

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
PROJECT PLANS FOR CONSTRUCTION ON
STATE HIGHWAY
IN ORANGE COUNTY
NEAR LAGUNA BEACH
AT 1.1 MILE SOUTH OF REEF POINT DRIVE

TO BE SUPPLEMENTED BY STANDARD PLANS DATED MAY 2006

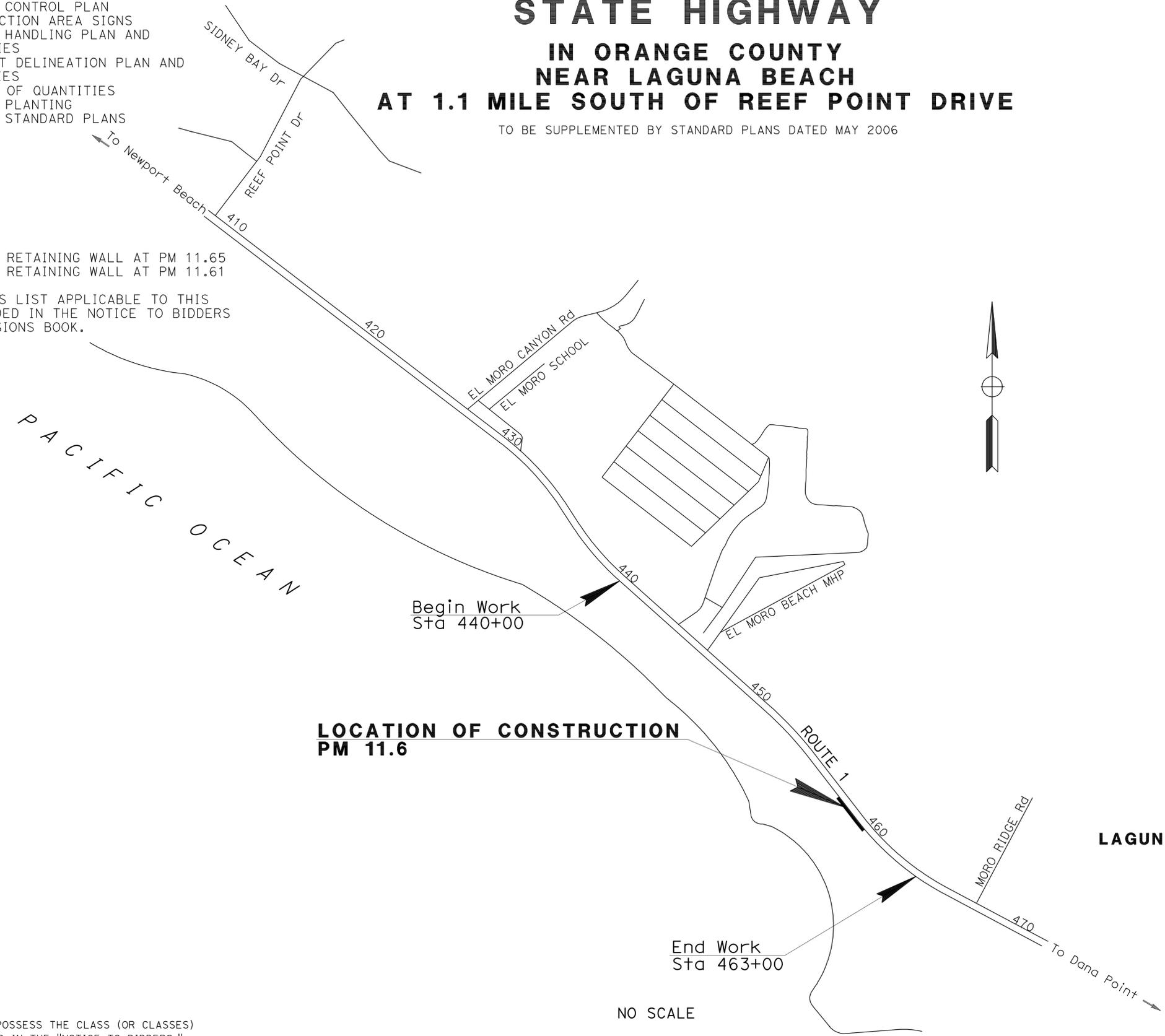
SHEET No.	DESCRIPTION
1	TITLE AND LOCATION MAP
2	TYPICAL CROSS SECTIONS
3	LAYOUTS
4-5	CONSTRUCTION DETAILS
6	TEMPORARY WATER POLLUTION CONTROL PLAN AND QUANTITIES
7	EROSION CONTROL PLAN
8	CONSTRUCTION AREA SIGNS
9	TRAFFIC HANDLING PLAN AND QUANTITIES
10	PAVEMENT DELINEATION PLAN AND QUANTITIES
11	SUMMARY OF QUANTITIES
12	HIGHWAY PLANTING
13-19	REVISED STANDARD PLANS

STRUCTURE PLANS	
20-28	ROUTE 1 RETAINING WALL AT PM 11.65
29-37	ROUTE 1 RETAINING WALL AT PM 11.61

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

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Oran	1	11.6	1	37

LOCATION MAP



NO SCALE

DATE 3/25/10
 PROJECT ENGINEER REGISTERED CIVIL ENGINEER
June 1, 2010
 PLANS APPROVAL DATE
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

REGISTERED PROFESSIONAL ENGINEER
 JIMMY H. VUONG
 No. 63815
 Exp. 9/30/10
 CIVIL
 STATE OF CALIFORNIA

RMC, INC. 6 HUTTON CENTRE, SUITE 1250 SANTA ANA, CA 92707	
CONTRACT No.	12-OK3704
PROJECT ID	1200000343

APPROVED AS TO IMPACT ON STATE FACILITIES AND CONFORMANCE WITH APPLICABLE STATE STANDARDS AND PRACTICES AND THAT TECHNICAL OVERSIGHT WAS PERFORMED.
 DATE SIGNED 4/12/10
 LICENSE Exp DATE 6/30/10
 REGISTRATION No. 51748
 CALTRANS DESIGN OVERSIGHT APPROVAL ANDREW OSHRIN
 CONSULTANT DESIGN ENGINEER JIMMY VUONG

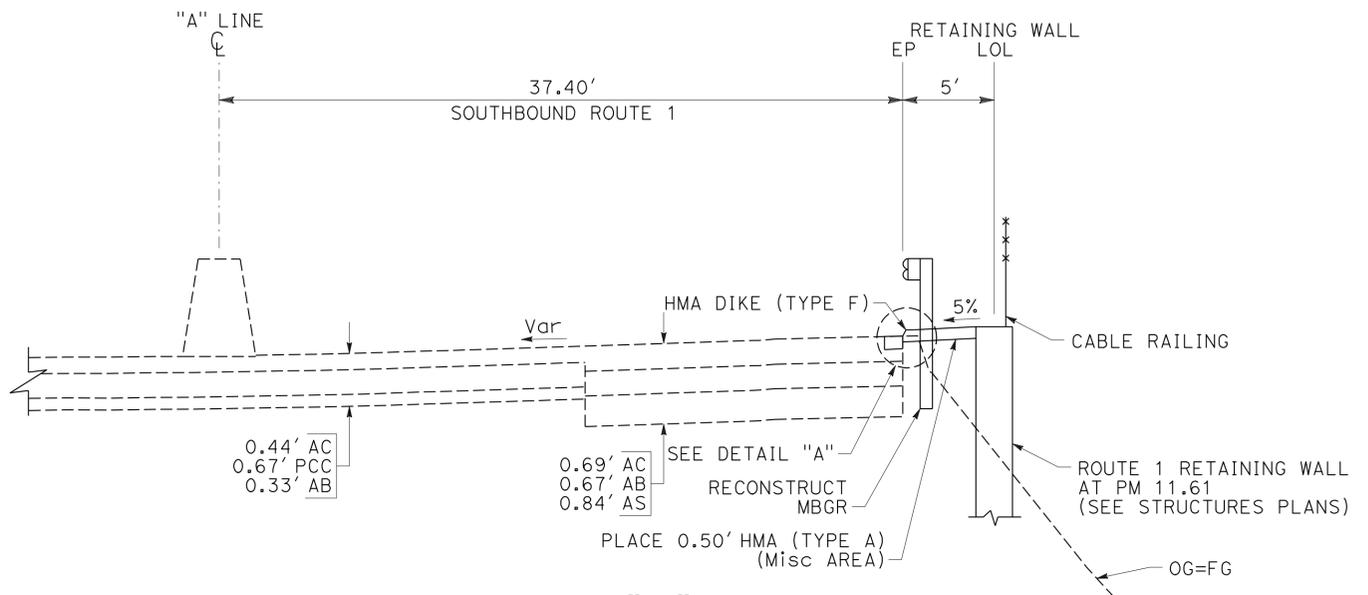
THE CONTRACTOR SHALL POSSESS THE CLASS (OR CLASSES) OF LICENSE AS SPECIFIED IN THE "NOTICE TO BIDDERS."

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
 CONSULTANT: JAMAL SALMAN
 SUPERVISOR: J. VUONG
 DESIGNED BY: C. SOSA
 CHECKED BY: J. VUONG
 REVISIONS: x x x x x

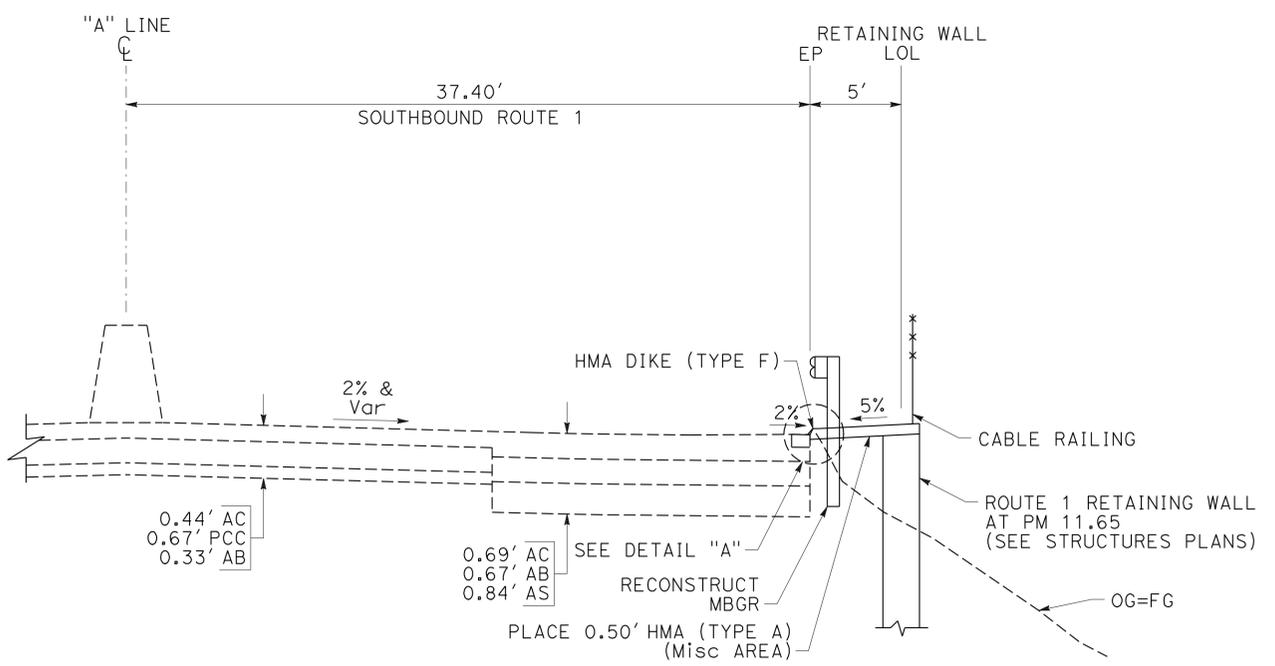
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	1	11.6	2	37

REGISTERED CIVIL ENGINEER DATE 3/25/10
 6-1-10 PLANS APPROVAL DATE
 JIMMY H. VUONG
 No. 63815
 Exp. 9/30/10
 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.
 RMC, INC.
 6 Hutton Centre Drive, Suite 1250
 Santa Ana, CA 92707

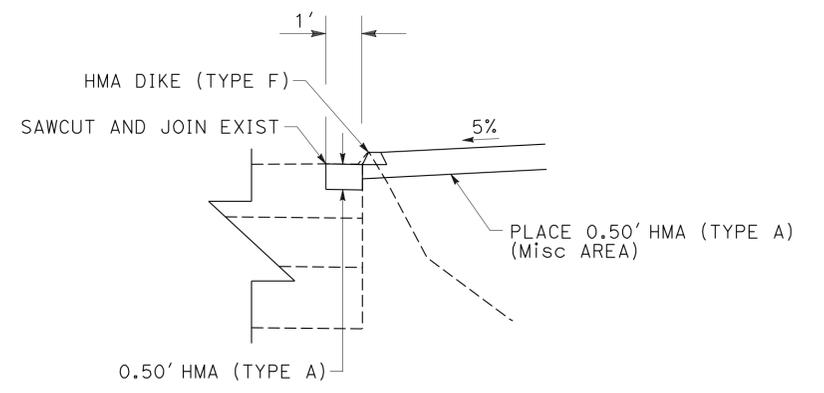
- NOTES:**
1. DIMENSIONS OF THE PAVEMENT STRUCTURES (STRUCTURAL SECTIONS) ARE SUBJECT TO TOLERANCES SPECIFIED IN THE STANDARD SPECIFICATIONS.
 2. SUPERELEVATION AS SHOWN OR AS DIRECTED BY THE ENGINEER.
 3. FOR LOCATION OF HMA DIKE SEE LAYOUT SHEETS.



SB ROUTE 1 "A" LINE
 Sta 458+89.76 TO Sta 459+50.00



SB ROUTE 1 "A" LINE
 Sta 457+50.00 TO Sta 458+08.24



DETAIL "A"

TYPICAL CROSS SECTION
 NO SCALE
X - 1

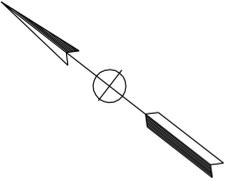
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	1	11.6	3	37

REGISTERED CIVIL ENGINEER DATE 5/25/10
 6-1-10 PLANS APPROVAL DATE
 REGISTERED PROFESSIONAL ENGINEER
 No. 63815
 Exp. 9/30/10
 CIVIL
 STATE OF CALIFORNIA

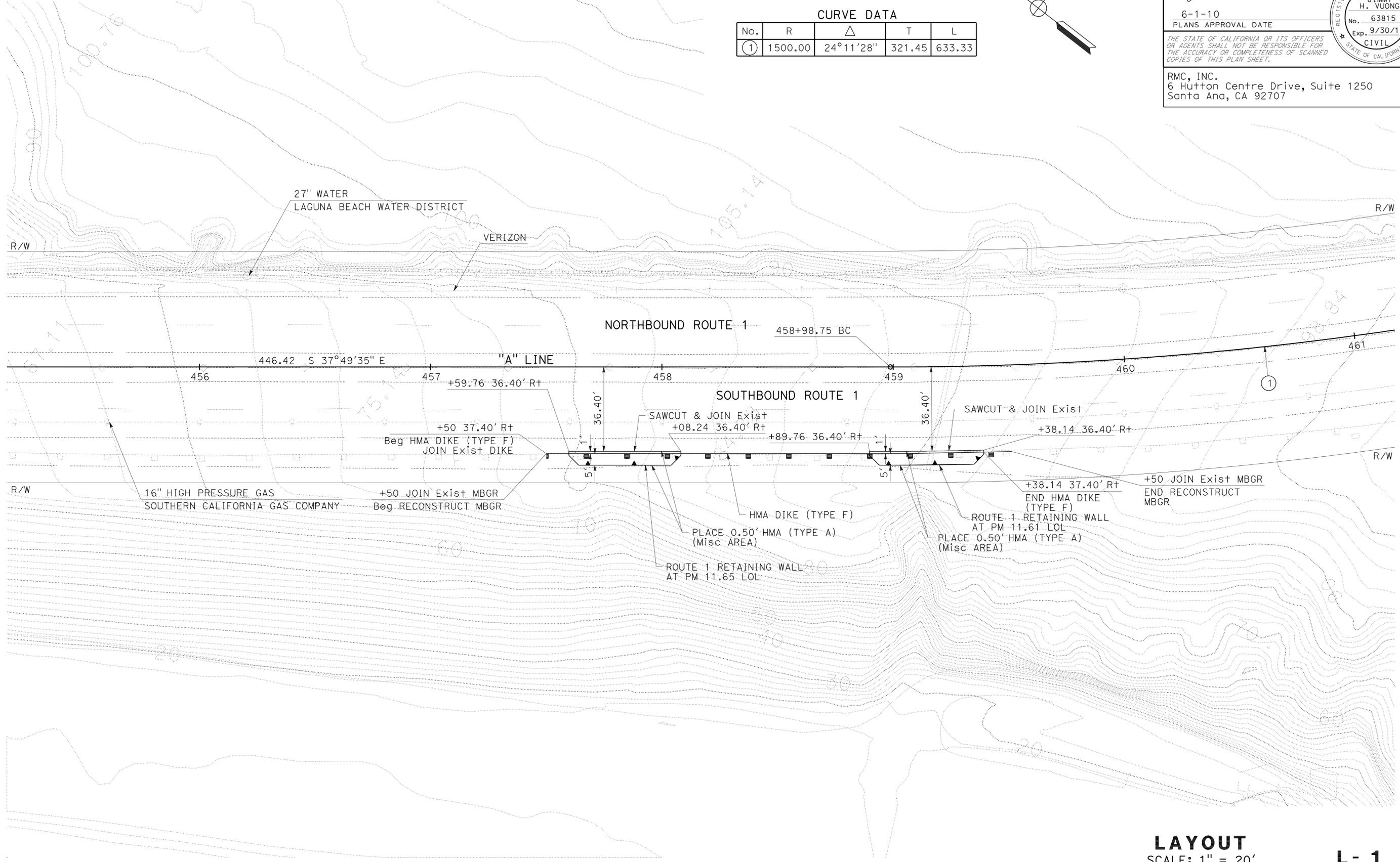
NOTE:
 1. FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

CURVE DATA

No.	R	Δ	T	L
①	1500.00	24°11'28"	321.45	633.33



REVISOR: J. VUONG, C. SOSA
 CHECKED BY: JAMAL SALMAN
 SUPERVISOR: JAMAL SALMAN
 TRANSPORTATION: DEPARTMENT OF TRANSPORTATION
 CALTRANS



LAYOUT
 SCALE: 1" = 20'
L - 1

LAST REVISION: DATE PLOTTED => 03-JUN-2010
 03-15-10 TIME PLOTTED => 10:32

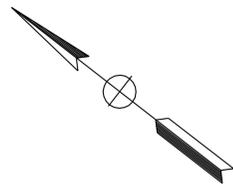
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
 CONSULTANT: JAMAL SALMAN
 J. VUONG
 C. SOSA
 REVISIONS: x x x x x

NOTE:

1. ELEVATION CALLOUTS ARE AT CRITICAL POINTS AND AT 25 FOOT INTERVALS.

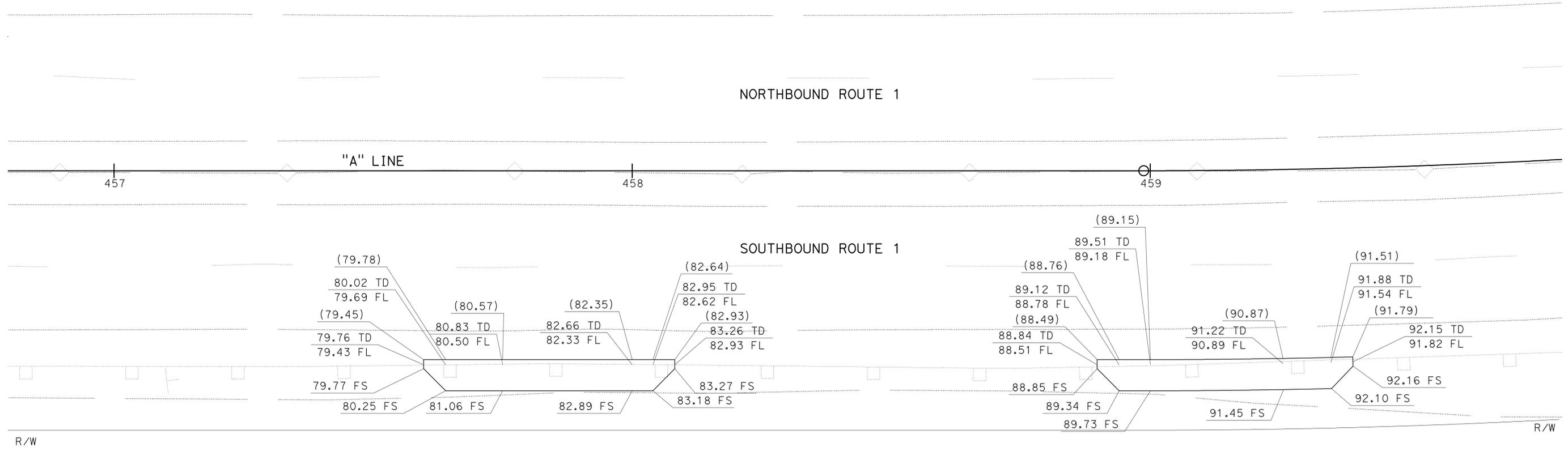
ABBREVIATIONS:

TD - TOP OF DIKE



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	1	11.6	4	37

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 No. 63815
 Exp. 9/30/10
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 STATE OF CALIFORNIA
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 Santa Ana, CA 92707



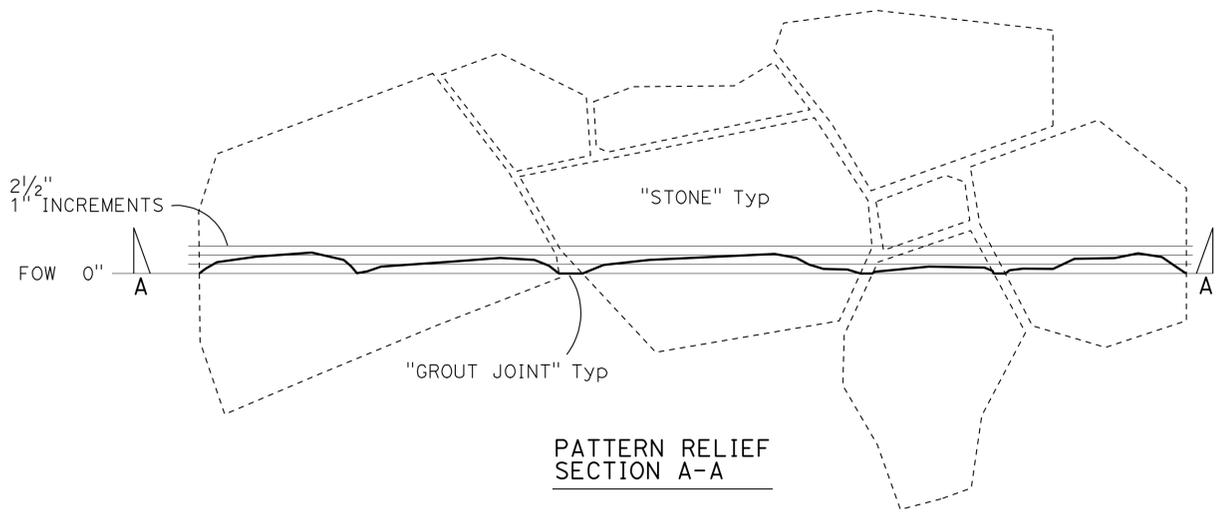
CONSTRUCTION DETAILS
 SCALE: 1" = 10'
C - 1

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 STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
 CONSULTANT SENIOR LANDSCAPE ARCHITECT
 CATHY L. JOHNSON
 JOHN P. ANDREW
 CHECKED BY
 DESIGNED BY
 REVISIONS: 01-31-12, 05-25-10
 LICENSED LANDSCAPE ARCHITECT
 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.
 RBF CONSULTING
 14725 ALTON PARKWAY
 IRVINE, CA 92618

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	1	11.6	5	37

ABBREVIATION
FACE OF WALL - FOW

RELIEF Max 2 1/2"
LINES SHOW 1" INCREMENTS

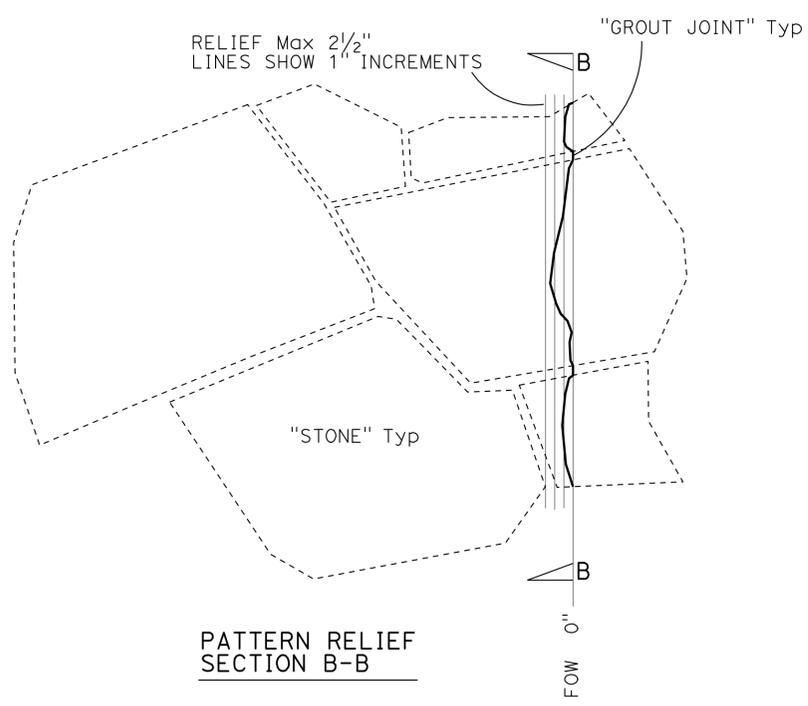


PATTERN RELIEF SECTION A-A

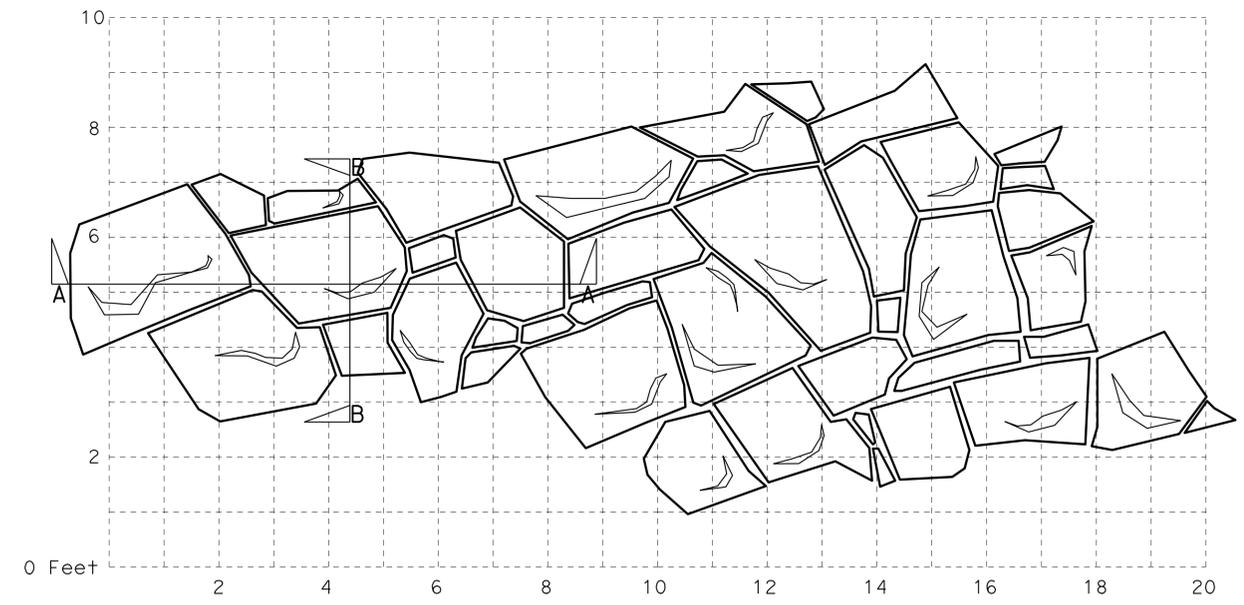
NOTES:

- "GROUT JOINTS" SHALL BE SCULPTED Min 1" WIDE AND WIDER AS NEEDED TO ACCOMMODATE ROUNDED AND OFFSET "STONE" CORNERS.
- APPLY PIGMENTED STAIN TO "STONE" SURFACES TO SIMULATE NATURAL STONE COLOR VARIATIONS.

RELIEF Max 2 1/2"
LINES SHOW 1" INCREMENTS



PATTERN RELIEF SECTION B-B



SAMPLE PATTERN LAYOUT

**SCULPTED RELIEF TEXTURE - SAMPLE STONE PATTERN
ARCHITECTURAL TREATMENT (SCULPTED SHOTCRETE)**

CONSTRUCTION DETAILS
NO SCALE

C-2

THIS PLAN ACCURATE FOR ARCHITECTURAL SURFACE WORK ONLY



USERNAME => s135318
DGN FILE => c0k370qa001.dgn

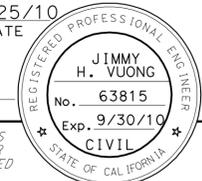
CU 12209

EA 0K3701

BORDER LAST REVISED 4/11/2008

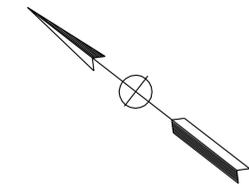
LAST REVISION DATE PLOTTED => 03-JUN-2010
 00-00-00 TIME PLOTTED => 10:33

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	1	11.6	6	37

 5/25/10
 REGISTERED CIVIL ENGINEER DATE
 6-1-10
 PLANS APPROVAL DATE


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RMC, INC.
 6 Hutton Centre Drive, Suite 1250
 Santa Ana, CA 92707



NOTES:

- PERMANENT EROSION CONTROL WILL BE INSTALLED AS AREAS ARE DETERMINED TO BE SUBSTANTIALLY COMPLETED.
- LOCATIONS ARE APPROXIMATE. FIELD CONDITIONS MAY RESULT IN ADJUSTMENTS TO PLACEMENT OF WORK ITEMS.
- THE INFORMATION ON THIS PLAN INTENDED TO BE USED AS GUIDELINES FOR THE CONTRACTOR AND SUBCONTRACTORS.

LEGENDS:

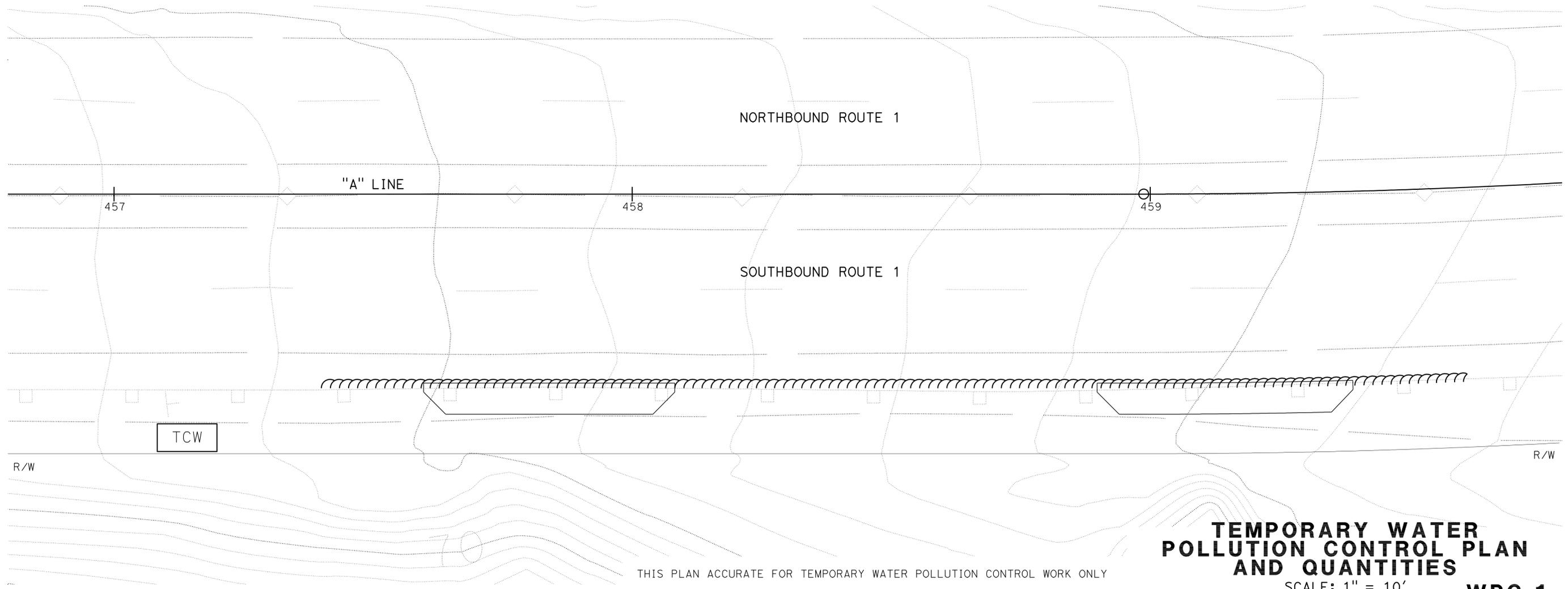
-  TEMPORARY GRAVEL BAG BERM
-  TEMPORARY CONCRETE WASHOUT (PORTABLE)

WATER POLLUTION CONTROL QUANTITIES

ITEM DESCRIPTION	UNIT	ESTIMATED QUANTITY
TEMPORARY GRAVEL BAG BERM	LF	220
TEMPORARY CONCRETE WASHOUT (PORTABLE)	EA	1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

 CONSULTANT - FUNCTIONAL SUPERVISOR
 J. VUONG
 C. SOSA
 CALCULATED-DESIGNED BY
 CHECKED BY
 JAMAL SALMAN
 REVISOR BY
 DATE REVISOR



THIS PLAN ACCURATE FOR TEMPORARY WATER POLLUTION CONTROL WORK ONLY

TEMPORARY WATER POLLUTION CONTROL PLAN AND QUANTITIES
 SCALE: 1" = 10'
WPC-1

NOTE:
FOR COMPLETE AND ACCURATE RIGHT OF WAY DATA,
SEE RIGHT OF WAY RECORD MAPS AT DISTRICT OFFICE.

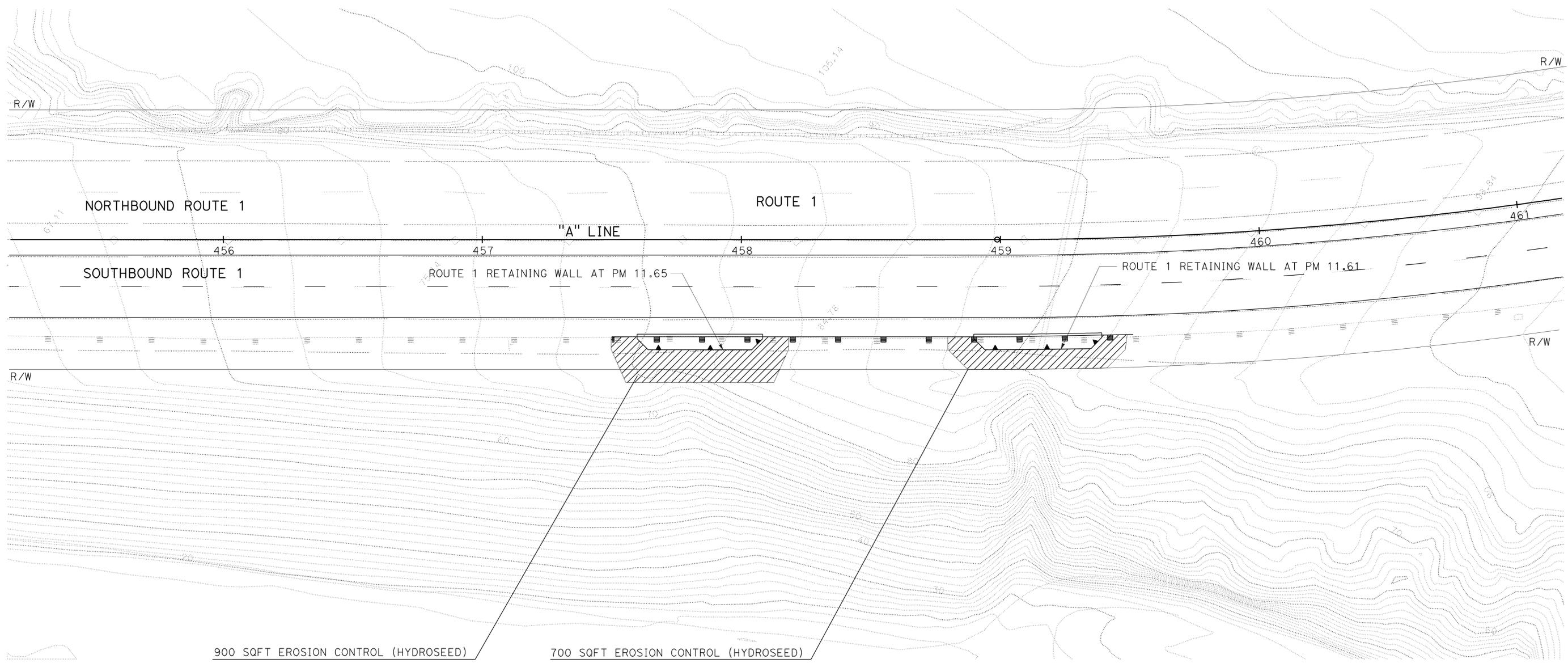
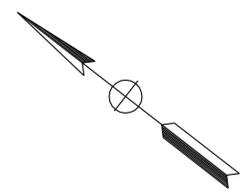
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	1	11.6	7	37

Cathy L. Johnson
LICENSED LANDSCAPE ARCHITECT

6-1-10
PLANS APPROVAL DATE

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RBF CONSULTING
14725 ALTON PARKWAY
IRVINE, CA 92618



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 STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
 CONSULTANT SENIOR LANDSCAPE ARCHITECT
 CATHY L. JOHNSON
 JOHN P. ANDREW
 JOHN P. ANDREW
 CHECKED BY
 REVISIONS BY
 DATE REVISIONS



EROSION CONTROL PLAN

SCALE: 1" = 20'

EC-1

THIS PLAN ACCURATE FOR EROSION CONTROL WORK ONLY



USERNAME => s135318
DGN FILE => c0k370ge001.dgn

CU 12209

EA 0K3701

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	1	11.6	8	37

REGISTERED CIVIL ENGINEER DATE 3/25/10
 PLANS APPROVAL DATE 6-1-10
 JIMMY H. VUONG
 No. 63815
 Exp. 9/30/10
 CIVIL
 STATE OF CALIFORNIA

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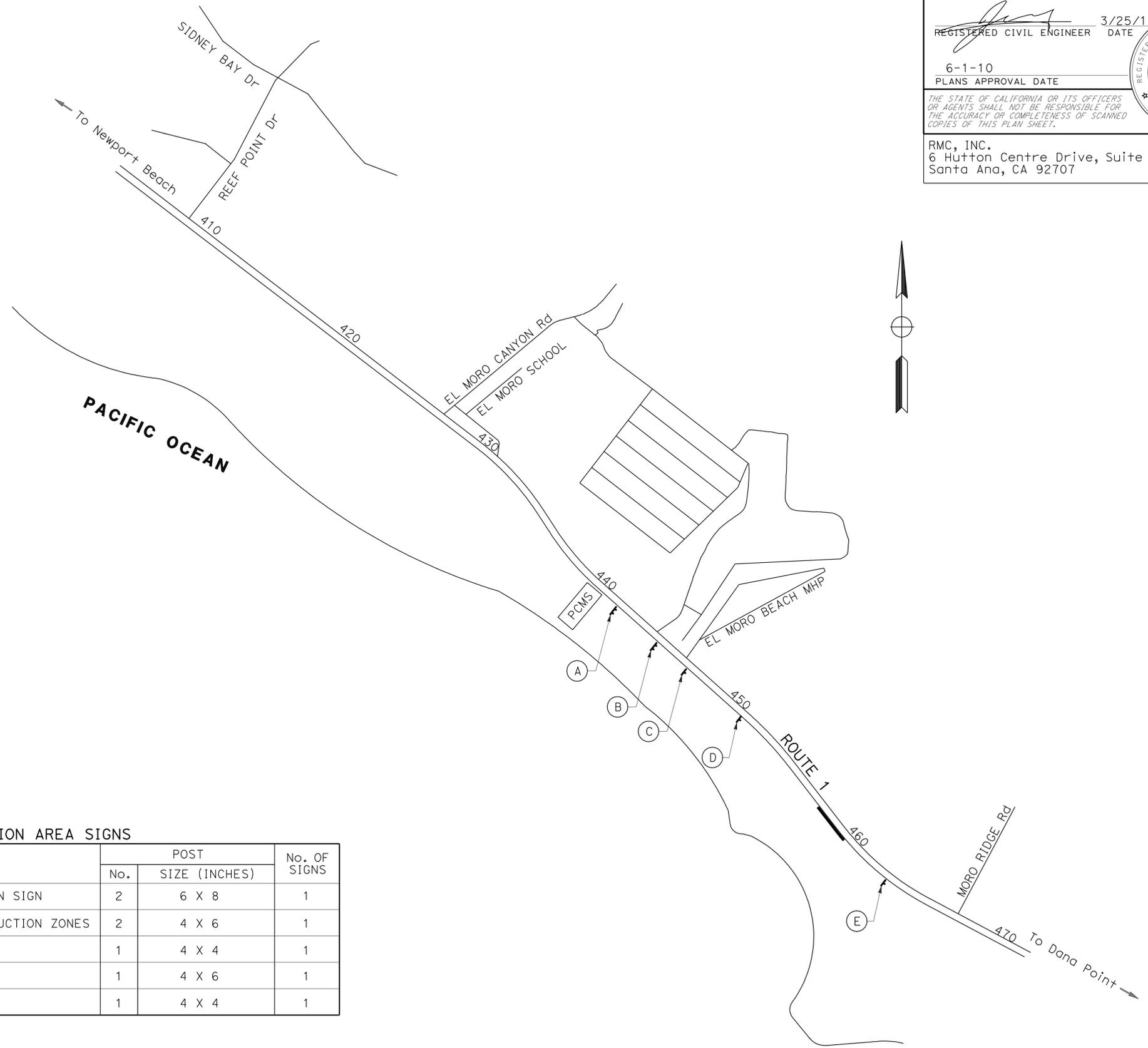
RMC, INC.
 6 Hutton Centre Drive, Suite 1250
 Santa Ana, CA 92707

NOTES:

- LOCATIONS OF CONSTRUCTION AREA SIGNS ARE APPROXIMATE. EXACT LOCATIONS WILL BE DETERMINED BY THE ENGINEER.
- SIGNS SHALL REMAIN IN PLACE FOR THE DURATION OF THE PROJECT.

LEGEND:

- (X) STATIONARY MOUNTED CONSTRUCTION AREA SIGN
- ┆ CONSTRUCTION AREA SIGN, 1-POST
- ┆ CONSTRUCTION AREA SIGN, 2-POST
- PCMS PORTABLE CHANGEABLE MESSAGE SIGN



STATIONARY MOUNTED CONSTRUCTION AREA SIGNS

SIGN No.	SIGN CODE	PANEL SIZE (INCHES)	SIGN MESSAGE	POST		No. OF SIGNS
				No.	SIZE (INCHES)	
(A)	TYPE 2	134 X 84	CONSTRUCTION PROJECT INFORMATION SIGN	2	6 X 8	1
(B)	C40A (CA)	108 X 42	TRAFFIC FINES DOUBLED IN CONSTRUCTION ZONES	2	4 X 6	1
(C)	W20-1	48 X 48	ROAD WORK AHEAD	1	4 X 4	1
(D)	W21-5bR	48 X 48	RIGHT SHOULDER CLOSED AHEAD	1	4 X 6	1
(E)	G20-2	48 X 24	END ROAD WORK	1	4 X 4	1

THIS PLAN ACCURATE FOR CONSTRUCTION AREA SIGN WORK ONLY.

CONSTRUCTION AREA SIGNS
NO SCALE
CS-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
 J. VUONG
 C. SOSA
 JAMAL SALMAN
 CALTRANS

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	1	11.6	9	37

5/25/10
 REGISTERED CIVIL ENGINEER DATE
 6-1-10
 PLANS APPROVAL DATE

JIMMY H. VUONG
 No. 63815
 Exp. 9/30/10
 CIVIL
 STATE OF CALIFORNIA

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 6 Hutton Centre Drive, Suite 1250
 Santa Ana, CA 92707

- NOTES:**
1. REMOVE ALL CONFLICTING TRAFFIC STRIPING, PAVEMENT MARKINGS, AND TRAFFIC CONTROL SIGNING.
 2. ALL TEMPORARY TRAFFIC STRIPES SHALL BE PAINT-2 COAT.
 3. ALL TRAFFIC LANE WIDTHS SHALL BE MAINTAINED AT 11' MINIMUM.

LEGEND:

- DETAIL No. TEMPORARY TRAFFIC STRIPE (PAINT-2 COAT)
- DIRECTION OF TRAVEL
- TEMPORARY RAILING (TYPE K)
- CHANNELIZER (SURFACE MOUNTED)
- TEMPORARY CRASH CUSHION (ARRAY PER PLAN)
- CONSTRUCTION AREA
- TEMPORARY RAILING (TYPE K)
- CONSTRUCTION AREA SIGN ONE-POST
- PI

CONSTRUCTION AREA SIGNS

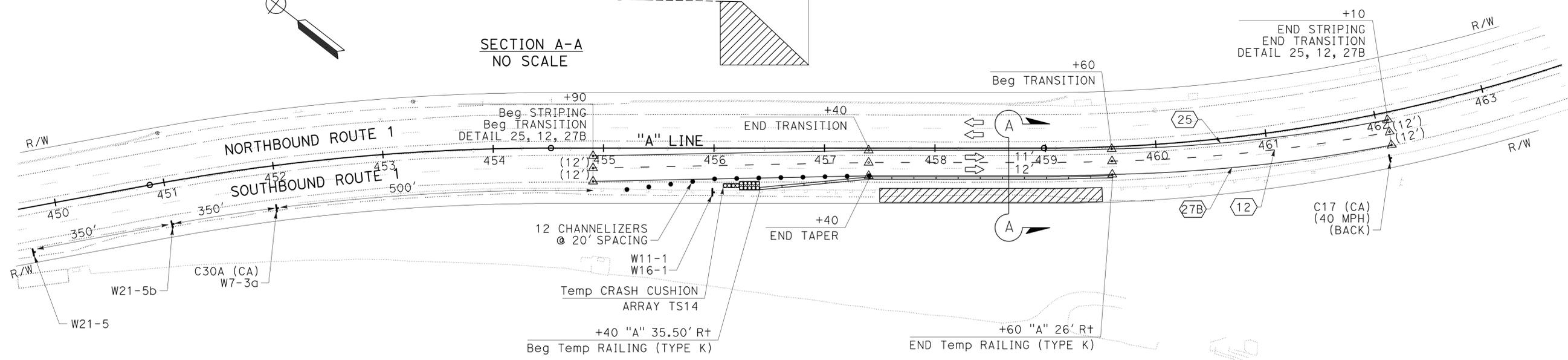
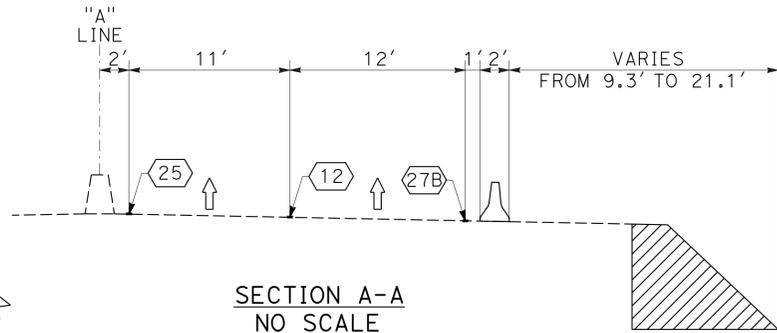
SIGN CODE	PANEL SIZE (INCHES)	SIGN MESSAGE	POST		No. OF SIGNS
			No.	SIZE (INCHES)	
C30A (CA)	48 X 48	SHOULDER CLOSED	1	6 X 6 (S)	1
W7-3a	24 X 30	NEXT 1 MILE			
W21-5b	48 X 48	RIGHT SHOULDER CLOSED 900 FT	1	6 X 6 (S)	1
W21-5	48 X 48	SHOULDER WORK	1	6 X 6 (S)	1
C17 (CA) (BACK)	48 X 48	END 40 SPEED LIMIT	1	6 X 6 (S)	1
W11-1	48 X 48	BICYCLE TRAFFIC	1	6 X 6 (S)	1
W16-1	24 X 30	SHARE THE ROAD			

(S) = STATIONARY

TEMPORARY PAVEMENT DELINEATION QUANTITIES

SHEET NO.	LOCATION	PAINT TRAFFIC STRIPE (2 COAT)			PAVEMENT MARKER		TEMPORARY RAILING (TYPE K)	TEMPORARY TRAFFIC SCREEN	TEMPORARY CRASH CUSHION MODULE	CHANNELIZER (SURFACE MOUNTED)	OBJECT MARKER (TYPE P) (N)	REMOVE PAINTED TRAFFIC STRIPE	
		DETAIL 12 BROKEN (36-12) WHITE	DETAIL 25 SOLID YELLOW	DETAIL 27B SOLID WHITE	RETROREFLECTIVE								
					TYPE G	TYPE H							
TH-1	"A" LINE	1440	1440	1440	EA	EA	LF	LF	EA	EA	EA	LF	
	TOTAL		4320			32		320	320	14	12	1	2160

(N) = NONE PAID ITEM



TRAFFIC HANDLING PLAN AND QUANTITIES
 SCALE: 1" = 50'
TH-1

THIS PLAN ACCURATE FOR TRAFFIC HANDLING WORK ONLY.

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
 CONSULTANT SUPERVISOR: JAMAL SALMAN
 J. VUONG
 C. SOSA
 REVISOR: J. VUONG
 DATE: 4/11/2008
 BORDER LAST REVISED 4/11/2008



USERNAME => s135318
 DGN FILE => c0k370md001.dgn

CU 12209 EA 0K3701

LAST REVISION DATE PLOTTED => 03-JUN-2010
 03-15-10 TIME PLOTTED => 10:33

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Oran	1	11.6	10	37

REGISTERED CIVIL ENGINEER DATE 5/25/10

6-1-10 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
JIMMY H. VUONG
 No. 63815
 Exp. 9/30/10
 CIVIL
 STATE OF CALIFORNIA

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NOTES:

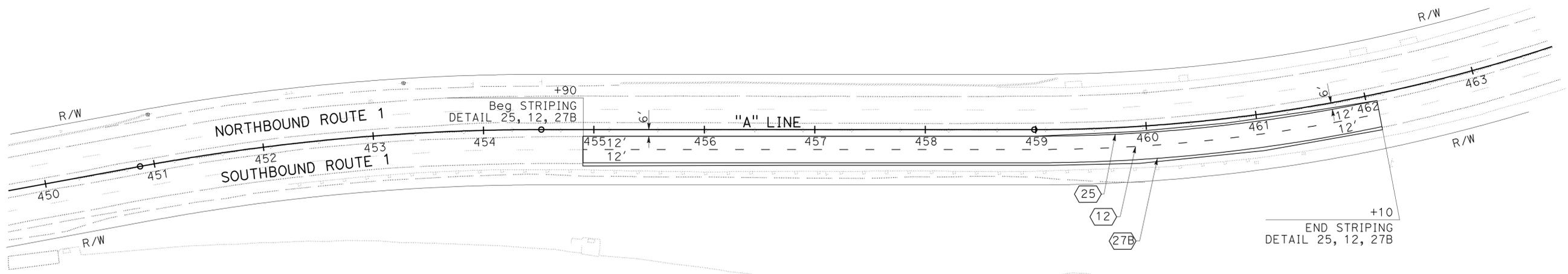
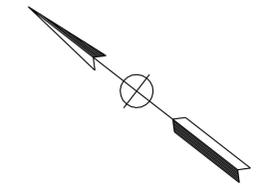
1. TRAFFIC STRIPES SHALL BE THERMOPLASTIC UNLESS OTHERWISE NOTED ON PLANS.
2. CONFLICTING STRIPING SHALL BE REMOVED.
3. THE EXACT LOCATION OF STRIPING TO BE DETERMINED BY THE ENGINEER IN THE FIELD.

LEGEND:

(X) DETAIL No. PER STANDARD PLANS A20 (A-D)

PAVEMENT DELINEATION QUANTITIES

SHEET No.	LOCATION	THERMOPLASTIC TRAFFIC STRIPE			PAVEMENT MARKER		REMOVE		
		4"			RETROREFLECTIVE		THERMO-PLASTIC TRAFFIC STRIPE	YELLOW THERMO-PLASTIC TRAFFIC STRIPE (HAZARDOUS WASTE)	PAVEMENT MARKER
		DETAIL 12 BROKEN (36-12) WHITE	DETAIL 25 SOLID YELLOW	DETAIL 27B SOLID WHITE	TYPE G	TYPE H			
PD-1	"A" LINE	720	720	720	16	16	1440	720	32
TOTAL		720	1440		32		1440	720	32



PAVEMENT DELINEATION PLAN AND QUANTITIES
 SCALE: 1" = 50'
PD-1

THIS PLAN ACCURATE FOR PAVEMENT DELINEATION WORK ONLY.

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
 CONSULTANT FUNCTIONAL SUPERVISOR: JAMAL SALMAN
 CALCULATED/DESIGNED BY: J. VUONG
 CHECKED BY: C. SOSA
 REVISED BY: [] DATE REVISED: []

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
 CONSULTANT - FUNCTIONAL SUPERVISOR: JAMAL SALMAN
 CALCULATED/DESIGNED BY: J. VUONG
 CHECKED BY: C. SOSA
 REVISED BY: _____
 DATE REVISED: _____

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12	Oran	1	11.6	11	37

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 Santa Ana, CA 92707

HMA

SHEET No.	SECTION	STATION		LOCATION	PLACE HMA (Misc AREA)	PLACE HMA DIKE (TYPE F)	HMA (TYPE A)
		FROM	TO		SQFT	LF	TON
L-1	"A LINE"	457+59	458+08	R+	225		7.90
L-1	"A LINE"	458+89	459+38	R+	230		8.10
L-1	"A LINE"	457+50	459+38	R+		188	2.30
L-1	"A LINE"	457+59	458+08	R+			1.70
L-1	"A LINE"	458+89	459+38	R+			1.80
TOTAL					455	188	21.80

RECONSTRUCT METAL BEAM
 GUARD RAILING (WOOD POST)

SHEET No.	SECTION	STATION		LOCATION	METAL BEAM GUARD RAILING
		FROM	TO		FT
L-1	"A LINE"	457+50	459+50	R+	200

SUMMARY OF QUANTITIES
Q- 1

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

APPLICABLE WHEN CIRCLED:

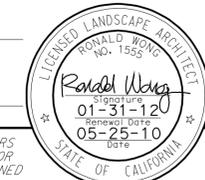
- ① - Quantities shown are "per plant" unless shown as SQFT or SQYD application rates.
- 2 - Sufficient to receive root ball.
- 3 - Does not apply to mulch areas.
- 4 - As shown on plans.
- 5 - Unless otherwise shown on plans.
- 6 - See detail.
- 7 - See Special Provisions.
- 8 - Foliage Protectors, See Standard Detail
- ⑨ - Random plant mix.
- ⑩ - Final plant locations shall be approved by Caltrans Resident Engineer.

NOTE:

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

Dist	COUNTY	LOCATION CODE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Orca	1	11.6	12	37

Ronald Wong 05-25-10
LICENSED LANDSCAPE ARCHITECT

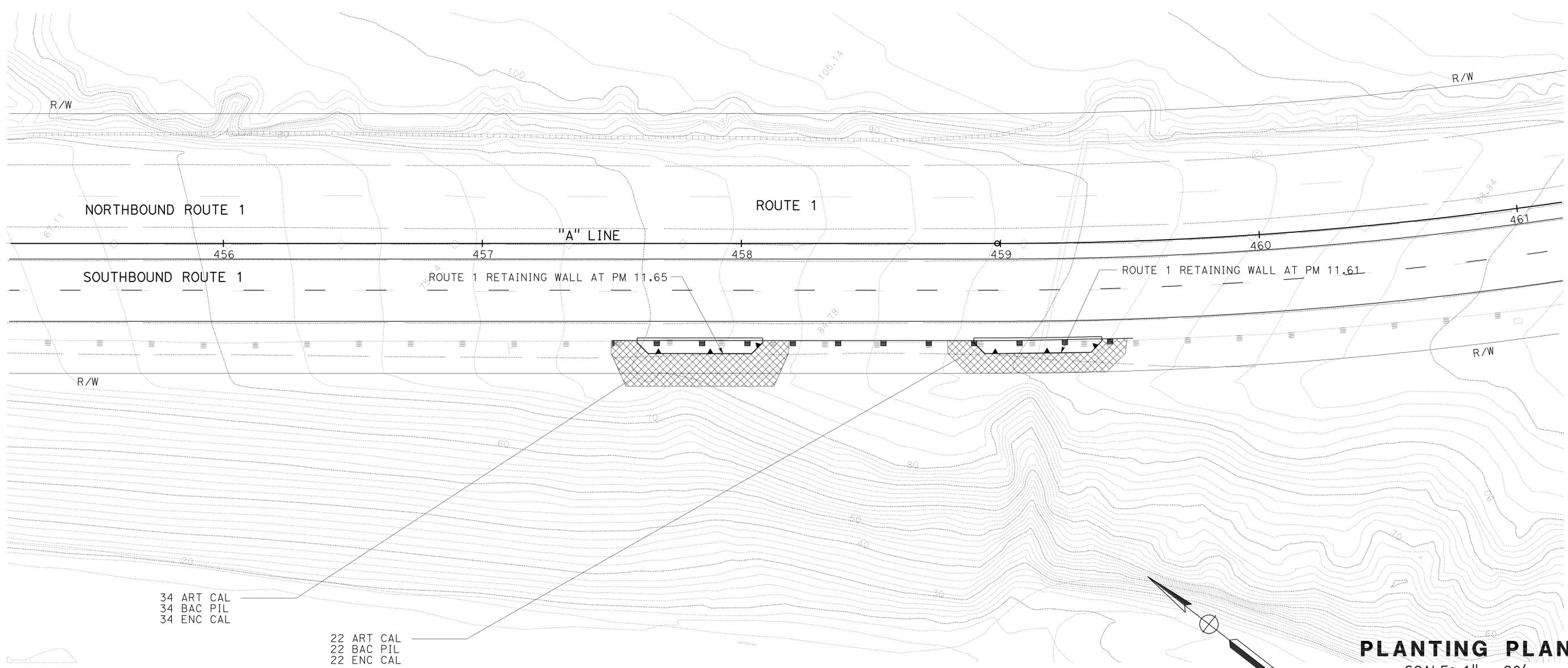


6-1-10
PLANS APPROVAL DATE

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

PLANT LIST AND PLANTING SPECIFICATIONS

PLANT GROUP	PLANT No.	SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE	QUANTITY EACH	HOLE SIZE (INCH)		BASIN TYPE	IRON SULFATE ①	SOIL AMEND ①	COMMERCIAL FERTILIZER ①		BASIN MULCH	STAKING	PLANTING LIMITS						REMARKS	
							Dia	DEPTH				PLANTING	PLT ESTB			MINIMUM DISTANCE (Ft) FROM				ON CENTER (Ft)			
																TRVD WAY	PVMT	FENCE	WALL		PAVED DITCH		EARTH DITCH
A	1		<u>ARTEMISIA CALIFORNIA</u>	CALIFORNIA SAGEBRUSH	No. 1	56	12	12	II	—	0.15 CF	—	—	0.7 CF	—	5	—	—	—	—	—	3	SHRUB ⑨⑩
	2		<u>BACCHARIS PILULARIS</u>	COYOTE BRUSH	No. 1	56	12	12	II	—	0.15 CF	—	—	0.7 CF	—	5	—	—	—	—	—	3	SHRUB ⑨⑩
	3		<u>ENCELIA CALIFORNIA</u>	CALIFORNIA ENCELIA	No. 1	56	12	12	II	—	0.15 CF	—	—	0.7 CF	—	5	—	—	—	—	—	3	SHRUB ⑨⑩



34 ART CAL
34 BAC PIL
34 ENC CAL

22 ART CAL
22 BAC PIL
22 ENC CAL

PLANTING PLAN
SCALE: 1" = 20'

PP-1

THIS PLAN ACCURATE FOR PLANTING WORK ONLY.



USERNAME => trlim
DGN FILE => c0k370t1001.dgn

CU 12216

EA 0K3701

REVISOR: VATHANA CHY, DATE: 05-25-10
DESIGNER: RONALD WONG
CHECKED BY: ERIC DICKSON
FUNCTIONAL SUPERVISOR: ERIC DICKSON
DEPARTMENT OF TRANSPORTATION
STATE OF CALIFORNIA - Caltrans

LAST REVISION: 03-12-10, DATE PLOTTED: 03-JUN-2010, TIME PLOTTED: 10:55

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
12	Ora	1	11.6	13	37

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

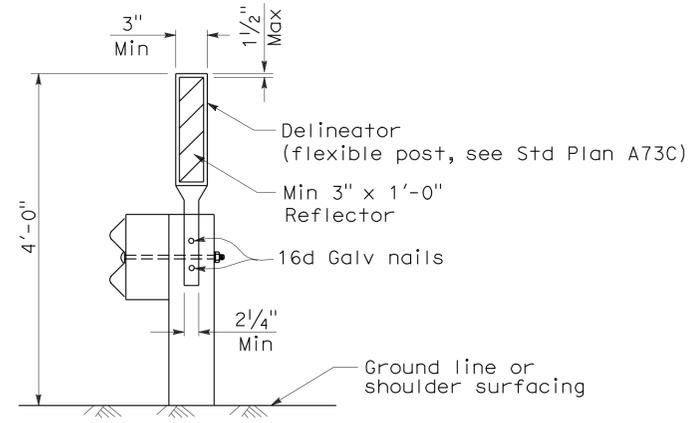
June 6, 2008
PLANS APPROVAL DATE

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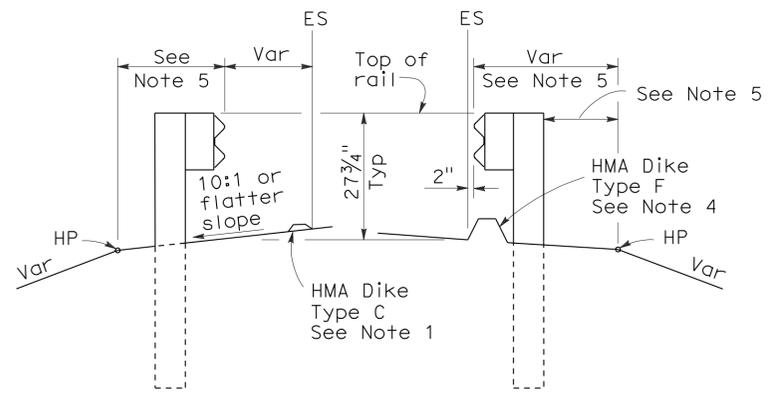
To accompany plans dated 6-1-10

NOTES:

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



GUARD RAILING DELINEATION
See Note 3



DIKE POSITIONING
See Note 1

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

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

NO SCALE

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

REVISED STANDARD PLAN RSP A77C4

2006 REVISED STANDARD PLAN RSP A77C4

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
12	Ora	1	11.6	14	37

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.

To accompany plans dated 6-1-10

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**

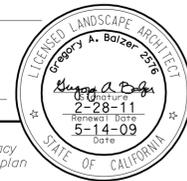
NO SCALE

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
12	Ora	1	11.6	15	37

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.

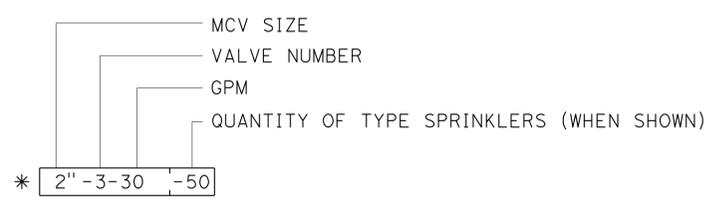
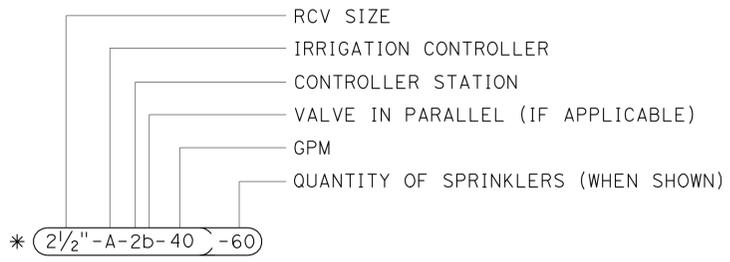


To accompany plans dated 6-1-10

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

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

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

2006 REVISED STANDARD PLAN RSP H2

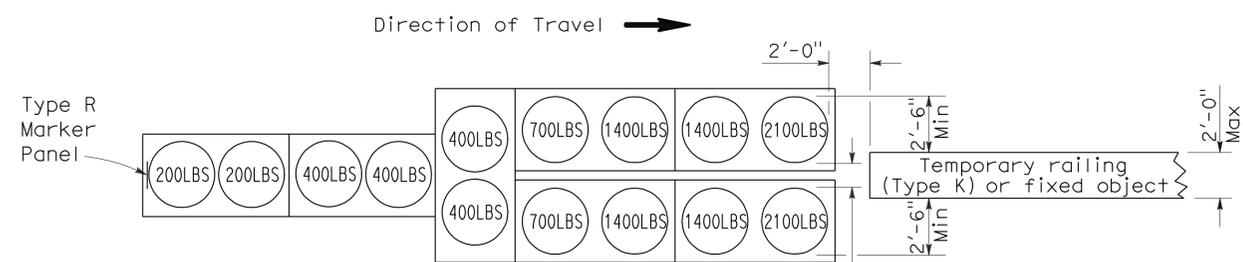
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
12	Ora	1	11.6	16	37

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

June 6, 2008
PLANS APPROVAL DATE

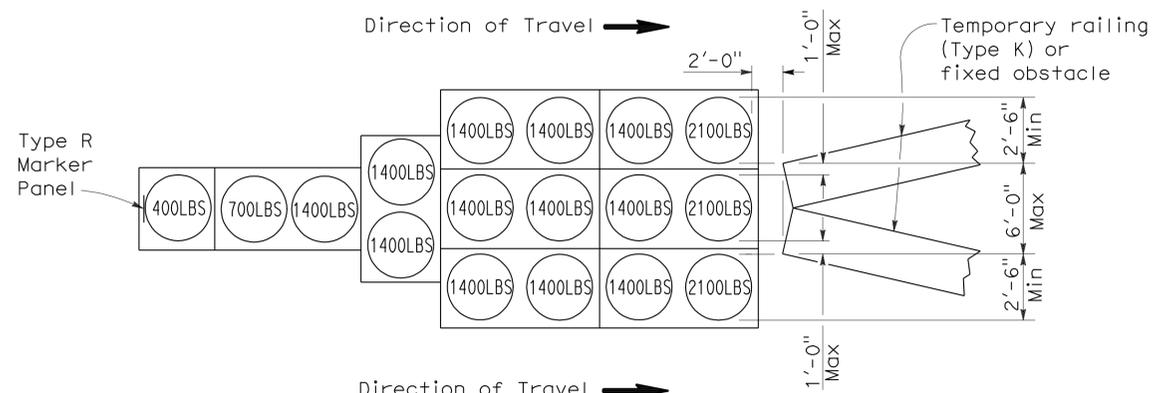
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

To accompany plans dated 6-1-10



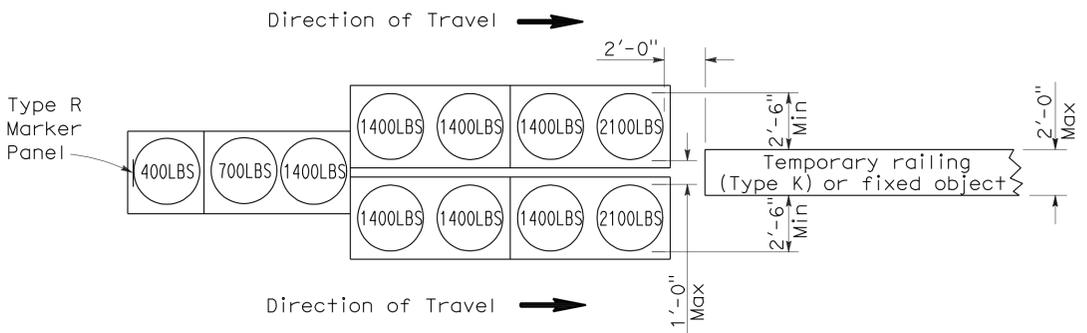
ARRAY 'TU14'

Approach speed 45 mph or more



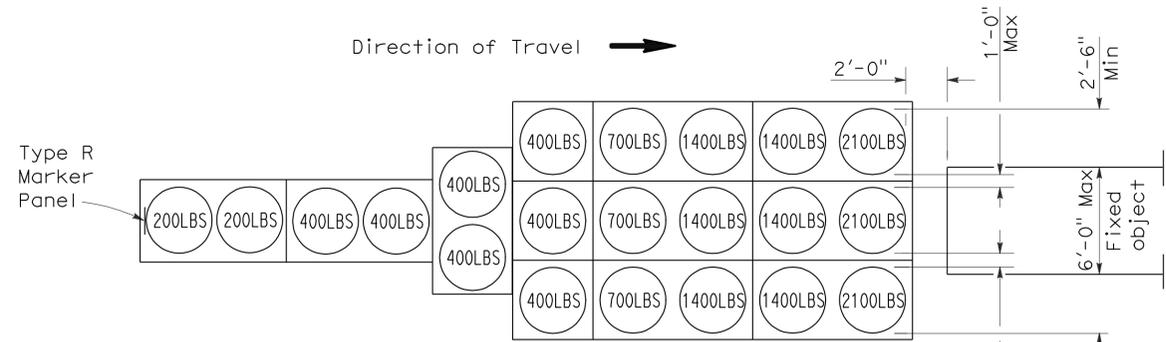
ARRAY 'TU17'

Approach speed less than 45 mph



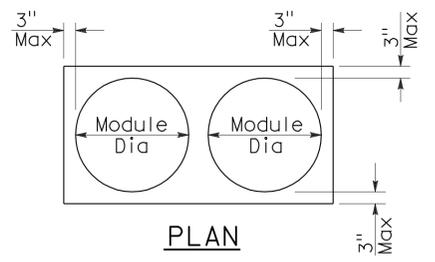
ARRAY 'TU11'

Approach speed less than 45 mph

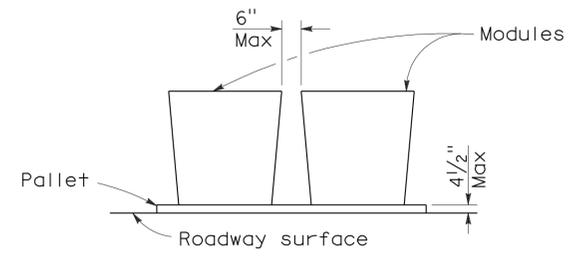


ARRAY 'TU21'

Approach speed 45 mph or more



PLAN



ELEVATION

CRASH CUSHION PALLET DETAIL

See Note 7

NOTES:

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

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

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

NO SCALE

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

REVISED STANDARD PLAN RSP T1A

2006 REVISED STANDARD PLAN RSP T1A

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
12	Ora	1	11.6	17	37

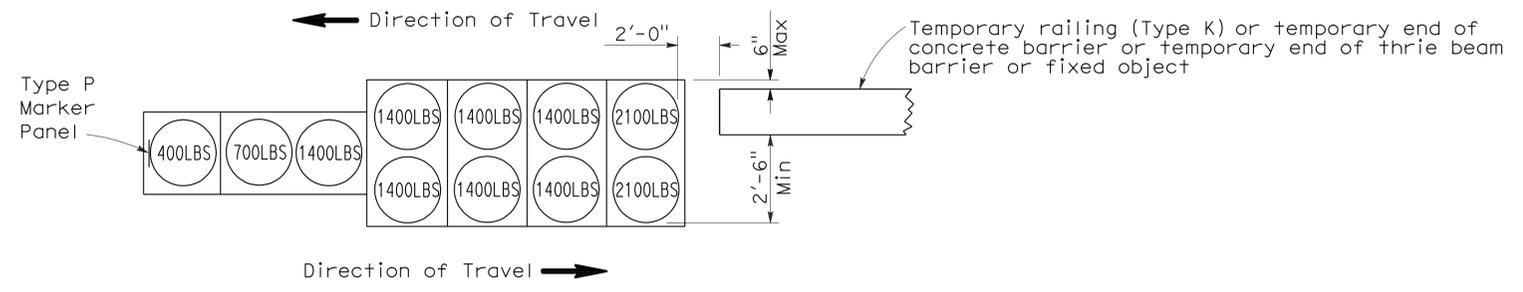
Randell D. Hiatt
REGISTERED CIVIL ENGINEER

June 6, 2008
PLANS APPROVAL DATE

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

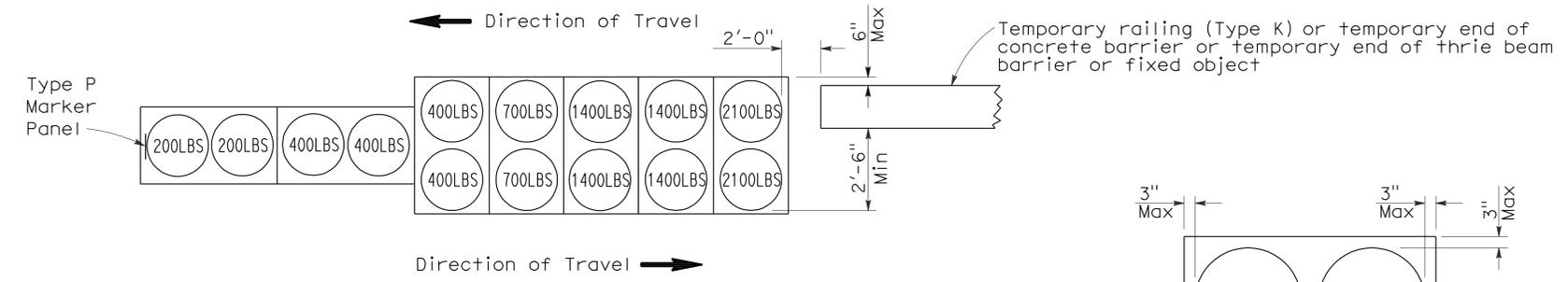
REGISTERED PROFESSIONAL ENGINEER
Randell D. Hiatt
No. C50200
Exp. 6-30-09
CIVIL
STATE OF CALIFORNIA

To accompany plans dated 6-1-10



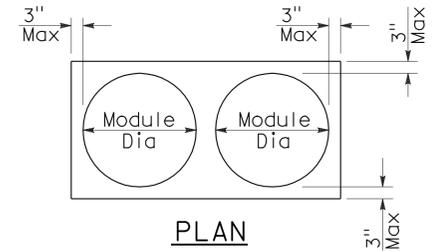
ARRAY 'TB11'

Approach speed less than 45 mph

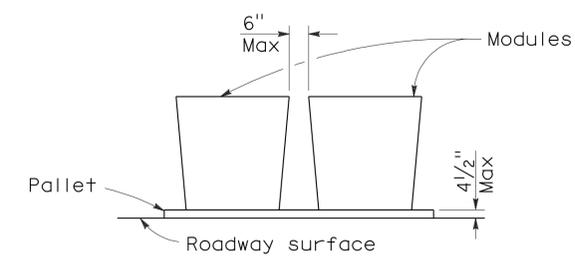


ARRAY 'TB14'

Approach speed 45 mph or more



PLAN



ELEVATION

CRASH CUSHION PALLET DETAIL

See Note 7

NOTES:

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

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

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

NO SCALE

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

REVISED STANDARD PLAN RSP T1B

2006 REVISED STANDARD PLAN RSP T1B

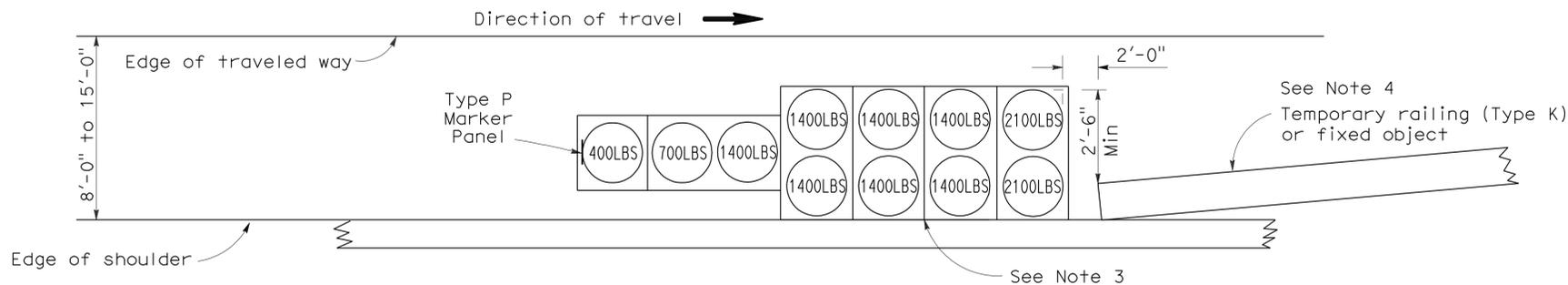
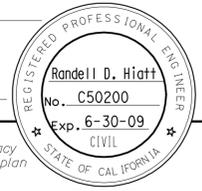
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
12	Ora	1	11.6	18	37

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

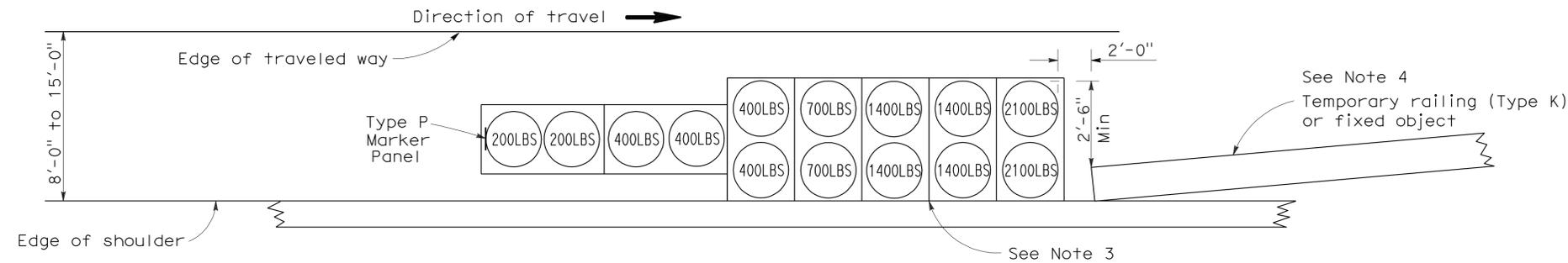
June 6, 2008
PLANS APPROVAL DATE

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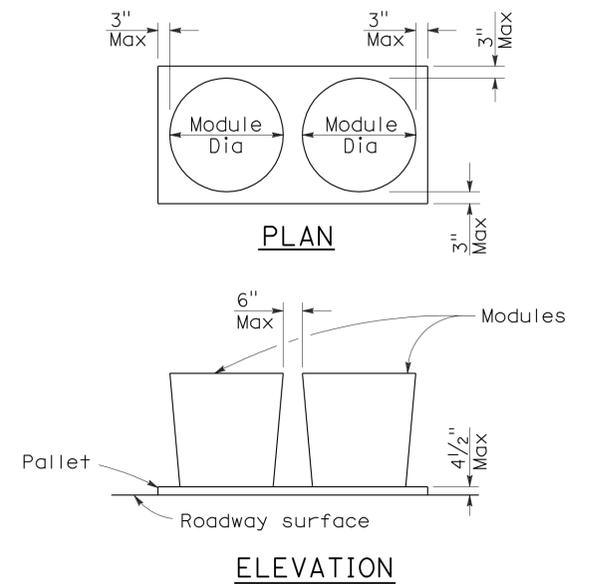
To accompany plans dated 6-1-10



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.

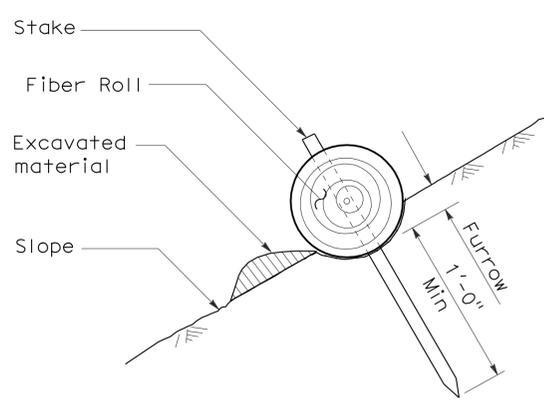
REVISED STANDARD PLAN RSP T2

2006 REVISED STANDARD PLAN RSP T2

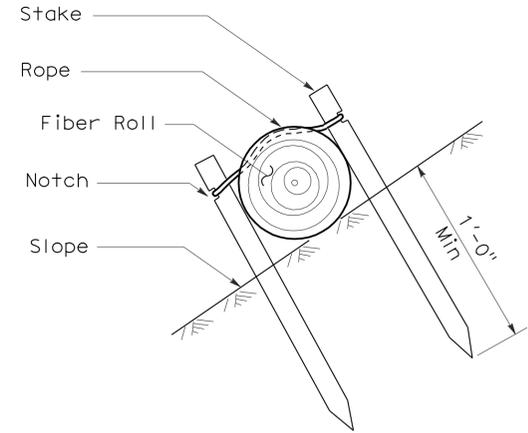
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
12	Ora	1	11.6	19	37

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.

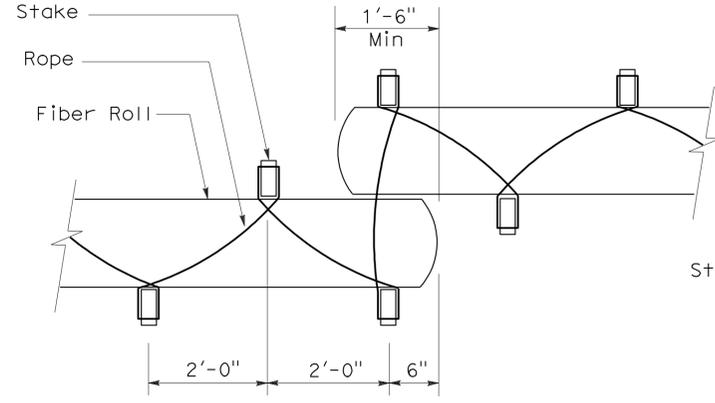
To accompany plans dated 6-1-10



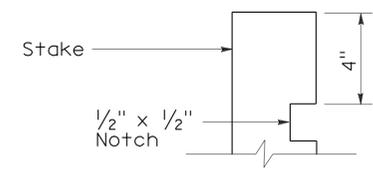
SECTION
TEMPORARY FIBER ROLL
(TYPE 1)



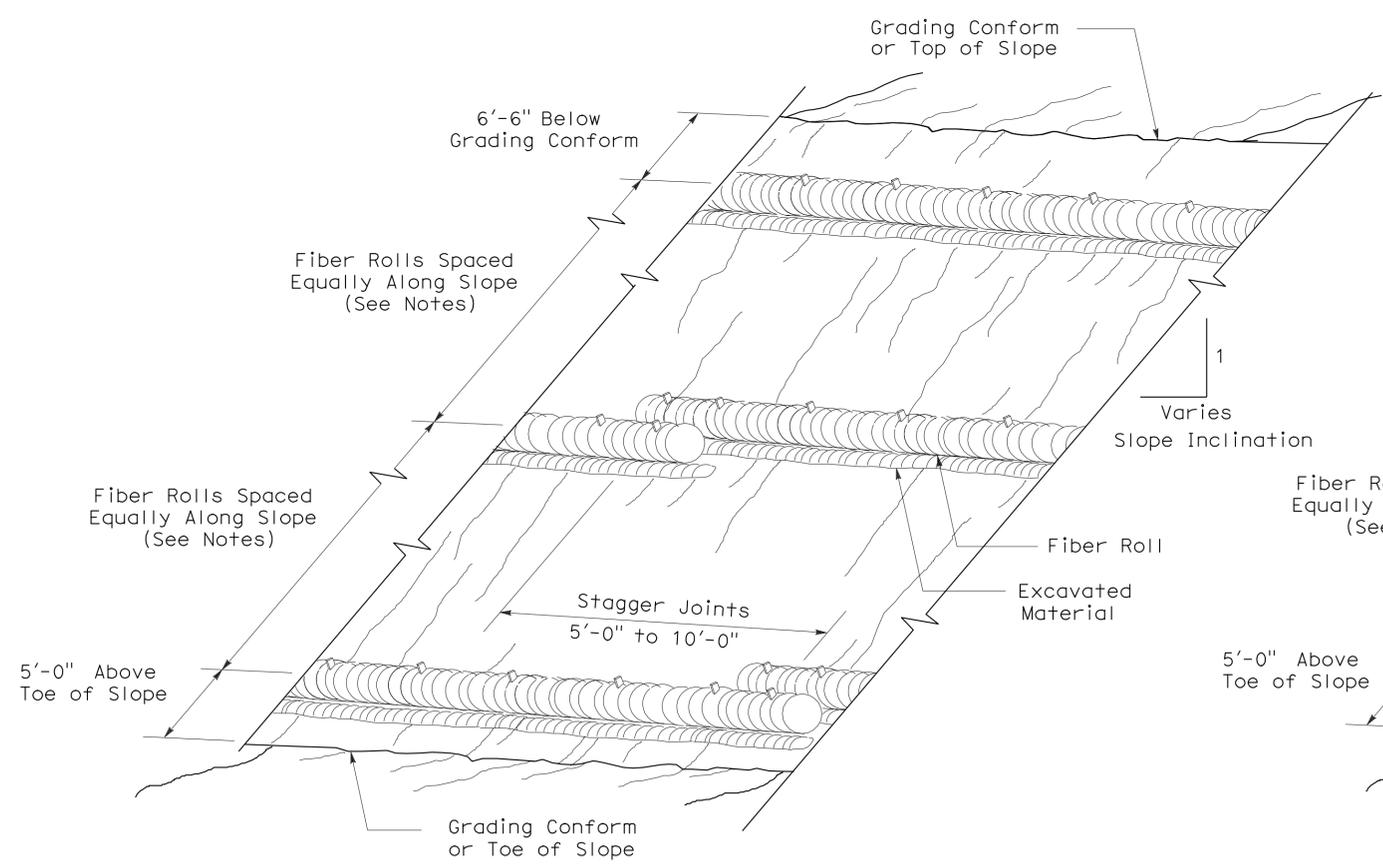
SECTION
TEMPORARY FIBER ROLL
(TYPE 2)



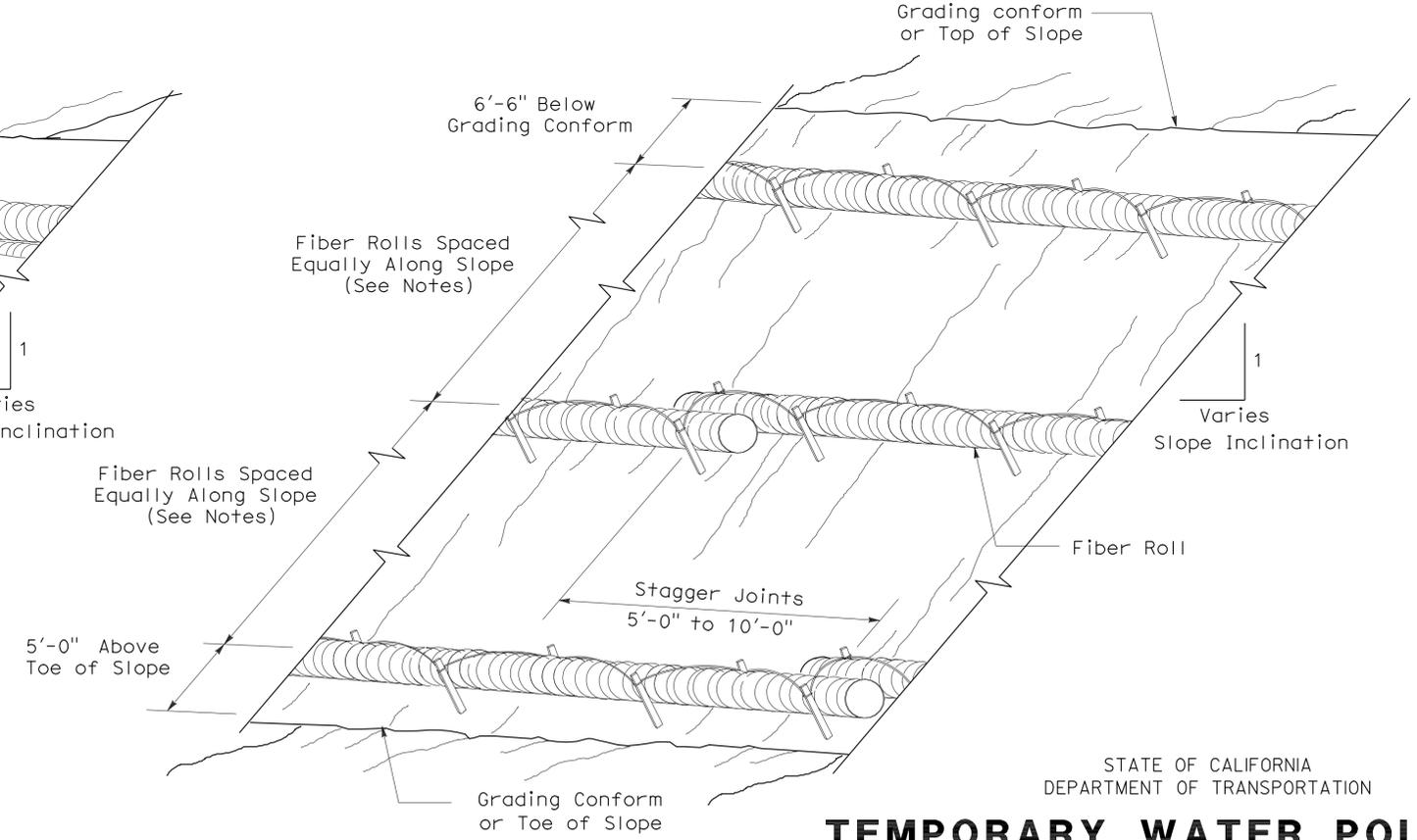
PLAN
ELEVATION
STAKE NOTCH DETAIL



- 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

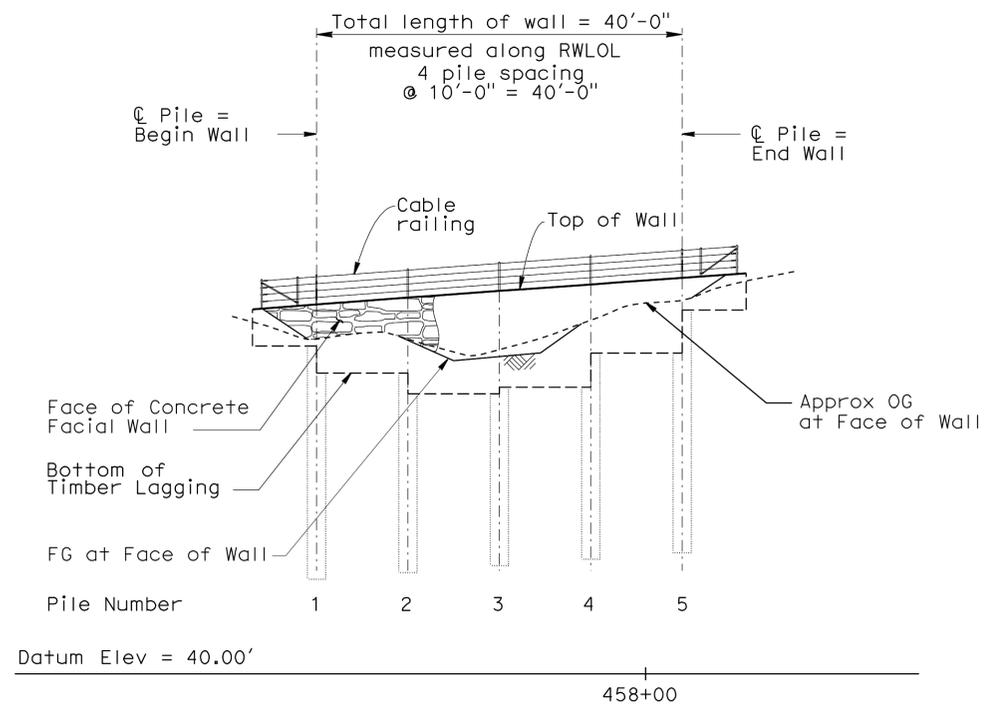
RSP T56 DATED APRIL 3, 2009 SUPERSEDES STANDARD PLAN T56 DATED MAY 1, 2006 - PAGE 232 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP T56

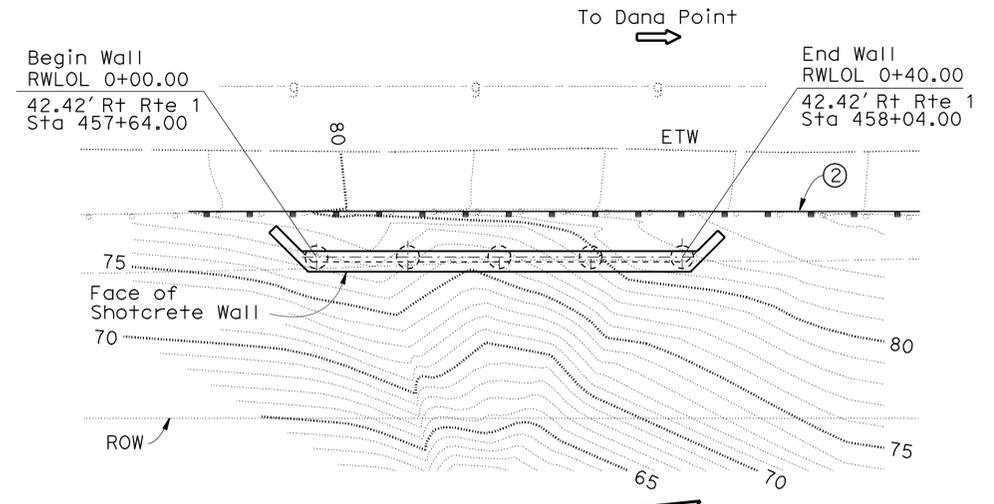
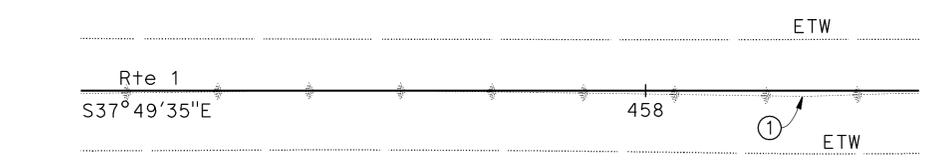
2006 REVISED STANDARD PLAN RSP T56

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
12	Oran	1	11.6	20	37

C.M. Duan 01/11/10
 REGISTERED CIVIL ENGINEER DATE
 6-1-10
 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.

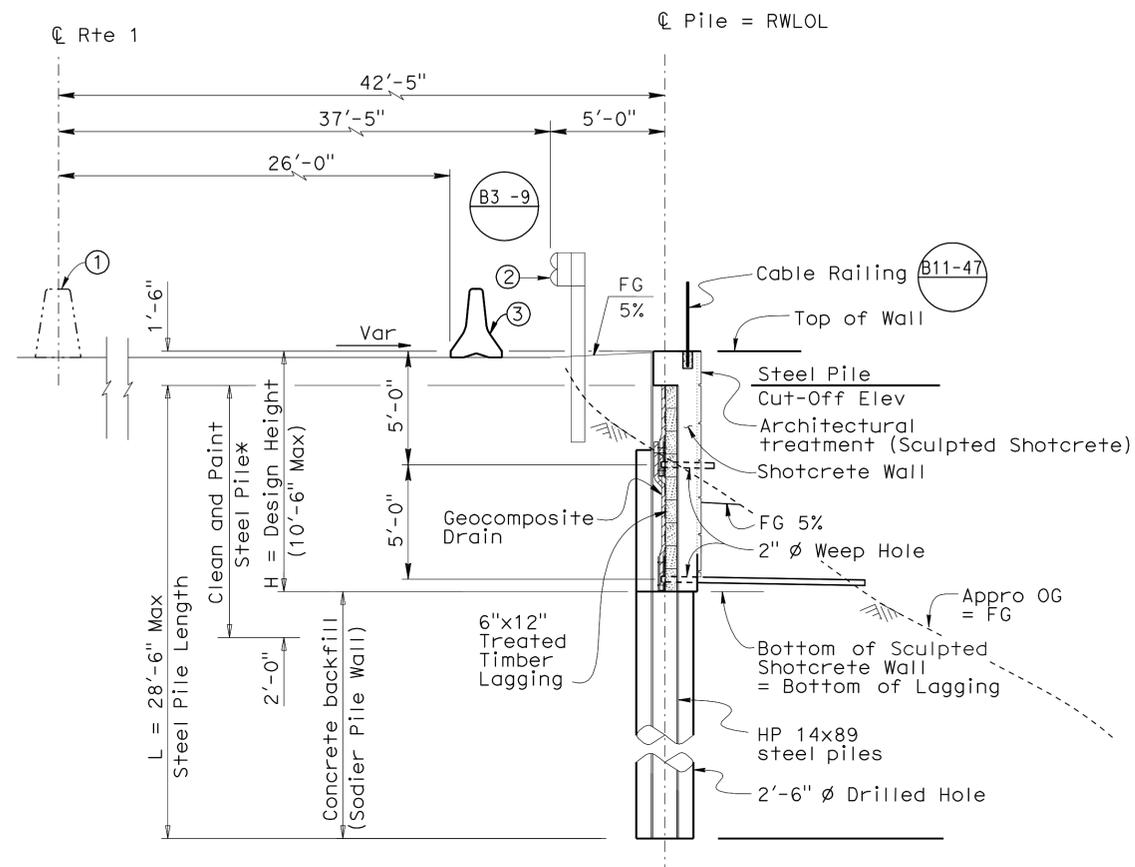


DEVELOPED ELEVATION
1" = 10'



PLAN
1" = 10'

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



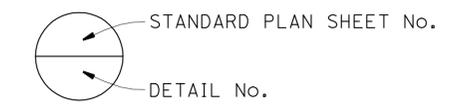
TYPICAL SECTION
1/4" = 1'-0"

QUANTITIES:

STRUCTURE EXCAVATION (SOLDIER PILE WALL)	34	CY
STRUCTURE BACKFILL (SOLDIER PILE WALL)	31	CY
CONCRETE BACKFILL (SOLDIER PILE WALL)	19	CY
FURNISH STEEL PILING (HP 14 X 89)	143	LF
30" DRILLED HOLE	134	LF
ARCHITECTURAL TREATMENT (SCULPTED SHOTCRETE)	429	SQFT
BAR REINFORCING STEEL (RETAINING WALL) SHOTCRETE	3,040	LB
TIMBER LAGGING	18	CY
CLEAN AND PAINT STEEL SOLDIER PILING	2	MFBM
PREPARE AND STAIN CONCRETE	429	SQFT
CABLE RAILING	52	LF

STANDARD PLANS DATED MAY 2006

- A10A ABBREVIATIONS
- B3-9 RETAINING WALL DETAILS No. 2
- B11-47 CABLE RAILING



INDEX TO PLANS

1. GENERAL PLAN
2. RETAINING WALL ELEVATION
3. WALL DETAILS No. 1
4. WALL DETAILS No. 2
5. WALL DETAILS No. 3
6. LOG OF TEST BORINGS 1 OF 4
7. LOG OF TEST BORINGS 2 OF 4
8. LOG OF TEST BORINGS 3 OF 4
9. LOG OF TEST BORINGS 4 OF 4

LEGEND:

- ① Existing Median Concrete Barrier.
- ② Reconstruct MBGR, see "Road Plans".
- ③ Temporary Railing Type K, see "Road Plans".

NOTES:

For top of wall, pile cut off, Pile tip elevations, and weep hole location, See "Retaining Wall Elevation" sheet.
* See "WALL DETAILS No.3" Sheet for Details.

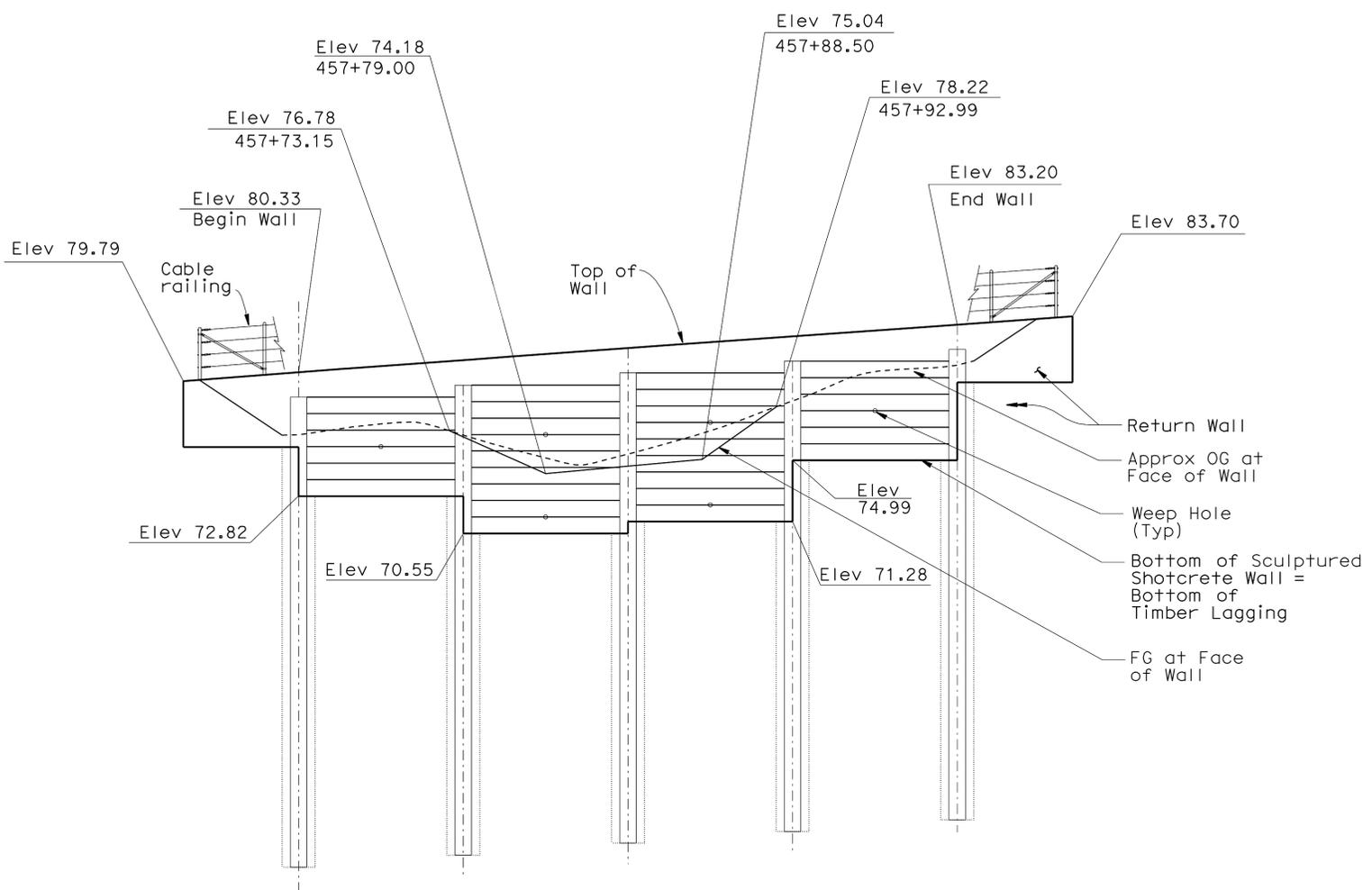
X HOWARD NG DESIGN ENGINEER	DESIGN	BY Carl M. Duan	CHECKED Jan Wu	LOAD FACTOR DESIGN	LIVE LOADING: HS20-44 AND ALTERNATIVE PERMIT DESIGN LOAD	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 20	BRIDGE NO.	55E0099	ROUTE 1 RETAINING WALL AT PM 11.65 GENERAL PLAN	
	DETAILS	BY Lan T Tran	CHECKED Tiffany Tran	LAYOUT	BY Carl M. Duan			CHECKED Jan Wu	POST MILE		11.65
	QUANTITIES	BY Carl M. Duan	CHECKED Tiffany Tran	SPECIFICATIONS	BY James Choi			PLANS AND SPECS COMPARED James Choi	REVISION DATES		06/24/09 06/28/09 06/29/09 07/28/09 07/29/09 09/01/09 12/28/09 07/11/10 03/03/10
STRUCTURES DESIGN GENERAL PLAN SHEET (ENGLISH) (REV. 10/25/05) ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3 CU 12 EA OK3701 DISREGARD PRINTS BEARING EARLIER REVISION DATES											

USERNAME => hrmikes DATE PLOTTED => 17-JUN-2010 TIME PLOTTED => 16:15

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
12	Ora	1	11.6	21	37

C.M. Duan 01/11/10
 REGISTERED CIVIL ENGINEER DATE
 6-1-10
 PLANS APPROVAL DATE

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GENERAL NOTES:

DESIGN:
 1996 AASHTO Standard Specifications for Highway Bridges with Interim Specifications as supplemented by Bridge Design Specifications (Caltrans) of April of 2001

SEISMIC DESIGN:
 $K_h = 0.18$ $K_v = 0.06$

SOIL PARAMETERS:
 (For determination of design lateral earth pressures)
 $\phi = 32^\circ$ $\gamma = 128$ pcf $c = 0$ psf (0 to 10 ft below OG = Surface of roadway)
 $\phi = 0^\circ$ $\gamma = 118$ pcf $c = 1780$ psf (10 to 19 ft below OG)
 $\phi = 0^\circ$ $\gamma = 115$ pcf $c = 1860$ psf (19 ft below OG)

SHOTCRETE:
 $f_y = 60,000$ psi $f'_c = 3,600$ psi (@ 28 days) $n = 8$

STRUCTURAL STEEL:
 ASTM Designation:
 A709/A709M, Grade 50 or A572/A572M, Grade 50
 $F_y = 50$ ksi $f_s = 27$ ksi

STRUCTURAL TIMBER:
 Treated Douglas Fir, Grade No. 1 or better.

Datum Elev = 40.00'

	+60	+80	458+00
Pile Number	1	2	3
Number of Timber Lagging	6	9	9

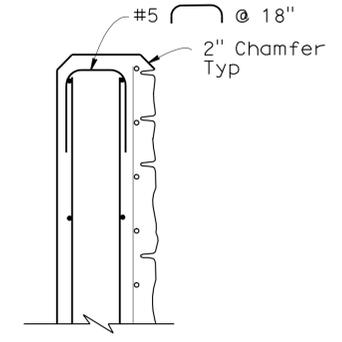
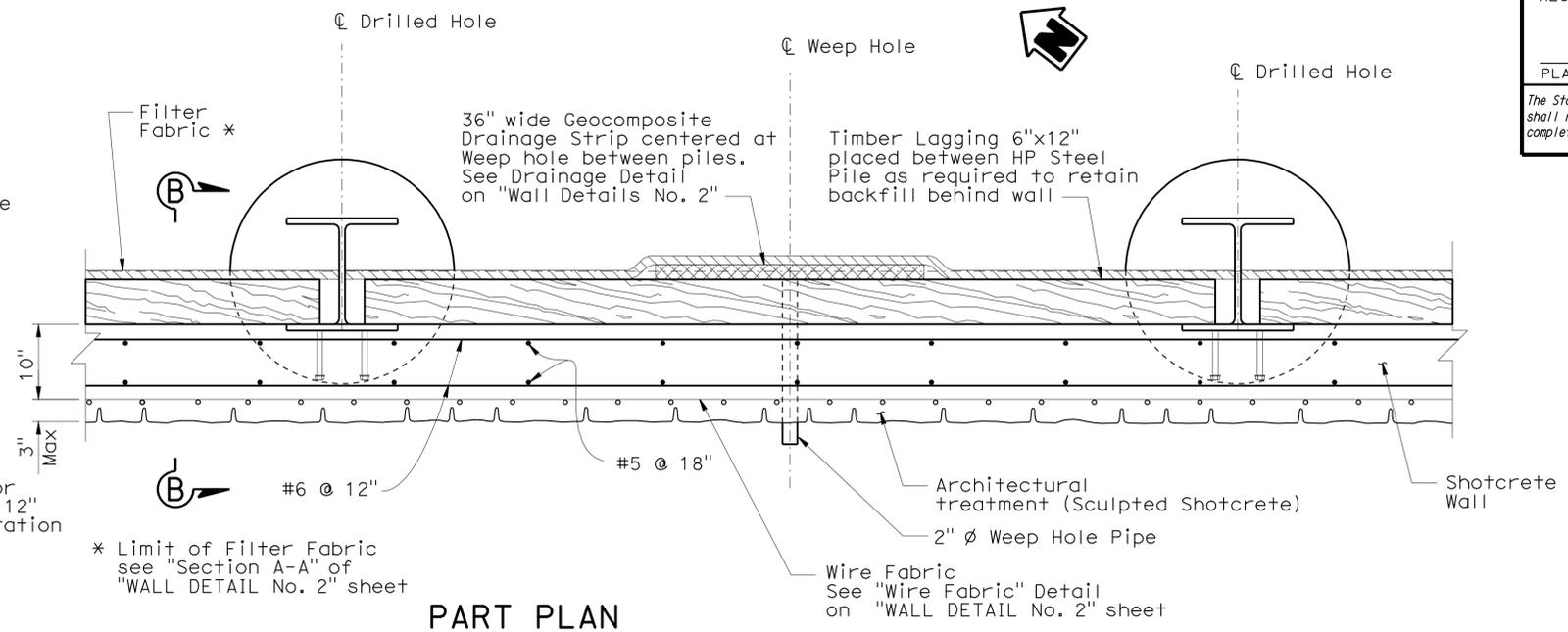
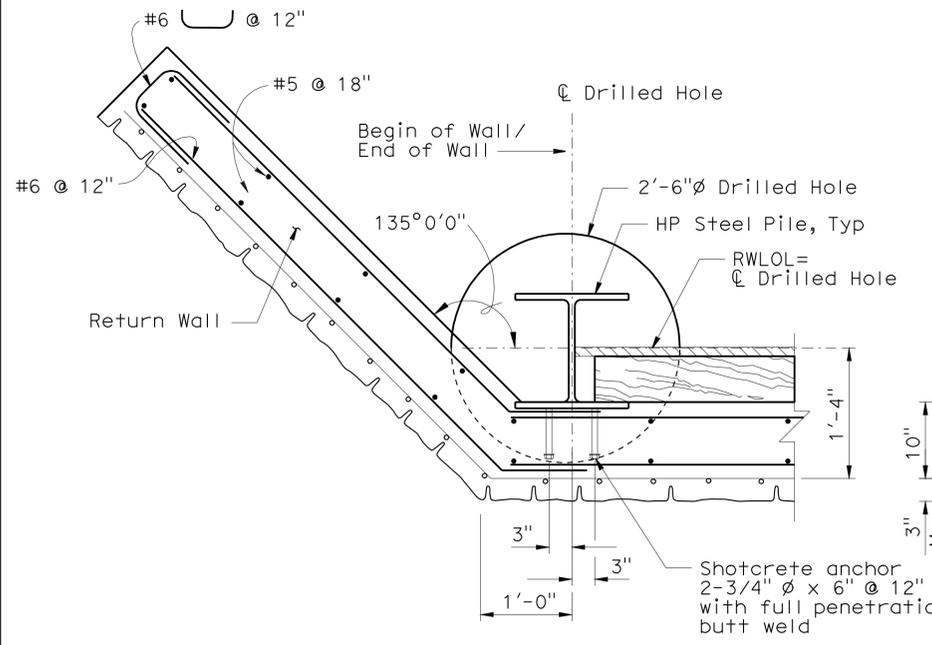
DEVELOPED ELEVATION
1" = 5'

DESIGN TABLE					
	Pile Number	RWL Station	RWL Left Offset (ft)	Pile Top Elevation (ft)	Pile Tip Elevation (ft)
Soldier Pile Wall	1	0+00.00	42.42	78.82	50.32
	2	0+10.00	42.42	79.55	51.05
	3	0+20.00	42.42	80.58	51.78
	4	0+30.00	42.42	80.99	52.49
	5	0+40.00	42.42	81.70	53.20

DESIGN BY Carl M. Duan CHECKED Jan Wu DETAILS BY Lan T Tran CHECKED Tiffany Tran QUANTITIES BY Carl M. Duan CHECKED Tiffany Tran	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 20	BRIDGE NO. 55E0099	ROUTE 1 RETAINING WALL AT PM 11.65 RETAINING WALL ELEVATION
			POST MILE 11.65	
			STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 10/25/05) ORIGINAL SCALE IN INCHES FOR REDUCED PLANS	

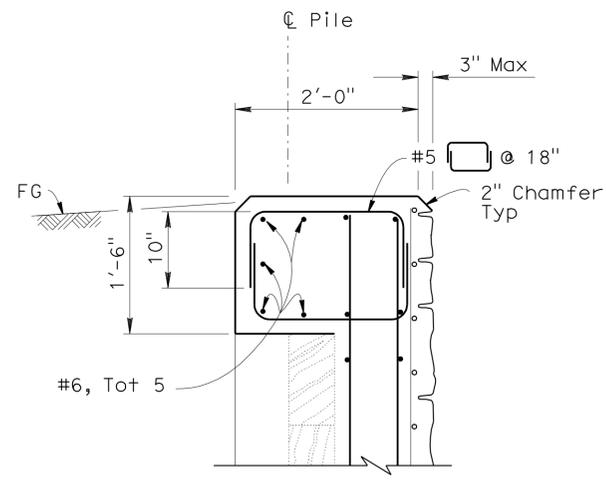
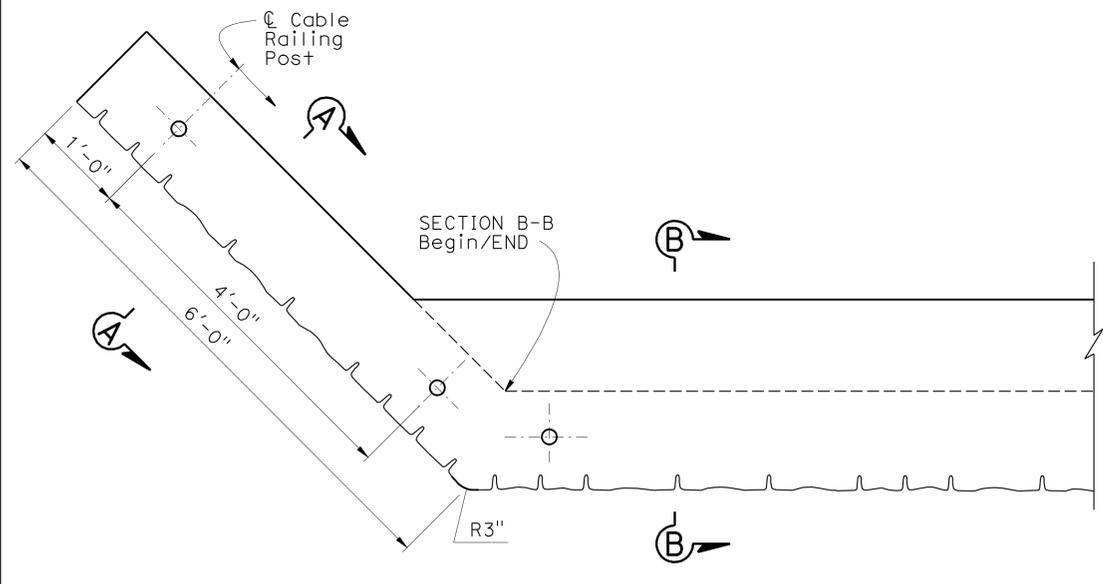
FILE => 55-E0099-c-sp.dgn

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
12	Ora	1	11.6	22	37
		REGISTERED CIVIL ENGINEER DATE			
		6-1-10			
		PLANS APPROVAL DATE			
		6-1-10			
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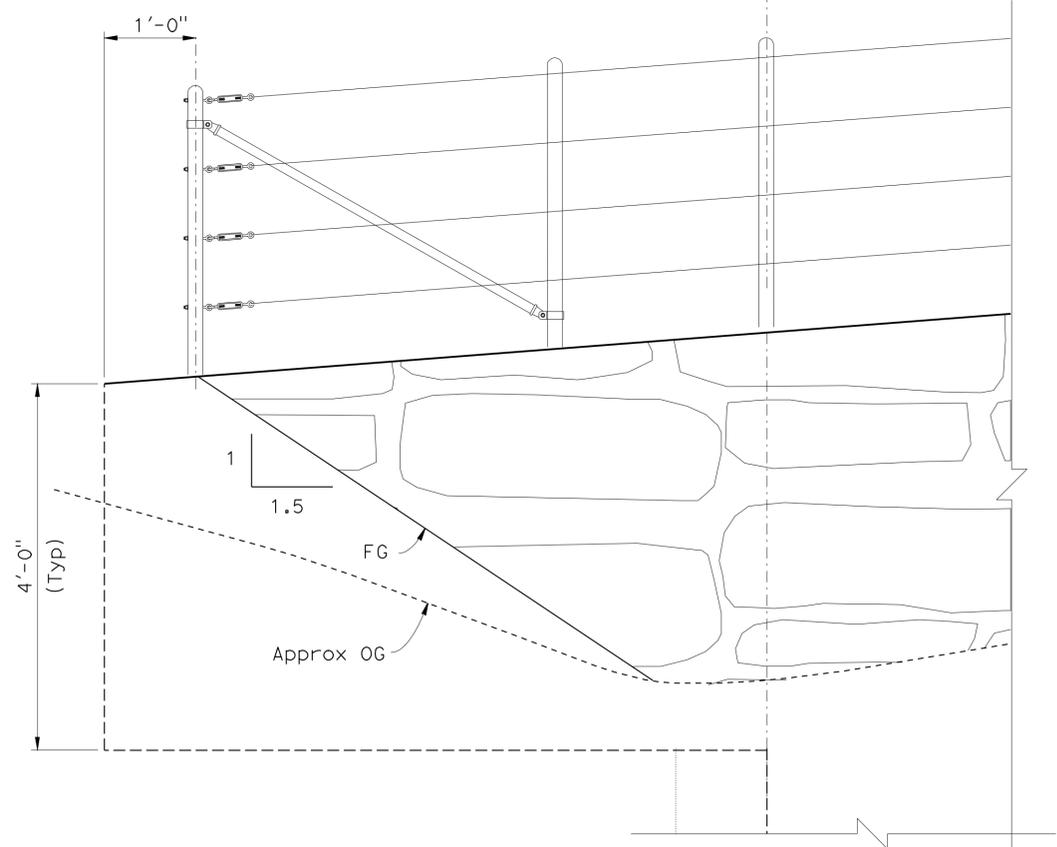


PART PLAN
1" = 1'-0"

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



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



RETURN WALL ELEVATION
1" = 1'-0"

RETURN WALL PLAN
1" = 1'-0"

DESIGN	BY Carl M. Duan	CHECKED Jan Wu
DETAILS	BY Lan T Tran	CHECKED Tiffany Tran
QUANTITIES	BY Carl M. Duan	CHECKED Tiffany Tran

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
STRUCTURE DESIGN
DESIGN BRANCH **20**

BRIDGE NO.	55E0099
POST MILE	11.65

ROUTE 1 RETAINING WALL AT PM 11.65
WALL DETAILS NO.1

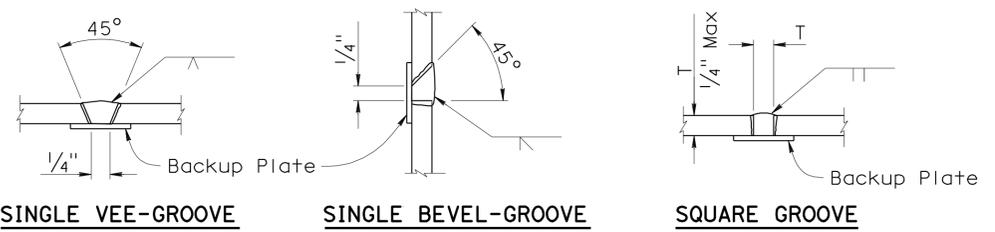
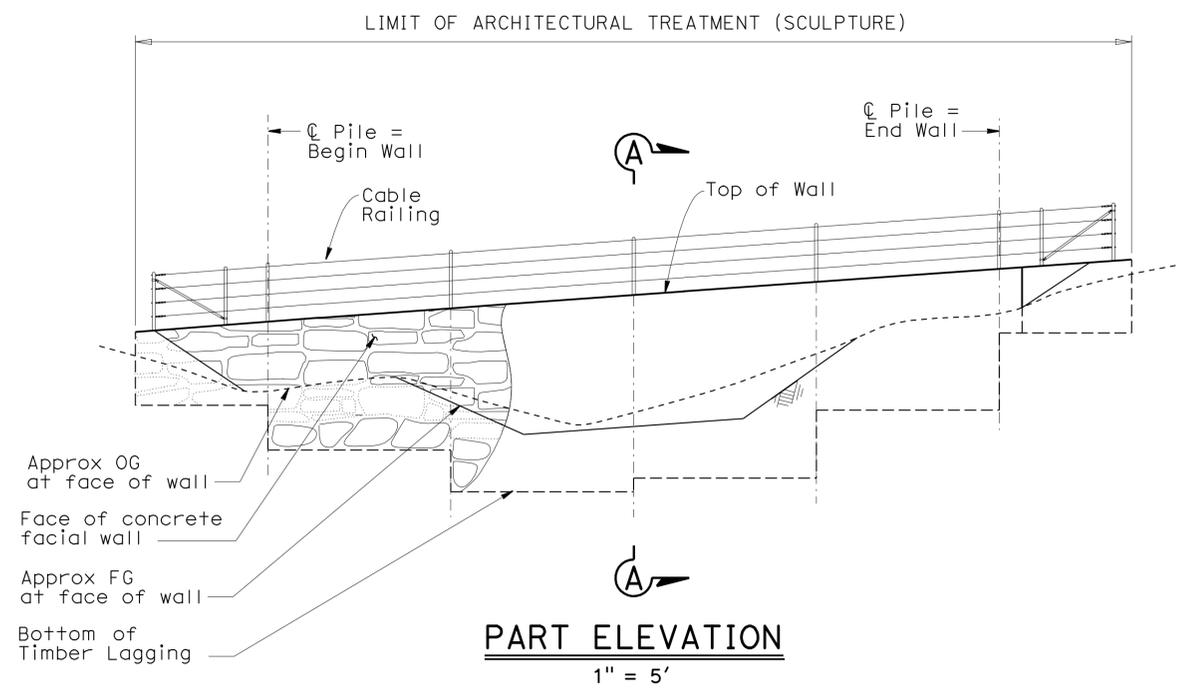
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
12	Oran	1	11.6	23	37

C.M. Duan 01/11/10
 REGISTERED CIVIL ENGINEER DATE
 6-1-10
 PLANS APPROVAL DATE
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REGISTERED PROFESSIONAL ENGINEER
 Carl M. Duan
 No. C59976
 Exp. 06-30-10
 CIVIL
 STATE OF CALIFORNIA

NOTES:

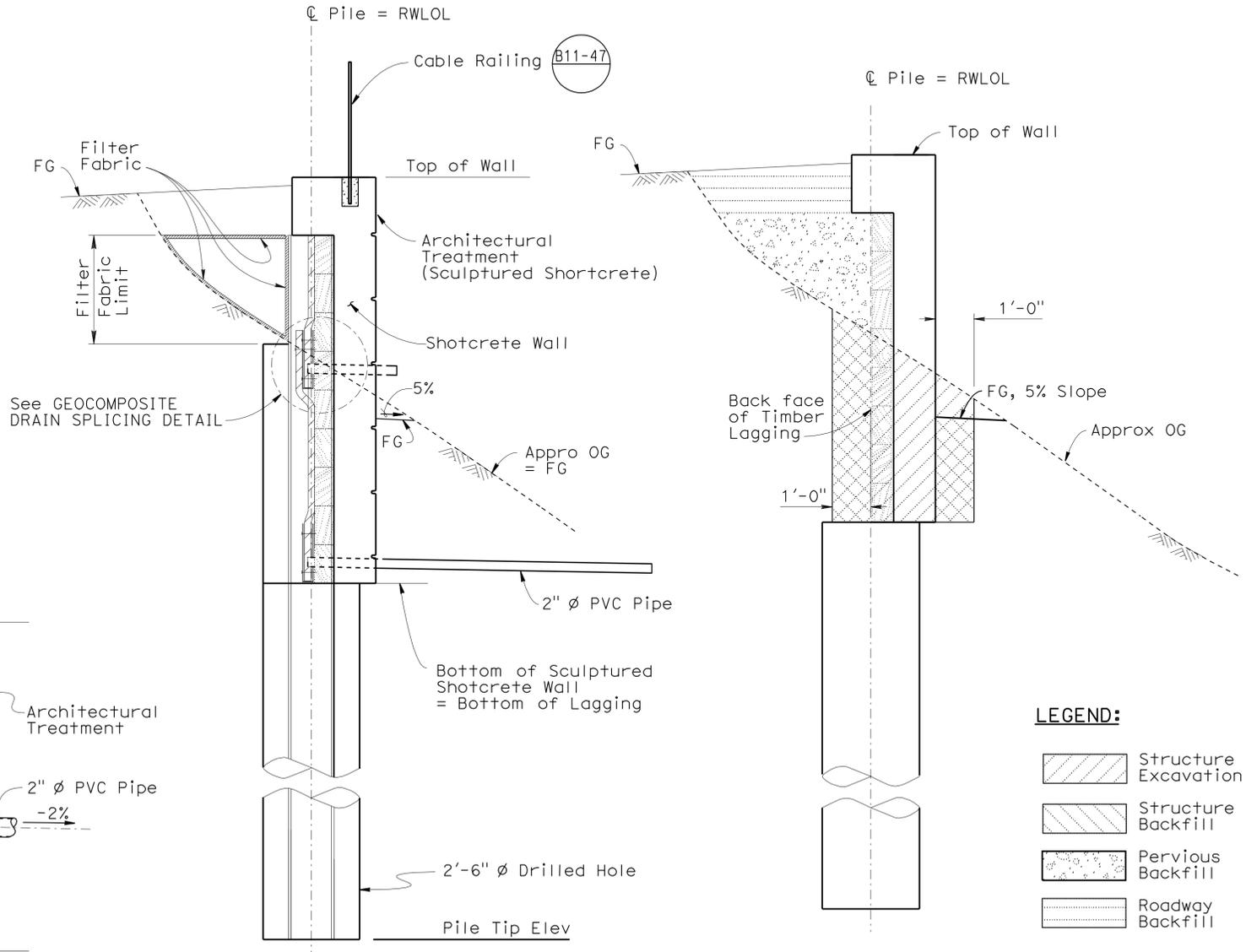
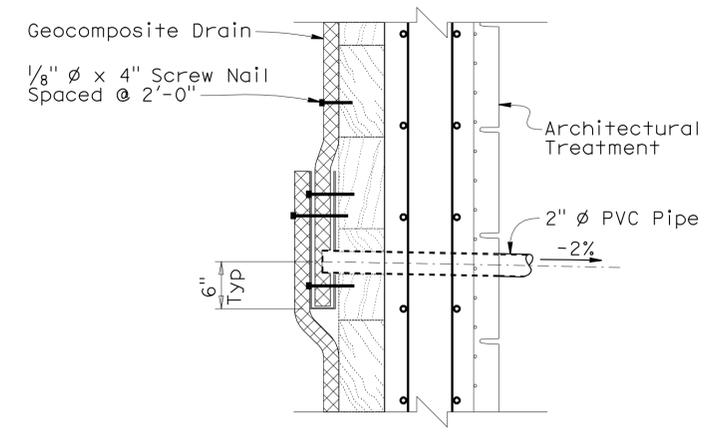
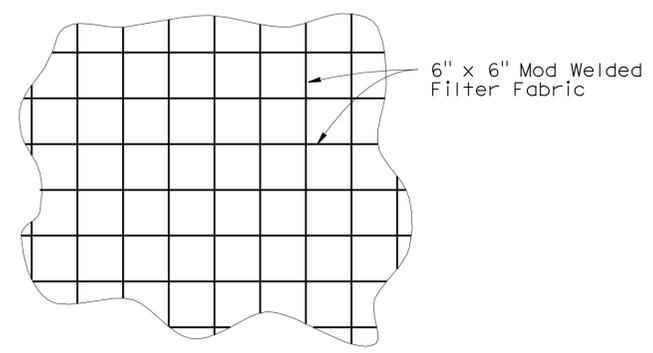
1. Architectural Treatment (Sculpted Shotcrete) shall match existing stone configuration scale and color, as directed by the Engineer
2. Architectural treatment shall terminate 2'-0" beyond FG.



NOTES:

1. Single Vee-Groove And Square Groove Permitted for all positions.
2. Single Bevel-Groove permitted for horizontal joints only.
3. For purposes of non-destructive testing, pile shall be considered a main tension member from top of pile to 2 meters below bottom of lagging. The remaining embedded portion of the pile shall be considered a main compression member.

PILE WELDING DETAIL-BUTT JOINTS



LIMITS OF PAYMENT FOR EXCAVATION AND BACKFILL
1/2" = 1'-0"

LEGEND:

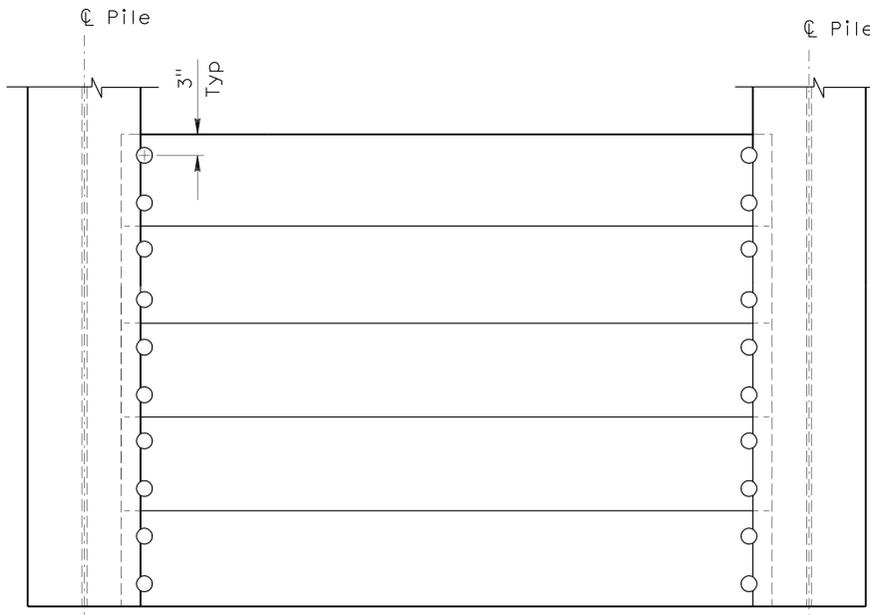
	Structure Excavation
	Structure Backfill
	Pervious Backfill
	Roadway Backfill

DESIGN BY Carl M. Duan CHECKED Jan Wu DETAILS BY Lan T Tran CHECKED Tiffany Tran QUANTITIES BY Carl M. Duan CHECKED Tiffany Tran	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 20	BRIDGE NO. 55E0099	ROUTE 1 RETAINING WALL AT PM 11.65 WALL DETAILS NO.2
			POST MILE 11.65	

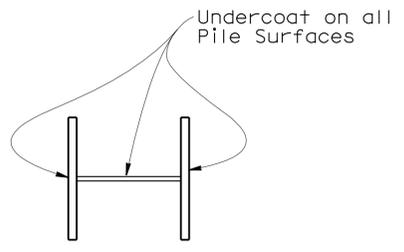
STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 10/25/05) ORIGINAL SCALE IN INCHES FOR REDUCED PLANS CU 12 EA OK3701 DISREGARD PRINTS BEARING EARLIER REVISION DATES REVISION DATES: 06/28/09, 06/28/09, 06/29/09, 07/24/09, 07/24/09, 09/04/09, 12/22/09, 07/11/10, 03/03/10

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
12	Ora	1	11.6	24	37

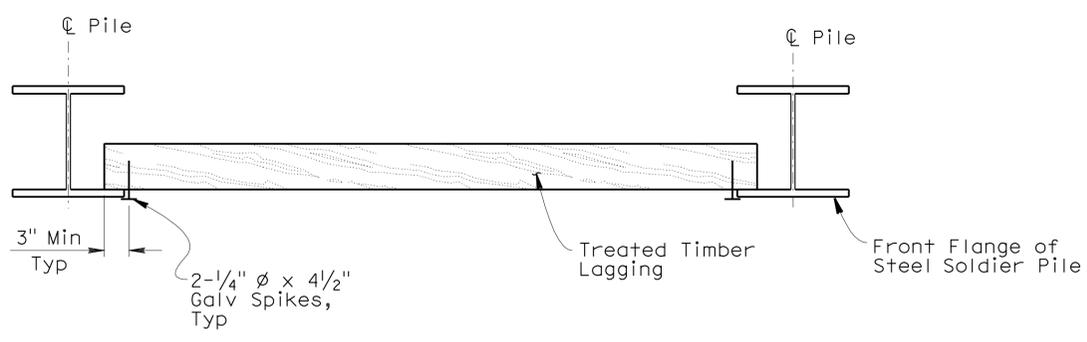
C.M. Duan 09/14/09
 REGISTERED CIVIL ENGINEER DATE
 6-1-10
 PLANS APPROVAL DATE
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PART ELEVATION
1" = 1'-0"



LIMITS OF CLEAN & PAINT STEEL SOLDIER PILE
NO SCALE



PART PLAN
1" = 1'-0"

LAGGING DETAILS
1" = 1'-0"

DESIGN	BY Carl M. Duan	CHECKED Jan Wu
DETAILS	BY Lan T Tran	CHECKED Tiffany Tran
QUANTITIES	BY Carl M. Duan	CHECKED Tiffany Tran

STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
 STRUCTURE DESIGN
 DESIGN BRANCH **20**

BRIDGE NO.	55E0099
POST MILE	11.65

ROUTE 1 RETAINING WALL AT PM 11.65
 WALL DETAILS NO.3

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
12	Ora	1	11.6	25	37

Kristopher Barker 6-23-09
 CERTIFIED ENGINEERING GEOLOGIST DATE

6-1-10
 PLANS APPROVAL DATE

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REGISTERED PROFESSIONAL GEOLOGIST
 Kristopher Barker
 No. 2383
 Exp. 8-31-09
 CERTIFIED ENGINEERING GEOLOGIST
 STATE OF CALIFORNIA

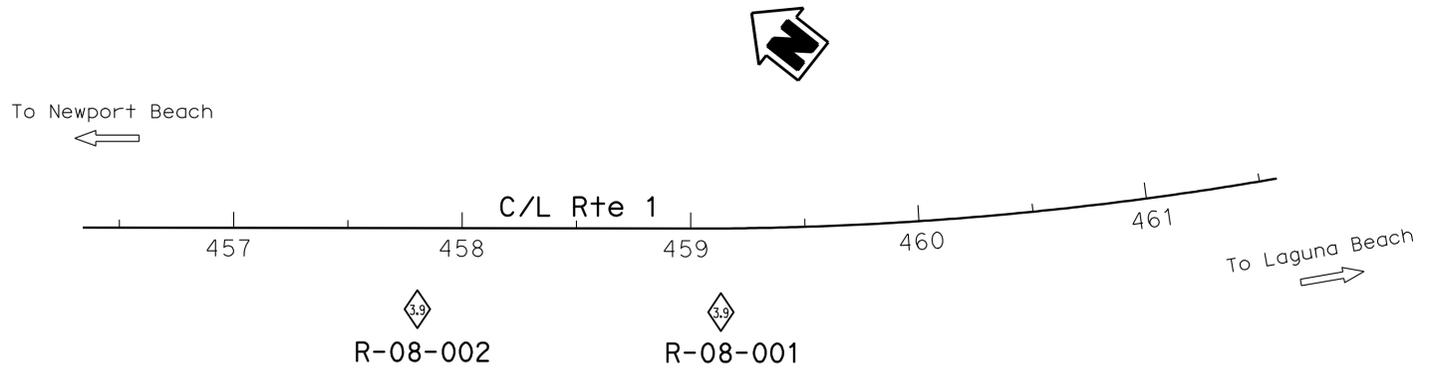
This LOTB sheet was prepared in accordance with the Caltrans Soil & Rock Logging, Classification, & Presentation Manual (June 2007).

BENCH MARK

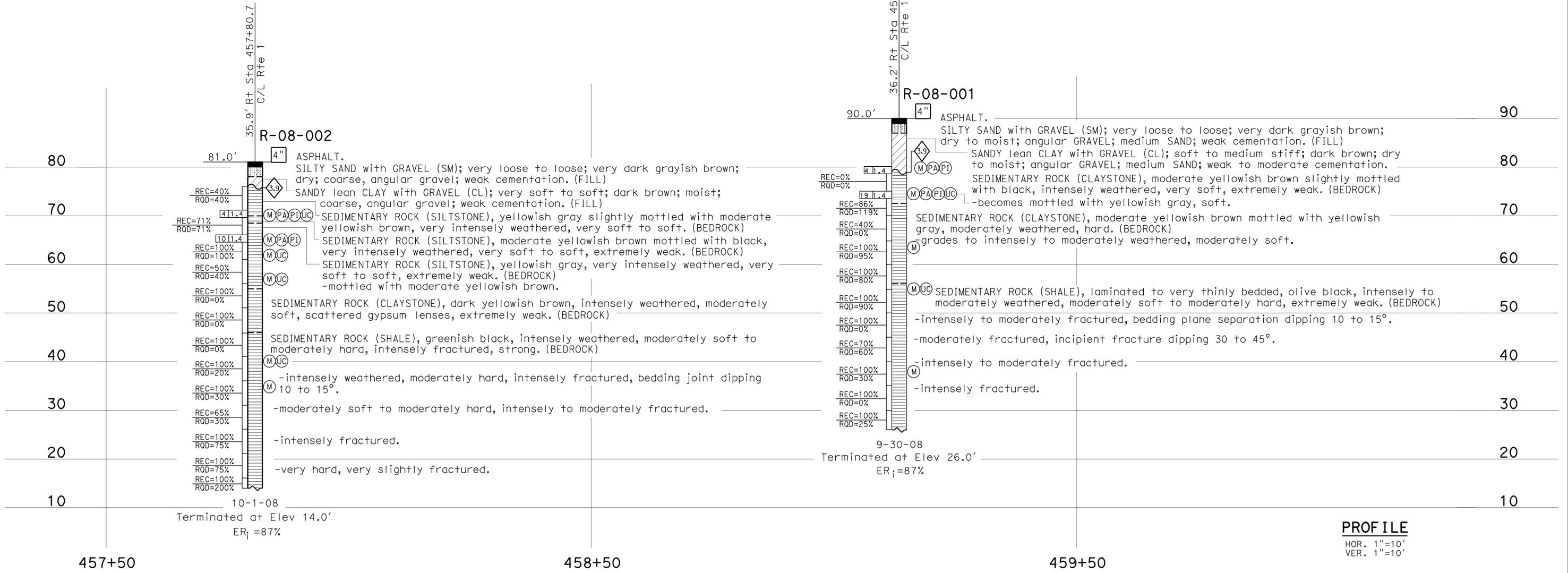
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 E 6,082,904.91
 EL = 22.573
 PK & TIN

CTRL PT #5
 N 2,150,249.19
 E 6,083,616.93
 EL = 14.786
 1x2 HUB & TACK

CTRL PT #4
 N 2,150,170.66
 E 6,083,666.98
 EL = 15.328
 1x2 HUB & TACK



PLAN
 1:40



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

ENGINEERING SERVICES		GEOTECHNICAL SERVICES		STATE OF CALIFORNIA		DIVISION OF ENGINEERING SERVICES		BRIDGE NO.		ROUTE 1 RETAINING WALL AT PM 11.65	
FUNCTIONAL SUPERVISOR		DRAWN BY: W. Tang 03/09		DEPARTMENT OF TRANSPORTATION		STRUCTURE DESIGN		55-E0098		LOG OF TEST BORINGS 1 OF 4	
NAME: S. Sukiasian		CHECKED BY: N. Spour		FIELD INVESTIGATION BY: K. Barker		DESIGN BRANCH 20		55-E0099			
065 CIVIL LOG OF TEST BORINGS SHEET		ORIGINAL SCALE IN INCHES FOR REDUCED PLANS		CU EA 12 OK3701		POST MILES 11.61/11.65		DISREGARD PRINTS BEARING EARLIER REVISION DATES		REVISION DATES	
				0 1 2 3				06-14-09 06-17-09		SHEET 6 OF 9	

FILE => 55-E0099-z-1tb01.dgn

REFERENCE: CALTRANS SOIL & ROCK LOGGING, CLASSIFICATION, AND PRESENTATION MANUAL (JUNE 2007).

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
12	Ora	1	11.6	26	37

Kristopher Barker 6-23-09
 CERTIFIED ENGINEERING GEOLOGIST DATE

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REGISTERED PROFESSIONAL GEOLOGIST
 Kristopher Barker
 No. 2383
 Exp. 8-31-09
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 STATE OF CALIFORNIA

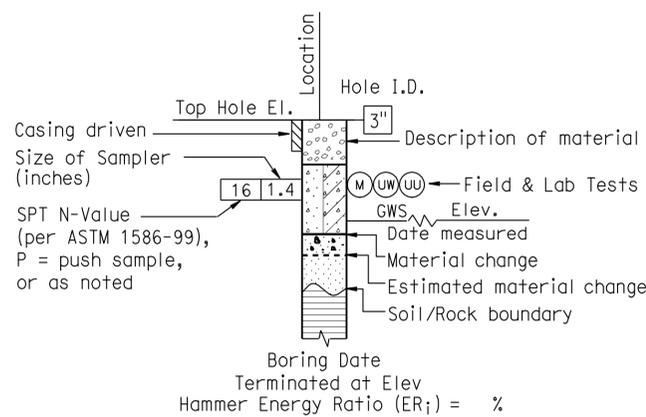
CEMENTATION	
Description	Criteria
Weak	Crumbles or breaks with handling or little finger pressure.
Moderate	Crumbles or breaks with considerable finger pressure.
Strong	Will not crumble or break with finger pressure.

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

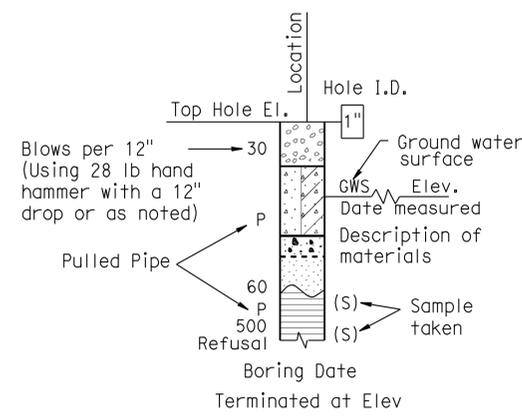
BOREHOLE IDENTIFICATION		
Symbol	Hole Type	Description
	A	Auger Boring
	R	Rotary drilled boring
	P	Rotary percussion boring (air)
	R	Rotary drilled diamond core
	HD	Hand driven (1-inch soil tube)
	HA	Hand Auger
	D	Dynamic Cone Penetration Boring
	CPT	Cone Penetration Test (ASTM D 5778-95)
	O	Other

NOTE: Size in inches.

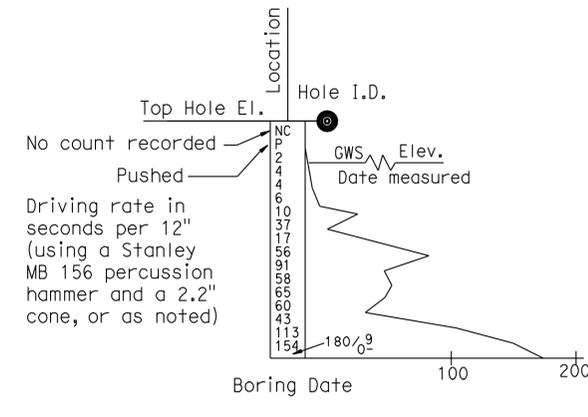
PLASTICITY OF FINE-GRAINED SOILS	
Description	Criteria
Nonplastic	A 1/8-inch thread cannot be rolled at any water content.
Low	The thread can barely be rolled and the lump cannot be formed when drier than the plastic limit.
Medium	The thread is easy to roll and not much time is required to reach the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



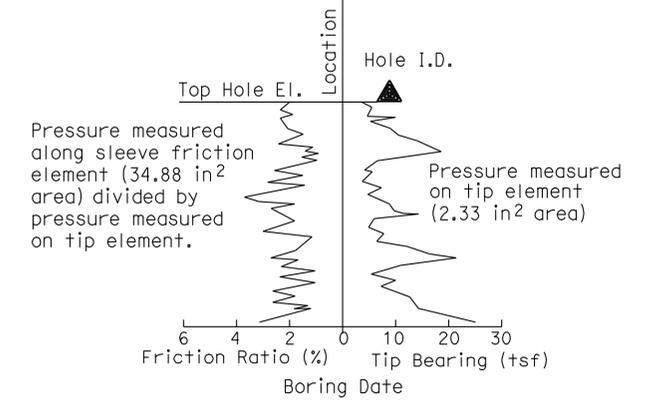
ROTARY BORING



HAND BORING



DYNAMIC CONE PENETRATION BORING



CONE PENETRATION TEST (CPT) SOUNDING

ENGINEERING SERVICES	GEOTECHNICAL SERVICES	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 20	BRIDGE NO. 55-E0098 55-E0099	ROUTE 1 RETAINING WALL AT PM 11.65
	PREPARED BY: I.G.-Remmen, 4/09			POST MILE 11.61/11.65	
GS LOTB SOIL LEGEND	ORIGINAL SCALE IN INCHES FOR REDUCED PLANS	CU 12 EA OK3701	DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES	SHEET 7 OF 9

FILE => 55-E0099-z-1fb02.dgn

USERNAME => PTH001 IN DATE PLOTTED => 03-JUN-2010 TIME PLOTTED => 10:59

Kristopher Barker 6-23-09
 CERTIFIED ENGINEERING GEOLOGIST DATE

6-1-10
 PLANS APPROVAL DATE

Kristopher Barker
 No. 2383
 Exp. 8-31-09
 REGISTERED PROFESSIONAL GEOLOGIST
 CERTIFIED ENGINEERING GEOLOGIST
 STATE OF CALIFORNIA

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GROUP SYMBOLS AND NAMES			
Graphic/Symbol	Group Names	Graphic/Symbol	Group Names
	Well-graded GRAVEL		Lean CLAY
	Well-graded GRAVEL with SAND		Lean CLAY with SAND
	Poorly graded GRAVEL		Lean CLAY with GRAVEL
	Poorly graded GRAVEL with SAND		SANDY lean CLAY
	Well-graded GRAVEL with SILT		SANDY lean CLAY with GRAVEL
	Well-graded GRAVEL with SILT and SAND		GRAVELLY lean CLAY
	Well-graded GRAVEL with CLAY (or SILTY CLAY)		GRAVELLY lean CLAY with SAND
	Well-graded GRAVEL with CLAY and SAND (or SILTY CLAY and SAND)		SILTY CLAY
	Poorly graded GRAVEL with SILT		SILTY CLAY with SAND
	Poorly graded GRAVEL with SILT and SAND		SILTY CLAY with GRAVEL
	Poorly graded GRAVEL with CLAY (or SILTY CLAY)		SANDY SILTY CLAY
	Poorly graded GRAVEL with CLAY and SAND (or SILTY CLAY and SAND)		SANDY SILTY CLAY with GRAVEL
	SILTY GRAVEL		GRAVELLY SILTY CLAY
	SILTY GRAVEL with SAND		GRAVELLY SILTY CLAY with SAND
	CLAYEY GRAVEL		SILT
	CLAYEY GRAVEL with SAND		SILT with SAND
	SILTY, CLAYEY GRAVEL		SILT with GRAVEL
	SILTY, CLAYEY GRAVEL with SAND		SANDY SILT
	Well-graded SAND		SANDY SILT with GRAVEL
	Well-graded SAND with GRAVEL		GRAVELLY SILT
	Poorly graded SAND		GRAVELLY SILT with SAND
	Poorly graded SAND with GRAVEL		Fat CLAY
	Well-graded SAND with SILT		Fat CLAY with SAND
	Well-graded SAND with SILT and GRAVEL		Fat CLAY with GRAVEL
	Well-graded SAND with CLAY (or SILTY CLAY)		SANDY fat CLAY
	Well-graded SAND with CLAY and GRAVEL (or SILTY CLAY and GRAVEL)		SANDY fat CLAY with GRAVEL
	Poorly graded SAND with SILT		GRAVELLY fat CLAY
	Poorly graded SAND with SILT and GRAVEL		GRAVELLY fat CLAY with SAND
	Poorly graded SAND with CLAY (or SILTY CLAY)		Elastic SILT
	Poorly graded SAND with CLAY and GRAVEL (or SILTY CLAY and GRAVEL)		Elastic SILT with SAND
	SILTY SAND		Elastic SILT with GRAVEL
	SILTY SAND with GRAVEL		SANDY elastic SILT
	CLAYEY SAND		SANDY elastic SILT with GRAVEL
	CLAYEY SAND with GRAVEL		GRAVELLY elastic SILT
	SILTY, CLAYEY SAND		GRAVELLY elastic SILT with SAND
	SILTY, CLAYEY SAND with GRAVEL		ORGANIC fat CLAY
	PEAT		ORGANIC fat CLAY with SAND
	COBBLES		ORGANIC fat CLAY with GRAVEL
	COBBLES and BOULDERS		SANDY ORGANIC fat CLAY
	BOULDERS		SANDY ORGANIC fat CLAY with GRAVEL
			GRAVELLY ORGANIC fat CLAY
			GRAVELLY ORGANIC fat CLAY with SAND
			ORGANIC elastic SILT
			ORGANIC elastic SILT with SAND
			ORGANIC elastic SILT with GRAVEL
			SANDY ORGANIC elastic SILT
			SANDY ORGANIC elastic SILT with GRAVEL
			GRAVELLY ORGANIC elastic SILT
			GRAVELLY ORGANIC elastic SILT with SAND
			ORGANIC SOIL
			ORGANIC SOIL with SAND
			ORGANIC SOIL with GRAVEL
			SANDY ORGANIC SOIL
			SANDY ORGANIC SOIL with GRAVEL
			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
(PP)	Pocket Penetrometer
(R)	R-Value (CTM 301)
(SE)	Sand Equivalent (CTM 217)
(SG)	Specific Gravity (AASHTO T 100)
(SL)	Shrinkage Limit (ASTM D 427)
(SW)	Swell Potential (ASTM D 4546)
(TV)	Pocket Torvane
(UC)	Unconfined Compression-Soil (ASTM D 2166)
(UU)	Unconfined Compression-Rock (ASTM D 2938)
(UW)	Unconsolidated Undrained Triaxial (ASTM D 2850)
(UW)	Unit Weight (ASTM D 4767)
(VS)	Vane Shear (AASHTO T 223)

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

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

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

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

REFERENCE: CALTRANS SOIL & ROCK LOGGING, CLASSIFICATION, AND PRESENTATION MANUAL (JUNE 2007).

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
12	Ora	1	11.6	28	37

Kristopher Barker 4-16-09
 CERTIFIED ENGINEERING GEOLOGIST DATE

6-1-10
 PLANS APPROVAL DATE

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

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

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

RELATIVE STRENGTH OF INTACT ROCK

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

BEDDING SPACING

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

LEGEND OF ROCK MATERIALS

- IGNEOUS ROCK
- SEDIMENTARY ROCK
- METAMORPHIC ROCK

ROCK HARDNESS

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

WEATHERING DESCRIPTORS FOR INTACT ROCK

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

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

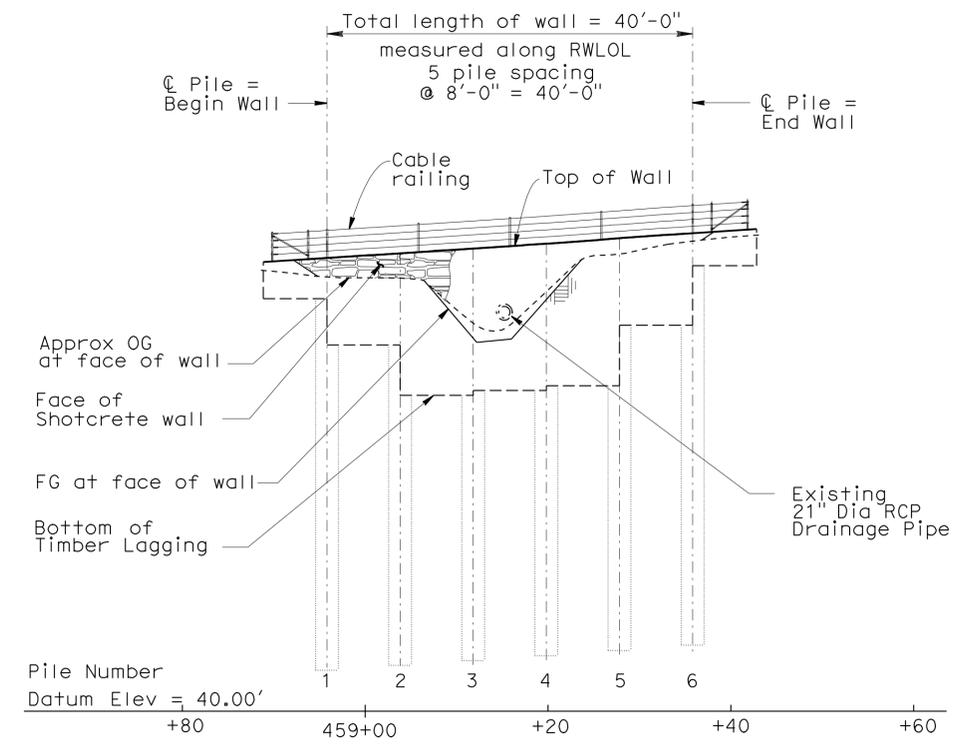
FRACTURE DENSITY

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

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

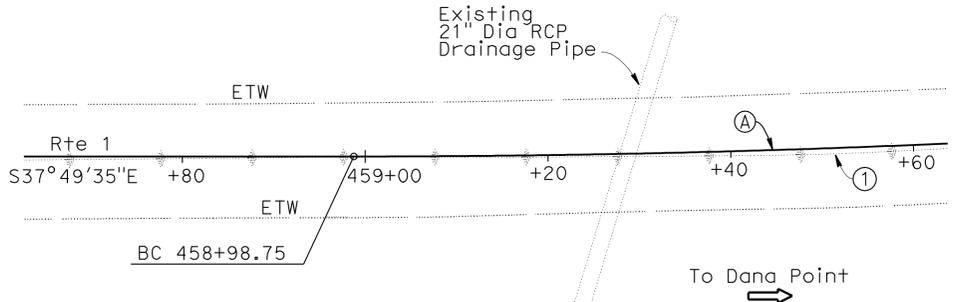
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
12	Oran	1	11.6	29	37

C.M. Duan 01/11/10
 REGISTERED CIVIL ENGINEER DATE
 6-1-10
 PLANS APPROVAL DATE
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DEVELOPED ELEVATION

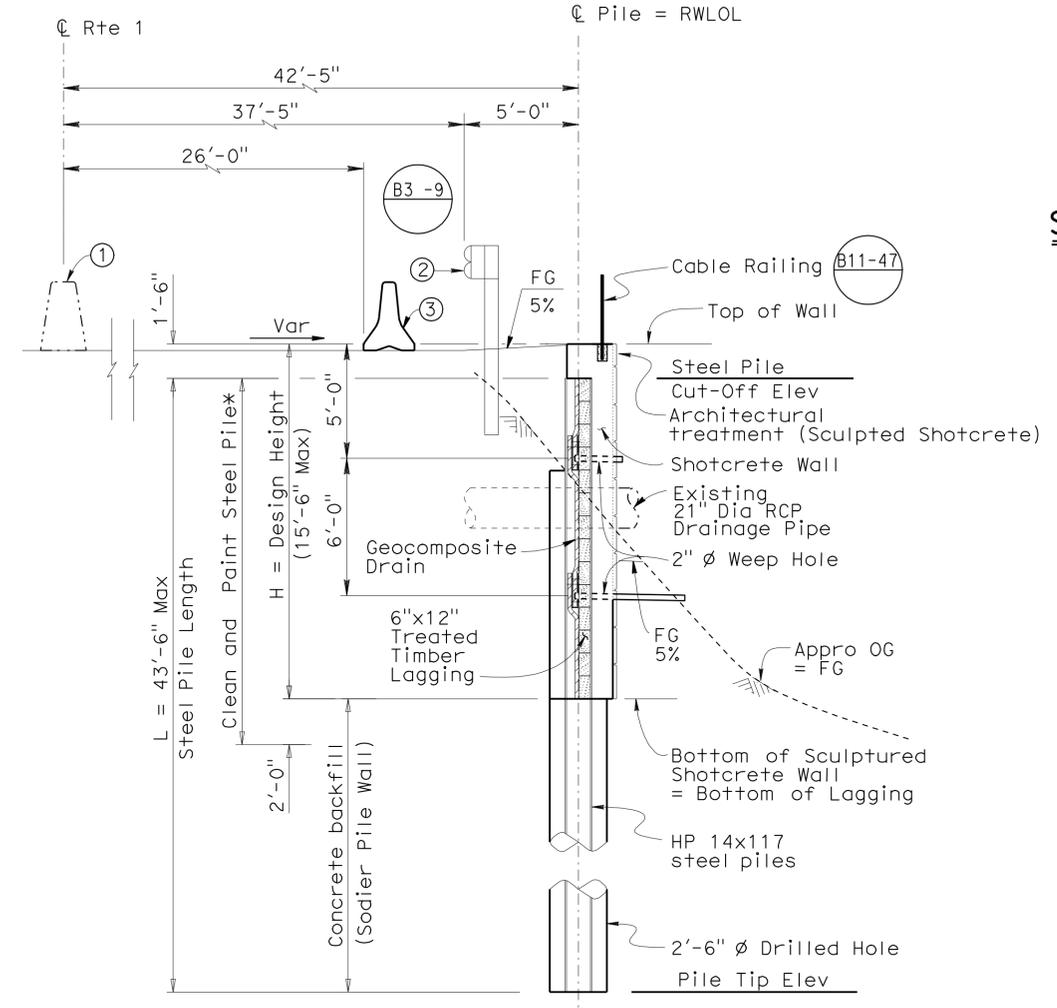
SCALE: 1" = 10'



PLAN

SCALE: 1" = 10'

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



TYPICAL SECTION

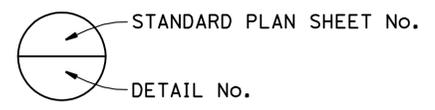
SCALE: 1/4" = 1'-0"

QUANTITIES

STRUCTURE EXCAVATION (SOLDIER PILE WALL)	54	CY
STRUCTURE BACKFILL (SOLDIER PILE WALL)	41	CY
CONCRETE BACKFILL (SOLDIER PILE WALL)	34	CY
FURNISH STEEL PILING (HP 14 X 117)	261	LF
30" DRILLED HOLE	248	LF
ARCHITECTURAL TREATMENT (SCULPTED SHOTCRETE)	588	SQFT
BAR REINFORCING STEEL (RETAINING WALL)	3,950	LB
SHOTCRETE	27	CY
TIMBER LAGGING	3	MFBM
CLEAN AND PAINT STEEL SOLDIER PILING	LUMP SUM	
PREPARE AND STAIN CONCRETE	588	SQFT
MISCELLANEOUS METAL (RETAINING WALL)	255	LB
CABLE RAILING	52	LF

STANDARD PLANS DATED MAY 2006

- A10A ABBREVIATIONS
- B3-9 RETAINING WALL DETAILS No.2
- B11-47 CABLE RAILING



INDEX TO PLANS

- GENERAL PLAN
- RETAINING WALL ELEVATION
- WALL DETAILS No. 1
- WALL DETAILS NO. 2
- WALL DETAILS NO. 3
- LOG OF TEST BORINGS 1 OF 4
- LOG OF TEST BORINGS 2 OF 4
- LOG OF TEST BORINGS 3 OF 4
- LOG OF TEST BORINGS 4 OF 4

LEGEND:

- ① Existing Median Concrete Barrier
- ② Reconstruct MBGR, see "Road Plans"
- ③ Temporary Railing Type K, see "Road Plans"

NOTES:

For top of wall, pile cut off, pile tip elevations, and weep hole location, See "Retaining Wall Elevation" sheet.
* See "WALL DETAILS No.3" sheet for details.

CURVE DATA

No.	R	Δ	T	L
(A)	1500.000	24° 11' 28"	321.45	633.33

X HOWARD NG DESIGN ENGINEER	DESIGN	BY Carl M. Duan	CHECKED Jan Wu	LOAD FACTOR DESIGN	LIVE LOADING: HS20-44 AND ALTERNATIVE PERMIT DESIGN LOAD
	DETAILS	BY Lan T Tran	CHECKED Tiffany Tran	LAYOUT	BY Carl M. Duan
	QUANTITIES	BY Carl M. Duan	CHECKED Tiffany Tran	SPECIFICATIONS	BY James Choi

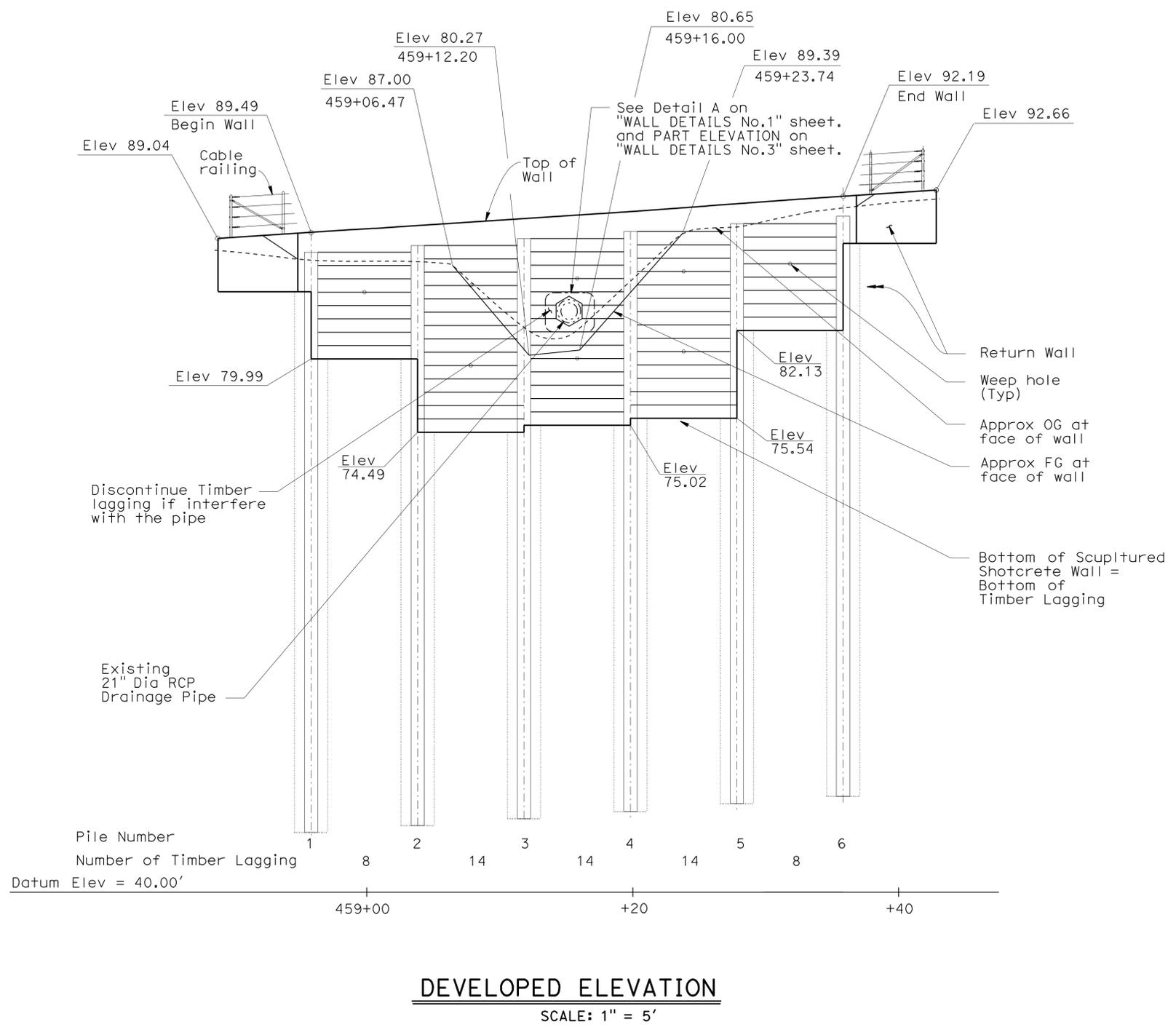
STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION
 DIVISION OF ENGINEERING SERVICES
 STRUCTURE DESIGN
 DESIGN BRANCH 20

BRIDGE NO.	55E0098	ROUTE 1 RETAINING WALL AT PM 11.61
POST MILE	11.61	
GENERAL PLAN		

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
12	Ora	1	11.6	30	37

REGISTERED CIVIL ENGINEER DATE: 01/11/10
 PLANS APPROVAL DATE: 6-1-10
 Carl M. Duan
 No. C59976
 Exp. 06-30-10
 CIVIL
 STATE OF CALIFORNIA

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DEVELOPED ELEVATION
SCALE: 1" = 5'

GENERAL NOTES

DESIGN:
1996 AASHTO Standard Specifications for Highway Bridges with Interim Specifications as supplemented by Bridge Design Specifications (Caltrans) of April of 2001

SEISMIC DESIGN:
 $K_h = 0.18$ $K_v = 0.06$

SOIL PARAMETERS:
(For determination of design lateral earth pressures)
 $\phi = 32^\circ$ $\gamma = 128$ pcf $c = 0$ psf (0 to 10 ft below OG = Surface of roadway)
 $\phi = 0^\circ$ $\gamma = 118$ pcf $c = 1780$ psf (10 to 19 ft below OG)
 $\phi = 0^\circ$ $\gamma = 115$ pcf $c = 1860$ psf (19 ft below OG)

SHOTCRETE:
 $f_y = 60,000$ psi $f'_c = 3,600$ psi (@ 28 days) $n = 8$

STRUCTURAL STEEL:
ASTM Designation:
A709/A709M, Grade 50 or A572/A572M, Grade 50
 $F_y = 50$ ksi $f_s = 27$ ksi

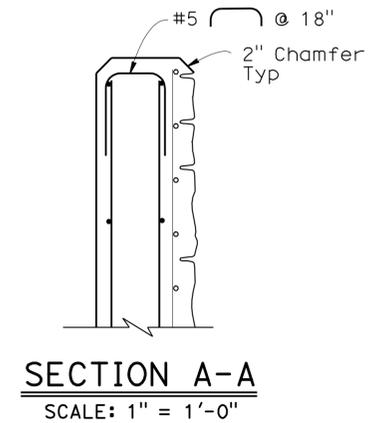
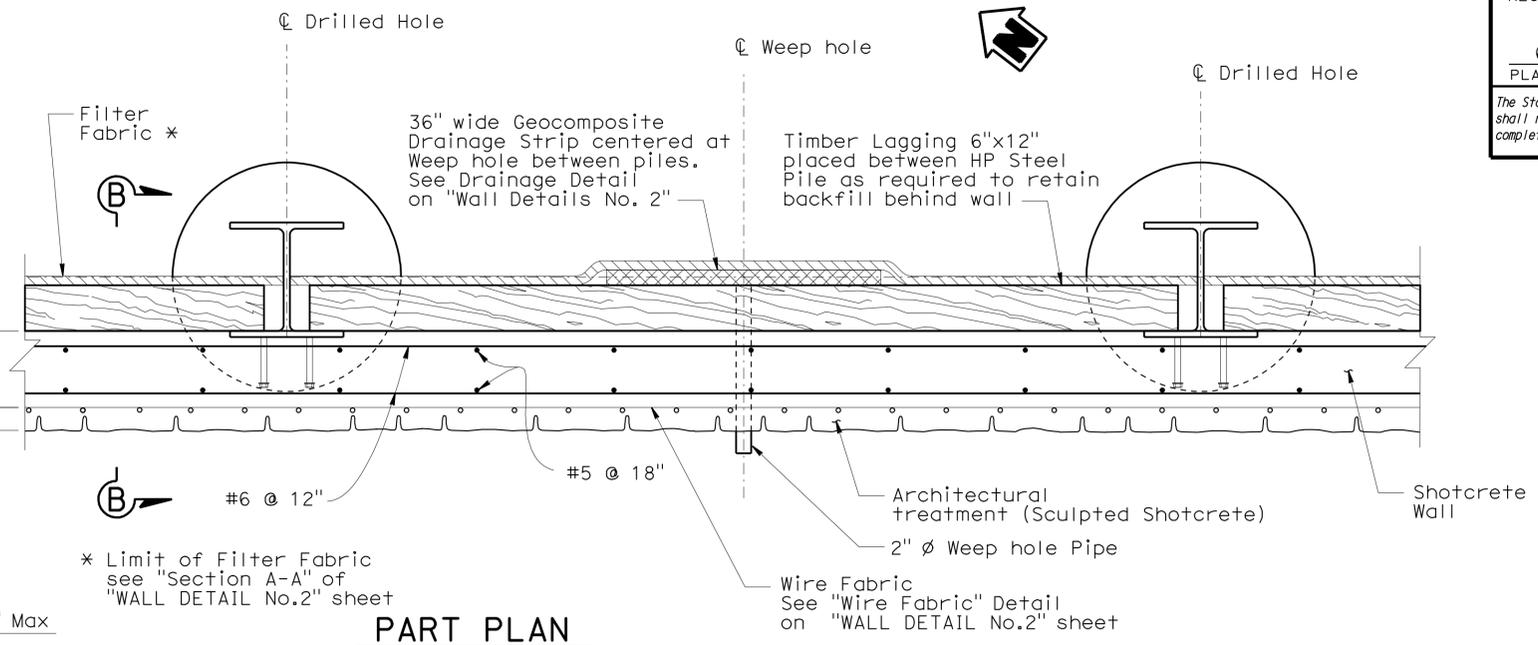
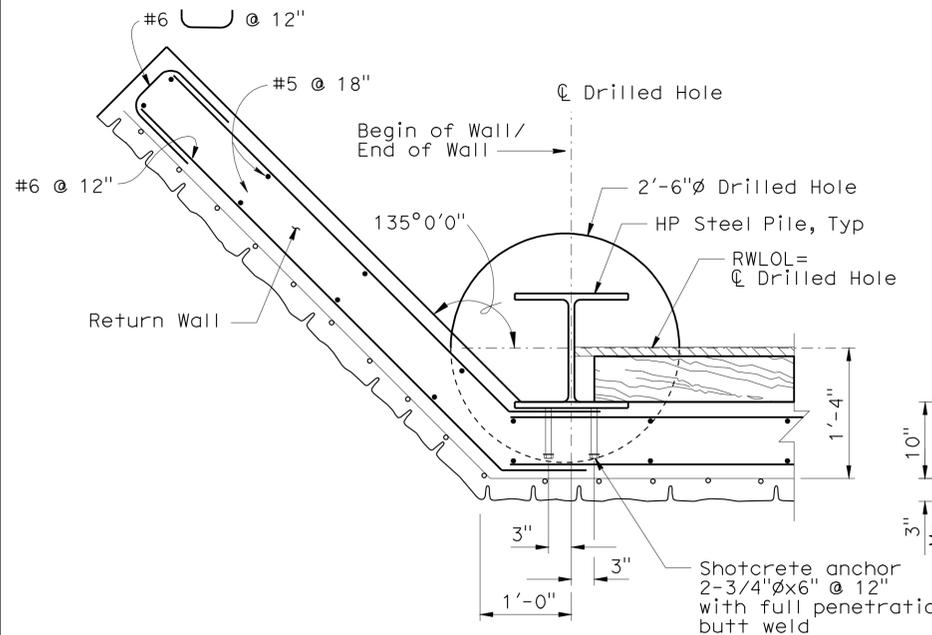
STRUCTURAL TIMBER:
Treated Douglas Fir, Grade No. 1 or better.

Wall Name	Pile Number	RWL/L Station	RWL/L Left Offset (ft)	Pile Top Elevation (ft)	Pile Tip Elevation (ft)
Soldier Pile Wall	1	0+00.00	42.42	87.99	44.49
	2	0+08.00	42.42	88.49	44.99
	3	0+16.00	42.42	89.02	45.52
	4	0+24.00	42.42	89.54	46.04
	5	0+32.00	42.42	90.13	46.63
	6	0+40.00	42.42	90.69	47.19

DESIGN BY: Carl M. Duan CHECKED: Jan Wu DETAILS BY: Lan T Tran CHECKED: Tiffany Tran QUANTITIES BY: Carl M. Duan CHECKED: Tiffany Tran	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 20	BRIDGE NO. 55E0098	ROUTE 1 RETAINING WALL AT PM 11.61 RETAINING WALL ELEVATION
			POST MILE 11.61	
			REVISION DATES 06/24/09 06/24/09 06/25/09 06/25/09 07/24/09 07/24/09 09/01/09 01/11/10	
STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 10/25/05)	ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3	CU 12 EA OK3701	DISREGARD PRINTS BEARING EARLIER REVISION DATES	SHEET 2 OF 9

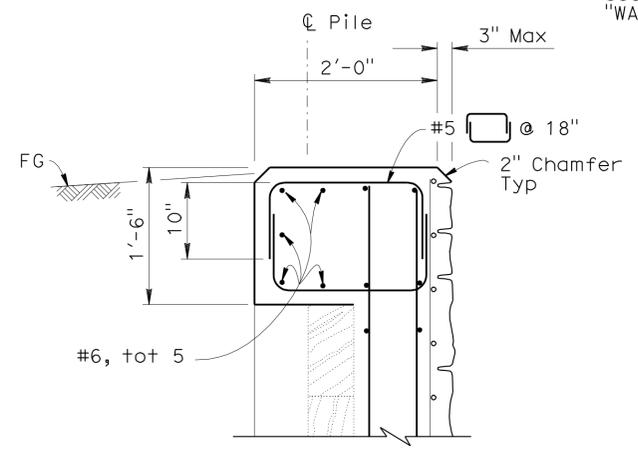
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DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
12	Oran	1	11.6	31	37
		01/11/10			
		REGISTERED CIVIL ENGINEER DATE			
		6-1-10			
		PLANS APPROVAL DATE			
		No. C59976			
		Exp. 06-30-10			
		CIVIL			
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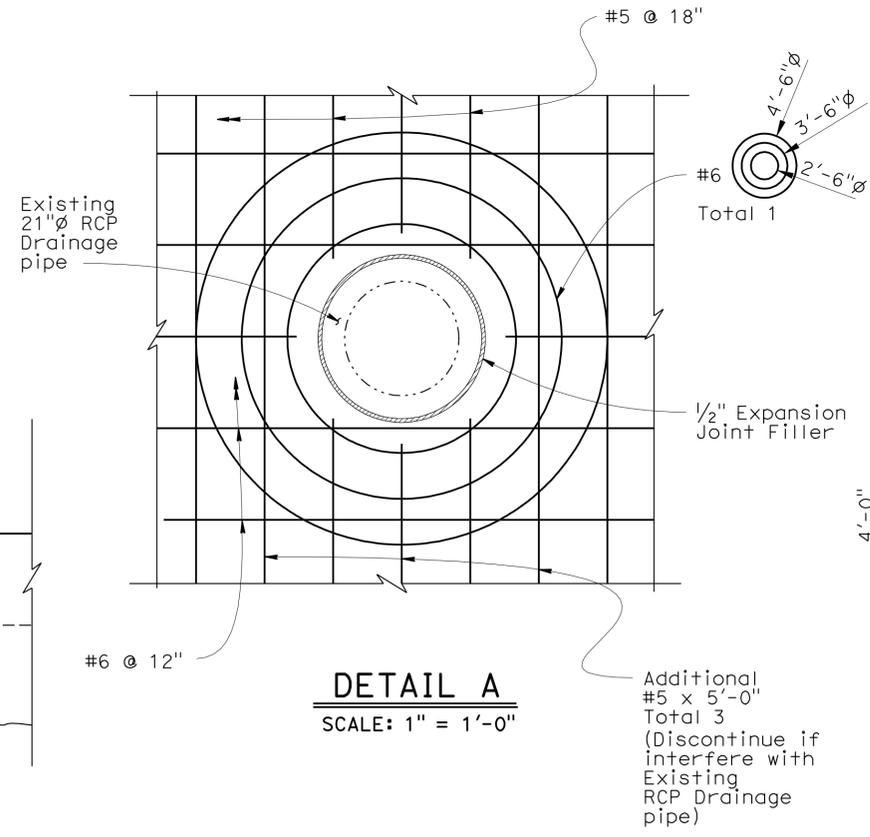


PART PLAN
SCALE: 1" = 1'-0"

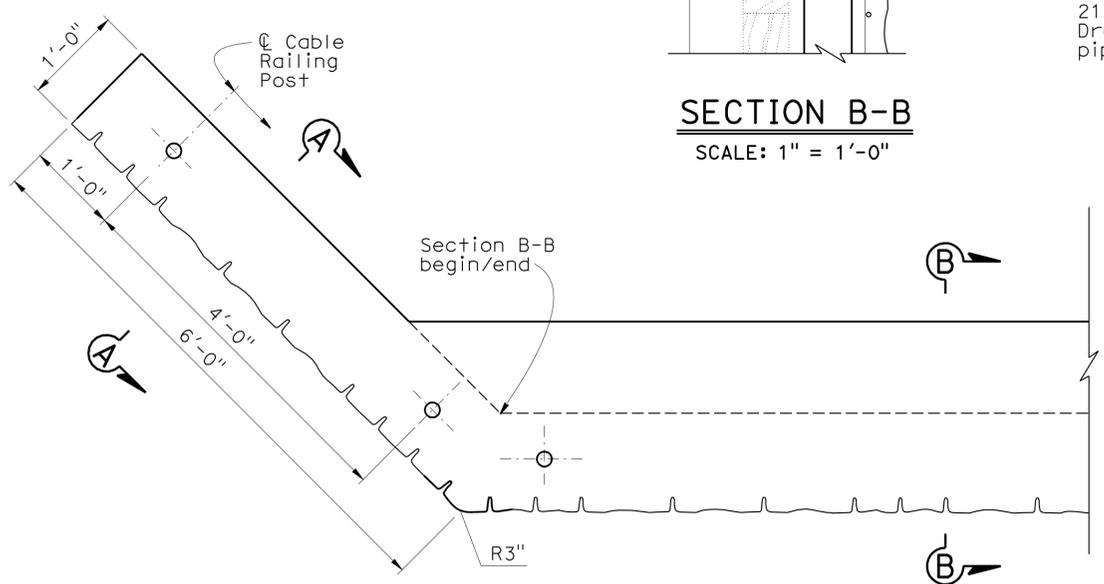
SECTION A-A
SCALE: 1" = 1'-0"



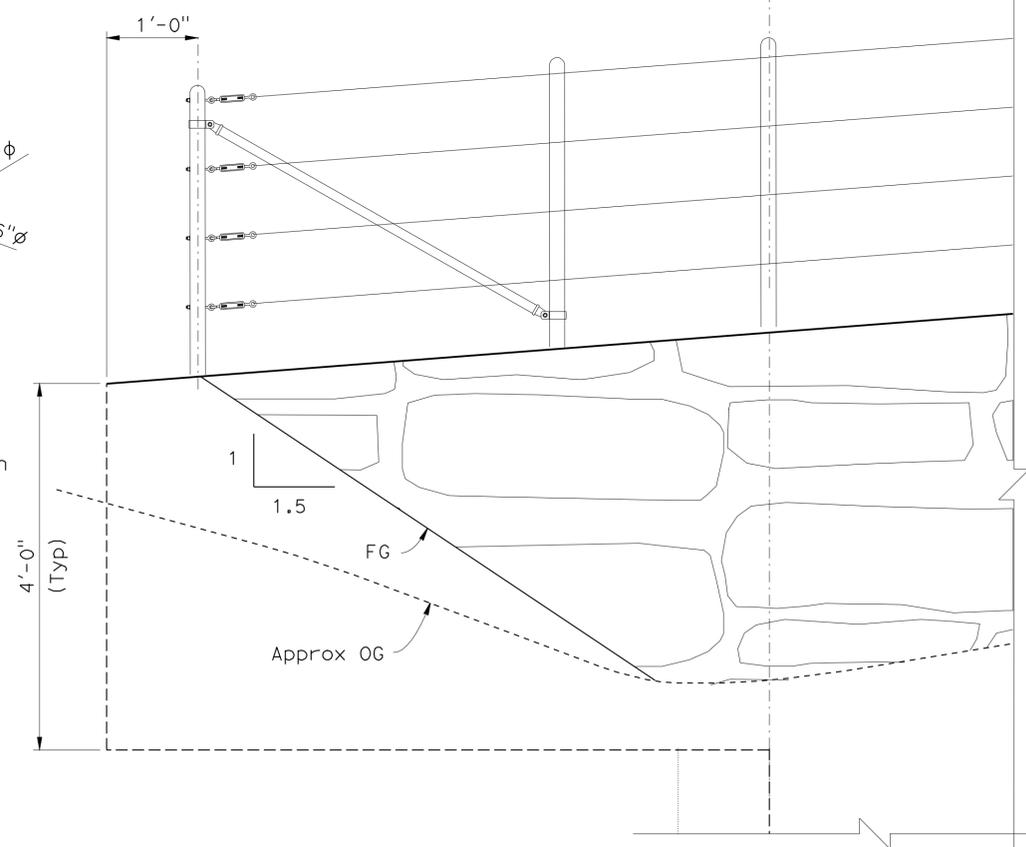
SECTION B-B
SCALE: 1" = 1'-0"



DETAIL A
SCALE: 1" = 1'-0"



RETURN WALL PLAN
SCALE: 1" = 1'-0"



RETURN WALL ELEVATION
SCALE: 1" = 1'-0"

DESIGN	BY Carl M. Duan	CHECKED Jan Wu
DETAILS	BY Lan T Tran	CHECKED Tiffany Tran
QUANTITIES	BY Carl M. Duan	CHECKED Tiffany Tran

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
STRUCTURE DESIGN
DESIGN BRANCH 20

BRIDGE NO.	55E0098	ROUTE 1 RETAINING WALL AT PM 11.61
POST MILE	11.61	
		WALL DETAILS NO.1

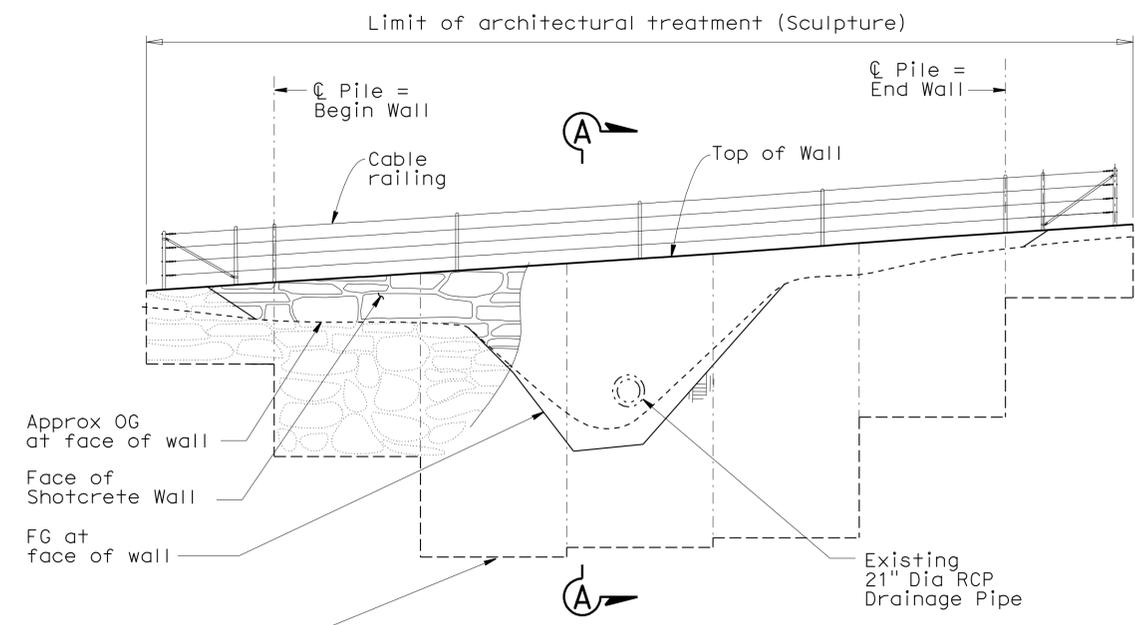
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
12	Oran	1	11.6	32	37

C.M. Duan 01/11/10
 REGISTERED CIVIL ENGINEER DATE
 6-1-10
 PLANS APPROVAL DATE
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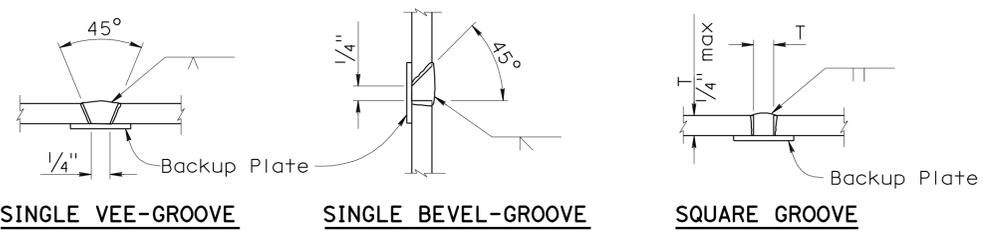
REGISTERED PROFESSIONAL ENGINEER
 Carl M. Duan
 No. C59976
 Exp. 06-30-10
 CIVIL
 STATE OF CALIFORNIA

NOTES:

1. Architectural Treatment (Sculpted Shotcrete) shall match existing stone configuration scale and color, as directed by the Engineer
2. Architectural treatment shall terminate 2'-0" beyond FG.

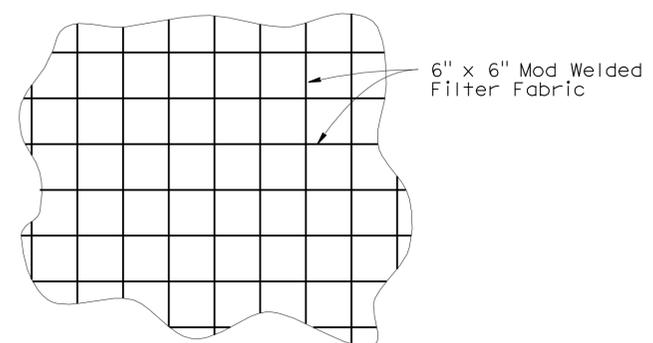


PART ELEVATION
SCALE: 1" = 5'

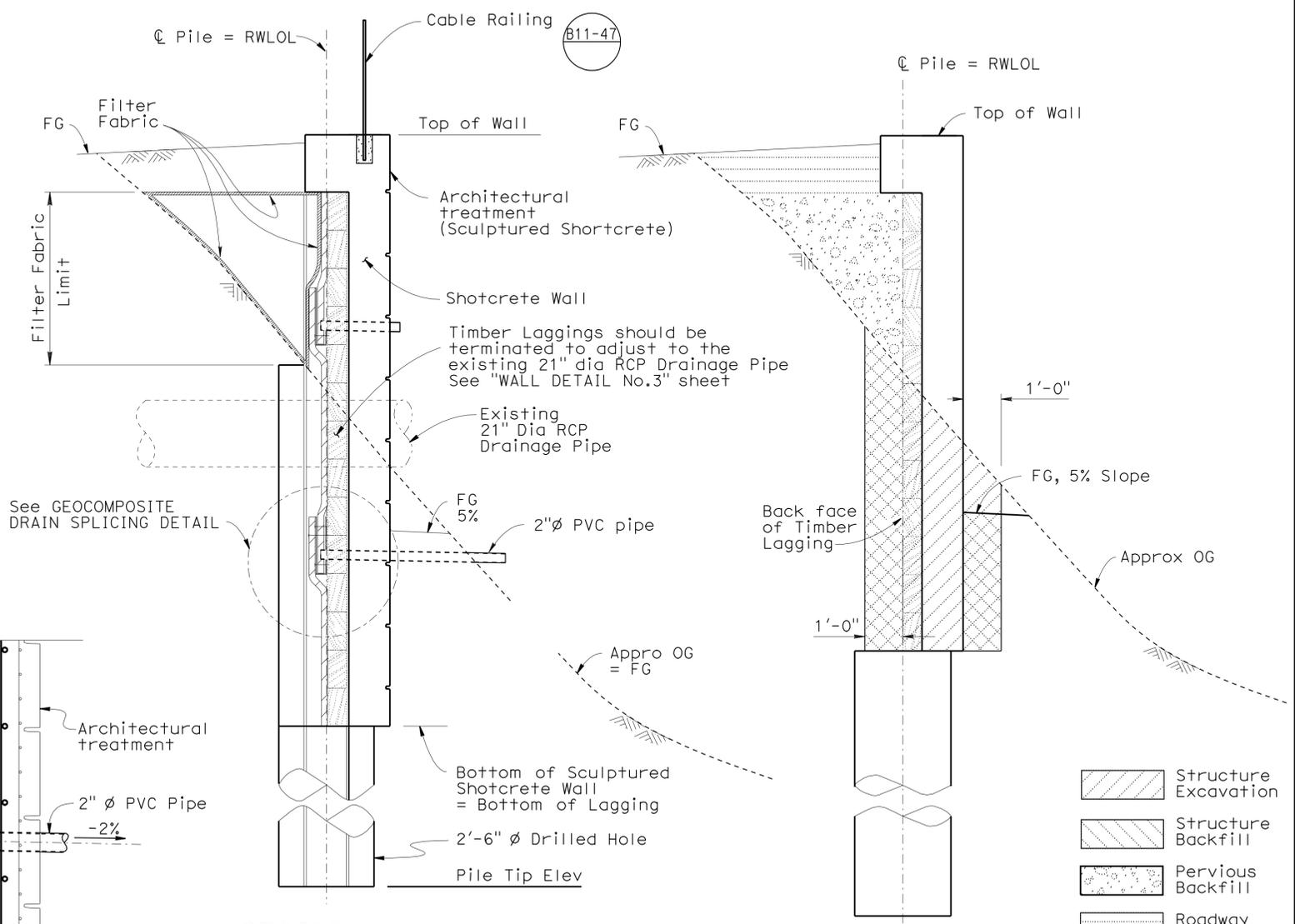


- Notes:**
1. Single Vee-Groove And Square Groove Permitted for all positions.
 2. Single Bevel-Groove permitted for horizontal joints only
 3. For purposes of non-destructive testing, pile shall be considered a main tension member from top of pile to 2 meters below bottom of lagging. The remaining embedded portion of the pile shall be considered a main compression member.

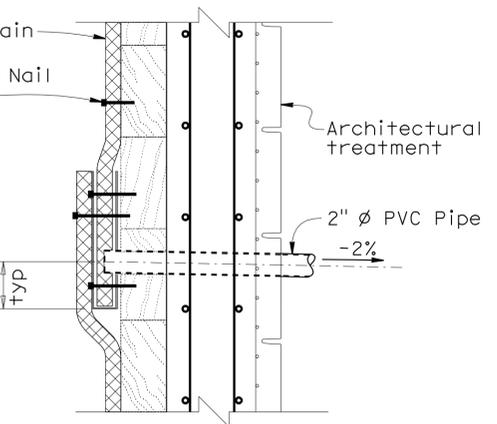
PILE WELDING DETAIL-BUTT JOINTS



FILTER FABRIC
No Scale



SECTION A-A
SCALE: 1/2" = 1'-0"



GEOCOMPOSITE DRAIN SPLICING DETAIL
SCALE: 1" = 1'-0"

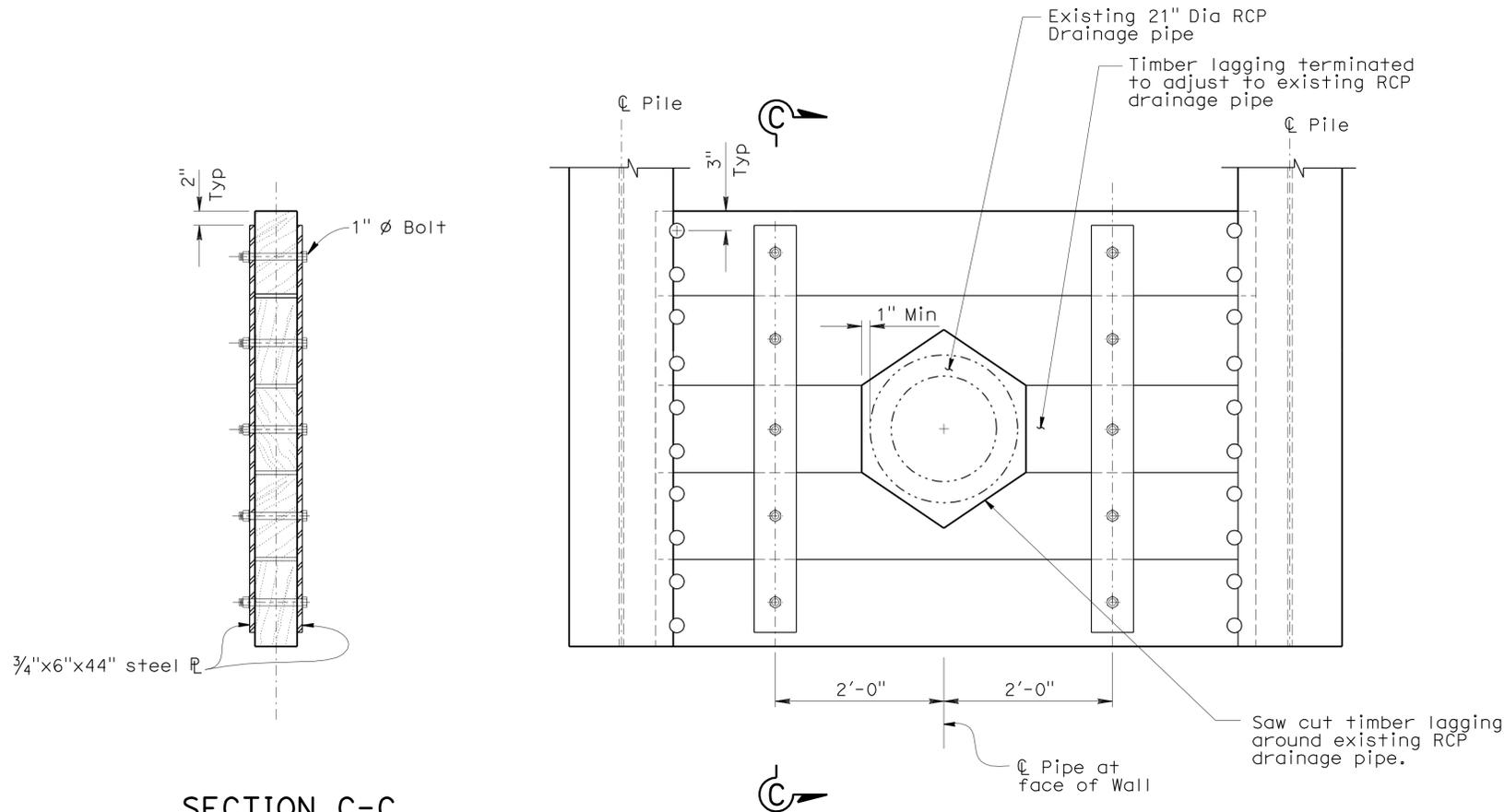
LIMITS OF PAYMENT FOR EXCAVATION AND BACKFILL
SCALE: 1/2" = 1'-0"

	Structure Excavation
	Structure Backfill
	Pervious Backfill
	Roadway Embankment

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 10/25/05) ORIGINAL SCALE IN INCHES FOR REDUCED PLANS	DESIGN	BY Carl M. Duan	CHECKED Jan Wu	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 20	BRIDGE NO.	55E0098	ROUTE 1 RETAINING WALL AT PM 11.61 WALL DETAILS NO.2	SHEET	4	OF	9
	DETAILS	BY Lan T Tran	CHECKED Tiffany Tran			POST MILE	11.61		REVISION DATES	06/24/09 06/29/09 07/21/09 07/29/09 09/01/09 12/22/09 01/11/10 03/03/10		
	QUANTITIES	BY Carl M. Duan	CHECKED Tiffany Tran			CU 12 EA OK3701	DISREGARD PRINTS BEARING EARLIER REVISION DATES					

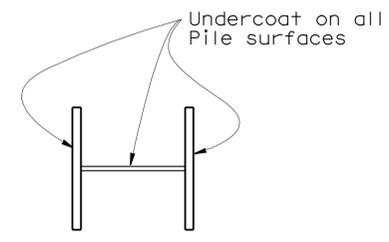
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DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
12	Ora	1	11.6	33	37
<i>C.M. Duan</i> 01/11/10 REGISTERED CIVIL ENGINEER DATE					
6-1-10			PLANS APPROVAL DATE		
<small>The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.</small>					

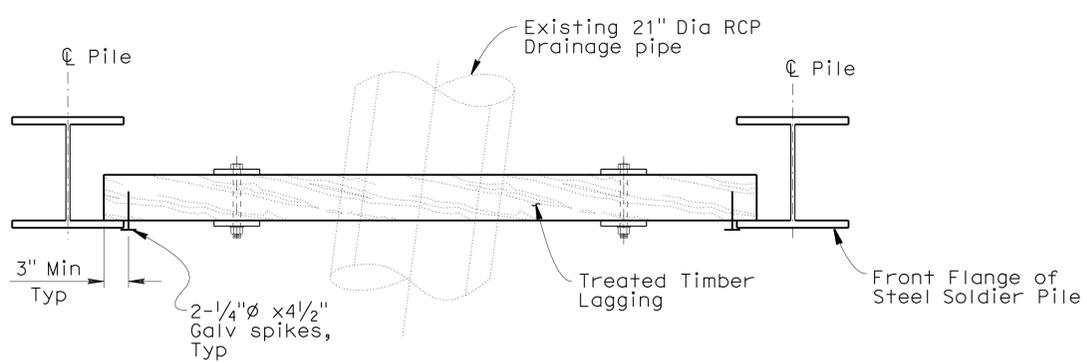


SECTION C-C
1" = 1'-0"

PART ELEVATION
1" = 1'-0"



LIMITS OF CLEAN & PAINT STEEL SOLDIER PILE
NO SCALE



PART PLAN
1" = 1'-0"

LAGGING DETAILS
1" = 1'-0"

DESIGN	BY Carl M. Duan	CHECKED Jan Wu
DETAILS	BY Lan T Tran	CHECKED Tiffany Tran
QUANTITIES	BY Carl M. Duan	CHECKED Tiffany Tran

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
STRUCTURE DESIGN
DESIGN BRANCH 20

BRIDGE NO.	55E0098
POST MILE	11.61

ROUTE 1 RETAINING WALL AT PM 11.61
WALL DETAILS NO.3

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
12	Ora	1	11.6	34	37

Kristopher Barker 6-23-09
 CERTIFIED ENGINEERING GEOLOGIST DATE

6-1-10
 PLANS APPROVAL DATE

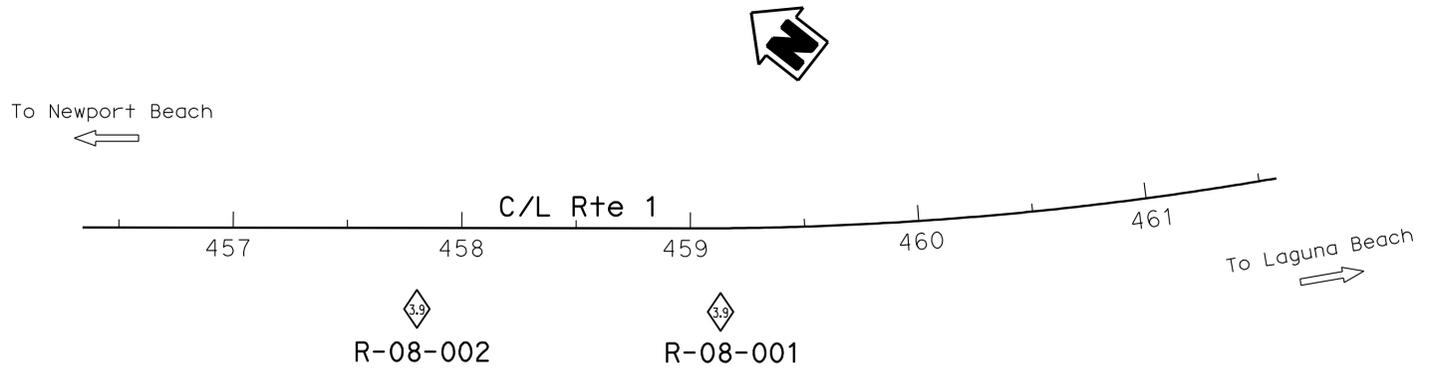
Kristopher Barker
 No. 2383
 Exp. 8-31-09
 CERTIFIED ENGINEERING GEOLOGIST
 STATE OF CALIFORNIA

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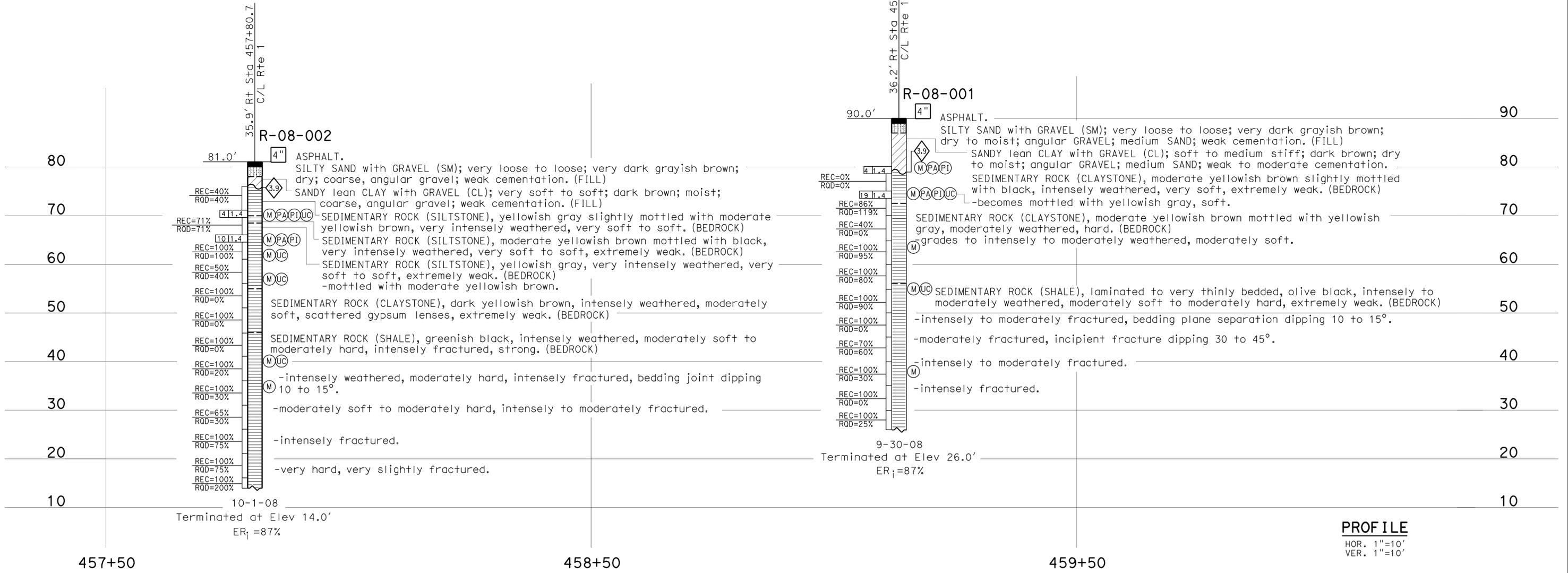
This LOTB sheet was prepared in accordance with the Caltrans Soil & Rock Logging, Classification, & Presentation Manual (June 2007).

BENCH MARK

- CTRL PT #1
 N 2,151,155.15
 E 6,082,904.91
 EL = 22.573
 PK & TIN
- CTRL PT #5
 N 2,150,249.19
 E 6,083,616.93
 EL = 14.786
 1x2 HUB & TACK
- CTRL PT #4
 N 2,150,170.66
 E 6,083,666.98
 EL = 15.328
 1x2 HUB & TACK



PLAN
 1:40



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

ENGINEERING SERVICES		GEOTECHNICAL SERVICES		STATE OF CALIFORNIA		DIVISION OF ENGINEERING SERVICES		BRIDGE NO.		ROUTE 1 RETAINING WALL AT PM 11.61	
FUNCTIONAL SUPERVISOR		DRAWN BY: W. Tang 03/09		FIELD INVESTIGATION BY:		STRUCTURE DESIGN		55-E0098		LOG OF TEST BORINGS 1 OF 4	
NAME: S. Sukiasian		CHECKED BY: N. Spour		K. Barker		DESIGN BRANCH 20		55-E0099			
065 CIVIL LOG OF TEST BORINGS SHEET		ORIGINAL SCALE IN INCHES FOR REDUCED PLANS		0 1 2 3		CU 12 EA 0K3701		11.61/11.65		REVISION DATES	
								DISREGARD PRINTS BEARING EARLIER REVISION DATES		SHEET 6 OF 9	

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
12	Ora	1	11.6	35	37

Kristopher Barker 6-23-09
 CERTIFIED ENGINEERING GEOLOGIST DATE

6-1-10
 PLANS APPROVAL DATE

Kristopher Barker
 No. 2383
 Exp. 8-31-09
 REGISTERED PROFESSIONAL GEOLOGIST
 CERTIFIED ENGINEERING GEOLOGIST
 STATE OF CALIFORNIA

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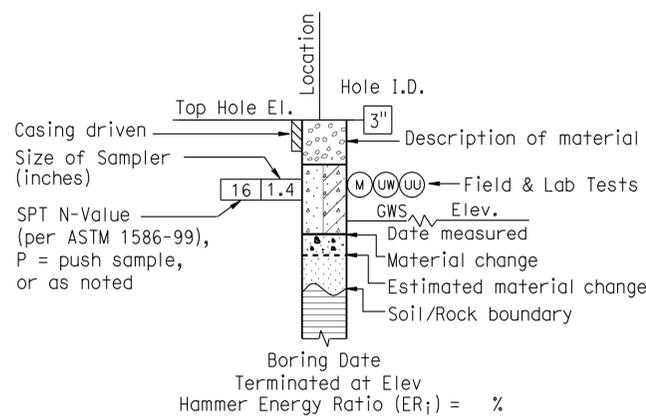
CEMENTATION	
Description	Criteria
Weak	Crumbles or breaks with handling or little finger pressure.
Moderate	Crumbles or breaks with considerable finger pressure.
Strong	Will not crumble or break with finger pressure.

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

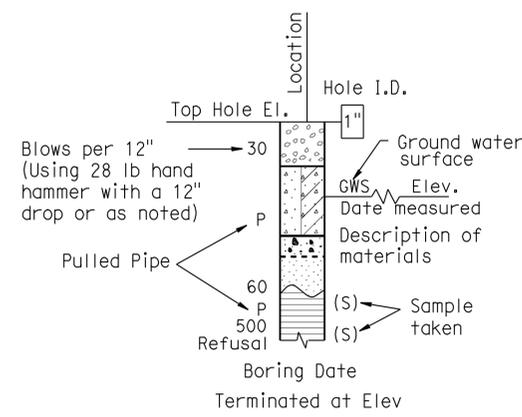
BOREHOLE IDENTIFICATION		
Symbol	Hole Type	Description
	A	Auger Boring
	R	Rotary drilled boring
	P	Rotary percussion boring (air)
	R	Rotary drilled diamond core
	HD	Hand driven (1-inch soil tube)
	HA	Hand Auger
	D	Dynamic Cone Penetration Boring
	CPT	Cone Penetration Test (ASTM D 5778-95)
	O	Other

Note: Size in inches.

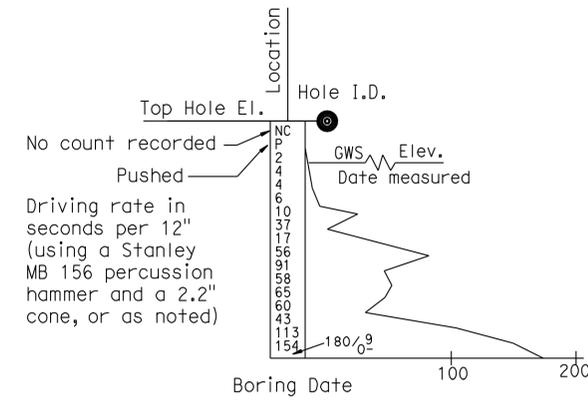
PLASTICITY OF FINE-GRAINED SOILS	
Description	Criteria
Nonplastic	A 1/8-inch thread cannot be rolled at any water content.
Low	The thread can barely be rolled and the lump cannot be formed when drier than the plastic limit.
Medium	The thread is easy to roll and not much time is required to reach the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



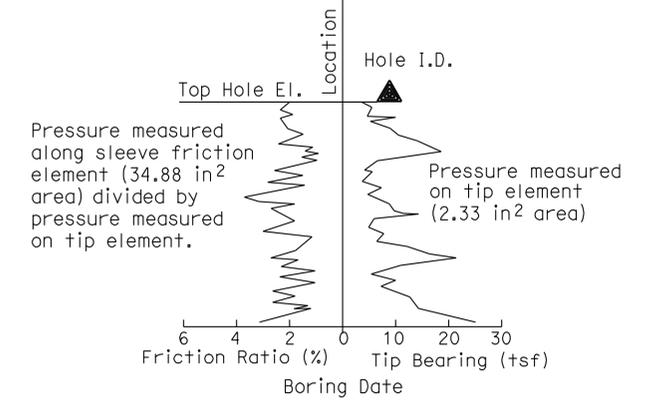
ROTARY BORING



HAND BORING



DYNAMIC CONE PENETRATION BORING



CONE PENETRATION TEST (CPT) SOUNDING

ENGINEERING SERVICES	GEOTECHNICAL SERVICES	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 20	BRIDGE NO. 55-E0098 55-E0099	ROUTE 1 RETAINING WALL AT PM 11.61
	PREPARED BY: I.G.-Remmen, 4/09			POST MILE 11.61/11.65	
GS LOTB SOIL LEGEND	ORIGINAL SCALE IN INCHES FOR REDUCED PLANS	CU 12 EA OK3701	DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES	SHEET 7 OF 9

FILE => 55-E0098-z-1fb02.dgn

USERNAME => fmguyne DATE PLOTTED => 03-JUN-2010 TIME PLOTTED => 10:44

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
12	Ora	1	11.6	36	37

Kristopher Barker 6-23-09
 CERTIFIED ENGINEERING GEOLOGIST DATE

6-1-10
 PLANS APPROVAL DATE

Kristopher Barker
 No. 2383
 Exp. 8-31-09
 REGISTERED PROFESSIONAL GEOLOGIST
 CERTIFIED ENGINEERING GEOLOGIST
 STATE OF CALIFORNIA

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

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

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

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

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

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

ENGINEERING SERVICES	GEOTECHNICAL SERVICES	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 20	BRIDGE NO. 55-E0098	ROUTE 1 RETAINING WALL AT PM 11.61
				55-E0099	
PREPARED BY: I.G-Remmen, 4/09		POST MILE 11.61/11.65		LOG OF TEST BORINGS 3 OF 4	
GS LOTB SOIL LEGEND	ORIGINAL SCALE IN INCHES FOR REDUCED PLANS	CU 12 EA 0K3701	DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES	SHEET 8 OF 9

USERNAME => frimguys DATE PLOTTED => 03-JUN-2010 TIME PLOTTED => 10:45

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
12	Ora	1	11.6	37	37

Kristopher Barker 4-16-09
 CERTIFIED ENGINEERING GEOLOGIST DATE

6-1-10
 PLANS APPROVAL DATE

Kristopher Barker
 No. 2383
 Exp. 8-31-09
 CERTIFIED ENGINEERING GEOLOGIST
 STATE OF CALIFORNIA

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

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

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

Boring Date

RELATIVE STRENGTH OF INTACT ROCK

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

BEDDING SPACING

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

LEGEND OF ROCK MATERIALS

- IGNEOUS ROCK
- SEDIMENTARY ROCK
- METAMORPHIC ROCK

ROCK HARDNESS

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

WEATHERING DESCRIPTORS FOR INTACT ROCK

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

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

FRACTURE DENSITY

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

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