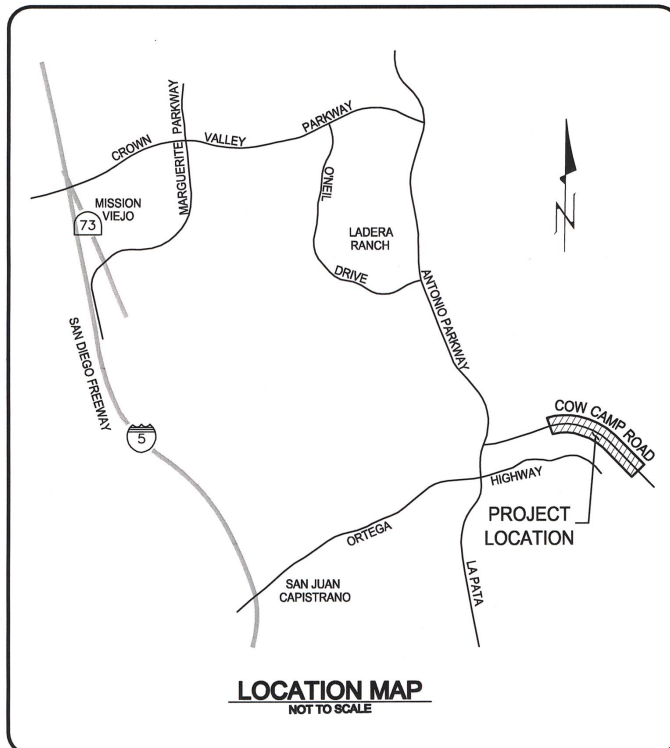


RECORD DRAWING

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RBF CONSULTING

DATE JULY 2015



COUNTY OF ORANGE OC PUBLIC WORKS

SANTA ANA, CALIFORNIA
IGNACIO G. OCHOA, INTERIM DIRECTOR

PLANS FOR CONSTRUCTION OF COW CAMP ROAD PHASE 1B

FROM
N'LY CHIQUITA CANYON BRIDGE TO 6,950' EAST
OF ANTONIO PARKWAY
STA. 29+00.00 TO STA. 79+50.00
MAY 2013

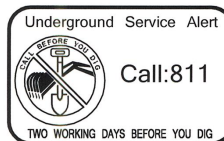
CONTRACT No. _____

DATE ACCEPTED _____

AS BUILT

County Inspection _____

REVISIONS BY _____ DATE _____



MAINTAINED BY:
COUNTY OF ORANGE: COW CAMP ROAD
HOA: WATER QUALITY BASINS
AGREEMENT # D13-018

WDID # 9 37C366333

RANCHO MISSION VIEJO

RANCHO MISSION VIEJO COMMUNITY DEVELOPMENT HEREBY CONCURS WITH THE ATTACHED PLANS. HOWEVER, RMV MAKES NO REPRESENTATION, WARRANTY OR GUARANTEE AS TO THE CONTENT OR ACCURACY OF THE ATTACHED PLANS AND THE INFORMATION APPEARING THEREIN.

JAMES B. YATES
COMMUNITY DEVELOPMENT
5/21/13
DATE

PROJECT FUNDING SOURCE

PROJECT FUNDING WILL BE PROVIDED BY THE COUNTY OF ORANGE AND RANCHO MISSION VIEJO (RMV).

STANDARD PLAN NOTE

REFERENCES HEREIN TO "OCPW STANDARD PLANS" SHALL BE UNDERSTOOD TO REFER TO ORANGE COUNTY PUBLIC WORKS (OCPW) STANDARD PLANS 2006 EDITION.

UTILITY OWNER	CONTACT	PHONE NO.
AT&T	VICTOR PEREZ	(714)866-5696
COX COMMUNICATIONS	MARTY ZUPANCIC	(949)546-2802
MWD	SUSAN WALTERS	(213)217-6679
RMV CONSTRUCTION	JACK MORALES	(949)240-3363
RMV OPERATIONS	DEREK KNOBEL	(949)422-7017
RMV PROJECT MGMT	JIM YATES	(949)240-3363
SD&E	JAMES HINTON	(949)361-8004
SMWD	JAMIE AGUILAR	(949)459-6582
THE GAS COMPANY	MYRON DIEKMANN	(949)448-8514

GEOTECHNICAL CONSULTANT

THIS PLAN HAS BEEN REVIEWED BY GBU GEOTECHNICAL, INC. FOR GENERAL CONFORMITY TO THEIR RECOMMENDATIONS / CONCLUSIONS CONTAINED IN THEIR GEOTECHNICAL REPORT DATED DECEMBER 15, 2012. REVIEW OF NON-GEOTECHNICAL ENGINEERING DESIGN IS OUTSIDE THE PURVIEW OF GBU GEOTECHNICAL, INC.

GREGORY P. SILVER, GE 2336 EXP: 12/31/13
GBU GEOTECHNICAL, INC. 5/21/13
DATE

ORANGE COUNTY PUBLIC WORKS

RECOMMENDED: HARRY PERSAUD, PMP, AICP
MANAGER-PLANNED COMMUNITIES PUBLIC WORKS
5/21/13
DATE

APPROVED: IGNACIO G. OCHOA, P.E.
DIRECTOR OF OC ENGINEERING/CHIEF ENGINEER
5/21/13
DATE

ORANGE COUNTY PUBLIC WORKS APPROVED DEVIATIONS FROM STANDARDS OF DESIGN

STREET AND DRAINAGE IMPROVEMENTS PER COUNTY STANDARDS EXCEPT FOR DEVIATIONS FROM STANDARDS OF DESIGN PER OCPW STANDARD PLANS.

- OCPW STANDARD PLANS: DEVIATION FROM THE CURRENT APRIL 2013 OCPW STANDARD PLANS. THE PROPOSED PLANS WERE INITIATED AND DEVELOPED UNDER THE 2006 OCPW STANDARD PLANS IN 2011.
- 8" CURB HEIGHT FOR MEDIAN AND PARKWAY: DEVIATION FROM APRIL 2013 STANDARD PLAN 120-2-OC FOR STANDARD CURB HEIGHT FOR 45 MPH OR GREATER SPEED. THE PROPOSED PLANS WERE INITIATED AND DEVELOPED UNDER THE 2006 OCPW STANDARD PLANS IN 2011.

THE FOLLOWING DESIGN DEVIATIONS ARE DOCUMENTED IN ATTACHMENT 18 OF THE APPROVED "PROJECT REPORT FOR COW CAMP ROAD IMPROVEMENTS: FROM ANTONIO PARKWAY TO "T" STREET", DATED 11-04-08 BY HUITT-ZOLLARS, INC.

- SIDEWALK WIDTH REDUCTION FROM 9' STANDARD: DEVIATION FROM STANDARD PLAN 1101 FOR SIDEWALK WIDTH STANDARDS FOR MAJOR HIGHWAY FROM 9' TO A 6' CURB ADJACENT SIDEWALK. WIDTHS WERE REDUCED TO FACILITATE ULTIMATE PEDESTRIAN CIRCULATION NEEDS BASED ON LAND USE PLANNING AND THE ADJACENT NEV/REGIONAL CLASS 1 BIKE AND COMMUNITY HIKING TRAIL.
- REPLACE FENCE ON BRIDGE BARRIER WITH WOOD RAILING PER SPECIFICATION: REPLACE THE STANDARD CHAIN LINK FENCE ON BOTH SIDES OF THE NORTHERLY CHIQUITA CANYON BRIDGE WITH WOOD RAILING. THIS DEVIATION COMPLIES WITH TRAFFIC AND PEDESTRIAN RAILING REQUIREMENTS.
- ELIMINATE BRIDGE BARRIER BETWEEN SIDEWALK AND OUTSIDE SHOULDER ON BRIDGE: ELIMINATED BRIDGE BARRIER BETWEEN SIDEWALK AND OUTSIDE SHOULDER ON BRIDGE DUE TO MINIMUM PEDESTRIAN TRAFFIC. ADDITIONALLY, IT WILL CREATE AN UNSAFE CONDITION BY RESTRICTING ACCESS TO THE SIDEWALK AND IN INCONSISTENT WITH PEDESTRIAN SAFETY REQUIREMENTS BEYOND THE LIMITS OF THE BRIDGE.

APPROVED: IGNACIO G. OCHOA, P.E.
DIRECTOR OF OC ENGINEERING/CHIEF ENGINEER
5/21/13
DATE

PREPARED BY

RBF PLANNING ■ DESIGN ■ CONSTRUCTION
14725 ALTON PARKWAY
IRVINE, CALIFORNIA 92618-2027
949.472.3505 • FAX 949.472.8373 • www.RBF.com

PREPARED UNDER RESPONSIBLE CHARGE OF:

ALAN H. SU, P.E.
5/21/13
DATE

INDEX OF SHEETS

SHEET	REF. #	DESCRIPTION
GENERAL		
1	TT-001	TITLE SHEET
2-3	KM-001 TO KM-002	KEY MAP
4-6	CN-001 TO CN-003	CONSTRUCTION NOTES & ABBREVIATIONS
7	TX-001	TYPICAL SECTIONS (COW CAMP ROAD)
8-10A	DT-001 TO DT-003A	CONSTRUCTION & GRADING DETAILS
GRADING PLANS		
11-17	GR-001 TO GR-007	GRADING AND BALANCE SITE PLANS
ROADWAY		
18-24	ST-001 TO ST-007	COW CAMP ROAD: PLAN & PROFILE
DRAINAGE		
25-42	SD-001 TO SD-018	STORM DRAIN PLANS & DETAILS
43A	SD-019A	BIORETENTION BASIN PLAN
43B	SD-019B	BIORETENTION BASIN PLAN
EROSION CONTROL		
44-45	EC-001 TO EC-002	EROSION CONTROL PLAN
TRAFFIC		
46	PD-001	SIGNING AND STRIPING PLAN
46A	PD-002	SIGNING AND STRIPING PLAN
47-51	PD-003 TO PD-007	SIGNING AND STRIPING PLANS
SIGNAL		
52-64	SIC-001 TO SIC-004	SIGNAL INTERCONNECT PLANS
55A	SIC-005	SIGNAL INTERCONNECT PLAN
56	TS-001	SIGNAL PLAN
56A	TS-002	SIGNAL PLAN
56B	TS-003	SIGNAL PLAN
BRIDGE PLANS		
57-88	BR-001 TO BR-032	BRIDGE PLANS
88A	BR-032A	BRIDGE PLANS
89-97	BR-033 TO BR-041	BRIDGE PLANS
LOG OF TEST BORINGS		
98-100	BR-042 TO BR-044	BORING LOGS
ELECTRICAL PLANS		
101-102	BR-045 TO BR-046	ELECTRICAL DETAILS
STANDARD PLANS		
103-115	STD-001 TO STD-013	STANDARD PLANS

BASIS OF COORDINATES:

BEARINGS AND COORDINATES AS SHOWN HEREON ARE IN TERMS OF THE CALIFORNIA COORDINATE SYSTEM OF 1983 (CCS83, EPOCH 1991.35), ZONE 6, BASED LOCALLY UPON THE FOLLOWING CONTROL STATIONS AS PUBLISHED BY THE COUNTY OF ORANGE (OCS) AND HUITT-ZOLLARS:

NAME	NORTHING (FT.) - GRID	EASTING (FT.) - GRID
OCS GPS 2592 (BM AP-02-99)	2,137,246.69	6,144,438.33
OCS GPS 2593 (BM AP-03-99)	2,139,863.76	6,143,906.08
TRABUCO	2,140,142.67	6,133,776.31

RMV CONTROL CONVERSION GRID AND GROUND COORDINATES

THIS CONVERSION IS BASED ON THE OLD CONTROL POINT "TRABUCO" AS OUR HOLD POINT OF 110,000/10,000.

GRID COORDINATES ARE BASED ON ORANGE COUNTY SURVEYOR CONTROL NETWORK, CCS83, ZONE VI, 1991.35 EPOCH ADJUSTMENT. PROJECT C-FACTOR FOR RMV IS 0.999948295

TRABUCO (GRID COORDINATE)	NORTH 2,140,142.6716 EAST 6,133,776.3109
TRABUCO (GROUND COORDINATE)	NORTH 110,000.000 EAST 110,000.000

TO MOVE AN ITEM FROM GRID TO GROUND, MOVE FROM THE GRID COORDINATE TO THE GROUND COORDINATE AND SCALE THE POINTS FROM TRABUCO USING A FACTOR OF 1.000051708.

TO MOVE AN ITEM FROM GROUND TO GRID, MOVE FROM THE GROUND COORDINATE TO THE GRID COORDINATE AND SCALE THE POINTS FROM TRABUCO USING A FACTOR OF 0.999948295.

COORDINATES AND HORIZONTAL DISTANCES SHOWN HEREON ARE IN TERMS THE RMV GROUND CONTROL SYSTEM

BENCH MARK (NAVD88):

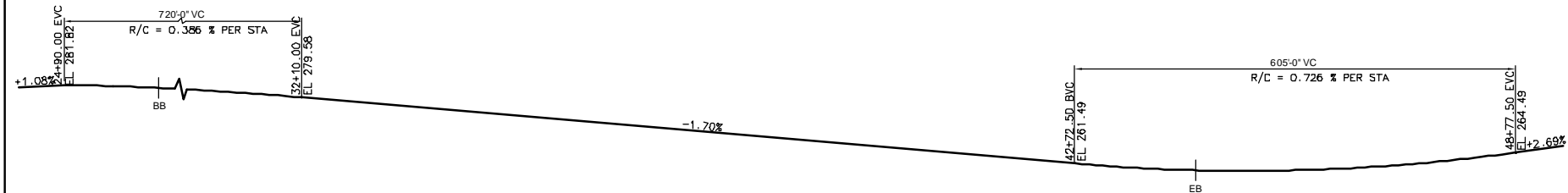
OCS BM "AP-02-99" (NAVD88) ELEVATION: 238.11'

FOUND 3-3/4" OCS ALUMINUM BENCHMARK DISK STAMPED "AP-02-99", SET IN THE NORTHEASTERLY CORNER OF A CONCRETE BRIDGE DECK. MONUMENT IS LOCATED IN THE NORTHEASTERLY CORNER OF ANTONIO PARKWAY AND ITS OVERCROSSING OF SAN JUAN CREEK.

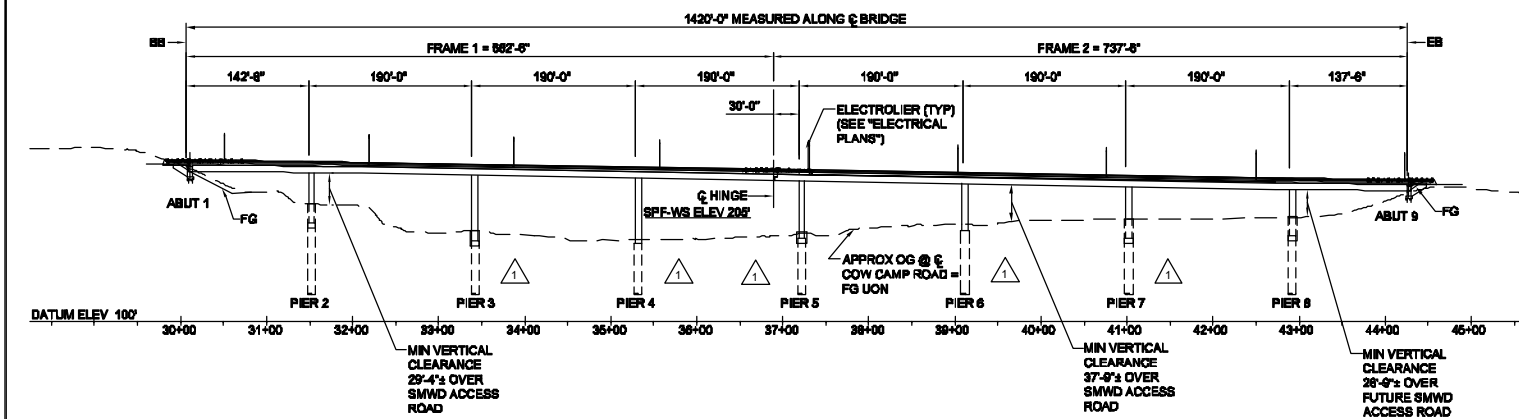
NO.	DESCRIPTION	SHT.	APPROVED	DATE
3	RECORD DRAWING			7/31/15
4	Revisions to Drainage Plans (Sheet 4-6, 8-10A, 11-17, 18-24, 25-42, 47-51, 52-55, 56A & 56B)			
5	ROADWAY, GRADING, DRAINAGE, STRIPING, SIGNAL, & BRIDGE REVISIONS			

W. O. NO. ETD
DWG. NO. TT-001

SHEET 1 OF 115

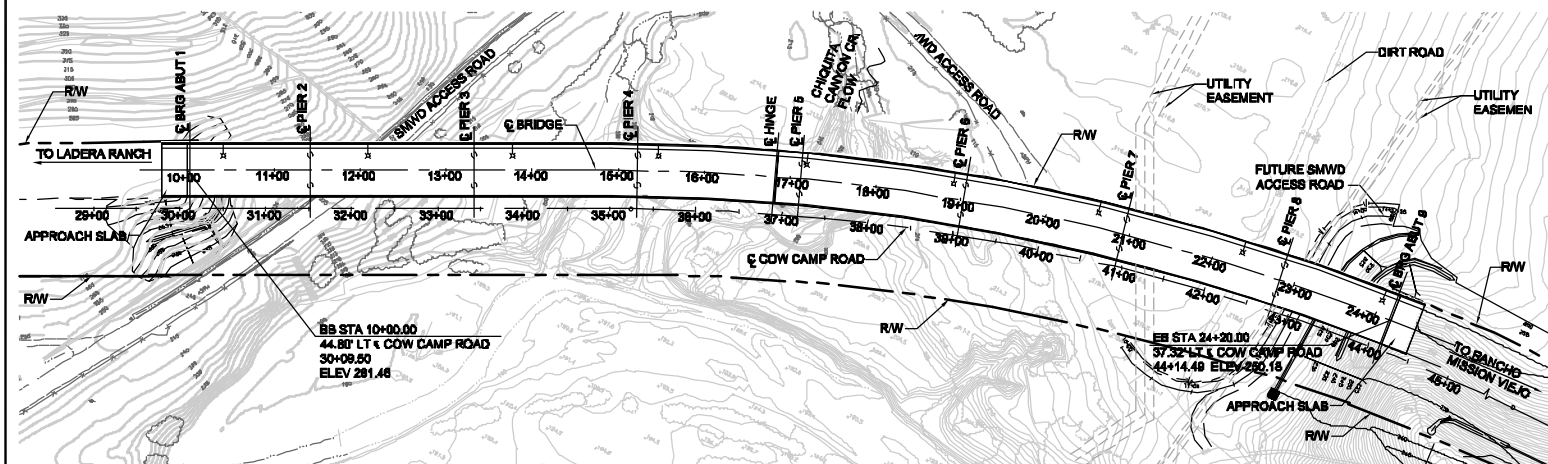


PROFILE GRADE
NO SCALE



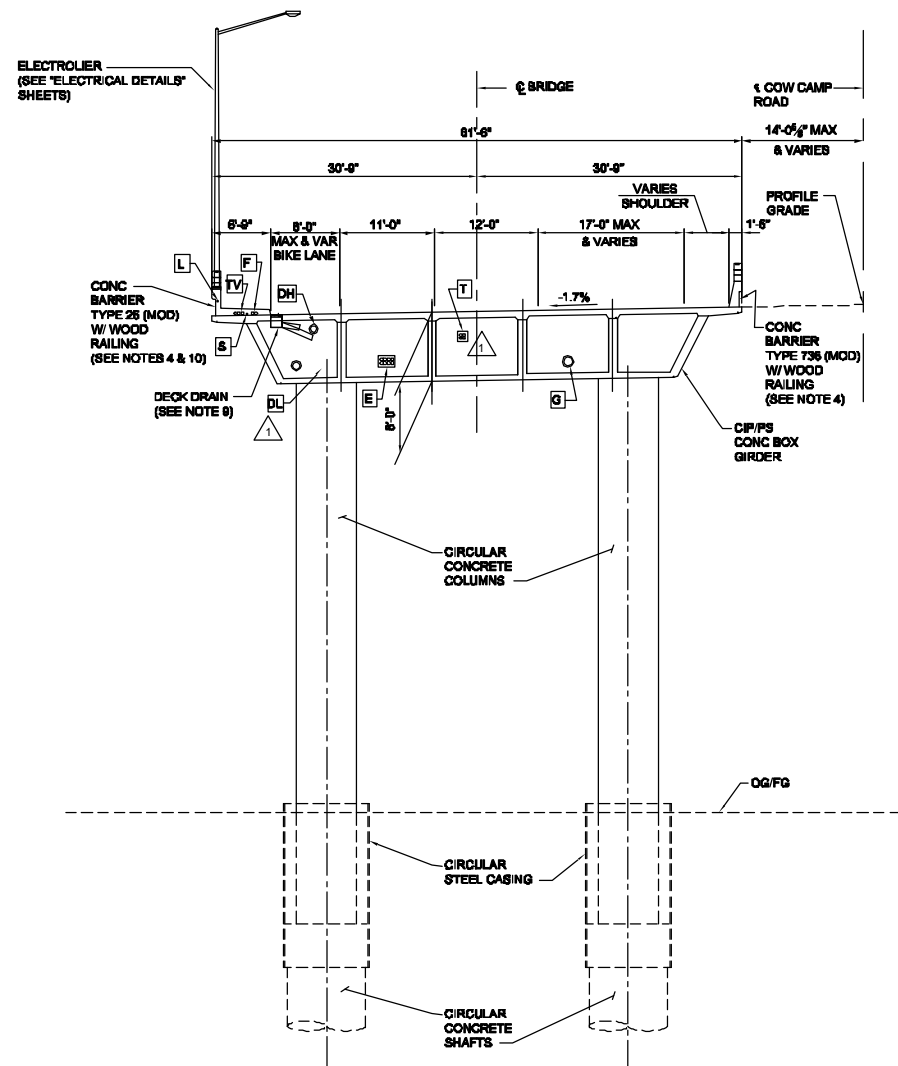
DEVELOPED ELEVATION
SCALE: 1" = 100'

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RBF CONSULTING DATE: JULY 2015



PLAN
SCALE: 1" = 100'

BRIDGE NO. 55C-0693L



TYPICAL SECTION
SCALE: 1" = 10'

UTILITIES:

- TV 3 - 4" TV CONDUITS (COX)
- E 8 - 5" ELECTRIC CONDUITS (SDG & E)
- T 4 - 4" TELEPHONE CONDUITS
- G 8" GAS INSIDE 12" CASING
- F 2 - 4" FUTURE OPENINGS
- S 1 - 2" SIGNAL INTERCONNECT CONDUIT
- L 1 - 2" LIGHTING CONDUIT
- DH DECK DRAINAGE (HIGH FLOW PIPE)
- DL DECK DRAINAGE (LOW FLOW PIPE)

LEGEND:

- ELECTROLIER (TOTAL 9)
(SEE "ELECTRICAL DETAILS" SHEETS)

NOTES:

- FOR INDEX TO PLANS, QUANTITIES, AND GENERAL NOTES, SEE "INDEX TO PLANS" SHEET.
- FOR STRUCTURE DETAILS AND CURVE DATA, SEE "STRUCTURE PLAN NO. 1 AND NO. 2" SHEETS
- FOR PILE DATA TABLE, SEE "FOUNDATION PLAN NO. 1" SHEET.
- FOR ADDITIONAL RAILING DETAILS, SEE "RAILING DETAILS" SHEET.
- FOR LOCATION AND SIZE OF UTILITY OPENINGS, SEE "TYPICAL SECTION" SHEET.
- FOR UTILITY SUPPORT DETAILS, SEE "UTILITY PLANS."
- FOR ELECTROLIER LOCATIONS, SEE "TYPICAL SECTION" SHEET.
- FOR ADDITIONAL GRADING DETAILS, SEE "GRADING PLANS."
- FOR DECK DRAINAGE INFORMATION AND LOCATIONS, SEE "TYPICAL SECTION", "GIRDER LAYOUT", AND "MISCELLANEOUS DETAILS" SHEETS.
- CONDUITS IN SIDE WALK SHOWN SUPERSEDE



MARK	DESCRIPTION	DATE	APPR
3	RECORD DRAWING	7/31/15	
2	REVISIONS AFTER		
1	BID SET DATED 05-01-2013		
	ROADWAY, GRADING,		
	DRAINAGE, STRIPING,		
	SIGNAL & BRIDGE REVS		

PREPARED UNDER THE RESPONSIBLE CHARGE OF:
THOMAS A. KIRILOV, P.E.
REGISTERED PROFESSIONAL ENGINEER
No. 67708
Exp. 06-30-13
CIVIL
PUBLIC WORKS
DATE: 5/21/13

DESIGNED BY: T. KIRILOV / F. SANCHEZ	CHECKED BY: J. SALDANA	SCALE: 12/22/15
DRAWN BY: J. SALDANA	DRAWING CODE: FILE NAME:	PLOT DATE:
ORANGE COUNTY PUBLIC WORKS	PREPARED BY: RBF CONSULTING	

COW CAMP ROAD
CHOCUITA CANYON BRIDGE
TO STATION 76+00.00
GENERAL PLAN

Sheet
Reference
Number
BR-01
Sheet 57 of 115

GENERAL NOTES
LOAD AND RESISTANCE FACTOR DESIGN

DESIGN:
AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS,
4th EDITION AND THE CALTRANS AMENDMENTS,
PREFACE DATED NOVEMBER 2011; EXCEPT THAT
BRIDGE DETAILS (INCLUDING BARRIER AND RAILING
DETAILS) TAKEN FROM STANDARD PLANS 2010 AND
STANDARD BRIDGE DETAILS XS SHEETS, AND BRIDGE
ABUTMENTS ARE DESIGNED USING BRIDGE DESIGN
SPECIFICATIONS (1996 AASHTO WITH REVISIONS BY CALTRANS).



SEISMIC DESIGN:
UPPER LEVEL EVENT:
CALTRANS SEISMIC DESIGN CRITERIA (SDC),
VERSION 1.6 DATED NOVEMBER 2010
SITE SPECIFIC ARS CURVES
LOWER LEVEL EVENT:
TRANSPORTATION CORRIDOR AGENCIES
SEISMIC DESIGN CRITERIA, 72 YEAR AND 150 YEAR EVENTS
SITE SPECIFIC ARS CURVES

DEAD LOAD:
INCLUDES 35 psf FOR FUTURE WEARING SURFACE.

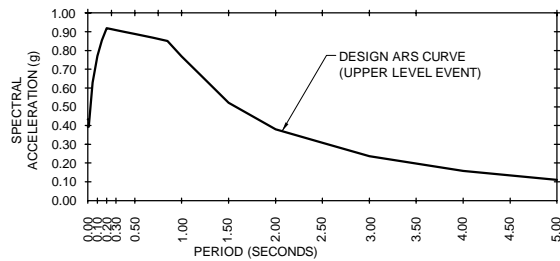
UTILITIES:
8 - 5" Ø ELECTRIC CONDUITS = 120 lbs/ft
4 - 4" Ø TELEPHONE CONDUITS = 60 lbs/ft
8" Ø GAS WITH 12" Ø CASING = 150 lbs/ft



LIVE LOADING:
HL93 W/Low BOY AND PERMIT DESIGN LOAD.

SEISMIC LOADING: SITE SPECIFIC ARS CURVE AS SHOWN (UPPER LEVEL EVENT)
SOIL PROFILE: Vs30 = Range of 156 m/sec to 484 m/sec
MOMENT MAGNITUDE: Mmax = 7.0
PEAK GROUND ACCELERATION= 0.39 g

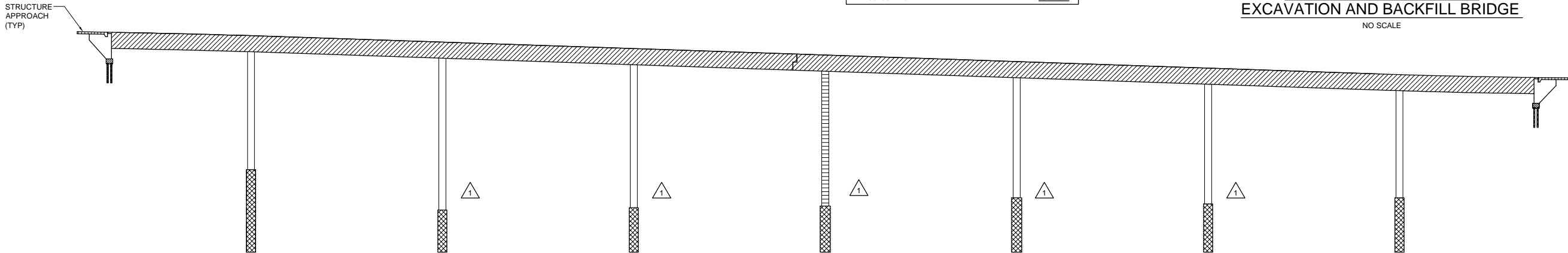
VERTICAL ACCELERATION:
25% DL (FLEXURE)
125% DL (SHEAR FRICTION)



REINFORCED CONCRETE:
fy = 60 ksi
fc = 3.6 ksi (UNLESS NOTED OTHERWISE)
n = 8

PRESTRESSED
CONCRETE: SEE "PRESTRESSING NOTES" ON "GIRDER LAYOUT" SHEETS

STRUCTURAL STEEL
Fy = ASTM A709 GRADE 50
RESTRAINER CABLES : ASTM A603 Fy = 176.1 ksi
HIGH STRENGTH RODS :ASTM A722 TYPE II Fy = 120 ksi



LEGEND:

	STRUCTURAL CONCRETE, BRIDGE		STRUCTURAL CONCRETE, BRIDGE		CAST-IN-DRILLED-HOLE CONCRETE PILE
	STRUCTURAL CONCRETE, BRIDGE		STRUCTURAL CONCRETE, BRIDGE		STRUCTURAL CONCRETE, APPROACH SLAB TYPE N (30S)
	STRUCTURAL CONCRETE, BRIDGE		STRUCTURAL CONCRETE, BRIDGE		

CONCRETE STRENGTH AND TYPE LIMITS

NO SCALE

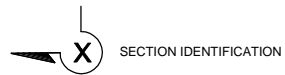
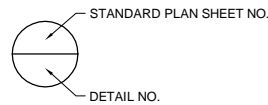
INDEX TO PLANS

BR-SHEET NO.	TITLE
01	GENERAL PLAN
02	INDEX TO PLANS
03	STRUCTURE PLAN NO. 1
04	STRUCTURE PLAN NO. 2
05	DECK CONTOURS NO. 1
06	DECK CONTOURS NO. 2
07	FOUNDATION PLAN NO. 1
08	FOUNDATION PLAN NO. 2
09	ABUTMENT 1 LAYOUT
10	ABUTMENT 9 LAYOUT
11	ABUTMENT PILE LAYOUT
12	ABUTMENT DETAILS NO. 1
13	ABUTMENT DETAILS NO. 2
14	ABUTMENT DETAILS NO. 3
15	PIERS 2 & 8 LAYOUT
16	PIERS 2 & 8 DETAILS NO. 1
17	PIERS 2 & 8 DETAILS NO. 2
18	PIERS 3,4,5,6, & 7 LAYOUT
19	PIERS 3,4,5,6, & 7 DETAILS NO. 1
20	PIERS 3,4,5,6, & 7 DETAILS NO. 2
21	TYPICAL PIER DETAILS NO. 1
22	TYPICAL PIER DETAILS NO. 2
23	TYPICAL SECTION
24	GIRDER LAYOUT NO. 1
25	GIRDER LAYOUT NO. 2
26	GIRDER LAYOUT NO. 3
27	CAMBER DIAGRAM
28	GIRDER REINFORCEMENT
29	HINGE DETAILS NO. 1
30	HINGE DETAILS NO. 2
31	HINGE DETAILS NO. 3
32	RAILING DETAILS
32A	MISCELLANEOUS DETAILS
33	STRUCTURE APPROACH DRAINAGE DETAILS
34	STRUCTURE APPROACH TYPE N(30S)
35	CABLE RESTRAINER TYPE 2
36	CABLE RESTRAINER ADJUSTMENT HARDWARE
37	JOINT SEAL - HINGE DETAILS - MOVEMENT RATING GRATER THAN 4"
38	JOINT SEAL - ABUTMENT DETAILS - MOVEMENT RATING GRATER THAN 4"
39	JOINT ARMOR - EXPANSION DETAILS
40	PTFE/SPHERICAL EXPANSION BEARING DETAILS
41	PTFE/ELASTOMERIC BEARING DETAILS
42	LOG OF TEST BORINGS 1 OF 3
43	LOG OF TEST BORINGS 2 OF 3
44	LOG OF TEST BORINGS 3 OF 3
45	ELECTRICAL DETAILS 1 OF 2
46	ELECTRICAL DETAILS 2 OF 2

CALTRANS STANDARD PLANS DATED 2010

A10A	ABBREVIATIONS (SHEET 1 OF 2)
A10B	ABBREVIATIONS (SHEET 2 OF 2)
A10C	LINES AND SYMBOLS (SHEET 1 OF 3)
A10D	LINES AND SYMBOLS (SHEET 2 OF 3)
A10E	LINES AND SYMBOLS (SHEET 3 OF 3)
A10F	LEGEND - SOIL (SHEET 1 OF 2)
A10G	LEGEND - SOIL (SHEET 2 OF 2)
A62B	LIMITS OF PAYMENT FOR EXCAVATION AND BACKFILL BRIDGE SURCHARGE AND WALL
A62C	LIMITS OF PAYMENT FOR EXCAVATION AND BACKFILL BRIDGE
B0-1	BRIDGE DETAILS
B0-5	BRIDGE DETAILS
B0-13	BRIDGE DETAILS
B7-1	BOX GIRDER DETAILS
B7-6	DECK DRAINS - TYPES D-1 AND D-2
B7-8	DECK DRAINAGE DETAILS
B7-10	UTILITY OPENING BOX GIRDER
B8-5	CAST-IN-PLACE PRESTRESSED GIRDER DETAILS
B11-54	CONCRETE BARRIER TYPE 26
B11-56	CONCRETE BARRIER TYPE 736
ES-6A	ELECTRICAL SYSTEMS (LIGHTING STANDARD TYPES 15 AND 21)
ES-9A	ELECTRICAL SYSTEMS (STRUCTURE PULL BOX INSTALLATIONS)
ES-9B	ELECTRICAL SYSTEMS (CONDUIT RISER AND EXPANSION FITTING STRUCTURE INSTALLATION)
ES-9C	ELECTRICAL SYSTEMS (STRUCTURE PULL BOX)
ES-9D	ELECTRICAL SYSTEMS (STRUCTURE PULL BOX INSTALLATIONS)

PLAN SYMBOLS



RECORD DRAWING

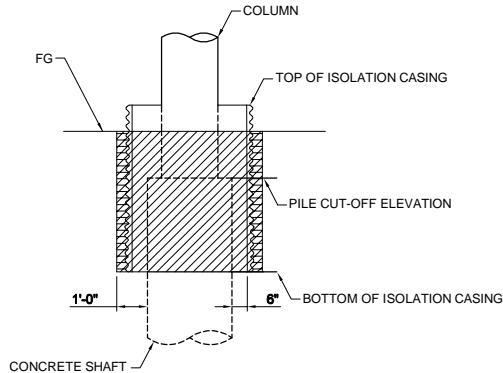
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IT FOR ANY PURPOSE.

RBF CONSULTING

DATE JULY 2015

QUANTITIES

2	STRUCTURE EXCAVATION (BRIDGE)	1,211	CY
1	STRUCTURE BACKFILL (BRIDGE)	438	CY
1	18" CAST-IN-DRILLED-HOLE CONCRETE PILING	2,016	LF
3	132" CAST-IN-DRILLED-HOLE CONCRETE PILING	794	LF
1	132" CAST-IN-DRILLED-HOLE CONCRETE PILING	440	LF
1	PRESTRESSING CAST-IN-PLACE CONCRETE	1	LS
1	STRUCTURAL CONCRETE, BRIDGE FOOTING	105	CY
	STRUCTURAL CONCRETE, BRIDGE	9,343	CY
	STRUCTURAL CONCRETE, APPROACH SLAB (TYPE N)	134	CY
	PTFE BEARING	12	EA
	PTFE SPHERICAL BEARING	6	EA
2	JOINT SEAL ASSEMBLY (MR 9")	124	LF
	JOINT SEAL ASSEMBLY (MR 12")	62	LF
2	BAR REINFORCING STEEL (BRIDGE)	3,737,462	LB
	BAR REINFORCING STEEL (GALVANIZED)	12,925	LB
	HEADED BAR REINFORCEMENT	5,086	EA
	WELDED STEEL PIPE CASING (BRIDGE)	1,490	LF
	MANHOLE FRAME AND COVER	18	EA
	MISCELLANEOUS METAL (RESTRAINER - CABLE TYPE)	15,100	LB
	MISCELLANEOUS METAL (BRIDGE)	12,251	LB
2	BRIDGE DECK DRAINAGE SYSTEM	54,621	LB
1	120" CORRUGATED STEEL PIPE ISOLATION CASING (8 GAUGE)	216	LF
	132" CORRUGATED STEEL PIPE ISOLATION CASING (8 GAUGE)	28	LF
	WOOD RAILING	2,946	LF
	CONCRETE BARRIER (TYPE 26 MODIFIED)	1,491	LF
	CONCRETE BARRIER (TYPE 736 MODIFIED)	1,469	LF



AT PIERS

LIMITS OF PAYMENT FOR
EXCAVATION AND BACKFILL BRIDGE

NO SCALE

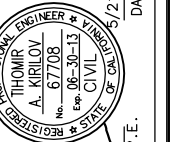
LEGEND:

	STRUCTURE EXCAVATION
	STRUCTURE BACKFILL



RECORD	REVISIONS	DATE	APPR.
3	RECORD DRAWING	7/31/15	
2	REVISIONS AFTER		
1	BID SET DATED 05-01-2013		
	ROADWAY, GRADING,		
	DRAINAGE, STRIPING,		
	SIGNAL & BRIDGE REVS		
	MARK	DESCRIPTION	

PREPARED UNDER THE RESPONSIBLE CHARGE OF:



THOMAS KIRILOV, P.E.
PUBLIC WORKS

DESIGNED BY:	T. KIRILOV / F. SANCHEZ
DRAWN BY:	J. SALDANA
CHECKED BY:	G. RENDE
DRAWING CODE:	
FILE NAME:	
PLOT DATE:	09/30/15
SCALE:	

ORANGE COUNTY PUBLIC WORKS	PREPARED BY: RBF CONSULTING
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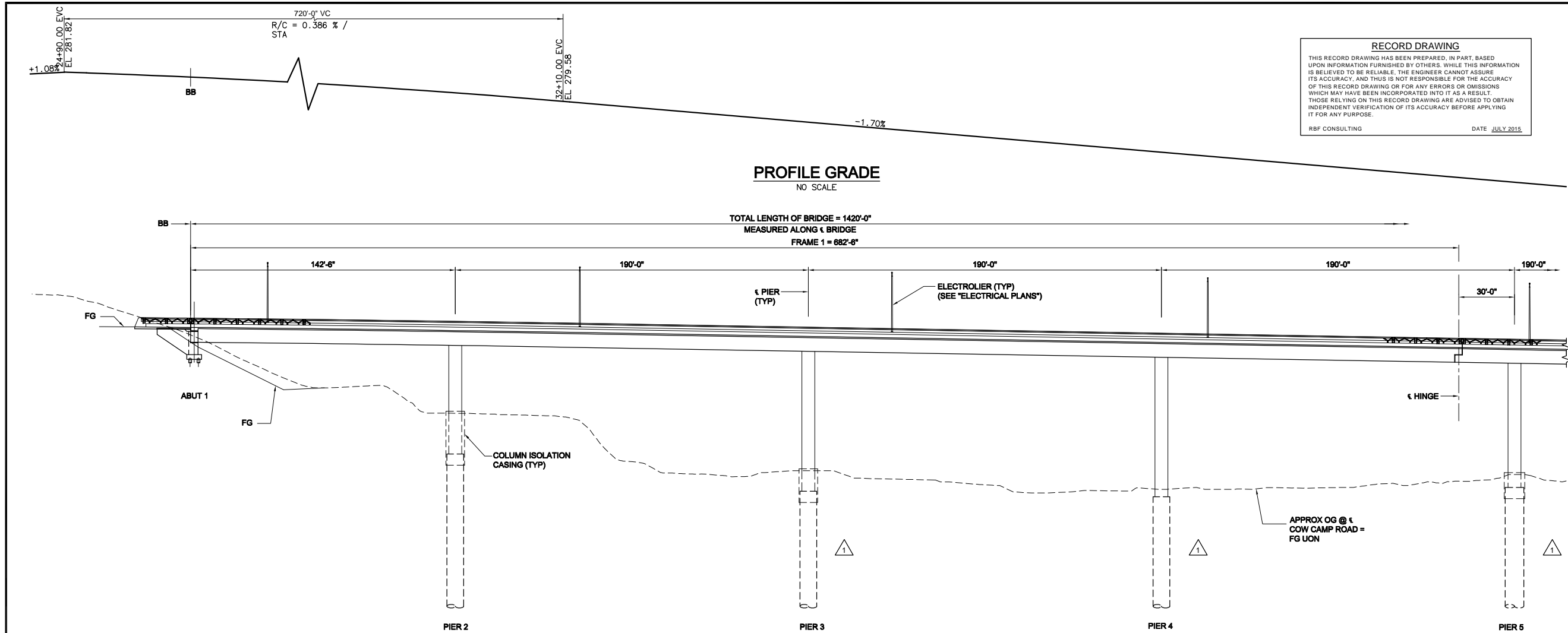
COW CAMP ROAD
CHILQUITA CANYON BRIDGE
TO STATION 76+00.00
INDEX TO PLANS

Sheet
Reference
Number

BR-02

Sheet 58 of 115

H:\data\10107727\CADD\Struc\Div\DELTA 1 CADD DRAWINGS\7727-BR-02.DWG 09/30/15 - 9:31am May, Duong



RECORD DRAWING

THIS RECORD DRAWING HAS BEEN PREPARED, IN PART, BASED UPON INFORMATION FURNISHED BY OTHERS. WHILE THIS INFORMATION IS BELIEVED TO BE RELIABLE, THE ENGINEER CANNOT ASSURE ITS ACCURACY, AND THUS IS NOT RESPONSIBLE FOR THE ACCURACY OF THIS RECORD DRAWING OR FOR ANY ERRORS OR OMISSIONS WHICH MAY HAVE BEEN INCORPORATED INTO IT AS A RESULT. THOSE RELYING ON THIS RECORD DRAWING ARE ADVISED TO OBTAIN INDEPENDENT VERIFICATION OF ITS ACCURACY BEFORE APPLYING IT FOR ANY PURPOSE.

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DATE JULY 2015



MARK	DESCRIPTION	DATE	APPR.
3	RECORD DRAWING	7/31/15	
2	REVISE PER RF1 #2		
1	ROADWAY, GRADING, DRAINAGE, STRIPING, SIGNAL & BRIDGE REVS		

PREPARED UNDER THE RESPONSIBLE CHARGE OF:

THOMIR KIRILOV, P.E.
PUBLIC WORKS

PROFESSIONAL ENGINEER
THOMIR KIRILOV
No. 67708
Exp. 08-30-13
CIVIL

DATE 7/31/15

DESIGNED BY: T. KIRILOV / F. SANCHEZ
DRAWN BY: J. SALDANA
CHECKED BY: G. RENDE
DRAFTING CODE: FILE NAME: SCALE: 10/01/15

ORANGE COUNTY
PUBLIC WORKS

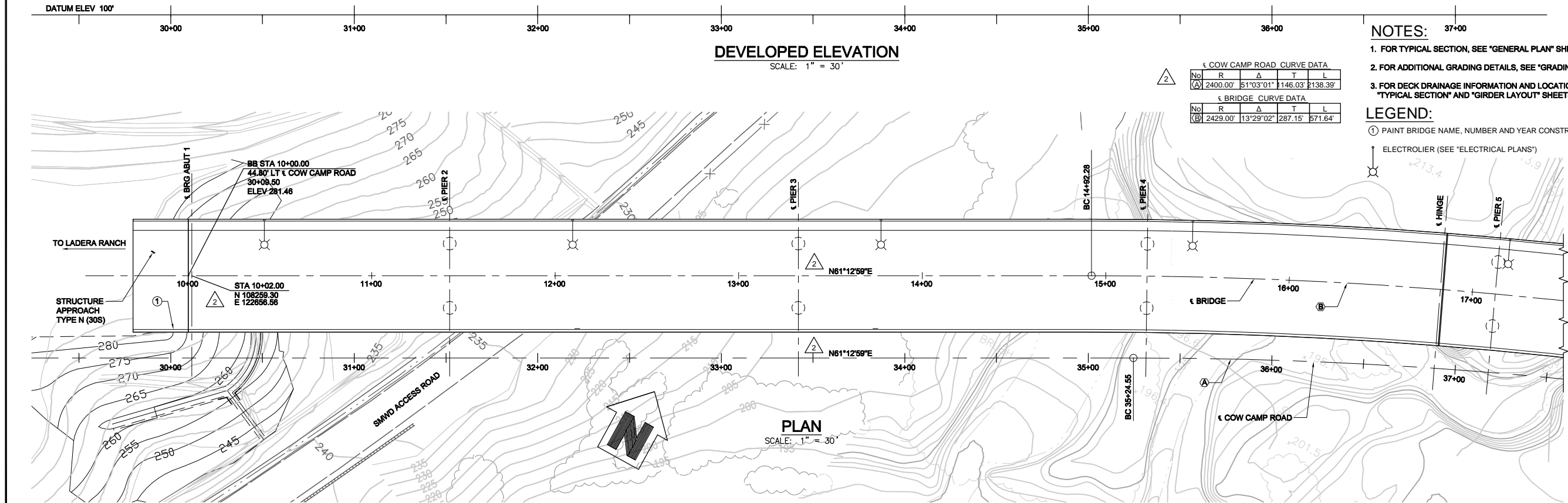
PREPARED BY: RBF CONSULTING

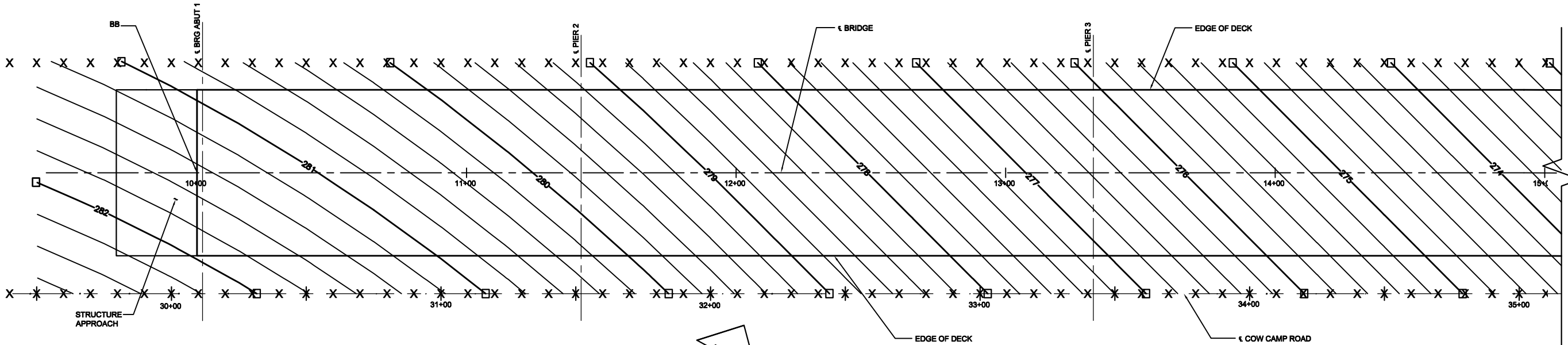
COW CAMP ROAD
CHUQUITA CANYON BRIDGE
TO STATION 76+00.00
STRUCTURE
PLAN NO. 1

Sheet
Reference
Number

BR-03

Sheet 59 of 115





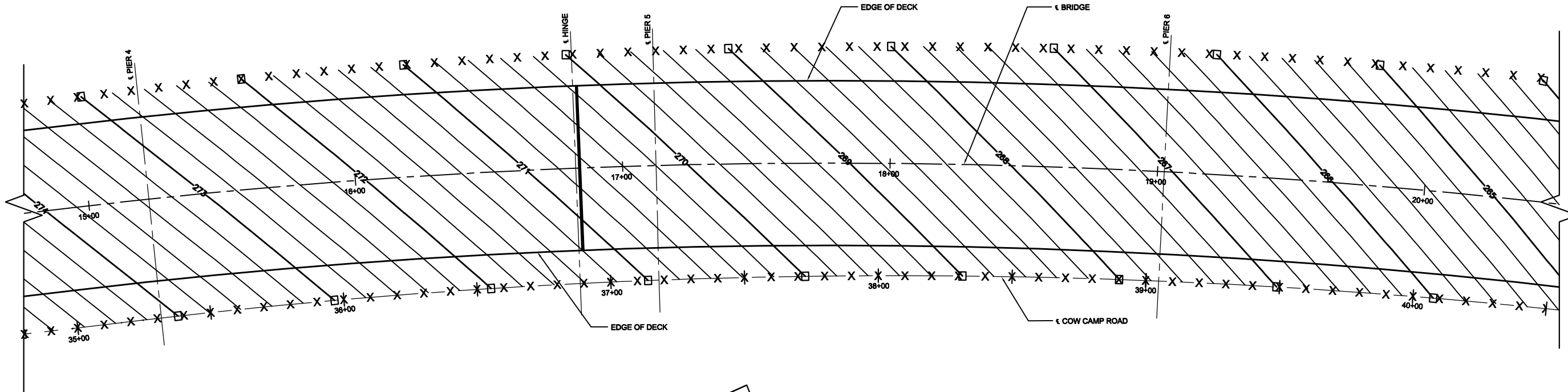
PLAN
SCALE: 1" = 20'

LEGEND:

- X - 10' INTERVALS ALONG COW CAMP ROAD
- - EVEN FOOT CONTOURS

NOTES:

- CONTOUR INTERVAL IS 0.20'
- CONTOURS DO NOT INCLUDE CAMBER OR FALSEWORK SETTLEMENT.



PLAN
SCALE: 1" = 20'

RECORD DRAWING
THIS RECORD DRAWING HAS BEEN PREPARED, IN PART, BASED UPON INFORMATION FURNISHED BY OTHERS. WHILE THIS INFORMATION IS BELIEVED TO BE RELIABLE, THE ENGINEER CANNOT ASSURE ITS ACCURACY, AND THIS IS NOT RESPONSIBLE FOR THE ACCURACY OF THIS RECORD DRAWING OR FOR ANY ERRORS OR OMISSIONS WHICH MAY HAVE BEEN INCORPORATED INTO IT AS A RESULT. THOSE RELYING ON THIS RECORD DRAWING ARE ADVISED TO OBTAIN INDEPENDENT VERIFICATION OF ITS ACCURACY BEFORE APPLYING IT FOR ANY PURPOSE.
RBF CONSULTING DATE JULY 2015



MARK	RECORD DRAWING	DATE	APPR.
3		7/31/15	

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7/21/13

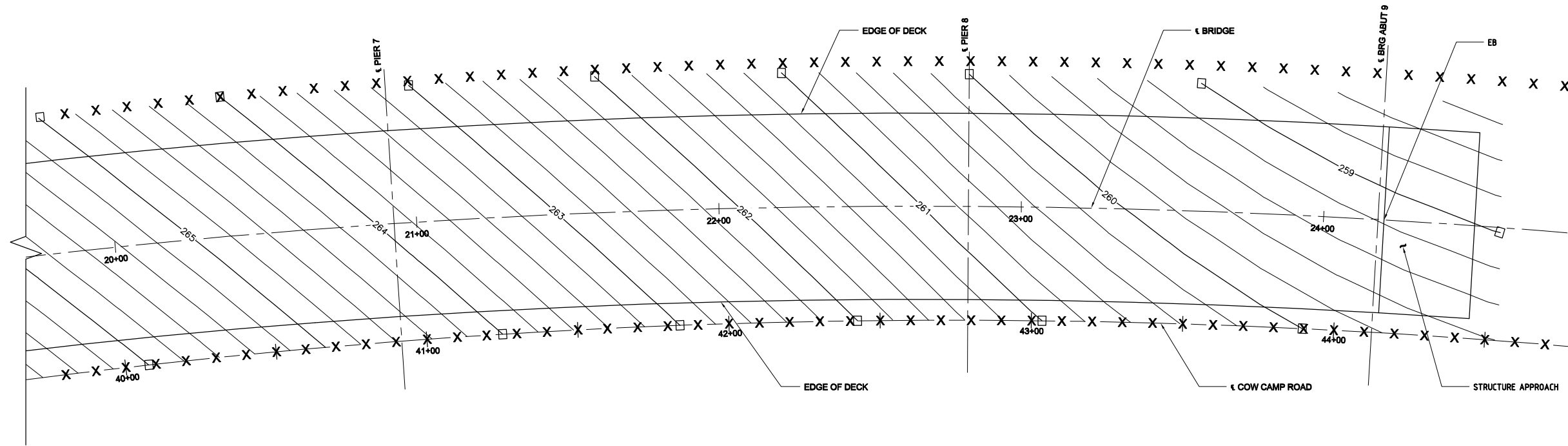
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DRAWN BY: J. SALDANA	DRAWING CODE:	FILE NAME:
PREPARED BY: RBF CONSULTING	PLOT DATE: 09/22/15	

COW CAMP ROAD
CHICUITA CANYON BRIDGE
TO STATION 76+00.00
DECK CONTOURS NO. 1

Sheet
Reference
Number

BR-05

Sheet 61 of 115



PLAN
SCALE: 1" = 20'

LEGEND:

- X - 10' INTERVALS ALONG COW CAMP ROAD
- - EVEN FOOT CONTOURS

NOTES:

- CONTOUR INTERVAL IS 0.20'
- CONTOURS DO NOT INCLUDE CAMBER OR FALSEWORK SETTLEMENT.

RECORD DRAWING

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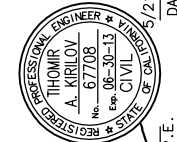
RBF CONSULTING

DATE JULY 2015



MARK	RECORD DRAWING DESCRIPTION	DATE	APPR.
3		7/31/15	

PREPARED UNDER THE RESPONSIBLE CHARGE OF:



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DRAWN BY: J. SALDANA	DRAWING CODE:
FILE NAME:	SCALE:
PLOT DATE: 09/30/15	

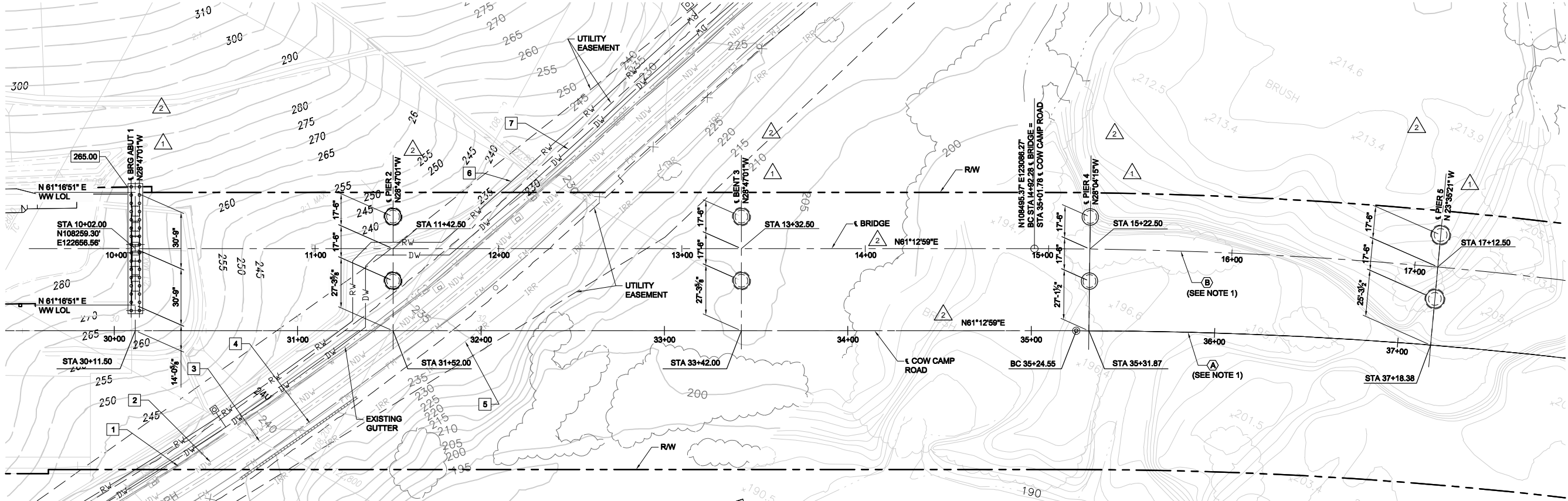
ORANGE COUNTY PUBLIC WORKS	PREPARED BY: RBF CONSULTING
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COW CAMP ROAD
CHICUITA CANYON BRIDGE
TO STATION 76+00.00
DECK CONTOURS NO. 2

Sheet
Reference
Number

BR-06

Sheet 62 of 115



PLAN
SCALE: 1" = 30'

PILE DATA

LOCATION	PILE TYPE	CUT-OFF ELEVATION (FT)	NOMINAL RESISTANCE		DESIGN TIP ELEVATION (FT)	SPECIFIED TIP ELEVATION (FT)
			COMPRESSION (KIPS)	TENSION (KIPS)		
ABUTMENT 1	18" Ø CIDH	265.25	220	0	234.25 (a)	234
PIER 2	108" Ø CIDH	214	5790	0	181 (a), 171 (d)	171
PIER 3	108" Ø CIDH	194	6130 (1)	0	105 (a)	105
PIER 4	108" Ø CIDH	191	6080	0	102 (a)	102
PIER 5	120" Ø CIDH	196	7580 (1)	0	80 (a)	80
PIER 6	120" Ø CIDH	206	6780 (1)	0	102 (a)	102
PIER 7	108" Ø CIDH	197	7850 (1)	0	83 (a)	83
PIER 8	108" Ø CIDH	200	5650	0	138 (a)	138
ABUTMENT 9	18" Ø CIDH	242.75	220	0	211.75 (a)	211

a) COMPRESSION
b) TENSION
c) SETTLEMENT
d) LATERAL LOAD

NOTES:

- VALUES INCLUDE SEISMICALLY-INDUCED DOWDRAG OF 2030 KIPS FOR PIER 3, 3280 KIPS FOR PIER 5, 2780 KIPS FOR PIER 6, AND 3850 KIPS FOR PIER 7.
- ELEVATION OF BOTTOM OF LIQUEFIABLE ZONE AT PIER 3 IS 154 FT, AT PIER 4 IS 147 FT, AT PIER 5 IS 124 FT, AT PIER 6 IS 145 FT, AND AT PIER 7 IS 126 FT.

EXISTING UTILITY LINES:

- 20" WATER, PROTECT IN PLACE
- 16" NON-DOMESTIC WATER, PROTECT IN PLACE
- 42" SEWER, PROTECT IN PLACE
- 16" SEWER, FORCED MAIN, PROTECT IN PLACE
- 8" WATER IRRIGATION, RMV, PROTECT IN PLACE

NEW UTILITY LINES:

- 30" RECLAIMED WATER, SMWD, PROTECT IN PLACE
- 24" WATER, SMWD, PROTECT IN PLACE

BASIS OF BEARINGS:
THE BASIS OF BEARINGS FOR THIS PROJECT IS THE CALIFORNIA COORDINATE SYSTEM (CCS83), ZONE VI, NAD83 (EPOCH 1981.35), AS DETERMINED LOCALLY BY A LINE BETWEEN CONTINUOUS GLOBAL POSITIONING STATIONS (CGPS) SBCC AND TRAK BEING N80°31'33"W AS DERIVED FROM GEODETIC VALUES PUBLISHED AND ON FILE IN THE OFFICE OF THE ORANGE COUNTY SURVEYOR.

BENCHMARK:
AP-02-98 (NGVD29) ELEVATION: 235.793'
(NAVD88) ELEVATION: 236.115'
FOUND 3 - 3/4" OCS ALUMINUM BENCHMARK DISK STAMPED "AP-02-98", SET IN THE NORTHEASTERLY CORNER OF A CONCRETE BRIDGE DECK. MONUMENT IS LOCATED IN THE NORTHEASTERLY CORNER OF ANTONIO PARKWAY AND ITS OVERCROSSING OF SAN JUAN CREEK.

HYDROLOGIC SUMMARY	
DRAINAGE AREA: 7 SQUARE MILES	
FREQUENCY (YEARS)	SPF 100
DISCHARGE (CUBIC FEET PER SECOND)	5,600
WATER SURFACE (ELEVATION AT BRIDGE)	205
MAXIMUM CHANNEL DEPTH (FEET)	13.44
TOP WIDTH (FEET)	485.31

SPF = STANDARD PROJECT FLOOD

RECORD DRAWING

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RBF CONSULTING DATE JULY 2016

LEGEND:

- XXXX BOTTOM OF FOOTING ELEVATION
- 18" DIA CAST-IN-DRILLED-HOLE CONCRETE PILE
- LARGE DIA CAST-IN-DRILLED-HOLE CONCRETE PILE
- COLUMN ISOLATION CASING

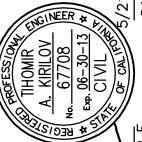
NOTES:

- FOR CURVE DATA, SEE "STRUCTURE PLAN NO. 1" SHEET.
- FOR ABUTMENT PILE LAYOUT, SEE "ABUTMENT PILE LAYOUT" SHEET.
- THE CONTRACTOR SHALL POT-HOLE ALL EXISTING UTILITIES WITHIN THE CONSTRUCTION ZONE TO VERIFY EXISTING UTILITY LOCATIONS.



MARK	DESCRIPTION	DATE	APPR.
3	RECORD DRAWING	7/31/15	
2	REVISE PER RFI #2		
1	ROADWAY GRADING, DRAINAGE, STRIPING, SIGNAL & BRIDGE REVS		

PREPARED UNDER THE RESPONSIBLE CHARGE OF:



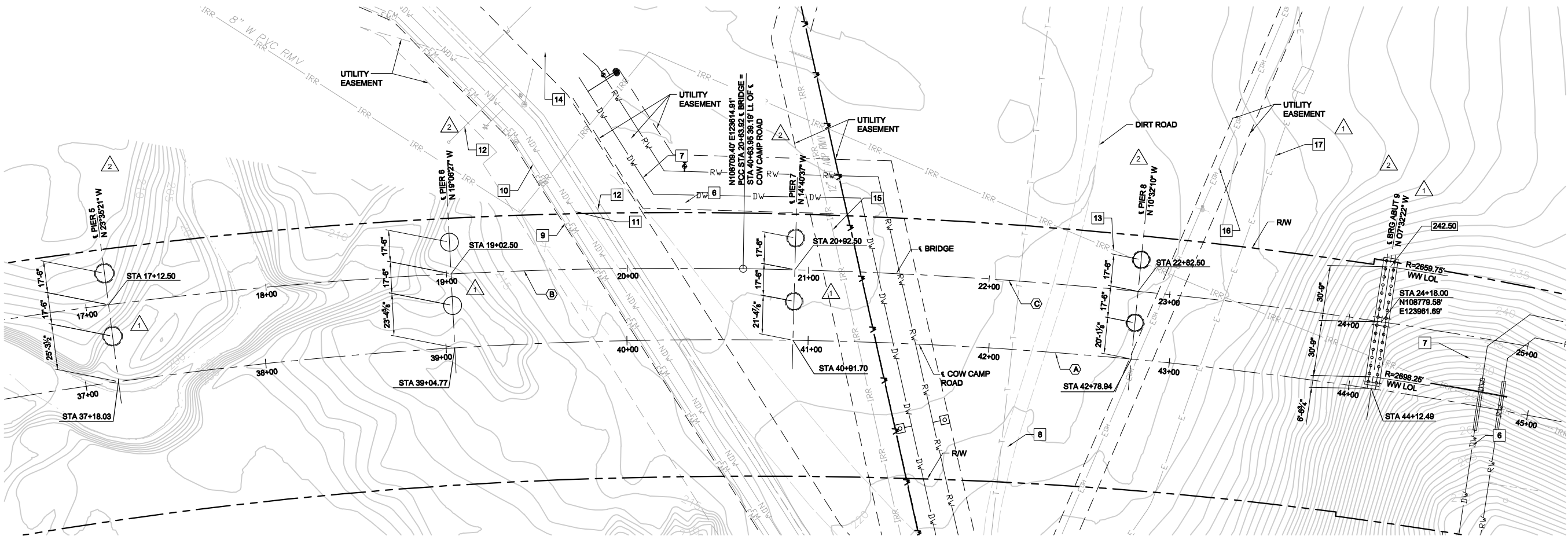
T. Kirilov, P.E.
PUBLIC WORKS

DESIGNED BY:	T. KIRILOV / F. SANCHEZ
DRAWN BY:	J. SALDANA
CHECKED BY:	G. RENDE
DRAWING CODE:	
FILE NAME:	
PLOT DATE:	10/01/15
SCALE:	

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COW CAMP ROAD CHICUITA CANYON BRIDGE TO STATION 76+00.00 FOUNDATION PLAN NO. 1
--

Sheet Reference Number
BR-07
Sheet 63 of 115



PLAN
SCALE: 1" = 30'

NEW UTILITY LINES:

- 6 30" RECLAIMED WATER
- 7 24" WATER
- 8 12" WATER IRRIGATION

EXISTING UTILITY LINES:

- 9 10" SEWER, FORCED MAIN, PROTECT IN PLACE
- 10 16" SEWER, FORCED MAIN, PROTECT IN PLACE
- 11 16" NON-DOMESTIC WATER, PROTECT IN PLACE
- 12 66" WATER, PROTECT IN PLACE
- 13 8" WATER IRRIGATION, RMV, TO BE RELOCATED
- 14 12" WATER, RMV, PROTECT IN PLACE
- 15 12" WT ACP RMV, TO BE RELOCATED
- 16 ELECTRICAL OVERHEAD, TO BE RELOCATED
- 17 12 KV ELECTRICAL LINE, PROTECT IN PLACE

LEGEND:

- XXXXX BOTTOM OF FOOTING ELEVATION
- 18" DIA CAST-IN-DRILLED-HOLE CONCRETE PILE
- LARGE DIA CAST-IN-DRILLED-HOLE CONCRETE PILE
- COLUMN ISOLATION CASING

NOTES:

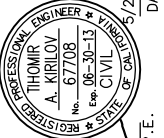
- FOR CURVE DATA, SEE "STRUCTURE PLAN NO. 2" SHEET.
- FOR ABUTMENT PILE LAYOUT, SEE "ABUTMENT PILE LAYOUT" SHEET.
- FOR PILE DATA TABLE, BASIS OF BEARINGS, AND BENCH MARK, SEE "FOUNDATION PLAN NO. 1" SHEET.

RECORD DRAWING
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RBF CONSULTING DATE JULY 2015



MARK	DESCRIPTION	DATE	APPR.
3	RECORD DRAWING	7/31/15	
2	REVISE PER RF1 #2		
1	ROADWAY, GRADING, DRAINAGE, STRIPING, SIGNAL & BRIDGE REVS		

PREPARED UNDER THE RESPONSIBLE CHARGE OF:



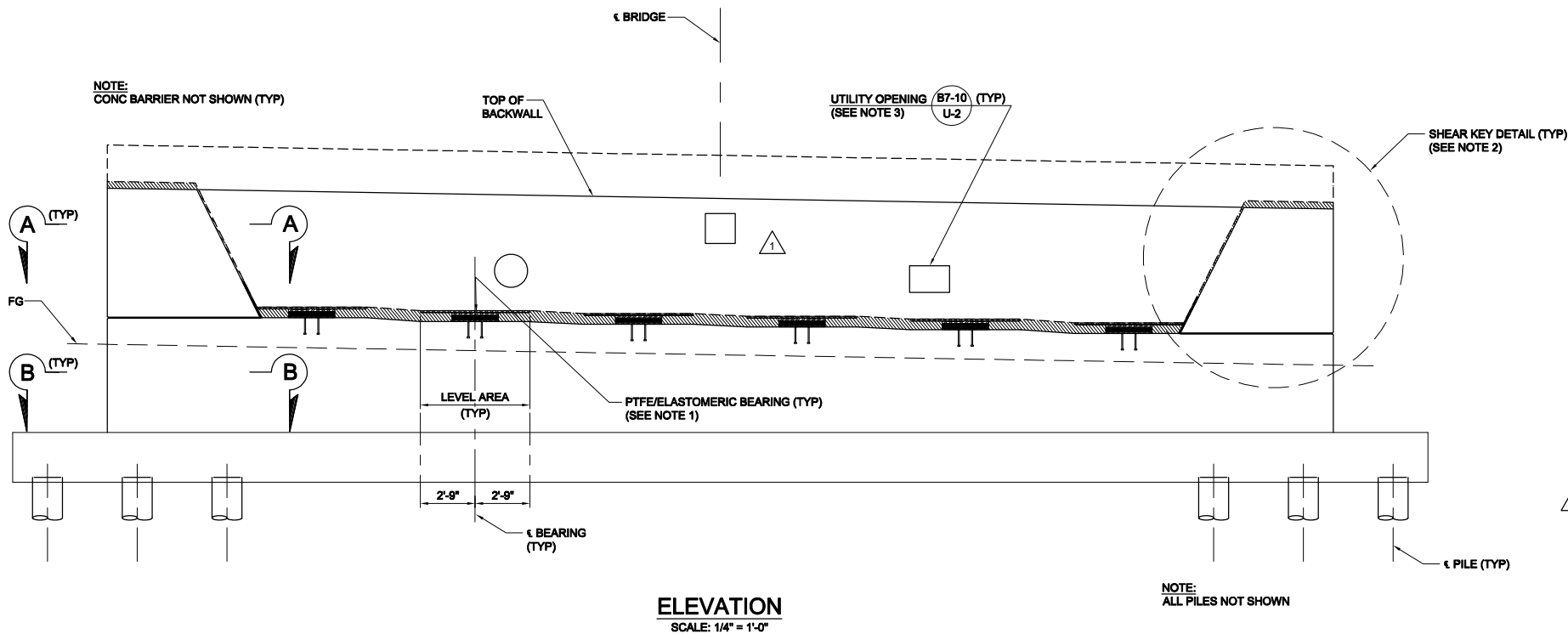
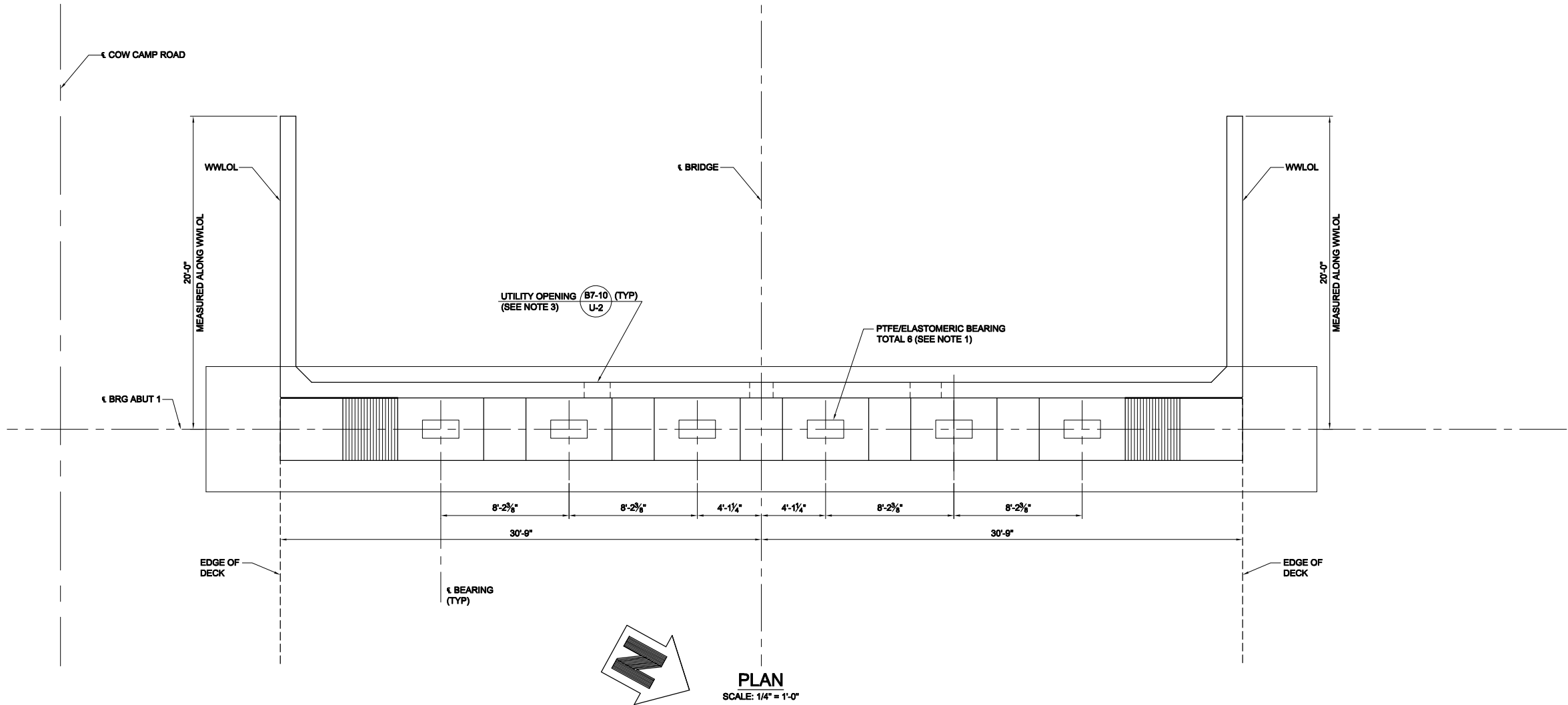
THOMAS A. KIRILOV, P.E.
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DRAWN BY: J. SALDANA	DRAWING CODE: FILE NAME:
PREPARED BY: RBF CONSULTING	SCALE: PLOT DATE: 10/01/15

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COW CAMP ROAD
CHIUQUITA CANYON BRIDGE
TO STATION 76+00.00
FOUNDATION
PLAN NO. 2

Sheet
Reference
Number
BR-08
Sheet 64 of 115



RECORD DRAWING

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RBF CONSULTING DATE JULY 2015

NOTES:

- FOR BEARING PAD DETAILS, SEE "PTFE/ELASTOMERIC BEARING DETAILS" SHEET.
- FOR SECTIONS A-A, B-B, AND SHEAR KEY DETAIL, SEE "ABUTMENT DETAILS NO. 2" SHEET.
- FOR LOCATION AND SIZE OF UTILITY OPENINGS, SEE "TYPICAL SECTION" SHEET.
- FOR STEEL CASINGS AT UTILITY LINES, SEE "TYPICAL SECTION" SHEET AND "UTILITY PLANS".



MARK	DESCRIPTION	DATE	APPR.
3	RECORD DRAWING	7/31/15	
1	ROADWAY, GRADING, DRAINAGE, STRIPING, SIGNAL & BRIDGE REVS		

PREPARED UNDER THE RESPONSIBLE CHARGE OF:

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PUBLIC WORKS

DATE: 7/21/13

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DRAWN BY: J. SALDANA
CHECKED BY: G. RENDE
DRAWING CODE: FILE NAME: SCALE: PLOT DATE: 09/17/15

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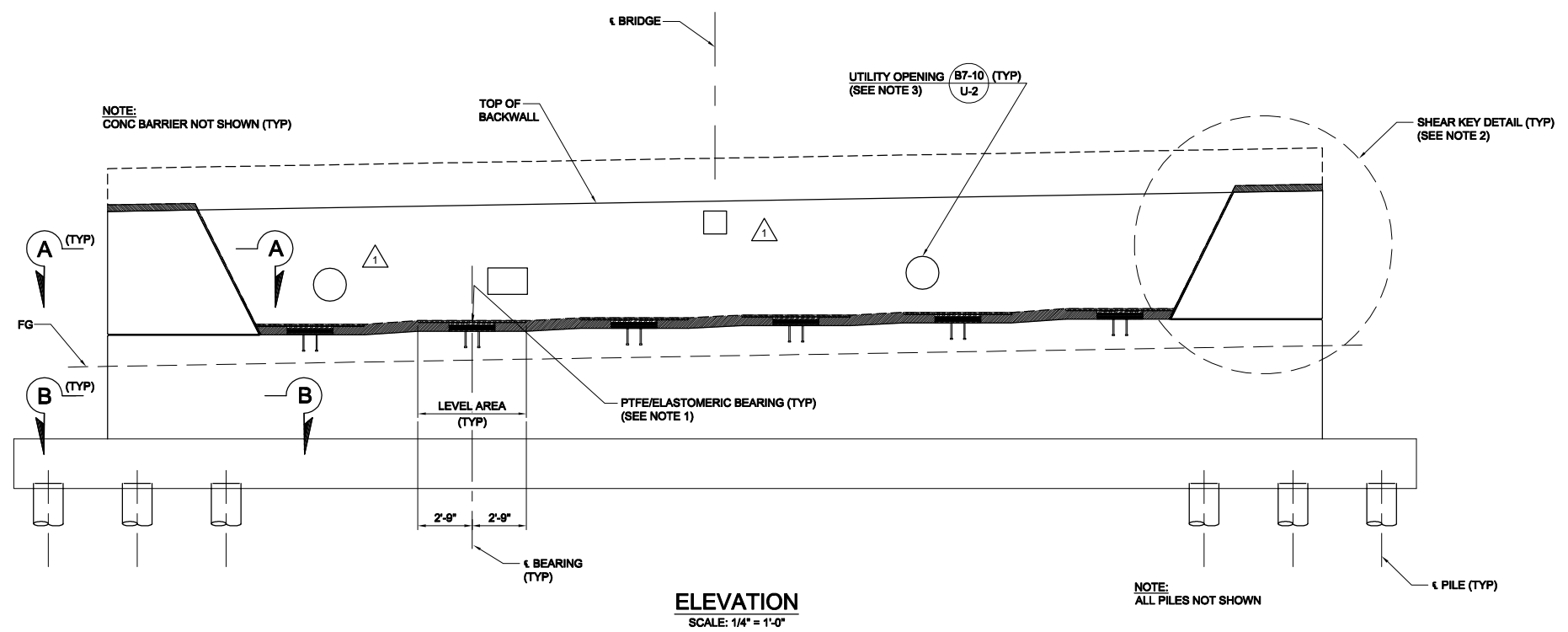
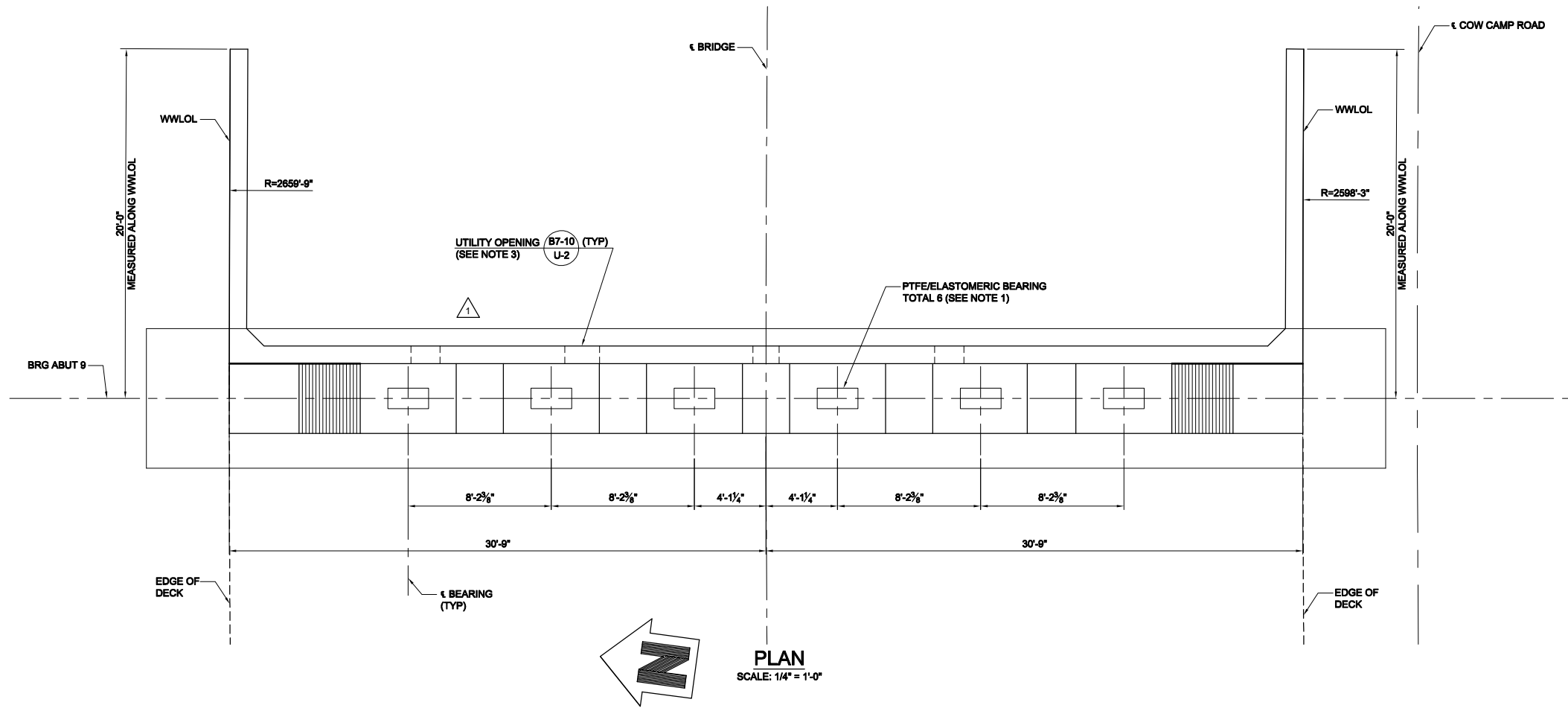
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COW CAMP ROAD CHIQUITA CANYON BRIDGE TO STATION 76+00.00 ABUTMENT 1 LAYOUT

Sheet Reference Number

BR-09

Sheet 65 of 115



RECORD DRAWING

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RBF CONSULTING DATE: JULY 2015

- NOTES:**
- FOR BEARING PAD DETAILS, SEE "PTFE/ELASTOMERIC BEARING DETAILS" SHEET.
 - FOR SECTIONS A-A, B-B, AND SHEAR KEY DETAIL, SEE "ABUTMENT DETAILS NO. 2" SHEET.
 - FOR LOCATION AND SIZE OF UTILITY OPENINGS, SEE "TYPICAL SECTION" SHEET.
 - FOR STEEL CASINGS AT UTILITY LINES, SEE "TYPICAL SECTION" SHEET AND "UTILITY PLANS".



MARK	DESCRIPTION	DATE	APPR.
3	RECORD DRAWING	7/31/15	
1	ROADWAY, GRADING, DRAINAGE, STRIPING, SIGNAL & BRIDGE REVS		

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PUBLIC WORKS

DATE: 7/31/15

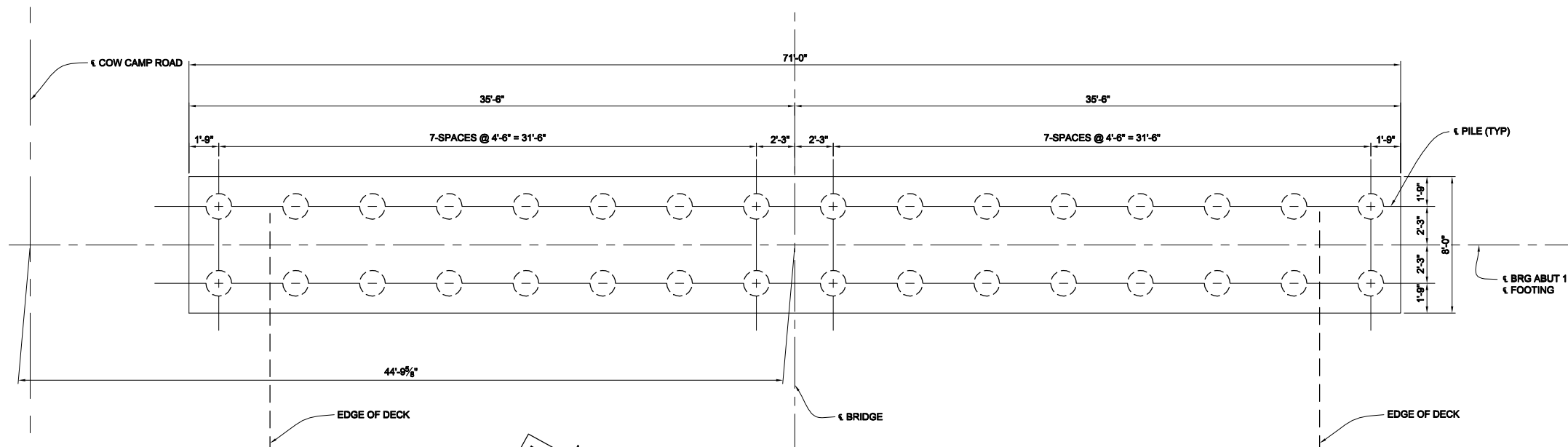
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DRAWN BY: J. SILDANA
CHECKED BY: G. RENDE
DRAFTING CODE: FILE NAME: PLOT DATE: 09/17/15
SCALE: 1/4" = 1'-0"

COW CAMP ROAD
CHILQUITA CANYON BRIDGE
TO STATION 76+00.00
ABUTMENT 9
LAYOUT

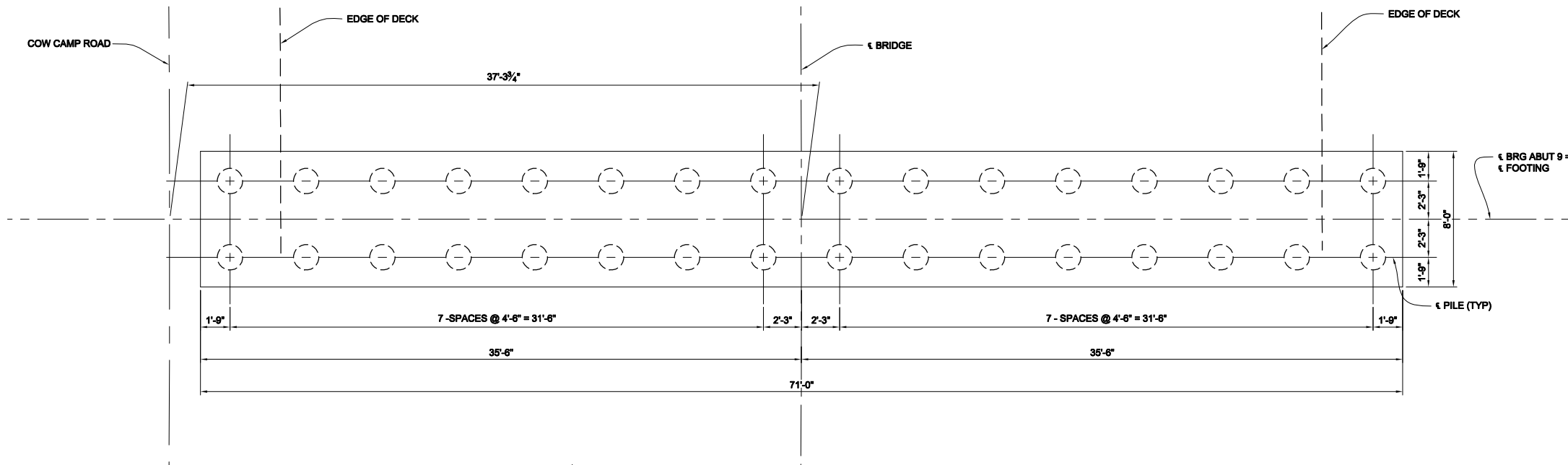
Sheet
Reference
Number

BR-10

Sheet 66 of 115



ABUTMENT 1 FOOTING PLAN
SCALE: 1/4" = 1'-0"



ABUTMENT 9 FOOTING PLAN
SCALE: 1/4" = 1'-0"

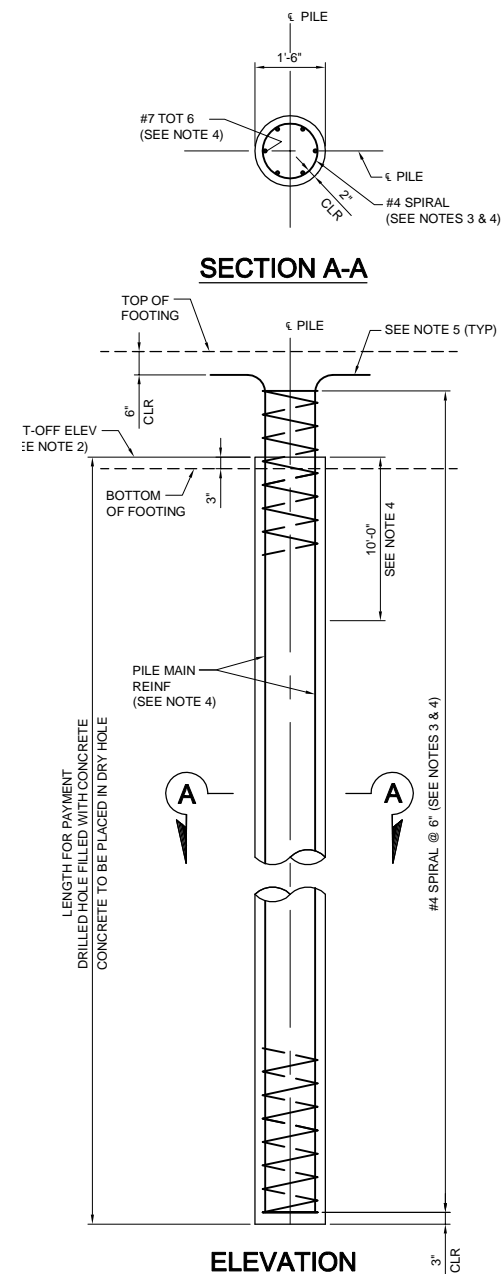
LEGEND:

- 18" DIA CAST-IN-DRILLED HOLE CONCRETE PILE

RECORD DRAWING

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RBF CONSULTING DATE JULY 2015



18" DIA CIDH
CONCRETE PILE DETAILS
SCALE: 1/2" = 1'-0"

NOTES:

- FOR ABUTMENT FOOTING REINFORCEMENT, SEE "ABUTMENT DETAILS NO. 2" SHEET.
- FOR PILE CUT-OFF ELEVATION, SEE "FOUNDATION PLAN NO. 1" SHEET.
- LAPPED SPLICES IN SPIRAL PILE REINFORCEMENT SHALL BE LAPPED AT LEAST 80 BAR DIAMETERS. SPIRAL PILE REINFORCEMENT AT SPLICES AND AT ENDS SHALL BE TERMINATED WITH A 135° HOOK WITH A 6" TAIL HOOKED AROUND A LONGITUDINAL BAR.
- NO LAPPED SPLICES PERMITTED IN UPPER 10'-0" OF PILES.
- BAR HOOKS IN PILE MAIN REINFORCEMENT TO BE ORIENTED TO PROVIDE 3" MIN CLEARANCE TO EDGE OF FOOTING.



MARK	DESCRIPTION	DATE	APPR.
3	RECORD DRAWING	7/31/15	
1	ROADWAY GRADING, DRAINAGE, STRIPING, SIGNAL & BRIDGE REVS		

PREPARED UNDER THE RESPONSIBLE CHARGE OF:

THOMIR KIRILOV, P.E.
PUBLIC WORKS

PROFESSIONAL ENGINEER
THOMIR KIRILOV
No. 67708
Exp. 08-30-13
CIVIL
STATE OF CALIFORNIA

DATE: 7/21/13

DESIGNED BY: T. KIRILOV / F. SANCHEZ
DRAWN BY: J. SALDANA
CHECKED BY: G. RENDE
DRAWING CODE:
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PLOT DATE: 09/17/15
SCALE:

ORANGE COUNTY
PUBLIC WORKS

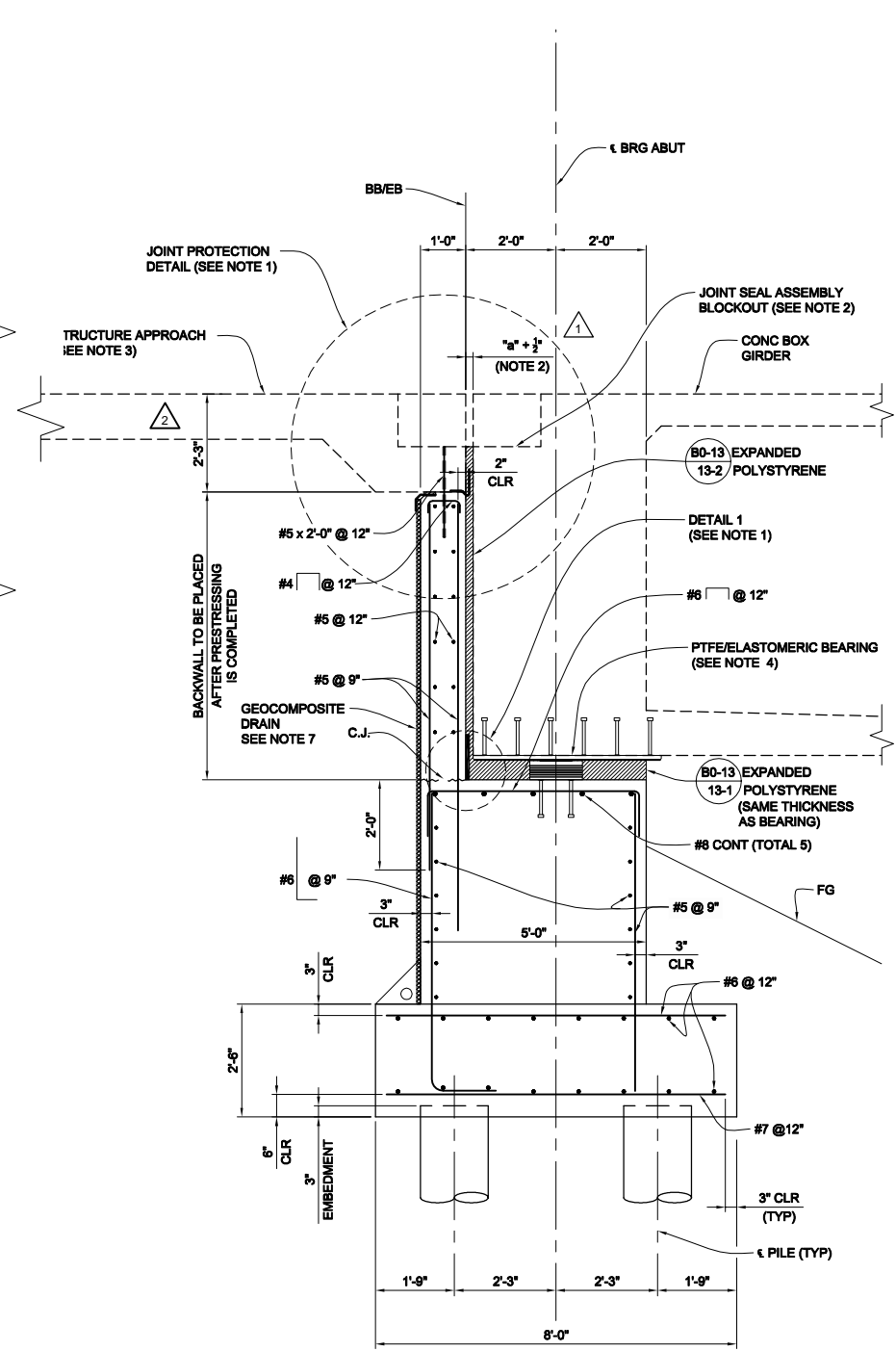
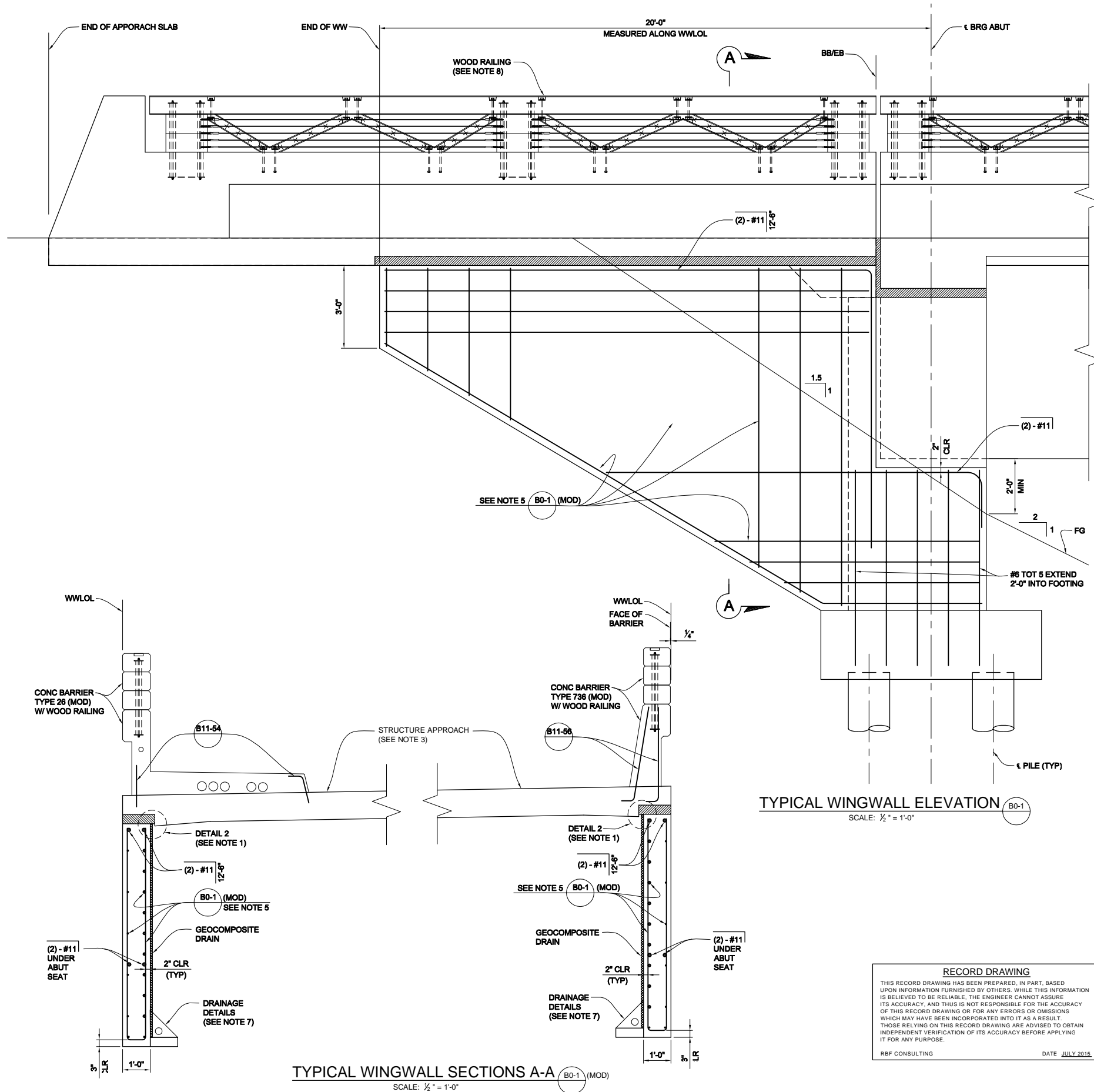
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COW CAMP ROAD
CHICUITA CANYON BRIDGE
TO STATION 76+00.00
ABUTMENT
PILE LAYOUT

Sheet
Reference
Number

BR-11

Sheet 67 of 115



NOTES:

- FOR JOINT PROTECTION DETAIL AND DETAILS 1 & 2, SEE "ABUTMENT DETAILS NO. 3" SHEET.
- FOR JOINT SEAL ASSEMBLY DETAILS AND DIMENSION "a", SEE "JOINT SEAL - ABUTMENT DETAILS - MOVEMENT RATING GREATER THAN 4" SHEET.
- FOR STRUCTURE APPROACH DETAILS, SEE "STRUCTURE APPROACH TYPE N(30S)" SHEET.
- FOR BEARING PAD DETAILS, SEE "PTFE/ELASTOMERIC BEARING DETAILS" SHEET.
- FOR WINGWALL REINFORCEMENT AND ADDITIONAL DETAILS, SEE (B0-1)
- FOR LOCATION AND SIZE OF UTILITY OPENINGS, SEE "TYPICAL SECTION" SHEET.
- FOR ABUTMENT AND WINGWALL DRAINAGE DETAILS, SEE "STRUCTURE APPROACH DRAINAGE DETAILS" SHEET.
- FOR ADDITIONAL RAILING DETAILS, SEE "RAILING DETAILS" SHEET.

RECORD DRAWING

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RBF CONSULTING
DATE: JULY 2015



MARK	DESCRIPTION	DATE	APPR.
3	RECORD DRAWING	7/31/15	
2	REVISIONS AFTER		
1	BID SET DATED 05-01-2013		
	ROADWAY, GRADING,		
	DRAINAGE, STRIPING,		
	SIGNAL & BRIDGE REVS		

PREPARED UNDER THE RESPONSIBLE CHARGE OF:

PROFESSIONAL ENGINEER
THOMAS A. KIRILOV
No. 67708
Exp. 08-30-13
CIVIL
STATE OF CALIFORNIA

THOMAS A. KIRILOV, P.E.
PUBLIC WORKS

DATE: 7/31/13

DESIGNED BY: T. KIRILOV / F. SANCHEZ
CHECKED BY: G. RENDE
DRAWN BY: J. SALDANA
DRAUGHTING CODE: RBF
FILE NAME: 09/17/15
PLOT DATE: 09/17/15
SCALE: 1/2" = 1'-0"

ORANGE COUNTY
PUBLIC WORKS

PREPARED BY: RBF CONSULTING

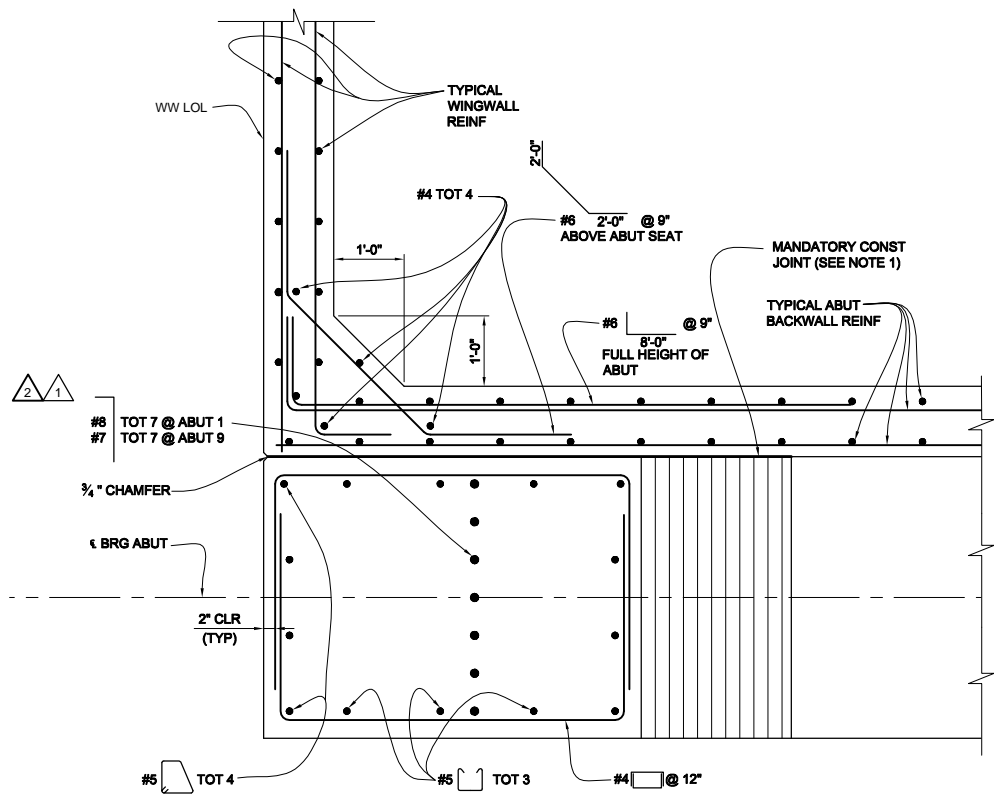
COW CAMP ROAD
CHILQUITA CANYON BRIDGE
TO STATION 76+00.00
ABUTMENT
DETAILS NO. 1

Sheet
Reference
Number

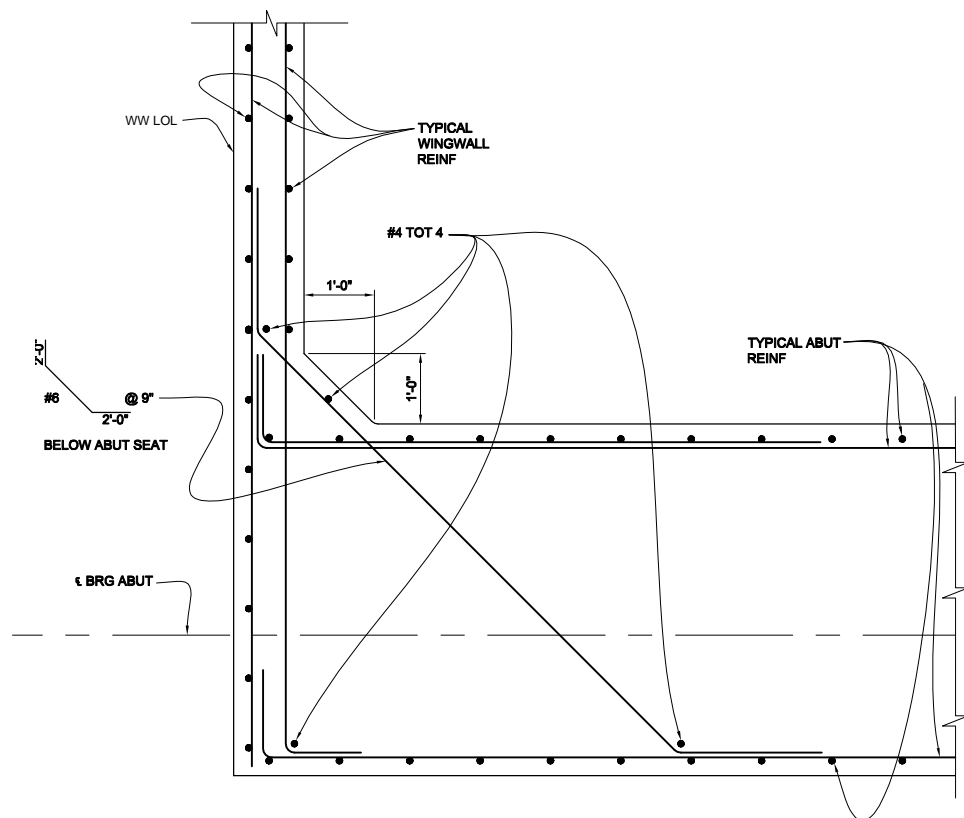
BR-12

Sheet 68 of 115

H:\data\10107727\CADD\Struc\Div\DELTA 1 CADD DRAWINGS\7727-BR-12.DWG 09/17/15 - 10:38am May Duong

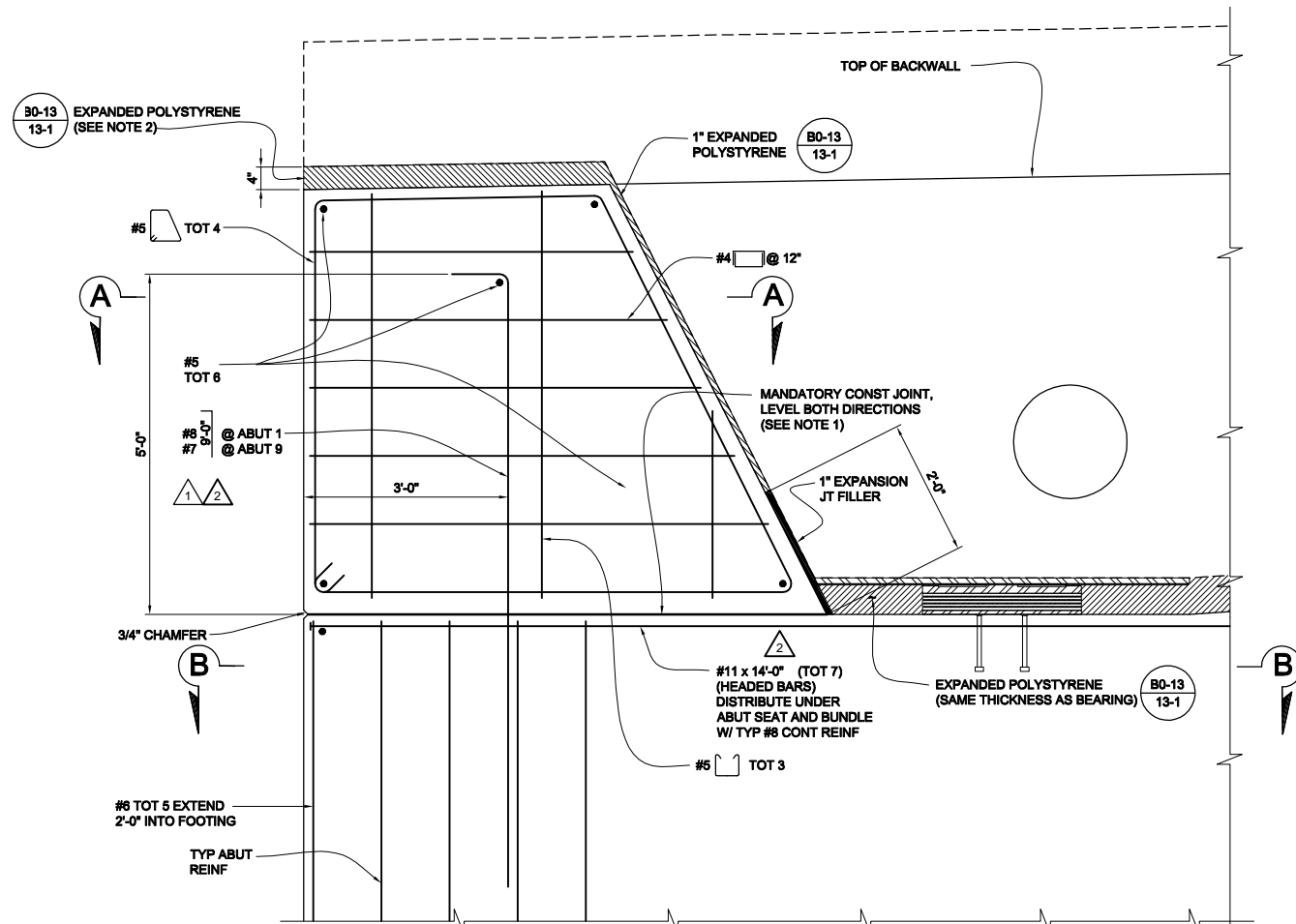


SECTION A-A
SCALE: 3/4" = 1'-0"



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

NOTE:
FOR INFORMATION NOT
SHOWN SEE SECTION A-A



TYPICAL SHEAR KEY DETAIL
SCALE: 3/4" = 1'-0"

RECORD DRAWING
THIS RECORD DRAWING HAS BEEN PREPARED, IN PART, BASED UPON INFORMATION FURNISHED BY OTHERS. WHILE THIS INFORMATION IS BELIEVED TO BE RELIABLE, THE ENGINEER CANNOT ASSURE ITS ACCURACY, AND THIS IS NOT RESPONSIBLE FOR THE ACCURACY OF THIS RECORD DRAWING OR FOR ANY ERRORS OR OMISSIONS WHICH MAY HAVE BEEN INCORPORATED INTO IT AS A RESULT. THOSE RELYING ON THIS RECORD DRAWING ARE ADVISED TO OBTAIN INDEPENDENT VERIFICATION OF ITS ACCURACY BEFORE APPLYING IT FOR ANY PURPOSE.

RBF CONSULTING
DATE: JULY 2015

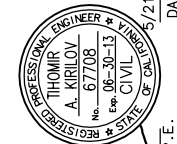
NOTES:

1. MANDATORY JOINT SURFACE TO BE SMOOTH FINISHED AND LINED WITH 15 POUND CONSTRUCTION PAPER.
2. OUTER 6" OF EXPANDED POLYSTYRENE TO BE REMOVED AFTER CONSTRUCTION.



MARK	DESCRIPTION	DATE	APPR.
3	RECORD DRAWING	7/31/15	
2	REVISIONS AFTER		
1	BID SET DATED 05-01-2013		
	ROADWAY, GRADING,		
	DRAINAGE, STRIPING,		
	SIGNAL & BRIDGE REVS		

PREPARED UNDER THE RESPONSIBLE CHARGE OF:



THOMAS A. KIRILOV, P.E.
PUBLIC WORKS

DESIGNED BY: T. KIRILOV / F. SANCHEZ	CHECKED BY: G. RENDE	SCALE:
DRAWN BY: J. SALDANA	DRAWING CODE:	PLOT DATE: 09/17/15
FILE NAME:		

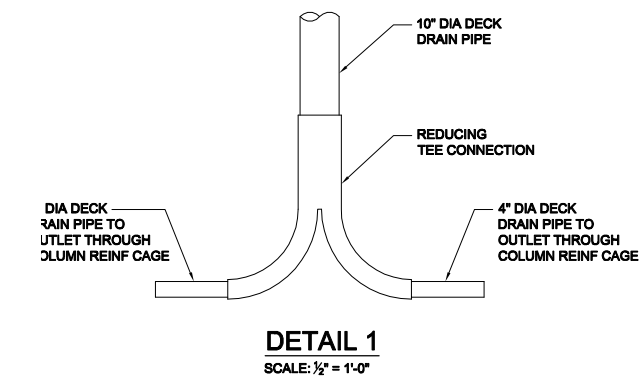
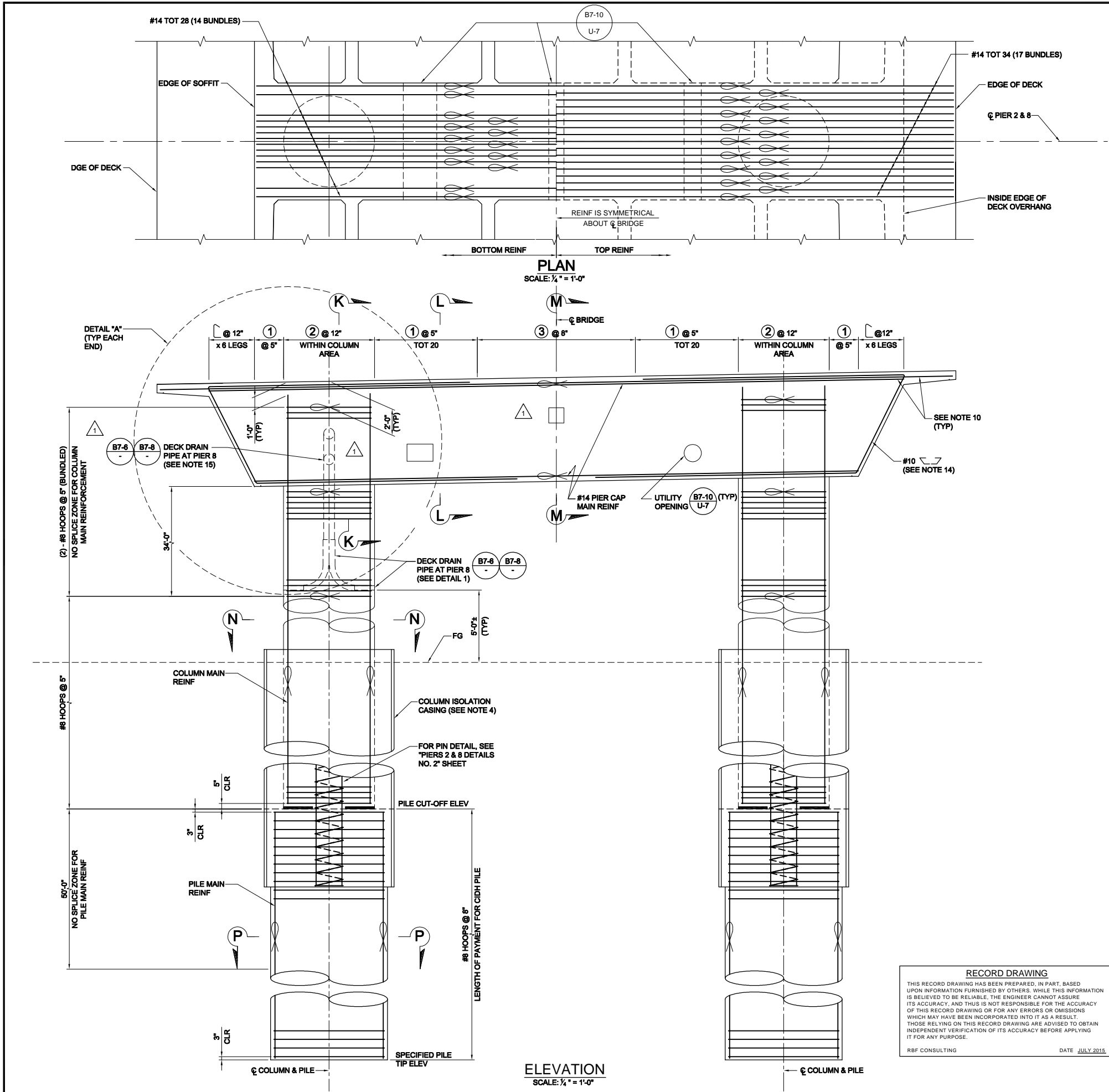
ORANGE COUNTY PUBLIC WORKS	PREPARED BY: RBF CONSULTING
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COW CAMP ROAD
CHICUITA CANYON BRIDGE
TO STATION 76+00.00
ABUTMENT
DETAILS NO. 2

Sheet
Reference
Number

BR-13

Sheet 69 of 115



LEGEND:

- BUNDLED BARS
- STIRRUP CONFIGURATION NUMBER (SEE "TYPICAL PIER DETAILS NO. 1" SHEET)

NOTES:

- FOR SECTION K - K, L - L, AND M - M, SEE "PIERS 2 & 8 DETAILS NO. 1" SHEET.
- FOR SECTIONS N - N AND P - P, SEE "PIERS 2 & 8 DETAILS NO. 2" SHEET.
- FOR DETAIL "A" AND PIER CAP STIRRUP TABLE, SEE "TYPICAL PIER DETAILS NO. 1" SHEET.
- FOR COLUMN ISOLATION CASING DETAILS, SEE "TYPICAL PIER DETAILS NO. 2" SHEET.
- PLACE STIRRUPS NORMAL TO AND SPACE ALONG C/PIER.
- ULTIMATE SPLICES ARE PERMITTED IN THE MIDDLE OF THE TOP CAP MAIN REINFORCING. NO SPLICES PERMITTED IN THE BOTTOM CAP MAIN REINFORCING.
- LAPPED SPLICES ARE NOT PERMITTED IN COLUMN AND PILE REINF.
- COLUMN AND PILE MAIN REINF, WHERE PERMITTED, SHALL MEET THE "ULTIMATE SPLICE" REQUIREMENTS.
- ALL HOOPS SHALL BE BUTT WELDED AND SHALL MEET THE "ULTIMATE SPLICE" REQUIREMENTS.
- EXTEND PIER CAP TOP BUNDLE MAIN REINF INTO DECK OVERHANG SLAB. TERMINATE BOTTOM BUNDLE REINF AT INSIDE EDGE OF DECK OVERHANG.
- FOR LOCATION AND SIZE OF UTILITY OPENINGS, SEE "TYPICAL SECTION" SHEET.
- DETAILS ARE SIMILAR AT BOTH COLUMNS.
- FOR GROUND WATER ELEVATIONS, SEE BRIDGE FOUNDATION REPORT.
- PRESTRESSING DUCT LAYOUT WITHIN PIER CAP MAY BE ADJUSTED BY 3" MAX HORIZONTALLY TO CLEAR #10 BARS.
- VERTICAL HIGH FLOW PIPE LOCATION MAY BE ADJUSTED TO CLEAR CONTINUOUS HORIZONTAL LOW FLOW PIPE THROUGH COLUMN.

RECORD DRAWING

THIS RECORD DRAWING HAS BEEN PREPARED, IN PART, BASED UPON INFORMATION FURNISHED BY OTHERS. WHILE THIS INFORMATION IS BELIEVED TO BE RELIABLE, THE ENGINEER CANNOT ASSURE ITS ACCURACY, AND THIS IS NOT RESPONSIBLE FOR THE ACCURACY OF THIS RECORD DRAWING OR FOR ANY ERRORS OR OMISSIONS WHICH MAY HAVE BEEN INCORPORATED INTO IT AS A RESULT. THOSE RELYING ON THIS RECORD DRAWING ARE ADVISED TO OBTAIN INDEPENDENT VERIFICATION OF ITS ACCURACY BEFORE APPLYING IT FOR ANY PURPOSE.

RBF CONSULTING

DATE: JULY 2015



MARK	DESCRIPTION	DATE	APPR.
3	RECORD DRAWING	7/31/15	
1	ROADWAY GRADING, DRAINAGE, STRIPING, SIGNAL & BRIDGE REVS		

PREPARED UNDER THE RESPONSIBLE CHARGE OF:

THOMIR KIRILOV, P.E.

DATE: 7/21/13

DESIGNED BY: T. KIRILOV / F. SANCHEZ

DRAWN BY: J. SALDANA

CHECKED BY: G. RENDE

DRAWING CODE:

FILE NAME:

PLOT DATE: 09/17/15

SCALE:

COW CAMP ROAD

CHICUITA CANYON BRIDGE

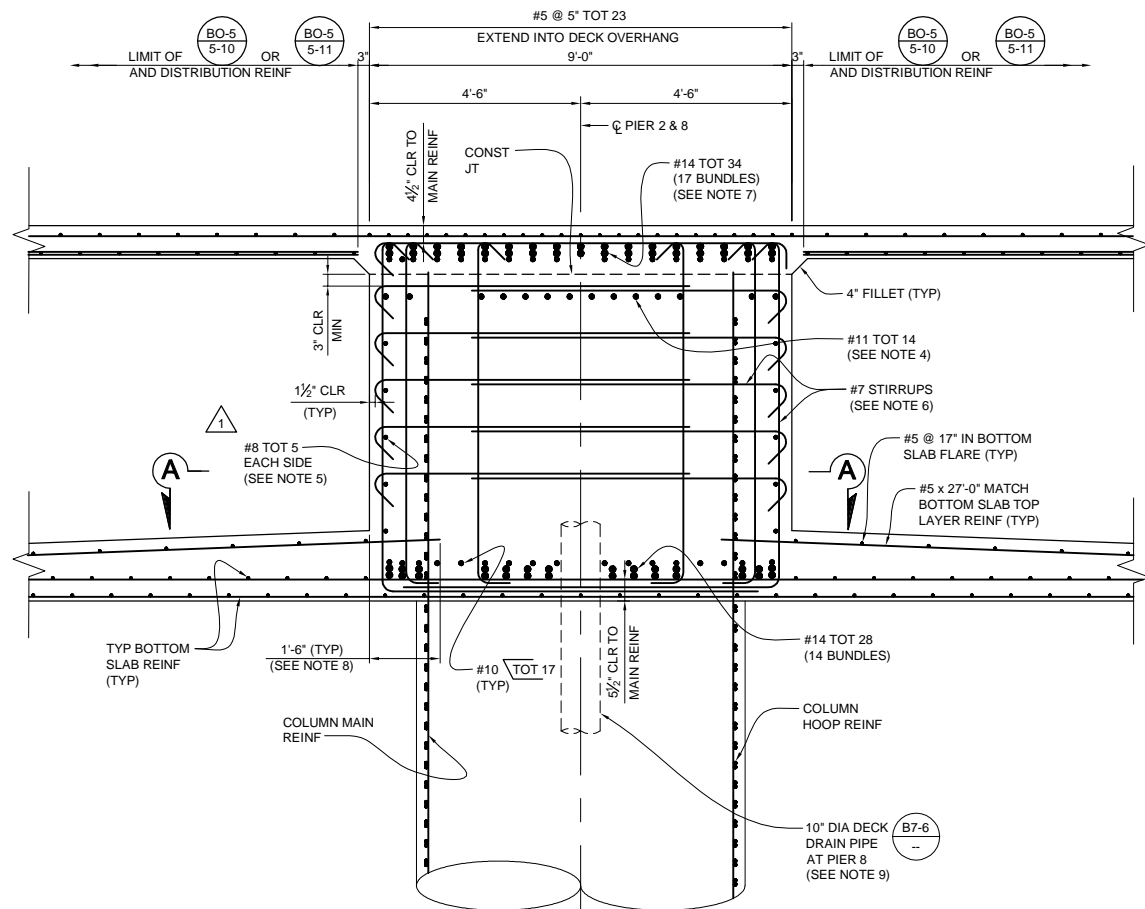
TO STATION 76+00.00

PIERS 2 & 8 LAYOUT

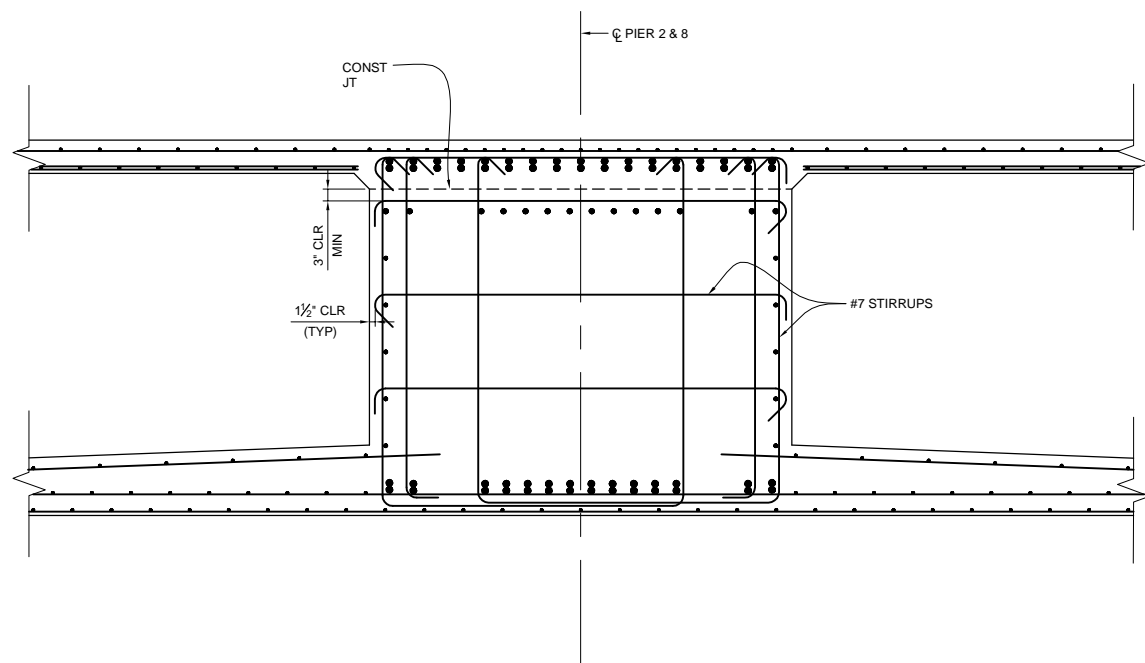
Sheet Reference Number

BR-15

Sheet 71 of 115

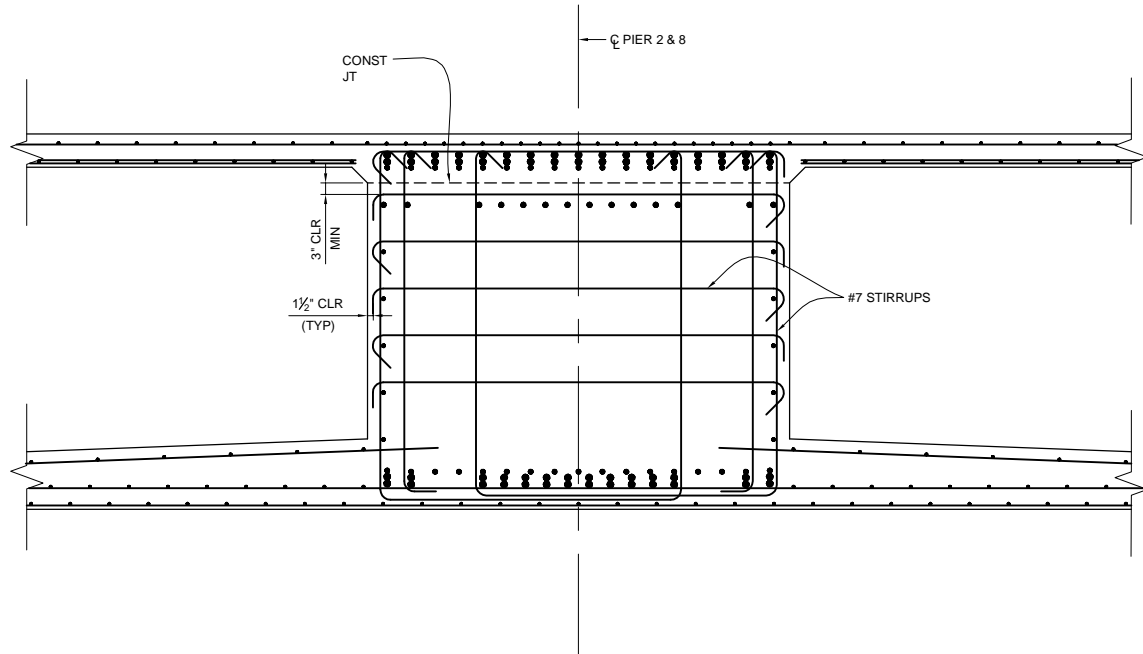


SECTION K-K
SCALE: 1/2" = 1'-0"



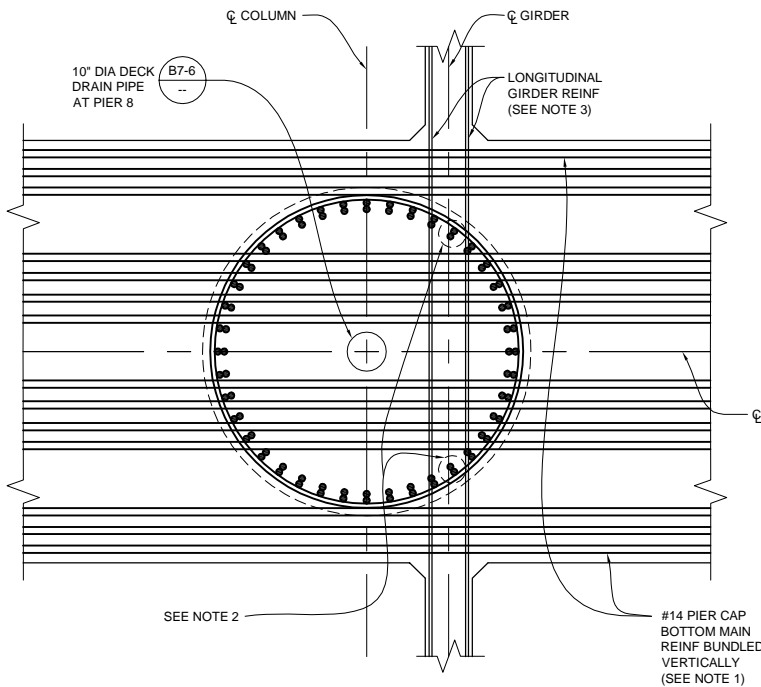
NOTE: FOR INFORMATION NOT SHOWN, SEE SECTION K-K

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



NOTE: FOR INFORMATION NOT SHOWN, SEE SECTION K-K

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



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

NOTES:

- PRIOR TO COLUMN CONCRETE PLACEMENT, THE CONTRACTOR SHALL ARRANGE, ROTATE, AND SPACE COLUMN REINFORCING CAGE TO ENSURE PLACEMENT OF PIER CAP BOTTOM MAIN REINF AS SHOWN.
- MAXIMUM 4 LONGITUDINAL COLUMN MAIN REINF BARS MAY BE CUT BY 1'-3" TO CLEAR P/S DUCTS.
- LONGITUDINAL GIRDER REINF MAY BE ADJUSTED TO CLEAR COLUMN MAIN REINF.
- REINF MAY BE BENT OR LOWERED TO CLEAR P/S DUCTS.
- SIDE FACE REINF SHALL BE SPACED EQUALLY AT 12" MAX AND MAY BE DISCONTINUOUS AT UTILITY OPENINGS.
- FOR PIER CAP STIRRUP CONFIGURATION, SEE "TYPICAL PIER DETAILS No. 1" SHEET.
- EXTEND PIER CAP TOP BUNDLE MAIN REINF INTO DECK OVERHANG SLAB. TERMINATE BOTTOM BUNDLE REINF AT INSIDE EDGE OF DECK OVERHANG.
- TERMINATE TYPICAL SOFFIT TOP LAYER TRANSVERSE REINF AT FACE OF PIER CAP. DISTRIBUTE TYPICAL SOFFIT BOTTOM LAYER TRANSVERSE REINF INTO THE PIER CAP.
- TYPICAL SOFFIT BOTTOM LAYER TRANSVERSE REINF MAY BE TERMINATED TO CLEAR DRAINAGE PIPE.
- BOTTOM PIER CAP REINF IN PIER 8 WITH DRAINAGE PIPE SHALL BE DISTRIBUTED AS SHOWN IN SECTIONS K-K AND A-A. BOTTOM PIER CAP REINF IN PIER 2 SHALL BE DISTRIBUTED AS SHOWN IN SECTIONS L-L AND M-M.

RECORD DRAWING

THIS RECORD DRAWING HAS BEEN PREPARED, IN PART, BASED UPON INFORMATION FURNISHED BY OTHERS. WHILE THIS INFORMATION IS BELIEVED TO BE RELIABLE, THE ENGINEER CANNOT ASSURE ITS ACCURACY, AND THUS IS NOT RESPONSIBLE FOR THE ACCURACY OF THIS RECORD DRAWING OR FOR ANY ERRORS OR OMISSIONS WHICH MAY HAVE BEEN INCORPORATED INTO IT AS A RESULT OF THOSE RELYING ON THIS RECORD DRAWING ARE ADVISED TO OBTAIN INDEPENDENT VERIFICATION OF ITS ACCURACY BEFORE APPLYING IT FOR ANY PURPOSE.

RBF CONSULTING

DATE JULY 2015



MARK	DESCRIPTION	DATE	APPR.
3	RECORD DRAWING	7/31/15	
1	ROADWAY GRADING, DRAINAGE, STRIPING, SIGNAL & BRIDGE REVS		

PREPARED UNDER THE RESPONSIBLE CHARGE OF:

THOMIR KIRILOV, P.E.

PROFESSIONAL ENGINEER
THOMIR KIRILOV
No. 67708
Exp. 08-30-13
CIVIL
REGISTERED
STATE OF CALIFORNIA

DATE 7/31/15

DESIGNED BY: T. KIRILOV / F. SANCHEZ	CHECKED BY: G. RENDE	SCALE:
DRAWN BY: J. SALDANA	DRAWING CODE:	FILE NAME:
ORANGE COUNTY PUBLIC WORKS	PREPARED BY: RBF CONSULTING	PLOT DATE: 09/22/15

COW CAMP ROAD
CHUQUITA CANYON BRIDGE
TO STATION 76+00.00

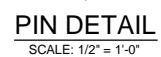
PIERS 2 & 8

DETAILS NO. 1

Sheet
Reference
Number

BR-16

Sheet 72 of 115


BUNDLED BARS

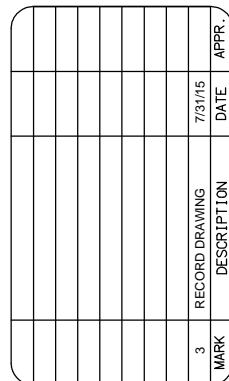
1. ALL HOOPS SHALL BE BUTT WELDED AND SHALL MEET THE "ULTIMATE SPLICE" REQUIREMENTS.
2. COLUMN AND PILE MAIN REINF, WHERE PERMITTED, SHALL MEET THE "ULTIMATE SPLICE" REQUIREMENTS.
3. LAPPED SPLICES ARE NOT PERMITTED IN COLUMN AND PILE REINFORCEMENT.
4. NO SPLICES PERMITTED IN PILE MAIN REINF WITHIN 50'-0" OF PILE CUT-OFF ELEVATION.
5. ADJUST SPACING OF COLUMN MAIN REINF TO CLEAR DRAIN OUTLET.
6. ALLOW FOR 3' MIN CLEAR SPACING TO INSPECTION TUBES.
7. SPIRAL REINF AT ENDS SHALL BE TERMINATED WITH A FULL HORIZONTAL TURN AROUND THE REBAR CAGE AND A 2'-0" TAIL HOOKED AROUND A LONGITUDINAL BAR AND PASSING THROUGH THE CORE OF THE REBAR CAGE.
8. INSPECTION PIPES SHALL BE 40 PVC, AND SHALL CONFORM WITH THE PROVISIONS IN SECTION 49-3 OF CALTRANS STANDARD SPECIFICATIONS.

RECORD DRAWING

THIS RECORD DRAWING HAS BEEN PREPARED, IN PART, BASED UPON INFORMATION FURNISHED BY OTHERS. WHILE THIS INFORMATION IS BELIEVED TO BE RELIABLE, THE ENGINEER CANNOT ASSURE ITS ACCURACY, AND THIS IS NOT RESPONSIBLE FOR THE ACCURACY OF THIS RECORD DRAWING OR FOR ANY ERRORS OR OMISSIONS WHICH MAY HAVE BEEN INCORPORATED INTO IT AS A RESULT. THOSE RELYING ON THIS RECORD DRAWING ARE ADVISED TO OBTAIN INDEPENDENT VERIFICATION OF ITS ACCURACY BEFORE APPLYING IT FOR ANY PURPOSE.

RF& CONSULTING

DATE JULY 2015



TIHOMIR A. KIRILOV, P.E.

FILE NAME:	
PLOT DATE:	SCALE:

PREPARED BY:

RBF

CONSULTING

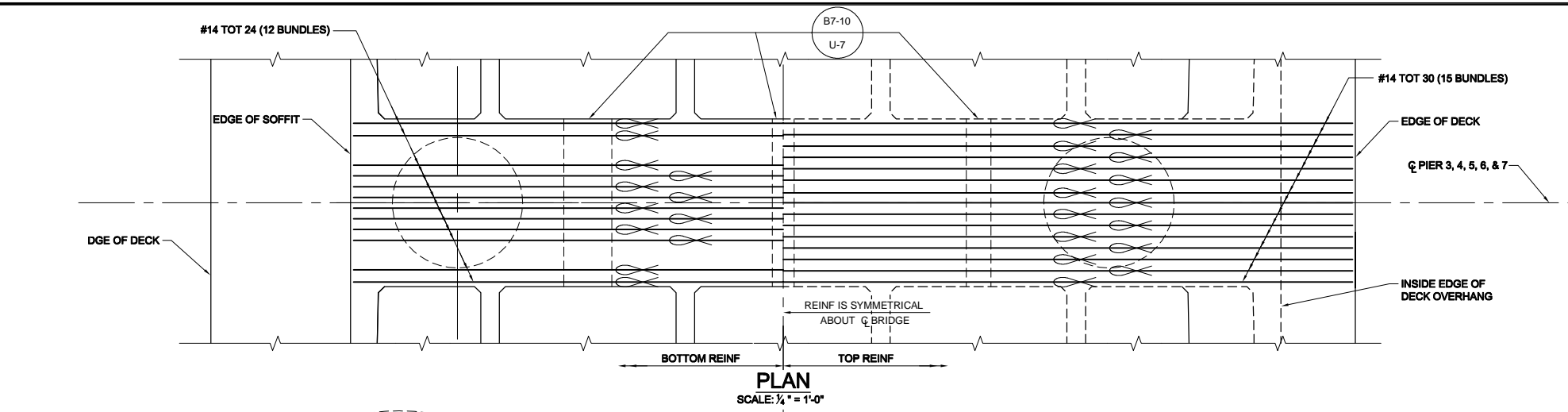
1000 AVENUE MONROVIE
SUITE 1000 • MONROVIE, CA 94531
916.224.2000 • FAX 916.224.2001 • WWW.RBF.COM

PIERS 2 & 8
DETAILS NO. 2

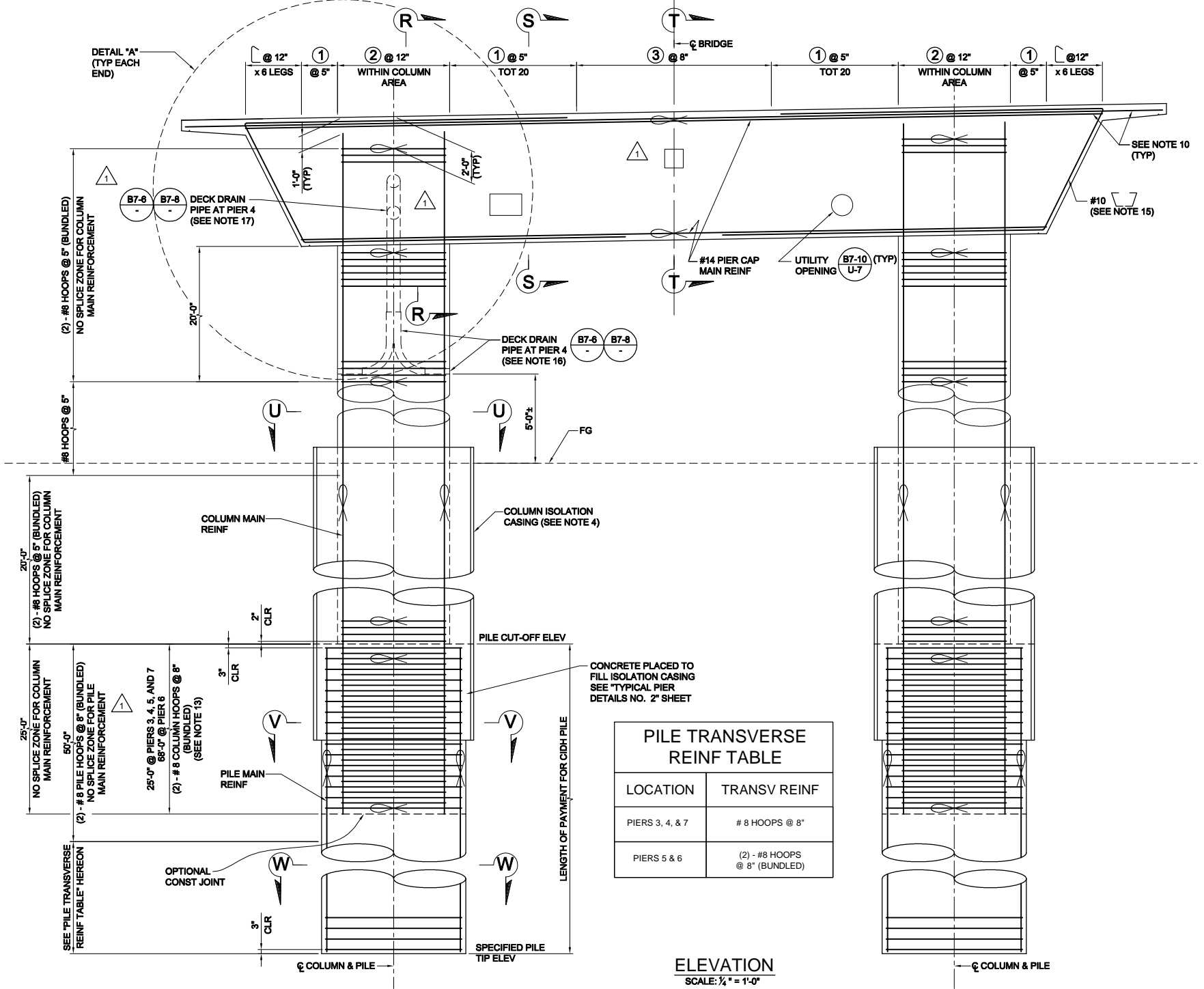
BR-17

Sheet 73 of 115

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



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

PILE TRANSVERSE REINF TABLE	
LOCATION	TRANSV REINF
PIERS 3, 4, & 7	# 8 HOOPS @ 8"
PIERS 5 & 6	(2) - #8 HOOPS @ 8" (BUNDLED)

RECORD DRAWING
THIS RECORD DRAWING HAS BEEN PREPARED, IN PART, BASED UPON INFORMATION FURNISHED BY OTHERS. WHILE THIS INFORMATION IS BELIEVED TO BE RELIABLE, THE ENGINEER CANNOT ASSURE ITS ACCURACY, AND THUS IS NOT RESPONSIBLE FOR THE ACCURACY OF THIS RECORD DRAWING OR FOR ANY ERRORS OR OMISSIONS WHICH MAY HAVE BEEN INCORPORATED INTO IT AS A RESULT. THOSE RELYING ON THIS RECORD DRAWING ARE ADVISED TO OBTAIN INDEPENDENT VERIFICATION OF ITS ACCURACY BEFORE APPLYING IT FOR ANY PURPOSE.
RBF CONSULTING DATE: JULY 2015

LEGEND:

- BUNDLED BARS
- STIRRUP CONFIGURATION NUMBER (SEE "TYPICAL PIER DETAILS NO. 1" SHEET)

NOTES:

- FOR SECTION R - R, S - S, AND T - T, SEE "PIERS 3, 4, 5, 6, & 7 DETAILS NO. 1" SHEET.
- FOR SECTIONS U - U, V - V, & W - W SEE "PIERS 3, 4, 5, 6, & 7 DETAILS NO. 2" SHEET.
- FOR DETAIL "A" AND PIER CAP STIRRUP TABLE, SEE "TYPICAL PIER DETAILS NO. 1" SHEET.
- FOR COLUMN ISOLATION CASING DETAILS, SEE "TYPICAL PIER DETAILS NO. 2" SHEET.
- PLACE STIRRUPS NORMAL TO AND SPACE ALONG C/PIER.
- ULTIMATE SPLICES ARE PERMITTED IN THE MIDDLE OF THE TOP CAP MAIN REINFORCING. NO SPLICES PERMITTED IN THE BOTTOM CAP MAIN REINFORCING.
- LAPPED SPLICES ARE NOT PERMITTED IN COLUMN AND PILE REINF.
- COLUMN AND PILE MAIN REINF, WHERE PERMITTED, SHALL MEET THE "ULTIMATE SPLICE" REQUIREMENTS.
- ALL HOOPS SHALL BE BUTT WELDED AND SHALL MEET THE "ULTIMATE SPLICE" REQUIREMENTS.
- EXTEND PIER CAP TOP BUNDLE MAIN REINF INTO DECK OVERHANG SLAB. TERMINATE BOTTOM BUNDLE REINF AT INSIDE EDGE OF DECK OVERHANG.
- FOR LOCATION AND SIZE OF UTILITY OPENINGS, SEE "TYPICAL SECTION" SHEET.
- DETAILS ARE SIMILAR AT BOTH COLUMNS.
- ALTERNATE EMBEDMENT LENGTH OF COLUMN MAIN REINF INTO PILE SHAFT AT 20'-0" AND 25'-0" AT PIERS 3, 4, 5, AND 7. ALTERNATE EMBEDMENT LENGTH AT 63'-0" AND 68'-0" AT PIER 6.
- FOR GROUND WATER ELEVATIONS, SEE BRIDGE FOUNDATION REPORT.
- PRESTRESSING DUCT LAYOUT WITHIN PIER CAP MAY BE ADJUSTED BY 3" MAX HORIZONTALLY TO CLEAR #10 BARS.
- FOR DECK DRAIN OUTLET THROUGH COLUMN REINF CAGE, SEE "DETAIL 1" ON "PIERS 2 & 8 LAYOUT" SHEET.
- VERTICAL HIGH FLOW PIPE LOCATION MAY BE ADJUSTED TO CLEAR CONTINUOUS HORIZONTAL LOW FLOW PIPE THROUGH COLUMN.



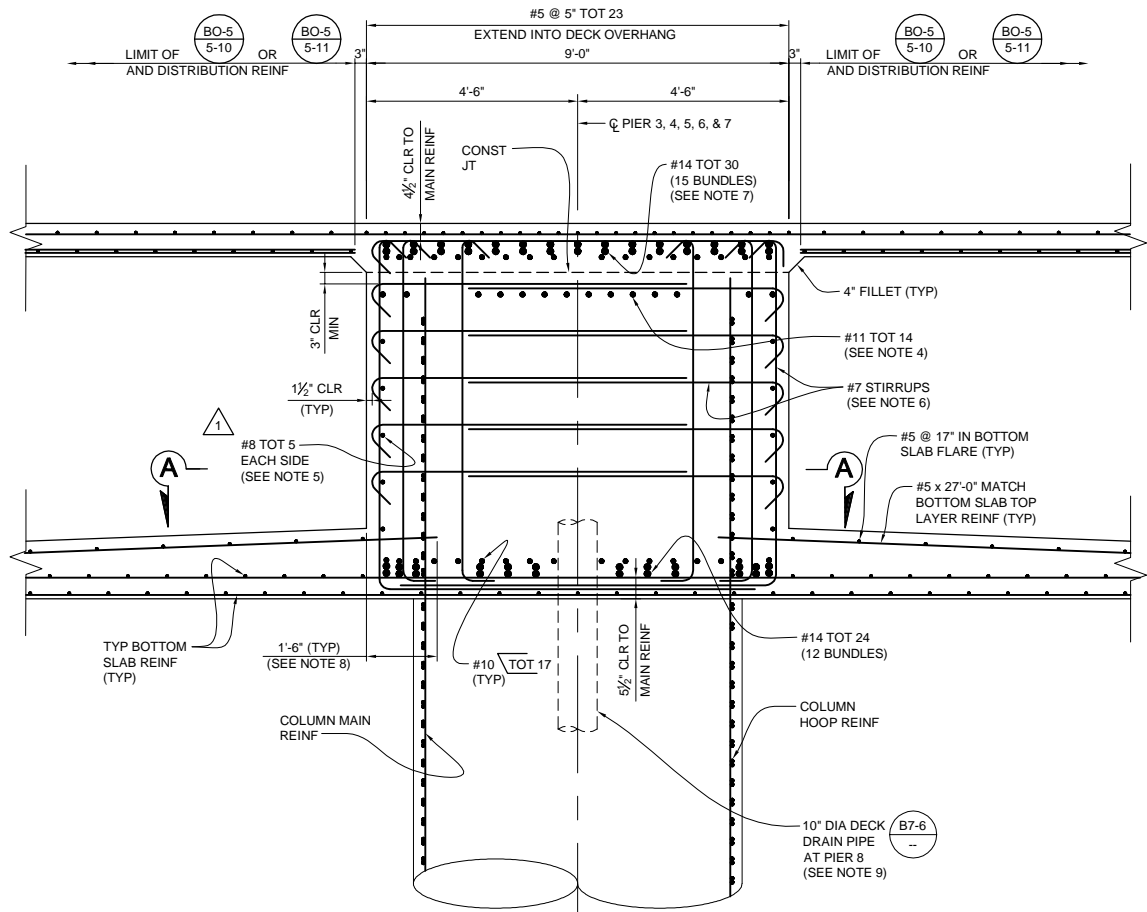
MARK	DESCRIPTION	DATE	APPR.
3	RECORD DRAWING	7/31/15	
1	ROADWAY GRADING, DRAINAGE, STRIPING, SIGNAL & BRIDGE REVS		

PREPARED UNDER THE RESPONSIBLE CHARGE OF:
THOMAS KIRILOV, P.E.
REGISTERED PROFESSIONAL ENGINEER
No. 67708
Exp. 08-30-13
CIVIL
DATE: 7/31/15

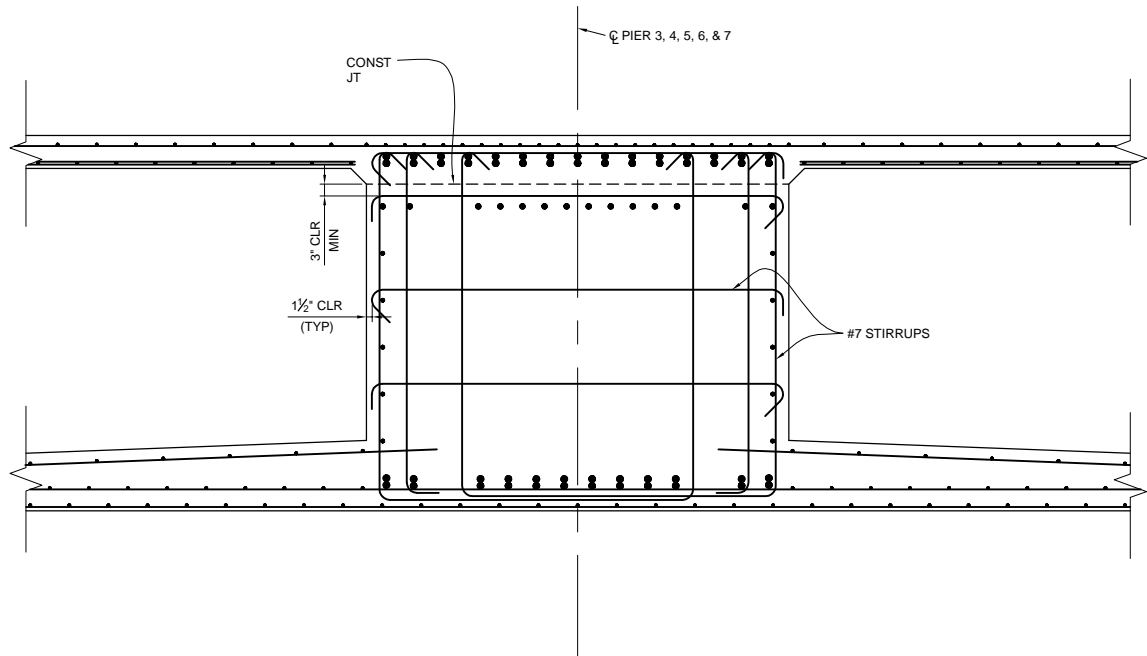
DESIGNED BY: T. KIRILOV / F. SANCHEZ
DRAWN BY: J. SALDANA
CHECKED BY: G. RENDE
DRAWING CODE:
FILE NAME:
PLOT DATE: 09/17/15
SCALE:
ORANGE COUNTY PUBLIC WORKS
PREPARED BY: RBF CONSULTING

COW CAMP ROAD
CHICUITA CANYON BRIDGE
TO STATION 76+00.00
PIERS 3, 4, 5, 6 & 7
LAYOUT

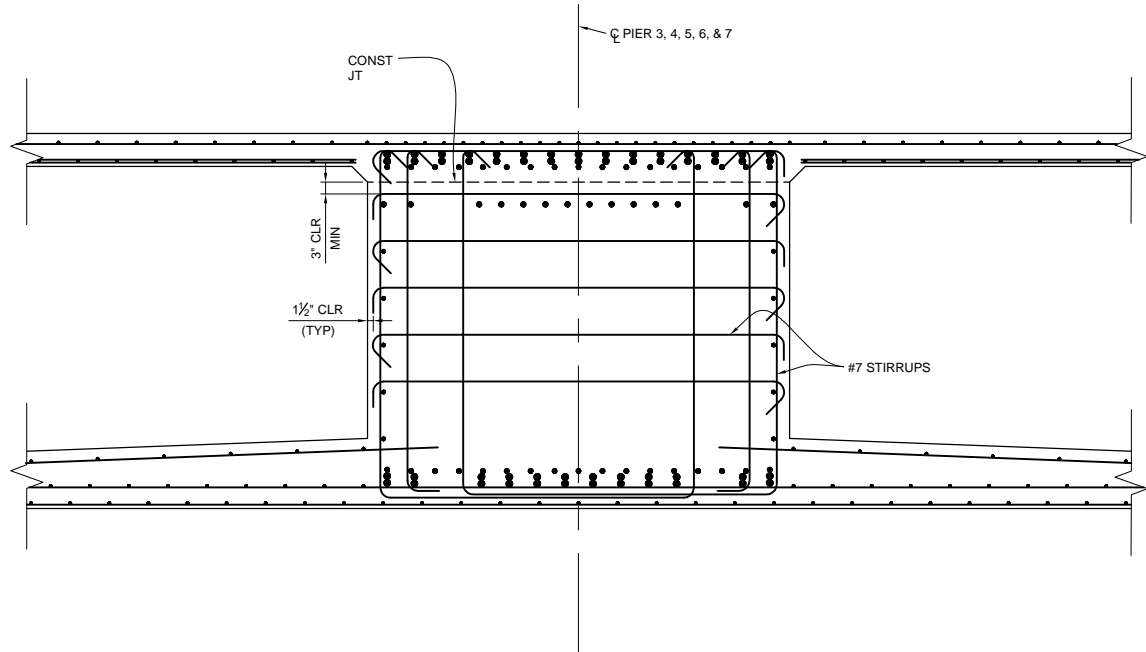
Sheet Reference Number
BR-18
Sheet 74 of 115



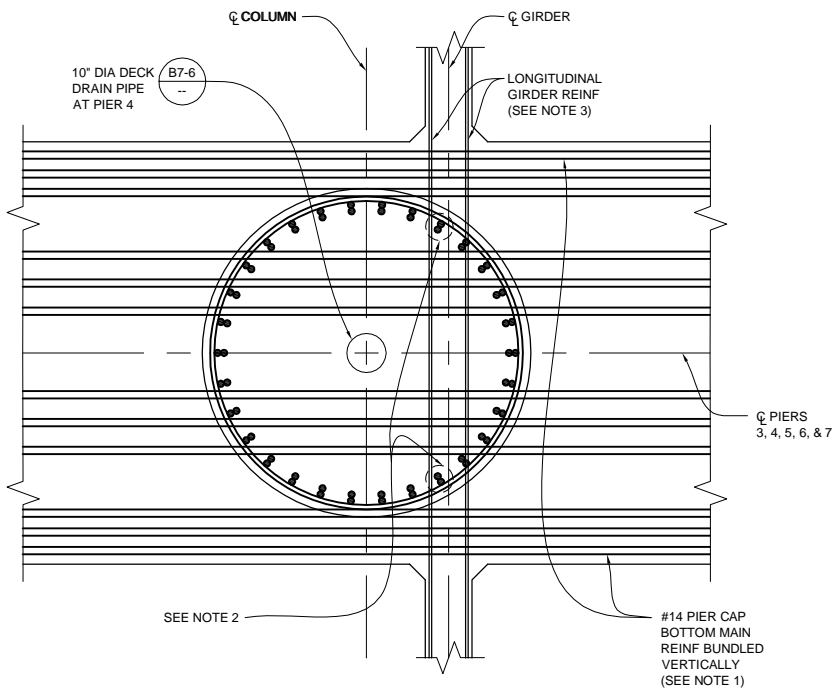
SECTION R-R
SCALE: 1/2" = 1'-0"
PIER 4 SHOWN, PIERS 3,5,6 AND 7 SIMILAR
(SEE NOTE 10)



SECTION T-T
SCALE: 1/2" = 1'-0"
PIERS 3,5,6, AND 7 SHOWN, PIER 4 SIMILAR
(SEE NOTE 10)



SECTION S-S
SCALE: 1/2" = 1'-0"
PIERS 3,5,6, AND 7 SHOWN, PIER 4 SIMILAR
(SEE NOTE 10)



SECTION A-A
SCALE: 1/2" = 1'-0"
PIER 4 SHOWN, PIERS 3,5,6 AND 7 SIMILAR
(SEE NOTE 10)

NOTES:

1. PRIOR TO COLUMN CONCRETE PLACEMENT, THE CONTRACTOR SHALL ARRANGE, ROTATE, AND SPACE COLUMN REINFORCING CAGE TO ENSURE PLACEMENT OF PIER CAP BOTTOM MAIN REINF AS SHOWN.
2. MAXIMUM 4 LONGITUDINAL COLUMN MAIN REINF BARS MAY BE CUT BY 1'-3" TO CLEAR P/S DUCTS.
3. LONGITUDINAL GIRDER REINF MAY BE ADJUSTED TO CLEAR COLUMN MAIN REINF.
4. REINF MAY BE BENT OR LOWERED TO CLEAR P/S DUCTS.
5. SIDE FACE REINF SHALL BE SPACED EQUALLY AT 12" MAX AND MAY BE DISCONTINUOUS AT UTILITY OPENINGS.
6. FOR PIER CAP STIRRUP CONFIGURATION, SEE "TYPICAL PIER DETAILS NO. 1" SHEET.
7. EXTEND PIER CAP TOP BUNDLE MAIN REINF INTO DECK OVERHANG SLAB. TERMINATE BOTTOM BUNDLE REINF AT INSIDE EDGE OF DECK OVERHANG.
8. TERMINATE TYPICAL SOFFIT TOP LAYER TRANSVERSE REINF AT FACE OF PIER CAP. DISTRIBUTE TYPICAL SOFFIT BOTTOM LAYER TRANSVERSE REINF INTO THE PIER CAP.
9. TYPICAL SOFFIT BOTTOM LAYER TRANSVERSE REINF MAY BE TERMINATED TO CLEAR DRAINAGE PIPE.
10. BOTTOM PIER CAP REINF IN PIER 4 WITH DRAINAGE PIPE SHALL BE DISTRIBUTED AS SHOWN IN SECTIONS R-R AND A-A. BOTTOM PIER CAP REINF IN PIERS 3,5,6, AND 7 SHALL BE DISTRIBUTED AS SHOWN IN SECTIONS S-S AND T-T.

RECORD DRAWING

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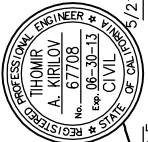
RBF CONSULTING

DATE JULY 2015



MARK	DESCRIPTION	DATE	APPR.
3	RECORD DRAWING	7/31/15	
1	ROADWAY GRADING, DRAINAGE, STRIPING, SIGNAL & BRIDGE REVS		

PREPARED UNDER THE RESPONSIBLE CHARGE OF:



T. Kirilov
PUBLIC WORKS

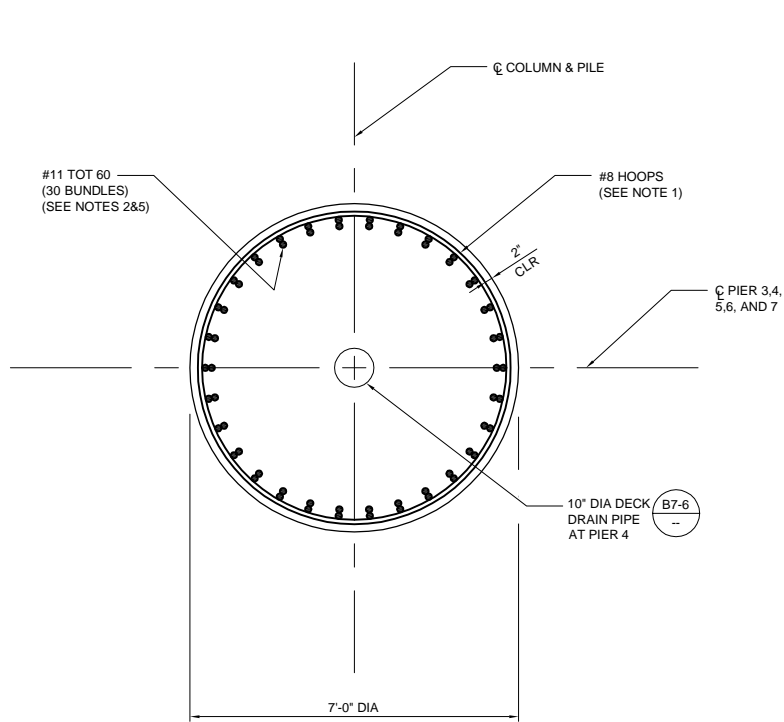
DESIGNED BY: T. KIRILOV / F. SANCHEZ	CHECKED BY: J. SALDANA	FILE NAME:	SCALE:
DRAWN BY: J. SALDANA	BY: G. RENDE	PLOT DATE:	

ORANGE COUNTY PUBLIC WORKS	PREPARED BY: RBF CONSULTING	DATE: 09/22/15
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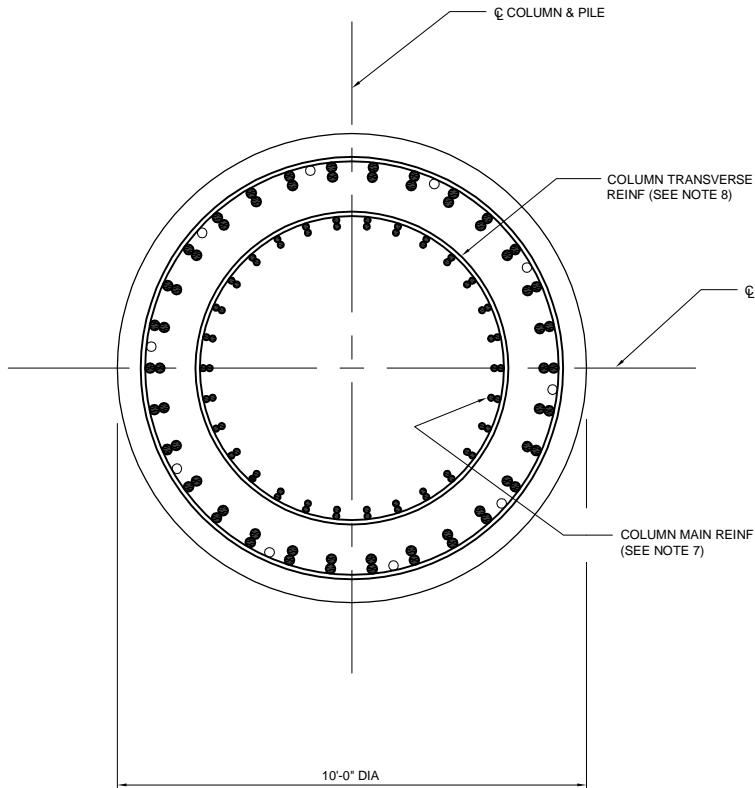
COW CAMP ROAD
CHILQUITA CANYON BRIDGE
TO STATION 76+00.00
**PIERS 3,4,5,6 & 7
DETAILS NO. 1**

Sheet
Reference
Number

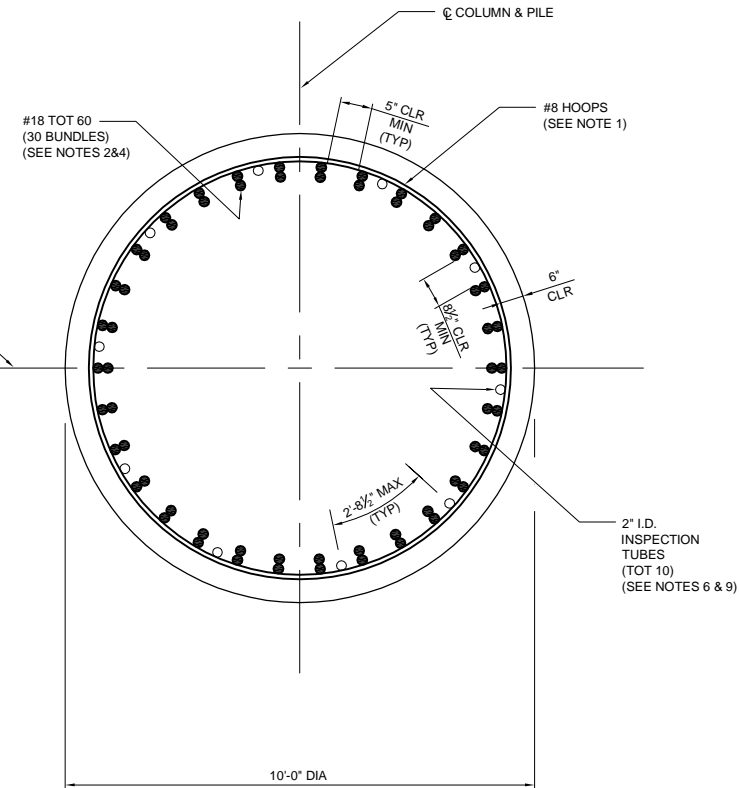
BR-19



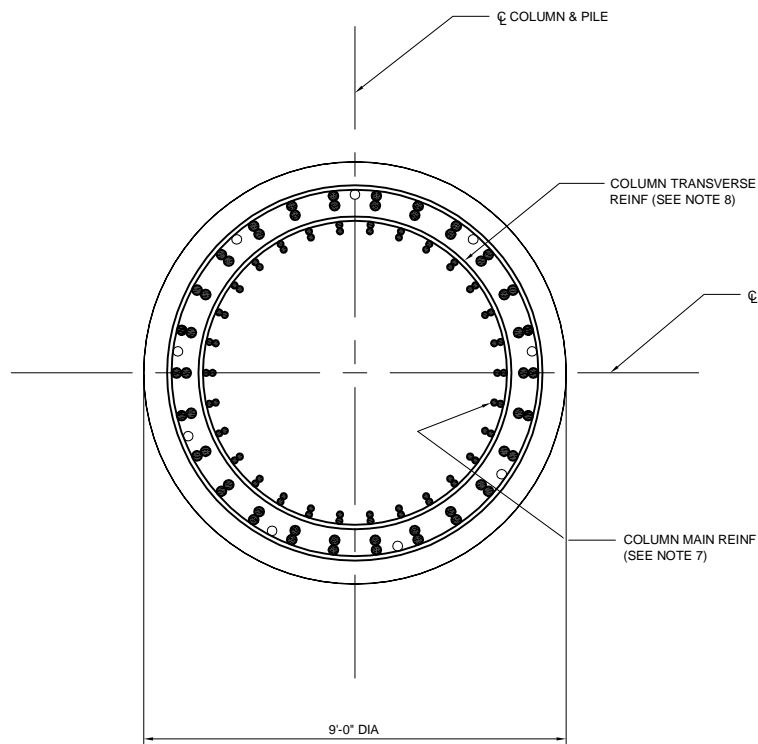
SECTION U-U
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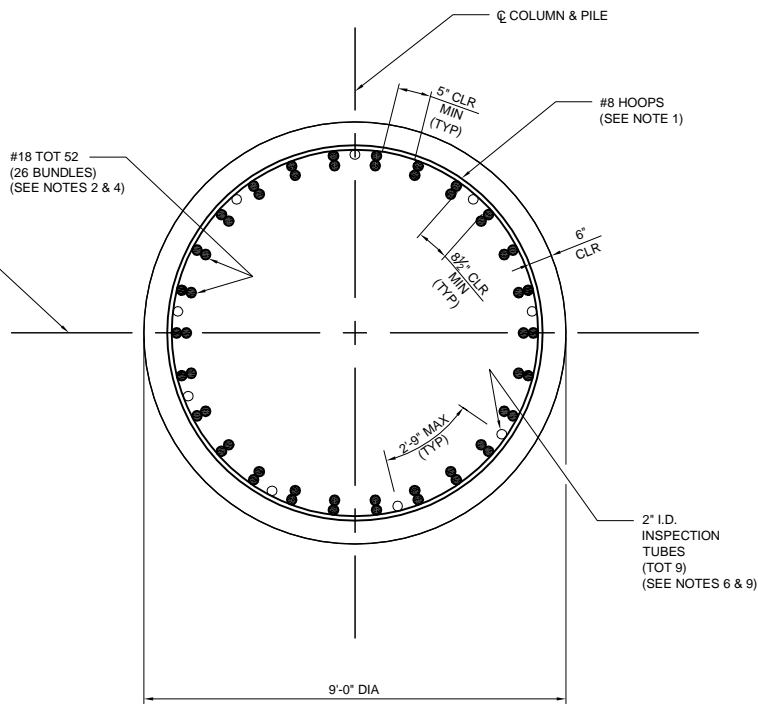
NOTE: FOR INFORMATION NOT SHOWN, SEE SECTION W-W
SECTION V-V (PIERS 5 AND 6)
SCALE: 1/2" = 1'-0"



SECTION W-W (PIERS 5 AND 6)
SCALE: 1/2" = 1'-0"



NOTE: FOR INFORMATION NOT SHOWN, SEE SECTION W-W
SECTION V-V (PIERS 3,4, AND 7)
SCALE: 1/2" = 1'-0"



SECTION W-W (PIERS 3,4, AND 7)
SCALE: 1/2" = 1'-0"

NOTES:

- ALL HOOPS SHALL BE BUTT WELDED AND SHALL MEET THE "ULTIMATE SPLICE" REQUIREMENTS.
- COLUMN AND PILE MAIN REINF, WHERE PERMITTED, SHALL MEET THE "ULTIMATE SPLICE" REQUIREMENTS.
- LAPPED SPLICES ARE NOT PERMITTED IN COLUMN AND PILE REINFORCEMENT.
- NO SPLICES PERMITTED IN PILE MAIN REINF WITHIN 50'-0" OF PILE CUT-OFF ELEVATION.
- ADJUST SPACING OF COLUMN MAIN REINF TO CLEAR DRAIN OUTLET.
- ALLOW FOR 3" MIN CLEAR SPACING TO INSPECTION TUBES.
- ALTERNATE EMBEDMENT LENGTH OF COLUMN MAIN REINF INTO PILE SHAFT AT 20'-0" AND 25'-0" AT PIERS 3, 4, 5, AND 7. ALTERNATE EMBEDMENT LENGTH AT 63'-0" AND 68'-0" AT PIER 6.
- COLUMN TRANSV REINF SHALL EXTEND OVER THE ENTIRE EMBEDDED LENGTH OF THE COLUMN CAGE.
- INSPECTION PIPES SHALL BE 40 PVC, AND SHALL CONFORM WITH THE PROVISIONS IN SECTION 49-3 OF CALTRANS STANDARD SPECIFICATIONS.

RECORD DRAWING

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3	RECORD DRAWING	7/31/15	
1	ROADWAY, GRADING, DRAINAGE, STRIPING, SIGNAL & BRIDGE REVS		

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THOMIR KIRILOV, P.E.
PUBLIC WORKS
DATE 7/21/15

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DRAWN BY: J. SALDANA	DRAWING CODE:	FILE NAME:
PREPARED BY: RBF CONSULTING	PLOT DATE: 09/17/15	

COW CAMP ROAD
CHICUITA CANYON BRIDGE
TO STATION 76+00.00
PIERS 3,4,5,6 & 7
DETAILS NO. 2

Sheet
Reference
Number

BR-20

Sheet 76 of 115



PIER CAP STIRRUP CONFIGURATION

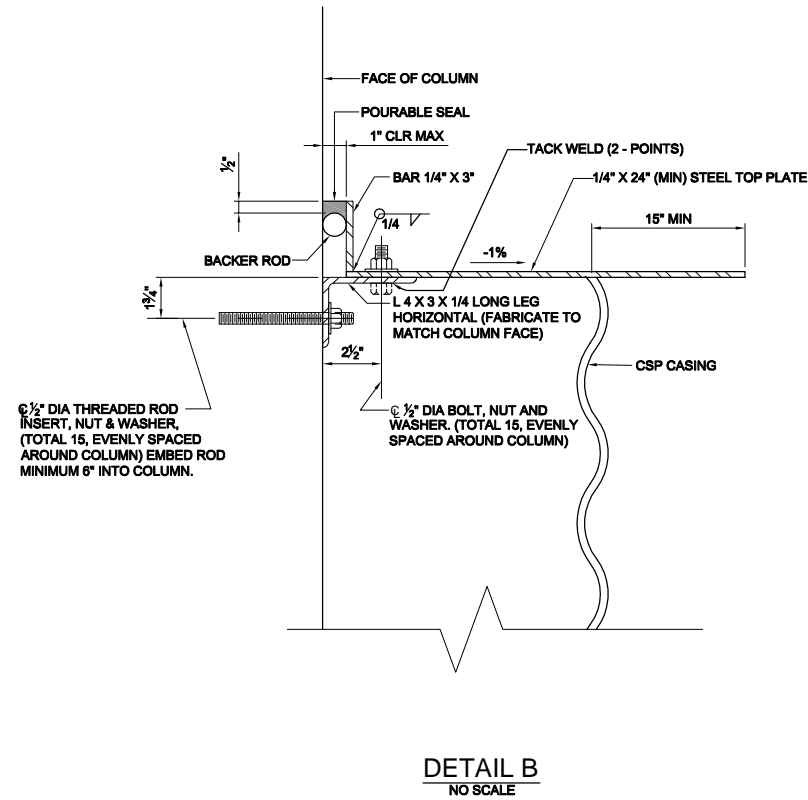
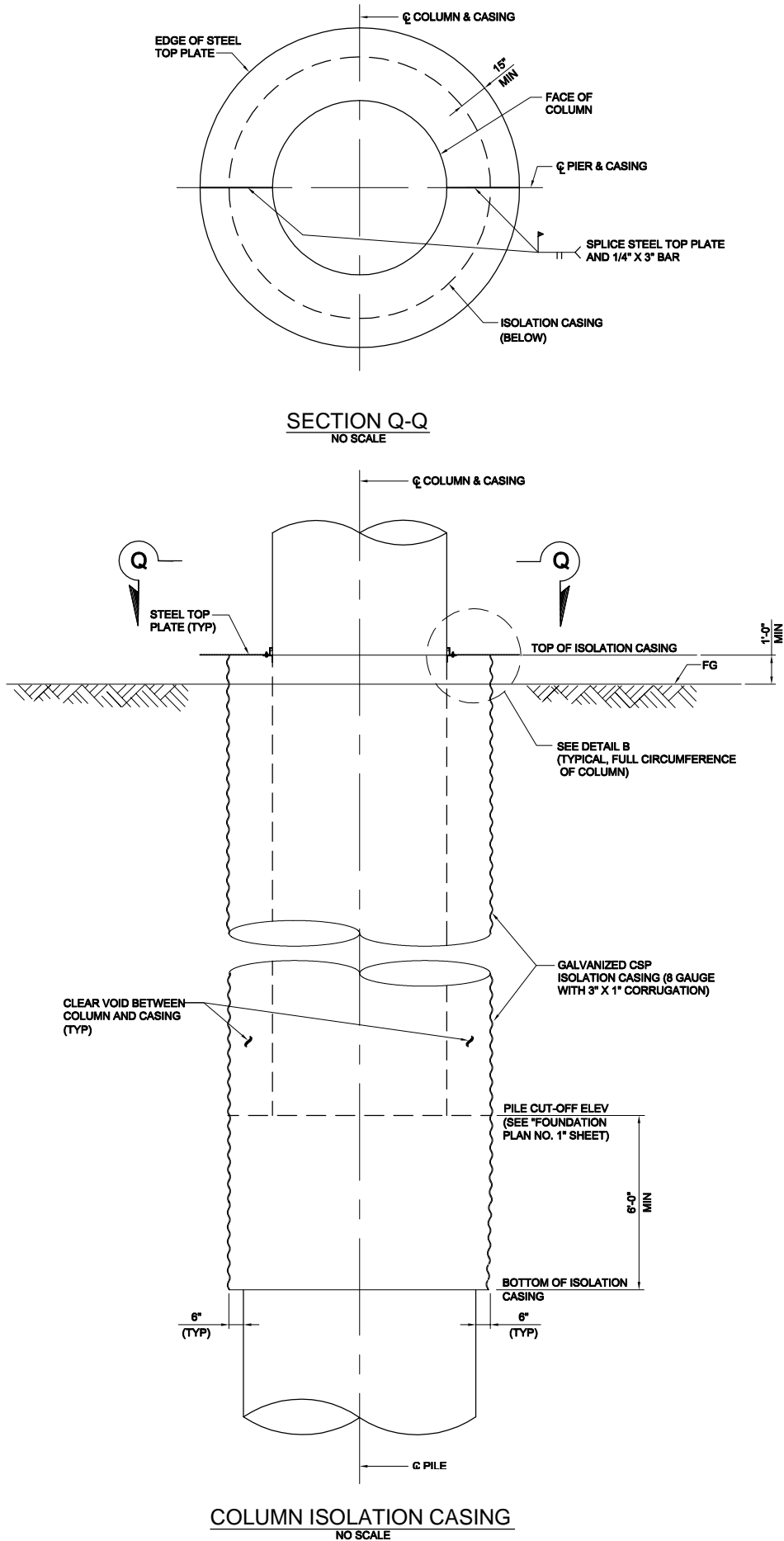
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 BUNDLED BARS

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- NOTES:**
1. ISOLATION CASINGS SHALL BE INSTALLED AT PIERS 2, 3, 5, 7, AND 8. NO ISOLATION CASINGS ARE REQUIRED AT PIERS 4 AND 6.
 2. ALL STEEL PARTS SHALL BE GALVANIZED AFTER FABRICATION.
 3. FOR PILE SIZES AND PILE CUT-OFF ELEVATIONS, SEE "FOUNDATION PLAN NO. 1" SHEET.

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PREPARED UNDER THE RESPONSIBLE CHARGE OF:

THOMIR A. KIRILOV, P.E.
PUBLIC WORKS

PROFESSIONAL ENGINEER
THOMIR A. KIRILOV
No. 67708
Exp. 08-30-13
CIVIL
STATE OF CALIFORNIA

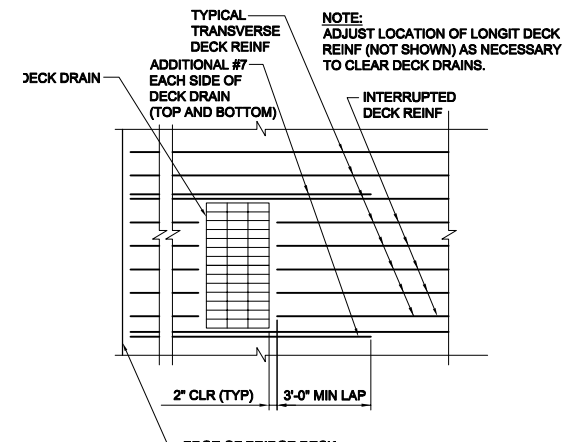
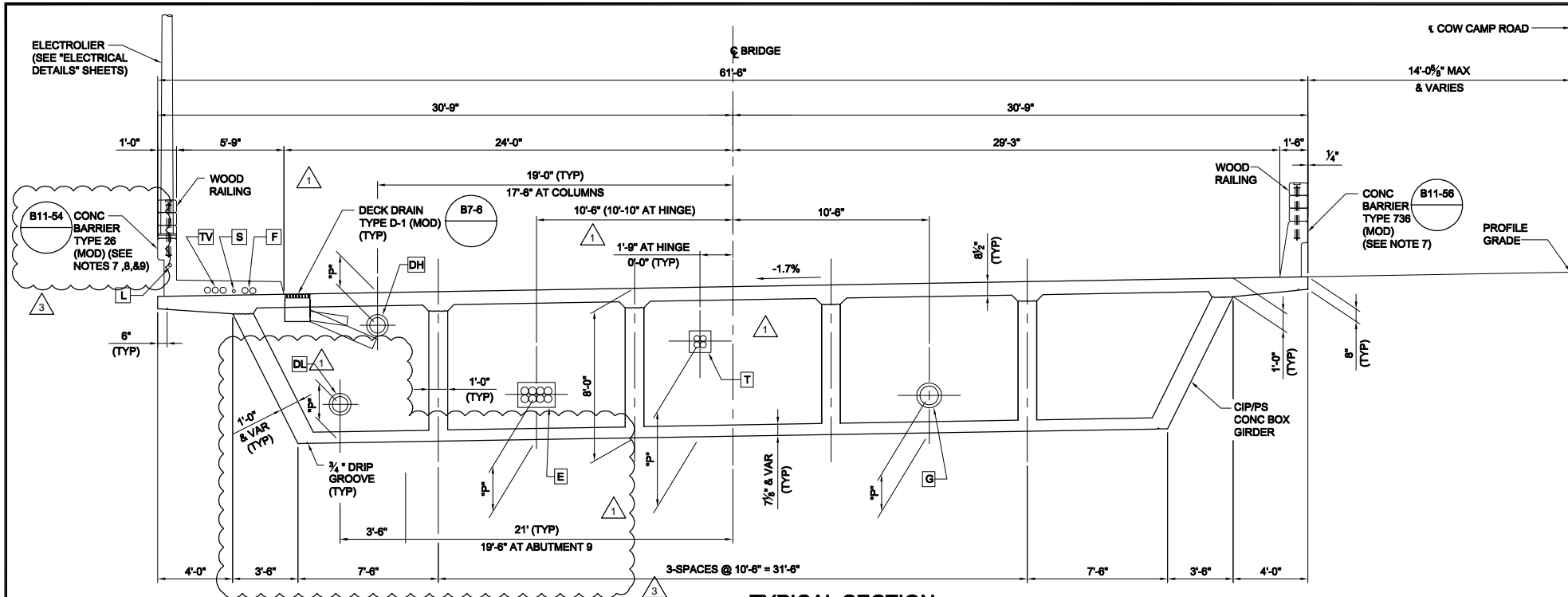
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DRAWING CODE:
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PLOT DATE: 09/17/15
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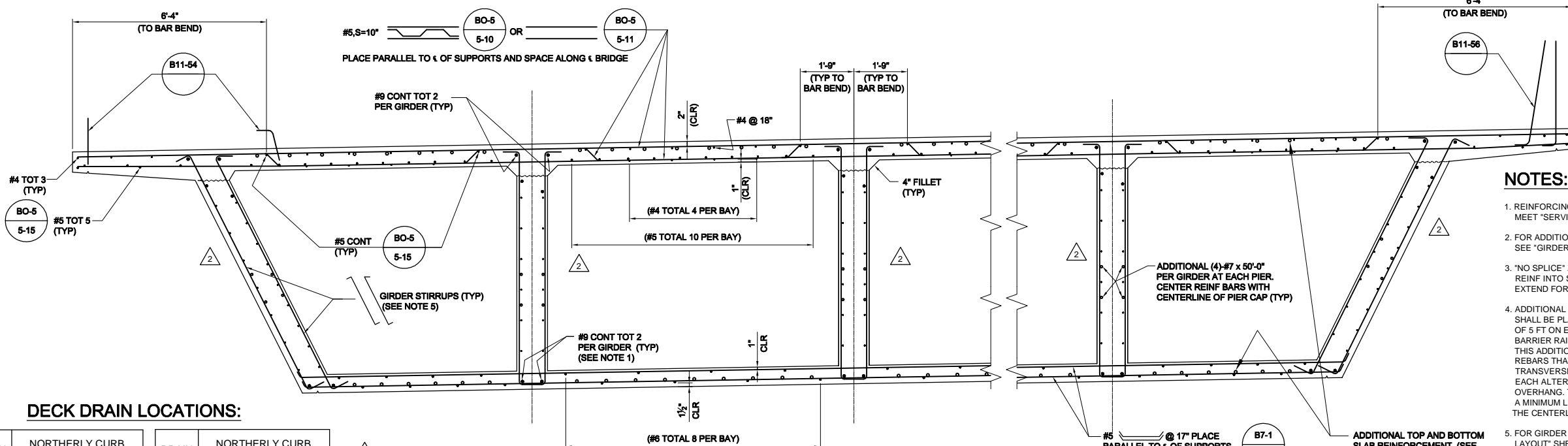
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COW CAMP ROAD
CHILQUITA CANYON BRIDGE
TO STATION 76+00.00
**TYPICAL PIER
DETAILS NO. 2**

Sheet
Reference
Number
BR-22
Sheet 78 of 115



REINFORCEMENT AT DECK DRAIN



NOTES:

1. REINFORCING SHALL BE MADE CONTINUOUS AND MEET "SERVICE SPLICE" REQUIREMENTS.
2. FOR ADDITIONAL SLAB REINFORCEMENT, SEE "GIRDER REINFORCEMENT" SHEET.
3. "NO SPLICE" ZONE FOR ALL TYPICAL LONGITUDINAL REINF INTO SUPERSTRUCTURE SHALL EXTEND FOR 25'-0" ON EACH SIDE OF Q_{BENTS}.
4. ADDITIONAL TOP TRANSVERSE DECK REINFORCEMENT SHALL BE PLACED IN THE OVERHANG FOR A DISTANCE OF 5 FT ON EACH SIDE OF AN EXPANSION JOINT IN THE BARRIER RAIL AND AT THE ENDS OF THE BARRIER RAIL THIS ADDITIONAL REINFORCEMENT SHALL CONSIST OF REBARS THAT ARE THE SAME SIZE AS THAT OF THE TRANSVERSE BARS, AND SHALL BE BUNDLED WITH EACH ALTERNATING TOP TRANSVERSE BAR IN THE OVERHANG. THIS REINFORCEMENT SHALL EXTEND FOR A MINIMUM LENGTH OF 25 BAR DIAMETERS BEYOND THE CENTERLINE OF THE EXTERIOR GIRDER.
5. FOR GIRDER STIRRUPS SIZE AND SPACING, SEE "GIRDER LAYOUT" SHEETS.
6. FOR UTILITY SUPPORT DETAILS, SEE "UTILITY PLANS."
7. FOR ADDITIONAL RAILING DETAILS, SEE "RAILING DETAILS" SHEET.
8. CONDUITS IN SIDEWALK SHOWN SUPERSEDE
9. FOR TYPE 26 (MOD) REINFORCING SEE DETAIL ON "RAILING DETAILS" SHEET.

LEGEND:

○ ADDITIONAL REINF (SEE NOTE 2)

DECK DRAIN LOCATIONS:

DRAIN INLET NO.	NORTHERLY CURB FACE STA. ALONG COW CAMP ROAD	DRAIN INLET NO.	NORTHERLY CURB FACE STA. ALONG COW CAMP ROAD
1	31+20.00	13	39+30.00
2	32+00.00	14	40+00.00
3	32+80.00	15	40+70.00
4	33+60.00	16	41+40.00
5	34+40.00	17	42+10.00
6	35+10.00	18	42+80.00
7	35+80.00	19	43+40.00
8	36+50.00	20	43+80.00
9	36+60.00	21	43+90.00
10	36+70.00	22	44+00.00
11	36+77.00	23	44+08.00
12	38+60.00		

ELECTROLIER LOCATIONS:

TOP OF BARRIER TYPE 26 (MOD) STA. ALONG COW CAMP ROAD		
30+51.00	35+56.00	40+60.00
32+19.00	37+24.00	42+29.00
33+87.00	38+92.00	43+97.00

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UTILITIES:

UTILITY	"P" DIMENSION	OPENING AT ABUT BACKWALL	OPENING AT GIRDER DIAPHRAGM	OPENING AT PIER CAP & HINGE	CASING OD ALONG BRIDGE
E 8-5" ELECTRIC CONDUITS (SDG&E)	2'-0"	1'-7"H X 3'-2"W	1'-7"H X 7'-6"W	1'-4"H X 2'-7"W	N/A
T 4-4" TELEPHONE CONDUITS	5'-1" @ HINGE 4'-9" @ ABUT	1'-2"H X 1'-2"W	1'-2"H X 7'-0"W	1'-2"H X 1'-2"W	N/A
G 8" GAS LINE	2'-0"	1'-4" DIA	1'-7"H X 7'-6"W	1'-5" DIA	12" DIA
TV 3-4" TV CONDUITS (COX)	N/A	N/A	N/A	N/A	N/A
S 1-2" SIGNAL INTERCONNECT CONDUIT	N/A	N/A	N/A	N/A	N/A
F 2-4" FUTURE OPENINGS	N/A	N/A	N/A	N/A	N/A
L 1-2" LIGHTING CONDUIT	N/A	N/A	N/A	N/A	N/A
DH DECK DRAINAGE (HIGH FLOW PIPE)	1'-9" MIN & VAR	N/A	N/A	1'-2" DIA AT PIERS 2, 3, 6, & 7	N/A
DL DECK DRAINAGE (LOW FLOW PIPE)	2'-6"	1'-8" DIA	1'-7"H X 1'-10"W	1'-2" DIA	N/A



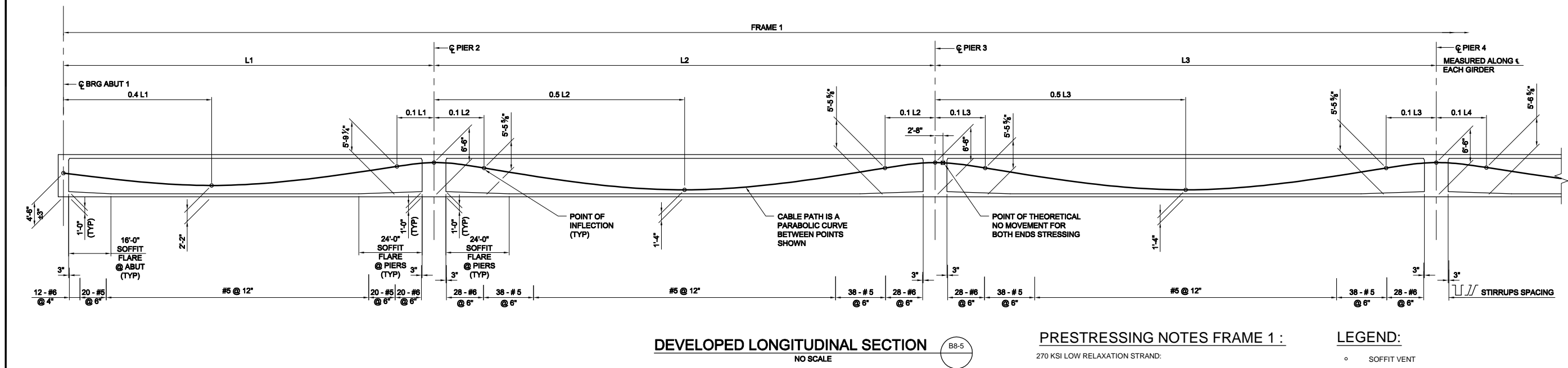
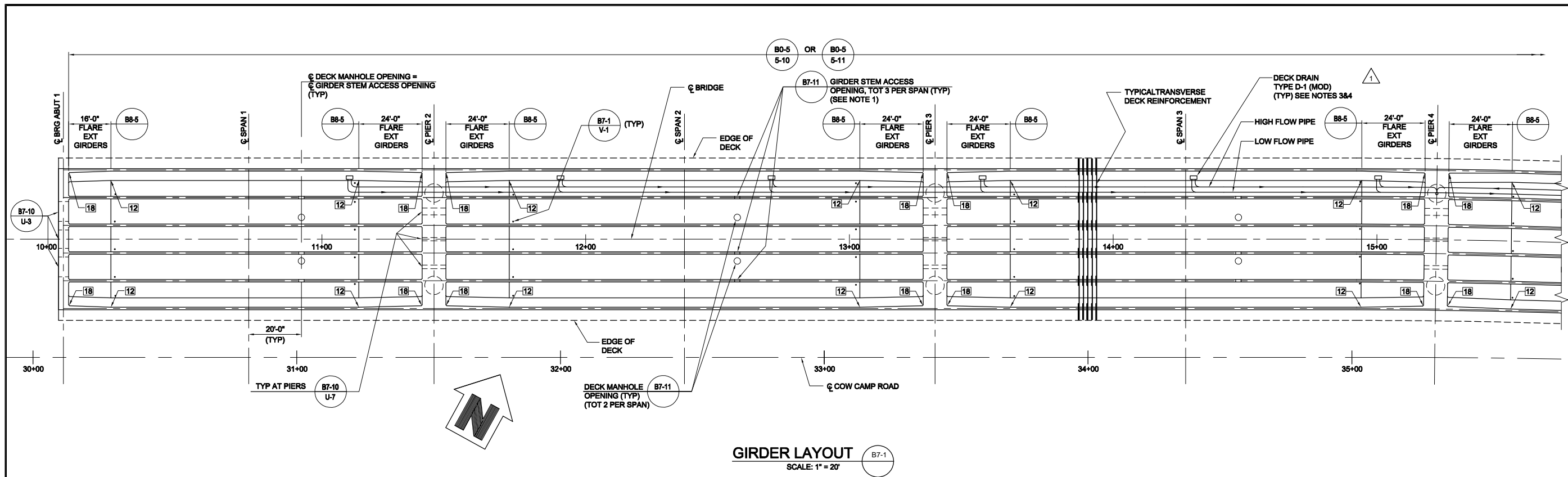
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3	RECORD DRAWING	7/31/15	
2	REVISIONS AFTER BID SET DATED 05-01-2013		
1	ROADWAY, GRADING, DRAINAGE, STRIPING, SIGNAL & BRIDGE REVS		

PREPARED UNDER THE RESPONSIBLE CHARGE OF:
 THOMIR KIRILOV, P.E.
 CIVIL ENGINEER
 No. 67708
 Exp. 08-30-13
 STATE OF CALIFORNIA

DESIGNED BY: T. KIRILOV / F. SANCHEZ
 CHECKED BY: G. RENDE
 DRAWN BY: J. SALDANA
 DRAWING CODE: RBF
 FILE NAME: 09/30/15
 PLOT DATE: 09/30/15
 SCALE: 1/4" = 1'-0"

COW CAMP ROAD
 CHICUITA CANYON BRIDGE
 TO STATION 76+00.00
 TYPICAL SECTION

Sheet Reference Number
BR-23
 Sheet 79 of 115



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PRESTRESSING NOTES FRAME 1 :

270 KSI LOW RELAXATION STRAND:
 $P_{JACK} = 16,000$ KIPS
ANCHOR SET = 3/8"
TOTAL NUMBER OF GIRDERS = 6
FRICTION CURVATURE COEFFICIENT = 0.20 (1/RAD)
FRICTION WOBBLE COEFFICIENT, K = 0.0002 (1/FT)
DISTRIBUTION OF PRESTRESS FORCE (P_{JACK}) BETWEEN GIRDERS SHALL NOT EXCEED THE RATIO OF 3:2. MAXIMUM FINAL FORCE VARIATION BETWEEN GIRDERS SHALL NOT EXCEED 725 KIPS.
CONCRETE: $f_c = 4.5$ ksi @ 28 DAYS
 $f_{ci} = 4.0$ ksi @ TIME OF STRESSING
CONTRACTOR SHALL SUBMIT ELONGATION CALCULATIONS BASED ON INITIAL STRESS AT $\Delta = 0.8108$ TIMES JACKING STRESS.
TWO END STRESSING SHALL BE PERFORMED.

LEGEND:

- SOFFIT VENT
- ☒ GIRDER STEM WIDTH, INCHES
- DECK MANHOLE OPENING
- TYPE D-1 (MOD) DECK DRAIN, SEE NOTE 4
- DECK DRAIN PIPE AND FLOW DIRECTION (SEE NOTES 3 & 4)

NOTES:

- GIRDER STEM ACCESS OPENING SHALL CLEAR PRESTRESSING DUCTS.
- FOR LOCATION AND SIZE OF UTILITY OPENINGS, SEE "TYPICAL SECTION" SHEET.
- DECK DRAIN PIPES SHALL BE SLOPED PARALLEL TO THE BRIDGE IN THE EASTERLY FLOW DIRECTION AND 0.67% MIN IN THE WESTERLY FLOW DIRECTION.
- FOR DECK DRAINAGE DETAILS AND PIPE SIZES, SEE "MISCELLANEOUS DETAILS" SHEET AND



MARK	DESCRIPTION	DATE	APPR.
3	RECORD DRAWING	7/31/15	
1	ROADWAY, GRADING, DRAINAGE, STRIPING, SIGNAL & BRIDGE REVS		

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THOMAS A. KIRILOV
No. 67708
Exp. 06-30-13
CIVIL
STATE OF CALIFORNIA

THOMAS A. KIRILOV, P.E.
PUBLIC WORKS

DATE 7/31/13

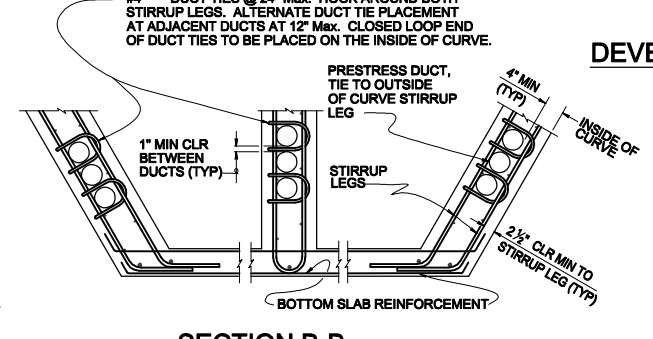
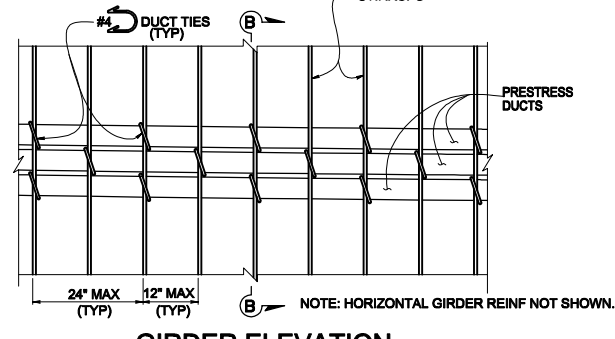
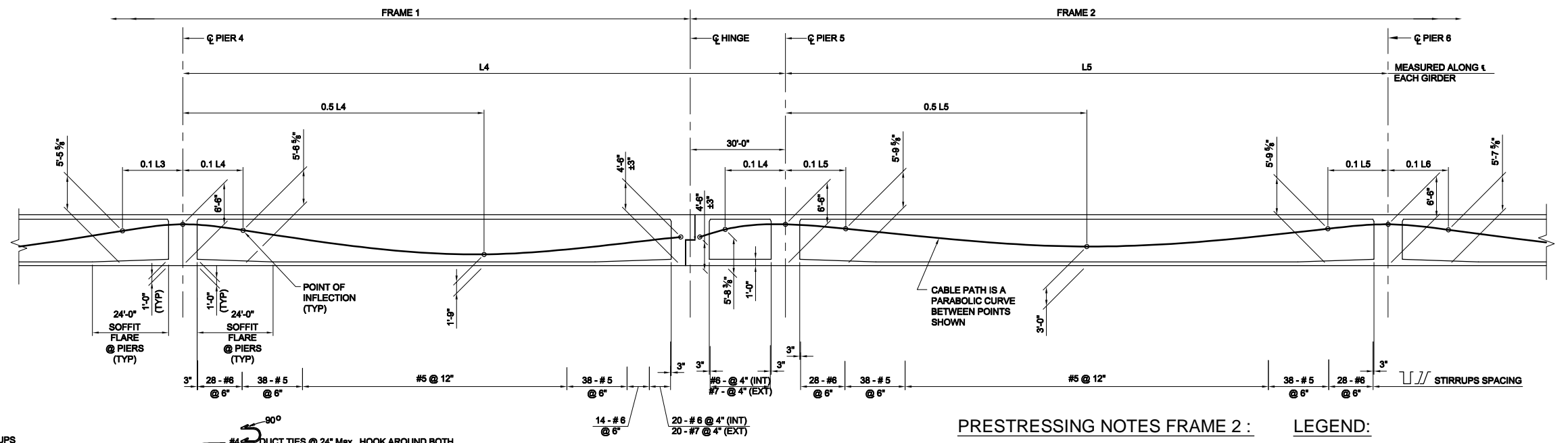
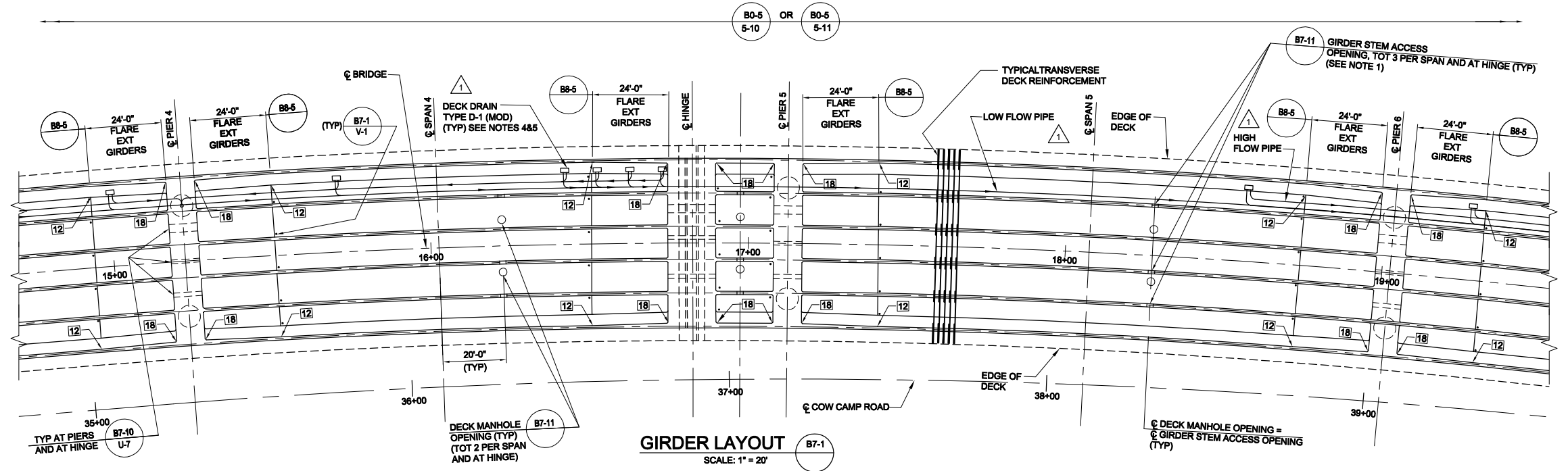
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COW CAMP ROAD
CHICUITA CANYON BRIDGE
TO STATION 76+00.00
GIRDER LAYOUT NO. 1

Sheet Reference Number

BR-24

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DEVELOPED LONGITUDINAL SECTION

PRESTRESSING NOTES FRAME 2 :

270 KSI LOW RELAXATION STRAND:
 $P_{JACK} = 20,000$ KIPS
ANCHOR SET = $3/8"$
TOTAL NUMBER OF GIRDERS = 6
FRICTION CURVATURE COEFFICIENT = 0.20 (1/RAD)
FRICTION WOBBLE COEFFICIENT, K = 0.0002 (1/FT)
DISTRIBUTION OF PRESTRESS FORCE (P_{JACK}) BETWEEN GIRDERS SHALL NOT EXCEED THE RATIO OF 3:2. MAXIMUM FINAL FORCE VARIATION BETWEEN GIRDERS SHALL NOT EXCEED 725 KIPS.
CONCRETE: $f_c = 4.5$ ksi @ 28 DAYS
 $f_a = 4.0$ ksi @ TIME OF STRESSING
CONTRACTOR SHALL SUBMIT ELONGATION CALCULATIONS BASED ON INITIAL STRESS AT $\Delta = 0.8078$ TIMES JACKING STRESS.
TWO END STRESSING SHALL BE PERFORMED.

LEGEND:

- SOFFIT VENT
 - GIRDER STEM WIDTH, INCHES
 - DECK MANHOLE OPENING
 - TYPE D-1 (MOD) DECK DRAIN, SEE NOTE 5
 - DECK DRAIN PIPE AND FLOW DIRECTION (SEE NOTES 4 & 5)
- NOTES:
- GIRDER STEM ACCESS OPENING SHALL CLEAR PRESTRESSING DUCTS.
 - FOR PRESTRESSING NOTES FOR FRAME 1, SEE "GIRDER LAYOUT NO. 1" SHEET.
 - FOR LOCATION AND SIZE OF UTILITY OPENINGS, SEE "TYPICAL SECTION" SHEET.
 - DECK DRAIN PIPES SHALL BE SLOPED PARALLEL TO THE BRIDGE IN THE EASTERLY FLOW DIRECTION AND 0.67% MIN IN THE WESTERLY FLOW DIRECTION.
 - FOR DECK DRAINAGE DETAILS AND PIPE SIZES, SEE "MISCELLANEOUS DETAILS" SHEET AND

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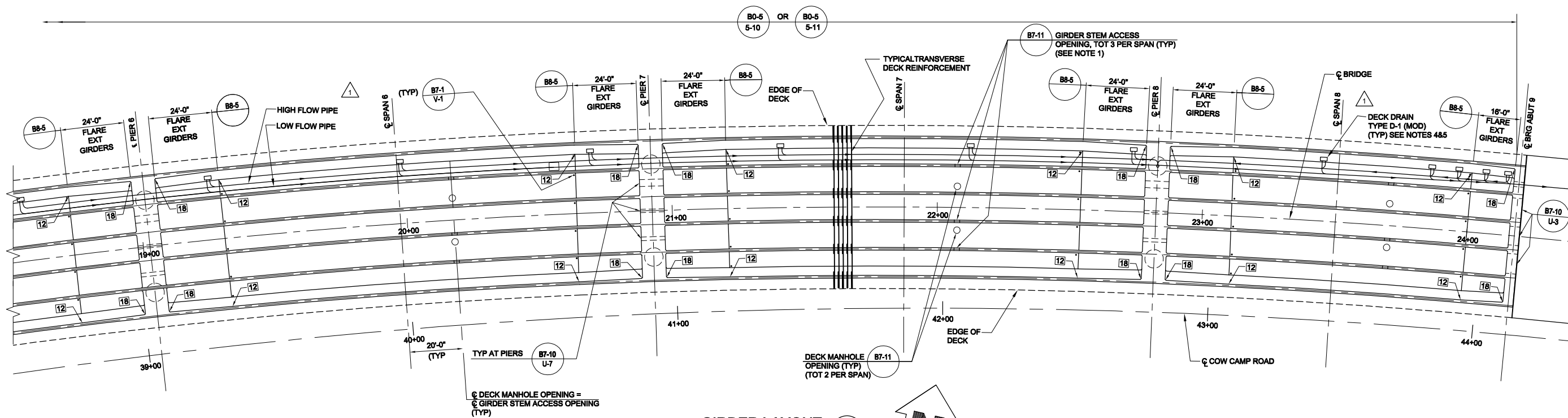
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2	REVISIONS AFTER		
1	BID SET DATED 05-01-2013		
	ROADWAY, GRADING,		
	DRAINAGE, STRIPING,		
	SIGNAL & BRIDGE REVS		

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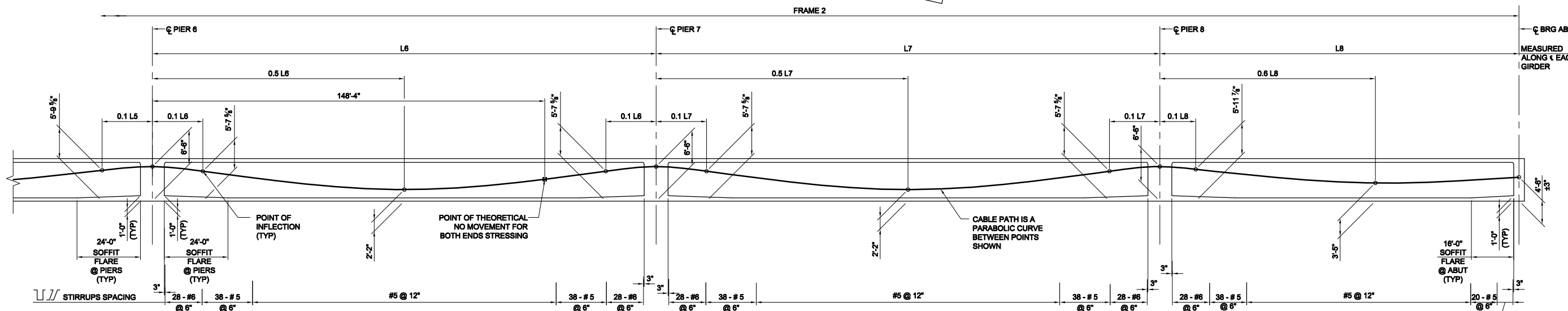
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SCALE: 1" = 20'

COW CAMP ROAD
CHICUITA CANYON BRIDGE
TO STATION 76+00.00
GIRDER LAYOUT NO. 2

Sheet
Reference
Number
BR-25
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GIRDER LAYOUT
SCALE: 1" = 20'



DEVELOPED LONGITUDINAL SECTION
NO SCALE

LEGEND:

- SOFFIT VENT
- ☒ GIRDER STEM WIDTH, INCHES
- DECK MANHOLE OPENING
- TYPE D-1 DECK DRAIN, SEE NOTE 5
- DECK DRAIN PIPE AND FLOW DIRECTION (SEE NOTES 4 & 5)

NOTES:

- GIRDER STEM ACCESS OPENING SHALL CLEAR PRESTRESSING DUCTS.
- FOR PRESTRESSING NOTES FOR FRAME 2, SEE "GIRDER LAYOUT NO. 2" SHEET.
- FOR LOCATION AND SIZE OF UTILITY OPENINGS, SEE "TYPICAL SECTION" SHEET.
- DECK DRAIN PIPES SHALL BE SLOPED PARALLEL TO THE BRIDGE IN THE EASTERLY FLOW DIRECTION AND 0.67% MIN IN THE WESTERLY FLOW DIRECTION.
- FOR DECK DRAINAGE DETAILS AND PIPE SIZES, SEE "MISCELLANEOUS DETAILS" SHEET AND

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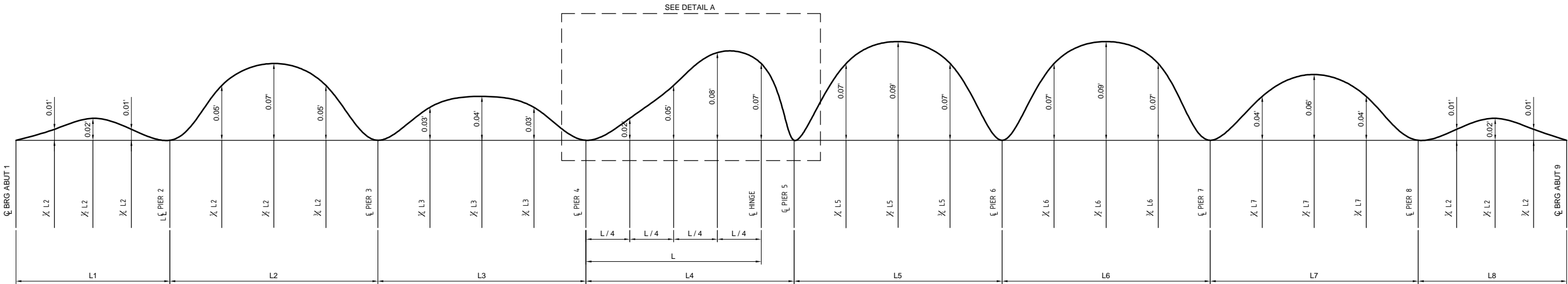
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1	ROADWAY, GRADING, DRAINAGE, STRIPING, SIGNAL & BRIDGE REVS		

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CIVIL ENGINEER
No. 67708
Exp. 08-30-13
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DATE

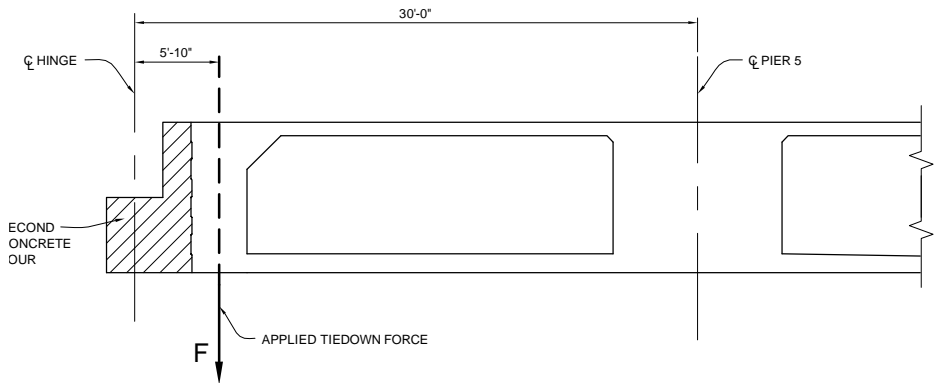
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COW CAMP ROAD
CHICUITA CANYON BRIDGE
TO STATION 76+00.00
GIRDER LAYOUT NO. 3

Sheet
Reference
Number
BR-26



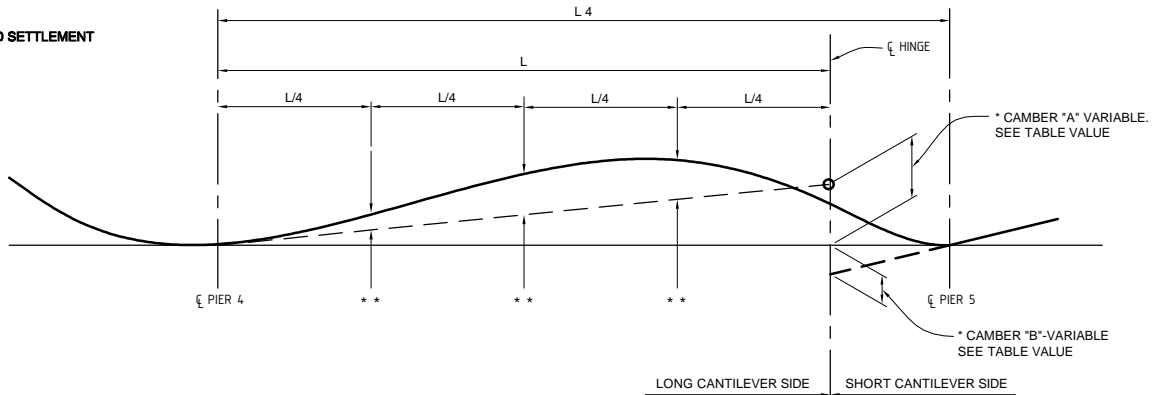
CAMBER DIAGRAM
DOES NOT INCLUDE ALLOWANCE FOR FALSEWORK DEFLECTION AND SETTLEMENT
(ALONG CENTER LINE OF GIRDER)



NOTE:
DEAD LOAD REACTION
AT HINGE
F = 1160 KIPS

NOTES:

- CONTRACTOR TO PROVIDE TIE-DOWN SYSTEM TO PREVENT HINGE SEAT CURL. MINIMUM CAPACITY OF TIE-DOWNS SHALL BE 1.2 x DEAD LOAD REACTION (F).
- MINIMUM TIE-DOWN STRESS DUE TO 1.2 x DEAD LOAD REACTION (F), SHALL NOT EXCEED 0.75 F_u OF PRESTRESSING STEEL.
- CONTRACTOR SHALL APPLY ONLY DEAD LOAD REACTION (F) TO THE TIE-DOWN SYSTEM. ADDITIONAL ADJUSTMENTS TO THE TIE-DOWN SYSTEM MAY BE REQUIRED PERIODICALLY TO MAINTAIN GRADE AND PROFILE.
- NO TENSION IS ALLOWED ON TIE-DOWNS UNTIL SUPERSTRUCTURE HAS BEEN STRESSED.



DETAIL A
NO SCALE

* SEE TABLE FOR VALUES TO USE - DEPENDS ON PERIOD OF TIME BETWEEN PRESTRESSING OF SHORT CANTILEVER SIDE AND LOAD TRANSFER FROM LONG CANTILEVER SIDE.
**ADJUSTED CAMBER VALUES ARE AT QUARTER POINTS OF LENGTH BETWEEN C PIER AND HINGE.

TIME DEPENDENT CAMBER VALUES (FEET)

LOCATION	CAMBER VALUE	ELAPSED TIME IN DAYS MEASURED FROM PRESTRESSING SHORT HINGE SIDE TILL CLOSURE AND LOAD TRANSFER							
		30	60	90	120	180	240	360	720
SPAN 4 HINGE	"A"	0.041	0.031	0.021	0.016	0.015	0.014	0.011	0.008
	"B"	0.073	0.072	0.072	0.072	0.071	0.071	0.071	0.071

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DATE JULY 2015



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3		7/31/15	

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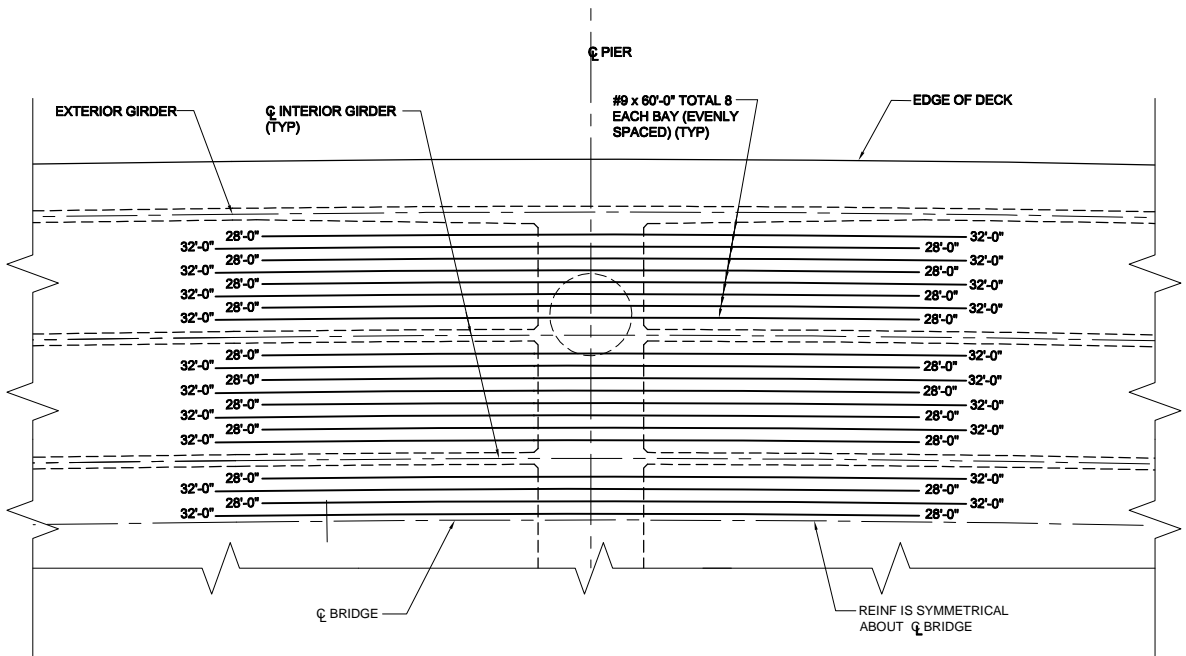
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DRAFTING CODE: RBF
FILE NAME: ORANGE COUNTY PUBLIC WORKS
PLOT DATE: 09/17/15
SCALE: 1"=10'-0"

COW CAMP ROAD
CHILQUITA CANYON BRIDGE
TO STATION 76+00.00
CAMBER DIAGRAM

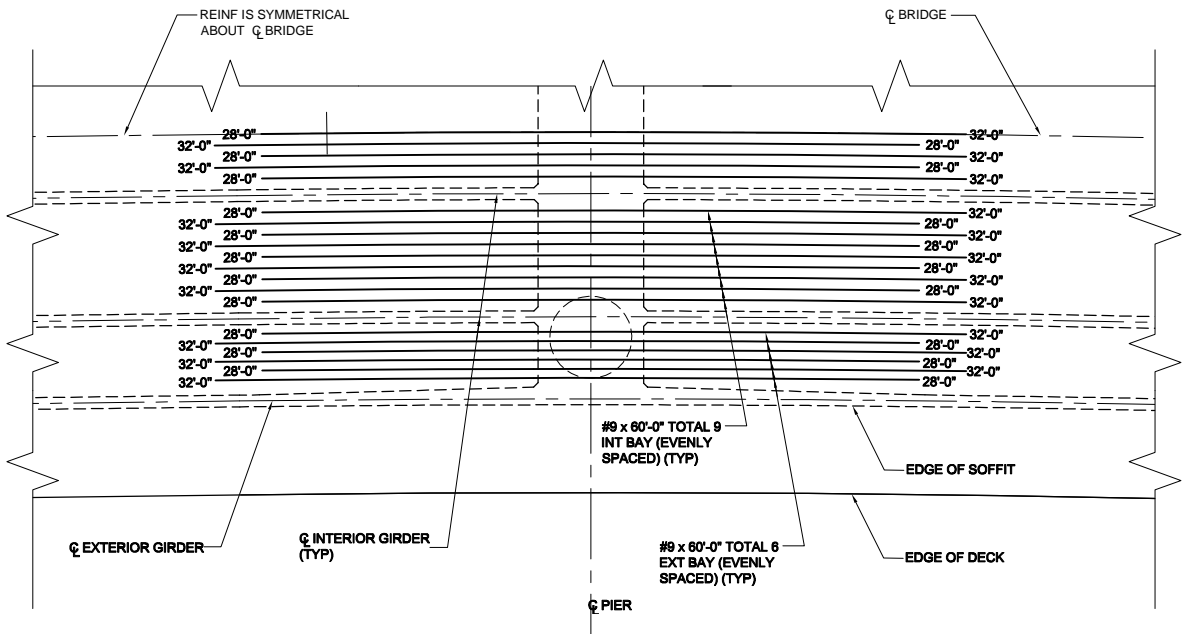
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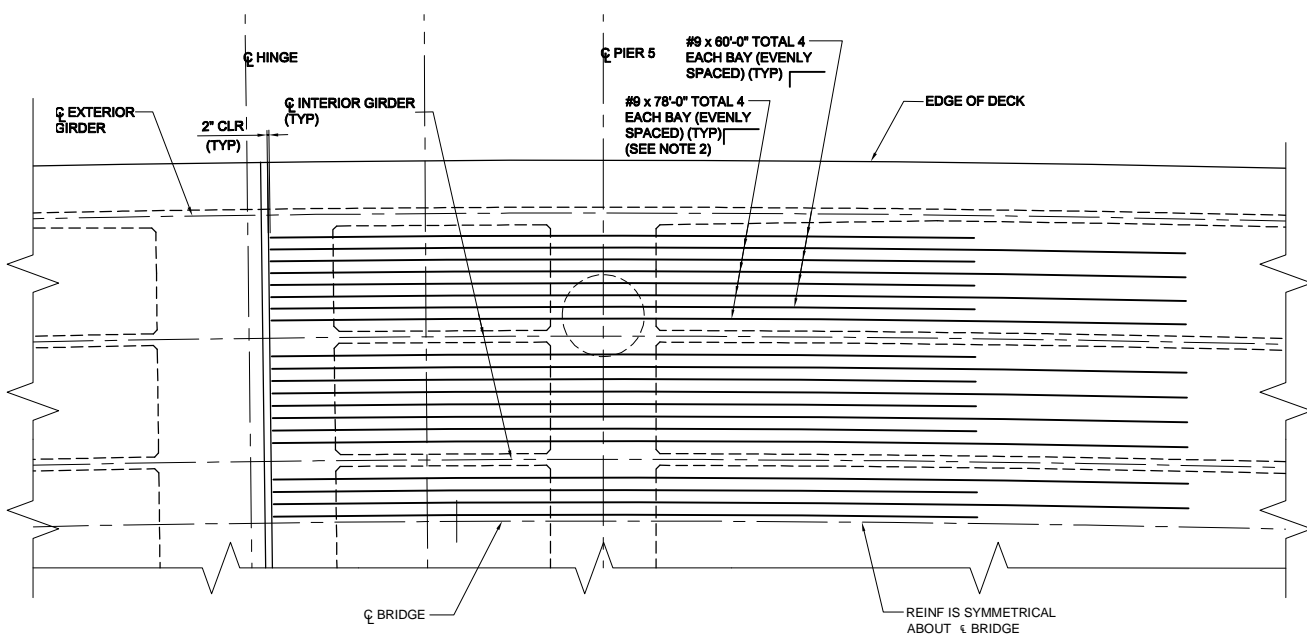
Sheet 83 of 115



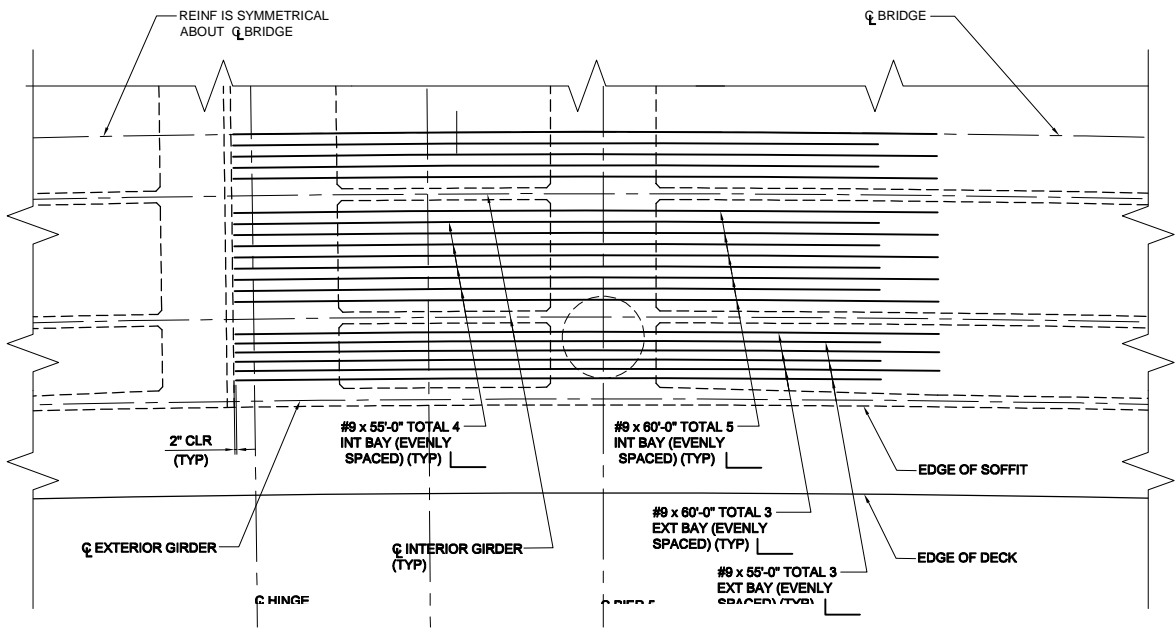
ADDITIONAL TOP SLAB
REINFORCEMENT @ PIERS (2,3,4,6,7,8,)
SCALE: 1/8" = 1'-0"



ADDITIONAL BOTTOM SLAB
REINFORCEMENT @ PIERS (2,3,4,6,7,8,)
SCALE: 1/8" = 1'-0"



ADDITIONAL TOP SLAB
REINFORCEMENT @ PIER 5 (HINGE)
SCALE: 1/8" = 1'-0"



ADDITIONAL BOTTOM SLAB
REINFORCEMENT @ PIER 5 (HINGE)
SCALE: 1/8" = 1'-0"

RECORD DRAWING
THIS RECORD DRAWING HAS BEEN PREPARED, IN PART, BASED UPON INFORMATION FURNISHED BY OTHERS. WHILE THIS INFORMATION IS BELIEVED TO BE RELIABLE, THE ENGINEER CANNOT ASSURE ITS ACCURACY, AND THUS IS NOT RESPONSIBLE FOR THE ACCURACY OF THIS RECORD DRAWING OR FOR ANY ERRORS OR OMISSIONS WHICH MAY HAVE BEEN INCORPORATED INTO IT AS A RESULT. THOSE RELYING ON THIS RECORD DRAWING ARE ADVISED TO OBTAIN INDEPENDENT VERIFICATION OF ITS ACCURACY BEFORE APPLYING IT FOR ANY PURPOSE.
RBF CONSULTING
DATE JULY 2015

- NOTES:
1. NO LAP SPLICES ALLOWED IN TOP AND BOTTOM LONGITUDINAL SLAB REINFORCEMENT OVER PIERS.(UNLESS NOTED OTHERWISE)
 2. MECHANICAL SPLICES OF ADJACENT BARS MUST BE STAGGERED @ 3'-0" MIN.
 3. NUMBERS AT END OF BARS INDICATE BAR LENGTH FROM C PIER.
 4. REINF MAY BE ADJUSTED TO CLEAR COLUMN MAIN REINF.



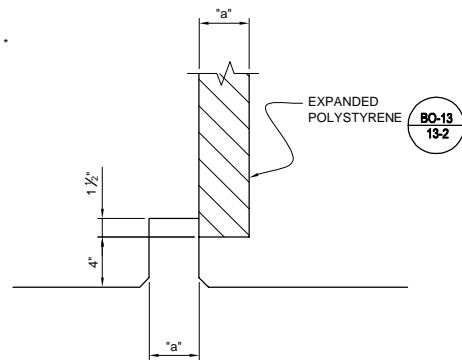
DATE	RECORD DRAWING	MARK	APPR.
7/31/15	3		

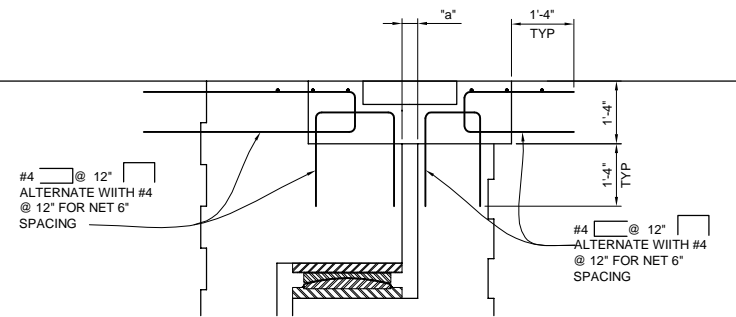
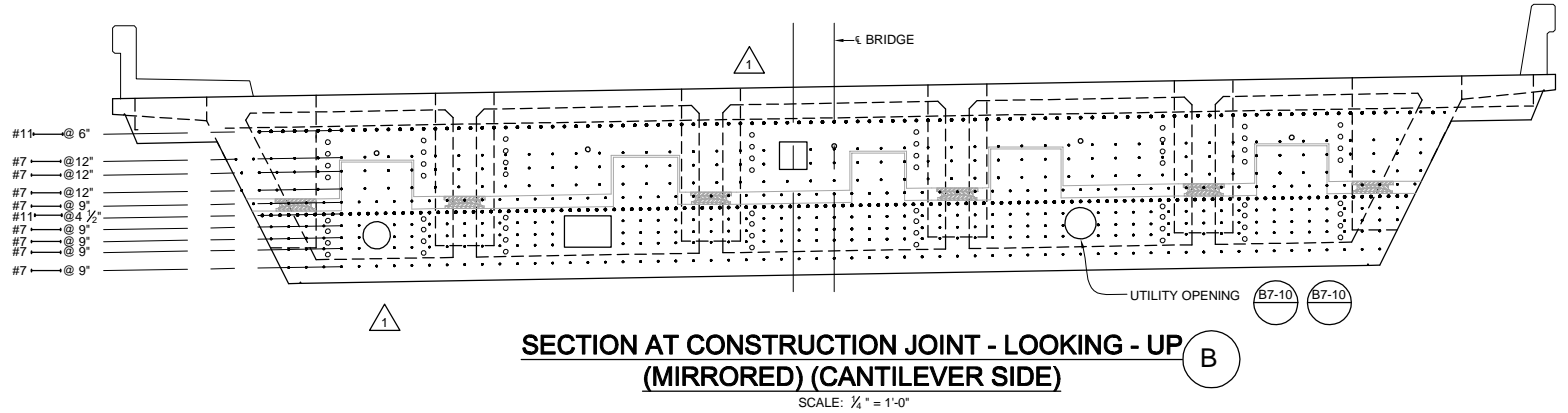
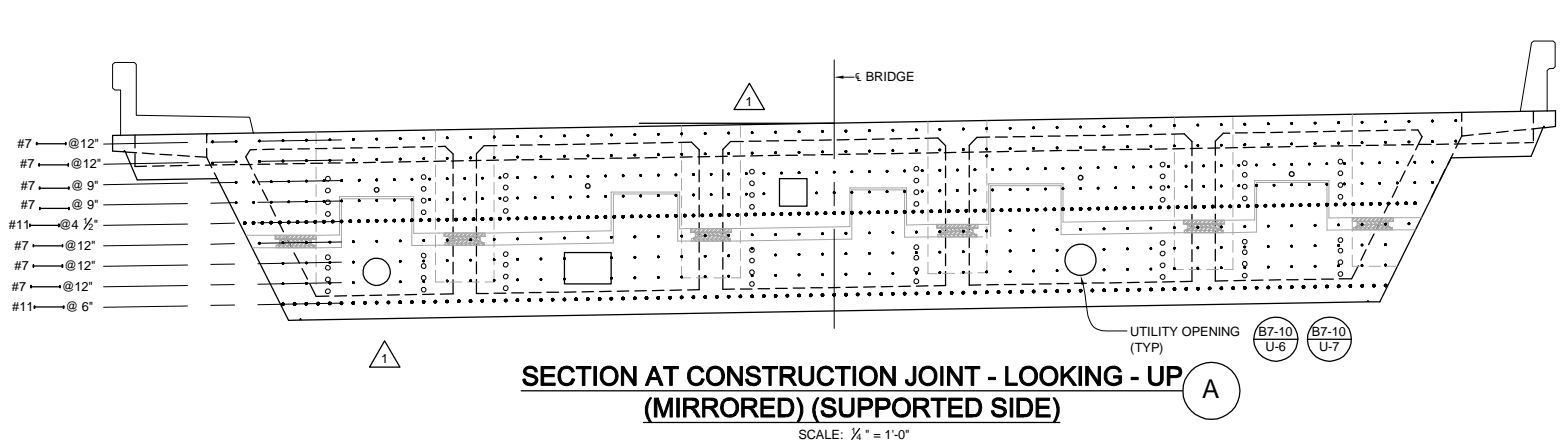
PREPARED UNDER THE RESPONSIBLE CHARGE OF:
THOMAS A. KIRILOV, P.E.
CIVIL
No. 67708
Exp. 08-30-13
DATE 7/31/13
PUBLIC WORKS

DESIGNED BY: T. KIRILOV / F. SANCHEZ
DRAWN BY: J. SALDANA
CHECKED BY: G. RENDE
DRAFTING CODE:
FILE NAME:
PLOT DATE: 09/17/15
SCALE:
ORANGE COUNTY PUBLIC WORKS
PREPARED BY: RBF CONSULTING

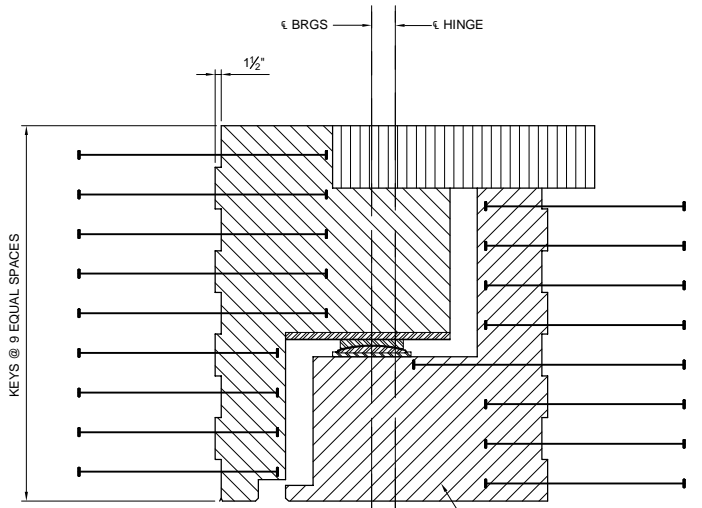
COW CAMP ROAD
CHICUITA CANYON BRIDGE
TO STATION 76+00.00
GIRDER
REINFORCEMENT

Sheet
Reference
Number
BR-28
Sheet 84 of 115

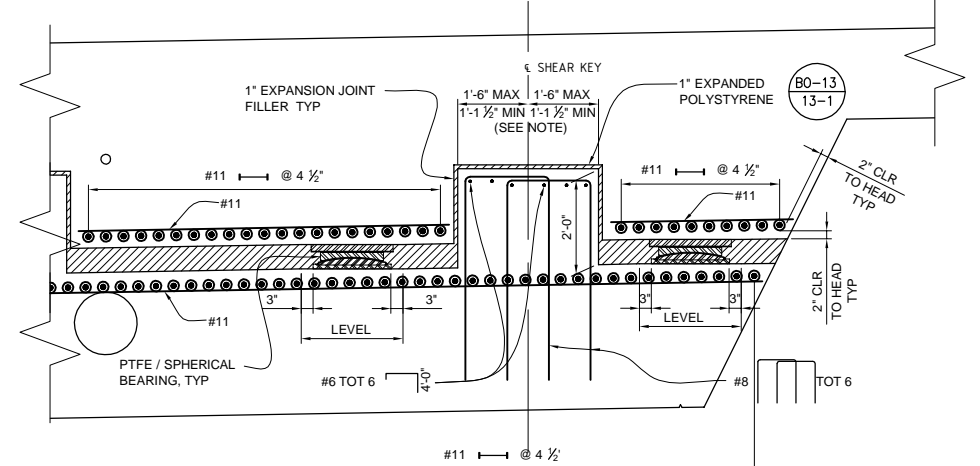




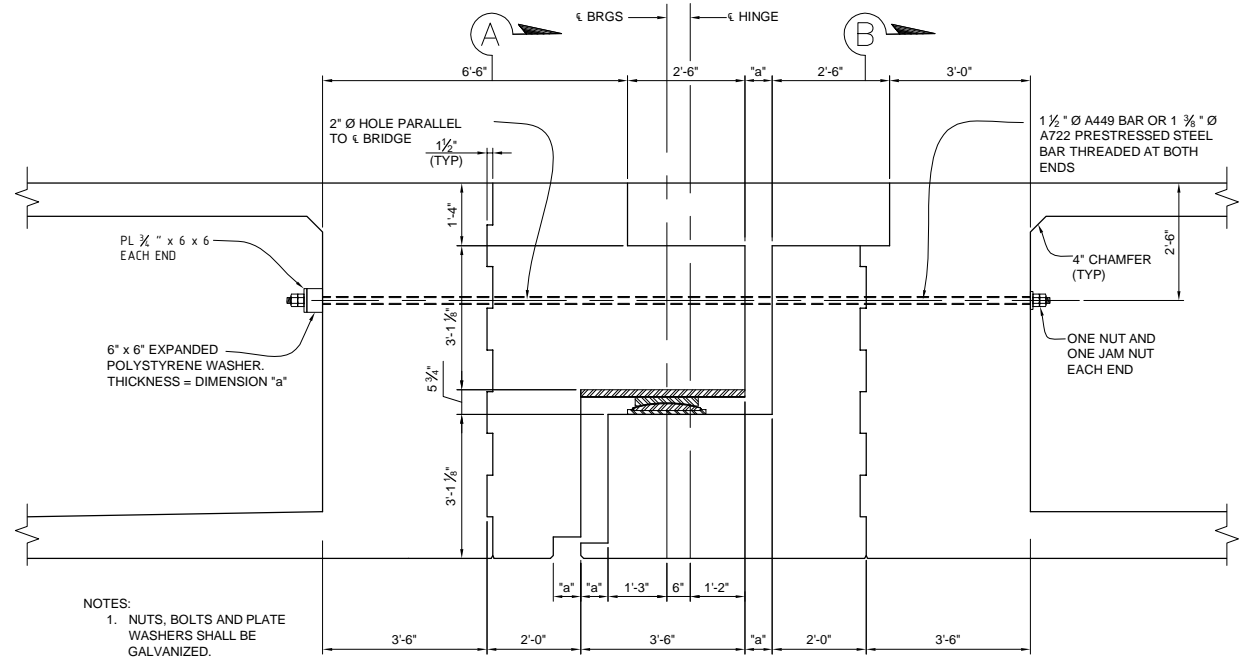
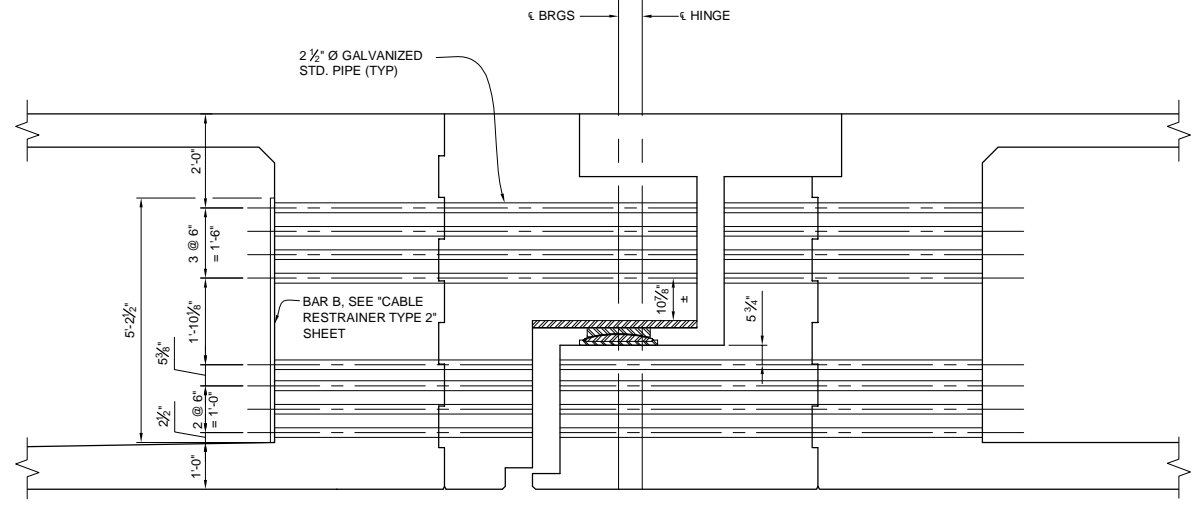
NOTE:
BLOCKOUT REINFORCING MAY BE MANIPULATED
AS NECESSARY TO ACCOMMODATE INSTALLATION
OF THE JOINT SEAL ASSEMBLY UPON APPROVAL
OF THE JOINT SHOP PLANS AND AS PERMITTED
BY THE ENGINEER.



- LEGEND:**
- BLOCKOUT AND CLOSURE POUR FOR JOINT SEAL
 - REINFORCED CAST-IN-PLACE CONCRETE TO BE PLACED AFTER BOTH FRAMES HAVE BEEN PRESTRESSED. CONCRETE TO BE SAME STRENGTH GRADE AS CAST-IN-PLACE PRESTRESSED CONCRETE.
 - CAST-IN PLACE CONCRETE TO BE PLACED AFTER SUPPORTING SIDE OF HINGE IS CONSTRUCTED & BEARINGS ARE PROPERLY POSITIONED. CONCRETE TO BE SAME STRENGTH GRADE AS CAST-IN-PLACE PRESTRESSED CONCRETE. FALSEWORK SHALL REMAIN IN PLACE UNTIL CONCRETE HAS ATTAINED A STRENGTH OF AT LEAST 4500 Psi.
 - HEADED BAR REINFORCEMENT



NOTE: SEE "HINGE DETAILS No. 2" SHEET FOR DIMENSIONS.



- NOTES:
- NUTS, BOLTS AND PLATE WASHERS SHALL BE GALVANIZED.
 - FOR REINFORCING NOT SHOWN, SEE "HINGE DETAILS NO. 1" SHEET.



MARK	DESCRIPTION	DATE	APPR.
3	RECORD DRAWING	7/31/15	
2	REVISIONS AFTER		
1	BID SET DATED 05-01-2013		
	ROADWAY, GRADING,		
	DRAINAGE, STRIPING,		
	SIGNAL & BRIDGE REVS		

PREPARED UNDER THE RESPONSIBLE CHARGE OF:

PROFESSIONAL ENGINEER
THOMAS A. KIRILOV
No. 67708
Exp. 08-30-13
CIVIL
J/21/13
DATE

THOMAS A. KIRILOV, P.E.
PUBLIC WORKS

DESIGNED BY: T. KIRILOV / F. SANCHEZ
DRAWN BY: J. SALDANA
CHECKED BY: G. RENDE
DRAFTING CODE:
FILE NAME:
PLOT DATE: 09/16/15
SCALE:

ORANGE COUNTY
PUBLIC WORKS

PREPARED BY: RBF CONSULTING

COW CAMP ROAD
CHICUITA CANYON BRIDGE
TO STATION 76+00.00
HINGE DETAILS NO. 3

Sheet
Reference
Number

BR-31

Sheet 87 of 115



MARK	DESCRIPTION	DATE	APPR.
3	RECORD DRAWING	7/31/15	
1	ROADWAY GRADING, DRAINAGE, STRIPING, SIGNAL & BRIDGE REVS		

PREPARED UNDER THE RESPONSIBLE CHARGE OF:

PROFESSIONAL ENGINEER
THOMIR KIRILOV
No. 67708
Exp. 06-30-13
CIVIL
STATE OF CALIFORNIA

THOMIR KIRILOV, P.E.
PUBLIC WORKS

DATE: 7/31/15

DESIGNED BY: T. KIRILOV / F. SANCHEZ
DRAWN BY: J. SALDANA
CHECKED BY: G. RENDE
DRAWING CODE:
FILE NAME:
PLOT DATE: 09/30/15
SCALE:

ORANGE COUNTY
PUBLIC WORKS

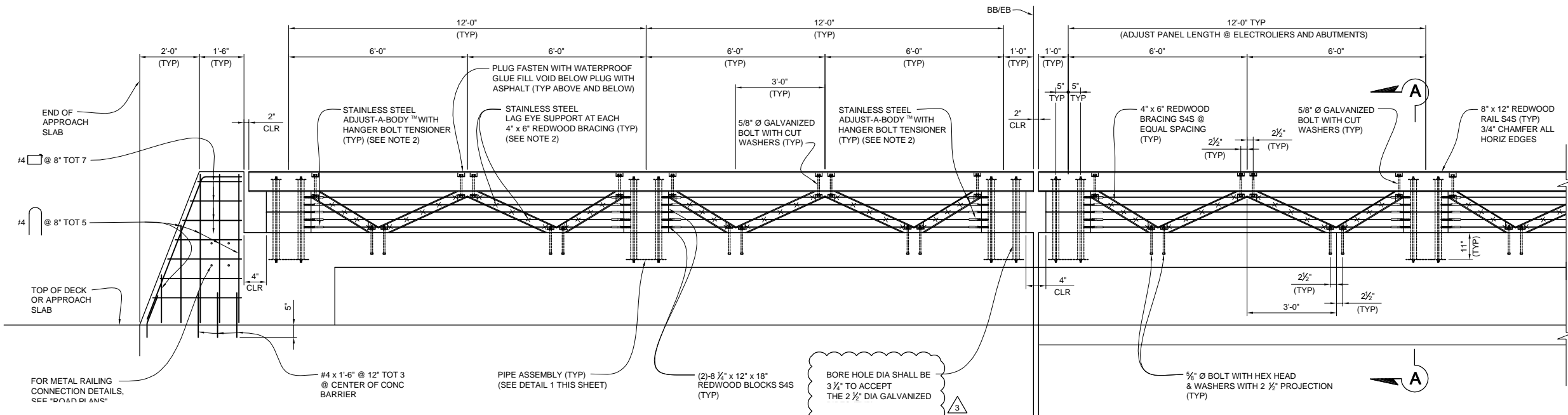
PREPARED BY: RBF CONSULTING

COW CAMP ROAD
CHICUITA CANYON BRIDGE
TO STATION 76+00.00
RAILING DETAILS

Sheet
Reference
Number

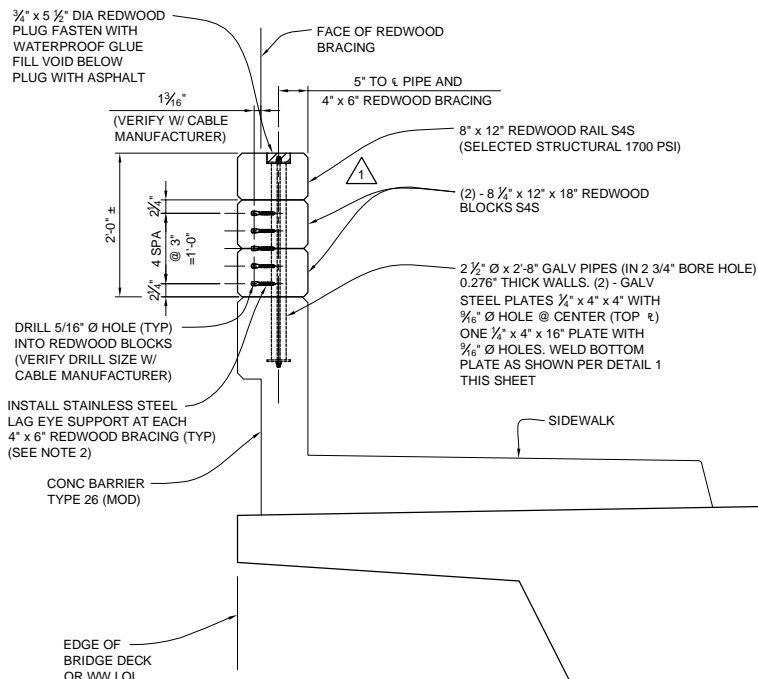
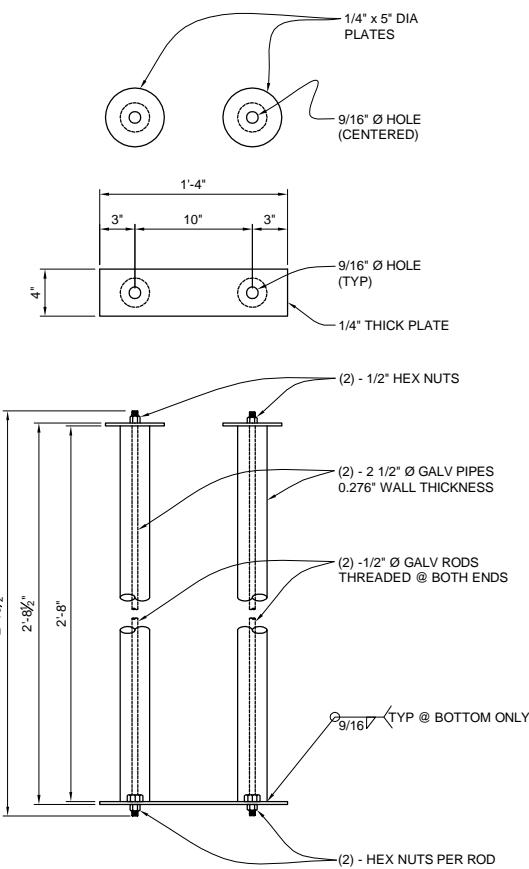
BR-32

Sheet 88 of 115

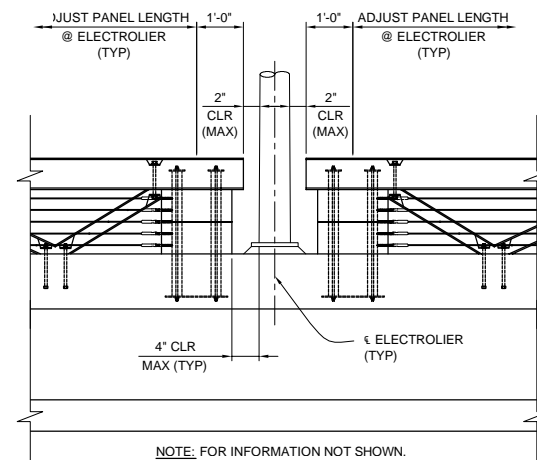
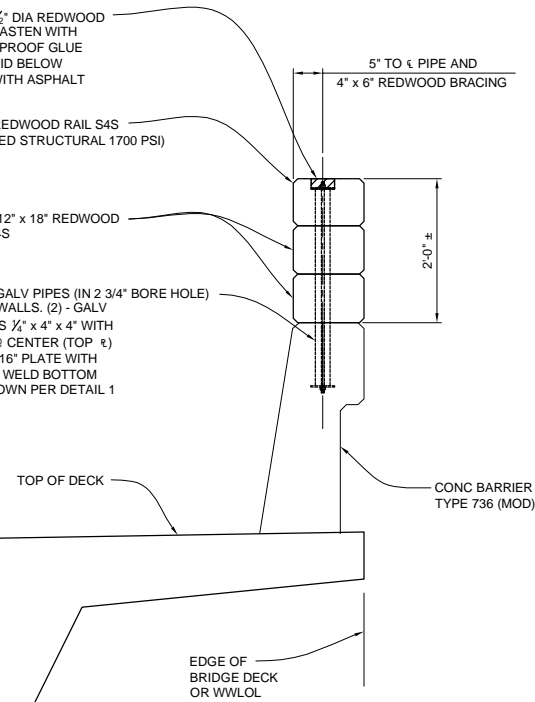
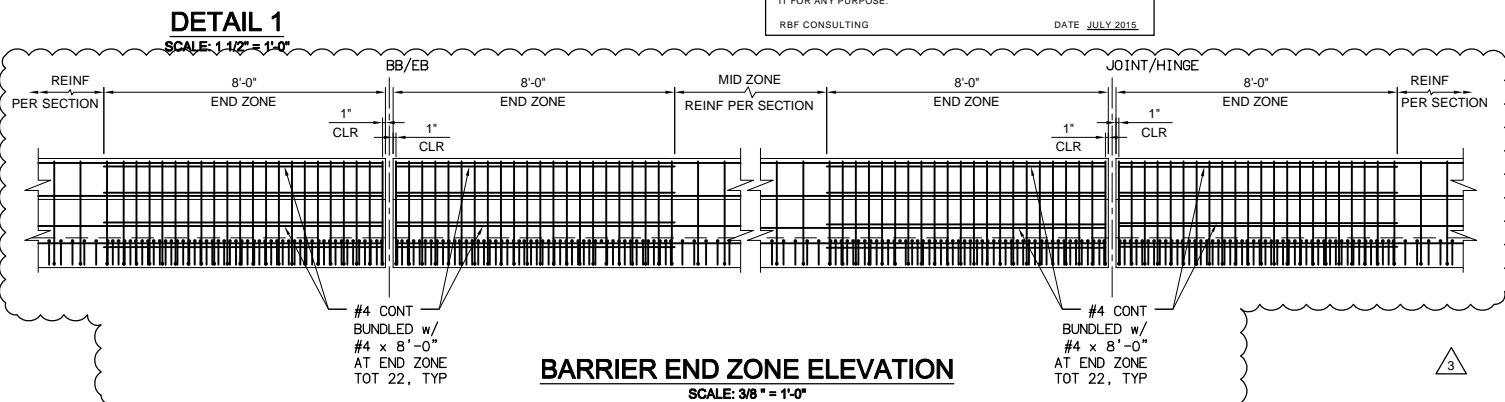


TYPICAL WINGWALL WOOD RAILING
SCALE: 1/2" = 1'-0"

TYPICAL DECK WOOD RAILING
SCALE: 1/2" = 1'-0"



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



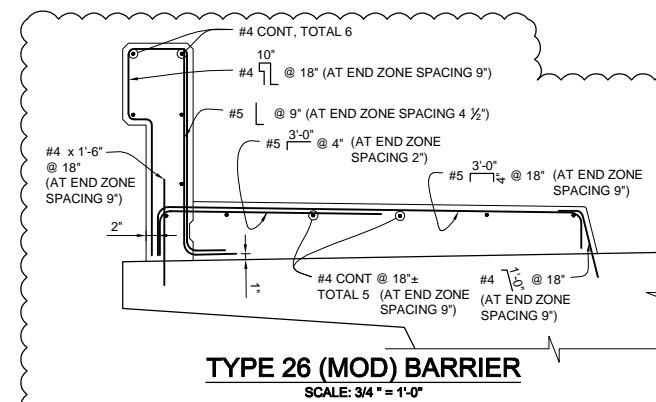
TYPICAL WOOD RAILING @ ELECTROLIER
SCALE: 1/2" = 1'-0"

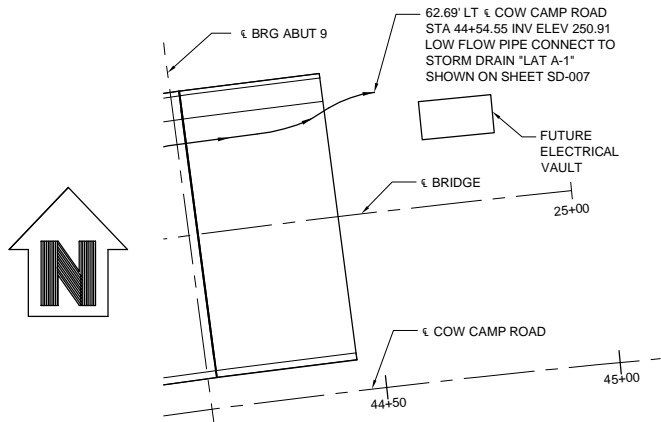
NOTES:

1. THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.
2. ANCHOR CABLES AT WOOD POSTS WITH STAINLESS STEEL ADJUST-A-BODY WITH HANGER BOLT TENSIONER AS MANUFACTURED BY "ULTRA-TECH CABLE RAILING SYSTEMS", PHONE: 1-800-851-2961, WWW.ULTRA-TEC.COM. INSTALL PER MANUFACTURER'S SPECIFICATIONS. ANCHOR END POST SPACING SHALL BE 12'-0" MAXIMUM.
3. ALL TIMBER SHALL BE REDWOOD SELECTED STRUCTURAL 1700 PSI S4S.

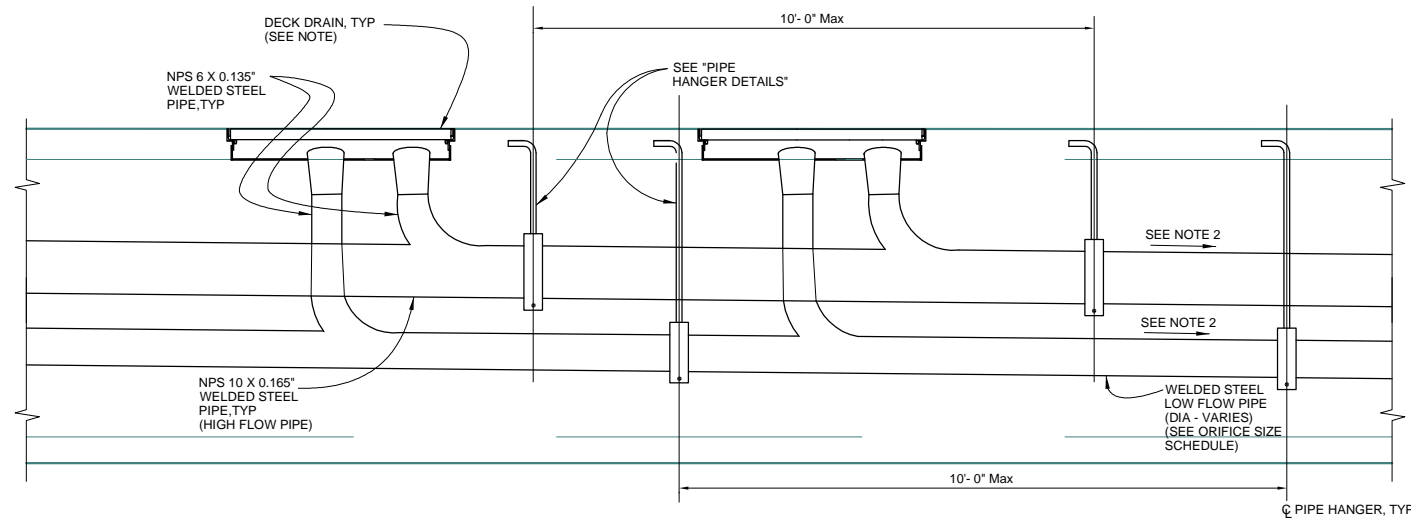
TYPE 26 (MOD) BARRIER NOTES:

1. ALL PARAPET AND SIDEWALK REINFORCING TO BE DOUBLED AT END ZONES. SEE BARRIER END ZONE ELEVATION THIS SHEET.
2. FOR ADDITIONAL INFORMATION ON BARRIER, SEE STANDARD PLAN.
3. BUNDLED BARS AT END ZONE ARE ALLOWED. SEE BARRIER END ZONE ELEVATION FOR END ZONE LIMITS.

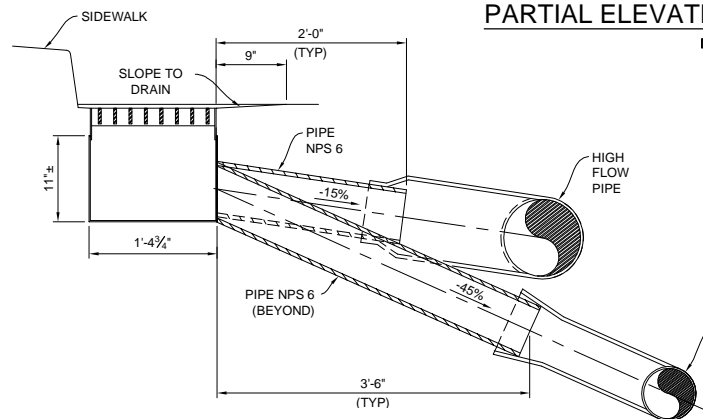




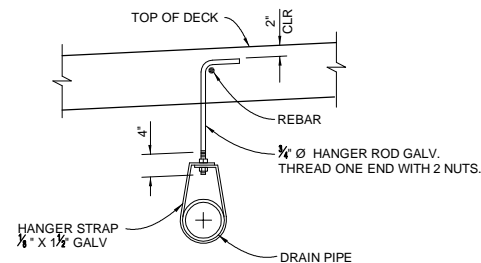
LOW FLOW PIPE OUTLET AT ABUT 9
NO SCALE



PARTIAL ELEVATION - DECK DRAINAGE
NO SCALE

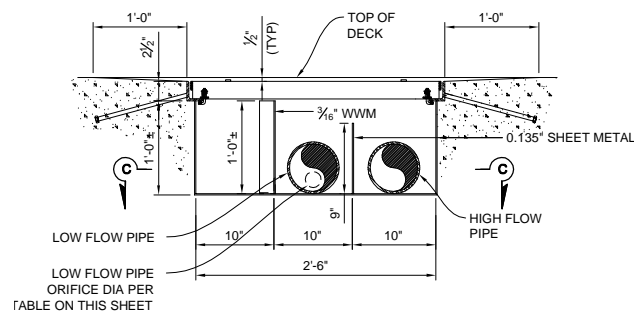


SECTION A-A
SCALE: 1" = 1'-0"

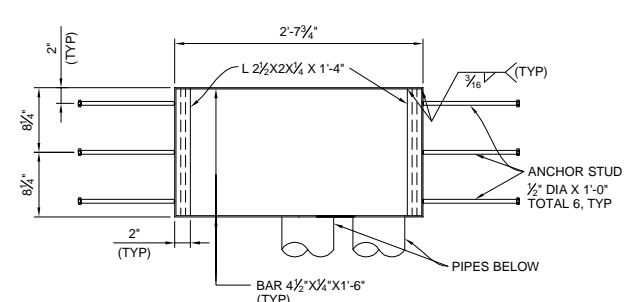


NOTE: HANGERS SHALL BE SPACED AT 10'-0" MAX C-C

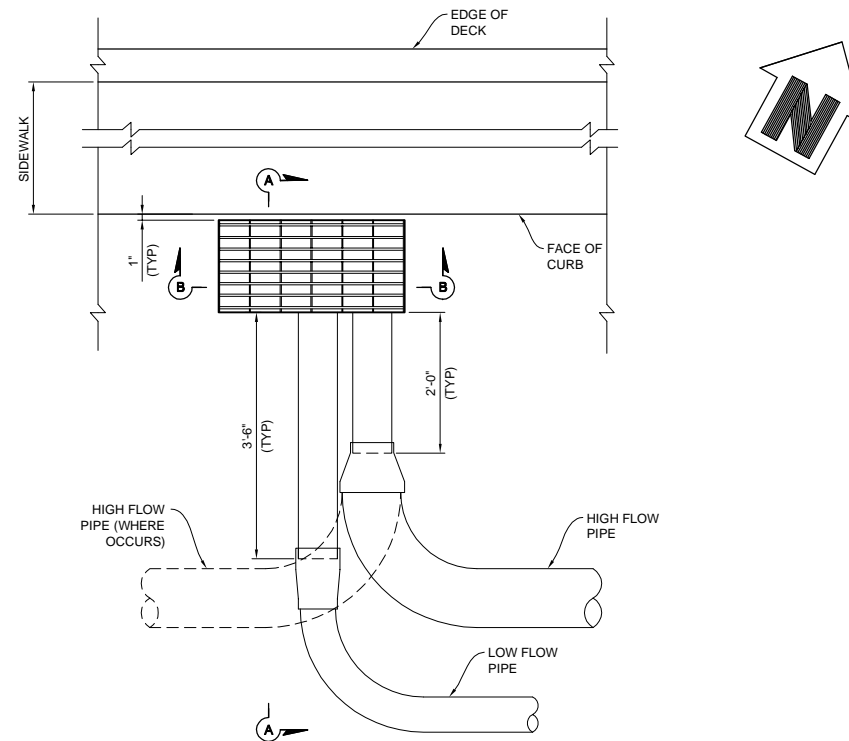
PIPE HANGER DETAILS
NO SCALE



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

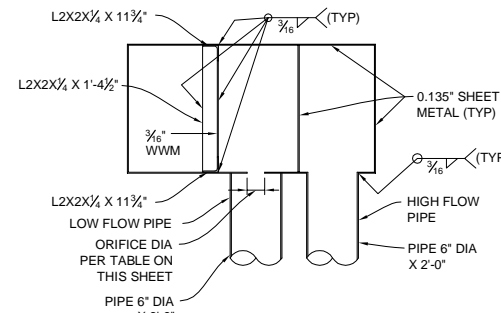


DECK DRAIN DETAIL - FRAME
SCALE: 1" = 1'-0"

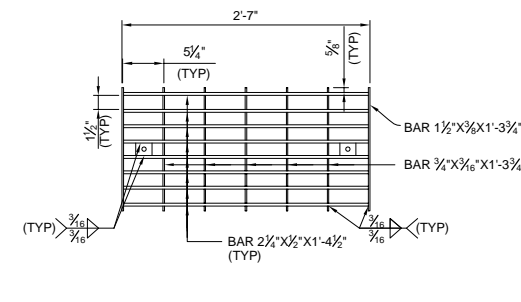


PARTIAL PLAN - DECK DRAINAGE
NO SCALE

RECORD DRAWING
THIS RECORD DRAWING HAS BEEN PREPARED, IN PART, BASED UPON INFORMATION FURNISHED BY OTHERS. WHILE THIS INFORMATION IS BELIEVED TO BE RELIABLE, THE ENGINEER CANNOT ASSURE ITS ACCURACY, AND THIS IS NOT RESPONSIBLE FOR THE ACCURACY OF THIS RECORD DRAWING OR FOR ANY ERRORS OR OMISSIONS WHICH MAY HAVE BEEN INCORPORATED INTO IT AS A RESULT. THOSE RELYING ON THIS RECORD DRAWING ARE ADVISED TO OBTAIN INDEPENDENT VERIFICATION OF ITS ACCURACY BEFORE APPLYING IT FOR ANY PURPOSE.
RBF CONSULTING DATE: JULY 2015



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



DECK DRAIN DETAIL - GRATE
SCALE: 1" = 1'-0"

ORIFICE SIZE SCHEDULE		
INLET NO.	ORIFICE SIZE	LOW FLOW PIPE SIZE DIAMETER
1	4 1/4"	6"
2	2 3/4"	
3	2 3/4"	
4	2 3/4"	
5	2 3/4"	
6	2 3/8"	8"
7	2 3/8"	
8	2 3/8"	
9	1"	
10	1"	
11	1"	10"
12	4 1/4"	
13	2 3/8"	
14	2 3/8"	
15	2 3/8"	
16	2 3/8"	
17	2 3/8"	
18	2 3/8"	
19	2 1/2"	
20	2"	
21	1"	
22	1"	
23	1"	

NOTES:

- FOR LOCATION AND SIZE OF UTILITY OPENINGS, SEE "TYPICAL SECTION" SHEET.
- DECK DRAIN PIPES SHALL BE SLOPED PARALLEL TO THE BRIDGE IN THE EASTERLY FLOW DIRECTION AND 0.67% MIN IN THE WESTERLY FLOW DIRECTION.
- FOR ADDITIONAL DRAINAGE DETAILS AND NOTES, SEE B7-6 B7-8
- ORIENTATION OF DECK DRAIN INLETS INSTALLATION SHALL BE EXACTLY AS SHOWN IN "PARTIAL PLAN - DECK DRAINAGE" DETAIL ON THIS SHEET. LOW FLOW PIPE SHALL BE THE FIRST TO COLLECT THE INCOMING LOW FLOW OF STORM WATER.



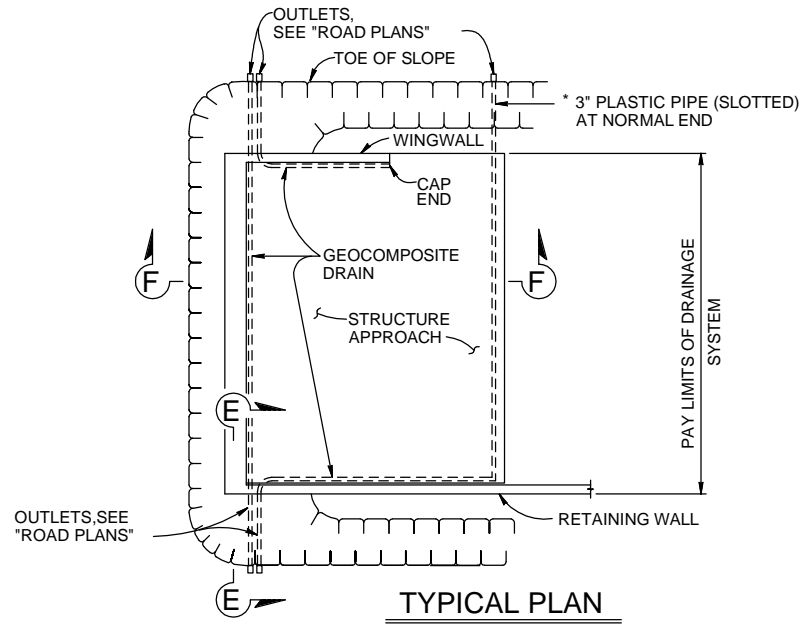
MARK	DESCRIPTION	DATE	APPR.
3	RECORD DRAWING	7/31/15	
2	REVISIONS AFTER		
1	ROADWAY, GRADING, DRAINAGE, STRIPING, SIGNAL & BRIDGE REVS		

PREPARED UNDER THE RESPONSIBLE CHARGE OF:
THOMIR A. KIRILOV, P.E.
PUBLIC WORKS
DATE: 7/31/15

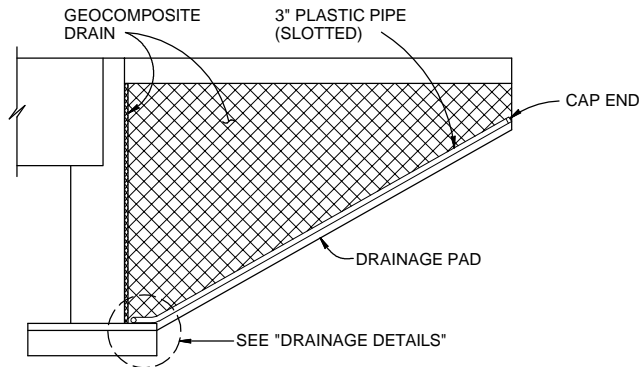
DESIGNED BY: T. KIRILOV / F. SANCHEZ
CHECKED BY: G. RENDE
DRAWN BY: J. SALDANA
DRAFTING CODE: RBF
FILE NAME: BR-32A.dwg
PLOT DATE: 09/16/15
SCALE: 1" = 1'-0"

COW CAMP ROAD
CHIUJITA CANYON BRIDGE
TO STATION 76+00.00
MISCELLANEOUS
DETAILS

Sheet
Reference
Number
BR-32A
Sheet 88A of 115



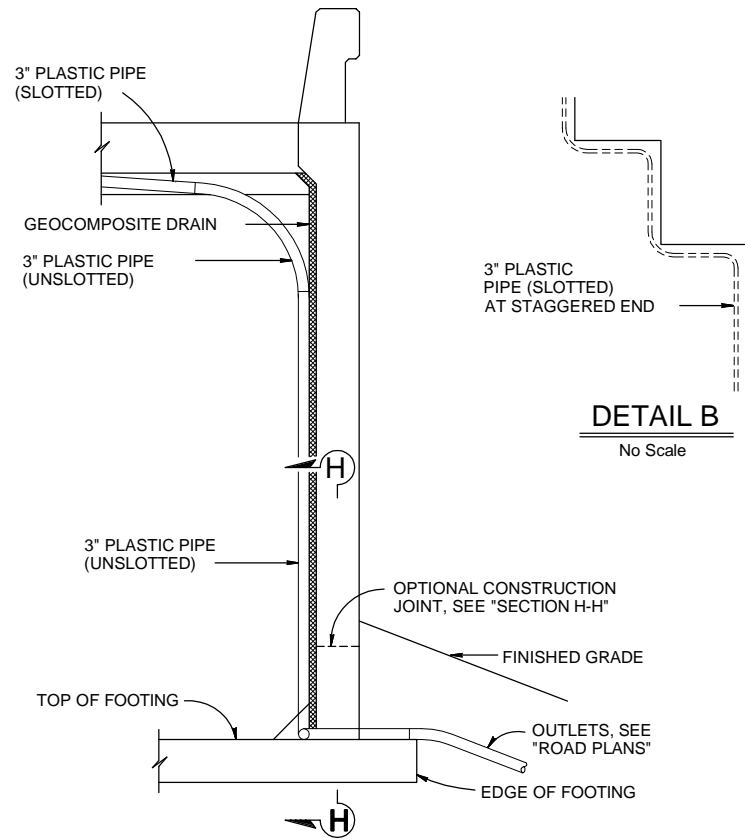
* FOR PIPE LAYOUT AT STAGGERED END, SEE "DETAIL B"



CANTILEVER WINGWALL

SECTION F-F

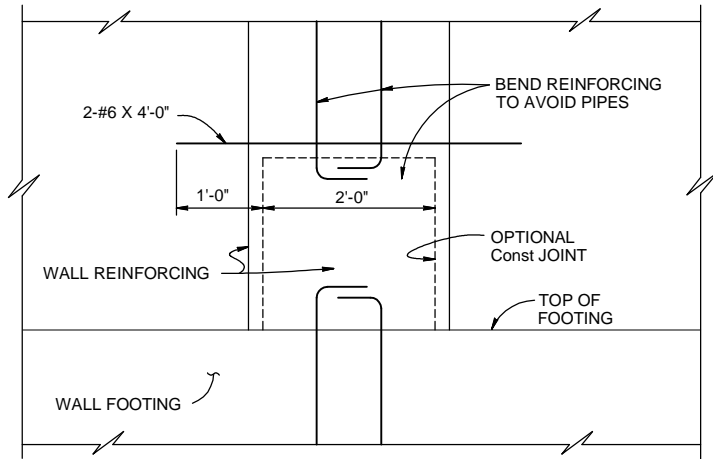
No Scale



SECTION E-E

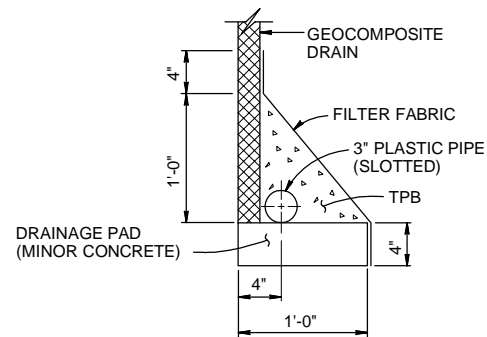
NO SCALE

NOTE: Bends and junctions in 3" plastic pipe are 30" radius Min

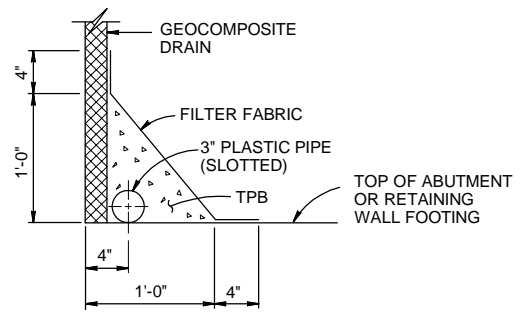


SECTION H-H

No Scale



WITHOUT FOOTING



WITH FOOTING

DRAINAGE DETAILS

No Scale

RECORD DRAWING
THIS RECORD DRAWING HAS BEEN PREPARED, IN PART, BASED UPON INFORMATION FURNISHED BY OTHERS. WHILE THIS INFORMATION IS BELIEVED TO BE RELIABLE, THE ENGINEER CANNOT ASSURE ITS ACCURACY, AND THIS IS NOT RESPONSIBLE FOR THE ACCURACY OF THIS RECORD DRAWING OR FOR ANY ERRORS OR OMISSIONS WHICH MAY HAVE BEEN INCORPORATED INTO IT AS A RESULT. THOSE RELYING ON THIS RECORD DRAWING ARE ADVISED TO OBTAIN INDEPENDENT VERIFICATION OF ITS ACCURACY BEFORE APPLYING IT FOR ANY PURPOSE.
RBF CONSULTING DATE JULY 2015



MARK	RECORD DRAWING	DATE	APPR.
3		7/31/15	

PREPARED UNDER THE RESPONSIBLE CHARGE OF:
THOMAS KIRILOV, P.E.
REGISTERED PROFESSIONAL ENGINEER
No. 67708
Exp. 08-30-13
CIVIL
DATE 7/21/13

DESIGNED BY: T. KIRILOV / F. SANCHEZ	CHECKED BY: J. SALDANA	FILE NAME:	SCALE:
DRAWN BY: J. SALDANA	BY: G. RENDE	DRAWING CODE:	PLOT DATE: 09/16/15

COW CAMP ROAD
CHILQUITA CANYON BRIDGE
TO STATION 76+00.00
STRUCTURE APPROACH
DRAINAGE
DETAILS

Sheet
Reference
Number

BR-33

Sheet 89 of 115

REVISED STANDARD DRAWING	
FILE NO. x83-110	APPROVAL DATE July 2011

- 1 DELETED DETAIL OR NOTE
2 ADDED DETAIL OR NOTE
3 MODIFIED DETAIL OR NOTE

STATE OF
CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF
ENGINEERING SERVICES

BRIDGE NO.	
POST MILE	

STRUCTURE APPROACH DRAINAGE DETAILS

DS OED 2147A (ENGLISH STANDARD DRAWING "18" BORDER REV. (02-02-11))

ORIGINAL SCALE IN INCHES
FOR REDUCED PLANS

0 1 2 3

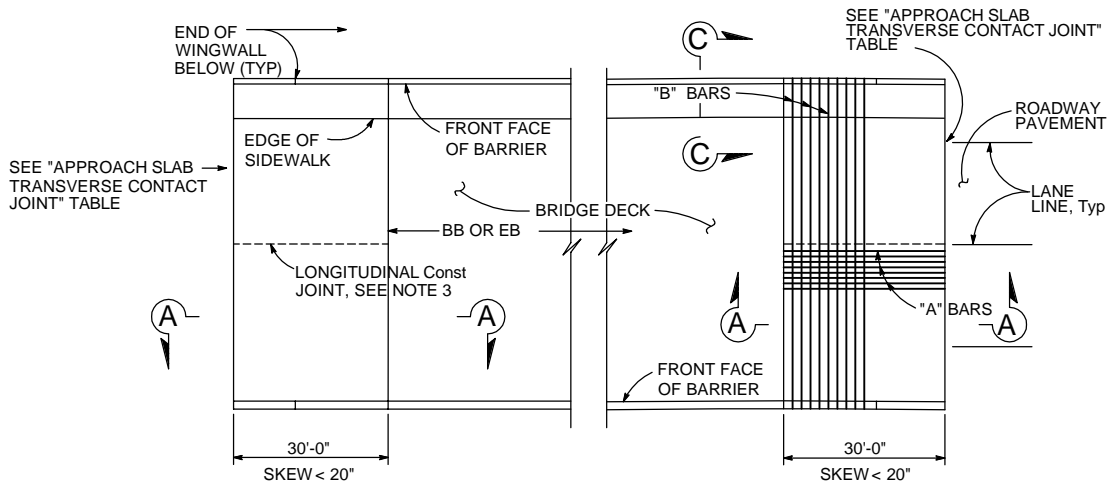
UNIT:
PROJECT NUMBER & PHASE:

CONTRACT NO.:

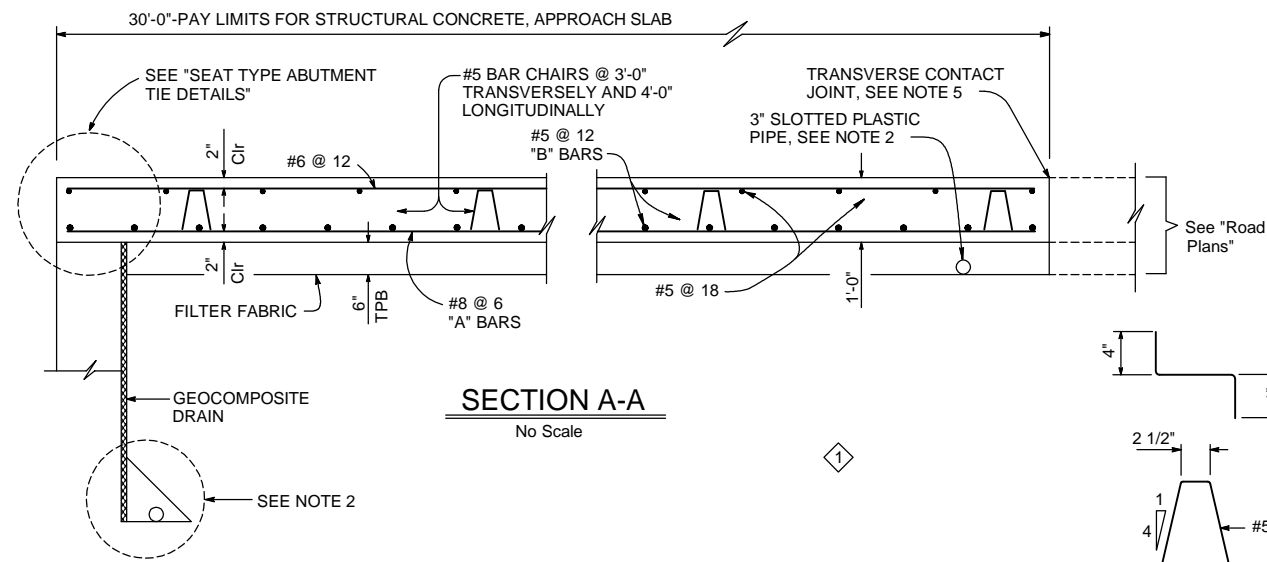
DISREGARD PRINTS BEARING
EARLIER REVISION DATES

REVISION DATES	SHEET	OF

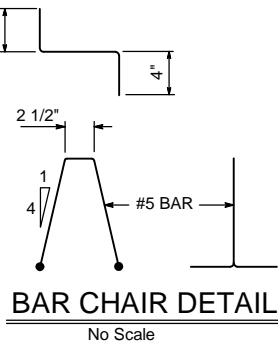
H:\pdata\10107727\CADD\Struc\Div\DELTA 1 CADD DRAWINGS\7727-BR-33.DWG 09/16/15 - 5:12pm May.Duong



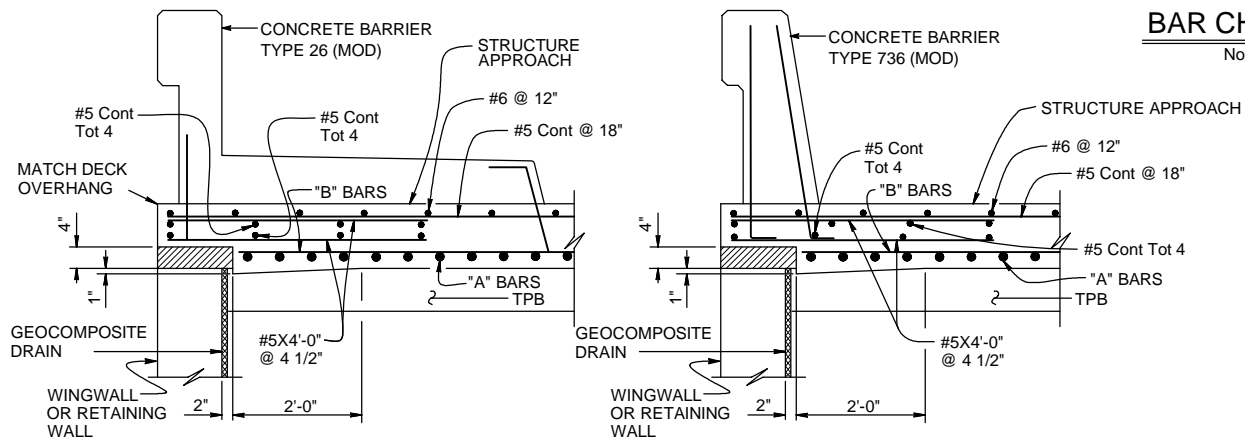
PLAN
No Scale



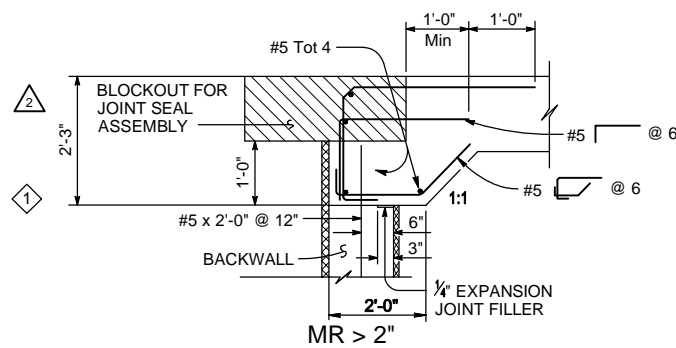
SECTION A-A
No Scale



BAR CHAIR DETAIL
No Scale



SECTION C-C
No Scale



SEAT TYPE ABUTMENT TIE DETAILS (SEE NOTE 1)
No Scale

APPROACH SLAB TRANSVERSE CONTACT JOINT		
APPROACH SKEW	WITH AC ROADWAY PAVEMENT	WITH PCC ROADWAY PAVEMENT
< 20°	PARALLEL TO FACE OF PN	PARALLEL TO FACE OF PN

RECORD DRAWING
THIS RECORD DRAWING HAS BEEN PREPARED, IN PART, BASED UPON INFORMATION FURNISHED BY OTHERS. WHILE THIS INFORMATION IS BELIEVED TO BE RELIABLE, THE ENGINEER CANNOT ASSURE ITS ACCURACY, AND THIS IS NOT RESPONSIBLE FOR THE ACCURACY OF THIS RECORD DRAWING OR FOR ANY ERRORS OR OMISSIONS WHICH MAY HAVE BEEN INCORPORATED INTO IT AS A RESULT. THOSE RELYING ON THIS RECORD DRAWING ARE ADVISED TO OBTAIN INDEPENDENT VERIFICATION OF ITS ACCURACY BEFORE APPLYING IT FOR ANY PURPOSE.
RBF CONSULTING DATE: JULY 2015

- NOTES:**
- For details not shown, see "TYPICAL SECTION" sheet
 - For drainage details, see "STRUCTURE APPROACH DRAINAGE DETAILS" sheet
 - Longitudinal construction joints, when permitted by the Engineer, shall be located on lane lines
 - For transverse contact joint with new PCC paving, refer to Standard Plan P10
 - At the Contractor's option, approach slab transverse reinforcement may be placed parallel to paving notch. Spacing of transverse reinforcement is measured along Q roadway



MARK	DESCRIPTION	DATE	APPR.
3	RECORD DRAWING	7/31/15	
2	REVISIONS AFTER		
1	ROADWAY, GRADING, DRAINAGE, STRIPING, SIGNAL & BRIDGE REVS		

PREPARED UNDER THE RESPONSIBLE CHARGE OF:
THOMAS KIRILOV, P.E.
PUBLIC WORKS
DATE: 7/31/15

DESIGNED BY: T. KIRILOV / F. SANCHEZ	CHECKED BY: G. RENDE	SCALE:
DRAWN BY: J. SALDANA	DRAWING CODE:	PLOT DATE: 09/16/15
FILE NAME:		

ORANGE COUNTY
PUBLIC WORKS
PREPARED BY:
RBF CONSULTING
COW CAMP ROAD
CHICUITA CANYON BRIDGE
TO STATION 76+00.00
STRUCTURE APPROACH
TYPE N(30S)

Sheet
Reference
Number
BR-34
Sheet 90 of 115

REVISED STANDARD DRAWING	
FILE NO. x83-120	APPROVAL DATE July 2011
DB 08D 2147A (ENGLISH STANDARD DRAWING "X3" BORDER REV. (02-02-11))	

- 1 DELETED DETAIL OR NOTE
2 ADDED DETAIL OR NOTE
3 MODIFIED DETAIL OR NOTE

ORIGINAL SCALE IN INCHES

STATE OF
CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF
ENGINEERING SERVICES

BRIDGE NO.	
POST MILE	

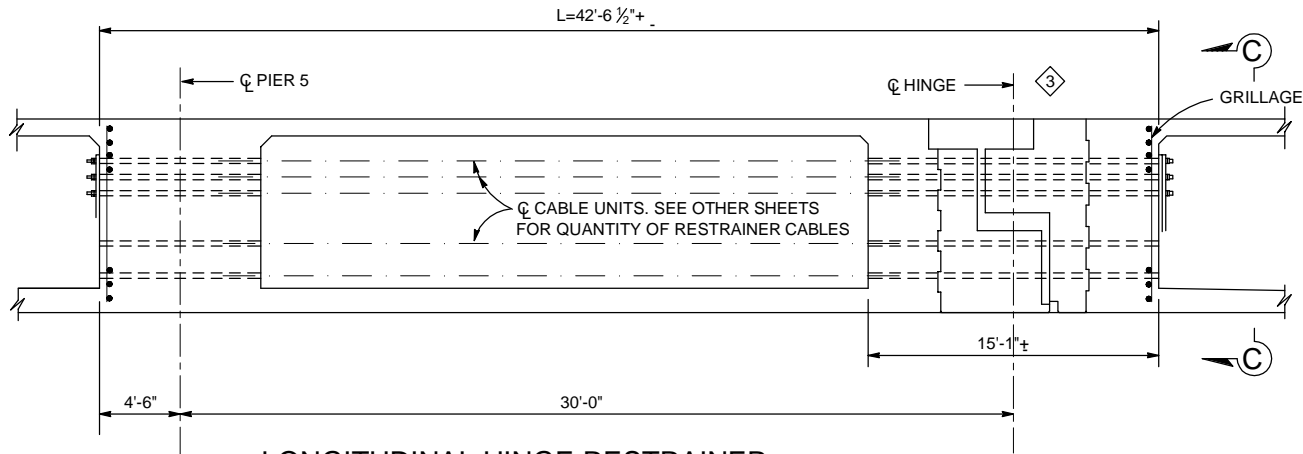
STRUCTURE APPROACH TYPE N(30S)

UNIT:

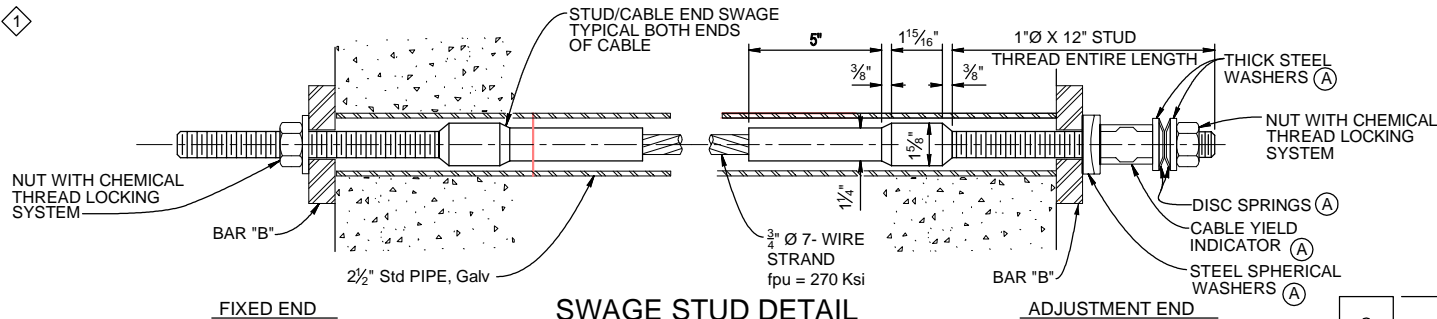
DISREGARD PRINTS BEARING

REVISION DATES SHEET OF

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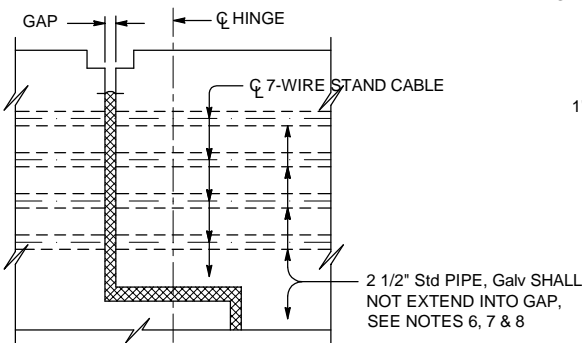


**LONGITUDINAL HINGE RESTRAINER
(TOTAL 64)**

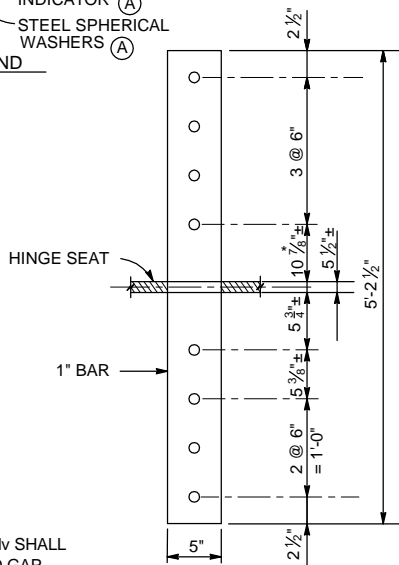


SWAGE STUD DETAIL

(A) FOR DIMENSIONS AND INSTALLATION PROCEDURE, SEE "CABLE RESTRAINER ADJUSTMENT HARDWARE" SHEET xs7-090



HINGE DETAIL

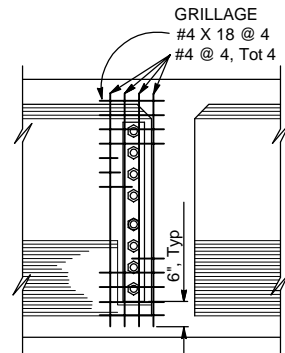


DETAIL - BAR B

* DIMENSION MAY BE ADJUSTED TO CLEAR REINFORCEMENT

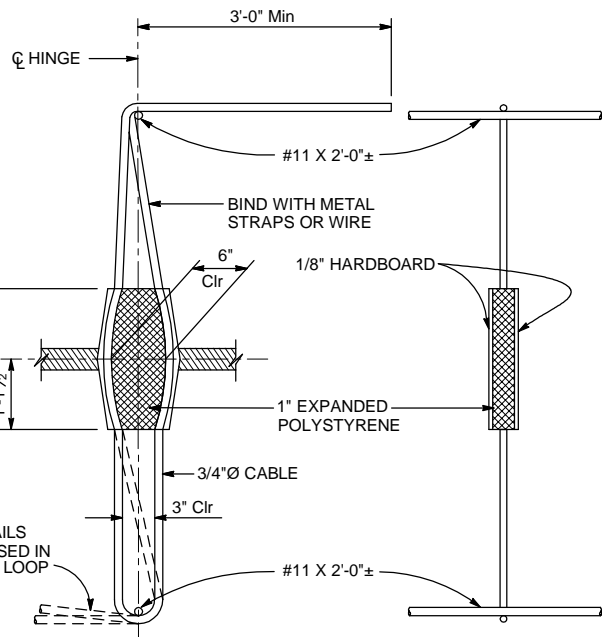
NO SCALE

RECORD DRAWING
THIS RECORD DRAWING HAS BEEN PREPARED, IN PART, BASED UPON INFORMATION FURNISHED BY OTHERS. WHILE THIS INFORMATION IS BELIEVED TO BE RELIABLE, THE ENGINEER CANNOT ASSURE ITS ACCURACY, AND THUS IS NOT RESPONSIBLE FOR THE ACCURACY OF THIS RECORD DRAWING OR FOR ANY ERRORS OR OMISSIONS WHICH MAY HAVE BEEN INCORPORATED INTO IT AS A RESULT. THOSE RELYING ON THIS RECORD DRAWING ARE ADVISED TO OBTAIN INDEPENDENT VERIFICATION OF ITS ACCURACY BEFORE APPLYING IT FOR ANY PURPOSE.
RBF CONSULTING DATE JULY 2015



SECTION C-C

NOTE: SLOPE TO MATCH SLOPING EXTERIOR GIRDERS



VERTICAL RESTRAINER

NO SCALE

NOTES:

1. Restrainer units to be on tangent alignment
2. Anchor nuts shall not be set until 30 days following completion of prestressing for CIP prestressed bridges
3. See other sheets for location and number of longitudinal and vertical hinge restrainers, and table of joint openings
4. Contractor may install restrainers in horizontal arrangement with approval of the Engineer.
5. An alternative is to place restrainers in two horizontal layers, equally located above and below the mid structure depth. The number of restrainers in each layer shall not differ by more than one
6. The ends of pipe shall be covered or capped to prevent concrete and debris from entering the pipe until hinge concrete is placed
7. Care should be taken to align the pipes on each side of the hinge
8. All ends of pipes must be flush with or slightly recessed from the concrete. The inside edges of the pipes must be smooth to prevent fraying of cables



DATE	DESCRIPTION	MARK	APPR.
7/31/15	RECORD DRAWING	3	

PREPARED UNDER THE RESPONSIBLE CHARGE OF:



T. KIRILOV, P.E.
PUBLIC WORKS

DESIGNED BY:	T. KIRILOV / F. SANCHEZ
CHECKED BY:	G. RENDE
DRAWN BY:	J. SALDANA
DRAWING CODE:	
FILE NAME:	
PLOT DATE:	09/16/15
SCALE:	

ORANGE COUNTY PUBLIC WORKS	PREPARED BY: RBF CONSULTING
-------------------------------	--------------------------------

COW CAMP ROAD
CHICUITA CANYON BRIDGE
TO STATION 76+00.00
**CABLE RESTRAINER
TYPE 2**

Sheet Reference Number
BR-35
Sheet 91 of 115

REVISED STANDARD DRAWING	
FILE NO. xs7-050	APPROVAL DATE July 2011

- 1 DELETED DETAIL OR NOTE
2 ADDED DETAIL OR NOTE
3 MODIFIED DETAIL OR NOTE

STATE OF
CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF
ENGINEERING SERVICES

BRIDGE NO.	
POST MILE	

CABLE RESTRAINER TYPE 2

DWG ORD 2147A (ENGLISH STANDARD DRAWING "30" BORDER REV. (02-02-11))

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

0 1 2 3

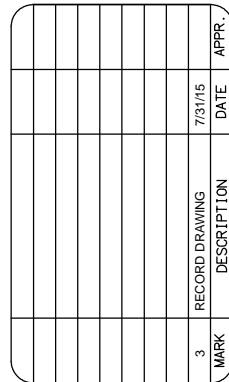
UNIT:
PROJECT NUMBER & PHASE:

CONTRACT NO.:

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES	SHEET	OF

H:\padata\10107727\CADD\Struc\Div\DELTA 1 CADD DRAWINGS\7727-BR-35.DWG 09/16/15 - 5:05pm May, Duong



CABLE YIELD INDICATOR



STRUCTURE TEMPERATURE (F)	SHIM THICKNESS
30	0.5"
50	1.375"
70	2.25"
90	3.125"
110	4.00"

DISC SPRING

DISC SPRINGS AND WASHERS

ALL DIMENSIONS IN INCHES, EXCEPT AS NOTED

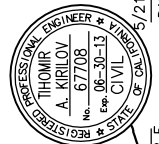
<div><div>L *</div><div></div></div>	DISC SPRING					STEEL SPHERICAL WASHER			THICK WASHER			
	ID	OD	t	H	COLOR CODE	ID	OD	NOMINAL THICKNESS	ID	OD	t **	
	00.0 - 25.0	1.00	2.00	0.065	0.130	WHITE	1.19	2.25	0.50	1.03	2.00	0.25
	25.1 - 31.9	1.00	2.00	0.084	0.136	RED	1.19	2.25	0.50	1.03	2.00	0.25
	32.0 - 37.9	1.00	2.00	0.097	0.145	BLUE	1.19	2.25	0.50	1.03	2.00	0.25
38.0 - 45.0	1.25	2.50	0.120	0.180	YELLOW	1.31	2.50	0.50	1.16	2.25	0.25	

** MINIMUM VALUE

NOTE: All OD and ID dimensions for washers and disc springs shall meet the dimensional tolerances for hardened steel washers, ASTM F436

RESTRAINER UNIT INSTALLATION PROCEDURE

1. For typical 'girder to opposite girder' or 'bent cap to girder' restrainers with one adjustment end:
Place nut, washer and Thread Locking System on fixed end stud prior to tightening the cable
The adjustment end shall be at the same end of the cable for all restrainers at a specific hinge or bent
Tighten the nuts on the cable from the Adjustment End of restrainer until the disc springs collapse and there is no disc gap remaining between the discs
2. Place thread locking system on adjustment end(s) after tightening the cable but before backing off the nut(s)
Back off the nut(s) at the adjustable anchorage(s) a distance equal to the maximum additional amount that the hinge is expected to open, relative to existing ambient conditions, as shown on the plans for movement rating



PREPARED UNDER THE RESPONSIBLE CHARGE OF:

TIHOMIR A. KIRILOV, P.E.

DESIGNED BY: T. KIRILOV / F. SANCHEZ	
DRAWN BY: J. SALDANA	CHECKED BY: G. RENDE
DRAWING CODE:	
FILE NAME:	
PLOT DATE: 06/15/15	SCALE:

ORANGE COUNTY
PUBLIC WORKS

PREPARED BY:

RBF
CONSULTING

10000 W. 10th Avenue • Suite 100 • Denver, CO 80202
Tel: 303.751.8800 • Fax: 303.751.8801 • www.rbfinc.com

COW CAMP ROAD
QUINTA CANYON BRIDGE
0 STATION 76+00.00
CABLE
RESTRAINER
ADJUSTMENT
HARDWARE

Sheet
Reference
Number

Sheet 92 of 115

RECORD DRAWING

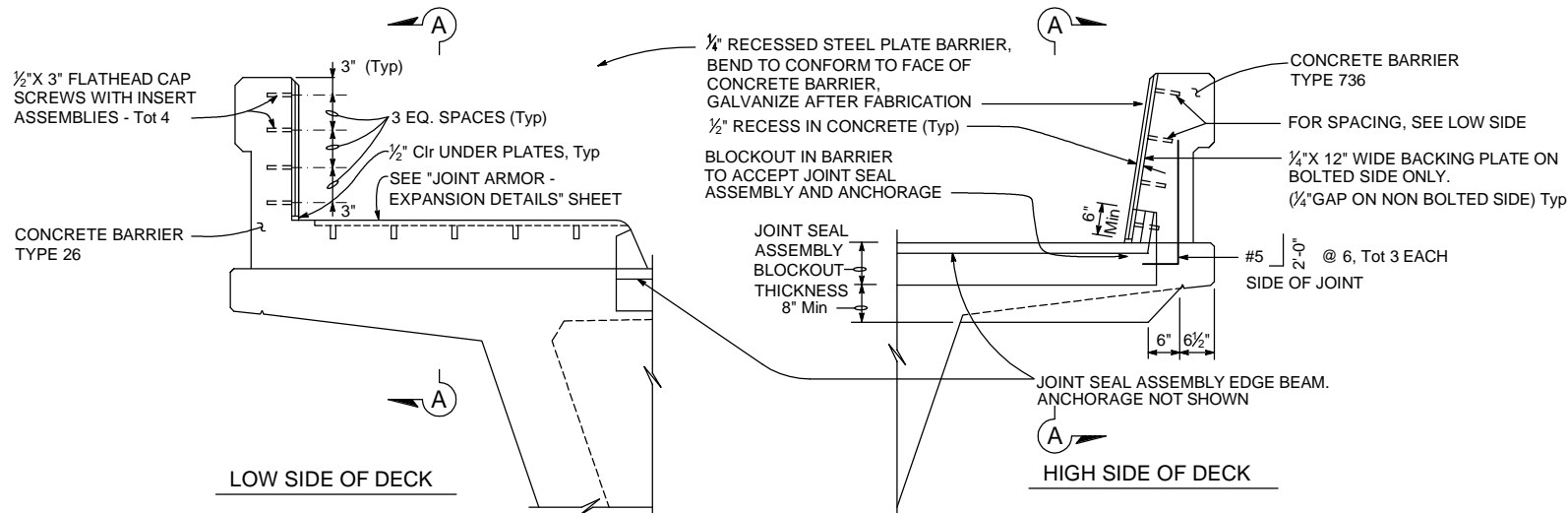
THIS RECORD DRAWING HAS BEEN PREPARED, IN PART, BASED UPON INFORMATION FURNISHED BY OTHERS. WHILE THIS INFORMATION IS BELIEVED TO BE RELIABLE, THE ENGINEER CANNOT ASSURE ITS ACCURACY, AND THIS IS NOT RESPONSIBLE FOR THE ACCURACY OF THIS RECORD DRAWING OR FOR ANY ERRORS OR OMISSIONS WHICH MAY HAVE BEEN INCORPORATED INTO IT AS A RESULT. THOSE RELYING ON THIS RECORD DRAWING ARE ADVISED TO OBTAIN INDEPENDENT VERIFICATION OF ITS ACCURACY BEFORE APPLYING IT FOR ANY PURPOSE.

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DATE JULY 2015

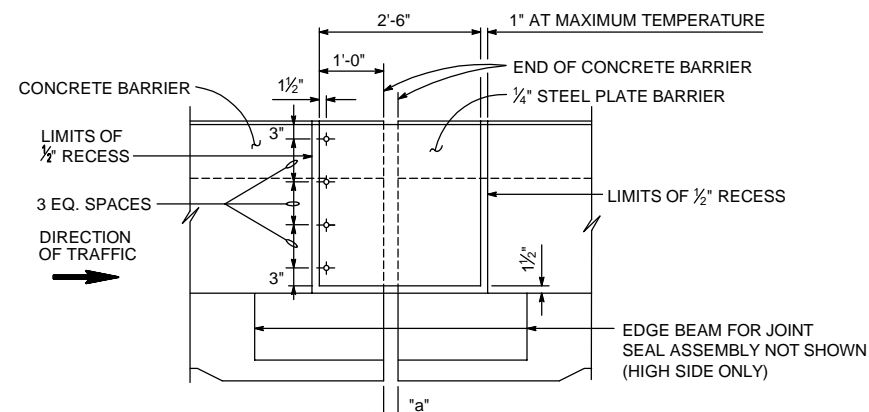
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FILE NO. x87-090		APPROVAL DATE July 2011		<div>2</div> ADDED DETAIL OR NOTE						POST MILE											
DB OBD 2147A (ENGLISH STANDARD DRAWING "X3" BORDER REV. (03-05-11))				ORIGINAL SCALE IN INCHES FOR REDUCED PLANS				0 1 2 3		UNIT: PROJECT NUMBER & PHASE:		CONTRACT NO.:		DISREGARD PRINTS BEARING EARLIER REVISION DATES		REVISION DATES		SHEET		OF	

Path: \pdata\10107727\CADD\Struc\Div\DELTA 1 CADD DRAWINGS\7727-BR-36.DWG 09/16/15 - 5: 03pm May. Duong



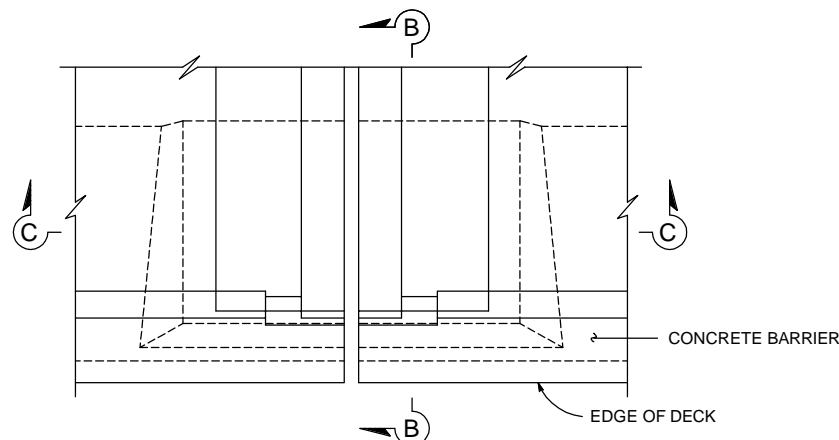
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No Scale



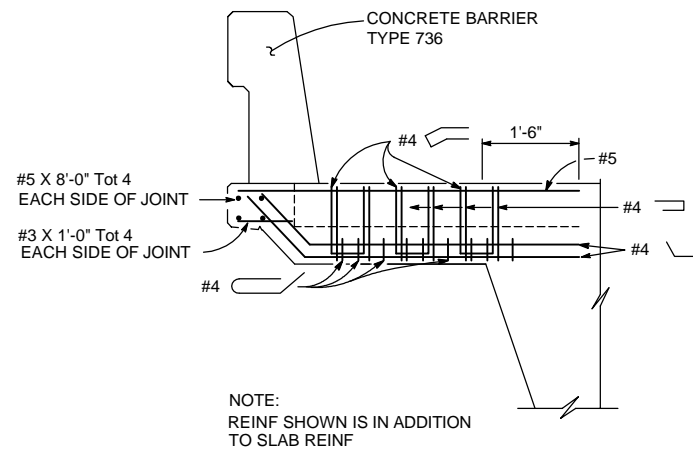
ELEVATION A-A

No Scale



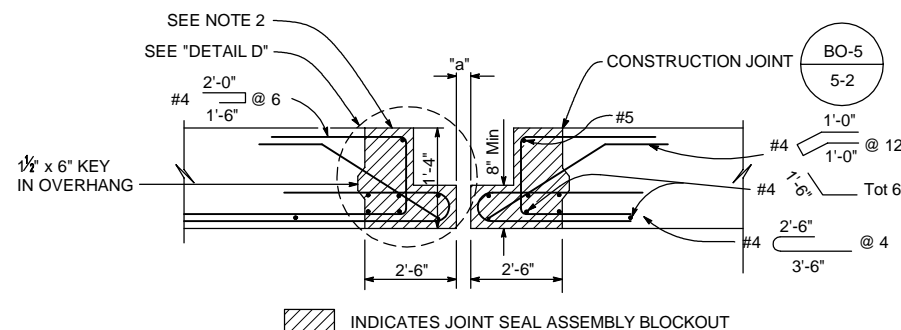
PART PLAN - DECK JOINT

No Scale



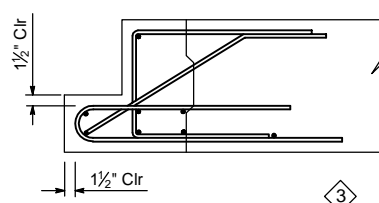
SECTION B-B

No Scale



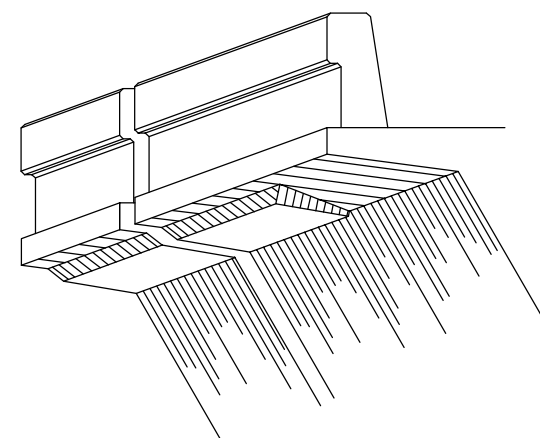
SECTION C-C

No Scale



DETAIL D

No Scale



SOUTHERLY DECK OVERHANG AT HINGE

No Scale

JOINT INFORMATION		"a" DIMENSIONS (IN)			
LOCATION	MOVEMENT RATING (MR)	SKEW	WINTER	SPRING & FALL	SUMMER
HINGE	12"	0	7"	5 1/4"	3 1/2"

NOTES:

- FOR DETAILS NOT SHOWN, SEE "TYPICAL SECTION" SHEET.
- COORDINATE BLOCKOUT DIMENSIONS WITH JOINT SEAL ASSEMBLY MANUFACTURER.

RECORD DRAWING

THIS RECORD DRAWING HAS BEEN PREPARED, IN PART, BASED UPON INFORMATION FURNISHED BY OTHERS. WHILE THIS INFORMATION IS BELIEVED TO BE RELIABLE, THE ENGINEER CANNOT ASSURE ITS ACCURACY, AND THIS IS NOT RESPONSIBLE FOR THE ACCURACY OF THIS RECORD DRAWING OR FOR ANY ERRORS OR OMISSIONS WHICH MAY HAVE BEEN INCORPORATED INTO IT AS A RESULT. THOSE RELYING ON THIS RECORD DRAWING ARE ADVISED TO OBTAIN INDEPENDENT VERIFICATION OF ITS ACCURACY BEFORE APPLYING IT FOR ANY PURPOSE.

RBF CONSULTING

DATE: JULY 2015



DATE	DESCRIPTION	MARK
7/31/15	RECORD DRAWING	3

PREPARED UNDER THE RESPONSIBLE CHARGE OF:
 THOMAS A. KIRILOV, P.E.
 CIVIL ENGINEER
 No. 67708
 Exp. 08-30-13
 REGISTERED
 STATE OF CALIFORNIA
 PUBLIC WORKS

DESIGNED BY: T. KIRILOV / F. SANCHEZ
 DRAWN BY: J. SALDANA
 CHECKED BY: G. RENDE
 PREPARED BY: RBF CONSULTING
 DRAWING CODE: 10107727
 FILE NAME: 10107727-37.DWG
 PLOT DATE: 09/16/15
 SCALE: 1/8" = 1'-0"

COW CAMP ROAD
 CHICUITA CANYON BRIDGE
 TO STATION 76+00.00
 JOINT SEAL -
 HINGE DETAILS -
 MOVEMENT RATING
 GREATER THAN 4"

Sheet
 Reference
 Number
BR-37
 Sheet 93 of 115

REVISED STANDARD DRAWING

FILE NO. x88-020

APPROVAL DATE July 2011

1 DELETED DETAIL OR NOTE

2 ADDED DETAIL OR NOTE

3 MODIFIED DETAIL OR NOTE

STATE OF
 CALIFORNIA
 DEPARTMENT OF TRANSPORTATION

DIVISION OF
 ENGINEERING SERVICES

BRIDGE NO.

POST MILE

JOINT SEAL - HINGE DETAILS

MOVEMENT RATING GREATER THAN 4"

DS 08D 2147A (ENGLISH STANDARD DRAWING "B" BORDER REV. (03-02-11))

ORIGINAL SCALE IN INCHES
 FOR REDUCED PLANS

0 1 2 3

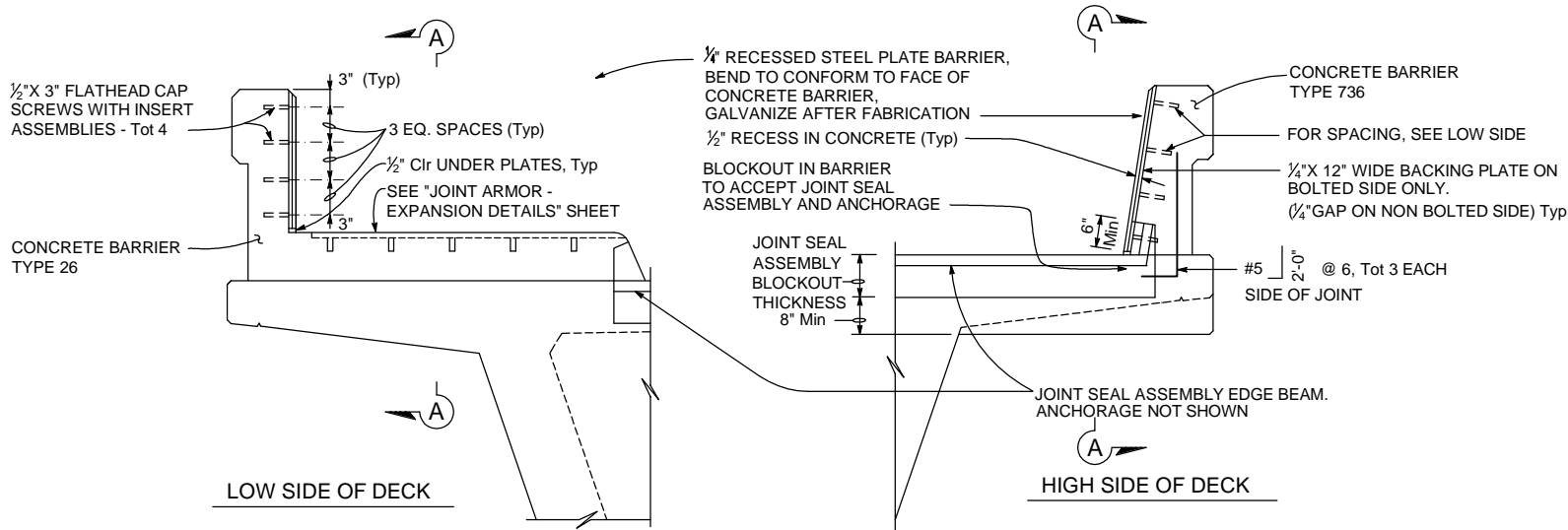
UNIT:
 PROJECT NUMBER & PHASE:

CONTRACT NO.:

DISREGARD PRINTS BEARING
 EARLIER REVISION DATES

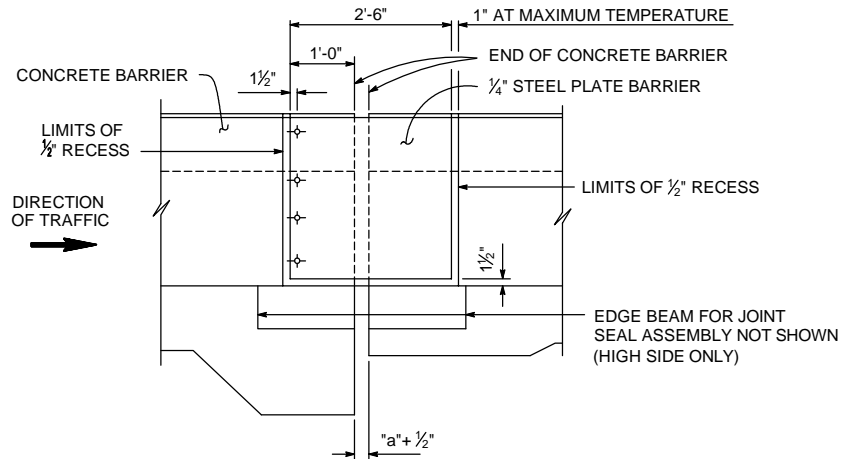
REVISION DATES
 SHEET OF

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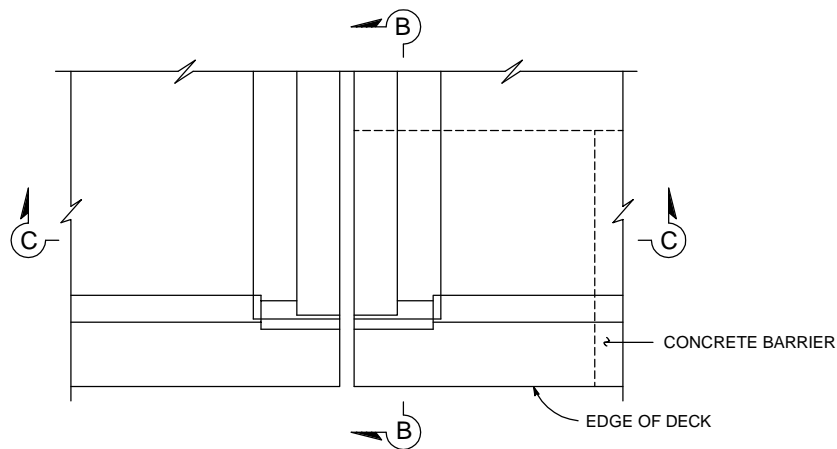
SEAL INSTALLATION

No Scale



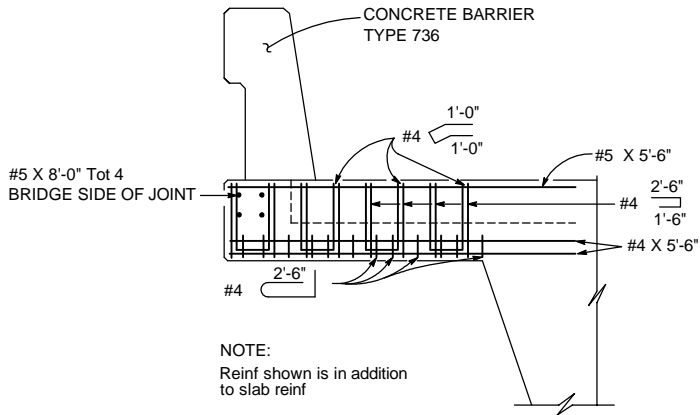
ELEVATION A-A

No Scale



PART PLAN - DECK JOINT

No Scale

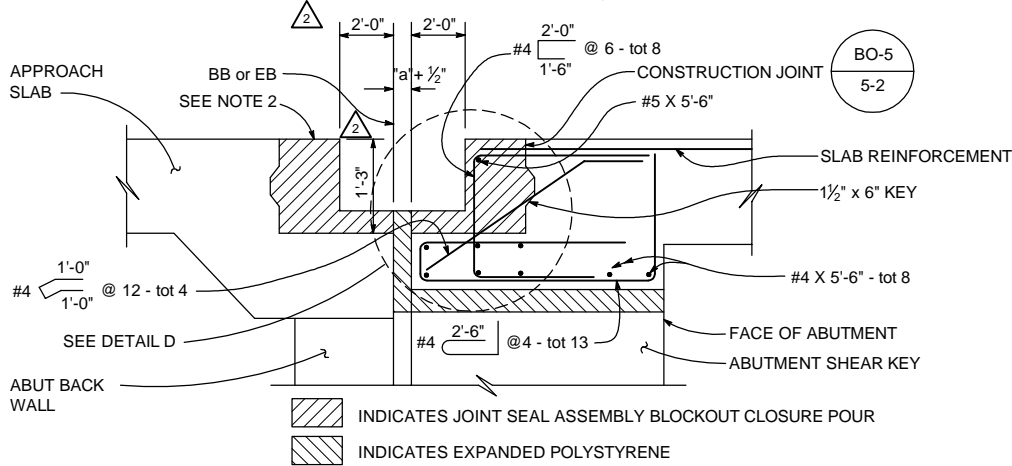


SECTION B-B

No Scale

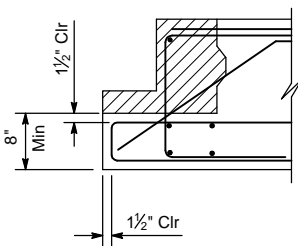
JOINT INFORMATION		"a" DIMENSIONS (IN)			
LOCATION	MOVEMENT RATING (MR)	SKEW	WINTER	SPRING & FALL	SUMMER
ABUT 1	9"	0	4 1/4"	4"	3 1/2"
ABUT 9	9"	0	3 3/4"	3 1/4"	2 1/2"

- NOTES:
- FOR DETAILS NOT SHOWN, SEE "TYPICAL SECTION" SHEET.
 - COORDINATE BLOCKOUT DIMENSIONS WITH JOINT SEAL ASSEMBLY MANUFACTURER.



SECTION C-C

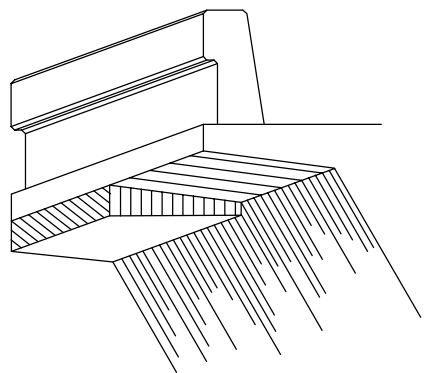
No Scale



DETAIL D

1" = 1'-0"

RECORD DRAWING
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RBF CONSULTING DATE: JULY 2015



NOTE:
ABUTMENT NOT SHOWN

SOUTHERLYDECK OVERHANG AT ABUTMENT

No Scale

REVISED STANDARD DRAWING	
FILE NO. x88-030	APPROVAL DATE July 2011

- 1 DELETED DETAIL OR NOTE
2 ADDED DETAIL OR NOTE
3 MODIFIED DETAIL OR NOTE

STATE OF
CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF
ENGINEERING SERVICES

BRIDGE NO.
POST MILE

JOINT SEAL - ABUTMENT DETAILS
MOVEMENT RATING GREATER THAN 4"

DS OSD 2147A (ENGLISH STANDARD DRAWING "XS" BORDER REV. (02-02-11))

ORIGINAL SCALE IN INCHES
FOR REDUCED PLANS

0 1 2 3

UNIT:
PROJECT NUMBER & PHASE:

CONTRACT NO.:

DISREGARD PRINTS BEARING
EARLIER REVISION DATES

REVISION DATES	SHEET	OF



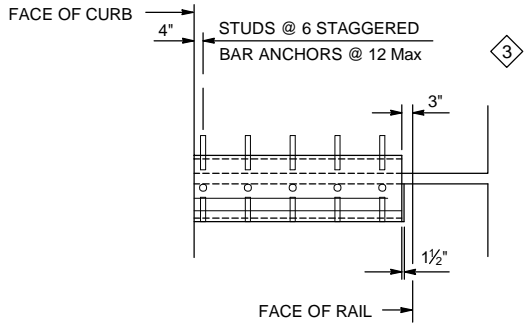
MARK	DESCRIPTION	DATE	APPR.
3	RECORD DRAWING	7/31/15	
2	REVISIONS AFTER		
1	ROADWAY, GRADING, DRAINAGE, STRIPING, SIGNAL & BRIDGE REVS		

PREPARED UNDER THE RESPONSIBLE CHARGE OF:
THOMIR KIRILOV, P.E.
PUBLIC WORKS
DATE: 7/21/13

DESIGNED BY: T. KIRILOV / F. SANCHEZ	CHECKED BY: G. RENDE	SCALE:
DRAWN BY: J. SALDANA	DRAWING CODE:	FILE NAME:
PREPARED BY: RBF CONSULTING	PLOT DATE: 09/16/15	

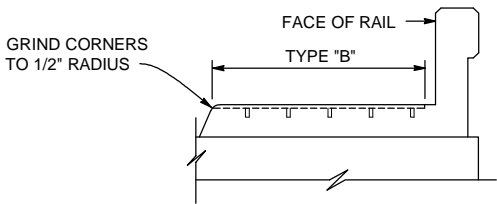
COW CAMP ROAD
CHUQUITA CANYON BRIDGE
TO STATION 76+00.00
JOINT SEAL -
ABUTMENT DETAILS -
MOVEMENT RATING
GRATER THAN 4"

Sheet
Reference
Number
BR-38



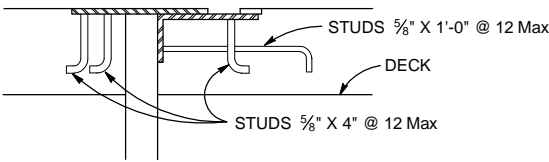
PART PLAN EXPANSION ARMOR NORMAL TO GIRDER

No Scale



TYPICAL SECTION

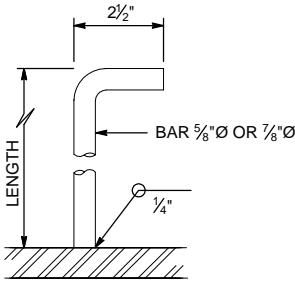
No Scale



NOTE:
For details not shown, see "DETAIL WITH BAR ANCHORS"

DETAIL WITH ANCHOR STUDS

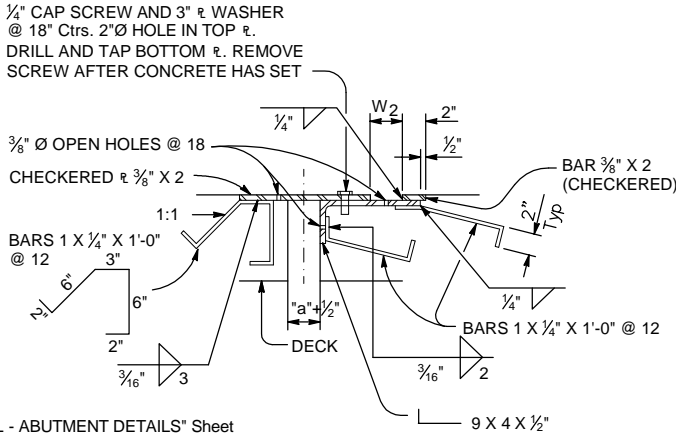
No Scale



ANCHOR STUD

No Scale

NOTE:
Alternate types of anchor studs may be permitted
subject to the approval of the Engineer



For "a" dimension, see "JOINT SEAL - ABUTMENT DETAILS" Sheet

TYPE B

- NOTES:
- Full penetration butt welds may be substituted for the fillet welds on all anchor studs
 - Expansion armor assembly to be galvanized after fabrication except as noted

- Quantities shown are for design purpose only

UNIT TYPE	ASSEMBLY WT LBS/LF	
	Bar Anchor	Stud Anchor
B	45	45

RECORD DRAWING

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RBF CONSULTING DATE JULY 2015



MARK	RECORD DRAWING	DATE	APPR.
3		7/31/15	

PREPARED UNDER THE RESPONSIBLE CHARGE OF:

THOMIR KIRILOV, P.E.
PUBLIC WORKS

PROFESSIONAL ENGINEER
THOMIR KIRILOV
No. 67708
Exp. 08-30-13
CIVIL

DATE 7/31/15

DESIGNED BY: T. KIRILOV / F. SANCHEZ	CHECKED BY: J. SALDANA	FILE NAME:	SCALE:
DRAWN BY: J. SALDANA	BY: G. RENDE	PLOT DATE: 09/16/15	

COW CAMP ROAD
CHILITA CANYON BRIDGE
TO STATION 76+00.00

JOINT ARMOR -
EXPANSION
DETAILS

Sheet
Reference
Number

BR-39

Sheet 95 of 115

REVISED STANDARD DRAWING	
FILE NO. x88-040	APPROVAL DATE July 2011

- 1 DELETED DETAIL OR NOTE
- 2 ADDED DETAIL OR NOTE
- 3 MODIFIED DETAIL OR NOTE

STATE OF
CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF
ENGINEERING SERVICES

BRIDGE NO.
POST MILE

JOINT ARMOR - EXPANSION DETAILS

DS O&D 2147A (ENGLISH STANDARD DRAWING "18" BORDER REV. (02-02-11))

ORIGINAL SCALE IN INCHES
FOR REDUCED PLANS

0 1 2 3

UNIT:
PROJECT NUMBER & PHASE:

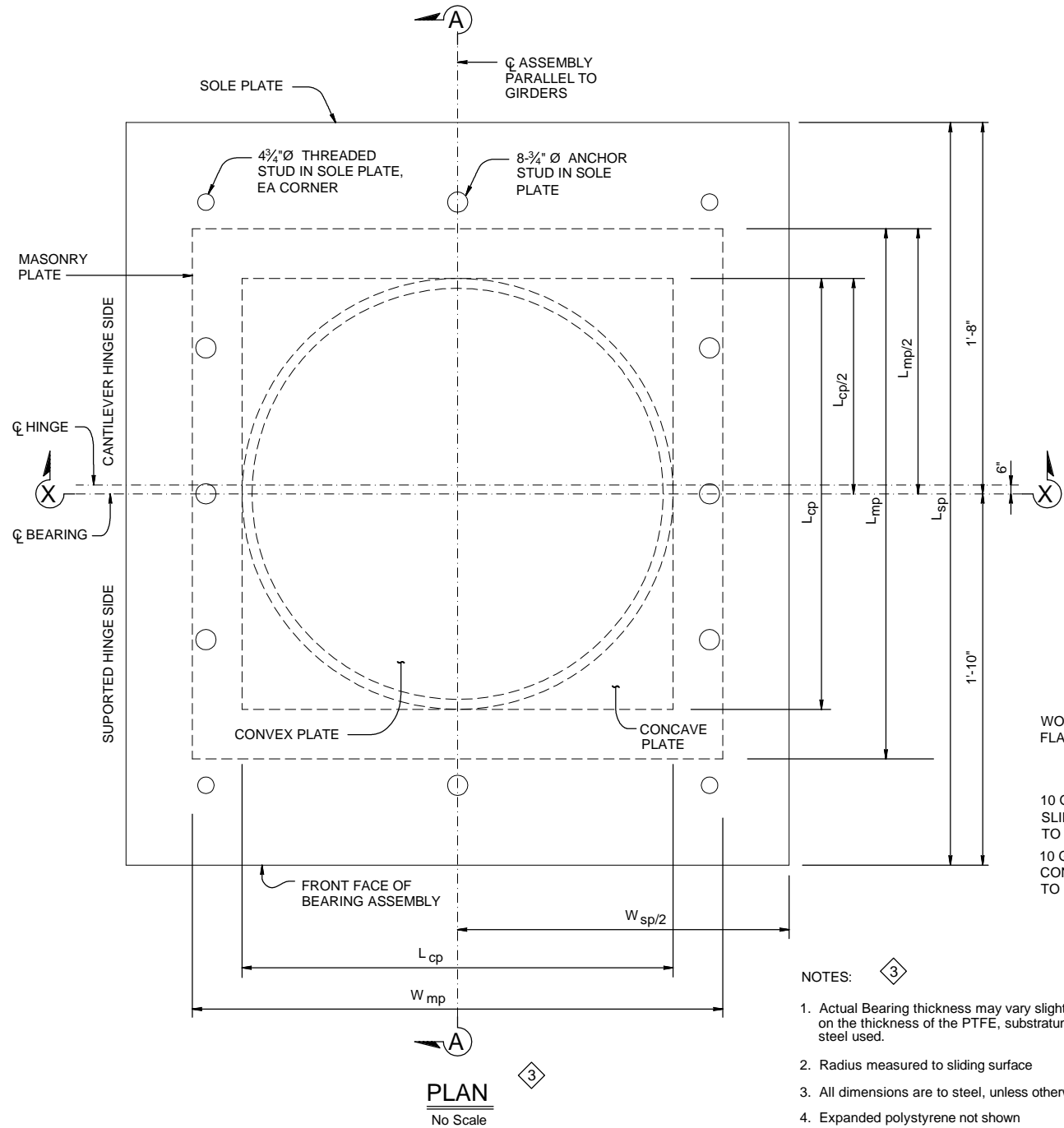
CONTRACT NO.:

DISREGARD PRINTS BEARING
EARLIER REVISION DATES

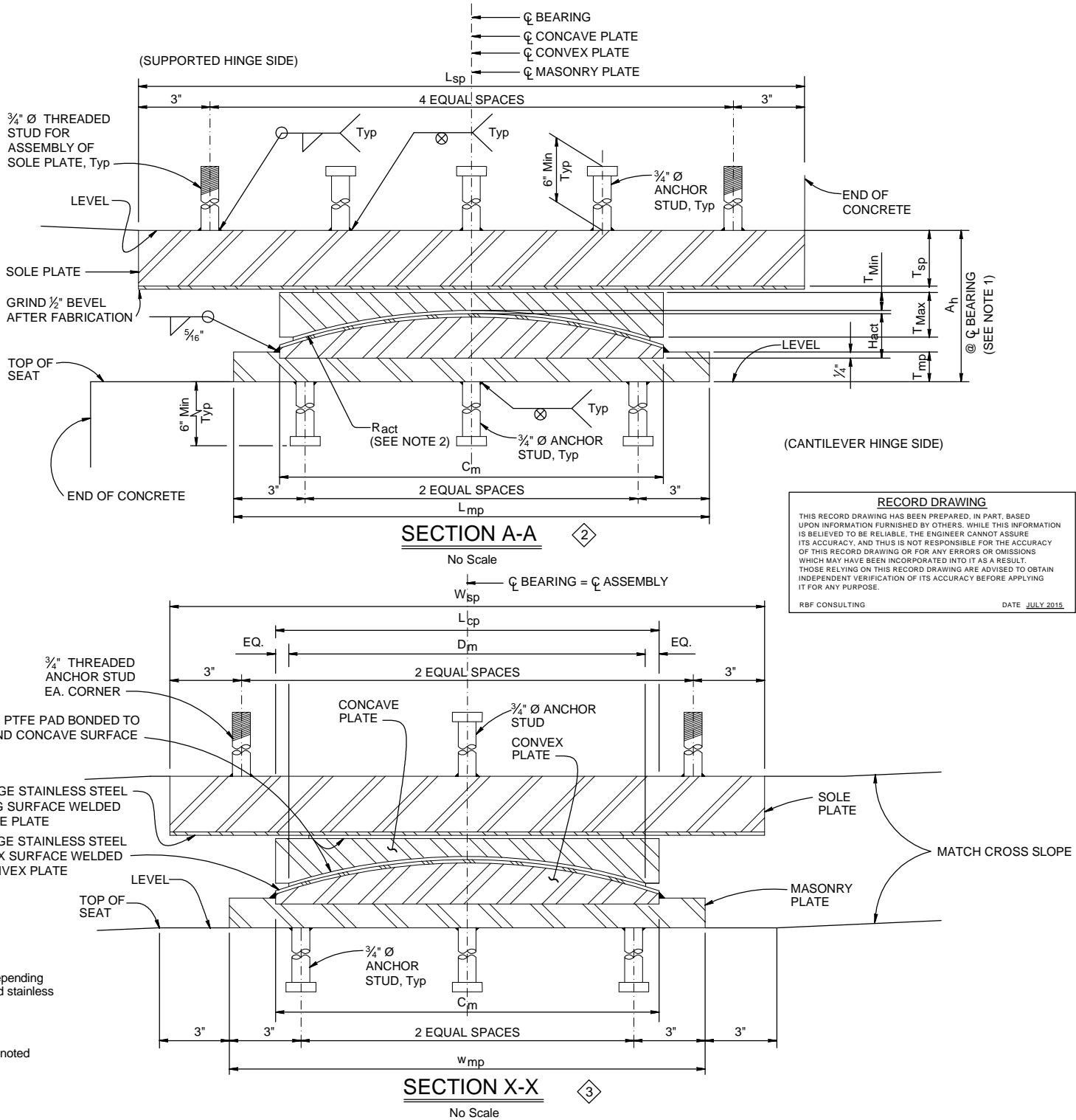
REVISION DATES				SHEET	OF
				X	X

H:\pdata\10107727\CADD\Struc\Div\DELTA 1 CADD DRAWINGS\7727-BR-39.DWG 09/16/15 - 4:58pm May Duong

LOCATION	MAXIMUM VERTICAL LOAD (kips)	MINIMUM DEAD LOAD (kips)	DESIGN ROTATION (Radians)	CONCAVE PLATE (in)						CONVEX PLATE (in)		MASONRY PLATE (in)			SOLE PLATE (in)			ASSEMBLY HEIGHT (in)
				WIDTH / LENGTH	FLAT PTFE AREA (in ²)	DIAMETER	SPHERICAL RADIUS	MINIMUM THICKNESS	MAXIMUM THICKNESS	DIAMETER	MAXIMUM THICKNESS	WIDTH	LENGTH	THICKNESS	WIDTH	LENGTH	THICKNESS	
				L _{cp}	A _{PTFE}	D _m	R _{act}	T _{Min}	T _{Max}	C _m	H _{act}	W _{mp}	L _{mp}	T _{mp}	W _{sp}	L _{sp}	T _{sp}	
HINGE 1	600	325	0.035	16.125	196	15	32.60	0.75	1.875	17.25	2.00	20	20	1.25	21	42.0	1.75	5.75



- NOTES:
1. Actual Bearing thickness may vary slightly depending on the thickness of the PTFE, substratum and stainless steel used.
 2. Radius measured to sliding surface
 3. All dimensions are to steel, unless otherwise noted
 4. Expanded polystyrene not shown



RECORD DRAWING

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RBF CONSULTING DATE: JULY 2015

REVISED STANDARD DRAWING		1 DELETED DETAIL OR NOTE		3 MODIFIED DETAIL OR NOTE		STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION		DIVISION OF ENGINEERING SERVICES		BRIDGE NO. POST MILE		PTFE/SPHERICAL EXPANSION BEARING DETAILS									
FILE NO. x89-010	APPROVAL DATE July 2011	2 ADDED DETAIL OR NOTE																			
08 OSD 2147A (ENGLISH STANDARD DRAWING "08" BORDER REV. (02-02-11))												ORIGINAL SCALE IN INCHES		UNIT:		DISREGARD PRINTS BEARING		REVISION DATES		SHEET OF	



MARK	DESCRIPTION	DATE	APPR.
3	RECORD DRAWING	7/31/15	
2	REVISIONS AFTER		
1	BID SET DATED 05-01-2013		
	ROADWAY, GRADING,		
	DRAINAGE, STRIPING,		
	SIGNAL & BRIDGE REVS		

PREPARED UNDER THE RESPONSIBLE CHARGE OF:

THOMIR KIRILOV, P.E.
PUBLIC WORKS

DATE: 7/31/13

DESIGNED BY: T. KIRILOV / F. SANCHEZ	CHECKED BY: G. RENDE	SCALE:
DRAWN BY: J. SALDANA	DRAWING CODE:	PLOT DATE: 09/16/15
FILE NAME:		
ORANGE COUNTY PUBLIC WORKS	PREPARED BY: RBF CONSULTING	

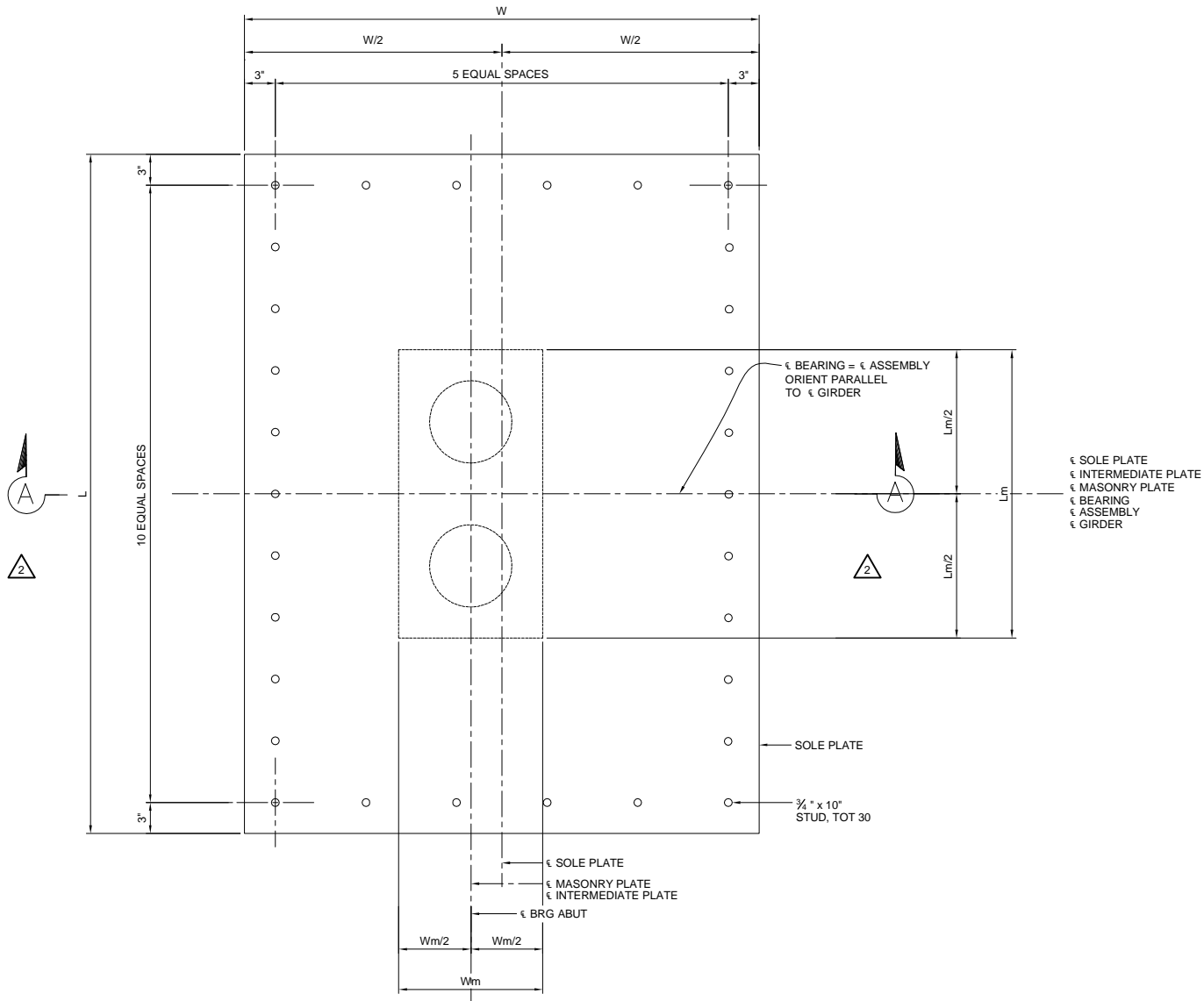
COW CAMP ROAD
CHUQUITA CANYON BRIDGE
TO STATION 76+00.00

PTFE/SPHERICAL
EXPANSION
BEARING DETAILS

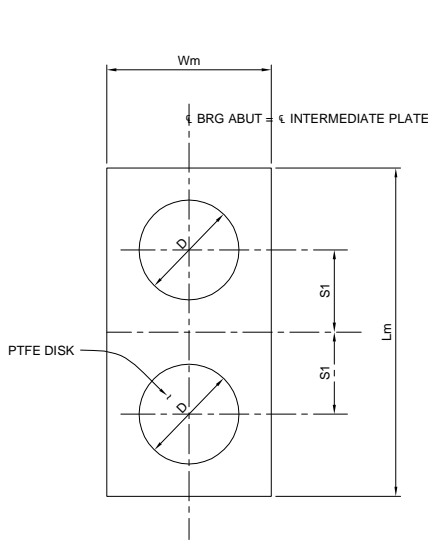
Sheet Reference Number

BR-40

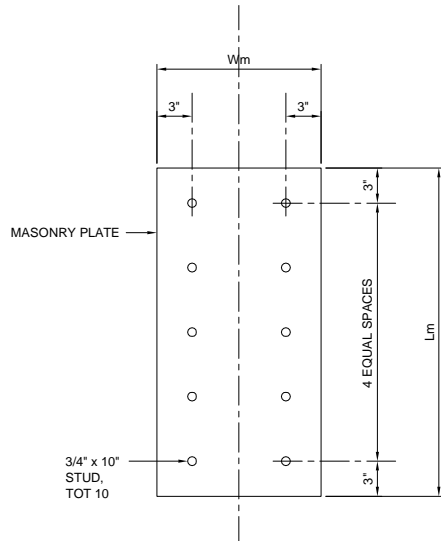
Sheet 96 of 115



SOLE PLATE PLAN
NO SCALE



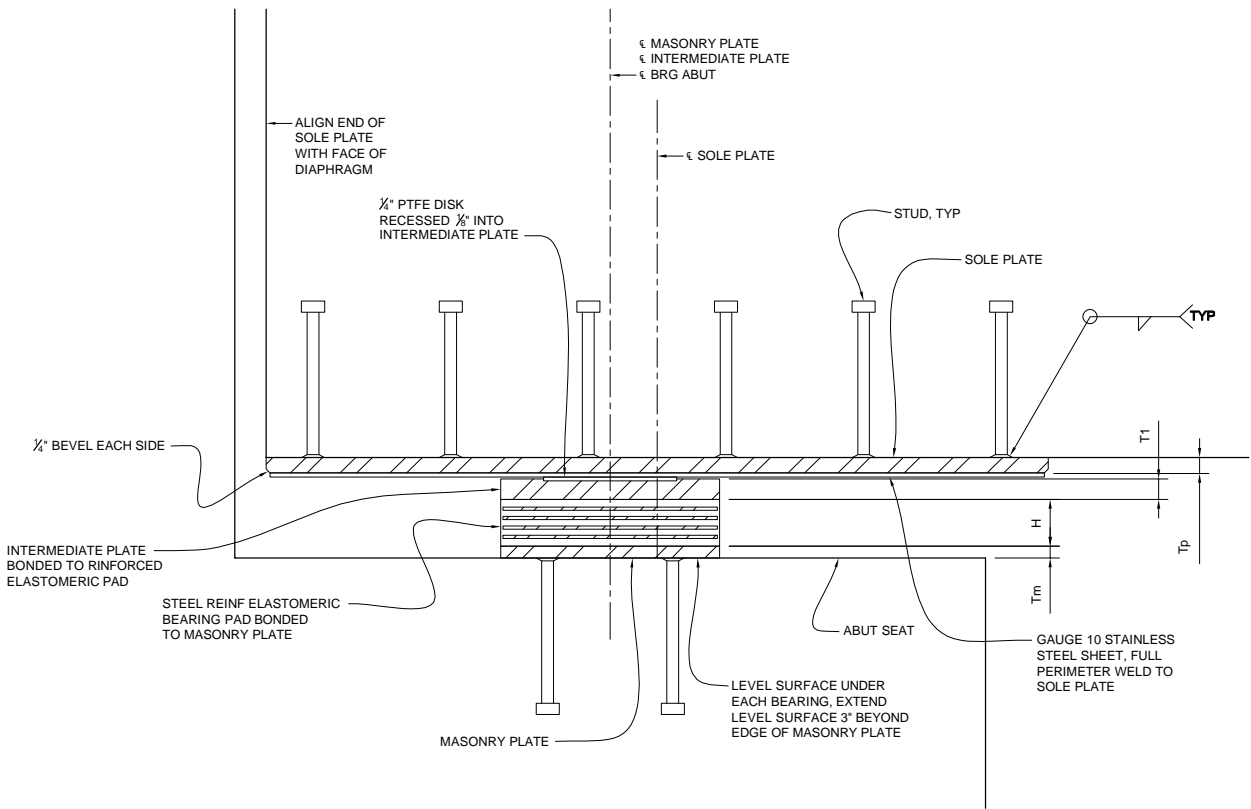
INTERMEDIATE PLATE PLAN
SCALE: 1 1/2" = 1'-0"



MASONRY PLATE PLAN
SCALE: 1 1/2" = 1'-0"

LOCATION	SOLE PLATE			INTERMEDIATE PLATE (NOTE 1)			MASONRY PLATE			BEARING PAD (NOTES 1 & 2)	NUMBER OF BEARINGS	MAX VERT LOAD * (KIPS)	MIN DEAD LOAD * (KIPS)
	TP	W	L	T1	S1	D	Tm	Wm	Lm				
ABUT 1	1 1/4"	5'-0"	5'-0"	1 1/4"	7"	8"	3/4"	1'-2"	2'-4"	3"	12	280	215
ABUT 9													

* PER BEARING



SECTION A-A
NO SCALE

RECORD DRAWING
THIS RECORD DRAWING HAS BEEN PREPARED, IN PART, BASED UPON INFORMATION FURNISHED BY OTHERS. WHILE THIS INFORMATION IS BELIEVED TO BE RELIABLE, THE ENGINEER CANNOT ASSURE ITS ACCURACY, AND THIS IS NOT RESPONSIBLE FOR THE ACCURACY OF THIS RECORD DRAWING OR FOR ANY ERRORS OR OMISSIONS WHICH MAY HAVE BEEN INCORPORATED INTO IT AS A RESULT. THOSE RELYING ON THIS RECORD DRAWING ARE ADVISED TO OBTAIN INDEPENDENT VERIFICATION OF ITS ACCURACY BEFORE APPLYING IT FOR ANY PURPOSE.
RBF CONSULTING DATE JULY 2015

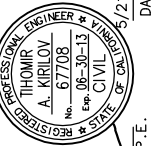
NOTES:

1. INTERMEDIATE PLATE AND ELASTOMERIC BEARING PAD PLAN DIMENSIONS SAME AS MASONRY PLATE.
2. ELASTOMERIC THICKNESS ONLY.
3. ALL DIMENSIONS ARE IN INCH UNLESS OTHERWISE SHOWN.
4. EXPANDED POLYSTYRENE NOT SHOWN.



MARK	DESCRIPTION	DATE	APPR.
3	RECORD DRAWING	7/31/15	
2	REVISIONS AFTER		
1	BID SET DATED 05-01-2013		
	ROADWAY GRADING.		
	DRAINAGE, STRIPING,		
	SIGNAL & BRIDGE REVS		

PREPARED UNDER THE RESPONSIBLE CHARGE OF:



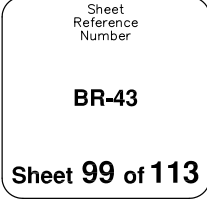
T. Kirilov
T. KIRILOV, P.E.
PUBLIC WORKS

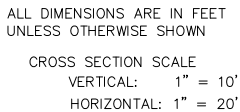
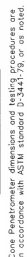
DESIGNED BY: T. KIRILOV / F. SANCHEZ	CHECKED BY: G. RENDE	FILE NAME:	SCALE:
DRAWN BY: J. SILDANA	DRAWING CODE:	PLOT DATE:	09/16/15
ORANGE COUNTY PUBLIC WORKS	PREPARED BY: RBF CONSULTING		

COW CAMP ROAD
CHICUITA CANYON BRIDGE
TO STATION 76+00.00
PTFE/ELASTOMERIC
BEARING DETAILS

Sheet
Reference
Number
BR-41

0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.10	0.11	0.12	0.13	0.14	0.15	0.16	0.17	0.18	0.19	0.20	0.21	0.22	0.23	0.24	0.25	0.26	0.27	0.28	0.29	0.30	0.31	0.32	0.33	0.34	0.35	0.36	0.37	0.38	0.39	0.40	0.41	0.42	0.43	0.44	0.45	0.46	0.47	0.48	0.49	0.50	0.51	0.52	0.53	0.54	0.55	0.56	0.57	0.58	0.59	0.60	0.61	0.62	0.63	0.64	0.65	0.66	0.67	0.68	0.69	0.70	0.71	0.72	0.73	0.74	0.75	0.76	0.77	0.78	0.79	0.80	0.81	0.82	0.83	0.84	0.85	0.86	0.87	0.88	0.89	0.90	0.91	0.92	0.93	0.94	0.95	0.96	0.97	0.98	0.99	1.00
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[illegible]

PREPARED UNDER THE RESPONSIBLE CHARGE OF:

GREGORY P. SILVER
 SE 2336 (Expiration 12-31-13)

DATE _____

ORANGE COUNTY PUBLIC WORKS	DESIGNED BY: DS	
	DRAWN BY: DS CHECKED BY: DS	
PREPARED BY:  GMU GEOTECHNICAL INC. 25445 Santa Anita Ave., Suite 100 Santa Anita, CA 91789	DRAWING CODE:	
	FILE NAME:	
	PLOT DATE: 07/26/2012 SCALE: AS SHOWN	

COW CAMP ROAD
CHIKUITA CANYON BRIDGE
TO STATION 45+20

LOG OF
TEST BORINGS
3 of 3

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Reference
Number

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3. ALL WIRING DESIGN IS BASED ON 75 DEGREE C CONDITIONS FOR COPPER CONDUCTORS OF TYPE THWN UNLESS OTHERWISE STATED.
2. ELECTRICAL CONTRACTOR TO SIZE ALL WIRING NOT EXPLICITLY SHOWN ON DRAWINGS ACCORDING TO THE REQUIREMENTS OF NATIONAL ELECTRICAL CODE (NEC) FOR THE SPECIFIC APPLICATION AND CONDITIONS.
3. ALL CONDUCTORS SHALL BE COPPER (MINIMUM SIZE #10 AWG UNLESS SPECIFICALLY NOTED OTHERWISE).
4. ALL INDICATIONS OF NUMBER OF CONDUCTORS EXCLUDE GREEN WIRE GROUND CONDUCTOR WHICH MUST BE PROVIDED.
5. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE TO CONFORM TO ALL LOCAL CODES AND ORDINANCES, THE STATE OF CALIFORNIA ELECTRICAL SAFETY ORDERS, THE NATIONAL ELECTRICAL CODE AND ANY ADDITIONAL JURISDICTION RELATING TO THE WORK.
6. THE ELECTRICAL CONTRACTOR SHALL PROVIDE SEISMIC ANCHORAGE FOR ALL ELECTRICAL EQUIPMENT IN ACCORDANCE WITH CBC SECTION 1630.2.
7. THE ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL ALL POLES, FIXTURES, CONDUIT, WIRE, AND PULLBOXES REQUIRED FOR A COMPLETE AND OPERATIONAL ELECTRICAL SYSTEM.
8. IN THE EVENT OF A CONFLICT OR INCONSISTENCY BETWEEN ITEMS INDICATED ON THE PLANS OR WITH CODE REQUIREMENTS, THE NOTE, SPECIFICATION OR CODE WHICH PRESCRIBES AND ESTABLISHES THE MORE COMPLETE JOB OR HIGHER STANDARD SHALL PREVAIL.
9. ALL ELECTRICAL EQUIPMENT EXPOSED TO THE CLIMATE SHALL BE WEATHERPROOF.
10. CONDUIT SHALL BE PER CALTRANS STANDARD SPECIFICATION SECTION 86-2.05.
11. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING EXISTING UNDERGROUND FACILITIES AND PROTECTING THESE FACILITIES FROM DAMAGE.
12. THE ELECTRICAL CONTRACTOR SHALL ROUTE CONDUITS AS REQUIRED PER FIELD CONDITIONS AND C.E.C.
13. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING ANY DAMAGE TO EXISTING UNDERGROUND FACILITIES.
14. ALL ELECTRICAL EQUIPMENT IN THIS PROJECT SHALL BE U.L. LISTED.
15. STREET LIGHT CONTRACTOR SHALL SUBMIT "AS BUILT" UNDERGROUND WIRING PLANS TO THE OWNER.
16. LIGHT FIXTURE LOCATIONS PULLBOXES AND CONDUIT RUNS ARE DIAGRAMMATIC.
17. ALL CONDUIT ONLY INSTALLATIONS SHALL INCLUDE 1/4" PULL ROPE.
18. CONTRACTOR SHALL PROVIDE SUBMITTALS FOR LIGHTING FIXTURES, POLES, PULLBOXES, WIRING, AND METERED PEDESTAL. FOR APPROVAL PRIOR TO INSTALLATION.



NOTE:
SINGLE LINE DIAGRAM SHOWN DIAGRAMMATIC ONLY. REFER TO CALTRANS
STANDARD PLAN ES-2E FOR DETAILS.

VOLTS <u>120/240</u>		PANEL <u>"A"</u>		MAIN BREAKER: <u>100A</u>														
PHASE <u>1</u>				BUS RATING: <u>100A</u>														
WIRE <u>3</u>		LOCATION <u>METER PEDESTAL</u>		MOUNTING: <u>PEDESTAL</u>														
DESCRIPTION	LTS	REC	MIS	VOLT ØA	AMPS ØB	BRKR AMP	P	CIR	BUS CONN	CIR	BRKR AMP	P	VOLT ØA	AMPS ØB	LTS	REC	MIS	DESCRIPTION
** BRIDGE LIGHTS	X			600		30	2	1	⎓	2	20	1	150					BRIDGE LIGHTS
** BRIDGE LIGHTS	X				600	30	P	3	⎓	4	20	1						SPARE
SPARE	X					20	1	5	⎓	6	20	1						SPARE
SPARE	X					20	1	7	⎓	8	20	1						SPARE
SUBTOTAL				<u>600</u> <u>600</u>				<u>150</u> <u>0</u>										
LOAD	ØA <u>750</u>		ØB <u>600</u>															
LCL X .25	<u>-</u>		<u>-</u>						PANEL TOTAL <u>1350</u>				VOLT AMPS = <u>5.63</u> AMPS@240V					
TOTAL	<u>750</u>		<u>600</u>						HIGH LEG - Ø <u>750</u>				VOLT AMPS = <u>6.25</u> AMPS@120V					

** COMMON NEUTRAL CIRCUIT

RECORD DRAWING

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RBF CONSULTING DATE JULY 2015

[illegible]

PREPARED UNDER THE RESPONSIBLE CHARGE OF:



Yp See

ORANGE COUNTY PUBLIC WORKS	DESIGNED BY: Y.P. SEE	DRAWN BY: Y.P. SEE	CHECKED BY: R. TIJERINA
	DRAWING CODE:		
PREPARED BY:	FILE NAME:		
	PLOT DATE: 09/17/15		
SCALE:			

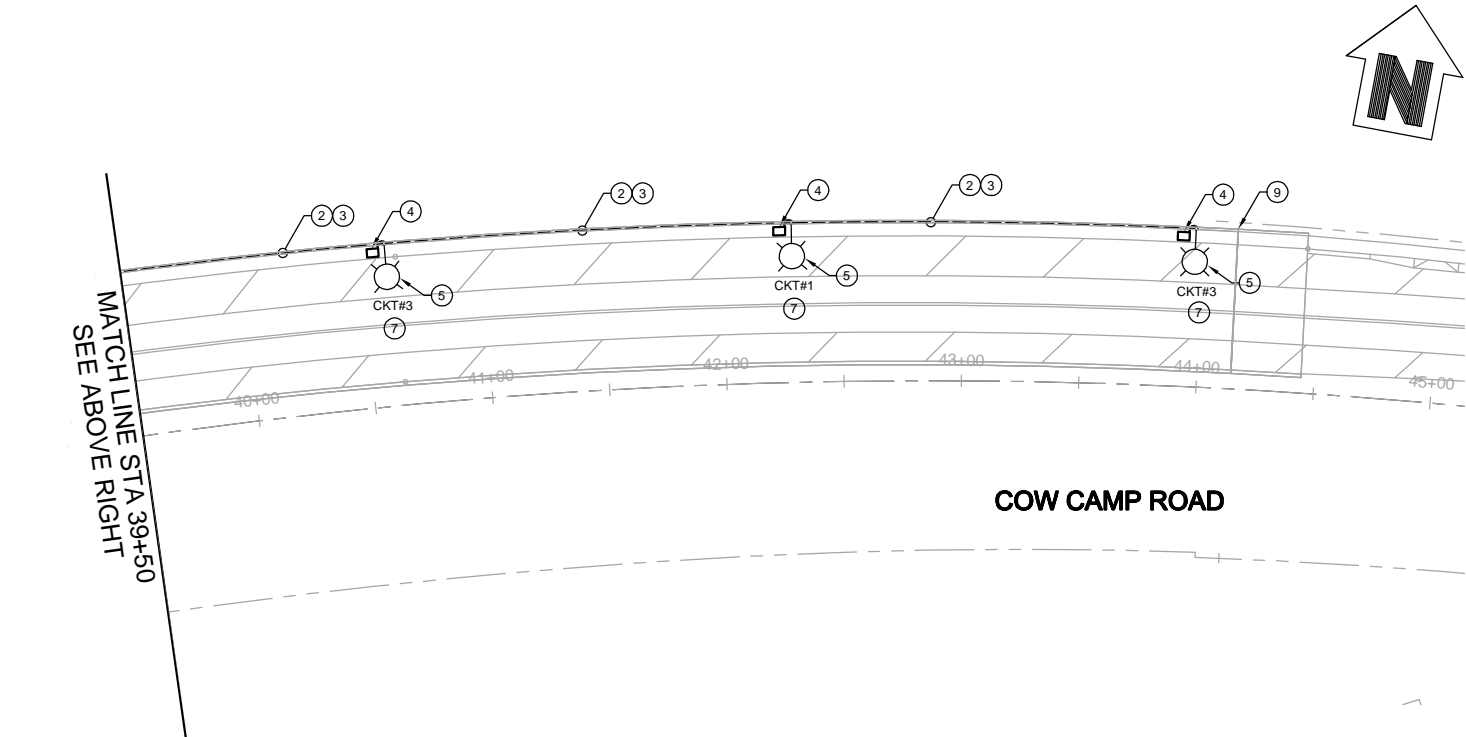
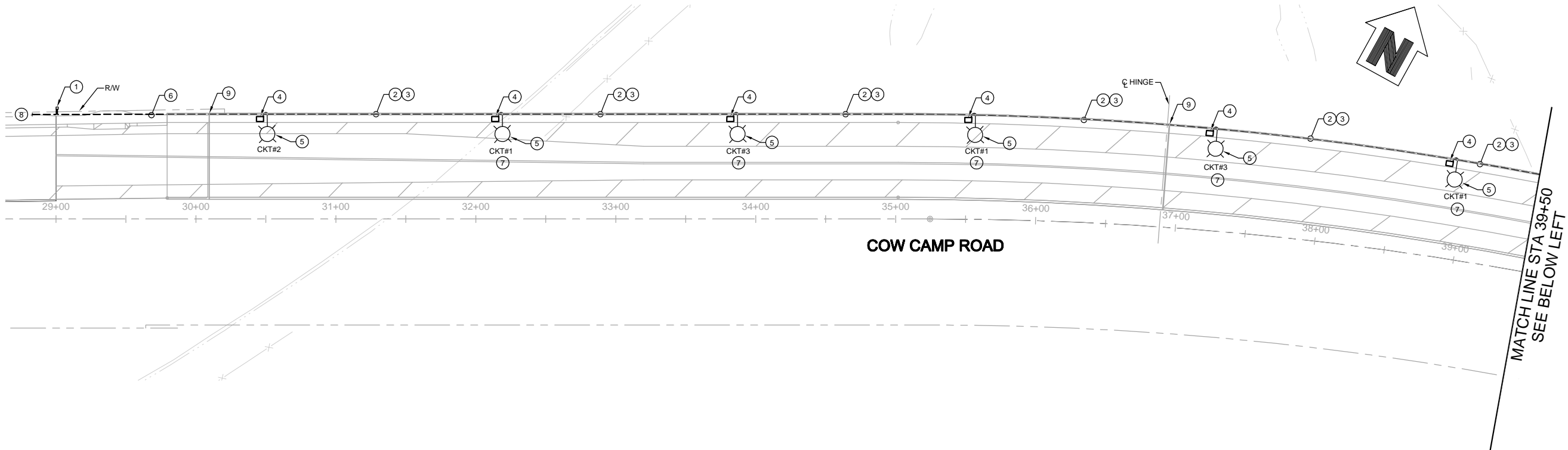
COW CAMP ROAD
 CHIQUITA CANYON BRIDGE
 TO STATION 76+00.00
 ELECTRICAL DETAILS
 1 OF 2

Sheet
Reference
Number

BR-45

Sheet 101 of 115

H:\pdata\10107727\CADD\Elect\Div\Phase 1B\7727-BR-45.dwg 09/17/15 - 3:56pm May.Duong



BRIDGE STREET LIGHTING PLAN
SCALE: 1" = 40'

NOTES

- BRIDGE LIGHTS SERVICE PEDESTAL. CONTRACTOR TO INSTALL 100A, 120V/120V, 1PH CALTRANS TYPE III PAD MOUNTED PEDESTAL AS SHOWN. REFER TO CALTRANS STANDARD PLAN ES-2E. SEE APPROVED SDG&E SERVICE PLAN FOR EXACT LOCATION AND REQUIREMENTS.
- INSTALL 2" CONDUIT WITH 3#6, 1#6G COPPER STRANDED CONDUCTORS.
- REFER TO CALTRANS STANDARD PLAN B11-54 FOR CONDUIT INSTALLED IN BRIDGE CONCRETE BARRIER.
- PROVIDE AND INSTALL PULL BOX TYPE 9A. REFER TO CALTRANS STANDARD PLAN ES-9A, ES-9B, ES-9C & ES-9D, DETAIL A.
- PROVIDE AND INSTALL TYPE 15 RAIL MOUNTED POLE LIGHT WITH 150W, 120V, HPS LIGHT FIXTURE AS SHOWN. SEE CALTRANS STANDARD PLAN ES-6A FOR INSTALLATION DETAILS.
- INSTALL 2" CONDUIT WITH 3#6, 2#10, 1#6G COPPER STRANDED CONDUCTORS.
- COMMON NEUTRAL CIRCUIT. SEE PANELBOARD SCHEDULE.
- PROVIDE AND INSTALL 1-2" CONDUIT ONLY PER SDG&E REQUIREMENTS FROM METER PEDESTAL TO UTILITY HAND HOLE APPROX. 25'-0". REFER TO APPROVED SDG&E SERVICE PLAN FOR EXACT LOCATION.
- PROVIDE AND INSTALL EXPANSION-DEFLECTION FITTINGS IN ACCORDANCE WITH CALTRANS STANDARD PLAN ES-9B.

LIGHTING BOXES WERE
MOVED TO SIDEWALK

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RBF CONSULTING DATE JULY 2015



REVISION	DATE	DESCRIPTION	MARK
3	7/31/15	RECORD DRAWING	
1		REVISE PER RFI #31	

PREPARED UNDER THE RESPONSIBLE CHARGE OF:
Y.P. SEE
REGISTERED PROFESSIONAL ENGINEER
ELECTRICAL
STATE OF CALIFORNIA
2/15/2015
DATE
Y.P. SEE, P.E.
PUBLIC WORKS

DESIGNED BY: Y.P. SEE	CHECKED BY: R. TILVERNA
DRAWN BY: Y.P. SEE	DRAWING CODE:
FILE NAME:	SCALE:
PLOT DATE: 10/01/15	

COW CAMP ROAD
CHICUITA CANYON BRIDGE
TO STATION 76+00.00
ELECTRICAL DETAILS
2 OF 2

Sheet
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Number
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