

DIST	COUNTY	ROUTE	KILOMETER TOTAL PROJECT	POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
01	Men	101	R69.4/R78.9	601	939	



To accompany plans dated 1-23-12

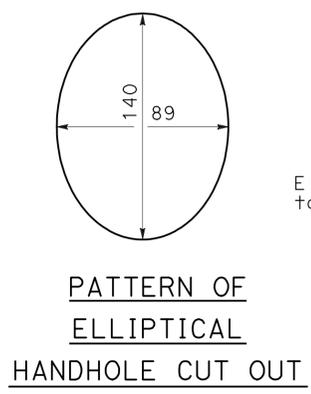
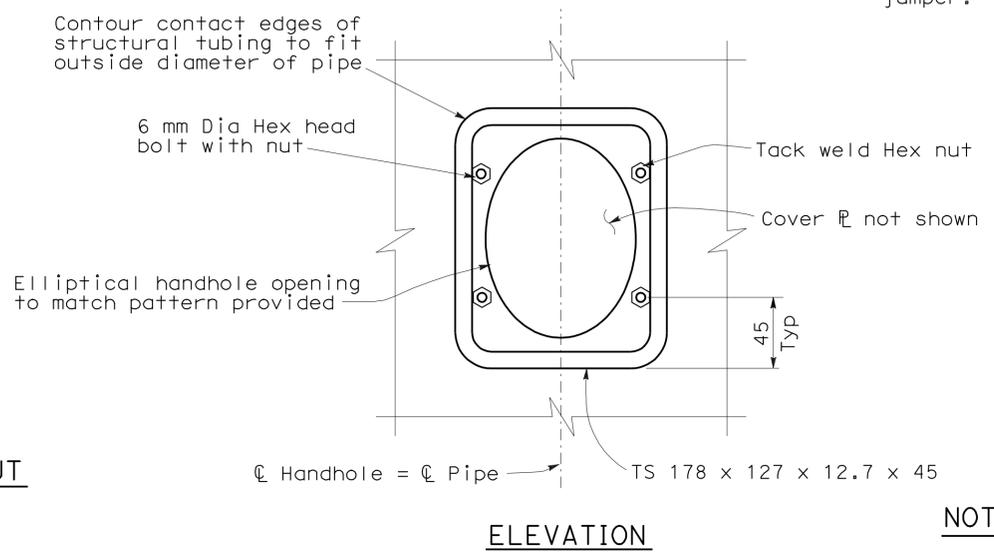
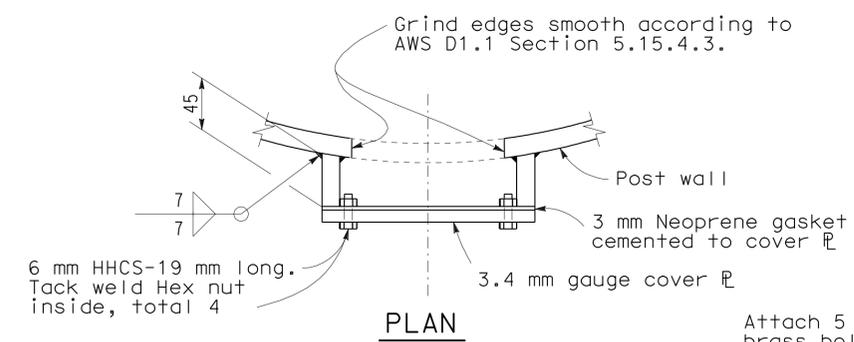
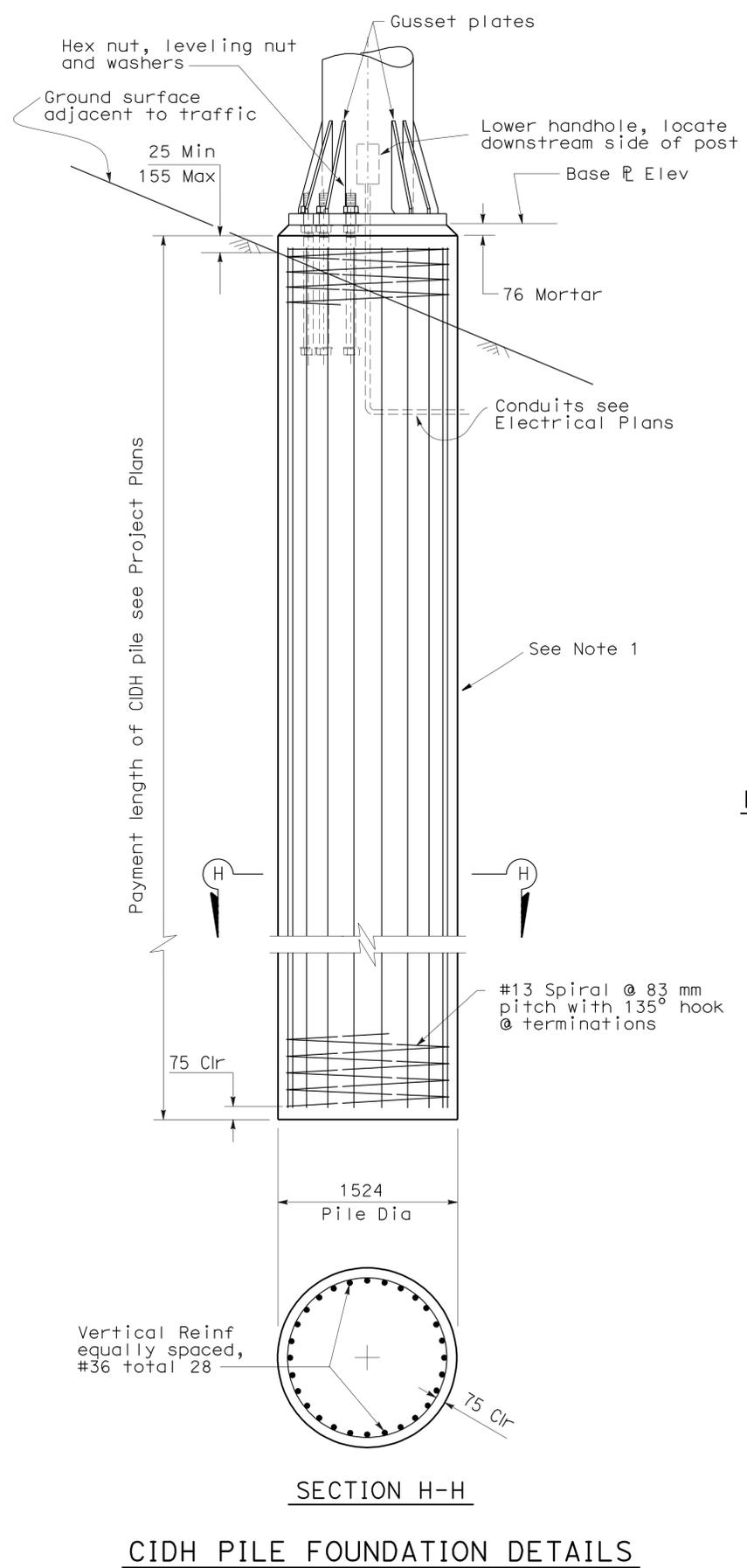
REGISTERED CIVIL ENGINEER

January 24, 2005  
PLANS APPROVAL DATE

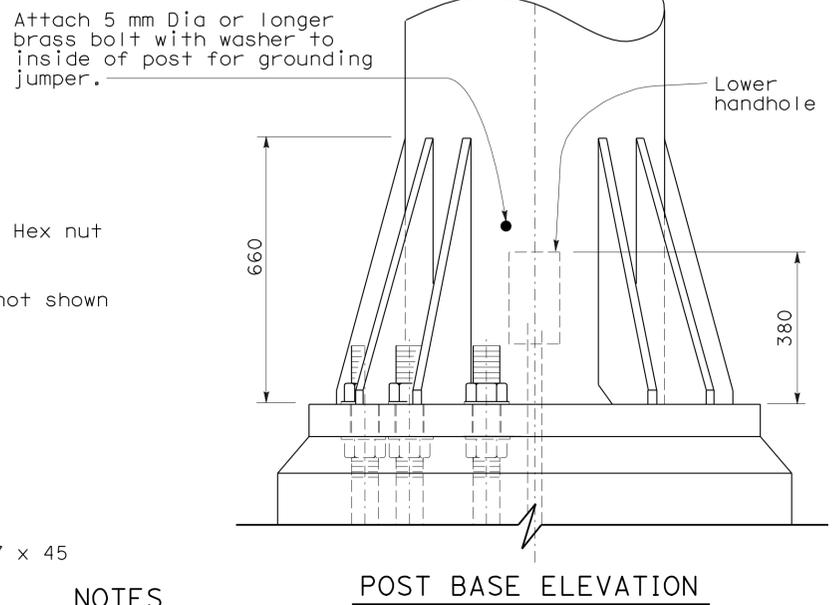
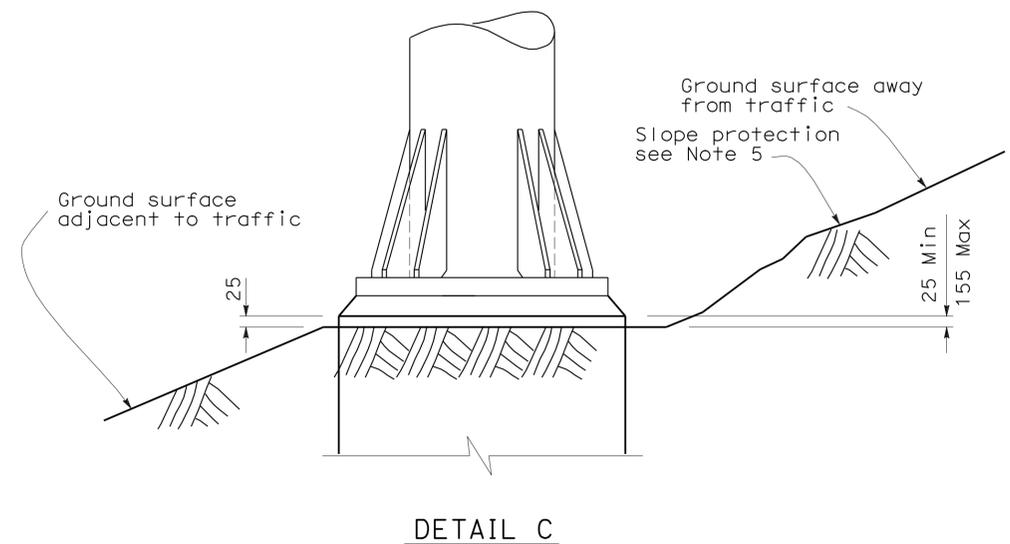
REGISTERED PROFESSIONAL ENGINEER  
Tillat Sattar  
No. C42892  
Exp. 03-31-2006  
CIVIL  
STATE OF CALIFORNIA

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**LOWER HANDHOLE AND COVER DETAILS**



**NOTES**

1. Pile shall be placed against undisturbed material.
2. Primer and paint post interior from base plate to 150 mm above lower handhole-unless post is galvanized.
3. On single post sign structures, the post shall be raked out of plumb, with the use of leveling nuts to make the bottom of the sign frame level.
4. When foundation is located on a steep slope with exposed face of concrete adjacent to traffic, see "DETAIL C".
5. Slope protection required when indicated on Project Plans.
6. Foundation design is based on 2001 AASHTO article 13.6 Broms' approximate procedure assuming a cohesionless material. The angle of internal friction used is 30 degree and unit weight of soil used is 1922 kg/m<sup>3</sup>.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**OVERHEAD SIGN-TRUSS  
SINGLE POST TYPE  
FOUNDATION AND  
MISCELLANEOUS DETAILS  
CHANGEABLE MESSAGE SIGNS  
MODEL 500**

NO SCALE

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN

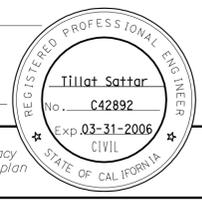
RSP S116 DATED JANUARY 24, 2005 SUPERSEDES STANDARD PLAN S116 DATED JULY 1, 2004-PAGE 393 OF THE STANDARD PLANS BOOK DATED JULY 2004.

2004 REVISED Std PLAN RSP S116

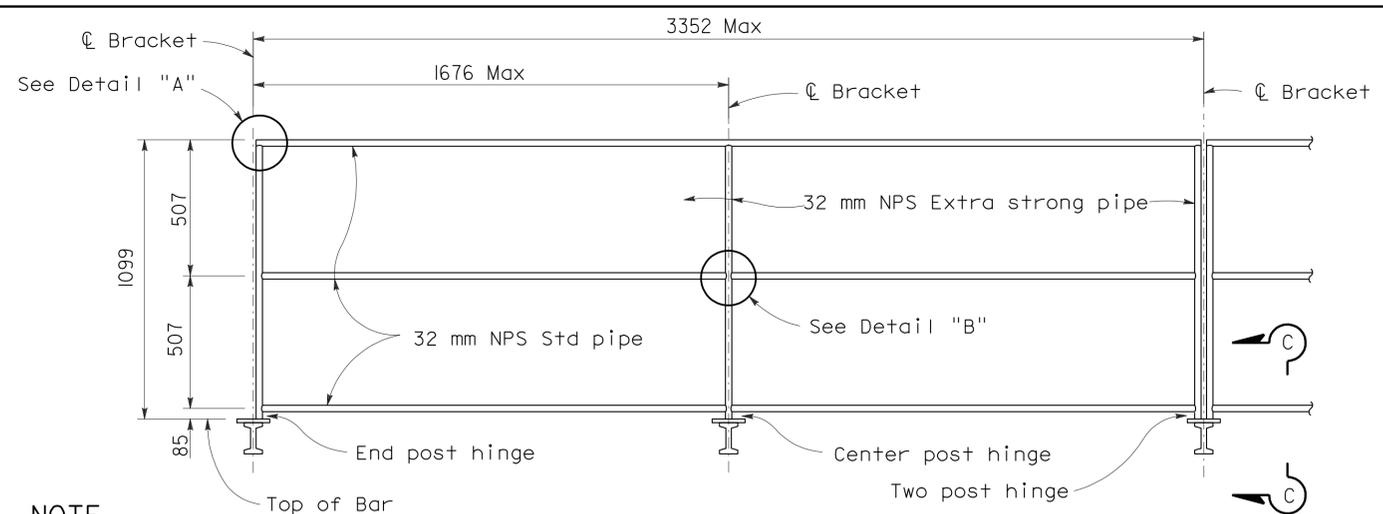
DIST	COUNTY	ROUTE	KILOMETER TOTAL PROJECT	POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
01	Men	101	R69.4/R78.9	602	939	

REGISTERED CIVIL ENGINEER	
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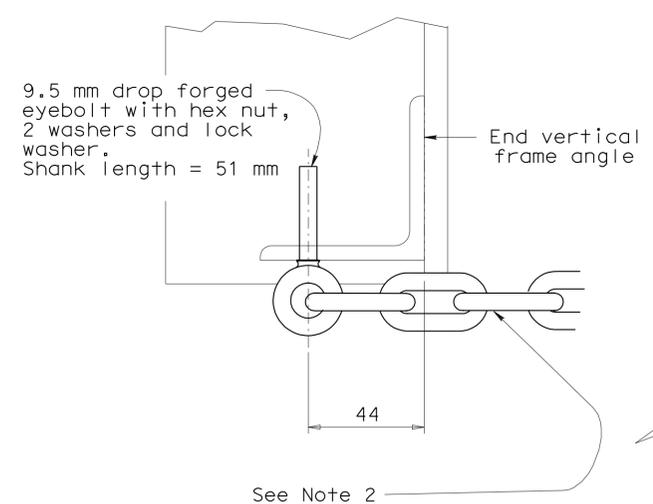


To accompany plans dated 1-23-12



**SAFETY RAILING ELEVATION**

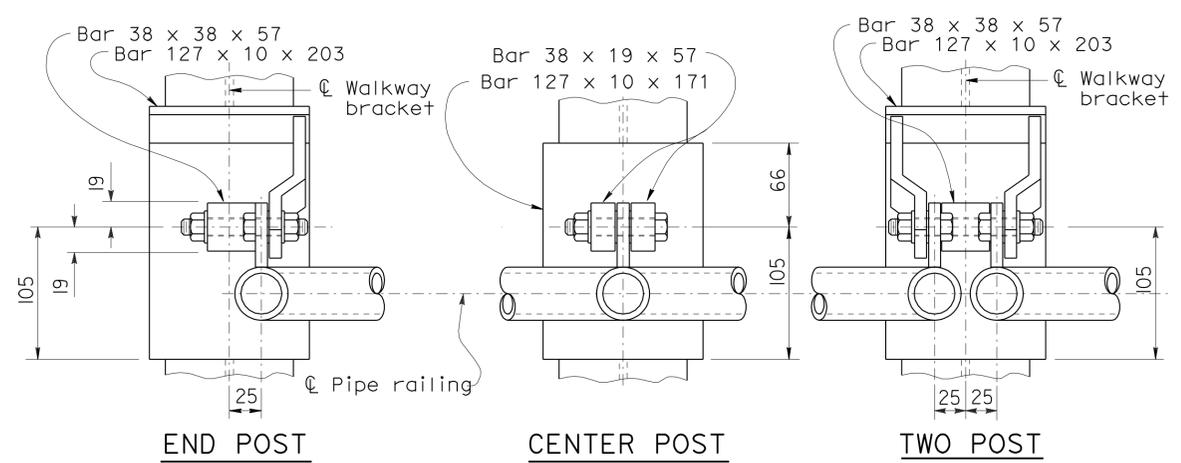
**NOTE**  
Chain assembly behind (see detail this page)



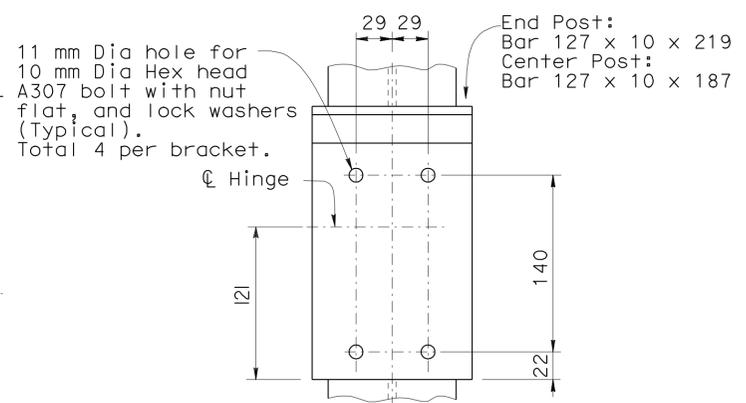
See Note 2

**NOTE**  
See Revised Standard Plans RSP S101 and RSP S105 and RSP S109 for walkway bracket spacing.

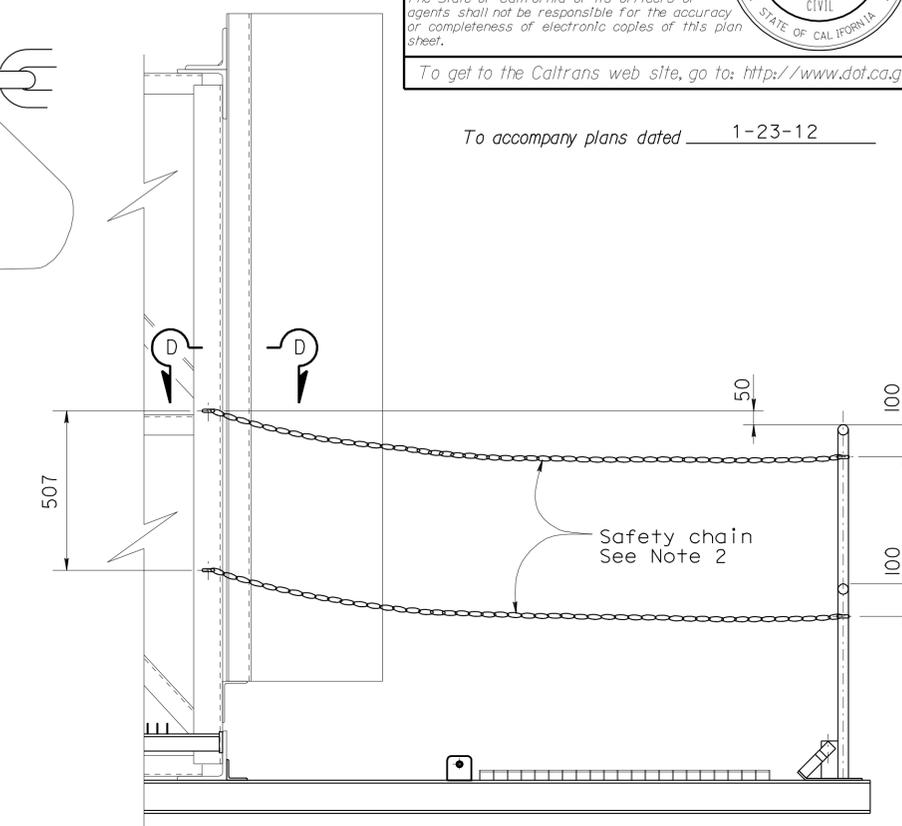
**SECTION D-D**



**WELDED HINGE - PLAN**

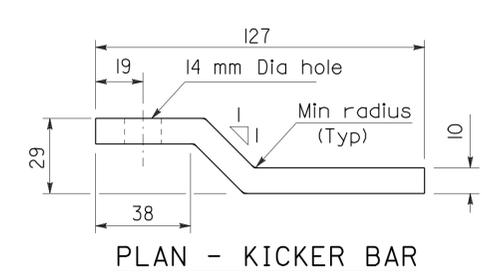


**TYPICAL BOLTED (ALTERNATIVE) HINGED CONNECTION**

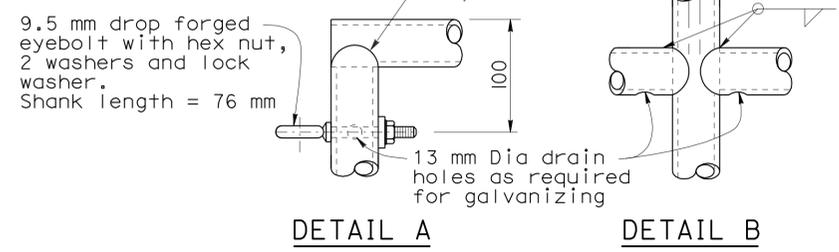


**CHAIN ASSEMBLY**

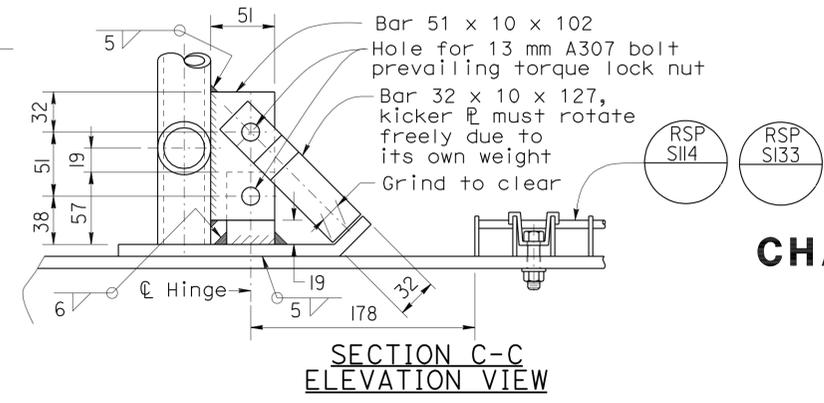
- NOTES**
1. Special care shall be taken to insure that the complete hinge and latch assembly will hold the safety railing in a steady manner, free of wobble while in the raised position. Maximum allowable displacement from vertical at top of railing when latched shall be 12 mm.
  2. Safety chain shall be 9.5 mm galvanized steel coil chain, approximately 39.4 links per meter. Length shall be minimum which allows lock-up of safety railing. Minimum of two safety chains per safety railing. Material shall be grade 43 high test chain ASTM A413.



**PLAN - KICKER BAR**



**NOTE**  
Alternative venting methods may be used if approved by the Engineer.



**SECTION C-C ELEVATION VIEW**

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**OVERHEAD SIGN-TRUSS  
SINGLE POST TYPE  
WALKWAY SAFETY  
RAILING DETAILS  
CHANGEABLE MESSAGE SIGNS  
MODEL 500 AND 510**

NO SCALE  
ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN

RSP S140 DATED JANUARY 24, 2005 SUPERSEDES STANDARD PLAN S140 DATED JULY 1, 2004-PAGE 410 OF THE STANDARD PLANS BOOK DATED JULY 2004.

**REVISED STANDARD PLAN RSP S140**

2004 REVISED Std PLAN RSP S140



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01	Men	101	R69.4/R78.9		603	939

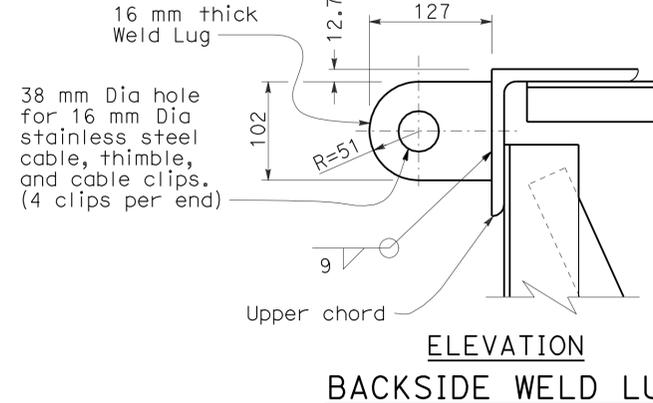
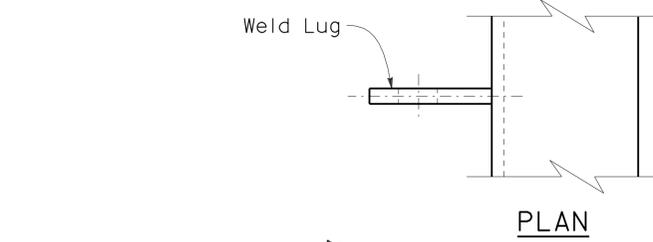
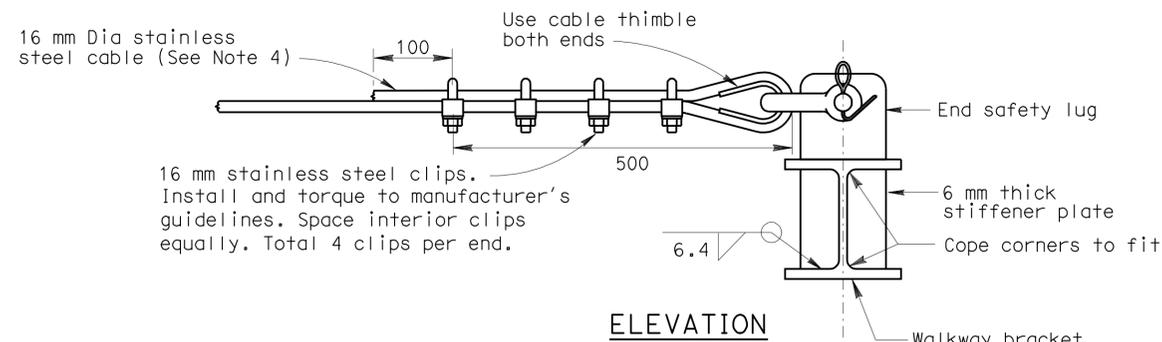
REGISTERED CIVIL ENGINEER

January 24, 2005  
PLANS APPROVAL DATE

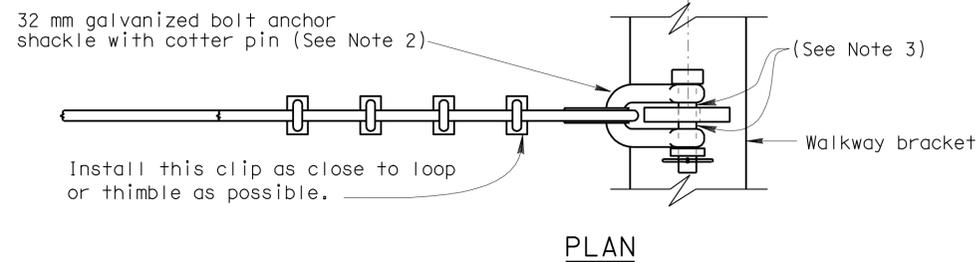
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To accompany plans dated 1-23-12

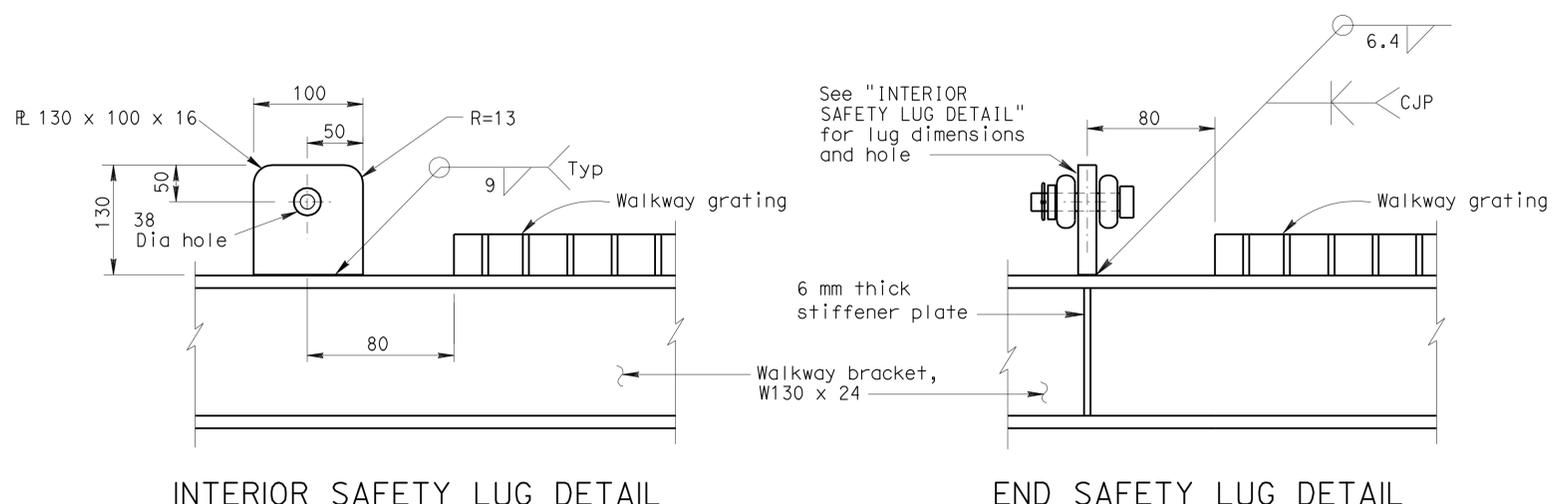


Note: Backside weld lug shall be installed only for projects requiring backside walkways.



**NOTES**

1. Stainless steel cable shall be plain with 6 x 19 IWRC construction using Type 302 or 304 stainless steel strands. Minimum cable breaking strength shall exceed 155 kN. Cable shall be free of kinks, knots, or deformation and shall be continuous between end lugs. Splices not allowed.
2. Shackle shall be galvanized steel with working load limit of 107 kN.
3. Place an equal amount of washers on each side to align cable with end lug without restricting shackle bolt rotation or contacting cable.
4. Cable shall be installed with a deflection not to exceed 25 mm, measure from taut position, when pulled with an upward force of 0.13 kN at midpoint between any two walkway brackets.
5. For walkway grating details, see sheet RSP S114 or RSP S133.



STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

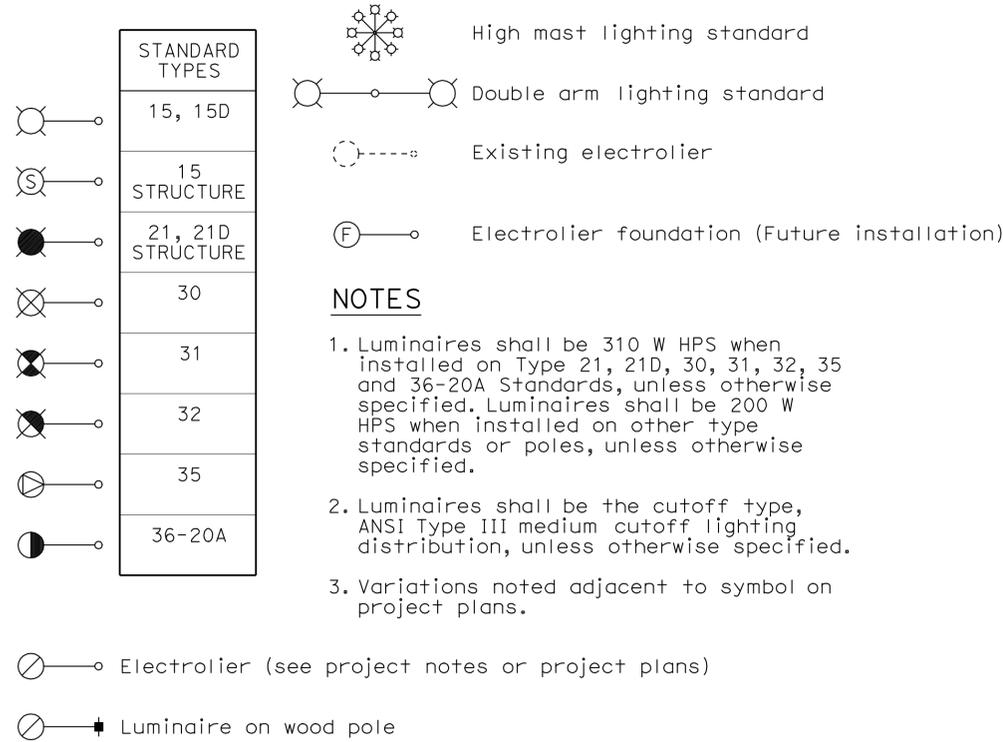
**OVERHEAD SIGN-TRUSS  
SINGLE POST TYPE  
SAFETY CABLE  
ANCHORAGE DETAILS  
CHANGEABLE MESSAGE SIGNS  
MODEL 500 AND 510**

NO SCALE  
ALL DIMENSIONS ARE IN  
MILLIMETERS UNLESS OTHERWISE SHOWN

RSP S141 DATED JANUARY 24, 2005 SUPERSEDES STANDARD PLAN S141  
DATED JULY 1, 2004-PAGE 411 OF THE STANDARD PLANS BOOK DATED JULY 2004.

2004 REVISED Std PLAN RSP S141

# ELECTROLIERS



## STANDARD NOTES

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

# ABBREVIATIONS AND EQUIPMENT DESIGNATIONS

## PROPOSED EXISTING

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



DIST	COUNTY	ROUTE	KILOMETER TOTAL PROJECT	POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
01	Men	101	R69.4/R78.9		604	939

October 5, 2007  
PLANS APPROVAL DATE

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

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To accompany plans dated 1-23-12

## SOFFIT AND WALL MOUNTED LUMINAIRES

- Pendant, 70 W HPS unless otherwise specified.
- Flush, 70 W HPS unless otherwise specified.
- Wall surface, 70 W HPS unless otherwise specified.
- Existing soffit or wall luminaire to remain unmodified.
- Existing soffit or wall luminaire to be modified as specified.

### NOTE

Arrow indicates "street side" of luminaire.

# ELECTRICAL SYSTEMS (SYMBOLS AND ABBREVIATIONS)

NO SCALE

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN

RSP ES-1A DATED OCTOBER 5, 2007 SUPERSEDES STANDARD PLAN ES-1A DATED JULY 1, 2004-PAGE 413 OF THE STANDARD PLANS BOOK DATED JULY 2004.

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

2004 REVISED STD PLAN RSP ES-1A

## CONDUIT

### PROPOSED

### EXISTING

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



## SIGNAL EQUIPMENT

### PROPOSED

### EXISTING

		Pedestrian signal face
		Pedestrian push button post
		Pedestrian barricade
		Vehicle signal face (with backplate, 3-Section: red, yellow and green)
		Vehicle signal face with angle visors
		Modifications of basic symbols: "L" Indicates all non-arrow sections louvered "LG" Indicates louvered green section only "PV" Indicates 300 mm programmed visibility sections "200" indicates all 200 mm sections (only when specified)
		Type 15TS and Vehicle signal face
		Vehicle signal face with red, yellow and green left arrow sections
		Vehicle signal face with red and yellow sections and up green arrow
		Vehicle signal face (5 Section) with red, yellow and green sections and yellow and green right arrows
		Type 1 Standard and attached vehicle signal faces
		Standard with signal mast arm only and attached vehicle signal faces and internally illuminated street name sign
		Type 33 Standard, Left-turn vehicle signal face and sign
		Standard with luminaire and signal mast arms and attached vehicle signal faces
		Cantilever flashing beacon Type 9 Frame, with a sign unless otherwise specified or indicated
		Type 15-FBS Standard with two vehicle signal face sections with lens, backplate and visor with a sign
		Flashing beacon. One vehicle signal face section with lens, backplate and visor. "R" indicates red indication, "Y" indicates yellow indication
		Controller assembly. Door indicates front of cabinet
		Guard post
		Type 1 Standard with "Meter On" sign
		Emergency vehicle detector

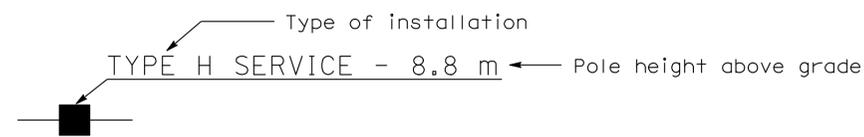
## SERVICE EQUIPMENT

### PROPOSED

### EXISTING

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

## POLE-MOUNTED SERVICE DESIGNATION



## ILLUMINATED OVERHEAD SIGN

### PROPOSED

### EXISTING

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



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REGISTERED ELECTRICAL ENGINEER  
*Jeffery G. McRae*  
October 5, 2007  
PLANS APPROVAL DATE  
No. E14512  
Exp. 6-30-08  
ELECTRICAL  
STATE OF CALIFORNIA

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To accompany plans dated 1-23-12

## NOTES

- All signal sections shall be 300 mm unless shown otherwise.
- Signal heads shall be provided with backplates unless shown otherwise.
- Signal indication shall be LED.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**ELECTRICAL SYSTEMS  
(SYMBOLS AND ABBREVIATIONS)**

NO SCALE

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RSP ES-1B DATED OCTOBER 5, 2007 SUPERSEDES STANDARD PLAN ES-1B  
DATED JULY 1, 2004-PAGE 414 OF THE STANDARD PLANS BOOK DATED JULY 2004.

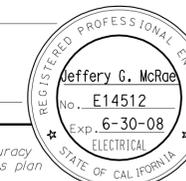
**REVISED STANDARD PLAN RSP ES-1B**

2004 REVISED STD PLAN RSP ES-1B



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01	Men	101	R69.4/R78.9		606	939

*Jeffrey G. McRae*  
REGISTERED ELECTRICAL ENGINEER



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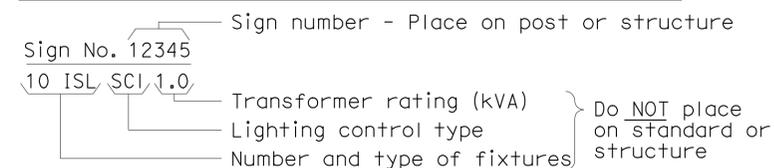
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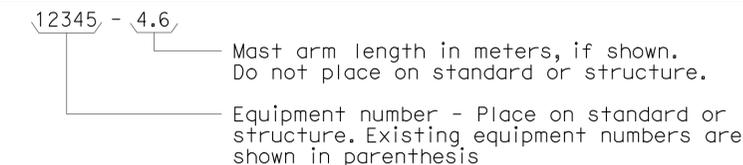
To accompany plans dated 1-23-12

### EQUIPMENT IDENTIFICATION

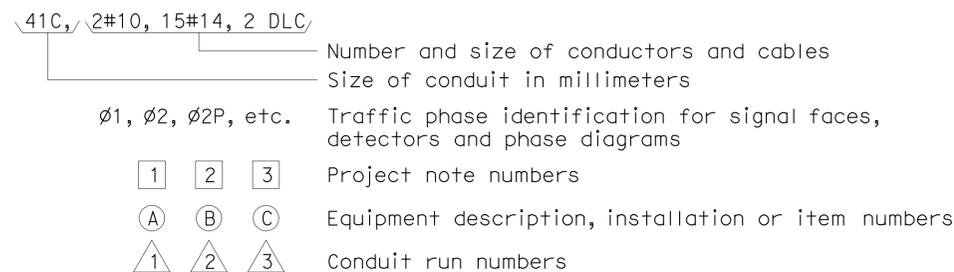
#### ILLUMINATED SIGN IDENTIFICATION NUMBER:



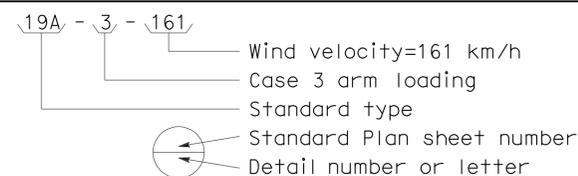
#### ELECTROLIER OR EQUIPMENT IDENTIFICATION NUMBER:



#### CONDUIT AND CONDUCTOR IDENTIFICATION:



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



### MISCELLANEOUS EQUIPMENT

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

### WIRING DIAGRAM LEGEND

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

### PULL BOXES

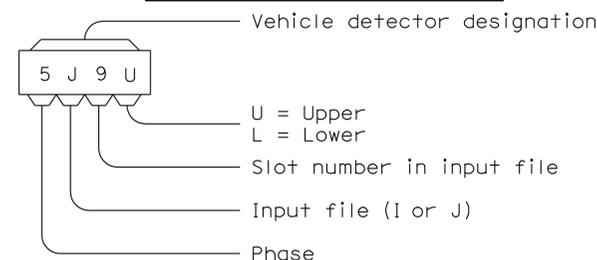
PROPOSED	EXISTING	
		Pull box-No. 5 unless otherwise indicated or noted.
3 	9A(21) 	Pull box-Additional designations or descriptions (C) = Communications pull box (E) = Pull box with extension (S) = Sprinkler control pull box (21) = Anchor bolts and conduit for future installation of Type 21 Standard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

### PROPOSED

### EXISTING

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

### VEHICLE DETECTORS



STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

## ELECTRICAL SYSTEMS (SYMBOLS AND ABBREVIATIONS)

NO SCALE

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RSP ES-1C DATED OCTOBER 5, 2007 SUPERSEDES STANDARD PLAN ES-1C  
DATED JULY 1, 2004-PAGE 415 OF THE STANDARD PLANS BOOK DATED JULY 2004.

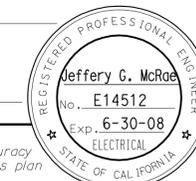
**REVISED STANDARD PLAN RSP ES-1C**

2004 REVISED STD PLAN RSP ES-1C



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Jeffery G. McRae  
REGISTERED ELECTRICAL ENGINEER

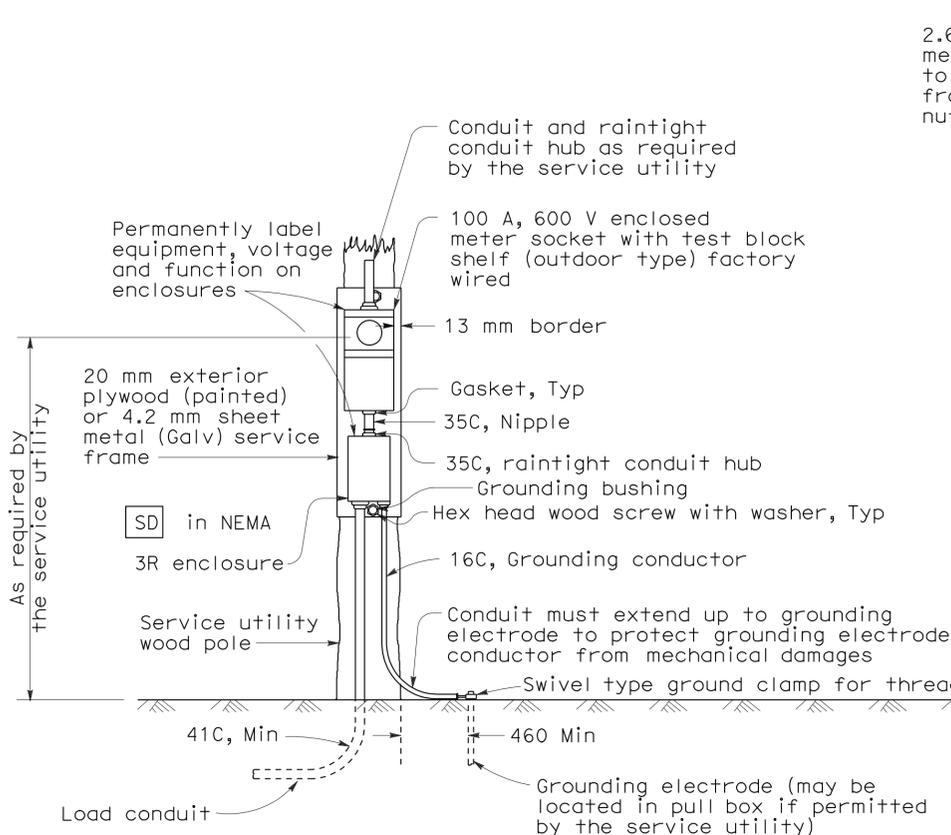


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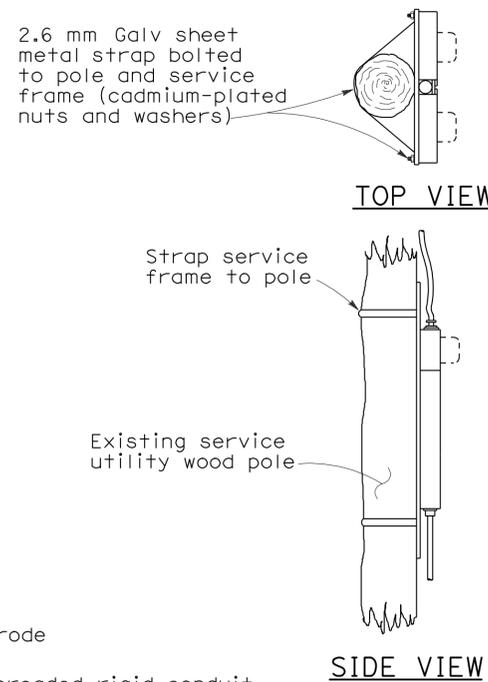
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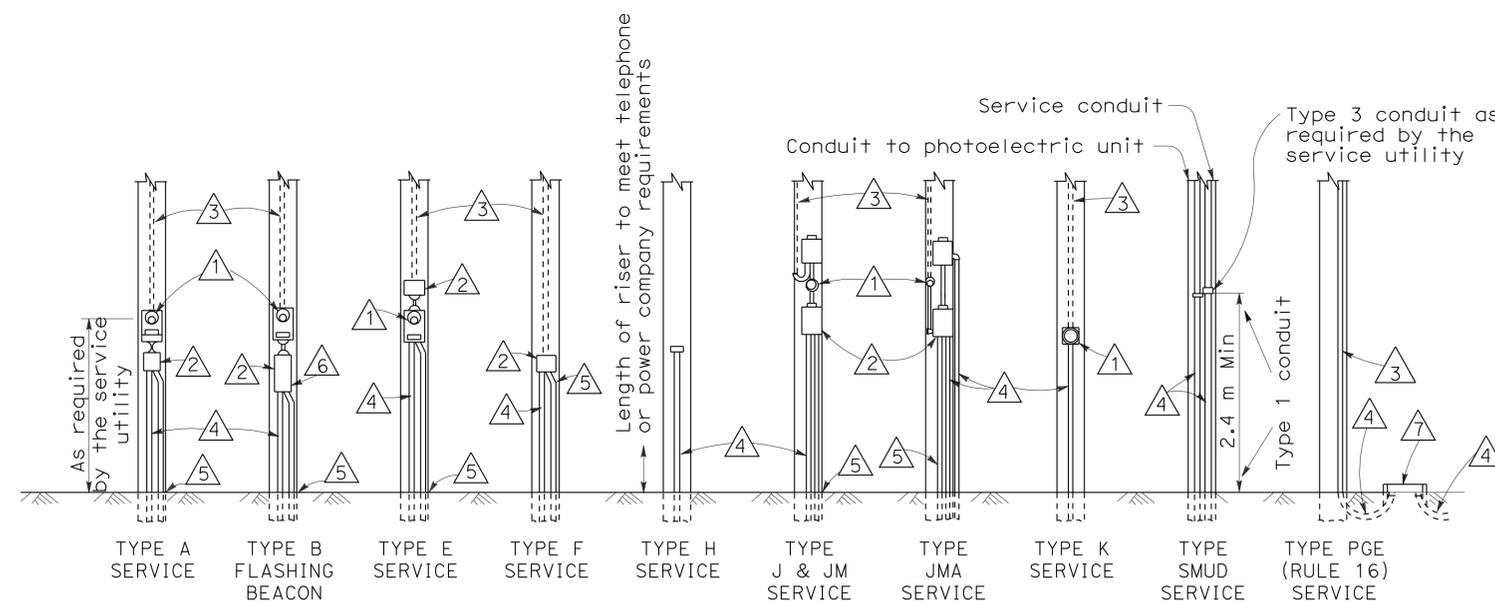
To accompany plans dated 1-23-12



**TYPE SCE-1 SERVICE**



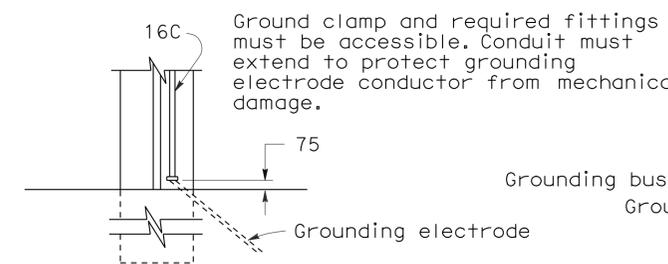
**TYPE SCE-2 SERVICE**



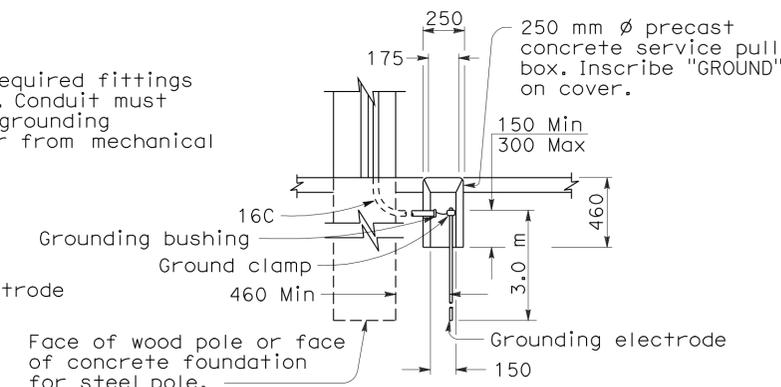
**NOTES**

- ① Meter socket.
- ② Service enclosure with a minimum 60 A rated main circuit breaker, unless otherwise shown.
- ③ (a) Utility owned pole. The service utility will furnish and install required service riser, PEU with conductors and other equipment as needed.  
(b) State owned pole. The Contractor shall furnish and install required service riser and equipment.
- ④ Conduit, length and size as required.
- ⑤ 16C, 1#6. See "Service Grounding" detail.
- ⑥ Flashing beacon control assembly.
- ⑦ Service pull box, No. 5 unless otherwise noted, furnished and installed by the Contractor. Service utility shall determine the exact location.

**POLE MOUNTED SERVICE INSTALLATIONS**



**TYPE A**



**TYPE B**

Use where service utility requires 460 mm clearance between grounding electrode and the pole or service equipment enclosure. Installation shown is for sidewalk or paved areas. In unpaved areas, omit special service pull box and locate ground clamp above ground or locate ground clamp in nearest pull box.

**SERVICE GROUNDING**

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**ELECTRICAL SYSTEMS  
(SERVICE EQUIPMENT)**

NO SCALE

ALL DIMENSIONS ARE IN  
MILLIMETERS UNLESS OTHERWISE SHOWN

RSP ES-2A DATED OCTOBER 5, 2007 SUPERSEDES STANDARD PLAN ES-2A  
DATED JULY 1, 2004-PAGE 416 OF THE STANDARD PLANS BOOK DATED JULY 2004.

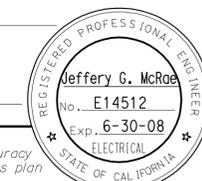
**REVISED STANDARD PLAN RSP ES-2A**

2004 REVISED STD PLAN RSP ES-2A



DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
01	Men	101	R69.4/R78.9	608	939

*Jeffery G. McRae*  
 REGISTERED ELECTRICAL ENGINEER  
 October 5, 2007  
 PLANS APPROVAL DATE  
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 To get to the Caltrans web site, go to: <http://www.dot.ca.gov>



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

1. Service equipment enclosure and metering equipment shall meet the requirements of the service utility. The meter area shall have a sealable, lockable, weathertight cover that can be removed without the use of tools.
2. Service equipment enclosures shall be factory wired and conform to NEMA standards.
3. Dimensions of service equipment enclosures shall meet the requirements of the service utility.
4. The dead front panels on Type III-A service equipment enclosures shall have a continuous stainless steel or aluminum piano hinge. The panel in front of the breakers shall be secured with a latch or captive screws. No live parts shall be mounted on the dead front panel.
5. The exterior door shall have provisions for padlocking. The padlock hole shall be a minimum diameter of 11 mm.
6. Enclosures housing transformers of more than one kVA shall have effective screened ventilation louvers of not less than 32 000 mm<sup>2</sup>. Screen shall be stainless steel No. 304, with a No. 10 size mesh. Framed screen shall be secured with at least four bolts.
7. Fasteners on the exterior of the enclosure shall be vandal-resistant and shall not be removable from the exterior. Screws, nuts, bolts and washers shall be stainless steel.
8. Landing lugs for incoming service conductors shall be compatible with either copper or aluminum conductors sized to suit the conductors shown on the plan. Landing lugs shall be copper or tin-plated aluminum. Neutral bus shall be rated for 125 A and be suitable for copper or aluminum conductors unless otherwise specified. The terminal shall include but not be limited to:
  - a) Incoming terminals (landing lugs)
  - b) Neutral lugs
  - c) Solid neutral terminal strip
9. At least 6 standard single pole circuit breaker spaces, 20 mm nominal, shall be provided for branch circuits. Circuit breaker interiors shall be copper. Interiors of enclosure shall accept plug-in or cable-in/cable-out circuit breakers.
10. Control wiring shall be 600 V, 14 stranded machine tool wire. Where subject to flexing, 19 strand wire shall be used.
11. Main bus shall be rated for 125 A and shall be tin-plated copper.
12. A plastic laminated wiring diagram shall be provided with brass mounting eyelets and attached to the inside of the enclosure and the wiring diagram shall affixed to the interior with a UL or ETL approved method.
13. An engraved phenolic nameplate on the dead front panel indicating the function of each circuit or device shall be installed with stainless steel rivets or stainless steel screws:
  - a) Adjacent to the breaker or device with character size a minimum of 3 mm.
  - b) At the top of the exterior door panel indicating system number, voltage level and number of phases with character size a minimum of 5 mm.
14. The plan shows the approximate location of devices within the enclosure. Components may be rearranged, however, the "working" clearances within the service equipment enclosure shall be maintained.
15. In unpaved areas a raised portland cement concrete pad 600 mm x 100 mm x width of foundation shall be constructed in front of new service equipment enclosure installation. Pad shall be set to elevation of foundation.
16. Foundation shall extend 50 mm minimum beyond edge of service equipment enclosure.
17. Internal bus, where shown, is typical only. Alternative design of proposed service equipment enclosure shall be submitted to the Engineer for approval.
18. Plug-in circuit breakers may be mounted in the vertical or horizontal position. Cable-in/cable-out circuit breakers shall be mounted in the vertical position.
19. Type III-AF and Type III-BF service equipment enclosures shall have the meter viewing windows located on the front side of the service equipment enclosures.
20. Type III-AR and Type III-BR service equipment enclosures shall be similarly constructed as Type III-AF and Type III-BF respectively, except the meter viewing windows shall be located on the back side of the service equipment enclosures.
21. Minimum clearance shall be required for front and back of service equipment enclosure per National Electrical Code, Article 110.26, "Spaces About Electric Equipment (600 Volts, Nominal, or Less)".

To accompany plans dated 1-23-12

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

NO SCALE  
 ALL DIMENSIONS ARE IN  
 MILLIMETERS UNLESS OTHERWISE SHOWN

RSP ES-2C DATED OCTOBER 5, 2007 SUPERSEDES STANDARD PLAN ES-2C  
 DATED JULY 1, 2004-PAGE 418 OF THE STANDARD PLANS BOOK DATED JULY 2004.

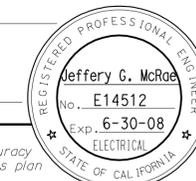
**REVISED STANDARD PLAN RSP ES-2C**

2004 REVISED STD PLAN RSP ES-2C



DIST	COUNTY	ROUTE	KILOMETER TOTAL PROJECT	POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
01	Men	101	R69.4/R78.9		609	939

*Jeffrey G. McRae*  
REGISTERED ELECTRICAL ENGINEER

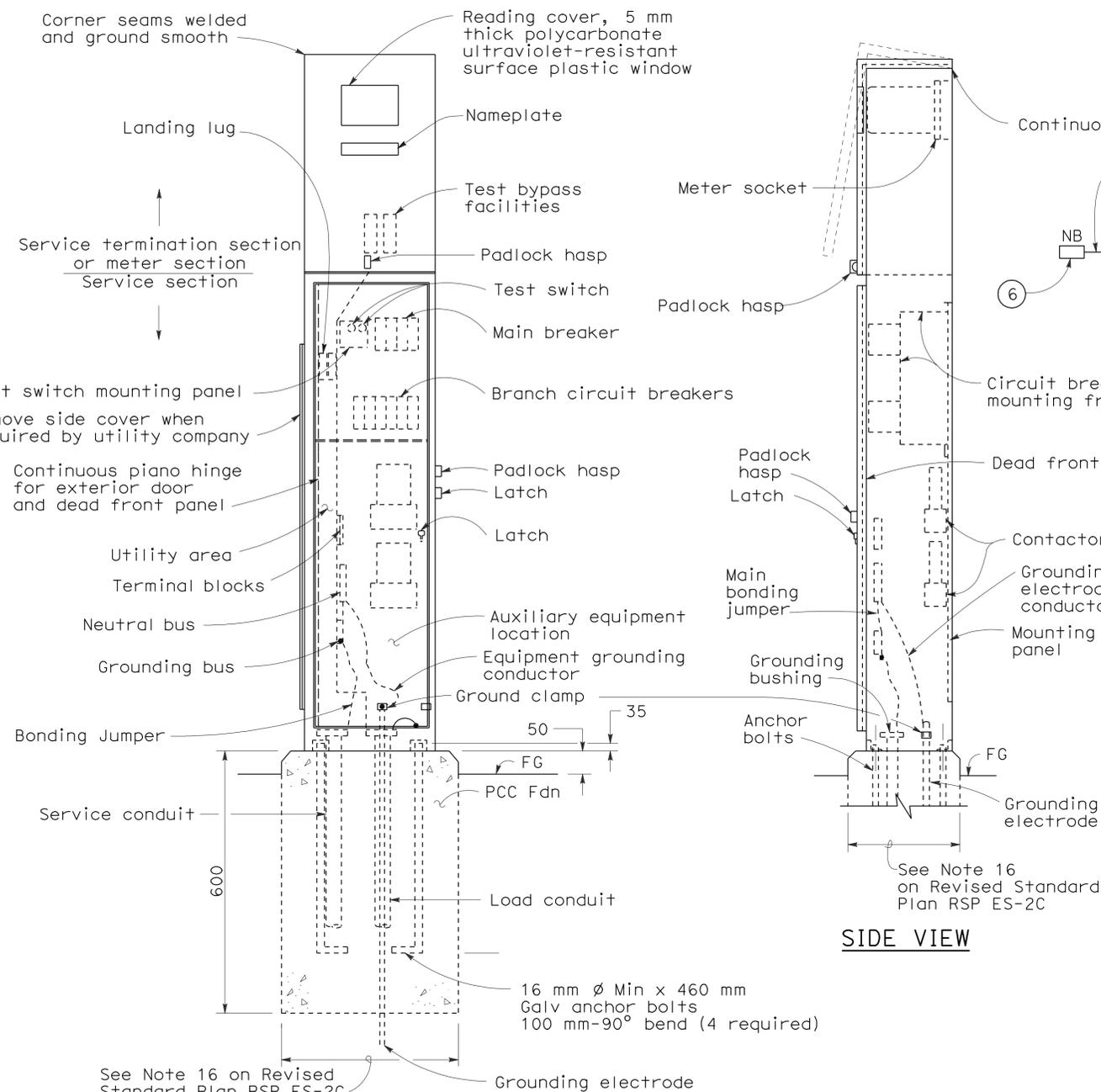


October 5, 2007

PLANS APPROVAL DATE

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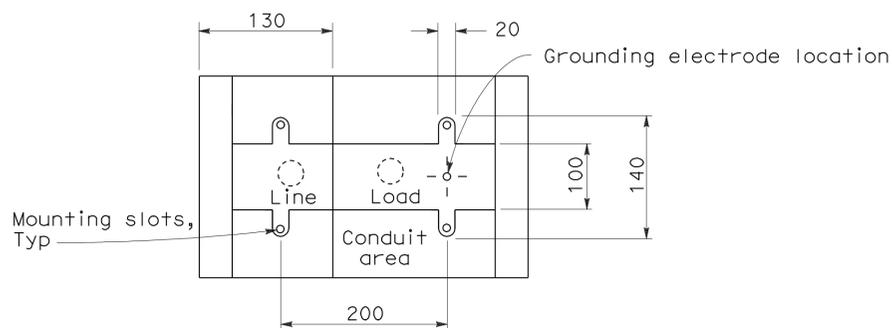
To get to the Caltrans web site, go to: <http://www.dot.ca.gov>



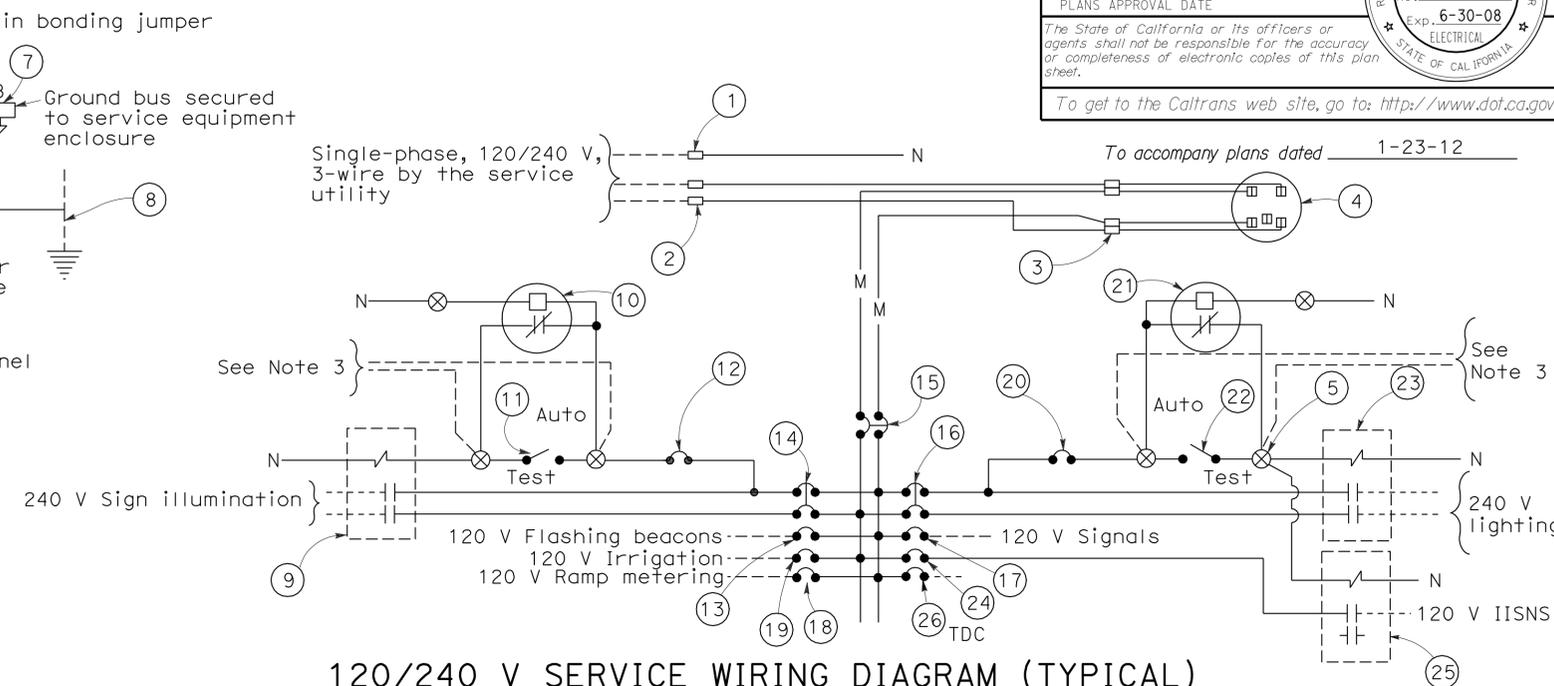
**FRONT VIEW**

**SIDE VIEW**

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



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



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

TYPE III-A SERVICE (120/240 V) EQUIPMENT LEGEND					
ITEM No.	COMPONENT	NAME PLATE DESCRIPTION	ITEM No.	COMPONENT	NAME PLATE DESCRIPTION
①	Neutral lug		⑭	30 A, 240 V, 2P, CB	Sign Illumination
②	Landing lug (Note 6)		⑮	100 A, 240 V, 2P, CB	Main Breaker
③	Test bypass facility		⑯	30 A, 240 V, 2P, CB	Lighting
④	Meter socket and support		⑰	50 A, 120 V, 1P, CB	Signals
⑤	Terminal blocks		⑱	30 A, 120 V, 1P, CB	Ramp Metering
⑥	Neutral bus		⑲	20 A, 120 V, 1P, CB	Irrigation
⑦	Ground bus		⑳	15 A, 120 V, 1P, CB	Lighting Control
⑧	Grounding electrode		㉑	Photoelectric unit (Note 7)	
⑨	30 A, 2PNO Contactor	Sign Illumination	㉒	15 A, 1P, Test switch	Lighting Test Switch
⑩	Photoelectric unit (Note 7)		㉓	60 A, 2PNO Contactor	Lighting
⑪	15 A, 1P, Test switch	Sign Illumination Test Switch	㉔	15 A, 120 V, 1P, CB	IISNS
⑫	15 A, 120 V, 1P, CB	Sign Illumination Control	㉕	30 A, 2PNO Contactor	IISNS
⑬	15 A, 120 V, 1P, CB	Flashing Beacon	㉖	20 A, 120 V, 1P, CB	Telephone Demarcation Cabinet

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

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

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

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

NO SCALE

ALL DIMENSIONS ARE IN  
MILLIMETERS UNLESS OTHERWISE SHOWN

RSP ES-2D DATED OCTOBER 5, 2007 SUPERSEDES STANDARD PLAN ES-2D  
DATED JULY 1, 2004-PAGE 419 OF THE STANDARD PLANS BOOK DATED JULY 2004.

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

2004 REVISED STD PLAN RSP ES-2D



DIST	COUNTY	ROUTE	KILOMETER TOTAL PROJECT	POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
01	Men	101	R69.4/R78.9	610	939	

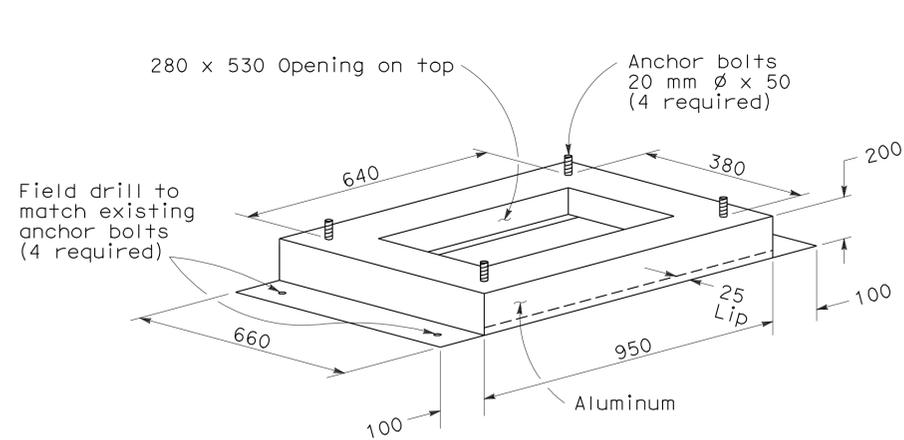
REGISTERED ELECTRICAL ENGINEER  
**Jeffery G. McRae**  
 No. E14512  
 Exp. 6-30-08  
 ELECTRICAL  
 STATE OF CALIFORNIA

October 5, 2007  
 PLANS APPROVAL DATE

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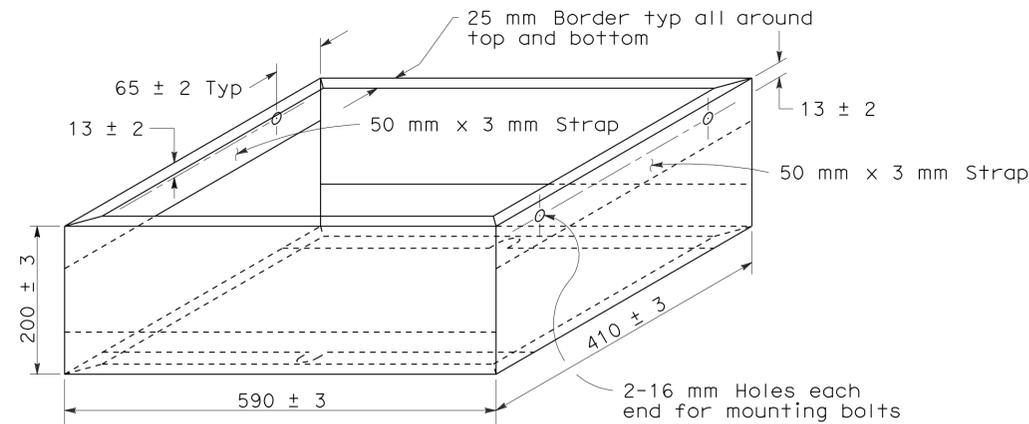
To get to the Caltrans web site, go to: <http://www.dot.ca.gov>

To accompany plans dated 1-23-12



**TYPE PR CABINET ADAPTER**

1. Material: 4.78 thickness aluminum plate.
2. Mount adapter on Type P or Type R cabinet foundation.

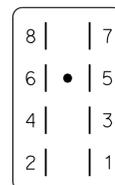


**TYPE M CABINET ADAPTER**

1. Mount adapter on Type M cabinet foundation.
2. Mounting bolts shall be 10 mm diameter minimum size.
3. Aluminum (4.78 mm thickness).

The flasher transfer relay shall intermate with a CINCH-JONES Socket S-408-SB or equal connected as follows:

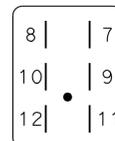
Pin No.	Circuit	Pin No.	Circuit
1	Coil	5	Common, Circuit #1
2	Coil	6	Common, Circuit #2
3	NC Circuit #1	7	NO Circuit #1
4	NC Circuit #2	8	NO Circuit #2



**CONNECTOR SOCKET FLASH TRANSFER RELAY**

The flasher shall intermate with a CINCH-JONES Socket S-406-SB or equal connected as follows:

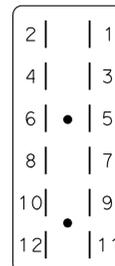
Pin No.	Circuit	Pin No.	Circuit
7	Load, Circuit #1	10	ac+
8	Load, Circuit #2	11	ac-
9	Chassis Ground	12	Not used



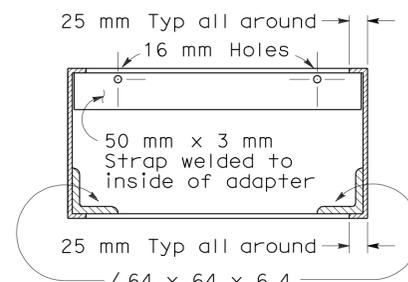
**CONNECTOR SOCKET SOLID STATE FLASHER UNIT**

The Solid-state switching device shall intermate with a CINCH-JONES Socket S-2412-SB or equal connected as follows:

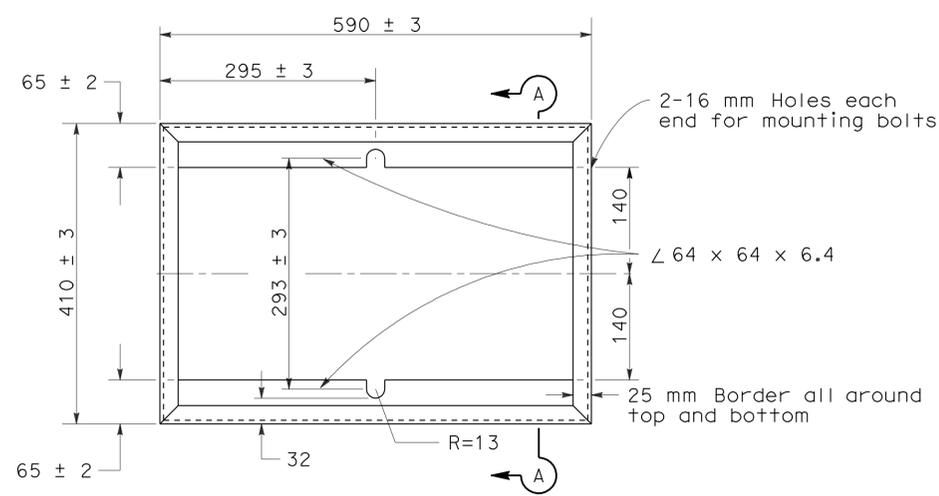
Pin No.	Circuit	Pin No.	Circuit
1	ac + Lights	7	Green or Walk Output
2	Chassis Ground	8	Yellow Input
3	Red or Don't Walk Output	9	dc+ (15 to 24 V)
4	Not used	10	Green or Walk Input
5	Yellow Output	11	ac-
6	Red or Don't Walk Input	12	Not used



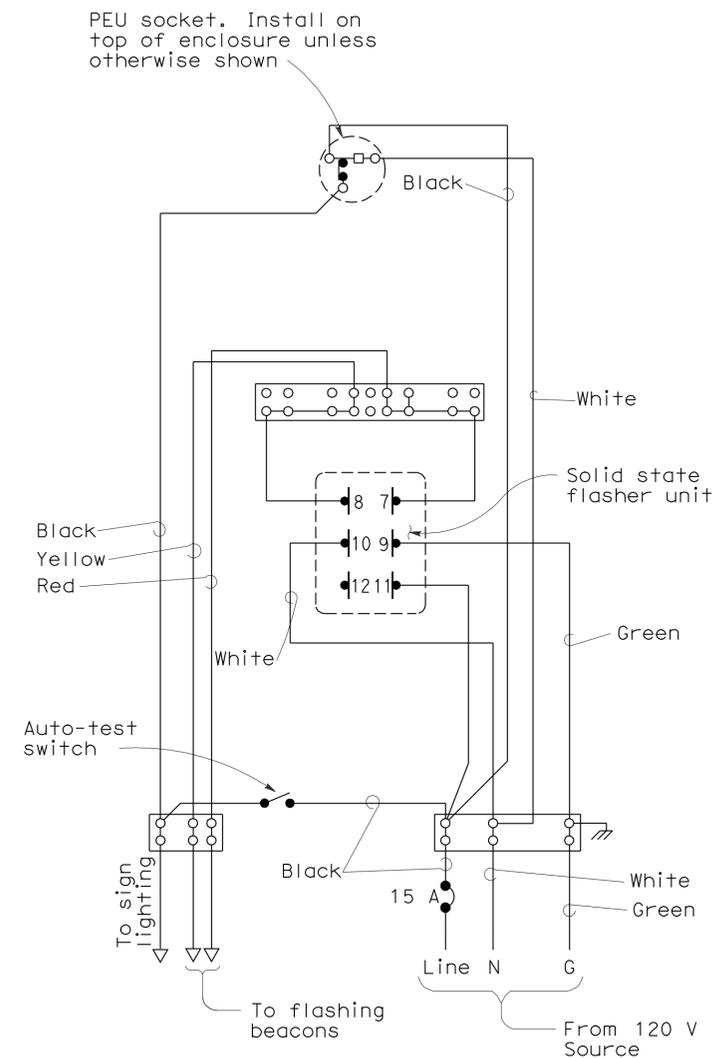
**CONNECTOR SOCKET SOLID STATE SWITCHING DEVICE**



SECTION A-A



TOP VIEW



**WIRING DIAGRAM LED FLASHING BEACON CONTROL ASSEMBLY**

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

NO SCALE  
 ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN

RSP ES-3B DATED OCTOBER 5, 2007 SUPERSEDES STANDARD PLAN ES-3B DATED JULY 1, 2004-PAGE 424 OF THE STANDARD PLANS BOOK DATED JULY 2004.

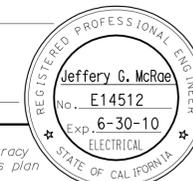
**REVISED STANDARD PLAN RSP ES-3B**

2004 REVISED STD PLAN RSP ES-3B



DIST	COUNTY	ROUTE	KILOMETER TOTAL PROJECT	POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
01	Men	101	R69.4/R78.9		611	939

Jeffery G. McRae  
REGISTERED ELECTRICAL ENGINEER

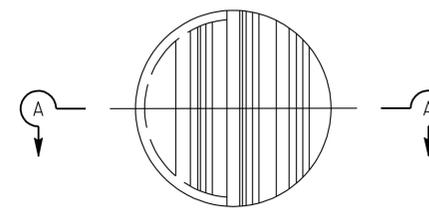
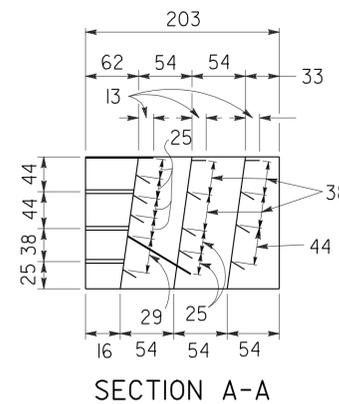
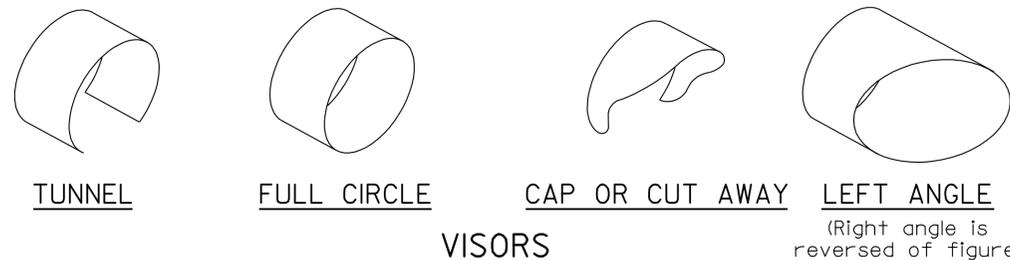


June 6, 2008  
PLANS APPROVAL DATE

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To get to the Caltrans web site, go to: <http://www.dot.ca.gov>

To accompany plans dated 1-23-12

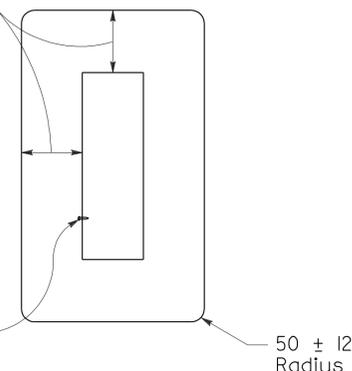


**DIRECTIONAL LOUVER**

Directional louvers shall be oriented as directed by the Engineer and secured in place with one plated brass machine screw and nut.

200 ± 13 for 200 mm sections  
140 ± 13 for 300 mm sections

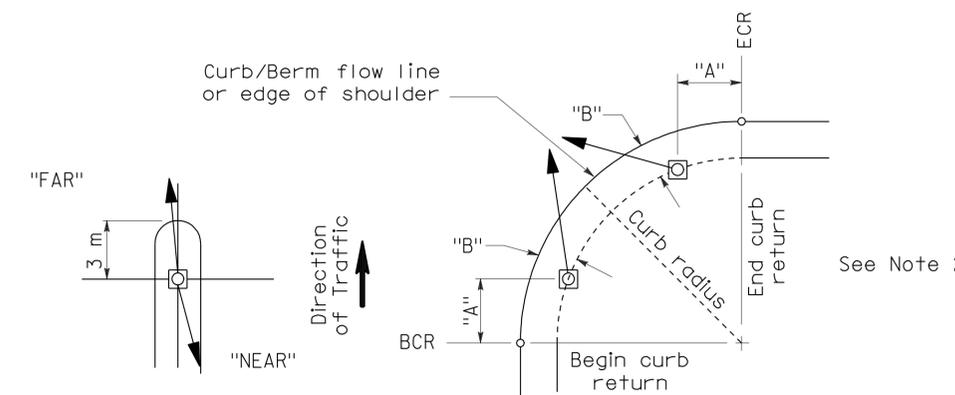
Drill signal face and attach backplate with six 10-24 or 10-32 self-tapping and locking stainless steel machine screws and flat washers



**200 mm AND 300 mm SECTIONS**

**BACKPLATE**

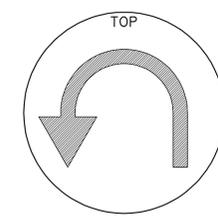
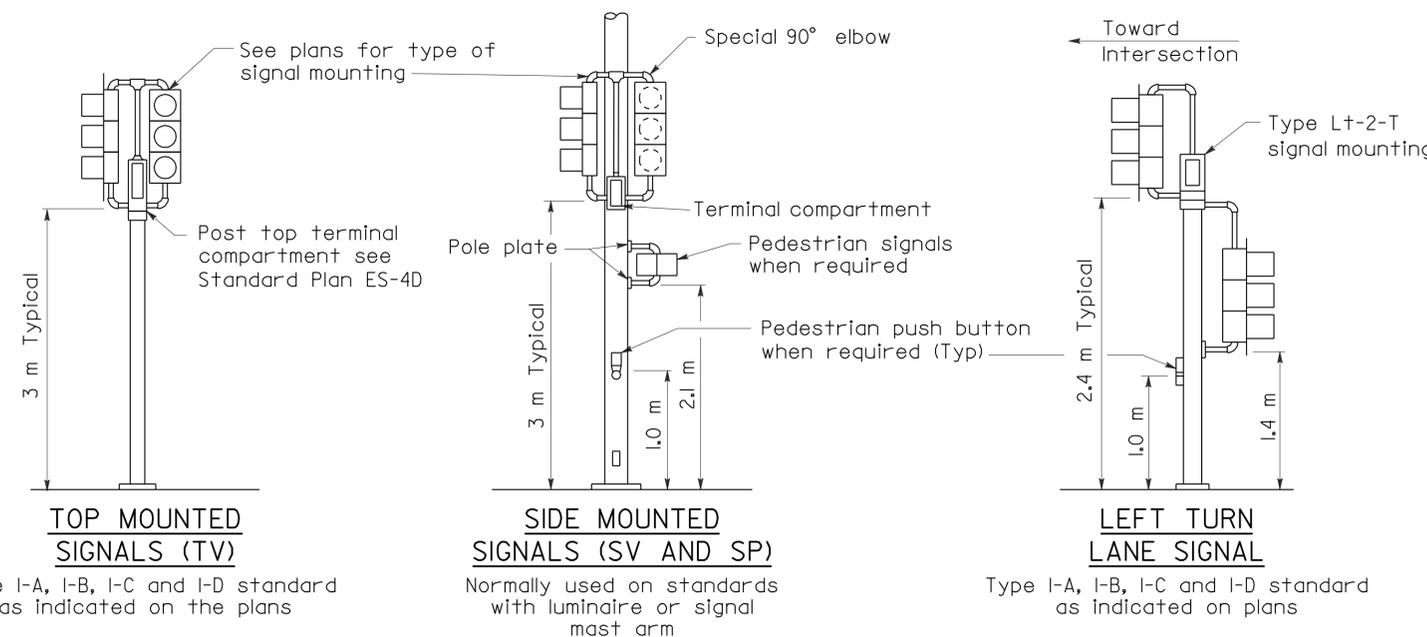
1.5 mm minimum thickness  
3001-14 aluminum, or plastic when specified



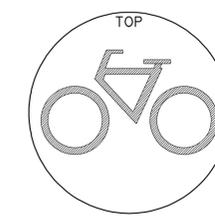
**NOTES:**

1. Typical signal pole placement unless dimensioned on plans.
2. For "A" and "B" dimensions, see Pole Schedule, or as directed by the Engineer.

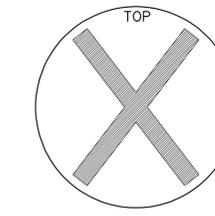
**SIGNAL STANDARD PLACEMENT DIMENSIONS AND EQUIPMENT LOCATIONS**



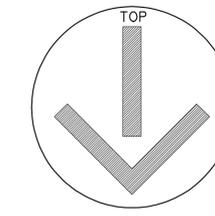
**U-TURN SIGNAL FACE**



**BICYCLE SIGNAL FACE**



**LANE CONTROL SIGNAL FACE**



**LANE CONTROL SIGNAL FACE**

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**ELECTRICAL SYSTEMS (SIGNAL HEADS AND MOUNTINGS)**

NO SCALE

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN

RSP ES-4C DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN ES-4C DATED July 1, 2004 - PAGE 433 OF THE STANDARD PLANS BOOK DATED July 2004.

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

2004 REVISED STD PLAN RSP ES-4C



DIST	COUNTY	ROUTE	KILOMETER TOTAL PROJECT	POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
01	Men	101	R69.4/R78.9	612	939	

Jeffery G. McRae  
REGISTERED ELECTRICAL ENGINEER

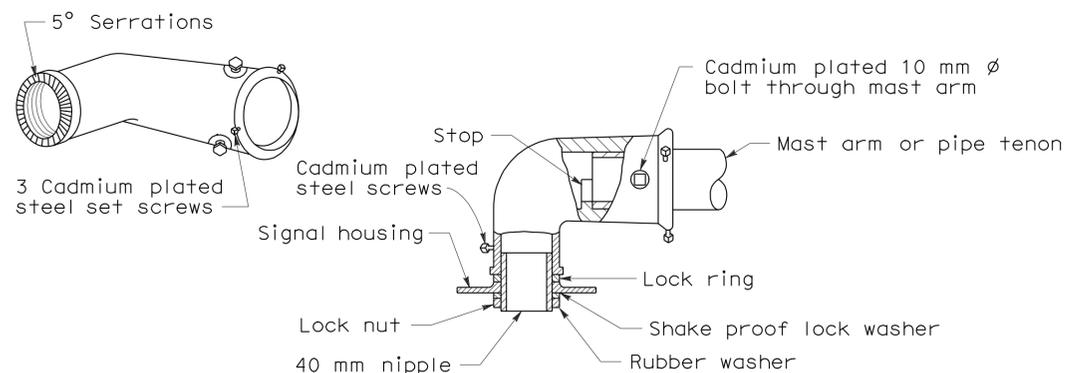


June 6, 2008  
PLANS APPROVAL DATE

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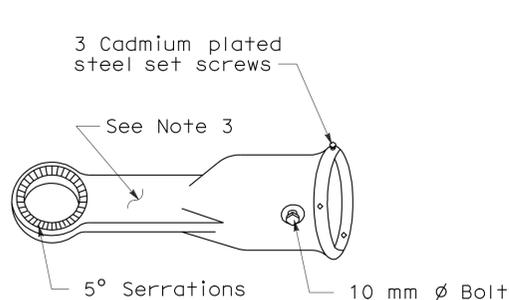
To get to the Caltrans web site, go to: <http://www.dot.ca.gov>

To accompany plans dated 1-23-12



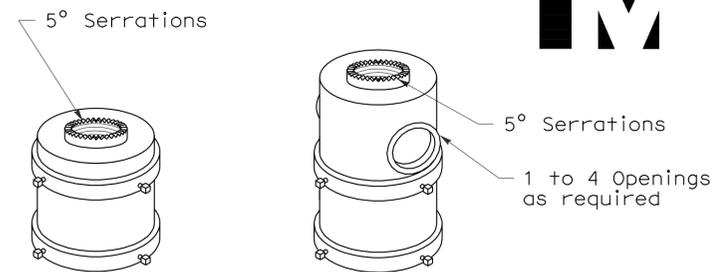
**MAST ARM MOUNTING - TYPE "MAT"**

For 2 NPS pipe, see Note 1.



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

For 2 NPS pipe. See Note 1.

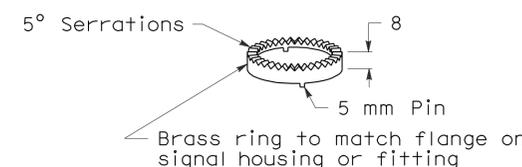


For one mounting For multiple mountings

**TOP MOUNTINGS**

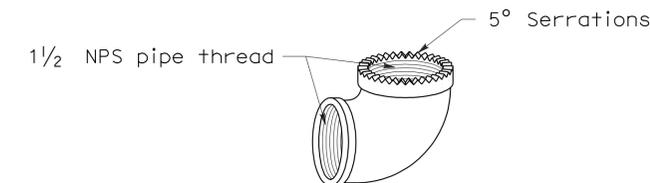
For 4 NPS pipe, see Note 2.

**SIGNAL SLIP FITTERS**



**LOCK RING**

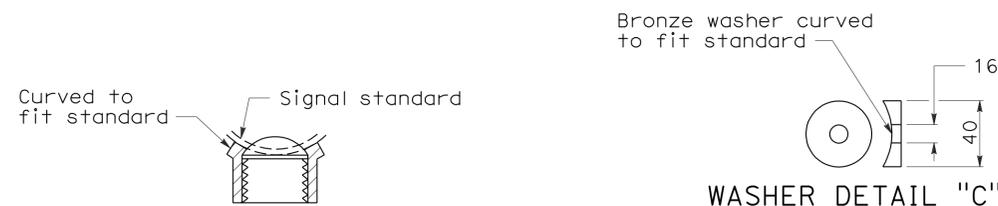
Use where locking ring is not integral with signal housing or fitting.



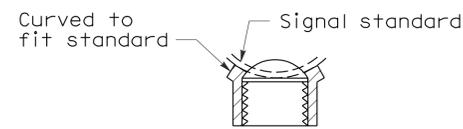
**SPECIAL 90° ELBOW**

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

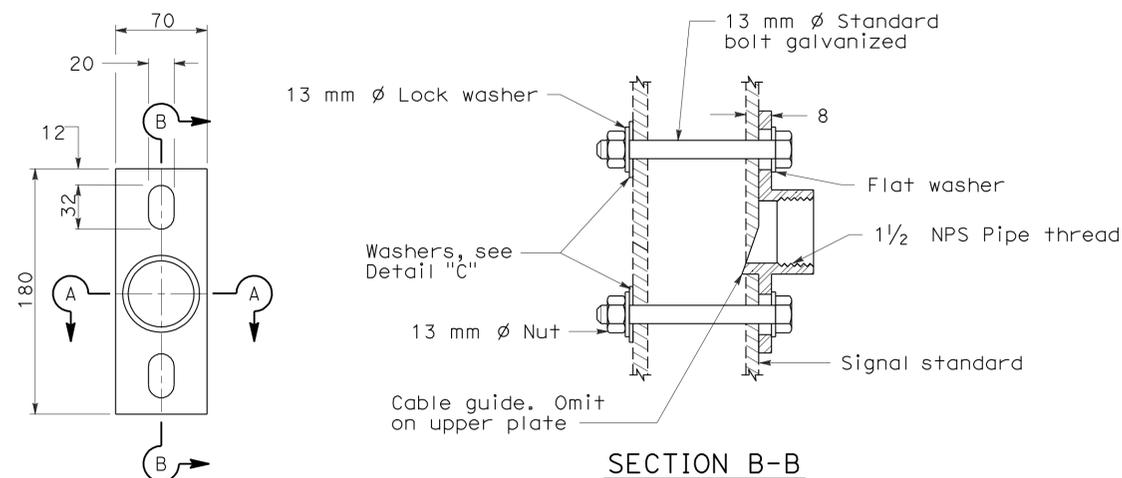
**MISCELLANEOUS MOUNTING HARDWARE**



**WASHER DETAIL "C"**



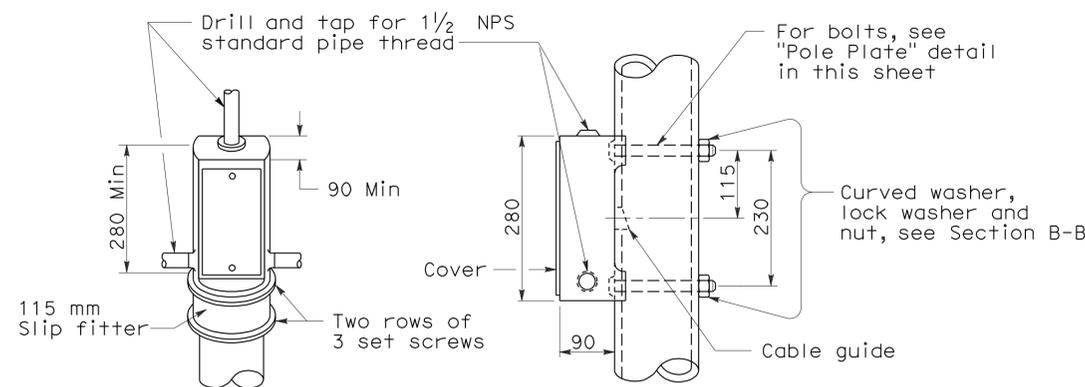
**SECTION A-A**



**POLE PLATE**

For side mountings

**SECTION B-B**



**TOP MOUNTING**

**SIDE MOUNTING**

**TERMINAL COMPARTMENTS**

**NOTES**

- After mast arm signal has been plumbed and secured, drill 11 mm hole through mast arm tenon in line with slip fitter hole. Place a cadmium plated 10 mm diameter galvanized bolt with washer under bolt head through hole and secure with washer, nut, and locknut. Seal openings between mast arm mountings and mast arm with mastic.
- (a) Threaded top mounted slip fitter openings shall be 1/2 NPS.  
(b) Serrations in fittings shall match those on bottom of signal heads or in lock ring.  
(c) Top opening shall be offset when backplate is used.
- Wireway shall have a cross section area of 600 mm<sup>2</sup> minimum. Minimum width of 13 mm.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**ELECTRICAL SYSTEMS  
(SIGNAL HEADS AND MOUNTINGS)**

NO SCALE

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN

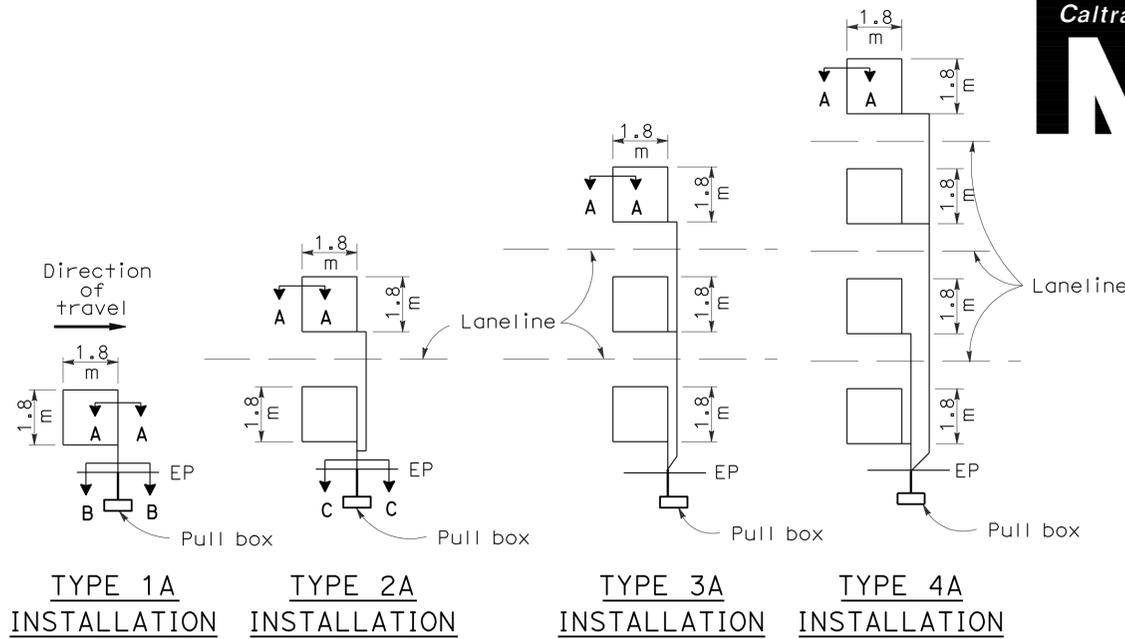
RSP ES-4D DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN ES-4D DATED July 1, 2004 - PAGE 434 OF THE STANDARD PLANS BOOK DATED July 2004.

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

2004 REVISED STD PLAN RSP ES-4D

# LOOP INSTALLATION PROCEDURE

- Loops shall be centered in lanes.
- Saw slots in pavement for loop conductors as shown in details.
- Distance between side of loop and a lead-in saw cut from adjacent detectors shall be 600 mm minimum. Distance between lead-in saw cuts shall be 150 mm minimum.
- Bottom of saw slot shall be smooth with no sharp edges.
- Slots shall be washed until clean, blown out and thoroughly dried before installing loop conductors.
- Adjacent loops on the same sensor unit channel shall be wound in opposite directions.
- Identify and tag loop circuit pairs in the pull box with loop number, start (S) and finish (F) of conductor. Identify and tag lead-in-cable with sensor number and phase.
- Install loop conductor in slot using a 5 mm to 6 mm thick wood paddle. Hold loop conductors with wood paddles (at the bottom of the sawed slot) during sealant placement.
- No more than 2 twisted pairs shall be installed in one sawed slot.
- Allow additional 1.5 m of slack length of conductor for the lead-in run to pull box.
- The additional length of each conductor for each loop shall be twisted together into a pair (6 turns per meter minimum) before being placed in the slot and conduit leading to pull box.
- Test each loop circuit for continuity, circuit resistance and insulation resistance at the pull box before filling slots.
- Fill slots as shown in details.
- Splice loop conductors to lead-in cable. Splices shall be soldered.
- End of lead-in-cable and Type 2 loop conductor shall be waterproofed prior to installing in conduit to prevent moisture from entering the cable.
- Lead-in-cable shall not be spliced between the pull box and the controller cabinet terminals.
- Test each loop circuit for continuity, circuit resistance and insulation resistance at the controller cabinet location.
- Where loop conductors are not to be spliced to a lead-in-cable, the ends of the conductors shall be taped and waterproofed with electrical insulating coating.

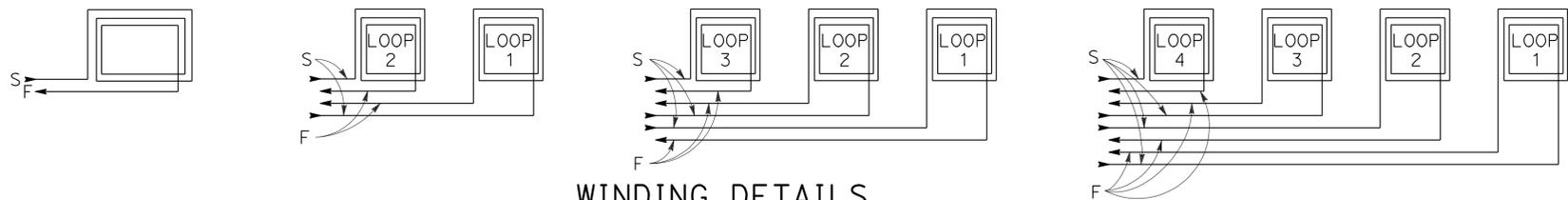


TYPE 1A INSTALLATION    TYPE 2A INSTALLATION    TYPE 3A INSTALLATION    TYPE 4A INSTALLATION

## SAWCUT DETAILS

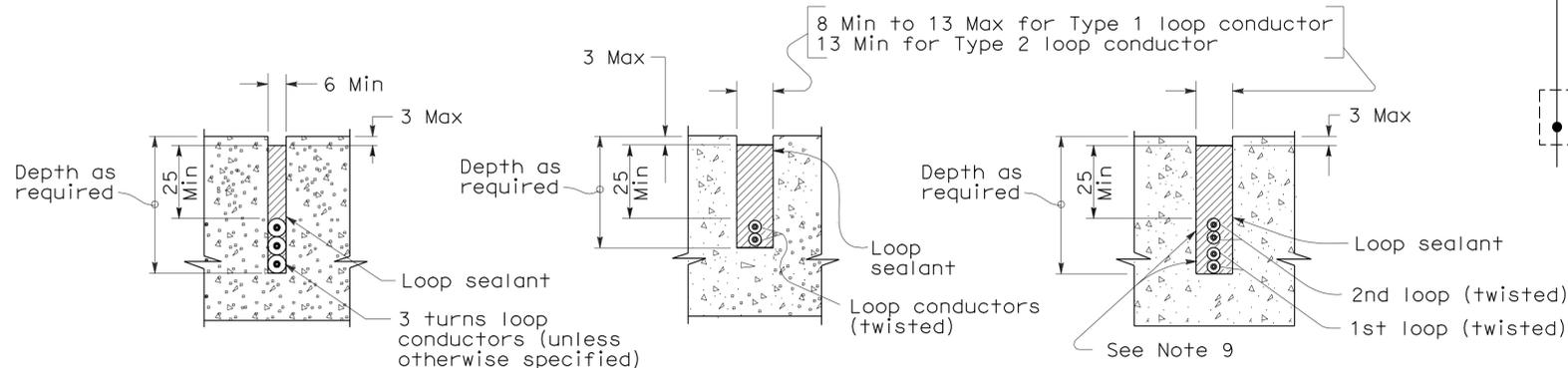
(Type A loop detector configurations illustrated)

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

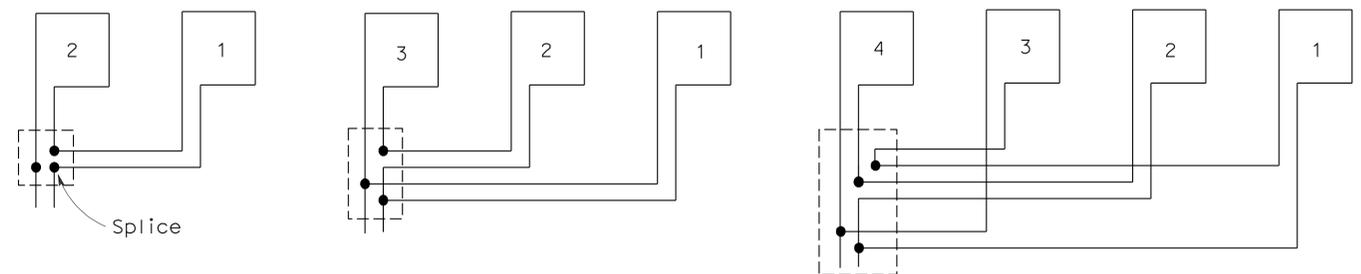


## WINDING DETAILS

See Notes 6 and 7



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



## TYPICAL LOOP CONNECTIONS

(Dashed lines represent the pull box)

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**ELECTRICAL SYSTEMS  
(DETECTORS)**

NO SCALE  
ALL DIMENSIONS ARE IN  
MILLIMETERS UNLESS OTHERWISE SHOWN

RSP ES-5A DATED OCTOBER 5, 2007 SUPERSEDES STANDARD PLAN ES-5A  
DATED JULY 1, 2004-PAGE 436 OF THE STANDARD PLANS BOOK DATED JULY 2004.

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

DIST	COUNTY	ROUTE	KILOMETER TOTAL PROJECT	POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
01	Men	101	R69.4/R78.9	613	939	



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

October 5, 2007  
PLANS APPROVAL DATE

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To get to the Caltrans web site, go to: <http://www.dot.ca.gov>

To accompany plans dated 1-23-12

2004 REVISED STD PLAN RSP ES-5A

DIST	COUNTY	ROUTE	KILOMETER TOTAL PROJECT	POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
01	Men	101	R69.4/R78.9	614	939	

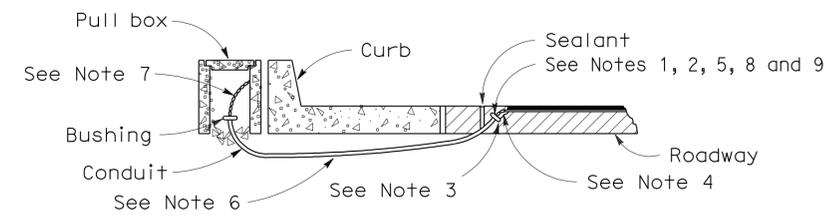


REGISTERED ELECTRICAL ENGINEER  
**Jeffery B. McRae**  
 No. E14512  
 Exp. 6-30-08  
 ELECTRICAL  
 STATE OF CALIFORNIA

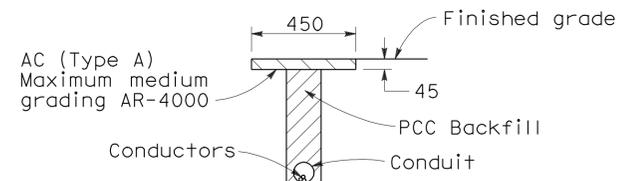
October 5, 2007  
 PLANS APPROVAL DATE

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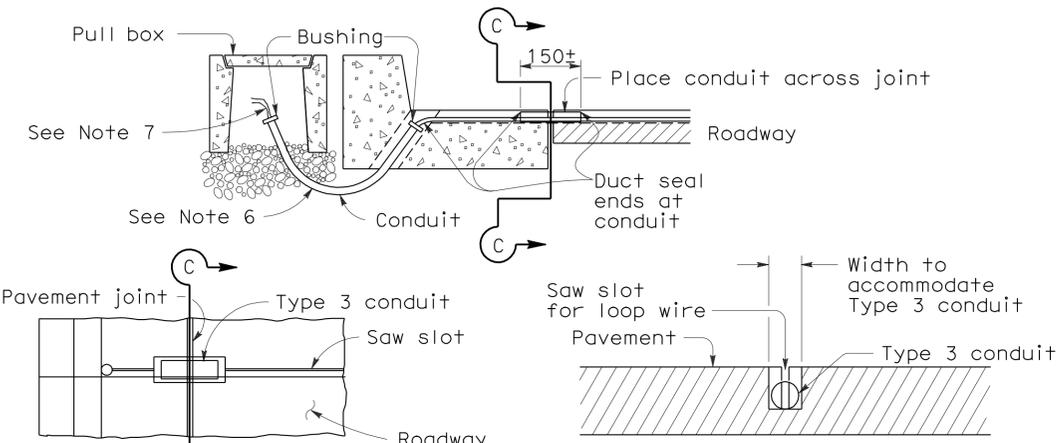
To get to the Caltrans web site, go to: <http://www.dot.ca.gov>



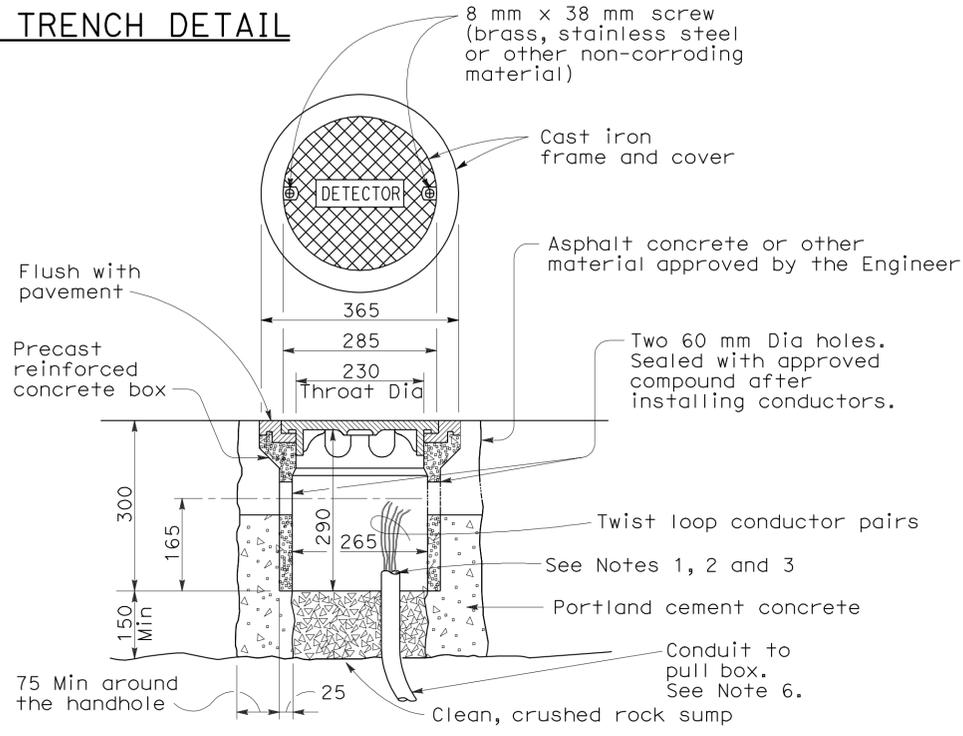
**TYPE A  
CURB TERMINATION DETAIL**



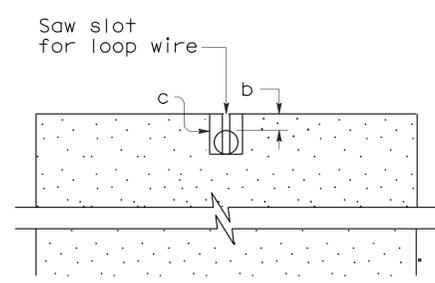
**"T" TRENCH DETAIL**



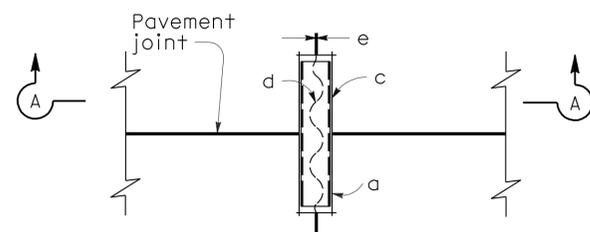
**TYPE B  
CURB TERMINATION DETAILS**



**DETECTOR HANDHOLE DETAILS**

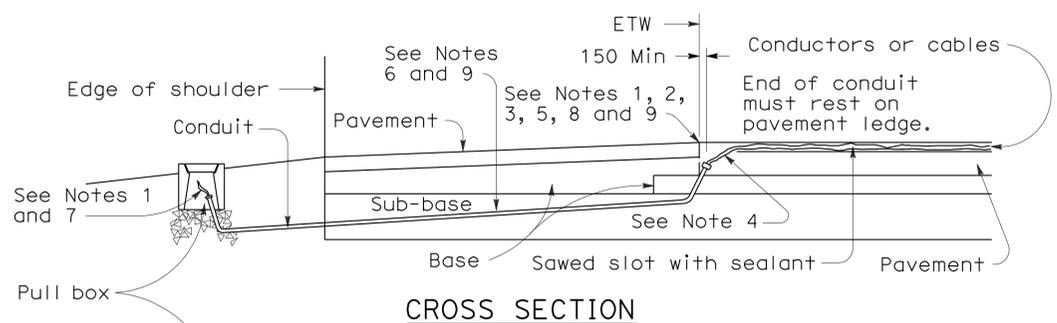


**SECTION A-A**



**PLAN VIEW**

**TYPICAL LOOP LEAD-IN DETAILS  
AT PAVEMENT JOINT**



**CROSS SECTION**



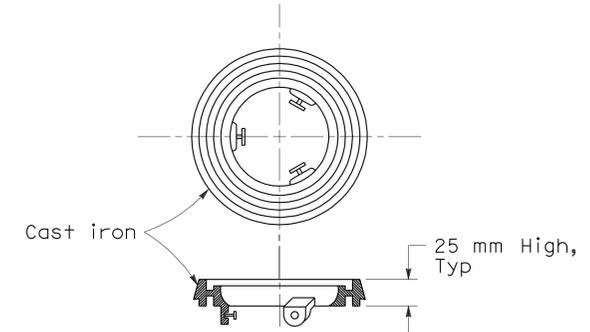
**PLAN VIEW  
SHOULDER TERMINATION DETAILS**

**NOTES (This sheet only):**

- Bushing shall be used at end of conduit.
- Tape detector conductors or cables 75 mm each side of bushings.
- Install duct seal compound to each end of termination conduit before installing sealant.
- Round all sharp edges where detector conductors or cables have to pass.
- End of conduit shall be 80 mm below roadway surface.
- Conduit size Loop Conductors  
 27C Minimum 1 to 2 pairs  
 41C Minimum 3 to 4 pairs  
 53C Minimum 5 or more pairs
- Splice detector conductors or cables to lead-in-cable run to controller cabinet.
- Location of detector handhole when shown on plans.
- When the shoulder and traveled way are paved with the same material and there is no joint between them, the conduit shall extend only 600 mm into the shoulder pavement.

**NOTES:**

- 21C, Type 3 conduit 150 mm long minimum, plug both ends with caulking compound to keep out sealant.
- 13 mm minimum between top of conduit and pavement surface.
- Saw cut shall not exceed 25 mm in width and 3 mm longer than conduit to be installed.
- Conductors with 13 mm minimum slack inside conduit.
- Inductive loop detector saw slot.



**NOTE:**

Use for Type A detector handhole on pavement resurfacing only.

**LOCKING GRADE RING**

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**ELECTRICAL SYSTEMS  
(DETECTORS)**

NO SCALE

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN

RSP ES-5D DATED OCTOBER 5, 2007 SUPERSEDES STANDARD PLAN ES-5D DATED JULY 1, 2004-PAGE 439 OF THE STANDARD PLANS BOOK DATED JULY 2004.

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

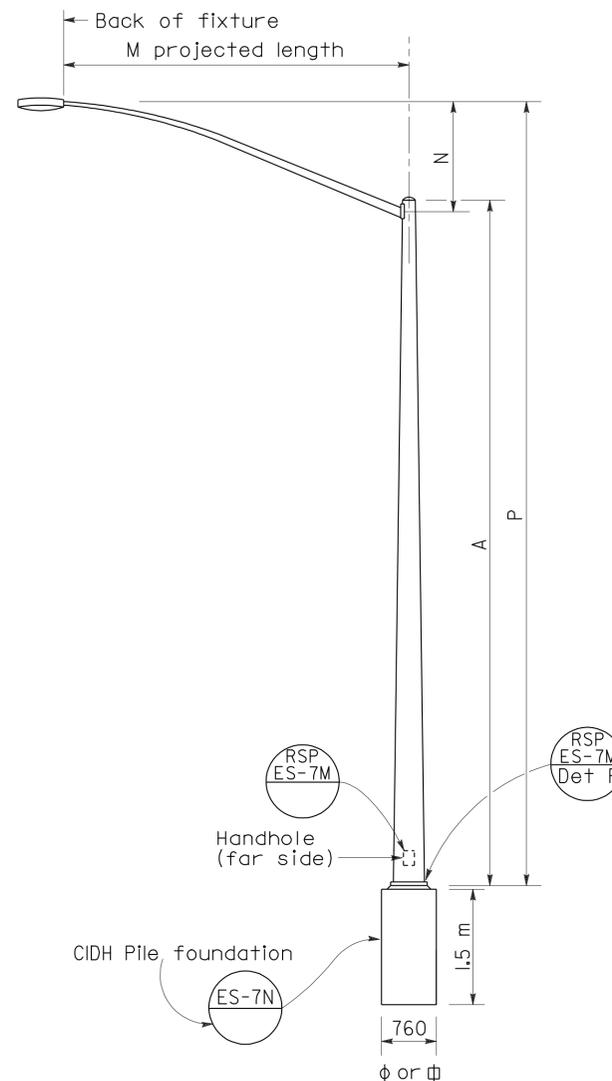
2004 REVISED STD PLAN RSP ES-5D



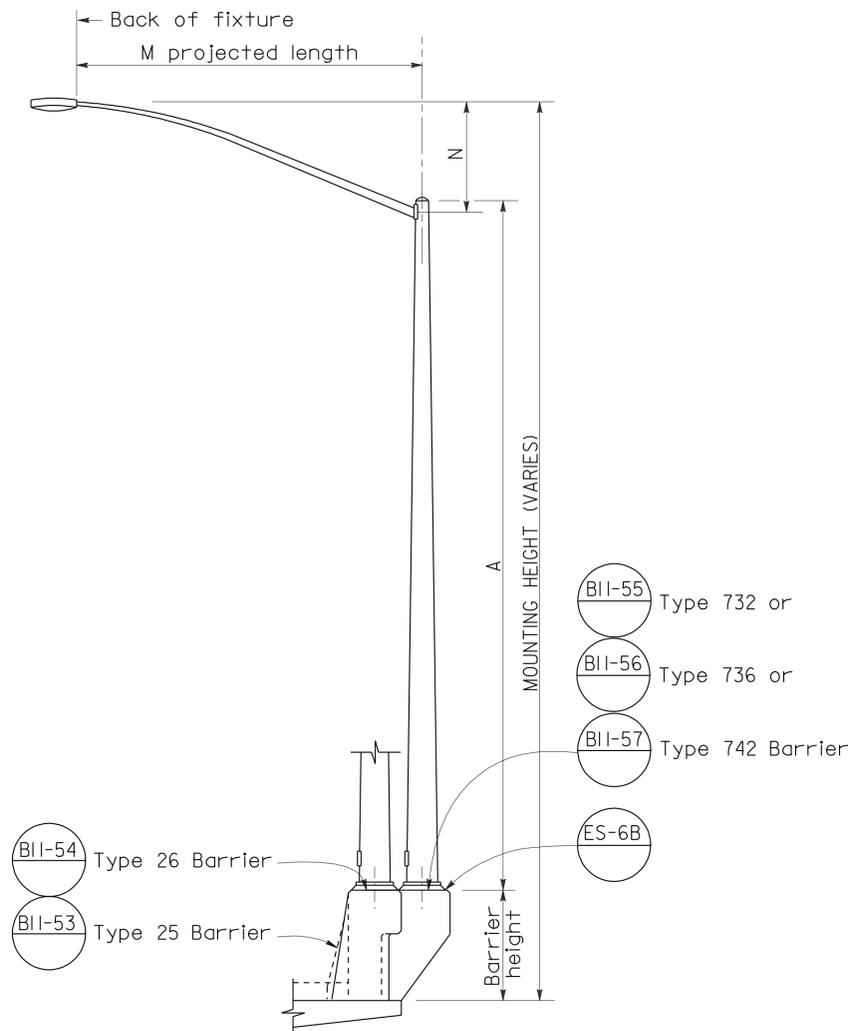
DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
01	Men	101	R69.4/R78.9	615	939

Stanley P. Johnson  
 REGISTERED CIVIL ENGINEER  
 October 5, 2007  
 PLANS APPROVAL DATE  
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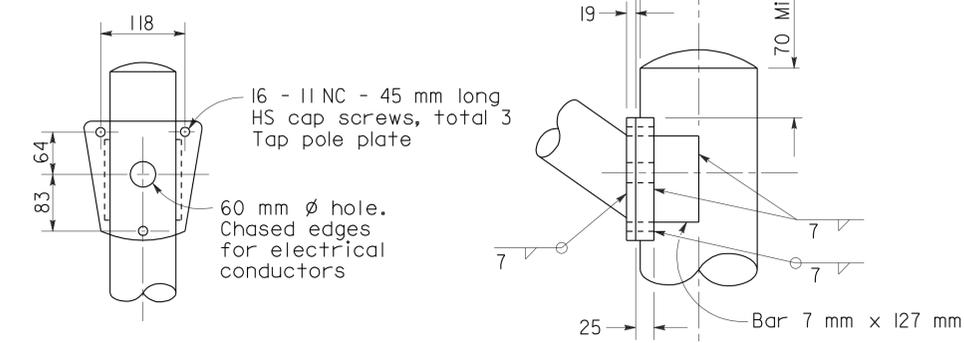
To accompany plans dated 1-23-12



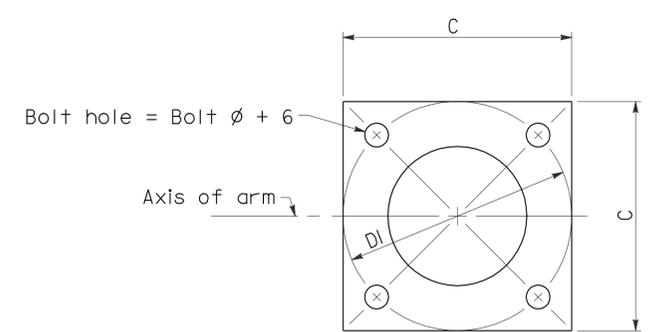
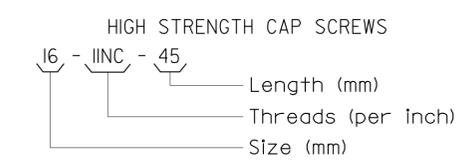
**ELEVATION**  
**TYPE 15 AND TYPE 21**



**ELEVATION**  
**TYPE 15 AND TYPE 21 BARRIER RAIL MOUNTED**



**DETAIL R**  
**LUMINAIRE ARM CONNECTION**



**BASE PLATE**

POLE TYPE	POLE DATA				BASE PLATE DATA				LUMINAIRE ARM
	A Height	Min OD		Wall Thickness	C	DI Bolt Circle	Thick-ness	Anchor Bolts Size	
		Base	Top						
15	9.1	203	98	3.04	305	305	25	25 $\phi$ x 915 x 102*	1.8-4.6 <span style="border: 1px solid black; padding: 2px;">3.7</span>
21	10.7	219	98	3.04	305	305	25	See ES-6B	1.8-4.6 <span style="border: 1px solid black; padding: 2px;">3.7</span>

LUMINAIRE ARM DATA					
M Projected Length	N Rise	Min OD At Pole	Nominal Thickness	P	
				Type 15	Type 21
m	mm	mm	mm	m	m
1.8	610 $\pm$	83	3.04	9.5 $\pm$	11.2 $\pm$
2.4	760 $\pm$	89	3.04	9.7 $\pm$	11.3 $\pm$
3.1	990 $\pm$	98	3.04	9.9 $\pm$	11.5 $\pm$
3.7	1290 $\pm$	98	3.04	10.2 $\pm$	11.8 $\pm$
4.6	1450 $\pm$	108	3.04	10.3 $\pm$	11.9 $\pm$

\*For barrier rail bolts, see Standard Plan ES-6B.

**NOTES:**

- Indicates arm length to be used unless otherwise noted on the plans.
- For Type 15-SB, use Type 15 standard with Type 30 base plate details, see Standard Plan ES-6F.
- For additional notes, see Revised Standard Plan RSP ES-7M and ES-7N.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**ELECTRICAL SYSTEMS**  
**(LIGHTING STANDARD**  
**TYPES 15 AND 21)**

NO SCALE  
ALL DIMENSIONS ARE IN  
MILLIMETERS UNLESS OTHERWISE SHOWN

RSP ES-6A DATED OCTOBER 5, 2007 SUPERSEDES STANDARD PLAN ES-6A DATED JULY 1, 2004-PAGE 440 OF THE STANDARD PLANS BOOK DATED JULY 2004.

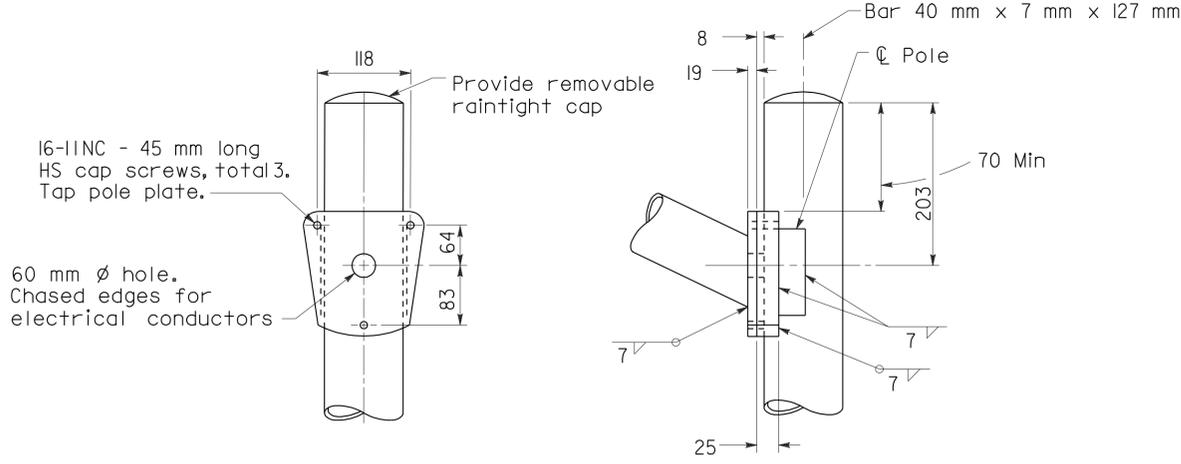
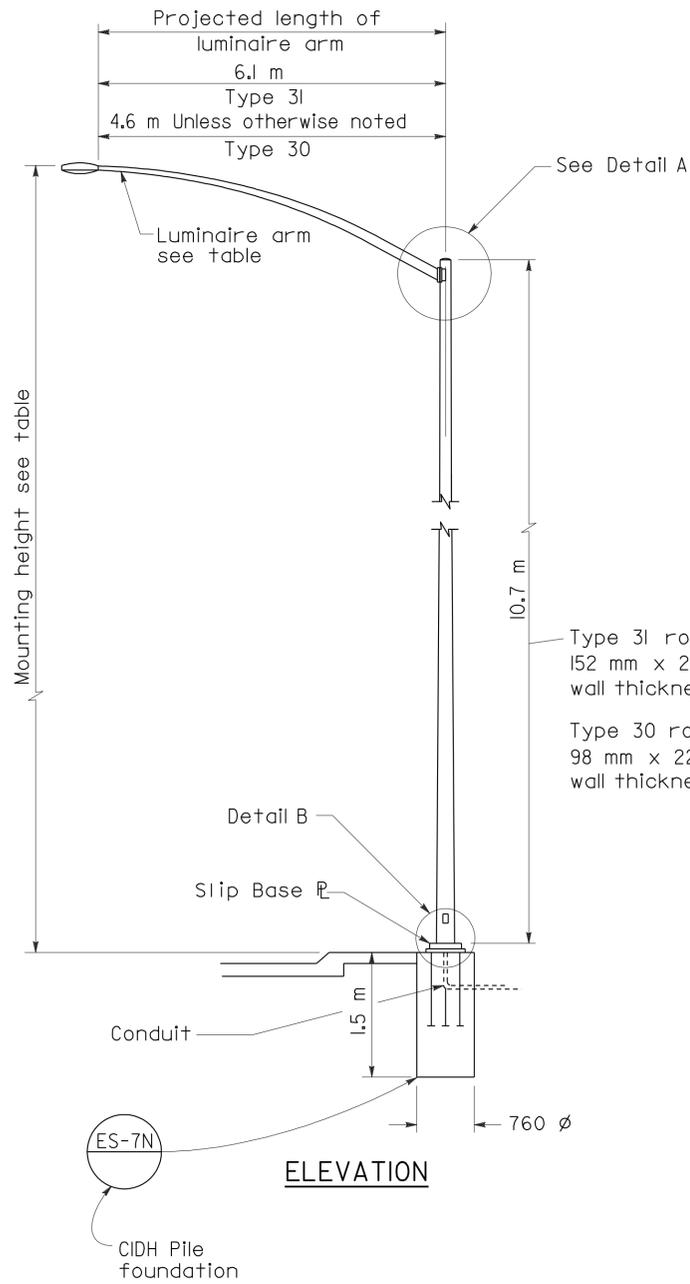
**REVISED STANDARD PLAN RSP ES-6A**

2004 REVISED STD PLAN RSP ES-6A

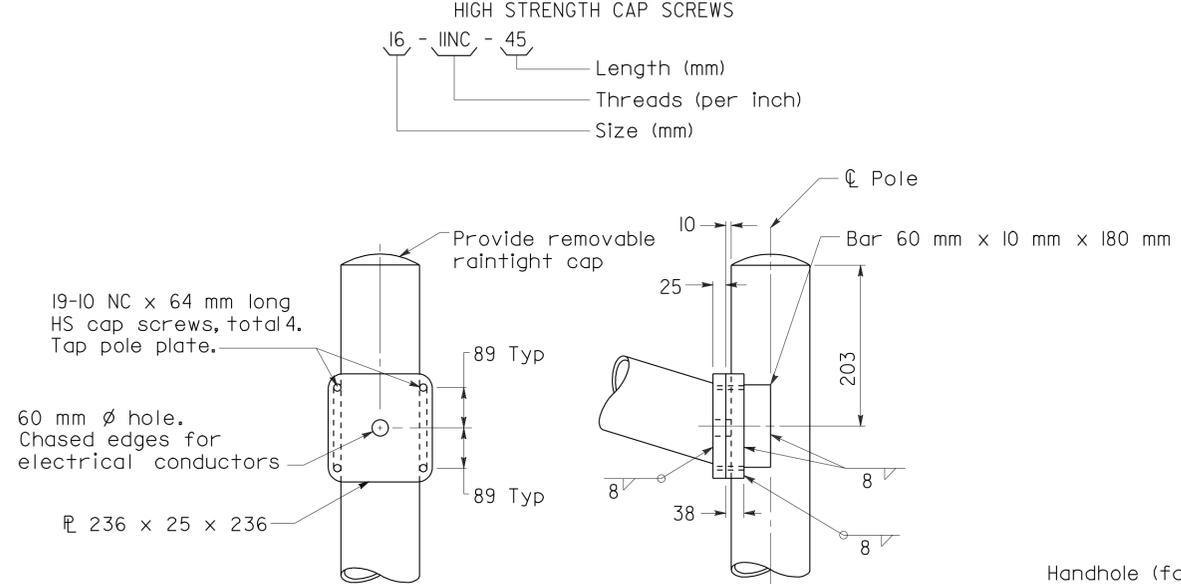
**LUMINAIRE ARM DATA**

PROJECTED LENGTH	THICKNESS	MINIMUM OD @ POLE	MOUNTING HEIGHT
m	mm	mm	m
* 1.8	3.04	83	11.2±
2.4		89	11.4±
3.1		95	11.6±
3.7		95	11.9±
4.6	4.55	108	12.0±
** 6.1		127	11.3±

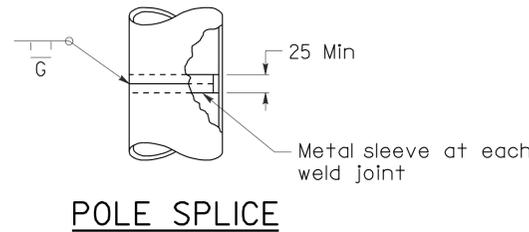
\* Type 30 - arm length 1.8 m - 4.6 m maximum  
 \*\* Type 31 - arm lengths 6.1 m



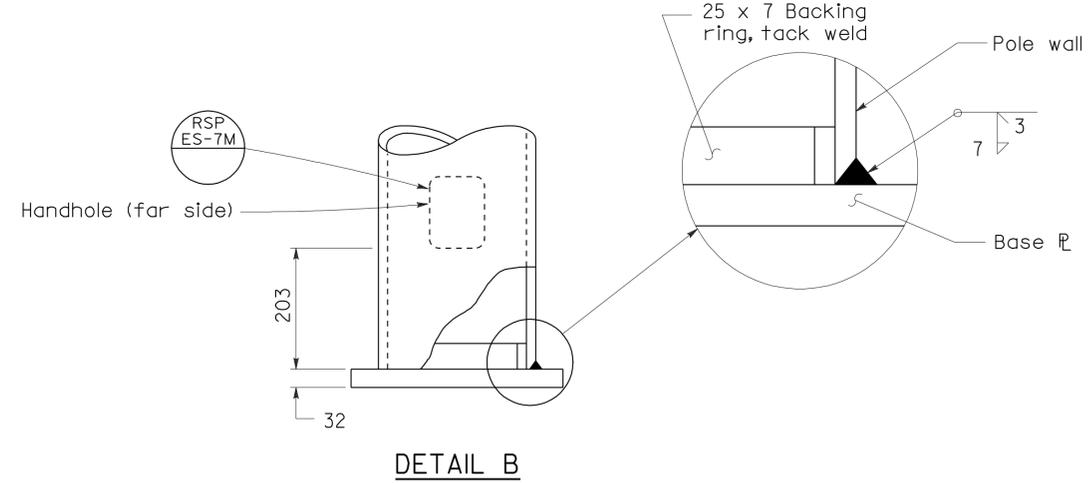
**DETAIL A - TYPE 30**



**DETAIL A - TYPE 31**



**POLE SPLICE**



**DETAIL B**



DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
01	Men	101	R69.4/R78.9	616	939

REGISTERED CIVIL ENGINEER  
 Stanley P. Johnson  
 No. C57793  
 Exp. 03-31-08  
 STATE OF CALIFORNIA

January 18, 2008  
 PLANS APPROVAL DATE

To get to the Caltrans web site, go to: <http://www.dot.ca.gov>  
 To accompany plans dated 1-23-12

**NOTES**

1. Sheet steel shall have a minimum yield of 330 MPa.
2. For slip base details see Standard Plan ES-6F.
3. For Type 30 fixed base use Type 15 base plate, and foundation shown on Revised Standard Plan RSP ES-6A. Use 32 Dia x 915 x 104 anchor bolts
4. For Type 31 fixed base use Type 32 base plate, anchor bolts and foundation on Standard Plan ES-6G.
5. Handhole shall be located on downstream side of traffic unless noted otherwise on plans.
6. For additional general notes refer to Revised Standard Plan RSP ES-7M.

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION

**ELECTRICAL SYSTEMS  
 (LIGHTING STANDARDS  
 TYPES 30 AND 31**

NO SCALE  
 ALL DIMENSIONS ARE IN  
 MILLIMETERS UNLESS OTHERWISE SHOWN

RSP ES-6E DATED JANUARY 18, 2008 SUPERSEDES RSP ES-6E DATED JANUARY 218, 2005 AND STANDARD PLAN ES-6E DATED JULY 1, 2004-PAGE 444 OF THE STANDARD PLANS BOOK DATED JULY 2004.

**REVISED STANDARD PLAN RSP ES-6E**

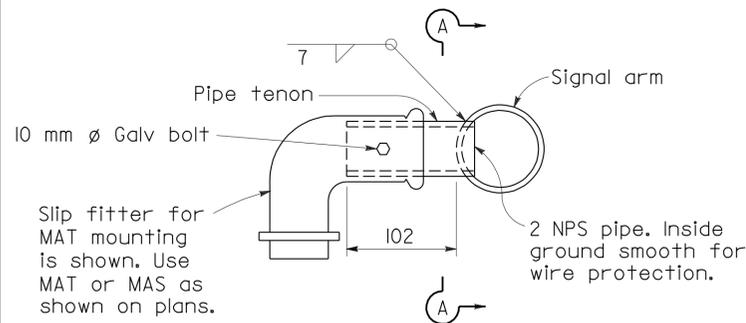
2004 REVISED STD PLAN RSP ES-6E



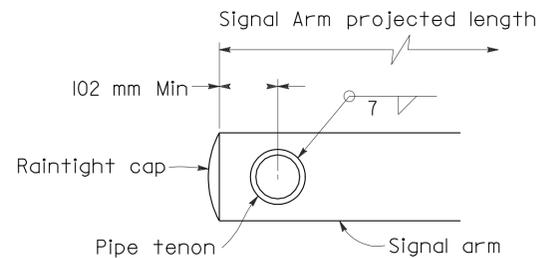
DIST	COUNTY	ROUTE	KILOMETER TOTAL PROJECT	POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
01	Men	101	R69.4/R78.9	617	939	

REGISTERED CIVIL ENGINEER	
April 28, 2005	
PLANS APPROVAL DATE	
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DETAIL S-SIDE TENON



SECTION A-A

**IDENTIFICATION NUMBER**

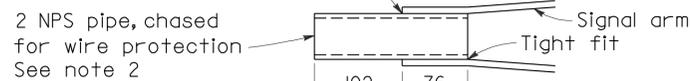
Attach a stamped metal tag with each pole's identification number to shaft above handhole. 7 mm high number minimum. A similar tag shall be attached to the top of the signal mast arm near the pole plate.

Sample Identification Number

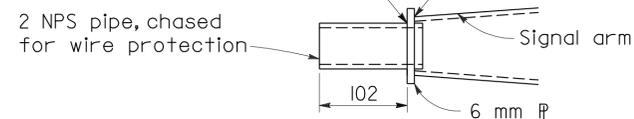
Type Load case Design wind velocity (km/h) Signal arm length maximum (m) Standard plan year Only for poles with fatigue resistant welds

19A - 3 - 161 - 9.1 - 04 - F  
Use SL for special load case

**PIPE TENONS**

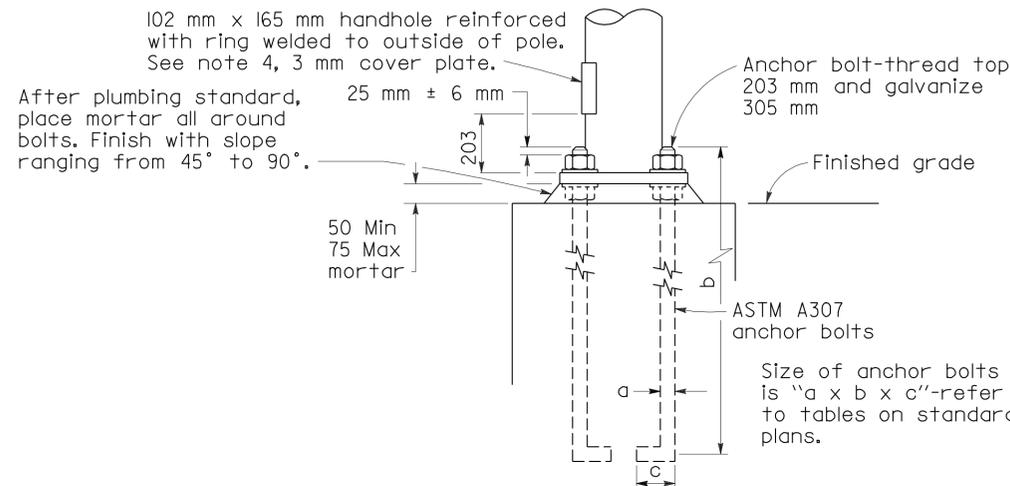


DETAIL TS-TIP TENON



DETAIL TL-TIP TENON

This detail supersedes Detail S when so designated



**HANDHOLE AND ANCHORAGE DETAILS**

**GENERAL NOTES**

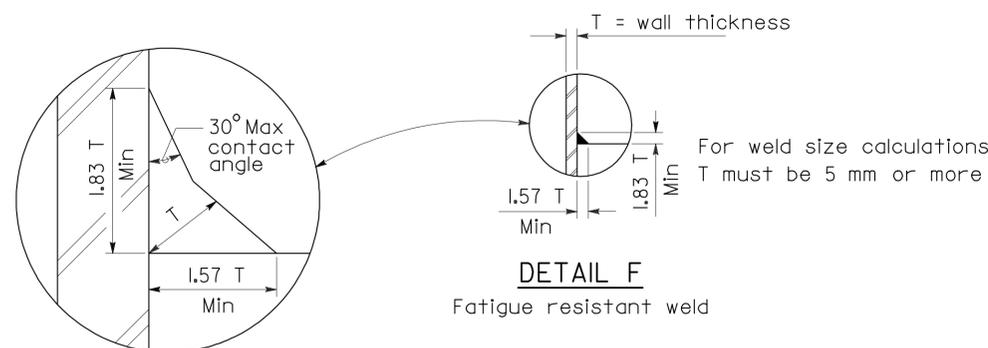
SPECIFICATIONS  
DESIGN : AASHTO Standard specifications for structural supports for highway signs, luminaires and traffic signals dated 2001.

Loading  
WIND LOADINGS : 161 km/h  
Unit Stresses  
STRUCTURAL STEEL :  $f_y = 330$  MPa tapered steel tube  
 $f_y = 250$  MPa unless otherwise noted

CONSTRUCTION : Standard Specifications and the Special Provisions

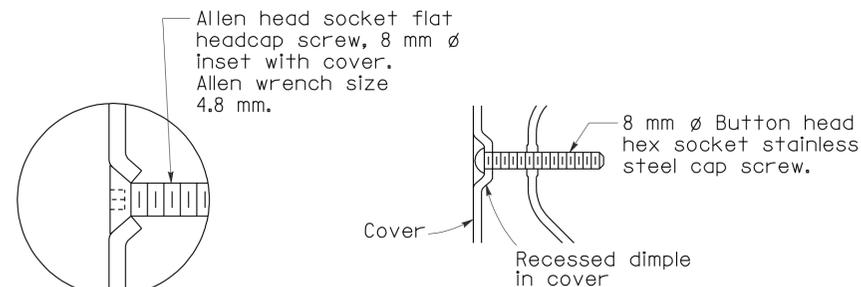
**NOTES**

- ASTM A307 anchor bolts are required for each pole. Provide a hex nut, leveling nut and 2 washers for each bolt.
- Luminaire arms shall be round, tapered steel tubes, taper of 11.45 mm/m to 11.66 mm/m with an end section 60 mm OD for mounting hardware. Extensions of 2 NPS Standard pipe and 178 mm long may be used at the option of the manufacturer. When low pressure sodium luminaires are required, the extension shall be 381 mm.
- Signal arms shall be round, tapered steel tubes, maximum taper 11.66 mm/m.
- Handhole reinforcement ring shall be 6 mm x 51 mm for 3.04 mm to 6.07 mm poles, 10 mm x 51mm for 7.94 mm.
- Handholes for lighting standards shall be located on the downstream side of the pole unless otherwise noted on the plans.
- Detail F, fatigue resistant weld, is required at signal arm plate and pole base plate.
- Cap screws shall be tightened by the turn-of-nut method 1/3 turn to form a snug tight condition. No washer will be required.
- During pole erection, the post shall be raked as necessary with the use of leveling nuts to provide a plumb pole axis.
- When Project Plans show a lesser number of signs and signals, the Project Plans shall prevail.
- Outside diameter, wall thickness, and corresponding section properties at the base of traffic signal poles and arms as shown in the Standard Plans are minimums. Unless otherwise specified, alternative sections require approval by the Engineer.



DETAIL F

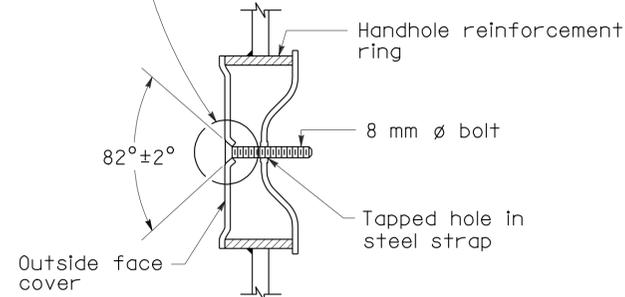
Fatigue resistant weld



ALTERNATIVE DETAIL

Pole or Arm	Weld Size	Wall Thickness
See Detail F	7	3.04
	8	4.55
	10	6.07
	11	7.94
ELEVATION A	4	3.04
	5	4.55
	7	6.07
	8	7.94

ELEVATION A



**TAMPER RESISTANT HANDHOLE COVER**

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**ELECTRICAL SYSTEMS  
(SIGNAL AND LIGHTING STANDARDS  
DETAILS No. 1)**

NO SCALE  
ALL DIMENSIONS ARE IN  
MILLIMETERS UNLESS OTHERWISE SHOWN

RSP ES-7M DATED APRIL 28, 2005 SUPERSEDES RSP ES-7M DATED JANUARY 24, 2005 AND STANDARD PLAN ES-7M DATED JULY 1, 2004-PAGE 463 OF THE STANDARD PLANS BOOK DATED JULY 2004.

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

2004 REVISED STD PLAN RSP ES-7M



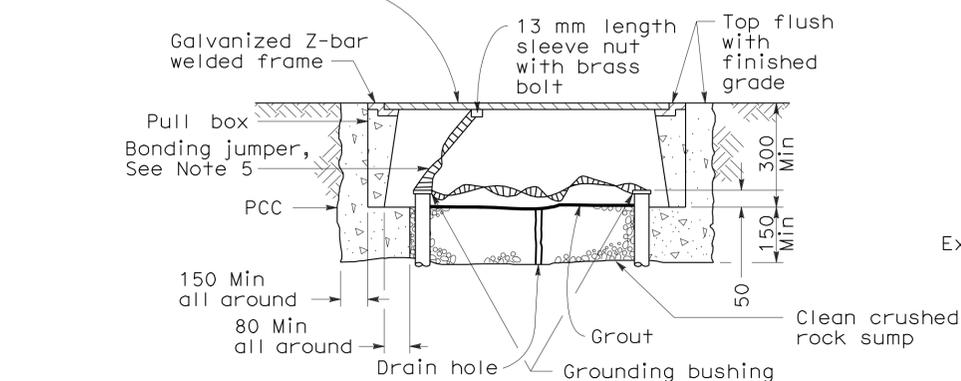
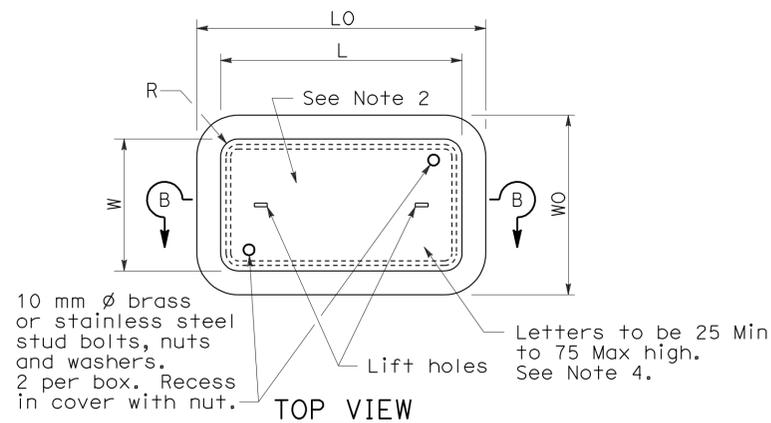
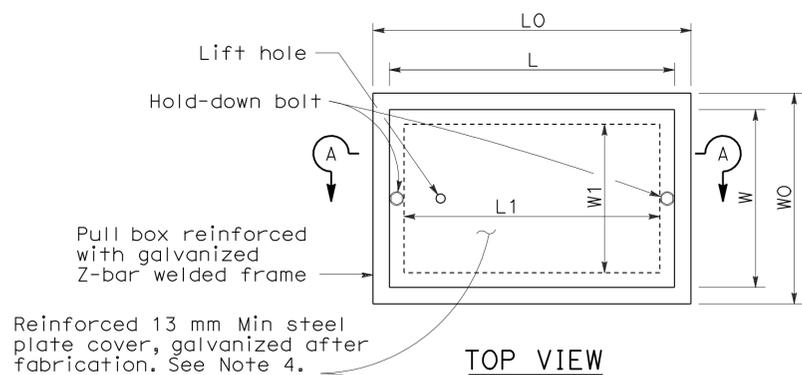
DIST	COUNTY	ROUTE	KILOMETER TOTAL PROJECT	POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
01	Men	101	R69.4/R78.9	618	939	

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

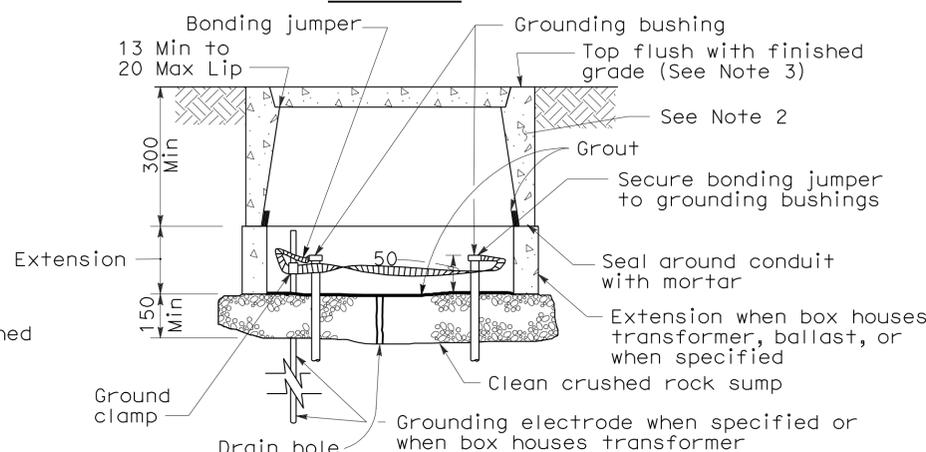
October 5, 2007  
 PLANS APPROVAL DATE

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SECTION A-A  
 No. 3 1/2(T), No. 5(T) AND  
 No. 6(T) TRAFFIC PULL BOX



SECTION B-B  
 INSTALLATION DETAILS

- b) No. 5, 6, 9 or 9A pull box.
- "TRAFFIC SIGNAL" Traffic signal circuits with or without street or sign lighting circuits.
  - "STREET LIGHTING" Street or sign lighting circuits where voltage is under 600 V.
  - "STREET LIGHTING-HIGH VOLTAGE" Street or sign lighting circuits where voltage is above 600 V.
  - "IRRIGATION" Circuits to irrigation controller 120 V or more.
  - "RAMP METER" Ramp meter circuits.
  - "COUNT STATION" Count or speed monitor circuits.
  - "COMMUNICATION" Communication circuits.
  - "TOS COMMUNICATIONS" TOS communications line.
  - "TOS POWER" TOS power.
  - "TDC POWER" Telephone demarcation cabinet power.
  - "CCTV" Closed circuit television circuits.
  - "TMS" Traffic monitoring station circuits.
  - "CMS" Changeable message sign circuits.
  - "HAR" Highway advisory radio circuits.

- Bonding jumper for metal covers shall be 1 m long, minimum.
- The nominal dimensions of the opening in which the cover sets shall be the same as the cover dimensions except the length and width dimensions shall be 3 mm greater.
- Covers and boxes shall be interchangeable with California standard male and female gages. When interchanged with a standard male or female gage, the top surfaces shall be flush within 3 mm. Top outside edge of concrete covers and pull boxes shall have a 6 mm minimum radius.
- Pull box shall not be installed within the boundaries of new or existing curb ramps.
- Pull boxes for electroliers, post and signal standards shall be located  $\pm 1.5$  m from the station of the adjacent electrolier, post or signal standard. Pull boxes shall be placed adjacent to back of curb or edge of shoulder except where this is impractical, a box may be placed in another suitable protected and accessible location.

DIMENSION TABLE

PULL BOX	CONCRETE BOX				NON-PCC BOX		CONCRETE OR NON-PCC COVERS				
	Minimum * Thickness	Minimum Depth Box and Extension	L0 (mm)	W0 (mm)	Minimum ** Thickness	Minimum Depth Box and Extension	L ** (mm)	W ** (mm)	R (mm)	Edge Thickness	Edge Taper
No. 3 1/2	25 mm	No Extension	457	330	8 mm	No Extension	390	260	27	45 mm	3 mm
No. 5	25 mm	560 mm	666	425	8 mm	510 mm	590	350	32	50 mm	3 mm
No. 6	40 mm	610 mm	854	524	10 mm	510 mm	775	444	32	50 mm	3 mm

\* Excluding conduit web \*\* Top dimension

DIMENSION TABLE

PULL BOX	CONCRETE BOX				NON-PCC BOX			CONCRETE OR NON-PCC COVERS					
	Minimum * Thickness	Minimum Depth Box and Extension	L0 (mm)	W0 (mm)	L1 (mm)	W1 (mm)	Minimum ** Thickness	Minimum Depth Box and Extension	L ** (mm)	W ** (mm)	R (mm)	Edge Thickness	Edge Taper
No. 3 1/2(T)	40 mm	305 mm	530 $\pm$	430 $\pm$ 25	370 $\pm$	270 $\pm$ 25	Does Not Apply	Does Not Apply	510 $\pm$	350 $\pm$	0	13 mm	None
No. 5(T)	45 mm	305 mm	750 $\pm$	600 $\pm$ 25	480 $\pm$	330 $\pm$ 25	Does Not Apply	Does Not Apply	690 $\pm$	410 $\pm$	0	13 mm	None
No. 6(T)	50 mm	305 mm	900 $\pm$	760 $\pm$ 25	600 $\pm$	430 $\pm$ 25	Does Not Apply	Does Not Apply	840 $\pm$	510 $\pm$	0	13 mm	None

\* Excluding conduit web \*\* Top dimension

NOTES ON PULL BOXES:

- Traffic pull box shall be provided with steel cover and special concrete footing. Steel cover shall have embossed non-skid pattern.
- Steel reinforcing shall be as regularly used in the standard products of the respective manufacturer.
- Top of pull boxes shall be flush with surrounding grade or top of adjacent curb, except that in unpaved areas where pull box is not immediately adjacent to and protected by a concrete foundation, pole or other protective construction, the box shall be placed with its top 30 mm above surrounding grade. Where practicable, pull boxes shown in the vicinity of curbs shall be placed adjacent to the back of curb, and pull boxes shown adjacent to standards shall be placed on side of foundation facing away from traffic, unless otherwise noted. When pull box is installed in sidewalk area, the depth of the pull box shall be adjusted so that the top of the pull box is flush with the sidewalk.
- Pull box covers shall be marked as follows: "SERVICE" Service circuits between service point and service disconnect; "SPRINKLER-CONTROL" Sprinkler control circuits, 50 V or less; "CALTRANS" On all pull boxes, except pull boxes marked "SPRINKLER-CONTROL"; and "TELEPHONE" Telephone service.
  - No. 3 1/2 pull box.
    - "SIGNAL" Traffic signal circuits with or without street or sign lighting circuits.
    - "ST LIGHTING" Street or sign lighting circuits where voltage is under 600 V.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**ELECTRICAL SYSTEMS  
(PULL BOX DETAILS)**

NO SCALE

ALL DIMENSIONS ARE IN  
MILLIMETERS UNLESS OTHERWISE SHOWN

RSP ES-8 DATED OCTOBER 5, 2007 SUPERSEDES STANDARD PLAN ES-8  
DATED JULY 1, 2004-PAGE 467 OF THE STANDARD PLANS BOOK DATED JULY 2004.

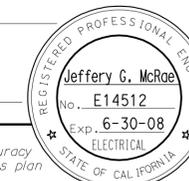
**REVISED STANDARD PLAN RSP ES-8**

2004 REVISED STD PLAN RSP ES-8



DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
01	Men	101	R69.4/R78.9	619	939

Jeffery G. McRae  
REGISTERED ELECTRICAL ENGINEER

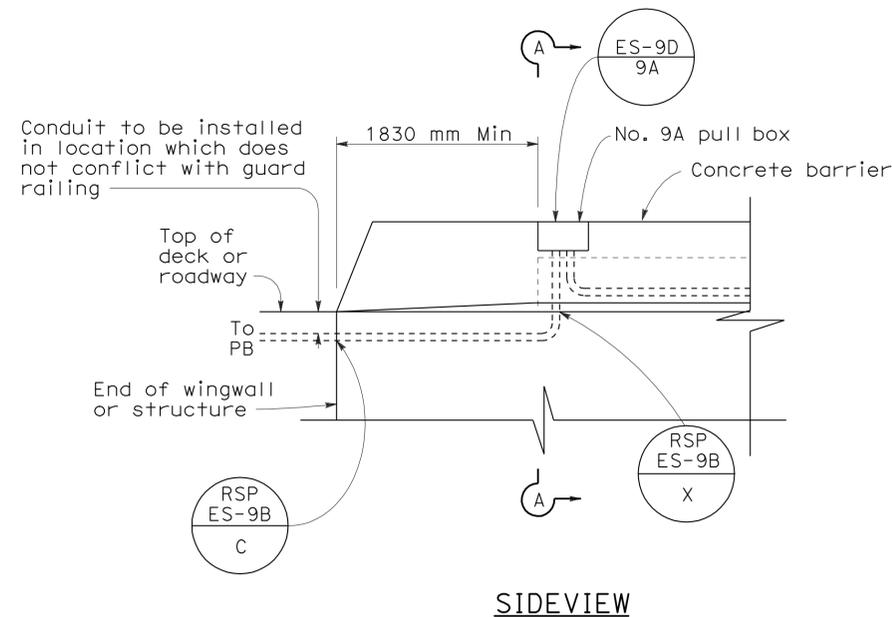


October 5, 2007  
PLANS APPROVAL DATE

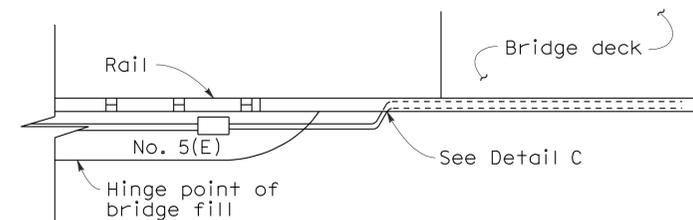
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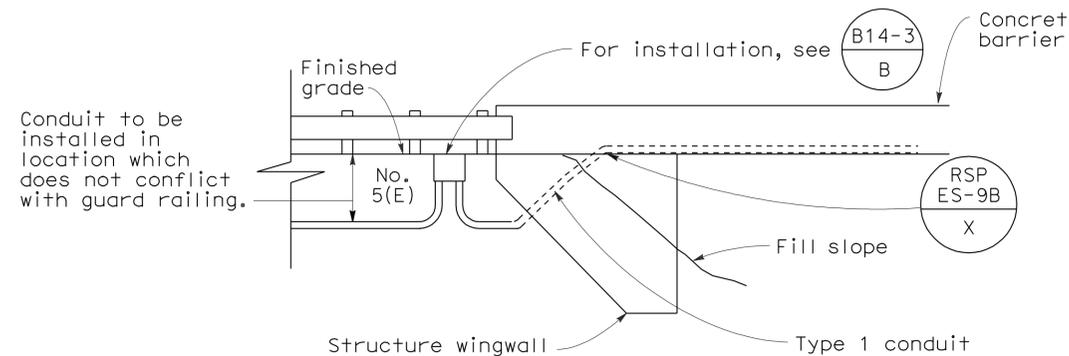
To accompany plans dated 1-23-12



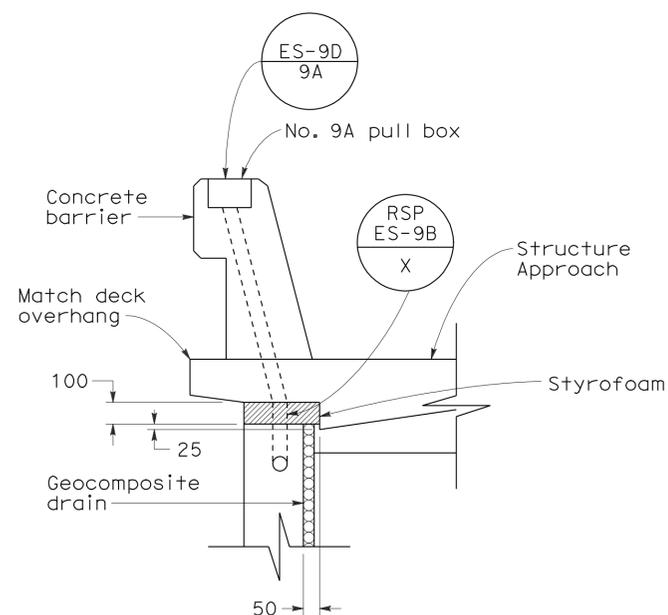
**SIDEVIEW**



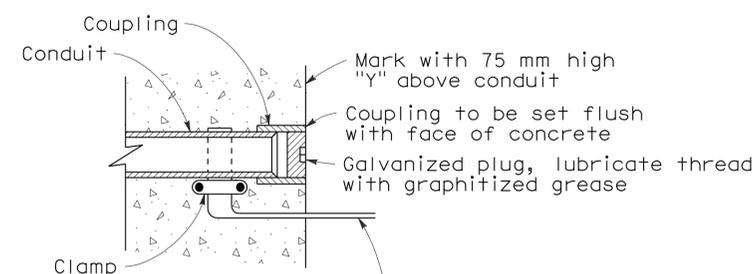
**TOP VIEW**



**SIDE VIEW  
DETAIL I  
CONDUIT TERMINATION**



**SECTION A-A  
DETAIL A  
CONDUIT TERMINATION**



**DETAIL C  
CONDUIT TERMINATION**

Copper bonding strap install only at structure construction joint, extend at least 150 mm from face of concrete

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**ELECTRICAL SYSTEMS  
(ELECTRICAL DETAILS  
STRUCTURE INSTALLATIONS)**

NO SCALE

ALL DIMENSIONS ARE IN  
MILLIMETERS UNLESS OTHERWISE SHOWN

RSP ES-9A DATED OCTOBER 5, 2007 SUPERSEDES STANDARD PLAN ES-9A  
DATED JULY 1, 2004-PAGE 468 OF THE STANDARD PLANS BOOK DATED JULY 2004.

**REVISED STANDARD PLAN RSP ES-9A**

2004 REVISED STD PLAN RSP ES-9A

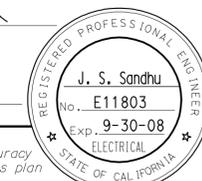


DIST	COUNTY	ROUTE	KILOMETER TOTAL PROJECT	POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
01	Men	101	R69.4/R78.9	620	939	

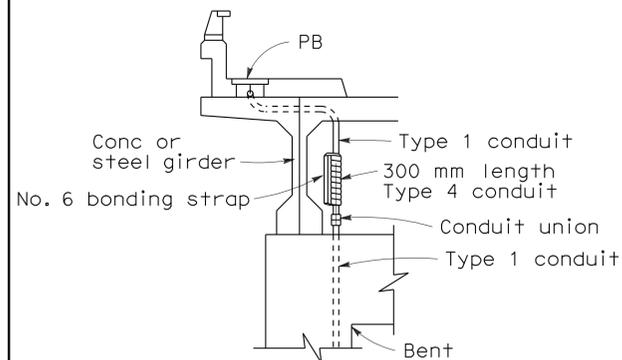
*Aswinder to founder*  
REGISTERED ELECTRICAL ENGINEER

October 5, 2007  
PLANS APPROVAL DATE

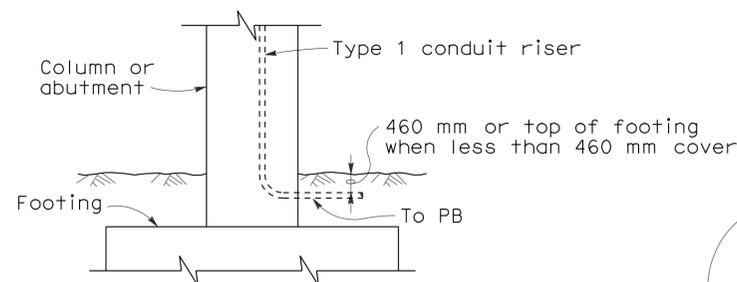
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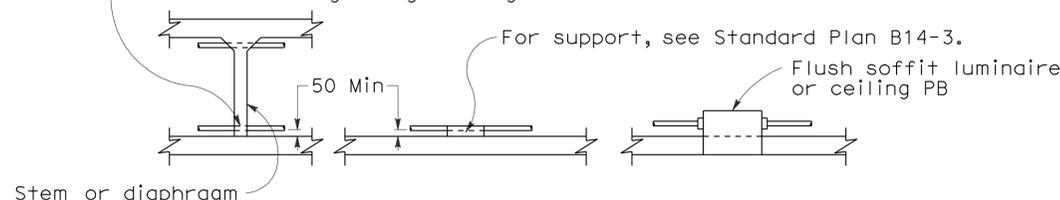


**DETAIL R**  
**CONDUIT RISER CONNECTION**

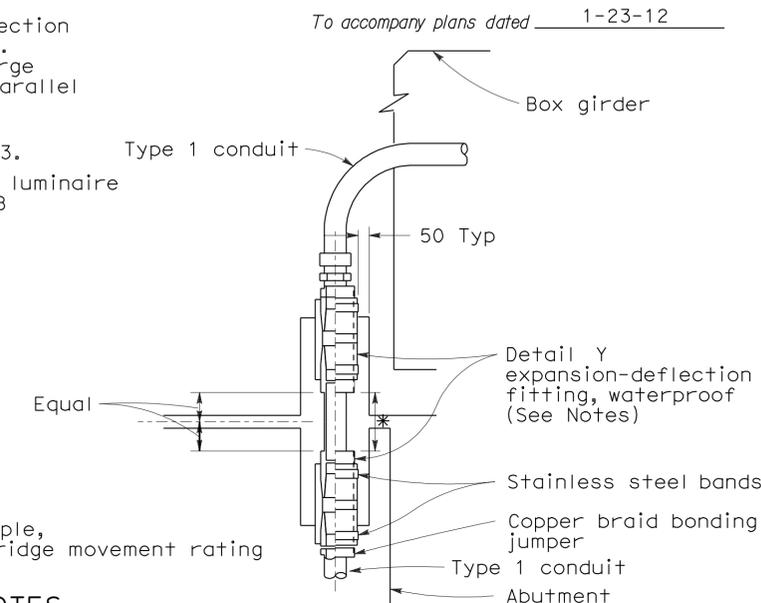


**DETAIL T**  
**LOWER END OF CONDUIT RISER AT COLUMN OR ABUTMENT**

Conduit passing through girder or diaphragm of box girder section shall be either cast into concrete or passed through opening. Opening shall not be drainage opening and shall be only as large as required to install conduit. Conduit shall be run either parallel to or at right angles to girders.



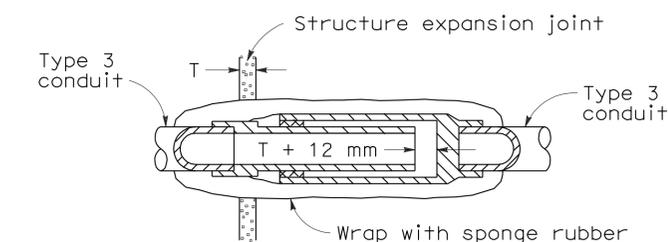
**DETAIL S**  
**CONDUIT INSTALLATION WITHIN BOX GIRDER SECTIONS**



**NOTES**

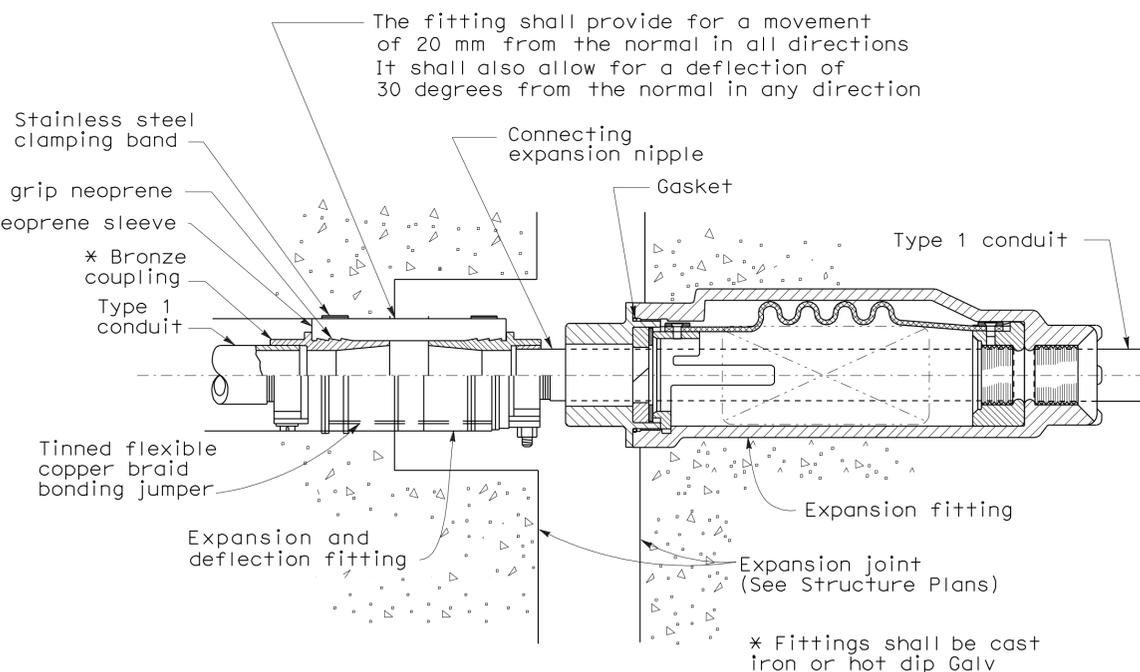
1. Fitting and pocket required only where movement can occur between girder and abutment.
2. Fill pocket around fitting with resilient waterproof compound.

\* Conduit nipple, Length = Bridge movement rating

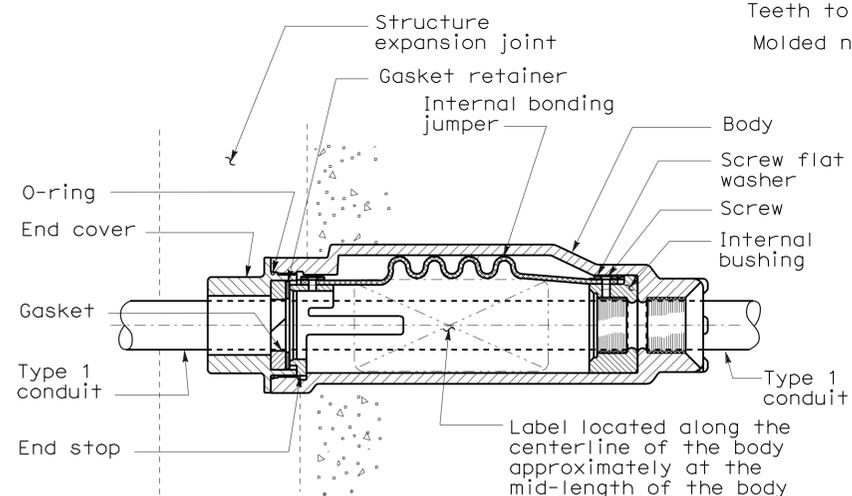


**NON-METALLIC CONDUIT EXPANSION FITTING INSTALLATION DETAIL**

(To be used only when shown or specified on Project Plans)

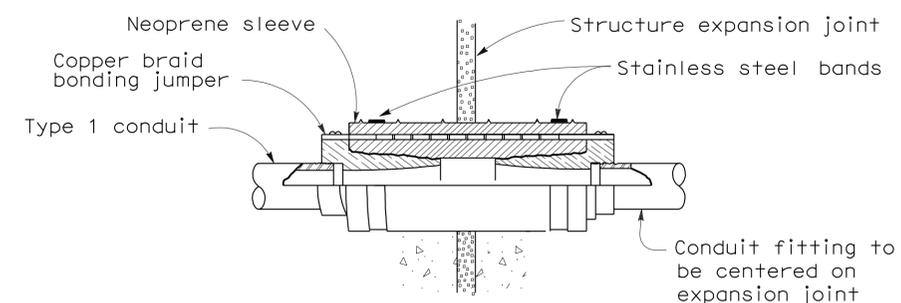


**DETAIL XY**  
**COMBINATION EXPANSION-DEFLECTION FITTINGS METALLIC CONDUIT INSTALLATION**



**DETAIL X**  
**CONDUIT EXPANSION FITTINGS**

**DETAIL U**  
**CONDUIT RISER CONNECTION AT COLUMN, ABUTMENT OR STRUCTURE WING WALL**



**DETAIL Y**  
**CONDUIT EXPANSION-DEFLECTION FITTING**

**NOTES**

1. Except for sidewalk joints, a conduit expansion fitting or expansion-deflection fitting shall be installed at each 13 mm or greater structure joint, hinge or abutment.
2. Fittings or combination of fittings shall be installed to accommodate the movement rating as shown on the structure plans.
3. Fittings shall be installed parallel to superstructure girders.
4. Where lateral movement greater than 6 mm may occur, a neoprene sleeve expansion-deflection fitting shall be installed straddling the joint.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**ELECTRICAL SYSTEMS (ELECTRICAL DETAILS STRUCTURE INSTALLATIONS)**

NO SCALE  
ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN

RSP ES-9B DATED OCTOBER 5, 2007 SUPERSEDES STANDARD PLAN ES-9B DATED JULY 1, 2004-PAGE 469 OF THE STANDARD PLANS BOOK DATED JULY 2004.

**REVISED STANDARD PLAN RSP ES-9B**

2004 REVISED Std PLAN RSP ES-9B

DIST	COUNTY	ROUTE	KILOMETER TOTAL PROJECT	POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
01	Men	101	R69.4/R78.9	621	939	



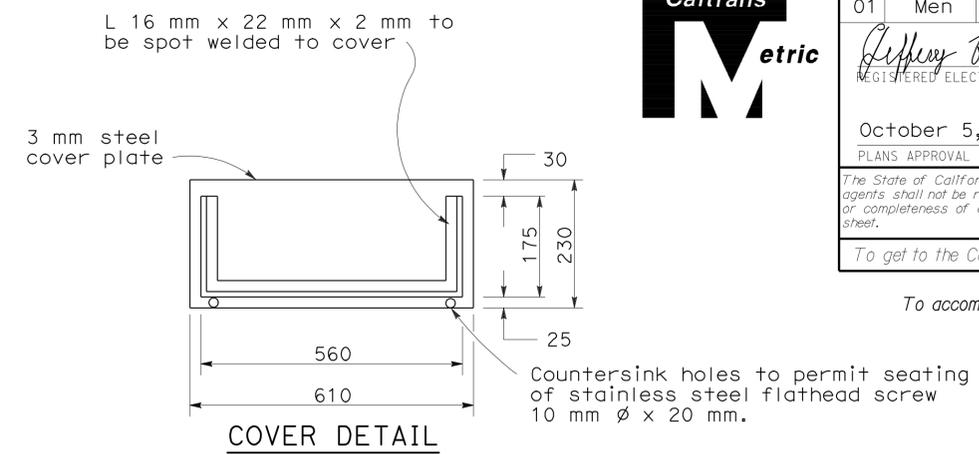
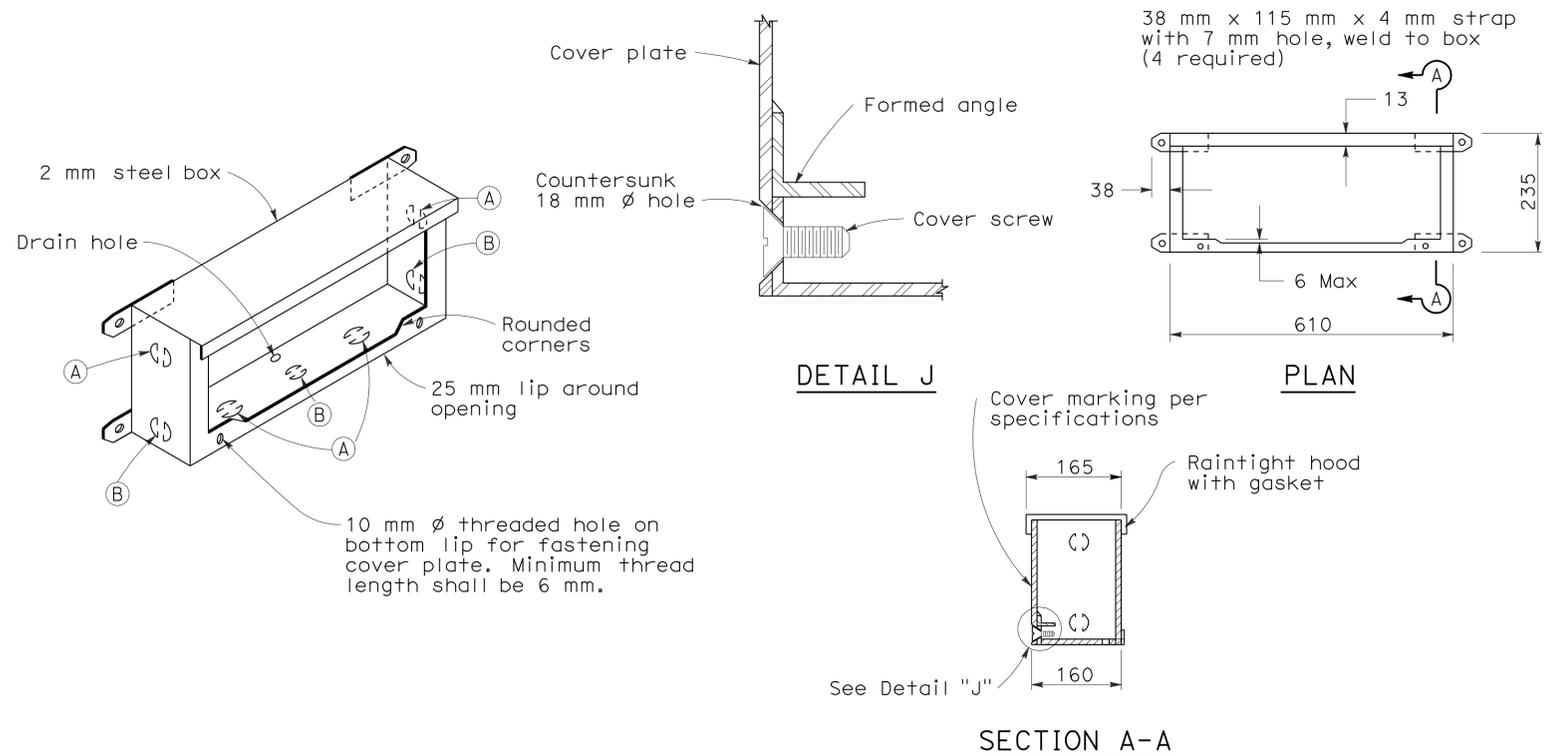
REGISTERED ELECTRICAL ENGINEER  
**Jeffery G. McRae**  
 No. E14512  
 Exp. 6-30-08  
 ELECTRICAL  
 STATE OF CALIFORNIA

October 5, 2007  
 PLANS APPROVAL DATE

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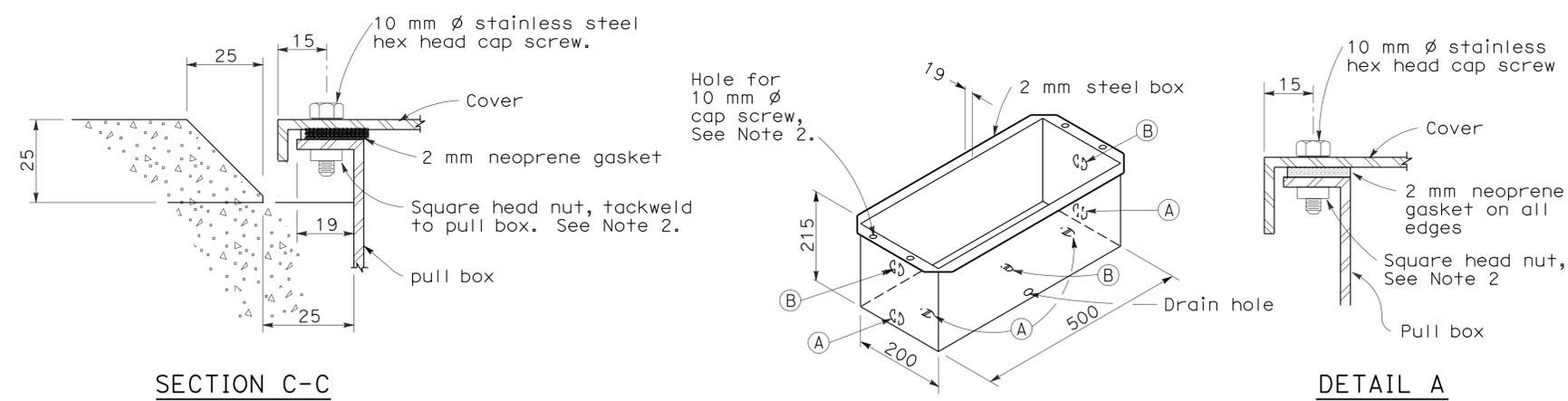
To get to the Caltrans web site, go to: <http://www.dot.ca.gov>

To accompany plans dated 1-23-12



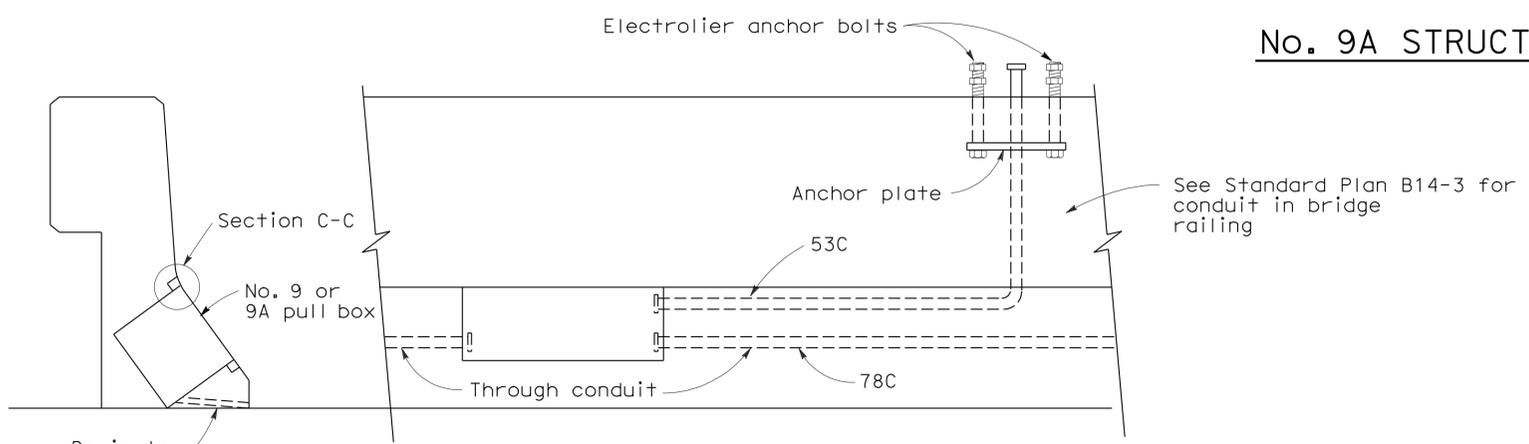
**INSTALLATION NOTE**  
 Box shall be parallel to top of railing. Close cover box during pouring with 6 mm plywood of sufficient size to provide 1:1 chamfer on 3 sides of cover. Upper edge of plywood shall fit against lower edge of raintight hood.

**No. 9 STRUCTURE PULL BOX**



- NOTES:** No. 9 and 9A Pull Box
- Corner joints shall be lapped and secured by spot welding or riveting.
  - Where cap screws are used to attach cover to box, either of the following methods of providing adequate threading may be used:
    - Tack weld square nut to bottom of flange (Total 4), or
    - Tack weld a 6 mm x 16 mm x 200 mm bar beneath flange (Total 2).
  - Pound knockouts flat after punching.
  - Multiple size knockouts shall not be permitted.
  - Pull box covers shall be marked as shown on Revised Standard Plan RSP ES-8.

**No. 9A STRUCTURE PULL BOX**



**INSTALLATION IN SLOPING PARAPETS**

For reinforcement in area of electrolier, see railing sheets. For electrolier anchor bolts, see Standard Plan ES-6B.

- KNOCKOUT SCHEDULE**  
**No. 9 AND 9A PULL BOX**
- (A) 53C, 1 each end, 2 on bottom.
  - (B) 78C, 1 each end, 1 on bottom.

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION

**ELECTRICAL SYSTEMS  
 (ELECTRICAL DETAILS  
 STRUCTURE INSTALLATIONS)**

NO SCALE  
 ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN

RSP ES-9C DATED OCTOBER 5, 2007 SUPERSEDES STANDARD PLAN ES-9C DATED JULY 1, 2004-PAGE 470 OF THE STANDARD PLANS BOOK DATED JULY 2004.

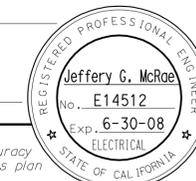
**REVISED STANDARD PLAN RSP ES-9C**

2004 REVISED STD PLAN RSP ES-9C



DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
01	Men	101	R69.4/R78.9	622	939

*Jeffrey B. McRae*  
REGISTERED ELECTRICAL ENGINEER



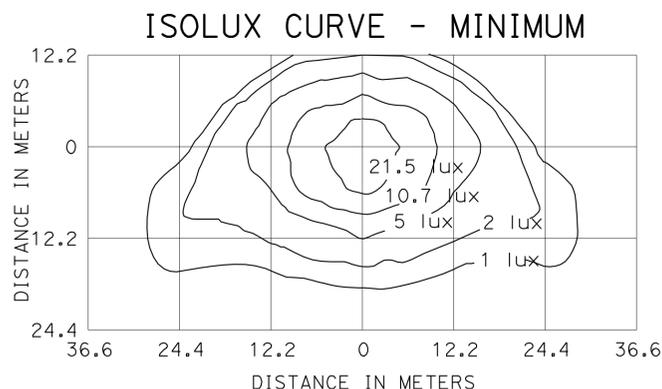
October 5, 2007

PLANS APPROVAL DATE

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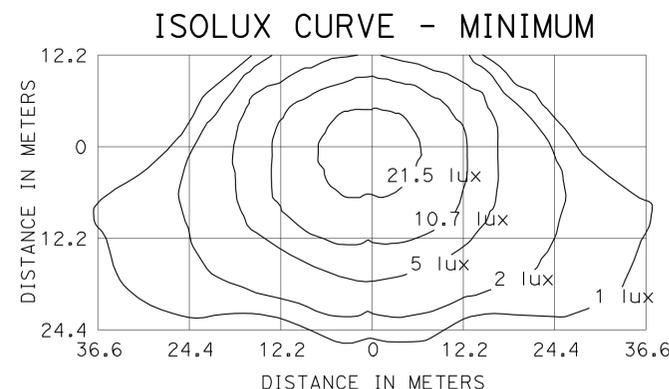
To get to the Caltrans web site, go to: <http://www.dot.ca.gov>

To accompany plans dated 1-23-12



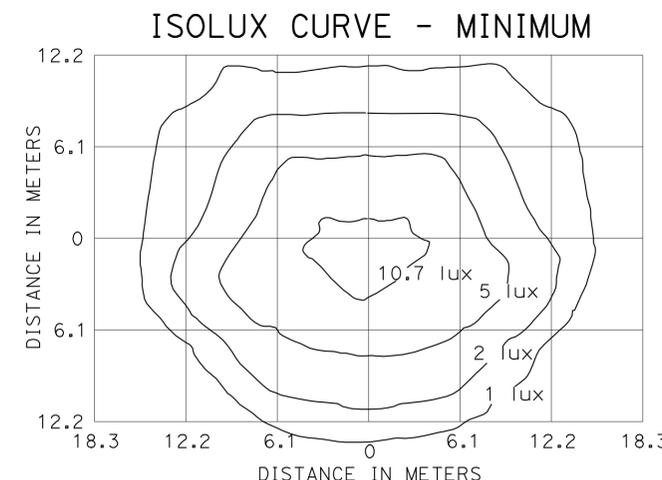
**TYPE III MEDIUM CUTOFF**

Cutoff Luminaire  
10.4 m Mounting Height  
LAMP OPERATED AT 22 000 lm  
200 W HIGH PRESSURE SODIUM LAMP  
ANSI DESIGNATION S66



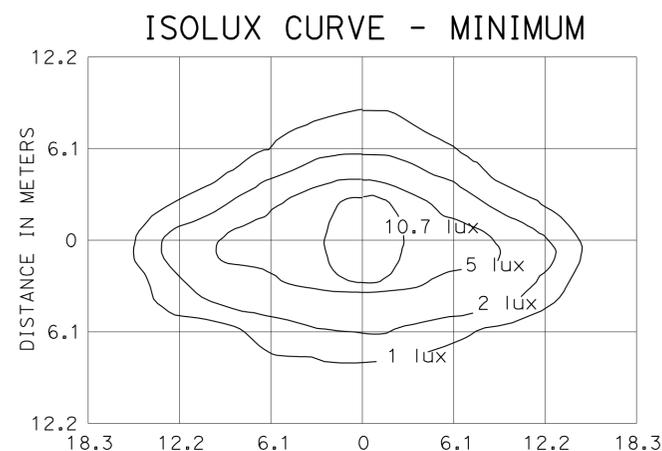
**TYPE III MEDIUM CUTOFF**

Cutoff Luminaire  
12.2 m Mounting Height  
LAMP OPERATED AT 37 000 lm  
310 W HIGH PRESSURE SODIUM LAMP  
ANSI DESIGNATION S67



**FLUSH SOFFIT LUMINAIRE**

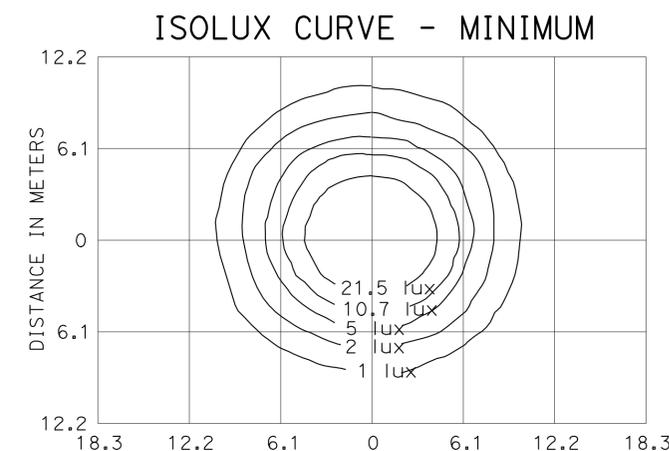
5.2 m Mounting Height  
LAMP OPERATED AT 5800 lm  
70 W HIGH PRESSURE SODIUM LAMP  
ANSI DESIGNATION S62



**PENDANT SOFFIT LUMINAIRE**

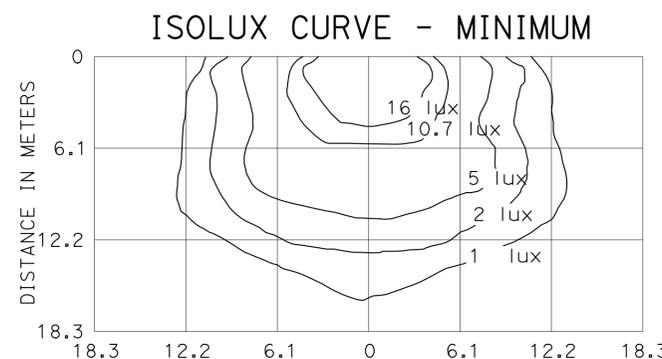
**TYPE III SHORT**

5.2 m Mounting Height  
LAMP OPERATED AT 5800 lm  
70 W HIGH PRESSURE SODIUM LAMP  
ANSI DESIGNATION S62



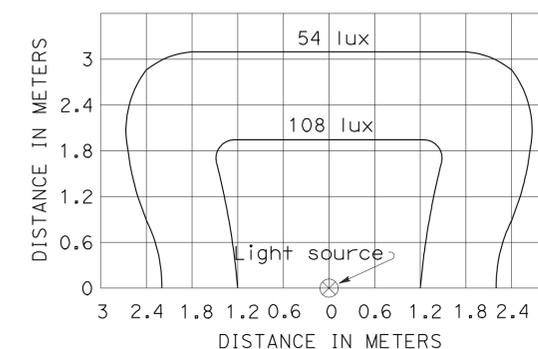
**PENDANT SOFFIT LUMINAIRE**

5.2 m Mounting Height  
LAMP OPERATED AT 5800 lm  
70 W HIGH PRESSURE SODIUM LAMP  
ANSI DESIGNATION S62



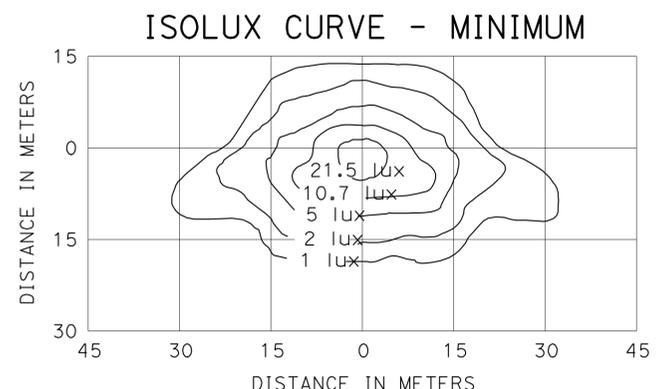
**DETAIL 'W' WALL LUMINAIRE**

4.6 m Mounting Height  
LAMP OPERATED AT 9500 lm  
100 W HIGH PRESSURE SODIUM LAMP  
ANSI DESIGNATION S54



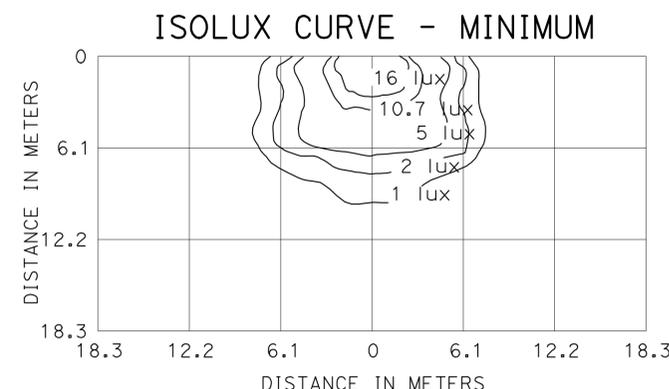
**SIGN LIGHTING FIXTURE ISOLUX DIAGRAM**

1. Curves represent the minimum lux of initial illumination on a 3 m x 6 m panel.
2. The lux shown are with the fixture attached to the light fixture mounting channel which places the center of the source 1420 mm in front of panel and 300 mm below the bottom edge.
3. Applicable lamp: 85-W fluorescent phosphor coated induction lamp.



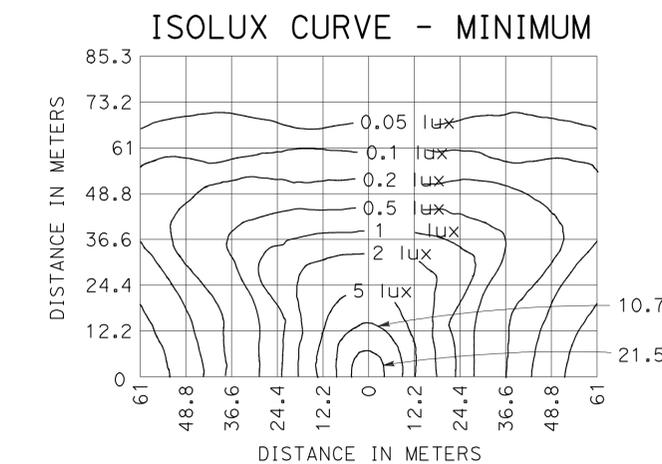
**TYPE III MEDIUM CUTOFF**

Cutoff Luminaire  
9.1 m Mounting Height  
LAMP OPERATED AT 16 000 lm  
150 W HIGH PRESSURE SODIUM LAMP  
ANSI DESIGNATION S55



**WALL LUMINAIRE**

4.6 m Mounting Height  
LAMP OPERATED AT 5800 lm  
70 W HIGH PRESSURE SODIUM LAMP  
ANSI DESIGNATION S62



**LOW PRESSURE SODIUM LUMINAIRE**

12.2 m Mounting Height  
LAMP OPERATED AT 33 000 lm  
180 W LOW PRESSURE SODIUM LAMP

**NOTE**

Isolux diagrams show the minimum horizontal lux required.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**ELECTRICAL SYSTEMS  
(ISOLUX DIAGRAMS)**

NO SCALE

ALL DIMENSIONS ARE IN  
MILLIMETERS UNLESS OTHERWISE SHOWN

RSP ES-10 DATED OCTOBER 5, 2007 SUPERSEDES STANDARD PLAN ES-10  
DATED JULY 1, 2004-PAGE 474 OF THE STANDARD PLANS BOOK DATED JULY 2004.

**REVISED STANDARD PLAN RSP ES-10**

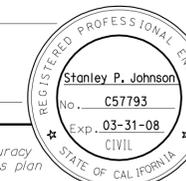
2004 REVISED STD PLAN RSP ES-10



DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
01	Men	101	R69.4/R78.9	623	939

*Stanley P. Johnson*  
REGISTERED CIVIL ENGINEER

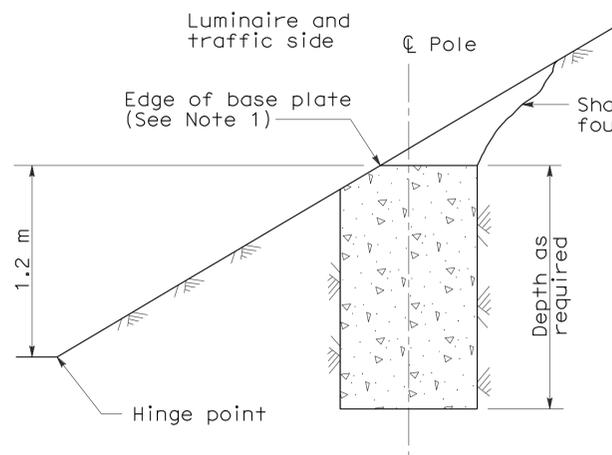
October 5, 2007  
PLANS APPROVAL DATE



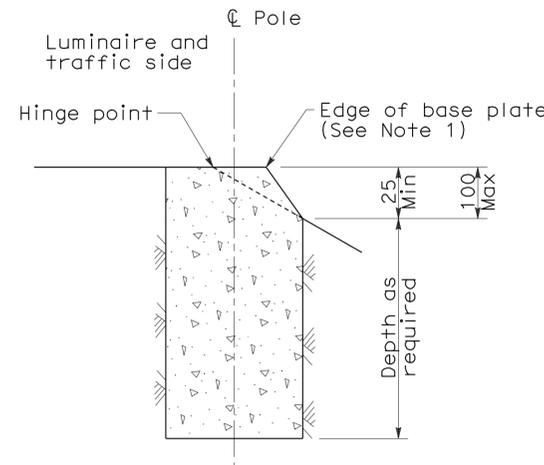
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To get to the Caltrans web site, go to: <http://www.dot.ca.gov>

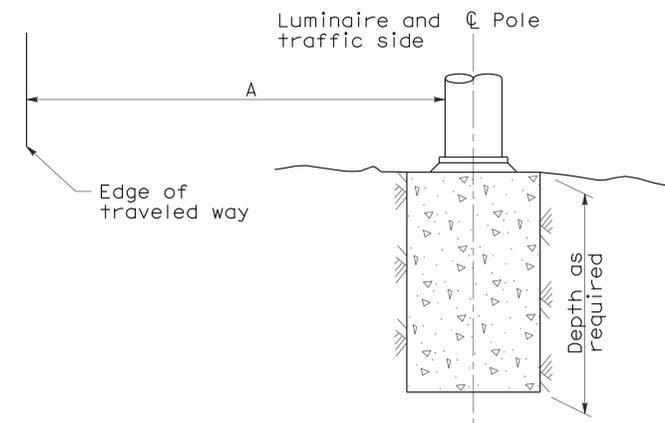
To accompany plans dated 1-23-12



**CUT SLOPES  
STEEPER THAN 1:4**  
See Note 2



**FILL SLOPES  
STEEPER THAN 1:4**  
See Note 2



**FLAT SECTIONS, CUT OR FILL SLOPES  
1:4 OR FLATTER**

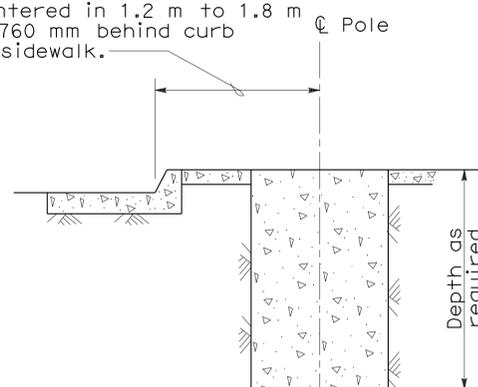
STANDARD TYPE	SETBACK (DIMENSION A)
32	9 m Min
31, 36-20A	6 m Min
15, 15D, 15-SB, 21, 21D, 30	Mast Arm Length (Min)

**FOUNDATIONS ADJACENT TO ALL ROADWAYS EXCEPT  
IN SIDEWALK, MEDIAN AND ISLAND AREAS**

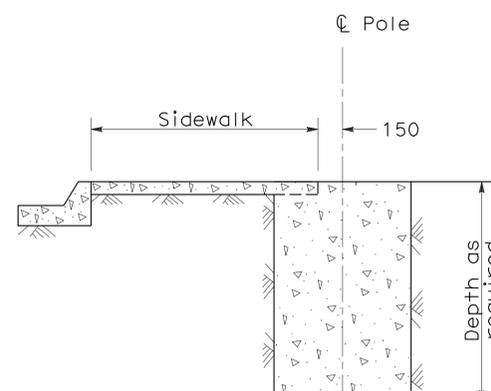
**NOTES:**

- Where a portion of the foundation is above grade, the top edges shall have a 25 mm chamfer.
- Horizontal setbacks on cut and fill slopes steeper than 1:4 shall not exceed the distance shown for flat sections.

1 m behind median or island curb except centered in 1.2 m to 1.8 m medians. 760 mm behind curb with wide sidewalk.



**MEDIAN, ISLAND  
OR WIDE SIDEWALK**  
(2 m wide and wider)



**NARROW SIDEWALK**  
(Less than 2 m wide)

**FOUNDATIONS IN SIDEWALK, MEDIAN AND ISLAND AREAS**

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**ELECTRICAL SYSTEMS  
(FOUNDATION INSTALLATIONS)**

NO SCALE  
ALL DIMENSIONS ARE IN  
MILLIMETERS UNLESS OTHERWISE SHOWN

RSP ES-11 DATED OCTOBER 5, 2007 SUPERSEDES STANDARD PLAN ES-11  
DATED JULY 1, 2004-PAGE 475 OF THE STANDARD PLANS BOOK DATED JULY 2004.

**REVISED STANDARD PLAN RSP ES-11**

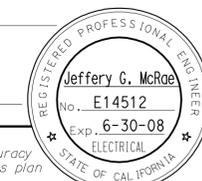
2004 REVISED Std PLAN RSP ES-11



DIST	COUNTY	ROUTE	KILOMETER TOTAL PROJECT	POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
01	Men	101	R69.4/R78.9		624	939

*Jeffery G. McRae*  
REGISTERED ELECTRICAL ENGINEER

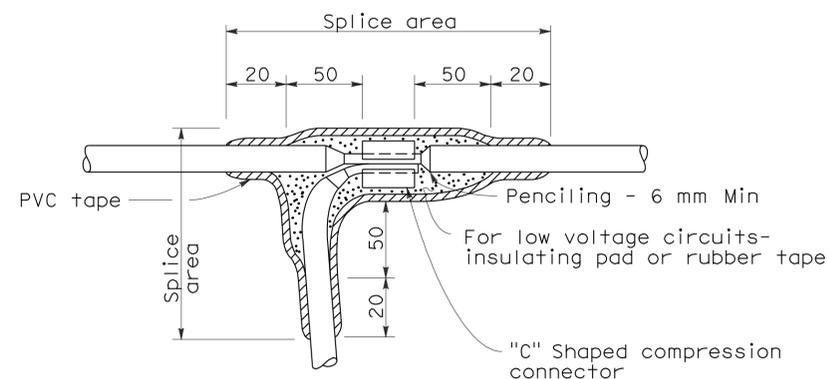
October 5, 2007  
PLANS APPROVAL DATE



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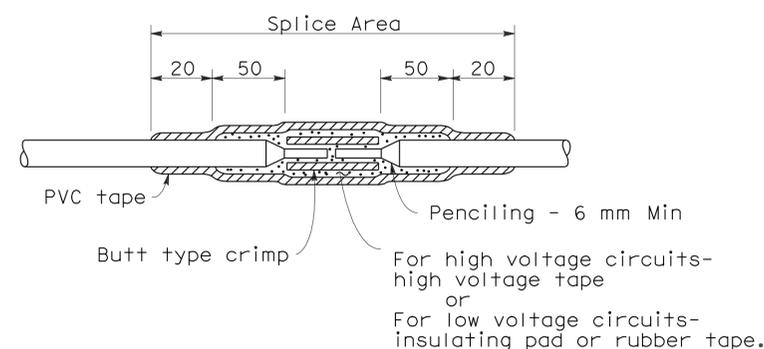
To get to the Caltrans web site, go to: <http://www.dot.ca.gov>

To accompany plans dated 1-23-12



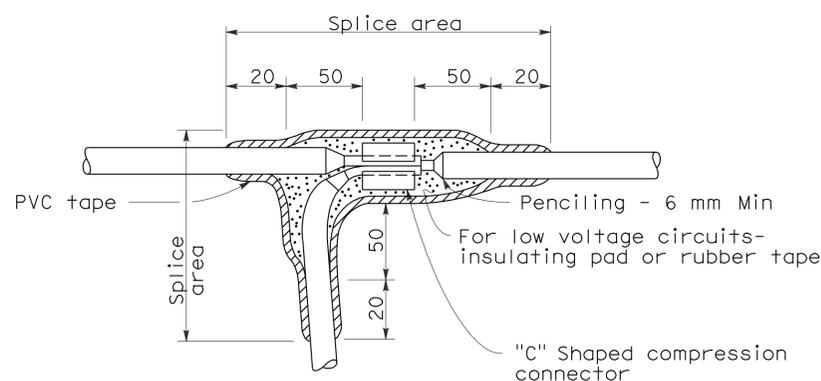
**TYPE "C" SPLICE**

Between 1 free-end and 1 through conductor



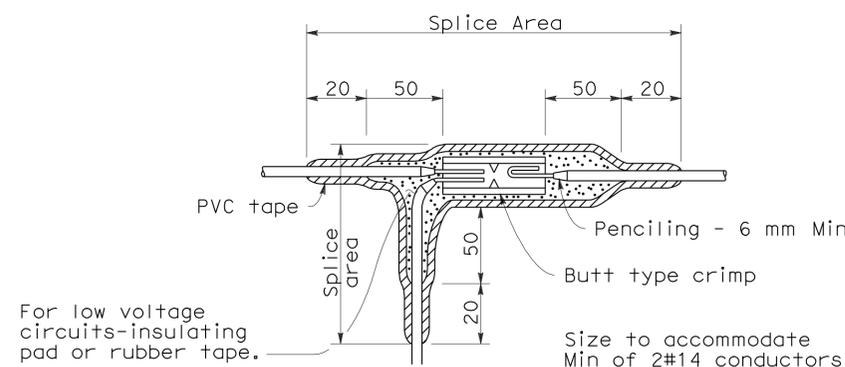
**TYPE "S" SPLICE**

Between 2 free-ends



**TYPE "T" SPLICE**

For 3 free-ends



**TYPE "ST" SPLICE**

**NOTES:**

1. Dimensions are minimum.
2. Rubber tapes shall be rolled after application.

**INSULATION METHODS**

**Low Voltage Circuits (0-600 V)**

**METHOD "B"**

1. Completely cover the splice area with electrical insulating coating and allow to dry.
2. Apply 2 layers of electrical insulating pad with minimum thickness of 4 mm each layer or 2 layers, half lapped, synthetic oil resistant, self fusing rubber tape.
3. Apply 3 layers half lapped polyvinyl chloride tape.
4. Cover entire splice with electrical insulating coating and allow to dry.

**High Voltage Circuits (Over 600 V)**

1. Completely cover the splice area with electrical insulating coating and allow to dry.
2. Apply high voltage tape to a minimum thickness equal to original insulation.
3. Apply 3 layers half lapped polyvinyl chloride tape.
4. Cover entire splice with electrical insulating coating and allow to dry.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**ELECTRICAL SYSTEMS  
(SPLICING DETAILS)**

NO SCALE

ALL DIMENSIONS ARE IN  
MILLIMETERS UNLESS OTHERWISE SHOWN

RSP ES-13A DATED OCTOBER 5, 2007 SUPERSEDES STANDARD PLAN ES-13A  
DATED JULY 1, 2004-PAGE 478 OF THE STANDARD PLANS BOOK DATED JULY 2004.

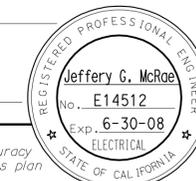
**REVISED STANDARD PLAN RSP ES-13A**

2004 REVISED STD PLAN RSP ES-13A



DIST	COUNTY	ROUTE	KILOMETER TOTAL PROJECT	POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
01	Men	101	R69.4/R78.9	625	939	

Jeffrey G. McRae  
REGISTERED ELECTRICAL ENGINEER

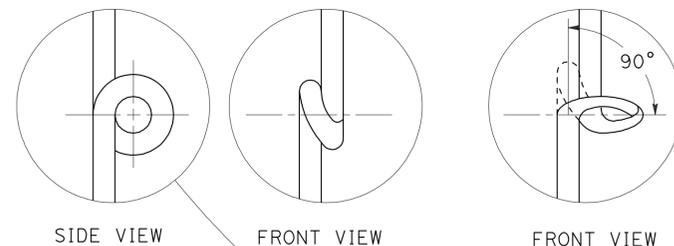


October 5, 2007  
PLANS APPROVAL DATE

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To get to the Caltrans web site, go to: <http://www.dot.ca.gov>

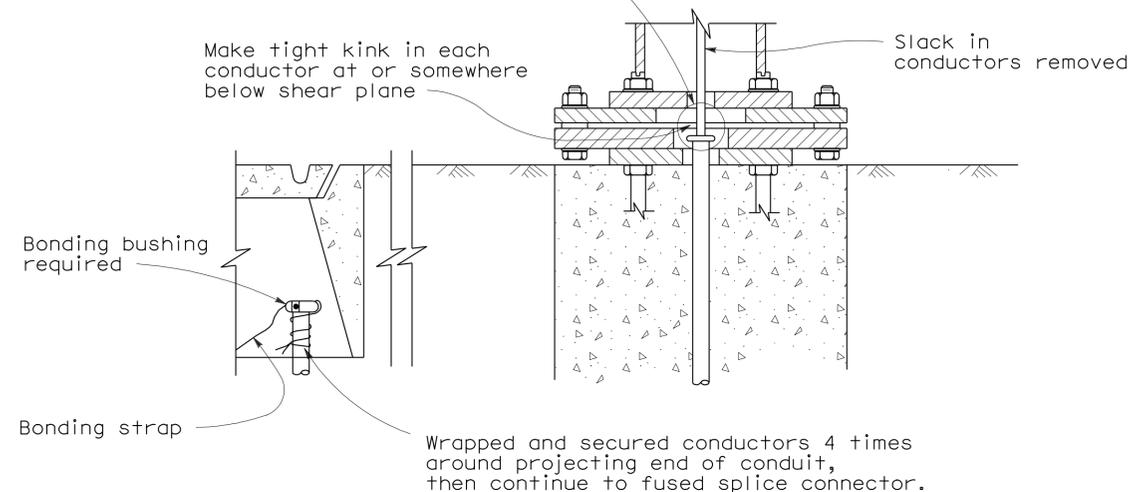
To accompany plans dated 1-23-12



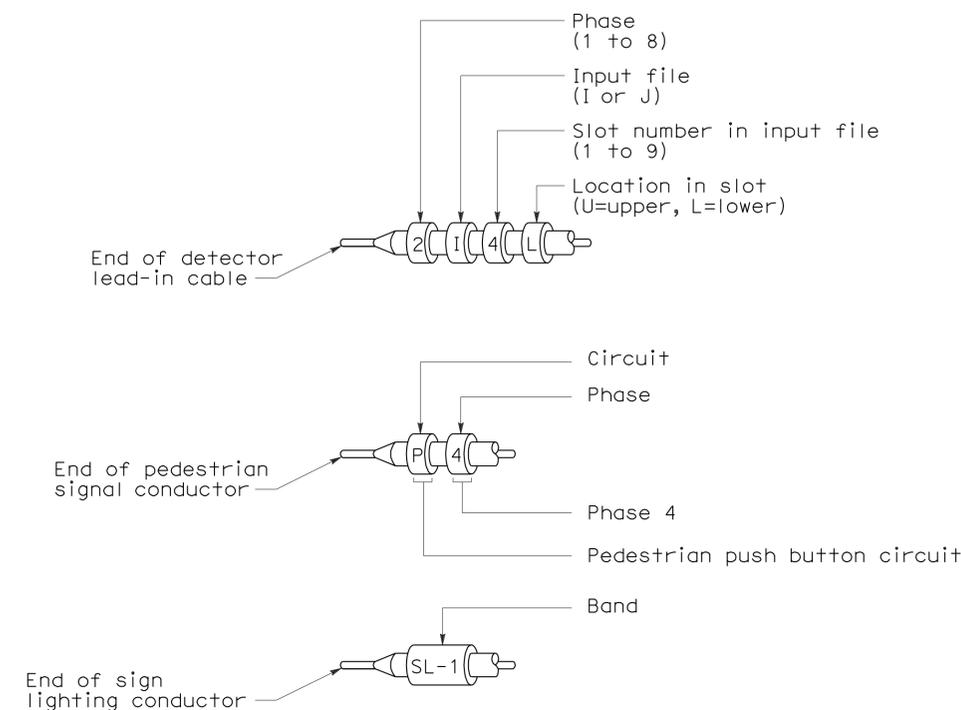
Continue kink to at least 90° position as indicated in step 2.

STEP 1

STEP 2



**KINKING DETAIL FOR SLIP BASE STANDARDS**



**TYPICAL BANDING OF CONDUCTOR ENDS**

Primary lines of multiple ballasts shall be provided with fused connectors. Fuse ratings shall be as noted below.

CIRCUIT VOLTAGE	FUSE VOLTAGE RATING	FUSE CURRENT RATING																
		HPS LAMP BALLAST								LOW PRESSURE SODIUM BALLAST					INDUCTION SIGN LIGHTING	SINGLE PHASE (TWO WIRE) TRANSFORMERS (PRIMARY SIDE)		
		70 W	100 W	150 W	200 W	250 W	310 W	400 W	1000 W	35 W	55 W	90 W	135 W	180 W	85 W	1 kVA	2 kVA	3 kVA
120 V	250 V	5	5	5	5	5	5	5	-	5	5	5	5	5	5	10	20	30
240 V	250 V	5	5	5	5	5	5	5	5	3	3	3	5	5	5	6	10	20
480 V	500-600 V	5	5	5	5	5	5	5	5	2	2	2	3	3	1*	3	6	10

\* See Revised Standard Plan RSP ES-15D, Type SC3 Control.

**FUSE RATINGS FOR FUSED CONNECTORS  
LUMINAIRE BALLAST FUSING**

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**ELECTRICAL SYSTEMS  
(WIRING DETAILS AND  
FUSE RATINGS)**

NO SCALE  
ALL DIMENSIONS ARE IN  
MILLIMETERS UNLESS OTHERWISE SHOWN

RSP ES-13B DATED OCTOBER 5, 2007 SUPERSEDES STANDARD PLAN ES-13B DATED JULY 1, 2004-PAGE 479 OF THE STANDARD PLANS BOOK DATED JULY 2004.

**REVISED STANDARD PLAN RSP ES-13B**

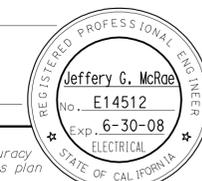
2004 REVISED STD PLAN RSP ES-13B



DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
01	Men	101	R69.4/R78.9	626	939

*Jeffery G. McRae*  
REGISTERED ELECTRICAL ENGINEER

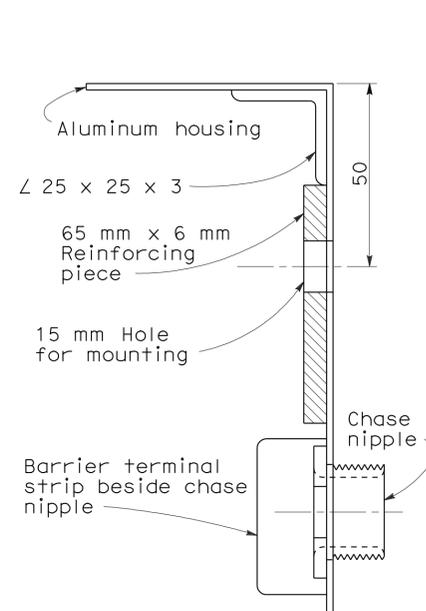
October 5, 2007  
PLANS APPROVAL DATE



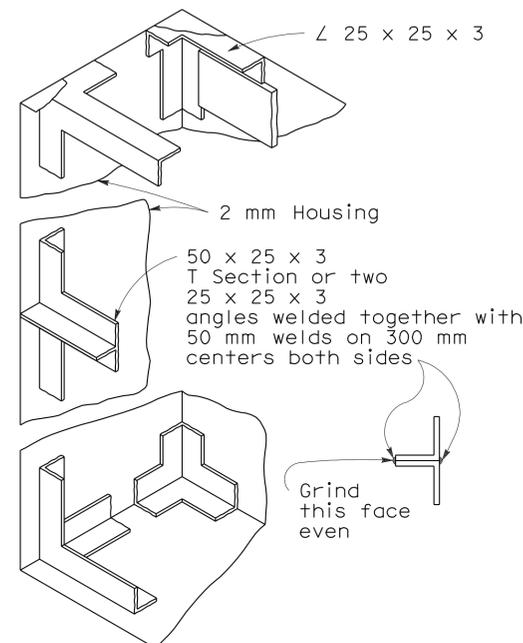
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To get to the Caltrans web site, go to: <http://www.dot.ca.gov>

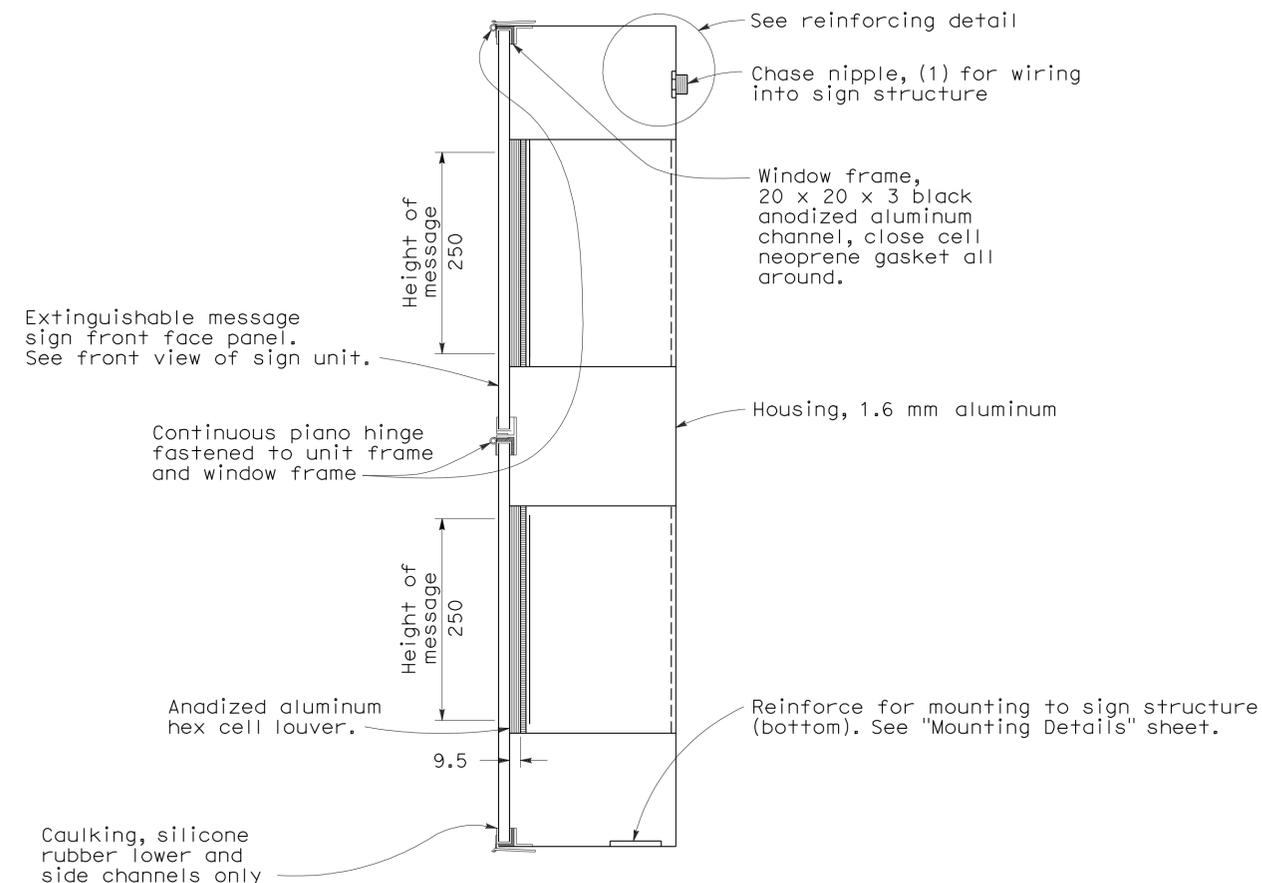
To accompany plans dated 1-23-12



**REINFORCING DETAIL**

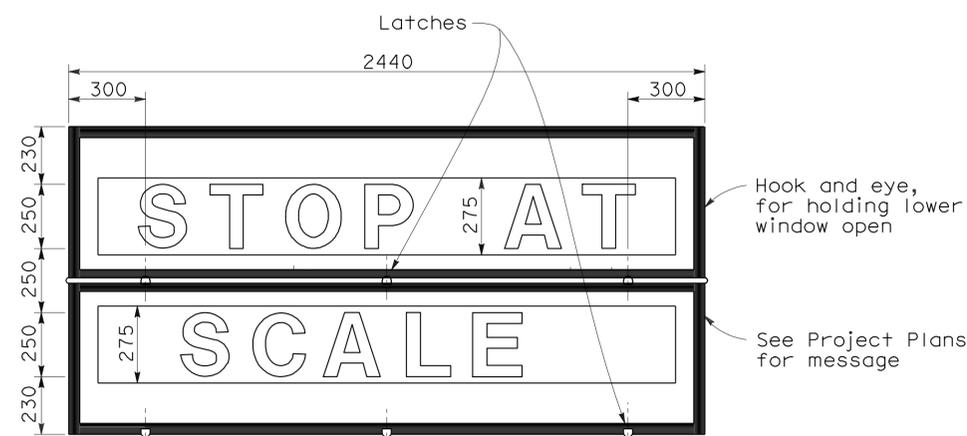


**FRAMING DETAILS**



**CROSS-SECTION OF SIGN**

Note: See Wiring Notes and Symbols on Revised Standard Plan RSP ES-14B.



**FRONT VIEW OF SIGN UNIT**

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**ELECTRICAL SYSTEMS  
(LED EXTINGUISHABLE MESSAGE SIGN  
250 mm LETTERS)**

NO SCALE

ALL DIMENSIONS ARE IN  
MILLIMETERS UNLESS OTHERWISE SHOWN

RSP ES-14A DATED OCTOBER 5, 2007 SUPERSEDES STANDARD PLAN ES-14A  
DATED JULY 1, 2004-PAGE 480 OF THE STANDARD PLANS BOOK DATED JULY 2004.

**REVISED STANDARD PLAN RSP ES-14A**

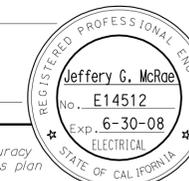
2004 REVISED STD PLAN RSP ES-14A



DIST	COUNTY	ROUTE	KILOMETER TOTAL PROJECT	POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
01	Men	101	R69.4/R78.9		627	939

*Jeffery G. McRae*  
REGISTERED ELECTRICAL ENGINEER

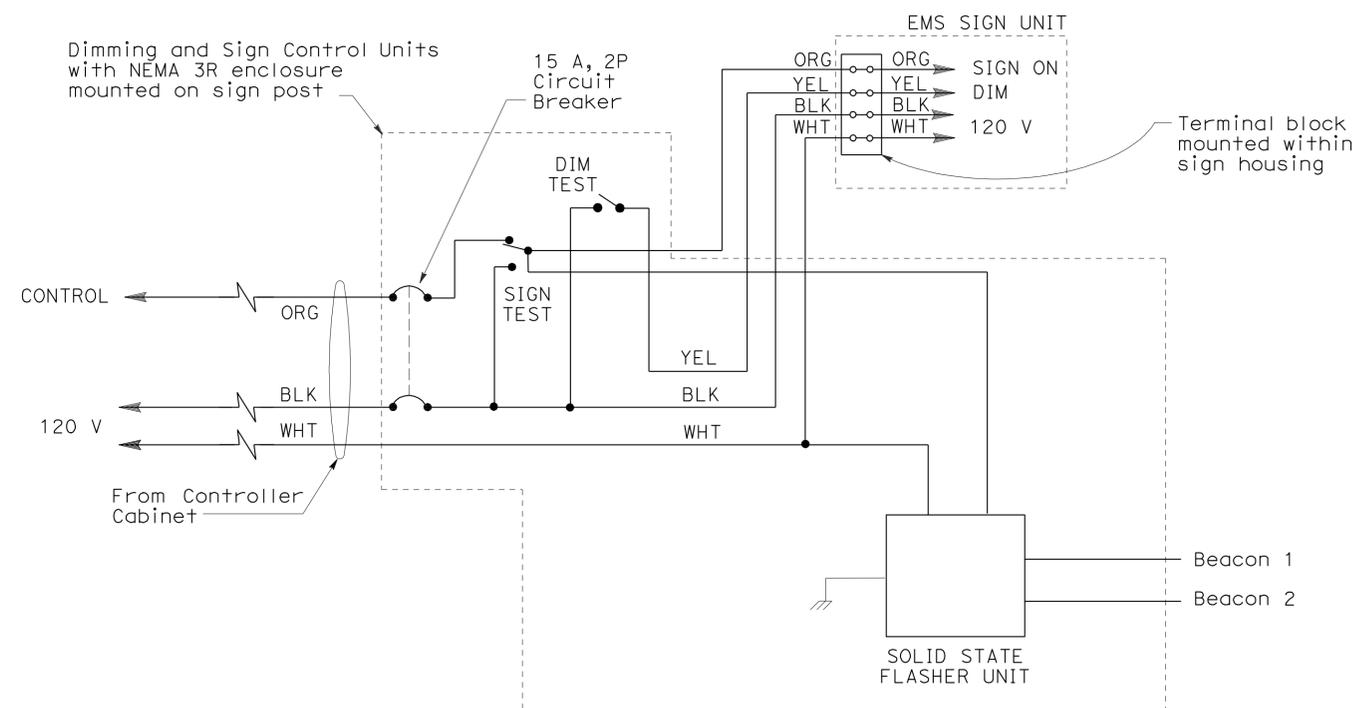
October 5, 2007  
PLANS APPROVAL DATE



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To get to the Caltrans web site, go to: <http://www.dot.ca.gov>

To accompany plans dated 1-23-12



STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**ELECTRICAL SYSTEMS  
(LED EXTINGUISHABLE MESSAGE SIGN  
WIRING DIAGRAM)**

NO SCALE

ALL DIMENSIONS ARE IN  
MILLIMETERS UNLESS OTHERWISE SHOWN

RSP ES-14B DATED OCTOBER 5, 2007 SUPERSEDES STANDARD PLAN ES-14B  
DATED JULY 1, 2004-PAGE 481 OF THE STANDARD PLANS BOOK DATED JULY 2004.

**REVISED STANDARD PLAN RSP ES-14B**

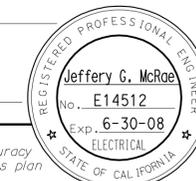
2004 REVISED STD PLAN RSP ES-14B





DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
01	Men	101	R69.4/R78.9	629	939

*Jeffrey G. McRae*  
REGISTERED ELECTRICAL ENGINEER

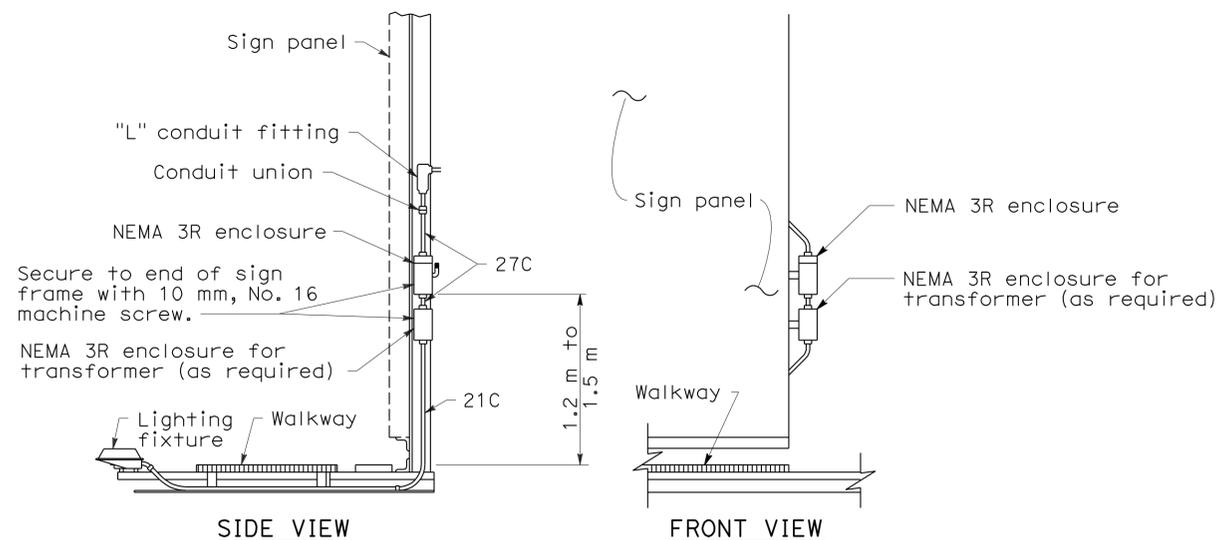


October 5, 2007  
PLANS APPROVAL DATE

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

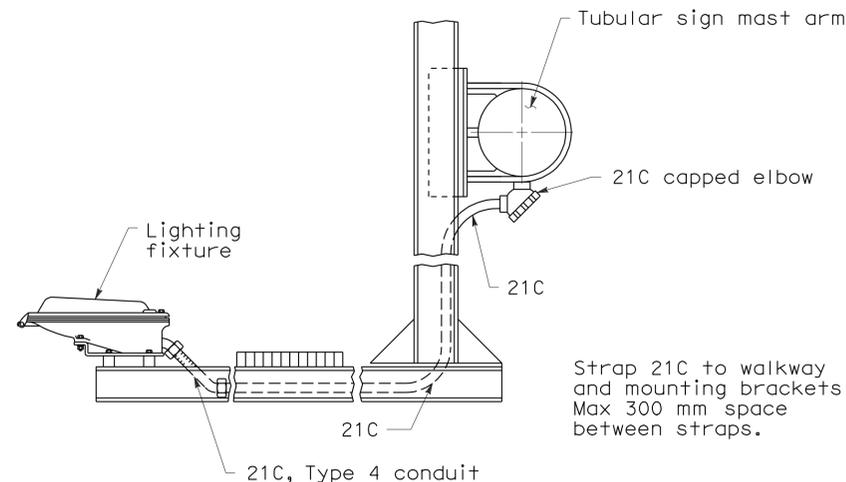
To get to the Caltrans web site, go to: <http://www.dot.ca.gov>

To accompany plans dated 1-23-12

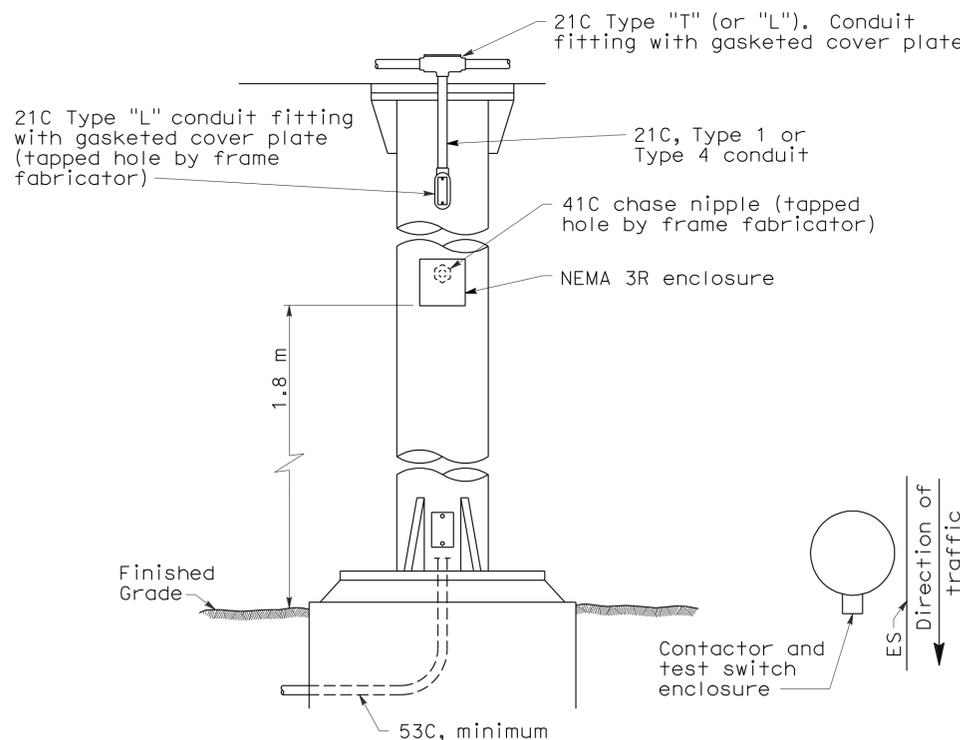


**TYPICAL SIGN ILLUMINATION EQUIPMENT  
INSTALLATION FOR OVERHEAD SIGNS  
BRIDGE MOUNTED**

Contactors and test switch enclosure shall be readily accessible from the sign walkway.



**TYPICAL SIGN ILLUMINATION EQUIPMENT  
INSTALLATION FOR OVERHEAD SIGNS  
TUBULAR**



**TYPICAL SIGN ILLUMINATION EQUIPMENT  
INSTALLATION FOR OVERHEAD SIGNS  
ROUND POST**

**NOTES:**

1. Type 4 conduit shall be secured to the nearest walkway bracket using one-hole galvanized malleable iron or steel straps and brass machine screws tapped into the bracket.
2. See Overhead Signs Standard Plans for overhead signs and frame jecture details for photoelectric unit installation.
3. Enclosures and straps shall be secured by 6 mm maximum size screws.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**ELECTRICAL SYSTEMS  
(SIGN ILLUMINATION EQUIPMENT)**

NO SCALE  
ALL DIMENSIONS ARE IN  
MILLIMETERS UNLESS OTHERWISE SHOWN

RSP ES-15C DATED OCTOBER 5, 2007 SUPERSEDES STANDARD PLAN ES-15C  
DATED JULY 1, 2004-PAGE 485 OF THE STANDARD PLANS BOOK DATED JULY 2004.

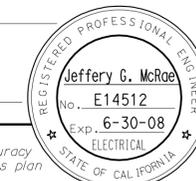
**REVISED STANDARD PLAN RSP ES-15C**

2004 REVISED STD PLAN RSP ES-15C



DIST	COUNTY	ROUTE	KILOMETER TOTAL PROJECT	POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
01	Men	101	R69.4/R78.9	630	939	

*Jeffrey G. McRae*  
REGISTERED ELECTRICAL ENGINEER



October 5, 2007  
PLANS APPROVAL DATE

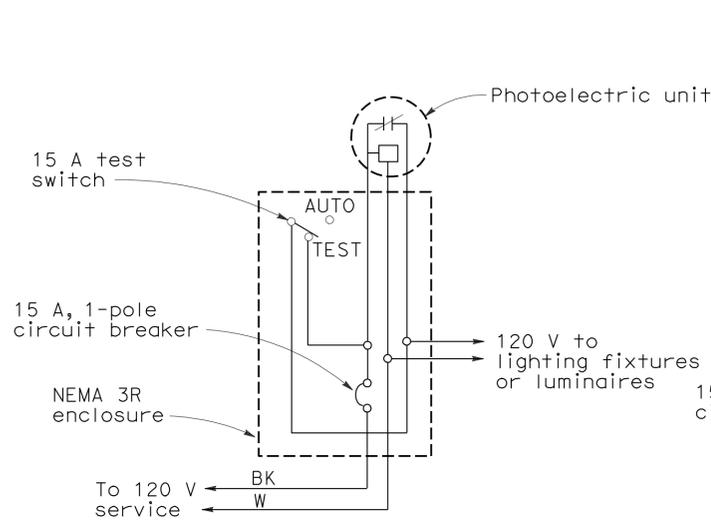
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To get to the Caltrans web site, go to: <http://www.dot.ca.gov>

To accompany plans dated 1-23-12

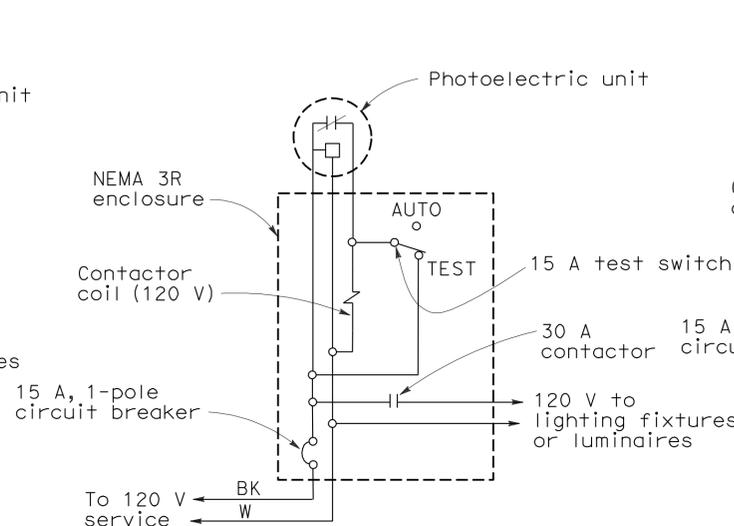
**NOTES: (FOR LIGHTING AND SIGN ILLUMINATION CONTROL)**

1. The ballast voltages of lighting fixtures and luminaires shall match line service voltages.
2. Voltage rating of photoelectric controls shall conform to the service voltage indicated on the plans.
3. Terminal strip shall be provided for wiring to fixtures.
4. Type SC1A, SC2A, SC3A controls are similar to Types SC1, SC2, SC3 controls respectively except test switch and wiring are not required.



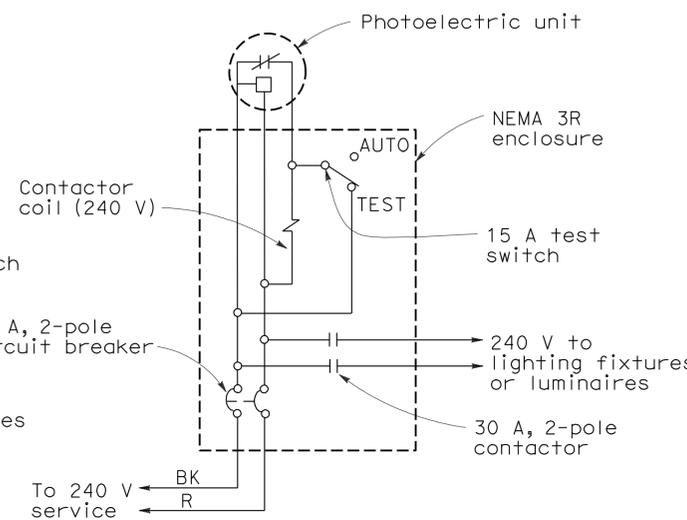
**TYPE LC1 CONTROL**

For 120 V unswitched circuit with no more than 800 W load.



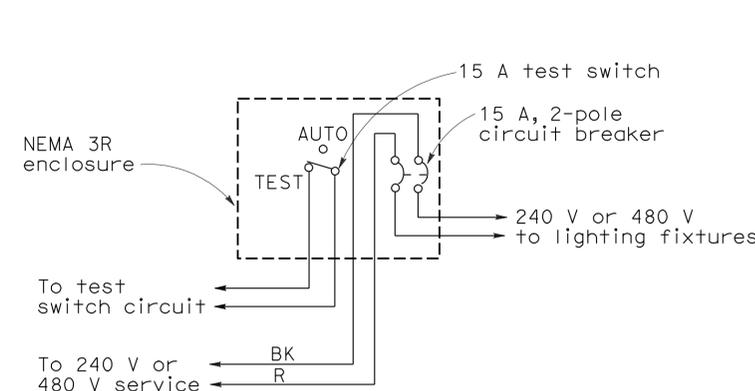
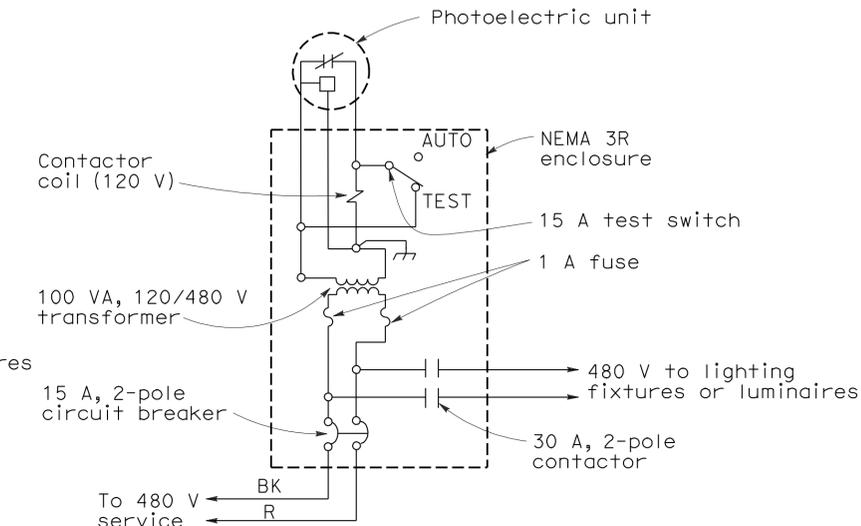
**TYPE LC2 CONTROL**

For 120 V unswitched circuit



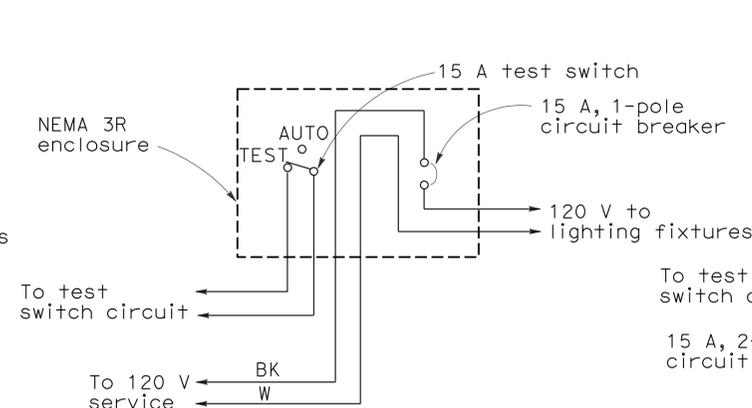
**TYPE LC3 CONTROL**

For 240 V and 480 V unswitched circuit



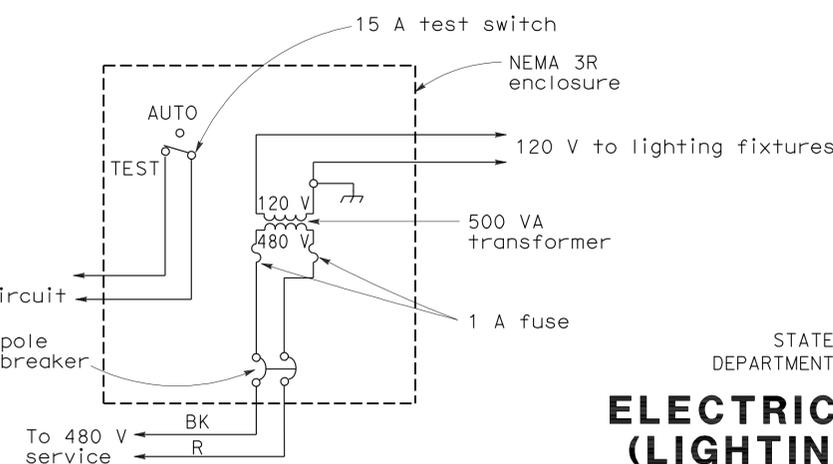
**TYPE SC1 CONTROL**

For 240 V or 480 V switched circuit, see Note 4 for Type SC1A



**TYPE SC2 CONTROL**

For 120 V switched circuit, see Note 4 for Type SC2A



**TYPE SC3 CONTROL**

For 480 V switched sign circuit, see Note 4 for Type SC3A

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**ELECTRICAL SYSTEMS  
(LIGHTING AND SIGN  
ILLUMINATION CONTROL)**

NO SCALE  
ALL DIMENSIONS ARE IN  
MILLIMETERS UNLESS OTHERWISE SHOWN

RSP ES-15D DATED OCTOBER 5, 2007 SUPERSEDES RSP ES-15D DATED APRIL 28, 2005 AND STANDARD PLAN ES-15D DATED JULY 1, 2004-PAGE 486 OF THE STANDARD PLANS BOOK DATED JULY 2004.

**REVISED STANDARD PLAN RSP ES-15D**

2004 REVISED STD PLAN RSP ES-15D



DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
01	Men	101	R69.4/R78.9	631	939

REGISTERED CIVIL ENGINEER

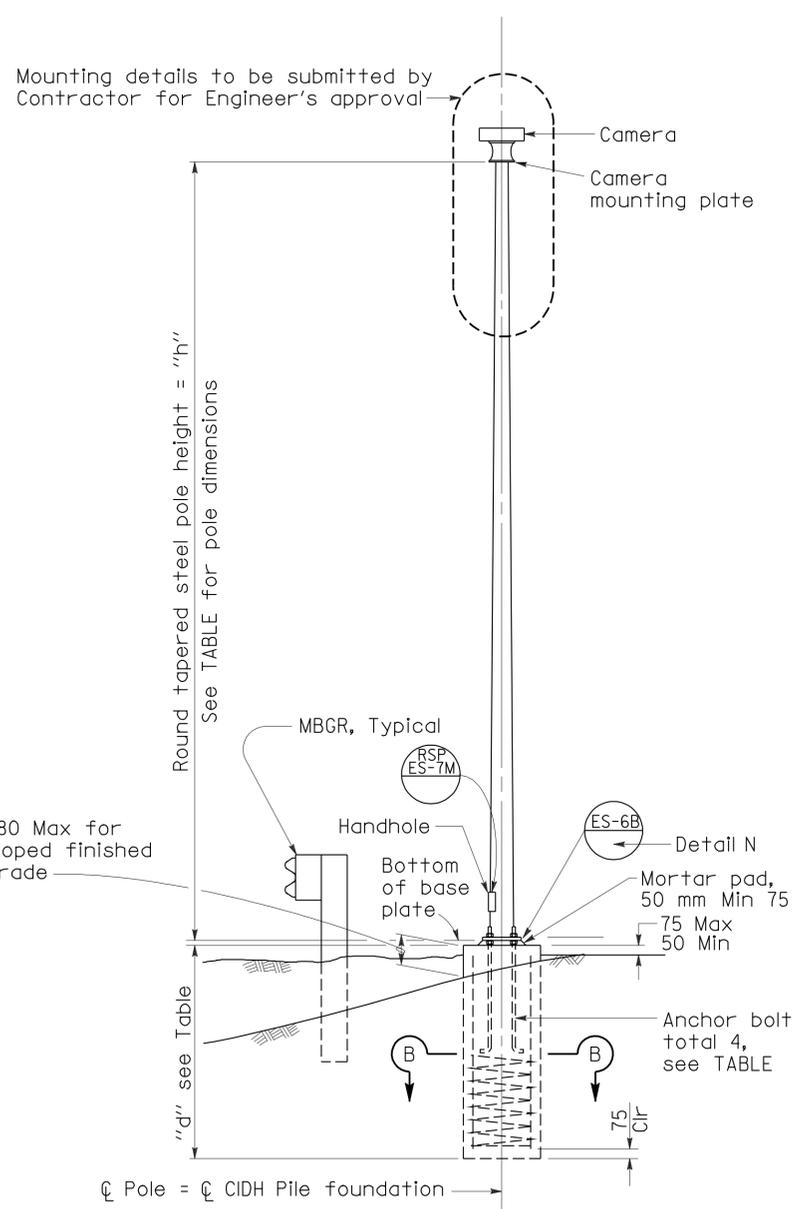
January 24, 2005  
PLANS APPROVAL DATE

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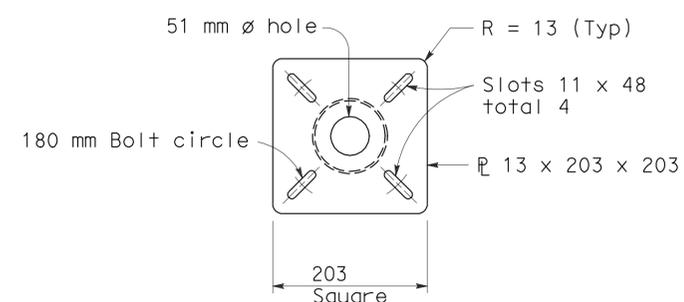
To get to the Caltrans web site, go to: <http://www.dot.ca.gov>

Pole Type	Pole Data				Base Plate Data				"d" 610 mm ø CIDH Pile (m)	Structural Steel kg plus 3.5% Galvanizing
	Height "h" (m)	Min OD (mm)		Thickness (mm)	"C" (mm)	Thickness (mm)	Anchor Bolts (mm)			
		BASE	TOP				SIZE	BC=BOLT CIRCLE		
CCTV 25	7.62	187	98	4.55	305	25.4	25 x 920 x 102	267	1.83	180
CCTV 30	9.14	203	98	4.55	305	25.4	25 x 920 x 102	279	2.13	215
CCTV 35	10.67	219	98	4.55	305	25.4	25 x 920 x 102	305	2.13	250
CCTV 40	12.19	238	98	4.55	330	25.4	32 x 920 x 102	330	2.13	295
CCTV 45	13.72	254	98	4.55	330	25.4	32 x 920 x 102	343	2.44	340

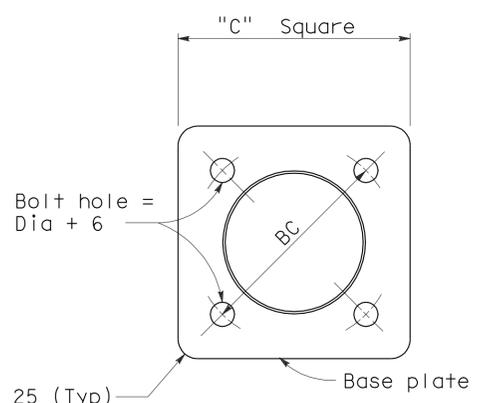
To accompany plans dated 1-23-12



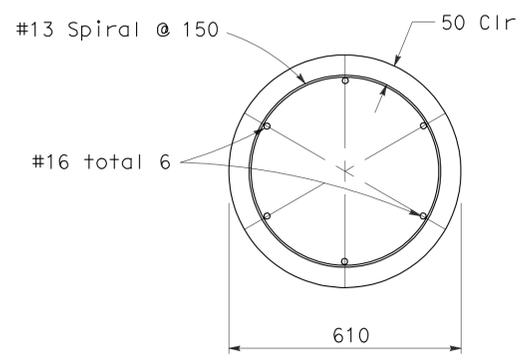
**ELEVATION**



**CAMERA MOUNTING PLATE**



**BASE PLATE**



**SECTION B-B**

**GENERAL NOTES:**

- SPECIFICATIONS**  
Design : AASHTO Standard specifications for structural supports for highway signs, luminaires and traffic signals dated 2001.
- LOADING**  
Wind Loadings : 161km/h
- UNIT STRESSES**  
Structural Steel :  $f_y = 330$  MPa tapered steel tube  
 $f_y = 250$  MPa unless otherwise noted  
Anchor bolts = A307  
Reinforced Concrete :  $f'_c = 25$  MPa  
 $f_y = 415$  MPa

**NOTES:**

- The Contractor shall verify controlling field dimensions before ordering or fabricating any material.
- All steel shall be galvanized after fabrication.
- During pole erection, the post shall be raked as necessary with the use of leveling nuts to provide a plumb pole axis.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**ELECTRICAL SYSTEMS  
(CLOSED CIRCUIT TELEVISION  
POLE DETAILS)**

NO SCALE  
ALL DIMENSIONS ARE IN  
MILLIMETERS UNLESS OTHERWISE SHOWN

RSP ES-16A DATED JANUARY 24, 2005 SUPERSEDES STANDARD PLAN ES-16A  
DATED JULY 1, 2004-PAGE 487 OF THE STANDARD PLANS BOOK DATED JULY 2004.

**REVISED STANDARD PLAN RSP ES-16A**

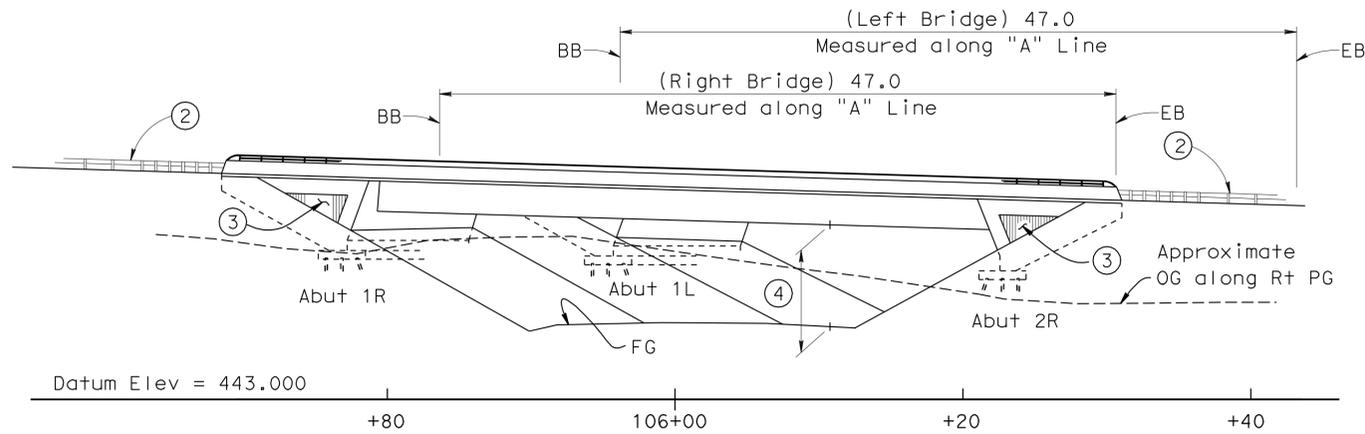
2004 REVISED STD PLAN RSP ES-16A

101+20.556 EVC  
Elev 472.214

107+75.000 BVC  
Elev 452.581

-3.000%

**PROFILE GRADE**  
NO SCALE



**ELEVATION**  
1:250

**NOTES:**

- ① Structure Approach Slab, Type N(9S)
- ② Metal Beam Guardrail, See Road Plans
- ③ Aesthetic Treatment
- ④ Minimum Vertical Clearance  
Left Bridge 4.559  
Right Bridge 6.416
- ⑤ Paint "Route 101/20 Separation"
- ⑥ Paint Bridge Number and Year Constructed
- ⑦ Barriers shall extend to the end of the wingwall

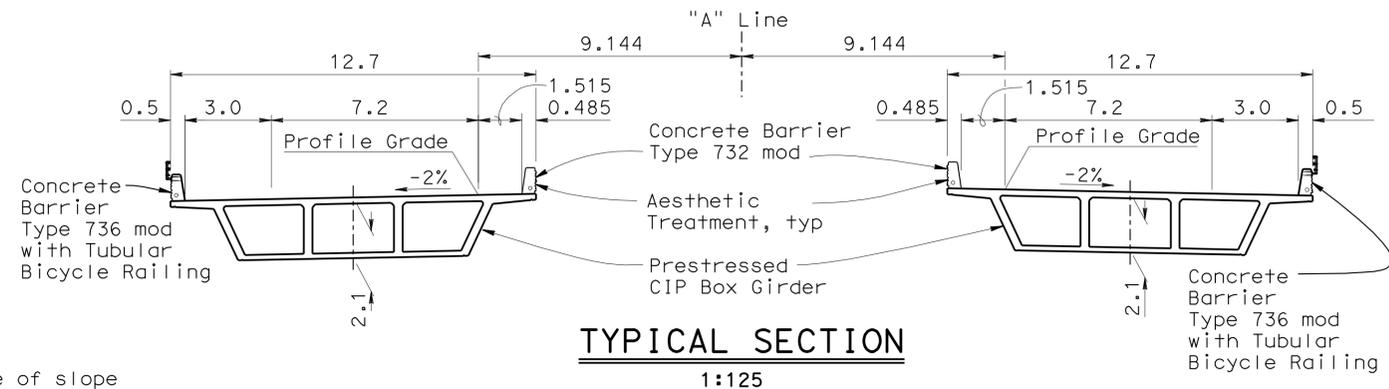
DIST	COUNTY	ROUTE	KILOMETER TOTAL PROJECT	POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Men	101	R69.4/R78.9	632	939	

REGISTERED CIVIL ENGINEER DATE 9-15-11

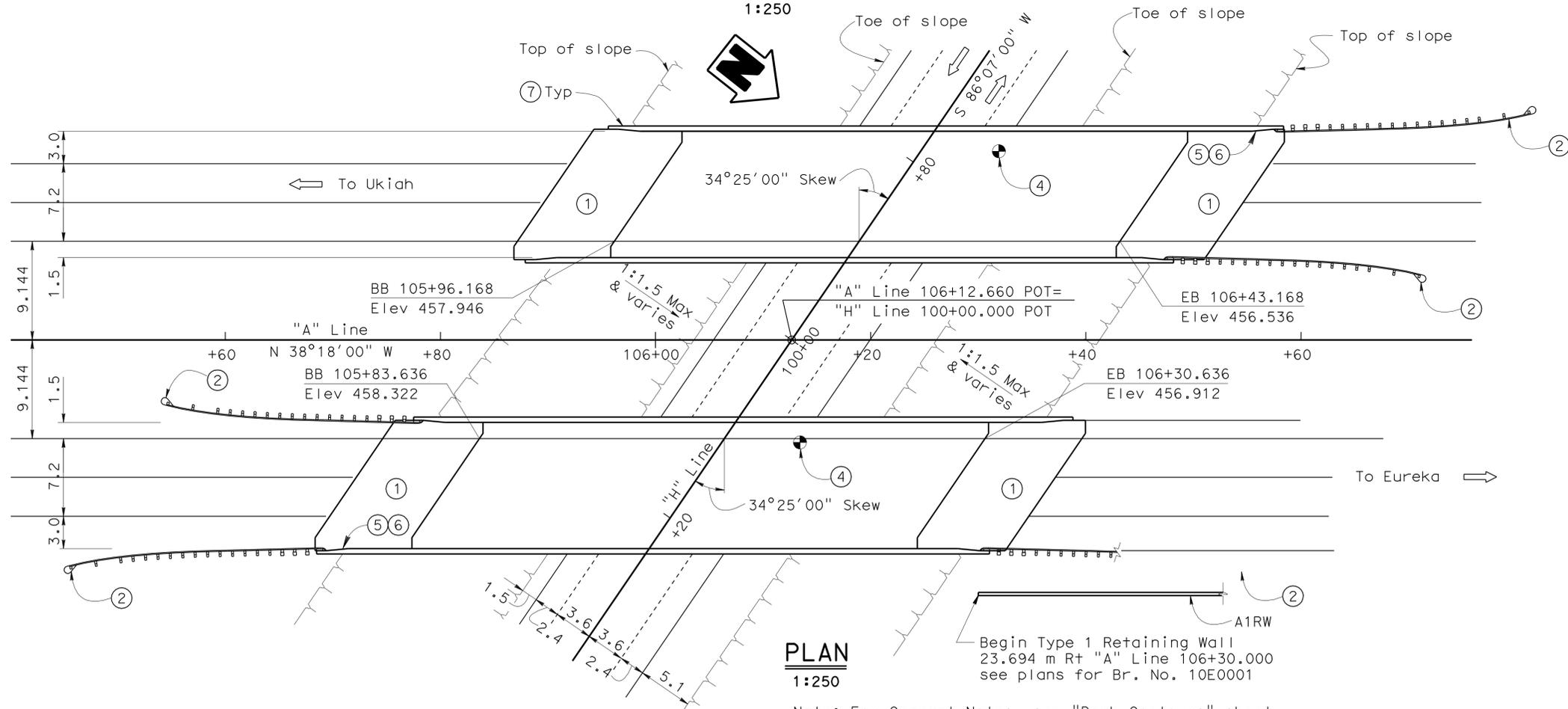
1-23-12  
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER  
M. Friedheim  
No. 57968  
Exp. 6-30-12  
CIVIL  
STATE OF CALIFORNIA

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**TYPICAL SECTION**  
1:125



**PLAN**  
1:250

**ROUTE 101/20 SEPARATION QUANTITIES 10-0128RL**

STRUCTURE EXCAVATION (BRIDGE)	668 m <sup>3</sup>
STRUCTURE BACKFILL (BRIDGE)	418 m <sup>3</sup>
FURNISH STEEL PILING (HP 250 X 85)	1 222 m
DRIVE STEEL PILE (HP 250 X 85)	72 EA
FURNISH STEEL PILING (HP 360 X 132)	1 185 m
DRIVE STEEL PILE (HP 360 X 132)	72 EA
PRESTRESSING CAST-IN-PLACE CONCRETE	LUMP SUM
STRUCTURAL CONCRETE, BRIDGE FOOTING	149 m <sup>3</sup>
STRUCTURAL CONCRETE, BRIDGE	1 000 m <sup>3</sup>
STRUCTURAL CONCRETE, APPROACH SLAB (TYPE N)	137 m <sup>3</sup>
ARCHITECTURAL TEXTURE	57 m <sup>2</sup>
JOINT SEAL ASSEMBLY (MR 60 MM)	59 m
BAR REINFORCING STEEL (BRIDGE)	130 500 kg
TUBULAR BICYCLE RAILING (MODIFIED)	118 m
CONCRETE BARRIER (TYPE 732 MOD)	118 m
CONCRETE BARRIER (TYPE 736 MODIFIED)	118 m

Note: For General Notes, see "Deck Contours" sheet.  
For Index to Plans, Standard Plans and Pile Data Table, see "Index to Plans" sheet.

	DESIGN BY T. Vuong	CHECKED M. Abdi	LOAD FACTOR DESIGN	LIVE LOADING: HS20-44 AND ALTERNATIVE AND PERMIT DESIGN LOAD	<b>STATE OF CALIFORNIA</b> DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN <b>DESIGN BRANCH 2</b>	BRIDGE NO. 10-0128RL	<b>WILLITS BYPASS</b> <b>ROUTE 101/20 SEPARATION</b> <b>GENERAL PLAN</b>
	DETAILS BY C. Figuerres	CHECKED M. Abdi	LAYOUT BY T. Vuong	CHECKED M. Friedheim			KILOMETER POST R70.410	
	QUANTITIES BY M. Friedheim	CHECKED M. Dunn	SPECIFICATIONS BY I. Huang	PLANS AND SPECS COMPARED I. Huang	CU 01 EA 262001	DISREGARD PRINTS BEARING EARLIER REVISION DATES	7-26-04 4-3-06 4-4-06 9-28-06 4-10-08 08-22-08 01-14-09 01-30-09 4-06-09 6-23-09	

ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SHOWN

ORIGINAL SCALE IN MILLIMETERS FOR REDUCED PLANS

FILE => 10-0128r1\_aagp.dgn

STRUCTURES DESIGN GENERAL PLAN SHEET (METRIC) (REV.03-17-04)

DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Men	101	R69.4/R78.9	633	939

*M. Friedheim* 9-15-11  
REGISTERED CIVIL ENGINEER DATE

1-23-12  
PLANS APPROVAL DATE

M. Friedheim  
No. 57968  
Exp. 6-30-12  
CIVIL  
STATE OF CALIFORNIA

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### INDEX TO PLANS

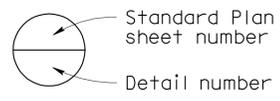
1. GENERAL PLAN
2. INDEX TO PLANS
3. DECK CONTOURS
4. FOUNDATION PLAN
5. ABUTMENT LAYOUT
6. ABUTMENT DETAILS NO. 1
7. ABUTMENT DETAILS NO. 2
8. TYPICAL SECTION
9. GIRDER LAYOUT
10. BOTTOM GIRDER REINFORCEMENT
11. AESTHETIC DETAILS
12. STRUCTURE APPROACH TYPE N(9S)
13. STRUCTURE APPROACH DRAINAGE DETAILS
14. JOINT SEAL ASSEMBLY  
(MAX. MOVEMENT RATING = 100)
15. TUBULAR BICYCLE RATING
16. LOG OF TEST BORINGS NO. 1 OF 3
17. LOG OF TEST BORINGS NO. 2 OF 3
18. LOG OF TEST BORINGS NO. 3 OF 3

Location	Pile Type	Nominal Resistance		Design Tip Elevations	Specified Tip Elevations
		Compression	Tension		
Left Bridge Abut 1	HP 360 x 132	800 KN	0 KN	437.1	437.1
Left Bridge Abut 2	HP 360 x 132	800 KN	0 KN	434.1	434.1
Right Bridge Abut 1	HP 250 x 85	800 KN	0 KN	436.5	436.5
Right Bridge Abut 2	HP 250 x 85	800 KN	0 KN	434.5	434.5

Note: Design Pile Tip elevations are controlled by compression.

### STANDARD PLANS DATED JULY 2004

- A10A ACRONYMS AND ABBREVIATIONS (A-L)
- A10B ACRONYMS AND ABBREVIATIONS (M-Z)
- A10C SYMBOLS (SHEET 1 OF 2)
- A10D SYMBOLS (SHEET 2 OF 2)
- A62C LIMITS OF PAYMENT FOR EXCAVATION AND BACKFILL-BRIDGE
- BO-5 BRIDGE DETAILS
- BO-13 BRIDGE DETAILS
- B7-1 BOX GIRDER DETAILS
- RSP B8-5 CAST-IN-PLACE PRESTRESSED GIRDER DETAILS
- B11-55 CONCRETE BARRIER TYPE 732
- B11-56 CONCRETE BARRIER TYPE 736
- RSP ES-9B ELECTRICAL SYSTEMS (ELECTRICAL DETAILS STRUCTURE INSTALLATIONS)
- RSP ES-9C ELECTRICAL SYSTEMS (ELECTRICAL DETAILS STRUCTURE INSTALLATIONS)



DESIGN	BY T. Vuong	CHECKED M. Abdi
DETAILS	BY J. Klovach/C. Figuerres	CHECKED M. Abdi
QUANTITIES	BY M. Friedheim	CHECKED M. Dunn

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES  
STRUCTURE DESIGN  
DESIGN BRANCH 2

BRIDGE NO.	10-0128RL
KILOMETER POST	R70.410

**WILLITS BYPASS**  
**ROUTE 101/20 SEPARATION**  
**INDEX TO PLANS**

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN



CU 01  
EA 262001

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES		SHEET	OF
4-06-09	6-23-09	2	18

FILE => 10-0128r1\_001+p.dgn

STRUCTURES DESIGN DETAIL SHEET (METRIC) (REV.03-17-04)

USERNAME => s114926 DATE PLOTTED => 28-JAN-2012 TIME PLOTTED => 07:40

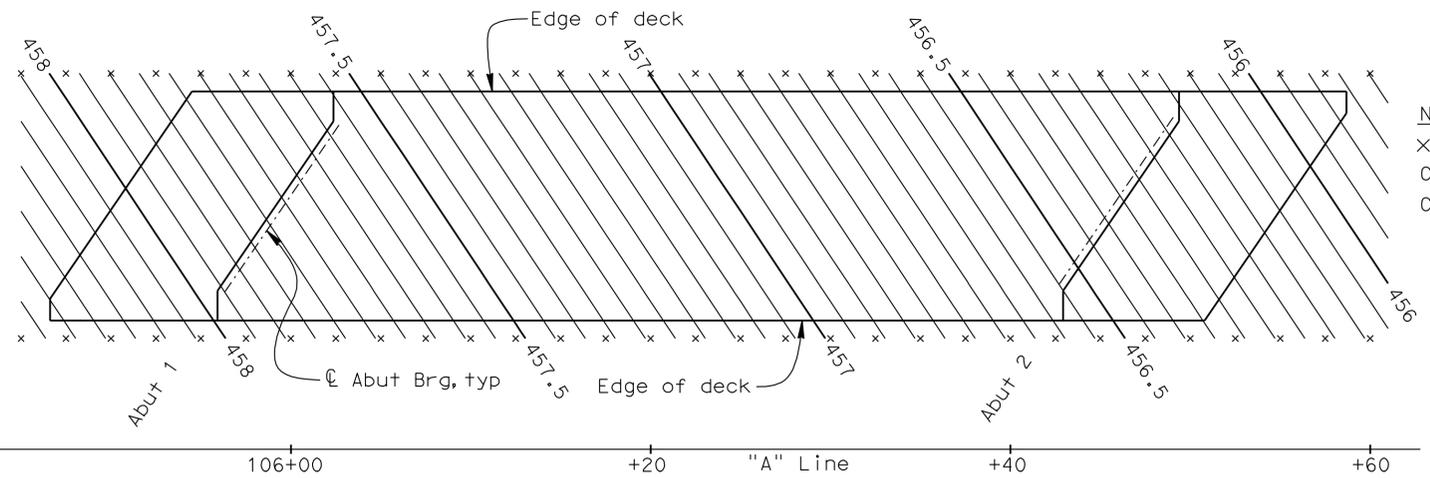
DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Men	101	R69.4/R78.9	634	939

*M. Friedheim* 9-15-11  
 REGISTERED CIVIL ENGINEER DATE

1-23-12  
 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  
 M. Friedheim  
 No. 57968  
 Exp. 6-30-12  
 CIVIL  
 STATE OF CALIFORNIA



**NOTES:**  
 x = 2.5 m interval measured along station line  
 Contours do not include camber  
 Contour interval = 0.05 m

**GENERAL NOTES (LOAD FACTOR DESIGN)**

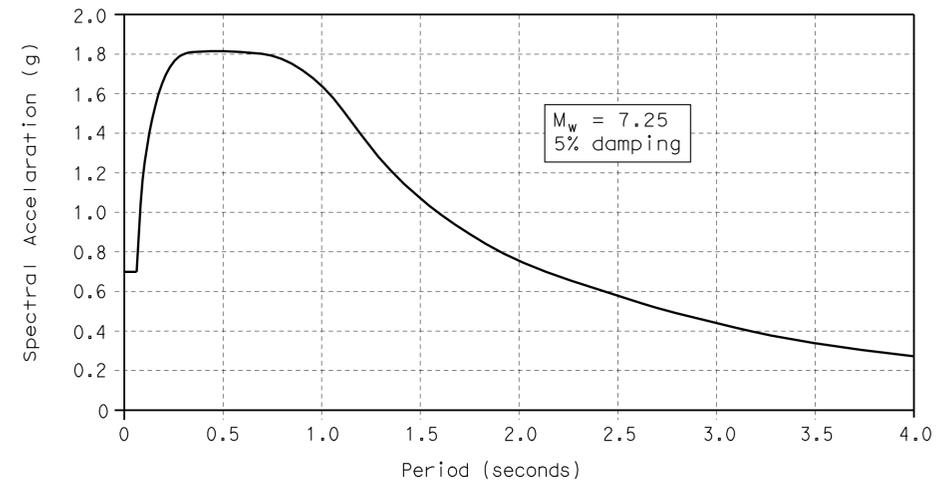
**DESIGN:** Bridge Design Specifications - April 2000 (LFD) (1996 AASHTO with interims and revisions by Caltrans).  
 Project Specific Design Criteria - March 2009.

**SEISMIC DESIGN:** Caltrans SDC Version 1.4 - June 2006

**DEAD LOAD:** Includes 1675 Pa for future wearing surface.  
 Includes 1460 N/m for future utilities.

**LIVE LOAD:** HS20-44 and alternative and permit design load.

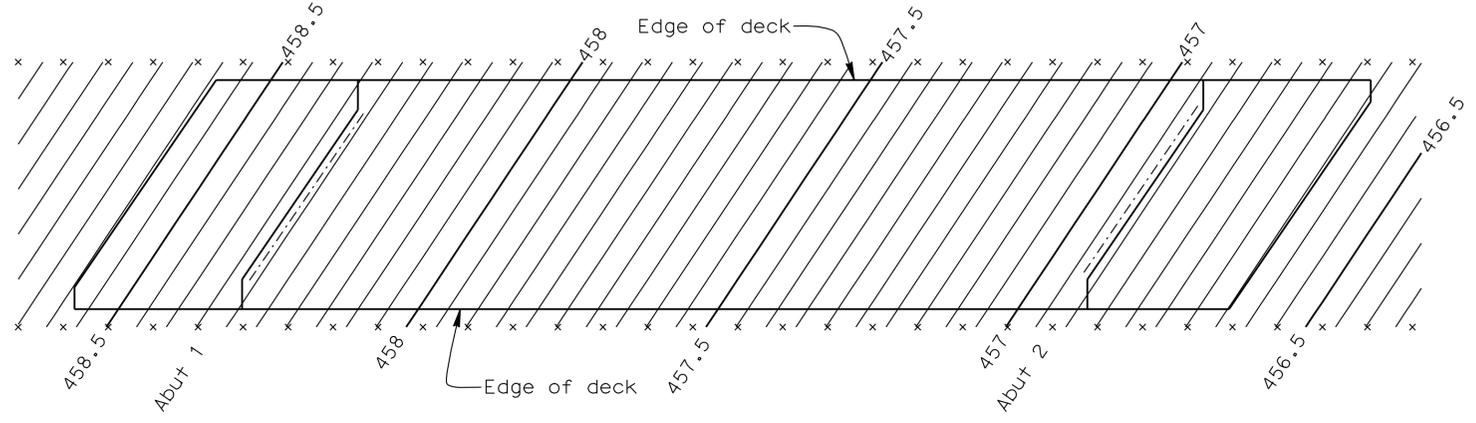
**SEISMIC LOADING:** Modified Caltrans Seismic Design Criteria for Soil Profile Type D, PBA = 0.7 g. See Response Spectrum below.



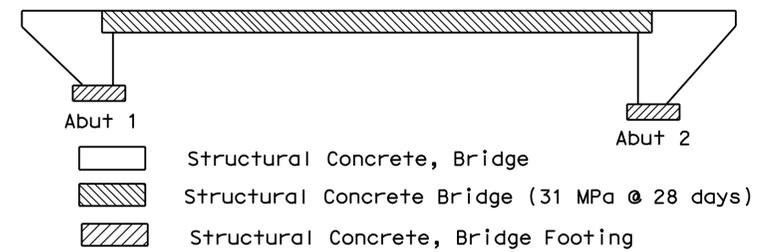
**REINFORCED CONCRETE:**  $f_y = 420$  MPa  
 $f'_c = 25$  MPa (See concrete strength and type limits for exceptions)

Transverse Deck Slab (working stress design)  
 $f_s = 140$  MPa  
 $f'_c = 8$  MPa  
 $n = 10$

**PRESTRESSED CONCRETE:** See Prestressing Notes on "Girder Layout" sheet



**DECK CONTOURS**  
1:200



**CONCRETE STRENGTH AND TYPE LIMITS**  
No Scale



DESIGN	BY T. Vuong	CHECKED M. Abdi
DETAILS	BY J. Klovach/C. Figuerres	CHECKED M. Abdi
QUANTITIES	BY M. Friedheim	CHECKED M. Dunn

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES  
 STRUCTURE DESIGN  
 DESIGN BRANCH 2

BRIDGE NO.  
 10-0128RL  
 KILOMETER POST  
 R70.410

**WILLITS BYPASS**  
**ROUTE 101/20 SEPARATION**  
**DECK CONTOURS**

ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SHOWN



CU 01  
 EA 262001

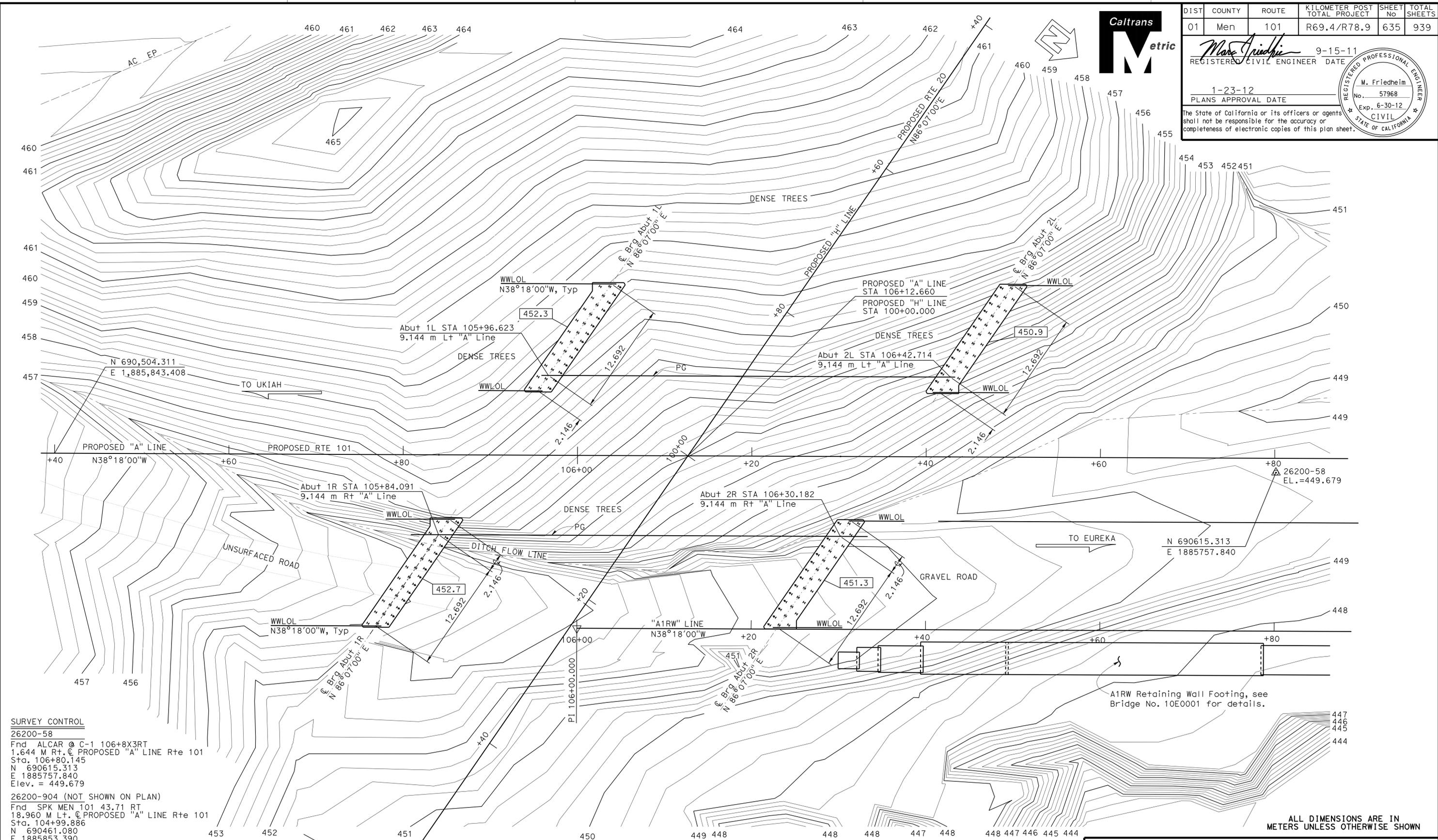
REVISION DATES	SHEET	OF
9-14-04 4-06-09 11-02-04 1-10-05 4-3-06 9-28-06 2-09-07 4-18-08 1-14-09	3	18

USERNAME => s114926 DATE PLOTTED => 28-JAN-2012 TIME PLOTTED => 07:40



DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Men	101	R69.4/R78.9	635	939

M. Friedheim  
 REGISTERED CIVIL ENGINEER DATE 9-15-11  
 1-23-12  
 PLANS APPROVAL DATE  
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**SURVEY CONTROL**  
 26200-58  
 Fnd ALCAR @ C-1 106+8X3RT  
 1.644 M Rt. C PROPOSED "A" LINE Rte 101  
 Sta. 106+80.145  
 N 690615.313  
 E 1885757.840  
 Elev. = 449.679  
 26200-904 (NOT SHOWN ON PLAN)  
 Fnd SPK MEN 101 43.71 RT  
 18.960 M Lt. C PROPOSED "A" LINE Rte 101  
 Sta. 104+99.886  
 N 690461.080  
 E 1885853.390  
 Elev. = 461.234

Indicates bottom of Footing Elevation

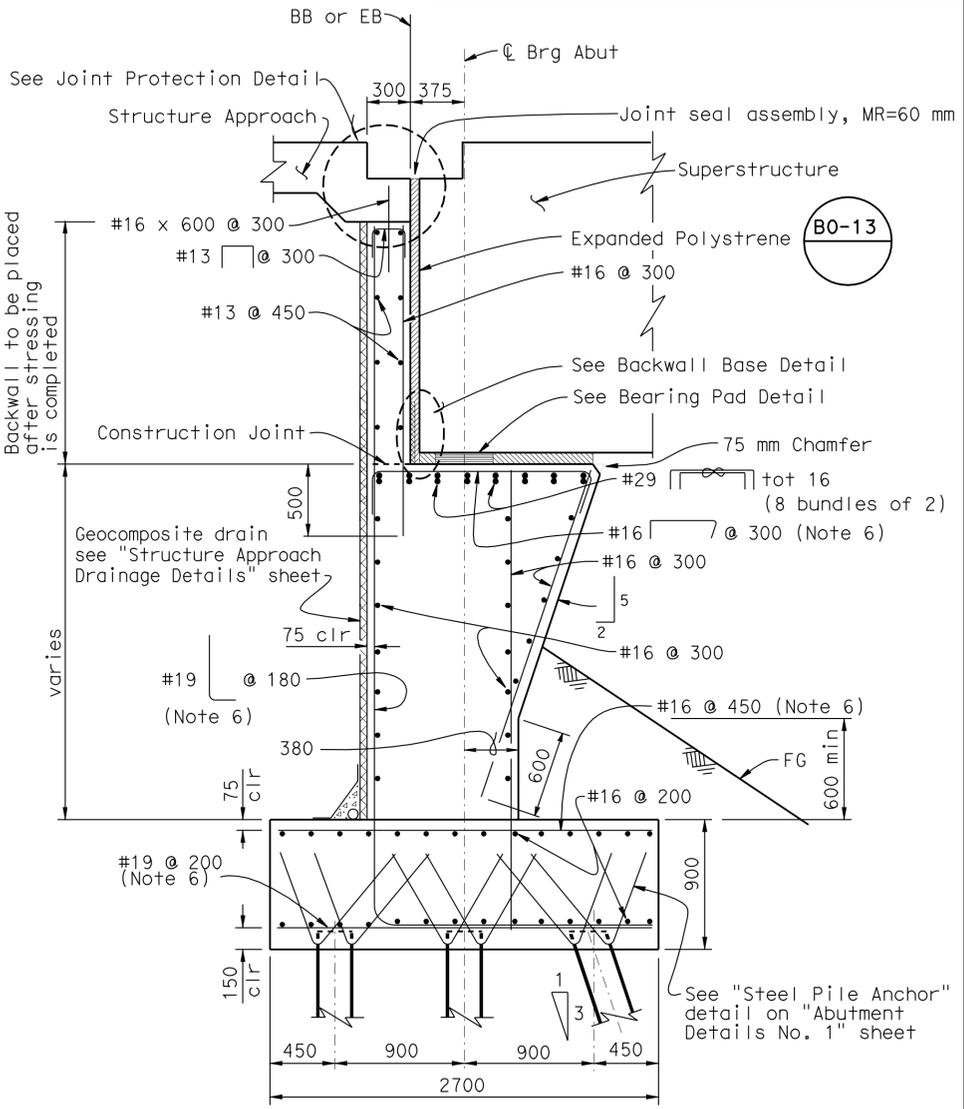
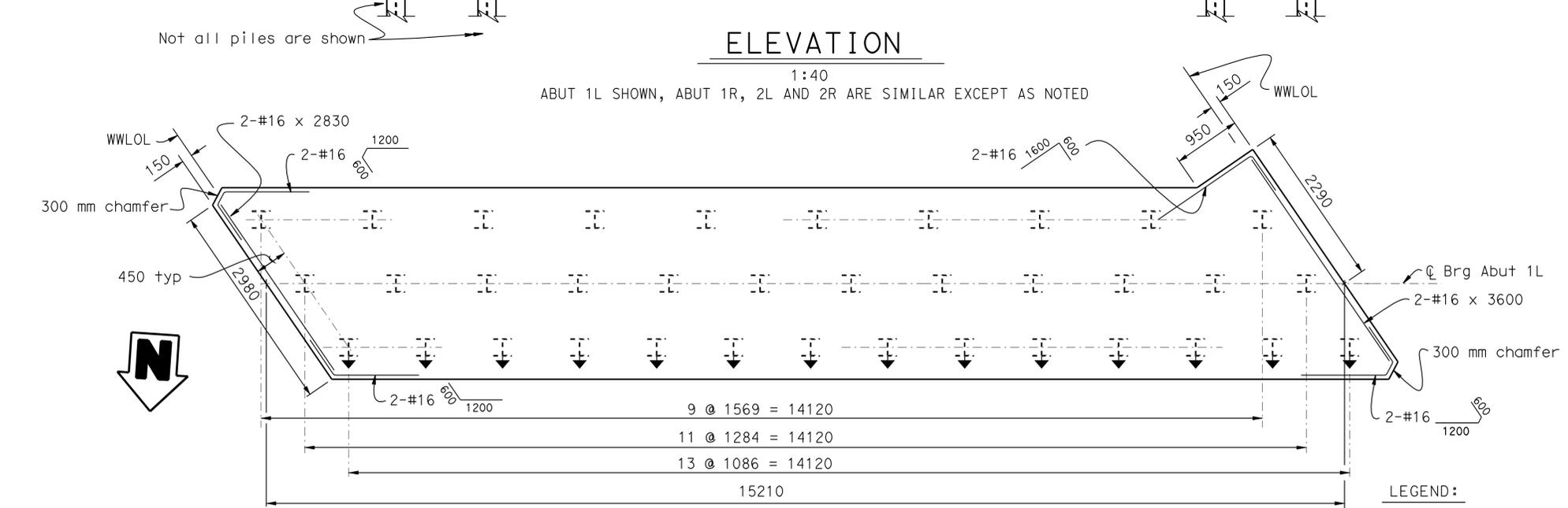
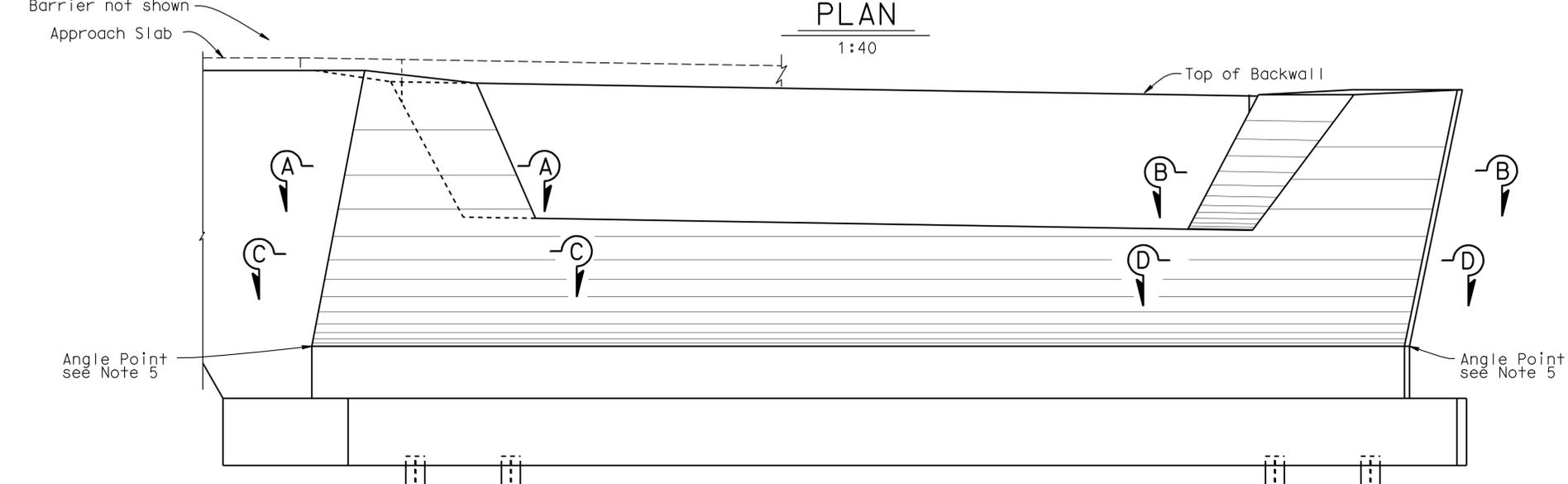
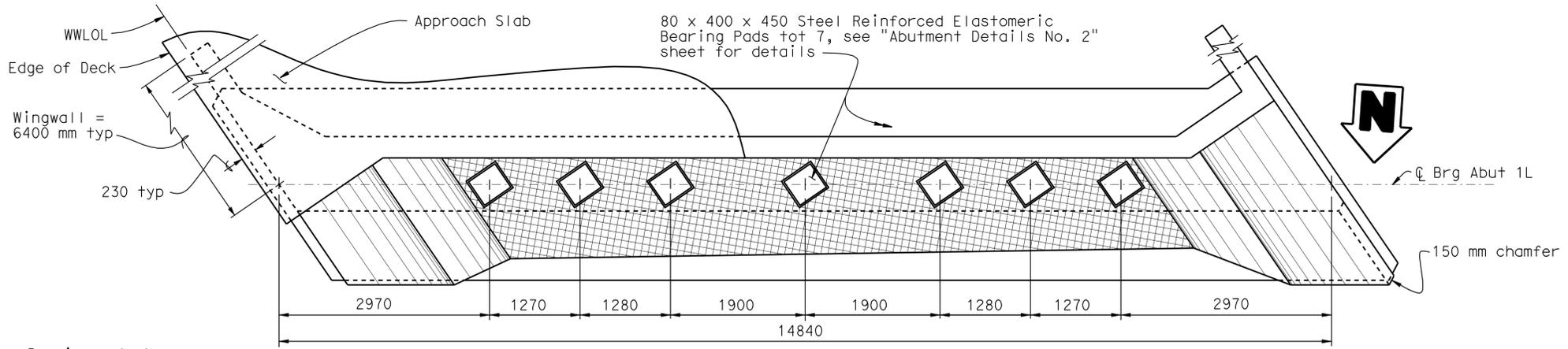
ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SHOWN

<b>PRELIMINARY INVESTIGATION SECTION</b>				DESIGN BY M. Friedheim CHECKED M. Abdi	<b>STATE OF CALIFORNIA</b> DEPARTMENT OF TRANSPORTATION	DIVISION OF STRUCTURES <b>STRUCTURE DESIGN 2</b>	BRIDGE NO. 10-0128RL	<b>WILLITS BYPASS</b> <b>ROUTE 101/20 SEPARATION</b> <b>FOUNDATION PLAN</b>
SCALE VERT. DATUM NGVD29 1:200	PHOTOGRAMMETRY AS OF: SURVEYED BY DISTRICT/T.GILLETT DRAFTED BY T.ZOLNIKOVA 04/2004 CHECKED BY F.BANDA 04/2004	DETAILS BY E. Montevirgen CHECKED M. Abdi	KILOMETER POST R70.410					
ALIGNMENT TIES DIST. TRAVERSE SHEET FIELD CHECKED BY	QUANTITIES BY M. Friedheim CHECKED M. Dunn	DISREGARD PRINTS BEARING EARLIER REVISION DATES	SHEET OF 4 18					

STRUCTURES FOUNDATION PLAN SHEET (METRIC) (REV.12-1-01)  
 ORIGINAL SCALE IN MILLIMETERS FOR REDUCED PLANS  
 CU 01  
 EA 262001  
 REVISION DATES (PRELIMINARY STAGE ONLY)  
 11/28/04 11/21/04 1/16/05 04/28/04 10/26/05 1/31/06 2-27-06 4-3-06  
 FILE => 10-0128r1\_acfp.dgn

DIST	COUNTY	ROUTE	KILOMETER TOTAL PROJECT	POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Men	101	R69.4/R78.9	636	939	

M. Friedheim 9-15-11  
 REGISTERED CIVIL ENGINEER DATE  
 1-23-12  
 PLANS APPROVAL DATE  
 M. Friedheim No. 57968 Exp. 6-30-12 CIVIL  
 REGISTERED PROFESSIONAL ENGINEER STATE OF CALIFORNIA  
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- NOTES:
- For Sections A-A, B-B, C-C, and D-D, see "Abutment Details No. 1" sheet.
  - For Bearing Pad, Backwall base, and Joint Protection Details, see "Abutment Details No. 2" sheet.
  - For Joint details see "Joint Seal Assembly (Maximum Movement Rating = 100 mm)" sheet.
  - For Joint Blockout Details, see "Typical Section" sheet.
  - Angle Point Elevation shall be 700 mm above Top of Footing.
  - Place bar or hook parallel to edge of deck, space along  $\phi$  Brg.

LEGEND:  
 [Symbol] Indicates vertical piles.  
 [Symbol] Indicates battered piles.



DESIGN	BY T. Vuong	CHECKED M. Abdi
DETAILS	BY E. Montevirgen	CHECKED M. Abdi
QUANTITIES	BY M. Friedheim	CHECKED M. Dunn

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
 DIVISION OF ENGINEERING SERVICES  
 STRUCTURE DESIGN  
 DESIGN BRANCH 2

BRIDGE NO.  
10-0128RL  
KILOMETER POST  
R70.410

**WILLITS BYPASS**  
**ROUTE 101/20 SEPARATION**  
**ABUTMENT LAYOUT**

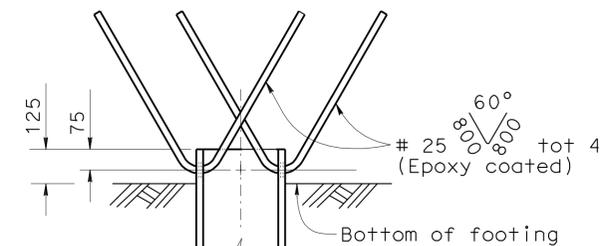
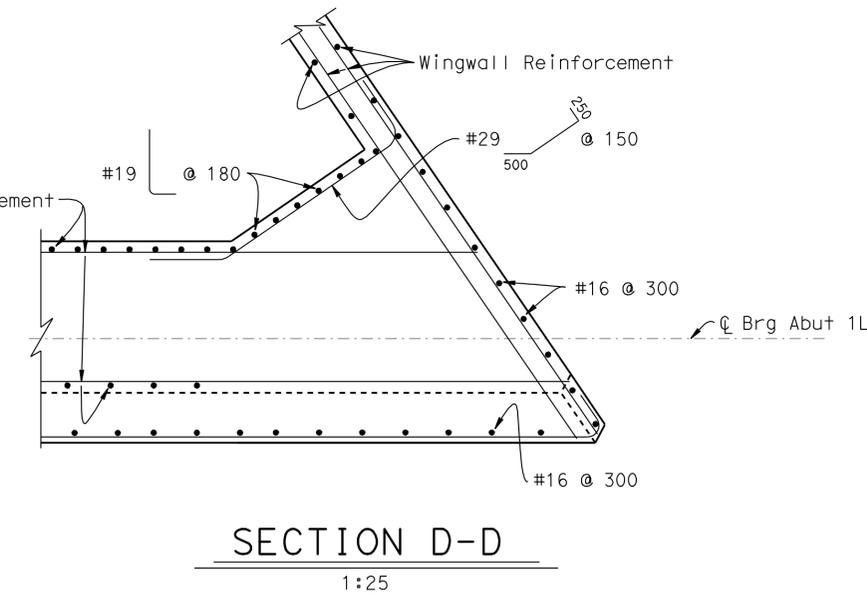
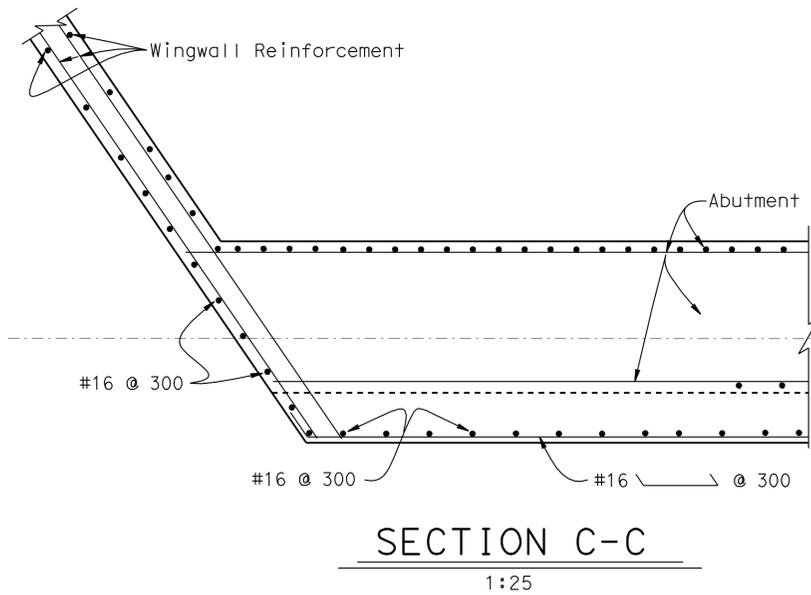
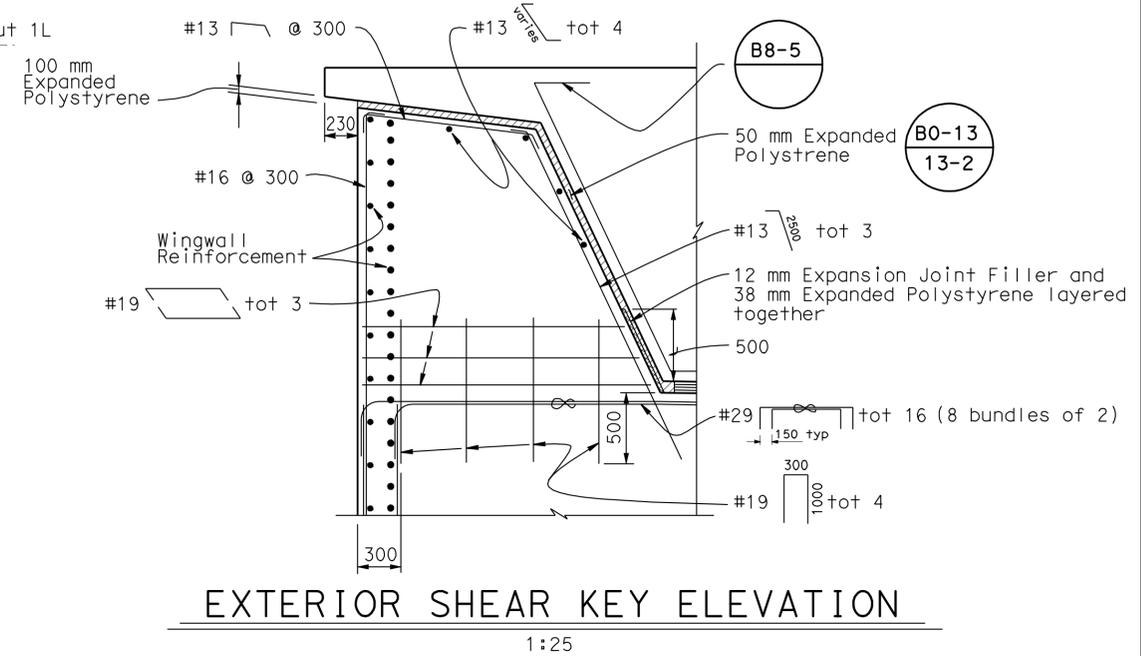
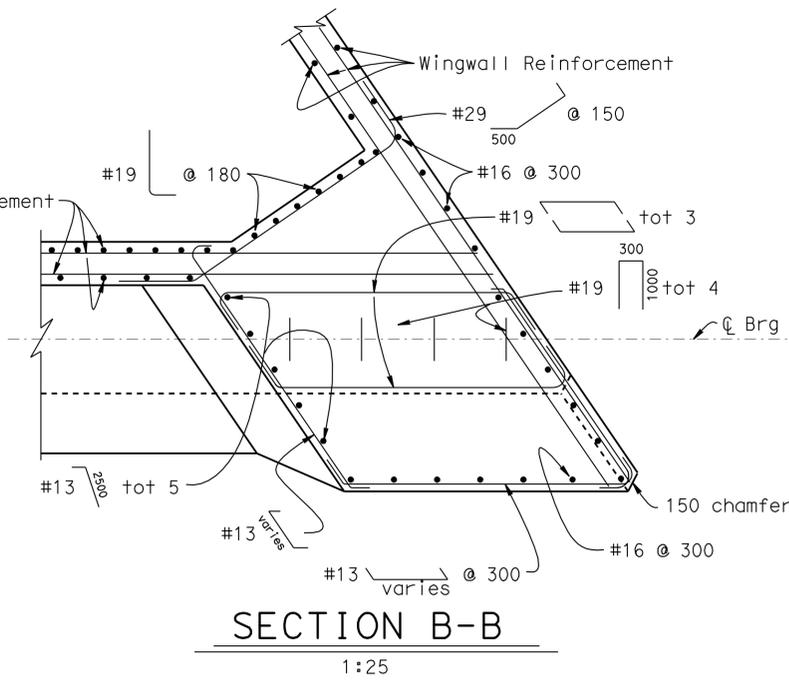
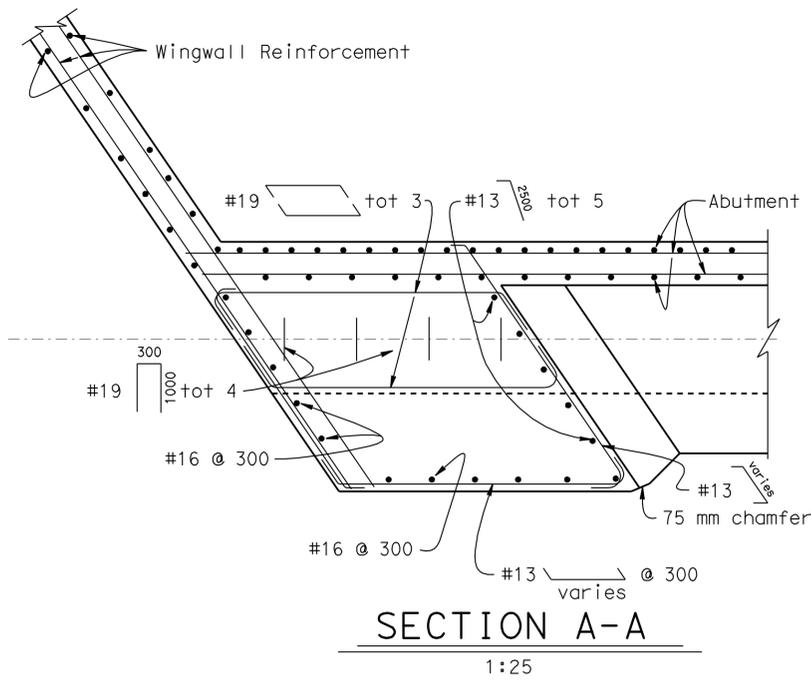
ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN



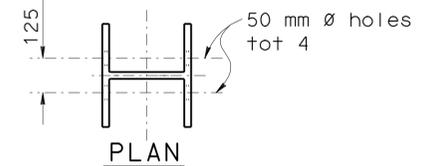
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6-01-04 11-02-04 1-16-05 3-28-05 4-08-05 4-05-06 9-28-06 4-16-08 1-14-09 02-10-09	5	18

CU 01  
EA 262001

DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Men	101	R69.4/R78.9	637	939
			<i>M. Friedheim</i> 9-15-11 REGISTERED CIVIL ENGINEER DATE		
			1-23-12 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 M. Friedheim No. 57968 Exp. 6-30-12 CIVIL STATE OF CALIFORNIA					



ELEVATION



PLAN

STEEL PILE ANCHOR

No Scale

NOTE:

For location of Sections A-A, B-B, C-C, and D-D, see "Abutment Layout" sheet.



DESIGN	BY T. Vuong	CHECKED M. Abdi
DETAILS	BY E. Montevirgen	CHECKED M. Abdi
QUANTITIES	BY M. Friedheim	CHECKED M. Dunn

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES  
STRUCTURE DESIGN  
DESIGN BRANCH 2

BRIDGE NO.  
10-0128RL  
KILOMETER POST  
R70.410

WILLITS BYPASS  
ROUTE 101/20 SEPARATION  
ABUTMENT DETAILS NO. 1

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN



CU 01  
EA 262001

DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES	SHEET	OF
	9-14-04 9-21-04 1-10-04 1-18-05 1-18-05 3-28-05 4-08-05 9-28-05 1-14-09	6	18

USERNAME => s114926 DATE PLOTTED => 28-JAN-2012 TIME PLOTTED => 07:41



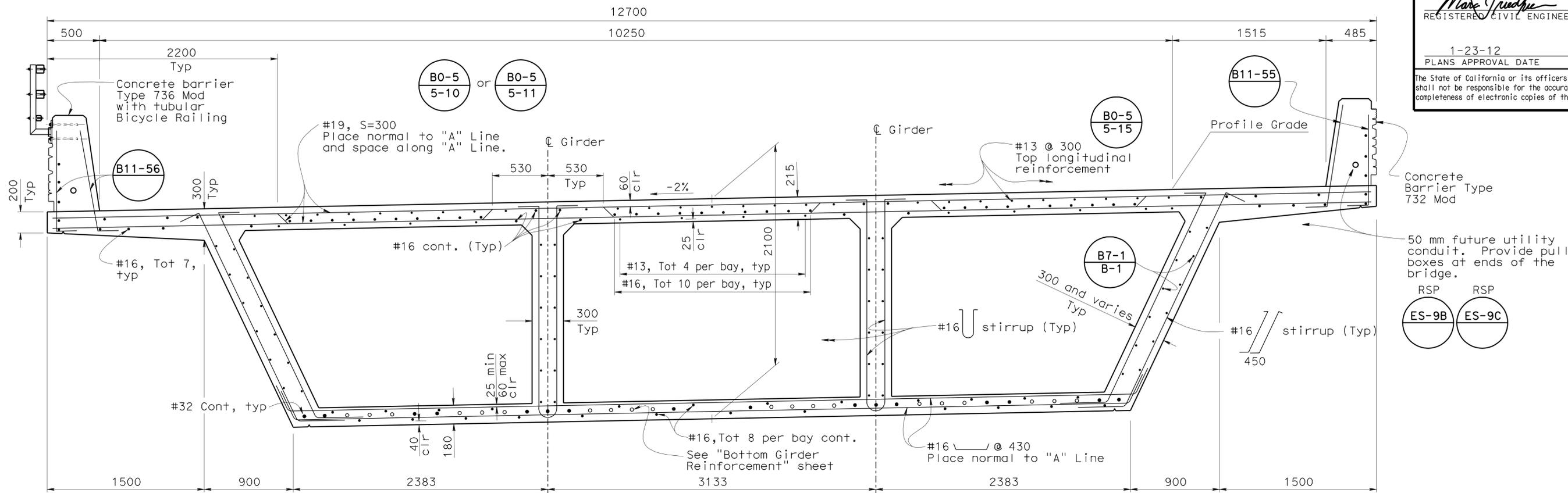
DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Men	101	R69.4/R78.9	639	939

*M. Friedheim* 9-15-11  
 REGISTERED CIVIL ENGINEER DATE

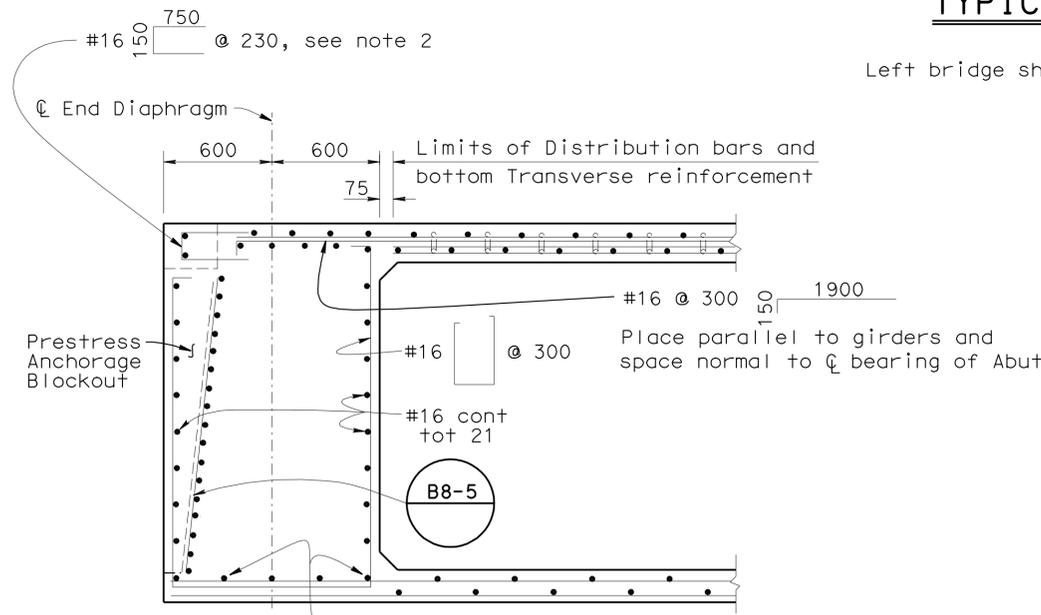
1-23-12  
 PLANS APPROVAL DATE

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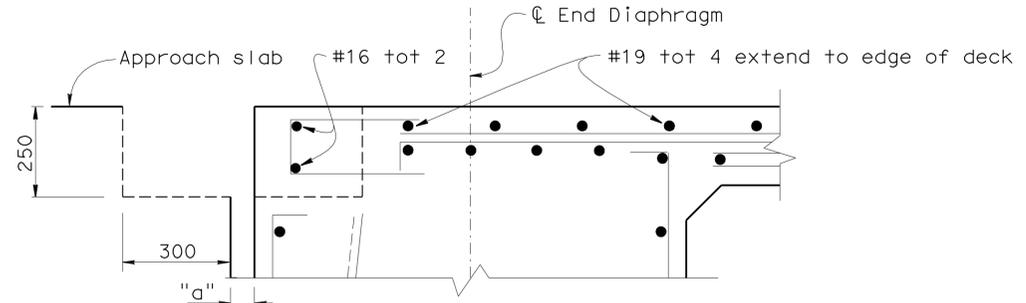
REGISTERED PROFESSIONAL ENGINEER  
 M. Friedheim  
 No. 57968  
 Exp. 6-30-12  
 CIVIL  
 STATE OF CALIFORNIA



**TYPICAL SECTION** (B0-5) (B7-1) (B8-5)  
 1:20  
 Left bridge shown, Right bridge similar



**END DIAPHRAGM SECTION**  
 1:20  
 (Section taken normal to  $\phi$  Abutment)



**BLOCKOUT DETAIL**  
 1:10

- NOTES:**
- For "a" dimension see "Joint Seal Assembly (Maximum Movement Rating = 100 mm)" sheet.
  - Stagger with joint seal assembly anchor studs.



DESIGN	BY T. Vuong	CHECKED M. Abdi
DETAILS	BY C. Figuerres	CHECKED M. Abdi
QUANTITIES	BY M. Friedheim	CHECKED M. Dunn

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
 DIVISION OF ENGINEERING SERVICES  
 STRUCTURE DESIGN  
 DESIGN BRANCH 2

BRIDGE NO.  
 10-0128RL  
 KILOMETER POST  
 R70.410

**WILLITS BYPASS**  
**ROUTE 101/20 SEPARATION**  
**TYPICAL SECTION**

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN



CU 01  
 EA 262001

DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES	SHEET	OF
	9-15-04 1-14-09 1-28-09 6-23-09 4-08-05 10-26-05 4-7-06 9-23-06 4-78-08	8	18

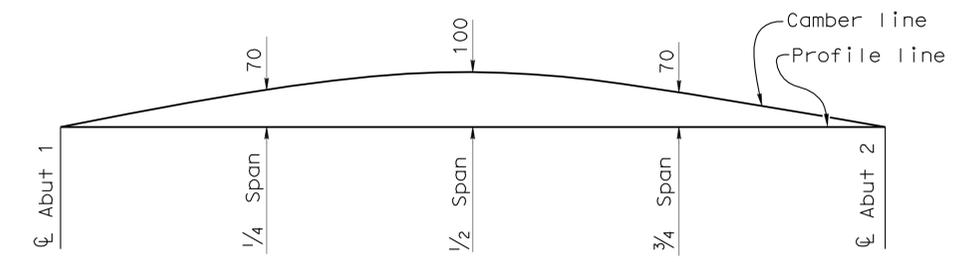
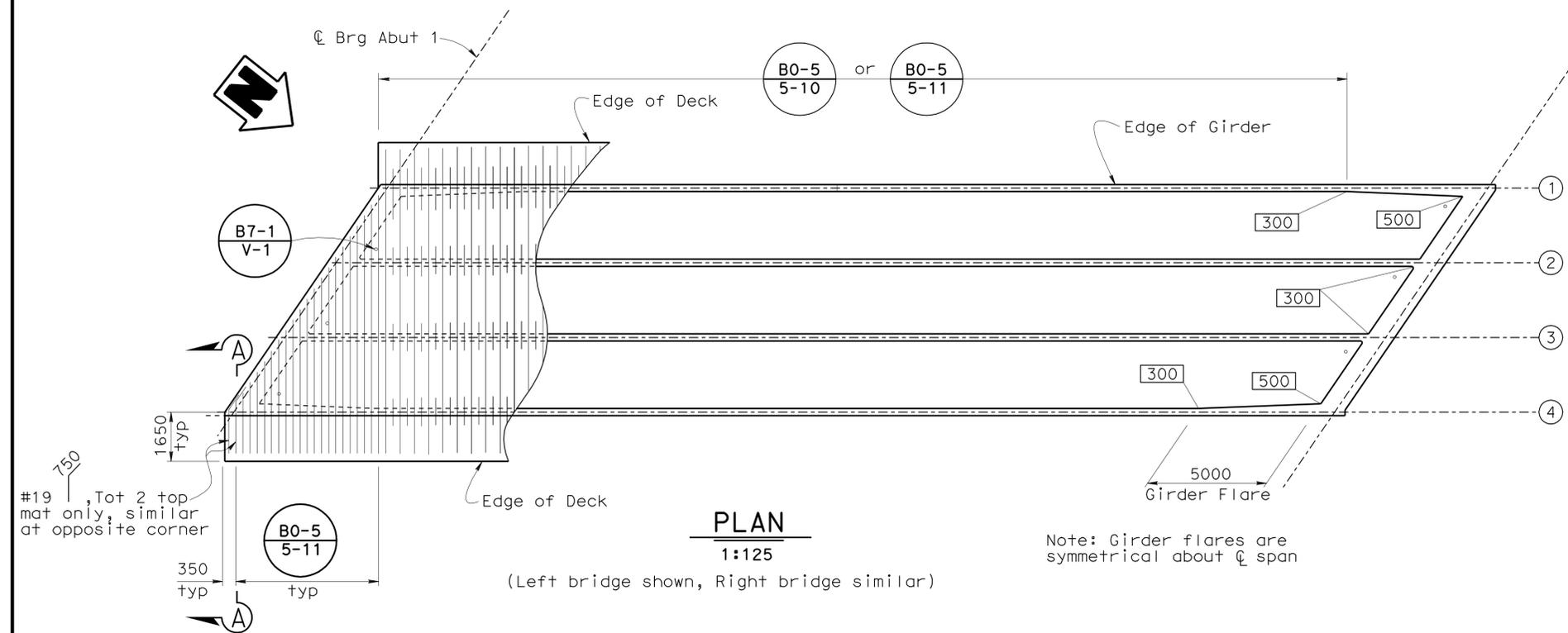
DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Men	101	R69.4/R78.9	640	939

*M. Friedheim* 9-15-11  
 REGISTERED CIVIL ENGINEER DATE

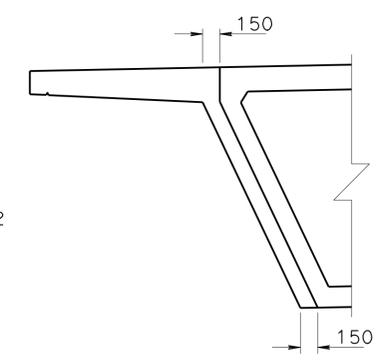
1-23-12  
 PLANS APPROVAL DATE

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REGISTERED PROFESSIONAL ENGINEER  
 M. Friedheim  
 No. 57968  
 Exp. 6-30-12  
 CIVIL  
 STATE OF CALIFORNIA



- Notes:
- Girder stem width
  - Girder #
  - Theoretical Pt of No Movement (Shown for right end stressing)



PRESTRESSING NOTES

1860 MPa Low Relaxation Strand:

$P_{jack}$  = 44050 kN

Anchor Set = 10 mm

Total Number of Girders = 4

Concrete:  $f'_c$  = 31 MPa @ 28 days  
 $f'_{ci}$  = 25 MPa @ time of stressing

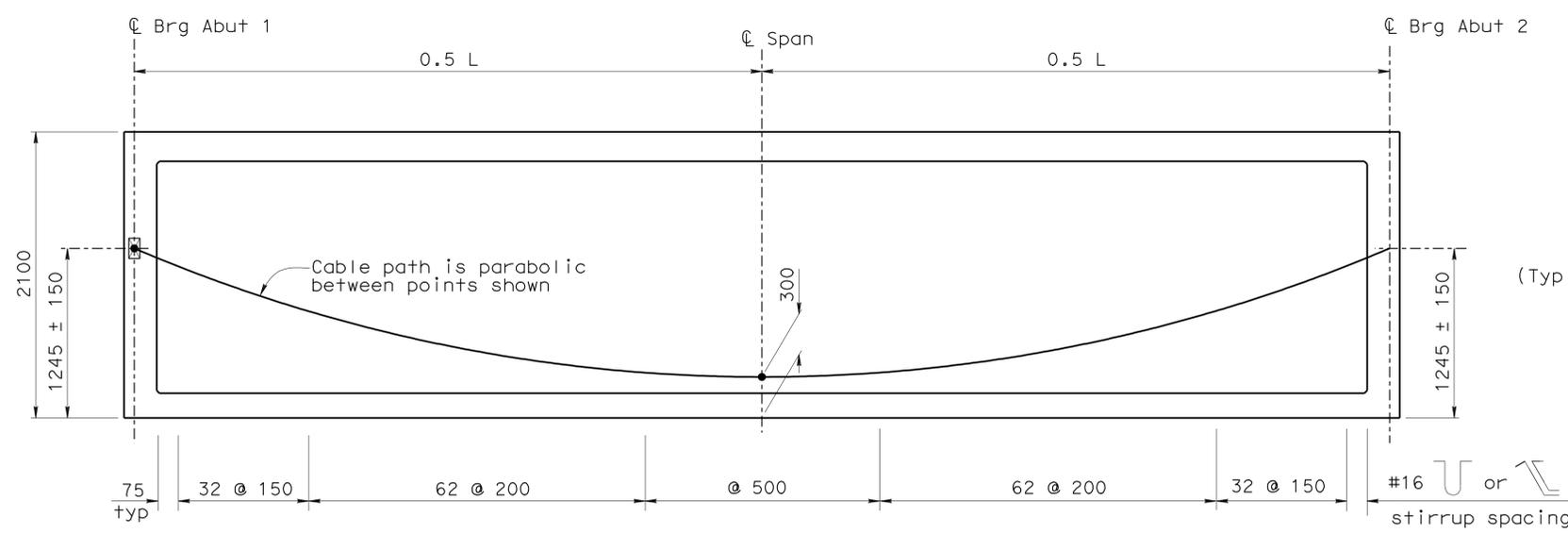
Contractor shall submit elongation calculations based on initial stress at

$\lambda = 0.948$  times jacking stress.

One end stressing shall be performed from either end.

Long term losses assumed to be 138 MPa.

Design is based on  $\mu = 0.15$  and  $K = 0.000656/m$



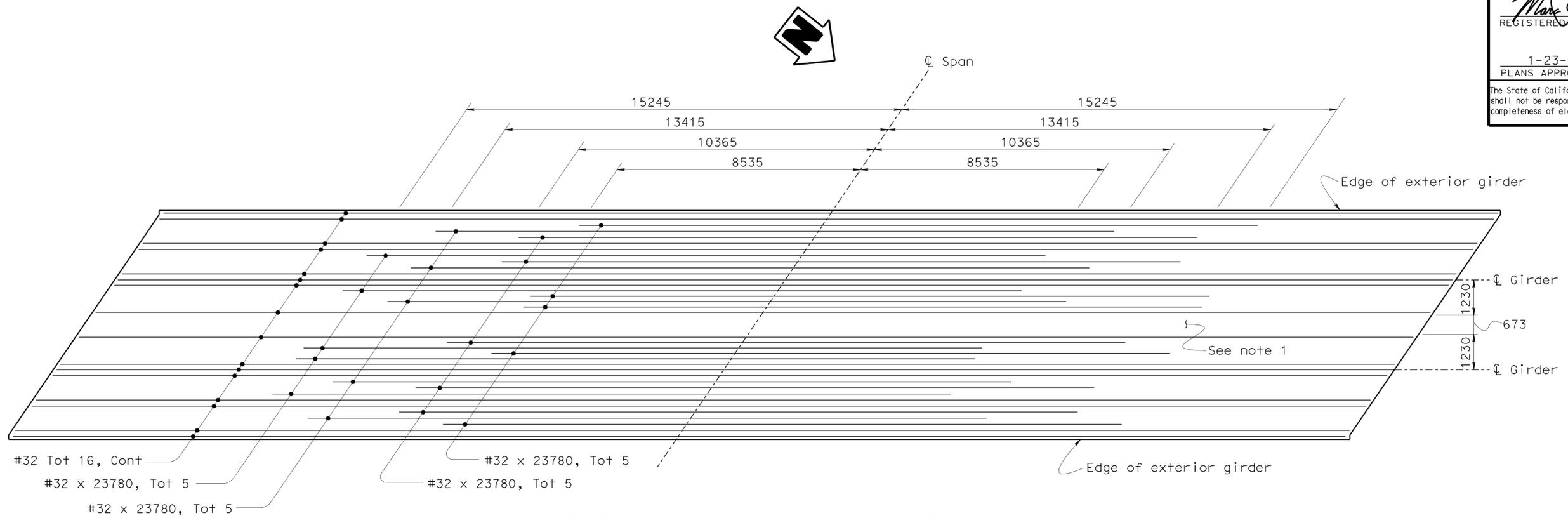
	DESIGN BY T. Vuong	CHECKED M. Abdi	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 2	BRIDGE NO. 10-0128RL	<b>WILLITS BYPASS</b> <b>ROUTE 101/20 SEPARATION</b> <b>GIRDER LAYOUT</b>					
	DETAILS BY C. Figuerres	CHECKED M. Abdi			KILOMETER POST R70.410						
ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN			CU 01 EA 262001	DISREGARD PRINTS BEARING EARLIER REVISION DATES	<table border="1"> <tr> <th>REVISION DATES</th> <th>SHEET</th> <th>OF</th> </tr> <tr> <td>9-21-04 4-16-08 1-14-09 11-09-04 1-19-05 4-08-05 10-26-05 4-4-06 9-29-06</td> <td>9</td> <td>18</td> </tr> </table>	REVISION DATES	SHEET	OF	9-21-04 4-16-08 1-14-09 11-09-04 1-19-05 4-08-05 10-26-05 4-4-06 9-29-06	9	18
REVISION DATES	SHEET	OF									
9-21-04 4-16-08 1-14-09 11-09-04 1-19-05 4-08-05 10-26-05 4-4-06 9-29-06	9	18									

ORIGINAL SCALE IN MILLIMETERS FOR REDUCED PLANS: 0 10 20 30 40 50 60 70 80 90 100

FILE => 10-0128r1\_agg1.dgn

STRUCTURES DESIGN DETAIL SHEET (METRIC) (REV.03-17-04)

DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Men	101	R69.4/R78.9	641	939
		<i>M. Friedheim</i> 9-15-11 REGISTERED CIVIL ENGINEER DATE			
		1-23-12 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.					



**BOTTOM GIRDER REINFORCEMENT**  
1:80

**NOTES:**

- #32 Bars shall not be placed in this region.
- Continuous bars shall extend 1100 mm into Abutment End Diaphragms.
- Left Bridge shown, Right Bridge similar.
- Distribution bars are not shown.
- Splices in continuous and cut-off bars shall be service level splices and shall not be located within 9.0 m of each side of ℄ span.



DESIGN	BY M. Friedheim	CHECKED M. Abdi
DETAILS	BY C. Figuerres	CHECKED M. Abdi
QUANTITIES	BY M. Friedheim	CHECKED M. Dunn

**STATE OF CALIFORNIA**  
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES  
STRUCTURE DESIGN  
**DESIGN BRANCH 2**

BRIDGE NO.	10-0128RL
KILOMETER POST	R70.410

**WILLITS BYPASS**  
**ROUTE 101/20 SEPARATION**  
**BOTTOM GIRDER REINFORCEMENT**

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN



CU 01  
EA 262001

DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES	SHEET	OF
	9-15-04 9-21-04 10-25-04 11-02-04 4-08-05 1-06-06 4-24-06 1-14-09 2-10-09	10	18

USERNAME => s114926 DATE PLOTTED => 28-JAN-2012 TIME PLOTTED => 07:42

DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Men	101	R69.4/R78.9	642	939

<i>M. Friedheim</i>		9-15-11
REGISTERED CIVIL ENGINEER	DATE	
1-23-12		
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

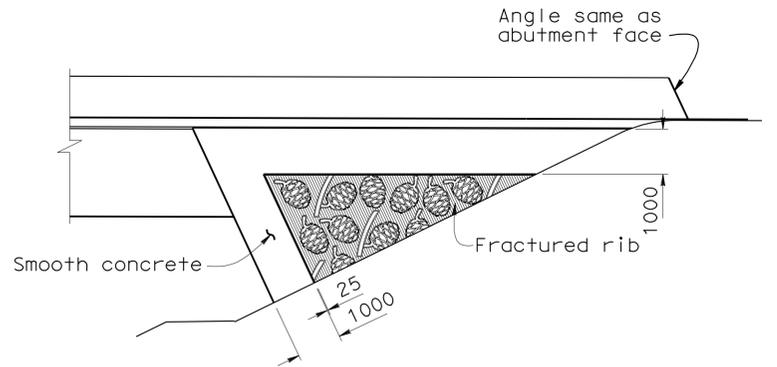
M. Friedheim

No. 57968

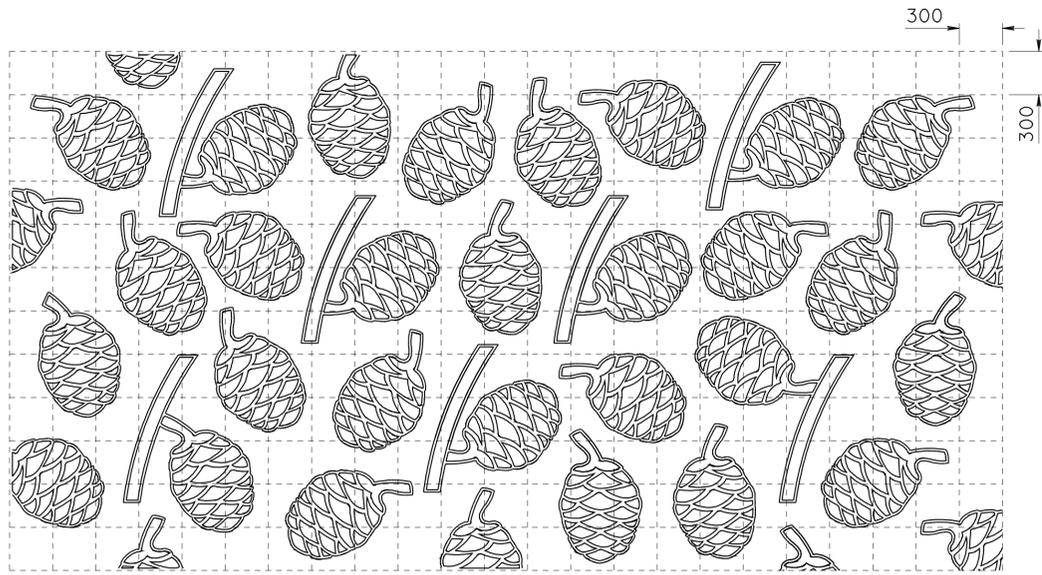
Exp. 6-30-12

CIVIL

STATE OF CALIFORNIA

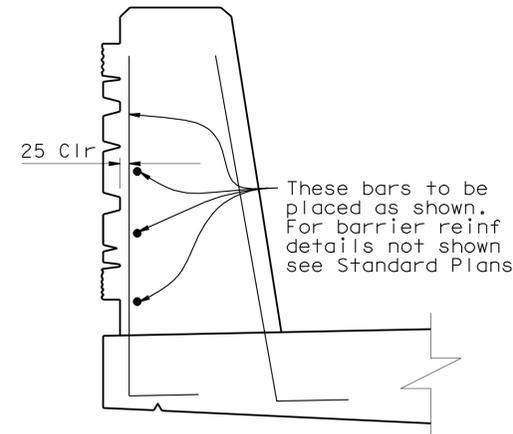


**TYPICAL WINGWALL AESTHETIC TREATMENT**  
1:80

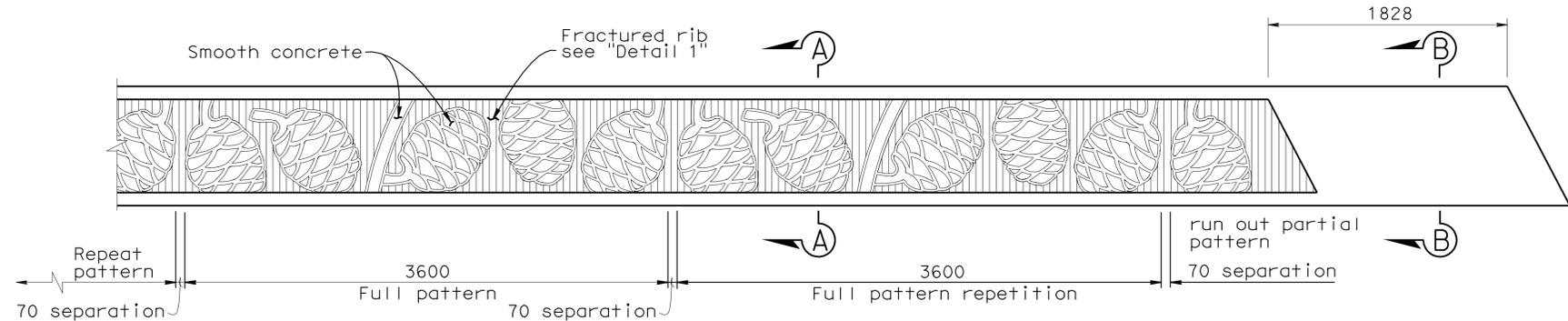


**RANDOM PINECONE PATTERN FOR WING WALLS**  
1:25

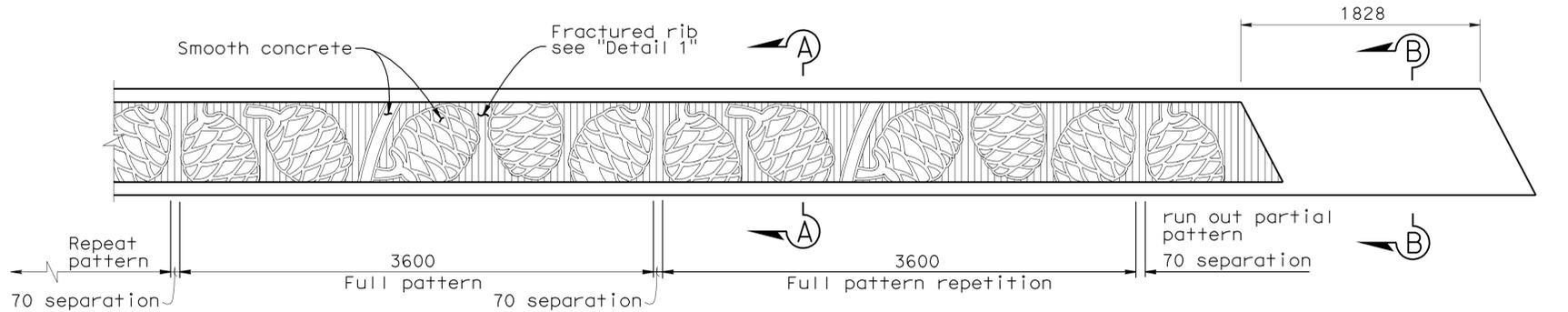
NOTE: Place random pinecone pattern on Fractured Rib Background. Fractured rib to be at same angle/alignment as abutment wall. Relief similar to Barrier Section A-A.



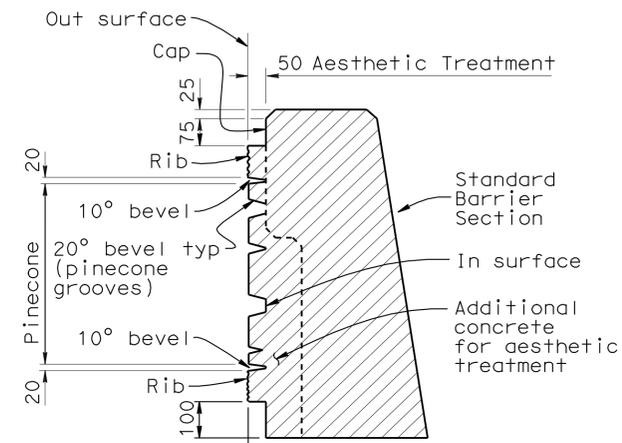
**BARRIER REINFORCEMENT MODIFICATION**  
1:10



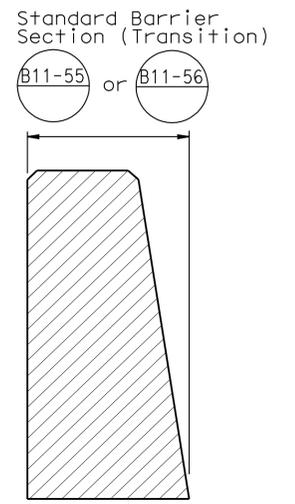
**TYPE 736 BARRIER PARTIAL ELEVATION**  
1:25



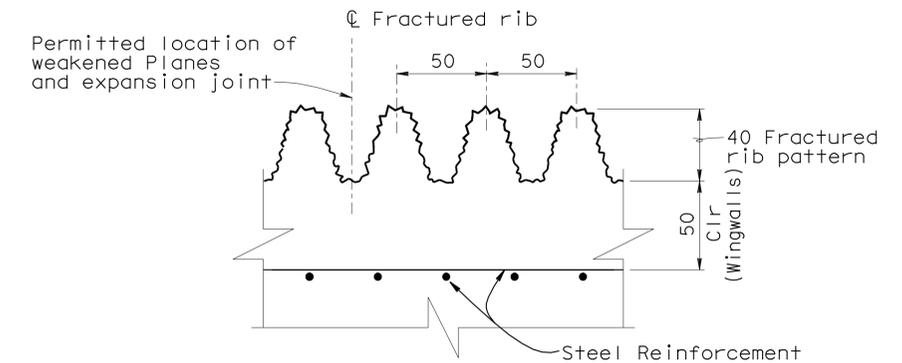
**TYPE 732 BARRIER PARTIAL ELEVATION**  
1:25



**SECTION A-A**  
1:10



**SECTION B-B**  
1:10



**TYPICAL FRACTURED RIB TEXTURE**  
**DETAIL 1**  
1:2



DESIGN	BY T. Vuong	CHECKED M. Abdi
DETAILS	BY E. Montevirgen	CHECKED M. Abdi
QUANTITIES	BY M. Friedheim	CHECKED M. Dunn

**STATE OF CALIFORNIA**  
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES  
STRUCTURE DESIGN  
**DESIGN BRANCH 2**

BRIDGE NO.  
10-0128RL  
KILOMETER POST  
R70.410

**WILLITS BYPASS**  
**ROUTE 101/20 SEPARATION**  
**AESTHETIC DETAILS**

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN



CU 01  
EA 262001

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES					SHEET	OF
12-28-06	1-13-09	1-14-09	1-28-09	2-10-09	11	18

STRUCTURES DESIGN DETAIL SHEET (METRIC) (REV.03-17-04)

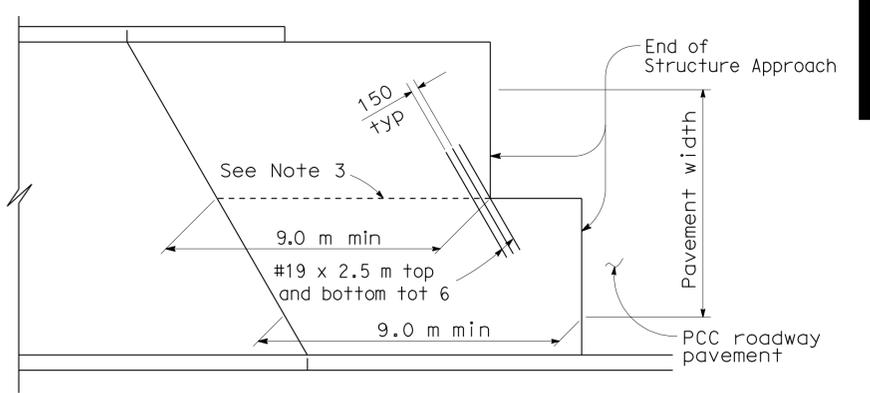
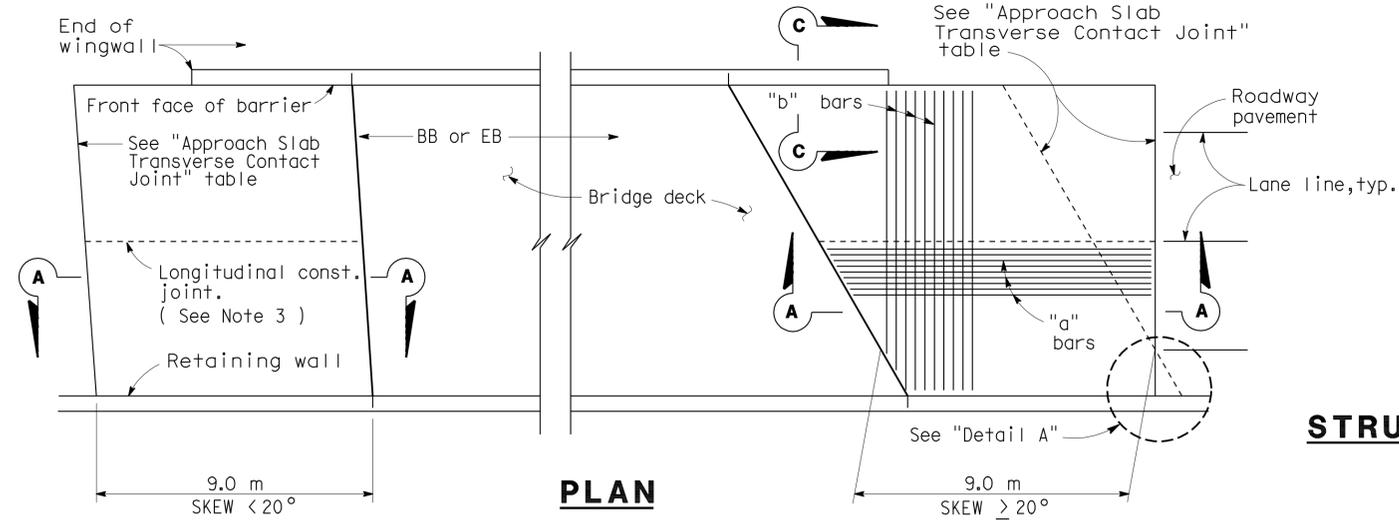
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01	Men	101	R69.4/R78.9	643	939

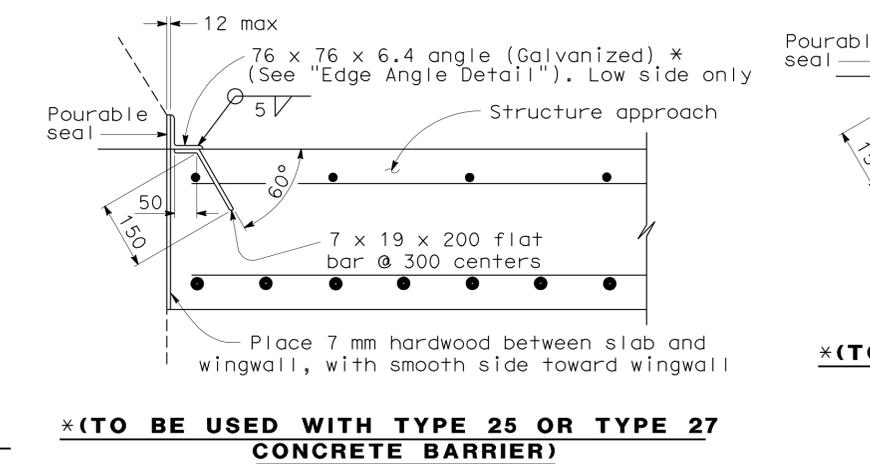
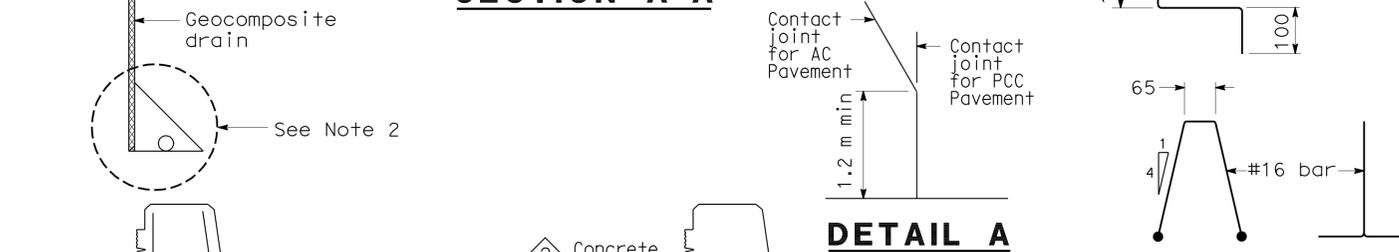
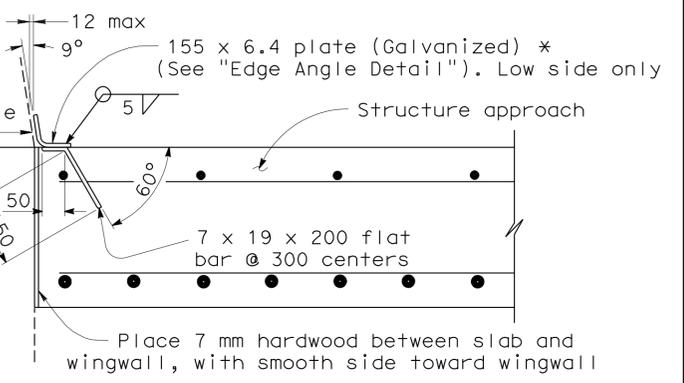
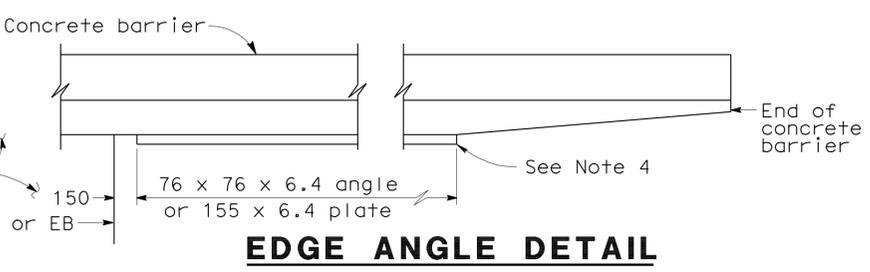
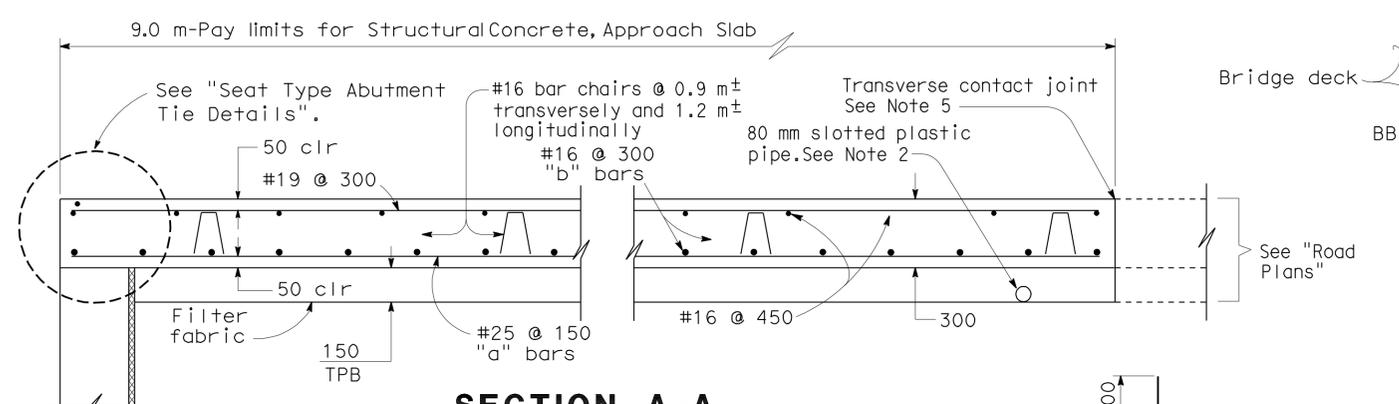
M. Friedheim  
 REGISTERED ENGINEER - CIVIL  
 No. 57968  
 Exp. 6-30-12  
 CIVIL  
 STATE OF CALIFORNIA

1-23-12  
 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.

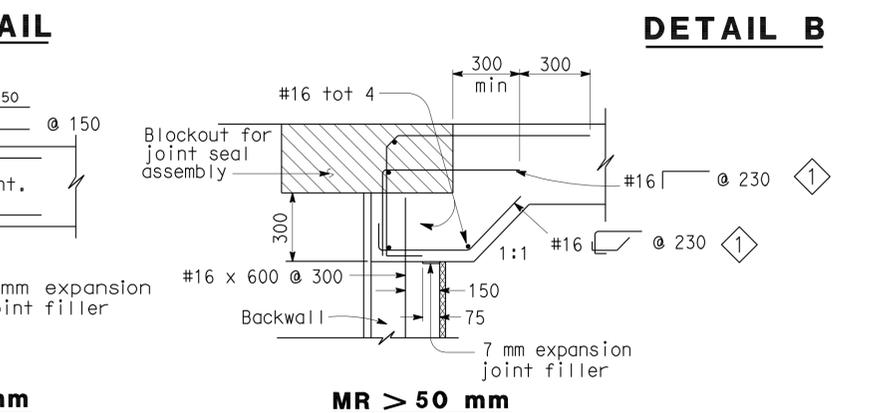
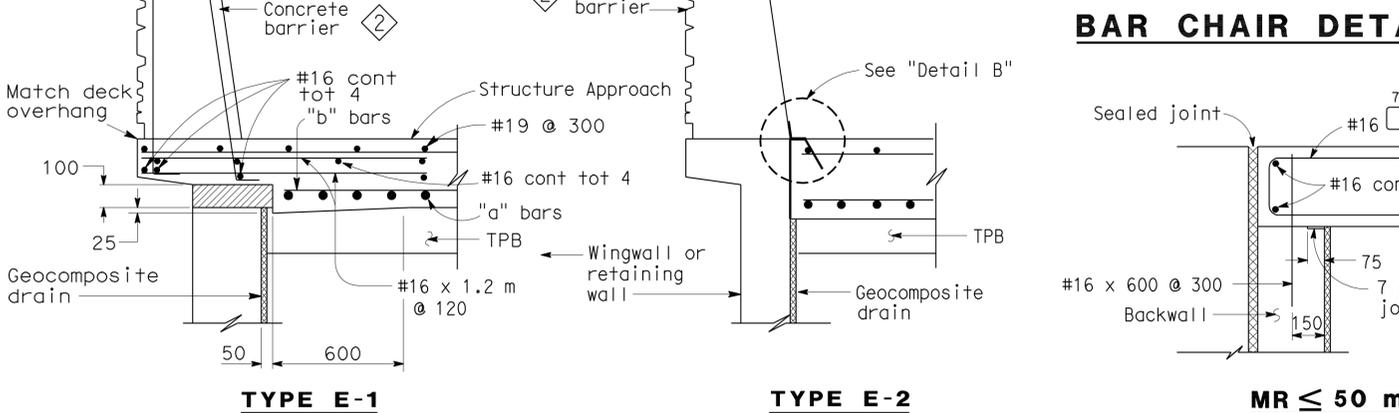


**APPROACH SLAB TRANSVERSE CONTACT JOINT**

APPROACH SKEW	WITH AC ROADWAY PAVEMENT	WITH PCC ROADWAY PAVEMENT
< 20°	Parallel to face of paving notch	Parallel to face of paving notch
20° - 45°	Parallel to face of P N use (Detail A)	Stagger lines 7.2 m to 10.8 m apart.
> 45°	Parallel to face of P N use (Detail A)	Stagger at each lane line.



**\*(TO BE USED WITH TYPE 732 OR TYPE 736 CONCRETE BARRIER)**



- NOTES:**
- For details not shown, see Structure Plans. For MR ≤ 50 mm, adjust bar reinforcement to clear a sawcut for sealed joint, when required.
  - For drainage details, see "Structure Approach Drainage Details" sheet.
  - Longitudinal construction joints, when permitted by the Engineer, shall be located on lane lines.
  - End angle or plate at beginning of barrier transition, end of wingwall or end of structure approach as applicable.
  - For transverse contact joint with new PCC paving, refer to Standard Plan P30.
  - At the contractor's option, approach slab transverse reinforcement may be placed parallel to paving notch. Spacing of transverse reinforcement is measured along roadway.
- Remove all polystyrene.

**SPECIAL DETAILS**

NO SCALE

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN

**WILLITS BYPASS**

**ROUTE 101/20 SEPARATION**

**STRUCTURE APPROACH TYPE N(9S)**

**STANDARD DRAWING**

RELEASE DATE	DESIGN BY	CHECKED BY	RELEASED BY
REVISED	M. TRAFFALIS	E. THORKILDSEN	
FILE NO.	DETAILS BY	CHECKED BY	
xs3-120	R. YEE	E. THORKILDSEN	
	SUBMITTED BY	DRAWING DATE	OFFICE CHIEF
	M. HA	4/98	

- 1 Bar spacing changed
- 2 Modified barrier

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES

BRIDGE NO. 10-0128RL  
KILOMETER POST R70.410

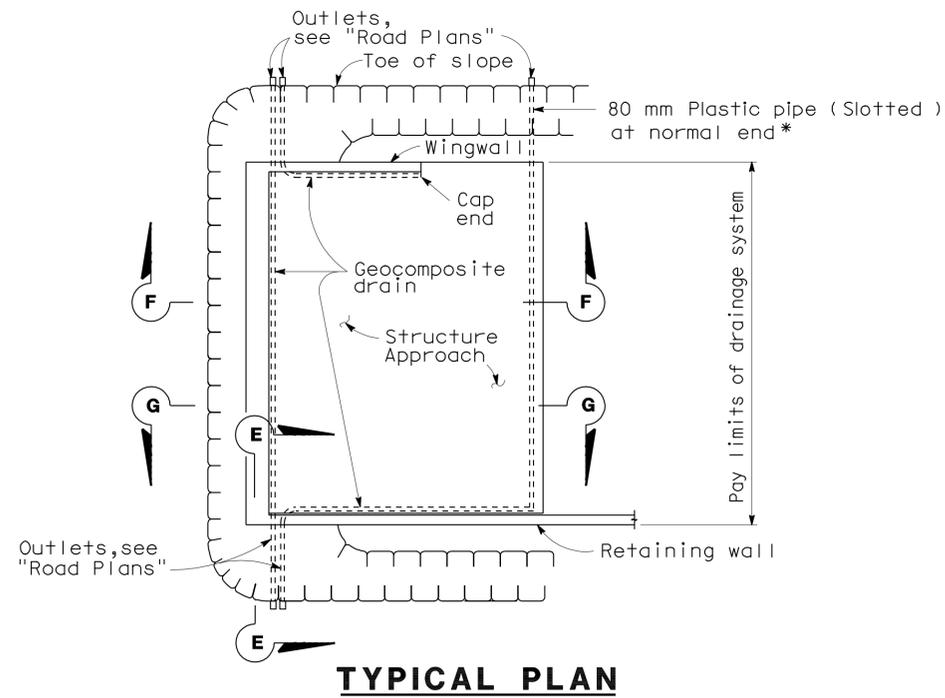


DIST.	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
01	Men	101	R69.4/R78.9	644	939

REGISTERED ENGINEER - CIVIL  
 M. Friedheim  
 No. 57968  
 Exp. 6-30-12  
 CIVIL  
 STATE OF CALIFORNIA

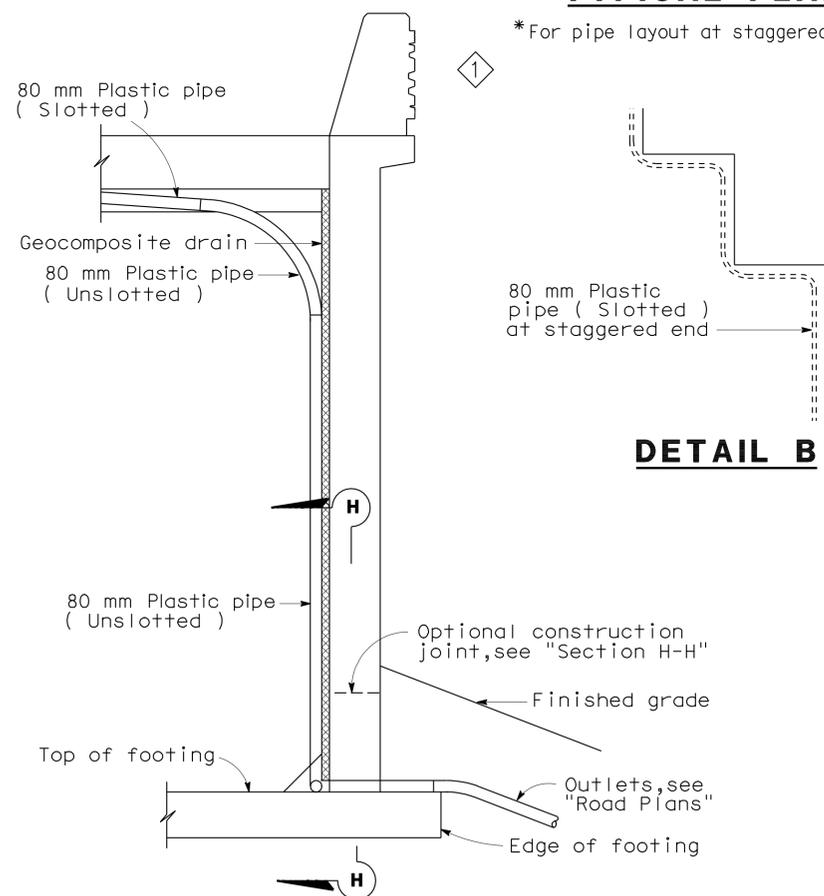
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 1-23-12  
 PLANS APPROVAL DATE

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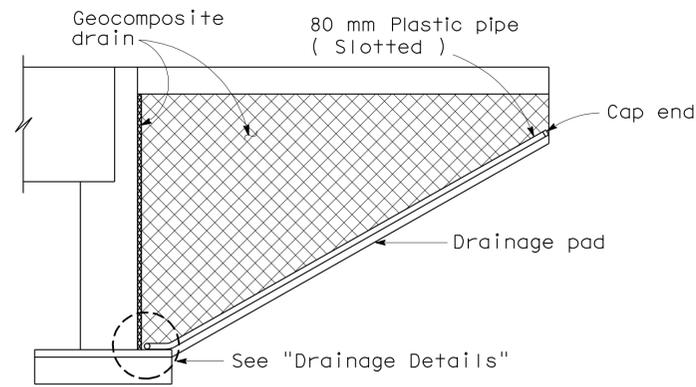
**TYPICAL PLAN**

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

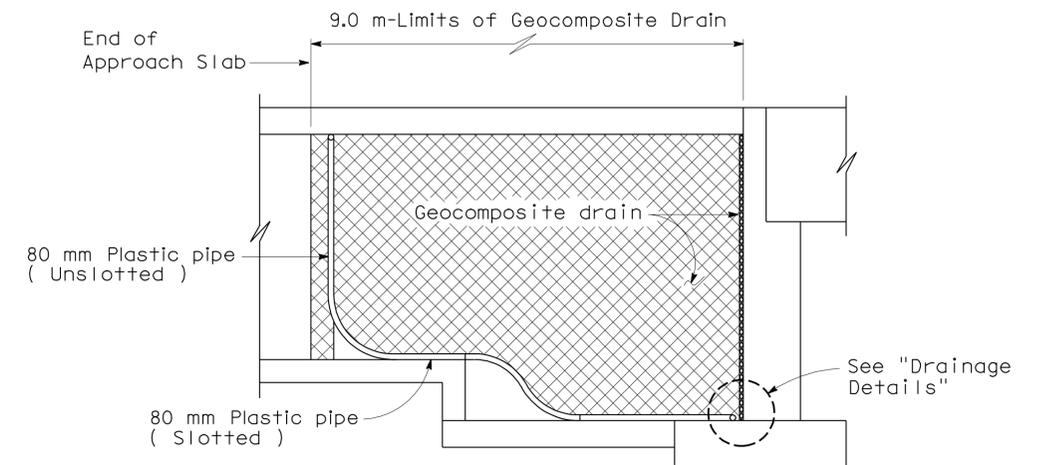


**SECTION E-E**

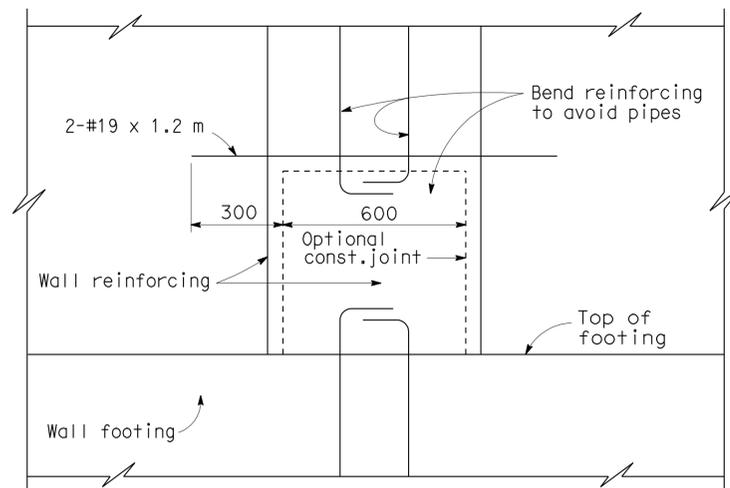
NOTE: Bends and junctions in 80 mm plastic pipe are 750 mm radius min.



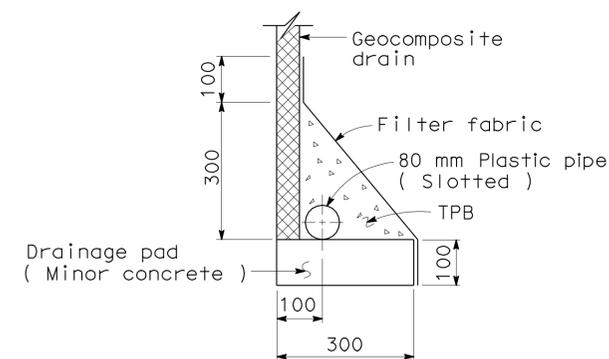
**CANTILEVER WINGWALL SECTION F-F**



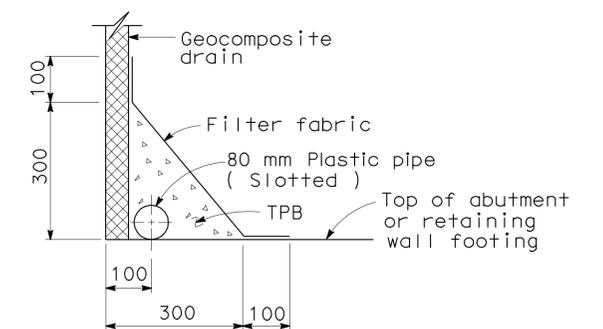
**RETAINING WALL WINGWALL SECTION G-G**



**SECTION H-H**



**WITHOUT FOOTING**



**WITH FOOTING**

**DRAINAGE DETAILS**

**SPECIAL DETAILS**

NO SCALE  
ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN

**WILLITS BYPASS**

BRIDGE NO.	<b>ROUTE 101/20 SEPARATION</b>
10-0128RL	
KILOMETER POST	<b>STRUCTURE APPROACH DRAINAGE DETAILS</b>
R70.410	

STANDARD DRAWING			
RELEASE DATE	DESIGN BY	CHECKED	RELEASED BY
REVISED	M. TRAFFALIS	E. THORKILDSEN	
FILE NO.	DETAILS BY	CHECKED	
xs3-110	R. YEE	E. THORKILDSEN	
	SUBMITTED BY	DRAWING DATE	OFFICE CHIEF
	M. HA	4/98	

Modified barrier

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES

CU 01  
EA 262001

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES (PRELIMINARY STAGE ONLY)

9-16-04	9-29-06	1-14-09							
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SHEET 13 OF 18

ORIGINAL SCALE IN MILLIMETERS FOR REDUCED PLANS

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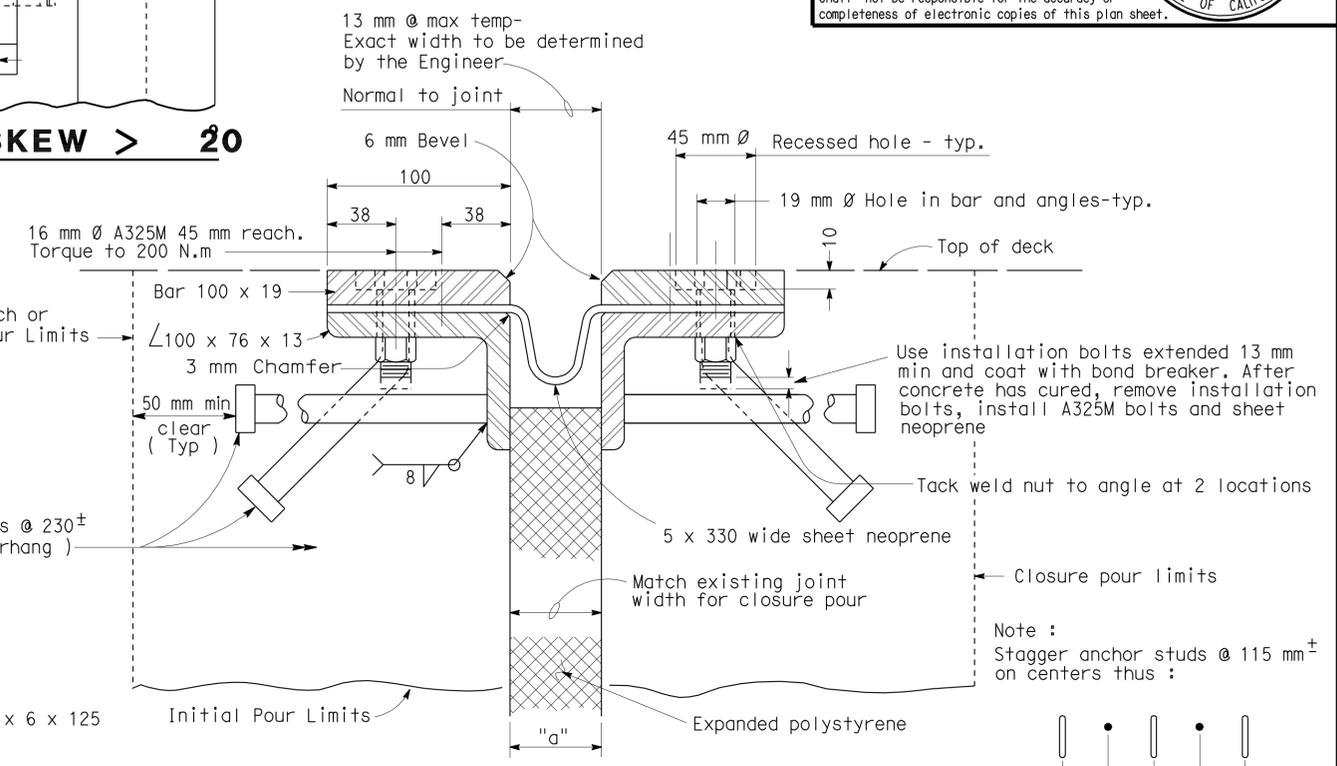
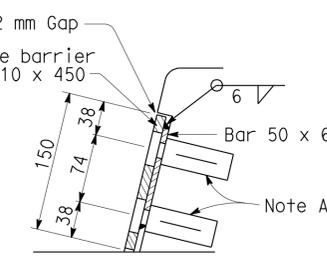
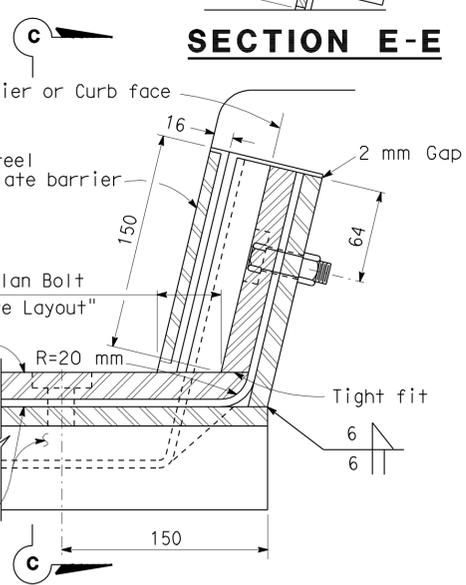
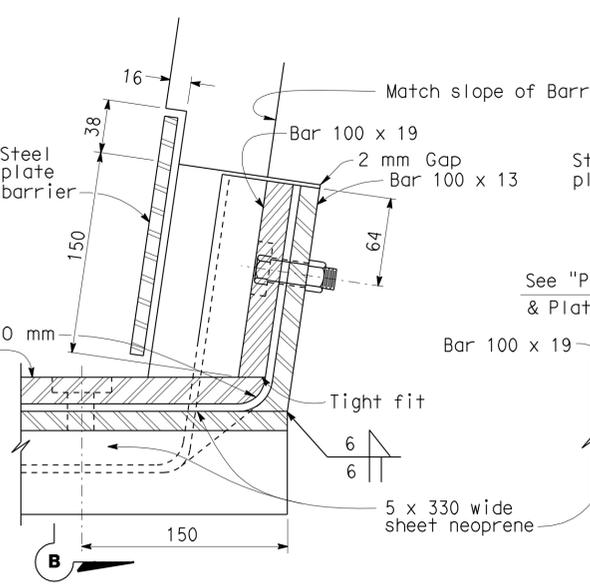
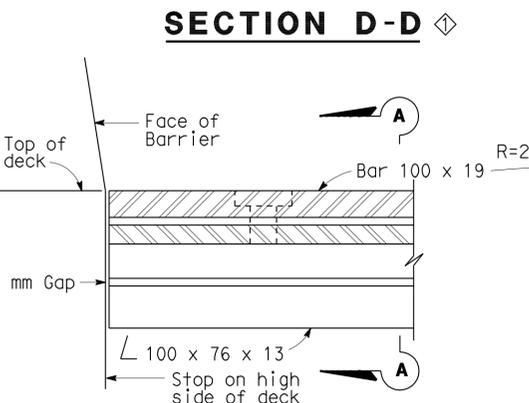
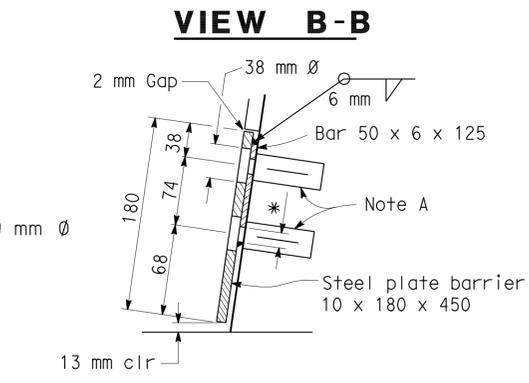
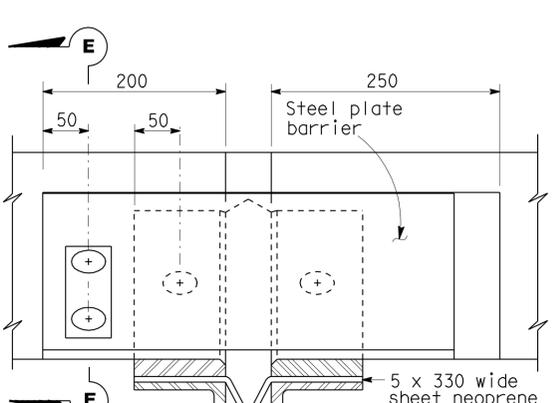
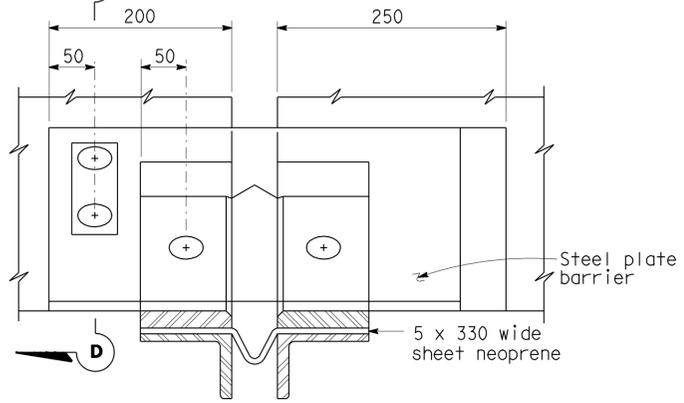
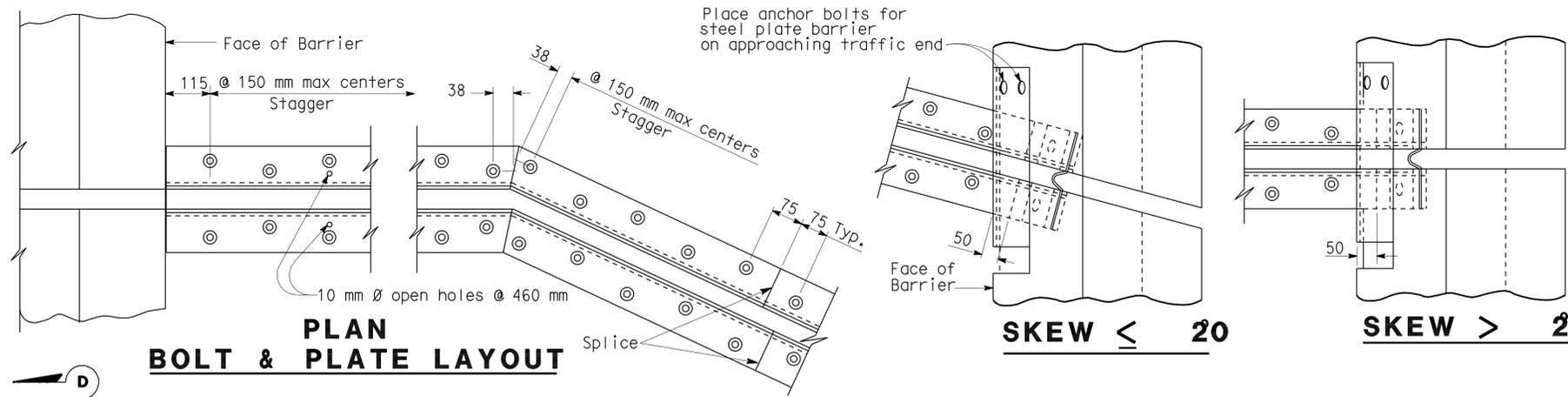
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DIST.	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
01	Men	101	R69.4/R78.9	645	939

REGISTERED ENGINEER - CIVIL  
 M. Friedheim  
 No. 57968  
 Exp. 6-30-12  
 CIVIL  
 STATE OF CALIFORNIA

9-15-11  
 PLANS APPROVAL DATE  
 1-23-12  
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**SECTION A-A**

Joint Information		"a" Dimensions			
Location	Movement Rating (MR)	Skew	Winter	Spring & Fall	Summer
Abut 1	60	34°25'12"	30	25	15
Abut 2	60	34°25'12"	30	25	15

**NOTES:** Full penetration butt welds may be substituted for fillet welds on all anchor studs. Alternate types of anchor studs may be permitted subject to the approval by the Engineer. Joint seal assembly to be used in conjunction with closure pour. ( See other sheets for limits ). Closure pour shall not be placed until final deck surface is within the tolerance specified. Use joint at crown of roadway, at any change in transverse slope in deck and at changes in horizontal direction. Place other joints at or near lanes. All metal parts to be painted or galvanized after fabrication. Sheet neoprene shall be fabricated in one continuous piece or joints shall be vulcanized. Neoprene shall be fabricated to bend around corners. 25 mm holes in neoprene sheets shall be drilled or punched so that the neoprene is not distorted at the time of installation.

**NOTE A**  
Insert assembly or expansion anchorage for 16 x 45 A325M bolt.

**NOTE B**  
Use the Sidewalk Detail at all sidewalk joints. Use the Barrier Detail at both sides if the roadway is crowned or if the difference in elevation between the ends of the seal is 150 mm or less.

**NO SCALE**  
ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN

**SPECIAL DETAILS**

**WILLITS BYPASS**

**ROUTE 101/20 SEPARATION**

**JOINT SEAL ASSEMBLY**  
(MAXIMUM MOVEMENT RATING = 100 mm)

STANDARD DRAWING

RELEASE DATE	DESIGN	BY	CHECKED	RELEASED BY
Revised	H. HERR	H. HERR	R. LACALLE	
FILE NO.	DETAILS	BY	CHECKED	
xs8-010	R. YEE	R. YEE	R. LACALLE	
	SUBMITTED	BY	DRAWING DATE	OFFICE CHIEF
	C.W. FURKISS	C.W. FURKISS	9/93	

Modified for barrier shape

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES

BRIDGE NO. 10-0128RL  
KILOMETER POST R70.410

CU 01  
EA 262001

DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES (PRELIMINARY STAGE ONLY)	SHEET OF
	9-16-04 10-25-04 12-21-04 1-14-09	14 18



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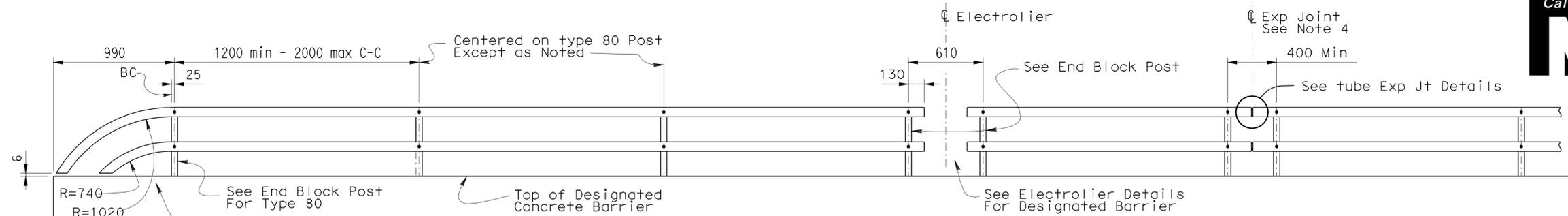
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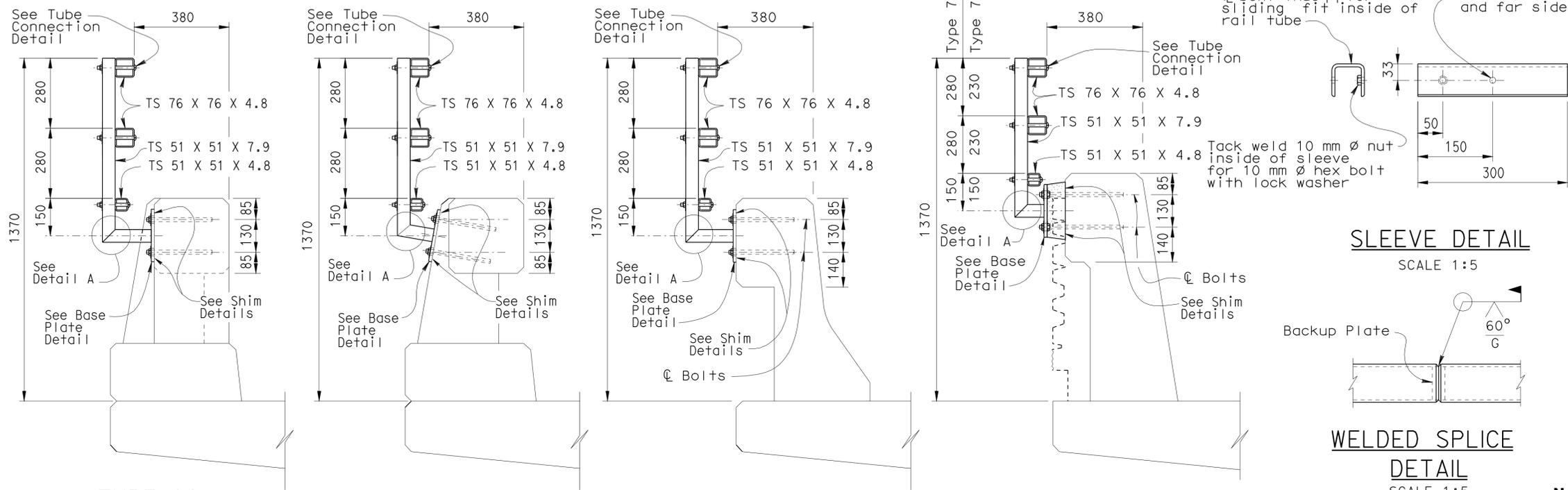
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 REGISTERED ENGINEER - CIVIL  
 M. Friedheim  
 No. 57968  
 Exp. 6-30-12  
 CIVIL  
 STATE OF CALIFORNIA

1-23-12  
 PLANS APPROVAL DATE  
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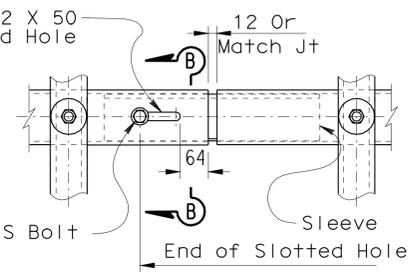
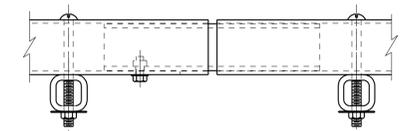
**ELEVATION**

SCALE 1:20



**RAIL CAP DETAIL**

SCALE 1:5



**TUBE EXPANSION JOINT DETAILS**

SCALE 1:5

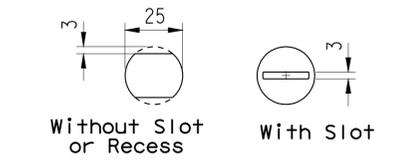
**NOTES:**

- Galvanize rail assembly after fabrication.
- Post shall be normal to railing.
- Rail tubes shall be shop bent or fabricated to fit horizontal curve when radius is less than 300 m.
- Tube splices shall be located in the tubes spanning deck or wall joints. Increase joint width in tubes to match expansion joint width and increase sleeve length correspondingly.
- Top rail tube shall be continuous over not less than two posts except a short post spacing is permitted near deck or wall joints, electroliers, or other rail discontinuities as noted.
- For details and reinforcement not shown see Standard Plans.
- See project plans for limits of tubular bicycle railing.
- CIP threaded rods may alternatively be installed using a drill and bond method with epoxy cartridges after forming and pouring barrier concrete. Plates to be placed against level surface.

**SPECIAL DETAILS**

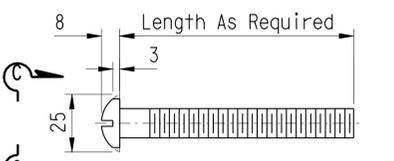
**TYPE 80 END BLOCK POST**

SCALE 1:10



**VIEW C-C**

SCALE 1:1

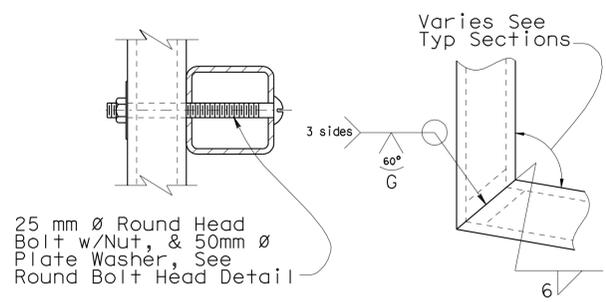


**ROUND HEAD BOLT DETAIL**

SCALE 1:1

**TYPE 80**

SCALE 1:10



**TUBE CONNECTION DETAIL**

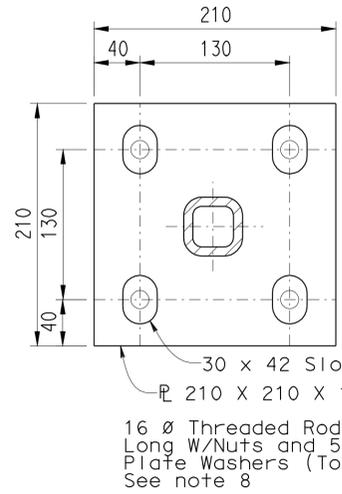
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**DETAIL A**

SCALE 1:2.5

**TYPE 25**

SCALE 1:10

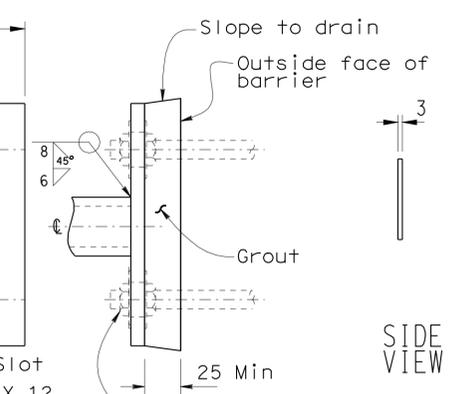


**BASE PLATE DETAIL**

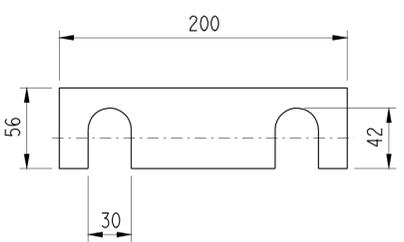
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**TYPE 732 OR 736**

NO SCALE



**SIDE VIEW**



**FRONT VIEW**

**SHIM DETAILS**

NO SCALE

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN

- Barrier modified
- Plate details modified

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES

BRIDGE NO. 10-0128RL  
KILOMETER POST R70.410

**WILLITS BYPASS**  
**ROUTE 101/20 SEPARATION**  
**TUBULAR BICYCLE RAILING**

RELEASE DATE	DESIGN	BY	CHECKED	RELEASED BY
REVISED	TILLAT SATTER	TILLAT SATTER	NEELIMA PATIL	
FILE NO.	DETAILS	BY	CHECKED	
XS16-500	H.NGUYEN	TILLAT SATTER		
	SUBMITTED	BY	DRAWING DATE	OFFICE CHIEF
			08/06	Roberto Small

DS OSD 2139M (METRIC) (REV. 3/5/97)



CU 01  
EA 262001

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES (PRELIMINARY STAGE ONLY)	SHEET	OF
07-24-09 06-23-09	15	18

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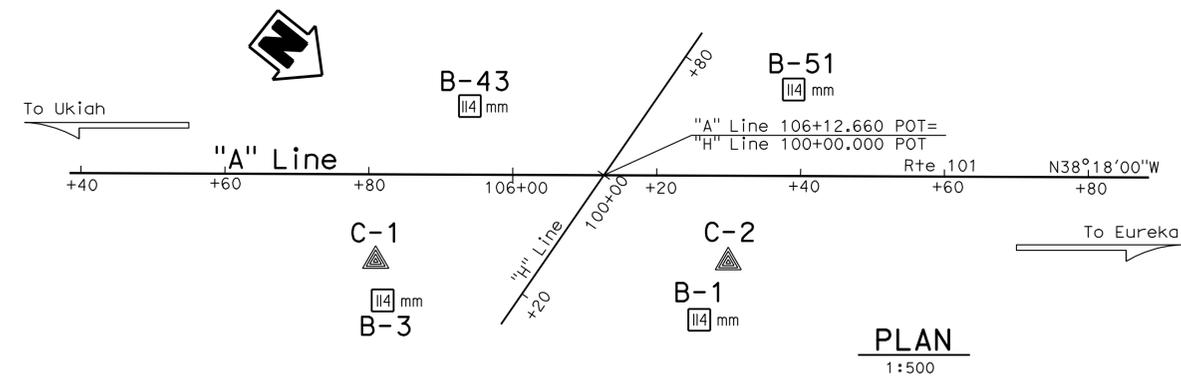
DIST	COUNTY	ROUTE	KILOMETER TOTAL PROJECT	POST TOTAL	SHEET No	TOTAL SHEETS
01	Men	101	R69.4/R78.9	647	939	

REGISTERED CIVIL ENGINEER  
 No. 1481  
 Exp. 4-30-11  
 REGISTERED GEOLOGIST  
 No. 1481  
 Exp. 4-30-11  
 CERTIFIED ENGINEERING GEOLOGIST  
 STATE OF CALIFORNIA

5-19-09  
 1-23-12  
 PLANS APPROVAL DATE

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**BENCH MARK**  
 26200-58  
 Fnd ALCAR @ C-1 106+8X3RT  
 1.644 m Rt @ PROPOSED "A" LINE Rte 101  
 Sta. 106+80.145  
 N 690615.313  
 E 1885757.840  
 Elev. = 449.679



- Notes:
- Standard Penetration Tests (SPT) performed in Borings B-1, B-3, B-43 and B-51 were advanced using a 63.5 kg CME Automatic Hammer.
  - E=Blow count for 0.3 m penetration extrapolated from blow count for less than 0.3 m (due to change in material or hard driving).
  - Groundwater surface Elevations are subject to seasonal fluctuations and may occur at higher or lower Elevations depending on conditions at time of construction.
  - pp= Unconfined compressive strength determined in the field by "Pocket Penetrometer." Units shown are kilopascals (kPa).
  - Consistency descriptors shown on the LOTB sheets are based on the pocket penetrometer readings.



**LEGEND OF BORING OPERATIONS**

**ELECTRONIC CONE PENETROMETER TEST**  
 Cone Penetrometer (CPT) data from 0 to 100 mm depth. Friction Ratio (%) and Tip Bearing (MPa) are plotted.

**57 mm CONE PENETRATION BORING**  
 Top Hole EL., Location, Boring Date, Friction Ratio (%), Tip Bearing (MPa).

**ROTARY SAMPLE BORING (WET)**  
 Top Hole EL., Location, Boring Date, Friction Ratio (%), Tip Bearing (MPa).

**SAMPLE BORING (DRY)**  
 Top Hole EL., Location, Boring Date, Friction Ratio (%), Tip Bearing (MPa).

**LEGEND OF EARTH MATERIALS**  
 Symbols for Gravel, Sand, Silt, Clay, Silty Clay, Silty Sand, Sandy Silt, Organic Matter, Boulder, Rock, Sedimentary Rock, Metamorphic Rock.

**CONSISTENCY CLASSIFICATION FOR SOILS**  
 SPT N-value (0-30) vs. Consistency (Very Loose to Very Stiff).

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



<b>ENGINEERING SERVICES</b>	<b>GEOTECHNICAL SERVICES</b>	FIELD INVESTIGATION BY:
DRAWN BY: F. Nguyen 12/08	CHECKED BY:	T. Alderman

ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SHOWN  
 ORIGINAL SCALE IN MILLIMETERS FOR REDUCED PLANS

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES  
 STRUCTURE DESIGN  
 DESIGN BRANCH 2

BRIDGE NO.	10-0128RL
KILOMETER POST	R70.41

**WILLITS BYPASS**  
**ROUTE 101/20 SEPARATION**  
**LOG OF TEST BORINGS 1 OF 3**

HOR. 1:100  
 VER. 1:100

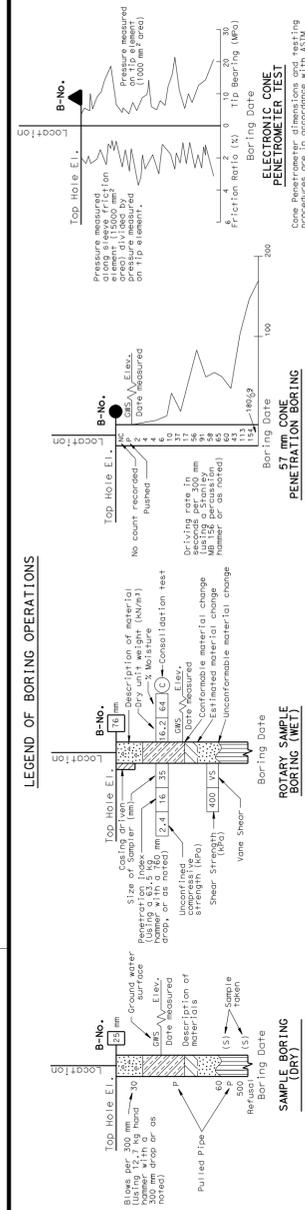
REVISION DATES (PRELIMINARY STAGE ONLY)  
 SHEET 16 OF 18

CONSISTENCY CLASSIFICATION FOR SOILS		According to the Standard Penetration Test	
SPT No./value (0.3m)	Soil Description	SPT No./value (0.3m)	Soil Description
0-4	Very Loose	0-2	Very Soft
5-10	Loose	3-4	Soft
11-30	Medium Dense	5-8	Firm
31-50	Dense	9-15	Stiff
>50	Very Dense	16-30	Very Stiff
		>30	Hard

LEGEND OF EARTH MATERIALS	
	GRAVEL
	SAND
	SILT
	CLAY
	SANDY CLAY or CLAYEY SAND
	SILTY SILT or SILTY SAND
	SILTY CLAY
	CLAYEY SILT
	PEAT and/or ORGANIC MATTER
	BOULDERS
	ANGULAR ROCK
	SEDIMENTARY ROCK
	METAMORPHIC ROCK

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

LEGEND OF BORING OPERATIONS	
	67 mm CONE PENETRATION
	SAMPLE BORING (DRY)
	ROTARY SAMPLE BORING (WET)
	AUGER BORING (DRY)
	TEST PIT
	DIAMOND CORE BORING
	JET BORING
	ELECTRONIC CONE PENETROMETER



<b>ENGINEERING SERVICES</b>	<b>GEOTECHNICAL SERVICES</b>
DRAWN BY: F. Nguyen 12/08	FIELD INVESTIGATION BY: T. Alderman
CHECKED BY:	

ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SHOWN



STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES  
STRUCTURE DESIGN  
DESIGN BRANCH 2

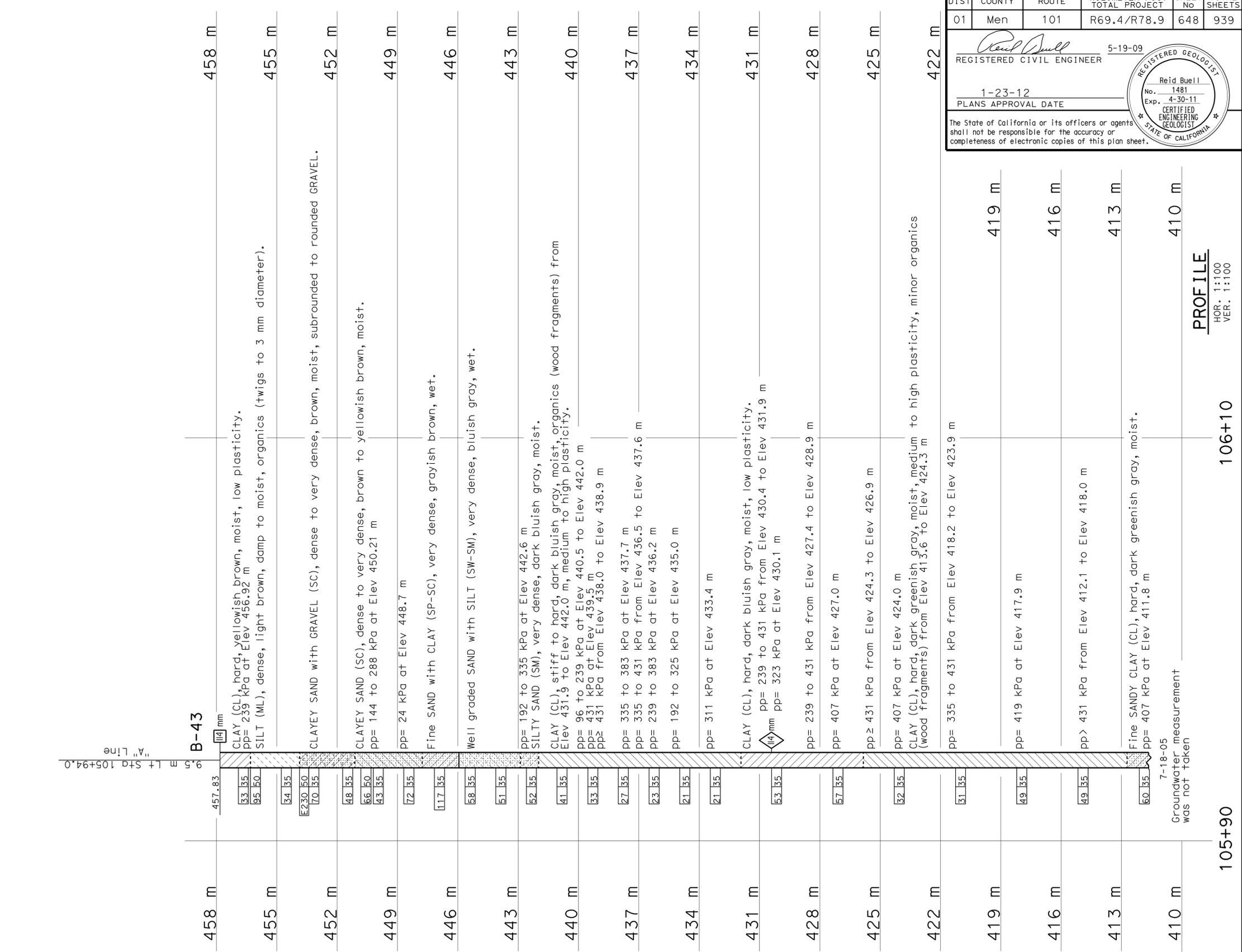
BRIDGE NO. 10-0128RL  
KILOMETER POST R70.410

CU 01  
EA 262001

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES (PRELIMINARY STAGE ONLY)				SHEET 17	OF 18
07-24-09	05-11-09	05-19-09			

FOR PLAN VIEW, SEE "LOG OF TEST BORINGS" 1 OF 3



DIST 01	COUNTY Men	ROUTE 101	KILOMETER TOTAL R69.4/R78.9	POST PROJECT	SHEET No 648	TOTAL SHEETS 939
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REGISTERED CIVIL ENGINEER  
No. 1481  
Exp. 4-30-11  
REGISTERED GEOLOGIST  
No. 1481  
Exp. 4-30-11  
CERTIFIED ENGINEERING GEOLOGIST  
STATE OF CALIFORNIA

5-19-09  
1-23-12  
PLANS APPROVAL DATE

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WILLITS BYPASS  
ROUTE 101/20 SEPARATION  
LOG OF TEST BORINGS 2 OF 3

PROFILE  
HOR. 1:100  
VER. 1:100

106+10

105+90



DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Men	101	R69.4/R78.9	650	939

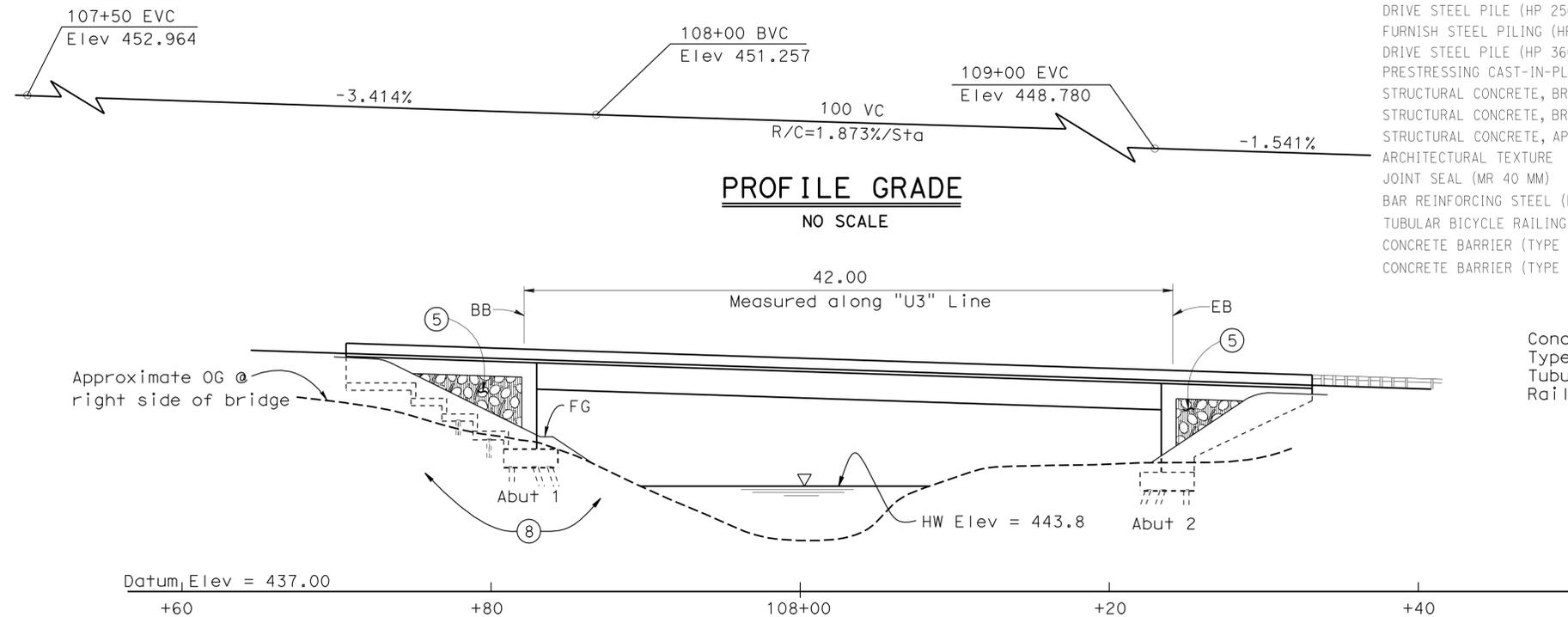
*M. Friedheim* 9-15-11  
REGISTERED CIVIL ENGINEER DATE

1-23-12  
PLANS APPROVAL DATE

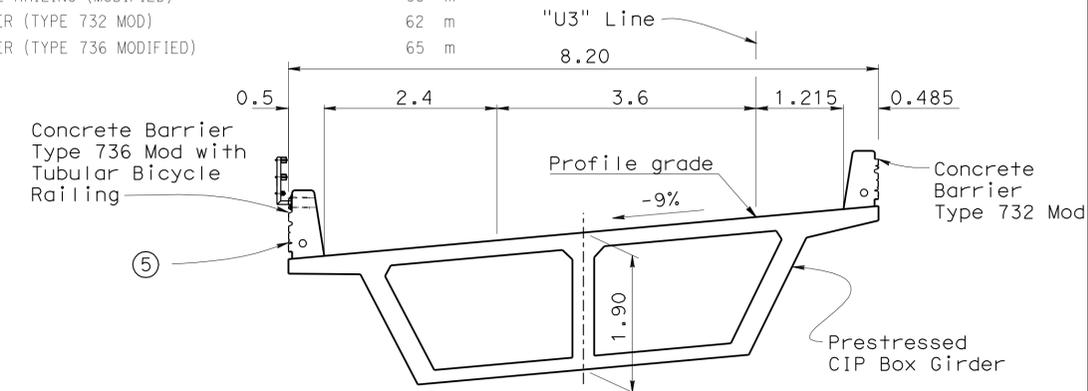
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REGISTERED PROFESSIONAL ENGINEER  
M. Friedheim  
No. 57968  
Exp. 6-30-12  
CIVIL  
STATE OF CALIFORNIA

STRUCTURE EXCAVATION (BRIDGE)	146	m <sup>3</sup>
STRUCTURE BACKFILL (BRIDGE)	449	m <sup>3</sup>
FURNISH STEEL PILING (HP 250 X 62)	215	m
DRIVE STEEL PILE (HP 250 X 62)	14	EA
FURNISH STEEL PILING (HP 360 X 174)	420	m
DRIVE STEEL PILE (HP 360 X 174)	30	EA
PRESTRESSING CAST-IN-PLACE CONCRETE	LUMP	SUM
STRUCTURAL CONCRETE, BRIDGE FOOTING	99	m <sup>3</sup>
STRUCTURAL CONCRETE, BRIDGE	300	m <sup>3</sup>
STRUCTURAL CONCRETE, APPROACH SLAB (TYPE N)	41	m <sup>3</sup>
ARCHITECTURAL TEXTURE	39	m <sup>2</sup>
JOINT SEAL (MR 40 MM)	16	m
BAR REINFORCING STEEL (BRIDGE)	46 000	kg
TUBULAR BICYCLE RAILING (MODIFIED)	65	m
CONCRETE BARRIER (TYPE 732 MOD)	62	m
CONCRETE BARRIER (TYPE 736 MODIFIED)	65	m



**PROFILE GRADE**  
NO SCALE



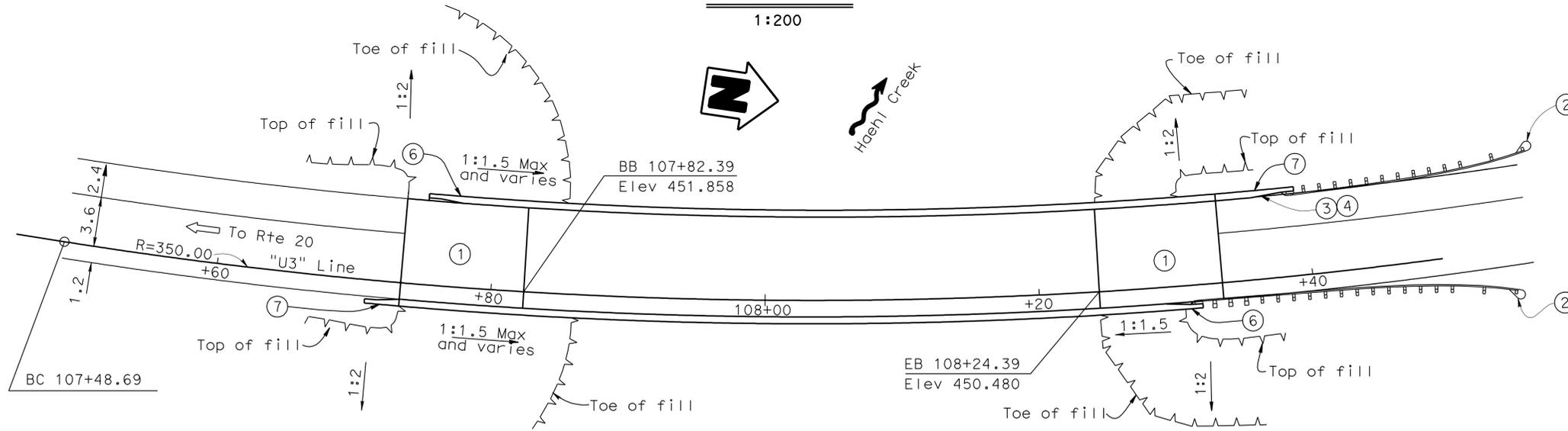
**TYPICAL SECTION**  
1:50

**INDEX TO PLANS**

1. GENERAL PLAN
2. DECK CONTOURS
3. FOUNDATION PLAN
4. ABUTMENT LAYOUT
5. ABUTMENT DETAILS NO. 1
6. ABUTMENT DETAILS NO. 2
7. ABUTMENT DETAILS NO. 3
8. ABUTMENT DETAILS NO. 4
9. TYPICAL SECTION
10. GIRDER LAYOUT
11. ADDITIONAL BOTTOM GIRDER REINFORCEMENT
12. AESTHETIC DETAILS
13. STRUCTURE APPROACH TYPE N(9S)
14. STRUCTURE APPROACH DRAINAGE DETAILS
15. TUBULAR BICYCLE RAILING
16. LOG OF TEST BORINGS NO. 1 OF 3
17. LOG OF TEST BORINGS NO. 2 OF 3
18. LOG OF TEST BORINGS NO. 3 OF 3

**LEGEND:**

- ① Structure Approach Slab, Type N(9S)
- ② Metal Beam Guardrail, See Road Plans
- ③ Paint "S101-W20 Connector Bridge"
- ④ Paint Bridge Number and Year Constructed
- ⑤ Aesthetic Treatment
- ⑥ Barriers shall extend to the end of the wingwall
- ⑦ Barriers shall extend to the end of the RW
- ⑧ See "Road Plans" for Slide Mitigation measures at this location



**ELEVATION**  
1:200

**PLAN**  
1:200

**CURVE DATA**

"U3" LINE  
R = 350.000  
Δ = 29°31'17.7"  
T = 92.218  
L = 180.337

Note: For General Notes, Standard Plans and Pile Data Table, see "Deck Contours" sheet.

	DESIGN BY N. Nguyen CHECKED M. Friedheim LOAD FACTOR DESIGN	LIVE LOADING: HS20-44 AND ALTERNATIVE AND PERMIT DESIGN LOAD	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 2	BRIDGE NO. 10-0129F KILOMETER POST R70.62	<b>WILLITS BYPASS</b> <b>S101-W20 CONNECTOR BRIDGE</b> <b>GENERAL PLAN</b>
	DETAILS BY E. Montevirgen CHECKED M. Friedheim LAYOUT BY M. Friedheim CHECKED N. Nguyen PLANS AND SPECS COMPARED I. Huang	SPECIFICATIONS BY I. Huang CHECKED J. Lee			CU 01 EA 262001	

ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SHOWN

ORIGINAL SCALE IN MILLIMETERS FOR REDUCED PLANS

DISREGARD PRINTS BEARING EARLIER REVISION DATES

STRUCTURES DESIGN GENERAL PLAN SHEET (METRIC) (REV.03-17-04)

DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
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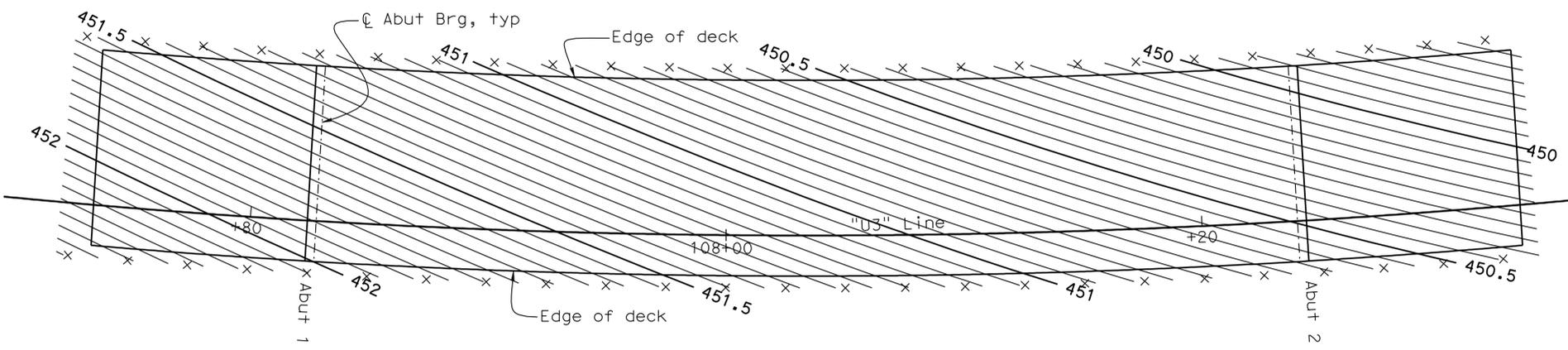
*M. Friedheim* 9-15-11  
 REGISTERED CIVIL ENGINEER DATE

1-23-12  
 PLANS APPROVAL DATE

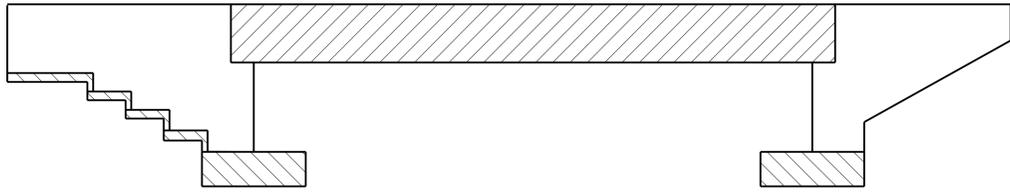
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REGISTERED PROFESSIONAL ENGINEER  
 M. Friedheim  
 No. 57968  
 Exp. 6-30-12  
 CIVIL  
 STATE OF CALIFORNIA

Notes:  
 x = 2.5 m interval measured along station line  
 Contours do not include camber  
 Contour interval = 0.05 m



**DECK CONTOURS**  
1:125



- Structural Concrete, Bridge
- Structural Concrete, Bridge f'c = 28 MPa @ 28 days
- Structural Concrete, Bridge Footing

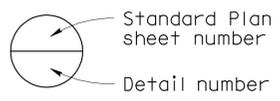
**CONCRETE STRENGTH AND TYPE LIMITS**  
No Scale

Location	Pile Type	Nominal Resistance		Design Tip Elevations	Specified Tip Elevations
		Compression	Tension		
Abut 1	HP 360 x 174	1250 KN	0 KN	431.0 (1)	431.0
Abut 2	HP 360 x 174	1250 KN	0 KN	431.0 (1)	431.0
Abut 1 Right Ret Wall	HP 250 x 62	800 KN	0 KN	431.5 (1)	431.5
Abut 2 Left Ret Wall	HP 250 x 62	800 KN	0 KN	431.0 (1)	431.0

Tip elevation controlled by the following demands:  
 (1) Compression  
 (2) Scour potential exists to Elev 440.5 m at Abutments 1 and 2

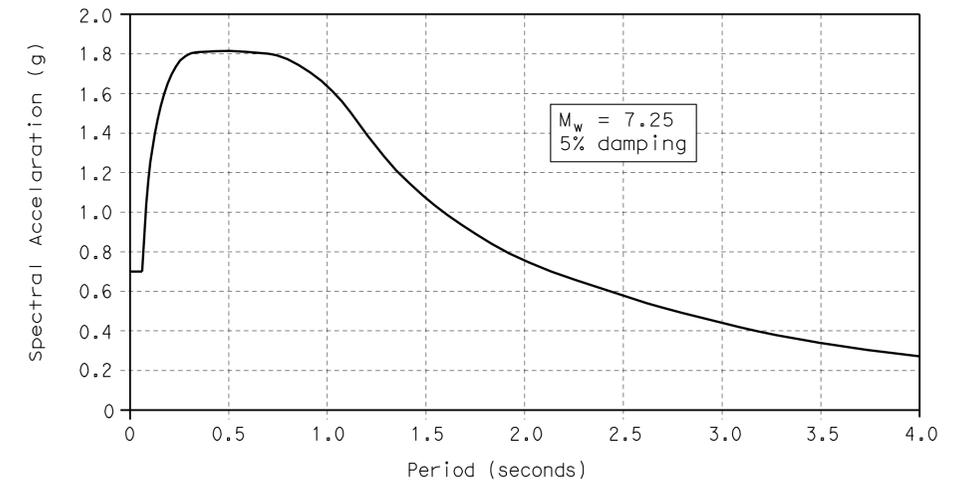
**STANDARD PLANS DATED JULY 2004**

- A10A ACRONYMS AND ABBREVIATIONS (A-L)
- A10B ACRONYMS AND ABBREVIATIONS (M-Z)
- A10C SYMBOLS
- A10D SYMBOLS
- A62C LIMITS OF PAYMENT FOR EXCAVATION AND BACKFILL-BRIDGE
- B0-1 BRIDGE DETAILS
- B0-3 BRIDGE DETAILS
- B0-5 BRIDGE DETAILS
- B0-13 BRIDGE DETAILS
- B3-1 RETAINING WALL TYPE 1 H=1200 THROUGH 9100 MM
- B3-8 RETAINING WALL DETAILS NO. 1
- RSP B6-21 JOINT SEALS (MAXIMUM MOVEMENT RATING=50 MM)
- B7-1 BOX GIRDER DETAILS
- RSP B8-5 CAST-IN-PLACE PRESTRESSED GIRDER DETAILS
- B11-55 CONCRETE BARRIER TYPE 732
- B11-56 CONCRETE BARRIER TYPE 736
- RSP ES-9B ELECTRICAL SYSTEMS (ELECTRICAL DETAILS STRUCTURE INSTALLATIONS)
- RSP ES-9C ELECTRICAL SYSTEMS (ELECTRICAL DETAILS STRUCTURE INSTALLATIONS)



**GENERAL NOTES (LOAD FACTOR DESIGN)**

- DESIGN: Bridge Design Specifications - April 2000 (LFD) (1996 AASHTO with interims and revisions by Caltrans). Project Specific Design Criteria - March 2009.
- SEISMIC DESIGN: Caltrans SDC version 1.4 - June 2006
- DEAD LOAD: Includes 1675 Pa for future wearing surface. Includes 1460 N/m for future utilities.
- LIVE LOAD: HS20-44 and alternative and permit design load.
- SEISMIC LOADING: Modified Caltrans Seismic Design Criteria for Soil Profile Type D, PBA = 0.7 g. See Response Spectrum below.



- REINFORCED CONCRETE: fy = 420 MPa, f'c = 25 MPa (See concrete strength and type limits for exceptions)
- Transverse Deck Slab (working stress design) fs = 140 MPa, f'c = 8 MPa, n = 10
- PRESTRESSED CONCRETE: See "Prestressing Notes" on Girder Layout sheet



DESIGN	BY N. Nguyen	CHECKED M. Friedheim
DETAILS	BY C. Figuerres	CHECKED M. Friedheim
QUANTITIES	BY J. Klovach	CHECKED J. Lee

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES  
STRUCTURE DESIGN  
DESIGN BRANCH 2

BRIDGE NO. 10-0129F  
KILOMETER POST R70.62

**WILLITS BYPASS**  
**S101-W20 CONNECTOR BRIDGE**  
**DECK CONTOURS**

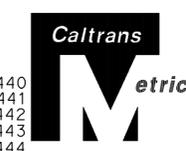
ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SHOWN



CU 01 EA 262001

DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES	SHEET 2 OF 18
	1-21-05, 4-29-08, 8-28-08, 1-14-09, 01-30-09, 4-06-09, 6-18-09, 6-30-09, 2-14-07	

NO	R	Δ	T	L
(A)	350.000	29°31'18"	92.218	180.337

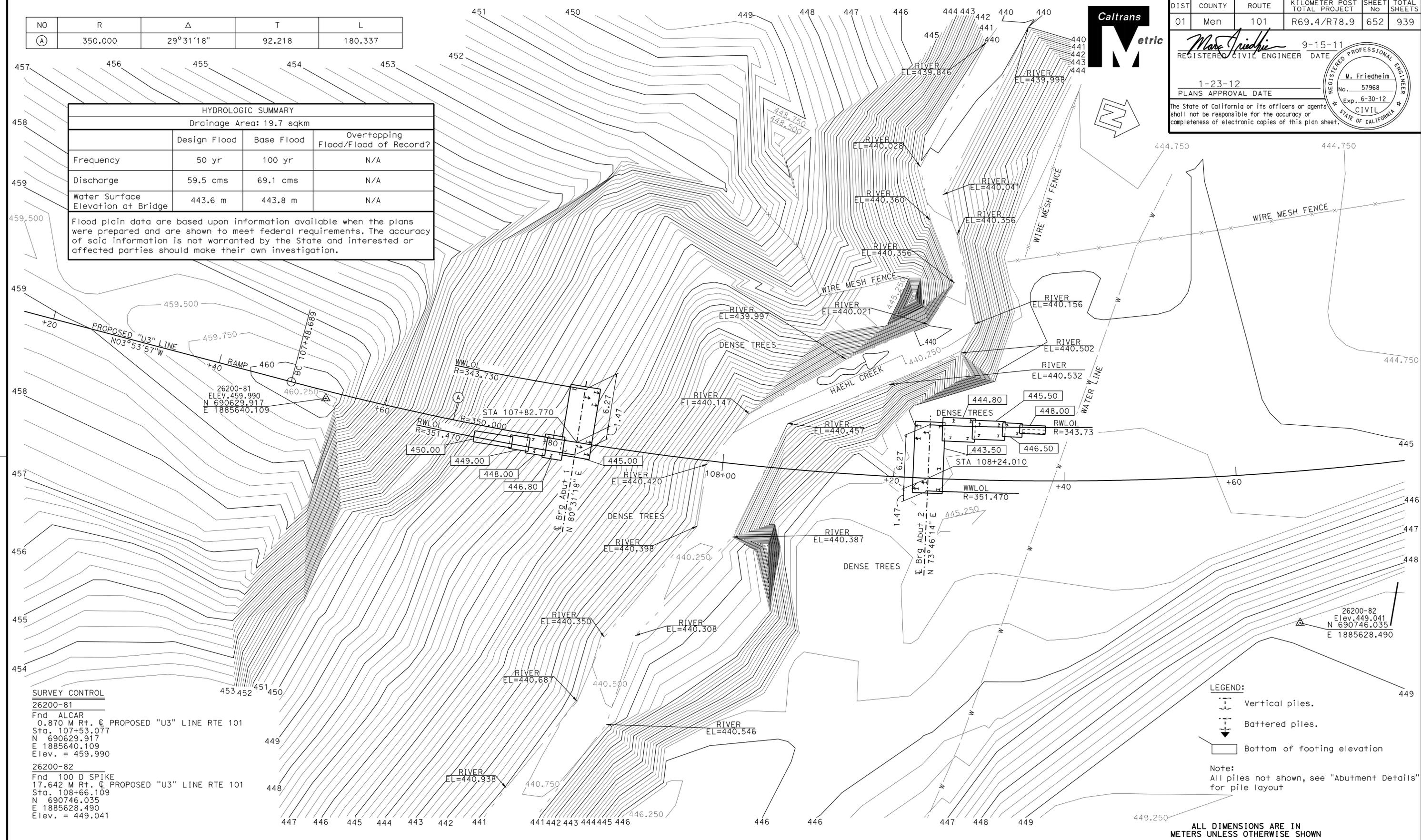


DIST	COUNTY	ROUTE	KILOMETER TOTAL PROJECT	POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Men	101	R69.4/R78.9	652	939	

M. Friedheim  
 REGISTERED CIVIL ENGINEER DATE 9-15-11  
 1-23-12  
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HYDROLOGIC SUMMARY			
Drainage Area: 19.7 sqkm			
	Design Flood	Base Flood	Overtopping Flood/Flood of Record?
Frequency	50 yr	100 yr	N/A
Discharge	59.5 cms	69.1 cms	N/A
Water Surface Elevation at Bridge	443.6 m	443.8 m	N/A

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



**SURVEY CONTROL**  
 26200-81  
 Fnd ALCAR  
 0.870 M Rt. C PROPOSED "U3" LINE RTE 101  
 Sta. 107+53.077  
 N 690629.917  
 E 1885640.109  
 Elev. = 459.990

26200-82  
 Fnd 100 D SPIKE  
 17.642 M Rt. C PROPOSED "U3" LINE RTE 101  
 Sta. 108+66.109  
 N 690746.035  
 E 1885628.490  
 Elev. = 449.041

**LEGEND:**  
 Vertical piles.  
 Battered piles.  
 Bottom of footing elevation

Note:  
 All piles not shown, see "Abutment Details" for pile layout

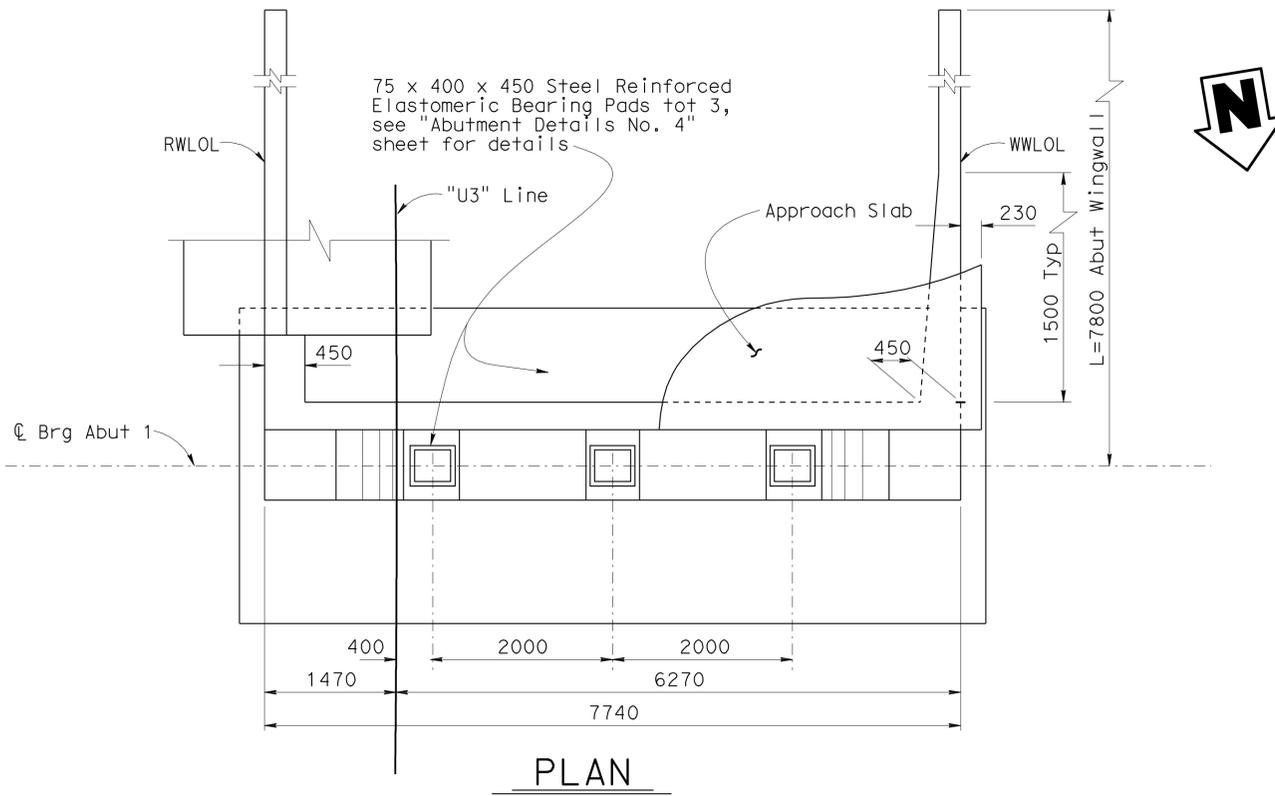
ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SHOWN

<b>PRELIMINARY INVESTIGATION SECTION</b>				DESIGN BY N. Nguyen	CHECKED M. Friedheim	<b>STATE OF CALIFORNIA</b> DEPARTMENT OF TRANSPORTATION	DIVISION OF STRUCTURES <b>STRUCTURE DESIGN 2</b>	BRIDGE NO. 10-0129F	<b>S101-W20 CONNECTOR BRIDGE</b> <b>FOUNDATION PLAN</b>	
SCALE VERT. DATUM NGVD 29	PHOTOGRAMMETRY AS OF:	DRAFTED BY F. BANDA 4/04	DETAILS BY C. Figuerres	CHECKED M. Friedheim	KILOMETER POST R70.62					
1:200	HORIZ. DATUM NAD 83 (1991.35)	SURVEYED BY DISTRICT	CHECKED BY T. ZOLNIKOVA 4/04	QUANTITIES BY J. Klovach	CHECKED J. Lee					
STRUCTURES FOUNDATION PLAN SHEET (METRIC) (REV.12-1-01)						ORIGINAL SCALE IN MILLIMETERS FOR REDUCED PLANS	CU 01 EA 262001	DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES (PRELIMINARY STAGE ONLY) 7/28/04 1/17/05 1/27/05 7/08/05 8/31/05 1/31/06 2-28-06 1-14-09 3-28-09 5-06-09	SHEET 3 OF 18

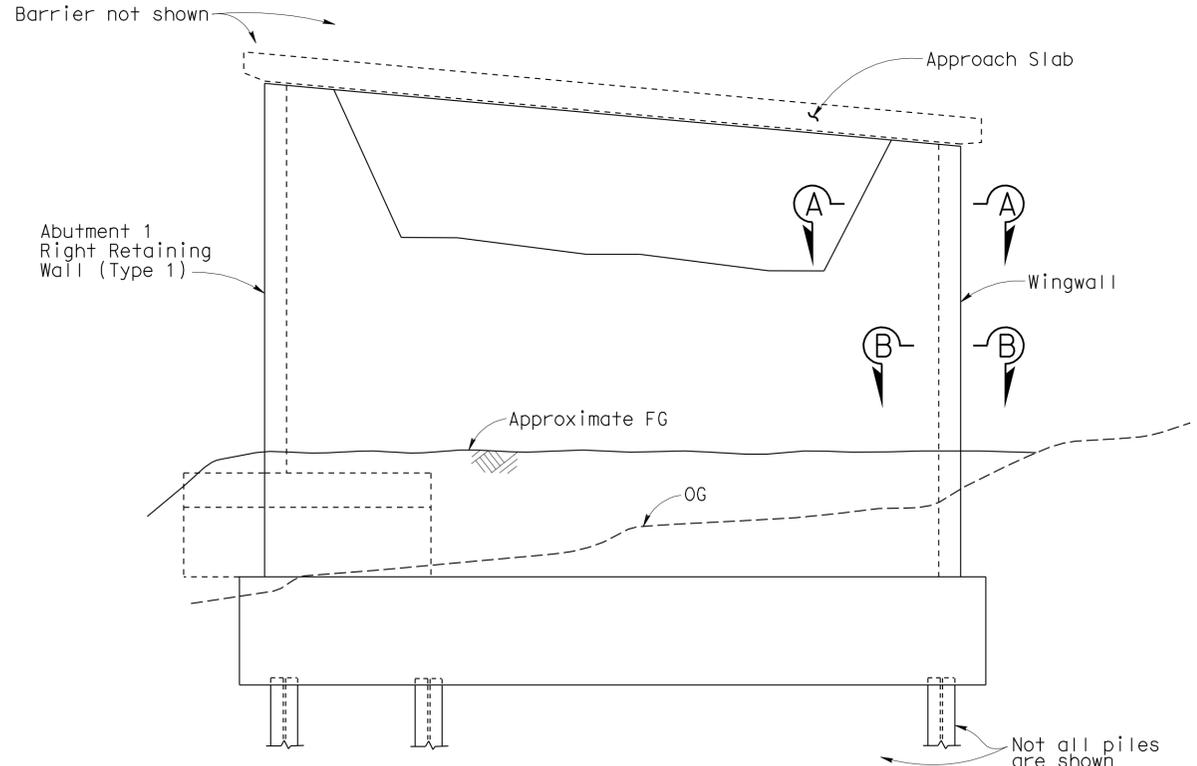
DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Men	101	R69.4/R78.9	653	939

M. Friedheim 9-15-11  
 REGISTERED CIVIL ENGINEER DATE  
 1-23-12  
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 M. Friedheim No. 57968 Exp. 6-30-12  
 REGISTERED PROFESSIONAL ENGINEER CIVIL STATE OF CALIFORNIA  
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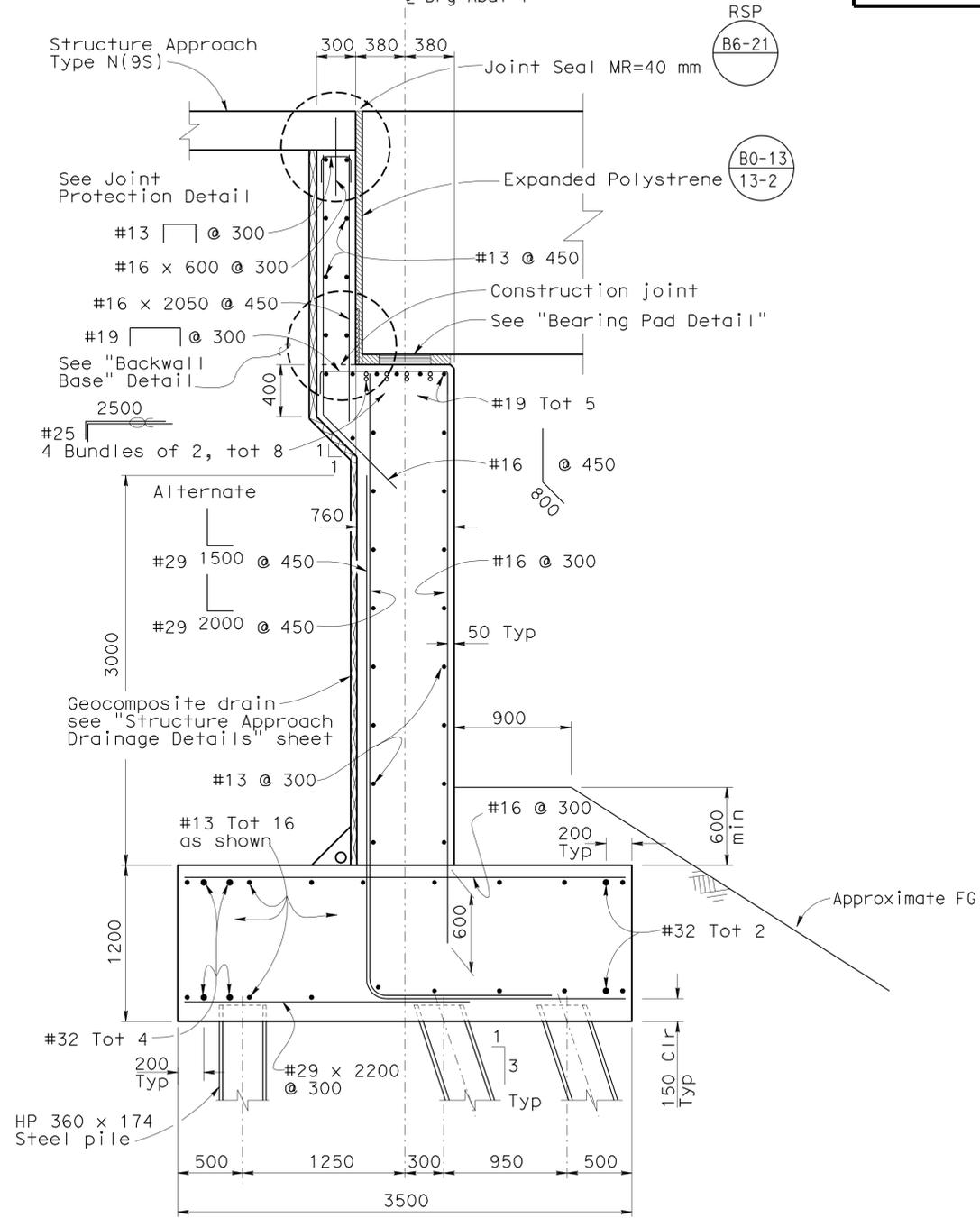
- Notes:
- For Abutment Shear Key Reinforcement, see "Abutment Details No. 3" sheet.
  - For Steel Pile Anchor, see "Abutment Details No. 3" sheet.
  - For Bearing Pad, Backwall Base, and Joint Protection Details, see "Abutment Details No. 4" sheet.
  - For Footing Layout, see "Abutment Details No. 1" and Abutment Details No 2" sheets.
  - For Section A-A and B-B, see "Abutment Details No. 1" sheet.



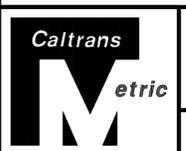
**PLAN**  
1:40  
(Abut 1 shown, Abut 2 is similar)



**ELEVATION**  
1:40  
(Abut 1 shown, Abut 2 is similar)



**ABUTMENT SECTION**  
1:25  
(Abut 1 shown, Abut 2 is similar)



DESIGN	BY N. Nguyen	CHECKED M. Friedheim
DETAILS	BY C. Figuerres/Jim K.	CHECKED M. Friedheim
QUANTITIES	BY J. Klovach	CHECKED J. Lee

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
DIVISION OF ENGINEERING SERVICES  
STRUCTURE DESIGN  
DESIGN BRANCH 2

BRIDGE NO.	10-0129F
KILOMETER POST	R70.62

**WILLITS BYPASS**  
**S101-W20 CONNECTOR BRIDGE**  
**ABUTMENT LAYOUT**

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN



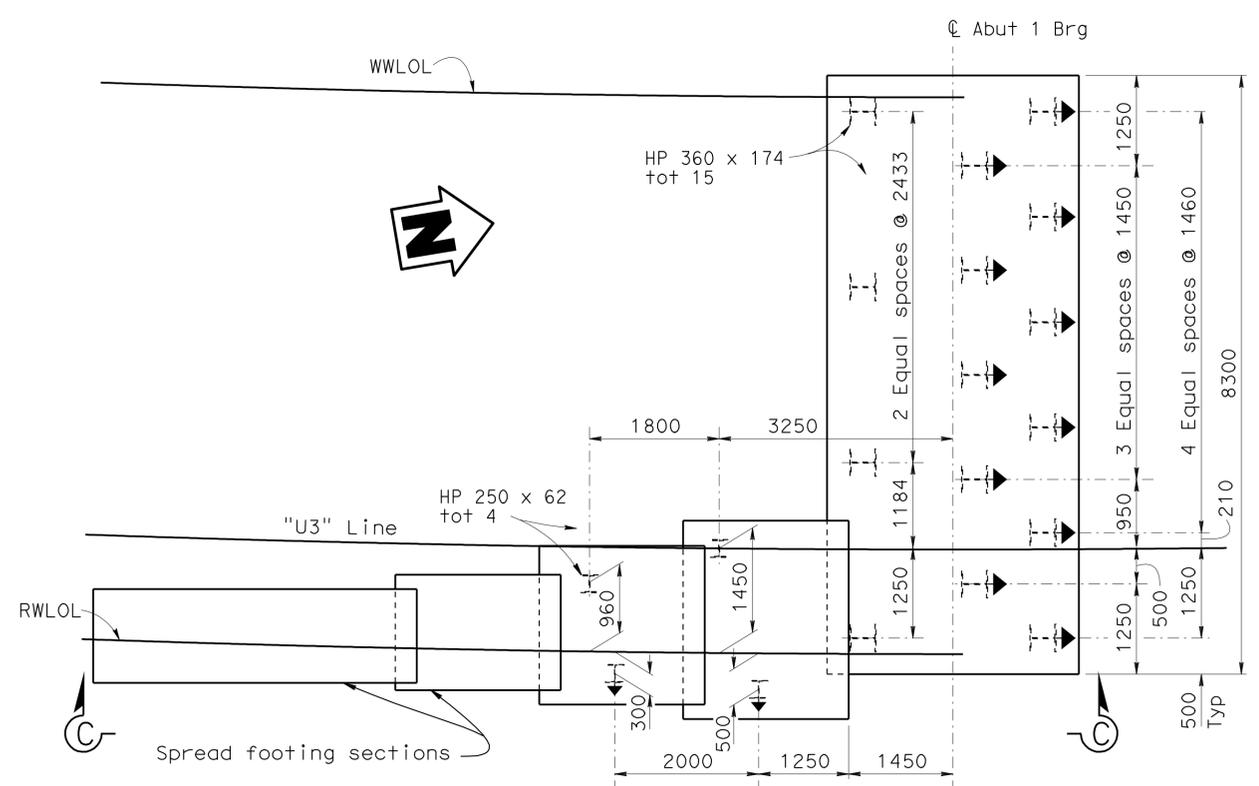
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DISREGARD PRINTS BEARING EARLIER REVISION DATES				8-31-05 9-07-05 9-23-05 10-24-05 4-17-06 1-14-08 6-30-09	

DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Men	101	R69.4/R78.9	654	939
 REGISTERED CIVIL ENGINEER DATE			9-15-11		
PLANS APPROVAL DATE			1-23-12		
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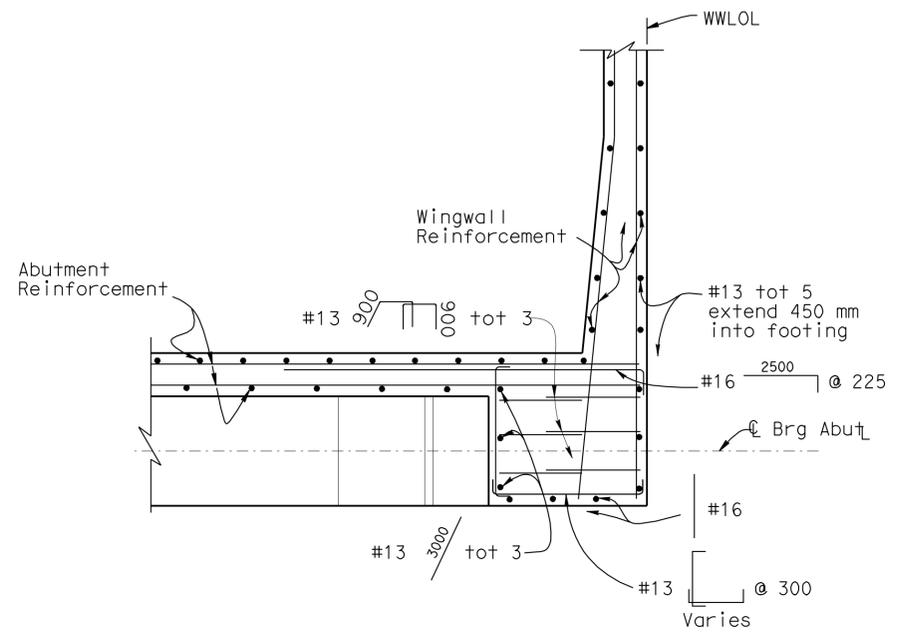


- NOTES:
- For top of RW details, see "Type E-1, Section C-C on Structure Approach Type N (9S)" sheet.
  - For location of Sections A-A and B-B, see "Abutment Layout" sheet.
  - For Section G-G, see "ABUTMENT DETAILS NO. 2" sheet.

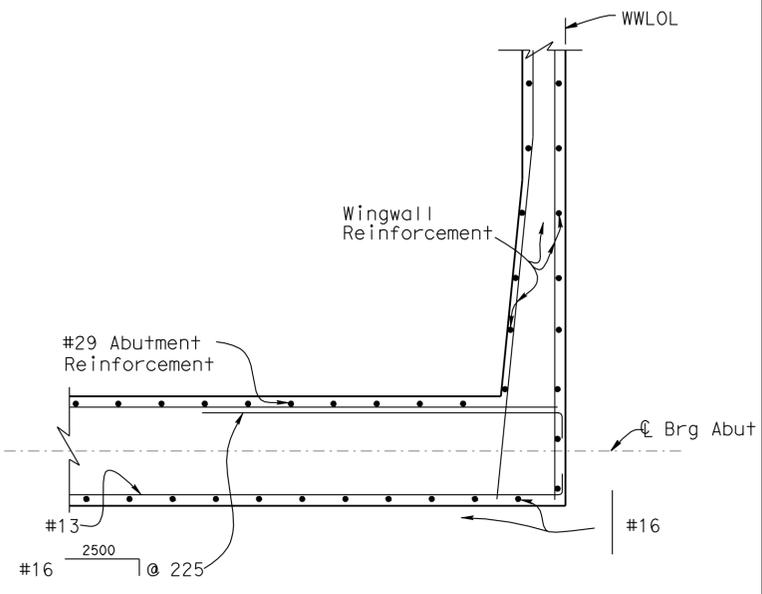
- LEGEND:
- ⌈ indicates vertical piles
  - ⌋ indicates battered piles (3:1)



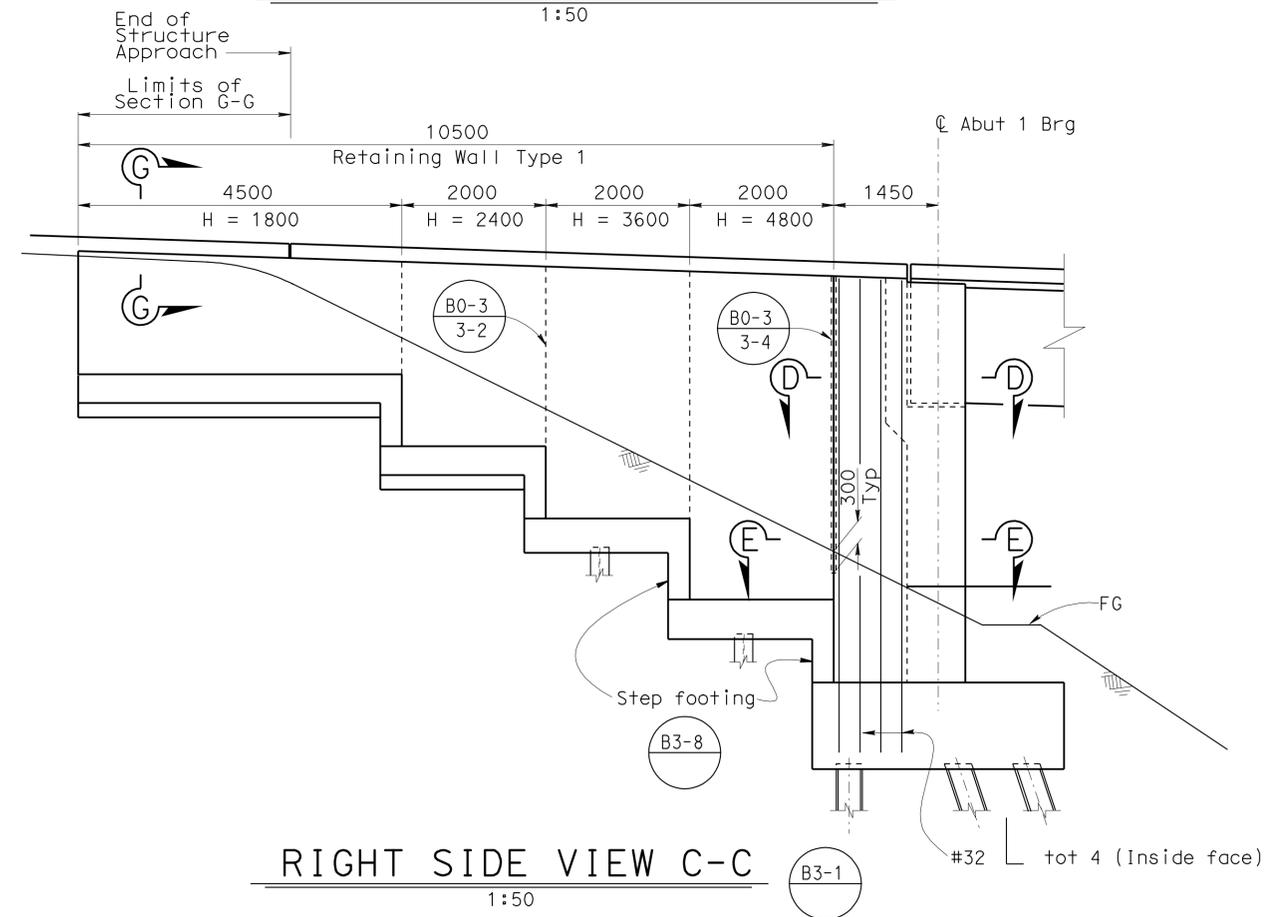
**ABUTMENT 1 FOOTING LAYOUT**  
1:50



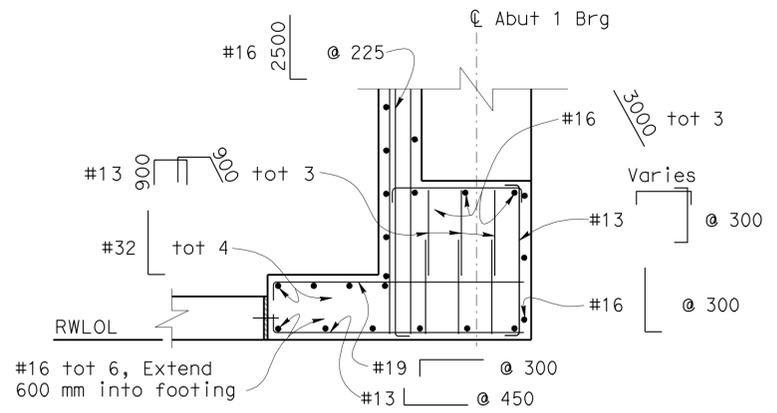
**SECTION A-A**  
1:25



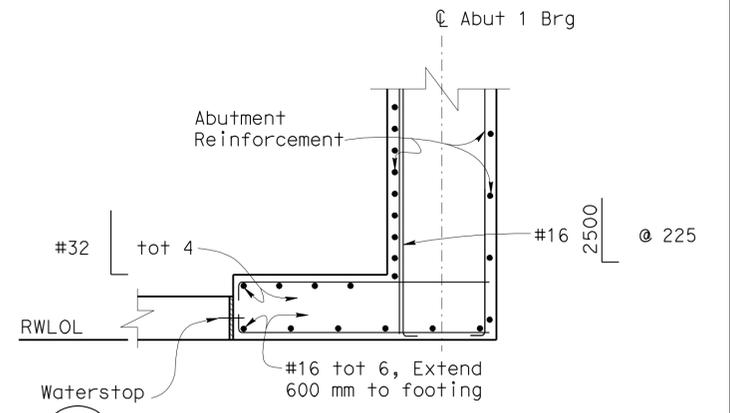
**SECTION B-B**  
1:25



**RIGHT SIDE VIEW C-C**  
1:50



**SECTION D-D**  
1:25



**SECTION E-E**  
1:25



DESIGN	BY N. Nguyen	CHECKED M. Friedheim
DETAILS	BY C. Figuerres	CHECKED M. Friedheim
QUANTITIES	BY J. Klovach	CHECKED J. Lee

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES  
STRUCTURE DESIGN  
DESIGN BRANCH 2

BRIDGE NO.  
10-0129F  
KILOMETER POST  
R70.62

**WILLITS BYPASS**  
**S101-W20 CONNECTOR BRIDGE**  
**ABUTMENT DETAILS NO. 1**

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN



CU 01  
EA 262001  
FILE => 10-0129f\_bdab+de+01.dgn

DISREGARD PRINTS BEARING EARLIER REVISION DATES

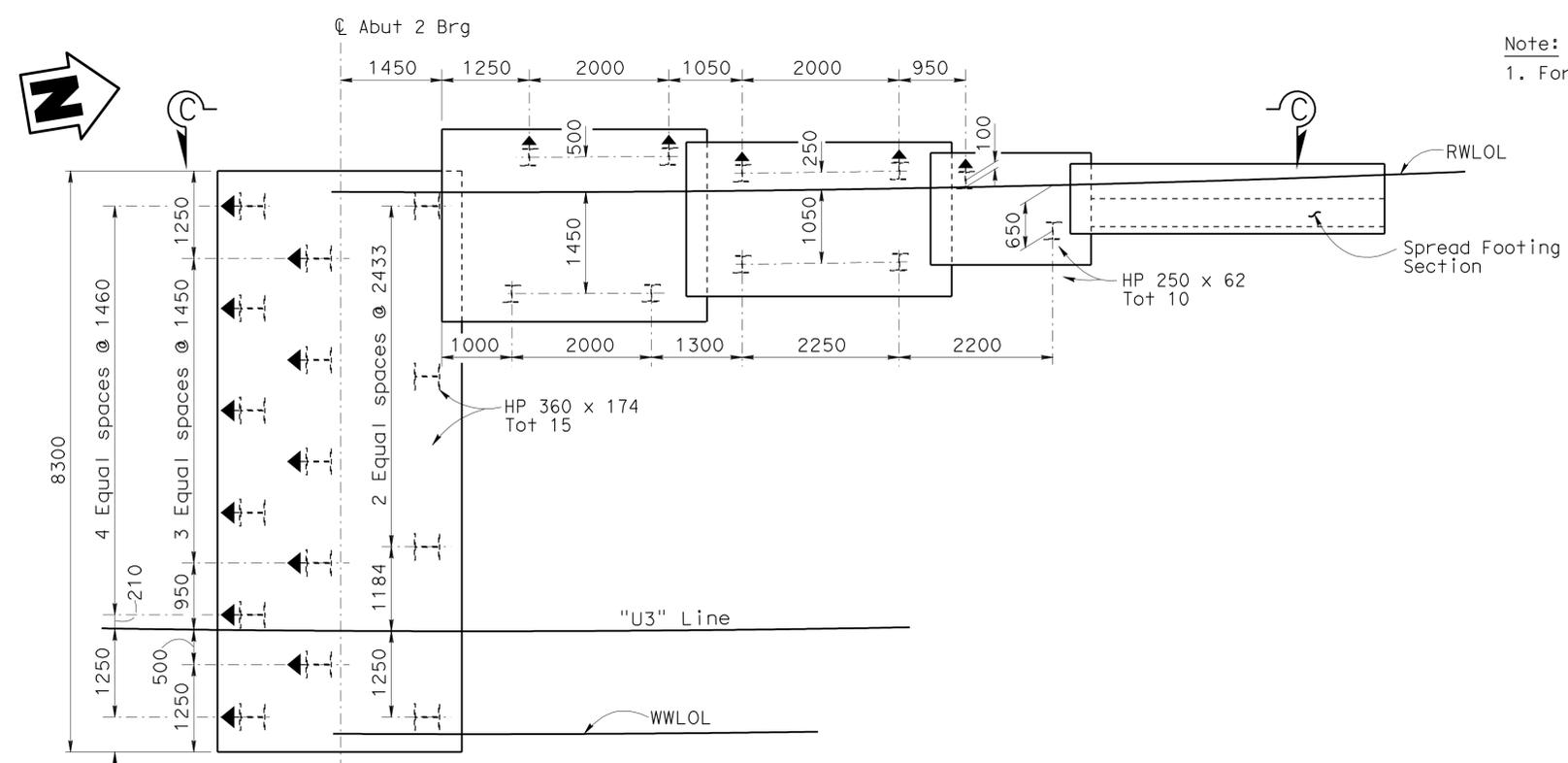
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8-31-05	9-01-05	9-26-05	10-24-05	4-17-06	1-14-07	5-06-09	6-30-09
						5	18

STRUCTURES DESIGN DETAIL SHEET (METRIC) (REV.03-17-04)

USERNAME => s121614 DATE PLOTTED => 28-JAN-2012 TIME PLOTTED => 07:01

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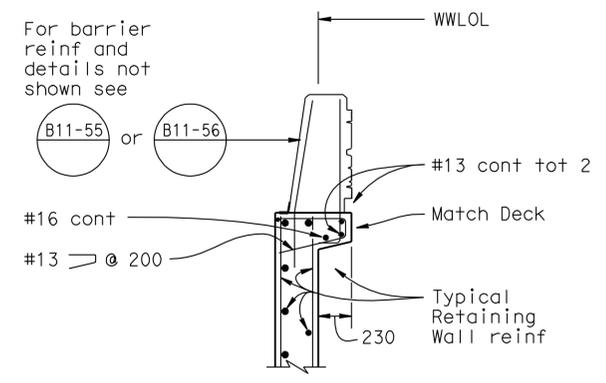
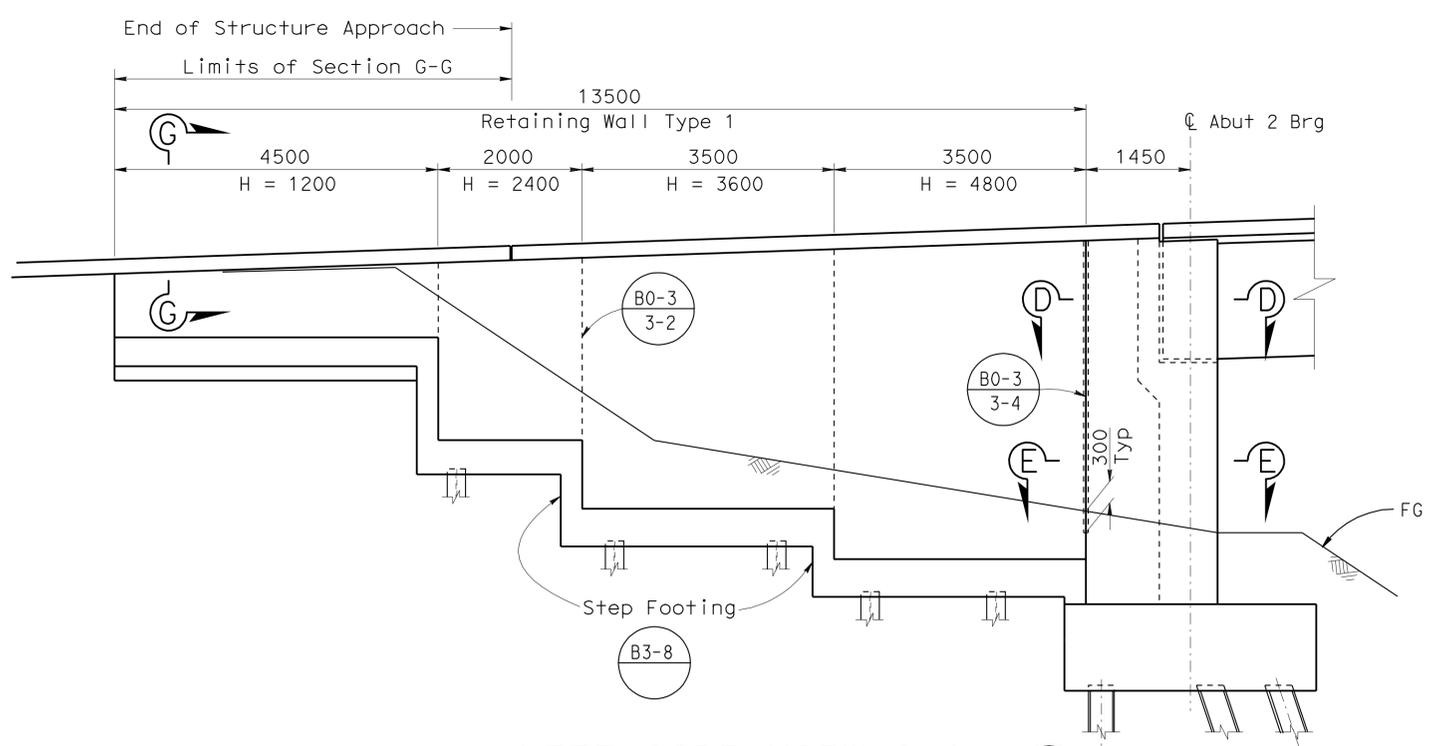
M. Friedheim 9-15-11  
 REGISTERED CIVIL ENGINEER DATE  
 1-23-12  
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Note:  
1. For Section D-D and E-E, see "Abutment Details No. 1" sheet.

LEGEND:  
 Indicates vertical HP piles.  
 Indicates battered HP piles. (3:1)

**ABUTMENT 2 FOOTING LAYOUT**  
1:50



NOTE:  
Concrete Barrier Type 732A shown  
Concrete Barrier Type 736A similar

**SECTION G-G**  
1:25

**LEFT SIDE VIEW C-C**  
1:50

**WILLITS BYPASS**

**S101-W20 CONNECTOR BRIDGE**

**ABUTMENT DETAILS NO. 2**

BRIDGE NO.	10-0129F
KILOMETER POST	R70.62



DESIGN	BY N. Nguyen	CHECKED M. Friedheim
DETAILS	BY C. Figuerres	CHECKED M. Friedheim
QUANTITIES	BY J. Klovach	CHECKED J. Lee

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES  
STRUCTURE DESIGN  
DESIGN BRANCH 2

CU 01	EA 262001	DISREGARD PRINTS BEARING EARLIER REVISION DATES	<table border="1"> <tr> <th>REVISION DATES</th> <th>SHEET</th> <th>OF</th> </tr> <tr> <td>8-31-05 4-06-09 6-30-09 2-28-06 4-17-06 4-18-06 4-29-08 8-28-08 1-14-09</td> <td>6</td> <td>18</td> </tr> </table>	REVISION DATES	SHEET	OF	8-31-05 4-06-09 6-30-09 2-28-06 4-17-06 4-18-06 4-29-08 8-28-08 1-14-09	6	18
REVISION DATES	SHEET	OF							
8-31-05 4-06-09 6-30-09 2-28-06 4-17-06 4-18-06 4-29-08 8-28-08 1-14-09	6	18							

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN

ORIGINAL SCALE IN MILLIMETERS FOR REDUCED PLANS

FILE => 10-0129f\_dbabt+de+02.dgn

STRUCTURES DESIGN DETAIL SHEET (METRIC) (REV.03-17-04)

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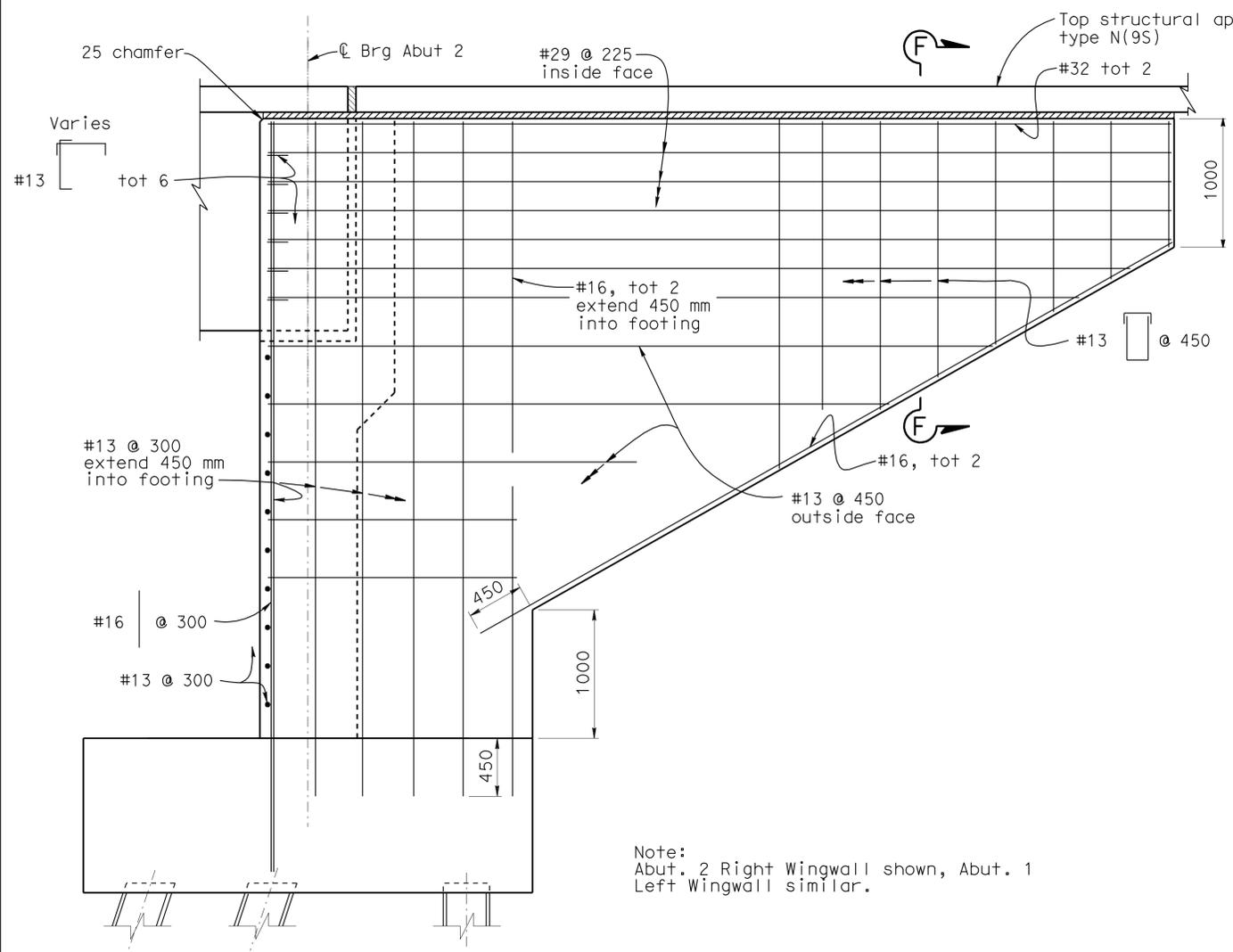
DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Men	101	R69.4/R78.9	656	939

*M. Friedheim* 9-15-11  
 REGISTERED CIVIL ENGINEER DATE

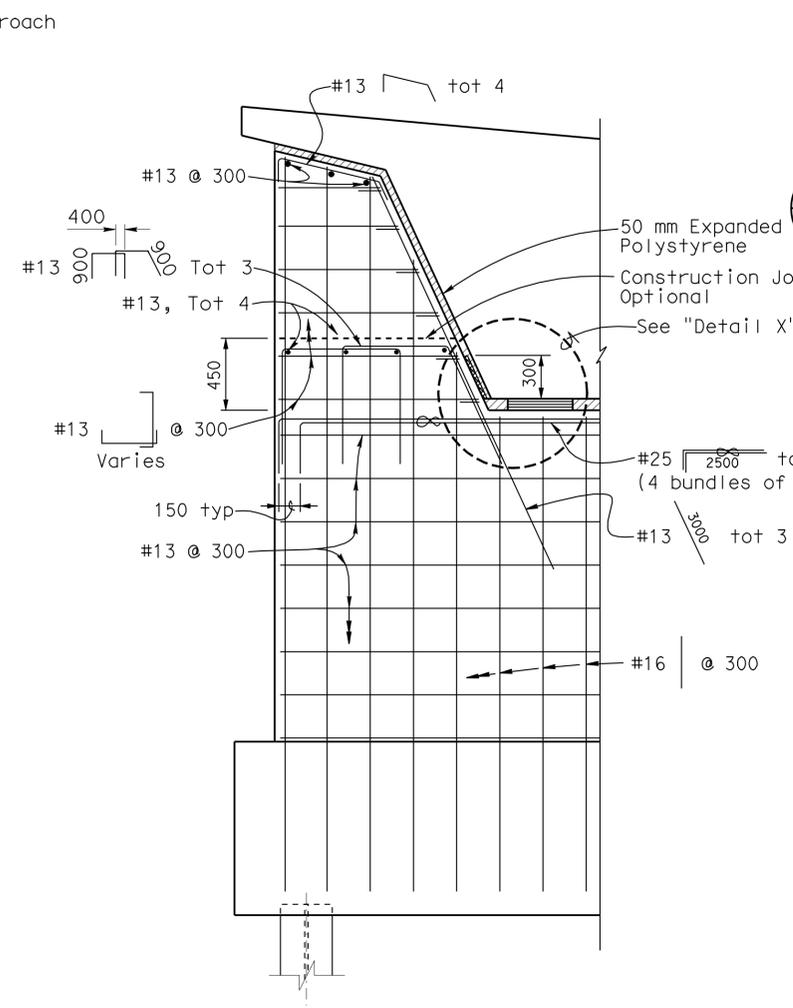
1-23-12  
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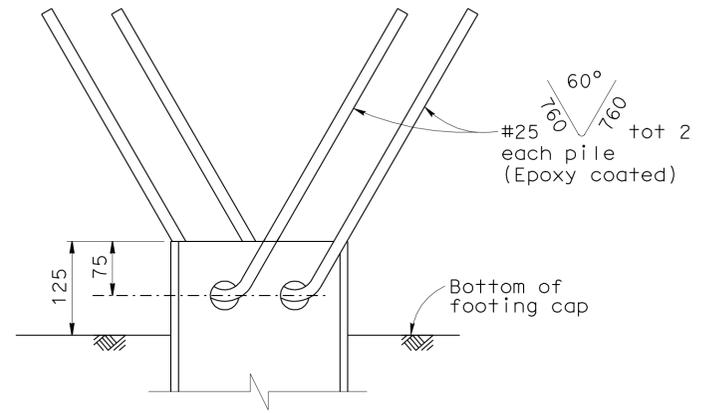
REGISTERED PROFESSIONAL ENGINEER  
 M. Friedheim  
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 CIVIL  
 STATE OF CALIFORNIA



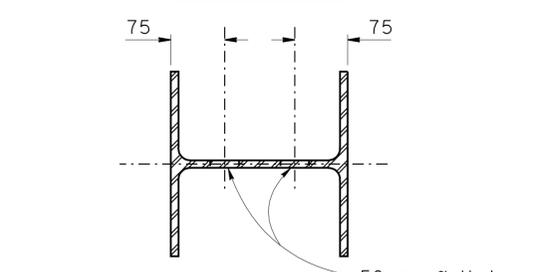
**ABUTMENT WINGWALL ELEVATION**  
1:25



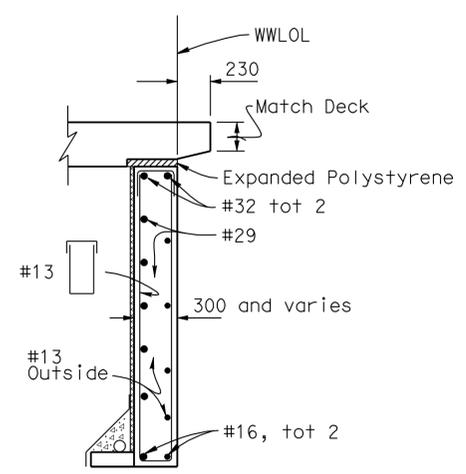
**ABUTMENT SHEAR KEY REINFORCEMENT**  
1:25



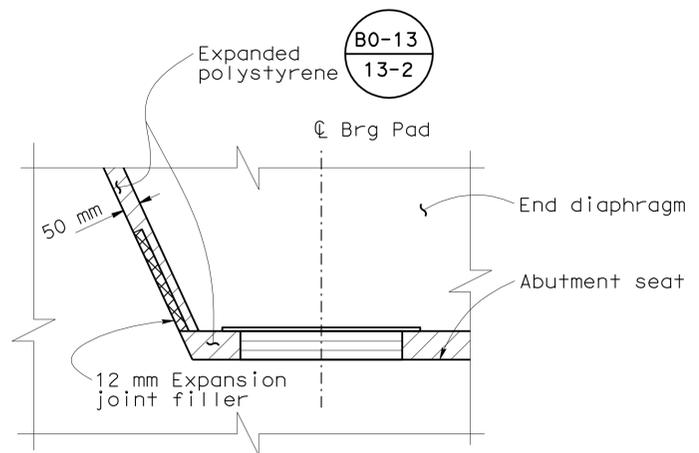
**ELEVATION**



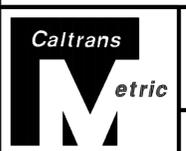
**PLAN**  
50 mm Ø Holes  
**STEEL PILE ANCHOR DETAIL**  
No Scale



**SECTION F-F**  
1:25



**DETAIL X**  
1:10



DESIGN	BY N. Nguyen	CHECKED M. Friedheim
DETAILS	BY E. Montevirgen	CHECKED M. Friedheim
QUANTITIES	BY J. Klavach	CHECKED J. Lee

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES  
STRUCTURE DESIGN  
DESIGN BRANCH 2

BRIDGE NO.	10-0129F
KILOMETER POST	R70.62

**WILLITS BYPASS**  
**S101-W20 CONNECTOR BRIDGE**  
**ABUTMENT DETAILS NO. 3**

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN



CU 01  
EA 262001

REVISION DATES	11-19-04	1-13-05	1-27-05	7-08-05	9-07-05	9-26-05	10-26-05	4-18-06	1-14-09
DISREGARD PRINTS BEARING EARLIER REVISION DATES									
SHEET	7								
OF	18								

USERNAME => s121614 DATE PLOTTED => 28-JAN-2012 TIME PLOTTED => 07:02

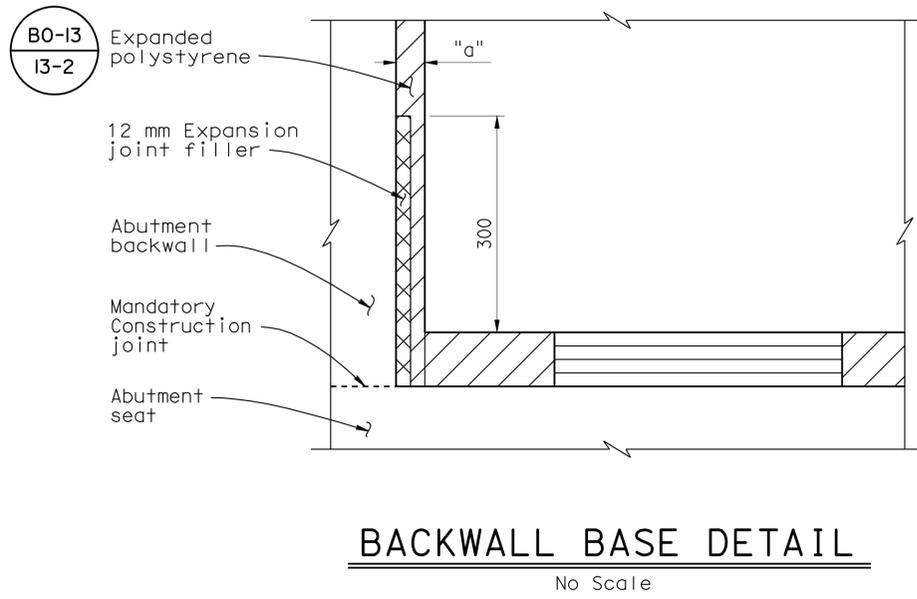
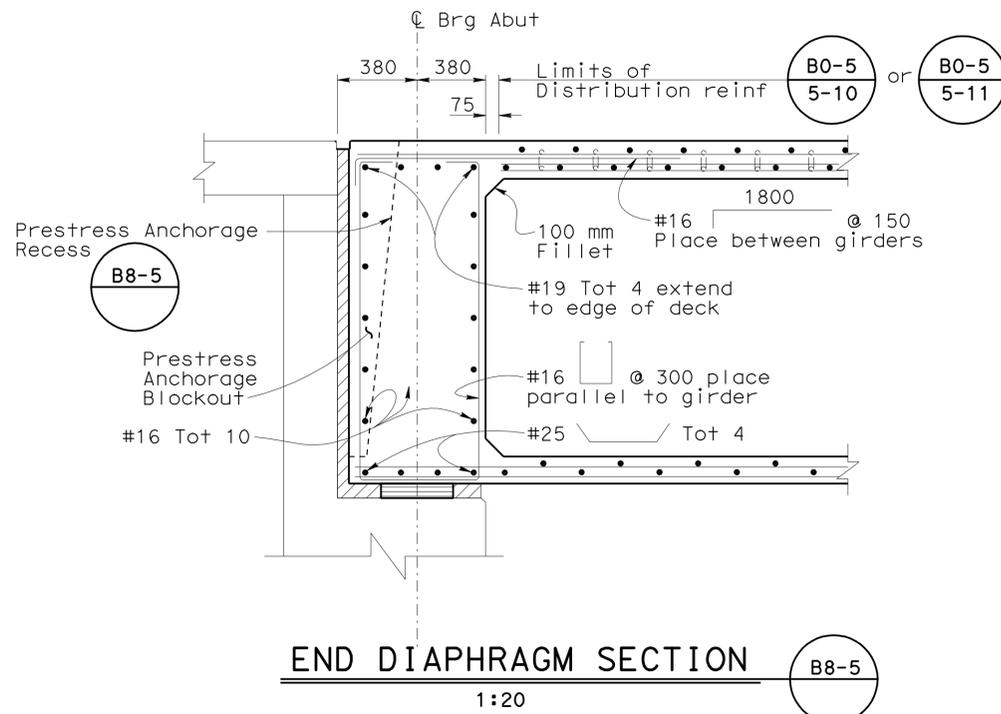
DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Men	101	R69.4/R78.9	657	939

*M. Friedheim* 9-15-11  
 REGISTERED CIVIL ENGINEER DATE

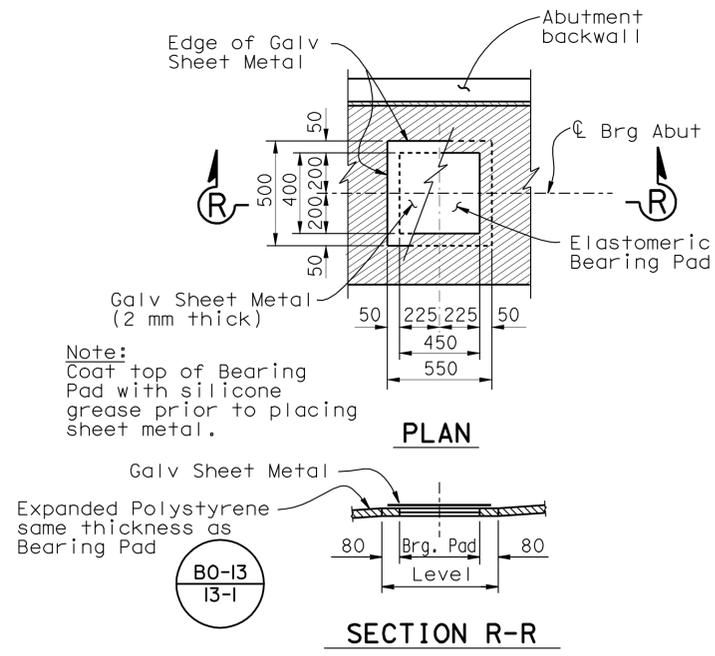
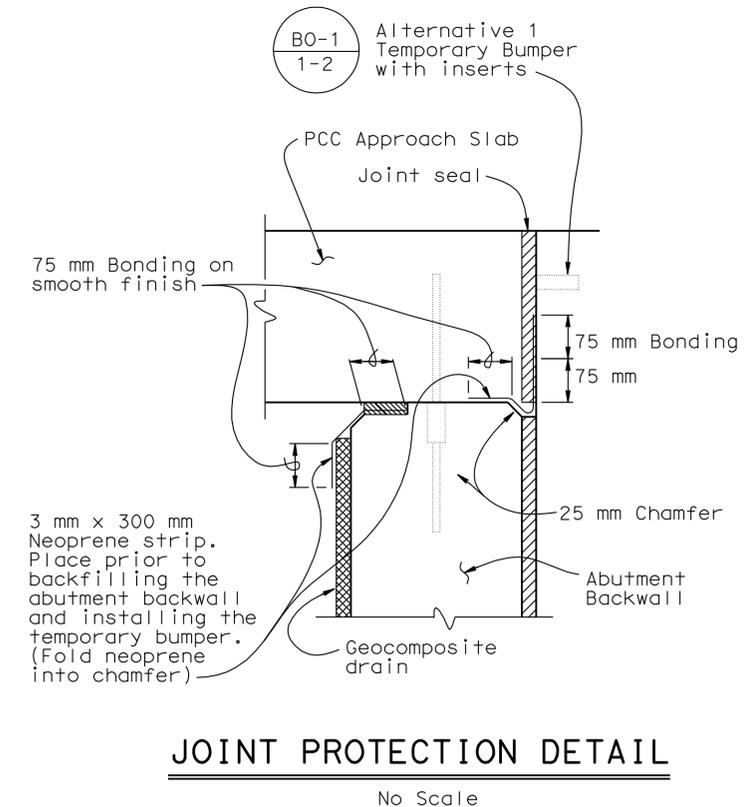
1-23-12  
 PLANS APPROVAL DATE

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REGISTERED PROFESSIONAL ENGINEER  
 M. Friedheim  
 No. 57968  
 Exp. 6-30-12  
 CIVIL  
 STATE OF CALIFORNIA



Notes:  
1. For "a" dimensions see B6-21



DESIGN	BY N. Nguyen	CHECKED M. Friedheim
DETAILS	BY E. Montevirgen	CHECKED M. Friedheim
QUANTITIES	BY J. Klavach	CHECKED J. Lee

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES  
STRUCTURE DESIGN  
DESIGN BRANCH 2

BRIDGE NO.  
10-0129F  
KILOMETER POST  
R70.62

**WILLITS BYPASS**  
**S101-W20 CONNECTOR BRIDGE**  
**ABUTMENT DETAILS NO. 4**

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN



CU 01  
EA 262001  
FILE => 10-0129f\_bdab+de+04.dgn

DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES	SHEET 8 OF 18
	11-19-04 1-18-05 9-26-05 4-18-06 1-14-08	

USERNAME => s121614 DATE PLOTTED => 28-JAN-2012 TIME PLOTTED => 07:02

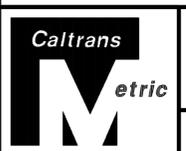
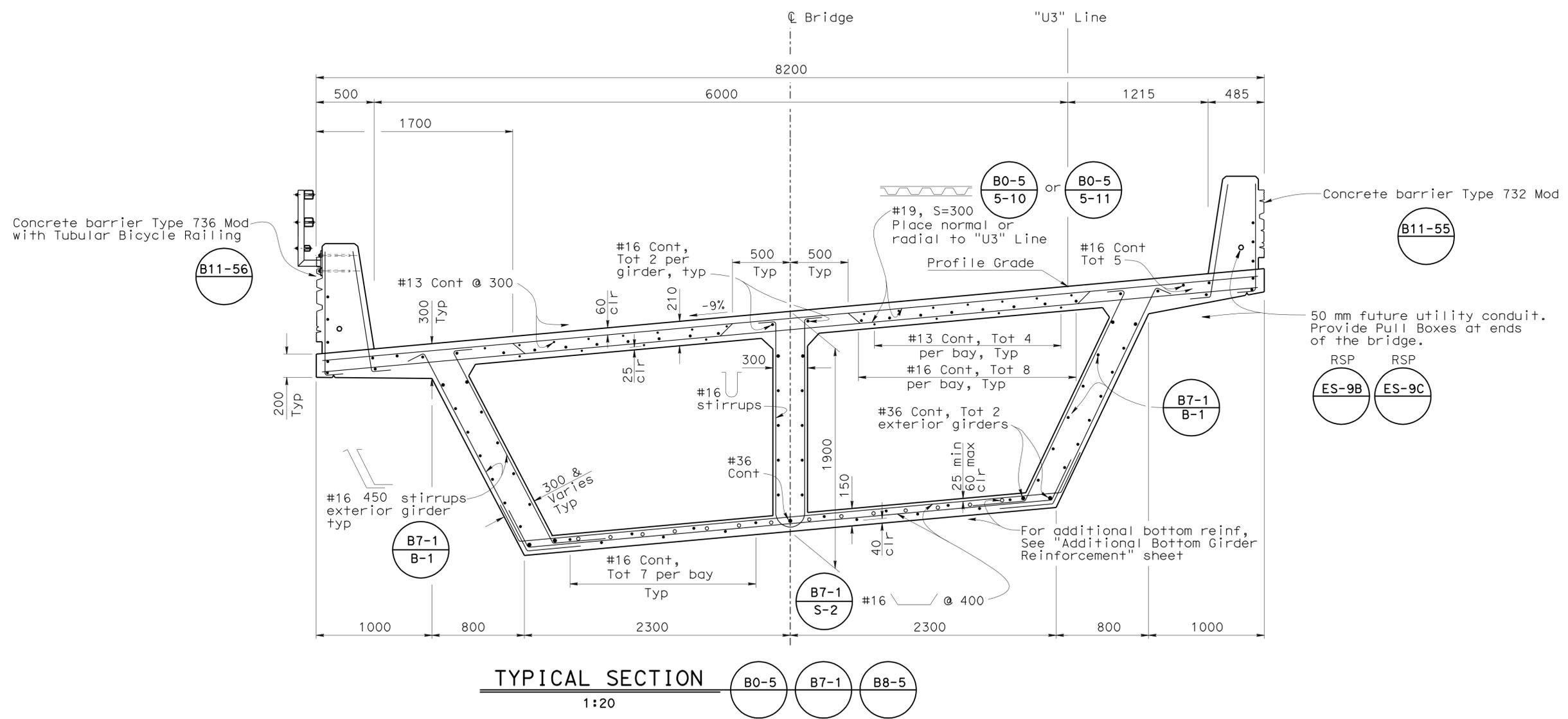
DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Men	101	R69.4/R78.9	658	939

*M. Friedheim* 9-15-11  
REGISTERED CIVIL ENGINEER DATE

1-23-12  
PLANS APPROVAL DATE

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**REGISTERED PROFESSIONAL ENGINEER**  
M. Friedheim  
No. 57968  
Exp. 6-30-12  
CIVIL  
STATE OF CALIFORNIA



DESIGN	BY N. Nguyen	CHECKED M. Friedheim
DETAILS	BY C. Figuerres	CHECKED M. Friedheim
QUANTITIES	BY J. Klavach	CHECKED J. Lee

**STATE OF CALIFORNIA**  
DEPARTMENT OF TRANSPORTATION

**DIVISION OF ENGINEERING SERVICES**  
STRUCTURE DESIGN  
DESIGN BRANCH **2**

BRIDGE NO.	10-0129F
KILOMETER POST	R70.62

**WILLITS BYPASS**

**S101-W20 CONNECTOR BRIDGE**

**TYPICAL SECTION**

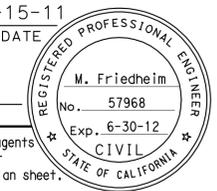
ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN

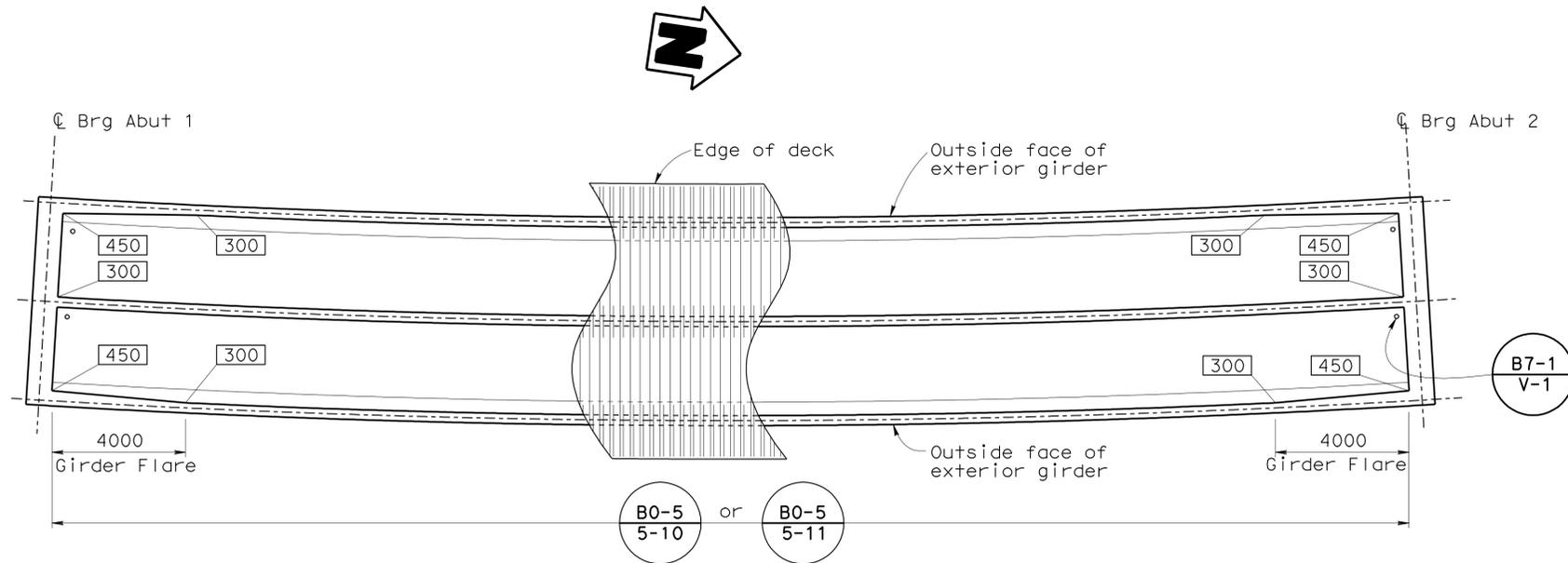


CU 01  
EA 262001

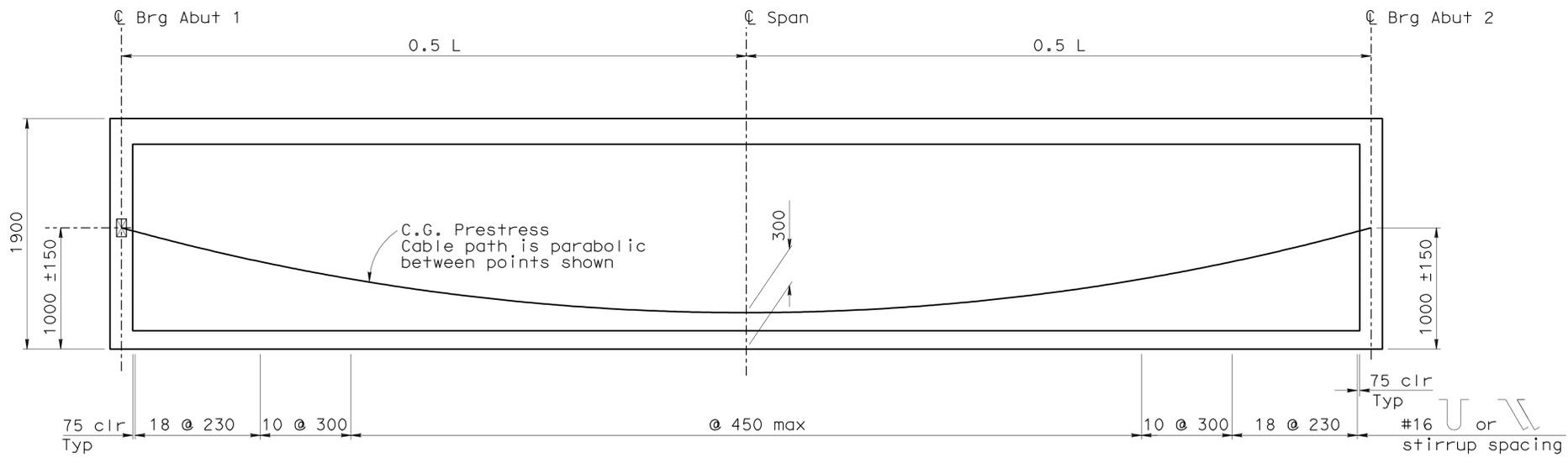
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	11-26-04 1-14-05 02-24-05 6-30-05 10-26-05 4-18-06 10-26-06 2-15-07 4-23-08	

USERNAME => s121614 DATE PLOTTED => 28-JAN-2012 TIME PLOTTED => 07:02

DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Men	101	R69.4/R78.9	659	939
 REGISTERED CIVIL ENGINEER DATE 9-15-11					
1-23-12 PLANS APPROVAL DATE					
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.					



**PLAN**  
1:100



**LONGITUDINAL SECTION**  
No Scale

- Notes:
-  Girder stem width
  -  Theoretical Point of No Movement (Shown for right end stressing)

**PRESTRESSING NOTES**

Design based on 1860 MPa Low Relaxation Strand:

$P_{jack} = 27800 \text{ kN}$

Anchor Set = 10 mm

Total Number of Girders = 3

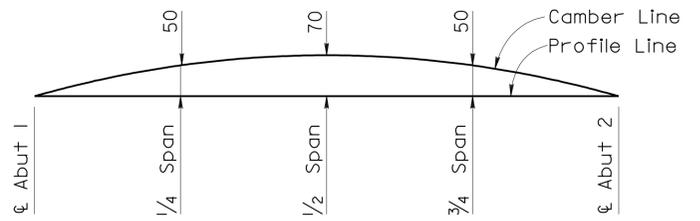
Total long term losses assumed to be 150 MPa  
 Design is based on  $\mu = 0.15$  and  $K = 0.000656 / \text{m}$

Concrete:  $f'_c = 28 \text{ MPa @ 28 days}$   
 $f'_{ci} = 25 \text{ MPa @ time of stressing}$

Contractor shall submit elongation calculations based on initial stress at

$\lambda = 0.947$  times jacking stress.

One end stressing shall be performed from either end.



**CAMBER DIAGRAM**

No Scale  
(Does not include allowance for falsework settlement)



DESIGN	BY N. Nguyen	CHECKED M. Friedheim
DETAILS	BY C. Figuerres	CHECKED M. Friedheim
QUANTITIES	BY J. Klavach	CHECKED J. Lee

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES  
STRUCTURE DESIGN  
DESIGN BRANCH 2

BRIDGE NO.	10-0129F
KILOMETER POST	R70.62

**WILLITS BYPASS**  
**S101-W20 CONNECTOR BRIDGE**  
**GIRDER LAYOUT**

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN



CU 01  
EA 262001

DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES	SHEET 10 OF 18
	12-03-04, 1-11-05, 1-24-05, 7-08-05, 10-25-05, 4-18-06, 4-29-06, 1-14-09	

USERNAME => s121614 DATE PLOTTED => 28-JAN-2012 TIME PLOTTED => 10:41

NOTE:

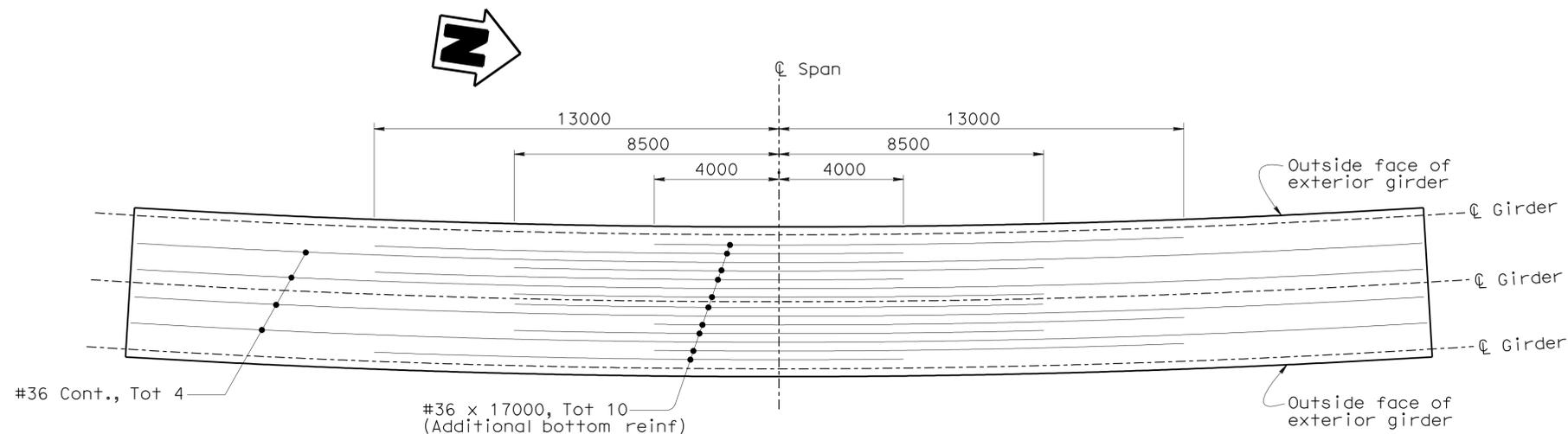
No splices are allowed in cut-off bars.  
 Splices in continuous bars shall be service level splices and shall not be located within 9.0 m of each side of  $\phi$  Span.

DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Men	101	R69.4/R78.9	660	939

*M. Friedheim* 9-15-11  
 REGISTERED CIVIL ENGINEER DATE

1-23-12  
 PLANS APPROVAL DATE

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**ADDITIONAL BOTTOM GIRDER REINFORCEMENT**

1:100



DESIGN	BY N. Nguyen	CHECKED M. Friedheim
DETAILS	BY C. Figuerres / Jim K.	CHECKED M. Friedheim
QUANTITIES	BY J. Klovach	CHECKED J. Lee

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES  
 STRUCTURE DESIGN  
 DESIGN BRANCH 2

BRIDGE NO.	10-0129F
KILOMETER POST	R70.62

**WILLITS BYPASS**

**S101-W20 CONNECTOR BRIDGE**

**ADDITIONAL BOTTOM GIRDER REINFORCEMENT**

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN



CU 01  
 EA 262001

DISREGARD PRINTS BEARING EARLIER REVISION DATES

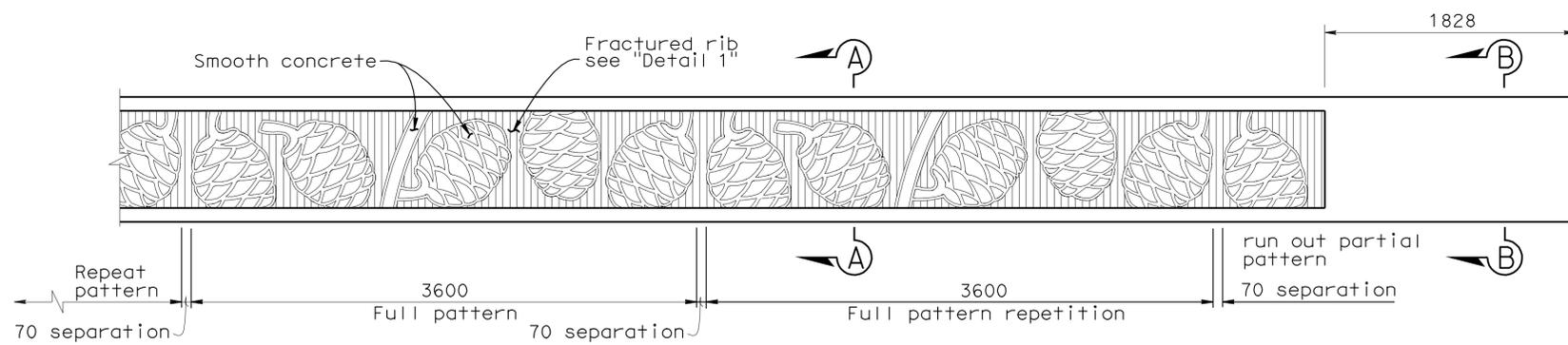
REVISION DATES	SHEET	OF
12-02-04 1-24-05 7-08-05 9-08-05 10-25-05 4-18-06 1-14-08 2-20-09	11	18

USERNAME => s121614 DATE PLOTTED => 28-JAN-2012 TIME PLOTTED => 07:02

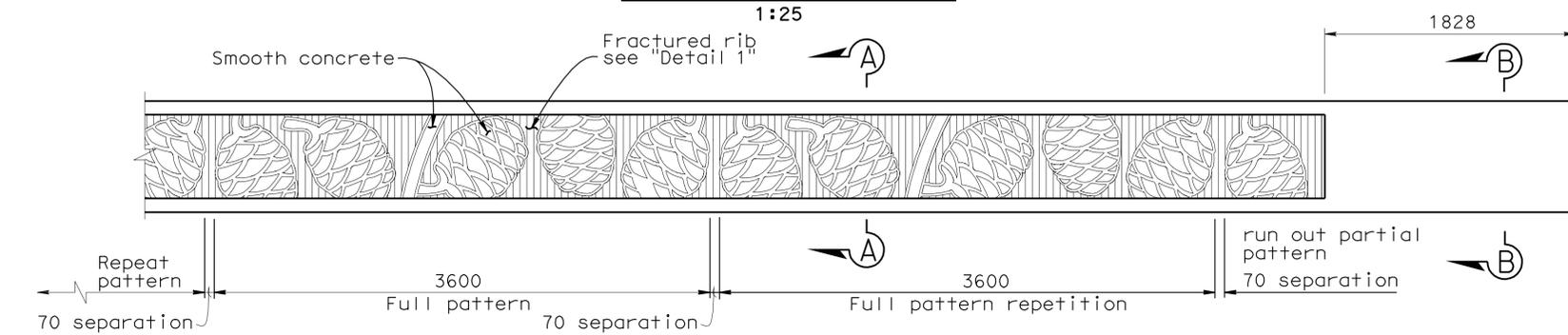
DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Men	101	R69.4/R78.9	661	939

M. Friedheim 9-15-11  
 REGISTERED CIVIL ENGINEER DATE  
 1-23-12  
 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.

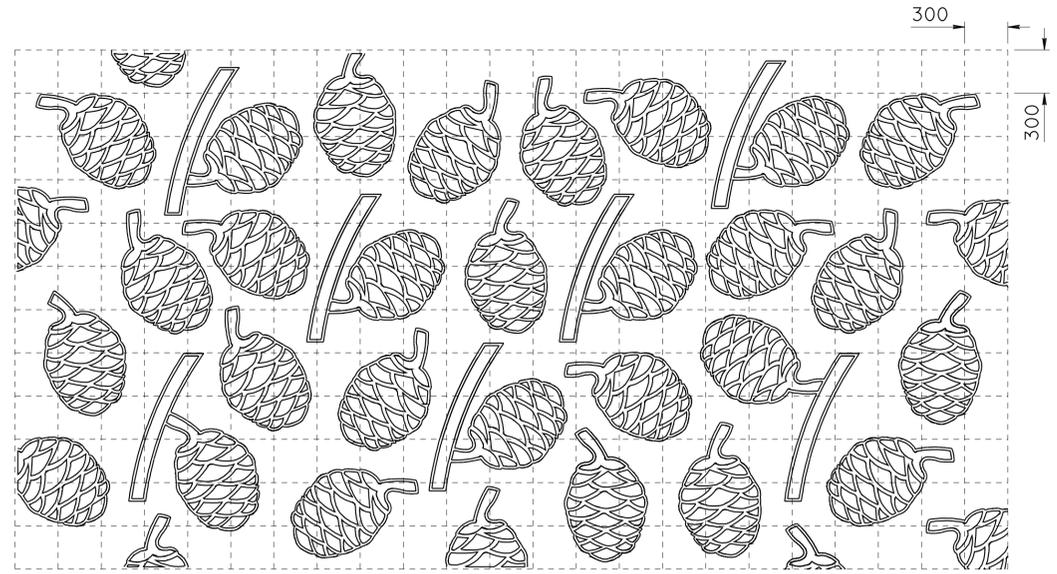
REGISTERED PROFESSIONAL ENGINEER  
 M. Friedheim  
 No. 57968  
 Exp. 6-30-12  
 CIVIL  
 STATE OF CALIFORNIA



**TYPE 736 BARRIER PARTIAL ELEVATION**

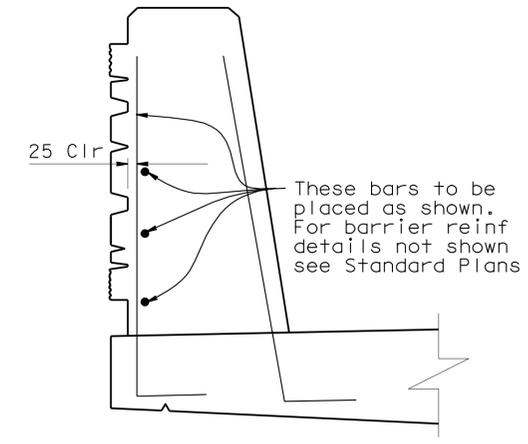


**TYPE 732 BARRIER PARTIAL ELEVATION**

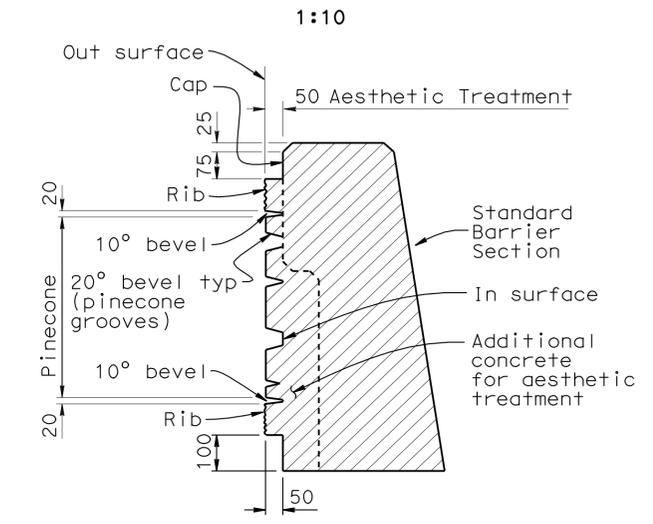


**RANDOM PINECONE PATTERN FOR WING WALLS**

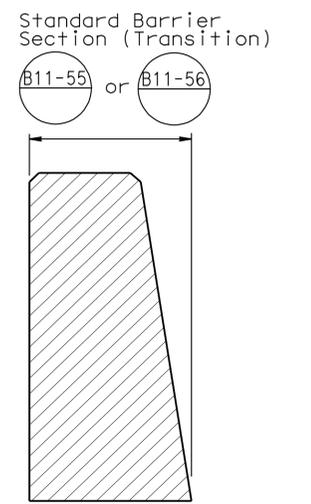
NOTE: Place random pinecone pattern on Fractured Rib Background. Fractured rib to be at same angle/alignment as abutment wall. Relief similar to Barrier Section A-A.



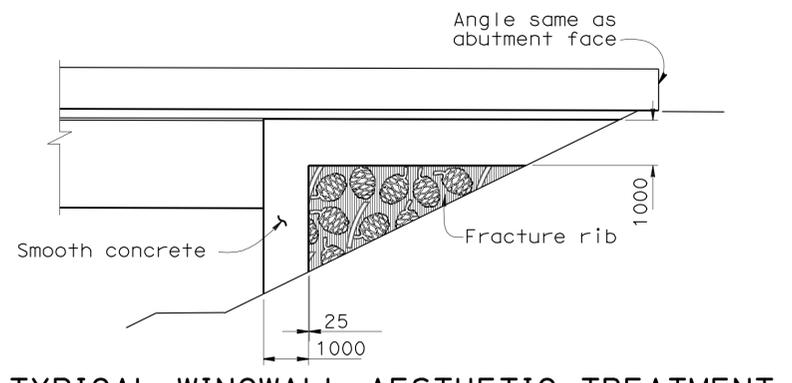
**BARRIER REINFORCEMENT MODIFICATION**



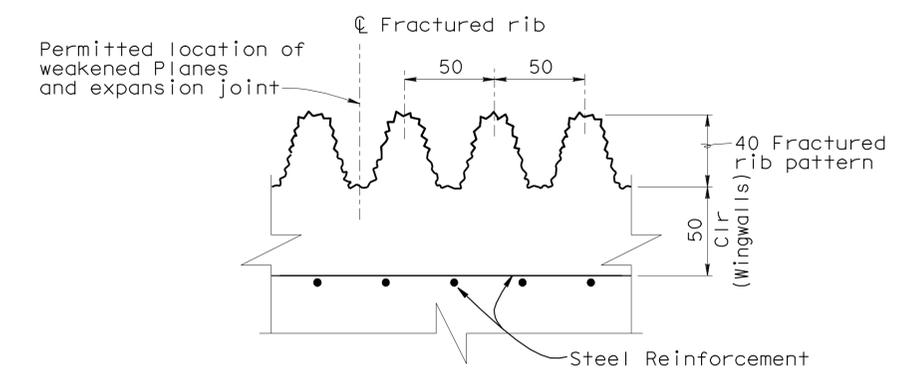
**SECTION A-A 1:10**



**SECTION B-B 1:10**



**TYPICAL WINGWALL AESTHETIC TREATMENT**



**TYPICAL FRACTURED RIB TEXTURE DETAIL 1 1:2**



DESIGN	BY N. Nguyen	CHECKED M. Friedheim
DETAILS	BY V. Moore/M. Lane	CHECKED M. Friedheim
QUANTITIES	BY J. Klovach	CHECKED J. Lee

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES  
STRUCTURE DESIGN  
DESIGN BRANCH 2

BRIDGE NO.	10-0129F
KILOMETER POST	R70.62

**WILLITS BYPASS**  
**S101-W20 CONNECTOR BRIDGE**  
**AESTHETIC DETAILS**

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN



CU 01 EA 262001

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES	10-3-06	10-12-06	2-13-07	1-14-08	01-22-09	SHEET 12 OF 18
----------------	---------	----------	---------	---------	----------	----------------

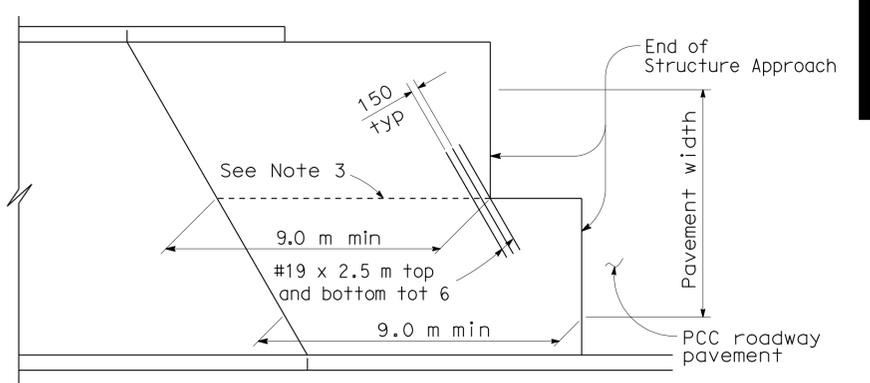
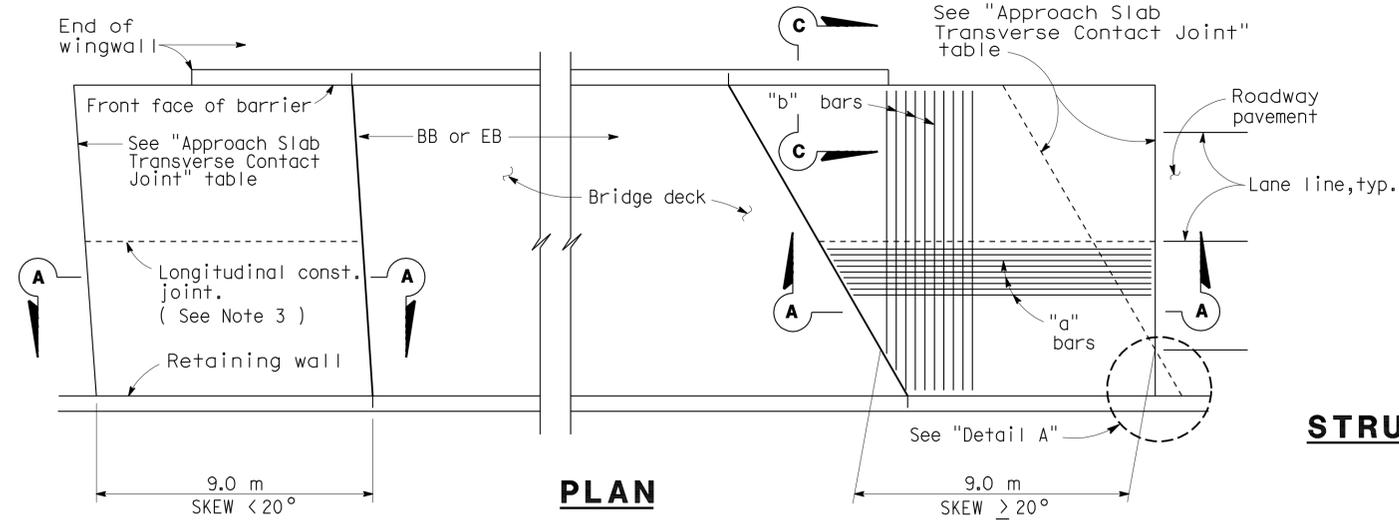
STRUCTURES DESIGN DETAIL SHEET (METRIC) (REV.03-17-04)



DIST.	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
01	Men	101	R69.4/R78.9	662	939

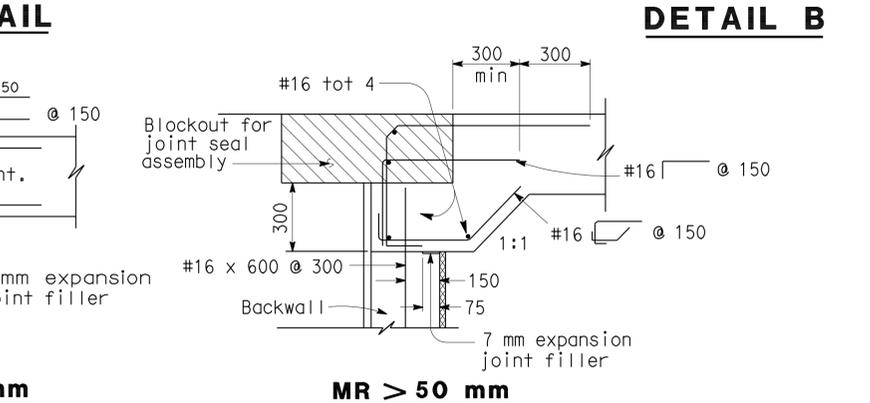
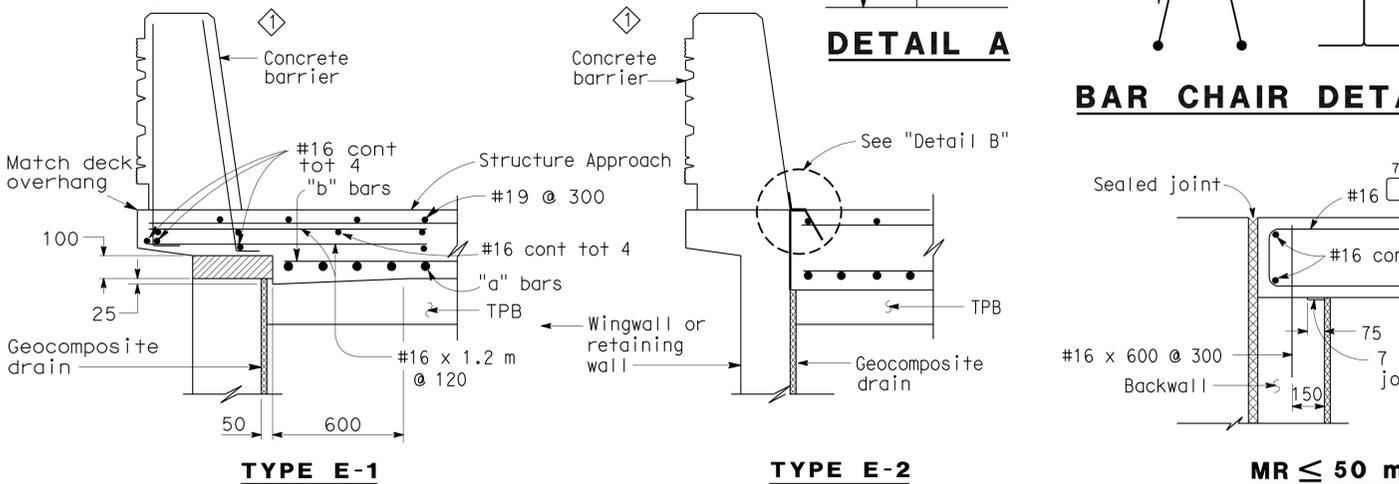
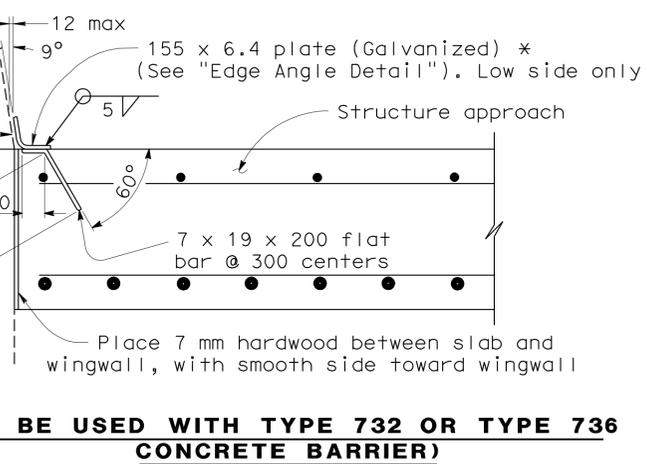
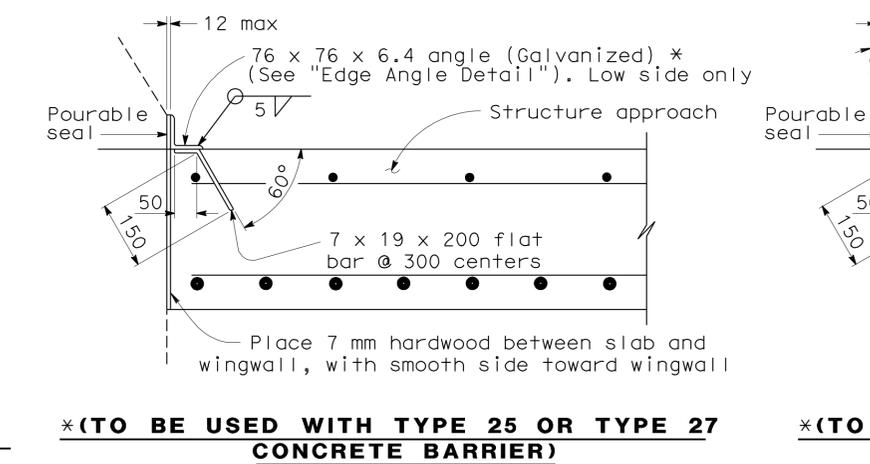
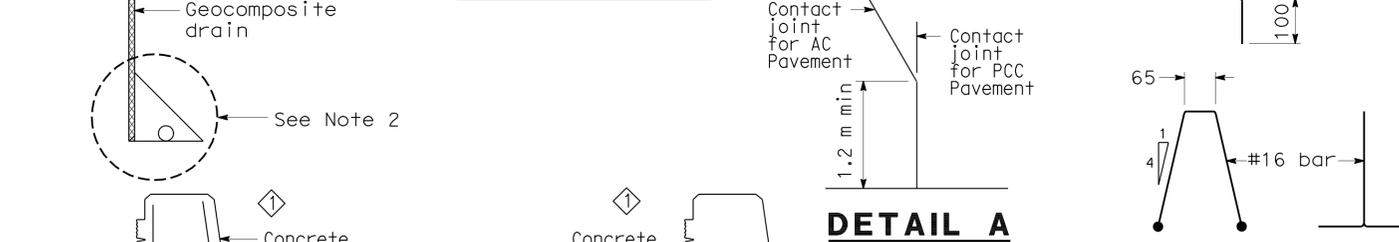
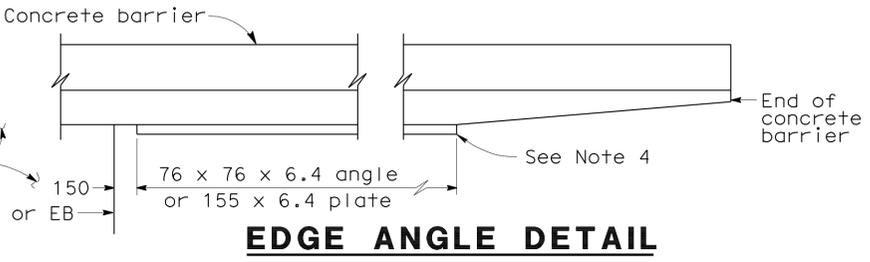
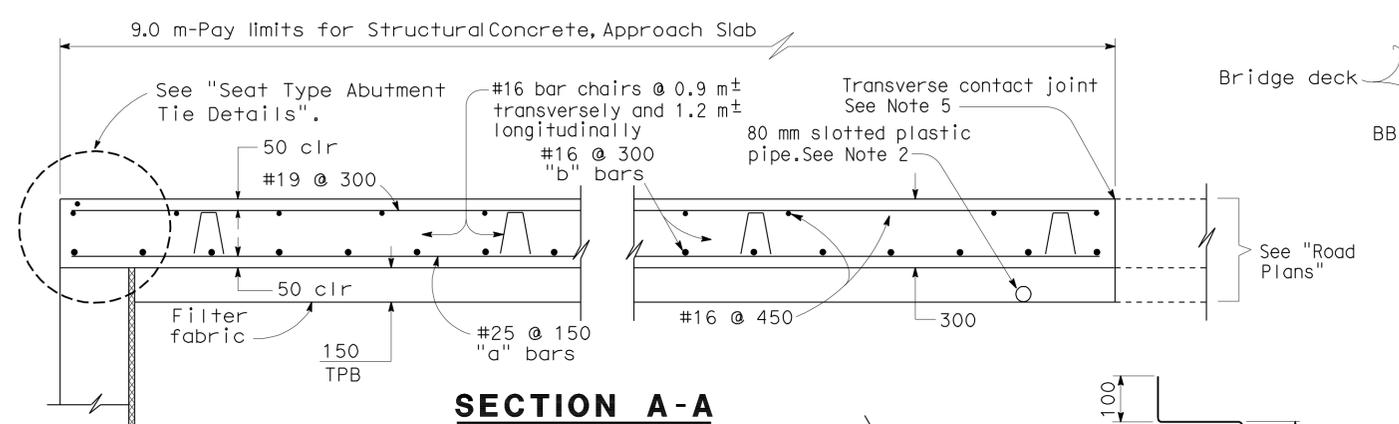
9-15-11  
 M. Friedheim  
 REGISTERED ENGINEER - CIVIL  
 No. 57968  
 Exp. 6-30-12  
 CIVIL  
 STATE OF CALIFORNIA

1-23-12  
 PLANS APPROVAL DATE  
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**APPROACH SLAB TRANSVERSE CONTACT JOINT**

APPROACH SKEW	WITH AC ROADWAY PAVEMENT	WITH PCC ROADWAY PAVEMENT
< 20°	Parallel to face of paving notch	Parallel to face of paving notch
20° - 45°	Parallel to face of P N use (Detail A)	Stagger lines 7.2 m to 10.8 m apart.
> 45°	Parallel to face of P N use (Detail A)	Stagger at each lane line.



- NOTES:**
- For details not shown, see Structure Plans. For MR ≤ 50 mm, adjust bar reinforcement to clear a sawcut for sealed joint, when required.
  - For drainage details, see "Structure Approach Drainage Details" sheet.
  - Longitudinal construction joints, when permitted by the Engineer, shall be located on lane lines.
  - End angle or plate at beginning of barrier transition, end of wingwall or end of structure approach as applicable.
  - For transverse contact joint with new PCC paving, refer to Standard Plan P30
  - At the contractor's option, approach slab transverse reinforcement may be placed parallel to paving notch. Spacing of transverse reinforcement is measured along roadway.
- Remove all polystyrene.

**NO SCALE**  
ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN

**WILLITS BYPASS**  
**S101-W20 CONNECTOR BRIDGE**  
**STRUCTURE APPROACH TYPE N(9S)**

**STANDARD DRAWING**

RELEASE DATE	DESIGN BY	CHECKED	RELEASED BY
REVISED	M. TRAFFALIS	E. THORKILDSEN	
FILE NO.	DETAILS BY	CHECKED	
xs3-120	R. YEE	E. THORKILDSEN	
	SUBMITTED BY	DRAWING DATE	OFFICE CHIEF
	M. HA	4/98	

Modified barrier

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES  
STRUCTURE DESIGN  
DESIGN BRANCH 2

BRIDGE NO. 10-0129F  
KILOMETER POST R70.62

REVISION DATES (PRELIMINARY STAGE ONLY)	SHEET NO.	OF
9-06-05 2-04-07 1-14-09 6-30-09	13	18

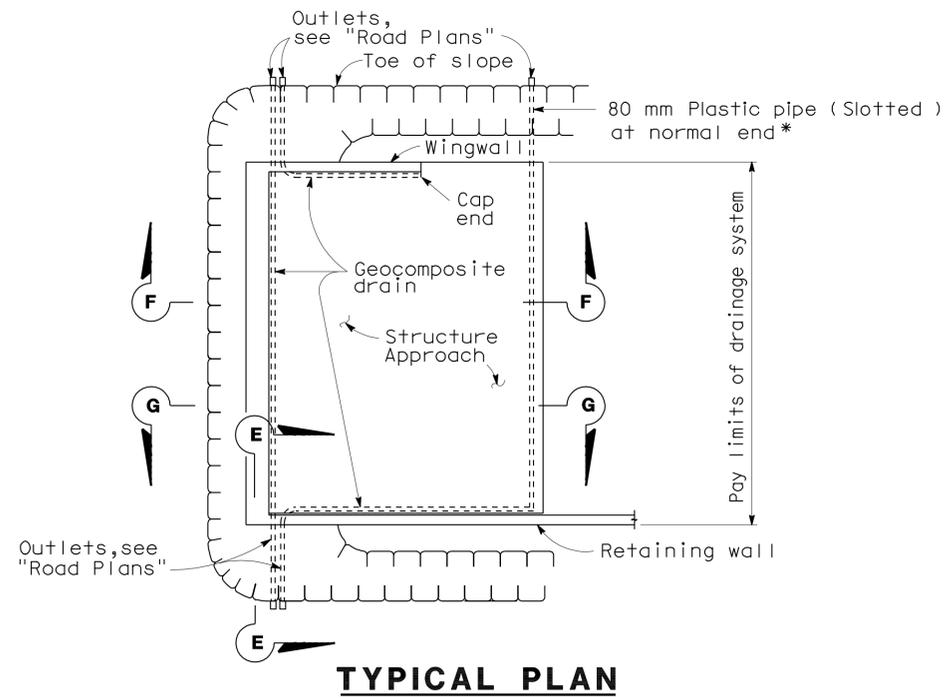


DIST.	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
01	Men	101	R69.4/R78.9	663	939

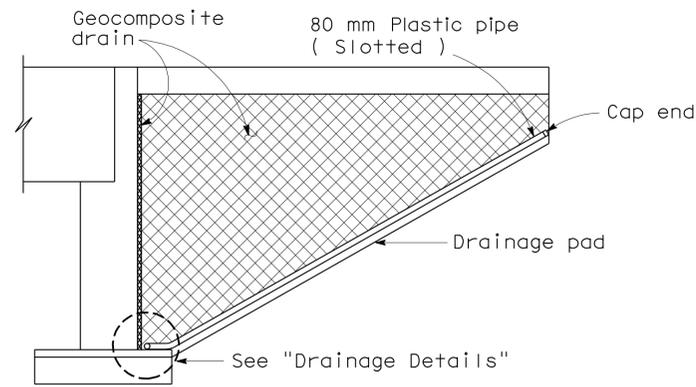
<i>M. Friedheim</i> REGISTERED ENGINEER - CIVIL 9-15-11		
1-23-12 PLANS APPROVAL DATE		

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

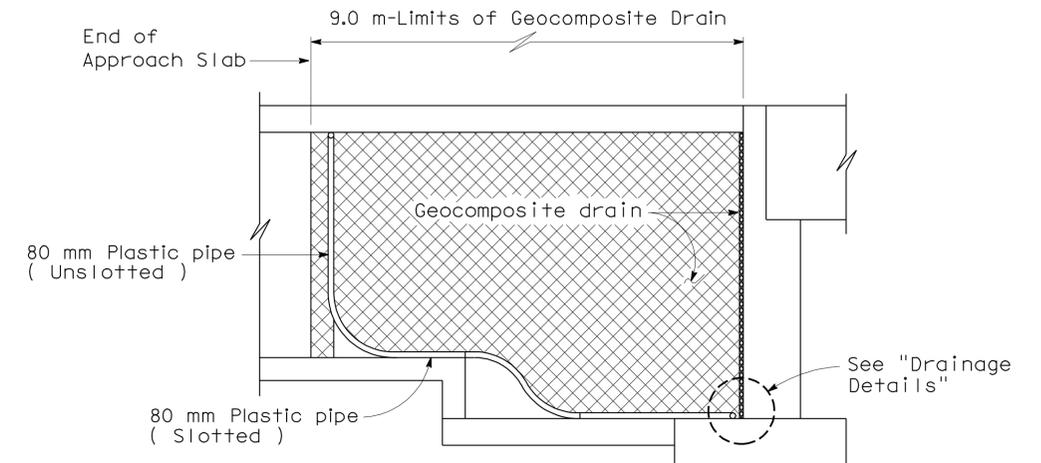


**TYPICAL PLAN**

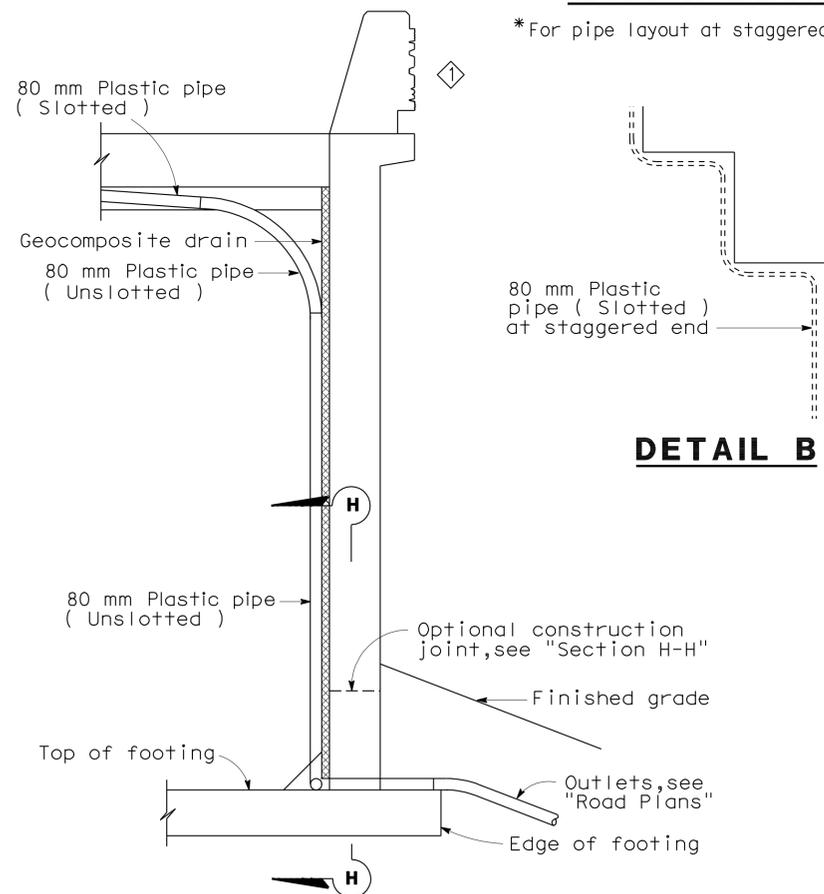
\*For pipe layout at staggered end, see "Detail B".



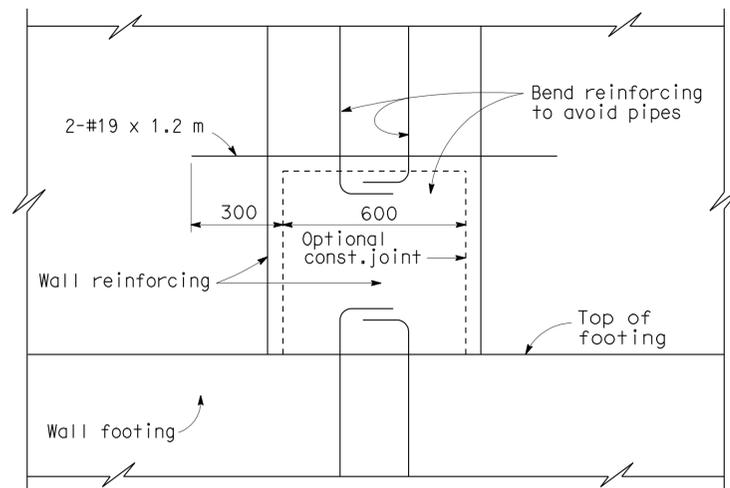
**CANTILEVER WINGWALL SECTION F-F**



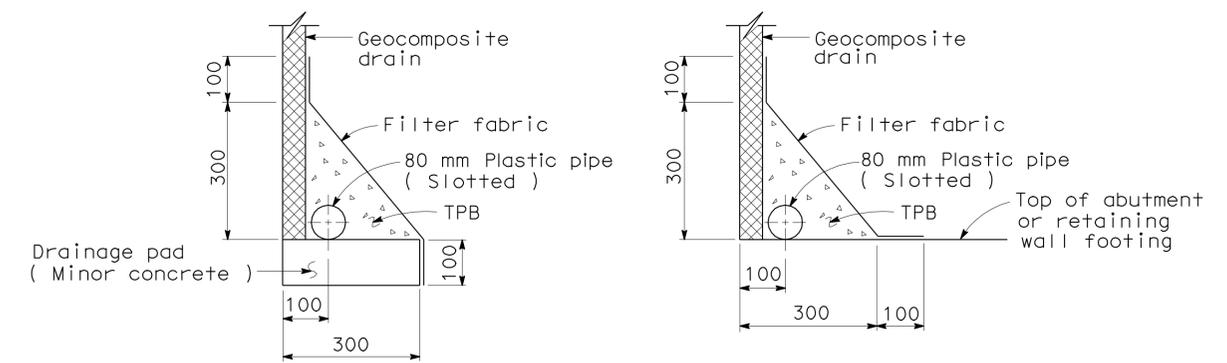
**RETAINING WALL WINGWALL SECTION G-G**



**DETAIL B**



**SECTION H-H**



**WITHOUT FOOTING**

**WITH FOOTING**

**DRAINAGE DETAILS**

**SPECIAL DETAILS**

NO SCALE

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN

**SECTION E-E**  
 NOTE: Bends and junctions in 80 mm plastic pipe are 750 mm radius min.

STANDARD DRAWING				Modified barrier	
RELEASE DATE	<b>REVISED</b>	DESIGN BY	M. TRAFFALIS	CHECKED	E. THORKILDSEN
FILE NO.	<b>xs3-110</b>	DETAILS BY	R. YEE	CHECKED	E. THORKILDSEN
		SUBMITTED BY	M. HA	DRAWING DATE	4/98
		OFFICE CHIEF	<i>Richard D. Ford</i>		

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES  
 STRUCTURE DESIGN  
 DESIGN BRANCH 2

BRIDGE NO.  
 10-0129F  
 KILOMETER POST  
 R70.62

**WILLITS BYPASS**  
**S101-W20 CONNECTOR BRIDGE**  
**STRUCTURE APPROACH DRAINAGE DETAILS**

DATE PLOTTED => 28-JAN-2012 TIME PLOTTED => 07:03



DIST	COUNTY	ROUTE	KILOMETER TOTAL PROJECT	POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Men	101	R69.4/R78.9	665	939	

CERTIFIED ENGINEERING GEOLOGIST DATE 12-3-09  
 REGISTERED GEOLOGIST  
 Reid Buell  
 No. 1481  
 Exp. 4-30-11  
 CERTIFIED ENGINEERING GEOLOGIST  
 STATE OF CALIFORNIA

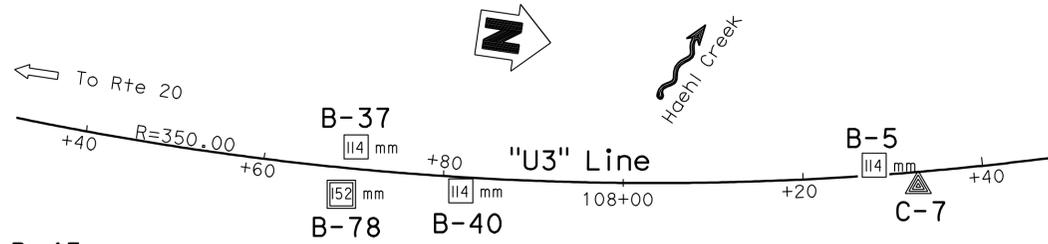
1-23-12  
 PLANS APPROVAL DATE

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**BENCH MARK**

**SURVEY CONTROL**

26200-81  
 Fnd ALCAR  
 0.870 M R+ @ PROPOSED "U3" LINE RTE 101  
 Sta 107+53.077  
 N 690629.917  
 E 1885640.109  
 Elev = 459.990



**PLAN**  
1:400

**NOTES:**

- Standard Penetration Tests (SPT) performed in Borings B-5, and B-37 and B-45 were advanced using a 63.5 kg Safety Hammer.
- E = Blow count for 0.3 m penetration extrapolated from blow count for less than 0.3 m (due to change in material or hard driving).
- Penetration index value designated as "REF" means sampler refusal.
- pp=Unconfined compressive strength determined in the field by "Pocket Penetrometer." Units shown are kilopascals (kPa).
- UU = Undrained shear strength determined in the laboratory by Unconsolidated-Undrained Triaxial Test. Units shown are kilopascals (kPa).
- Consistency descriptors shown on the LOTB sheets are based on the pocket penetrometer readings.
- Based on the static groundwater levels taken in Boring B-78 and Cone Penetrometer Sounding C-7, groundwater elevations taken in Boring B-37 are assumed to be artesian groundwater elevations.
- Ground water surface elevations are subject to seasonal fluctuations and may occur at higher or lower elevations depending on conditions at any particular time.

**LEGEND OF BORING OPERATIONS**

**ELECTRONIC CONE PENETROMETER TEST**  
 Cone Penetrometer (CPT) data from test logs showing blow count, friction ratio, and sleeve friction. Includes a graph of Friction Ratio (kN/m²) vs. Depth (m) and a graph of Sleeve Friction (kN/m²) vs. Depth (m).

**57 mm CONE PENETRATION BORING**  
 Diagram showing the 57 mm cone penetration boring setup with labels for Top Hole EL., Location, and Boring Date.

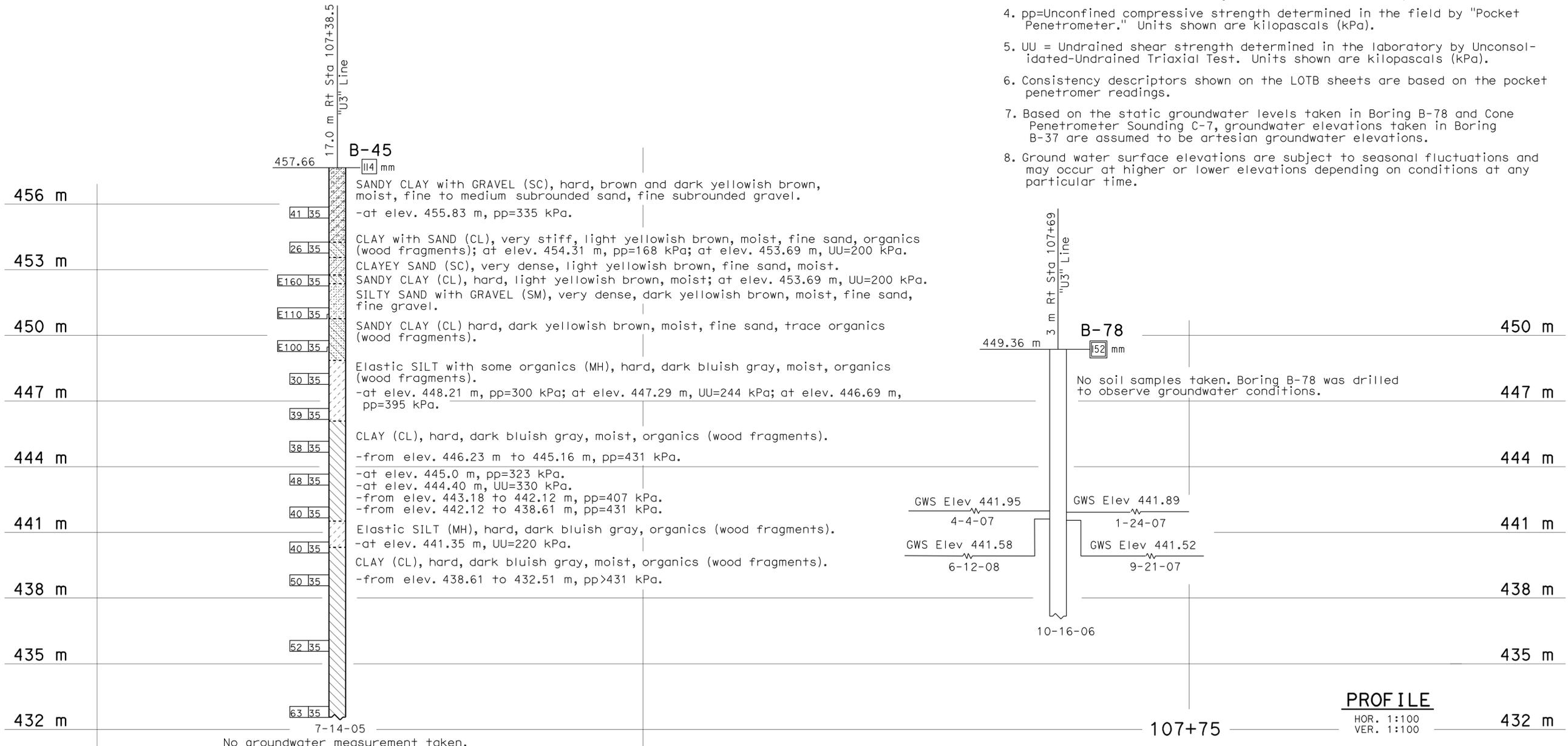
**ROTARY SAMPLE BORING (WET)**  
 Diagram showing the rotary sample boring (wet) setup with labels for Top Hole EL., Location, Boring Date, and various components like casing, sampler, and sample.

**SAMPLE BORING (DRY)**  
 Diagram showing the sample boring (dry) setup with labels for Top Hole EL., Location, Boring Date, and various components like casing, sampler, and sample.

**LEGEND OF EARTH MATERIALS**  
 Symbols for Gravel, Sand, Silt, Clay, Silty Sand, Silty Clay, Sandy Clay, Clayey Sand, Clayey Silt, Clayey Silty Sand, Clayey Silty Clay, Organic Matter, and Boulder.

**CONSISTENCY CLASSIFICATION FOR SOILS**  
 Table for soil consistency classification based on SPT N-value and cohesion.

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



**PROFILE**

HOR. 1:100  
VER. 1:100



**ENGINEERING SERVICES**  
 DRAWN BY: F. Nguyen 5/09, I.G-Remmen 11/09  
 CHECKED BY: T. Alderman

**GEOTECHNICAL SERVICES**  
 FIELD INVESTIGATION BY: T. Alderman and J. Martin

**STATE OF CALIFORNIA**  
 DEPARTMENT OF TRANSPORTATION

**DIVISION OF ENGINEERING SERVICES**  
 STRUCTURE DESIGN  
 DESIGN BRANCH 2

BRIDGE NO. 10-0129F  
 KILOMETER POST R70.62

**WILLITS BYPASS**  
**S101-W20 CONNECTOR BRIDGE**  
**LOG OF TEST BORINGS 1 OF 3**

CU 01  
EA 262001

DISREGARD PRINTS BEARING EARLIER REVISION DATES

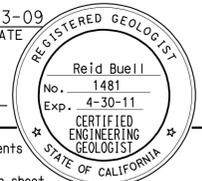
REVISION DATES (PRELIMINARY STAGE ONLY)	SHEET	OF
06-17-09 11-28-09 11-30-09	16	18

DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Men	101	R69.4/R78.9	666	939

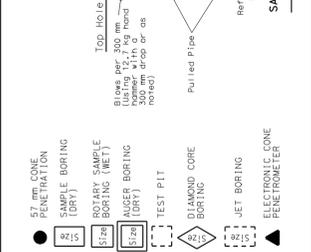
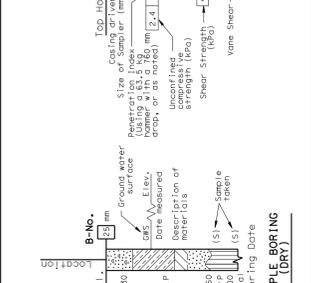
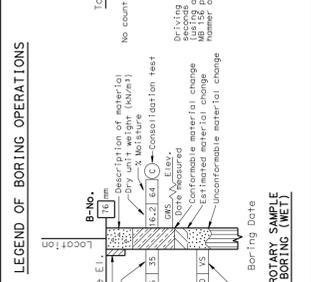
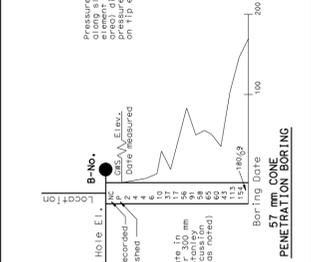
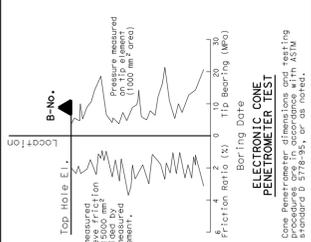
12-3-09  
DATE

1-23-12  
PLANS APPROVAL DATE

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FOR PLAN VIEW, SEE  
"LOG OF TEST BORINGS" 1 OF 3

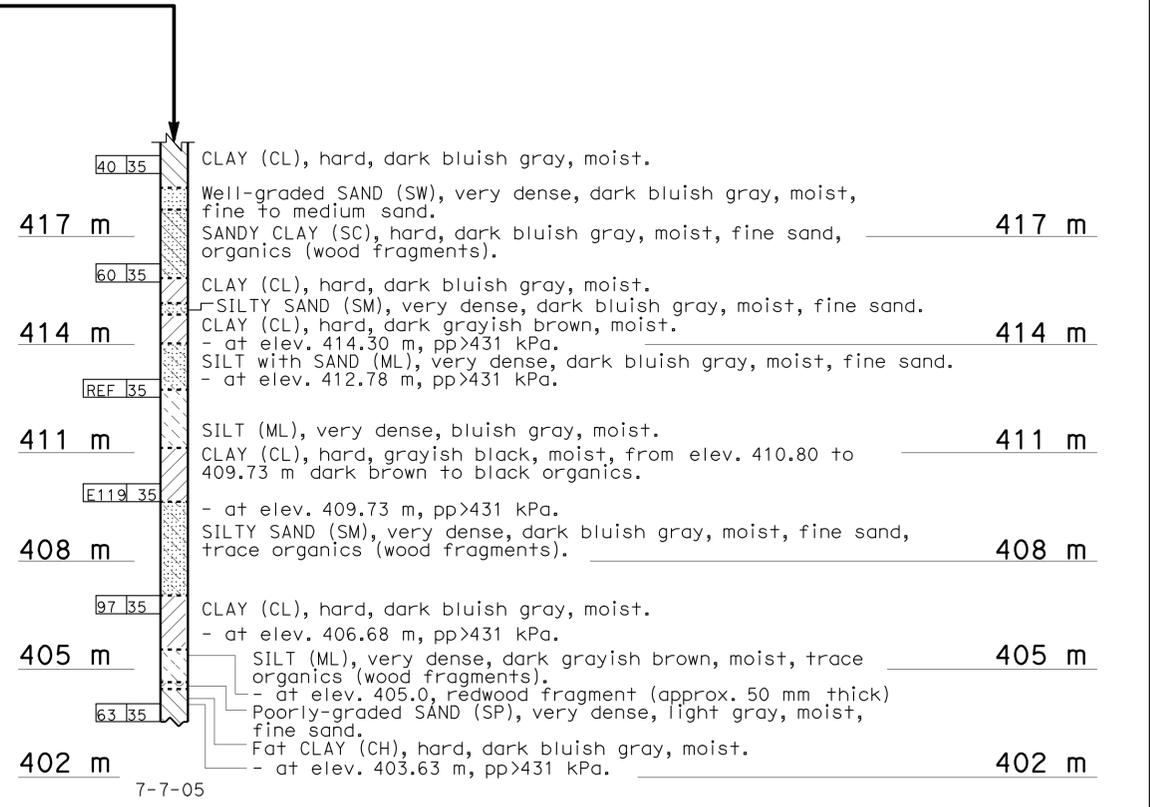
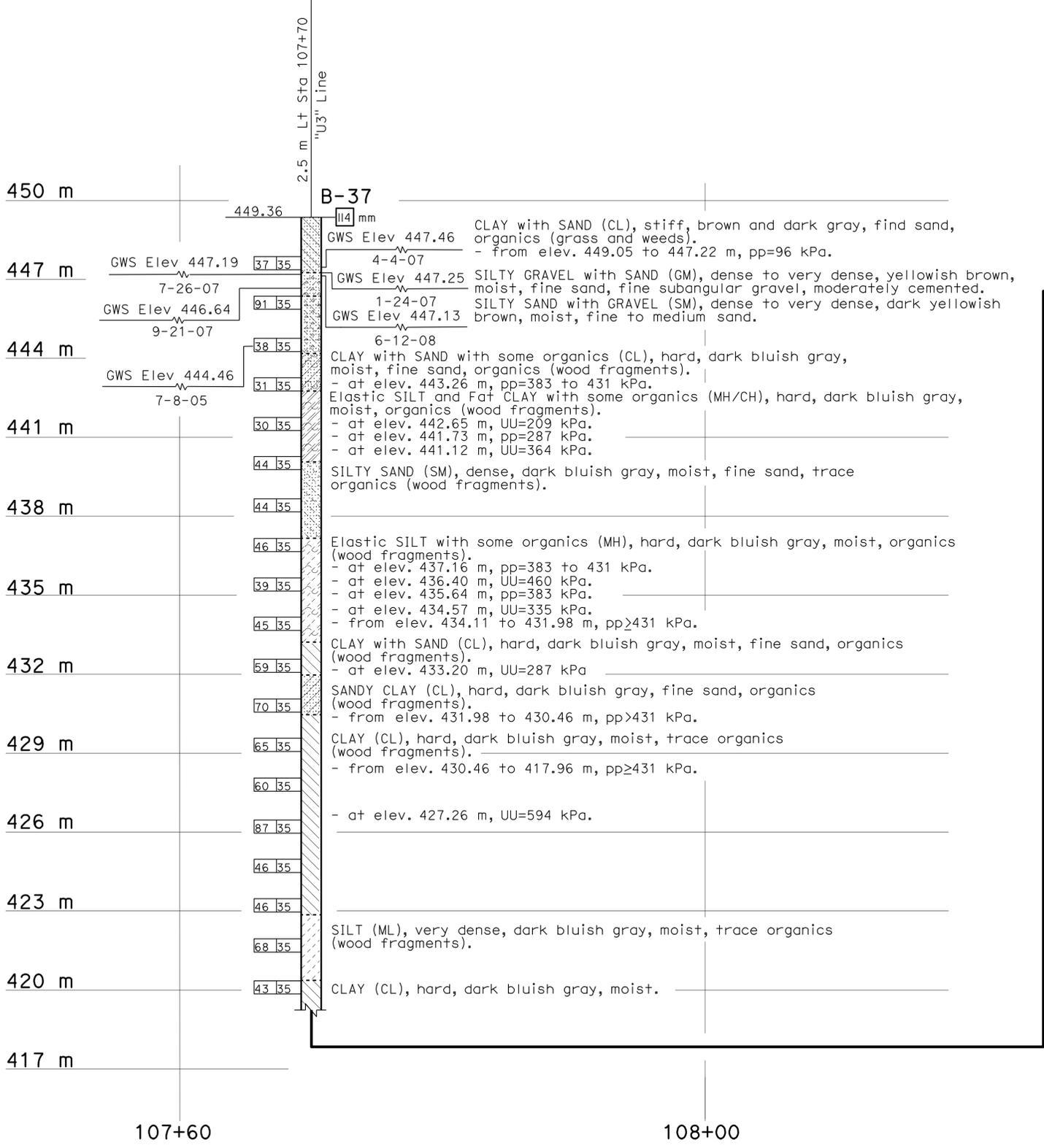


**LEGEND OF EARTH MATERIALS**

GRAVEL	CLAYEY SILT
SAND	PEAT and/or ORGANIC MATTER
SILT	COBBLES and/or Boulders
CLAY	(ANGULAR) ROCK
SANDY CLAY or CLAYEY SAND	SEDIMENTARY ROCK
SILT with SAND	METAMORPHIC
SILTY CLAY	

**CONSISTENCY CLASSIFICATION FOR SOILS**

SPT N-value (0.3m)	Cohesive	
	Very Soft	Soft
SPT N-value (0.3m)	Non-cohesive	
	Very Loose	Loose
SPT N-value (0.3m)	Dense	
	Very Dense	Very Stiff
SPT N-value (0.3m)	Hard	



Note: Piezometer installed in Boring B-37 on 7-7-05.

**PROFILE**  
HOR. 1:200  
VER. 1:100



<b>ENGINEERING SERVICES</b>	<b>GEOTECHNICAL SERVICES</b>	FIELD INVESTIGATION BY:
DRAWN BY: F. Nguyen 5/09		T. Alderman and J. Martin
CHECKED BY: T. Alderman		

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES  
STRUCTURE DESIGN  
DESIGN BRANCH 2

BRIDGE NO. 10-0129F  
KILOMETER POST R70.62

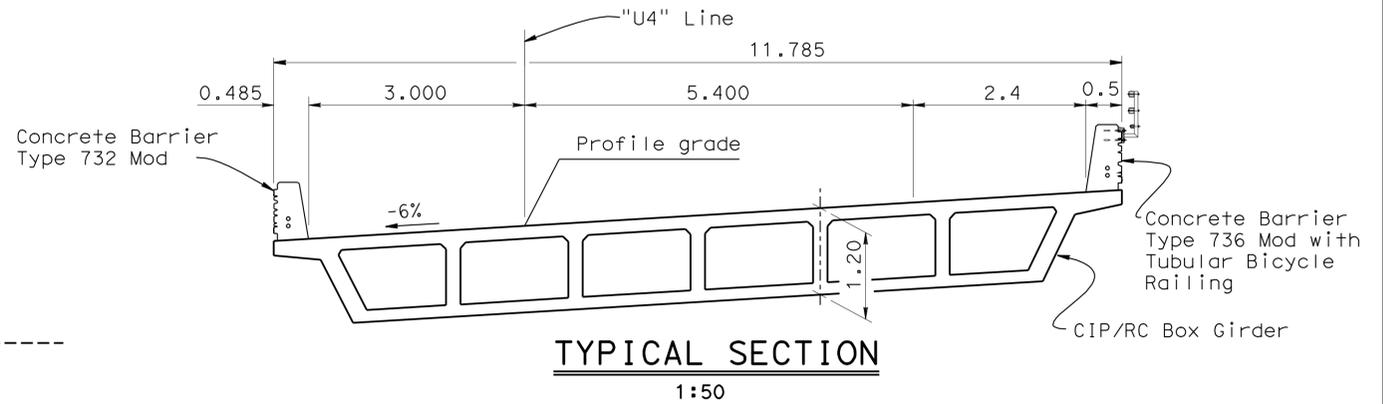
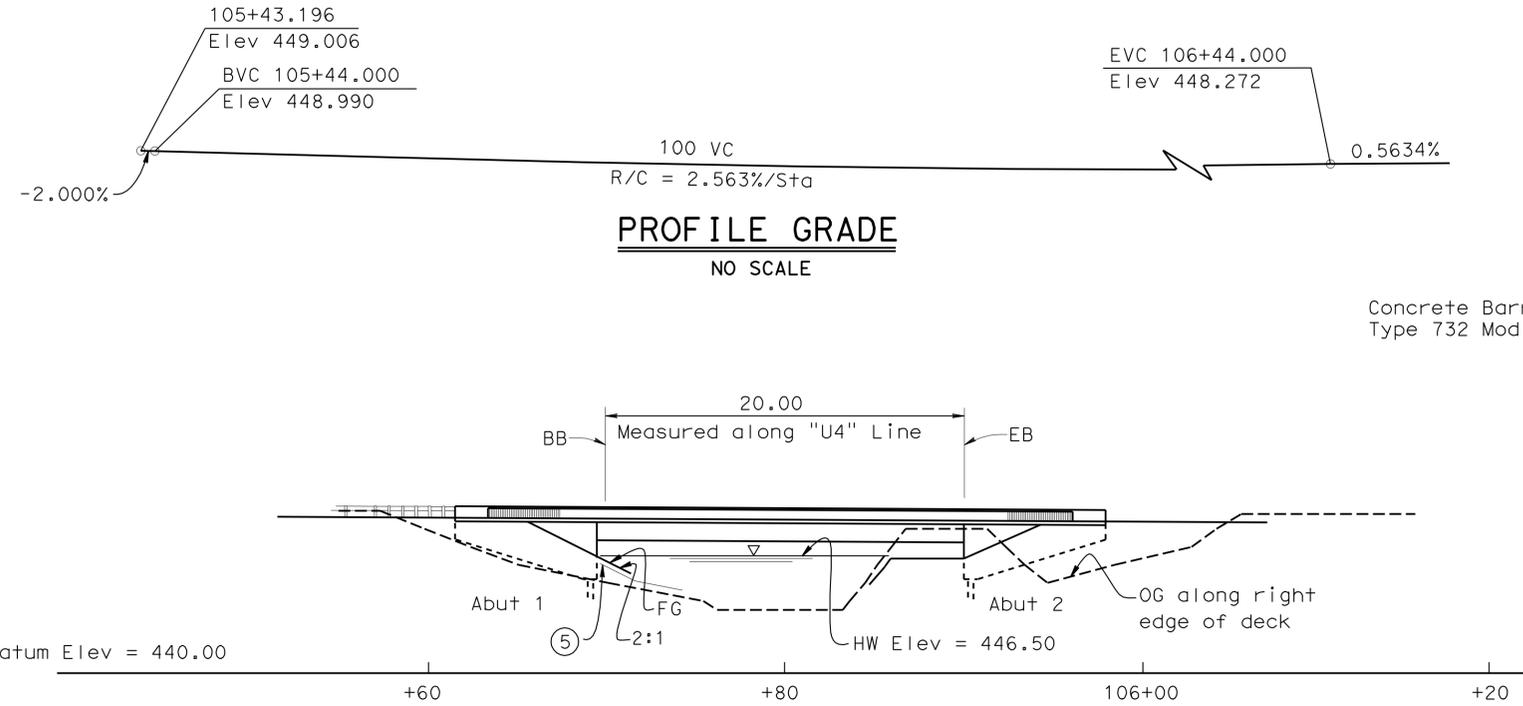
**WILLITS BYPASS**  
**S101-W20 CONNECTOR BRIDGE**  
**LOG OF TEST BORINGS 2 OF 3**



DIST	COUNTY	ROUTE	KILOMETER TOTAL PROJECT	POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Men	101	R69.4/R78.9		668	939

M. Friedheim  
 REGISTERED CIVIL ENGINEER DATE 9-15-11  
 1-23-12  
 PLANS APPROVAL DATE  
 The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

- NOTES:
- Structure Approach Slab, Type N(9D)
  - Metal Beam Guardrail, See Road Plans
  - Paint "E20-N101 Connector Bridge"
  - Paint Bridge Number and Year Constructed
  - TRM, see "Road Plans"

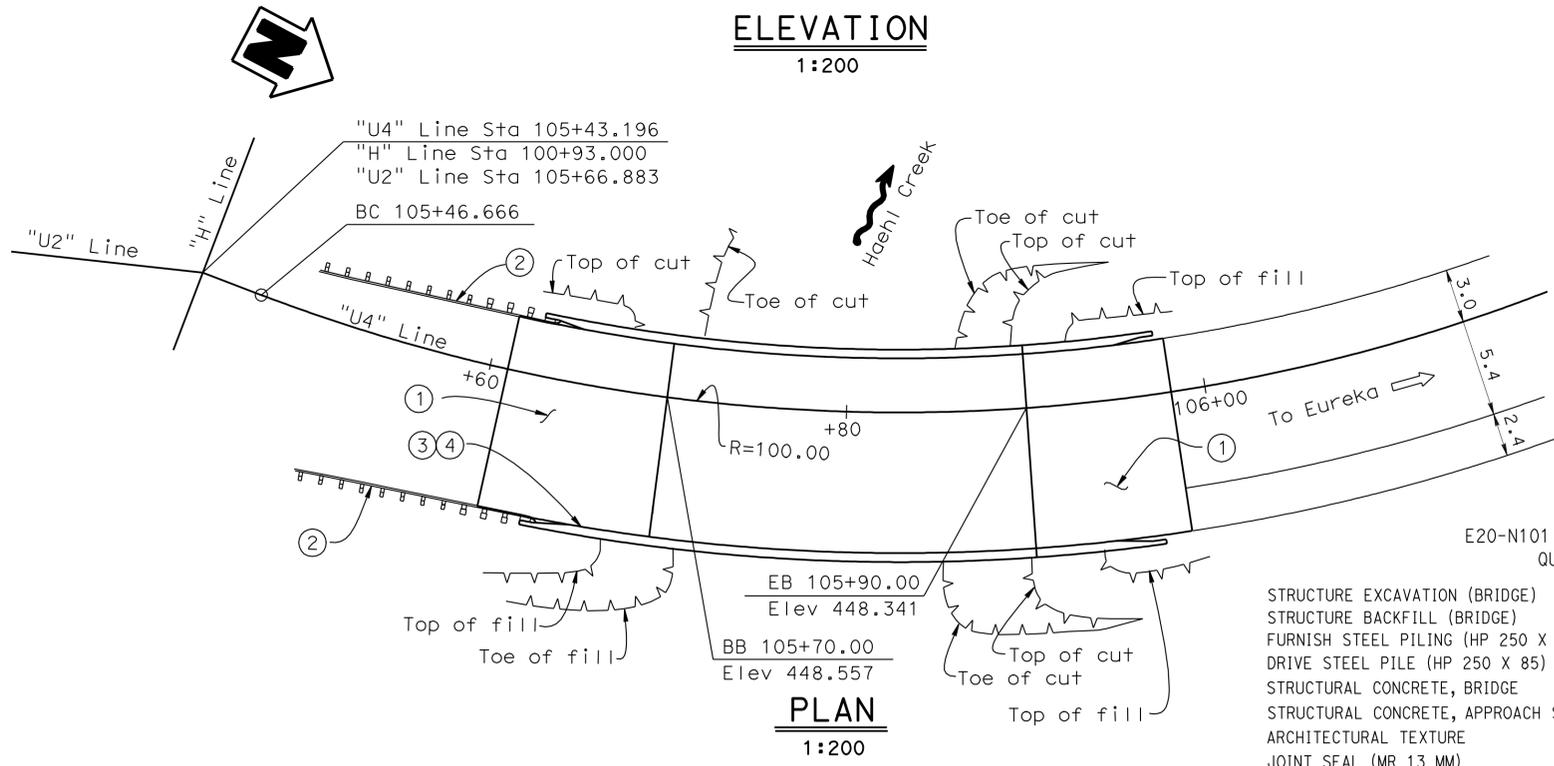


**INDEX TO PLANS**

- GENERAL PLAN
- DECK CONTOURS
- FOUNDATION PLAN
- ABUTMENT DETAILS NO. 1
- ABUTMENT DETAILS NO. 2
- TYPICAL SECTION
- GIRDER LAYOUT
- GIRDER REINFORCEMENT
- AESTHETIC DETAILS
- STRUCTURE APPROACH TYPE N(9D)
- STRUCTURE APPROACH DRAINAGE DETAILS
- TUBULAR BICYCLE RAILING
- LOG OF TEST BORINGS NO. 1 OF 1

**STANDARD PLANS DATED JULY 2004**

A10A	ACRONYMS AND ABBREVIATIONS (A-L)
A10B	ACRONYMS AND ABBREVIATIONS (M-Z)
A10C	SYMBOLS
A10D	SYMBOLS
A62C	LIMITS OF PAYMENT FOR EXCAVATION AND BACKFILL-BRIDGE
B0-1	BRIDGE DETAILS
B0-5	BRIDGE DETAILS
RSP B6-21	JOINT SEAL (MAXIMUM MOVEMENT RATING = 50 MM)
B7-1	BOX GIRDER DETAILS
B11-55	CONCRETE BARRIER TYPE 732
B11-56	CONCRETE BARRIER TYPE 736
B14-3	COMMUNICATION AND SPRINKLER CONTROL CONDUITS (CONDUIT LESS THAN SIZE 103)
RSP ES-9B	ELECTRICAL SYSTEMS (ELECTRICAL DETAILS STRUCTURE INSTALLATIONS)
RSP ES-9C	ELECTRICAL SYSTEMS (ELECTRICAL DETAILS STRUCTURE INSTALLATIONS)



E20-N101 CONNECTOR BRIDGE QUANTITIES

STRUCTURE EXCAVATION (BRIDGE)	132	m <sup>3</sup>
STRUCTURE BACKFILL (BRIDGE)	61	m <sup>3</sup>
FURNISH STEEL PILING (HP 250 X 85)	281	m
DRIVE STEEL PILE (HP 250 X 85)	18	EA
STRUCTURAL CONCRETE, BRIDGE	178	m <sup>3</sup>
STRUCTURAL CONCRETE, APPROACH SLAB (TYPE N)	64	m <sup>3</sup>
ARCHITECTURAL TEXTURE	7	m <sup>2</sup>
JOINT SEAL (MR 13 MM)	22	m
BAR REINFORCING STEEL (BRIDGE)	27 322	kg
TUBULAR BICYCLE RAILING (MODIFIED)	34	m
CONCRETE BARRIER (TYPE 732 MOD)	32	m
CONCRETE BARRIER (TYPE 736 MODIFIED)	34	m

Note: For General Notes and Pile Data Table, see "Deck Contours" sheet.

	 DESIGN ENGINEER	DESIGN BY M. Akkari CHECKED S. Jee/G. Setberg	LOAD FACTOR DESIGN LIVE LOADING: HS20-44 AND ALTERNATIVE AND PERMIT DESIGN LOAD	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 2	BRIDGE NO. 10-0129G KILOMETER POST R70.620	<b>WILLITS BYPASS</b> <b>E20-N101 CONNECTOR BRIDGE</b> <b>GENERAL PLAN</b>
	 DESIGN ENGINEER	DETAILS BY E. Montevirgen CHECKED S. Jee/G. Setberg	LAYOUT BY M. Friedheim CHECKED M. Akkari	FILE NAME => 10-0129g_cagp.dgn	DISREGARD PRINTS BEARING EARLIER REVISION DATES	SHEET 1 OF 13	
	ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SHOWN	QUANTITIES BY M. Friedheim CHECKED M. Akkari	SPECIFICATIONS BY I. Huang CHECKED I. Huang	ORIGINAL SCALE IN MILLIMETERS FOR REDUCED PLANS	REVISION DATES	STRUCTURES DESIGN GENERAL PLAN SHEET (METRIC) (REV.03-17-04)	

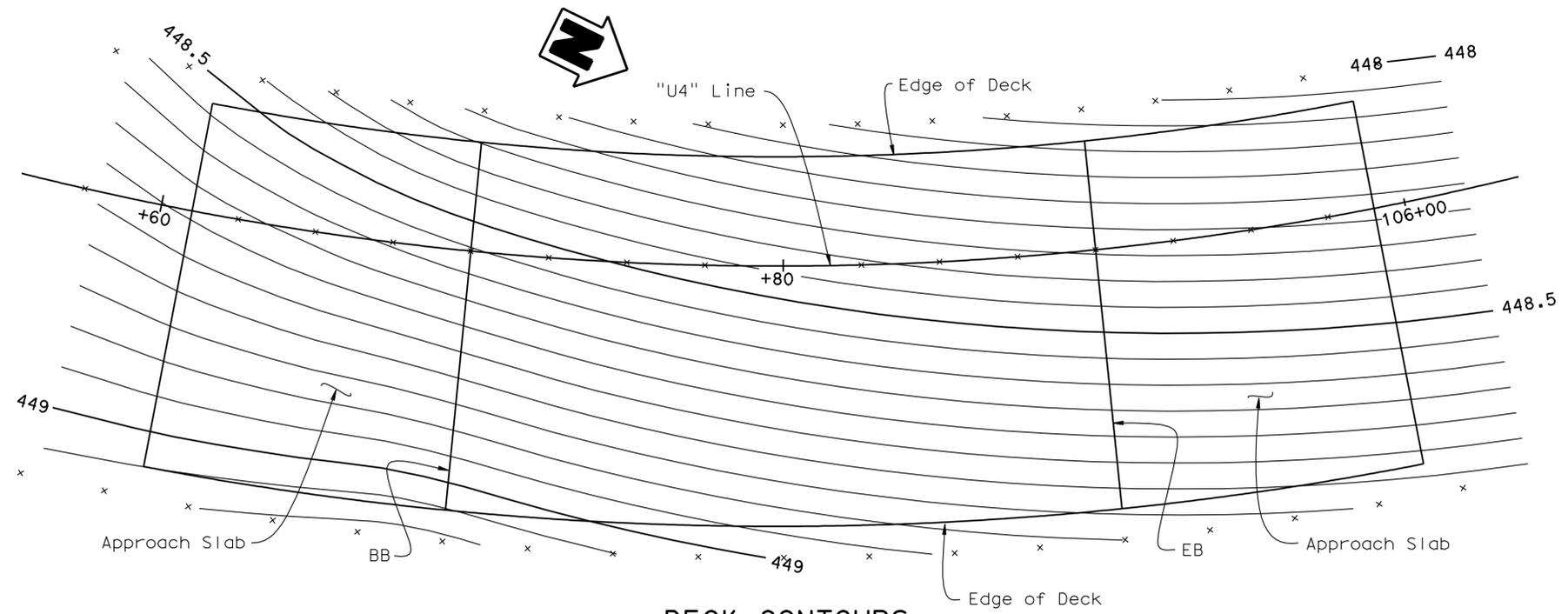
DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Men	101	R69.4/R78.9	669	939

*M. Friedheim* 9-15-11  
 REGISTERED CIVIL ENGINEER DATE

1-23-12  
 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  
 M. Friedheim  
 No. 57968  
 Exp. 6-30-12  
 CIVIL  
 STATE OF CALIFORNIA



**DECK CONTOURS**  
1:100

Notes:  
 2.5 m interval measured along station line  
 Contours do not include camber  
 Contour interval = 0.05 m

**GENERAL NOTES (LOAD FACTOR DESIGN)**

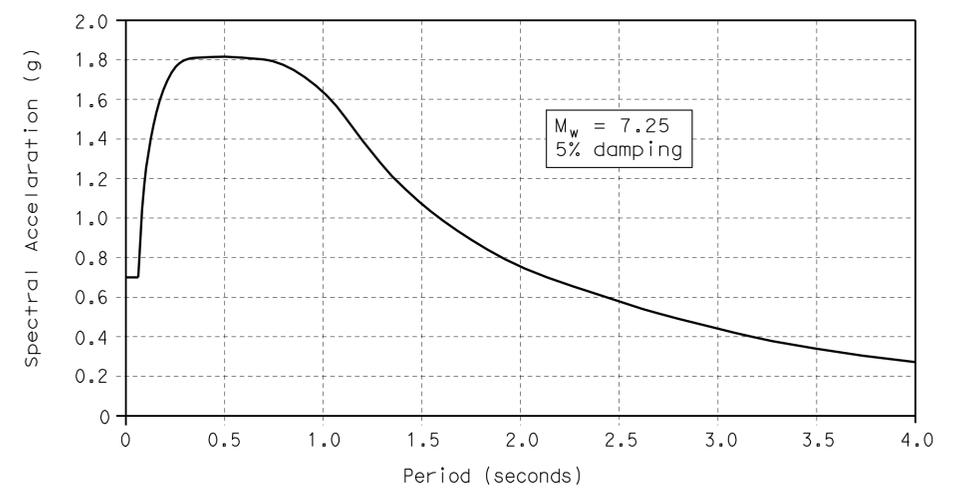
DESIGN: Bridge Design Specifications - April 2000 (LFD) (1996 AASHTO with interims and revisions by Caltrans). Project Specific Design Criteria - March 2009.

SEISMIC DESIGN: Caltrans Seismic Design Criteria Ver. 1.4 - June 2006

DEAD LOAD: Includes 1675 Pa for future wearing surface. Includes 1460 N/m for future utilities.

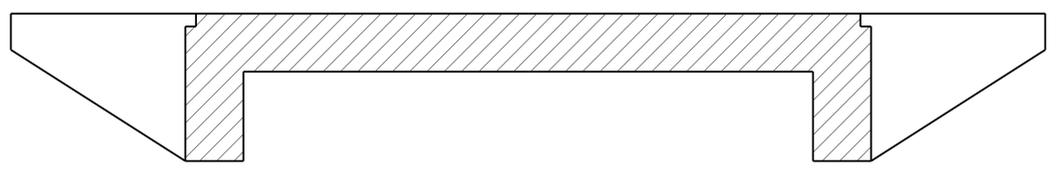
LIVE LOAD: HS20-44 and alternative and permit design load.

SEISMIC LOADING: Modified Caltrans Seismic Design Criteria for Soil Profile Type D, PBA = 0.7 g. See Response Spectrum below:



REINFORCED CONCRETE:

$f_y = 420 \text{ MPa}$   
 $f'_c = 25 \text{ MPa}$  (See concrete strength and type limits for exceptions)  
 Transverse Deck Slab (working stress design)  
 $f_s = 140 \text{ MPa}$   
 $f'_c = 8 \text{ MPa}$



Structural Concrete, Bridge  
 Structural Concrete, Bridge  $f'_c = 28 \text{ MPa}$  @ 28 days

**CONCRETE STRENGTH AND TYPE LIMITS**  
No Scale

PILE DATA TABLE					
Location	Pile Type	Nominal Resistance		Design Tip Elevations (m)	Specified Tip Elevations (m)
		Compression	Tension		
Abut 1	HP 250 x 85	800 KN	0 KN	431.0	431.0
Abut 2	HP 250 x 85	800 KN	0 KN	428.0	428.0

Design Pile Tip Elevation is controlled by following demands:  
 1. Compression  
 2. Scour potential exists to Elev. 443.7 m at Abutments 1 and 2



DESIGN	BY M. Akkari	CHECKED S. Jee/G. Setberg
DETAILS	BY E. Montevirgen	CHECKED S. Jee/G. Setberg
QUANTITIES	BY M. Friedheim	CHECKED M. Akkari

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES  
STRUCTURE DESIGN  
DESIGN BRANCH 2

BRIDGE NO. 10-0129G  
KILOMETER POST R70.620

**WILLITS BYPASS**  
**E20-N101 CONNECTOR BRIDGE**  
**DECK CONTOURS**

ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SHOWN



CU 01  
EA 262001

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES	4-19-10	2-2-11							
SHEET									2
OF									13

USERNAME => s121614 DATE PLOTTED => 28-JAN-2012 TIME PLOTTED => 07:04

CURVE DATA				
NO	R	Δ	T	L
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(B)	100.000	58°31'59.6"	56.041	102.160

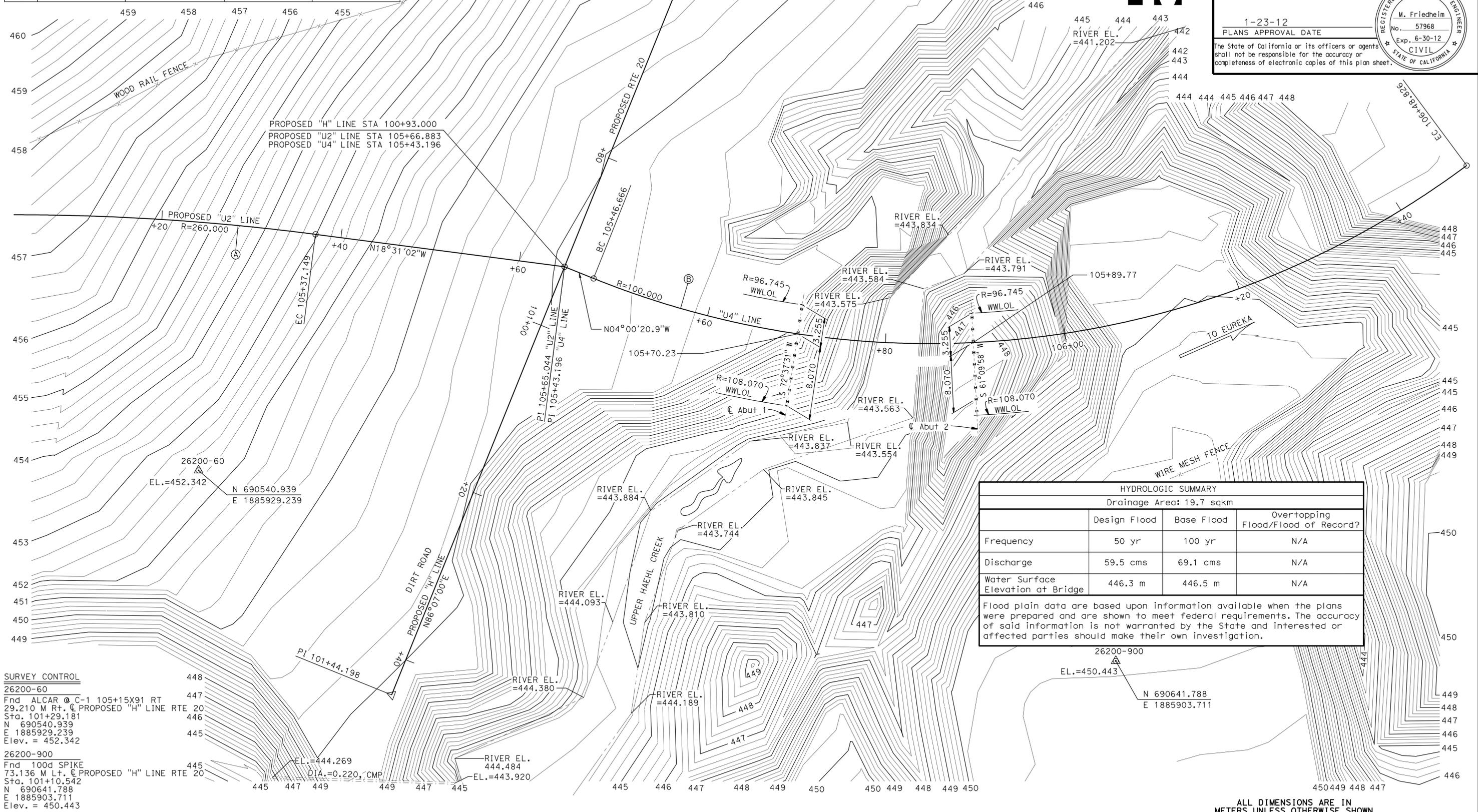
DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Men	101	R69.4/R78.9	670	939

*M. Friedheim*  
 REGISTERED CIVIL ENGINEER DATE 9-15-11

1-23-12  
 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  
 M. Friedheim  
 No. 57968  
 Exp. 6-30-12  
 CIVIL  
 STATE OF CALIFORNIA



HYDROLOGIC SUMMARY			
Drainage Area: 19.7 sqkm			
	Design Flood	Base Flood	Overtopping Flood/Flood of Record?
Frequency	50 yr	100 yr	N/A
Discharge	59.5 cms	69.1 cms	N/A
Water Surface Elevation at Bridge	446.3 m	446.5 m	N/A

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

**SURVEY CONTROL**

26200-60  
 Fnd ALCAR @ C-1 105+15X91 RT  
 29.210 M Rt. @ PROPOSED "H" LINE RTE 20  
 Sta. 101+29.181  
 N 690540.939  
 E 1885929.239  
 Elev. = 452.342

26200-900  
 Fnd 100d SPIKE  
 73.136 M Lt. @ PROPOSED "H" LINE RTE 20  
 Sta. 101+10.542  
 N 690641.788  
 E 1885903.711  
 Elev. = 450.443

ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SHOWN

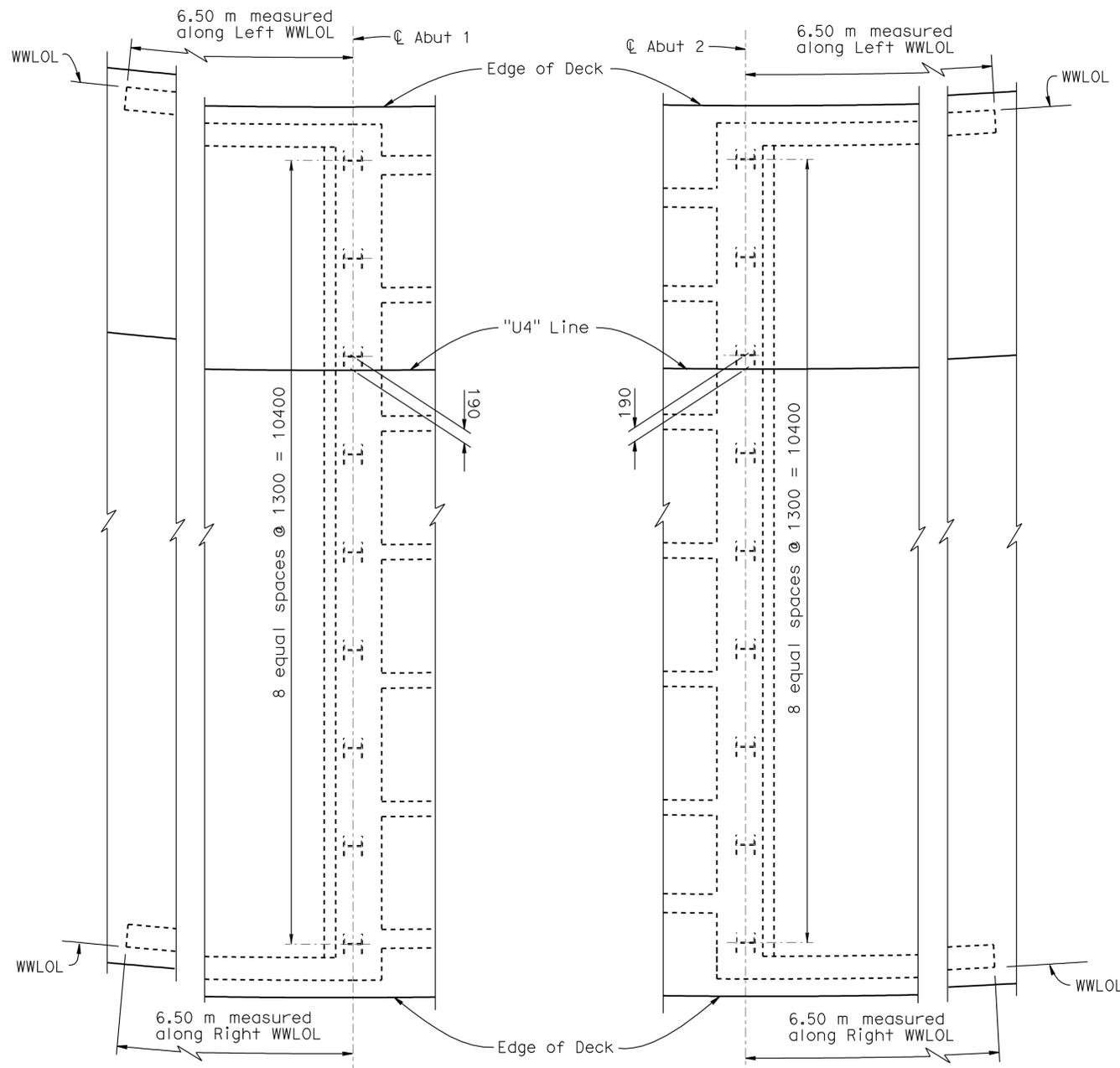
<b>PRELIMINARY INVESTIGATION SECTION</b>			DESIGN BY M. Akkari	CHECKED S. Jee/G. Setberg	<b>STATE OF CALIFORNIA</b> DEPARTMENT OF TRANSPORTATION	DIVISION OF STRUCTURES <b>STRUCTURE DESIGN 2</b>	BRIDGE NO. 10-01296	<b>E20-N101 CONNECTOR BRIDGE</b> <b>FOUNDATION PLAN</b>	
SCALE VERT. DATUM NGVD29	PHOTOGRAMMETRY AS OF:		DETAILS BY E. Montevirgen	CHECKED S. Jee/G. Setberg			KILOMETER POST R70.620		
1:200	HORZ. DATUM NAD83 (1991.35)	SURVEYED BY DISTRICT/T.GILLETT	DRAFTED BY T.ZOLNIKOVA 04/2004	CHECKED M. Akkari					
ALIGNMENT TIES DIST. TRAVERSE SHEET			FIELD CHECKED BY	CHECKED BY F.BANDA 04/2004	QUANTITIES BY M. Friedheim	CHECKED M. Akkari			
STRUCTURES FOUNDATION PLAN SHEET (METRIC) (REV.12-1-01)						CU 01 EA 262001	DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES (PRELIMINARY STAGE ONLY)	SHEET 3 OF 13



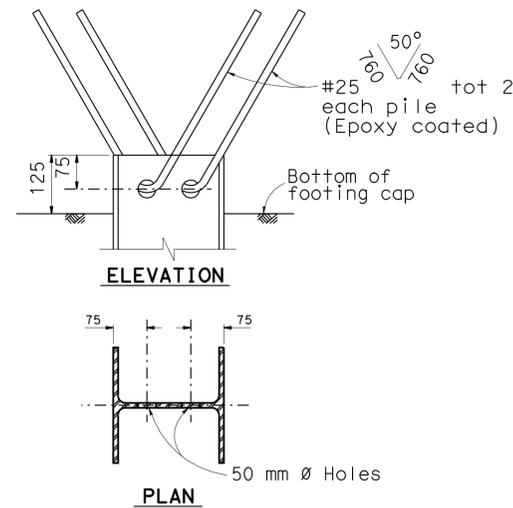
DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Men	101	R69.4/R78.9	671	939

M. Friedheim 9-15-11  
 REGISTERED CIVIL ENGINEER DATE  
 1-23-12  
 PLANS APPROVAL DATE  
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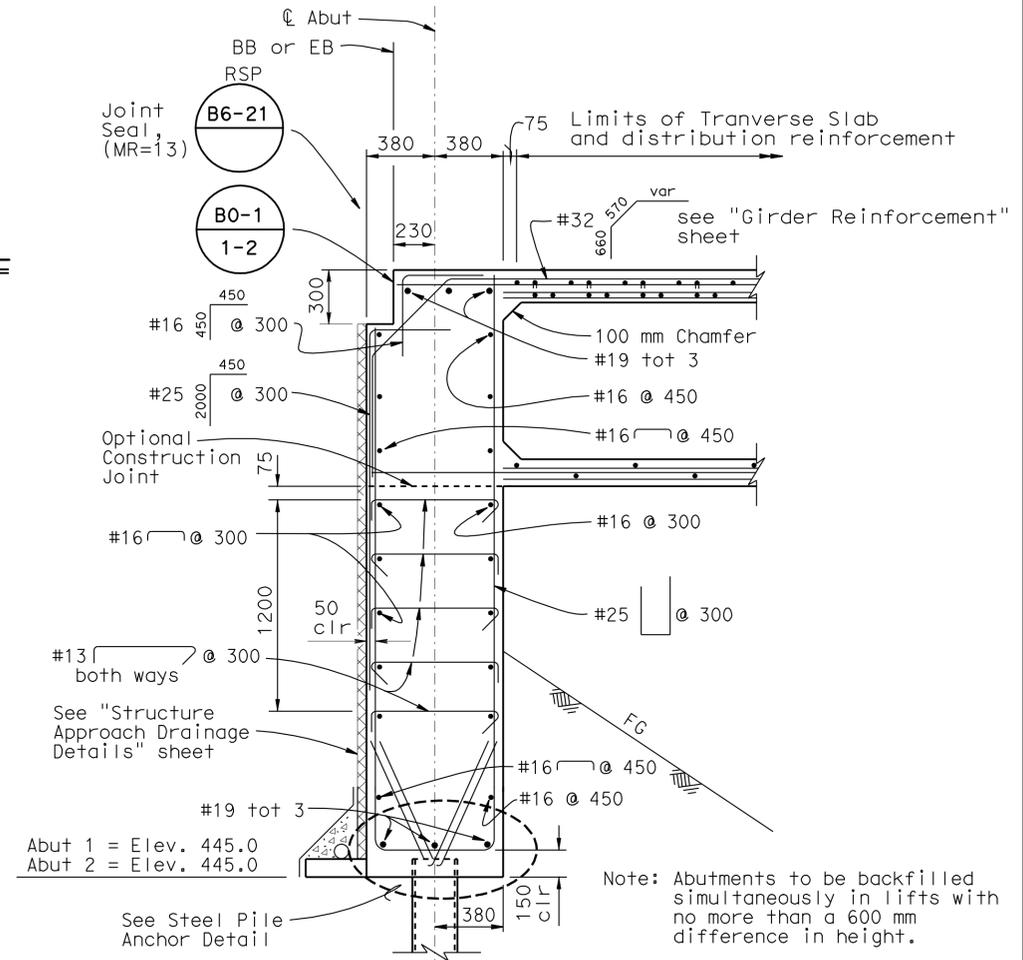
REGISTERED PROFESSIONAL ENGINEER  
 M. Friedheim  
 No. 57968  
 Exp. 6-30-12  
 CIVIL  
 STATE OF CALIFORNIA



**PLAN**  
1:40



**STEEL PILE ANCHOR DETAIL**  
No Scale



**ABUTMENT SECTION**  
1:20

**NOTES:**

- For Wingwall elevation and details, see "Abutment Details No. 2" sheet.



DESIGN	BY M. Abdi/M. Akkari	CHECKED S. Jee/G. Setberg
DETAILS	BY E. Montevirgen	CHECKED S. Jee/G. Setberg
QUANTITIES	BY M. Friedheim	CHECKED M. Akkari

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES  
STRUCTURE DESIGN  
DESIGN BRANCH 2

BRIDGE NO.	10-0129G
KILOMETER POST	R70.620

**WILLITS BYPASS**  
**E20-N101 CONNECTOR BRIDGE**  
**ABUTMENT DETAILS NO. 1**

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN



CU 01  
EA 262001

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES

SHEET 4 OF 13

USERNAME => s121614 DATE PLOTTED => 28-JAN-2012 TIME PLOTTED => 07:05

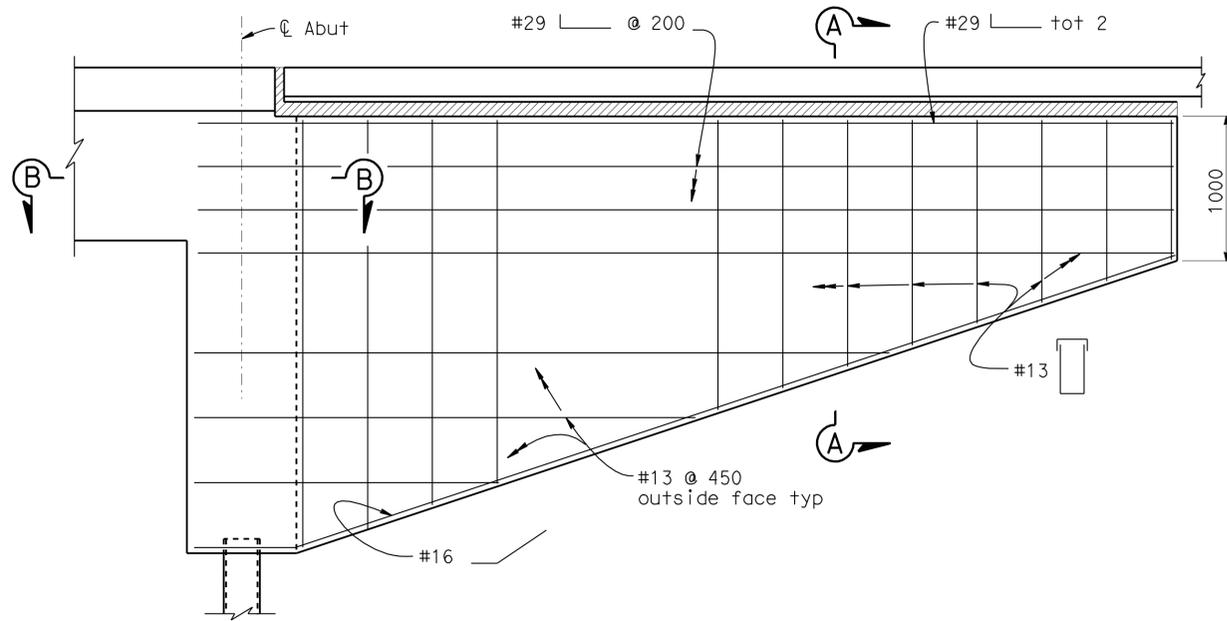
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01	Men	101	R69.4/R78.9	672	939

*M. Friedheim* 9-15-11  
 REGISTERED CIVIL ENGINEER DATE

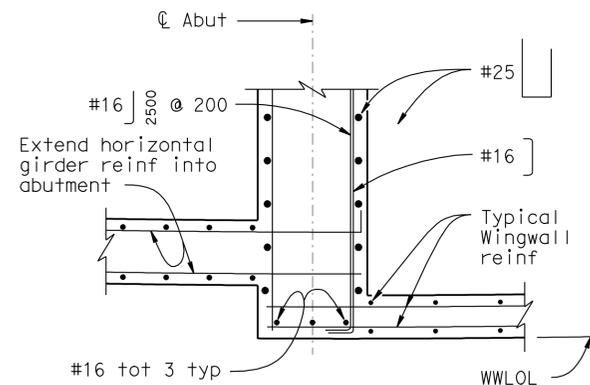
1-23-12  
 PLANS APPROVAL DATE

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.

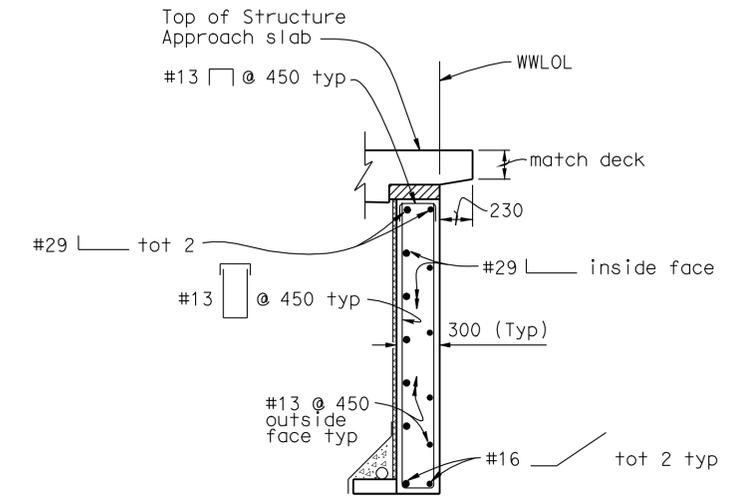
REGISTERED PROFESSIONAL ENGINEER  
 M. Friedheim  
 No. 57968  
 Exp. 6-30-12  
 CIVIL  
 STATE OF CALIFORNIA



**WINGWALL ELEVATION**  
 1:25



**SECTION B-B**  
 1:25



**SECTION A-A**  
 1:25



DESIGN	BY M. Abdi/M. Akkari	CHECKED S. Jee/G. Setberg
DETAILS	BY E. Montevirgen	CHECKED S. Jee/G. Setberg
QUANTITIES	BY M. Friedheim	CHECKED M. Akkari

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES  
 STRUCTURE DESIGN  
 DESIGN BRANCH 2

BRIDGE NO.	10-0129G
KILOMETER POST	R70.620

**WILLITS BYPASS**

**E20-N101 CONNECTOR BRIDGE**

**ABUTMENT DETAILS NO. 2**

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN



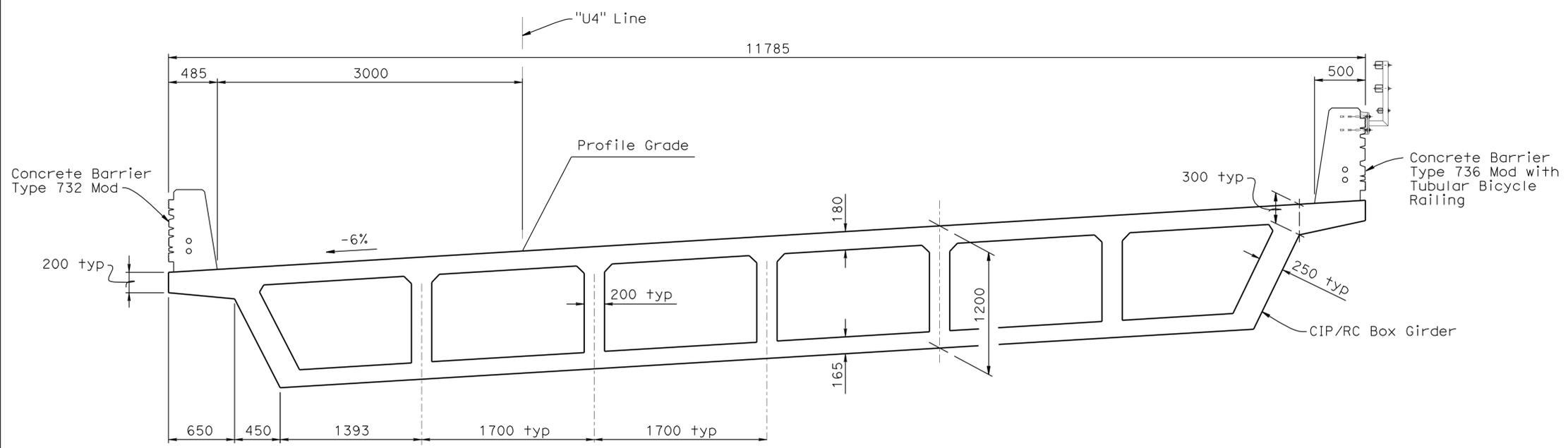
CU 01  
 EA 262001

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES	SHEET	OF
10-01-10 10-01-10 10-01-10 2-2-11	5	13

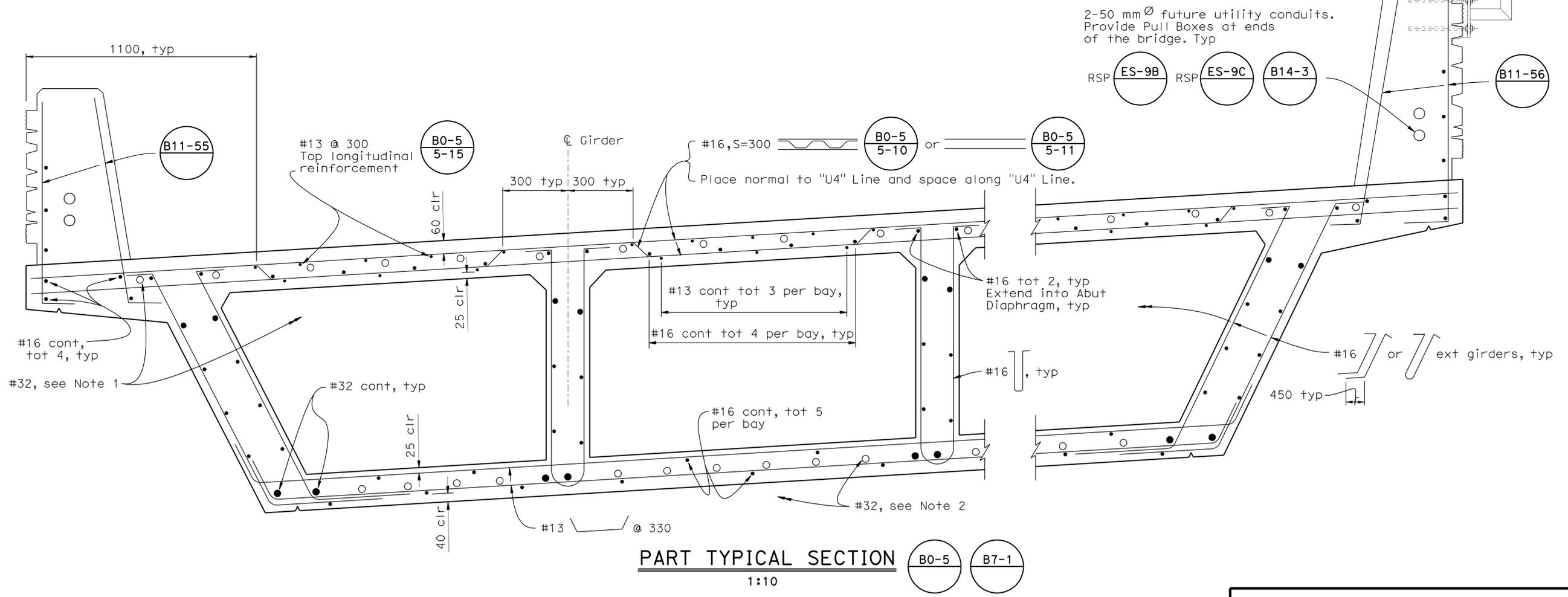
USERNAME => s121614 DATE PLOTTED => 28-JAN-2012 TIME PLOTTED => 07:05

DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Men	101	R69.4/R78.9	673	939
<i>M. Friedheim</i> REGISTERED CIVIL ENGINEER DATE 9-15-11			1-23-12 PLANS APPROVAL DATE		
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.					

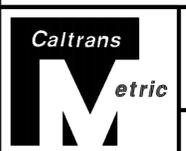


**TYPICAL SECTION**  
1:25

- NOTES:
- For additional Top Girder Reinforcement, see "Girder Reinforcement" sheet.
  - For additional Bottom Girder Reinforcement, see "Girder Reinforcement" sheet.



**PART TYPICAL SECTION**  
1:10



DESIGN	BY M. Akkari	CHECKED S. Jee/G. Setberg
DETAILS	BY E. Montevirgen	CHECKED S. Jee/G. Setberg
QUANTITIES	BY M. Friedheim	CHECKED M. Akkari

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
DIVISION OF ENGINEERING SERVICES  
STRUCTURE DESIGN  
DESIGN BRANCH 2

BRIDGE NO.	10-0129G
KILOMETER POST	R70.620

**WILLITS**  
**E20-N101 CONNECTOR BRIDGE**  
**TYPICAL SECTION**

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN



CU 01  
EA 262001

DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES	SHEET 6 OF 13
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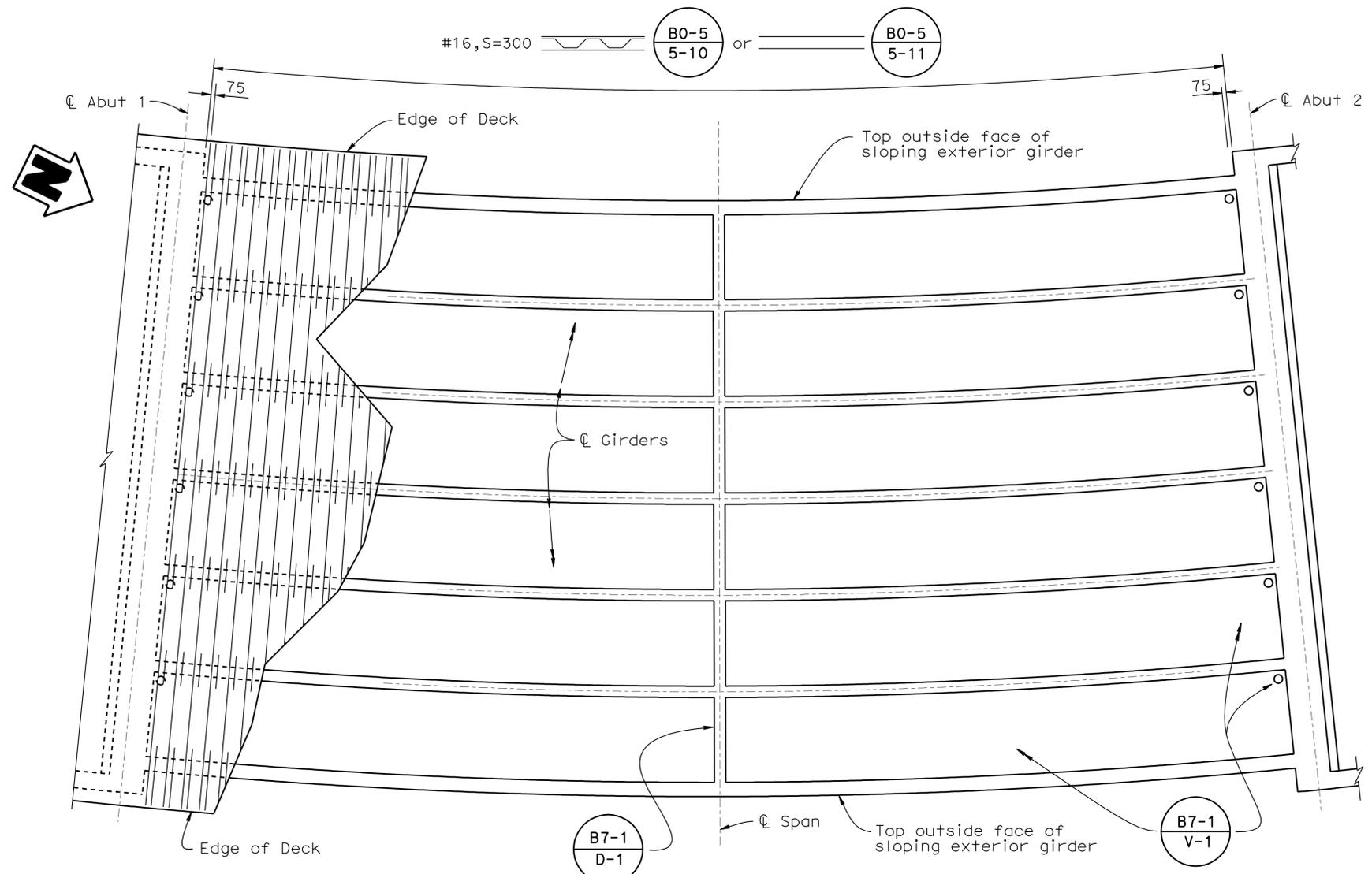
DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Men	101	R69.4/R78.9	674	939

*M. Friedheim* 9-15-11  
 REGISTERED CIVIL ENGINEER DATE

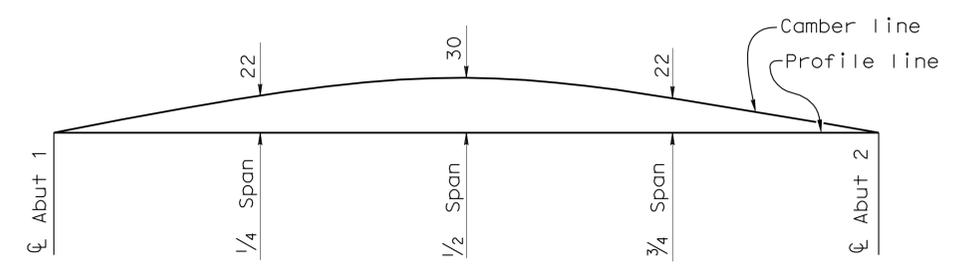
1-23-12  
 PLANS APPROVAL DATE

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  
 M. Friedheim  
 No. 57968  
 Exp. 6-30-12  
 CIVIL  
 STATE OF CALIFORNIA

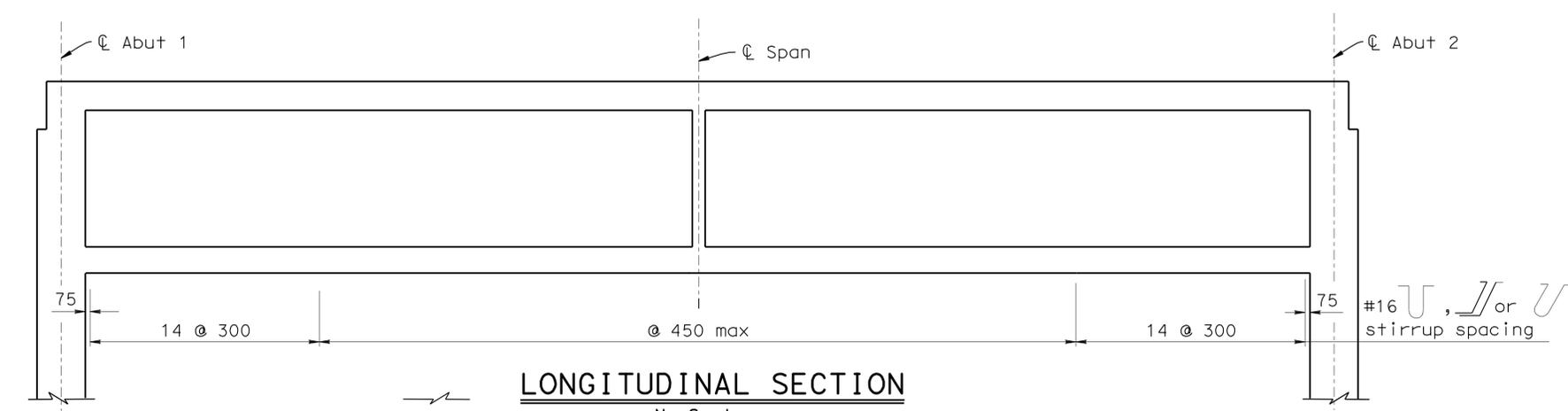


**GIRDER LAYOUT**  
1:50

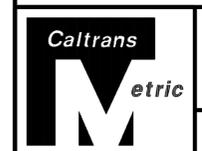


**CAMBER DIAGRAM**

No Scale  
(Does not include allowance for falsework settlement)



**LONGITUDINAL SECTION**  
No Scale



DESIGN	BY M. Akkari	CHECKED S. Jee/G. Setberg
DETAILS	BY E. Montevirgen	CHECKED S. Jee/G. Setberg
QUANTITIES	BY M. Friedheim	CHECKED M. Akkari

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES  
STRUCTURE DESIGN  
DESIGN BRANCH 2

BRIDGE NO.	10-01296
KILOMETER POST	R70.620

**WILLITS BYPASS**  
**E20-N101 CONNECTOR BRIDGE**  
**GIRDER LAYOUT**

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN



CU 01  
EA 262001

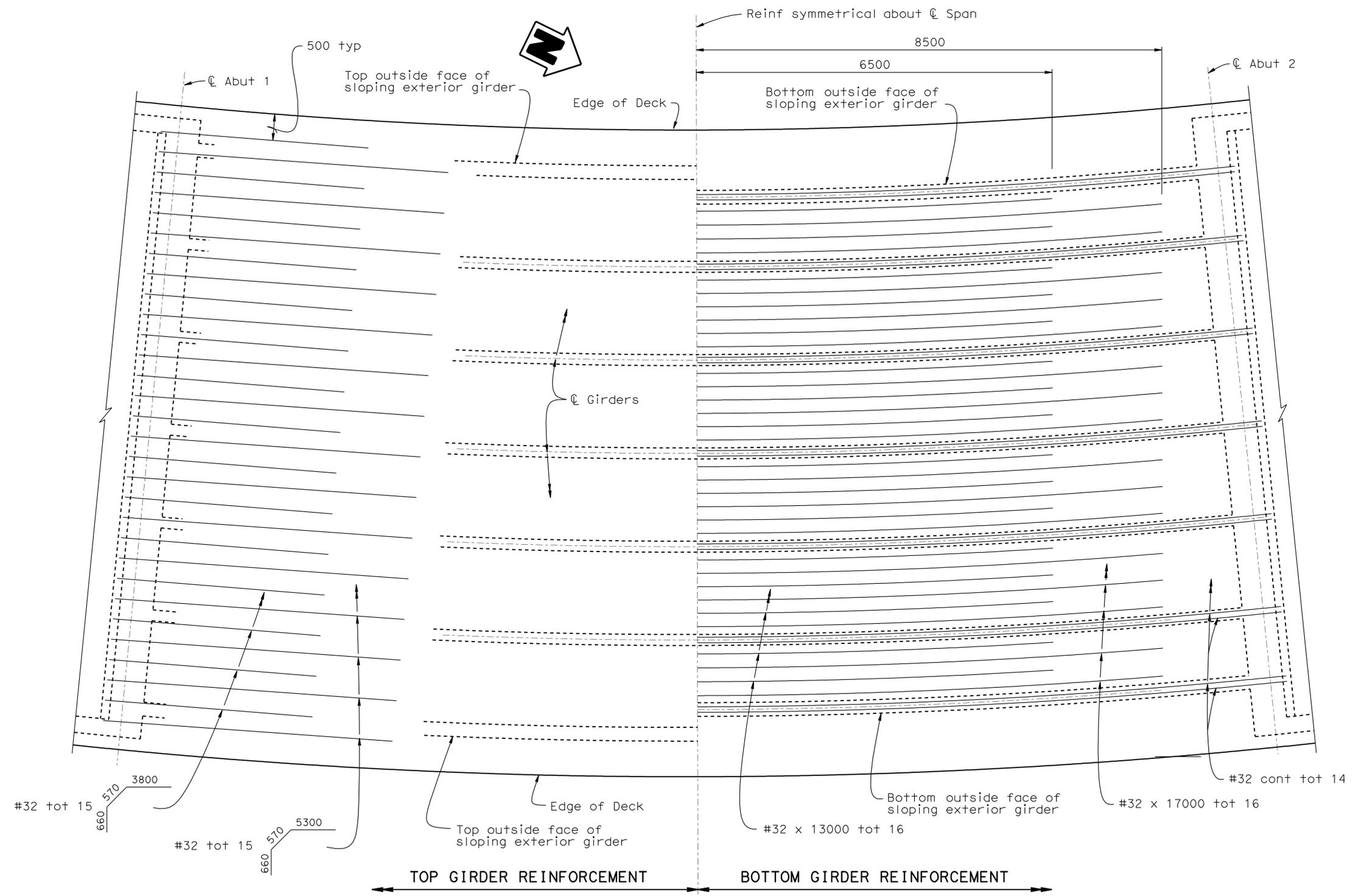
DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES	DATE	BY	DESCRIPTION
10-10-10	2-2-11		

SHEET 7 OF 13

USERNAME => s121614 DATE PLOTTED => 28-JAN-2012 TIME PLOTTED => 07:05

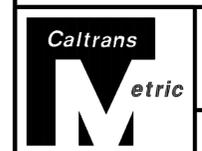
DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Men	101	R69.4/R78.9	675	939
			<i>M. Friedheim</i> 9-15-11 REGISTERED CIVIL ENGINEER DATE		
			1-23-12 PLANS APPROVAL DATE		
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.					



**PLAN**  
1:40

**NOTES:**

1. Continuous #32 bars shall extend into Abutment End Diaphragms.
2. Distribution bars are not shown.
3. No splices allowed in cut-off bars.
4. Splices in main girder reinforcement shall be service level splices.



DESIGN	BY M. Akkari	CHECKED S. Jee/G. Setberg
DETAILS	BY E. Montevirgen	CHECKED S. Jee/G. Setberg
QUANTITIES	BY M. Friedheim	CHECKED M. Akkari

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES  
STRUCTURE DESIGN  
DESIGN BRANCH 2

BRIDGE NO.	10-0129G
KILOMETER POST	R70.620

**WILLITS BYPASS**  
**E20-N101 CONNECTOR BRIDGE**  
**GIRDER REINFORCEMENT**

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN



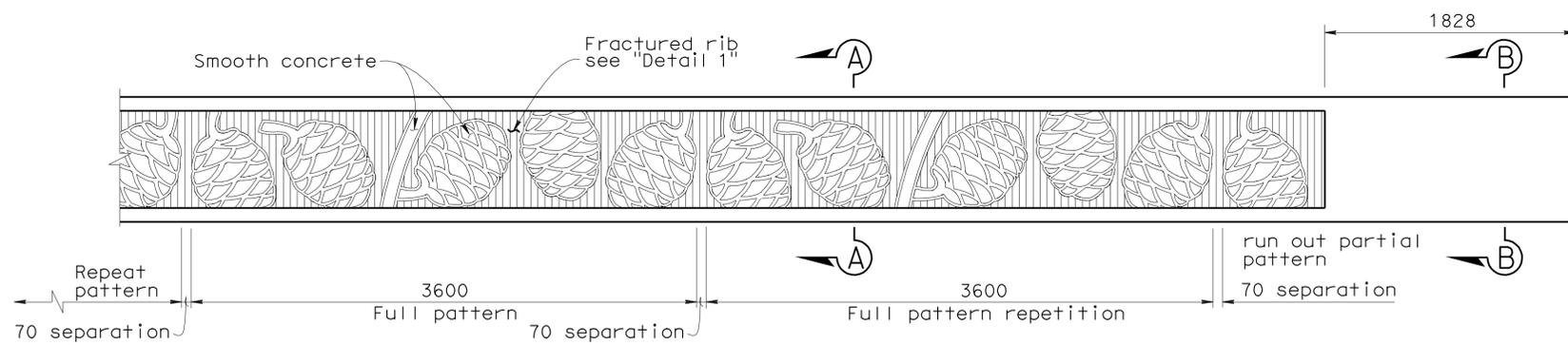
CU 01  
EA 262001

DISREGARD PRINTS BEARING EARLIER REVISION DATES

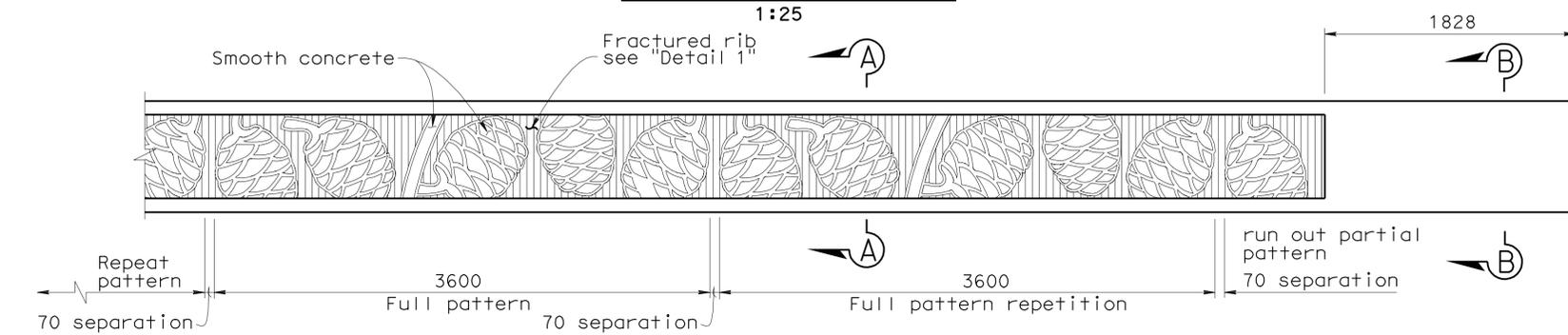
REVISION DATES										
SHEET	8	OF	13							

USERNAME => s121614 DATE PLOTTED => 28-JAN-2012 TIME PLOTTED => 07:05

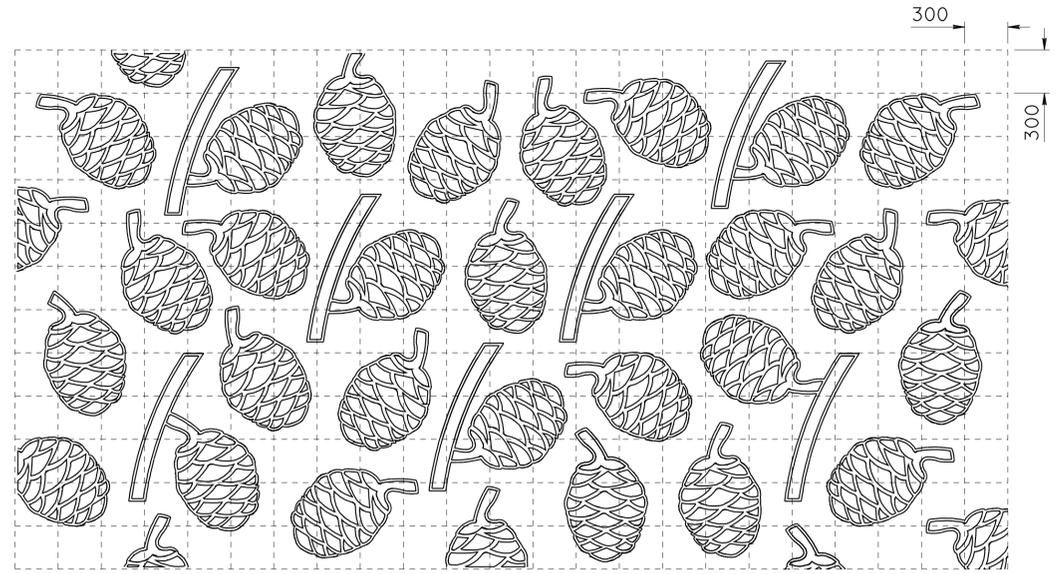
DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Men	101	R69.4/R78.9	676	939
		<i>M. Friedheim</i> 9-15-11 REGISTERED CIVIL ENGINEER DATE			
		1-23-12 PLANS APPROVAL DATE			
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.					
REGISTERED PROFESSIONAL ENGINEER M. Friedheim No. 57968 Exp. 6-30-12 CIVIL STATE OF CALIFORNIA					



**TYPE 736 BARRIER  
PARTIAL ELEVATION**  
1:25

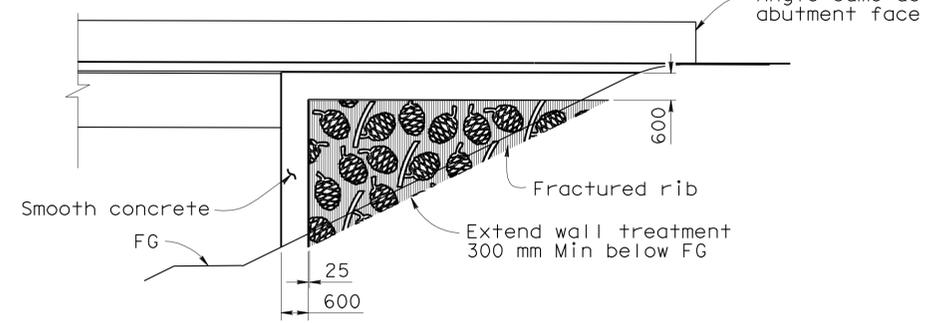


**TYPE 732 BARRIER  
PARTIAL ELEVATION**  
1:25

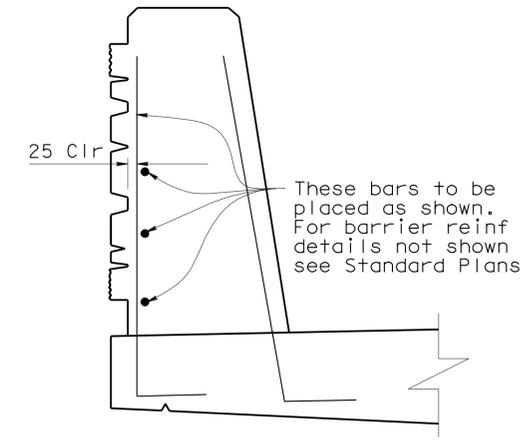


**RANDOM PINECONE PATTERN FOR WING WALLS**  
1:25

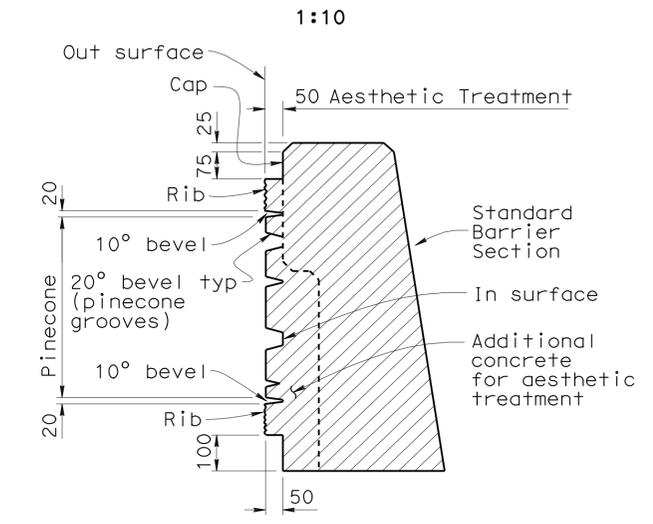
NOTE: Place random pinecone pattern on Fractured Rib Background. Fractured rib to be at same angle/alignment as abutment wall. Relief similar to Barrier Section A-A.



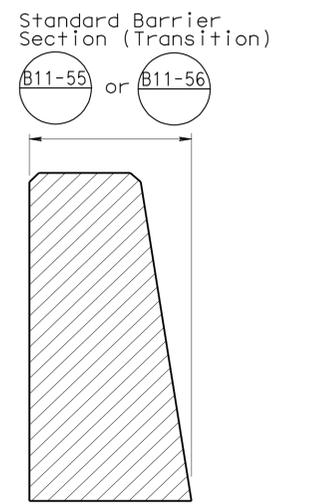
**TYPICAL WINGWALL AESTHETIC TREATMENT**  
1:80



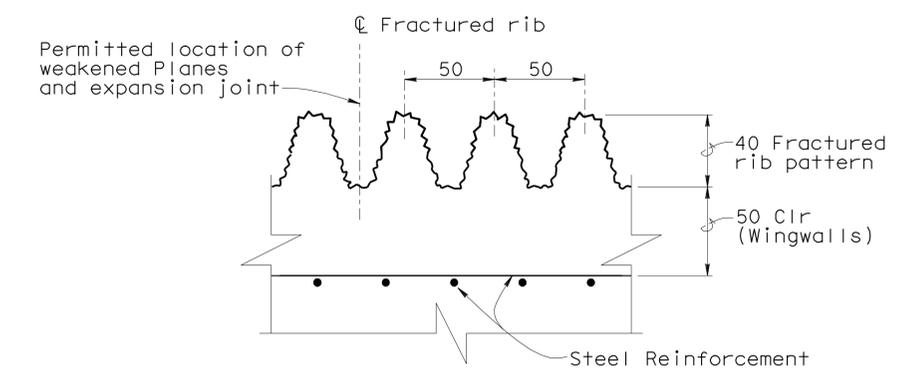
**BARRIER REINFORCEMENT MODIFICATION**



**SECTION A-A**  
1:10



**SECTION B-B**  
1:10



**TYPICAL FRACTURED RIB TEXTURE  
DETAIL 1**  
1:2



DESIGN	BY T. Vuong	CHECKED K. Truong
DETAILS	BY V. Moore/V. Lane	CHECKED K. Truong
QUANTITIES	BY T. Pham	CHECKED M. Schmidt

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES  
STRUCTURE DESIGN  
DESIGN BRANCH 2

BRIDGE NO.  
10-0129G  
KILOMETER POST  
R70.620

**WILLITS BYPASS**  
**E20-N101 CONNECTOR BRIDGE**  
**AESTHETIC DETAILS**

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN



CU 01  
EA 262001  
FILE => 10-0129g\_cpasdet.dgn

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES	SHEET	OF
10-08-06 10-12-06 2-14-07 1-23-08	9	13

STRUCTURES DESIGN DETAIL SHEET (METRIC) (REV.03-17-04)

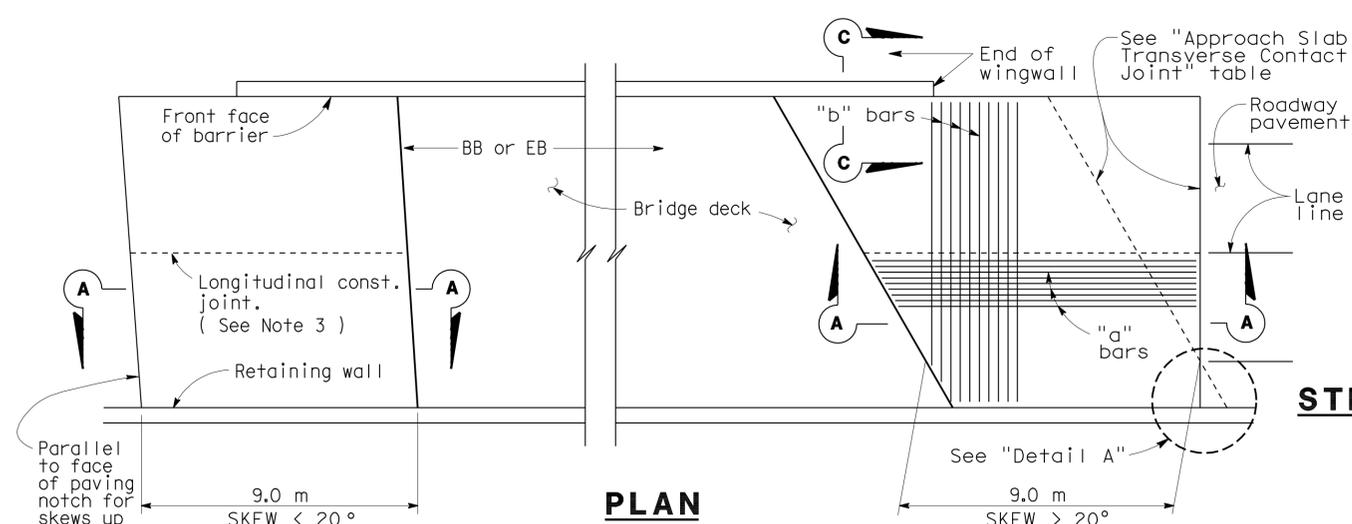
USERNAME => s121614 DATE PLOTTED => 28-JAN-2012 TIME PLOTTED => 07:05



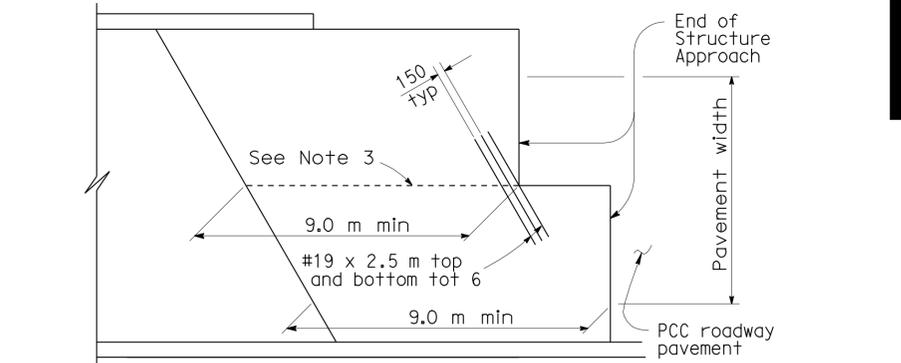
DIST.	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
01	Men	101	R69.4/R78.9	677	939

9-15-11  
 M. Friedheim  
 REGISTERED ENGINEER - CIVIL  
 No. 57968  
 Exp. 6-30-12  
 CIVIL  
 STATE OF CALIFORNIA

1-23-12  
 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.

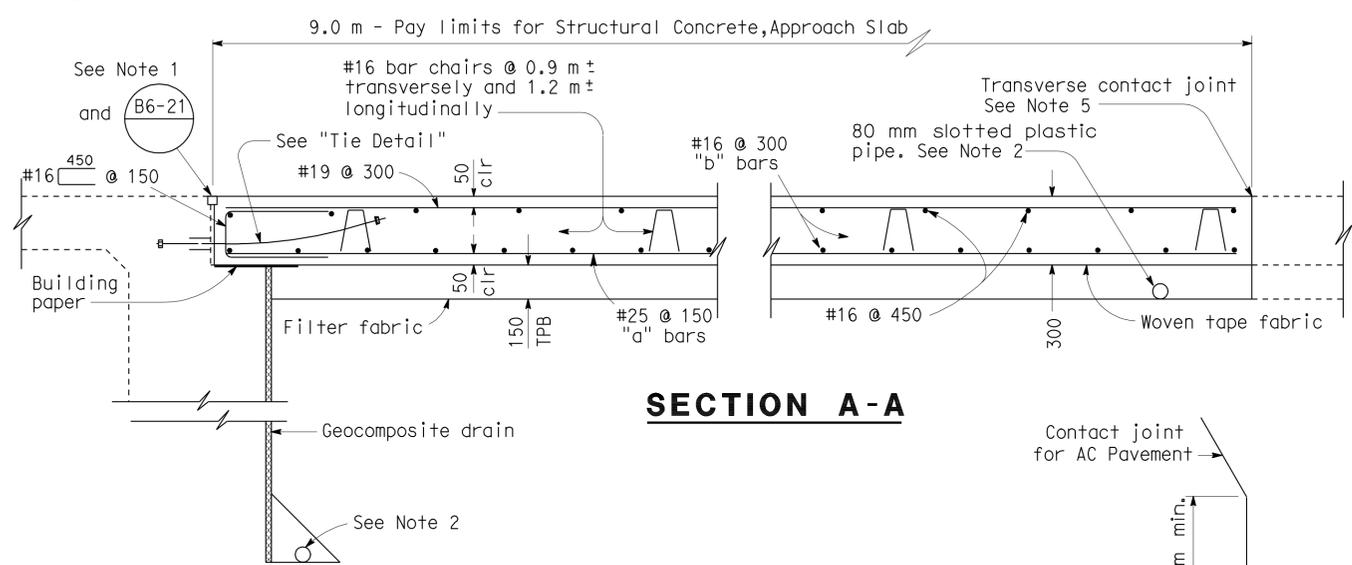


**STRUCTURE APPROACH - END STAGGER DETAIL**

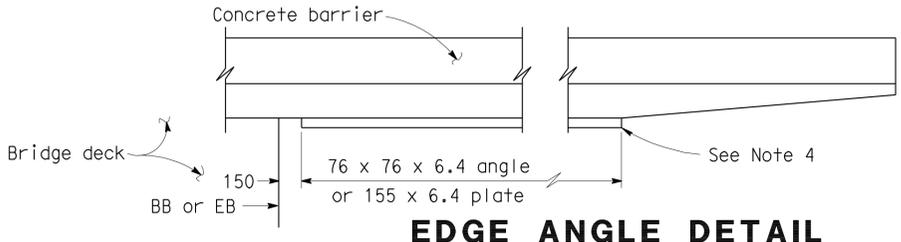


**APPROACH SLAB TRANSVERSE CONTACT JOINT**

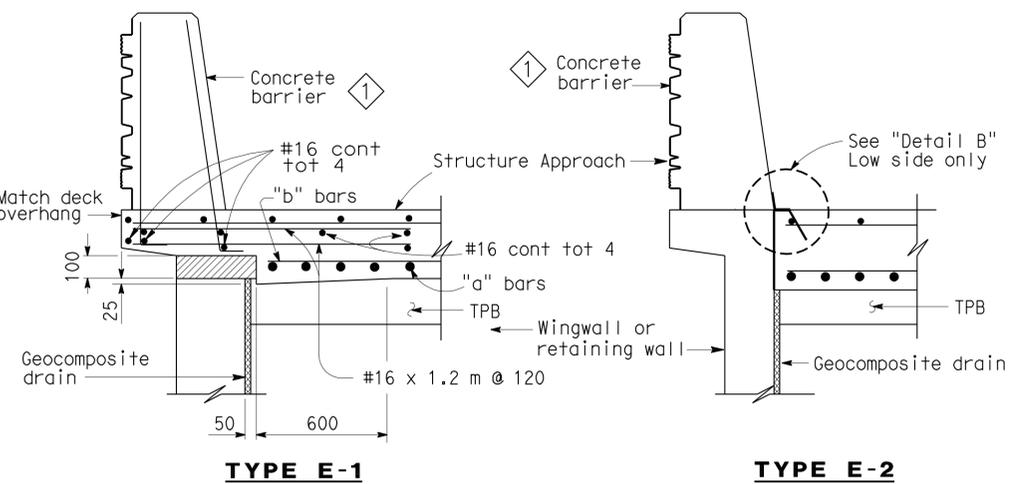
APPROACH SKEW	WITH AC ROADWAY PAVEMENT	WITH PCC ROADWAY PAVEMENT
< 20°	Parallel to face of paving notch	Parallel to face of paving notch
20° - 45°	Parallel to face of P N use (Detail A)	Stagger lines 7.2 m to 10.8 m apart
> 45°	Parallel to face of P N use (Detail A)	Stagger at each lane line



**SECTION A-A**

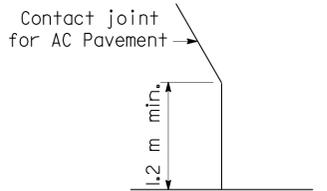


**EDGE ANGLE DETAIL**

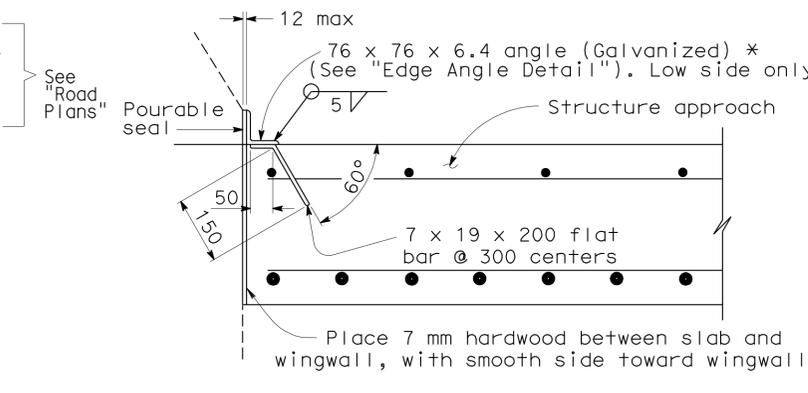


**SECTION C-C**

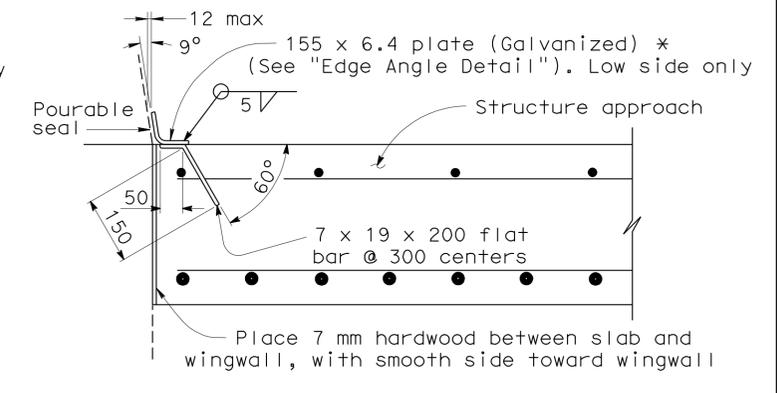
(Type E-1 to be used, unless otherwise shown on plans)



**DETAIL A**



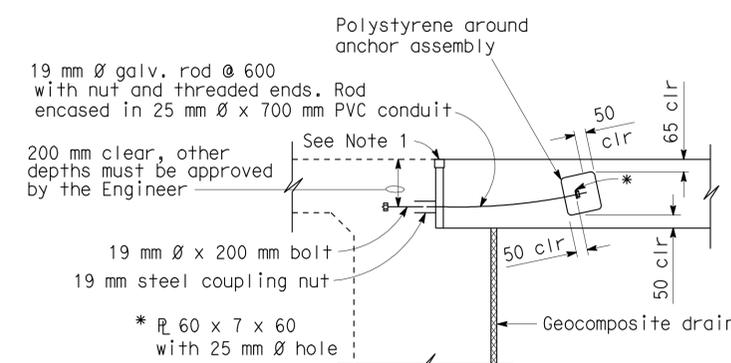
**\*(TO BE USED WITH TYPE 25 OR TYPE 27 CONCRETE BARRIER)**



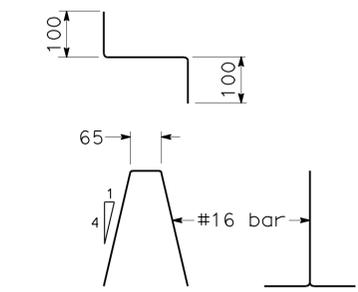
**\*(TO BE USED WITH TYPE 732 OR TYPE 736 CONCRETE BARRIER)**

**DETAIL B**

- NOTES:**
- For details not noted or shown, see Structure Plans.
  - For drainage details, see "Structure Approach Drainage Details" sheet.
  - Longitudinal construction joints, when permitted by the Engineer, shall be located on lane lines.
  - End angle or plate at beginning of barrier transition, end of wingwall or end of structure approach, as applicable.
  - For transverse contact joint with new PCC paving, refer to Standard Plan P30.
  - At the contractor's option, approach slab transverse reinforcement may be placed parallel to paving notch. Spacing of transverse reinforcement is measured along roadway.
- Polystyrene to be removed.



**TIE DETAIL**



**BAR CHAIR DETAIL**

**SPECIAL DETAILS**

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN

NO SCALE

**STANDARD DRAWING**

RELEASE DATE	DESIGN BY	CHECKED	RELEASED BY
REVISED	M. TRAFFALIS	E. THORKILDSEN	
FILE NO.	DETAILS BY	CHECKED	
xs3-180	R. YEE	E. THORKILDSEN	
	SUBMITTED BY	DRAWING DATE	OFFICE CHIEF
	M. HA	4/98	

Modified barrier  
 STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES  
 STRUCTURE DESIGN  
 DESIGN BRANCH 2  
 BRIDGE NO. 10-0129G  
 KILOMETER POST R70.620

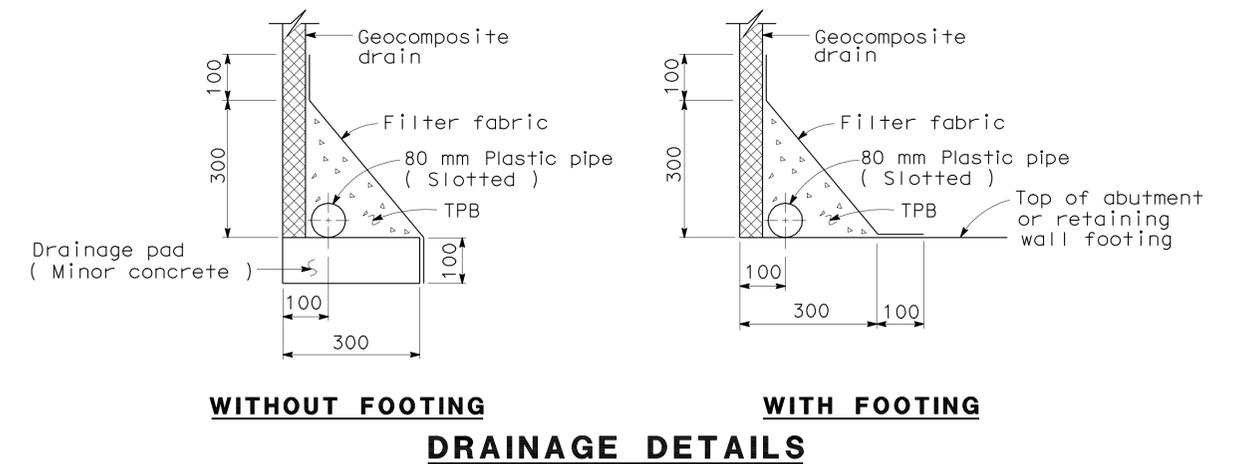
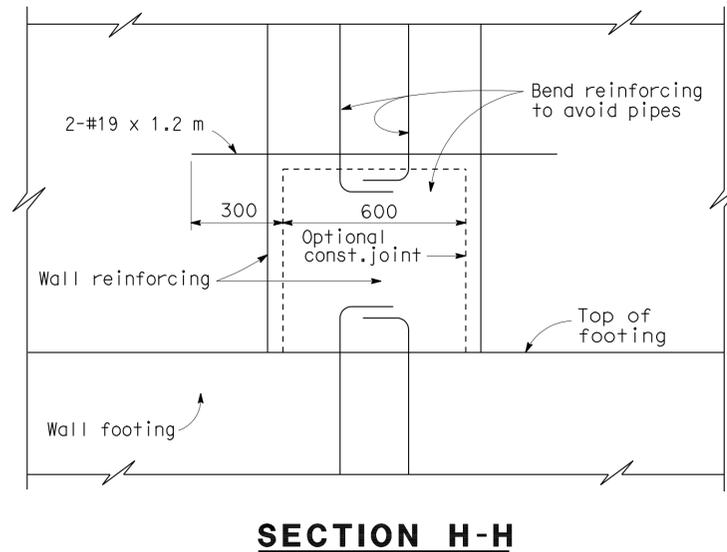
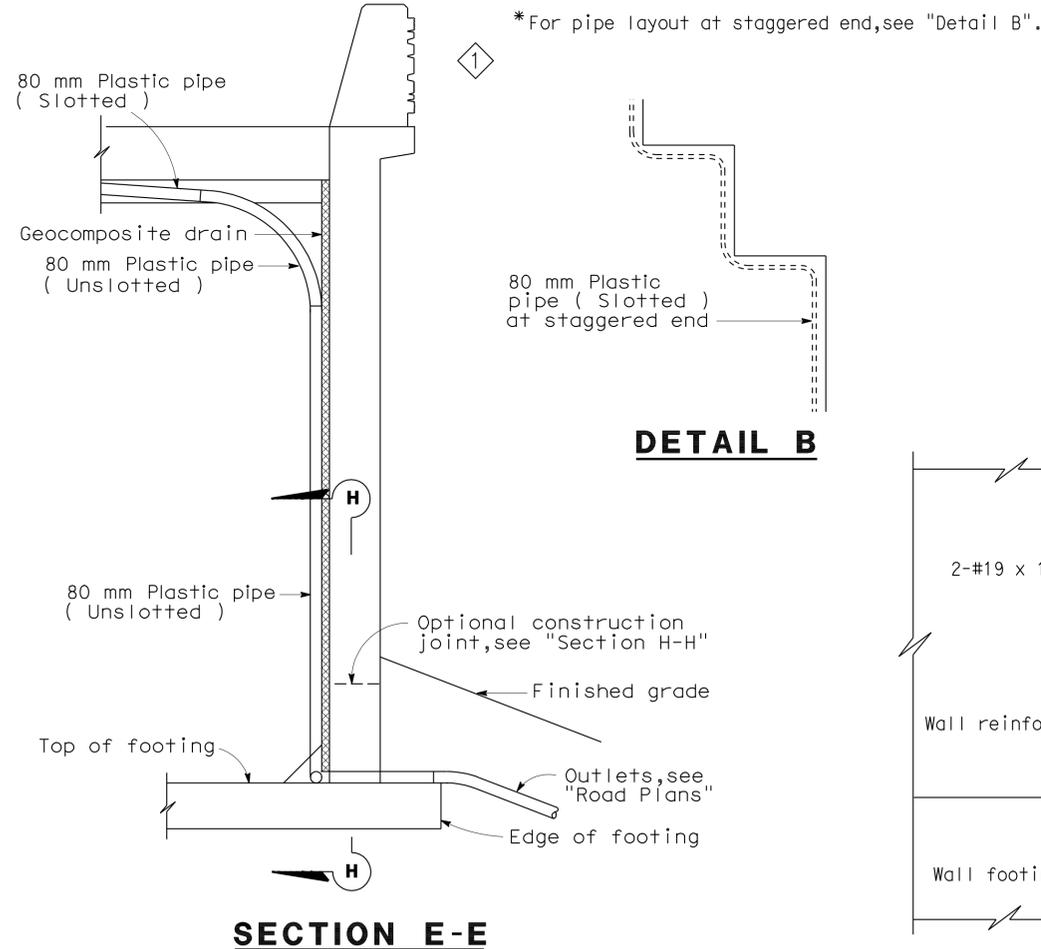
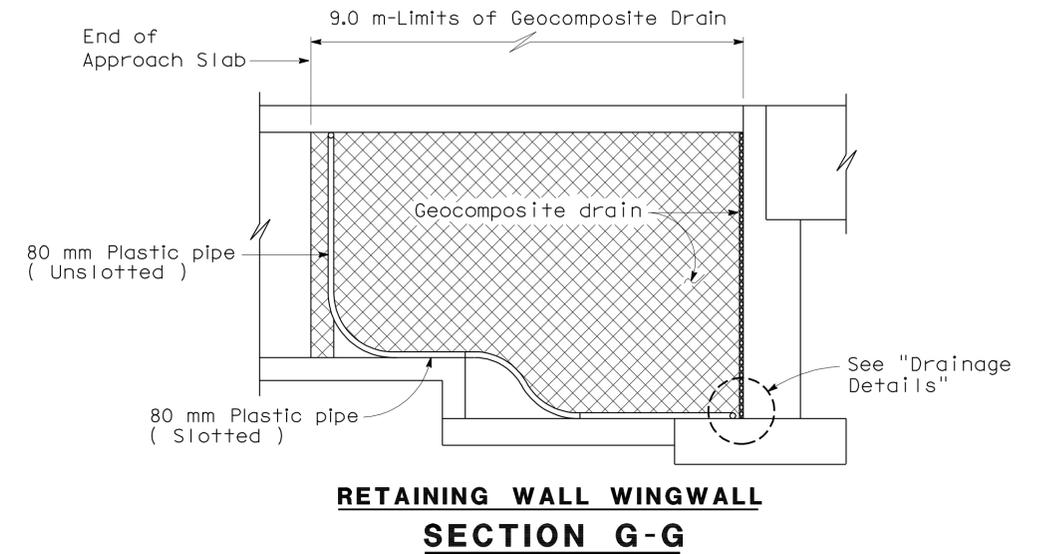
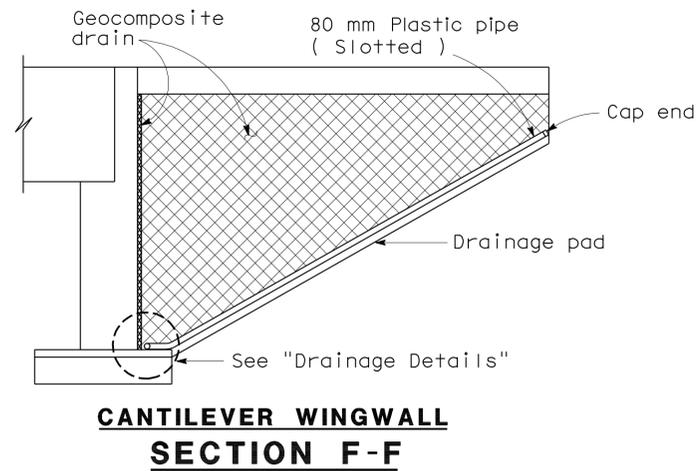
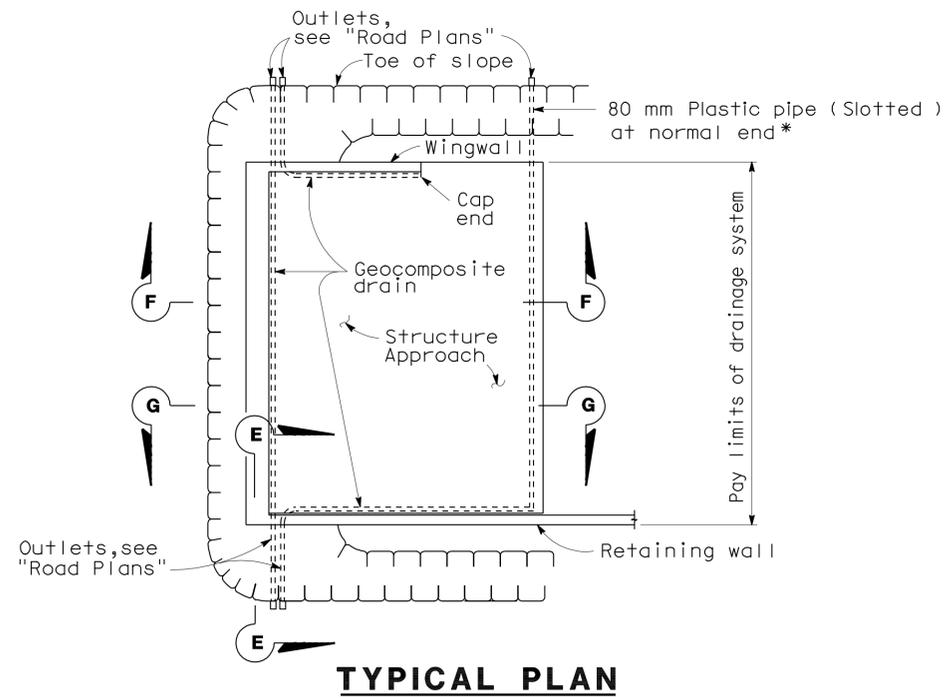
**WILLITS BYPASS**  
**E20-N101 CONNECTOR BRIDGE**  
**STRUCTURE APPROACH TYPE N(9D)**



DIST.	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
01	Men	101	R69.4/R78.9	678	939

9-15-11 REGISTERED ENGINEER - CIVIL	
1-23-12 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.	



**SPECIAL DETAILS**  
 NO SCALE  
 ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN

NOTE: Bends and junctions in 80 mm plastic pipe are 750 mm radius min.

STANDARD DRAWING			
RELEASE DATE	DESIGN BY	CHECKED	RELEASED BY
REVISED	M. TRAFFALIS	E. THORKILDSEN	
FILE NO.	DETAILS BY	CHECKED	
xs3-110	R. YEE	E. THORKILDSEN	
	SUBMITTED BY	DRAWING DATE	OFFICE CHIEF
	M. HA	4/98	

Modified Barrier

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES  
 STRUCTURE DESIGN  
 DESIGN BRANCH 2

BRIDGE NO.  
 10-0129G  
 KILOMETER POST  
 R70.620

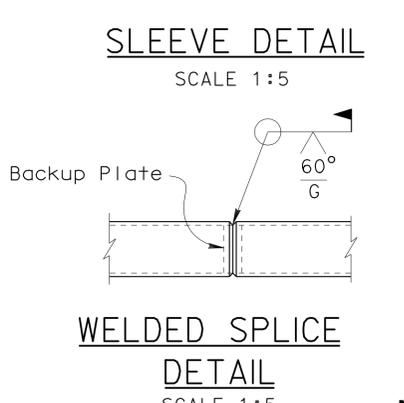
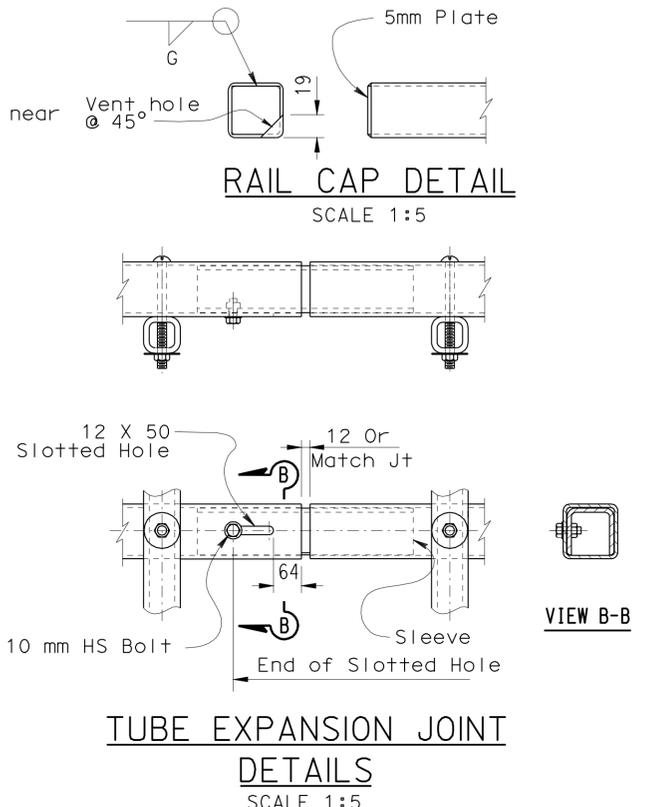
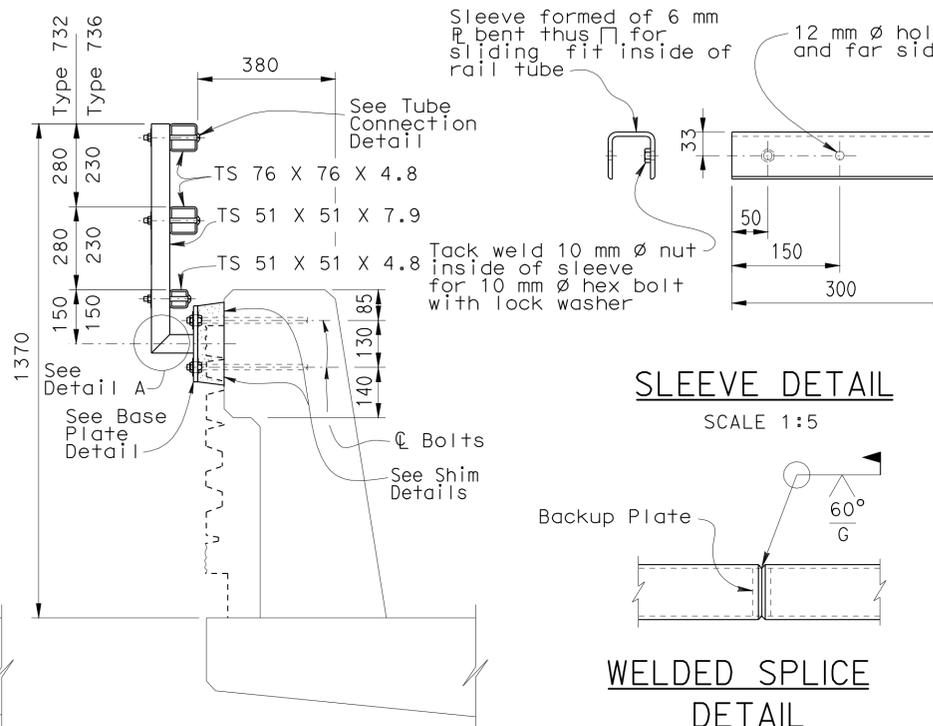
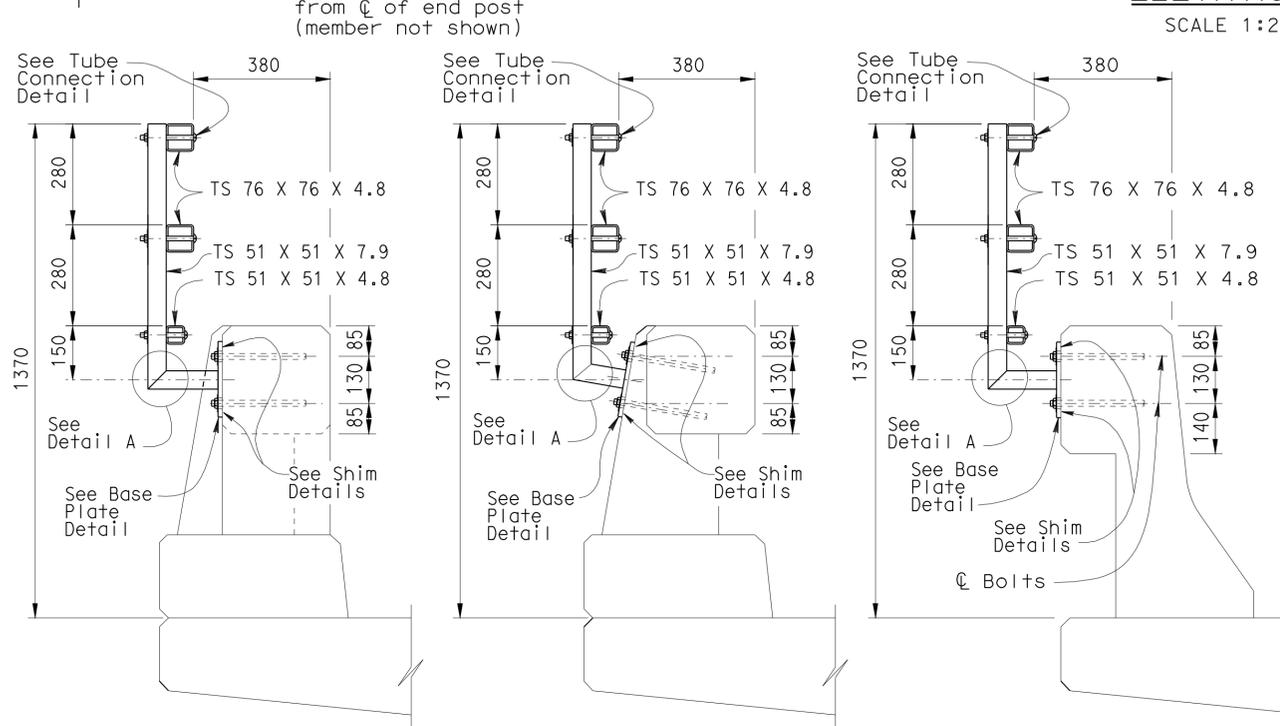
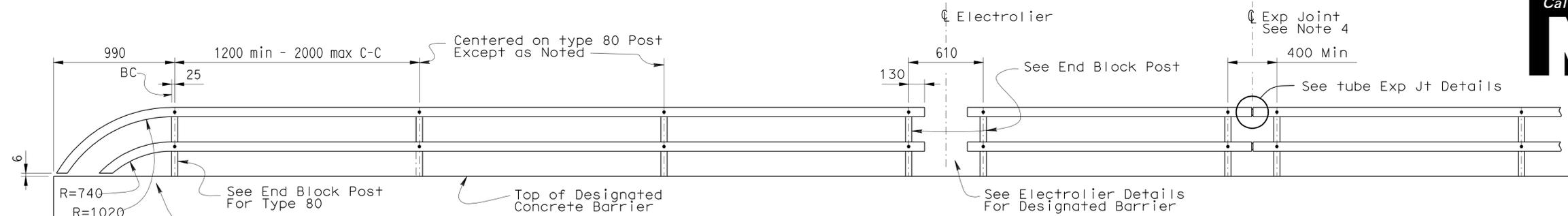
**WILLITS BYPASS**  
**E20-N101 CONNECTOR BRIDGE**  
**STRUCTURE APPROACH DRAINAGE DETAILS**



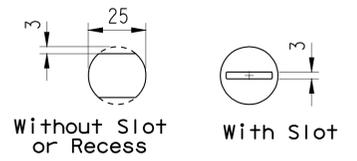
DIST.	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
01	Men	101	R69.4/R78.9	679	939

9-15-11  
 M. Friedheim  
 REGISTERED ENGINEER - CIVIL  
 No. 57968  
 Exp. 6-30-12  
 CIVIL  
 STATE OF CALIFORNIA

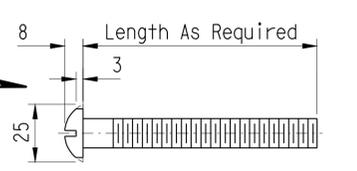
1-23-12  
 PLANS APPROVAL DATE  
 The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.



**TYPE 80 END BLOCK POST**  
SCALE 1:10

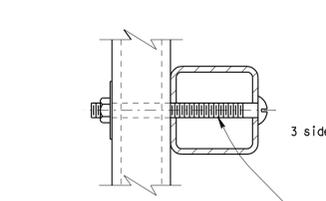


**VIEW C-C**  
SCALE 1:1



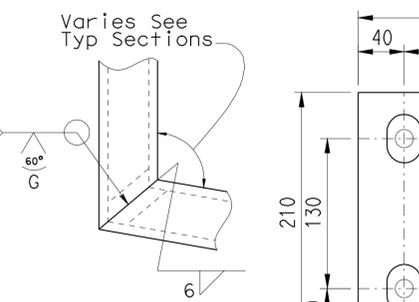
**ROUND HEAD BOLT DETAIL**  
SCALE 1:1

**TYPE 80**  
SCALE 1:10



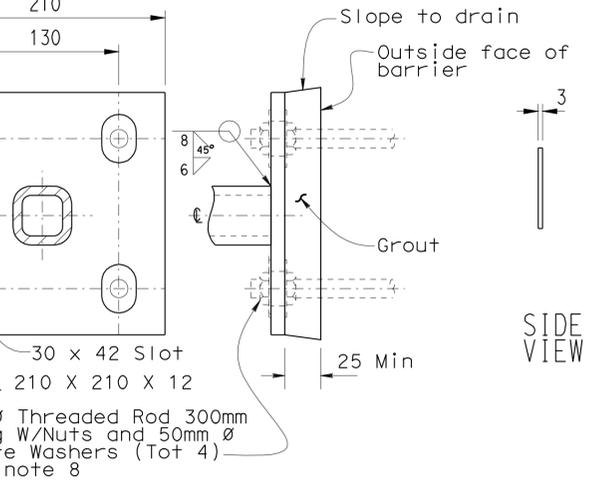
**TUBE CONNECTION DETAIL**  
SCALE 1:2.5

**TYPE 25**  
SCALE 1:10

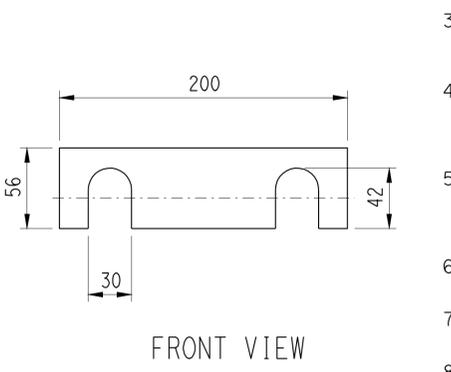


**DETAIL A**  
SCALE 1:2.5

**TYPE 732 OR 736**  
NO SCALE



**BASE PLATE DETAIL**  
SCALE 1:2.5



**SHIM DETAILS**  
NO SCALE

- NOTES:**
- Galvanize rail assembly after fabrication.
  - Post shall be normal to railing.
  - Rail tubes shall be shop bent or fabricated to fit horizontal curve when radius is less than 300 m.
  - Tube splices shall be located in the tubes spanning deck or wall joints. Increase joint width in tubes to match expansion joint width and increase sleeve length correspondingly.
  - Top rail tube shall be continuous over not less than two posts except a short post spacing is permitted near deck or wall joints, electroliers, or other rail discontinuities as noted.
  - For details and reinforcement not shown see Standard Plans.
  - See project plans for limits of tubular bicycle railing.
  - CIP threaded rods may alternatively be installed using a drill and bond method with epoxy cartridges after forming and pouring barrier concrete. Plates to be placed against level surface.

**SPECIAL DETAILS**

**WILLITS BYPASS**

**E20-N101 CONNECTOR BRIDGE**

**TUBULAR BICYCLE RAILING**

BRIDGE NO. 10-0129G  
 KILOMETER POST R70.620

RELEASE DATE	<b>REVISED</b>	DESIGN	BY <i>TILLAT SATTER</i>	CHECKED	<i>NEELIMA PATIL</i>	RELEASED BY	
FILE NO.	<b>XS16-500</b>	DETAILS	BY <i>H.NGUYEN</i>	CHECKED	<i>TILLAT SATTER</i>	OFFICE CHIEF	<i>Roberto Small</i>
		SUBMITTED	BY	DRAWING DATE	<i>08/06</i>		

- Barrier modified
- Plate details modified

**STATE OF CALIFORNIA**  
 DEPARTMENT OF TRANSPORTATION

**DIVISION OF ENGINEERING SERVICES**

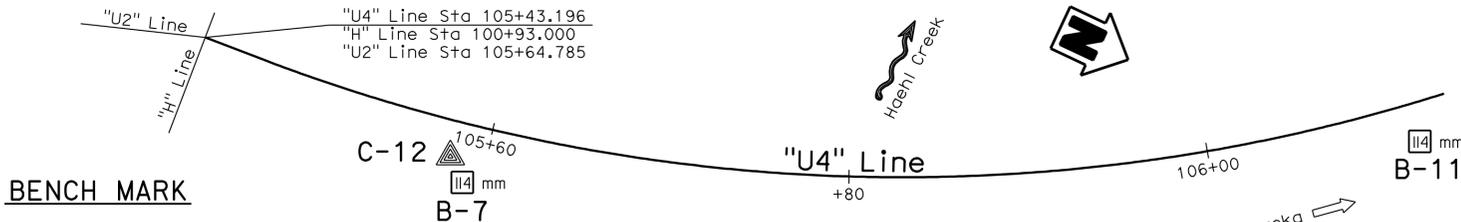
BRIDGE NO.	10-0129G	SHEET	12	OF	13
KILOMETER POST	R70.620	REVISION DATES (PRELIMINARY STAGE ONLY)			

DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Men	101	R69.4/R78.9	680	939

CERTIFIED ENGINEERING GEOLOGIST DATE 5-19-09  
 REID BUELL No. 1481 Exp. 4-30-11  
 REGISTERED GEOLOGIST STATE OF CALIFORNIA  
 PLANS APPROVAL DATE 1-23-12

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

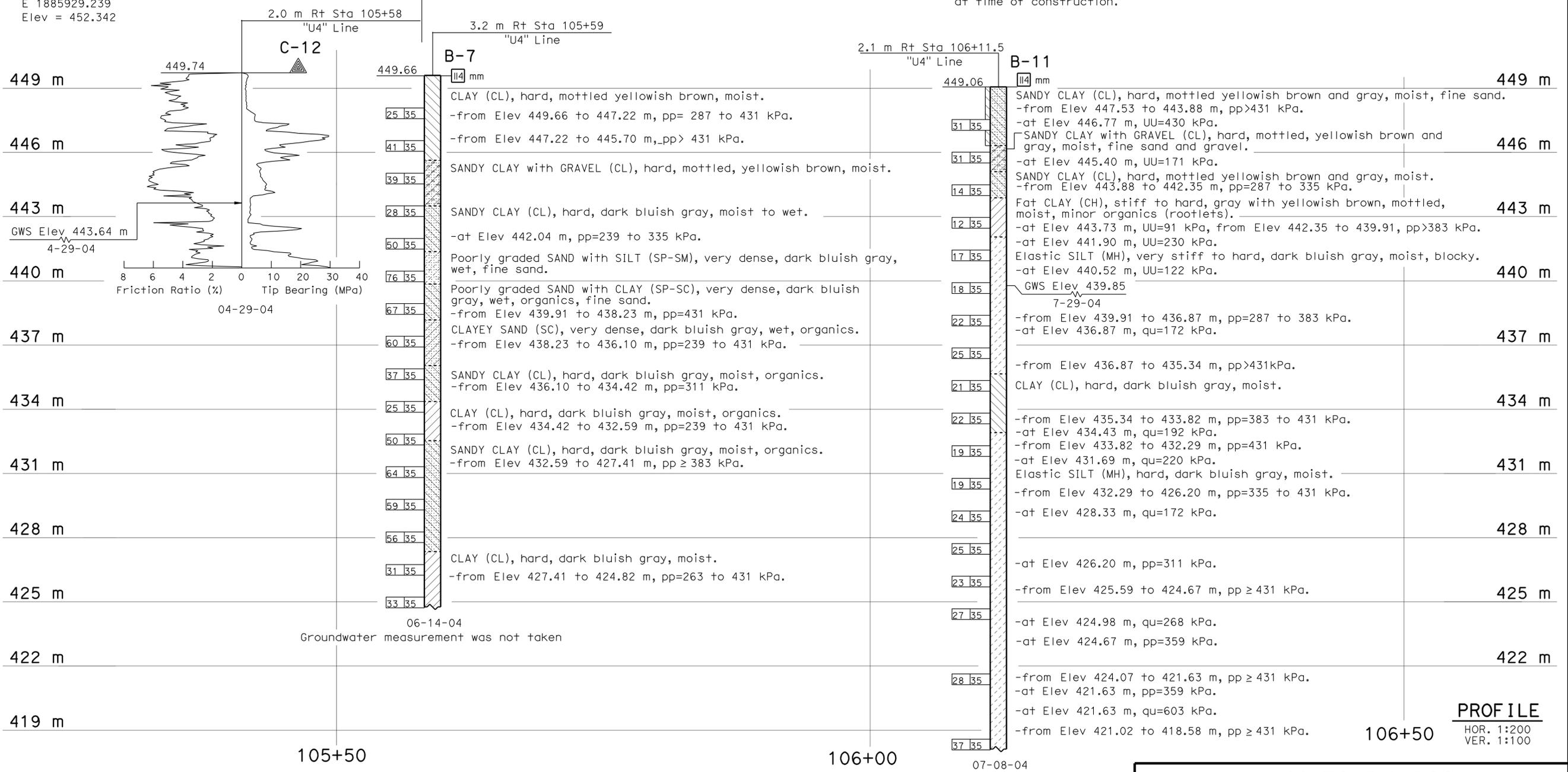
- Notes:
- Standard Penetration Tests (SPT) performed in Borings B-7 and B-11 were advanced using a 63.5 kg Safety Hammer.
  - pp= Unconfined compressive strength determined in the field by "Pocket Penetrometer." Units shown are kilopascals (kPa).
  - qu= Unconfined compressive strength determined in the laboratory. Units shown are kilopascals (kPa).
  - UU= Undrained shear strength determined in the laboratory by Unconsolidated-Undrained Triaxial Test. Units shown are kilopascals (kPa).
  - Consistency descriptors shown on the LOTB sheets are based on the pocket penetrometer readings.
  - Groundwater surface elevations are subject to seasonal fluctuations and may occur at higher or lower elevations depending on conditions at time of construction.



**BENCH MARK**

**SURVEY CONTROL**  
 26200-60  
 Fnd ALCAR at C-1 105+15X91 RT  
 29.210 m Rt @ PROPOSED "H" LINE RTE 20  
 Sta. 101+29.181  
 N 690540.939  
 E 1885929.239  
 Elev = 452.342

**PLAN**  
1:200



**PROFILE**  
HOR. 1:200  
VER. 1:100

**LEGEND OF BORING OPERATIONS**

**ELECTRONIC CONE PENETROMETER TEST**

**ROTARY SAMPLE BORING (WET)**

**SAMPLE BORING (DRY)**

**67 mm CONE PENETRATION SAMPLE BORING (DRY)**

**ROTARY SAMPLE BORING (WET)**

**AUGER BORING (DRY)**

**TEST PIT**

**DIAMOND CORE BORING**

**JET BORING**

**ELECTRONIC CONE PENETROMETER**

**LEGEND OF EARTH MATERIALS**

GRAVEL

SAND

SILT

CLAY

SANDY CLAY or CLAYEY SAND

SANDY SILT or SILTY SAND

SILTY CLAY

CLAYEY SILT

PEAT and/or ORGANIC MATTER

COBBLES and/or Boulders

ANGULAR ROCK

SEDIMENTARY ROCK

METAMORPHIC

**CONSISTENCY CLASSIFICATION FOR SOILS**

SPT N-value (blows/30cm)	Cohesive	
	Very Soft	Soft
2-4	Soft	Firm
5-8	Firm	Stiff
9-15	Stiff	Very Stiff
16-30	Very Dense	Hard
>30		

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



**ENGINEERING SERVICES**

DRAWN BY: W. Tang 12/2008

CHECKED BY:

**GEOTECHNICAL SERVICES**

FIELD INVESTIGATION BY: T. Alderman

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES  
STRUCTURE DESIGN  
DESIGN BRANCH 2

BRIDGE NO. 10-0129G  
KILOMETER POST R70.620

**WILLITS BYPASS**

**E20-N101 CONNECTOR BRIDGE**

**LOG OF TEST BORINGS**

OGS CIVIL LOG OF TEST BORINGS SHEET (METRIC) (REV. 4/04)	ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SHOWN	ORIGINAL SCALE IN MILLIMETERS FOR REDUCED PLANS	CU 01 EA 262001	DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES (PRELIMINARY STAGE ONLY)	SHEET 13 OF 13
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DATE PLOTTED => 28-JAN-2012

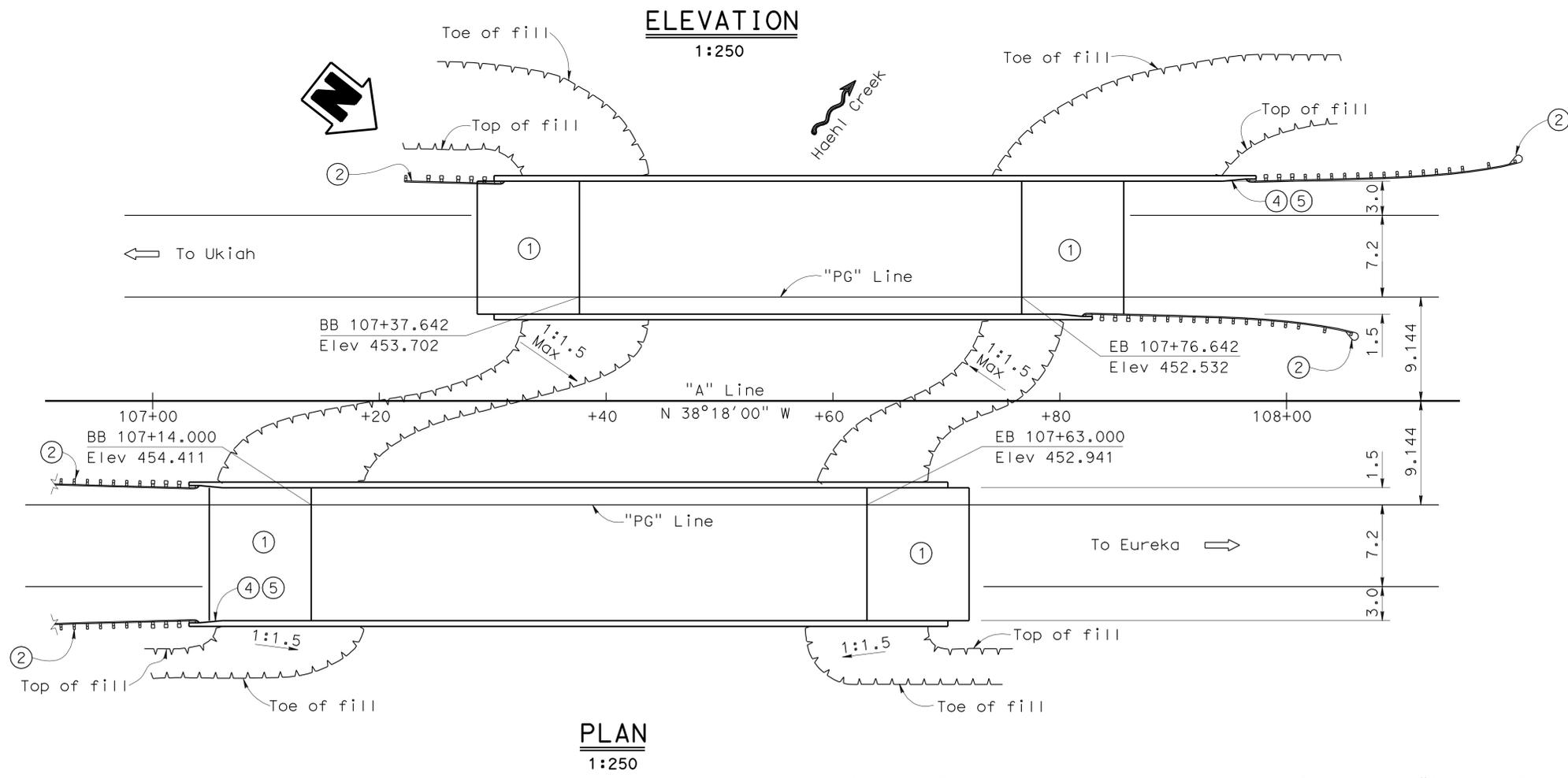
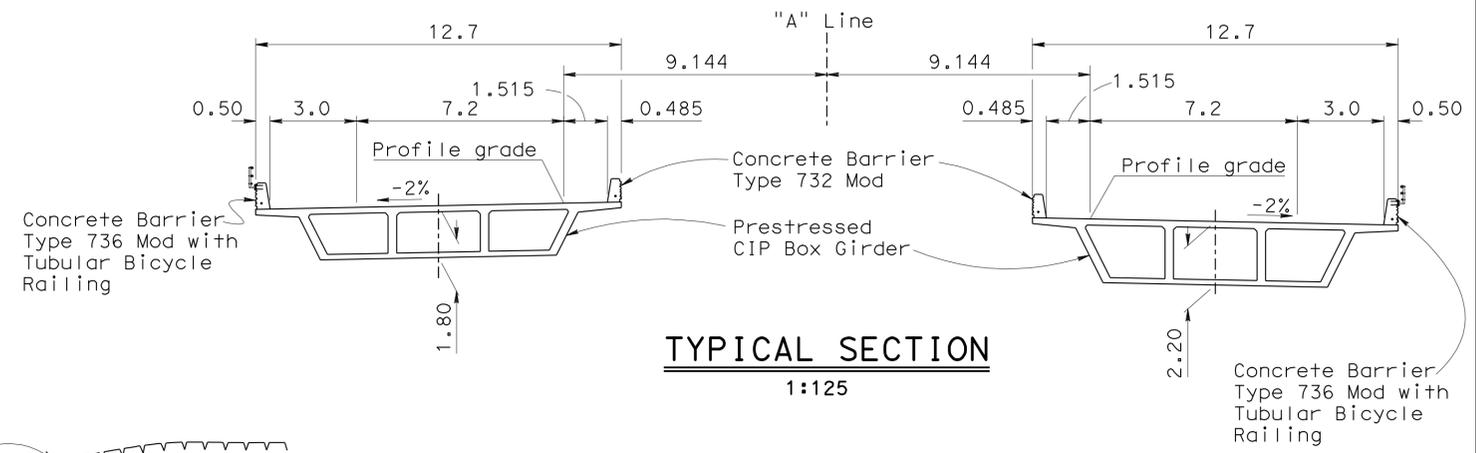
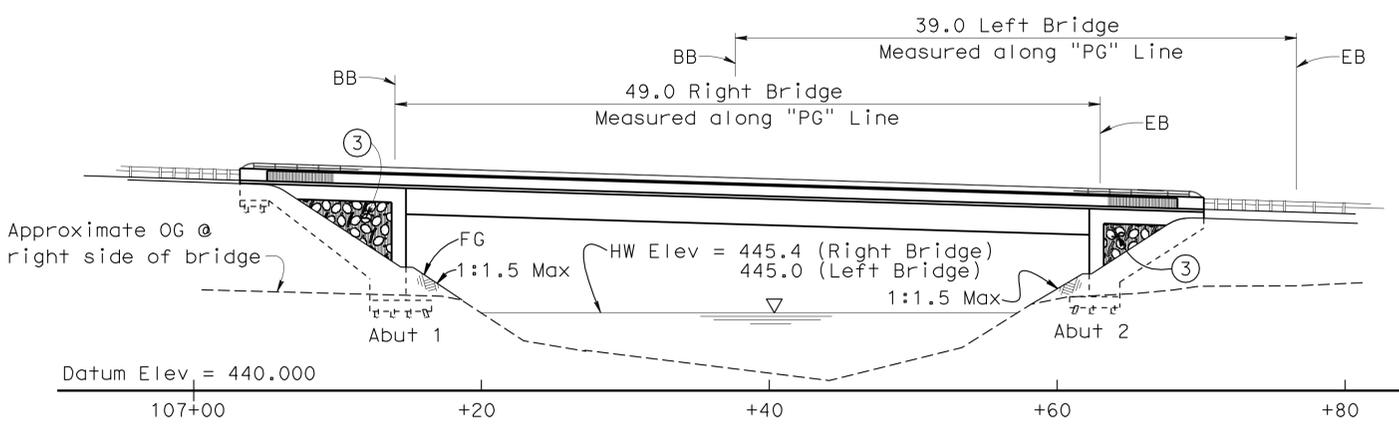
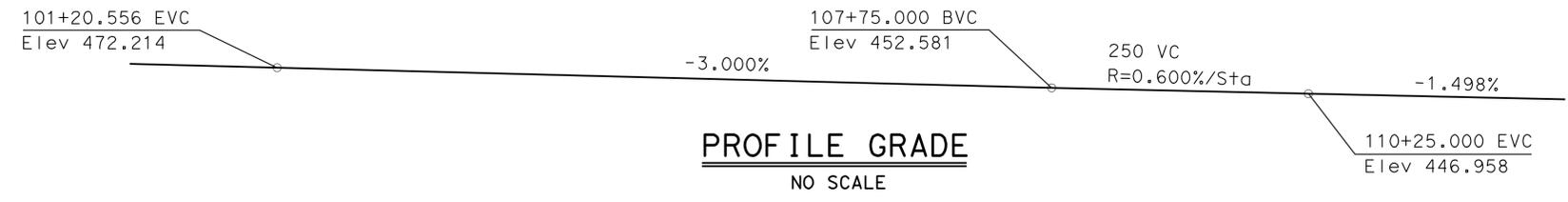
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DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Men	101	R69.4/R78.9	681	939

REGISTERED CIVIL ENGINEER DATE 9-15-11  
 M. Friedheim  
 No. 57968  
 Exp. 6-30-12  
 CIVIL  
 STATE OF CALIFORNIA

1-23-12  
 PLANS APPROVAL DATE

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HAEHL CREEK BRIDGE 10-0129RL  
QUANTITIES

STRUCTURE EXCAVATION (BRIDGE)	976	m <sup>3</sup>
STRUCTURE BACKFILL (BRIDGE)	1 086	m <sup>3</sup>
PERVIOUS BACKFILL MATERIAL	15	m <sup>3</sup>
FURNISH STEEL PILING (HP 250 X 62)	400	m
DRIVE STEEL PILE (HP 250 X 62)	24	EA
FURNISH STEEL PILING (HP 360 X 132)	2 014	m
DRIVE STEEL PILE (HP 360 X 132)	114	EA
PRESTRESSING CAST-IN-PLACE CONCRETE	LUMP	SUM
STRUCTURAL CONCRETE, BRIDGE FOOTING	219	m <sup>3</sup>
STRUCTURAL CONCRETE, BRIDGE	920	m <sup>3</sup>
STRUCTURAL CONCRETE, APPROACH SLAB (TYPE N)	137	m <sup>3</sup>
ARCHITECTURAL TEXTURE	131	m <sup>2</sup>
JOINT SEAL (MR 40 MM)	26	m
JOINT SEAL (MR 50 MM)	26	m
BAR REINFORCING STEEL (BRIDGE)	136 600	kg
TUBULAR BICYCLE RAILING (MODIFIED)	133	m
CONCRETE BARRIER (TYPE 732 MOD)	119	m
CONCRETE BARRIER (TYPE 736 MODIFIED)	133	m

Note: For Index to Plans, Standard Plans and Pile Data Table, see "Index to Plans" sheet.  
For General Notes, see "Deck Contours" sheet.

	 DESIGN ENGINEER	DESIGN BY M. Abdi CHECKED N. Nguyen	LOAD FACTOR DESIGN LIVE LOADING: HS20-44 AND ALTERNATIVE AND PERMIT DESIGN LOAD	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 2	BRIDGE NO. 10-0129RL KILOMETER POST R70.578	<b>WILLITS BYPASS HAEHL CREEK GENERAL PLAN</b>
	ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SHOWN	DETAILS BY C. Figuerres/ E. Montevirgen CHECKED N. Nguyen	LAYOUT BY M. Friedheim CHECKED N. Nguyen	SPECIFICATIONS BY I. Huang PLANS AND SPECS COMPARED I. Huang	CU 01 EA 262001	DISREGARD PRINTS BEARING EARLIER REVISION DATES	

ORIGINAL SCALE IN MILLIMETERS FOR REDUCED PLANS: 0 10 20 30 40 50 60 70 80 90 100

REVISION DATES: 10-21-03, 11-04-05, 01-03-06, 1-24-07, 4-30-08, 8-28-08, 11-23-09, 01-30-09, 12-09-09

STRUCTURES DESIGN GENERAL PLAN SHEET (METRIC) (REV.03-17-04)

DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Men	101	R69.4/R78.9	682	939

*M. Friedheim* 9-15-11  
 REGISTERED CIVIL ENGINEER DATE

1-23-12  
 PLANS APPROVAL DATE

M. Friedheim  
 No. 57968  
 Exp. 6-30-12  
 CIVIL  
 STATE OF CALIFORNIA

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## INDEX TO PLANS

1. GENERAL PLAN
2. INDEX TO PLANS
3. DECK CONTOURS
4. FOUNDATION PLAN
5. ABUTMENT 1 LAYOUT (RIGHT BRIDGE)
6. ABUTMENT 2 LAYOUT (RIGHT BRIDGE)
7. ABUTMENT 1 LAYOUT (LEFT BRIDGE)
8. ABUTMENT 2 LAYOUT (LEFT BRIDGE)
9. ABUTMENT DETAILS NO. 1
10. ABUTMENT DETAILS NO. 2
11. ABUTMENT DETAILS NO. 3
12. ABUTMENT DETAILS NO. 4
13. ABUTMENT DETAILS NO. 5
14. TYPICAL SECTION (RIGHT BRIDGE)
15. TYPICAL SECTION (LEFT BRIDGE)
16. GIRDER LAYOUT (RIGHT BRIDGE)
17. GIRDER LAYOUT (LEFT BRIDGE)
18. ADDITIONAL BOTTOM GIRDER REINFORCEMENT
19. AESTHETIC DETAILS
20. STRUCTURE APPROACH TYPE N(9S)
21. STRUCTURE APPROACH DRAINAGE DETAILS
22. TUBULAR BICYCLE RAILING
23. LOG OF TEST BORINGS NO. 1 OF 4
24. LOG OF TEST BORINGS NO. 2 OF 4
25. LOG OF TEST BORINGS NO. 3 OF 4
26. LOG OF TEST BORINGS NO. 4 OF 4

## STANDARD PLANS DATED JULY 2004

- |           |   |
|-----------|---|
| A10A      | ACRONYMS AND ABBREVIATIONS (A-L)                                |
| A10B      | ACRONYMS AND ABBREVIATIONS (M-Z)                                |
| A10C      | SYMBOLS   |
| A10D      | SYMBOLS   |
| A62C      | LIMITS OF PAYMENT FOR EXCAVATION AND BACKFILL-BRIDGE            |
| B0-1      | BRIDGE DETAILS  |
| B0-3      | BRIDGE DETAILS  |
| B0-5      | BRIDGE DETAILS  |
| B0-13     | BRIDGE DETAILS  |
| B3-1      | RETAINING WALL TYPE 1 H = 1200 THROUGH 9100 mm                  |
| B3-8      | RETAINING WALL DETAILS NO. 1                                    |
| RSP B6-21 | JOINT SEAL (MAXIMUM MOVEMENT RATING = 50 MM)                    |
| B7-1      | BOX GIRDER DETAILS  |
| RSP B8-5  | CAST-IN-PLACE PRESTRESSED GIRDER DETAILS                        |
| B11-55    | CONCRETE BARRIER TYPE 732                                       |
| B11-56    | CONCRETE BARRIER TYPE 736                                       |
| RSP ES-9B | ELECTRICAL SYSTEMS (ELECTRICAL DETAILS STRUCTURE INSTALLATIONS) |
| RSP ES-9C | ELECTRICAL SYSTEMS (ELECTRICAL DETAILS STRUCTURE INSTALLATIONS) |



Location	Pile Type	Nominal Resistance		Design Tip Elevations (m)	Specified Tip Elevations (m)
		Compression	Tension		
Abut 1	HP 360 x 132	1250 KN	0 KN	428.7 ①②	428.7
Abut 2	HP 360 x 132	1250 KN	0 KN	428.7 ①②	428.7

Tip elevation controlled by following demands:

- ① Compression
- ② Scour potential to Elev. 442.5 m at Abutments 1R and 2R

Location	Pile Type	Nominal Resistance		Design Tip Elevations (m)	Specified Tip Elevations (m)
		Compression	Tension		
Abut 1	HP 360 x 132	1250 KN	0 KN	426.7 ①②	426.7
Abut 2	HP 360 x 132	1250 KN	0 KN	428.7 ①②	428.7
Abut 2 Ret Wall	HP 250 x 62	800 KN	0 KN	431.0 ①②	431.0

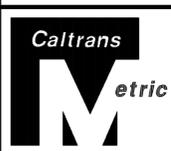
Tip elevation controlled by following demands:

- ① Compression
- ② Scour potential to Elev. 438.5 m at Abutments 1L and 2L

Location	Pile Type	Nominal Resistance		Design Tip Elevations (m)	Specified Tip Elevations (m)
		Compression	Tension		
Abut 1 Rt Bridge	HP 250 x 62	800 KN	0 KN	433.1 ①	433.1

Tip elevation controlled by following demands:

- ① Compression



DESIGN	BY M. Abdi	CHECKED N. Nguyen
DETAILS	BY J. Yang	CHECKED N. Nguyen
QUANTITIES	BY T. Bui	CHECKED M. Schott

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES  
STRUCTURE DESIGN  
DESIGN BRANCH 2

BRIDGE NO.  
10-0129RL  
KILOMETER POST  
R70.578

**WILLITS BYPASS**

**HAEHL CREEK**

**INDEX TO PLANS**

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN



CU 01  
EA 262001

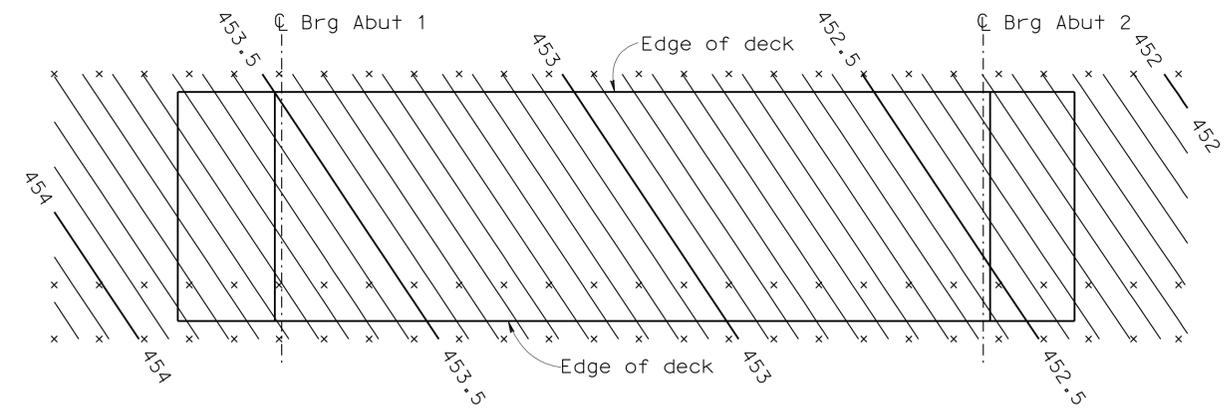
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SHEET	2								
OF	26								

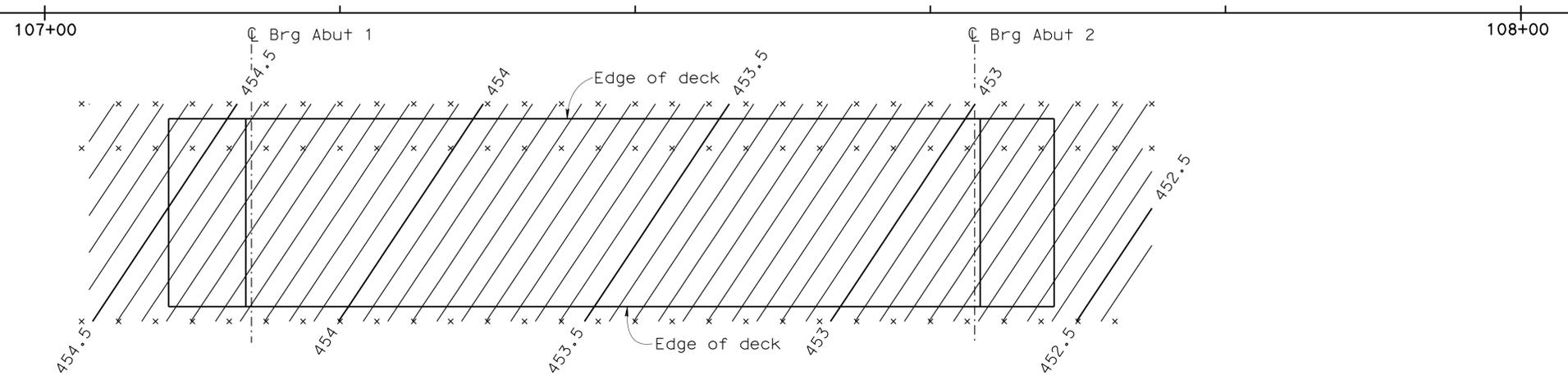
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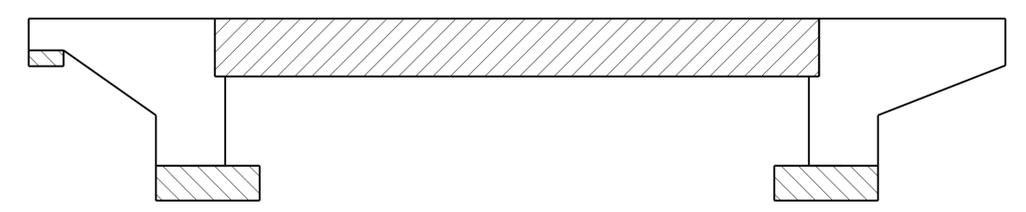
9-15-11  
 REGISTERED CIVIL ENGINEER DATE  
 M. Friedheim  
 No. 57968  
 Exp. 6-30-12  
 REGISTERED PROFESSIONAL ENGINEER  
 CIVIL  
 STATE OF CALIFORNIA  
 1-23-12  
 PLANS APPROVAL DATE  
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2.5 m interval measured along station line  
 Contours do not include camber  
 Contour interval = 0.05 m



**DECK CONTOURS**  
1:200

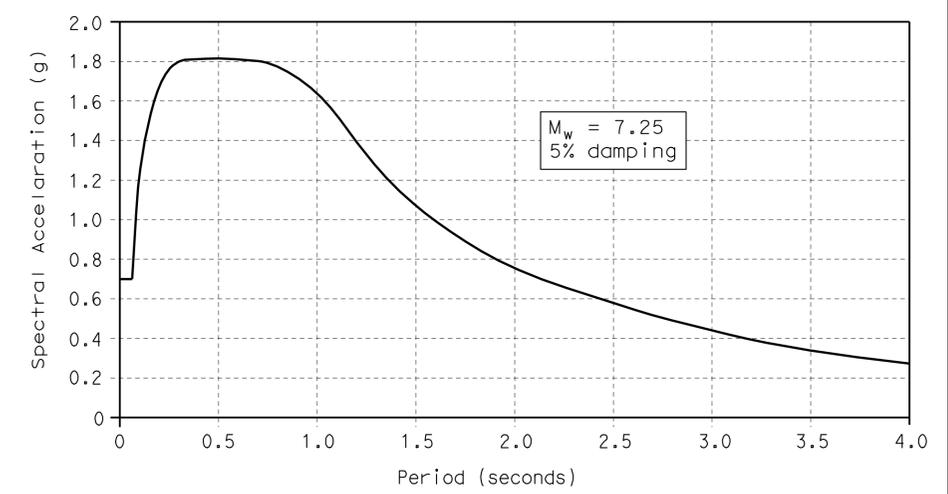


- Structural Concrete, Bridge
- Structural Concrete, Bridge  $f'_c = 28$  MPa @ 28 days
- Structural Concrete, Bridge Footing

**CONCRETE STRENGTH AND TYPE LIMITS**  
No Scale

**GENERAL NOTES (LOAD FACTOR DESIGN)**

- DESIGN: Bridge Design Specifications - April 2000 (LFD) (1996 AASHTO with interims and revisions by Caltrans).  
 Project Specific Design Criteria - March 2009.
- SEISMIC DESIGN: Caltrans Seismic Design Criteria Ver. 1.4 - June 2006.
- DEAD LOAD: Includes 1675 Pa for future wearing surface.  
 Includes 1460 N/m for future utilities.
- LIVE LOAD: HS20-44 and alternative and permit design load.
- SEISMIC LOADING: Modified Caltrans Seismic Design Criteria for Soil Profile Type D, PBA = 0.7 g. See Response Spectrum below.



- REINFORCED CONCRETE:  $f_y = 420$  MPa  
 $f'_c = 25$  MPa (See concrete strength and type limits for exceptions)
- Transverse Deck Slab (working stress design)  
 $f_s = 140$  MPa  
 $f'_c = 8$  MPa  
 $n = 10$
- PRESTRESSED CONCRETE: See "Prestressing Notes" on Girder Layout sheet
- HP STEEL PILE: A572, Grade 50

	DESIGN BY M. Abdi	CHECKED N. Nguyen	<b>STATE OF CALIFORNIA</b> DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN <b>DESIGN BRANCH 2</b>	BRIDGE NO. 10-0129RL	<b>WILLITS BYPASS</b> <b>HAEHL CREEK</b> <b>DECK CONTOURS</b>
	DETAILS BY C. Figuerres	CHECKED N. Nguyen			KILOMETER POST R70.578	
QUANTITIES BY T. Bui	CHECKED M. Schott	CU 01 EA 262001	DISREGARD PRINTS BEARING EARLIER REVISION DATES		REVISION DATES 1-23-09 3-02-05 10-17-05 11-07-05 12-09-05 10-3-06 1-31-07 2-09-07 4-30-08	SHEET 3 OF 26

ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SHOWN

ORIGINAL SCALE IN MILLIMETERS FOR REDUCED PLANS: 0 10 20 30 40 50 60 70 80 90 100

FILE => 10-0129r1\_dbdkcont.dgn

STRUCTURES DESIGN DETAIL SHEET (METRIC) (REV.03-17-04)



DIST	COUNTY	ROUTE	KILOMETER TOTAL PROJECT	POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Men	101	R69.4/R78.9	684	939	

1-23-12  
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M. Friedheim  
 REGISTERED PROFESSIONAL ENGINEER  
 No. 57968  
 Exp. 6-30-12  
 CIVIL  
 STATE OF CALIFORNIA

**HYDROLOGIC SUMMARY (LEFT BRIDGE)**  
Drainage Area: 19.7 sqkm

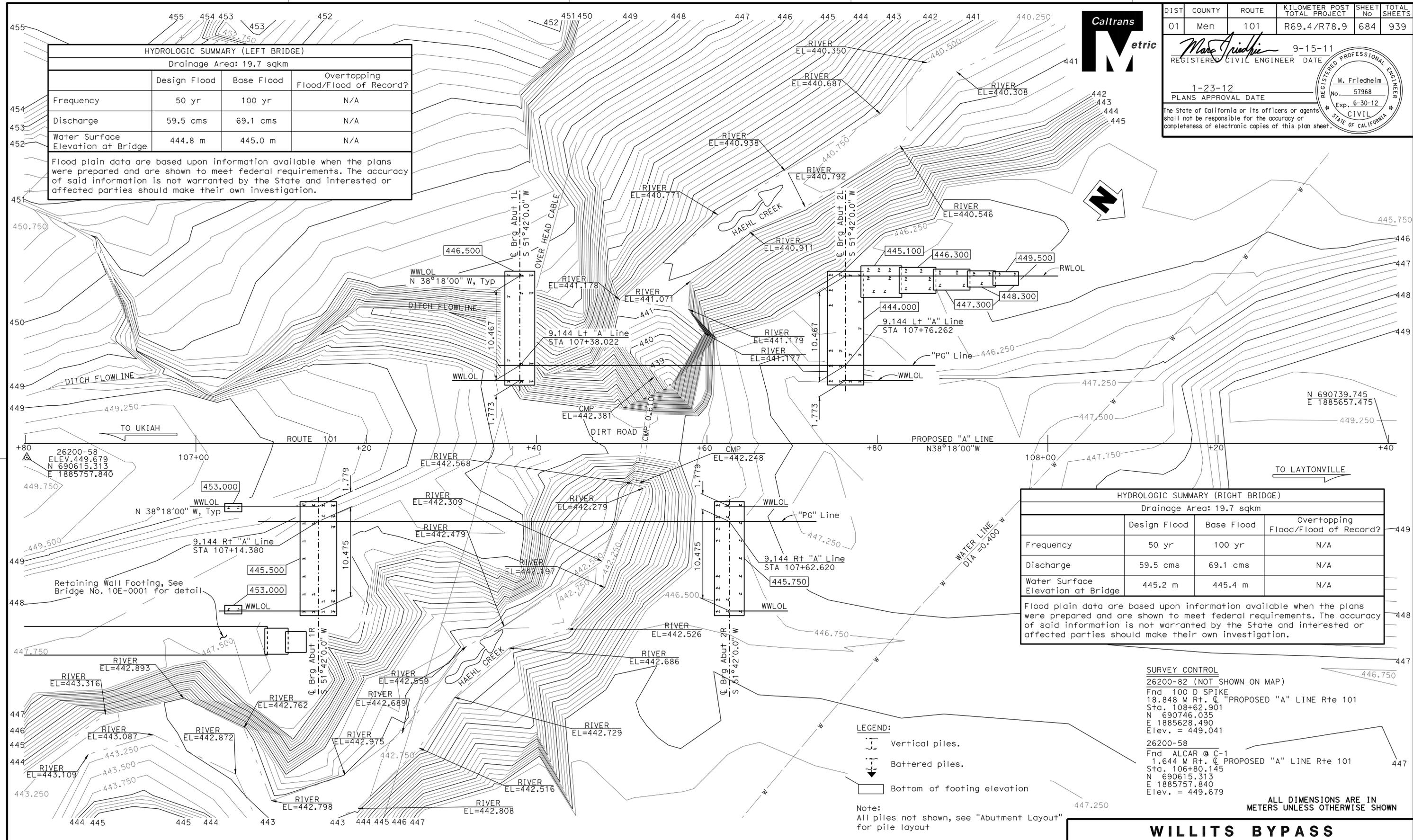
	Design Flood	Base Flood	Overtopping Flood/Flood of Record?
Frequency	50 yr	100 yr	N/A
Discharge	59.5 cms	69.1 cms	N/A
Water Surface Elevation at Bridge	444.8 m	445.0 m	N/A

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

**HYDROLOGIC SUMMARY (RIGHT BRIDGE)**  
Drainage Area: 19.7 sqkm

	Design Flood	Base Flood	Overtopping Flood/Flood of Record?
Frequency	50 yr	100 yr	N/A
Discharge	59.5 cms	69.1 cms	N/A
Water Surface Elevation at Bridge	445.2 m	445.4 m	N/A

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



- LEGEND:**
- Vertical piles.
  - Battered piles.
  - Bottom of footing elevation
- Note:  
All piles not shown, see "Abutment Layout" for pile layout

**SURVEY CONTROL**  
 26200-82 (NOT SHOWN ON MAP)  
 Fnd 100 D SPIKE  
 18.848 M Rt. @ "PROPOSED "A" LINE Rte 101  
 Sta. 108+62.901  
 N 690746.035  
 E 1885628.490  
 Elev. = 449.041

26200-58  
 Fnd ALCAR @ C-1  
 1.644 M Rt. @ PROPOSED "A" LINE Rte 101  
 Sta. 106+80.145  
 N 690615.313  
 E 1885757.840  
 Elev. = 449.679

ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SHOWN

<b>PRELIMINARY INVESTIGATION SECTION</b>				DESIGN	BY M. Abdi	CHECKED N. Nguyen	<b>STATE OF CALIFORNIA</b> <b>DEPARTMENT OF TRANSPORTATION</b>	<b>DIVISION OF STRUCTURES</b> <b>STRUCTURE DESIGN 2</b>	BRIDGE NO.	10-0129RL
SCALE	VERT. DATUM NGVD 29	PHOTOGRAMMETRY AS OF:		DETAILS	BY C. Figuerres	CHECKED N. Nguyen			KILOMETER POST	R70.578
1:200	HORZ. DATUM NAD 83 (1991.35)	SURVEYED BY DIST/T. GILLETT		QUANTITIES	BY T. Bui	CHECKED M. Schott				
ALIGNMENT TIES DIST TRAVERSE SHEET		FIELD CHECKED BY		CHECKED BY T. ZOLNIKOVA 4/04						

<b>WILLITS BYPASS</b>	
<b>HAEHL CREEK</b>	
<b>FOUNDATION PLAN</b>	
REVISION DATES (PRELIMINARY STAGE ONLY)	SHEET OF
11/22/04 3/26/05 3/25/05 7/15/05 8/28/05 9/22/05 10/13/05 11/30/05 1/31/06	4 26

ORIGINAL SCALE IN MILLIMETERS FOR REDUCED PLANS

CU 01  
EA 262001

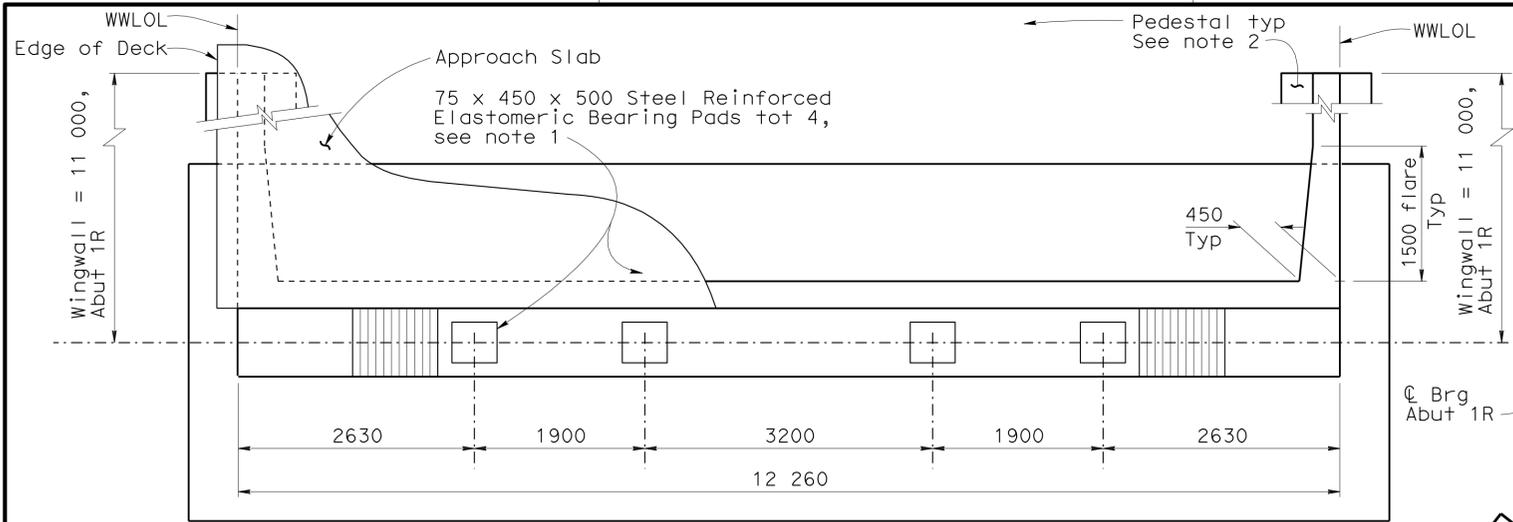
DISREGARD PRINTS BEARING EARLIER REVISION DATES

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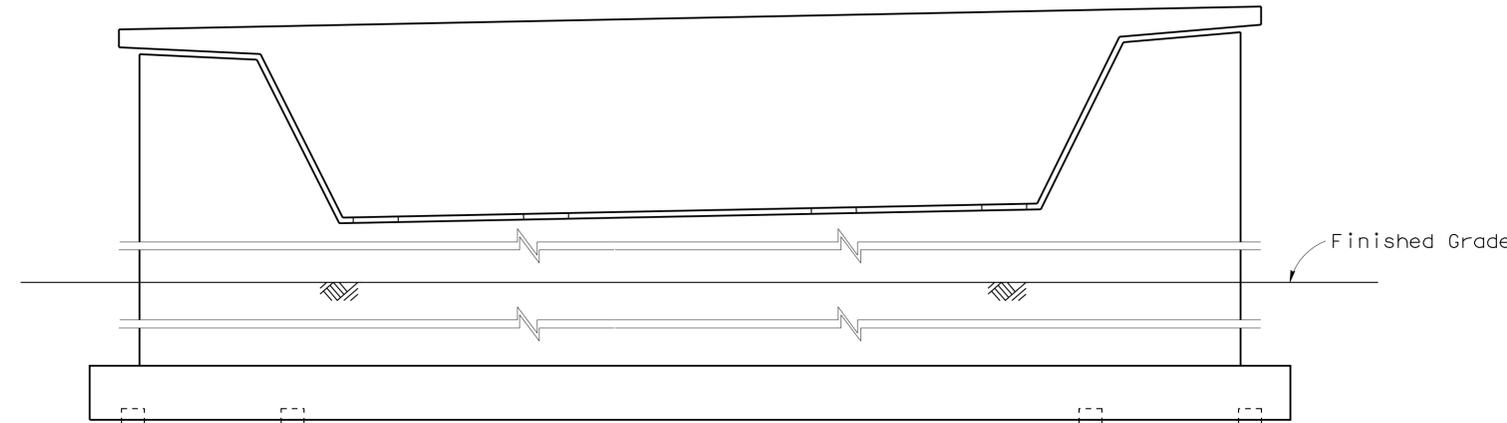
DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Men	101	R69.4/R78.9	685	939

M. Friedheim 9-15-11  
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 1-23-12  
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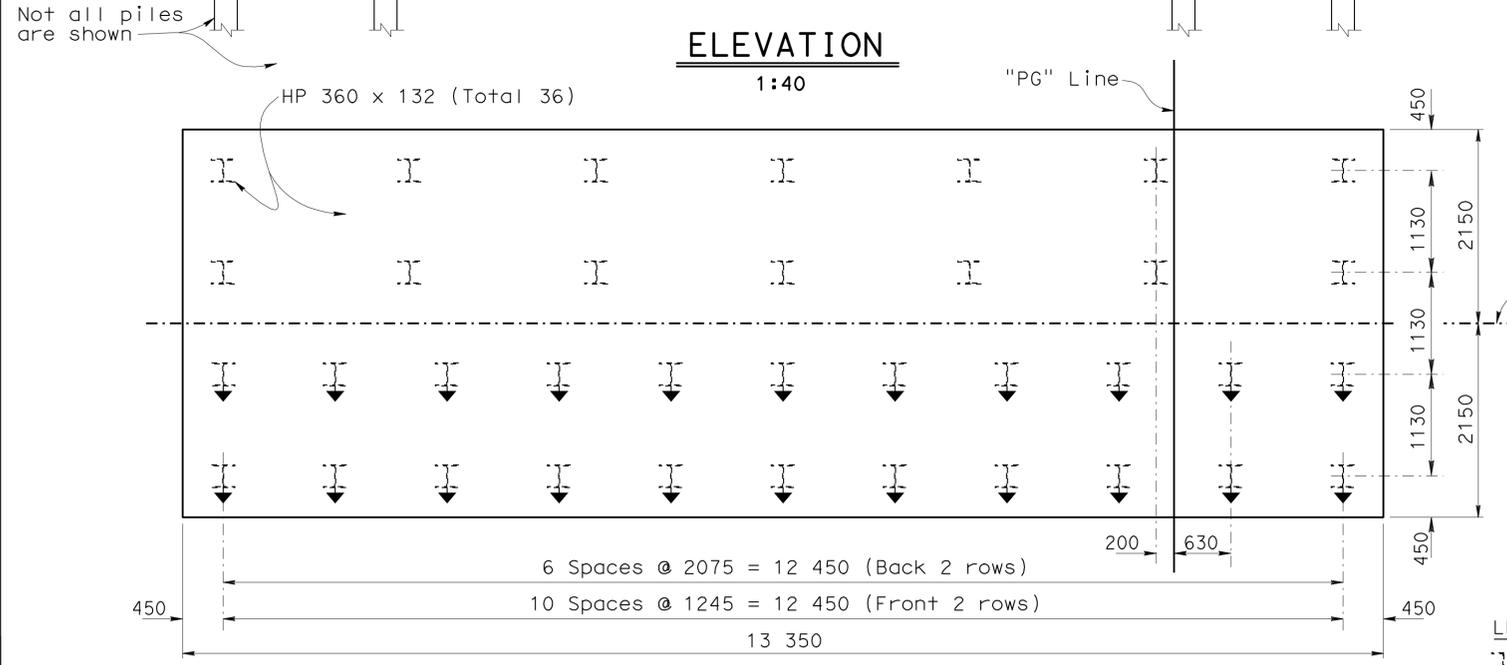
REGISTERED PROFESSIONAL ENGINEER  
 M. Friedheim  
 No. 57968  
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 CIVIL  
 STATE OF CALIFORNIA



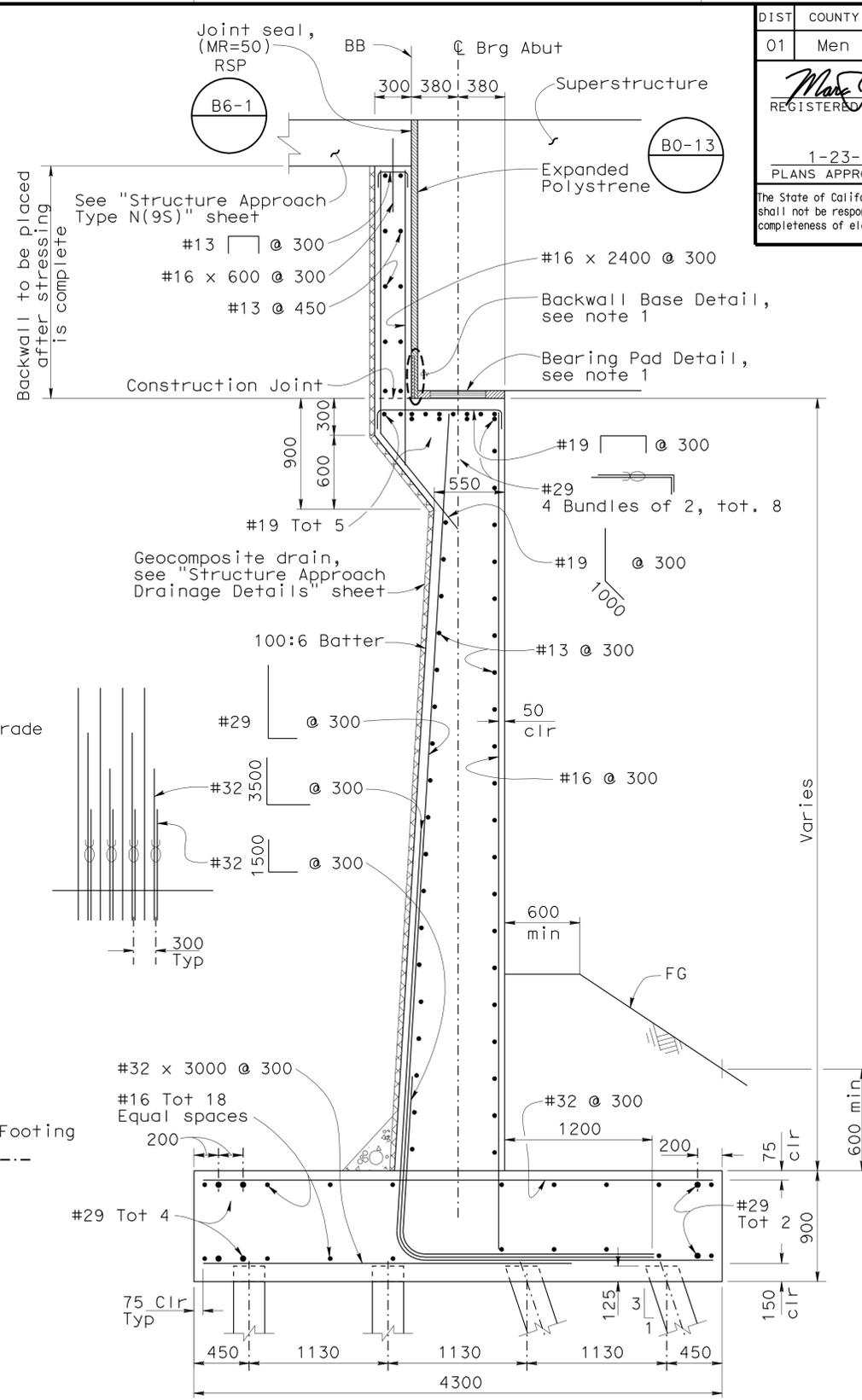
**PLAN**  
1:40



**ELEVATION**  
1:40



**FOOTING PLAN**  
1:40



**ABUTMENT SECTION**  
1:25

**LEGEND:**  
 [Symbol] Indicates vertical piles.  
 [Symbol] Indicates battered piles.

- NOTES:**
1. For "Bearing Pad" and "Backwall Base Detail", see "Abutment Details No. 5" sheet.
  2. For pedestal details, see "Abutment Details No. 1" sheet.
  3. For "Joint Protection Detail", see "Abutment Details No. 2" sheet.

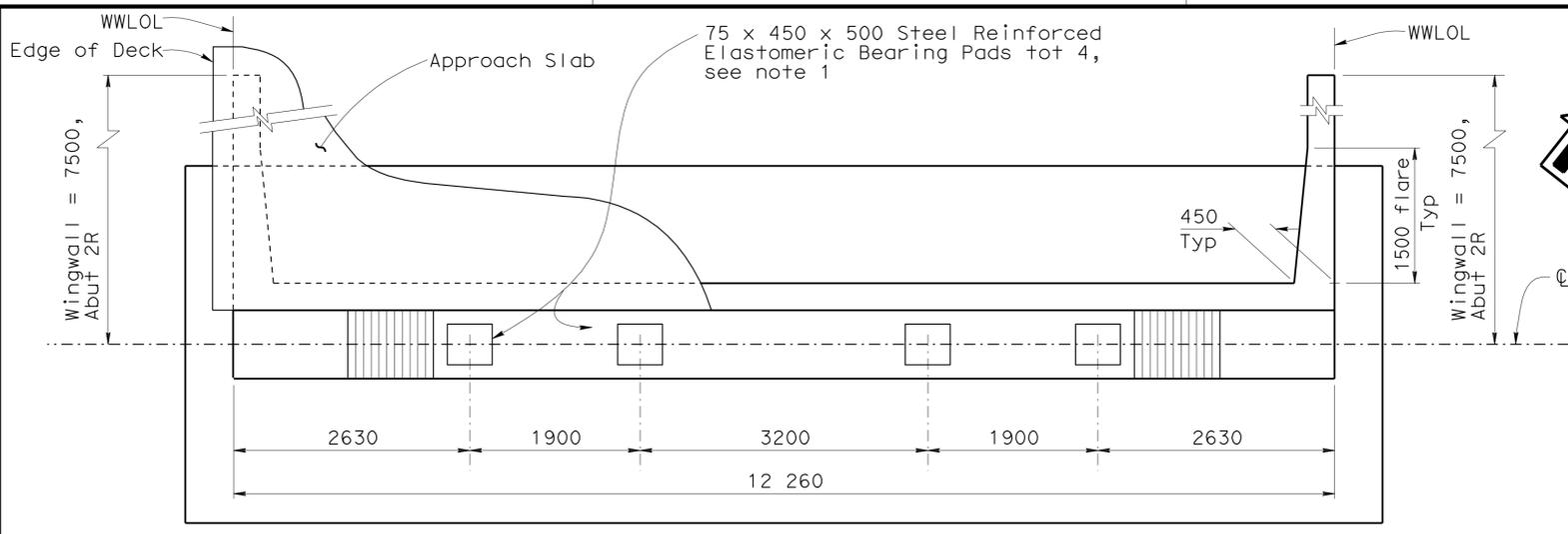
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	DETAILS	BY C. Figuerres	CHECKED N. Nguyen			KILOMETER POST	R70.578	
	QUANTITIES	BY T. Bui	CHECKED M. Schott			CU 01 EA 262001	DISREGARD PRINTS BEARING EARLIER REVISION DATES	

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN  
 ORIGINAL SCALE IN MILLIMETERS FOR REDUCED PLANS  
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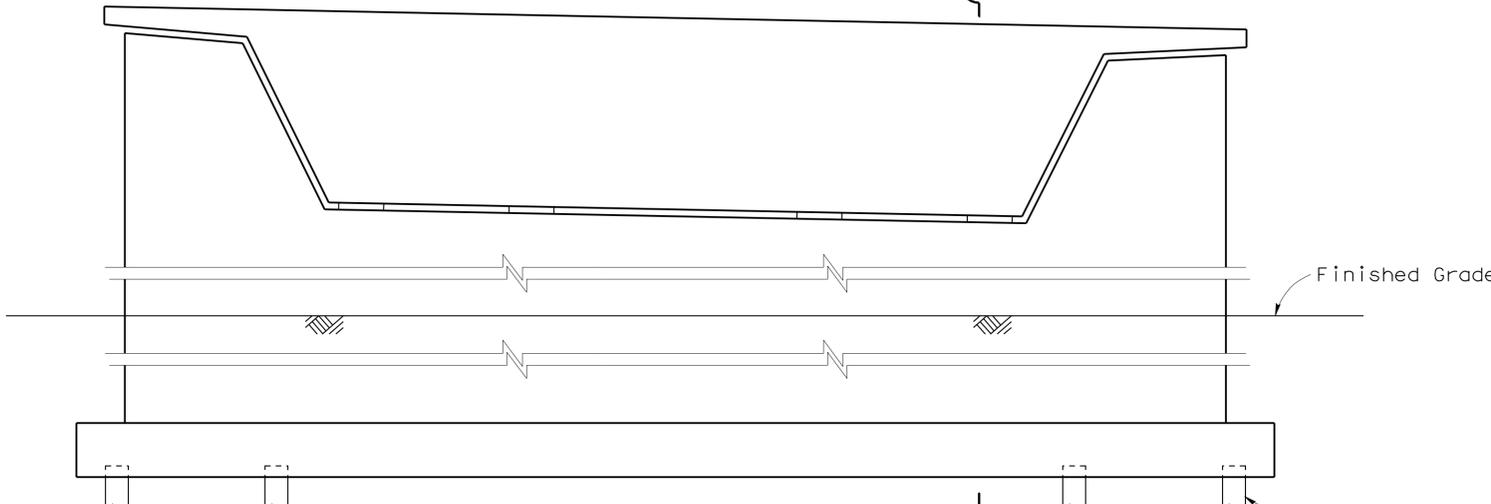
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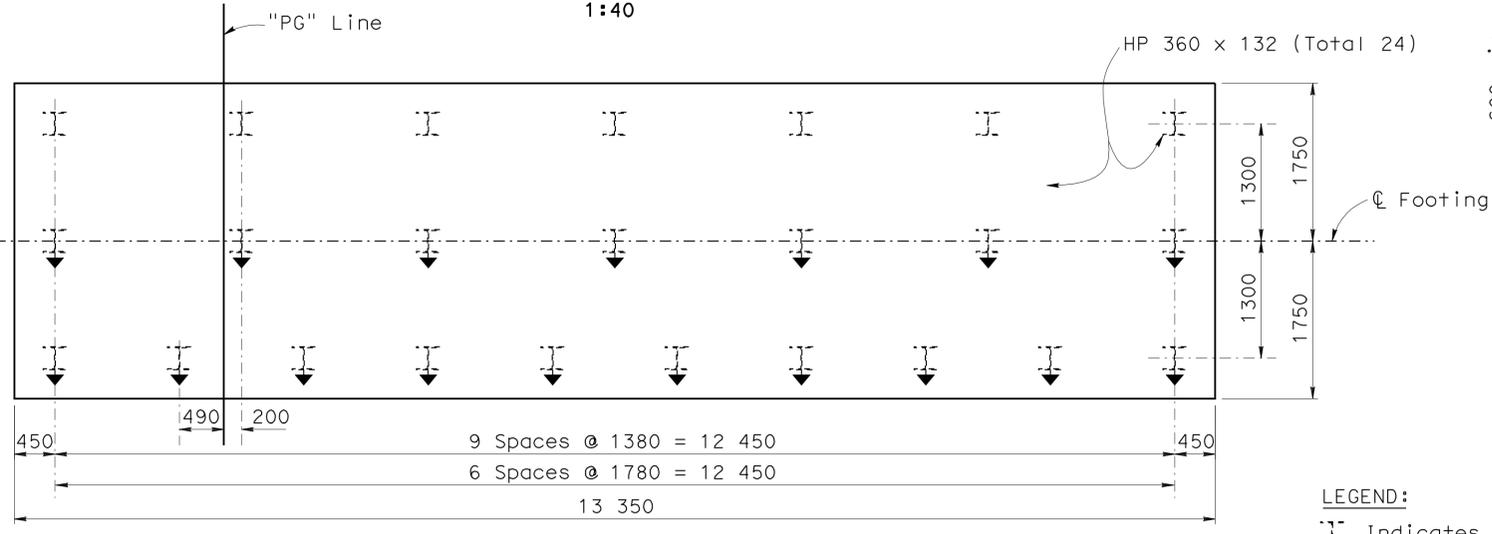
- NOTES:**
- For "Bearing Pad" and "Backwall Base Detail", see "Abutment Details No. 5" sheet.
  - For "Joint Protection Detail", see "Abutment Details No. 2" sheet.



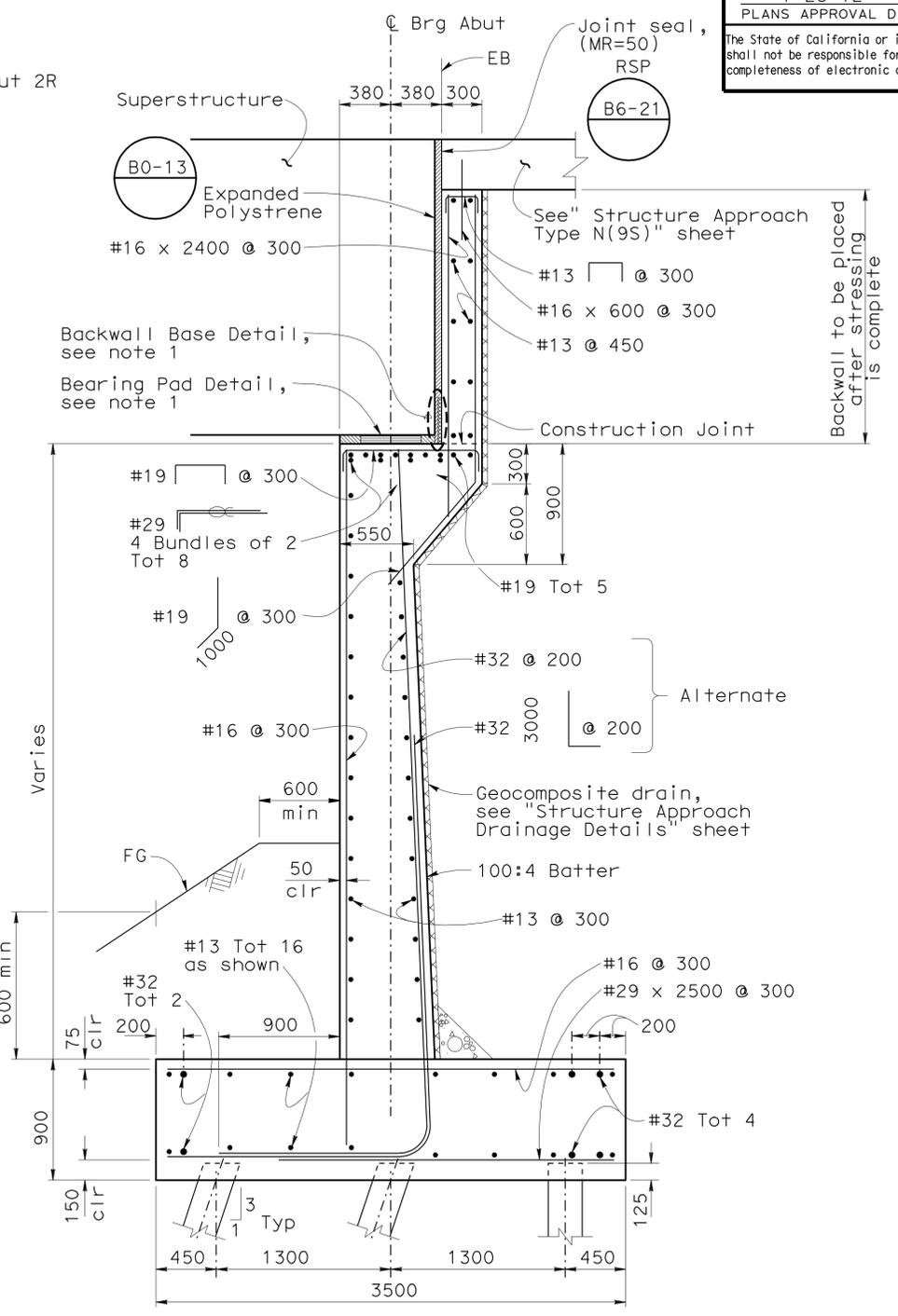
**PLAN**  
1:40



**ELEVATION**  
1:40



**FOOTING PLAN**  
1:40



**SECTION A-A**  
1:25

- LEGEND:**
- Indicates vertical piles
  - Indicates battered piles



DESIGN	BY M. Abdi	CHECKED N. Nguyen
DETAILS	BY C. Figuerres	CHECKED N. Nguyen
QUANTITIES	BY T. Bui	CHECKED M. Schott

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES  
STRUCTURE DESIGN  
DESIGN BRANCH 2

BRIDGE NO. 10-0129RL  
KILOMETER POST R70.578

**WILLITS BYPASS**  
**HAEHL CREEK**  
**ABUTMENT 2 LAYOUT (RIGHT BRIDGE)**

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN



CU 01 EA 262001

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES	SHEET	OF
10-14-03 10-20-05 11-02-05 11-16-05 12-09-05 1-25-07 1-31-07 4-30-08 6-24-09	6	26



DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
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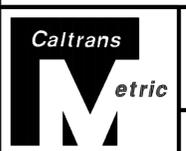
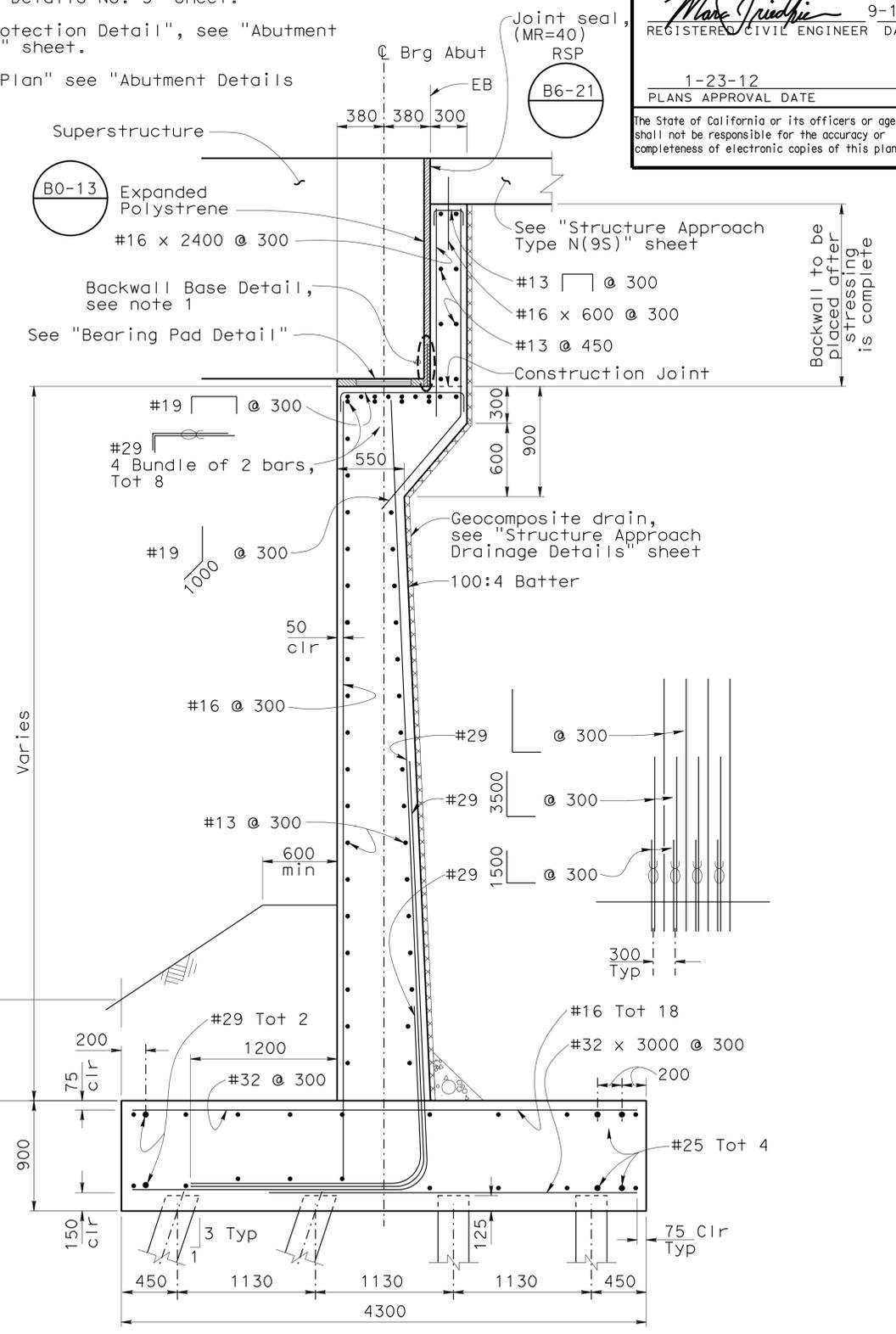
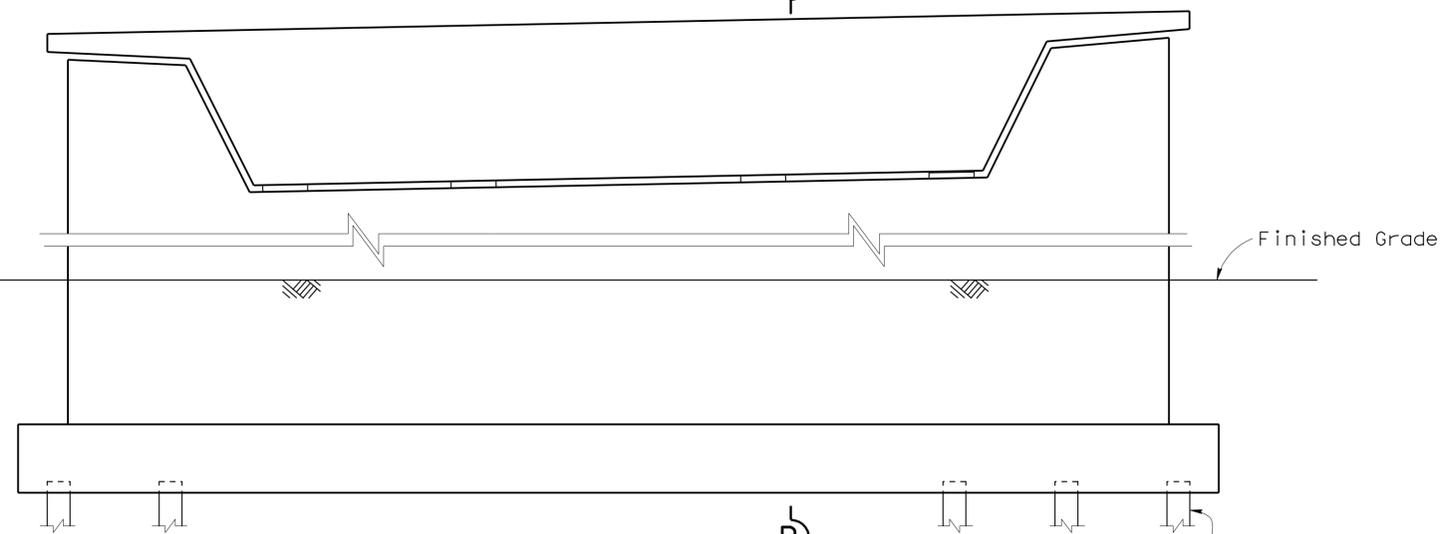
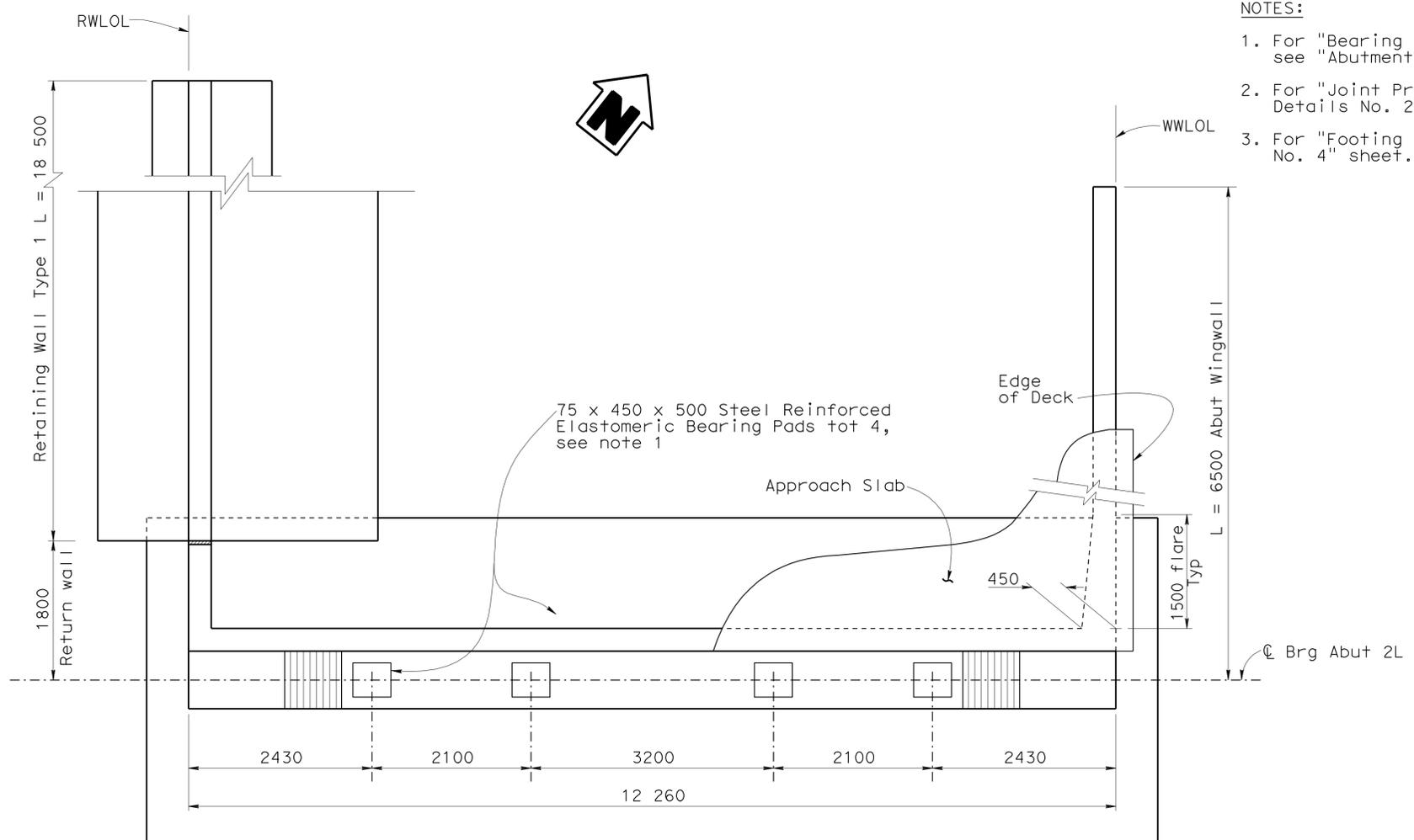
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- NOTES:
- For "Bearing Pad" and "Backwall Base Detail", see "Abutment Details No. 5" sheet.
  - For "Joint Protection Detail", see "Abutment Details No. 2" sheet.
  - For "Footing Plan" see "Abutment Details No. 4" sheet.



DESIGN	BY M. Abdi	CHECKED N. Nguyen
DETAILS	BY C. Figuerres	CHECKED N. Nguyen
QUANTITIES	BY T. Bui	CHECKED M. Schott

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES  
STRUCTURE DESIGN  
DESIGN BRANCH 2

BRIDGE NO. 10-0129RL  
KILOMETER POST R70.578

WILLITS BYPASS  
HAEHL CREEK  
ABUTMENT 2 LAYOUT (LEFT BRIDGE)

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN



CU 01  
EA 262001

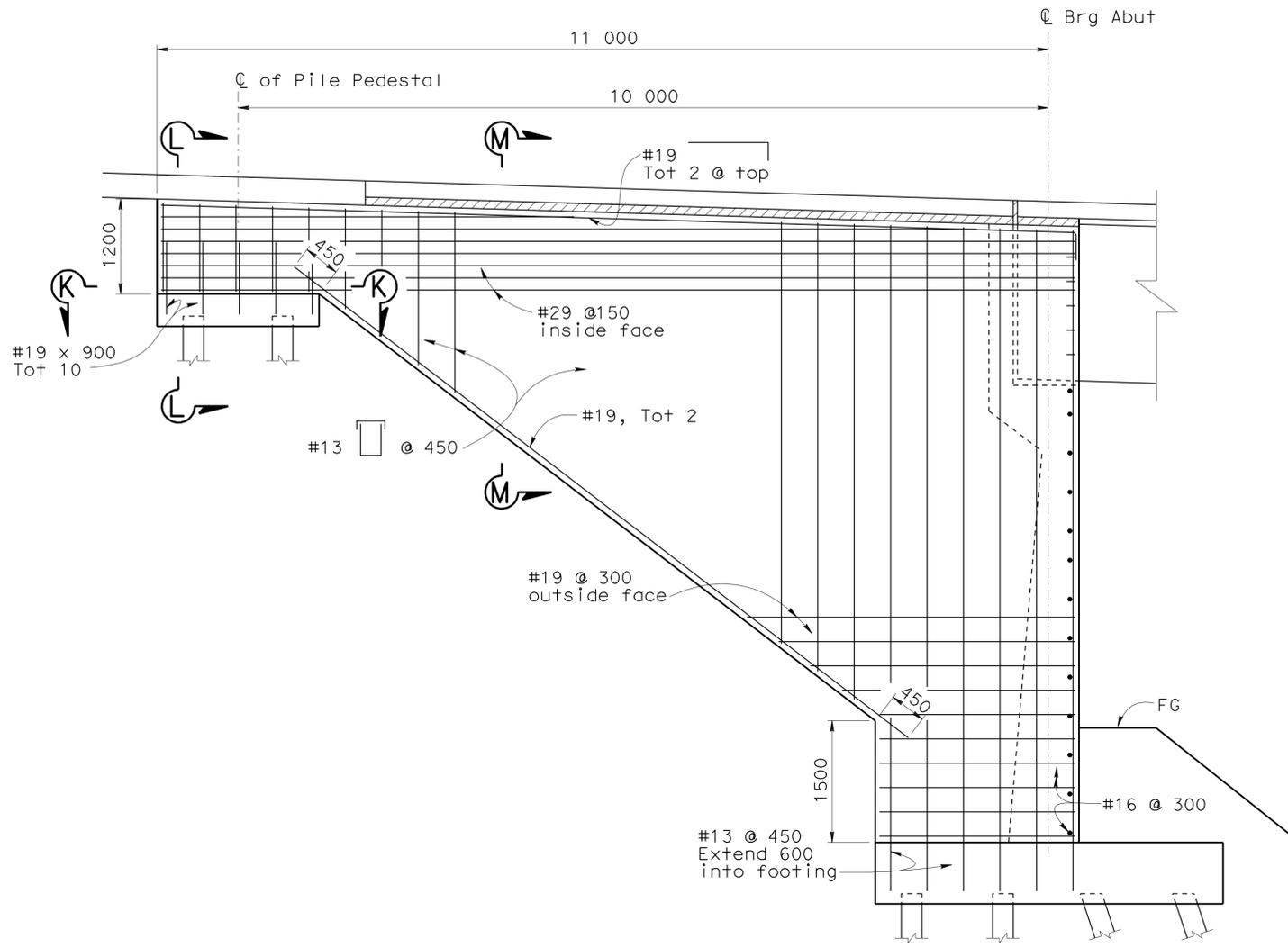
DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES	SHEET 8 OF 26
	7-2-08, 1-31-07, 4-30-08, 6-24-09, 9-21-09, 10-14-09, 10-14-09, 11-04-09	

FILE => 10-0129r1\_dab021y1t1.dgn  
DATE PLOTTED => 28-JAN-2012  
TIME PLOTTED => 07:08

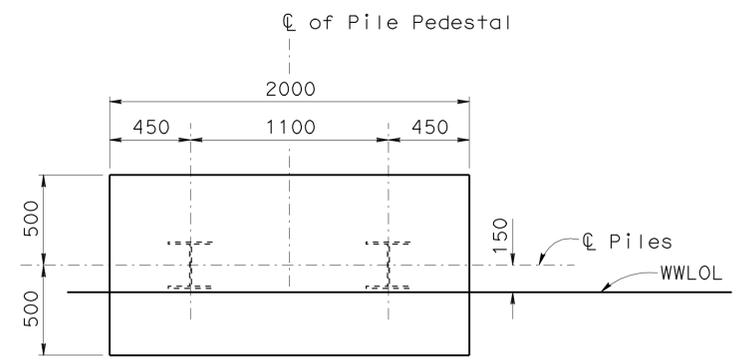
DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Men	101	R69.4/R78.9	689	939

*M. Friedheim* 9-15-11  
 REGISTERED CIVIL ENGINEER DATE  
 1-23-12  
 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.

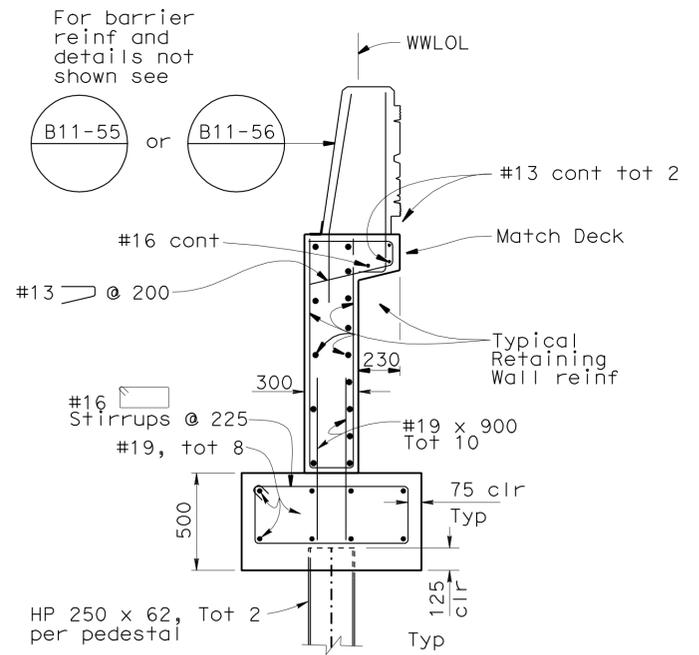
REGISTERED PROFESSIONAL ENGINEER  
 M. Friedheim  
 No. 57968  
 Exp. 6-30-12  
 CIVIL  
 STATE OF CALIFORNIA



**ABUTMENT 1 WINGWALL ELEVATION (RIGHT BRIDGE)**  
1:40

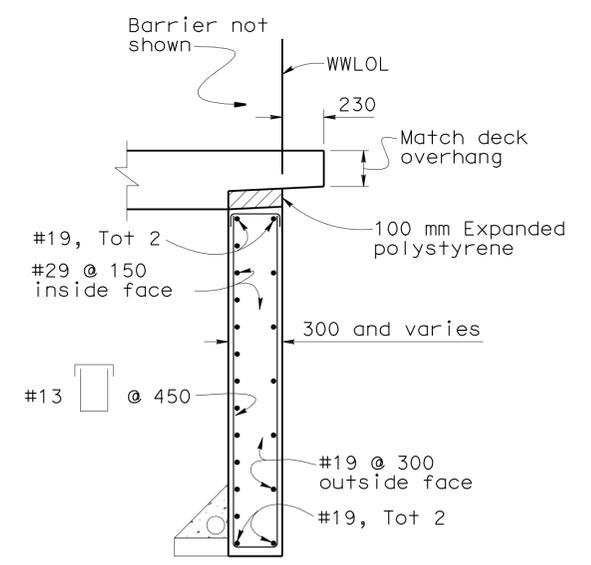


**PLAN VIEW K-K**  
1:20

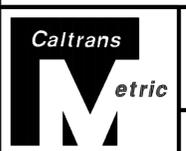


NOTE:  
Concrete Barrier Type 732 shown  
Concrete Barrier Type 736 similar

**SECTION L-L**  
1:20



**SECTION M-M**  
1:20



DESIGN	BY M. Abdi	CHECKED N. Nguyen
DETAILS	BY C. Figuerres	CHECKED N. Nguyen
QUANTITIES	BY T. Bui	CHECKED M. Schott

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES  
STRUCTURE DESIGN  
DESIGN BRANCH 2

BRIDGE NO.  
10-0129RL  
KILOMETER POST  
R70.578

**WILLITS BYPASS**  
**HAEHL CREEK**  
**ABUTMENT DETAILS NO. 1**

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN



CU 01  
EA 262001

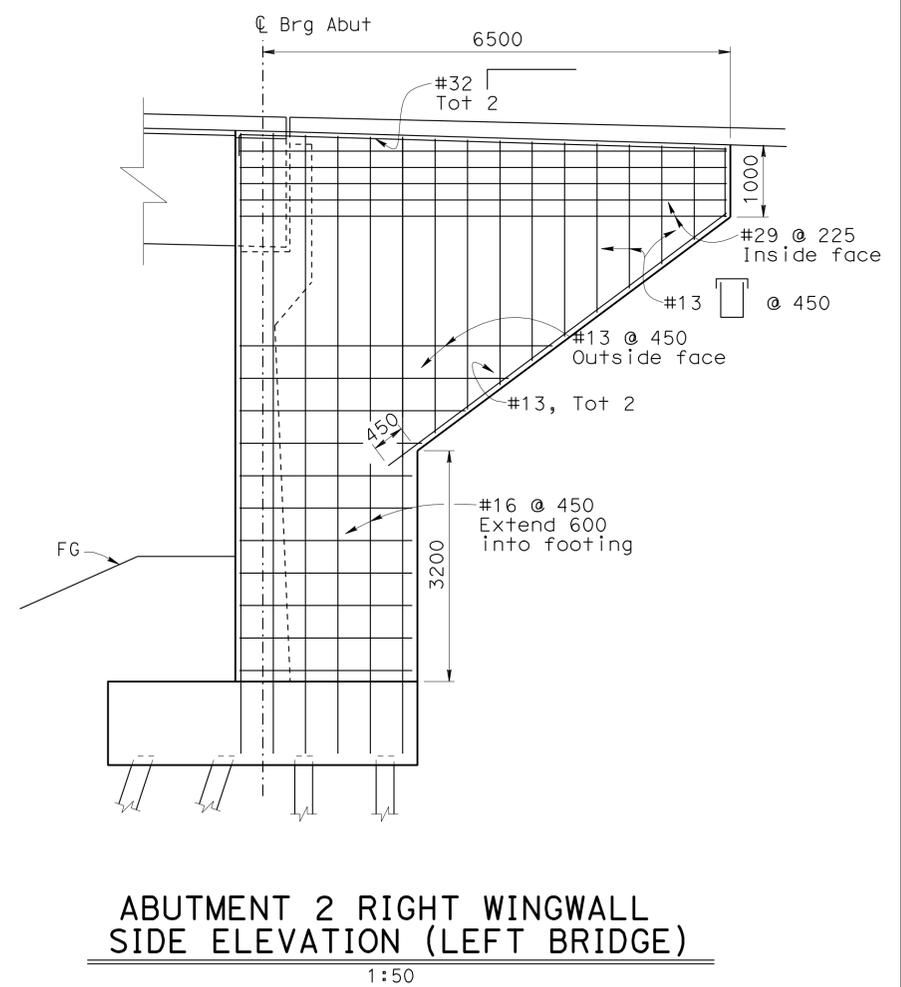
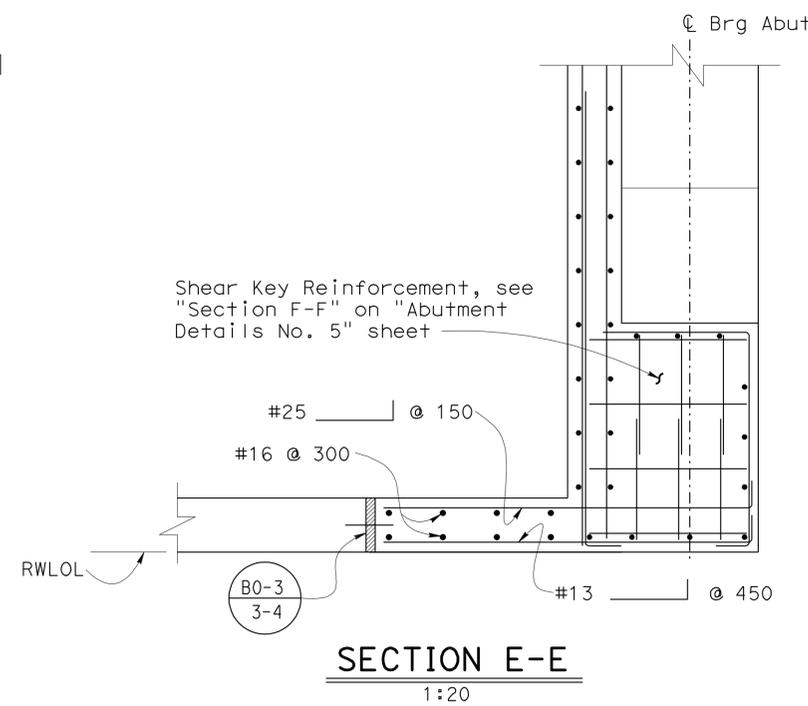
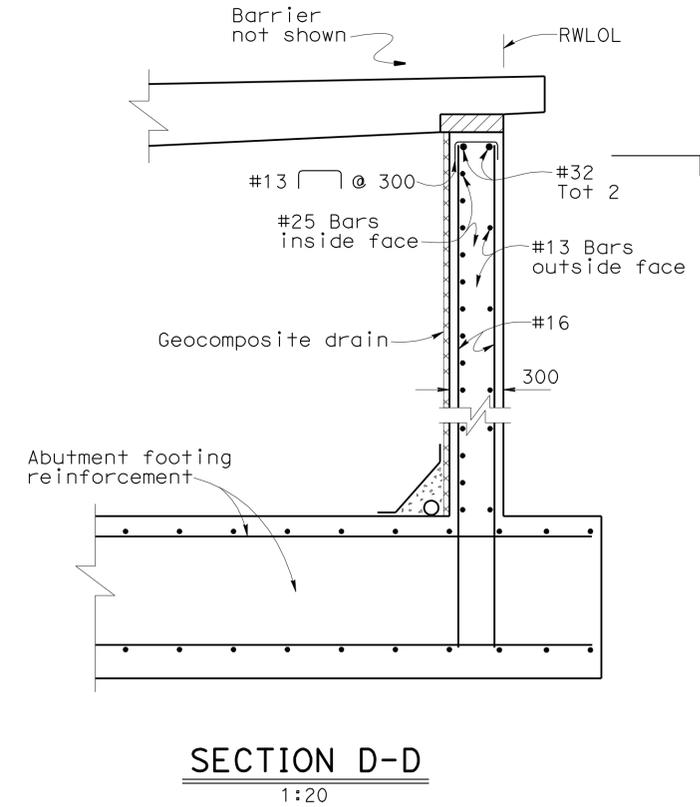
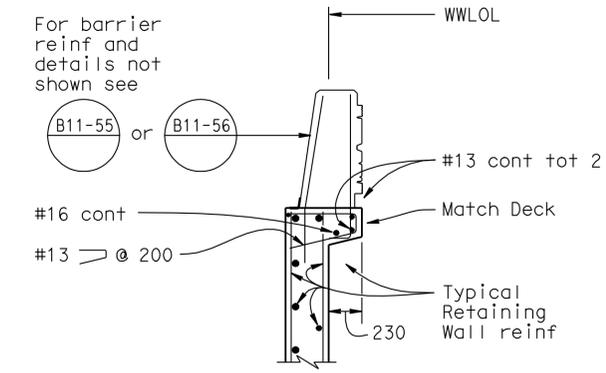
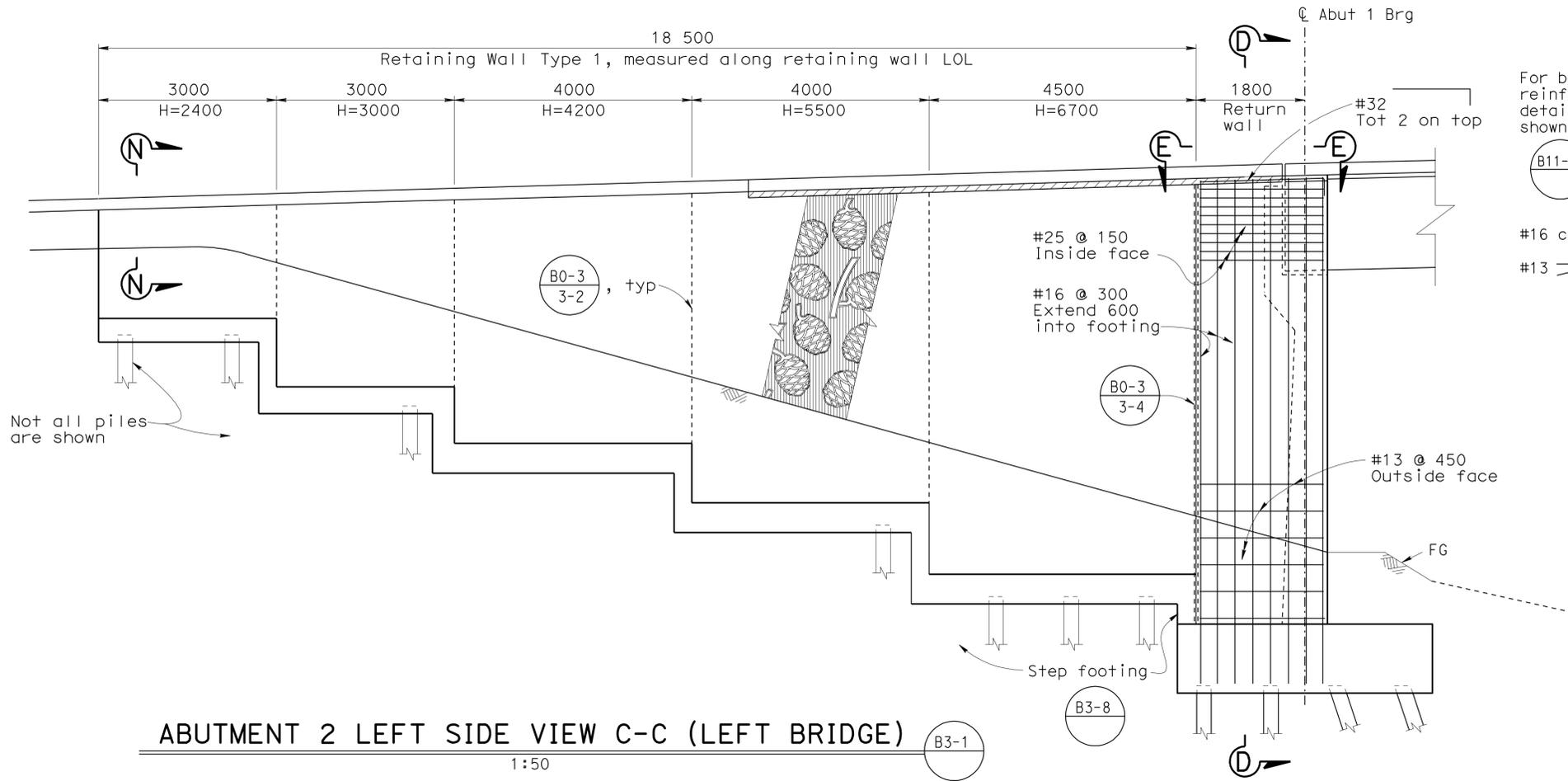
REVISION DATES		SHEET	OF
10-14-08	11-02-08	9	26

USERNAME => s121614 DATE PLOTTED => 28-JAN-2012 TIME PLOTTED => 07:08



DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Men	101	R69.4/R78.9	691	939

M. Friedheim  
 REGISTERED CIVIL ENGINEER DATE 9-15-11  
 1-23-12  
 PLANS APPROVAL DATE  
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DESIGN	BY M. Abdi	CHECKED N. Nguyen
DETAILS	BY C. Figuerres	CHECKED N. Nguyen
QUANTITIES	BY T. Bui	CHECKED M. Schott

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES  
STRUCTURE DESIGN

DESIGN BRANCH 2

BRIDGE NO.	10-0129RL
KILOMETER POST	R70.578

WILLITS BYPASS  
HAEHL CREEK  
ABUTMENT DETAILS NO. 3

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN



CU 01  
EA 262001

DISREGARD PRINTS BEARING EARLIER REVISION DATES	9-21-05	10-3-05	10-14-05	10-18-05	11-21-05	12-07-05	1-24-07	6-25-09	SHEET 11 OF 26
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DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Men	101	R69.4/R78.9	692	939

*M. Friedheim* 9-15-11  
 REGISTERED CIVIL ENGINEER DATE

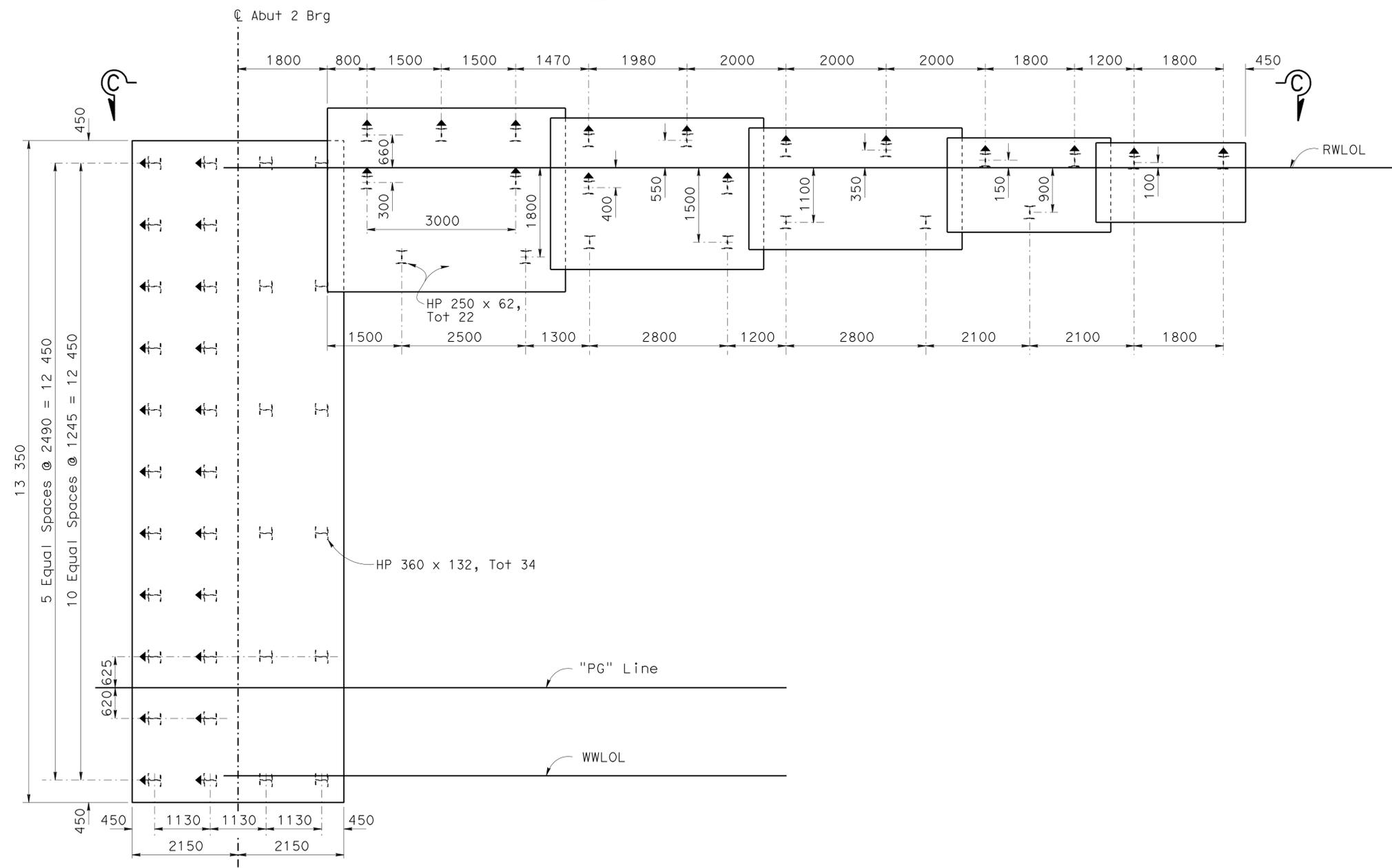
1-23-12  
 PLANS APPROVAL DATE

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REGISTERED PROFESSIONAL ENGINEER  
 M. Friedheim  
 No. 57968  
 Exp. 6-30-12  
 CIVIL  
 STATE OF CALIFORNIA

NOTE:  
 1. For "Left Side View C-C", see "Abutment Details No. 3" sheet.

LEGEND:  
 I I Indicates vertical piles.  
 I I Indicates battered piles.



**ABUTMENT 2 FOOTING LAYOUT (LEFT BRIDGE)**  
 1:50

	DESIGN	BY M. Abdi	CHECKED N. Nguyen	<b>STATE OF CALIFORNIA</b> DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN <b>DESIGN BRANCH 2</b>	BRIDGE NO.	10-0129RL	<b>WILLITS BYPASS</b> <b>HAEHL CREEK</b> <b>ABUTMENT DETAILS NO. 4</b>
	DETAILS	BY C. Figuerres	CHECKED N. Nguyen			KILOMETER POST	R70.578	
ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN				ORIGINAL SCALE IN MILLIMETERS FOR REDUCED PLANS		CU 01 EA 262001		DISREGARD PRINTS BEARING EARLIER REVISION DATES
REVISION DATES: 9-21-05, 10-06-05, 10-14-05, 10-18-05, 12-07-05, 12-09-05, 1-24-07, 1-31-07, 4-30-08, 5-04-09								SHEET 12 OF 26

FILE => 10-0129r1\_deabtde+04.dgn  
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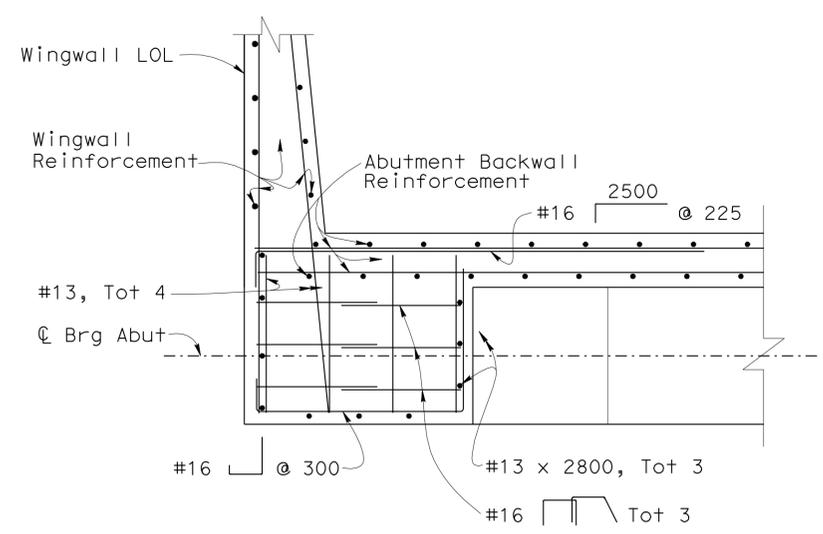
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01	Men	101	R69.4/R78.9	693	939

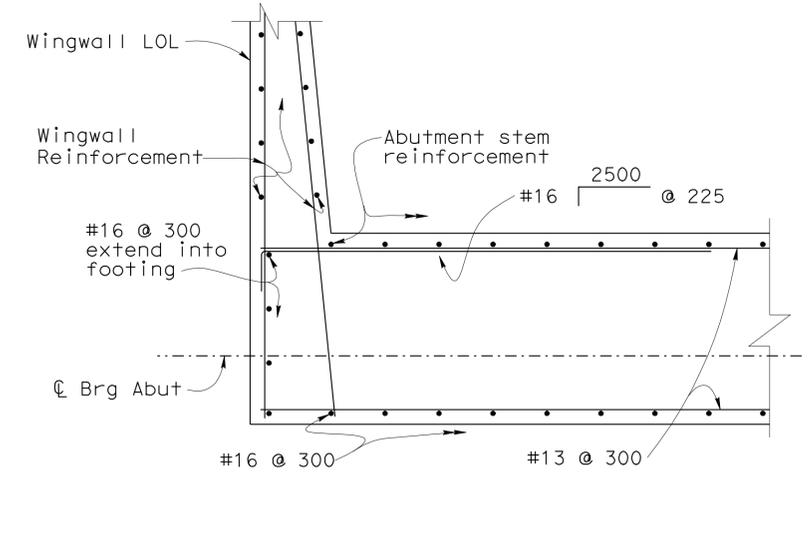
<i>M. Friedheim</i>	9-15-11
REGISTERED CIVIL ENGINEER	DATE
1-23-12	
PLANS APPROVAL DATE	

REGISTERED PROFESSIONAL ENGINEER  
 M. Friedheim  
 No. 57968  
 Exp. 6-30-12  
 CIVIL  
 STATE OF CALIFORNIA

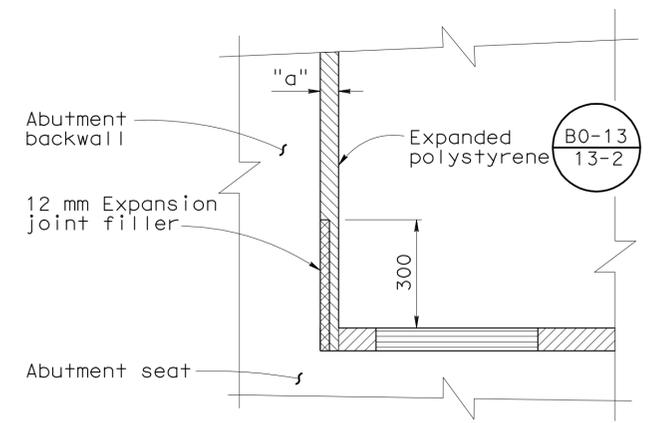
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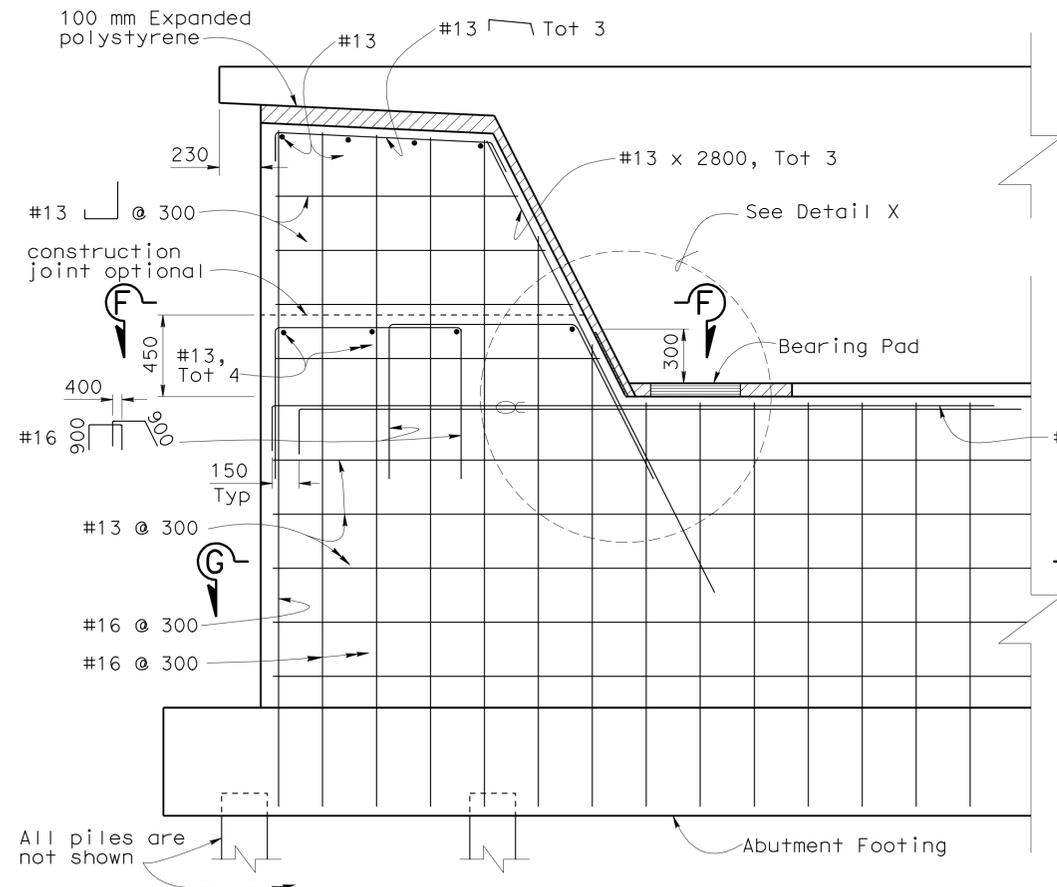
**SECTION F-F**  
1:20



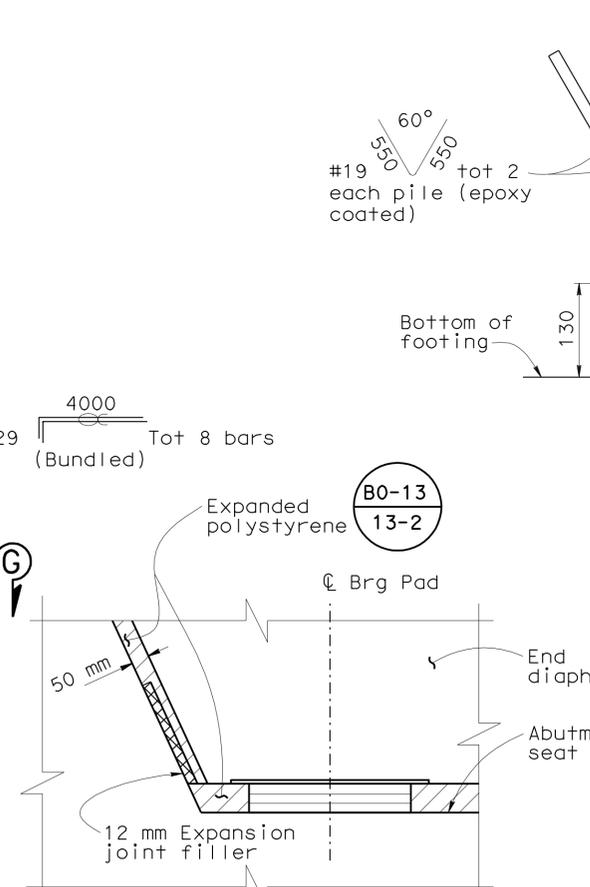
**SECTION G-G**  
1:20



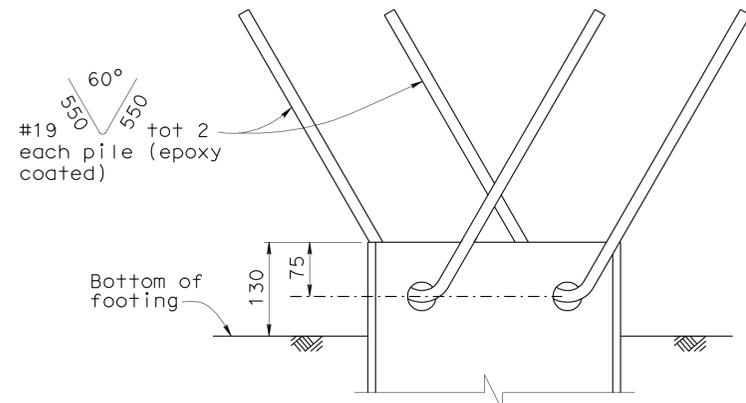
**BACKWALL BASE DETAIL**  
No Scale



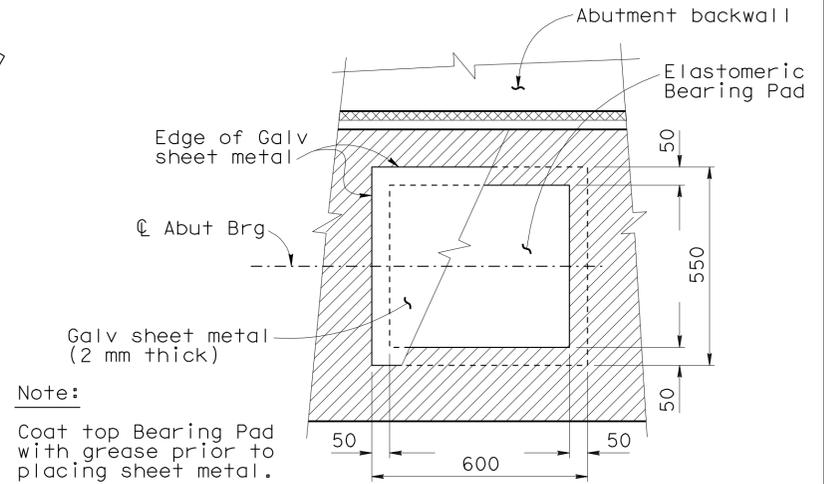
**EXTERNAL SHEAR KEY**  
1:20



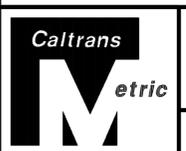
**DETAIL X**  
1:10



**STEEL PILE ANCHOR**  
1:5



**BEARING PAD DETAIL**  
1:10



DESIGN	BY M. Abdi	CHECKED N. Nguyen
DETAILS	BY C. Figuerres	CHECKED N. Nguyen
QUANTITIES	BY T. Bui	CHECKED M. Schott

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES  
STRUCTURE DESIGN  
DESIGN BRANCH 2

BRIDGE NO.	10-0129RL
KILOMETER POST	R70.578

**WILLITS BYPASS**  
**HAEHL CREEK**  
**ABUTMENT DETAILS NO. 5**

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN



DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES	SHEET 13 OF 26
	11-16-04, 11-23-04, 1-04-05, 3-02-05, 10-18-05, 11-17-05, 11-30-05, 12-07-05, 1-24-07	

CU 01 EA 262001

STRUCTURES DESIGN DETAIL SHEET (METRIC) (REV.03-17-04)

USERNAME => s121614 DATE PLOTTED => 28-JAN-2012 TIME PLOTTED => 07:09

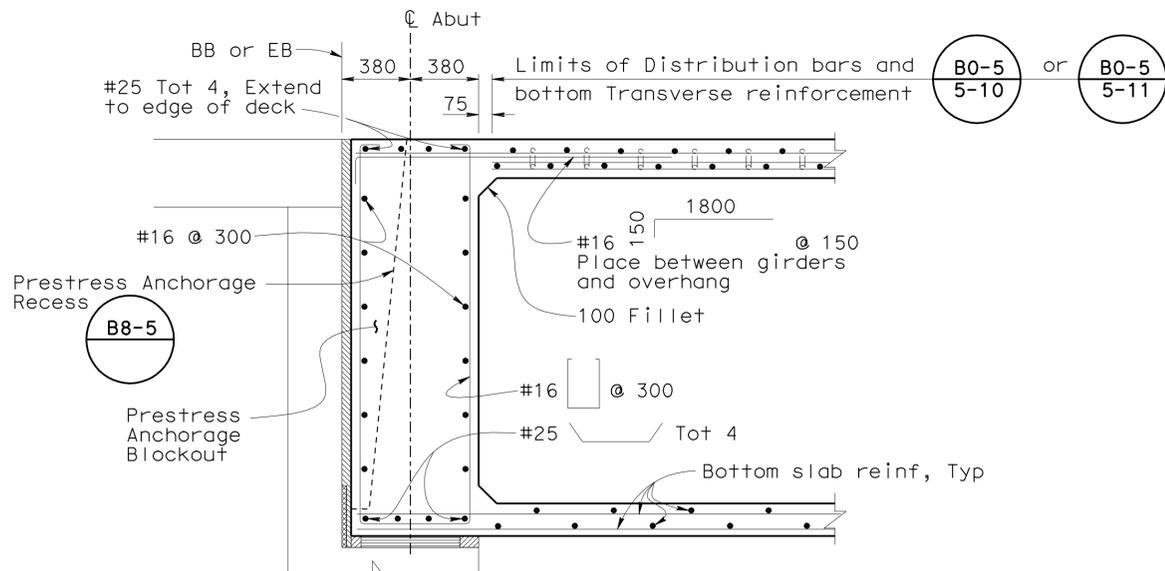
DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Men	101	R69.4/R78.9	694	939

*M. Friedheim* 9-15-11  
 REGISTERED CIVIL ENGINEER DATE

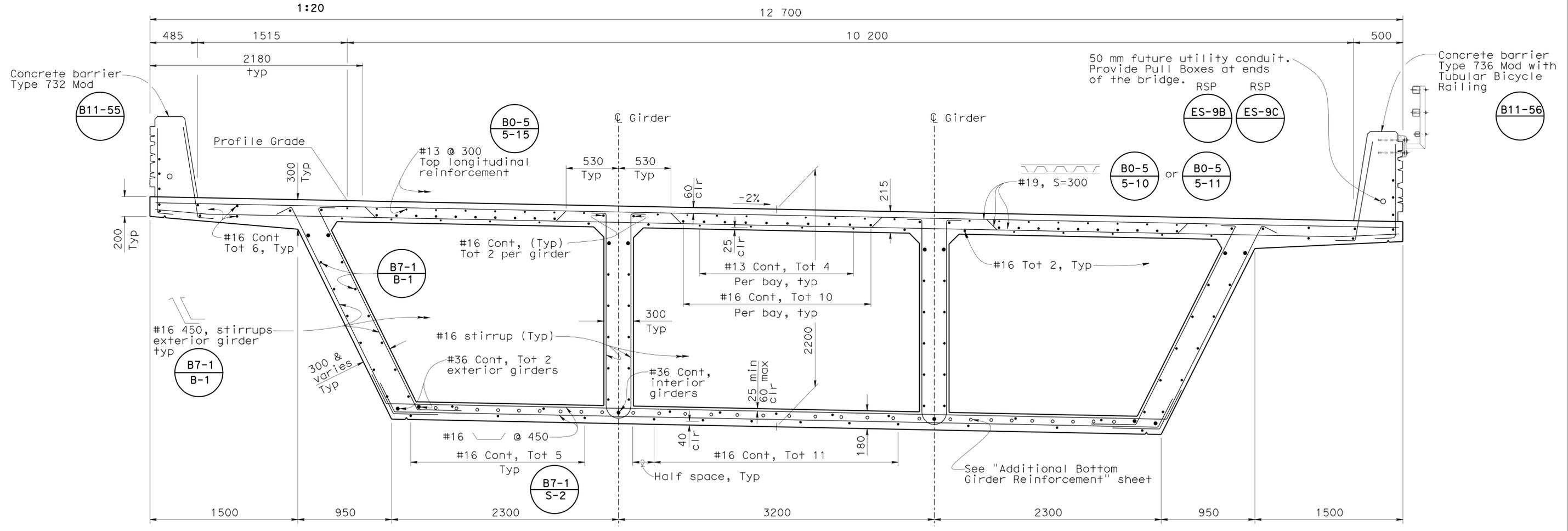
1-23-12  
 PLANS APPROVAL DATE

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REGISTERED PROFESSIONAL ENGINEER  
 M. Friedheim  
 No. 57968  
 Exp. 6-30-12  
 CIVIL  
 STATE OF CALIFORNIA



**END DIAPHRAGM SECTION** (Right bridge shown, left bridge similar)  
1:20



**TYPICAL SECTION** 1:20



DESIGN	BY M. Abdi	CHECKED N. Nguyen
DETAILS	BY C. Figuerres	CHECKED N. Nguyen
QUANTITIES	BY T. Bui	CHECKED M. Schott

<b>STATE OF CALIFORNIA</b>	
DEPARTMENT OF TRANSPORTATION	

<b>DIVISION OF ENGINEERING SERVICES</b>	
STRUCTURE DESIGN	
<b>DESIGN BRANCH 2</b>	

<b>WILLITS BYPASS</b>	
<b>HAEHL CREEK</b>	
<b>TYPICAL SECTION (RIGHT BRIDGE)</b>	
BRIDGE NO. 10-0129RL	
KILOMETER POST R70.578	
SHEET 14 OF 26	

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN

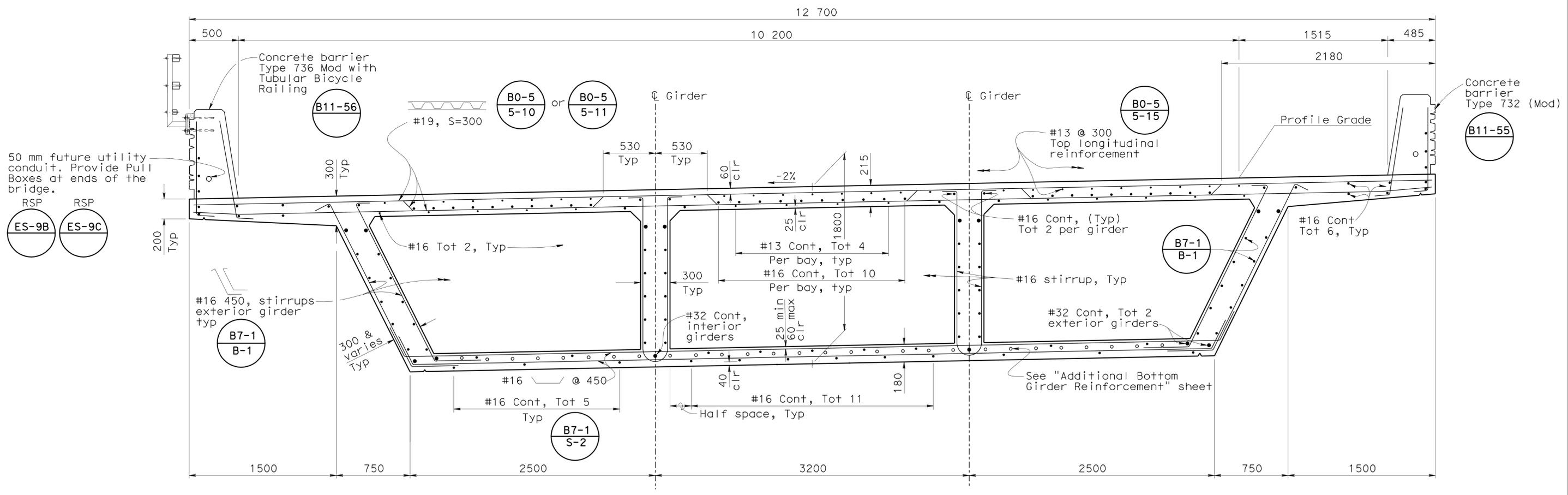


REVISION DATES									
10-3-06	1-31-07	4-30-08	1-23-09	6-25-09	12-09-09	11-01-09	11-11-09	12-01-09	

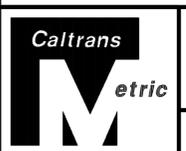
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DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Men	101	R69.4/R78.9	695	939

M. Friedheim 9-15-11  
 REGISTERED CIVIL ENGINEER DATE  
 1-23-12  
 PLANS APPROVAL DATE  
 M. Friedheim  
 No. 57968  
 Exp. 6-30-12  
 CIVIL  
 STATE OF CALIFORNIA  
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**TYPICAL SECTION** (B0-5, B7-1, B8-5)  
 1:20



DESIGN	BY M. Abdi	CHECKED N. Nguyen
DETAILS	BY C. Figuerres	CHECKED N. Nguyen
QUANTITIES	BY T. Bui	CHECKED M. Schott

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
 DIVISION OF ENGINEERING SERVICES  
 STRUCTURE DESIGN  
 DESIGN BRANCH 2

BRIDGE NO.	10-0129RL
KILOMETER POST	R70.578

**WILLITS BYPASS**  
**HAEHL CREEK**  
**TYPICAL SECTION (LEFT BRIDGE)**

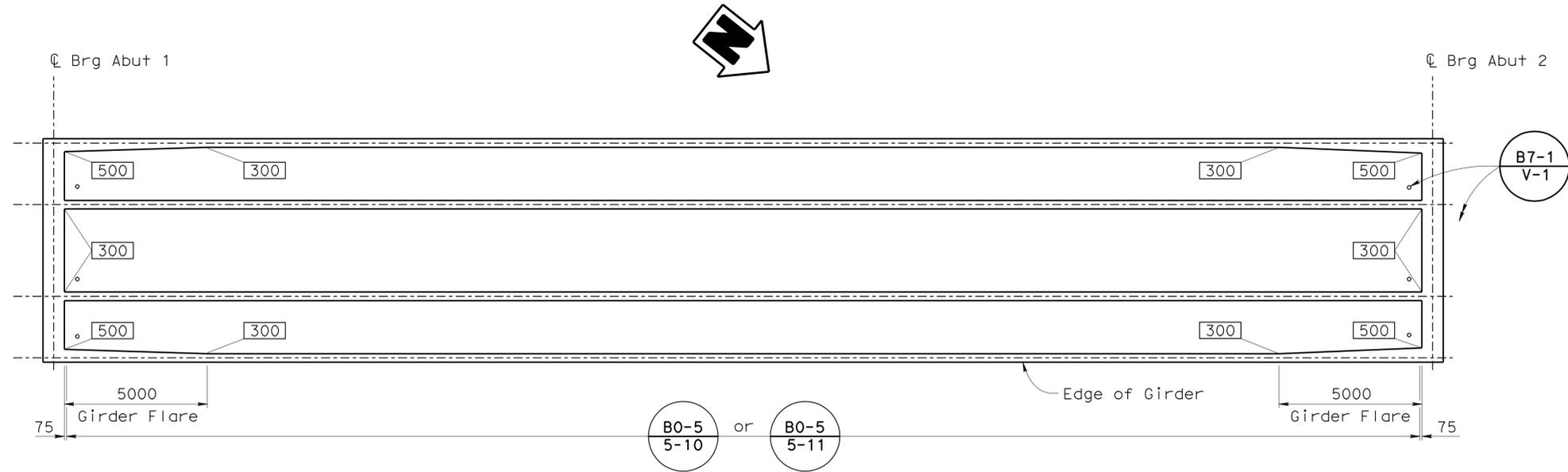
ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN



CU 01 EA 262001

DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES	SHEET 15 OF 26
	1-24-09, 6-25-09, 12-09-09, 10-18-09, 12-07-09, 10-4-06, 1-24-07, 1-24-07, 4-30-08	

DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Men	101	R69.4/R78.9	696	939
 REGISTERED CIVIL ENGINEER DATE 9-15-11					
1-23-12 PLANS APPROVAL DATE					
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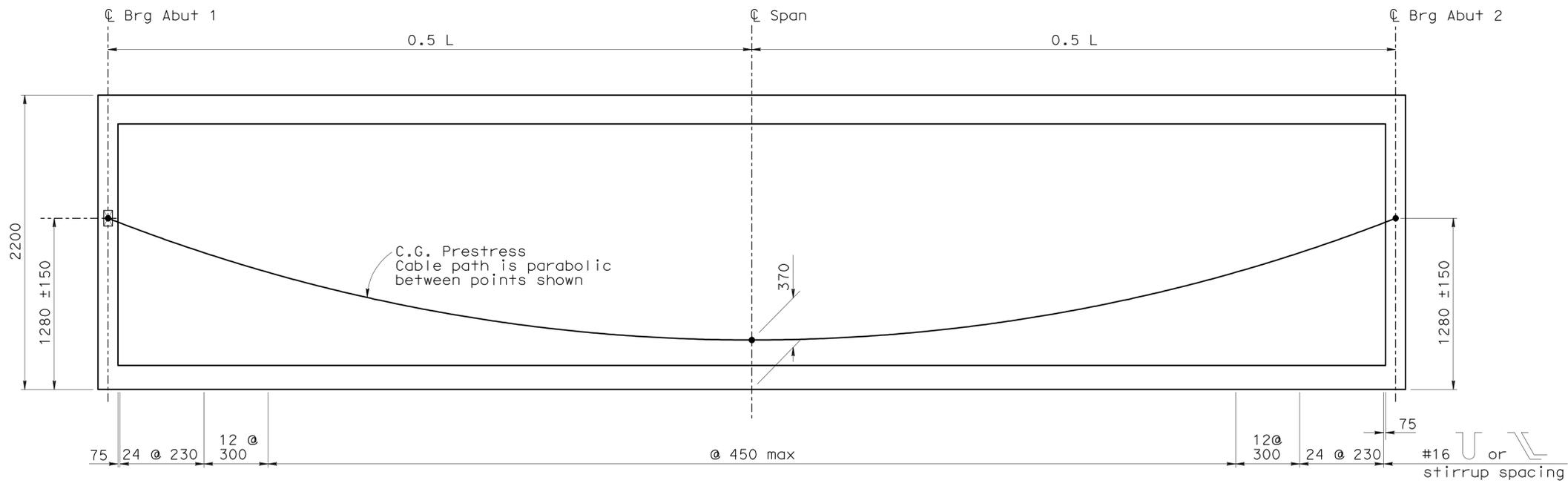


**PLAN**  
1:100

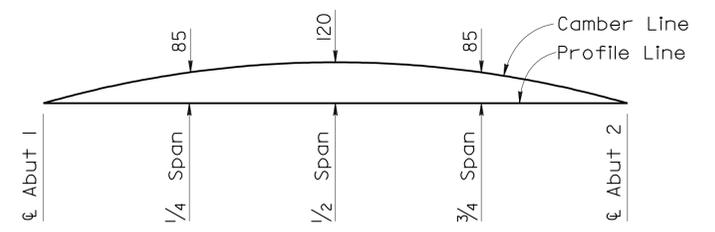
- Notes:
-  Girder stem width
  -  Theoretical Pt of No Movement (Shown for right end stressing)

**PRESTRESSING NOTES**

Design based on 1860 MPa Low Relaxation Strand:  
 $P_{jack} = 48\ 200\ kN$   
 Anchor Set = 10 mm  
 Total Number of Girders = 4  
 Total long term losses assumed to be 140 MPa  
 Design based on  $\mu = 0.15$  and  $K = 0.000656/m$   
 Concrete:  $f'_c = 28\ MPa$  @ 28 days  
 $f'_{ci} = 25\ MPa$  @ time of stressing  
 Contractor shall submit elongation calculations based on initial stress at  
 $\lambda = 0.948$  times jacking stress.  
 One end stressing shall be performed from either end.



**LONGITUDINAL SECTION**  
No Scale



**RIGHT BRIDGE**  
**CAMBER DIAGRAM**  
No Scale  
(Does not include allowance for falsework settlement)

	DESIGN BY M. Abdi	CHECKED N. Nguyen	<b>STATE OF CALIFORNIA</b> DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN <b>DESIGN BRANCH 2</b>	BRIDGE NO. 10-0129RL	<b>WILLITS BYPASS</b> <b>HAEHL CREEK</b> <b>GIRDER LAYOUT (RIGHT BRIDGE)</b>								
	DETAILS BY C. Figuerres	CHECKED N. Nguyen			KILOMETER POST R70.578									
	QUANTITIES BY T. Bui	CHECKED M. Schott	CU 01 EA 262001	DISREGARD PRINTS BEARING EARLIER REVISION DATES	<table border="1"> <tr> <td>10-06-04</td> <td>10-07-04</td> <td>10-14-04</td> <td>3-02-05</td> <td>4-06-05</td> <td>10-18-05</td> <td>1-31-07</td> <td>4-30-08</td> </tr> </table>	10-06-04	10-07-04	10-14-04	3-02-05	4-06-05	10-18-05	1-31-07	4-30-08	SHEET 16 OF 26
10-06-04	10-07-04	10-14-04	3-02-05	4-06-05	10-18-05	1-31-07	4-30-08							

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN

ORIGINAL SCALE IN MILLIMETERS FOR REDUCED PLANS: 0 10 20 30 40 50 60 70 80 90 100

FILE => 10-0129r1\_dhgirlytrt.dgn

STRUCTURES DESIGN DETAIL SHEET (METRIC) (REV.03-17-04)

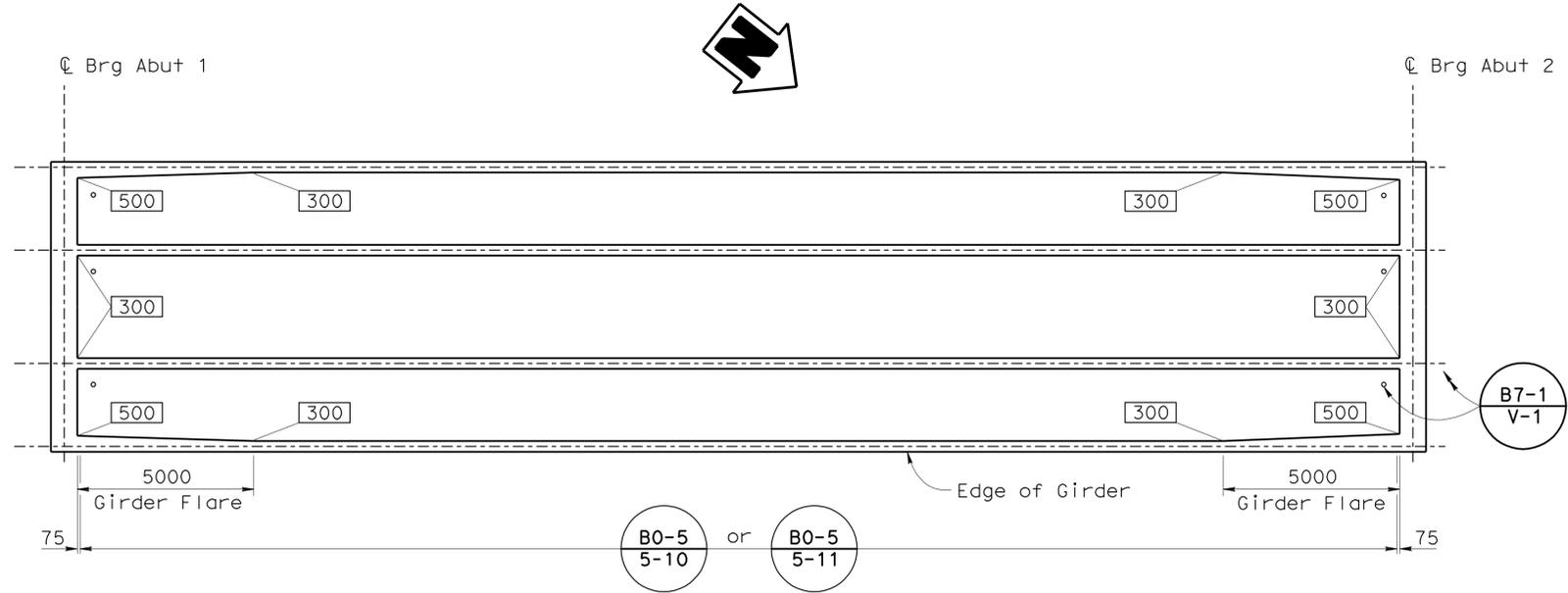
DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Men	101	R69.4/R78.9	697	939

*M. Friedheim* 9-15-11  
REGISTERED CIVIL ENGINEER DATE

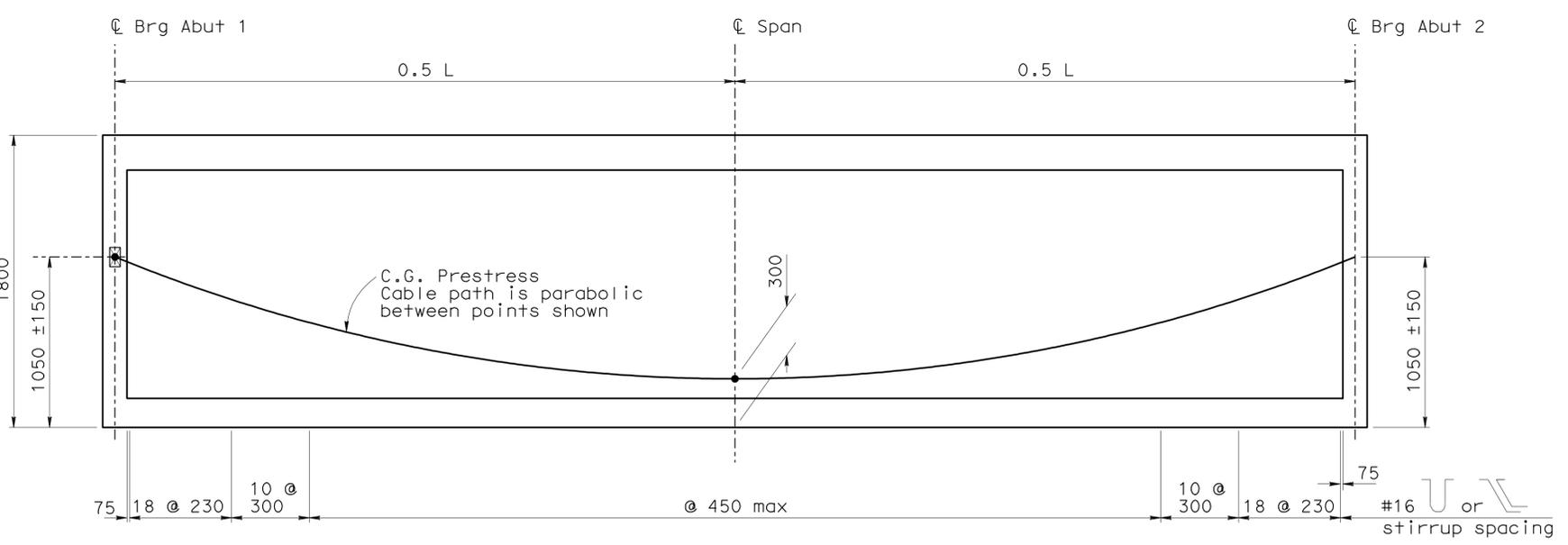
1-23-12  
PLANS APPROVAL DATE

M. Friedheim  
No. 57968  
Exp. 6-30-12  
REGISTERED PROFESSIONAL ENGINEER  
CIVIL  
STATE OF CALIFORNIA

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**PLAN**  
1:100



**LONGITUDINAL SECTION**  
No Scale

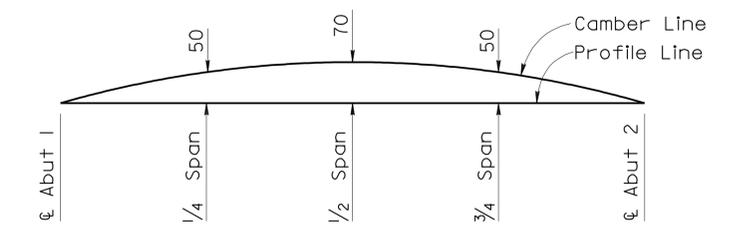
- Notes:
- Girder stem width
  - Theoretical Pt of No Movement (Shown for right end stressing)

**PRESTRESSING NOTES**

Design based on 1860 MPa Low Relaxation Strand:  
 $P_{jack} = 35\ 850\ \text{KN}$   
Anchor Set = 10 mm  
Total Number of Girders = 4

Total long term losses assumed to be 131 MPa  
Design based on  $\mu = 0.15$  and  $K = 0.000656/\text{m}$   
Concrete:  $f'_c = 28\ \text{MPa}$  @ 28 days  
 $f'_{ci} = 25\ \text{MPa}$  @ time of stressing

Contractor shall submit elongation calculations based on initial stress at  
 $\square = 0.953$  times jacking stress.  
One end stressing shall be performed from either end.



**LEFT BRIDGE**  
**CAMBER DIAGRAM**  
No Scale

(Does not include allowance for falsework settlement)

	DESIGN BY M. Abdi	CHECKED N. Nguyen	<b>STATE OF CALIFORNIA</b> DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN <b>DESIGN BRANCH 2</b>	BRIDGE NO. 10-0129RL	<b>WILLITS BYPASS</b> <b>HAEHL CREEK</b> <b>GIRDER LAYOUT (LEFT BRIDGE)</b>					
	DETAILS BY C. Figuerres	CHECKED N. Nguyen			KILOMETER POST R70.578						
ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN			CU 01 EA 262001	DISREGARD PRINTS BEARING EARLIER REVISION DATES	<table border="1"> <tr> <th>REVISION DATES</th> <th>SHEET</th> <th>OF</th> </tr> <tr> <td>10-06-04 10-07-04 10-14-04 11-24-04 3-02-05 4-06-05 10-18-05 2-01-07 4-30-08</td> <td>17</td> <td>26</td> </tr> </table>	REVISION DATES	SHEET	OF	10-06-04 10-07-04 10-14-04 11-24-04 3-02-05 4-06-05 10-18-05 2-01-07 4-30-08	17	26
REVISION DATES	SHEET	OF									
10-06-04 10-07-04 10-14-04 11-24-04 3-02-05 4-06-05 10-18-05 2-01-07 4-30-08	17	26									

ORIGINAL SCALE IN MILLIMETERS FOR REDUCED PLANS: 0 10 20 30 40 50 60 70 80 90 100

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STRUCTURES DESIGN DETAIL SHEET (METRIC) (REV.03-17-04)

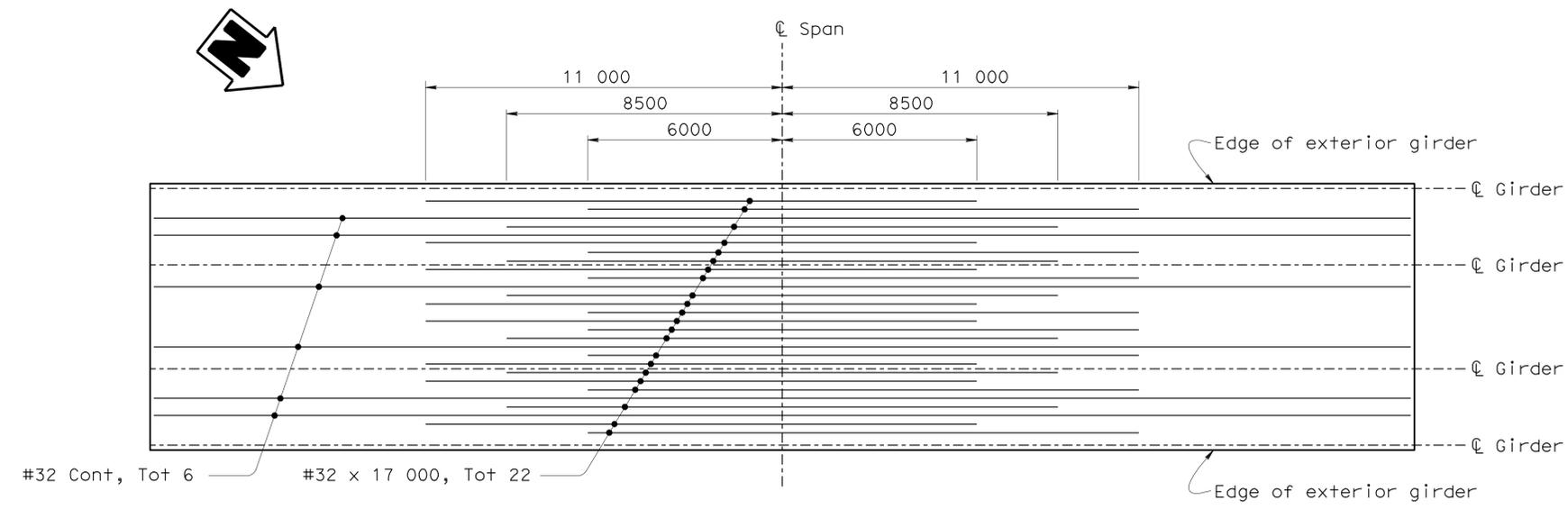
DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Men	101	R69.4/R78.9	698	939

*M. Friedheim* 9-15-11  
REGISTERED CIVIL ENGINEER DATE

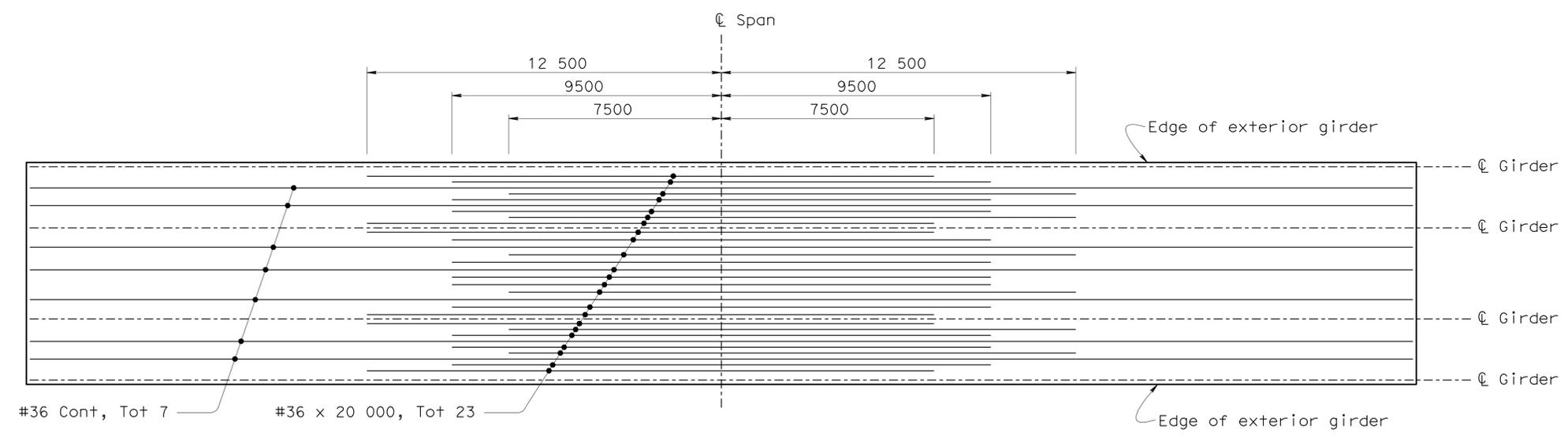
1-23-12  
PLANS APPROVAL DATE

M. Friedheim  
No. 57968  
Exp. 6-30-12  
CIVIL  
STATE OF CALIFORNIA

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**LEFT BRIDGE**



**RIGHT BRIDGE**

**ADDITIONAL BOTTOM GIRDER REINFORCEMENT**  
1:100

**Notes:**

1. Continuous bars shall extend 720 mm into Abutment End Diaphragms.
2. Distribution bars are not shown.
3. No splices are allowed in cut-off bars. Splices in continuous bars shall be service level splices and shall not be located within 9.0 m of each side of Span.



DESIGN	BY M. Abdi	CHECKED N. Nguyen
DETAILS	BY C. Figuerres	CHECKED N. Nguyen
QUANTITIES	BY T. Bui	CHECKED M. Schott

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES  
STRUCTURE DESIGN  
DESIGN BRANCH 2

BRIDGE NO.	10-0129RL
KILOMETER POST	R70.578

**WILLITS BYPASS**  
**HAEHL CREEK**  
**ADDITIONAL BOTTOM GIRDER REINFORCEMENT**

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN



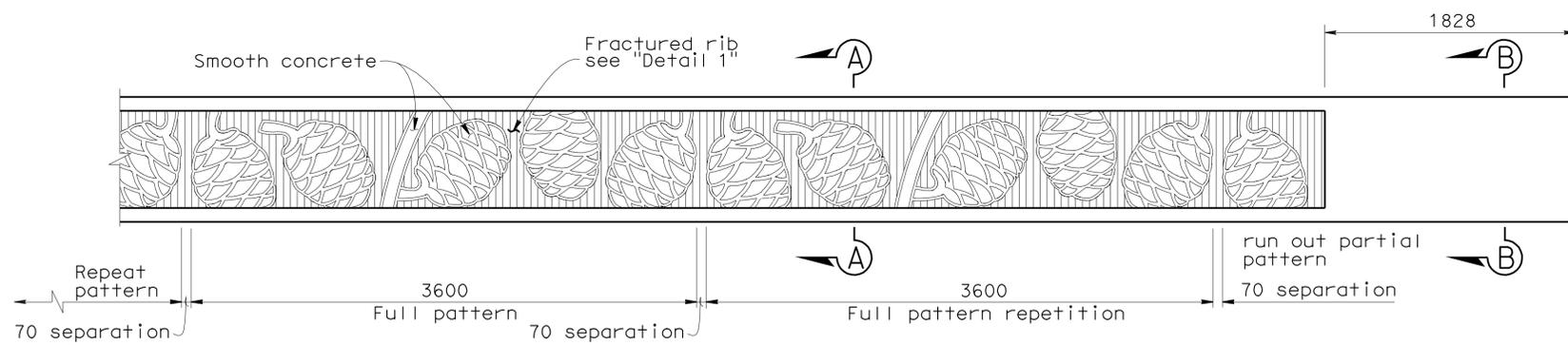
CU 01  
EA 262001

DISREGARD PRINTS BEARING EARLIER REVISION DATES

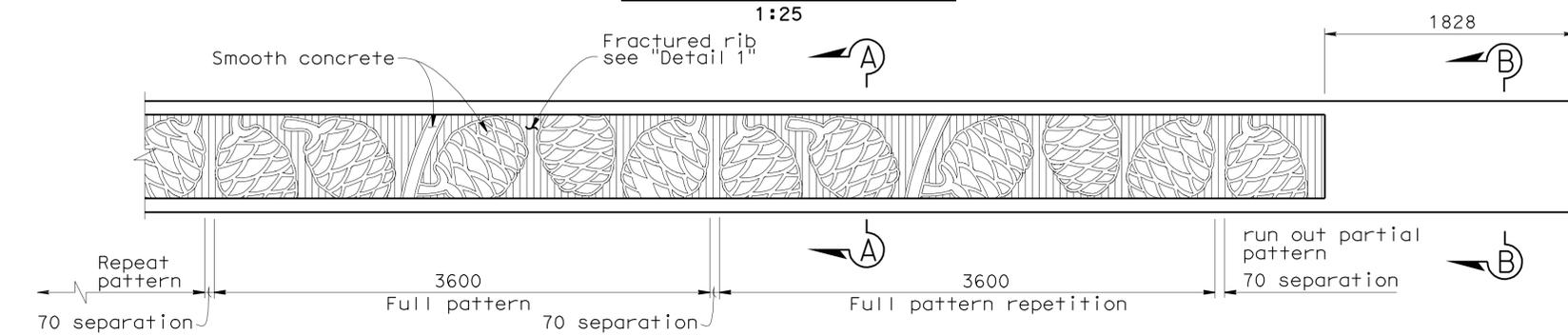
REVISION DATES	9-28-04	10-18-04	3-02-05	10-18-05	1-06-06					
SHEET	18								OF	26

USERNAME => s121614 DATE PLOTTED => 28-JAN-2012 TIME PLOTTED => 07:09

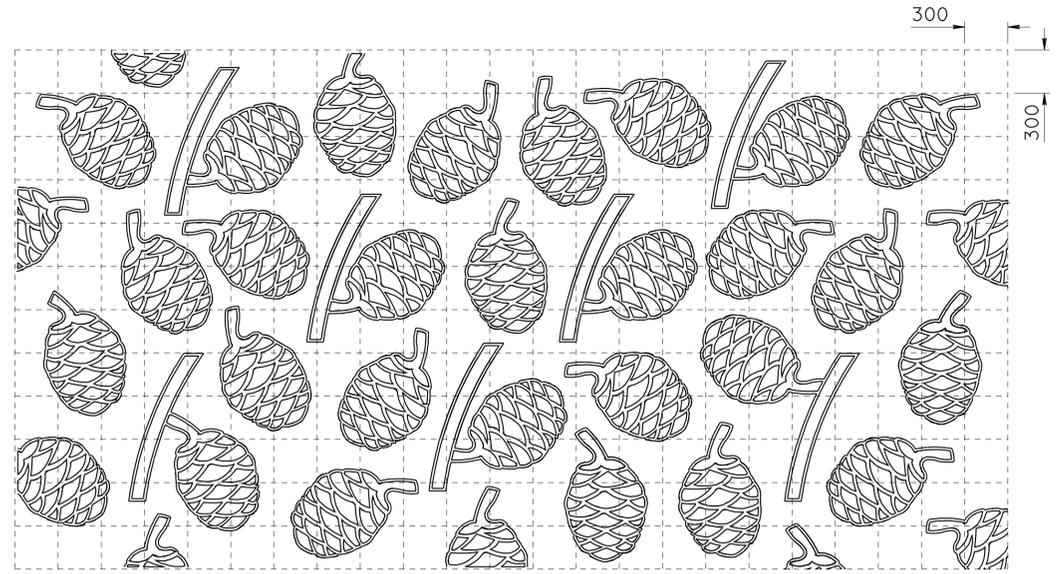
DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Men	101	R69.4/R78.9	699	939
 REGISTERED CIVIL ENGINEER DATE 9-15-11		PLANS APPROVAL DATE 1-23-12			
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.					
					



**TYPE 736 BARRIER  
PARTIAL ELEVATION**  
1:25

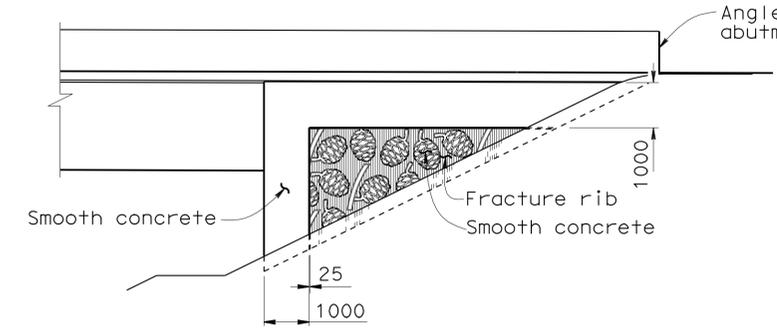


**TYPE 732 BARRIER  
PARTIAL ELEVATION**  
1:25

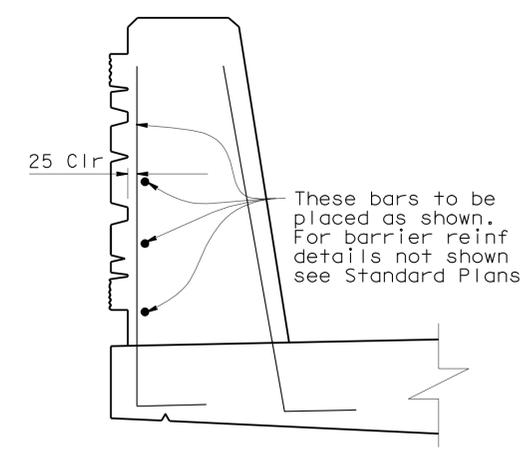


**RANDOM PINECONE PATTERN FOR WING WALLS**  
1:25

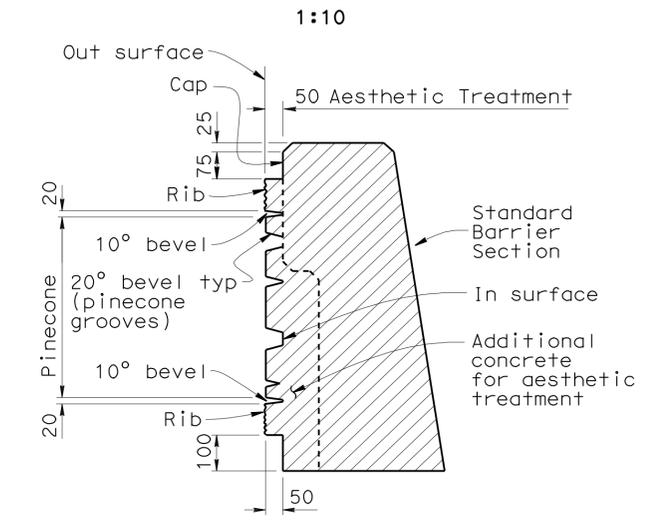
NOTE: Place random pinecone pattern on Fractured Rib Background. Fractured rib to be at same angle/alignment as abutment wall. Relief similar to Barrier Section A-A.



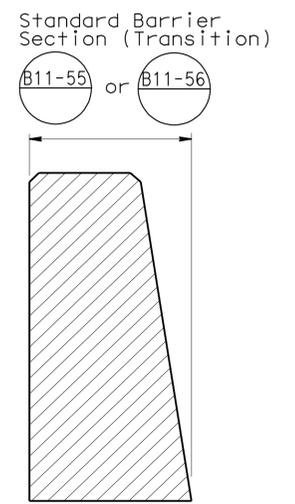
**TYPICAL WINGWALL AESTHETIC TREATMENT**  
1:80



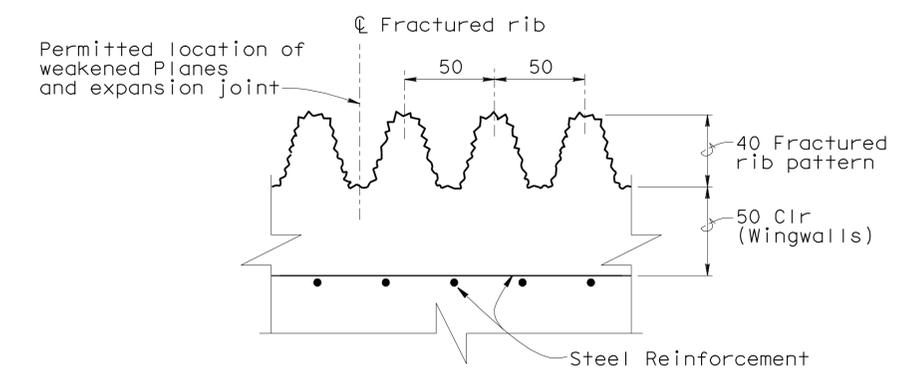
**BARRIER REINFORCEMENT MODIFICATION**



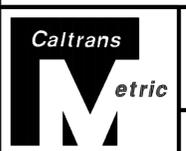
**SECTION A-A**  
1:10



**SECTION B-B**  
1:10



**TYPICAL FRACTURED RIB TEXTURE  
DETAIL 1**  
1:2



DESIGN	BY M. Abdi	CHECKED N. Nguyen
DETAILS	BY V. Moore/M. Lane	CHECKED N. Nguyen
QUANTITIES	BY T. Bui	CHECKED M. Schott

STATE OF CALIFORNIA  
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STRUCTURE DESIGN  
DESIGN BRANCH 2

BRIDGE NO.  
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R70.578

**WILLITS BYPASS  
HAEHL CREEK  
AESTHETIC DETAILS**

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN



CU 01  
EA 262001

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES	SHEET	OF
10-3-06 10-12-06 1-25-07 1-31-07 1-24-08	19	26

STRUCTURES DESIGN DETAIL SHEET (METRIC) (REV.03-17-04)

USERNAME => s121614 DATE PLOTTED => 28-JAN-2012 TIME PLOTTED => 07:03

