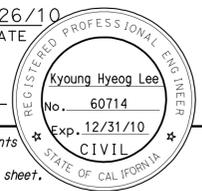


- Notes:
- Support reaction (R) includes dead load and live load.
  - The temporary support shall be designed to resist a horizontal load of 75 kips, applied parallel to  $\phi$  of Abut diaphragm.

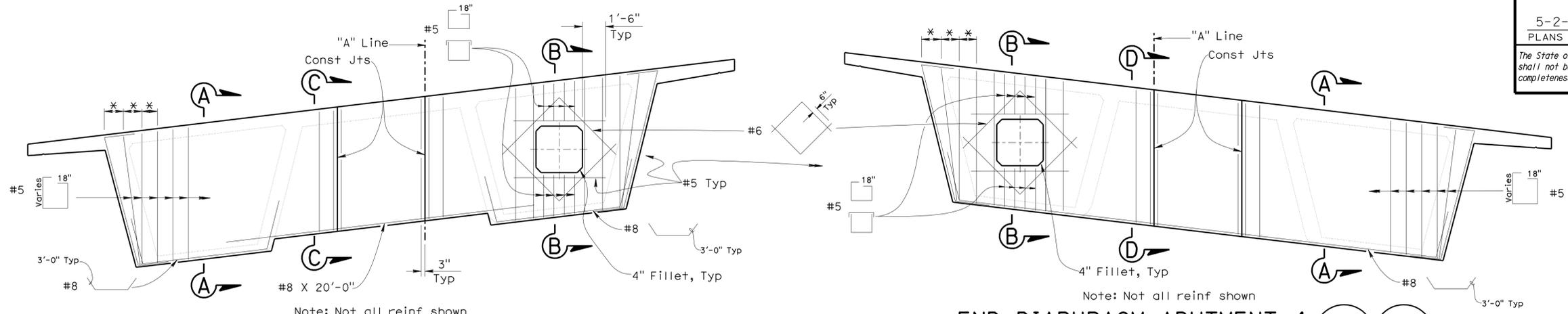
**TEMPORARY SUPPORT**  
NO SCALE

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 10/25/05)	DESIGN	BY R. da Cruz / M. Licha	CHECKED Kyoung Lee	<b>STATE OF CALIFORNIA</b> DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN <b>DESIGN BRANCH 1</b>	BRIDGE NO.	10-0156	<b>GREENWOOD CREEK BRIDGE (REPLACE)</b> <b>MISCELLANEOUS DETAILS</b>
	DETAILS	BY Bob Huddleston	CHECKED Kyoung Lee			POST MILE	33.63	
	QUANTITIES	BY Daniel Sessions	CHECKED A. Pearson / V. Shostak			REVISION DATES	3/7/09 3/7/09 03/16/09 05/14/09 11/17/09	
ORIGINAL SCALE IN INCHES FOR REDUCED PLANS				0 1 2 3	CU 01 EA 310101	DISREGARD PRINTS BEARING EARLIER REVISION DATES		SHEET 18 OF 34

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Men	1	33.4/33.8	63	90
			01/26/10		
			REGISTERED CIVIL ENGINEER DATE		
			5-2-11		
			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.					

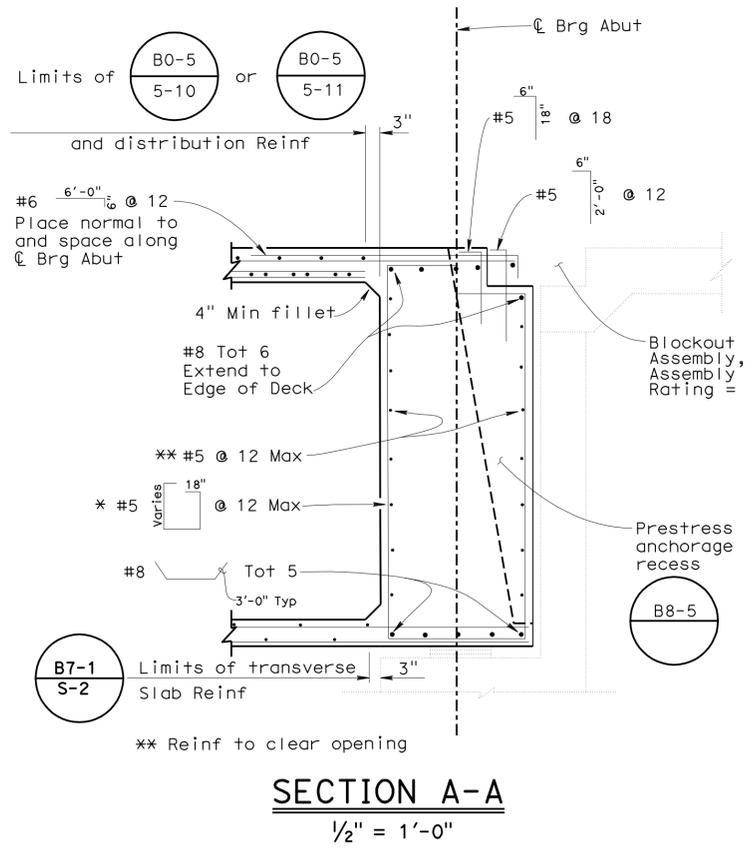


\* Stirrup spacing @ top of bars, Typ.

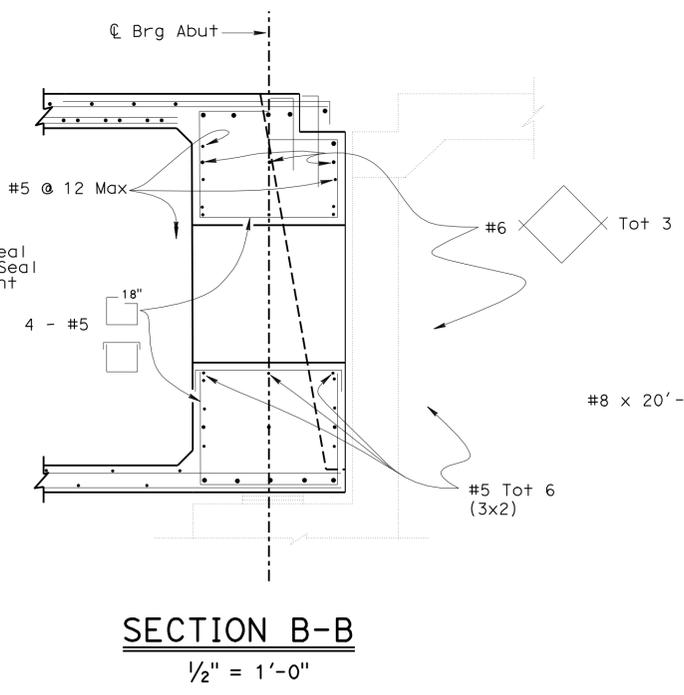


**END DIAPHRAGM ABUTMENT 1**  
 1/4" = 1'-0" (B7-10) (B8-5)

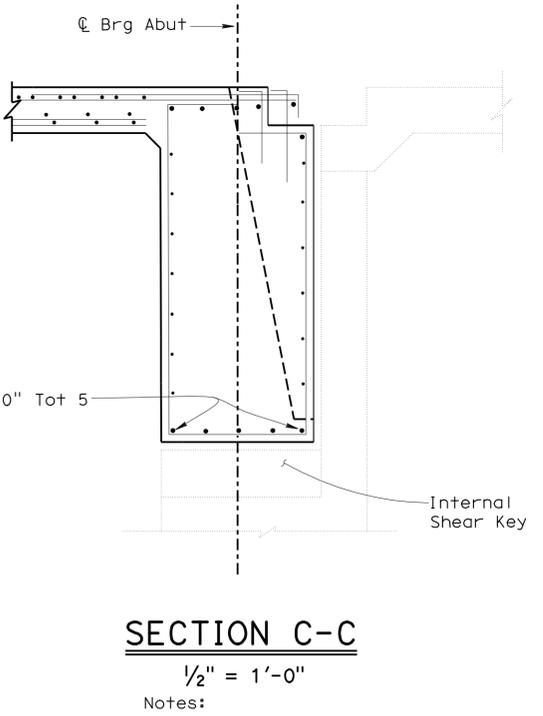
**END DIAPHRAGM ABUTMENT 4**  
 1/4" = 1'-0" (B7-10) (B8-5)



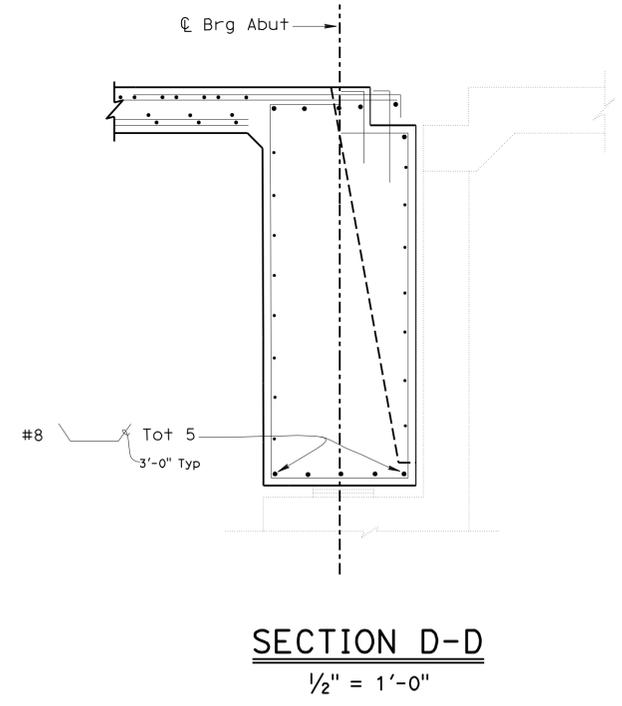
**SECTION A-A**  
 1/2" = 1'-0"



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



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



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

- Notes:
1. Reinforcing bars may be adjusted as necessary to accommodate installation of the Joint Seal Assembly upon approval of the Joint Seal shop drawing and as directed by the engineer.
  2. For details and reinforcement not shown on "SECTION B-B", "SECTION C-C", and "SECTION D-D", see "SECTION A-A".

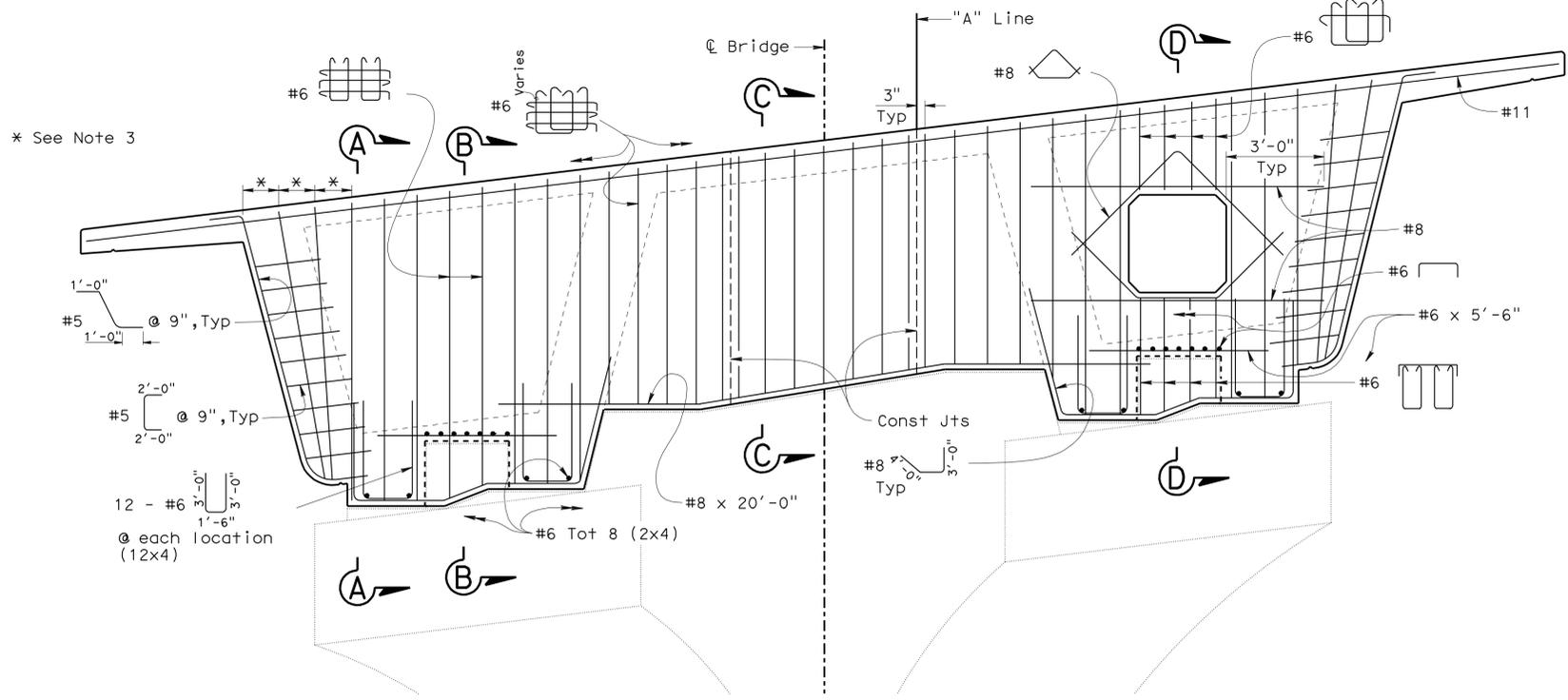
DESIGN	BY Rizia da Cruz Ferreira	CHECKED Kyoung Lee
DETAILS	BY Jinrong Zhou	CHECKED Kyoung Lee
QUANTITIES	BY Daniel Sessions	CHECKED A. Pearson/V. Shostak

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES  
 STRUCTURE DESIGN  
**DESIGN BRANCH 1**

BRIDGE NO. 10-0156  
 POST MILE 33.63  
**GREENWOOD CREEK BRIDGE (REPLACE)**  
**END DIAPHRAGM DETAILS**

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Men	1	33.4/33.8	64	90
			01/26/10		
			REGISTERED CIVIL ENGINEER DATE		
			5-2-11		
			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.					

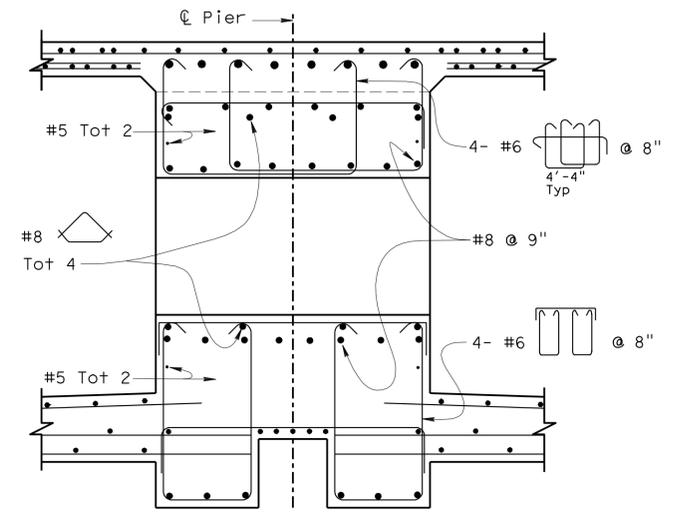


\* See Note 3

Notes:

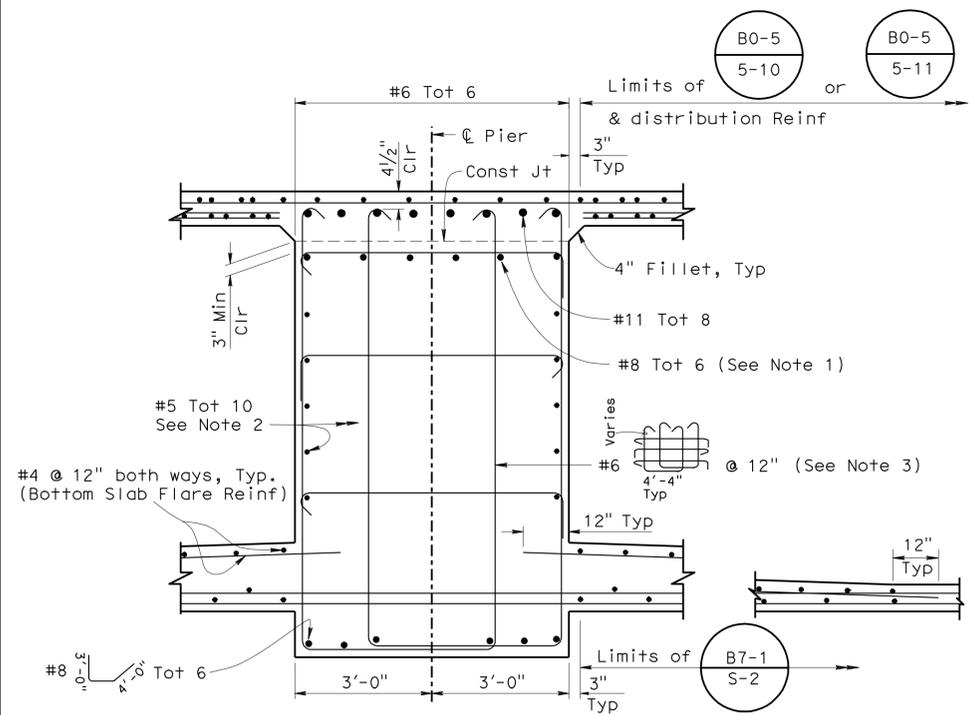
1. Reinf may be bent or lowered to clear P/S ducts.
2. Reinf to clear opening.
3. Stirrup spacing @ top of bars, Typ.

Note: Not all Reinf is shown.  
**DIAPHRAGM AT PIERS** (B7-10)  
 3/8" = 1'-0"

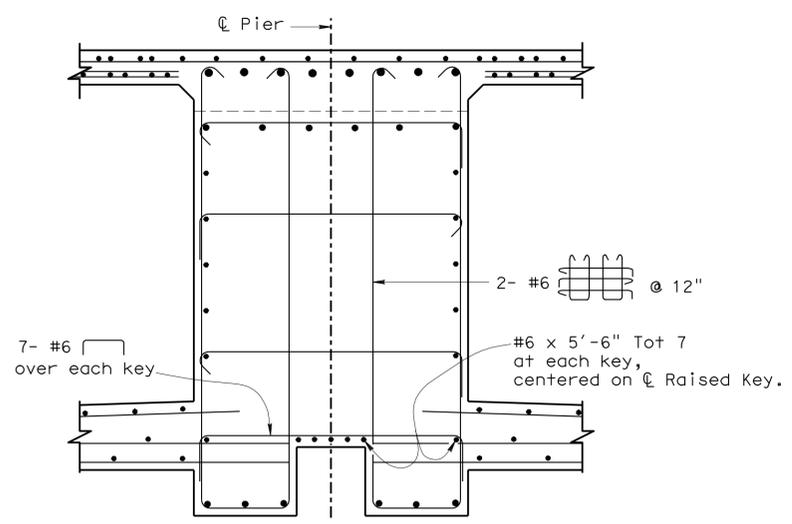


For other details and Reinf, see "Section A-A" & "Section B-B".

**SECTION D-D** (B7-10)  
 1/2" = 1'-0"

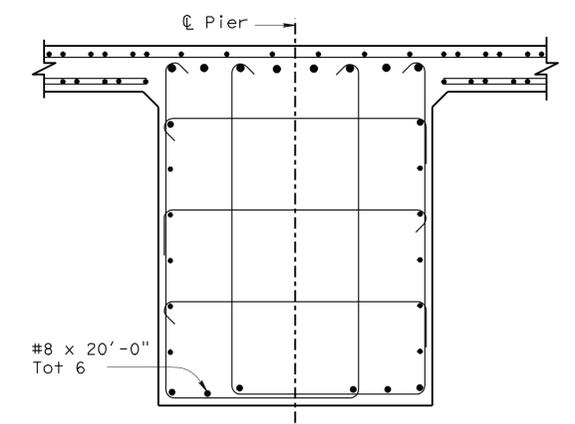


**SECTION A-A**  
 1/2" = 1'-0"



For other details and Reinf, see "Section A-A".

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



For other details and Reinf, see "Section A-A".

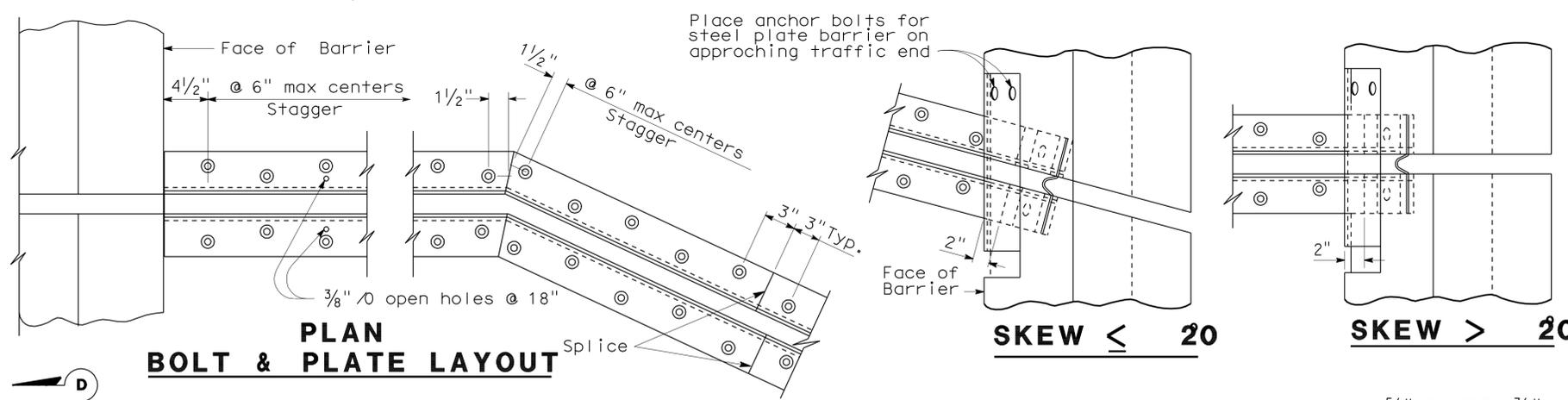
**SECTION C-C**  
 1/2" = 1'-0"

DESIGN	BY Rizia da Cruz Ferreira	CHECKED Kyoung Lee	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 1	BRIDGE NO.	GREENWOOD CREEK BRIDGE (REPLACE) DIAPHRAGM AT PIERS DETAILS												
	DETAILS BY Bob Huddleston	CHECKED Kyoung Lee			10-0156													
	QUANTITIES BY Daniel Sessions	CHECKED A. Pearson/V. Shostak			POST MILE 33.63													
STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 10/25/05)				CU 01 EA 310101	DISREGARD PRINTS BEARING EARLIER REVISION DATES	<table border="1"> <tr> <th colspan="6">REVISION DATES</th> </tr> <tr> <td>3/4/09</td> <td>3/7/09</td> <td>3/7/09</td> <td>03/16/09</td> <td>7/16/09</td> <td></td> </tr> </table>	REVISION DATES						3/4/09	3/7/09	3/7/09	03/16/09	7/16/09	
REVISION DATES																		
3/4/09	3/7/09	3/7/09	03/16/09	7/16/09														
ORIGINAL SCALE IN INCHES FOR REDUCED PLANS				0 1 2 3	SHEET 20 OF 34	FILE => 10-0156-v-pddf.dgn												

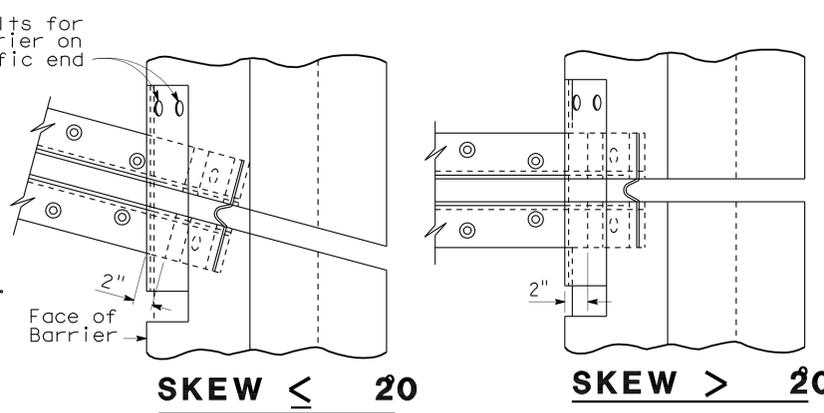
DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
01	Men	1	33.4/33.8	65	90

01/26/10  
REGISTERED ENGINEER - CIVIL  
Kyoung Hyeog Lee  
No. 60714  
Exp. 12/31/10  
CIVIL  
STATE OF CALIFORNIA

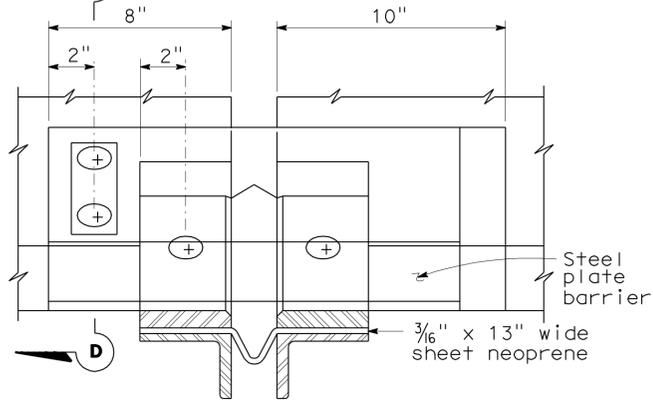
5-2-11  
PLANS APPROVAL DATE  
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.



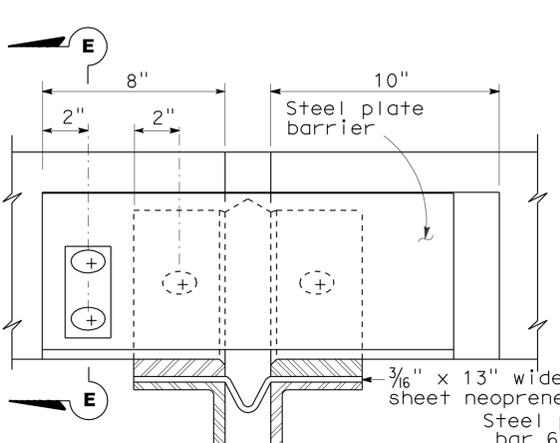
**PLAN BOLT & PLATE LAYOUT**



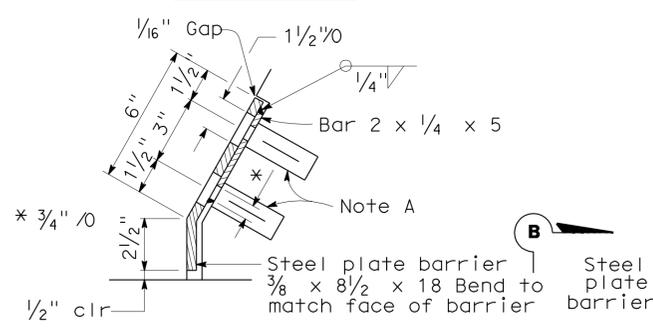
**SKEW < 20**      **SKEW > 20**



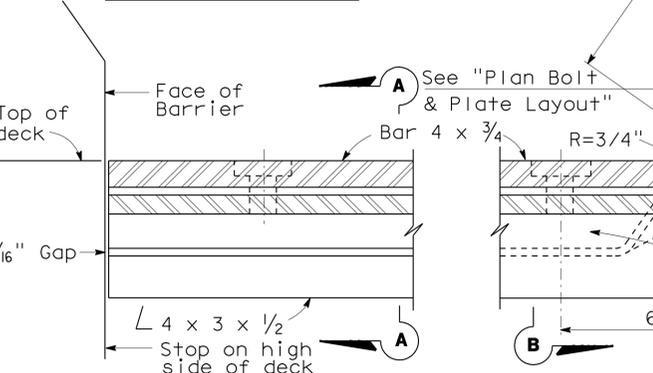
**VIEW B-B**



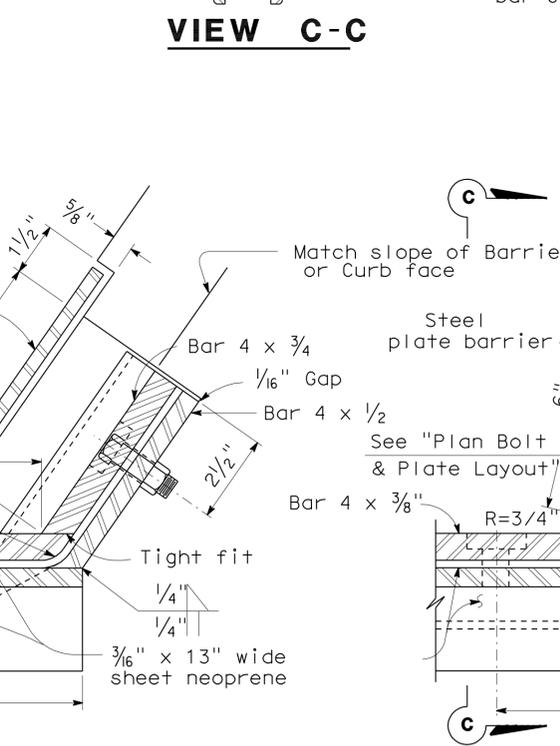
**VIEW C-C**



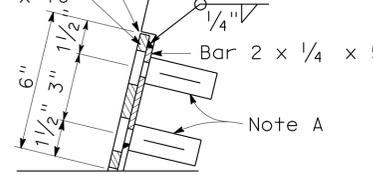
**SECTION D-D**



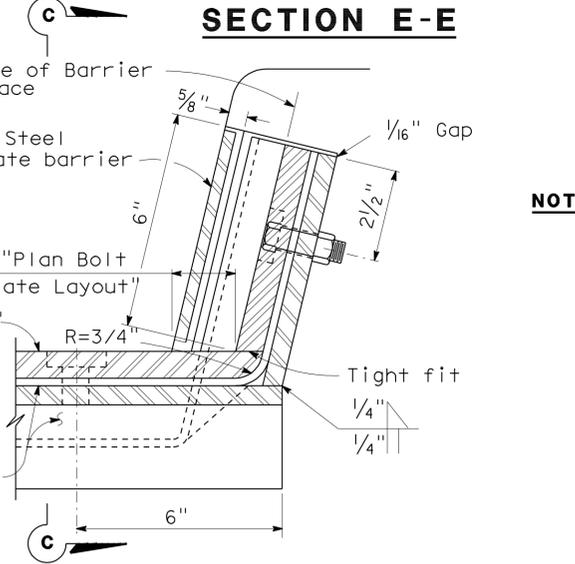
**HIGH SIDE BARRIER DETAIL**



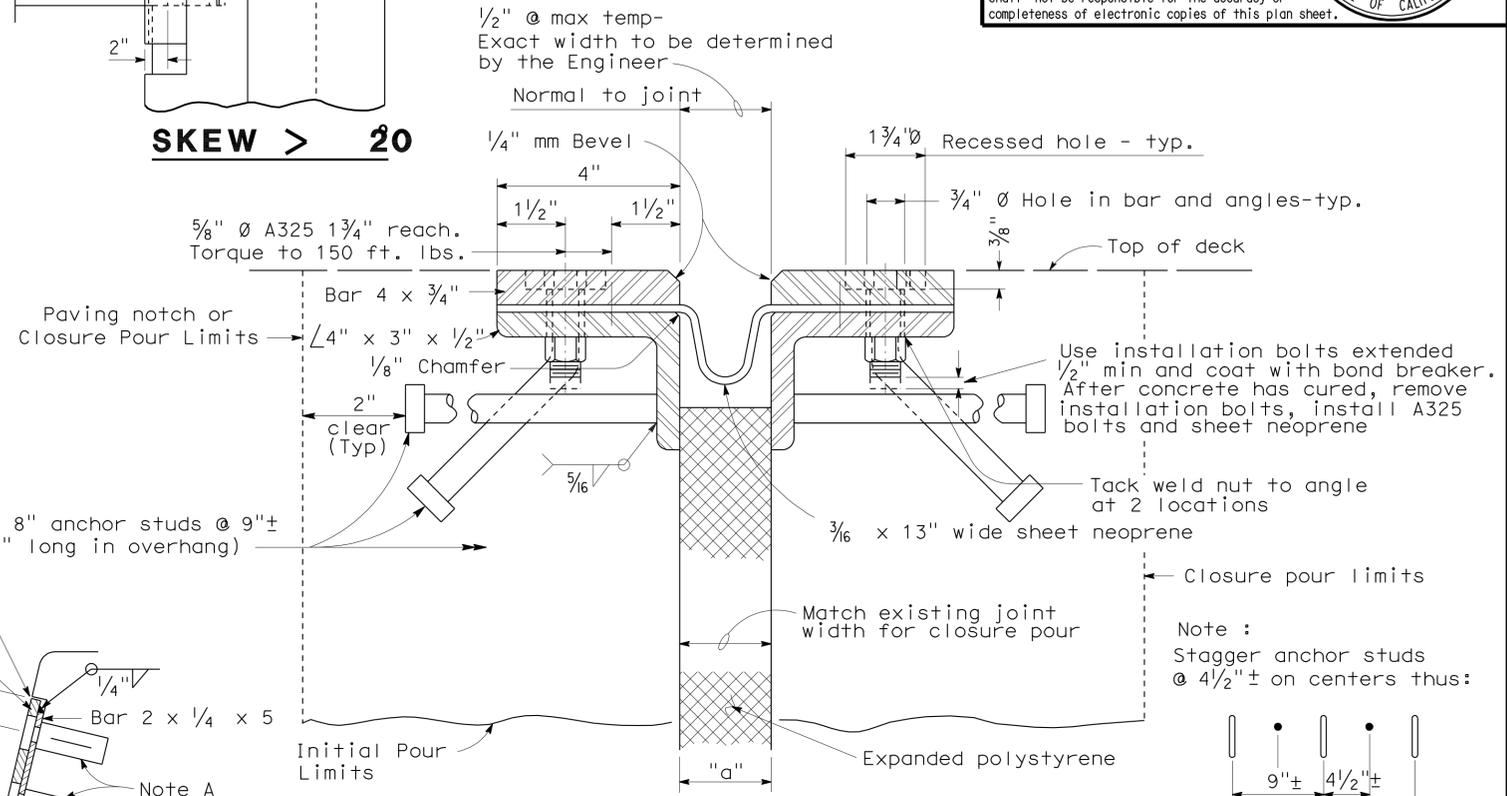
**LOW SIDE BARRIER DETAIL**  
(See Note B)



**SECTION E-E**



**SIDEWALK DETAIL**  
(See Note B)



**SECTION A-A**

Joint Information			"a" Dimensions		
Location	Movement Rating (MR)	Skew	Winter	Spring & Fall	Summer
Abut 1	3"	0	2 1/2"	2"	1 1/2"
Abut 4	4"	0	3"	2 1/2"	2"

**NOTES:** Full penetration butt welds may be substituted for fillet welds on all anchor studs. Alternate types of anchor studs may be permitted subject to the approval by the Engineer. Joint seal assembly to be used in conjunction with closure pour. (See other sheets for limits). Closure pour shall not be placed until final deck surface is within the tolerances specified. Use joint at crown of roadway, at any change in traverse slope in deck and at changes in horizontal direction. Place other joints at or near lanes. All metal parts to be painted or galvanized after fabrication. Sheet neoprene shall be fabricated in one continuous piece or joints shall be vulcanized. Neoprene shall be fabricated to bend around corners. 1" holes in neoprene sheets shall be drilled or punched so that the neoprene is not distorted at the time of installation.

**NOTE A**  
Insert assembly or expansion anchorage for 5/8" x 1 3/4" A325 bolt.

**NOTE B**  
Use the sidewalk Detail at all sidewalk joints. Use the Barrier Detail at both sides if the roadway is crowned or if the difference in elevation between the ends of the seal is 0.5' or less.

NO SCALE

STANDARD DRAWING		
FILE NO. <b>xs8-010e</b>	APPROVED BY <b>T. DELIS</b> RESPONSIBLE TECHNICAL SPECIALIST	RELEASED BY <b>ROBERTO LACALLE</b> RESPONSIBLE OFFICE CHIEF
APPROVAL DATE <b>5-8-08</b>	RELEASE DATE <b>5-8-08</b>	

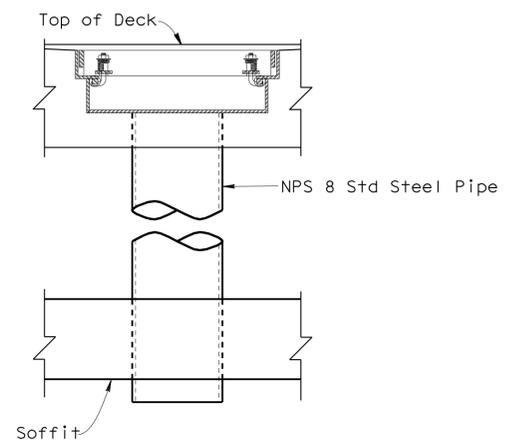
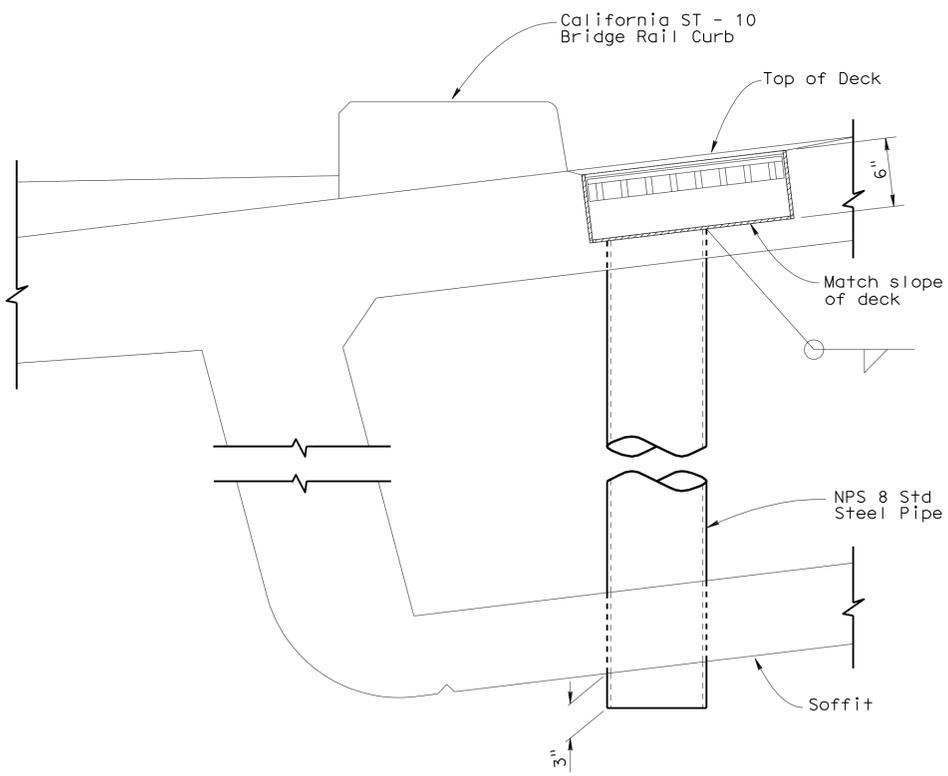
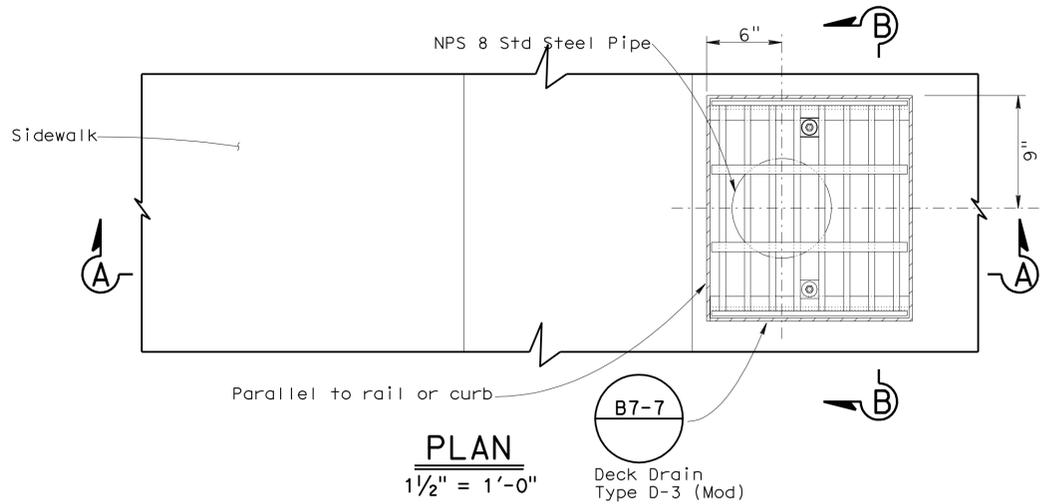
<b>STATE OF CALIFORNIA</b> DEPARTMENT OF TRANSPORTATION	<b>DIVISION OF ENGINEERING SERVICES</b>
--	---

BRIDGE NO. <b>10-0156</b>	<b>GREENWOOD CREEK BRIDGE (REPLACE)</b>
POST MILE <b>33.63</b>	<b>JOINT SEAL ASSEMBLY (MAXIMUM MOVEMENT RATING = 4")</b>

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Men	1	33.4/33.8	66	90

01/26/10  
 REGISTERED CIVIL ENGINEER DATE  
 5-2-11  
 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  
 Kyoung Hyeog Lee  
 No. 60714  
 Exp. 12/31/10  
 CIVIL  
 STATE OF CALIFORNIA

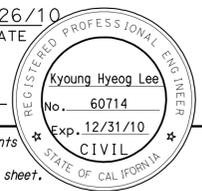


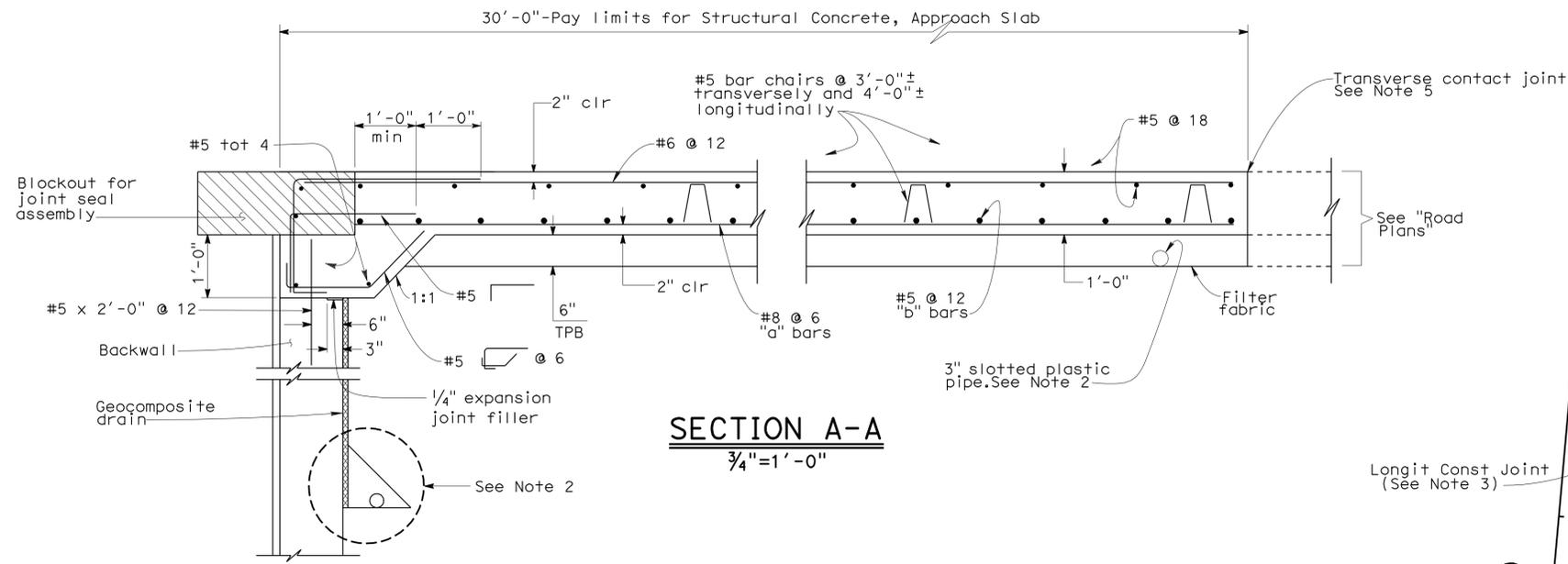
- Notes:
- For dimensions not shown and grate and frame details, see Standard Plan B7-7
  - Galvanize deck drain assembly after fabrication.
  - For locations of deck drains, see "Girder Layout" sheet.
  - Location of deck drain may be adjusted ±12" longitudinally if it conflicts with barrier rail post anchorage.
  - Longitudinal reinforcement may be bundled to clear deck drain.

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 10/25/05)	DESIGN	BY Rizia da Cruz Ferreira	CHECKED Kyoung Lee	<b>STATE OF CALIFORNIA</b> DEPARTMENT OF TRANSPORTATION	<b>DIVISION OF ENGINEERING SERVICES</b> STRUCTURE DESIGN <b>DESIGN BRANCH 1</b>	BRIDGE NO.	10-0156	<b>GREENWOOD CREEK BRIDGE (REPLACE)</b> <b>DECK DRAIN DETAILS</b>										
	DETAILS	BY Jinrong Zhou	CHECKED Kyoung Lee			POST MILE	33.63											
	QUANTITIES	BY Daneil Sessions	CHECKED A. Pearson/V. Shostak															
ORIGINAL SCALE IN INCHES FOR REDUCED PLANS				0 1 2 3	CU 01 EA 310101	DISREGARD PRINTS BEARING EARLIER REVISION DATES		<table border="1"> <tr> <td>10/11/08</td> <td>12/30/09</td> <td>02/19/09</td> <td>03/02/09</td> <td>03/11/09</td> <td>03/13/09</td> <td>03/16/09</td> <td>05/14/09</td> <td>1/09/09</td> </tr> </table>	10/11/08	12/30/09	02/19/09	03/02/09	03/11/09	03/13/09	03/16/09	05/14/09	1/09/09	SHEET 22 OF 34
10/11/08	12/30/09	02/19/09	03/02/09	03/11/09	03/13/09	03/16/09	05/14/09	1/09/09										

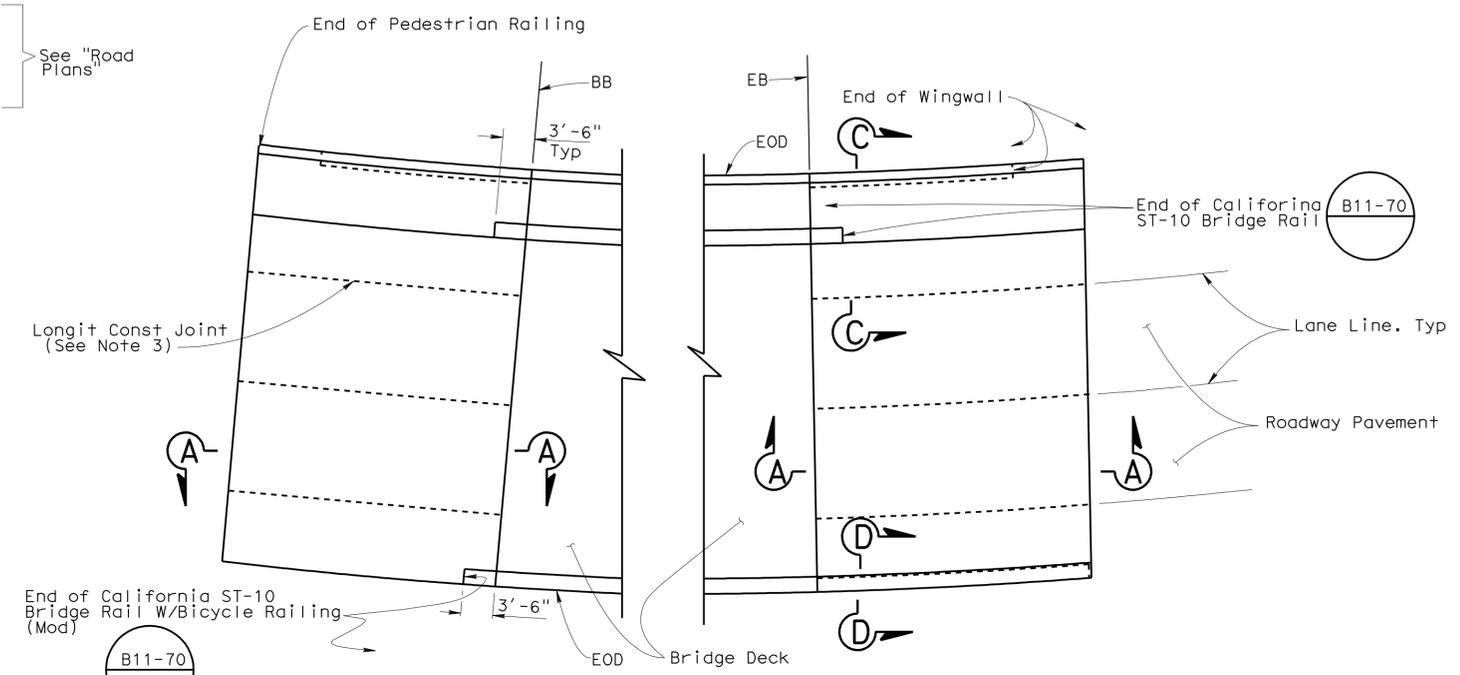
FILE => 10-0156-k-deckdraind01.dgn

USERNAME => hrmikes DATE PLOTTED => 06-MAY-2011 TIME PLOTTED => 13:54

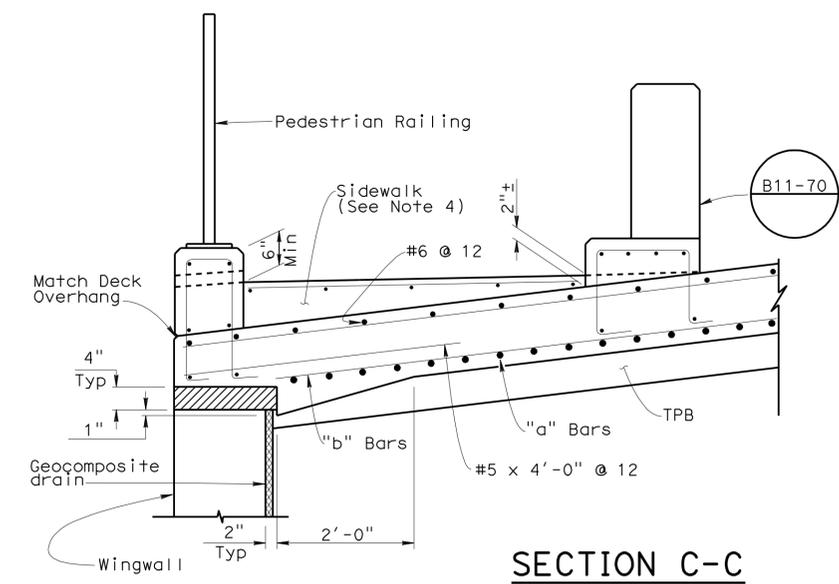
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Men	1	33.4/33.8	67	90
			01/26/10		
			REGISTERED CIVIL ENGINEER DATE		
			5-2-11		
			PLANS APPROVAL DATE		
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.					
					



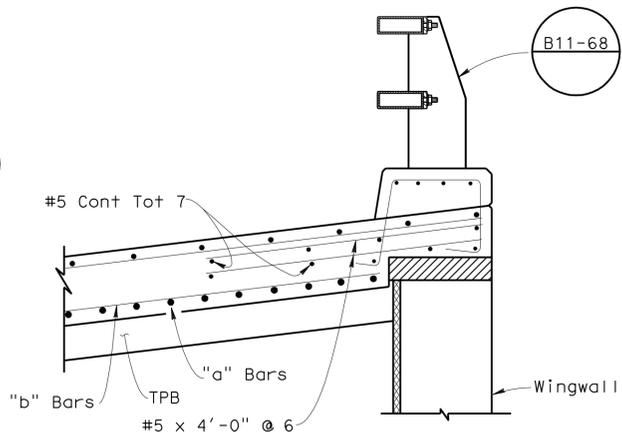
**SECTION A-A**  
3/4"=1'-0"



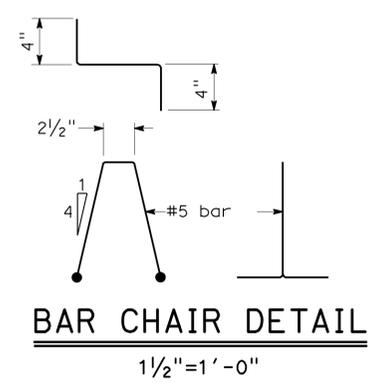
**PLAN**  
3/4"=1'-0"



**SECTION C-C**  
3/4"=1'-0"



**SECTION D-D**  
3/4"=1'-0"



**BAR CHAIR DETAIL**  
1/2"=1'-0"

- NOTES:**
- For details not shown, see Structure Plans.
  - For drainage details, see "Structure Approach Drainage Details" sheet.
  - Longitudinal construction joints, when permitted by the Engineer, shall be located on lane lines.
  - For sidewalk reinforcement, see "Sidewalk Details" sheet.
  - For transverse contact joint with new PCC paving, refer to Standard Plan 
-  Remove all polystyrene.

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 10/25/05)	DESIGN	BY Rizia da Cruz Ferreira	CHECKED Kyoung Lee	<b>STATE OF CALIFORNIA</b> DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN <b>DESIGN BRANCH 1</b>	BRIDGE NO.	10-0156	<b>GREENWOOD CREEK BRIDGE (REPLACE)</b> <b>STRUCTURE APPROACH TYPE N(30S) MODIFIED</b>	
	DETAILS	BY Jinrong Zhou	CHECKED Kyoung Lee			POST MILE	33.63		
	QUANTITIES	BY Daniel Sessions	CHECKED A. Pearson/V. Shostak			CU 01 EA 310101	DISREGARD PRINTS BEARING EARLIER REVISION DATES		REVISION DATES: 06/28/08 05/05/09 06/14/09 7/09/09 11/17/09 12/30/09
ORIGINAL SCALE IN INCHES FOR REDUCED PLANS				0 1 2 3	FILE => 10-0156-s-sad.dgn	SHEET	23	OF	34

USERNAME => hrmikes DATE PLOTTED => 06-MAY-2011 TIME PLOTTED => 13:54

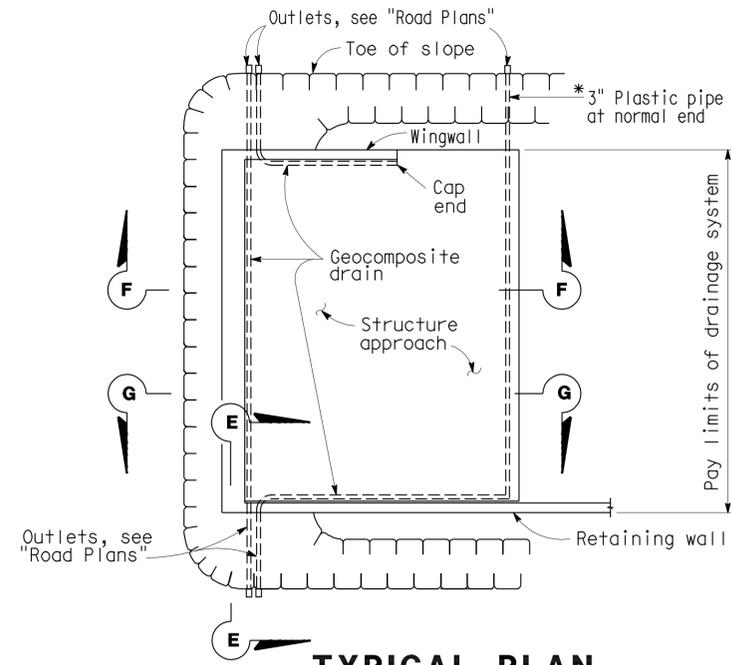
RELEASED 11-4-97

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
01	Men	1	33.4/33.8	68	90

01/26/10  
 REGISTERED ENGINEER - CIVIL  
 Keyoung Hyeog Lee  
 No. 60714  
 Exp. 12/31/10  
 CIVIL  
 STATE OF CALIFORNIA

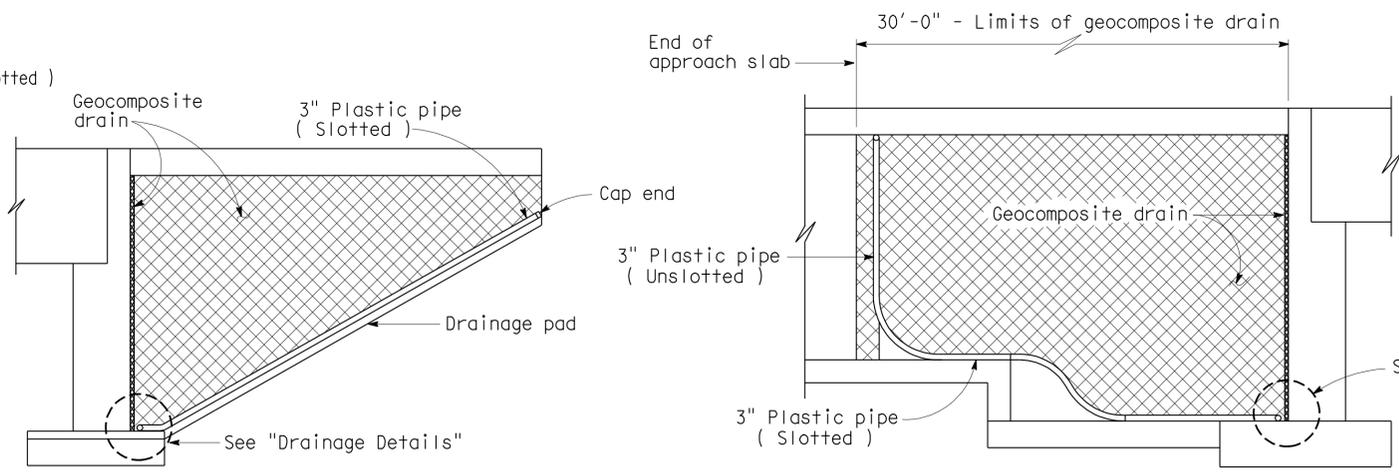
5-2-11  
 PLANS APPROVAL DATE

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.



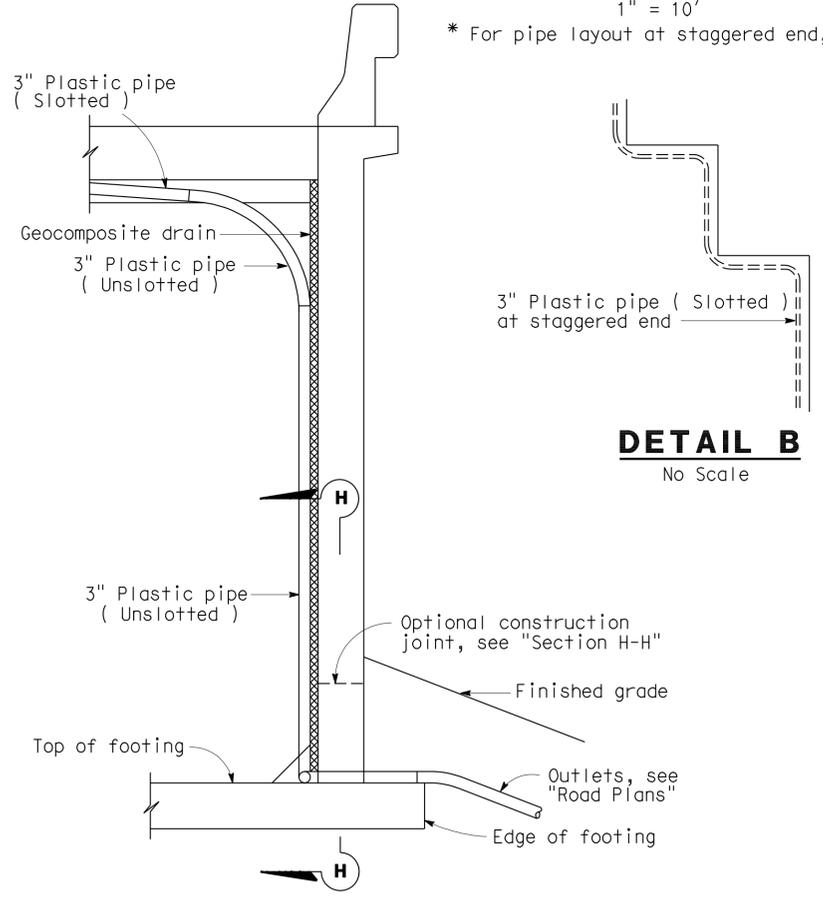
**TYPICAL PLAN**  
 1" = 10'

\* For pipe layout at staggered end, see "Detail B."



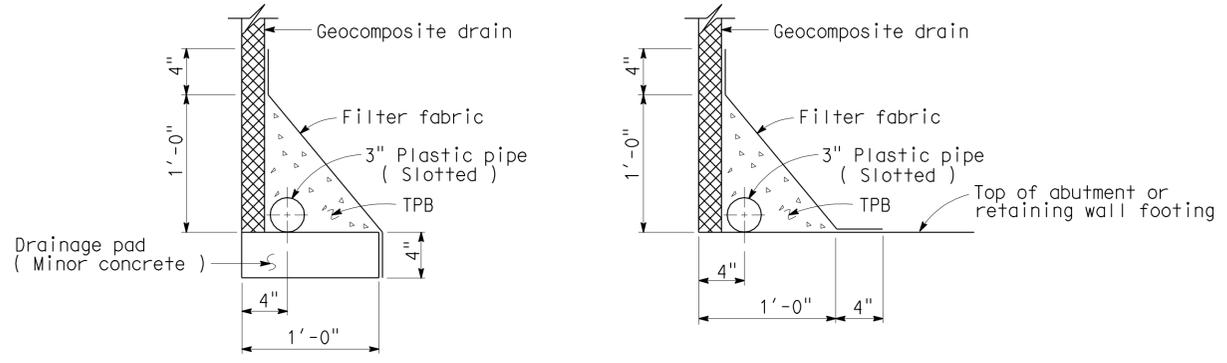
**CANTILEVER WINGWALL SECTION F-F**  
 1/4" = 1'-0"

**RETAINING WALL WINGWALL SECTION G-G**  
 1/4" = 1'-0"



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

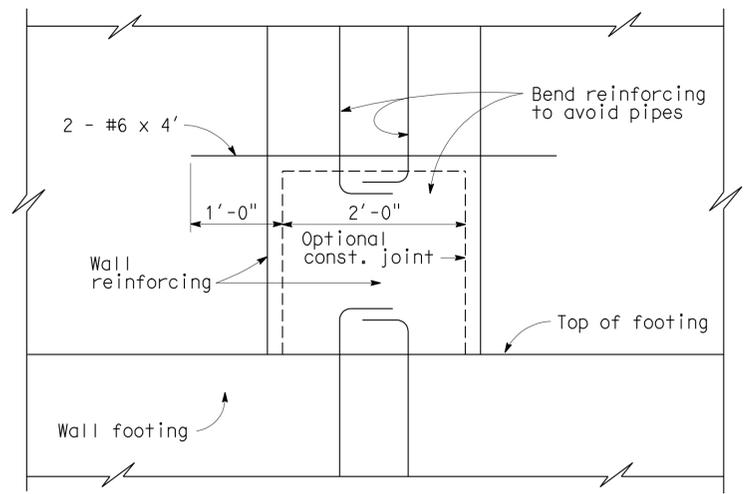
Note: Bends and junctions in 3" plastic pipe are 30" radius min.



**WITHOUT FOOTING**

**WITH FOOTING**

**DRAINAGE DETAILS**  
 1 1/2" = 1'-0"



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

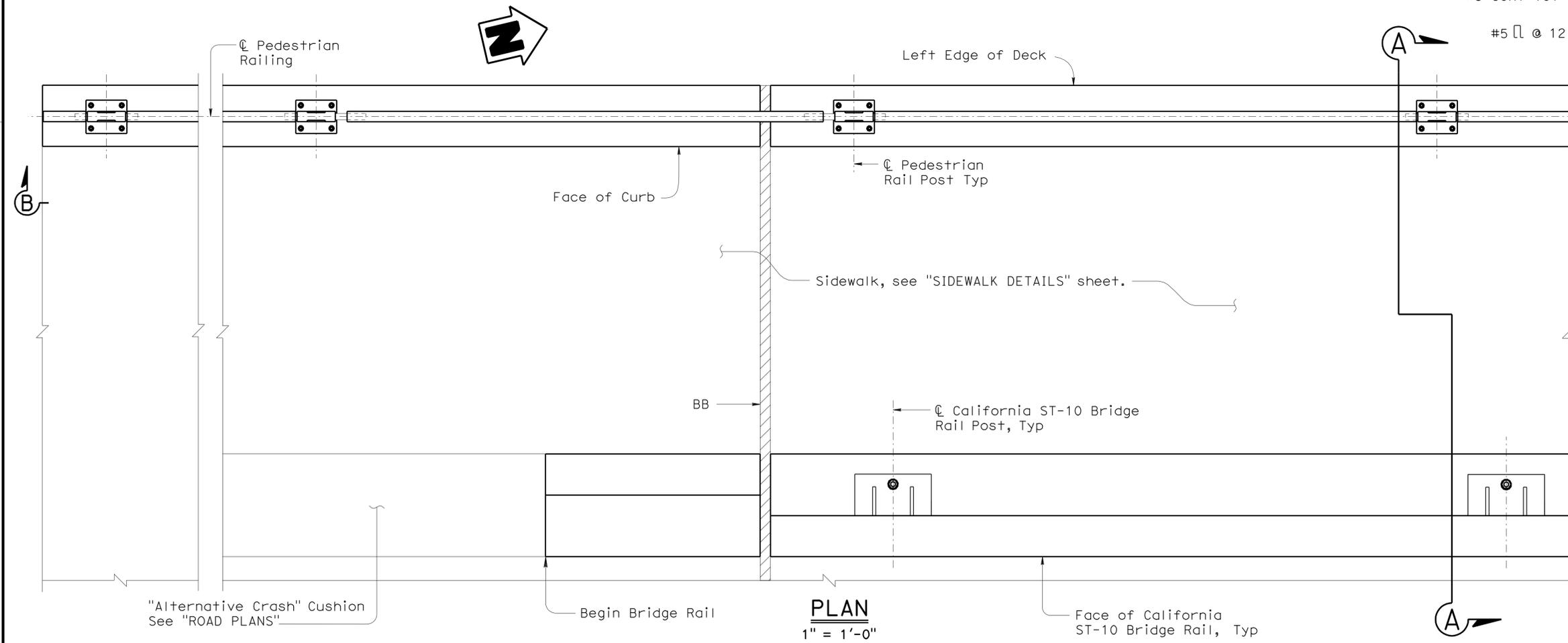
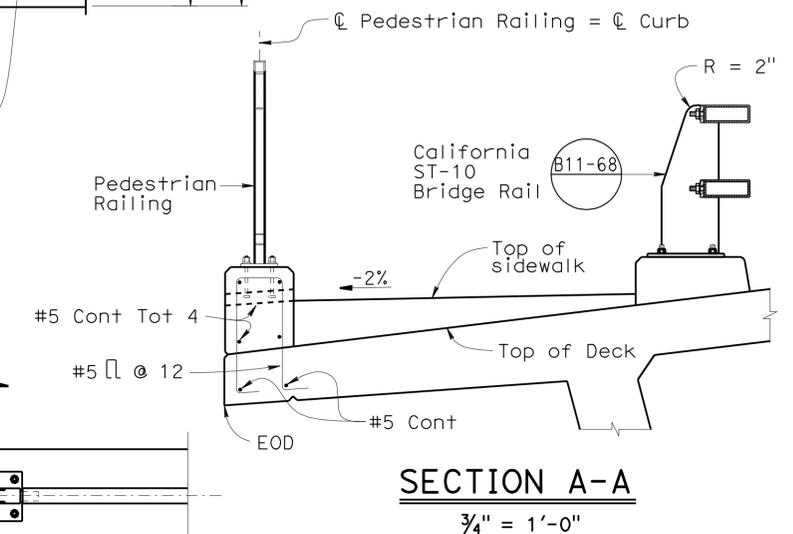
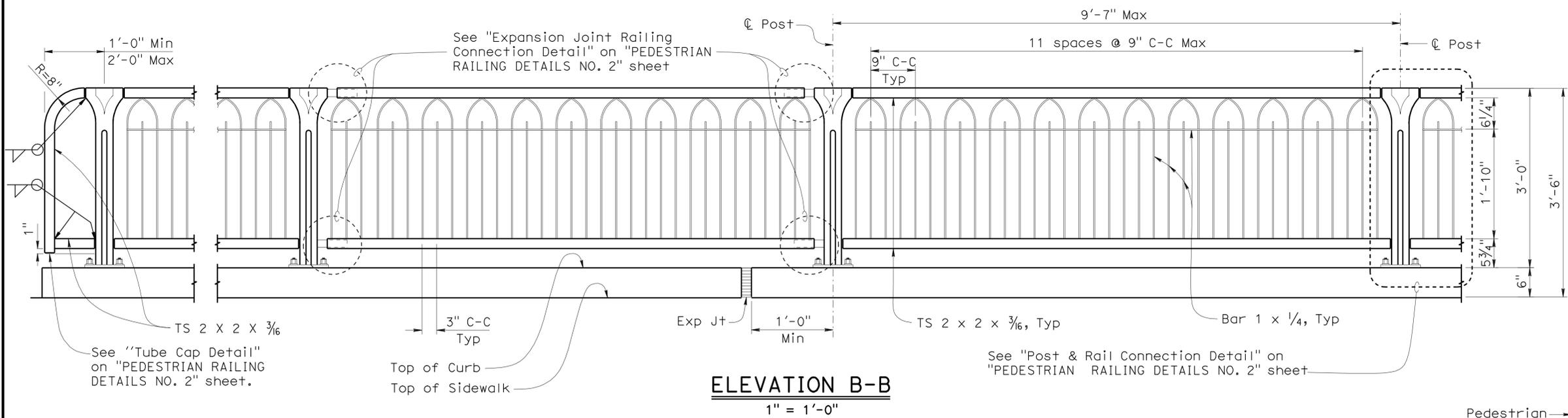
STANDARD DRAWING			
FILE NO. <b>XS 22-17</b>	DESIGN BY <b>M. TRAFFALIS</b>	CHECKED <b>E. THORKILDSEN</b>	APPROVAL-RECOMMENDED BY <i>[Signature]</i>
DESIGN DATE <b>8 / 92</b>	DETAILS BY <b>R. YEE</b>	CHECKED <b>E. THORKILDSEN</b>	DESIGN SUPERVISOR
	SUBMITTED BY <b>M. HA</b>		

<b>STATE OF CALIFORNIA</b> DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN <b>DESIGN BRANCH 1</b>
--	--

BRIDGE NO. 10-0156	<b>GREENWOOD CREEK BRIDGE (REPLACE)</b>
POST MILE 33.63	<b>STRUCTURE APPROACH DRAINAGE DETAILS</b>

USERNAME => fmmires DATE PLOTTED => 06-MAY-2011 TIME PLOTTED => 13:54

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Men	1	33.4/33.8	69	90
			01/26/10	REGISTERED CIVIL ENGINEER DATE	
			5-2-11	PLANS APPROVAL DATE	
			REGISTERED PROFESSIONAL ENGINEER Kyoung Hyeog Lee No. 60714 Exp. 12/31/10 CIVIL 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.					



- Notes:
- Galvanize rail assembly and all components after fabrication.
  - Posts shall be normal to railing.
  - All bolts shall be A307 with thread locking system.
  - Details at Beginning of Bridge shown, End of Bridge similar.

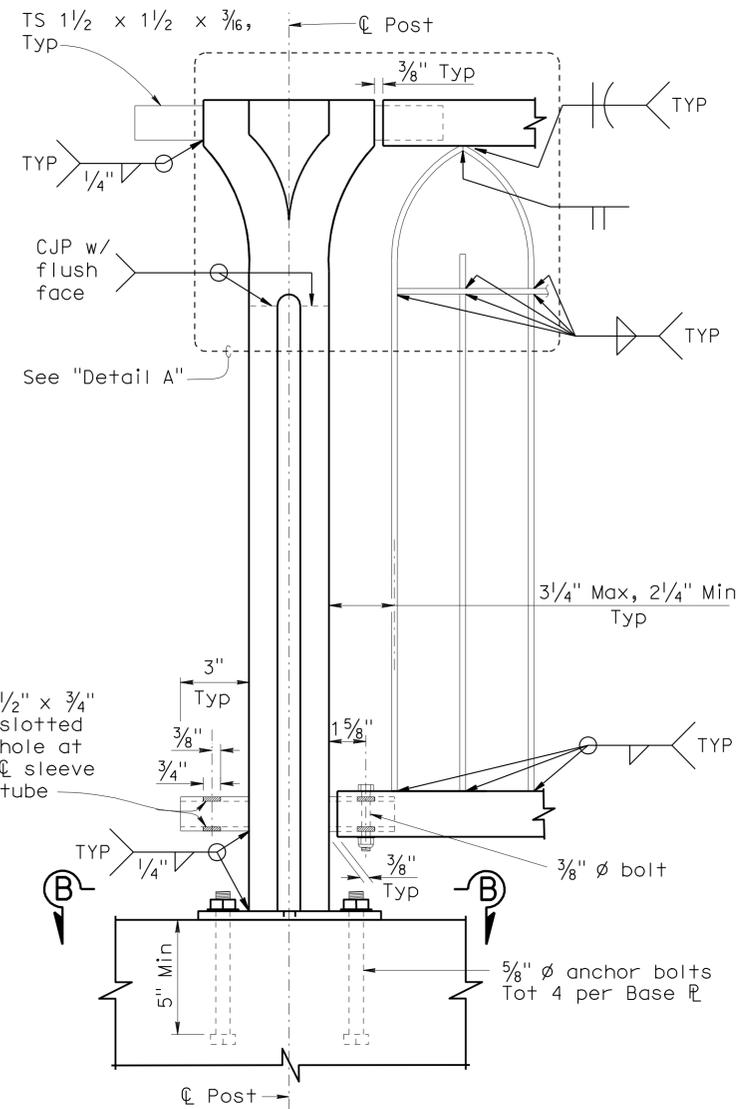
DESIGN BY Kyoung Lee CHECKED Kevin Harper DETAILS BY Bob Huddleston / JZ CHECKED Kevin Harper QUANTITIES BY Daniel Sessions CHECKED A. Pearson/V. Shostak	<b>STATE OF CALIFORNIA</b> DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN <b>DESIGN BRANCH 1</b>	BRIDGE NO. 10-0156	<b>GREENWOOD CREEK BRIDGE (REPLACE)</b> <b>PEDESTRIAN RAILING DETAILS NO. 1</b>			
			POST MILE 33.63				
			BRIDGE NO. 10-0156 POST MILE 33.63				
STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 10/25/05)		ORIGINAL SCALE IN INCHES FOR REDUCED PLANS		CU 01 EA 310101	DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES 2/28/09 11/24/09 12/01/09 1/06/10 1/11/10 1/12/10 1/20/10 11/16/09 11/18/09	SHEET 25 OF 34

FILE => 10-0156-u-miscdt01.dgn

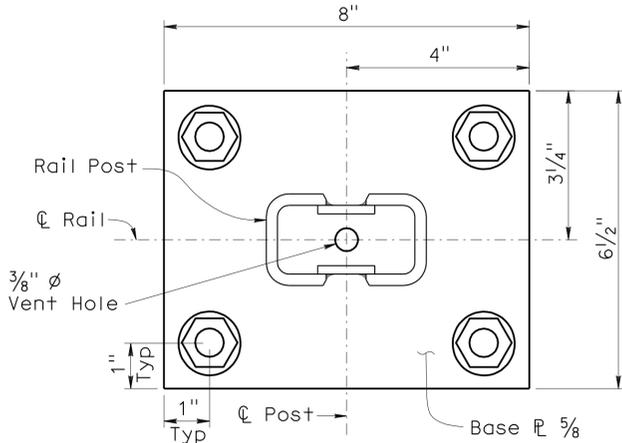
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Men	1	33.4/33.8	70	90

01/26/10  
 REGISTERED CIVIL ENGINEER DATE  
 5-2-11  
 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.

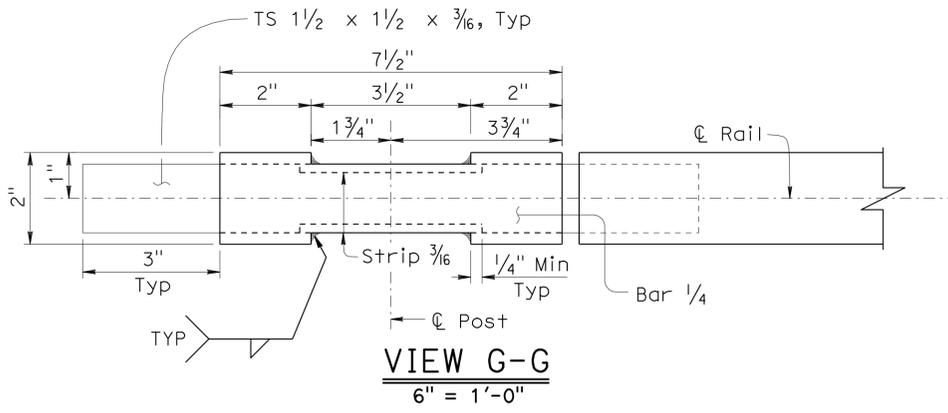
REGISTERED PROFESSIONAL ENGINEER  
 Kyoung Hyeog Lee  
 No. 60714  
 Exp. 12/31/10  
 CIVIL  
 STATE OF CALIFORNIA



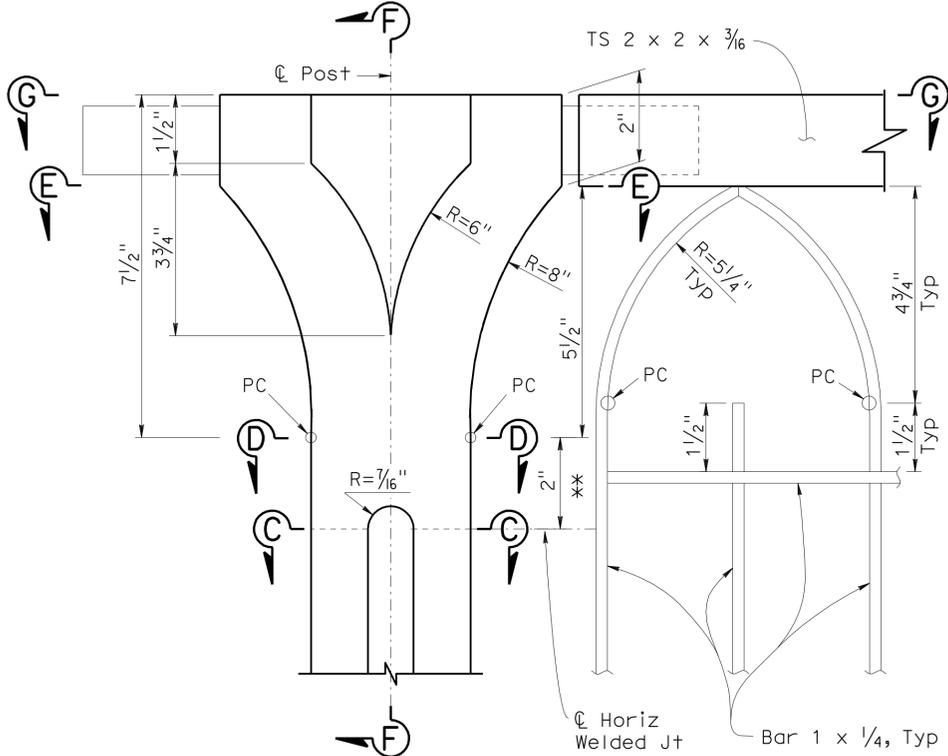
**POST & RAIL CONNECTION DETAIL**  
 3" = 1'-0"



**SECTION B-B**  
 6" = 1'-0"

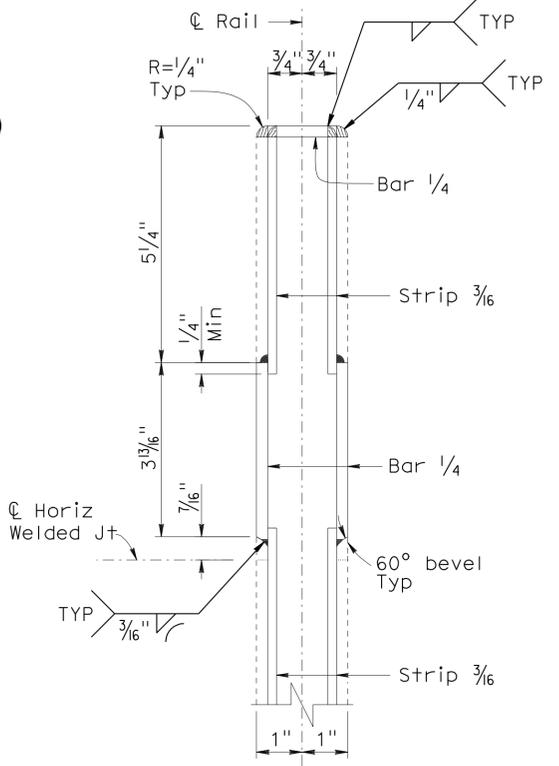


**VIEW G-G**  
 6" = 1'-0"

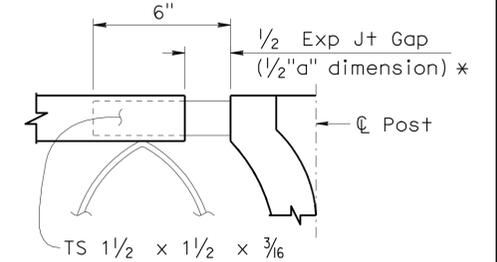


**DETAIL A** \*\* See Note 2  
 6" = 1'-0"

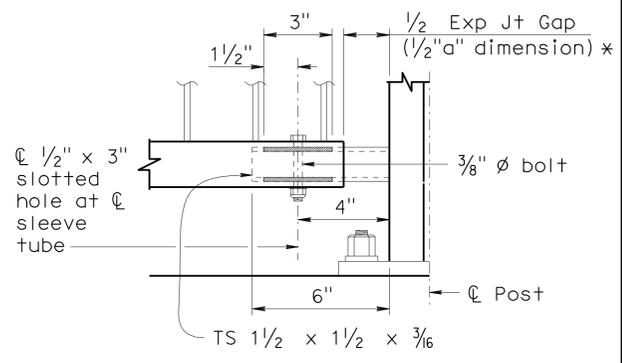
- Notes:
1. See all Notes on "PEDESTRIAN RAILING DETAILS NO. 1" sheet.
  2. Transition post radius from R=1/2" at "Section C-C" to R=1/4" at "Section D-D"



**SECTION F-F**  
 6" = 1'-0"



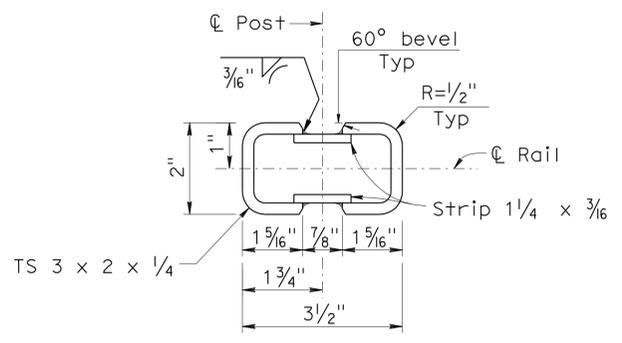
**UPPER RAIL**



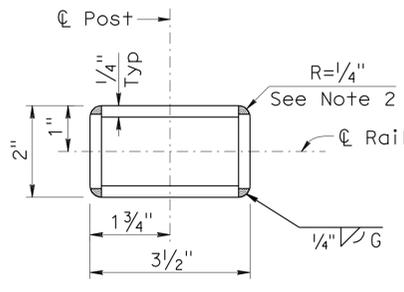
**LOWER RAIL**

\* For "a" dimension, see "JOINT SEAL ASSEMBLY (MOVEMENT RATING = 4")" sheet.

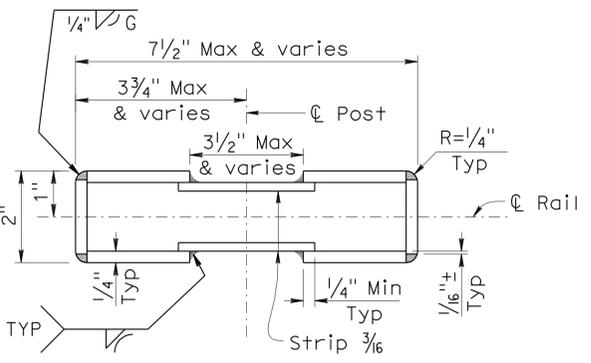
**EXPANSION JOINT RAILING CONNECTION DETAIL**  
 3" = 1'-0"



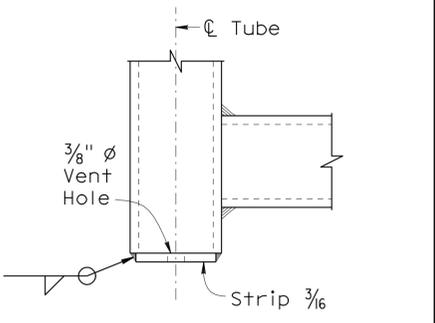
**SECTION C-C**  
 6" = 1'-0"



**SECTION D-D**  
 6" = 1'-0"



**SECTION E-E**  
 6" = 1'-0"



**TUBE CAP DETAIL**  
 6" = 1'-0"

DESIGN	BY Kyoung Lee	CHECKED Kevin Harper
DETAILS	BY Bob Huddleston / JZ	CHECKED Kevin Harper
QUANTITIES	BY Daniel Sessions	CHECKED A. Pearson/V. Shostak

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES  
 STRUCTURE DESIGN  
 DESIGN BRANCH 1

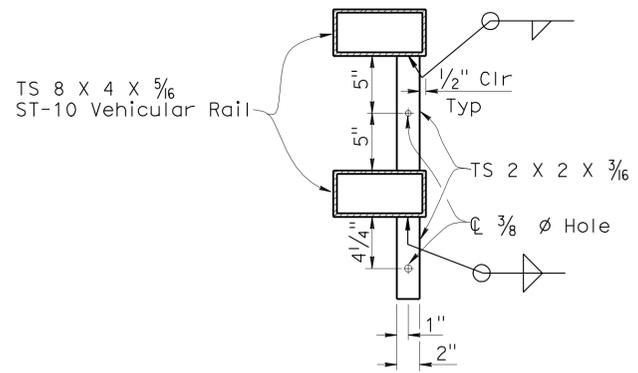
BRIDGE NO.	10-0156
POST MILE	33.63

GREENWOOD CREEK BRIDGE (REPLACE)  
 PEDESTRIAN RAILING DETAILS NO. 2

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Men	1	33.4/33.8	71	90
			01/26/10	REGISTERED CIVIL ENGINEER DATE	
			5-2-11	PLANS APPROVAL DATE	
			Kyoung Hyeog Lee	REGISTERED PROFESSIONAL ENGINEER	
			No. 60714	No. 60714	
			Exp. 12/31/10	Exp. 12/31/10	
			CIVIL	CIVIL	
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.					

Notes:

- Galvanize rail assembly and all components after fabrication.
- Posts shall be normal to railing.
- All bolts on bicycle railing shall be A307 with Thread Locking System.
- For Details not shown, see Standard Plans B11-68, B11-69 & B11-70.
- For "Section B-B", see "CALIFORNIA ST-10 BRIDGE RAIL (MOD) DETAILS NO. 2" sheet.
- See Standard Plan B11-47 for Alternative Cable Connection and Alternative Dead End Anchorage.
- Maximum distance between turnbuckles shall be 100'-0"±.
- Intermediate Turnbuckles shall be placed in adjacent spans.
- Cable shall not be spliced between Intermediate Turnbuckles and End Anchorage.
- Provide Thimbles at all cable loops.

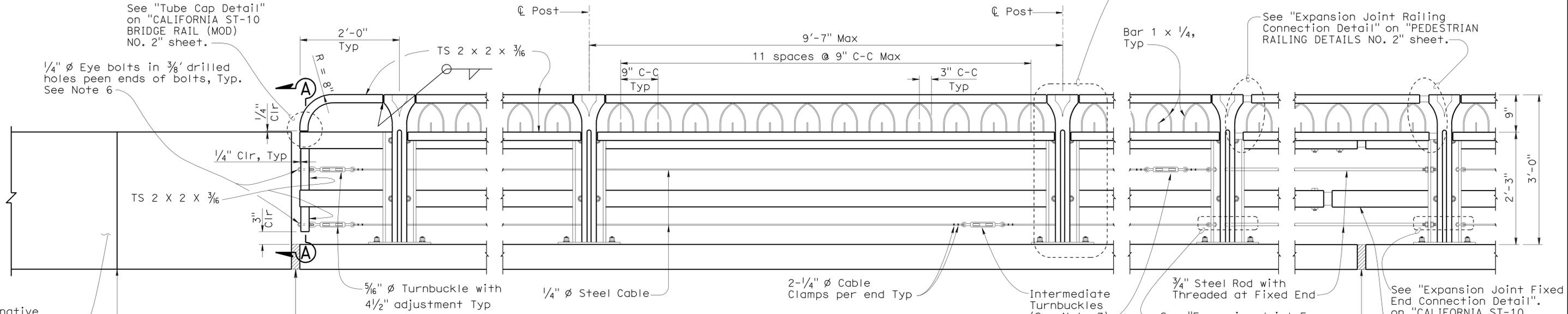


**SECTION A-A**

1 1/2" = 1'-0"

See "Post & Railing Connection Detail" on "CALIFORNIA ST-10 BRIDGE (MOD) DETAILS NO. 2" sheet.

See "Expansion Joint Railing Connection Detail" on "PEDESTRIAN RAILING DETAILS NO. 2" sheet.



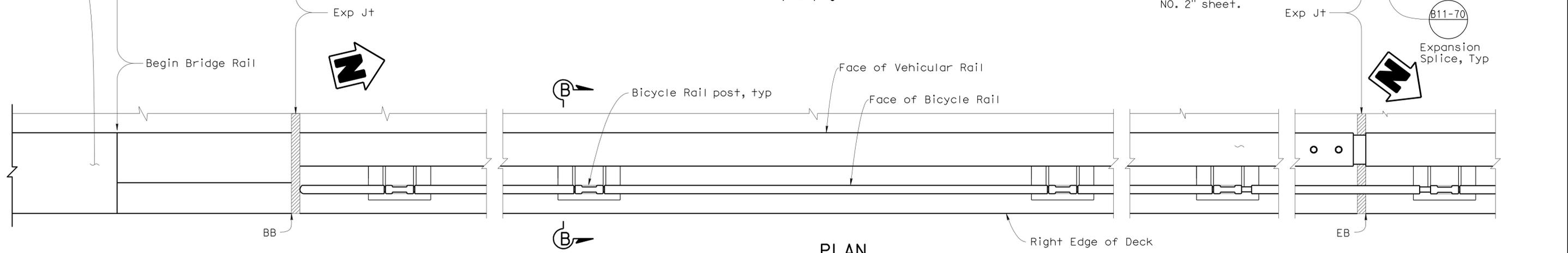
**ELEVATION**

1" = 1'-0"

"Alternative Crash Cushion" See "ROAD PLANS"

See "Expansion Joint Free End Connection Detail" on "CALIFORNIA ST-10 BRIDGE RAIL (MOD) DETAILS NO. 2" sheet.

See "Expansion Joint Fixed End Connection Detail" on "CALIFORNIA ST-10 BRIDGE RAIL (MOD) DETAILS NO. 2" sheet.



**PLAN**

1" = 1'-0"

DESIGN	BY	Kyoung Lee	CHECKED	Kevin Harper	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 1	BRIDGE NO.	10-0156	GREENWOOD CREEK BRIDGE (REPLACE) CALIFORNIA ST-10 BRIDGE RAIL (MOD) DETAILS NO. 1	
	DETAILS	BY	Bob Huddleston	CHECKED			Kevin Harper	POST MILE		33.63
	QUANTITIES	BY	Daniel Sessions	CHECKED			A. Pearson/V. Shostak	REVISION DATES		SHEET
STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 10/25/05)					ORIGINAL SCALE IN INCHES FOR REDUCED PLANS	CU 01 EA 310101	DISREGARD PRINTS BEARING EARLIER REVISION DATES		OF	34

FILE => 10-0156-u-miscdt03.dgn

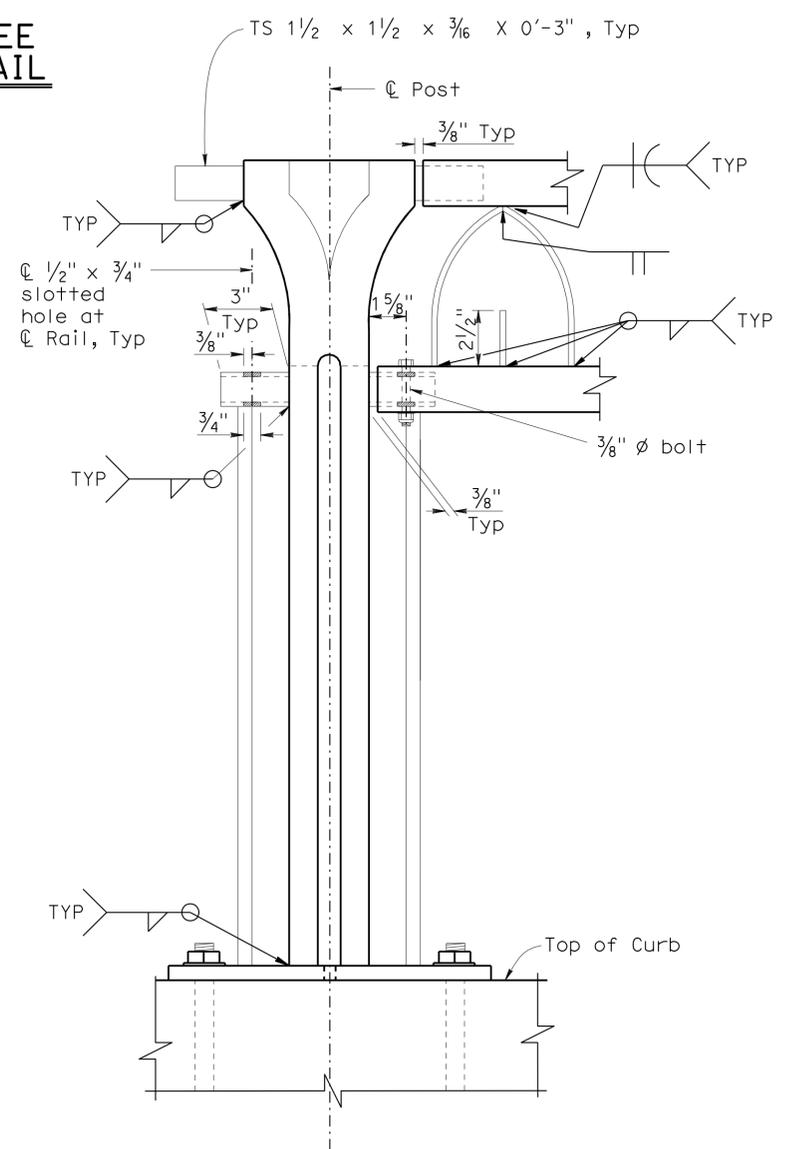
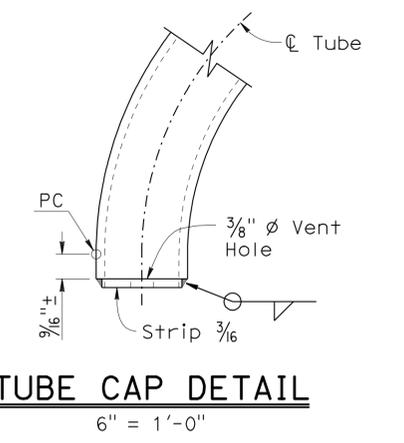
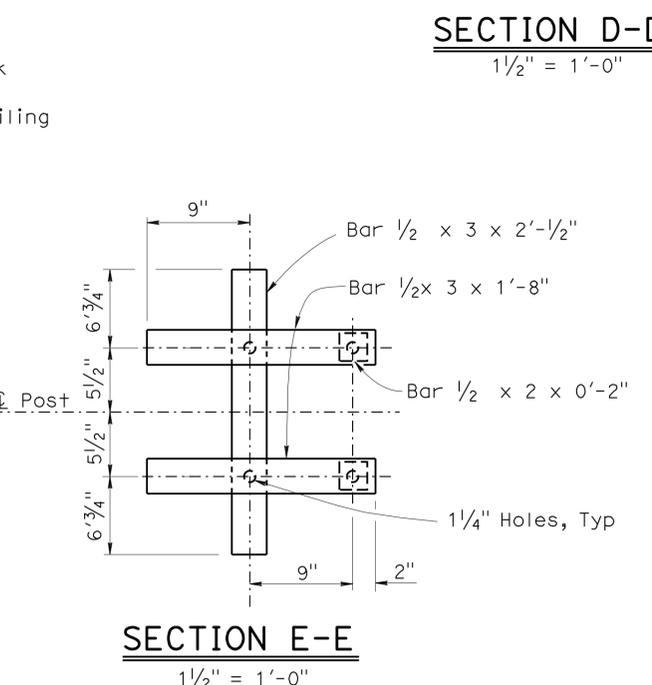
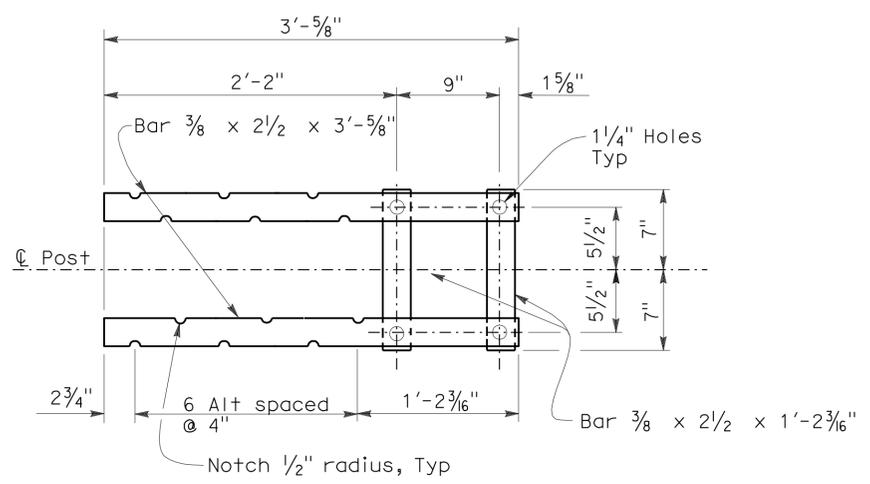
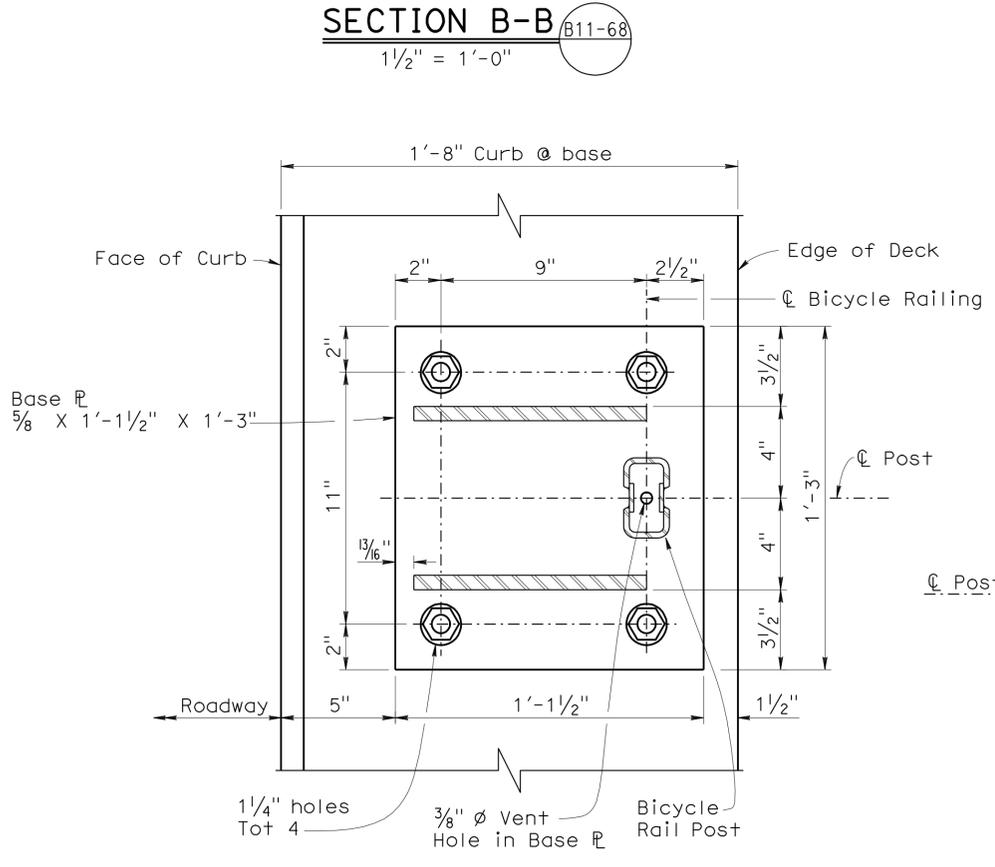
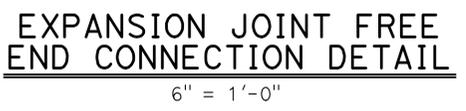
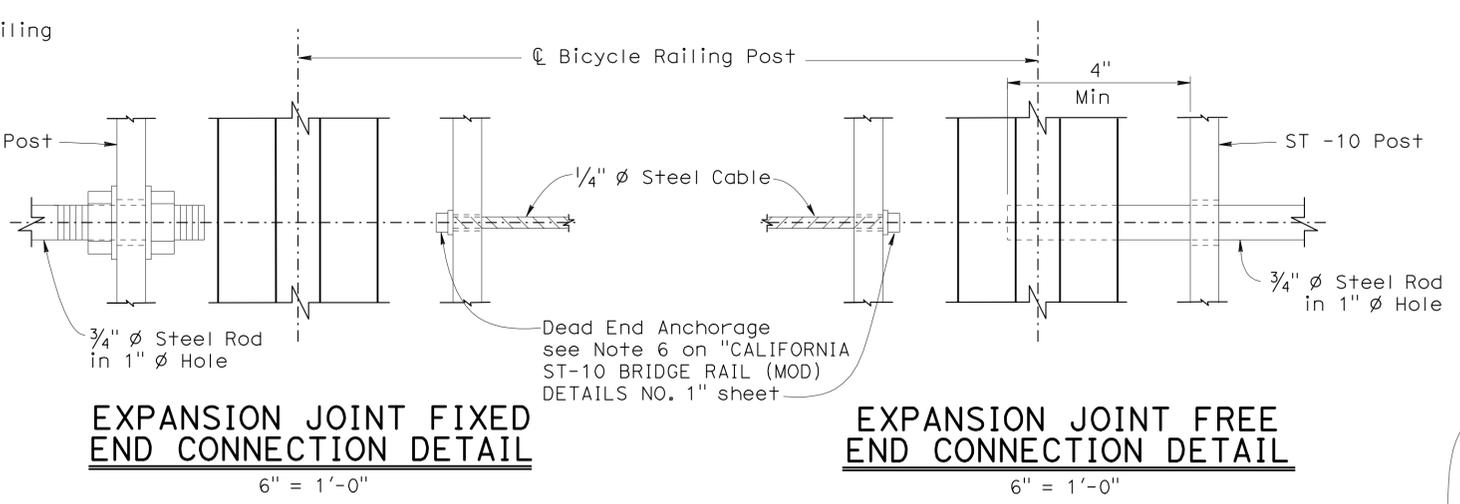
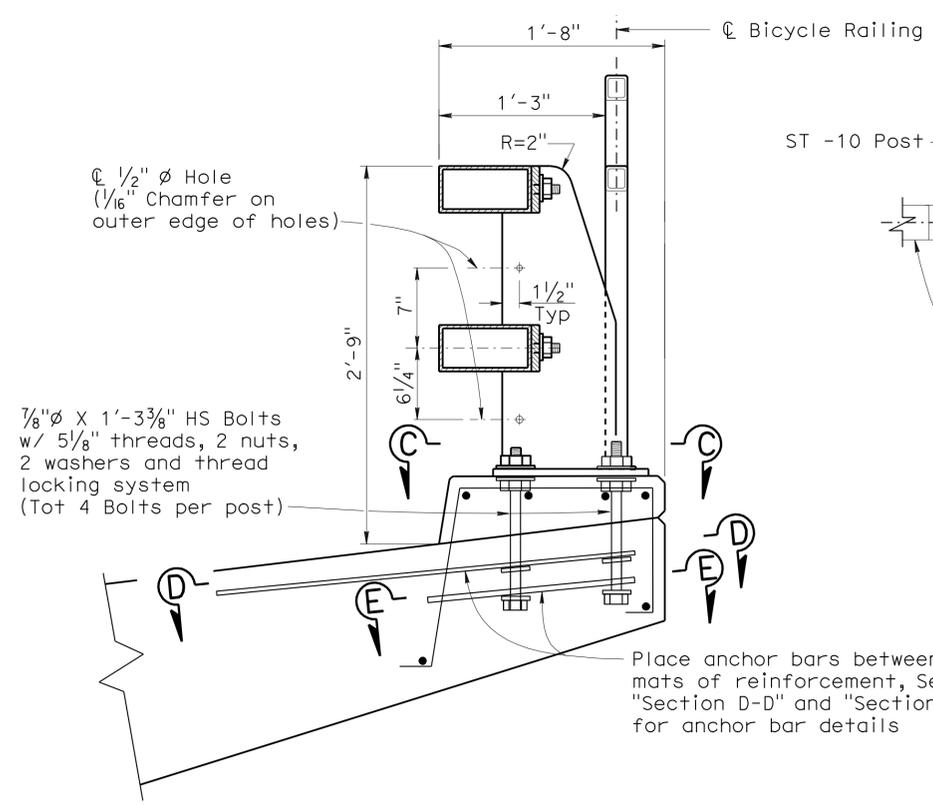
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Men	1	33.4/33.8	72	90

01/26/10  
REGISTERED CIVIL ENGINEER DATE

5-2-11  
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER  
Kyoung Hyeog Lee  
No. 60714  
Exp. 12/31/10  
CIVIL  
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.



Note: For post details not shown, see "PEDESTRIAN RAILING DETAILS NO. 2" sheet.

DESIGN	BY Kyoung Lee	CHECKED Kevin Harper	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 1	BRIDGE NO.	GREENWOOD CREEK BRIDGE (REPLACE)
DETAILS	BY Bob Huddleston/JZ/JT	CHECKED Kevin Harper			10-0156	CALIFORNIA ST-10 BRIDGE RAIL (MOD) DETAILS NO. 2
QUANTITIES	BY Daniel Sessions	CHECKED A. Pearson/V. Shostak			33.63	

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 10/25/05) ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

CU 01  
EA 310101

DISREGARD PRINTS BEARING EARLIER REVISION DATES

3/7/09	1/20/10	05/14/09	7/09/09	11/23/09	11/24/09	12/01/09	07/01/10	01/13/10
--------	---------	----------	---------	----------	----------	----------	----------	----------

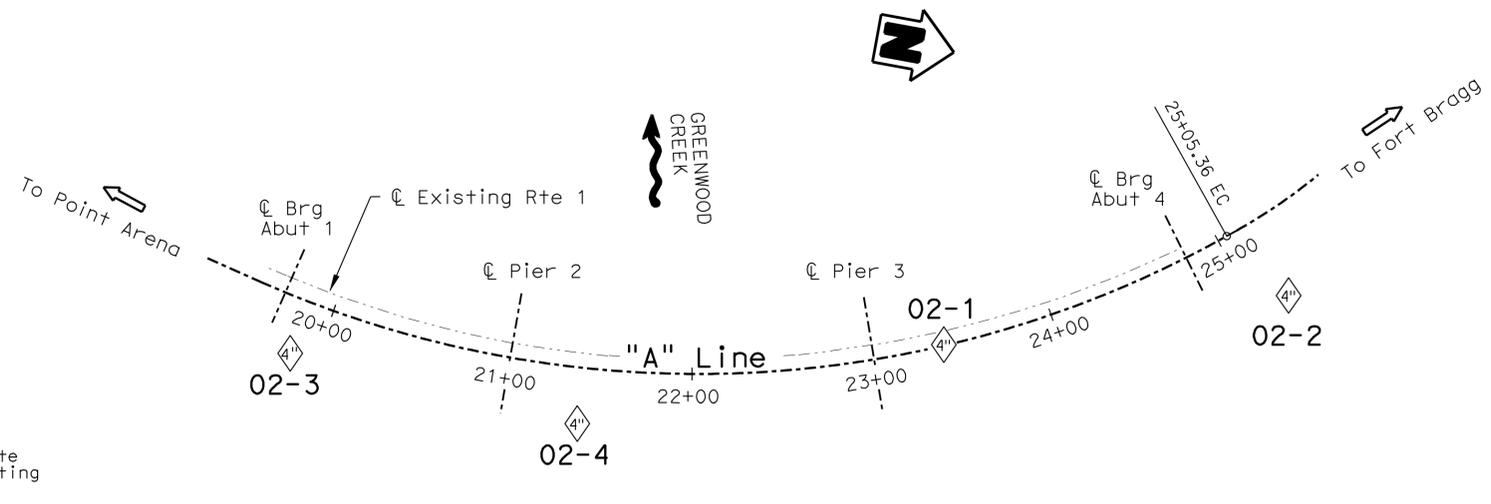
SHEET 28 OF 34

DIST	COUNTY	ROUTE	KILOMETER TOTAL PROJECT	POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Men	1	33.4/33.8		73	90

CERTIFIED ENGINEERING GEOLOGIST  
 Reid Buell  
 No. 1481  
 Exp. 4-30-11  
 REGISTERED GEOLOGIST  
 STATE OF CALIFORNIA

5-2-11  
 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.



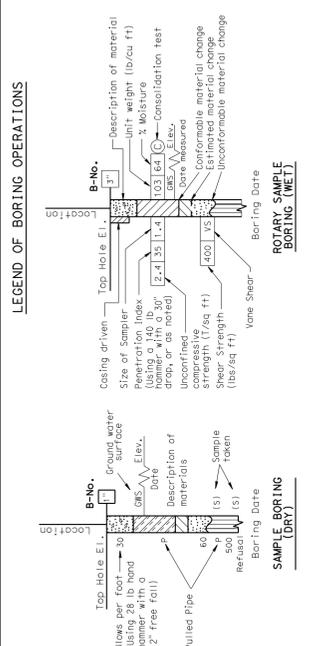
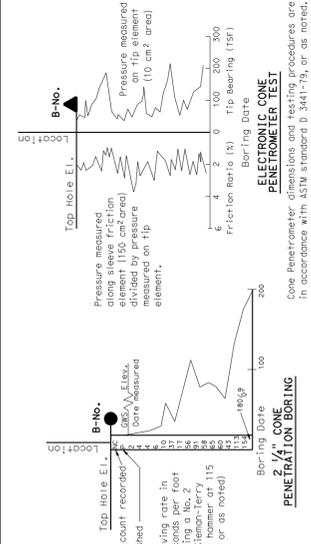
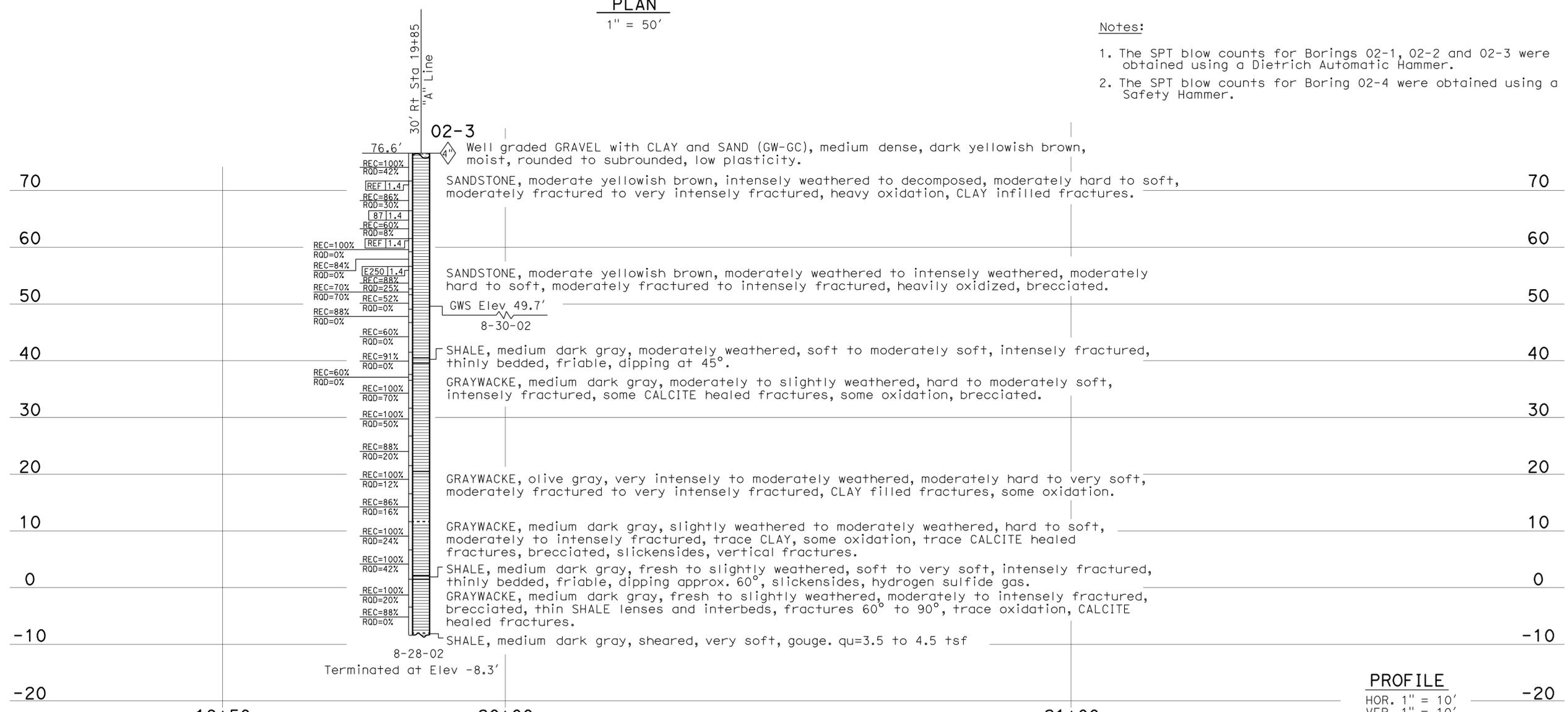
**BENCH MARK**

TBM: SUHV31 Elev 80.32'  
 Fnd. CT Monument 1000 SPK  
 "CT-MEN-1-33.63"

BM: PVM-1 Elev 70.67'  
 Fnd. Brass Disk in Concrete  
 Curb on NW Corner of Existing  
 Bridge "N1439"  
 Vertical Datum: NAVD88

**Notes:**

- The SPT blow counts for Borings 02-1, 02-2 and 02-3 were obtained using a Dietrich Automatic Hammer.
- The SPT blow counts for Boring 02-4 were obtained using a Safety Hammer.



**CONSISTENCY CLASSIFICATION FOR SOILS**

SPT N <sub>60</sub> (Blows/foot)	Consistency	
	Very Loose	Very Stiff
0-4	Very Loose	Very Stiff
5-10	Loose	Stiff
11-30	Medium Dense	Medium Stiff
31-50	Dense	Very Stiff
>50	Very Dense	Very Hard

NOTE: Classification of earth material as shown on this sheet is based upon field inspection and is not to be construed to imply mechanical analysis.

<b>ENGINEERING SERVICES</b>	<b>GEOTECHNICAL SERVICES</b>	FIELD INVESTIGATION BY: J. Thorne	<b>STATE OF CALIFORNIA</b> DEPARTMENT OF TRANSPORTATION	<b>DIVISION OF ENGINEERING SERVICES</b> STRUCTURE DESIGN <b>DESIGN BRANCH 1</b>	BRIDGE NO. 10-0156 POST MILE 33.6	<b>GREENWOOD CREEK BRIDGE (REPLACE)</b> <b>LOG OF TEST BORINGS 1 OF 6</b>
DRAWN BY I.G-Remmen, 4/09	CHECKED BY J. Thorne					

DIST	COUNTY	ROUTE	KILOMETER TOTAL PROJECT	POST MILE	SHEET No	TOTAL SHEETS
01	Men	1	33.4/33.8		74	90

Reid Buell  
 CERTIFIED ENGINEERING GEOLOGIST  
 4-30-09  
 5-2-11  
 PLANS APPROVAL DATE

REGISTERED GEOLOGIST  
 Reid Buell  
 No. 1481  
 Exp. 4-30-11  
 CERTIFIED ENGINEERING GEOLOGIST  
 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.

FOR PLAN VIEW, SEE  
"LOG OF TEST BORINGS" 1 OF 6

**LEGEND OF BORING OPERATIONS**

**2 1/4" CONE PENETROMETER**

**2 1/4" CONE PENETROMETER SAMPLE BORING (DRY)**

**ROTORARY SAMPLE BORING (WE')**

**ROTORARY SAMPLE BORING (WV)**

**TEST PIT**

**DIAMOND CORE BORING**

**JET BORING**

**ELECTRONIC CONE PENETROMETER**

**LEGEND OF EARTH MATERIALS**

**LEGEND OF BORING OPERATIONS**

**LEGEND OF BORING OPERATIONS**

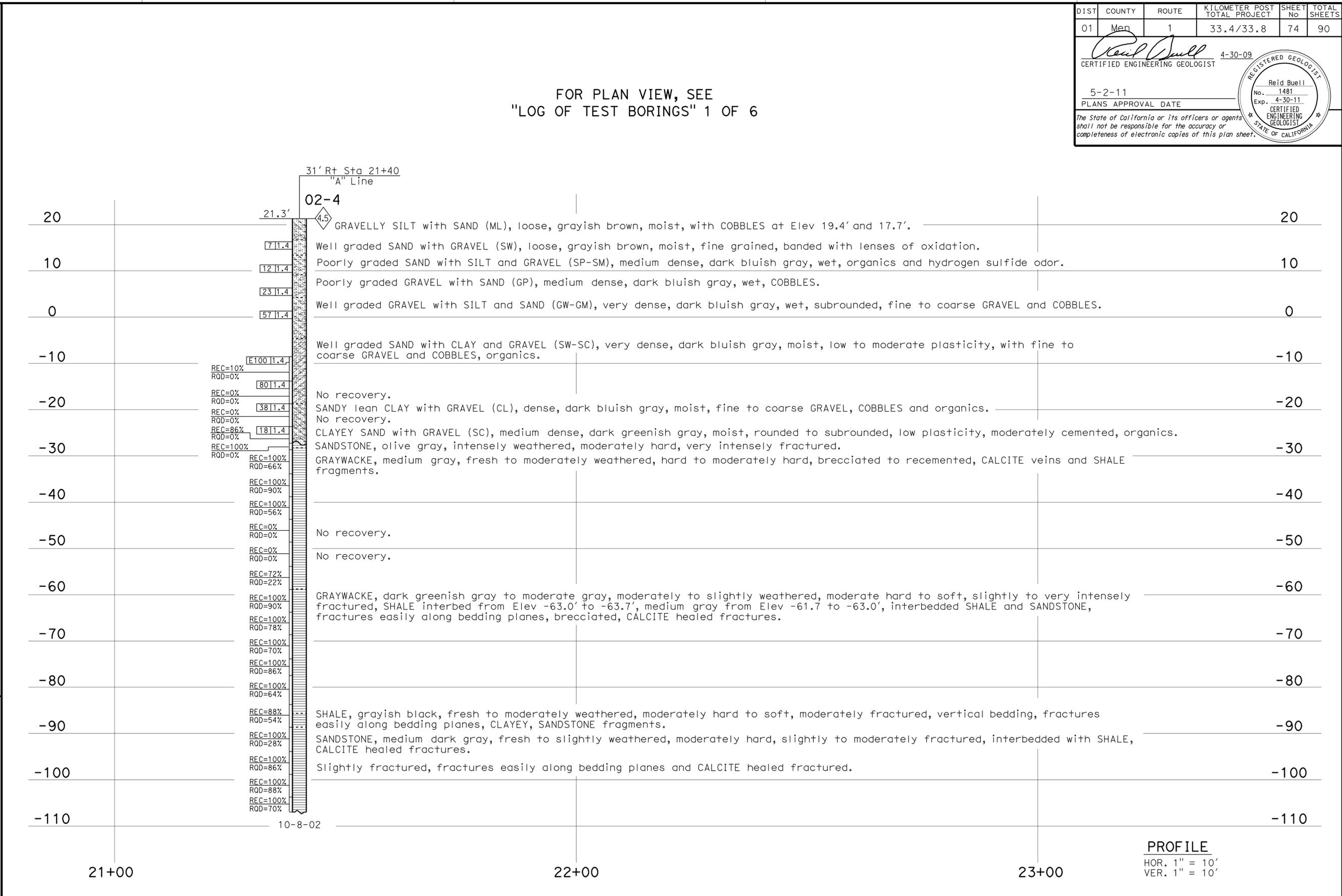
**LEGEND OF BORING OPERATIONS**

**CONSISTENCY CLASSIFICATION FOR SOILS**

According to the Standard Penetration Test

SPT No./Blows (ft)	Consistency
0-4	Very Loose
5-10	Loose
11-30	Medium Dense
31-50	Dense
51-70	Very Dense
71-100	Very Hard

NOTE: Classification of earth material as shown on this sheet is based upon field inspection and is not to be construed to imply mechanical analysis.



<b>ENGINEERING SERVICES</b>	<b>GEOTECHNICAL SERVICES</b>	FIELD INVESTIGATION BY: J. Thorne	<b>STATE OF CALIFORNIA</b> DEPARTMENT OF TRANSPORTATION	<b>DIVISION OF ENGINEERING SERVICES</b> STRUCTURE DESIGN <b>DESIGN BRANCH 1</b>	BRIDGE NO. 10-0156 POST MILE 33.6	<b>GREENWOOD CREEK BRIDGE (REPLACE)</b> <b>LOG OF TEST BORINGS 2 OF 6</b>
DRAWN BY I.G-Remmen, 4/09	CHECKED BY J. Thorne					PROFILE HOR. 1" = 10' VER. 1" = 10'

DIST	COUNTY	ROUTE	KILOMETER TOTAL PROJECT	POST SHEET No	TOTAL SHEETS
01	Men	1	33.4/33.8	75	90

CERTIFIED ENGINEERING GEOLOGIST  
 Reid Buell  
 No. 1481  
 Exp. 4-30-11  
 REGISTERED GEOLOGIST  
 STATE OF CALIFORNIA

5-2-11  
 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.

**LEGEND OF BORING OPERATIONS**

**LEGEND OF EARTH MATERIALS**

**CONSISTENCY CLASSIFICATION FOR SOILS**

**LEGEND OF BORING OPERATIONS**

**LEGEND OF EARTH MATERIALS**

**CONSISTENCY CLASSIFICATION FOR SOILS**

2 1/4" CONE PENETROMETER  
 SAMPLE BORING (DRY)  
 POSTHOLE SAMPLE BORING (WET)  
 AUGER BORING  
 TEST PIT  
 DIAMOND CORE BORING  
 JET BORING  
 ELECTRONIC CONE PENETROMETER

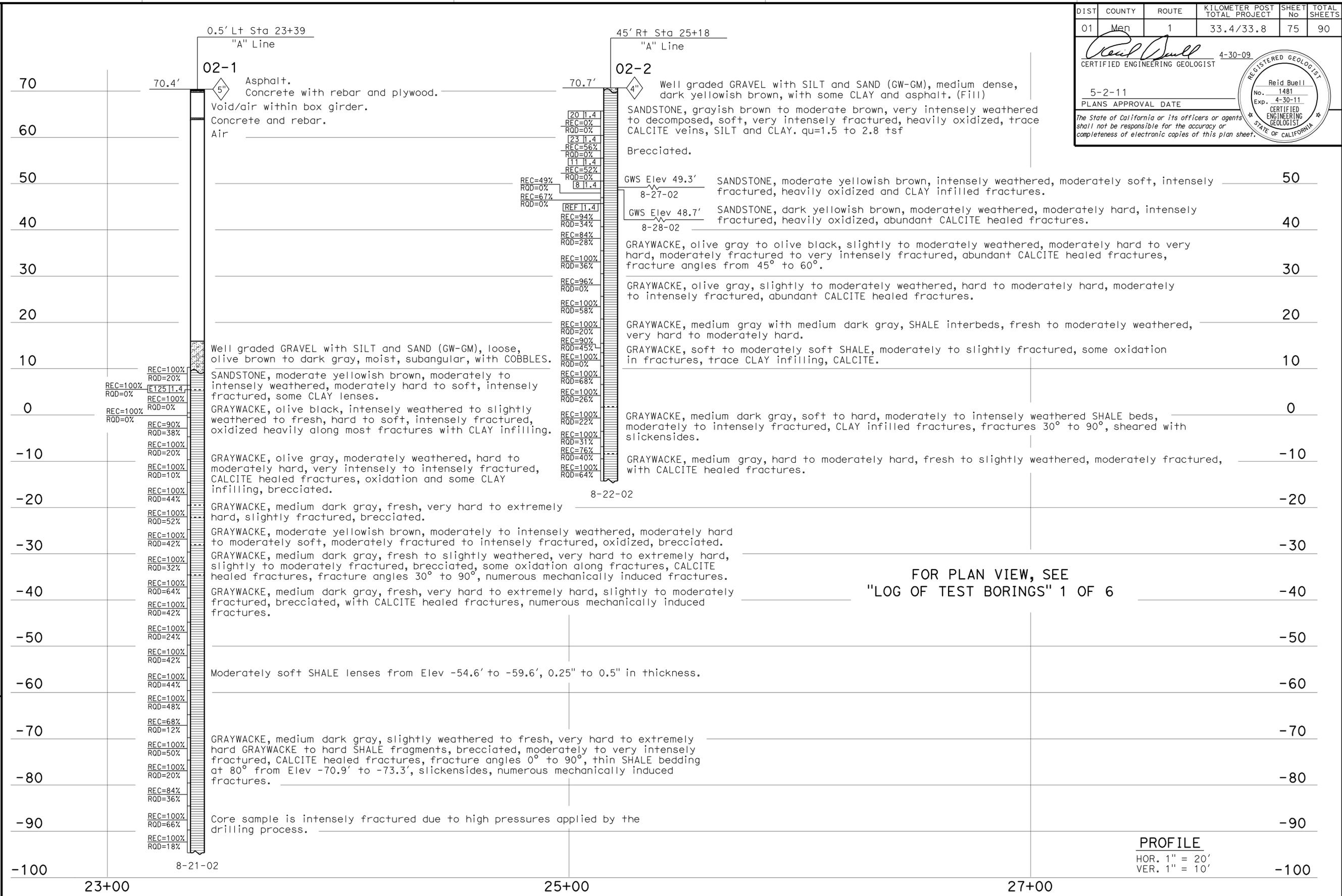
CLAYEY SILT  
 SILT  
 CLAY  
 SANDY CLAY  
 CLAYEY SAND  
 SANDY SILT  
 SILTY SAND  
 SILTY CLAY

SPt Plus (Blows/foot)  
 SPt (Blows/foot)

Very Loose  
 Loose  
 Medium Dense  
 Dense  
 Very Dense

Consesive  
 Very Soft  
 Soft  
 Medium Stiff  
 Stiff  
 Very Stiff  
 Hard  
 Very Hard

NOTE: Classification of earth material as shown on this sheet is based upon field inspection and is not to be construed to imply mechanical analysis.



FOR PLAN VIEW, SEE "LOG OF TEST BORINGS" 1 OF 6

**PROFILE**  
 HOR. 1" = 20'  
 VER. 1" = 10'

<b>ENGINEERING SERVICES</b>	<b>GEOTECHNICAL SERVICES</b>	FIELD INVESTIGATION BY: J. Thorne	<b>STATE OF CALIFORNIA</b> DEPARTMENT OF TRANSPORTATION	<b>DIVISION OF ENGINEERING SERVICES</b> STRUCTURE DESIGN <b>DESIGN BRANCH 1</b>	BRIDGE NO. 10-0156 POST MILE 33.6	<b>GREENWOOD CREEK BRIDGE (REPLACE)</b> <b>LOG OF TEST BORINGS 3 OF 6</b>
DRAWN BY I.G-Remmen, 4/09	CHECKED BY J. Thorne					

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS: 0 1 2 3  
 CU 01 EA 310101  
 DISREGARD PRINTS BEARING EARLIER REVISION DATES  
 REVISION DATES (PRELIMINARY STAGE ONLY)  
 SHEET 31 OF 34

DIST	COUNTY	ROUTE	KILOMETER TOTAL PROJECT	POST SHEET No	TOTAL SHEETS
01	Men	1	33.4/33.8	76	90

Reid Buell  
 CERTIFIED ENGINEERING GEOLOGIST  
 4-30-09  
 5-2-11  
 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.

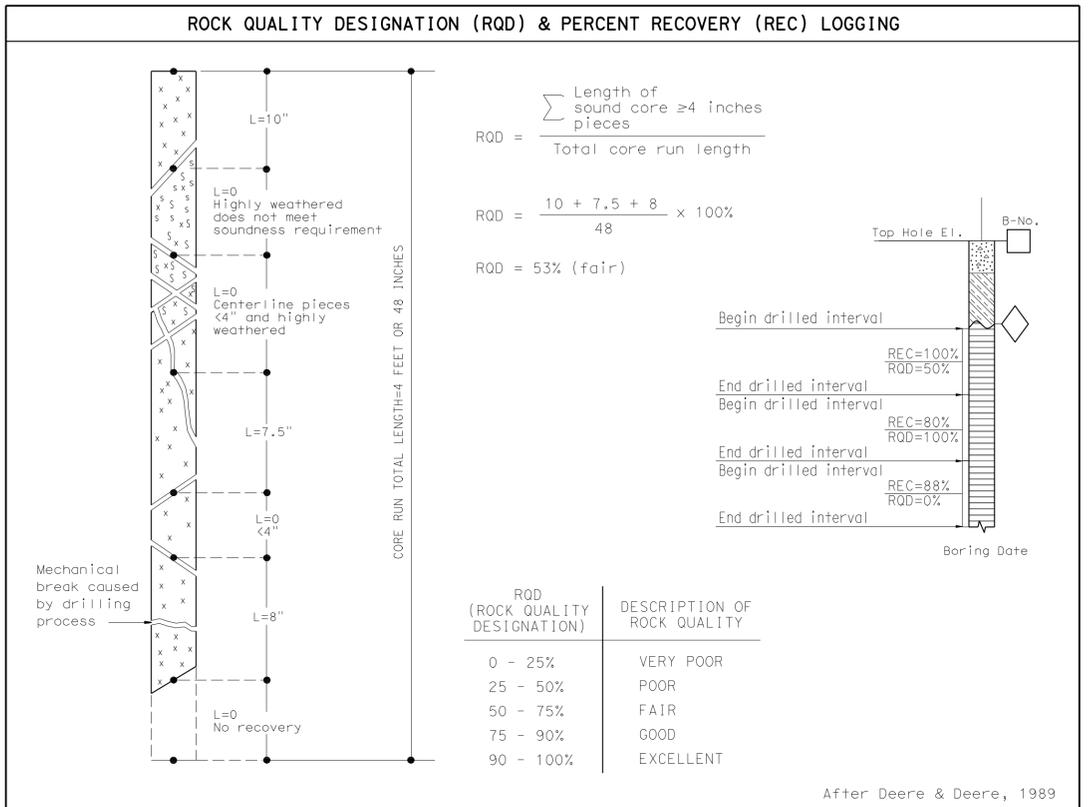
WEATHERING DESCRIPTORS							Modified from United States Bureau of Reclamation, Engineering Geology Field Manual.	
Descriptors		Diagnostic features					General characteristics (strength, excavation, etc.) <sup>§</sup>	
		Chemical weathering-Discoloration and/or oxidation		Mechanical weathering-Grain boundary conditions (disaggregation) primarily for granitics and some coarse-grained sediments	Texture and solutioning			
Alphanumeric descriptor	Descriptive term	Body of rock	Fracture surfaces †		Texture	Solutioning		
W1	Fresh	No discoloration, not oxidized.	No discoloration or oxidation.	No separation, intact (tight).	No change.	No solutioning.	Hammer rings when crystalline rocks are struck. Almost always rock excavation except for naturally weak or weakly cemented rocks such as siltstones or shales.	
W2	Slightly weathered to fresh <sup>o</sup>							
W3	Slightly weathered	Discoloration or oxidation is limited to surface of, or short distance from, fractures; some feldspar crystals are dull.	Minor to complete discoloration or oxidation of most surfaces.	No visible separation, intact (tight).	Preserved.	Minor leaching of some soluble minerals may be noted.	Hammer rings when crystalline rocks are struck. Body of rock not weakened. With few exceptions, such as siltstones or shales, classified as rock excavation.	
W4	Moderately to slightly weathered <sup>o</sup>							
W5	Moderately weathered	Discoloration or oxidation extends from fractures usually throughout; Fe-Mg minerals are "rusty," feldspar crystals are "cloudy."	All fracture surfaces are discolored or oxidized.	Partial separation of boundaries visible.	Generally preserved.	Soluble minerals may be mostly leached.	Hammer does not ring when rock is struck. Body of rock is slightly weakened. Depending on fracturing, usually is rock excavation except in naturally weak rocks such as siltstones or shales.	
W6	Intensely to moderately weathered <sup>o</sup>							
W7	Intensely weathered	Discoloration or oxidation throughout; all feldspars and Fe-Mg minerals are altered to some extent; or chemical alteration produces in-situ disaggregation, see grain boundary conditions.	All fracture surfaces are discolored or oxidized, surfaces friable.	Partial separation, rock is friable; in semi-arid conditions granitics are disaggregated.	Texture altered by chemical disintegration (hydration, argillification).	Leaching of soluble minerals may be complete.	Dull sound when struck with hammer, usually can be broken with moderate to heavy manual pressure or by light hammer blow without reference to planes of weakness such as incipient or hairline fractures, or veinlets. Rock is significantly weakened. Usually common excavation.	
W8	Very intensely weathered							
W9	Decomposed	Discolored or oxidized throughout, but resistant minerals such as quartz may be unaltered; all feldspars and Fe-Mg minerals are completely altered to clay.		Complete separation of grain boundaries (disaggregated).	Resembles a soil, partial or complete remnant rock structure may be preserved; leaching of soluble minerals usually complete.		Can be granulated by hand. Always common excavation. Resistant minerals such as quartz may be present as "stringers" or "dikes."	

Note: This chart and its horizontal categories are more readily applied to rocks with feldspars and mafic minerals. Weathering in various sedimentary rocks, particularly limestones and poorly indurated sediments, will not always fit the categories established. This chart and weathering categories may have to be modified for particular site conditions or alteration such as hydrothermal effects; however, the basic framework and similar descriptors are to be used.

<sup>o</sup> Combination descriptors are permissible where equal distribution of both weathering characteristics are present over significant intervals or where characteristics present are "in between" the diagnostic feature. However, dual descriptors should not be used where significant, identifiable zones can be delineated. When given as a range, only two adjacent terms may be combined. "Decomposed to slightly weathered," or "moderately weathered to fresh" are not acceptable.

† Does not include directional weathering along shears or faults and their associated features. For example, a shear zone that carried weathering to great depths into a fresh rock mass would not require the rock mass to be classified as weathered.

§ These are generalizations and should not be used as diagnostic features for weathering or excavation classification. These characteristics vary to a large extent based on naturally weak materials or cementation and type of excavation.



### FRACTURE DENSITY

Modified from United States Bureau of Reclamation, Engineering Geology Field Manual.

**FRACTURE DENSITY-** Based on the spacing of all natural fractures in an exposure or core recovery lengths in boreholes; excludes mechanical breaks, shears, and shear zones; however, shear-disturbed zones (fracturing outside the shear) are included. Descriptors for fracture density apply to all rock exposures such as tunnel walls, dozer trenches, outcrops, or foundation cut slopes and inverts, as well as boreholes. Descriptive criteria presented below are based on borehole cores where lengths are measured along the core axis, for other exposures the criteria is distance measured between fractures (size of blocks).

**UNFRACTURED (FD0):** No fractures.

**VERY SLIGHTLY FRACTURED (FD1):** Core recovered mostly in lengths greater than 3 ft.

**SLIGHTLY TO VERY SLIGHTLY FRACTURED (FD2)\***

**SLIGHTLY FRACTURED (FD3):** Core recovered mostly in lengths from 1 to 3 ft. with few scattered lengths less than 1 ft or greater than 3 ft.

**MODERATELY TO SLIGHTLY FRACTURED (FD4)\***

**MODERATELY FRACTURED (FD5):** Core recovered mostly in 0.3 to 1.0 ft lengths with most lengths about 0.6 ft.

**INTENSELY TO MODERATELY FRACTURED (FD6)\***

**INTENSELY FRACTURED (FD7):** Lengths average from 0.1 to 0.3 ft with scattered fragmented intervals. Core recovered mostly in lengths less than 0.3 ft.

**VERY INTENSELY TO INTENSELY FRACTURED (FD8)\***

**VERY INTENSELY FRACTURED (FD9):** Core recovered mostly as chips and fragments with a few scattered short core lengths.

\* Combinations of fracture densities (e.g. very intensely to intensely fractured, or moderately to slightly fractured) are used where equal distribution of both fracture density characteristics are present over a significant interval or exposure, or where characteristics are "in between" the descriptor definitions.

### ROCK HARDNESS DESCRIPTORS

Alphanumeric Descriptor	Descriptor	Criteria
H1	Extremely hard	Core, fragment, or exposure cannot be scratched with knife or sharp pick; can only be chipped with repeated heavy hammer blows.
H2	Very hard	Cannot be scratched with knife or sharp pick. Core or fragment breaks with repeated heavy hammer blows.
H3	Hard	Can be scratched with knife or sharp pick with difficulty (heavy pressure). Heavy hammer blow required to break specimen.
H4	Moderately hard	Can be scratched with knife or sharp pick with light or moderate pressure. Core or fragment breaks with moderate hammer blow.
H5	Moderately soft	Can be grooved 1/16 inch deep by knife or sharp pick with moderate or heavy pressure. Core or fragment breaks with light hammer blow or heavy manual pressure.
H6	Soft	Can be grooved or gouged easily by knife or sharp pick with light pressure, can be scratched with fingernail. Breaks with light to moderate manual pressure.
H7	Very soft	Can be readily indented, grooved or gouged with fingernail, or carved with a knife. Breaks with light manual pressure.

Any bedrock unit softer than H7, very soft, is to be described using ASTM D-2488 consistency descriptors.

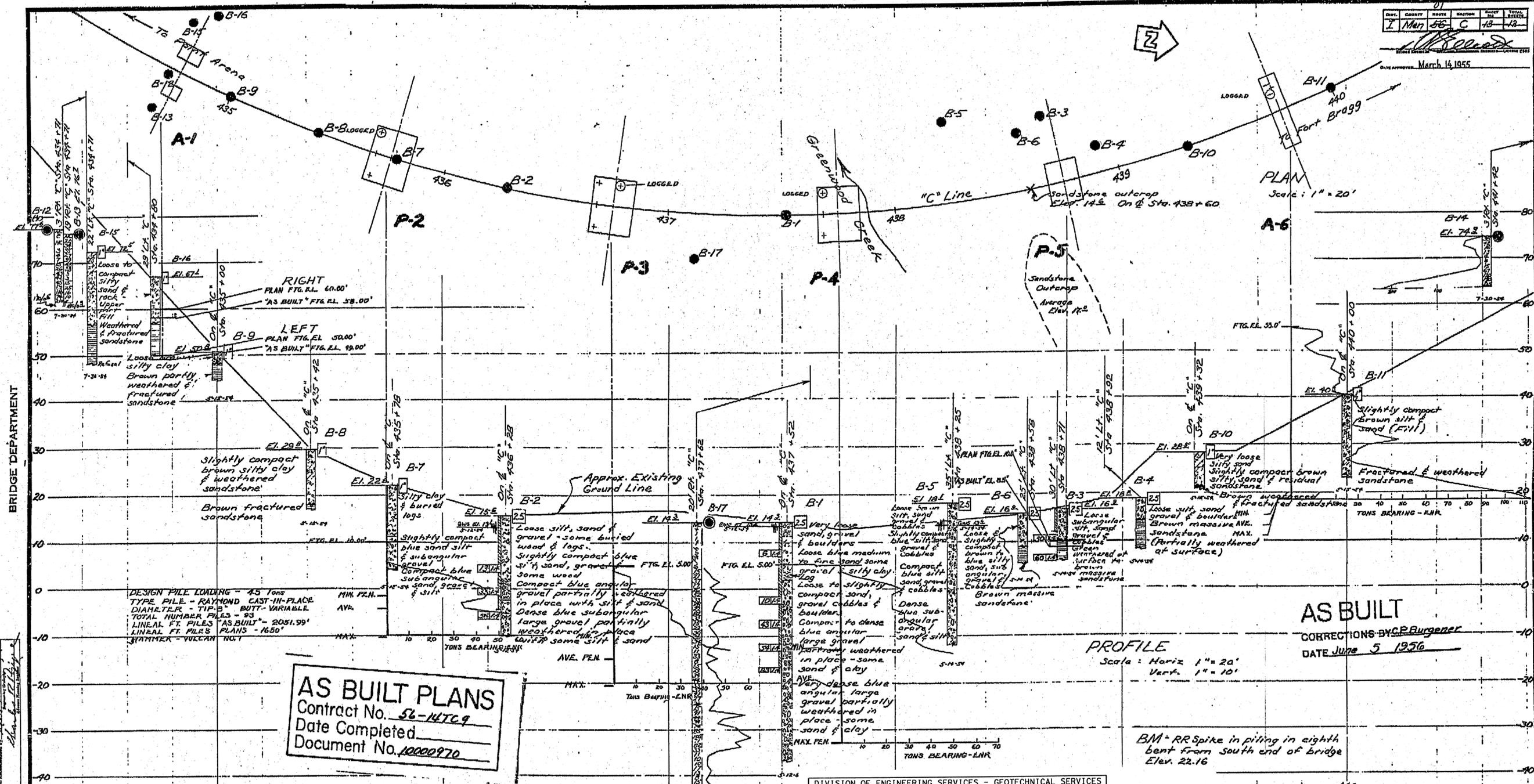
Note: Although "sharp pick" is included in these definitions, descriptions of ability to be scratched, grooved or gouged by a knife is the preferred criteria.

Modified from United States Bureau of Reclamation, Engineering Geology Field Manual.

### BEDDING, FOLIATION, OR FLOW TEXTURE DESCRIPTORS

Descriptors	Thickness / Spacing
Massive	Greater than 10 ft
Very thickly (bedded, foliated, or banded)	3 to 10 ft
Thickly	1 to 3 ft
Moderately	0.3 to 1 ft
Thinly	0.1 to 0.3 ft
Very thinly	0.03 (3/8 in) to 0.1 ft
Laminated (intensely foliated or banded)	Less than 0.03 ft (3/8 in)

Modified from United States Bureau of Reclamation, Engineering Geology Field Manual.



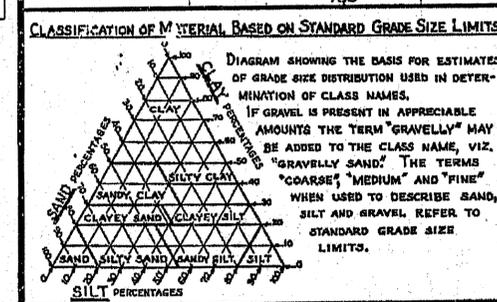
**AS BUILT PLANS**  
 Contract No. 56-147C9  
 Date Completed \_\_\_\_\_  
 Document No. 10000970

**AS BUILT**  
 CORRECTIONS BY C.P. Burgerer  
 DATE June 5 1956

**PROFILE**  
 Scale: Horiz 1" = 20'  
 Vert. 1" = 10'

BM RR Spike in piling in eighth bent from south end of bridge Elev. 22.16

FIELD STUDY BY: C. Blomquist, S. J. ...  
 CHECKED BY: ...  
 APPROVED BY: ...



**LEGEND OF EARTH MATERIALS**

GRAVEL	SILTY CLAY OR CLAYEY SILT
SAND	PEAT OR/OR ORGANIC MATTER
SILT	FILL MATERIAL
CLAY	IGNEOUS ROCK
SANDY CLAY OR CLAYEY SAND	SEDIMENTARY ROCK
SANDY SILT OR SILTY SAND	METAMORPHIC ROCK

**LEGEND OF**

PLAN OF ANY BORING	1" SOIL TUBE
PENETROMETER	
2 1/2" CONE PENETROMETER	
SAMPLER BORING (DRY)	
ROTARY BORING (WET)	
AUGER BORING (DRY)	
JET BORING	
CORE BORING	
TEST PIT	

**DIVISION OF ENGINEERING SERVICES - GEOTECHNICAL SERVICES**

As-Built Log of Test Borings sheet is considered an informational document only. As such, the State of California registration seal with signature, license number and registration certificate expiration date confirm that this is a true and accurate copy of the original document. This drawing is available and presented only for the convenience of any bidder, contractor or other interested party.

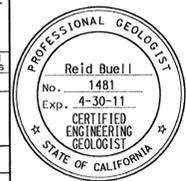
DIST.	COUNTY	ROUTE	POST MILE-TOTAL PROJECT	Sheet No.	Total SHEETS
01	Men	1	33.4/33.8	77	90

CERTIFIED ENGINEERING GEOLOGIST  
 REID BUELL  
 No. 1481  
 Exp. 4-30-11  
 STATE OF CALIFORNIA

**GREENWOOD CREEK BRIDGE (REPLACE)**  
**LOG OF TEST BORINGS** 5 OF 6

NOTE: A COPY OF THIS LOG OF TEST BORINGS IS AVAILABLE AT OFFICE OF STRUCTURE MAINTENANCE AND INVESTIGATIONS, SACRAMENTO, CALIFORNIA	CU: 01 EA: 310101	BRIDGE No. 10-0156
		Sheet of 33 34

To accompany plans dated 5-2-11



**NOTES**

The contractor's attention is directed to Section 7, Article (4) of the Standard Specifications and to the Special Provisions accompanying this set of plans. Classification of earth material as shown on this sheet is based upon field inspection and is not to be construed to imply mechanical analysis.

STATE OF CALIFORNIA  
 DEPARTMENT OF PUBLIC WORKS  
 DIVISION OF HIGHWAYS

**BRIDGE ACROSS GREENWOOD CREEK**  
**LOG OF TEST BORINGS**

SCALE As Shown / BRIDGE 10-123 FILE DRAWING 3852-12

PREL. DRAWING NO. P-3852-14

**LEGEND OF BORING OPERATIONS**

**2 1/4" CONE PENETROMETER**  
 B-No. Location  
 Pressure measured on cone (150 cfs) divided by pressure measured on tip element (10 cfs) = c.p.u.  
 Friction force (lb) ÷ Tip Area (sq in) = f.p.u.  
 Barling Date

**1 1/2" CONE PENETROMETER TEST**  
 B-No. Location  
 Pressure measured on cone (150 cfs) divided by pressure measured on tip element (10 cfs) = c.p.u.  
 Friction force (lb) ÷ Tip Area (sq in) = f.p.u.  
 Barling Date

**ROTARY SAMPLE BORING (WET)**  
 B-No. Location  
 Casing driven  
 Top Hole E.L.  
 Description of material  
 Unit weight (lb/cu ft)  
 Penetration (ft)  
 Consolidation test  
 Shear strength (lb/sq ft)  
 Barling Date

**ROTARY SAMPLE BORING (DRY)**  
 B-No. Location  
 Casing driven  
 Top Hole E.L.  
 Description of material  
 Unit weight (lb/cu ft)  
 Penetration (ft)  
 Consolidation test  
 Shear strength (lb/sq ft)  
 Barling Date

**2 1/4" CONE PENETROMETER**  
 B-No. Location  
 Pressure measured on cone (150 cfs) divided by pressure measured on tip element (10 cfs) = c.p.u.  
 Friction force (lb) ÷ Tip Area (sq in) = f.p.u.  
 Barling Date

**LEGEND OF EARTH MATERIALS**

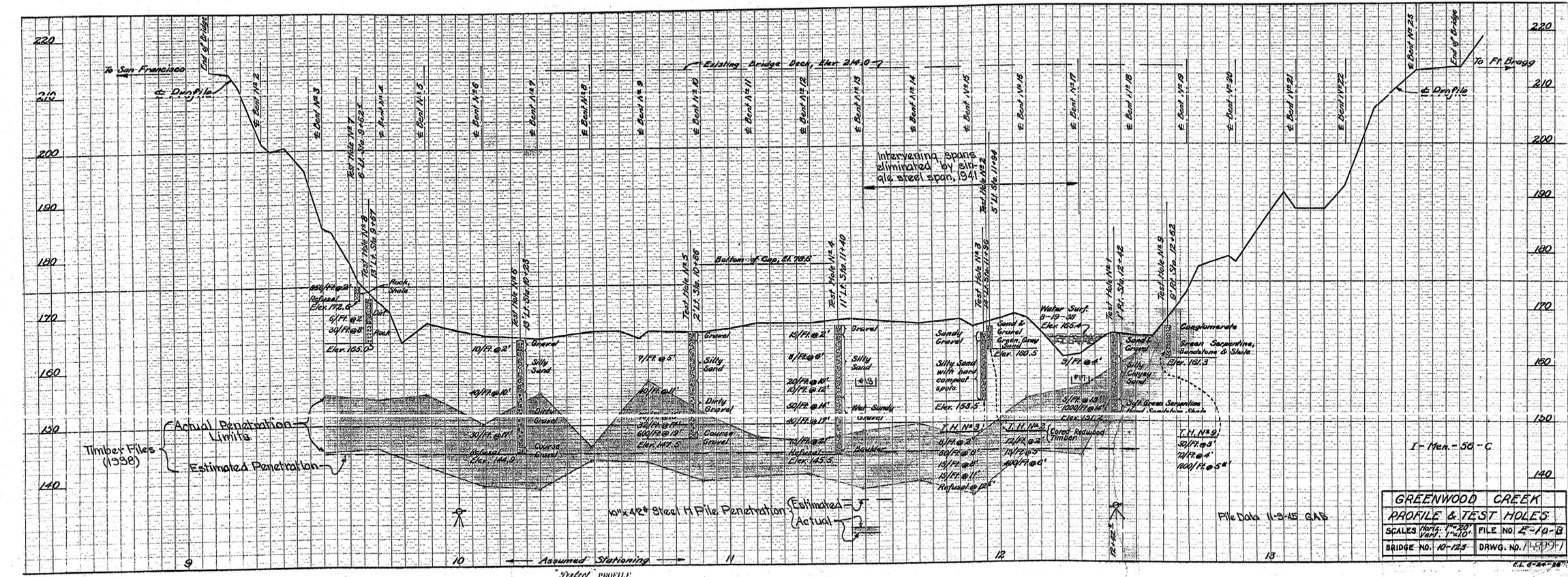
GRAVEL  
 SAND  
 SILT  
 CLAY  
 CLAYEY SILT  
 BEST OR ORGANIC MATTER  
 COBBLES AND BOULDERS  
 LONGUS ROCK  
 SANDY CLAY OR CLAYEY SAND  
 SANDY SILT OR SILTY SAND  
 SILTY CLAY  
 METAMORPHIC

**CONSISTENCY CLASSIFICATION FOR SOILS**

According to the Standard Penetration Test	
SPT N-Value (Blows/foot)	Consistency
0-4	Very Loose
5-10	Loose
11-30	Medium Dense
31-50	Dense
>50	Very Dense

Very Soft  
 Soft  
 Medium stiff  
 Stiff  
 Very Stiff  
 Hard  
 Very Hard

NOTE: Classification of earth material shown on this sheet is based upon field inspection and is not to be construed to imply mechanical analysis.



**GREENWOOD CREEK**  
**PROFILE & TEST HOLES**  
 SCALES: HORIZ. 1"=20' VERT. 1"=10'  
 FILE NO. 2-19-B  
 BRIDGE NO. 10-123 DRAWG. NO. 1-8997  
 6.1.8-24-38

Note:  
 This 1938 Log of Test Borings is being provided for informational purposes only. These Test Borings were located to the east of both the existing structure and the proposed structure. There was insufficient information available to correlate these Test Borings with the centerline of the existing or the proposed structure centerlines.

<b>ENGINEERING SERVICES</b>		<b>GEOTECHNICAL SERVICES</b>		FIELD INVESTIGATION BY:	BRIDGE NO.	<b>GREENWOOD CREEK BRIDGE (REPLACE)</b>	
PREPARED BY	I.G-Remmen, 4/09			J. Thorne	10-0156		
CHECKED BY	J. Thorne				POST MILE	<b>LOG OF TEST BORINGS 6 OF 6</b>	
					33.6		
OCS LOG OF TEST BORINGS SHEET (ENGLISH) (REV. 5/25/07)				ORIGINAL SCALE IN INCHES FOR REDUCED PLANS	CU 01 EA 310101	DISREGARD PRINTS BEARING EARLIER REVISION DATES	
				0 1 2 3	REVISION DATES (PRELIMINARY STAGE ONLY)		SHEET 34 OF 34

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Men	1	33.4/33.8	79	90

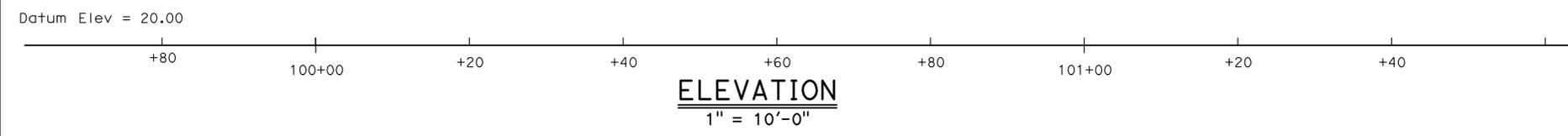
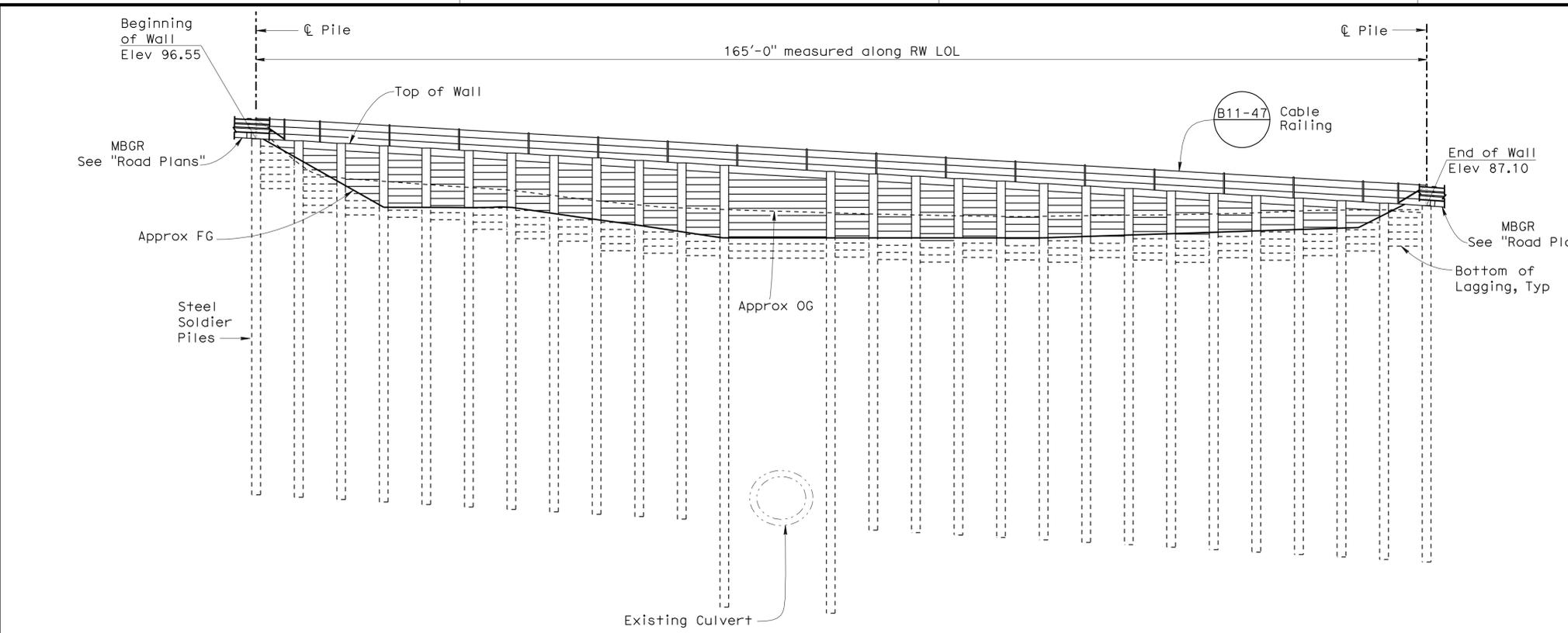
Note:  
 For "General Notes", see "TYPICAL SECTION" sheet.

02/26/10  
 REGISTERED CIVIL ENGINEER DATE

5-2-11  
 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  
 Kyoung Hyeog Lee  
 No. 60714  
 Exp. 12/31/10  
 CIVIL  
 STATE OF CALIFORNIA

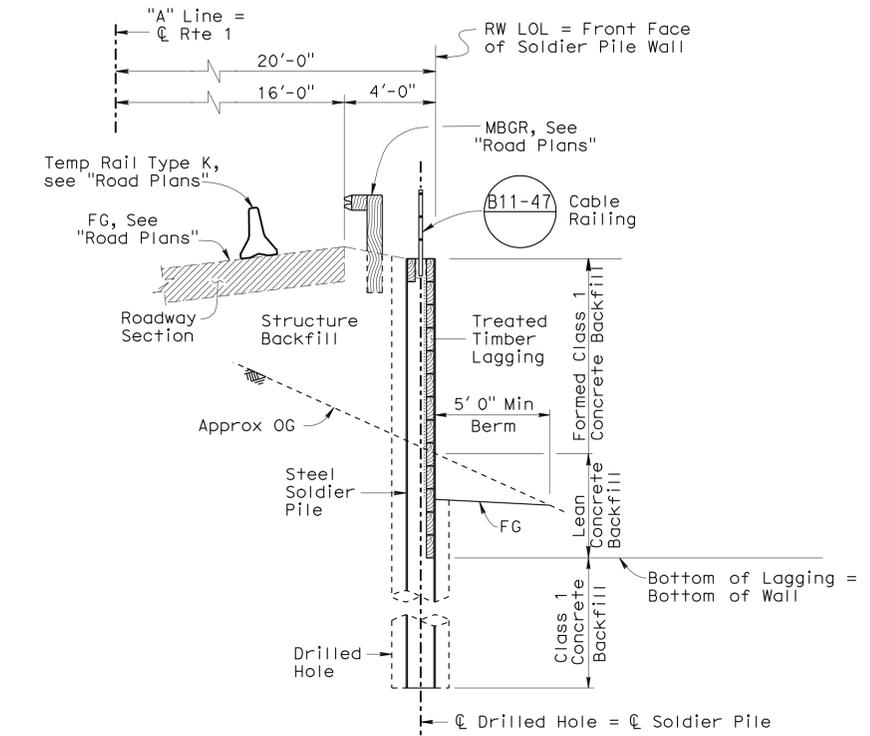


**QUANTITIES**

STRUCTURE EXCAVATION (SOLDIER PILE WALL)	46	CY
STRUCTURE BACKFILL (SOLDIER PILE WALL)	44	CY
CONCRETE BACKFILL CLASS 1	213	CY
LEAN CONCRETE BACKFILL	32	CY
STEEL SOLDIER PILE (HP 14 X 102)	1,250	LF
STEEL SOLDIER PILE (W 24 X 207)	124	LF
DRILLED HOLE (30")	1,155	LF
DRILLED HOLE (36")	113	LF
MINOR CONCRETE (CONTINUOUS POST SUPPORT)	108	CF
TREATED TIMBER LAGGING	8	MFBM
CLEAN AND PAINT STEEL SOLDIER PILING (SINGLE UNDERCOAT)	LUMP	SUM
CABLE RAILING (BLACK VINYL CLAD)	165	LF

**CURVE DATA**

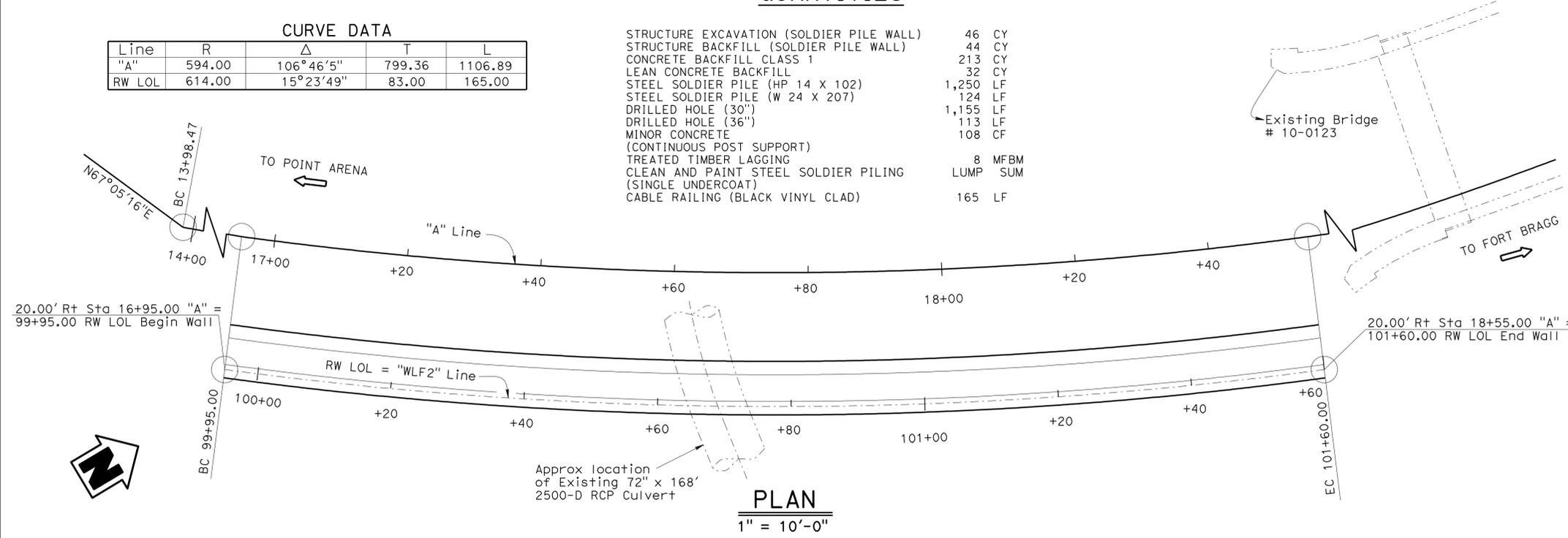
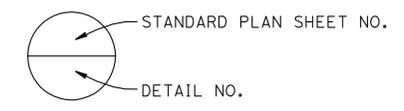
Line	R	Δ	T	L
"A"	594.00	106°46'5"	799.36	1106.89
RW LOL	614.00	15°23'49"	83.00	165.00



**INDEX TO PLANS**

1. GENERAL PLAN
2. FOUNDATION PLAN
3. STRUCTURE PLAN NO. 1
4. STRUCTURE PLAN NO. 2
5. TYPICAL SECTION
6. WALL DETAILS
7. LOG OF TEST BORINGS 1 OF 6
8. LOG OF TEST BORINGS 2 OF 6
9. LOG OF TEST BORINGS 3 OF 6
10. LOG OF TEST BORINGS 4 OF 6
11. LOG OF TEST BORINGS 5 OF 6
12. LOG OF TEST BORINGS 6 OF 6

**STANDARD PLANS DATED MAY 2006**



Jeff Sims  
DESIGN ENGINEER

DESIGN	BY April Pearson	CHECKED Greg Thornton
DETAILS	BY Bob Huddleston	CHECKED Greg Thornton
QUANTITIES	BY Kyoung Lee	CHECKED Mahfoud Licha

LOAD FACTOR DESIGN	LIVE LOADING: HL93 W/"LOW-BOY"; PERMIT DESIGN VEHICLE
LAYOUT	BY April Pearson
SPECIFICATIONS	BY Mary Kopsa

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES  
STRUCTURE DESIGN  
DESIGN BRANCH 1

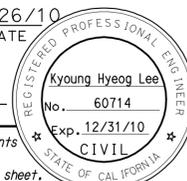
BRIDGE NO.	10E0021
POST MILE	33.4

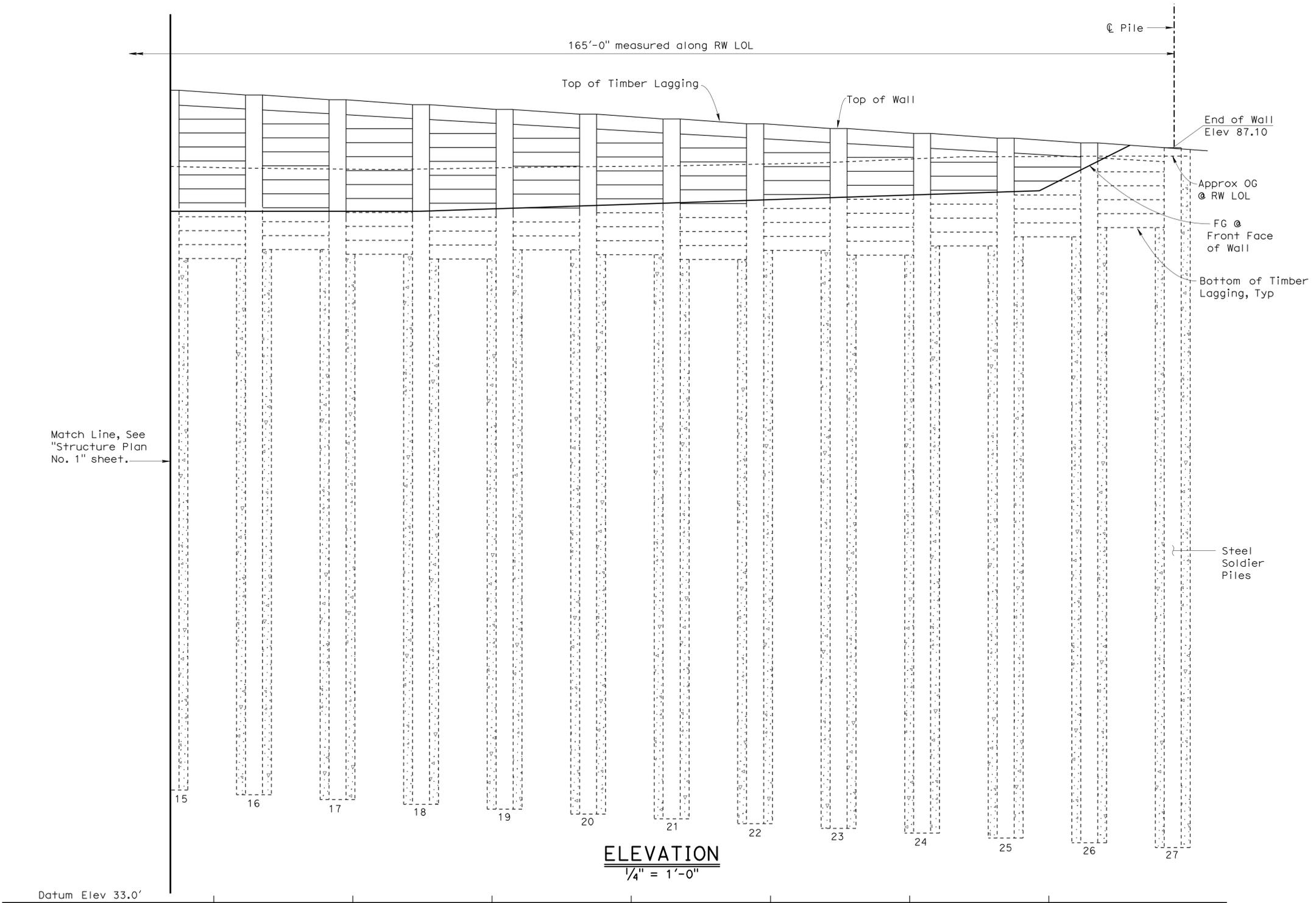
GREENWOOD CREEK RETAINING WALL  
GENERAL PLAN





DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Men	1	33.4/33.8	82	90


 02/26/10  
 REGISTERED CIVIL ENGINEER DATE  
 5-2-11  
 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.



- Notes:
1. Cable Railing not shown
  2. Soldier Pile size shown may be replaced with a similar section, with an equal or greater section modulus.
  3. Top lag to be parallel to grade. Second lag to be shaped. Third and below lags to be placed level and spaced vertically. Cover back of lagging with filter fabric. See "Wall Details" sheet.
  4. For 'Section A-A', see "Typical Section" sheet.

Pile No.	15	16	17	18	19	20	21	22	23	24	25	26	27
Pile Type	HP14x102												
Pile Length	50' 0"	50' 0"	50' 0"	50' 0"	50' 0"	50' 0"	50' 0"	50' 0"	50' 0"	50' 0"	50' 0"	50' 0"	50' 0"
Drilled Hole $\phi$	2' 6"	2' 6"	2' 6"	2' 6"	2' 6"	2' 6"	2' 6"	2' 6"	2' 6"	2' 6"	2' 6"	2' 6"	2' 6"
Max Dist $\phi$ - $\phi$	6' 0"	6' 0"	6' 0"	6' 0"	6' 0"	6' 0"	6' 0"	6' 0"	6' 0"	6' 0"	6' 0"	6' 0"	6' 0"
Size of Laggings	4"x12"												
No. of Laggings	13	12	12	12	11	11	11	10	10	9	8	7	

DESIGN BY April Pearson CHECKED Greg Thornton DETAILS BY Bob Huddleston CHECKED Greg Thornton QUANTITIES BY Kyoung Lee CHECKED Mahfoud Licha	<b>STATE OF CALIFORNIA</b> DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN <b>DESIGN BRANCH 1</b>	BRIDGE NO. 10E0021	<b>GREENWOOD CREEK RETAINING WALL</b> <b>STRUCTURE PLAN NO. 2</b>
			POST MILE 33.4	
			REVISION DATES 2/29/09 2/18/09 3/24/09 4/14/09 05/14/09 06/28/09 02/23/10 02/25/10	
STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 10/25/05)	ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3	CU 01 EA 310101	DISREGARD PRINTS BEARING EARLIER REVISION DATES	SHEET 4 OF 12

USERNAME => hrlim DATE PLOTTED => 06-MAY-2011 TIME PLOTTED => 14:10

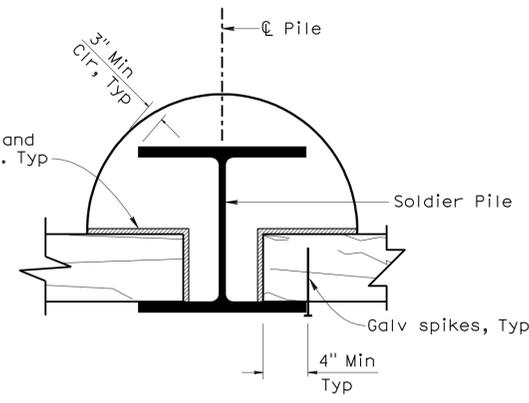
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Men	1	33.4/33.8	83	90

02/26/10  
REGISTERED CIVIL ENGINEER DATE

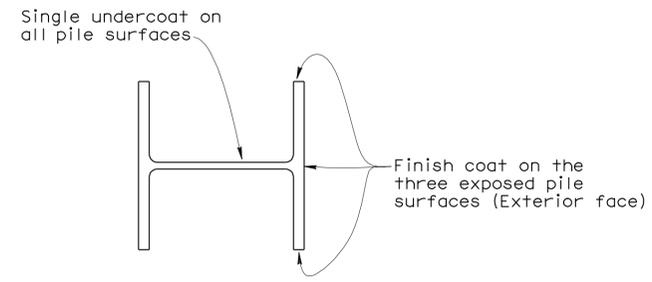
5-2-11  
PLANS APPROVAL DATE

Kyoung Hyeog Lee  
No. 60714  
Exp. 12/31/10  
CIVIL  
STATE OF CALIFORNIA

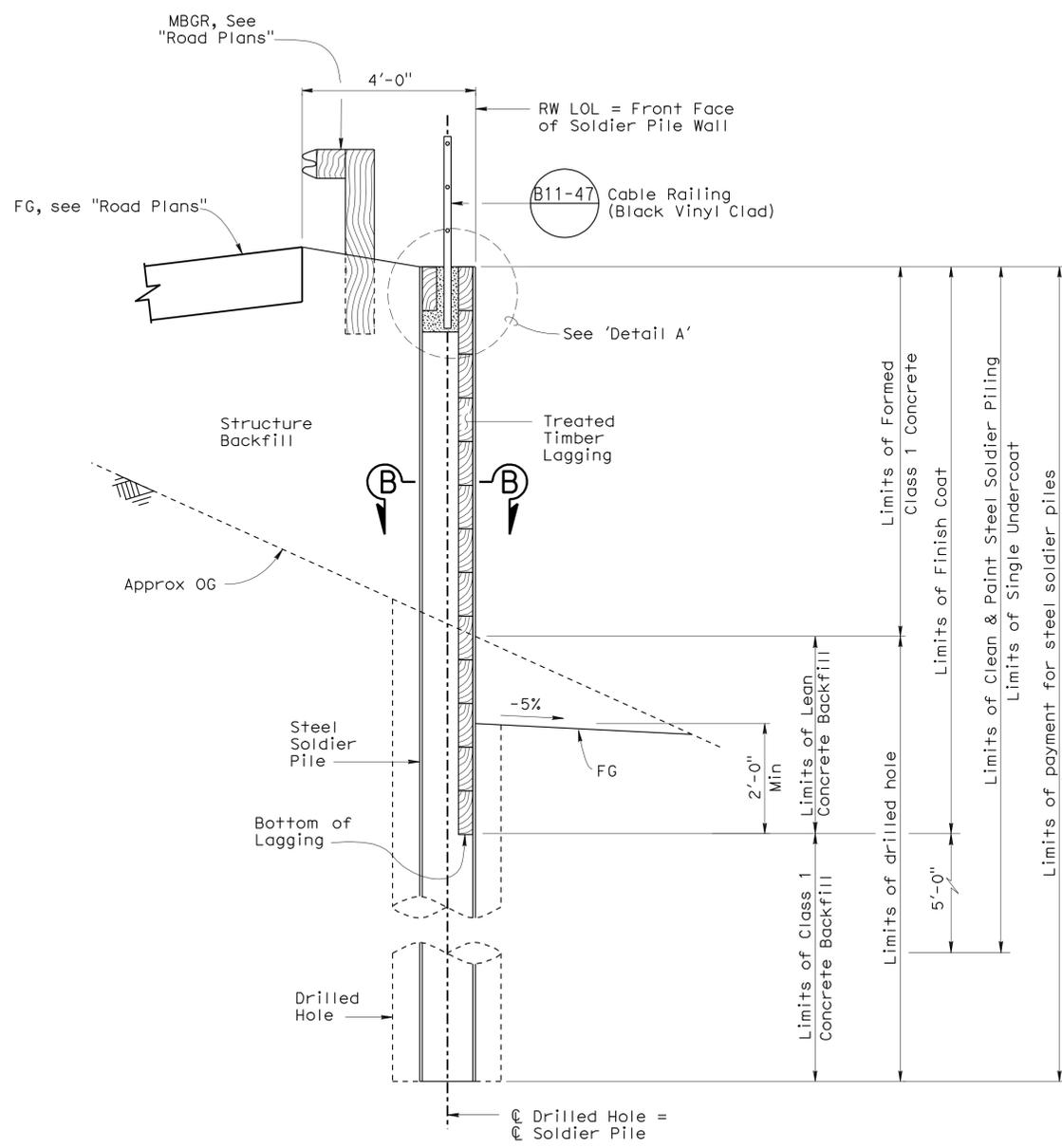
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.



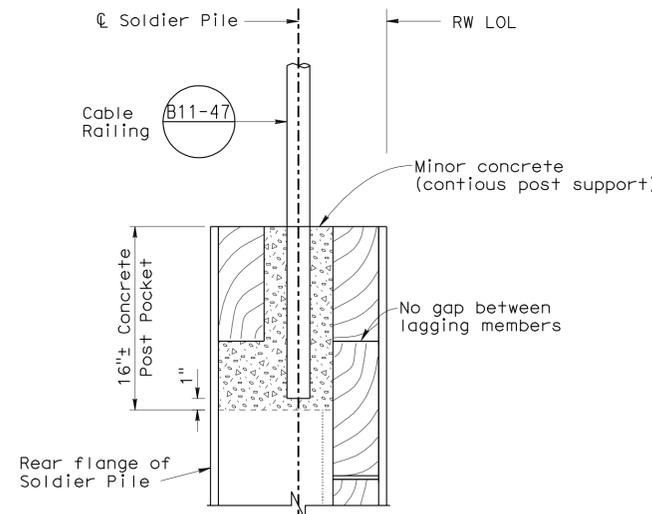
**SECTION B-B**  
NO SCALE



**LIMITS OF CLEAN AND PAINT STEEL SOLDIER PILING**  
NO SCALE



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



**DETAIL A**  
1/2" = 1'-0"

Note:  
See "Structure Plan No. 1" and "Structure Plan No. 2" sheets for Pile and Timber Lagging information.

**GENERAL NOTES**

- DESIGN:**  
AASHTO Standard Specifications for Highway Bridges dated 1992 with Interim Specifications Bridges and as supplemented by Bridge Design Specifications (Caltrans)
- LIVE LOAD:**  
240 psf Equivalent to 2 ft soil Weight
- SOIL PARAMETERS:**  
(For determination of design lateral earth pressures)  
φ = 30°  
γ = 130 pcf
- STRUCTURAL STEEL:**  
fy = 50 ksi
- STRUCTURAL TIMBER:**  
Treated Douglas Fir Grade No. 1 or better Timber to be full sawn.

DESIGN	BY April Pearson	CHECKED Greg Thornton
DETAILS	BY Bob Huddleston	CHECKED Greg Thornton
QUANTITIES	BY Kyoung Lee	CHECKED Mahfoud Licha

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

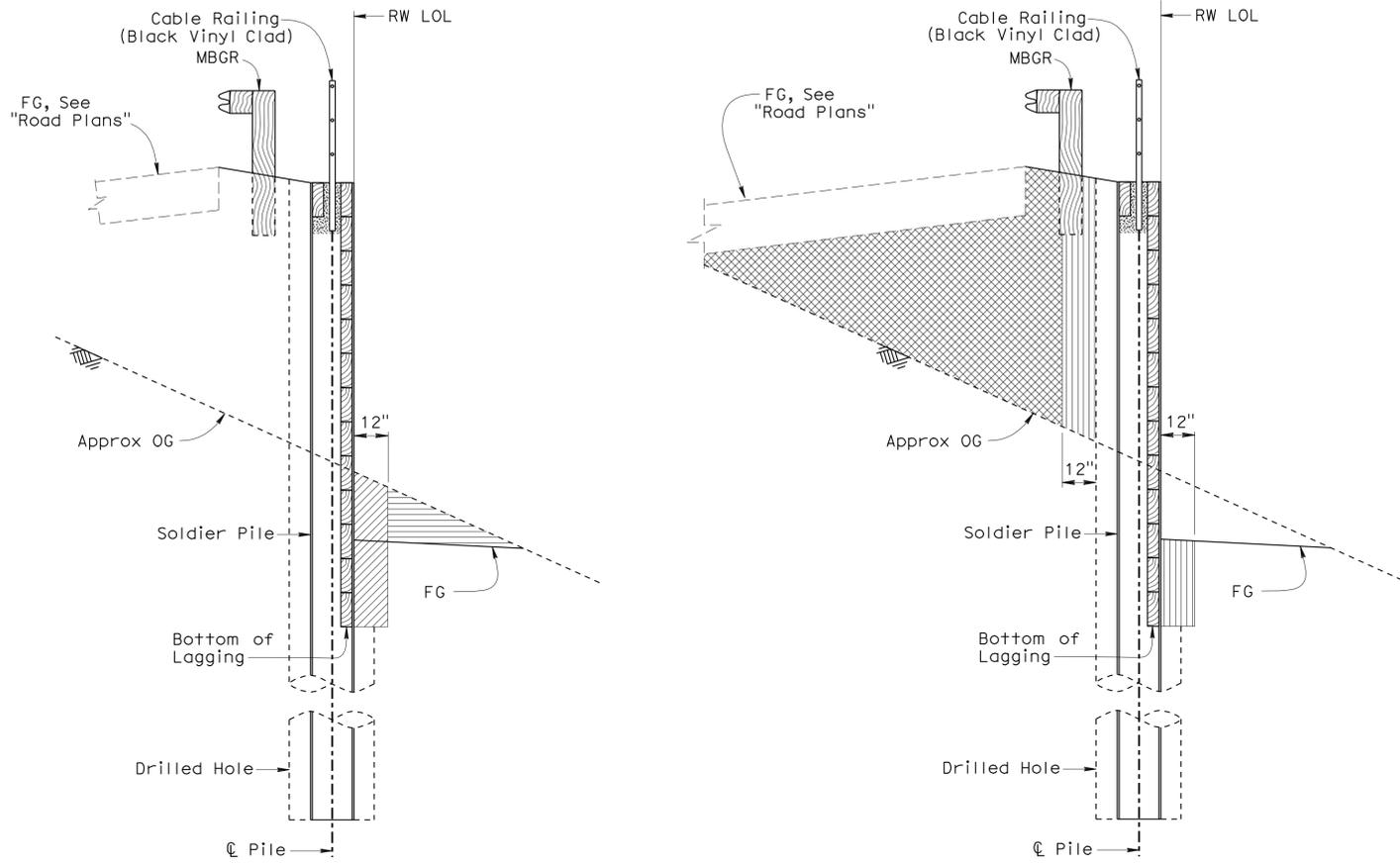
DIVISION OF ENGINEERING SERVICES  
STRUCTURE DESIGN  
DESIGN BRANCH 1

BRIDGE NO.	10E0021
POST MILE	33.4

GREENWOOD CREEK RETAINING WALL  
TYPICAL SECTION

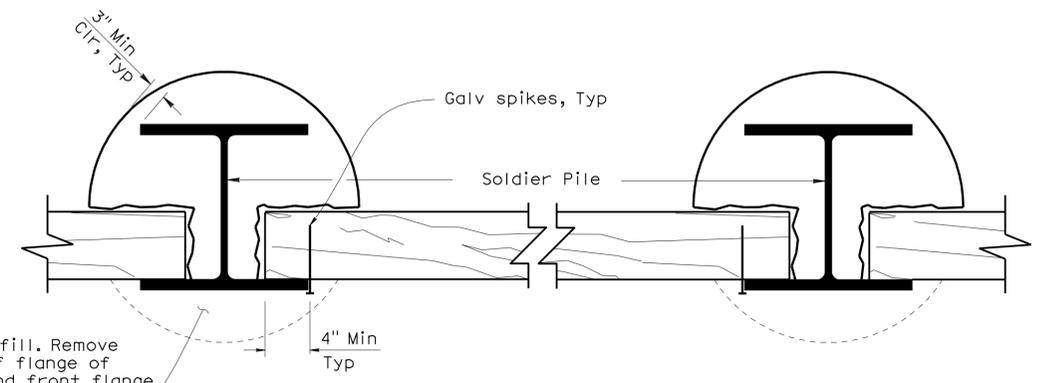
REVISION DATES	7/75/09	7/71/09	3/73/09	4/74/09	4/29/09	05/74/09	02/74/10	02/25/10
----------------	---------	---------	---------	---------	---------	----------	----------	----------

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Men	1	33.4/33.8	84	90
			02/26/10	REGISTERED CIVIL ENGINEER DATE	
			5-2-11	PLANS APPROVAL DATE	
			REGISTERED PROFESSIONAL ENGINEER No. 60714 Exp. 12/31/10 CIVIL 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.					



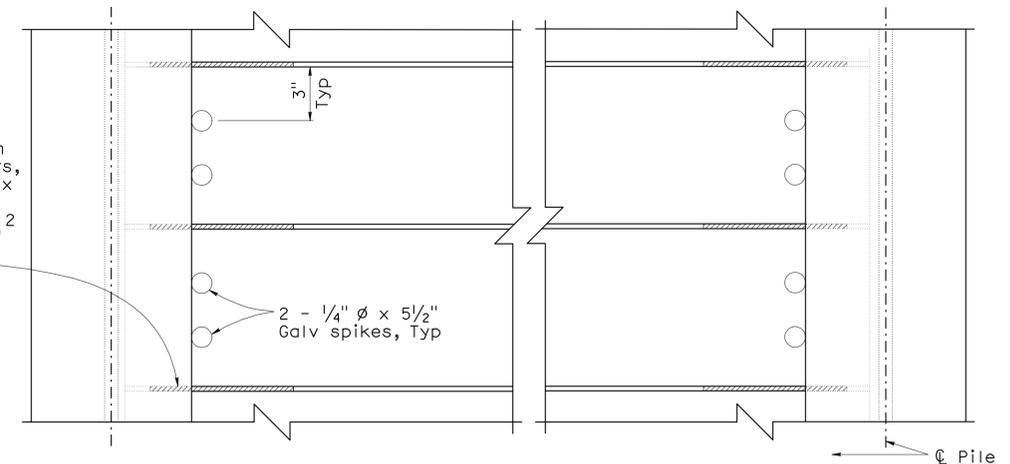
- Indicates Structure Backfill (Soldier Pile Wall)
- Indicates Structure Excavation (Soldier Pile Wall)
- Indicates Roadway Embankment
- Indicates Roadway Excavation

**PAY LIMITS OF EXCAVATION & BACKFILL**  
NO SCALE



**PART PLAN OF LAGGING MEMBER**

Lean Concrete Backfill. Remove portion in front of flange of W-section and behind front flange of W-section as required for lagging placement, Typ



**PART ELEVATION**

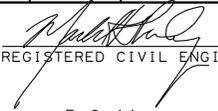
1/2" x 4" x 12" HDPE shim between lagging members, secured with 2 - 1/8" x 3/4" Galv nails, Typ (Except between Piles 12 & 13, use 1/2" x 8" x 12" HDPE shims)

**LAGGING DETAILS**  
NO SCALE

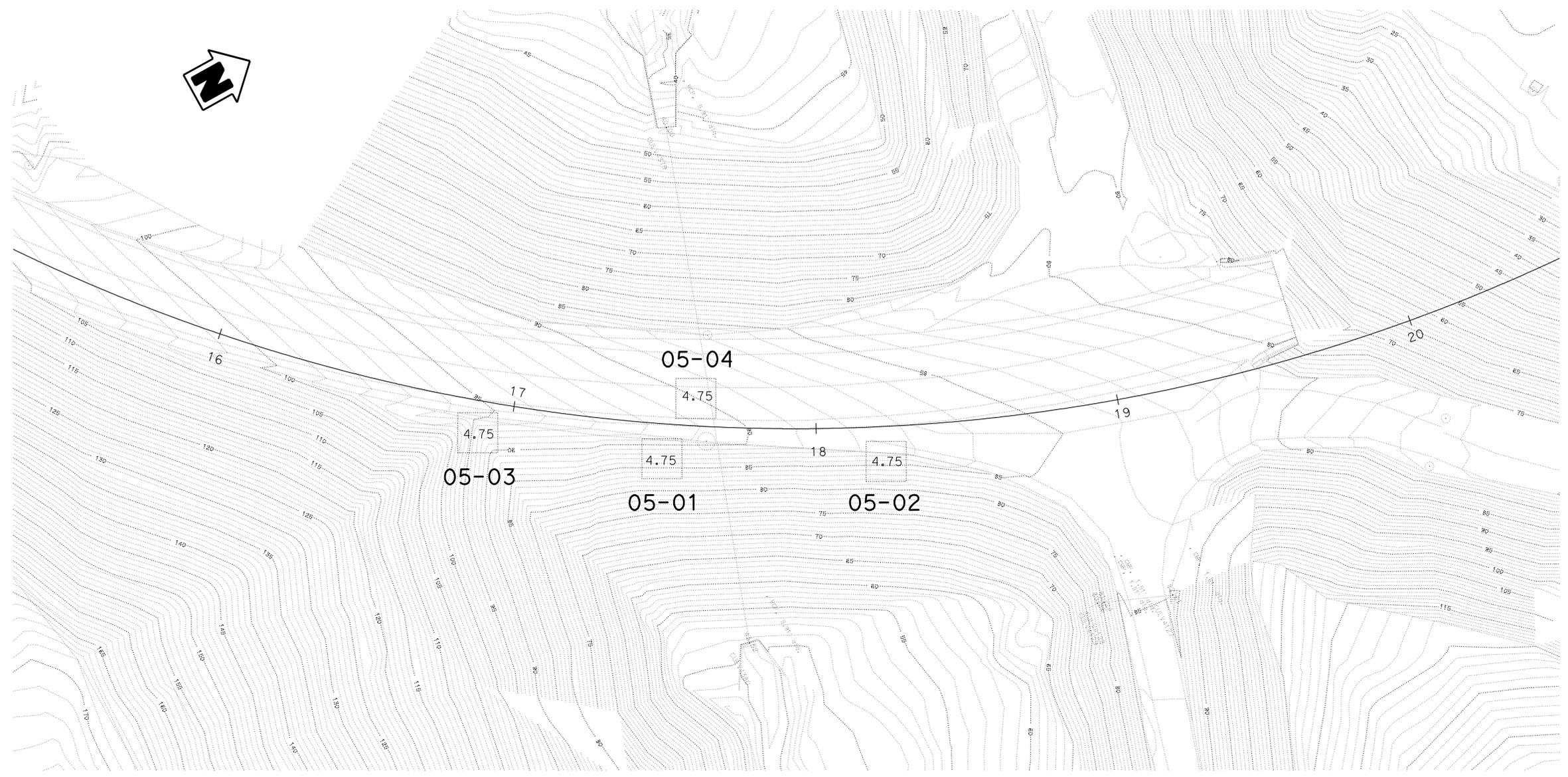
- Notes:**
- No clipping of lagging corners allowed.
  - Spikes shall not be bent.

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 10/25/05)	DESIGN	BY April Pearson	CHECKED Greg Thornton	<b>STATE OF CALIFORNIA</b> DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN <b>DESIGN BRANCH 1</b>	BRIDGE NO.	10E0021	<b>GREENWOOD CREEK RETAINING WALL</b> WALL DETAILS	
	DETAILS	BY Bob Huddleston	CHECKED Greg Thornton			POST MILE	33.4		
	QUANTITIES	BY Kyoung Lee	CHECKED Mahfoud Licha						
				ORIGINAL SCALE IN INCHES FOR REDUCED PLANS	0 1 2 3	CU 01 EA 310101	DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES 1/29/09 2/4/09 2/9/09 3/24/09 4/7/09 05/14/09 06/28/09 02/24/10	SHEET 6 OF 12

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Men	1	33.4/33.8	85	90

  
 REGISTERED CIVIL ENGINEER DATE 4-29-09  
 PLANS APPROVAL DATE 5-2-11  
 MARK H. STANLEY  
 No. G.E. 002397  
 Exp. 9-30-10  
 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.  
 KLEINFELDER INC.  
 3077 FITE CIR.  
 SACRAMENTO, CA 95827



**PLAN**  
1"=20'

**Notes:**

1. This LOTB sheet was prepared generally in accordance with the Caltrans Soil & Rock Logging, Classification, and Presentation Manual (June 2007)
2. 2.0 inch samples were taken using a modified California split-barrel sampler with an inside diameter (I.D.) of 2.0 inch and an outside diameter (O.D.) of 2.5 inch.
3. A CME automatic hammer (140 lb) with a 30 inch drop was used to advance the sampler.
4. Blowcounts noted for boring are field blowcounts and have not been corrected.
5. 1.4 inch samples were taken using a SPT split-barrel sampler with an inside diameter (I.D.) of 1.4" and an outside diameter (O.D.) of 2".
6. Blowcounts 50/5 means 50 blows per 5" penetration.

DESIGN OVERSIGHT ENGINEER:		SIGN OFF DATE:		<b>PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION</b>		BRIDGE NO. 10E0021		<b>GREENWOOD CREEK RETAINING WALL LOG OF TEST BORINGS 1 OF 6</b>											
FUNCTIONAL SUPERVISOR		DRAWN BY: A. Sanchez				FIELD INVESTIGATION BY: P. Holland Nov1 2005						PROJECT ENGINEER							
NAME:		CHECKED BY: M. Stanley				POST MILES 33.4		DISREGARD PRINTS BEARING EARLIER REVISION DATES → <table border="1" style="display: inline-table; vertical-align: middle;"> <tr> <th colspan="4">REVISION DATES</th> </tr> <tr> <td>4-29-09</td> <td>06-28-09</td> <td></td> <td></td> </tr> </table>				REVISION DATES				4-29-09	06-28-09		
REVISION DATES																			
4-29-09	06-28-09																		
06S CIVIL LOG OF TEST BORINGS SHEET						ORIGINAL SCALE IN INCHES FOR REDUCED PLANS				CU 01 EA 310101 FILE => 10e0021-z-1tb1.dgn		SHEET 7 OF 12							

USERNAME => htl1m DATE PLOTTED => 06-MAY-2011 TIME PLOTTED => 14:10

NOTE: This LOTB sheet was prepared generally in accordance with the Caltrans Soil & Rock Logging, Classification, and Presentation Manual (June 2007)

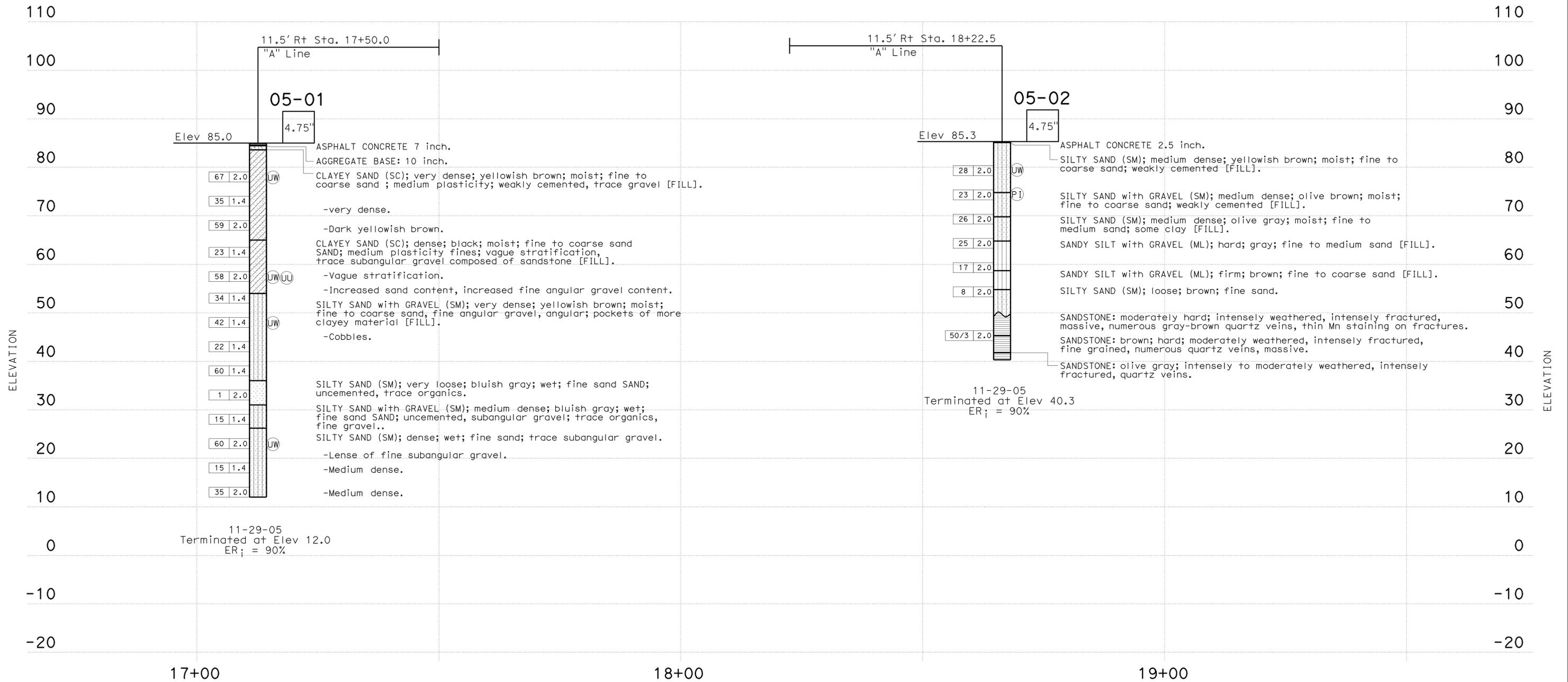
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Men	1	33.4/33.8	86	90

4-29-09  
 REGISTERED CIVIL ENGINEER DATE  
 5-2-11  
 PLANS APPROVAL DATE

MARK H. STANLEY  
 No. G.E. 002397  
 Exp. 9-30-10

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.

KLEINFELDER INC.  
 3077 FITE CIR.  
 SACRAMENTO, CA 95827



**PROFILE**  
 HOR. 1"=10'  
 VER. 1"=10'

DESIGN OVERSIGHT ENGINEER:	SIGN OFF DATE:	<b>PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION</b>		BRIDGE NO. 10E0021	<b>GREENWOOD CREEK RETAINING WALL</b>
FUNCTIONAL SUPERVISOR	DRAWN BY: A. Sanchez	FIELD INVESTIGATION BY: P. Holland Nov1 2005	PROJECT ENGINEER	POST MILES 33.4	
NAME:	CHECKED BY: M. Stanley			<b>LOG OF TEST BORINGS 2 OF 6</b>	
06S CIVIL LOG OF TEST BORINGS SHEET		ORIGINAL SCALE IN INCHES FOR REDUCED PLANS	0 1 2 3	CU 01 EA 310101	DISREGARD PRINTS BEARING EARLIER REVISION DATES
				REVISION DATES	SHEET 8 OF 12

DATE PLOTTED => 06-MAY-2011 USERNAME => htljm

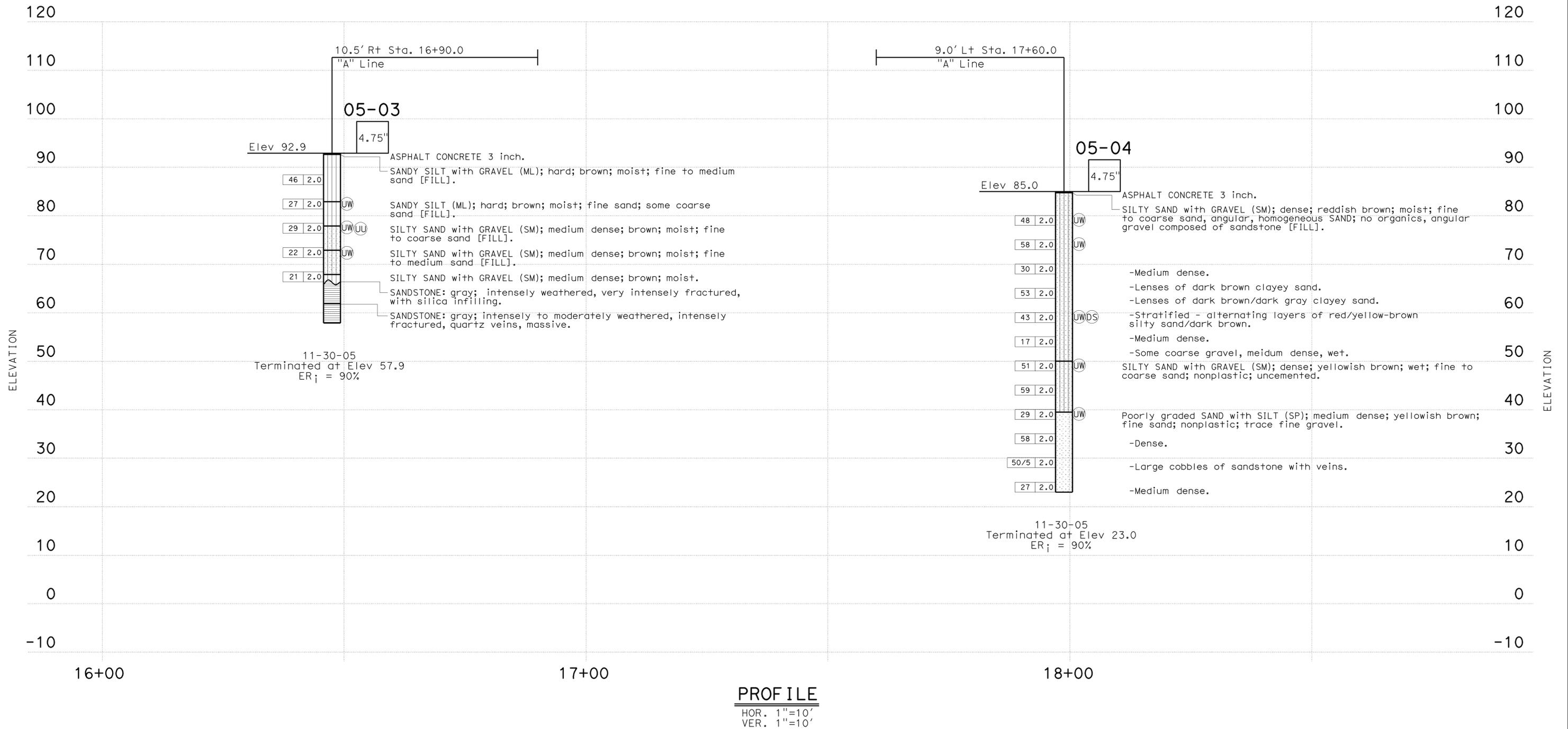
NOTE: This LOTB sheet was prepared generally in accordance with the Caltrans Soil & Rock Logging, Classification, and Presentation Manual (June 2007)

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Men	1	33.4/33.8	87	90

REGISTERED CIVIL ENGINEER DATE: 4-29-09  
 PLANS APPROVAL DATE: 5-2-11  
 MARK H. STANLEY  
 No. G.E. 002397  
 Exp. 9-30-10  
 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.

KLEINFELDER INC.  
 3077 FITE CIR.  
 SACRAMENTO, CA 95827



**PROFILE**  
 HOR. 1"=10'  
 VER. 1"=10'

DESIGN OVERSIGHT ENGINEER:	SIGN OFF DATE:	<b>PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION</b>		BRIDGE NO. 10E0021	<b>GREENWOOD CREEK RETAINING WALL</b>
FUNCTIONAL SUPERVISOR	DRAWN BY: A. Sanchez	FIELD INVESTIGATION BY: P. Holland Nov 1 2005	PROJECT ENGINEER	POST MILES 33.4	
NAME:	CHECKED BY: M. Stanley			<b>LOG OF TEST BORINGS 3 OF 6</b>	
06S CIVIL LOG OF TEST BORINGS SHEET		ORIGINAL SCALE IN INCHES FOR REDUCED PLANS	0 1 2 3	CU 01 EA 310101	DISREGARD PRINTS BEARING EARLIER REVISION DATES
				REVISION DATES	SHEET 9 OF 12

DATE PLOTTED => 06-MAY-2011 USERNAME => htljm

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Men	1	33.4/33.8	88	90

4-29-09  
REGISTERED CIVIL ENGINEER DATE

5-2-11  
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER  
MARK H. STANLEY  
No. G.E. 002397  
Exp. 9-30-10  
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.

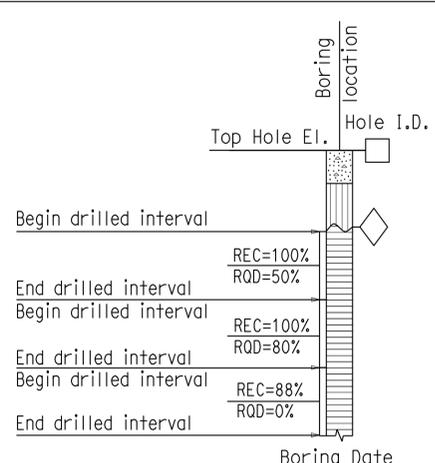
KLEINFELDER INC.  
3077 FITE CIR.  
SACRAMENTO, CA 95827

LEGEND OF ROCK MATERIALS	
	IGNEOUS ROCK
	SEDIMENTARY ROCK
	METAMORPHIC ROCK

### PERCENT CORE RECOVERY (REC) & ROCK QUALITY DESIGNATION (RQD)

$REC = \frac{\sum \text{Length of the recovered core pieces (inches)}}{\text{Total length of core run (inches)}} \times 100\%$

$RQD = \frac{\sum \text{Length of intact core pieces} \geq 4"}{\text{Total length of core run (inches)}} \times 100\%$



RELATIVE STRENGTH OF INTACT ROCK	
Term	Uniaxial Compressive Strength (PSI)
Extremely Strong	> 30,000
Very Strong	14,500 - 30,000
Strong	7,000 - 14,500
Medium Strong	3,500 - 7,000
Weak	700 - 3,500
Very Weak	150 - 700
Extremely Weak	< 150

BEDDING SPACING	
Description	Thickness / Spacing
Massive	Greater than 10 ft
Very thickly bedded	3 to 10 ft
Thickly bedded	1 to 3 ft
Moderately bedded	3-5/8" to 1 ft
Thinly bedded	1-1/4" to 3-5/8"
Very thinly bedded	3/8" to 1-1/4"
Laminated	Less than 3/8"

ROCK HARDNESS	
Description	Criteria
Extremely Hard	Specimen cannot be scratched with a pocket knife or sharp pick; can only be chipped with repeated heavy hammer blows.
Very Hard	Specimen cannot be scratched with a pocket knife or sharp pick. Breaks with repeated heavy hammer blows.
Hard	Specimen can be scratched with a pocket knife or sharp pick with difficulty (heavy pressure). Heavy hammer blows required to break specimen.
Moderately Hard	Specimen can be scratched with pocket knife or sharp pick with light or moderate pressure. Core breaks with moderate hammer pressure.
Moderately Soft	Specimen can be grooved 1/6" deep with a pocket knife or sharp pick with moderate or heavy pressure. Breaks with light hammer blow or heavy manual pressure.
Soft	Specimen can be grooved or gouged easily by a pocket knife or sharp pick with light pressure, can be scratched with fingernail. Breaks with light to moderate manual pressure.
Very Soft	Specimen can be readily indented, grooved or gouged with fingernail, or carved with a pocket knife. Breaks with light manual pressure.

WEATHERING DESCRIPTORS FOR INTACT ROCK						
Description	Diagnostic features					General Characteristics
	Chemical Weathering-Discoloration and/or oxidation		Mechanical Weathering-Grain boundary conditions (disaggregation) primarily for granitics and some coarse-grained sediments	Texture and Solutioning		
	Body of Rock	Fracture Surfaces		Texture	Solutioning	
Fresh	No discoloration, not oxidized.	No discoloration or oxidation.	No separation, intact (tight).	No change.	No solutioning.	Hammer rings when crystalline rocks are struck.
Slightly Weathered	Discoloration or oxidation is limited to surface of, or short distance from, fractures; some feldspar crystals are dull.	Minor to complete discoloration or oxidation of most surfaces.	No visible separation, intact (tight).	Preserved.	Minor leaching of some soluble minerals may be noted.	Hammer rings when crystalline rocks are struck. Body of rock not weakened.
Moderately Weathered	Discoloration or oxidation extends from fractures usually throughout; Fe-Mg minerals are "rusty," feldspar crystals are "cloudy."	All fracture surfaces are discolored or oxidized.	Partial separation of boundaries visible.	Generally preserved.	Soluble minerals may be mostly leached.	Hammer does not ring when rock is struck. Body of rock is slightly weakened.
Intensely Weathered	Discoloration or oxidation throughout; all feldspars and Fe-Mg minerals are altered to clay to some extent; or chemical alteration produces in-situ disaggregation, see grain boundary conditions.	All fracture surfaces are discolored or oxidized, surfaces friable.	Partial separation, rock is friable; in semiarid conditions granitics are disaggregated.	Texture altered by chemical disintegration (hydration, argillation).	Leaching of soluble minerals may be complete.	Dull sound when struck with hammer, usually can be broken with moderate to heavy manual pressure or by light hammer blow without reference to planes of weakness such as incipient or hairline fractures, or veinlets. Rock is significantly weakened.
Decomposed	Discolored or oxidized throughout, but resistant minerals such as quartz may be unaltered; all feldspars and Fe-Mg minerals are completely altered to clay.		Complete separation of grain boundaries (disaggregated).	Resembles a soil, partial or complete remnant rock structure may be preserved; leaching of soluble minerals usually complete.		Can be granulated by hand. Resistant minerals such as quartz may be present as "stringers" or "dikes."

Combination descriptors (such as "slightly weathered to fresh") are permissible where equal distribution of both weathering characteristics is present over significant intervals or where characteristics present are "in between" the diagnostic feature. However, combination descriptors should not be used where significant, identifiable zones can be delineated. Only two adjacent descriptors may be combined. "Very intensely weathered" is the combination descriptor for "intensely weathered to decomposed."

FRACTURE DENSITY	
Description	Observed Fracture Density
Unfractured	No fractures.
Very slightly fractured	Lengths greater than 3 feet.
Slightly fractured	Lengths from 1 to 3 feet with few lengths less than 1 foot or greater than 3 feet.
Moderately fractured	Lengths mostly in 4" to 1 foot range with most lengths about 8"
Intensely fractured	Lengths average from 1 to 4" with scattered fragmented intervals with lengths less than 4"
Very intensely fractured	Mostly chips and fragments with a few scattered short core lengths.

Combination descriptors (such as "Very intensely to intensely fractured") are used where equal distribution of both fracture density characteristics is present over a significant interval or exposure, or where characteristics are "in between" the descriptor definitions. Only two adjacent descriptors may be combined.

## GREENWOOD CREEK RETAINING WALL

### ROCK LEGEND LOG OF TEST BORINGS 4 of 6

DESIGN OVERSIGHT ENGINEER:	SIGN OFF DATE:	<b>PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION</b>	BRIDGE NO.
PREPARED BY: A. Sanchez			10E0021
CHECKED BY: M. Stanley			POST MILE
			33.4

PROJECT ENGINEER	CU 01
	EA 310101

TIME PLOTTED => 14:11 USERNAME => htlm DATE PLOTTED => 06-MAY-2011

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Men	1	33.4/33.8	89	90

4-29-09  
REGISTERED CIVIL ENGINEER DATE

5-2-11  
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER  
MARK H. STANLEY  
No. G.E. 002397  
Exp. 9-30-10  
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.

KLEINFELDER INC.  
3077 FITE CIR.  
SACRAMENTO, CA 95827

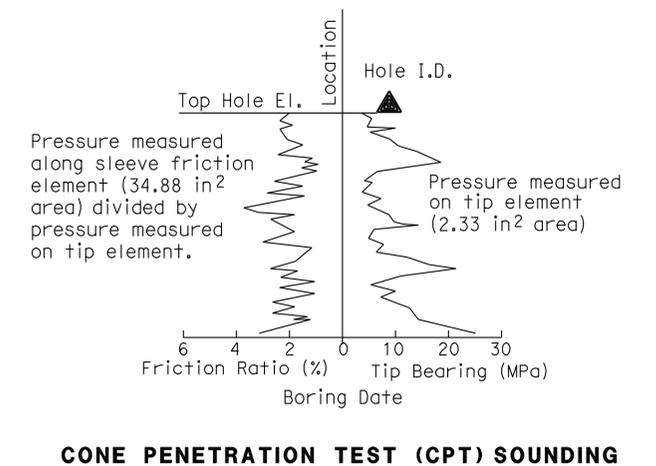
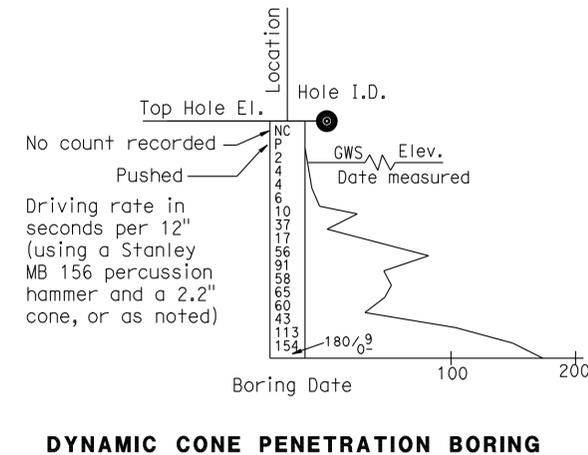
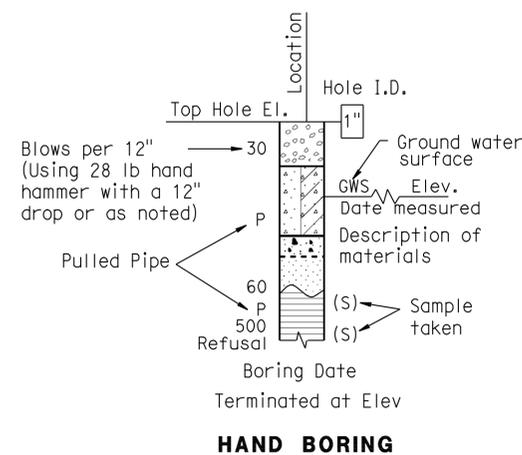
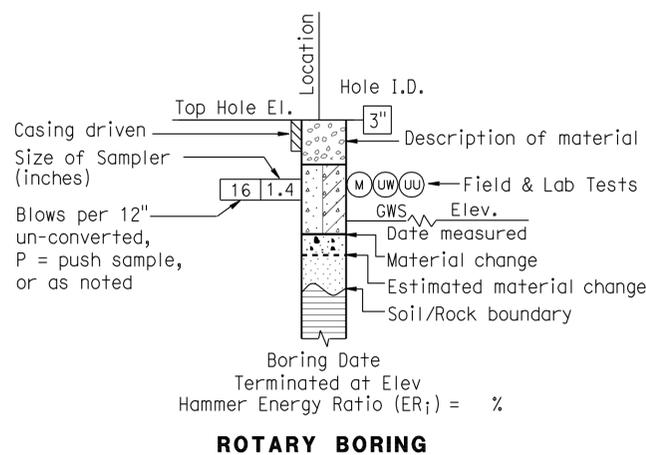
CEMENTATION	
Description	Criteria
Weak	Crumbles or breaks with handling or little finger pressure.
Moderate	Crumbles or breaks with considerable finger pressure.
Strong	Will not crumble or break with finger pressure.

CONSISTENCY OF COHESIVE SOILS				
Description	Unconfined Compressive Strength (tsf)	Pocket Penetrometer Measurement (tsf)	Torvane Measurement (tsf)	Field Approximation
Very Soft	< 0.25	< 0.25	< 0.12	Easily penetrated several inches by fist
Soft	0.25 to 0.50	0.25 to 0.50	0.12 to 0.25	Easily penetrated several inches by thumb
Medium Stiff	0.50 to 1.0	0.50 to 1.0	0.25 to 0.50	Penetrated several inches by thumb with moderate effort
Stiff	1 to 2	1 to 2	0.50 to 1.0	Readily indented by thumb but penetrated only with great effort
Very Stiff	2 to 4	2 to 4	1.0 to 2.0	Readily indented by thumbnail
Hard	> 4.0	> 4.0	> 2.0	Indented by thumbnail with difficulty

BOREHOLE IDENTIFICATION		
Symbol	Hole Type	Description
	A	Auger Boring
	R	Rotary drilled boring
	P	Rotary percussion boring (air)
	R	Rotary drilled diamond core
	HD	Hand driven (1-inch soil tube)
	HA	Hand Auger
	D	Dynamic Cone Penetration Boring
	CPT	Cone Penetration Test (ASTM D 5778-95)
	O	Other

**Note: Size in inches.**

PLASTICITY OF FINE-GRAINED SOILS	
Description	Criteria
Nonplastic	A 1/8-inch thread cannot be rolled at any water content.
Low	The thread can barely be rolled and the lump cannot be formed when drier than the plastic limit.
Medium	The thread is easy to roll and not much time is required to reach the plastic limit. The thread cannot be rerolled after reaching the plastic limit. The lump crumbles when drier than the plastic limit.
High	It takes considerable time rolling and kneading to reach the plastic limit. The thread can be rerolled several times after reaching the plastic limit. The lump can be formed without crumbling when drier than the plastic limit.



DESIGN OVERSIGHT ENGINEER:		SIGN OFF DATE:		<b>PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION</b>		BRIDGE NO. 10E0021		<b>GREENWOOD CREEK RETAINING WALL SOIL LEGEND LOG OF TEST BORINGS 5 OF 6</b>			
PREPARED BY A. Sanchez		CHECKED BY M. Stanley				PROJECT ENGINEER					
GS LOTB SOIL LEGEND		ORIGINAL SCALE IN INCHES FOR REDUCED PLANS		CU 01 EA 310101		DISREGARD PRINTS BEARING EARLIER REVISION DATES		REVISION DATES			
				0 1 2 3				4-26-09 06-28-09			
				FILE => 10e0021-z-1tb5.dgn				SHEET 11 OF 12			

DATE PLOTTED => 06-MAY-2011 USERNAME => htljm

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Men	1	33.4/33.8	90	90

4-29-09  
 REGISTERED CIVIL ENGINEER DATE  
 5-2-11  
 PLANS APPROVAL DATE

MARK H. STANLEY  
 No. G.E. 002397  
 Exp. 9-30-10

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.

KLEINFELDER INC.  
 3077 FITE CIR.  
 SACRAMENTO, CA 95827

GROUP SYMBOLS AND NAMES			
Graphic/Symbol	Group Names	Graphic/Symbol	Group Names
	Well-graded GRAVEL		Lean CLAY
	Well-graded GRAVEL with SAND		Lean CLAY with SAND
	Poorly graded GRAVEL		Lean CLAY with GRAVEL
	Poorly graded GRAVEL with SAND		SANDY lean CLAY
	Well-graded GRAVEL with SILT		SANDY lean CLAY with GRAVEL
	Well-graded GRAVEL with SILT and SAND		GRAVELLY lean CLAY
	Well-graded GRAVEL with CLAY (or SILTY CLAY)		GRAVELLY lean CLAY with SAND
	Well-graded GRAVEL with CLAY and SAND (or SILTY CLAY and SAND)		SILTY CLAY
	Poorly graded GRAVEL with SILT		SILTY CLAY with SAND
	Poorly graded GRAVEL with SILT and SAND		SILTY CLAY with GRAVEL
	Poorly graded GRAVEL with CLAY (or SILTY CLAY)		SANDY SILTY CLAY
	Poorly graded GRAVEL with CLAY and SAND (or SILTY CLAY and SAND)		SANDY SILTY CLAY with GRAVEL
	SILTY GRAVEL		GRAVELLY SILTY CLAY
	SILTY GRAVEL with SAND		GRAVELLY SILTY CLAY with SAND
	CLAYEY GRAVEL		SILT
	CLAYEY GRAVEL with SAND		SILT with SAND
	SILTY, CLAYEY GRAVEL		SILT with GRAVEL
	SILTY, CLAYEY GRAVEL with SAND		SANDY SILT
	Well-graded SAND		SANDY SILT with GRAVEL
	Well-graded SAND with GRAVEL		GRAVELLY SILT
	Poorly graded SAND		GRAVELLY SILT with SAND
	Poorly graded SAND with GRAVEL		ORGANIC lean CLAY
	Well-graded SAND with SILT		ORGANIC lean CLAY with SAND
	Well-graded SAND with SILT and GRAVEL		ORGANIC lean CLAY with GRAVEL
	Well-graded SAND with CLAY (or SILTY CLAY)		SANDY ORGANIC lean CLAY
	Well-graded SAND with CLAY and GRAVEL (or SILTY CLAY and GRAVEL)		SANDY ORGANIC lean CLAY with GRAVEL
	Poorly graded SAND with SILT		GRAVELLY ORGANIC lean CLAY
	Poorly graded SAND with SILT and GRAVEL		GRAVELLY ORGANIC lean CLAY with SAND
	Poorly graded SAND with CLAY (or SILTY CLAY)		ORGANIC SILT
	Poorly graded SAND with CLAY and GRAVEL (or SILTY CLAY and GRAVEL)		ORGANIC SILT with SAND
	SILTY SAND		ORGANIC SILT with GRAVEL
	SILTY SAND with GRAVEL		SANDY ORGANIC SILT
	CLAYEY SAND		SANDY ORGANIC SILT with GRAVEL
	CLAYEY SAND with GRAVEL		GRAVELLY ORGANIC SILT
	SILTY, CLAYEY SAND		GRAVELLY ORGANIC SILT with SAND
	SILTY, CLAYEY SAND with GRAVEL		ORGANIC fat CLAY
	PEAT		ORGANIC fat CLAY with SAND
	COBBLES		ORGANIC fat CLAY with GRAVEL
	COBBLES and BOULDERS		SANDY ORGANIC fat CLAY
	BOULDERS		SANDY ORGANIC fat CLAY with GRAVEL
			GRAVELLY ORGANIC fat CLAY
			GRAVELLY ORGANIC fat CLAY with SAND

FIELD AND LABORATORY TESTING	
(C)	Consolidation (ASTM D 2435)
(CL)	Collapse Potential (ASTM D 5333)
(CP)	Compaction Curve (CTM 216)
(CR)	Corrosivity Testing (CTM 643, CTM 422, CTM 417)
(CU)	Consolidated Undrained Triaxial (ASTM D 4767)
(DS)	Direct Shear (ASTM D 3080)
(EI)	Expansion Index (ASTM D 4829)
(M)	Moisture Content (ASTM D 2216)
(OC)	Organic Content-% (ASTM D 2974)
(P)	Permeability (CTM 220)
(PA)	Particle Size Analysis (ASTM D 422)
(PI)	Plasticity Index (AASHTO T 90) Liquid Limit (AASHTO T 89)
(PL)	Point Load Index (ASTM D 5731)
(PM)	Pressure Meter
(PP)	Pocket Penetrometer
(R)	R-Value (CTM 301)
(SE)	Sand Equivalent (CTM 217)
(SG)	Specific Gravity (AASHTO T 100)
(SL)	Shrinkage Limit (ASTM D 427)
(SW)	Swell Potential (ASTM D 4546)
(TV)	Pocket Torvane
(UC)	Unconfined Compression-Soil (ASTM D 2166)
	Unconfined Compression-Rock (ASTM D 2938)
(UU)	Unconsolidated Undrained Triaxial (ASTM D 2850)
(UW)	Unit Weight (ASTM D 4767)
(VS)	Vane Shear (AASHTO T 223)

APPARENT DENSITY OF COHESIONLESS SOILS	
Description	SPT N <sub>60</sub> (Blows / 12 inches)
Very loose	0 - 4
Loose	5 - 10
Medium Dense	11 - 30
Dense	31 - 50
Very Dense	> 50

MOISTURE	
Description	Criteria
Dry	Absence of moisture, dusty, dry to the touch
Moist	Damp but no visible water
Wet	Visible free water, usually soil is below water table

PERCENT OR PROPORTION OF SOILS	
Description	Criteria
Trace	Particles are present but estimated to be less than 5%
Few	5 to 10%
Little	15 to 25%
Some	30 to 45%
Mostly	50 to 100%

PARTICLE SIZE		
Description	Size	
Boulder	> 12"	
Cobble	3" to 12"	
Gravel	Coarse	3/4" to 3"
	Fine	No. 4 to 3/4"
Sand	Coarse	No. 10 to No. 4
	Medium	No. 40 to No. 10
	Fine	No. 200 to No. 40

**GREENWOOD CREEK RETAINING WALL**

**SOIL LEGEND**

**LOG OF TEST BORINGS 6 of 6**

DESIGN OVERSIGHT ENGINEER: \_\_\_\_\_ SIGN OFF DATE: \_\_\_\_\_

PREPARED BY: A. Sanchez

CHECKED BY: M. Stanley

**PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION**

PROJECT ENGINEER: \_\_\_\_\_

BRIDGE NO. 10E0021

POST MILE 33.4