

ORANGE COUNTY RESOURCES AND DEVELOPMENT MANAGEMENT DEPARTMENT

SANTA ANA, CALIFORNIA

BRYAN G. SPEEGLE, DIRECTOR

PLANS FOR THE
CONSTRUCTION OF

BARRIER REPLACEMENT & SEISMIC RETROFIT FOR SANTIAGO CANYON ROAD BRIDGE SC-9 (BR No. 55C-0038)

W.O. # ER09337

DECEMBER 2007

No As-Built Changes

AS BUILT

CORRECTION BY: D.D.
CONTRACT NO.: 55C-0038
DATE: JULY 15, 2009

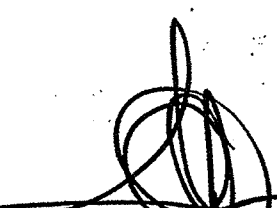
Resident Engineer: Hamid Abedzadeh
Inspector: David Dimaggio/Mario Garcia
Contractor: KLM Construction Inc.
Completion Date: May 20, 2008

FUNDED BY: HBRRP FUNDS AND COUNTY OF ORANGE

POST-PROJECT OWNERSHIP & MAINTENANCE RESPONSIBILITY: COUNTY OF ORANGE

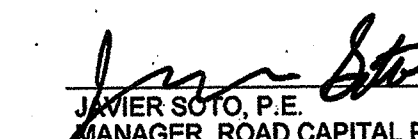
DEVIATIONS FROM STANDARDS

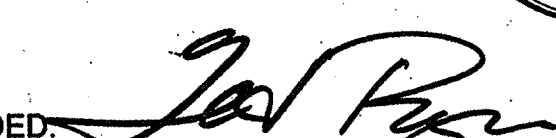
THE FOLLOWING RDMD STANDARDS HAVE BEEN MODIFIED:
STD PLAN 1103, PRIMARY HIGHWAY TYPICAL SECTIONS
- 11 FT. TRAVEL LANE
- 5 FT. SHOULDER

APPROVED:  5/21/07
IGNACIO G. OSORIO, P.E.
DIRECTOR OF PUBLIC WORKS/CHIEF ENGINEER

RESOURCES & DEVELOPMENT MANAGEMENT DEPARTMENT

APPROVED FOR CONTRACT ADMINISTRATION PURPOSES:

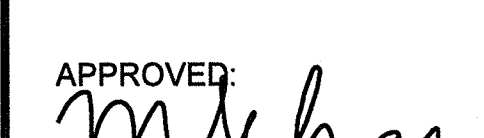
SUBMITTED:  5/16/07
JAVIER SOTO, P.E.
MANAGER, ROAD CAPITAL PROJECTS

RECOMMENDED:  5/16/07
TED RIGONI, P.E.
MANAGER, ROAD DIVISION

APPROVED:  5/21/07
IGNACIO G. OSORIO, P.E.
DIRECTOR OF PUBLIC WORKS/CHIEF ENGINEER

PREPARED BY

LIM & NASCIMENTO ENGINEERING
12-L MAUCHLY
IRVINE, CALIFORNIA 92618

APPROVED: 
REGISTERED CIVIL ENGINEER

8/25/06
DATE

INDEX OF SHEETS

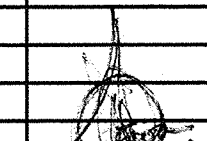
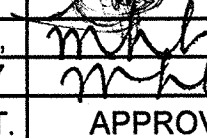
SHEET	DESCRIPTION
1.	TITLE SHEET
2.	METAL BEAM GUARD RAILING PLAN
2S1.	TYPE ST-20S RAIL DETAILS NO. 1
2S2.	TYPE ST-20S RAIL DETAILS NO. 2
2S3.	TYPE ST-20S RAIL DETAILS NO. 3
2S4.	TYPE ST-20S RAIL DETAILS NO. 4
3.	TRAFFIC HANDLING PLAN
4.	GENERAL PLAN
5.	FOUNDATION PLAN
6.	DEMOLITION PLAN
7.	BARRIER RECONSTRUCTION DETAILS
8.	DECK RECONSTRUCTION DETAILS
9.	BENT 2 FOOTING LAYOUT & DETAILS
10.	BENT 2 FOOTING DETAILS
11.	BENT 3 FOOTING LAYOUT & DETAILS
12.	BENT 3 FOOTING DETAILS
13.	STEEL COLUMN CASINGS
14.	LOG OF TEST BORINGS
15.	AS-BUILT LOG OF TEST BORINGS

CALTRANS STANDARD PLANS DATED MAY, 2006

ROADWAY	
A20A, B & D	PAVEMENT MARKERS & TRAFFIC LINES TYPICAL DETAILS
A73B	MARKERS
A73C	DELINEATORS, CHANNELIZERS AND BARRICADES
A77F1, A77F4	METAL BEAM GUARD RAILING TYPICAL LAYOUT
A77J4	METAL BEAM GUARD RAILING TRANSITION RAILING (TYPE WB)
A77L1	METAL BEAM RAILING TERMINAL SYSTEM (TYPE SRT)
A77L3	METAL BEAM RAILING TERMINAL SYSTEM (TYPE ET)
T2	TEMPORARY CRASH CUSHION SAND FILLED (SHOULDER INSTALLATION)
T3	TEMPORARY RAILING (TYPE K)
BRIDGE	
A10A	ACRONYMS AND ABBREVIATION (A-L)
A10B	ACRONYMS AND ABBREVIATION (M-Z)
A10C & D	SYMBOLS
A77J THRU	METAL BEAM GUARD RAILING CONNECTIONS TO BRIDGE RAILS,
A77J4	RETAINING WALLS & ABUTMENTS
B7-1	BOX GIRDER DETAILS
B7-5	DECK DRAINS
B11-55	CONCRETE BARRIER TYPE 732B
B11-57	CONCRETE BARRIER TYPE 742B (FOOTING)

Standard Plan Sheet No.
Detail No.

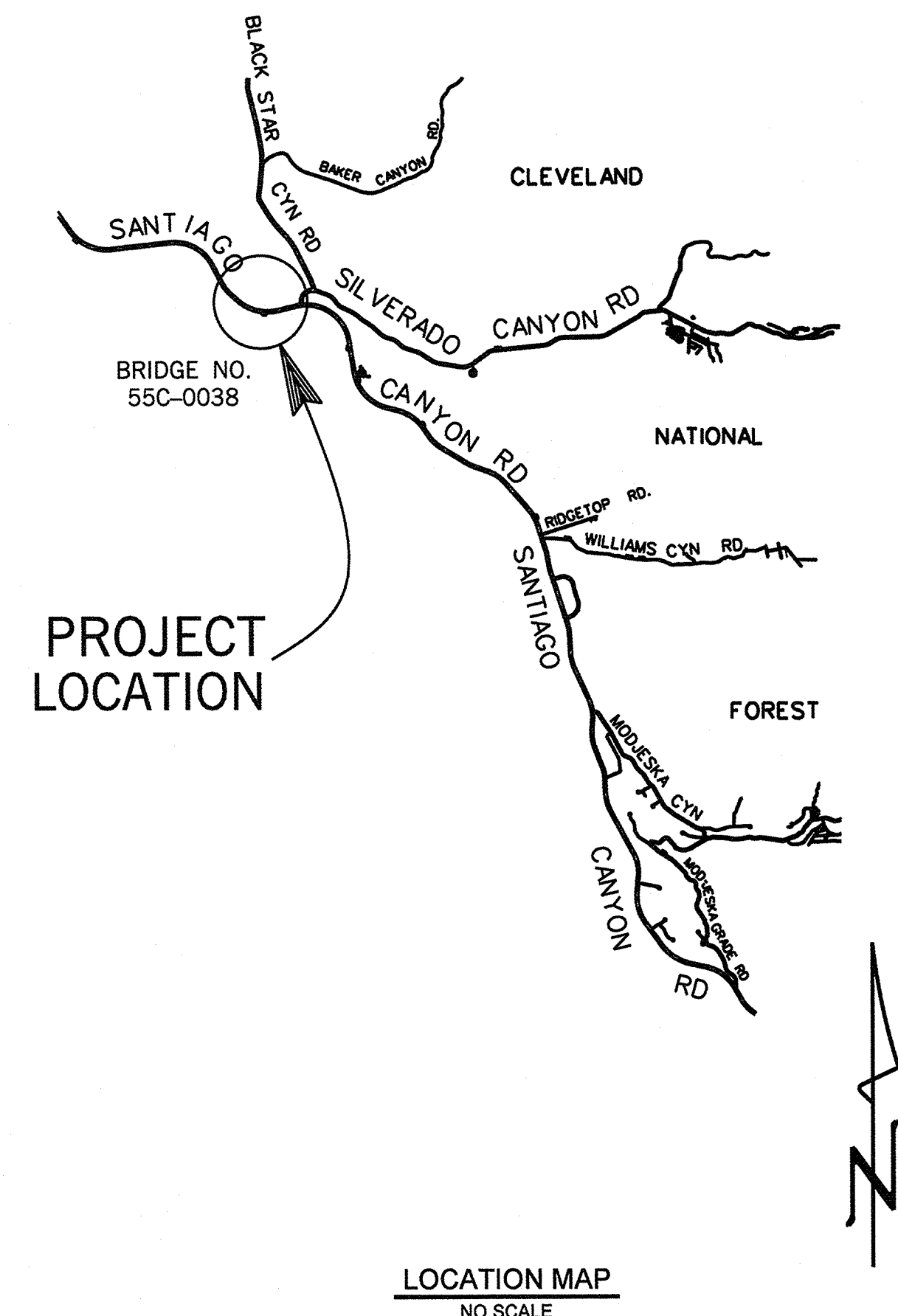
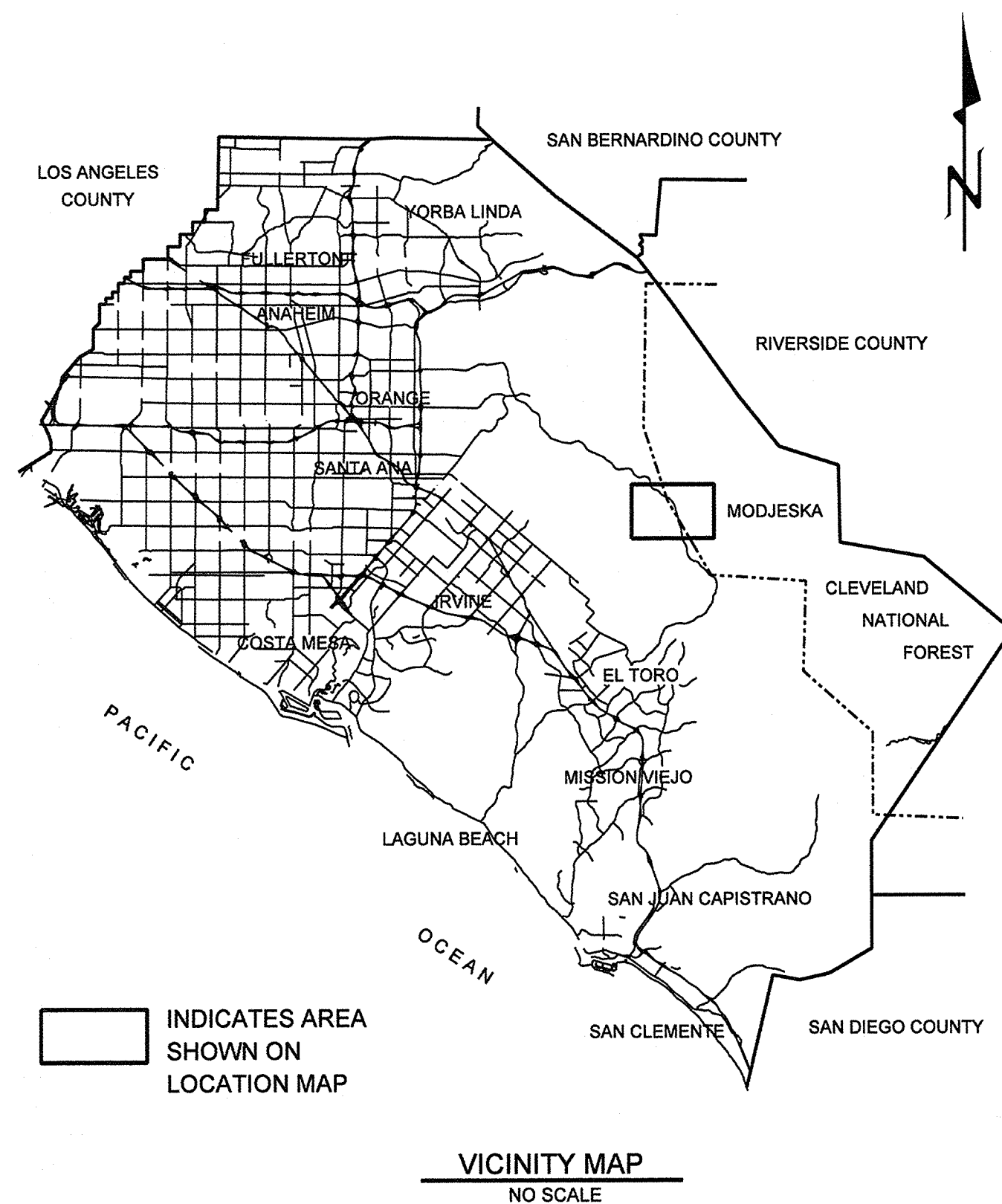
UTILITY OWNER	PHONE NO.	CONTACT
IRVINE RANCH WATER DISTRICT (I.R.W.D.)	949-453-5551	MALCOLM CORTEZ
SOUTHERN CALIFORNIA EDISON	714-934-0847	JENNIFER WARD
SBC (PACIFIC BELL)	714-237-6950	STEVE HICKS
UNDERGROUND SERVICE ALERT	800-422-4133	

NO.	DESCRIPTION	SHT.	APPROVED	DATE
APPROVAL OF BARRIER RAIL REVISION				
1.	CHANGED BARRIER TO STEEL TYPE ST-20S	1,4		06/02/08
2.	& STAINED TYPE 732B	6,7		06/02/08

REVISIONS

BRIDGE NO. 55C-0038
DWG. NO.

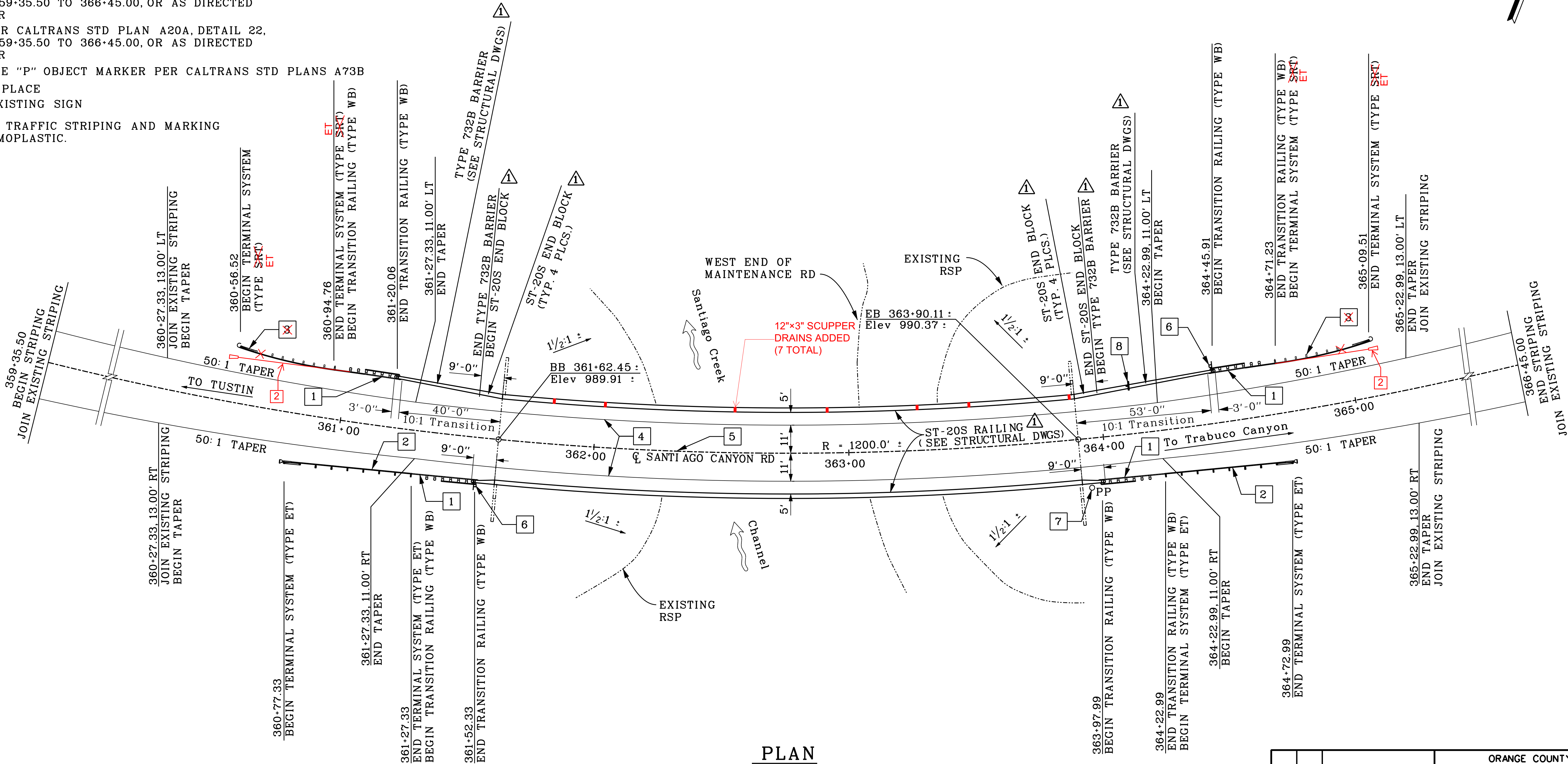
SHEET 1 OF 15



CONSTRUCTION NOTES:

- 1 CONSTRUCT TRANSITION RAILING (TYPE WB) PER CALTRANS STD PLANS A77F1, A77F4, A77J4
- 2 CONSTRUCT TERMINAL SYSTEM (TYPE ET) PER CALTRANS STD PLAN A77L3
- 3 CONSTRUCT TERMINAL SYSTEM (TYPE SRT) PER CALTRANS STD PLAN A77L1
- 4 RESTRIPE PER CALTRANS STD PLAN A20D, DETAIL 39, FROM STA 359+35.50 TO 366+45.00, OR AS DIRECTED BY ENGINEER
- 5 RESTRIPE PER CALTRANS STD PLAN A20A, DETAIL 22, FROM STA 359+35.50 TO 366+45.00, OR AS DIRECTED BY ENGINEER
- 6 INSTALL TYPE "P" OBJECT MARKER PER CALTRANS STD PLANS A73B
- 7 PROTECT IN PLACE
- 8 RELOCATE EXISTING SIGN

ALL PERMANENT TRAFFIC STRIPING AND MARKING SHALL BE THERMOPLASTIC.



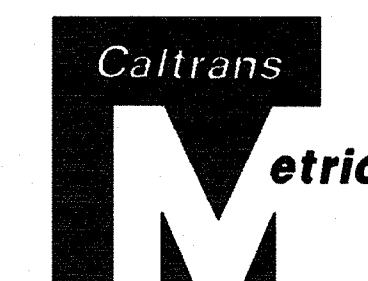
PLAN
1"=20'

AS BUILT

CORRECTION BY: D.D.
CONTRACT NO.:
DATE: JULY 15, 2009

Note:
The Contractor shall verify all
controlling field dimensions before
ordering or fabricating any material.

ORANGE COUNTY RESOURCES & DEVELOPMENT MANAGEMENT DEPARTMENT		SANTIAGO CANYON ROAD BRIDGE SC-9	
BRIDGE No. 55C-0038		METAL BEAM GUARD RAILING PLAN	
DESIGNED F. ONG	CHECKED M. CHAR	SHEET 2 R1	
SCALE VARIES	DATE 1/24/08	DRAWING NO.	
DATE 1/24/08		OF 15	



DIST.	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
REGISTERED ENGINEER - CIVIL			No. 0057894		
06/02/08			Exp. 06/30/08		
PLANS APPROVAL DATE			CIVIL		
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.					

PROFESSIONAL ENGINEER

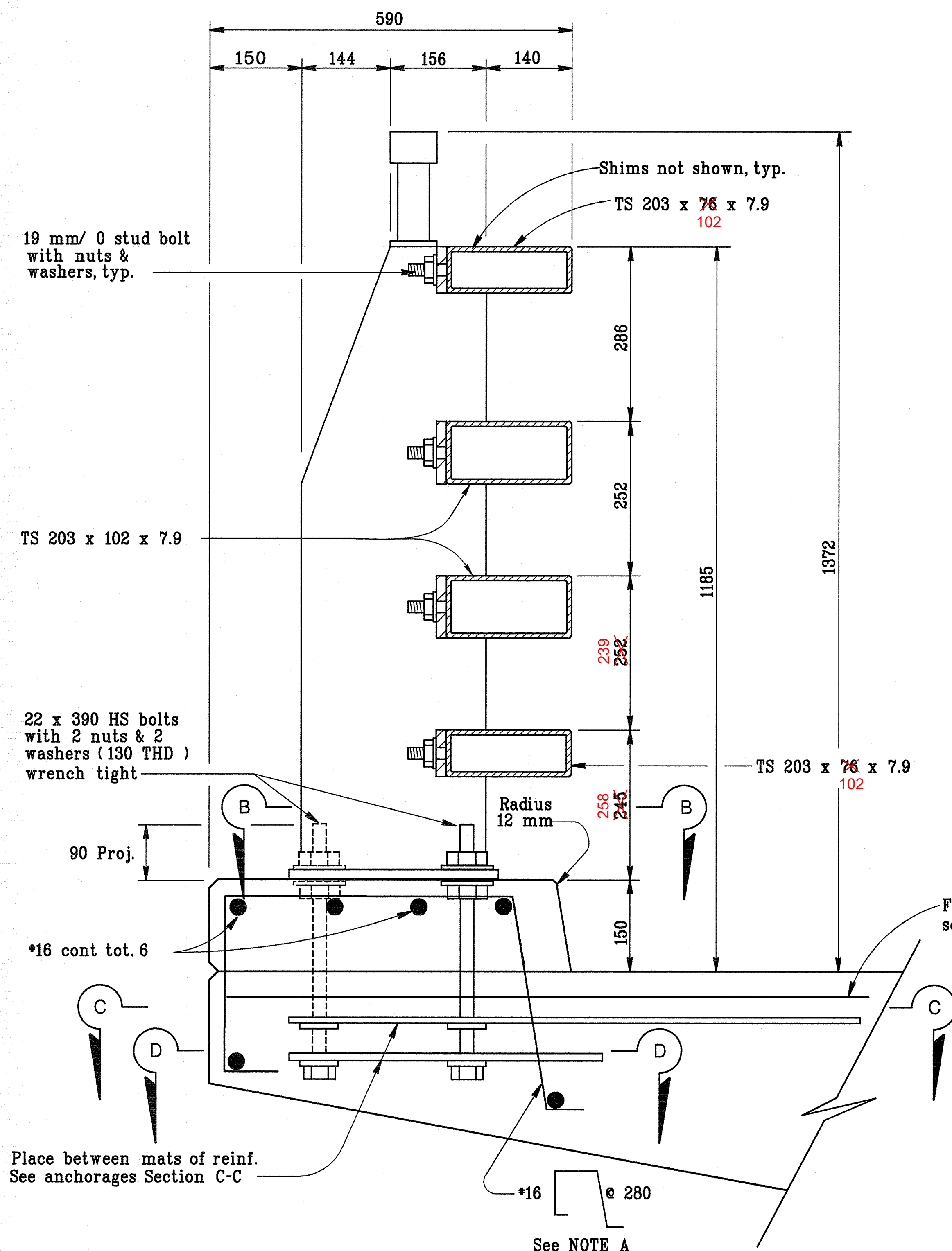
Moham S. Chaz

0057894

06/30/08

CIVIL

STATE OF CALIFORNIA

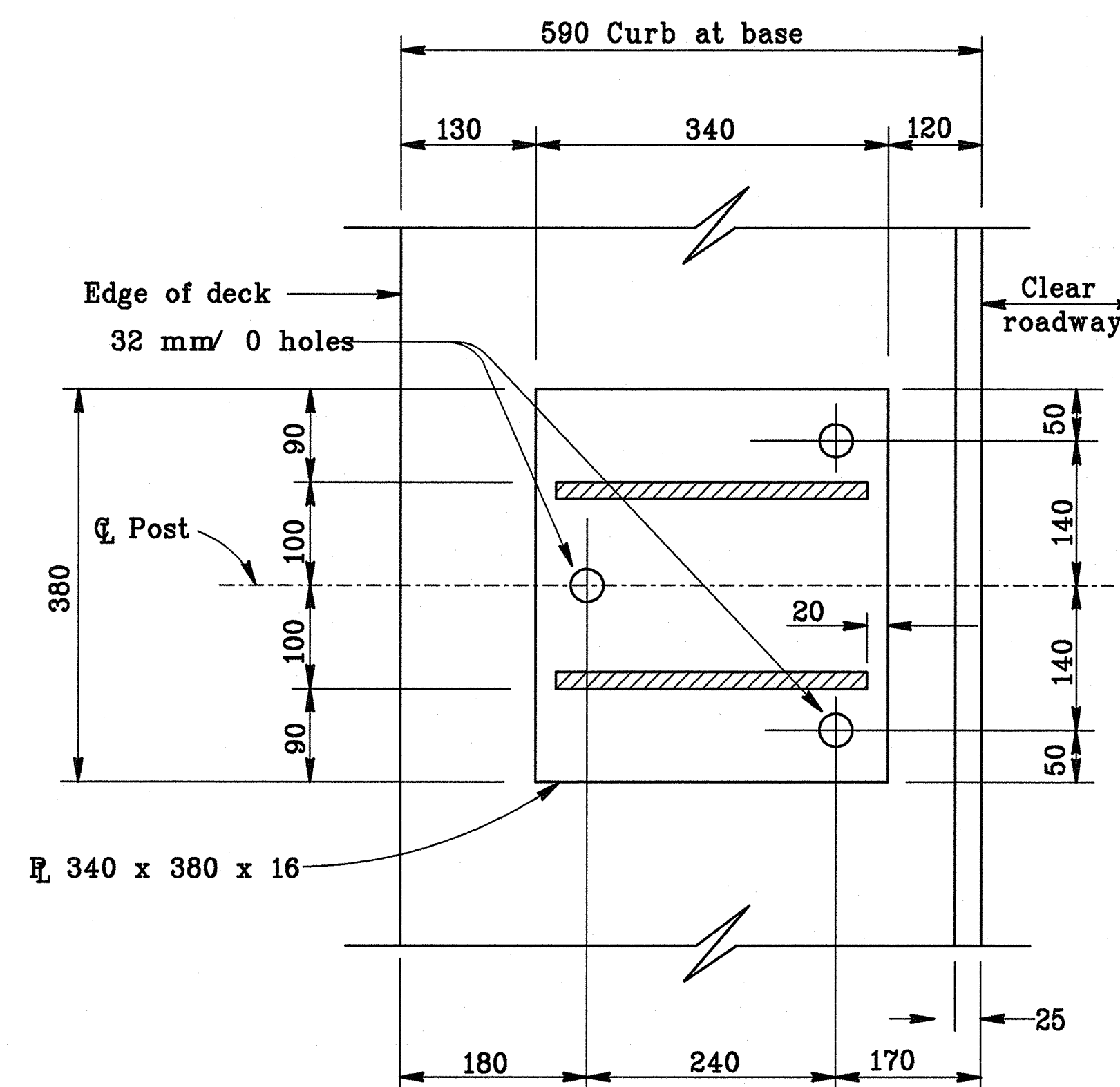


TYPICAL RAIL SECTION

Scale 1:5

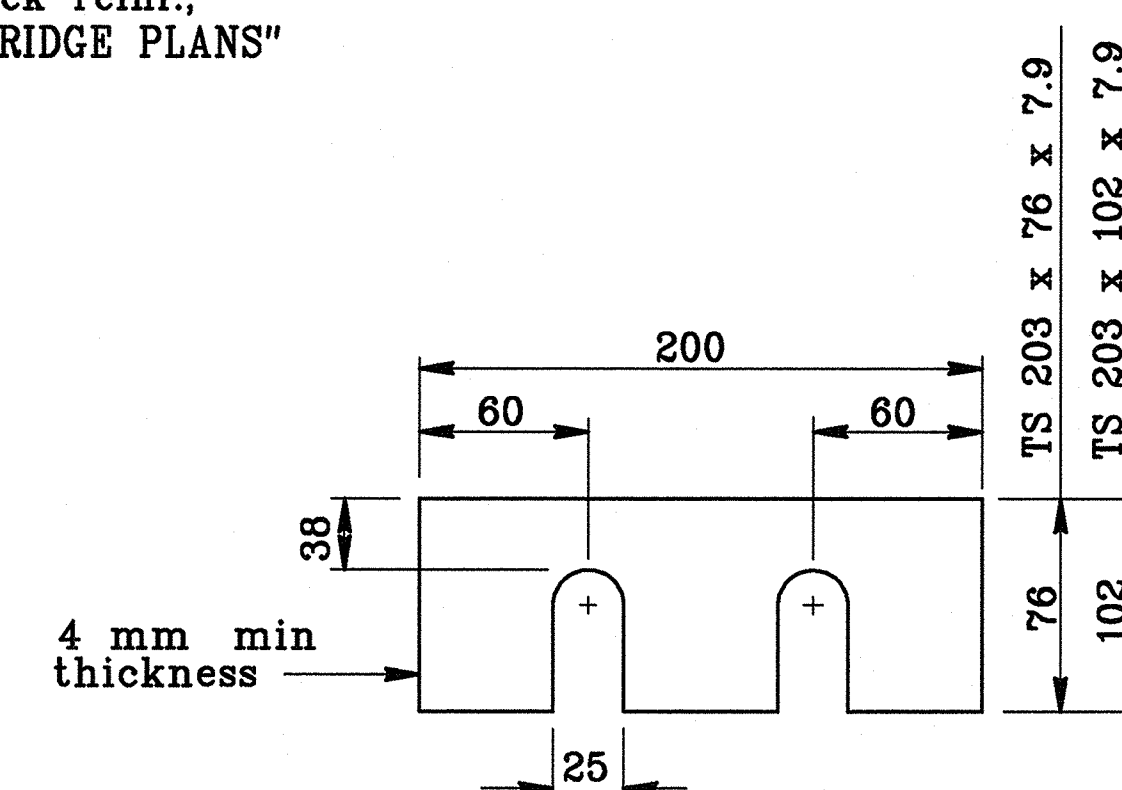
NOTE A: Adjust spacing to clear scupper openings by 50 mm if applicable.

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN

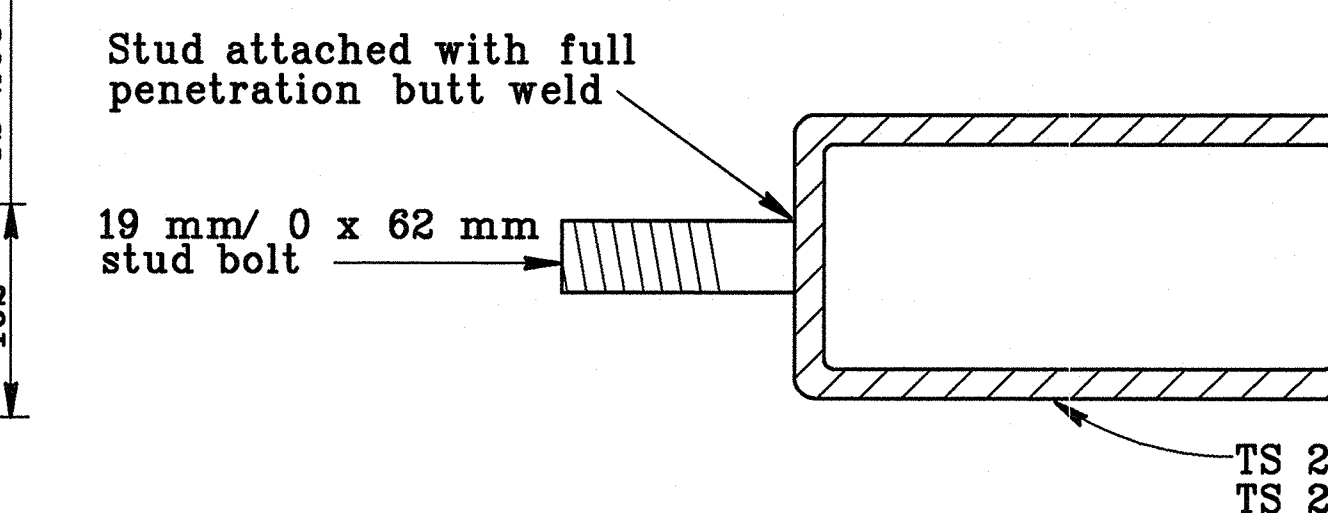


SECTION B-B

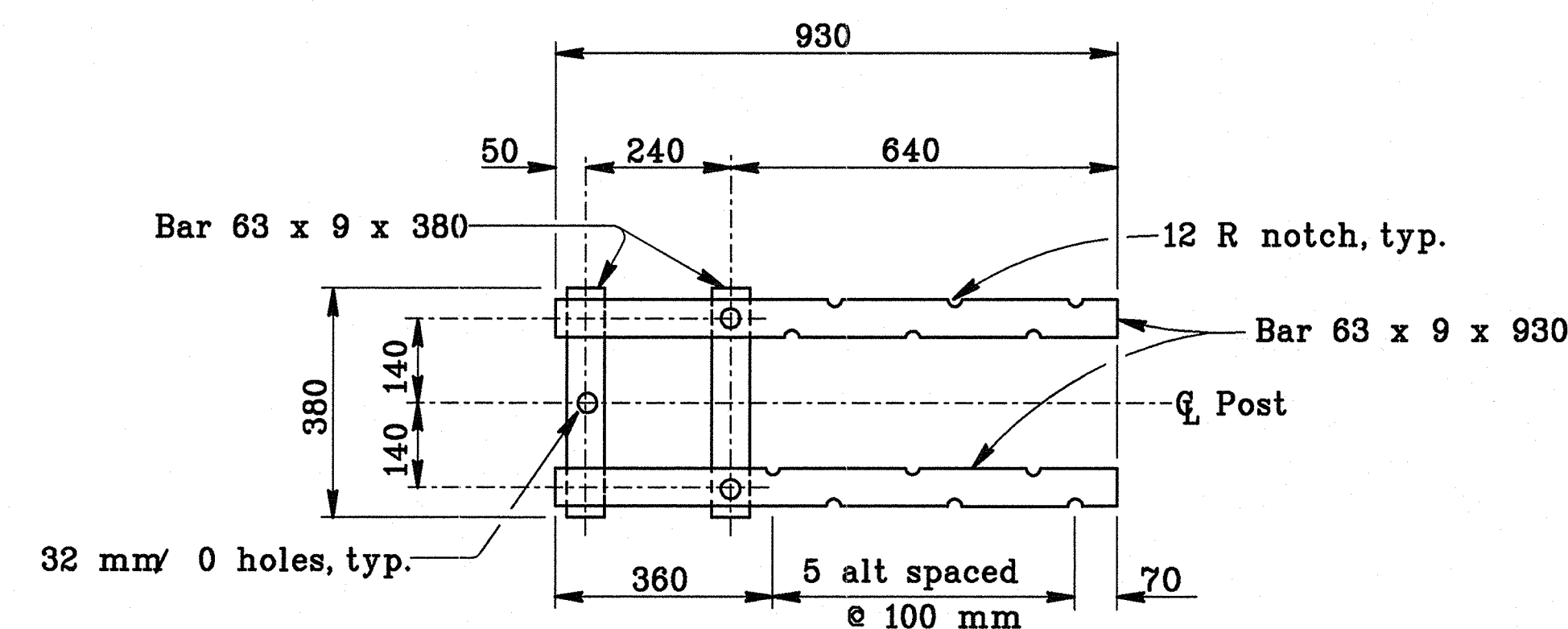
No Scale



SHIMS REQUIRED FOR ALL RAILS

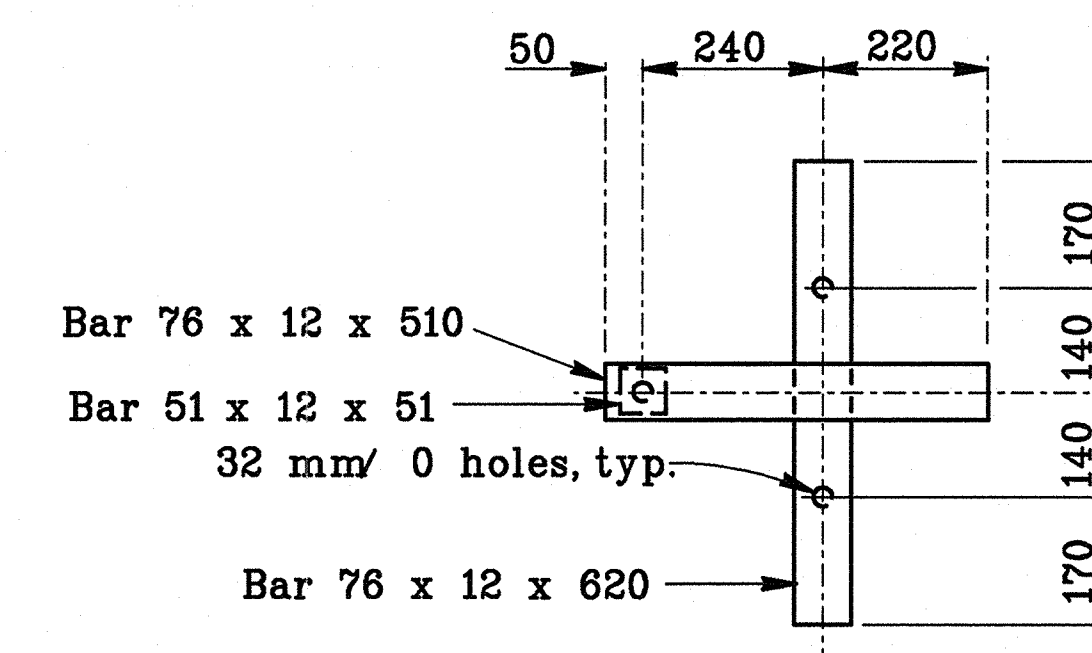


SECTION AT POST



SECTION C-C

Top Anchorage
No Scale



SECTION D-D

Lower Anchorage
No Scale

AS BUILT

CORRECTION BY: D.D.
CONTRACT NO.:
DATE: JULY 15, 2009

SUPPLEMENTAL SHEET

RAILING - STEEL TYPE ST-20S RAIL

DETAILS NO. 1

STANDARD DRAWING				
RELEASE DATE	11/2/04	DESIGN BY	N ABDIN	CHECKED
FILE NO.	xs16-205-1	SUBMITTED BY	N ABDIN	DRAWING DATE
		10/20/04		OFFICE CHIEF

DS OSD 2147A (METRIC) (REV. X/XX/XX)

ORIGINAL SCALE IN MILLIMETERS FOR REDUCED PLANS

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF
ENGINEERING SERVICES

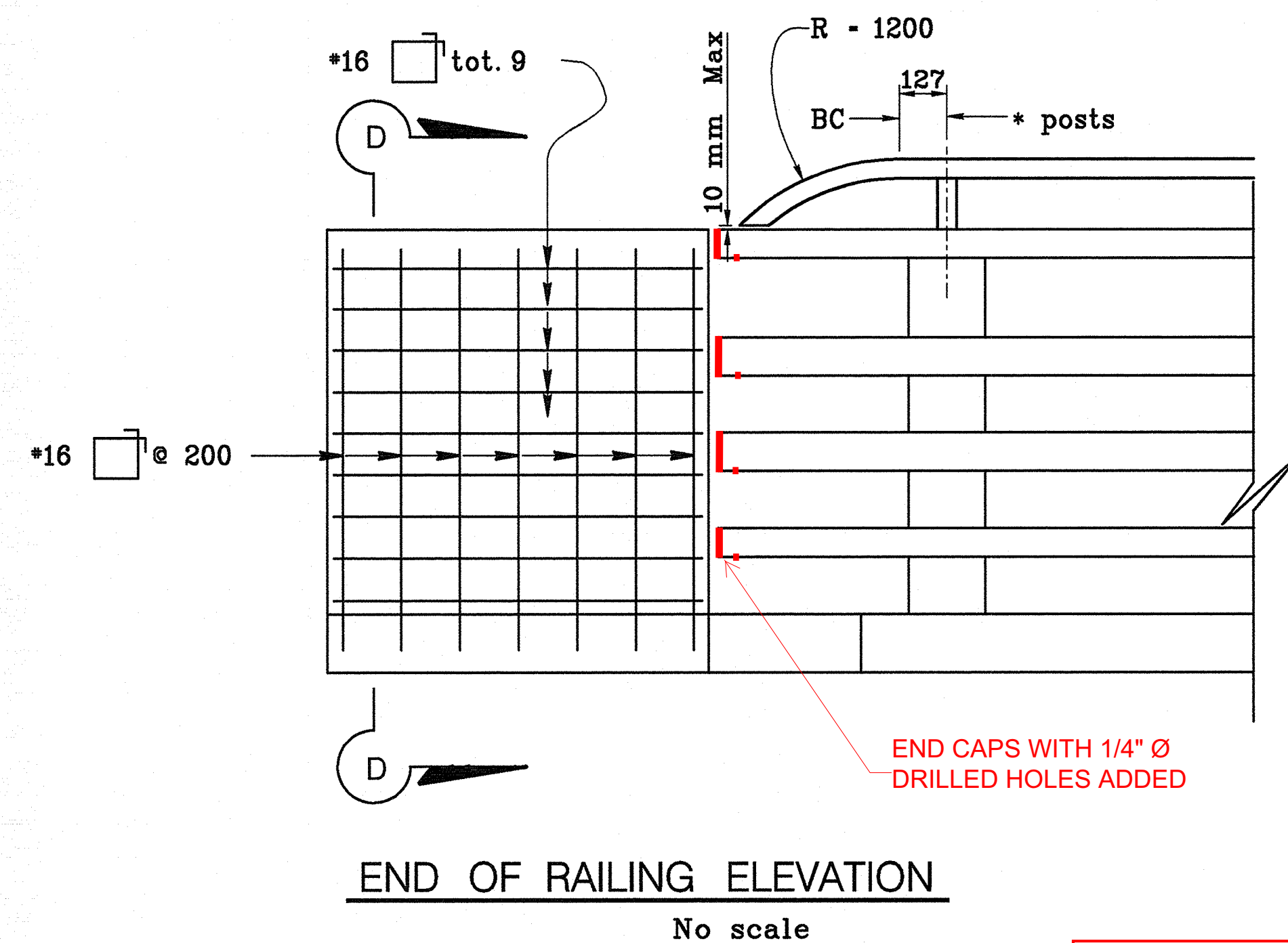
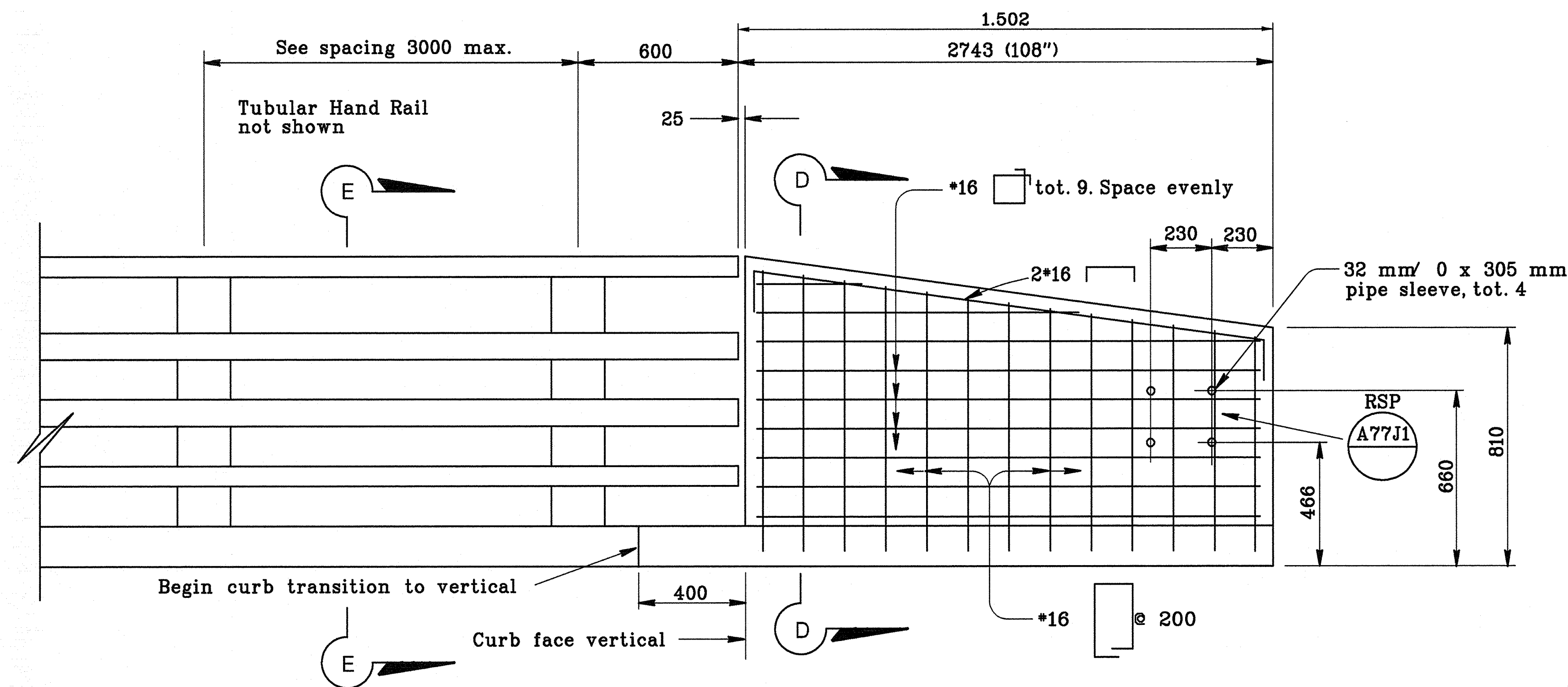
BRIDGE NO.
KILOMETER POST

DISREGARD PRINTS BEARING
EARLIER REVISION DATES

REVISION DATES (PRELIMINARY STAGE ONLY)

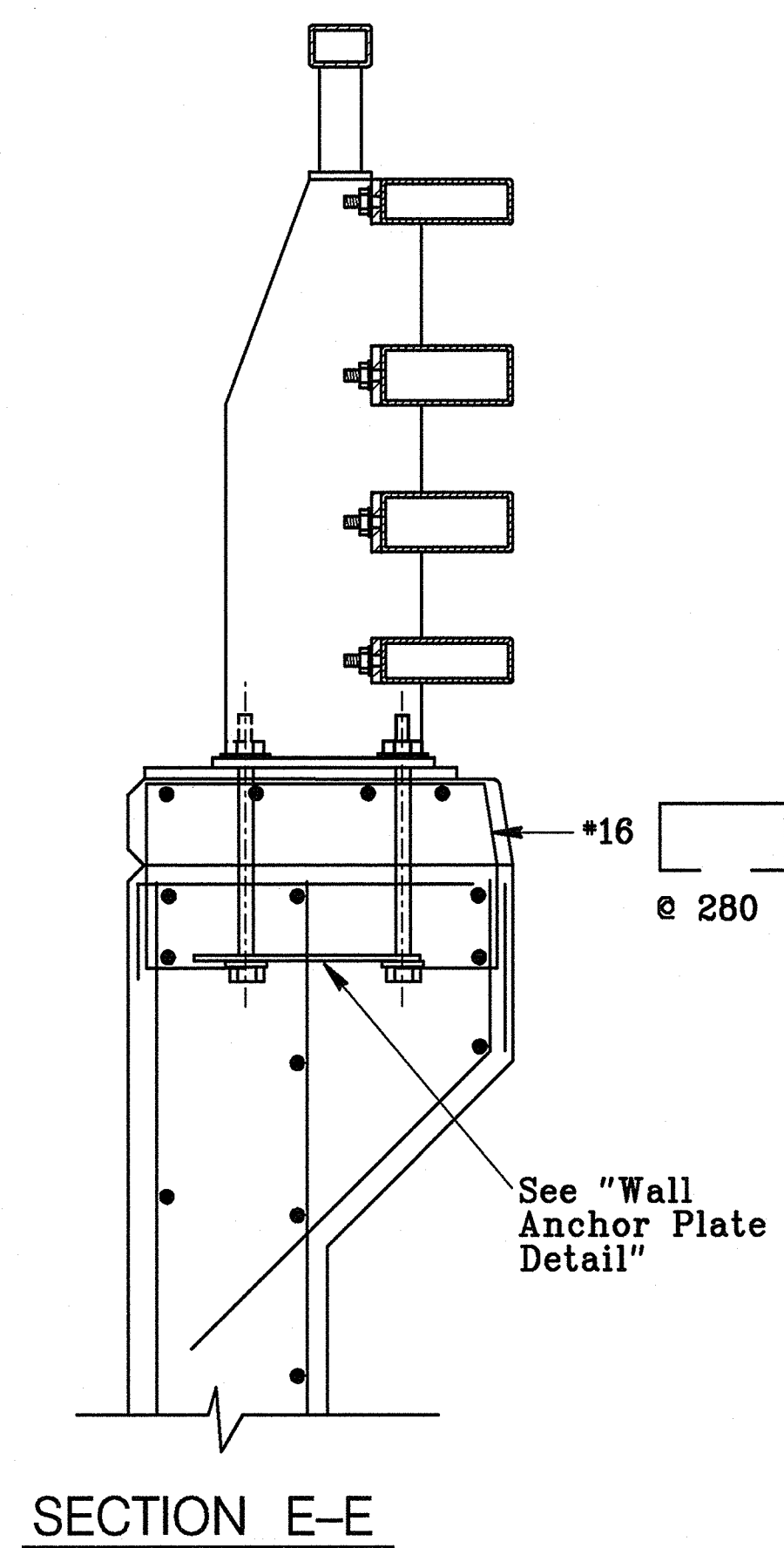
SHEET OF
251 15

DATE PLOTTED -> 05/28/2008

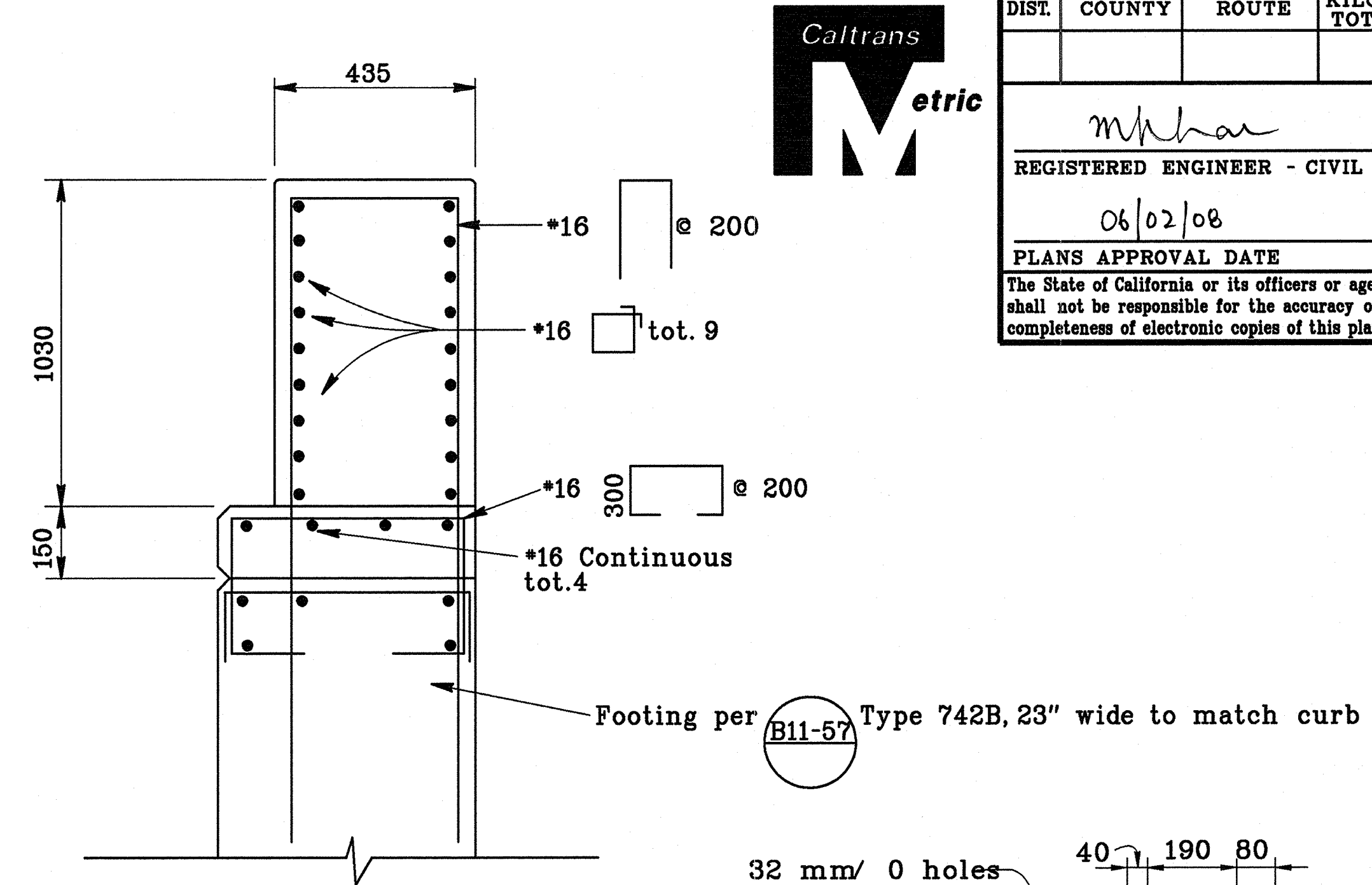


AS BUILT

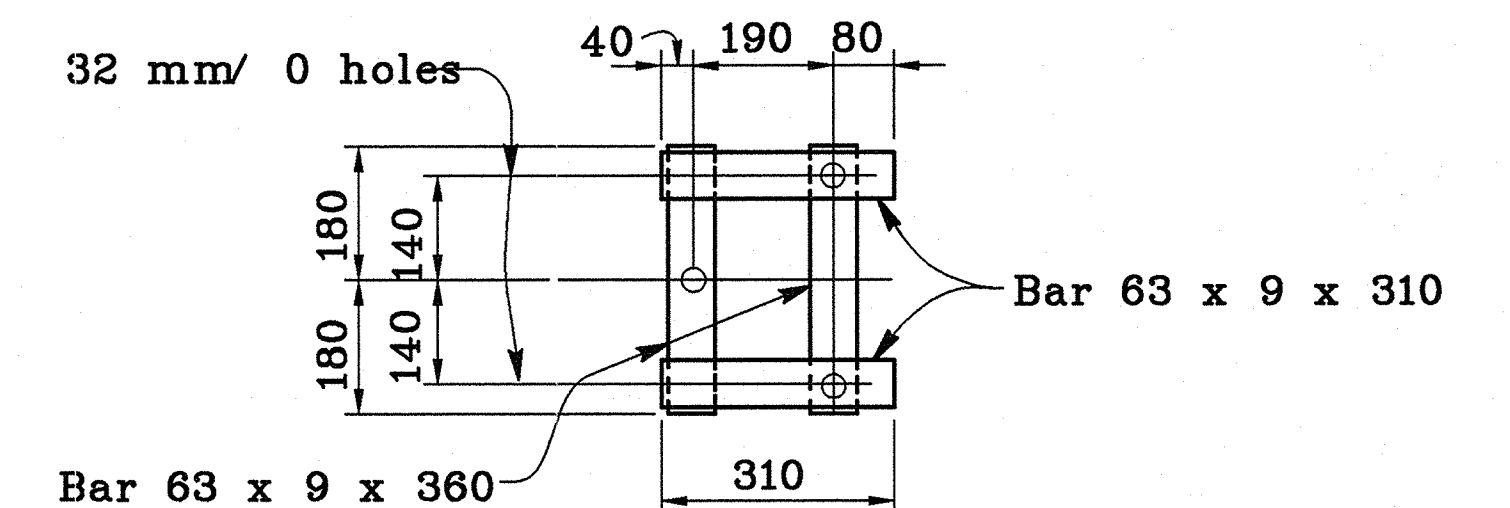
CORRECTION BY: D.D.
 CONTRACT NO.:
 DATE: JULY 15, 2009



Reinf. same as for Section D-D except as noted



SECTION D-D
No scale



WALL ANCHOR PLATE DETAIL
No scale

GENERAL NOTES

- 1) All structural steel shall be galvanized after fabrication.
- 2) Proposed railing layout shown is approximate. Final layout shall be reviewed by engineer before fabrication.
- 3) Venting and pick-up holes in rails and sleeves shall be shown on fabricator's shop plans.
- 4) Anchor bolts may be tack welded (shop or field) to anchorage.
- 5) All rough edges on posts and rails shall be ground smooth.
- 6) Tubing shall be bent or fabricated to fit horizontal curve when curve is less than 273 meters in radius.
- 7) After installation of rail, the exposed rail bolt threads shall be painted with two coats of zinc rich paint conforming to the requirement of section 75-1.05 galvanizing of The Standard Specifications.
- 8) The alternative welded splice may be used in lieu of The Standard Splice.
- 9) Each rail length shall be continuous over a minimum of two posts.
- 10) The fabricator shall check that the tubular sleeves splices conform to the dimensions indicated to assure proper clearance.
- 11) Except for expansion splices, not more than one splice shall be permitted per same side of post.
- 12) See contract plans for approach guardrail details.

SUPPLEMENTAL SHEET

STANDARD DRAWING				BRIDGE NO.		RAILING - STEEL TYPE ST-20S RAIL	
RELEASE DATE 11/20/04	DESIGN BY N ABDIN	CHECKED FELIX ALTAMIRANO	RELEASED BY	KILOMETER POST		DETAILS NO. 3	
FILE NO. xs16-205-3	DETAILS BY R YEE	CHECKED FELIX ALTAMIRANO	OFFICE CHIEF	DISREGARD PRINTS BEARING EARLIER REVISION DATES		REVISION DATES (PRELIMINARY STAGE ONLY)	
SUBMITTED BY N ABDIN				DRAWING DATE 10/20/04		SHEET 283 OF 15	

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN

DS OSD 2147A (METRIC) (REV. X/XX/XX)

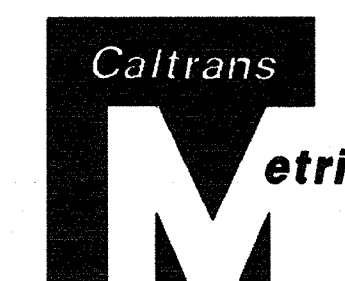
ORIGINAL SCALE IN MILLIMETERS FOR REDUCED PLANS

STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION

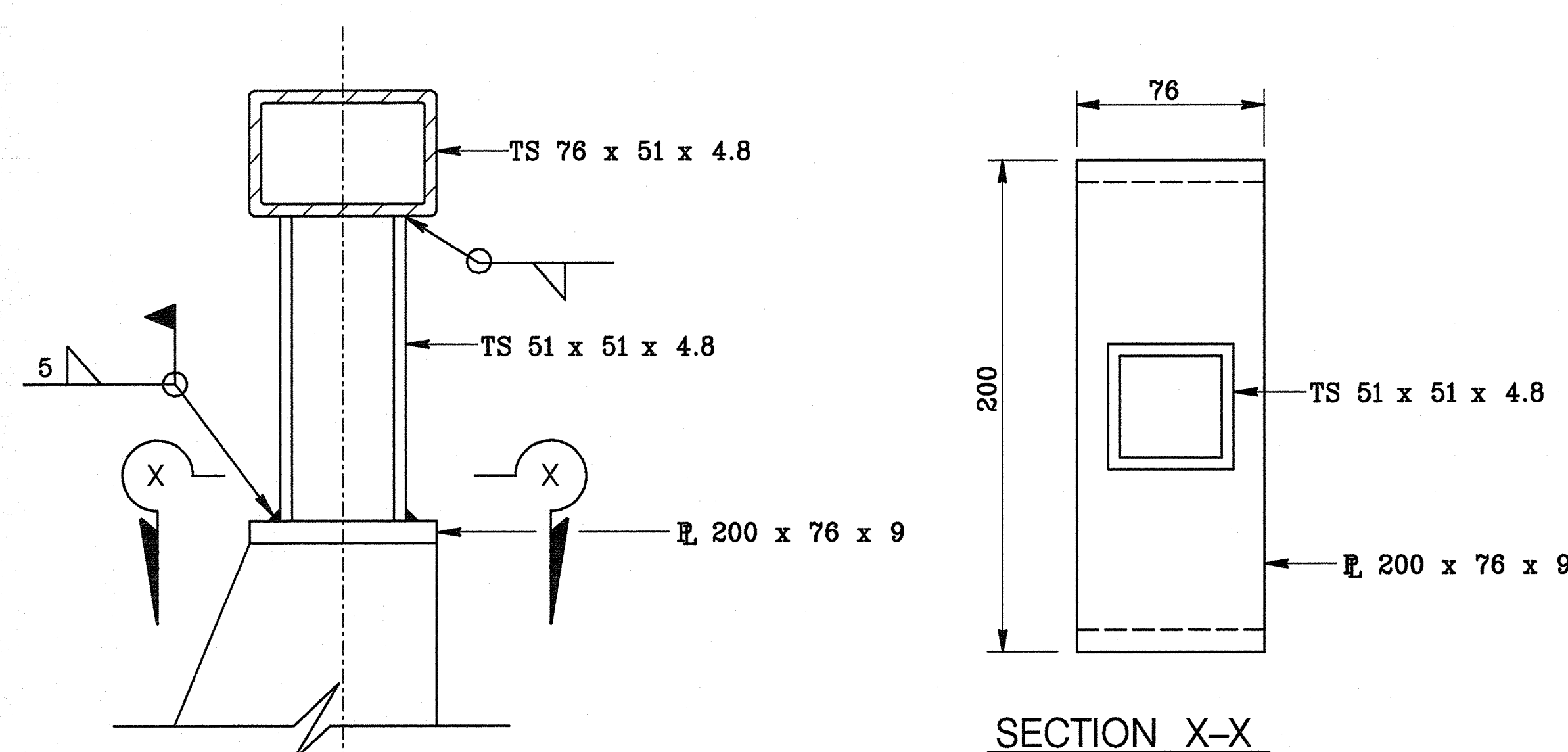
DIVISION OF ENGINEERING SERVICES

CU EA

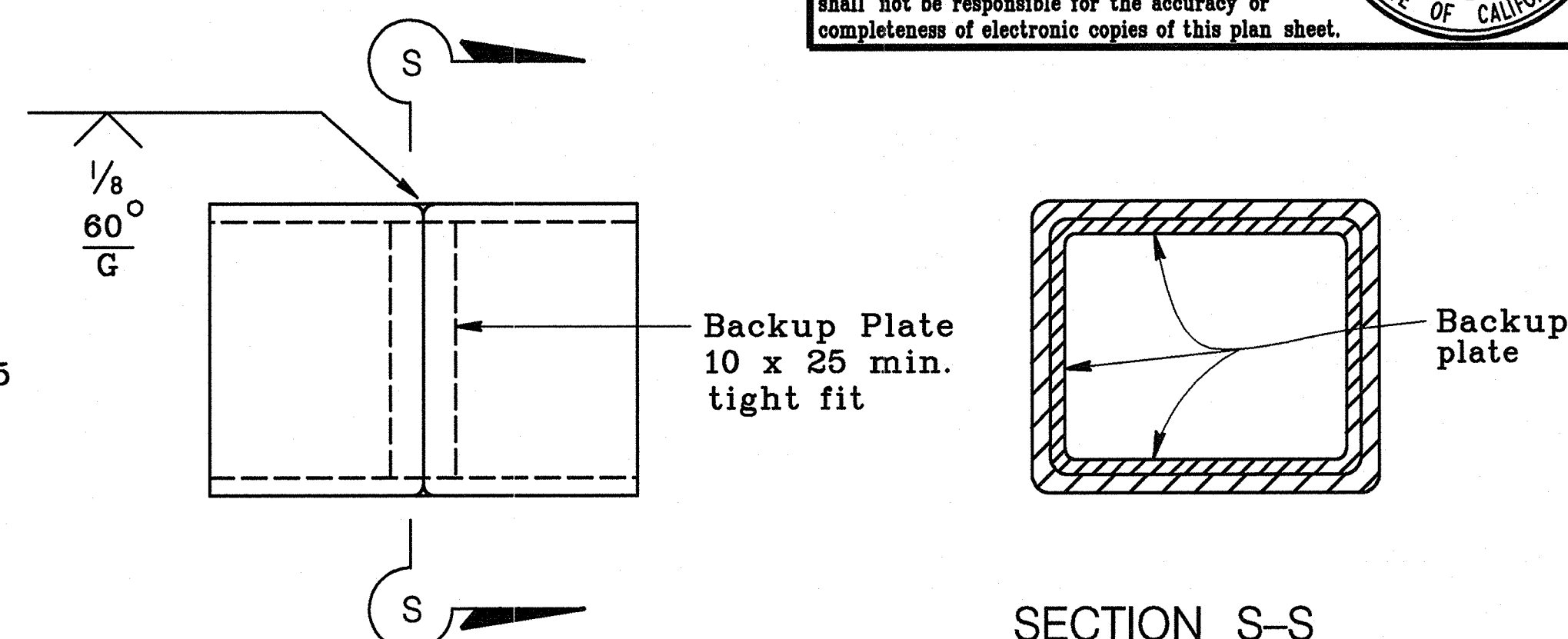
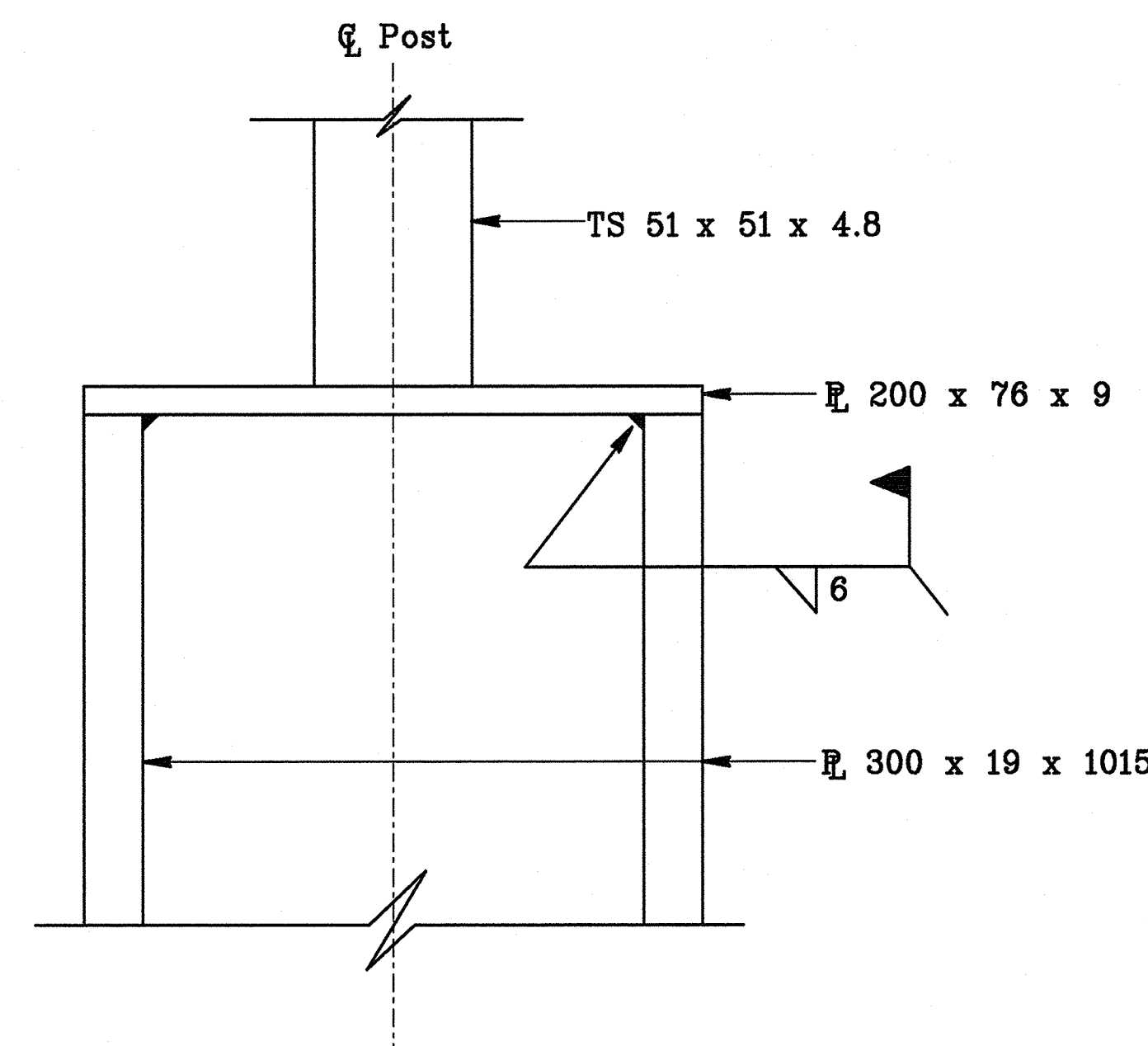
DATE PLOTTED -> 05/29/2008



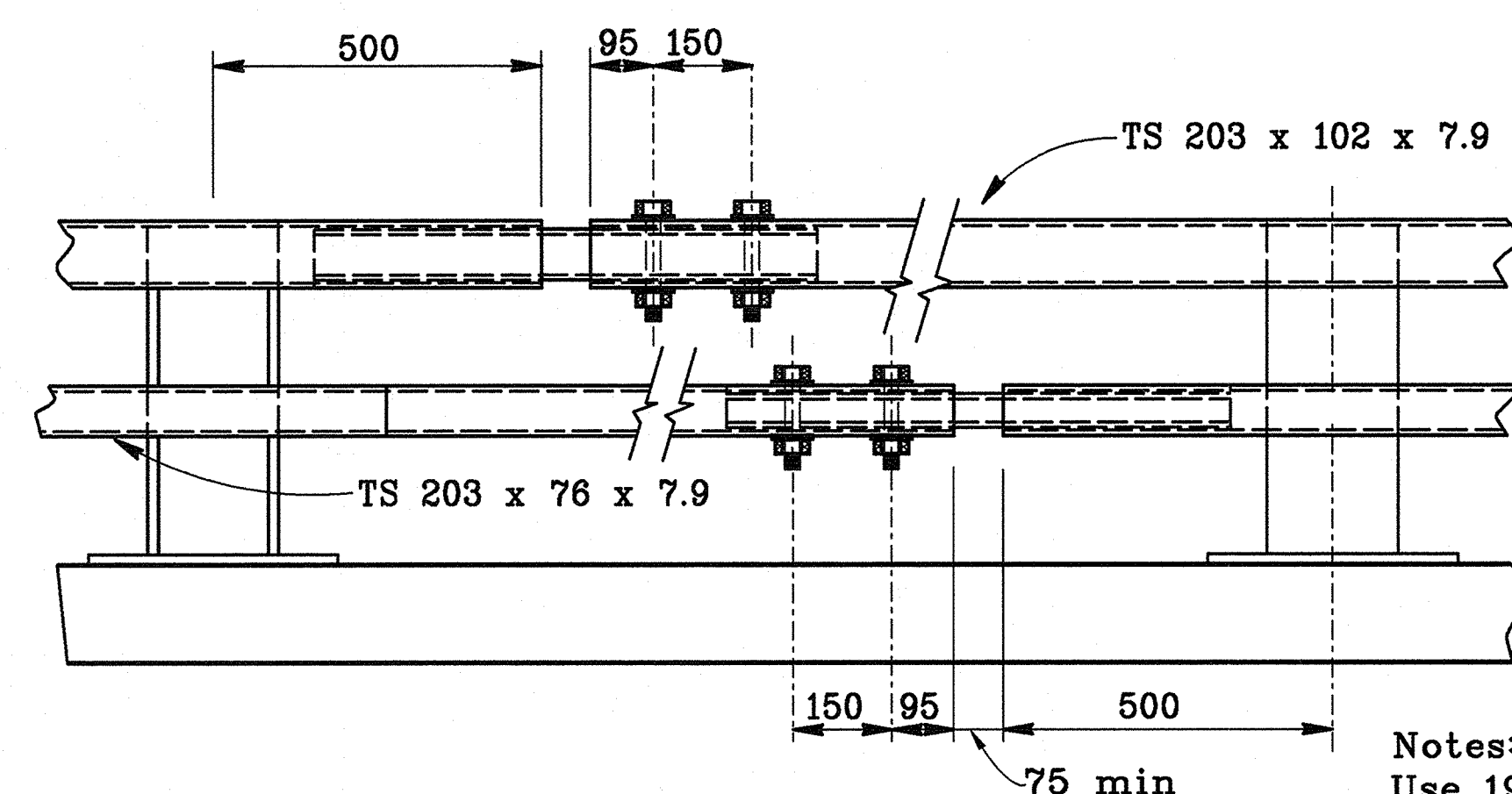
DIST.	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
REGISTERED ENGINEER - CIVIL 06/02/08 PLANS APPROVAL DATE The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet. REGISTERED PROFESSIONAL ENGINEER MOHAN S. CHAP No. C057894 Exp. 06/02/08 CIVIL STATE OF CALIFORNIA					



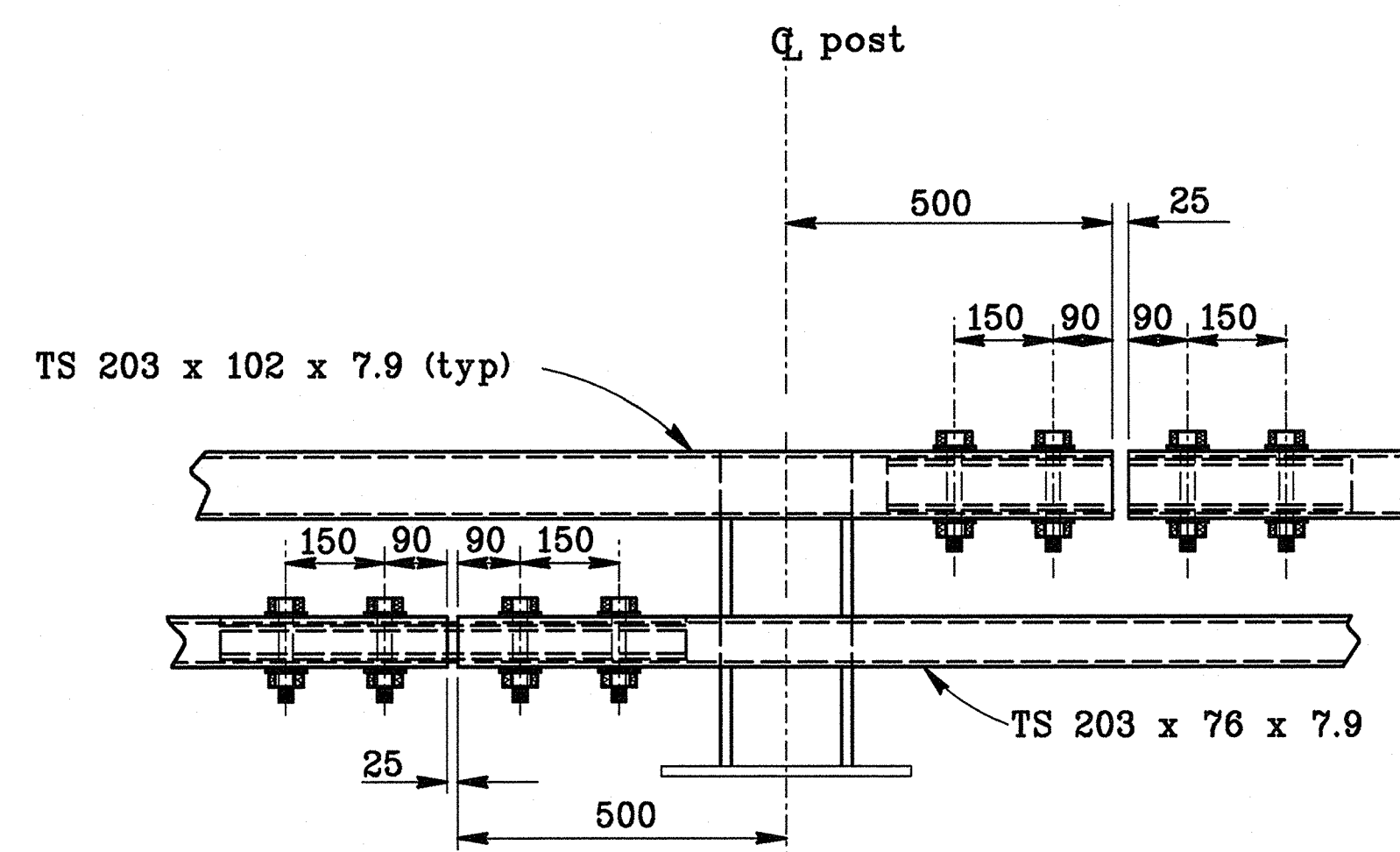
RAIL CONNECTION DETAILS
No Scale



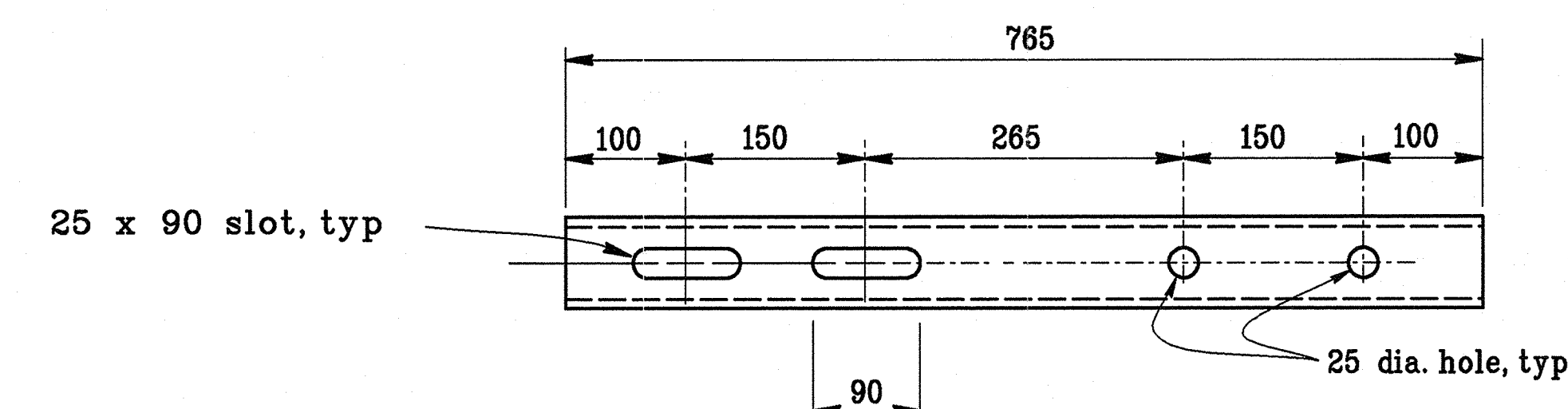
ALTERNATE TUBE WELDED SPLICE



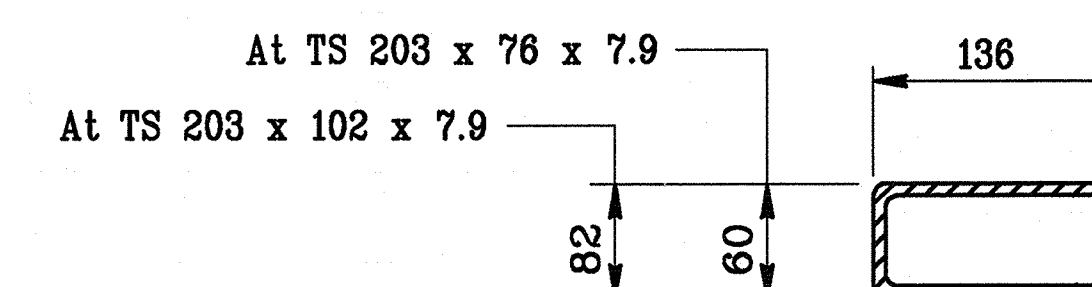
EXPANSION SPLICE
No scale



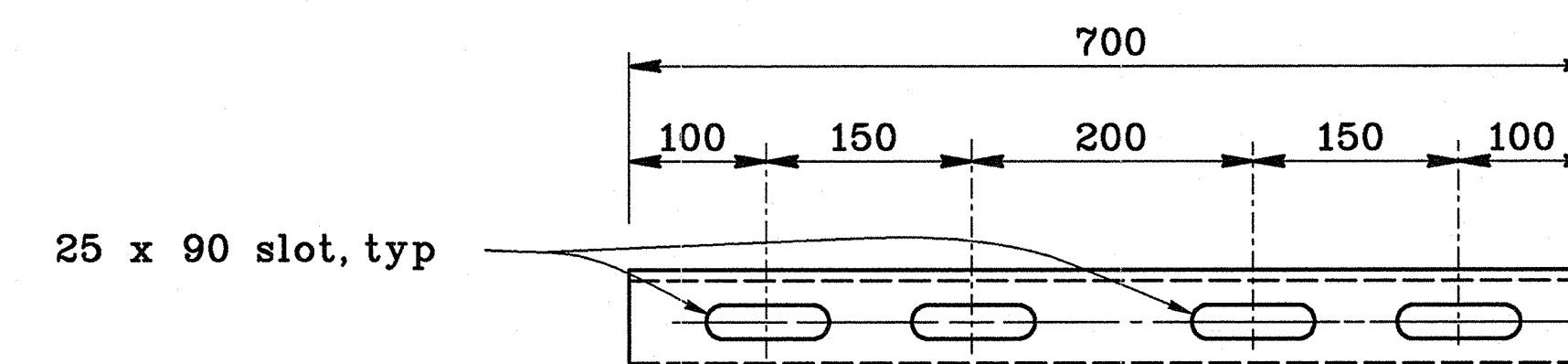
STANDARD SPLICE
No scale



EXPANSION SLEEVE DETAIL



SECTION SLEEVE



STANDARD SLEEVE DETAIL

No As-Built Changes

AS BUILT
CORRECTION BY: D.D.
CONTRACT NO.:
DATE: JULY 15, 2009

ALL DIMENSIONS ARE IN
MILLIMETERS UNLESS OTHERWISE SHOWN

STANDARD DRAWING				
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FILE NO.	xs16-205-4	SUBMITTED BY	N ABDIN	DRAWING DATE
		RELEASED BY		OFFICE CHIEF

DS OSD 2147A (METRIC) (REV. X/XX/XX)

ORIGINAL SCALE IN MILLIMETERS
FOR REDUCED PLANS

STATE OF
CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF
ENGINEERING SERVICES

BRIDGE NO.
KILOMETER POST

RAILING - STEEL TYPE ST-20S RAIL

DETAILS NO. 4

DISREGARD PRINTS BEARING
EARLIER REVISION DATES

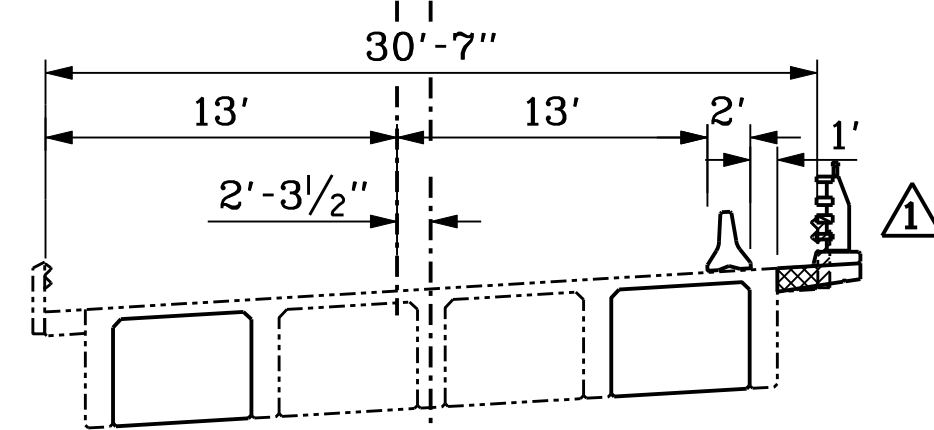
REVISION DATES (PRELIMINARY STAGE ONLY)

SHEET
284

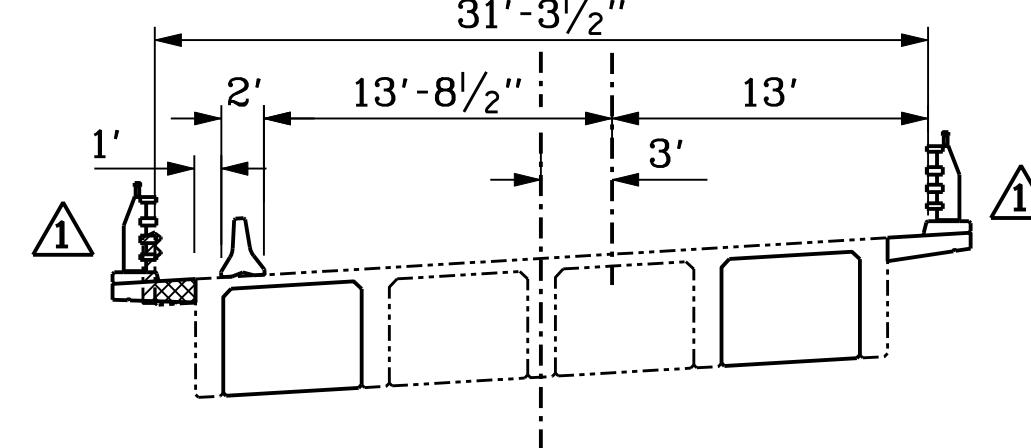
OF
15

DATE PLOTTED -> 05/28/2008

1. THE GRAPHICS SHOWN ON THIS PLAN ARE FOR OBTAINING HORIZONTAL DISTANCE PURPOSE ONLY. THE GRAPHICS SHOWN DO NOT REPRESENT THE ACTUAL GEOMETRY OF THE ROADWAY.
2. ALL TEMPORARY CONSTRUCTION SIGNS SHALL BE INSTALLED AT THE LOCATION SHOWN ON PLANS, OR AS DIRECTED BY ENGINEER.
3. TRAFFIC STRIPING AND PAVEMENT MARKING SHALL BE REMOVED BY SANDBLASTING AND GRINDING, OR AS DIRECTED BY ENGINEER.
4. TEMPORARY STRIPING USED AT STAGE 1 SHALL BE REMOVED BY SANDBLASTING AND GRINDING, OR AS DIRECTED BY ENGINEER, PRIOR TO STAGE 2 CONSTRUCTION.
5. ALL PERMANENT TRAFFIC STRIPING AND MARKING SHALL BE THERMOPLASTIC.
6. FOR DEMOLITION AT STAGE 1 AND STAGE 2, SEE "DEMOLITION PLAN" SHEET.
7. LOCATION OF PROJECT INFORMATION SIGN SHALL BE DETERMINED AS DIRECTED BY ENGINEER. CONTRACTOR'S ATTENTION IS DIRECTED TO SECTION F-20, "PROJECT INFORMATION SIGNS" OF THE PROJECT SPECIAL PROVISIONS.



NOT TO SCALE



NOT TO SCALE



W20-1



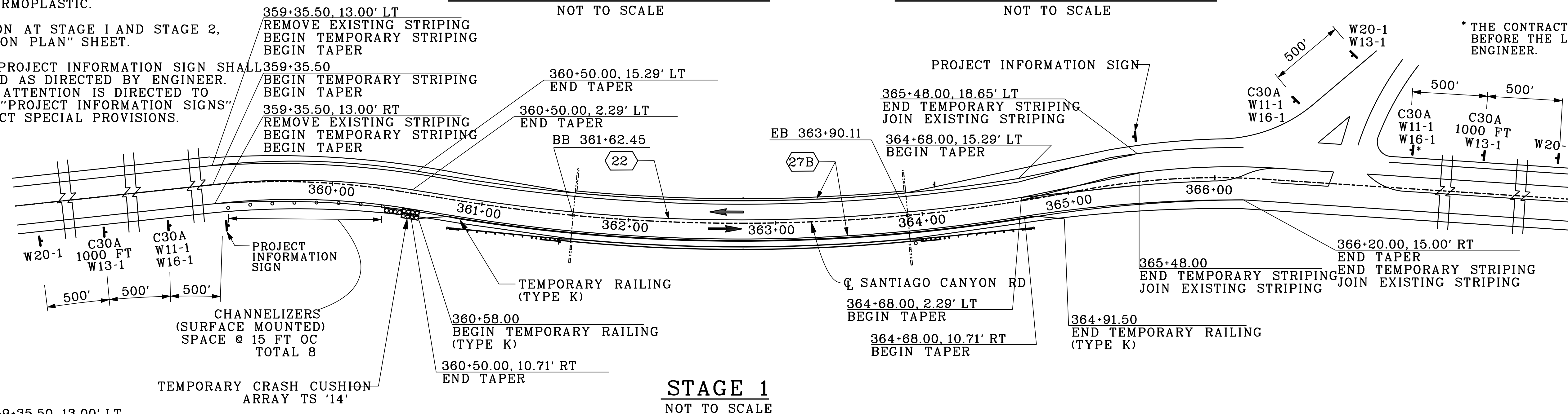
C30A(1000 FT)



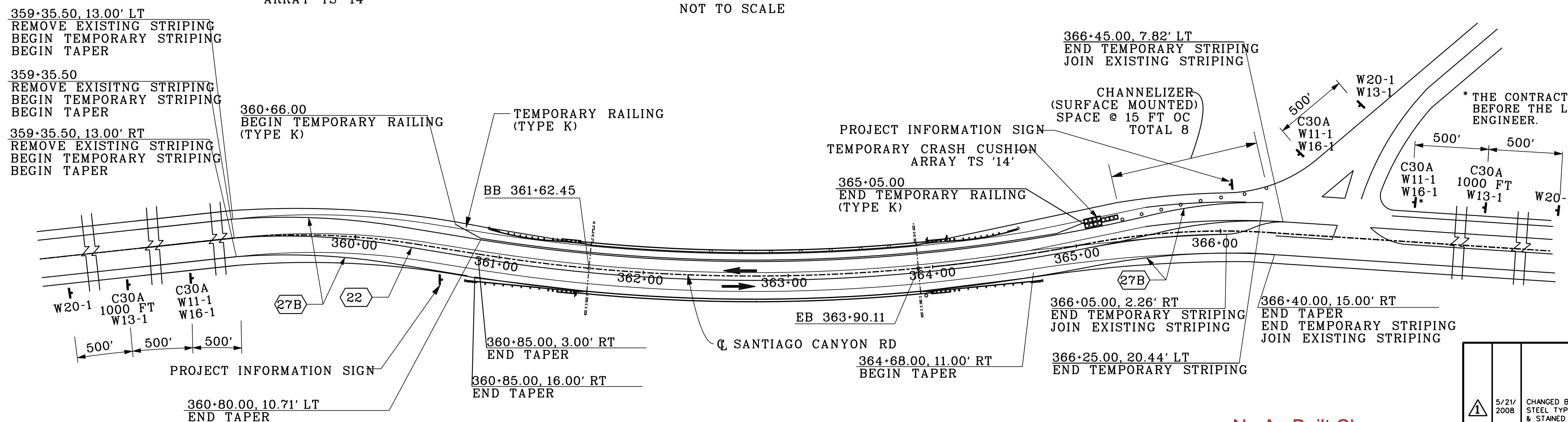
C30A



W11-1
AND W16-1



STAGE 1
NOT TO SCALE



STAGE 2
NOT TO SCALE

No As-Built Changes

AS BUILT

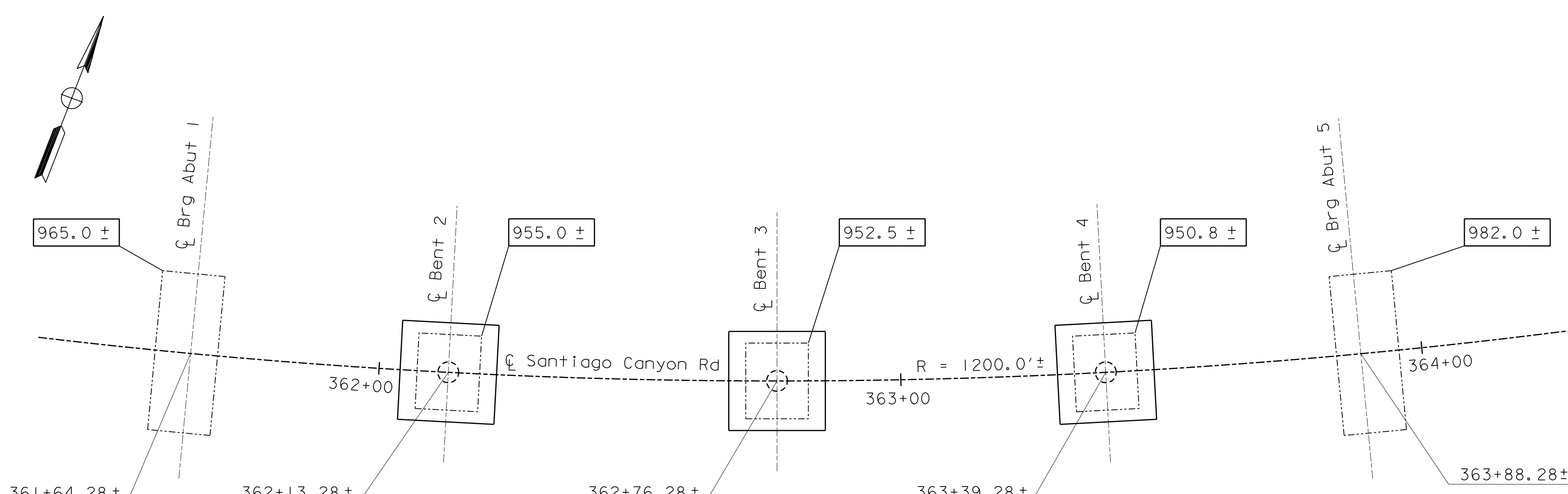
CORRECTION BY: D.D.

CONTRACT NO.:

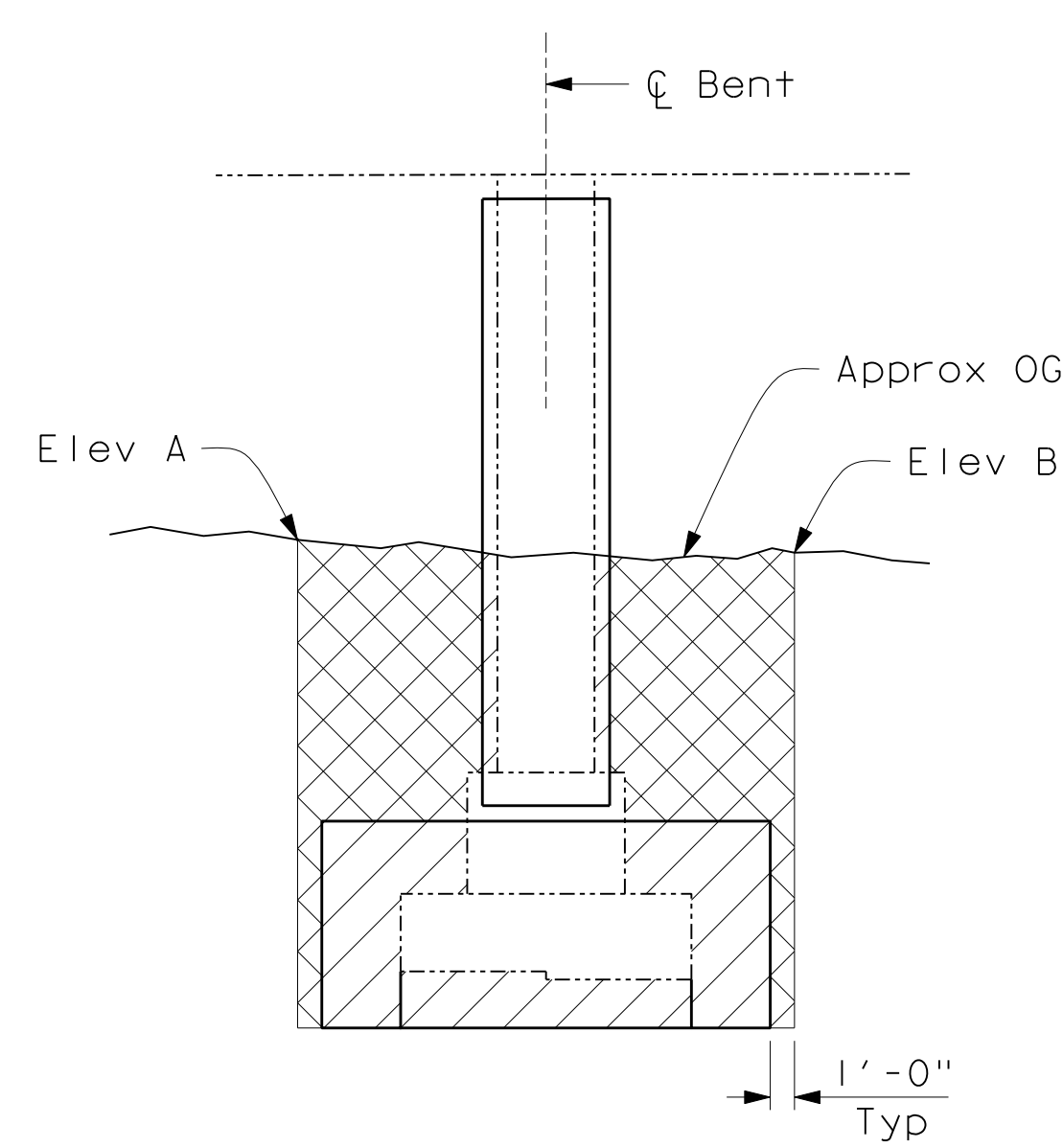
DATE: JULY 15, 2009

	5/21/2008	CHANGED BARRIER TO STEEL TYPE ST-205 RAIL & STAINED TYPE 732B
REV.	DATE	DESCRIPTION
R E V I S I O N S		
PREPARED UNDER SUPERVISION OF		
		
MP 2/14/07 DATE		

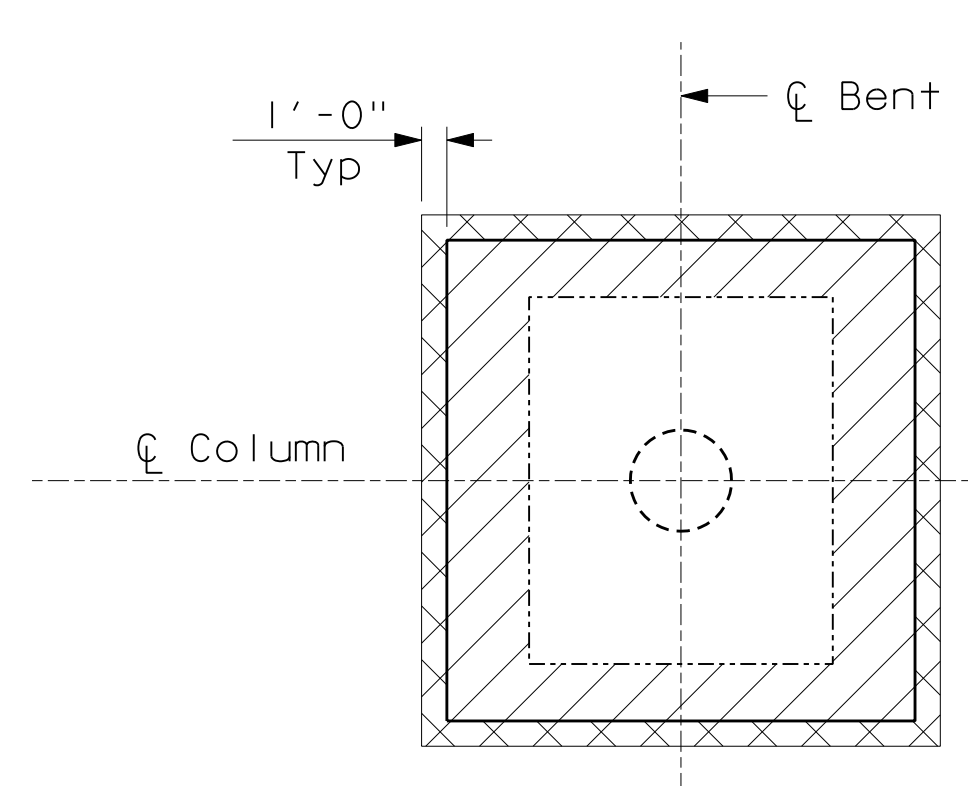
ORANGE COUNTY RESOURCES & DEVELOPMENT MANAGEMENT DEPARTMENT		
SANTIAGO CANYON ROAD BRIDGE SC-9		
BRIDGE No. 55C-0038		
TRAFFIC HANDLING PLAN		
DESIGNED <u>F. ONG</u>		SHEET
DRAWN <u>F. ONG</u>	CHECKED <u>M. CHAR</u>	
SCALE VARIES	DATE 2/14/07	DRAWING NO.
		3 R1
		OF 15



PLAN
1"=15'



BENT FOOTING ELEVATION



BENT FOOTING PLAN

LIMITS OF PAYMENT FOR STRUCTURAL EXCAVATION & BACKFILL
No Scale

Note:
For Approximate OG Elevations A & B,
see "Approximate OG Elevations at Bent" Table.

Note:
The Contractor shall verify all
controlling field dimensions before
ordering or fabricating any material.

APPROXIMATE OG * ELEVATIONS AT BENT		
LOCATION	ELEV A (ft)	ELEV B (ft)
BENT 2	964 ±	961 ±
BENT 3	961 ±	964 ±
BENT 4	964 ±	964 ±

* Provided for information only.
The contractor shall field verify
OG elevations.

LEGEND

- Indicates bottom of existing footing elevation
- Indicates existing footing
- Pay limits for Structural Excavation
- Pay limits for Structural Backfill

GENERAL NOTES
LOAD FACTOR DESIGN

DESIGN: CALTRANS BRIDGE DESIGN SPECIFICATIONS
April 2000 (LFD) - (1996 AASHTO with Interims
and Revisions by CALTRANS)

SEISMIC DESIGN: CALTRANS Seismic Design Criteria (SDC)
Version 1.3, May 2006

LIVE LOADING: HS20-44 and alternative permit design load

SEISMIC LOADING: ATC-32 ARS Curve
Soil Profile = Type C
Fault Moment Magnitude = 7.25 ±0.25
Peak Rock Acceleration = 0.4g
The following adjustment shall be made
for SDC Response Spectra to account for
near fault effect:
- Spectral acceleration modification
is not required for $T \leq 0.5$ seconds.
- Spectral acceleration for $0.5 \leq T \leq 1.5$
shall be determined by Linear Interpolation.
- Increase the Spectral accelerations for
 $T \geq 1.0$ seconds by 20%.

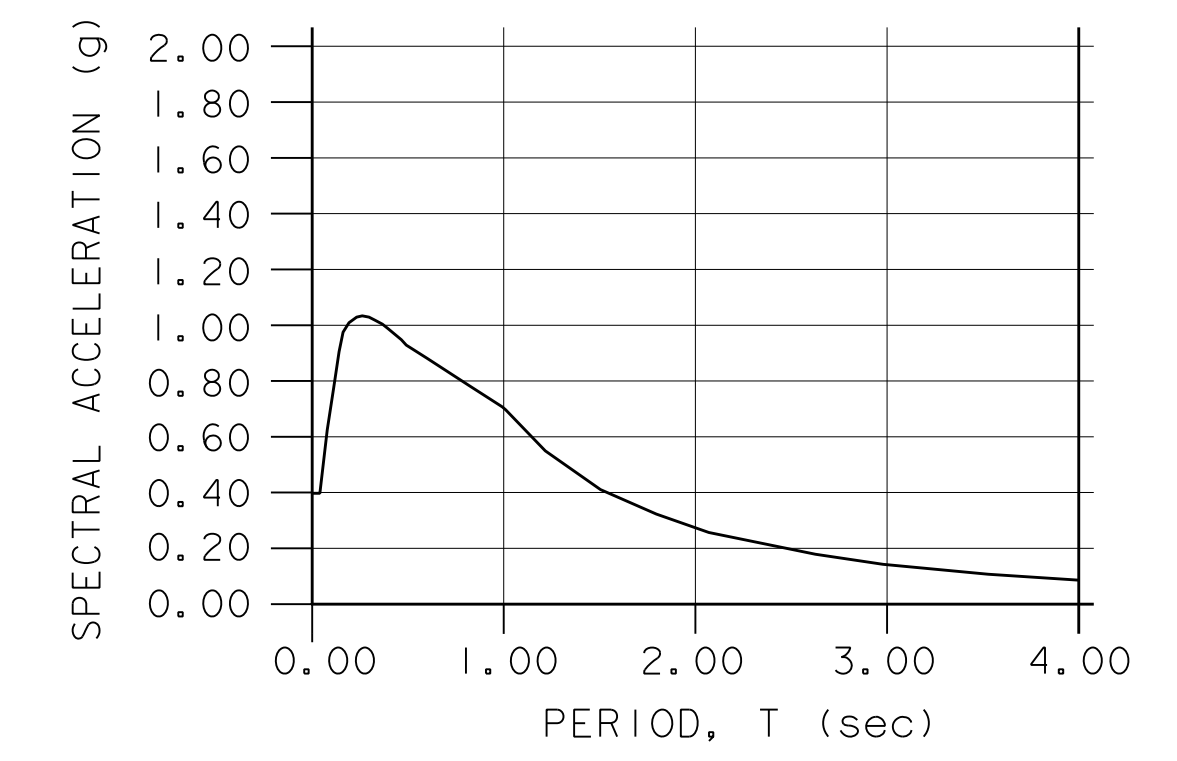
REINFORCED CONCRETE: Existing Concrete
(Assumed for Retrofit Evaluation)
 $f_y = 44,000$ psi
 $f'_c = 5000$ psi

New Concrete (Bridge)
 $f_y = 60,000$ psi, A706
 $f'_c = 4,000$ psi (UNO)
Class 2 (Barrier only)
 $n = 8$

REINFORCING STEEL: ASTM A706 $f_y = 60,000$ psi

STRUCTURAL STEEL: ASTM A307 $f_y = 36,000$ psi

EXISTING FOUNDATION DATA: Spread Footing
Ultimate Soil Bearing Capacity $q_{ULT} = 17$ KSF
Design Applied Pressure, $q_{APPLIED} = 17$ KSF

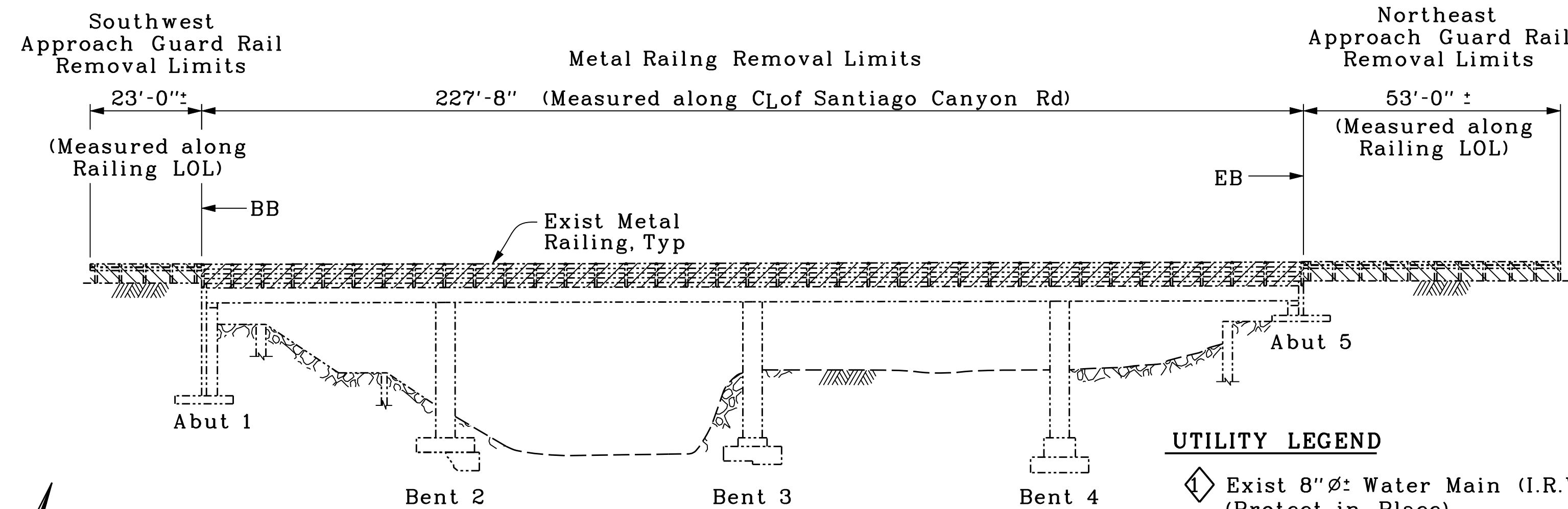


Modified Caltrans SDC ARS Curve for Soil Profile C
(M=7.25 +/- 0.25) PGA=0.4g

No As-Built Changes

AS BUILT
CORRECTION BY: D.D.
CONTRACT NO.:
DATE: JULY 15, 2009

		ORANGE COUNTY RESOURCES & DEVELOPMENT MANAGEMENT DEPARTMENT			
		SANTIAGO CANYON ROAD BRIDGE SC-9			
		BRIDGE No. 55C-0038			
		FOUNDATION PLAN			
REV.	DATE	DESCRIPTION			
REVISIONS					
PREPARED UNDER SUPERVISION OF					
DESIGNED <u>LI. SANDIRA</u>		SHEET			
DRAWN <u>M. ANDRASEK</u>		5			
CHECKED <u>M. CHAR</u>		OF 15			
SCALE	DATE	DRAWING NO.			
VARIABLES	12/18/06				



ELEVATION
1"=20'

PLAN
1"=20'

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

SECTION B-B
3/4"=1'-0"

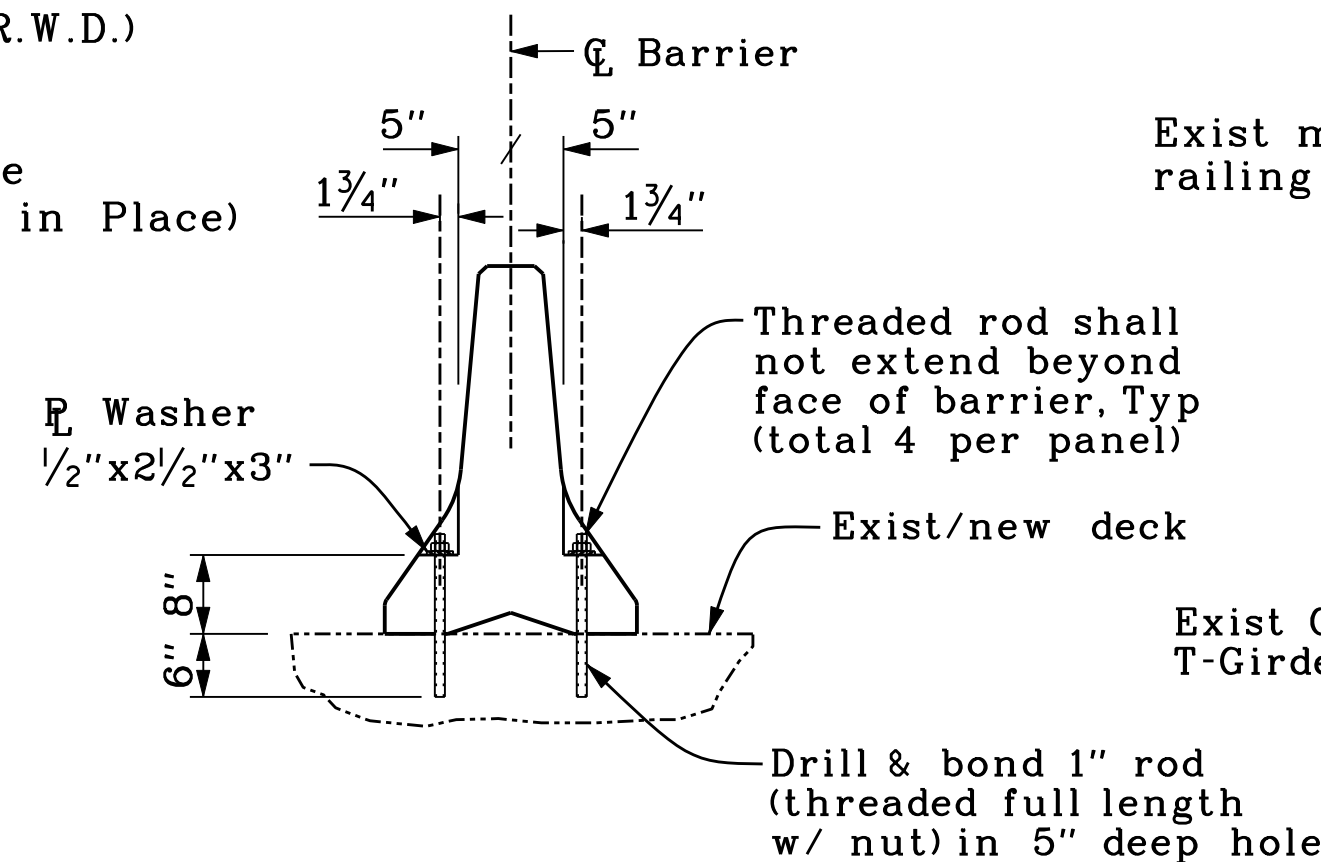
SECTION C-C
3/4"=1'-0"

UTILITY LEGEND

- ① Exist 8" Ø ± Water Main (I.R.W.D.) (Protect in Place)
- ② Exist 4" Ø ± Telephone Line (SBC Pacific Bell) (Protect in Place)

Notes:

1. Removal limits shown are approximate linear measurements.
2. Actual embedment of timber post is unknown.
3. Protect existing transverse and longitudinal reinforcement in place. See Project Standard Special Provisions and "Barrier Reconstruction Details" sheet.



TYPE K RAILING ATTACHMENT DETAIL
No Scale

No As-Built Changes

AS BUILT

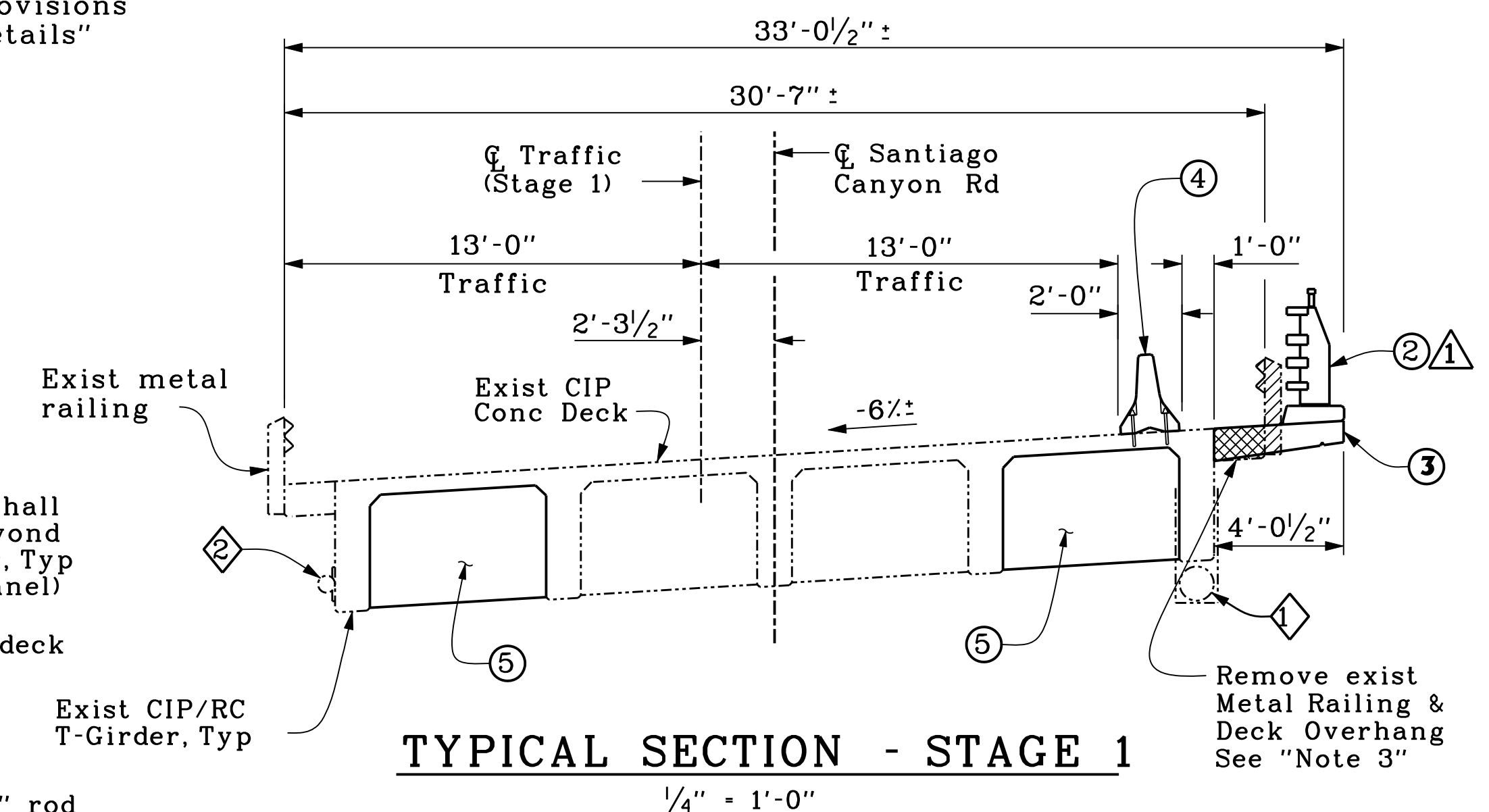
CORRECTION BY: D.D.
CONTRACT NO.:
DATE: JULY 15, 2009

REMOVAL LEGEND

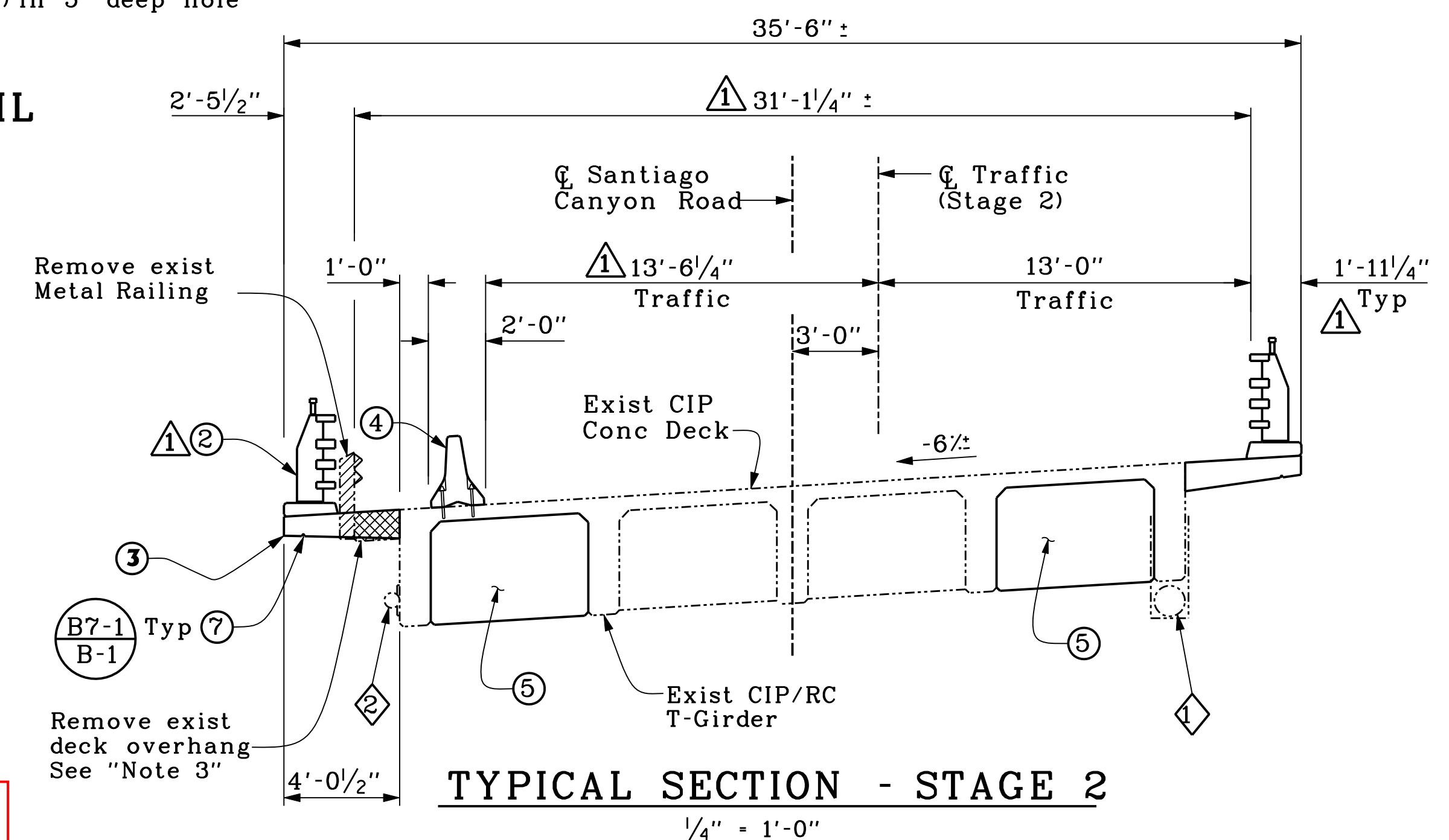
- Remove existing metal railing
- Remove existing approach guard railing
- Bridge removal (Portion)

LEGEND

- ① Deleted
- ② Type ST-20S Railing
- ③ Overhang Extension Slab
- ④ Temporary Railing, Type K
- ⑤ Intermediate Diaphragm
- ⑥ Deleted
- ⑦ Drip Groove



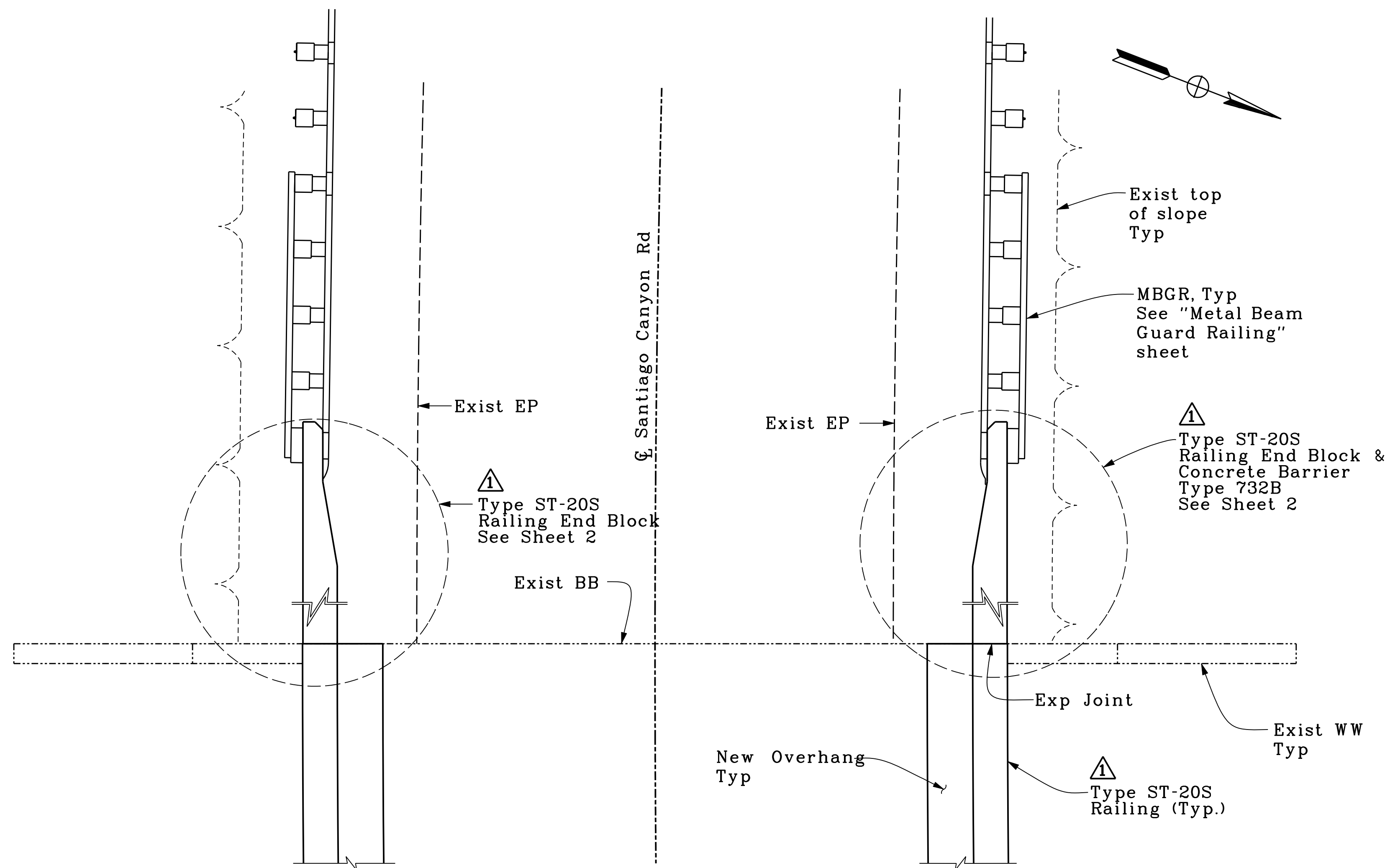
TYPICAL SECTION - STAGE 1
1/4" = 1'-0"



TYPICAL SECTION - STAGE 2
1/4" = 1'-0"

Note:
The Contractor shall verify all controlling field dimensions before ordering or fabricating any material.

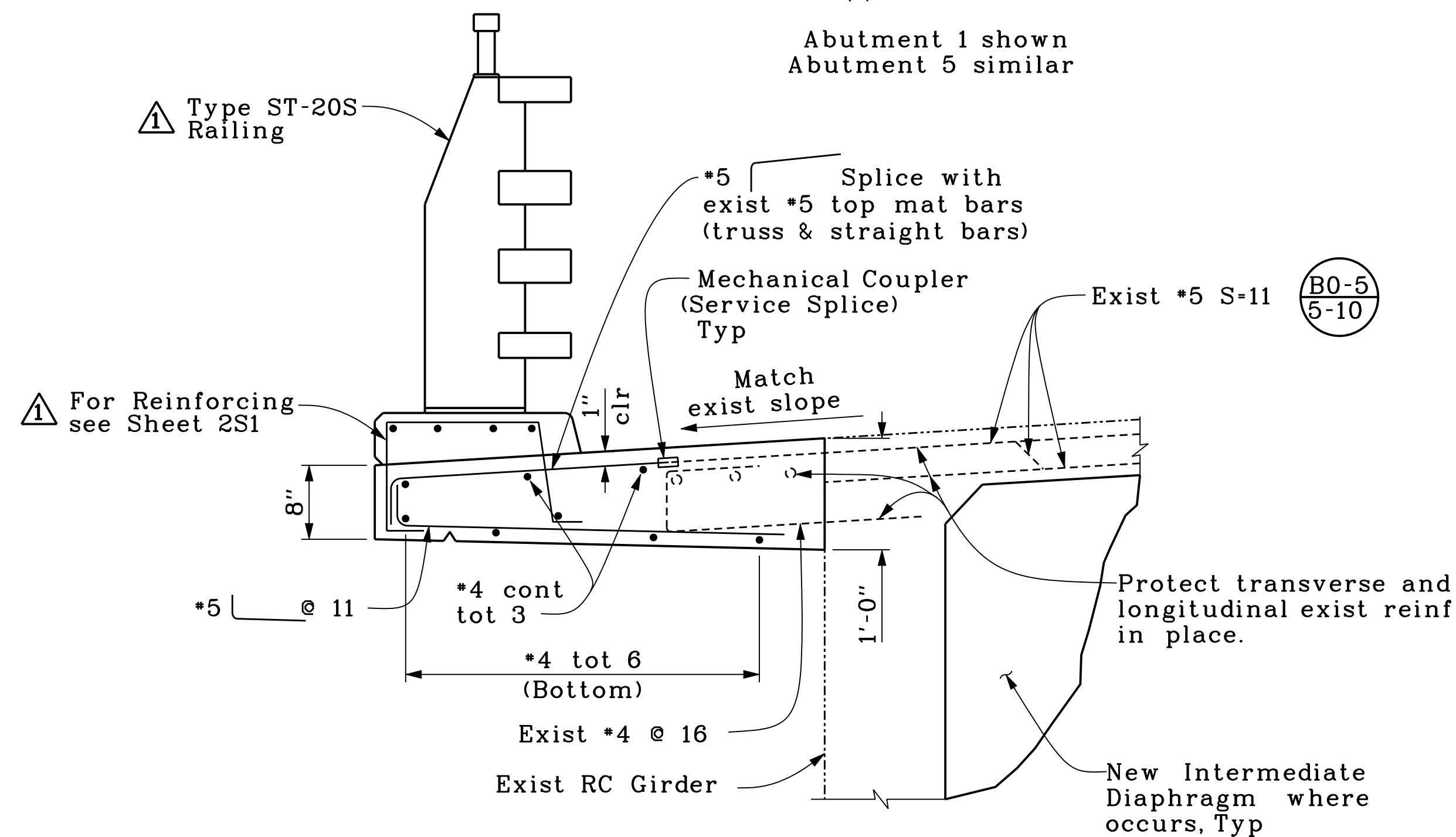
		ORANGE COUNTY RESOURCES & DEVELOPMENT MANAGEMENT DEPARTMENT	
5/21/2008 CHANGED BARRIER TO STEEL TYPE ST-20S RAIL & STAINED TYPE 732B		SANTIAGO CANYON ROAD BRIDGE SC-9 BRIDGE No. 55C-0038	
REVISIONS		DEMOLITION PLAN	
DESIGNED	U. SANDRA	CHECKED	M. CHAR
DRAWN	M. ANDRASEK	SCALE	VARIES
DATE	2/14/07	DRAWING NO.	6 R1
SHEET OF 15		DATE 2/14/07	



ABUTMENT 1 PLAN

1/4" = 1'-0"

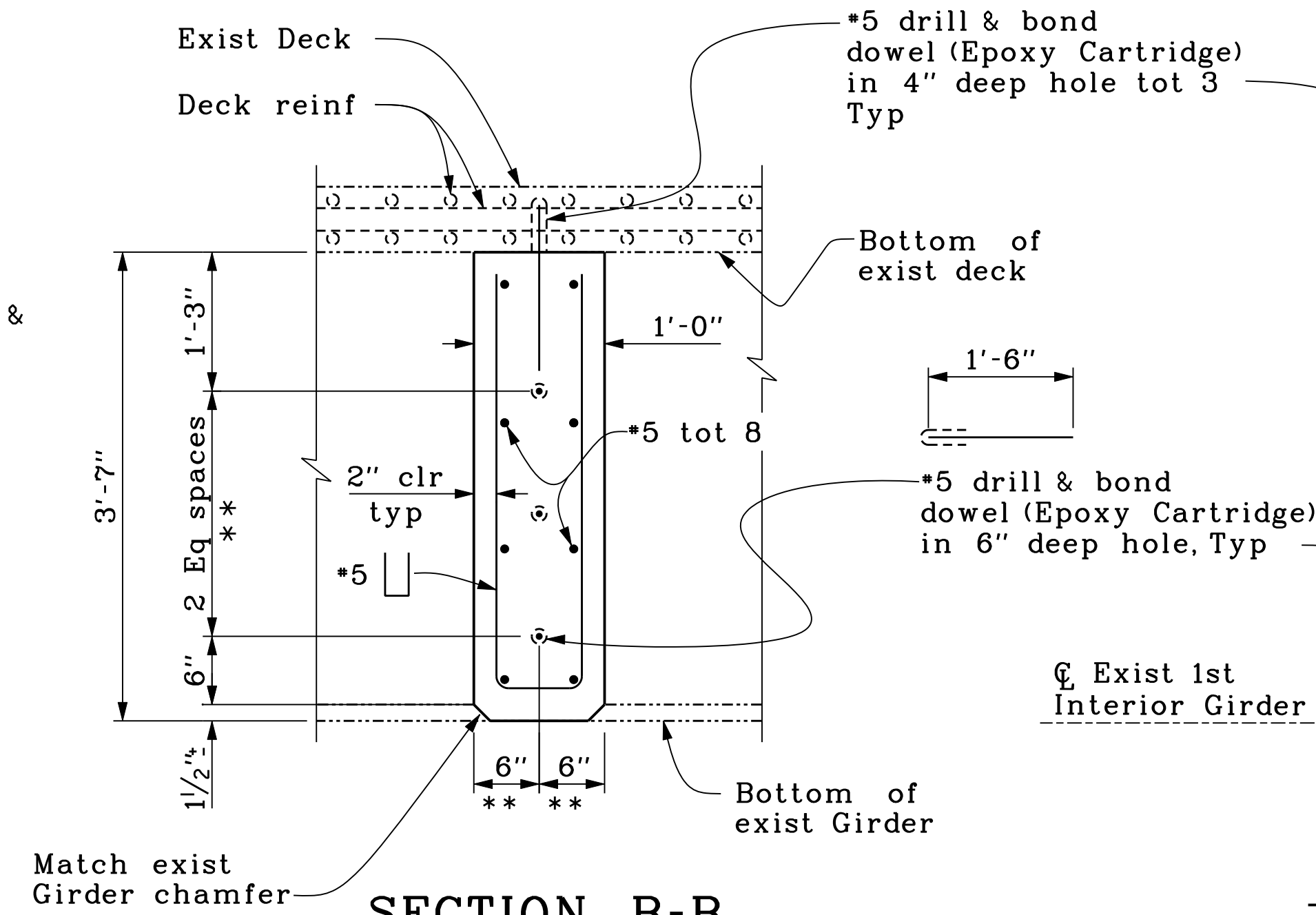
Abutment 1 shown
Abutment 5 similar



SECTION A-A

1"=1'-0"

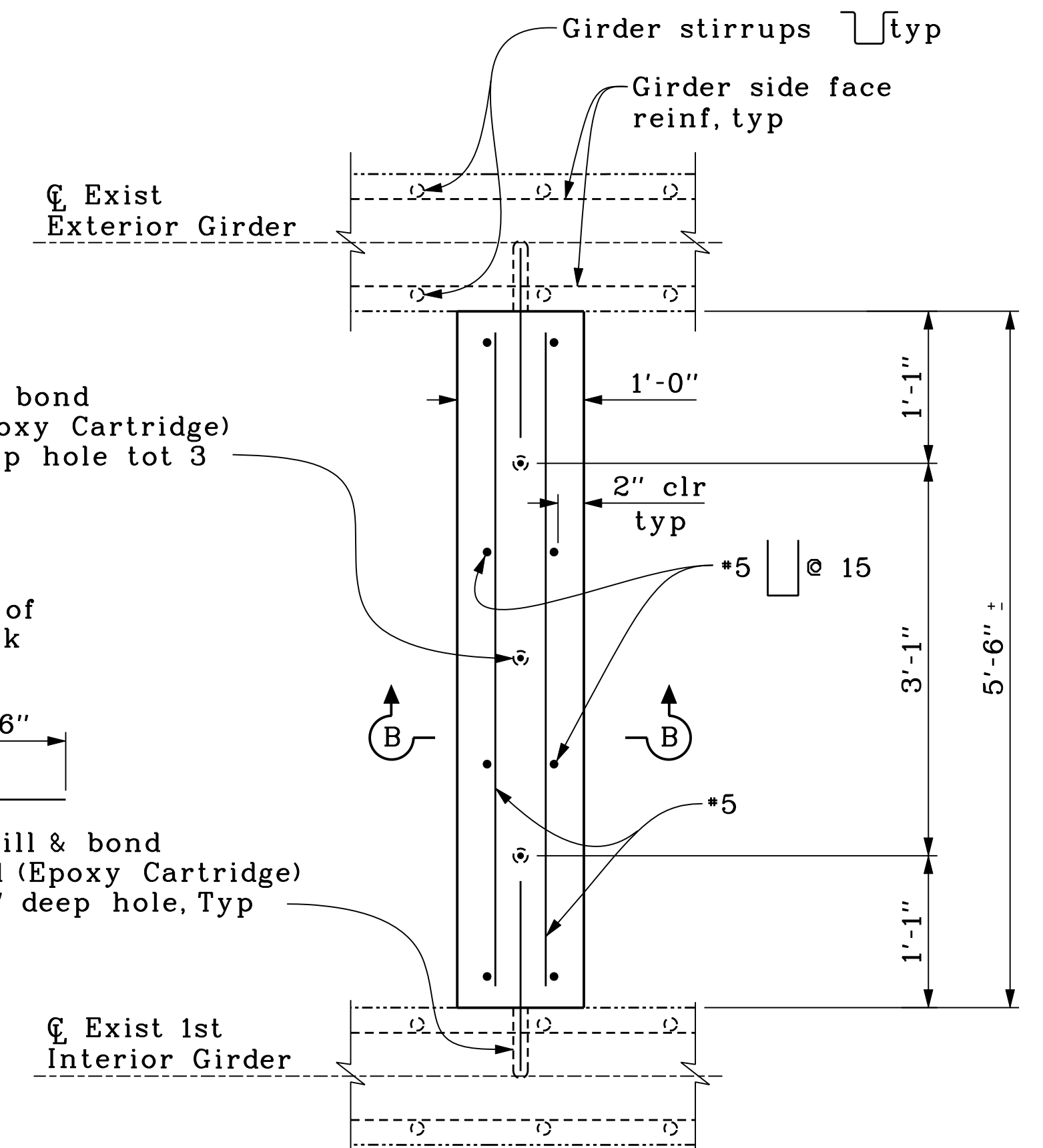
Note:
The Contractor shall verify all
controlling field dimensions before
ordering or fabricating any material.



SECTION B-B

1"=1'-0"

** Adjust the hole locations
as necessary to avoid deck
or girder reinforcement.



DETAIL 1 (PLAN)

1"=1'-0"

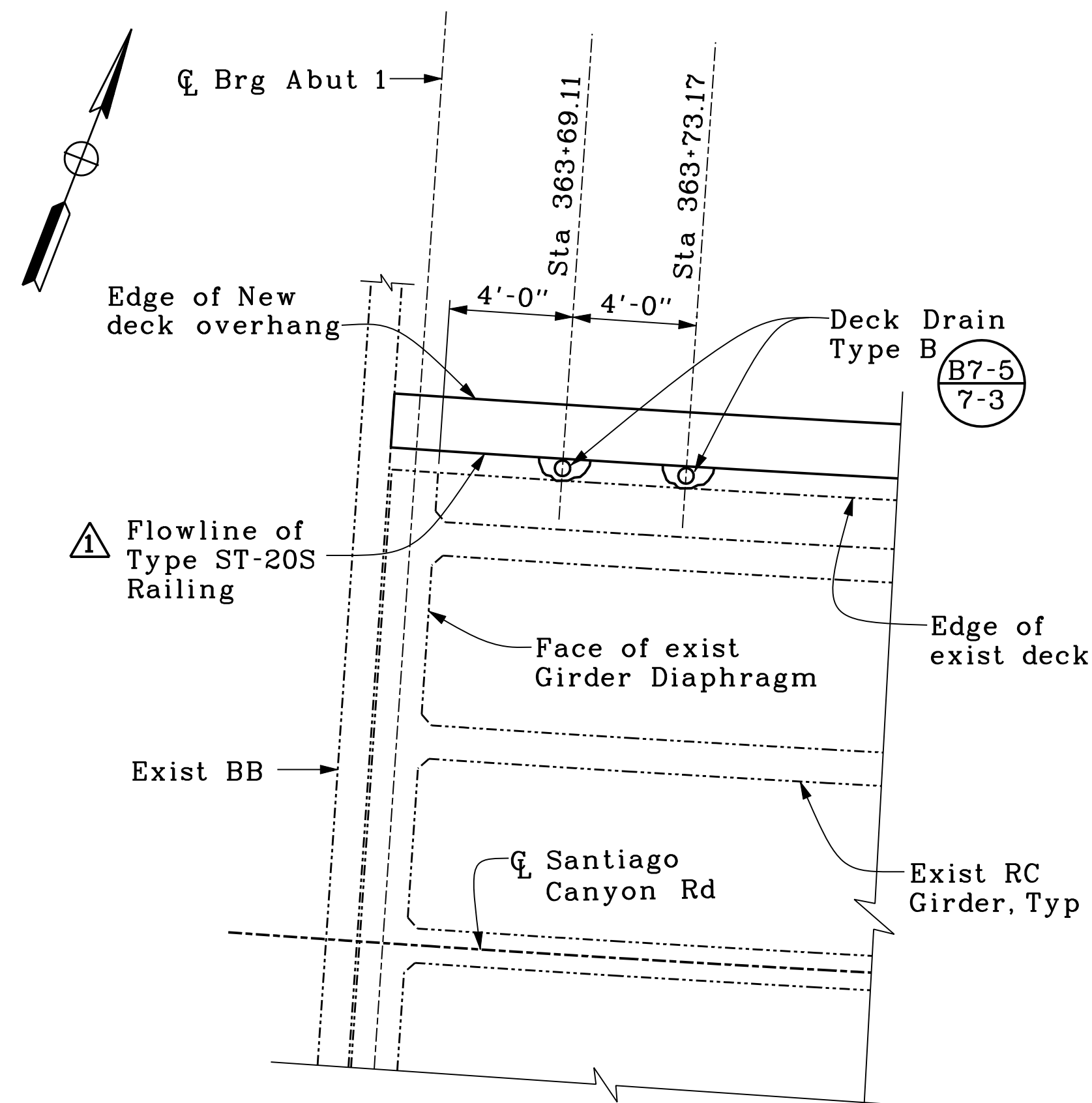
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No As-Built Changes

AS BUILT

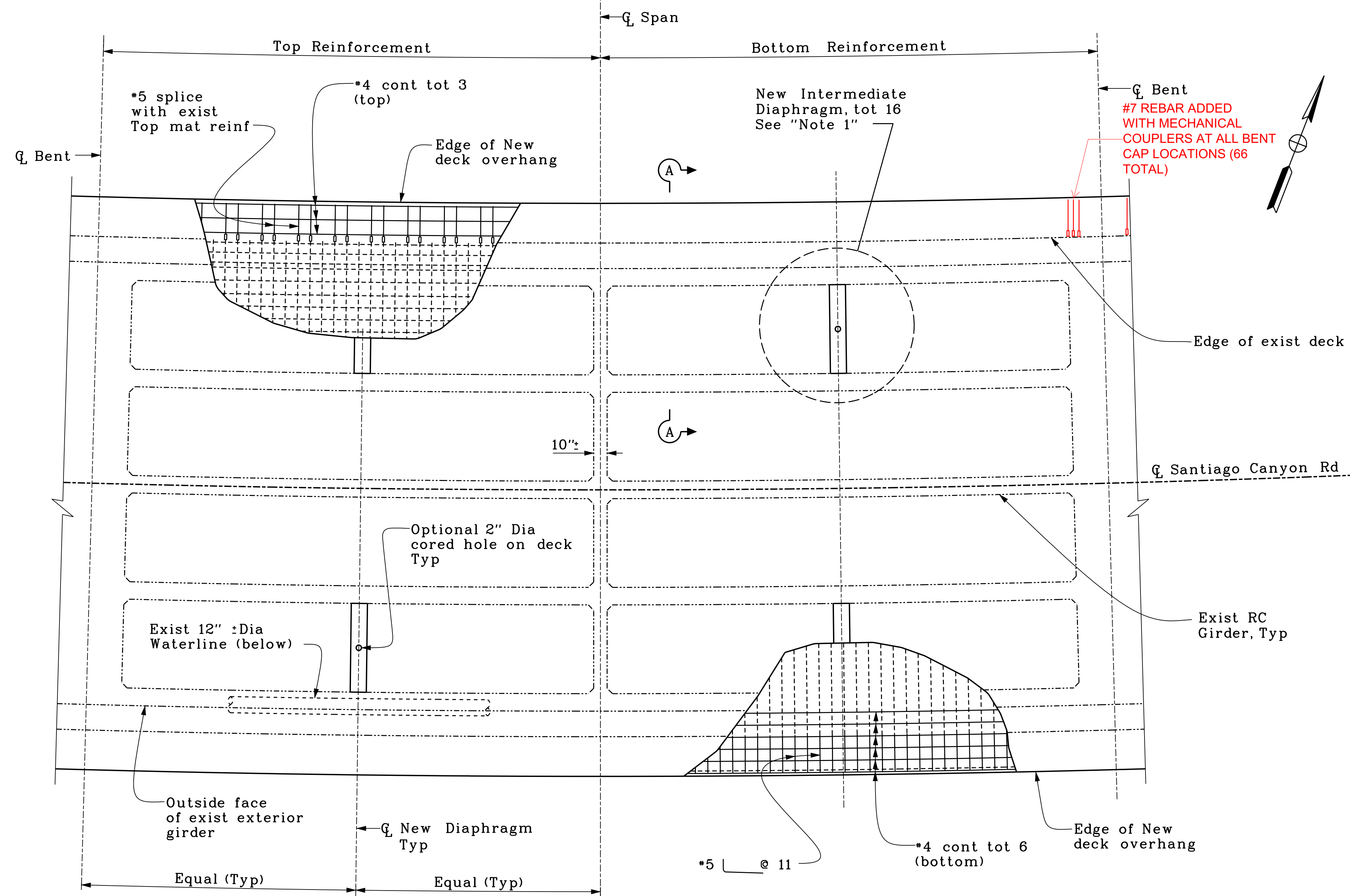
CORRECTION BY: D.D.
CONTRACT NO.:
DATE: JULY 15, 2009

5/21/2008 CHANGED BARRIER TO STEEL TYPE ST-20S RAIL & STAINED TYPE 732B		ORANGE COUNTY RESOURCES & DEVELOPMENT MANAGEMENT DEPARTMENT	
SANTIAGO CANYON ROAD BRIDGE SC-9		BRIDGE No. 55C-0038	
BARRIER RECONSTRUCTION DETAILS		SHEET 7 R1 OF 15	
DESIGNED: <u>L. SANDIRA</u> DRAWN: <u>M. ANDRASEK</u> SCALE: <u>VARIES</u>	CHECKED: <u>M. CHAR</u> DATE: <u>12/18/06</u>	PREPARED UNDER SUPERVISION OF <u>Mkhar</u> 12/18/06	



DECK DRAIN LOCATION PLAN

1/4" = 1'-0"



TYPICAL DECK REINFORCEMENT LAYOUT

1/4" = 1'-0"

(Interior Span shown, Exterior Spans similar)

Notes:

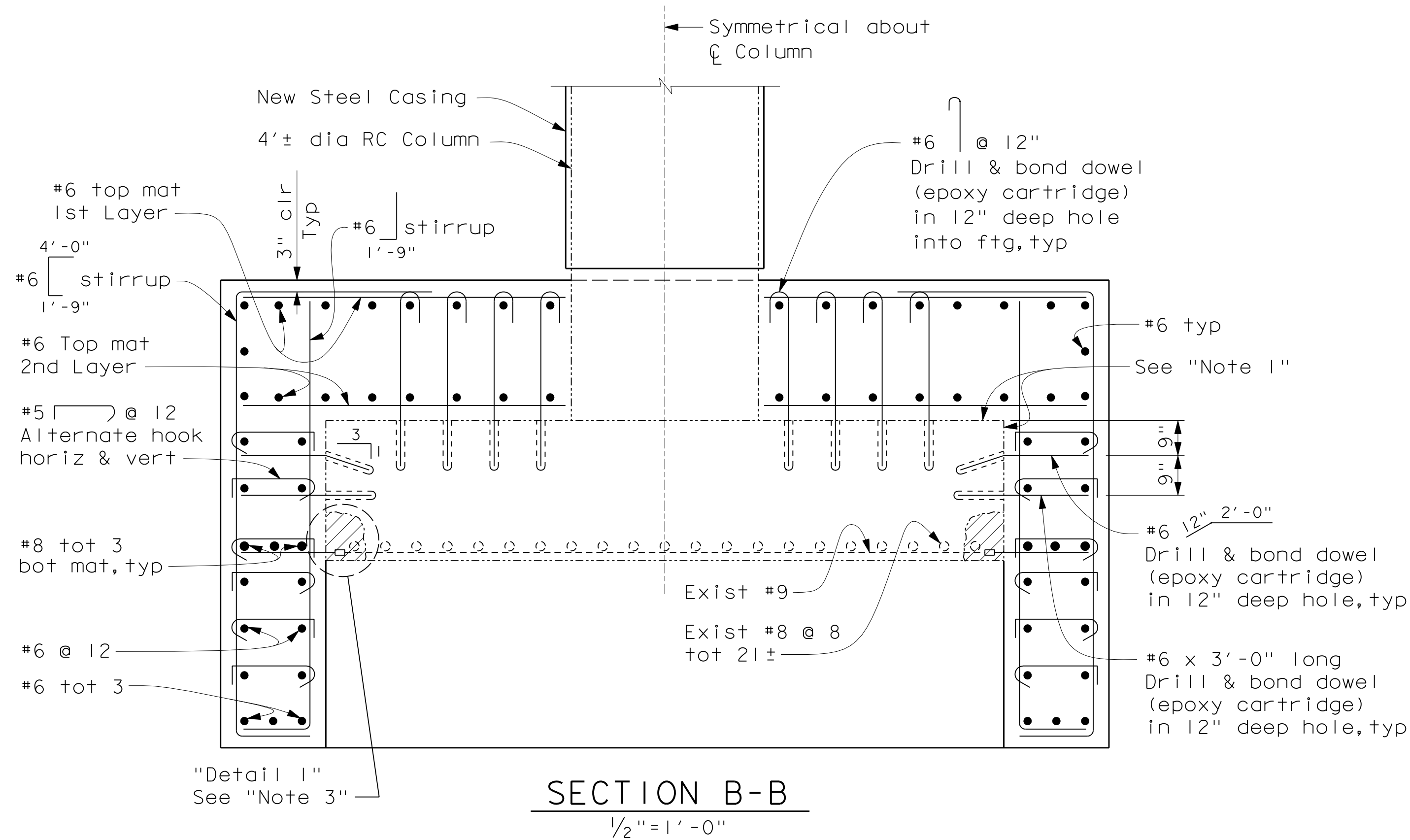
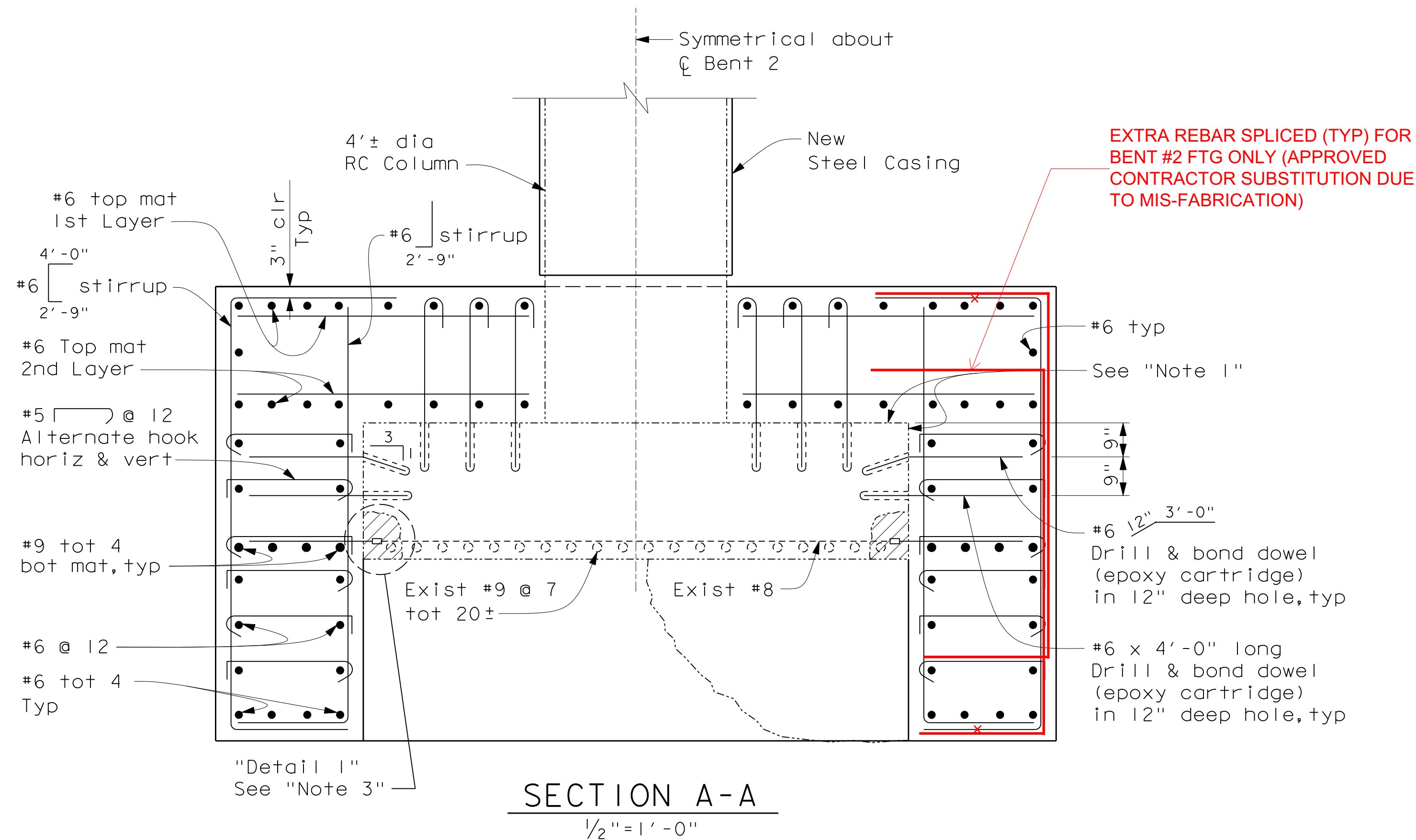
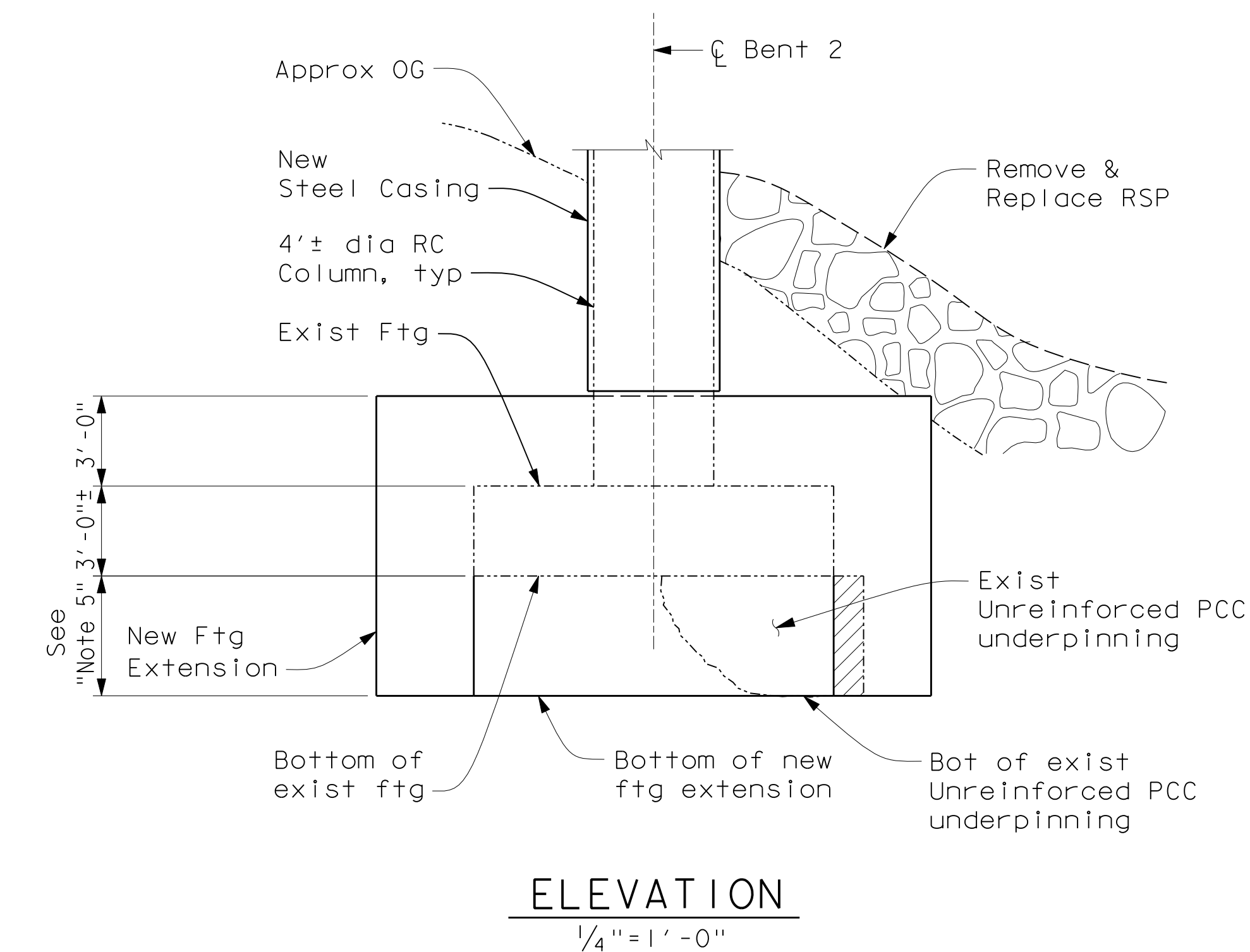
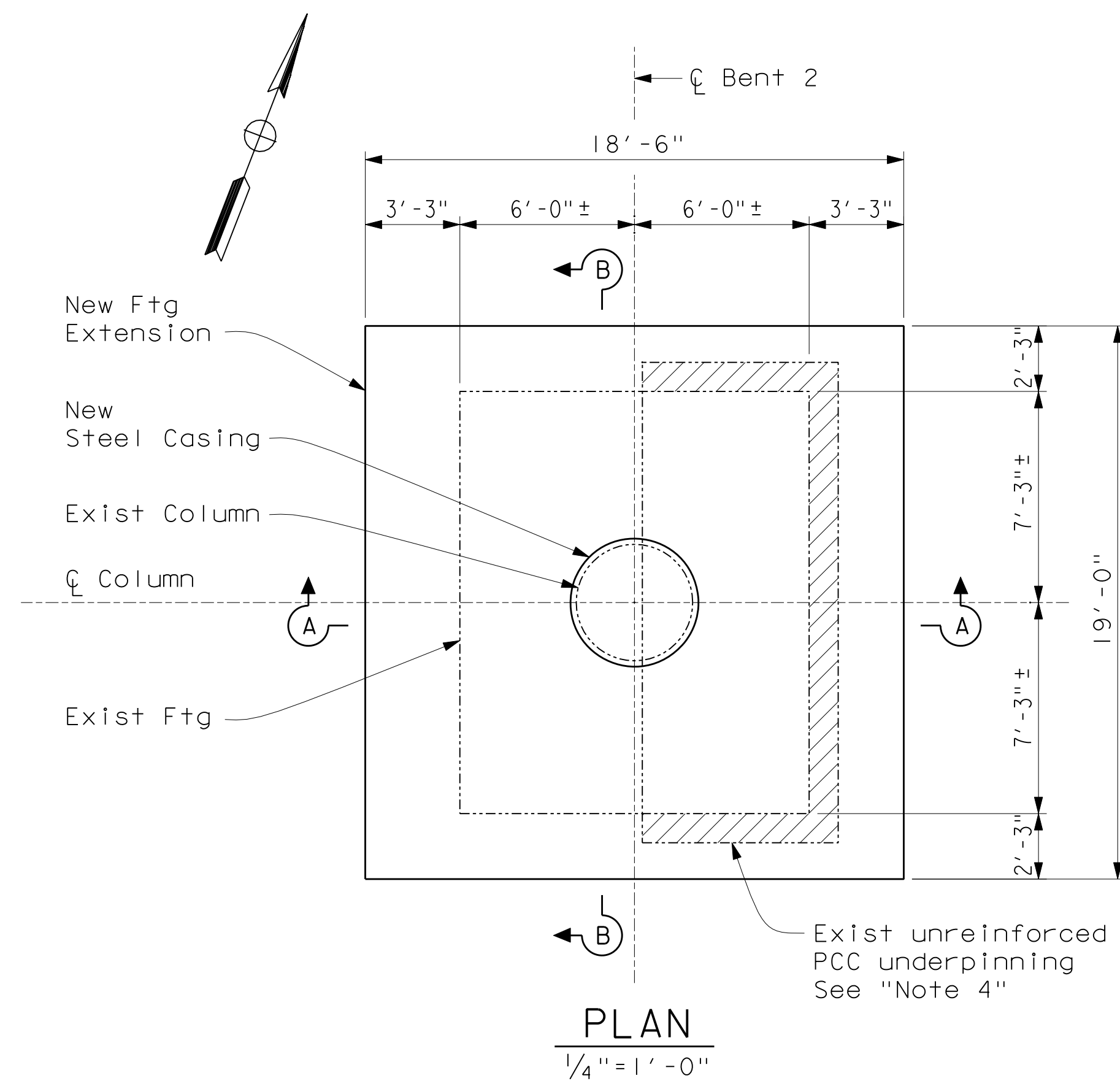
1. For "Section A-A" & "Detail 1", see "Barrier Reconstruction Details" sheet.
2. Optional 2" Dia cored holes through deck for CIP concrete placement. Prior to coring operation, contractor shall locate all existing deck reinforcement and submit locations of holes to be cored to the Engineer for approval.
3. Location of Intermediate Diaphragm shall be adjusted within 12" maximum to clear deck reinforcement for coring and to clear any waterline hangers or gas line straps as approved by the Engineer.

Note:
The Contractor shall verify all controlling field dimensions before ordering or fabricating any material.

AS BUILT

CORRECTION BY: D.D.
CONTRACT NO.:
DATE: JULY 15, 2009

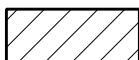
		ORANGE COUNTY RESOURCES & DEVELOPMENT MANAGEMENT DEPARTMENT	
		SANTIAGO CANYON ROAD BRIDGE SC-9 BRIDGE No. 55C-0038	
5/21/2008 CHANGED BARRIER TO STEEL TYPE ST-20S RAIL & STAINED TYPE 732B	REV. DATE DESCRIPTION REVISIONS	DECK RECONSTRUCTION DETAILS	
DESIGNED: <u>U. SANDIRA</u> DRAWN: <u>M. ANDRASEK</u> SCALE: VARIES	CHECKED: <u>M. CHAR</u> DATE: 12/18/06 DRAWING NO.	SHEET 8 R1 OF 15	



AS BUILT
CORRECTION BY: D.D.
CONTRACT NO.:
DATE: JULY 15, 2009

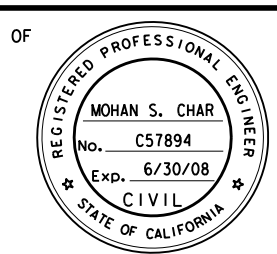
Notes:

1. Roughen exist concrete surface. Apply epoxy resin adhesive just prior to placement of new concrete.
2. All bars shall be epoxy coated prefabricated reinforcement with purple coating.
3. For "Detail 1", see "Bent 3 Footing Layout & Details" sheet.
4. Existing concrete removal limit shall be to the vertical faces of existing footing and to the existing PCC underpinning bottom elevation.
5. Match bottom of new footing with bottom of existing PCC underpinning.

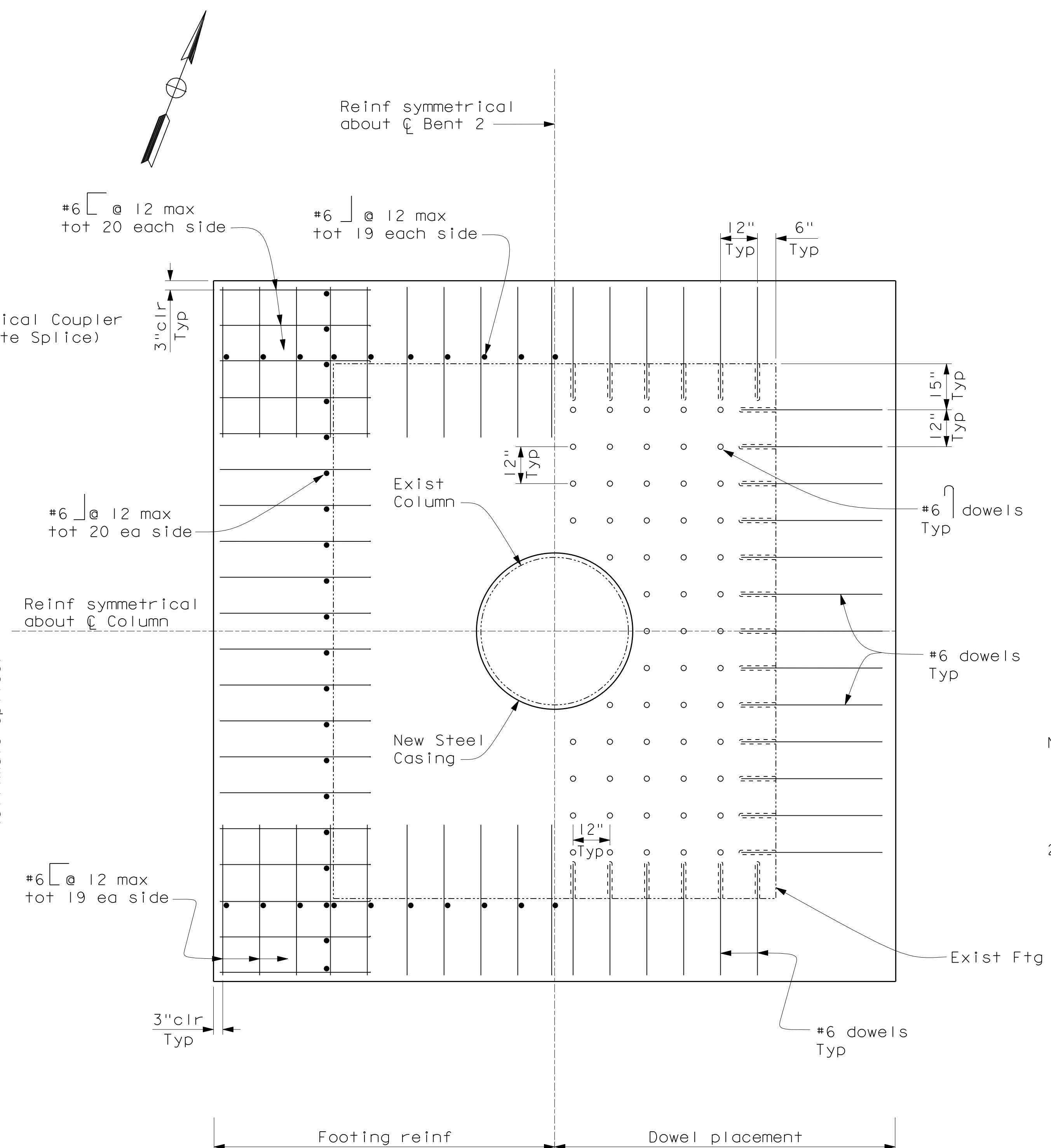
 Existing concrete removal

Note:
The Contractor shall verify all controlling field dimensions before ordering or fabricating any material.

REV. DATE DESCRIPTION REVISIONS		ORANGE COUNTY RESOURCES & DEVELOPMENT MANAGEMENT DEPARTMENT	
		SANTIAGO CANYON ROAD BRIDGE SC-9 BRIDGE No. 55C-0038 BENT 2 FOOTING LAYOUT & DETAILS	
DESIGNED <u>LI. SANDIRA</u> DRAWN <u>M. ANDRASEK</u> CHECKED <u>M. CHAR</u>		SHEET 9 OF 15	
SCALE VARIES DATE 12/18/06		DRAWING NO.	



Mkhar 12/18/06

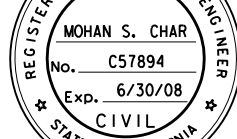


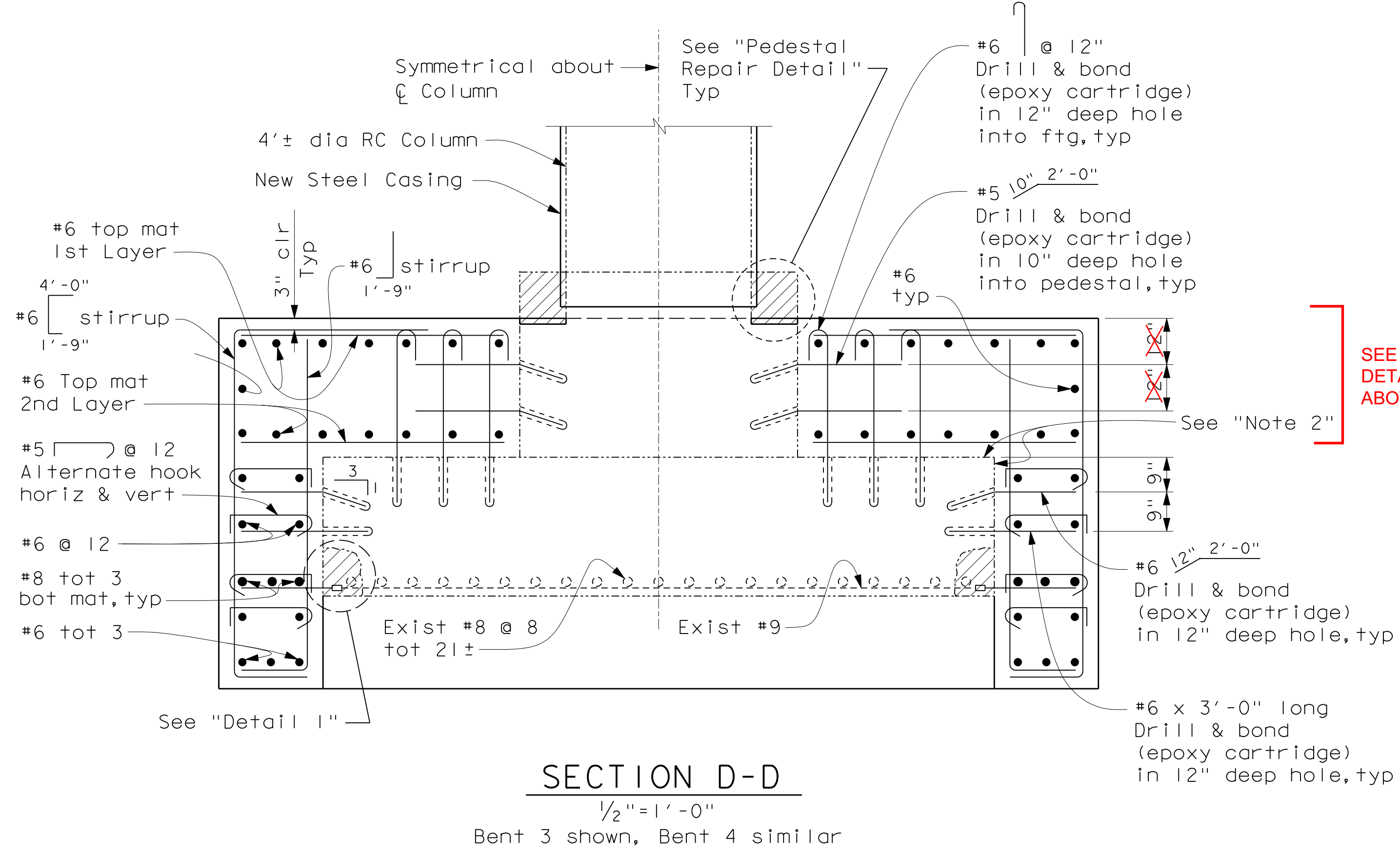
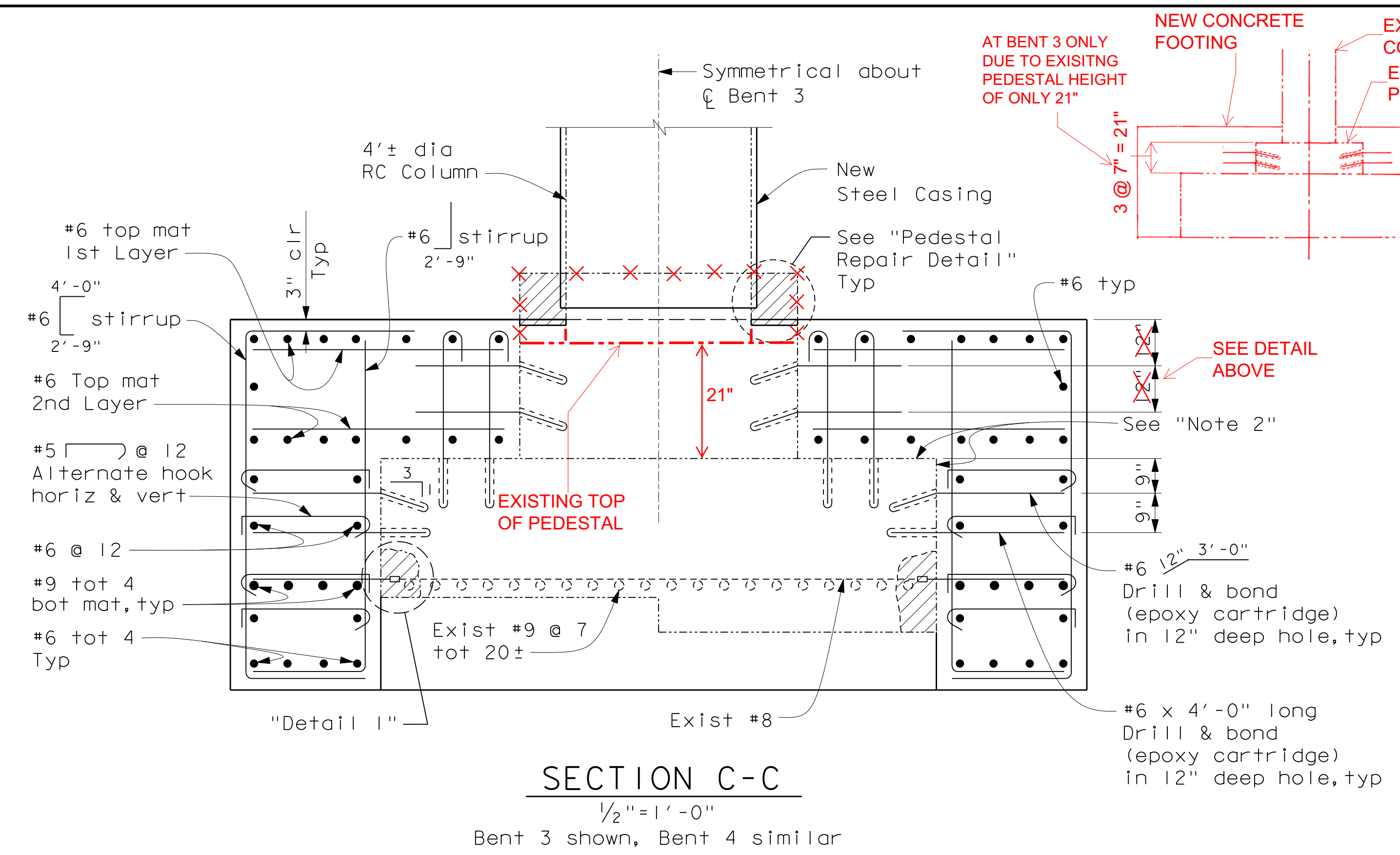
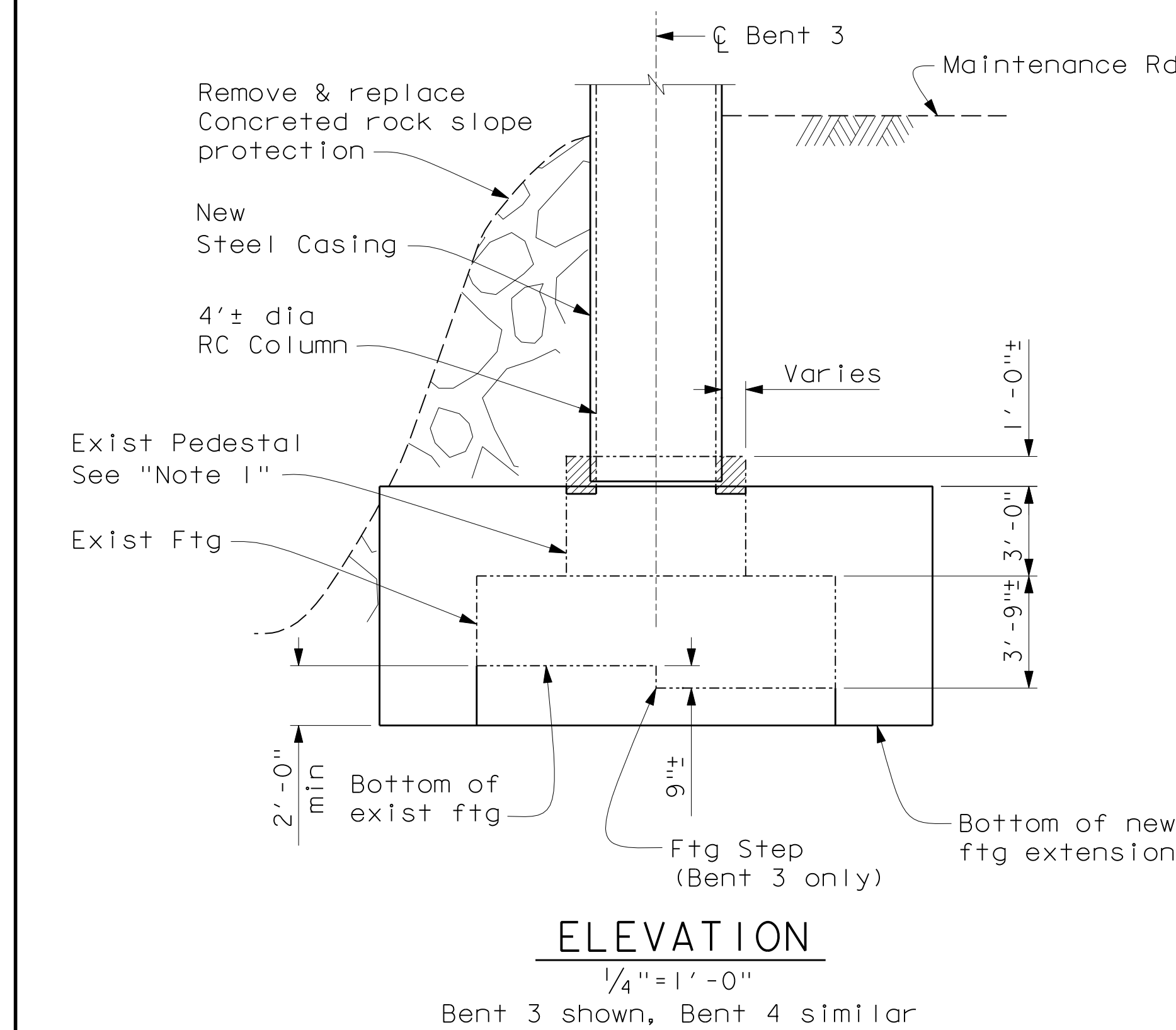
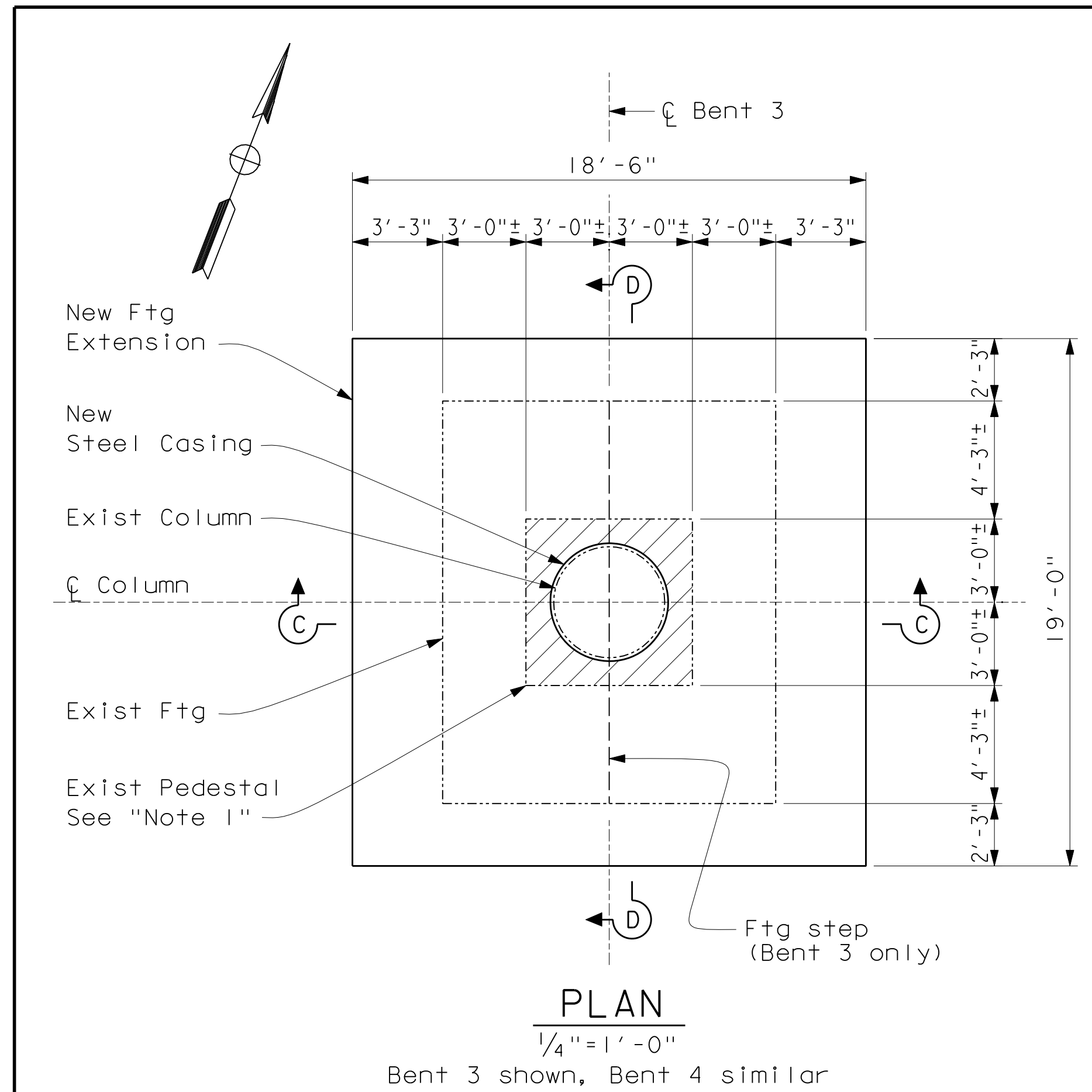
1. All bars shall be epoxy coated prefabricated reinforcement with purple coating.
2. Terminate bars 2" clear from face of existing column.

CORRECTION BY: D.D.
CONTRACT NO.:
DATE: JULY 15, 2009

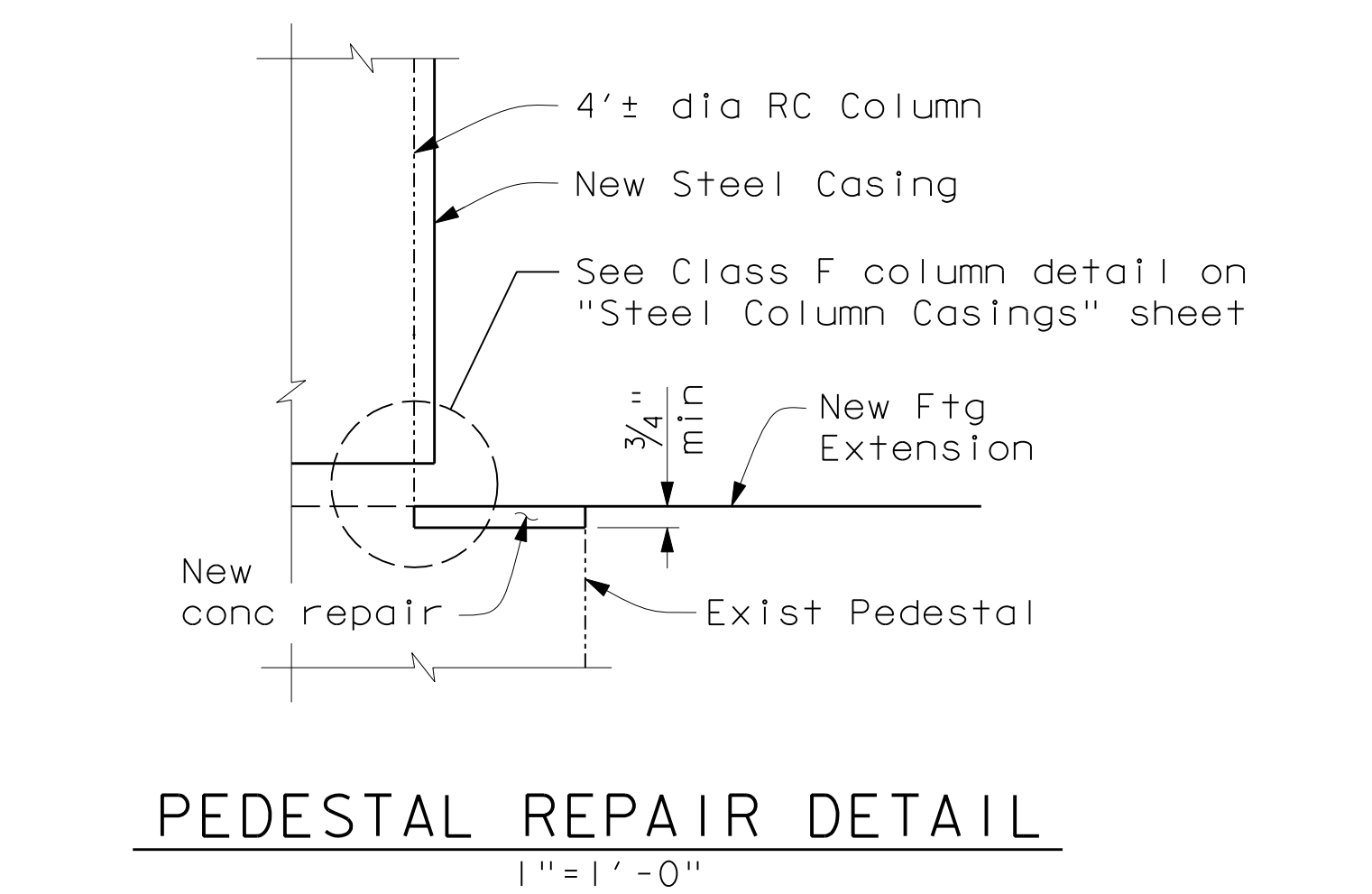
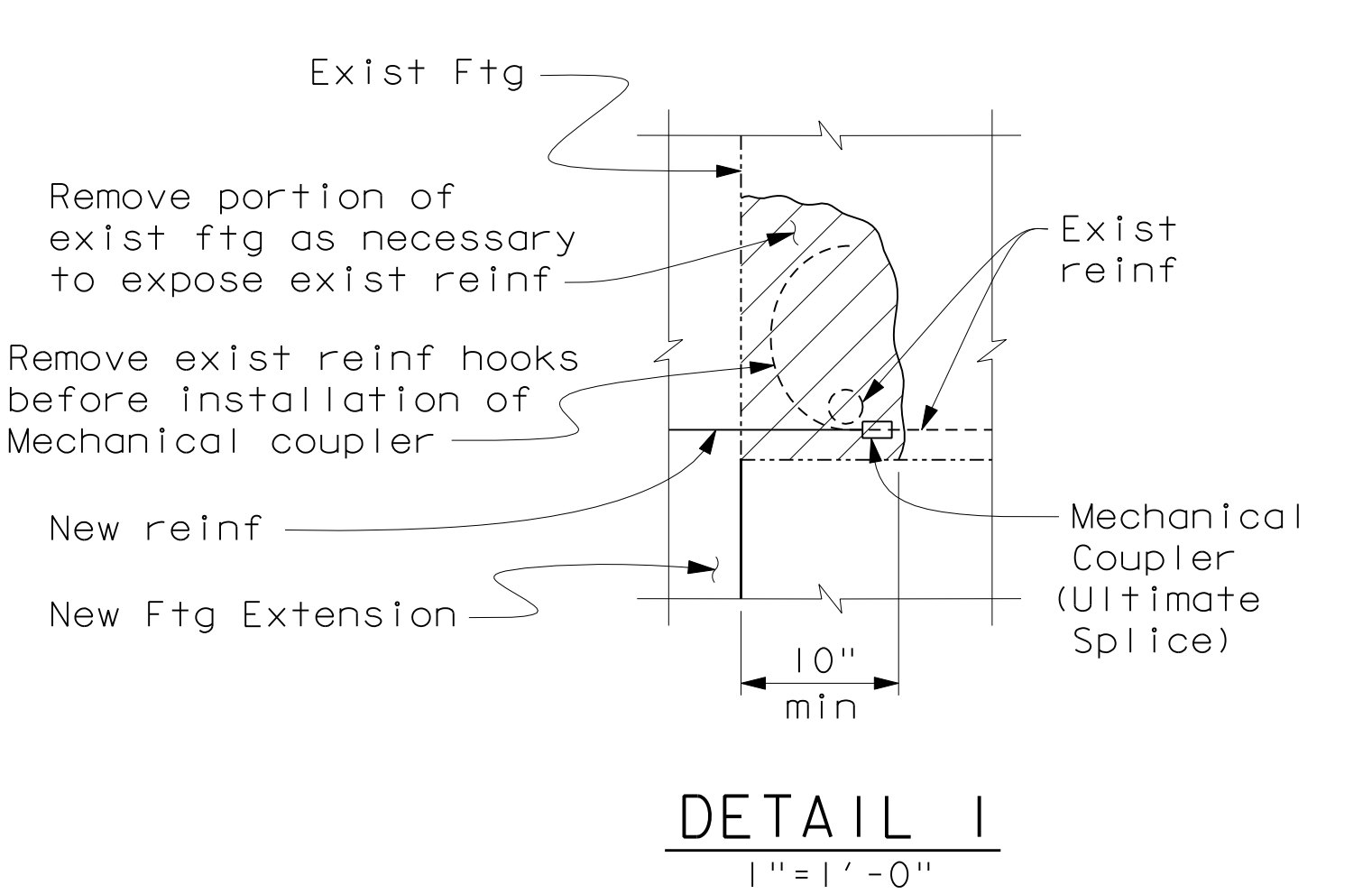
STIRRUP & DOWEL LAYOUT

Not All Stirrups shown

			ORANGE COUNTY RESOURCES & DEVELOPMENT MANAGEMENT DEPARTMENT SANTIAGO CANYON ROAD BRIDGE SC-9 BRIDGE No. 55C-0038 BENT 2 FOOTING DETAILS								
REV.	DATE	DESCRIPTION									
R E V I S I O N S											
PREPARED UNDER SUPERVISION OF 											
Mohan 12/18/06 DATE			<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td colspan="2" style="text-align: center;">DESIGNED <u>U. SANDIRA</u></td> <td rowspan="2" style="text-align: center; vertical-align: middle;">SHEET</td> </tr> <tr> <td style="text-align: center;">DRAWN <u>M. ANDRASEK</u></td> <td style="text-align: center;">CHECKED <u>M. CHAR</u></td> </tr> <tr> <td style="text-align: center;">SCALE VARIES</td> <td style="text-align: center;">DATE 12/18/06</td> <td style="text-align: center; vertical-align: middle;"> 10 OF 15 </td> </tr> </table>	DESIGNED <u>U. SANDIRA</u>		SHEET	DRAWN <u>M. ANDRASEK</u>	CHECKED <u>M. CHAR</u>	SCALE VARIES	DATE 12/18/06	10 OF 15
DESIGNED <u>U. SANDIRA</u>		SHEET									
DRAWN <u>M. ANDRASEK</u>	CHECKED <u>M. CHAR</u>										
SCALE VARIES	DATE 12/18/06	10 OF 15									



- LEGEND**
- Existing concrete removal
- Notes:**
- Existing pedestals at Bent 3 & 4 only.
 - Roughen exist concrete surface. Apply epoxy resin adhesive just prior to placement of new concrete.
 - All bars shall be epoxy coated prefabricated reinforcement with purple coating.



AS BUILT

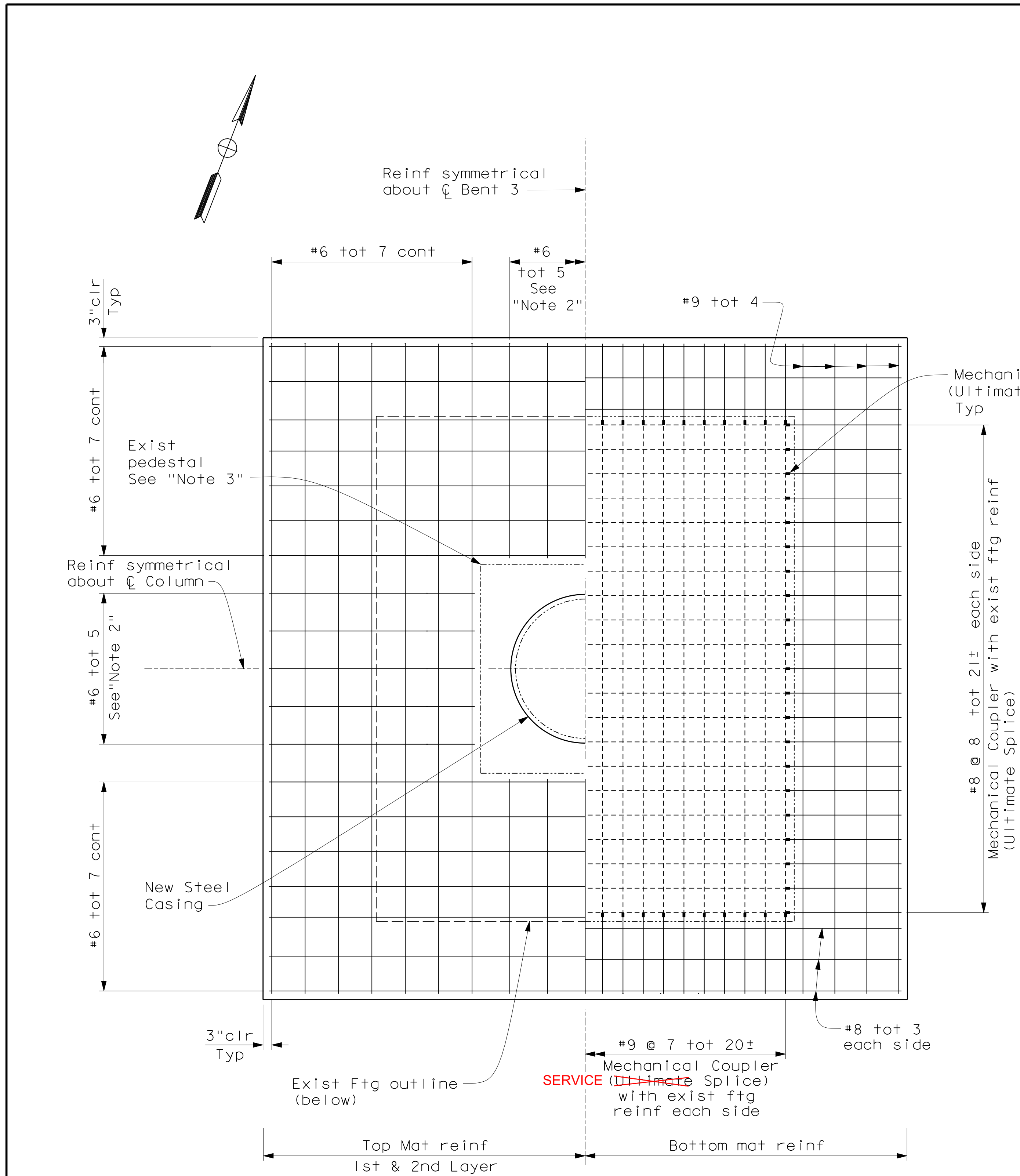
CORRECTION BY: D.D.

CONTRACT NO.:

DATE: JULY 15, 2009

ORANGE COUNTY RESOURCES & DEVELOPMENT MANAGEMENT DEPARTMENT		
SANTIAGO CANYON ROAD BRIDGE SC-9		
BRIDGE No. 55C-0038		
BENT 3 FOOTING LAYOUT & DETAILS		
DESIGNED: <u>L. SANDIRA</u>	SHEET	
DRAWN: <u>M. ANDRASEK</u>	CHECKED: <u>M. CHAR</u>	11
SCALE: <u>VARIES</u>	DATE: <u>12/18/06</u>	DRAWING NO. <u>OF 15</u>

Note:
The Contractor shall verify all
controlling field dimensions before
ordering or fabricating any material.

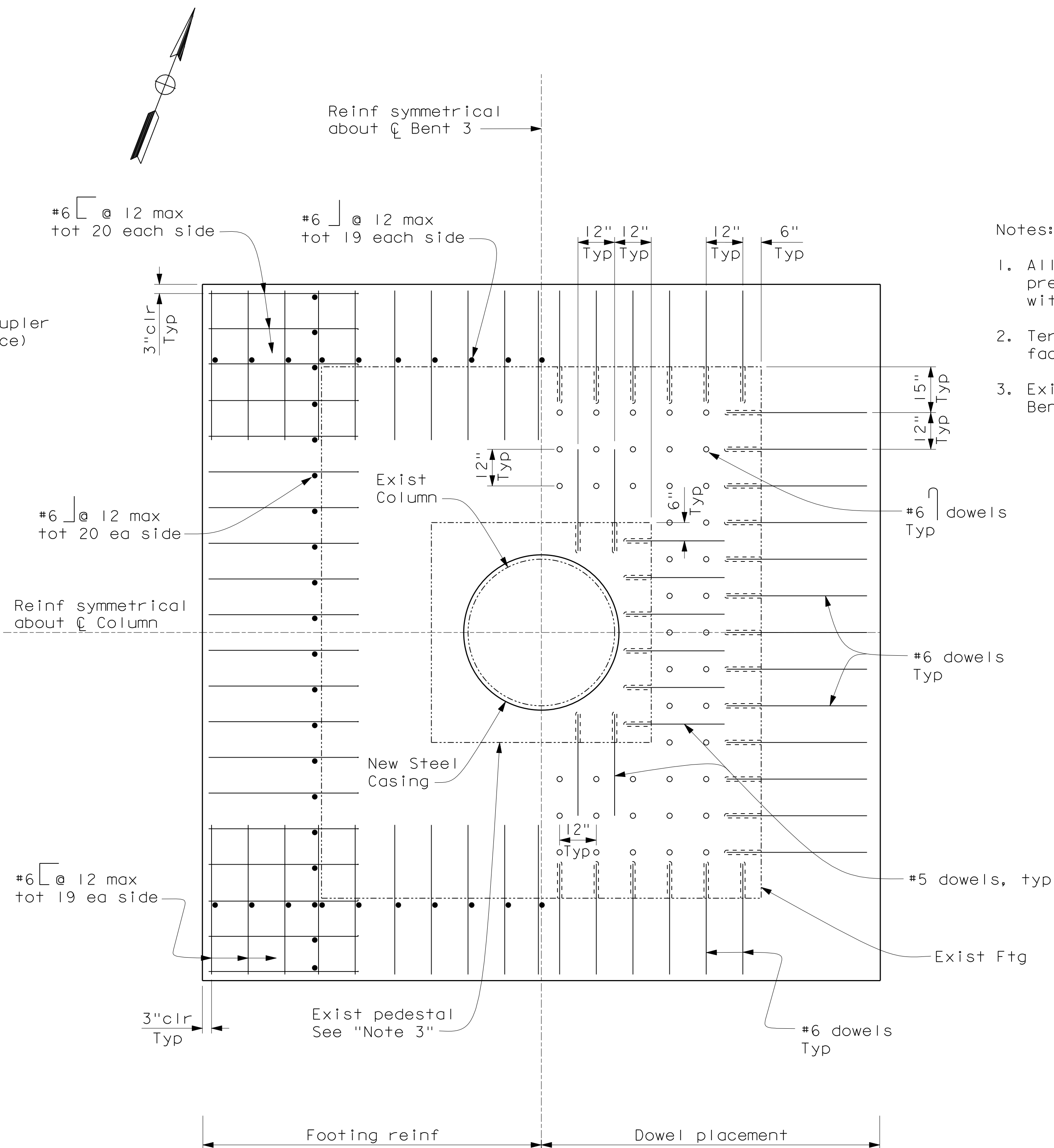


TOP & BOTTOM MAT
REINFORCEMENT LAYOUT

FOOTING REINFORCEMENT PLAN

$\frac{1}{2}'' = 1'-0''$
Bent 3 shown, Bent 4 similar

Note:
The Contractor shall verify all
controlling field dimensions before
ordering or fabricating any material.



STIRRUP & DOWEL LAYOUT

Not All Stirrups shown

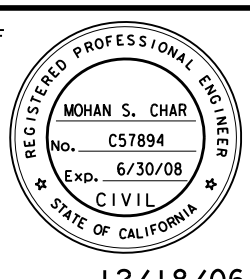
Notes:

1. All bars shall be epoxy coated prefabricated reinforcement with purple coating.
2. Terminate bars 2" clear from face of existing pedestal.
3. Existing pedestals at Bent 3 & 4 only.

AS BUILT

CORRECTION BY: D.D.
CONTRACT NO.:
DATE: JULY 15, 2009

ORANGE COUNTY RESOURCES & DEVELOPMENT MANAGEMENT DEPARTMENT		
SANTIAGO CANYON ROAD BRIDGE SC-9		
BRIDGE No. 55C-0038		
BENT 3 FOOTING DETAILS		
DESIGNED <u>LI. SANDIRA</u>	SHEET	
DRAWN <u>M. ANDRASEK</u>	12	
CHECKED <u>M. CHAR</u>	OF 15	
SCALE VARIES	DATE 12/18/06	DRAWING NO.



Mkhar

12/18/06

DATE

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO	TOTAL SHEETS
12	ORA				

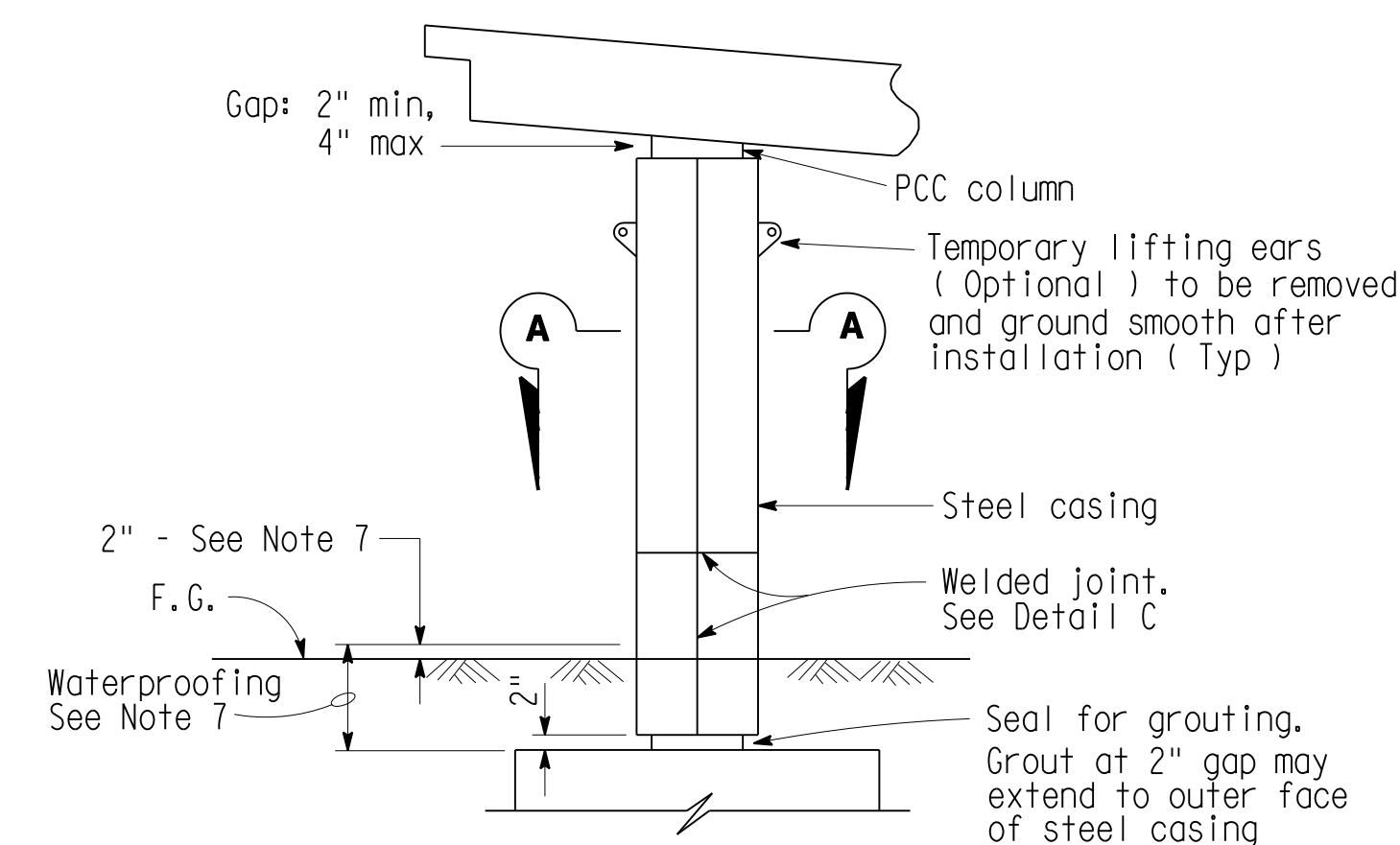
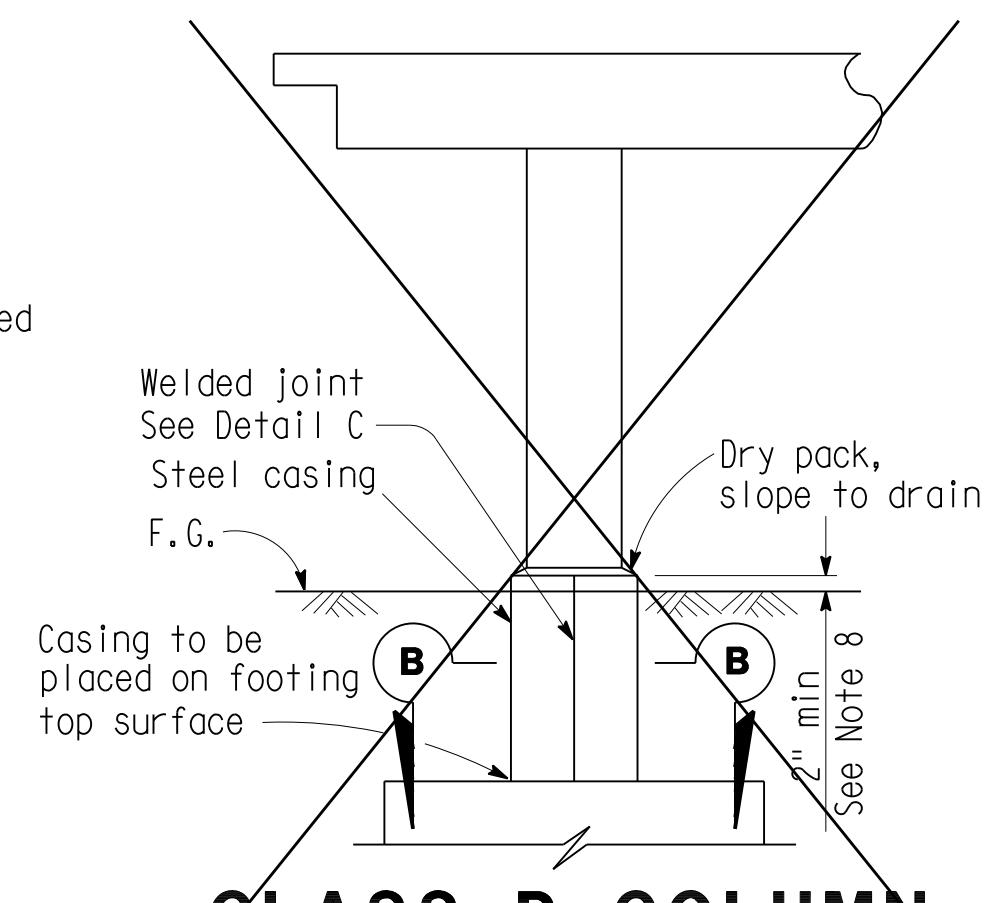
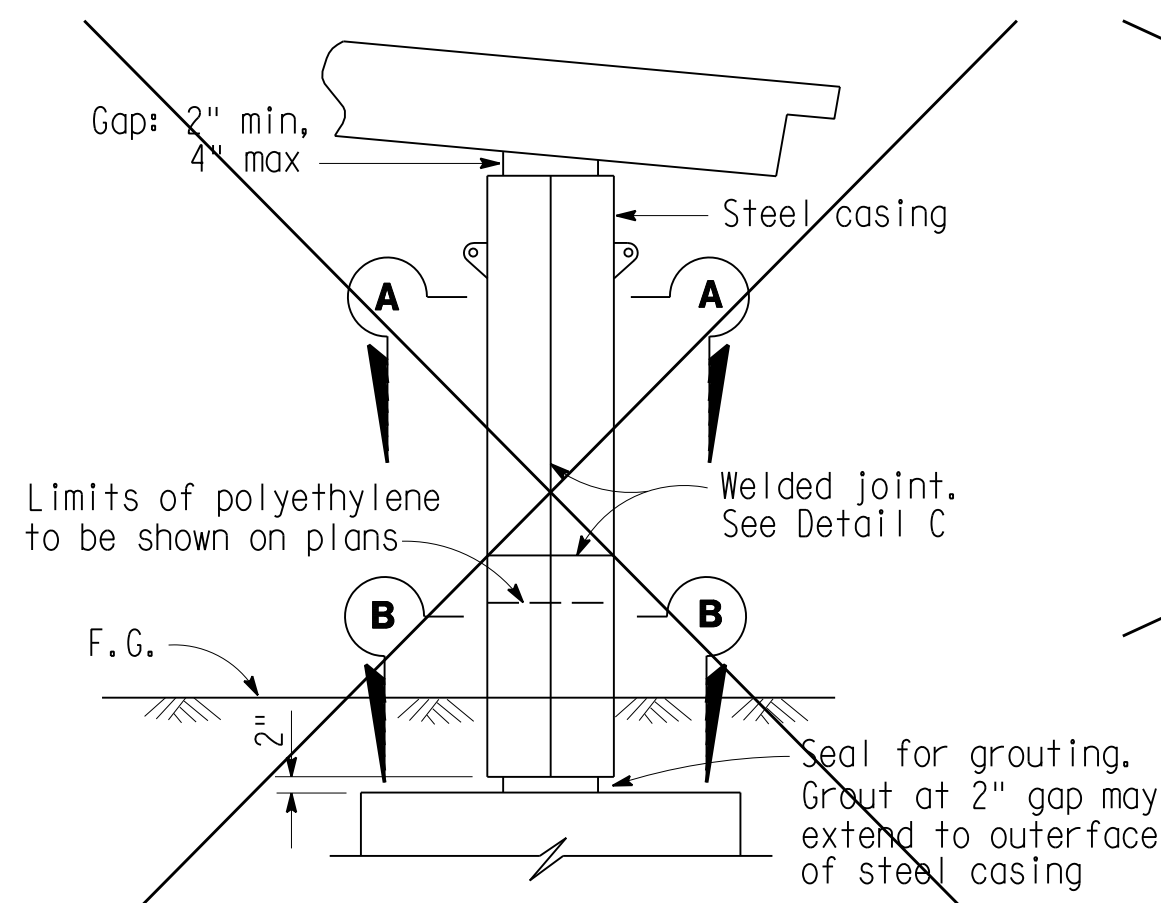
12/18/06
 REGISTERED CIVIL ENGINEER
 MOHAN S. CHAR
 No. C57894
 Exp. 6/30/08
 CIVIL
 STATE OF CALIFORNIA

PLANS APPROVAL DATE _____

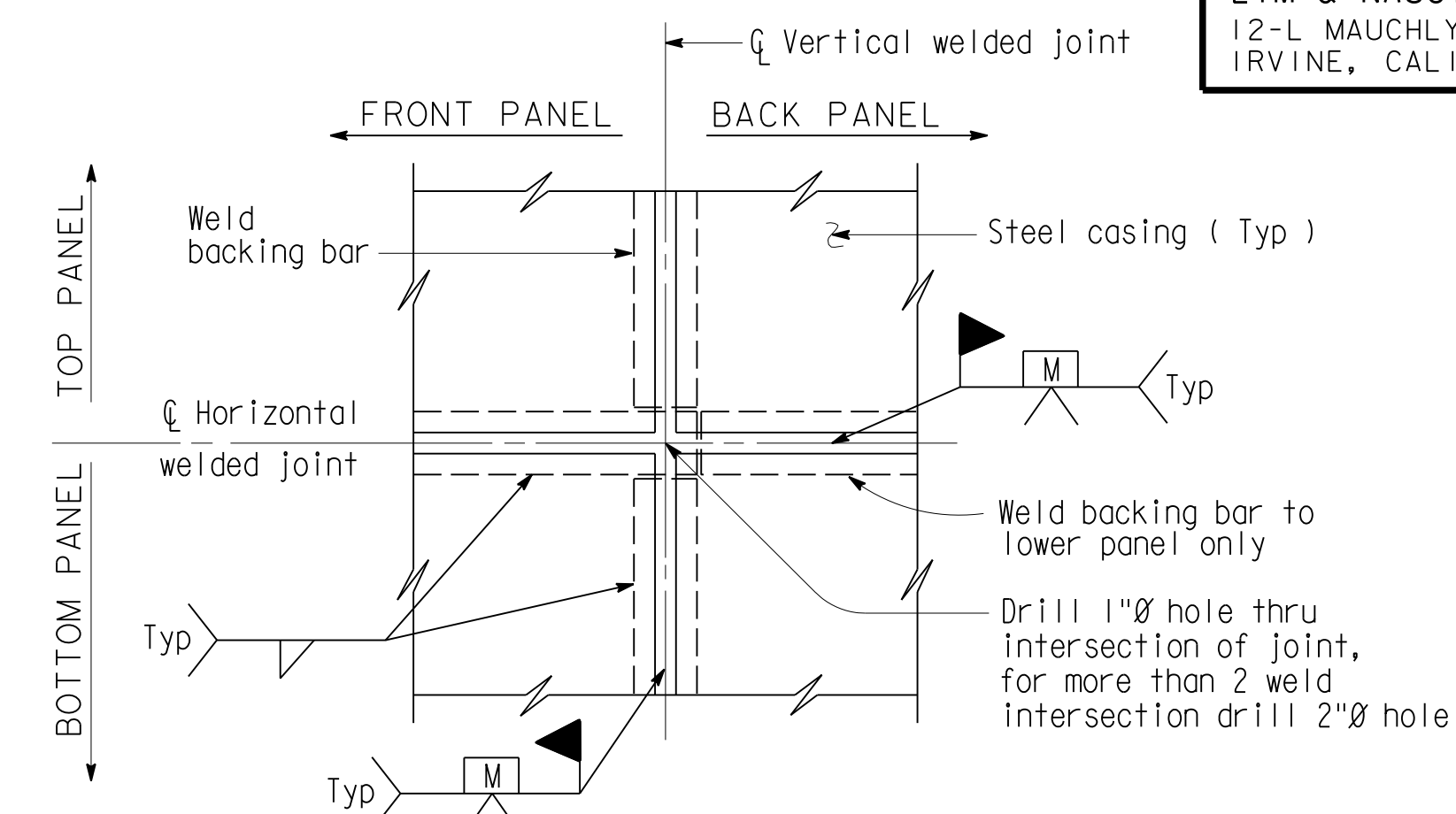
The County of Orange or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

COUNTY OF ORANGE
 300 NORTH FLOWER STREET
 SANTA ANA, CA 92703-5000

LIM & NASCIMENTO ENGINEERING
 12-L MAUCHLY
 IRVINE, CALIFORNIA 92618

**CLASS F COLUMN****CLASS P COLUMN****CLASS P/F COLUMN****ELLIPTICAL CASING DETAIL CLASS P, F AND P/F COLUMN**

Radii R1 and R2 to be determined by the Contractor subject to the approval of the Engineer

**(TWO WELDED INTERSECTION JOINT)****DETAIL C**

No Scale

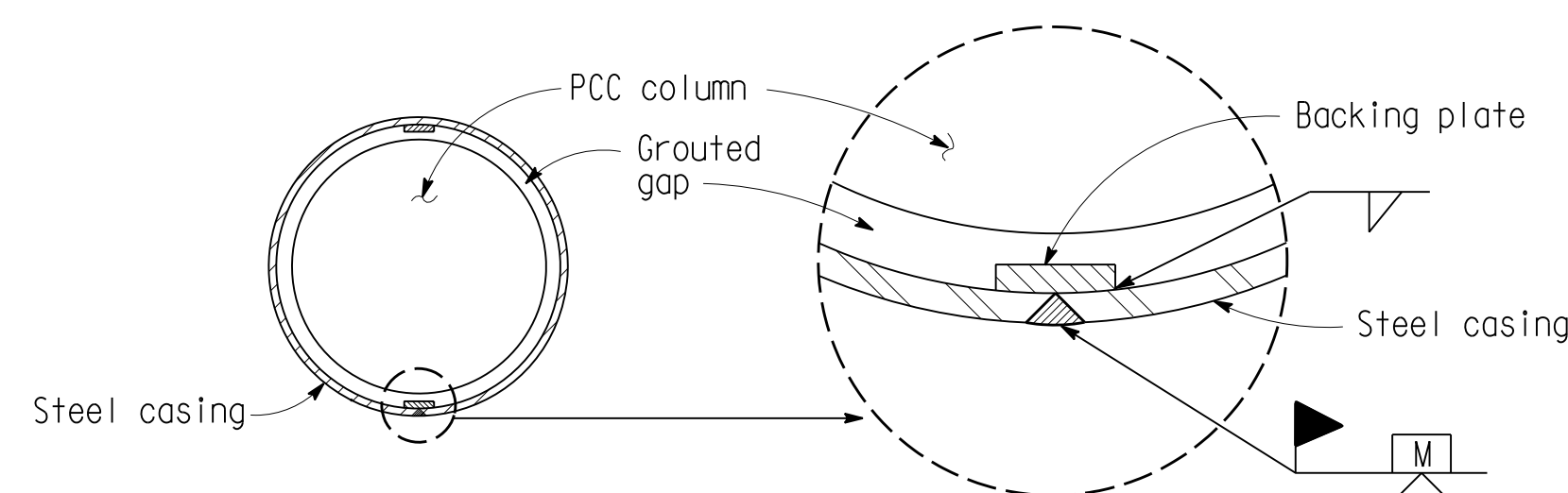
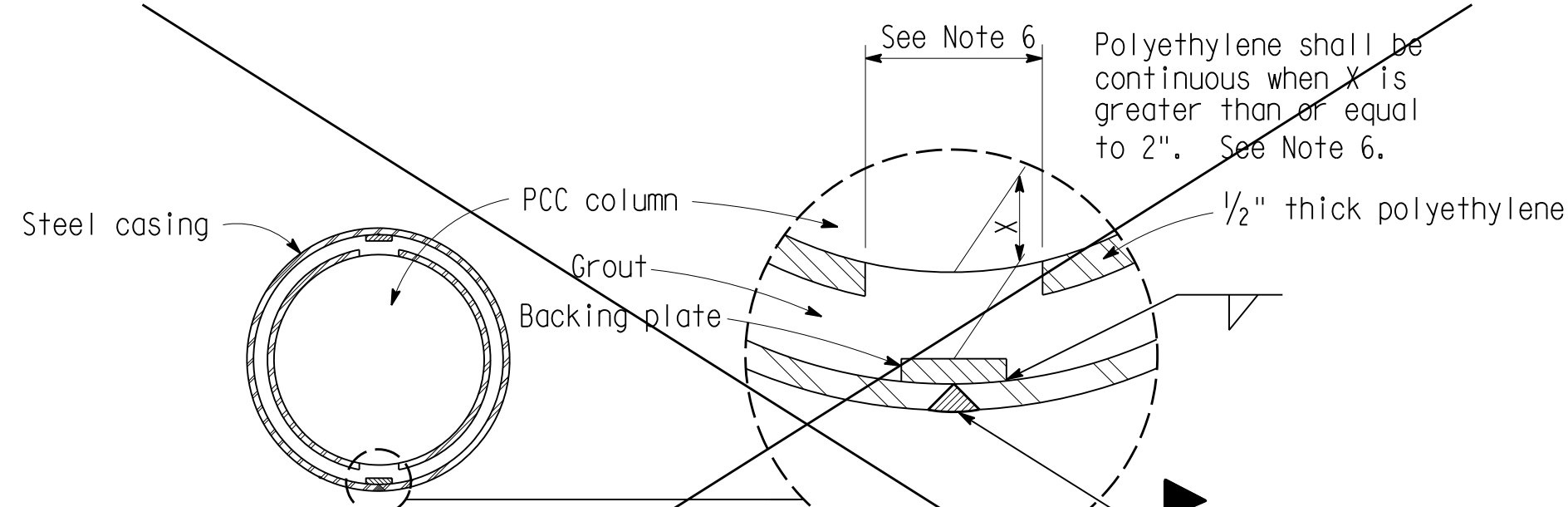
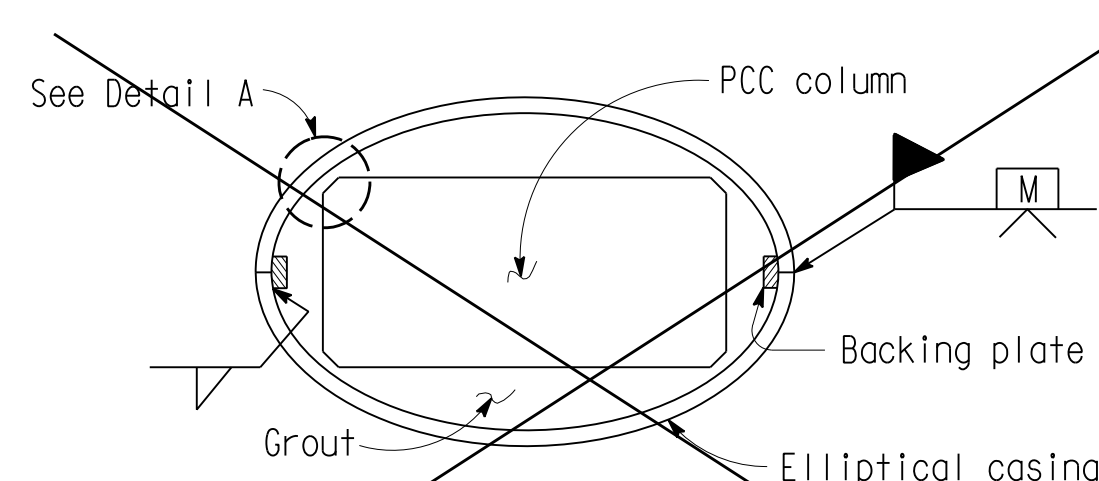
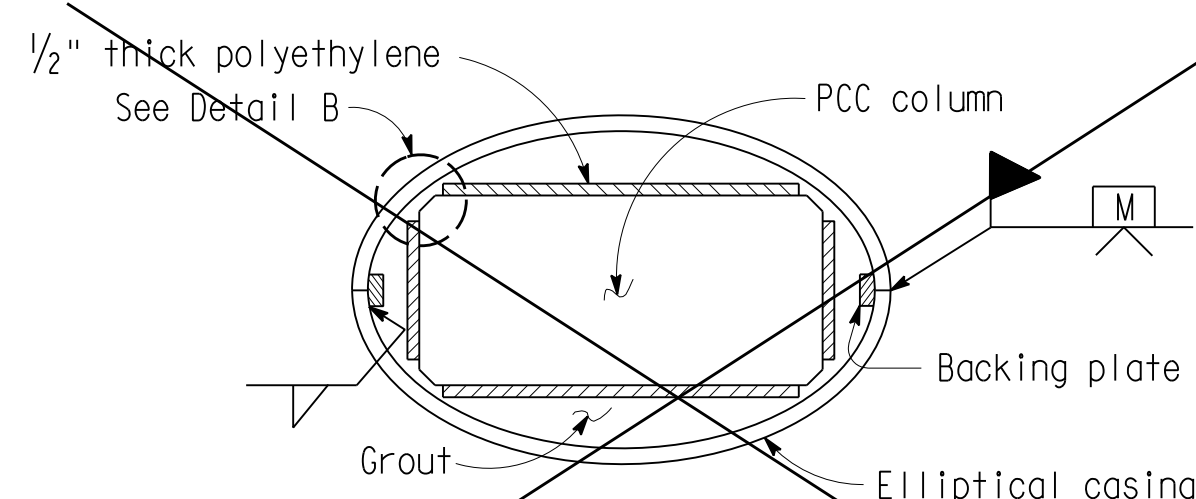
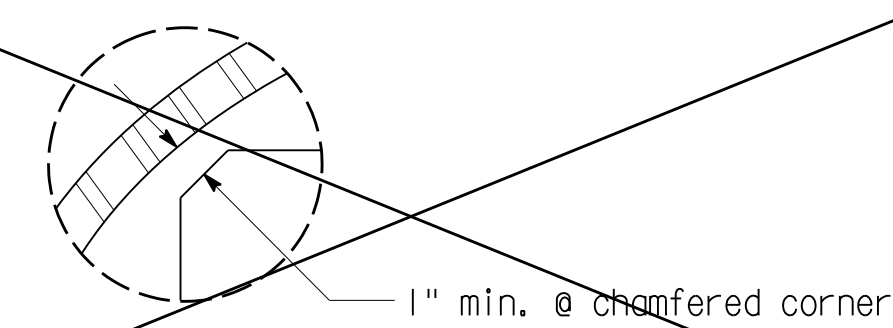
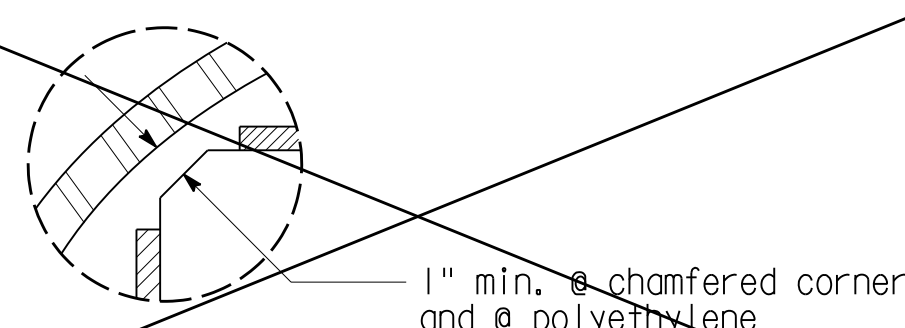
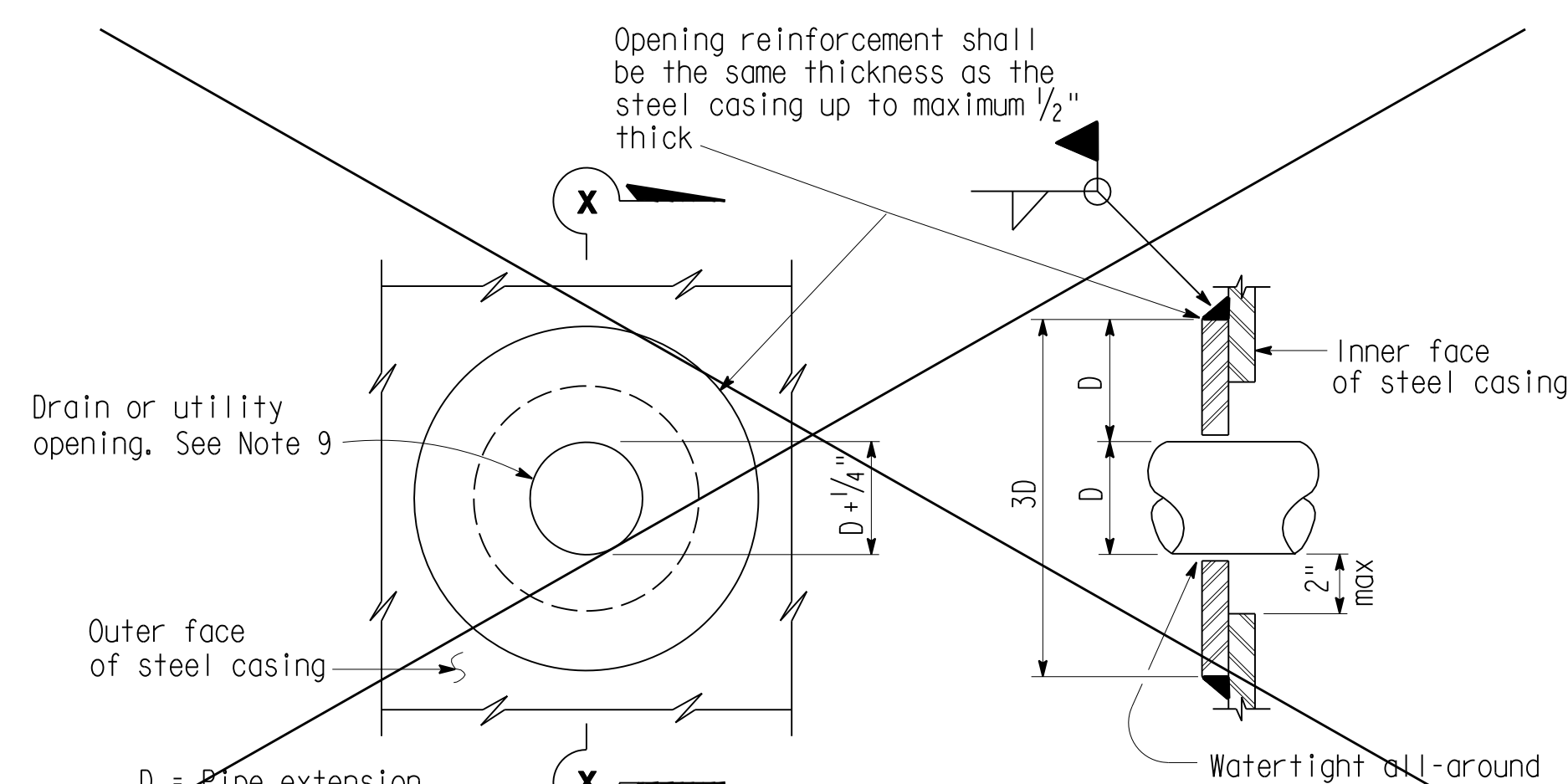
No As-Built Changes

AS BUILTCORRECTION BY: D.D.

CONTRACT NO.: _____

DATE: JULY 15, 2009**NOTES:**

- For varying thickness steel casing inside surface to remain flush. Minimum clearance from PCC column to casing shall be maintained.
- Appropriate injection nozzles to be provided on casing, but removed and ground flush following completion of grouting operation.
- All voids between steel casing and polyethylene (Class P and Class P/F), and steel casing and PCC column (Class F) to be filled with grout.
- Location and number of vertical and horizontal welds to be determined by the Contractor, and subject to the approval of the Engineer. The location of casing welds are for illustration. No skip welds allowed.
- Circular steel casing to be $\frac{1}{4}$ " thick minimum for casings with a 4'-4" diameter or less; all other steel casings to be $\frac{3}{8}$ " thick unless noted differently on contract plans. Backing plates to be the same thickness as casing up to maximum $\frac{1}{2}$ " thick
- Contractor shall remove 12" polyethylene strip behind backing plate if backing plate is closer than $\frac{1}{2}$ " from polyethylene.
- Waterproof limits for steel casings. Typical for Classes "P", "F" and "P/F".
- Minimum length of Classes "P" and "F" casing shall be 1.50 times the largest dimension of prismatic section of column, or 2" above finished grade whichever is greater. Lengths other than the specified minimum shall be shown on detail sheets.
- For pipe extensions, opening shall be no more than $\frac{1}{4}$ " greater than the pipe extension diameter. For other openings, the opening diameter to be determined by the Engineer.

**SECTION A-A
ROUND COLUMN**Minimum inside diameter of steel casing = $\frac{1}{2}$ " greater than nominal column diameter for Class F and $\frac{2}{2}$ " for Class P/F**SECTION B-B
ROUND COLUMN**Minimum inside diameter of steel casing = $\frac{2}{2}$ " greater than nominal column diameter for Class P and Class P/F.**SECTION A-A
RECTANGULAR COLUMN****SECTION B-B
RECTANGULAR COLUMN****DETAIL A****DETAIL B****SECTION X-X****CASING OPENING**

No Scale

Note: Opening reinforcement required for drain or utility openings larger than 4".

STANDARD DRAWING					
FILE NO. XS 12-77	DESIGN	BY <i>BRIAN MARONEY</i>	CHECKED <i>R.J. ZELINSKI</i>	APPROVAL, RECOMMENDED BY <i>Richard D. Ford</i>	
DESIGN DATE REVISED	DETAILS	BY <i>R. YEE</i>	CHECKED <i>PAT HIPLEY</i>	DESIGN SUPERVISOR	
	SUBMITTED BY	<i>R.J. ZELINSKI</i>			

DETAILS DELETED

STATE OF
CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF STRUCTURES
STRUCTURE DESIGN

BRIDGE NO.
55C-0038
POST MILE

SANTIAGO CANYON ROAD BRIDGE SC-9**STEEL COLUMN CASINGS**

DS OSD 2147A (CADD 7/97)

ORIGINAL SCALE IN INCHES
FOR REDUCED PLANS

0 1 2 3

CU
EADISREGARD PRINTS BEARING
EARLIER REVISION DATES

REVISION DATES (PRELIMINARY STAGE ONLY)

5/25/03 10/28/03 11/27/03 11/27/05 8/11/05 8/28/06 11/28/06 12/18/06

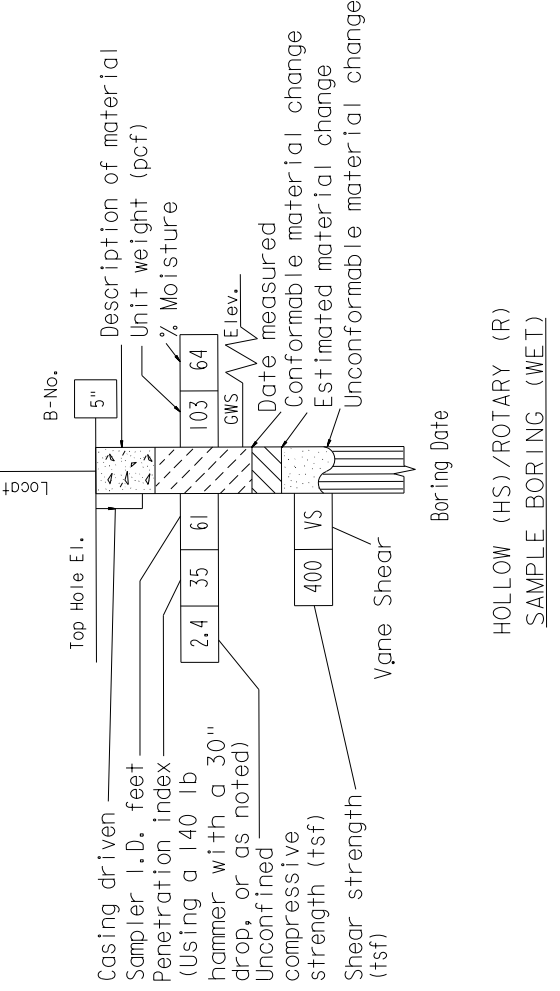
SHEET 13 OF 15

13-XS1277.DGN

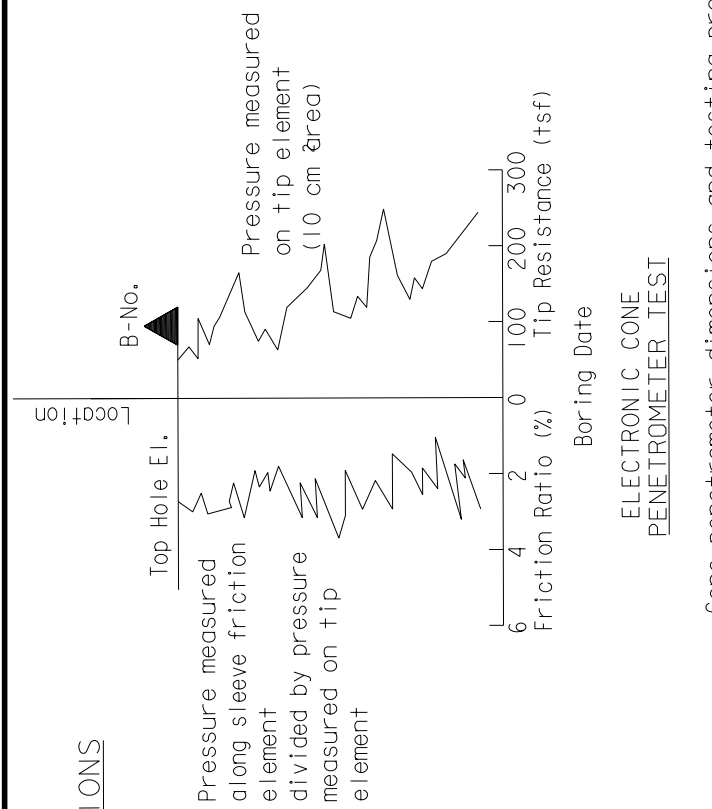
CONSISTENCY CLASSIFICATION FOR SOILS			
According to the Standard Penetration Test			
GRANULAR		COHESIVE	
Penetration Index	Consistency	Penetration Index	Consistency
0-4	Very Loose	0-2	Very Soft
4-10	Loose	2-4	Soft
10-30	Medium Dense	4-15	Firm
30-50	Dense	15-30	Hard
>50	Very Dense	>30	Very Hard

NOTE: Classification of earth material as shown on this sheet is based on visual inspection and/or mechanical analysis where indicated.

LEGEND OF EARTH MATERIALS	
SYMBOLS	LETTER
GM	ML
GP	CL
GC	OL
GM	MH
SW	CH
SP	OH
SM	PT
SC	TS



LEGEND OF BORING OPERATIONS



ELECTRONIC CONE PENETROMETER TEST

Cone penetrometer dimensions and testing procedures are in accordance with ASTM Standard D-3441-79 or as noted.

SAMPLER TYPE

EQUIVALENT PENETRATION INDEX FOR MC= 0.5x BLOWS/FEET

MODIFIED CALIFORNIA SAMPLER (2.42" I.D., 3" O.D.)

AUGER BORING (DRY) BECKER BORING TEST

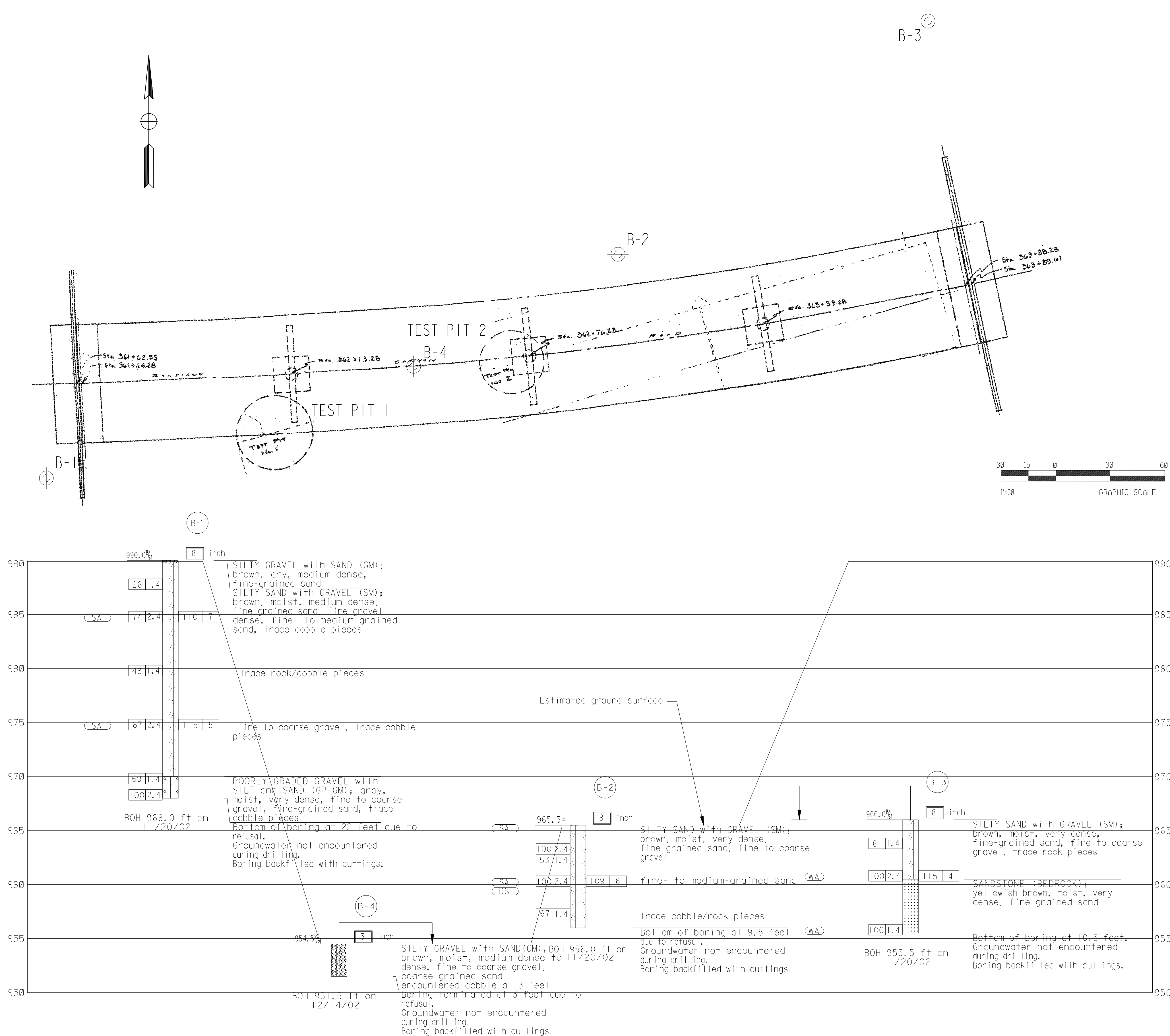
TORVANE SHEAR TRIAXIAL WASH #200

POCKET PENETROMETER R-VALUE R-VALUE ANALYSIS

ATTERBERG LIMITS CONSOLIDATION DIRECT SHEAR CHEMICAL TESTING HYDROMETER ANALYSIS

ATTERBERG LIMITS CONSOLIDATION DIRECT SHEAR CHEMICAL TESTING HYDROMETER ANALYSIS

Note:
The Contractor shall verify all controlling field dimensions before ordering or fabricating any material.



EXPLANATION
DYA BORING LOCATION

No As-Built Changes

AS BUILT

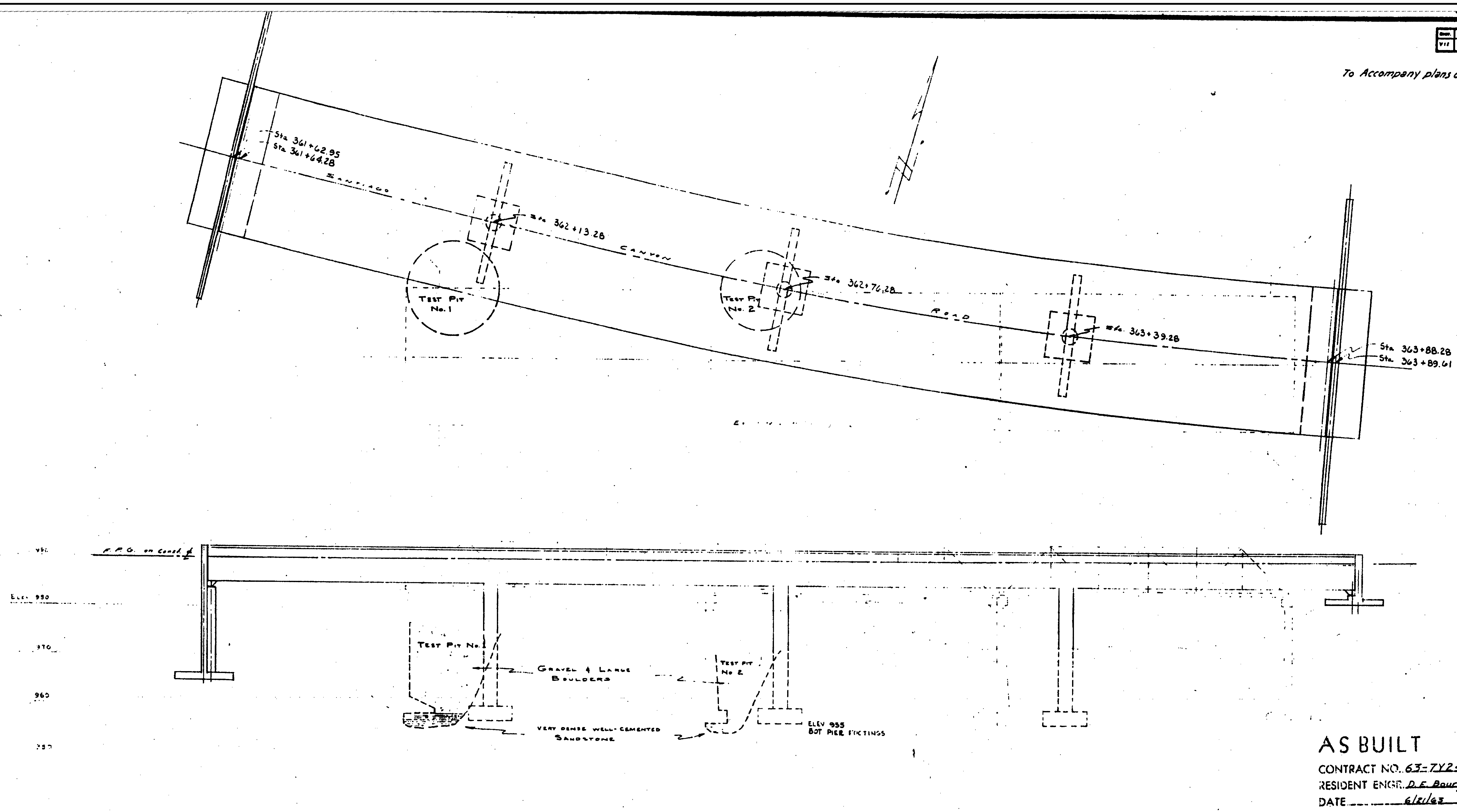
CORRECTION BY: D.D.
CONTRACT NO.:
DATE: JULY 15, 2009

LOCATIONS B-1 TO B-4

REV.		DATE	DESCRIPTION
REVISIONS			
PREPARED UNDER SUPERVISION OF			
N.R. Naderian REGISTERED PROFESSIONAL ENGINEER No. 2390 Exp. 9/30/07 STATE OF CALIFORNIA			
ORANGE COUNTY RESOURCES & DEVELOPMENT MANAGEMENT DEPARTMENT			
SANTIAGO CANYON ROAD BRIDGE SC-9			
BRIDGE No. 55C-0038			
LOG OF TEST BORINGS			
DESIGNED	N. SU	CHECKED	V. R. N.
DRAWN	J. J. H.	DATE	12/18/06
SCALE	VARIABLE	DRAWING NO.	OF 15

To Accompany plans dated September 4, 1962

BRIDGE DEPARTMENT



AS BUILT
CONTRACT NO. 63-7Y24C3-P
RESIDENT ENGR. D.E. Bourgeois
DATE 6/1/63

CLASSIFICATION OF MATERIAL BASED ON STANDARD GRADE SIZE LIMITS

DIAGRAM SHOWING THE BASIS FOR ESTIMATES OF GRADE SIZE DISTRIBUTION USED IN DETERMINATION OF CLASS NAMES. IF GRAVEL IS PRESENT IN APPRECIABLE AMOUNTS THE TERM "GRAVELLY" MAY BE ADDED TO THE CLASS NAME, VIZ. "GRAVELLY SAND." THE TERMS "COARSE," "MEDIUM" AND "FINE" WHEN USED TO DESCRIBE SAND, SILT AND GRAVEL REFER TO STANDARD GRADE SIZE LIMITS.

LEGEND OF EARTH MATERIALS

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

LEGEND OF BORING OPERATIONS

PLAN OF ANY BORING	TOP HOLE EL. 8-18
PENETROMETER	Blows per foot (Using 140 lb hammer with a 12" Free Fall)
2 1/4" CONE PENETROMETER	Blows per foot (Using 140 lb hammer with a 30" drop, or as noted)
SAMPLER BORING (DRY)	Blows per foot (Using 140 lb hammer with a 30" drop, or as noted)
ROTARY BORING (WET)	Blows per foot (Using 140 lb hammer with a 30" drop, or as noted)
AUGER BORING (DRY)	Blows per foot (Using 140 lb hammer with a 30" drop, or as noted)
JET BORING	Blows per foot (Using 140 lb hammer with a 30" drop, or as noted)
CORE BORING	Blows per foot (Using 140 lb hammer with a 30" drop, or as noted)
TEST PIT	Blows per foot (Using 140 lb hammer with a 30" drop, or as noted)

6-57C38-10

FAS 1279 (3)

SANTIAGO CANYON ROAD
BRIDGE (SC-9)
over Santiago Creek

LOG OF TEST BORINGS

SCALE 1" = 100' BRIDGE 55C-38 FILE DRAWING SHT. 23 of 29

No As-Built Changes

AS BUILT

CORRECTION BY: D.D.

CONTRACT NO.:

DATE: JULY 15, 2009

Note:
The Contractor shall verify all
controlling field dimensions before
ordering or fabricating any material.

ORANGE COUNTY RESOURCES & DEVELOPMENT MANAGEMENT DEPARTMENT	
SANTIAGO CANYON ROAD BRIDGE SC-9	
BRIDGE No. 55C-0038	
AS-BUILT LOG OF TEST BORINGS	
DESIGNED N. SU	SHEET 15
DRAWN M. ANDRASEK	CHECKED V. R. N.
SCALE VARIES	DATE 12/18/06
DRAWING NO.	

PREPARED UNDER SUPERVISION OF

N.R. Nader
GEOTECHNICAL PROFESSIONAL

12/18/06
DATE