

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.:
DATE: JULY 15, 2009

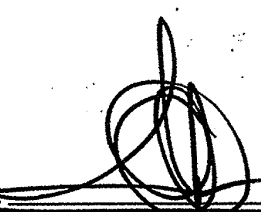
Resident Engineer: Hamid Abedzadeh
Inspector: David Dimaggio/Mario Garcia
Contractor: KLM Construction Inc.
Completion Date: May 20, 2008

FUNDED BY: HBRRP FUNDS AND COUNTY OF ORANGE

POST-PROJECT OWNERSHIP & MAINTENANCE RESPONSIBILITY: COUNTY OF ORANGE

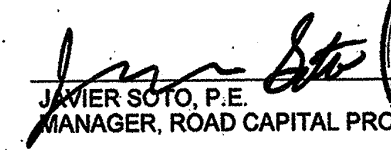
DEVIATIONS FROM STANDARDS

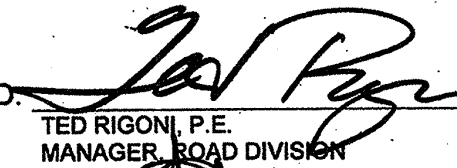
THE FOLLOWING RDMD STANDARDS HAVE BEEN MODIFIED:
STD PLAN 1103, PRIMARY HIGHWAY TYPICAL SECTIONS
- 11 FT. TRAVEL LANE
- 5 FT. SHOULDER

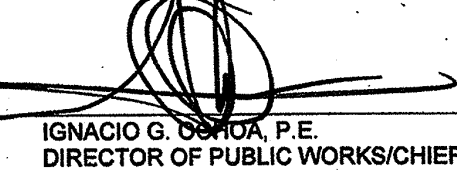
APPROVED:  5/21/07
IGNACIO G. OSORIO, P.E.
DIRECTOR OF PUBLIC WORKS/CHIEF ENGINEER

RESOURCES & DEVELOPMENT MANAGEMENT DEPARTMENT

APPROVED FOR CONTRACT ADMINISTRATION PURPOSES:

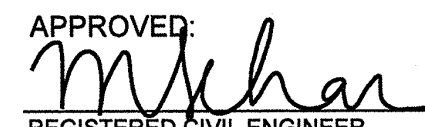
SUBMITTED:  5/16/07
JAVIER SOTO, P.E.
MANAGER, ROAD CAPITAL PROJECTS

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

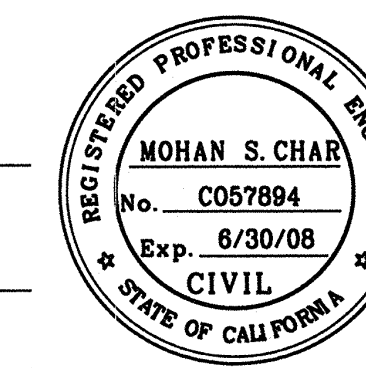
APPROVED:  5/21/07
IGNACIO G. OSORIO, P.E.
DIRECTOR OF PUBLIC WORKS/CHIEF ENGINEER

PREPARED BY

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

APPROVED:  8/25/06
REGISTERED CIVIL ENGINEER

DATE: 8/25/06



BRIDGE NO. 55C-0038
DWG. NO.

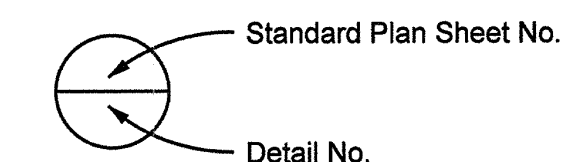
SHEET 1 OF 15

INDEX OF SHEETS

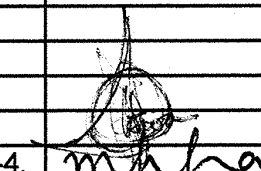
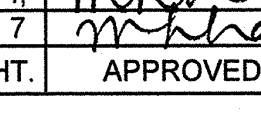
SHEET	DESCRIPTION
1.	TITLE SHEET
2.	METAL BEAM GUARD RAILING PLAN
2S1.	TYPE ST-20S RAIL DETAILS NO. 1
2S2.	TYPE ST-20S RAIL DETAILS NO. 2
2S3.	TYPE ST-20S RAIL DETAILS NO. 3
2S4.	TYPE ST-20S RAIL DETAILS NO. 4
3.	TRAFFIC HANDLING PLAN
4.	GENERAL PLAN
5.	FOUNDATION PLAN
6.	DEMOLITION PLAN
7.	BARRIER RECONSTRUCTION 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
B11-65	CONCRETE BARRIER TYPE 732B
B11-57	CONCRETE BARRIER TYPE 742B (FOOTING)



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		06/02/06
2.	& STAINED TYPE 732B	6, 7		06/02/06

REVISIONS

GENERAL NOTES
LOAD FACTOR DESIGN

DESIGN: CALTRANS BRIDGE DESIGN SPECIFICATIONS
April 2000 (LFD) - (1996 AASHTO with Interims
and Revisions by CALTRANS)
DESIGN: CALTRANS Seismic Design Criteria (SDC)
Version 1.3, May 2006
LIVE LOADING: HS20-44 and alternative permit design load
SEISMIC
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: (Assumed for Retrofit Evaluation)

$f'_c = 44,000$ psi
 $f_y = 5000$ psi

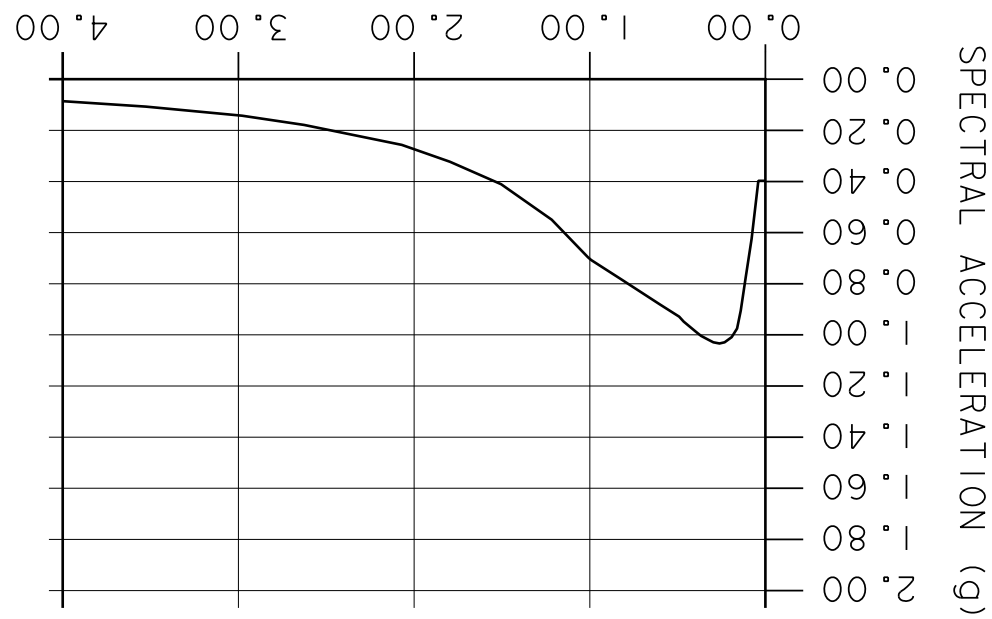
New Concrete (Bridge)
 $f_y = 60,000$ psi, A706
 $f'_c = 4,000$ psi (UNO)
Class 2 (Barrier only)
 $n = 8$

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

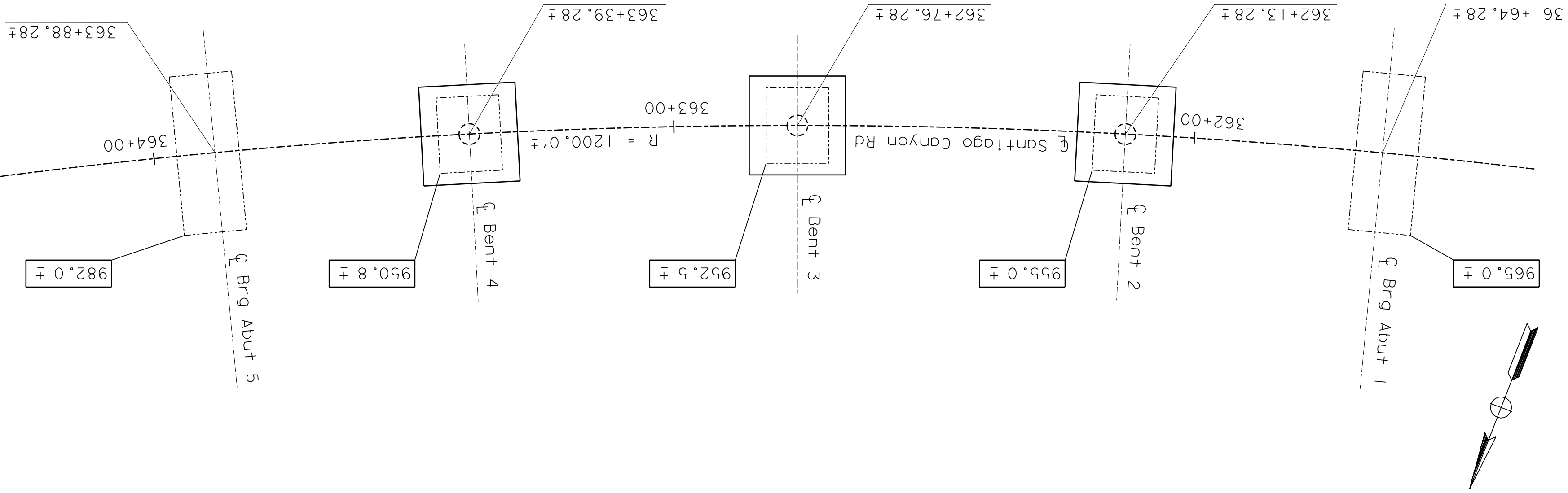
STRUCTURAL STEEL: ASTM A307 $f_y = 36,000$ psi

EXISTING FOUNDATION

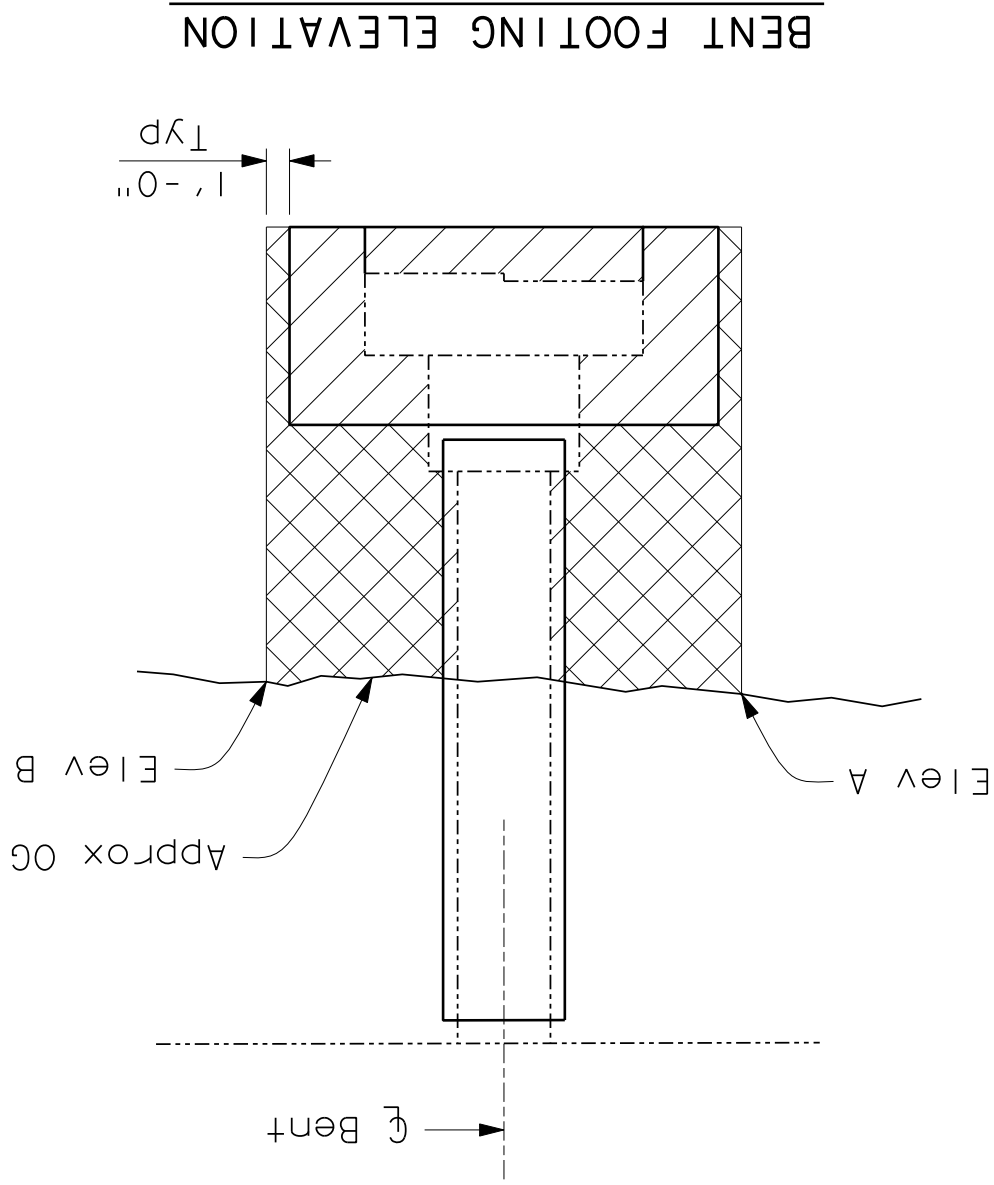
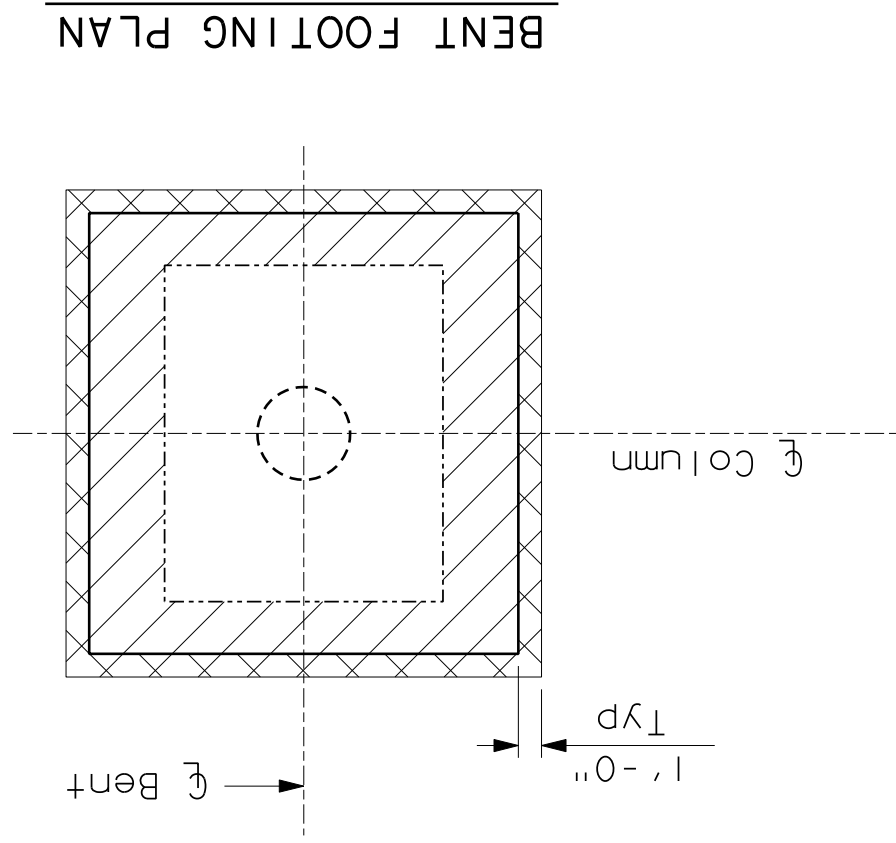
Spread Footing
Ultimate Soil Bearing Capacity $q_{ult} = 17$ KSF
Design Applied Pressure, $q_{applied} = 17$ KSF



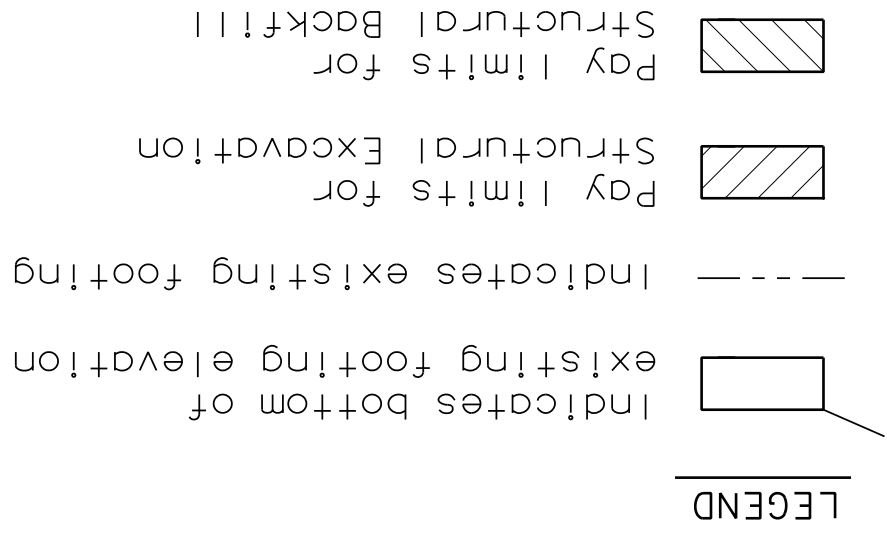
Modified Caltrans SDC ARS Curve for Soil Profile C
($M=7.25 \pm 0.25$) $PGA=0.4g$



PLAN
1"=15'



LIMITS OF PAYMENT FOR STRUCTURAL EXCAVATION & BACKFILL

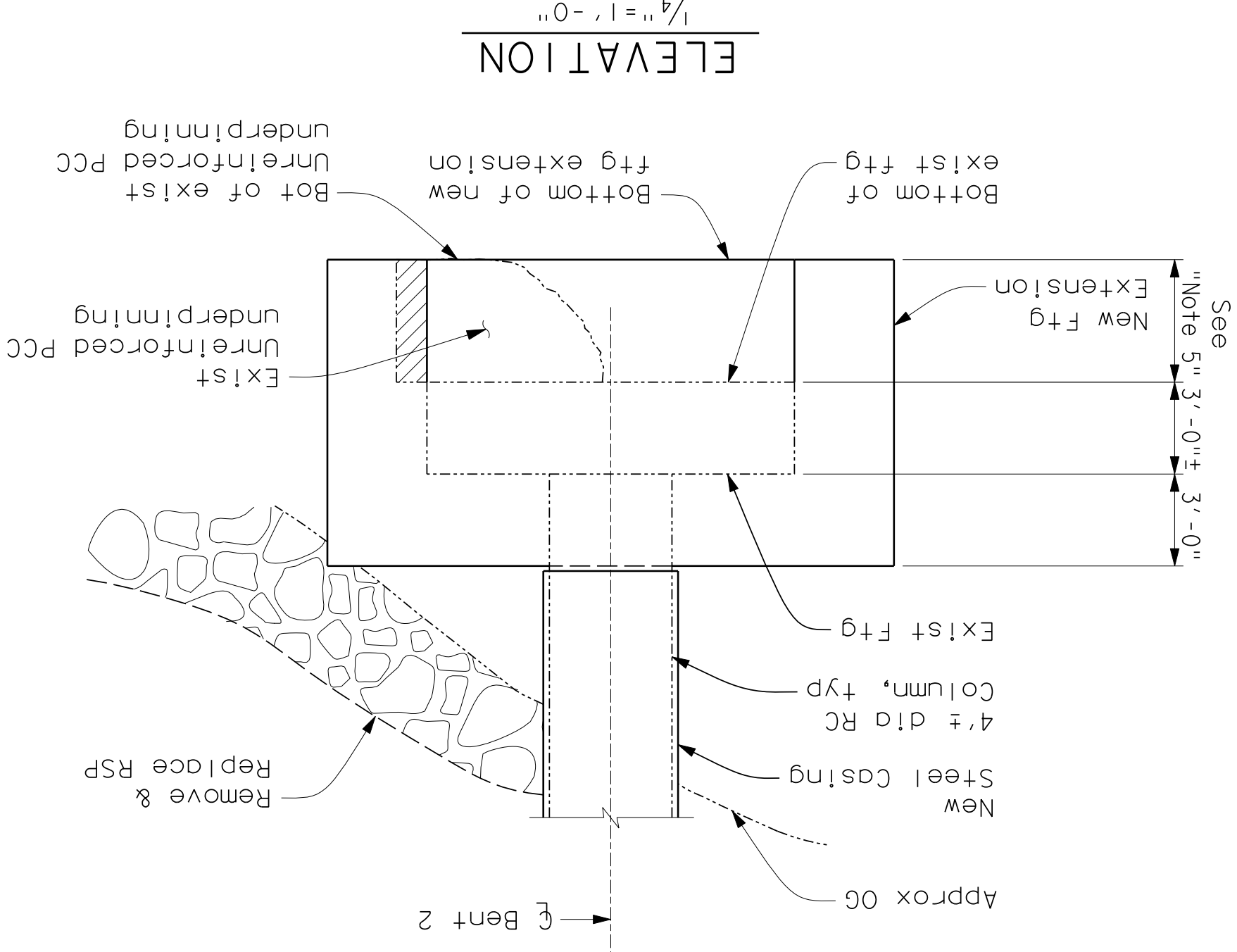
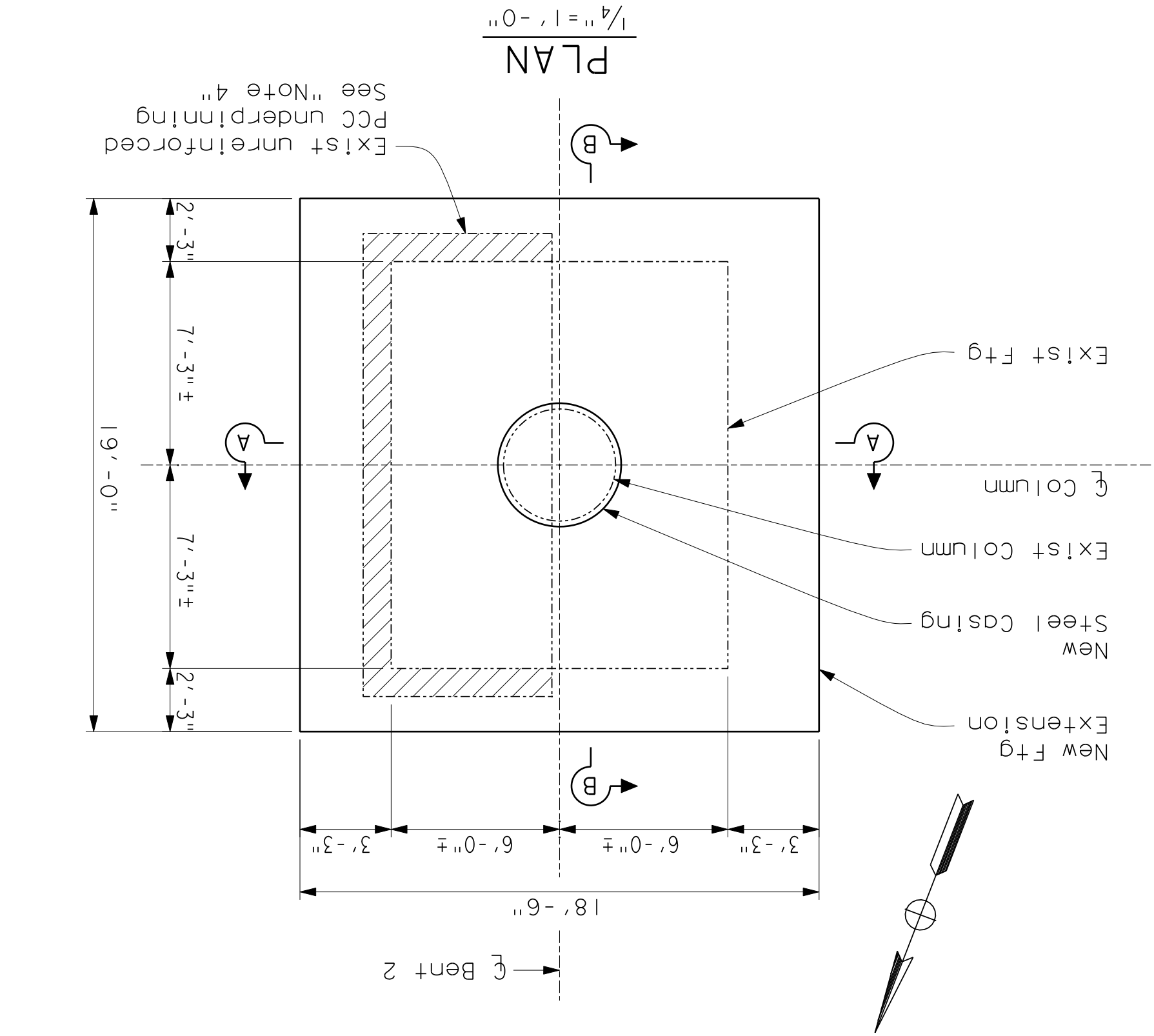


* Provided for information only.
The contractor shall field verify
OG elevations.

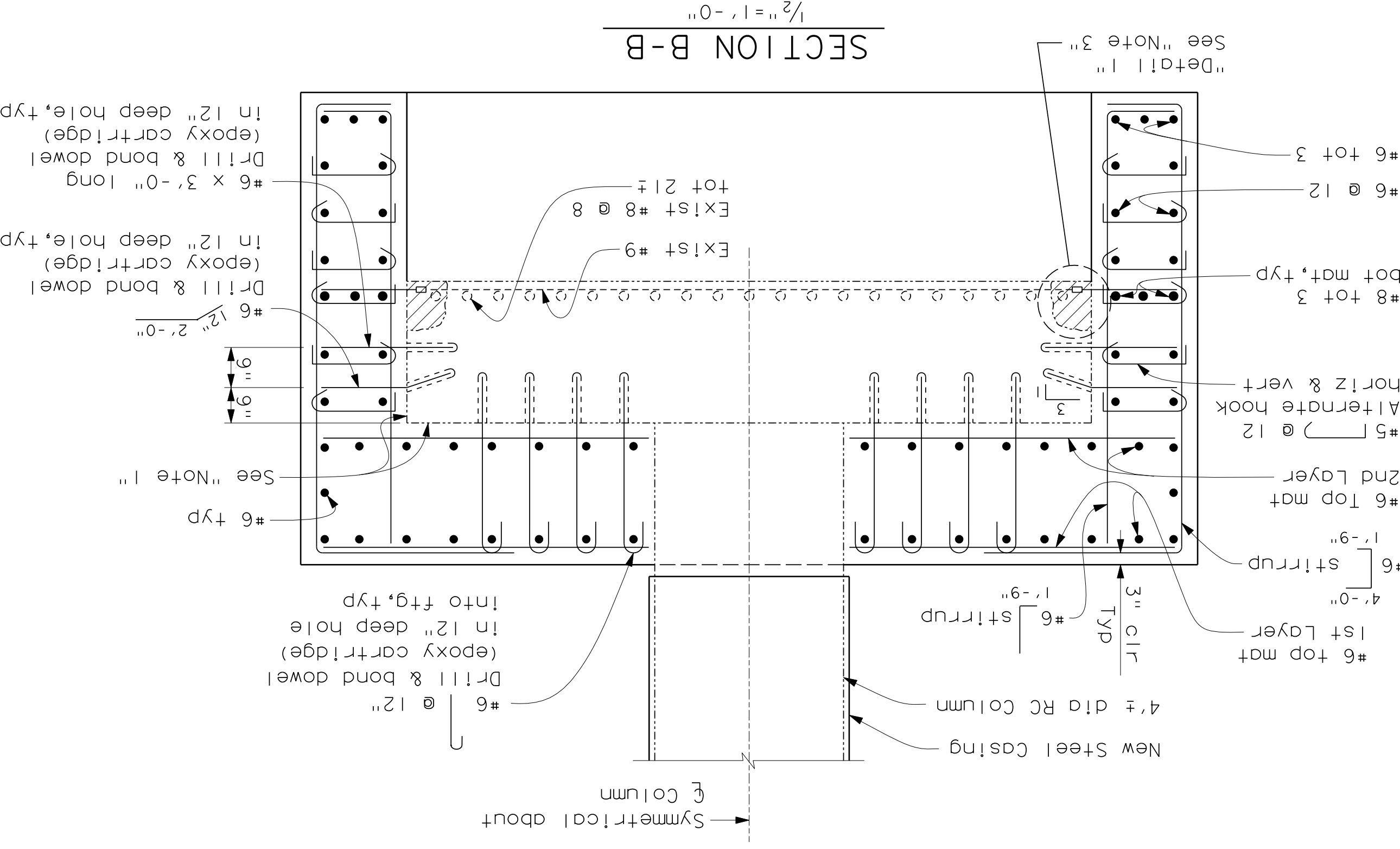
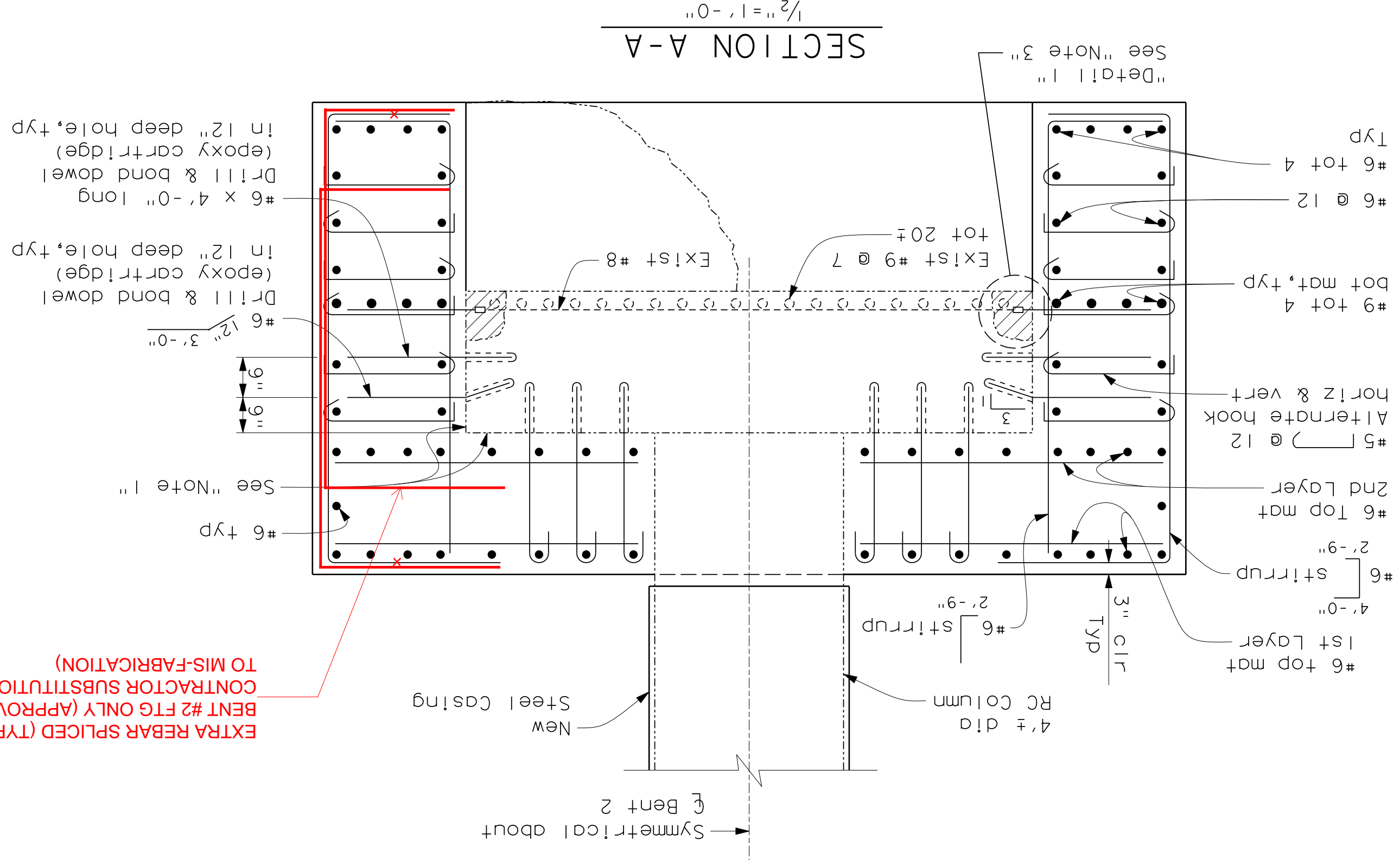
APPROXIMATE OG ELEVATIONS AT BENT			
LOCATION	ELEV A (ft)	ELEV B (ft)	
BENT 2	964 ±	961 ±	
BENT 3	961 ±	964 ±	
BENT 4	964 ±	964 ±	

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		FOUNDATION PLAN		SHEET 5 OF 15	
DESIGNED: J.L. SANDRA		CHECKED: M. CHARR		DRAWING NO.		DATE	
BRANK: M. ANDRASEK		SCALE		DATE		DATE	
VARIES		12/18/06		DATE		DATE	
PREPARED UNDER SUPERVISION OF		DATE OF CALCULATION		DATE OF CALCULATION		DATE OF CALCULATION	
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Note:
The Contractor shall verify all controlling field dimensions before ordering or fabricating any material.



EXTRA REBAR SPICED (TYP) FOR BENT #2 FTG ONLY (APPROVED CONTRACTOR SUBSTITUTION DUE TO MIS-FABRICATION)

AS BUILT

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CONTRACT NO.:
DATE: JULY 15, 2009

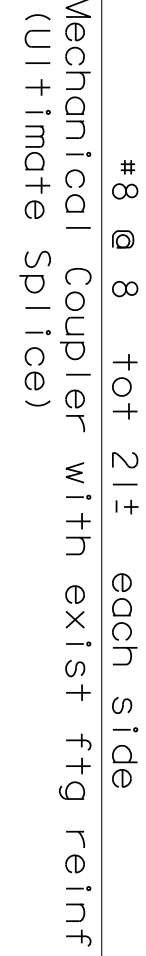
- Notes:
1. Roughen exist concrete surface. Apply epoxy resin adhesive just prior to placement of new concrete.
 2. All bars shall be epoxy coated prefabricated reinforcement with purple coating.
 3. For "Detail 1", see "Bent 3 Footing Layout & Details" sheet.
 4. Existing concrete removal limit shall 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

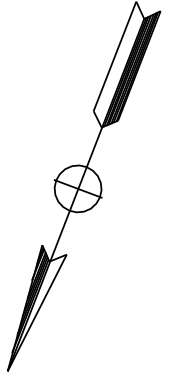
SHEET 9 OF 15	DRAWING NO. 55C-0038	BRIDGE No. 55C-0038	SANTIAGO CANYON ROAD	BRIDGE SC-9	ORANGE COUNTY RESOURCES & DEVELOPMENT MANAGEMENT DEPARTMENT	DESIGNED: J.J. SANDRA		SCALE: 1/2" = 1' - 0"	DATE: 12/18/06	VARIES	SCALE: 1/2" = 1' - 0"	DATE: 12/18/06
						CHECKED: M. CHARR	DRAWING NO. 55C-0038	BRIDGE No. 55C-0038	SANTIAGO CANYON ROAD	BRIDGE SC-9	ORANGE COUNTY RESOURCES & DEVELOPMENT MANAGEMENT DEPARTMENT	DESIGNED: J.J. SANDRA

$$\frac{0-1}{2} = \frac{1}{2}$$

REINFORCEMENT LAYOUT



Not All Straps shown



AS BUILT

CORRECTION BY: D.D.

DATE: JULY 15, 2009

[illegible]

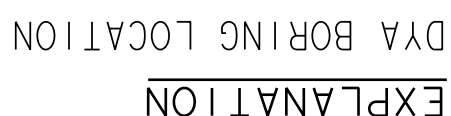
SYMBOLS			
GRAPH	LETTER	GRAPH	LETTER
	GW		ML
	GP		CL
	GM		OL
	GC		MH
	SW		CH
	SP		OH
	SM		PT
	TS		TS

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

SOIL TESTS

☐ (BP) POCKET PENETROMETER	☐ (TV) TORVANE SHEAR
☐ (R) R-VALUE	☐ (TU) TRIAXIAL
☐ (SA) SIEVE ANALYSIS	☐ (W) WASH = 200

2.4	MODIFIED CALIFORNIA SAMPLER (2.42" I.D., 3" O.D.,
1.4	STANDARD PENETRATION TEST
Size	AUGER BORING (DRY)
Size	BECKER BORING

EQUIVALENT PENETRATION INDEX
FOR MC = 0.5x BLOWS/FEET

ORANGE COUNTY RESOURCES & DEVELOPMENT MANAGEMENT DEPARTMENT		SANTIAO CANYON ROAD		BRIDGE SC-9		BRIDGE NO. 55C-0038		LOG OF TEST BORINGS	
DESIGNED: N. SU		CHECKED: V. R. N.		DRAWING NO.		DATE		12/18/06	
SHEET		14		OF 15					

AS BUILT

CORRECTION BY: _____ d.p.

CONTRACT NO.: _____

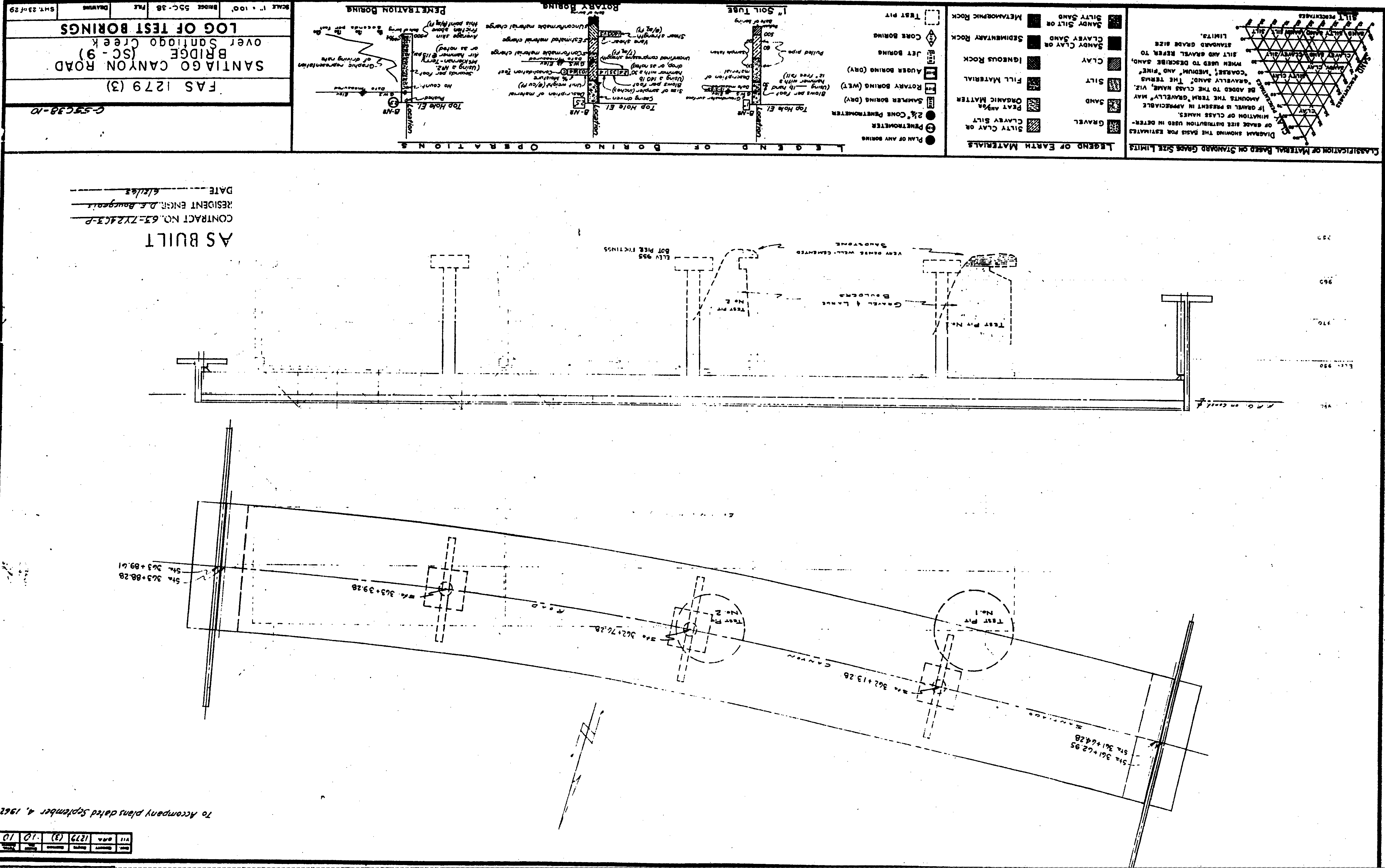
DATE: _____ JULY 15, 2009

No As-Built Changes

DATE	12/18/06
BY	N.E. Nader
CHECKED	V.R.N.
DESIGNED	N.S.J.

BRIDGE DEPARTMENT

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



DATE	12/18/06
SCALE	N.E. Nader
DRAWING NO.	55C-36
CHECKED	V.R.N.
DESIGNED	N.S.J.

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DESIGNED	N.S.J.

DATE	12/18/06
SCALE	N.E. Nader
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