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STRUCTURE PLANS

42-53 WOODSIDE TIEBACK WALL Br No. 35E0035

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

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

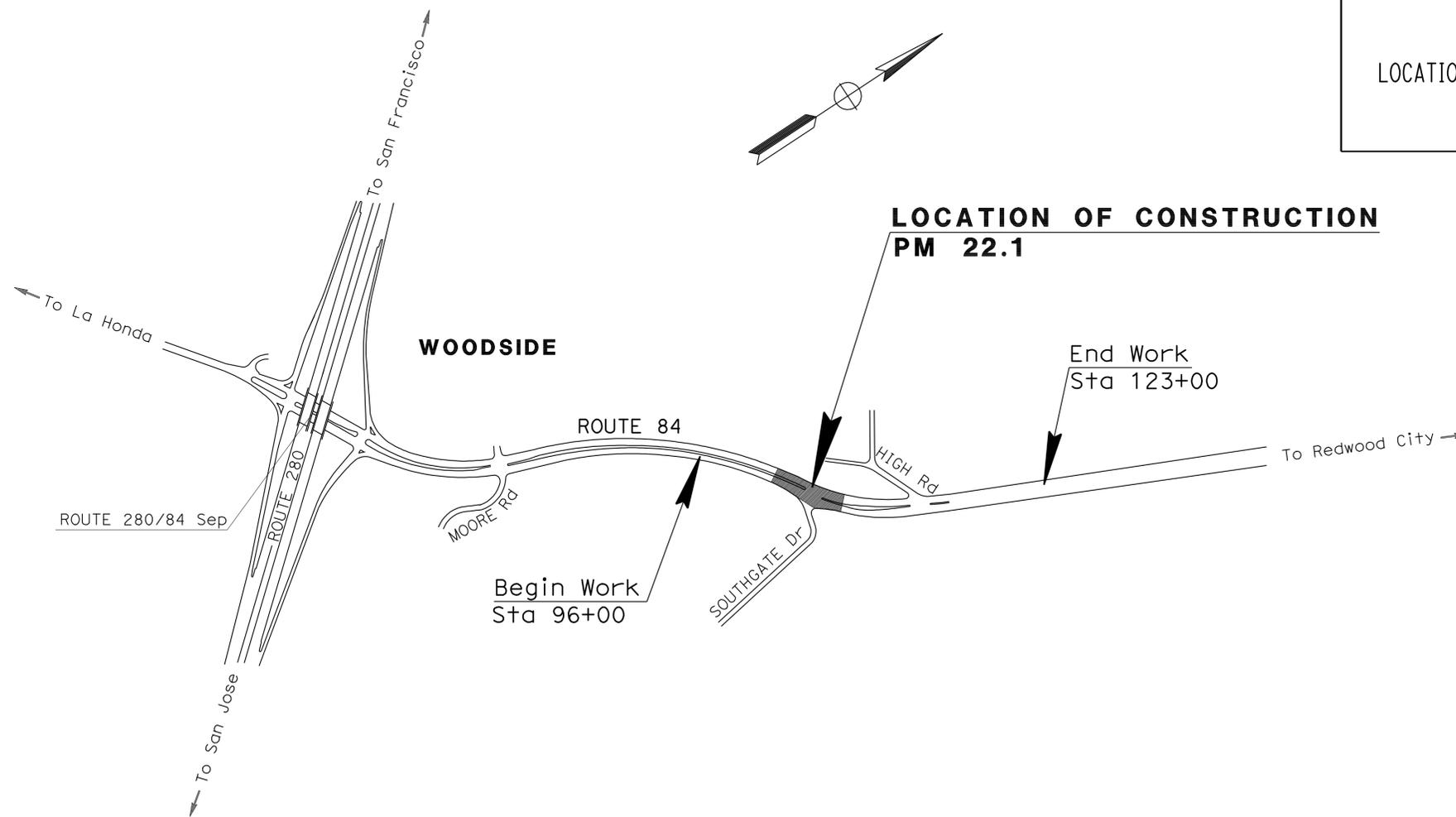
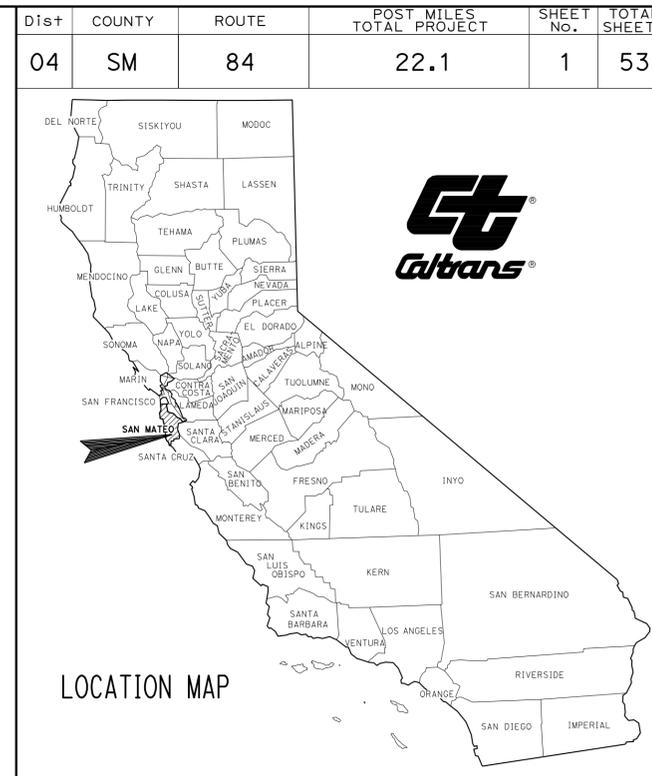
ACSTP-P084(039)E

PROJECT PLANS FOR CONSTRUCTION ON
STATE HIGHWAY

IN SAN MATEO COUNTY
IN WOODSIDE

AT 0.6 MILE NORTH OF ROUTE 280/84 SEPARATION

TO BE SUPPLEMENTED BY STANDARD PLANS DATED MAY 2006



NO SCALE

PROJECT MANAGER
JAY HAGPARAST
DESIGN ENGINEER
GETACHEW ESHETE

Thaar F. Jawhar 09-02-11
PROJECT ENGINEER DATE
REGISTERED CIVIL ENGINEER
December 5, 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. 04-4S5904
PROJECT ID 0400002051

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SM	84	22.1	2	53

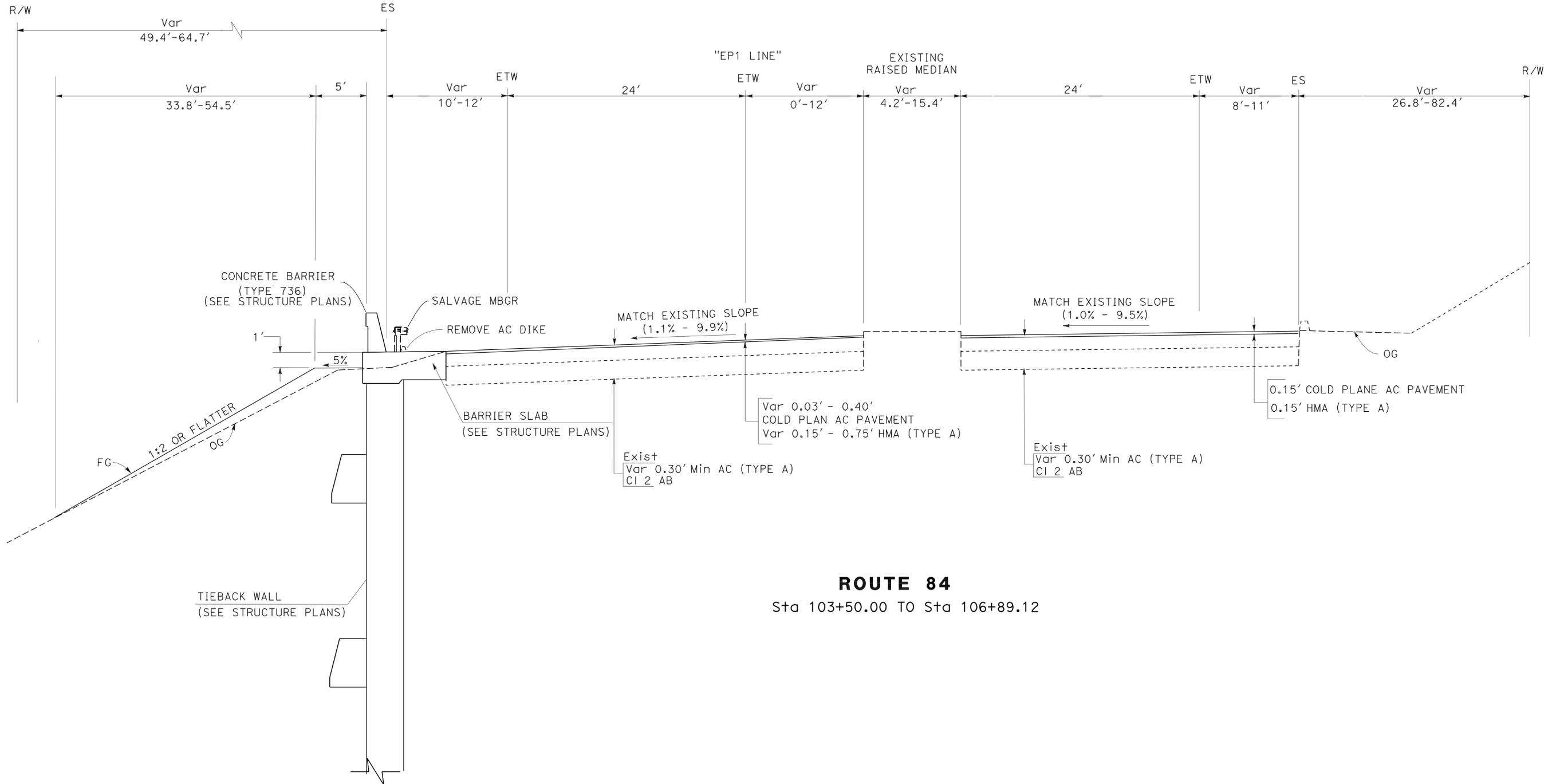
<i>Thaar F. Jawhar</i>	08-09-11
REGISTERED CIVIL ENGINEER	DATE
12-5-11	
PLANS APPROVAL DATE	

REGISTERED PROFESSIONAL ENGINEER	THAAR F. JAWHAR
No. 64207	
Exp. 6-30-13	
CIVIL	

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

NOTES:

1. MATCH EXISTING SUPERELEVATION OR AS DIRECTED BY THE ENGINEER.
2. FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.
3. DIMENSIONS OF THE PAVEMENT STRUCTURES (STRUCTURAL SECTIONS) ARE SUBJECT TO TOLERANCES SPECIFIED IN THE STANDARD SPECIFICATION.



ROUTE 84
Sta 103+50.00 TO Sta 106+89.12

TYPICAL CROSS SECTIONS

NO SCALE

X-1

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SM	84	22.1	3	53

08-09-11
 REGISTERED CIVIL ENGINEER DATE
 12-5-11
 PLANS APPROVAL DATE

THAAR F. JAWHAR
 No. 64207
 Exp. 6-30-13
 CIVIL

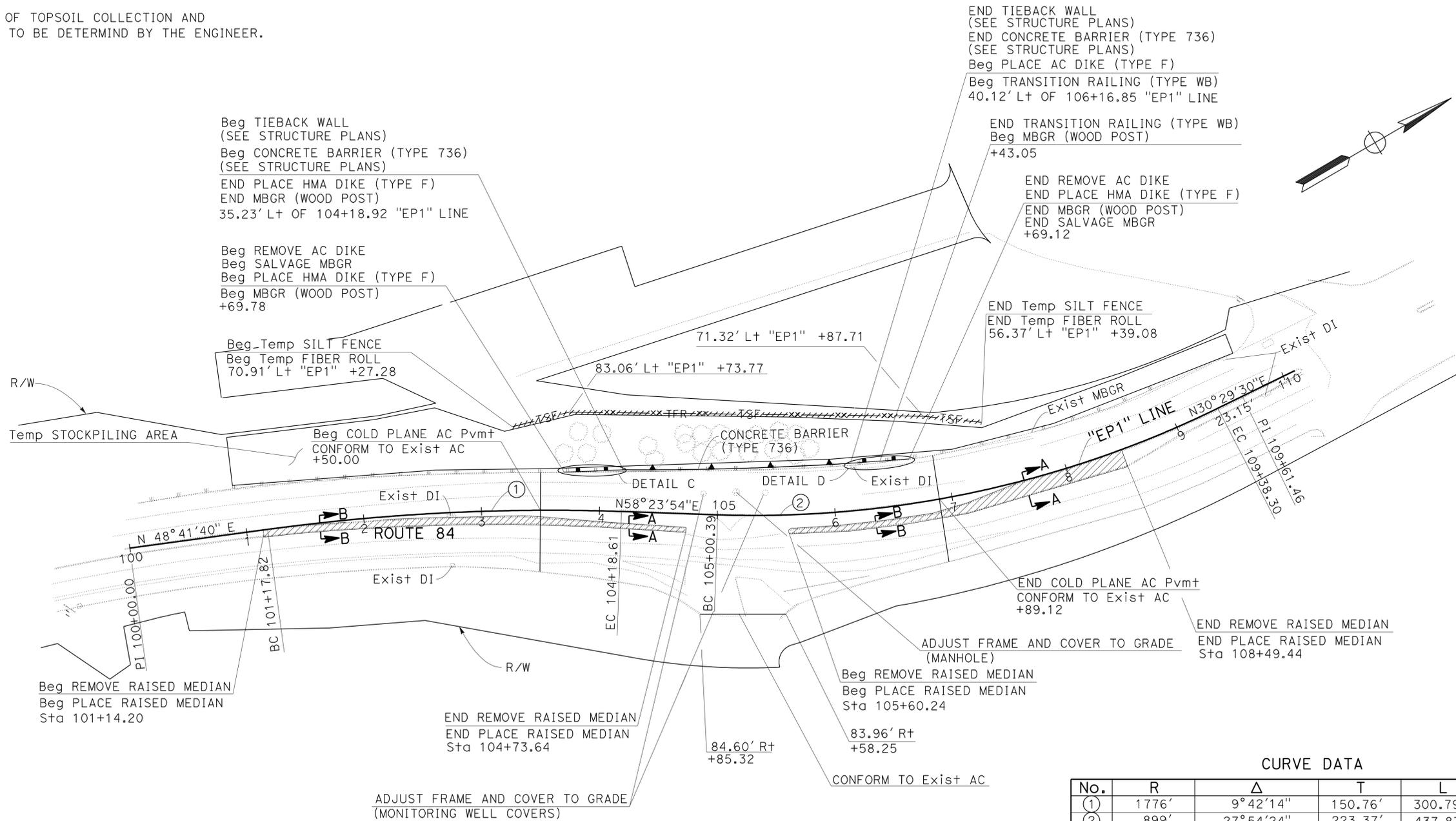
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

NOTES:

- STAGE 1:**
 REMOVE EXISTING RAISED MEDIAN AND PLACE 0.83' HMA (TYPE A) FOR TEMPORARY PAVEMENT (SEE SHEET C-1). CONSTRUCT TIEBACK WALL.
- STAGE 2:**
 REPLACE TEMPORARY PAVEMENT WITH RAISED MEDIAN AFTER THE TIEBACK WALL IS CONSTRUCTED (SEE SHEET C-1).
- FOR SECTIONS A-A, B-B AND DETAILS C AND D, SEE SHEET C-1.
- EXACT LOCATIONS OF TREES TO BE REMOVED SHALL BE VERIFIED BY THE ENGINEER.
- FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.
- EXACT LOCATIONS OF TOPSOIL COLLECTION AND PLACEMENT AREAS TO BE DETERMIND BY THE ENGINEER.

LEGEND:

- REMOVE AND PLACE RAISED MEDIAN, SEE SHEET C-1 FOR DETAILS.
- TREE TO BE REMOVED
- Temp SILT FENCE AND Temp FIBER ROLLS



CURVE DATA

No.	R	Δ	T	L	LINE
①	1776'	9° 42' 14"	150.76'	300.79'	EP1
②	899'	27° 54' 24"	223.37'	437.87'	EP1

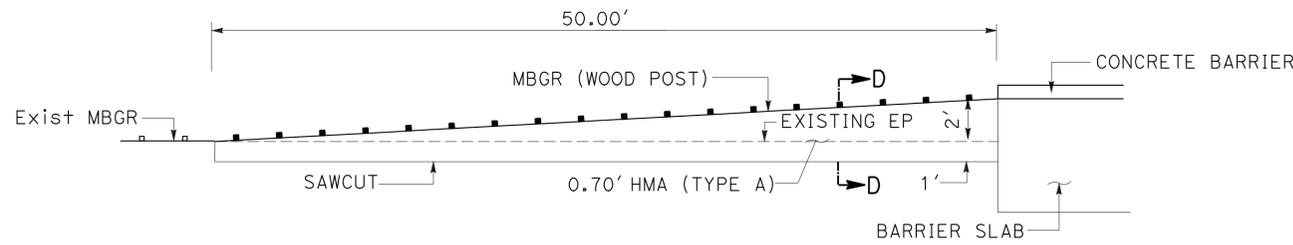
LAYOUT
 SCALE: 1" = 50' **L-1**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
 06-DESIGN
 Caltrans

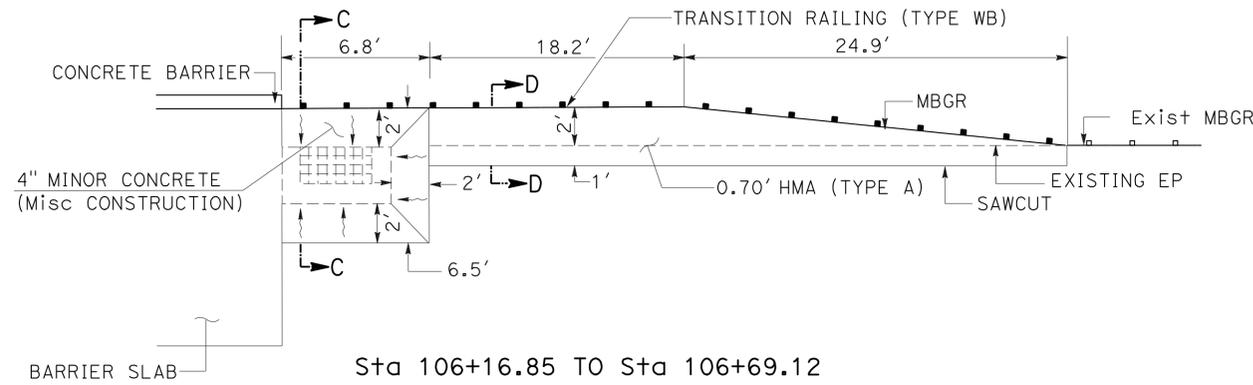
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SM	84	22.1	4	53

08-09-11
 REGISTERED CIVIL ENGINEER DATE
 12-5-11
 PLANS APPROVAL DATE
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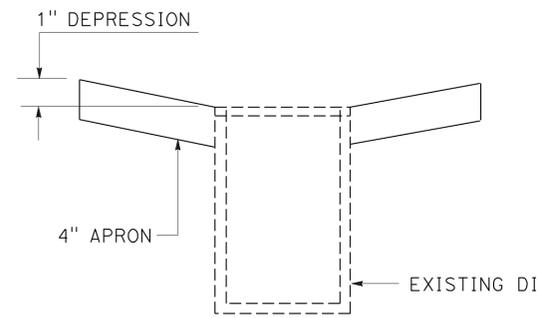
REGISTERED PROFESSIONAL ENGINEER
THAAR F. JAWHAR
 No. 64207
 Exp. 6-30-13
 CIVIL
 STATE OF CALIFORNIA



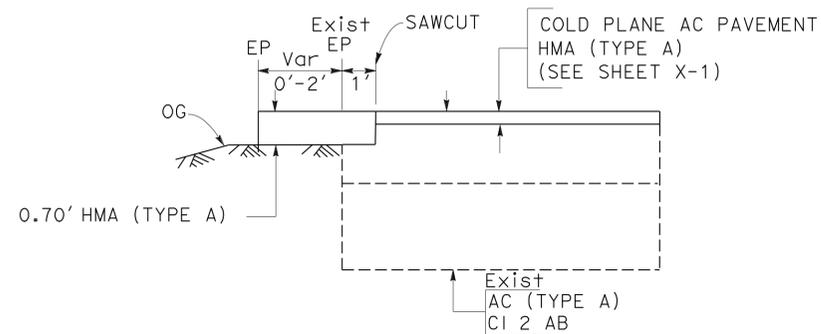
Sta 103+69.78 TO Sta 104+18.92
DETAIL C



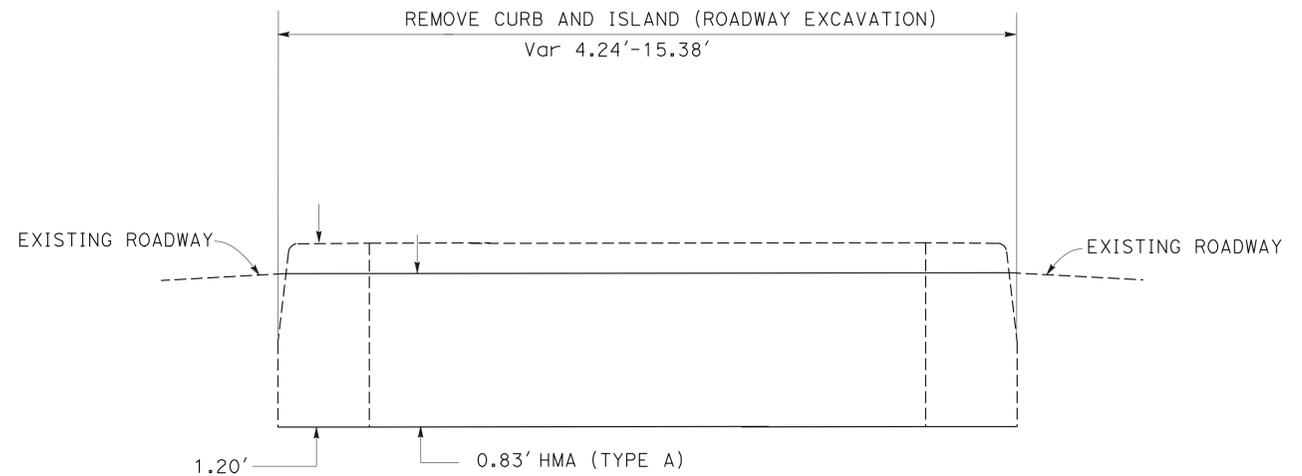
Sta 106+16.85 TO Sta 106+69.12
DETAIL D



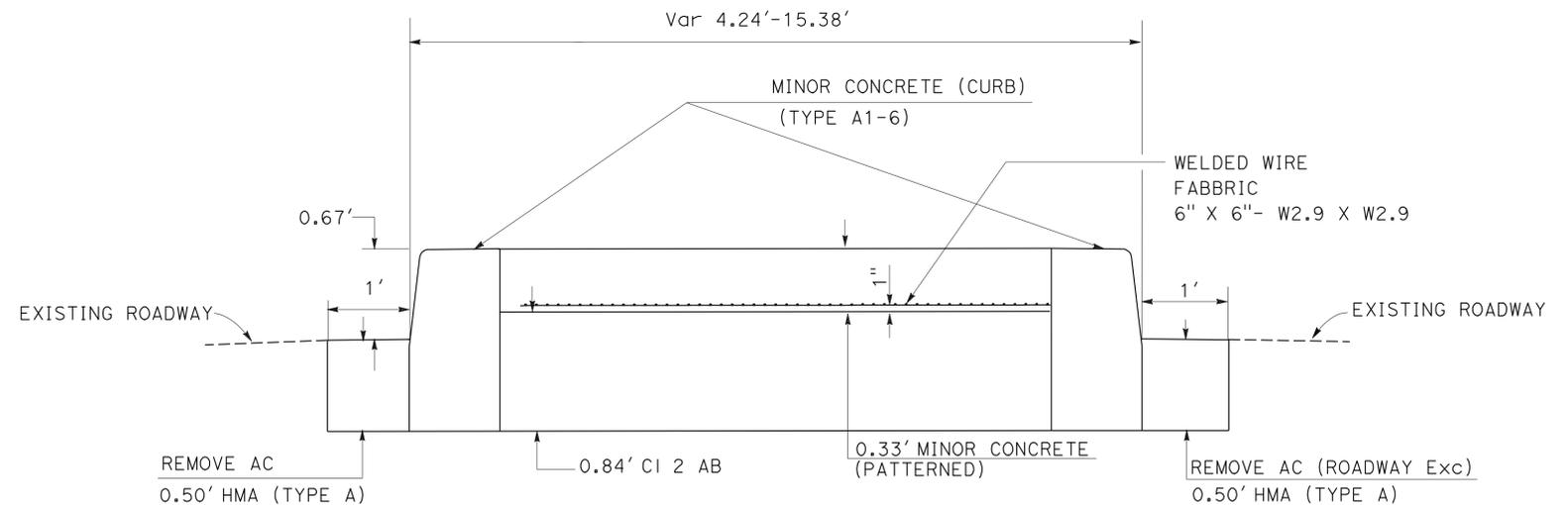
SECTION C-C



SECTION D-D



SECTION A-A
STAGE 1-REMOVE RAISED MEDIAN AND PLACE Temp PAVEMENT



SECTION B-B
STAGE 2-PLACE RAISED MEDIAN

CONSTRUCTION DETAILS

NO SCALE

C-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
 06-DESIGN
 FUNCTIONAL SUPERVISOR: GETACHEW ESHETE
 HOSS SHOJAI
 THAAR JAWHAR
 REVISOR: HOSS SHOJAI
 DATE: 08-09-11
 DESIGNED BY: THAAR JAWHAR
 CHECKED BY: THAAR JAWHAR
 CALCULATED/DESIGNED BY: THAAR JAWHAR
 REVISIONS:

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SM	84	22.1	5	53

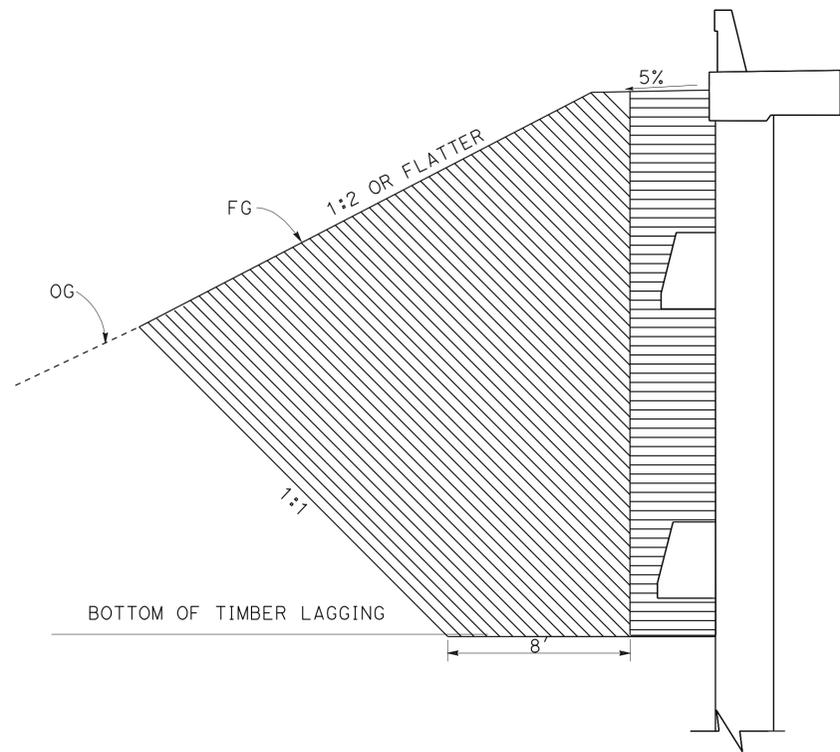
08-09-11
 REGISTERED CIVIL ENGINEER DATE
 THAAR F. JAWHAR
 No. 64207
 Exp. 6-30-13
 CIVIL
 STATE OF CALIFORNIA
 REGISTERED PROFESSIONAL ENGINEER

12-5-11
 PLANS APPROVAL DATE

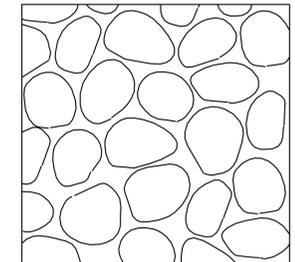
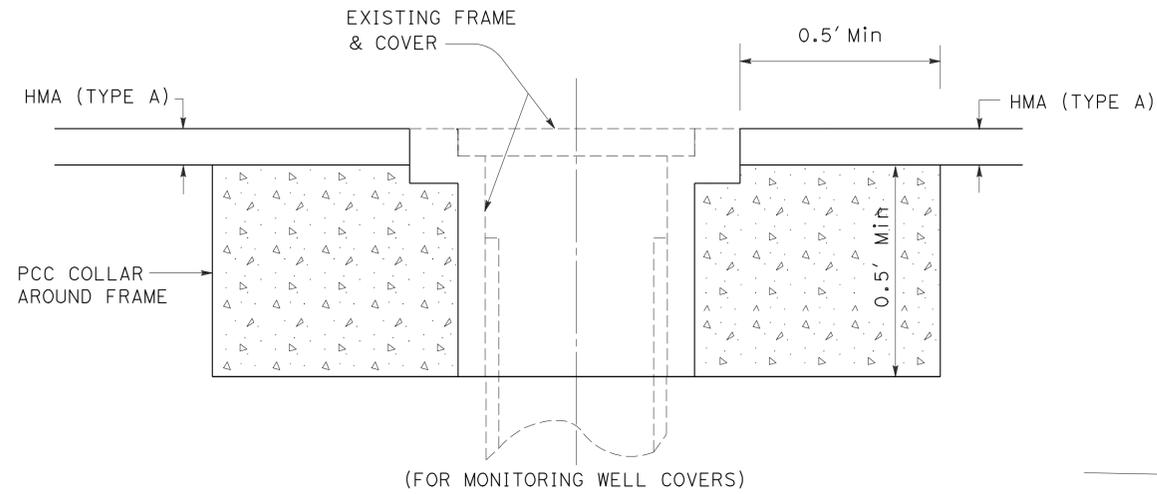
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

NOTE:
 SEE STRUCTURE PLANS FOR STRUCTURE EXCAVATION AND BACKFILL.

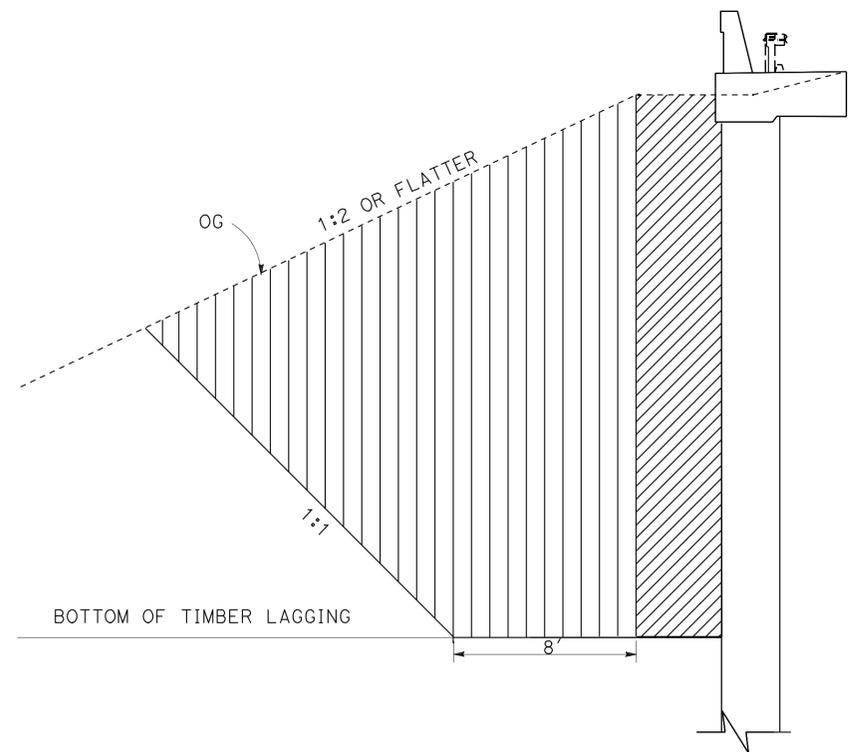
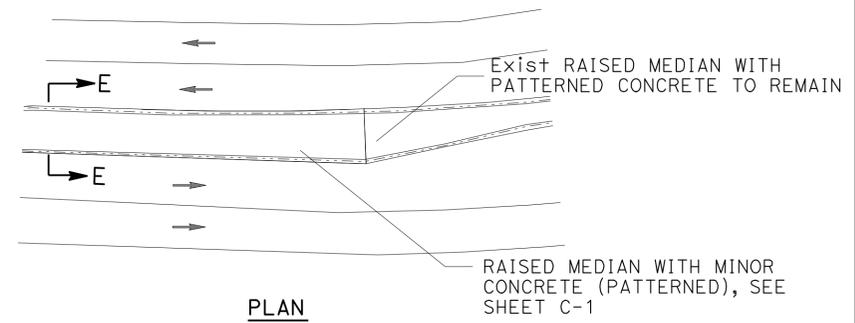
LEGEND:



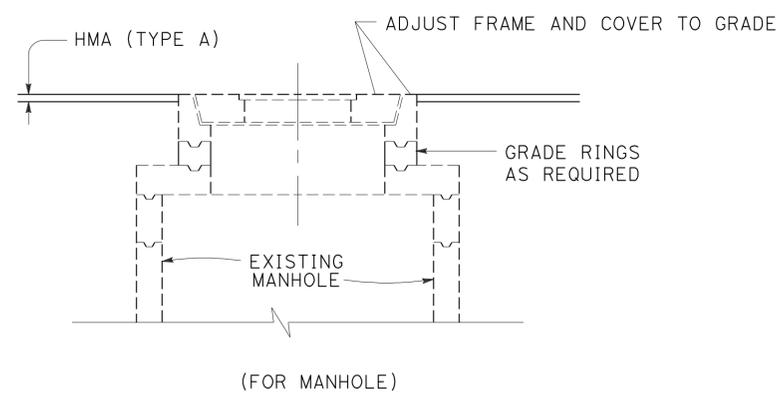
EMBANKMENT LIMITS
 Sta 104+18.92 TO Sta 106+16.85



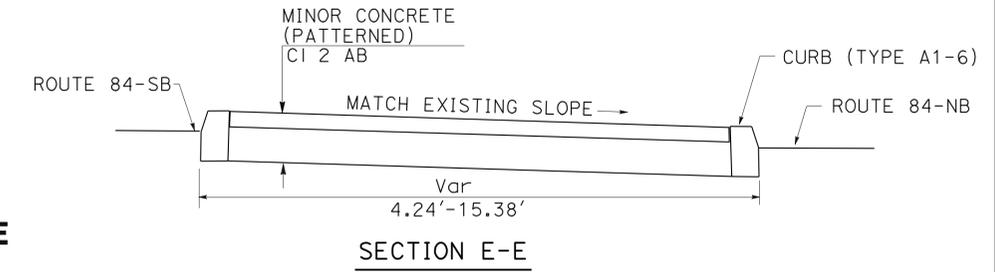
RIVER ROCK PATTERN
 NOTE: PATTERN SHOWN IS APPROXIMATE. PATTERN TO MATCH EXISTING.



EXCAVATION LIMITS
 Sta 104+18.92 TO Sta 106+16.85



ADJUST FRAME AND COVER TO GRADE



RAISED MEDIAN MINOR CONCRETE (PATTERNED)
 Sta 101+14.20 TO Sta 104+73.64
 Sta 105+60.24 TO Sta 108+49.44

CONSTRUCTION DETAILS

NO SCALE

C-2

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
 06-DESIGN
 Caltrans

REVISOR
 HOSS SHOJAI
 THAAR JAWHAR

DESIGNER
 HOSS SHOJAI
 THAAR JAWHAR

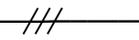
CHECKED BY
 HOSS SHOJAI
 THAAR JAWHAR

FUNCTIONAL SUPERVISOR
 GETACHEW ESHETE

DATE PLOTTED => 06-DEC-2011
 TIME PLOTTED => 09:03

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans WATER QUALITY
 SENIOR LANDSCAPE ARCHITECT DAVID W. YAM
 CALCULATED/DESIGNED BY CHECKED BY
 CALIE TSUI DAVID YAM
 REVISED BY DATE REVISED

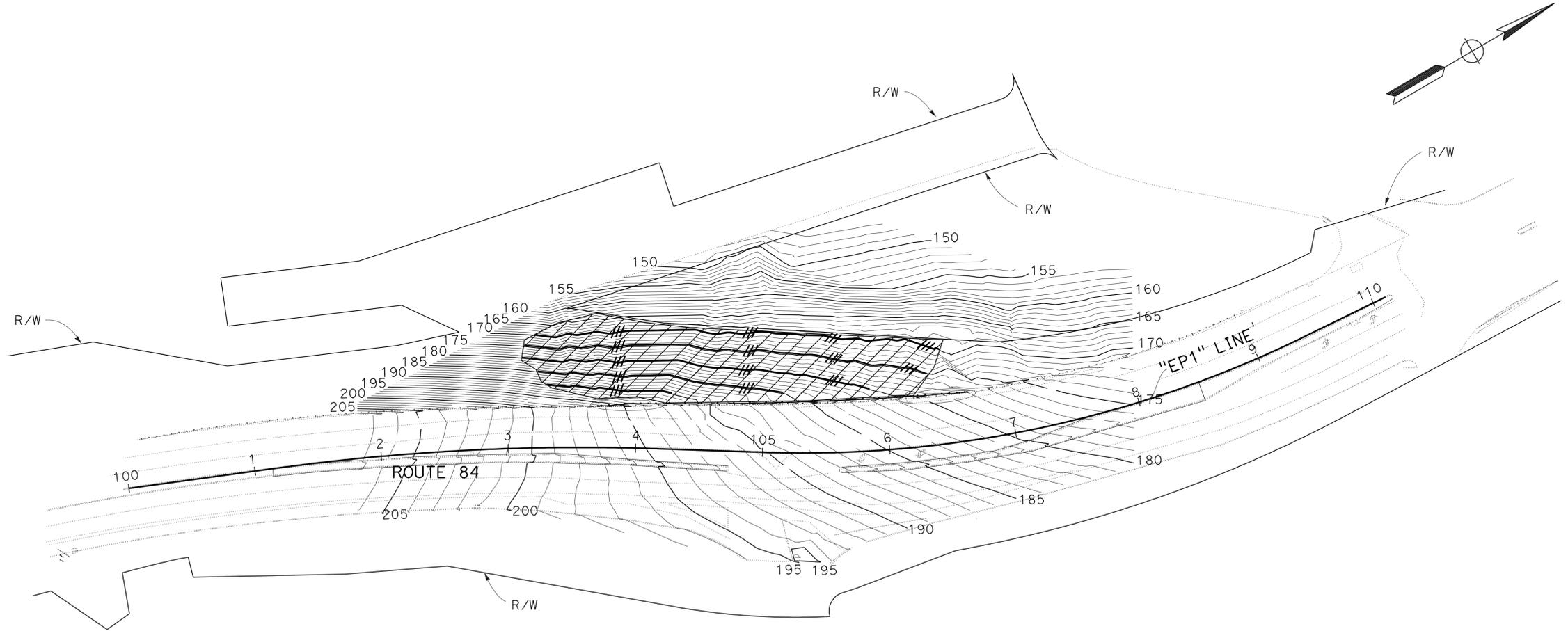
NOTE:
 FOR ACCURATE RIGHT OF WAY DATA,
 CONTACT RIGHT OF WAY ENGINEERING
 AT THE DISTRICT OFFICE.

LEGEND:
 FIBER ROLLS
 EROSION CONTROL (HYDROSEED)

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SM	84	22.1	6	53

12-5-11
 PLANS APPROVAL DATE

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EROSION CONTROL PLAN
 SCALE: 1" = 50'
EC-1

APPROVED FOR EROSION CONTROL WORK ONLY

NOTE:

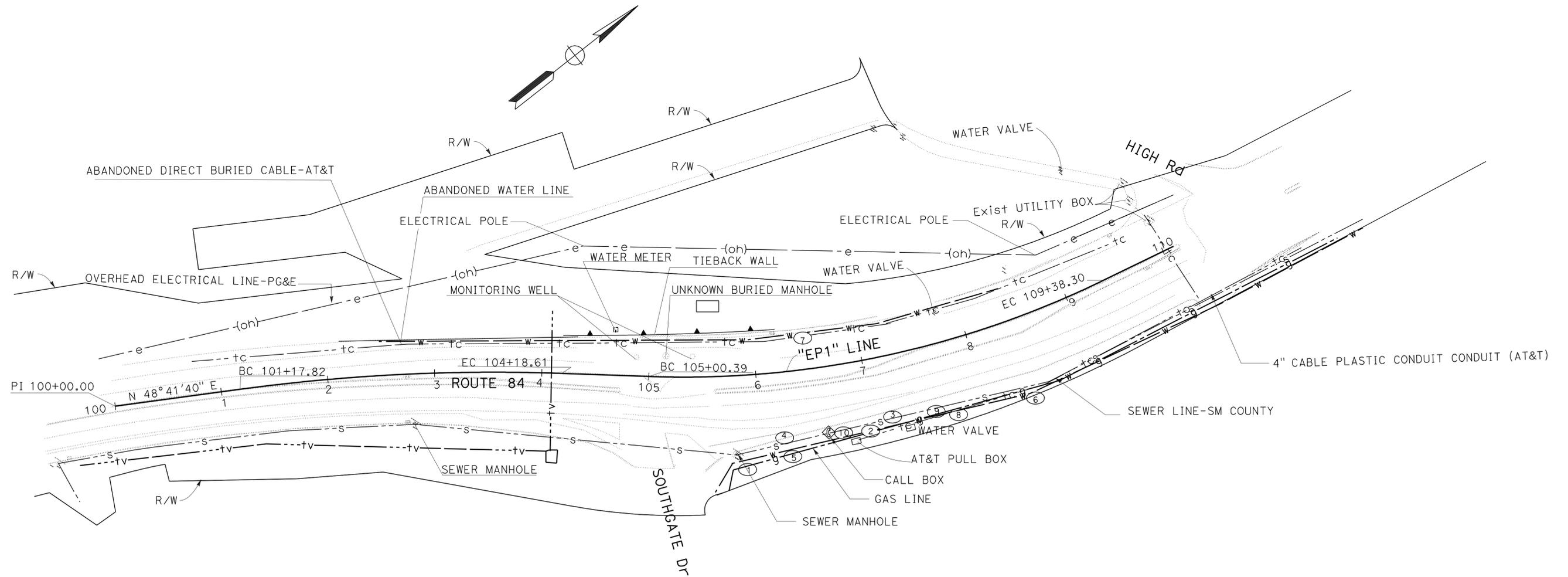
LOCATIONS OF UTILITY FACILITIES SHOWN ON THESE PLANS ARE APPROXIMATE AND SHALL BE VERIFIED BY THE CONTRACTOR FOR EXACT LOCATION PRIOR TO CONSTRUCTION.

POTHOLE DATA

No.	STATION	DIRECTION	OFFSET DISTANCE	DEPTH	UTILITY	
①	105+80.00	NB	86.0' R+ LINE "EP1"	33.5"	2" STEEL GAS	PG&E
②	107+00.00	NB	68.1' R+ LINE "EP1"	48"	2" STEEL GAS	PG&E
③	107+10.00	NB	59.5' R+ LINE "EP1"	40.5"	8" CLAY PIPE	SMC
④	106+20.00	NB	67.3' R+ LINE "EP1"	40.0"	8" CLAY PIPE	SMC
⑤	106+20.00	NB	81.4' R+ LINE "EP1"	45.5"	2" STEEL GAS	PG&E
⑥	108+42.00	NB	70.8' R+ LINE "EP1"	26"	8" WATER DUCTILE IRON	SMC
⑦	106+50.00	SB	68.2' L+ LINE "EP1"	89"	PVC (ABANDONED)	AT&T
⑧	107+75.00	NB	67.0' R+ LINE "EP1"	58"	1.5" CABLE	AT&T
⑨	107+50.00	NB	60.9' R+ LINE "EP1"	39"	8" WATER DUCTILE IRON	SMC
⑩	106+50.00	NB	61.7' R+ LINE "EP1"	39.5"	8" WATER DUCTILE IRON	SMC

ABBREVIATIONS:

PG&E PACIFIC GAS AND ELECTRIC
 SMC SAN MATEO COUNTY
 AT&T AMERICAN TELEPHONE AND TELEGRAPH



STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
 06-DESIGN
 FUNCTIONAL SUPERVISOR
 GETACHEW ESHETE
 CALCULATED/DESIGNED BY
 CHECKED BY
 HOSS SHOJAI
 THAAR JAWHAR
 REVISED BY
 DATE REVISED

APPROVED FOR UTILITY INFORMATION ONLY

UTILITY PLAN
 SCALE: 1" = 50'
U-1

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SM	84	22.1	8	53

Hassan M. Taha 06-24-11
REGISTERED CIVIL ENGINEER DATE

12-5-11
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
HASSAN M. TAHA
No. 60130
Exp. 06/30/12
CIVIL
STATE OF CALIFORNIA

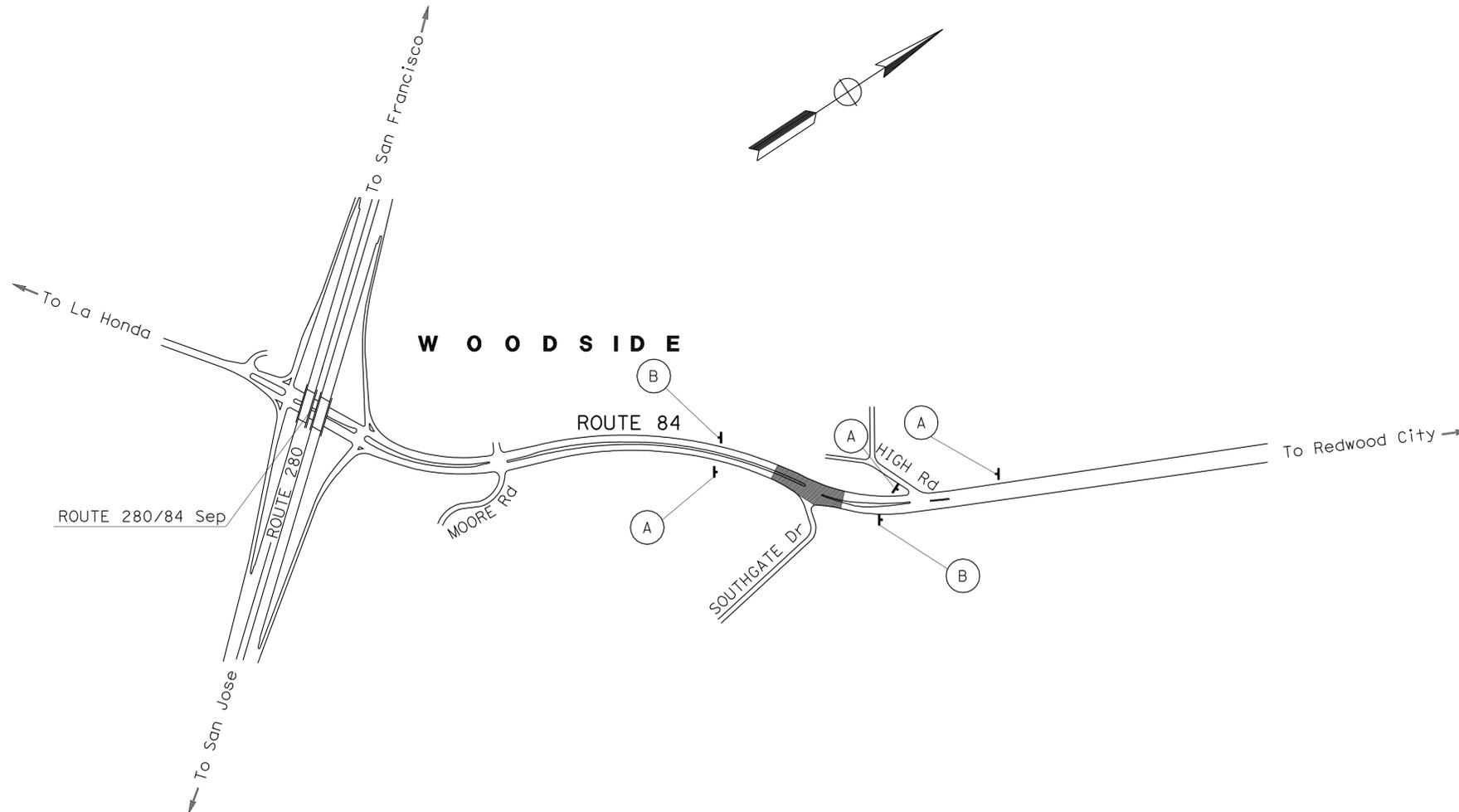
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

NOTES:

- EXACT SIGN LOCATIONS TO BE DETERMINED BY THE ENGINEER.
- FOR ADDITIONAL CONSTRUCTION AREA SIGNS REFER TO SHEET TH-1.

**STATIONARY MOUNTED
CONSTRUCTION AREA SIGNS**

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



APPROVED FOR CONSTRUCTION AREA SIGN WORK ONLY

CONSTRUCTION AREA SIGNS

NO SCALE

CS-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans 06-TRAFFIC DESIGN

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SM	84	22.1	9	53

Hassan M. Taha 08-31-11	
REGISTERED CIVIL ENGINEER	DATE
12-5-11	
PLANS APPROVAL DATE	

REGISTERED PROFESSIONAL ENGINEER
HASSAN M. TAHA
 No. 60130
 Exp. 06/30/12
 CIVIL
 STATE OF CALIFORNIA

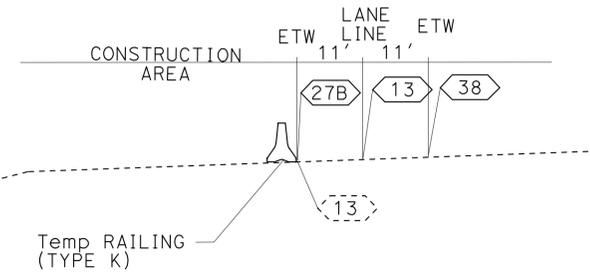
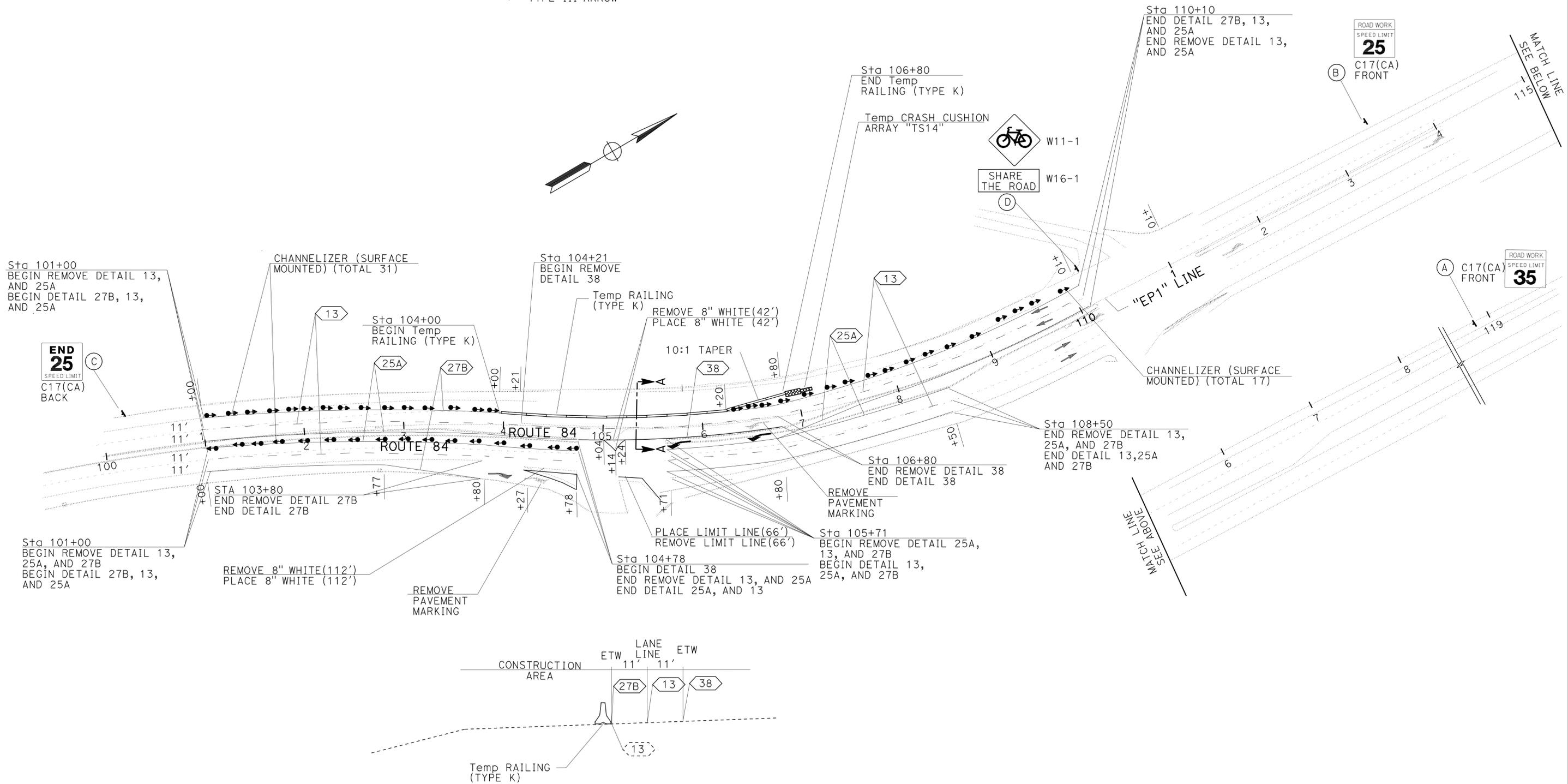
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NOTE: EXACT SIGN LOCATIONS TO BE DETERMINED BY THE ENGINEER.

LEGEND:

- ➔ DIRECTION OF TRAFFIC
- ⊗ CONSTRUCTION AREA SIGN No.
- ↑ ROADSIDE SIGN ONE-POST
- ⊗ TRAFFIC STRIPE DETAIL No.
- ⊗ Exist TRAFFIC STRIPE DETAIL No.
- CHANNELIZERS (SURFACE MOUNTED)
- ⊔ Temp RAILING (TYPE K)
- ▨ Temp CRASH CUSHION (ARRAY "TS14")
- ➔ TYPE III ARROW

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans 06 - TRAFFIC DESIGN
 FUNCTIONAL SUPERVISOR: MOHAMMED GATAMI
 CALCULATED/DESIGNED BY: KAMRUL KHAN
 CHECKED BY: HASSAN M. TAHA
 REVISED BY: DATE
 REVISIONS:



SECTION A-A
NO SCALE

TRAFFIC HANDLING PLAN
TH-1

APPROVED FOR TRAFFIC HANDLING WORK ONLY

SCALE: 1" = 50'

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SM	84	22.1	10	53

Hassan Cohe 06-24-11
REGISTERED CIVIL ENGINEER DATE

12-5-11
PLANS APPROVAL DATE

HASSAN M. TAHA
No. 60130
Exp. 06/30/12
CIVIL

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STATIONARY MOUNTED CONSTRUCTION AREA SIGNS (TRAFFIC HANDLING)

SIGN No.	SIGN CODE	SIGN MESSAGE	PANEL SIZE	No. OF POST AND SIZE	No. OF SIGNS
(A)	C17(CA)FRONT	ROAD WORK SPEED LIMIT (35)	36" x 36"	1-4" x 4"	1
(B)	C17(CA)FRONT	ROAD WORK SPEED LIMIT (25)	36" x 36"	1-4" x 4"	1
(C)	C17(CA) BACK	END 25 SPEED LIMIT	36" x 36"	1-4" x 4"	1
(D)	W11-1	BIKE SYMBOL	36" x 36"	1-4" x 4"	1
	W16-1	SHARE THE ROAD	36" x 30"		

TEMPORARY RAILING (TYPE K), TEMPORARY CRASH CUSHION MODULE, AND CHANNELIZER

LOCATION Sta TO Sta	Temp RAILING (TYPE K)	Temp CRASH CUSHION MODULE	CHANNELIZER (SURFACE MOUNTED)
	LF	EA	EA
Sta 101+00 TO Sta 110+00	280	14	48

TEMPORARY PAVEMENT DELINEATION

LOCATION Sta TO Sta	DIRECTION	DETAIL No.	TEMPORARY PAVEMENT MARKER			REMOVE PAVEMENT MARKER	REMOVE THERMOPLASTIC TRAFFIC STRIPE	REMOVE YELLOW THERMOPLASTIC TRAFFIC STRIPE (HAZARDOUS WASTE)	TEMPORARY TRAFFIC STRIPE (TAPE)	TEMPORARY PAVEMENT MARKING (TAPE)		REMOVE THERMOPLASTIC PAVEMENT MARKING
			TYPE G	TYPE H	TYPE A					SQFT	SQFT	
			EA	EA	EA							
101+00 TO 104+78	NB	13				41			LF	DESCRIPTION	SQFT	SQFT
101+00 TO 104+78	NB	25A				17				3-TYPE III ARROW	126	84
101+00 TO 103+80	NB	27B								2-8" WHITE (154')	154	154
101+00 TO 104+78	NB	13	9		32					1-LIMIT LINE (66')	66	66
101+00 TO 104+78	NB	25A		17			280		378			
101+00 TO 103+80	NB	27B							280			
105+71 TO 108+50	NB	25A				13				279		
105+71 TO 108+50	NB	13				31						
105+71 TO 108+50	NB	27B										
105+71 TO 108+50	NB	25A		13					279			
105+71 TO 108+50	NB	13	7		24			279				
105+71 TO 108+50	NB	27B							279			
104+21 TO 106+80	SB	38				12						
104+78 TO 106+80	SB	38	9						202			
101+00 TO 110+10	SB	13				96		518				
101+00 TO 104+78	SB	25A		17		17			378			
106+80 TO 110+10	SB	25A				15			330			
105+71 TO 110+10	SB	25A		19					439			
101+00 TO 110+10	SB	27B							910			
101+00 TO 110+10	SB	13	20		76							
SUB-TOTAL			45	66	132	242	1077	1365	3145		346	304
TOTAL				243		242	1077	1365	3145		346	304

TRAFFIC HANDLING QUANTITIES

THQ-1

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SM	84	22.1	11	53

<i>Hassan M. Taha</i>	06-24-11
REGISTERED CIVIL ENGINEER	DATE
12-5-11	
PLANS APPROVAL DATE	

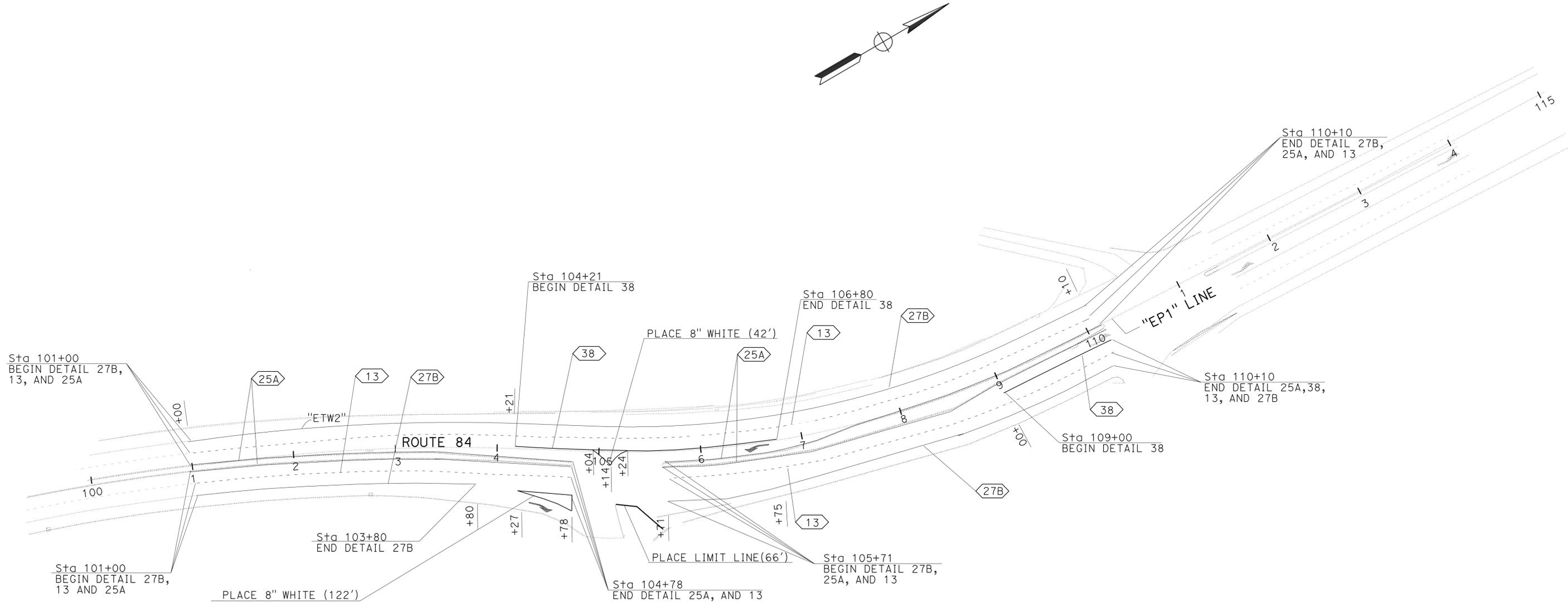
REGISTERED PROFESSIONAL ENGINEER
HASSAN M. TAHA
No. 60130
Exp. 06/30/12
CIVIL

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LEGEND:
 (XX) TRAFFIC STRIPE DETAIL No.
 ↗ TYPE III ARROW

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans 06 - TRAFFIC DESIGN

FUNCTIONAL SUPERVISOR: MOHAMMAD OATAMI
 CALCULATED/DESIGNED BY: MOHAMMAD OATAMI
 CHECKED BY: HASSAN M. TAHA
 REVISOR BY: KAMRUL KHAN
 DATE REVISOR: HASSAN M. TAHA



APPROVED FOR PAVEMENT DELINEATION WORK ONLY

PAVEMENT DELINEATION PLAN

SCALE: 1" = 50'

PD-1

LAST REVISION: 09-08-11 DATE PLOTTED => 06-DEC-2011 TIME PLOTTED => 09:04

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SM	84	22.1	12	53

Hassan Cohe 06-24-11
REGISTERED CIVIL ENGINEER DATE

12-5-11
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
HASSAN M. TAHA
No. 60130
Exp. 06/30/12
CIVIL
STATE OF CALIFORNIA

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PAVEMENT DELINEATION QUANTITIES

ROUTE 84	LOCATION Sta TO Sta	DIRECTION	DETAIL No.	PAVEMENT MARKER			THERMOPLASTIC TRAFFIC STRIPE		THERMOPLASTIC PAVEMENT MARKING	
				(RETRO-REFLECTIVE)		(NON REFLECTIVE)	4" SOLID	8" SOLID	DESCRIPTION	SQFT
				TYPE G	TYPE H	TYPE A				
				EA	EA	EA	LF	LF		
	101+00 TO 103+80	NB	27B				280		2-TYPE III ARROW	84
	101+00 TO 104+78	NB	13	9		32			2-8" WHITE (164')	164
	101+00 TO 104+78	NB	25A		17		378		1-LIMIT LINE (66')	66
	105+71 TO 110+10	NB	27B				439			
	105+71 TO 110+10	NB	13	10		38				
	105+71 TO 110+10	NB	25A		19		439			
	109+00 TO 110+10	NB	38	6				110		
	101+00 TO 110+10	SB	27B				910			
	101+00 TO 110+10	SB	13	20		76				
	101+00 TO 104+78	SB	25A		17		378			
	105+71 TO 110+10	SB	25A		19		439			
	104+21 TO 106+80	SB	38	12				259		
	SUBTOTAL			57	72	146	3263	369		314
	TOTAL				129	146	3263	369		314

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans 06 - TRAFFIC DESIGN

FUNCTIONAL SUPERVISOR: MOHAMMED QATAMI
DESIGNED BY: HASSAN M. TAHA
CHECKED BY: KAMRUL KHAN
REVISOR: HASSAN M. TAHA
DATE REVISED: 06-24-11

PAVEMENT DELINEATION QUANTITIES

PDQ-1



STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
 06 - DESIGN

FUNCTIONAL SUPERVISOR
 GETACHEW ESHETE

CALCULATED/DESIGNED BY
 CHECKED BY

HOSS SHOJAI
 THAAR JAWHAR

REVISED BY
 DATE REVISED

REVISIONS

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SM	84	22.1	13	53

08-09-11
 REGISTERED CIVIL ENGINEER DATE

12-5-11
 PLANS APPROVAL DATE

THAAR F. JAWHAR
 No. 64207
 Exp. 6-30-13
 CIVIL

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ROADWAY QUANTITIES

STATION	SALVAGE MBGR	MBGR (WOOD POST)	TRANSITION RAILING (TYPE WB)	COLD PLANE AC PAVEMENT	TACK COAT	HMA (TYPE A)	REMOVE AC DIKE	PLACE HMA DIKE (TYPE F)	ROADWAY EXCAVATION	EMBANKMENT (N)	MINOR CONCRETE (PATTERNED)	CLASS 2 AB (N)	MINOR CONCRETE (Misc CONSTRUCTION)	ADJUST FRAME AND COVER TO GRADE	Temp SILT FENCE	Temp FIBER ROLL	REMOVE TREES (N)	DESCRIPTION
	LF	LF	EA	SQYD	TON	TON	LF	LF	CY	CY	SQYD	CY	CY	EA	LF	LF	EA	
103+69.78 TO 106+69.12	293																	
103+69.78 TO 104+18.92		50																
106+43.05 TO 106+69.12		25																
106+16.85 TO 106+43.05			1															
103+50.00 TO 106+89.12				3800	0.76													
103+50.00 TO 106+89.12						225												SOUTHBOUND PAVEMENT
103+50.00 TO 106+89.12						205												NORTHBOUND PAVEMENT
101+14.20 TO 108+49.44						222		164										REMOVE RAISED MEDIAN AND PLACE 0.83' Temp Pvmnt
101+14.20 TO 108+49.44						82		41										1' STRIP ADJACENT TO MEDIAN
101+14.20 TO 108+49.44						10												NEW SECTIONS ADJACENT TO MBGR (0.70' THICK)
103+69.78 TO 106+69.12						1.4	293	100										DIKE REPLACEMENT
104+18.92 TO 106+16.85									2324	2529								EMBANKMENT'S SLOPE
106+16.00 TO 106+22.80												0.4						DI APRON
101+14.20 TO 108+49.44											111	35						CURB MEDIAN
104+18.92 TO 106+16.85																20		
101+14.20 TO 108+49.44											396							ISLAND MEDIAN
104+87.50 TO 105+41.02														2				MONITORING WELL
105+15.40														1				MANHOLE
103+27.27 TO 107+39.08															400	400		
TOTAL	293	75	1	3800	0.76	745.4	293	100	2529	2529	396	111	35.4	3	400	400	20	

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

**SUMMARY OF QUANTITIES
 Q-1**

LAST REVISION DATE PLOTTED => 06-DEC-2011
 08-31-11 TIME PLOTTED => 09:04

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SM	84	22.1	14	53

Lorena Wong
 LICENSED LANDSCAPE ARCHITECT
 12-5-11
 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.

ABBREVIATIONS:

AMEND — amendment	Max ——— maximum
B & B — balled and burlapped	Min ——— minimum
Dia ——— diameter	NCN ——— no common name
EA ——— each	No. ——— number
LB ——— pound	Pkt ——— packet
Oz ——— ounce	PLT ESTB — plant establishment
Ft ——— foot/feet	Pvmt ——— pavement
SQFT — square feet	R/W ——— right of way
SQYD — square yard	SF ——— state furnished
CF ——— cubic feet	TRVD ——— traveled
CY ——— cubic yard	

PLANT LIST AND PLANTING SPECIFICATIONS

PLANT GROUP	PLANT No.	SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE	QUANTITY EACH	HOLE SIZE (INCH)		BASIN TYPE	IRON SULFATE	SOIL AMEND ①	COMMERCIAL FERTILIZER ①		BASIN MULCH ②	STAKING ④	PLANTING LIMITS						REMARKS	
							Dia	DEPTH				PLANTING	PLT ESTB			MINIMUM DISTANCE (F+) FROM				ON CENTER (F+)			
																TRVD WAY	Pvmt	FENCE	WALL		PAVED DITCH		EARTH DITCH
I	1		QUERCUS AGRIFOLIA	COAST LIVE OAK	⑬ Pot	58	18	20	I	--	1 CF	5 Oz	--	1 CF	X	-	-	15	15	10	12	⑦	TREE ⑩
B	2		SEQUOIA SEMPERVIRENS	COAST REDWOOD	No. 5	7	30	24	I	16 Oz	2 CF	12 Oz	--	3 CF	X	-	-	15	15	10	12	⑦	TREE ⑩

APPLICABLE WHEN CIRCLED:

- ① - Quantities shown are "per plant" unless shown as SQFT or SQYD application rates
- ② - Basin mulch is included with mulch quantities shown on Planting Plan
- 3 - Sufficient to receive root ball and amendments if required
- ④ - See Detail
- 5 - See Special Provisions

LEGEND:

- 6 - See Standard Specifications
 - ⑦ - As shown on plans
 - 8 - Unless otherwise shown on plans
 - 9 - Foliage Protector required
 - ⑩ - Foliage Protector (Mod) required
 - 11 - Root Barrier required
 - 12 - State-Furnished
 - ⑬ - 8" x 8" x 18" deep
-

NOTE:

Underlined portions of botanical name indicate abbreviations used on Planting Plans.

PLANT LIST PL-1

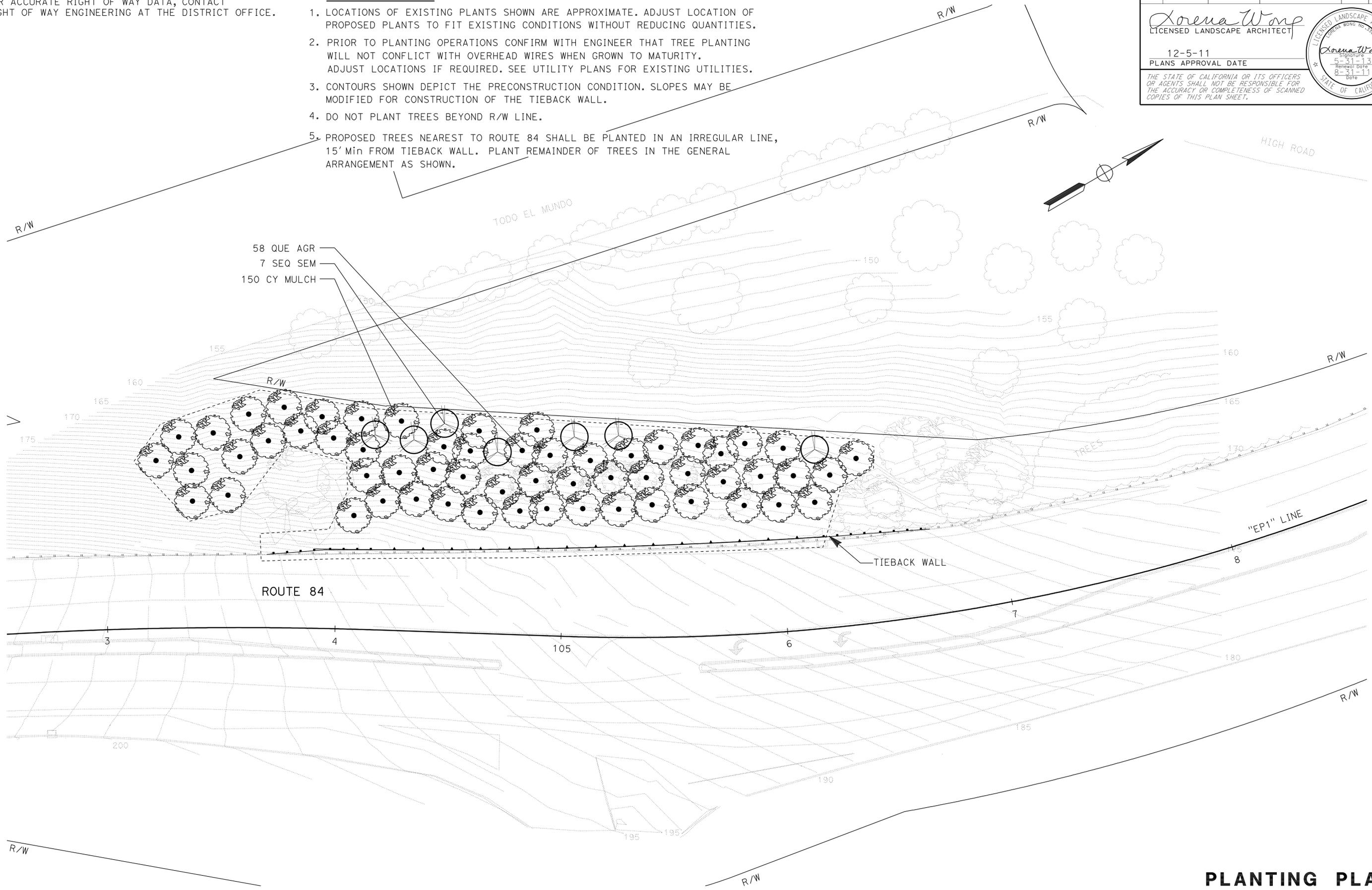
LAST REVISION DATE PLOTTED => 08-31-11 TIME PLOTTED => 09:04

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SM	84	22.1	15	53

Lorena Wong
 LICENSED LANDSCAPE ARCHITECT
 Signature: *Lorena Wong*
 12-5-11
 PLANS APPROVAL DATE
 5-31-13
 Renewal Date
 8-31-11
 Date
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NOTE:
 FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

- PLANTING NOTES**
1. LOCATIONS OF EXISTING PLANTS SHOWN ARE APPROXIMATE. ADJUST LOCATION OF PROPOSED PLANTS TO FIT EXISTING CONDITIONS WITHOUT REDUCING QUANTITIES.
 2. PRIOR TO PLANTING OPERATIONS CONFIRM WITH ENGINEER THAT TREE PLANTING WILL NOT CONFLICT WITH OVERHEAD WIRES WHEN GROWN TO MATURITY. ADJUST LOCATIONS IF REQUIRED. SEE UTILITY PLANS FOR EXISTING UTILITIES.
 3. CONTOURS SHOWN DEPICT THE PRECONSTRUCTION CONDITION. SLOPES MAY BE MODIFIED FOR CONSTRUCTION OF THE TIEBACK WALL.
 4. DO NOT PLANT TREES BEYOND R/W LINE.
 5. PROPOSED TREES NEAREST TO ROUTE 84 SHALL BE PLANTED IN AN IRREGULAR LINE, 15' MIN FROM TIEBACK WALL. PLANT REMAINDER OF TREES IN THE GENERAL ARRANGEMENT AS SHOWN.



STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans LANDSCAPE ARCHITECTURE
 SENIOR LANDSCAPE ARCHITECT: LORENA WONG
 CALCULATED/DESIGNED BY: LORENA WONG
 CHECKED BY: LORENA WONG
 REVISOR: CHRISTOPHER ELSE
 DATE: LORENA WONG
 REVISOR: CHRISTOPHER ELSE
 DATE: LORENA WONG

APPROVED FOR PLANTING WORK ONLY

PLANTING PLAN
 SCALE: 1" = 20'
PP-1

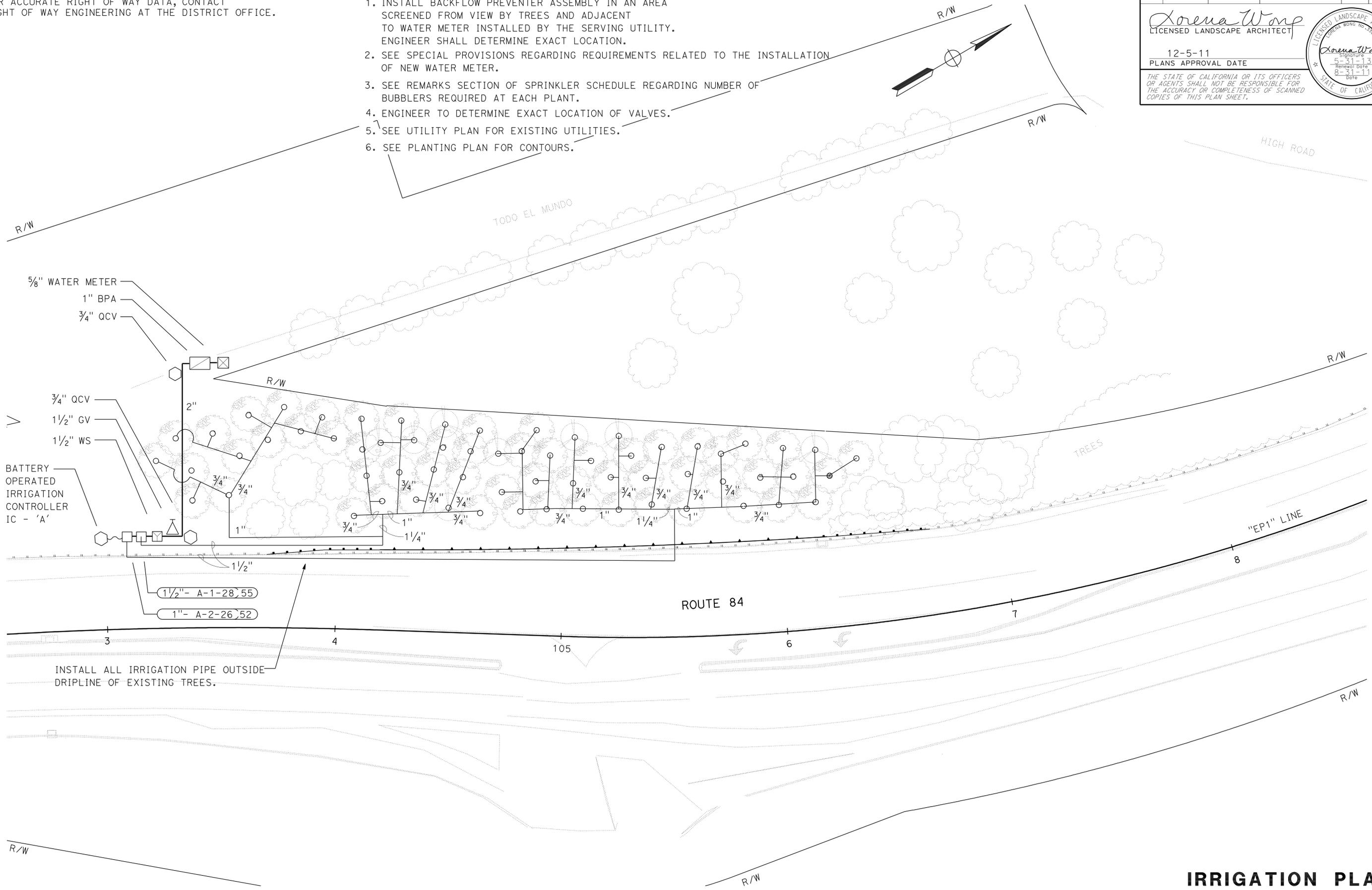
LAST REVISION: 08-31-11
 DATE PLOTTED => 08-06-2011
 TIME PLOTTED => 09:04

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SM	84	22.1	16	53

<i>Lorena Wong</i> LICENSED LANDSCAPE ARCHITECT	
12-5-11 PLANS APPROVAL DATE	
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NOTE:
 FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

- IRRIGATION NOTES**
1. INSTALL BACKFLOW PREVENTER ASSEMBLY IN AN AREA SCREENED FROM VIEW BY TREES AND ADJACENT TO WATER METER INSTALLED BY THE SERVING UTILITY. ENGINEER SHALL DETERMINE EXACT LOCATION.
 2. SEE SPECIAL PROVISIONS REGARDING REQUIREMENTS RELATED TO THE INSTALLATION OF NEW WATER METER.
 3. SEE REMARKS SECTION OF SPRINKLER SCHEDULE REGARDING NUMBER OF BUBBLERS REQUIRED AT EACH PLANT.
 4. ENGINEER TO DETERMINE EXACT LOCATION OF VALVES.
 5. SEE UTILITY PLAN FOR EXISTING UTILITIES.
 6. SEE PLANTING PLAN FOR CONTOURS.



STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans LANDSCAPE ARCHITECTURE
 SENIOR LANDSCAPE ARCHITECT
 LORENA WONG
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 CHECKED BY
 LORENA WONG
 REVISOR
 CHRISTOPHER ELSE
 DATE
 DATE REVISOR
 DATE REVISOR

INSTALL ALL IRRIGATION PIPE OUTSIDE DRIPLINE OF EXISTING TREES.

APPROVED FOR IRRIGATION WORK ONLY

IRRIGATION PLAN
 SCALE: 1" = 20'
IP-1

LAST REVISION: 08-31-11
 DATE PLOTTED => 06-06-2011
 TIME PLOTTED => 12:49

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SM	84	22.1	17	53

Lorena Wong
LICENSED LANDSCAPE ARCHITECT

12-5-11
PLANS APPROVAL DATE

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SPRINKLER SCHEDULE

SYMBOL	TYPE	DESCRIPTION	SPRAY PATTERN	OPERATING PRESSURE (PSI)	PRESSURE COMPENSATING	PLUS/MINUS 5% ②		MATERIAL	INLET CONNECTION (NPT INCH)	POSITIVE-LOCKING ADJ ARC STOP	BACKSLASH PREVENTER	DIFFUSER PIN	DISTANCE CONTROL FLAP	Adj DISCHARGE	RISER				SWING JOINT (TYPE)	RISER SUPPORT	SPRINKLER PROTECTOR (TYPE)	REMARKS			
						GALLONS PER MINUTE (GPM)	GALLONS PER HOUR (GPH)								RADIUS (F+)	WIDTH x LENGTH (F+)	TYPE	PLASTIC					GALVANIZED	SIZE (IPS INCH)	HEIGHT (INCH)
○	C-2	FLOOD BUBBLER	F	20-90	X	0.5	—	—	PL	1/2	—	—	—	—	V	X	—	1/2	—	—	—	—	—	—	INSTALL 2 PER OAK, 3 PER REDWOOD

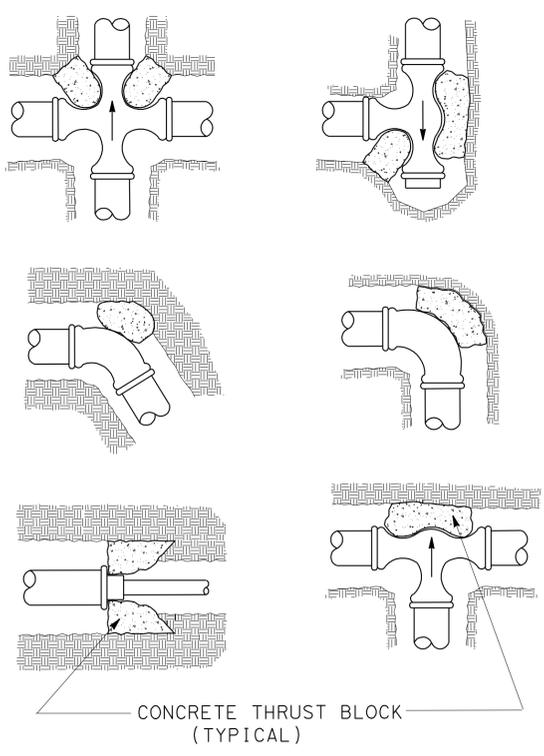
X IN BOX DENOTES REQUIREMENT

APPLICABLE WHEN CIRCLED BELOW:

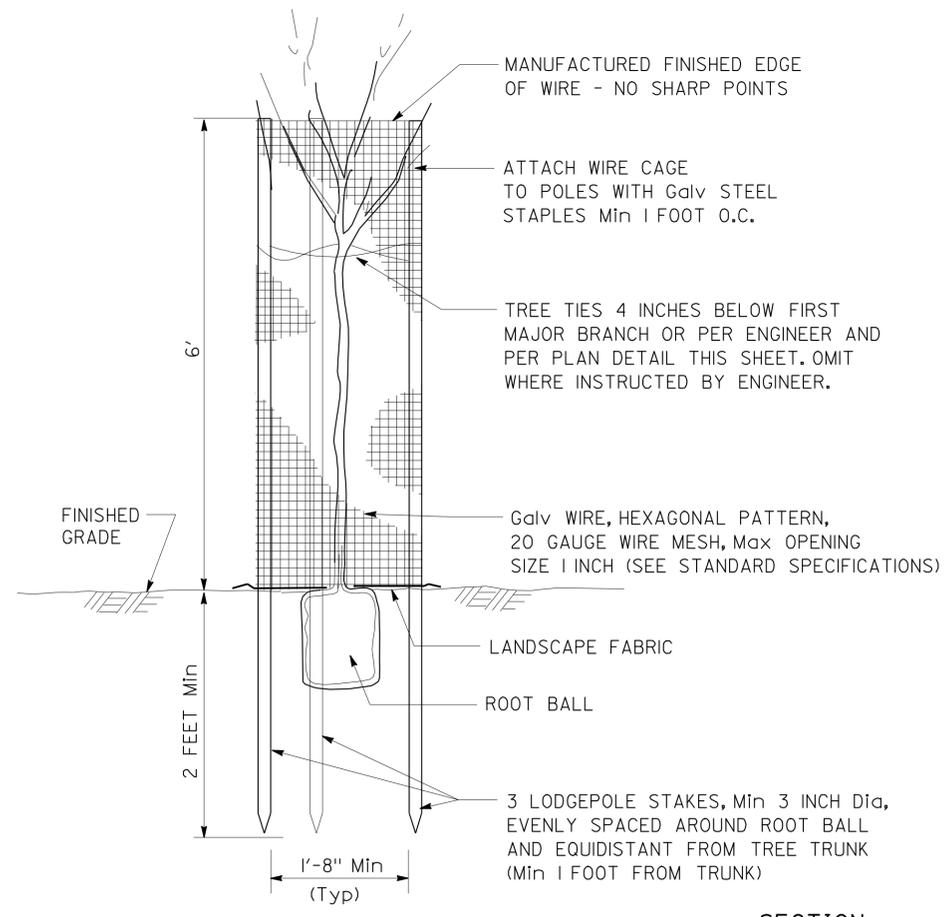
- 1 - See Special Provisions.
- ② - If a pressure compensating device is specified, the discharge and radii shown reflect its use.
- 3 - Arc Stop shall be fitted with a nut and bolt.
- 4 - Vinyl-coated cast iron housing.
- 5 - Swing Joints required adjacent to shoulders, curbs, sidewalks, and dikes.
- 6 - Unless otherwise shown on plans.
- ⑦ - Install 2 bubblers at each oak, 3 bubblers at each redwood.

ABBREVIATIONS

F	full circle	Ft	feet/foot
P	part circle	GPM	gallons per minute
F/P	full/part circle	GPH	gallons per hour
Q	quarter circle	Adj	adjustable
T	third circle	PL	plastic
H	half circle	B/B	brass/bronze
TT	two third circle	B/PL	brass/plastic
TQ	three quarter circle	B/B/PL	brass/bronze/plastic
CST	center strip	NPT	national pipe thread
SST	side strip	IPS	iron pipe size
EST	end strip	PSI	pounds per square inch

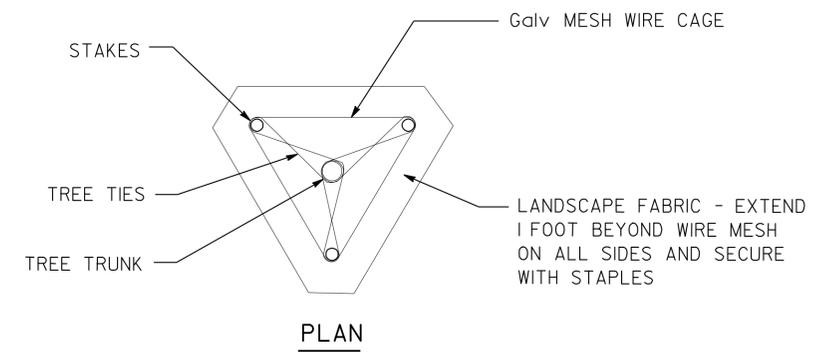


THRUST BLOCKS



FOLIAGE PROTECTOR (Mod)

SECTION



SPRINKLER SCHEDULE AND DETAILS

NO SCALE

LD-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION - LANDSCAPE ARCHITECTURE

LORENA WONG

SENIOR LANDSCAPE ARCHITECT

LORENA WONG

CHRISTOPHER ELSE

LORENA WONG

REVISOR BY

DATE REVISOR

CALCULATED BY

DESIGNED BY

CHECKED BY

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SM	84	22.1	18	53

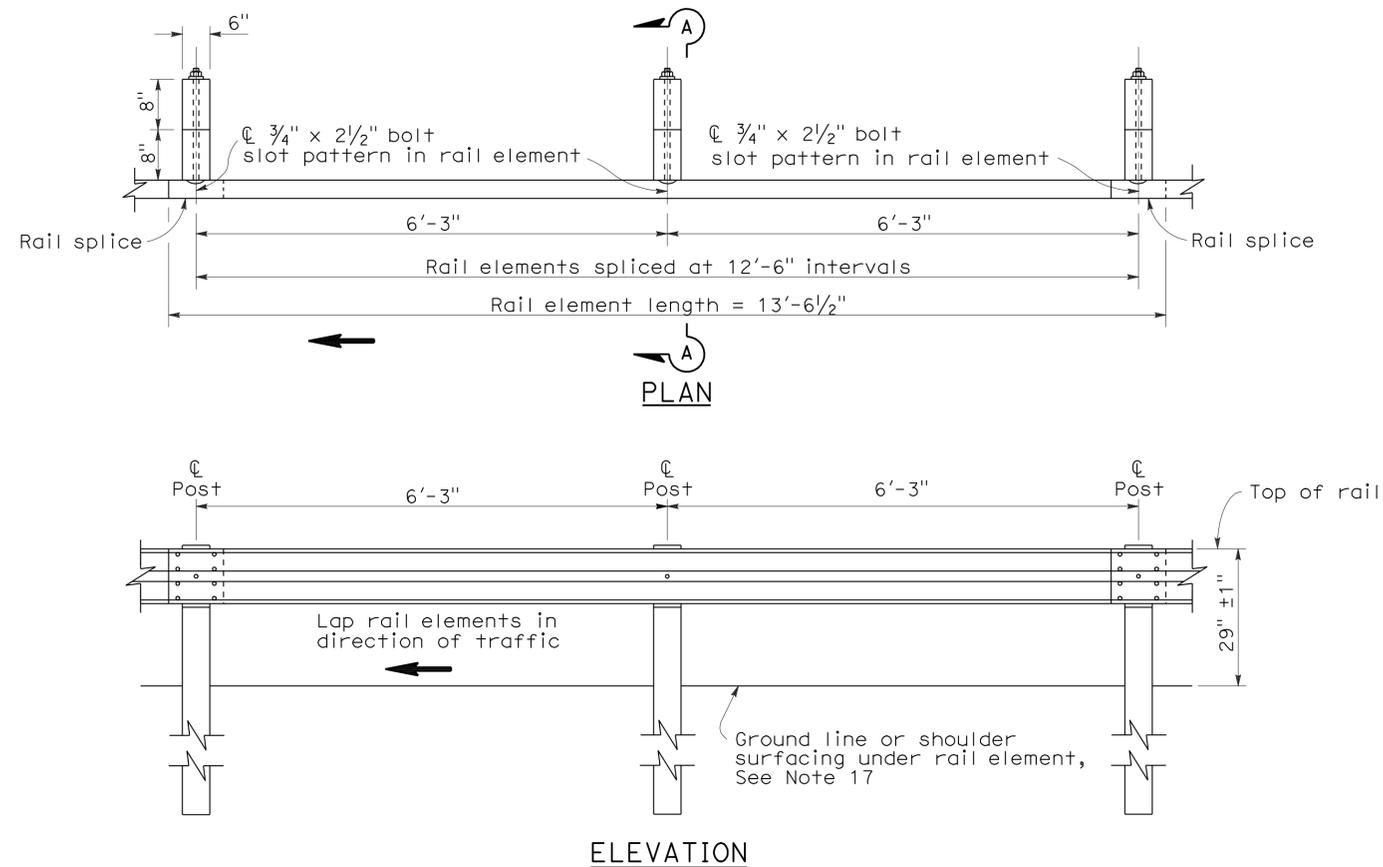
Randell D. Hiatt
REGISTERED CIVIL ENGINEER

May 20, 2011
PLANS APPROVAL DATE

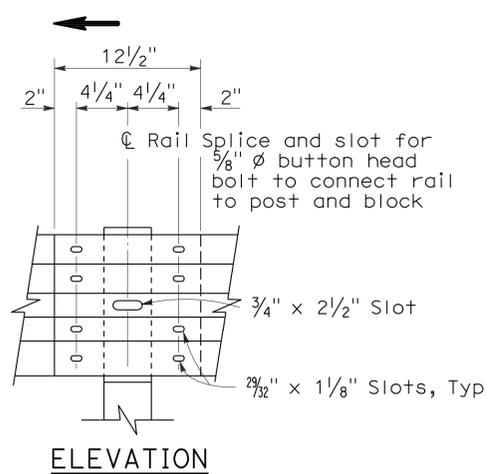
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To accompany plans dated 12-5-11

REGISTERED PROFESSIONAL ENGINEER
Randell D. Hiatt
No. C50200
Exp. 6-30-11
CIVIL
STATE OF CALIFORNIA

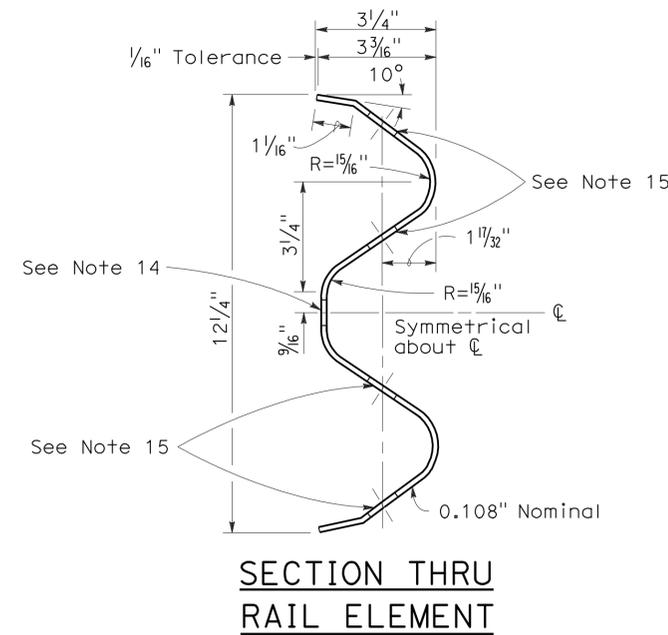


METAL BEAM GUARD RAILING WITH WOOD POST AND BLOCKS

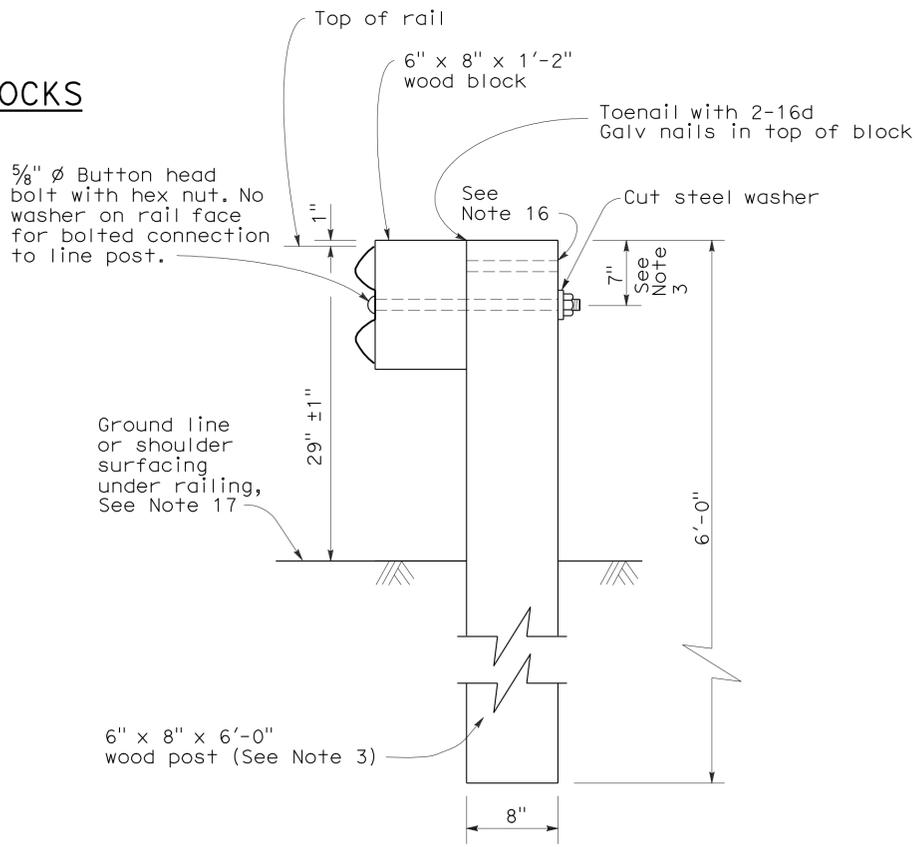


RAIL ELEMENT SPLICE DETAIL

- Connect the over lapped end of the rail elements with $\frac{5}{8}$ " ϕ x $1\frac{3}{8}$ " button head oval shoulder splice bolts inserted into the $\frac{29}{32}$ " x $1\frac{1}{8}$ " slots and bolted together with $\frac{5}{8}$ " ϕ recessed hex nuts. Recess of hex nut points toward rail element. A total of 8 bolts and nuts are to be used at each rail splice connection.
- The ends of the rail elements are to be overlapped in the direction of traffic (see details).
- Where end cap is to be attached to the end of a rail element, a total of 4 of the above described splice bolts and nuts are to be used.



SECTION THRU RAIL ELEMENT



SECTION A-A TYPICAL WOOD LINE POST INSTALLATION

See Note 4

NOTES:

- For details of steel post installations, see Standard Plan A77A2.
- For details of standard hardware used to construct guard railing, see Standard Plan A77B1.
- For details of wood posts and wood blocks used to construct guard railing, see Standard Plan A77C1.
- For additional installation details, see Standard Plan A77C3.
- Guard railing post spacing to be 6'-3" center to center, except as otherwise noted.
- For guard railing typical layouts, see the A77E, A77F and A77G Series of Standard Plans.
- For terminal system end treatment details, see the A77L Series of Standard Plans. To connect railing to terminal system end treatment, transition the top of railing height at a ratio of 120:1 to terminal system end treatment height plus one 12'-6" standard railing section at the transitioned height for a horizontal connection to the end treatment.
- For guard railing end anchor details, see Standard Plans A77H1 and A77I2.
- For details of guard railing transition to bridge railing, see Standard Plan A77J4.
- For additional details of guard railing connection to bridge railings, see Standard Plans A77J1, A77J2 and A77K1.
- For guard railing connection details to abutments and walls, see Standard Plan A77J3.
- Direction of adjacent traffic indicated by \rightarrow .
- For typical guard railing delineation and dike positioning details, see Standard Plan A77C4.
- Slotted hole for bolted connection of rail element to block and post. See "Section Thru Rail Element".
- Slotted holes for splice bolts to overlap ends of rail element. See "Section Thru Rail Element".
- Additional hole in uppermost portion of line post is for potential future adjustments of railing height. See Standard Plan A77C1.
- Install posts in soil.

METAL BEAM GUARD RAILING STANDARD RAILING SECTION (WOOD POST WITH WOOD BLOCK)

NO SCALE

RSP A77A1 DATED MAY 20, 2011 SUPERSEDES STANDARD PLAN A77A1 DATED MAY 1, 2006 - PAGE 41 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP A77A1

2006 REVISED STANDARD PLAN RSP A77A1

To accompany plans dated 12-5-11

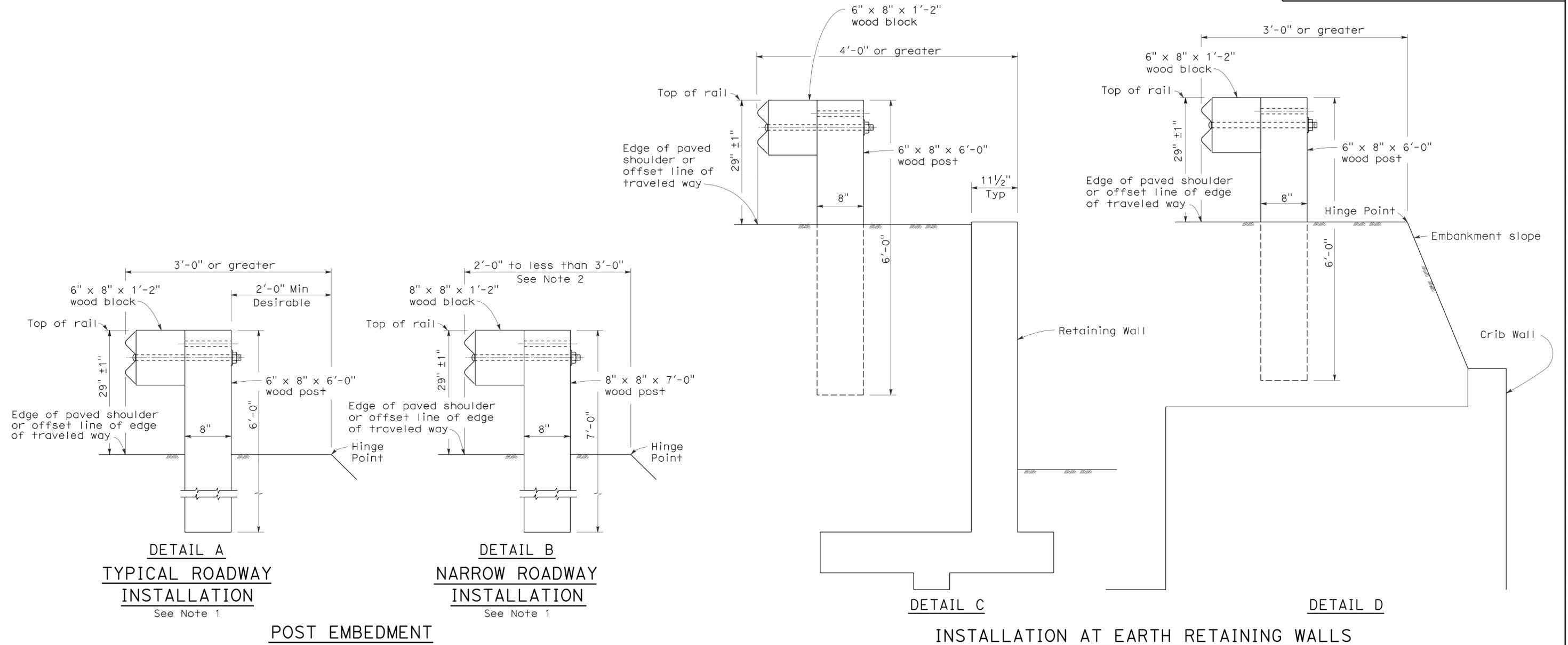
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SM	84	22.1	19	53

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

May 20, 2011
PLANS APPROVAL DATE

Randell D. Hiatt
No. C50200
Exp. 6-30-11
CIVIL
STATE OF CALIFORNIA

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NOTES:

1. These installation details also applicable to steel line post installations. For Detail A, C, and D, where steel line post installations are constructed, W6 x 9 steel post, 6'-0" in length, with 6" x 8" x 1'-2" notched wood blocks or notched recycled plastic blocks are to be used in place of the size of wood post and wood block shown. For Detail B, where steel line post installations are constructed, W6 x 9 steel post, 7'-0" in length, with 6" x 8" x 1'-2" notched wood blocks or notched recycled plastic blocks are to be used in place of the size of wood post and wood block shown. For additional installation details, see Standard Plans A77A1 and A77A2.
2. Where the distance between the face of the rail and the hinge point is less than 2'-0", see the Project Plans for special details.
3. For dike positioning with guard railing installations, see Standard Plan A77C4.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

**METAL BEAM GUARD RAILING
TYPICAL LINE POST
EMBEDMENT AND
HINGE POINT OFFSET DETAILS**

NO SCALE

RSP A77C3 DATED MAY 20, 2011 SUPERSEDES STANDARD PLAN A77C3
DATED MAY 1, 2006 - PAGE 46 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP A77C3

2006 REVISED STANDARD PLAN RSP A77C3

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SM	84	22.1	20	53

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

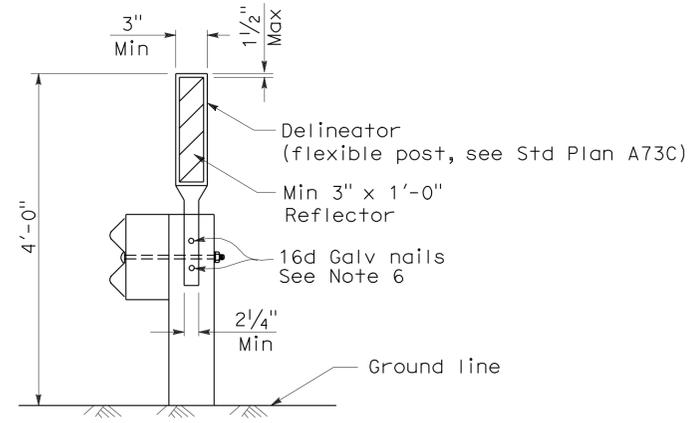
May 20, 2011
PLANS APPROVAL DATE

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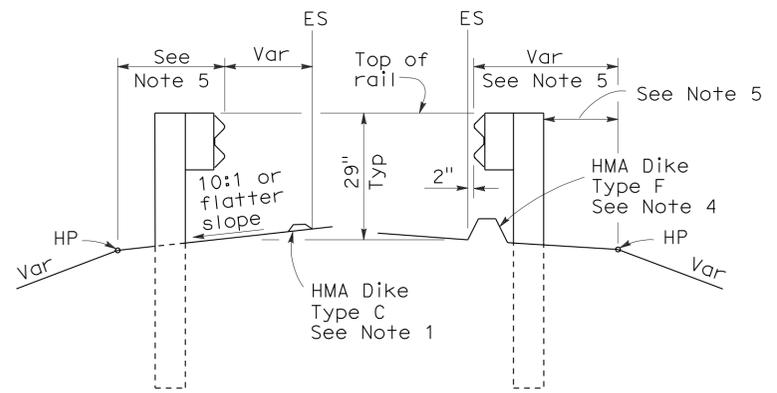
To accompany plans dated 12-5-11

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 Standard Plans A87A and A87B.
5. For details of typical distance between the face of rail and hinge point, see Standard Plan A77C3.
6. For steel line posts, use 1/4" - 20 self-tapping screws in 0.22" diameter holes or 1/4" bolts in 3/32" diameter holes.



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 MAY 20, 2011 SUPERSEDES RSP A77C4 DATED JUNE 6, 2008 AND 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
04	SM	84	22.1	21	53

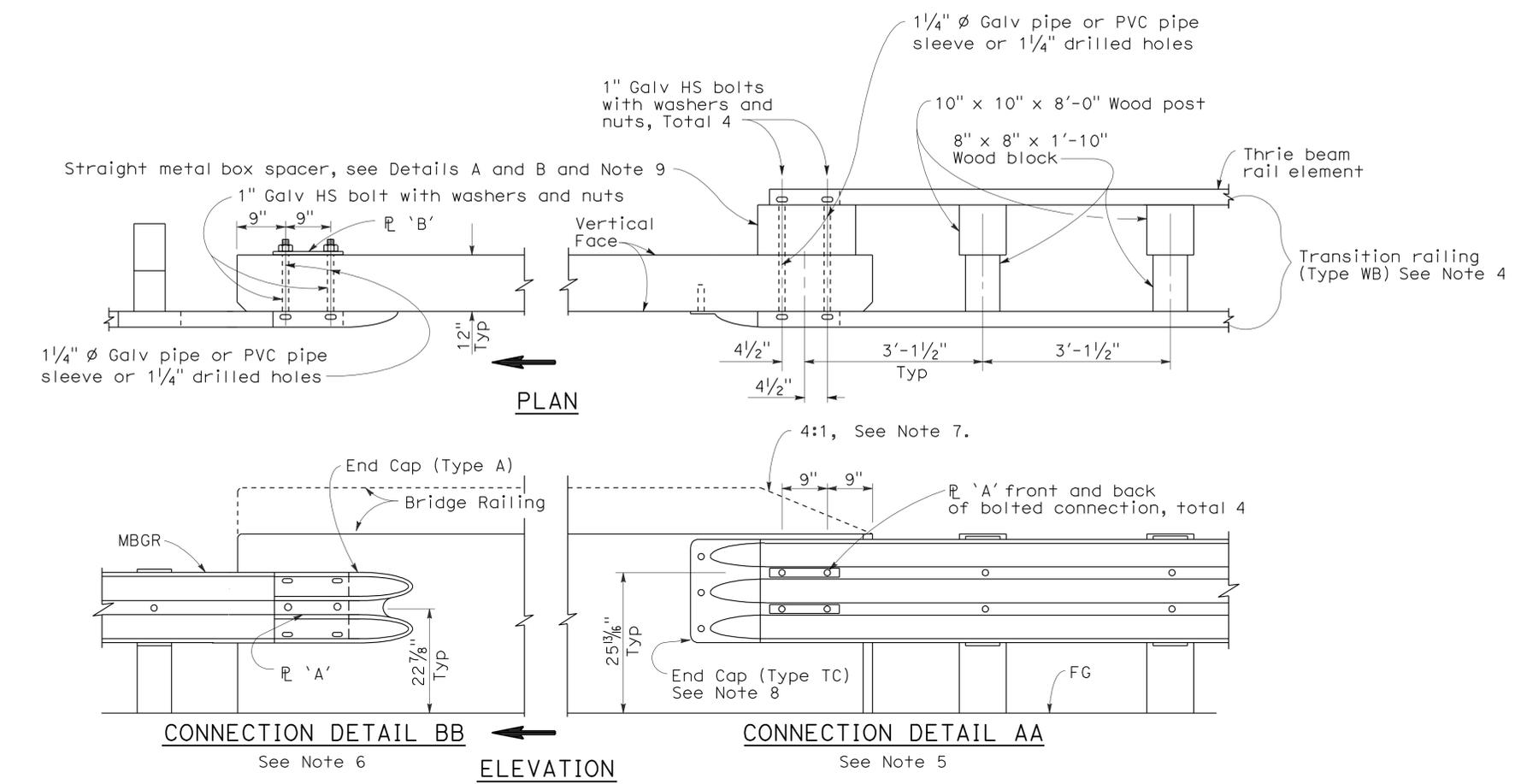
Randell D. Hiatt
REGISTERED CIVIL ENGINEER

May 20, 2011
PLANS APPROVAL DATE

Randell D. Hiatt
REGISTERED PROFESSIONAL ENGINEER
No. C50200
Exp. 6-30-11
CIVIL
STATE OF CALIFORNIA

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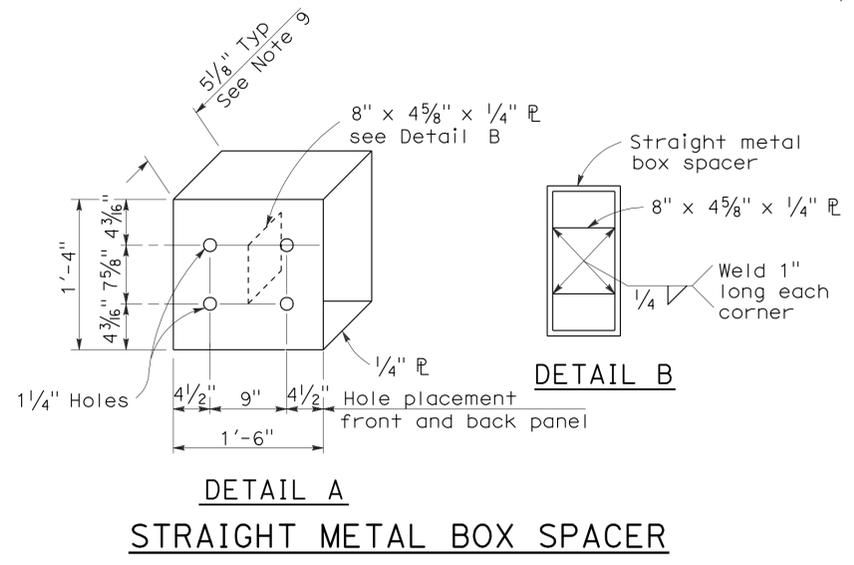
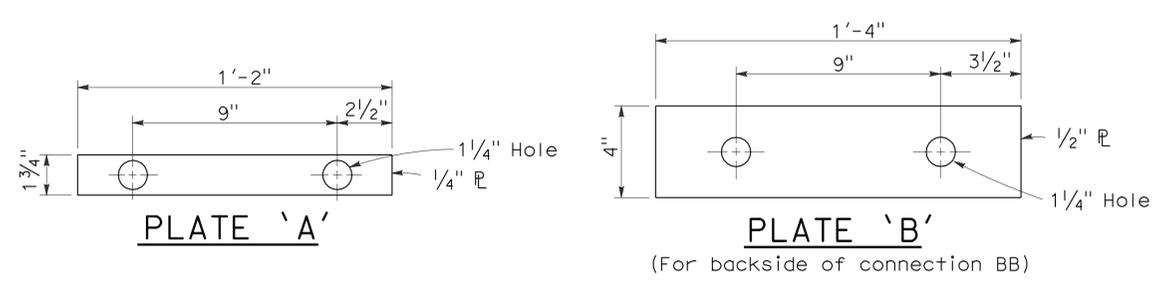
To accompany plans dated 12-5-11



GUARD RAILING CONNECTION TO BRIDGE RAILING WITHOUT SIDEWALK

NOTES:

1. See Revised Standard Plan RSP A77J2 for additional connection details to bridges without sidewalks.
2. Additional details of posts, blocks and hardware are shown on Standard Plan A77B1, A77C1 and A77C2.
3. Direction of adjacent traffic indicated by \rightarrow .
4. For additional details of Transition Railing (Type WB), see Standard Plan A77J4. Transition Railing (Type WB) transitions the 12 gage w-beam standard railing section of guard railing to a heavier gage nested thrie beam railing section which is connected to the concrete bridge railing.
5. For typical use of Connection Detail AA, see Layout Types 12A and 12B on Revised Standard Plan RSP A77F1, Layout Types 12C and 12D on Standard Plan A77F2, and Layout Type 12E on Revised Standard Plan RSP A77F3.
6. For typical use of Connection Detail BB, see Layout Type 12D (structure departure railing connection) on Standard Plan A77F2 and Layout Type 12DD on Standard Plan A77F5.
7. Where the height of the bridge railing exceeds the height of the thrie beam railing by more than 1" at Connection Detail AA, taper the top of the end of the bridge railing at 4:1 to match the top elevation of the thrie beam rail.
8. For details of End Cap (Type TC), see Standard Plan A77J4.
9. See Standard Plan A77J4 for additional details regarding depth dimension for straight metal box spacer.



STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

METAL BEAM GUARD RAILING CONNECTIONS TO BRIDGE RAILINGS WITHOUT SIDEWALKS DETAILS No.1

NO SCALE

RSP A77J1 DATED MAY 20, 2011 SUPERSEDES RSP A77J1 DATED JUNE 6, 2008 AND STANDARD PLAN A77J1 DATED MAY 1, 2006 - PAGE 72 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP A77J1

2006 REVISED STANDARD PLAN RSP A77J1

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	SM	84	22.1	22	53

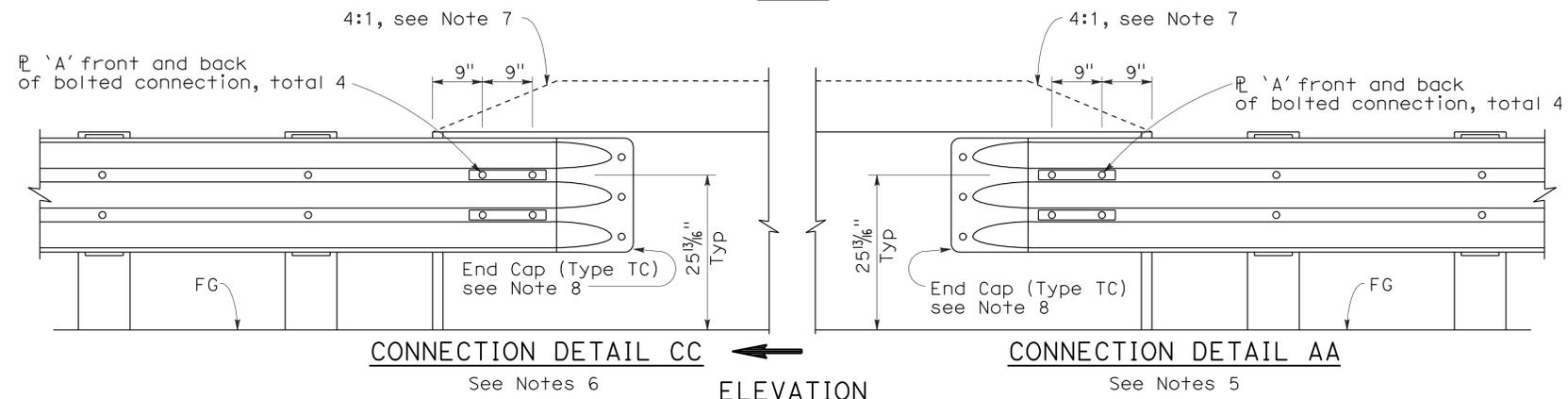
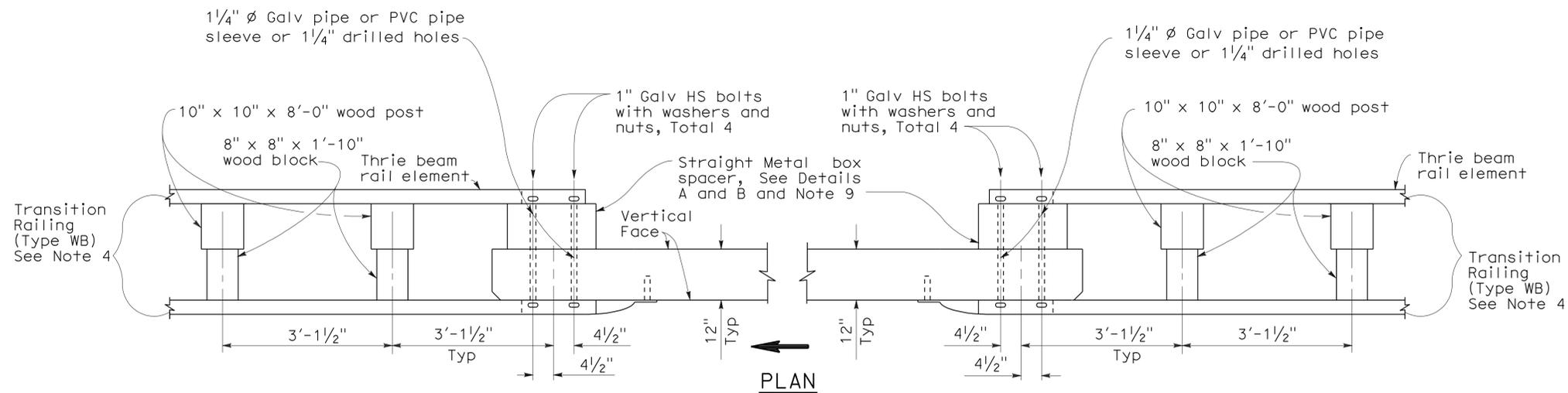
Randell D. Hiatt
REGISTERED CIVIL ENGINEER

June 6, 2008
PLANS APPROVAL DATE

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

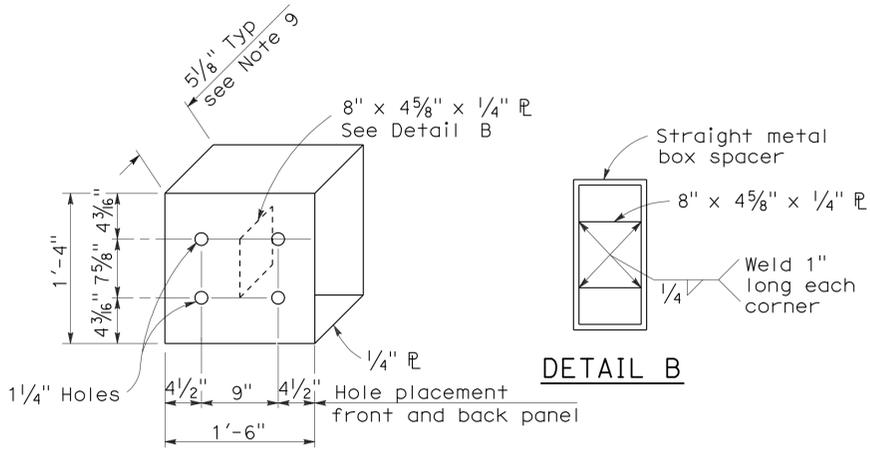
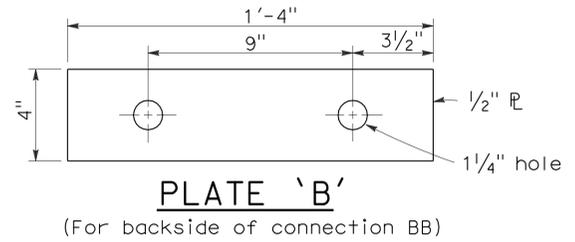
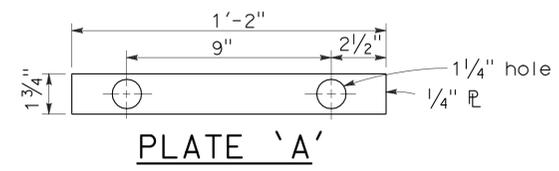
To accompany plans dated 12-5-11



GUARD RAILING CONNECTION TO BRIDGE RAILING WITHOUT SIDEWALK

NOTES:

1. See Revised Standard Plan RSP A77J1 for additional connection details to bridges without sidewalks.
2. Additional details of posts, blocks and hardware are shown on Standard Plan A77B1, A77C1 and A77C2.
3. Direction of adjacent traffic indicated by →.
4. For additional details of Transition Railing (Type WB), see Standard Plan A77J4. Transition Railing (Type WB) transitions the 12 gage w-beam standard railing section of guard railing to a heavier gage nested thrie beam railing section which is connected to the concrete bridge railing.
5. For typical use of Connection Detail AA, see Layout Types 12A and 12B on Revised Standard Plan RSP A77F1, Layout Types 12C and 12D on Standard Plan A77F2, and Layout Type 12E on Revised Standard Plan RSP A77F3.
6. For typical use of Connection Detail CC, see Layout Types 12AA and 12BB on Standard Plan A77F4 and Layout Type 12CC on Standard Plan A77F5.
7. Where the height of the bridge railing exceeds the height of the thrie beam railing by more than 1" at Connection Detail AA and connection Detail CC, taper the top of the end of the bridge railing at 4:1 to match the top elevation of the thrie beam railing.
8. For details of End Cap (Type TC), see Standard Plans A77J4.
9. See Standard Plans A77J4 for additional details regarding depth dimension for straight metal box spacer.



**DETAIL A
STRAIGHT METAL BOX SPACER**

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
**METAL BEAM GUARD RAILING
CONNECTIONS TO BRIDGE RAILINGS
WITHOUT SIDEWALKS DETAILS No.2**

NO SCALE
RSP A77J2 DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN A77J2
DATED MAY 1, 2006 - PAGE 73 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP A77J2

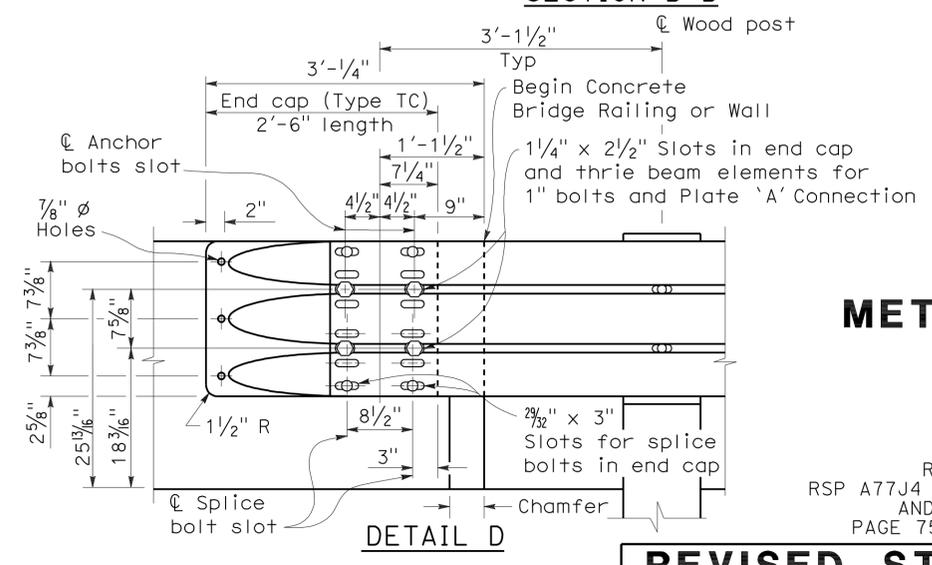
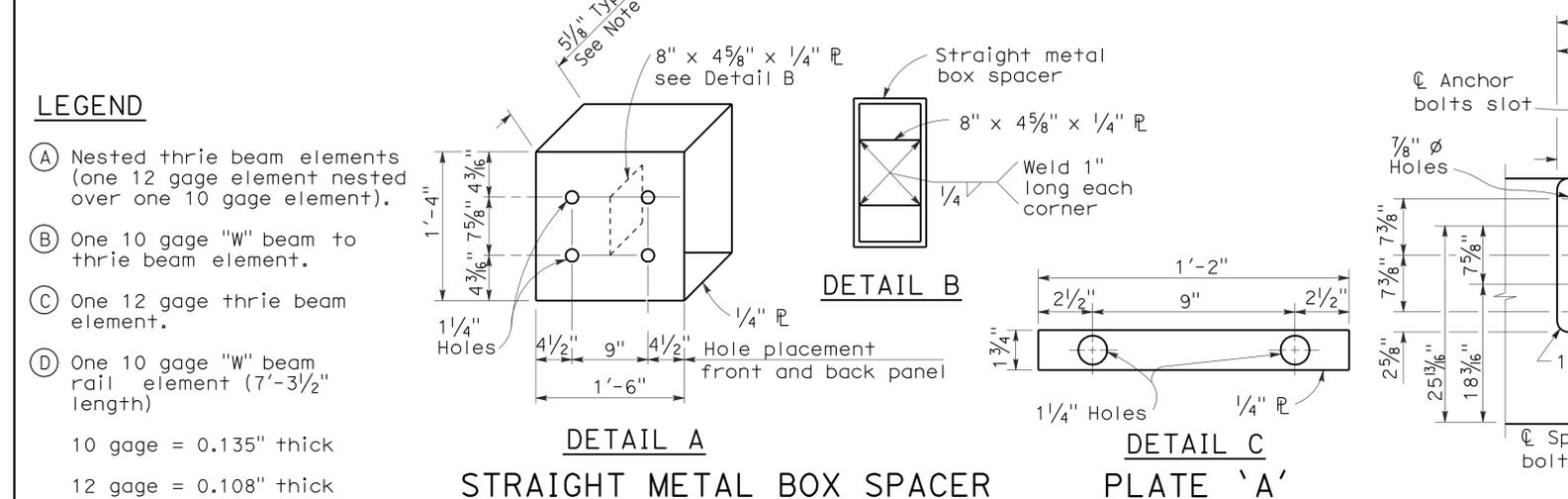
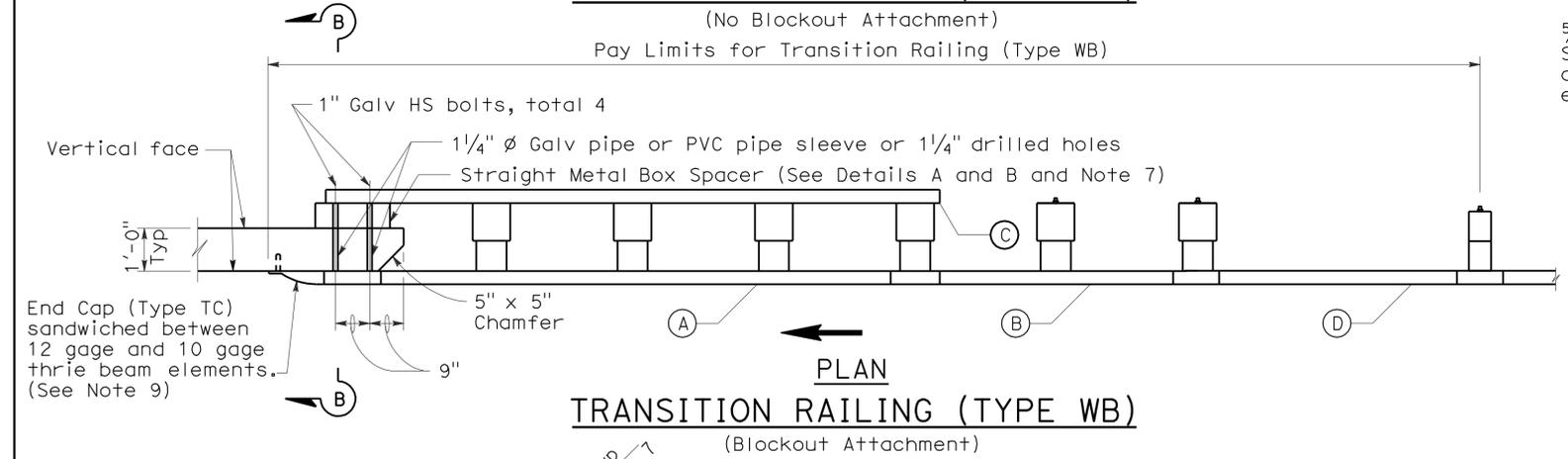
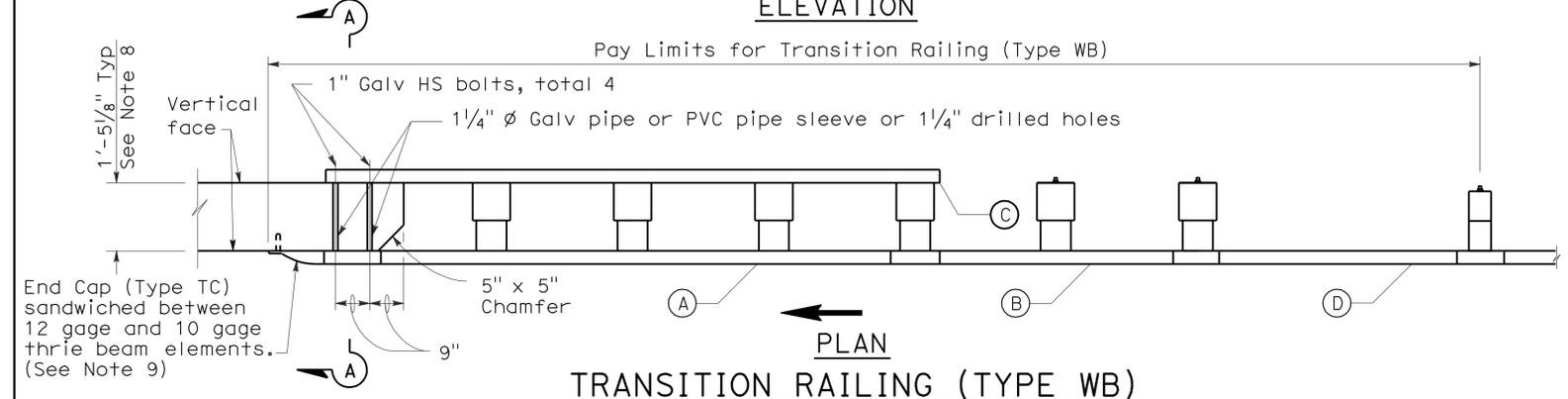
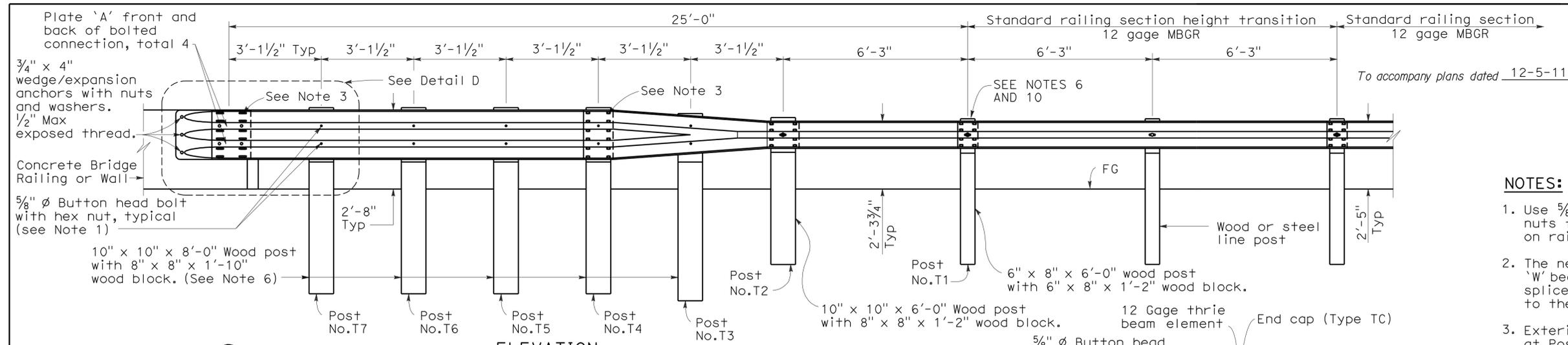
2006 REVISED STANDARD PLAN RSP A77J2

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SM	84	22.1	24	53

RANDALL D. HIATT
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 No. C50200
 Exp. 6-30-11
 STATE OF CALIFORNIA

May 20, 2011
 PLANS APPROVAL DATE

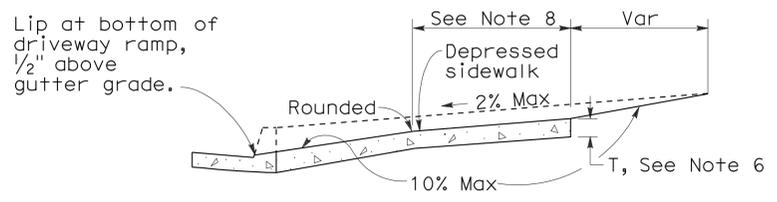
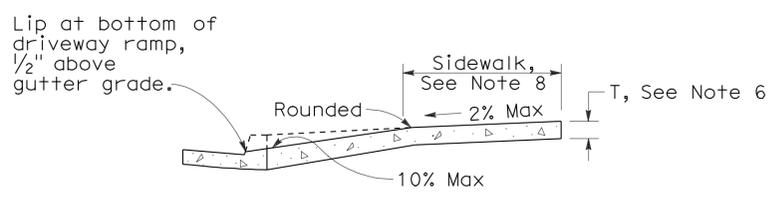
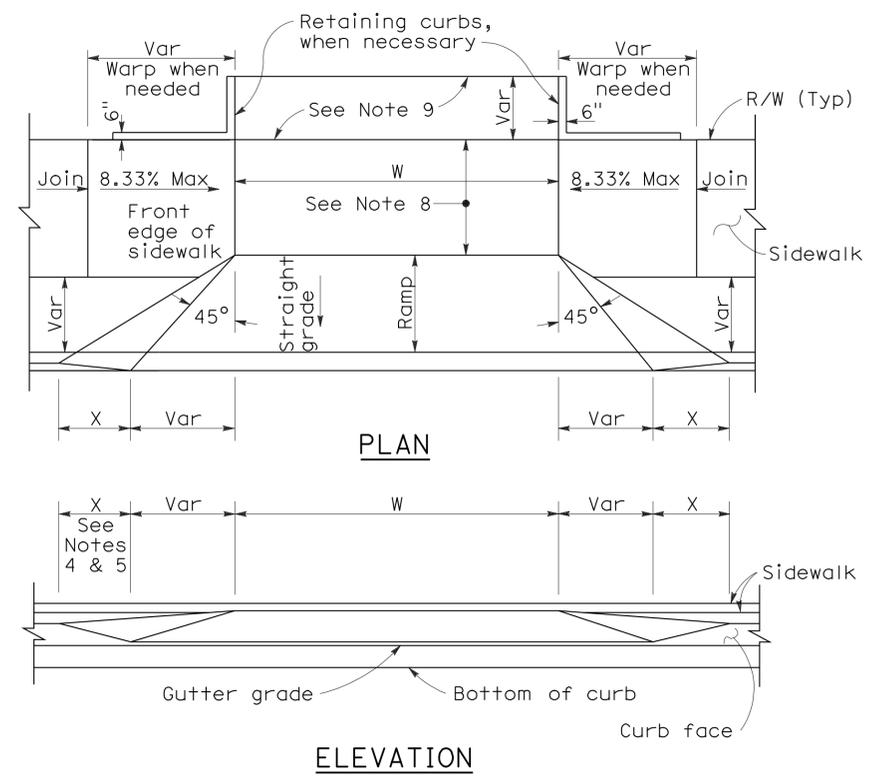
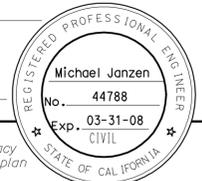
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- NOTES:**
- Use 5/8" ø Button head bolts and hex nuts for connections to posts. No washer on rail face for bolted connections to post.
 - The nested rail elements, end cap, and "W" beam to thrie beam element may be spliced together prior to bolting the elements to the wood post and concrete barrier or railing.
 - 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 7/32" x 1/8" slot size. Interior splice bolt holes at these locations may be increased up to 1/4" ø. 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.
 - Direction of adjacent traffic indicated by →.
 - The top elevation of Posts No. T2 through No. T7 shall not project more than 1" above the top elevation of the rail element.
 - Typically, the railing connected to Transition Railing (Type WB) will be either standard railing section of metal beam guard railing with height transition ratio of 120:1 or an approved Caltrans end treatment attached to Post No. T1.
 - The depth of the metal box spacer varies from the 5/8" 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.
 - 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. T4 through No. T7 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.
 - 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.
 - Conform standard railing section height to 2'-3 3/4" at Post No. T1 using height transition ratio of 120:1.

STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION
**METAL BEAM GUARD RAILING
 TRANSITION RAILING
 (TYPE WB)**
 NO SCALE
 RSP A77J4 DATED MAY 20, 2011 SUPERSEDES
 RSP A77J4 DATED JUNE 5, 2009, RSP A77J4 DATED JUNE 6, 2008
 AND STANDARD PLAN A77J4 DATED MAY 1, 2006 -
 PAGE 75 OF THE STANDARD PLANS BOOK DATED MAY 2006.

2006 REVISED STANDARD PLAN RSP A77J4



SECTIONS

CASE A
Typical driveway, sidewalk not depressed

CASE B
Driveway with depressed sidewalk

CURB QUANTITIES

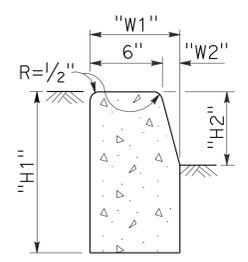
TYPE	CUBIC YARDS PER LINEAR FOOT
A1-6	0.02585
A1-8	0.03084
A2-6	0.05903
A2-8	0.06379
A3-6	0.01036
A3-8	0.01435
B1-4	0.02185
B1-6	0.02930
B2-4	0.05515
B2-6	0.06171
B3-4	0.00641
B3-6	0.01074
B4	0.05709
D-4	0.04083
D-6	0.06804
E	0.06661

TABLE A

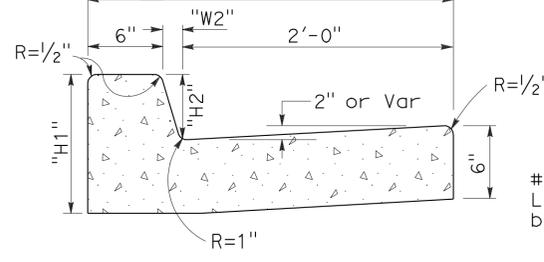
CURB TYPE	DIMENSIONS			
	"H1"	"H2"	"W1"	"W2"
A1-6	1'-2"	6"	7 1/2"	1 1/2"
A1-8	1'-4"	8"	8"	2"
A2-6	1'-0"	6"	2'-7 1/2"	1 1/2"
A2-8	1'-2"	8"	2'-8"	2"
A3-6	6"	5"	7 1/4"	1 1/4"
A3-8	8"	7"	7 3/4"	1 3/4"
B1-4	1'-0"	4"	7 1/2"	2 1/2"
B1-6	1'-2"	6"	9"	4"
B2-4	10"	4"	2'-7 1/2"	2 1/2"
B2-6	1'-0"	6"	2'-9"	4"
B3-4	4"	3"	7"	2"
B3-6	6"	5"	8 1/2"	3 1/2"
D-4	10"	4"	1'-6"	1'-1"
D-6	1'-0"	6"	2'-2"	1'-8"

To accompany plans dated 12-5-11

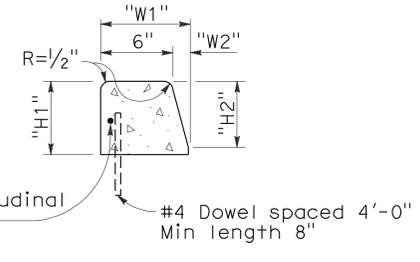
DRIVEWAYS



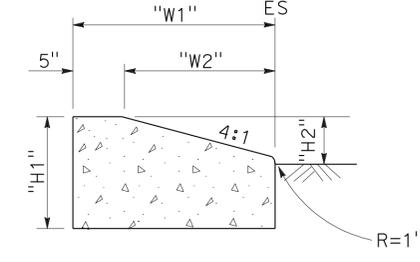
TYPE A1 CURBS
See Table A



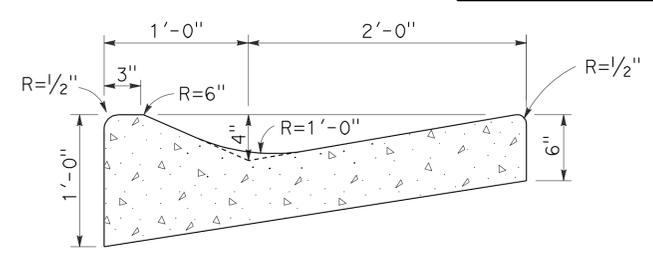
TYPE A2 CURBS
See Table A



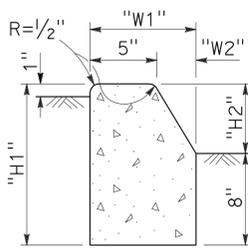
TYPE A3 CURBS
Superimposed on existing pavement
See Table A



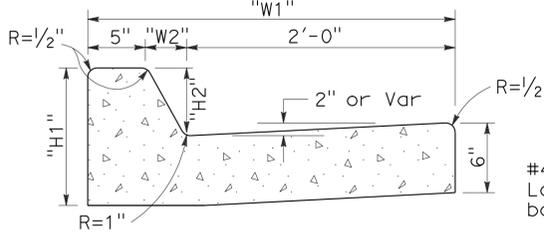
TYPE D CURBS
See Table A



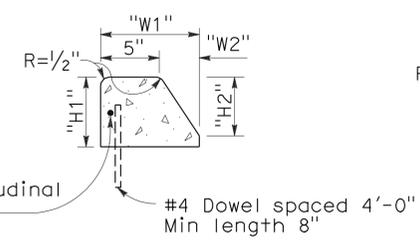
TYPE E CURB



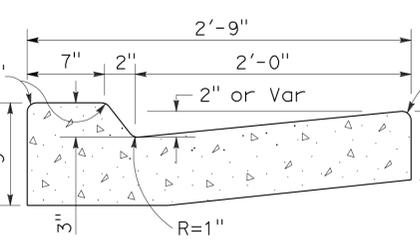
TYPE B1 CURBS
See Table A



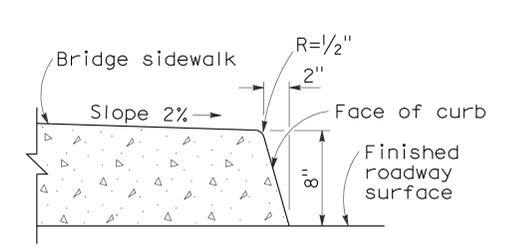
TYPE B2 CURBS
See Table A



TYPE B3 CURBS
Superimposed on existing pavement
See Table A



TYPE B4 CURBS



TYPE H CURB
On Bridges

NOTES:

- Case A driveway section typically applies.
- Use Case B driveway section when ramp slopes would exceed 10% in Case A.
- Use Case B driveway section when sidewalk cross slope would exceed 2% in Case A.
- X=3'-0" except for curb heights over 10" where 4:1 slopes shall be used on curb slope.
- X is a variable when sidewalk is located where wheelchairs may traverse the surface. Slopes shall not exceed 8.33%.
- Sidewalk and ramp thickness "T" at driveway shall be 4" for residential and 6" for commercial.
- Difference in slope of the driveway ramp and the slope of a line between the gutter and a point on the roadway 5'-0" from gutter line shall not exceed 15%. Reduce driveway ramp slope, not gutter slope, where required.
- Minimum width of clear passageway for sidewalk shall be 4'-0".
- Retaining curbs and acquisition of construction easement may be necessary for narrow sidewalks or curb heights in excess of 6".
- Across the pedestrian route at curb ramp locations, the gutter pan slope shall not exceed 1" of depth for each 2'-0" of width.

CURBS

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

CURBS AND DRIVEWAYS

NO SCALE

RSP A87A DATED NOVEMBER 17, 2006 SUPERSEDES STANDARD PLAN A87A DATED MAY 1, 2006 - PAGE 113 OF THE STANDARD PLANS BOOK DATED MAY 2006.

2006 REVISED STANDARD PLAN RSP A87A

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	SM	84	22.1	26	53

Gregory A. Balzer
 LICENSED LANDSCAPE ARCHITECT
 June 5, 2009
 PLANS APPROVAL DATE
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To accompany plans dated 12-5-11

2006 REVISED STANDARD PLAN RSP H1

A

AB aggregate base
 ABS acrylonitrile-butadiene-styrene
 AC asphalt concrete
 Adj adjacent/adjustable
 AIC auxiliary irrigation controller
 Alt alternative
 AMEND amendment
 ARV air release valve
 AUTO automatic
 AUX auxiliary
 AVB atmospheric vacuum breaker

B

B&B balled and burlapped
 B/B brass/bronze
 B/B/PL brass/bronze/plastic
 B/PL brass/plastic
 BFM bonded fiber matrix
 Bit Ctd bituminous coated
 BP booster pump
 BPA backflow preventer assembly
 BPAE backflow preventer assembly in enclosure
 BPE backflow preventer enclosure
 BV ball valve

C

CAP corrugated aluminum pipe
 CARV combination air release valve
 CCA cam coupler assembly
 CEC controller enclosure cabinet
 CHDPE corrugated high density polyethylene
 CL chain link
 CNC control and neutral conductors
 Conc concrete
 Cond conduit
 CSP corrugated steel pipe
 CST center strip
 CV check valve

D

Dia diameter
 DIP ductile iron pipe
 DN diameter nominal

E

EA each
 Elect electric/electrical
 Elev elevation
 ENCL enclosure
 EP edge of pavement
 ES edge of shoulder
 EST end strip
 ESTB establishment
 ETW edge of traveled way

F

F full circle
 F/P full/part circle
 FAU filter assembly unit
 FCV flow control valve
 FERT fertilizer
 FG finished grade
 FIPT female iron pipe thread
 FIS fertilizer injector system
 FL flow line
 FM flow monitor
 FS flow sensor
 Ft foot/feet
 FV flush valve

G

GAL Gallon(s)
 Galv galvanized
 GARV garden valve
 GPH gallons per hour
 GPM gallons per minute
 GSP galvanized steel pipe
 GV gate valve

H

H half circle
 HB hose bib
 HDPE high density polyethylene
 HP horsepower/hinge point
 HPL high pressure line
 Hwy highway

I

IC irrigation controller
 ICC irrigation controller(s) in controller enclosure cabinet
 ID inside diameter
 In inches
 IFS irrigation filtration system
 IPS iron pipe size
 IPT iron pipe thread
 Irr irrigation

L

L length
 LF linear foot

M

Max maximum
 MBGR metal beam guard railing
 MCV manual control valve
 MIC master irrigation controller
 Min minimum
 MIPT male iron pipe thread
 Misc miscellaneous
 Mtl material
 MVP maintenance vehicle pullout

N

NCN no common name
 NL nozzle line
 No. number
 NPT national pipe thread

O

O/C on center
 OD outside diameter
 Oz ounce

P

P part circle
 PB pull box
 PCC portland cement concrete
 PE polyethylene
 Pkt packet
 PL plastic
 PLT plant/planting
 PLT ESTB plant establishment
 PM post mile
 PR pressure rated
 PRLV pressure relief valve
 PSFM polymer stabilized fiber matrix
 PSI pounds per square inch
 PRV pressure reducing valve
 PVC polyvinyl chloride
 Pvmt pavement

Q

Q quarter circle
 QCV quick coupling valve

NOTE:
 FOR ADDITIONAL ABBREVIATIONS,
 SEE STANDARD PLANS A10A AND A10B.

R

R radius
 RCP reinforced concrete pipe
 RCV remote control valve
 RCVM remote control valve (master)
 RCVMF remote control valve (master) w/ flow meter
 RCW recycled/reclaimed water
 RECP rolled erosion control product
 REQ required
 R/W right of way

S

S slip
 SCC sprinkler control conduit
 SCH schedule
 SF state-furnished
 Shld shoulder
 SQFT square foot/feet
 SQYD square yard(s)
 SST side strip
 Sta station
 Std standard
 SW sidewalk/sound wall

T

T third circle/thread
 TLS truck loading standpipe
 TQ three quarter circle
 TRM turf reinforcement mat
 TRVD traveled
 TT two third circle
 Typ typical

U

UG underground

V

VAU valve assembly unit

W

W width
 W/ with
 WM water meter
 WS wye strainer
 WSP welded steel pipe
 WWM welded wire mesh

STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION
**PLANTING AND IRRIGATION
 ABBREVIATIONS**

NO SCALE

RSP H1 DATED JUNE 5, 2009 SUPERSEDES STANDARD PLAN H1
 DATED MAY 1, 2006 - PAGE 201 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP H1

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	SM	84	22.1	27	53

Gregory A. Balzer
 LICENSED LANDSCAPE ARCHITECT
 June 5, 2009
 PLANS APPROVAL DATE
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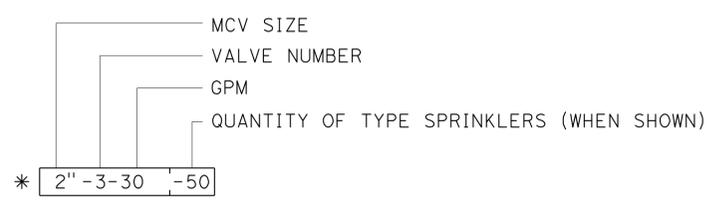
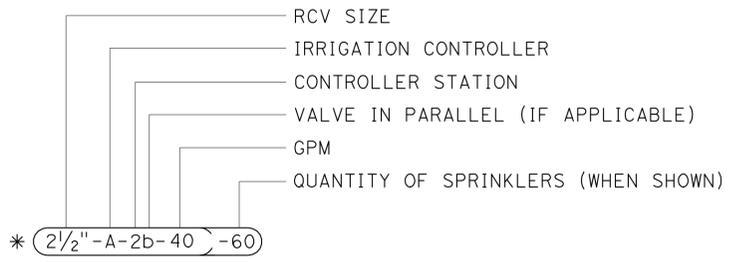
To accompany plans dated 12-5-11

2006 REVISED STANDARD PLAN RSP H2

EXISTING	PROPOSED	ITEM DESCRIPTION
		WATER METER (WM)
		BACKFLOW PREVENTER ASSEMBLY (BPA)
		BACKFLOW PREVENTER ASSEMBLY IN ENCLOSURE (BPAE)
		BACKFLOW PREVENTER ENCLOSURE (BPE)
		BOOSTER PUMP (BP)
		TRUCK LOADING STANDPIPE (TLS)
		FLOW SENSOR (FS)
		MASTER IRRIGATION CONTROLLER (MIC)
		AUXILIARY IRRIGATION CONTROLLER (AIC)
		IRRIGATION CONTROLLER (IC)/ IRRIGATION CONTROLLER (IC) (BATTERY) IRRIGATION CONTROLLER (IC) (SOLAR)
		IRRIGATION CONTROLLER(S) IN CONTROLLER ENCLOSURE CABINET (ICC)
		CONTROL AND NEUTRAL CONDUCTORS (CNC)
		SPRINKLER CONTROL CONDUIT (SCC)
		IRRIGATION CROSSOVER
		EXTEND IRRIGATION CROSSOVER
		IRRIGATION SLEEVE
		DUCTILE IRON PIPE (SUPPLY LINE) (MAIN) (DIP)
		GALVANIZED STEEL PIPE (SUPPLY LINE) (MAIN) (GSP)
		GALVANIZED STEEL PIPE (SUPPLY LINE) (LATERAL) (GSP)
		PLASTIC PIPE (PR 200) (SUPPLY LINE) (MAIN)
		PLASTIC PIPE (PR 200) (SUPPLY LINE) (LATERAL)
		PLASTIC PIPE (IRRIGATION LINE)
		REMOTE CONTROL VALVE (RCV) REMOTE CONTROL VALVE (MASTER) (RCVM) REMOTE CONTROL VALVE (MASTER) W/FLOW METER (RCVMF)
		MANUAL CONTROL VALVE (MCV)
		VALVE ASSEMBLY UNIT (VAU)
		WYE STRAINER (WS)
		FILTER ASSEMBLY UNIT (FAU)
		GATE VALVE (GV)
		BALL VALVE (BV)

EXISTING	PROPOSED	ITEM DESCRIPTION
		QUICK COUPLING VALVE (QCV)
		CAM COUPLER ASSEMBLY (CCA)
		PRESSURE REDUCING VALVE (PRV)
		PRESSURE RELIEF VALVE (PRLV)
		FLOW CONTROL VALVE (FCV)
		COMBINATION AIR RELEASE VALVE (CARV)
		CHECK VALVE (CV)
		FLUSH VALVE (FV)
		NOZZLE LINE W/TURNING UNION
		IRRIGATION SYSTEM
		IRRIGATION SYSTEM TO BE REMOVED
		CHAIN LINK GATE
		QUICK COUPLING VALVE W/SPRINKLER PROTECTOR
		SPRINKLER W/SPRINKLER PROTECTOR
		CONNECT TO EXISTING SYSTEM
		CAP
		CAP EXISTING

VALVE CODE



* VALVE CODES FOR EXISTING VALVES ARE SHOWN IN A DASHED ENCLOSURE.

PLANTING AND IRRIGATION SYMBOLS

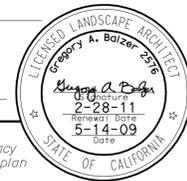
NO SCALE

RSP H2 DATED JUNE 5, 2009 SUPERSEDES RSP H2 DATED MARCH 7, 2008 AND STANDARD PLAN H2 DATED MAY 1, 2006 - PAGE 202 OF THE STANDARD PLANS BOOK DATED MAY 2006.

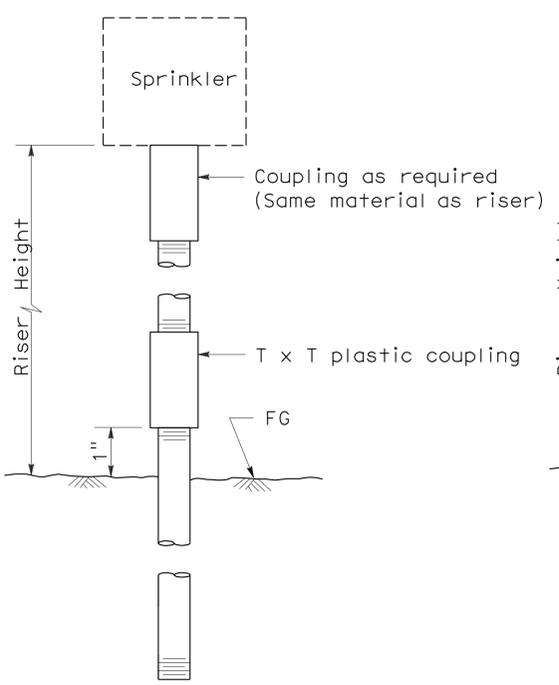
REVISED STANDARD PLAN RSP H2

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
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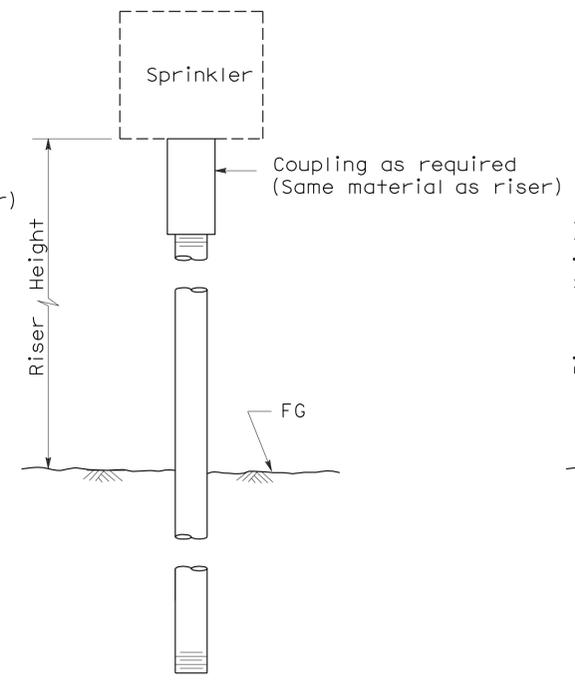
Gregory A. Balzer
 LICENSED LANDSCAPE ARCHITECT
 June 5, 2009
 PLANS APPROVAL DATE
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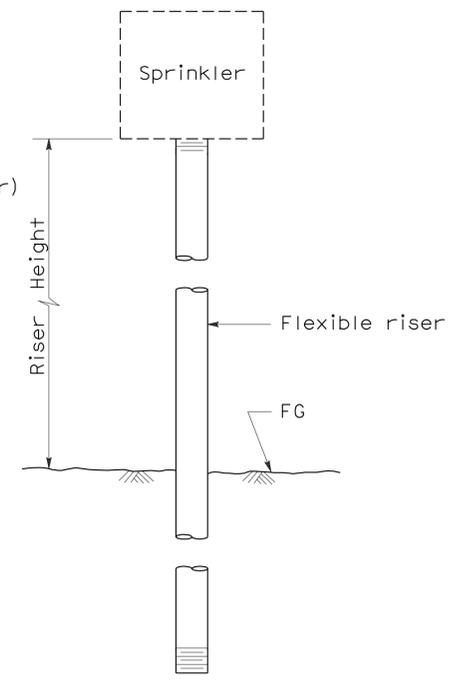
To accompany plans dated 12-5-11



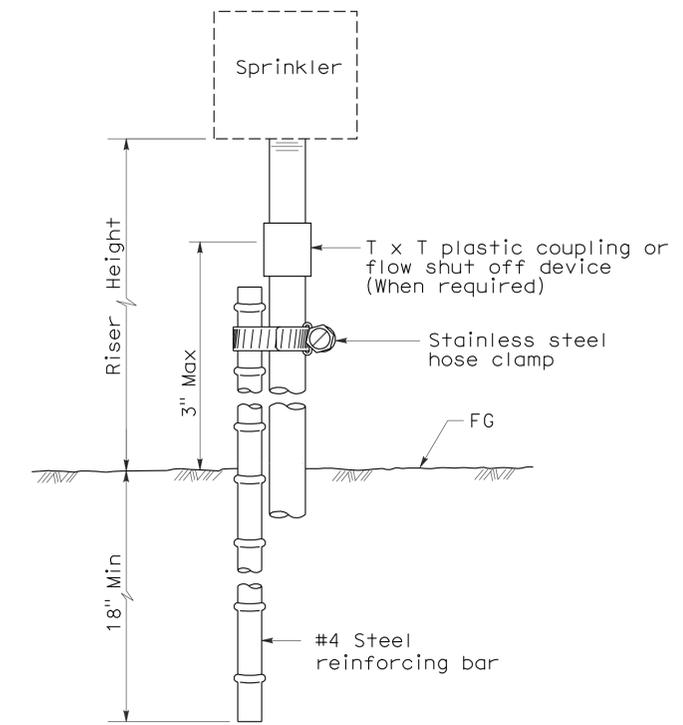
ELEVATION
RISER TYPE I



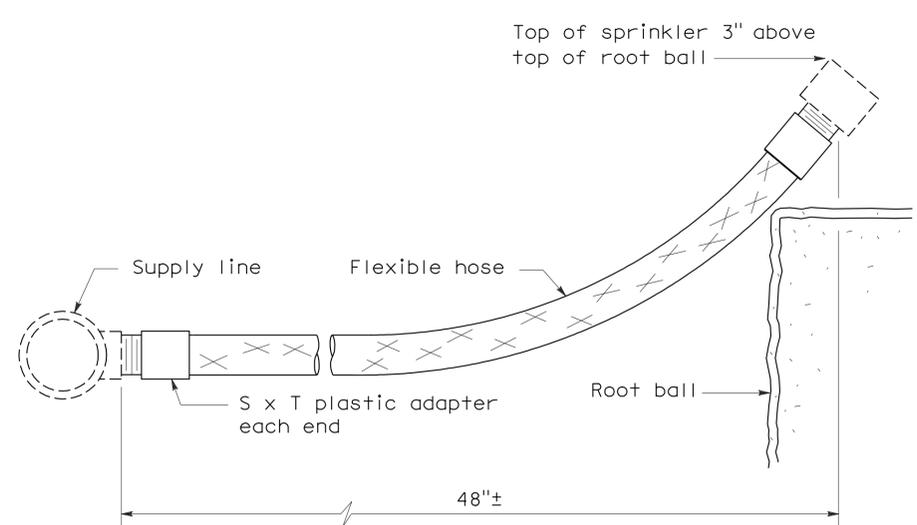
ELEVATION
RISER TYPE II



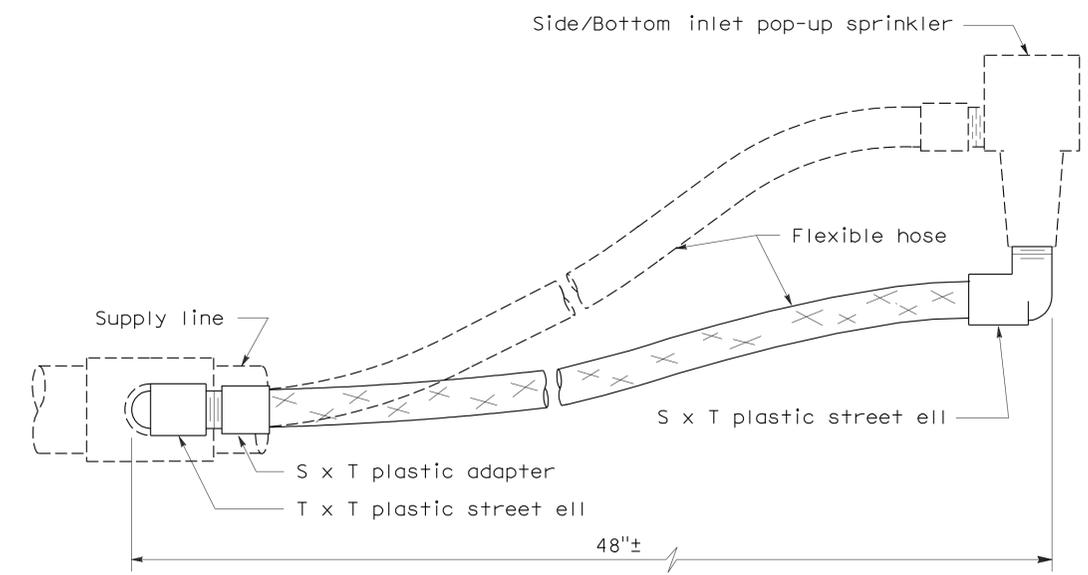
ELEVATION
RISER TYPE III



ELEVATION
RISER TYPE IV



ELEVATION
RISER TYPE V



ELEVATION
RISER TYPE VI

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
**PLANTING AND IRRIGATION
DETAILS**
NO SCALE

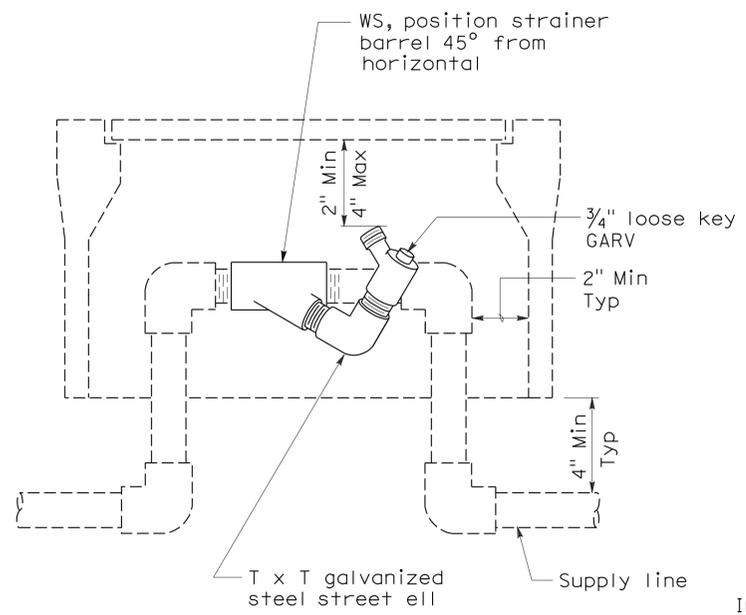
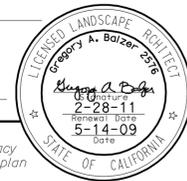
RSP H5 DATED JUNE 5, 2009 SUPERSEDES STANDARD PLAN H5
DATED MAY 1, 2006 - PAGE 205 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP H5

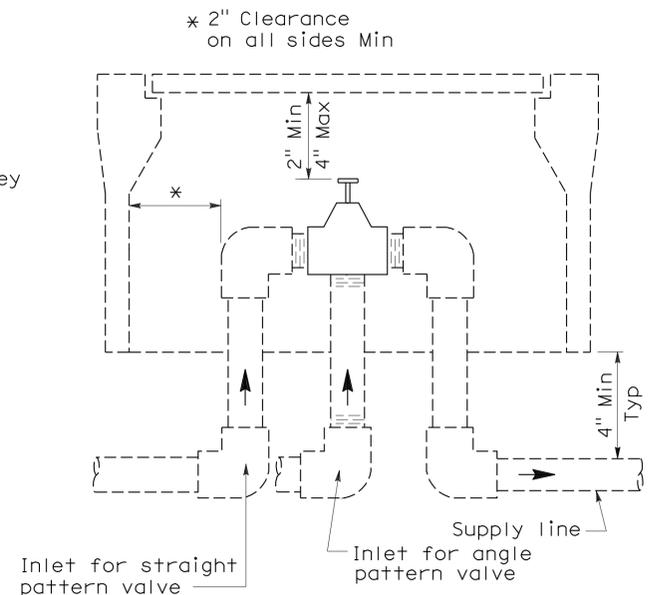
2006 REVISED STANDARD PLAN RSP H5

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	SM	84	22.1	29	53

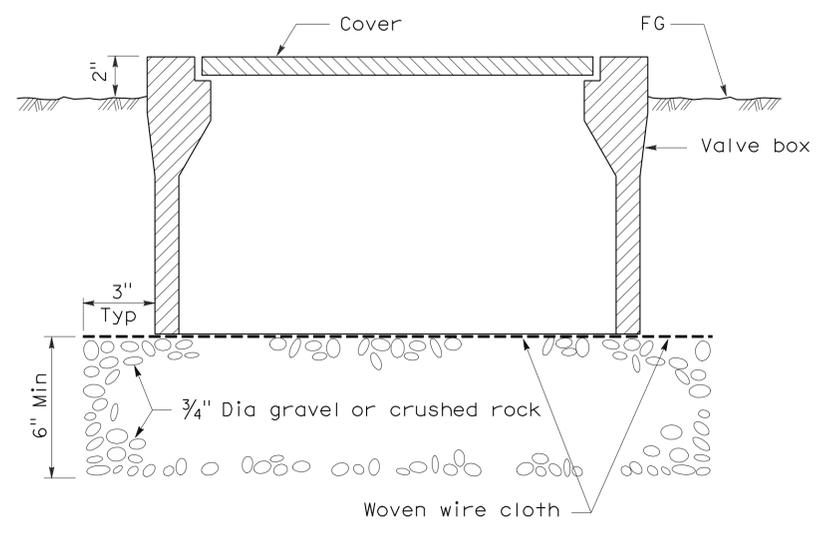
Gregory A. Balzer
 LICENSED LANDSCAPE ARCHITECT
 June 5, 2009
 PLANS APPROVAL DATE
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.



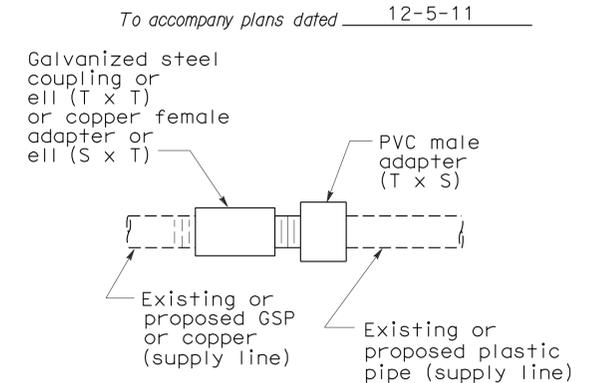
**ELEVATION
WYE STRAINER**



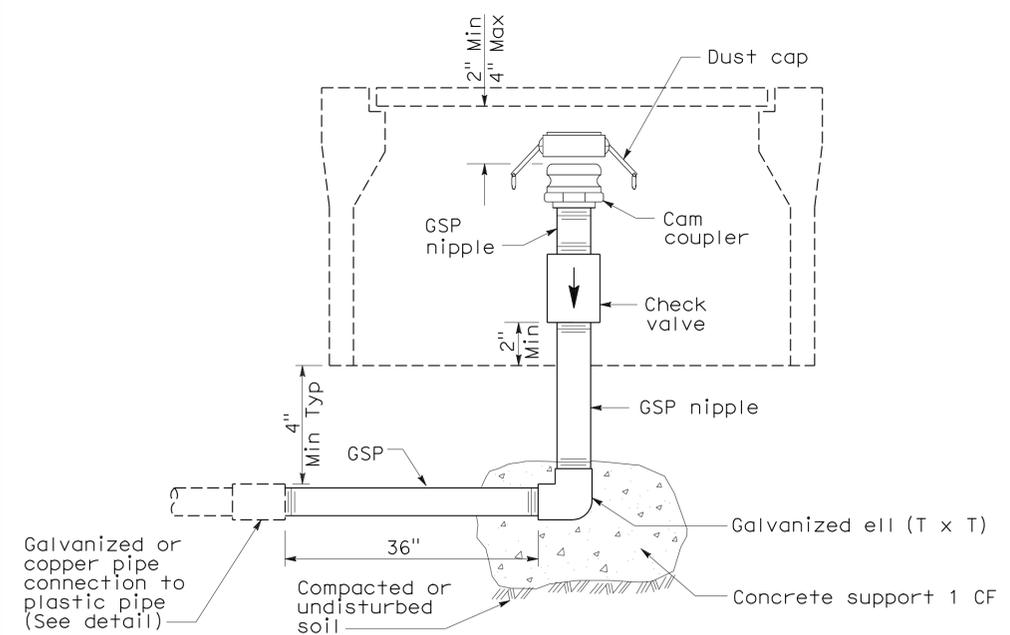
**ELEVATION
VALVE**



**SECTION
VALVE BOX**

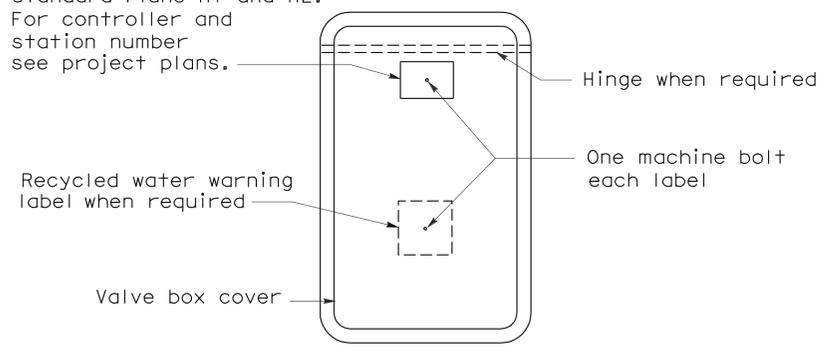


**PLAN
GALVANIZED OR COPPER PIPE
CONNECTION TO PLASTIC PIPE**

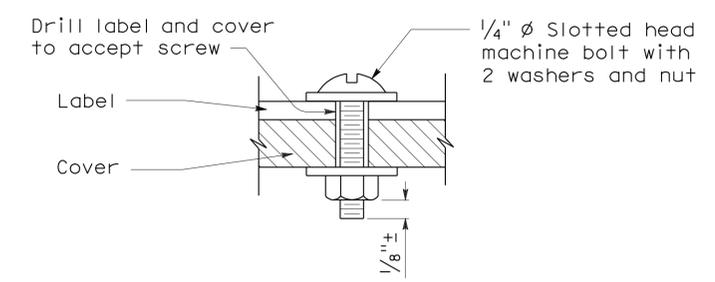


**ELEVATION
CAM COUPLER ASSEMBLY**

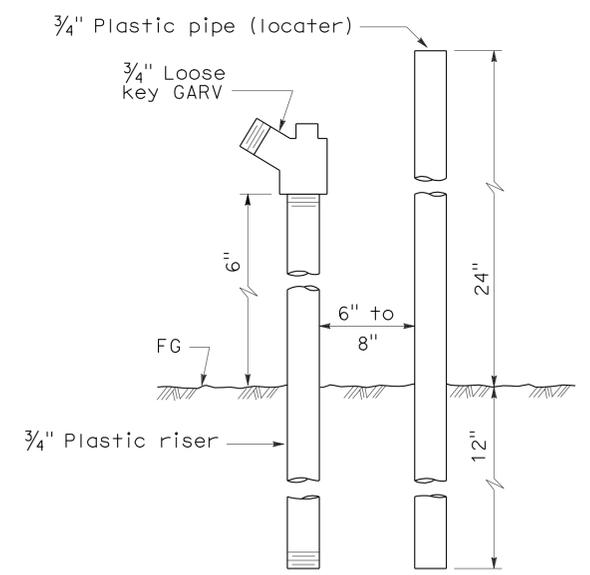
Identification label:
 For abbreviations see Revised Standard Plans H1 and H2.
 For controller and station number see project plans.



**PLAN
VALVE BOX IDENTIFICATION**



**SECTION
VALVE BOX IDENTIFICATION**



**ELEVATION
FLUSH VALVE**

STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION

**PLANTING AND IRRIGATION
 DETAILS**

NO SCALE

RSP H7 DATED JUNE 5, 2009 SUPERSEDES STANDARD PLAN H7
 DATED MAY 1, 2006 - PAGE 207 OF THE STANDARD PLANS BOOK DATED MAY 2006.

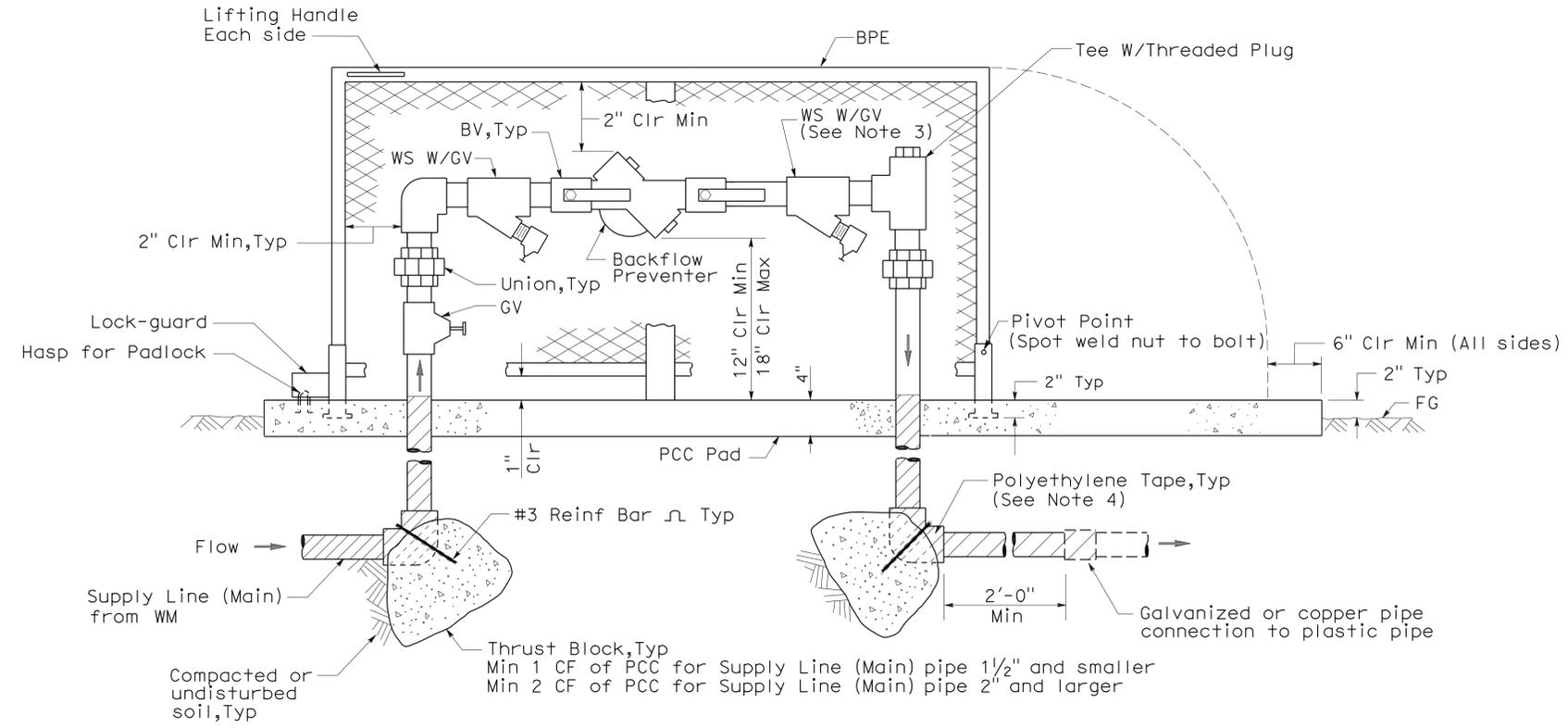
REVISED STANDARD PLAN RSP H7

2006 REVISED STANDARD PLAN RSP H7

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	SM	84	22.1	30	53

George A. Balzer
 LICENSED LANDSCAPE ARCHITECT
 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.

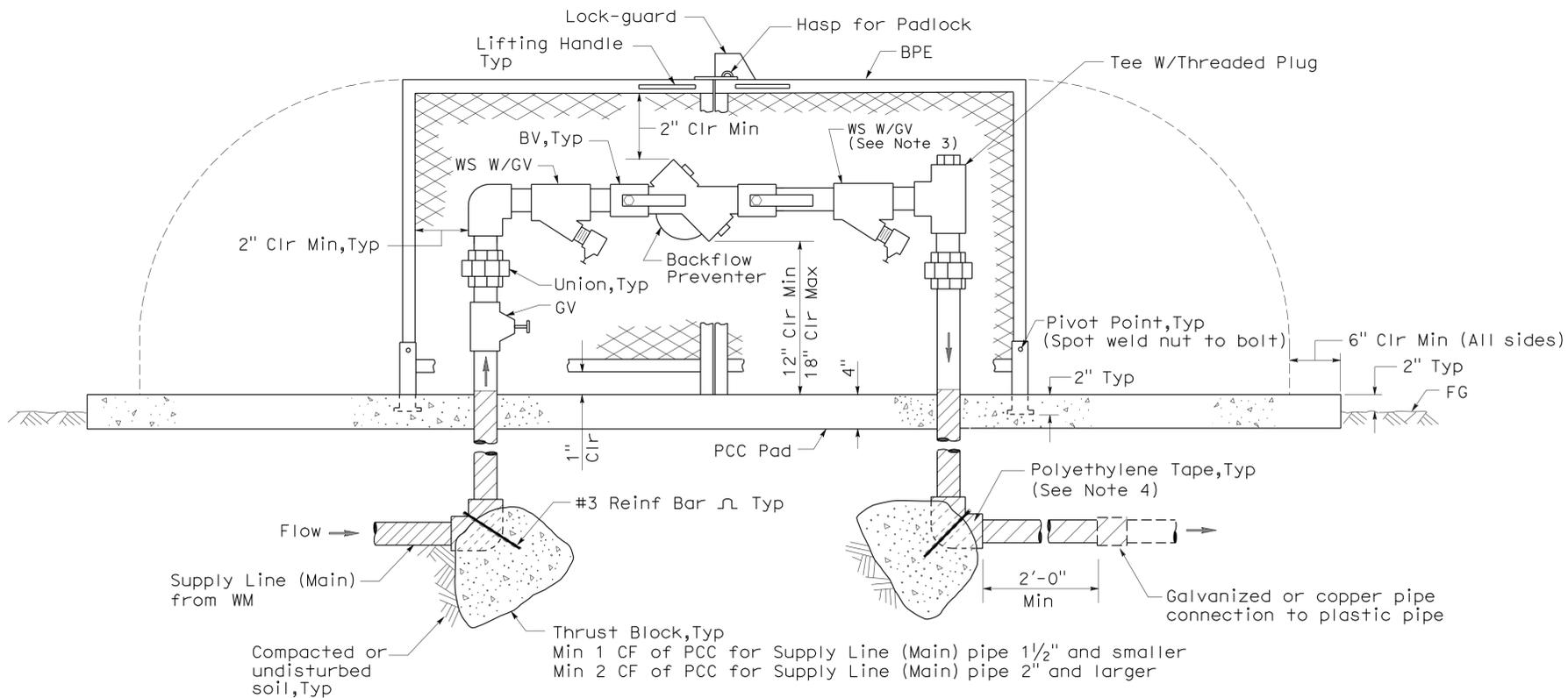
2006 REVISED STANDARD PLAN RSP H8



ELEVATION
BACKFLOW PREVENTER ASSEMBLY IN ENCLOSURE (ONE PIECE)

NOTES:

1. Wye strainer and fittings must be the same size as the backflow preventer shown on the plans.
2. Backflow preventer assembly manifold pipe must be the same pipe as the supply line (main) pipe to be installed from the water meter to the backflow preventer assembly.
3. Wye strainer location shown downstream of the backflow preventer is for District 11 projects only.
4. All metal in contact with soil and Portland Cement Concrete must be polyethylene wrapped using 2" wide plastic backed adhesive tape 20 mil thick with 1/2" overlap.



ELEVATION
BACKFLOW PREVENTER ASSEMBLY IN ENCLOSURE (TWO PIECE)

STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION
**PLANTING AND IRRIGATION
 DETAILS**
 NO SCALE

RSP H8 DATED JUNE 5, 2009 SUPERSEDES STANDARD PLAN H8
 DATED MAY 1, 2006 - PAGE 208 OF THE STANDARD PLANS BOOK DATED MAY 2006.

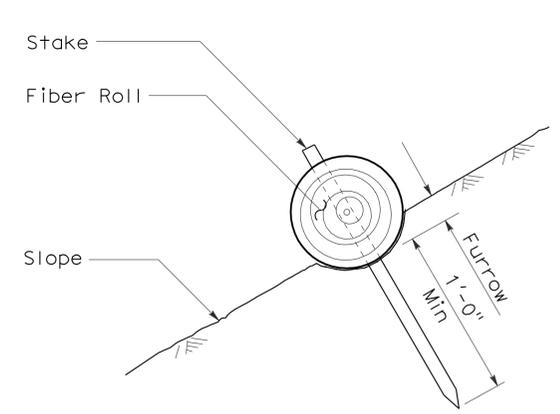
REVISED STANDARD PLAN RSP H8

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	SM	84	22.1	31	53

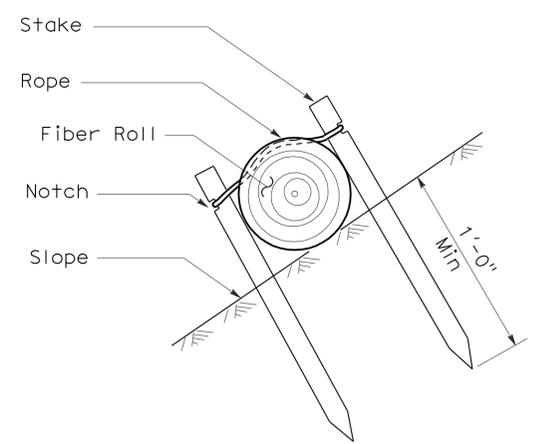
Gregory A. Balzer
 LICENSED LANDSCAPE ARCHITECT
 April 3, 2009
 PLANS APPROVAL DATE
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

To accompany plans dated 12-5-11

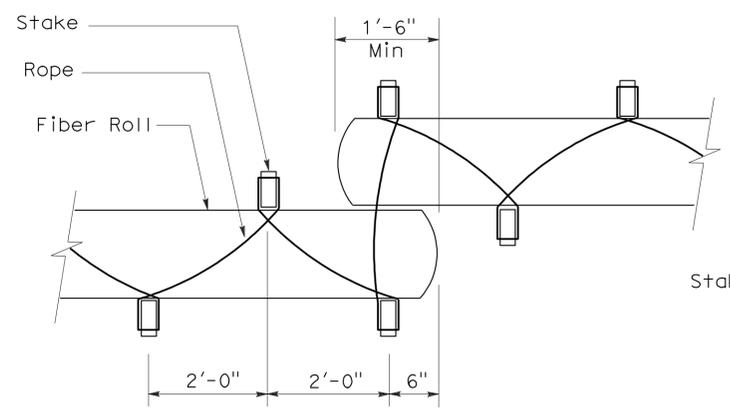
- NOTES:**
1. Fiber roll spacing varies depending upon slope inclination.
 2. Installations shown in the perspectives are for slope inclination of 10:1 and steeper.



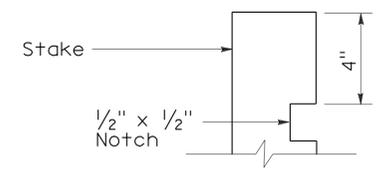
SECTION
FIBER ROLL
(TYPE 1)



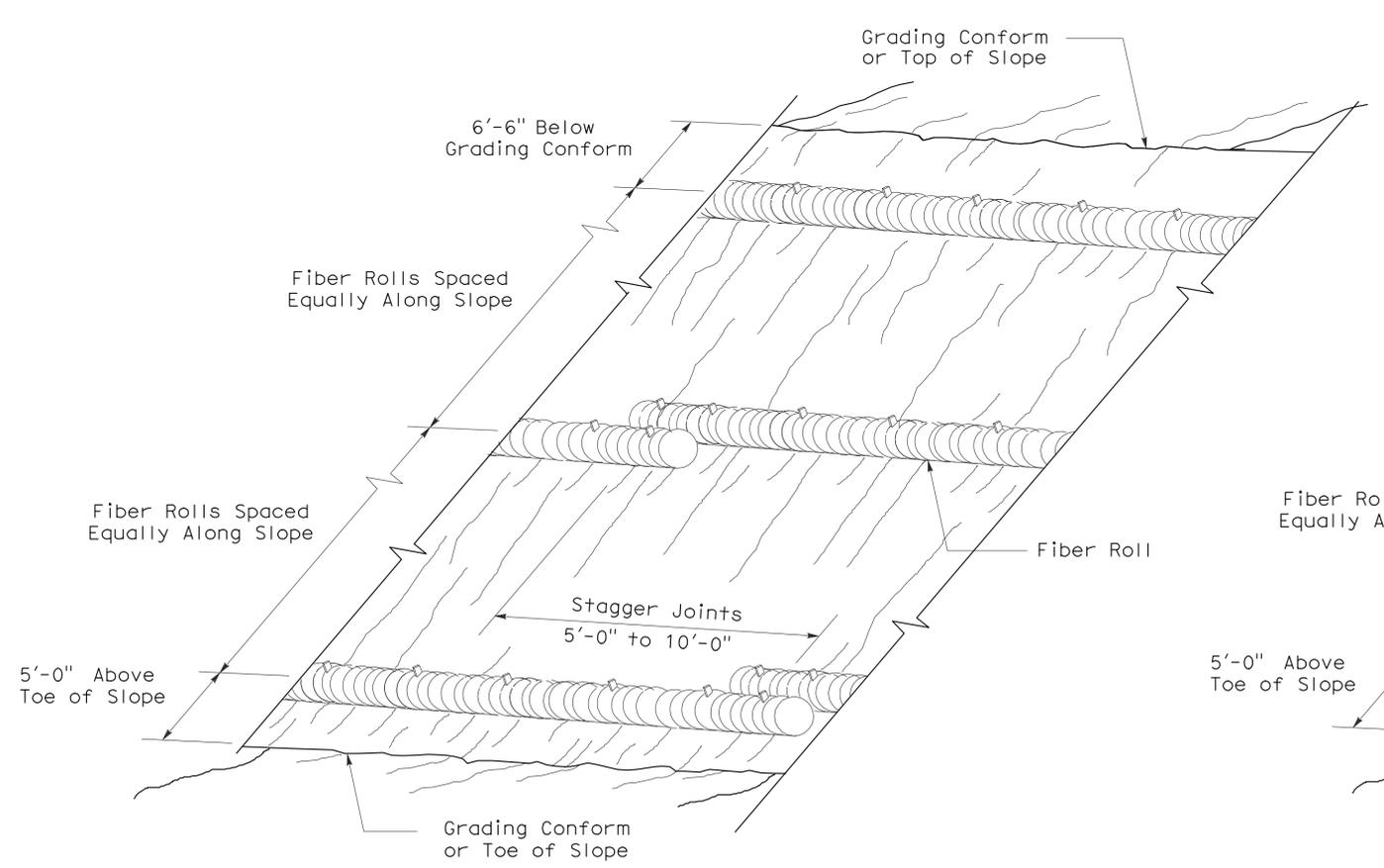
SECTION



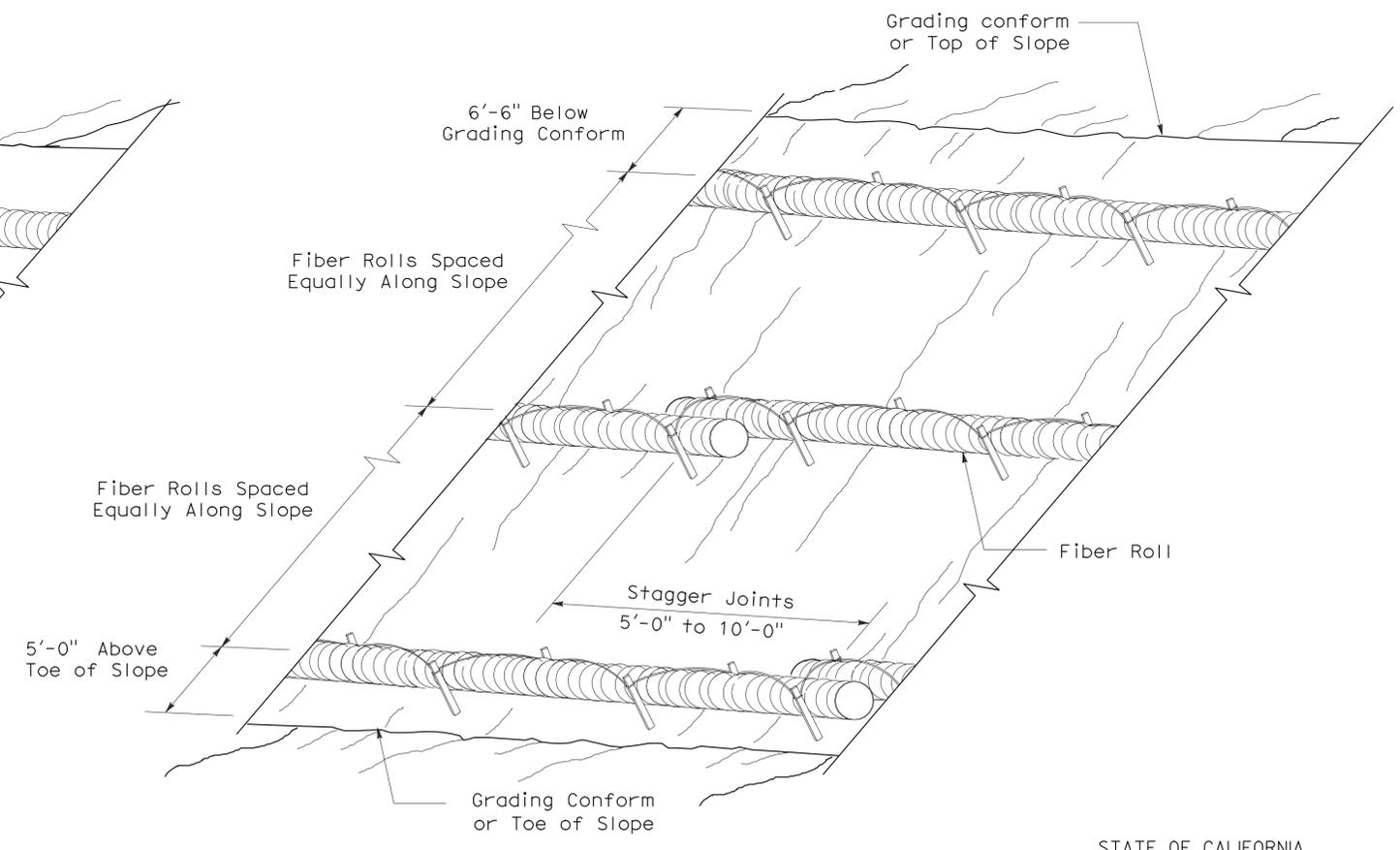
PLAN



ELEVATION
STAKE NOTCH DETAIL



PERSPECTIVE
FIBER ROLL (TYPE 1)



PERSPECTIVE
FIBER ROLL (TYPE 2)

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
EROSION CONTROL DETAILS
(FIBER ROLL)

NO SCALE
RNSP H51 DATED APRIL 3, 2009 SUPERSEDES NSP H51 DATED DECEMBER 1, 2006 THAT SUPPLEMENTS THE STANDARD PLANS BOOK DATED MAY 2006.

2006 REVISED NEW STANDARD PLAN RNSP H51

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	SM	84	22.1	32	53

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

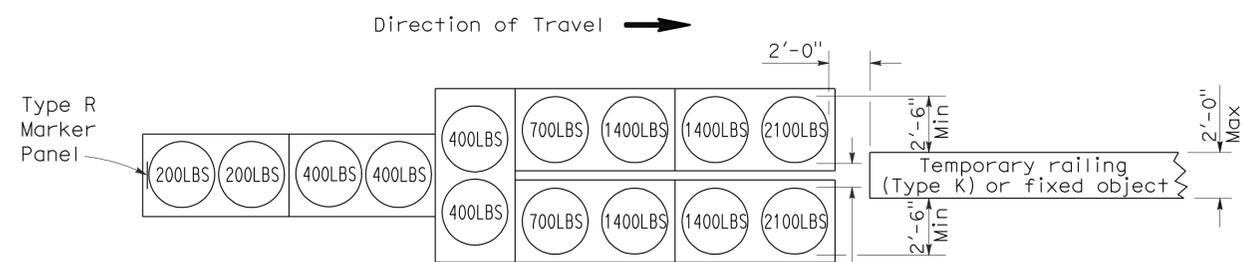
June 6, 2008
PLANS APPROVAL DATE

Randell D. Hiatt
No. C50200
Exp. 6-30-09
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.

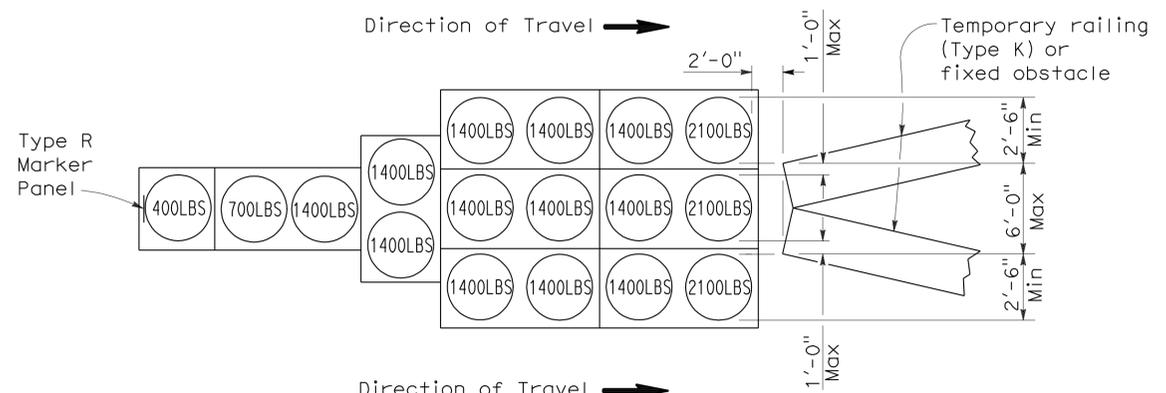
To accompany plans dated 12-5-11

2006 REVISED STANDARD PLAN RSP T1A



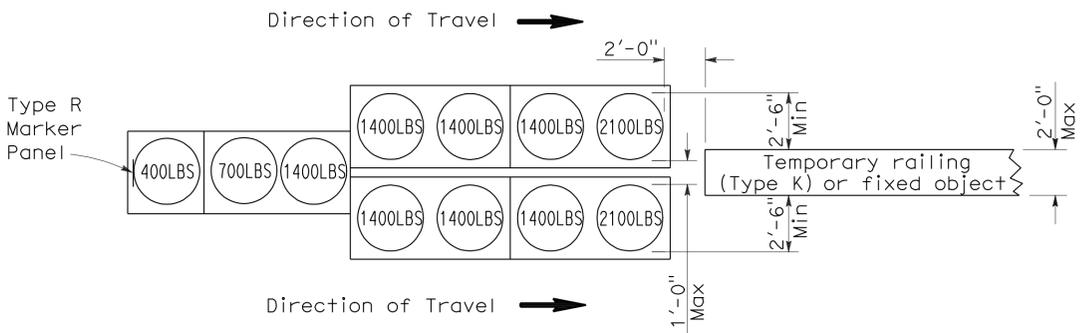
ARRAY 'TU14'

Approach speed 45 mph or more



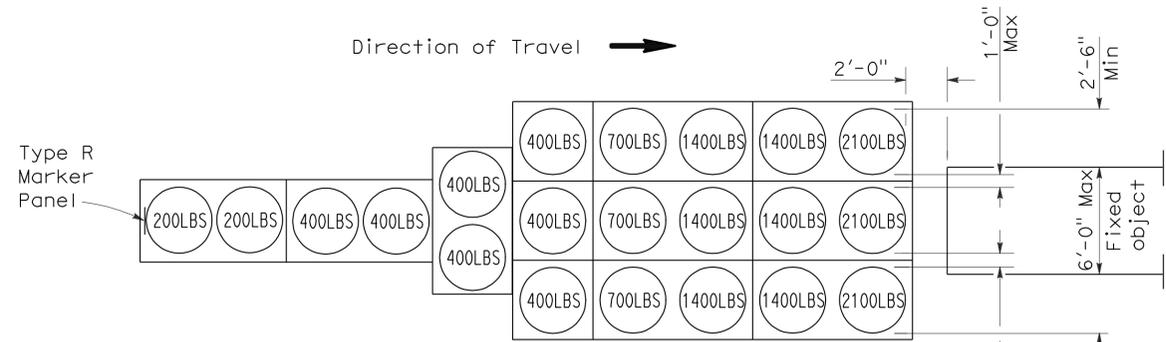
ARRAY 'TU17'

Approach speed less than 45 mph



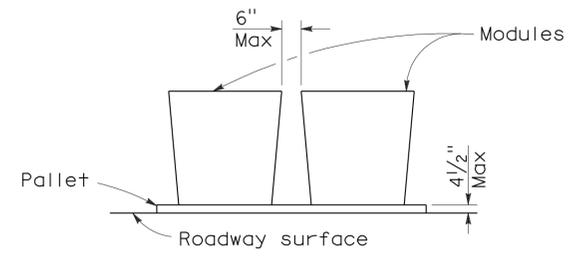
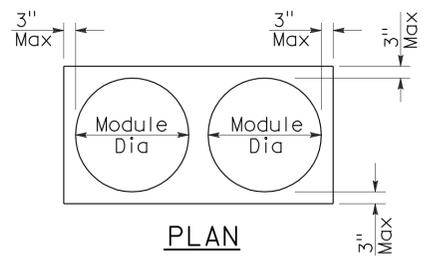
ARRAY 'TU11'

Approach speed less than 45 mph



ARRAY 'TU21'

Approach speed 45 mph or more



CRASH CUSHION PALLET DETAIL

See Note 7

NOTES:

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

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

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

NO SCALE

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

REVISED STANDARD PLAN RSP T1A

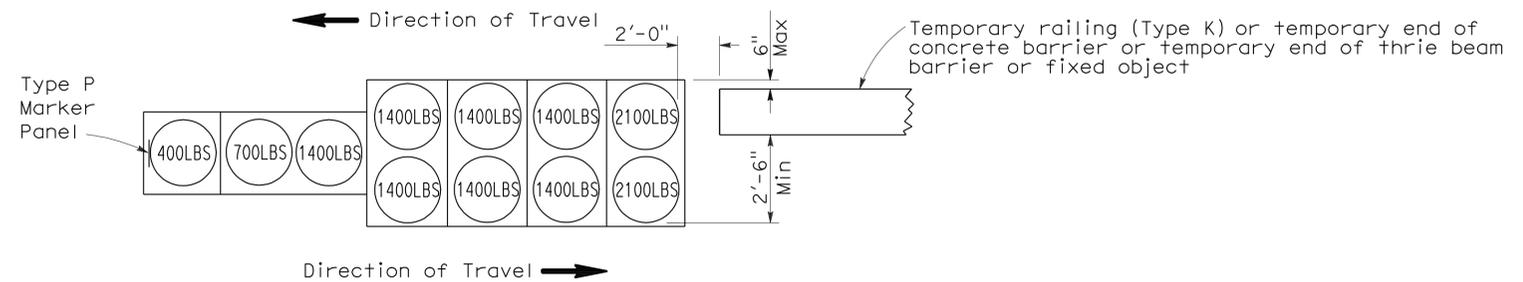
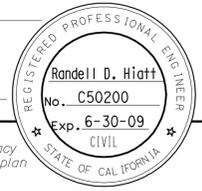
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	SM	84	22.1	33	53

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

June 6, 2008
PLANS APPROVAL DATE

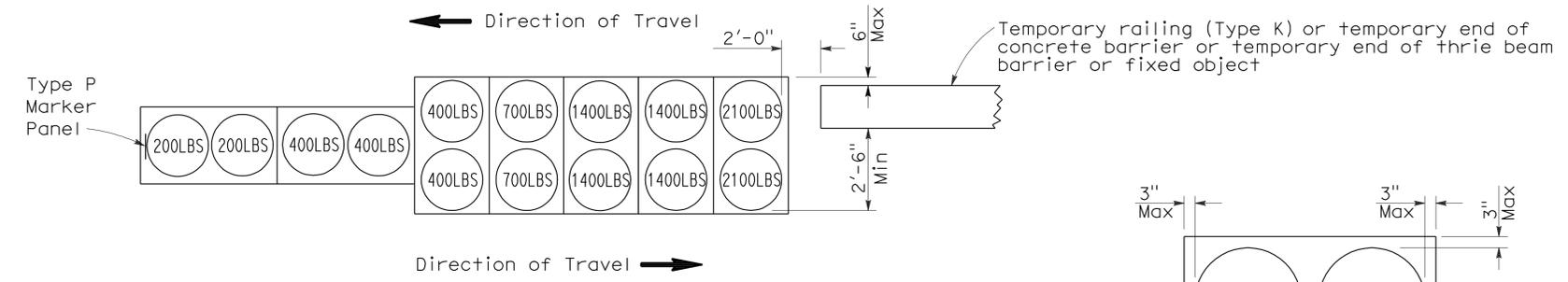
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

To accompany plans dated 12-5-11



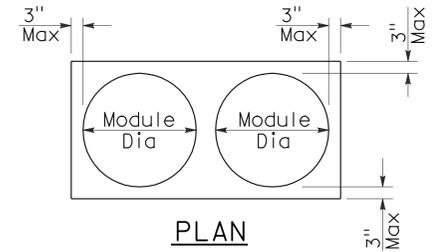
ARRAY 'TB11'

Approach speed less than 45 mph

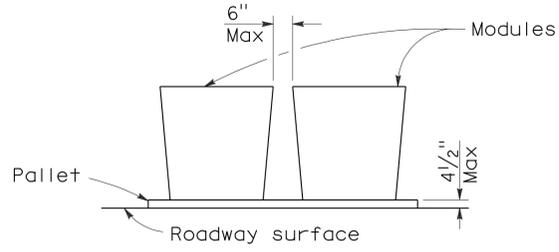


ARRAY 'TB14'

Approach speed 45 mph or more



PLAN



ELEVATION

CRASH CUSHION PALLET DETAIL

See Note 7

NOTES:

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

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

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

NO SCALE

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

REVISED STANDARD PLAN RSP T1B

2006 REVISED STANDARD PLAN RSP T1B

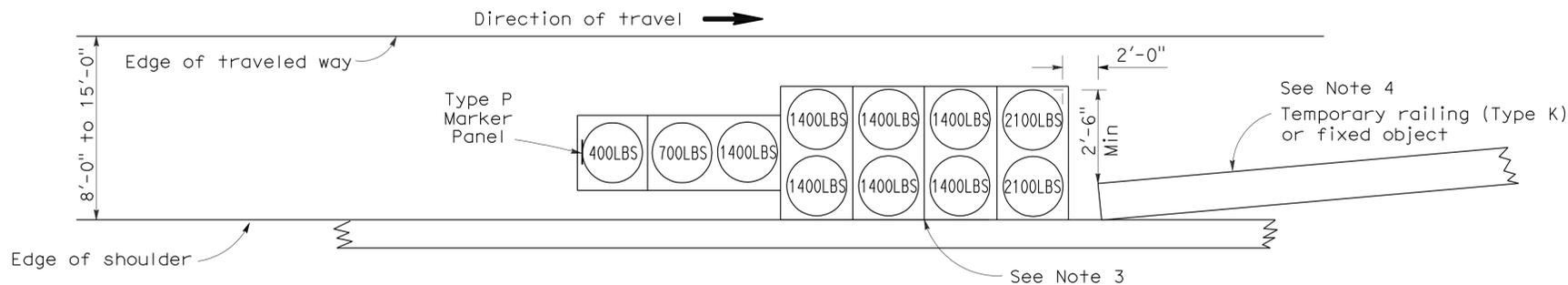
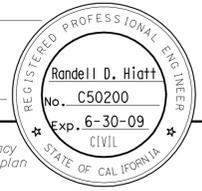
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	SM	84	22.1	34	53

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

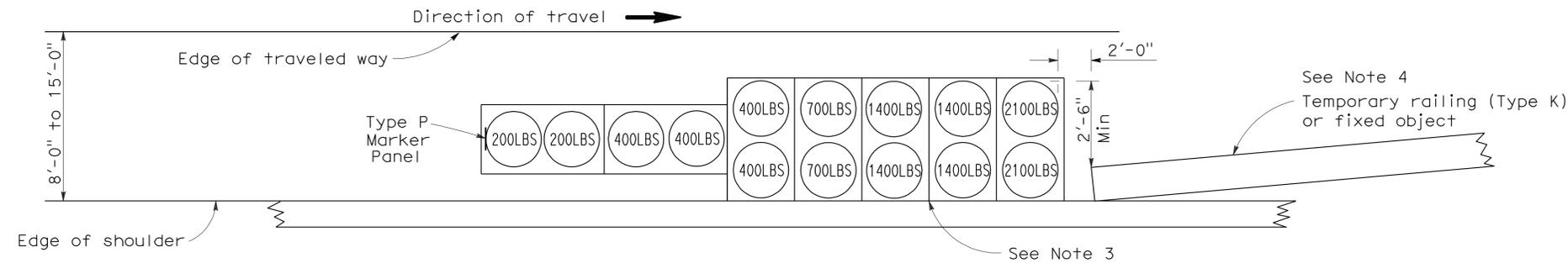
June 6, 2008
PLANS APPROVAL DATE

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.

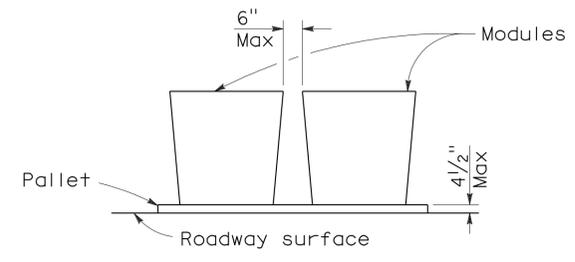
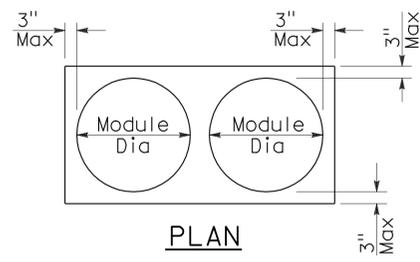
To accompany plans dated 12-5-11



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



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



CRASH CUSHION PALLET DETAIL
See Note 11

NOTES:

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

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
**TEMPORARY CRASH CUSHION,
SAND FILLED
(SHOULDER INSTALLATIONS)**

NO SCALE
RSP T2 DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN T2
DATED MAY 1, 2006 - PAGE 213 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP T2

2006 REVISED STANDARD PLAN RSP T2

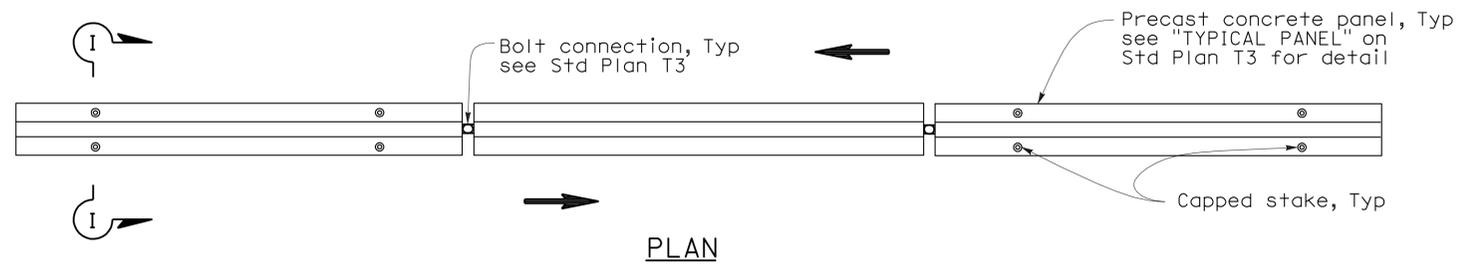
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SM	84	22.1	35	53

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

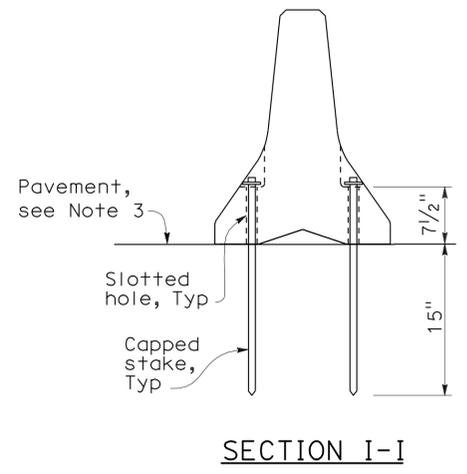
May 20, 2011
PLANS APPROVAL DATE

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 12-5-11

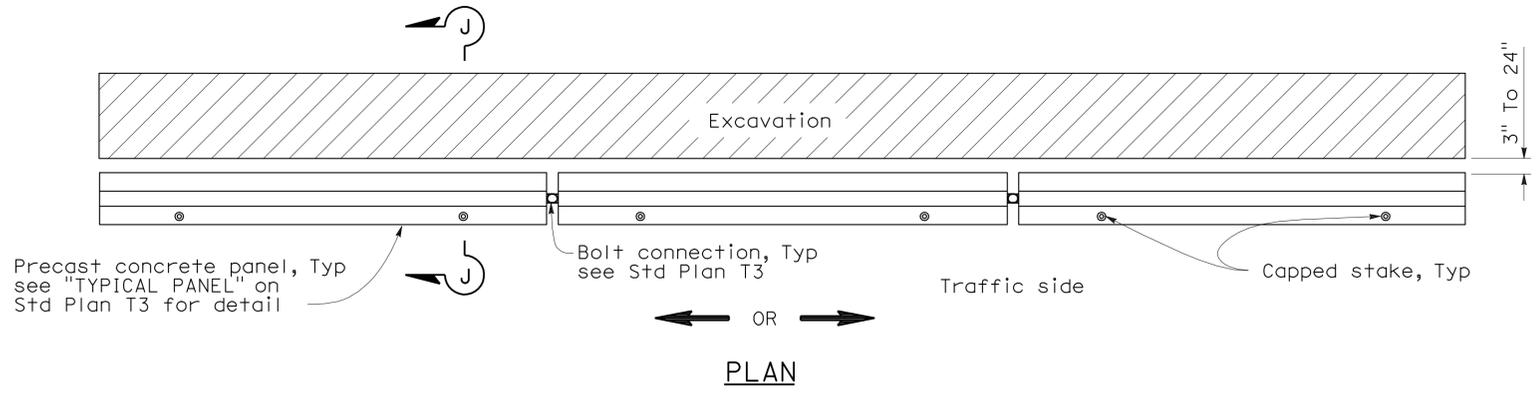


RAILING STAKING CONFIGURATION FOR TWO-WAY TRAFFIC
See Note 1

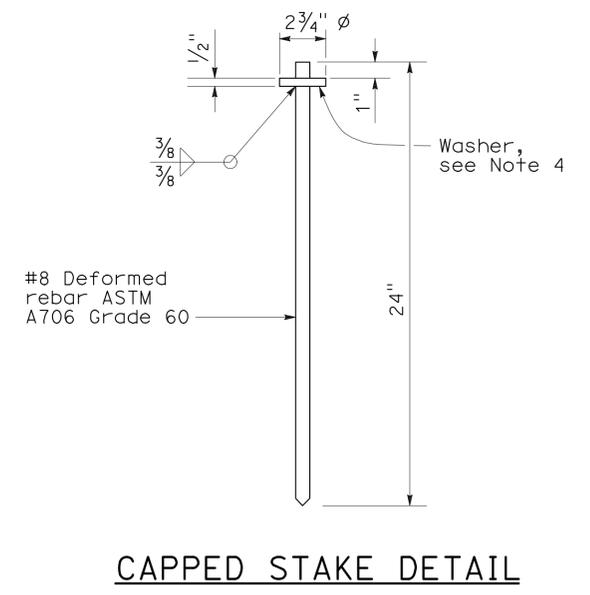
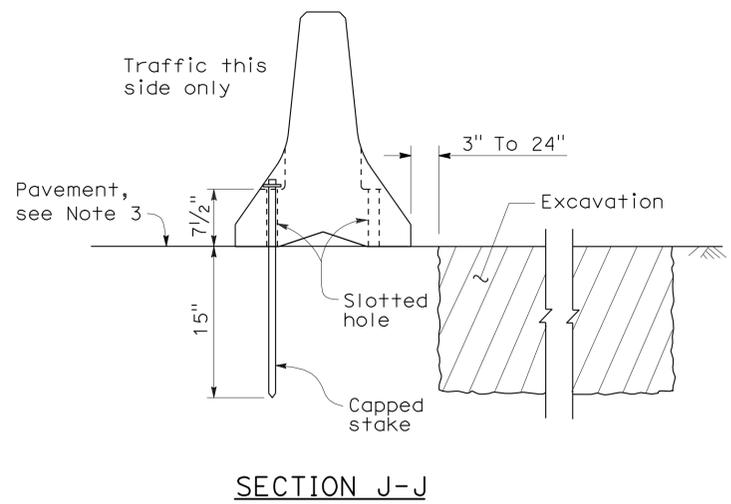


NOTES:

1. Where Type K Temporary Railing is placed as a temporary or long term barrier in two-way traffic on highways with less than 24" from the edge of traveled way, use four capped stakes per every other panel with end panels staked.
2. Where Type K Temporary Railing is placed 3" to 24" from the edge of an excavation on highways, use two capped stakes per panel along the traffic side.
3. Staked Type K Temporary Railing must be supported by at least 4" thick concrete, hot mix asphalt or existing asphalt concrete pavement.
4. The minimum yield strength for the washer must be 60,000 psi.
5. Direction of adjacent traffic indicated by \Rightarrow .



RAILING STAKING CONFIGURATION ADJACENT TO AN EXCAVATION
See Note 2



STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
**TEMPORARY RAILING
(TYPE K)**
NO SCALE

NSP T3A DATED MAY 20, 2011 SUPPLEMENTS
THE STANDARD PLANS BOOK DATED MAY 2006.

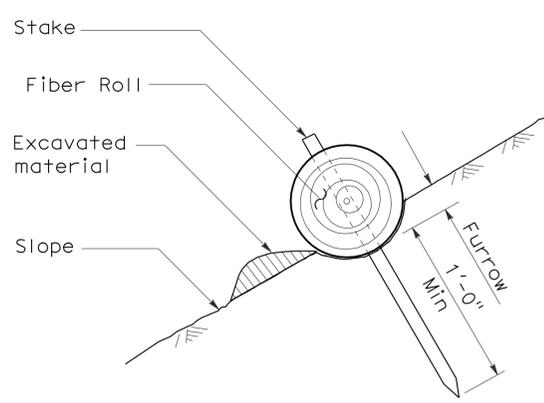
NEW STANDARD PLAN NSP T3A

2006 NEW STANDARD PLAN NSP T3A

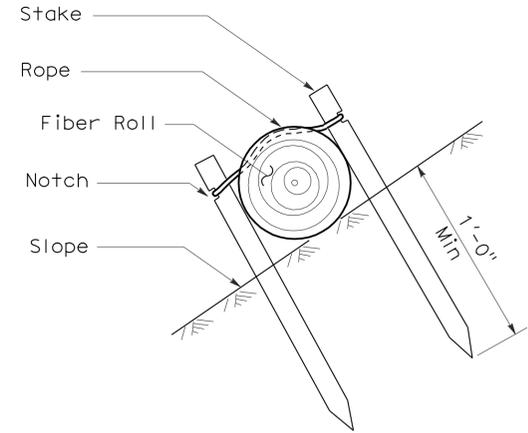
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	SM	84	22.1	37	53

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.

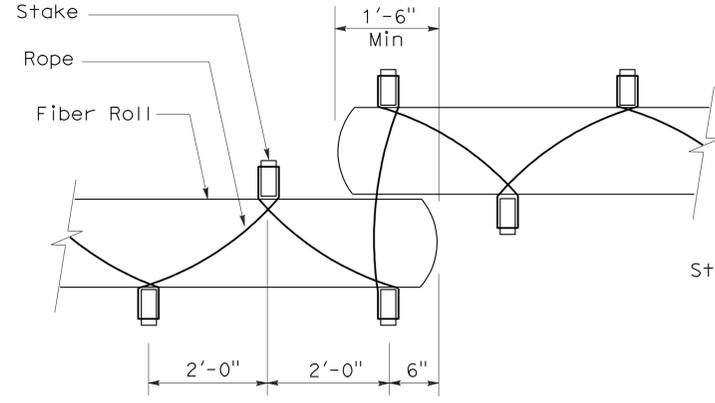
To accompany plans dated 12-5-11



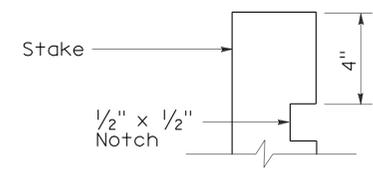
SECTION
TEMPORARY FIBER ROLL
(TYPE 1)



SECTION
TEMPORARY FIBER ROLL
(TYPE 2)

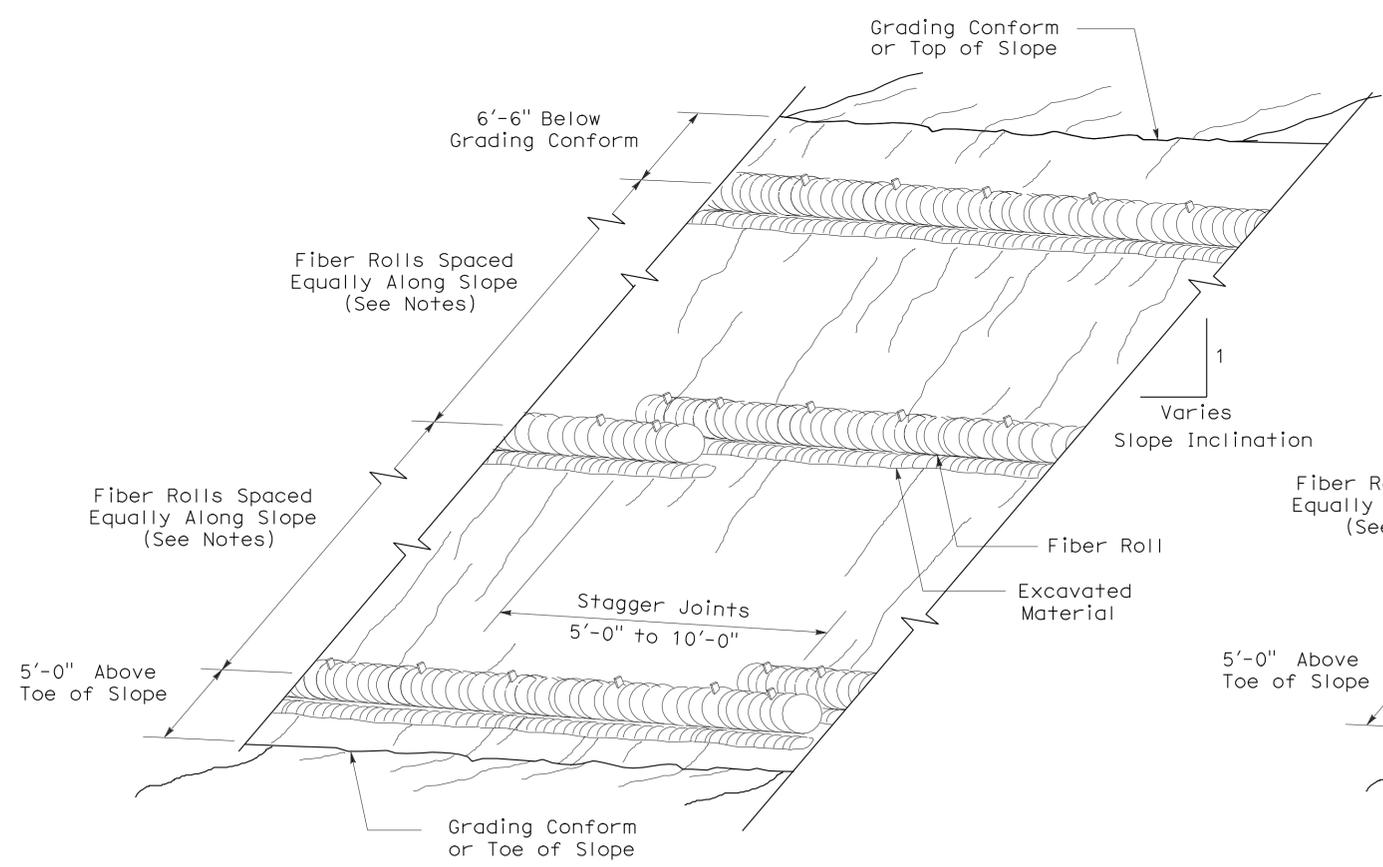


PLAN

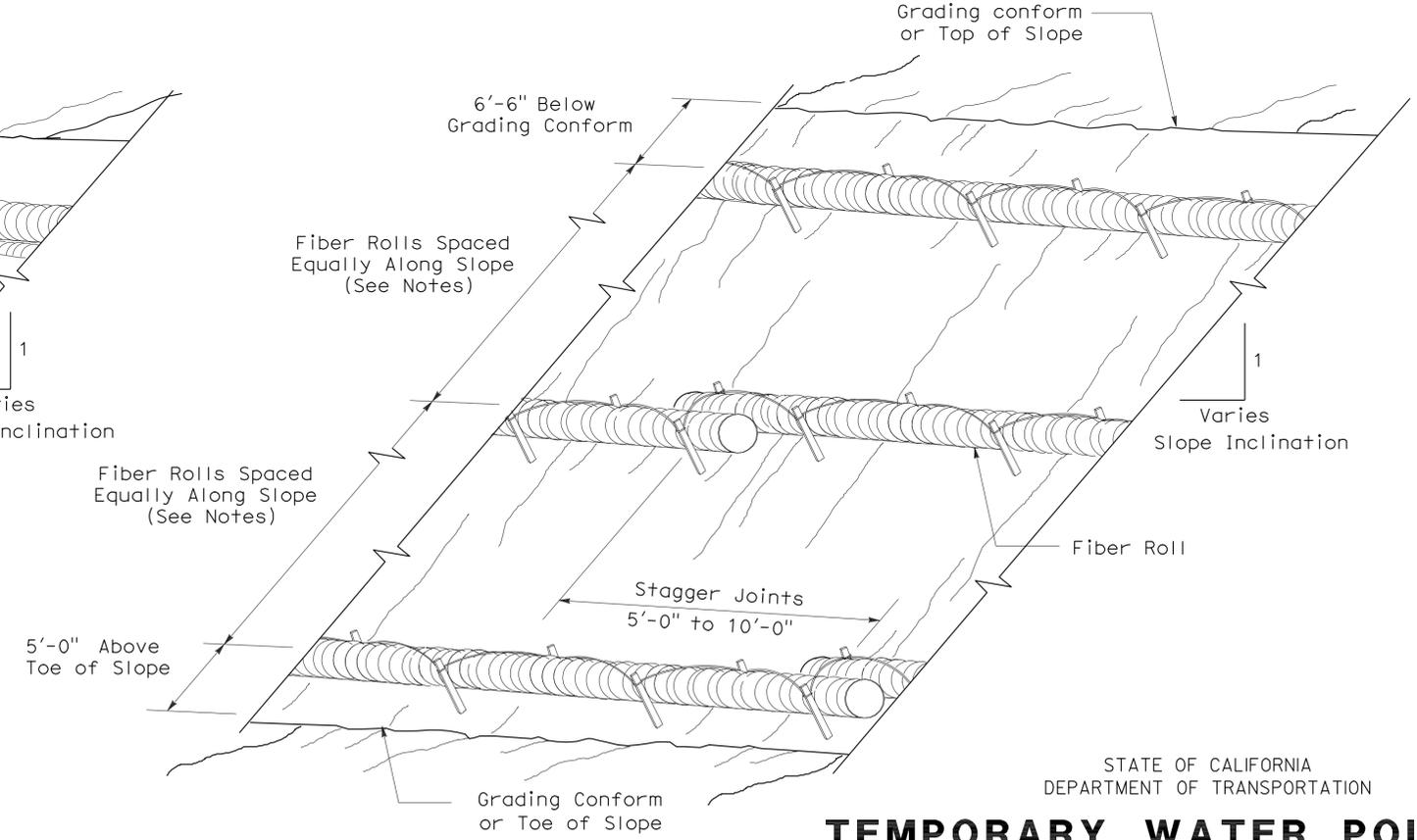


ELEVATION
STAKE NOTCH DETAIL

- 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

RSP T56 DATED APRIL 3, 2009 SUPERSEDES STANDARD PLAN T56
 DATED MAY 1, 2006 - PAGE 232 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP T56

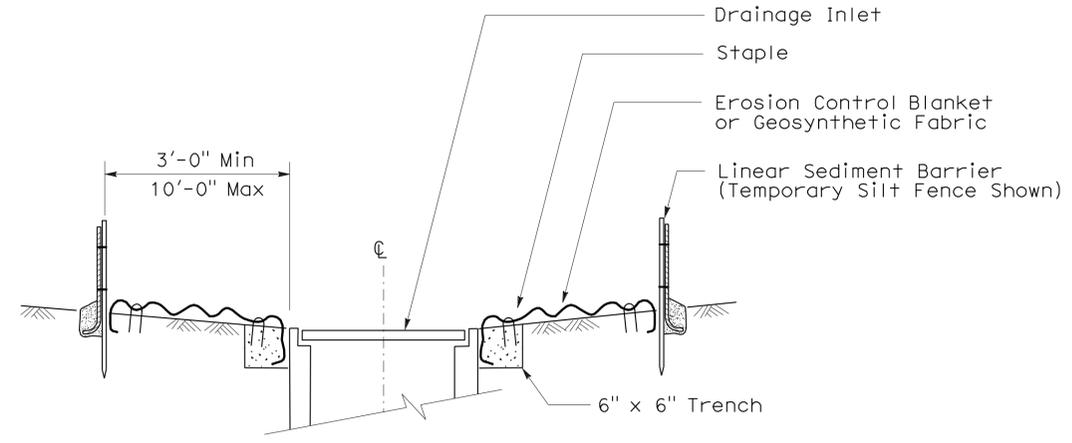
2006 REVISED STANDARD PLAN RSP T56

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	SM	84	22.1	38	53

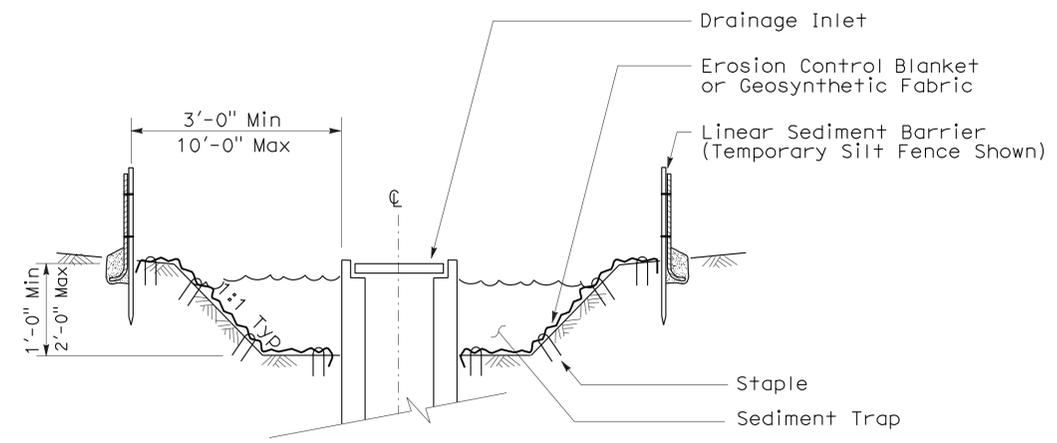
Robert B. Schott
 LICENSED LANDSCAPE ARCHITECT
 August 15, 2008
 PLANS Approval DATE
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

To accompany plans dated 12-5-11

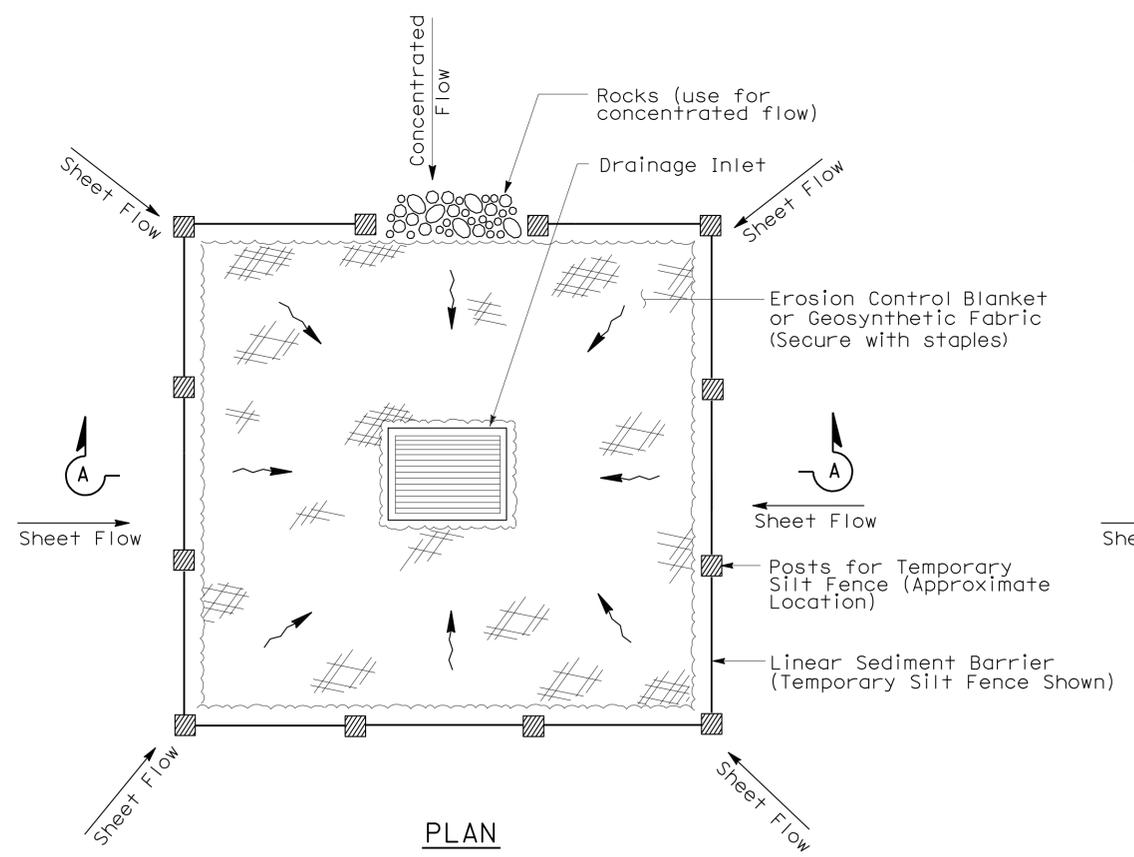
- NOTES:**
- See Standard Plan T51 for Temporary Silt Fence.
 - Dimensions may vary to fit field conditions.



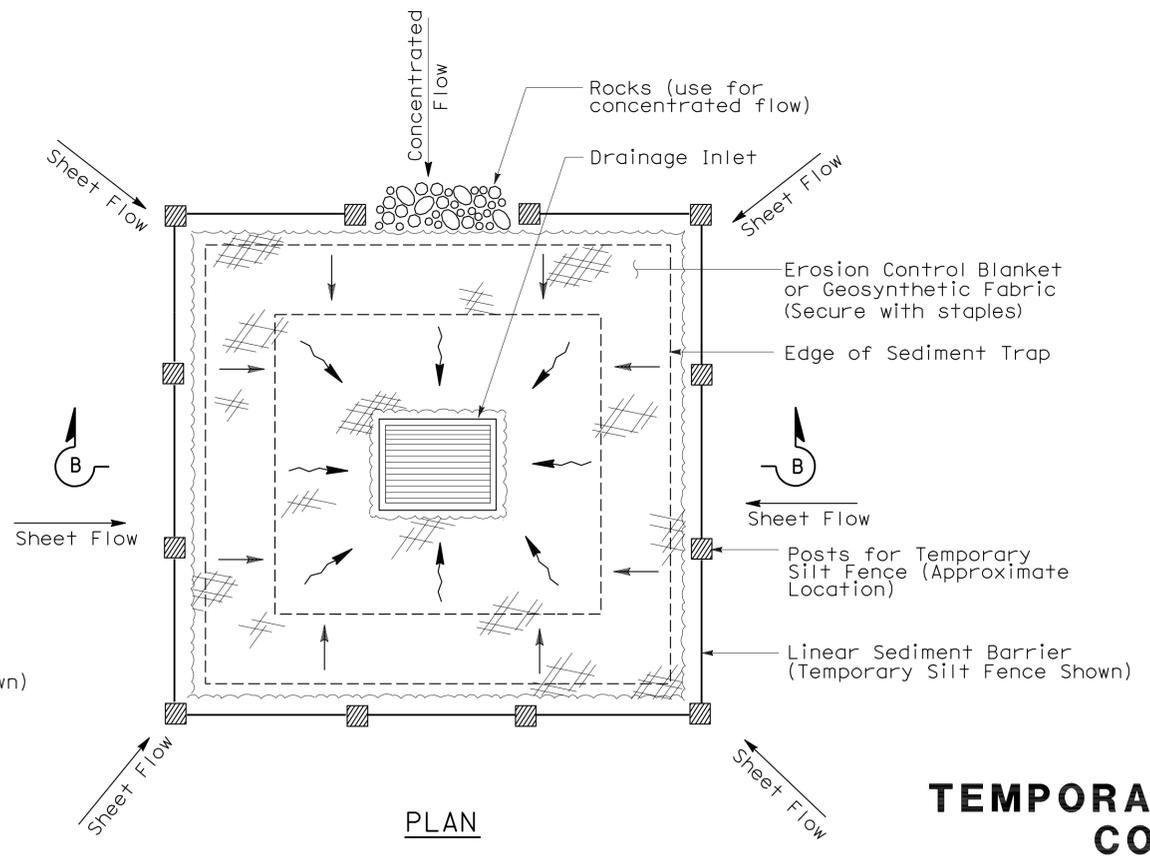
SECTION A-A



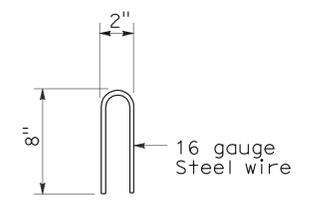
SECTION B-B



TEMPORARY DRAINAGE INLET PROTECTION (TYPE 1)



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



STAPLE DETAIL

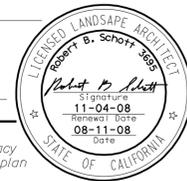
STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION
TEMPORARY WATER POLLUTION CONTROL DETAILS
(TEMPORARY DRAINAGE INLET PROTECTION)
 NO SCALE

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

2006 NEW STANDARD PLAN NSP T61

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	SM	84	22.1	39	53

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 12-5-11

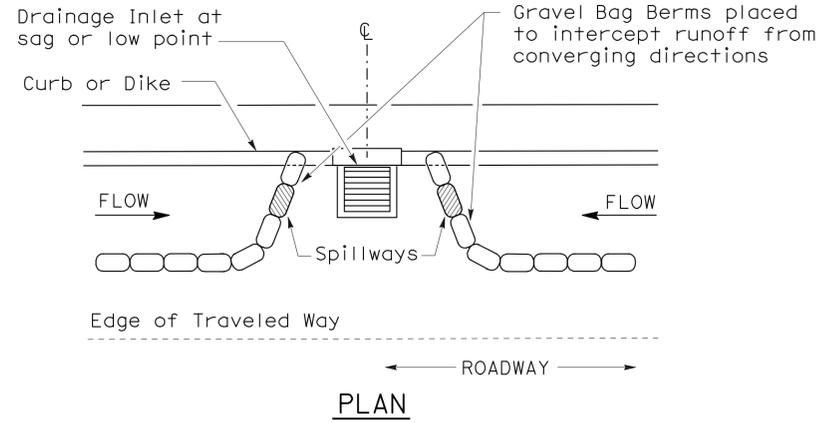
NOTES:

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

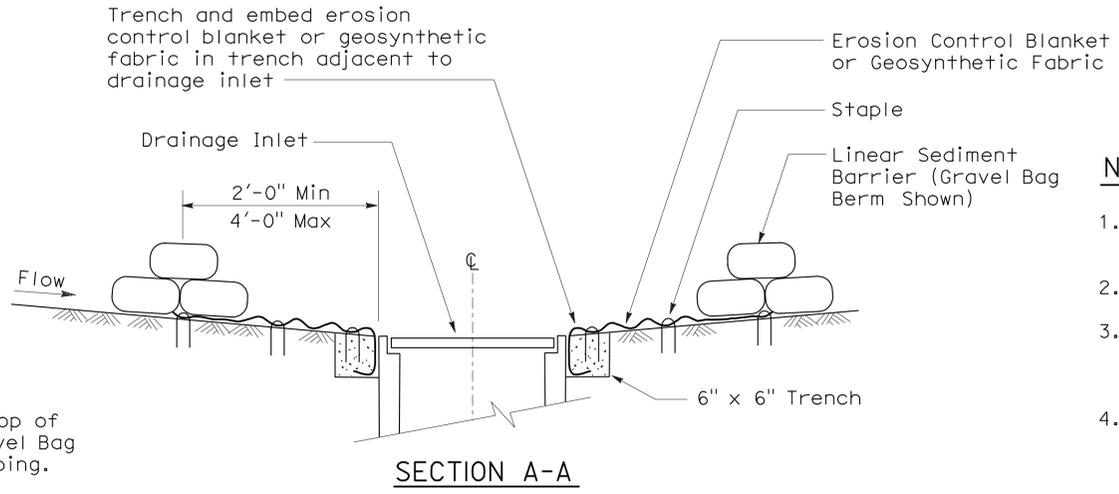
GRAVEL BAG BERM (TYPE 3A) SPACING TABLE

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

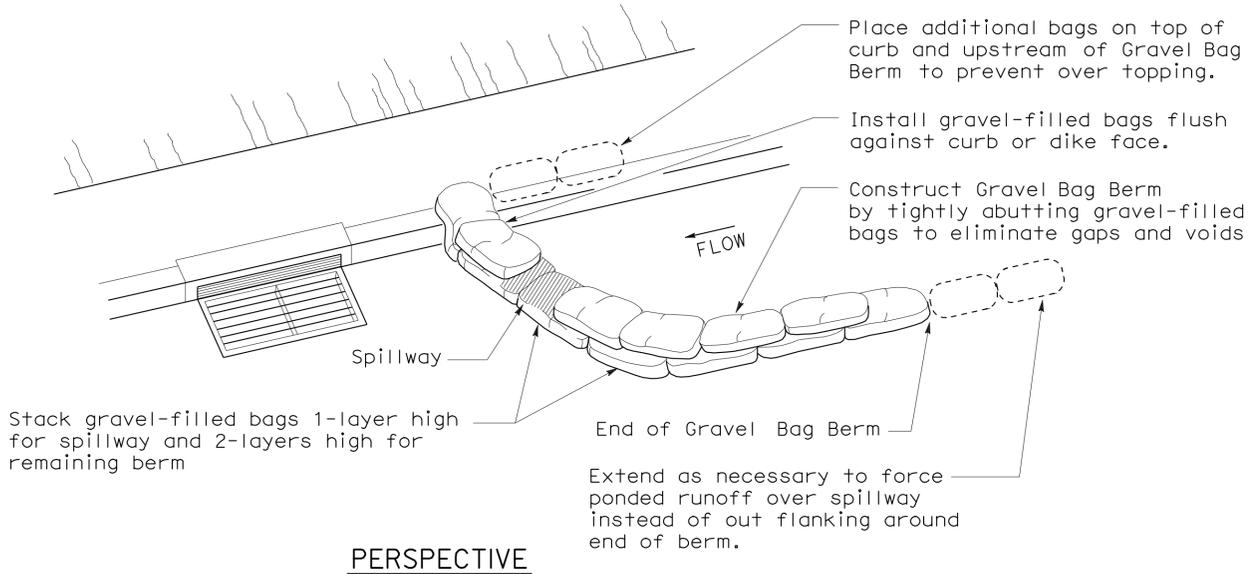
For slope of less than 1%, install barriers only if erosion/sediment is prevalent



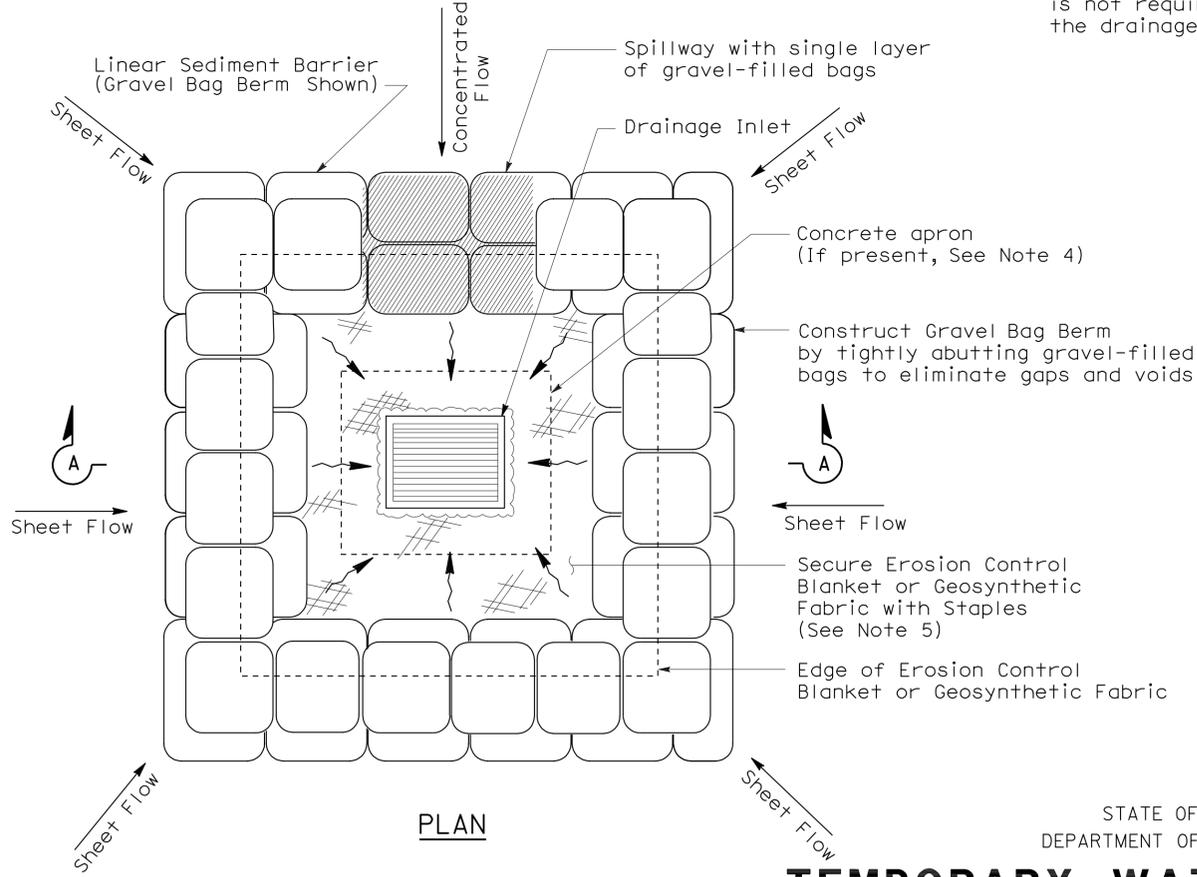
**PLAN
CONFIGURATION FOR SAG POINT INLET
(GRAVEL BAG BERM)**



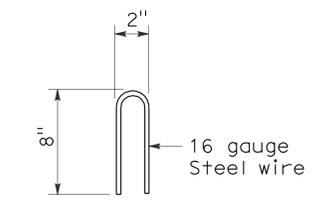
SECTION A-A



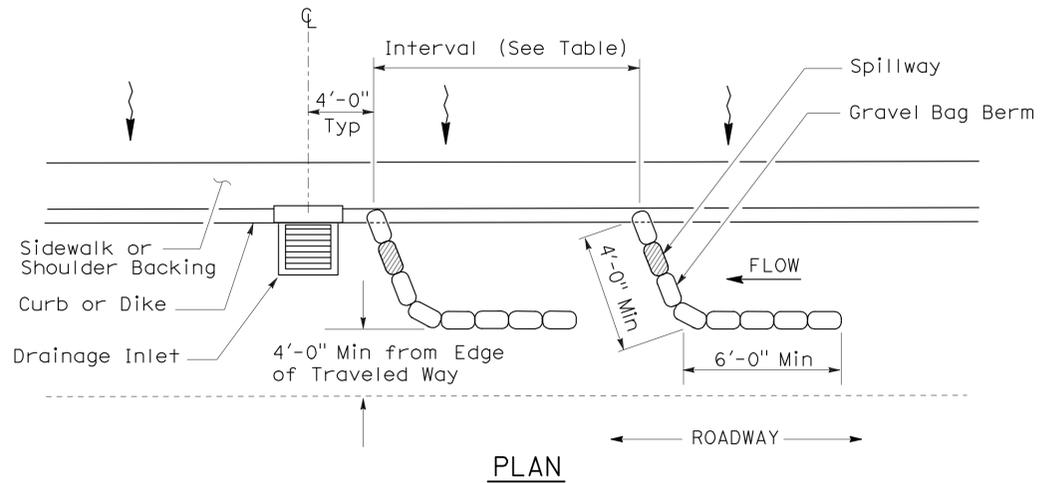
PERSPECTIVE



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



STAPLE DETAIL



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

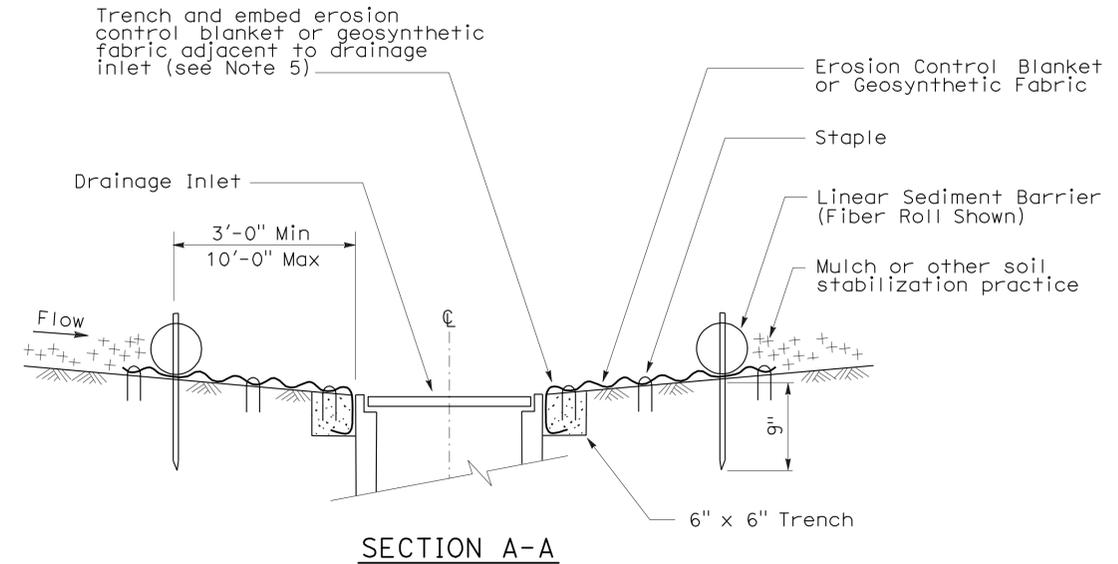
**STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
TEMPORARY WATER POLLUTION
CONTROL DETAILS
(TEMPORARY DRAINAGE
INLET PROTECTION)**

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

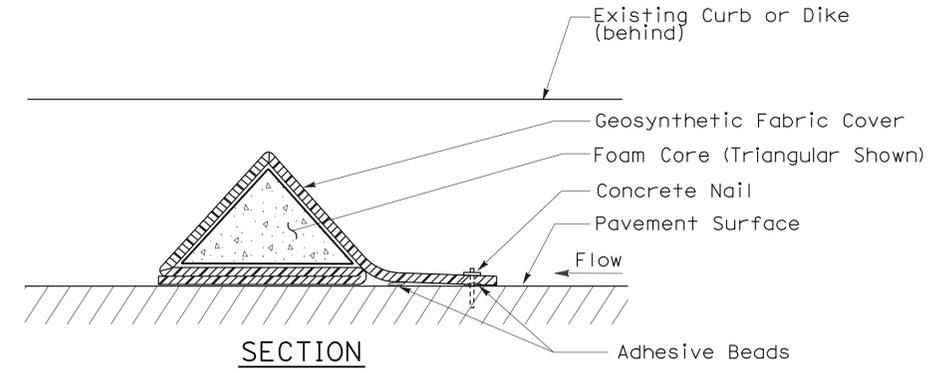
2006 NEW STANDARD PLAN NSP T62

FLEXIBLE SEDIMENT BARRIER SPACING TABLE

SLOPE OF ROADWAY (PERCENT)	0 to 0.9	1 to 1.9	2 to 2.9	3 to 4	5+
INTERVAL BETWEEN BARRIERS	50'	35'	30'	25'	20'
ANGLE FROM FACE OF CURB	70°	70°	70°	45°	45°
SUGGESTED BARRIER LENGTH	6'	6'	6'	6'	6'



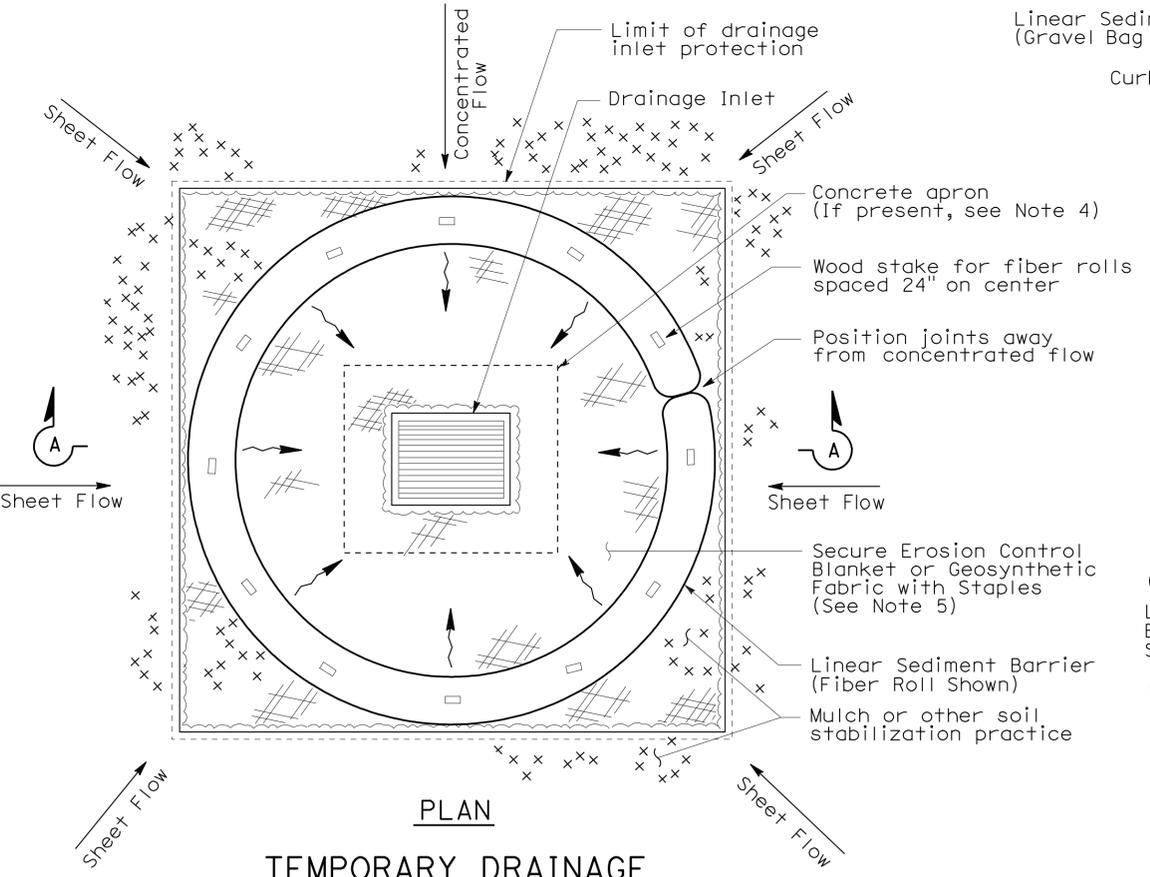
SECTION A-A



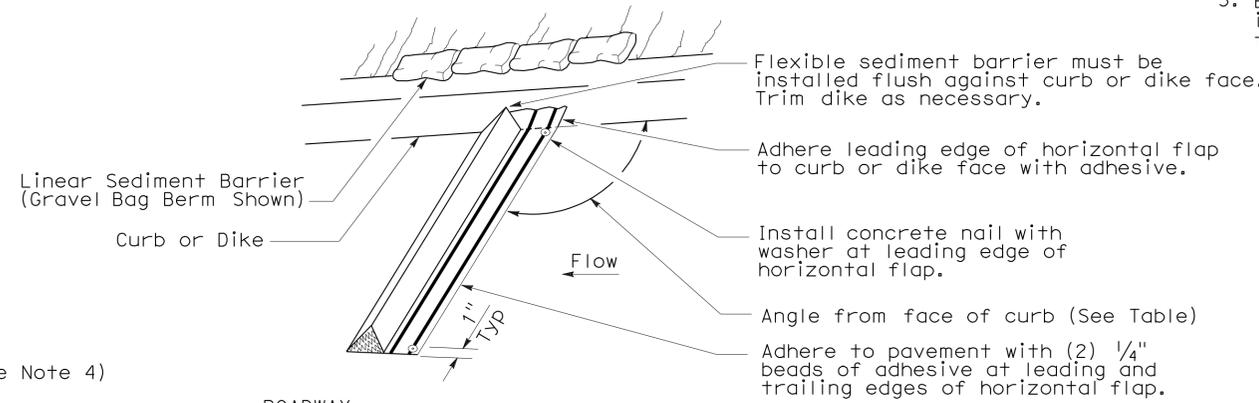
SECTION FLEXIBLE SEDIMENT BARRIER DETAIL (FOAM BARRIER SHOWN)

NOTES:

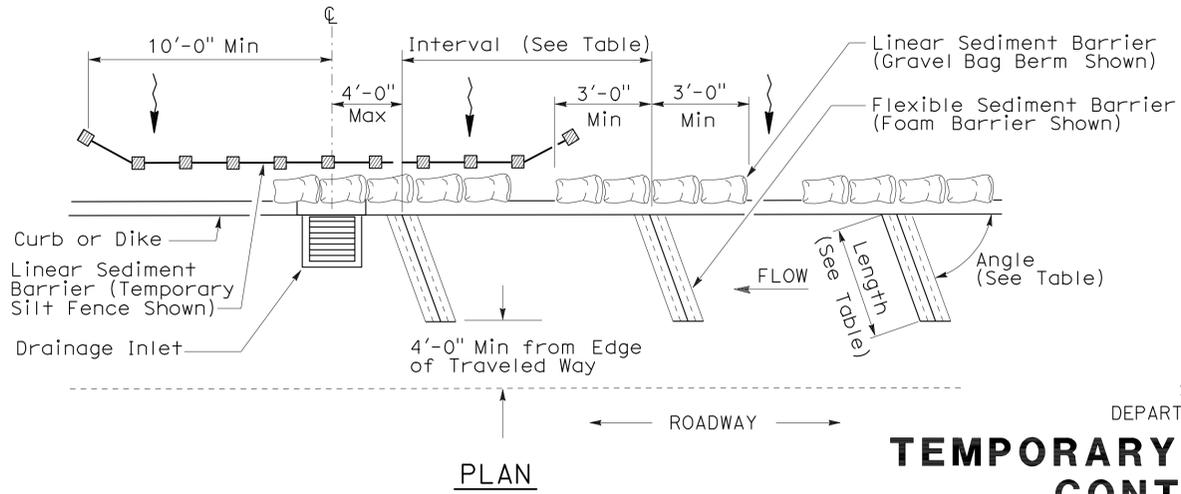
1. See Standard Plan T51 for Temporary Silt Fence.
2. Dimensions may vary to fit field conditions.
3. Install a minimum of 3 flexible sediment barriers upstream of each drainage inlet to be protected.
4. Position erosion control blanket or geosynthetic fabric at edge of concrete apron and secure in trench.
5. Erosion control blanket or geosynthetic fabric is not required if the area adjacent to the drainage inlet is vegetated.



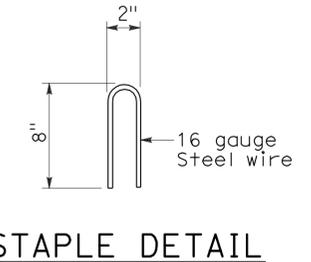
PLAN TEMPORARY DRAINAGE INLET PROTECTION (TYPE 4A)



PERSPECTIVE



PLAN TEMPORARY DRAINAGE INLET PROTECTION (TYPE 4B) FLEXIBLE SEDIMENT BARRIER



STAPLE DETAIL

STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION
TEMPORARY WATER POLLUTION CONTROL DETAILS (TEMPORARY DRAINAGE INLET PROTECTION)
 NO SCALE
 NSP T63 DATED AUGUST 15, 2008 SUPPLEMENTS THE STANDARD PLANS BOOK DATED MAY 2006.

2006 NEW STANDARD PLAN NSP T63

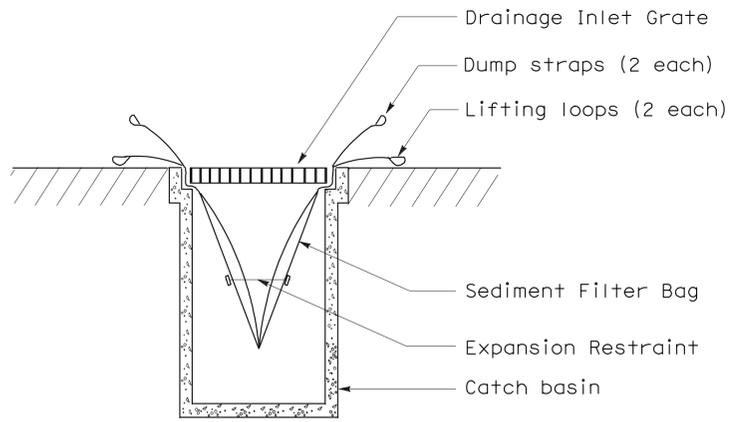
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	SM	84	22.1	41	53

Robert B. Schott
 LICENSED LANDSCAPE ARCHITECT

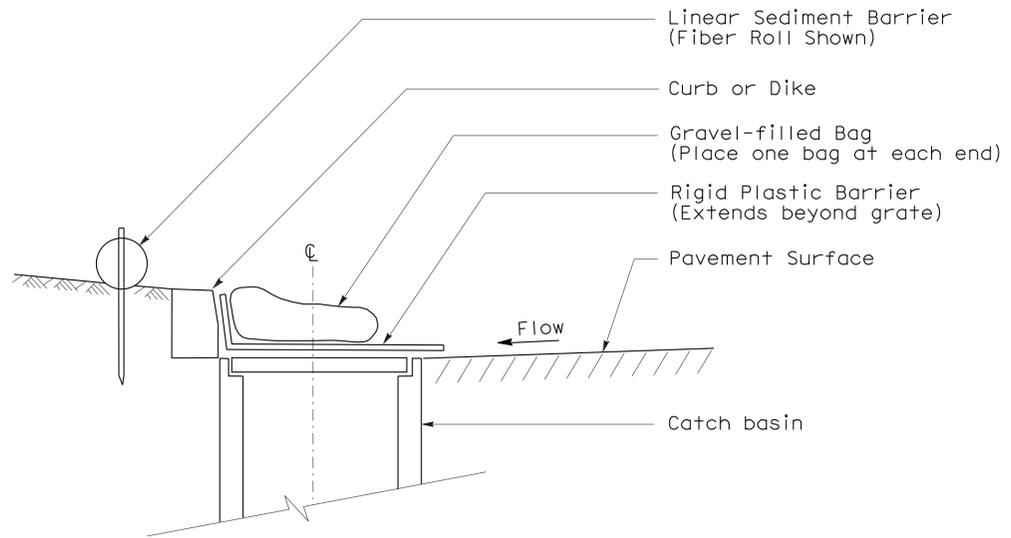
August 15, 2008
 PLANS APPROVAL DATE

Robert B. Schott
 LICENSED LANDSCAPE ARCHITECT
 Signature
 11-04-08
 Renewal Date
 08-11-08
 Date

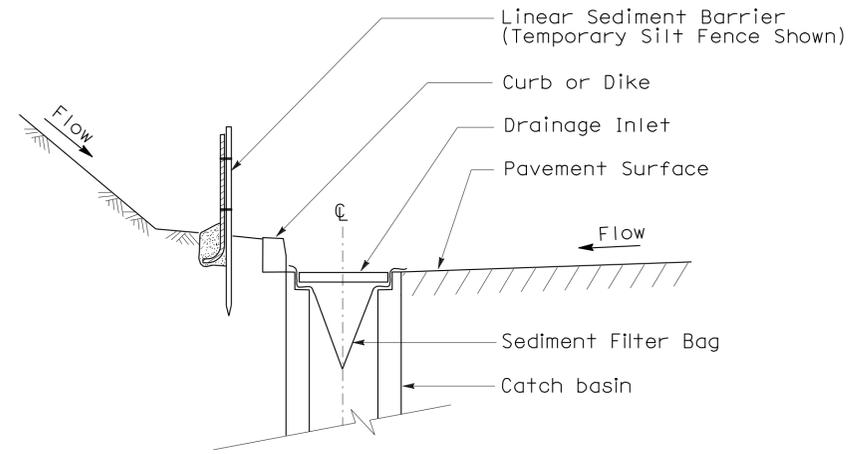
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.



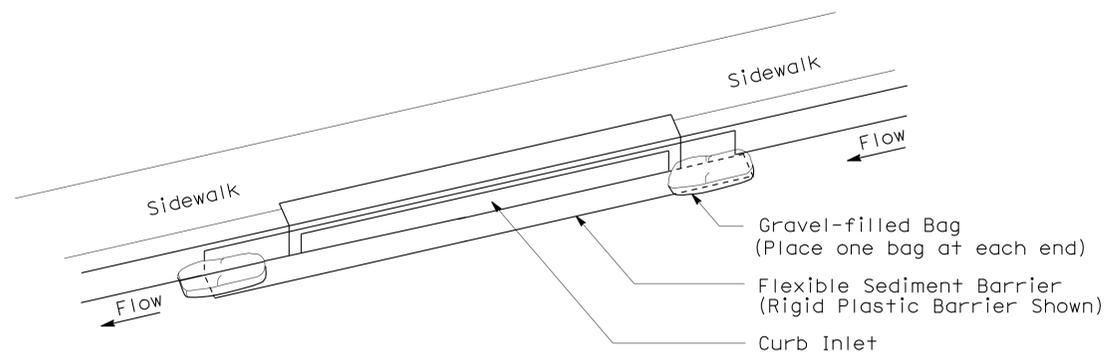
SECTION B-B
SEDIMENT FILTER BAG DETAIL



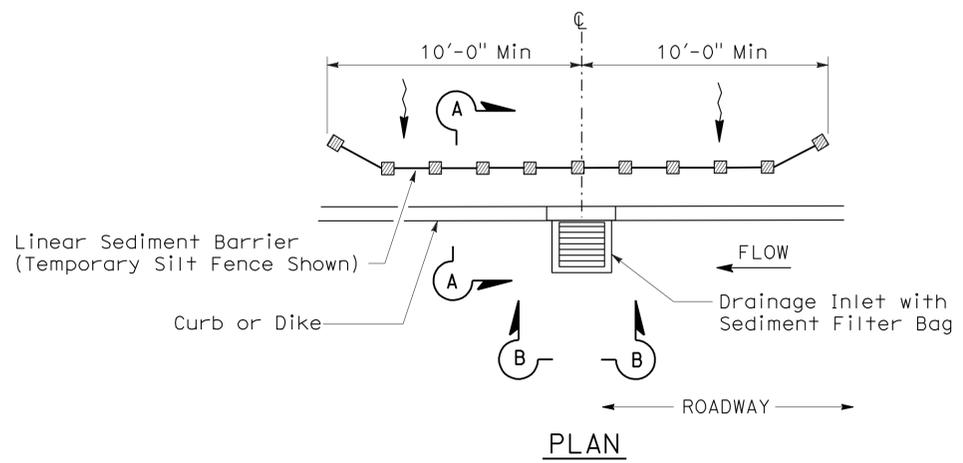
SECTION
TEMPORARY DRAINAGE
INLET PROTECTION (TYPE 6A)
(CATCH BASIN WITH GRATE)



SECTION A-A



PERSPECTIVE
TEMPORARY DRAINAGE
INLET PROTECTION (TYPE 6B)
(CURB INLET WITHOUT GRATE)



PLAN
TEMPORARY DRAINAGE
INLET PROTECTION (TYPE 5)
(SEDIMENT FILTER BAG)

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

To accompany plans dated 12-5-11

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

**TEMPORARY WATER POLLUTION
CONTROL DETAILS
(TEMPORARY DRAINAGE
INLET PROTECTION)**

NO SCALE

NSP T64 DATED AUGUST 15, 2008 SUPPLEMENTS
THE STANDARD PLANS BOOK DATED MAY 2006.

NEW STANDARD PLAN NSP T64

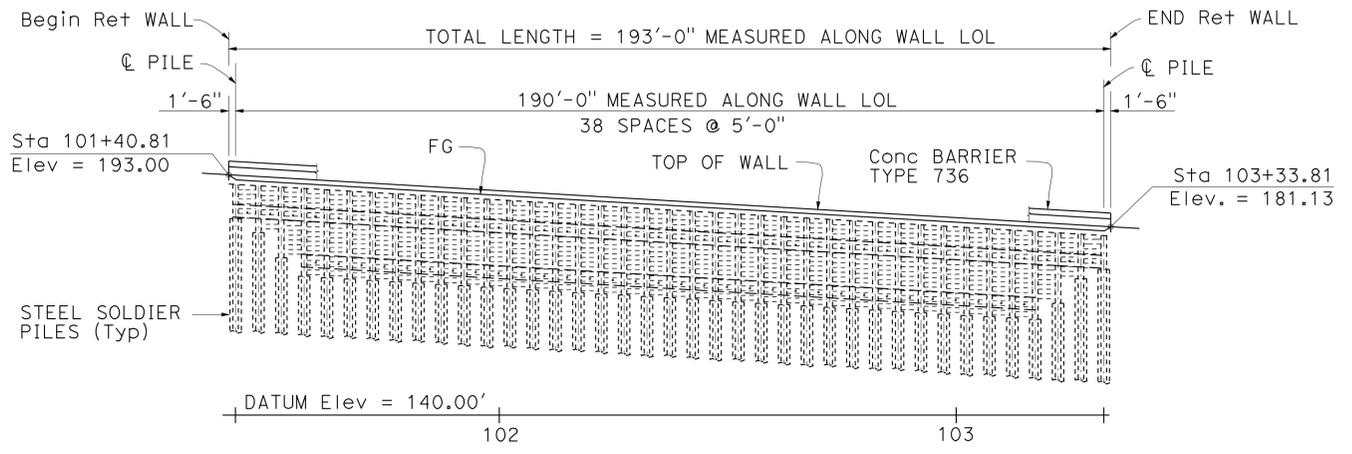
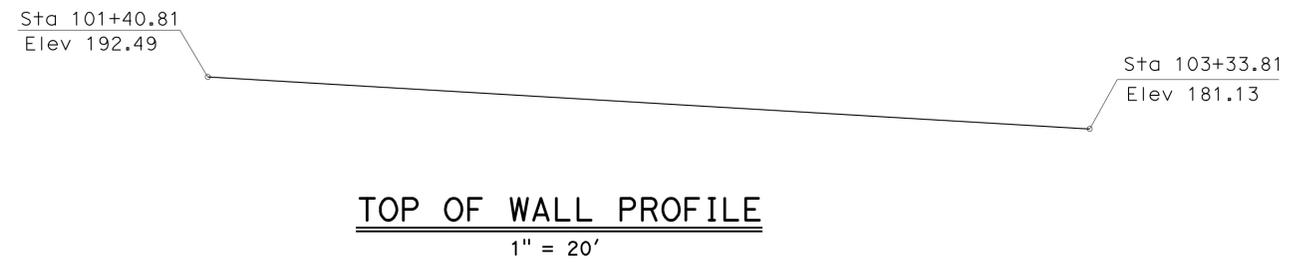
2006 NEW STANDARD PLAN NSP T64

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SM	84	22.1	42	53

REGISTERED CIVIL ENGINEER DATE 07-11-11
 Philip E. Lutz
 No. C55839
 Exp. 12-31-12
 CIVIL
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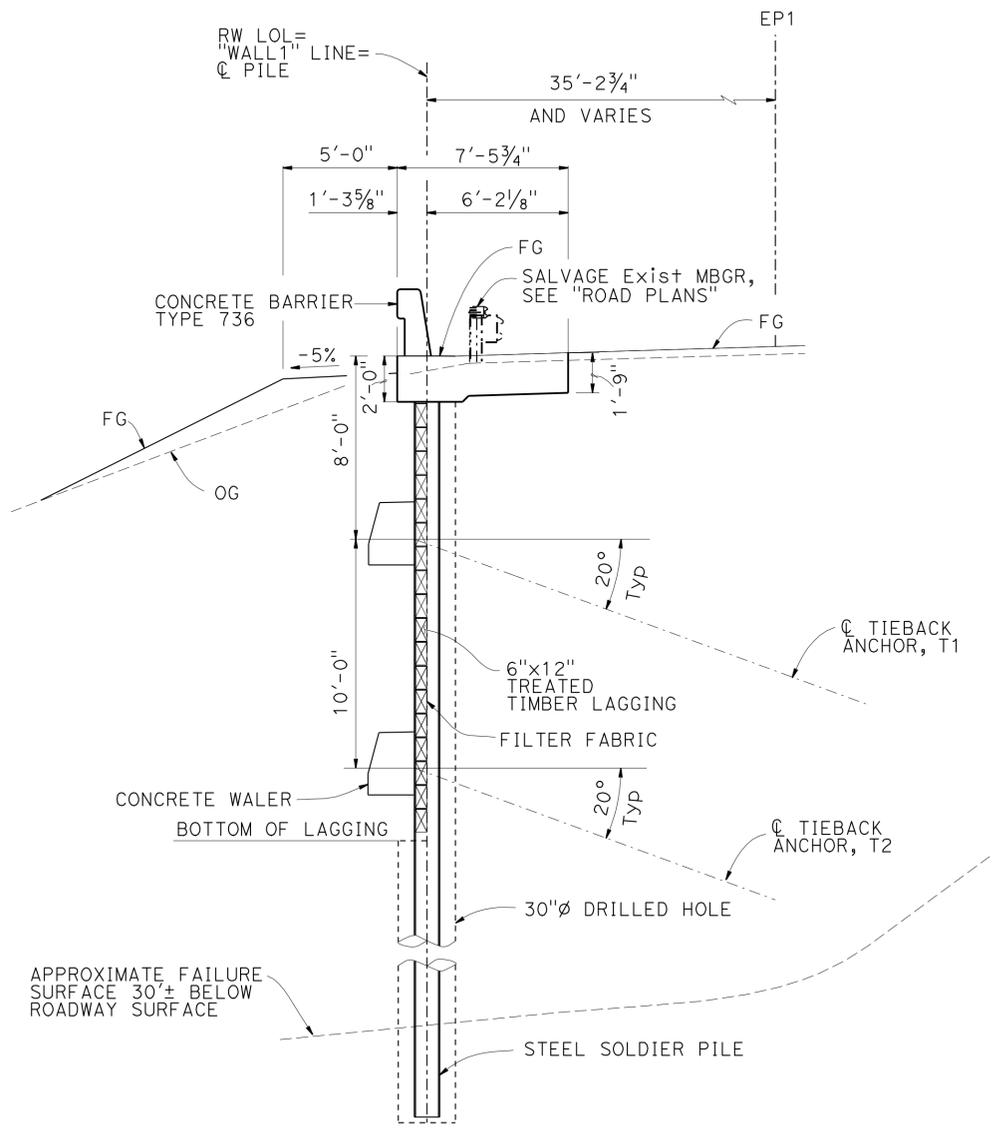
QUANTITIES

STRUCTURE EXCAVATION (SOLDIER PILE WALL)	550	CY
STRUCTURE BACKFILL (SOLDIER PILE WALL)	435	CY
CONCRETE BACKFILL (SOLDIER PILE WALL)	188	CY
LEAN CONCRETE BACKFILL	133	CY
STEEL SOLDIER PILE (W 14 X 89)	1,687	LF
30" DRILLED HOLE	1,765	LF
TIEBACK ANCHOR	70	EA
STRUCTURAL CONCRETE, RETAINING WALL	76	CY
STRUCTURAL CONCRETE, BARRIER SLAB	99	CY
BAR REINFORCING STEEL (RETAINING WALL)	20,580	LB
TIMBER LAGGING	24	MFBM
CLEAN AND PAINT STEEL SOLDIER PILING	LUMP	SUM
PREPARE AND STAIN CONCRETE	1,200	SQFT
CONCRETE BARRIER (TYPE 736)	193	LF

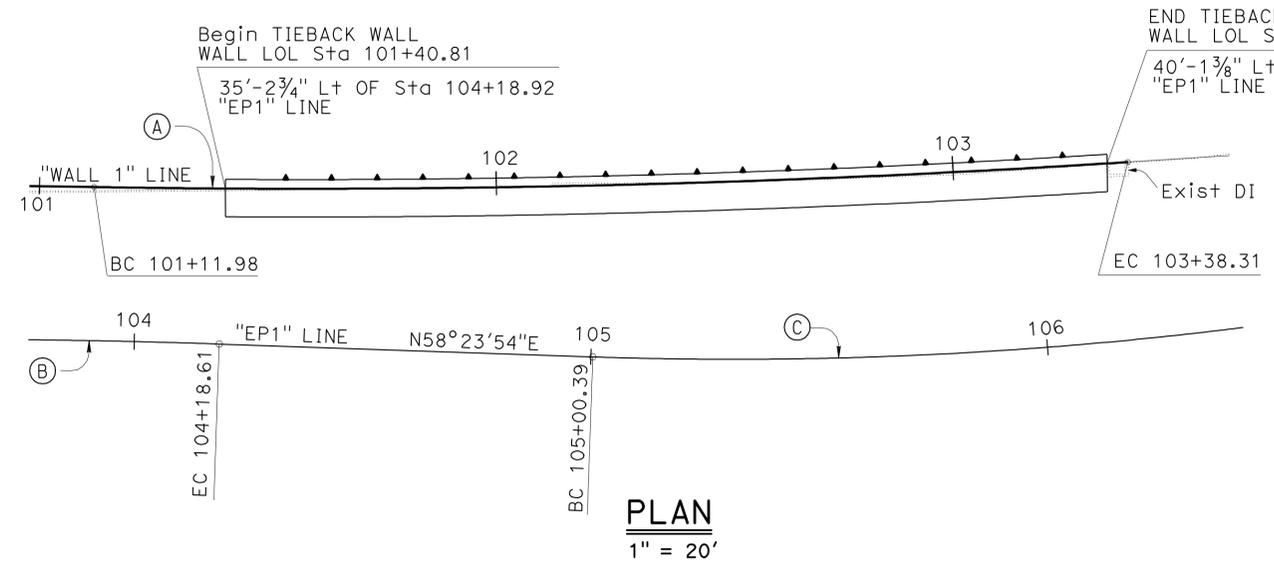


MIRRORED ELEVATION
1" = 20'

- Notes:
1. For placement of temporary railing type K, see "Road Plans"
 2. For pile / tieback data table, general notes, standard plans list and index to plans see "INDEX TO PLANS" sheet
 3. For excavation / backfill, see "TYPICAL SECTION" sheet



TYPICAL SECTION
1/4" = 1'



PLAN
1" = 20'

No.	R	Δ	T	L	
(A)	2800.00'	4° 37' 53"	113.23'	226.33'	WALL 1
(B)	1776.00'	9° 42' 14"	150.76'	300.79'	EP 1
(C)	899.00'	27° 54' 24"	223.37'	437.87'	EP 1

CURVE DATA

GORDON DANKE DESIGN ENGINEER	DESIGN	BY Nasser Tachta	CHECKED Phil Lutz	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 9	BRIDGE NO.	WOODSIDE TIEBACK WALL
	DETAILS	BY Rania Heider	CHECKED Phil Lutz	LAYOUT	BY Phil Lutz			CHECKED Nasser Tachta	
	QUANTITIES	BY John Railey	CHECKED Phil Lutz	SPECIFICATIONS	BY S. Nelapatla	CHECKED S. Nelapatla	POST MILE	22.1	

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS: 0 1 2 3
 UNIT: 3594
 PROJECT NUMBER & PHASE: 04 0000 2051-1
 CONTRACT NO.: 04-455901
 DISREGARD PRINTS BEARING EARLIER REVISION DATES
 REVISION DATES: 7-11-11, 7-5-11
 SHEET 1 OF 12

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SM	84	22.1	43	53

Philip E. Lutz 07-11-11
 REGISTERED CIVIL ENGINEER DATE
 12-5-11
 PLANS APPROVAL DATE
 Philip E. Lutz
 No. C55839
 Exp. 12-31-12
 CIVIL
 STATE OF CALIFORNIA
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PILE / TIEBACK DATA TABLE

Pile No.	Station	TOP OF PILE Elev. (ft)	PILE TIP Elev. (ft)	TIEBACKS			
				T (kips)	T1	T (kips)	T2
					UNBOUNDED LENGTH (ft)		UNBOUNDED LENGTH (ft)
1	101+42.31	190.91	147.66				
2	101+47.31	190.60	147.35	105	50		
3	101+52.32	190.29	147.04	105	50		
4	101+57.32	189.99	146.74	105	50	105	45
5	101+62.32	189.68	146.43	105	50	105	45
6	101+67.32	189.37	146.12	105	50	105	45
7	101+72.32	189.06	145.81	105	50	105	45
8	101+77.32	188.76	145.51	105	50	105	45
9	101+82.32	188.45	145.20	105	50	105	45
10	101+87.32	188.14	144.89	105	50	105	45
11	101+92.32	187.83	144.58	105	50	105	45
12	101+97.32	187.53	144.28	105	50	105	45
13	102+02.32	187.22	143.97	105	50	105	45
14	102+07.32	186.91	143.66	105	50	105	45
15	102+12.32	186.60	143.35	105	50	105	45
16	102+17.32	186.30	143.05	105	50	105	45
17	102+22.32	185.99	142.74	105	50	105	45
18	102+27.32	185.68	142.43	105	50	105	45
19	102+32.32	185.37	142.12	105	50	105	45
20	102+37.32	185.07	141.82	105	50	105	45
21	102.42.32	184.76	141.51	105	50	105	45
22	102+47.32	184.45	141.20	105	50	105	45
23	102+52.32	184.14	140.89	105	50	105	45
24	102+57.32	183.83	140.58	105	50	105	45
25	102+62.32	183.53	140.28	105	50	105	45
26	102+67.32	183.22	139.97	105	50	105	45
27	102+72.32	182.91	139.66	105	50	105	45
28	102+77.32	182.60	139.35	105	50	105	45
29	102+82.32	182.30	139.05	105	50	105	45
30	102+87.32	181.99	138.74	105	50	105	45
31	102+92.32	181.68	138.43	105	50	105	45
32	102+97.32	181.37	138.12	105	50	105	45
33	103+02.32	181.07	137.82	105	50	105	45
34	103+07.32	180.75	137.50	105	50	105	45
35	103+12.32	180.45	137.20	105	50	105	45
36	103+17.32	180.14	136.89	105	50		
37	103+22.32	179.84	136.59	105	50		
38	103+27.32	179.53	136.28	105	50		
39	103+32.32	179.22	135.97	105	50		

GENERAL NOTES

DESIGN:
 AASHTO LRFD Bridge Design Specifications, 4th Edition/2007 with California Amendments

SOIL PARAMETERS:
 Active Pressure: Between 0 (Top of embankment buttress slope =Top of Wall) and 20 feet depth
 $\phi = 20^\circ$ $\gamma = 130$ pcf
 Passive Pressure: Below the depth of 20 feet
 $\phi = 30^\circ$ $\gamma = 130$ pcf
 $C = 0$ psf
 $\delta =$ Friction factor = 17°

REINFORCED CONCRETE:
 $f_y = 60$ ksi (Yield strength of reinforcement)
 $f'_c = 4$ ksi (Concrete compressive strength at 28 days)
 $n = 8$

STRUCTURAL STEEL:
 Steel Piles - ASTM Designation: A709/A709M, Grade 50 (345) or A572/A572M

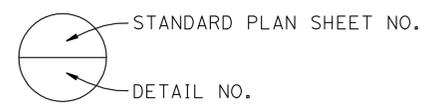
PRESTRESSING STEEL:
 Strands - ASTM designation A416
 $f_p =$ Minimum tensile strength of prestressing steel (Kips per square inch)
 A_s (Min) = Minimum cross sectional area of prestressing steel in Tieback tendon. (Square inch)
 A_s (Min) = $\frac{1.5 T}{0.75 f_{pu}}$

STRUCTURAL TIMBER:
 Treated Douglas Fir - Grade No. 1 or better
 Timber to be full sawn

SEISMIC LOADING:
 MCE loading by San Andreas Fault
 PGA = 0.67 g (g: Gravitational Acceleration)
 $K_H = 0.17$ g

STANDARD PLANS DATED MAY 2006

- A10A ACRONYMS AND ABBREVIATIONS (SHEET 1 OF 2)
- A10B ACRONYMS AND ABBREVIATIONS (SHEET 2 OF 2)
- A10C SYMBOLS (SHEET 1 OF 2)
- A10D SYMBOLS (SHEET 2 OF 2)

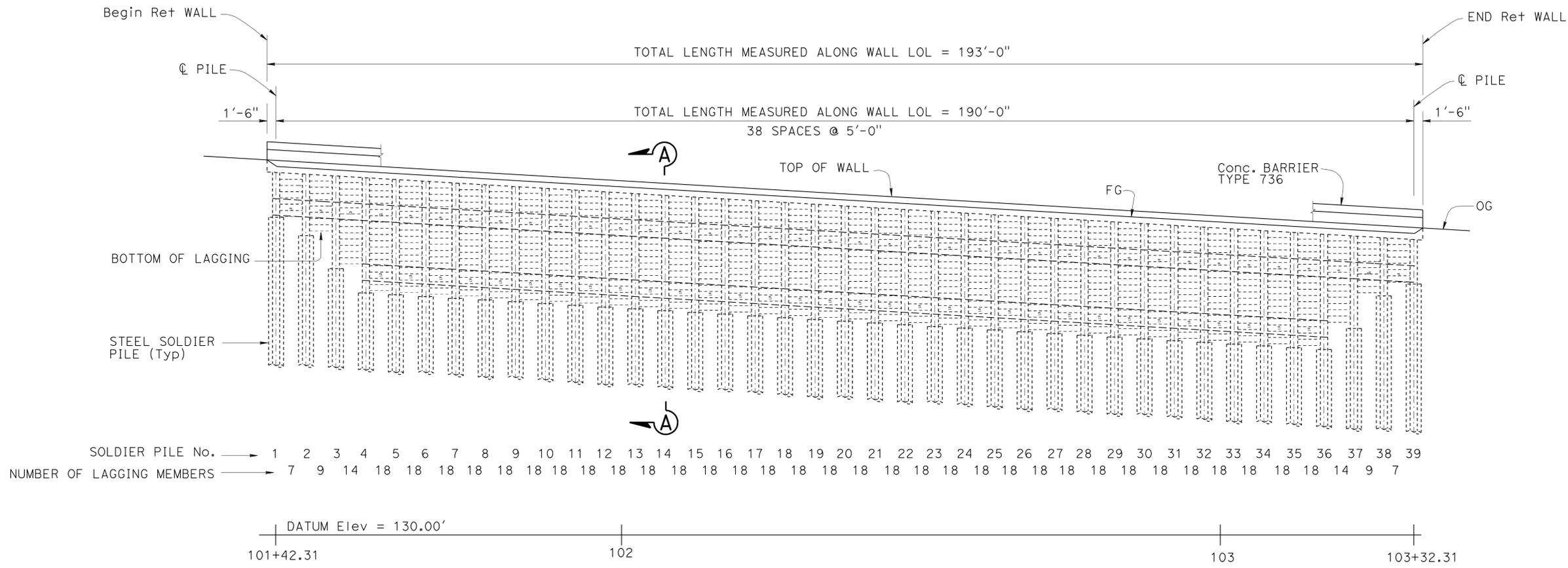


INDEX TO PLANS

- 1 GENERAL PLAN
- 2 INDEX TO PLANS
- 3 STRUCTURE PLAN
- 4 FOUNDATION PLAN
- 5 TYPICAL SECTION
- 6 DETAILS
- 7 BARRIER DETAIL
- 8 TIEBACK DETAILS
- 9 LOG OF TEST BORING No. 1 OF 4
- 10 LOG OF TEST BORING No. 2 OF 4
- 11 LOG OF TEST BORING No. 3 OF 4
- 12 LOG OF TEST BORING No. 4 OF 4

<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">DESIGN</td> <td style="width: 30%;">BY Nasser Tachta</td> <td style="width: 30%;">CHECKED Phil Lutz</td> </tr> <tr> <td>DETAILS</td> <td>BY Rania Heider</td> <td>CHECKED Phil Lutz</td> </tr> <tr> <td>QUANTITIES</td> <td>BY John Railey</td> <td>CHECKED Phil Lutz</td> </tr> </table>	DESIGN	BY Nasser Tachta	CHECKED Phil Lutz	DETAILS	BY Rania Heider	CHECKED Phil Lutz	QUANTITIES	BY John Railey	CHECKED Phil Lutz	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 9	BRIDGE NO. 35E0035 POST MILE 22.1	WOODSIDE TIEBACK WALL INDEX TO PLANS			
DESIGN	BY Nasser Tachta	CHECKED Phil Lutz														
DETAILS	BY Rania Heider	CHECKED Phil Lutz														
QUANTITIES	BY John Railey	CHECKED Phil Lutz														
STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 09-01-10)		ORIGINAL SCALE IN INCHES FOR REDUCED PLANS	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 25%; border: 1px solid black;">0</td> <td style="width: 25%; border: 1px solid black;">1</td> <td style="width: 25%; border: 1px solid black;">2</td> <td style="width: 25%; border: 1px solid black;">3</td> </tr> </table>	0	1	2	3	UNIT: 3594 PROJECT NUMBER & PHASE: 0400002051-1 CONTRACT NO.: 04-455901	DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%; border: 1px solid black;">3-08-11</td> <td style="width: 33%; border: 1px solid black;">5-4-11</td> <td style="width: 33%; border: 1px solid black;">6-23-11</td> </tr> </table>	3-08-11	5-4-11	6-23-11	SHEET OF <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; border: 1px solid black;">2</td> <td style="width: 50%; border: 1px solid black;">12</td> </tr> </table>	2	12
0	1	2	3													
3-08-11	5-4-11	6-23-11														
2	12															

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SM	84	22.1	44	53
			07-11-11	DATE	
REGISTERED CIVIL ENGINEER			Philip E. Lutz		
12-5-11			PLANS APPROVAL DATE		
			Philip E. Lutz		
			No. C55839		
			Exp. 12-31-12		
			CIVIL		
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ELEVATION
1" = 10'

- Notes:
1. For pile elevations and tieback data, see "INDEX TO PLANS" sheet.
 2. For "Section A - A", see "TYPICAL SECTION" sheet

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 09-01-10)	DESIGN	BY Nasser Tachta	CHECKED Phil Lutz	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 9	BRIDGE NO.	35E0035	WOODSIDE TIEBACK WALL STRUCTURE PALN	
	DETAILS	BY Rania Heider	CHECKED Phil Lutz			POST MILE	22.1		
	QUANTITIES	BY John Railey	CHECKED Phil Lutz						
ORIGINAL SCALE IN INCHES FOR REDUCED PLANS					UNIT: 3594	PROJECT NUMBER & PHASE: 04 0000 2051-1		CONTRACT NO.: 4S5901	
DISREGARD PRINTS BEARING EARLIER REVISION DATES								REVISION DATES	SHEET 3 OF 12

USERNAME => s124496 DATE PLOTTED => 06-DEC-2011 TIME PLOTTED => 07:35

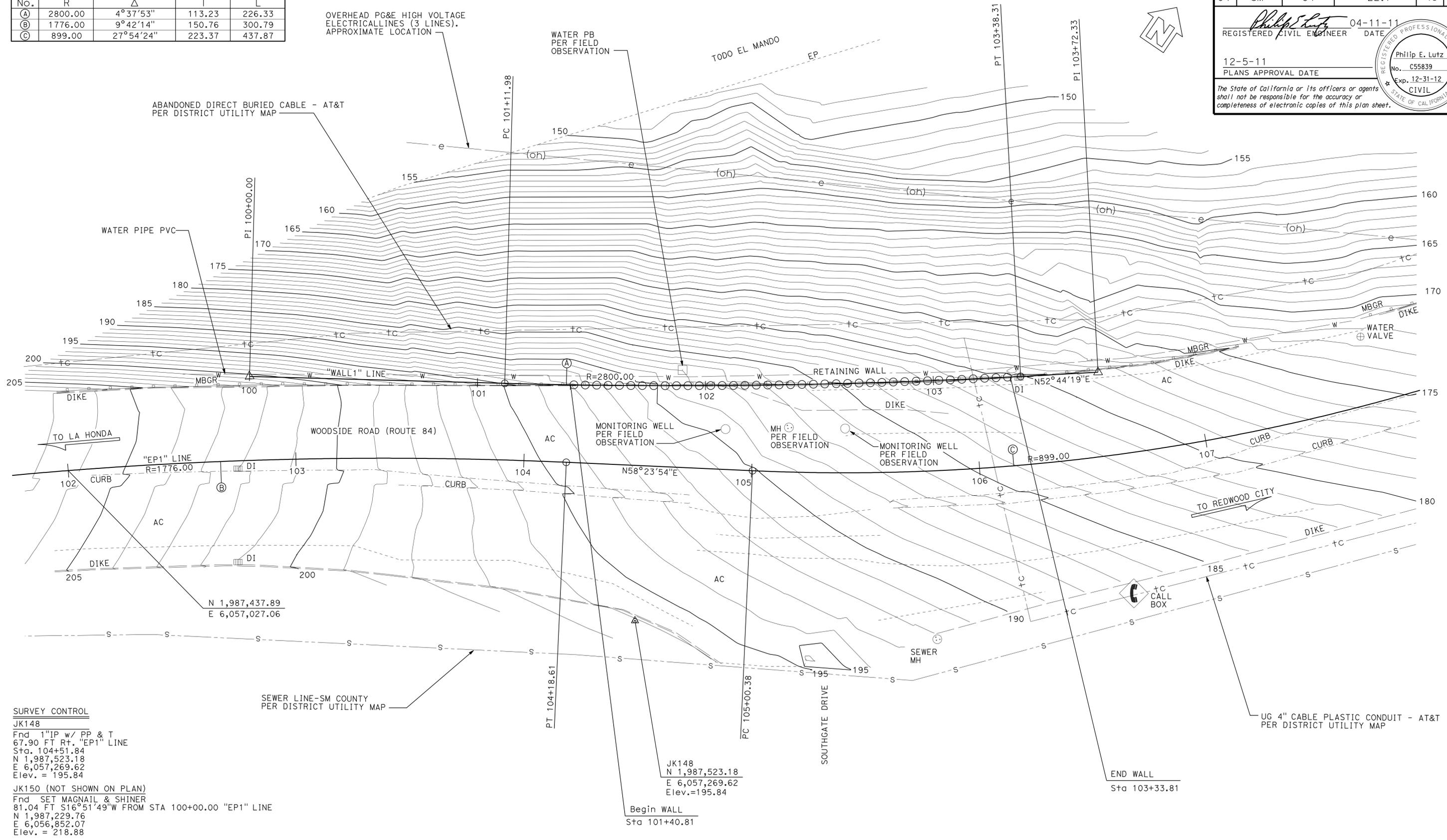
CURVE DATA				
No.	R	Δ	T	L
(A)	2800.00	4°37'53"	113.23	226.33
(B)	1776.00	9°42'14"	150.76	300.79
(C)	899.00	27°54'24"	223.37	437.87

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SM	84	22.1	45	53

REGISTERED CIVIL ENGINEER *Philip E. Lutz* 04-11-11
 DATE
 PLANS APPROVAL DATE 12-5-11

Philip E. Lutz
 No. C55839
 Exp. 12-31-12
 CIVIL
 STATE OF CALIFORNIA

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SURVEY CONTROL
 JK148
 Fnd 1"IP w/ PP & T
 67.90 FT RT. "EP1" LINE
 Sta. 104+51.84
 N 1,987,523.18
 E 6,057,269.62
 Elev. = 195.84
 JK150 (NOT SHOWN ON PLAN)
 Fnd SET MAGNAIL & SHINER
 81.04 FT S16°51'49"W FROM STA 100+00.00 "EP1" LINE
 N 1,987,229.76
 E 6,056,852.07
 Elev. = 218.88

PRELIMINARY INVESTIGATION SECTION			DESIGN BY Nasser Tachta	CHECKED Phil Lutz	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 9	BRIDGE NO. 35E0035	WOODSIDE TIEBACK WALL FOUNDATION PLAN
SCALE VERT. DATUM NAVD88	PHOTOGRAMMETRY AS OF: X	DETAILS BY Rania Heider	CHECKED Phil Lutz	POST MILE 22.0/22.1				
1"=20'	HORIZ. DATUM NAD83 (1991.35)	QUANTITIES BY John Railey	CHECKED Phil Lutz					

STRUCTURES FOUNDATION PLAN SHEET (ENGLISH) (REV. 09-01-10)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

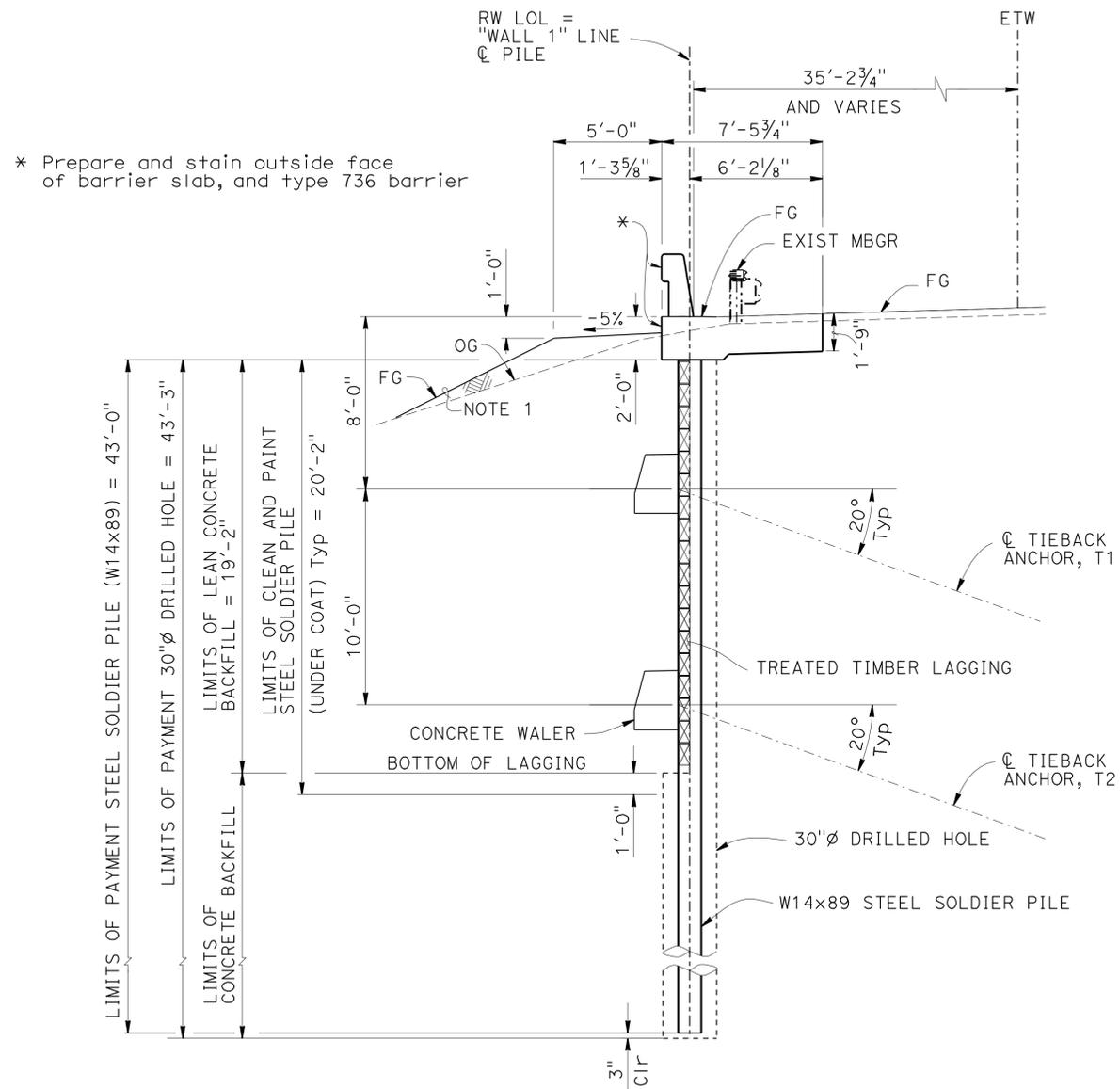
UNIT: 3646
 PROJECT NUMBER & PHASE: 0400002051 1
 CONTRACT NO.: 04-4S5901

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES	SHEET	OF
03/24/11 07/07/11	4	12

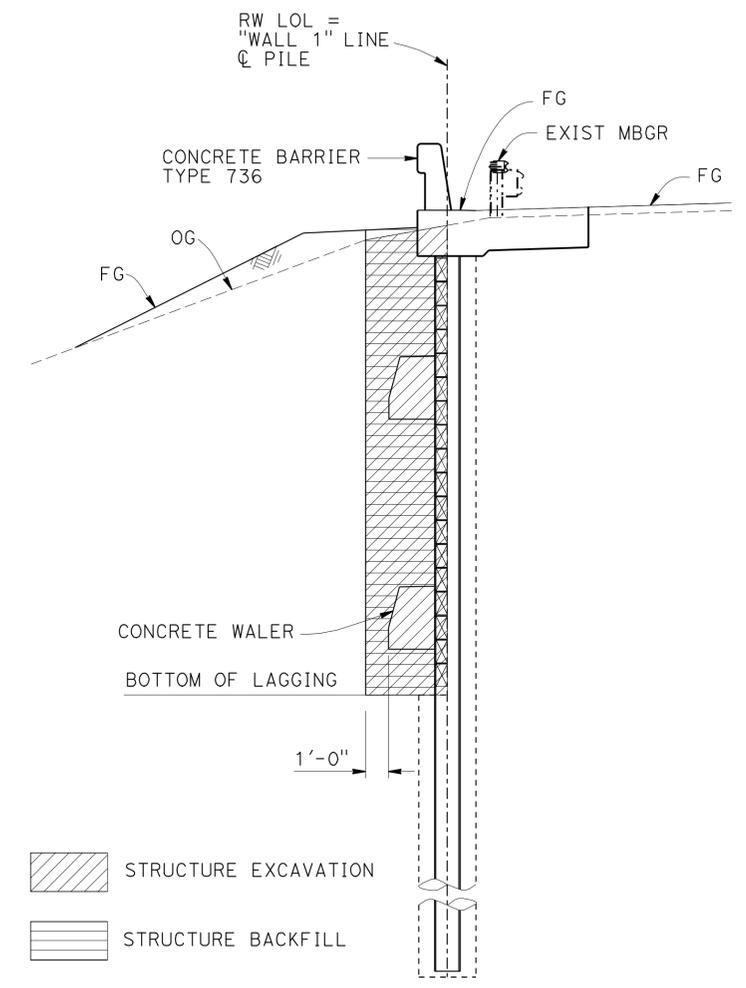
FILE => 04-4s5901-e-fpl01.dgn

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SM	84	22.1	46	53
			07-11-11	DATE	
			12-5-11	DATE	
			REGISTERED CIVIL ENGINEER		
			Philip E. Lutz		
			No. C55839		
			Exp. 12-31-12		
			CIVIL		
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SECTION A-A
1/4" = 1'-0"

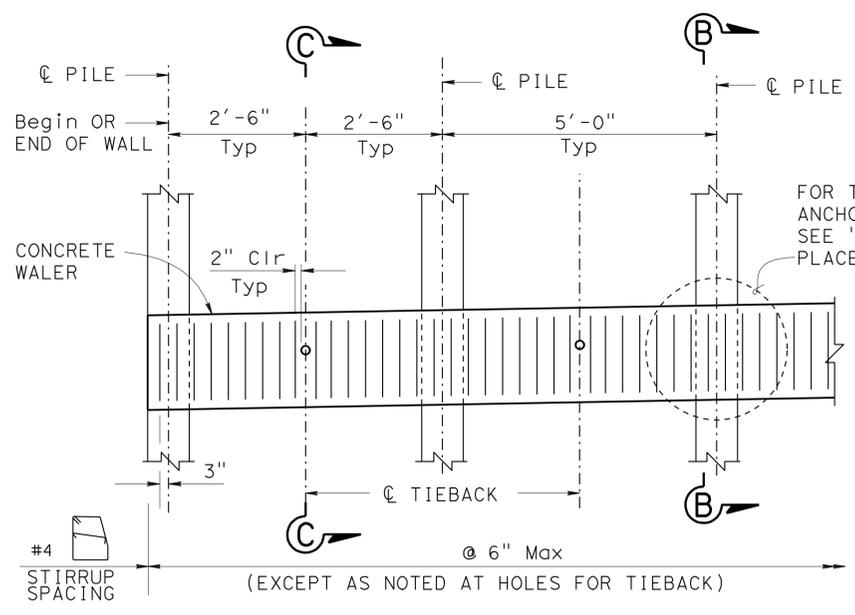
- Notes:
1. For grading of embankment, see "ROAD PLANS".
 2. For barrier slab details, see "BARRIER DETAIL" sheet



LIMITS OF EXCAVATION AND BACKFILL
1/4" = 1'-0"

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 09-01-10)	DESIGN	BY Nasser Tachta	CHECKED Phil Lutz	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 9	BRIDGE NO.	WOODSIDE TIEBACK WALL	
	DETAILS	BY Rania Heider	CHECKED Phil Lutz			35E0035	TYPICAL SECTION	
	QUANTITIES	BY John Railey	CHECKED Phil Lutz			POST MILE	22.1	
ORIGINAL SCALE IN INCHES FOR REDUCED PLANS					UNIT: 3594	PROJECT NUMBER & PHASE: 04 0000 2051-1		CONTRACT NO.: 04-45901
					DISREGARD PRINTS BEARING EARLIER REVISION DATES		REVISION DATES	SHEET 5 OF 12

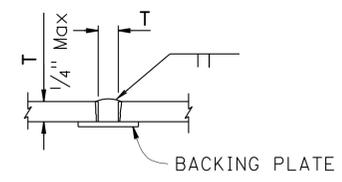
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SM	84	22.1	47	53
			07-11-11		
Philip E. Lutz			DATE		
REGISTERED CIVIL ENGINEER					
12-5-11			PLANS APPROVAL DATE		
Philip E. Lutz			REGISTERED PROFESSIONAL ENGINEER		
No. C55839			Exp. 12-31-12		
CIVIL			STATE OF CALIFORNIA		
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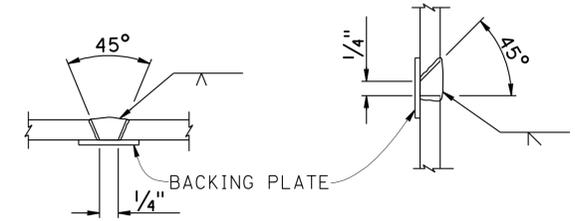
WALER PART ELEVATION
NO SCALE

Note: Timber lagging not shown.

FOR TYPICAL CONCRETE ANCHOR LAYOUT AT PILES, SEE "CONCRETE ANCHOR PLACEMENT DETAIL"



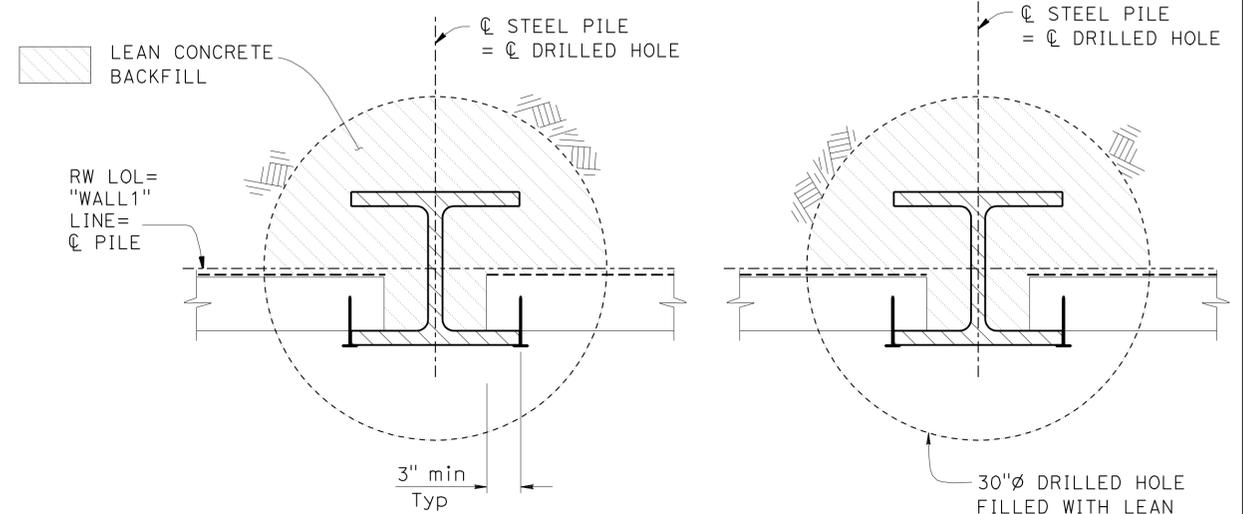
SQUARE GROOVE



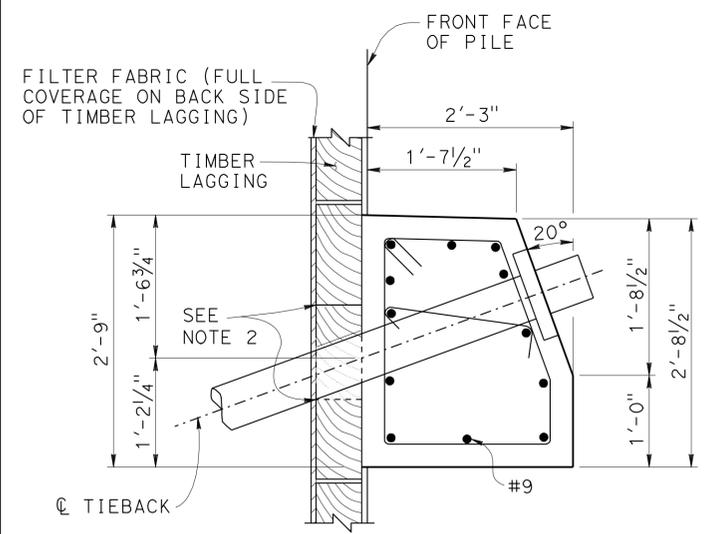
SINGLE VEE-GROOVE SINGLE BEVEL-GROOVE

PILE WELDING DETAIL-BUTT JOINTS

- Notes:
1. Single Vee-Groove and square groove permitted for all positions.
 2. Single Bevel-Groove permitted for horizontal joints only.

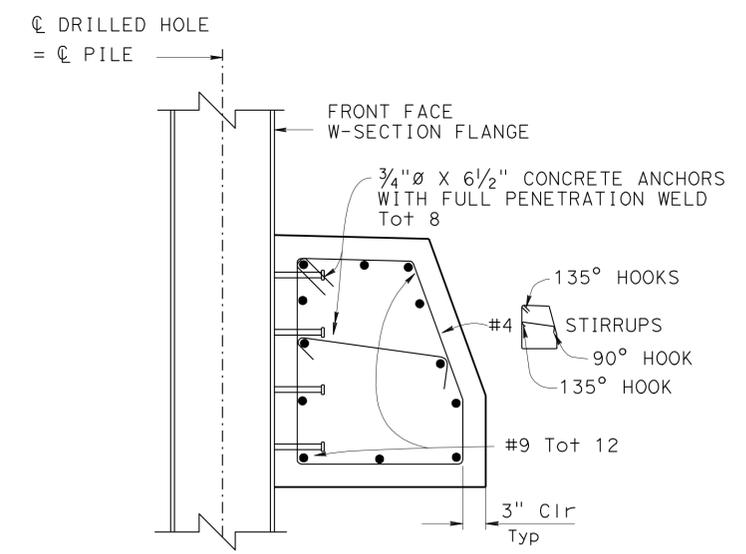


SECTION A-A
NO SCALE



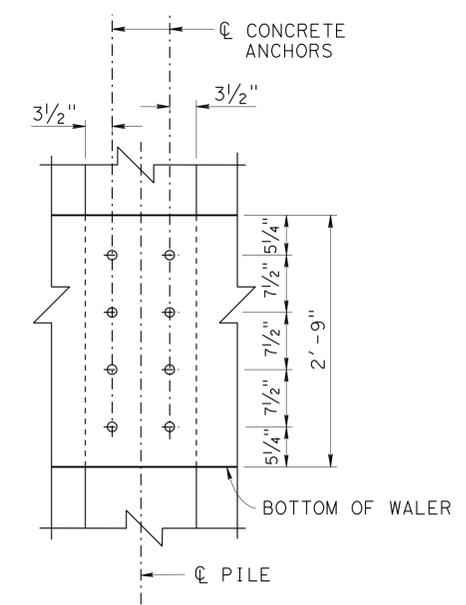
SECTION C-C
1" = 1'-0"

- Notes:
1. For Reinf, see "SECTION D-D".
 2. Omit gap between lagging members behind concrete waler.

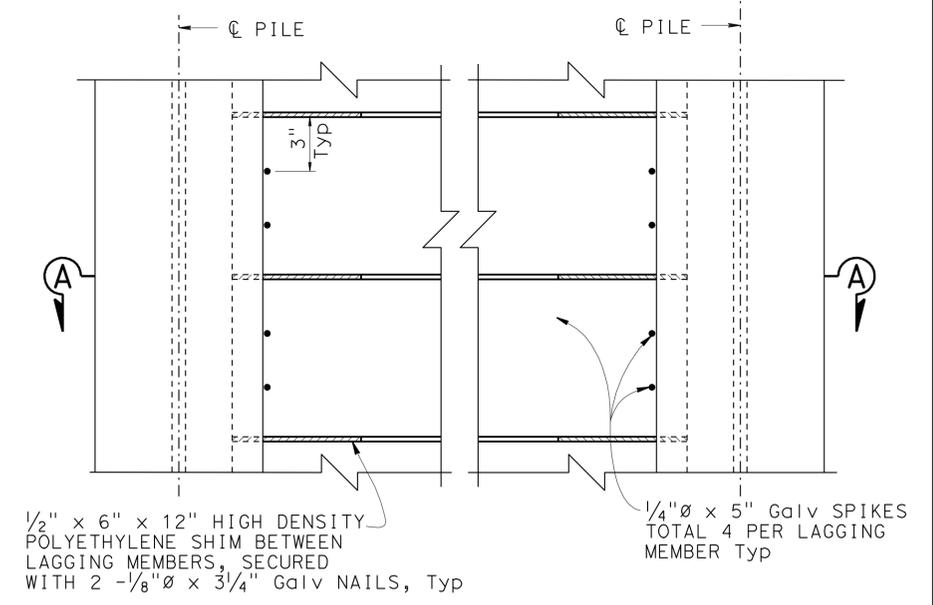


SECTION B-B
1" = 1'-0"

Note: For dimensions not shown, see "SECTION C-C"



CONCRETE ANCHOR PLACEMENT DETAIL
1" = 1'-0"

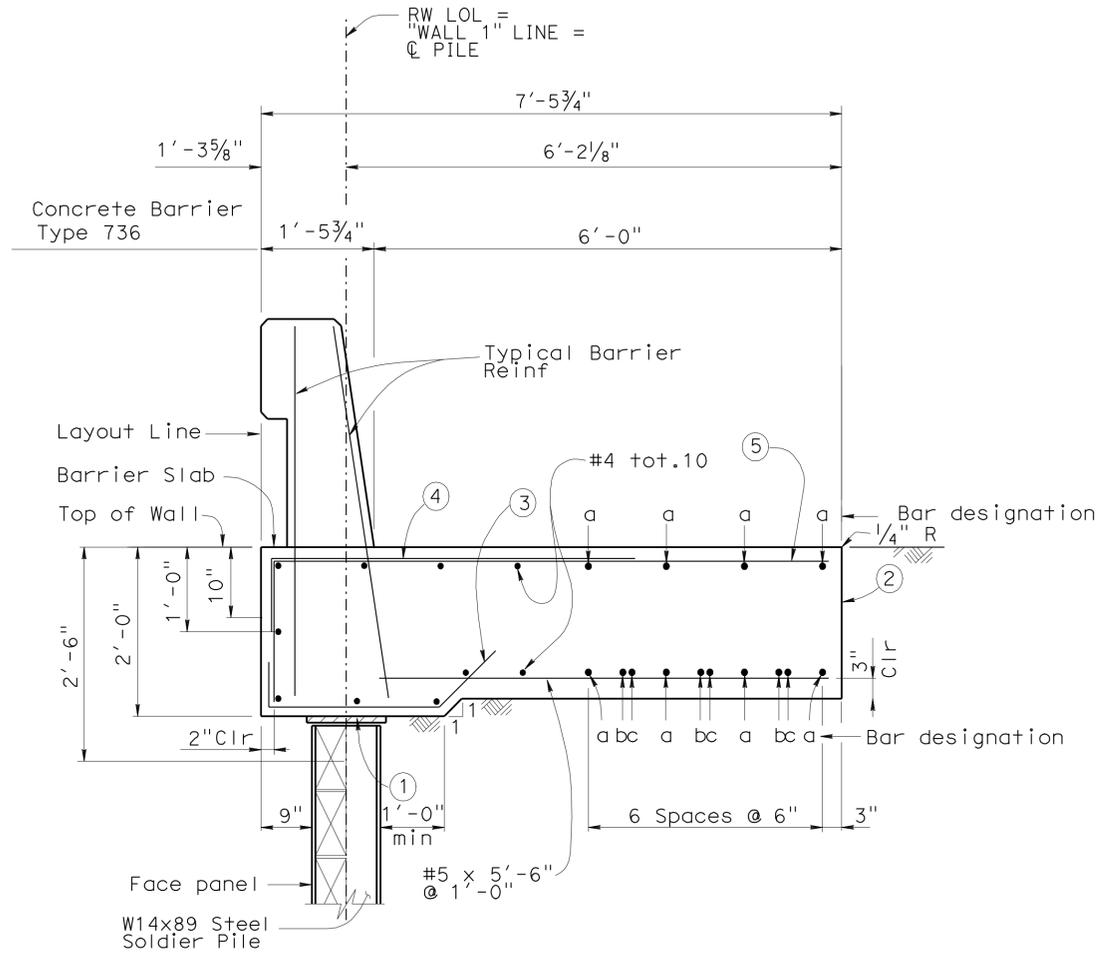


LAGGING PART ELEVATION
NO SCALE

DESIGN	BY Nasser Tachta	CHECKED Phil Lutz	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 9	BRIDGE NO.	WOODSIDE TIEBACK WALL DETAILS
DETAILS	BY Rania Heider	CHECKED Phil Lutz			35E0035	
QUANTITIES	BY John Railey	CHECKED Phil Lutz			POST MILE 22.1	

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SM	84	22.1	48	53

REGISTERED CIVIL ENGINEER *Philip E. Lutz* 07-11-11 DATE
 PLANS APPROVAL DATE 12-5-11
 Philip E. Lutz
 No. C55839
 Exp. 12/31/12
 CIVIL
 STATE OF CALIFORNIA
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SECTION AT TOP OF WALL WITH BARRIER SLAB AND CONCRETE BARRIER

- NOTES:
1. Clearance to reinforcing steel in concrete barrier to be 1".
 2. Not all barrier reinforcement shown.
 3. No expansion joints in concrete barrier or barrier slab within retaining wall limits.

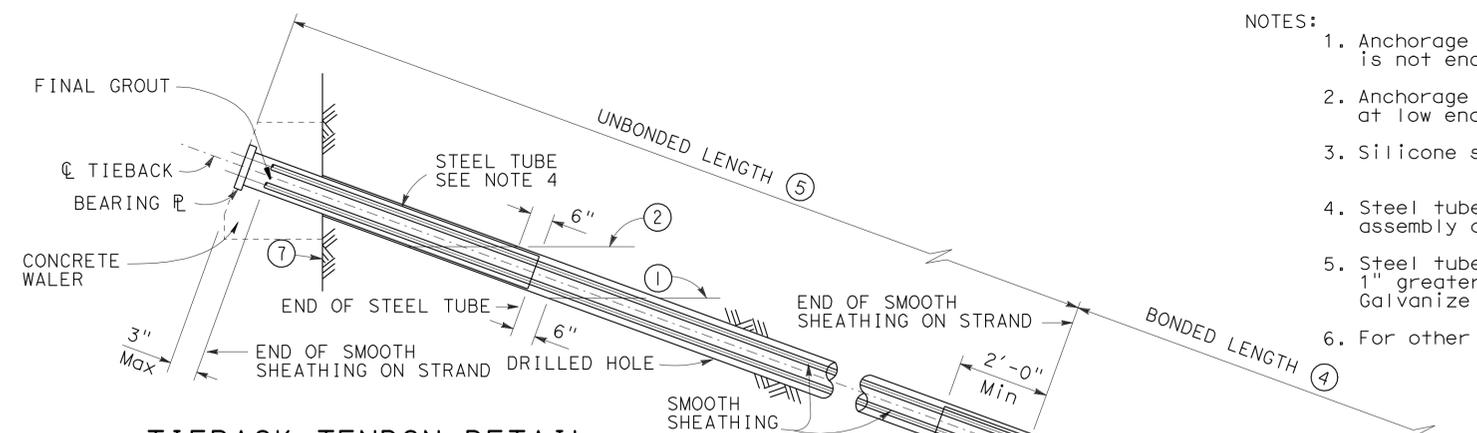
- LEGEND:
- ① 1" Expanded polystyrene.
 - ② Contact joint.
 - ③ #5 $\frac{6}{4}$ @ 1'-0"
 - ④ #5 $\frac{4'-7}{1}$ @ 1'-0" bundled with ⑧ bars.
 - ⑤ #5 $\frac{7'-1}{2}$ @ 1'-0"

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 09-01-10)	DESIGN	BY Nasser Tachta	CHECKED Phil Lutz	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 9	BRIDGE NO.	WOODSIDE TIEBACK	
	DETAILS	BY Rania Heider	CHECKED Phil Lutz			35E0035	BARRIER DETAIL	
	QUANTITIES	BY John Railey	CHECKED Phil Lutz			POST MILE	7	
ORIGINAL SCALE IN INCHES FOR REDUCED PLANS						22.1	CONTRACT NO.: 04-455901	
UNIT: 3594 PROJECT NUMBER & PHASE: 04 0000 2051-1						DISREGARD PRINTS BEARING EARLIER REVISION DATES		REVISION DATES
FILE => 04-465901-1-bdet.dgn						4-26-11	5-17-11	7 12

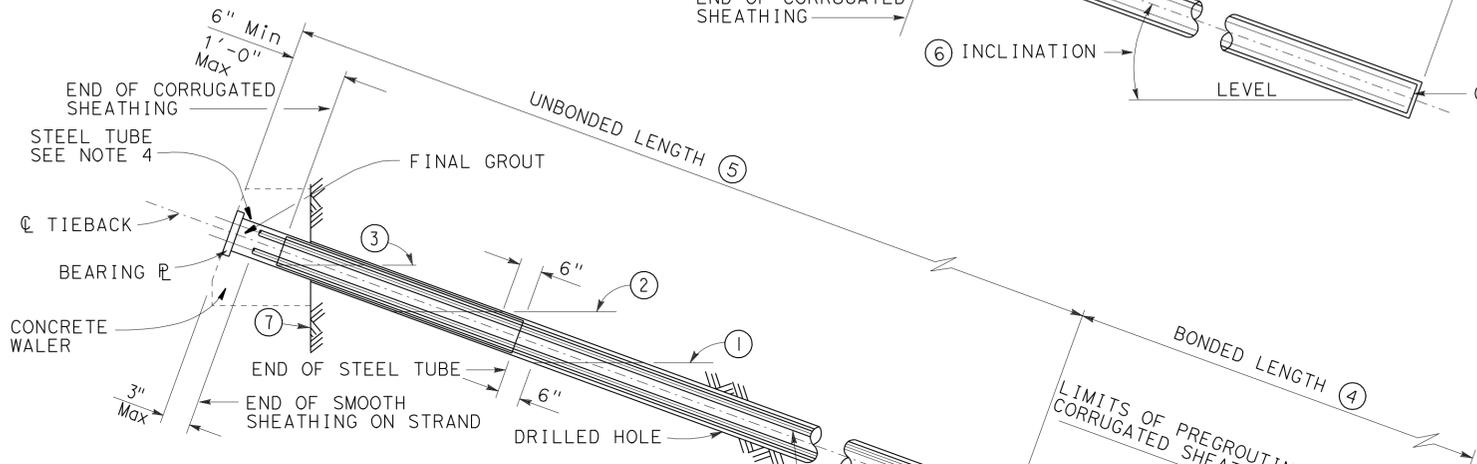
USERNAME => s124496 DATE PLOTTED => 06-DEC-2011 TIME PLOTTED => 07:35

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SM	84	22.1	49	53
			07-11-11	DATE	
			12-5-11	PLANS APPROVAL DATE	
			REGISTERED CIVIL ENGINEER Philip E Lutz No. C55839 Exp. 12/31/12 CIVIL STATE OF CALIFORNIA		
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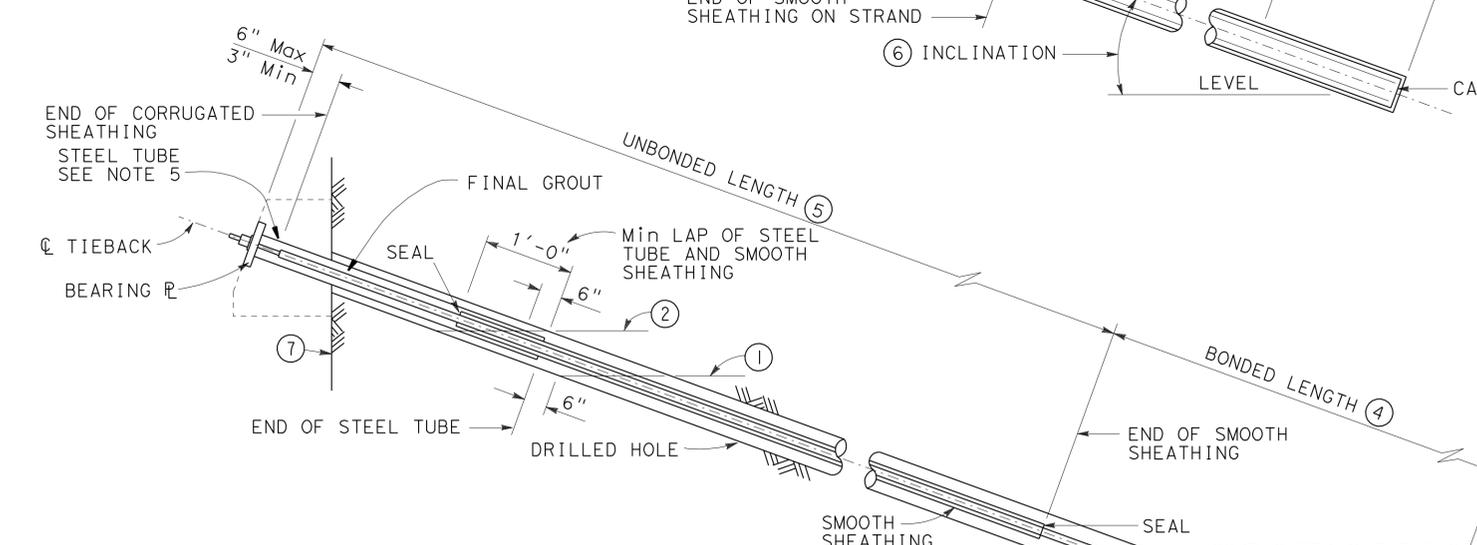
- NOTES:
1. Anchorage enclosure shall only be used when anchor head assembly is not enclosed in concrete.
 2. Anchorage enclosure shall have provisions to allow injecting grout at low end and venting at high end. Galvanize after fabrication.
 3. Silicone sealant to cover full width of flange.
 4. Steel tube welded to bearing plate (Min thickness = 1/4"). Galvanize assembly after fabrication
 5. Steel tube welded to bearing plate inside diameter of steel tube to be 1" greater than outside diameter of smooth sheathing (Min thickness = 1/4") Galvanize assembly after fabrication.
 6. For other wall details, see Structural Plans.



TIEBACK TENDON DETAIL (STRAND) - (ALTERNATIVE A)



TIEBACK TENDON DETAIL (STRAND) - (ALTERNATIVE B)

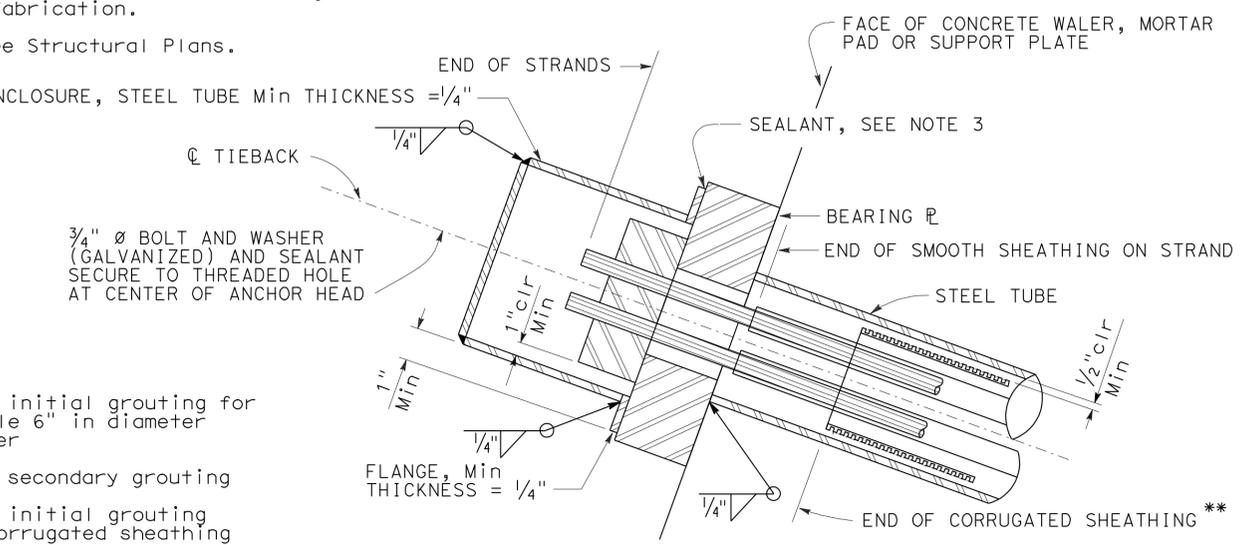


TIEBACK TENDON DETAIL (BARS)

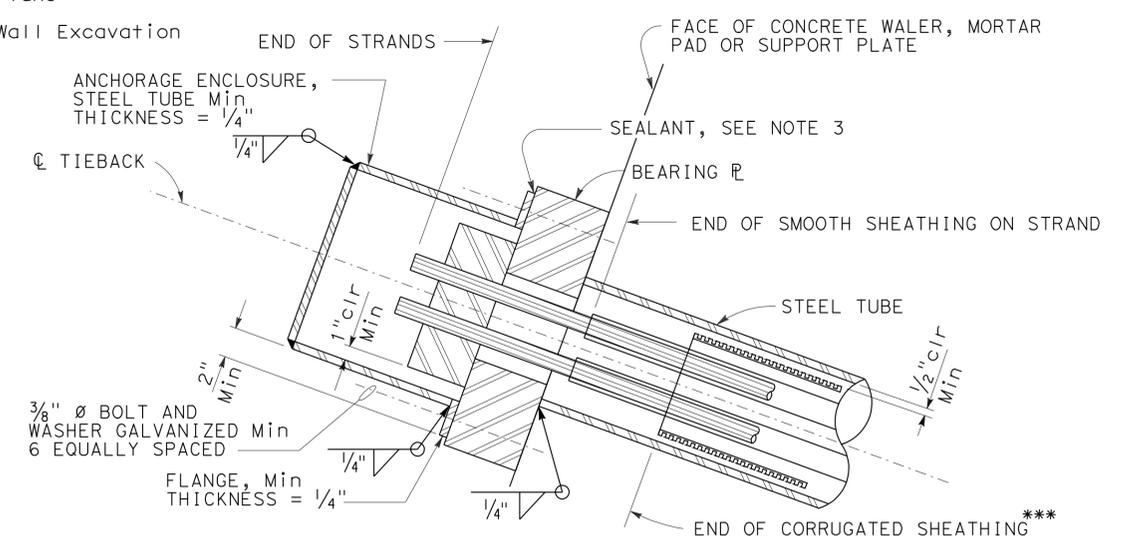
ANCHORAGE ENCLOSURE, STEEL TUBE MIN THICKNESS = 1/4"

LEGEND:

- 1 Level of initial grouting for drill hole 6" in diameter or smaller
- 2 Level of secondary grouting
- 3 Level of initial grouting inside corrugated sheathing
- 4 Bonded length shall be determined by the contractor
- 5 Unbonded length T1 = 50', T2 = 45'
- 6 For inclination, see Project Plans
- 7 Face of Wall Excavation



ALTERNATIVE X
** Alternative B tendon only



ALTERNATIVE Y
*** Alternative B tendon only
ANCHORAGE ENCLOSURE DETAILS

DESIGN	BY Nasser Tachta	CHECKED Phil Lutz
DETAILS	BY Rania Heider	CHECKED Phil Lutz
QUANTITIES	BY John Railey	CHECKED Phil Lutz

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
STRUCTURE DESIGN
DESIGN BRANCH 9

BRIDGE NO.	35E0035
POST MILE	22.1

WOODSIDE TIEBACK
TIEBACK DETAILS

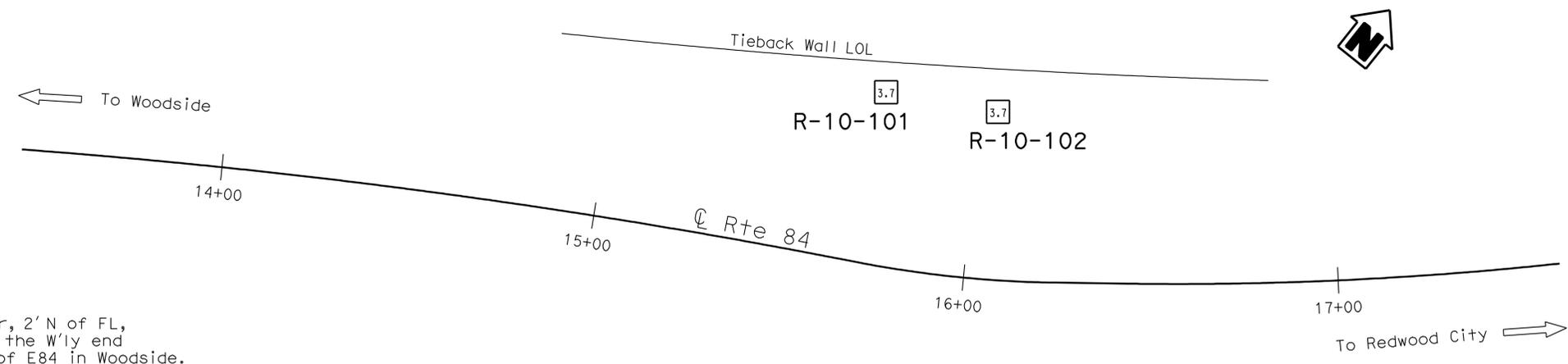
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	SM	84	22.1	50	53

M. Momenzadeh
 5-4-11
 GEOTECHNICAL ENGINEER

12-5-11
 PLANS APPROVAL DATE

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



BENCH MARK

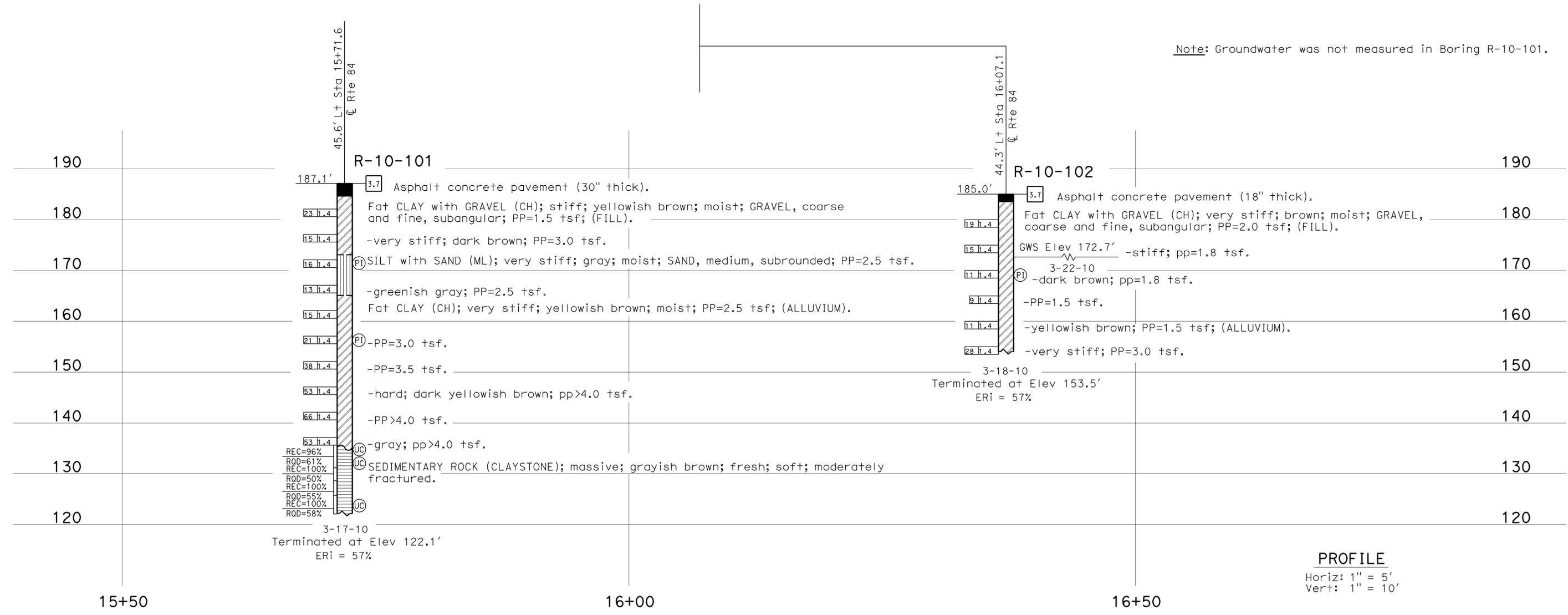
JK 150, Set Mag and Shiner, 2' N of FL, in bike lane +/- 57' from the W'ly end of MBGR on S'ly shoulder of E84 in Woodside.

N 1,987,229.763
 E 6,056,852.074
 Elev 218.875

NAVD88

PLAN
 1" = 20'

Note: Groundwater was not measured in Boring R-10-101.



ENGINEERING SERVICES		GEOTECHNICAL SERVICES		STATE OF CALIFORNIA		DIVISION OF ENGINEERING SERVICES		BRIDGE NO.		WOODSIDE TIEBACK WALL	
FUNCTIONAL SUPERVISOR		DRAWN BY: W. Tang 04/11		DEPARTMENT OF TRANSPORTATION		STRUCTURE DESIGN		35E0035		LOG OF TEST BORINGS 1 OF 4	
NAME: T. Pokrywka		CHECKED BY: J. Moore		FIELD INVESTIGATION BY: D. Nesbitt		DESIGN BRANCH		POST MILES 22.1			
06S GEOLOGIST LOG OF TEST BORINGS SHEET		ORIGINAL SCALE IN INCHES FOR REDUCED PLANS		UNIT: 3594		PROJECT NUMBER & PHASE: 0400002051-1		CONTRACT NO.: 04-455901		REVISION DATES	
				0 1 2 3				DISREGARD PRINTS BEARING EARLIER REVISION DATES		9 12	

USERNAME => s124496 DATE PLOTTED => 06-DEC-2011 TIME PLOTTED => 07:35

M. Momenzadeh
 5-4-11
 GEOTECHNICAL ENGINEER
 12-5-11
 PLANS APPROVAL DATE

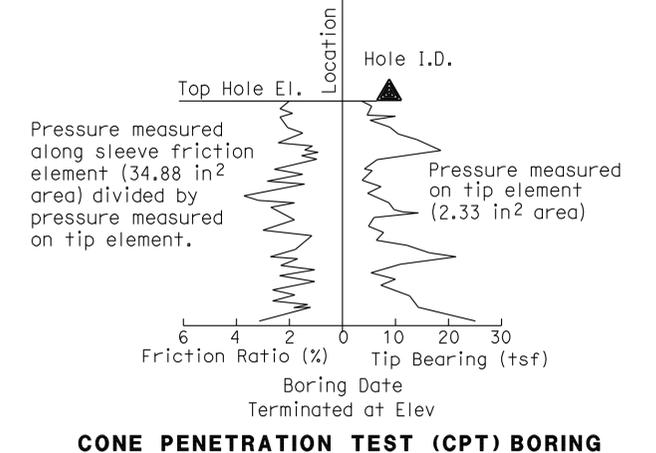
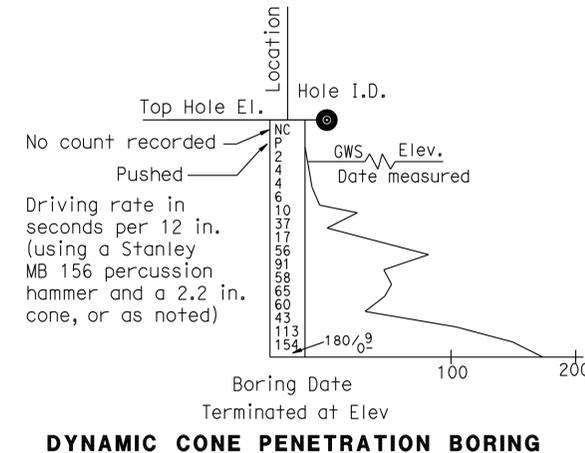
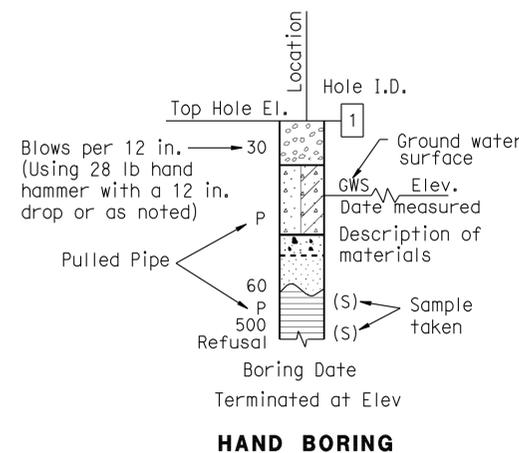
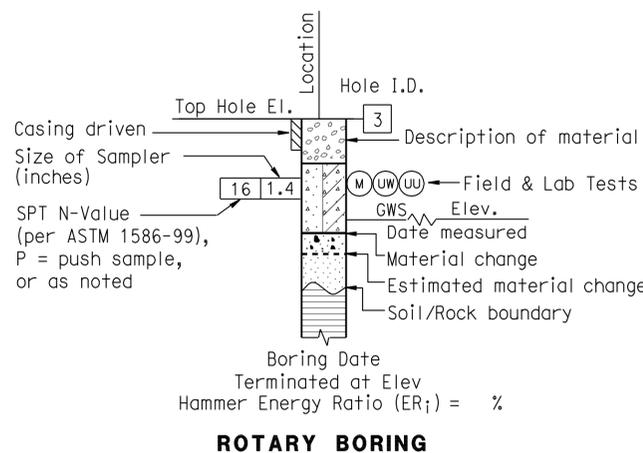
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CEMENTATION	
Description	Criteria
Weak	Crumbles or breaks with handling or little finger pressure.
Moderate	Crumbles or breaks with considerable finger pressure.
Strong	Will not crumble or break with finger pressure.

BOREHOLE IDENTIFICATION		
Symbol	Hole Type	Description
	A	Auger Boring (hollow or solid stem bucket)
	R	Rotary drilled boring (conventional)
	RW	Rotary drilled with self-casing wire-line
	RC	Rotary core with continuously-sampled, self-casing wire-line
	P	Rotary percussion boring (air)
	R	Rotary drilled diamond core
	HD	Hand driven (1-inch soil tube)
	HA	Hand Auger
	D	Dynamic Cone Penetration Boring
	CPT	Cone Penetration Test (ASTM D 5778)
	O	Other (note on LOTB)

Note: Size in inches.

CONSISTENCY OF COHESIVE SOILS				
Description	Shear Strength (tsf)	Pocket Penetrometer Measurement, PP, (tsf)	Torvane Measurement, TV, (tsf)	Vane Shear Measurement, VS, (tsf)
Very Soft	Less than 0.12	Less than 0.25	Less than 0.12	Less than 0.12
Soft	0.12 - 0.25	0.25 - 0.5	0.12 - 0.25	0.12 - 0.25
Medium Stiff	0.25 - 0.5	0.5 - 1	0.25 - 0.5	0.25 - 0.5
Stiff	0.5 - 1	1 - 2	0.5 - 1	0.5 - 1
Very Stiff	1 - 2	2 - 4	1 - 2	1 - 2
Hard	Greater than 2	Greater than 4	Greater than 2	Greater than 2



GROUP SYMBOLS AND NAMES					
Graphic/Symbol	Group Names	Graphic/Symbol	Group Names	Graphic/Symbol	Group Names
	GW	Well-graded GRAVEL		CL	Lean CLAY
		Well-graded GRAVEL with SAND			Lean CLAY with SAND
	GP	Poorly-graded GRAVEL		CL-ML	Lean CLAY with GRAVEL
		Poorly-graded GRAVEL with SAND			SANDY lean CLAY
	GW-GM	Well-graded GRAVEL with SILT		ML	SANDY lean CLAY with GRAVEL
		Well-graded GRAVEL with SILT and SAND			GRAVELLY lean CLAY
	GW-GC	Well-graded GRAVEL with CLAY (or SILTY CLAY)		OH	GRAVELLY lean CLAY with SAND
		Well-graded GRAVEL with CLAY and SAND (or SILTY CLAY and SAND)			GRAVELLY lean CLAY with SAND
	GP-GM	Poorly-graded GRAVEL with SILT		OH	ORGANIC lean CLAY
		Poorly-graded GRAVEL with SILT and SAND			ORGANIC lean CLAY with SAND
	GP-GC	Poorly-graded GRAVEL with CLAY (or SILTY CLAY)		OH	ORGANIC lean CLAY with GRAVEL
		Poorly-graded GRAVEL with CLAY and SAND (or SILTY CLAY and SAND)			SANDY ORGANIC lean CLAY
	GM	SILTY GRAVEL		OH	SANDY ORGANIC lean CLAY with GRAVEL
		SILTY GRAVEL with SAND			GRAVELLY ORGANIC lean CLAY
	GC	CLAYEY GRAVEL		OH	GRAVELLY ORGANIC lean CLAY with SAND
		CLAYEY GRAVEL with SAND			ORGANIC SILT
	GC-GM	SILTY, CLAYEY GRAVEL		OH	ORGANIC SILT with SAND
		SILTY, CLAYEY GRAVEL with SAND			ORGANIC SILT with GRAVEL
	SW	Well-graded SAND		CH	SANDY ORGANIC SILT
		Well-graded SAND with GRAVEL			SANDY ORGANIC SILT with GRAVEL
	SP	Poorly-graded SAND		MH	GRAVELLY ORGANIC SILT
		Poorly-graded SAND with GRAVEL			GRAVELLY ORGANIC SILT with SAND
	SW-SM	Well-graded SAND with SILT		OH	ORGANIC fat CLAY
		Well-graded SAND with SILT and GRAVEL			ORGANIC fat CLAY with SAND
	SW-SC	Well-graded SAND with CLAY (or SILTY CLAY)		OH	ORGANIC fat CLAY with GRAVEL
		Well-graded SAND with CLAY and GRAVEL (or SILTY CLAY and GRAVEL)			SANDY ORGANIC fat CLAY
	SP-SM	Poorly-graded SAND with SILT		OH	SANDY ORGANIC fat CLAY with GRAVEL
		Poorly-graded SAND with SILT and GRAVEL			GRAVELLY ORGANIC fat CLAY
	SP-SC	Poorly-graded SAND with CLAY (or SILTY CLAY)		OH	GRAVELLY ORGANIC fat CLAY with SAND
		Poorly-graded SAND with CLAY and GRAVEL (or SILTY CLAY and GRAVEL)			ORGANIC elastic SILT
	SM	SILTY SAND		OH	ORGANIC elastic SILT with SAND
		SILTY SAND with GRAVEL			ORGANIC elastic SILT with GRAVEL
	SC	CLAYEY SAND		OH	SANDY ORGANIC elastic SILT
		CLAYEY SAND with GRAVEL			SANDY ORGANIC elastic SILT with GRAVEL
	SC-SM	SILTY, CLAYEY SAND		OH	GRAVELLY ORGANIC elastic SILT
		SILTY, CLAYEY SAND with GRAVEL			GRAVELLY ORGANIC elastic SILT with SAND
	PT	PEAT		OH/OH	ORGANIC SOIL
		PEAT			ORGANIC SOIL with SAND
		COBBLES		OH/OH	ORGANIC SOIL with GRAVEL
		COBBLES and BOULDERS			SANDY ORGANIC SOIL
		BOULDERS			GRAVELLY ORGANIC SOIL
					GRAVELLY ORGANIC SOIL 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
(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)
(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)

M. Momenzadeh, 5-4-11
 GEOTECHNICAL ENGINEER
 12-5-11
 PLANS APPROVAL DATE

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APPARENT DENSITY OF COHESIONLESS SOILS	
Description	SPT N ₆₀ (Blows / 12 in.)
Very Loose	0 - 5
Loose	5 - 10
Medium Dense	10 - 30
Dense	30 - 50
Very Dense	Greater than 50

MOISTURE	
Description	Criteria
Dry	No discernable moisture
Moist	Moisture present, but no free water
Wet	Visible free water

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

PARTICLE SIZE		
Description	Size (in.)	
Boulder	Greater than 12	
Cobble	3 - 12	
Gravel	Coarse	3/4 - 3
	Fine	1/5 - 3/4
Sand	Coarse	1/16 - 1/5
	Medium	1/64 - 1/16
	Fine	1/300 - 1/64
Silt and Clay	Less than 1/300	

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	SM	84	22.1	53	53

M. Momenzadeh
 5-4-11
 GEOTECHNICAL ENGINEER

12-5-11
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PERCENT CORE RECOVERY (REC) & ROCK QUALITY DESIGNATION (RQD)

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

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

RQD* Indicates soundness criteria not met.

BEDDING SPACING

Description	Thickness / Spacing
Massive	Greater than 10 ft
Very Thickly Bedded	3 ft - 10 ft
Thickly Bedded	1 ft - 3 ft
Moderately Bedded	4 in. - 1 ft
Thinly Bedded	1 in. - 4 in.
Very Thinly Bedded	1/4 in. - 1 in.
Laminated	Less than 1/4 in.

LEGEND OF ROCK MATERIALS

	IGNEOUS ROCK
	SEDIMENTARY ROCK
	METAMORPHIC ROCK

ROCK HARDNESS

Description	Criteria
Extremely Hard	Cannot be scratched with a pocketknife or sharp pick. Can only be chipped with repeated heavy hammer blows.
Very Hard	Cannot be scratched with a pocketknife or sharp pick. Breaks with repeated heavy hammer blows.
Hard	Can be scratched with a pocketknife or sharp pick with difficulty (heavy pressure). Breaks with heavy hammer blows.
Moderately Hard	Can be scratched with pocketknife or sharp pick with light or moderate pressure. Breaks with moderate hammer blows.
Moderately Soft	Can be grooved 1/16 in. deep with a pocketknife or sharp pick with moderate or heavy pressure. Breaks with light hammer blow or heavy manual pressure.
Soft	Can be grooved or gouged easily by a pocketknife or sharp pick with light pressure, can be scratched with fingernail. Breaks with light to moderate manual pressure.
Very Soft	Can be readily indented, grooved or gouged with fingernail, or carved with a pocketknife. 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 Leaching		
	Body of Rock	Fracture Surfaces		Texture		Leaching
Fresh	No discoloration, not oxidized.	No discoloration or oxidation.	No separation, intact (tight).	No change	No leaching	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.	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."

FRACTURE DENSITY

Description	Observed Fracture Density
Unfractured	No fractures.
Very Slightly Fractured	Core lengths greater than 3 ft.
Slightly Fractured	Core lengths mostly from 1 to 3 ft.
Moderately Fractured	Core lengths mostly from 4 in. to 1 ft.
Intensely Fractured	Core lengths mostly from 1 to 4 in.
Very Intensely Fractured	Mostly chips and fragments.