

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

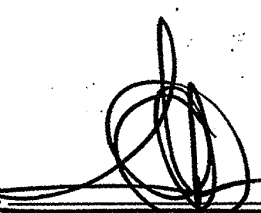
CORRECTION BY: D.D.
CONTRACT NO.: 6-30-07
DATE: JULY 15, 2009

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:

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

RECOMMENDED:

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

APPROVED:

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

PREPARED BY

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

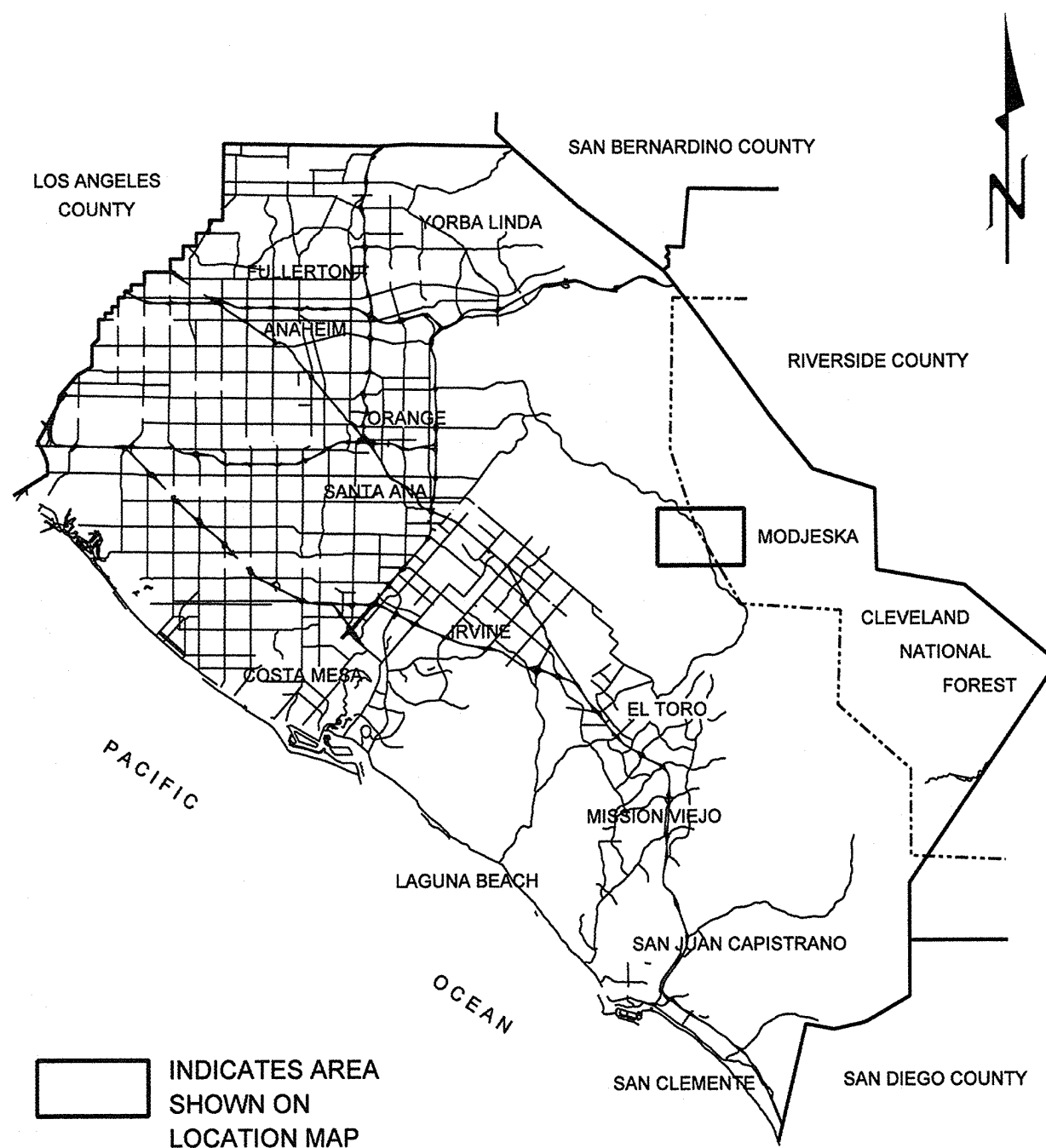
APPROVED: 
REGISTERED CIVIL ENGINEER

8/25/06
DATE

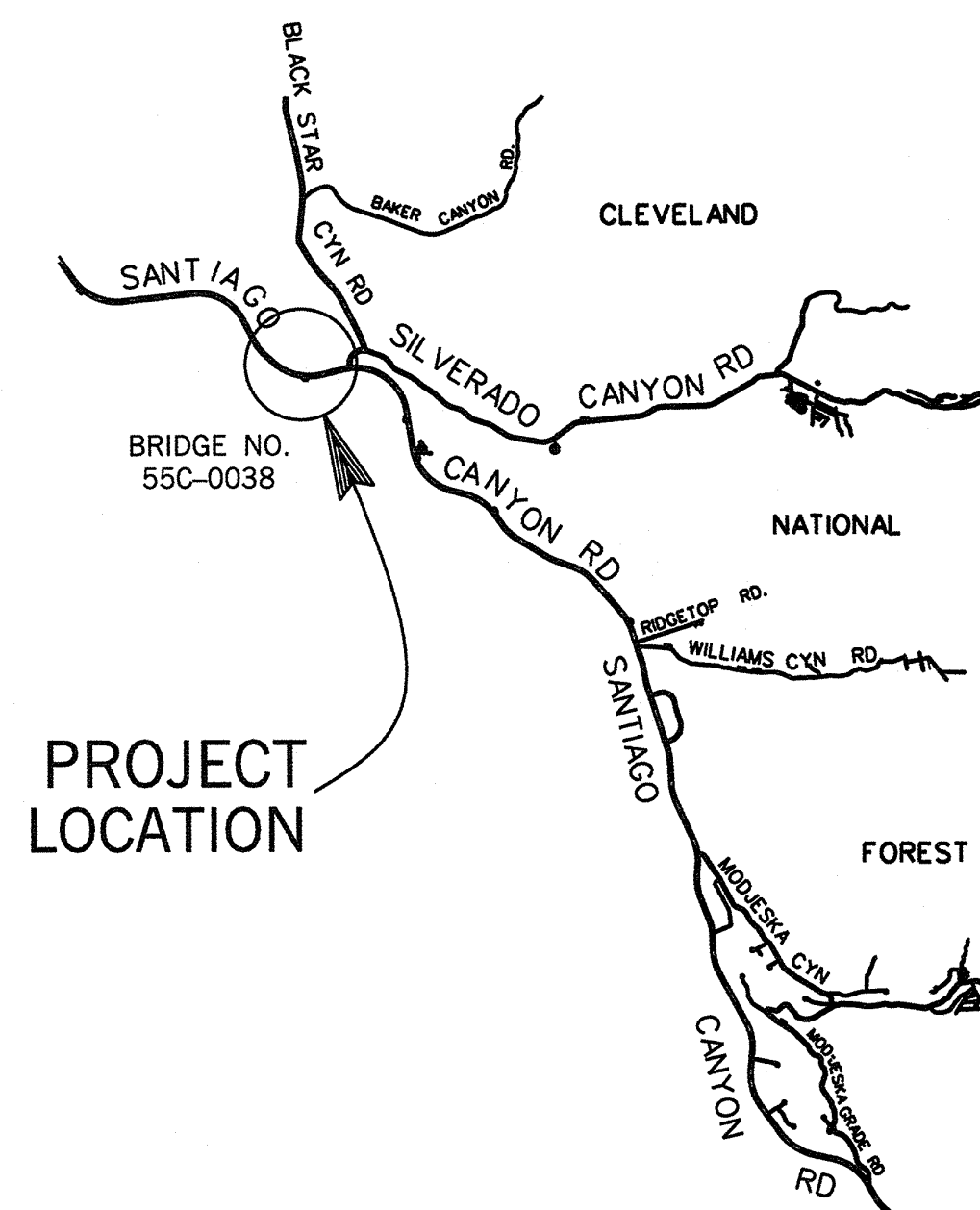
MOHAN S. CHAR
No. C057894
Exp. 8/30/08
CIVIL
STATE OF CALIFORNIA

BRIDGE NO. 55C-0038
DWG. NO.

SHEET 1 OF 15



VICINITY MAP
NO SCALE



PROJECT
LOCATION

LOCATION MAP
NO SCALE

INDEX OF SHEETS

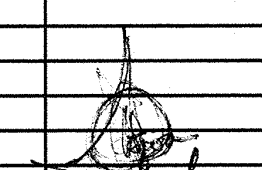
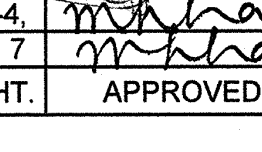
| SHEET | DESCRIPTION |
|-------|---------------------------------|
| 1. | TITLE SHEET |
| 2. | METAL BEAM GUARD RAILING PLAN |
| 2S1. | TYPE ST-20S RAIL DETAILS NO. 1 |
| 2S2. | TYPE ST-20S RAIL DETAILS NO. 2 |
| 2S3. | TYPE ST-20S RAIL DETAILS NO. 3 |
| 2S4. | TYPE ST-20S RAIL DETAILS NO. 4 |
| 3. | 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

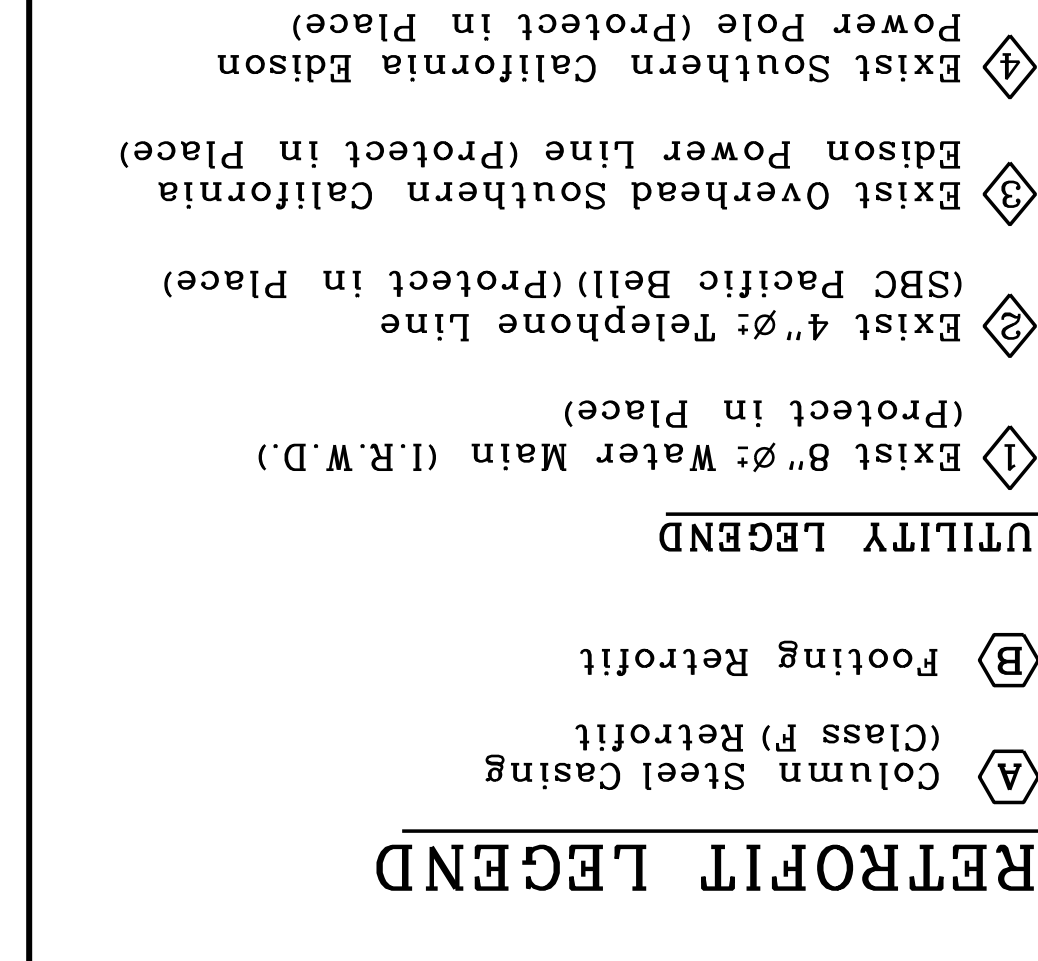
| ROADWAY | |
|--------------|---|
| A20A, B & D | PAVEMENT MARKERS & TRAFFIC LINES TYPICAL DETAILS |
| A73B | MARKERS |
| A73C | DELINEATORS, CHANNELIZERS AND BARRICADES |
| A77F1, A77F4 | METAL BEAM GUARD RAILING TYPICAL LAYOUT |
| A77J4 | METAL BEAM GUARD RAILING TRANSITION RAILING (TYPE WB) |
| A77L1 | 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) |

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

REVISIONS

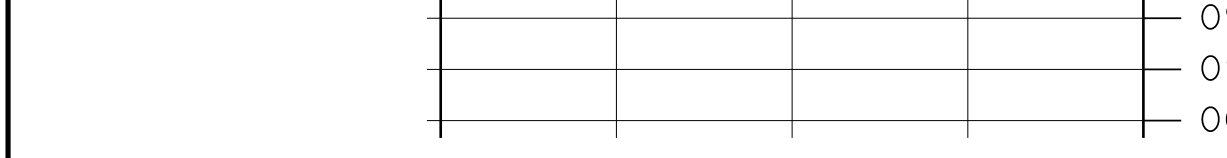
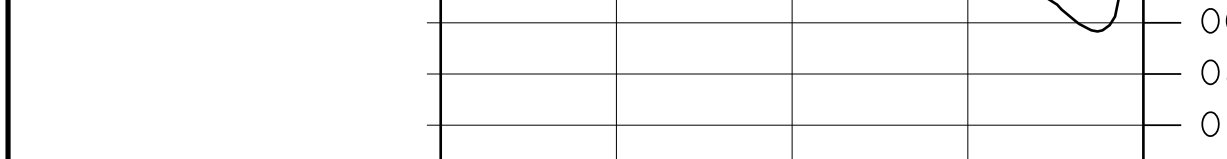


| | |
|--|--|
| | |
|--|--|

PERIOD, T (sec)
 ITrans SDC ARS Curve for Soil Profile C
 (M=7.25 +/- 0.25) PGA=0.4g

| Year | Number of people (millions) |
|------|-----------------------------|
| 1990 | 2.5 |
| 1995 | 2.7 |
| 2000 | 2.9 |
| 2005 | 3.2 |
| 2010 | 3.5 |

| Age Group | Percentage of Respondents |
|-----------|---------------------------|
| 18-24 | 85 |
| 25-34 | 75 |
| 35-44 | 65 |
| 45-54 | 55 |
| 55-64 | 45 |
| 65-74 | 35 |
| 75+ | 95 |



Read Footing
 $q_{ult} = 17 \text{ KSF}$
 Estimated Soil Bearing Capacity
 $q_{applied} = 17 \text{ KSF}$

TM A307 fy = 36,000 psi

class 2 (Barrier only) = 8
TM A706 fV = 60,000 psi

Concrete (Br/dge) = 60,000 psi, A706
Steel = 4,000 psi (UNNO)

| | |
|----------------------------------|--------------|
| Testing Concrete | = 44,000 psf |
| assumed for Retrofit Evaluation) | = 5000 psf |

should be determined by linear interpolation. $\Delta t \geq 1.0$ seconds by 20%.

or fault effect:
Spectral acceleration is calculated for
Spectral acceleration modification
is not required for $T \leq 0.5$ seconds.
Spectral acceleration for $0.5 < T \leq 1.5$

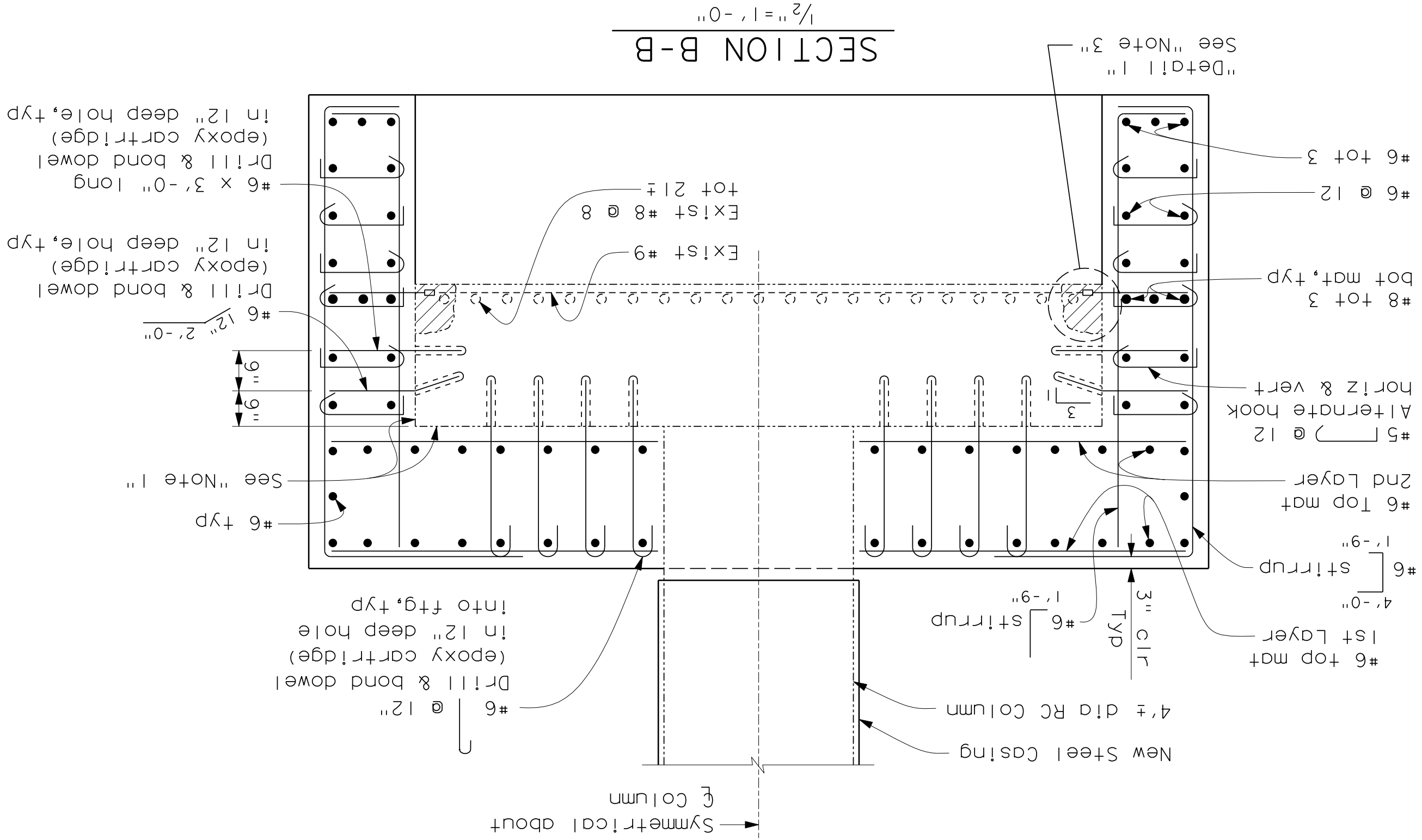
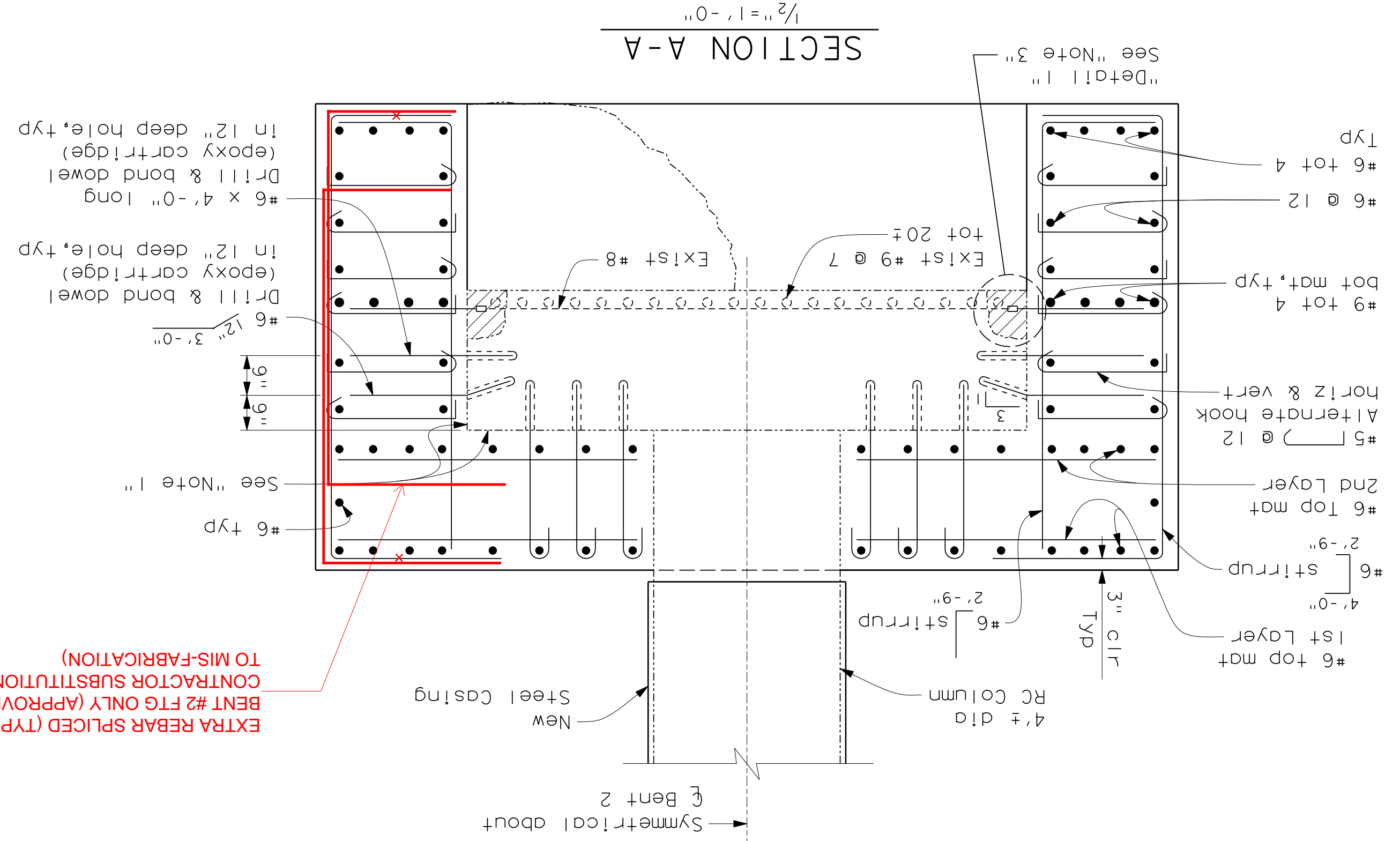
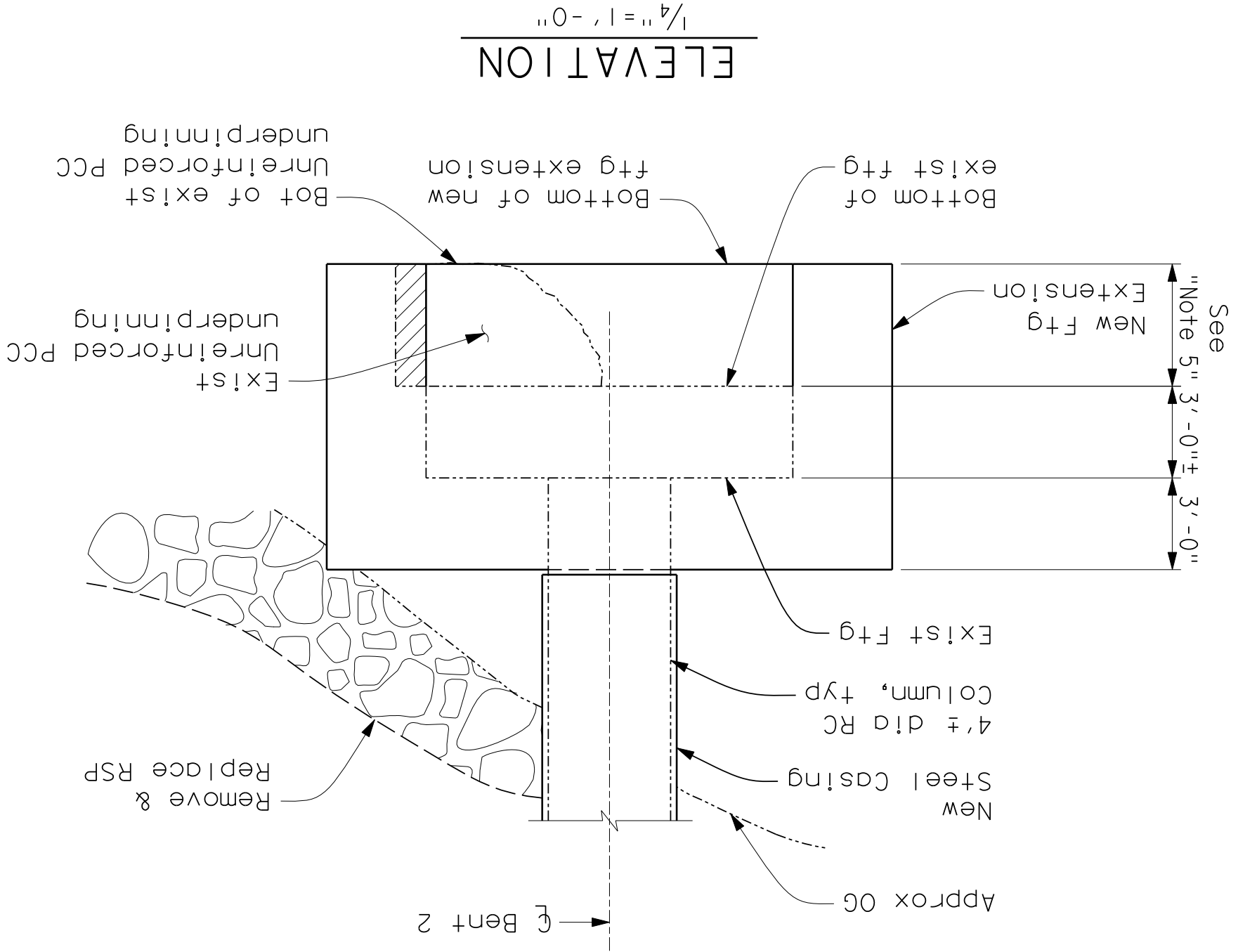
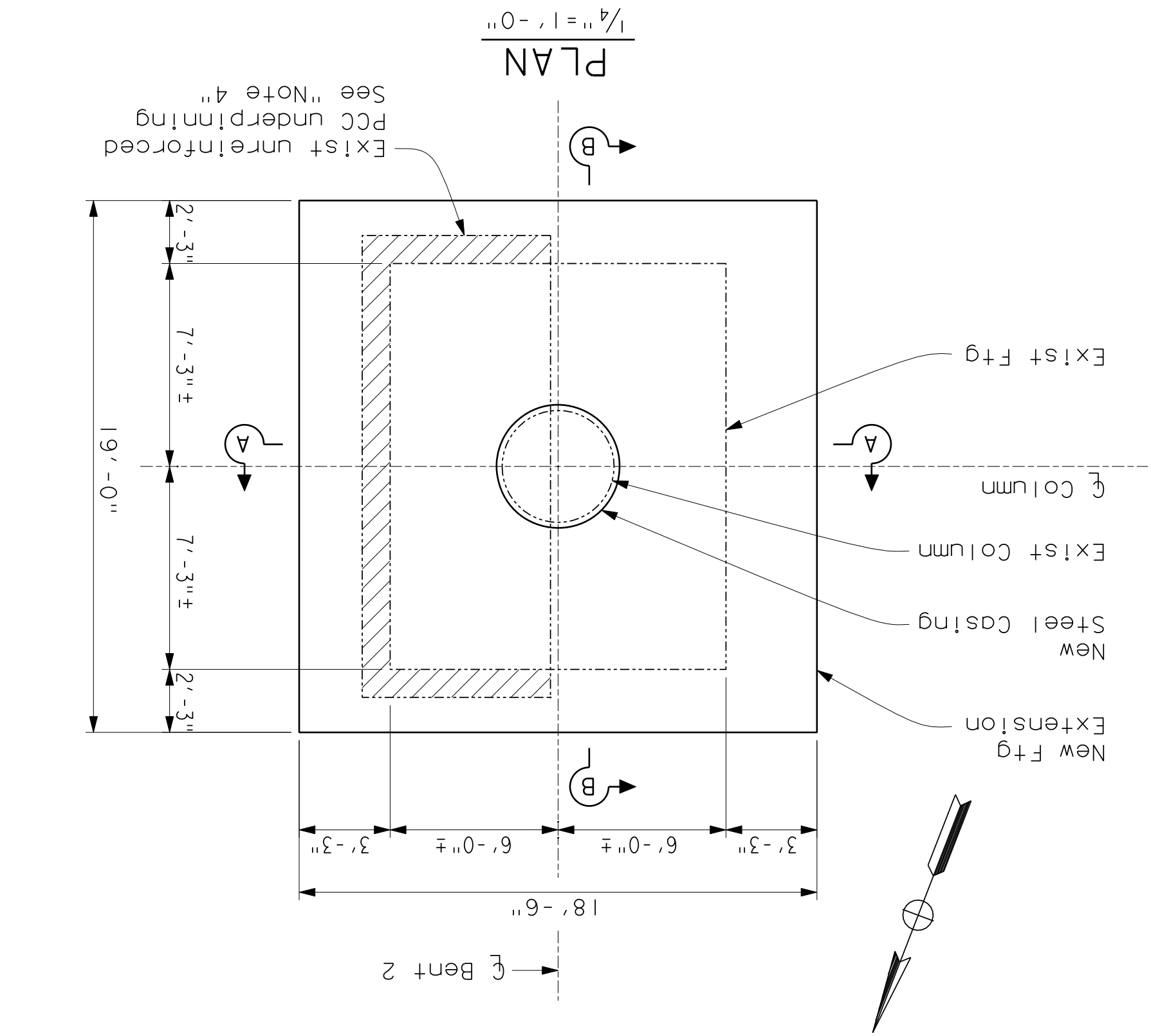
ut Moment Magnitude = 7.25 ± 0.25
 ark Rock Acceleration = $0.4g$
 e following adjustment shall be made
 e SPC Response Spectra to account for

20-44 and alternative permit design load

TRANSPORTATION BY CALTRANS)
TRANSPORTATION DESIGN CRITERIA (SDC)
Version 1.3, May 2006

OR DESIGN

NOTES



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

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

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

TOP & BOTTOM MAT
REINFORCEMENT LAYOUT

1/2" = 1'-0"

FOOTING REINFORCEMENT PLAN

STIRRUP & DOWEL LAYOUT

Not All Stirrups shown

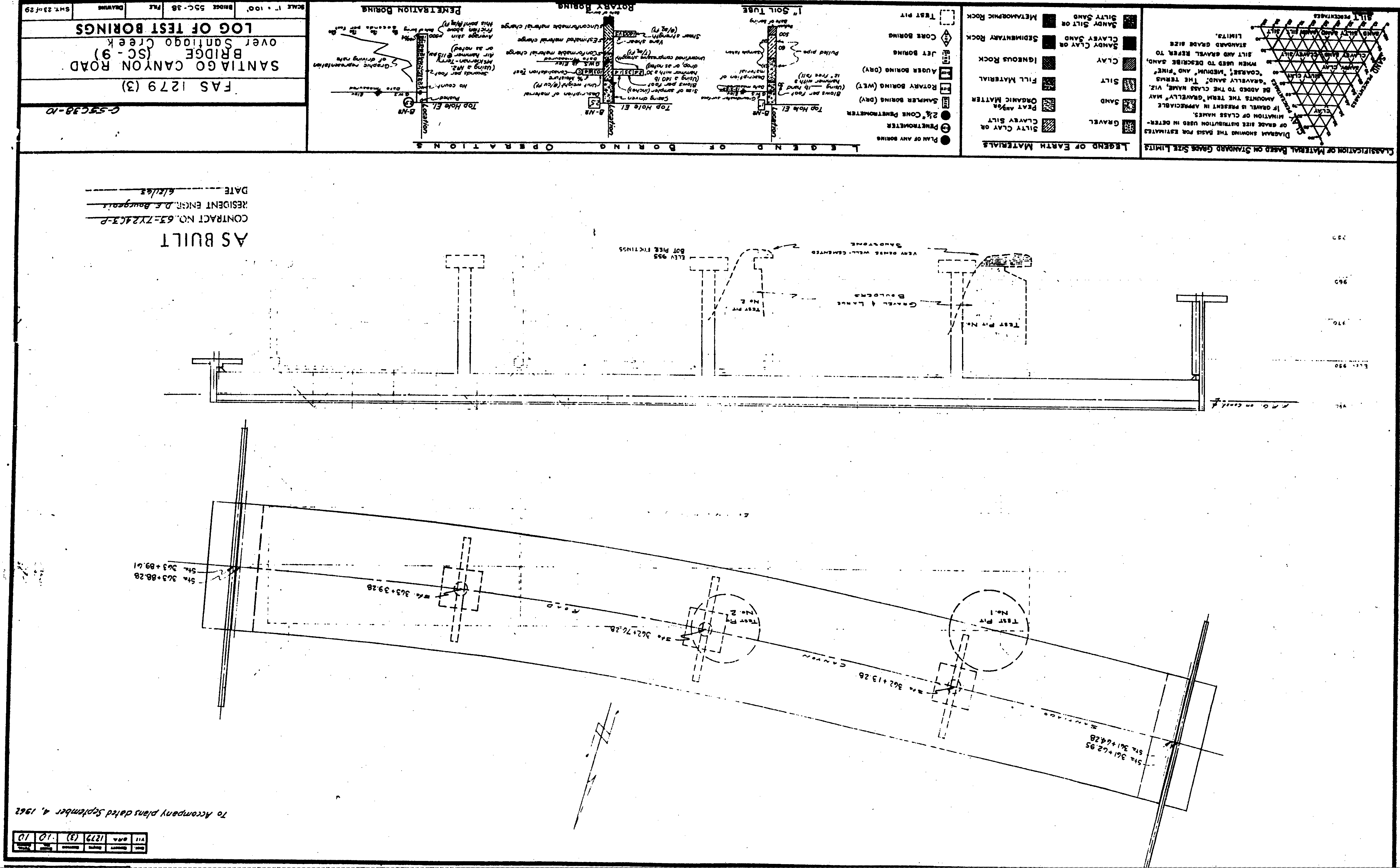
| | | | | | | | |
|----------------------------------|--|---|--|---------------------|--|-----------------------------|--|
| DESIGNED: J.J. SANDRA | | DRAWN: M. ANDRASEK | | SCALE: 1/2" = 1'-0" | | DATE: 12/18/06 | |
| CHECKED: M. CHARR | | EXP. 5/20/08 | | NO. CS1994 | | DATE OF EXPIRATION: 5/20/08 | |
| SHEET 10 OF 15 | | BRIDGE No. 55C-0038 | | BRIDGE SC-9 | | SANTIAGO CANYON ROAD | |
| ORANGE COUNTY | | RESOURCES & DEVELOPMENT MANAGEMENT DEPARTMENT | | REV. | | DATE | |
| REVISIONS | | DESCRPTION | | REV. | | DATE | |
| PREPARED UNDER SUPERVISION OF | | JOHN S. CHASE | | NO. CS1994 | | DATE OF EXPIRATION: 5/20/08 | |
| REGISTERED PROFESSIONAL ENGINEER | | CIVIL | | EXP. 5/20/08 | | NO. CS1994 | |
| DATE: 12/18/06 | | SCALE: 1/2" = 1'-0" | | DATE: 12/18/06 | | SCALE: 1/2" = 1'-0" | |

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

- Notes:
- All bars shall be epoxy coated with purple coating.
 - Terminate bars 2" clear from face of existing column.

| | |
|-------------|----------|
| DESIGNED BY | ENGINEER |
| CHECKED BY | EXAMINER |
| APPROVED BY | APPROVED |
| DATE | DATE |

BRIDGE DEPARTMENT



| | |
|-------------|-----------|
| DATE | 12/18/06 |
| SCALE | 1" = 100' |
| DRAWING NO. | 55C-36 |
| SHEET | 23 of 29 |

To Accompany plans dated September 4, 1962

AS BUILT
No As-Built Changes
CORRECTION BY: d.p.
CONTRACT NO.:
DATE: JULY 15, 2009

AS BUILT
CONTRACT NO. 63-ZY24C3-P
RESIDENT ENGR. D.E. Bougeault
DATE 6/16/03

| | |
|-------------|----------|
| DESIGNED BY | ENGINEER |
| CHECKED BY | EXAMINER |
| APPROVED BY | APPROVED |
| DATE | DATE |

| | |
|-------------|-----------|
| DATE | 12/18/06 |
| SCALE | 1" = 100' |
| DRAWING NO. | 55C-36 |
| SHEET | 23 of 29 |

BRIDGE No. 55C-0038
SANTIAO CANYON ROAD
BRIDGE SC-9

ORANGE COUNTY
RESOURCES & DEVELOPMENT MANAGEMENT DEPARTMENT

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