AS-BUILT SEPTEMBER 2019

OC PUBLIC WORKS

SANTA ANA, CALIFORNIA

PLANS FOR CONSTRUCTION OF

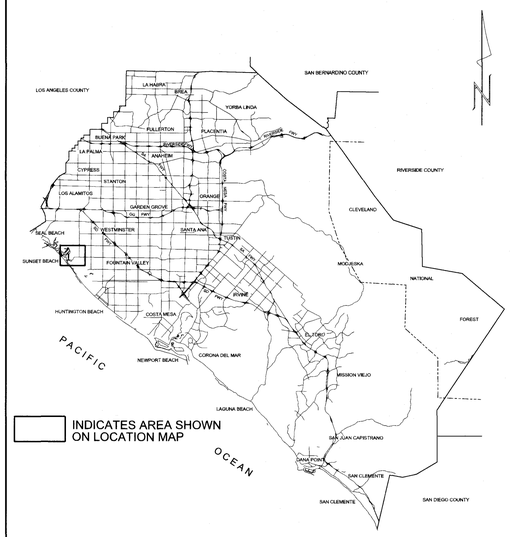
EDINGER AVENUE BRIDGE REPLACEMENT AT BOLSA CHICA CHANNEL PROJECT

BR. NO. 55C-0400

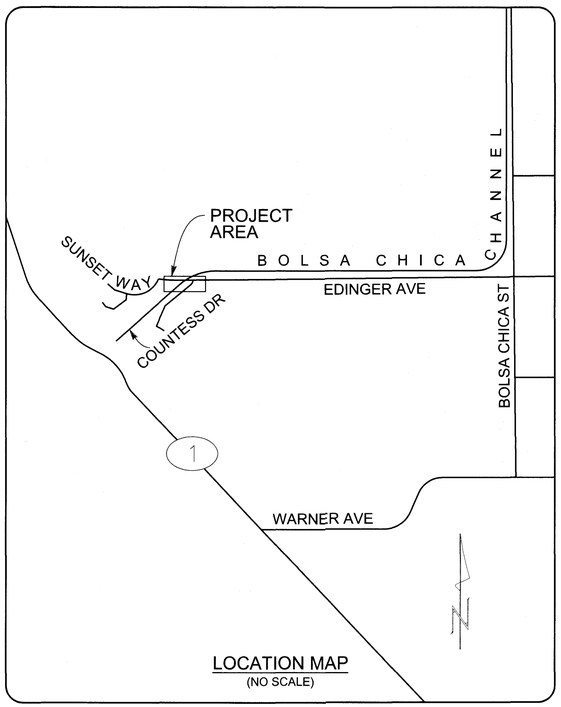
INCLUDING IMPROVEMENTS ON COUNTESS DRIVE
FROM
600' WEST OF COUNTESS DRIVE
TO
200' EAST OF COUNTESS DRIVE

W.O. NO. ER16008

FUNDED BY: OC ROAD FUND, FEDERAL FUND: BRLS-5955 (078)
MAINTAINED BY: COUNTY OF ORANGE
CITIES OF HUNTINGTON BEACH AND SEAL BEACH



VICINITY MAP
(NO SCALE)



LOCATION MAP
(NO SCALE)

INDEX OF SHEETS

SHEET	DESCRIPTION	SHEET NO.
1	TITLE SHEET	1
2	CONSTRUCTION NOTES	2
S 1-2	SURVEY CONTROL	3-4
X 1-2	TYPICAL SECTIONS	5-6
UT-1	UTILITY PLAN	7
RM 1-2	REMOVAL PLAN	8-9
RD 1-4	ROADWAY PLAN AND PROFILE	10-13
RD 5-6	OCFCD ACCESS ROAD DRIVEWAYS	14-15
G 1-2	GRADING PLAN	16-17
C 1-3	CONSTRUCTION DETAILS	18-20
D-1	DRAINAGE DETAILS	21
SFM 1-5	SEWER FORCE MAIN PLANS	22-26
TH 1-8	TRAFFIC HANDLING PLAN	27-34
SS 1-2	SIGNING AND STRIPING PLANS	35-36
RW 1	RETAINING WALL PLAN	37
LS-1	LANDSCAPE PRESERVATION PLAN	38
E-1	BRIDGE LIGHTING	39
ST 1-37	STRUCTURE PLANS	40-76

SHEET	DESCRIPTION
1-12	OFFSITE MITIGATION PROJECT

UTILITY OWNER	PHONE NO.	CONTACT
CITY OF HUNTINGTON BEACH	(714) 536-5247	M. TODD BROUSSARD
CITY OF SEAL BEACH	(562) 431-2527 Ext. 1328	CESAR RANGEL
SOUTHERN CALIFORNIA EDISON	(714) 895-0242	ERICK OEN
TIME WARNER CABLE	(714) 903-8426	MARTIN DELGADO
VERIZON	(714) 375-6720	MIKE MADRID
SOUTHERN CALIFORNIA GAS	(714) 634-3039	RICHARD TYRIE

DEVIATION FROM COUNTY OF ORANGE STANDARDS

1. STANDARD PLAN 1103 PRIMARY HIGHWAY TYPICAL SECTIONS
   -R/W TO R/W WIDTH VARIES DUE TO EXISTING CONDITIONS
   -SIDEWALK WIDTH VARIES FROM 5.5' TO 6' DUE TO EXISTING CONDITIONS
   -CROWN SLOPE VARIES DUE TO EXISTING CONDITIONS
   -MODIFIED LANE WIDTHS DUE TO EXISTING CONDITIONS
2. HDM TOPIC 101.2 DESIGN SPEED STANDARDS AND DEFINITIONS
   -DESIGN SPEED ON EDINGER AVE IS LESS THAN 55 MPH FOR PRIMARY ARTERIAL HIGHWAY DUE TO EXISTING CONDITIONS
3. HDM TOPIC 204.3 STANDARDS FOR GRADES
   -STREET GRADE LESS THAN 1% DUE TO EXISTING CONDITIONS
4. HDM TOPIC 301.2 CROWN SLOPES
   -CROWN SLOPE ON SUNSET WAY LESS THAN 1.7% DUE TO EXISTING CONDITIONS
   -CROWN SLOPE ON COUNTESS DR GREATER THAN 3% TO MATCH GRADE AT EDINGER AVE INTERSECTION
5. STANDARD PLAN 120-2-OC
   -8" CURB USED IN LIEU OF 6" CURB TO MATCH EXISTING CONDITION

APPROVED — KHALID BAZMI, P.E. — ASSISTANT DIRECTOR / COUNTY ENGINEER — OC PUBLIC WORKS — 12/5/16 DATE

PREPARED BY

AECOM
999 W. TOWN & COUNTRY ROAD
ORANGE, CA 92668
(714) 567-2501

PREPARED UNDER RESPONSIBLE CHARGE OF:

REGISTERED PROFESSIONAL ENGINEER — CHUANCHE TING — No. 78632 — Exp. 9/30/17 — CIVIL — STATE OF CALIFORNIA

11/14/2016 DATE

CHUANCHE TING, P.E.
PROJECT MANAGER

CITY APPROVALS

APPROVED — TOM HERBEL, P.E. — CITY ENGINEER — CITY OF HUNTINGTON BEACH — 11/19/16 DATE

APPROVED — MICHAEL S. HO, P.E. — DEPUTY DIRECTOR OF PUBLIC WORKS — CITY OF SEAL BEACH — 11/17/16 DATE

County of Orange	
Public Works	
AS-BUILT	
Contractor:	Kiewit Infrastructure West Company
Resident Engineer:	Elmo Delos Santos (PreScience Corp.)
Senior RE:	Kevin Tran
Inspectors:	Tuan Tran (PreScience Corp.) Kenneth Junio
Construction Start Date:	May 8, 2017
Construction Completion Date:	August 5, 2019

UNDERGROUND SERVICE ALERT

SECTION 4216/4217 OF THE GOVERNMENT CODE REQUIRES A DIGALERT IDENTIFICATION NUMBER BE ISSUED BEFORE A "PERMIT TO EXCAVATE" WILL BE VALID. FOR YOUR DIGALERT I.D. NUMBER CALL UNDERGROUND SERVICE ALERT TOLL FREE AT 1-800-422-4133 OR 811 TWO WORKING DAYS BEFORE YOU DIG

OC PUBLIC WORKS

SUBMITTED — FIONA MAN, P.E., T.E. — COUNTY TRAFFIC ENGINEER / DESIGN MANAGER — TRANSPORTATION & DESIGN DIVISION — 12/2/16 DATE

RECOMMENDED — NARDY KHAN, P.E., PMP — DEPUTY DIRECTOR — OC PUBLIC WORKS — 12/2/16 DATE

APPROVED: — KHALID BAZMI, P.E. — ASSISTANT DIRECTOR / COUNTY ENGINEER — OC PUBLIC WORKS — 12/5/16 DATE

BENCH MARK:

O.C.S. BENCHMARKS:
HB-239-75 ELEV. 5.682'
5-11-19 ELEV. 10.756'

NGVD 1929 (1995 O.C.S. ADJ.)

BASIS OF BEARINGS:

THE BEARINGS SHOWN HEREON ARE BASED ON THE BEARING BETWEEN O.C.S. HORIZONTAL CONTROL STATION GPS NO. 0940 AND STATION GPS NO. 0944, BEING N76°47'10"W PER O.C.S. FILE #HB95_6-7N IN THE OFFICE OF THE COUNTY SURVEYOR.

NO.	DESCRIPTION	SHT.	APPROVED	DATE

REVISIONS

W. O. NO. ER16008

SHEET 1 OF 76

FILE NAME:B:\Edinger Ave Bridge over Bolsa Chica ER036511\CAD\01_Title Sheet-Rev1.dgn

DATE PLOTTED : 11/14/2016

AS-BUILT SEPTEMBER 2019

CONSTRUCTION NOTES

1 NOT USED
2 NOT USED
3 NOT USED
4 NOT USED
5 NOT USED
6 NOT USED
7 NOT USED
8 NOT USED
9 NOT USED
10 NOT USED
11 NOT USED
12 NOT USED
13 CONSTRUCT 8" CURB & GUTTER PER CITY OF SEAL BEACH STD. PLAN 182
14 CONSTRUCT 8" CURB PER CITY OF HUNTINGTON BEACH STD. PLAN 201
15 CONSTRUCT 6" CURB & GUTTER PER CITY OF HUNTINGTON BEACH STD. PLAN 202
16 CONSTRUCT 6" CURB PER CITY OF HUNTINGTON BEACH STD. PLAN 201
17 CONSTRUCT 4" PCC SIDEWALK PER CITY OF HUNTINGTON BEACH STD. PLAN 207
18 CONSTRUCT MODIFIED CURB RAMP (TYPE 1) PER OCPW STD. PLAN 1115 AND DETAIL ON SHEET C-2
19 CONSTRUCT CURB RAMP PER DETAIL ON SHEET C-2
20 CONSTRUCT MODIFIED PCC DEPRESSED CURB DRIVEWAY APPROACH PER DETAIL ON SHEET C-1
21 CONSTRUCT DEPRESSED CURB ENTRANCE PER DETAIL ON SHEET C-1
22 COLDMILL (0.17') EXISTING PAVEMENT AND PLACE 0.17' ARHM OVERLAY
23 CONSTRUCT 0.17' ARHM OVER 0.18' WMA OVER 1.00' CRUSHED MISCELLANEOUS BASE OVER 95% COMPACTED SUBGRADE
24 CONSTRUCT 4" DISINTEGRATED GRANITE OVER COMPACTED NATIVE SOIL
25 CONSTRUCT 0.42' AC OVER 0.50' CRUSHED MISCELLANEOUS OVER COMPACTED NATIVE SOIL
26 CONSTRUCT SIDEWALK AROUND OBSTRUCTION PER DETAIL ON SHEET C-1
27 CONSTRUCT CHAIN LINK FENCE PER OCPW STD. PLAN 600-3
28 CONSTRUCT CHAIN LINK DRIVE GATE PER OCPW STD. PLAN 600-3
29 CONSTRUCT RETAINING WALL PER RETAINING WALL SHEET RW-1
30 CONSTRUCT CONCRETE CROSS GUTTER PER CITY OF HUNTINGTON BEACH STD. PLAN 205
31 CONSTRUCT 0.5' FULL DEPTH WMA OVER COMPACTED SUBGRADE
32 CONSTRUCT PIPE GATE PER SPPWC 602-3 AND DETAIL ON SHEET RD-6
33 CONSTRUCT ROCK SLOPE PROTECTION PER DETAIL ON SHEET C-3
34 CONSTRUCT BURIED ROCK SLOPE PROTECTION PAD PER DETAIL ON SHEET D-1
35 CONSTRUCT CONCRETE FLARED END SECTION PER CALTRANS STD. PLAN D94B
36 NOT USED
37 NOT USED
38 CONSTRUCT INLET TYPE I PER OCPW STD. PLAN 1301
39 NOT USED
40 CONSTRUCT 18" RCP
41 PROTECT EXISTING LANDSCAPING AND IRRIGATION SYSTEM IN PLACE
42 PROPOSED NEW LANDSCAPE AND IRRIGATION SYSTEM
43 LIMIT OF NEW CONSTRUCTION
44 PROTECT EXISTING ERYTHRINA CAFFRA TREES
45 NOT USED
46 CONSTRUCT POST & CABLE FENCE WITH POSTS AT 10' O.C. TO MATCH EXISTING
47 NOT USED
48 CONSTRUCT REDWOOD HEADER PER DETAIL ON SHEET C-2
49 INSTALL MIDWEST GUARDRAIL SYSTEM TYPE 12A PER CALTRANS RSP A77Q1
50 INSTALL TL-2 CRASH-CUSHION SYSTEM
51 CONSTRUCT 8" CURB & GUTTER PER CITY OF HUNTINGTON BEACH STD. PLAN 202
52 INSTALL PREFABRICATED THERMOPLASTIC DRAINAGE INLET MARKER PER CALTRANS STD PLAN D71
53 CONSTRUCT 5" DEEP GRAVEL SHOULDER (1/2" MAX DIAMETER CRUSHED ROCK)
54 INSTALL VESTIL FOLD DOWN BOLLARD TYPE PARK-P-108-FD OR GRAINGER FOLD DOWN BOLLARD TYPE BOL-FD-36T OR RELIANCE FOUNDRY FOLD DOWN BOLLARD TYPE R-7902 OR APPROVED EQUIVALENT ON 14"x14"x4" CONCRETE SLAB

SIGNING AND STRIPING NOTES

60 PROTECT EXISTING SIGN IN PLACE
61 REMOVE EXISTING SIGN
62 INSTALL NEW STREET SIGN
63 REMOVE EXISTING STRIPING
64 INSTALL 4" DOUBLE YELLOW STRIPED MEDIAN ISLAND PER CALTRANS STD. PLAN A20B, DETAIL 29
65 INSTALL TYPE IV (R) ARROW PER CALTRANS STD. PLAN A24A
66 INSTALL BIKE LANE LINE PER CALTRANS STD. PLAN A20D, DETAIL 39A
67 INSTALL TYPE IV (L) ARROW PER CALTRANS STD. PLAN A24A
68 INSTALL BIKE LANE LINE PER CALTRANS STD. PLAN A20D, DETAIL 39
69 INSTALL DOUBLE YELLOW LINE PER CALTRANS STD. PLAN A20A, DETAIL 22
70 INSTALL 12" WHITE STOP BAR PER CALTRANS STD. PLAN A24E
71 INSTALL PAVEMENT MARKING PER CALTRANS STD. PLAN A24D
72 INSTALL BIKE LANE ARROW PER CALTRANS STD. PLAN A24A
73 PAINT CURB RED
74 INSTALL MEDIAN FLARE PER OCPW STD. PLAN 141-2-OC
75 INSTALL 8" SOLID WHITE LINE PER CALTRANS STD. PLAN A20D, DETAIL 38A

TRAFFIC HANDLING CONSTRUCTION NOTES

80 CONSTRUCT TEMPORARY TRESTLE - NORTH SIDE.
81 INSTALL TEMPORARY RAILING (TYPE-K).
82 INSTALL TEMPORARY CRASH CUSHION ARRAY 'TB11'.
83 INSTALL TEMPORARY STRIPING / PAVEMENT MARKINGS.
84 INSTALL TEMPORARY TRAFFIC SIGNAL.
85 REMOVE PORTION OF EXISTING BRIDGE - NORTH SIDE.
86 CONSTRUCT PORTION OF NEW BRIDGE - NORTH SIDE.
87 TEMPORARILY RELOCATE SEWER LINE TO TEMPORARY TRESTLE ON NORTH SIDE.
88 CONSTRUCT PORTION OF DRAINAGE SYSTEM.
89 CONSTRUCT CURB/GUTTER, SIDEWALK AND CHANNEL ACCESS DRIVEWAY.
90 CONSTRUCT AC PAVEMENT.
91 RELOCATE SEWER LINE FROM NORTH TRESTLE TO PERMANENT LOCATION.
92 CONSTRUCT TEMPORARY PAVEMENT.
93 REMOVE PORTION OF THE EXISTING SIDEWALK AND CONSTRUCT TEMPORARY ACCESS RAMP.
94 INSTALL TYPE-3 BARRICADE.
95 TEMPORARILY COVER EXISTING SIGN.
96 INSTALL TL-2 WATER FILLED BARRIER.
97 REMOVE EXISTING SIGN.
98 REMOVE EXISTING SIGN.

CONSTRUCTION NOTES

101 SAWCUT EXISTING PAVEMENT
102 REMOVE ROADWAY PAVEMENT SECTION
103 REMOVE AC PAVEMENT
104 REMOVE PCC CURB
105 REMOVE PCC CURB & GUTTER
106 REMOVE PCC SIDEWALK
107 REMOVE PCC CURB RAMP
108 REMOVE PCC MEDIAN ISLAND
109 REMOVE BOLLARD
110 REMOVE WOOD POST
111 REMOVE CHAIN LINK FENCE
112 REMOVE CHAIN LINK GATE
113 REMOVE REDWOOD HEADER
114 REMOVE POST AND CABLE FENCE
115 REMOVE GRAVEL SHOULDER
116 REMOVE RETAINING CURB

DISPOSITION NOTES

(1) PROTECT IN PLACE
(2) ADJUST TO GRADE BY OTHERS
(3) RELOCATE BY UTILITY OWNER
(4) ADJUST TO GRADE
(5) ADJUST TO GRADE BY UTILITY OWNER
(6) RELOCATE
(7) REMOVE
(8) NOT USED
(9) REMOVE BY UTILITY OWNER

ABBREVIATIONS

ARHM	ASPHALT RUBBER HOT MIX
BB	BEGIN BRIDGE
BC	BEGIN CURVE
BCR	BEGIN CURB RETURN
BOF	BOTTOM OF FOOTING
BVC	BEGIN VERTICAL CURVE
EB	END BRIDGE
EC	END CURB
ECR	END CURB RETURN
EP	EDGE OF PAVEMENT
EVC	END VERTICAL CURVE
FG	FINISHED GROUND
HP	HINGE POINT
LOL	LAYOUT LINE
OC	ORANGE COUNTY
OCFCD	ORANGE COUNTY FLOOD CONTROL DISTRICT
OCPW	ORANGE COUNTY PUBLIC WORKS
OG	ORIGINAL GROUND
PG	PROFILE GRADE
PRC	POINT OF REVERSE CURVE
PVI	POINT OF VERTICAL INTERSECTION
R/W	RIGHT OF WAY
RW	RETAINING WALL
SPPWC	STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION
TC	TOP OF CURB
TCE	TEMPORARY CONSTRUCTION EASEMENT
TOF	TOP OF FOOTING
TW	TOP OF WALL
VC	VERTICAL CURVE
WM	WATER METER
WMA	WARM MIX ASPHALT

County of Orange	
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AS-BUILT	
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COUNTY OF ORANGE CALIFORNIA

MARK	DESCRIPTION	DATE	APPR.

PREPARED UNDER THE RESPONSIBLE CHARGE OF:
REGISTERED PROFESSIONAL ENGINEER CHUANCHE TING No. 78632 Exp. 9/30/17 CIVIL STATE OF CALIFORNIA
CHUANCHE TING — DATE 09/12/16

DESIGNED BY: J. YAP
DRAWN BY: J. YAP
CHECKED BY: B. SMITH
DRAWING CODE:
FILE NAME: #FILE
PLOT DATE: 9/15/2016
SCALE: AS SHOWN

COUNTY OF ORANGE
OC PUBLIC WORKS

PREPARED BY:
AECOM
999 W. Town & Country Road
Orange, CA 92868
(714) 567-2501

EDINGER AVE BRIDGE AT BOLSA CHICA CHANNEL REPLACEMENT PROJECT
BR. NO. 55C-0400

CONSTRUCTION NOTES

Sheet Reference Number
2

FILE NAME = \\usonti1fs001\tran_prod\Projects\60216352-Edinger_BR\000_CAD\006_Civil\Sheets\02_Construction Notes.dgn

AS-BUILT SEPTEMBER 2019

RECORD OF SURVEY 94-1080
R.S.B. 147/33-34

GPS 0944
N 2215004.004'
E 6003744.966'

FD. 3 1/2" U.S.C. & G.S. BENCHMARK DISC, STAMPED "F 978 1964 RESET 1967" PER [R3], FLUSH

3532.53' N76°47'10"W
[3532.47' GRID N76°47'10"W]

GPS 0940
N 2214196.527'
E 6007183.912'

FD. 2" I.P. W/ 2" O.C.S. BRASS CAP STAMPED "SAP-6" PER [R3], UP 0.1'

958.40' N75°51'43"W
[958.38' N75°51'43"W GRID]

FD. 2" I.P. W/ O.C.S. BRASS TAG. PER [R1], DN. 0.1'

12.43'

FD. REMAINS OF BOTTOM OF 2" I.P. IN CONC. MASS ACCEPTED AS 2" I.P. W/ O.C.S. BRASS TAG PER [R3]

0.20'

SEE DETAIL ON SHEET S-2

CITY OF SEAL BEACH

CITY OF HUNTINGTON BEACH

N50°29'29"E

847.65' M & [R2]

270' M & [R2]

4364/451 O.R.

N39°30'31"W 270.00' M & [R2]

N50°29'29"E 900.00' M & [R2]

BOLSA CHICA CHANNEL (C02)

FD. 3/4" FLAT SPIKE (DISINTEGRATED) PER [R3], FLUSH IN AC

0.03'

0.15'

"A" LINE

℄ EXIST BRIDGE

8"

20'

30'

8'

46.60'

544.16'

28' O/S LINE PER [R1]

4364/451 O.R.

NEW ℄ EDINGER AVENUE PER [R1]

R = 865.00' C = 24°53'18" L = 375.74' [C = 24°55'35" L = 376.32' R2]

448.25' N50°29'29"E [N49°26'47"E R1]

389.22'

419.38'

FD. 2" I.P. W/ O.C.S. BR. TAG STAMPED "8-85 R/W" PER [R1], DN. 1.2'

OLD ℄ EDINGER AVENUE

PER [R1]. ALSO BEING NOTED AS THE S'LY LINE OF SECTION 18 IN RANCHO LAS BOLSA CHICA, PER [R1]

℄ EXIST ROADWAY

CITY OF SEAL BEACH

CITY OF HUNTINGTON BEACH

[N89°31'21"E R1] N89°25'57"W 3563.52'

0.05'

3018.77' M & [R1]

3019.36'

SECTION ℄

FD. TIES ON T/C 2" I.P. W/ TAG STAMPED "L.S. 2921" PER [R1]

FD. 2 1/2" BRASS DISC IN TRIANGULAR SHAPED WELL MON. PER [R3]

ORANGE COUNTY 1817 1920 SURVEYOR

E'LY COR. LOT 1, TRACT NO. 893, M.M. 27/23-24. ALSO POINT ON W'LY LINE OF RANCHO LAS BOLSA CHICA. 8" DIA. CONC. MON. W/ IRON BAR PER [R3], FLUSH IN WETLANDS. ACCEPTED AS CONC. POST, OR PERPETUATION OF SAME, PER [R1]

2" I.P. W/ NAIL PER [R3], DN. 0.6' S63°19'11"W, 0.20' [S62°16'29"R1]

2" I.P. W/ O.C.S. BRASS TAG STAMPED "8-85 R/W" PER [R3], DN. 0.6' S89°25'57"E 0.14' [N89°31'21"E R1]

478.39'
448.23'

SEE DETAIL

NW'LY CORNER BOLSA CHICA CHANNEL (C02) R/W ESTAB'D. BY INTERSECTION

N89°25'57"W [N89°31'21"E R1]

N'LY CH. R/W

FD. 6" DIA. CONC. MON. W/ BRASS ROD PER [R1], DN. 0.5'

0.36' S88°55'56"E [S89°58'38"E R1]

270'

BOLSA CHICA CHANNEL (C02)

3556/184 O.R.

0.04'

0.09'

0.09'

30.16'

270'

0.23'

FD. 6" DIA CONC. MON. W/ BRASS ROD PER [R1], DN. 0.5'

SURVEYOR'S NOTE

ALIGNMENT FOR THIS TOPOGRAPHIC MAP IS BASED ON THE RESULTS OF A SURVEY PER R.S.B. 147/33-34 [R1].

THE DISTANCES SHOWN HEREON ARE PER [R1].

HOWEVER, THIS TOPOGRAPHIC ALIGNMENT MAP USES A DIFFERENT BASIS OF BEARINGS THAN [R1]. SEE BASIS OF BEARINGS, BELOW, AND [R1] FOR MORE DETAILS.

HORIZONTAL DATUM

COORDINATES ARE BASED ON THE CALIF. COORDINATE SYSTEM, ZONE 6, 1983 NORTH AMERICAN DATUM (1991.35 EPOCH, O.C.S. GPS ADJUSTMENT).

DISTANCES SHOWN ARE GROUND. MULTIPLY GROUND DISTANCES BY 0.99998291 TO OBTAIN GRID DISTANCES.

BASIS OF BEARINGS

THE BASIS OF BEARINGS SHOWN HEREON IS THE E'LY LINE OF SEC. 13 R12W, T5S, BEING N01°02'42"E, AND IS BASED ON A GRID BEARING OF N76°47'10"W BETWEEN GPS CONTROL STATIONS GPS NO. 0940 AND GPS NO. 0944.

NOTE:
THE BASIS OF BEARINGS SHOWN ON R.S.B. 147/33-34 IS THE E'LY LINE OF SEC. 13, T5S, R12W, BEING N00°00'00"E AS PER TRACT NO. 893, M.M. 27/23-24. SEE SAID R.S.B. FOR MORE INFORMATION.

MONUMENT NOTE

△ FOUND O.C.S. HORIZONTAL CONTROL STATION ON FILE IN THE ORANGE COUNTY SURVEYOR'S OFFICE, GEODETIC SECTION.

● FOUND MONUMENT AS NOTED

REFERENCES

[R1] = RECORD PER R.S.B. 147/33-34

[R2] = 4364/451 O.R.

[R3] = O.C.S. TOPO SURVEY FILE NO. 045PW-OPS540029

County of Orange Public Works	
AS-BUILT	
Contractor:	Kiewit Infrastructure West Company
Resident Engineer:	Elmo Delos Santos (PreScience Corp.)
Senior RE:	Kevin Tran
Inspectors:	Tuan Tran (PreScience Corp.) Kenneth Junio
Construction Start Date:	May 8, 2017
Construction Completion Date:	August 5, 2019

0 25 50 100
SCALE: 1" = 50'

COUNTY OF ORANGE CALIFORNIA

MARK	DESCRIPTION	DATE	APPR.

DESIGNED BY:
DRAWN BY:
CHECKED BY:
DRAWING CODE:
FILE NAME: #FILE
PLOT DATE: 9/15/2016
SCALE: AS SHOWN

COUNTY OF ORANGE
OC PUBLIC WORKS

PREPARED BY:
AECOM
999 W. Town & Country Road
Orange, CA 92868
(714) 567-2501

EDINGER AVE BRIDGE AT BOLSA CHICA CHANNEL REPLACEMENT PROJECT
BR. NO. 55C-0400

SURVEY CONTROL

Sheet Reference Number

S-1

Sheet 3 of 76

FILE NAME : \\usonttfs001\tran_prod\Projects\60216352-Edinger_BR\000_CAD\006_Civil\Sheets\03_SC_Survey Control_01.dgn

BASIS OF STATIONING

STATIONING IS BASED ON THE INTERSECTION OF THE CENTER LINE OF OLD EDINGER AVE., WHICH IS ALSO THE S'LY LINE OF SECTION 18 IN RANCHO LA BOLSA CHICA, BEING 98+45.38 PER "EDINGER AVE. EXTENSION AND CO2 CHANNEL CROSSING", O.C.F.C.D. PERMIT NO. 03767.

REFERENCES

[R1] RECORD PER "EDINGER AVE. EXTENSION AND CO2 CHANNEL CROSSING", O.C.F.C.D. PERMIT NO. 03767.

[R2] RECORD PER "SUNSET AQUATIC REGIONAL PARK, PHASE I REV. JULY 21, 1967, SITE IMPROVEMENTS, ORANGE COUNTY HARBOR DISTRICT PLANS S15.5-1, SHEET 2 OF 9.

[R3] RECORD PER R.S.B. 147/33-34.

NOTE:

THE BRIDGE DECK PLANS [R1] SHOW THE CENTERLINE OF THE BRIDGE DECK AS A LINE THAT IS TANGENT FOR THE LENGTH OF THE BRIDGE DECK TO ITS INTERSECTION WITH THE W'LY RIGHT OF WAY OF THE BOLSA CHICA CHANNEL (CO2). THE CONSTRUCTION PLANS FOR THE PRIVATE STREET CONTINUING W'LY FROM THE BRIDGE DECK [R2], SHOW THE N'LY AND S'LY EDGES OF PAVEMENT OF THE ROADWAY AS CONCENTRIC AND PARALLEL CURVES BEGINNING AT THEIR INTERSECTION WITH SAID W'LY RIGHT OF WAY. A CENTER LINE CURVE CONCENTRIC WITH THE EDGES OF PAVEMENT WOULD NOT BE TANGENT TO THE BRIDGE DECK CENTERLINE PER [R1], AND WOULD CREATE A JOG IN THE CENTERLINE. FOR THIS REASON, THE CENTER LINE CURVE BEGINS AT THE SAME STATION, AND PROCEEDS CONCENTRIC AND PARALLEL WITH THE N'LY EDGE OF PAVEMENT.

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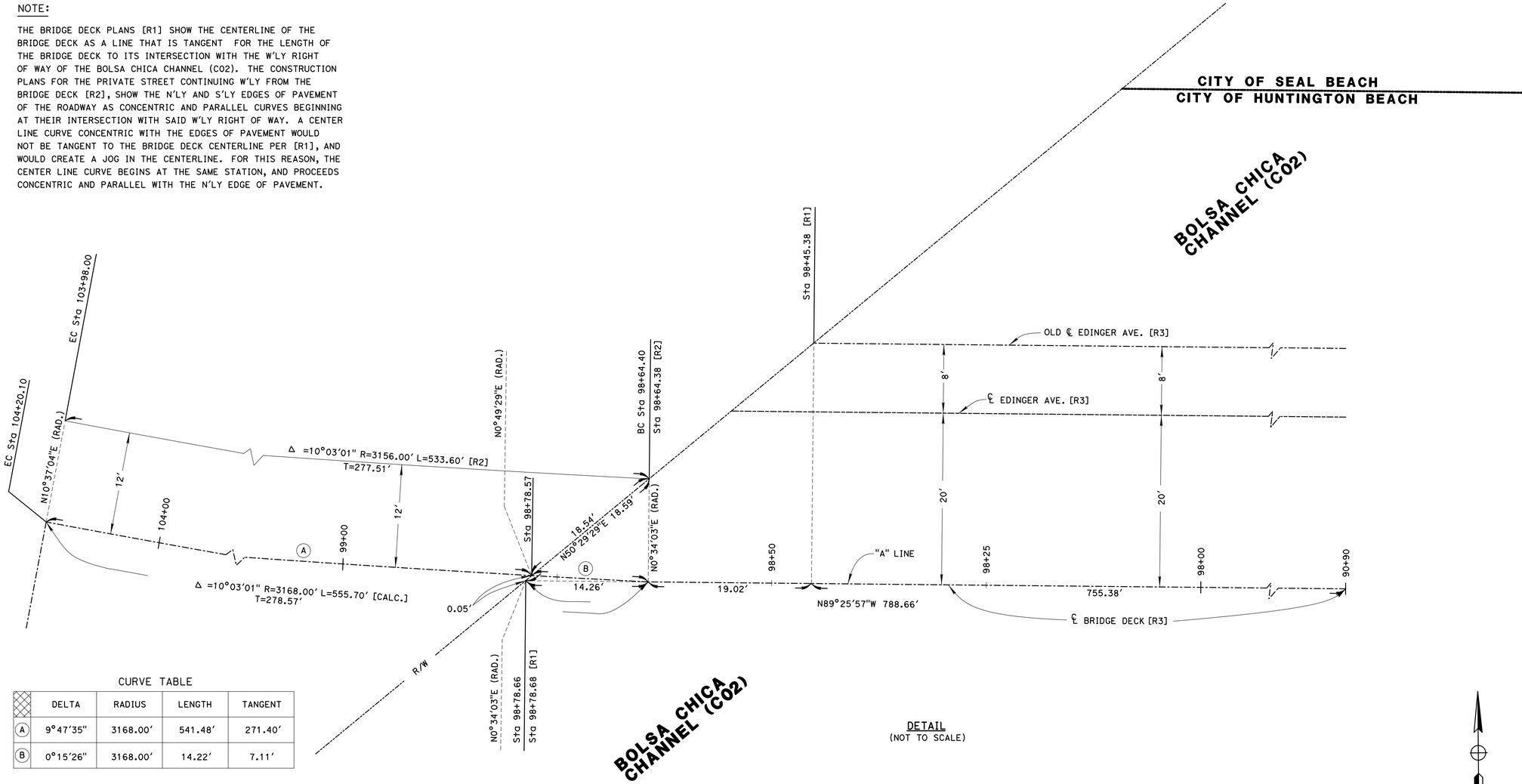


DETAIL
(NOT TO SCALE)

CURVE TABLE

	DELTA	RADIUS	LENGTH	TANGENT
A	9°47'35"	3168.00'	541.48'	271.40'
B	0°15'26"	3168.00'	14.22'	7.11'

(NOT TO SCALE)

MARK	DESCRIPTION	DATE	APPR.

DESIGNED BY:
DRAWN BY:
CHECKED BY:
DRAWING CODE:
FILE NAME: #FILE
PLOT DATE: 9/15/2016
SCALE: AS SHOWN

COUNTY OF ORANGE
OC PUBLIC WORKS

PREPARED BY:
AECOM
999 W. Town & Country Road
Orange, CA 92868
(714) 567-2501

EDINGER AVE BRIDGE AT BOLSA CHICA CHANNEL REPLACEMENT PROJECT
BR. NO. 55C-0400

SURVEY CONTROL

Sheet Reference Number

S-2

FILE NAME = \\usont1fs001\tran_prod\Projects\60216352-Edinger_BR\000_CAD\006_Civil\Sheets\04_SC_Survey Control_02.dgn

AS-BUILT SEPTEMBER 2019

CONSTRUCTION NOTES

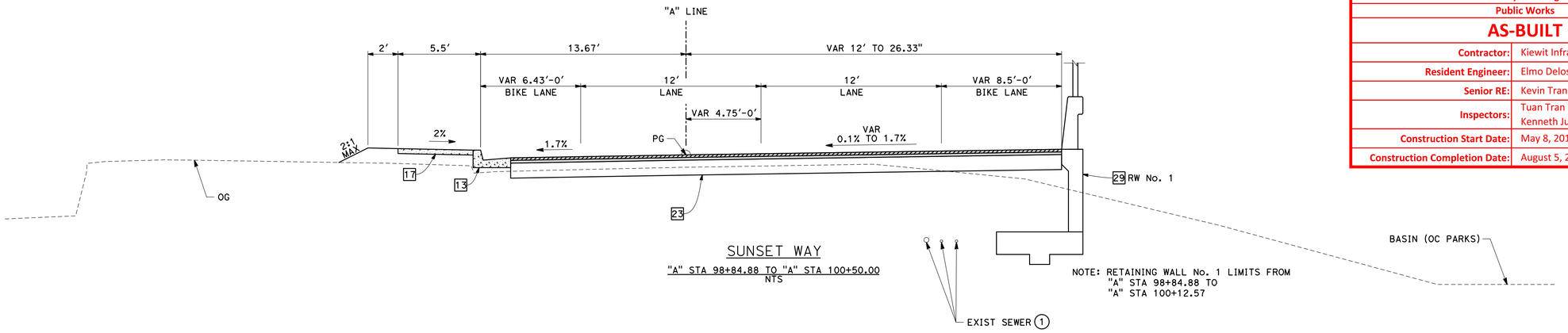
13 CONSTRUCT 8" CURB & GUTTER PER CITY OF SEAL BEACH STD. PLAN 182
14 CONSTRUCT 8" CURB PER CITY OF HUNTINGTON BEACH STD. PLAN 201
17 CONSTRUCT 4" PCC SIDEWALK PER CITY OF HUNTINGTON BEACH STD. PLAN 207
23 CONSTRUCT 0.17' ARHM OVER 0.18' WMA OVER 1.00' CRUSHED MISCELLANEOUS BASE OVER 95% COMPACTED SUBGRADE
29 CONSTRUCT RETAINING WALL PER RETAINING WALL SHEET RW-1
51 CONSTRUCT 8" CURB & GUTTER PER CITY OF HUNTINGTON BEACH STD. PLAN 202

UTILITY DISPOSITION NOTES

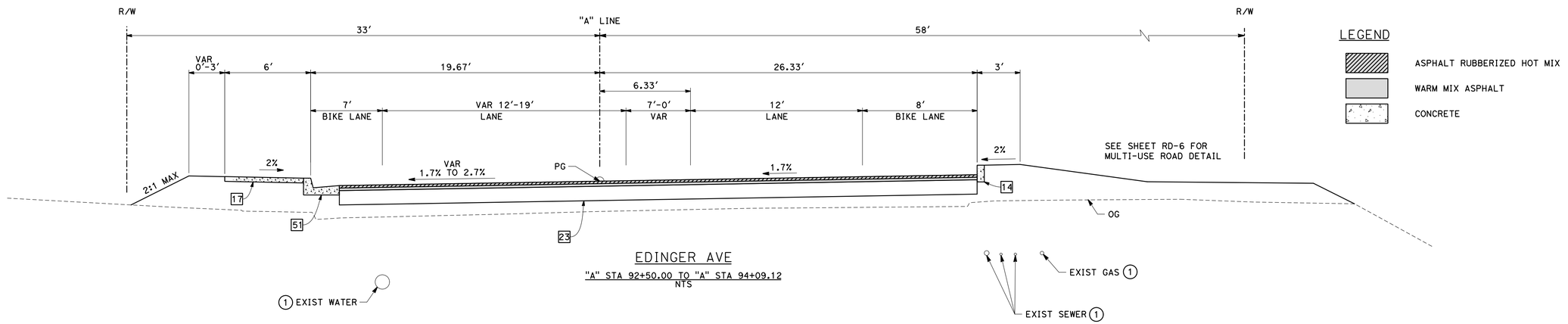
(1) PROTECT IN PLACE

SEE SHEETS RM-1 AND RM-2 FOR REMOVAL OF EXISTING FEATURES

County of Orange	
Public Works	
AS-BUILT	
Contractor:	Kiewit Infrastructure West Company
Resident Engineer:	Elmo Delos Santos (PreScience Corp.)
Senior RE:	Kevin Tran
Inspectors:	Tuan Tran (PreScience Corp.) Kenneth Junio
Construction Start Date:	May 8, 2017
Construction Completion Date:	August 5, 2019



SUNSET WAY
"A" STA 98+84.88 TO "A" STA 100+50.00
NTS



EDINGER AVE
"A" STA 92+50.00 TO "A" STA 94+09.12
NTS

LEGEND
ASPHALT RUBBERIZED HOT MIX
WARM MIX ASPHALT
CONCRETE

MARK	DESCRIPTION	DATE	APPR.

PREPARED UNDER THE RESPONSIBLE CHARGE OF:
CHUANCHE TING
REGISTERED PROFESSIONAL ENGINEER
No. 78632
Exp. 9/30/17
CIVIL
STATE OF CALIFORNIA
09/12/16
DATE
CHUANCHE TING

DESIGNED BY: J. YAP
DRAWN BY: J. YAP
CHECKED BY: B. SMITH
DRAWING CODE:
FILE NAME: #FILE
SCALE: AS SHOWN
PLOT DATE: 9/15/2016

COUNTY OF ORANGE
OC PUBLIC WORKS

PREPARED BY:
AECOM
999 W. Town & Country Road
Orange, CA 92868
(714) 567-2501

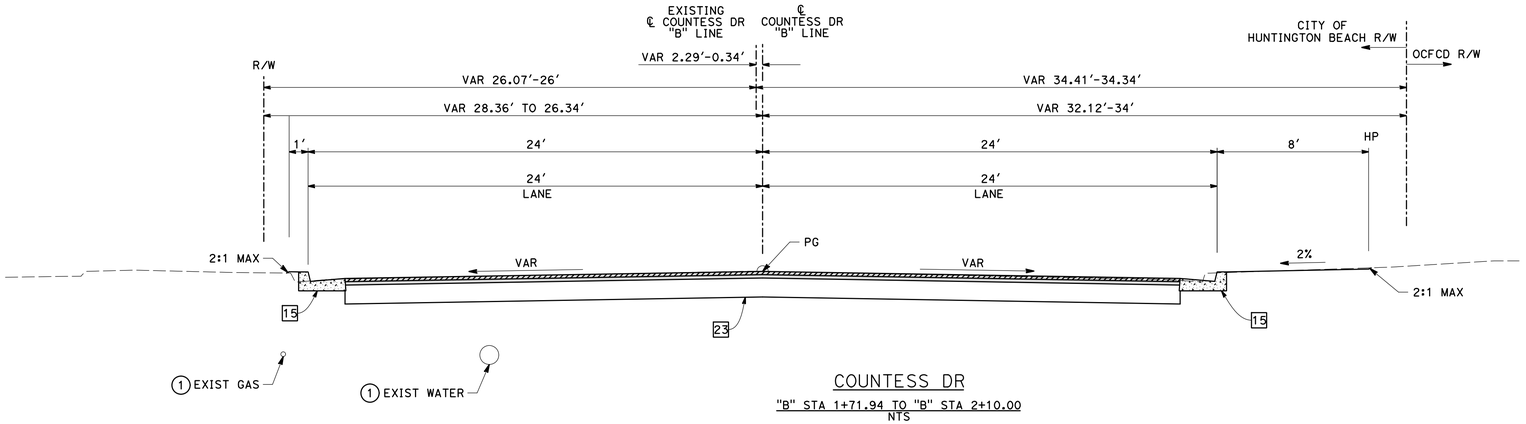
EDINGER AVE BRIDGE AT
BOLSA CHICA CHANNEL
REPLACEMENT PROJECT
BR. NO. 55C-0400

TYPICAL SECTIONS

Sheet Reference Number
X-1

FILE NAME = \\usont1fs001\tran_prod\Projects\60216352-Edinger_BR\000_CAD\006_Civil\Sheets\05_X_Typical Sections_01.dgn

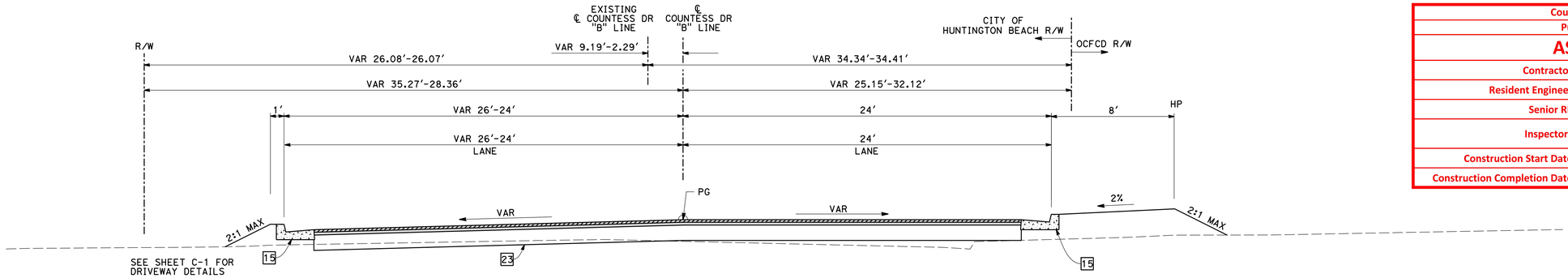
AS-BUILT SEPTEMBER 2019



COUNTESS DR

"B" STA 1+71.94 TO "B" STA 2+10.00

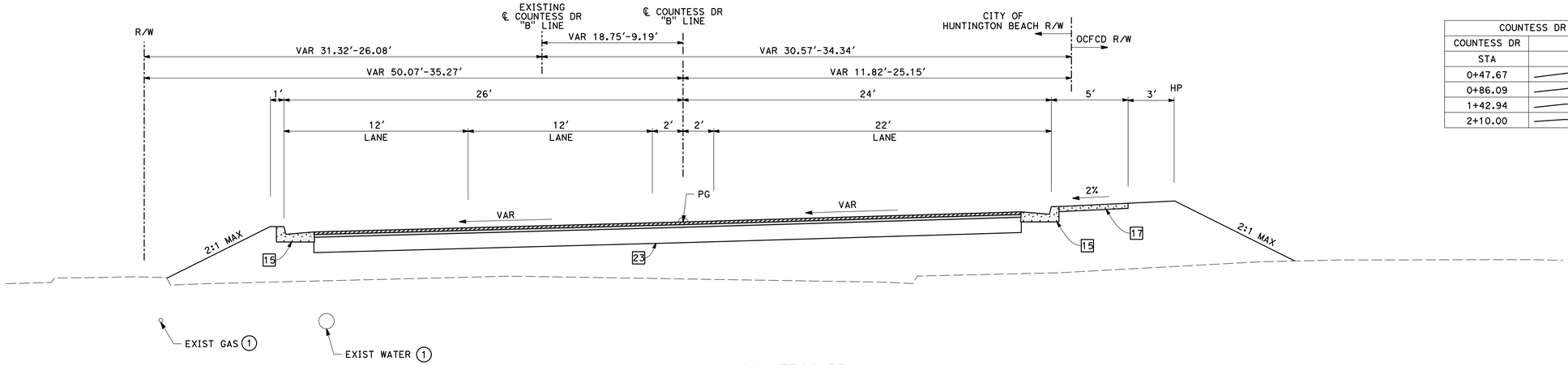
NTS



COUNTESS DR

"B" STA 0+86.09 TO "B" STA 1+71.94

NTS



COUNTESS DR

"B" STA 0+47.67 TO "B" STA 0+86.09

NTS

CONSTRUCTION NOTES

15 CONSTRUCT 6" CURB & GUTTER PER CITY OF HUNTINGTON BEACH STD. PLAN 202

17 CONSTRUCT 4" PCC SIDEWALK PER CITY OF HUNTINGTON BEACH STD. PLAN 207

23 CONSTRUCT 0.17' ARHM OVER 0.18' WMA OVER 1.00' CRUSHED MISCELLANEOUS BASE OVER 95% COMPACTED SUBGRADE
CONSTRUCT 0.17' ARHM OVER 0.18' WMA OVER 1.00' CRUSHED MISCELLANEOUS BASE OVER 95% COMPACTED SUBGRADE

UTILITY DISPOSITION NOTES

1 PROTECT IN PLACE

SEE SHEETS RM-1 AND RM-2 FOR REMOVAL OF EXISTING FEATURES

LEGEND

ASPHALT RUBBERIZED HOT MIX

WARM MIX ASPHALT

CONCRETE

County of Orange	
Public Works	
AS-BUILT	
Contractor:	Kiewit Infrastructure West Company
Resident Engineer:	Elmo Delos Santos (PreScience Corp.)
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Construction Start Date:	May 8, 2017
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COUNTESS DR CROSS SLOPE			
COUNTESS DR		CROSS SLOPE	
STA		LT	RT
0+47.67		3.1%	3.2%
0+86.09		2.7%	3%
1+42.94		2.2%	0%
2+10.00		MATCH EXISTING	

COUNTY OF ORANGE CALIFORNIA

MARK	DESCRIPTION	DATE	APPR.

PREPARED UNDER THE RESPONSIBLE CHARGE OF:

REGISTERED PROFESSIONAL ENGINEER CHUANCHE TING No. 78632 Exp. 9/30/17 CIVIL STATE OF CALIFORNIA

09/12/16 DATE

CHUANCHE TING

DESIGNED BY: J. YAP
DRAWN BY: J. YAP
CHECKED BY: B. SMITH
DRAWING CODE:
FILE NAME: #FILE
PLOT DATE: 9/15/2016
SCALE: AS SHOWN

COUNTY OF ORANGE
OC PUBLIC WORKS

PREPARED BY:
AECOM
999 W. Town & Country Road
Orange, CA 92868
(714) 567-2501

EDINGER AVE BRIDGE AT
BOLSA CHICA CHANNEL
REPLACEMENT PROJECT
BR. NO. 55C-0400

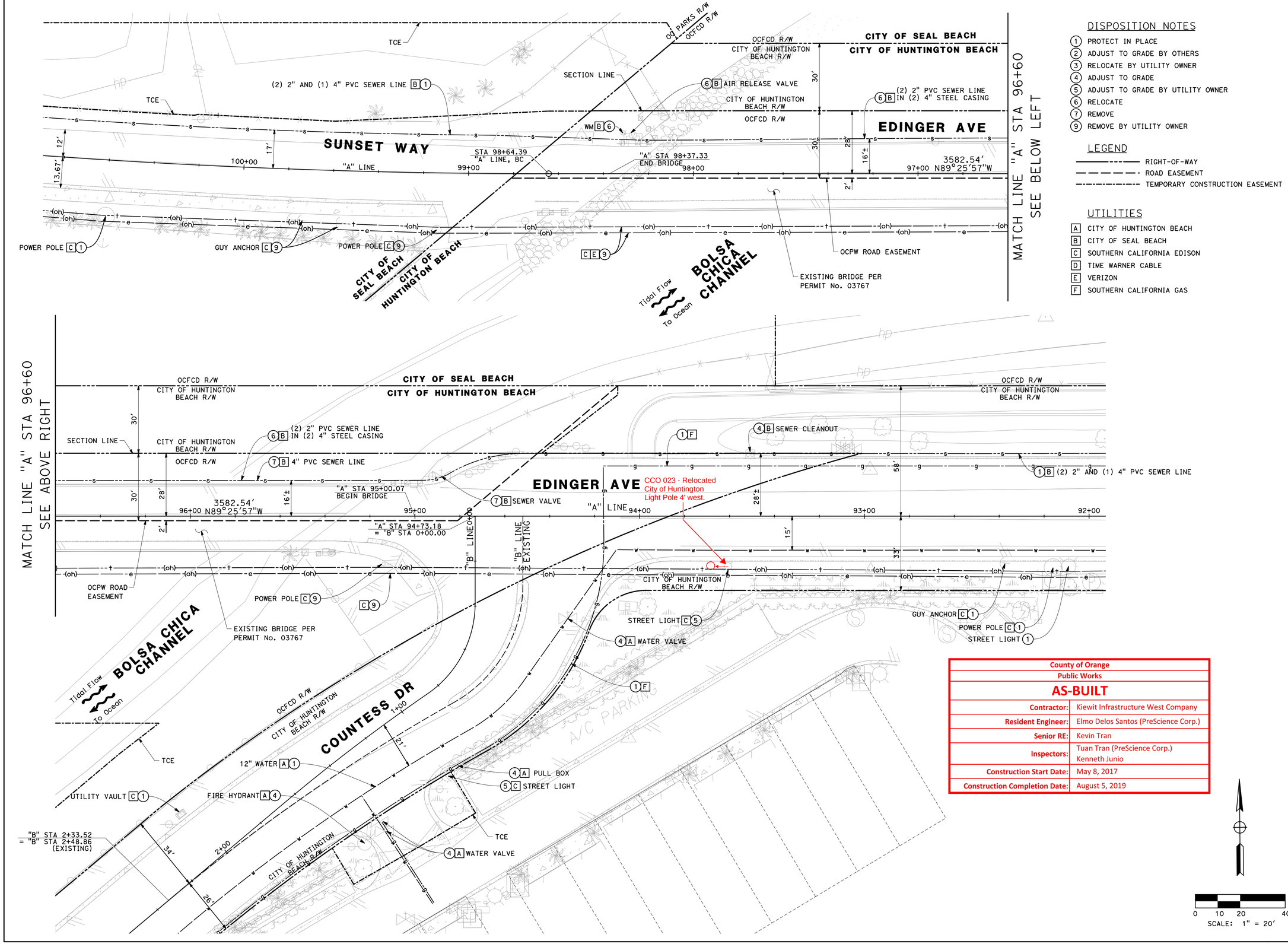
TYPICAL SECTIONS

Sheet Reference Number

X-2

FILE NAME : \\usonttfs001\tran_prod\Projects\60216352-Edinger_BR\000_CAD\006_Civil\Sheets\06_X_Typical Sections_02.dgn

AS-BUILT SEPTEMBER 2019



DISPOSITION NOTES

1. PROTECT IN PLACE
2. ADJUST TO GRADE BY OTHERS
3. RELOCATE BY UTILITY OWNER
4. ADJUST TO GRADE
5. ADJUST TO GRADE BY UTILITY OWNER
6. RELOCATE
7. REMOVE
9. REMOVE BY UTILITY OWNER

LEGEND

- RIGHT-OF-WAY
- ROAD EASEMENT
- TEMPORARY CONSTRUCTION EASEMENT

UTILITIES

- A CITY OF HUNTINGTON BEACH
- B CITY OF SEAL BEACH
- C SOUTHERN CALIFORNIA EDISON
- D TIME WARNER CABLE
- E VERIZON
- F SOUTHERN CALIFORNIA GAS

County of Orange Public Works	
AS-BUILT	
Contractor:	Kiewit Infrastructure West Company
Resident Engineer:	Elmo Delos Santos (PreScience Corp.)
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Construction Start Date:	May 8, 2017
Construction Completion Date:	August 5, 2019

0 10 20 40
SCALE: 1" = 20'

COUNTY OF ORANGE CALIFORNIA

MARK	DESCRIPTION	DATE	APPR.

PREPARED UNDER THE RESPONSIBLE CHARGE OF:
CHUANCHE TING
No. 78632
Exp. 9/30/17
CIVIL
REGISTERED PROFESSIONAL ENGINEER
STATE OF CALIFORNIA
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COUNTY OF ORANGE
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EDINGER AVE BRIDGE AT
BOLSA CHICA CHANNEL
REPLACEMENT PROJECT
BR. NO. 55C-0400

UTILITY PLAN

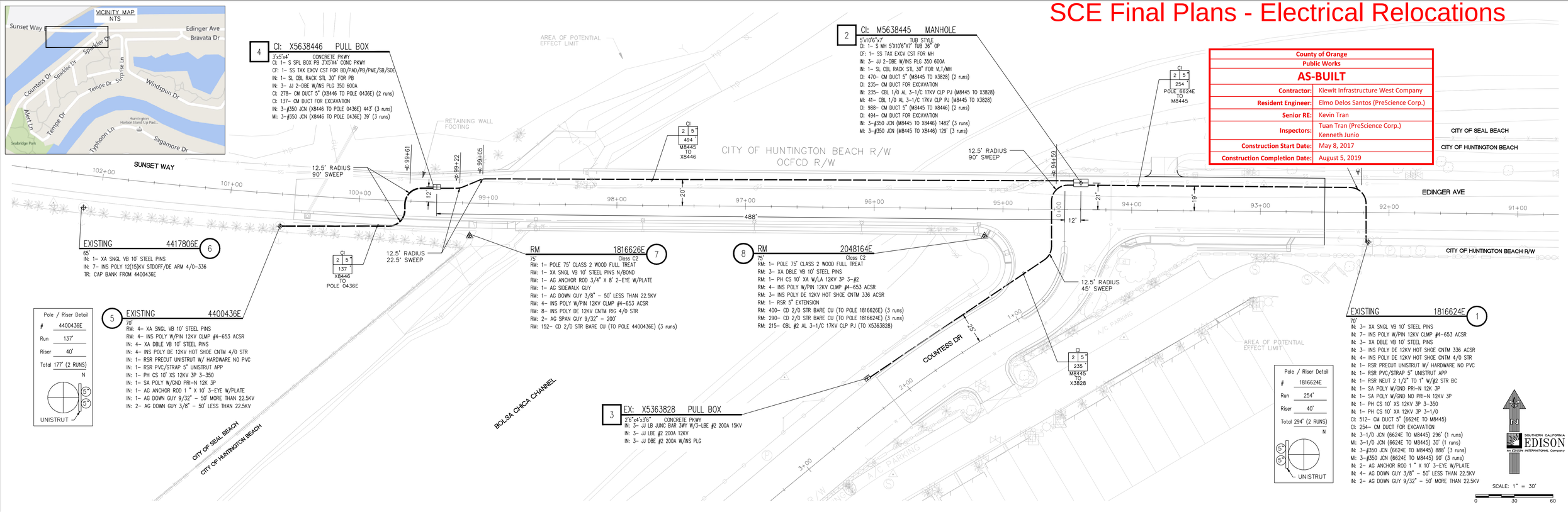
Sheet Reference Number
UT-1

Sheet 7 of 76

FILE NAME : \\usont1fs001\tran_prod\Projects\60216352-Edinger_BR\000_CAD\006_Civil\Sheets\07_UT_Utility_01.dgn

AS-BUILT SEPTEMBER 2019

SCE Final Plans - Electrical Relocations



County of Orange
Public Works

AS-BUILT

Contractor:	Kiewit Infrastructure West Company
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Construction Start Date:	May 8, 2017
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CONSTRUCTION NOTES:

Unless otherwise specified on the working drawing which forms a part of the specification, the Contractor/Developer shall furnish the following items at no cost to the Edison Company.

Southern California Edison Company has attempted to correctly show all existing utilities and substructures in the vicinity of the work, but does not guarantee there are no other substructures in the area. Failure of SCE to show all substructures in their correct location will not be a basis for a claim for extra work, and the contractor shall be responsible for all damages to substructures whether shown or not.

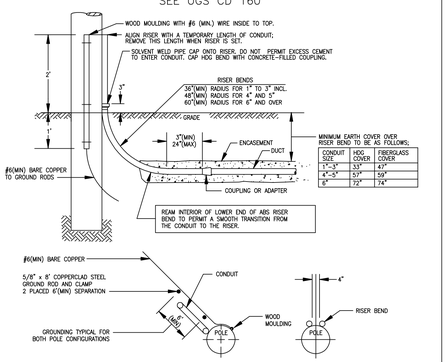
1. FOR GENERAL SPECIFICATIONS SEE UGS GI 001.
2. CONDUIT:
   a. Minimum cover in street or parkway is 30" below gutter grade, unless noted otherwise.
   b. Minimum cover on private property is 30" below finished grade, unless noted otherwise.
   c. Contractor is to furnish and install approved conduit to Edison specifications per UGS CD 100.1, 110 AND 120.
   d. For the type of conduit for this job, See UGS CD 110.1.
   e. Install all risers per UGS CD 160, 161, 162 and 170.
   f. Cap all mainline conduits per UGS CD 148 and service conduits per UGS CD 150.
   g. Install blank conduit plugs in all conduits terminating into Vaults, Manhole's, PMH's, SCE's & all cap locations, per UGS CD 180.1 & UGS CD 180.2
   h. Install pull rope in all conduit runs. Pull rope to be 1/4" polypropylene or polyethylene rope, braided or twisted. For specifications, approved makes, and suppliers, see UGS GI 040.
   i. All conduit must be mandreled with the approved mandrel UGS CD 197.
3. CONDUIT RADIUS REQUIREMENTS:
   a. The minimum radius for bends are:
      36" for conduits 3" in diameter or smaller
      48" for conduits 4" and 5" in diameter
      60" for diameter conduit
   b: The minimum radius for all sweeps of all mainline conduits is 12'-6" (unless noted otherwise).
4. EXCAVATION AND BACKFILL:
   a. Work area shall be cleared and rough graded to within four inches of final grade prior to installation of Edison conduit or structures.
   b. All excavations shall be in accordance with the California State Construction Safety Orders (when applicable), Edison specifications, and all governing local ordinances.
   c. Each trench to be a uniform depth below final grade prior to installation of Edison conduit or structures.
   d. Backfill shall be provided by the Contractor for all excavations and shall include crushed rock, concrete and/or imported backfill, when required.
   e. Backfill with a MINIMUM of one sack per yard sand cement slurry around and over vaults and manholes per UGS GI 030, section 6.4 and around PMH's within one foot of finished grade, per UGS SS 590.1.
   f. Backfill, per Edison specifications, shall immediately follow conduit or substructure installation. At no time shall conduit be left exposed over 24 hours.
   g. No rocks are allowed within 12 inches of direct-buried cables or any conduit without concrete encasement. Native backfill capable of passing through a one-half inch mesh screen shall be considered to be "rock free". If existing backfill does not pass through a 1/2" screen, place imported sand 3" below and 12" above Edison cables. After this point, no rocks larger than 12" diameter are permitted.
   h. All backfill shall be compacted to meet or exceed local ordinances or other requirements. It shall be placed in a manner that will not damage the conduit or substructure or allow future subsidence of the trench or structures.
5. PAVING:
   Repaving, where required, shall be placed in such a manner that interference with traffic, including pedestrian traffic, will be kept to a minimum. The Contractor shall establish a program of repaving acceptable to the Municipality, County, or other authority having jurisdiction and which is acceptable to Edison.
6. STRUCTURES:
   a. All substructures shall be constructed or installed to Edison specifications.
   b. Install protection barriers per UGS MS 830 when required in areas exposed to traffic, per Edison Inspector.
   c. All conduit lines and concrete floored substructures shall be water tight.
   d. All grounding materials shall be furnished and installed by the Contractor.
7. RETAINING WALLS:
   When required, retaining walls shall be provided by the Developer. Walls are required wherever grade rises more than 18 inches above the structure or 24" above the pad surface at a distance of 5 feet from the same, or in areas subject to erosion. Design and installation must comply with local building ordinances. Refer to Edison Inspector for typical space requirements.
8. PERMITS:
   All permits necessary for excavation shall be provided by the Contractor/Developer.
9. ACCESS:
   Heavy truck access shall be maintained to equipment locations. Structures must be clear of all appurtenances that would obstruct the loading or unloading of equipment.
10. SERVICES:
    a. Meters and services shall comply with Edison Electrical Services Requirements.
    b. Wiring must be in accordance with applicable local ordinances and approved by local Inspection Authorities.
11. LOCATION:
    a. The location of excavations and structures for Edison shall be as shown on the working drawing. No deviation from the planned locations will be permitted unless approved by the Edison Inspector. See UGS GI 001, section 2.2.
    b. Actual location of obstructions, storm drains, and/or other foreign utilities to be the responsibility of the Contractor. See UGS GI 001, section 2.3.
12. Contractor is to verify location and widths of all sidewalks and driveways prior to street light installation. See UGS CD 175.1, UGS CD 175.2 and UGS CD 175.3.
13. SURVEY:
    Surveying of street improvements, property corners, lot lines, finished grade, etc., necessary for the installation of underground facilities must be completed and markers or stakes placed prior to the start of the installation. In addition, Developer shall maintain the markers during the installation and inspection by Edison. Grade and property line stakes must show any offset measurements.
14. COORDINATION AND SUPERVISION:
    The Developer shall provide supervision over and coordination among the various contractors working within the development in order to prevent damage to Edison facilities. He is responsible for the cost of repairs, replacement, relocation, or other corrections to Edison facilities made necessary by his failure to provide supervision or to otherwise comply with these specifications.
15. TELEPHONE AND OTHER UTILITY REQUIREMENTS:
    The drawing prepared for this job may also cover the facilities to be installed for the telephone company and/or other utility. Any questions concerning details of their installation should be referred to the company concerned.
16. OWNERSHIP:
    Developer is to deed to the Edison Company all structures shown hereon except those shown as customer owned.
17. WARRANTY:
    Applicants expressly represent and warrant that all work performed and all material used in meeting Applicants' obligations herein are free from defects in workmanship and are in conformity with Southern California Edison Company's requirements. This warranty shall commence upon receipt by Applicants of Company's final acceptance and shall expire one year from that date. Applicants agree to promptly correct to the Company's satisfaction and that of any governmental agency having jurisdiction and at Applicant's expense any breach of this warranty which may become apparent through inspection or operation of underground electric system by Company during this warranty period.
18. INSPECTION:
    Inspection is required during the construction period. A 48 hour advance notice of intent to start construction is required from the contractor to the Southern California Edison Company. Standards of Edison construction requirements are available upon request.

Duct and Structure Inspector: CHRIS WHITE Phone: 714-474-5596

Cabling Construction Coordinator: Phone:

D05: Rev. 07/17/07

POLE RISER BEND STANDARD LOCATION
SEE UGS CD 160



1. APPROVED RISER BENDS ARE SHOWN ON FOLLOWING TABLE.

MATERIAL	SIZE 1"	1-1/2"	2"	2-1/2"	3"	4"	5"	6"
PVC	–	–	–	X	X	X	X	–
FIBERGLASS	–	–	–	–	X	X	X	X
HDG	X	X	X	X	X	X	X	X

NOTE: 6" HDG OR FIBERGLASS RISER BEND SHALL BE USED WHEN SPECIFIED ON THE WORKING DRAWING. SEE UGS AC 702 FOR GROUNDING HDG RISER BENDS.

2. THE TOP AND BOTTOM OF 3", 4", 5" OR 6" FIBERGLASS BENDS ARE FURNISHED WITH PERMANENTLY ATTACHED PVC COUPLINGS. ALSO INCLUDED IS A 6" LONG 3", 4", 5" OR 6" SCHEDULE 80 PVC STUB-OUT, SOLVENT WELDED INTO THE TOP COUPLING. SEE UGS CD 166 FOR FIBERGLASS RISER BEND MATERIAL INFORMATION AND SUPPLIERS.
3. TWO GROUND RODS ARE REQUIRED AT ALL PRIMARY RISER POLES. DRIVE RODS IN TRENCH BOTTOM WITH 6" MINIMUM SEPARATION IN UNDISTURBED EARTH. LEAVE THE ROD TOPS 3" ABOVE THE TRENCH BOTTOM AND ATTACH CONTINUOUS GROUND WIRE WITH CLAMPS. EXTEND WIRE TO INDICATED LOCATION ON POLE AND STUB UP 2" ABOVE GRADE IN WOOD MOULDING. ALL GROUNDING MATERIALS FURNISHED BY CONTRACTORS. SEE UGS AC 703 FOR APPROVED GROUNDING MATERIALS.
4. ENCASEMENT REQUIRED ONLY WHEN CALLED OUT ON WORKING DRAWING.
5. PVC RISERS MAY BE SUBSTITUTED FOR FIBERGLASS FOR STRAIGHT RUNS OF 150' OR LESS IN CONDUIT SIZES 4" AND UNDER.

D78: REV. 02/14/11

CONNECTING TO EXISTING SCE STRUCTURES

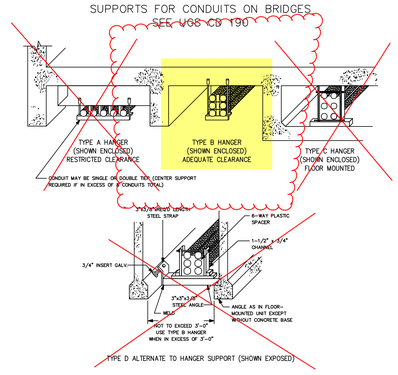
- Per SCE requirements, customers are not allowed to enter, intercept or tie-in to existing SCE structures, equipment or conductors. This work will only be performed by SCE. Contact the appropriate SCE inspector to schedule an appointment. Customers may connect to an existing duct stub without a SCE inspector present.
- Per CPUC/SCE's Rule 15 B.1.A and Rule 16 D.1.A., the customer will provide all necessary excavations (with the exception of excavation under pads and primary splice boxes), material (including conduit and structures) and encasement, to be utilized in the intercept/tie-in process.
- The customer must adhere to all applicable Cal-OSHA, local, city, state and federal regulations, (including, but not limited to, all necessary shoring and traffic control in place to perform the intercept/tie-in work by SCE's underground civil contractors(s))
- Intercept/tie-in work must be coordinated with SCE's civil contractors through the Division Inspector/CCM to limit exposure of excavation(s). Customer is responsible for securing excavation(s).

DOB: 12/10/07

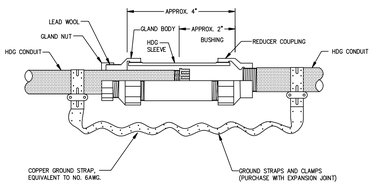
TIE-IN MADE THROUGH SIDE WALL OF STRUCTURE

(Vault, Manhole, PME, SOE/CST, BURD, Slab Box, Pull Box, PMH)
The customer is responsible to trench to the structure entrance point and bring the conduit to within 5' of the structure being entered. The customer is to provide slip coupling and conduit.

SUPPORTS FOR CONDUITS ON BRIDGES
SEE UGS CD 190



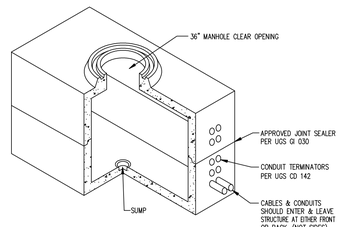
EXPANSION JOINT FOR HDG CONDUIT ON BRIDGES
SEE UGS CD 192



NOTES:
1. THE EXPANSION JOINT IS USED IN LONG HDG CONDUITS RUNS TO PERMIT LINEAR MOVEMENT CAUSED BY THERMAL EXPANSION AND CONTRACTION.
2. FITTING PERMITS 4 INCHES OF CONDUIT MOVEMENT.
3. EXPANSION JOINT TO BE INSTALLED AT EACH BRIDGE EXPANSION JOINT PER UGS CD 190.
4. SUGGESTED SUPPLIERS-GRAYBAR ELECTRIC CO., CALIF. WHOLESALE ELECTRIC.
5. PROTECT CABLES BY DE-BURRING CONDUIT ENDS PRIOR TO INSTALLATION IN THE EXPANSION JOINT.
6. SEE UGS CD 191 FOR INSTALLATION.

REF.: UGS CD 192
D69: REV. 06/28/07

PRECAST TUB-TYPE MANHOLES
SEE UGS MH 310



CONSULT MANUFACTURER'S INSTALLATION GUIDES FOR EXACT EXCAVATION DIMENSIONS FOR EACH STRUCTURE SIZE.

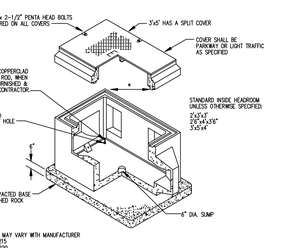
ITEM NUMBER	NOMINAL SIZE	MANUFACTURER'S NUMBERS JENSEN PRECAST	UTILITY VAULT CO.
M-1	4' x 6'-6" x 5'-6"	K466-DM66-11	ED466-84MH
M-3	4' x 6'-6" x 7'	K466-DM84-11	ED466-84MH
M-10	5' x 10'-6" x 7'	K5106-FM84-11	ED5106-84MH
M-11	6' x 12' x 7'	K612-FM84-11	ED612-84MH

NOTES:
1. CONDUIT TERMINATORS TO BE GENERALLY LOCATED AS SHOWN ON UGS CD 142. STANDARD CONDUIT ENTRANCE SHALL BE A FLATWALL DESIGN. SLIGHT VARIATIONS BY MANUFACTURERS MAY BE ALLOWABLE WITH COMPANY APPROVAL.
2. TUB-TYPE STRUCTURES SHALL BE FURNISHED WITH 1/2" THREADED BRONZE GROUNDING INSERTS, AS SHOWN ON UGS VA 411.1.
3. INSIDE WALLS AND CEILING TO BE PAINTED WHITE.

REF.: UGS GI 030 GENERAL SPECIFICATION FOR PRECAST STRUCTURES
UGS GI 035 ALLOWABLE TOLERANCES FOR INSTALLED PRECAST STRUCTURES
UGS CD 142 CONDUIT ENTRANCE
UGS MH 310 PRECAST TUB-STYLE MANHOLE
UGS MH 318 PRECAST MANHOLE NECK DETAIL
UGS AC 711 SUMP DRAIN AND DETAIL
UGS AC 740 LADDERS

D102 Rev. 05/09/13

PRECAST CONCRETE PULL BOX WITH DEEP RECESSES
(2'X 3' OR 2'6"X 4' OR 3'X 5')
SEE UGS HP 215, 220 & 225



* TYPE OF JOINT MAY VARY WITH MANUFACTURER
REF.: UGS HP 215
UGS HP 220
UGS HP 225

D53: Rev. 03/05/07

PROJECT REQUIREMENTS	
EDISON EASEMENT REQUIRED	☐
PWRD 88 REQUIRED	☐
PERMIT REQUIRED	☐
PERMIT TYPE:	
OUTAGE REQUIRED	☐
TRAFFIC CONTROL REQUIRED	☒
PED. TRAFFIC CONTROL REQ'D	☐
CONVEYANCE LETTER REQ'D	☐

CONTRACTOR _____

COST PLUS ☐ FIRM ☐ DEV. ☐

INCLUDES PERM. PAVING YES ☐ NO ☐

PERMIT NUMBER _____

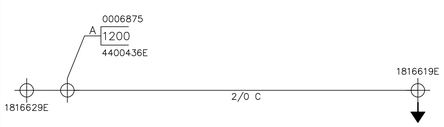
DATE STARTED _____

DATE COMPLETED _____

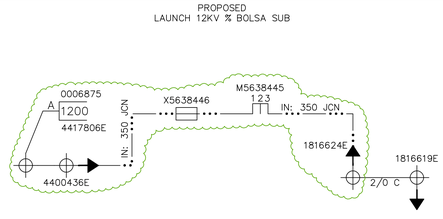
INSPECTOR _____

PRECASTER _____ CONDUIT _____

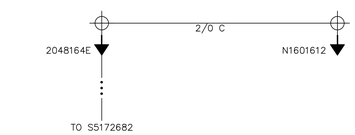
AS-IS
LAUNCH 12KV ⅝ BOLSA SUB



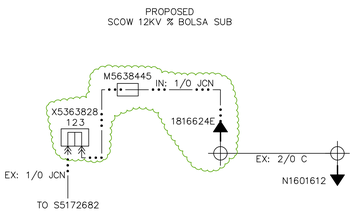
PROPOSED
LAUNCH 12KV ⅝ BOLSA SUB



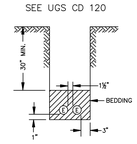
PROPOSED
SCOW 12KV ⅝ BOLSA SUB



PROPOSED
SCOW 12KV ⅝ BOLSA SUB



TYPICAL CONDUIT BANK SECTION
SEE UGS CD 120



DIRECT BURIAL
SIMILAR CONSTRUCTION FOR FEWER CONDUIT
2 CONDUITS MAX.

D81: Rev. 09/23/09

UNDERGROUND SERVICE ALERT
Dial 811
Call USA
For Underground Locating
2 Working Days Before You Dig

NOTE:
ALL ELECTRICAL DUCTS AND STRUCTURES WILL CONFORM TO GENERAL ORDER #128 (RULES FOR CONSTRUCTION OF UNDERGROUND ELECTRICAL SUPPLY AND COMMUNICATION PRESCRIBED BY THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA, JANUARY 2006).

RUN NUMBER CALL-OUTS AS FOLLOWS:

1 - 99	MAINLINE CONDUIT
100 - 199	SERVICE CONDUIT
400 - 599	STREET LIGHT CONDUIT

D84: Rev. 2/12/08

FINAL DESIGN
APPROVED FOR CONSTRUCTION

DISTRICT 33 – HUNTINGTON BEACH		PROJ. MGR.			PLANNER OEN, ERICK DOMINIQUE PHONE 714-895-0242		
FOREMAN		TRUCK NO.	P/E	INVENTORY MAP NO. 42-3B/42-4A	THOMAS GUIDE	GRID NO.	DESIGN NO. 571494_0.01
CSD 140 Y ___ N ___	BY-PASS CODE	EXISTING ___ CHANGE TO ___		TLM CHECKED ___ %LOAD	J.P.A. NO.		ASSOCIATED DESIGN NO.
PRODUCT/SAP NO. 810630-RELOC FACILITIES - NON BILLING				PRODUCT/SAP NO.			PRODUCT/SAP NO.

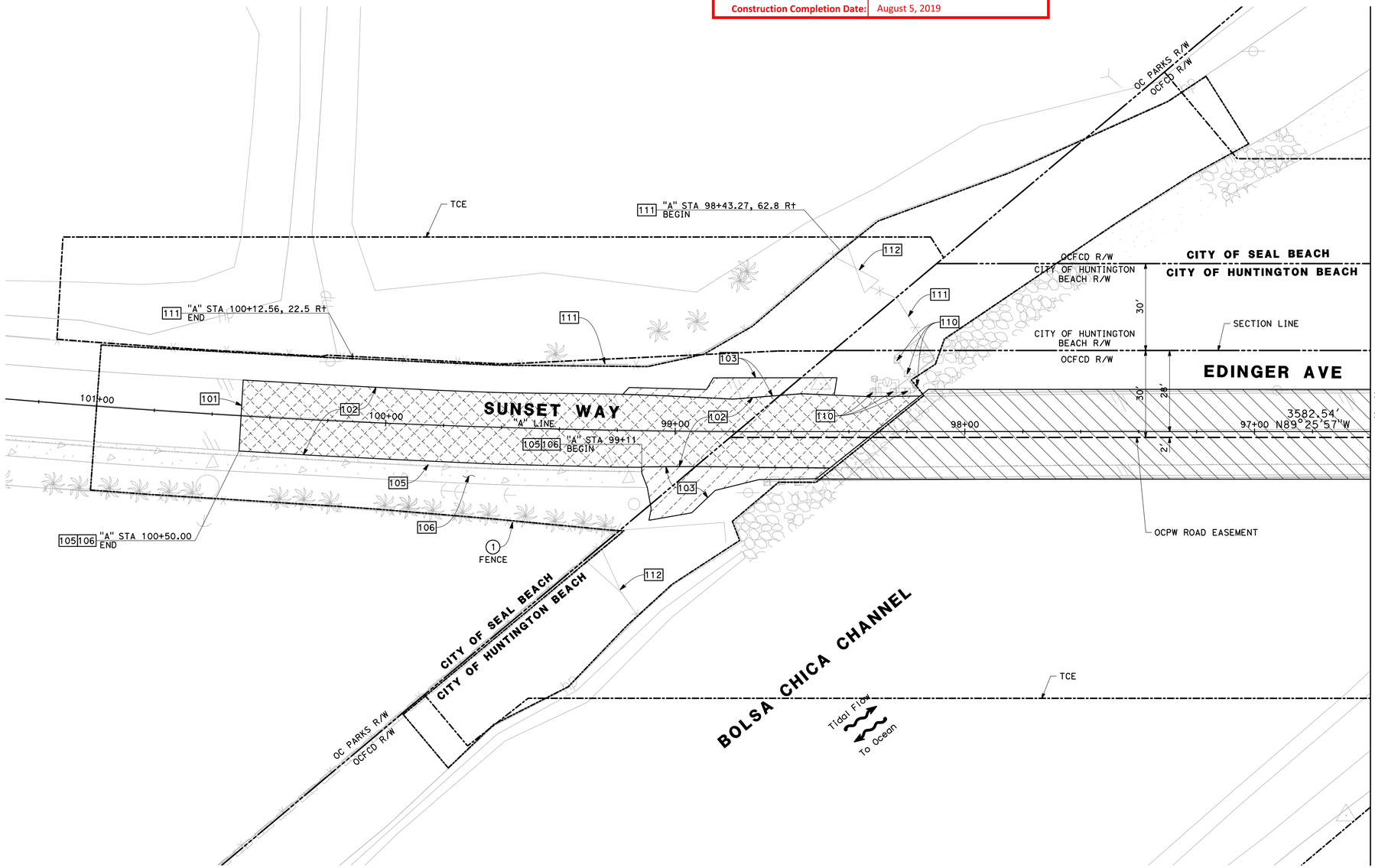
						PROPOSED CONSTRUCTION (LOCATION)
F	REV	1/18/18	EDO	MLD	54242	XSTRT EDINGER BRIDGE TO HARBOR
F	REV	8/7/17	EDO	MLD	54242	HUNTINGTON BEACH CA 92649
TYPE	APPROVED BY	DATE	CHECKED BY	DRAWN BY	PAX #	SHEET 1 OF 3

Southern California Edison Company

JOB NO. 571494_0.01

AS-BUILT SEPTEMBER 2019

County of Orange	
Public Works	
AS-BUILT	
Contractor:	Kiewit Infrastructure West Company
Resident Engineer:	Elmo Delos Santos (PreScience Corp.)
Senior RE:	Kevin Tran
Inspectors:	Tuan Tran (PreScience Corp.) Kenneth Junio
Construction Start Date:	May 8, 2017
Construction Completion Date:	August 5, 2019



DISPOSITION NOTES

(1) PROTECT IN PLACE

CONSTRUCTION NOTES

101 SAWCUT EXISTING PAVEMENT
102 REMOVE ROADWAY PAVEMENT SECTION
103 REMOVE AC PAVEMENT
105 REMOVE PCC CURB & GUTTER
106 REMOVE PCC SIDEWALK
110 REMOVE WOOD POST
111 REMOVE CHAIN LINK FENCE
112 REMOVE CHAIN LINK GATE

LEGEND

RIGHT-OF-WAY
ROAD EASEMENT
CLEAR AND GRUB LIMIT LINE
TEMPORARY CONSTRUCTION EASEMENT

ROADWAY PAVEMENT TO BE REMOVED
AC PAVEMENT TO BE REMOVED
EXISTING BRIDGE TO BE REMOVED (SEE BRIDGE PLANS)

NOTES:

1. FOR SIGNING AND STRIPING REMOVALS SEE SHEETS SS-1 AND SS-2

0 10 20 40
SCALE: 1" = 20'

COUNTY OF ORANGE CALIFORNIA

MARK	DESCRIPTION	DATE	APPR.

PREPARED UNDER THE RESPONSIBLE CHARGE OF:
CHUANCHE TING
REGISTERED PROFESSIONAL ENGINEER
No. 78632
Exp. 9/30/17
CIVIL
STATE OF CALIFORNIA
09/12/16
DATE

DESIGNED BY: J. YAP
DRAWN BY: J. YAP
CHECKED BY: B. SMITH
DRAWING CODE:
FILE NAME: #FILE
SCALE: AS SHOWN
PLOT DATE: 9/15/2016

COUNTY OF ORANGE
OC PUBLIC WORKS

PREPARED BY:
AECOM
999 W. Town & Country Road
Orange, CA 92868
(714) 567-2501

EDINGER AVE BRIDGE AT
BOLSA CHICA CHANNEL
REPLACEMENT PROJECT
BR. NO. 55C-0400

REMOVAL PLAN

Sheet Reference Number

RM-1

FILE NAME = \\usonlfs001\tran_prod\Projects\60216352-Edinger_BR\000_CAD\006_Civil\Sheets\08_RM_Removals_01.dgn

AS-BUILT SEPTEMBER 2019

MATCH LINE "A" STA 96+60
SEE SHEET RM-1

EDINGER AVE

CITY OF SEAL BEACH
CITY OF HUNTINGTON BEACH

OCFCD R/W
CITY OF HUNTINGTON BEACH R/W

SECTION LINE

30'

28'

2'

3582.54'
96+00 N89° 25' 57"W

"A" LINE

95+00

94+00

93+00

92+00

0+00

"B" LINE

"B" LINE EXISTING

OCPW ROAD EASEMENT

117 "A" STA 94+97.12, 16.09' RT
END

104 "A" STA 95+14.74
END

"A" STA 94+73.18
= "B" STA 0+00.00

105 "A" STA 95+21.26
BEGIN

114 "A" STA 95+48.53, 19.11' LT
END

"A" STA 93+42.96, 72.39' RT
BEGIN 117

"A" STA 93+51.70, 43.56' RT
BEGIN 103

"A" STA 93+65.90, 43.21' RT
BEGIN 116

"A" STA 92+50
BEGIN
104 105 106

"A" STA 93+86
END
106

(1) LANDSCAPE (TYP)

(1) MONUMENT SIGN

(1) TREE

(1) STREET LIGHT

(1) FENCE WALL LANDSCAPE (TYP)

(1) TREE

(1) FENCE WALL LANDSCAPE (TYP)

(1) STREET LIGHT

(1) TREE

TCE

(1) GATE

(1) CROSS GUTTER

"B" STA 1+13.84, 52.19' LT
END 105

"B" STA 1+50.04, 47.66' LT
BEGIN 105

OCFCD R/W
CITY OF HUNTINGTON BEACH R/W

CITY OF HUNTINGTON BEACH R/W

BOLSA CHICA CHANNEL

Tidal Flow
TO Ocean

114 "B" STA 1+66.16, 32.00' RT
BEGIN

COUNTESS DR

1+00

2+00

"B" STA 2+60.67
END 105

"B" STA 2+34.00
END 105

"B" STA 5+39.67
END 105

5+00

CITY OF HUNTINGTON BEACH R/W

A/C PARKING

NOTES:

1. FOR SIGNING AND STRIPING REMOVALS SEE SHEETS SS-1 AND SS-2

County of Orange	
Public Works	
AS-BUILT	
Contractor:	Kiewit Infrastructure West Company
Resident Engineer:	Elmo Delos Santos (PreScience Corp.)
Senior RE:	Kevin Tran
Inspectors:	Tuan Tran (PreScience Corp.) Kenneth Junio
Construction Start Date:	May 8, 2017
Construction Completion Date:	August 5, 2019

DISPOSITION NOTES

(1) PROTECT IN PLACE

CONSTRUCTION NOTES

101 SAWCUT EXISTING PAVEMENT
102 REMOVE ROADWAY PAVEMENT SECTION
103 REMOVE AC PAVEMENT
104 REMOVE PCC CURB
105 REMOVE PCC CURB & GUTTER
106 REMOVE PCC SIDEWALK
107 REMOVE PCC CURB RAMP
108 REMOVE PCC MEDIAN ISLAND
109 REMOVE BOLLARD
113 REMOVE REDWOOD HEADER
114 REMOVE POST & CABLE FENCE
115 REMOVE GRAVEL SHOULDER
116 REMOVE RETAINING CURB
117 REMOVE CHAIN LINK FENCE

LEGEND

RIGHT-OF-WAY
ROAD EASEMENT
CLEAR AND GRUB LIMIT LINE
TEMPORARY CONSTRUCTION EASEMENT
ROADWAY PAVEMENT TO BE REMOVED
AC PAVEMENT TO BE REMOVED
EXISTING BRIDGE TO BE REMOVED (SEE BRIDGE PLANS)
GRAVEL SHOULDER TO BE REMOVED

0 10 20 40
SCALE: 1" = 20'

COUNTY OF ORANGE CALIFORNIA

MARK	DESCRIPTION	DATE	APPR.

PREPARED UNDER THE RESPONSIBLE CHARGE OF:
CHUANCHE TING
REGISTERED PROFESSIONAL ENGINEER
No. 78632
Exp. 9/30/17
CIVIL
STATE OF CALIFORNIA
09/12/16
DATE

DESIGNED BY: J. YAP
DRAWN BY: J. YAP
CHECKED BY: B. SMITH
DRAWING CODE:
FILE NAME: #FILE
PLOT DATE: 9/15/2016
SCALE: AS SHOWN

COUNTY OF ORANGE
OC PUBLIC WORKS

PREPARED BY:
ACCOM
999 W. Town & Country Road
Orange, CA 92868
(714) 567-2501

EDINGER AVE BRIDGE AT
BOLSA CHICA CHANNEL
REPLACEMENT PROJECT
BR. NO. 55C-0400

REMOVAL PLAN

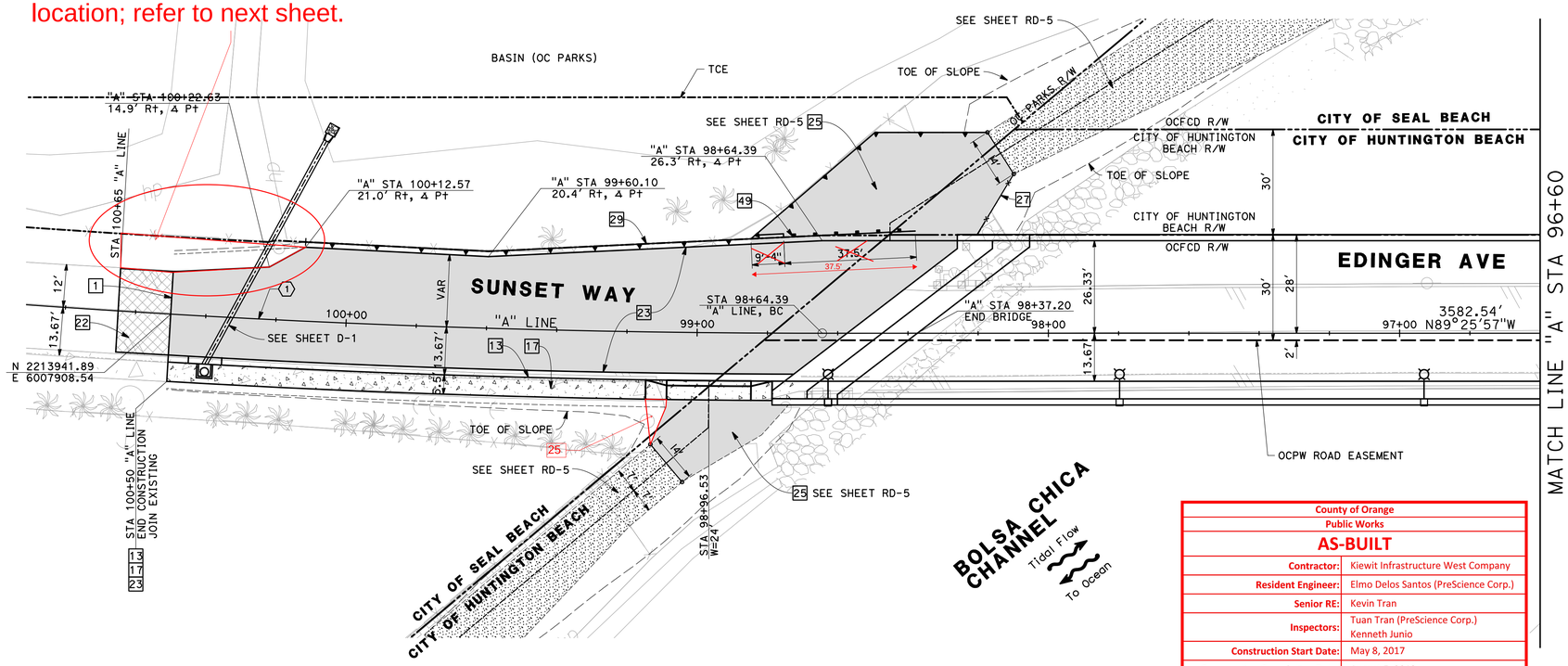
Sheet Reference Number
RM-2

Sheet 9 of 76

FILE NAME : \\usontfs001\tran_prod\Projects\60216352-Edinger_BR\000_CAD\006_Civil\Sheets\09_RM_Removals_02.dgn

AS-BUILT SEPTEMBER 2019

CCO 019: Install AC at this location; refer to next sheet.



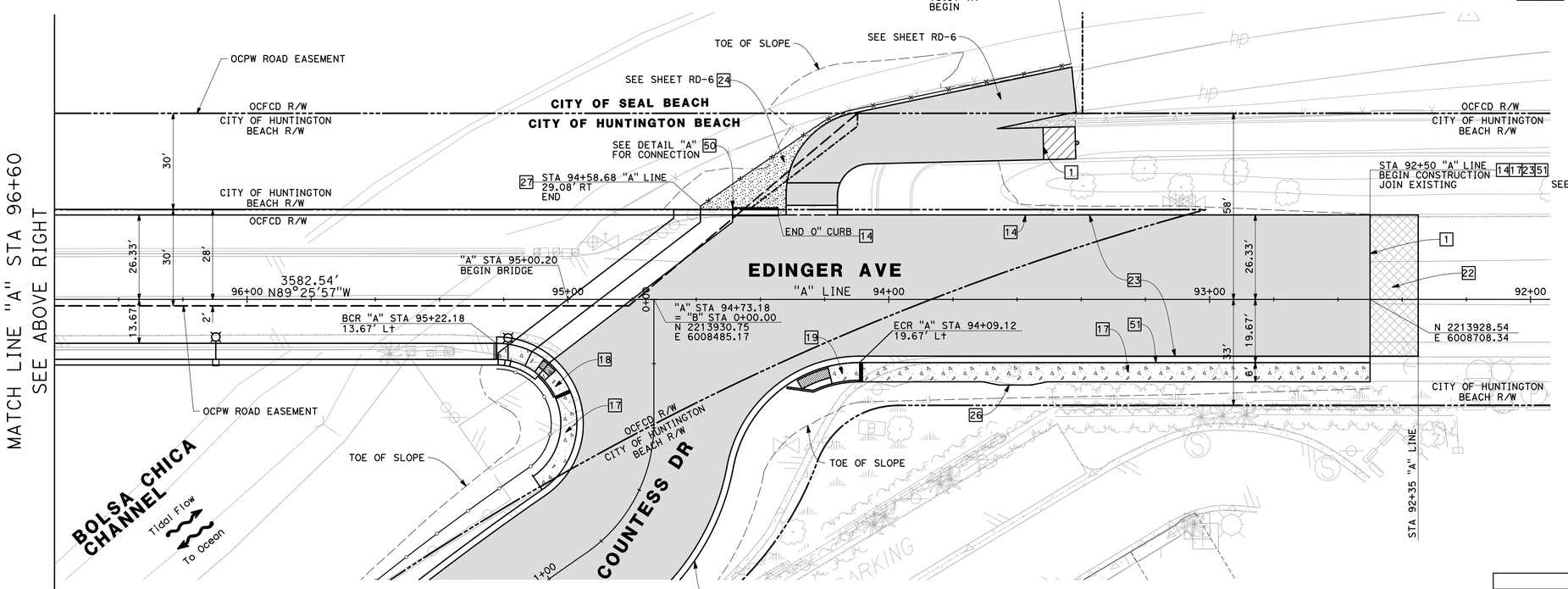
CONSTRUCTION NOTES

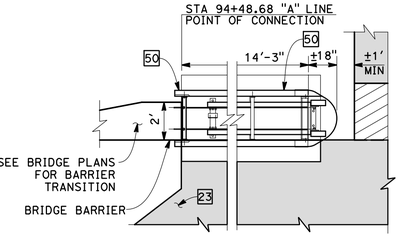
1. SAWCUT EXISTING PAVEMENT
13. CONSTRUCT 8" CURB & GUTTER PER CITY OF SEAL BEACH STD. PLAN 182
14. CONSTRUCT 8" CURB PER CITY OF HUNTINGTON BEACH STD. PLAN 201
17. CONSTRUCT 4" PCC SIDEWALK PER CITY OF HUNTINGTON BEACH STD. PLAN 207
18. CONSTRUCT MODIFIED CURB RAMP (TYPE 2) PER OCPW STD. PLAN 1115 AND DETAIL ON SHEET C-2
19. CONSTRUCT CURB RAMP PER DETAIL ON SHEET C-2
22. COLDMILL (0.17') EXISTING PAVEMENT AND PLACE 0.17' ARHM OVERLAY
23. CONSTRUCT 0.17' ARHM OVER 0.18' WMA OVER 1.00' CRUSHED MISCELLANEOUS BASE OVER 95% COMPACTED SUBGRADE
24. CONSTRUCT 4" DISINTEGRATED GRANITE OVER COMPACTED NATIVE SOIL
25. CONSTRUCT 0.42' AC OVER 0.50' CRUSHED MISCELLANEOUS BASE OVER COMPACTED NATIVE SOIL
26. CONSTRUCT SIDEWALK AROUND OBSTRUCTION PER DETAIL ON SHEET C-1
27. CONSTRUCT CHAIN LINK FENCE PER OCPW STD. PLAN 600-3
29. CONSTRUCT RETAINING WALL PER RETAINING WALL SHEET RW-1
49. INSTALL MIDWEST GUARDRAIL SYSTEM TYPE 12A PER CALTRANS RSP A77Q1
50. INSTALL TL-2 CRASH-CUSHION SYSTEM
51. CONSTRUCT 8" CURB & GUTTER PER CITY OF HUNTINGTON BEACH STD. PLAN 202

County of Orange	
Public Works	
AS-BUILT	
Contractor:	Kiewit Infrastructure West Company
Resident Engineer:	Elmo Delos Santos (PreScience Corp.)
Senior RE:	Kevin Tran
Inspectors:	Tuan Tran (PreScience Corp.) Kenneth Junio
Construction Start Date:	May 8, 2017
Construction Completion Date:	August 5, 2019

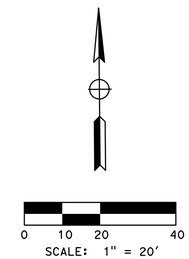
LEGEND

- RIGHT-OF-WAY
- ROAD EASEMENT
- RETAINING WALL
- TEMPORARY CONSTRUCTION EASEMENT
- AC PAVEMENT
- COLDMILL AND ARHM OVERLAY
- DISINTEGRATED GRANITE
- CONCRETE PAVEMENT





DETAIL "A"
NTS



CURVE DATA				
NO.	R	Δ	T	L
1	3168.00'	10°03'01"	278.56'	555.70'

COUNTY OF ORANGE
CALIFORNIA

MARK	DESCRIPTION	DATE	APPR.

PREPARED UNDER THE RESPONSIBLE CHARGE OF:
CHUANCHE TING
No. 78632
Exp. 9/30/17
CIVIL
REGISTERED PROFESSIONAL ENGINEER
STATE OF CALIFORNIA
09/12/16
DATE
CHUANCHE TING

DESIGNED BY: J. YAP
DRAWN BY: J. YAP
CHECKED BY: B. SMITH
DRAWING CODE:
FILE NAME: #FILE
PLOT DATE: 9/5/2016
SCALE: AS SHOWN

COUNTY OF ORANGE
OC PUBLIC WORKS

PREPARED BY:
AECOM
999 W. Town & Country Road
Orange, CA 92868
(714) 567-2501

EDINGER AVE BRIDGE AT
BOLSA CHICA CHANNEL
REPLACEMENT PROJECT
BR. NO. 55C-0400

ROADWAY PLANS
"A" LINE
STA 92+35
TO STA 100+65

Sheet Reference Number

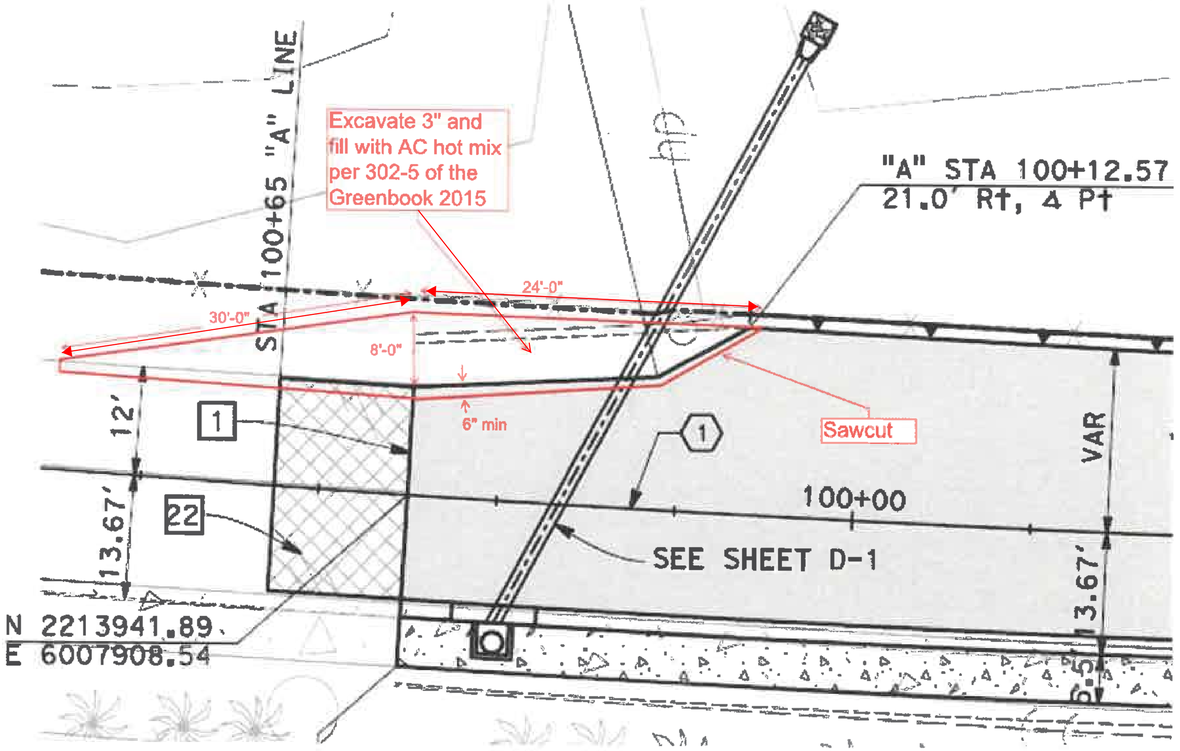
RD-1

FILE NAME = \\usonttfs001\tran_prod\Projects\60216352-Edinger_BR\000_CAD\006_Civil\Sheets\10_RD_Roadway_01.dgn

AS-BUILT SEPTEMBER 2019

OCPW Letter No. 109: Attachment

County of Orange Public Works **AS-BUILT**	
Contractor:	Kiewit Infrastructure West Company
Resident Engineer:	Elmo Delos Santos (PreScience Corp.)
Senior RE:	Kevin Tran
Inspectors:	Tuan Tran (PreScience Corp.) Kenneth Junio
Construction Start Date:	May 8, 2017
Construction Completion Date:	August 5, 2019



Plan for Reference Only

PREPARED UNDER THE RESPONSIBLE CHARGE OF:

MARK	DESCRIPTION	DATE	APPR.

DATE

DESIGNED BY: ####
DRAWN BY: ####
CHECKED BY: ####
DRAWING NO: ####
FILE NAME: West Approach.dwg
PLOT DATE: ####
SCALE: AS SHOWN

County of Orange
OC Public Works
PREPARED BY:
FLOOD CONTROL DESIGN UNIT

WEST APPROACH WORK

SHEET
1
OF 1

AS-BUILT SEPTEMBER 2019

County of Orange	
Public Works	
AS-BUILT	
Contractor:	Kiewit Infrastructure West Company
Resident Engineer:	Elmo Delos Santos (PreScience Corp.)
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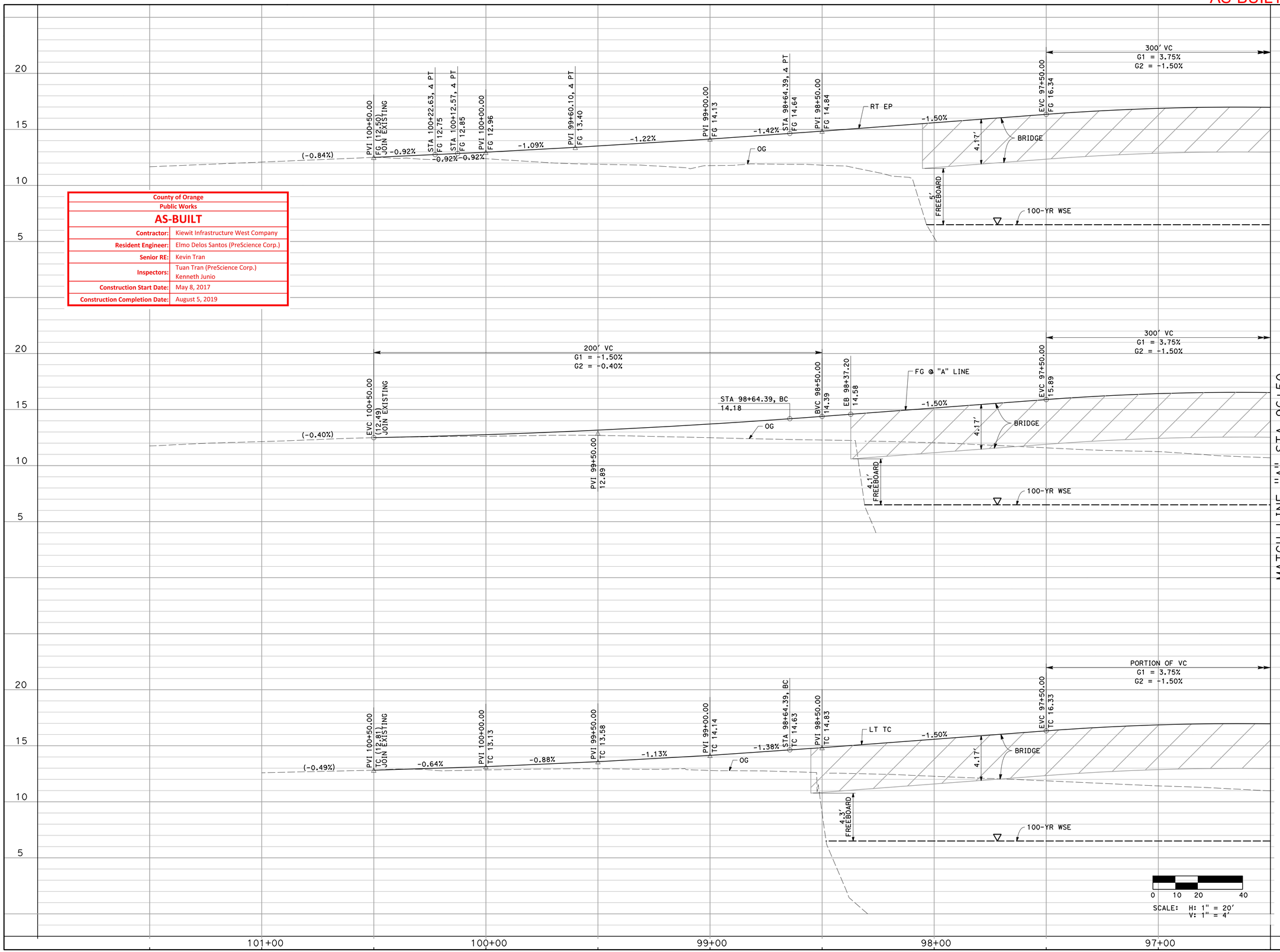

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PREPARED UNDER THE RESPONSIBLE CHARGE OF:
CHUANCHE TING
No. 78632
Exp. 9/30/17
CIVIL
STATE OF CALIFORNIA
REGISTERED PROFESSIONAL ENGINEER
09/12/16
DATE
CHUANCHE TING

DESIGNED BY: J. YAP
DRAWN BY: J. YAP
CHECKED BY: B. SMITH
DRAWING CODE:
FILE NAME: #FILE
PLOT DATE: 9/15/2016
SCALE: AS SHOWN

COUNTY OF ORANGE
OC PUBLIC WORKS

PREPARED BY:
AECOM
999 W. Town & Country Road
Orange, CA 92868
(714) 567-2501

EDINGER AVE BRIDGE AT
BOLSA CHICA CHANNEL
REPLACEMENT PROJECT
BR. NO. 55C-0400

ROADWAY PROFILE
"A" LINE
STA 96+50
TO STA 100+50

Sheet Reference Number

RD-2

Sheet 11 of 76

FILE NAME: \\usont1fs001\tran_prod\Projects\60216352-Edinger_BR\000_CAD\006_Civil\Sheets\11_RD_Roadway_02.dgn

AS-BUILT SEPTEMBER 2019

County of Orange	
Public Works	
AS-BUILT	
Contractor:	Kiewit Infrastructure West Company
Resident Engineer:	Elmo Delos Santos (PreScience Corp.)
Senior RE:	Kevin Tran
Inspectors:	Tuan Tran (PreScience Corp.) Kenneth Junio
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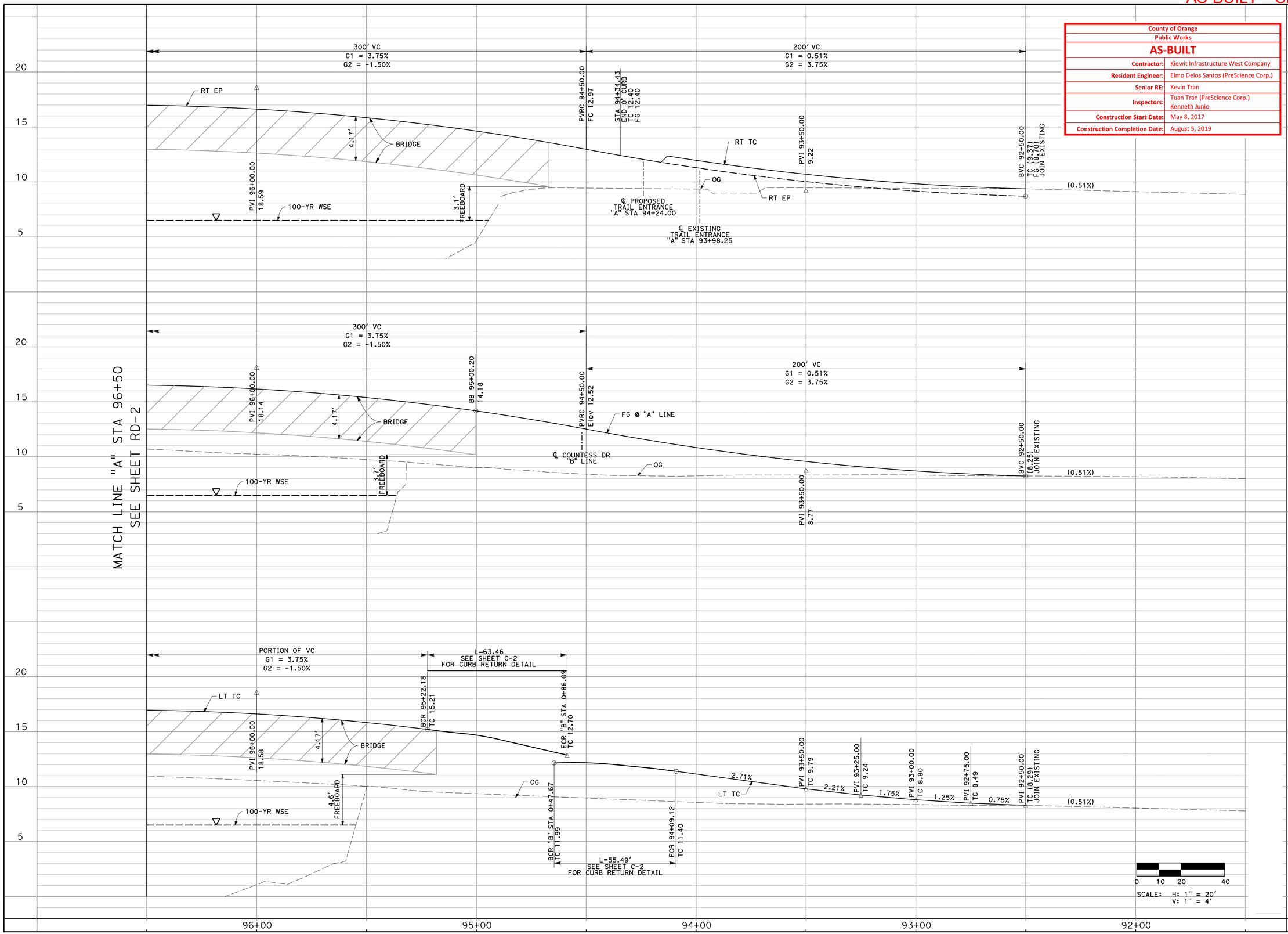

MARK	DESCRIPTION	DATE	APPR.

PREPARED UNDER THE RESPONSIBLE CHARGE OF:

CHUANCHE TING
No. 78632
Exp. 9/30/17
CIVIL
STATE OF CALIFORNIA
REGISTERED PROFESSIONAL ENGINEER

09/12/16
DATE

CHUANCHE TING

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COUNTY OF ORANGE
OC PUBLIC WORKS

PREPARED BY:
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999 W. Town & Country Road
Orange, CA 92868
(714) 567-2501

EDINGER AVE BRIDGE AT
BOLSA CHICA CHANNEL
REPLACEMENT PROJECT
BR. NO. 55C-0400

ROADWAY PROFILE "A" LINE STA 92+50 TO STA 96+50

Sheet Reference Number

RD-3

FILE NAME : \\usonti1fs001\tran_prod\Projects\60216352-Edinger_BR\000_CAD\006_Civil\Sheets\12_RD_Roadway_03.dgn

AS-BUILT SEPTEMBER 2019

County of Orange	
Public Works	
AS-BUILT	
Contractor:	Kiewit Infrastructure West Company
Resident Engineer:	Elmo Delos Santos (PreScience Corp.)
Senior RE:	Kevin Tran
Inspectors:	Tuan Tran (PreScience Corp.) Kenneth Junio
Construction Start Date:	May 8, 2017
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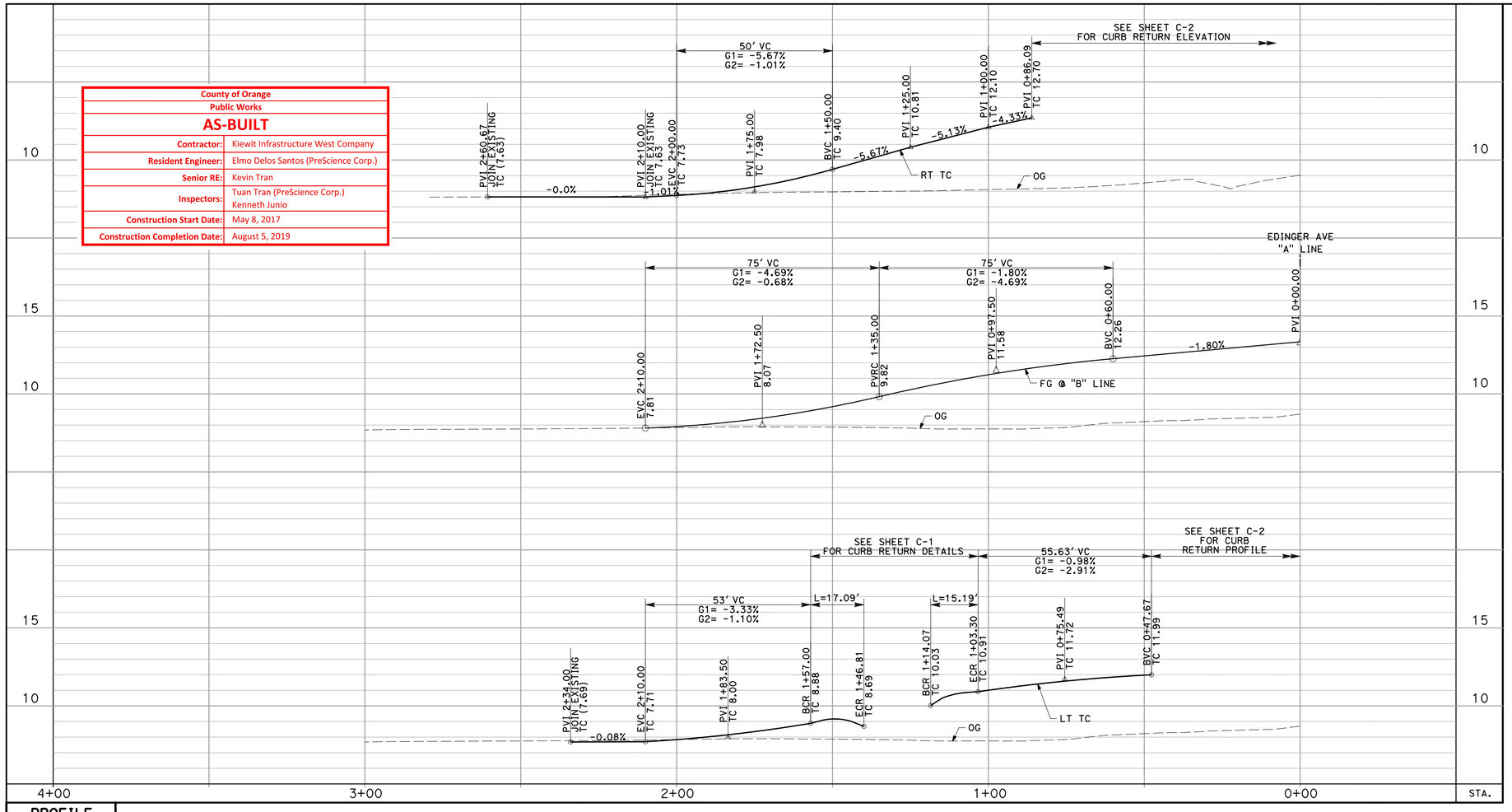


CONSTRUCTION NOTES

1. SAWCUT EXISTING PAVEMENT
15. CONSTRUCT 6" CURB & GUTTER PER CITY OF HUNTINGTON BEACH STD. PLAN 202
16. CONSTRUCT 6" CURB PER CITY OF HUNTINGTON BEACH STD. PLAN 201
22. COLDMILL (0.17') EXISTING PAVEMENT AND PLACE 0.17' ARHM OVERLAY
23. CONSTRUCT 0.17' ARHM OVER 0.18' WMA OVER 1.00' CRUSHED MISCELLANEOUS BASE OVER 95% COMPACTED SUBGRADE
25. CONSTRUCT 0.42' AC OVER 0.50' CRUSHED MISCELLANEOUS BASE OVER COMPACTED NATIVE SOIL
30. CONSTRUCT CONCRETE CROSS GUTTER PER CITY OF HUNTINGTON BEACH STD. PLAN 205
31. CONSTRUCT 0.5' FULL DEPTH WMA OVER COMPACTED SUBGRADE
46. CONSTRUCT POST & CABLE FENCE WITH POSTS AT 10' O.C. TO MATCH EXISTING

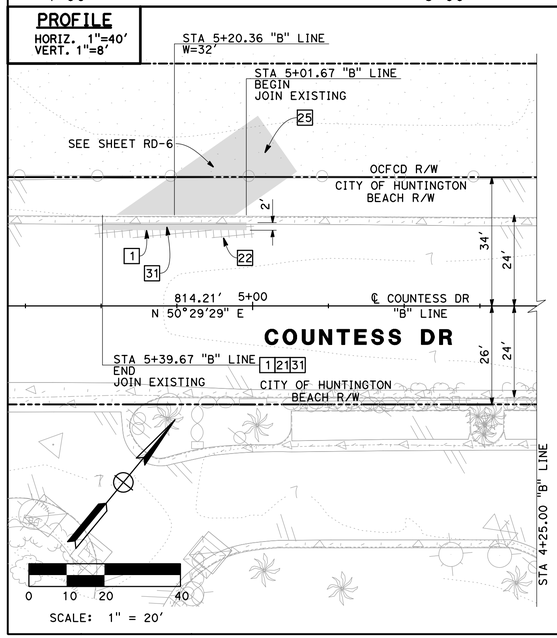
LEGEND

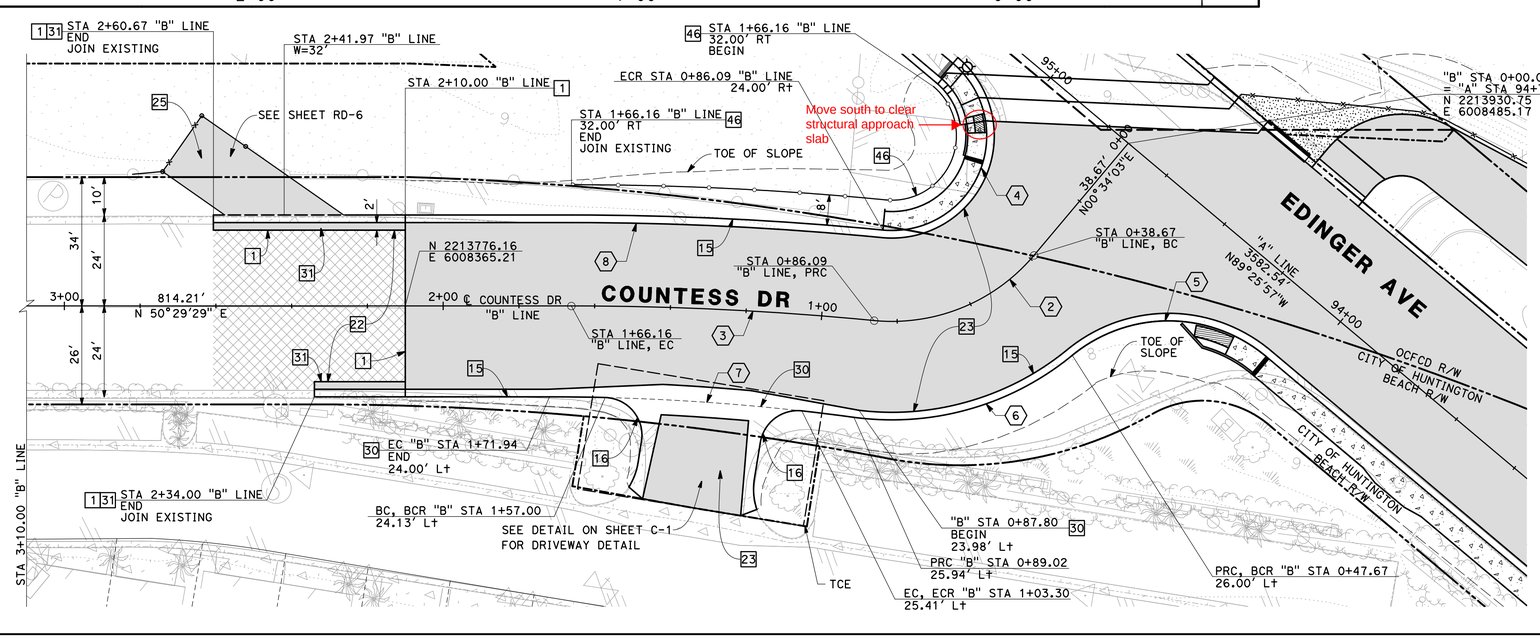
- RIGHT-OF-WAY
- ROAD EASEMENT
- RETAINING WALL
- AC PAVEMENT
- COLDMILL AND ARHM OVERLAY
- CONCRETE PAVEMENT

CURVE DATA

NO.	R	Δ	T	L
2	49.00'	55°27'03"	25.75'	47.42'
3	830.00'	5°31'37"	40.06'	80.07'
4	25.00'	145°27'03"	80.39'	63.47'
5	40.00'	79°28'42"	33.25'	55.49'
6	75.00'	47°06'08"	32.69'	61.66'
7	600.00'	7°42'01"	40.38'	80.64'
8	854.00'	5°31'37"	41.22'	82.38'

PROFILE
HORIZ. 1"=40'
VERT. 1"=8'





NO.	DESCRIPTION	DATE	APPR.

PREPARED UNDER THE RESPONSIBLE CHARGE OF:
CHUANCHE TING, No. 78632, Exp. 9/30/17, CIVIL, REGISTERED PROFESSIONAL ENGINEER, STATE OF CALIFORNIA
09/12/16 DATE
CHUANCHE TING

DESIGNED BY: J. YAP
DRAWN BY: J. YAP
CHECKED BY: B. SMITH
DRAWING CODE:
FILE NAME: #FILE
PLOT DATE: 9/15/2016
SCALE: AS SHOWN

COUNTY OF ORANGE
OC PUBLIC WORKS

PREPARED BY:
AECOM
999 W. Town & Country Road
Orange, CA 92868
(714) 567-2501

EDINGER AVE BRIDGE AT BOLSA CHICA CHANNEL REPLACEMENT PROJECT
BR. NO. 55C-0400

ROADWAY PLAN AND PROFILE "B" LINE

Sheet Reference Number

RD-4

FILE NAME: \\usonti1fs001\tran_prod\Projects\60216352-Edinger_BR\000_CAD\006_Civil\Sheets\13_RD_Roadway_04.dgn

AS-BUILT SEPTEMBER 2019

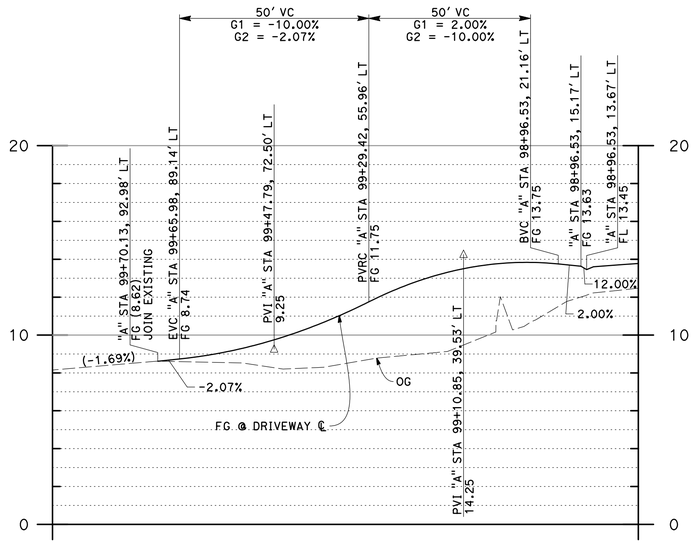
County of Orange	
Public Works	
AS-BUILT	
Contractor:	Kiewit Infrastructure West Company
Resident Engineer:	Elmo Delos Santos (PreScience Corp.)
Senior RE:	Kevin Tran
Inspectors:	Tuan Tran (PreScience Corp.) Kenneth Junio
Construction Start Date:	May 8, 2017
Construction Completion Date:	August 5, 2019

CONSTRUCTION NOTES

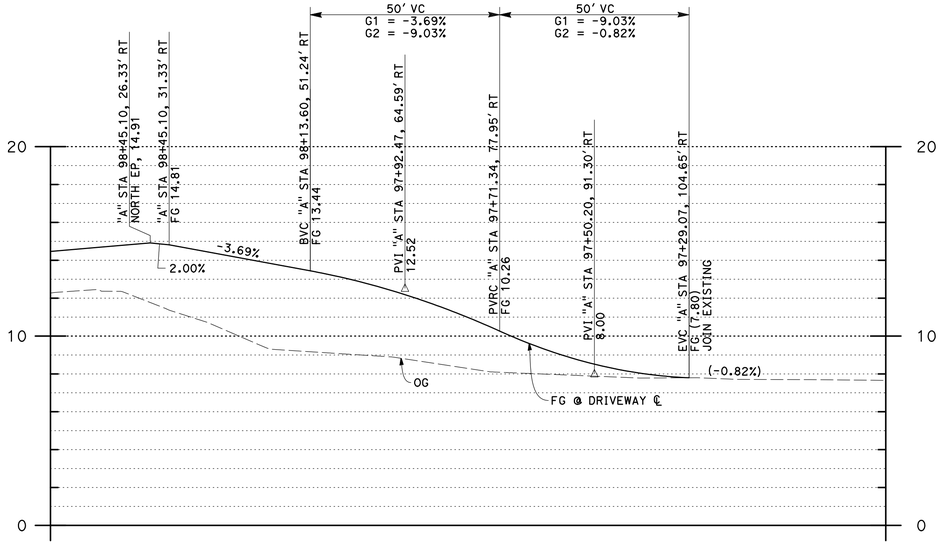
20 CONSTRUCT MODIFIED PCC DEPRESSED CURB DRIVEWAY APPROACH DETAIL ON SHEET C-1
24 CONSTRUCT 4" DISINTEGRATED GRANITE OVER COMPACTED NATIVE SOIL
25 CONSTRUCT 0.42' AC OVER 0.50' CRUSHED MISCELLANEOUS BASE OVER COMPACTED NATIVE SOIL
28 CONSTRUCT CHAIN LINK DRIVE GATE PER OCPW STD. PLAN 600-3

LEGEND

RIGHT-OF-WAY
ROAD EASEMENT
RETAINING WALL
AC PAVEMENT
DISINTEGRATED GRANITE
CONCRETE PAVEMENT

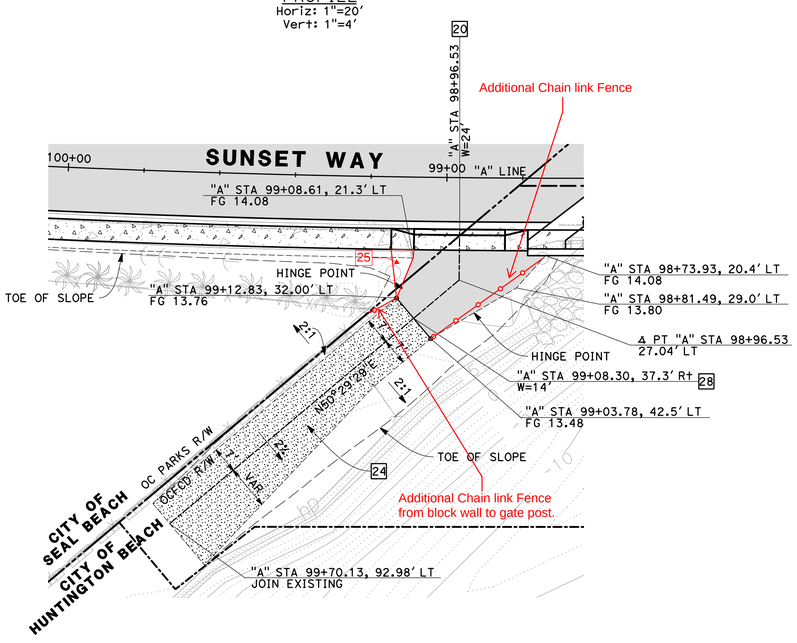


PROFILE



PROFILE

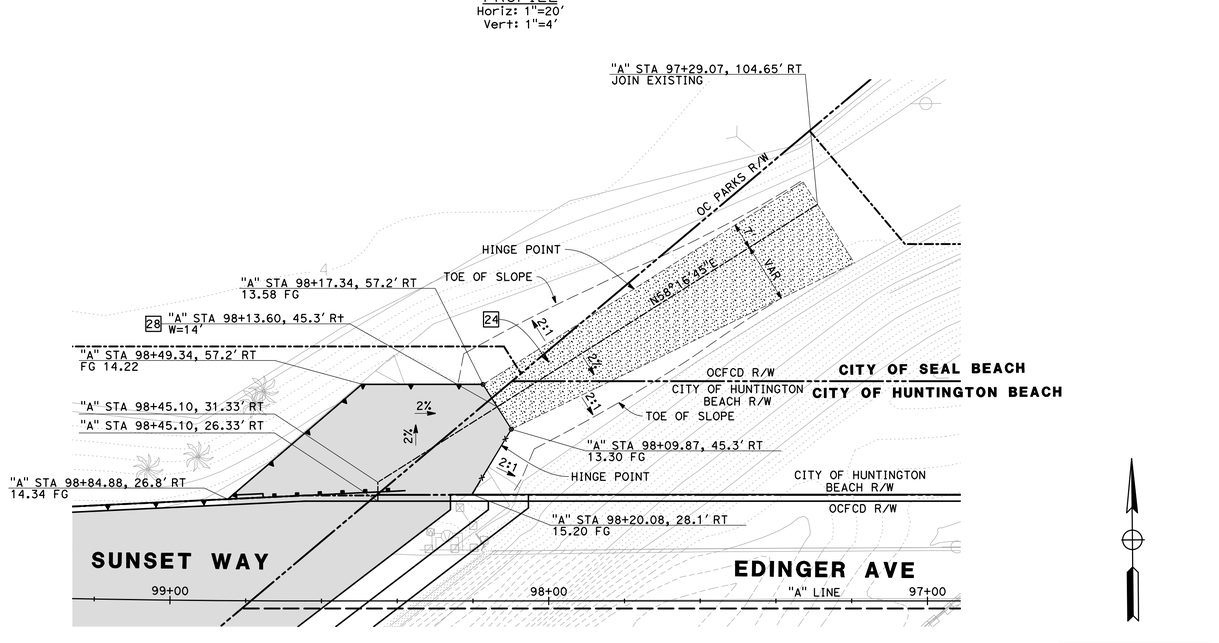
Horiz: 1"=20'
Vert: 1"=4'



DRIVEWAY AT SOUTHWEST BRIDGE CORNER
"A" STA 98+96.53, LEFT
SCALE: 1"=20'

PROFILE

Horiz: 1"=20'
Vert: 1"=4'



DRIVEWAY AT NORTHWEST BRIDGE CORNER
"A" STA 98+45.10, RIGHT
SCALE: 1"=20'

0 10 20 40
SCALE: 1" = 20'

MARK	DESCRIPTION	DATE	APPR.

PREPARED UNDER THE RESPONSIBLE CHARGE OF:
REGISTERED PROFESSIONAL ENGINEER CHUANCHE TING 78632 Exp. 9/30/17 CIVIL STATE OF CALIFORNIA
09/12/16
DATE
CHUANCHE TING

DESIGNED BY: J. YAP
DRAWN BY: J. YAP
CHECKED BY: B. SMITH
DRAWING CODE:
FILE NAME: #FILE
PLOT DATE: 9/15/2016
SCALE: AS SHOWN

COUNTY OF ORANGE
OC PUBLIC WORKS

PREPARED BY:
AECOM
999 W. Town & Country Road
Orange, CA 92868
(714) 567-2501

EDINGER AVE BRIDGE AT
BOLSA CHICA CHANNEL
REPLACEMENT PROJECT
BR. NO. 55C-0400

OCFCD ACCESS
ROAD DRIVEWAYS

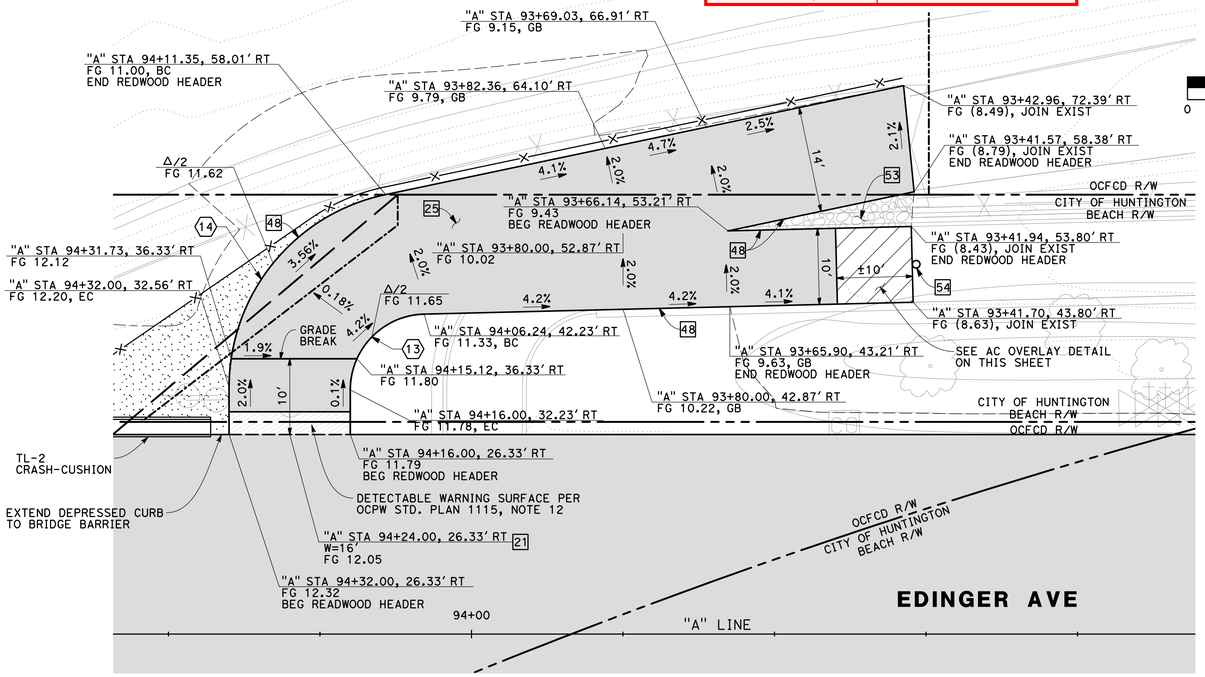
Sheet Reference Number
RD-5
Sheet 14 of 76

FILE NAME : \\usonntfs001\tran_prod\Projects\60216352-Edinger_BR\000_CAD\006_Civil\Sheets\14_RD_Roadway_05.dgn

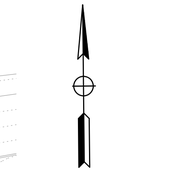
AS-BUILT SEPTEMBER 2019

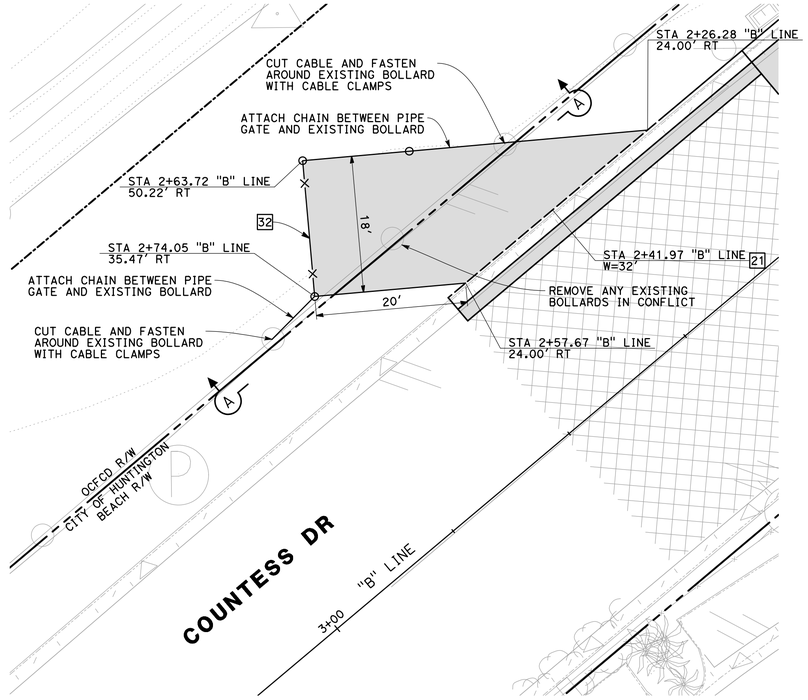
CURVE DATA				
NO.	R	Δ	T	L
13	10.00′	88°36′30"	9.76′	15.47′
14	26.00′	78°07′20"	21.10′	35.45′

County of Orange	
Public Works	
AS-BUILT	
Contractor:	Kiewit Infrastructure West Company
Resident Engineer:	Elmo Delos Santos (PreScience Corp.)
Senior RE:	Kevin Tran
Inspectors:	Tuan Tran (PreScience Corp.) Kenneth Junio
Construction Start Date:	May 8, 2017
Construction Completion Date:	August 5, 2019



DRIVEWAY AT "A" STA 93+98.25, RIGHT
SCALE: 1"=10′





ENTRANCE AT "B" STA 2+57.00, RIGHT
SCALE: 1"=10′

CONSTRUCTION NOTES

21 CONSTRUCT DEPRESSED CURB ENTRANCE PER DETAIL ON SHEET C-1

25 CONSTRUCT 0.42′ AC OVER 0.50′ CRUSHED MISCELLANEOUS BASE OVER COMPACTED NATIVE SOIL

32 CONSTRUCT PIPE GATE PER SPPWC 602-3 AND DETAIL ON SHEET RD-6

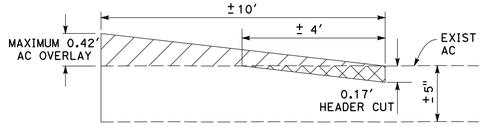
48 CONSTRUCT REDWOOD HEADER PER DETAIL ON SHEET C-2

53 CONSTRUCT 5" DEEP GRAVEL SHOULDER (1/2" MAX DIAMETER CRUSHED ROCK)

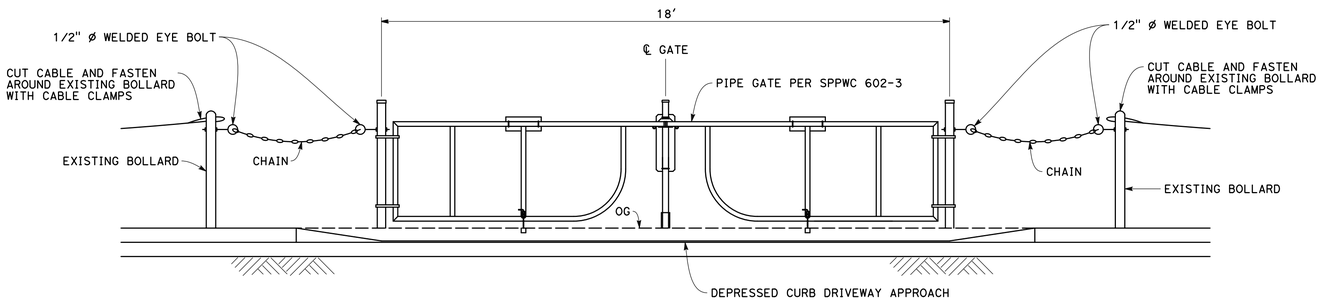
54 INSTALL VESTIL FOLD DOWN BOLLARD TYPE PARK-P-108-FD OR GRAINGER FOLD DOWN BOLLARD TYPE BOL-FD-36T OR RELIANCE FOUNDRY FOLD DOWN BOLLARD TYPE R-7902 OR APPROVED EQUIVALENT ON 14"x14"x4" CONCRETE SLAB

LEGEND

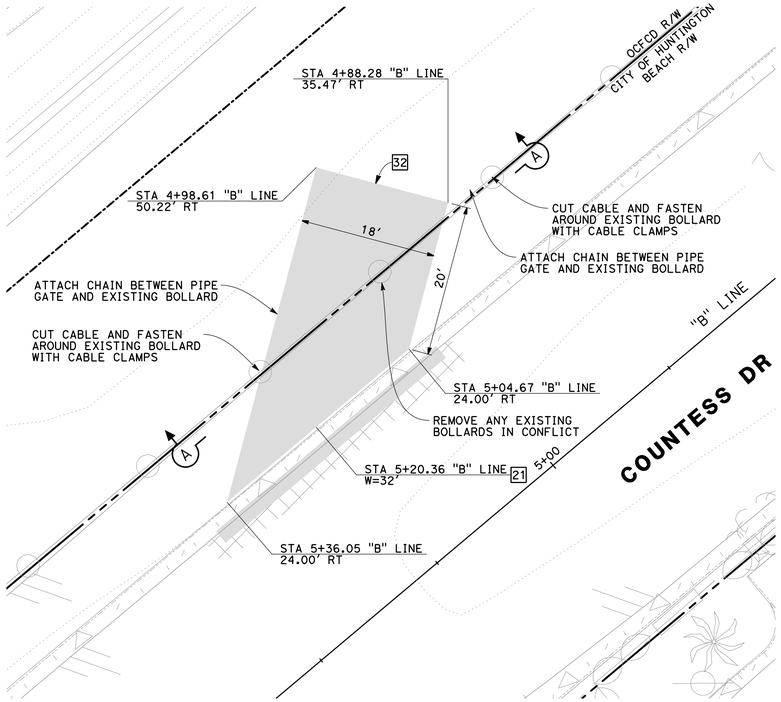
- RIGHT-OF-WAY
- AC PAVEMENT
- GRAVEL
- DISINTEGRATED GRANITE
- VARIABLE DEPTH AC



VARIABLE DEPTH AC OVERLAY
NO SCALE



SECTION A-A
NO SCALE



ENTRANCE AT "B" STA 5+36.00, RIGHT
SCALE: 1"=10′

COUNTY OF ORANGE CALIFORNIA

MARK	DESCRIPTION	DATE	APPR.

PREPARED UNDER THE RESPONSIBLE CHARGE OF:
REGISTERED PROFESSIONAL ENGINEER CHUANCHE TING No. 78632 Exp. 9/30/17 CIVIL STATE OF CALIFORNIA
09/12/16
DATE
CHUANCHE TING

DESIGNED BY: J. YAP
DRAWN BY: J. YAP
CHECKED BY: B. SMITH
DRAWING CODE:
FILE NAME: #FILE
PLOT DATE: 9/15/2016
SCALE: AS SHOWN

COUNTY OF ORANGE
OC PUBLIC WORKS

PREPARED BY:
AECOM
999 W. Town & Country Road
Orange, CA 92868
(714) 567-2501

EDINGER AVE BRIDGE AT
BOLSA CHICA CHANNEL
REPLACEMENT PROJECT
BR. NO. 55C-0400

OCFCD ACCESS
ROAD DRIVEWAYS

Sheet Reference Number

RD-6

Sheet 15 of 76

FILE NAME = \\usonlfs001\tran_prod\Projects\60216352-Edinger_BR\000_CAD\006_Civil\Sheets\15_RD_Roadway_06.dgn

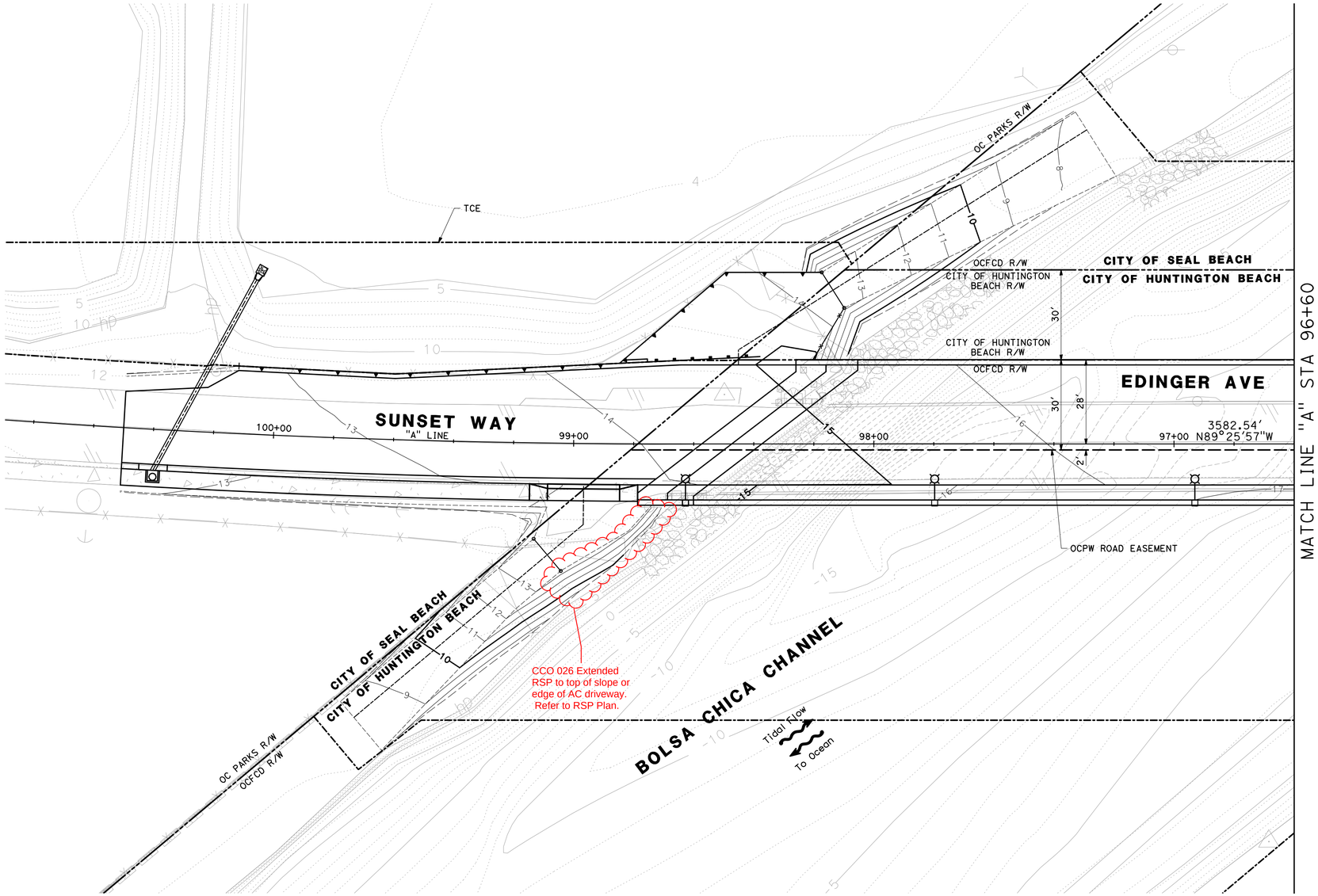
AS-BUILT SEPTEMBER 2019

County of Orange	
Public Works	
AS-BUILT	
Contractor:	Kiewit Infrastructure West Company
Resident Engineer:	Elmo Delos Santos (PreScience Corp.)
Senior RE:	Kevin Tran
Inspectors:	Tuan Tran (PreScience Corp.) Kenneth Junio
Construction Start Date:	May 8, 2017
Construction Completion Date:	August 5, 2019

LEGEND

RIGHT-OF-WAY

ROAD EASEMENT



0 10 20 40

SCALE: 1" = 20'

COUNTY OF ORANGE
CALIFORNIA

MARK	DESCRIPTION	DATE	APPR.

PREPARED UNDER THE RESPONSIBLE CHARGE OF:

REGISTERED PROFESSIONAL ENGINEER
CHUANCHE TING
No. 78632
Exp. 9/30/17
CIVIL
STATE OF CALIFORNIA

09/12/16
DATE

CHUANCHE TING

DESIGNED BY: J. YAP
DRAWN BY: J. YAP
CHECKED BY: B. SMITH
DRAWING CODE:
FILE NAME: #FILE
PLOT DATE: 9/15/2016
SCALE: AS SHOWN

COUNTY OF ORANGE
OC PUBLIC WORKS

PREPARED BY:
AECOM
999 W. Town & Country Road
Orange, CA 92868
(714) 567-2501

EDINGER AVE BRIDGE AT
BOLSA CHICA CHANNEL
REPLACEMENT PROJECT
BR. NO. 55C-0400

GRADING PLAN

Sheet Reference Number

G-1

Sheet 16 of 76

FILE NAME : \\usont1fs001\tran_prod\Projects\60216352-Edinger_BR\000_CAD\006_Civil\Sheets\16_G_Grading_01.dgn

AS-BUILT SEPTEMBER 2019

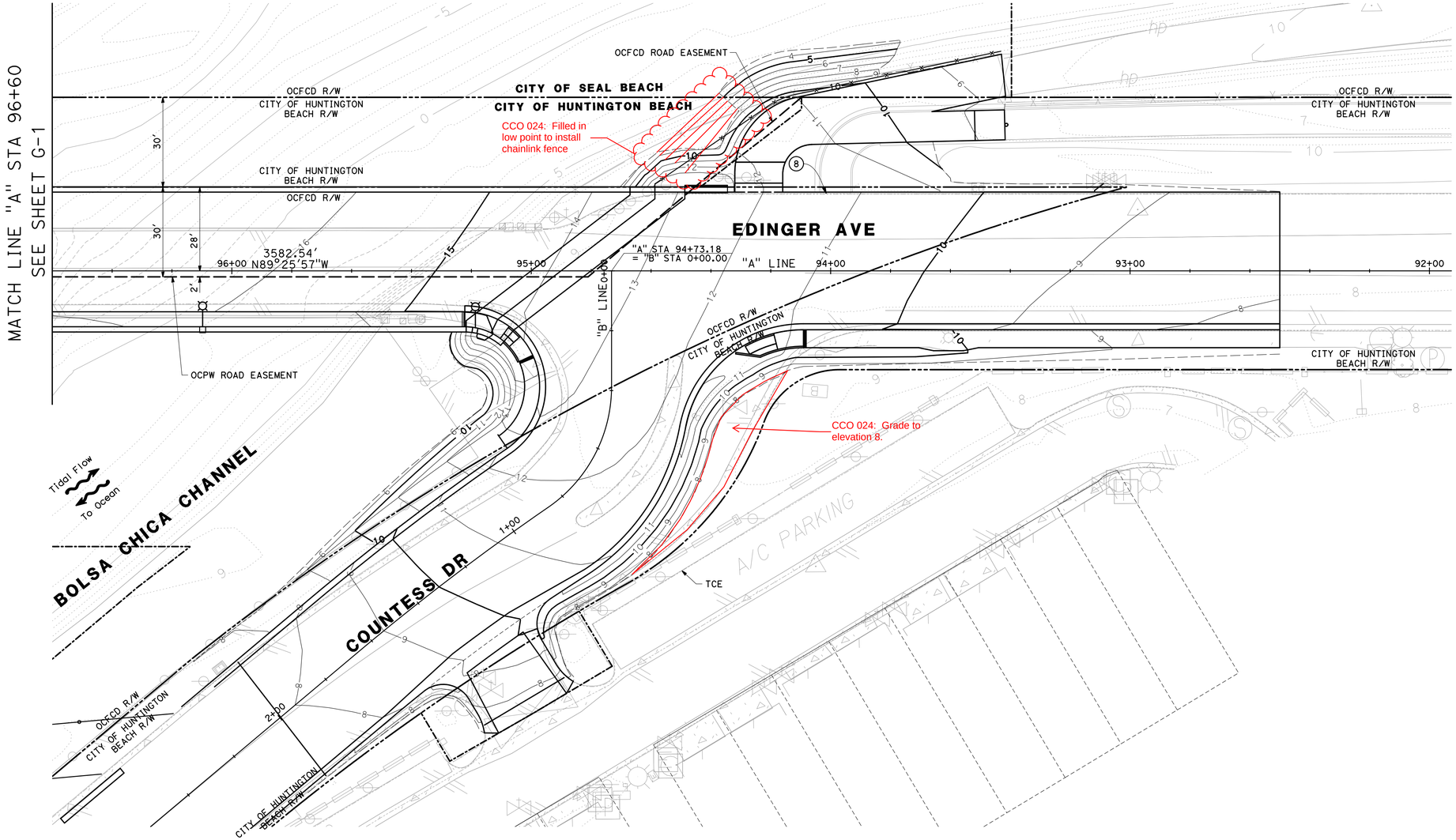
County of Orange	
Public Works	
AS-BUILT	
Contractor:	Kiewit Infrastructure West Company
Resident Engineer:	Elmo Delos Santos (PreScience Corp.)
Senior RE:	Kevin Tran
Inspectors:	Tuan Tran (PreScience Corp.) Kenneth Junio
Construction Start Date:	May 8, 2017
Construction Completion Date:	August 5, 2019

LEGEND

RIGHT-OF-WAY

ROAD EASEMENT

TEMPORARY CONSTRUCTION EASEMENT



0 10 20 40

SCALE: 1" = 20'

MARK	DESCRIPTION	DATE	APPR.

PREPARED UNDER THE RESPONSIBLE CHARGE OF:

REGISTERED PROFESSIONAL ENGINEER — CHUANCHE TING — No. 78632 — Exp. 9/30/17 — CIVIL — STATE OF CALIFORNIA

09/12/16
DATE

CHUANCHE TING

DESIGNED BY: J. YAP	CHECKED BY: B. SMITH	
DRAWN BY: J. YAP	DRAWING CODE:	FILE NAME: #FILE
PLOT DATE: 9/15/2016	SCALE: AS SHOWN	

COUNTY OF ORANGE
OC PUBLIC WORKS

PREPARED BY:
AECOM
999 W. Town & Country Road
Orange, CA 92868
(714) 567-2501

EDINGER AVE BRIDGE AT
BOLSA CHICA CHANNEL
REPLACEMENT PROJECT
BR. NO. 55C-0400

GRADING PLAN

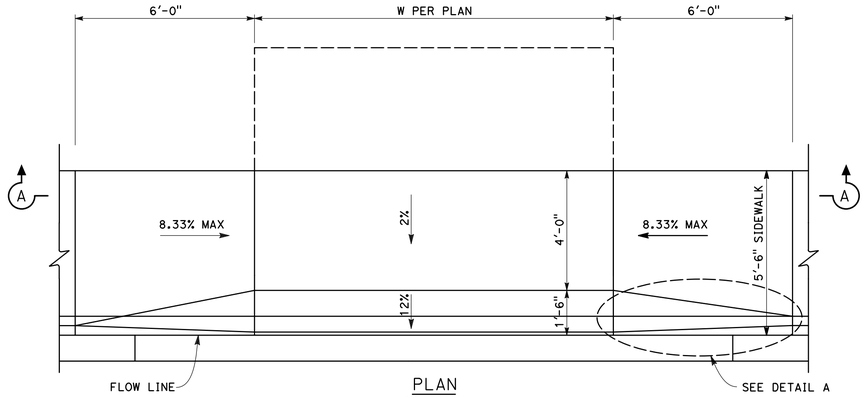
Sheet Reference Number

G-2

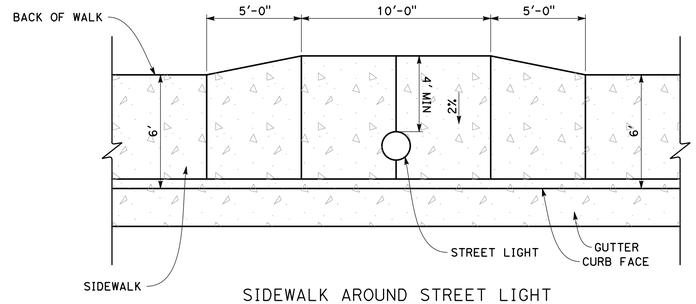
Sheet 17 of 76

FILE NAME : \\usont1fs001\tran_prod\Projects\60216352-Edinger_BR\000_CAD\006_Civil\Sheets\17_G_Grading_02.dgn

AS-BUILT SEPTEMBER 2019

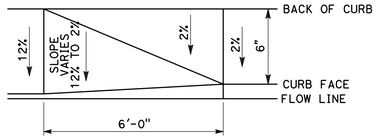


PLAN
NO SCALE

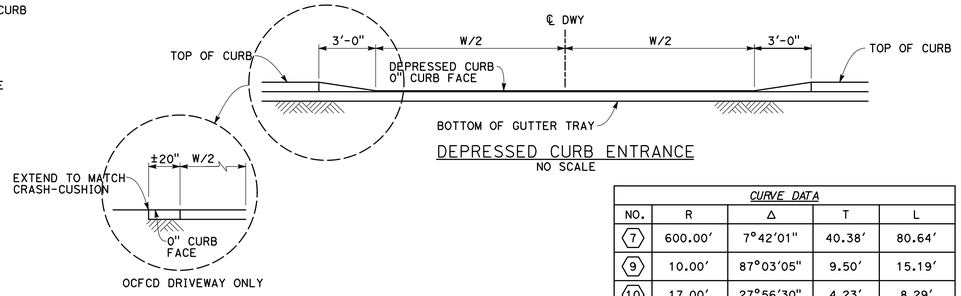


SIDEWALK AROUND STREET LIGHT
NO SCALE

SECTION A-A
NO SCALE



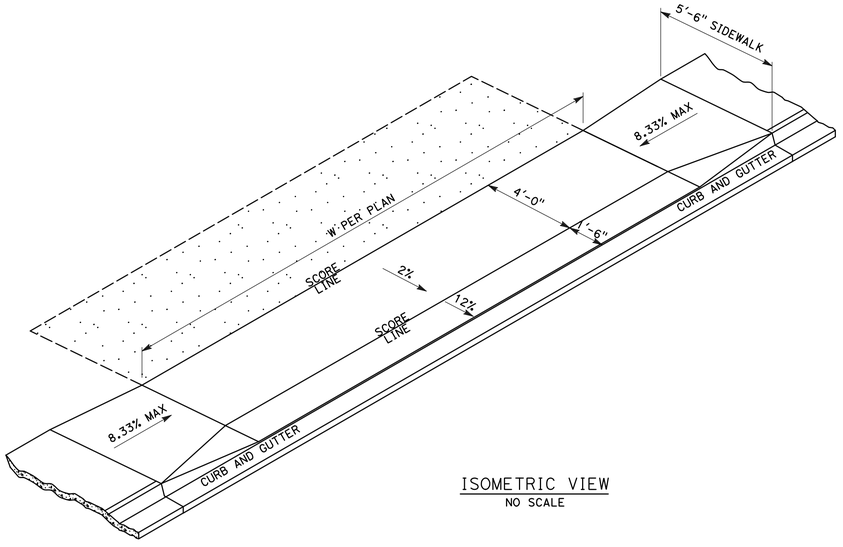
DETAIL A
NO SCALE



DEPRESSED CURB ENTRANCE
NO SCALE

OCFCD DRIVEWAY ONLY

CURVE DATA				
NO.	R	Δ	T	L
7	600.00′	7°42′01"	40.38′	80.64′
9	10.00′	87°03′05"	9.50′	15.19′
10	17.00′	27°56′30"	4.23′	8.29′
11	17.00′	22°52′09"	3.44′	6.79′
12	10.00′	97°55′31"	11.49′	17.09′



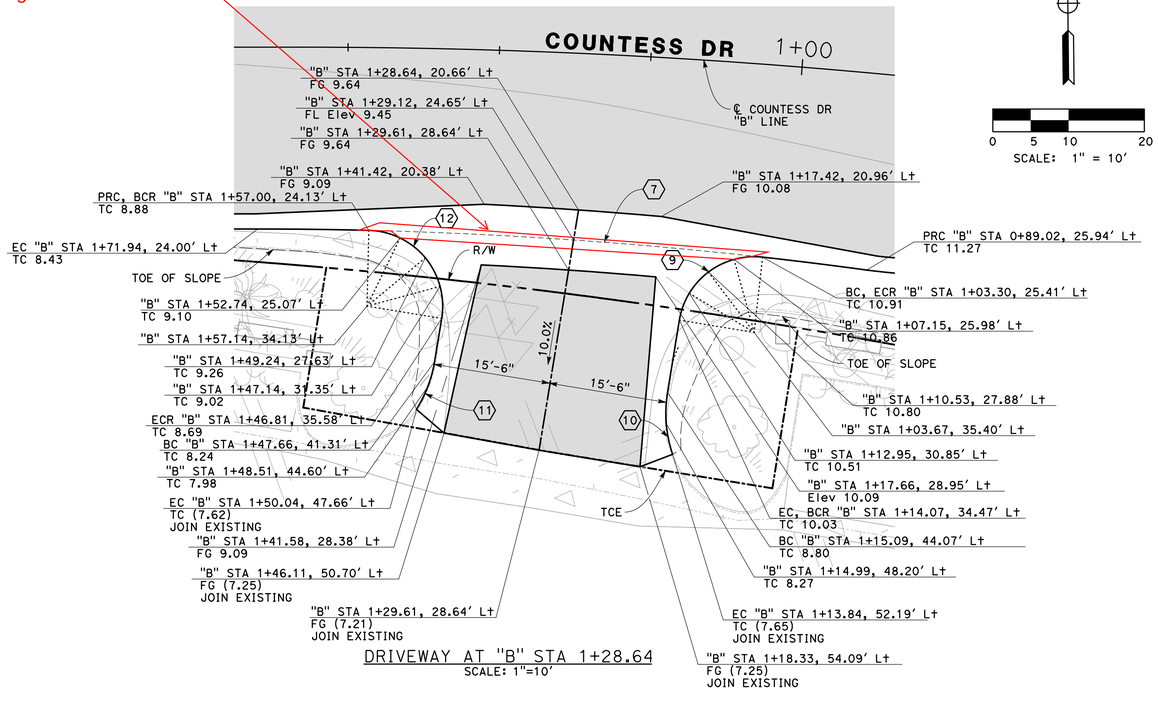
ISOMETRIC VIEW
NO SCALE

NOTES:

1. DRIVEWAY APPROACH SHALL BE 6" P.C.C. CONCRETE.
2. RELATIVE COMPACTION OF SUBGRADE UNDER DRIVEWAY APPROACH SHALL BE 90% (MIN.)

MODIFIED PCC DEPRESSED CURB DRIVEWAY APPROACH
NO SCALE

CCO 024: Grind 0.25" at flowline for cross-gutter.



DRIVEWAY AT "B" STA 1+28.64
SCALE: 1"=10′

0 5 10 20
SCALE: 1" = 10′

County of Orange	
Public Works	
AS-BUILT	
Contractor:	Kiewit Infrastructure West Company
Resident Engineer:	Elmo Delos Santos (PreScience Corp.)
Senior RE:	Kevin Tran
Inspectors:	Tuan Tran (PreScience Corp.) Kenneth Junio
Construction Start Date:	May 8, 2017
Construction Completion Date:	August 5, 2019

MARK | DATE
09/12/16

PREPARED UNDER THE RESPONSIBLE CHARGE OF:
CHUANCHE TING
No. 78632
Exp. 9/30/17
REGISTERED PROFESSIONAL ENGINEER
CIVIL
STATE OF CALIFORNIA
CHUANCHE TING

DESIGNED BY: J. YAP
DRAWN BY: J. YAP
CHECKED BY: B. SMITH
DRAWING CODE:
FILE NAME: #FILE
PLOT DATE: 9/15/2016
SCALE: AS SHOWN

COUNTY OF ORANGE
OC PUBLIC WORKS

PREPARED BY:
AECOM
999 W. Town & Country Road
Orange, CA 92868
(714) 567-2501

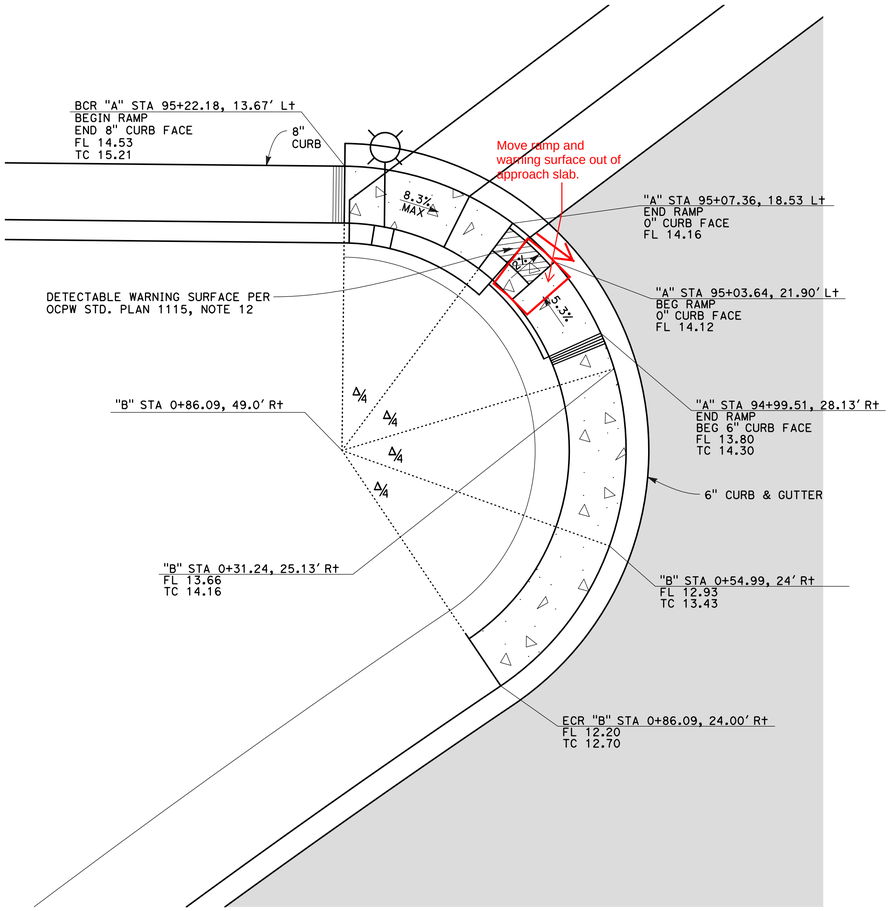
EDINGER AVE BRIDGE AT
BOLSA CHICA CHANNEL
REPLACEMENT PROJECT
BR. NO. 55C-0400

CONSTRUCTION DETAILS

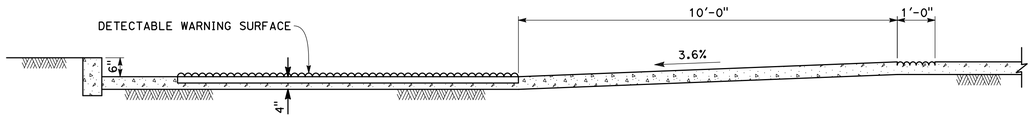
Sheet Reference Number
C-1

FILE NAME = \\usont1fs001\tran_prod\Projects\60216352-Edinger_BR\000_CAD\006_Civil\Sheets\18_C_Construction Details_01.dgn

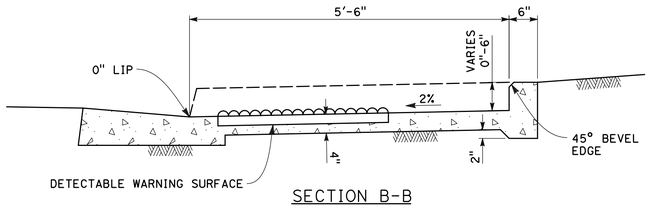
AS-BUILT SEPTEMBER 2019



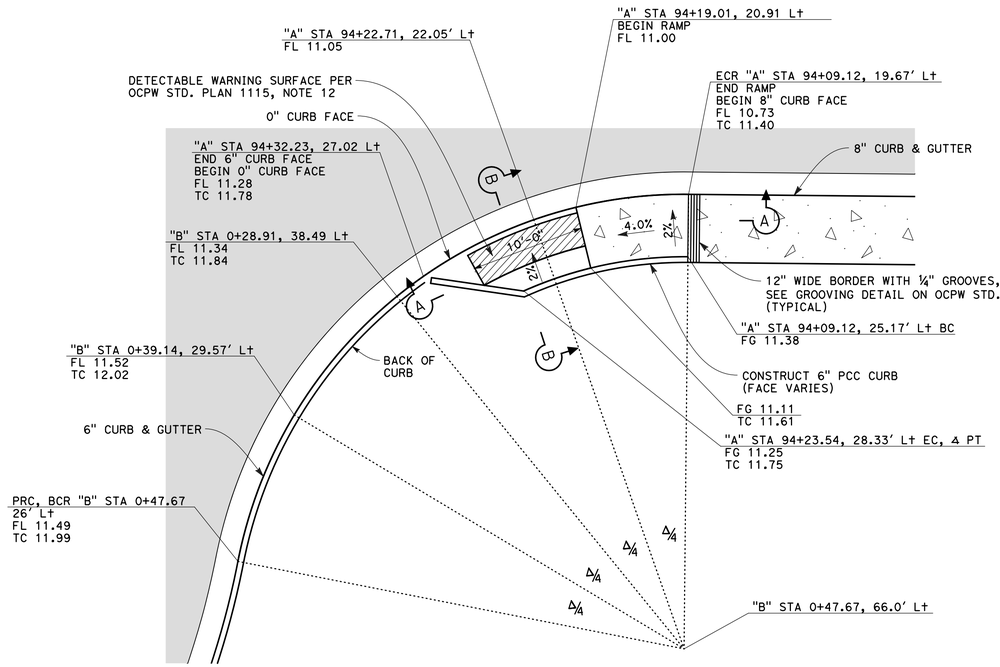
CURB RETURN AND MODIFIED CURB RAMP (TYPE 2)
NO SCALE



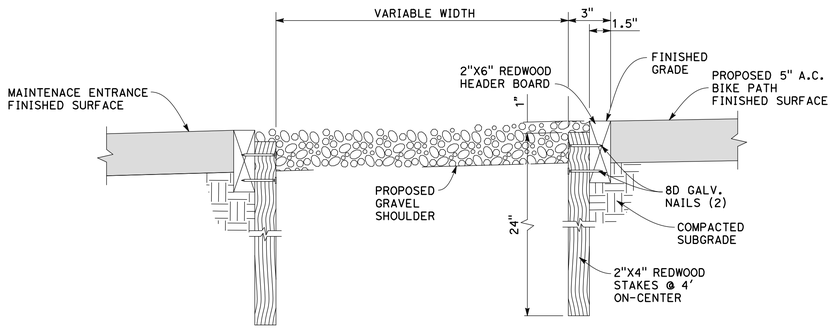
SECTION A-A
NO SCALE



SECTION B-B
NO SCALE



CURB RETURN AND CURB RAMP
NO SCALE



NOTES:

1. 24" LAP ALL SPLICES. USE FINISHED LUMBER ONLY.
2. CURVED SECTIONS SHALL BE CONSTRUCTED FROM THREE 3/8" X 4" LAMINATED REDWOOD BENDER BOARD.

REDWOOD HEADER
NO SCALE

County of Orange	
Public Works	
AS-BUILT	
Contractor:	Kiewit Infrastructure West Company
Resident Engineer:	Elmo Delos Santos (PreScience Corp.)
Senior RE:	Kevin Tran
Inspectors:	Tuan Tran (PreScience Corp.) Kenneth Junio
Construction Start Date:	May 8, 2017
Construction Completion Date:	August 5, 2019

1. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING SIGN STRUCTURE DIMENSIONS.
2. CONTRACTOR SHALL FURNISH SHOP DRAWINGS FOR SIGN RECONSTRUCTION TO BE APPROVED BY ENGINEER PRIOR TO SIGN REMOVAL.

COUNTY OF ORANGE CALIFORNIA

MARK	DESCRIPTION	DATE	APPR.

PREPARED UNDER THE RESPONSIBLE CHARGE OF:
CHUANCHE TING, No. 78632, Exp. 9/30/17, CIVIL, REGISTERED PROFESSIONAL ENGINEER, STATE OF CALIFORNIA
09/12/16
DATE
CHUANCHE TING

DESIGNED BY: J. YAP
DRAWN BY: J. YAP
CHECKED BY: B. SMITH
DRAWING CODE:
FILE NAME: #FILE
PLOT DATE: 9/15/2016
SCALE: AS SHOWN

COUNTY OF ORANGE
OC PUBLIC WORKS

PREPARED BY:
AECOM
999 W. Town & Country Road
Orange, CA 92868
(714) 567-2501

EDINGER AVE BRIDGE AT BOLSA CHICA CHANNEL REPLACEMENT PROJECT
BR. NO. 55C-0400

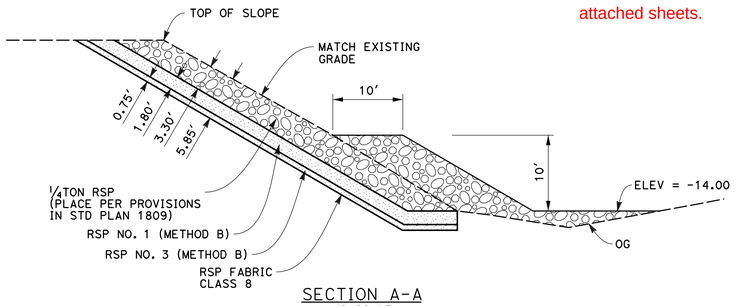
CONSTRUCTION DETAILS

Sheet Reference Number
C-2

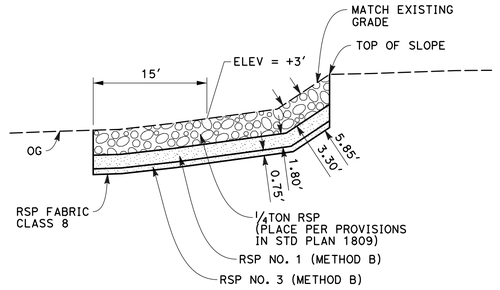
FILE NAME : \\usont1fs001\tran_prod\Projects\60216352-Edinger_BR\000_CAD\006_Civil\Sheets\19_C_Construction Details_02.dgn

AS-BUILT SEPTEMBER 2019

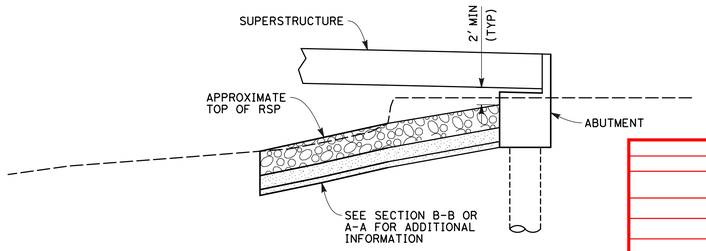
RFI 033: Elevations modified; refer to attached sheets.



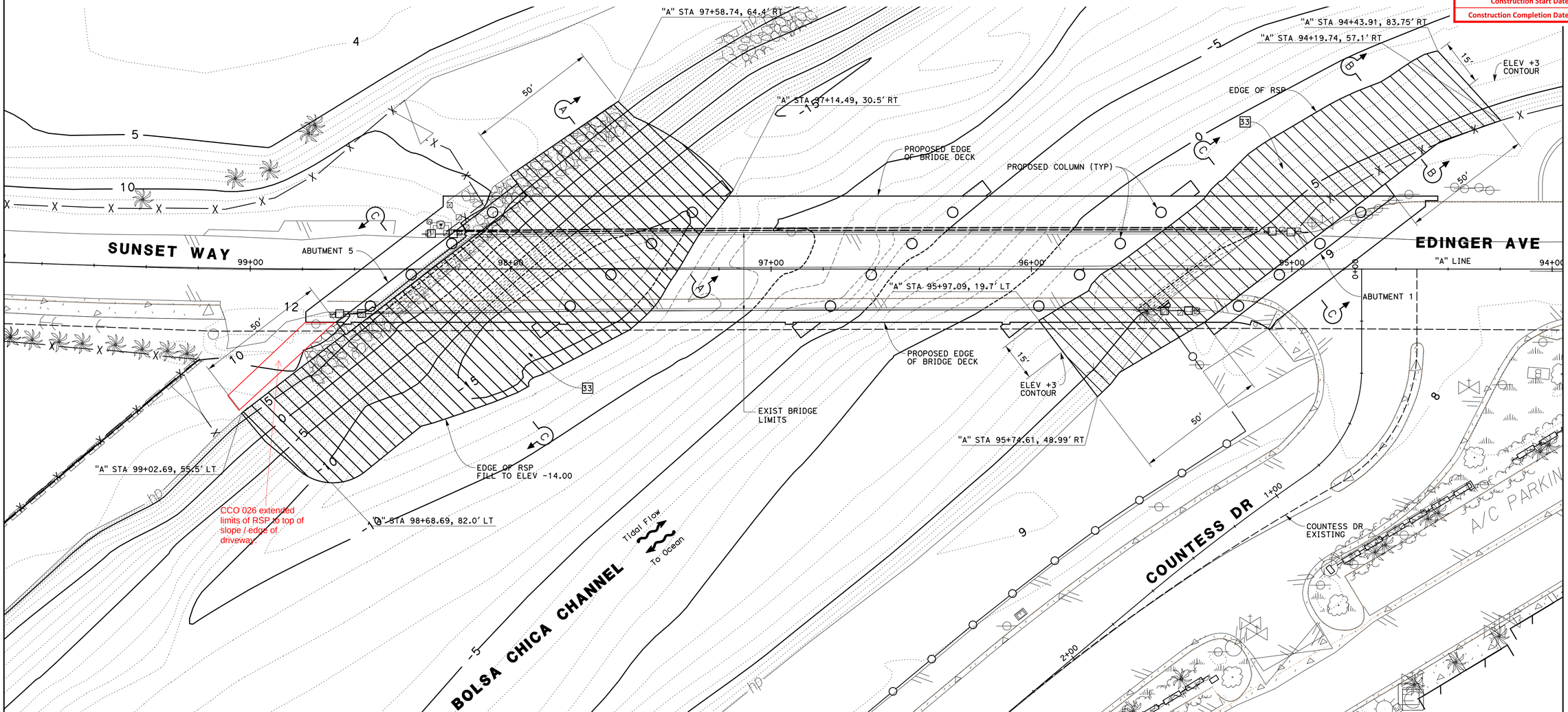
SECTION A-A
NO SCALE



SECTION B-B
NO SCALE



SECTION C-C
NO SCALE



ROCK SLOPE PROTECTION PLAN
SCALE: 1"=20'

LEGEND
ROCK SLOPE PROTECTION

CONSTRUCTION NOTES
33 CONSTRUCT ROCK SLOPE PROTECTION PER DETAIL ON SHEET C-3

County of Orange
Public Works
AS-BUILT

Contractor:	Kiewit Infrastructure West Company
Resident Engineer:	Elmo Delos Santos (PreScience Corp.)
Senior RE:	Kevin Tran
Inspectors:	Tuan Tran (PreScience Corp.) Kenneth Junio
Construction Start Date:	May 8, 2017
Construction Completion Date:	August 5, 2019

MARK

PREPARED UNDER THE RESPONSIBLE CHARGE OF:
CHUANCHE TING
No. 78632
Exp. 9/30/17
CIVIL
REGISTERED PROFESSIONAL ENGINEER
STATE OF CALIFORNIA
09/12/16
DATE
CHUANCHE TING

DESIGNED BY: J. YAP
DRAWN BY: J. YAP
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FILE NAME: #FILE
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SCALE: AS SHOWN

COUNTY OF ORANGE
OC PUBLIC WORKS

PREPARED BY:
AECOM
999 W. Town & Country Road
Orange, CA 92868
(714) 567-2501

EDINGER AVE BRIDGE AT
BOLSA CHICA CHANNEL
REPLACEMENT PROJECT
BR. NO. 55C-0400

CONSTRUCTION DETAILS

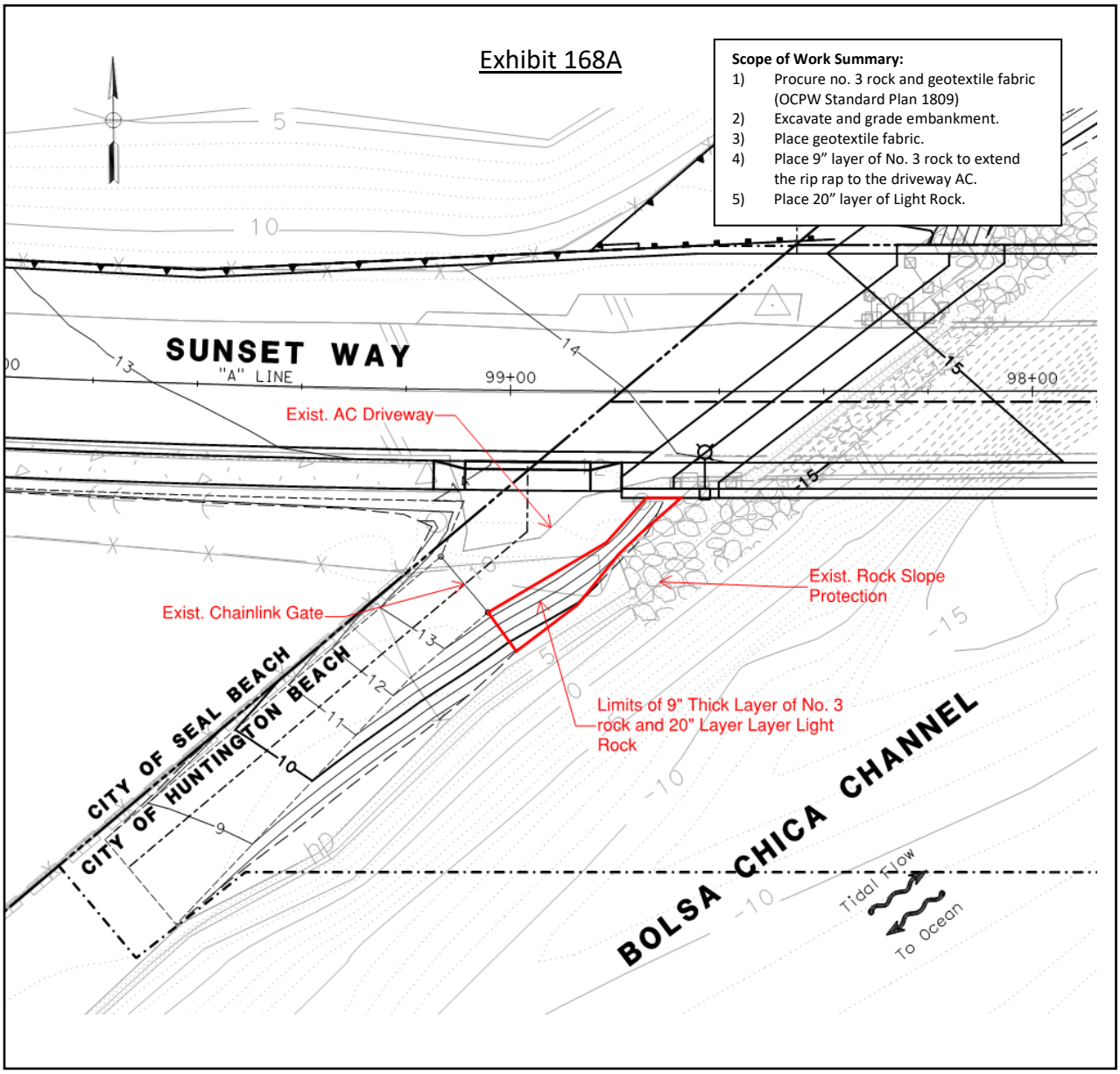
Sheet Reference Number
C-3

FILE NAME : \\usonttfs001\tran_prod\Projects\60216352-Edinger_BR\000_CAD\006_Civil\Sheets\20_C_Construction Details_03.dgn

AS-BUILT SEPTEMBER 2019

Letter No. 168 Attachment

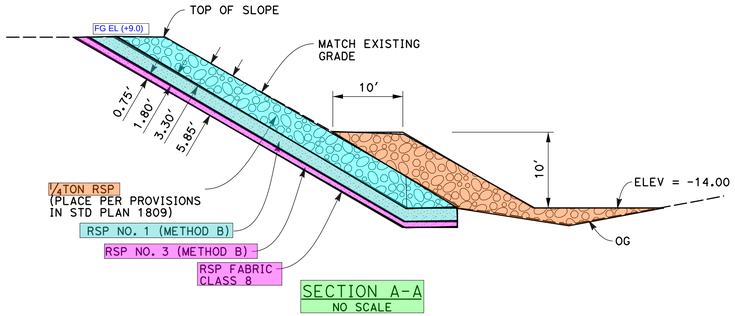
CCO 026 Extend limits of RSP



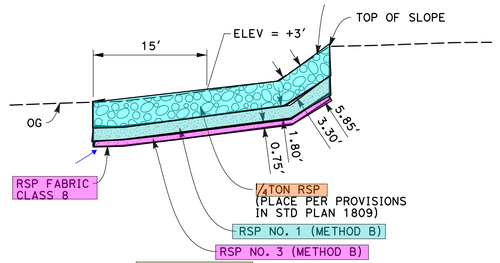
County of Orange	
Public Works	
AS-BUILT	
Contractor:	Kiewit Infrastructure West Company
Resident Engineer:	Elmo Delos Santos (PreScience Corp.)
Senior RE:	Kevin Tran
Inspectors:	Tuan Tran (PreScience Corp.) Kenneth Junio
Construction Start Date:	May 8, 2017
Construction Completion Date:	August 5, 2019

AS-BUILT SEPTEMBER 2019

GENERAL RSP PLAN



SECTION A-A
NO SCALE



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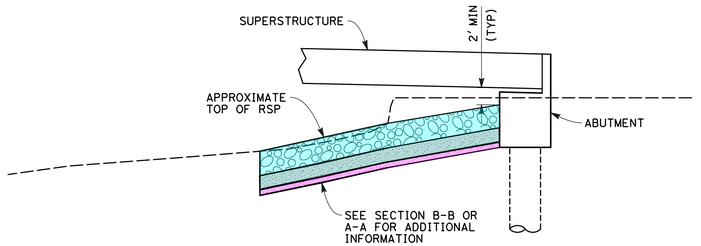

SECTION C-C
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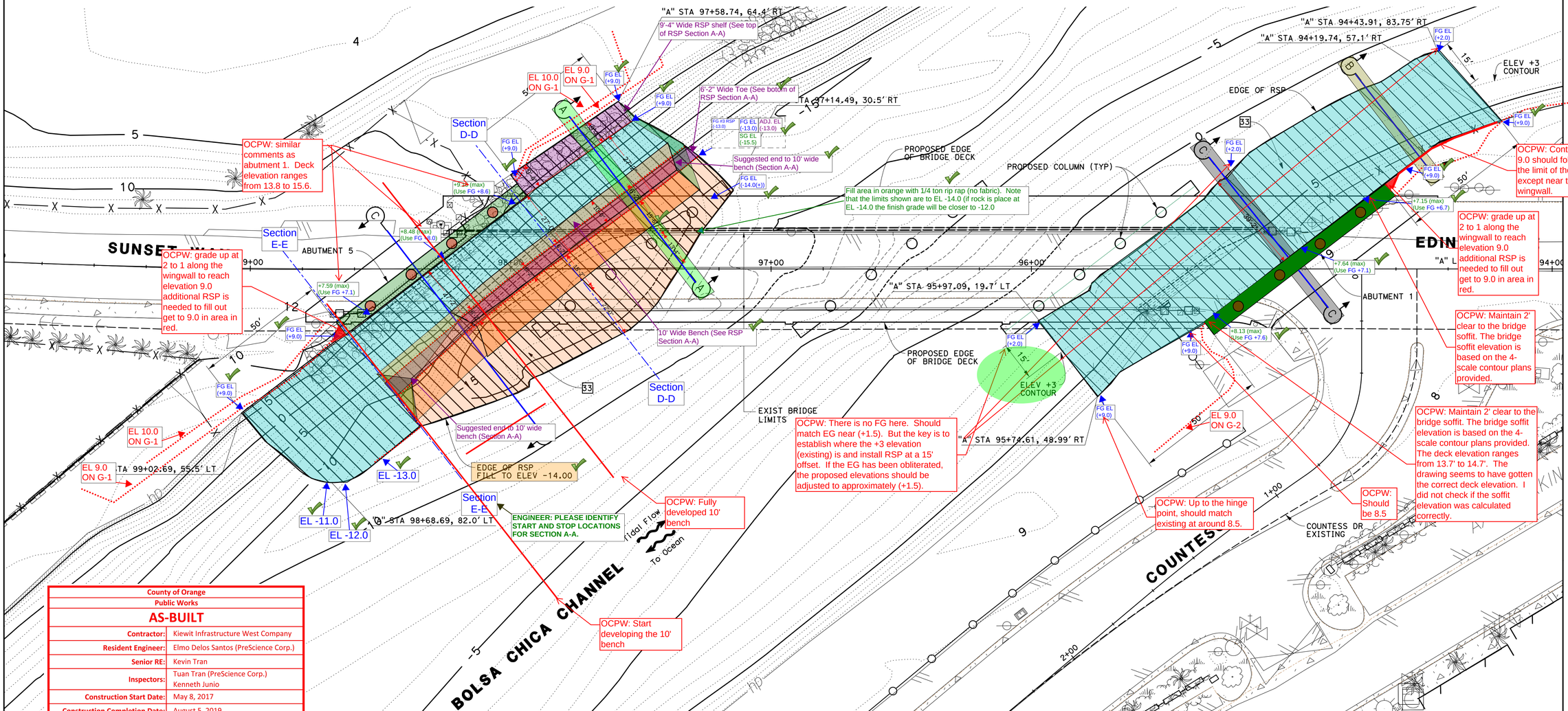


County of Orange	
Public Works	
AS-BUILT	
Contractor:	Kiewit Infrastructure West Company
Resident Engineer:	Elmo Delos Santos (PreScience Corp.)
Senior RE:	Kevin Tran
Inspectors:	Tuan Tran (PreScience Corp.) Kenneth Junio
Construction Start Date:	May 8, 2017
Construction Completion Date:	August 5, 2019

ROCK SLOPE PROTECTION PLAN
SCALE: 1"=20'

LEGEND
ROCK SLOPE PROTECTION

CONSTRUCTION NOTES
33 CONSTRUCT ROCK SLOPE PROTECTION PER DETAIL ON SHEET C-3

COUNTY OF ORANGE CALIFORNIA

MARK	DESCRIPTION	DATE	APPR.
EL 9.0 ON G-2			

PREPARED UNDER THE RESPONSIBLE CHARGE OF:
CHUANCHE TING No. 78632 CIVIL Exp. 9/30/17 REGISTERED PROFESSIONAL ENGINEER STATE OF CALIFORNIA
09/12/16 DATE
CHUANCHE TING

DESIGNED BY: J. YAP	CHECKED BY: B. SMITH	DRAWING CODE:	FILE NAME: #FILE	SCALE: AS SHOWN
DRAWN BY: J. YAP			PLOT DATE: 9/15/2016	

COUNTY OF ORANGE
OC PUBLIC WORKS

PREPARED BY:
AECOM
999 W. Town & Country Road
Orange, CA 92868
(714) 567-2501

EDINGER AVE BRIDGE AT BOLSA CHICA CHANNEL REPLACEMENT PROJECT
BR. NO. 55C-0400

CONSTRUCTION DETAILS

Sheet Reference Number
C-3
Sheet 20 of 76

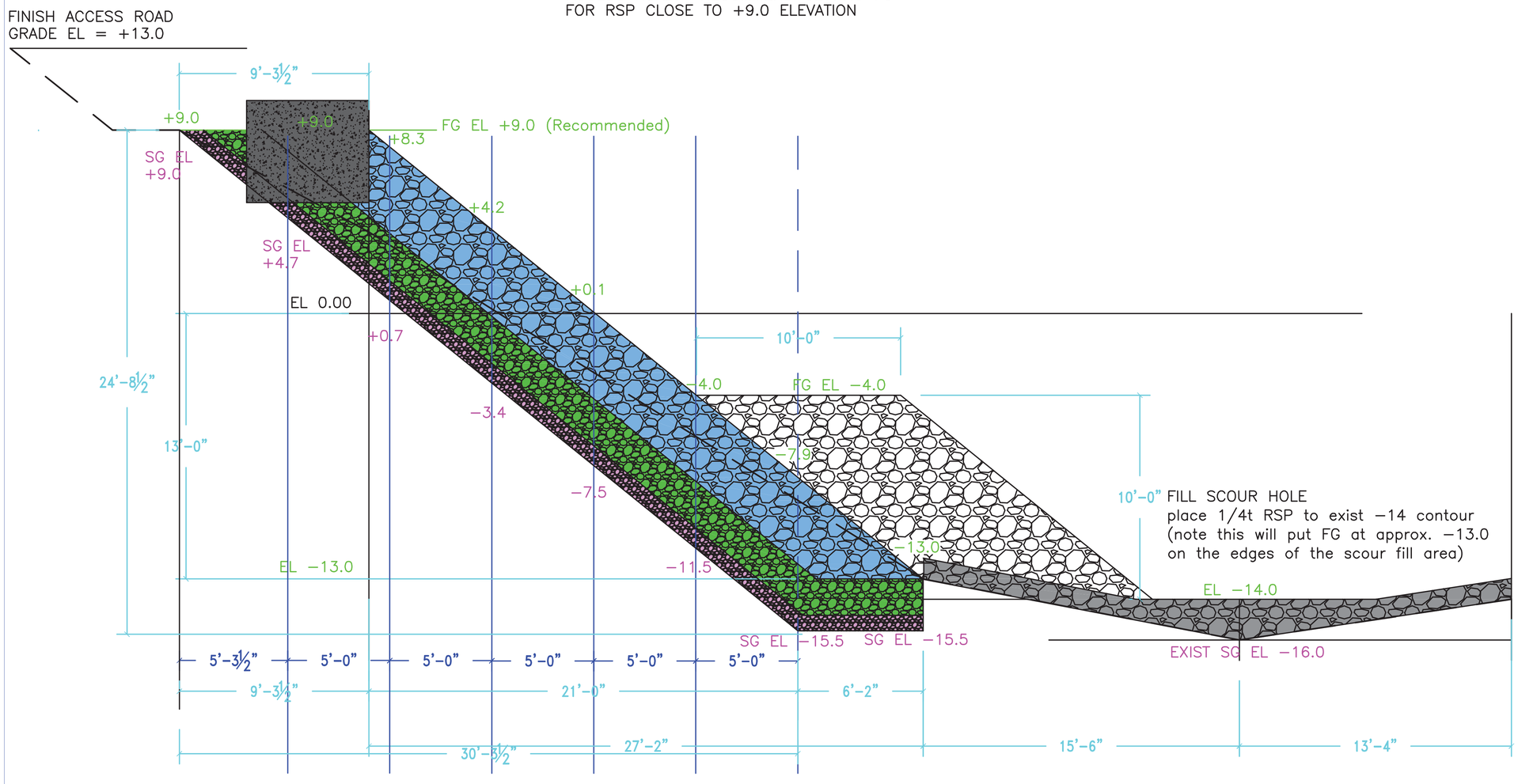
FILE NAME : \\usoahtfs001\tran_prod\Projects\60216352-Edinger_BR\000_CAD\006_Civil\Sheets\20_C_Construction Details_03.dgn

AS-BUILT SEPTEMBER 2019

SECTION A–A

PER DRAWING G–1, THE FINAL GRADE NORTH OF THE ABUTMENTS WILL BE +9.0 & THEN BUILT UP TO +14.0 FOR THE ACCESS ROAD. RECOMMEND GETTING FG FOR RSP CLOSE TO +9.0 ELEVATION

County of Orange	
Public Works	
AS-BUILT	
Contractor:	Kiewit Infrastructure West Company
Resident Engineer:	Elmo Delos Santos (PreScience Corp.)
Senior RE:	Kevin Tran
Inspectors:	Tuan Tran (PreScience Corp.) Kenneth Junio
Construction Start Date:	May 8, 2017
Construction Completion Date:	August 5, 2019



General Notes

No.	Revision/Issue	Date

Firm Name and Address

Project Name and Address

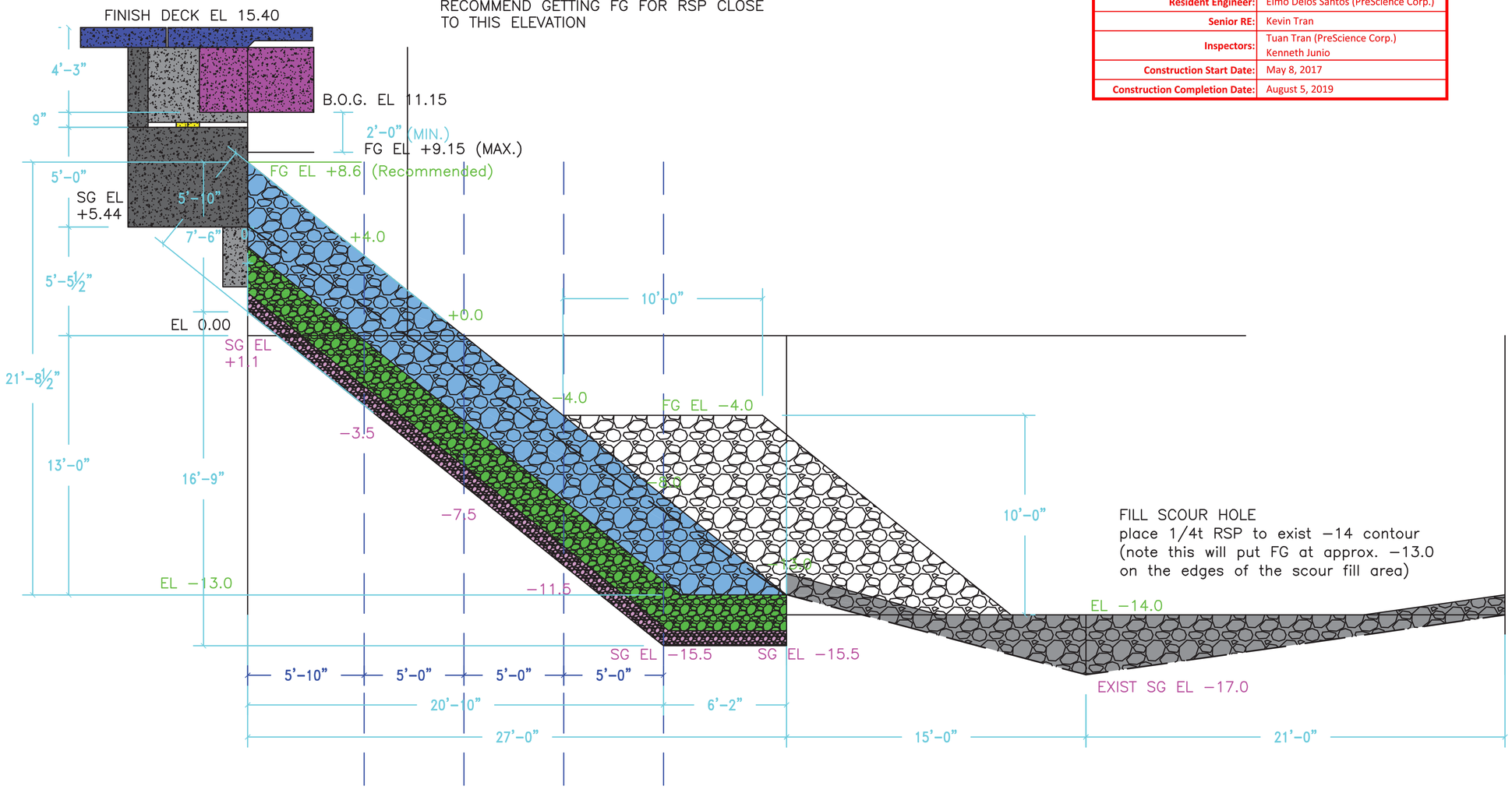
EDINGER BRIDGE RSP C-3A

Project	Sheet
Date	
Scale	

AS-BUILT SEPTEMBER 2019

SECTION D–D

PER DRAWING G–1, THE FINAL GRADE NORTH OF THE ABUTMENTS WILL BE +9.0. RECOMMEND GETTING FG FOR RSP CLOSE TO THIS ELEVATION



County of Orange	
Public Works	
AS-BUILT	
Contractor:	Kiewit Infrastructure West Company
Resident Engineer:	Elmo Delos Santos (PreScience Corp.)
Senior RE:	Kevin Tran
Inspectors:	Tuan Tran (PreScience Corp.) Kenneth Junio
Construction Start Date:	May 8, 2017
Construction Completion Date:	August 5, 2019

General Notes

No.	Revision/Issue	Date

Firm Name and Address

Project Name and Address

EDINGER BRIDGE RSP C-3B

Project	Sheet
Date	
Scale	

AS-BUILT SEPTEMBER 2019

SECTION C–C (ABUTMENT #1)

County of Orange	
Public Works	
AS-BUILT	
Contractor:	Kiewit Infrastructure West Company
Resident Engineer:	Elmo Delos Santos (PreScience Corp.)
Senior RE:	Kevin Tran
Inspectors:	Tuan Tran (PreScience Corp.) Kenneth Junio
Construction Start Date:	May 8, 2017
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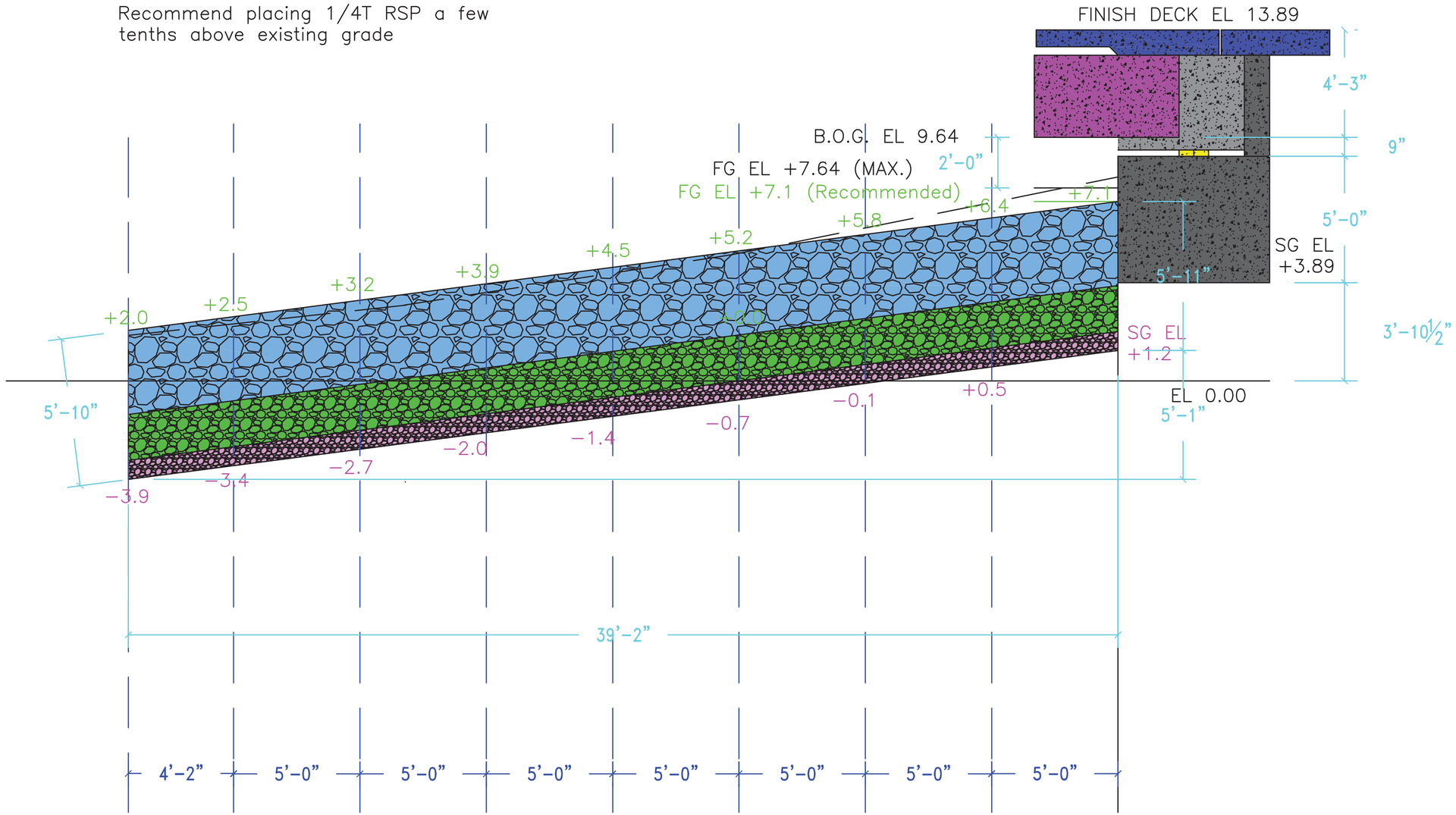


General Notes

No.	Revision/Issue	Date

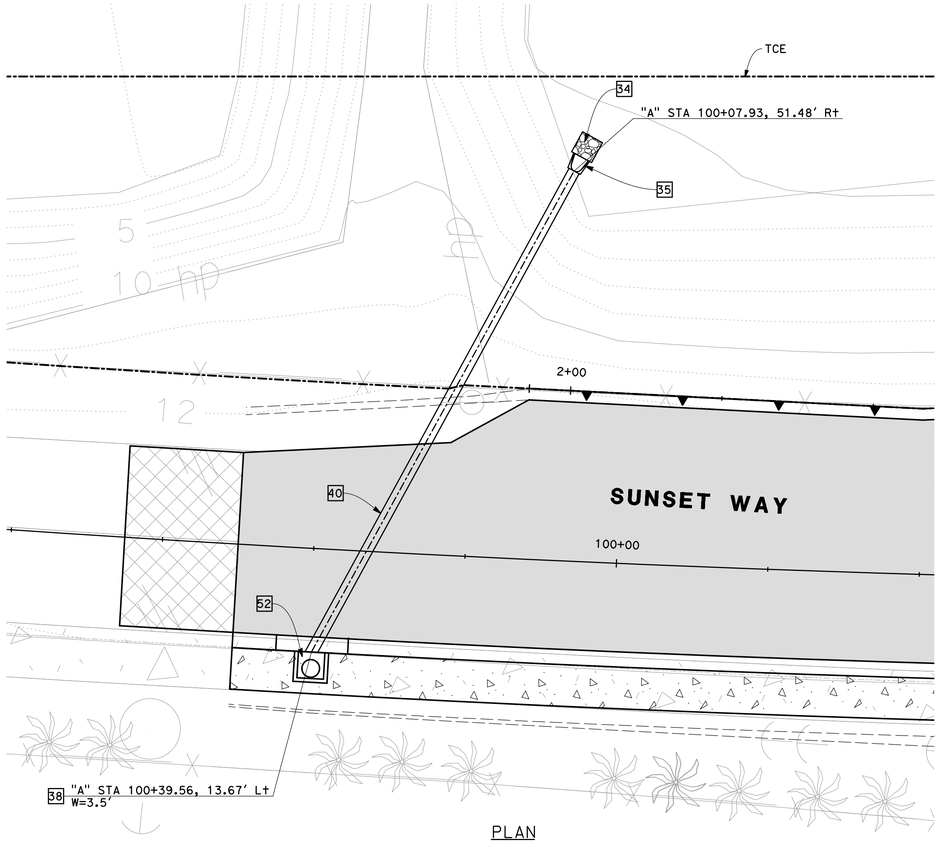
Firm Name and Address

Project Name and Address

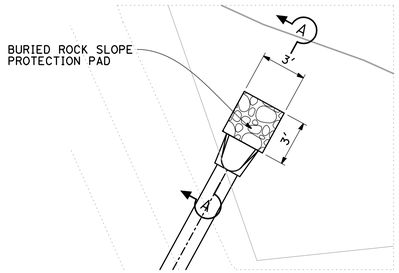
EDINGER BRIDGE RSP C-3C

Project	Sheet
Date	
Scale	

AS-BUILT SEPTEMBER 2019



PLAN
18" RCP



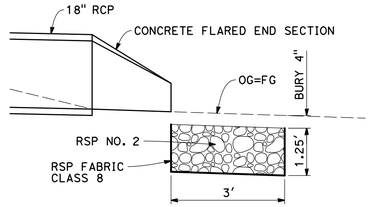
BURIED ROCK SLOPE
PROTECTION PAD
NO SCALE

CONSTRUCTION NOTES

34 CONSTRUCT BURIED ROCK SLOPE PROTECTION PAD PER DETAIL ON SHEET D-1
35 CONSTRUCT CONCRETE FLARED END SECTION PER CALTRANS STD. PLAN D94B
38 CONSTRUCT INLET TYPE I PER OCPW STD. PLAN 1301
40 CONSTRUCT 18" RCP
52 INSTALL PREFABRICATED THERMOPLASTIC DRAINAGE INLET MARKER PER CALTRANS STD PLAN D71

DISPOSITION

(1) PROTECT IN PLACE



SECTION A-A
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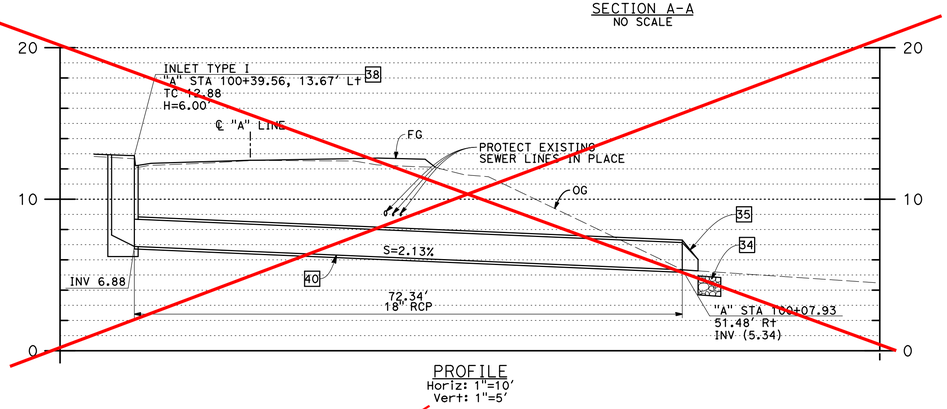
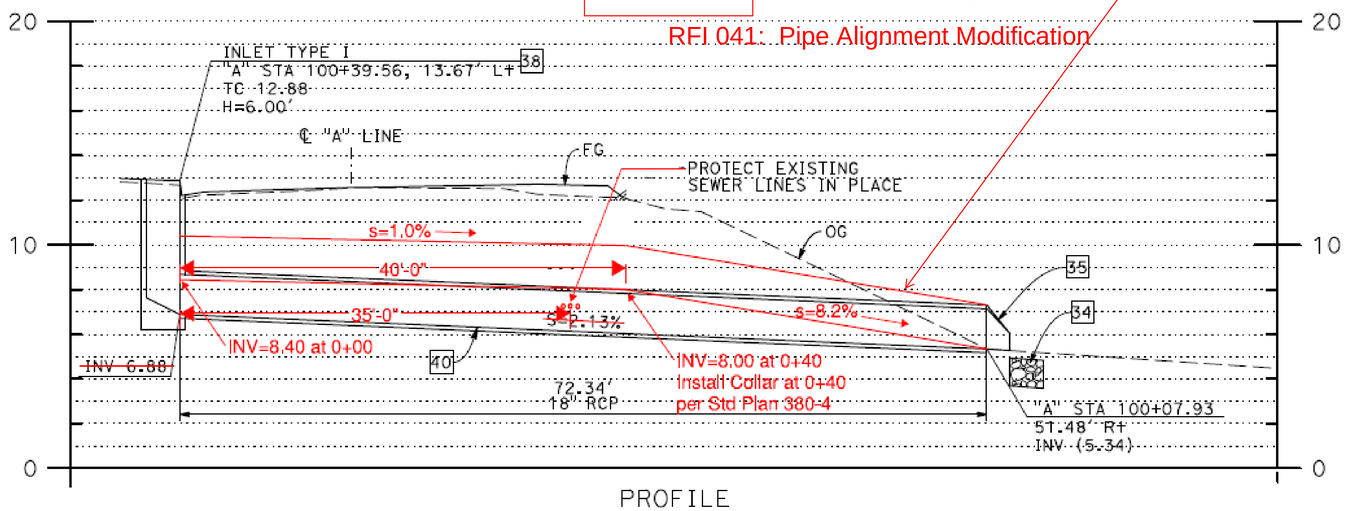


PROFILE
Horiz: 1"=10'
Vert: 1"=5'

New SD Profile shown in red.

CCO #22

RFI 041: Pipe Alignment Modification



PROFILE

County of Orange	
Public Works	
AS-BUILT	
Contractor:	Kiewit Infrastructure West Company
Resident Engineer:	Elmo Delos Santos (PreScience Corp.)
Senior RE:	Kevin Tran
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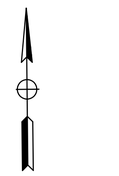


0 5 10 20
SCALE: 1" = 10'

COUNTY OF ORANGE
CALIFORNIA

MARK	DESCRIPTION	DATE	APPR.

PREPARED UNDER THE RESPONSIBLE CHARGE OF:
CHUANCHE TING
No. 78632
Exp. 9/30/17
CIVIL
REGISTERED PROFESSIONAL ENGINEER
STATE OF CALIFORNIA
09/12/16
DATE
CHUANCHE TING

DESIGNED BY: J. YAP
DRAWN BY: J. YAP
CHECKED BY: B. SMITH
DRAWING CODE:
FILE NAME: #FILE
PLOT DATE: 9/15/2016
SCALE: AS SHOWN

COUNTY OF ORANGE
OC PUBLIC WORKS

PREPARED BY:
AECOM
999 W. Town & Country Road
Orange, CA 92868
(714) 567-2501

EDINGER AVE BRIDGE AT
BOLSA CHICA CHANNEL
REPLACEMENT PROJECT
BR. NO. 55C-0400

DRAINAGE DETAILS

Sheet Reference Number
D-1

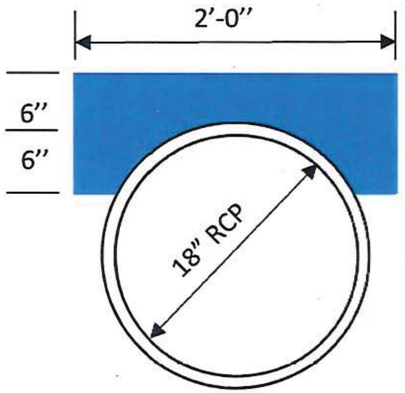
FILE NAME: I:\usont1fs001\tran_prod\Projects\60216352-Edinger_BR\000_CAD\006_Civil\Sheets\21_D_Drainage_01.dgn

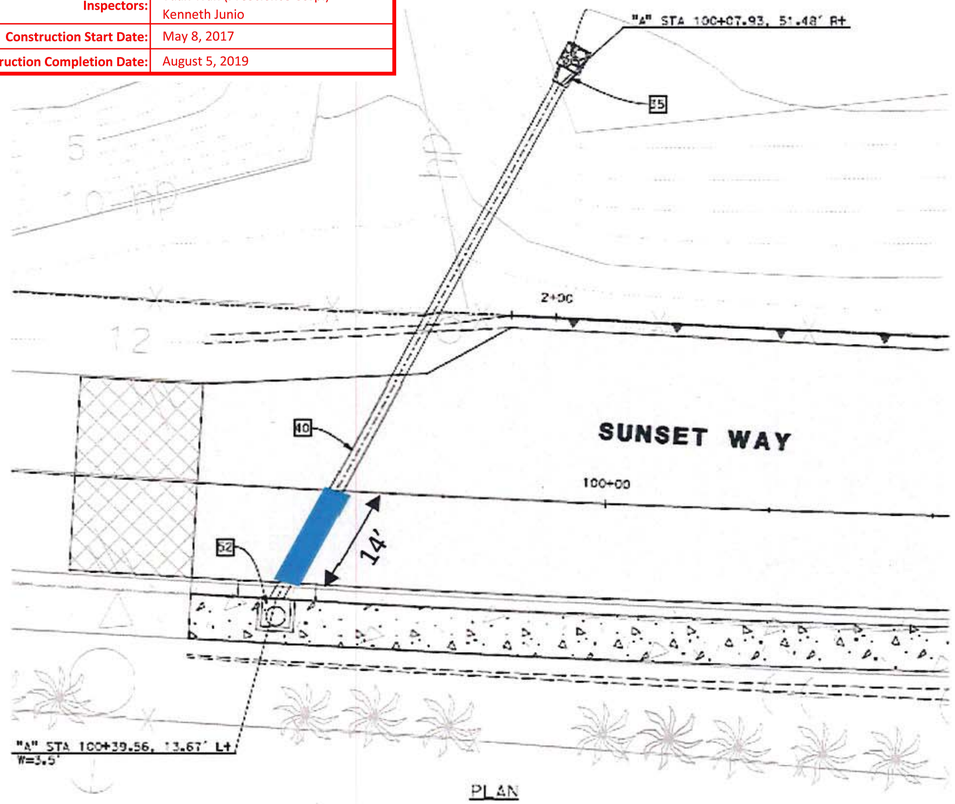
AS-BUILT SEPTEMBER 2019

DocuSign Envelope ID: 55373ED0-ECA6-4849-A31D-DEE0003AFE08

Edinger Avenue Bridge Replacement Project over Bolsa Chica Channel MA-080-17011352

County of Orange	
Public Works	
AS-BUILT	
Contractor:	Kiewit Infrastructure West Company
Resident Engineer:	Elmo Delos Santos (PreScience Corp.)
Senior RE:	Kevin Tran
Inspectors:	Tuan Tran (PreScience Corp.) Kenneth Junio
Construction Start Date:	May 8, 2017
Construction Completion Date:	August 5, 2019





PLAN
18" RCP

LICENSED PROFESSIONAL ENGINEER
Larry Quach
C 75951
Exp: 6/30/2020
Civil Engineer
STATE OF CALIFORNIA

Contract Change Order No. 22

Sheet D-1A

DocuSign Envelope ID: 96723018-9674-4E24-AF00-665AE92F3058

AS-BUILT SEPTEMBER 2019

County of Orange	
Public Works	
AS-BUILT	
Contractor:	Kiewit Infrastructure West Company
Resident Engineer:	Elmo Delos Santos (PreScience Corp.)
Senior RE:	Kevin Tran
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Construction Start Date:	May 8, 2017
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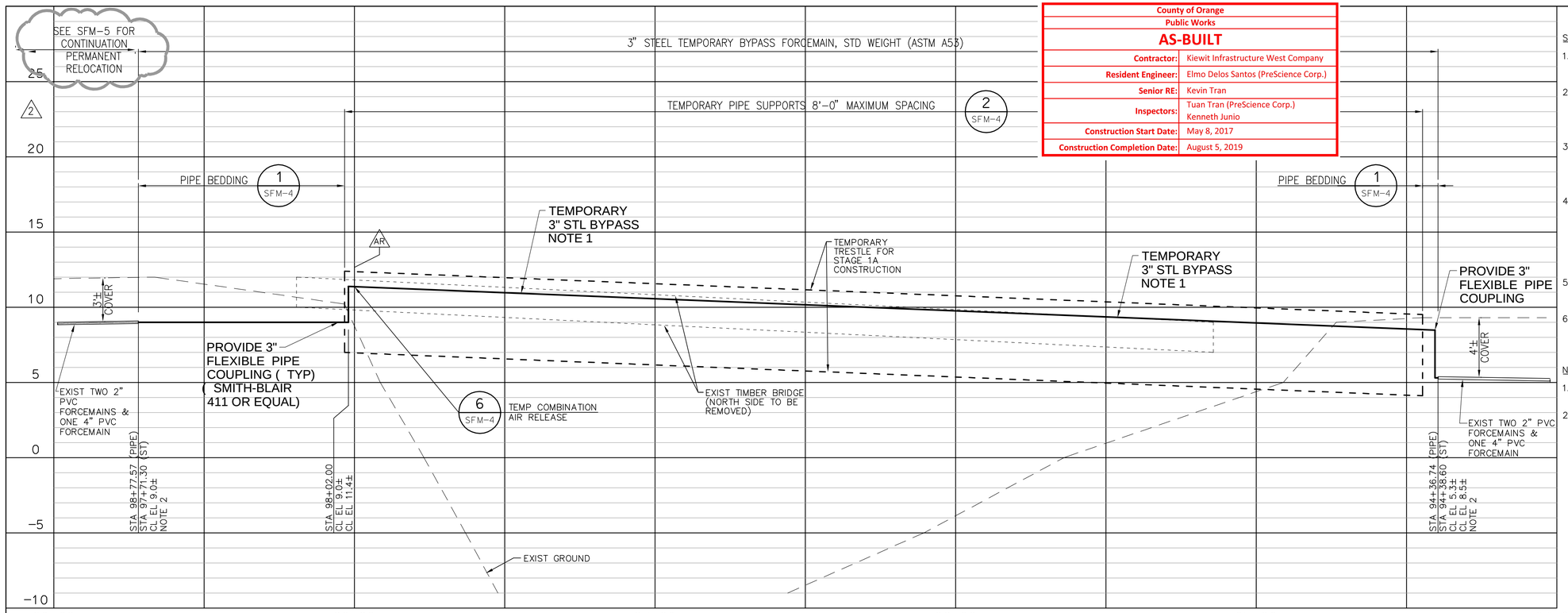
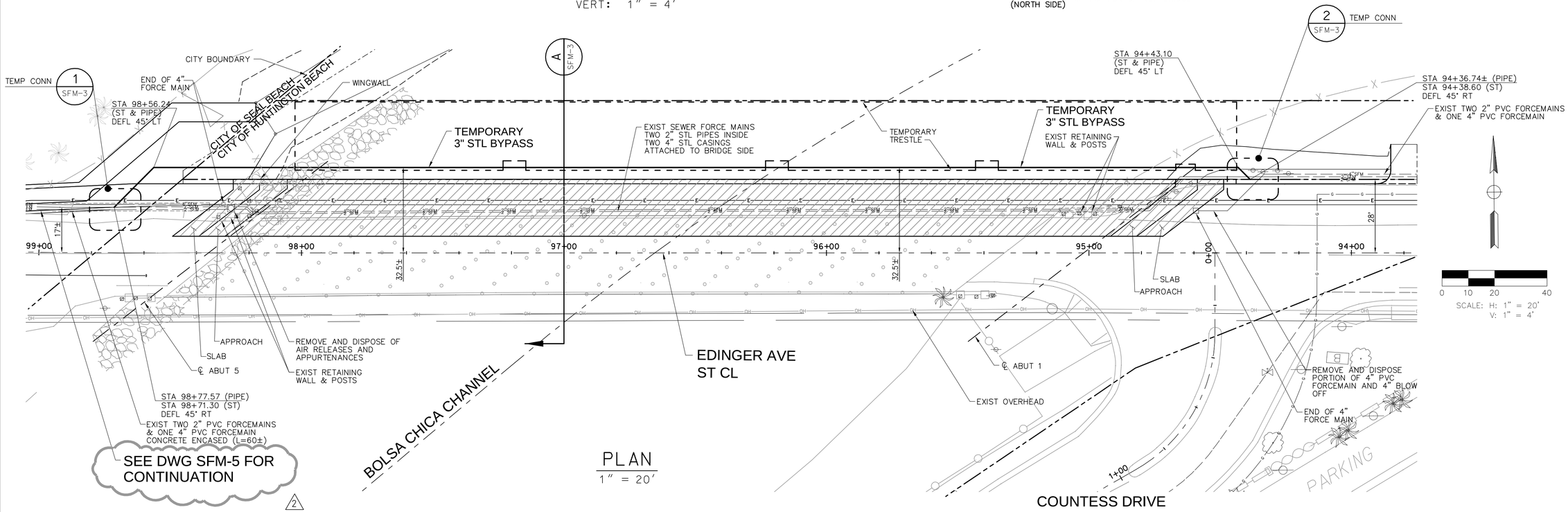


PROFILE

HORIZ: 1" = 20'
VERT: 1" = 4'

STAGE 1A

CONSTRUCTION OF PORTION OF NEW BRIDGE (NORTH SIDE)



PLAN

1" = 20'

SEQUENCE OF WORK NOTES:

1. PROTECT EXISTING SEWER FORCE MAINS IN PLACE DURING CONSTRUCTION OF PROPOSED TEMPORARY TRESTLE.
2. AFTER COMPLETION OF TEMPORARY TRESTLE, CONSTRUCT NEW 3-INCH TEMPORARY BYPASS SEWER FORCE MAIN UNDER TRESTLE. PROTECT TEMPORARY FORCE MAIN IN PLACE AT ALL TIMES DURING BRIDGE CONSTRUCTION.
3. PRESSURE TEST TEMPORARY BYPASS SEWER PER THE SPECIFICATIONS AND PRIOR TO CONNECTING TO THE EXISTING FORCE MAINS. NO LEAKAGE WILL BE ALLOWED DURING PRESSURE TEST.
4. AFTER TEMPORARY SEWER FORCE MAIN IS IN OPERATION REMOVE AND DISPOSE INTERFERING PORTIONS OF EXISTING SEWER FORCE MAINS AND APPURTENANCES AS REQUIRED FOR NEW BRIDGE CONSTRUCTION. DURING CONSTRUCTION OF NEW BRIDGE, PROTECT IN PLACE TEMPORARY SEWER FORCE MAIN.
5. AFTER COMPLETION OF PORTION OF NEW BRIDGE (NORTH SIDE), CONSTRUCT FINAL SEWER FORCE MAINS PER SHEET SFM-2.
6. PROTECT FINAL SEWER FORCE MAIN IN PLACE DURING CONSTRUCTION OF SOUTH BRIDGE PORTION.

NOTES:

1. GRADE OF TEMPORARY SEWER FORCE MAIN IS APPROXIMATE, ADJUST AS REQUIRED.
2. POTHOLE EXISTING FORCE MAIN 4 WEEKS IN ADVANCE OF CONSTRUCTION AND DETERMINE VERTICAL AND HORIZONTAL LOCATIONS.

COUNTY OF ORANGE CALIFORNIA

MARK	DESCRIPTION	DATE	APPR.
1	ADDED REFERENCE NOTE	9/28/17	JT

PREPARED UNDER THE RESPONSIBLE CHARGE OF:

REGISTERED PROFESSIONAL ENGINEER JESUS LOPEZ No. C052517 Exp.12/31/19 CIVIL STATE OF CALIFORNIA

9/28/2017
DATE

JESUS LOPEZ

DESIGNED BY: J. LOPEZ
DRAWN BY: T. SY
CHECKED BY: CRH
DRAWING CODE:
FILE NAME: $FILE
PLOT DATE: $DATE$
SCALE: AS SHOWN

COUNTY OF ORANGE
OC PUBLIC WORKS

PREPARED BY:
AECOM
3199 W. Town & Country Road
Orange, CA 92868
(714) 567-2501

EDINGER AVE BRIDGE AT BOLSA CHICA CHANNEL REPLACEMENT PROJECT
BR. NO. 55C-0400

TEMP BYPASS PLAN & PROFILE

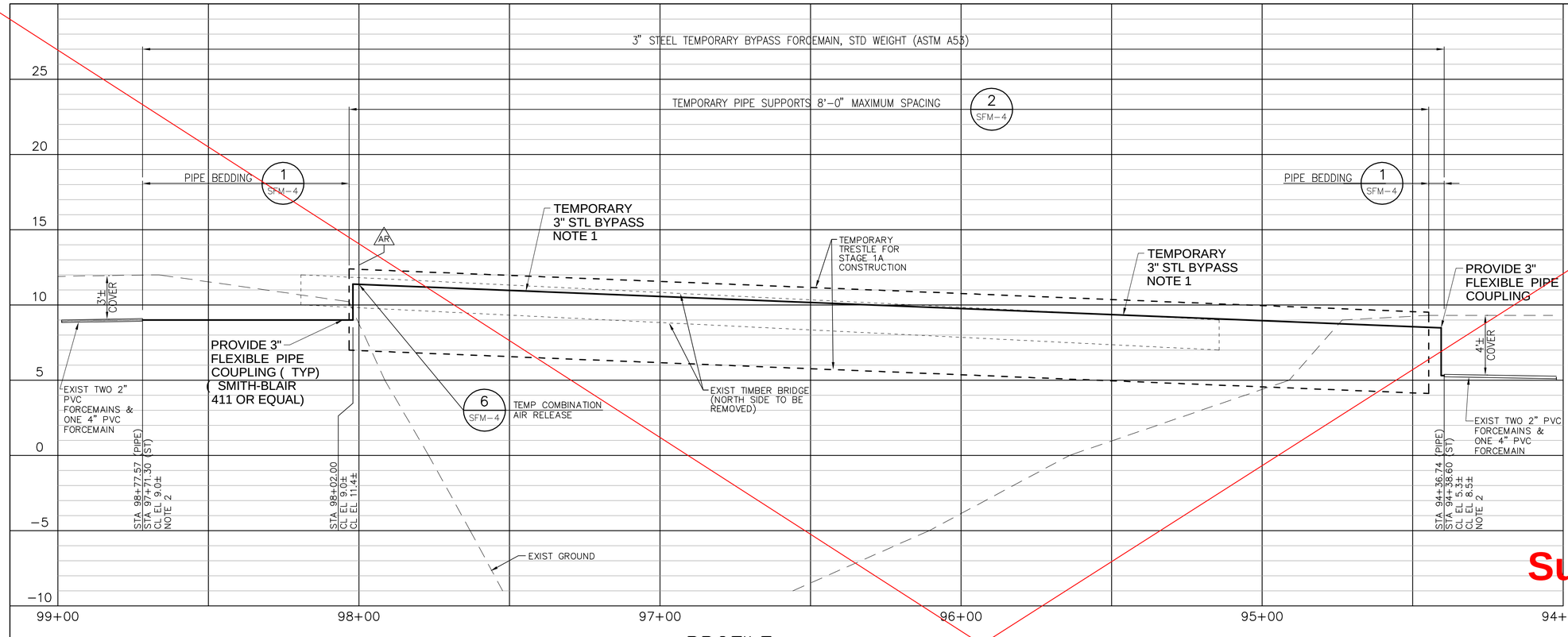
Sheet Reference Number

SFM-1

Sheet 22R1 of 76

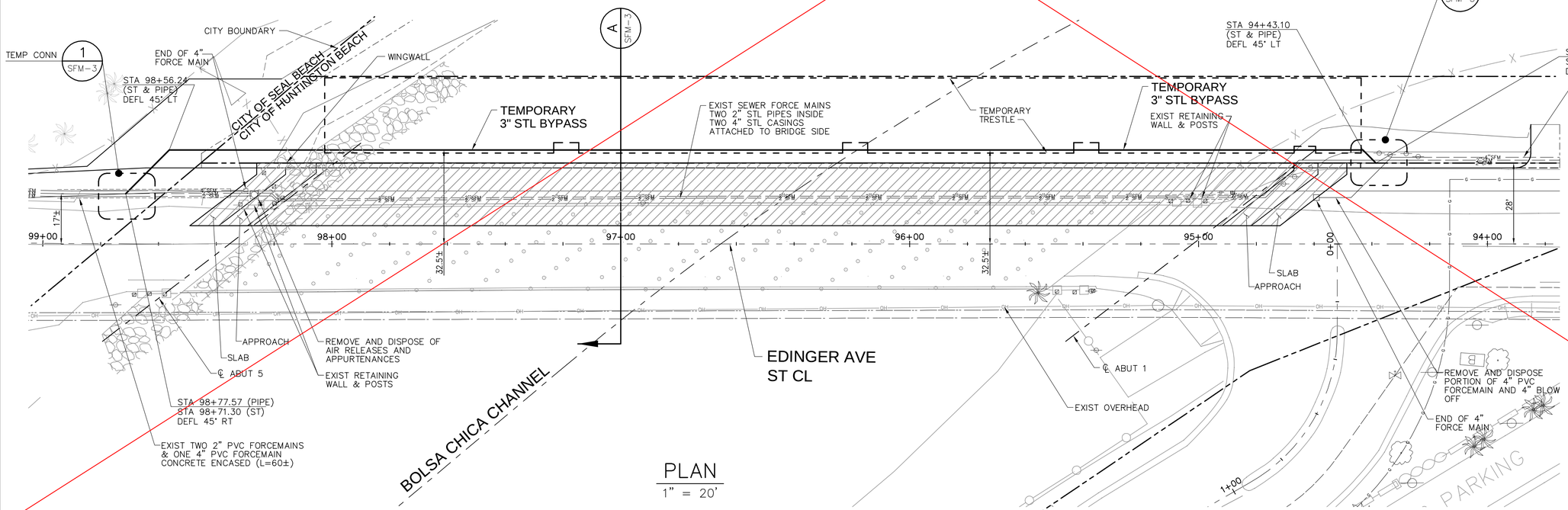
FILE NAME :$REQUEST

AS-BUILT SEPTEMBER 2019



PROFILE

HORIZ: 1" = 20'
VERT: 1" = 4'



PLAN

1" = 20'

STAGE 1A

CONSTRUCTION OF PORTION OF NEW BRIDGE (NORTH SIDE)

SEQUENCE OF WORK NOTES:

1. PROTECT EXISTING SEWER FORCE MAINS IN PLACE DURING CONSTRUCTION OF PROPOSED TEMPORARY TRESTLE.
2. AFTER COMPLETION OF TEMPORARY TRESTLE, CONSTRUCT NEW 3-INCH TEMPORARY BYPASS SEWER FORCE MAIN UNDER TRESTLE. PROTECT TEMPORARY FORCE MAIN IN PLACE AT ALL TIMES DURING BRIDGE CONSTRUCTION.
3. PRESSURE TEST TEMPORARY BYPASS SEWER PER THE SPECIFICATIONS AND PRIOR TO CONNECTING TO THE EXISTING FORCE MAINS. NO LEAKAGE WILL BE ALLOWED DURING PRESSURE TEST.
4. AFTER TEMPORARY SEWER FORCE MAIN IS IN OPERATION REMOVE AND DISPOSE INTERFERING PORTIONS OF EXISTING SEWER FORCE MAINS AND APPURTENANCES AS REQUIRED FOR NEW BRIDGE CONSTRUCTION. DURING CONSTRUCTION OF NEW BRIDGE, PROTECT IN PLACE TEMPORARY SEWER FORCE MAIN.
5. AFTER COMPLETION OF PORTION OF NEW BRIDGE (NORTH SIDE), CONSTRUCT FINAL SEWER FORCE MAINS PER SHEET SFM-2.
6. PROTECT FINAL SEWER FORCE MAIN IN PLACE DURING CONSTRUCTION OF SOUTH BRIDGE PORTION.

NOTES:

1. GRADE OF TEMPORARY SEWER FORCE MAIN IS APPROXIMATE, ADJUST AS REQUIRED.
2. POTHOLE EXISTING FORCE MAIN 4 WEEKS IN ADVANCE OF CONSTRUCTION AND DETERMINE VERTICAL AND HORIZONTAL LOCATIONS.

Superseded

COUNTY OF ORANGE CALIFORNIA

MARK	DESCRIPTION	DATE	APPR.

PREPARED UNDER THE RESPONSIBLE CHARGE OF:

REGISTERED CIVIL ENGINEER JESUS LOPEZ No. C052517 12/31/16 CIVIL STATE OF CALIFORNIA

09/19/2016 DATE

JESUS LOPEZ

DESIGNED BY: J. LOPEZ
DRAWN BY: T. SY
CHECKED BY: CRH
DRAWING CODE:
FILE NAME: $FILE
PLOT DATE: $DATE$
SCALE: AS SHOWN

COUNTY OF ORANGE
OC PUBLIC WORKS

PREPARED BY:
ACCOM
999 W. Town & Country Road
Orange, CA 92868
(714) 567-2501

EDINGER AVE BRIDGE AT BOLSA CHICA CHANNEL REPLACEMENT PROJECT
BR. NO. 55C-0400

TEMP BYPASS PLAN & PROFILE

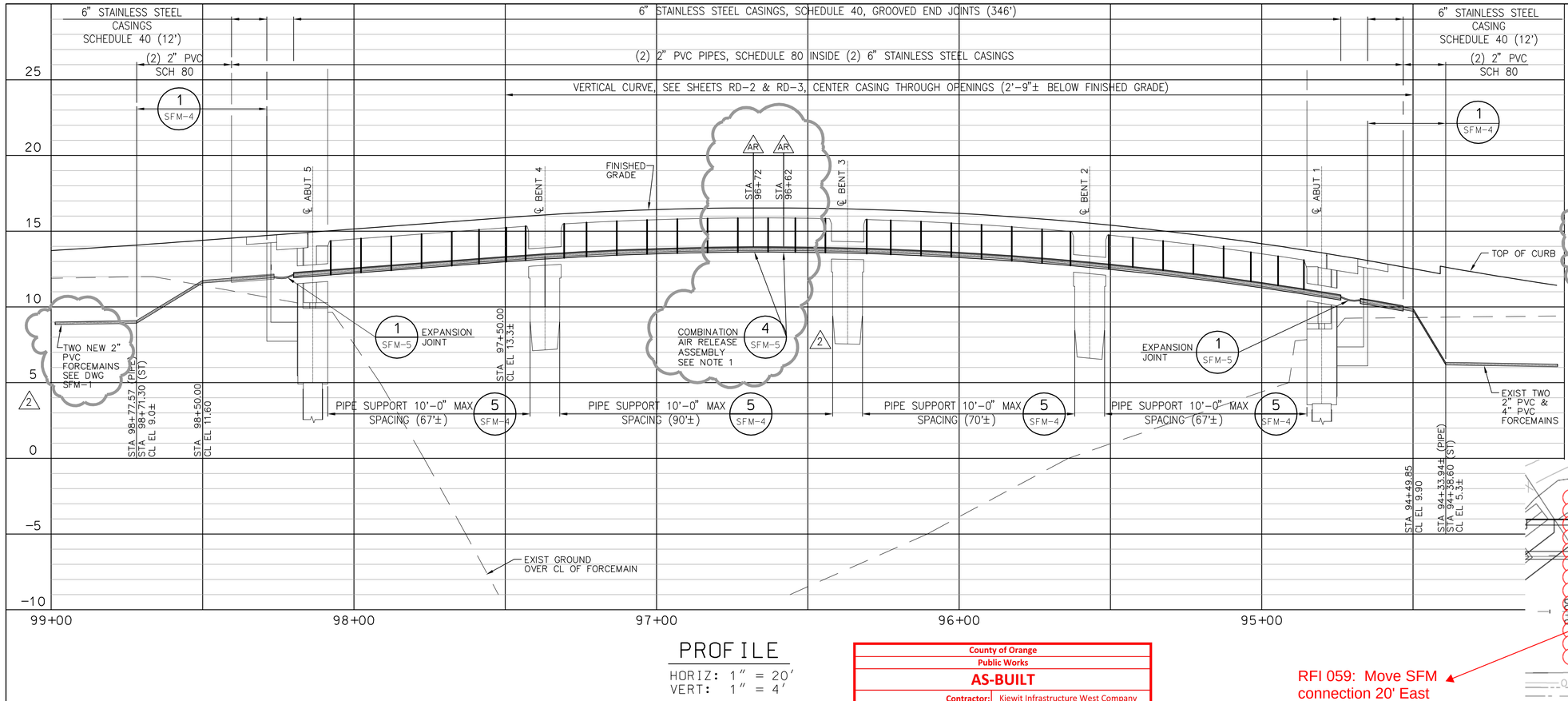
Sheet Reference Number

SFM-1

Sheet 22 of 76

FILE NAME : $REQUEST

AS-BUILT SEPTEMBER 2019



SEQUENCE OF WORK NOTES:

1. AFTER TEMPORARY BYPASS HAS BEEN INSTALLED AND IN OPERATION, AND NORTH SIDE OF NEW BRIDGE IS COMPLETE, CONSTRUCT FINAL SEWER FORCE MAIN UNDERNEATH BRIDGE PER SHEET SFM-2.
2. PRESSURE TEST FINAL SEWER FORCEMAINS PER THE SPECIFICATIONS AND PRIOR TO MAKING FINAL CONNECTIONS TO EXISTING FORCEMAINS. NO LEAKAGE ALLOWED DURING PRESSURE TEST.
3. PROTECT FINAL SEWER FORCEMAIN IN PLACE DURING CONSTRUCTION OF SOUTH BRIDGE PORTION.

NOTE:

1. COORDINATE LOCATION OF COMBINATION AIR RELEASE VALVE ASSEMBLIES WITH ACCESS MANHOLE LOCATIONS ON THE STRUCTURAL DRAWINGS.

PROFILE
HORIZ: 1" = 20'
VERT: 1" = 4'

County of Orange	
Public Works	
AS-BUILT	
Contractor:	Kiewit Infrastructure West Company
Resident Engineer:	Elmo Delos Santos (PreScience Corp.)
Senior RE:	Kevin Tran
Inspectors:	Tuan Tran (PreScience Corp.) Kenneth Junio
Construction Start Date:	May 8, 2017
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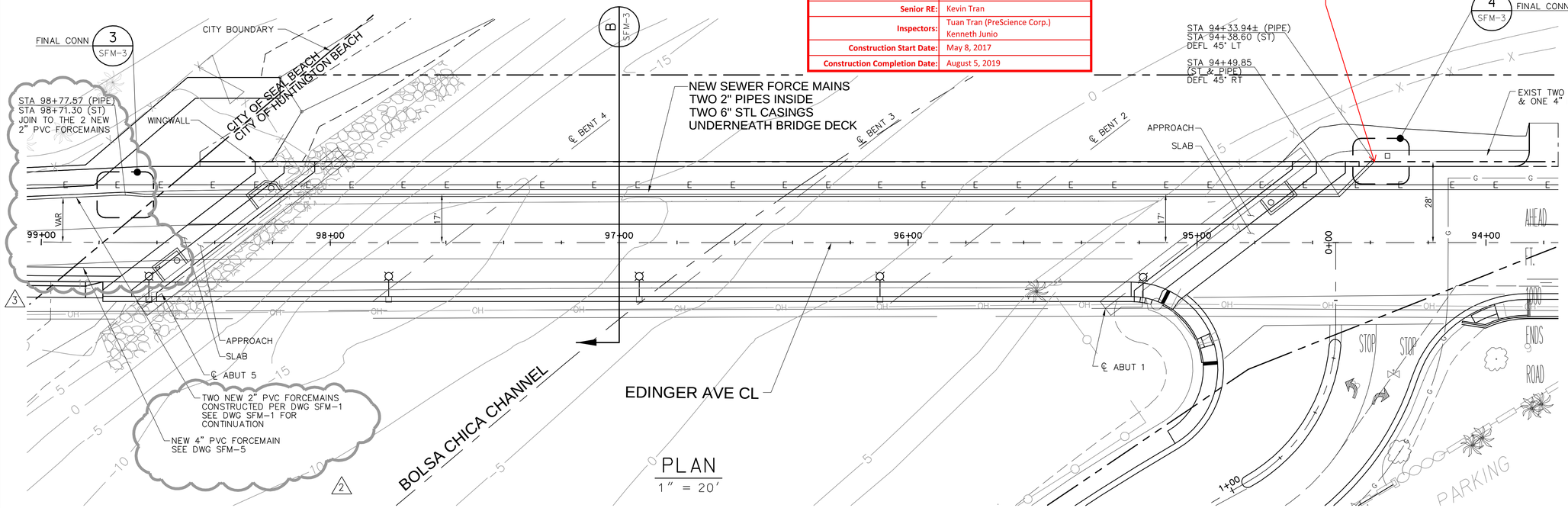


PLAN
1" = 20'

MARK	DESCRIPTION	DATE	APPR.
2	ADDED CAV & REV ALIGNMENT	9/28/17	JT

PREPARED UNDER THE RESPONSIBLE CHARGE OF:
JESUS LOPEZ
REGISTERED PROFESSIONAL ENGINEER — JESUS LOPEZ — No. C052517 — Exp. 12/31/19 — CIVIL — STATE OF CALIFORNIA
9/28/2017
DATE

DESIGNED BY: J. LOPEZ
DRAWN BY: T. SY
CHECKED BY: CRH
DRAWING CODE:
FILE NAME: $FILE
PLOT DATE: $DATE$
SCALE: AS SHOWN

COUNTY OF ORANGE
OC PUBLIC WORKS

PREPARED BY:
AECOM
999 W. Town & Country Road
Orange, CA 92868
(714) 567-2501

EDINGER AVE BRIDGE AT
BOLSA CHICA CHANNEL
REPLACEMENT PROJECT
BR. NO. 55C-0400

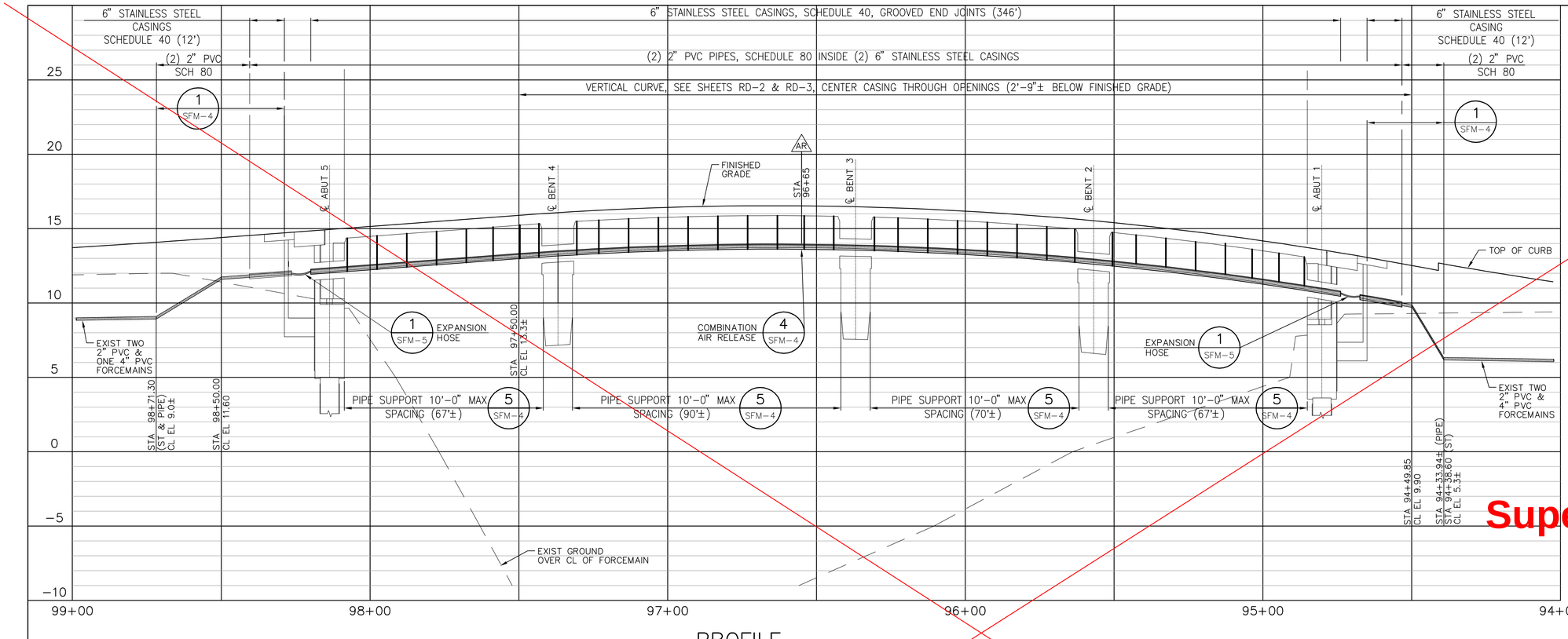
FINAL CONDITION
PLAN & PROFILE

Sheet Reference Number
SFM-2

Sheet 23R1 of 76

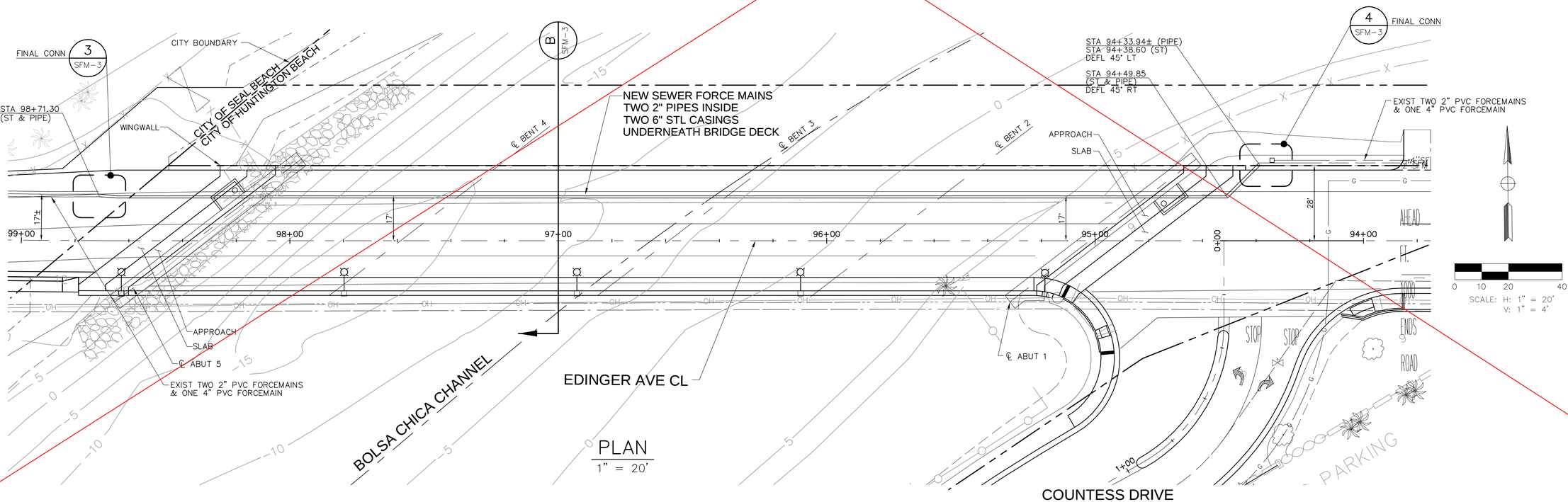
FILE NAME :$REQUEST

AS-BUILT SEPTEMBER 2019



PROFILE

HORIZ: 1" = 20'
VERT: 1" = 4'



PLAN

1" = 20'

SEQUENCE OF WORK NOTES:

1. AFTER TEMPORARY BYPASS HAS BEEN INSTALLED AND IN OPERATION, AND NORTH SIDE OF NEW BRIDGE IS COMPLETE, CONSTRUCT FINAL SEWER FORCE MAIN UNDERNEATH BRIDGE PER SHEET SFM-2.
2. PRESSURE TEST FINAL SEWER FORCEMAINS PER THE SPECIFICATIONS AND PRIOR TO MAKING FINAL CONNECTIONS TO EXISTING FORCEMAINS. NO LEAKAGE ALLOWED DURING PRESSURE TEST.
3. PROTECT FINAL SEWER FORCEMAIN IN PLACE DURING CONSTRUCTION OF SOUTH BRIDGE PORTION.

Superseded

COUNTY OF ORANGE CALIFORNIA

MARK	DESCRIPTION	DATE	APPR.

PREPARED UNDER THE RESPONSIBLE CHARGE OF:
JESUS LOPEZ
No. C052517
Exp. 12/31/16
REGISTERED CIVIL ENGINEER
STATE OF CALIFORNIA
09/19/2016
DATE
JESUS LOPEZ

DESIGNED BY: J. LOPEZ
DRAWN BY: T. SY
CHECKED BY: CRH
DRAWING CODE:
FILE NAME: $FILE
PLOT DATE: $DATE$
SCALE: AS SHOWN

COUNTY OF ORANGE
OC PUBLIC WORKS

PREPARED BY:
AECOM
999 W. Town & Country Road
Orange, CA 92868
(714) 567-2501

EDINGER AVE BRIDGE AT BOLSA CHICA CHANNEL REPLACEMENT PROJECT
BR. NO. 55C-0400

FINAL CONDITION PLAN & PROFILE

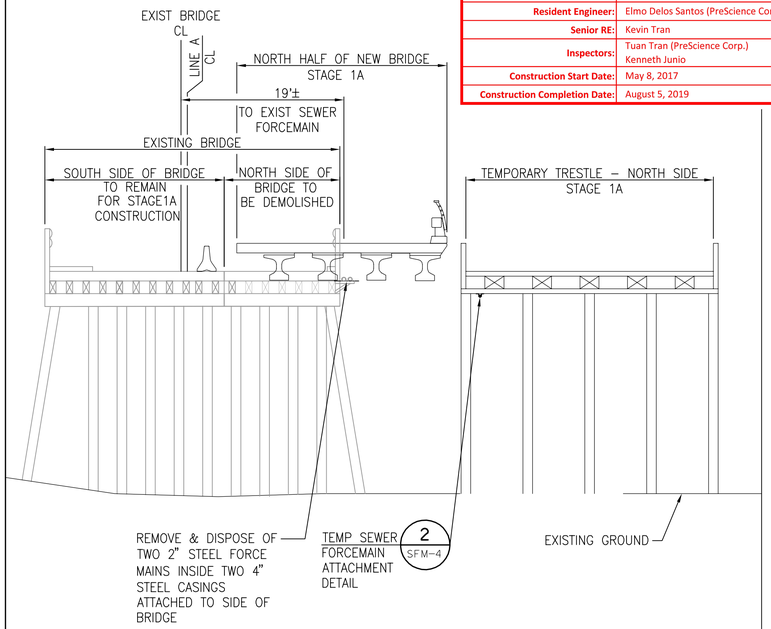
Sheet Reference Number
SFM-2

Sheet 23 of 76

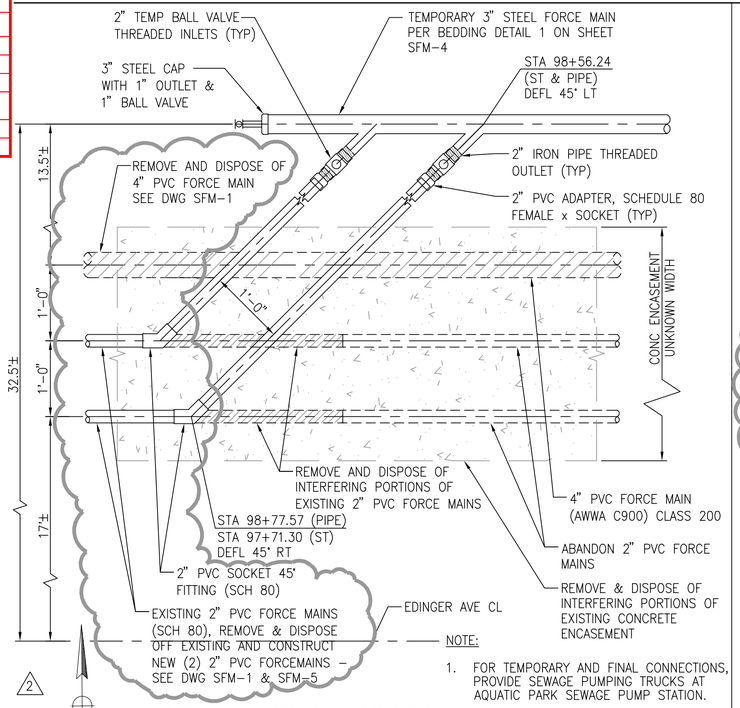
FILE NAME : $REQUEST

AS-BUILT SEPTEMBER 2019

County of Orange
Public Works
AS-BUILT
Contractor: Kiewit Infrastructure West Company
Resident Engineer: Elmo Delos Santos (PreScience Corp.)
Senior RE: Kevin Tran
Inspectors: Tuan Tran (PreScience Corp.), Kenneth Junio
Construction Start Date: May 8, 2017
Construction Completion Date: August 5, 2019



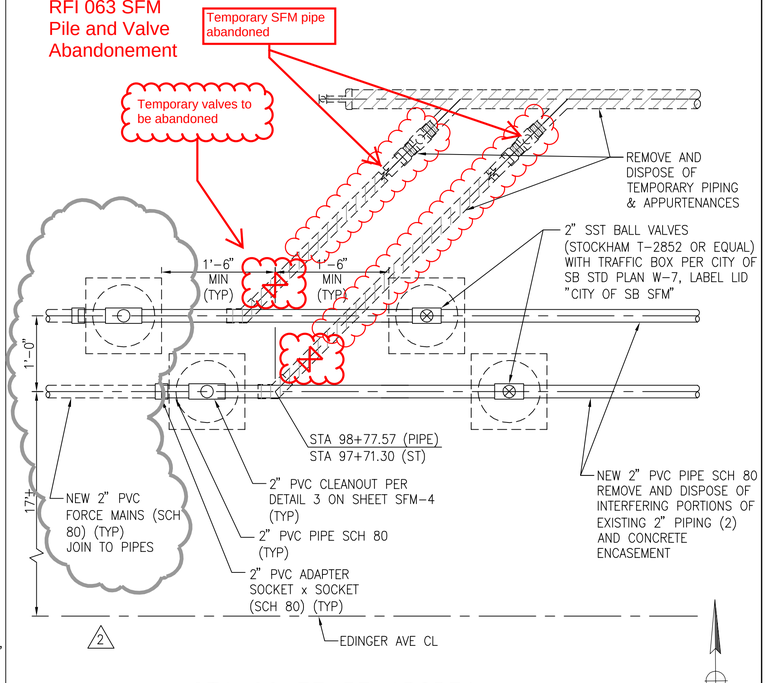
STA 97+00
SECTION A SFM-3 SFM-1
SCALE: 1/8"= 1'-0"



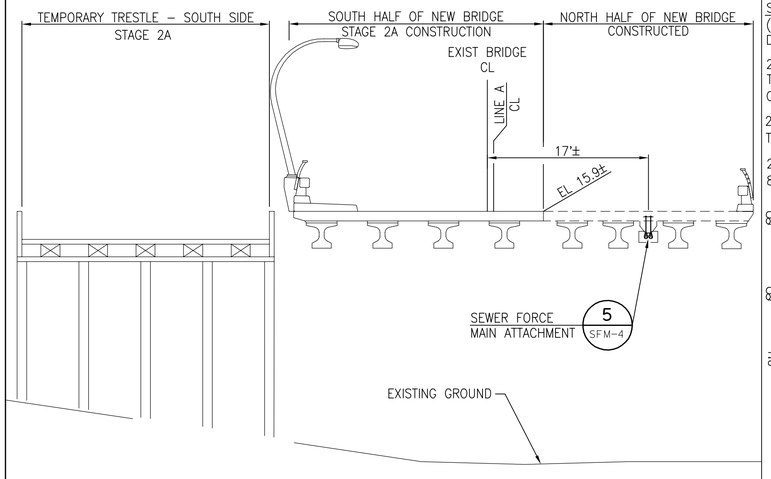
NOTE:
1. FOR TEMPORARY AND FINAL CONNECTIONS, PROVIDE SEWAGE PUMPING TRUCKS AT AQUATIC PARK SEWAGE PUMP STATION.

STA 98+77.57 (PIPE)
TEMP CONNECTION 1 SFM-3 SFM-1
SCALE: 1"= 1'-0"

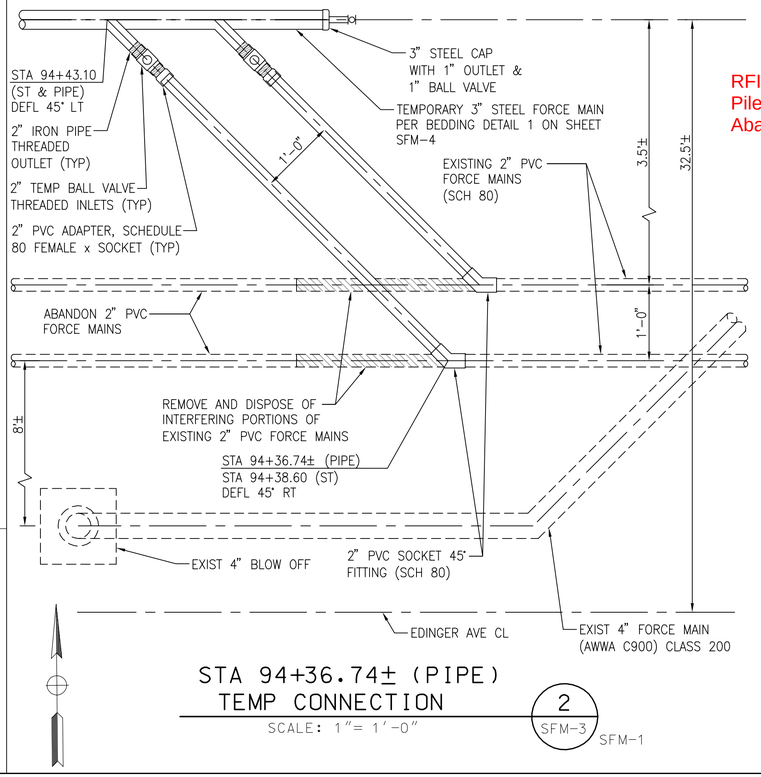
RFI 063 SFM
Pile and Valve
Abandonement



STA 98+77.57 (PIPE)
FINAL CONNECTION 3 SFM-3 SFM-2
SCALE: 1"= 1'-0"

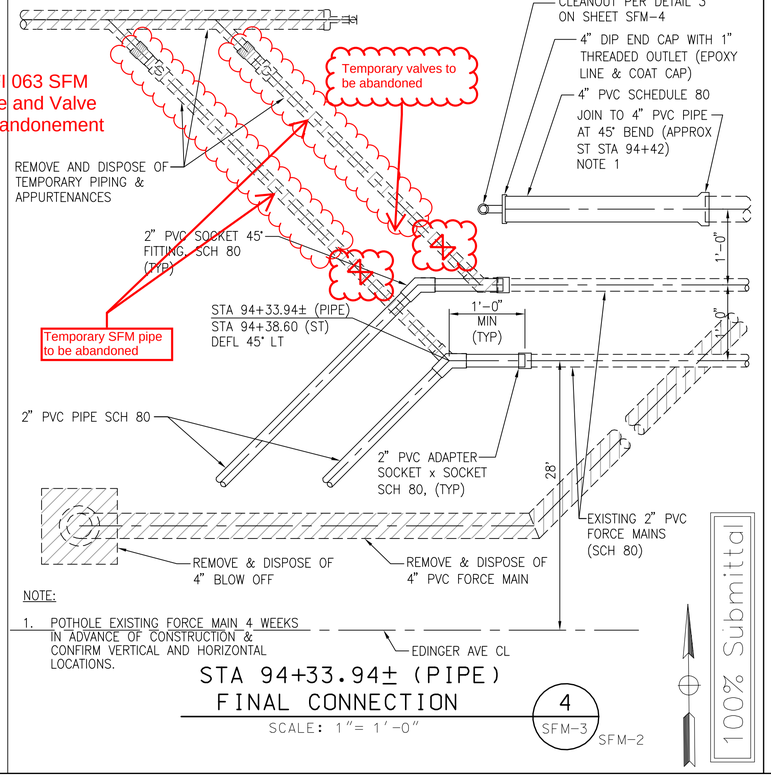


STA 97+00
SECTION B SFM-3 SFM-2
SCALE: 1/8"= 1'-0"



STA 94+36.74± (PIPE)
TEMP CONNECTION 2 SFM-3 SFM-1
SCALE: 1"= 1'-0"

RFI 063 SFM
Pile and Valve
Abandonement



NOTE:
1. POTHOLE EXISTING FORCE MAIN 4 WEEKS IN ADVANCE OF CONSTRUCTION & CONFIRM VERTICAL AND HORIZONTAL LOCATIONS.

STA 94+33.94± (PIPE)
FINAL CONNECTION 4 SFM-3 SFM-2
SCALE: 1"= 1'-0"

100% Submittal

COUNTY OF ORANGE CALIFORNIA

MARK	REVISED DETAILS DESCRIPTION	DATE	APPR.
		9/28/17	JT

PREPARED UNDER THE RESPONSIBLE CHARGE OF:
REGISTERED PROFESSIONAL ENGINEER JESUS LOPEZ No. C052517 Exp.12/31/19 CIVIL STATE OF CALIFORNIA
JESUS LOPEZ 12/5/2016 DATE

DESIGNED BY: J. LOPEZ
DRAWN BY: T. SY
CHECKED BY: CRH
DRAWING CODE:
FILE NAME: $FILE
PLOT DATE: $DATE$
SCALE: AS SHOWN

COUNTY OF ORANGE
OC PUBLIC WORKS

PREPARED BY:
AECOM
999 W. Town & Country Road
Orange, CA 92868
(714) 567-2501

EDINGER AVE BRIDGE AT BOLSA CHICA CHANNEL REPLACEMENT PROJECT BR. NO. 55C-0400

SEWER FORCEMAIN SECTIONS & CONN

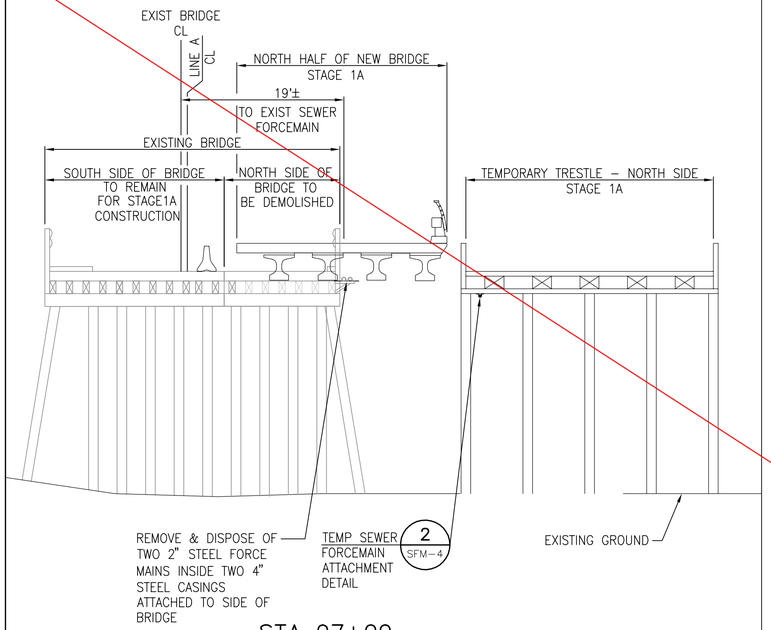
Sheet Reference Number
SFM-3

Sheet 24 of 76

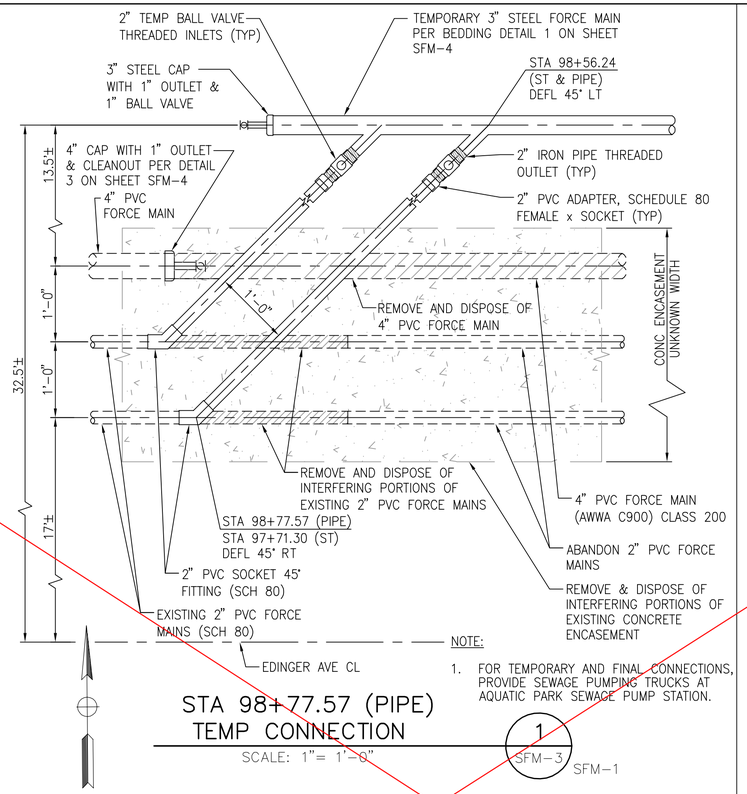
FILE NAME :$REQUEST

AS-BUILT SEPTEMBER 2019

Superseded

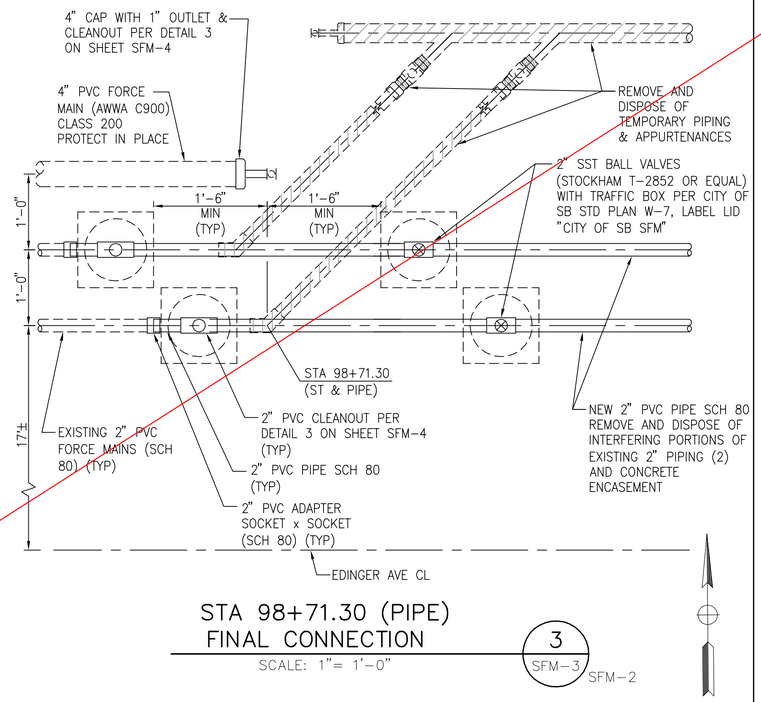


STA 97+00
SECTION
SCALE: 1/8"= 1'-0"
A
SFM-3
SFM-1

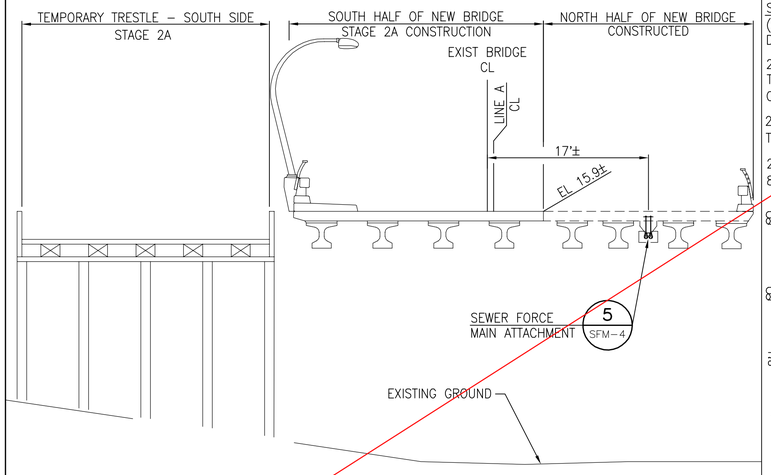


NOTE:
1. FOR TEMPORARY AND FINAL CONNECTIONS, PROVIDE SEWAGE PUMPING TRUCKS AT AQUATIC PARK SEWAGE PUMP STATION.

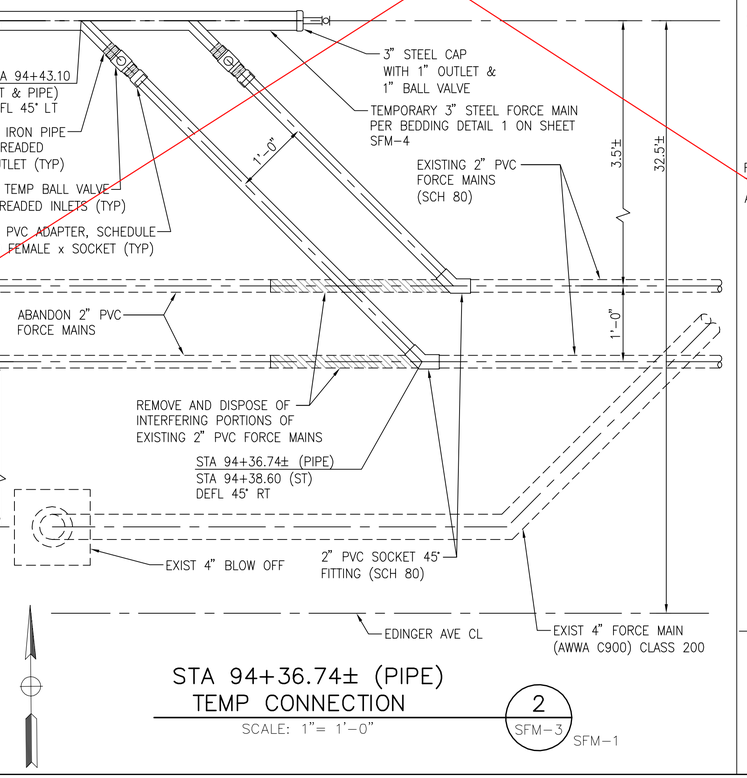
STA 98+77.57 (PIPE)
TEMP CONNECTION
SCALE: 1"= 1'-0"
1
SFM-3
SFM-1



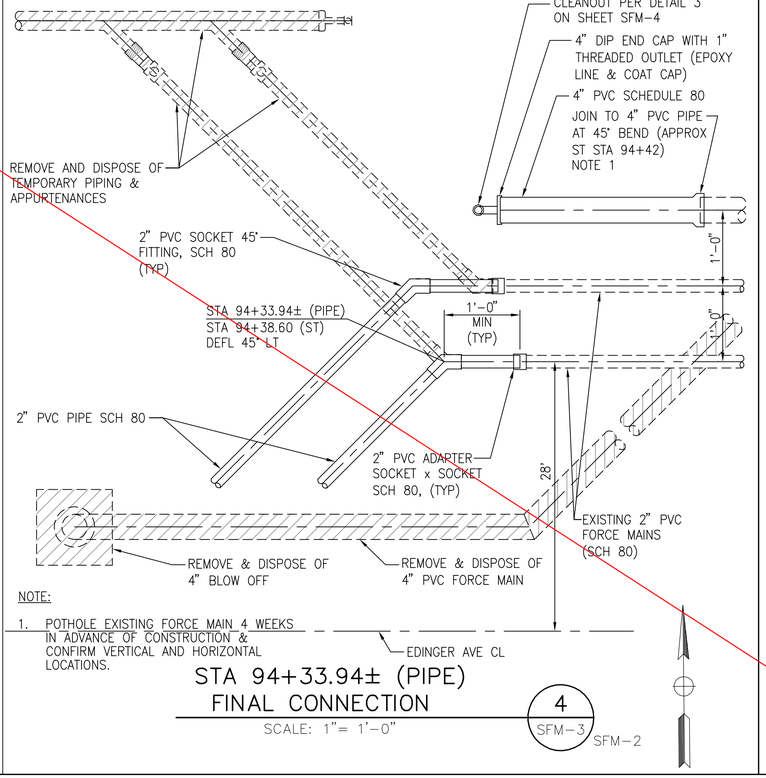
STA 98+71.30 (PIPE)
FINAL CONNECTION
SCALE: 1"= 1'-0"
3
SFM-3
SFM-2



STA 97+00
SECTION
SCALE: 1/8"= 1'-0"
B
SFM-3
SFM-2



STA 94+36.74± (PIPE)
TEMP CONNECTION
SCALE: 1"= 1'-0"
2
SFM-3
SFM-1



NOTE:
1. POTHOLE EXISTING FORCE MAIN 4 WEEKS IN ADVANCE OF CONSTRUCTION & CONFIRM VERTICAL AND HORIZONTAL LOCATIONS.

STA 94+33.94± (PIPE)
FINAL CONNECTION
SCALE: 1"= 1'-0"
4
SFM-3
SFM-2

COUNTY OF ORANGE CALIFORNIA

MARK	DESCRIPTION	DATE	APPR.

PREPARED UNDER THE RESPONSIBLE CHARGE OF:
JESUS LOPEZ No. C052517 Exp. 12/31/16 CIVIL
DATE 09/19/2016
JESUS LOPEZ

DESIGNED BY: J. LOPEZ
DRAWN BY: T. SY
CHECKED BY: CRH
DRAWING CODE:
FILE NAME: $FILE
PLOT DATE: $DATE$
SCALE: AS SHOWN

COUNTY OF ORANGE
OC PUBLIC WORKS

PREPARED BY:
AECOM
999 W. Town & Country Road
Orange, CA 92868
(714) 567-2501

EDINGER AVE BRIDGE AT BOLSA CHICA CHANNEL REPLACEMENT PROJECT
BR. NO. 55C-0400

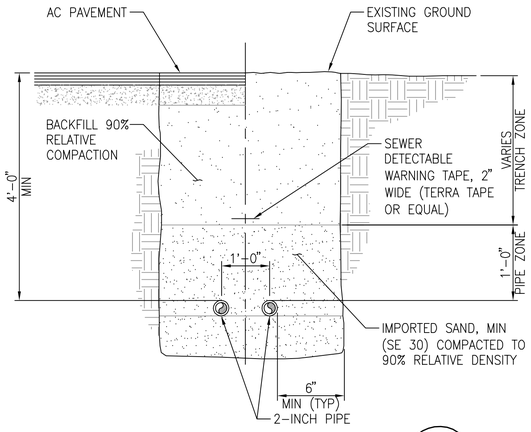
SEWER FORCEMAIN SECTIONS & CONN

Sheet Reference Number
SFM-3

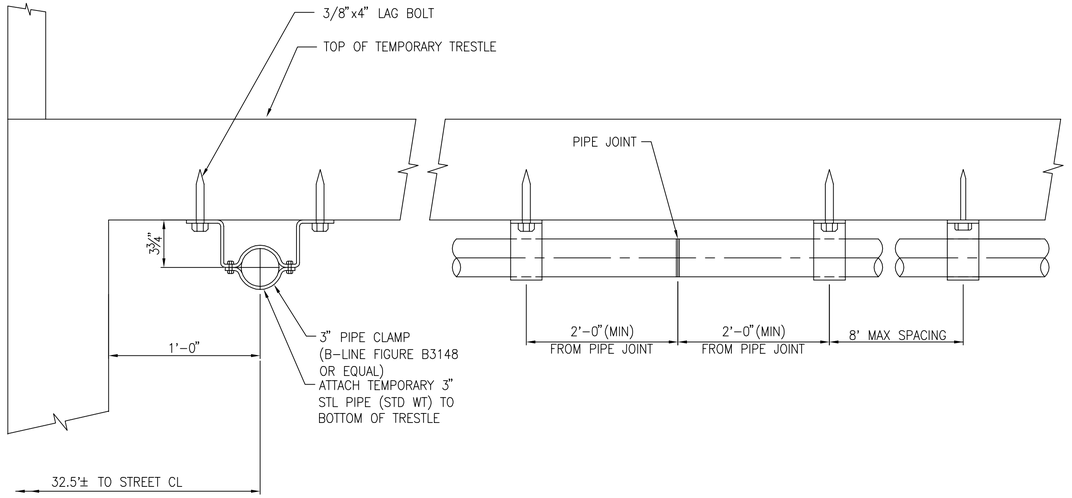
Sheet 24 of 76

FILE NAME : $REQUEST

AS-BUILT SEPTEMBER 2019

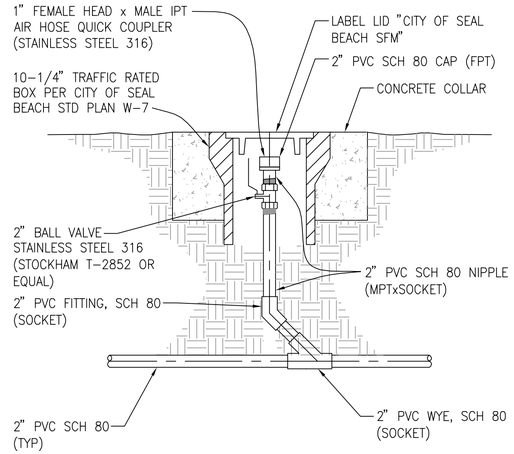


PIPE BEDDING DETAIL — NO SCALE — 1 / SFM-4 — SFM-1 & SFM-2



SECTION

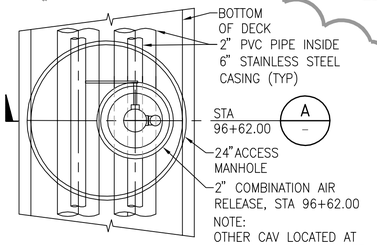
PROFILE



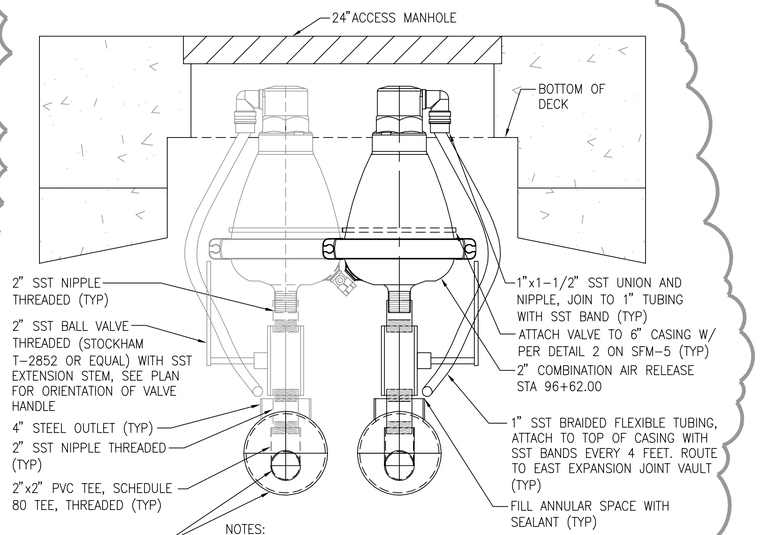
TEMPORARY PIPE SUPPORT TO TRESTLE — SCALE: 1/2"= 1'-0" — 2 / SFM-4 — SFM-1

CLEANOUT DETAIL — SCALE: 1"= 1'-0" — 3 / SFM-4 — SFM-3

County of Orange	
Public Works	
AS-BUILT	
Contractor:	Kiewit Infrastructure West Company
Resident Engineer:	Elmo Delos Santos (PreScience Corp.)
Senior RE:	Kevin Tran
Inspectors:	Tuan Tran (PreScience Corp.) Kenneth Junio
Construction Start Date:	May 8, 2017
Construction Completion Date:	August 5, 2019

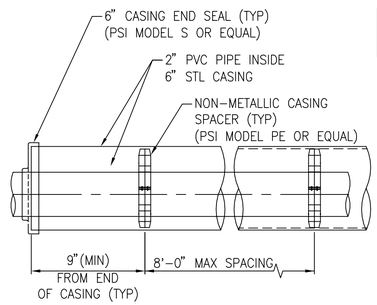


AIR RELEASE PLAN — SCALE: NTS — 4 / SFM-4 — SFM-2

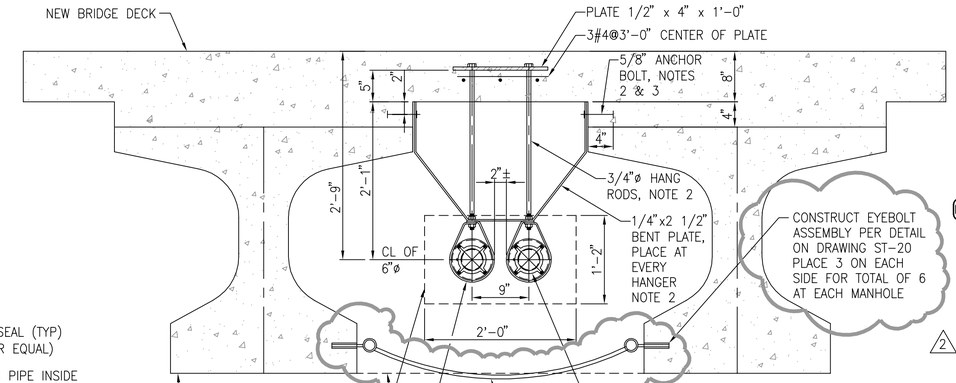


NOTES:
1. ALL SST SHALL BE TYPE 316.
2. CONFIRM ALL DIMENSIONS OF COMBINATION AIR RELEASE ASSEMBLY. CONFIRM ADEQUATE SPACE IS AVAILABLE FOR INSTALLATION. SUBMIT ALL MATERIALS, LAYOUT, AND DIMENSION ON SHOP DRAWING SUBMITTAL

AIR RELEASE SECTION — SCALE: 1/2"= 1'-0" — A / SFM-4 — 2

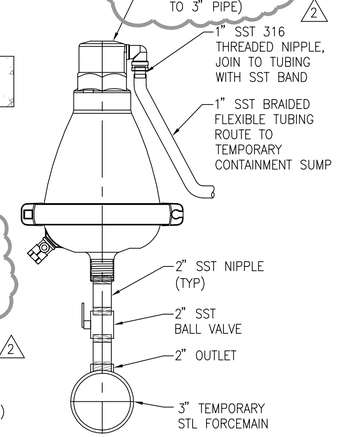


PROFILE — NO SCALE — 2



NOTE:
1. HANGERS TO BE STAINLESS STEEL (316).
2. ANCHOR BOLTS, RODS, AND BENT PLATE TO BE STAINLESS STEEL (316).
3. ANCHOR BOLTS TO BE CAST IN PLACE OR EPOXIED.

SECTION — SCALE: 1"= 1'-0" — 5 / SFM-4 — SFM-2



STA 98+00 TEMPORARY AIR RELEASE — SCALE: NO SCALE — 6 / SFM-4 — SFM-1

MARK	DESCRIPTION	DATE	APPR.
2	REVISED CAV & ADDED NET	9/28/17	JT

PREPARED UNDER THE RESPONSIBLE CHARGE OF:
JESUS LOPEZ — No. C052517 — Exp. 12/31/19 — CIVIL — REGISTERED PROFESSIONAL ENGINEER — STATE OF CALIFORNIA
9/28/2017 DATE
JESUS LOPEZ

DESIGNED BY: J. LOPEZ
DRAWN BY: T. SY
CHECKED BY: CRH
DRAWING CODE:
FILE NAME: $FILE
PLOT DATE: $DATE$
SCALE: AS SHOWN

COUNTY OF ORANGE
OC PUBLIC WORKS

PREPARED BY:
AECOM
999 W. Town & Country Road
Orange, CA 92868
(714) 567-2501

EDINGER AVE BRIDGE AT BOLSA CHICA CHANNEL REPLACEMENT PROJECT
BR. NO. 55C-0400

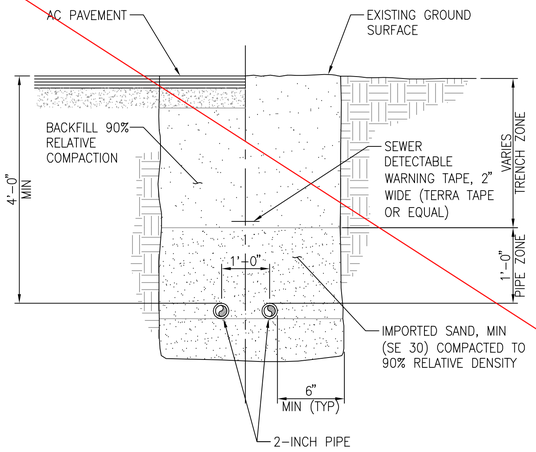
SEWER FORCEMAIN DETAILS

Sheet Reference Number
SFM-4

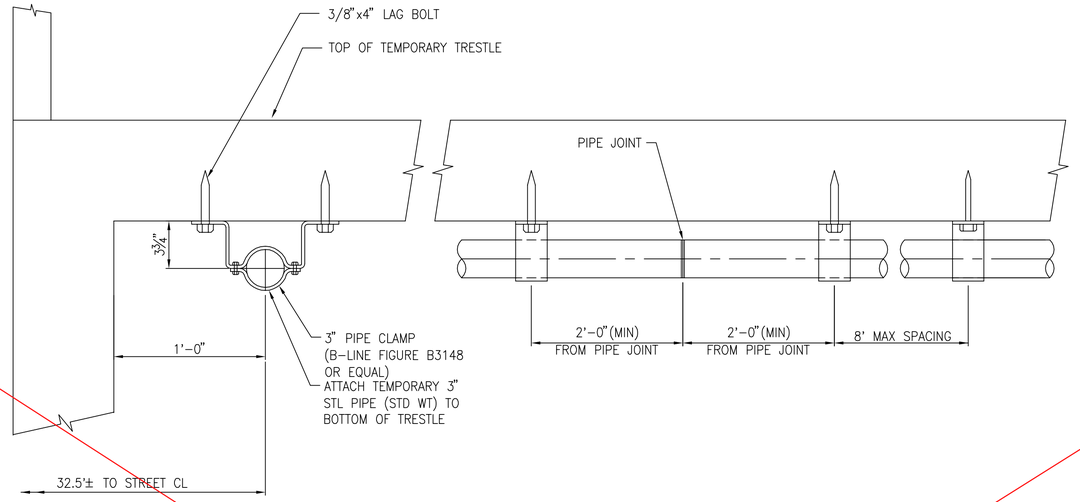
Sheet 25R1 of 76

FILE NAME :$REQUEST

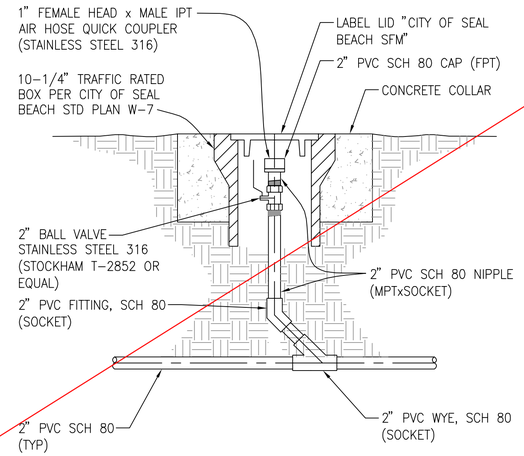
AS-BUILT SEPTEMBER 2019



PIPE BEDDING DETAIL — NO SCALE — 1 / SFM-4 — SFM-1 & SFM-2

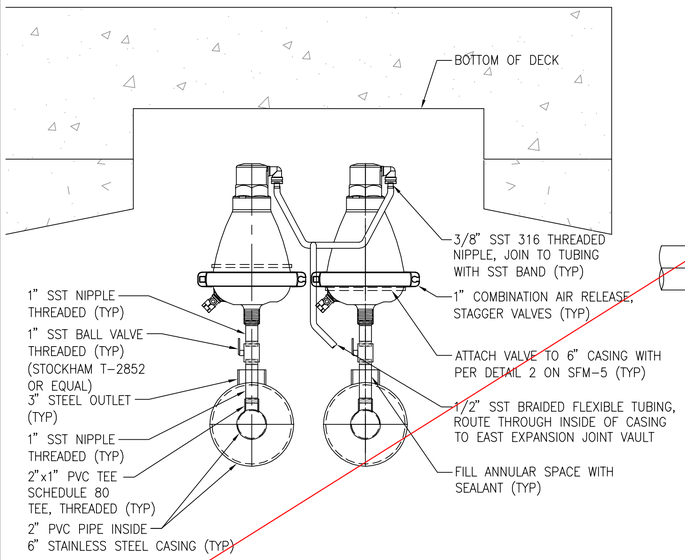


SUPPORT TO TRESTLE — SCALE: 1/2"= 1'-0" — 2 / SFM-4 — SFM-1

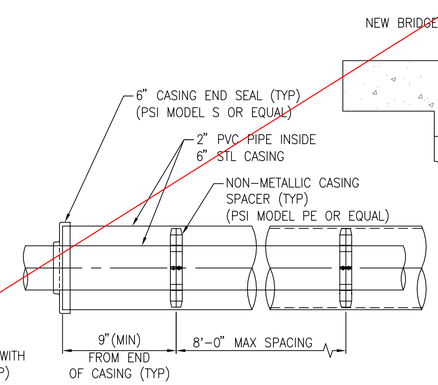


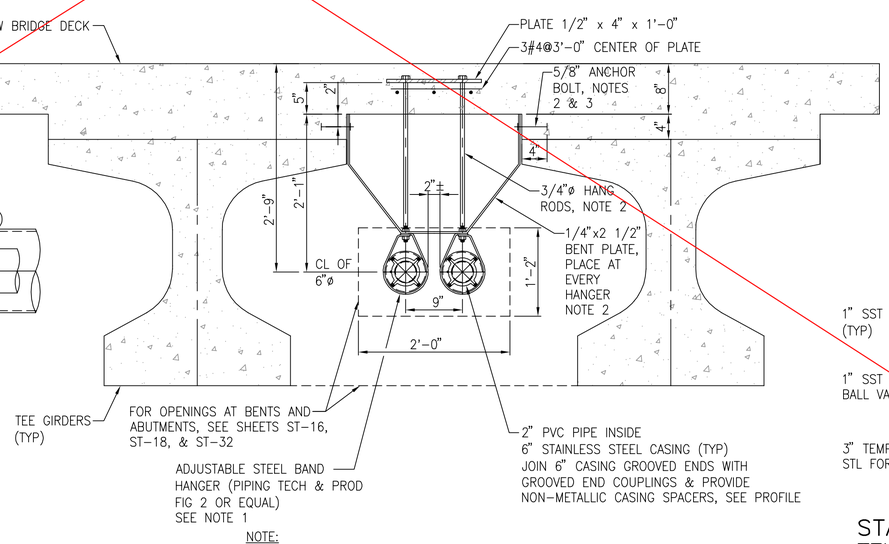
CLEANOUT DETAIL — SCALE: 1"= 1'-0" — 3 / SFM-4 — SFM-3

Superseded



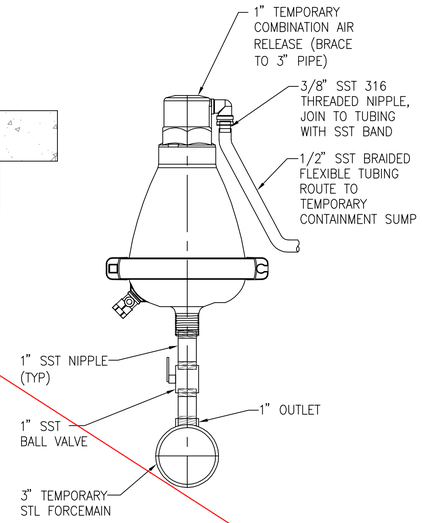
AIR RELEASE — SCALE: 1/2"= 1'-0" — 4 / SFM-4 — SFM-2





NOTE:
1. HANGERS TO BE STAINLESS STEEL (316).
2. ANCHOR BOLTS, RODS, AND BENT PLATE TO BE STAINLESS STEEL (316).
3. ANCHOR BOLTS TO BE CAST IN PLACE OR EPOXIED.

SECTION — SCALE: 1"= 1'-0" — 5 / SFM-4 — SFM-2



STA 98+00 TEMPORARY AIR RELEASE — SCALE: NO SCALE — 6 / SFM-4 — SFM-1

COUNTY OF ORANGE CALIFORNIA

MARK	DESCRIPTION	DATE	APPR.

PREPARED UNDER THE RESPONSIBLE CHARGE OF:
JESUS LOPEZ — DATE 09/19/2016
REGISTERED CIVIL ENGINEER — JESUS LOPEZ — No. C052517 — 12/31/16 — RENEWAL — STATE OF CALIFORNIA

DESIGNED BY: J. LOPEZ
DRAWN BY: T. SY
CHECKED BY: CRH
DRAWING CODE: $FILE
FILE NAME: $FILE
PLOT DATE: $DATE$
SCALE: AS SHOWN

COUNTY OF ORANGE
OC PUBLIC WORKS

PREPARED BY:
ACCOM
999 W. Town & Country Road
Orange, CA 92868
(714) 567-2501

EDINGER AVE BRIDGE AT BOLSA CHICA CHANNEL REPLACEMENT PROJECT
BR. NO. 55C-0400

SEWER FORCEMAIN DETAILS

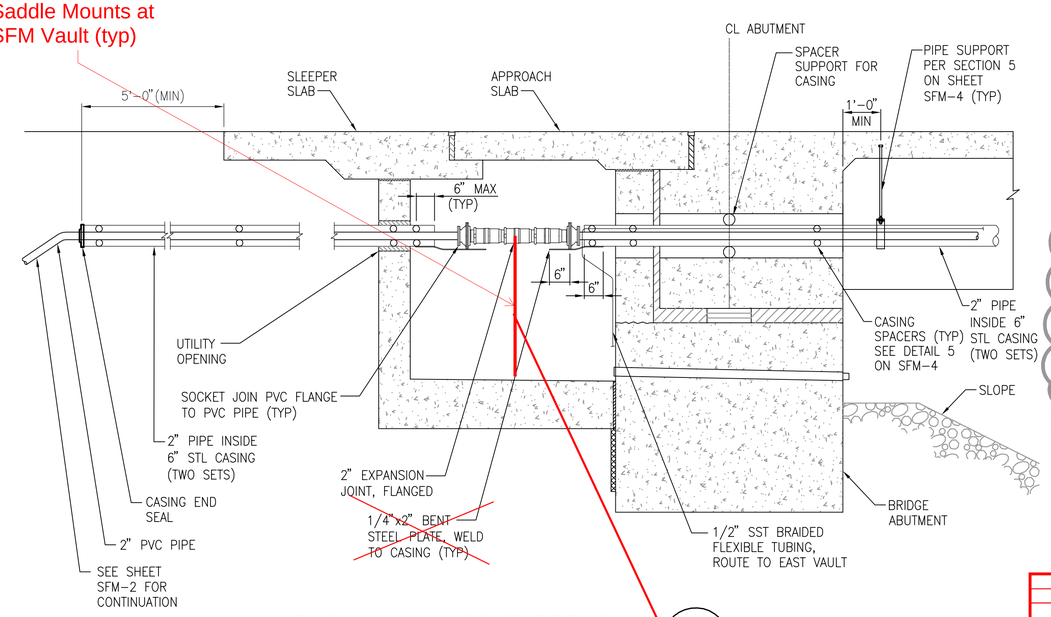
Sheet Reference Number
SFM-4

Sheet 25 of 76

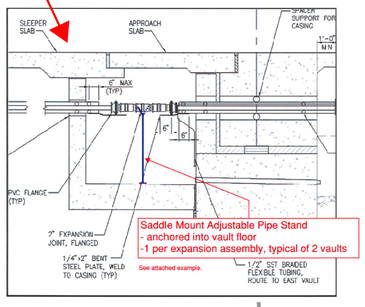
FILE NAME : $REQUEST

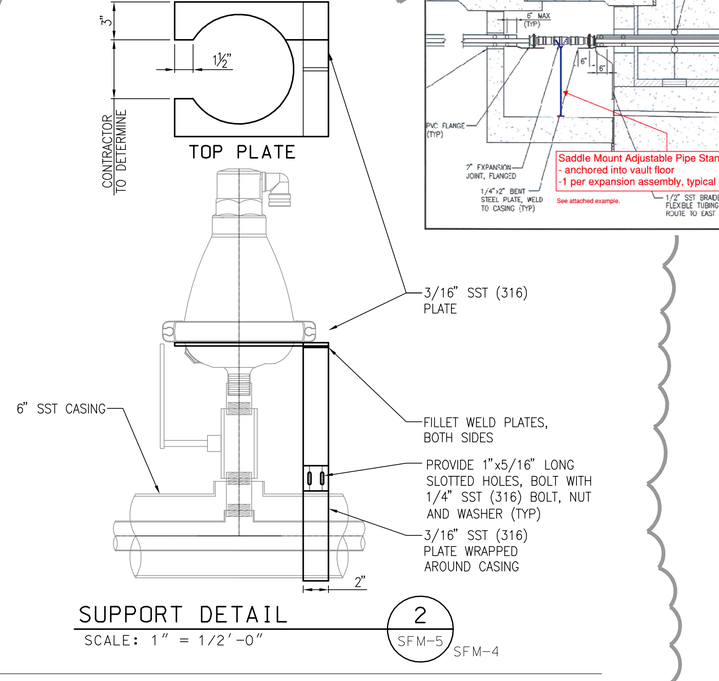
AS-BUILT SEPTEMBER 2019

RFI 083: Install Saddle Mounts at SFM Vault (typ)



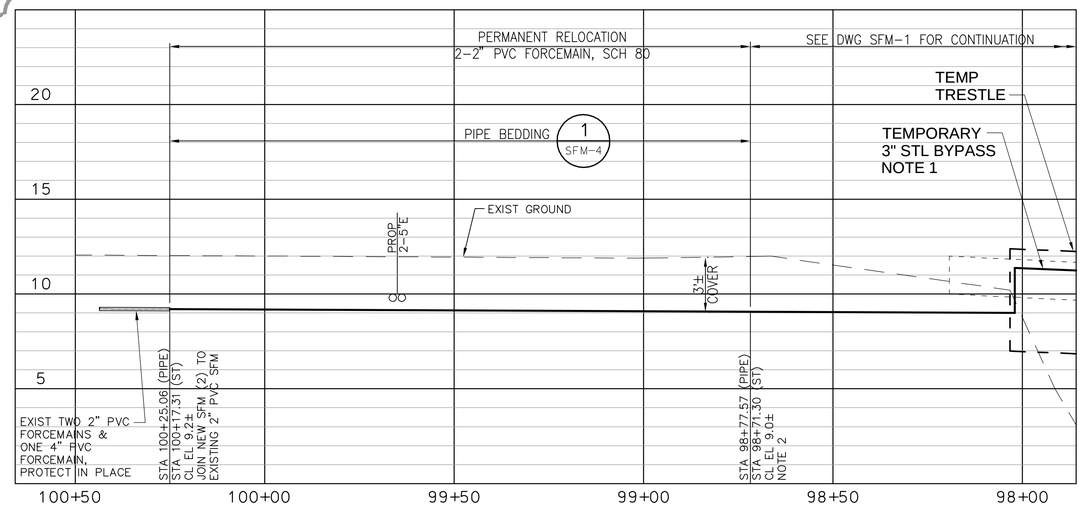
EXPANSION JOINT DETAIL — 1 SFM-5 — NO SCALE — SFM-2





SUPPORT DETAIL — 2 SFM-5 — SCALE: 1" = 1/2'-0" — SFM-4

2



PROFILE

HORIZ: 1" = 20'
VERT: 1" = 4'

NOTES:

1. GRADE OF TEMPORARY SEWER FORCE MAIN IS APPROXIMATE, ADJUST AS REQUIRED.

County of Orange	
Public Works	
AS-BUILT	
Contractor:	Kiewit Infrastructure West Company
Resident Engineer:	Elmo Delos Santos (PreScience Corp.)
Senior RE:	Kevin Tran
Inspectors:	Tuan Tran (PreScience Corp.) Kenneth Junio
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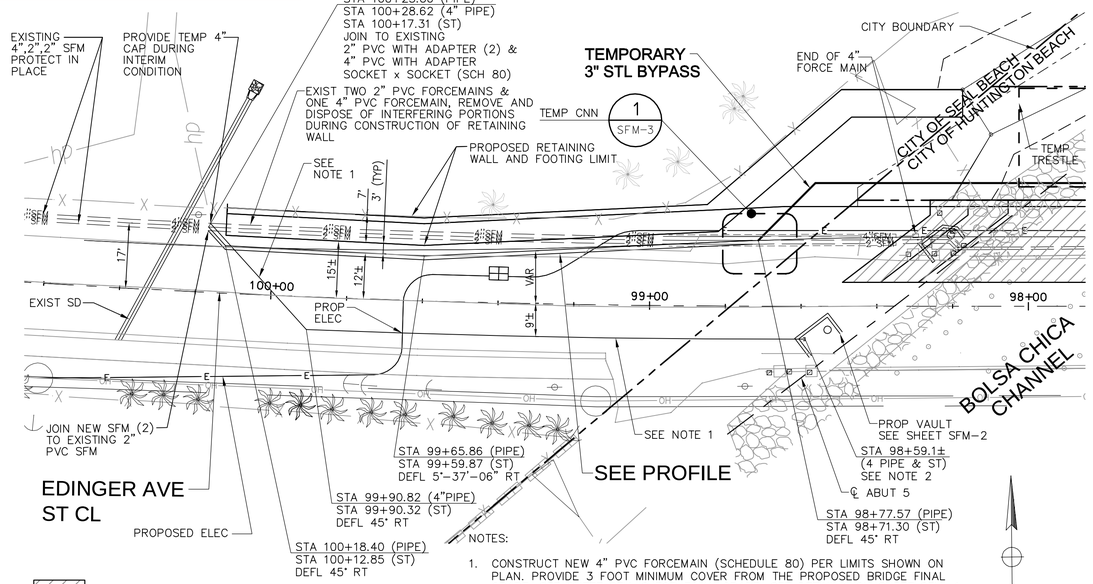
Construction Completion Date:	August 5, 2019



STAGE 1A

CONSTRUCTION OF PORTION OF NEW BRIDGE (NORTH SIDE)

NOTES:

1. CONSTRUCT NEW 4" PVC FORCEMAIN (SCHEDULE 80) PER LIMITS SHOWN ON PLAN. PROVIDE 3 FOOT MINIMUM COVER FROM THE PROPOSED BRIDGE FINAL GRADE. SEE SHEET SFM-2 FOR FINAL GRADE. SEE DETAIL 1 ON SHEET SFM-4 FOR PIPE BEDDING (SIMILAR).
2. EXTEND 4" PVC FORCEMAIN UNDER PROPOSED BRIDGE APPROACH AND THROUGH THE NEW STEEL CASING. EXTEND 4" PVC SEWER FORCEMAIN 12" BEYOND STEEL CASING END AND INSIDE OF VAULT. PROVIDE CASING SPACERS AND CASING END SEAL SIMILAR TO PROFILE DETAIL ON SHEET SFM-4. CAP END OF 4" PVC.

PLAN — 3 SFM-5 — 1" = 20' — SFM-1

0 10 20 40
SCALE: H: 1" = 20'
V: 1" = 4'

2

MARK	DESCRIPTION	DATE	APPR.
2	ADDED PLAN & PROFILE	9/28/17	JT

PREPARED UNDER THE RESPONSIBLE CHARGE OF:
JESUS LOPEZ — No. C052517 — EXP. 12/31/19 — CIVIL — REGISTERED PROFESSIONAL ENGINEER — STATE OF CALIFORNIA
9/28/2017 DATE
JESUS LOPEZ

DESIGNED BY: J. LOPEZ
DRAWN BY: T. SY
CHECKED BY: CRH
DRAWING CODE:
FILE NAME: $FILE
PLOT DATE: $DATE$
SCALE: AS SHOWN

COUNTY OF ORANGE
OC PUBLIC WORKS

PREPARED BY:
AECOM
999 W. Town & Country Road
Orange, CA 92868
(714) 567-2501

EDINGER AVE BRIDGE AT BOLSA CHICA CHANNEL REPLACEMENT PROJECT
BR. NO. 55C-0400

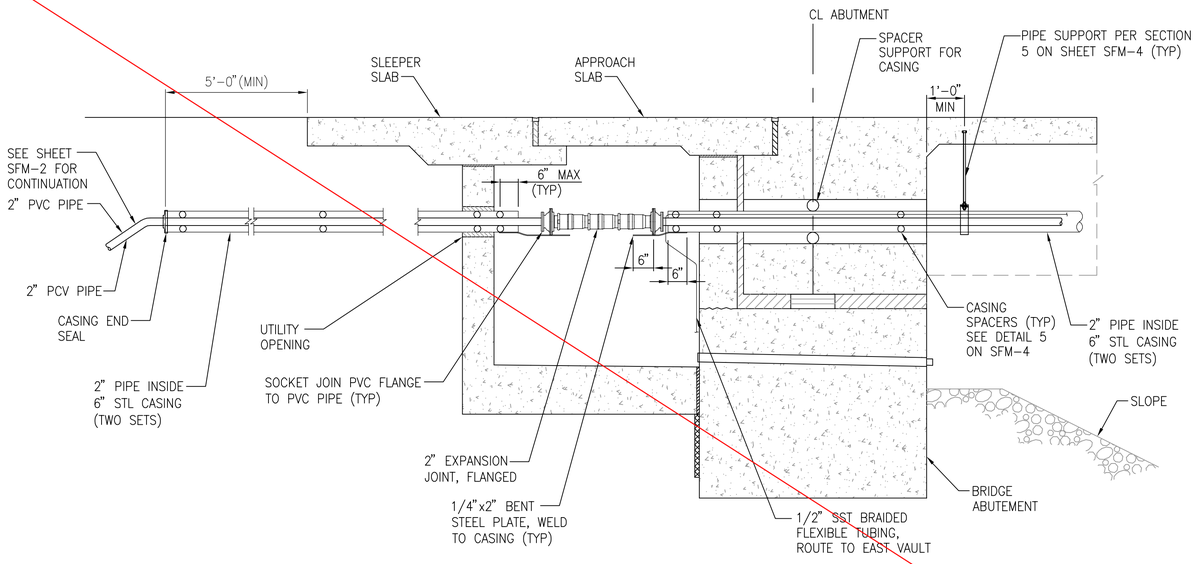
TEMP BYPASS PLAN & PROFILE & SFM DETAILS

Sheet Reference Number
SFM-5

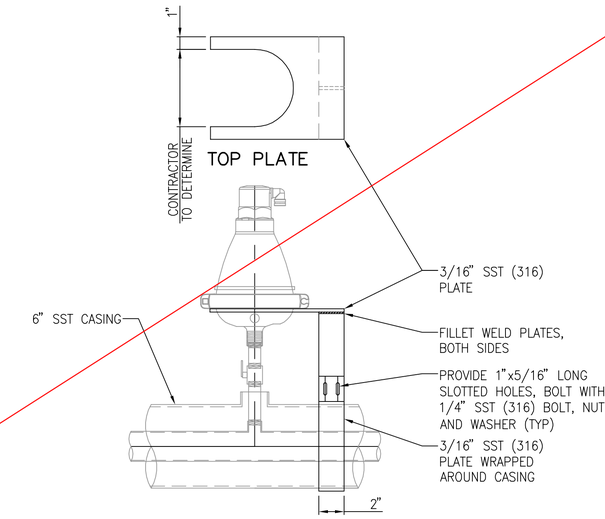
Sheet 26R1 of 76

FILE NAME :$REQUEST

AS-BUILT SEPTEMBER 2019



EXPANSION JOINT DETAIL
NO SCALE
1 SFM-5 SFM-2



SUPPORT DETAIL
SCALE: 1" = 1/2'-0"
2 SFM-5 SFM-4

Superseded

MARK	DESCRIPTION	DATE	APPR.

PREPARED UNDER THE RESPONSIBLE CHARGE OF:
JESUS LOPEZ
No. C052517 Exp. 12/31/18 CIVIL
12/5/2016 DATE

DESIGNED BY: J. LOPEZ
DRAWN BY: T. SY
CHECKED BY: CRH
DRAWING CODE:
FILE NAME: $FILE
PLOT DATE: $DATE$
SCALE: AS SHOWN

COUNTY OF ORANGE
OC PUBLIC WORKS

PREPARED BY:
AECOM
999 W. Town & Country Road
Orange, CA 92868
(714) 567-2501

EDINGER AVE BRIDGE AT BOLSA CHICA CHANNEL REPLACEMENT PROJECT
BR. NO. 55C-0400

SEWER FORCEMAIN DETAILS

Sheet Reference Number
SFM-5

Sheet 26 of 76

FILE NAME : $REQUEST

AS-BUILT SEPTEMBER 2019

TRAFFIC HANDLING NOTES: STAGE 1A:

1. ON EDINGER AVENUE MAINTAIN 1 LANE FOR BOTH DIRECTIONS OF EB AND WB TRAFFIC.
2. INSTALL TEMPORARY TRAFFIC SIGNALS ON BOTH ENDS OF THE BRIDGE
3. MAINTAIN CHANNEL ACCESS ALONG SOUTH SIDE OF EDINGER AVENUE.
4. MAINTAIN PEDESTRIAN ACCESS ALONG SOUTH SIDE OF EXISTING BRIDGE.
5. MAINTAIN MINIMUM ADA ACCESS CLEARANCES AROUND TEMPORARY SIGNAL EQUIPMENT.

RFI 013: Kiewit's proposal to combine Traffic Handling Stage 1A and 1B as well as 2A and 2B, for contractor's convenience and allow for additional construction space, is acceptable to the County.

TRAFFIC HANDLING CONSTRUCTION NOTES

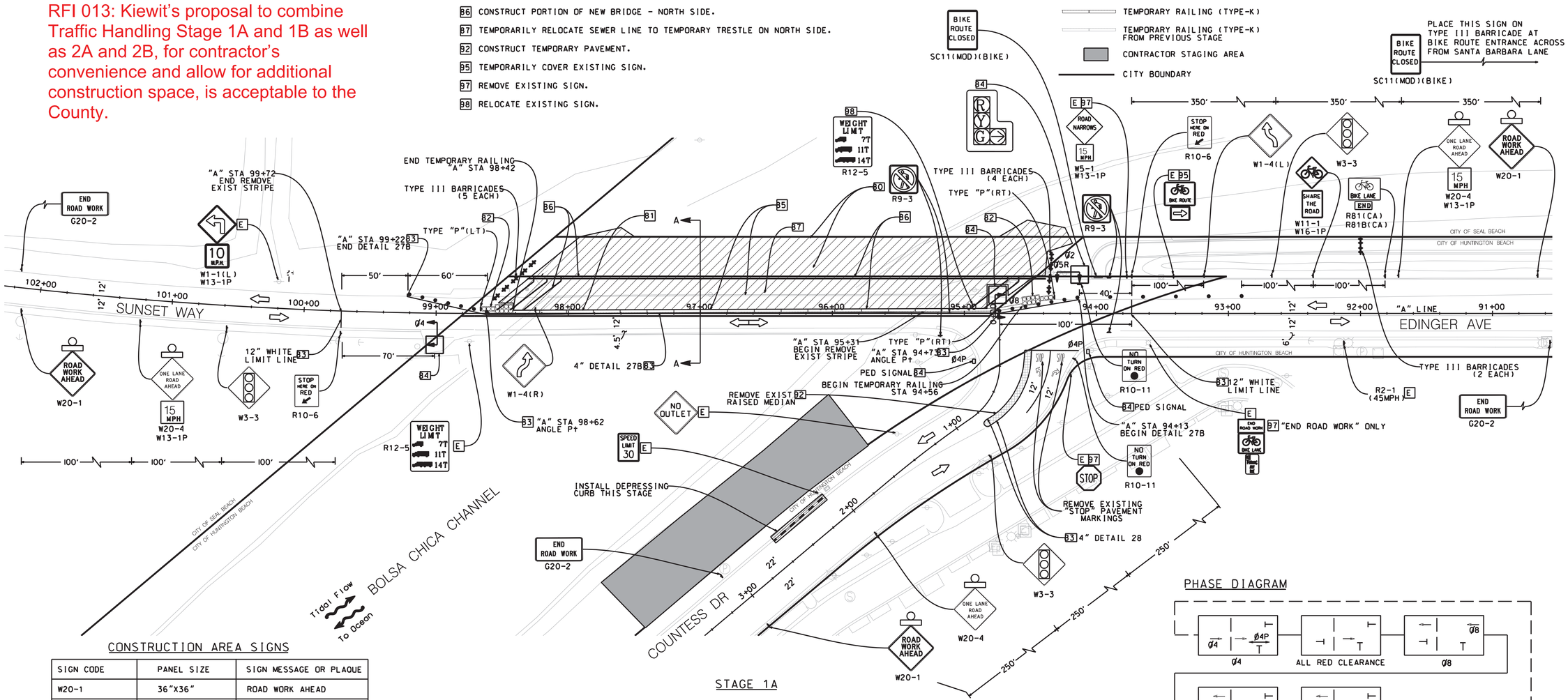
80 CONSTRUCT TEMPORARY TRESTLE - NORTH SIDE.
81 INSTALL TEMPORARY RAILING (TYPE-K).
82 INSTALL TEMPORARY CRASH CUSHION ARRAY 'TB11'.
83 INSTALL TEMPORARY STRIPING / PAVEMENT MARKINGS.
84 INSTALL TEMPORARY TRAFFIC SIGNAL.
85 REMOVE PORTION OF EXISTING BRIDGE - NORTH SIDE.
86 CONSTRUCT PORTION OF NEW BRIDGE - NORTH SIDE.
87 TEMPORARILY RELOCATE SEWER LINE TO TEMPORARY TRESTLE ON NORTH SIDE.
92 CONSTRUCT TEMPORARY PAVEMENT.
95 TEMPORARILY COVER EXISTING SIGN.
97 REMOVE EXISTING SIGN.
98 RELOCATE EXISTING SIGN.

GENERAL NOTES ALL STAGES:

1. REMOVE ALL CONFLICTING STRIPING AND PAVEMENT MARKINGS.
2. SEE BRIDGE PLANS FOR BRIDGE CONSTRUCTION STAGING SEQUENCE.
3. EXISTING SIGNS SHALL BE REMOVED ONLY WHEN REQUIRED DURING STAGE CONSTRUCTION.

LEGEND:

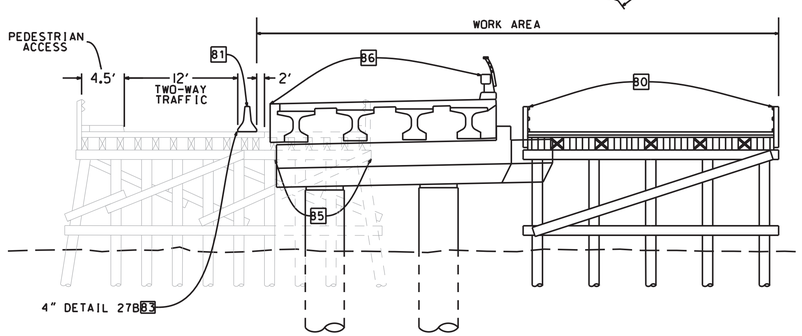
- CONSTRUCTION WORK AREA
- CONSTRUCTED AREA FROM PREVIOUS STAGE
- TRAFFIC DIRECTION
- TYPE III BARRICADE
- SURFACE MOUNTED CHANNELIZERS
- TEMPORARY CRASH CUSHION
- SIGN PANEL
- TEMPORARY RAILING (TYPE-K)
- TEMPORARY RAILING (TYPE-K) FROM PREVIOUS STAGE
- CONTRACTOR STAGING AREA
- CITY BOUNDARY
- FLASHING BEACON
- E EXISTING SIGN OR FROM LAST STAGE
- WARNING LIGHT
- TEMPORARY TRAFFIC SIGNAL
- TEMPORARY PEDESTRIAN SIGNAL



CONSTRUCTION AREA SIGNS

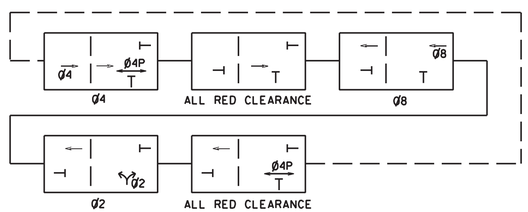
SIGN CODE	PANEL SIZE	SIGN MESSAGE OR PLAQUE
W20-1	36"X36"	ROAD WORK AHEAD
W20-4	36"X36"	ONE LANE ROAD AHEAD
W3-3	36"X36"	SIGNAL AHEAD
R10-6	24"X36"	STOP HERE ON RED
G20-2	36"X18"	END ROAD WORK
R10-11	24"X36"	NO TURN ON RED
W13-1P	18"X18"	15 MPH
W1-4	36"X36"	REVERSE CURVE
SC11(MOD)(BIKE)	42"X30"	BIKE ROUTE CLOSED
W11-1	30"X30"	BICYCLE
W16-1P	18"X24"	SHARE THE ROAD
R81(CA)	12"X8"	BIKE LANE
R81B(CA)	8"X5"	END
R9-3	18"X18"	NO PEDESTRIAN CROSSING

STAGE 1A



CROSS SECTION "A-A" - STAGE 1A
NO SCALE

PHASE DIAGRAM



County of Orange	
Public Works	
AS-BUILT	
Contractor:	Kiewit Infrastructure West Company
Resident Engineer:	Elmo Delos Santos (PreScience Corp.)
Senior RE:	Kevin Tran
Inspectors:	Tuan Tran (PreScience Corp.) Kenneth Junio
Construction Start Date:	May 8, 2017
Construction Completion Date:	August 5, 2019

0 20 40 80
SCALE: 1" = 40'

100% Submittal

COUNTY OF ORANGE CALIFORNIA

MARK	DESCRIPTION	DATE	APPR.

PREPARED UNDER THE RESPONSIBLE CHARGE OF:
GEORGE T. DORE No. 48585 REGISTERED PROFESSIONAL ENGINEER STATE OF CALIFORNIA CIVIL
09/12/16 DATE

COUNTY OF ORANGE OC PUBLIC WORKS

DESIGNED BY: G. DORE
DRAWN BY: T. HO'
CHECKED BY: B. SMITH
DRAWING CODE:
PREPARED BY: AECOM 9990 research drive, suite 100 irvine, ca 92618 Orange, CA 92868 (714) 567-2501
FILE NAME: ...\Edinger_Br-#000_CAD\Sheets\27_TH_Traffic Handling_01_2D.dgn
PLOT DATE: 2/10/2017
SCALE: AS SHOWN

EDINGER AVE BRIDGE AT BOLSA CHICA CHANNEL REPLACEMENT PROJECT BR. NO. 55C-0400
TRAFFIC HANDLING PLAN STAGE 1A

Sheet Reference Number
TH-1
Sheet 27 of 76

FILE NAME :...\27_TH_Traffic Handling_01_2D.dgn

AS-BUILT SEPTEMBER 2019

TRAFFIC HANDLING NOTES: STAGE 1B:

1. ON EDINGER AVENUE MAINTAIN 1 LANE FOR BOTH DIRECTIONS OF EB AND WB TRAFFIC.
2. INSTALL TEMPORARY TRAFFIC SIGNALS ON BOTH ENDS OF THE BRIDGE
3. MAINTAIN CHANNEL ACCESS ALONG SOUTH SIDE OF EDINGER AVENUE.
4. MAINTAIN PEDESTRIAN ACCESS ALONG SOUTH SIDE OF EXISTING BRIDGE.
5. MAINTAIN MINIMUM ADA ACCESS CLEARANCES AROUND TEMPORARY SIGNAL EQUIPMENT.

TRAFFIC HANDLING CONSTRUCTION NOTES

- 81 INSTALL TEMPORARY RAILING (TYPE-K).
- 82 INSTALL TEMPORARY CRASH CUSHION ARRAY 'TB11'.
- 83 INSTALL TEMPORARY STRIPING / PAVEMENT MARKINGS.
- 84 INSTALL TEMPORARY TRAFFIC SIGNAL.
- 87 CONSTRUCT RETAINING WALL.
- 88 CONSTRUCT PORTION OF DRAINAGE SYSTEM.
- 89 CONSTRUCT CURB/GUTTER, SIDEWALK AND CHANNEL ACCESS DRIVEWAY.
- 90 CONSTRUCT AC PAVEMENT.
- 91 RELOCATE SEWER LINE FROM NORTH TRESTLE TO PERMANENT LOCATION.
- 95 TEMPORARILY COVER EXISTING SIGN.
- 97 REMOVE EXISTING SIGN.

Submittal 113

County of Orange Public Works	
AS-BUILT	
Contractor:	Kiewit Infrastructure West Company
Resident Engineer:	Elmo Delos Santos (PreScience Corp.)
Senior RE:	Kevin Tran
Inspectors:	Tuan Tran (PreScience Corp.) Kenneth Junio
Construction Start Date:	May 8, 2017
Construction Completion Date:	August 5, 2019

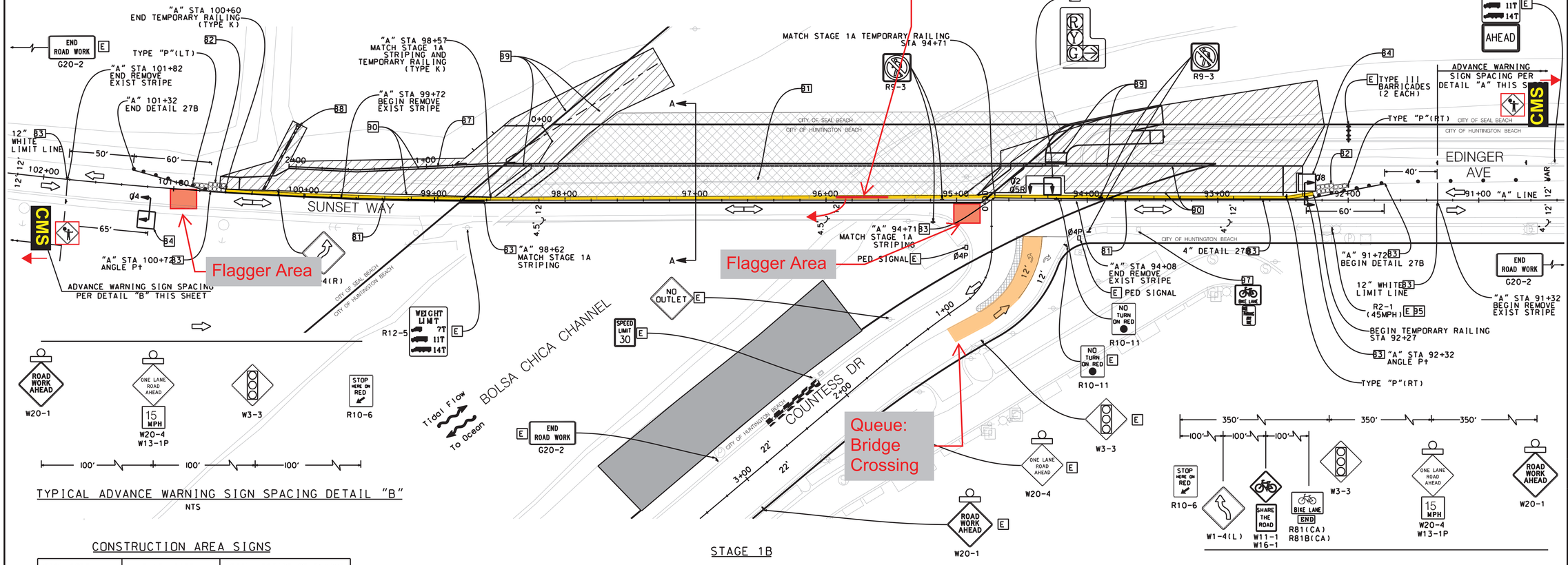
Remove 2 K-Rails and Place On Side Walk During Stressing (TYP.)

LEGEND:

- CONSTRUCTION WORK AREA
- CONSTRUCTED AREA FROM PREVIOUS STAGE
- TRAFFIC DIRECTION
- TYPE III BARRICADE
- SURFACE MOUNTED CHANNELIZERS
- TEMPORARY CRASH CUSHION
- SIGN PANEL
- TEMPORARY RAILING (TYPE-K)
- TEMPORARY RAILING (TYPE-K) FROM PREVIOUS STAGE
- CONTRACTOR STAGING AREA
- CITY BOUNDARY
- FLASHING BEACON
- E EXISTING SIGN OR FROM LAST STAGE
- WARNING LIGHT
- TEMPORARY TRAFFIC SIGNAL
- COUNTY FURNISHED TEMPORARY PEDESTRIAN SIGNAL

E PLACE THIS SIGN ON TYPE III BARRICADE AT BIKE ROUTE ENTRANCE ACROSS FROM SANTA BARBARA LANE

BIKE ROUTE CLOSED — SC11(MOD)(BIKE)



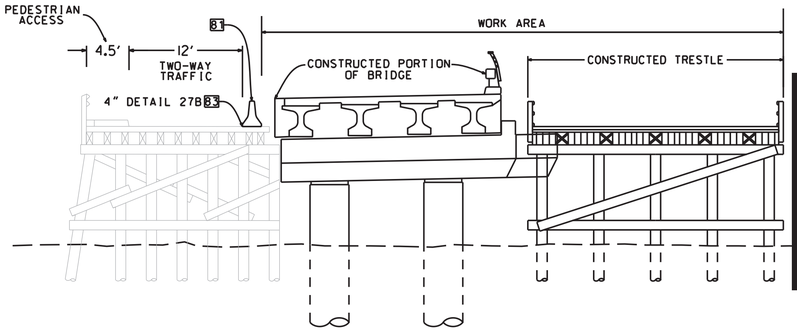
TYPICAL ADVANCE WARNING SIGN SPACING DETAIL "B"
NTS

TYPICAL ADVANCE WARNING SIGN SPACING DETAIL "A"

STAGE 1B

CONSTRUCTION AREA SIGNS

SIGN CODE	PANEL SIZE	SIGN MESSAGE OR PLAQUE
W20-1	36"X36"	ROAD WORK AHEAD
W20-4	36"X36"	ONE LANE ROAD AHEAD
W3-3	36"X36"	SIGNAL AHEAD
R10-6	24"X36"	STOP HERE ON RED
G20-2	36"X18"	END ROAD WORK
R10-11	24"X36"	NO TURN ON RED
W13-1P	18"X18"	15 MPH
W1-4	36"X36"	REVERSE CURVE
SC11(MOD)(BIKE)	42"X30"	BIKE ROUTE CLOSED
W11-1	30"X30"	BICYCLE
W16-1P	18"X24"	SHARE THE ROAD
R81(CA)	12"X8"	BIKE LANE
R81B(CA)	8"X5"	END



CROSS SECTION "A-A" - STAGE 1B
NO SCALE

CMS BOARD: BRIDGE CONSTR. UP TO 10 MIN WAIT 8 AM - 5:30 PM APRIL 23RD

0 20 40 80
SCALE: 1" = 40'

COUNTY OF ORANGE CALIFORNIA

MARK	DESCRIPTION	DATE	APPR.

PREPARED UNDER THE RESPONSIBLE CHARGE OF:
GEORGE T. DORE — DATE 09/12/16
REGISTERED PROFESSIONAL ENGINEER — GEORGE T. DORE — No. 48585 — EXP. 06/30/17 — CIVIL — STATE OF CALIFORNIA

DESIGNED BY: G. DORE
DRAWN BY: T. HO'
CHECKED BY: B. SMITH
DRAWING CODE:
FILE NAME: $FILE
PLOT DATE: 11/15/2016
SCALE: AS SHOWN

COUNTY OF ORANGE
OC PUBLIC WORKS

PREPARED BY:
AECOM
999 W. Town & Country Road
Orange, CA 92868
(714) 567-2501

EDINGER AVE BRIDGE AT BOLSA CHICA CHANNEL REPLACEMENT PROJECT
BR. NO. 55C-0400

TRAFFIC HANDLING PLAN STAGE 1B

Sheet Reference Number
TH-2

Sheet 28 of 76

FILE NAME = $REQUEST

AS-BUILT SEPTEMBER 2019

TRAFFIC HANDLING NOTES: STAGE 1B:

1. ON EDINGER AVENUE MAINTAIN 1 LANE FOR BOTH DIRECTIONS OF EB AND WB TRAFFIC.
2. INSTALL TEMPORARY TRAFFIC SIGNALS ON BOTH ENDS OF THE BRIDGE
3. MAINTAIN CHANNEL ACCESS ALONG SOUTH SIDE OF EDINGER AVENUE.
4. MAINTAIN PEDESTRIAN ACCESS ALONG SOUTH SIDE OF EXISTING BRIDGE.
5. MAINTAIN MINIMUM ADA ACCESS CLEARANCES AROUND TEMPORARY SIGNAL EQUIPMENT.

TRAFFIC HANDLING CONSTRUCTION NOTES

81 INSTALL TEMPORARY RAILING (TYPE-K).
82 INSTALL TEMPORARY CRASH CUSHION ARRAY 'TB11'.
83 INSTALL TEMPORARY STRIPING / PAVEMENT MARKINGS.
84 INSTALL TEMPORARY TRAFFIC SIGNAL.
87 CONSTRUCT RETAINING WALL.
88 CONSTRUCT PORTION OF DRAINAGE SYSTEM.
89 CONSTRUCT CURB/GUTTER, SIDEWALK AND CHANNEL ACCESS DRIVEWAY.
90 CONSTRUCT AC PAVEMENT.
91 RELOCATE SEWER LINE FROM NORTH TRESTLE TO PERMANENT LOCATION
95 TEMPORARILY COVER EXISTING SIGN.
97 REMOVE EXISTING SIGN.

GENERAL NOTES ALL STAGES:

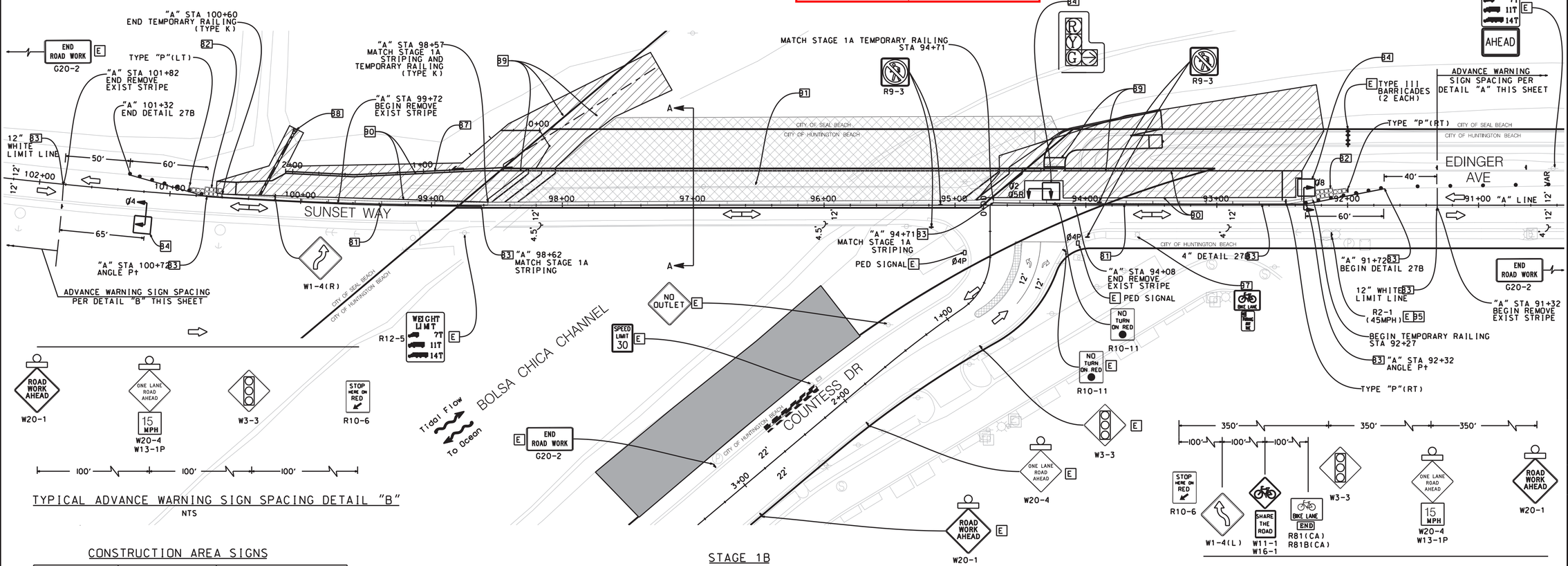
1. REMOVE ALL CONFLICTING STRIPING AND PAVEMENT MARKINGS.
2. SEE BRIDGE PLANS FOR BRIDGE CONSTRUCTION STAGING SEQUENCE.
3. EXISTING SIGNS SHALL BE REMOVED ONLY WHEN REQUIRED DURING STAGE CONSTRUCTION.

County of Orange	
Public Works	
AS-BUILT	
Contractor:	Kiewit Infrastructure West Company
Resident Engineer:	Elmo Delos Santos (PreScience Corp.)
Senior RE:	Kevin Tran
Inspectors:	Tuan Tran (PreScience Corp.) Kenneth Junio
Construction Start Date:	May 8, 2017
Construction Completion Date:	August 5, 2019

LEGEND:

- CONSTRUCTION WORK AREA
- CONSTRUCTED AREA FROM PREVIOUS STAGE
- TRAFFIC DIRECTION
- TYPE III BARRICADE
- SURFACE MOUNTED CHANNELIZERS
- TEMPORARY CRASH CUSHION
- SIGN PANEL
- TEMPORARY RAILING (TYPE-K)
- TEMPORARY RAILING (TYPE-K) FROM PREVIOUS STAGE
- CONTRACTOR STAGING AREA
- CITY BOUNDARY
- FLASHING BEACON
- E EXISTING SIGN OR FROM LAST STAGE
- WARNING LIGHT
- TEMPORARY TRAFFIC SIGNAL
- TEMPORARY PEDESTRIAN SIGNAL

E PLACE THIS SIGN ON TYPE III BARRICADE AT BIKE ROUTE ENTRANCE ACROSS FROM SANTA BARBARA LANE
BIKE ROUTE CLOSED
SC11(MOD)(BIKE)



TYPICAL ADVANCE WARNING SIGN SPACING DETAIL "B"

NTS

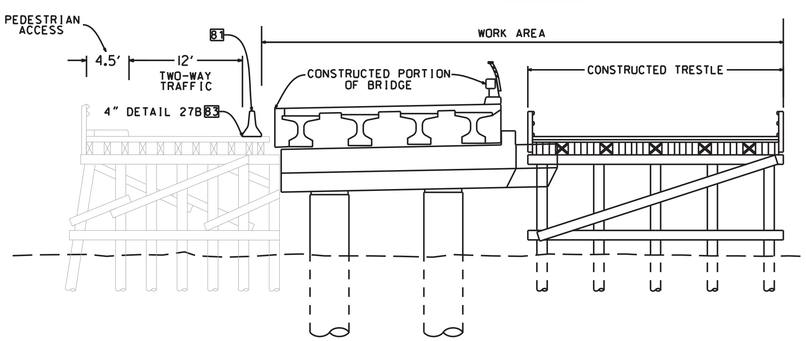
TYPICAL ADVANCE WARNING SIGN SPACING DETAIL "A"

NTS

STAGE 1B

CONSTRUCTION AREA SIGNS

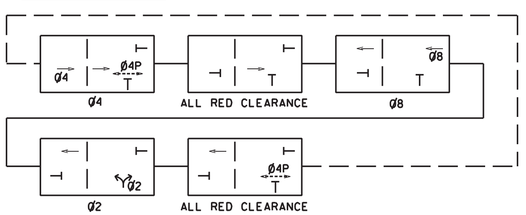
SIGN CODE	PANEL SIZE	SIGN MESSAGE OR PLAQUE
W20-1	36"X36"	ROAD WORK AHEAD
W20-4	36"X36"	ONE LANE ROAD AHEAD
W3-3	36"X36"	SIGNAL AHEAD
R10-6	24"X36"	STOP HERE ON RED
G20-2	36"X18"	END ROAD WORK
R10-11	24"X36"	NO TURN ON RED
W13-1P	18"X18"	15 MPH
W1-4	36"X36"	REVERSE CURVE
SC11(MOD)(BIKE)	42"X30"	BIKE ROUTE CLOSED
W11-1	30"X30"	BICYCLE
W16-1P	18"X24"	SHARE THE ROAD
R81(CA)	12"X8"	BIKE LANE
R81B(CA)	8"X5"	END



CROSS SECTION "A-A" - STAGE 1B

NO SCALE

PHASE DIAGRAM



0 20 40 80
SCALE: 1" = 40'

100% Submittal

COUNTY OF ORANGE CALIFORNIA

MARK	DESCRIPTION	DATE	APPR.

PREPARED UNDER THE RESPONSIBLE CHARGE OF:
GEORGE T. DORE
REGISTERED PROFESSIONAL ENGINEER
GEORGE T. DORE
No. 48585
REG. CIVIL
STATE OF CALIFORNIA
09/12/16
DATE

COUNTY OF ORANGE
OC PUBLIC WORKS

DESIGNED BY:	CHECKED BY:	SCALE:
G. DORE	B. SMITH	AS SHOWN
DRAWN BY: T. HO'	DRAWING CODE:	PLOT DATE: 2/10/2017

PREPARED BY:
AECOM
9990 Research Drive (949) 345-1000
Irvine, CA 92618
(714) 567-2501

FILE NAME: 9990-wpc15\Edinger_Br-4000_CAD\Sheets\28_TH-Traffic Handling_02_2D.dgn

EDINGER AVE BRIDGE AT BOLSA CHICA CHANNEL REPLACEMENT PROJECT
BR. NO. 55C-0400

TRAFFIC HANDLING PLAN STAGE 1B

Sheet Reference Number
TH-2

Sheet 28 of 76

FILE NAME :...\28_TH_Traffic Handling_02_2D.dgn

AS-BUILT SEPTEMBER 2019

TRAFFIC HANDLING NOTES: STAGE 2A:

1. ON EDINGER AVENUE SHIFT TRAFFIC TO NORTH SIDE AND MAINTAIN 1 LANE FOR BOTH DIRECTIONS OF EB AND WB TRAFFIC.
2. INSTALL TEMPORARY TRAFFIC SIGNALS ON BOTH ENDS OF THE BRIDGE.
3. MAINTAIN CHANNEL ACCESS ALONG NORTH SIDE OF EDINGER AVENUE.
4. PROVIDE 4' PEDESTRIAN ACCESS ALONG NORTH SIDE OF CONSTRUCTED PORTION OF NEW BRIDGE.
5. MAINTAIN MINIMUM ADA ACCESS CLEARANCES AROUND TEMPORARY SIGNAL EQUIPMENT.

TRAFFIC HANDLING CONSTRUCTION NOTES

80 CONSTRUCT TEMPORARY TRESTLE - SOUTH SIDE.
81 INSTALL TEMPORARY RAILING (TYPE-K).
82 INSTALL TEMPORARY CRASH CUSHION ARRAY 'TB11'.
83 INSTALL TEMPORARY STRIPING / PAVEMENT MARKINGS.
84 INSTALL TEMPORARY TRAFFIC SIGNAL.
85 REMOVE REMAINING PORTION OF EXISTING BRIDGE - SOUTH SIDE.
86 CONSTRUCT REMAINING PORTION OF NEW BRIDGE - SOUTH SIDE.
91 REMOVE TEMPORARY TRESTLE - NORTH SIDE.
92 CONSTRUCT TEMPORARY PAVEMENT.
93 REMOVE PORTION OF THE EXISTING SIDEWALK AND CONSTRUCT TEMPORARY ACCESS RAMP.
96 INSTALL TL-2 WATER FILLED BARRIER.
99 INSTALL TEMPORARY CRASH CUSHION (TYPE ABSORB 350)

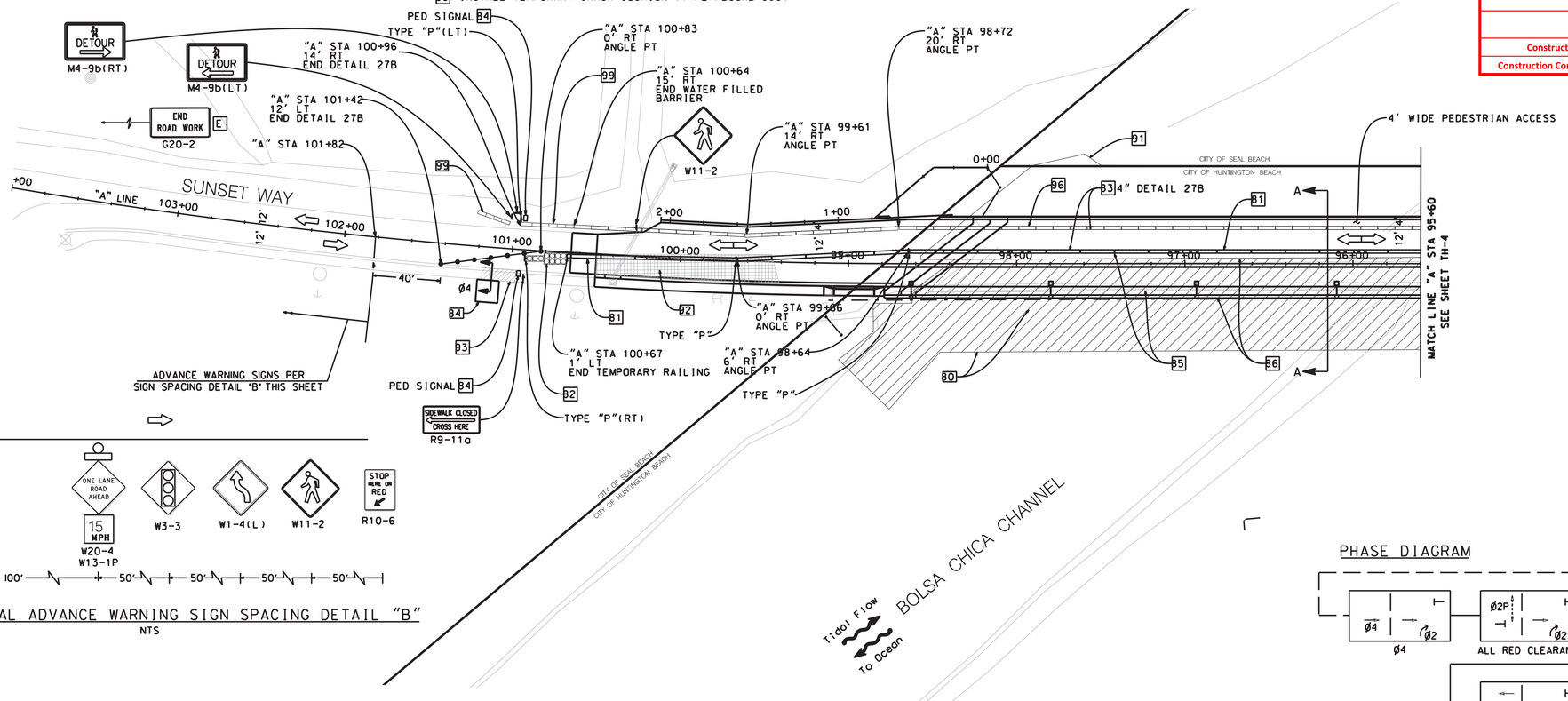
GENERAL NOTES ALL STAGES:

1. REMOVE ALL CONFLICTING STRIPING AND PAVEMENT MARKINGS.
2. SEE BRIDGE PLANS FOR BRIDGE CONSTRUCTION STAGING SEQUENCE.
3. EXISTING SIGNS SHALL BE REMOVED ONLY WHEN REQUIRED DURING STAGE CONSTRUCTION.

LEGEND:

- CONSTRUCTION WORK AREA
- TEMPORARY PAVEMENT THIS STAGE
- TRAFFIC DIRECTION
- TYPE III BARRICADE
- SURFACE MOUNTED CHANNELIZERS
- TEMPORARY CRASH CUSHION
- SIGN PANEL
- TEMPORARY RAILING (TYPE-K)
- TEMPORARY RAILING (TYPE-K) FROM PREVIOUS STAGE
- CITY BOUNDARY
- FLASHING BEACON
- E EXISTING SIGN OR FROM LAST STAGE
- WARNING LIGHT
- TEMPORARY TRAFFIC SIGNAL
- TEMPORARY PEDESTRIAN SIGNAL
- WATER FILLED BARRIER

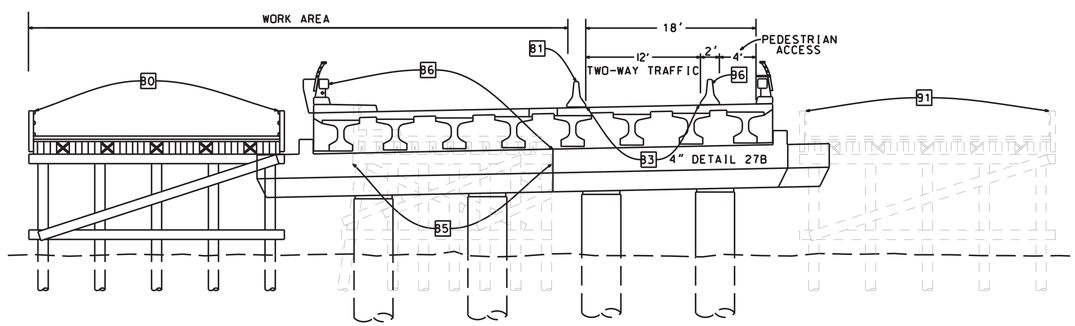
County of Orange	
Public Works	
AS-BUILT	
Contractor:	Kiewit Infrastructure West Company
Resident Engineer:	Elmo Delos Santos (PreScience Corp.)
Senior RE:	Kevin Tran
Inspectors:	Tuan Tran (PreScience Corp.) Kenneth Junio
Construction Start Date:	May 8, 2017
Construction Completion Date:	August 5, 2019



TYPICAL ADVANCE WARNING SIGN SPACING DETAIL "B"
NTS

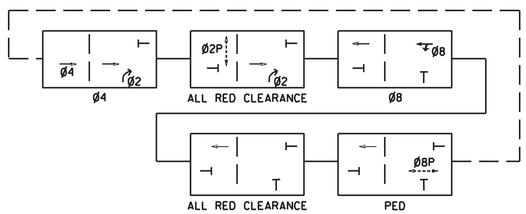
CONSTRUCTION AREA SIGNS

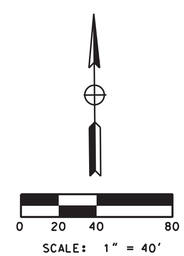
SIGN CODE	PANEL SIZE	SIGN MESSAGE OR PLAQUE
W20-1	36"X36"	ROAD WORK AHEAD
W20-4	36"X36"	ONE LANE ROAD AHEAD
W3-3	36"X36"	SIGNAL AHEAD
R10-6	24"X36"	STOP HERE ON RED
G20-2	36"X18"	END ROAD WORK
W13-1P	18"X18"	15 MPH
W11-2	30"X30"	PEDESTRIAN
R9-11a	24"X12"	SIDEWALK CLOSED, CROSS HERE
W1-4	36"X36"	REVERSE CURVE



CROSS SECTION "A-A" - STAGE 2A
NO SCALE

PHASE DIAGRAM





100% Submittal

EDINGER AVE BRIDGE AT BOLSA CHICA CHANNEL REPLACEMENT PROJECT BR. NO. 55C-0400
TRAFFIC HANDLING PLAN STAGE 2A

Sheet Reference Number
TH-3

Sheet 29 of 76

COUNTY OF ORANGE
OC PUBLIC WORKS

PREPARED BY: AECOM
9990 mPCS\Projects\03191\560638-Edinger_Br-#000_CAD\Sheets\29_TH_Traffic Handling_03_2D.dgn
Orange, CA 92868
(714) 567-2501

DESIGNED BY: G. DORE
DRAWN BY: T. HO
CHECKED BY: B. SMITH
DRAWING CODE:
FILE NAME: 9990 mPCS\Projects\03191\560638-Edinger_Br-#000_CAD\Sheets\29_TH_Traffic Handling_03_2D.dgn
PLOT DATE: 2/10/2017
SCALE: AS SHOWN

MARK	DESCRIPTION	DATE	APPR.

PREPARED UNDER THE RESPONSIBLE CHARGE OF:
GEORGE T. DORE
REGISTERED PROFESSIONAL ENGINEER
GEORGE T. DORE
46585
Exp. 06/30/17
CIVIL
STATE OF CALIFORNIA
09/12/16
DATE

COUNTY OF ORANGE
CALIFORNIA

FILE NAME = ...\29_TH_Traffic Handling_03_2D.dgn

AS-BUILT SEPTEMBER 2019

TRAFFIC HANDLING NOTES: STAGE 2A:

1. ON EDINGER AVENUE SHIFT TRAFFIC TO NORTH SIDE AND MAINTAIN 1 LANE FOR BOTH DIRECTIONS OF EB AND WB TRAFFIC.
2. INSTALL TEMPORARY TRAFFIC SIGNALS ON BOTH ENDS OF THE BRIDGE
3. MAINTAIN CHANNEL ACCESS ALONG NORTH SIDE OF EDINGER AVENUE.
4. PROVIDE 4' PEDESTRIAN ACCESS ALONG NORTH SIDE OF CONSTRUCTED PORTION OF NEW BRIDGE.
5. MAINTAIN MINIMUM ADA ACCESS CLEARANCES AROUND TEMPORARY SIGNAL EQUIPMENT.

County of Orange	
Public Works	
AS-BUILT	
Contractor:	Kiewit Infrastructure West Company
Resident Engineer:	Elmo Delos Santos (PreScience Corp.)
Senior RE:	Kevin Tran
Inspectors:	Tuan Tran (PreScience Corp.) Kenneth Junio
Construction Start Date:	May 8, 2017
Construction Completion Date:	August 5, 2019

TRAFFIC HANDLING CONSTRUCTION NOTES

81 INSTALL TEMPORARY RAILING (TYPE-K).
83 INSTALL TEMPORARY STRIPING / PAVEMENT MARKINGS.
84 INSTALL TEMPORARY TRAFFIC SIGNAL.
85 REMOVE REMAINING PORTION OF EXISTING BRIDGE - SOUTH SIDE.
86 CONSTRUCT REMAINING PORTION OF NEW BRIDGE - SOUTH SIDE.
96 INSTALL TL-2 WATER FILLED BARRIER
99 INSTALL TEMPORARY CRASH CUSHION (TYPE ABSORB 350)

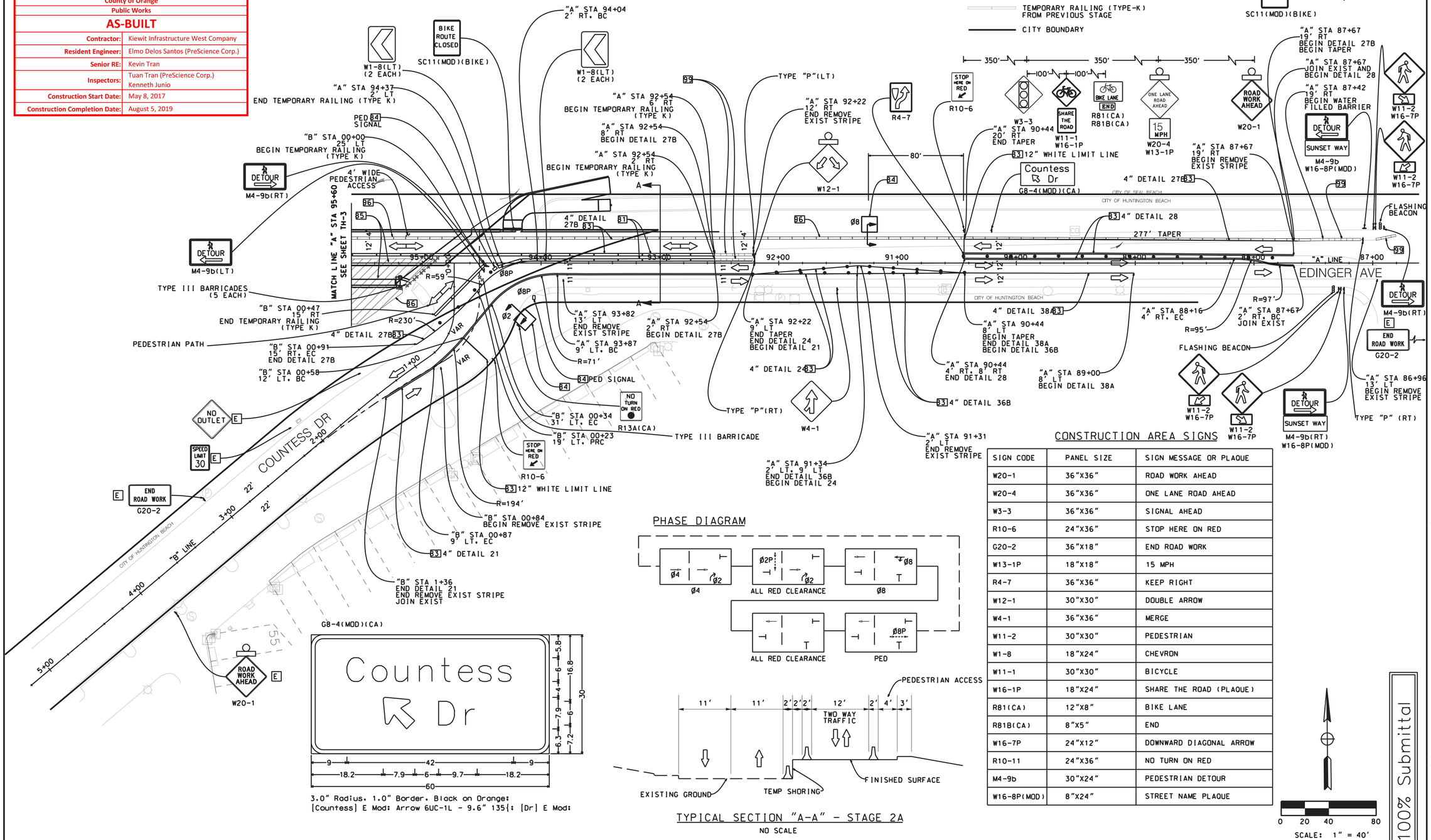
GENERAL NOTES ALL STAGES:

1. REMOVE ALL CONFLICTING STRIPING AND PAVEMENT MARKINGS.
2. SEE BRIDGE PLANS FOR BRIDGE CONSTRUCTION STAGING SEQUENCE.
3. EXISTING SIGNS SHALL BE REMOVED ONLY WHEN REQUIRED DURING STAGE CONSTRUCTION.

LEGEND:

- CONSTRUCTION WORK AREA
- TEMPORARY PAVEMENT THIS STAGE
- TRAFFIC DIRECTION
- TYPE III BARRICADE
- SURFACE MOUNTED CHANNELIZERS
- WATER FILLED BARRIER
- SIGN PANEL
- TEMPORARY RAILING (TYPE-K)
- TEMPORARY RAILING (TYPE-K) FROM PREVIOUS STAGE
- CITY BOUNDARY
- FLASHING BEACON
- EXISTING SIGN OR FROM LAST STAGE
- TEMPORARY TRAFFIC SIGNAL
- TEMPORARY PEDESTRIAN SIGNAL

E BIKE ROUTE CLOSED SC11(MOD)(BIKE) — PLACE THIS SIGN ON TYPE III BARRICADE AT BIKE ROUTE ENTRANCE ACROSS FROM SANTA BARBARA LANE



CONSTRUCTION AREA SIGNS

SIGN CODE	PANEL SIZE	SIGN MESSAGE OR PLAQUE
W20-1	36"X36"	ROAD WORK AHEAD
W20-4	36"X36"	ONE LANE ROAD AHEAD
W3-3	36"X36"	SIGNAL AHEAD
R10-6	24"X36"	STOP HERE ON RED
G20-2	36"X18"	END ROAD WORK
W13-1P	18"X18"	15 MPH
R4-7	36"X36"	KEEP RIGHT
W12-1	30"X30"	DOUBLE ARROW
W4-1	36"X36"	MERGE
W11-2	30"X30"	PEDESTRIAN
W1-8	18"X24"	CHEVRON
W11-1	30"X30"	BICYCLE
W16-1P	18"X24"	SHARE THE ROAD (PLAQUE)
R81(CA)	12"X8"	BIKE LANE
R81B(CA)	8"X5"	END
W16-7P	24"X12"	DOWNWARD DIAGONAL ARROW
R10-11	24"X36"	NO TURN ON RED
M4-9b	30"X24"	PEDESTRIAN DETOUR
W16-8P(MOD)	8"X24"	STREET NAME PLAQUE

PHASE DIAGRAM

TYPICAL SECTION "A-A" - STAGE 2A
NO SCALE

SCALE: 1" = 40'

100% Submittal

PREPARED UNDER THE RESPONSIBLE CHARGE OF: GEORGE T. DORE, REGISTERED PROFESSIONAL ENGINEER, 48595, CIVIL, STATE OF CALIFORNIA — 09/12/16

MARK	DESCRIPTION	DATE	APPR.

DESIGNED BY: G. DORE
DRAWN BY: T. HO
CHECKED BY: B. SMITH
DRAWING CODE:
SCALE: AS SHOWN
PLOT DATE: 2/10/2017
FILE NAME: 9990##C1##dgn\C1##Rev#20160630-Edinger_Br-#000_CAD#Sheets#30_TH_Traffic Handling_04_2D.dgn

COUNTY OF ORANGE OC PUBLIC WORKS
PREPARED BY: AECOM, 3990 MacArthur Blvd., Suite 400, Orange, CA 92868, (714) 567-2501

EDINGER AVE BRIDGE AT BOLSA CHICA CHANNEL REPLACEMENT PROJECT
BR. NO. 55C-0400
TRAFFIC HANDLING PLAN STAGE 2A

Sheet Reference Number: TH-4

Sheet 30 of 76

FILE NAME :...#30_TH_Traffic Handling_04_2D.dgn

AS-BUILT SEPTEMBER 2019

TRAFFIC HANDLING NOTES: STAGE 2B:

1. ON EDINGER AVENUE SHIFT TRAFFIC TO NORTH SIDE AND MAINTAIN 1 LANE FOR BOTH DIRECTIONS OF EB AND WB TRAFFIC.
2. INSTALL TEMPORARY TRAFFIC SIGNALS ON BOTH ENDS OF THE BRIDGE
3. MAINTAIN CHANNEL ACCESS ALONG NORTH SIDE OF EDINGER AVENUE.
4. PROVIDE 4' PEDESTRIAN ACCESS ALONG NORTH SIDE OF CONSTRUCTED PORTION OF NEW BRIDGE.
5. MAINTAIN MINIMUM ADA ACCESS CLEARANCES AROUND TEMPORARY SIGNAL EQUIPMENT.

TRAFFIC HANDLING CONSTRUCTION NOTES

81 INSTALL TEMPORARY RAILING (TYPE-K).
82 INSTALL TEMPORARY CRASH CUSHION ARRAY 'TB11'.
83 INSTALL TEMPORARY STRIPING / PAVEMENT MARKINGS.
84 INSTALL TEMPORARY TRAFFIC SIGNAL.
88 CONSTRUCT PORTION OF DRAINAGE SYSTEM.
89 CONSTRUCT CURB/GUTTER, SIDEWALK, AND CHANNEL ACCESS DRIVEWAY.
90 CONSTRUCT AC PAVEMENT.

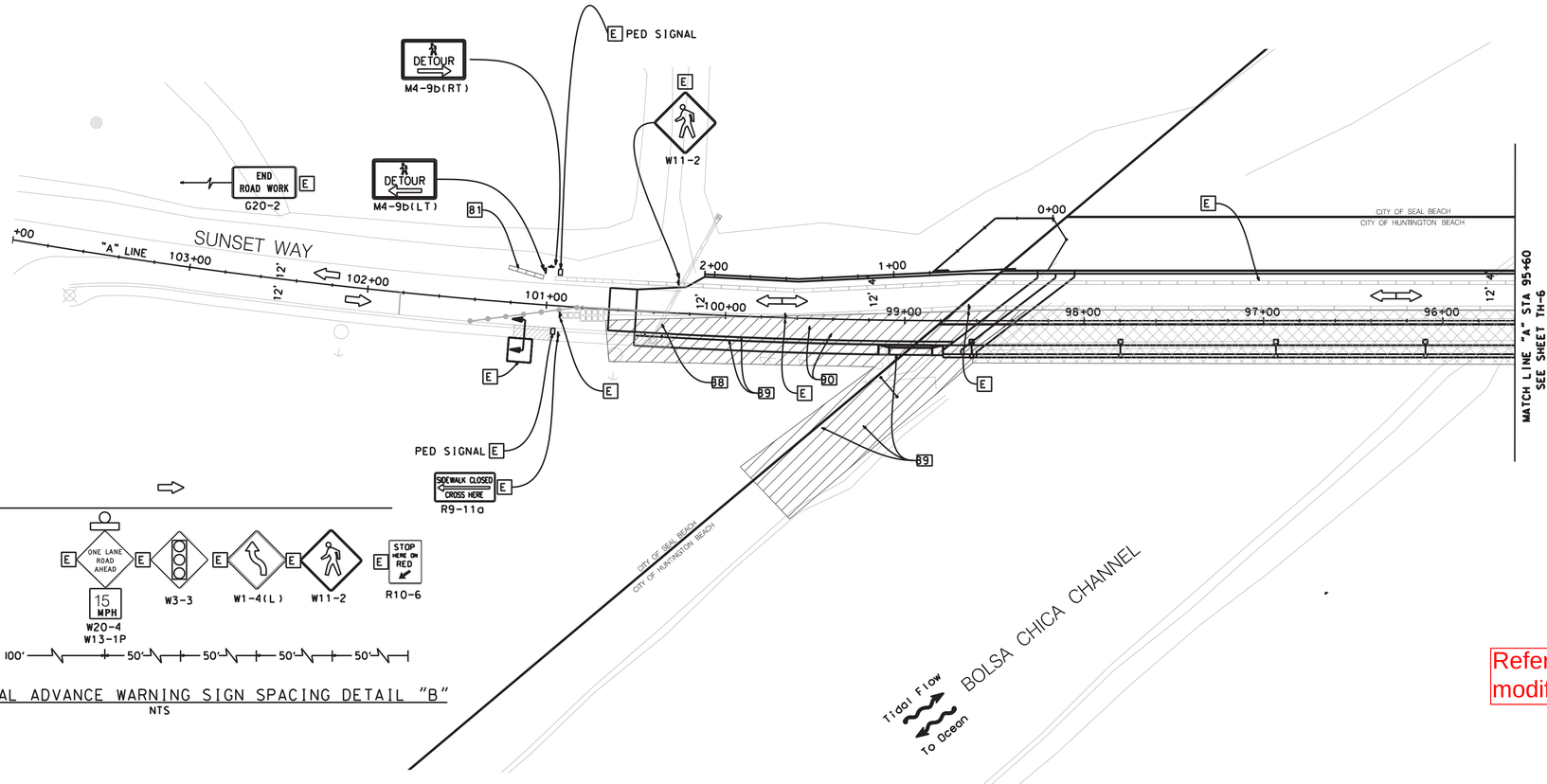
GENERAL NOTES ALL STAGES:

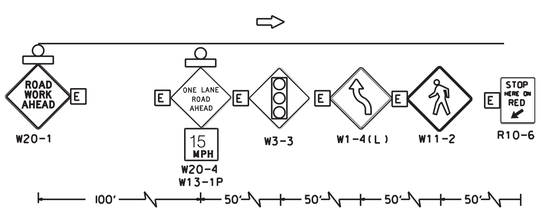
1. REMOVE ALL CONFLICTING STRIPING AND PAVEMENT MARKINGS.
2. SEE BRIDGE PLANS FOR BRIDGE CONSTRUCTION STAGING SEQUENCE.
3. EXISTING SIGNS SHALL BE REMOVED ONLY WHEN REQUIRED DURING STAGE CONSTRUCTION.

LEGEND:

- CONSTRUCTION WORK AREA
- TEMPORARY PAVEMENT THIS STAGE
- TRAFFIC DIRECTION
- TYPE III BARRICADE
- SURFACE MOUNTED CHANNELIZERS
- TEMPORARY CRASH CUSHION
- SIGN PANEL
- TEMPORARY RAILING (TYPE-K)
- TEMPORARY RAILING (TYPE-K) FROM PREVIOUS STAGE
- CITY BOUNDARY
- FLASHING BEACON
- E EXISTING SIGN OR FROM LAST STAGE
- WARNING LIGHT
- TEMPORARY TRAFFIC SIGNAL
- TEMPORARY PEDESTRIAN SIGNAL
- WATER FILLED BARRIER FROM PREVIOUS STAGE

RFI 060: Change to concrete K-Rail



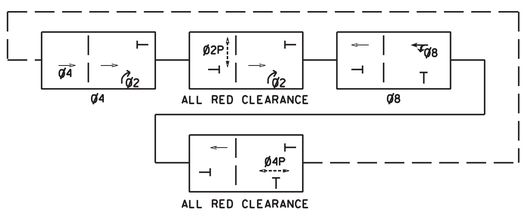


TYPICAL ADVANCE WARNING SIGN SPACING DETAIL "B"
NTS

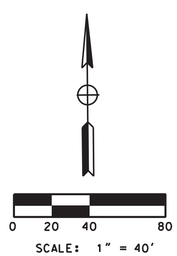
CONSTRUCTION AREA SIGNS

SIGN CODE	PANEL SIZE	SIGN MESSAGE OR PLAQUE
W20-1	36"X36"	ROAD WORK AHEAD
W20-4	36"X36"	ONE LANE ROAD AHEAD
W3-3	36"X36"	SIGNAL AHEAD
R10-6	24"X36"	STOP HERE ON RED
G20-2	36"X18"	END ROAD WORK
W13-1P	18"X18"	25 MPH
W11-2	30"X30"	PEDESTRIAN
R9-11a	24"X12"	SIDEWALK CLOSED, CROSS HERE
W1-4	36"X36"	REVERSE CURVE

PHASE DIAGRAM FOR EDINGER AVE



Refer to next sheet for approved modifications to TH-5



100% Submittal

MARK	DESCRIPTION	DATE	APPR.

PREPARED UNDER THE RESPONSIBLE CHARGE OF:
GEORGE T. DORE
09/12/16
DATE

REGISTERED PROFESSIONAL ENGINEER — GEORGE T. DORE — No. 48585 — REG. 06/30/17 — CIVIL — STATE OF CALIFORNIA

DESIGNED BY: G. DORE
DRAWN BY: T. HO
CHECKED BY: B. SMITH
DRAWING CODE:
FILE NAME: 9990wpCS\Bridges\Edinger_Br#000_CAD\Sheets\31_TH_Traffic Handling_05_2D.dgn
PLOT DATE: 2/10/2017
SCALE: AS SHOWN

COUNTY OF ORANGE
OC PUBLIC WORKS

PREPARED BY:
AECOM
3990 Mac Arthur Blvd, Suite 600
Orange, CA 92868
(714) 567-2501

EDINGER AVE BRIDGE AT
BOLSA CHICA CHANNEL
REPLACEMENT PROJECT
BR. NO. 55C-0400

TRAFFIC HANDLING PLAN STAGE 2B

Sheet Reference Number
TH-5

Sheet 31 of 76

FILE NAME :...*31_TH_Traffic Handling_05_2D.dgn

TRAFFIC HANDLING NOTES: STAGE 2B:

1. ON EDINGER AVENUE SHIFT TRAFFIC TO NORTH SIDE AND MAINTAIN 1 LANE FOR BOTH DIRECTIONS OF EB AND WB TRAFFIC.
2. INSTALL TEMPORARY TRAFFIC SIGNALS ON BOTH ENDS OF THE BRIDGE
3. MAINTAIN CHANNEL ACCESS ALONG NORTH SIDE OF EDINGER AVENUE.
4. PROVIDE 4' PEDESTRIAN ACCESS ALONG NORTH SIDE OF CONSTRUCTED PORTION OF NEW BRIDGE.
5. MAINTAIN MINIMUM ADA ACCESS CLEARANCES AROUND TEMPORARY SIGNAL EQUIPMENT.

TRAFFIC HANDLING CONSTRUCTION NOTES

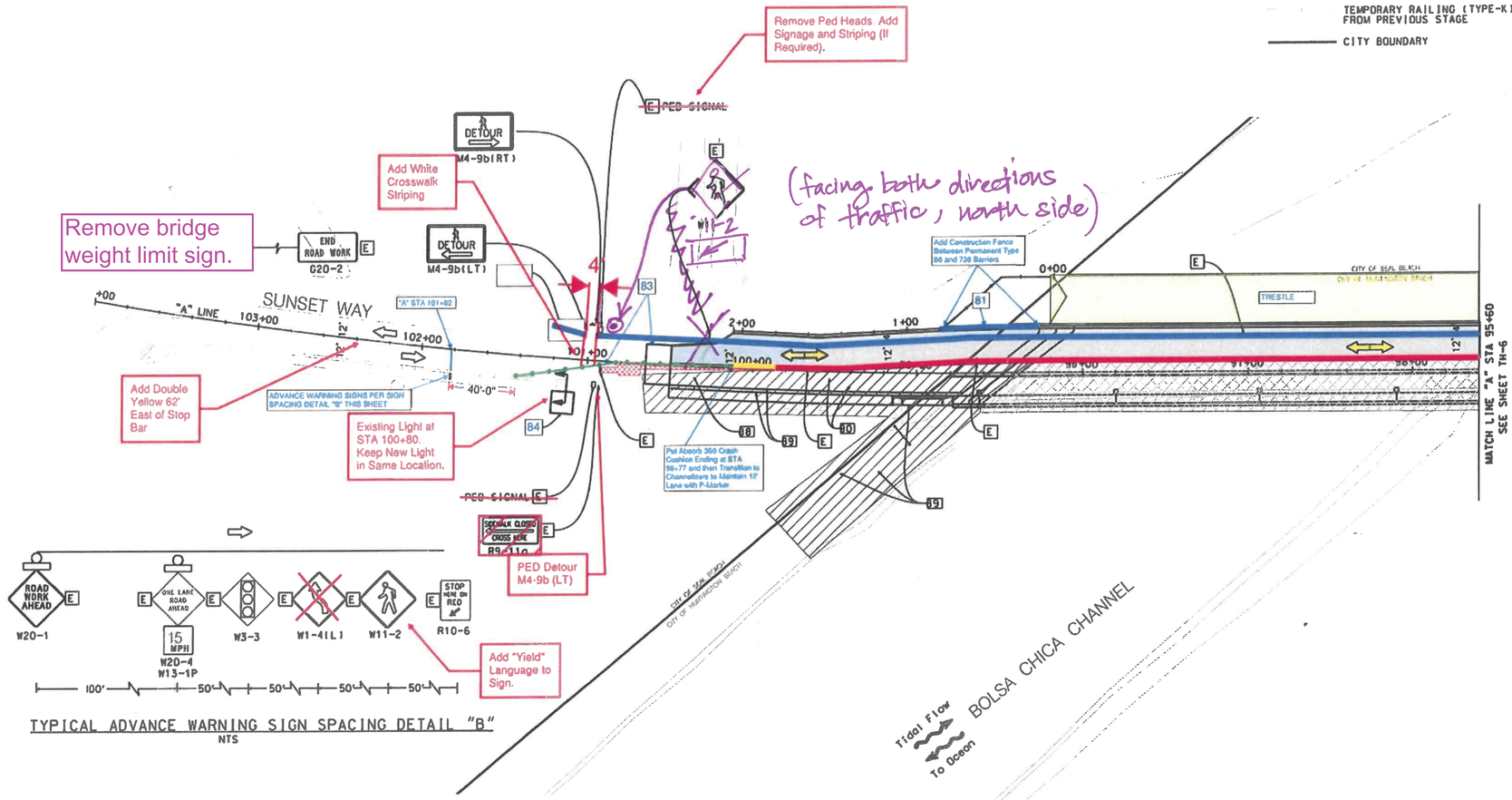
81 INSTALL TEMPORARY RAILING (TYPE-K).
82 INSTALL TEMPORARY CRASH CUSHION ARRAY 'TB11'.
83 INSTALL TEMPORARY STRIPING / PAVEMENT MARKINGS.
84 INSTALL TEMPORARY TRAFFIC SIGNAL.
88 CONSTRUCT PORTION OF DRAINAGE SYSTEM.
89 CONSTRUCT CURB/GUTTER, SIDEWALK, AND CHANNEL ACCESS DRIVEWAY & CONSTRUCT RSP
90 CONSTRUCT AC PAVEMENT.

GENERAL NOTES ALL STAGES:

1. REMOVE ALL CONFLICTING STRIPING AND PAVEMENT MARKINGS.
2. SEE BRIDGE PLANS FOR BRIDGE CONSTRUCTION STAGING SEQUENCE.
3. EXISTING SIGNS SHALL BE REMOVED ONLY WHEN REQUIRED DURING STAGE CONSTRUCTION.

LEGEND:

- CONSTRUCTION WORK AREA
- TEMPORARY PAVEMENT THIS STAGE
- TRAFFIC DIRECTION
- TYPE III BARRICADE
- SURFACE MOUNTED CHANNELIZERS
- TEMPORARY CRASH CUSHION
- SIGN PANEL
- TEMPORARY RAILING (TYPE-K)
- TEMPORARY RAILING (TYPE-K) FROM PREVIOUS STAGE
- CITY BOUNDARY
- FLASHING BEACON
- E EXISTING SIGN OR FROM LAST STAGE
- WARNING LIGHT
- TEMPORARY TRAFFIC SIGNAL
- TEMPORARY PEDESTRIAN SIGNAL
- TEMPORARY RAILING (TYPE-K) FROM PREVIOUS STAGE

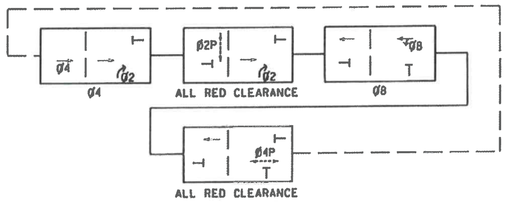


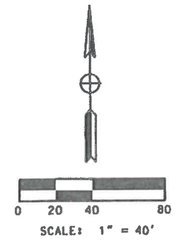
TYPICAL ADVANCE WARNING SIGN SPACING DETAIL "B"
NTS

CONSTRUCTION AREA SIGNS

SIGN CODE	PANEL SIZE	SIGN MESSAGE OR PLAQUE
W20-1	36"X36"	ROAD WORK AHEAD
W20-4	36"X36"	ONE LANE ROAD AHEAD
W3-3	36"X36"	SIGNAL AHEAD
R10-6	24"X36"	STOP HERE ON RED
G20-2	36"X18"	END ROAD WORK
W13-1P	18"X18"	25 MPH
W11-2	30"X30"	PEDESTRIAN
R9-11a	24"X12"	SIDEWALK CLOSED, CROSS HERE
W1-4	36"X36"	REVERSE CURVE

PHASE DIAGRAM FOR EDINGER AVE





LEGEND
K-RAIL
K-RAIL
ABSORB 350
DELINEATORS
EXISTING STRIPING

As-Built Walk completed 7/26/2018:
Kiewit Paul Colburn
County Kia Ilkhanipour

100% Submittal

County of Orange
Public Works
AS-BUILT

Contractor:	Kiewit Infrastructure West Company
Resident Engineer:	Elmo Delos Santos (PreScience Corp.)
Senior RE:	Kevin Tran
Inspectors:	Tuan Tran (PreScience Corp.) Kenneth Junio
Construction Start Date:	May 8, 2017
Construction Completion Date:	August 5, 2019

LICENSED PROFESSIONAL ENGINEER MARIO G BOHWERING NO. C76458 EXP. 12/31/18 CIVIL STATE OF CALIFORNIA 8/11/16

MARK	DESCRIPTION	DATE	APPR.

PREPARED UNDER THE RESPONSIBLE CHARGE OF: GEORGE T. DORE 09/12/16 DATE

DESIGNED BY: G. DORE
DRAWN BY: T. HO
CHECKED BY: B. SMITH
DRAWING CODE:
FILE NAME: 9990pw0Cswim\src\ps\Sheets\Edinger_Br-4000_CA\Sheets\31_TH_Traffic Handling_05_2D.dgn
PLOT DATE: 2/10/2017
SCALE: AS SHOWN

COUNTY OF ORANGE OC PUBLIC WORKS

PREPARED BY: AECOM 9990pw0Cswim\src\ps\Sheets\Edinger_Br-4000_CA\Sheets\31_TH_Traffic Handling_05_2D.dgn 3 Hutton Centre Drive, Suite 200 Orange, CA 92868 (714) 567-2501

EDINGER AVE BRIDGE AT BOLSA CHICA CHANNEL REPLACEMENT PROJECT BR. NO. 55C-0400

TRAFFIC HANDLING PLAN STAGE 2B

Sheet Reference Number: TH-5

FILE NAME :...\31_TH_Traffic Handling_05_2D.dgn

AS-BUILT SEPTEMBER 2019

TRAFFIC HANDLING NOTES: STAGE 2B:

1. ON EDINGER AVENUE SHIFT TRAFFIC TO NORTH SIDE AND MAINTAIN 1 LANE FOR BOTH DIRECTIONS OF EB AND WB TRAFFIC.
2. INSTALL TEMPORARY TRAFFIC SIGNALS ON BOTH ENDS OF THE BRIDGE
3. MAINTAIN CHANNEL ACCESS ALONG NORTH SIDE OF EDINGER AVENUE.
4. PROVIDE 4' PEDESTRIAN ACCESS ALONG NORTH SIDE OF CONSTRUCTED PORTION OF NEW BRIDGE.

County of Orange	
Public Works	
AS-BUILT	
Contractor:	Kiewit Infrastructure West Company
Resident Engineer:	Elmo Delos Santos (PreScience Corp.)
Senior RE:	Kevin Tran
Inspectors:	Tuan Tran (PreScience Corp.) Kenneth Junio
Construction Start Date:	May 8, 2017
Construction Completion Date:	August 5, 2019

TRAFFIC HANDLING CONSTRUCTION NOTES

81 INSTALL TEMPORARY RAILING (TYPE-K).
82 INSTALL TEMPORARY CRASH CUSHION ARRAY 'TB11'.
83 INSTALL TEMPORARY STRIPING / PAVEMENT MARKINGS.
84 INSTALL TEMPORARY TRAFFIC SIGNAL.
89 CONSTRUCT CURB/GUTTER, SIDEWALK, AND CHANNEL ACCESS DRIVEWAY.
90 CONSTRUCT AC PAVEMENT.
94 INSTALL TYPE-3 BARRICADE.

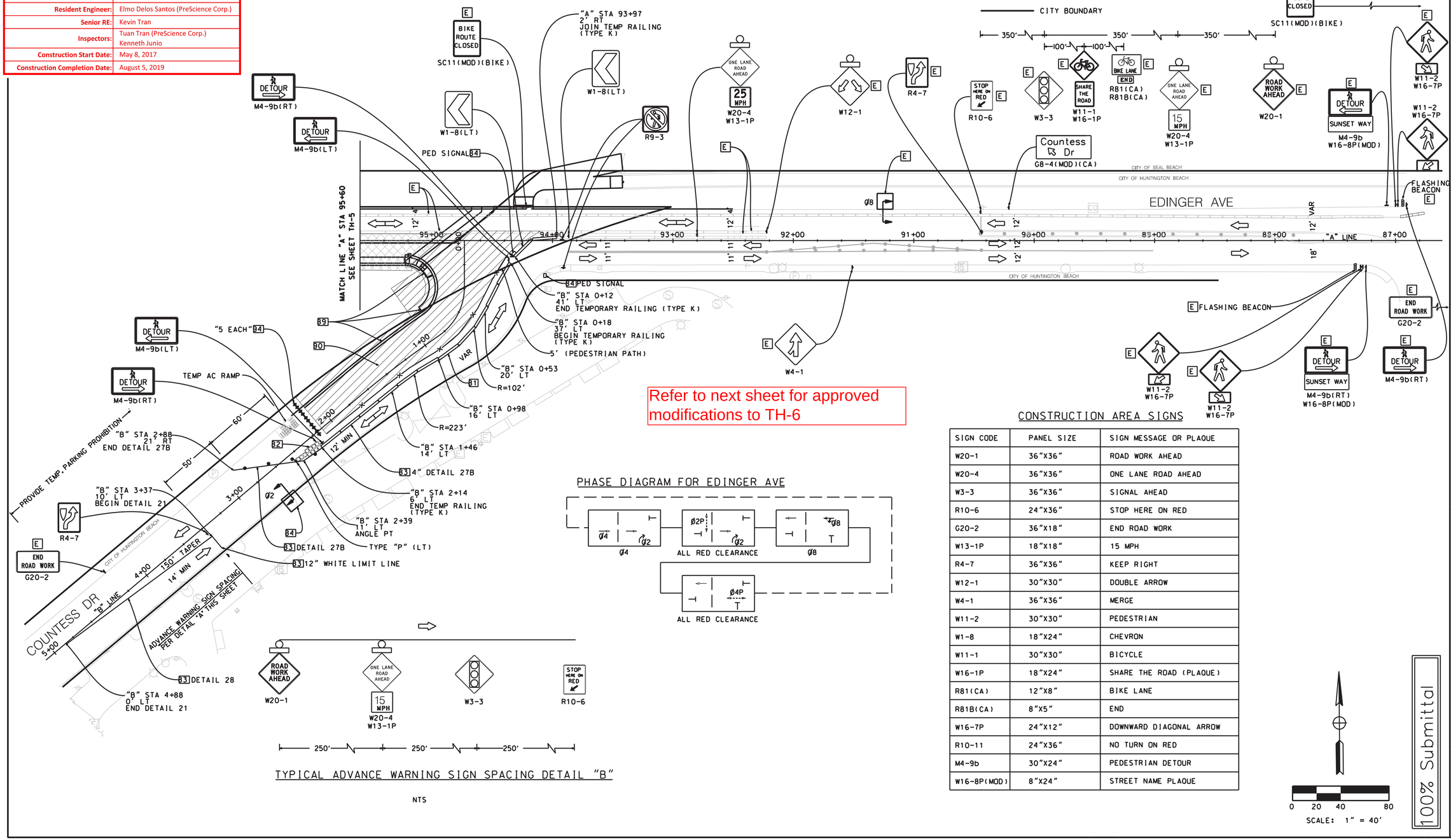
GENERAL NOTES ALL STAGES:

1. REMOVE ALL CONFLICTING STRIPING AND PAVEMENT MARKINGS.
2. SEE BRIDGE PLANS FOR BRIDGE CONSTRUCTION STAGING SEQUENCE.
3. EXISTING SIGNS SHALL BE REMOVED ONLY WHEN REQUIRED DURING STAGE CONSTRUCTION.

RFI 060: Change to concrete K-Rail

LEGEND:

- CONSTRUCTION WORK AREA
- TEMPORARY PAVEMENT THIS STAGE
- TRAFFIC DIRECTION
- TYPE III BARRICADE
- SURFACE MOUNTED CHANNELIZERS
- WATER FILLED BARRIER FROM PREVIOUS STAGE
- SIGN PANEL
- TEMPORARY RAILING (TYPE-K)
- TEMPORARY RAILING (TYPE-K) FROM PREVIOUS STAGE
- CITY BOUNDARY
- FLASHING BEACON
- E EXISTING SIGN OR FROM LAST STAGE
- WARNING LIGHT
- TEMPORARY TRAFFIC SIGNAL
- TEMPORARY PEDESTRIAN SIGNAL
- CONSTRUCTION FENCE
- WATER FILLED BARRIER FROM PREVIOUS STAGE



Refer to next sheet for approved modifications to TH-6

PHASE DIAGRAM FOR EDINGER AVE

TYPICAL ADVANCE WARNING SIGN SPACING DETAIL "B"

NTS

CONSTRUCTION AREA SIGNS

SIGN CODE	PANEL SIZE	SIGN MESSAGE OR PLAQUE
W20-1	36"X36"	ROAD WORK AHEAD
W20-4	36"X36"	ONE LANE ROAD AHEAD
W3-3	36"X36"	SIGNAL AHEAD
R10-6	24"X36"	STOP HERE ON RED
G20-2	36"X18"	END ROAD WORK
W13-1P	18"X18"	15 MPH
R4-7	36"X36"	KEEP RIGHT
W12-1	30"X30"	DOUBLE ARROW
W4-1	36"X36"	MERGE
W11-2	30"X30"	PEDESTRIAN
W1-8	18"X24"	CHEVRON
W11-1	30"X30"	BICYCLE
W16-1P	18"X24"	SHARE THE ROAD (PLAQUE)
R81(CA)	12"X8"	BIKE LANE
R81B(CA)	8"X5"	END
W16-7P	24"X12"	DOWNWARD DIAGONAL ARROW
R10-11	24"X36"	NO TURN ON RED
M4-9b	30"X24"	PEDESTRIAN DETOUR
W16-8P(MOD)	8"X24"	STREET NAME PLAQUE

0 20 40 80
SCALE: 1" = 40'

100% Submittal

COUNTY OF ORANGE CALIFORNIA

MARK	DESCRIPTION	DATE	APPR.

PREPARED UNDER THE RESPONSIBLE CHARGE OF:
REGISTERED PROFESSIONAL ENGINEER — GEORGE T. DORE — No. 48595 — CIVIL — STATE OF CALIFORNIA — EXP. 06/30/17
09/12/16
DATE
GEORGE T. DORE

DESIGNED BY: G. DORE	DRAWN BY: T. HO	CHECKED BY: B. SMITH	DRAWING CODE:	FILE NAME: 9990-wpc15dgn-C:\Users\...\Edinger_Br-4000_CAD\Sheets\32_TH-Traffic Handling_06.2D.dgn	PLOT DATE: 2/10/2017	SCALE: AS SHOWN

COUNTY OF ORANGE
OC PUBLIC WORKS

PREPARED BY:
AECOM
Orange, CA 92868
(714) 567-2501

EDINGER AVE BRIDGE AT BOLSA CHICA CHANNEL
REPLACEMENT PROJECT
BR. NO. 55C-0400

TRAFFIC HANDLING PLAN STAGE 2B

Sheet Reference Number
TH-6

Sheet 32 of 76

FILE NAME :...*32_TH_Traffic Handling_06.2D.dgn

TRAFFIC HANDLING NOTES: STAGE 2B:

1. ON EDINGER AVENUE SHIFT TRAFFIC TO NORTH SIDE AND MAINTAIN 1 LANE FOR BOTH DIRECTIONS OF EB AND WB TRAFFIC.
2. INSTALL TEMPORARY TRAFFIC SIGNALS ON BOTH ENDS OF THE BRIDGE
3. MAINTAIN CHANNEL ACCESS ALONG NORTH SIDE OF EDINGER AVENUE.
4. PROVIDE 4' PEDESTRIAN ACCESS ALONG NORTH SIDE OF CONSTRUCTED PORTION OF NEW BRIDGE.

TRAFFIC HANDLING CONSTRUCTION NOTES

OR TYPE ABSORB 350

- B1 INSTALL TEMPORARY RAILING (TYPE-K).
- B2 INSTALL TEMPORARY CRASH CUSHION ARRAY 'TB11'
- B3 INSTALL TEMPORARY STRIPING / PAVEMENT MARKINGS.
- B4 INSTALL TEMPORARY TRAFFIC SIGNAL
- B9 CONSTRUCT CURB/GUTTER, SIDEWALK AND CHANNEL ACROSS DRIVEWAY.
- B0 CONSTRUCT AC PAVEMENT.
- B4 INSTALL TYPE-3 BARRICADE.

GENERAL NOTES ALL STAGES:

1. REMOVE ALL CONFLICTING STRIPING AND PAVEMENT MARKINGS.
2. SEE BRIDGE PLANS FOR BRIDGE CONSTRUCTION STAGING SEQUENCE.
3. EXISTING SIGNS SHALL BE REMOVED ONLY WHEN REQUIRED DURING STAGE CONSTRUCTION.

LEGEND

- K-RAIL
- K-RAIL
- ABSORB 350
- DELINEATORS
- EXISTING STRIPING

LEGEND:

- CONSTRUCTION WORK AREA
- TEMPORARY PAVEMENT THIS STAGE
- TRAFFIC DIRECTION
- TEMPORARY RAILING (TYPE K) — TYPE III BARRICADE
- SURFACE MOUNTED CHANNELIZERS
- FROM PREVIOUS STAGE
- SIGN PANEL
- TEMPORARY RAILING (TYPE-K)
- TEMPORARY RAILING (TYPE-K) FROM PREVIOUS STAGE
- CITY BOUNDARY
- FLASHING BEACON
- EXISTING SIGN OR FROM LAST STAGE
- WARNING LIGHT
- TEMPORARY TRAFFIC SIGNAL
- TEMPORARY PEDESTRIAN SIGNAL
- CONSTRUCTION FENCE
- FROM PREVIOUS STAGE

SUNSET WAY

COUNTESS DR

Add Construction Fence To Protect Trestle (orange)

Add Double No U-Turns on backside

PED Detour M4-9b (LT)

Remove bridge weight limit sign.

Add 20 K-Rail Move Temp sensor inside K-Rail

Move back stop bar 20' to keep 60' transition and 60' spacing

Add White Crosswalk Striping

Add W1-6 (R) Arrow on backside

Add Double Yellow 63' West of Stop Bar

Add Yellow Cat Track 77'

Signal Location @ 2+25, inside K-Rail enclosure

Signal Wait Time Up To 3 Minutes

Add White Crosswalk Striping

Add Yellow Cat Track 125'

Add Double Yellow 60' West of Stop Bar

(these should be placed facing both directions of traffic, back to back on post)

PHASE DIAGRAM FOR EDINGER AVE

ALL RED CLEARANCE

ALL RED CLEARANCE

TYPICAL ADVANCE WARNING SIGN SPACING DETAIL "B"

NTS

CONSTRUCTION AREA SIGNS

SIGN CODE	PANEL SIZE	SIGN MESSAGE OR PLAQUE
W20-1	36"X36"	ROAD WORK AHEAD
W20-4	36"X36"	ONE LANE ROAD AHEAD
W3-3	36"X36"	SIGNAL AHEAD
R10-6	24"X36"	STOP HERE ON RED
G20-2	36"X18"	END ROAD WORK
W13-1P	18"X18"	15 MPH
R4-7	36"X36"	KEEP RIGHT
W12-1	30"X30"	DOUBLE ARROW
W4-1	36"X36"	MERGE
W11-2	30"X30"	PEDESTRIAN
W1-8	18"X24"	CHEVRON
W11-1	30"X30"	BICYCLE
W16-1P	18"X24"	SHARE THE ROAD (PLAQUE)
R81(CA)	12"X8"	BIKE LANE
R81B(CA)	8"X5"	END
W16-7P	24"X12"	DOWNWARD DIAGONAL ARROW
R10-11	24"X36"	NO TURN ON RED
M4-9b	30"X24"	PEDESTRIAN DETOUR
W16-8P(MOD)	8"X24"	STREET NAME PLAQUE

As-Built Walk completed 7/26/2018:

Kiewit Paul Colburn

County Kia Ilkhanipour

County of Orange	
Public Works	
AS-BUILT	
Contractor:	Kiewit Infrastructure West Company
Resident Engineer:	Elmo Delos Santos (PreScience Corp.)
Senior RE:	Kevin Tran
Inspectors:	Tuan Tran (PreScience Corp.) Kenneth Junio
Construction Start Date:	May 8, 2017
Construction Completion Date:	August 5, 2019

PROFESSIONAL ENGINEER MARTIN SCHWERING NO. EXP. CIVIL STATE OF CALIFORNIA 76488 12/31/18

PREPARED UNDER THE RESPONSIBLE CHARGE OF: GEORGE T. DORE

DESIGNED BY: G. DORE | DRAWN BY: | CHECKED BY: B. SMITH | CHECKED BY: | DRAWING CODE: | FILE NAME: P-6000_CAD\Sheets\32_TH_Traffic Handling_06_2D.dgn | PLOT DATE: 2/10/2017 | SCALE: AS SHOWN

COUNTY OF ORANGE PUBLIC WORKS

EDINGER AVE BRIDGE AT SANTA ANA CHANNEL REPLACEMENT PROJECT BR. NO. 55C-0400

TRAFFIC HANDLING PLAN STAGE 2B

Sheet Reference Number: TH-6

100% Submittal

SCALE: 1" = 40'

AS-BUILT SEPTEMBER 2019

TRAFFIC HANDLING NOTES: STAGE 3:

1. ON EDINGER AVENUE MAINTAIN 1 LANE PER DIRECTION FOR OF EB AND WB TRAFFIC.
2. MAINTAIN CHANNEL ACCESS ALONG NORTH AND SOUTH SIDES OF EDINGER AVENUE.
3. ON EDINGER AVENUE MAINTAIN PEDESTRIAN ACCESS AT ALL TIME IN CONSTRUCTION AREA THIS STAGE.

TRAFFIC HANDLING CONSTRUCTION NOTES

33 INSTALL TEMPORARY STRIPING / PAVEMENT MARKINGS.

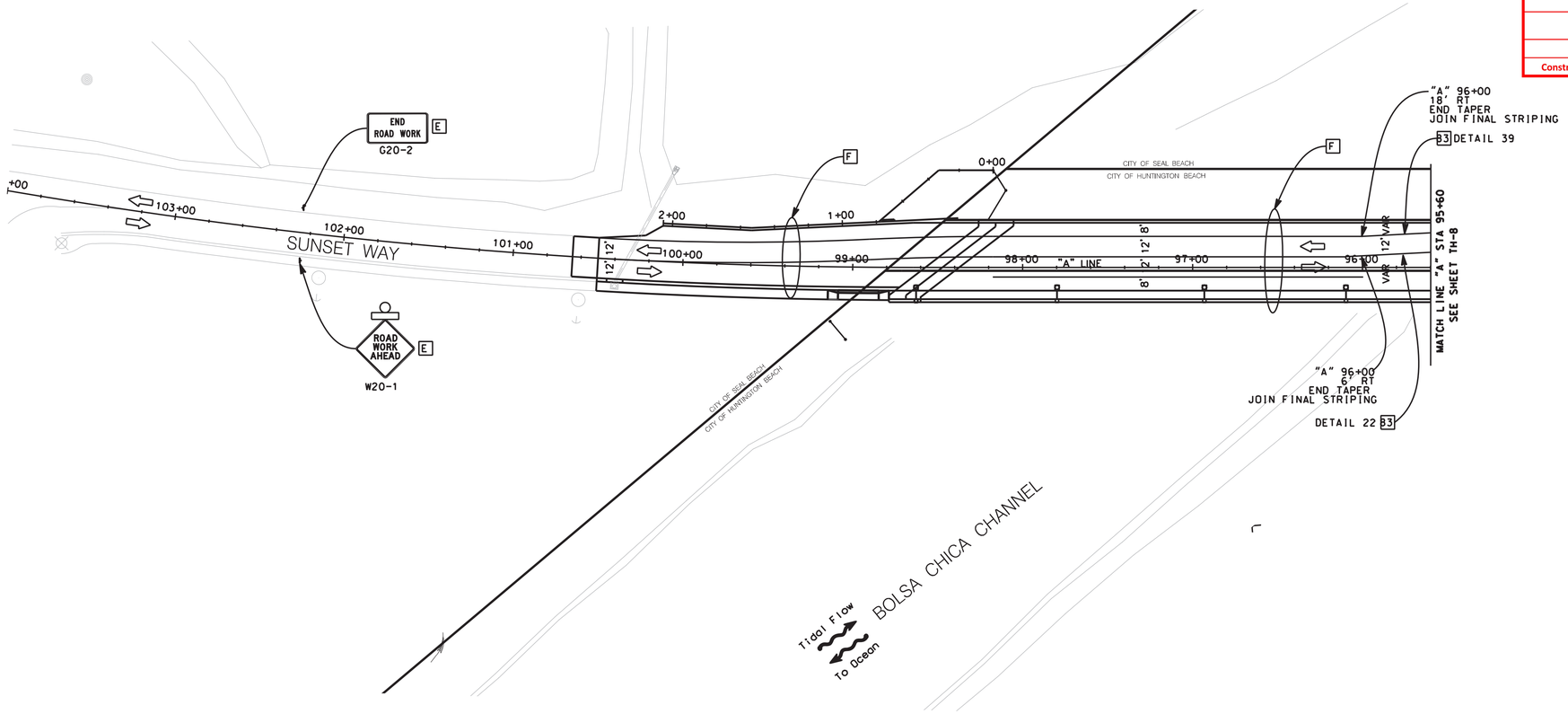
GENERAL NOTES ALL STAGES:

1. REMOVE ALL CONFLICTING STRIPING AND PAVEMENT MARKINGS.
2. SEE BRIDGE PLANS FOR BRIDGE CONSTRUCTION STAGING SEQUENCE.
3. EXISTING SIGNS SHALL BE REMOVED ONLY WHEN REQUIRED DURING STAGE CONSTRUCTION.

LEGEND:

- CONSTRUCTION WORK AREA
- TEMPORARY PAVEMENT THIS STAGE
- TRAFFIC DIRECTION
- TYPE III BARRICADE
- SURFACE MOUNTED CHANNELIZERS
- TEMPORARY CRASH CUSHION
- SIGN PANEL
- TEMPORARY RAILING (TYPE-K)
- TEMPORARY RAILING (TYPE-K) FROM PREVIOUS STAGE
- CITY BOUNDARY
- FLASHING BEACON
- E EXISTING SIGN OR FROM LAST STAGE
- WARNING LIGHT
- TEMPORARY TRAFFIC SIGNAL
- L LIGHT POST MOUNTED
- F FINAL STRIPING

County of Orange	
Public Works	
AS-BUILT	
Contractor:	Kiewit Infrastructure West Company
Resident Engineer:	Elmo Delos Santos (PreScience Corp.)
Senior RE:	Kevin Tran
Inspectors:	Tuan Tran (PreScience Corp.) Kenneth Junio
Construction Start Date:	May 8, 2017
Construction Completion Date:	August 5, 2019



CONSTRUCTION AREA SIGNS

SIGN CODE	PANEL SIZE	SIGN MESSAGE OR PLAQUE
W20-1	36"X36"	ROAD WORK AHEAD
G20-2	36"X18"	END ROAD WORK

0 20 40 80
SCALE: 1" = 40'

100% Submittal

COUNTY OF ORANGE
CALIFORNIA

MARK	DESCRIPTION	DATE	APPR.

PREPARED UNDER THE RESPONSIBLE CHARGE OF:
REGISTERED PROFESSIONAL ENGINEER — GEORGE T. DORE — No. 46595 — CIVIL — STATE OF CALIFORNIA
06/30/17
09/12/16 DATE
GEORGE T. DORE

DESIGNED BY: G. DORE
DRAWN BY: T. HO
CHECKED BY: B. SMITH
DRAWING CODE:
SCALE: AS SHOWN
PLOT DATE: 2/10/2017
FILE NAME: 99901mDOCSmm\sc-Data\Shared\Projects\55C0400-Edinger_Br-#000_CAD#Sheets#33_TH_Traffic Handling_07_20.dgn

COUNTY OF ORANGE
OC PUBLIC WORKS

PREPARED BY:
AECOM
Orange, CA 92868
(714) 567-2501

EDINGER AVE BRIDGE AT
BOLSA CHICA CHANNEL
REPLACEMENT PROJECT
BR. NO. 55C-0400

TRAFFIC HANDLING PLAN STAGE 3

Sheet Reference Number
TH-7

Sheet 33 of 76

FILE NAME :...#33_TH_Traffic Handling_07_20.dgn

AS-BUILT SEPTEMBER 2019

TRAFFIC HANDLING NOTES: STAGE 3:

1. ON EDINGER AVENUE SHIFT TRAFFIC TO NORTH SIDE AND MAINTAIN 1 LANE FOR BOTH DIRECTIONS OF EB AND WB TRAFFIC.
2. INSTALL TEMPORARY TRAFFIC SIGNALS ON BOTH ENDS OF THE BRIDGE
3. MAINTAIN CHANNEL ACCESS ALONG NORTH SIDE OF EDINGER AVENUE.
4. PROVIDE 4' PEDESTRIAN ACCESS ALONG NORTH SIDE OF CONSTRUCTED PORTION OF NEW BRIDGE.
5. MAINTAIN MINIMUM ADA ACCESS CLEARANCES AROUND TEMPORARY SIGNAL EQUIPMENT.

TRAFFIC HANDLING CONSTRUCTION NOTES

81 INSTALL TEMPORARY RAILING (TYPE-K).
82 INSTALL TEMPORARY CRASH CUSHION ARRAY 'TB11'.
83 INSTALL TEMPORARY STRIPING / PAVEMENT MARKINGS.
84 INSTALL TEMPORARY TRAFFIC SIGNAL.
94 INSTALL TYPE-3 BARRICADE.
99 INSTALL TEMPORARY CRASH CUSHION (TYPE ABSORB 350)

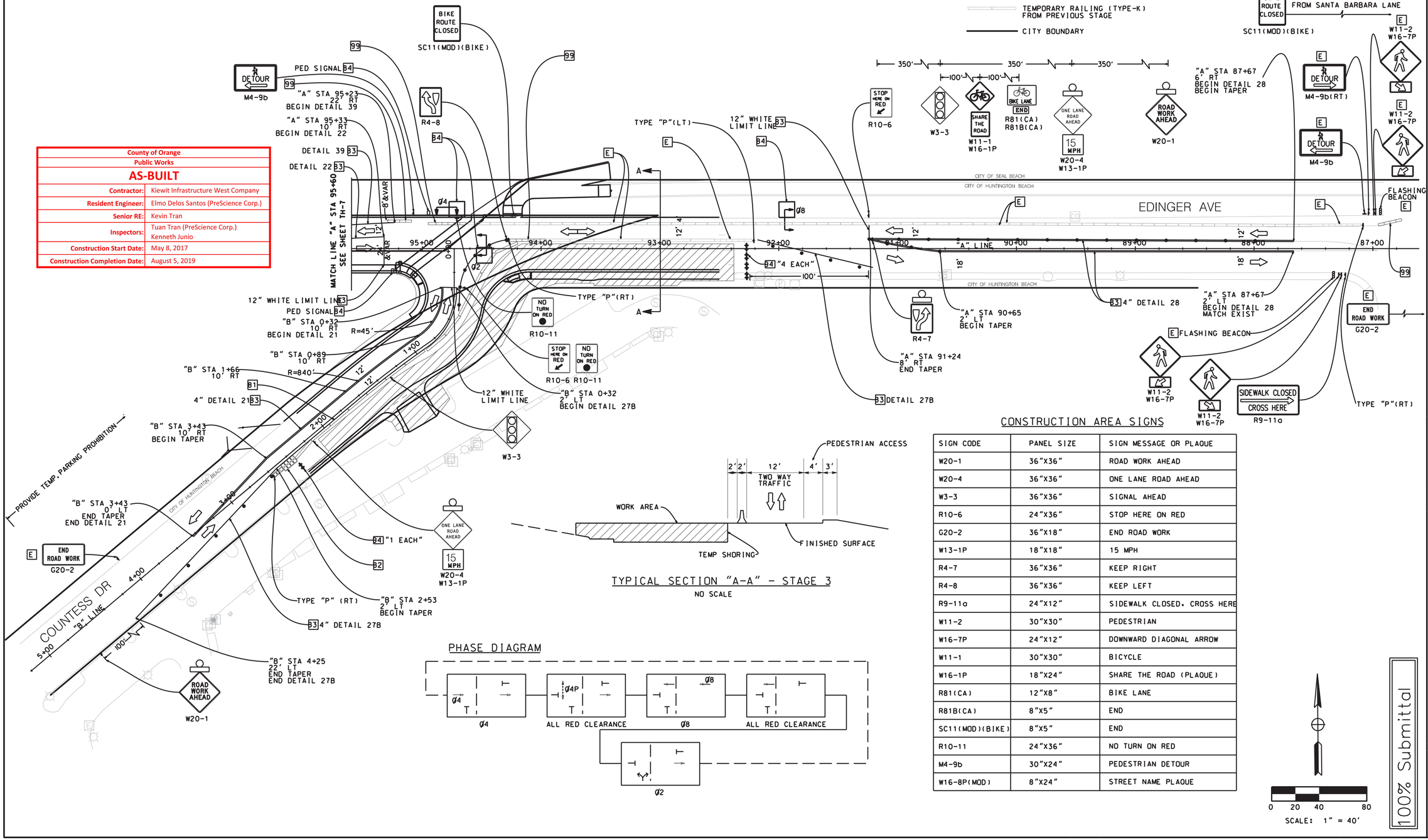
GENERAL NOTES ALL STAGES:

1. REMOVE ALL CONFLICTING STRIPING AND PAVEMENT MARKINGS.
2. SEE BRIDGE PLANS FOR BRIDGE CONSTRUCTION STAGING SEQUENCE.
3. EXISTING SIGNS SHALL BE REMOVED ONLY WHEN REQUIRED DURING STAGE CONSTRUCTION.

LEGEND:

- CONSTRUCTION WORK AREA
- TEMPORARY PAVEMENT THIS STAGE
- TRAFFIC DIRECTION
- TYPE III BARRICADE
- SURFACE MOUNTED CHANNELIZERS
- TEMPORARY CRASH CUSHION
- TRITON TL-2 WATER FILLED BARRIER
- SIGN PANEL
- TEMPORARY RAILING (TYPE-K)
- TEMPORARY RAILING (TYPE-K) FROM PREVIOUS STAGE
- CITY BOUNDARY
- FLASHING BEACON
- E EXISTING SIGN OR FROM LAST STAGE
- WARNING LIGHT
- TEMPORARY TRAFFIC SIGNAL
- WATER FILLED BARRIER FROM PREVIOUS STAGE

County of Orange	
Public Works	
AS-BUILT	
Contractor:	Kiewit Infrastructure West Company
Resident Engineer:	Elmo Delos Santos (PreScience Corp.)
Senior RE:	Kevin Tran
Inspectors:	Tuan Tran (PreScience Corp.) Kenneth Junio
Construction Start Date:	May 8, 2017
Construction Completion Date:	August 5, 2019



TYPICAL SECTION "A-A" - STAGE 3
NO SCALE

PHASE DIAGRAM

CONSTRUCTION AREA SIGNS

SIGN CODE	PANEL SIZE	SIGN MESSAGE OR PLAQUE
W20-1	36"X36"	ROAD WORK AHEAD
W20-4	36"X36"	ONE LANE ROAD AHEAD
W3-3	36"X36"	SIGNAL AHEAD
R10-6	24"X36"	STOP HERE ON RED
G20-2	36"X18"	END ROAD WORK
W13-1P	18"X18"	15 MPH
R4-7	36"X36"	KEEP RIGHT
R4-8	36"X36"	KEEP LEFT
R9-11a	24"X12"	SIDEWALK CLOSED, CROSS HERE
W11-2	30"X30"	PEDESTRIAN
W16-7P	24"X12"	DOWNWARD DIAGONAL ARROW
W11-1	30"X30"	BICYCLE
W16-1P	18"X24"	SHARE THE ROAD (PLAQUE)
R81(CA)	12"X8"	BIKE LANE
R81B(CA)	8"X5"	END
SC11(MOD)(BIKE)	8"X5"	END
R10-11	24"X36"	NO TURN ON RED
M4-9b	30"X24"	PEDESTRIAN DETOUR
W16-8P(MOD)	8"X24"	STREET NAME PLAQUE

100% Submittal

COUNTY OF ORANGE CALIFORNIA

MARK	DESCRIPTION	DATE	APPR.

PREPARED UNDER THE RESPONSIBLE CHARGE OF:
GEORGE T. DORE
REGISTERED PROFESSIONAL ENGINEER — GEORGE T. DORE — No. 48595 — CIVIL — STATE OF CALIFORNIA — EXP. 06/30/17
09/12/16
DATE

EDINGER AVE BRIDGE AT BOLSA CHICA CHANNEL REPLACEMENT PROJECT
BR. NO. 55C-0400
TRAFFIC HANDLING PLAN STAGE 3

Sheet Reference Number
TH-8
Sheet 34 of 76

DESIGNED BY: G. DORE	DRAWN BY: T. HO	CHECKED BY: B. SMITH	DRAWING CODE:	FILE NAME: 9990-wpc15dgn-Edinger_Br-4000_CAD-Sheets-34_TH-Traffic Handling_08_2D.dgn	PLOT DATE: 2/10/2017	SCALE: AS SHOWN

COUNTY OF ORANGE
OC PUBLIC WORKS

PREPARED BY:
AECOM
3990 Westerly Place, Suite 200
Orange, CA 92868
(714) 567-2501

FILE NAME :...*34_TH_Traffic Handling_08_2D.dgn

AS-BUILT SEPTEMBER 2019

County of Orange	
Public Works	
AS-BUILT	
Contractor:	Kiewit Infrastructure West Company
Resident Engineer:	Elmo Delos Santos (PreScience Corp.)
Senior RE:	Kevin Tran
Inspectors:	Tuan Tran (PreScience Corp.) Kenneth Junio
Construction Start Date:	May 8, 2017
Construction Completion Date:	August 5, 2019

SIGNING AND STRIPING NOTES

60 PROTECT EXISTING SIGN IN PLACE
61 REMOVE EXISTING SIGN
62 INSTALL NEW STREET SIGN
63 REMOVE EXISTING STRIPING
64 INSTALL 4" DOUBLE YELLOW STRIPED MEDIAN ISLAND PER CALTRANS STD. PLAN A20B, DETAIL 29
65 INSTALL TYPE IV (R) ARROW PER CITY STD. PLAN 407
66 INSTALL BIKE LANE LINE PER CALTRANS STD. PLAN A20D, DETAIL 39A
67 INSTALL TYPE IV (L) ARROW PER CITY STD. PLAN 407
68 INSTALL BIKE LANE LINE PER CALTRANS STD. PLAN A20D, DETAIL 39
69 INSTALL DOUBLE YELLOW LINE PER CALTRANS STD. PLAN A20A, DETAIL 22
70 INSTALL 12" WHITE STOP BAR PER CALTRANS STD. PLAN A24E
71 INSTALL PAVEMENT MARKING PER CALTRANS STD. PLAN A24D
72 INSTALL BIKE LANE ARROW PER CALTRANS STD. PLAN A24A
73 PAINT CURB RED
75 INSTALL 8" SOLID WHITE LINE PER CALTRANS STD. PLAN A20D, DETAIL 38
76 INSTALL BICYCLIST SYMBOL AND PAVEMENT ARROW PER CITY STD. PLAN 409
77 INSTALL STREET NAME SIGN PER CITY STD. PLAN 401

LEGEND

[L] LIGHT POST MOUNTED

GENERAL NOTES:

1. ALL STRIPING WITHIN CITY OF HUNTINGTON BEACH SHALL BE THERMOPLASTIC.

MATCH LINE "A" STA 96+50
SEE BELOW LEFT

MATCH LINE "A" STA 96+50
SEE ABOVE RIGHT

MATCH LINE "A" STA 91+50
SEE SHEET SS-2

MATCH LINE "B" STA 00+60
SEE SHEET SS-2

SUNSET WAY
EDINGER AVE
"A" LINE
CITY OF SEAL BEACH
CITY OF HUNTINGTON BEACH
BOLSA CHICA CHANNEL
Tidal Flow
To Ocean
"A" STA 100+50 EC, JOIN EXIST
"A" STA 98+37.33 END BRIDGE
"A" STA 98+17.79 6.3' RT, BC
"A" STA 98+89.93 4.5' RT, PRC
"A" STA 95+00.01 BEGIN BRIDGE
"A" STA 94+73.18 = "B" STA 0+00.00
"B" STA 00+29.05 25.93' LT BEGIN PAINTED CURB
"A" STA 94+09 19.67' LT END PAINTED CURB
"A" STA 94+16.00 26.33' RT END PAINTED CURB
"A" STA 93+69 19.67' LT BEGIN PAINTED CURB
"A" STA 94+09.12 6.3' RT, END TAPER
"A" STA 92+50.00 26.33' RT BEG PAINTED CURB
"B" STA 00+27.21 40.72' LT, BEGIN PAINTED CURB
EXISTING RED CURB
270' TAPER
Channelizers mounted behind curb

SCALE: 1" = 20'

PREPARED UNDER THE RESPONSIBLE CHARGE OF:
GEORGE T. DORE
REGISTERED PROFESSIONAL ENGINEER — GEORGE T. DORE — No. 46585 — REG. EXP. 06/30/17 — CIVIL — STATE OF CALIFORNIA
09/12/16 DATE

MARK	DESCRIPTION	DATE	APPR.

COUNTY OF ORANGE
OC PUBLIC WORKS

PREPARED BY:
AECOM
999 W. Town & Country Road
Orange, CA 92868
(714) 567-2501

DESIGNED BY: G. DORE
DRAWN BY: T. HO
CHECKED BY: B. SMITH
DRAWING CODE:
FILE NAME: $FILE
PLOT DATE: 11/5/2018
SCALE: AS SHOWN

EDINGER AVE BRIDGE AT BOLSA CHICA CHANNEL REPLACEMENT PROJECT
BR. NO. 55C-0400

SIGNING AND STRIPING "A" LINE

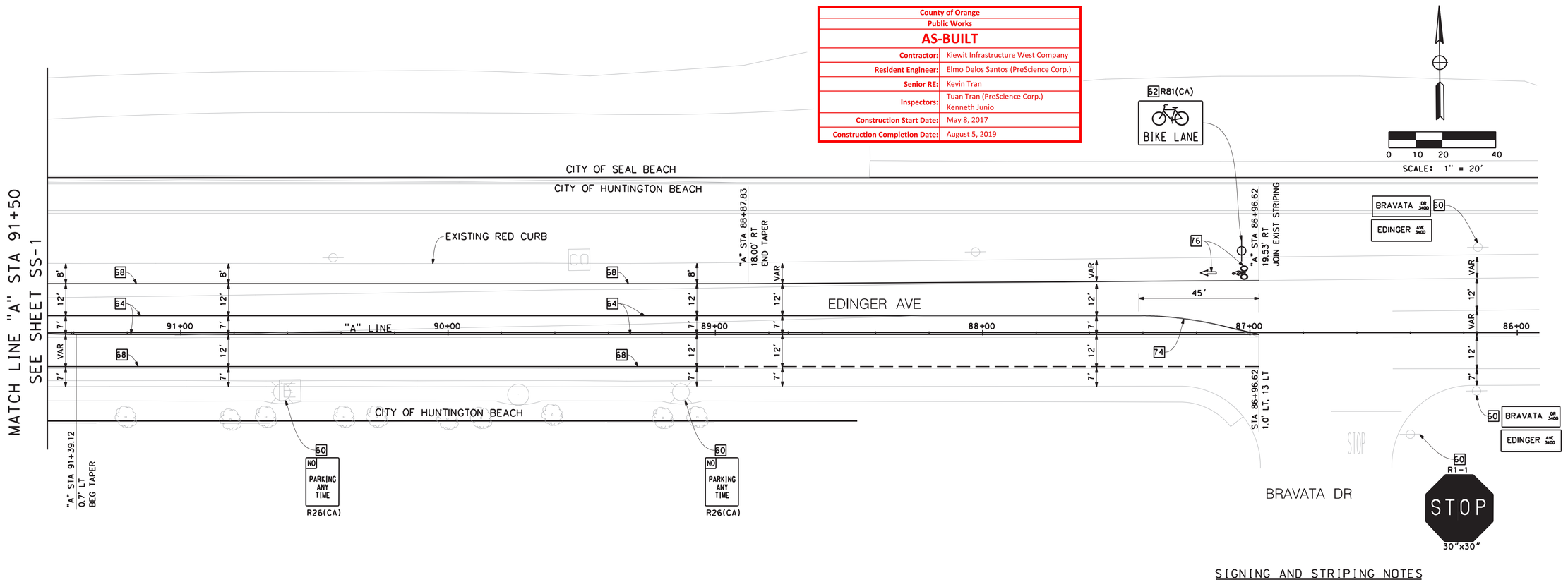
Sheet Reference Number
SS-1

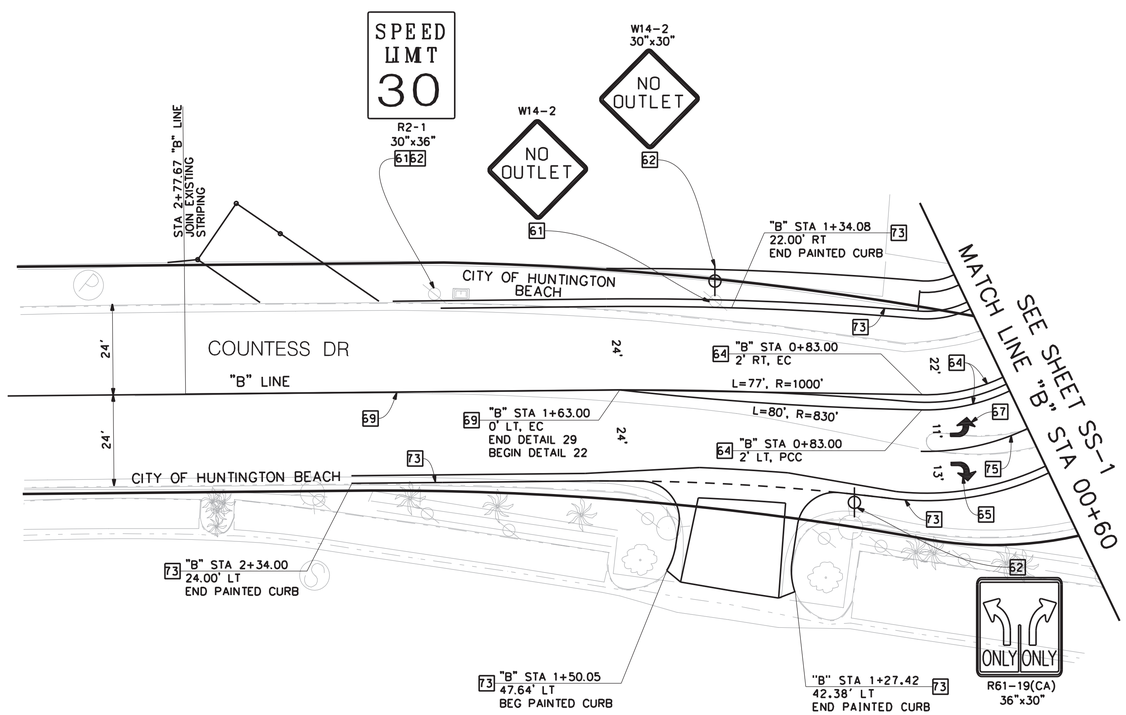
Sheet 35 of 76

FILE NAME :$REQUEST

AS-BUILT SEPTEMBER 2019

County of Orange	
Public Works	
AS-BUILT	
Contractor:	Kiewit Infrastructure West Company
Resident Engineer:	Elmo Delos Santos (PreScience Corp.)
Senior RE:	Kevin Tran
Inspectors:	Tuan Tran (PreScience Corp.) Kenneth Junio
Construction Start Date:	May 8, 2017
Construction Completion Date:	August 5, 2019





SIGNING AND STRIPING NOTES

60 PROTECT EXISTING SIGN IN PLACE
61 REMOVE EXISTING SIGN
62 INSTALL NEW STREET SIGN
63 REMOVE EXISTING STRIPING
64 INSTALL 4" DOUBLE YELLOW STRIPED MEDIAN ISLAND PER CALTRANS STD. PLAN A20B. DETAIL 29
65 INSTALL TYPE IV (R) ARROW PER CITY STD. PLAN 407
67 INSTALL TYPE IV (L) ARROW PER CITY STD. PLAN 407
68 INSTALL BIKE LANE LINE PER CALTRANS STD. PLAN A20D. DETAIL 39
69 INSTALL DOUBLE YELLOW LINE PER CALTRANS STD. PLAN A20A. DETAIL 22
71 INSTALL PAVEMENT MARKING PER CALTRANS STD. PLAN A24D
72 INSTALL BIKE LANE ARROW PER CALTRANS STD. PLAN A24A
73 PAINT CURB RED
74 INSTALL MEDIAN FLARE PER OCPW STD. PLAN 141-2-OC
75 INSTALL 8" SOLID WHITE LINE PER CALTRANS STD. PLAN A20D. DETAIL 38
76 INSTALL BICYCLIST SYMBOL AND PAVEMENT ARROW PER CITY STD. PLAN 409

LEGEND

L LIGHT POST MOUNTED

GENERAL NOTES:

1. ALL STRIPING WITHIN CITY OF HUNTINGTON BEACH SHALL BE THERMOPLASTIC.

0 10 20 40
SCALE: 1" = 20'

MARK	DESCRIPTION	DATE	APPR.

PREPARED UNDER THE RESPONSIBLE CHARGE OF:
GEORGE T. DORE
No. 48595 REG. 06/30/17 CIVIL
REGISTERED PROFESSIONAL ENGINEER IN THE STATE OF CALIFORNIA
09/12/16
DATE
GEORGE T. DORE

DESIGNED BY: G. DORE
DRAWN BY: T. HO
CHECKED BY: B. SMITH
DRAWING CODE:
FILE NAME: $FILE
PLOT DATE: 11/15/2016
SCALE: AS SHOWN

COUNTY OF ORANGE
OC PUBLIC WORKS

PREPARED BY:
AECOM
999 W. Town & Country Road
Orange, CA 92868
(714) 567-2501

EDINGER AVE BRIDGE AT BOLSA CHICA CHANNEL REPLACEMENT PROJECT
BR. NO. 55C-0400

SIGNING AND STRIPING "A" & "B" LINE

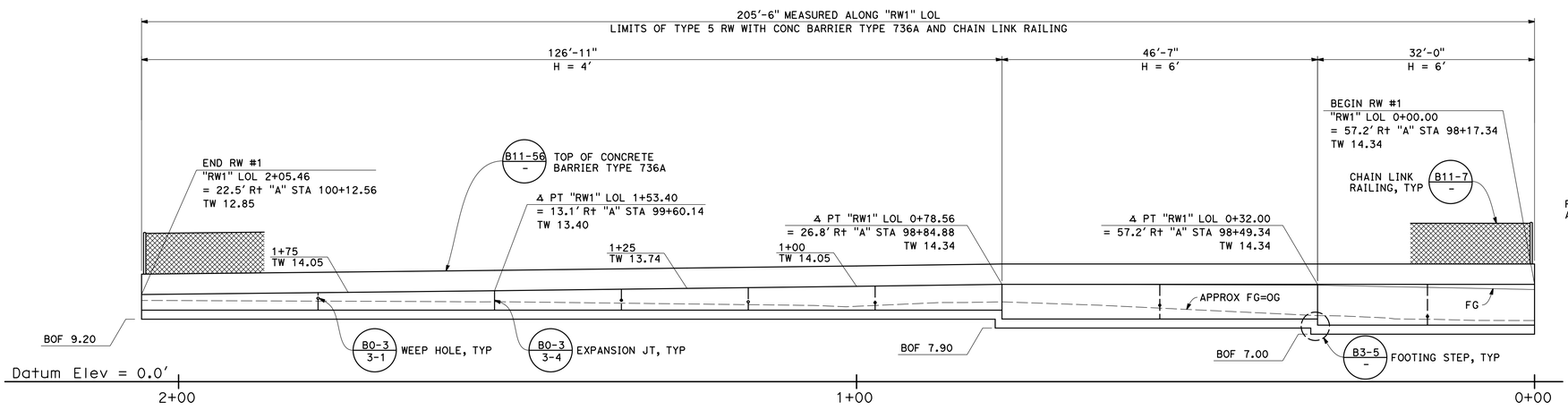
Sheet Reference Number
SS-2

Sheet 36 of 76

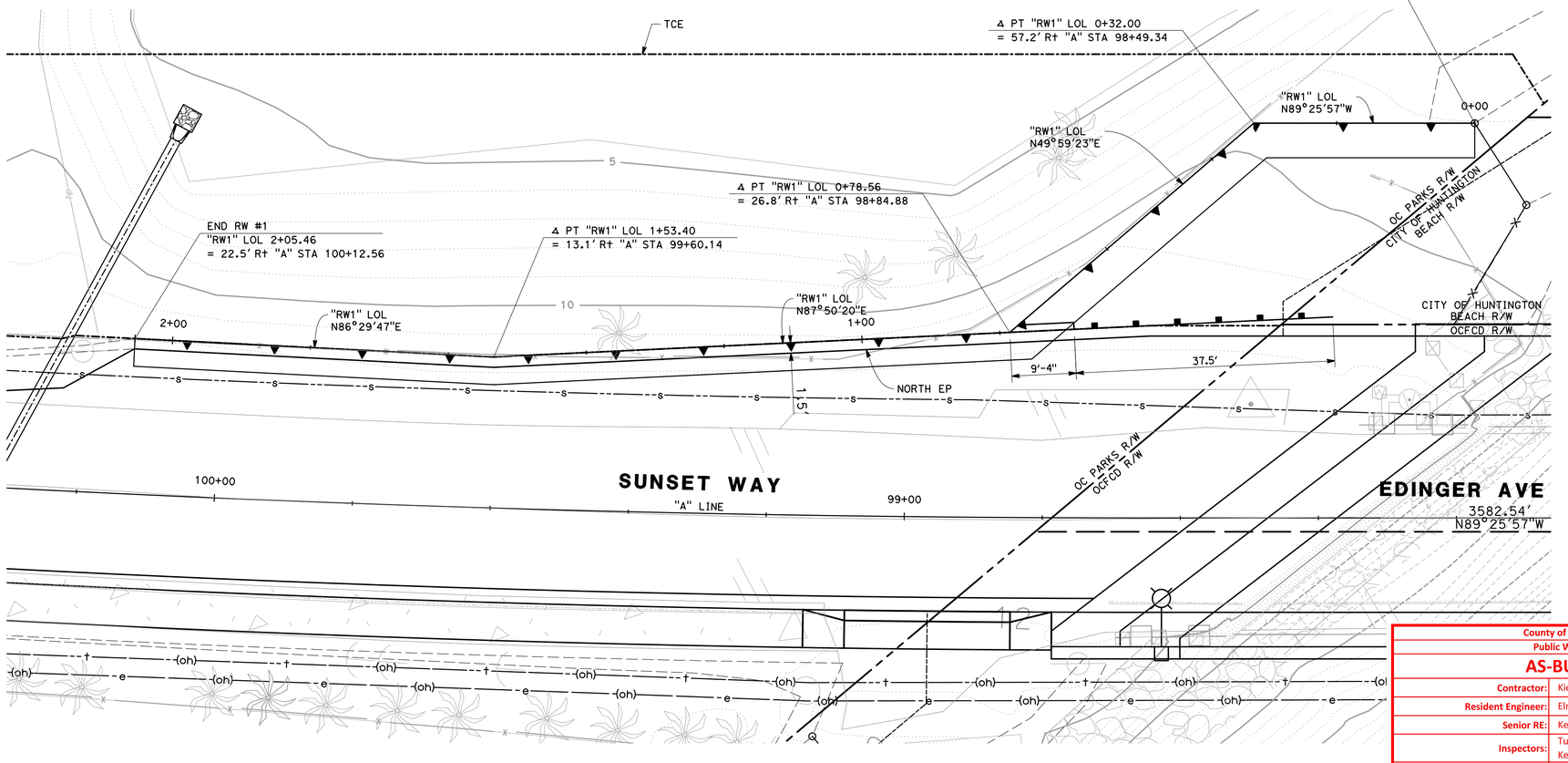
FILE NAME :$REQUEST

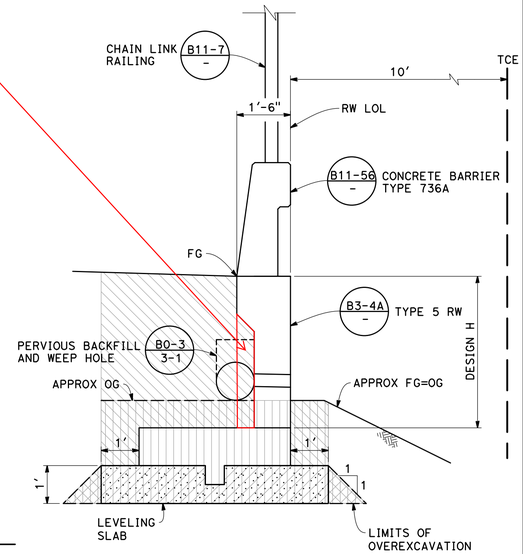
AS-BUILT SEPTEMBER 2019

RFI 048: Fill in RW haunch with concrete and move pervious backfill and weep hole back.



MIRRORED DEVELOPED ELEVATION
1"=10'





TYPICAL SECTION
NO SCALE

NOTE: ALL MILD REINFORCEMENT IN RW-1 SHALL BE PREFABRICATED EPOXY COATED WITH PURPLE COATING.

LEGEND

BOF	BOTTOM OF FOOTING
TW	TOP OF WALL
	RIGHT-OF-WAY
	RETAINING WALL
	EASEMENT
	TEMPORARY CONSTRUCTION EASEMENT

CALTRANS STANDARD PLAN SHEET NO.
DETAIL NO.

LIMITS OF STRUCTURE OVER EXCAVATION FOR RETAINING WALL

PAY LIMITS OF STRUCTURE EXCAVATION (RETAINING WALL) (TYPE D)

LEVELING SLAB

PAY LIMITS OF STRUCTURE BACKFILL (RETAINING WALL)

0 5 10 20
SCALE: 1" = 10'

County of Orange Public Works	
AS-BUILT	
Contractor:	Kiewit Infrastructure West Company
Resident Engineer:	Elmo Delos Santos (PreScience Corp.)
Senior RE:	Kevin Tran
Inspectors:	Tuan Tran (PreScience Corp.) Kenneth Junio
Construction Start Date:	May 8, 2017
Construction Completion Date:	August 5, 2019

COUNTY OF ORANGE CALIFORNIA

MARK	DESCRIPTION	DATE	APPR.

PREPARED UNDER THE RESPONSIBLE CHARGE OF:
CHUANCHE TING No. 78632 Exp. 9/30/17 CIVIL STATE OF CALIFORNIA REGISTERED PROFESSIONAL ENGINEER
09/12/16 DATE
CHUANCHE TING

DESIGNED BY: J. YAP
DRAWN BY: J. YAP
CHECKED BY: B. SMITH
DRAWING CODE:
FILE NAME: #FILE
PLOT DATE: 9/15/2016
SCALE: AS SHOWN

COUNTY OF ORANGE
OC PUBLIC WORKS

PREPARED BY:
AECOM
999 W. Town & Country Road
Orange, CA 92868
(714) 567-2501

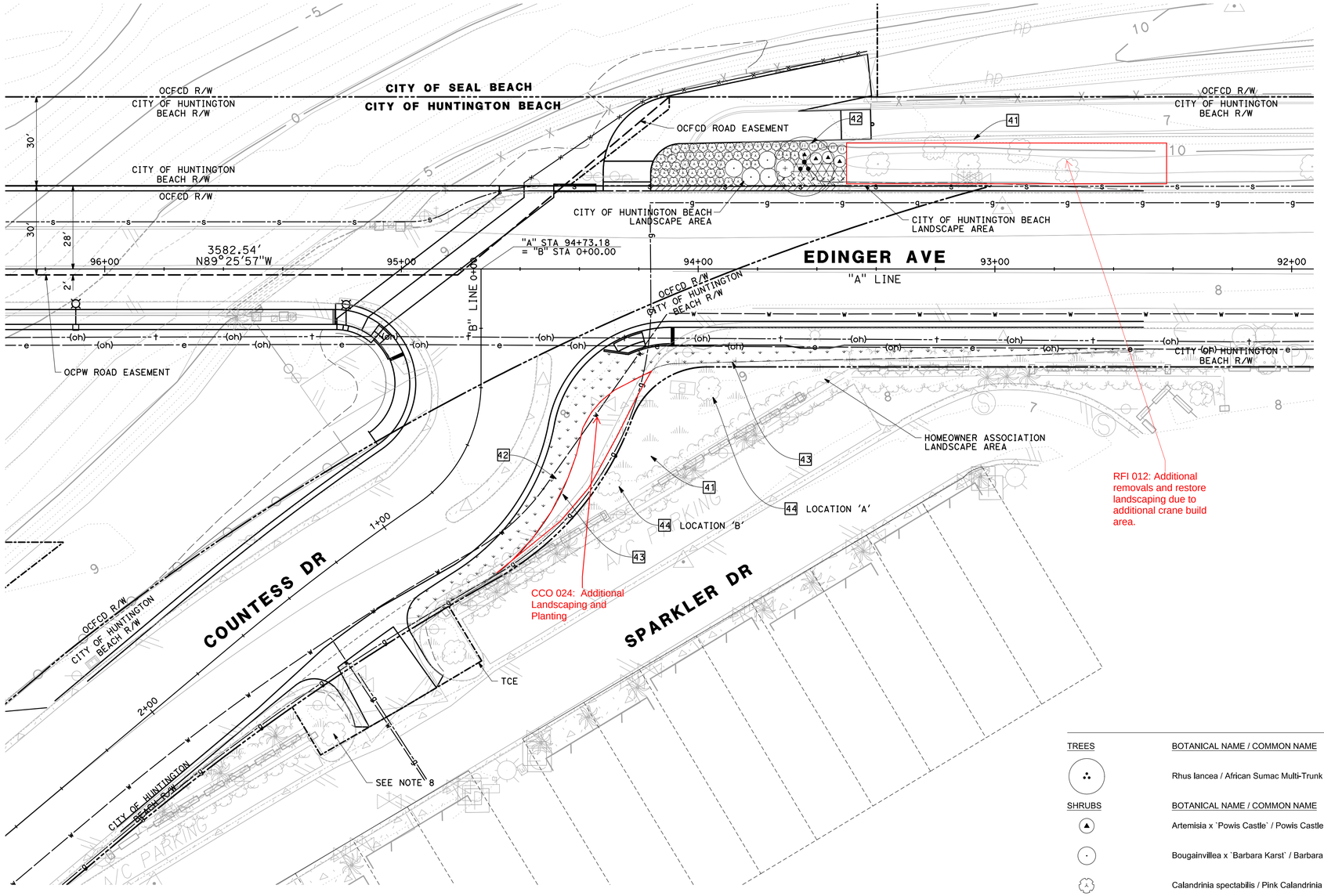
EDINGER AVE BRIDGE AT BOLSA CHICA CHANNEL
REPLACEMENT PROJECT
BR. NO. 55C-0400

RETAINING WALL NO. 1 LAYOUT

Sheet Reference Number
RW-1

FILE NAME = \\usonti1fs001\tran_prod\Projects\60216352-Edinger_BR\000_CAD\006_Civil\Sheets\37_RW_Retaining Wall_01.dgn

AS-BUILT SEPTEMBER 2019



0 10 20 40
SCALE: 1" = 20'

CONSTRUCTION NOTES

41 PROTECT EXISTING LANDSCAPING AND IRRIGATION SYSTEM IN PLACE
42 PROPOSED NEW LANDSCAPE AND IRRIGATION SYSTEM
43 LIMIT OF NEW CONSTRUCTION
44 PROTECT EXISTING ERYTHRINA CAFFRA TREES

LEGEND

RIGHT-OF-WAY
ROAD EASEMENT

LANDSCAPING/IRRIGATON NOTES:

1. CONTRACTOR SHALL PROTECT EXISTING ERYTHRINA CAFFRA (CORAL TREE) AT LOCATION "A" AND "B" IN PLACE DURING CONSTRUCTION ACTIVITIES. CONTRACTOR SHALL INSTALL A PROTECTIVE 3' HIGH FENCE AT AN APPROXIMATE 10' RADIUS AROUND TREES TO PROTECT TREE'S DRIP LINE FROM GRADING DISTURBANCE.
2. CONTRACTOR TO LOCATE AND TEST EXISTING IRRIGATION BACKFLOW DEVICE AND PROVIDE RECERTIFICATION TO ENSURE PROPER WATER LINE PROTECTION PRIOR TO START OF ADDITIONAL IRRIGATION MODIFICATIONS AND/OR REPLACEMENT.
3. CONTRACTOR SHALL FINE GRADE ALL LANDSCAPE AREAS DISTURBED DURING CONSTRUCTION ACTIVITIES AND ADD SOIL AMENDMENTS AND SODDED TURF AS NECESSARY TO MATCH EXISTING LANDSCAPING.
4. CONTRACTOR TO LOCATE AND VERIFY EXISTING WATER SUPPLIES AND IRRIGATION CONTROLLERS AND PERFORM SYSTEM CHECK AND TEST PRIOR TO CONSTRUCTION. CONTRACTOR TO NOTIFY PROJECT LANDSCAPE ARCHITECT IN WRITING IF ANY DEFICIENCIES ARE NOTED.
5. CONTRACTOR SHALL REPAIR EXISTING IRRIGATION SYSTEMS THAT HAS BEEN REMOVED OR DAMAGED DURING CONSTRUCTION OPERATIONS AND REPLACE IN KIND WITH SIMILAR IRRIGATION COMPONENTS TO PROVIDE A FULLY FUNCTIONAL AUTOMATIC IRRIGATION SYSTEM. SYSTEM MUST PROVIDE HEAD-TO-HEAD IRRIGATION COVERAGE AND MEET LOCAL CITY REQUIREMENTS.
6. CONTRACTOR TO VERIFY EXISTING IRRIGATION SYSTEM POINT OF CONNECTION, AVAILABLE WATER PRESSURE AND BACK FLOW DEVICE PRIOR TO CONSTRUCTION. CONTRACTOR TO MODIFY AND EXTEND IRRIGATION SYSTEM TO COVER NEW PROPOSED LANDSCAPING.
7. CONTRACTOR TO INSTALL (2)NEW 1" IRRIGATION REMOTE CONTROL VALVES, IRRIGATION SPRAY HEADS, AND IRRIGATION CONTROL WIRES TO MODIFY EXISTING IRRIGATION SYSTEM TO INCLUDE NEW PROPOSD LANDSCAPING. MODIFIED IRRIGATION SYSTEM TO PROVIDE FULLY AUTOMATIC IRRIGATION SYSTEM WITH 100% COVERAGE TO ENSURE PROPER PLANT ESTABLISHMENT.
8. CONTRACTOR TO PROTECT EXISTING LANDSCAPING/IRRIGATION IN PLACE DURING CONSTRUCTION ACTIVITIES. ANY LANDSCAPE, TREES, PALM TREES, VINES, AND/OR IRRIGATION DISTURBED OR DAMAGED SHALL BE REMOVED AND REPLACED IN KIND AND SIZE.
9. CONTRACTOR TO PROVIDE A 90 DAY MAINTENANCE PERIOD.

TREES	BOTANICAL NAME / COMMON NAME	CONT	QTY	REMARKS
	Rhus lancea / African Sumac Multi-Trunk	5 gal	1	
SHRUBS	**BOTANICAL NAME / COMMON NAME**	**SIZE**	**QTY**	**REMARKS**
	Artemisia x `Powis Castle` / Powis Castle Artemisia	1 gal	4	
	Bougainvillea x `Barbara Karst` / Barbara Karst Bougainvillea	1 gal	4	
	Calandrinia spectabilis / Pink Calandrinia	1 gal	57	
	Echium fastuosum / Pride Of Madeira	1 gal	1	
	Erigeron karvinskianus / Fleabane	1 gal	5	

GROUND COVERS	BOTANICAL NAME / COMMON NAME	CONT	SPACING	QTY	REMARKS
	Cotoneaster dammeri / Bearberry Cotoneaster	flat	24" o.c.	21	
	Myoporum parvifolium / Trailing Myoporum	flat	24" o.c.	501	
	Rosmarinus officinalis `Prostratus` / Dwarf Rosemary	flat	24" o.c.	1	

MULCH	BOTANICAL NAME / COMMON NAME	CONT	SPACING	QTY	REMARKS
	EWF (ENGINEERED WOOD FIBER) 3`` Thick	flat		107 sf	till and prep soil to 18" depth

County of Orange	
Public Works	
AS-BUILT	
Contractor:	Kiewit Infrastructure West Company
Resident Engineer:	Elmo Delos Santos (PreScience Corp.)
Senior RE:	Kevin Tran
Inspectors:	Tuan Tran (PreScience Corp.) Kenneth Junio
Construction Start Date:	May 8, 2017
Construction Completion Date:	August 5, 2019

COUNTY OF ORANGE CALIFORNIA

MARK	DESCRIPTION	DATE	APPR.

PREPARED UNDER THE RESPONSIBLE CHARGE OF:
HARRY CLARKE
REGISTERED LANDSCAPE ARCHITECT HARRY CLARKE No. 3911 Exp. 1/30/17 STATE OF CALIFORNIA
09/12/16 DATE

DESIGNED BY: J. YAP
DRAWN BY: J. YAP
CHECKED BY: B. SMITH
DRAWING CODE:
FILE NAME: #FILE
PLOT DATE: 9/16/2016
SCALE: AS SHOWN

COUNTY OF ORANGE
OC PUBLIC WORKS

PREPARED BY:
AECOM
999 W. Town & Country Road
Orange, CA 92868
(714) 567-2501

EDINGER AVE BRIDGE AT BOLSA CHICA CHANNEL REPLACEMENT PROJECT
BR. NO. 55C-0400

LANDSCAPE PRESERVATION PLAN

Sheet Reference Number
LS-1

Sheet 38 of 76

FILE NAME = \\usonti1fs001\tran_prod\Projects\60216352-Edinger_BR\000_CAD\006_Civil\Sheets\38_LS_Landscape_01.dgn

AS-BUILT SEPTEMBER 2019

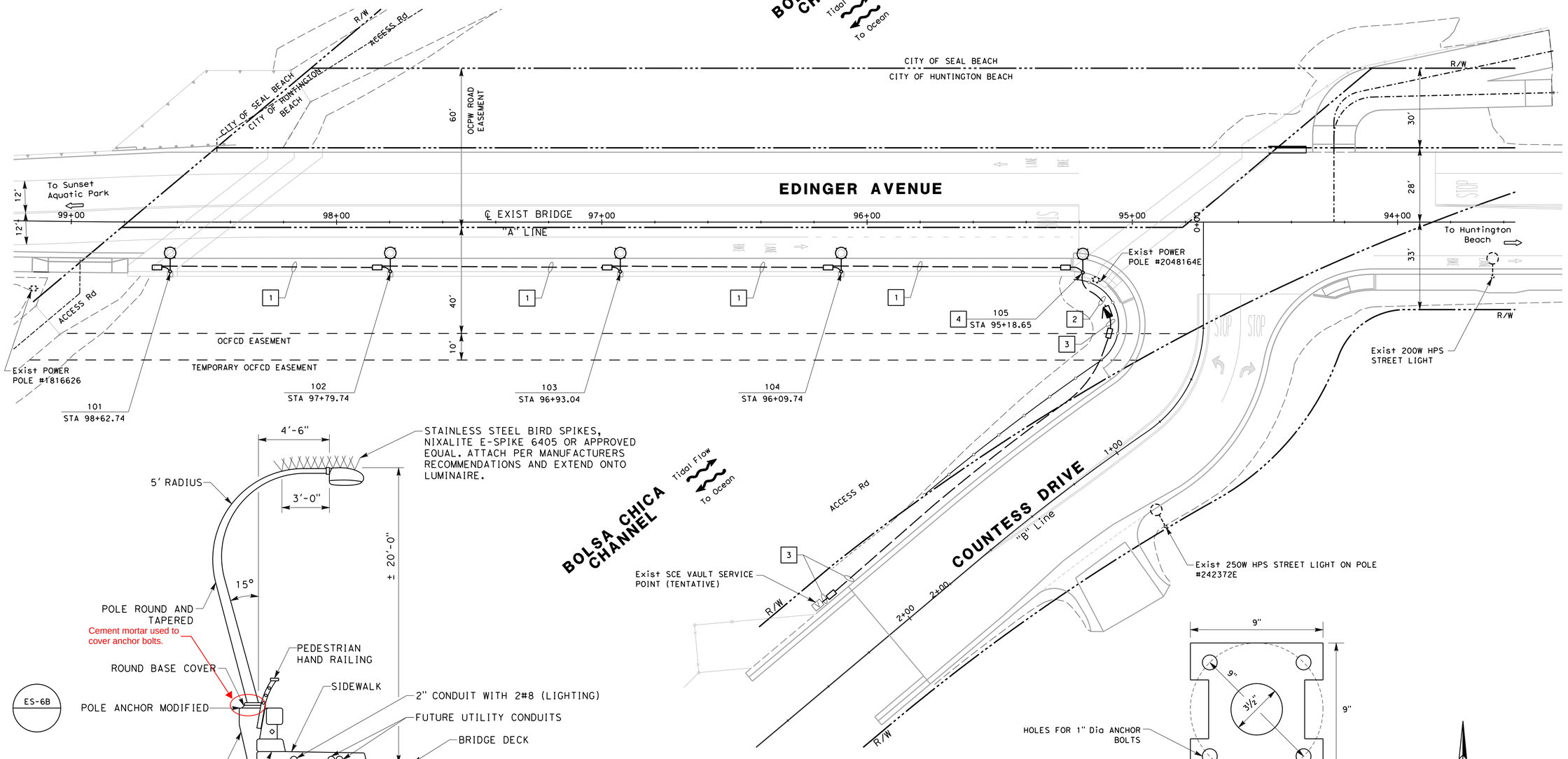
LEGEND:

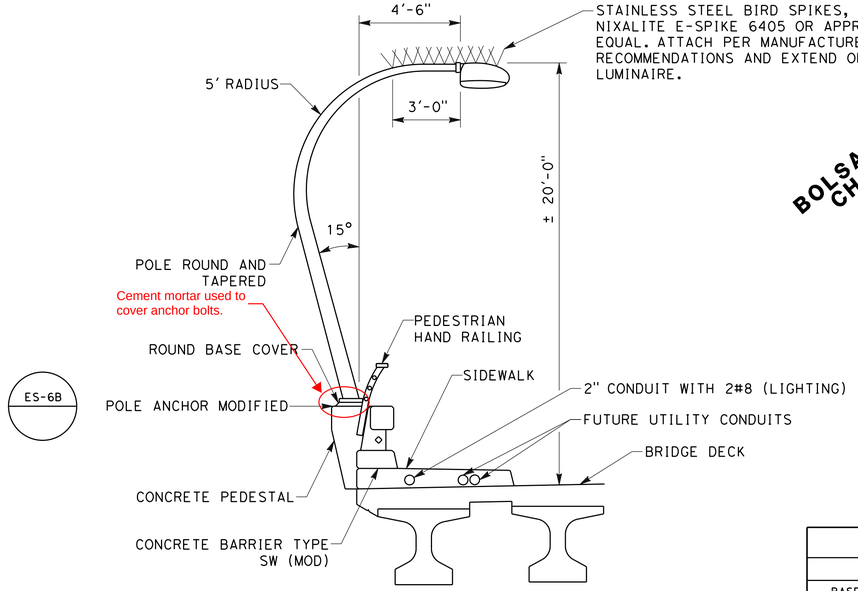
- INSTALL 100W HPS DECORATIVE LIGHTING
- INSTALL 120/240 V TYPE III-BF SERVICE EQUIPMENT ENCLOSURE
  - 100A, 240V, 2P CB MAIN
  - 40A, 240V, 2P CB LIGHTING
  - 15A, 120V, 1P CB LIGHTING CONTROL
- No. 5 PULL BOX (UNLESS NOTED OTHERWISE)
- EXISTING ELECTROLIER

County of Orange	
Public Works	
AS-BUILT	
Contractor:	Kiewit Infrastructure West Company
Resident Engineer:	Elmo Delos Santos (PreScience Corp.)
Senior RE:	Kevin Tran
Inspectors:	Tuan Tran (PreScience Corp.) Kenneth Junio
Construction Start Date:	May 8, 2017
Construction Completion Date:	August 5, 2019

CONSTRUCTION NOTES:

1. INSTALL 2" CONDUIT IN SIDEWALK WITH 2#8 FOR LIGHTING.
2. INSTALL 2" CONDUIT WITH 2#8 FOR LIGHTING.
3. INSTALL 3" CONDUIT. SCE TO INSTALL CONDUCTORS.
4. CONDUIT INSTALLATION INTO STRUCTURE PER CALTRANS STANDARD PLAN ES-9B, DETAIL XY.

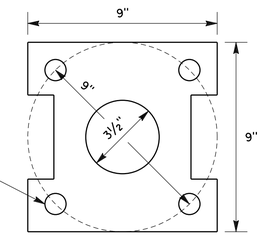




BRIDGE ELECTROLIER DETAIL (TYP)

NOT TO SCALE

POLE DATA			BASE PLATE			
Min OD		WALL THICKNESS	BOLT CIRCLE	THICKNESS	C	ANCHOR BOLT SIZE
BASE	TOP					
5.5"	2.38"	0.18"	9"	0.875"	11"	1" Dia



MODIFIED ANCHOR PLATE

NOT TO SCALE

ES-6B

NOTE:
FOR INFORMATION NOT SHOWN, SEE CALTRANS STD PLAN ES-6B

0 10 20 40
SCALE: 1" = 20'

COUNTY OF ORANGE CALIFORNIA

MARK	DESCRIPTION	DATE	APPR.

PREPARED UNDER THE RESPONSIBLE CHARGE OF:
GARY HANSEN
DATE 9/16/2016

REGISTERED PROFESSIONAL ENGINEER GARY HANSEN No. 26543 Exp. 3/31/18 CIVIL STATE OF CALIFORNIA

DESIGNED BY: GARY HANSEN
DRAWN BY: RYAN WALBERT
CHECKED BY: GARY HANSEN
DRAWING CODE:
FILE NAME: 39_9375E01.dgn
PLOT DATE: 9/16/2016
SCALE: 1" = 20'

COUNTY OF ORANGE
OC PUBLIC WORKS

PREPARED BY:
LIN CONSULTING, INC.
1432 Edinger Avenue, #230
Tustin, CA 92780-6293
(714) 258-8411

EDINGER AVE BRIDGE AT
BOLSA CHICA CHANNEL
REPLACEMENT PROJECT
BR. NO. 55C-0400

BRIDGE LIGHTING

Sheet Reference Number

E-01

Sheet 39 of 76

FILE NAME : 39_9375E01.dgn

AS-BUILT SEPTEMBER 2019

SCE Electrical Plans at Countess

County of Orange	
Public Works	
AS-BUILT	
Contractor:	Kiewit Infrastructure West Company
Resident Engineer:	Elmo Delos Santos (PreScience Corp.)
Senior RE:	Kevin Tran
Inspectors:	Tuan Tran (PreScience Corp.) Kenneth Junio
Construction Start Date:	May 8, 2017
Construction Completion Date:	August 5, 2019

CONSTRUCTION NOTES:

Unless otherwise specified on the working drawing which forms a part of the specification, the Contractor/Developer shall furnish the following items at no cost to the Edison Company.

Southern California Edison Company has attempted to correctly show all existing utilities and substructures in the vicinity of the work, but does not guarantee there are no other substructures in the area. Failure of SCE to show all substructures in their correct location will not be a basis for a claim for extra work, and the contractor shall be responsible for all damages to substructures whether shown or not.

1. FOR GENERAL SPECIFICATIONS SEE UGS GI 001.

2. CONDUIT:
   a. Minimum cover in street or parkway is 30" below gutter grade, unless noted otherwise.
   b. Minimum cover on private property is 30" below finished grade, unless noted otherwise.
   c. Contractor is to furnish and install approved conduit to Edison specifications per UGS CD 100.1, 110 AND 120.
   d. For the type of conduit for this job, See UGS CD 110.1.
   e. Install all risers per UGS CD 160, 161, 162 and 170.
   f. Cap all mainline conduits per UGS CD 148 and service conduits per UGS CD 150.
   g. Install blank conduit plugs in all conduits terminating into Vaults, Manhole's, PMH's, SOE's & all cap locations, per UGS CD 180.1 & UGS CD 180.2
   h. Install pull rope in all conduit runs. Pull rope to be at least 3/8" polypropylene rope, braided or twisted. For specifications, approved makes, and suppliers, see UGS GI 040.
   i. All conduit must be mandrelled with the approved mandrel UGS CD 197.

3. CONDUIT RADIUS REQUIREMENTS:
   a: The minimum radius for bends are:
      36" for conduits 3" in diameter or smaller
      48" for conduits 4" and 5" in diameter
      60" for 6" diameter conduit
   b: The minimum radius for all sweeps of all mainline conduits is 12'-6" (unless noted otherwise).

4. EXCAVATION AND BACKFILL:
   a. Work area shall be cleared and rough graded to within four inches of final grade prior to installation of Edison conduit or structures.
   b. All excavations shall be in accordance with the California State Construction Safety Orders (when applicable), Edison specifications, and all governing local ordinances.
   c. Each trench to be a uniform depth below final grade prior to installation of Edison conduit or structures.
   d. Backfill shall be provided by the Contractor for all excavations and shall include crushed rock, concrete, and/or imported backfill, when required.
   e. Backfill with a MINIMUM of one sack per yard sand cement slurry around and over vaults and manholes per UGS GI 030, section 6.4 and around PMH's within one foot of finished grade, per UGS SS 590.1.
   f. Backfill, per Edison specifications, shall immediately follow conduit or substructure installation. At no time shall conduit be left exposed over 24 hours.
   g. No rocks are allowed within 12 inches of direct-buried cables or any conduit without concrete encasement. Native backfill capable of passing through a one-half inch mesh screen shall be considered to be "rock free". If existing backfill does not pass through a 1/2" screen, place imported sand 3" below and 12" above Edison cables. After this point, no rocks larger than 12" diameter are permitted.
   h. All backfill shall be compacted to meet or exceed local ordinances or other requirements. It shall be placed in a manner that will not damage the conduit or substructure or allow future subsidence of the trench or structures.

5. PAVING:
   Repaving, where required, shall be placed in such a manner that interference with traffic, including pedestrian traffic, will be kept to a minimum. The Contractor shall establish a program of repaving acceptable to the Municipality, County, or other authority having jurisdiction and which is acceptable to Edison.

6. STRUCTURES:
   a. All substructures shall be constructed or installed to Edison specifications.
   b. Install protection barriers per UGS MS 830 when required in areas exposed to traffic, per Edison Inspector.
   c. All conduit lines and concrete floored substructures shall be water tight.
   d. All grounding materials shall be furnished and installed by the Contractor.

7. RETAINING WALLS:
   When required, retaining walls shall be provided by the Developer. Walls are required wherever grade rises more than 18 inches above the structure or 24" above the pad surface at a distance of 5 feet from the same, or in areas subject to erosion. Design and installation must comply with local building ordinances. Refer to Edison Inspector for typical space requirements.

8. PERMITS:
   All permits necessary for excavation shall be provided by the Contractor/Developer.

9. ACCESS:
   Heavy truck access shall be maintained to equipment locations. Structures must be clear of all appurtenances that would obstruct the loading or unloading of equipment.

10. SERVICES:
    a. Meters and services shall comply with Edison Electrical Services Requirements.
    b. Wiring must be in accordance with applicable local ordinances and approved by local Inspection Authorities.

11. LOCATION:
    a. The location of excavations and structures for Edison shall be as shown on the working drawing. No deviation from the planned locations will be permitted unless approved by the Edison Inspector. See UGS GI 001, section 2.2.
    b. Actual location of obstructions, storm drains, and/or other foreign utilities to be the responsibility of the Contractor. See UGS GI 001, section 2.3.

12. Contractor is to verify location and widths of all sidewalks and driveways prior to street light installation. See UGS CD 175.1, UGS CD 175.2 and UGS CD 175.3.

13. SURVEY:
    Surveying of street improvements, property corners, lot lines, finished grade, etc., necessary for the installation of underground facilities must be completed and markers or stakes placed prior to the start of the installation. In addition, Developer shall maintain the markers during the installation and inspection by Edison. Grade and property line stakes must show any offset measurements.

14. COORDINATION AND SUPERVISION:
    The Developer shall provide supervision over and coordination among the various contractors working within the development in order to prevent damage to Edison facilities. He is responsible for the cost of repairs, replacement, relocation, or other corrections to Edison facilities made necessary by his failure to provide supervision or to otherwise comply with these specifications.

15. TELEPHONE AND OTHER UTILITY REQUIREMENTS:
    The drawing prepared for this job may also cover the facilities to be installed for the telephone company and/or other utility. Any questions concerning details of their installation should be referred to the company concerned.

16. OWNERSHIP:
    Developer is to deed to the Edison Company all structures shown hereon except those shown as customer owned.

17. WARRANTY:
    Applicants expressly represent and warrant that all work performed and all material used in meeting Applicants' obligations herein are free from defects in workmanship and are in conformity with Southern California Edison Company's requirements. This warranty shall commence upon receipt by Applicants of Company's final acceptance and shall expire one year from that date. Applicants agree to promptly correct to the Company's satisfaction and that of any governmental agency having jurisdiction and at Applicant's expense any breach of this warranty which may become apparent through inspection or operation of underground electric system by Company during this warranty period.

18. INSPECTION:
    Inspection is required during the construction period. A 48 hour advance notice of intent to start construction is required from the contractor to the Southern California Edison Company. Standards of Edison construction requirements are available upon request.

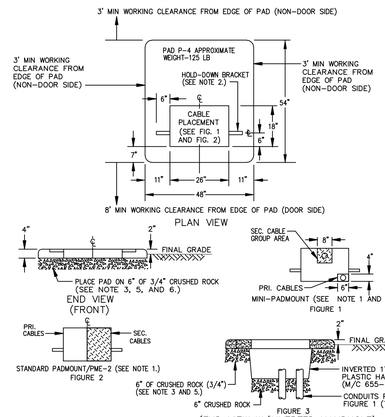
Duct and Structure Inspector: STEVE LOVE Phone: 714-895-0426

Cabling Construction Coordinator: Phone:

D05: Rev. 07/21/16

POLYMER CONCRETE PAD FOR SURFACE-MOUNTED TRANSFORMERS, PME-1 CABINETS, & PME-2 SWITCHES 48"x 54"

SEE UGS SS 506



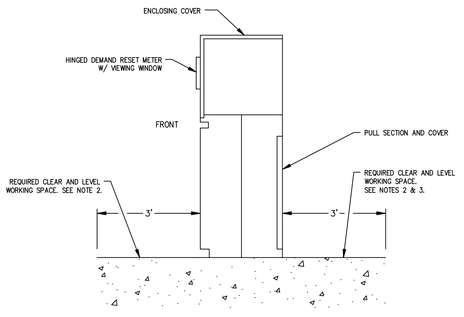
1.0 MANUFACTURING NOTES:
1. Pad will be manufactured in accordance with SCE specification PCTP-9-94 polymer Concrete transformer and Equipment Pads" and meet all requirements for Pad 4.
2. Hold-down brackets to be P-3200 series unistrut (or equal)
3. See SS 500 for approved manufacturers.

2.0 INSTALLATION NOTES:
1. Primary and secondary cables for mini-pad-mounted transformers should be placed into the clear opening areas as shown in Figure 1; other transformers use Figure 2. The work order drawings will identify which case is required.
2. For ground rod installation see UGS AC 701.
3. Subgrade soil below crushed gravel is to be mechanically compacted to 85 percent relative compaction unless higher is required by construction permit. Contractor is responsible for for maintaining proper conduit location after grading.
4. Pad to be placed to proper grade relative to finished curb or other reference elevation and level to within 1/4 inch.
5. An inverted handhole, as shown in figure 3, shall be installed.
6. In known rodent problem areas, place Redi-Crete or liquid asphalt emulsion on the crushed rock around conduits in the cable opening. Install two 1-inch diameter PVC pipes through crushed rock as drains before placing Redi-Crete and protect against becoming clogged.
7. For conduit installation using Figure 1, a template should be used to locate conduit or CIC.
8. Service conduits shall be sealed or plugged when the transformer is located above a customer's meter panel, per G.O. 128, Rule 31.6.
9. Riser bends shall be schedule 40 PVC minimum on the primary side.

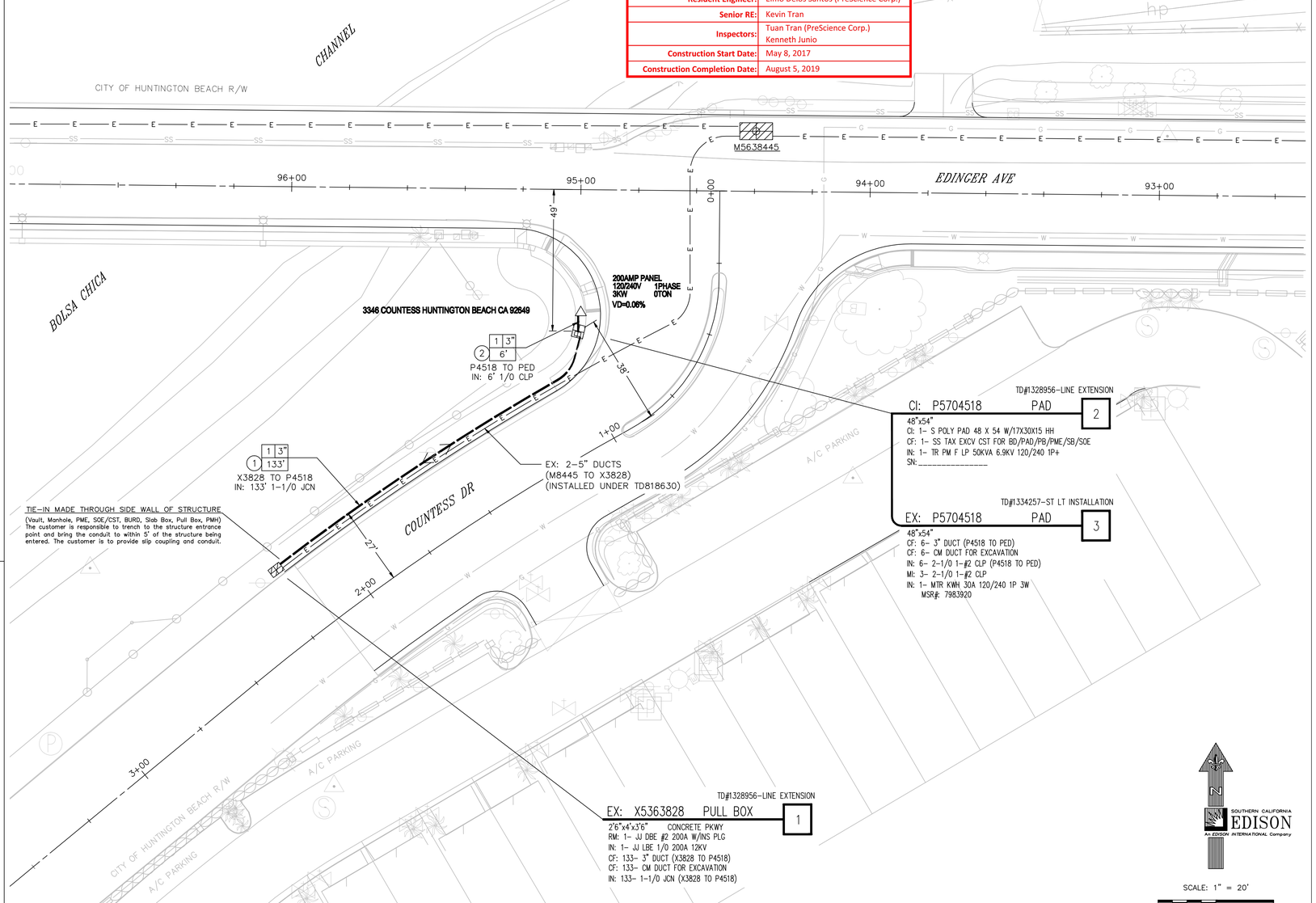
D44: Rev. 11/06/14

NON-RESIDENTIAL SERVICE PEDESTAL 0-200 AMPS 0-600 VOLTS

SEE ESR 3-15



NOTES:
1. ALL TERMINATING ENCLOSURES SHALL BE PROVIDED 24-HOUR ACCESSIBILITY FOR INSTALLATION AND MAINTENANCE OF THE COMPANY'S FACILITIES. ACCESS MUST BE THROUGH WALKING SPACE AFFORDING NOT LESS THAN 7 FEET IN HEIGHT AND 3 FEET IN WIDTH AND BE ACCEPTABLE TO THE COMPANY.
2. A PERMANENT, LEVEL STANDING-AND-WORKING SURFACE SHALL BE PROVIDED. IT SHALL BE CLEAR AND UNOBSTRUCTED, AT LEAST EQUAL TO THE WIDTH AND HEIGHT OF THE TERMINATING ENCLOSURE SPACE AND EXTENDING NOT LESS THAN 3 FEET IN FRONT OF ALL TERMINATING ENCLOSURES AND THEIR HOUSINGS. IN NO CASE SHALL THE HEIGHT OF THE CLEAR SPACE BE LESS THAN 6'-6". THE WIDTH SHALL NOT BE LESS THAN 3 FEET.
3. NON-RESIDENTIAL SERVICE PEDESTALS 0-200A, SHALL BE LOCATED TO ALLOW 3 FEET OF CLEARANCE FOR TERMINATING ENCLOSURE IN REAR. CONSULT THE LOCAL SERVICE PLANNING OFFICE FOR DETAILS. GREATER CLEARANCES ARE REQUIRED FOR HIGH-VOLTAGE INSTALLATIONS.



SCALE: 1" = 20'

0 20 40

T.L.M. DATA : 5704518

	SIZE	KVA	CUST	%LOAD
EXIST :	N/A	N/A	N/A	N/A
PROP :	50	2	1	0.04

VOLTAGE DROP : 0.06%

FLICKER FACTOR : N/A

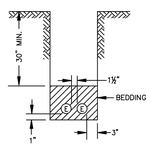
WARNING

THE EXCAVATOR MUST TAKE ALL STEPS NECESSARY TO AVOID CONTACT WITH UNDERGROUND FACILITIES WHICH MAY RESULT IN INJURY TO PERSONS OR DAMAGE TO FACILITIES IN THE AREA. THE INDICATED LOCATIONS OF EDISON UNDERGROUND FACILITIES, AS PROVIDED, ARE BELIEVED TO BE ACCURATE, HOWEVER, THE FINAL DETERMINATION OF EXACT LOCATIONS AND THE COST OF REPAIR TO DAMAGED FACILITIES IS THE RESPONSIBILITY OF THE EXCAVATOR.

UNDERGROUND SERVICE ALERT
Dial 811
Call USA
For Underground Locating
2 Working Days Before You Dig

TYPICAL CONDUIT BANK SECTION

SEE UGS CD 120



DIRECT BURIAL
SIMILAR CONSTRUCTION FOR FEWER CONDUIT
2 CONDUITS MAX.

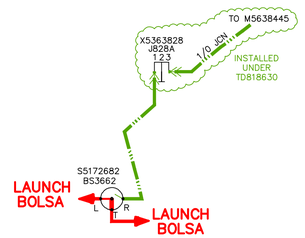
D81: Rev. 09/23/09

CONNECTING TO EXISTING SCE STRUCTURES

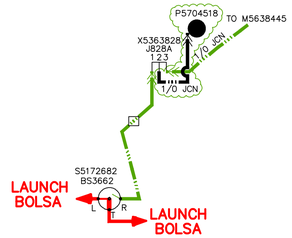
- Per SCE requirements, customers are not allowed to enter, intercept or tie-in to existing SCE structures, equipment or conductors. This work will only be performed by SCE. Contact the appropriate SCE inspector to schedule an appointment. Customers may connect to an existing duct stub without a SCE inspector present.
- Per CPUC/SCE's Rule 15 B.1.A and Rule 16 D.1.A., the customer will provide all necessary excavations (with the exception of excavation under pads and primary splice boxes), material (including conduit and structures) and encasement, to be utilized in the intercept/tie-in process.
- The customer must adhere to all applicable Cal-OSHA, local, city, state and federal regulations, (including, but not limited to, all necessary shoring and traffic control in place to perform the intercept/tie-in work by SCE's underground civil contractors(s))
- Intercept/tie-in work must be coordinated with SCE's civil contractors through the Division Inspector/CCM to limit exposure of excavation(s). Customer is responsible for securing excavation(s).

D08: 12/10/07

AS-IS SCOW 12KV % BOLSA SUB



PROPOSED SCOW 12KV % BOLSA SUB



PROJECT REQUIREMENTS (Y/N)	
EDISON EASEMENT REQUIRED	N
PWRD 88 REQUIRED	Y
PERMIT REQUIRED	Y
PERMIT TYPE: ENCROACHMENT	
OUTAGE REQUIRED	Y
OUTAGE DATE: _____ TIME: _____	
TRAFFIC CONTROL REQUIRED	Y
PED. TRAFFIC CONTROL REQ'D	N
CONVEYANCE LETTER REQ'D	N
ENVIRONMENTAL CLEARANCE REQ'D	N
CSD 140 (TLM) REQ'D	N

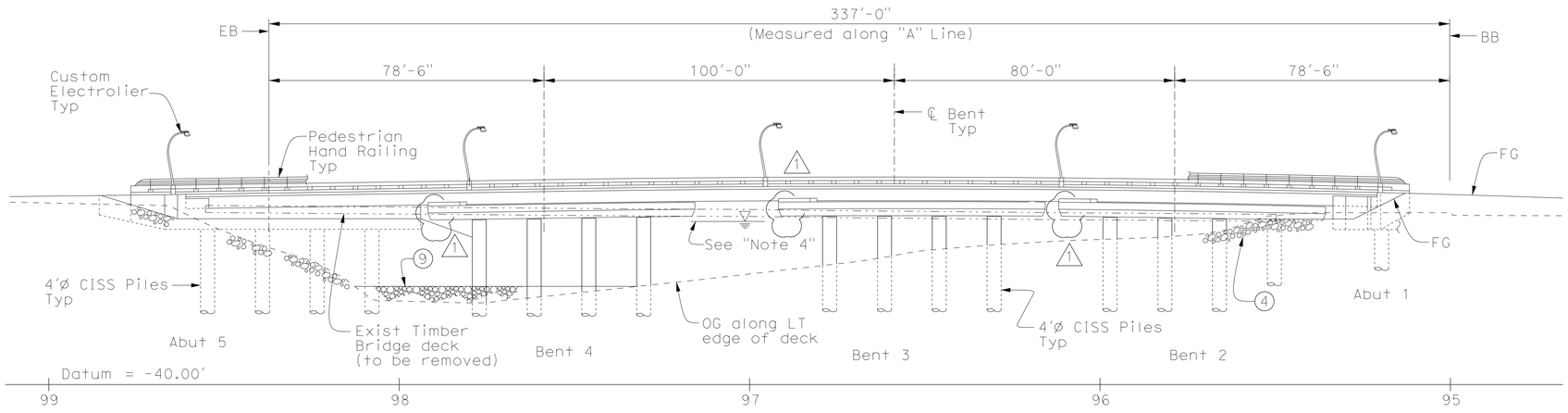
0124: Rev. 04/19/16

FINAL DESIGN
APPROVED FOR CONSTRUCTION

DISTRICT: 33 - HUNTINGTON BEACH	PROJ. MGR. N/A PHONE		PLANNER QEN, ERICK DOMINIQUE PHONE 714-895-0242	DESIGNER DOMINGUEZ, MARVI	
PROJECT NO. 1476252	SERVICE REQUEST 2389828	MSR NO. (SEE MAP)	PRODUCT-1 1328956-LINE EXTENSION		ASSOC DESIGN 976666
CIRCUIT / VOLTAGE SCOW 12KV		THOMAS GUIDE ORG 826-J6	PRODUCT-2 1334257-ST LT INSTALLATION		ASSOC DESIGN 976666
SUB / PG NO. BOLSA / B1		CIRCUIT CODE 16016	PRODUCT-3 REF TD818630 (RELOCATE FACILITIES)		ASSOC DESIGN 571494
INVENTORY MAP 42-4A-7		J.P.A. NO. N/A	PROPOSED CONSTRUCTION (LOCATION) INSTALL XFMR AND NEW M&S FOR 100A PED. 3346 COUNTESS HUNTINGTON BEACH, CA 92649		
F 11/7/17	REV/ECW	EDO	MLD	54242	
TYPE DATE	APPROVED BY	CHECKED BY	DRAWN BY	PAX #	
Southern California Edison Company			SHEET 1 OF 1	DESIGN\DRWG NO. 976666_0.01	

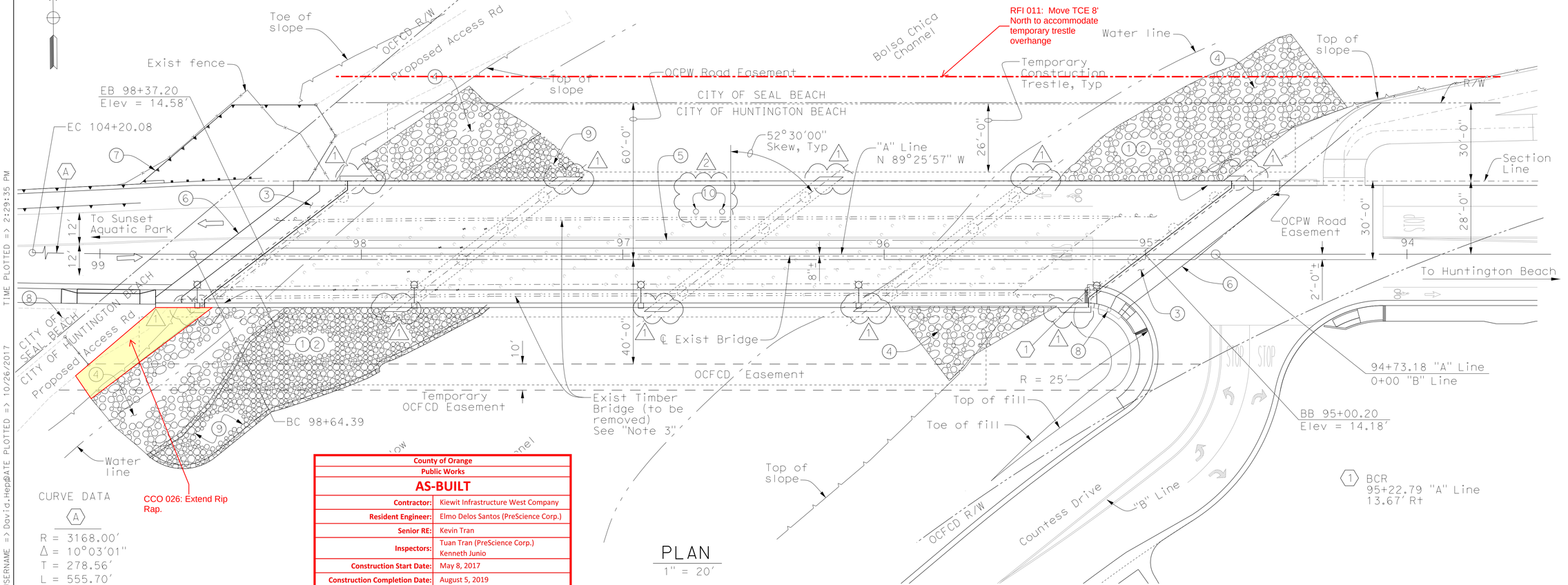
AS-BUILT SEPTEMBER 2019

"A" LINE PROFILE
No Scale



ELEVATION
1" = 20'

Note:
Existing timber bents/piles to be removed not shown.



PLAN
1" = 20'

CURVE DATA
(A)
R = 3168.00'
Δ = 10°03'01"
T = 278.56'
L = 555.70'

CCO 026: Extend Rip Rap.

County of Orange	
Public Works	
AS-BUILT	
Contractor:	Kiewit Infrastructure West Company
Resident Engineer:	Elmo Delos Santos (PreScience Corp.)
Senior RE:	Kevin Tran
Inspectors:	Tuan Tran (PreScience Corp.) Kenneth Junio
Construction Start Date:	May 8, 2017
Construction Completion Date:	August 5, 2019

LEGEND

1. Paint "Br. No. 55C0400"
2. Paint "Edinger Avenue Bridge at Bolsa Chica Channel"
3. Structure Approach Type EQ(10)(Modified)
4. Rock Slope Protection, see "Road Plans"
5. Closure Pour
6. 10' Sleeper Slab
7. Retaining Wall, See "Road Plans"
8. Existing Utility Pole (to be removed) (by others)
9. Rock Slope Protection for scour hole, see "Road Plans"
10. 24" diameter Access Manhole (2)

---- Indicates existing structure

Notes:

1. For Typical Section & Index To Plans, see "General Plan No. 2" sheet.
2. For General Notes & Quantities, see "General Notes" sheet.
3. For Stage Construction and Bridge Removal details, see "Demolition Details" & "Construction Staging Schematic" sheets.
4. For Hydrologic & Hydraulic Data Summary and Pile Data Table, see "Foundation Plan" sheet.

MARK	DESCRIPTION	DATE	APPR.
2	Added Deck Access	9/15/17	
1	Revised End of Bent Cap	5/18/17	

COUNTY OF ORANGE CALIFORNIA

PREPARED UNDER THE RESPONSIBLE CHARGE OF:
REGISTERED PROFESSIONAL ENGINEER — TODD W. DUDLEY — No. C39514 — Exp. 12/31/17 — CIVIL — STATE OF CALIFORNIA
TODD W. DUDLEY
9/15/17
DATE

DESIGNED BY: A. SELLADURAI/R. PRICE
DRAWN BY: R. ANDRASEK
CHECKED BY: M. STILLER
DRAWING CODE: F06-101-7
FILE NAME:
PLOT DATE:
SCALE: AS SHOWN

COUNTY OF ORANGE
OC PUBLIC WORKS

PREPARED BY:
AECOM
999 W. Town & Country Road
Orange, CA 92868
(714) 567-2501

EDINGER AVENUE BRIDGE AT BOLSA CHICA CHANNEL REPLACEMENT PROJECT
BR. NO. 55C-0400

GENERAL PLAN NO. 1

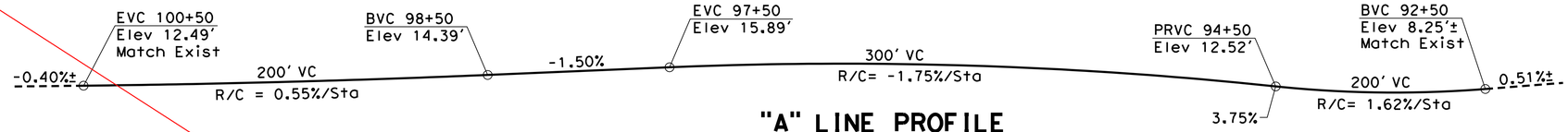
Sheet Reference Number

ST-01

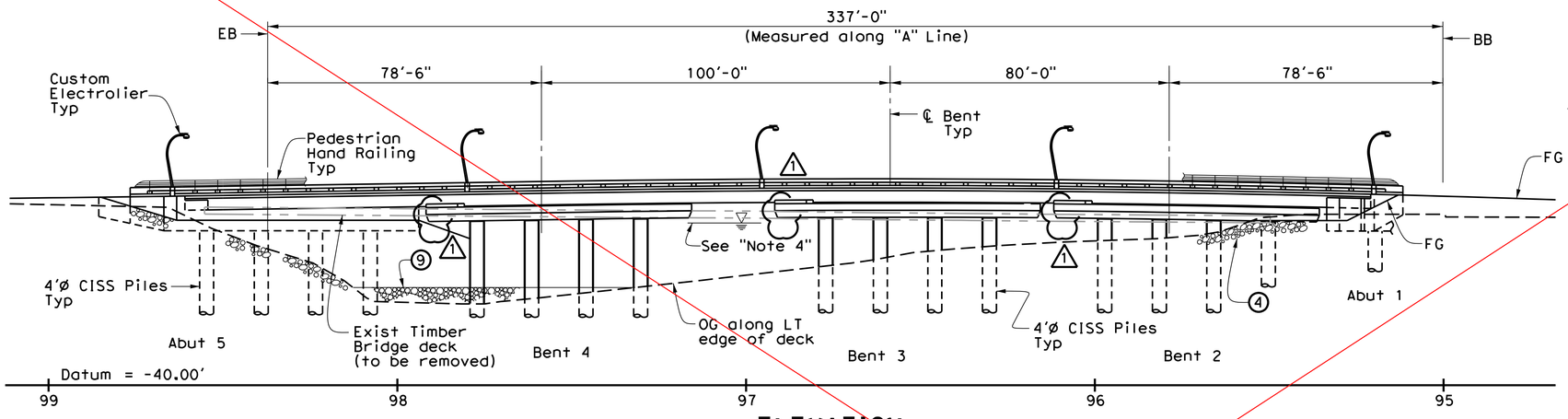
Sheet 40R2 of 76

USERNAME => David.Hepp@ATE PLOTTED => 10/26/2017 TIME PLOTTED => 2:29:35 PM

AS-BUILT SEPTEMBER 2019



"A" LINE PROFILE
No Scale



ELEVATION
1" = 20'

Note:
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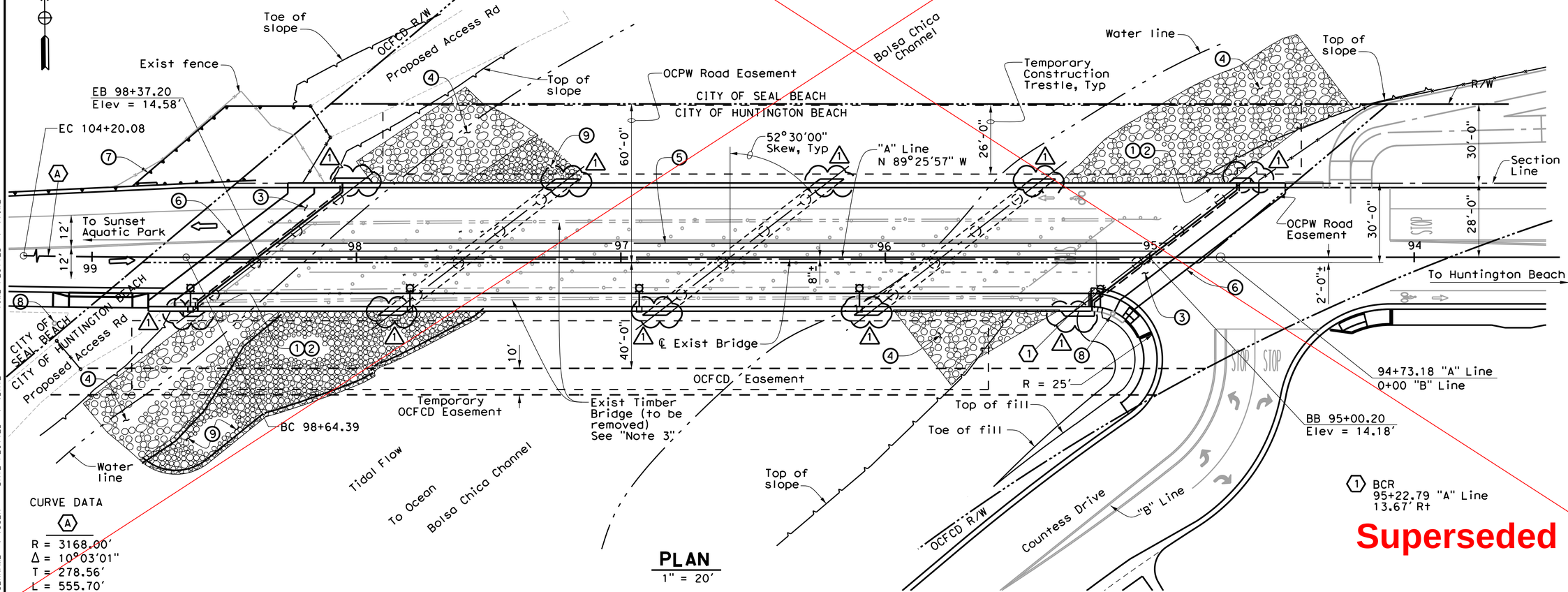

PLAN
1" = 20'

CURVE DATA

Ⓐ
R = 3168.00'
Δ = 10°03'01"
T = 278.56'
L = 555.70'

LEGEND

1. Paint "Br. No. 55C0400"
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3. Structure Approach Type EQ(10)(Modified)
4. Rock Slope Protection, see "Road Plans"
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Ⓘ BCR
95+22.79 "A" Line
13.67' Rt

Superseded

MARK	DESCRIPTION	DATE	APPR.
1	Revised End of Bent Cap	5/18/17	

COUNTY OF ORANGE
CALIFORNIA

PREPARED UNDER THE RESPONSIBLE CHARGE OF:
REGISTERED PROFESSIONAL ENGINEER TODD W. DUDLEY No. C39514 Exp.12/31/17 CIVIL STATE OF CALIFORNIA
TODD W. DUDLEY
2/9/17
DATE

DESIGNED BY: A. SELLADURAI/R. PRICE
DRAWN BY: R. ANDRASEK
CHECKED BY: M. STILLER
DRAWING CODE: FO6-ID-7
FILE NAME:
SCALE: AS SHOWN
PLOT DATE:

COUNTY OF ORANGE
OC PUBLIC WORKS

PREPARED BY:
AECOM
999 W. Town & Country Road
Orange, CA 92868
(714) 567-2500

EDINGER AVENUE BRIDGE AT BOLSA CHICA CHANNEL REPLACEMENT PROJECT
BR. NO. 55C-0400

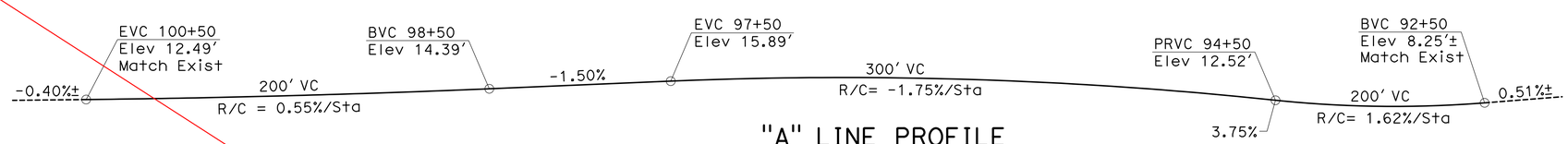
GENERAL PLAN NO. 1

Sheet Reference Number
ST-01

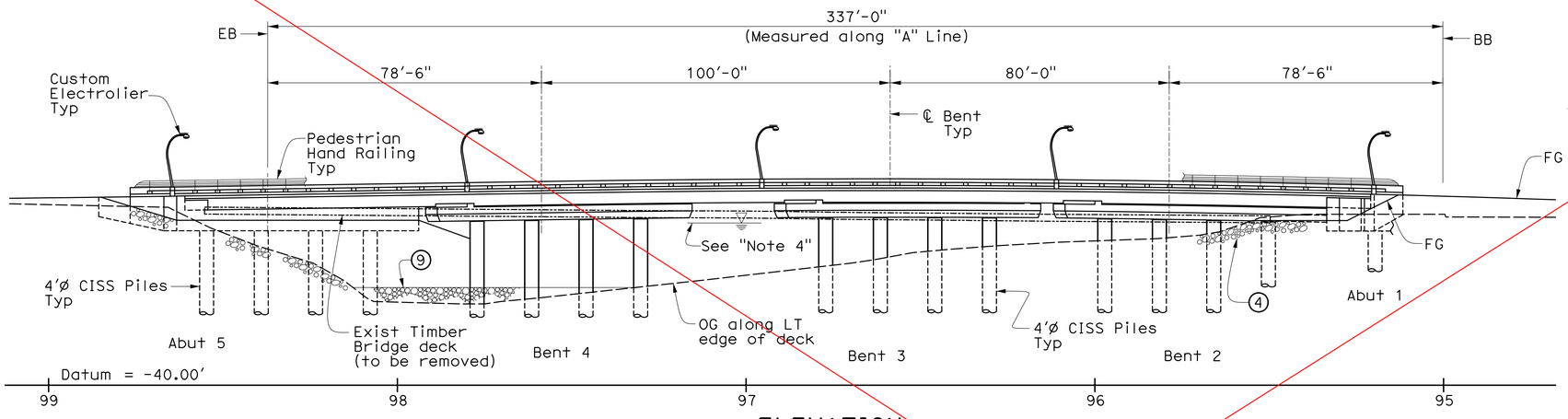
Sheet 40 of 76

USERNAME => $USER DATE PLOTTED => $DATE TIME PLOTTED => $TIME

AS-BUILT SEPTEMBER 2019

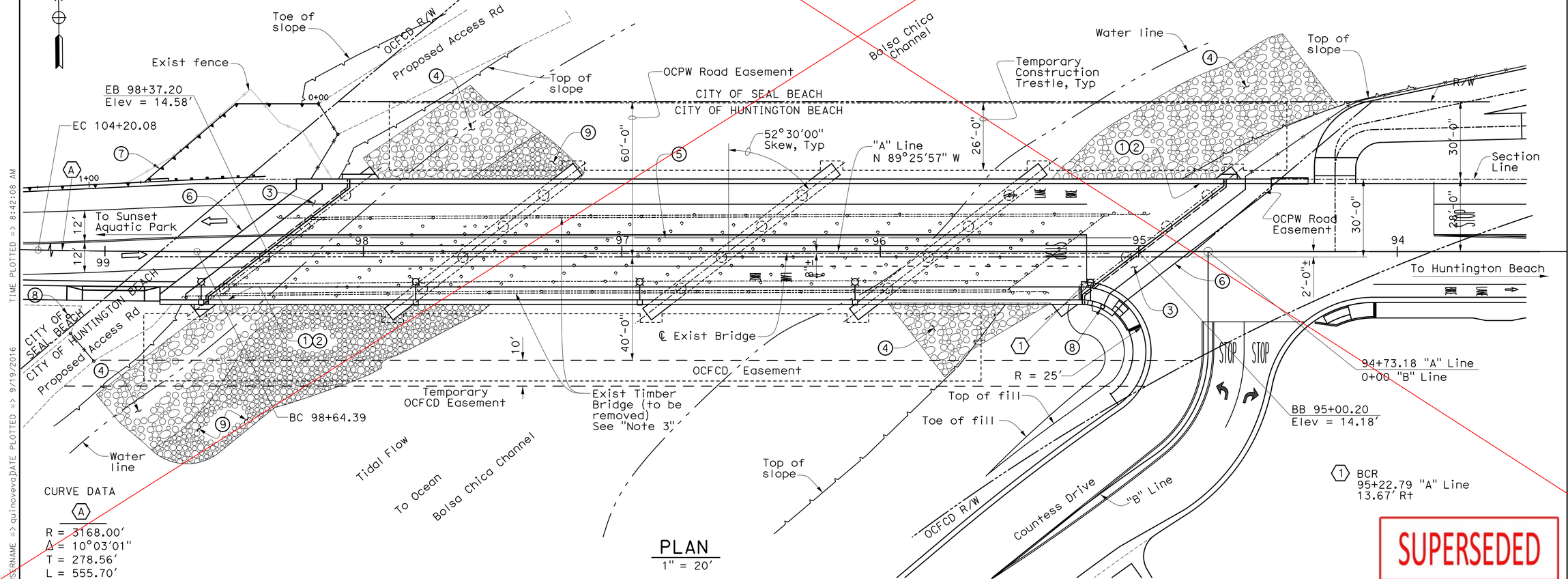


"A" LINE PROFILE
No Scale



ELEVATION
1" = 20'

Note:
Existing timber bents/piles to be removed not shown.



PLAN
1" = 20'

CURVE DATA

Ⓐ
R = 3168.00'
Δ = 10°03'01"
T = 278.56'
L = 555.70'

LEGEND

1. Paint "Br. No. 55C0400"
2. Paint "Edinger Avenue Bridge at Bolsa Chica Channel"
3. Structure Approach Type EQ(10)(Modified)
4. Rock Slope Protection, see "Road Plans"
5. Closure Pour
6. 10' Sleeper Slab
7. Retaining Wall, See "Road Plans"
8. Existing Utility Pole (to be removed) (by others)
9. Rock Slope Protection for scour hole, see "Road Plans"

Indicates existing structure

Notes:

1. For Typical Section & Index To Plans, see "General Plan No. 2" sheet.
2. For General Notes & Quantities, see "General Notes" sheet.
3. For Stage Construction and Bridge Removal details, see "Demolition Details" & "Construction Staging Schematic" sheets.
4. For Hydrologic & Hydraulic Data Summary and Pile Data Table, see "Foundation Plan" sheet.

SUPERSEDED

COUNTY OF ORANGE CALIFORNIA

MARK	DESCRIPTION	DATE	APPR.

PREPARED UNDER THE RESPONSIBLE CHARGE OF:
REGISTERED PROFESSIONAL ENGINEER TODD W. DUDLEY No. C39514 Exp.12/31/17 CIVIL STATE OF CALIFORNIA
9/19/16 DATE
TODD W. DUDLEY

DESIGNED BY: A. SELLADURAI/R. PRICE
DRAWN BY: R. ANDRASEK
CHECKED BY: M. STILLER
DRAWING CODE: F06-101-7
FILE NAME:
SCALE: AS SHOWN
PLOT DATE:

COUNTY OF ORANGE
OC PUBLIC WORKS

PREPARED BY:
AECOM
999 W. Town & Country Road
Orange, CA 92868
(714) 567-2501

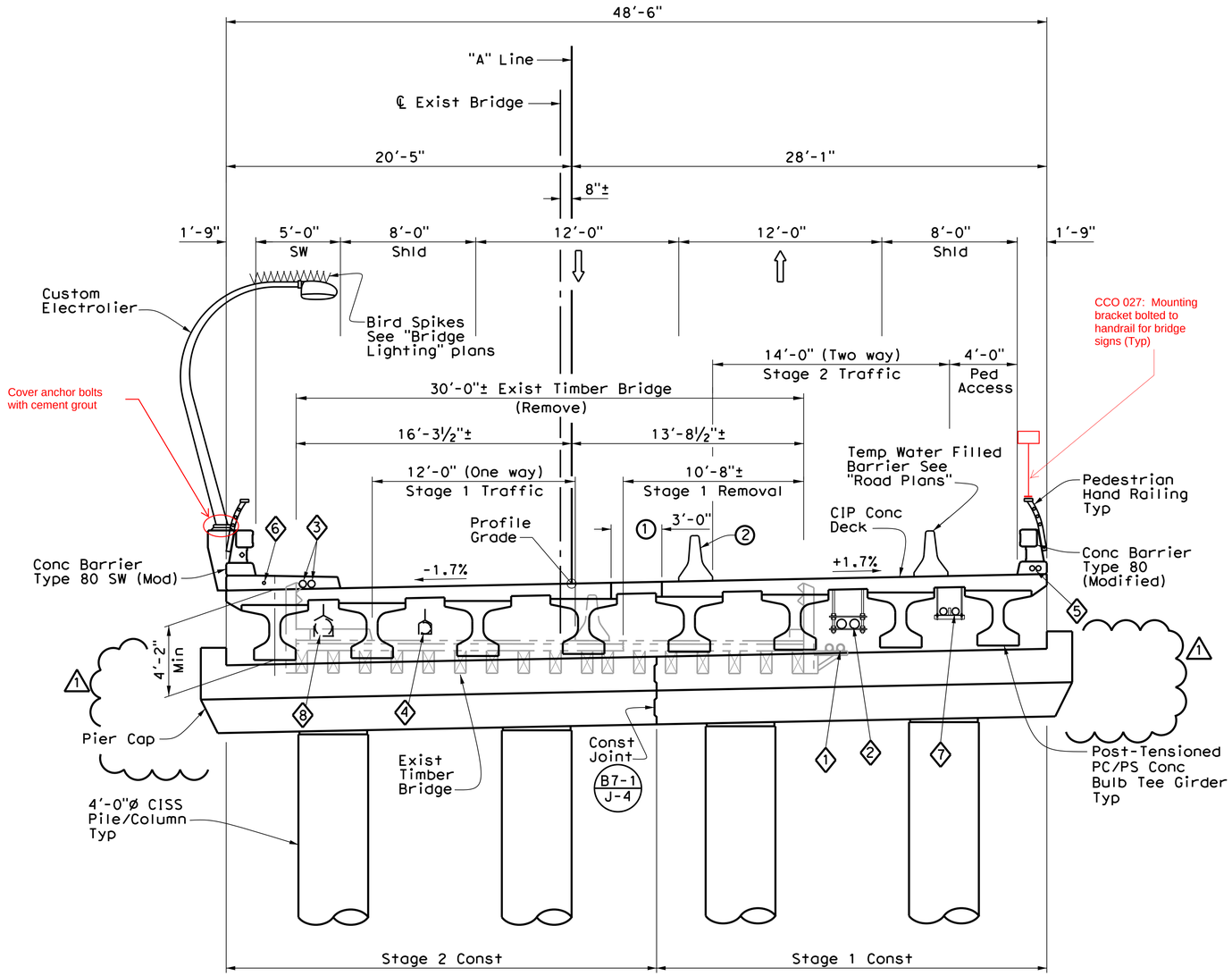
EDINGER AVENUE BRIDGE AT BOLSA CHICA CHANNEL REPLACEMENT PROJECT
BR. NO. 55C-0400

GENERAL PLAN NO. 1

Sheet Reference Number
ST-01
Sheet 40 of 76

USERNAME => quinovevaDATE PLOTTED => 9/19/2016 TIME PLOTTED => 8:42:08 AM

AS-BUILT SEPTEMBER 2019



TYPICAL SECTION

¼" = 1'-0"
(Looking West)

County of Orange	
Public Works	
AS-BUILT	
Contractor:	Kiewit Infrastructure West Company
Resident Engineer:	Elmo Delos Santos (PreScience Corp.)
Senior RE:	Kevin Tran
Inspectors:	Tuan Tran (PreScience Corp.) Kenneth Junio
Construction Start Date:	May 8, 2017
Construction Completion Date:	August 5, 2019

INDEX TO PLANS (STRUCTURE)

SHEET No.	TITLE
ST-01	GENERAL PLAN NO. 1
ST-02	GENERAL PLAN NO. 2
ST-03	GENERAL NOTES
ST-04	DEMOLITION DETAILS
ST-05	CONSTRUCTION STAGING SCHEMATIC
ST-06	DECK CONTOURS
ST-07	FOUNDATION PLAN
ST-08	ABUTMENT 1 LAYOUT
ST-09	ABUTMENT 5 LAYOUT
ST-10	ABUTMENT DETAILS NO. 1
ST-11	ABUTMENT DETAILS NO. 2
ST-12	ABUTMENT DETAILS NO. 3
ST-13	ABUTMENT DETAILS NO. 4
ST-14	CISS CONCRETE PILE DETAILS
ST-15	BENT LAYOUT
ST-16	BENT DETAILS
ST-17	TYPICAL SECTION
ST-18	GIRDER LAYOUT NO. 1
ST-19	GIRDER LAYOUT NO. 2
ST-20	PC/PS BULB-TEE GIRDER (DEBONDED STRANDS)
ST-21	PC/PS BULB-TEE GIRDER (MISCELANEOUS DETAILS)
ST-22	GIRDER DETAILS NO. 1
ST-23	GIRDER DETAILS NO. 2
ST-24	GIRDER DETAILS NO. 3
ST-25	GIRDER DETAILS NO. 4
ST-26	GIRDER DETAILS NO. 5
ST-27	GIRDER DETAILS NO. 6
ST-28	DECK REINFORCEMENT
ST-29	PEDESTRIAN HAND RAILING
ST-30	UTILITY DETAILS
ST-31	STRUCTURE APPROACH TYPE EQ(10)(MODIFIED)
ST-32	STRUCTURE APPROACH DRAINAGE DETAILS
ST-33	CONCRETE BARRIER RECESS DETAILS
ST-34	BAT HABITAT DETAILS
ST-35	LOG OF TEST BORINGS NO. 1
ST-36	LOG OF TEST BORINGS NO. 2
ST-37	LOG OF TEST BORINGS NO. 3

UTILITY LEGEND

1. Existing 2- 2"ø PVC Sewer force mains in 2- 4"ø steel casings (City of Seal Beach)
2. Relocated 2- 2"ø PVC Sewer force mains (City of Seal Beach), see "Sewer Force Main Plans"
3. 2- 5"ø Openings for future utilities
4. Future 4"ø Force Main (City of Seal Beach)
5. 2- 3½"ø XS Steel Pipe Telecommunication conduits (Verizon)
6. 2" Electrical conduit, see "Bridge Lighting Plans"
7. 2- 5"ø Electrical conduits (SCE) (to be installed by SCE Contractor)
8. Future 12"ø Water Line (City of Seal Beach)

NOTES:

1. Closure Pour
2. Temporary Railing, Type K

—— —— Indicates existing structure

For Stage Construction details, see "Stage Construction Schematic" sheet.

COUNTY OF ORANGE CALIFORNIA

MARK	DESCRIPTION	DATE	APPR.
2	Revised End of Bent Cap	5/18/17	

PREPARED UNDER THE RESPONSIBLE CHARGE OF:
TODD W. DUDLEY — REGISTERED PROFESSIONAL ENGINEER — No. C39514 — Exp. 12/31/17 — CIVIL — STATE OF CALIFORNIA
DATE 2/9/17

DESIGNED BY: A. SELLADURAI/R. PRICE
DRAWN BY: R. ANDRASEK
CHECKED BY: M. STILLER
DRAWING CODE: FO6-00-7
FILE NAME:
PLOT DATE:
SCALE: AS SHOWN

COUNTY OF ORANGE
OC PUBLIC WORKS

PREPARED BY:
AECOM
999 W. Town & Country Road
Orange, CA 92868
(714) 567-2501

EDINGER AVENUE BRIDGE AT BOLSA CHICA CHANNEL
REPLACEMENT PROJECT
BR. NO. 55C-0400

GENERAL PLAN NO. 2

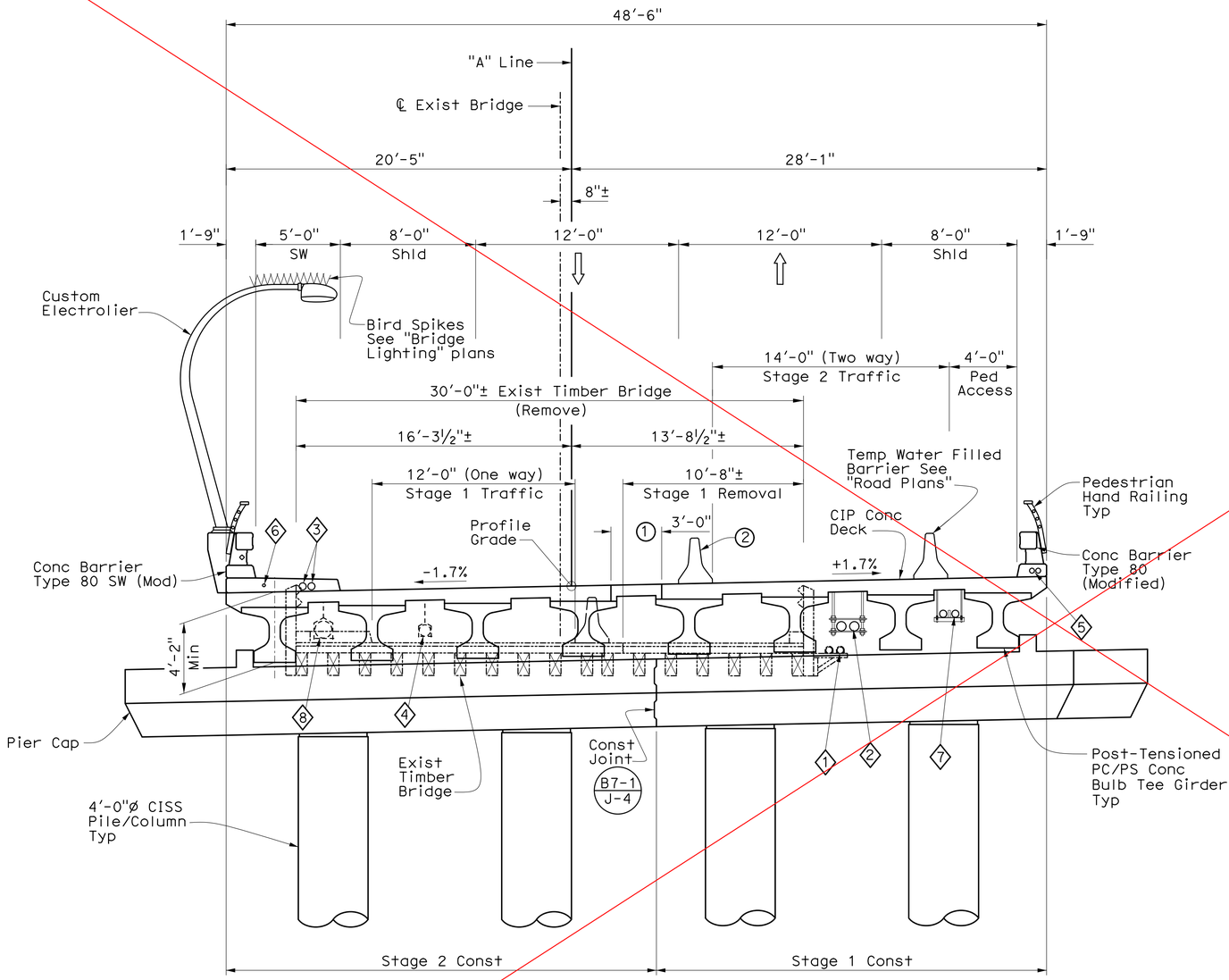
Sheet Reference Number

ST-02

Sheet 41 of 76

USERNAME => $USER DATE PLOTTED => $DATE TIME PLOTTED => $TIME

AS-BUILT SEPTEMBER 2019



TYPICAL SECTION

¼" = 1'-0"
(Looking West)

INDEX TO PLANS (STRUCTURE)

SHEET No.	TITLE
ST-01	GENERAL PLAN NO. 1
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1. Existing 2- 2"ø PVC Sewer force mains in 2- 4"ø steel casings (City of Seal Beach)
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8. Future 12"ø Water Line (City of Seal Beach)

NOTES:

(1) Closure Pour
(2) Temporary Railing, Type K
———— Indicates existing structure

For Stage Construction details, see "Stage Construction Schematic" sheet.

SUPERSEDED

COUNTY OF ORANGE CALIFORNIA

MARK	DESCRIPTION	DATE	APPR.

PREPARED UNDER THE RESPONSIBLE CHARGE OF:
REGISTERED PROFESSIONAL ENGINEER TODD W. DUDLEY No. C39514 Exp. 12/31/17 CIVIL STATE OF CALIFORNIA
9/19/16 DATE
TODD W. DUDLEY

DESIGNED BY: A. SELLADURAI/R. PRICE
DRAWN BY: R. ANDRASEK
CHECKED BY: M. STILLER
DRAWING CODE: F06-01-7
FILE NAME:
PLOT DATE:
SCALE: AS SHOWN

COUNTY OF ORANGE OC PUBLIC WORKS

PREPARED BY: AECOM
999 W. Town & Country Road
Orange, CA 92868
(714) 567-2501

EDINGER AVENUE BRIDGE AT BOLSA CHICA CHANNEL REPLACEMENT PROJECT BR. NO. 55C-0400

GENERAL PLAN NO. 2

Sheet Reference Number
ST-02

USERNAME => quinoveva DATE PLOTTED => 9/19/2016 TIME PLOTTED => 8:42:13 AM

AS-BUILT SEPTEMBER 2019

GENERAL NOTES
LOAD & RESISTANCE FACTOR DESIGN:

Design: AASHTO LRFD Bridge Design Specifications, 4th Edition and the Caltrans Amendments dated November 2011.

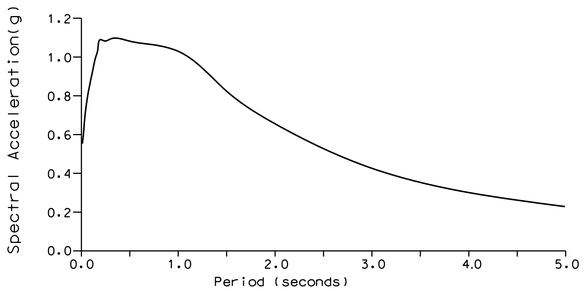
Seismic Design: Caltrans Seismic Design Criteria (SDC), Version 1.7, April 2013

Dead Load: Includes 35 psf for future wearing surface. Use of stay-in-place deck forms is not permitted.

Live Loading: HL-93 w/ Low-Boy and Permit Design Load
75 psf Pedestrian Load

Seismic Loading: Site Specific ARS Curve

Shear wave Velocity (Vs30) = 835 ft/s to 985 ft/s
Mmax = 7.1
PGA = 0.55g



Fault Parameters:
Bridge is transected by the active Newport-Inglewood structural zone.
Direction: S 45°-50° E
Fault type: Strike Slip 20H:1V
Maximum Earthquake: 7.1
Slip Rate: 1.0mm/year
Recurrence: 2000 years
Design Fault Displacement:
Horizontal-3.9ft, Vertical-0.2ft

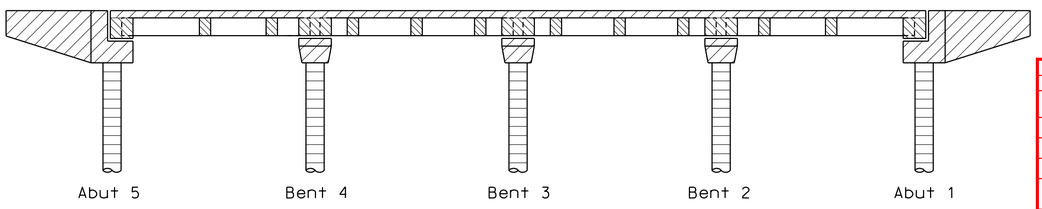
Reinforced Concrete:
fy = 60,000 psi
f'c = 3,600 psi, Unless otherwise noted
n = 8

All mild reinforcement except in CISS concrete piles shall be prefabricated epoxy coated with purple coating.

except #5 stirrups in precast girder of stage 2 per RFI 16. See ST-20

Prestressed Concrete:
See "Prestressing Notes" on "Girder Details No. 1" sheet.

Structural Steel: ASTM A36, fy = 36 ksi



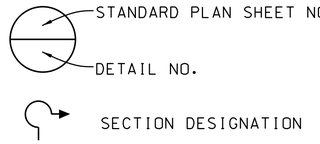
CONCRETE STRENGTH AND TYPE LIMITS
No Scale

- PC/PS Prestressed Concrete Girders, see "Girder Details No. 1" sheet
- Structural Concrete, Bridge (4.0 ksi @ 28 days)
- Structural Concrete, Bridge (5.0 ksi @ 28 days)
- CISS Pile Concrete (4.0 ksi @ 28 days)

STANDARD PLANS DATED 2010 WITH ERRATA

THE FOLLOWING STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION STANDARD PLANS ARE PART OF THESE CONTRACT DRAWINGS

	A10A	ABBREVIATIONS (SHEET 1 OF 2)
RSP	A10B	ABBREVIATIONS (SHEET 2 OF 2)
	A10C	LINES AND SYMBOLS (SHEET 1 OF 2)
	A10D	LINES AND SYMBOLS (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
	B0-3	BRIDGE DETAILS
	B0-5	BRIDGE DETAILS
	B0-13	BRIDGE DETAILS
RSP	B3-5	RETAINING WALL DETAILS NO. 1
	B3-6	RETAINING WALL DETAILS NO. 2
	B6-10	UTILITY OPENINGS T-BEAM
RSP	B6-21	JOINT SEALS (MAXIMUM MOVMENT RATING = 2")
	B7-1	BOX GIRDER DETAILS
RSP	B7-11	UTILITY DETAILS
RSP	B8-5	CAST-IN-PLACE PRESTRESSED GIRDER DETAILS
RSP	B11-60	CONCRETE BARRIER TYPE 80 (SHEET 1 OF 2)
	B11-61	CONCRETE BARRIER TYPE 80 (SHEET 2 OF 2)
RSP	B11-62	CONCRETE BARRIER TYPE 80SW (SHEET 1 OF 3)
	B11-63	CONCRETE BARRIER TYPE 80SW (SHEET 2 OF 3)
	B11-64	CONCRETE BARRIER TYPE 80SW (SHEET 3 OF 3)
RSP	ES-9D	ELECTRICAL SYSTEMS (STRUCTURE PULL BOX INSTALLATIONS)
	D74C	DRAINAGE INLET DETAILS
RSP	D99B	EDGE DRAIN OUTLET AND VENT DETAILS

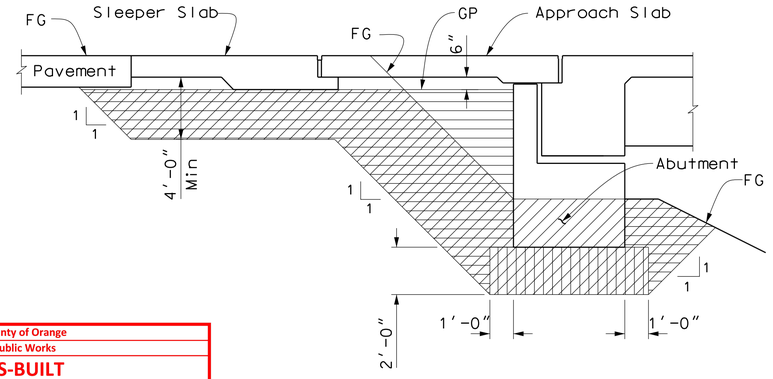


ABBREVIATIONS

SS	Stainless Steel
SCE	Southern California Edison

QUANTITIES (STRUCTURE)

TEMPORARY CONSTRUCTION TRESTLES	LUMP SUM
BRIDGE REMOVAL	LUMP SUM
STRUCTURE EXCAVATION (BRIDGE) (TYPE A)	818 CY
STRUCTURE BACKFILL (BRIDGE)	884 CY
FURNISH 48" CAST-IN-STEEL SHELL CONCRETE PILING	2386 LF
DRIVE 48" CAST-IN-STEEL SHELL CONCRETE PILE	20 EA
MARINE PILE DRIVING ENERGY ATTENUATOR	LUMP SUM
TURBIDITY CONTROL	LUMP SUM
PRESTRESSING CAST-IN-PLACE CONCRETE, TRANSVERSE	LUMP SUM
PRESTRESSING PRECAST GIRDER	LUMP SUM
PRESTRESSING HIGH STRENGTH BARS	1,491 LB
SEAL COURSE CONCRETE	107 CY
STRUCTURAL CONCRETE, BRIDGE	794 CY
STRUCTURAL CONCRETE, BRIDGE (POLYMER FIBER)	496 CY
STRUCTURAL CONCRETE, APPROACH SLAB (TYPE EQ MODIFIED)	68 CY
MINOR CONCRETE, UTILITY VAULTS	28 CY
FURNISH PRECAST PRESTRESSED CONCRETE BULB-TEE GIRDER (90'-100')	8 EA
FURNISH PRECAST PRESTRESSED CONCRETE BULB-TEE GIRDER (70'-80')	24 EA
ERECT PRECAST PRESTRESSED CONCRETE GIRDER	32 EA
JOINT SEAL (MR 2")	160 LF
JOINT SEAL (TYPE A)	160 LF
BAR REINFORCING STEEL (BRIDGE)	213,353 LB
BAR REINFORCING STEEL (EPOXY COATED)	406,156 LB
CLEAN AND PAINT BRIDGE RAILING	LUMP SUM
10" STAINLESS STEEL CASING PIPE	44 LF
20" STAINLESS STEEL CASING PIPE	95 LF
PEDESTRIAN HANDRAILING	743 LF
CONCRETE BARRIER (TYPE 80 MODIFIED)	378 LF
CONCRETE BARRIER (TYPE 80SW MODIFIED)	371 LF
COMMUNICATION CONDUIT ASSEMBLY (VERIZON)	LUMP SUM
BRIDGE LIGHTING	LUMP SUM
BAT HABITAT	12 EA



PAY LIMITS OF EXCAVATION AND BACKFILL AT ABUTMENTS
No Scale

* Depth shown is minimum and is subject to ground water elevation during construction.

- Structure Excavation (Type A)
- Caltrans Standard Structure Backfill
- Seal Course Concrete

County of Orange Public Works	
AS-BUILT	
Contractor:	Kiewit Infrastructure West Company
Resident Engineer:	Elmo Delos Santos (PreScience Corp.)
Senior RE:	Kevin Tran
Inspectors:	Tuan Tran (PreScience Corp.) Kenneth Junio
Construction Start Date:	May 8, 2017
Construction Completion Date:	August 5, 2019

COUNTY OF ORANGE
CALIFORNIA

MARK	DESCRIPTION	DATE	APPR.

PREPARED UNDER THE RESPONSIBLE CHARGE OF:
REGISTERED PROFESSIONAL ENGINEER TODD W. DUDLEY No. C39514 Exp.12/31/17 CIVIL STATE OF CALIFORNIA
2/9/17 DATE
TODD W. DUDLEY

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COUNTY OF ORANGE
OC PUBLIC WORKS

PREPARED BY:
ACCOM
999 W. Town & Country Road
Orange, CA 92868
(714) 567-2501

EDINGER AVENUE BRIDGE AT BOLSA CHICA CHANNEL REPLACEMENT PROJECT
BR. NO. 55C-0400

GENERAL NOTES

Sheet Reference Number
ST-03
Sheet 42 of 76

USERNAME => $USER DATE PLOTTED => $DATE TIME PLOTTED => $TIME

AS-BUILT SEPTEMBER 2019

County of Orange	
Public Works	
AS-BUILT	
Contractor:	Kiewit Infrastructure West Company
Resident Engineer:	Elmo Delos Santos (PreScience Corp.)
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Inspectors:	Tuan Tran (PreScience Corp.) Kenneth Junio
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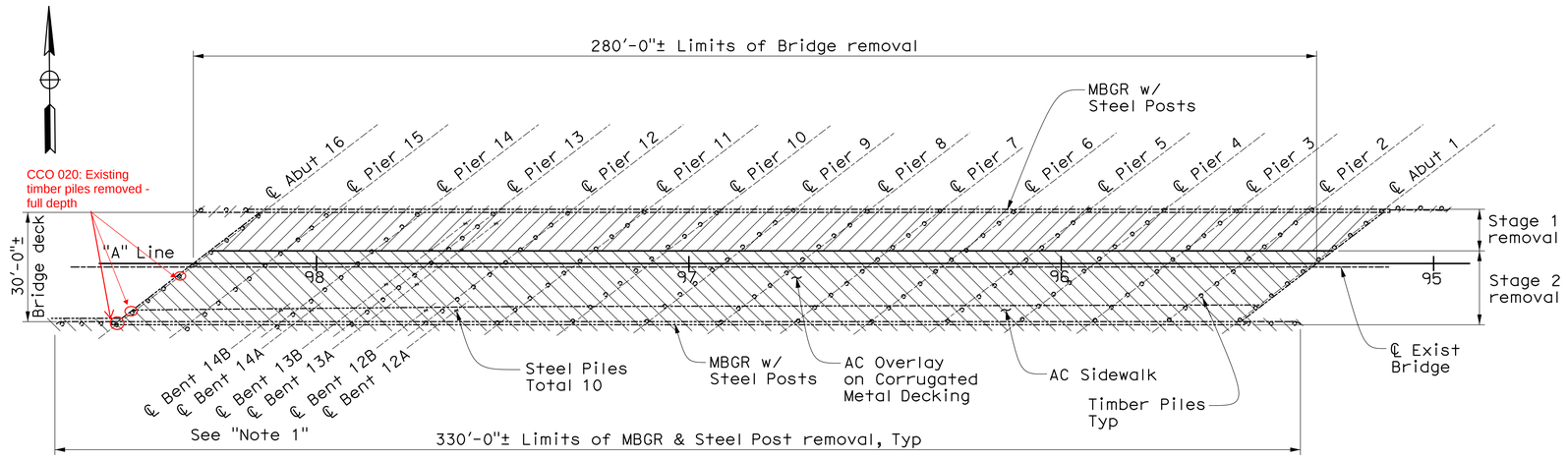
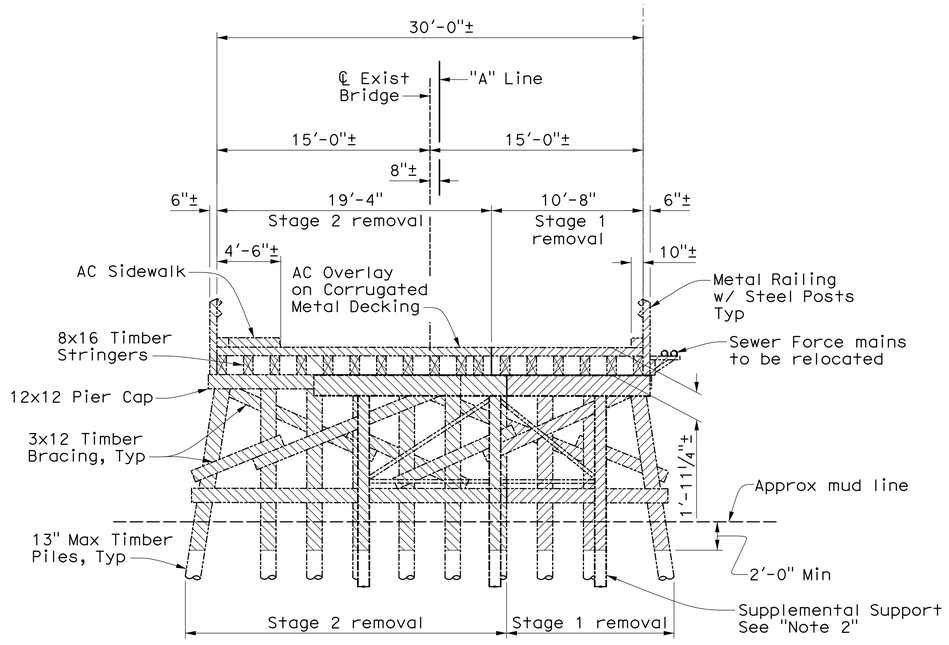


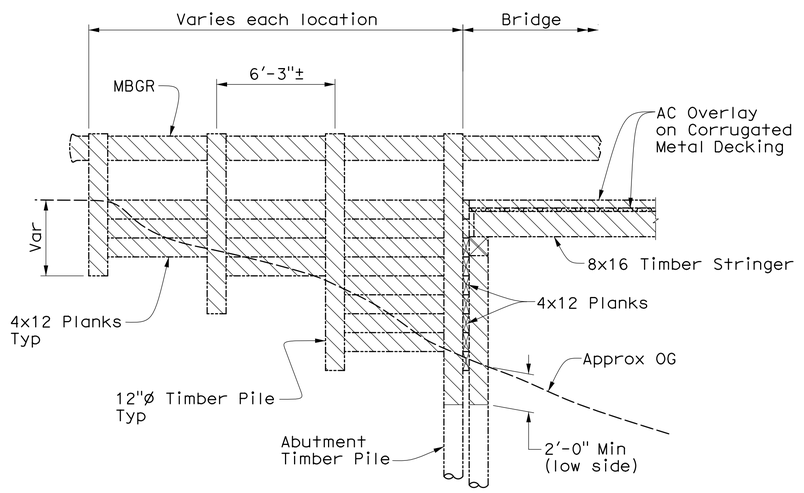
PLAN
1" = 20'

Notes:

1. Bents 12A, 12B, 13A, 13B, 14A and 14B are supplemental supports consisting of steel HP piles and steel cap beams. Bents 13A and 13B include steel pipe bracing.
1. Portions of bents 13A and 13B shall be removed for Stage 1 removal. Bents 12A, 12B, 14A and 14B and remaining portions of bents 13A and 13B shall be removed for Stage 2 removal.
3. Steel piles/bent caps not shown. Steel piles/bent caps shall be include in removal of bridge.



TYPICAL SECTION
3/16" = 1'-0"
(Looking West)



TYPICAL WINGWALL
1/4" = 1'-0"

Abutment 16 Lt shown
Other locations similar

LEGEND

or Limits of existing Bridge Removal

Indicates existing

COUNTY OF ORANGE
CALIFORNIA

MARK	DESCRIPTION	DATE	APPR.

PREPARED UNDER THE RESPONSIBLE CHARGE OF:
TODD W. DUDLEY
DATE 9/19/16

REGISTERED PROFESSIONAL ENGINEER TODD W. DUDLEY No. C39514 Exp. 12/31/17 CIVIL STATE OF CALIFORNIA

DESIGNED BY: A. SELLADURAI/R. PRICE
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(714) 567-2501

EDINGER AVENUE BRIDGE AT
BOLSA CHICA CHANNEL
REPLACEMENT PROJECT
BR. NO. 55C-0400

DEMOLITION DETAILS

Sheet Reference Number

ST-04

Sheet 43 of 76

USERNAME => quinoveva DATE PLOTTED => 9/19/2016 TIME PLOTTED => 8:42:23 AM

AS-BUILT SEPTEMBER 2019

County of Orange	
Public Works	
AS-BUILT	
Contractor:	Kiewit Infrastructure West Company
Resident Engineer:	Elmo Delos Santos (PreScience Corp.)
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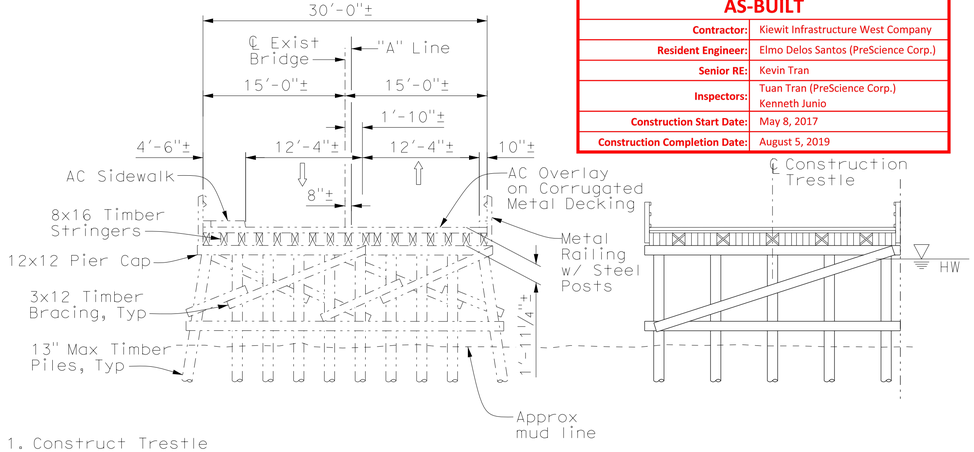
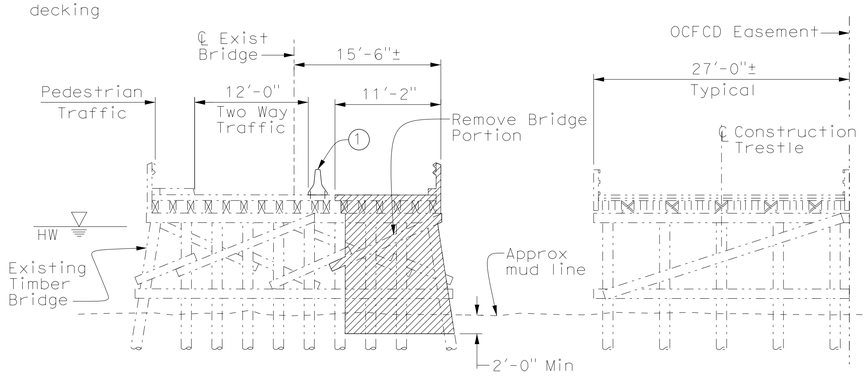
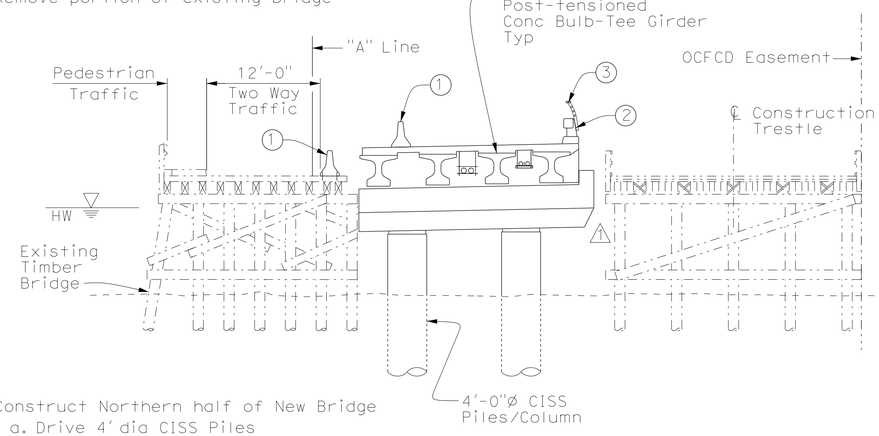


1. Construct Trestle
   a. Drive Temp Piles
   b. Install bracing and timber decking



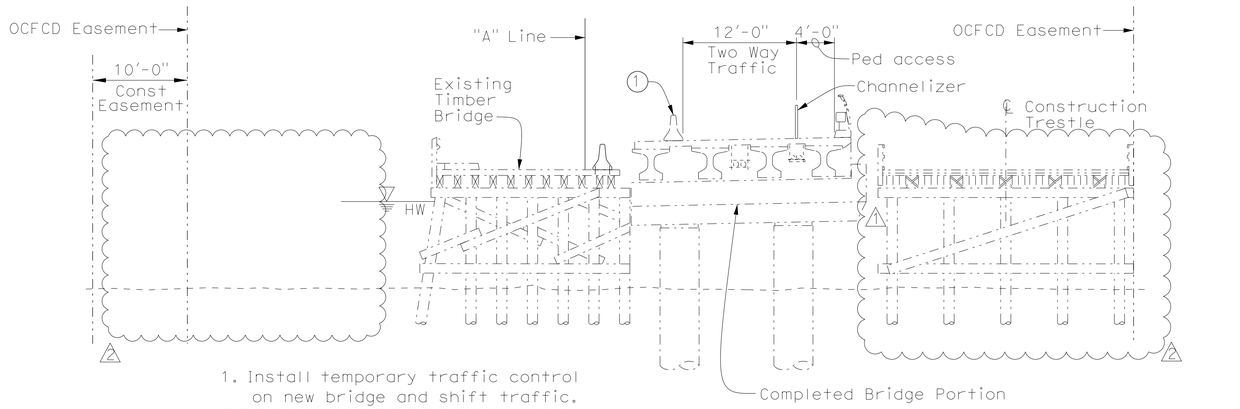
2. Close WB Lane (Northern)
3. Install two way traffic control
4. Shift traffic to one lane
5. Remove portion of existing bridge

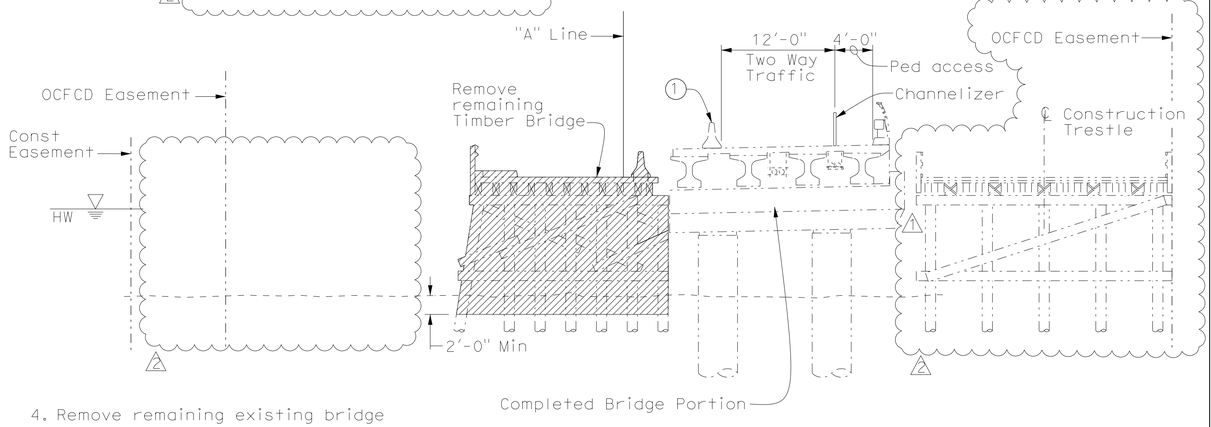


6. Construct Northern half of New Bridge
   a. Drive 4' dia CISS Piles
   b. Construct column and bent cap
   c. Place precast beams
   d. Cast Deck
   e. Stress Beams, Install Barriers

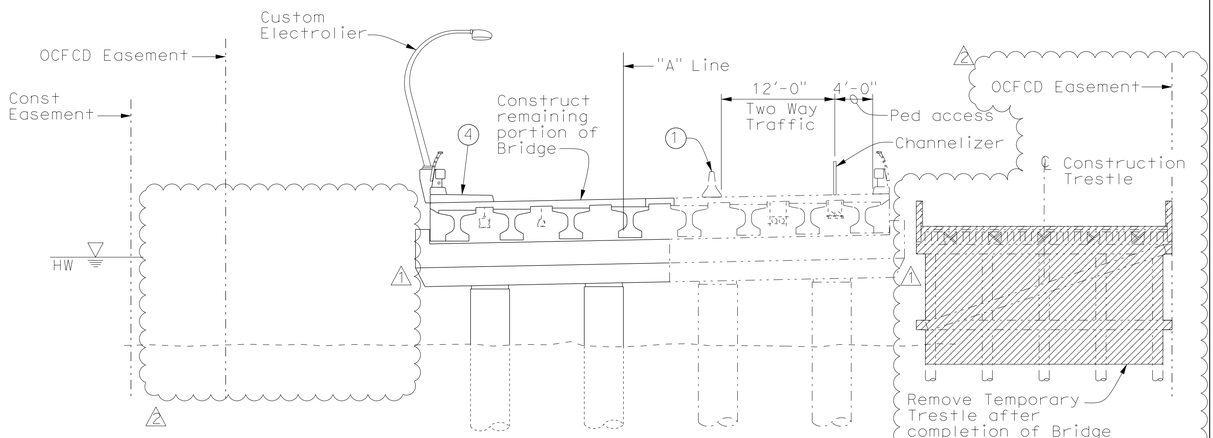
STAGE 1 CONSTRUCTION

1/8" = 1'-0"





4. Remove remaining existing bridge



5. Construct Southern half of New Bridge
   a. Drive 4' dia CISS Piles
   b. Construct column and bent cap
   c. Place precast beams
   d. Cast Deck
   e. Stress Beams, Install Barriers

6. Install permanent traffic striping and lighting.
7. Shift to two lane/two way traffic
8. Remove temporary construction trestle

LEGEND

1. Temporary Railing, Type K
2. Conc Barrier, Type 80
3. Pedestrian Hand Railing
4. Conc Barrier, Type 80SW

STAGE 2 CONSTRUCTION

1/8" = 1'-0"

COUNTY OF ORANGE CALIFORNIA

MARK	DESCRIPTION	DATE	APPR.
1	ELIMINATE SOUTH TRESTLE	12/11/17	
2	REVISED END OF BENT CAP	05/12/17	

PREPARED UNDER THE RESPONSIBLE CHARGE OF:

REGISTERED PROFESSIONAL ENGINEER — TODD W. DUDLEY — No. C39514 — Exp. 12/31/17 — CIVIL — STATE OF CALIFORNIA

TODD W. DUDLEY — DATE 12/11/17

DESIGNED BY: A. SELLADURAI/R. PRICE
DRAWN BY: R. ANDRASEK
CHECKED BY: M. STILLER
DRAWING CODE: F06-101-7
FILE NAME:
PLOT DATE:
SCALE: AS SHOWN

COUNTY OF ORANGE
OC PUBLIC WORKS

PREPARED BY:
AECOM
999 W. Town & Country Road
Orange, CA 92868
(714) 567-2501

EDINGER AVENUE BRIDGE AT BOLSA CHICA CHANNEL
REPLACEMENT PROJECT
BR. NO. 55C-0400

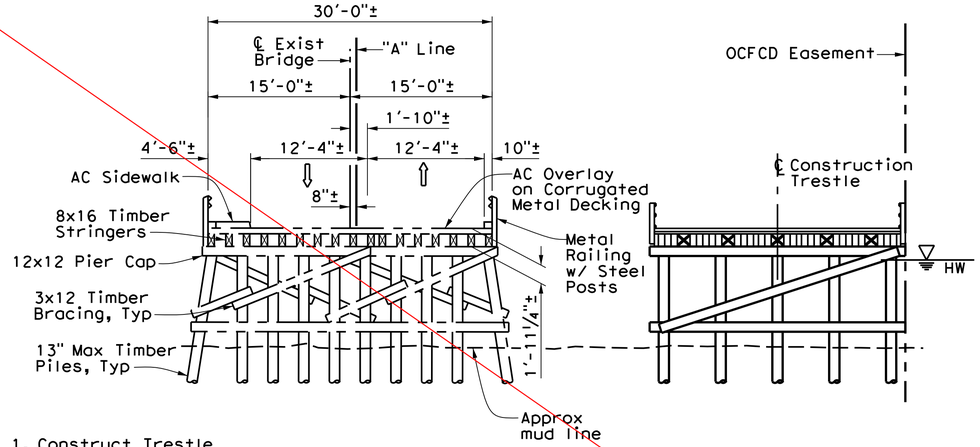
CONSTRUCTION STAGING SCHEMATIC

Sheet Reference Number

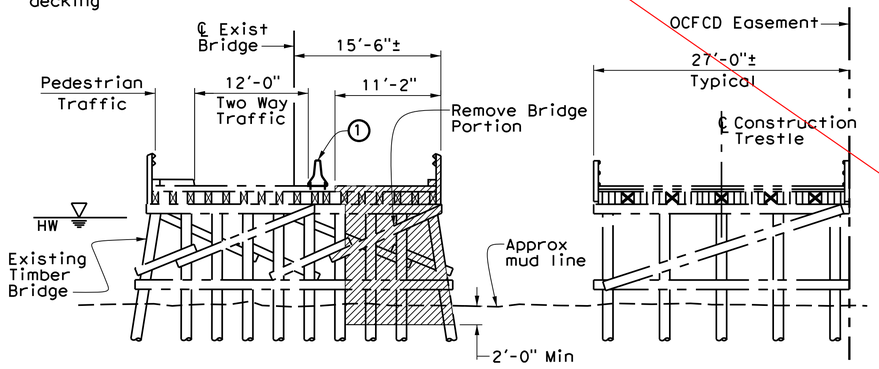
ST-05

USERNAME => David.Hepp@ATE PLOTTED => 12/11/2017 TIME PLOTTED => 2:19:57 PM

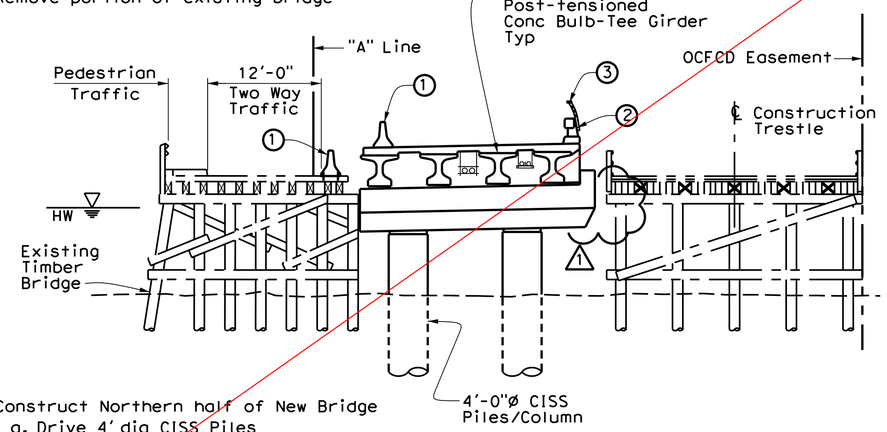
AS-BUILT SEPTEMBER 2019



1. Construct Trestle
   a. Drive Temp Piles
   b. Install bracing and timber decking

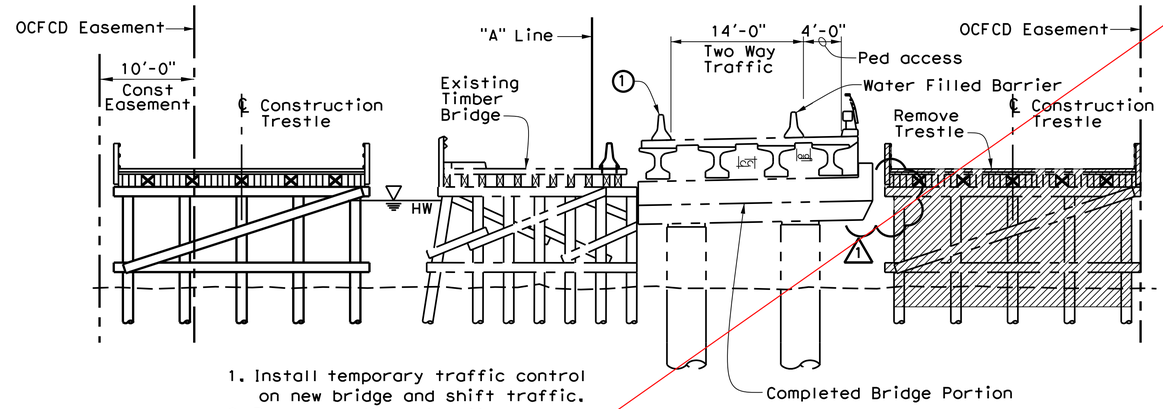


2. Close WB Lane (Northern)
3. Install two way traffic control
4. Shift traffic to one lane
5. Remove portion of existing bridge
6. Remove portions of supplemental bents 13A and 13B. See "Demolition Details" sheet for details.

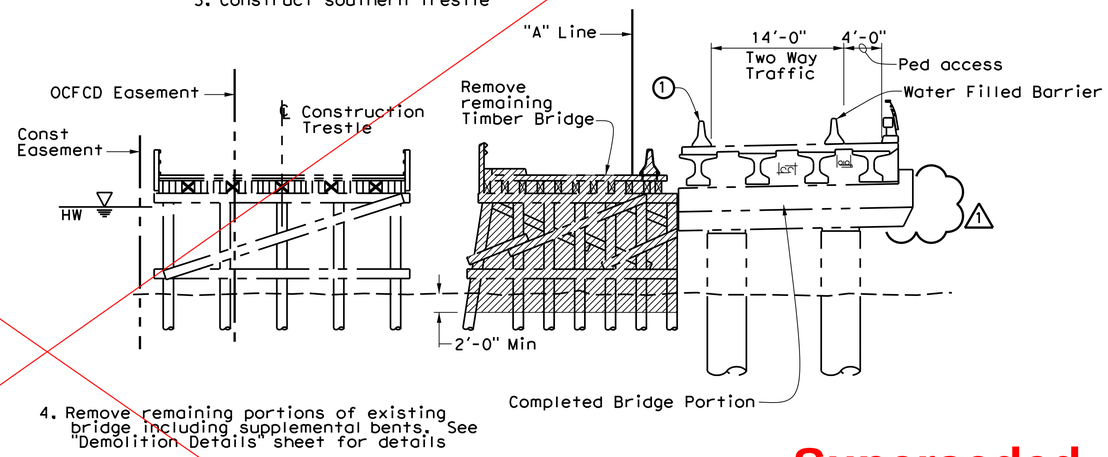


7. Construct Northern half of New Bridge
   a. Drive 4' dia CISS Piles
   b. Construct column and bent cap
   c. Place precast beams
   d. Cast Deck
   e. Stress Beams, Install Barriers

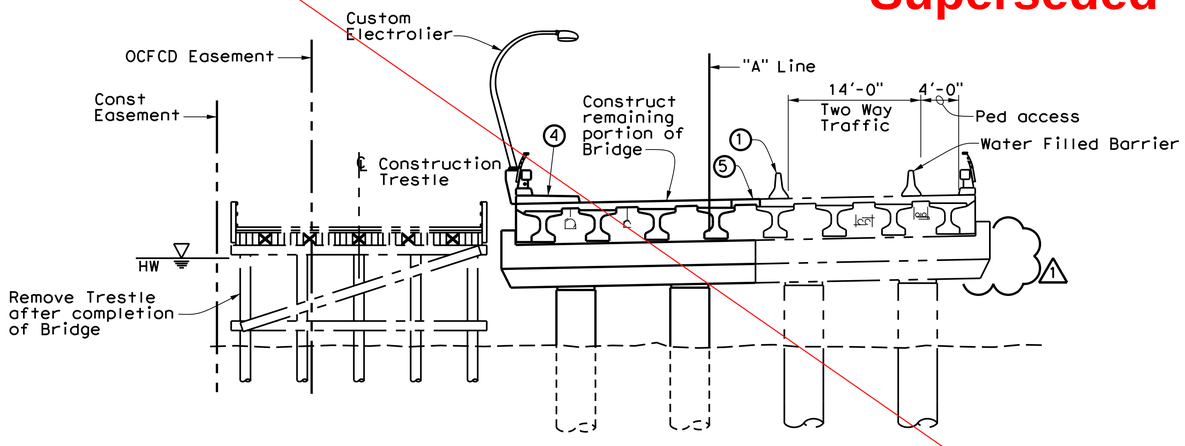
STAGE 1 CONSTRUCTION
1/8" = 1'-0"



1. Install temporary traffic control on new bridge and shift traffic.
2. Remove northern trestle
3. Construct southern trestle



4. Remove remaining portions of existing bridge including supplemental bents. See "Demolition Details" sheet for details



5. Construct Southern half of New Bridge
   a. Drive 4' dia CISS Piles
   b. Construct column and bent cap
   c. Place precast beams
   d. Cast Deck
   e. Stress Beams, Install Barriers
6. Install permanent traffic striping and lighting.
7. Shift to two lane/two way traffic
8. Remove temporary southern trestle

STAGE 2 CONSTRUCTION
1/8" = 1'-0"

Superseded

LEGEND

① Temporary Railing, Type K
② Conc Barrier, Type 80
③ Pedestrian Hand Railing
④ Conc Barrier, Type 80SW
⑤ Closure Pour

COUNTY OF ORANGE CALIFORNIA

MARK	DESCRIPTION	DATE	APPR.
1	Revised End of Bent Cap	5/18/17	

PREPARED UNDER THE RESPONSIBLE CHARGE OF:
REGISTERED PROFESSIONAL ENGINEER TODD W. DUDLEY No. C39514 Exp.12/31/17 CIVIL STATE OF CALIFORNIA
TODD W. DUDLEY
DATE 2/9/17

DESIGNED BY: A. SELLADURAI/R. PRICE
DRAWN BY: R. ANDRASEK
CHECKED BY: M. STILLER
DRAWING CODE: F06-QH-7
FILE NAME:
PLOT DATE:
SCALE: AS SHOWN

COUNTY OF ORANGE
OC PUBLIC WORKS

PREPARED BY:
AECOM
999 W. Town & Country Road
Orange, CA 92868
(714) 567-2501

EDINGER AVENUE BRIDGE AT BOLSA CHICA CHANNEL
REPLACEMENT PROJECT
BR. NO. 55C-0400

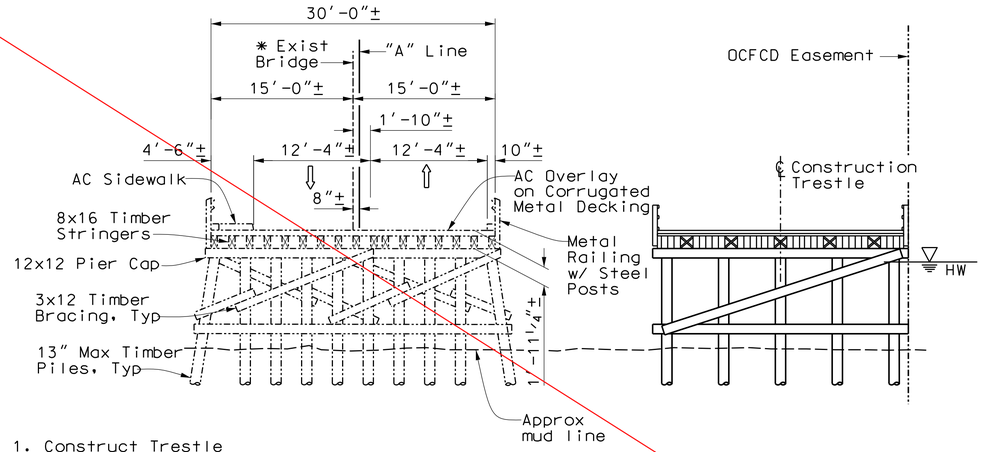
CONSTRUCTION STAGING SCHEMATIC

Sheet Reference Number
ST-05

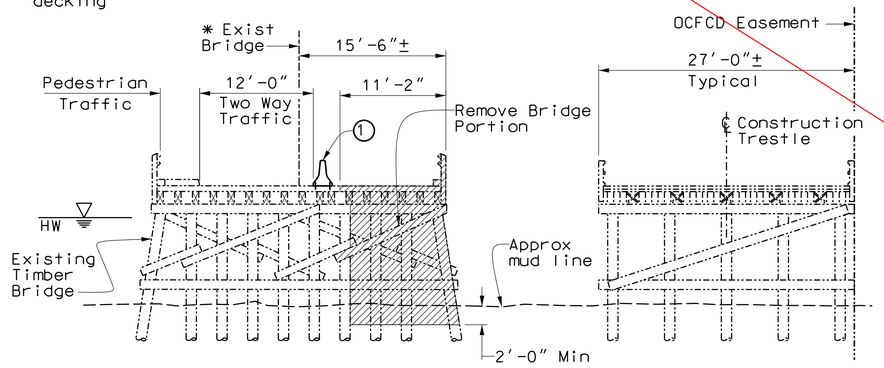
Sheet 44 of 76

USERNAME => $USER DATE PLOTTED => $DATE TIME PLOTTED => $TIME

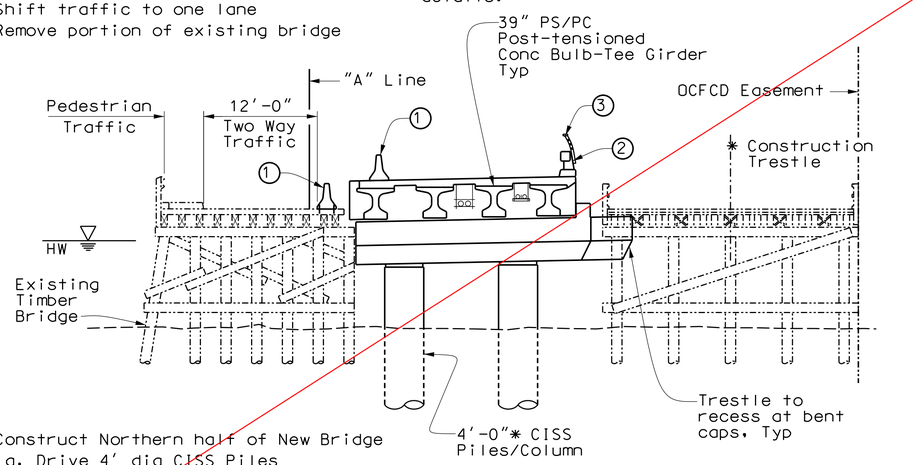
AS-BUILT SEPTEMBER 2019



1. Construct Trestle
   a. Drive Temp Piles
   b. Install bracing and timber decking

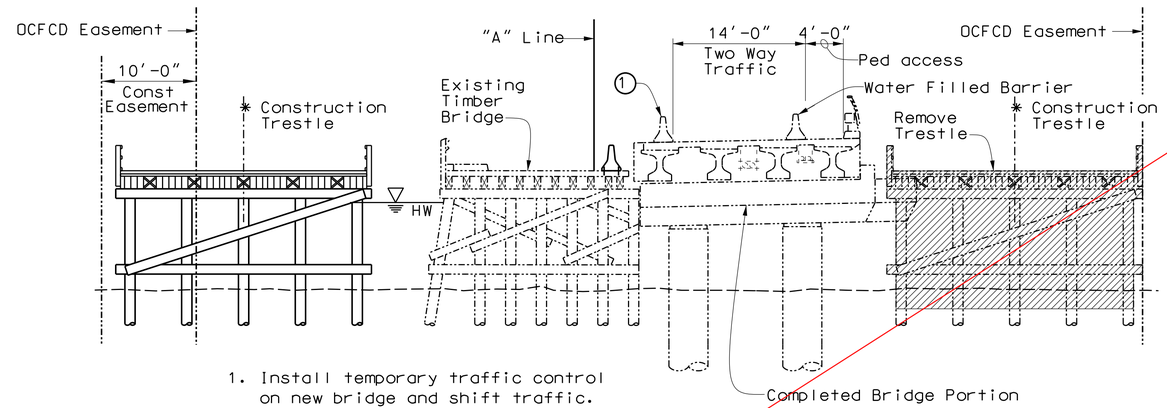


2. Close WB Lane (Northern)
3. Install two way traffic control
4. Shift traffic to one lane
5. Remove portion of existing bridge
6. Remove portions of supplemental bents 13A and 13B. See "Demolition Details" sheet for details.

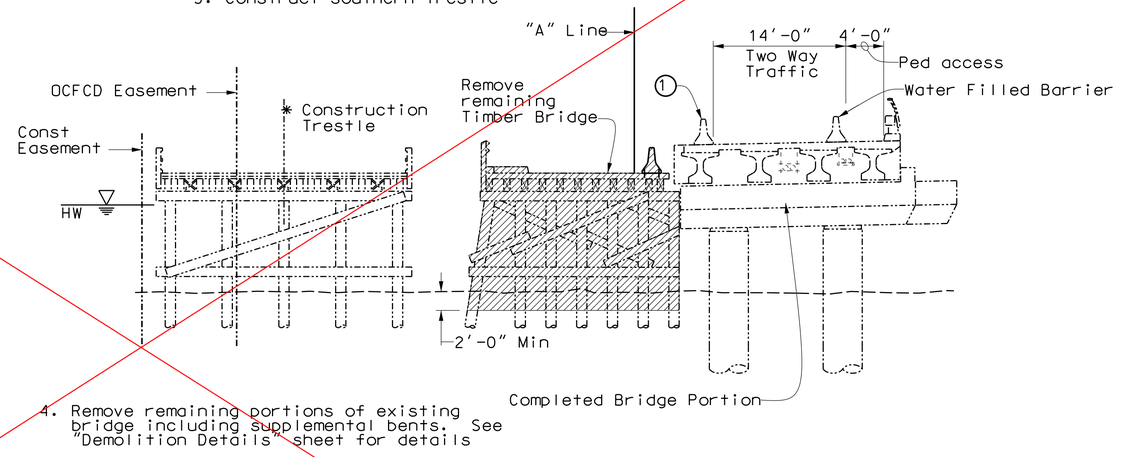


7. Construct Northern half of New Bridge
   a. Drive 4' dia CISS Piles
   b. Construct column and bent cap
   c. Place precast beams
   d. Cast Deck
   e. Stress Beams, Install Barriers

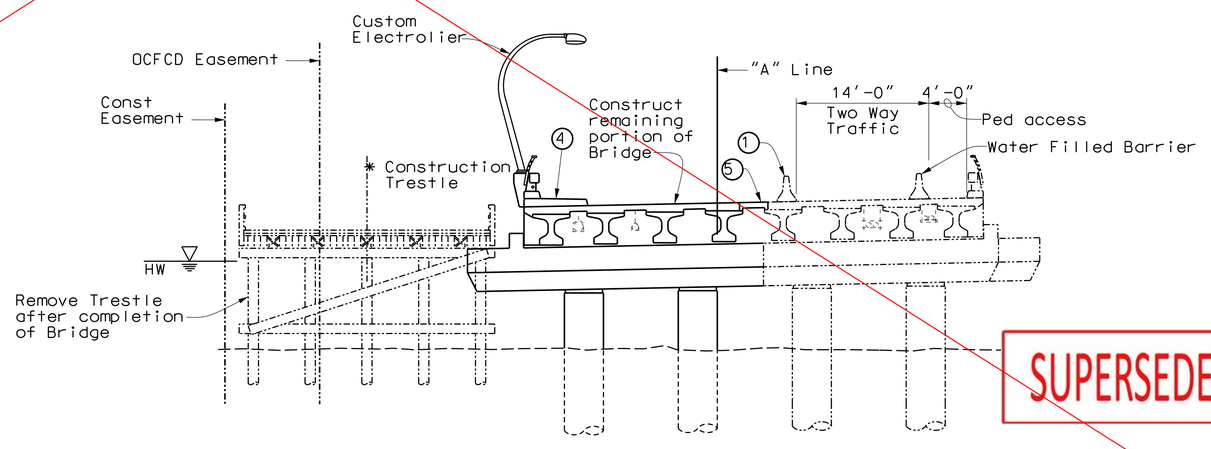
STAGE 1 CONSTRUCTION
1/8" = 1'-0"



1. Install temporary traffic control on new bridge and shift traffic.
2. Remove northern trestle
3. Construct southern trestle



4. Remove remaining portions of existing bridge including supplemental bents. See "Demolition Details" sheet for details



5. Construct Southern half of New Bridge
   a. Drive 4' dia CISS Piles
   b. Construct column and bent cap
   c. Place precast beams
   d. Cast Deck
   e. Stress Beams, Install Barriers
6. Install permanent traffic striping and lighting.
7. Shift to two lane/two way traffic
8. Remove temporary southern trestle

STAGE 2 CONSTRUCTION
1/8" = 1'-0"

SUPERSEDED

LEGEND

① Temporary Railing, Type K
② Conc Barrier, Type 80
③ Pedestrian Hand Railing
④ Conc Barrier, Type 80SW
⑤ Closure Pour

MARK	DESCRIPTION	DATE	APPR.

PREPARED UNDER THE RESPONSIBLE CHARGE OF:
REGISTERED PROFESSIONAL ENGINEER TODD W. DUDLEY No. C39514 Exp 12/31/17 CIVIL STATE OF CALIFORNIA
2/9/17 DATE
TODD W. DUDLEY

DESIGNED BY: A. SELLADURAI/R. PRICE
DRAWN BY: R. ANDRASEK
CHECKED BY: M. STILLER
DRAWING CODE: F06-101-7
FILE NAME:
PLOT DATE:
SCALE: AS SHOWN

COUNTY OF ORANGE
OC PUBLIC WORKS

PREPARED BY:
ACCOM
999 W. Town & Country Road
Orange, CA 92868
(714) 567-2501

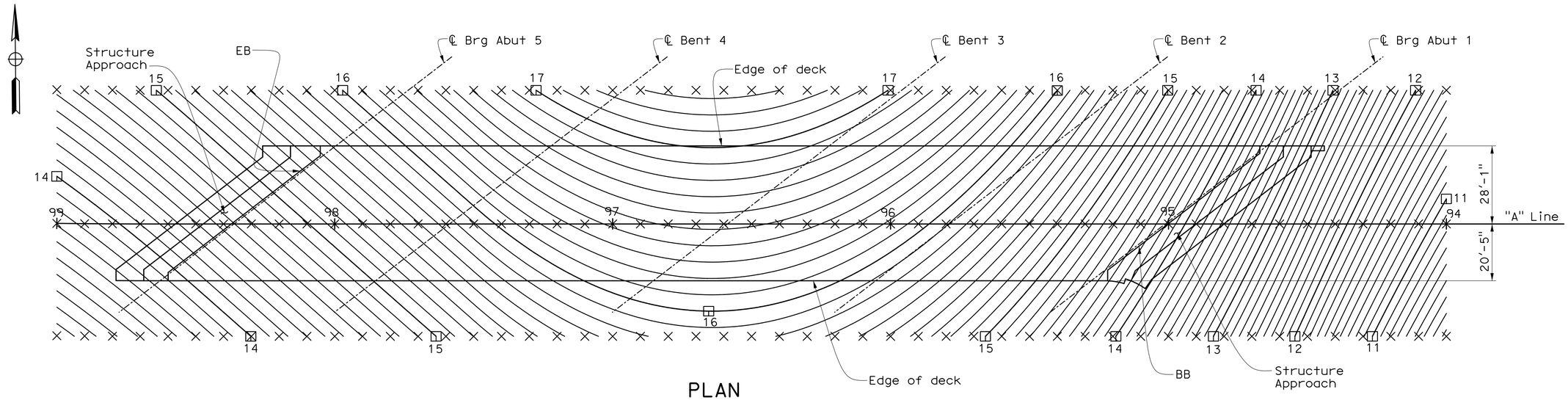
EDINGER AVENUE BRIDGE AT BOLSA CHICA CHANNEL
REPLACEMENT PROJECT
BR. NO. 55C-0400

CONSTRUCTION STAGING SCHEMATIC

Sheet Reference Number
ST-05
Sheet 44 of 76

USERNAME => $USER DATE PLOTTED => $DATE TIME PLOTTED => $TIME

AS-BUILT SEPTEMBER 2019

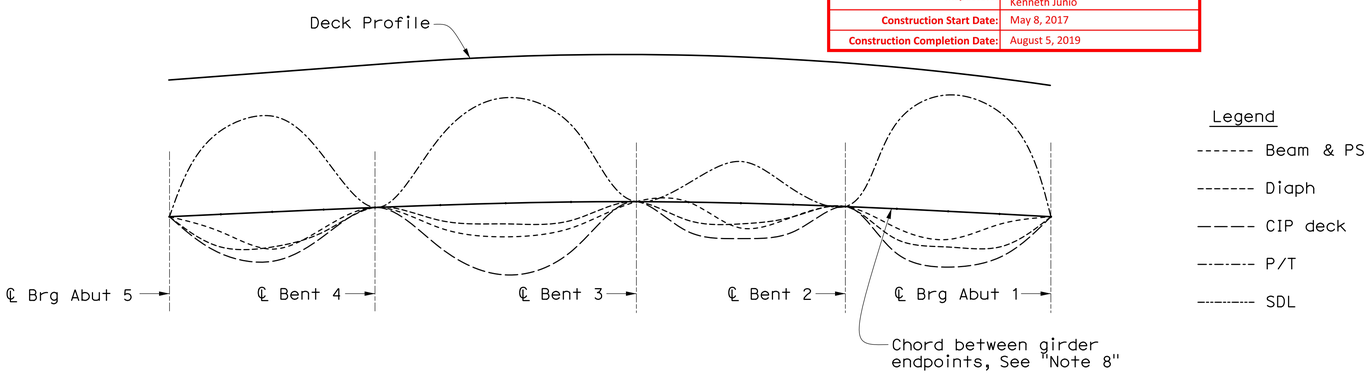


PLAN
1" = 20'

DEFLECTION TABLE

			End Bridge																Begin Bridge
	Point on span		Sp5.00	Sp4.75	Sp4.50	Sp4.25	Sp4.00	Sp3.75	Sp3.50	Sp3.25	Sp3.00	Sp2.75	Sp2.50	Sp2.25	Sp2.00	Sp1.75	Sp1.50	Sp1.25	Sp1.00
INTERIOR GIRDER	Beam & PS	(in)	0.00	-0.04	-0.09	-0.03	0.00	-0.30	-0.53	-0.30	0.00	0.00	-0.03	0.01	0.00	-0.03	-0.06	-0.02	0.00
	Diaph	(in)	0.00	-0.08	-0.08	-0.04	0.00	-0.01	-0.01	-0.01	0.00	-0.01	-0.01	0.00	0.00	-0.06	-0.08	-0.08	0.00
	CIP deck	(in)	0.00	-0.19	-0.23	-0.10	0.00	-0.16	-0.30	-0.18	0.00	-0.04	-0.08	-0.04	0.00	-0.19	-0.26	-0.21	0.00
	P/T	(in)	0.00	0.69	0.79	0.35	0.00	-0.45	0.87	0.51	0.00	0.10	0.22	0.08	0.00	0.71	0.96	0.81	0.00
	SDL	(in)	0.00	-0.11	-0.13	-0.05	0.00	-0.13	-0.23	-0.15	0.00	0.01	-0.01	0.01	0.00	-0.15	-0.19	-0.15	0.00

			End Bridge																Begin Bridge
	Point on span		Sp5.00	Sp4.75	Sp4.50	Sp4.25	Sp4.00	Sp3.75	Sp3.50	Sp3.25	Sp3.00	Sp2.75	Sp2.50	Sp2.25	Sp2.00	Sp1.75	Sp1.50	Sp1.25	Sp1.00
EXTERIOR GIRDER	Beam & PS	(in)	0.00	-0.04	-0.09	-0.03	0.00	-0.30	-0.53	-0.30	0.00	0.00	-0.03	0.01	0.00	-0.03	-0.06	-0.02	0.00
	Diaph	(in)	0.00	-0.03	-0.03	-0.02	0.00	0.00	-0.01	-0.01	0.00	0.00	0.00	0.00	0.00	-0.02	-0.03	-0.03	0.00
	CIP deck	(in)	0.00	-0.17	-0.21	-0.10	0.00	-0.15	-0.28	-0.16	0.00	-0.04	-0.08	-0.04	0.00	-0.18	-0.24	-0.19	0.00
	P/T	(in)	0.00	0.69	0.78	0.35	0.00	0.45	0.87	0.51	0.00	0.10	0.23	0.08	0.00	0.71	0.95	0.80	0.00
	SDL	(in)	0.00	-0.09	-0.10	-0.04	0.00	-0.10	-0.18	-0.12	0.00	0.01	-0.01	0.00	0.00	-0.12	-0.15	-0.12	0.00



DEFLECTION DIAGRAM
No Scale

County of Orange	
Public Works	
AS-BUILT	
Contractor:	Kiewit Infrastructure West Company
Resident Engineer:	Elmo Delos Santos (PreScience Corp.)
Senior RE:	Kevin Tran
Inspectors:	Tuan Tran (PreScience Corp.) Kenneth Junio
Construction Start Date:	May 8, 2017
Construction Completion Date:	August 5, 2019

Legend
- ------- Beam & PS
- ------- Diaph
- ———— CIP deck
- -·-·-·- P/T
- ---------- SDL

LEGEND
- × 10' interval along "A" Line
- ◱ Indicates even foot contours
- Contour interval is 0.10'
- Contours do not include allowance for camber
- Contours are for top of deck

DEFLECTION TABLE NOTES:

1. Deflection values are provided for information only. It is the Contractor's responsibility to verify deflection values.
2. Deflections are positive upwards.
3. Beam & PS - Includes girder self weight and camber from prestressing forces assuming erection occurs 28 days after casting.
4. Diaph - Includes cast-in-place diaphragms.
5. CIP Deck - Includes cast-in-place deck and haunch deflections.
6. P/T - Includes post tensioning of all tendons.
7. SDL - Includes barriers, fence, utilities, and future wearing surface. The future wearing surface accounts for approximately 60% of the total SDL deflection.
8. The girders shall be placed such that the chord connecting the endpoints of each girder is parallel to the chord of the deck profile at those same points. The deflections shown in the table are measured from the chord that connects the endpoints of each girder.
9. Using the final top of deck elevations shown on "Deck Contours" sheet, the surveyed top of girder elevations, and the tabulated expected girder deflections hereon, the Contractor shall compute the required deck haunch at intervals not exceeding 1/10th of the span.
10. If the required deck haunch at any location, measured from the top of the girder to the bottom of the cast-in-place deck, is less than zero, corrective action is required. To mitigate this problem, adjust either the girder profile or the deck profile to provide a positive haunch thickness. Any adjustments to the deck profile shall be submitted to the Engineer for approval prior to setting of the deck haunch forms.
11. Deflection table uses multipliers found in PCI Design Handbook, Section 4.6.5. Deflection calculations may be provided upon request to the Engineer.

COUNTY OF ORANGE CALIFORNIA

MARK	DESCRIPTION	DATE	APPR.

PREPARED UNDER THE RESPONSIBLE CHARGE OF:
REGISTERED PROFESSIONAL ENGINEER TODD W. DUDLEY No. C39514 Exp.12/31/17 CIVIL STATE OF CALIFORNIA
9/19/16 DATE
TODD W. DUDLEY

DESIGNED BY: A. SELLADURAI/R. PRICE
DRAWN BY: R. ANDRASEK
CHECKED BY: M. STILLER
DRAWING CODE: F06-10-7
FILE NAME:
PLOT DATE:
SCALE: AS SHOWN

COUNTY OF ORANGE
OC PUBLIC WORKS

PREPARED BY:
AECOM
999 W. Town & Country Road
Orange, CA 92868
(714) 567-2501

EDINGER AVENUE BRIDGE AT BOLSA CHICA CHANNEL REPLACEMENT PROJECT
BR. NO. 55C-0400

DECK CONTOURS

Sheet Reference Number
ST-06

USERNAME => quinovevaDATE PLOTTED => 9/19/2016 TIME PLOTTED => 8:42:32 AM

AS-BUILT SEPTEMBER 2019

BASIS OF BEARINGS

Based on bearing between O.C.S. horizontal control stations #0940 and #0944 being N 76°47'10"W per O.C.S file #HB95_6-7N in the office of the County Surveyor.

Hydrologic & Hydraulic Data Summary			
Description	Design Flood	Base Flood	Overtopping/ Record Flood
Frequency (Years)	N/A	100	>100
Discharge (cfs)	N/A	12,000	15,000
Velocity (ft/s)	N/A	7.04	8.37
W.S. Elevation (ft)	N/A	6.16	6.69

Floodplain data are based upon information available when the plans were prepared. The accuracy of said information is not warranted by the County of Orange or the Engineering Consultants. Any interested for affected parties should make their own investigations.

PILE DATA TABLE						
Location	Pile Type	Nominal Resistance (Kips)		Design Tip Elevation (ft)	Specified Tip Elevation (ft)	Nominal Driving Resistance (kips)
		Compression	Tension			
Abut 1	48"ø CISS	1470	0	-90 (a), -41 (c) -108 (d)	-108	1470
Bent 2	48"ø CISS	1690	0	-116 (a), -50 (c) -105 (d)	-116	2270
Bent 3	48"ø CISS	1690	0	-116 (a), -50 (c) -105 (d)	-116	2100
Bent 4	48"ø CISS	1840	0	-120 (a), -50 (c) -106 (d)	-120	2010
Abut 5	48"ø CISS	1080	0	-80 (a), -41 (c) -108 (d)	-108	1080

Design tip elevation is controlled by the following demands:
1. (a) Compression, (b) Tension, (c) Settlement, & (d) Lateral Load.
2. There is no design tip elevation for Tension at Abuts 1 & 5 and Piers 2 though 4.
3. The specified tip elevations shall not be raised above the design tip elevation for Settlement and Lateral Load.

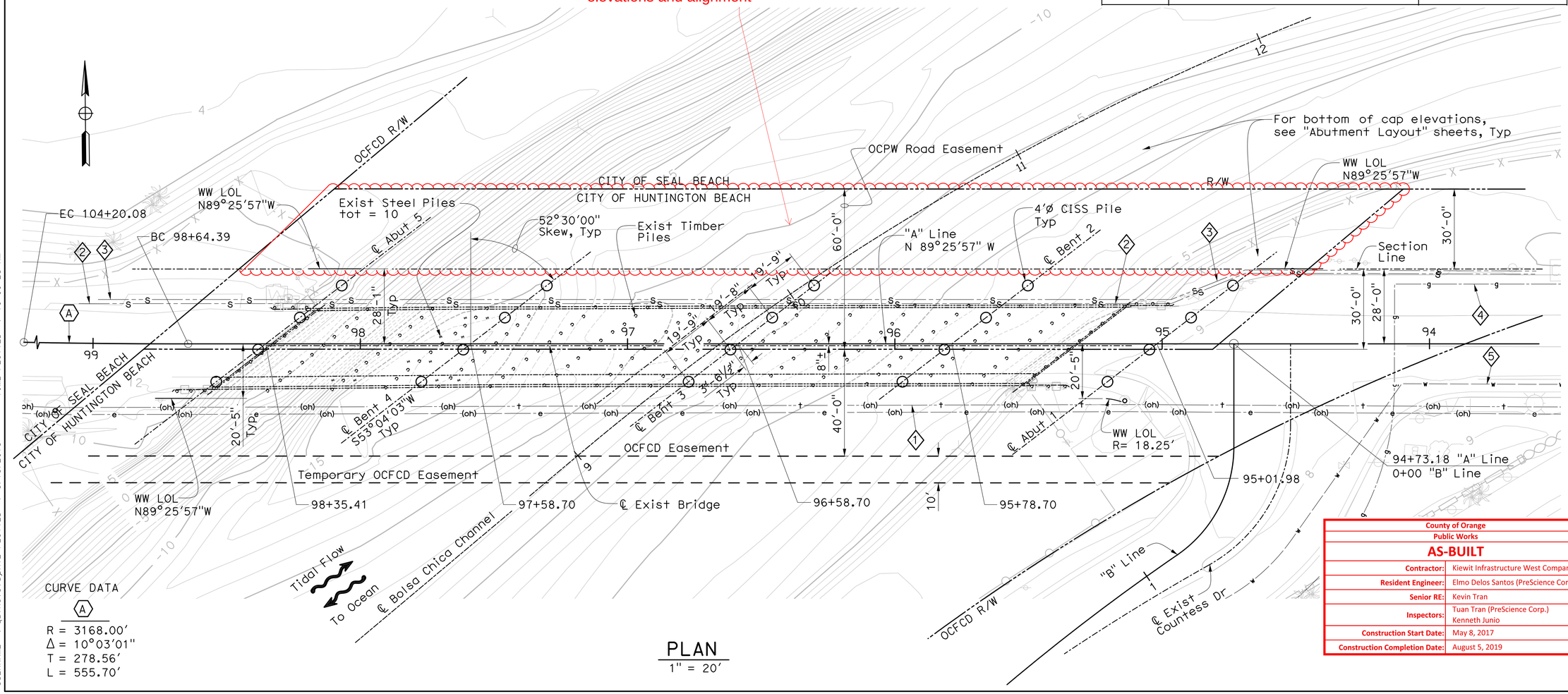
Note:
For CISS pile cut-off elevations, see "CISS Concrete Pile Details" sheet.

RFI 080: Temporary trestle steel shell pile (36 inch x 0.429 inch) abandoned in-place; cut 3' below mudline; refer to next sheet for pile tip elevations and alignment

EXISTING UTILITY LEGEND

1. Existing overhead electric (SCE) combined with telecommunications (Verizon)
2. Existing 2- 2"ø PVC Sewer Force main in 4"ø steel casings (City of Seal Beach)
3. Existing 4"ø PVC Force main (City of Seal Beach) (Protect in place)
4. Existing Gas (Southern California Gas) (Protect in place)
5. Existing 12"ø Water (City of Huntington Beach) (Protect in place)

SCOUR DATA TABLE		
Location	Long Term (Degredation and Contraction) Scour Elevation (ft)	Short Term (Local) Scour Depth (ft)
Abut 1	3.7	N.A.
Bent 2	-3.8	9.9
Bent 3	-9.3	9.9
Bent 4	-21.3	9.9
Abut 5	1.2	N.A.



PLAN
1" = 20'

CURVE DATA
A
R = 3168.00'
Δ = 10°03'01"
T = 278.56'
L = 555.70'

County of Orange	
Public Works	
AS-BUILT	
Contractor:	Kiewit Infrastructure West Company
Resident Engineer:	Elmo Delos Santos (PreScience Corp.)
Senior RE:	Kevin Tran
Inspectors:	Tuan Tran (PreScience Corp.) Kenneth Junio
Construction Start Date:	May 8, 2017
Construction Completion Date:	August 5, 2019

COUNTY OF ORANGE CALIFORNIA

MARK	DESCRIPTION	DATE	APPR.

PREPARED UNDER THE RESPONSIBLE CHARGE OF:
REGISTERED PROFESSIONAL ENGINEER TODD W. DUDLEY No. C39514 Exp.12/31/17 CIVIL STATE OF CALIFORNIA
9/19/16 DATE
TODD W. DUDLEY

DESIGNED BY: A. SELLADURAI/R. PRICE
DRAWN BY: R. ANDRASEK
CHECKED BY: M. STILLER
DRAWING CODE: F06-01-7
FILE NAME:
PLOT DATE:
SCALE: AS SHOWN

COUNTY OF ORANGE
OC PUBLIC WORKS

PREPARED BY:
AECOM
999 W. Town & Country Road
Orange, CA 92868
(714) 567-2501

EDINGER AVENUE BRIDGE AT BOLSA CHICA CHANNEL REPLACEMENT PROJECT BR. NO. 55C-0400

FOUNDATION PLAN

Sheet Reference Number
ST-07

USERNAME => quinovevaDATE PLOTTED => 9/19/2016 TIME PLOTTED => 10:00:23 AM

AS-BUILT SEPTEMBER 2019

County of Orange	
Public Works	
AS-BUILT	
Contractor:	Kiewit Infrastructure West Company
Resident Engineer:	Elmo Delos Santos (PreScience Corp.)
Senior RE:	Kevin Tran
Inspectors:	Tuan Tran (PreScience Corp.) Kenneth Junio
Construction Start Date:	May 8, 2017
Construction Completion Date:	August 5, 2019

North Temporary Trestle (Abandoned-in-place)

GENERAL NOTES:

1. All structural steel shall be ASTM A36, U.N.O. Trestle stringers and cap beams shall be Grade 50. Pipe pile shall have a minimum yield strength, Fy = 70 ksi.

2. All structural steel shall be detailed es per AISC Standards. Member sizes shown are minimum required. Equivalent or larger sizes may be substituted with prior approvel from VAK.

3. All welding shall be done with E70 electrodes in conformance with Americas Welding Society (AWS) Structural Welding Code AWS D1.1.

6. All stiffeners shell be 3/4" Plete end shall extend to within 1/4" of flange edge. All stiffeners shall be welded with double 3/8" fillets at beam flanges and double 5/16" fillets at webs unless noted otherwise.

7. Stringers shell be placed within 2% of plumb.

8. Wood decking shall be DF-L No. 2 or better.

9. Trestle plumb piles shall be Ø36"x0.429" wall and shall be driven to 300 ton minimum allowable bearing capacity. Ultimate pile capacity shall be based on blows per inch determined using the Gates equation, or equivalent with a minimum factor of safety of 2.0. Pile shall be driven to a minimum embedment of 25'-0" typical. Required embedment by capacity may be more.

10. Pins at batter pile top connections shall be 4"Ø XXS grade X52 pipes.

11. Alternate Crane sizes and loading may be acceptable with prior approval from VAK. Note that pick weights and radii shown are only for trestle design purposes. Actual load charts for each crane shall govern their use.

12. Outrigger pads for the indicated Tadeno GR-750 XL shell be 3-ft x 3-ft minimum end shall be capeble of distributing the outrigger load to at least (3) deck timbers. Outriggers must be located inside of the exterior stringers, but are otherwise unrestricted.

13. Design Loads:
-Liebherr LR 1300 743.28 kip GVW with 164ft main boom. Maximum pick of 100,000 lbs. et 70 foot radius.
OR
-Liebherr LR 1300 643.28 kip GVW with 164ft main boom. Maximum pick of 0 lbs. et 30 foot radius.
OR
-Liebherr LR 1160 429.68 kip GVW with 132.5ft main boom. Maximum pick of 78,000 lbs. at 71 foot radius.
(One crane shall be permitted on the work trestle at any given time. Crane must be centered on the trestle deck at all time.)
- Tadano GR-750 XL with 36ft boom. Maximum pick of 56,700 lbs at 20-ft radius, with corresponding max. outrigger load of 80k.
- HS-25 Truck Load - By Inspection (w/ impact)

14. Design References:
AISC Manual of Steel Construction, ASD.
AASHTO Std. Spec. For Bridges
NDS For Wood Construction

Know what's below. Call before you dig. 811

SYM.	REVISIONS	BY	DATE	CHK'D
0	Issued For Submittal	DJF	04/28/2017	NPJ

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VAK Construction Engineering Services, LLC
8285 SW Nimbus Avenue, Suite 104
Beaverton, Oregon 97008
503.718.5999 tel 503 718.5980 fax
www.vakengineering.com

KIEWIT
Edinger Bridge Over Bolsa Chica Channel
Location

Drawn By:	Date:	Designer:	CHK'D By:	Scale:	Drawing Number:	Rev.
DJF	04/10/2017	NPJ	NPJ	AS NOTED	17-073A-01	0

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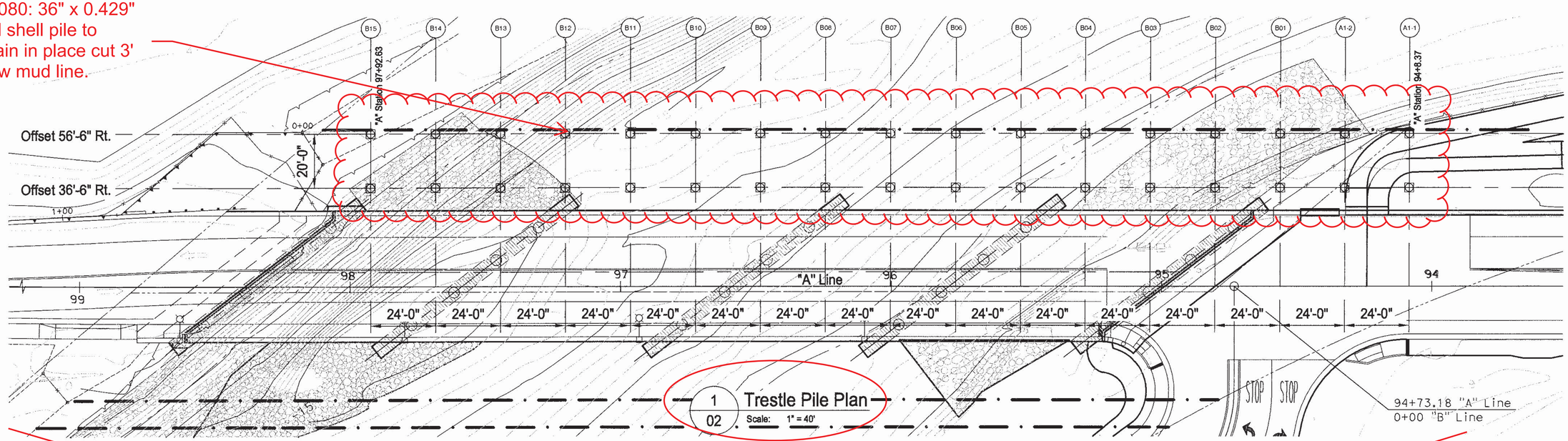
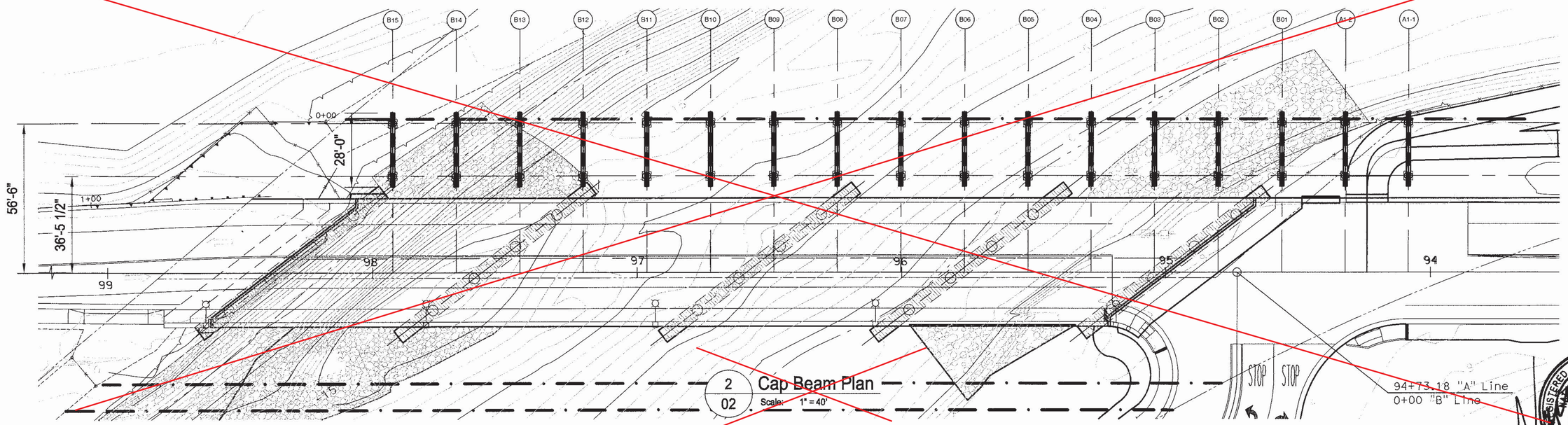
AS-BUILT SEPTEMBER 2019

RFI 080: 36" x 0.429" steel shell pile to remain in place cut 3' below mud line.



1/02 Trestle Pile Plan
Scale: 1" = 40'



2/02 Cap Beam Plan
Scale: 1" = 40'

North Temporary Trestle (Abandoned-in-place)

County of Orange	
Public Works	
AS-BUILT	
Contractor:	Kiewit Infrastructure West Company
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SYM.	REVISIONS	BY	DATE	CHKD
0	Issued For Submittal	DJF	04/28/2017	NPJ

VAK Construction Engineering Services, LLC
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Beaverton, Oregon 97008
503.718.5999 tel 503.718.5980 fax
www.vakengineering.com

KIEWIT
Edinger Bridge Over Bolsa Chica Channel
Plan

Drawn By:	Date:	Designer:	CHK'D By:	Scale:	Drawing Number:	Rev.
DJF	04/10/2017	NPJ	NPJ	AS NOTED	17-073A-02	0

REGISTERED PROFESSIONAL ENGINEER NICHOLAS P. JAQUES 81744 Exp. 9/30/17 CIVIL STATE OF CALIFORNIA

Kiewit

V:\2017\17073 KIEWIT EDINGER BRIDGE REPLACEMENT PROJECT\PHASE A TRESTLE DESIGN\DRGS\R0\17-073A_R0.dwg, 17-073A-0(2), 4/28/2017 9:39:46 AM, dfuller
CAD FILE: 17-073A_R0.DWG

AS-BUILT SEPTEMBER 2019

North Temporary Trestle (Abandoned-in-place)

County of Orange	
Public Works	
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Kiewit

MEMORANDUM

REGISTERED PROFESSIONAL ENGINEER NICHOLAS P. GURA C-83628 Exp. 3-31-19 CIVIL STATE OF CALIFORNIA 5/26/17

DATE: May 26, 2017

TO: William Searles; Kiewit Infrastructure Group Co.

FROM: Nick Gura, P.E.; Kiewit Engineering Group, Inc.
Eric Anderson; Kiewit Engineering Group, Inc.

SUBJECT: Edinger Bridge at Bolsa Chica Channel – Trestle Bridge Pile Analysis

---

Per your request, Kiewit Engineering has completed the analysis for the trestle bridge for the subject project in Huntington Beach, California. The scope of our analysis was to develop pile lengths for the required axial compression capacity and evaluate the lateral capacity of the piles. The proposed pipe piles are 36 inch by 0.429 inch wall open end pipe pile with a yield strength (fy) of 70 ksi.

The existing ground surface and mudline vary along the alignment of trestle from EL -15 ft to the pile cutoff elevation of El+7.5 ft or higher. Note 9 on the issued for submittal plans dated 4/28/17 by VAK provided a design capacity of 300 tons or 600 kips per pile in axial compression with a minimum factor of safety of 2 for an ultimate single pile capacity of 1200 kips. The lateral load of 38 kips per bent was provided in an email from the trestle bridge engineer of record. A single pile lateral load of 19 kips combined with an axial load of 600 kips was used for the lateral pile analysis

Borings B2 and B1 were evaluated for axial capacity using the API method. A unit side resistance ratio of 0.2 internal pipe friction to external pipe friction was used for the end of initial drive and long term pile capacity analysis. Table 1 below summarizes the results of our analysis. The appendix contains the axial pile capacity and WEAP analyses.

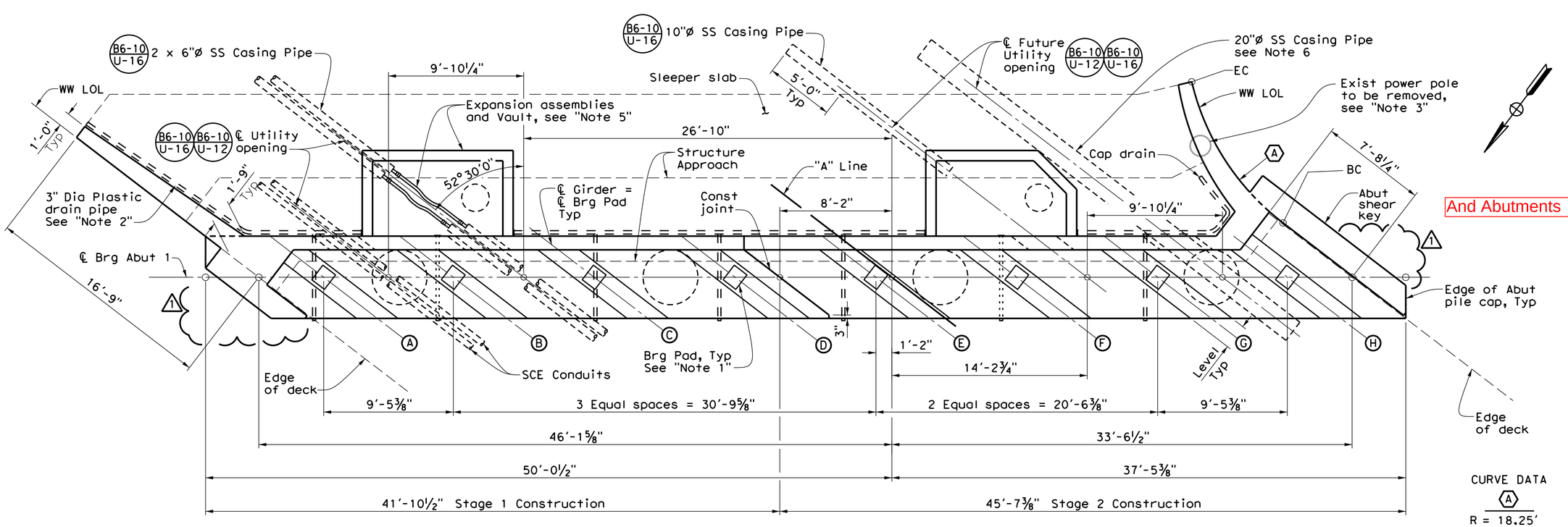
The 600 kip axial load is based on the Liehberr LR1300 Crane and it is our understanding the LR1300 will not be used until at least two weeks after the trestle bridge construction is completed. Therefore we have considered that full pile-soil setup has occurred. We understand that the Manitowoc 999 crane will be used to install the trestle piles and the permanent bridge piles. Furthermore the design (allowable) axial load per pile for the M999 is 500 kips or less. Therefore we have evaluated the end of initial drive pile capacities for the M999 crane pile load, with a factor of safety of 2 for an ultimate pile capacity of 1,000 kips.

Table 1 – Trestle Pile Lengths for Axial Compression

Trestle Bent Location	Boring	Approximate Ground surface/ Mudline Elev. (ft)	Pile tip Elev. (ft)	D62 - Final Set Count (bl/ft)
B15 to B12	B-2	-15	-90	NP
B11 to B8	B-2	-5	-90	NP
B7 to B3	B-1	0	-75	NP
B2 to A1-1	B-1	+5	-72	40

NP = not performed

AS-BUILT SEPTEMBER 2019



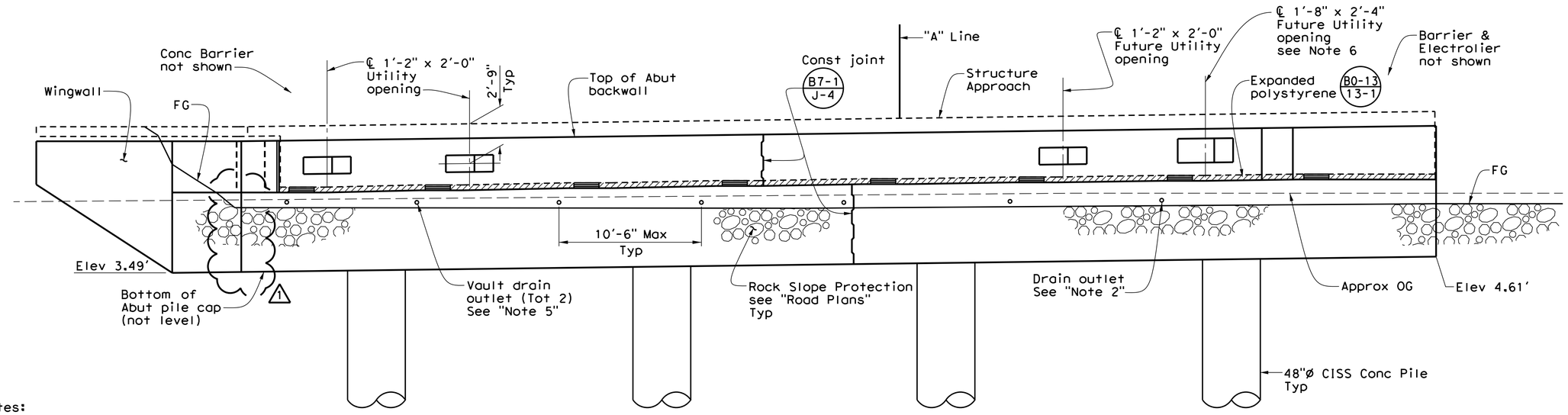
ABUTMENT 1 PLAN

¼" = 1'-0"

CURVE DATA

(A)

R = 18.25'
Δ = 39°14'37"
T = 6.51'
L = 12.50'



ABUTMENT 1 ELEVATION

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Notes:

1. Total 8 steel reinforced elastomeric bearing pads. See "Bearing Pad Detail" on "Abutment Details No. 1" sheet.
2. For drainage details, see "Structure Approach Drainage Details" sheet.
3. For Utility information, see "Foundation Plan" sheet and "Road Plans".
4. For wingwall layout, see Abutment Details No. 3 & No. 4 sheets.
5. For utility expansion assembly and Vault details, see "Utility Details" sheet.
6. For utility opening details, see "DETAIL U1" on sheet ST-25.

(A) Indicates Girder Designation

County of Orange	
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AS-BUILT	
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And Abutments

MARK	DESCRIPTION	DATE	APPR.
1	Revised End of Bent Cap	5/18/17	

PREPARED UNDER THE RESPONSIBLE CHARGE OF: TODD W. DUDLEY, No. C39514, Exp. 12/31/17, CIVIL, REGISTERED PROFESSIONAL ENGINEER, STATE OF CALIFORNIA — DATE 2/9/17

DESIGNED BY: A. SELLADURAI/R. PRICE
DRAWN BY: R. ANDRASEK
CHECKED BY: M. STILLER
DRAWING CODE: F06-10-7
FILE NAME:
PLOT DATE:
SCALE: AS SHOWN

COUNTY OF ORANGE OC PUBLIC WORKS

PREPARED BY: AECOM, 999 W. Town & Country Road, Orange, CA 92868, (714) 567-2501

EDINGER AVENUE BRIDGE AT BOLSA CHICA CHANNEL REPLACEMENT PROJECT BR. NO. 55C-0400

ABUTMENT 1 LAYOUT

Sheet Reference Number

ST-08

Sheet 47 of 76

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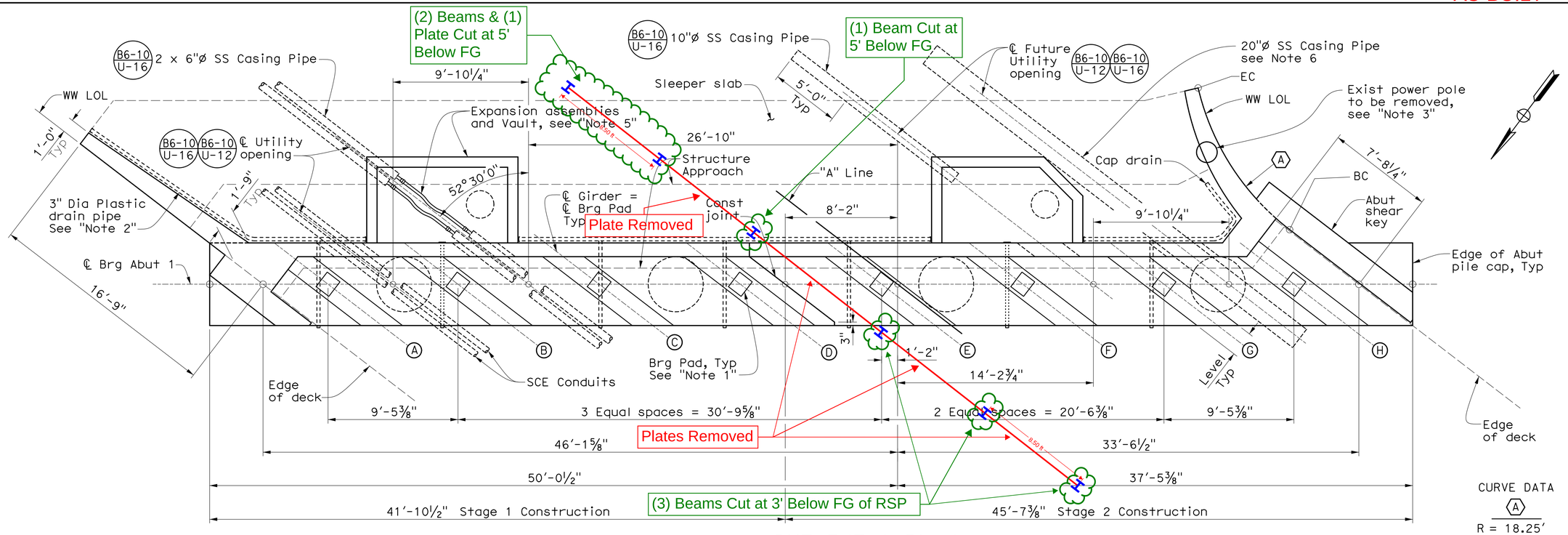
AS-BUILT SEPTEMBER 2019



ABUTMENT 1 PLAN
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RFI 078: Leave in place shoring at abutment

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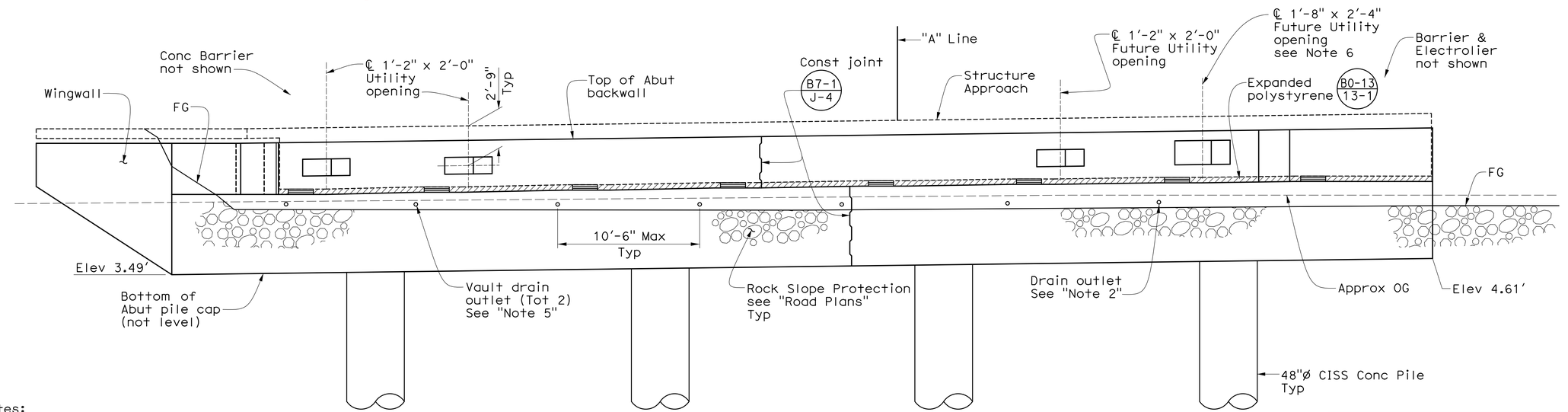

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COUNTY OF ORANGE CALIFORNIA

MARK	DESCRIPTION	DATE	APPR.

PREPARED UNDER THE RESPONSIBLE CHARGE OF: TODD W. DUDLEY — DATE 9/19/16

REGISTERED PROFESSIONAL ENGINEER — TODD W. DUDLEY — No. C39514 — Exp. 12/31/17 — CIVIL — STATE OF CALIFORNIA

DESIGNED BY: A. SELLADURAI/R. PRICE
DRAWN BY: R. ANDRASEK
CHECKED BY: M. STILLER
DRAWING CODE: FOR-IDP-7
FILE NAME:
PLOT DATE:
SCALE: AS SHOWN

COUNTY OF ORANGE OC PUBLIC WORKS

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EDINGER AVENUE BRIDGE AT BOLSA CHICA CHANNEL REPLACEMENT PROJECT BR. NO. 55C-0400

ABUTMENT 1 LAYOUT

Sheet Reference Number
ST-08
Sheet 47 of 76

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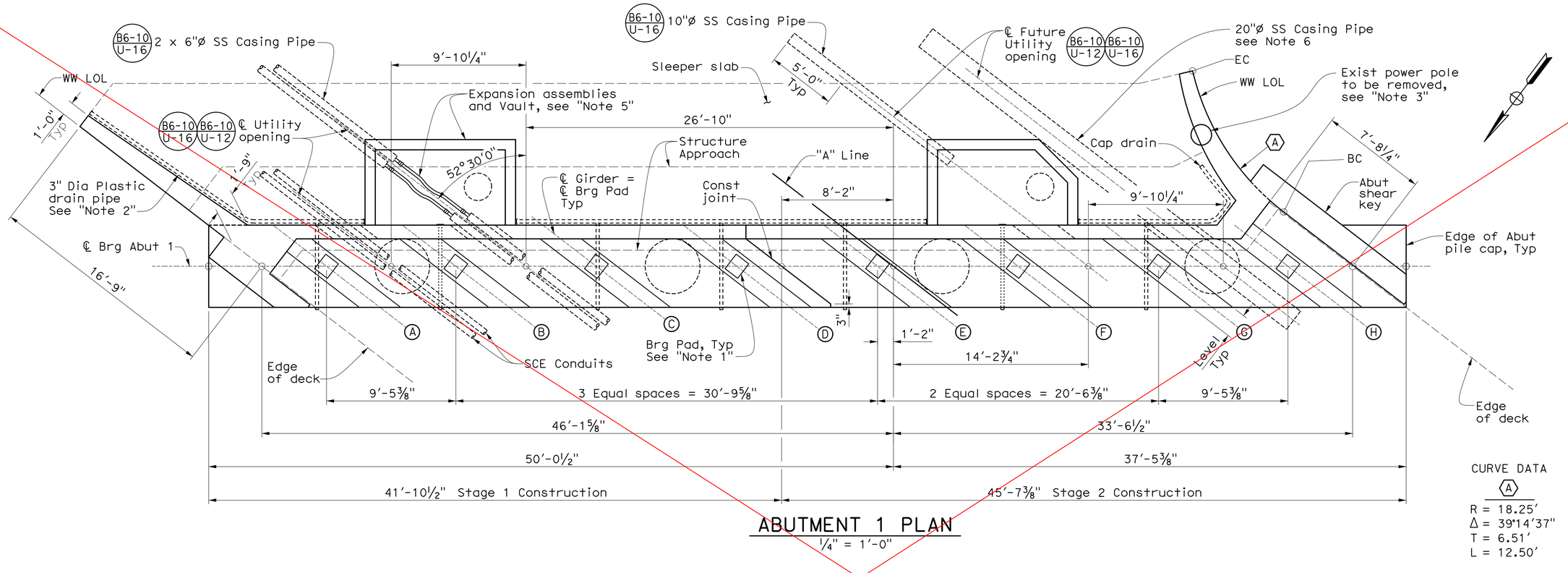
AS-BUILT SEPTEMBER 2019



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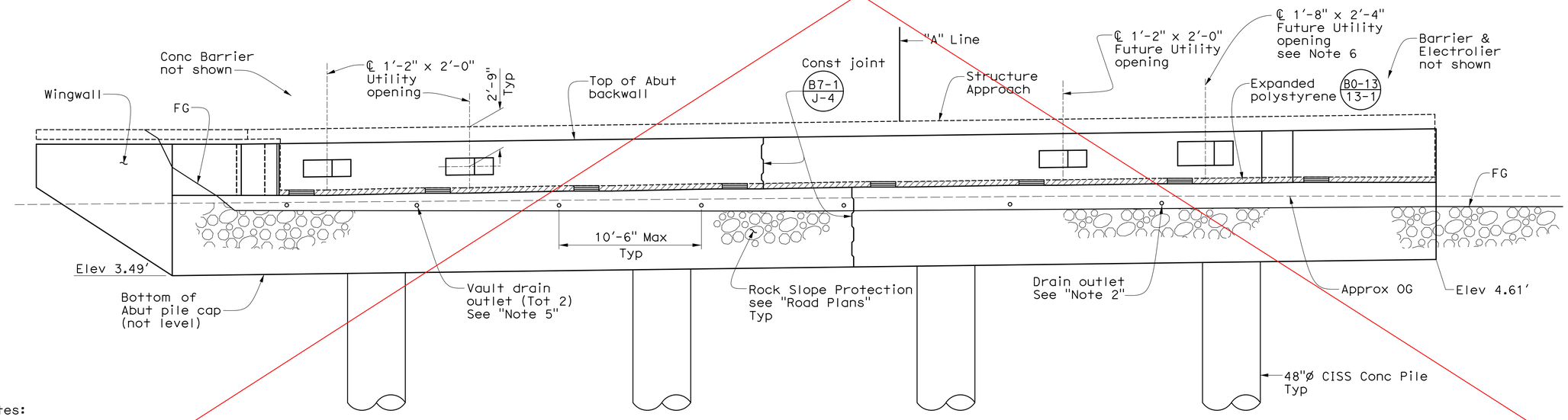

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(A) Indicates Girder Designation

SUPERSEDED

COUNTY OF ORANGE CALIFORNIA

MARK	DESCRIPTION	DATE	APPR.

PREPARED UNDER THE RESPONSIBLE CHARGE OF:
TODD W. DUDLEY
No. C39514
Exp. 12/31/17
CIVIL
REGISTERED PROFESSIONAL ENGINEER
STATE OF CALIFORNIA
9/19/16
DATE

DESIGNED BY: A. SELLADURAI/R. PRICE
DRAWN BY: R. ANDRASEK
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DRAWING CODE: F06-01-7
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COUNTY OF ORANGE OC PUBLIC WORKS

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EDINGER AVENUE BRIDGE AT BOLSA CHICA CHANNEL REPLACEMENT PROJECT BR. NO. 55C-0400

ABUTMENT 1 LAYOUT

Sheet Reference Number

ST-08

Sheet 47 of 76

USERNAME => quinovevaDATE PLOTTED => 9/19/2016 TIME PLOTTED => 8:42:42 AM

AS-BUILT SEPTEMBER 2019

Notes:

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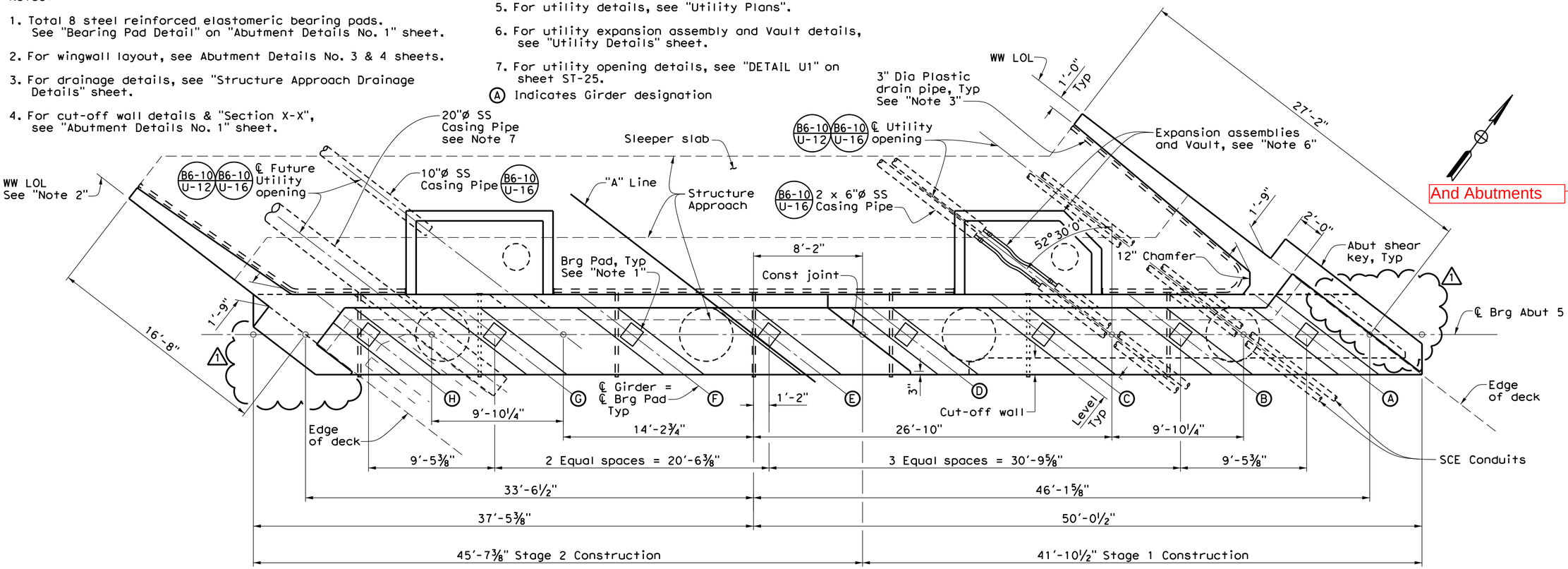
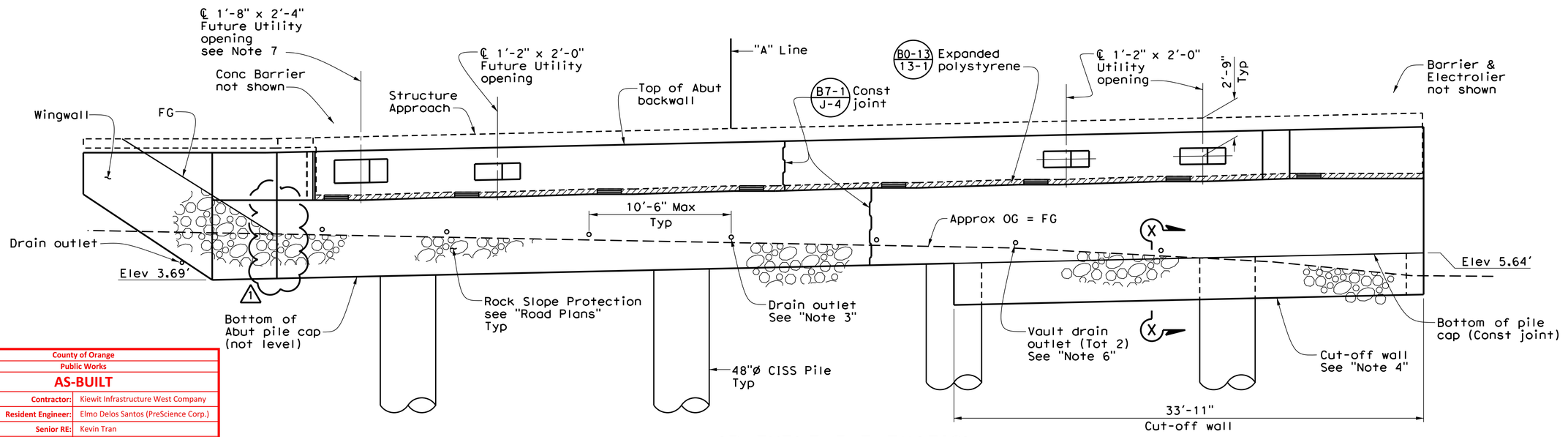


ABUTMENT 5 PLAN

1/4" = 1'-0"



ABUTMENT 5 ELEVATION

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County of Orange	
Public Works	
AS-BUILT	
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And Abutments

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DESIGNED BY: A. SELLADURAI/R. PRICE
DRAWN BY: R. ANDRASSEK
CHECKED BY: M. STILLER
DRAWING CODE: FOG-10-7
FILE NAME:
PLOT DATE:
SCALE: AS SHOWN

COUNTY OF ORANGE
OC PUBLIC WORKS

PREPARED BY:
AECOM
999 W. Town & Country Road
Orange, CA 92868
(714) 567-2501

EDINGER AVENUE BRIDGE AT BOLSA CHICA CHANNEL
REPLACEMENT PROJECT
BR. NO. 55C-0400

ABUTMENT 5 LAYOUT

Sheet Reference Number

ST-09

USERNAME => $USER DATE PLOTTED => $DATE TIME PLOTTED => $TIME

AS-BUILT SEPTEMBER 2019

RFI 078: Leave in place shoring at abutment

Notes:

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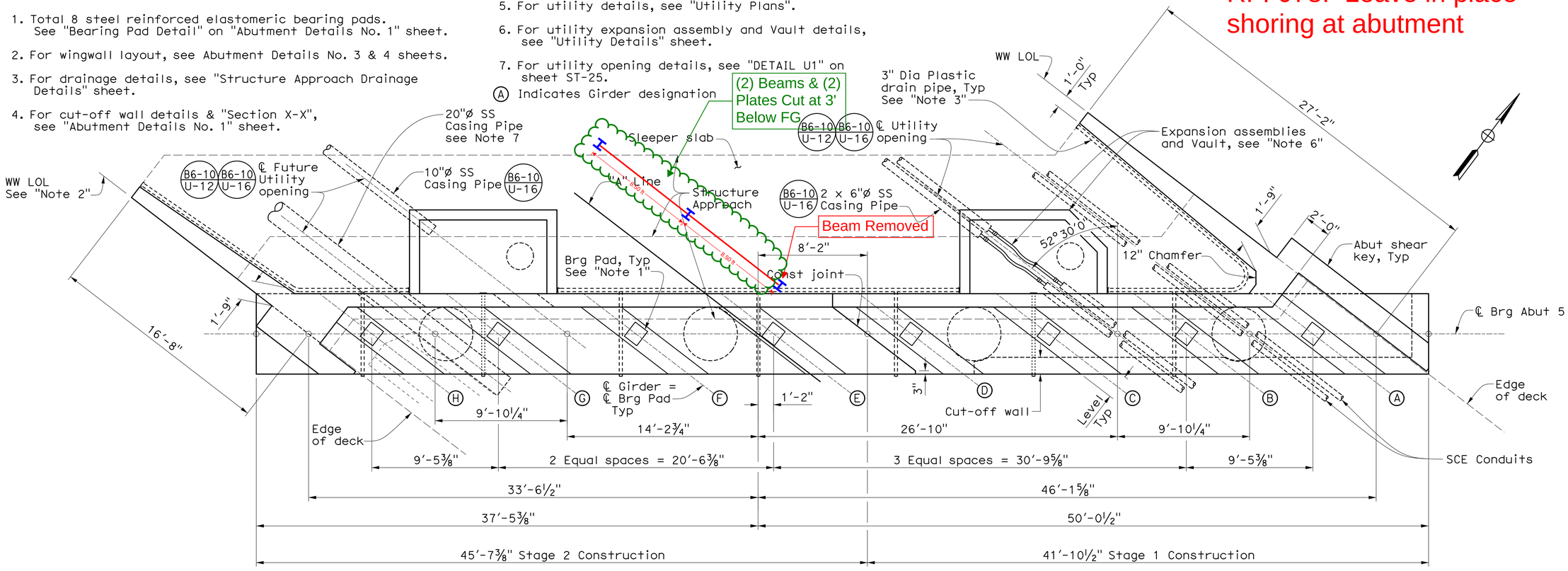
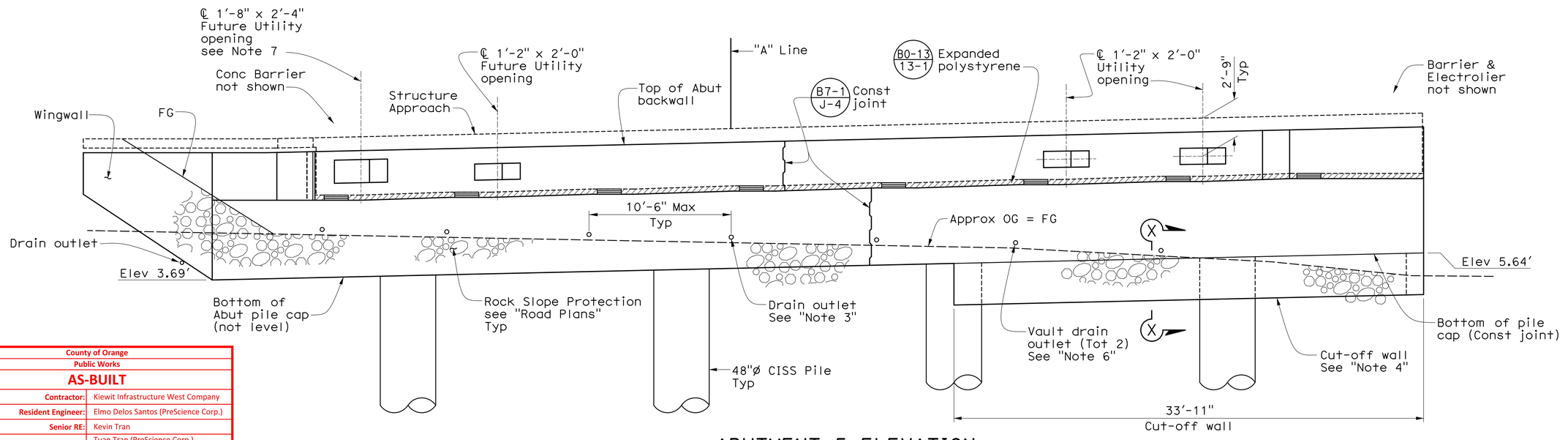


ABUTMENT 5 PLAN

¼" = 1'-0"



ABUTMENT 5 ELEVATION

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County of Orange Public Works	
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COUNTY OF ORANGE CALIFORNIA

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TODD W. DUDLEY
DATE 9/19/16

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DESIGNED BY: A. SELLADURAI/R. PRICE
DRAWN BY: R. ANDRASEK
CHECKED BY: M. STILLER
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FILE NAME:
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EDINGER AVENUE BRIDGE AT BOLSA CHICA CHANNEL REPLACEMENT PROJECT
BR. NO. 55C-0400

ABUTMENT 5 LAYOUT

Sheet Reference Number

ST-09

Sheet 48 of 76

USERNAME => quinovevo DATE PLOTTED => 9/19/2016 TIME PLOTTED => 8:42:46 AM

AS-BUILT SEPTEMBER 2019

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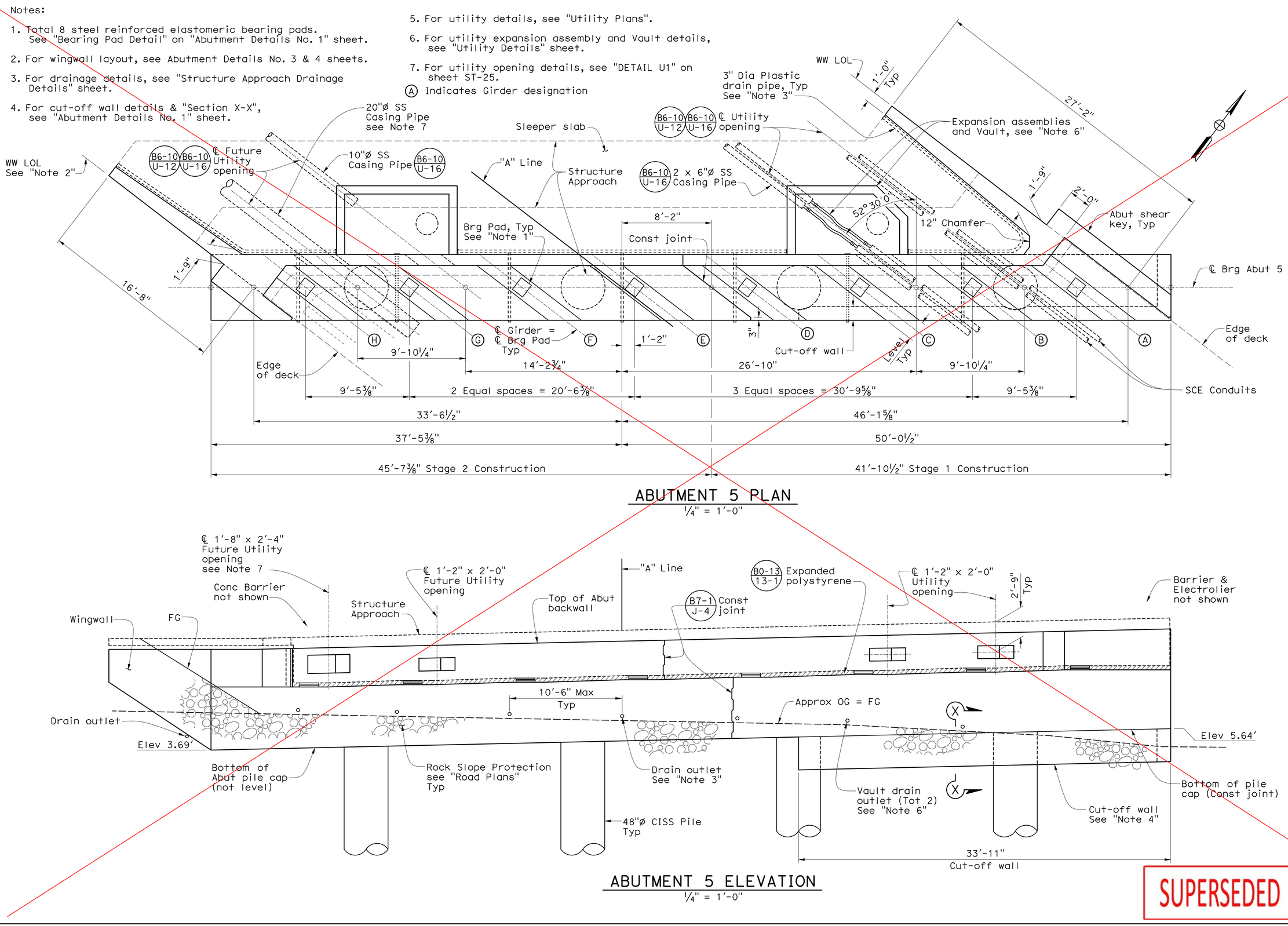
7. For utility opening details, see "DETAIL U1" on sheet ST-25.

(A) Indicates Girder designation



ABUTMENT 5 PLAN

¼" = 1'-0"

ABUTMENT 5 ELEVATION

¼" = 1'-0"

SUPERSEDED

COUNTY OF ORANGE CALIFORNIA

MARK	DESCRIPTION	DATE	APPR.

PREPARED UNDER THE RESPONSIBLE CHARGE OF:
TODD W. DUDLEY
REGISTERED PROFESSIONAL ENGINEER TODD W. DUDLEY No. C39514 Exp. 12/31/17 CIVIL STATE OF CALIFORNIA
9/19/16 DATE

DESIGNED BY: A. SELLADURAI/R. PRICE
DRAWN BY: R. ANDRASEK
CHECKED BY: M. STILLER
DRAWING CODE: F06-101-7
FILE NAME:
PLOT DATE:
SCALE: AS SHOWN

COUNTY OF ORANGE OC PUBLIC WORKS

PREPARED BY: AECOM 999 W. Town & Country Road Orange, CA 92868 (714) 567-2501

EDINGER AVENUE BRIDGE AT BOLSA CHICA CHANNEL REPLACEMENT PROJECT BR. NO. 55C-0400

ABUTMENT 5 LAYOUT

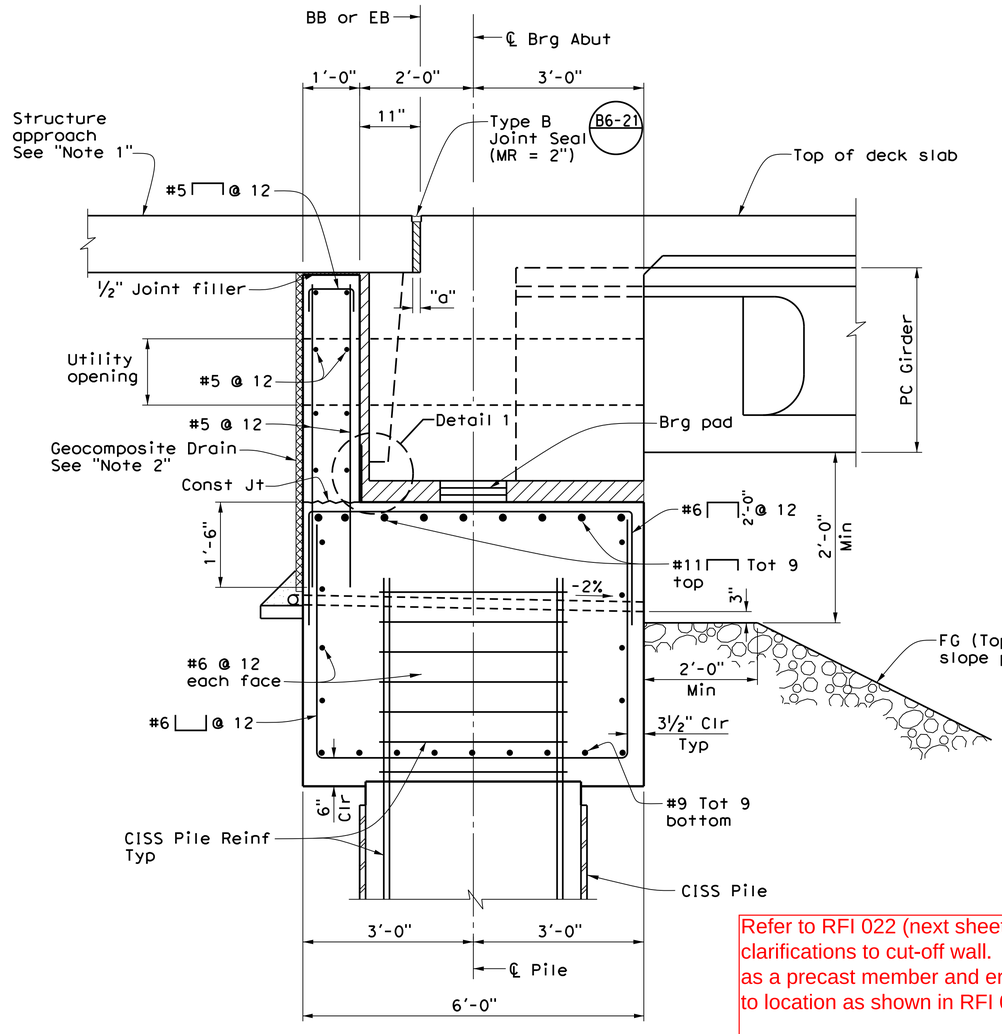
Sheet Reference Number

ST-09

Sheet 48 of 76

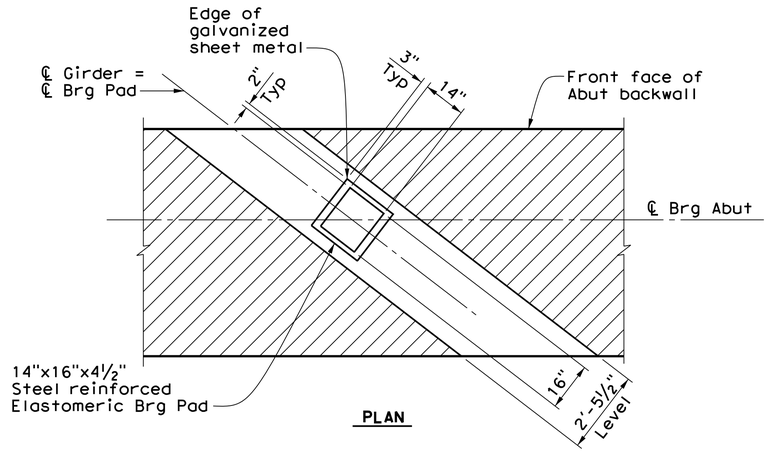
USERNAME => quinoveva DATE PLOTTED => 9/19/2016 TIME PLOTTED => 8:42:46 AM

AS-BUILT SEPTEMBER 2019

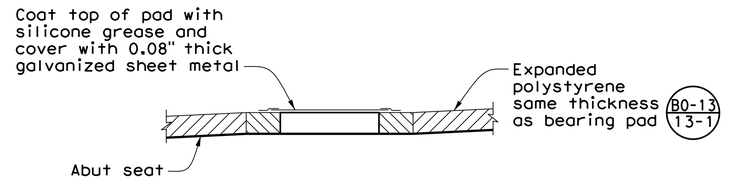


ABUTMENT TYPICAL SECTION

¾" = 1'-0"



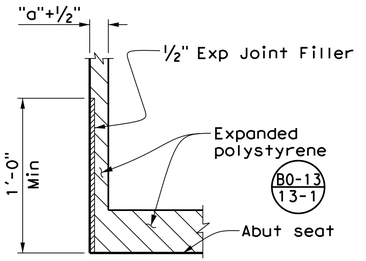
PLAN



ELEVATION

BEARING PAD DETAIL

No Scale



And Abutments

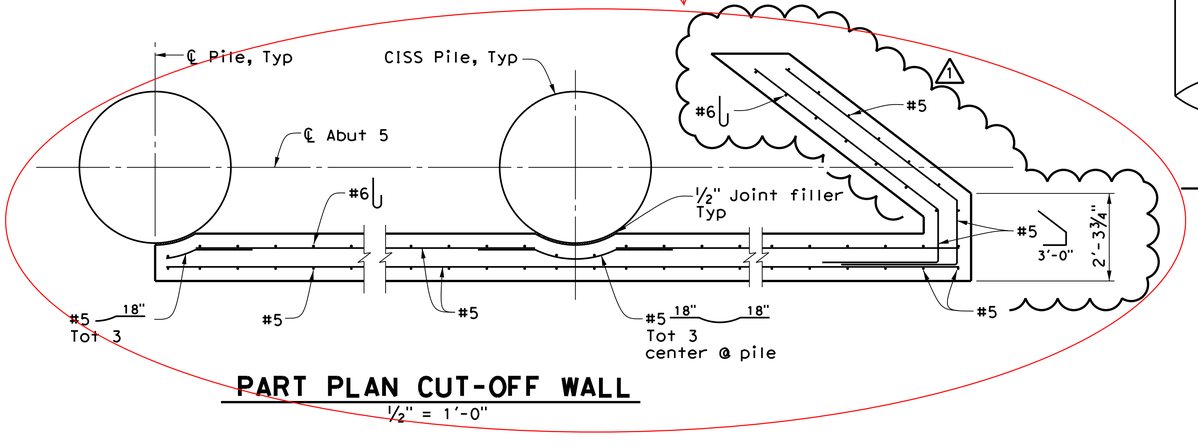
DETAIL 1

No Scale

Note:
For "a" dimension see B6-21

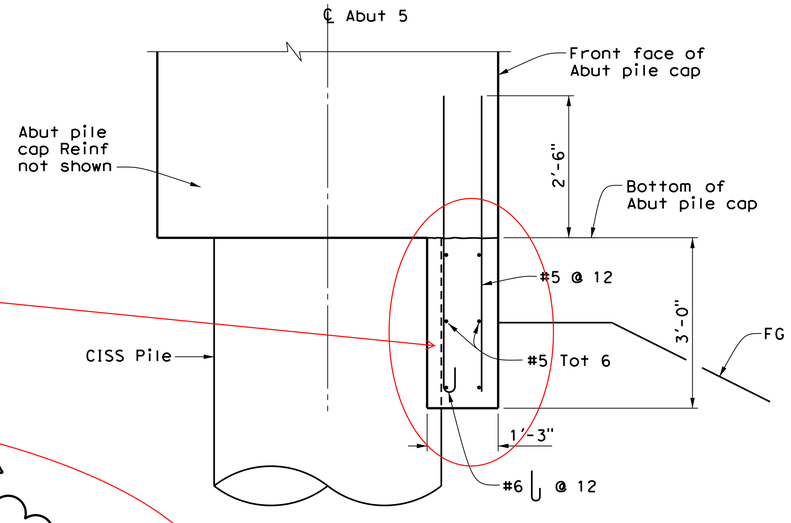
County of Orange	
Public Works	
AS-BUILT	
Contractor:	Kiewit Infrastructure West Company
Resident Engineer:	Elmo Delos Santos (PreScience Corp.)
Senior RE:	Kevin Tran
Inspectors:	Tuan Tran (PreScience Corp.) Kenneth Junio
Construction Start Date:	May 8, 2017
Construction Completion Date:	August 5, 2019

Refer to RFI 022 (next sheet) for clarifications to cut-off wall. Built as a precast member and erected to location as shown in RFI 022.



PART PLAN CUT-OFF WALL

½" = 1'-0"



SECTION X-X

¾" = 1'-0"

Notes:

1. For structure approach details, see "Structure Approach Type EQ(10) (Modified)" sheet.
2. For geocomposite drain details, see "Structure Approach Drainage Details" sheet.

MARK	DESCRIPTION	DATE	APPR.
1	Revised End of Bent Cap	5/18/17	

PREPARED UNDER THE RESPONSIBLE CHARGE OF:
TODD W. DUDLEY
REGISTERED PROFESSIONAL ENGINEER
No. C39514
Exp. 12/31/17
CIVIL
STATE OF CALIFORNIA
2/9/17 DATE

DESIGNED BY: A. SELLADURAI/R. PRICE
DRAWN BY: R. ANDRASEK
CHECKED BY: M. STILLER
DRAWING CODE: FOE-ID-7
FILE NAME:
PLOT DATE:
SCALE: AS SHOWN

COUNTY OF ORANGE
OC PUBLIC WORKS

PREPARED BY:
AECOM
999 W. Town & Country Road
Orange, CA 92868
(714) 567-2501

EDINGER AVENUE BRIDGE AT BOLSA CHICA CHANNEL
REPLACEMENT PROJECT
BR. NO. 55C-0400

ABUTMENT DETAILS NO. 1

Sheet Reference Number

ST-10

Sheet 49 of 76

USERNAME => $USER DATE PLOTTED => $DATE TIME PLOTTED => $TIME

AS-BUILT SEPTEMBER 2019

RFI NO. 022

KIEWIT INFRASTRUCTURE WEST CO.

DATE: 10/11/17

REQUESTED BY: 10/13/17

10704 Shoemaker Avenue PHONE: (562) 946-1816
Santa Fe Springs, CA 90670

ORANCE COUNTY PUBLIC WORKS
ER16008 - Edinger Bridge Replacement
Date Received: 10/11/2017
Received By: Elmo Delos Santos

TO: Orange County Public Works
Attention: Elmo Delos Santos, Resident Engineer
EDINGER BRIDGE REPLACEMENT PROJECT

REQUEST FOR INFORMATION

SUBJECT: Precast Cutoff Wall at Abutment 5

___ Direction not given in contract documents
____ Interpretation of contract requirements
_____ Conflict in contract requirements
__X__ Change in sequence/procedure

REF. DRAWINGS: ST-09 / ST-10 **REF. SPECS**:

REQUEST:

Kiewit proposes to precast the cutoff wall at Abutment 5. To facilitate placement, Kiewit proposes to wrap the cutoff wall around the two northernmost piles at Abutment 5 (forming a U-shaped wall rather than an L-shape). Lastly, Kiewit proposes to build the wall at twelve inches thick placed at the face of the two northernmost piles.

Please confirm this is acceptable.

See attachment documents for further information.

SUBMITTED BY: William Searles

RESPONSE:

I have reviewed the details of this RFI and hereby take no exception to the Contractor's proposal to construct the cutoff wall as a precast unit in a "U" shape and having a thickness of 12 inches placed as shown in the attached drawings. Reinforcement shall be as shown in the original contract plans.

Provide 1/2" joint filler at wall to column interface as shown in the original plan.

Please submit the following for County approval prior to proceeding with work:
1) Work Plan
2) Erection plan and associated calculations
3) Rebar Shop Drawings

Reviewed by Elmo Delos Santos, PE and Todd Dudley, SE.

ANSWERED BY: Elmo Delos Santos, PE - Resident Engineer

DATE: 10/18/2017

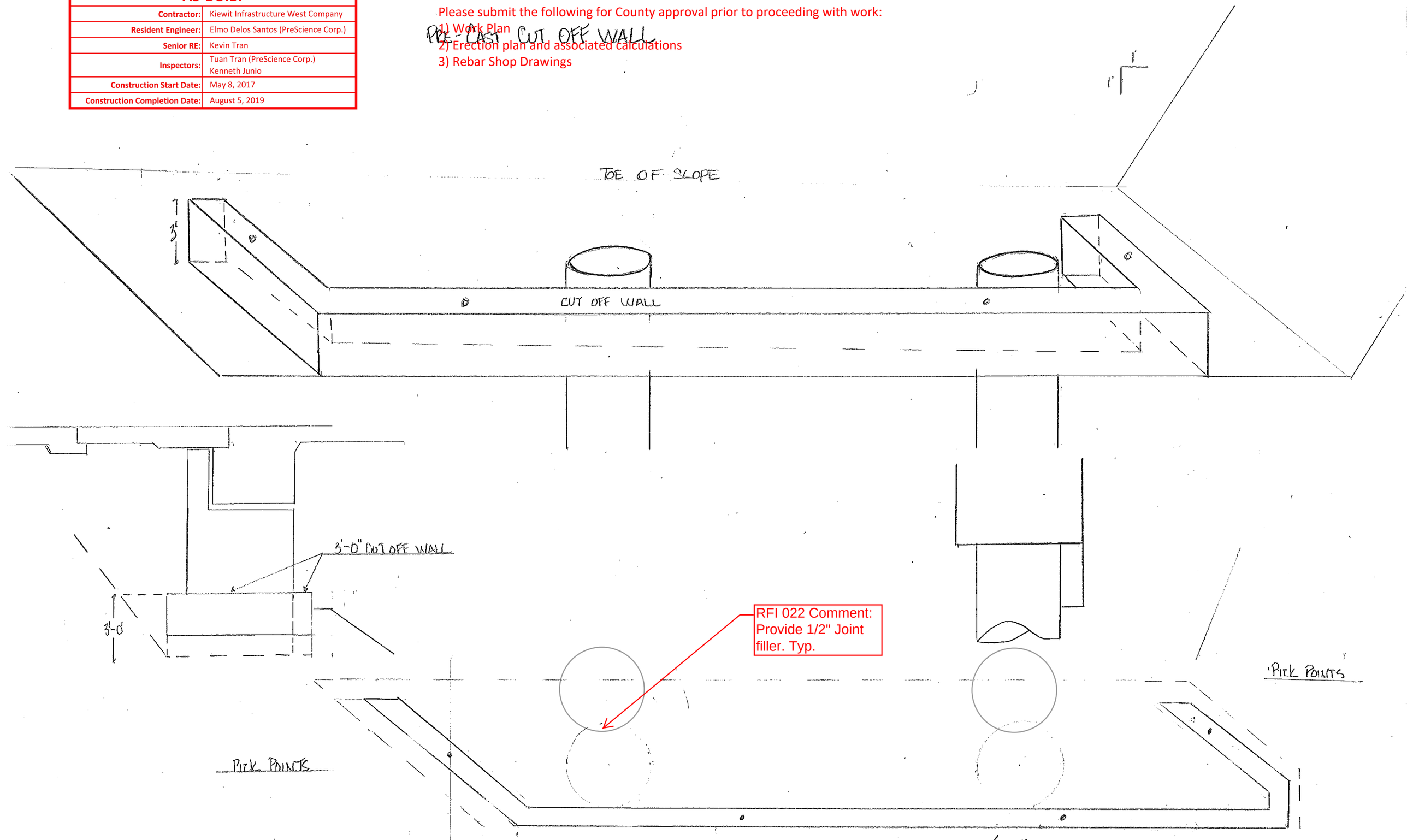
cc: File

County of Orange	
Public Works	
AS-BUILT	
Contractor:	Kiewit Infrastructure West Company
Resident Engineer:	Elmo Delos Santos (PreScience Corp.)
Senior RE:	Kevin Tran
Inspectors:	Tuan Tran (PreScience Corp.) Kenneth Junio
Construction Start Date:	May 8, 2017
Construction Completion Date:	August 5, 2019

RFI 022

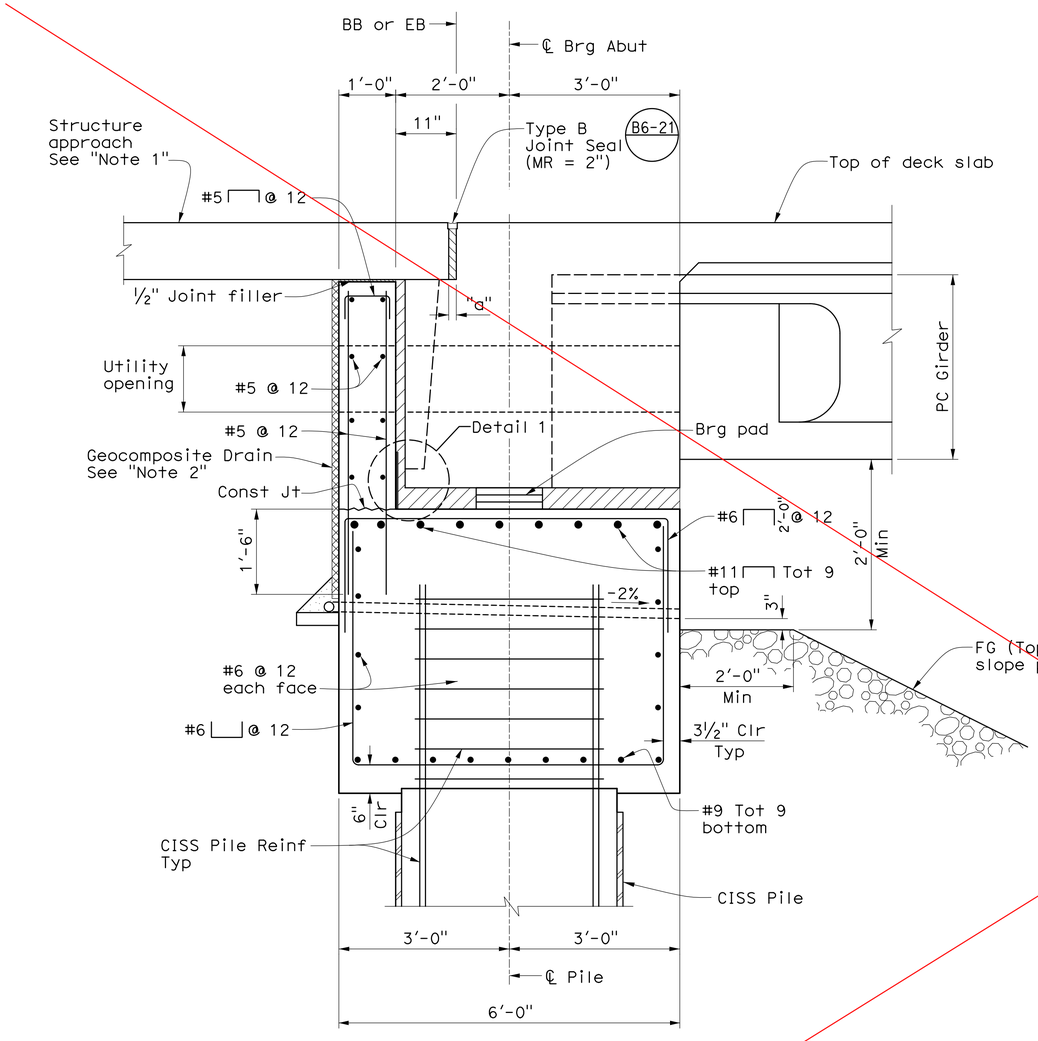
AS-BUILT SEPTEMBER 2019

Please submit the following for County approval prior to proceeding with work:
1) Work Plan
2) Erection plan and associated calculations
3) Rebar Shop Drawings



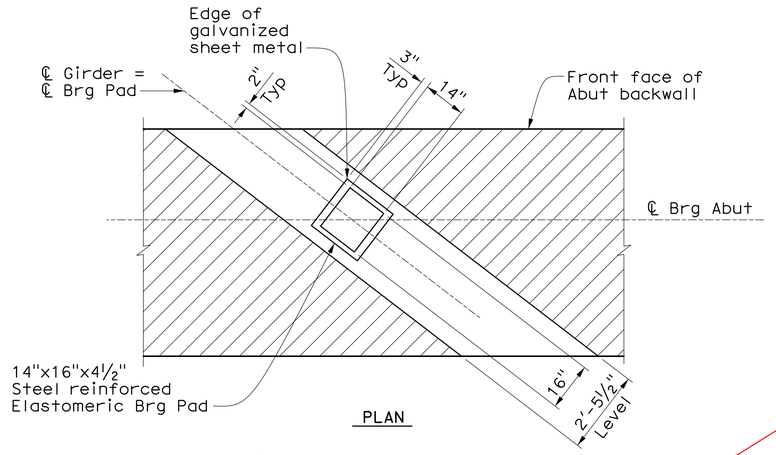
RFI 022 Comment: Provide 1/2" Joint filler. Typ.

AS-BUILT SEPTEMBER 2019

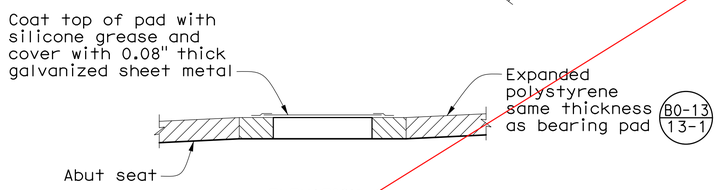


ABUTMENT TYPICAL SECTION

¾" = 1'-0"



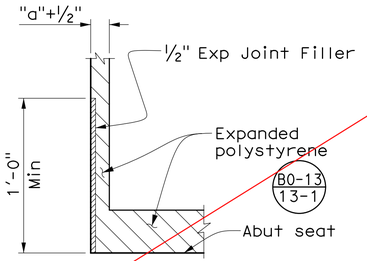
PLAN



ELEVATION

BEARING PAD DETAIL

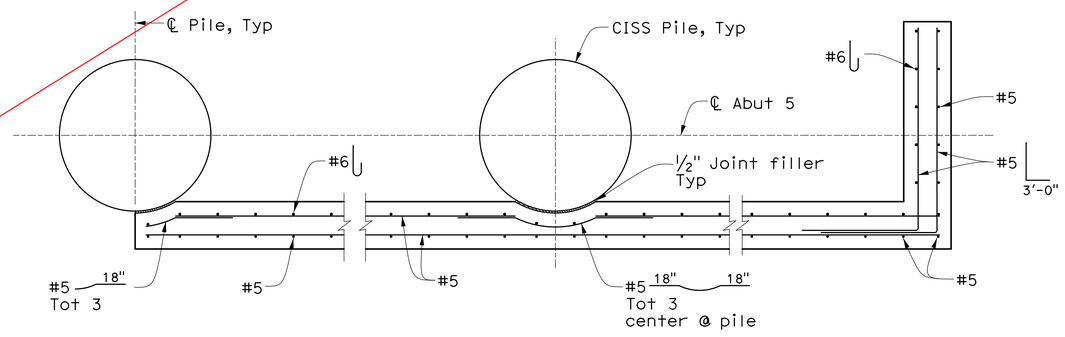
No Scale



DETAIL 1

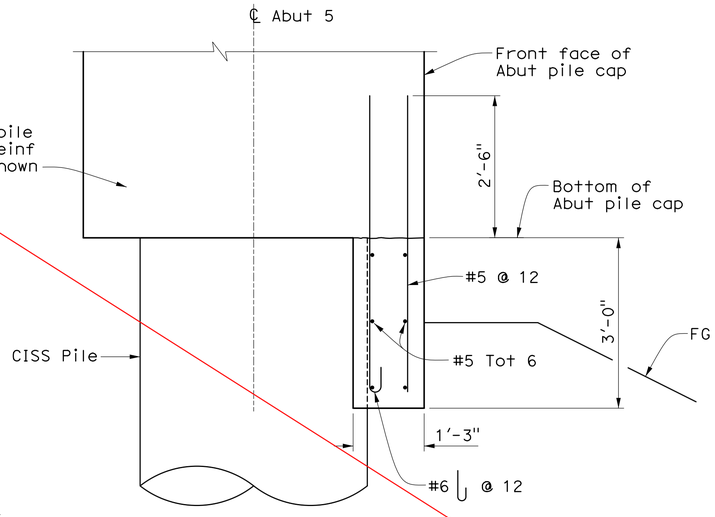
No Scale

Note:
For "a" dimension see B6-21



PART PLAN CUT-OFF WALL

½" = 1'-0"



SECTION X-X

¾" = 1'-0"

SUPERSEDED

Notes:

1. For structure approach details, see "Structure Approach Type EQ(10) (Modified)" sheet.
2. For geocomposite drain details, see "Structure Approach Drainage Details" sheet.

COUNTY OF ORANGE CALIFORNIA

MARK	DESCRIPTION	DATE	APPR.

PREPARED UNDER THE RESPONSIBLE CHARGE OF:
REGISTERED PROFESSIONAL ENGINEER TODD W. DUDLEY No. C39514 Exp.12/31/17 CIVIL STATE OF CALIFORNIA
9/19/16 DATE
TODD W. DUDLEY

DESIGNED BY: A. SELLADURAI/R. PRICE
DRAWN BY: R. ANDRASEK
CHECKED BY: M. STILLER
DRAWING CODE: FOE-101-7
FILE NAME:
PLOT DATE:
SCALE: AS SHOWN

COUNTY OF ORANGE
OC PUBLIC WORKS

PREPARED BY:
AECOM
999 W. Town & Country Road
Orange, CA 92868
(714) 567-2501

EDINGER AVENUE BRIDGE AT BOLSA CHICA CHANNEL REPLACEMENT PROJECT
BR. NO. 55C-0400

ABUTMENT DETAILS NO. 1

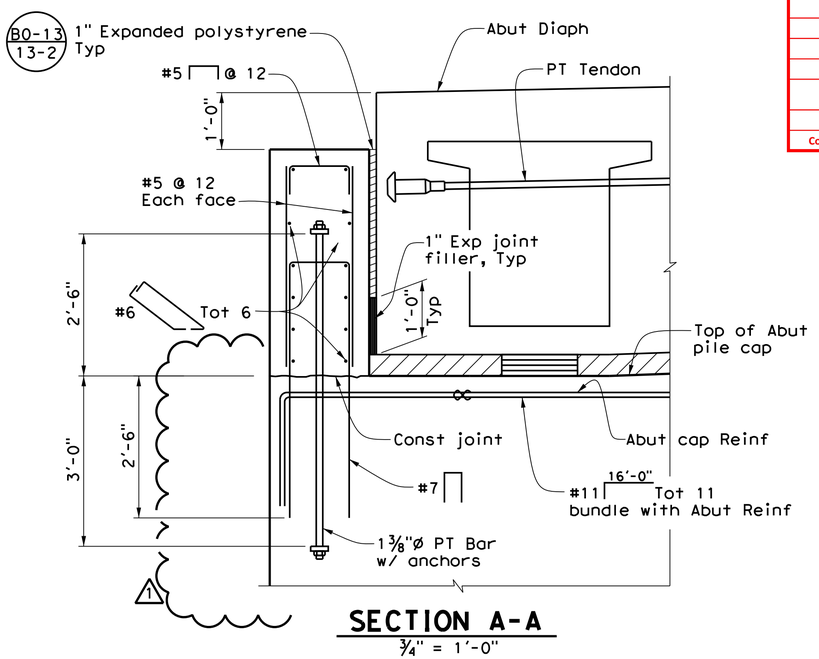
Sheet Reference Number

ST-10

USERNAME => quinovevo|DATE PLOTTED => 9/19/2016 TIME PLOTTED => 8:42:50 AM

AS-BUILT SEPTEMBER 2019

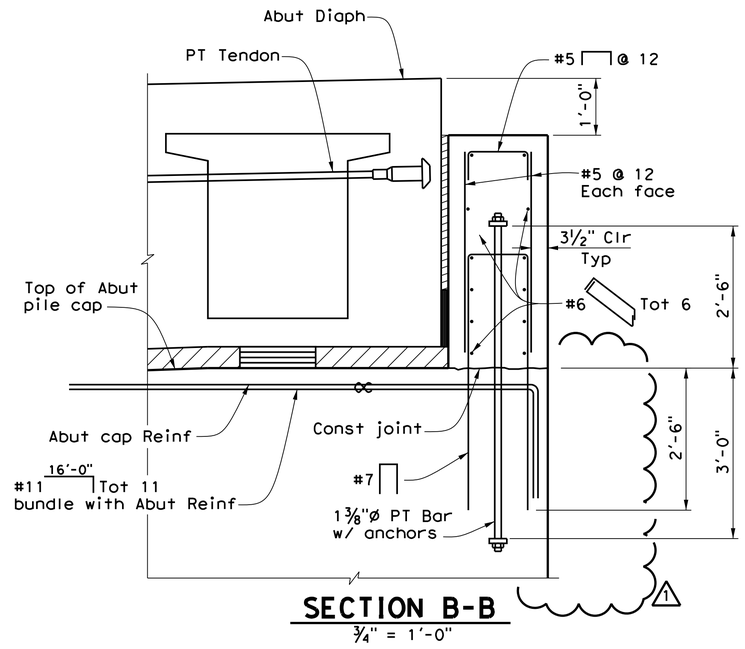
County of Orange	
Public Works	
AS-BUILT	
Contractor:	Kiewit Infrastructure West Company
Resident Engineer:	Elmo Delos Santos (PreScience Corp.)
Senior RE:	Kevin Tran
Inspectors:	Tuan Tran (PreScience Corp.) Kenneth Junio
Construction Start Date:	May 8, 2017
Construction Completion Date:	August 5, 2019



SECTION A-A

3/4" = 1'-0"

Note: Pile Cap Reinf not shown.

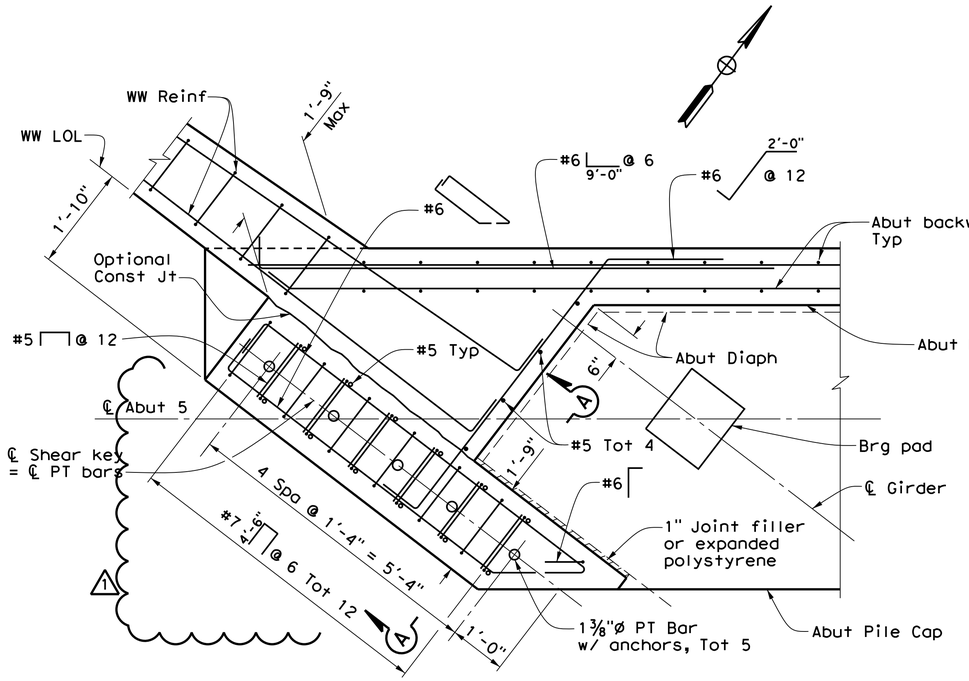


SECTION B-B

3/4" = 1'-0"

Note: Pile Cap Reinf not shown.

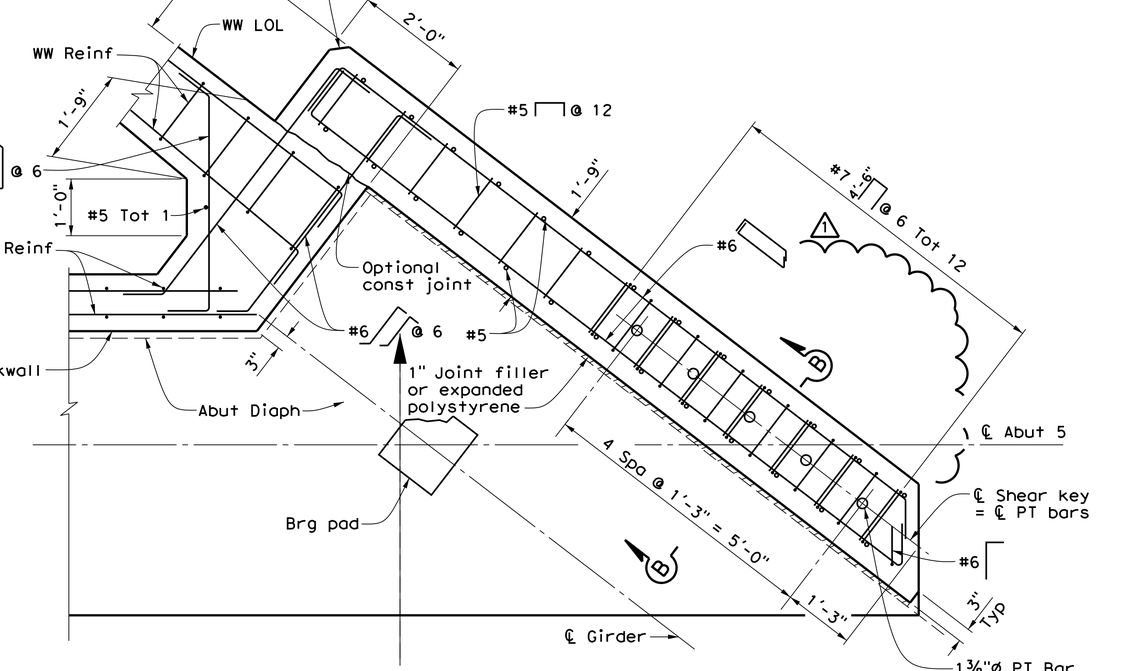
And Abutment



SHEAR KEY PLAN - ABUT 5 LEFT

3/4" = 1'-0"

(Abut 5 Left shown, Abut 1 Right similar)



SHEAR KEY PLAN - ABUT 5 RIGHT

3/4" = 1'-0"

(Abut 5 Right shown, Abut 1 Left similar)

MARK	DESCRIPTION	DATE	APPR.
1	Revised End of Bent Cap	5/18/17	

PREPARED UNDER THE RESPONSIBLE CHARGE OF:
TODD W. DUDLEY
REGISTERED PROFESSIONAL ENGINEER TODD W. DUDLEY No. C39514 Exp. 12/31/17 CIVIL STATE OF CALIFORNIA
DATE 2/9/17

DESIGNED BY: A. SELLADURAI/R. PRICE
DRAWN BY: R. ANDRASEK
CHECKED BY: M. STILLER
DRAWING CODE: FOG-10-7
FILE NAME:
PLOT DATE:
SCALE: AS SHOWN

COUNTY OF ORANGE
OC PUBLIC WORKS

PREPARED BY:
AECOM
999 W. Town & Country Road
Orange, CA 92868
(714) 567-2500

EDINGER AVENUE BRIDGE AT
BOLSA CHICA CHANNEL
REPLACEMENT PROJECT
BR. NO. 55C-0400

ABUTMENT DETAILS NO. 2

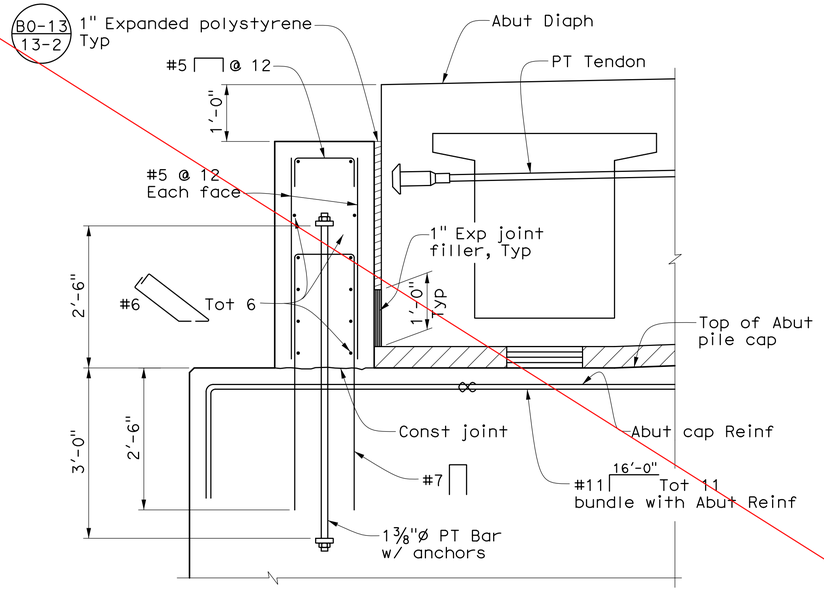
Sheet Reference Number

ST-11

Sheet 50 of 76

USERNAME => $USER DATE PLOTTED => $DATE TIME PLOTTED => $TIME

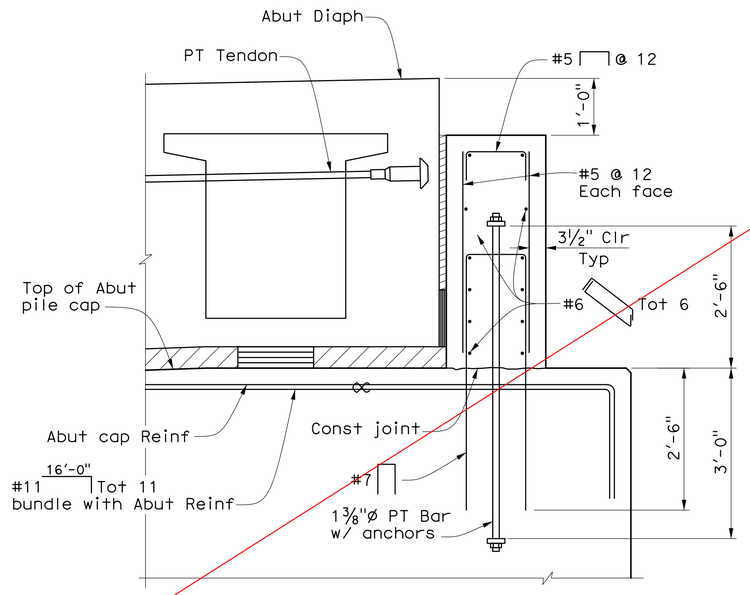
AS-BUILT SEPTEMBER 2019



SECTION A-A

3/4" = 1'-0"

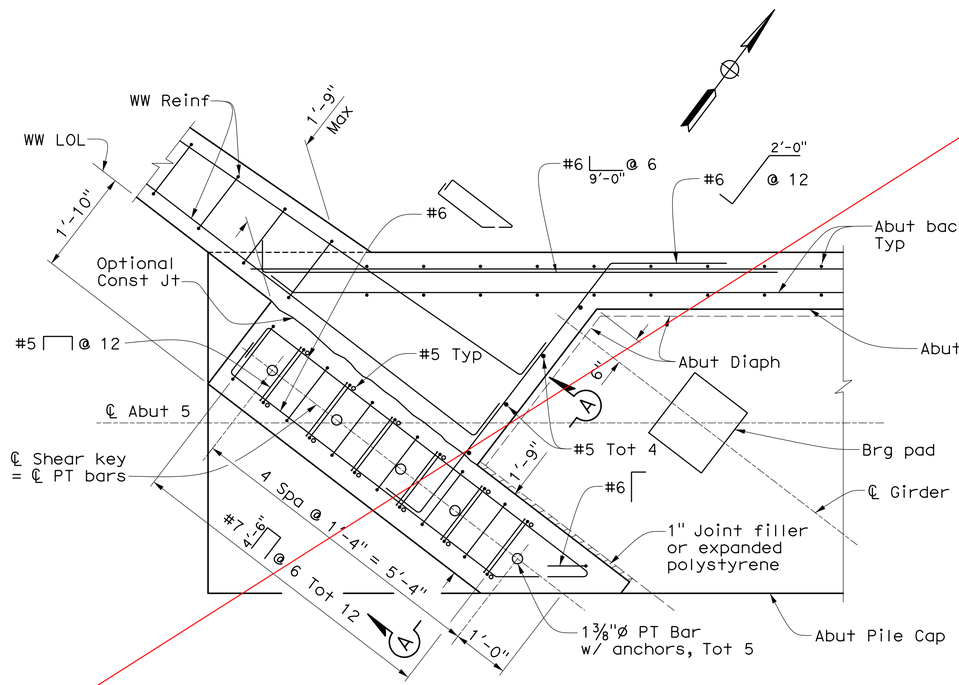
Note: Pile Cap Reinf not shown.



SECTION B-B

3/4" = 1'-0"

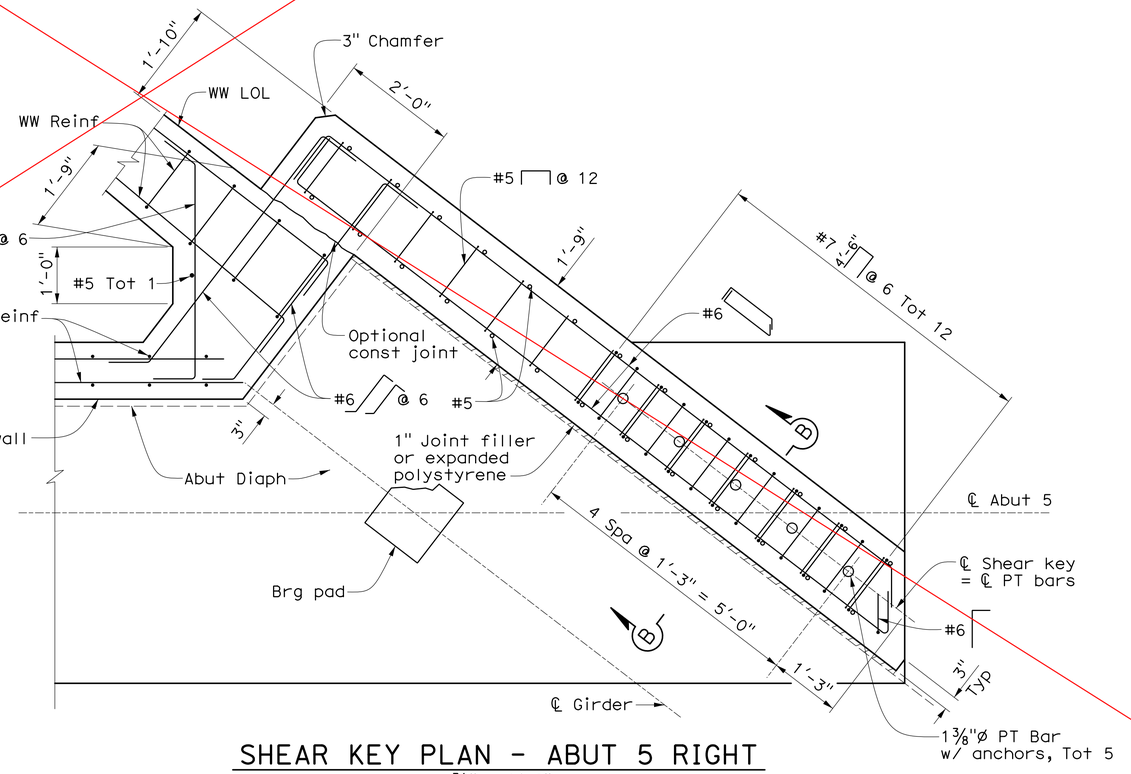
Note: Pile Cap Reinf not shown.



SHEAR KEY PLAN - ABUT 5 LEFT

3/4" = 1'-0"

(Abut 5 Left shown, Abut 1 Right similar)



SHEAR KEY PLAN - ABUT 5 RIGHT

3/4" = 1'-0"

(Abut 5 Right shown, Abut 1 Left similar)

SUPERSEDED

USERNAME => quinoveva DATE PLOTTED => 9/19/2016 TIME PLOTTED => 8:42:54 AM

COUNTY OF ORANGE CALIFORNIA

MARK	DESCRIPTION	DATE	APPR.

PREPARED UNDER THE RESPONSIBLE CHARGE OF:
TODD W. DUDLEY
DATE 9/19/16

REGISTERED PROFESSIONAL ENGINEER TODD W. DUDLEY No. C39514 Exp. 12/31/17 CIVIL STATE OF CALIFORNIA

DESIGNED BY: A. SELLADURAI/R. PRICE
DRAWN BY: R. ANDRASEK
CHECKED BY: M. STILLER
DRAWING CODE: F06-101-7
FILE NAME:
PLOT DATE:
SCALE: AS SHOWN

COUNTY OF ORANGE
OC PUBLIC WORKS

PREPARED BY:
AECOM
999 W. Town & Country Road
Orange, CA 92868
(714) 567-2501

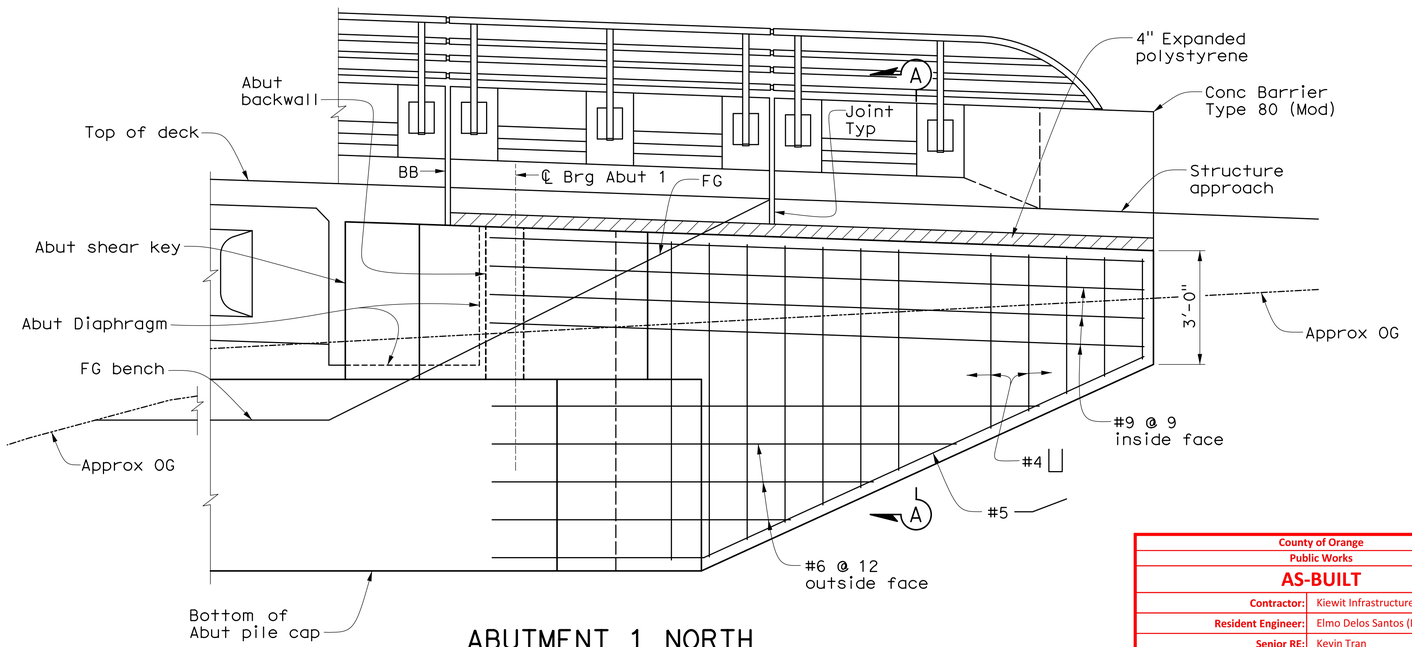
EDINGER AVENUE BRIDGE AT
BOLSA CHICA CHANNEL
REPLACEMENT PROJECT
BR. NO. 55C-0400

ABUTMENT DETAILS NO. 2

Sheet Reference Number

ST-11

AS-BUILT SEPTEMBER 2019

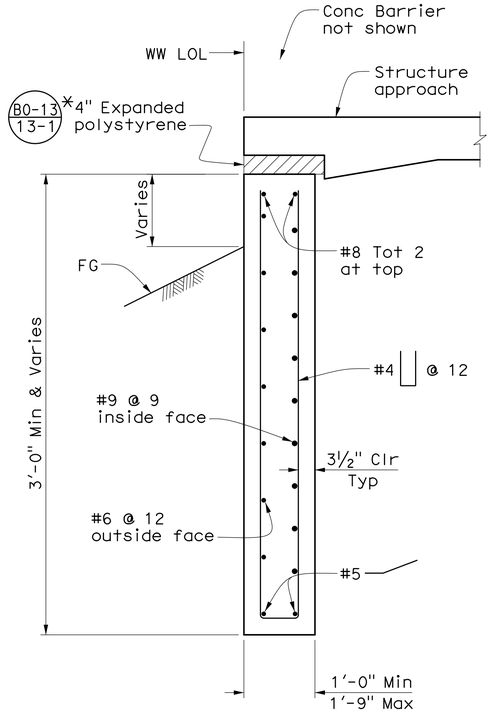


ABUTMENT 1 NORTH
WINGWALL MIRROR ELEVATION

½" = 1'-0"

Note: Abut shear key Reinf not shown.

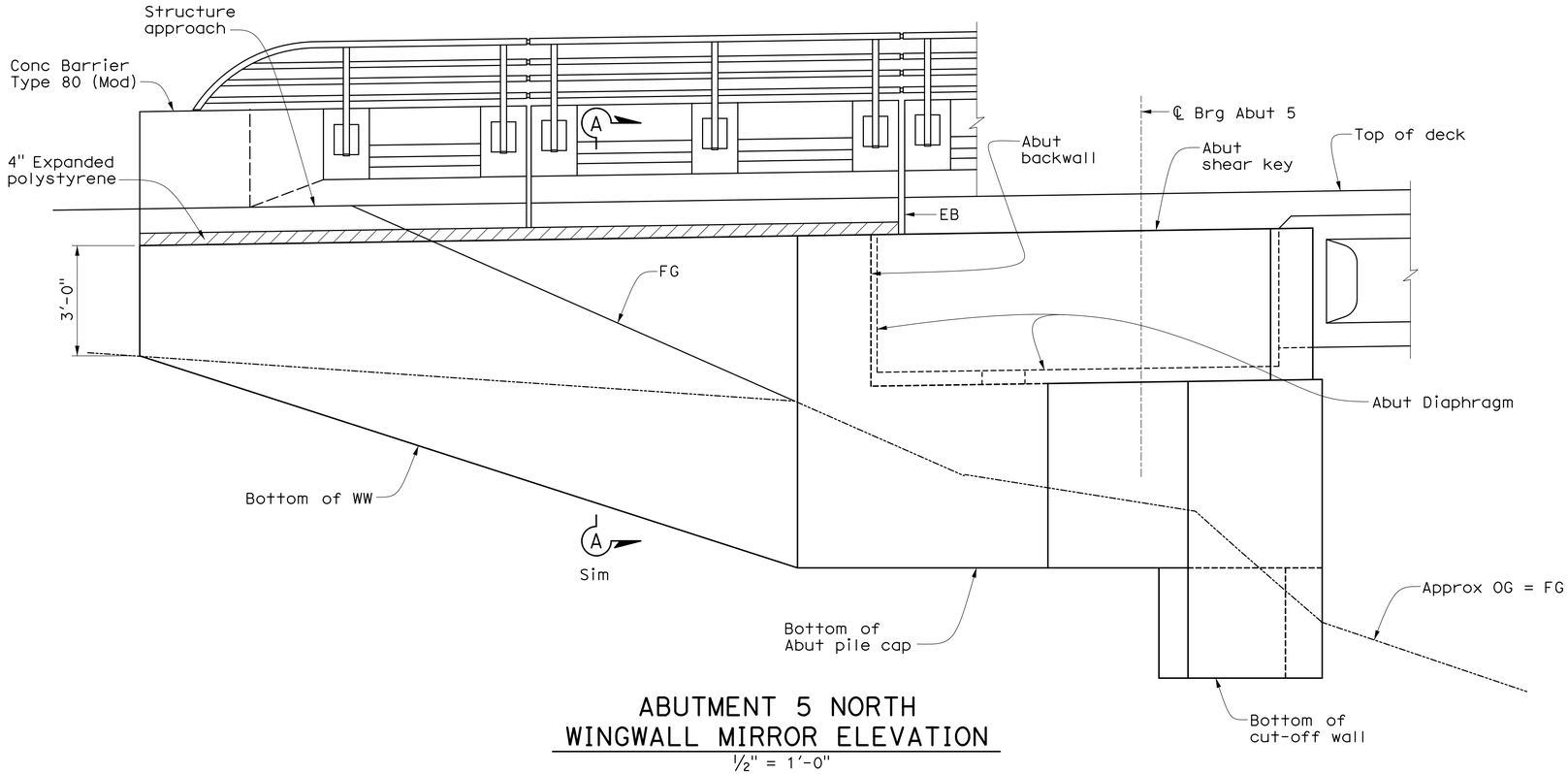
County of Orange	
Public Works	
AS-BUILT	
Contractor:	Kiewit Infrastructure West Company
Resident Engineer:	Elmo Delos Santos (PreScience Corp.)
Senior RE:	Kevin Tran
Inspectors:	Tuan Tran (PreScience Corp.) Kenneth Junio
Construction Start Date:	May 8, 2017
Construction Completion Date:	August 5, 2019



SECTION A-A

¾" = 1'-0"

*Remove outer 6" after approach is cured



ABUTMENT 5 NORTH
WINGWALL MIRROR ELEVATION

½" = 1'-0"

Notes:

1. For Abutment 1 South & Abutment 5 South wingwalls, see "Abutment Details No. 4" sheet.

COUNTY OF ORANGE CALIFORNIA

MARK	DESCRIPTION	DATE	APPR.

PREPARED UNDER THE RESPONSIBLE CHARGE OF:
TODD W. DUDLEY
DATE 9/19/16

REGISTERED PROFESSIONAL ENGINEER TODD W. DUDLEY No. C39514 Exp.12/31/17 CIVIL STATE OF CALIFORNIA

DESIGNED BY: A. SELLADURAI/R. PRICE
DRAWN BY: R. ANDRASEK
CHECKED BY: M. STILLER
DRAWING CODE: F06-01-7
FILE NAME:
PLOT DATE:
SCALE: AS SHOWN

COUNTY OF ORANGE
OC PUBLIC WORKS

PREPARED BY:
AECOM
999 W. Town & Country Road
Orange, CA 92868
(714) 567-2501

EDINGER AVENUE BRIDGE AT
BOLSA CHICA CHANNEL
REPLACEMENT PROJECT
BR. NO. 55C-0400

ABUTMENT DETAILS NO. 3

Sheet Reference Number

ST-12

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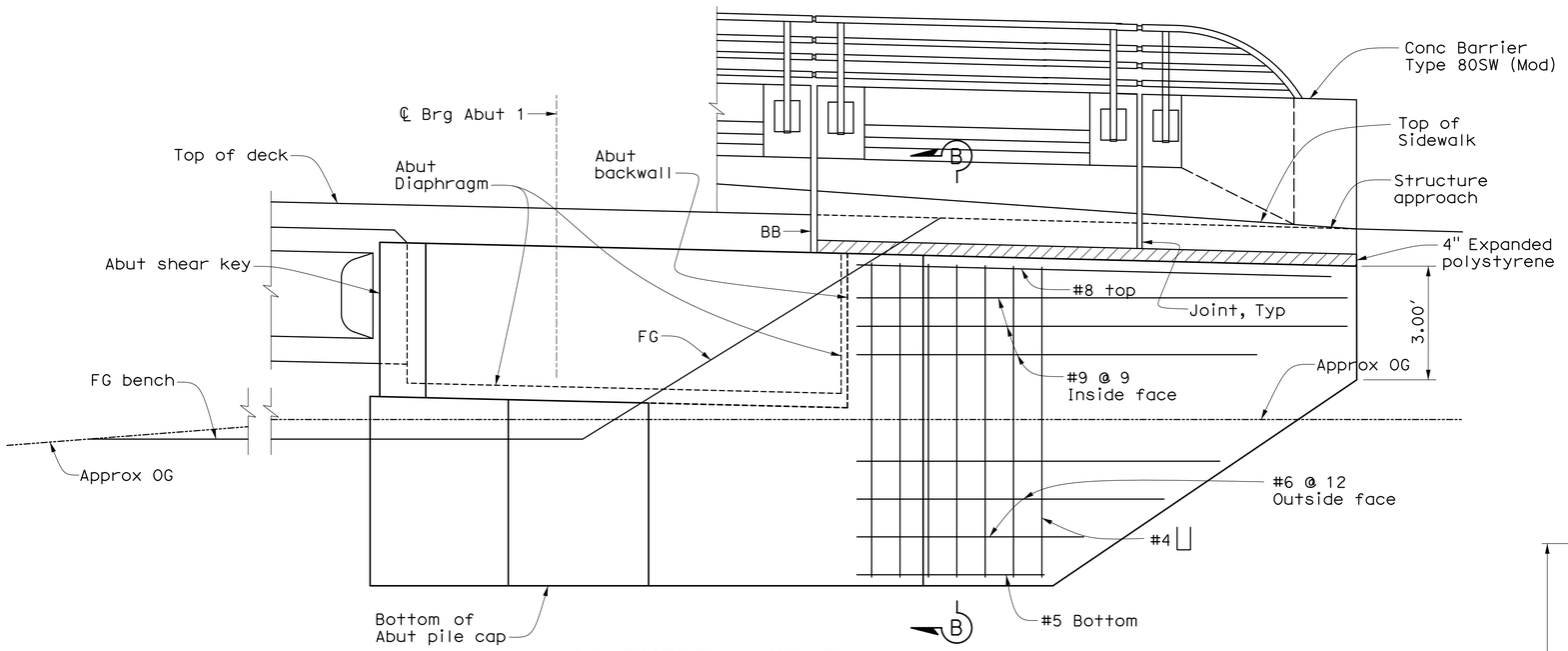
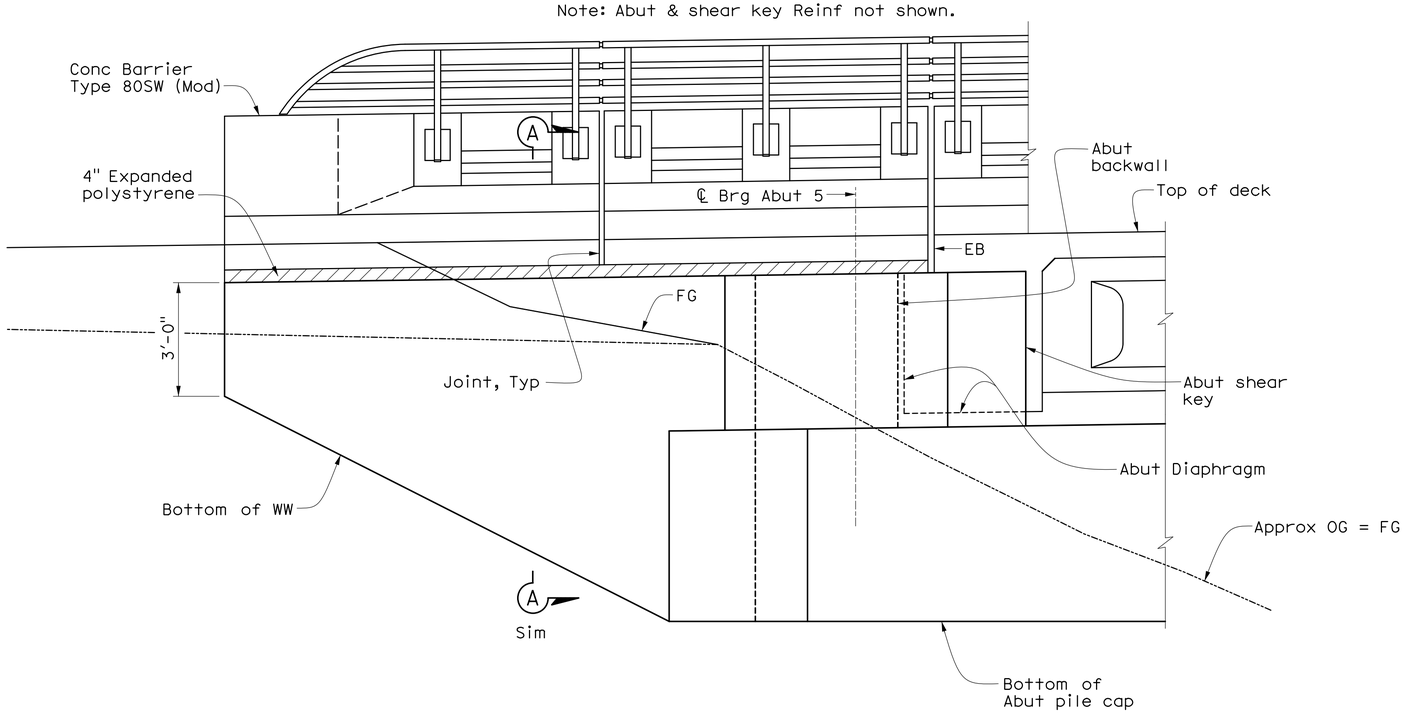
AS-BUILT SEPTEMBER 2019



ABUTMENT 1 SOUTH WINGWALL ELEVATION

½" = 1'-0"

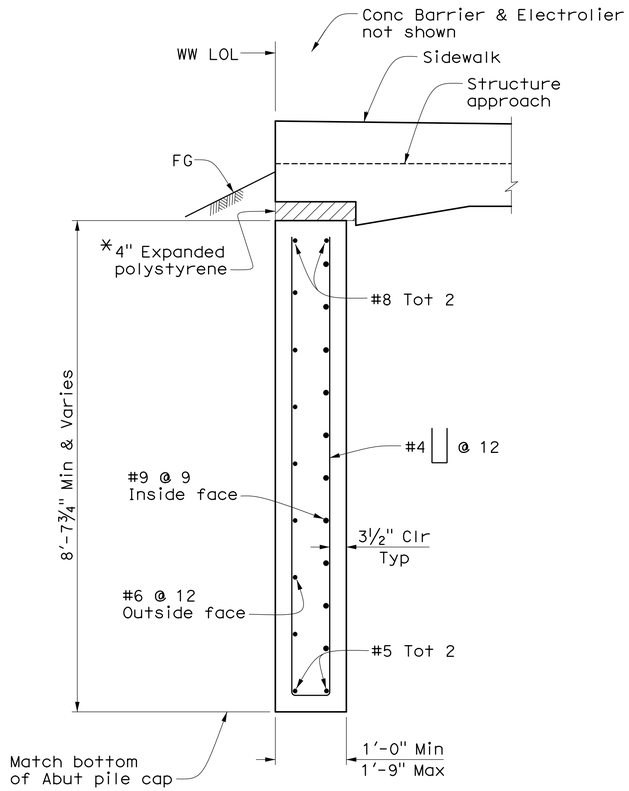
Note: Abut & shear key Reinf not shown.



ABUTMENT 5 SOUTH WINGWALL ELEVATION

½" = 1'-0"

Note: Abut & shear key Reinf not shown.



SECTION B-B

¾" = 1'-0"

*Remove outer 6" after approach is cured

Notes:

1. For "Section A-A", see "Abutment Details No. 3" sheet.

County of Orange	
Public Works	
AS-BUILT	
Contractor:	Kiewit Infrastructure West Company
Resident Engineer:	Elmo Delos Santos (PreScience Corp.)
Senior RE:	Kevin Tran
Inspectors:	Tuan Tran (PreScience Corp.) Kenneth Junio
Construction Start Date:	May 8, 2017
Construction Completion Date:	August 5, 2019

COUNTY OF ORANGE CALIFORNIA

MARK	DESCRIPTION	DATE	APPR.

PREPARED UNDER THE RESPONSIBLE CHARGE OF:

REGISTERED PROFESSIONAL ENGINEER TODD W. DUDLEY No. C39514 Exp. 12/31/17 CIVIL STATE OF CALIFORNIA

DATE 9/19/16

TODD W. DUDLEY

DESIGNED BY: A. SELLADURAI/R. PRICE
DRAWN BY: R. ANDRASEK
CHECKED BY: M. STILLER
DRAWING CODE: F06-01-7
FILE NAME:
PLOT DATE:
SCALE: AS SHOWN

COUNTY OF ORANGE
OC PUBLIC WORKS

PREPARED BY:
AECOM
999 W. Town & Country Road
Orange, CA 92868
(714) 567-2501

EDINGER AVENUE BRIDGE AT BOLSA CHICA CHANNEL REPLACEMENT PROJECT
BR. NO. 55C-0400

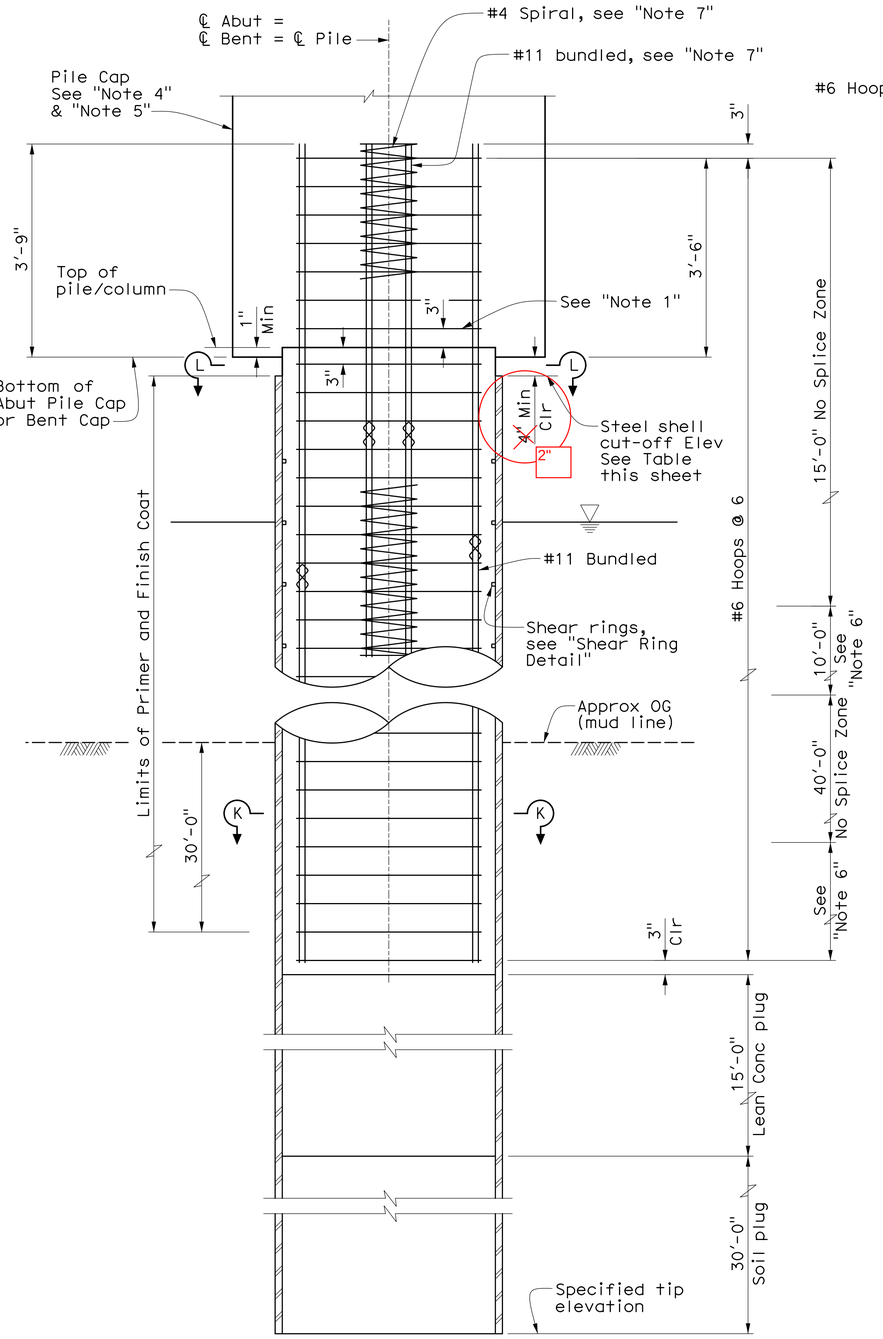
ABUTMENT DETAILS NO. 4

Sheet Reference Number

ST-13

USERNAME => quinovevaDATE PLOTTED => 9/19/2016 TIME PLOTTED => 8:43:03 AM

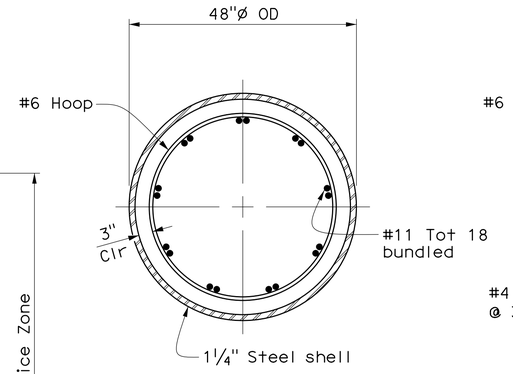
AS-BUILT SEPTEMBER 2019



TYPICAL 48"ø CISS CONCRETE PILE

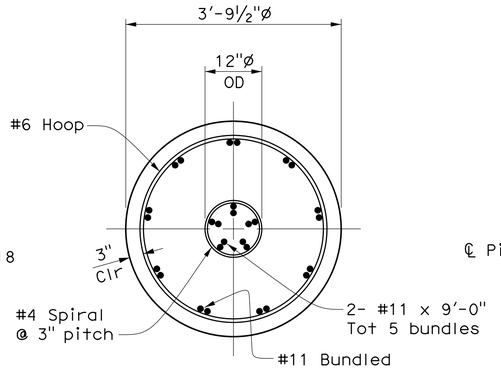
¾" = 1'-0"

◇◇ Indicates bundled bars



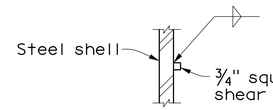
SECTION K-K

¾" = 1'-0"



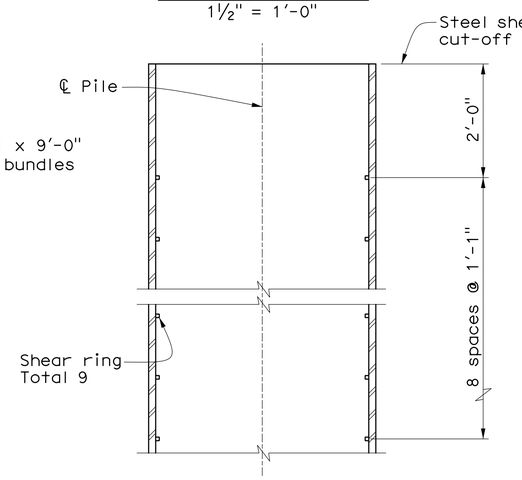
SECTION L-L

¾" = 1'-0"



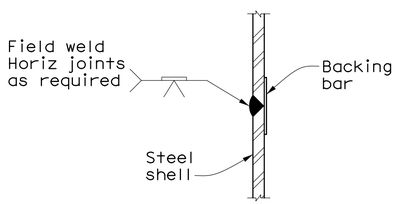
SECTION N-N

1½" = 1'-0"

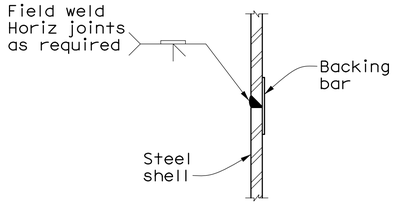


ELEVATION

¾" = 1'-0"



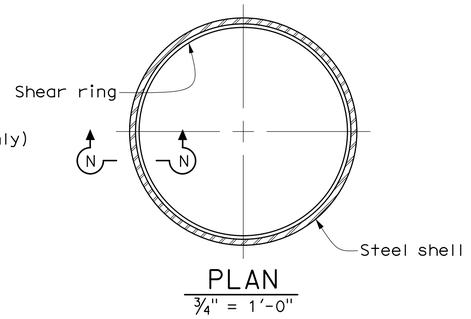
SINGLE VEE-GROOVE
(permitted for all positions)



SINGLE BEVEL-GROOVE
(permitted for horiz joints only)

PILE WELDING DETAIL - BUTT JOINTS

No Scale



PLAN

¾" = 1'-0"

SHEAR RING DETAIL

CISS Pile Cut-off Elevation					
Support	1	2	3	4	Pile # L-R
Abut 1	4.10	3.84	3.59	3.33	
Bent 2	6.61	6.57	6.53	6.48	
Bent 3	6.97	7.15	7.32	7.50	
Bent 4	5.94	6.36	6.78	7.21	
Abut 5	3.67	4.11	4.55	4.99	

Notes:

1. Adjust hoop spacing to allow for placing of Pile Cap reinforcing.
2. For Pile Data, see "Foundation Plan" sheet. Final tip elevations shall be determined by pile driving criteria as required by the project special provisions.
3. 48" diameter steel shell piles shall be driven open ended.
4. For Bent Cap reinforcing, see "Bent Details" sheet.
5. For abutment pile cap reinforcing, see "Abutment Details No. 1" sheet.
6. Splices in pile longitudinal reinforcment shall be by Ultimate butt-weld. Stagger adjacent splice location by 6'-0" minimum.
7. Pin reinforcement is located at Bent columns only.

County of Orange
Public Works
AS-BUILT
Contractor: Kiewit Infrastructure West Company
Resident Engineer: Elmo Delos Santos (PreScience Corp.)
Senior RE: Kevin Tran
Inspectors: Tuan Tran (PreScience Corp.), Kenneth Junio
Construction Start Date: May 8, 2017
Construction Completion Date: August 5, 2019

COUNTY OF ORANGE CALIFORNIA

MARK	DESCRIPTION	DATE	APPR.

PREPARED UNDER THE RESPONSIBLE CHARGE OF:
TODD W. DUDLEY
REGISTERED PROFESSIONAL ENGINEER
TODD W. DUDLEY
No. C39514
Exp. 12/31/17
CIVIL
STATE OF CALIFORNIA
9/19/16
DATE

DESIGNED BY: A. SELLADURAI/R. PRICE
DRAWN BY: R. ANDRASEK
CHECKED BY: M. STILLER
DRAWING CODE: F06-01-7
FILE NAME:
PLOT DATE:
SCALE: AS SHOWN

COUNTY OF ORANGE
OC PUBLIC WORKS

PREPARED BY:
AECOM
999 W. Town & Country Road
Orange, CA 92868
(714) 567-2501

EDINGER AVENUE BRIDGE AT
BOLSA CHICA CHANNEL
REPLACEMENT PROJECT
BR. NO. 55C-0400

CISS CONCRETE
PILE DETAILS

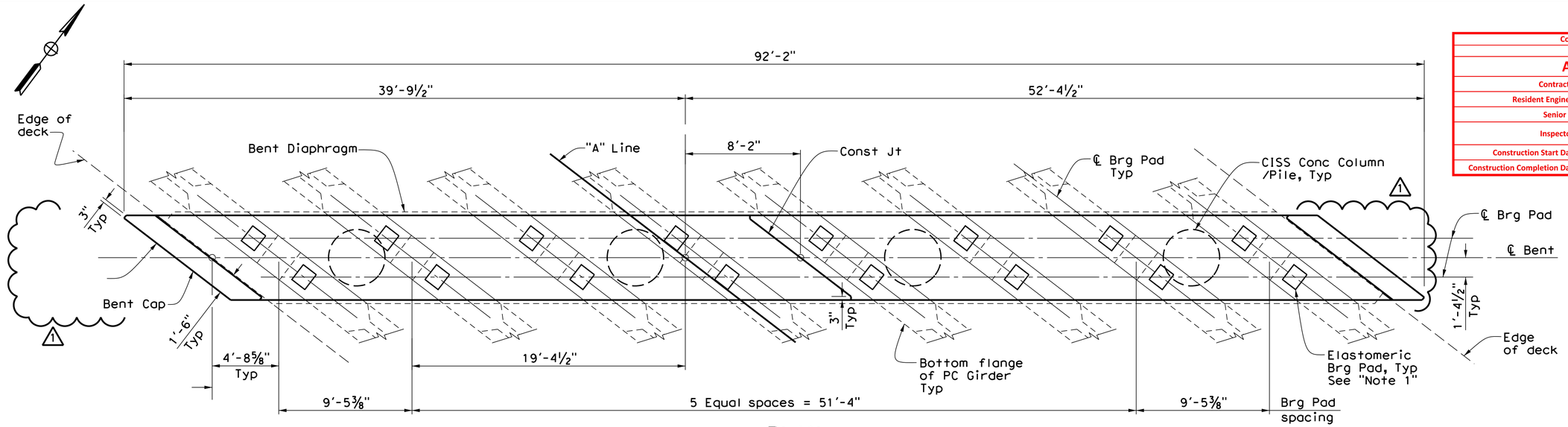
Sheet Reference Number

ST-14

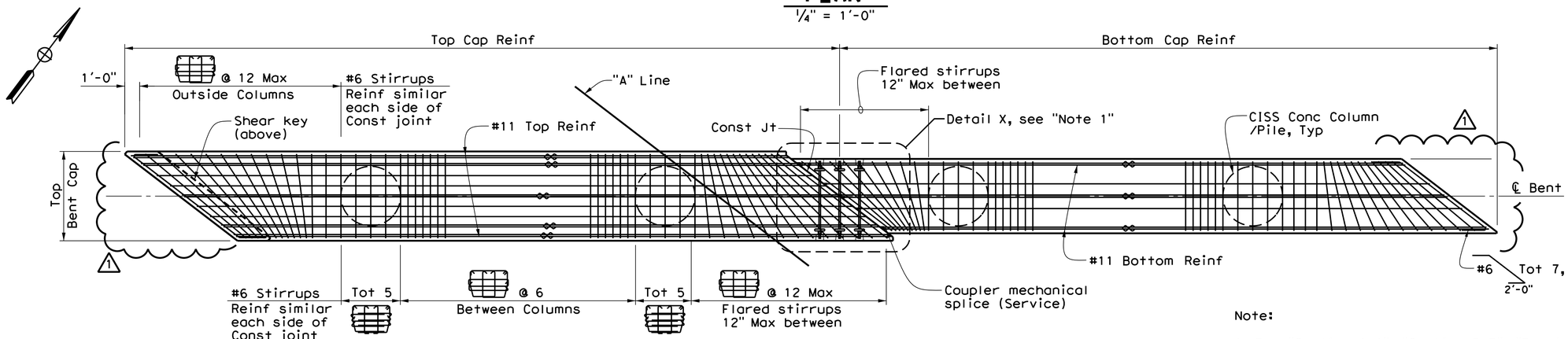
Sheet 53 of 76

USERNAME => quinovevaDATE PLOTTED => 9/19/2016 TIME PLOTTED => 8:43:07 AM

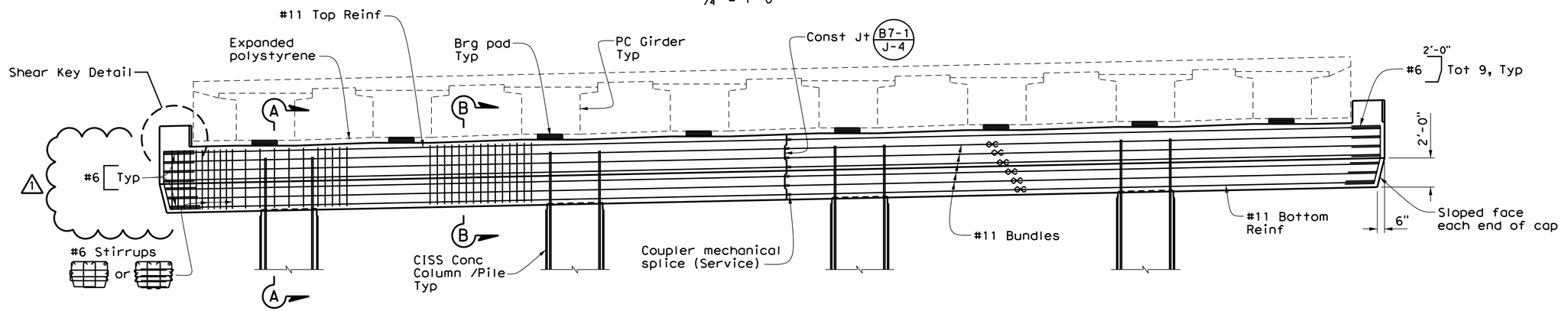
AS-BUILT SEPTEMBER 2019



PLAN
¼" = 1'-0"



BENT CAP REINFORCING PLAN
¼" = 1'-0"



ELEVATION
¼" = 1'-0"

Note:

1. For "Section A-A", "Section B-B", "Bearing Pad Detail", "Detail X" & "Shear Key Detail", see "Bent Details" sheet.

◇◇ Indicates bundled bars

County of Orange
Public Works
AS-BUILT
Contractor: Kiewit Infrastructure West Company
Resident Engineer: Elmo Delos Santos (PreScience Corp.)
Senior RE: Kevin Tran
Inspectors: Tuan Tran (PreScience Corp.) Kenneth Junio
Construction Start Date: May 8, 2017
Construction Completion Date: August 5, 2019

MARK	DESCRIPTION	DATE	APPR.
1	Revised End of Bent Cap	5/18/17	

PREPARED UNDER THE RESPONSIBLE CHARGE OF:
TODD W. DUDLEY
REGISTERED PROFESSIONAL ENGINEER TODD W. DUDLEY No. C39514 Exp.12/31/17 CIVIL STATE OF CALIFORNIA
2/9/17 DATE

DESIGNED BY: A. SELLADURAI/R. PRICE
DRAWN BY: R. ANDRASEK
CHECKED BY: M. STILLER
DRAWING CODE: FO6-10-7
FILE NAME:
PLOT DATE:
SCALE: AS SHOWN

COUNTY OF ORANGE
OC PUBLIC WORKS

PREPARED BY:
AECOM
999 W. Town & Country Road
Orange, CA 92868
(714) 567-2501

EDINGER AVENUE BRIDGE AT BOLSA CHICA CHANNEL
REPLACEMENT PROJECT
BR. NO. 55C-0400

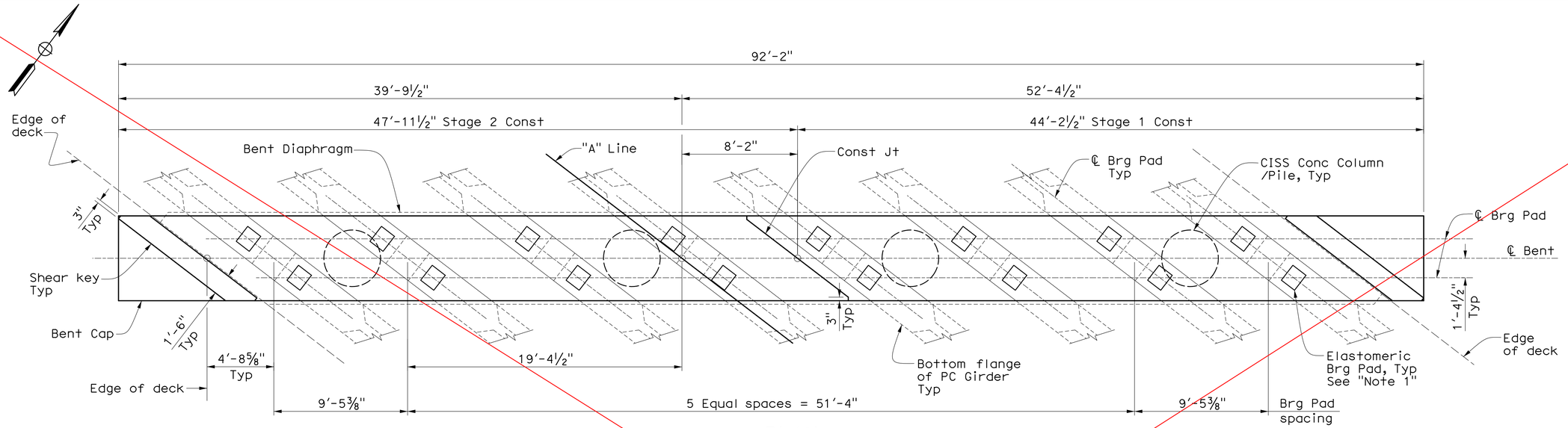
BENT LAYOUT

Sheet Reference Number

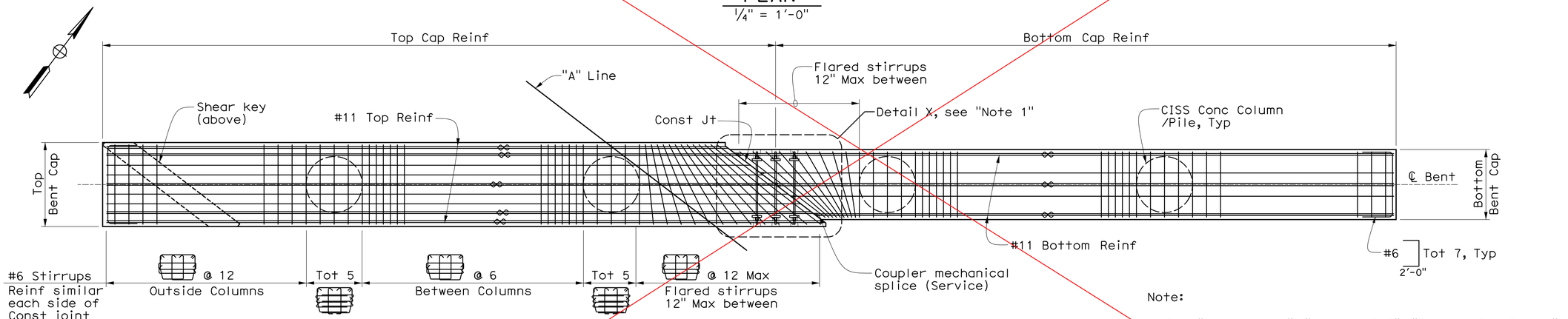
ST-15

USERNAME => $USER DATE PLOTTED => $DATE TIME PLOTTED => $TIME

AS-BUILT SEPTEMBER 2019



PLAN
¼" = 1'-0"

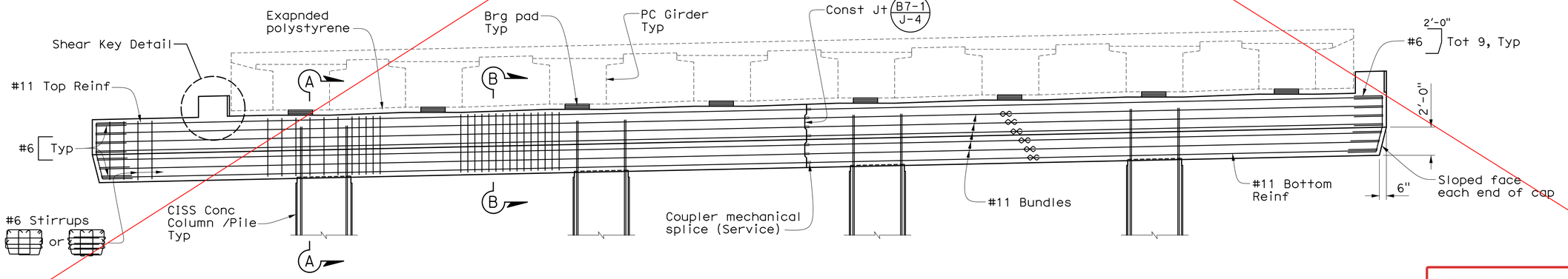


BENT CAP REINFORCING PLAN
¼" = 1'-0"

Note:

1. For "Section A-A", "Section B-B", "Bearing Pad Detail", "Detail X" & "Shear Key Detail", see "Bent Details" sheet.

◇◇ Indicates bundled bars



ELEVATION
¼" = 1'-0"

SUPERSEDED

COUNTY OF ORANGE CALIFORNIA

MARK	DESCRIPTION	DATE	APPR.

PREPARED UNDER THE RESPONSIBLE CHARGE OF:
REGISTERED PROFESSIONAL ENGINEER TODD W. DUDLEY No. C39514 Exp.12/31/17 CIVIL STATE OF CALIFORNIA
9/19/16 DATE
TODD W. DUDLEY

DESIGNED BY: A. SELLADURAI/R. PRICE
DRAWN BY: R. ANDRASEK
CHECKED BY: M. STILLER
DRAWING CODE: F06-01-7
FILE NAME:
PLOT DATE:
SCALE: AS SHOWN

COUNTY OF ORANGE
OC PUBLIC WORKS

PREPARED BY:
AECOM
999 W. Town & Country Road
Orange, CA 92868
(714) 567-2501

EDINGER AVENUE BRIDGE AT BOLSA CHICA CHANNEL
REPLACEMENT PROJECT
BR. NO. 55C-0400

BENT LAYOUT

Sheet Reference Number

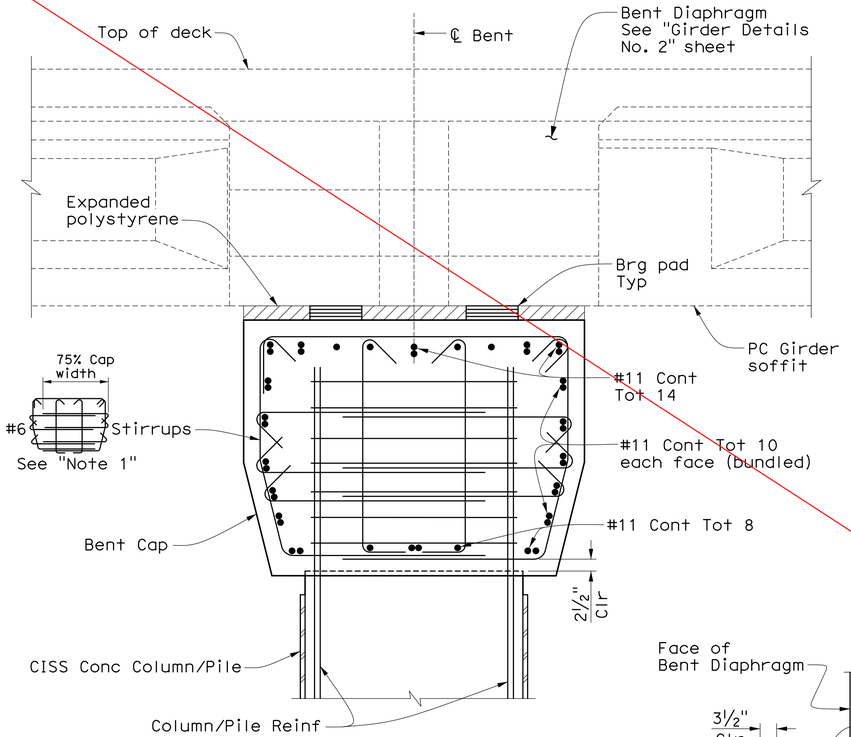
ST-15

USERNAME => quinovevo DATE PLOTTED => 9/19/2016 TIME PLOTTED => 8:43:12 AM

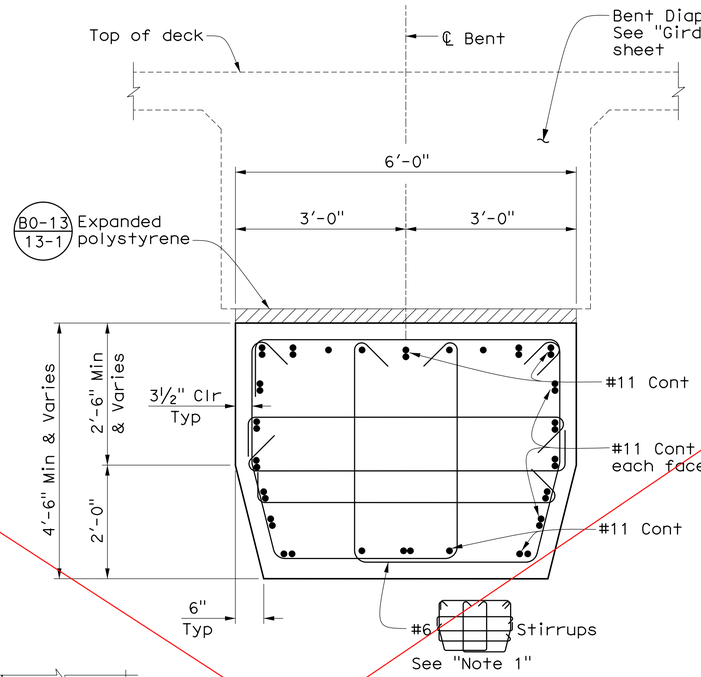
AS-BUILT SEPTEMBER 2019

Notes:

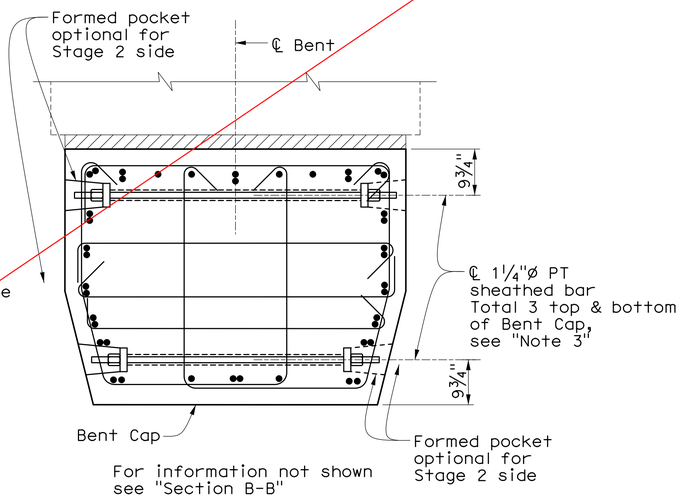
1. For stirrup spacing, see "Bent Layout" sheet.
2. For CISS Concrete Column/Pile reinforcement, see "CISS Concrete Pile Details" sheet.
3. Provide shething, anchor plate and formed pocket on Stage 1 construction and install PT bar with nut & anchor plate in Stage 2 construction.



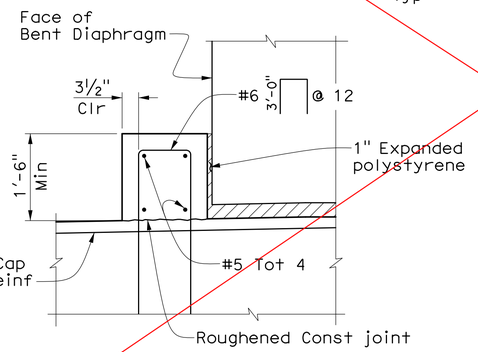
SECTION A-A
¾" = 1'-0"



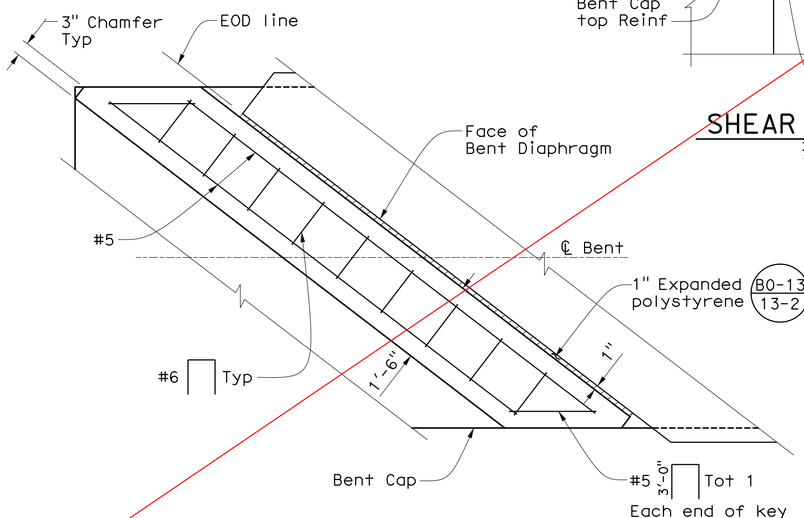
SECTION B-B
¾" = 1'-0"



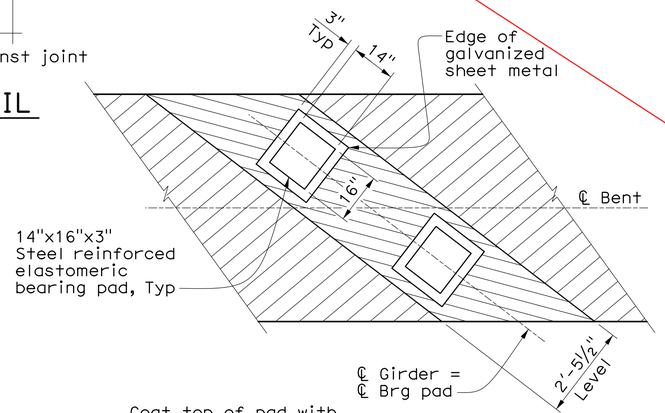
SECTION C-C
¾" = 1'-0"



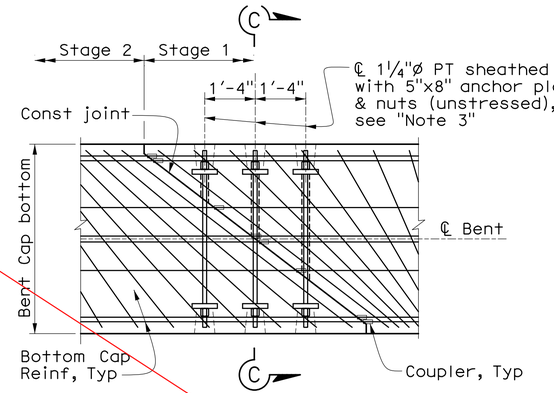
SHEAR KEY DETAIL
¾" = 1'-0"



SHEAR KEY PLAN
¾" = 1'-0"



BEARING PAD DETAIL
½" = 1'-0"



DETAIL X
½" = 1'-0"

Superseded

MARK	DESCRIPTION	DATE	APPR.

PREPARED UNDER THE RESPONSIBLE CHARGE OF:
REGISTERED PROFESSIONAL ENGINEER TODD W. DUDLEY No. C39514 Exp.12/31/17 CIVIL STATE OF CALIFORNIA
9/19/16 DATE
TODD W. DUDLEY

DESIGNED BY: A. SELLADURAI/R. PRICE
DRAWN BY: R. ANDRASEK
CHECKED BY: M. STILLER
DRAWING CODE: F06-09-7
FILE NAME:
PLOT DATE:
SCALE: AS SHOWN

COUNTY OF ORANGE
OC PUBLIC WORKS

PREPARED BY:
AECOM
999 W. Town & Country Road
Orange, CA 92868
(714) 567-2501

EDINGER AVENUE BRIDGE AT BOLSA CHICA CHANNEL REPLACEMENT PROJECT
BR. NO. 55C-0400

BENT DETAILS

Sheet Reference Number

ST-16

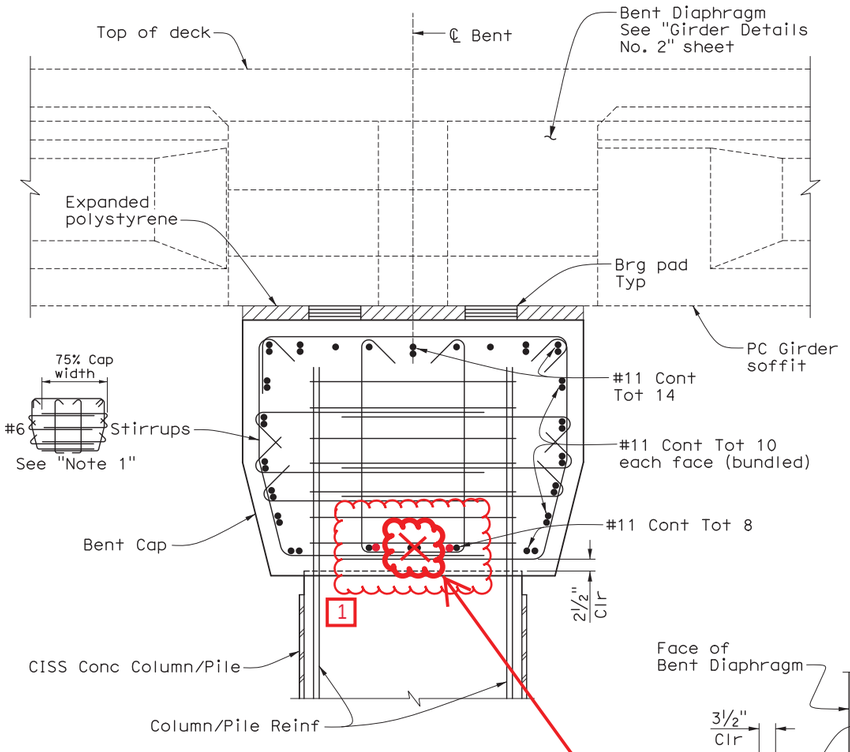
Sheet 55 of 76

USERNAME => quinovevg|DATE PLOTTED => 9/19/2016 TIME PLOTTED => 8:43:16 AM

AS-BUILT SEPTEMBER 2019

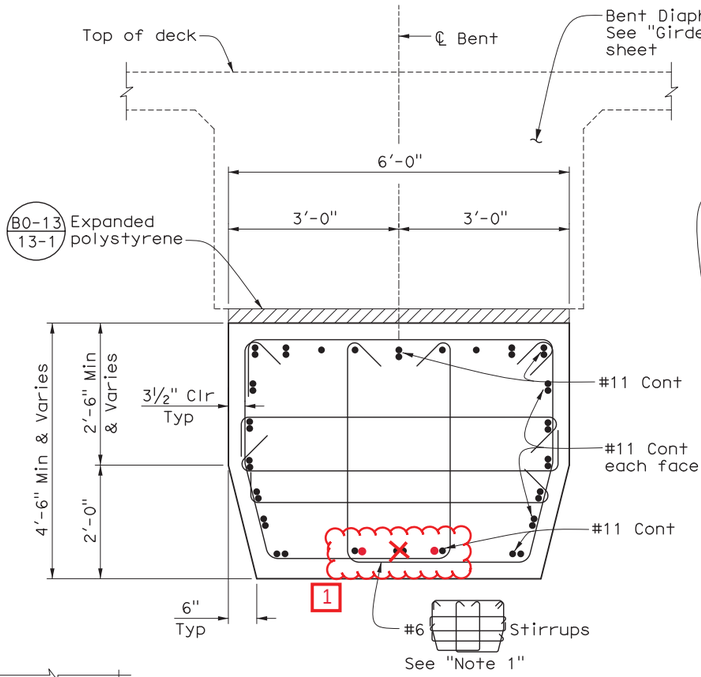
Notes:

1. For stirrup spacing, see "Bent Layout" sheet.
2. For CISS Concrete Column/Pile reinforcement, see "CISS Concrete Pile Details" sheet.
3. Provide shething, anchor plate and formed pocket on Stage 1 construction and install PT bar with nut & anchor plate in Stage 2 construction.

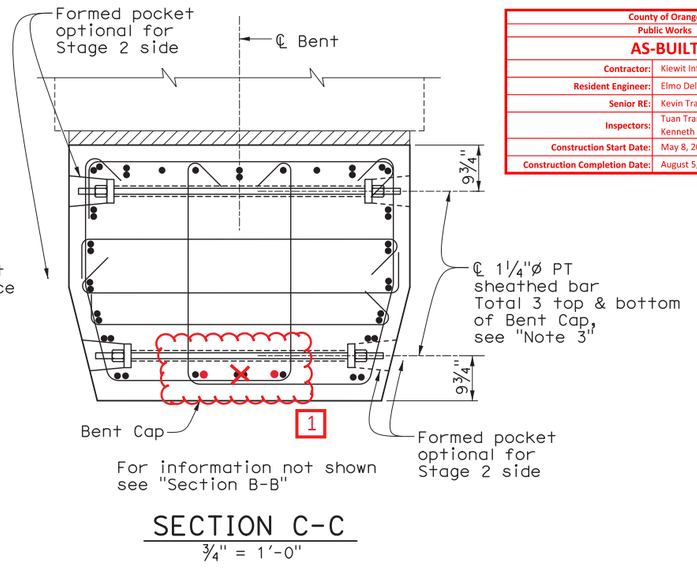


SECTION A-A
¾" = 1'-0"

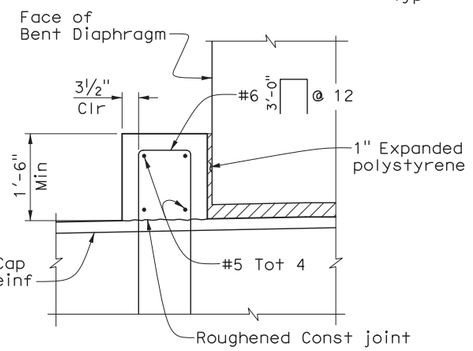
These #11 bars can be separated, and bundled with the adjacent #11 bars as shown 1



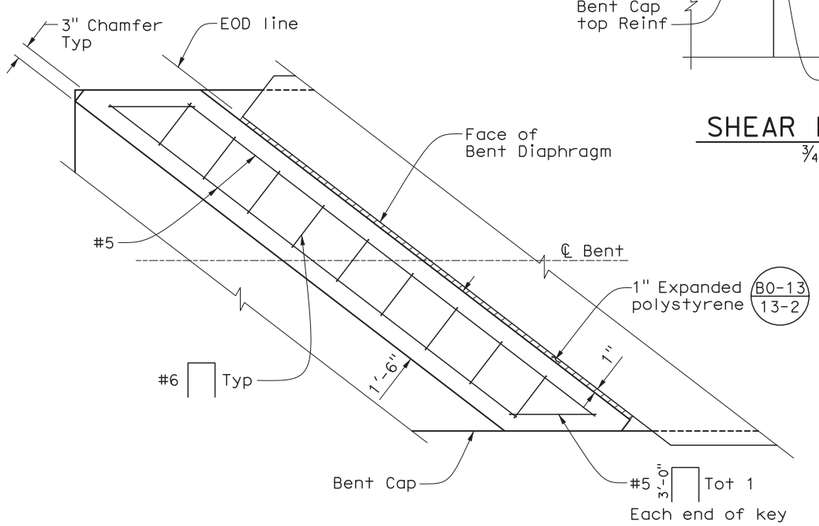
SECTION B-B
¾" = 1'-0"



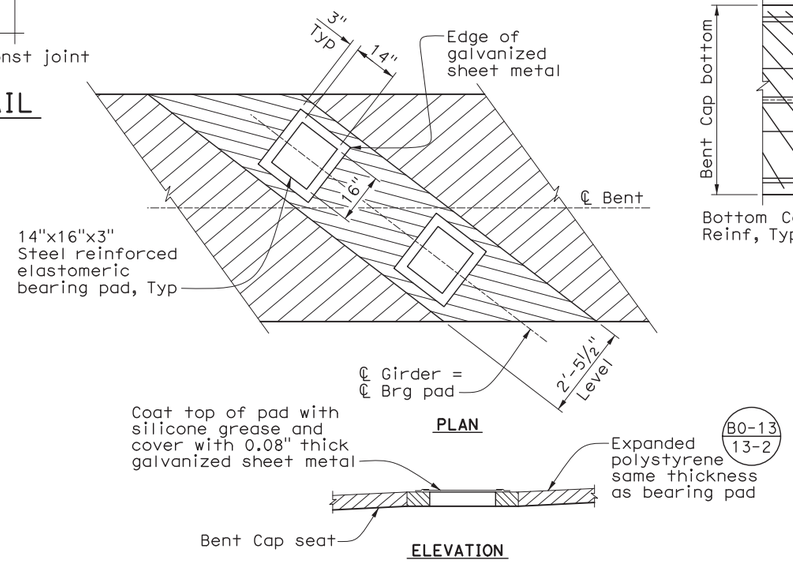
SECTION C-C
¾" = 1'-0"



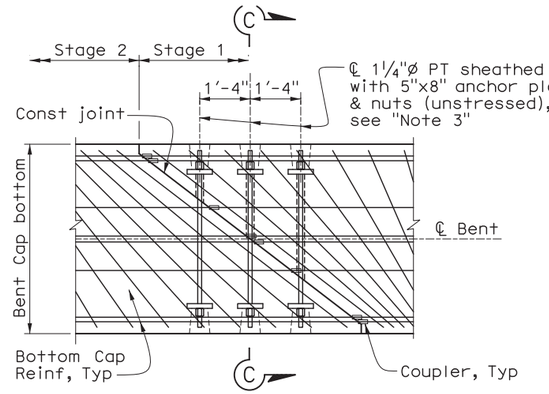
SHEAR KEY DETAIL
¾" = 1'-0"



SHEAR KEY PLAN
¾" = 1'-0"



BEARING PAD DETAIL
½" = 1'-0"



DETAIL X
½" = 1'-0"

County of Orange	
Public Works	
AS-BUILT	
Contractor:	Kiewit Infrastructure West Company
Resident Engineer:	Elmo Delos Santos (PreScience Corp.)
Senior RE:	Kevin Tran
Inspectors:	Tuan Tran (PreScience Corp.) Kenneth Junio
Construction Start Date:	May 8, 2017
Construction Completion Date:	August 5, 2019

MARK	DESCRIPTION	DATE	APPR.
1	T. Dudley	1/16/18	

PREPARED UNDER THE RESPONSIBLE CHARGE OF:
REGISTERED PROFESSIONAL ENGINEER TODD W. DUDLEY No. C39514 Exp. 12/31/17 CIVIL STATE OF CALIFORNIA
TODD W. DUDLEY
DATE 9/19/16

DESIGNED BY: A. SELLADURAI/R. PRICE
DRAWN BY: R. ANDRASEK
CHECKED BY: M. STILLER
DRAWING CODE: F06-00-7
FILE NAME:
PLOT DATE:
SCALE: AS SHOWN

COUNTY OF ORANGE
OC PUBLIC WORKS

PREPARED BY:
AECOM
999 W. Town & Country Road
Orange, CA 92868
(714) 567-2501

EDINGER AVENUE BRIDGE AT BOLSA CHICA CHANNEL REPLACEMENT PROJECT
BR. NO. 55C-0400

BENT DETAILS

Sheet Reference Number

ST-16

Sheet 55 of 76

USERNAME => quinovevg DATE PLOTTED => 9/19/2016 TIME PLOTTED => 8:43:16 AM

AS-BUILT SEPTEMBER 2019

County of Orange	
Public Works	
AS-BUILT	
Contractor:	Kiewit Infrastructure West Company
Resident Engineer:	Elmo Delos Santos (PreScience Corp.)
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Inspectors:	Tuan Tran (PreScience Corp.) Kenneth Junio
Construction Start Date:	May 8, 2017
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RFI 067 Bent Cap Rebar Splice Clarifications

KIEWIT INFRASTRUCTURE WEST CO.
10704 Shoemaker Avenue PHONE: (562) 946-1816
Santa Fe Springs, CA 90670

RFI NO. 067
DATE: 9/26/18
REQUESTED BY: 9/28/18

ORANCE COUNTY PUBLIC WORKS
ER16008 - Edinger Bridge Replacement
Date Received: 9/26/2018
Received By: Elmo Delos Santos, PE

TO: Orange County Public Works
Attention: Elmo Delos Santos, Resident Engineer
EDINGER BRIDGE REPLACEMENT PROJECT

REQUEST FOR INFORMATION

SUBJECT: SPLICE #11 in BENT CAP & ABUTMENTS

___ Direction not given in contract documents
____ Interpretation of contract requirements
_____ Conflict in contract requirements
__x__ Change in sequence/procedure

REF. DRAWINGS: ST-10, 15 & 16
REF. SPECS:

REQUEST:

Please confirm it is acceptable to splice the #11's at the bottom of the bent caps and at the top of the abutment. See attached. There would be a short #11 with a Male end that screws into phase 1, lapping a long bar in phase 2
Thank you,

SUBMITTED BY: Art Patamalai

RESPONSE:

#11 bars may be spliced in both situations as follows:

Abutments:

Class B splices can be constructed by splicing 3 bars at a time and providing 10'-8" long contact lap splice lengths at each location. Splice lengths shall not overlap each other.

Class C splices can be constructed by splicing combinations of 4 or 5 bars at a time and providing 13'-11" long contact lap splice lengths at each location. Splice lengths shall not overlap each other.

Bent Cap Beams:

Class B splices can be constructed by splicing half (total = 4) bars at a time. Splices shall be constructed by placing a splice bar having a length of 15'-4" over the top of the bar to be spliced, centered on the splice location, with a second bar placed end-to-end with the cut bar, extending to the end of the cap beam. Two such splice configurations are required to splice all 8 bars in the bottom mat of the bent cap beams in the stage 2 construction as follows:

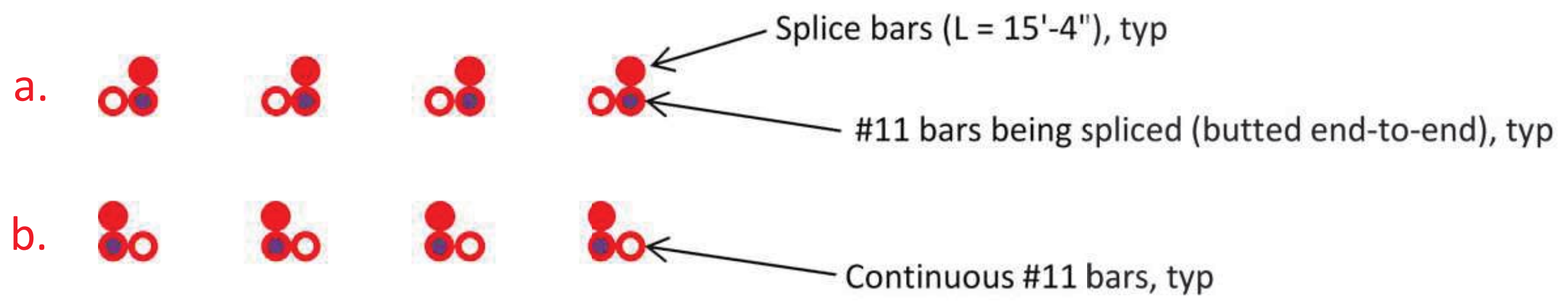
cc: File

AS-BUILT SEPTEMBER 2019

County of Orange	
Public Works	
AS-BUILT	
Contractor:	Kiewit Infrastructure West Company
Resident Engineer:	Elmo Delos Santos (PreScience Corp.)
Senior RE:	Kevin Tran
Inspectors:	Tuan Tran (PreScience Corp.) Kenneth Junio
Construction Start Date:	May 8, 2017
Construction Completion Date:	August 5, 2019

RFI 067 Bent Cap Rebar Splice Clarifications

Details of bent cap beam splices:



This procedure results in a total combined splice length of 30'-8".

Layout plans for reinforcing splices at abutment and bent cap beams are shown on the following pages.

Reviewed by: Todd W. Dudley October 3, 2018

APPROVED AND ANSWERED BY : Elmo Delos Santos, PE - Resident Engineer

Date: 10/3/2018

RFI 067 Bent Cap Rebar Splice Clarifications

County of Orange	
Public Works	
AS-BUILT	
Contractor:	Kiewit Infrastructure West Company
Resident Engineer:	Elmo Delos Santos (PreScience Corp.)
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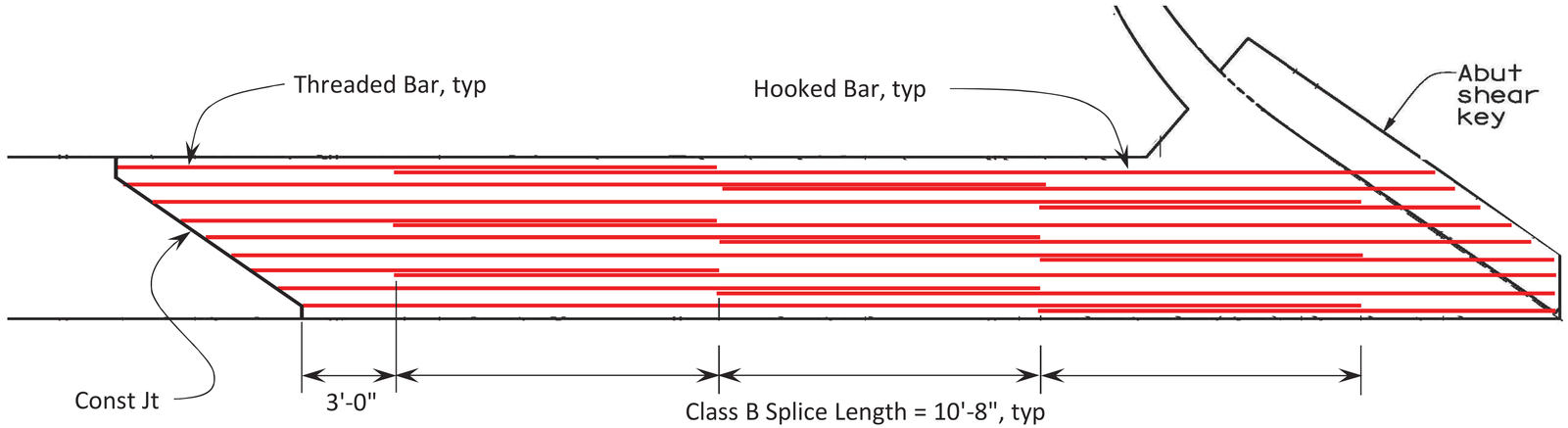
Construction Start Date:	May 8, 2017
Construction Completion Date:	August 5, 2019

RFI 067 Response:



Splice 3 bars in EA Zone, Splices shall be staggered and shall not overlap

Abut 1 Shown, Abut 5 Similar

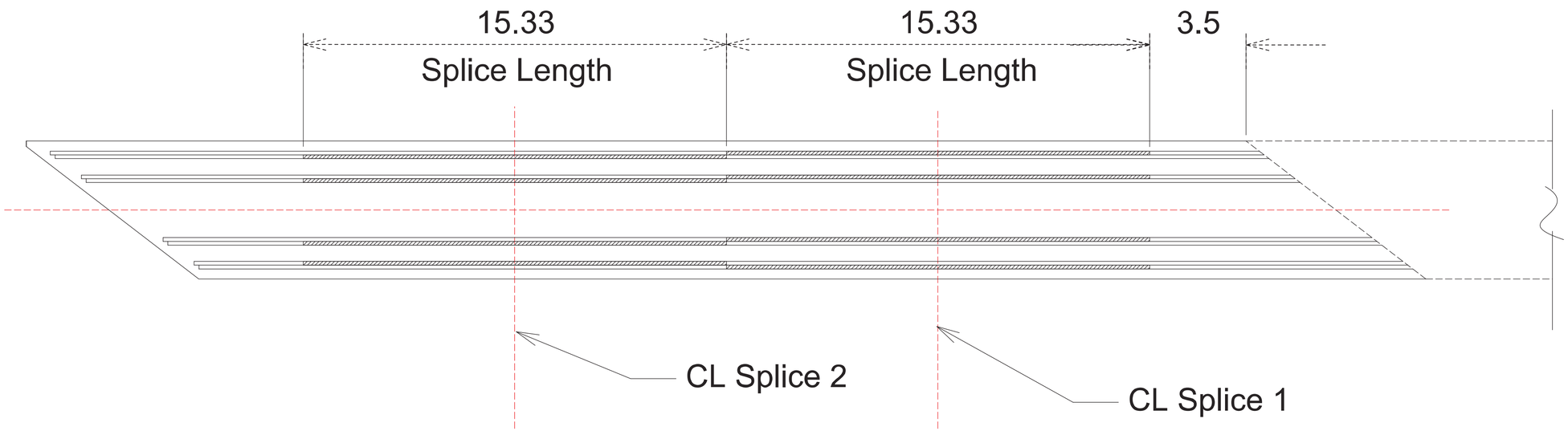
Note: If Class C splices are used, the arrangement shall be similar, using splice lengths of 13'-11", which do not overlap each other.

ABUTMENT SPLICE LAYOUT

RFI 067 Bent Cap Rebar Splice Clarifications

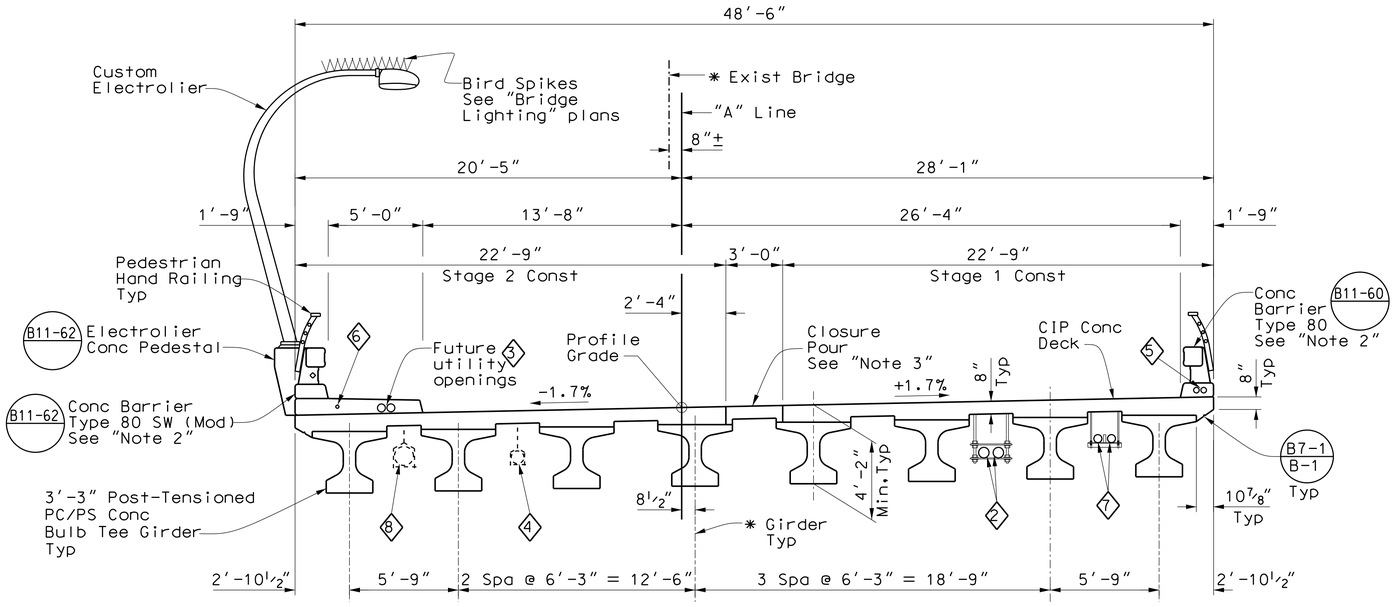
County of Orange	
Public Works	
AS-BUILT	
Contractor:	Kiewit Infrastructure West Company
Resident Engineer:	Elmo Delos Santos (PreScience Corp.)
Senior RE:	Kevin Tran
Inspectors:	Tuan Tran (PreScience Corp.) Kenneth Junio
Construction Start Date:	May 8, 2017
Construction Completion Date:	August 5, 2019

RFI 067 Response:



BENT CAP SPLICE LAYOUT

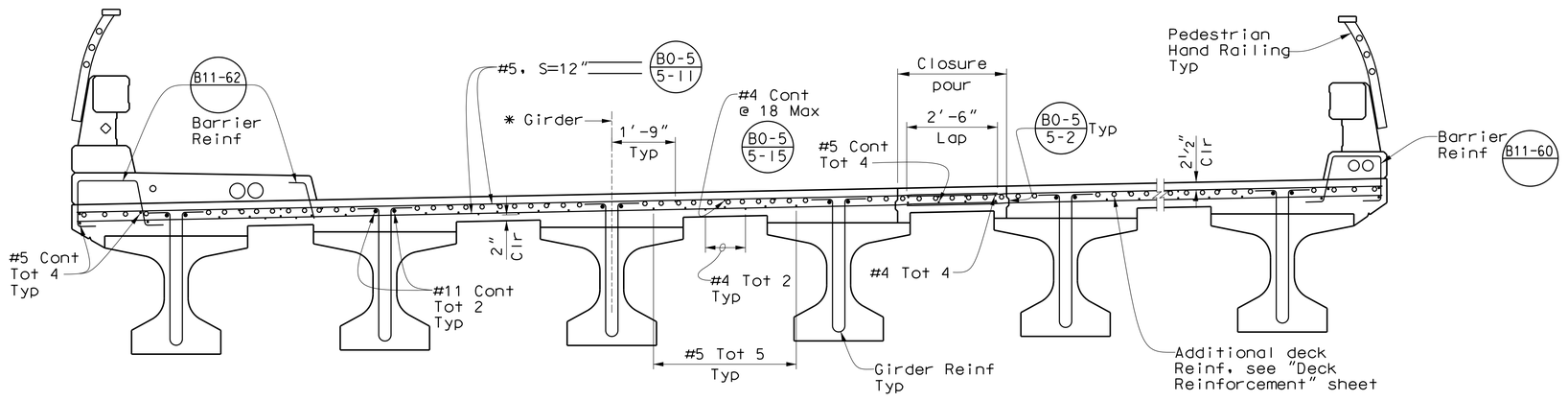
AS-BUILT SEPTEMBER 2019



TYPICAL SECTION

¼" = 1'-0"

(Looking West)



PART TYPICAL SECTION

½" = 1'-0"

Note: Utility hangers not shown.

County of Orange	
Public Works	
AS-BUILT	
Contractor:	Kiewit Infrastructure West Company
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Construction Start Date:	May 8, 2017
Construction Completion Date:	August 5, 2019

UTILITY LEGEND

2. Relocated 2- 2"* PVC Sewer force mains (City of Seal Beach) (6"* x 0.280" Stainless Steel Pipe Casing), see "Sewer Force Main Plans"
3. 2- 5"* Openings for future utilities
4. Future Utility for City of Seal Beach (4"* w/ 10"* SS Pipe Casing)
5. 2- 3½"* XS Steel Pipe Telecommunication conduits (Verizon)
6. 2" Electrical conduit, see "Bridge Lighting Plans"
7. 2- 5"* Electrical conduits (SCE) (to be installed by SCE Contractor)
8. Future Water Line for City of Seal Beach (12"* w/ 20"* SS Pipe Casing)

Notes:

1. For construction staging see, "Construction Staging Schematic" sheet.
2. For barrier recess details, see "Concrete Barrier Recess Details" sheet.
3. Placement of closure pour shall not be done until 60 days after final post tensioning.

COUNTY OF ORANGE CALIFORNIA

MARK	DESCRIPTION	DATE	APPR.

PREPARED UNDER THE RESPONSIBLE CHARGE OF:

REGISTERED PROFESSIONAL ENGINEER TODD W. DUDLEY No. C39514 Exp. 12/31/17 CIVIL STATE OF CALIFORNIA

TODD W. DUDLEY — DATE 2/9/17

DESIGNED BY: A. SELLADURAI/R. PRICE	CHECKED BY: M. STILLER	SCALE: AS SHOWN	
DRAWN BY: R. ANDRASEK	DRAWING CODE: F06-101-7	PLOT DATE:	
COUNTY OF ORANGE OC PUBLIC WORKS	PREPARED BY: ACCOM 999 W. Town & Country Road Orange, CA 92868 (714) 567-2501	FILE NAME:	

EDINGER AVENUE BRIDGE AT BOLSA CHICA CHANNEL REPLACEMENT PROJECT BR. NO. 55C-0400

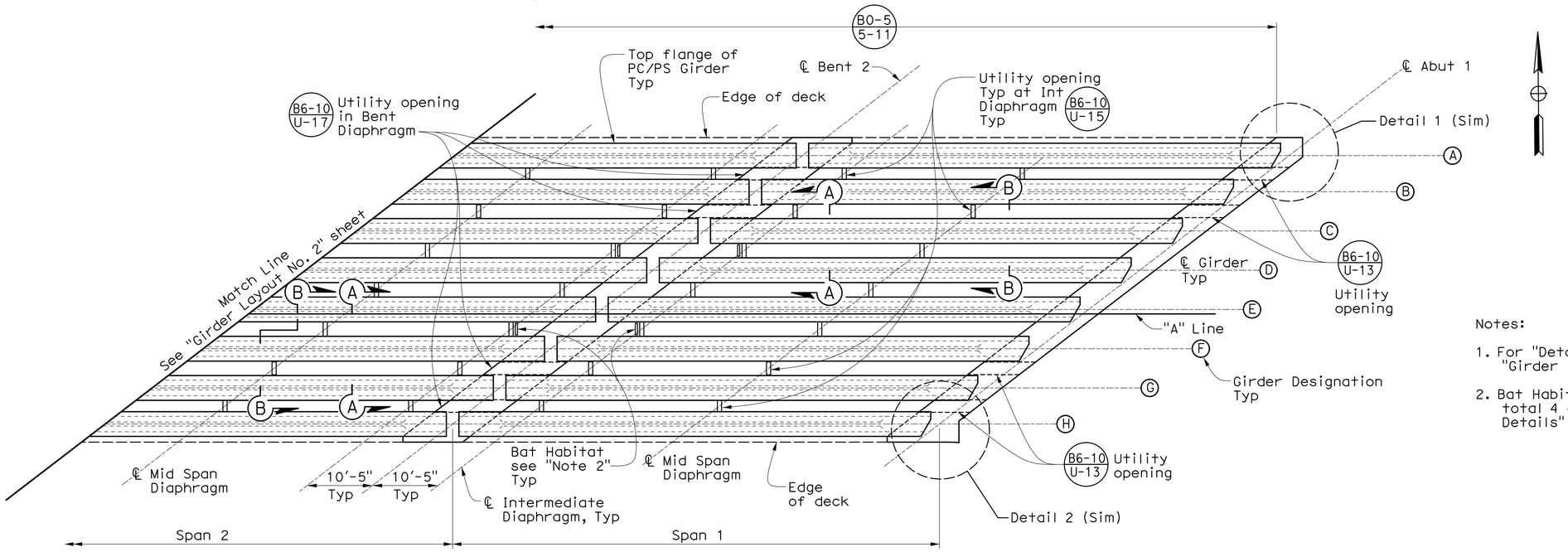
TYPICAL SECTION

Sheet Reference Number

ST-17

USERNAME => $USER DATE PLOTTED => $DATE TIME PLOTTED => $TIME

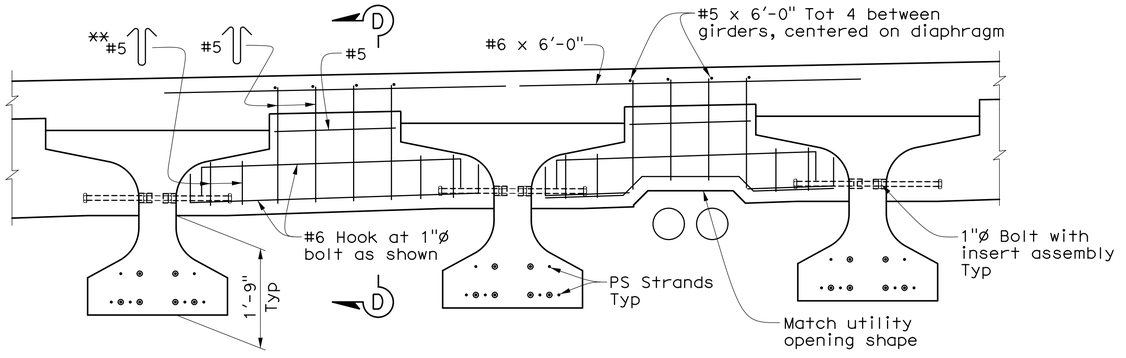
AS-BUILT SEPTEMBER 2019



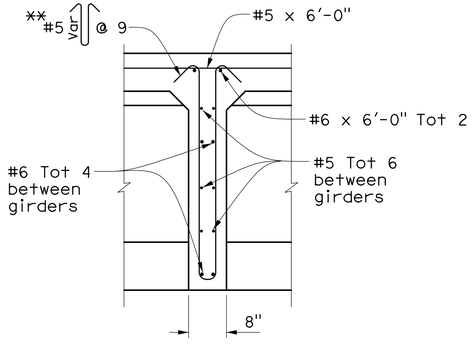
PART PLAN
1" = 10'

Notes:

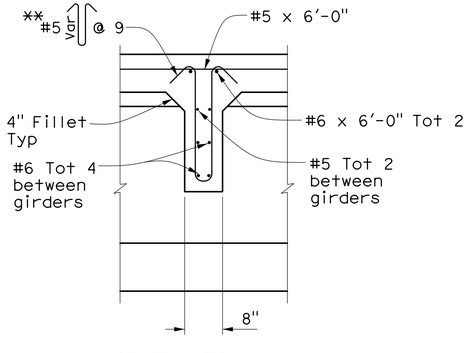
1. For "Detail 1" & "Detail 2", see "Girder Layout No. 2" sheet.
2. Bat Habitats attached to diaphragm, total 4 at each Bent, see "Bat Habitat Details" sheet.



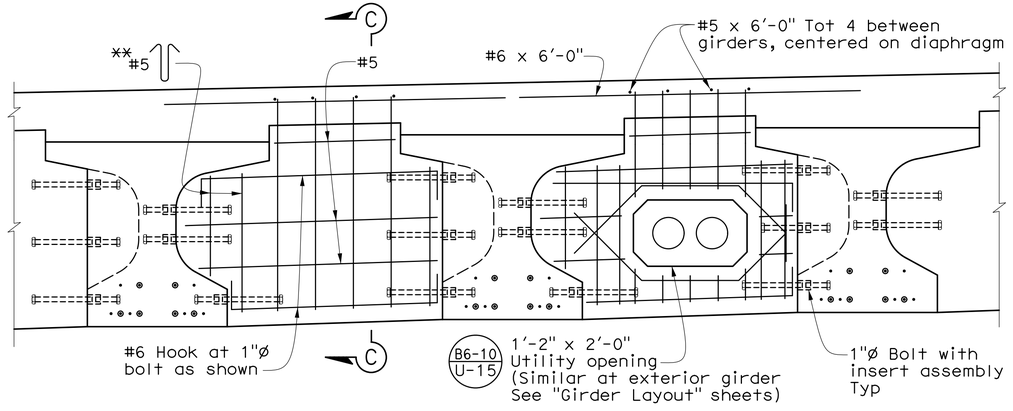
VIEW B-B (MID SPAN DIAPHRAGM)
¾" = 1'-0"



SECTION C-C
¾" = 1'-0"



SECTION D-D
¾" = 1'-0"



VIEW A-A (INTERMEDIATE DIAPHRAGM)
¾" = 1'-0"

** Hook inward below girder top flange

County of Orange	
Public Works	
AS-BUILT	
Contractor:	Kiewit Infrastructure West Company
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Construction Start Date:	May 8, 2017
Construction Completion Date:	August 5, 2019

COUNTY OF ORANGE CALIFORNIA

MARK

PREPARED UNDER THE RESPONSIBLE CHARGE OF:
TODD W. DUDLEY
REGISTERED PROFESSIONAL ENGINEER TODD W. DUDLEY No. C39514 Exp. 12/31/17 CIVIL STATE OF CALIFORNIA
DATE 9/19/16

DESIGNED BY: A. SELLADURAI/R. PRICE
DRAWN BY: R. ANDRASEK
CHECKED BY: M. STILLER
DRAWING CODE: F06-01-7
FILE NAME:
PLOT DATE:
SCALE: AS SHOWN

COUNTY OF ORANGE
OC PUBLIC WORKS

PREPARED BY:
AECOM
999 W. Town & Country Road
Orange, CA 92868
(714) 567-2501

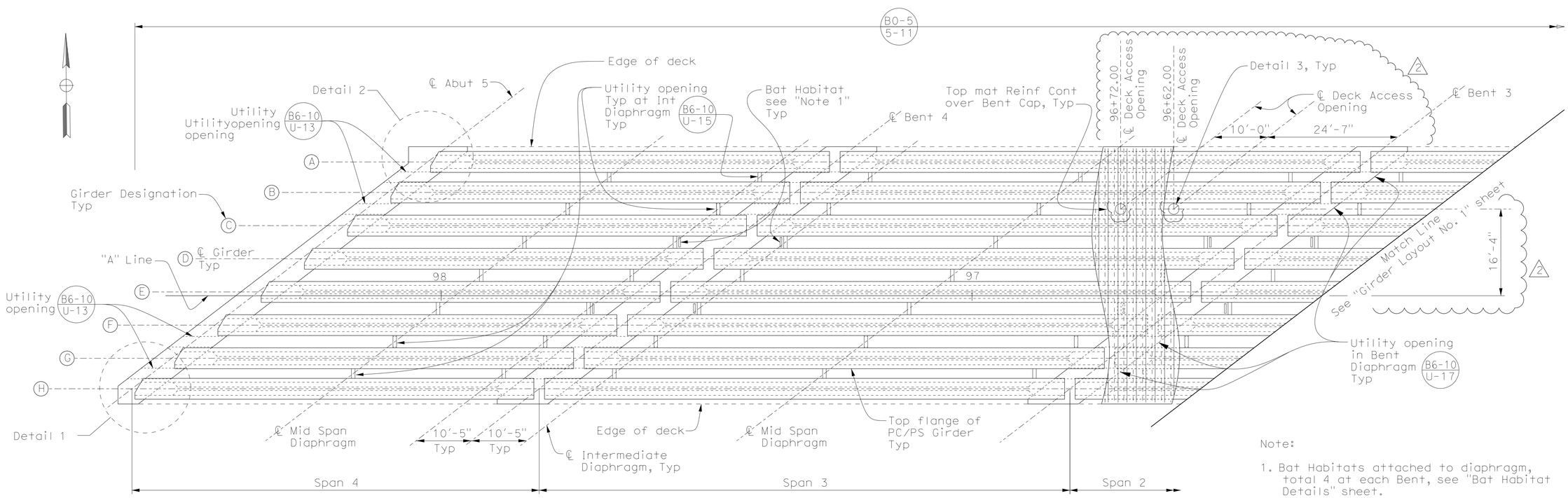
EDINGER AVENUE BRIDGE AT BOLSA CHICA CHANNEL
REPLACEMENT PROJECT
BR. NO. 55C-0400

GIRDER LAYOUT NO. 1

Sheet Reference Number
ST-18

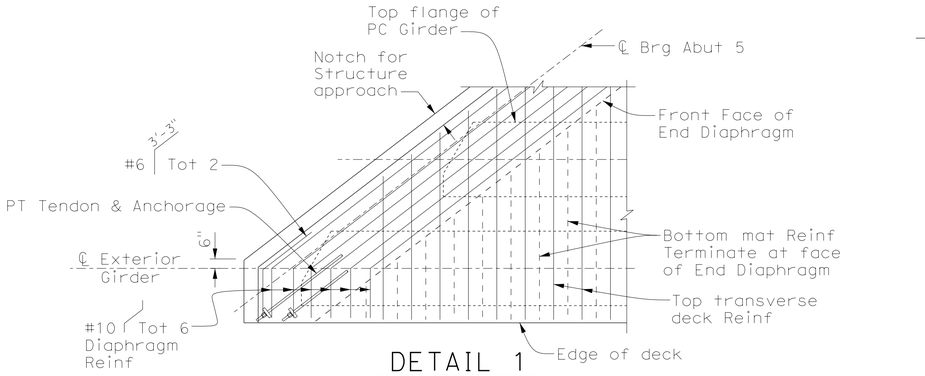
USERNAME => quinovevaDATE PLOTTED => 9/19/2016 TIME PLOTTED => 8:43:25 AM

AS-BUILT SEPTEMBER 2019

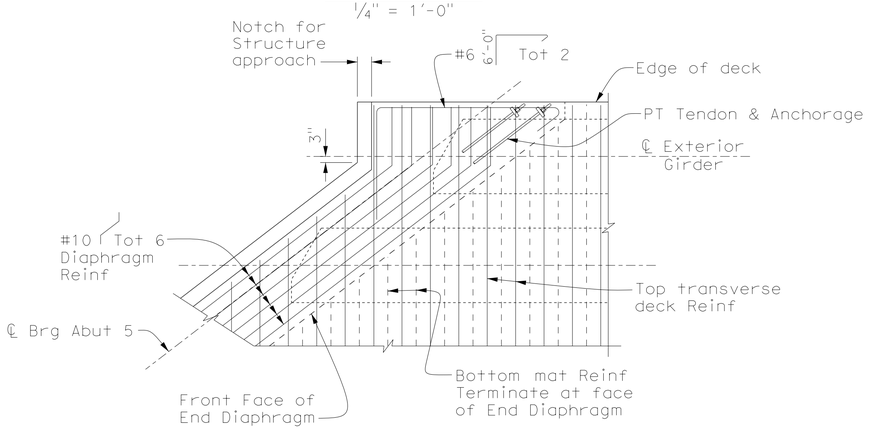


Note:

1. Bat Habitats attached to diaphragm, total 4 at each Bent, see "Bat Habitat Details" sheet.

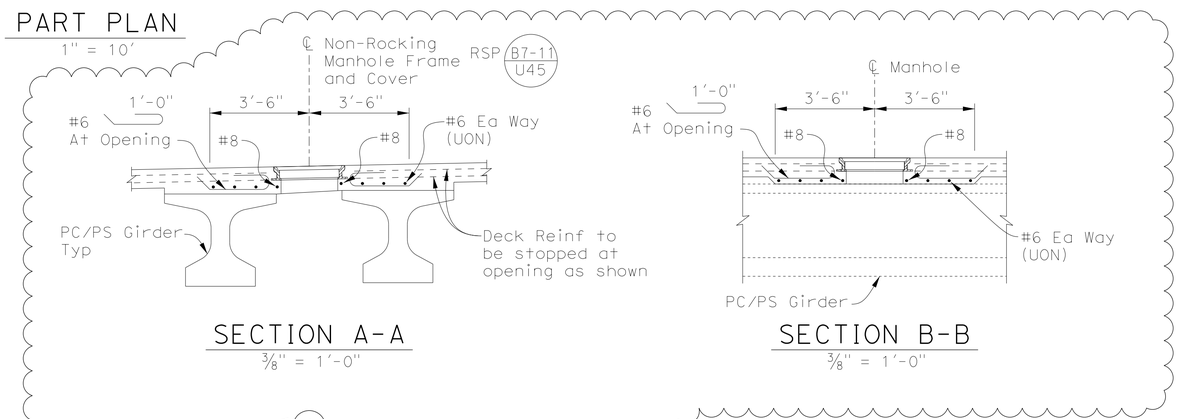


DETAIL 1
1/4" = 1'-0"



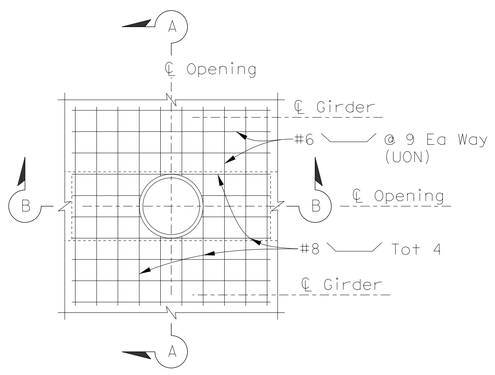
DETAIL 2
1/4" = 1'-0"

PART PLAN
1" = 10'



SECTION A-A
3/8" = 1'-0"

SECTION B-B
3/8" = 1'-0"



DETAIL 3
3/8" = 1'-0"

County of Orange	
Public Works	
AS-BUILT	
Contractor:	Kiewit Infrastructure West Company
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Construction Start Date:	May 8, 2017
Construction Completion Date:	August 5, 2019

COUNTY OF ORANGE CALIFORNIA

MARK	DESCRIPTION	DATE	APPR.
2	Added Deck Access	9/15/17	

PREPARED UNDER THE RESPONSIBLE CHARGE OF:
REGISTERED PROFESSIONAL ENGINEER — TODD W. DUDLEY — No. C39514 — Exp. 12/31/17 — CIVIL — STATE OF CALIFORNIA
9/15/17 DATE
TODD W. DUDLEY

DESIGNED BY: A. SELLADURAI/R. PRICE
DRAWN BY: R. ANDRASEK
CHECKED BY: M. STILLER
DRAWING CODE: FOG-00-7
FILE NAME:
PLOT DATE:
SCALE: AS SHOWN

COUNTY OF ORANGE
OC PUBLIC WORKS

PREPARED BY:
AECOM
999 W. Town & Country Road
Orange, CA 92868
(714) 567-2501

EDINGER AVENUE BRIDGE AT BOLSA CHICA CHANNEL REPLACEMENT PROJECT
BR. NO. 55C-0400

GIRDER LAYOUT NO. 2

Sheet Reference Number

ST-19

Sheet 58RI of 76

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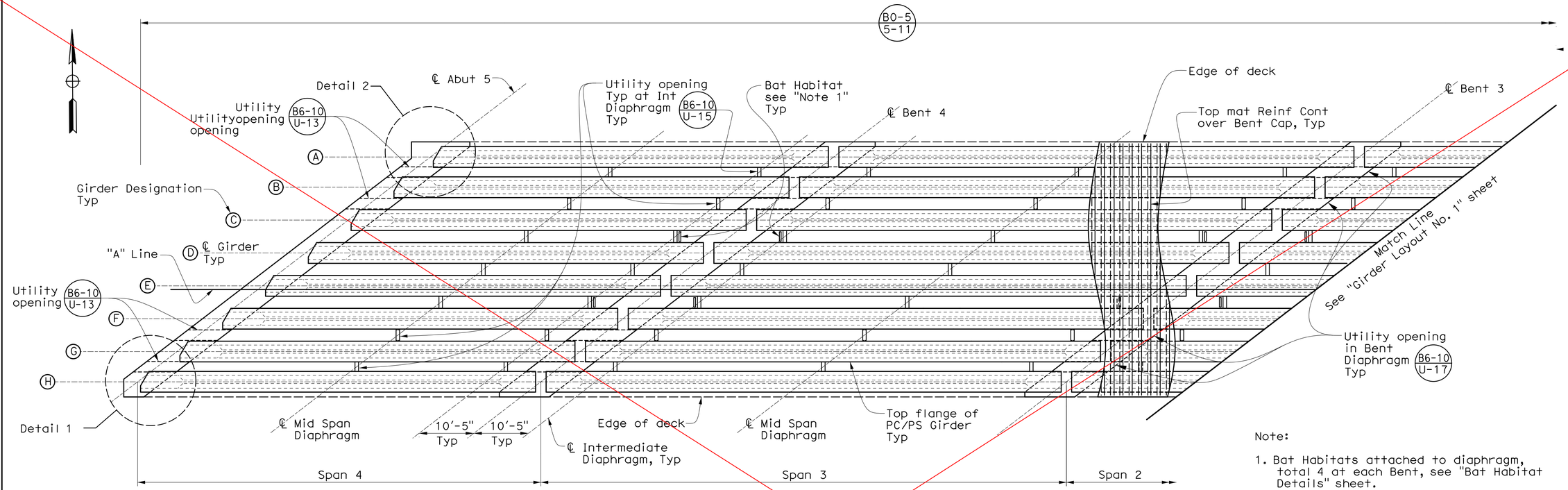
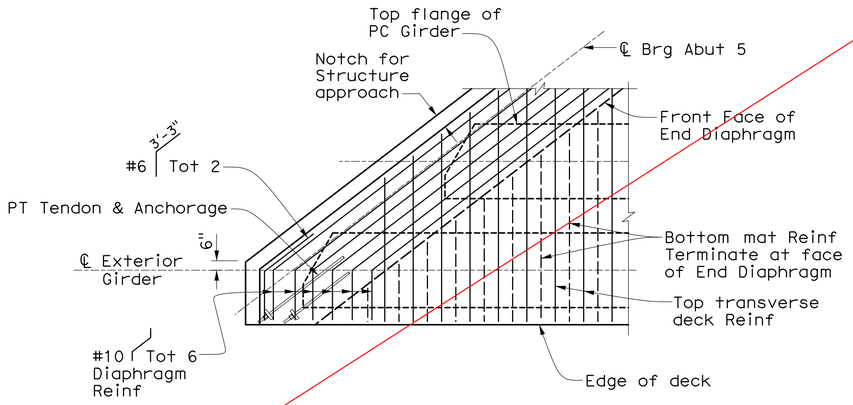
AS-BUILT SEPTEMBER 2019



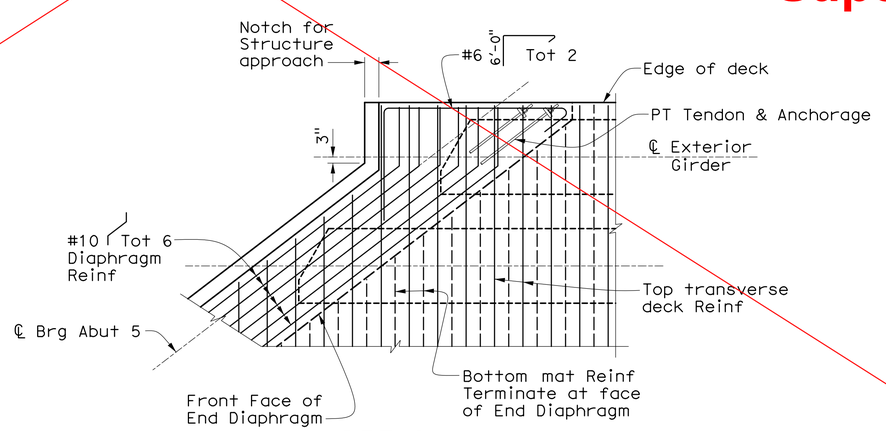
PART PLAN
1" = 10'

Note:

1. Bat Habitats attached to diaphragm, total 4 at each Bent, see "Bat Habitat Details" sheet.



DETAIL 1
¼" = 1'-0"



DETAIL 2
¼" = 1'-0"

Superseded

MARK	DESCRIPTION	DATE	APPR.

PREPARED UNDER THE RESPONSIBLE CHARGE OF:
REGISTERED PROFESSIONAL ENGINEER TODD W. DUDLEY No. C39514 Exp.12/31/17 CIVIL STATE OF CALIFORNIA
9/19/16 DATE
TODD W. DUDLEY

DESIGNED BY: A. SELLADURAI/R. PRICE
DRAWN BY: R. ANDRASEK
CHECKED BY: M. STILLER
DRAWING CODE: F06-01-7
FILE NAME:
PLOT DATE:
SCALE: AS SHOWN

COUNTY OF ORANGE
OC PUBLIC WORKS

PREPARED BY:
AECOM
999 W. Town & Country Road
Orange, CA 92868
(714) 567-2501

EDINGER AVENUE BRIDGE AT BOLSA CHICA CHANNEL
REPLACEMENT PROJECT
BR. NO. 55C-0400

GIRDER LAYOUT NO. 2

Sheet Reference Number

ST-19

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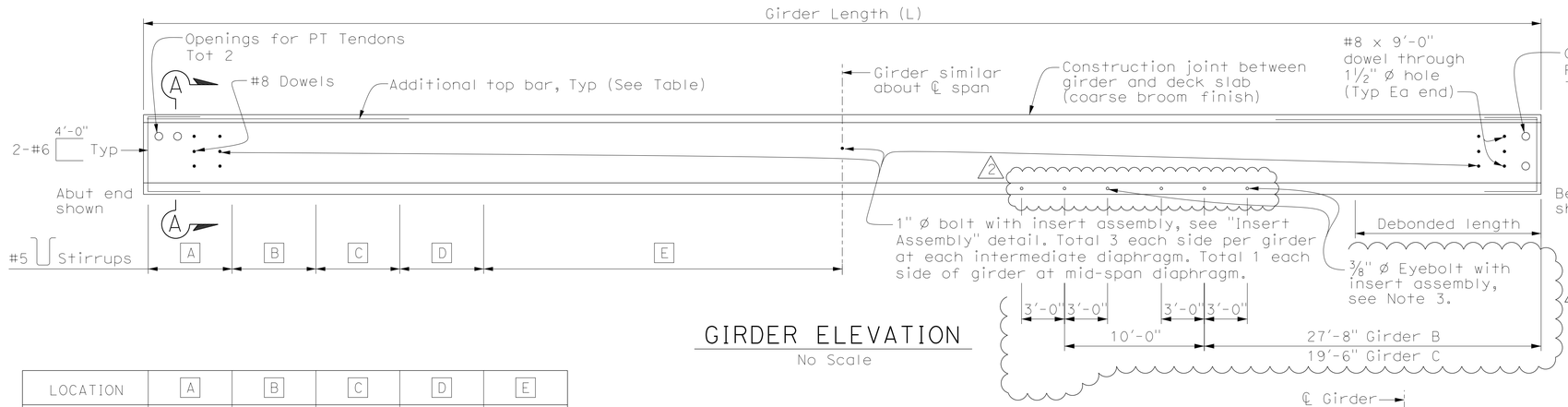
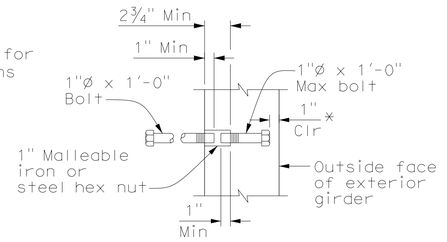
AS-BUILT SEPTEMBER 2019



GIRDER ELEVATION
No Scale

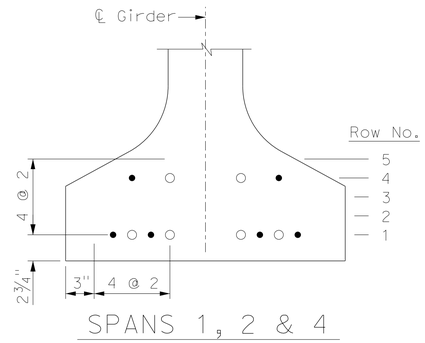


* Dimension may be increased when insert assembly is used at end block

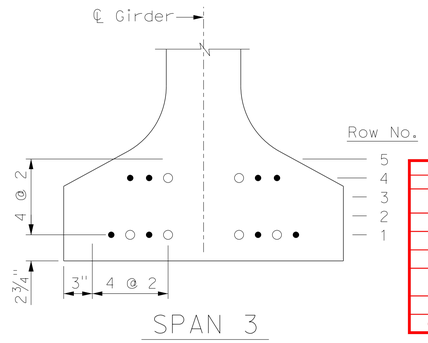
INSERT ASSEMBLY
No Scale

LOCATION	A	B	C	D	E
SPAN 1	20 @ 6"	20 @ 12"	-	-	@ 18"
SPAN 2	20 @ 6"	20 @ 12"	-	-	@ 18"
SPAN 3	20 @ 6"	20 @ 12"	-	-	@ 18"
SPAN 4	20 @ 6"	20 @ 12"	-	-	@ 18"

LOCATION	GIRDER LENGTH (L)	GIRDER DEPTH (D)	NUMBER OF 0.6" ø STRANDS	JACKING FORCE (P)	CONCRETE STRENGTH (ksi) f'ci	CONCRETE STRENGTH (ksi) f'c	ADDITIONAL TOP BAR (EACH END)
SPAN 1	75'-2"	3'-3"	12	527 kips (43.9 kips/Strand)	4.0	5.0	#6 x 9'-0" Tot 4
SPAN 2	78'-0"	3'-3"	12	527 kips (43.9 kips/Strand)	4.0	5.0	#6 x 9'-0" Tot 4
SPAN 3	98'-0"	3'-3"	14	615 kips (43.9 kips/Strand)	4.0	5.0	#6 x 9'-0" Tot 4
SPAN 4	75'-2"	3'-3"	12	527 kips (43.9 kips/Strand)	4.0	5.0	#6 x 9'-0" Tot 4



SPANS 1, 2 & 4

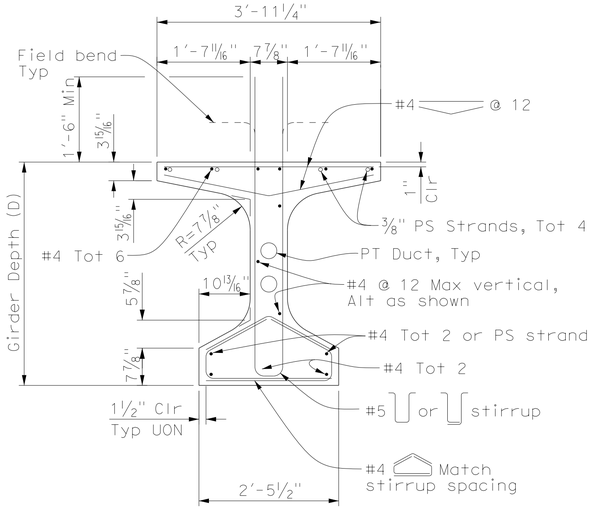


SPAN 3

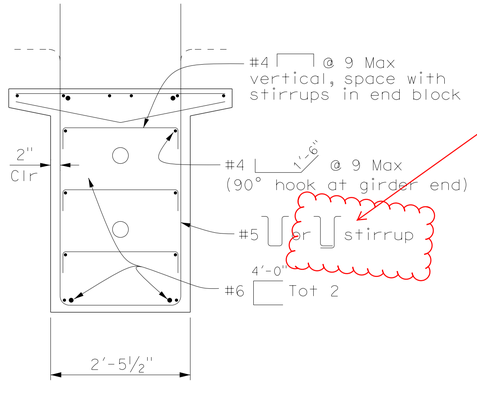
Legend:
- ● Denotes continuously bonded strand location
- ○ Denotes 10'-0" end debonded strand location

STRAND TEMPLATE & DEBONDING PATTERN
No Scale

Strand Notes:
1. Strands shall be placed as low as possible in the strand template and symmetrical about ℄ Girder.
2. No more than 33% of the total number of strands and 50% of the strands per horziontal row may be debonded.
3. Strand locations may be adjusted as approved by the Engineer.

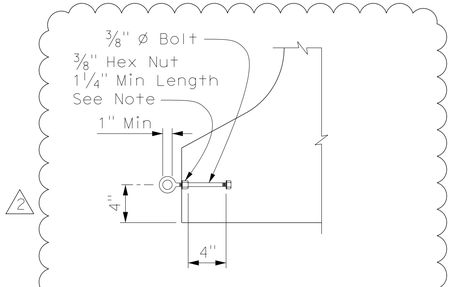


TYPICAL GIRDER SECTION
No Scale



stirrup were epoxy coated (green) RFI #16

SECTION A-A
No Scale



All Materials are ASTM A316 SS

EYEBOLT ASSEMBLY
No Scale

Note:
1/2" Min embedment of both bolt and eyebolt in hex nut.

Notes:
1. For "Welded Wire Reinforcement (WWR) Alternative", see "PC/PS Bulb-Tee Girder (Miscellaneous Details)" sheet.
2. For details not shown, see "Typical Girder Section" detail.
3. ⅜" ø ASTM A316 Stainless Steel Eyebolt (Tot 12), Girders B and C in Span 3 only, center on deck access opening. For support of fall protection safety netting, see "Civil Plans" for details. For installation details, see "Eyebolt Assembly" detail.

PRESTRESSING NOTES
1. The Jacking Force (P) is the jacking force required at the point of control along the span. The jacking force does not include any fabrication specific losses.
2. The maximum temporary tensile stress (jacking stress) in the prestressing steel shall not exceed 75% of the specified minimum ultimate tensile strength of the prestressing steel.
3. Concrete strength:
   f'ci is at time of initial stressing
   f'c is at 28 days
4. For deflection components, see "Deck Contours" sheet.
5. Screed line elevations for deck concrete will be determined by the Engineer.
6. Prestressing strand shall be 270 ksi low relaxation.

Note: Details based on Caltrans Standard Details sheet xs1-121-1.

COUNTY OF ORANGE CALIFORNIA

MARK	DESCRIPTION	DATE	APPR.
2	Added Deck Access	9/15/17	

OF: [illegible] ENGINEER 9/15/17 DATE

PREPARED: TODD

County of Orange
Public Works
AS-BUILT

Contractor:	Kiewit Infrastructure West Company
Resident Engineer:	Elmo Delos Santos (PreScience Corp.)
Senior RE:	Kevin Tran
Inspectors:	Tuan Tran (PreScience Corp.) Kenneth Junio
Construction Start Date:	May 8, 2017
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DESIGNED BY: A. SELLADURAI/R. PRICE
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DRAWING CODE: F06-01-7
FILE NAME:
PLOT DATE:
SCALE: AS SHOWN

COUNTY OF ORANGE OC PUBLIC WORKS

PREPARED BY: AECOM 999 W. Town & Country Road Orange, CA 92868 (714) 567-2501

EDINGER AVENUE BRIDGE AT BOLSA CHICA CHANNEL REPLACEMENT PROJECT BR. NO. 55C-0400

PC/PS BULB-TEE GIRDER (DEBONDED STRANDS)

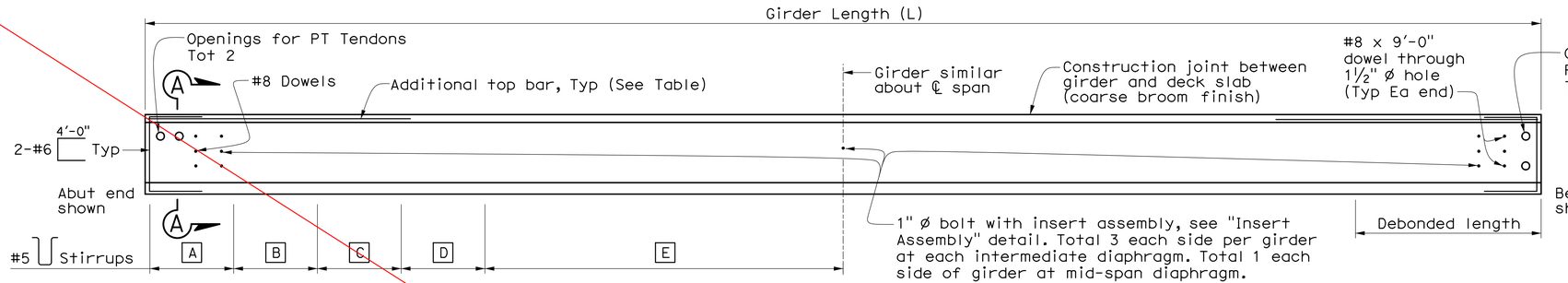
Sheet Reference Number

ST-20

Sheet 59 Rl of 76

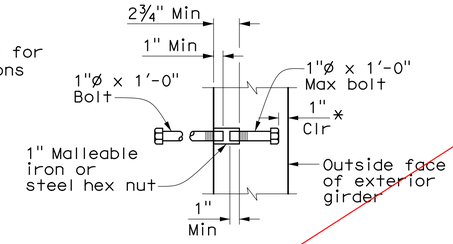
USERNAME => David.Hepp@AECOM.COM DATE PLOTTED => 10/26/2017 TIME PLOTTED => 4:22:09 PM

AS-BUILT SEPTEMBER 2019



GIRDER ELEVATION

No Scale



* Dimension may be increased when insert assembly is used at end block

INSERT ASSEMBLY

No Scale

LOCATION	A	B	C	D	E
SPAN 1	20 @ 6"	20 @ 12"	-	-	@ 18"
SPAN 2	20 @ 6"	20 @ 12"	-	-	@ 18"
SPAN 3	20 @ 6"	20 @ 12"	-	-	@ 18"
SPAN 4	20 @ 6"	20 @ 12"	-	-	@ 18"

LOCATION	GIRDER LENGTH (L)	GIRDER DEPTH (D)	NUMBER OF 0.6" ø STRANDS	JACKING FORCE (P)	CONCRETE STRENGTH (ksi) f'ci	CONCRETE STRENGTH (ksi) f'c	ADDITIONAL TOP BAR (EACH END)
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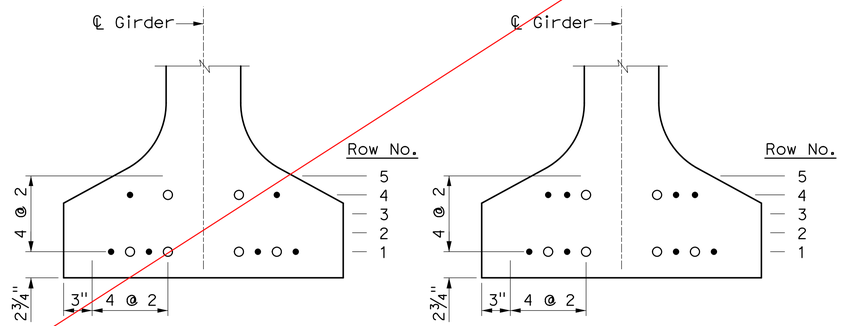
SPAN 4	75'-2"	3'-3"	12	527 kips (43.9 kips/Strand)	4.0	5.0	#6 x 9'-0" Tot 4



Legend:

● Denotes continuously bonded strand location

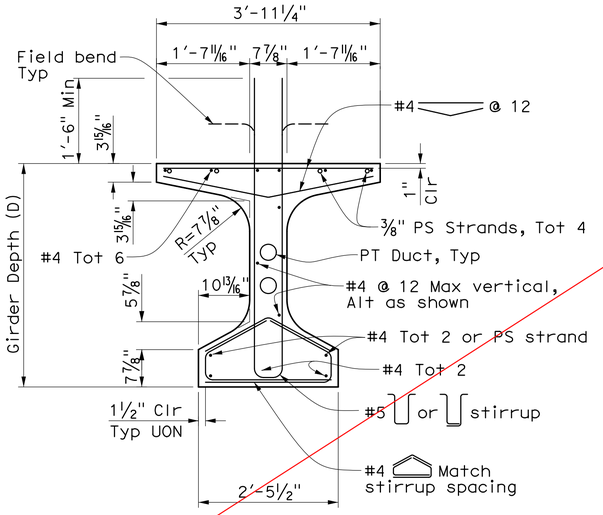
○ Denotes 10'-0" end debonded strand location

STRAND TEMPLATE & DEBONDING PATTERN

No Scale

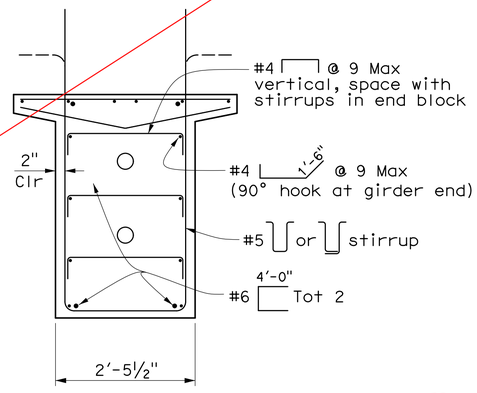
Strand Notes:

1. Strands shall be placed as low as possible in the strand template and symmetrical about ℄ Girder.
2. No more than 33% of the total number of strands and 50% of the strands per horziontal row may be debonded.
3. Strand locations may be adjusted as approved by the Engineer.



TYPICAL GIRDER SECTION

No Scale



SECTION A-A

No Scale

Notes:

1. For "Welded Wire Reinforcement (WWR) Alternative", see "PC/PS Bulb-Tee Girder (Miscellaneous Details)" sheet.
2. For details not shown, see "Typical Girder Section" detail.

Note: Details based on Caltrans Standard Details sheet xs1-121-1.

PRESTRESSING NOTES

1. The Jacking Force (P) is the jacking force required at the point of control along the span. The jacking force does not include any fabrication specific losses.
2. The maximum temporary tensile stress (jacking stress) in the prestressing steel shall not exceed 75% of the specified minimum ultimate tensile strength of the prestressing steel.
3. Concrete strength:
   f'ci is at time of initial stressing
   f'c is at 28 days
4. For deflection components, see "Deck Contours" sheet.
5. Screed line elevations for deck concrete will be determined by the Engineer.
6. Prestressing strand shall be 270 ksi low relaxation.

Superseded

COUNTY OF ORANGE CALIFORNIA

MARK	DESCRIPTION	DATE	APPR.

PREPARED UNDER THE RESPONSIBLE CHARGE OF:
TODD W. DUDLEY No. C39514 Exp.12/31/17 CIVIL
REGISTERED PROFESSIONAL ENGINEER * STATE OF CALIFORNIA
9/19/16 DATE
TODD W. DUDLEY

DESIGNED BY: A. SELLADURAI/R. PRICE
DRAWN BY: R. ANDRASEK
CHECKED BY: M. STILLER
DRAWING CODE: F06-01-7
FILE NAME:
PLOT DATE:
SCALE: AS SHOWN

COUNTY OF ORANGE
OC PUBLIC WORKS

PREPARED BY:
AECOM
999 W. Town & Country Road
Orange, CA 92868
(714) 567-2501

EDINGER AVENUE BRIDGE AT BOLSA CHICA CHANNEL
REPLACEMENT PROJECT
BR. NO. 55C-0400

PC/PS BULB-TEE GIRDER (DEBONDED STRANDS)

Sheet Reference Number

ST-20

Sheet 59 of 76

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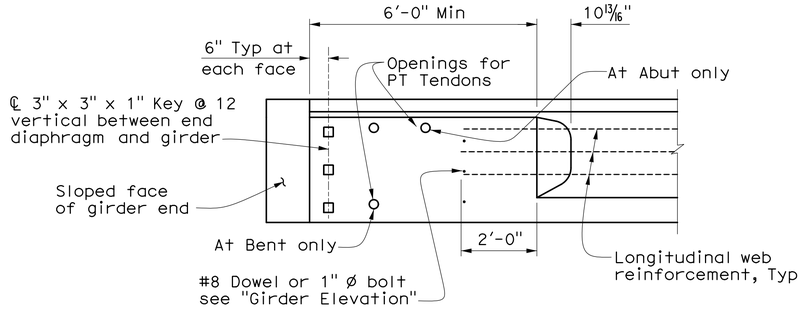
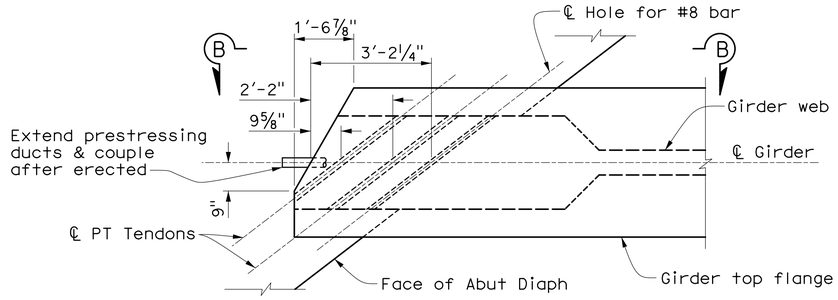


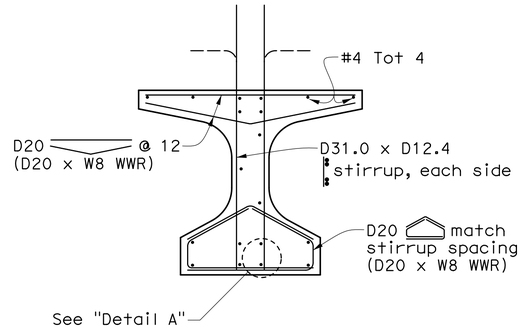
END BLOCK VIEW B-B (MIRRORED)

½" = 1'-0"



ABUTMENT GIRDER END PLAN

½" = 1'-0"

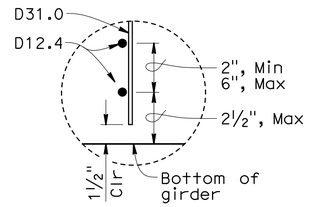


WELDED WIRE REINFORCEMENT (WWR) ALTERNATIVE

No Scale

Notes:

1. For details shown but not noted, see "Typical Girder Section" detail.
2. W8 WWR not shown.



DETAIL A

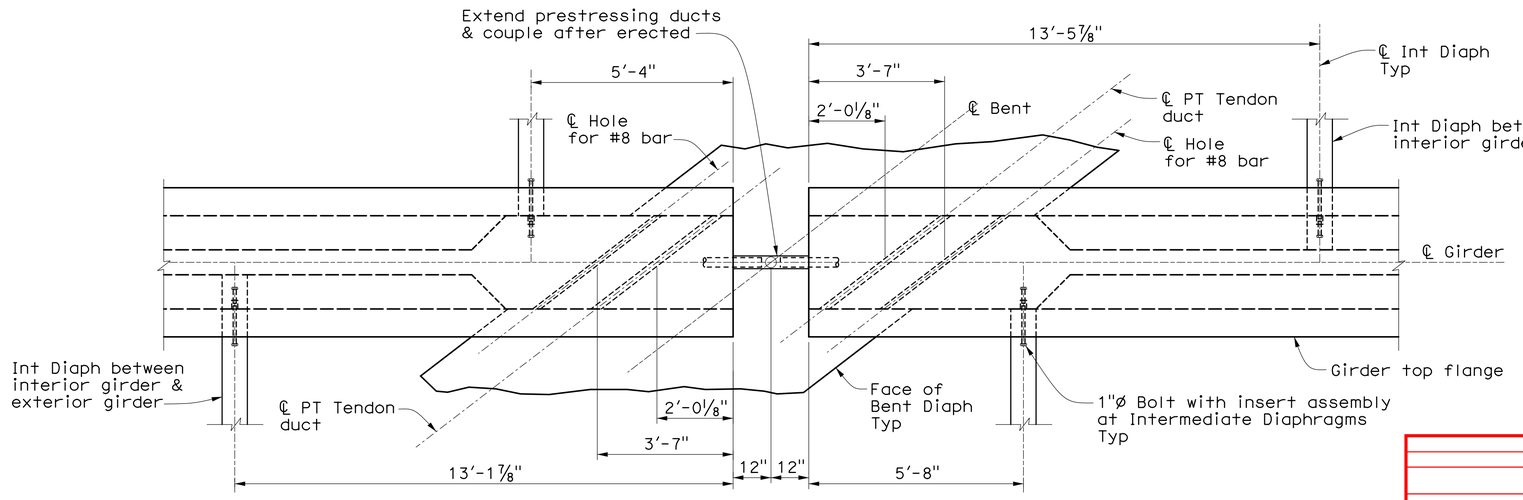
No Scale

Notes:

1. Bottom of stirrup WWR detail shown, top similar.
2. Longitudinal wire area shall be 40% or greater of vertical deformed wire's area.

Notes:

1. For "Girder Elevation" and "Typical Girder Section", see "PC/PS Bulb-Tee Girder (Debonded Strands)" sheet.
2. For intermediate diaphragm details, see "Girder Layout No. 1" sheet.



GIRDER PLAN AT BENT DIAPHRAGM

½" = 1'-0"

County of Orange	
Public Works	
AS-BUILT	
Contractor:	Kiewit Infrastructure West Company
Resident Engineer:	Elmo Delos Santos (PreScience Corp.)
Senior RE:	Kevin Tran
Inspectors:	Tuan Tran (PreScience Corp.) Kenneth Junio
Construction Start Date:	May 8, 2017
Construction Completion Date:	August 5, 2019

COUNTY OF ORANGE CALIFORNIA

MARK	DESCRIPTION	DATE	APPR.

PREPARED UNDER THE RESPONSIBLE CHARGE OF:
TODD W. DUDLEY
No. C39514
Exp. 12/31/17
CIVIL
REGISTERED PROFESSIONAL ENGINEER
STATE OF CALIFORNIA
9/19/16
DATE
TODD W. DUDLEY

DESIGNED BY: A. SELLADURAI/R. PRICE
DRAWN BY: R. ANDRASEK
CHECKED BY: M. STILLER
DRAWING CODE: F06-01-7
FILE NAME:
PLOT DATE:
SCALE: AS SHOWN

COUNTY OF ORANGE
OC PUBLIC WORKS

PREPARED BY:
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999 W. Town & Country Road
Orange, CA 92868
(714) 567-2501

EDINGER AVENUE BRIDGE AT BOLSA CHICA CHANNEL REPLACEMENT PROJECT
BR. NO. 55C-0400

PC/PS BULB-TEE GIRDER (MISCELLANEOUS DETAILS)

Sheet Reference Number

ST-21

Sheet 60 of 76

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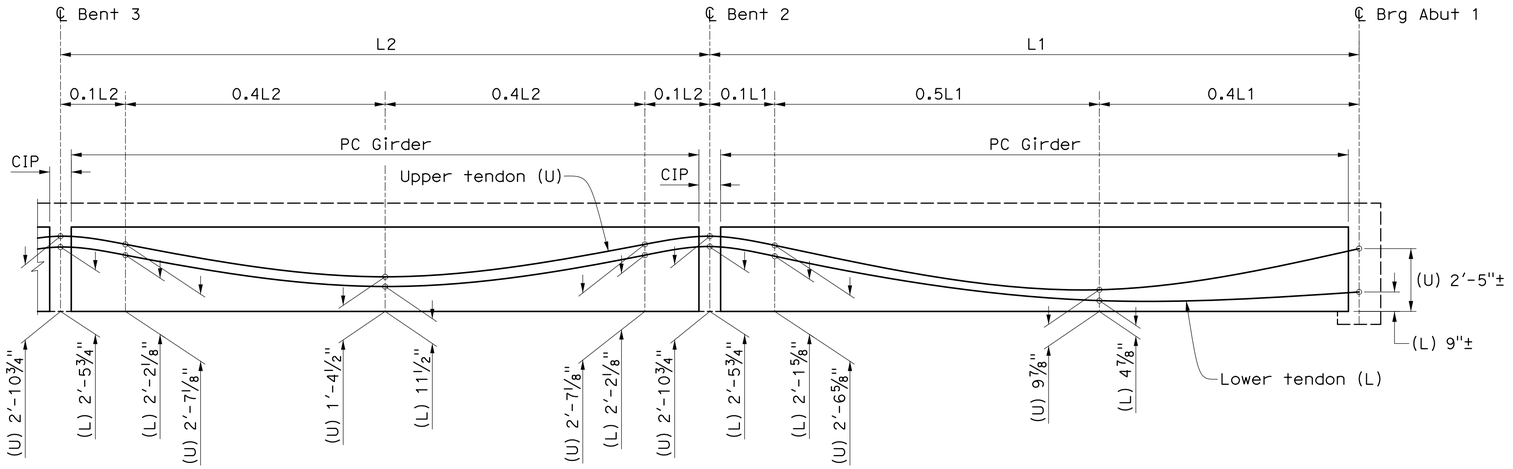
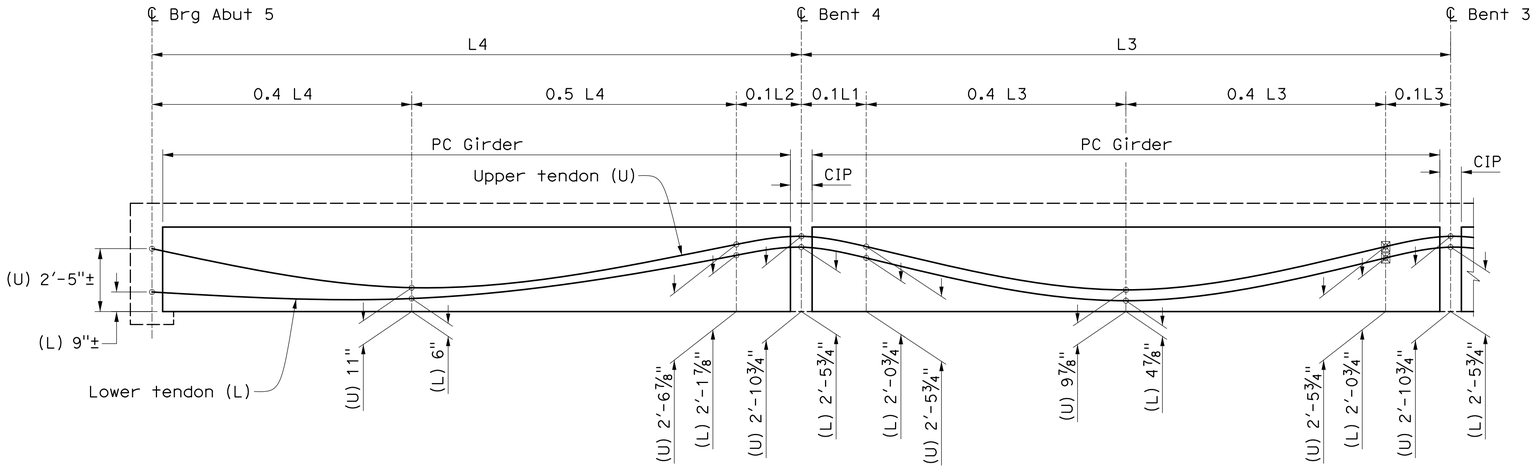
AS-BUILT SEPTEMBER 2019



PART POST TENSIONING TENDON PROFILE

No Scale



PART POST TENSIONING TENDON PROFILE

No Scale

PRESTRESSING NOTES

270 KSI Low Relaxation Strand:

Longitudinal Prestressing

P_{jack} (Upper Tendons) = 3600 kips

P_{jack} (Lower Tendons) = 3600 kips

Total Number of Girders = 8

Final force shall be distributed equally to all girders.

Contractor shall submit elongation calculations based on initial stress at

☒ = 0.895 times jacking stress. (Upper Tendon)

☒ = 0.905 times jacking stress. (Lower Tendon)

Stressing shall be performed from both ends.

Transverse Prestressing

P_{jack} (Each Abut Diaph) = 350 kips

P_{jack} (Each Bent Diaph) = 700 kips

Total No. of Tendons:

Abut Diaph = 2

Bent Diaph = 4

At no time during stressing operations shall more than ¼ (at Bents) or ½ (at Abuts) of total prestressing force be applied differencially between each horizontal pair of tendons.

Stressing shall be performed from exterior girder end only.

Anchor Set = ⅜ in

Coeff. of Friction, μ = 0.15

Wobble, K = 0.0002

PC Girder Conc: f'_c = 5.0 ksi @ 28 days

f'_{ci} = 4.0 ksi @ time of stressing

Splice & Support Diaphragm Concrete: f'_c = 5.0 ksi @ 28 days

f'_{ci} = 4.0 ksi @ time of stressing

RFI 077: * Pjack (upper tendon) Girder "E" = 439 kips (due to strand failure at girder E)

SUPERSTRUCTURE CONSTRUCTION SEQUENCE EACH STAGE

1. Erect girders.
2. Cast intermediate, bent & abutment diaphragms to top of PC Girder.
3. Prestress lower bent diaphragm PT Tendons and abutment. PT Tendons to 50% Pjack.
4. Prestress lower girder longitudinal PS tendons to 100% Pjack.
5. Stress transverse PT Tendons in bent and abutment diaphragms to 100% Pjack.
6. Cast deck and cure.
7. Stress upper bent PT Tendons to 50% Pjack.
8. Stress upper girder longitudinal PS tendons to 100% Pjack.
9. Stress upper bent PT Tendons to 100% Pjack.

(U) Dimension of CG of upper tendon.

(L) Dimension of CG of lower tendon.

County of Orange	
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Construction Start Date:	May 8, 2017
Construction Completion Date:	August 5, 2019

COUNTY OF ORANGE CALIFORNIA

MARK	DESCRIPTION	DATE	APPR.

PREPARED UNDER THE RESPONSIBLE CHARGE OF:

REGISTERED PROFESSIONAL ENGINEER — TODD W. DUDLEY — No. C39514 — Exp. 12/31/17 — CIVIL — STATE OF CALIFORNIA

9/19/16 DATE

TODD W. DUDLEY

DESIGNED BY: A. SELLADURAI/R. PRICE
DRAWN BY: R. ANDRASEK
CHECKED BY: M. STILLER
DRAWING CODE: F06-101-7
FILE NAME:
PLOT DATE:
SCALE: AS SHOWN

COUNTY OF ORANGE
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EDINGER AVENUE BRIDGE AT BOLSA CHICA CHANNEL
REPLACEMENT PROJECT
BR. NO. 55C-0400

GIRDER DETAILS NO. 1

Sheet Reference Number

ST-22

Sheet 61 of 76

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AS-BUILT SEPTEMBER 2019

PRESTRESSING CALCULATIONS - LONGITUDINAL TENDONS

USE 0.6"Ø 270 ksi LOW-RELAXATION STRAND (ASTM A 416)
GUARANTEED MINIMUM ULTIMATE STRENGTH = 58.6 kips

GIVEN μ = 0.15 AND K=0.0002/FT, ANCHOR SET = 3/8".
INITIAL STRESS AT ☒ =0.895 x JACKING FORCE (UPPER TENDONS)
INITIAL STRESS AT ☒ =0.905 x JACKING FORCE (LOWER TENDONS)

P jack 3,600 K. TOTAL (UPPER TENDONS)
3,600 K. TOTAL (LOWER TENDONS)

NO. OF STRANDS = 3,600 K./ (0.70x58.6) = 88 STRANDS

USE 16 TENDONS w. 11 STRANDS EACH P jack = 451 K./ EACH

1 JACK LENGTH = 3.5'

ELONGATION CALCULATION - UPPER TENDONS

1ST END STRESSING

$$\Delta 1 = \frac{41.02\ K.\ (\ 1 + 0.895\ )}{2} \times \frac{(\ 168.38' + 3.5'\ )\ 12"}{(\ 0.217\ in^2\ )\ (\ 28500\ ksi\ )} = 12.96"$$

$$+ \frac{41.02\ K.\ (\ .895 + .790\ )}{2} \times \frac{(168.39')\ 12"}{(\ 0.217\ in^2\ )\ (\ 28500\ ksi\ )} = 11.29"$$

Δ1 TOTAL = 12.96" + 11.29" = 24.25"

80% Δ1 = 0.80 x 24.25" = 19.40" USE $19\frac{3}{8}$"

2ND END STRESSING

$$\Delta 2 = 41.02\ K.\ (\ 1 - .895\ ) \times \frac{(\ 168.39' + 3.5'\ )\ 12"}{(\ 0.217\ in^2\ )\ (\ 28500\ ksi\ )} = 1.44"$$

USE $1\frac{7}{16}$"

ELONGATION CALCULATION - LOWER TENDONS

1ST END STRESSING

$$\Delta 1 = \frac{41.02\ K.\ (\ 1 + 0.895\ )}{2} \times \frac{(\ 168.38' + 3.5'\ )\ 12"}{(\ 0.217\ in^2\ )\ (\ 28500\ ksi\ )} = 13.03"$$

$$+ \frac{41.02\ K.\ (\ .895 + .790\ )}{2} \times \frac{(168.39')\ 12"}{(\ 0.217\ in^2\ )\ (\ 28500\ ksi\ )} = 11.49"$$

Δ1 TOTAL = 13.03" + 11.49" = 24.52"

80% Δ1 = 0.80 x 24.52" = 19.61" USE $19\frac{5}{8}$"

2ND END STRESSING

$$\Delta 2 = 41.02\ K.\ (\ 1 - .895\ ) \times \frac{(\ 168.39' + 3.5'\ )\ 12"}{(\ 0.217\ in^2\ )\ (\ 28500\ ksi\ )} = 1.30"$$

USE $1\frac{5}{16}$"

TRANSVERSE PRESTRESSING CALCULATIONS

(STAGE 1 ABUTMENT BARS SHOWN, SEE TRANSVERSE BARS DIMENSION TABLE FOR ADD. INFORMATION)

USE 1-3/8"Ø GRADE 150 ksi DYWIDAG THREADBAR (ASTM A722)
GUARANTEED MINIMUM ULTIMATE STRENGTH = 237,000 lbs.

GIVEN K=0.0002/FT, ANCHOR SET = 1/16".

P jack 350 Kips (EACH ABUTMENT)
700 Kips (EACH BENT CAP)

USE: 16 BARS Pjack = 175 Kips/ EACH

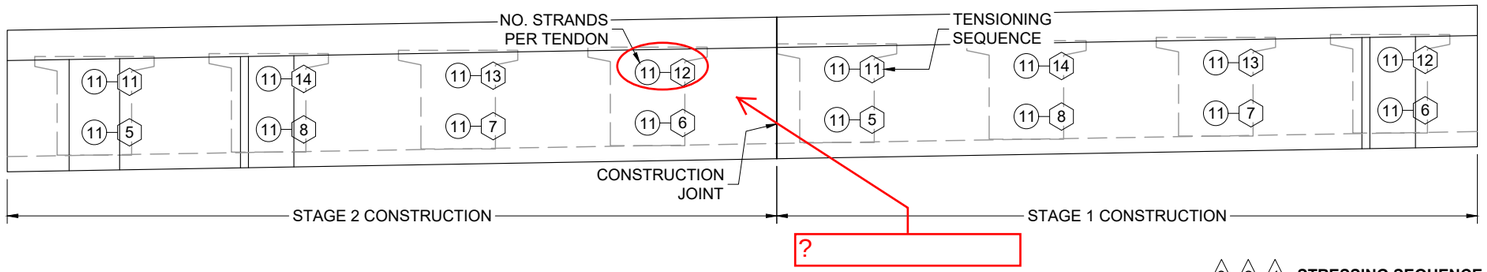
1 ELONGATION CALCULATION - STAGE 1 ABUTMENT BARS
SEE TRANSVERSE BARS DIMENSION TABLE FOR ALL BARS

JACK LENGTH = 21"

$$\text{ELONGATION} = \Delta = 175\ K \times \frac{(\ 39.89' \times 12 + 21"\ )}{1.58\ in^2 \times 29700\ ksi} = 1.86\ in.$$

80%Δ = 1.86 * 0.8 = 1.49

USE: $1\frac{1}{2}$"



2 STRESSING SEQUENCE - LONGITUDINAL TENDONS

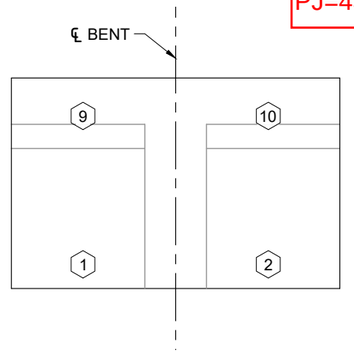
NOTE: GROUT FROM ABUTMENT 1

RFI 077: Indicate Girder E
PJ=439K

3 **LONGITUNDINALTENSIONING SEQUENCE NOTES:**

PHASE 2:
TENSION 5 THRU 8 TO 100% Pjack (457 Kips)

PHASE 5:
TENSION 11 THRU 14 TO 100% Pjack (457 Kips)



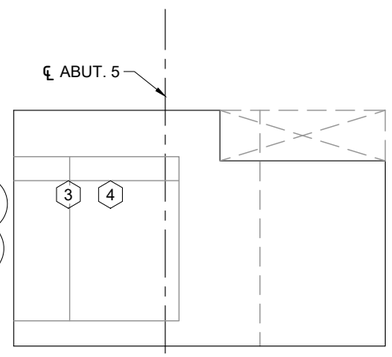
5 4 3 **BENT CAP TRANSVERSE TENSIONING SEQUENCE NOTES:**

PHASE 1:
TENSION 1 TO 50% Pjack (87.5 Kips)
TENSION 2 TO 50% Pjack (87.5 Kips)

PHASE 3/ PHASE 4:
TENSION 9 TO 50% Pjack (87.5 Kips)
TENSION 10 TO 100% Pjack (175 Kips)
TENSION 9 TO 100% Pjack (175 Kips)
TENSION 1 TO 100% Pjack (175 Kips)
TENSION 2 TO 100% Pjack (175 Kips)

2 STRESSING SEQUENCE - BENT CAP TRANSVERSE TENDONS

NOTE: GROUT FROM NORTH END



5 3 **END DIAPHRAGM TRANSVERSE TENSIONING SEQUENCE NOTES:**

PHASE 1:
TENSION 3 TO 50% Pjack (87.5 Kips)
TENSION 4 TO 50% Pjack (87.5 Kips)

PHASE 4:
TENSION 3 TO 100% Pjack (175 Kips)
TENSION 4 TO 100% Pjack (175 Kips)

1 STRESSING SEQUENCE - END DIAPHRAGM TRANSVERSE TENDONS

NOTE: GROUT FROM NORTH END

1 TRANSVERSE BARS DIMENSION TABLE

LOCATION	MIN. BAR LENGTH	STRESSING LENGTH	Δ	80% Δ
STAGE 1 ABUTMENTS	41'-6 1/2"	39'-10 5/8"	1 7/8"	1 1/2"
STAGE 2 ABUTMENTS	40'-7 3/8"	41'-9"	1 15/16"	1 9/16"
STAGE 1 BENTS	41'-6 1/2"	39'-10 5/8"	1 7/8"	1 1/2"
STAGE 2 BENTS	40'-7 3/8"	41'-9"	1 15/16"	1 9/16"

3 2 1 **STRESSING SEQUENCE NOTES (EACH PHASE):**

AFTER CASTING OF INTERMEDIATE, BENT, & ABUTMENT DIAPHRAGMS

1. TENSION LOWER BENT PT TENDONS AND ABUTMENT PT TENDONS TO 50% Pjack. (TENDONS 1 THRU 4)
2. TENSION LOWER LONGITUDINAL PT TENDONS TO 100% PJACK. (TENDONS 5 THRU 8).

AFTER CASTING OF DECK AND CURING

3. TENSION UPPER BENT PT TENDONS TO 50% Pjack (TENDONS 9 & 10)
4. TENSION ALL TRANSVERSE TENDONS TO 100% Pjack (TENDONS 1 THRU 4, 9, & 10)
5. TENSION UPPER LONGITUDINAL TENDONS TO 100% Pjack (TENDONS 11 THRU 14)

NOTES:

1. ASSUMED As=0.217 in² & Es=28500 ksi (LONGITUDINAL TENDONS)/ As=1.58 in² & Es=29700 ksi (TRANSVERSE TENDONS). USED FOR ELONGATION CALCULATIONS TO BE VERIFIED ON ACTUAL PRESTRESSING STEEL USED. FIGURES MAY VARY WHICH COULD RESULT IN A VARIANCE OF THE CALCULATED ELONGATION.

2. CONCRETE STRENGTH:
f'c=5,000 psi, f'ci=4,000 psi @ TIME OF STRESSING.

3. SEE DSI DRAWING 1 OF 7 FOR GENERAL NOTES AND ANCHORAGES DETAILS.

County of Orange	
Public Works	
AS-BUILT	
Contractor:	Kiewit Infrastructure West Company
Resident Engineer:	Elmo Delos Santos (PreScience Corp.)
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Construction Start Date:	May 8, 2017
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EDINGER AVENUE BRIDGE AT
BOLSA CHICA CHANNEL
REPLACEMENT PROJECT (BR. NO. 55C-0400)

HUNTINGTON BEACH CA

CONTRACTOR: KIEWIT

DSI
POST TENSIONING / REINFORCING UNIT
2154 SOUTH ST, LONG BEACH, CA
PHONE: 562-531-6161 FAX: 562-529-2225

DYWIDAG Systems International, USA, Inc.

POST TENSIONING DETAIL

REV.	DATE	ISSUE DESCRIPTION	NAME	CHKD.
1	8.25.17	MINOR CORRECTIONS	KM	
2	10.11.17	UPDATED STRESSING DETAILS	KM	
3	3.19.18	UPDATED STRESSING DETAILS	KM	
4	4.2.18	UPDATED STRESSING DETAILS	KM	
5	4.12.18	UPDATED STRESSING DETAILS	KM	

SCALE VARIES | DRAWN KM | CHKD. BL | APPD. | DATE 7/24/17 | APPD.
JOB NO. 421278
DWG. NO. 7 OF 7

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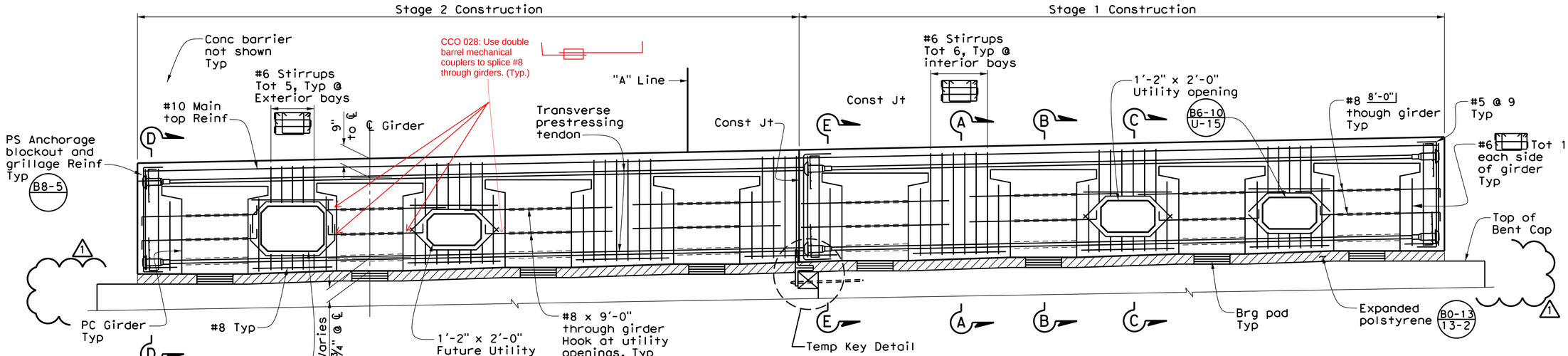
AS-BUILT SEPTEMBER 2019



BENT DIAPHRAGM ELEVATION

½" = 1'-0"
(Bent 4 shown, other Bents similar)
(Looking along "A" Line)

Note: Not all Reinf shown.

Notes:

1. For Section "D-D" & E-E", see "Girder Details No. 4" sheet.
2. For stirrup orientation, see "Plan" views on "Girder Details No. 3" sheet.
3. For "Temp Key Detail", see "Girder Details No. 4" sheet.

County of Orange	
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AS-BUILT	
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Construction Start Date:	May 8, 2017
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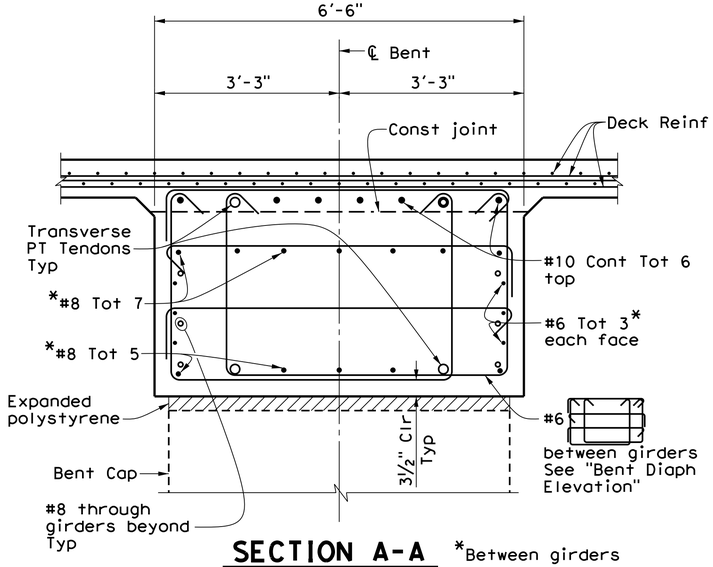
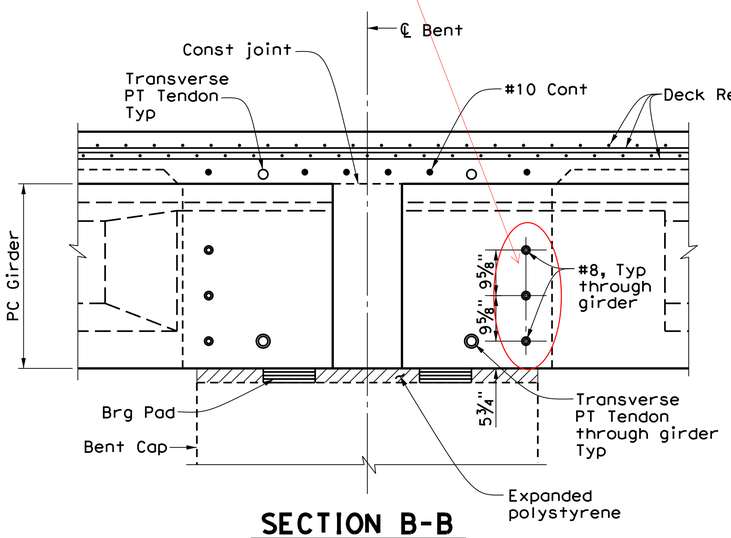
CCO 028: Typical use double barrel mechanical couplers to splice #8 through girders.



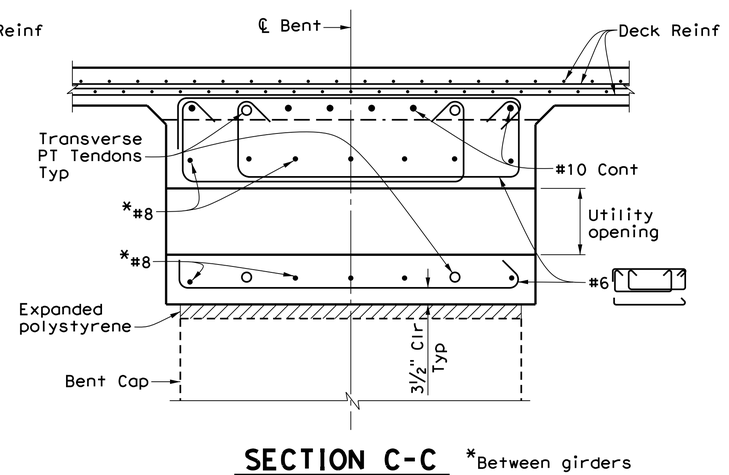
SECTION A-A

*Between girders
¾" = 1'-0"



SECTION B-B

¾" = 1'-0"



SECTION C-C

*Between girders
¾" = 1'-0"

Note: Not all reinforcement shown.

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DRAWING CODE:	FDG-DD-7
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COUNTY OF ORANGE
OC PUBLIC WORKS

PREPARED BY:
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EDINGER AVENUE BRIDGE AT BOLSA CHICA CHANNEL
REPLACEMENT PROJECT
BR. NO. 55C-0400

GIRDER DETAILS NO. 2

Sheet Reference Number

ST-23

Sheet 62 of 76

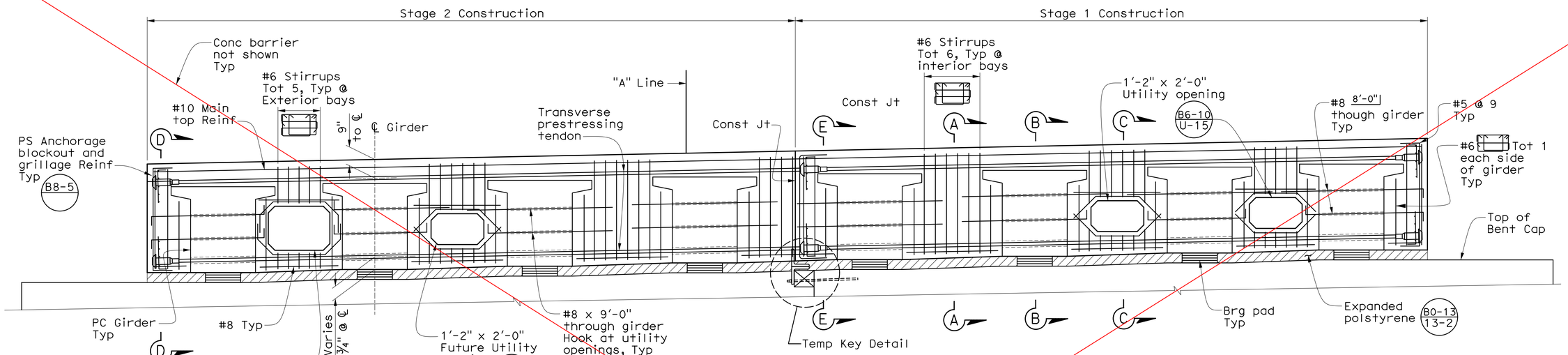
MARK	DESCRIPTION	DATE	APPR.
1	Revised End of Bent Cap	5/18/17	

PREPARED UNDER THE RESPONSIBLE CHARGE OF:
TODD W. DUDLEY
DATE 2/9/17

REGISTERED PROFESSIONAL ENGINEER TODD W. DUDLEY No. C39514 Exp. 12/31/17 CIVIL STATE OF CALIFORNIA

USERNAME => $USER DATE PLOTTED => $DATE TIME PLOTTED => $TIME

AS-BUILT SEPTEMBER 2019



BENT DIAPHRAGM ELEVATION

1/2" = 1'-0"

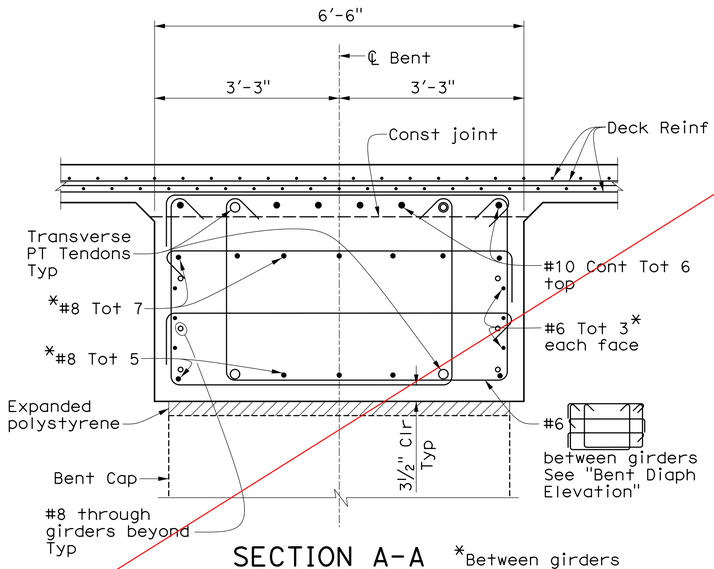
(Bent 4 shown, other Bents similar)

(Looking along "A" Line)

Note: Not all Reinf shown.

Notes:

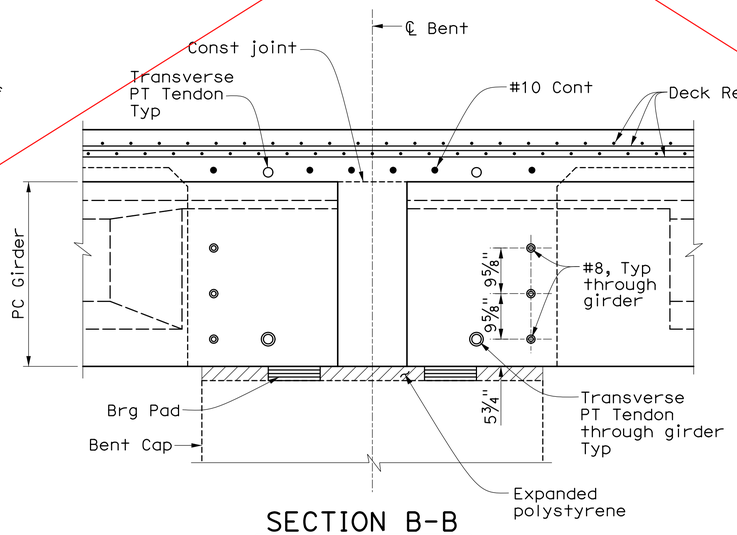
1. For Section "D-D" & E-E", see "Girder Details No. 4" sheet.
2. For stirrup orientation, see "Plan" views on "Girder Details No. 3" sheet.
3. For "Temp Key Detail", see "Girder Details No. 4" sheet.



SECTION A-A

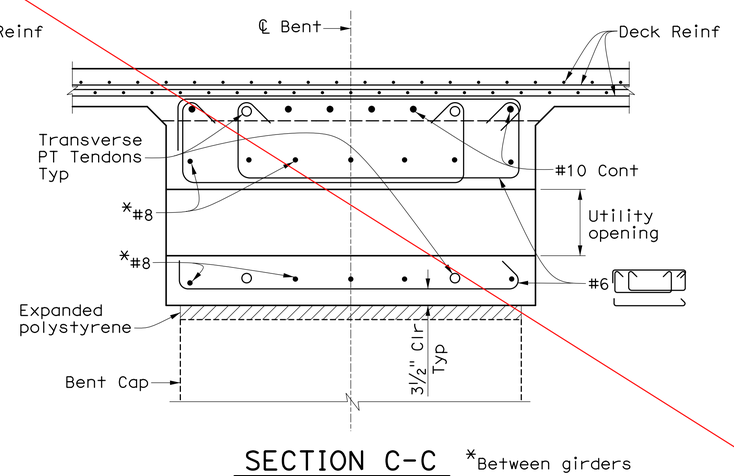
3/4" = 1'-0"

*Between girders



SECTION B-B

3/4" = 1'-0"



SECTION C-C

3/4" = 1'-0"

*Between girders

Note: Not all reinforcement shown.

SUPERSEDED

MARK	DESCRIPTION	DATE	APPR.

PREPARED UNDER THE RESPONSIBLE CHARGE OF:
TODD W. DUDLEY
REGISTERED PROFESSIONAL ENGINEER TODD W. DUDLEY No. C39514 Exp.12/31/17 CIVIL STATE OF CALIFORNIA
9/19/16 DATE

DESIGNED BY: A. SELLADURAI/R. PRICE
DRAWN BY: R. ANDRASEK
CHECKED BY: M. STILLER
DRAWING CODE: F06-101-7
FILE NAME:
PLOT DATE:
SCALE: AS SHOWN

COUNTY OF ORANGE
OC PUBLIC WORKS

PREPARED BY:
AECOM
999 W. Town & Country Road
Orange, CA 92868
(714) 567-2501

EDINGER AVENUE BRIDGE AT BOLSA CHICA CHANNEL REPLACEMENT PROJECT
BR. NO. 55C-0400

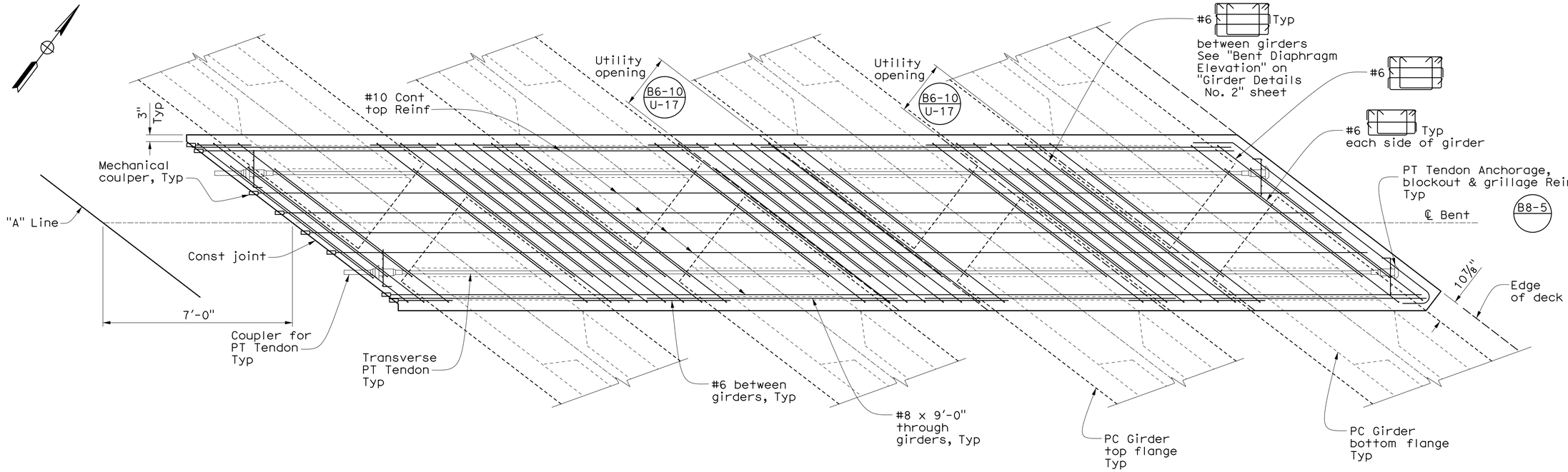
GIRDER DETAILS NO. 2

Sheet Reference Number

ST-23

USERNAME => quinovevaDATE PLOTTED => 9/19/2016 TIME PLOTTED => 8:43:48 AM

AS-BUILT SEPTEMBER 2019



Note: Not all reinforcing shown.

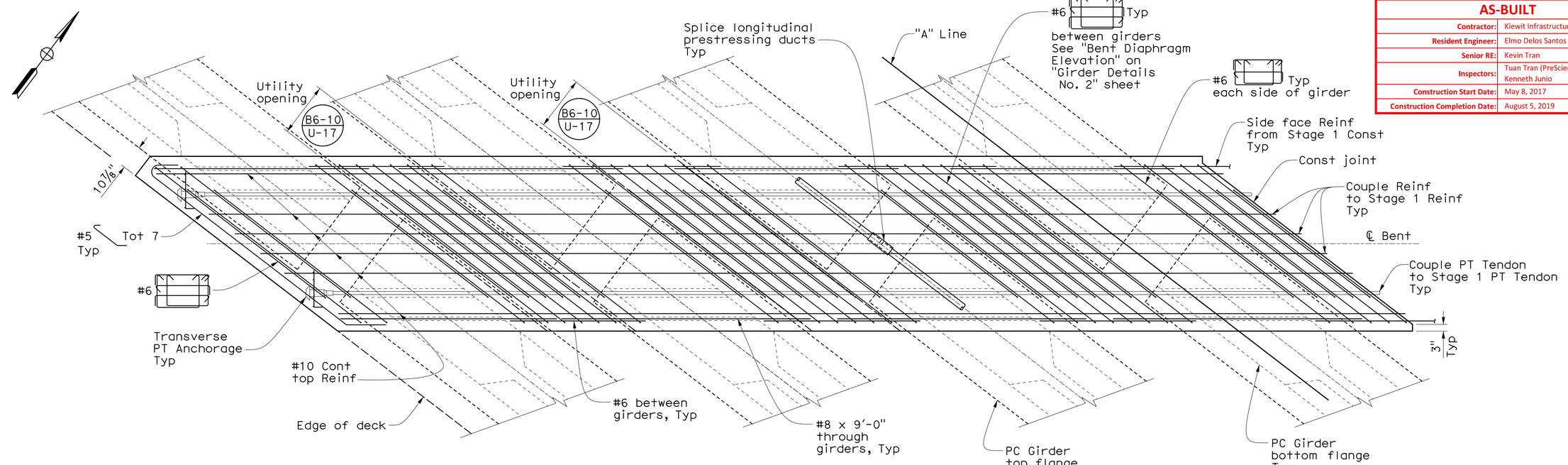
PLAN - STAGE 1

½" = 1'-0"

(Bent 4 shown, other Bents similar)

Notes:

1. For #6 stirrup spacing and shape, see "Girder Details No. 2" sheet.



Note: Not all reinforcing shown.

PLAN - STAGE 2

½" = 1'-0"

(Bent 4 shown, other Bents similar)

County of Orange Public Works	
AS-BUILT	
Contractor:	Kiewit Infrastructure West Company
Resident Engineer:	Elmo Delos Santos (PreScience Corp.)
Senior RE:	Kevin Tran
Inspectors:	Tuan Tran (PreScience Corp.) Kenneth Junio
Construction Start Date:	May 8, 2017
Construction Completion Date:	August 5, 2019

MARK	DESCRIPTION	DATE	APPR.

PREPARED UNDER THE RESPONSIBLE CHARGE OF:
TODD W. DUDLEY
9/19/16
DATE

R. ANDRASEK | M. STILLER | DRAWING CODE: F06-01-7 | FILE NAME: | PLOT DATE: | SCALE: AS SHOWN

COUNTY OF ORANGE
OC PUBLIC WORKS

PREPARED BY:
AECOM
999 W. Town & Country Road
Orange, CA 92868
(714) 567-2501

EDINGER AVENUE BRIDGE AT
BOLSA CHICA CHANNEL
REPLACEMENT PROJECT
BR. NO. 55C-0400

GIRDER DETAILS NO. 3

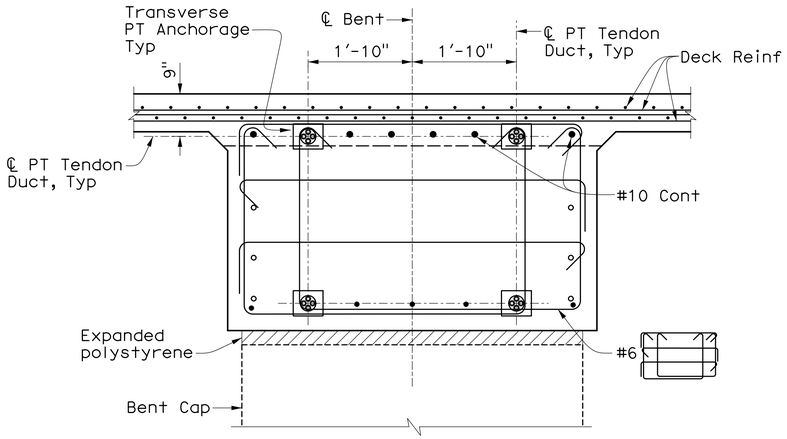
Sheet Reference Number

ST-24

USERNAME => quinovevaDATE PLOTTED => 9/19/2016 TIME PLOTTED => 8:43:52 AM

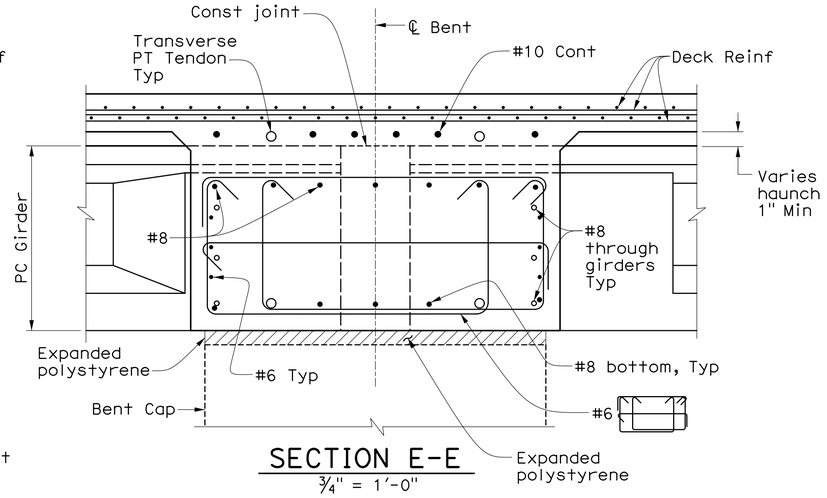
AS-BUILT SEPTEMBER 2019

County of Orange	
Public Works	
AS-BUILT	
Contractor:	Kiewit Infrastructure West Company
Resident Engineer:	Elmo Delos Santos (PreScience Corp.)
Senior RE:	Kevin Tran
Inspectors:	Tuan Tran (PreScience Corp.) Kenneth Junio
Construction Start Date:	May 8, 2017
Construction Completion Date:	August 5, 2019



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

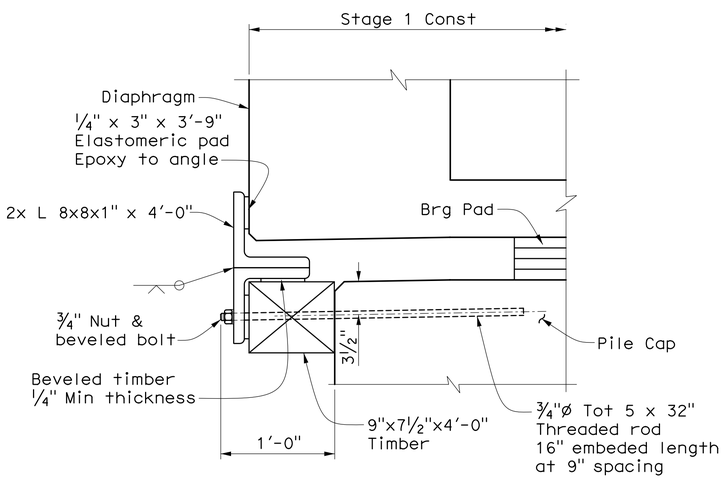
Note: For information not shown see "Section A-A"



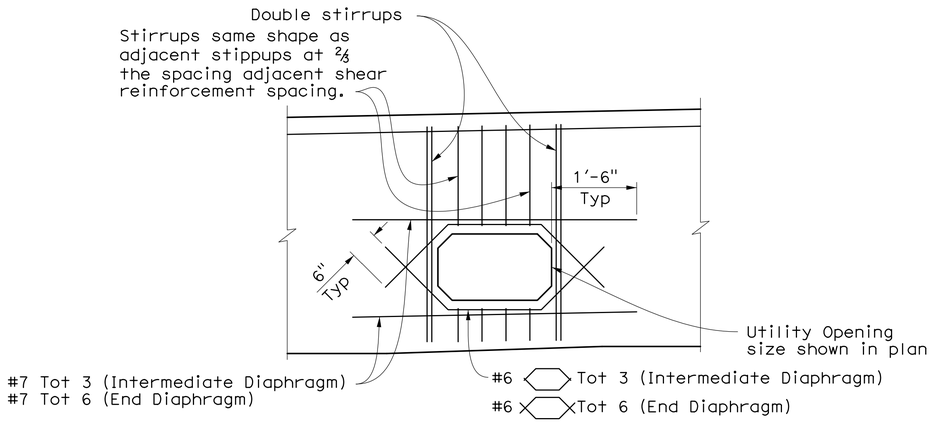
SECTION E-E
3/4" = 1'-0"

Notes:

1. For "Section A-A", see "Girder Details No. 2" sheet.
2. For #6 stirrup spacing, see "Girder Details No. 2" sheet.



TEMPORARY KEY DETAIL
1 1/2" = 1'-0"
(Abutment shown, Bent similar)



DETAIL - U1
3/4" = 1'-0"

MARK	DESCRIPTION	DATE	APPR.

PREPARED UNDER THE RESPONSIBLE CHARGE OF:
REGISTERED PROFESSIONAL ENGINEER TODD W. DUDLEY No. C39514 Exp.12/31/17 CIVIL STATE OF CALIFORNIA
9/19/16
DATE
TODD W. DUDLEY

DESIGNED BY: A. SELLADURAI/R. PRICE
DRAWN BY: R. ANDRASEK
CHECKED BY: M. STILLER
DRAWING CODE: F06-01-7
FILE NAME:
PLOT DATE:
SCALE: AS SHOWN

COUNTY OF ORANGE
OC PUBLIC WORKS

PREPARED BY:
AECOM
999 W. Town & Country Road
Orange, CA 92868
(714) 567-2501

EDINGER AVENUE BRIDGE AT
BOLSA CHICA CHANNEL
REPLACEMENT PROJECT
BR. NO. 55C-0400

GIRDER DETAILS NO. 4

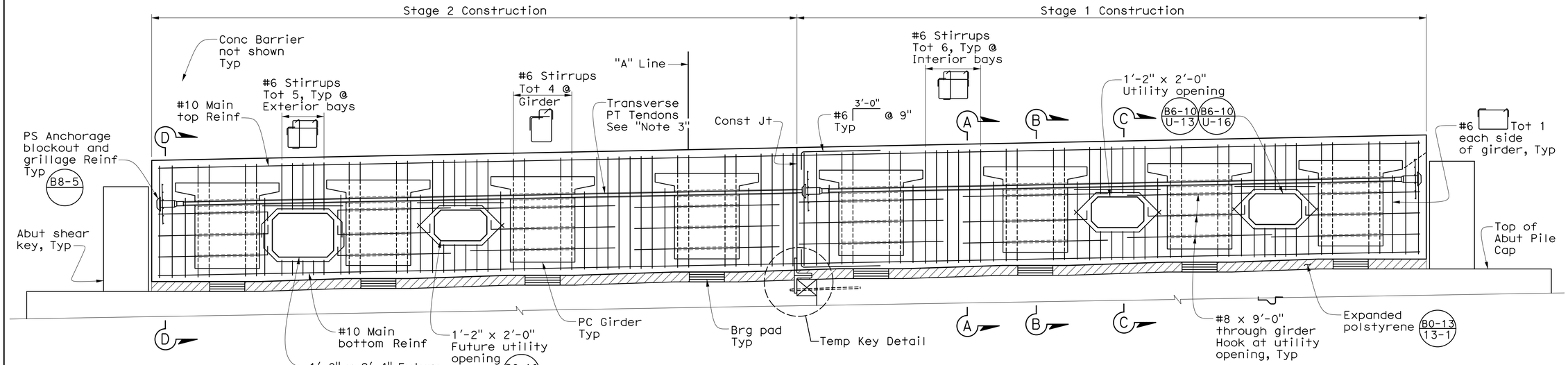
Sheet Reference Number

ST-25

Sheet 64 of 76

USERNAME => quinoveva DATE PLOTTED => 9/19/2016 TIME PLOTTED => 8:43:56 AM

AS-BUILT SEPTEMBER 2019

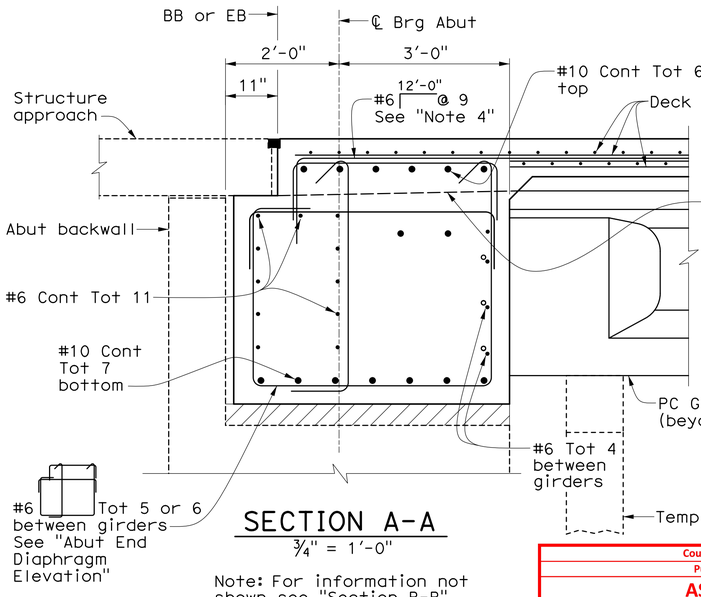


ABUTMENT END DIAPHRAGM ELEVATION

½" = 1'-0"

(Abutment 5 shown, Abutment 1 similar)

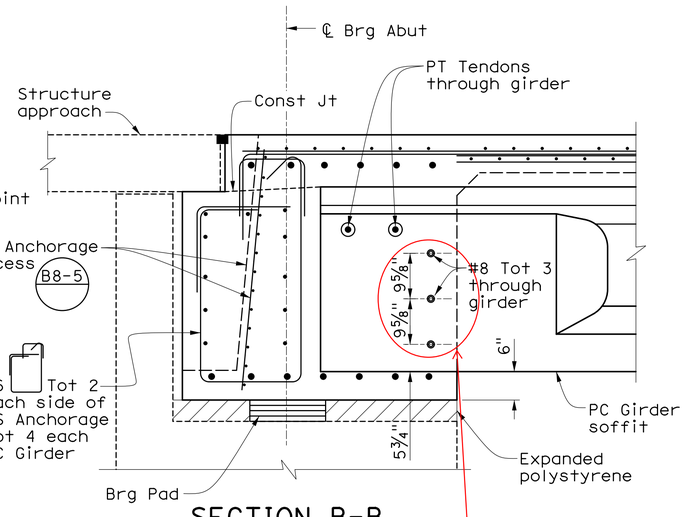
Note: Not all Reinf shown.



SECTION A-A

¾" = 1'-0"

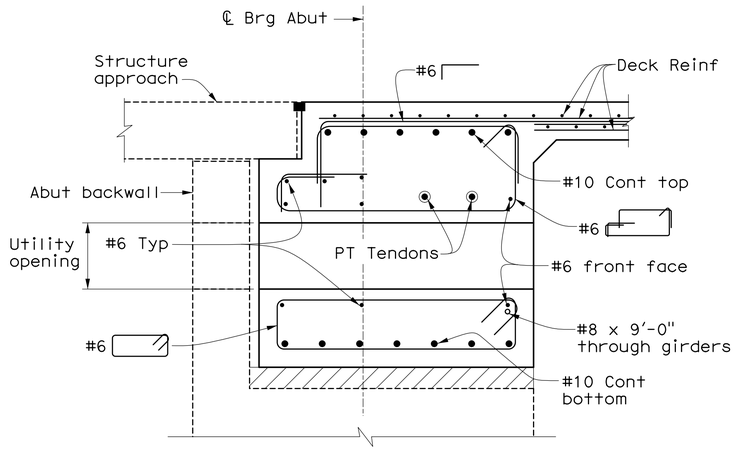
Note: For information not shown see "Section B-B"



SECTION B-B

¾" = 1'-0"

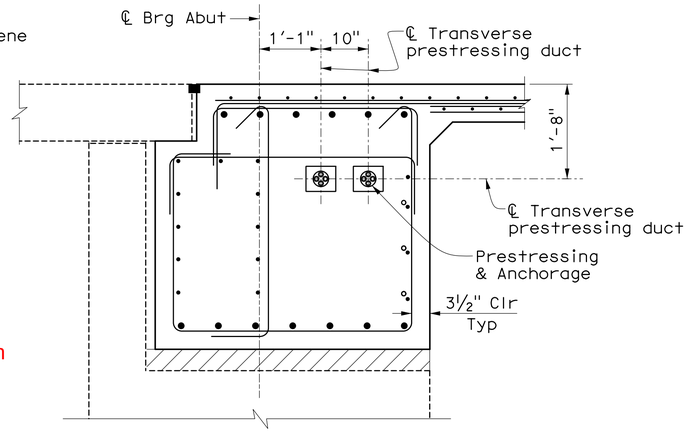
Note: For information not shown see "Section A-A"



SECTION C-C

¾" = 1'-0"

Note: For information not shown see "Section A-A"



SECTION D-D

¾" = 1'-0"

Note: For information not shown see "Section A-A"

County of Orange Public Works	
AS-BUILT	
Contractor:	Kiewit Infrastructure West Company
Resident Engineer:	Elmo Delos Santos (PreScience Corp.)
Senior RE:	Kevin Tran
Inspectors:	Tuan Tran (PreScience Corp.) Kenneth Junio
Construction Start Date:	May 8, 2017
Construction Completion Date:	August 5, 2019

Notes:

1. For Abutment details, see "Abutment Details No. 1" sheet.
2. For Temporary Key Detail, see "Girder Details No. 4" sheet.
3. For Prestressing information, see "Girder Details No. 1" sheet.
4. Place parallel to ℄ Girder and space along ℄ Abutment.

CCO 028: Typical use double barrel mechanical couplers to splice #8 through girders.

COUNTY OF ORANGE CALIFORNIA

MARK	DESCRIPTION	DATE	APPR.

PREPARED UNDER THE RESPONSIBLE CHARGE OF:

REGISTERED PROFESSIONAL ENGINEER TODD W. DUDLEY No. C39514 Exp. 12/31/17 CIVIL STATE OF CALIFORNIA

9/19/16 DATE

TODD W. DUDLEY

DESIGNED BY: A. SELLADURAI/R. PRICE
DRAWN BY: R. ANDRASEK
CHECKED BY: M. STILLER
DRAWING CODE: F06-01-7
FILE NAME:
PLOT DATE:
SCALE: AS SHOWN

COUNTY OF ORANGE OC PUBLIC WORKS

PREPARED BY: AECOM
999 W. Town & Country Road
Orange, CA 92868
(714) 567-2501

EDINGER AVENUE BRIDGE AT BOLSA CHICA CHANNEL REPLACEMENT PROJECT BR. NO. 55C-0400

GIRDER DETAILS NO. 5

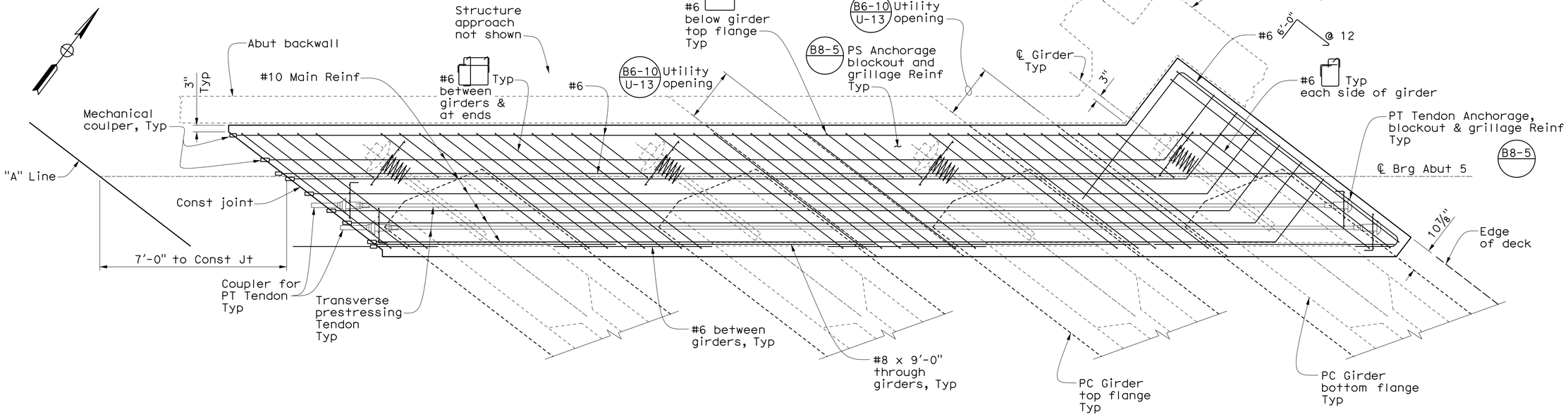
Sheet Reference Number

ST-26

Sheet 65 of 76

USERNAME => quinovevaDATE PLOTTED => 9/19/2016 TIME PLOTTED => 8:44:00 AM

AS-BUILT SEPTEMBER 2019



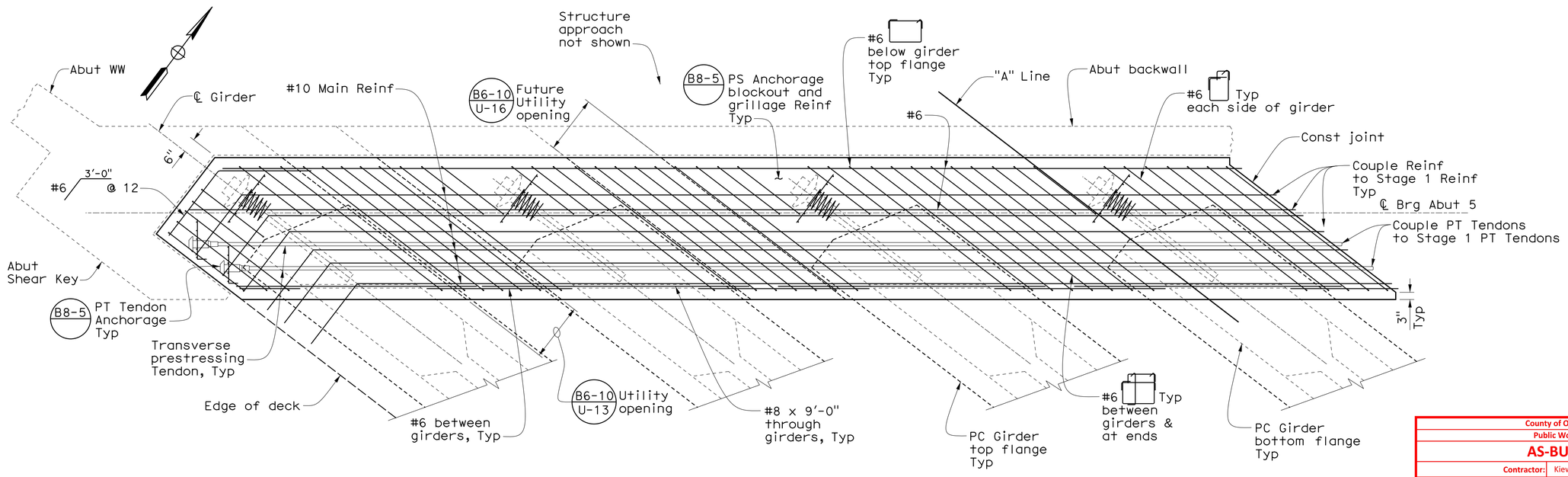
PLAN - STAGE 1

½" = 1'-0"

(Abut 5 shown, Abut 1 similar)

Notes:

1. For #6 stirrup spacing and shape, see "Girder Details No. 5" sheet.



PLAN - STAGE 2

½" = 1'-0"

(Abut 5 shown, Abut 1 similar)

County of Orange	
Public Works	
AS-BUILT	
Contractor:	Kiewit Infrastructure West Company
Resident Engineer:	Elmo Delos Santos (PreScience Corp.)
Senior RE:	Kevin Tran
Inspectors:	Tuan Tran (PreScience Corp.) Kenneth Junio
Construction Start Date:	May 8, 2017
Construction Completion Date:	August 5, 2019

COUNTY OF ORANGE CALIFORNIA

MARK	DESCRIPTION	DATE	APPR.

PREPARED UNDER THE RESPONSIBLE CHARGE OF:

REGISTERED PROFESSIONAL ENGINEER TODD W. DUDLEY No. C39514 Exp.12/31/17 CIVIL STATE OF CALIFORNIA

TODD W. DUDLEY — DATE 9/19/16

DESIGNED BY: A. SELLADURAI/R. PRICE
DRAWN BY: R. ANDRASEK
CHECKED BY: M. STILLER
DRAWING CODE: F06-01-7
FILE NAME:
PLOT DATE:
SCALE: AS SHOWN

COUNTY OF ORANGE
OC PUBLIC WORKS

PREPARED BY:
AECOM
999 W. Town & Country Road
Orange, CA 92868
(714) 567-2501

EDINGER AVENUE BRIDGE AT BOLSA CHICA CHANNEL
REPLACEMENT PROJECT
BR. NO. 55C-0400

GIRDER DETAILS NO. 6

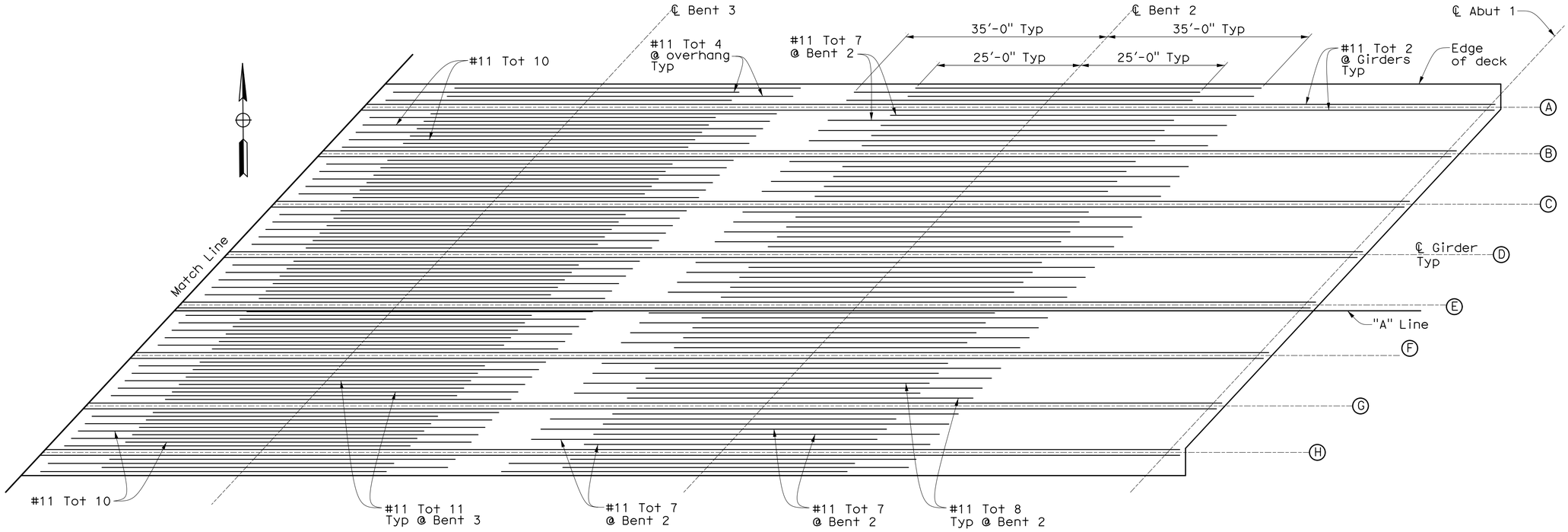
Sheet Reference Number

ST-27

Sheet 66 of 76

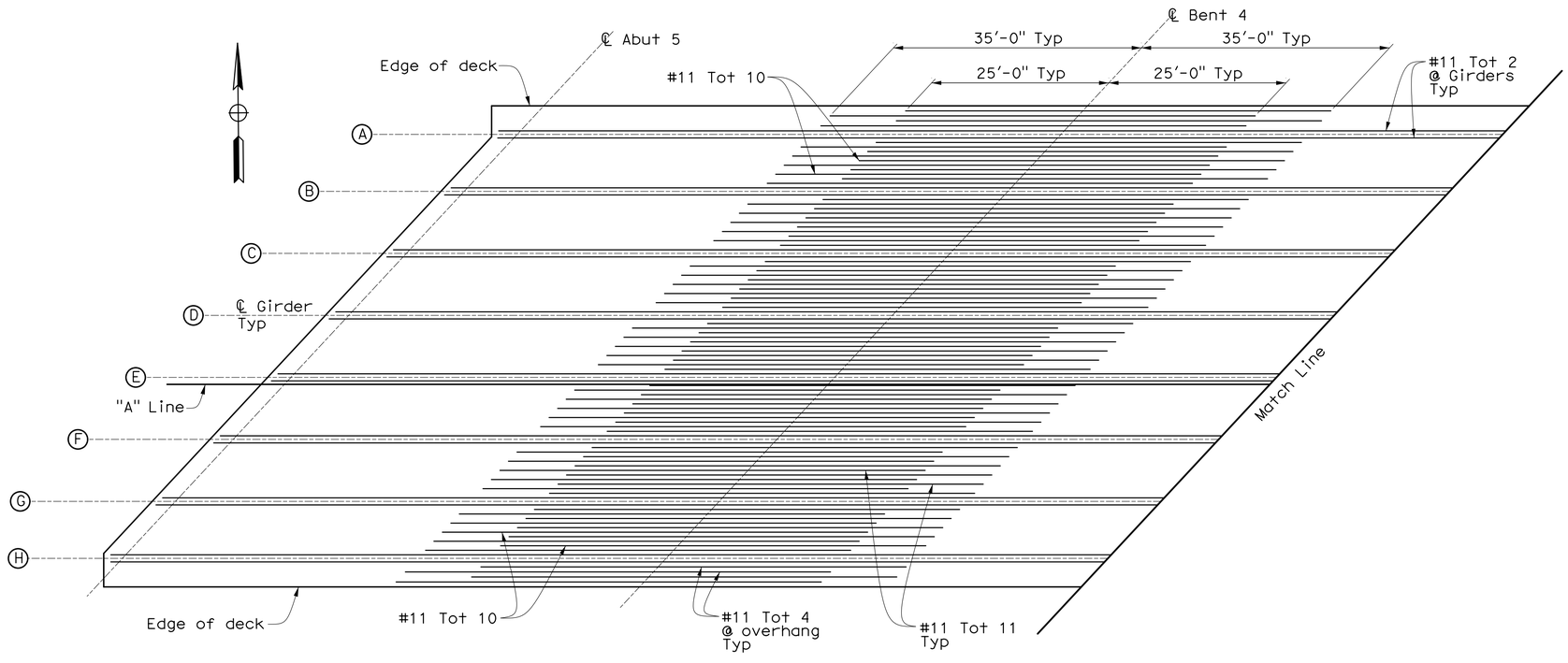
USERNAME => quinoveva DATE PLOTTED => 9/19/2016 TIME PLOTTED => 8:44:04 AM

AS-BUILT SEPTEMBER 2019



PART PLAN - ADDITIONAL TOP DECK REINFORCEMENT

No Scale



PART PLAN - ADDITIONAL TOP DECK REINFORCEMENT

No Scale

County of Orange	
Public Works	
AS-BUILT	
Contractor:	Kiewit Infrastructure West Company
Resident Engineer:	Elmo Delos Santos (PreScience Corp.)
Senior RE:	Kevin Tran
Inspectors:	Tuan Tran (PreScience Corp.) Kenneth Junio
Construction Start Date:	May 8, 2017
Construction Completion Date:	August 5, 2019

COUNTY OF ORANGE CALIFORNIA

MARK	DESCRIPTION	DATE	APPR.

PREPARED UNDER THE RESPONSIBLE CHARGE OF:
TODD W. DUDLEY
REGISTERED PROFESSIONAL ENGINEER
TODD W. DUDLEY
No. C39514
Exp. 12/31/17
CIVIL
STATE OF CALIFORNIA
9/19/16
DATE

DESIGNED BY: A. SELLADURAI/R. PRICE
DRAWN BY: R. ANDRASEK
CHECKED BY: M. STILLER
DRAWING CODE: F06-01-7
FILE NAME:
PLOT DATE:
SCALE: AS SHOWN

COUNTY OF ORANGE
OC PUBLIC WORKS

PREPARED BY:
AECOM
999 W. Town & Country Road
Orange, CA 92868
(714) 567-2501

EDINGER AVENUE BRIDGE AT
BOLSA CHICA CHANNEL
REPLACEMENT PROJECT
BR. NO. 55C-0400

DECK
REINFORCEMENT

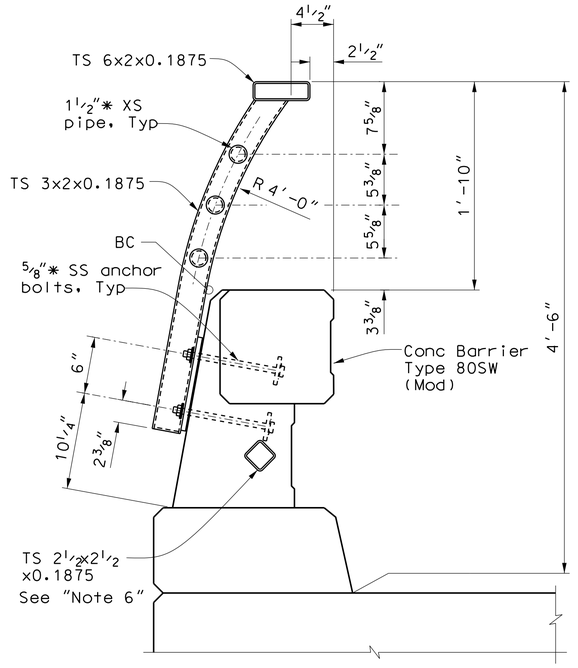
Sheet
Reference
Number

ST-28

Sheet 67 of 76

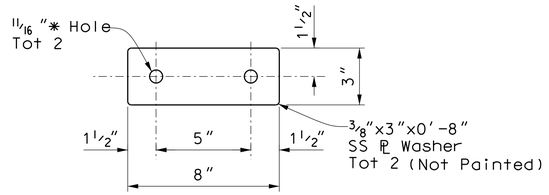
USERNAME => quinoveq DATE PLOTTED => 9/19/2016 TIME PLOTTED => 8:44:09 AM

AS-BUILT SEPTEMBER 2019



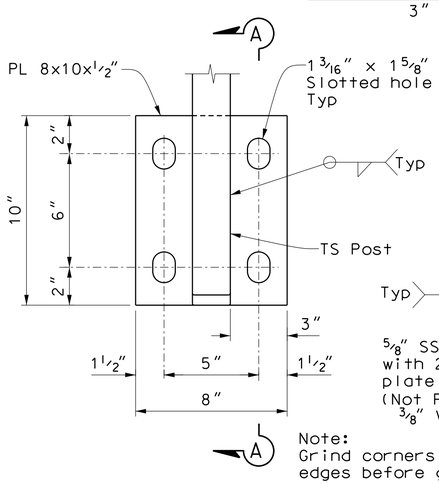
POST ANCHOR DETAIL AND TYPICAL SECTION

1 1/2" = 1'-0"



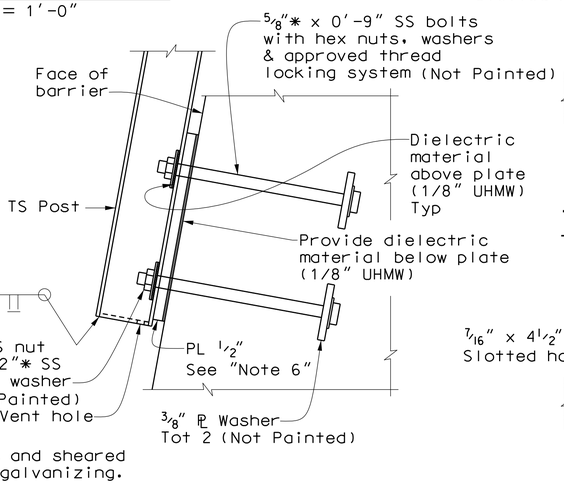
3/8" WASHER DETAIL

3" = 1'-0"



DETAIL 1

3" = 1'-0"

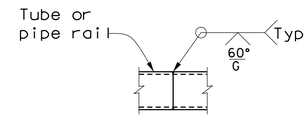


SECTION A-A

3" = 1'-0"

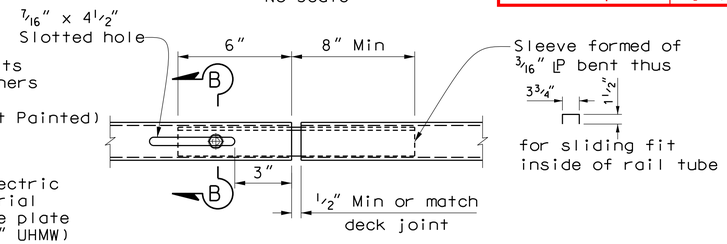
Note:
Grind corners and sheared edges before galvanizing.

ANCHOR ASSEMBLY DETAILS



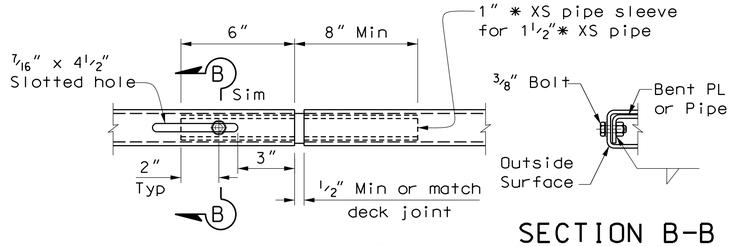
WELDED SPLICE

No Scale



TUBE SPLICE (ELEVATION)

3" = 1'-0"



PIPE SPLICE

3" = 1'-0"

SECTION B-B

3" = 1'-0"

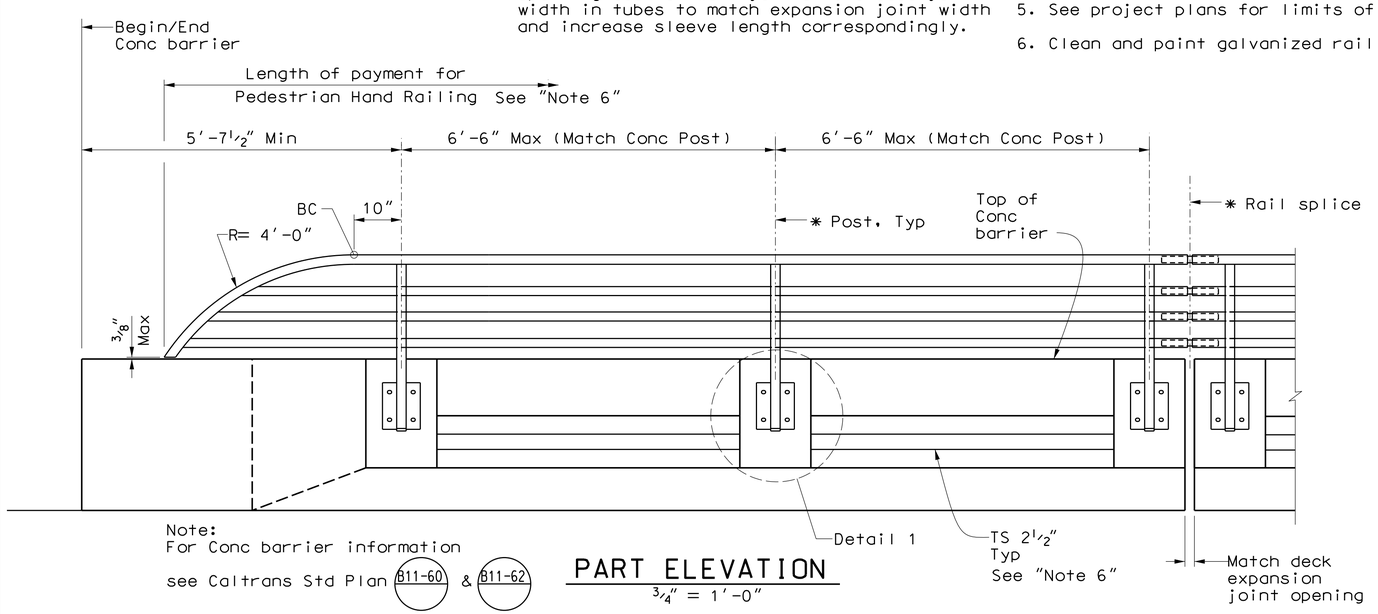
RAIL SPLICE DETAILS

Notes:

1. Galvanize rail assembly after fabrication.
2. Post shall be normal to railing.
3. Tube splices shall be located in the tubes spanning deck or wall joints. Increase joint width in tubes to match expansion joint width and increase sleeve length correspondingly.

Notes: (cont'd)

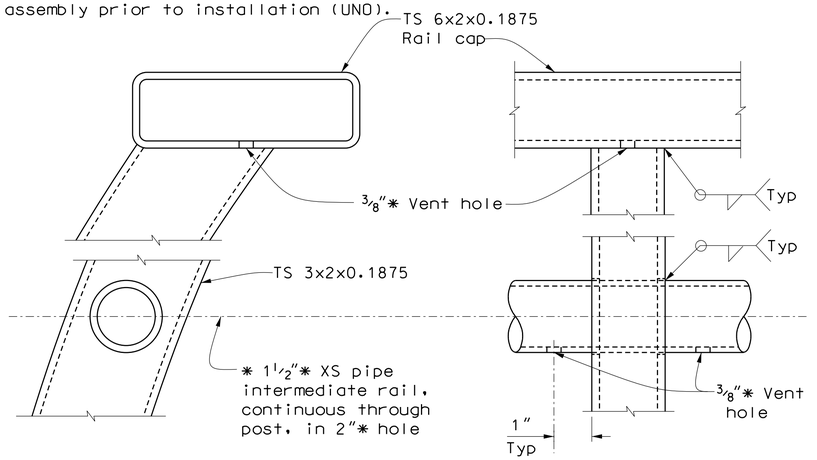
4. Top and intermediate rail tubes or pipes shall be continuous over not less than two posts except a short post spacing is permitted near deck or wall joints, electroliers, or other rail discontinuities as noted.
5. See project plans for limits of Pedestrian Hand Railing.
6. Clean and paint galvanized rail assembly prior to installation (UNO).



Note:
For Conc barrier information see Caltrans Std Plan B11-60 & B11-62

PART ELEVATION

3/4" = 1'-0"



RAIL CONNECTION DETAILS

6" = 1'-0"

County of Orange
Public Works
AS-BUILT
Contractor:	Kiewit Infrastructure West Company
Resident Engineer:	Elmo Delos Santos (PreScience Corp.)
Senior RE:	Kevin Tran
Inspectors:	Tuan Tran (PreScience Corp.) Kenneth Junio
Construction Start Date:	May 8, 2017
Construction Completion Date:	August 5, 2019

MARK	DESCRIPTION	DATE	APPR.

PREPARED UNDER THE RESPONSIBLE CHARGE OF:
REGISTERED PROFESSIONAL ENGINEER TODD W. DUDLEY No. C39514 Exp.12/31/17 CIVIL STATE OF CALIFORNIA
DATE 2/9/17
TODD W. DUDLEY

DESIGNED BY: A. SELLADURAI/R. PRICE
DRAWN BY: R. ANDRASEK
CHECKED BY: M. STILLER
DRAWING CODE: F06-101-7
FILE NAME:
PLOT DATE:
SCALE: AS SHOWN

COUNTY OF ORANGE
OC PUBLIC WORKS

PREPARED BY:
AECOM
999 W. Town & Country Road
Orange, CA 92868
(714) 567-2501

EDINGER AVENUE BRIDGE AT BOLSA CHICA CHANNEL REPLACEMENT PROJECT
BR. NO. 55C-0400

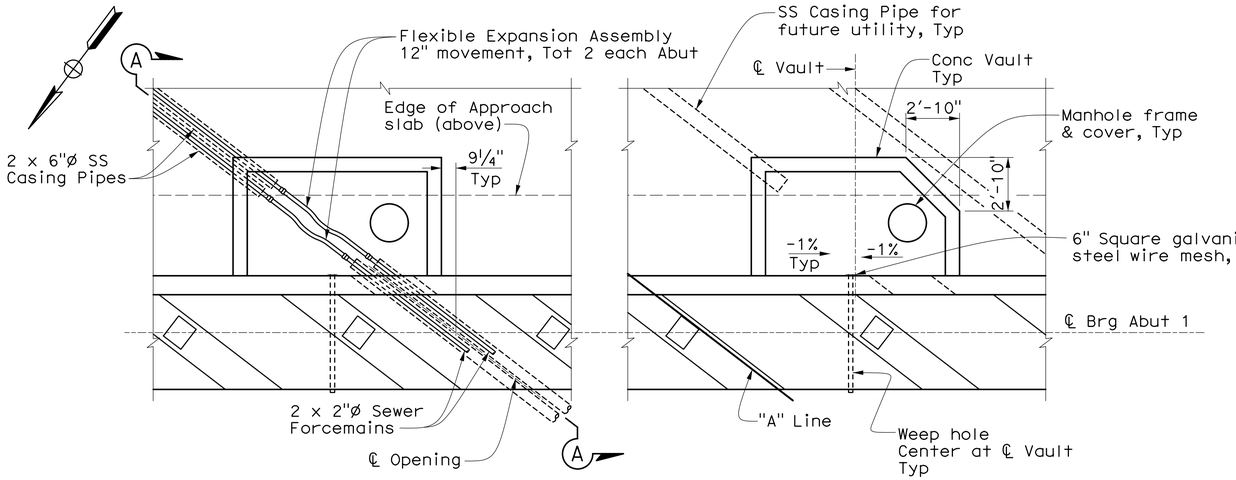
PEDESTRIAN HAND RAILING

Sheet Reference Number

ST-29

USERNAME => $USER DATE PLOTTED => $DATE TIME PLOTTED => $TIME

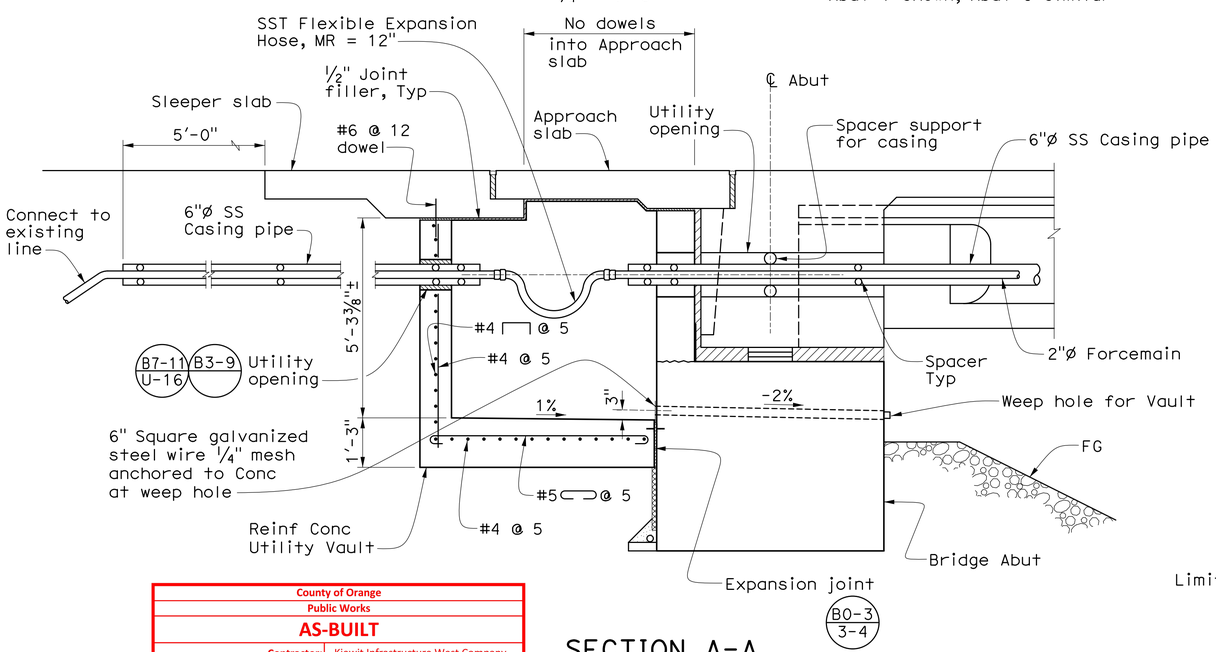
AS-BUILT SEPTEMBER 2019



ABUTMENT 1 PART PLAN

1/4" = 1'-0"

Note:
Abut 1 shown, Abut 5 similar



SECTION A-A

½" = 1'-0"

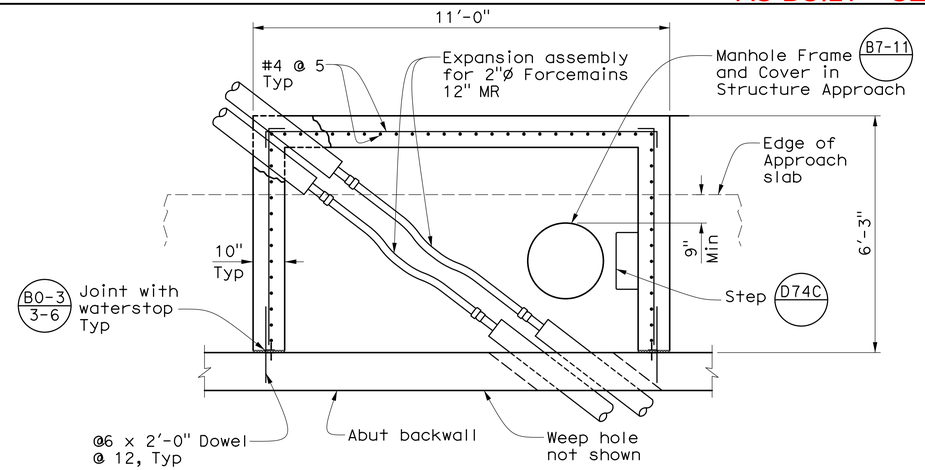
County of Orange	
Public Works	
AS-BUILT	
Contractor:	Kiewit Infrastructure West Company
Resident Engineer:	Elmo Delos Santos (PreScience Corp.)
Senior RE:	Kevin Tran
Inspectors:	Tuan Tran (PreScience Corp.) Kenneth Junio
Construction Start Date:	May 8, 2017
Construction Completion Date:	August 5, 2019

Notes:

1. For Abutment details, see "Abutment 1 Layout" & "Abutment 5 Layout" sheets.
2. For expansion assembly, see "Sewer Forcemain Details" sheet.

SCE Notes:

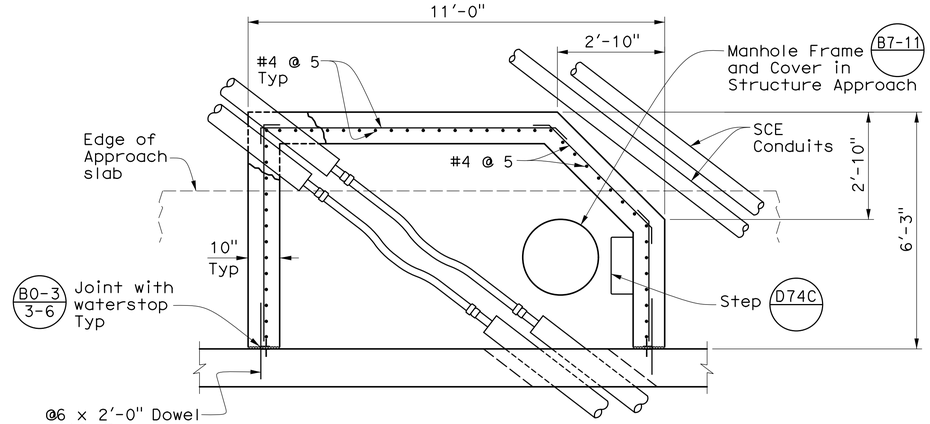
1. See "SCE Plans" for conduit installation details at Abutments.
2. Contractor shall inform SCE Inspector 4 weeks in advance of any construction activities affecting SCE existing or planned facilities.
3. Contractor shall allow 1 week construction window at each Abutment for conduit installation at Abutments after backfill and prior to approach slab construction.
4. Field adjust to avoid conflicts as approved by the Engineer and SCE Inspector.



TYPICAL VAULT PLAN

½" = 1'-0"

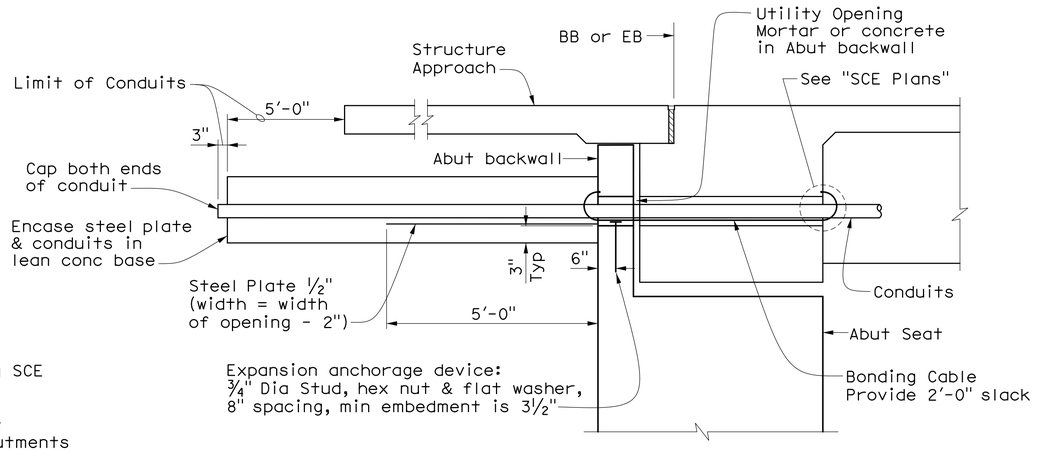
Note:
Abut 1 shown, Abut 5 similar.



SEWER VAULT PLAN AT ABUT 5

½" = 1'-0"

Note:
For information not shown, see "Typical Vault Plan"



CONDUIT INSTALLATION DETAILS

No Scale

(Shown for Contractor information only, see "SCE Note 1")

COUNTY OF ORANGE
CALIFORNIA

MARK	DESCRIPTION	DATE	APPR.

PREPARED UNDER THE RESPONSIBLE CHARGE OF:
REGISTERED PROFESSIONAL ENGINEER TODD W. DUDLEY No. C39514 Exp.12/31/17 CIVIL STATE OF CALIFORNIA
9/19/16
DATE
TODD W. DUDLEY

DESIGNED BY: A. SELLADURAI/R. PRICE
DRAWN BY: R. ANDRASEK
CHECKED BY: M. STILLER
DRAWING CODE: F06-101-7
FILE NAME:
PLOT DATE:
SCALE: AS SHOWN

COUNTY OF ORANGE
OC PUBLIC WORKS

PREPARED BY:
AECOM
999 W. Town & Country Road
Orange, CA 92868
(714) 567-2501

EDINGER AVENUE BRIDGE AT
BOLSA CHICA CHANNEL
REPLACEMENT PROJECT
BR. NO. 55C-0400

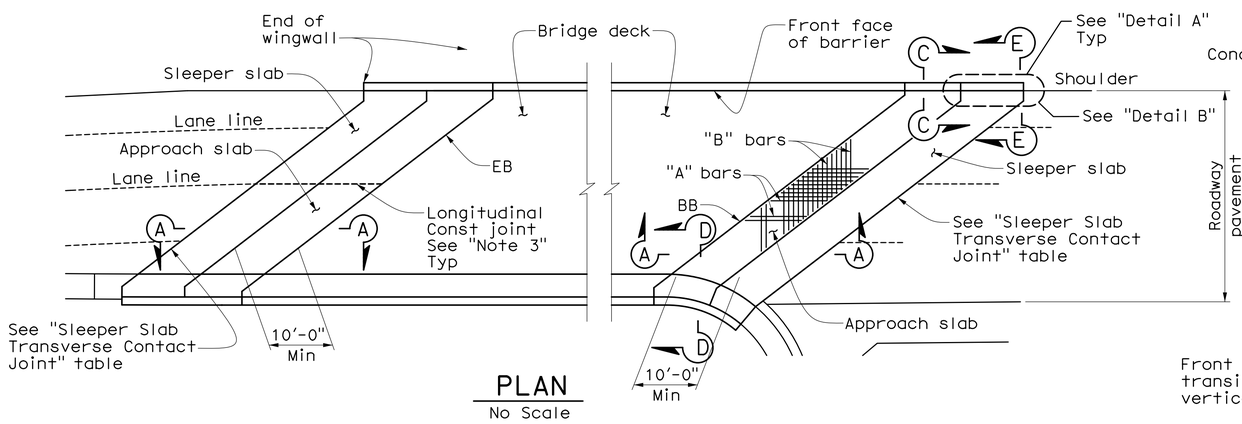
UTILITY DETAILS

Sheet Reference Number

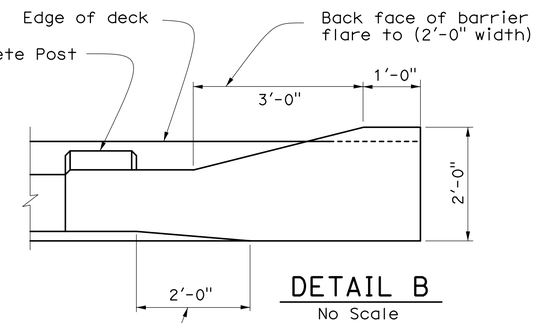
ST-30

USERNAME => quinoveva DATE PLOTTED => 9/19/2016 TIME PLOTTED => 8:44:18 AM

AS-BUILT SEPTEMBER 2019



PLAN
No Scale



DETAIL B
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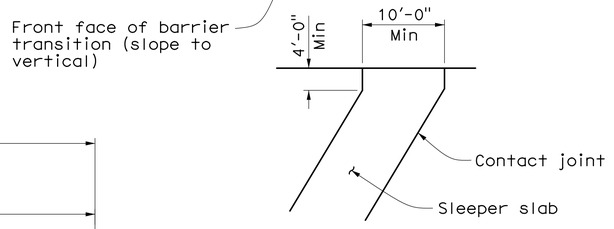

DETAIL A
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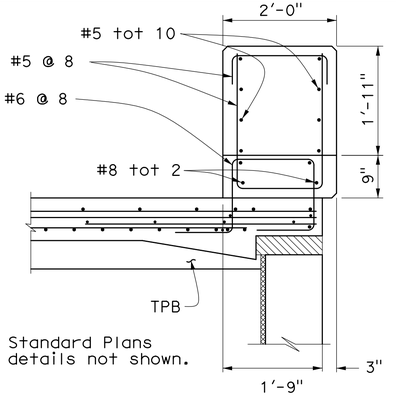
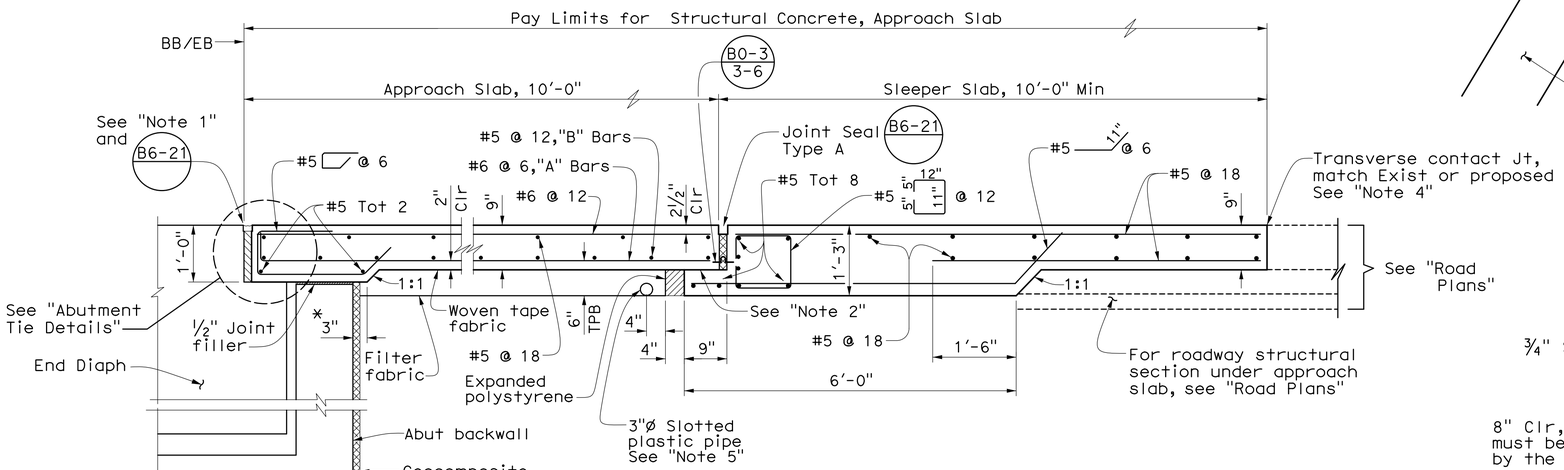


See Standard Plans for details not shown.

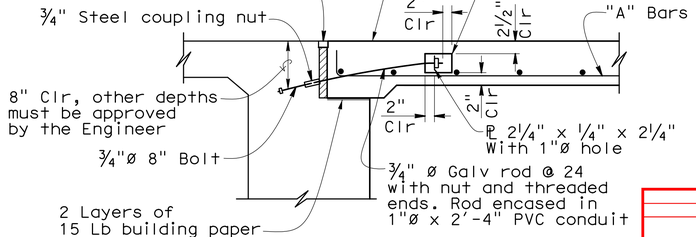
SECTION E-E
¾" = 1'-0"

SLEEPER SLAB TRANSVERSE CONTACT JOINT	
APPROACH SKEW	WITH AC ROADWAY PAVEMENT
> 45°	PARALLEL TO FACE OF PN USE "DETAIL A"

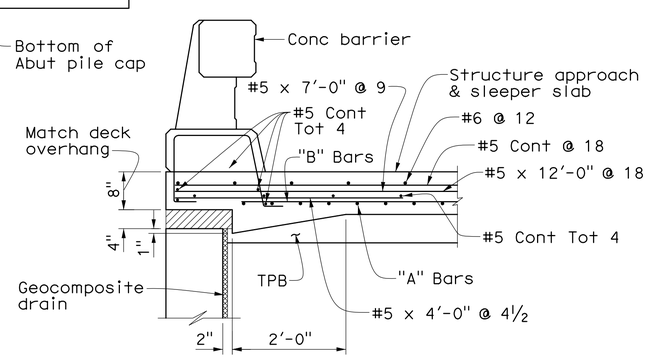


SECTION A-A
¾" = 1'-0"

*Measured normal to backwall



ABUTMENT TIE DETAILS
¾" = 1'-0"

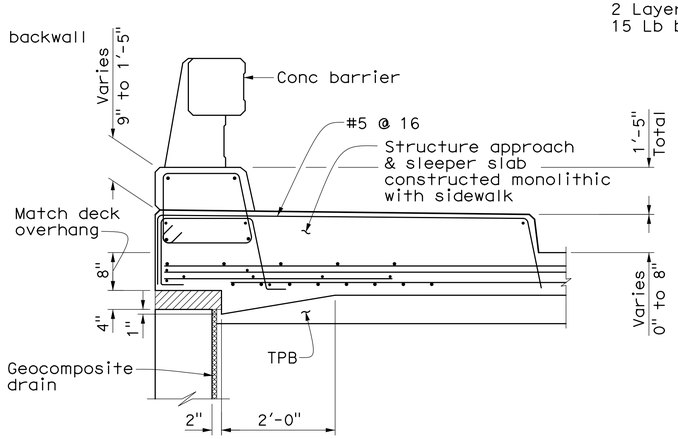


TYPE E-1

SECTION C-C
¾" = 1'-0"

Remove all polystyrene, typ

(Type E-1 to be used, Unless otherwise shown on the Plans)



TYPE E-1

SECTION D-D
¾" = 1'-0"

All reinforcement not shown. See Section C-C and Standard Plans for details not shown.

NOTES:

1. For details not noted or shown, see Structure Plans
2. Sliding joint ¼" x 9" neoprene strip, coat top with silicone grease and cover with 9" x 0.064" galvanized sheet metal
3. Longitudinal construction joints, when permitted by the Engineer, shall be located on lane lines
4. For transverse contact joint with new PCC paving, refer to Standard Plan P10.
5. For drainage details, see "STRUCTURE APPROACH DRAINAGE DETAILS" sheet
6. At the Contractor's option, slab transverse reinforcement may be placed parallel to paving notch. Spacing of transverse reinforcement is measured along ℄ roadway
7. All reinforcement to be prefabricated epoxy coated.

NOTE:
Details based on Caltrasn Standard details sheet XS3-160.

COUNTY OF ORANGE CALIFORNIA

MARK	DESCRIPTION	DATE	APPR.

PREPARED UNDER THE RESPONSIBLE CHARGE OF:
REGISTERED PROFESSIONAL ENGINEER TODD W. DUDLEY No. C39514 Exp.12/31/17 CIVIL STATE OF CALIFORNIA
9/19/16 DATE
TODD W. DUDLEY

DESIGNED BY: ELLADURAI/R. PRICE
DRAWN BY: NDRASEK
CHECKED BY: M. STILLER
CHECKING CODE: 101-7
DATE NAME:
SCALE: AS SHOWN

County of Orange	
Public Works	
AS-BUILT	
Contractor:	Kiewit Infrastructure West Company
Resident Engineer:	Elmo Delos Santos (PreScience Corp.)
Senior RE:	Kevin Tran
Inspectors:	Tuan Tran (PreScience Corp.) Kenneth Junio
Construction Start Date:	May 8, 2017
Construction Completion Date:	August 5, 2019

999

EDINGER AVENUE BRIDGE AT BOLSA CHICA CHANNEL REPLACEMENT PROJECT BR. NO. 55C-0400

STRUCTURE APPROACH TYPE EQ(10) (MODIFIED)

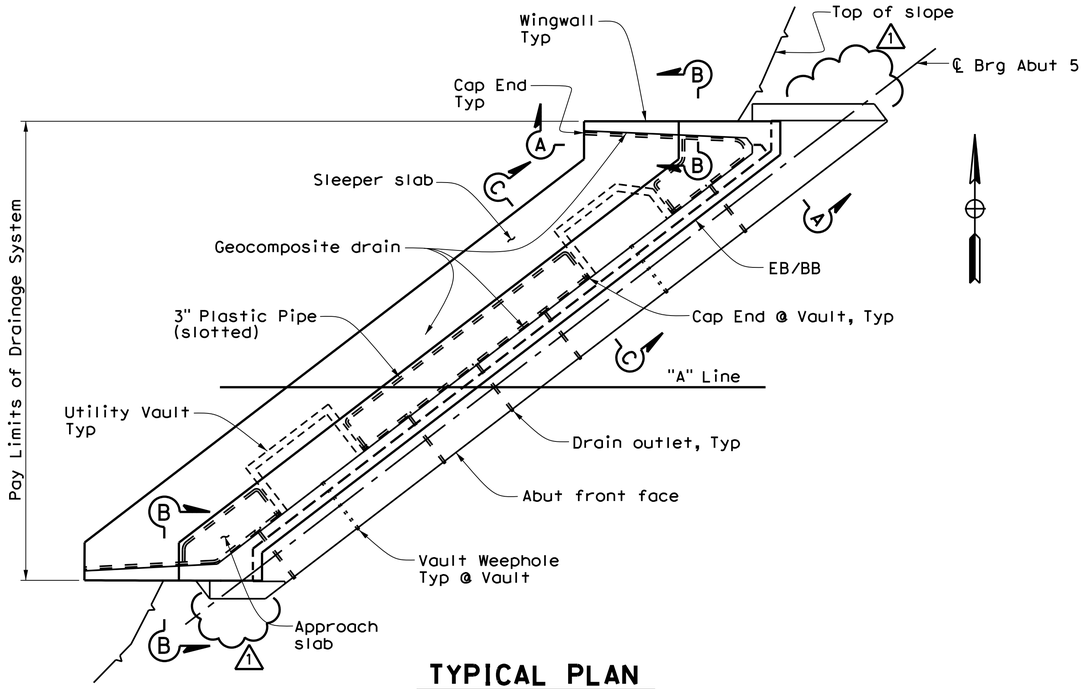
Sheet Reference Number

ST-31

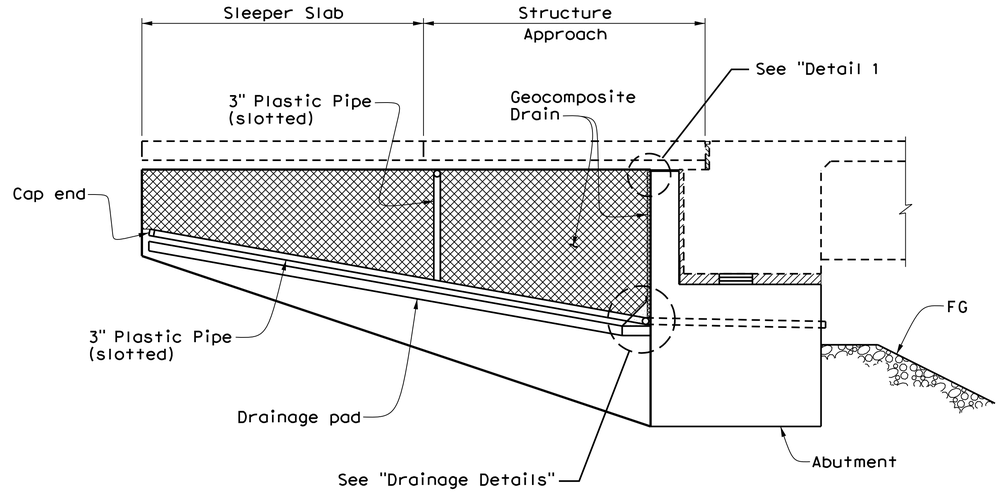
Sheet 70 of 76

USERNAME => quinovea DATE PLOTTED => 9/19/2016 TIME PLOTTED => 8:44:22 AM

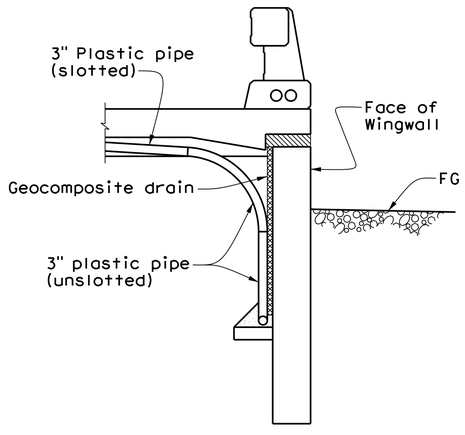
AS-BUILT SEPTEMBER 2019



TYPICAL PLAN
1/8" = 1'-0"
(Abut 5 shown, Abut 1 similar)



SECTION A-A
3/8" = 1'-0"

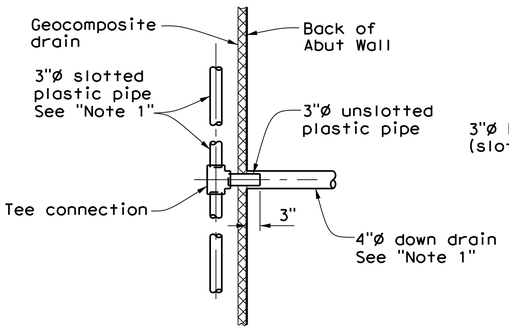


SECTION B-B
1/2" = 1'-0"

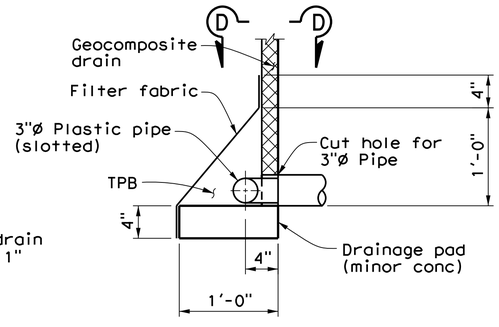
Note:
Bends and junctions in 3" plastic pipe are 30" radius minimum.

Notes:

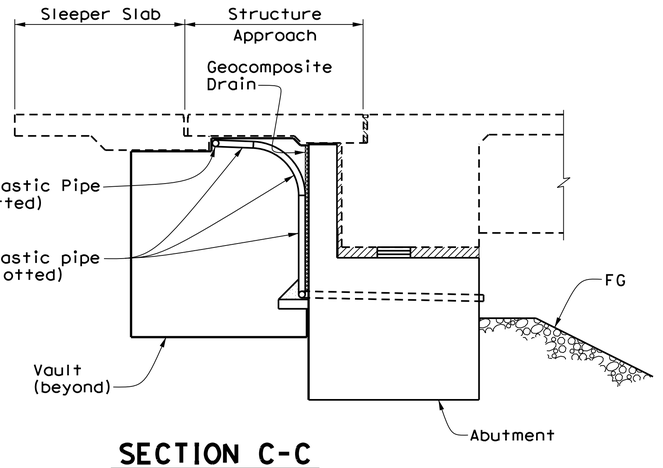
1. Geocomposite drain, cement treated permeable base, and 3"ø slotted plastic pipe continuous behind abutment and wingwalls. Provide "Tee" connection at 4"ø drain pipe.



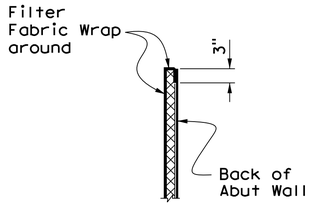
SECTION D-D
No Scale



DRAINAGE DETAILS
No Scale



SECTION C-C
3/8" = 1'-0"



DETAIL 1
No Scale

NOTE:
Details based on Caltrans Details sheet XS3-110.

County of Orange	
Public Works	
AS-BUILT	
Contractor:	Kiewit Infrastructure West Company
Resident Engineer:	Elmo Delos Santos (PreScience Corp.)
Senior RE:	Kevin Tran
Inspectors:	Tuan Tran (PreScience Corp.) Kenneth Junio
Construction Start Date:	May 8, 2017
Construction Completion Date:	August 5, 2019

COUNTY OF ORANGE CALIFORNIA

MARK	DESCRIPTION	DATE	APPR.
A	Revised End of Bent Cap	5/18/17	

PREPARED UNDER THE RESPONSIBLE CHARGE OF:
REGISTERED PROFESSIONAL ENGINEER TODD W. DUDLEY No. C39514 Exp.12/31/17 CIVIL STATE OF CALIFORNIA
2/9/17 DATE
TODD W. DUDLEY

DESIGNED BY: A. SELLADURAI/R. PRICE
DRAWN BY: R. ANDRASEK
CHECKED BY: M. STILLER
DRAWING CODE: FOG-ID-7
FILE NAME:
PLOT DATE:
SCALE: AS SHOWN

COUNTY OF ORANGE
OC PUBLIC WORKS

PREPARED BY:
AECOM
999 W. Town & Country Road
Orange, CA 92868
(714) 567-2501

EDINGER AVENUE BRIDGE AT BOLSA CHICA CHANNEL REPLACEMENT PROJECT
BR. NO. 55C-0400

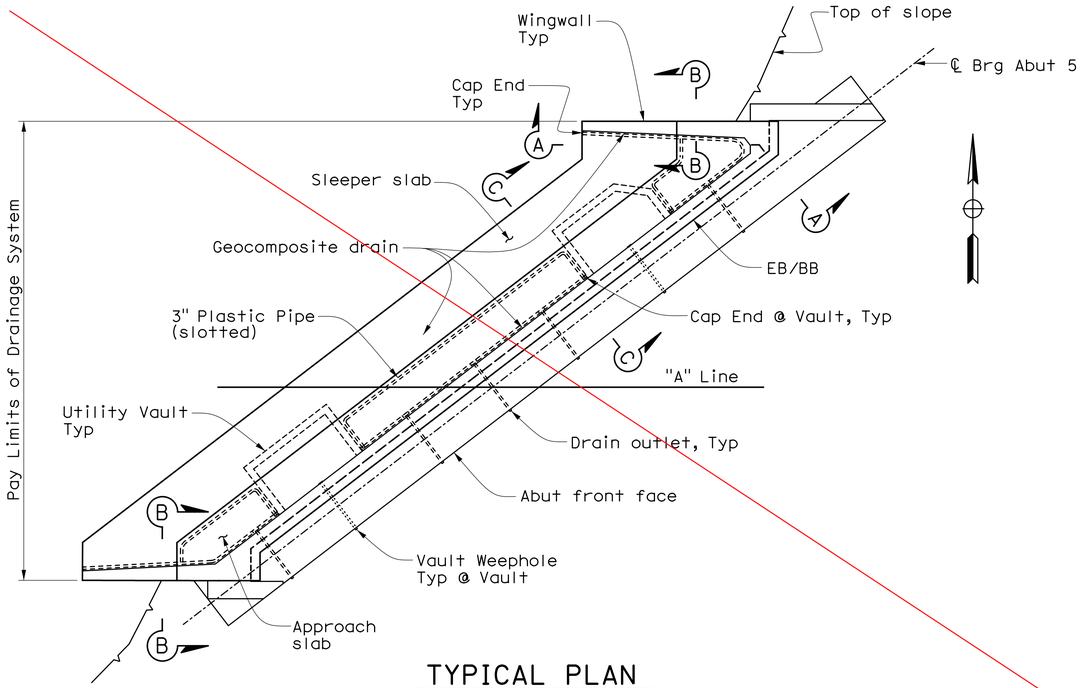
STRUCTURE APPROACH DRAINAGE DETAILS

Sheet Reference Number
ST-32

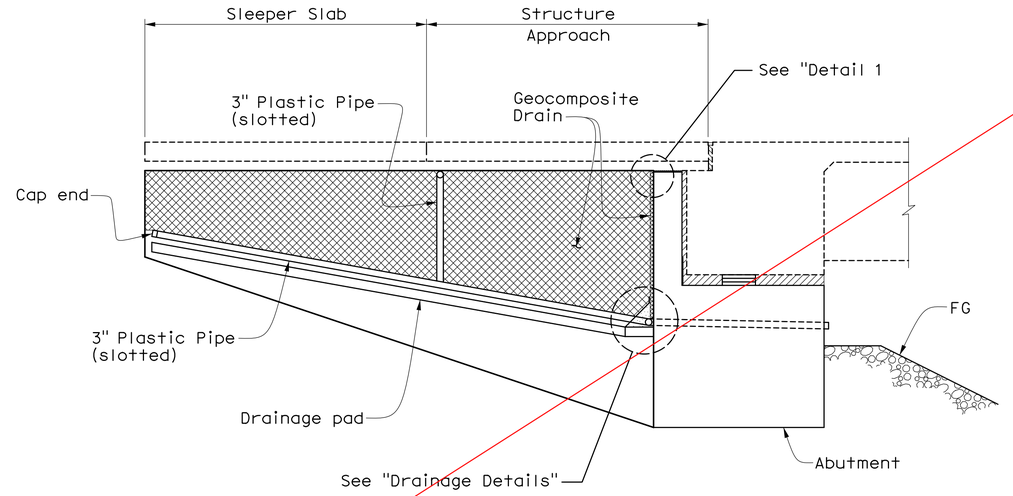
Sheet 71 of 76

USERNAME => $USER DATE PLOTTED => $DATE TIME PLOTTED => $TIME

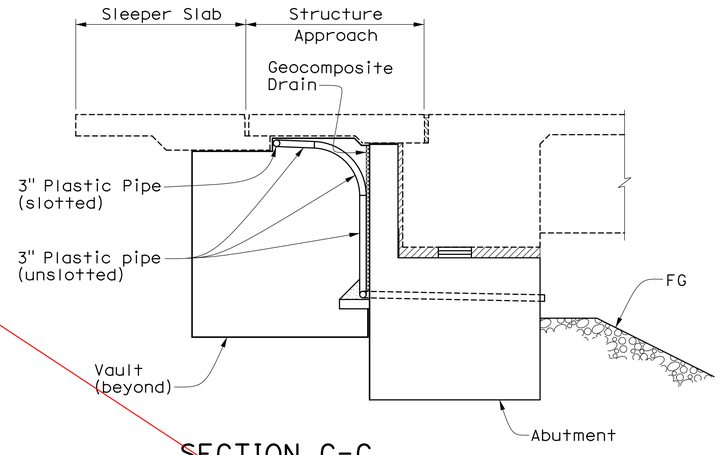
AS-BUILT SEPTEMBER 2019



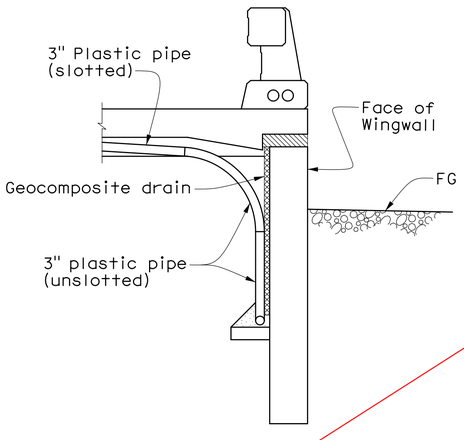
TYPICAL PLAN
1/8" = 1'-0"
(Abut 5 shown, Abut 1 similar)



SECTION A-A
3/8" = 1'-0"



SECTION C-C
3/8" = 1'-0"

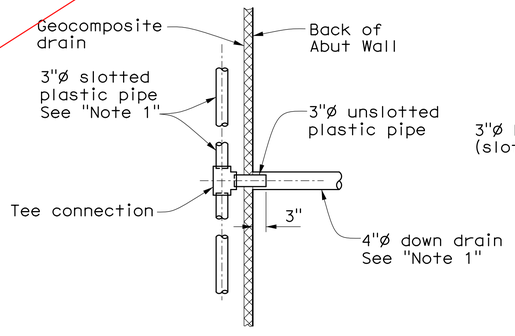


SECTION B-B
1/2" = 1'-0"

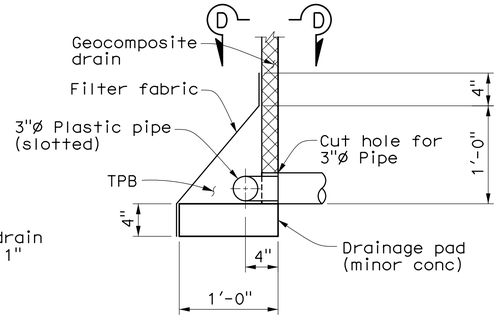
Note:
Bends and junctions in 3" plastic pipe are 30" radius minimum.

Notes:

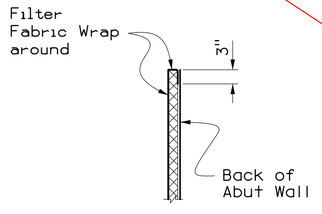
1. Geocomposite drain, cement treated permeable base, and 3"ø slotted plastic pipe continuous behind abutment and wingwalls. Provide "Tee" connection at 4"ø drain pipe.



SECTION D-D
No Scale



DRAINAGE DETAILS
No Scale



DETAIL 1
No Scale

SUPERSEDED

NOTE:
Details based on Caltrans Details sheet XS3-110.

USERNAME => quinovevaDATE PLOTTED => 9/19/2016 TIME PLOTTED => 8:44:27 AM

COUNTY OF ORANGE CALIFORNIA

MARK	DESCRIPTION	DATE	APPR.

PREPARED UNDER THE RESPONSIBLE CHARGE OF:
REGISTERED PROFESSIONAL ENGINEER TODD W. DUDLEY No. C39514 Exp.12/31/17 CIVIL STATE OF CALIFORNIA
9/19/16 DATE
TODD W. DUDLEY

DESIGNED BY: A. SELLADURAI/R. PRICE
DRAWN BY: R. ANDRASEK
CHECKED BY: M. STILLER
DRAWING CODE: F06-101-7
FILE NAME:
PLOT DATE:
SCALE: AS SHOWN

COUNTY OF ORANGE
OC PUBLIC WORKS

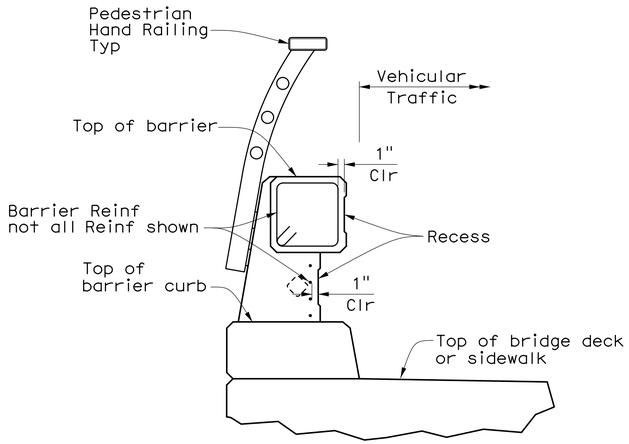
PREPARED BY:
AECOM
999 W. Town & Country Road
Orange, CA 92868
(714) 567-2501

EDINGER AVENUE BRIDGE AT BOLSA CHICA CHANNEL
REPLACEMENT PROJECT
BR. NO. 55C-0400

STRUCTURE APPROACH DRAINAGE DETAILS

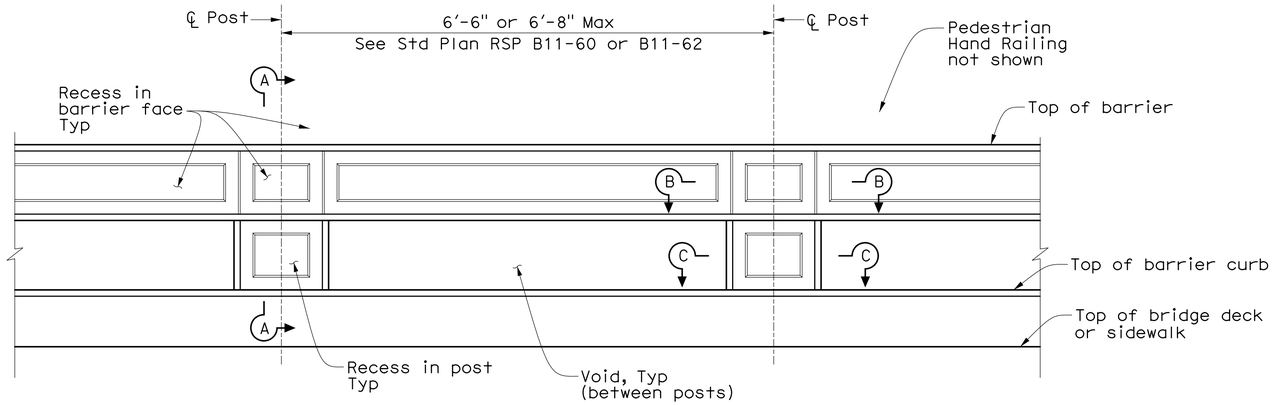
Sheet Reference Number
ST-32

AS-BUILT SEPTEMBER 2019



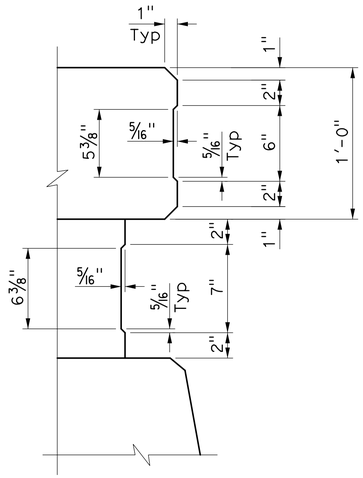
TYPICAL BARRIER SECTION
1" = 1'-0"

For information not shown
see Caltrans Standard Plan RSP B11-60 or B11-62

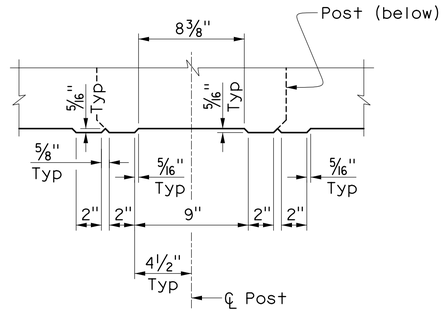


PART BARRIER ELEVATION
1" = 1'-0"

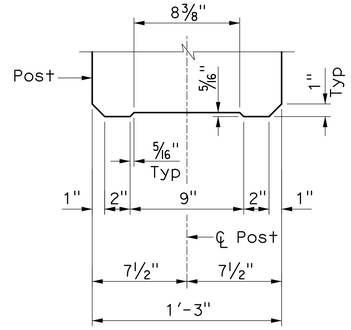
County of Orange	
Public Works	
AS-BUILT	
Contractor:	Kiewit Infrastructure West Company
Resident Engineer:	Elmo Delos Santos (PreScience Corp.)
Senior RE:	Kevin Tran
Inspectors:	Tuan Tran (PreScience Corp.) Kenneth Junio
Construction Start Date:	May 8, 2017
Construction Completion Date:	August 5, 2019



SECTION A-A
2" = 1'-0"



SECTION B-B
2" = 1'-0"



SECTION C-C
2" = 1'-0"

Note:

1. All chamfers are 1:1.

MARK	DESCRIPTION	DATE	APPR.

PREPARED UNDER THE RESPONSIBLE CHARGE OF:
TODD W. DUDLEY
9/19/16
DATE

REGISTERED PROFESSIONAL ENGINEER TODD W. DUDLEY No. C39514 Exp.12/31/17 CIVIL STATE OF CALIFORNIA

DESIGNED BY: A. SELLADURAI/R. PRICE
DRAWN BY: R. ANDRASEK
CHECKED BY: M. STILLER
DRAWING CODE: F06-01-7
FILE NAME:
PLOT DATE:
SCALE: AS SHOWN

COUNTY OF ORANGE
OC PUBLIC WORKS

PREPARED BY:
AECOM
999 W. Town & Country Road
Orange, CA 92868
(714) 567-2501

EDINGER AVENUE BRIDGE AT
BOLSA CHICA CHANNEL
REPLACEMENT PROJECT
BR. NO. 55C-0400

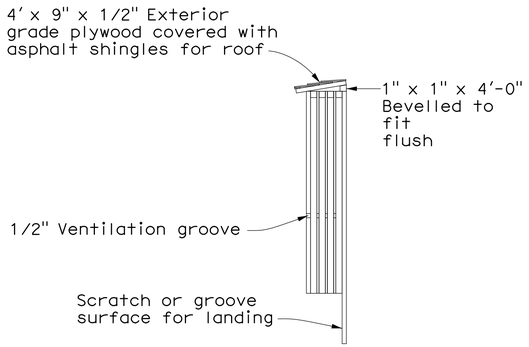
CONCRETE BARRIER RECESS DETAILS

Sheet Reference Number

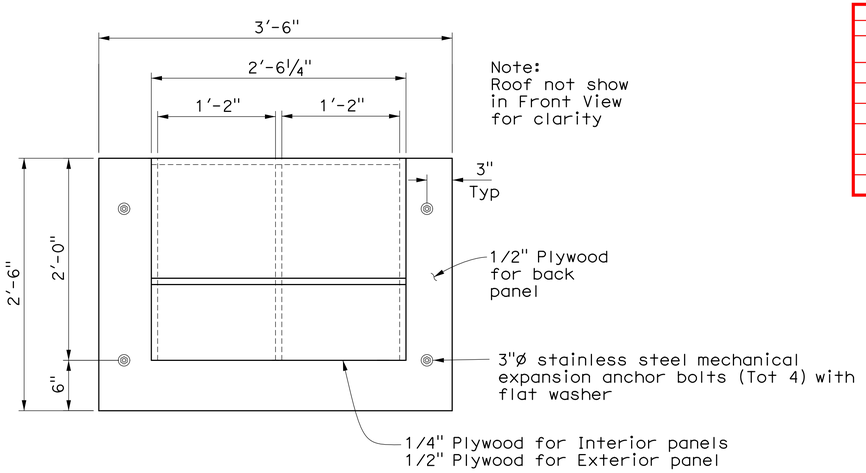
ST-33

USERNAME => quinoveq DATE PLOTTED => 9/19/2016 TIME PLOTTED => 8:44:31 AM

AS-BUILT SEPTEMBER 2019



SIDE VIEW
NO SCALE

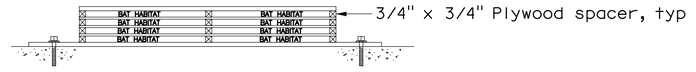


FRONT VIEW
NO SCALE

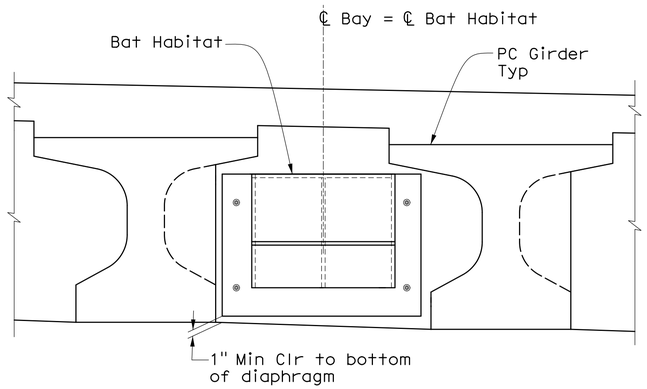
County of Orange	
Public Works	
AS-BUILT	
Contractor:	Kiewit Infrastructure West Company
Resident Engineer:	Elmo Delos Santos (PreScience Corp.)
Senior RE:	Kevin Tran
Inspectors:	Tuan Tran (PreScience Corp.) Kenneth Junio
Construction Start Date:	May 8, 2017
Construction Completion Date:	August 5, 2019

CONSTRUCTION NOTES:

1) All plywood shall be 4 ply minimum exterior grade ACX, BCX, T1-11, or Cedar.
2) All seams shall be caulked prior to staining.
3) All interior faces shall receive two (2) coats of dark brown, exterior grade, water based stain or paint. All exterior faces shall receive three (3) coats of dark brown exterior grade stain or paint.
4) Each assembly shall be fabricated with exterior grade galvanized or stainless steel screws and anchor bolts.



BOTTOM VIEW
NO SCALE



ELEVATION VIEW AT DIAPHRAGMS
3/4" = 1'-0"

MARK	DESCRIPTION	DATE	APPR.

PREPARED UNDER THE RESPONSIBLE CHARGE OF:
TODD W. DUDLEY
DATE 9/19/16

DESIGNED BY: A. SELLADURAI/R. PRICE	CHECKED BY: M. STILLER		
DRAWN BY: R. ANDRASEK	DRAWING CODE: F06-101-7	FILE NAME:	PLOT DATE: SCALE: AS SHOWN

COUNTY OF ORANGE
OC PUBLIC WORKS

PREPARED BY:
AECOM
999 W. Town & Country Road
Orange, CA 92868
(714) 567-2501

EDINGER AVENUE BRIDGE AT BOLSA CHICA CHANNEL
REPLACEMENT PROJECT
BR. NO. 55C-0400

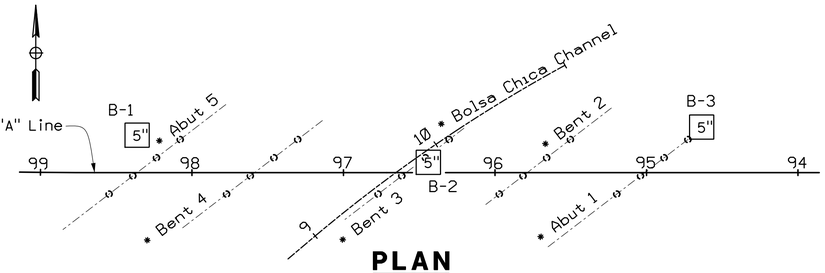
BAT HABITAT DETAILS

Sheet Reference Number
ST-34

USERNAME => quinovevaDATE PLOTTED => 9/19/2016 TIME PLOTTED => 8:44:35 AM

BENCH MARK

#HB-239-75 ELEVATION: 8.098' NAVD88
Found 3¾" OCS ALUMINUM BENCHMARK DISK STAMPED "HB-239-75", SET IN NW CORNER OF A 6 FT. BY 8 FT. CONCRETE CATCH BASIN. MONUMENT IS LOCATED IN SOUTHEAST CORNER OF INTERSETION OF MONTEGO DRIVE AND EDINGER AVE 33 FT. EASTERLY OF THE CENTERLINE OF MONTEGO DRIVE AND 32 FT. SOUTHERLY OF CENTERLINE OF EDINGER AVE. MONUMENT IS SET LEVEL WITH SIDEWALK.



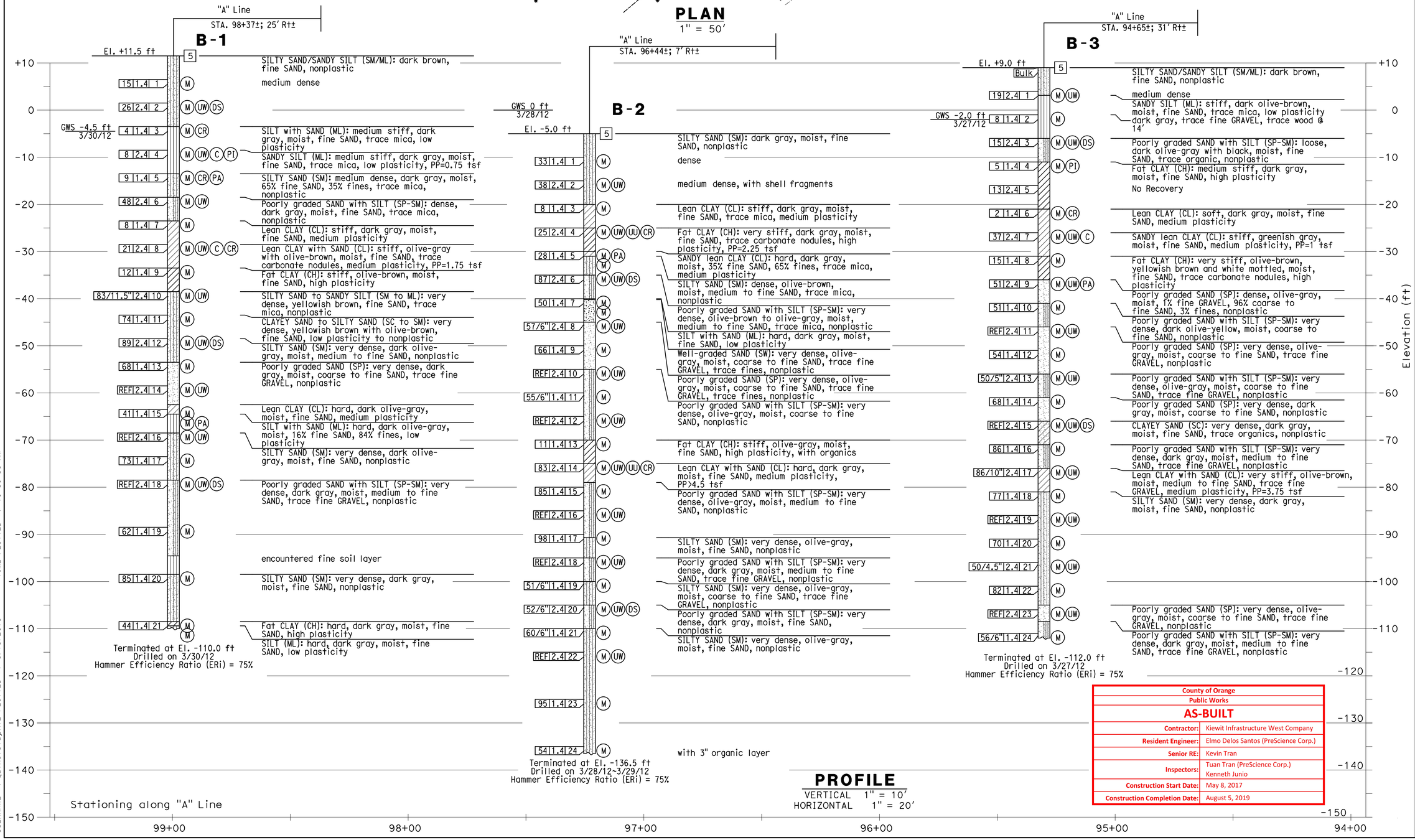
PLAN
1" = 50'

NOTES:

(1) This LOTB sheet was prepared in accordance with the Caltrans Soil and Rock Logging, Classification and Presentation Manual (June 2010).

(2) 2.4" samples were taken using a California Modified Sampler.

(3) An automatic trip hammer system consisting of a hammer weight of 140 lbs falling a distance of 30" was used to advance the drive sampler.



PROFILE
VERTICAL 1" = 10'
HORIZONTAL 1" = 20'

County of Orange	
Public Works	
AS-BUILT	
Contractor:	Kiewit Infrastructure West Company
Resident Engineer:	Elmo Delos Santos (PreScience Corp.)
Senior RE:	Kevin Tran
Inspectors:	Tuan Tran (PreScience Corp.) Kenneth Junio
Construction Start Date:	May 8, 2017
Construction Completion Date:	August 5, 2019

COUNTY OF ORANGE CALIFORNIA

MARK	DESCRIPTION	DATE	APPR.

PREPARED UNDER THE RESPONSIBLE CHARGE OF:
REGISTERED PROFESSIONAL ENGINEER L. CHEANG No. GE 2345 Exp. 9/30/17 STATE OF CALIFORNIA
9/19/16 DATE
LINO CHEANG

DESIGNED BY: K. PRATHEEPAN
DRAWN BY: J. FANG
CHECKED BY: K. PRATHEEPAN
DRAWING CODE: FOE-IO1-7
FILE NAME:
SCALE: AS SHOWN
PLOT DATE:

COUNTY OF ORANGE
OC PUBLIC WORKS

PREPARED BY:
EARTH MECHANICS
17800 Newhope Street
Suite B
Fountain Valley, CA 92708
(714) 751-3926

EDINGER AVENUE BRIDGE AT
BOLSA CHICA CHANNEL
REPLACEMENT PROJECT
BR. NO. 55C-0400

LOG OF TEST BORINGS NO. 1

Sheet Reference Number

ST-35

Sheet 74 of 76

USERNAME => quinovea DATE PLOTTED => 9/19/2016 TIME PLOTTED => 10:30:56 AM

AS-BUILT SEPTEMBER 2019

REFERENCE: CALTRANS SOIL & ROCK LOGGING, CLASSIFICATION, AND PRESENTATION MANUAL (2010)

County of Orange	
Public Works	
AS-BUILT	
Contractor:	Kiewit Infrastructure West Company
Resident Engineer:	Elmo Delos Santos (PreScience Corp.)
Senior RE:	Kevin Tran
Inspectors:	Tuan Tran (PreScience Corp.) Kenneth Junio
Construction Start Date:	May 8, 2017
Construction Completion Date:	August 5, 2019

CEMENTATION

Description	Criteria
Weak	Crumbles or breaks with handling or little finger pressure.
Moderate	Crumbles or breaks with considerable finger pressure.
Strong	Will not crumble or break with finger pressure.

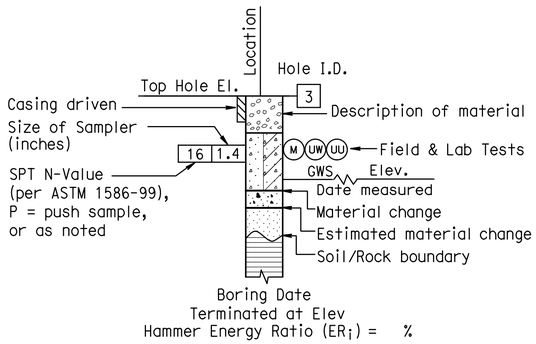
BOREHOLE IDENTIFICATION

Symbol	Hole Type	Description
Size	A	Auger Boring (hollow or solid stem bucket)
Size	R RW RC P	Rotary drilled boring (conventional) Rotary drilled with self-casing wire-line Rotary core with continuously-sampled, self-casing wire-line Rotary percussion boring (air)
Size	R	Rotary drilled diamond core
Size	HD HA	Hand driven (1-inch soil tube) Hand Auger
●	D	Dynamic Cone Penetration Boring
▲	CPT	Cone Penetration Test (ASTM D 5778)
□	O	Other (note on LOTB)

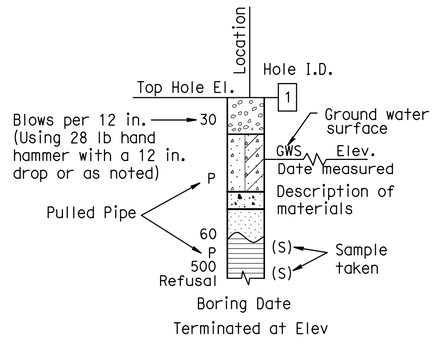
Note: Size in inches.

CONSISTENCY OF COHESIVE SOILS

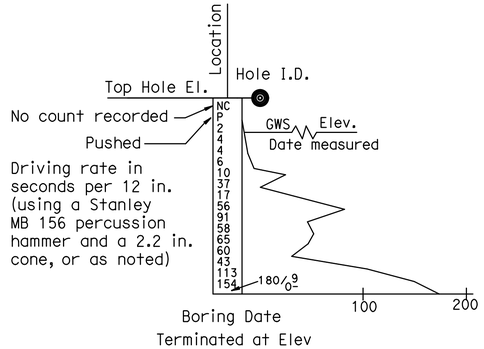
Description	Shear Strength (tsf)	Pocket Penetrometer Measurement, PP, (tsf)	Torvane Measurement, TV, (tsf)	Vane Shear Measurement, VS, (tsf)
Very Soft	Less than 0.12	Less than 0.25	Less than 0.12	Less than 0.12
Soft	0.12 - 0.25	0.25 - 0.5	0.12 - 0.25	0.12 - 0.25
Medium Stiff	0.25 - 0.5	0.5 - 1	0.25 - 0.5	0.25 - 0.5
Stiff	0.5 - 1	1 - 2	0.5 - 1	0.5 - 1
Very Stiff	1 - 2	2 - 4	1 - 2	1 - 2
Hard	Greater than 2	Greater than 4	Greater than 2	Greater than 2



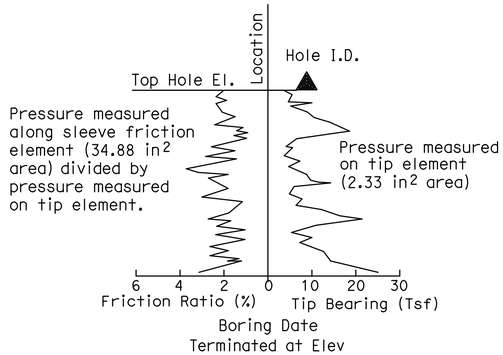
ROTARY BORING



HAND BORING



DYNAMIC CONE PENETRATION BORING



CONE PENETRATION TEST (CPT) BORING

MARK	DESCRIPTION	DATE	APPR.

PREPARED UNDER THE RESPONSIBLE CHARGE OF:
REGISTERED PROFESSIONAL ENGINEER L. CHEANG No. GE 2345 Exp. 9/30/17 CIVIL STATE OF CALIFORNIA
9/19/16 DATE
LINO CHEANG

DESIGNED BY: K. PRATHEEPAN		CHECKED BY: K. PRATHEEPAN	SCALE: AS SHOWN
DRAWN BY: J. FANG	DRAWING CODE: F06-001-7	FILE NAME:	PLOT DATE:

COUNTY OF ORANGE
OC PUBLIC WORKS

PREPARED BY:
EARTH MECHANICS
17800 Newhope Street
Suite B
Fountain Valley, CA 92708
(714)-751-3826

EDINGER AVENUE BRIDGE AT
BOLSA CHICA CHANNEL
REPLACEMENT PROJECT
BR. NO. 55C-0400

LOG OF TEST BORINGS NO. 2

Sheet Reference Number

ST-36

USERNAME => quinoveva DATE PLOTTED => 9/19/2016 TIME PLOTTED => 10:31:38 AM

AS-BUILT SEPTEMBER 2019

REFERENCE: CALTRANS SOIL & ROCK LOGGING, CLASSIFICATION, AND PRESENTATION MANUAL (2010)

GROUP SYMBOLS AND NAMES

Graphic/Symbol	Group Names	Graphic/Symbol	Group Names
GW	Well-graded GRAVEL Well-graded GRAVEL with SAND	CL	Lean CLAY Lean CLAY with SAND Lean CLAY with GRAVEL SANDY lean CLAY SANDY lean CLAY with GRAVEL GRAVELLY lean CLAY GRAVELLY lean CLAY with SAND
GP	Poorly-graded GRAVEL Poorly-graded GRAVEL with SAND		
GW-GM	Well-graded GRAVEL with SILT Well-graded GRAVEL with SILT and SAND	CL-ML	SILTY CLAY SILTY CLAY with SAND SILTY CLAY with GRAVEL SANDY SILTY CLAY SANDY SILTY CLAY with GRAVEL GRAVELLY SILTY CLAY GRAVELLY SILTY CLAY with SAND
GW-GC	Well-graded GRAVEL with CLAY (or SILTY CLAY) Well-graded GRAVEL with CLAY and SAND (or SILTY CLAY and SAND)		
GP-GM	Poorly-graded GRAVEL with SILT Poorly-graded GRAVEL with SILT and SAND	ML	SILT SILT with SAND SILT with GRAVEL SANDY SILT SANDY SILT with GRAVEL GRAVELLY SILT GRAVELLY SILT with SAND
GP-GC	Poorly-graded GRAVEL with CLAY (or SILTY CLAY) Poorly-graded GRAVEL with CLAY and SAND (or SILTY CLAY and SAND)		
GM	SILTY GRAVEL SILTY GRAVEL with SAND	OL	ORGANIC lean CLAY ORGANIC lean CLAY with SAND ORGANIC lean CLAY with GRAVEL SANDY ORGANIC lean CLAY SANDY ORGANIC lean CLAY with GRAVEL GRAVELLY ORGANIC lean CLAY GRAVELLY ORGANIC lean CLAY with SAND
GC	CLAYEY GRAVEL CLAYEY GRAVEL with SAND		
GC-GM	SILTY, CLAYEY GRAVEL SILTY, CLAYEY GRAVEL with SAND	OL	ORGANIC SILT ORGANIC SILT with SAND ORGANIC SILT with GRAVEL SANDY ORGANIC SILT SANDY ORGANIC SILT with GRAVEL GRAVELLY ORGANIC SILT GRAVELLY ORGANIC SILT with SAND
SW	Well-graded SAND Well-graded SAND with GRAVEL		
SP	Poorly-graded SAND Poorly-graded SAND with GRAVEL	CH	Fat CLAY Fat CLAY with SAND Fat CLAY with GRAVEL SANDY fat CLAY SANDY fat CLAY with GRAVEL GRAVELLY fat CLAY GRAVELLY fat CLAY with SAND
SW-SM	Well-graded SAND with SILT Well-graded SAND with SILT and GRAVEL		
SW-SC	Well-graded SAND with CLAY (or SILTY CLAY) Well-graded SAND with CLAY and GRAVEL (or SILTY CLAY and GRAVEL)	MH	Elastic SILT Elastic SILT with SAND Elastic SILT with GRAVEL SANDY elastic SILT SANDY elastic SILT with GRAVEL GRAVELLY elastic SILT GRAVELLY elastic SILT with SAND
SP-SM	Poorly-graded SAND with SILT Poorly-graded SAND with SILT and GRAVEL		
SP-SC	Poorly-graded SAND with CLAY (or SILTY CLAY) Poorly-graded SAND with CLAY and GRAVEL (or SILTY CLAY and GRAVEL)	OH	ORGANIC fat CLAY ORGANIC fat CLAY with SAND ORGANIC fat CLAY with GRAVEL SANDY ORGANIC fat CLAY SANDY ORGANIC fat CLAY with GRAVEL GRAVELLY ORGANIC fat CLAY GRAVELLY ORGANIC fat CLAY with SAND
SM	SILTY SAND SILTY SAND with GRAVEL		
SC	CLAYEY SAND CLAYEY SAND with GRAVEL	OH	ORGANIC elastic SILT ORGANIC elastic SILT with SAND ORGANIC elastic SILT with GRAVEL SANDY ORGANIC elastic SILT SANDY ORGANIC elastic SILT with GRAVEL GRAVELLY ORGANIC elastic SILT GRAVELLY ORGANIC elastic SILT with SAND
SC-SM	SILTY, CLAYEY SAND SILTY, CLAYEY SAND with GRAVEL		
PT	PEAT	OL/OH	ORGANIC SOIL ORGANIC SOIL with SAND ORGANIC SOIL with GRAVEL SANDY ORGANIC SOIL SANDY ORGANIC SOIL with GRAVEL GRAVELLY ORGANIC SOIL GRAVELLY ORGANIC SOIL with SAND
	COBBLES COBBLES and BOULDERS BOULDERS		

FIELD AND LABORATORY TESTING

- (C) Consolidation (ASTM D 2435)
- (CL) Collapse Potential (ASTM D 5333)
- (CP) Compaction Curve (CTM 216)
- (CR) Corrosivity Testing (CTM 643, CTM 422, CTM 417)
- (CU) Consolidated Undrained Triaxial (ASTM D 4767)
- (DS) Direct Shear (ASTM D 3080)
- (EI) Expansion Index (ASTM D 4829)
- (M) Moisture Content (ASTM D 2216)
- (OC) Organic Content-% (ASTM D 2974)
- (P) Permeability (CTM 220)
- (PA) Particle Size Analysis (ASTM D 422)
- (PI) Plasticity Index (AASHTO T 90) Liquid Limit (AASHTO T 89)
- (PL) Point Load Index (ASTM D 5731)
- (PM) Pressure Meter
- (R) R-Value (CTM 301)
- (SE) Sand Equivalent (CTM 217)
- (SG) Specific Gravity (AASHTO T 100)
- (SL) Shrinkage Limit (ASTM D 427)
- (SW) Swell Potential (ASTM D 4546)
- (UC) Unconfined Compression-Soil (ASTM D 2166)
  Unconfined Compression-Rock (ASTM D 2938)
- (UU) Unconsolidated Undrained Triaxial (ASTM D 2850)
- (UW) Unit Weight (ASTM D 4767)

APPARENT DENSITY OF COHESIONLESS SOILS

Description	SPT N_{60} (Blows / 12 in.)
Very Loose	0 - 5
Loose	5 - 10
Medium Dense	10 - 30
Dense	30 - 50
Very Dense	Greater than 50

MOISTURE

Description	Criteria
Dry	No discernable moisture
Moist	Moisture present, but no free water
Wet	Visible free water

PERCENT OR PROPORTION OF SOILS

Description	Criteria
Trace	Particles are present but estimated to be less than 5%
Few	5% - 10%
Little	15% - 25%
Some	30% - 45%
Mostly	50% - 100%

PARTICLE SIZE

Description		Size (in.)
Boulder		Greater than 12
Cobble		3 - 12
Gravel	Coarse	3/4 - 3
	Fine	1/5 - 3/4
Sand	Coarse	1/16 - 1/5
	Medium	1/64 - 1/16
	Fine	1/300 - 1/64
Silt and Clay		Less than 1/300

County of Orange	
Public Works	
AS-BUILT	
Contractor:	Kiewit Infrastructure West Company
Resident Engineer:	Elmo Delos Santos (PreScience Corp.)
Senior RE:	Kevin Tran
Inspectors:	Tuan Tran (PreScience Corp.) Kenneth Junio
Construction Start Date:	May 8, 2017
Construction Completion Date:	August 5, 2019

COUNTY OF ORANGE CALIFORNIA

MARK	DESCRIPTION	DATE	APPR.

PREPARED UNDER THE RESPONSIBLE CHARGE OF:
REGISTERED PROFESSIONAL ENGINEER L. CHEANG No. GE 2345 Exp. 9/30/17 STATE OF CALIFORNIA
9/19/16 DATE
LINO CHEANG

DESIGNED BY: K. PRATHEEPAN
DRAWN BY: J. FANG
CHECKED BY: K. PRATHEEPAN
DRAWING CODE: F06-01-7
FILE NAME:
PLOT DATE:
SCALE: AS SHOWN

COUNTY OF ORANGE
OC PUBLIC WORKS

PREPARED BY:
EARTH MECHANICS
17800 Newhope Street
Suite D
Fountain Valley, CA 92708
(714)-751-3826

EDINGER AVENUE BRIDGE AT
BOLSA CHICA CHANNEL
REPLACEMENT PROJECT
BR. NO. 55C-0400

LOG OF TEST BORINGS NO. 3

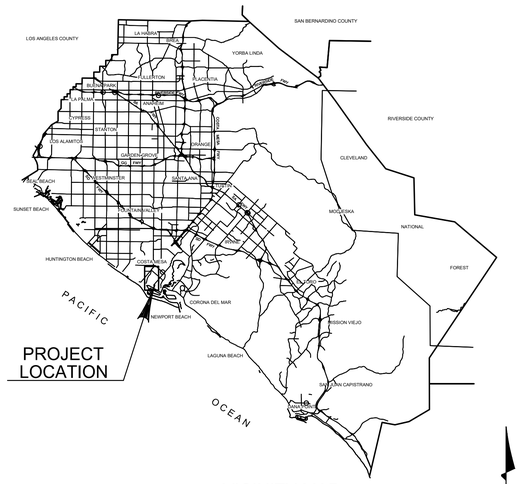
Sheet Reference Number

ST-37

Sheet 76 of 76

USERNAME => quinoveva DATE PLOTTED => 9/19/2016 TIME PLOTTED => 10:32:39 AM

AS-BUILT SEPTEMBER 2019



VICINITY MAP

LOCATION MAP

COUNTY OF ORANGE

OC PUBLIC WORKS

SANTA ANA, CALIFORNIA

SHANE L. SILSBY, DIRECTOR

PLANS FOR CONSTRUCTION OF

EDINGER BRIDGE REPLACEMENT PROJECT

OFFSITE HABITAT MITIGATION PROJECT at the TALBERT PRESERVE

County of Orange	
Public Works	
AS-BUILT	
Contractor:	Kiewit Infrastructure West Company
Resident Engineer:	Elmo Delos Santos (PreScience Corp.)
Senior RE:	Kevin Tran
Inspectors:	Tuan Tran (PreScience Corp.) Kenneth Junio
Construction Start Date:	May 8, 2017
Construction Completion Date:	August 5, 2019

INDEX OF SHEETS

SHEET NUMBER	DRAWING NUMBER	SHEET DESCRIPTION
1	TS-1	TITLE SHEET
2	GR-1	SITE PREPARATION AND GRADING PLAN
3	GR-2	GRADING CROSS-SECTIONS AND NOTES
4	IR-1	IRRIGATION PLAN
5	IR-2	IRRIGATION LEGEND AND DETAILS
6	PL-1	IRRIGATION DETAILS
7	PL-2	PLANTING PLAN
8	PL-3	PLANTING LEGEND AND DETAILS
9	SP-1	GENERAL & GRADING SPECIFICATIONS
10	SP-2	GRADING & PLANTING SPECIFICATIONS
11	SP-3	PLANTING & IRRIGATION SPECIFICATIONS
12	SP-4	IRRIGATION SPECIFICATIONS

UTILITY OWNER	PHONE NO.	CONTACT

BENCH MARK:

THE ELEVATIONS SHOWN HEREON ARE BASED UPON THE COUNTY OF ORANGE BENCHMARK: TBD

BASIS OF BEARINGS:

HORIZONTAL CONTROL: TBD

LANDSCAPE ARCHITECT OF RECORD

DUDEK

605 Third Street Encinitas, CA 92024
760.942.5147 Fax 760.942.9976

MICHAEL LEWIS SWEESY — No. 3319 — Renewal: 08/31/2017 — REGISTERED LANDSCAPE ARCHITECT — STATE OF CALIFORNIA

JUNE 13, 2016
MICHAEL SWEESY, R.L.A. # 3319 — DATE
HABITAT RESTORATION SPECIALIST/LANDSCAPE ARCHITECT

NO.	DESCRIPTION	SHT.	APPROVED	DATE

REVISIONS

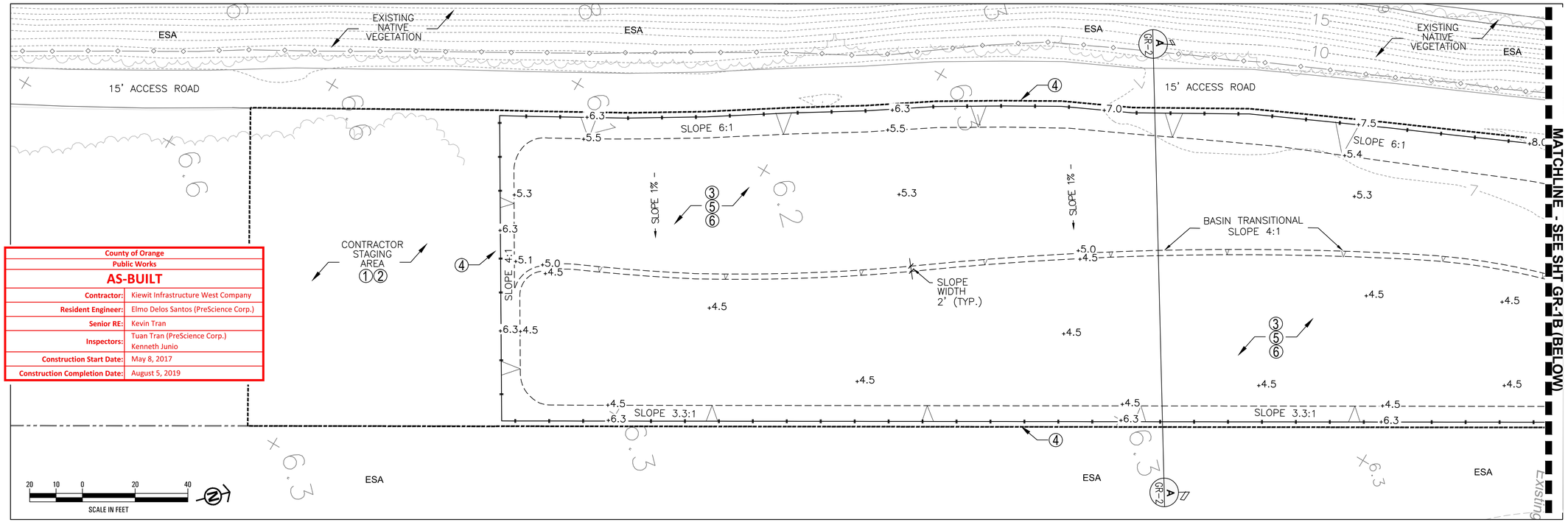
W. O. NO. -

DWG. NO. TS-1

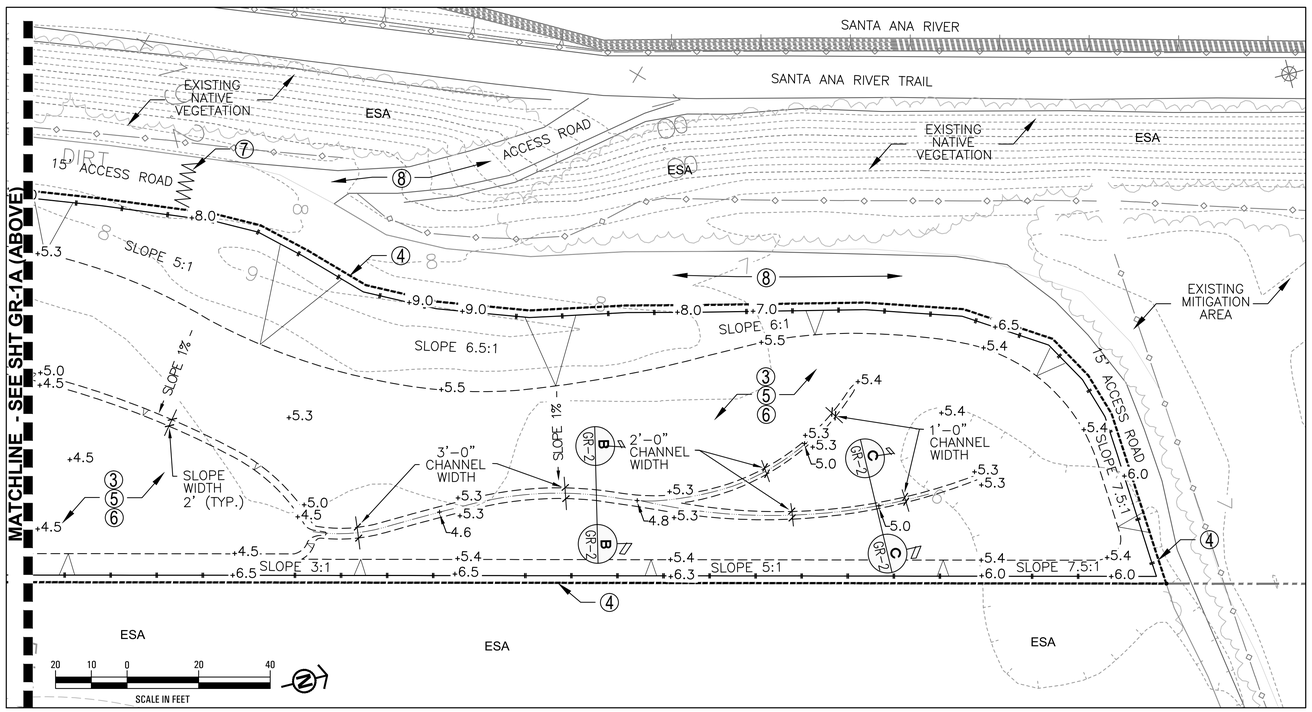
SHEET 1 OF 12

P:\300Environmental\7360 OC Public Works As-Needed Regulatory\10- Edinger Mitigation\Construction Documents\TS_7360-10-060816

AS-BUILT SEPTEMBER 2019



GR-1A



GR-1B

SITE PREPARATION AND GRADING PLAN NOTES*

① – THE CONTRACTOR STAGING AREA IS APPROXIMATE. LIMITS SHALL BE FLAGGED IN THE FIELD BY THE PROJECT BIOLOGIST AND PRE–APPROVED BY OCPW PRIOR TO WORK (PER THE PRE–WORK SITE PREPARATION AND SITE PROTECTION NOTES, SHT GR–2).

② – FOLLOWING WORK, ALL STAGING AREAS OUTSIDE RESTORATION AREAS AND EXISTING ROADS SHALL BE DECOMPACTED, FINSH GRADED AND SOIL STABILIZED (PER THE FINISH GRADING AND SOIL AMENDING NOTES, SHT GR–2).

③ – REMOVE EXOTIC VEGETATION THROUGHOUT THE RESTORATION AREAS (PER THE NATIVE PRE–WORK SITE PREPARATION AND SITE PROTECTION NOTES, SHT GR–2).

④ – INSTALL TEMPORARY PERIMETER CONTROLS (CONSTRUCTION FENCING) ALONG ALL PROJECT LIMITS (PER THE PRE–WORK SITE PREPARATION AND SITE PROTECTION NOTES, SHT GR–2)

⑤ – ROUGH GRADING SHALL INCLUDE REMOVAL AND OFFSITE DISPOSAL OF APPROXIMATELY 4,325 CUBIC YARDS OF EXISTING SOIL (PER THE GRADING NOTES, SHT GR–2).

⑥ – FOLLOWING ROUGH GRADING, AMEND SOIL THROUGHOUT THE RESTORATION AREAS (PER THE SOIL AMENDING NOTES, SHT GR–2)

⑦ – INSTALL TEMPORARY PEDESTRIAN BARRICADE TO REDIRECT TRAIL USERS SANTA ANA RIVER TRAIL (PER THE PRE–WORK SITE PREPARATION AND SITE PROTECTION NOTES, SHT GR–2)

⑧ – MAINTAIN CLEAR ACCESS TO ALL PUBLIC TRAILS AT ALL TIMES, INCLUDING ACCESS TO THE SANTA ANA RIVER TRAIL.

9 – ENVIRONMENTALLY SENSITIVE AREAS (ESA) SHOWN ON THESE PLANS ARE APPROXIMATE. ACCESS SHALL BE PRE–APPROVED BY THE PROJECT BIOLOGIST. IMPACTS ARE TO BE AVOIDED IN THESE AREAS.

10 – INSTALL AND MAINTAIN BMPS THROUGHOUT PROJECT LIMITS OF WORK (PER BMP INSTALLATION AND MAINTENANCE NOTES, SHT GR–2)

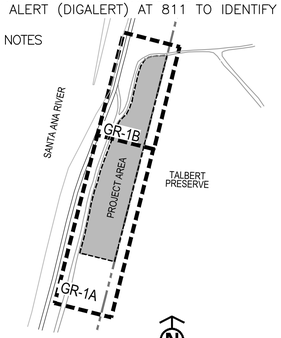
11 – VERIFY THE LOCATION OF ALL EXISTING IMPROVEMENTS AND UTILITIES, AND PROTECT IN PLACE BEFORE BEGINNING WORK, THIS INCLUDES IMPROVEMENTS AND UTILITIES NOT SHOWN ON THESE PLANS.

12 – CONTRACTOR IS REQUIRED TO CONTACT UNDERGROUND SERVICE ALERT (DIGALERT) AT 811 TO IDENTIFY AND MARK OUT ANY UTILITIES PRIOR TO ANY SOIL EXCAVATION.

* SEE SHT GR–2, SP–1 & SP–2 FOR SITE PREPARATION AND GRADING NOTES AND SPECIFICATIONS

LEGEND

- PROJECT LIMITS OF WORK
- TALBERT PRESERVE BOUNDARY
- LIMITS OF GRADING
- +5.0 PROPOSED SPOT ELEVATION
- TEMPORARY BARRICADE
- PROPOSED TOE/TOP OF SLOPE
- PROPOSED MICROCHANNEL FLOW LINE
- 7 EXISTING CONTOUR
- +5.0 EXISTING SPOT ELEVATION
- 15' EXISTING ACCESS ROAD/TRAIL
- ESA ENVIRONMENTALLY SENSITIVE AREA (PROTECT–IN–PLACE/ACCESS RESTRICTED)



County of Orange	
Public Works	
AS-BUILT	
Contractor:	Kiewit Infrastructure West Company
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Construction Start Date:	May 8, 2017
Construction Completion Date:	August 5, 2019

COUNTY OF ORANGE CALIFORNIA

MARK	DESCRIPTION	DATE	APPR

PREPARED UNDER THE RESPONSIBLE CHARGE OF:

CALIFORNIA RL# 5319 — DATE: JUNE 13, 2016

DESIGNED BY: MICHAEL SWEESY
DRAWN BY: STUART FRASER
CHECKED BY: MICHAEL SWEESY
DRAWING CODE: 706-101-7
FILE NAME: GR-7360-10
PLOT DATE: 08/05/2016
SCALE: AS SHOWN

PREPARED BY: DUDEK
605 Third Street Encinitas, CA 92024
760.942.5147 Fax 760.942.9976

Orange County Public Works
300 North Flower Street
Santa Ana, Ca 92703-5000

EDINGER BRIDGE REPLACEMENT PROJECT
HABITAT MITIGATION PROJECT

SITE PREPARATION AND GRADING PLAN

Sheet Reference Number

GR-1

Sheet 2 of 12

P:\300.Environmental\7360 OC Public Works As-Needed Re...\tory\10- Edinger Mitigation\Construction Documents\GR-7360-10-060816

AS-BUILT SEPTEMBER 2019

PRE-WORK SITE PREPARATION AND SITE PROTECTION NOTES

1. CONTRACTOR IS REQUIRED TO CONTACT UNDERGROUND SERVICE ALERT (DIGALERT) AT 811 TO IDENTIFY AND MARK OUT ANY UTILITIES PRIOR TO ANY SOIL EXCAVATION.
2. LIMITS OF THE CONTRACTOR STAGING AREAS AND ANY NEW ACCESS ROUTES OUTSIDE THE PROJECT LIMITS SHALL BE STAKED IN THE FIELD AND PRE-APPROVED BY THE PROJECT BIOLOGIST AND/OR OCPW PRIOR TO WORK. EXISTING NATIVE VEGETATION SHALL BE AVOIDED.
3. TEMPORARY PERIMETER CONTROL (CONSTRUCTION FENCING) SHALL BE INSTALLED ALONG THE PERIMETER OF THE PROJECT SITE PRIOR TO WORK AND MAINTAINED INTACT UNTIL APPROVED FOR REMOVAL, AND/OR REPLACED WITH PERMANENT PERIMETER FENCING. THE CONTRACTOR IS RESPONSIBLE FOR THE COMPLETE REMOVAL OF ALL TEMPORARY PERIMETER FENCING, WHEN REQUESTED BY THE PROJECT BIOLOGIST AND/OR OCPW. ALL TEMPORARY CONSTRUCTION FENCING SHALL BE COMPLETELY REMOVED BY THE COMPLETION OF WORK.
4. TEMPORARY PERIMETER FENCING (CONSTRUCTION FENCING) AND SILT FENCING SHALL BE INSTALLED ALONG THE PERIMETER OF STAGING AREAS PRIOR TO WORK AND MAINTAINED INTACT UNTIL APPROVED FOR REMOVAL.
5. FOLLOWING COMPLETION OF PLANTING AND HYDROSEEDING, PERMANENT FENCING (POST AND 3-STRAND WIRE) SHALL BE INSTALLED ALONG ALL PROJECT LIMITS (PER DETAIL 1, SHT GR-2). FINAL FENCE ALIGNMENT SHALL BE FLAGGED IN THE FIELD BY THE PROJECT BIOLOGIST AND APPROVED BY OCPW PRIOR TO INSTALLATION. 2 3' WIDE 'ACCESS GATES' SHALL BE INSTALLED AT EACH END OF THE SITE. THE PROJECT BIOLOGIST SHALL IDENTIFY GATE LOCATIONS.
6. EXISTING ACCESS ROADS AND TRAILS SHOWN ON THESE PLANS ARE APPROXIMATE. AT PROJECT COMPLETION, CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING ALL ACCESS ROUTES AND TRAILS USED DURING CONSTRUCTION TO PRE-PROJECT CONDITION.
7. CONTRACTOR TO PROVIDE PUBLIC ACCESS TO TRAILS AT ALL TIMES. TEMPORARY PEDESTRIAN BARRICADES AND DIRECTIONAL SIGNAGE SHALL BE INSTALLED TO DIRECT TRAIL USERS BETWEEN PUBLIC TRAILS ADJACENT TO THE PROJECT SITE AND THE SANTA ANA RIVER TRAIL.
8. ENVIRONMENTALLY SENSITIVE AREAS (ESA) SHOWN ON THESE PLANS ARE APPROXIMATE. NO ACCESS IS ALLOWED IN ESA AREAS. CONTRACTOR SHALL BE RESPONSIBLE FOR IN-KIND REPLACEMENT OF ALL EXISTING NATIVE VEGETATION DAMAGED DURING INSTALLATION OR MAINTENANCE.

BMP INSTALLATION AND MAINTENANCE NOTES

1. THE CONTRACTOR IS RESPONSIBLE FOR THE DEVELOPMENT AND IMPLEMENTATION OF A PROJECT SPECIFIC STORMWATER POLLUTION PROTECTION PLAN (SWPPP), IN COORDINATION WITH OCPW.
2. ALL WORK SHALL COMPLY WITH THE REQUIREMENTS OF THE NPDES CONSTRUCTION GENERAL PERMIT, THE PROJECT SWPPP AND ALL ENVIRONMENTAL DOCUMENTS.
3. CONTRACTOR SHALL BE REQUIRED TO INSTALL AND MAINTAIN ALL BMPS IDENTIFIED IN THIS PLAN AND IN THE PROJECT SWPPP IN FUNCTIONAL CONDITION FOR THE DURATION OF THE CONTRACT PERIOD.
4. INSTALLATION OF ALL BMPS (FIBER ROLLS, GRAVEL BAGS, SILT FENCE, ETC.) AND REPAIR OF ANY EXISTING BMPS SHALL BE COMPLETE AND PRE-APPROVED BY THE PROJECT BIOLOGIST PRIOR TO ALL PLANTING.
5. BMPS SHALL BE CONSTRUCTED OF BIODEGRADABLE MATERIALS AND CERTIFIED WEED FREE, AS PRACTICABLE (E.G. GRAVEL BAGS, FIBER ROLLS, EROSION CONTROL BLANKETS). USE OF NON-BIODEGRADABLE MATERIALS SHALL REQUIRE PRE-APPROVAL OF THE PROJECT BIOLOGIST AND/OR OCPW.
6. FIBER ROLLS SHALL BE INSTALLED AND SPACED PER THE REQUIREMENTS OF CASQA DETAIL SE-5 (NOVEMBER, 2009), UNLESS OTHERWISE NOTED.
   - ADDITIONAL FIBER ROLL INSTALLATION MAY BE REQUIRED AT THE DIRECTION OF OCPW AND THE PROJECT BIOLOGIST.
6. ALL GRAVEL BAGS SHALL BE INSTALLED AND SPACED PER THE REQUIREMENTS OF CASQA DETAIL SE-8 (NOVEMBER 2009).
   - ADDITIONAL GRAVEL BAG INSTALLATION MAY BE REQUIRED AT THE DIRECTION OF OCPW AND THE PROJECT BIOLOGIST
7. SILT FENCES SHALL BE INSTALLED AND MAINTAINED PER THE REQUIREMENTS OF CASQA DETAIL SE-1 (NOVEMBER, 2009), UNLESS OTHERWISE NOTED.

ROUGH GRADING NOTES

1. ALL NON-NATIVE EXOTIC VEGETATION WITHIN A 10' BUFFER OF THE PROJECT PERIMETER SHALL BE MOWED/STRING-TRIMMED, COLLECTED AND DISPOSED OF OFFSITE AT AN APPROVED WASTE FACILITY PRIOR TO EARTHWORK. VEGETATION FOR REMOVAL SHALL INCLUDE SPECIES LISTED BY THE CALIFORNIA INVASIVE PLANT INVENTORY (CAL-IPC) 2006, AS WELL AS ANY ADDITIONAL SPECIES IDENTIFIED IN THE FIELD BY THE PROJECT BIOLOGIST. THE PROJECT BIOLOGIST SHALL DIRECT THE CONTRACTOR TO SPECIFIC VEGETATION TO REMOVE (NON-NATIVE/EXOTIC VEGETATION) AND NATIVE VEGETATION TO AVOID ALONG THE PROJECT PERIMETER.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL AND OFFSITE DISPOSAL OF ALL EXPORT SOIL (4,325 CUBIC YARDS).
3. CONSTRUCTION OF PERIMETER AND BASIN SLOPES AND BASIN DRAINAGE SWALE SHALL BE FIELD APPROVED BY THE PROJECT BIOLOGIST. APPROVAL SHALL REQUIRE GRADE CHECK REVIEW WITH THE CONTRACTOR'S SURVEYOR.
4. ROUGH GRADING SHALL PROVIDE UNIFORM SURFACE TEXTURE AND SOILS SHALL NOT BE COMPACTED TO GREATER THAN 80% COMPACTION. FINISH SURFACE TREATMENT SHALL BE CONDUCTED FOLLOWING THE INCORPORATION OF SOIL AMENDMENTS (SEE SOIL AMENDING NOTES).

FINISH GRADING AND SOIL AMENDING NOTES

1. ALL ROUGH GRADING INCLUDING EXCAVATING MICROCHANNELS SHALL BE COMPLETE AND APPROVED BY THE PROJECT BIOLOGIST AND OCPW PRIOR TO RESTORATION SITE SOIL AMENDING.
2. FOLLOWING ROUGH GRADING, THE CONTRACTOR SHALL COLLECT A MINIMUM OF THREE (3) SOIL SAMPLES AND ORDER AGRICULTURAL SUITABILITY ANALYSIS BY AN APPROVED LABORATORY. AMENDMENTS MAY BE RECOMMENDED FOR INCORPORATION INTO THE EXISTING SOIL. SOIL AMENDMENTS (IN ADDITION TO THE HYDROSLURRY AMENDMENTS (SHT P-2) ARE AN ADDITIONAL ITEM NOT INCLUDED IN THIS CONTRACT.
3. ALL SOIL AMENDMENTS ARE TO BE BROADCAST AND UNIFORMLY INCORPORATED A MINIMUM OF 6 INCHES INTO THE SITE SOIL FOR ALL GRADED AREAS. SEE SPECS FOR SOIL AMENDMENTS/MATERIALS AND EXECUTION REQUIREMENTS.
4. FOLLOWING SOIL AMENDING, ALL PERIMETER AND INTERMEDIATE SLOPES SHALL BE TRACKWALKED AND BASIN AND CHANNEL AREAS FLOATED OUT SMOOTH AND TO THE SATISFACTION OF PROJECT BIOLOGIST. DO NOT RECOMPACT PLACED SURFACE SOIL TO GREATER THAN 80% COMPACTION.
2. UPON COMPLETION OF USE, ALL CONTRACTOR STAGING AREAS LOCATED OUTSIDE OF RESTORATION AREAS AND EXISTING ROADS/TRAILS SHALL BE CROSS RIPPED TO DECOMPACT SOILS, FLOATED OUT SMOOTH TO A MAXIMUM COMPACTION OF 85% AND APPLIED WITH A SOIL STABILIZER
3. STAGING AREA SOIL STABILIZER:
   - 100% VIRGIN WOOD FIBER MULCH W/ GREEN MARKER DYE AT 1,500 LBS./ACRE.
   - EARTHGUARD LIQUID FIBER MATRIX AT 4 GAL./ACRE.

County of Orange	
Public Works	
AS-BUILT	
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Construction Start Date:	May 8, 2017
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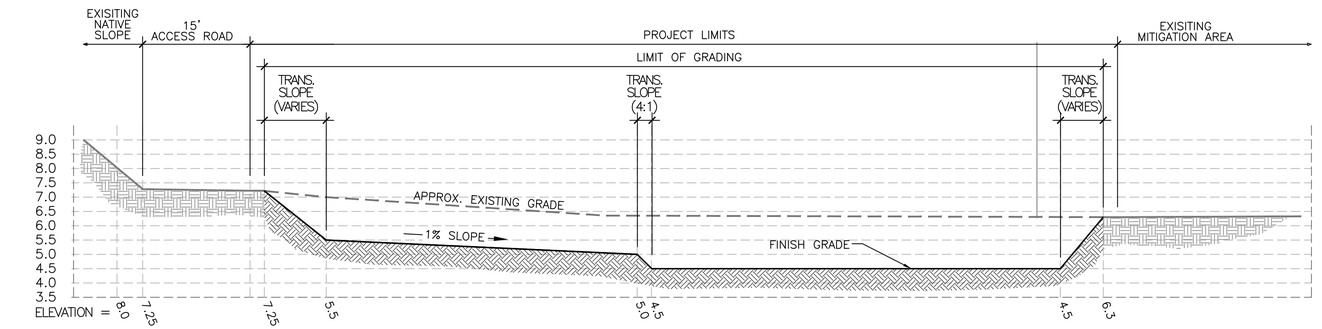
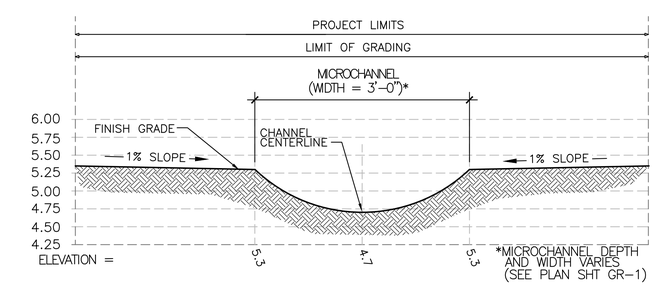


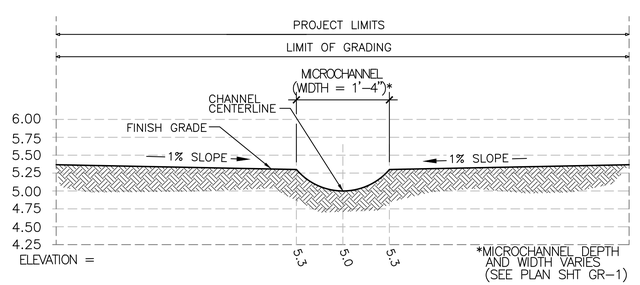
A GR-2 PROJECT AREA CROSS-SECTION A-A

SCALE: VERT. 1"=2.5'-0"
SCALE: HORIZ. 1"=10'-0"



B GR-2 MICROCHANNEL CROSS-SECTION B-B

SCALE: VERT. 1"=1'-0"
SCALE: HORIZ. 1"=1'-0"

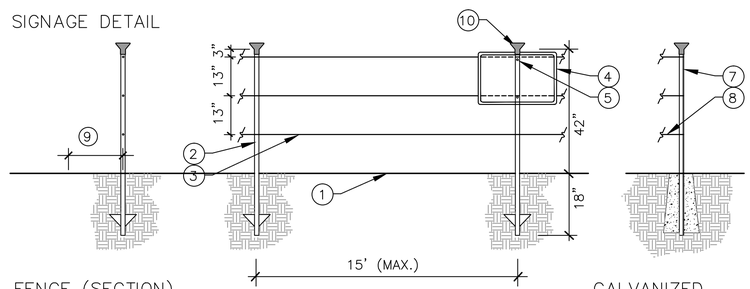


C GR-2 MICROCHANNEL CROSS-SECTION C-C

SCALE: VERT. 1"=1'-0"
SCALE: HORIZ. 1"=1'-0"

NOTES:
1. PLACE T-POSTS AT EVERY 15' O.C.
2. PLACE 1 5/8" GALVANIZED POLE AT EVERY 150' O/C, GATE LOCATIONS AND AT ALL VERTICES/CHANGES IN DIRECTION.
3. ATTACH WIRE SECURELY TO EACH POST WITH 18 GAUGE GALV. WIRE OR APPROVED BRACKET.
4. INSTALL WIRE STRAINER (RATCHET TIGHTENER) AT EACH GALVANIZED POLE (WIRE ANCHOR POINT).
5. ATTACH SIGN TO T-POSTS ALONG PERIMETER AT EVERY 250' O.C. (MIN.)
6. INSTALL (2) 3'Wx4'H GALVANIZED WALK-THROUGH ACCESS GATE (W/HINGES AND OCPW LOCK) AT 2 LOCATIONS IDENTIFIED BY THE PROJECT BIOLOGIST.

SIGNAGE DETAIL



FENCE (SECTION) GALVANIZED POLE (SECTION)

ITEM	DESCRIPTION
1	EXISTING GRADE
2	6' LENGTH HEAVY GAUGE T-POSTS
3	THREE STRAND 10 GAUGE WIRE PULLED TAUGHT
4	'RESTORATION IN PROGRESS' SIGN, 1/8" THICK PVC
5	ATTACH SIGN W/ 2 1/4" GALVANIZED CARRIAGE BOLTS, NUTS & WASHERS TYP.
6	TWO COLOR SIGN FACE WHITE FIELD WITH BLACK/RED TEXT
7	6' LENGTH 1 5/8" GALVANIZED STEEL PIPE SET IN CONCRETE FOOTING (10" W AT BASE X 10" H.)
8	INSTALL WIRE STRAINER (RATCHET TIGHTENER) AND WIRE ANCHOR POINT AT PIPE POST
	LOCATIONS (WALK-THROUGH ACCESS GATES AND FENCE CHANGES OF DIRECTION).
9	MIN. 12" FROM EDGE OF ROAD/TRAIL
10	PROTECTIVE PLASTIC CAP

A GR-2 THREE-STRAND WIRE FENCE AND SIGN

NOT TO SCALE

COUNTY OF ORANGE CALIFORNIA

MARK	DESCRIPTION	DATE	APPR.

PREPARED UNDER THE RESPONSIBLE CHARGE OF:
DATE: JUNE 13, 2016
CALIFORNIA RL# 3319

DESIGNED BY: MICHAEL SWEESY
DRAWN BY: STUART FRASER
CHECKED BY: MICHAEL SWEESY
DRAWING CODE: F86-101-7
FILE NAME: GR-7360-10
PLOT DATE: 06/08/2016
SCALE: AS SHOWN

Orange County Public Works
300 North Flower Street,
Santa Ana, Ca 92703-5000

PREPARED BY:
DUDEK
605 Third Street Encinitas, CA 92024
760.942.5147 fax 760.942.6976

EDINGER BRIDGE REPLACEMENT PROJECT
HABITAT MITIGATION PROJECT

GRADING CROSS-SECTIONS AND NOTES

Sheet Reference Number

GR-2

Sheet 3 of 12

P:\300 Environmental\7360 OC Public Works As-Needed Re\Satory\10- Edin\er Miti\ation\Constr\ction Doc\ments\GR\7360-10-060816

AS-BUILT SEPTEMBER 2019

LEGEND

- IRRIGATED PLANTING AREAS
- PROJECT LIMITS OF WORK
- TALBERT PRESERVE BOUNDARY
- 15' ACCESS ROAD/TRAIL
- ESA — ENVIRONMENTALLY SENSITIVE AREA (PROTECT-IN-PLACE/ACCESS RESTRICTED)

FOR ADDITIONAL RESTRICTIONS AND REQUIRED SITE PROTECTION MEASURES REFER TO SHT GR-2 'SITE PREPARATION AND SITE PROTECTION NOTES'

County of Orange	
Public Works	
AS-BUILT	
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EXISTING NATIVE VEGETATION — ESA — CONTRACTOR STAGING AREA (NO IRRIGATION) — LOCATE ALL IRRIGATION EQUIPMENT INSIDE PERIMETER FENCE — 15' ACCESS ROAD — MATCHLINE - SEE SHT IR-1B (BELOW)

A-6 48 2" | A-5 50 2" | A-4 50 2" | A-3 48 2"

20 10 0 20 40
SCALE IN FEET

IR-1A

SANTA ANA RIVER — SANTA ANA RIVER TRAIL — EXISTING NATIVE VEGETATION — ESA — MAINTAIN PUBLIC ACCESS (SEE SHT GR-1) — ACCESS ROAD — CONTROLLER 'A' 6 STATIONS — LOCATE ALL IRRIGATION EQUIPMENT INSIDE PERIMETER FENCE — MAINTAIN CLEAR ACCESS TO ALL PUBLIC TRAILS AT ALL TIMES — 15' ACCESS ROAD — MATCHLINE - SEE SHT IR-1A (ABOVE)

A-2 36 1 1/2" | A-1 50 2"

20 10 0 20 40
SCALE IN FEET

IR-1B

PROJECT AREA — SEE VIEWPORTS IR-1A & IR-1B FOR IRRIGATION LAYOUT — TALBERT PRESERVE — P.O.C. — 100 0 Feet

IR-1C (MAINLINE ROUTE AND POC LOCATION)

PROJECT BIOLOGIST SHALL APPROVE MAINLINE ALIGNMENT PRIOR TO TRENCHING. DISTANCE APPROX. 650' BETWEEN P.O.C. AND PROJECT SITE.

STATIC WATER PRESSURE AT P.O.C. FOR NEW IRRIGATION SYSTEM ESTIMATED AT 70 PSI FROM TIE-IN TO EXISTING TALBERT MITIGATION IRRIGATION SYSTEM LOCATED APPROXIMATELY 700 L.F. TO EAST. OCPW TO LOCATE TIE-IN AND FLAG ROUTE FOR NEW 2" BURIED MAINLINE UPSTREAM OF THIS LOCATION.

MASTER VALVE (NORMALLY CLOSED) SHALL BE PROGRAMMED TO SYNCRONIZE OPERATION WITH EXISITNG TALBERT IRRIGATION SYSTEM.

IRRIGTION MAINLINE (BURIED) TO MASTER VALVE (NORMALLY CLOSED) AND SYSTEM P.O.C SHOWN ON IR-1C (ABOVE).

KEY MAP N.T.S.

SANTA ANA RIVER — IR-1B — PROJECT AREA — TALBERT PRESERVE — IR-1C — IR-1A

COUNTY OF ORANGE CALIFORNIA

MARK	DESCRIPTION	DATE	APPR

PREPARED UNDER THE RESPONSIBLE CHARGE OF:
CALIFORNIA RL# 5319
JUNE 13, 2016
DATE

DESIGNED BY: MICHAEL SWEESY
DRAWN BY: STUART FRASER
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DRAWING CODE: F06-101-7
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SCALE: AS SHOWN

Orange County Public Works
300 North Flower Street
Santa Ana, Ca 92703-5000

PREPARED BY:
DUDEK
605 Third Street Encinitas, CA 92024
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EDINGER BRIDGE REPLACEMENT PROJECT
HABITAT MITIGATION PROJECT

IRRIGATION PLAN

Sheet Reference Number
IR-1

Sheet 4 of 12

P:\300.Environmental\7360 OC Public Works As-Needed Re...\Factory 10- Edinger Mitigation\Construction Doc\ments\IR-7360-10-060816

AS-BUILT SEPTEMBER 2019

County of Orange	
Public Works	
AS-BUILT	
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SPRINKLER HEAD LEGEND

SYMBOL	MANUF.	MODEL NO.	DESCRIPTION	DETAIL	ARC	RADIUS	PSI	GPM
②	HUNTER	PGP-00-CV-2.0	GEAR DRIVEN ROTOR (SHRUB HEAD)	Ⓒ	90	34'	45	2
④	HUNTER	PGP-00-CV-4.0	GEAR DRIVEN ROTOR (SHRUB HEAD)	|	180/360	40'	45	4
⑧	HUNTER	PGP-00-CV-8.0	GEAR DRIVEN ROTOR (SHRUB HEAD)	Ⓒ	360	44'	45	8

NOTES
1. ADJUST RADIUS TO ACHIEVE HEAD TO HEAD COVERAGE, BUT AVOID OVERSPRAY TO ADJACENT ESA AREAS, TRAILS AND ROADS
2. INSTALL HC-50F-50M (1/2" DRAIN CHECK VALVE) AS NEEDED TO PREVENT LOW-HEAD DRAINAGE ON HEADS INSTALLED ON THE TOE-OF-SLOPES

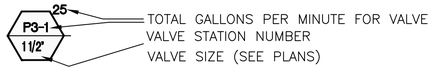
IRRIGATION EQUIPMENT LEGEND

SYMBOL	MANUF.	MODEL NO	DESCRIPTION	DETAIL	REMARKS
▬	HUNTER	HUNTER XCH-600 W/ XCHPOLE, XCHSPB & 458200 AND SPXCH SOLAR PANEL KIT	6-STATION SOLAR CONTROLLER W/MOUNTING COLUMN & DC LATCHING SOLENOIDS AND SOLAR PANEL KIT	Ⓕ	PROGRAM IN CONSULTATION W/ THE PROJECT BIOLOGIST. INSTALL RAIN SENSOR ON EXTERIOR OF CONTROLLER OR W/ SEPARATE POST FOR EACH CONTROLLER. PROGRAM MASTER VALVE OPERATION ON CONTROLLER AND SYNCHRONIZE TO OPEN WITH OPERATION OF EXISTING TALBERT MITIGATION IRRIGATION SYSTEM. INSTALL SOLAR PANEL ON SEPARATE POLE (SEE DETAIL)
P.O.C.	NA	NA	POINT OF CONNECTION (P.O.C.) AT EXISTING TALBERT MITIGATION IRRIGATION SYSTEM	N.A.	ESTABLISH P.O.C. AT EXISTING TALBERT RESTORATION IRRIGATION SYSTEM (EXISTING 2" MAINLINE) COORDINATE WITH OCPW AND RESTORATION CONTRACTOR. P.O.C. APPROX. 650' FROM PROJECT AREA.
◐	RAINBIRD	200 PEB-PRS-D	2" PLASTIC PRESSURE REGULATING REMOTE CONTROL MASTER VALVE W/ DC LATCHING SOLENOID	Ⓓ	BOLT VALVE BOX LID SHUT UPON INSTALLATION (STAMP MASTER VALVE ON TOP OF VALVE BOX). NORMALLY CLOSED.
◐	RAINBIRD	150 OR 200 PEB-PRS-D	1 1/2" OR 2" PLASTIC PRESSURE REGULATING REMOTE CONTROL VALVE W/ DC LATCHING SOLENOID	Ⓓ	SIZE PER PLAN. BOLT VALVE BOX LID SHUT UPON INSTALLATION (STAMP VALVE # ON TOP OF VALVE BOX). NORMALLY CLOSED.
⊙	RAINBIRD	33-RC WITH 33DK VALVE KEY	QUICK COUPLING WITH RUBBER CAP AND VALVE KEY	Ⓔ	INSTALL IN LOCKING VALVE BOX. LID SHUT AND LOCKED UPON INSTALLATION. USE 1" SCH 40 PVC IN BURIED TRENCH TO CONNECT TO MAINLINE FOR ISOLATED RUNS
⊗	KBI	BLOCKED TRUE UNION BALL VALVE	PVC SCH 80 BALL VALVE (SIZE PER PLAN)	Ⓐ	FOR ISOLATION OF VALVE MANIFOLDS, SET BELOW GRADE IN LOCKING VALVE BOX. (LINE SIZE, TYPICAL).
———	LATERAL LINE	SCH 40 PVC-UV (ON GRADE)	UV RESISTANT PVC LATERAL LINE	Ⓒ	STAKE ON GRADE AT 10' O.C. AND AT ALL CORNERS. STAKES SHALL EXTEND 12" (MIN.) INTO SUBGRADE. SIZE PER LATERAL PIPE SIZING TABLE. SET INSIDE PROJECT LIMITS/PERIMETER FENCE.
- - -	PRESSURE MAINLINE	CLASS 315 PVC (BELOW GRADE)	IRRIGATION MAINLINE	Ⓑ	SET IN 18" DEEP TRENCH, SLEEVE AT ALL ROAD CROSSINGS IN 2X DIA. PVC. INSTALL THRUST BLOCKS AT ALL VERTICES AND CHANGES OF DIRECTION (PER NOTES). SIZE PER PLAN.
▪▪▪▪▪	PRESSURE MAINLINE (QUICK COUPLER)	SCH 40 PVC (ON GRADE)	IRRIGATION MAINLINE	Ⓔ & Ⓒ	STAKE ON GRADE AT 10' O.C. AND AT ALL CORNERS. STAKES SHALL EXTEND 12" (MIN.) INTO SUBGRADE. SET INSIDE PROJECT LIMITS/PERIMETER FENCE.
_ _ _ _ _	SLEEVING	SCH 40 PVC	SLEEVING AT ROADS, TRAIL AND BRIDGE ABUTMENT CROSSINGS. LINE TO BE 2X PIPE SIZE IT WILL CARRY	N.A. Ⓒ	STAKE SLEEVES TO BOTTOM OF TRENCHES. WITH BENT REBAR STAKES AT DRAINAGE CROSSINGS. STAKES SHALL BE 48" O/C & EXTEND 18" INTO SOIL. SLEEVING SHALL BE 24" BELOW GRADE

GENERAL IRRIGATION NOTES:

1. THIS IRRIGATION PLAN IS DESIGNED AS A TEMPORARY SYSTEM WITH DEACTIVATION AFTER SUITABLE ESTABLISHMENT OF NATIVE VEGETATION HAS BEEN ACHIEVED, AS DETERMINED BY THE CLIENT REPRESENTATIVE IN CONSULTATION OF THE PROJECT BIOLOGIST.
2. THE IRRIGATION SYSTEM SHALL BE INSTALLED WITHIN THE PROJECT LIMITS AND WITHIN THE PERIMETER FENCE.
3. THE IRRIGATION LAYOUT DEPICTED IN THE PLAN IS DIAGRAMMATIC. LAYOUT SHALL BE INSTALLED PER DIRECTION PROVIDED IN THE PLANS, NOTES, SPECIFICATIONS. ANY DEVIATION REQUESTED, OR CLARIFICATION REQUIRED SHALL BE AT THE DISCRETION OF THE PROJECT BIOLOGIST OR OCPW.
4. MAXIMUM RUN TIME SHALL BE DETERMINED BY MEASURING THE TIME OF OPERATION THAT RESULTS IN RUNOFF OR SUBSTANTIAL PONDING FROM VARIOUS IRRIGATED AREAS.
5. INITIAL OPERATION AND RUNOFF TEST SHALL BE CONDUCTED FOR EACH VALVE ON THE SYSTEM UNDER THE SUPERVISION OF THE PROJECT BIOLOGIST. THE VALVE SHALL BE TURNED ON AND ALLOWED TO OPERATE UNTIL RUNOFF OR ACCUMULATED STANDING WATER IS OBSERVED, OR 30 MINUTES HAS ELAPSED, WHICHEVER IS THE SHORTER TIME. THE MAXIMUM RUN FOR INITIAL ESTABLISHMENT (120-DAYS FOLLOWING INSTALLATION) FOR EACH VALVE SHALL BE APPROVED BY THE PROJECT BIOLOGIST. THIS WILL RESULT IN NO MORE THAN 0.1 INCH OF WATER BEING APPLIED TO THE MITIGATION SITE PER IRRIGATION CYCLE. THE IRRIGATION SCHEDULE AND MAXIMUM RUN TIME SHALL BE REVIEWED AT AN INTERVAL ESTABLISHED BY THE CLIENT REPRESENTATIVE WITH VALVE RUN TIMES ADJUSTED AS APPROPRIATE PER THE RECOMMENDATION OF THE PROJECT BIOLOGIST, BASED ON PLANT ESTABLISHMENT AND SEASONAL CONDITIONS.

TYPICAL VALVE CALL-OUT & VALVE REFERENCE:

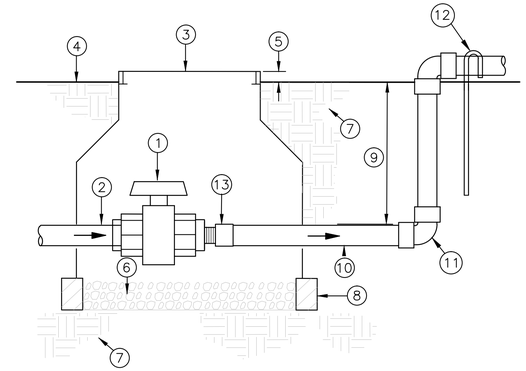


LATERAL LINE PIPE SIZING CHART

IRRIGATION GPM	MIN. PIPE SIZE	PIPE TYPE
0 - 8.5	3/4"	PVC SCH 40
8.5 - 12.5	1"	PVC SCH 40
12.5 - 22.5	1 1/4"	PVC SCH 40
22.5 - 34.5	1 1/2"	PVC SCH 40
34.5 - 54.5	2"	PVC CLASS 315
54.5 - 74.5	2 1/2"	PVC CLASS 315
74.5 - 110.0	3"	PVC CLASS 315

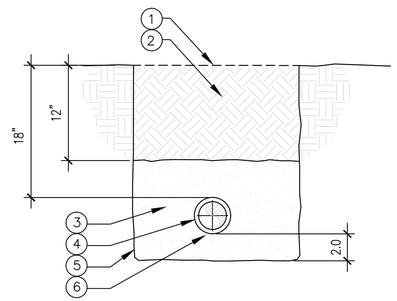
THRUST BLOCKS

1. THRUST BLOCKS SHALL BE INSTALLED ALONG THE LENGTH OF THE MAINLINE AT ALL CHANGES OF DIRECTION (TEES, ELBOWS), AT STOPS OR ENDS, AND AT EQUIPMENT DEPICTED IN THE LEGEND OR DETAILS.
2. THRUST BLOCKS SHALL BE CONSTRUCTED AT THE OUTSIDE EDGE OF AN ELBOW OR DOWNSTREAM OF A TEE.
3. ALL CONCRETE THRUST BLOCK BEARING FACES SHALL BE POURED AGAINST UNDISTURBED SOIL OR 90% COMPACTED BACKFILL.
4. A MINIMUM APWA CLASS 2000 PORTLAND CEMENT CONCRETE SHALL BE USED ON ALL THRUST BLOCKS.
5. FITTINGS SHALL BE ENCASED IN AN 8 MIL VINYL WRAP PLASTIC COVER.
6. THRUST BLOCKS SHALL BE A MINIMUM OF 1.5 CUBIC FEET, UNLESS OTHERWISE DEPICTED.



ITEM	DESCRIPTION
1	PVC SCH 80 BALL VALVE W/INTEGRAL UNION, SEE LEGEND
2	PVC MAINLINE PIPE FROM P.O.C.
3	PLASTIC VALVE BOX WITH LOCKING LID, (SEE NOTES)
4	FINISH GRADE
5	2" ABOVE FINISH GRADE
6	6" DEEP (MIN.) PEA GRAVEL SUMP
7	COMPACTED SUBGRADE TO 90%
8	BRICK OR CONC. BLOCK SUPPORTS ON COMPACTED SOIL
9	18" DEPTH FOR MAINLINE, 36" DEPTH AT ROADS/DRIVEWAYS
10	PVC LATERAL PIPE TO SPRINKLER HEADS
11	PVC SCH 40 SXS ELL
12	REBAR J-STAKE, EXTEND 16" INTO SUBGRADE (MIN.) (SEE NOTES)
13	PVC SCH 80 FEMALE ADAPTER (typ)

A MANUAL CONTROL BALL VALVE
SECTION - NOT TO SCALE



ITEM	DESCRIPTION
1	FINISH GRADE
2	NATIVE SOIL BACKFILL FREE OF ROCKS AND DEBRIS, SATURATE AND COMPACT BACKFILL TO 90%
3	CLEAN NATIVE BACKFILL OVER AND AROUND PIPE, NO ROCKS OR DEBRIS AND COMPACT BACKFILL TO 90%
4	PVC IRRIGATION PIPE, SEE PLANS AND LEGEND
5	LEVEL AND COMPACT TRENCH BED TO 90% BEFORE PIPE PLACEMENT
6	TAPE CONTROL WIRES TO BOTTOM OF PIPE

B MAINLINE TRENCH DETAIL
NOT TO SCALE

COUNTY OF ORANGE CALIFORNIA

MARK	DESCRIPTION	DATE	APPR

PREPARED UNDER THE RESPONSIBLE CHARGE OF:
MICHAEL SWEESY, REGISTERED PROFESSIONAL ENGINEER, CIVIL, STATE OF CALIFORNIA
JUNE 13, 2016 DATE
CALIFORNIA RL# 3319

DESIGNED BY: MICHAEL SWEESY
DRAWN BY: STUART FRASER
CHECKED BY: MICHAEL SWEESY
DRAWING CODE: F06-101-7
FILE NAME: IR-7360-10
PLOT DATE: 06/08/2016
SCALE: AS SHOWN

PREPARED BY:
DUDEK
605 Third Street Encinitas, CA 92024
760.942.5147 Fax 760.942.9976

Orange County Public Works
300 North Flower Street
Santa Ana, Ca 92703-5000

EDINGER BRIDGE REPLACEMENT PROJECT
HABITAT MITIGATION PROJECT

IRRIGATION LEGEND NOTES AND DETAILS

Sheet Reference Number
IR-2
Sheet 5 of 12

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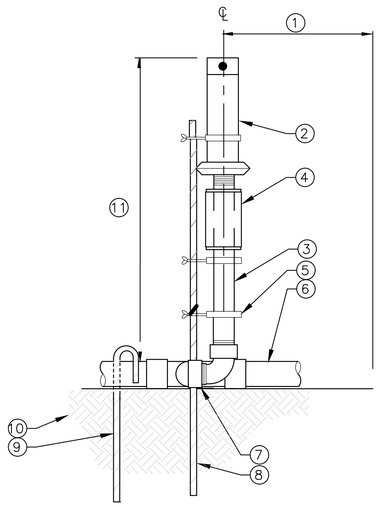
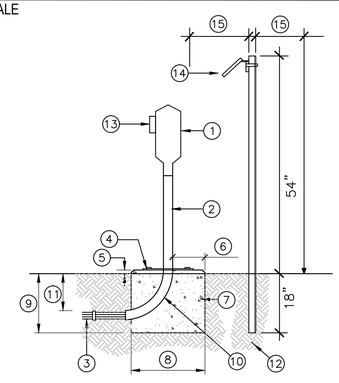


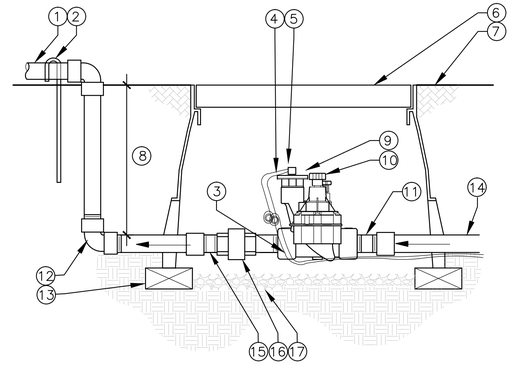
ITEM	DESCRIPTION
1	18" (MIN.) FROM EDGE OF TRAILS, ROADS, ETC. (where applicable)
2	GEAR DRIVEN ROTOR HEAD (SEE LEGEND)
3	24" SCH. 80 PVC RISER
4	IN-LINE DRAIN CHECK VALVE (SEE LEGEND FOR REQ.)
5	RUBBER TWIST TIE TO SECURE HEAD AND RISER TO STAKE -MIN. 3
6	PVC LATERAL LINE ON GRADE
7	SWING JOINT ASSEMBLY ATTACHED TO PVC PIPE FITTING (2" marlex st. ells)
8	42" #3 REBAR STAKE (min 18" into grade)
9	NO. 3 REBAR J-STAKE AT 10' O.C. (MAX.) AND AT PIPE ENDS. (stakes to extend min. 12" into subgrade)
10	EXISTING GRADE
11	24" MIN ABOVE FINISH GRADE

C ON-GRADE ROTOR SPRINKLER HEAD DETAIL
NOT TO SCALE



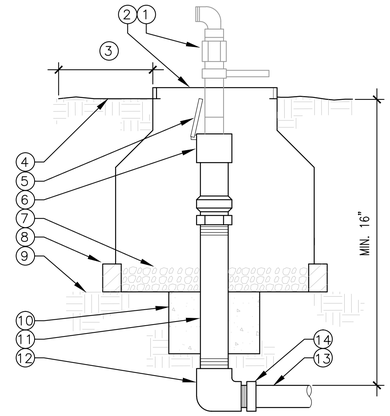
ITEM	DESCRIPTION
1	SOLAR OPERATED IRRIGATION CONTROLLER, SEE LEGEND
2	MOUNT CONTROLLER ON MOUNTING COLUMN, SEE LEGEND SHT IR-2
3	CONTROL WIRE (bundle & tape) RUN BELOW MAINLINE
4	ANCHOR BOLTS ATTACHED TO LEAD ANCHOR SHIELDS IN CONCRETE FOOTING
5	2" HT. ABOVE GRADE FOR CONCRETE FOOTING (typ)
6	4" MIN. WIDTH AROUND MOUNTING COLUMN
7	2000 P.S.I. CONCRETE FOOTING
8	12" MIN. WIDTH OF FOOTING
9	12" MIN. 18" MAX. DEPTH OF FOOTING
10	90 LONG SWEEP ELL PLASTIC ELECTRICAL CONDUIT FOR CONTROL WIRES size as req.) EXTEND UP INTO BASE OF CONTROLLER PEDESTAL
11	18" MIN. DEPTH OF CONTROL WIRE
12	90% COMPACTED SUBGRADE
13	RAIN SENSOR - INSTALL ON OUTSIDE OF CONTROLLER OR ON SEPARATE POST (MAX DISTANCE 48")
14	SOLAR PANEL KIT MOUNTED MIN. 54" ABOVE FINISH GRADE ON 6' 5/8" GALVANIZED STEEL PIPE
15	SEPARATE POST MIN. 24" FROM PERIMETER FENCE & MAX. 48" FROM CONTROLLER

F SOLAR IRRIGATION CONTROLLER
NOT TO SCALE



ITEM	DESCRIPTION
1	UV RESISTANT PVC LATERAL PIPE, SEE LEGEND
2	NO. 4 REBAR J STAKE (SET 12" INTO GRADE MIN.)
3	CONTROL WIRES, TAPE TO BOTTOM OF MAINLINE
4	CONTROL WIRES, BUNDLE AND TAPE (INCLUDE A MIN OF 4" OF EXTRA WIRE COILED INTO VALVE BOX)
5	WATER PROOF WIRE CONNECTORS
6	LOCKABLE VALVE BOX (SEE SPECS)
7	FINISH GRADE/EXISTING GRADE/TOP OF MULCH
8	18" DEPTH FOR MAINLINE/LATERALS IN & OUT OF VALVE BOX
9	SOLENOID
10	REMOTE CONTROL VALVE (SEE LEGEND)
11	PVC SCH 80 NIPPLE (TYP). TEFLON TAPE THREADS.
12	PVC SCH 80 ELL (TYP)
13	BRICK OR BLOCK SUPPORTS
14	PVC MAINLINE PIPE FROM ISOLATION VALVE, SEE LEGEND
15	SHORT NIPPLES PVC, SCH 80 (typ)
16	UNION (PVC)
17	3.0-INCH MINIMUM DEPTH OF PEA GRAVEL SUMP

B REMOTE CONTROL VALVE/MASTER VALVE
SECTION - NOT TO SCALE



ITEM	DESCRIPTION
1	QUICK COUPLER KEY W/SWIVEL HOSE ELL
2	PLASTIC VALVE BOX WITH LOCKING LID, SEE SPECS
3	18" FROM EDGE OF PATHS, ETC
4	FINISH GRADE
5	RUBBER COVER
6	QUICK COUPLER VALVE, SEE LEGEND
7	1 CU. FT. (min) PEA GRAVEL SUMP
8	BRICK OR CONC. BLOCK SUPPORTS ON COMPACTED SOIL
9	COMPACT SUBGRADE TO 90% COMPACTED SUBGRADE
10	8"x 8"x8" CONCRETE THRUST BLOCK ON 90% COMPACTED NATIVE GRADE
11	RED BRASS NIPPLE (length as required)
12	RED BRASS THREADED ELL
13	PVC MAINLINE PIPE, SEE LEGEND
14	PVC SCH 80 MALE ADAPTER (slip x thread)

E QUICK COUPLER VALVE DETAIL
NOT TO SCALE

County of Orange	
Public Works	
AS-BUILT	
Contractor:	Kiewit Infrastructure West Company
Resident Engineer:	Elmo Delos Santos (PreScience Corp.)
Senior RE:	Kevin Tran
Inspectors:	Tuan Tran (PreScience Corp.) Kenneth Junio
Construction Start Date:	May 8, 2017
Construction Completion Date:	August 5, 2019

COUNTY OF ORANGE CALIFORNIA

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DRAWN BY: STUART FRASER	DRAWING CODE: F06-101-7	FILE NAME: IR-7360-10	SCALE: AS SHOWN
PREPARED BY: DUDEK 605 Third Street Encinitas, CA 92024 760.942.5147 Fax 760.942.9976		PLOT DATE: 06/08/2016	

Orange County Public Works
300 North Flower Street,
Santa Ana, Ca 92703-5000

EDINGER BRIDGE
REPLACEMENT PROJECT
HABITAT MITIGATION PROJECT

IRRIGATION DETAILS

Sheet Reference Number
IR-3

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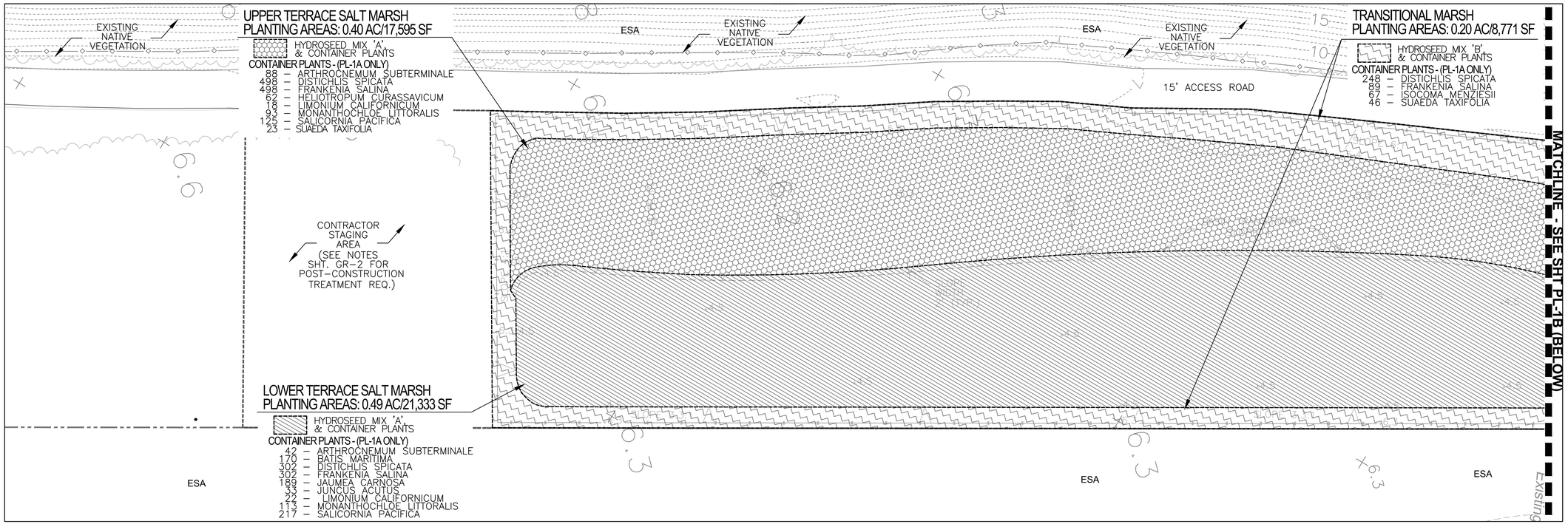
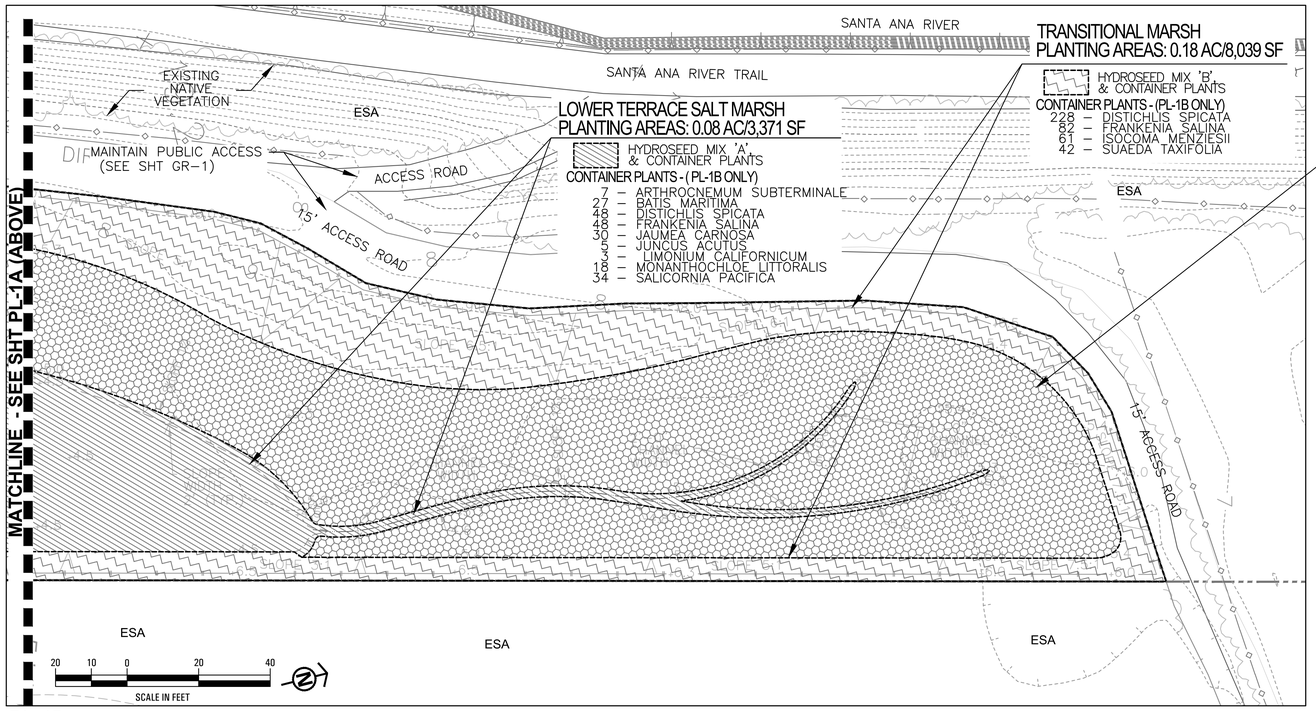
AS-BUILT SEPTEMBER 2019



PL-1A



PL-1B

LEGEND

- UPPER TERRACE SALT MARSH PLANTING AREAS
- LOWER TERRACE SALT MARSH PLANTING AREAS
- TRANSITIONAL MARSH PLANTING AREAS
- PROJECT LIMITS OF WORK
- TALBERT PRESERVE BOUNDARY
- 15' ACCESS ROAD/TRAIL
- ESA — ENVIRONMENTALLY SENSITIVE AREA (PROTECT-IN-PLACE/ACCESS RESTRICTED)

FOR ADDITIONAL RESTRICTIONS AND REQUIRED SITE PROTECTION MEASURES REFER TO SHT TS-1 'GENERAL NOTES'

20 10 0 20 40
SCALE IN FEET

County of Orange	
Public Works	
AS-BUILT	
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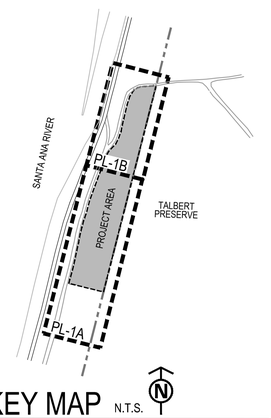

KEY MAP N.T.S.

COUNTY OF ORANGE CALIFORNIA

MARK	DESCRIPTION	DATE	APPR

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DATE: JUNE 13, 2016
CALIFORNIA RL# 5319

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EDINGER BRIDGE
REPLACEMENT PROJECT
HABITAT MITIGATION PROJECT

PLANTING PLAN

Sheet Reference Number
PL-1
Sheet 7 of 12

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AS-BUILT SEPTEMBER 2019

CONTAINER PLANT LEGEND

UPPER TERRACE SALT MARSH ESTABLISHMENT AREAS (0.73 AC./31,632 S.F.)

SYMBOL	BOTANICAL NAME	COMMON NAME	CONTAINER SIZE	SPACING (O/C)	QTY.	DETAIL
	ARTHROCNEMUM SUBTERMINALE	PARISH'S GLASSWORT	1 GAL.	8'	158	Ⓑ
	DISTICHLIS SPICATA	SALT GRASS	ROSE POT LINERS	3'	895	Ⓒ
	FRANKENIA SALINA	ALKALI HEATH	ROSE POT LINERS	3'	895	|
	HELIOTROPUM CURASSAVICUM	SALT HELIOTROPE	ROSE POT LINERS	6'	112	Ⓒ
	LIMONIUM CALIFORNICUM	CALIFORNIA SEA LAVENDER	1 GAL.	5'	32	Ⓑ
	MONANTHOCHLOE LITTORALIS	SALTFLAT GRASS	ROSE POT LINERS	6'	168	Ⓒ
	SALICORNIA PACIFICA	COMMON PICKLEWEED	ROSE POT LINERS	3'	224	Ⓒ
	SUAEDA TAXIFOLIA	WOOLY SEA-BLITE	1 GAL.	7'	41	Ⓑ

TOTAL PLANTS = 2,525

LOWER TERRACE SALT MARSH ESTABLISHMENT AREAS (0.57 AC./24,704 S.F.)

SYMBOL	BOTANICAL NAME	COMMON NAME	CONTAINER SIZE	SPACING (O/C)	QTY.	DETAIL
	ARTHROCNEMUM SUBTERMINALE	PARISH'S GLASSWORT	1 GAL.	8'	49	Ⓑ
	BATIS MARITIMA	SALTWORT	ROSE POT LINERS	4'	197	Ⓒ
	DISTICHLIS SPICATA	SALT GRASS	ROSE POT LINERS	3'	350	|
	FRANKENIA SALINA	ALKALI HEATH	ROSE POT LINERS	3'	350	|
	JAUMEA CARNOSA	FLESHY JAUMEA	ROSE POT LINERS	6'	219	Ⓒ
	JUNCUS ACUTUS	SPINY RUSH	1 GAL.	6'	38	Ⓑ
	LIMONIUM CALIFORNICUM	CALIFORNIA SEA LAVENDER	1 GAL.	5'	25	Ⓑ
	MONANTHOCHLOE LITTORALIS	SALTFLAT GRASS	ROSE POT LINERS	6'	131	Ⓒ
	SALICORNIA PACIFICA	COMMON PICKLEWEED	1 GAL.	5'	252	Ⓑ

TOTAL PLANTS = 1,610

TRANSITIONAL MARSH ESTABLISHMENT AREAS (0.39 AC./16,810 S.F.)

SYMBOL	BOTANICAL NAME	COMMON NAME	CONTAINER SIZE	SPACING (O/C)	QTY.	DETAIL
	DISTICHLIS SPICATA	SALT GRASS	ROSE POT LINERS	3'	476	Ⓒ
	FRANKENIA SALINA	ALKALI HEATH	ROSE POT LINERS	5'	171	Ⓒ
	ISOCOMA MENZIESII	GOLDEN BUSH	1 GAL.	5'	128	Ⓐ
	SUAEDA TAXIFOLIA	WOOLY SEA-BLITE	1 GAL.	7'	87	Ⓐ

TOTAL PLANTS = 863

SEED MIX LEGEND

SEED MIX 'A' - UPPER AND LOWER TERRACE SALT MARSH ESTABLISHMENT AREAS (1.29 AC./56,335 S.F.)

SYMBOL	BOTANICAL NAME	COMMON NAME	PLS	LBS./ACRE	TOTAL LBS.
	CRESSA TRUXILLENSIS	ALKALI WEED	7	1	1.3
	DISTICHLIS SPICATA	SALT GRASS	70	2	2.6
			TOTALS = 3		3.9

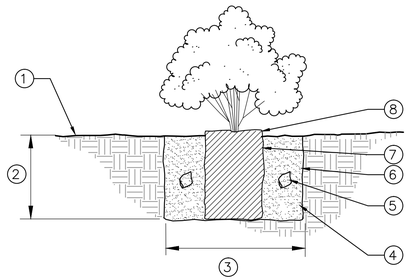
SEED MIX 'B' TRANSITIONAL MARSH ESTABLISHMENT AREAS (0.39 AC./16,811 S.F.)

SYMBOL	BOTANICAL NAME	COMMON NAME	PLS*	LBS./ACRE	TOTAL LBS.
	DISTICHLIS SPICATA	SALT GRASS	70	4	1.6
	FRANKENIA SALINA	ALKALI HEATH	4	4	1.6
			TOTALS = 8		3.2

*PLS = PERCENT PULE LIVE SEED

PLANTING AND SEEDING NOTES:

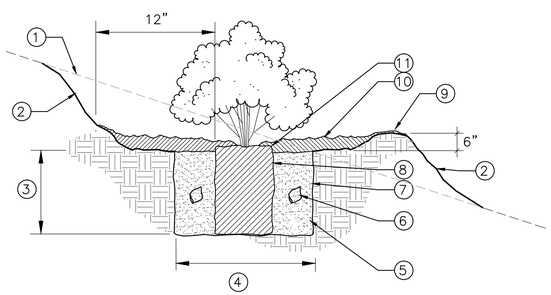
1. A MINIMUM OF TWO 'GROW-KILL' CYCLES SHALL BE IMPLEMENTED IN ALL RESTORATION AREAS, FOLLOWING SOIL AMENDING IN AREAS SPECIFIED, FOLLOWING INSTALLATION OF IRRIGATION SYSTEM, AND PRIOR TO PLANTING AND/OR SEEDING (SEE SPECS). ADDITIONAL GROW-KILL CYCLES MAY BE RECOMMENDED BY THE PROJECT BIOLOGIST BASED ON VIABILITY OF THE EXISTING WEED SEED BANK.
2. ALL GRADING, EXOTIC VEGETATION REMOVAL, SOIL AMENDING, AND IRRIGATION SYSTEM INSTALLATION SHALL BE IN PLACE AND FULLY OPERATIONAL, AND GROW-KILL CYCLES COMPLETE AND APPROVED BY THE PROJECT BIOLOGIST PRIOR TO PLANTING AND SEEDING.
3. CONTAINER PLANTS SHALL BE LOCATED PER THESE PLANS AND THE PROJECT BIOLOGIST'S DIRECTION TO MIMIC NATURAL PLANT DISTRIBUTION AND SHOULD NOT BE PLANTED IN UNIFORM ROWS. ONCE ALL THE CONTAINER PLANTS HAVE BEEN SPOTTED IN PLACE, THE CONTRACTOR SHALL ACQUIRE FINAL APPROVAL FROM THE PROJECT BIOLOGIST PRIOR TO EXCAVATING PLANTING HOLES.
4. ALL CONTAINER PLANT MATERIALS SHALL BE ADEQUATE SIZE AND SHAPE FOR THEIR CONTAINER. ROOT BOUND, OR POORLY ROOTED PLANTS WILL NOT BE ACCEPTED. ALL PLANTS SHALL BE FREE OF PESTS AND DISEASES, AND SHALL BE IN A HEALTHY AND VIGOROUS CONDITION. ALL MATERIALS REJECTED BY THE PROJECT BIOLOGIST SHALL BE REMOVED FROM SITE AND REPLACED IN-KIND BY THE CONTRACTOR AT HIS/HER EXPENSE.
5. ALL CONTAINER PLANTS MUST BE PLANTED WITHIN 10 WORKING DAYS FOLLOWING DELIVERY TO THE SITE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR WATERING. MAINTAINING IN OPTIMAL CONDITION AND PROTECTING ALL PLANTS AND MATERIALS STORED ON-SITE.
6. PLANTING AND SEEDING SHALL ONLY OCCUR WHEN ENVIRONMENTAL CONDITIONS ARE FAVORABLE FOR SUCH ACTIVITIES, BASED ON STANDARD HORTICULTURAL PRACTICES. PLANTING OR SEEDING SHALL NOT TAKE PLACE IF TEMPERATURES ARE UNREASONABLY HIGH, OR IF THE SITE IS EXCESSIVELY WET OR MUDDY.
7. PLANTING HOLES SHALL BE FILLED WITH WATER AND ALLOWED TO DRAIN COMPLETELY BEFORE PLANTING CONTAINER PLANTS.
8. CONTAINER PLANTS SHALL BE PLANTED PER DETAILS A B & C, THE LEGEND AND THE PROJECT SPECIFICATIONS, AND SHALL BE WATERED THOROUGHLY IMMEDIATELY AFTER BEING PLANTED.
9. ALL SEED AND CONTAINER PLANTS SHALL HAVE ORIGINATED FROM FROM CISMONTANE SOUTHERN CALIFORNIA SOURCES, AS PRACTICABLE. ALL CONTAINER PLANTS AND SEED SHALL BE ACQUIRED FROM A PRE-APPROVED SEED SUPPLIER SPECIALIZING IN NATIVE SEED.
10. ALL SEEDS WILL BE CLEARLY LABELED SHOWING TYPE OF SEED, TEST DATE, SUPPLIER, AND PERCENTAGE OF THE FOLLOWING: PURE SEED, CROP SEED, INERT MATTER, WEED SEED, NOXIOUS WEEDS, AND TOTAL GERMINATION CONTENT. ALL MATERIAL WILL BE DELIVERED TO THE SITE IN ORIGINAL, UNOPENED CONTAINERS BEARING THE MANUFACTURER'S GUARANTEED ANALYSIS. ALL SEED MIXES WILL BE STORED IN A DARK, COOL PLACE AND NOT BE ALLOWED TO BECOME DAMP PRIOR TO USE.
11. SEED MIXES SHALL BE APPLIED THROUGHOUT PLANTING AREAS INCLUDING UNDER EXISTING AND INSTALLED TREES AND SHRUBS WITHIN REVEGETATION AREAS.
12. AVOID EXISTING NATIVE VEGETATION WHEN APPLYING HYDROSEED, OR WASH HYDROSEED MULCH OFF EXISTING NATIVE VEGETATION WITHIN 24 HOURS OF HYDROSEED APPLICATION.
13. HYDROSEED SLURRY MIX (MAY BE REVISED BASED ON AGRICULTURAL SUITABILITY TESTING OF SOIL SAMPLES COLLECTED BY PROJECT BIOLOGIST):
    - SEED AT INDICATED APPLICATION RATE (LBS/ACRE) PER SEED MIXES.
    - 100% VIRGIN WOOD FIBER MULCH W/ GREEN MARKER DYE AT 2,000 LBS./ACRE.
    - 6-20-20 XB AT 875 LBS./ACRE.
    - M-BINDER TACKIFIER AT 100 LBS./ACRE.
14. SEE SHEET GR-2 FOR STAGING AREA SOIL STABILIZATION REQUIREMENTS



ITEM	DESCRIPTION
1	FINISH GRADE
2	DEPTH OF ROOT BALL
3	TWO TIMES WIDTH OF ROOT BALL
4	WATER AND TAMP BACKFILL MIX WELL.
5	2 CONTROLLED RELEASE FERTILIZER PACKETS TO BE INCLUDED IN BACKFILL MIX (PER SPECS.).
6	SCARIFY SIDES OF PLANTING PIT
7	ROOT BALL
8	ROOT CROWN OF SHRUB 1" ABOVE FINISH GRADE

1 GAL CONTAINER PLANT - UPPER & LOWER SALT MARSH (B)

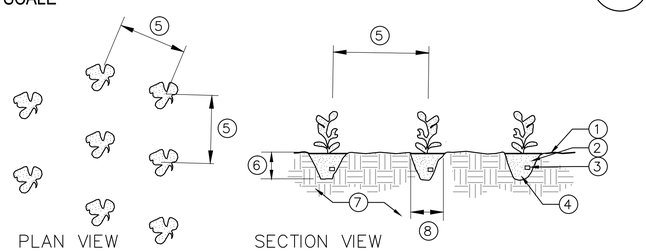
NO SCALE



ITEM	DESCRIPTION
1	GRADE AT SLOPE
2	EXCAVATE AND FILL SLOPE (AS NEEDED) TO CREATE FLAT PLANTING BASIN/PERIMETER BERM
3	DEPTH OF ROOT BALL
4	TWO TIMES WIDTH OF ROOT BALL
5	WATER AND TAMP BACKFILL MIX WELL.
6	2 CONTROLLED RELEASE FERTILIZER PACKETS TO BE INCLUDED IN BACKFILL MIX (PER SPECS.).
7	SCARIFY SIDES OF PLANTING PIT
8	ROOT BALL
9	CREATE BERM 6" ABOVE WATERING BASIN
10	3" THICK SHREDDED BARK MULCH LAYER 18" RADIUS, HOLD BACK 3" FROM ROOT CROWN
11	ROOT CROWN OF SHRUB 1" ABOVE FINISH GRADE

1 GAL CONTAINER PLANT - TRANSITIONAL SLOPES (A)

NO SCALE



ITEM	DESCRIPTION
1	FINISH GRADE
2	PLANTING BASIN (DEPTH OF ROOT BALL)
3	1 CONTROLLED RELEASE FERTILIZER PACKET TO BE INCLUDED IN BACKFILL MIX (PER SPECS.).
4	WATER AND TAMP BACKFILL MIX WELL.
5	SEE PLANTING LEGEND FOR SPACING
6	DEPTH OF ROOT BALL
7	EXISTING GRADE
8	TWO TIMES WIDTH OF ROOT BALL

ROSE POT LINERS - ALL PLANTING AREAS (C)

NO SCALE

County of Orange
Public Works

AS-BUILT

Contractor:	Kiewit Infrastructure West Company
Resident Engineer:	Elmo Delos Santos (PreScience Corp.)
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COUNTY OF ORANGE CALIFORNIA

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EDINGER BRIDGE
REPLACEMENT PROJECT
HABITAT MITIGATION PROJECT

PLANTING LEGEND NOTES AND DETAILS

Sheet Reference Number

PL-2

Sheet 8 of 12

P:\300.Environmental\7360 OC Public Works As-Needed Re-latory\10- Edin-er Miti-ation\Constr-ction Doc-ments\PL_7360-10-060816

AS-BUILT SEPTEMBER 2019

REVEGETATION SITE WORK SPECIFICATIONS

GENERAL SPECIFICATIONS

1. SCOPE OF WORK

Contractor shall conduct restoration in areas within the defined work limits within the Talbert Nature Preserve South for the the Edinger Bridge Offsite Mitigation Project. Contractor shall complete all work per the plans and specifications, including; grading (earthwork and excess soil export), BMP installation (erosion and sediment control), soil preparation, irrigation installation, planting, seeding and maintenance through a 90-day plant establishment period (PEP). Contractor shall furnish all services, labor, transportation, materials and equipment necessary for the complete installation of native revegetation improvements as shown on these plans and as specified herein including, all incidental work necessary to complete this scope of work.

2. QUALITY ASSURANCE

A. Verification of Dimensions and Quantities: All scaled dimensions are approximate. Before proceeding with any work, carefully check and verify all dimensions and quantities and immediately inform Landscape Architect/Project Biologist of any discrepancy between the drawings and/or specifications and actual field conditions. No work shall be done in any area where there is any such discrepancy until approval for same has been given by the Project Biologist.

B. Contractor qualifications are as follows:
- The Contractor conducting work shall hold a valid California Landscape Contractors License, Class C- 27, with and shall provide a project foreman who has previously overseen successful native revegetation projects of at least 5 acres in size in Southern California.
- The Contractor shall hold a valid California Contractors License Class B, and shall demonstrate experience of at least two other wetland revegetation grading projects in Southern California.
- All herbicide treatments shall be prescribed by a Licensed Pest Control Advisor. Herbicide applications shall be supervised or performed by a Licensed Pesticide Applicator.
- An English speaking foreman shall be required.

C. The Contractor is responsible for the development, implementation and udating of a Project specific Stormwater Pollution Protection Plan (SWPPP), including posting and updates to the SMARTS Site.
- The Contractor shall be responsible for and shall submit to the client copies of all contractor generated SWPPP documents, including all sampling test results, inspection reports, Rain Event Action Plans (REAP), annual reports, and other time sensitive documents involving monitoring data. Such documentation shall be provided as soon as the information is made available and shall be provided within twenty-four (24) hours when requested by the client. The contractor shall be required to produce such data and documentation at the project site on demand if so requested by Santa Ana Regional Water Quality Control Board (RWQCB) Staff during a site inspection.
- The contractor shall comply with all the requirements identified in the Construction General Permit (CGP). Non-adherence with the requirements identified in the CGP may constitute a violation of the Clean Water Act and the Porter-Cologne Water Quality Control Act and may be grounds for enforcement action by the RWQCB. Any fines incurred by the Client due to the contractor's lack of compliance with the requirements of the CGP, shall be back charged by the client to the contractor and deducted from any monies that may become due to the contractor.

D. Work shall be performed in accordance with the best standards of practice relating to various trades under continuous supervision of a qualified, experienced foreman capable of interpreting plans and specifications.

E. All construction personnel shall be instructed about the sensitive nature of the habitats and the responsibility associated with working in and adjacent to these areas. Responsibilities and restrictions for the Contractor are as follows:
- No construction personnel or associated vehicles shall enter environmentally sensitive areas (ESAs) that are outside the limits of work, except in areas approved by the Project Biologist.
- All equipment maintenance shall occur within a designated staging area (outside of revegetation areas)
- Construction equipment, materials or activity shall not occur outside the staging area.
- All construction vehicles will be adequately maintained and equipped to minimize/prevent fuel spillage within areas of the Preserve.
- Spill prevention and control measures shall be implemented to ensure the proper handling and storage of petroleum products and other construction materials. Measures shall include a designated fueling and vehicle maintenance area with appropriate berms and protection to prevent any spillage of gasoline or related petroleum products or contact with runoff. The area shall be located as far away from the receiving waters and storm drain inlets as possible
- The discharge of any hazardous materials into any receiving waters shall be prohibited.
- Implementation of best management practices (BMPs) including, but not limited to, silt fencing, straw bales, fiber rolls, and sand bags, as necessary to prevent erosion and sedimentation. BMPs will be maintained and replaced to remain fully functional for the duration contract period or until removal is approved by the Client or the Project Biologist. No plastic netting shall be used and only biodegradable materials shall be utilized for fiber rolls, gravel bags and straw blankets.
- No hydrocarbon or antifreeze compounds shall be allowed to be deposited on the soil surface within the Project site and staging area. All equipment maintenance shall be accomplished within designated/approved staging areas. If lubrication of machinery is required at the project site or staging area, a 10 mil vinyl drop sheet shall be placed under the equipment to capture excess fluid or spillage. All spillage shall be removed completely from the site.
- Maintain Project Site (including staging area) free clean and free from trash and debris at all times.
- Pets are prohibited on construction site(s) and within adjacent ESA areas.
- Catering trucks are prohibited on the project site.
- All litter, including tobacco debris, is prohibited on the project site, either from construction or food packaging.
- Smoking is strictly prohibited anywhere on the project site.
- Access to the project site shall be via existing maintenance roads/ramps, existing OC Parks approved trails, disturbed areas, or approved access routes as designated by the Project Biologist and approved by the Client.
- Stationary equipment, such as motors, pumps, and generators shall be positioned over drip pans when located within the project site.
- Any spills of toxic materials shall be cleaned up immediately, including removal and disposal of contaminated soils.
- Any and all debris resulting from construction activities shall be removed from the project site within 24 hours of completion of the project
- Contractor's employees shall sign an acknowledgment that they are aware of these conditions and that their violation of such conditions may result in their termination of work on the construction site(s).

E. Regulatory Permits:
- Contractor shall have project environmental documents onsite at all times at a location onsite pre-approved by the Biologist and be familiar with conditions issued by the regulatory agencies
- The Contractor shall obtain all permits associated with the application of herbicides.

F. Prior to beginning work, the Biologist will conduct an environmental education session which must be attended by all of the Contractor's employees and subcontractors. Attendees must sign a meeting sign-in sheet that will be provided by the Client as a record of the attendance.

3. DEFINITIONS

A. The term "Construction Documents" or "plans, notes and specifications" shall refer to this set of revegetation grading, irrigation and planting plans.
B. The term "Restoration Area" shall refer to the mitigation area.
C. The term "mitigation area" shall mean the restoration areas where native vegetation is to be established.
D. The term "Project Site" includes all restoration/mitigation areas and contractor staging areas.
E. The term "ESA" shall mean the existing habitat areas adjacent to the mitigation area and within the Orange County Parks (OC Parks) managed Talbert Nature Preserve South, to be preserved defined as "Environmentally Sensitive Areas" (ESA) and shall be protected from disturbance. All existing native habitat areas adjacent to the mitigation areas shall be assumed to be ESAs and are sensitive to impacts from equipment and foot traffic. Any disturbance, including runoff pollution and foot traffic, within these areas is prohibited. All limits of work and access paths required within the ESA must be pre-approved by the Project Biologist. Failure to respect the limits of work will result in a 5:1 replacement ratio for damaged native vegetation at the Contractor's expense. Replacement will require additional provisions for irrigation and planting, seed quantities, and container sizes and quantities as shown on the plans or to match existing vegetation.
F. The term "Biologist", "Project Biologist" refers to a qualified Biologist or Restoration Ecologist experienced with habitat restoration in the Southern California region. The Biologist will help the Client ensure the project is performed in conformance with the plans, specifications and resource agency permits.
G. The "Contractor" is the successful bidder to whom the project contract is awarded to perform the work.
H. The 'Client' or 'OCPW' refers to Orange County Public Works who will be administering the contract for this work.
I. 'OC PARKS' referes Orange County Parks Department, who serves as the land manager.

4. SITE SECURITY AND PUBLIC ACCESS

A. Contractor shall coordinate access to project sites with the Client and OC Parks.
B. Maintain public access between OC Parks trails and Santa Ana River Trail at all times. Provide access controls and directional signage to reroute Public Traffic around construction equipment, as needed.

5. REFERENCE DOCUMENTS

A. These Construction Documents were prepared in accordance with the following Plans and Regulatory Requirements:
   a. Habitat Mitigation and Monitoring Plan for the Edinger Bridge Replacement Project, Cities of Huntington Beach and Seal Beach, California. Dudek 2015
   b. ACOE Section 404 Permit SPL 2012-00867SME
   c. CDFG Master 1601 Agreement Number TBD
   d. RWQCB Water Quality Certification Number TBD
   e. California Coastal Commission Coastal Development Permit TBD (To be issued with SWPPP Plan approval)

B. CAL-IPC. 2006. California Invasive Plant Inventory, California Invasive Plant Council: San Juan Capistrano, CA.
C. Hickman, J.C., 1993. "The Jepson Manual: Higher Plants of California"
D. Construction General Permit (CGP) Stormwater Pollution Prevention Plan (SWPPP)

6. CONSTRUCTION OBSERVATION SCHEDULE

A. Purpose and Scheduling: Observations shall be for the purpose of determining compliance with plans and specifications, workmanship, review of materials and supplies, clean-up and maintenance. Contractor shall receive written punch-lists of all deficiencies and/or remedial work after each visit and shall correct all deficiencies prior to requesting the next site observation visit. Contractor or his/her authorized representative shall be on site at the time of each site observation visit if requested by the Client or Project Biologist.

B. Site Observation Visits: In addition to normal progress inspections, Contractor shall schedule and conduct the following formal inspections, giving notice to the Client and Project Biologist a minimum of three (3) calendar days prior to readiness to conduct the following site observations:
- Pre-construction site meeting with the Project Biologist.
  1. The Contractor shall review the project limits of work.
  2. Site Review of existing fencing, access points and boundary markers, Staked limits of work, temporary stockpile areas, storage and staging areas. All fencing and staking shall be pre-approved by the Biologist prior to beginning work.
- Review of rough grading and completion of soil export.
- Review of finish grading and soil preparation.
- Review of irrigation mainline pressure check.
- Review of irrigation head layout and spray coverage.
- Inspection of all container plants at time of delivery to site for quality, size and vigor.
- Review of plants spotted at installation locations prior to excavation of planting holes.
- Inspection of seeding materials (including slurry mix) at time of seed imprinting/hydroseeding for quality, quantities, and appropriate species. Review of hydroseed application/imprinting for required coverage.
- Upon completion of planting and all other specified work per plans and specifications, a punch-list will be prepared by the Project Biologist on behalf of the Client, documenting any outstanding items to be completed and/or corrected. Contractor shall complete punch-list items within ten (10) calendar days. Delay of completion of punch-list items will delay the beginning of the Plant Establishment Period (90-day). Written approval by Client will establish the beginning of the Plant Establishment Period. During the Plant Establishment Period, Contractor shall schedule site observation visits with the Project Biologist monthly.
- Final inspection will occur at the end of the Plant Establishment Period, provided all previous deficiencies have been corrected. Contractor will be notified in writing to the Client that contract work and maintenance period has been accepted or that the maintenance period has been extended to correct any deficiencies remaining. Final written acceptance and approval by the Project Biologist and Client following these site observation visits shall establish the beginning date for the one year warranty period.

C. Site observation of the work shall not relieve the Contractor of the obligation to fulfill all conditions of the contract.

GRADING SPECIFICATIONS

1. SCOPE OF WORK

The work includes all labor, transportation, materials, tools, equipment, facilities, and services necessary for grading, excavating, filling, final grading, and excess soil removal as shown and noted on the drawings and as specified herein, including all work necessary to make it ready for revegetation within the project boundary as indicated in the Grading Plan.

2. QUALITY ASSURANCE

See Plans and General Specifications

3. RESTRICTIONS AND REQUIREMENTS

A. Timing Restrictions:
- No work shall be conducted between February 15 and August 31, unless a qualified biologist conducts a breeding behavior and nesting survey for birds protected by the United States Fish and Wildlife Service, California Department of Fish and Wildlife, the Migratory Bird Treaty Act, and California species of special concern within 300 feet of the project site (500 feet for raptors and owls). If any occupied nests of any sensitive species are discovered, construction activities within 300-feet of the nest (500- feet for raptors and owls) shall be monitored to ensure that construction noise levels do not exceed 65 dB peak within 100 feet of the nest until the nest is vacated and juveniles have fledged and there is no longer evidence of a second attempt at nesting. The contractor shall establish a larger buffer if the biologist recommends a larger buffer from the nest area.
- No grading, or excavation shall be conducted, unless a qualified biologist surveys the project site to determine whether sensitive bird species, including but not limited to California Least Tern, Belding's Savannah Sparrow, and/or Light-Footed Clapper Rail, are present within 100-feet of the project site or whether sensitive plant species are located within 25-feet of the project site. Any identified species or sensitive native habitats shall b flagged for avoidance.
- The Contractor shall be responsible for abiding by any and all other restrictions in related specification sections, all pertinent laws and regulations, including traffic control, and all related permits, including the Environmental Documents. In the event of a discrepancy between these specifications and the Environmental Documents, the Environmental Documents shall prevail unless indicated otherwise by the Project Biologist in writing.
- Reference environmental documents for additional restrictions

B. Equipment Restrictions:
- Equipment shall be used that meets the conditions and restrictions of the specifications and the Environmental Documents. Equipment shall be used in a way that avoids damaging native trees, vegetation, sensitive habitat areas, wetlands and ESA's. Equipment shall be used that does not cause erosion problems.
- All equipment shall be stored and maintained in approved storage and staging area, and operated in an approved manner away from native habitats, wetlands and areas prone to flow. Refueling shall be performed in approved refueling areas within staging areas or offsite. Spillage of petroleum based products or pesticides will not be tolerated. All equipment must be free from leaks. Leaking equipment shall be immediately removed from site and replaced with sound, leak free equipment at the Contractor's expense.
- Stationary equipment, such as motors, pumps and generators shall be positioned over drip pans.
- Equipment or vehicles driven or operated near wetland areas shall be checked daily to ensure there are no leaks of materials such as petroleum products, pesticides or any other substances that could be deleterious to wildlife, water quality or vegetation.

B. General Restrictions:
- See also the Conceptual Mitigation Plan and related specifications sections.
- All construction personnel shall avoid impacting sensitive habitat areas, wetlands and ESA's. Additional conditions and restrictions shall be as indicated in the Resource Agency permits.
- No pesticides, petroleum products, hydraulic fluid, antifreeze or other potentially toxic compounds shall be deposited on the ground. All equipment maintenance, pesticide mixing and refueling shall be done in approved staging areas away from wetlands, ESA's and areas prone to flow.
- Access to the work site shall be via existing roads. Access routes established through restoration areas shall be reviewed and approved by the Project Biologist and the Client prior to use.
- Any spills of toxic materials including pesticides shall be cleaned up immediately. The appropriate agencies shall be notified of all spills and methods of cleanup as needed.
- Wildlife shall not be trapped, harmed, harassed, or killed unless they pose an imminent and immediate threat to human health and safety. Contractor shall alert the Biologist as soon as wildlife are discovered on the project site. The Biologist will coordinate removal/relocation if necessary.
- All vegetative slash and debris shall be disposed of at a landfill or green waste recycling facility. Vegetative slash and debris shall be completely covered and secured prior to leaving the site and during transport. Vegetative slash, shall be stored in approved areas away from native habitat areas and removed from the site daily.
- Work hours shall be between 7am-5pm. Night work and the use of area lighting shall be prohibited from use on site, including in any equipment storage areas.

4. PROJECT/SITE CONDITIONS

A. Environmental & Weather Conditions:
- Grading and soil preparation work shall be performed in consultation with the Client and Project Biologist, and occur only during periods when optimum results will be obtained. If the moisture content of the soil should reach such a level that working it would alter desired soil structure or surface texture, grading operations shall be suspended until the moisture content is increased or reduced to acceptable levels and the desired results are likely to be obtained. Grading shall be timed such that the site will not be inundated by tidal flow or ponding during grading activities.
- Contractor shall control dust during earthwork activities by regularly wetting the soil surface and by performing work in a manner the minimizes airborne soil particles.
- Vegetation removal shall be performed in compliance with all state laws and regulations, the Resource Agency permit conditions and restrictions, Contract Documents, and the project plans and specifications.

B. Existing Conditions
- Contractor shall verify, locate and clearly identify all existing utilities prior to grading, excavating, trenching, disking or rototilling. Grading, Planting and Irrigation drawings are not to be used to locate existing underground utilities. Utility markout shall be provided by Dig-alert (811)
- Extreme care shall be exercised at all times by the Contractor prior to earthwork activities and working in the project area to avoid existing utilities. Contractor shall call Dig Alert at least one week prior to beginning work and have existing utilities clearly marked in the field prior to beginning site work. Contractor shall be fully responsible for all expenses incurred in the repair of damages caused by his/her work, including all employees and subcontractors. Damages shall be repaired immediately.
- Prior to commencement of work, Contractor shall field verify all access points of entry in consultation with Client and the Project Biologist and OC Parks (As necessary).

COUNTY OF ORANGE CALIFORNIA

APPR

County of Orange	
Public Works	
AS-BUILT	
Contractor:	Kiewit Infrastructure West Company
Resident Engineer:	Elmo Delos Santos (PreScience Corp.)
Senior RE:	Kevin Tran
Inspectors:	Tuan Tran (PreScience Corp.) Kenneth Junio
Construction Start Date:	May 8, 2017
Construction Completion Date:	August 5, 2019

MARK

PREPARED UNDER THE RESPONSIBLE CHARGE OF:
MICHAEL SWEESY
REGISTERED PROFESSIONAL ENGINEER
CIVIL
STATE OF CALIFORNIA
DATE: JUNE 13, 2016
CALIFORNIA RL# 3319

DESIGNED BY: MICHAEL SWEESY
DRAWN BY: STUART FRASER
CHECKED BY: MICHAEL SWEESY
DRAWING CODE: F86-101-7
FILE NAME: SP-7360-10
PLOT DATE: 06/08/2016
SCALE: AS SHOWN

PREPARED BY:
DUDEK
605 Third Street Encinitas, CA 92024
760.942.5147 Fax 760.942.6976

Orange County Public Works
300 North Flower Street
Santa Ana, Ca 92703-5000

EDINGER BRIDGE
REPLACEMENT PROJECT
HABITAT MITIGATION PROJECT

SPECIFICATIONS

Sheet Reference Number
SP-1
Sheet 9 of 12

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AS-BUILT SEPTEMBER 2019

REVEGETATION SITE WORK SPECIFICATIONS

GRADING SPECIFICATIONS (Continued)

6. SEQUENCING AND SCHEDULING (Continued)

A. Commencement of Work
- Contractor shall receive and provide evidence og written acceptance of a developed SWPPP prior to any soil disturbing activity.
- Immediately following the Notice to Proceed from the Owner, the Contractor shall prepare a work schedule detailing when and by what date each item will be completed. The schedule shall indicate the start date, anticipated site meeting dates, and completion dates of each item. Copies of the schedule shall be submitted to the Client and Project Biologist.
- With the exception of surveying on foot, no construction or other disruptive activities (including flagging, soil testing, or any other form of surface disturbance) may occur prior to approval of the Owner.
- Contractor shall schedule and attend a pre-construction meeting with the Biologist and Client representative prior to beginning exotic removal/weed control and work. An environmental training session conducted by the Biologist shall be part of the pre-construction meeting. All of the Contractor's employees and subcontractors shall be present for the environmental training and sign the sign in sheet. The Biologist shall conduct the environmental training session.
- Work shall continue in a continuous fashion Monday-Friday until grading is complete in accordance with the plans and as specified herein. Work hours, days, dates and times are subject to change by the Client and/or Project Biologist.

7. PRODUCTS

MATERIALS

A. BMPs:
- Best Management Practices (BMPs) will be required, as specified in the Project Stormwater Pollution Prevention Plan (SWPPP) including, but not limited to, silt fencing, straw bales, fiber rolls, and gravel bags, as necessary to prevent erosion and sedimentation, and remain in compliance with the Project Construction General Permit.
- No plastic netting shall be used and only biodegradable materials shall be utilized for fiber rolls, gravel bags and straw blankets.No plastic netting shall be used and only biodegradable materials shall be utilized for fiber rolls, gravel bags and straw blankets.

8. EXECUTION

EXAMINATION

A. Verification of Conditions:
- All scaled dimensions and graphic representations on the plans are approximate. Before proceeding with any work, Contractor shall carefully check and verify all dimensions and quantities and shall immediately inform the Biologist and The Client of any discrepancies between drawings and specifications and actual site conditions. No work shall be conducted where discrepancies occur until approval has been given by OCPW in consultation with the Biologist.
- Contractor shall verify, locate and clearly identify all existing utilities prior to earth disturbing work. Contractor shall coordinate Utility mark out with Dig-alert (811)

EXECUTION

A. Removal of Obstructions
- The Contractor shall remove existing plant material and surface debris from within the revegetation grading area (excavation) prior to beginning grading.
- Material that is removed as specified herein, and is not indicated to be incorporated in the work, shall be properly disposed off site.

B. Excavation:
- Existing soil may be excavated to a depth depicted in the Grading Plan. All excavated soil shall be covered prior to leaving the site and disposed of at an offsite location. Contractor shall verify a disposal site with the Owner and Project Biologist. Unless otherwise specified, surplus excavated material shall be disposed of in accordance with applicable ordinances and environmental requirements.

C. Stockpiling:
- Soil shall be temporarily stockpiled within the Project limits of work, or areas approved by the Client and Project Biologist.
- Soil shall not be stockpiled within any area susceptible to ponding or in existing tidal flow.
- Stockpiled soil shall be protected from erosion and appropriately contained to prevent loss with silt fence or fiber rolls (straw wattles), to the satisfaction of the Project Biologist, Project Qualified Stormwater Practitioner (QSP) or Client.

D. Hauling:
- When hauling is done over highways or city streets, the loads shall be trimmed and the vehicle shelf areas shall be cleaned after each loading. The loads shall be wetted after trimming to eliminate dust.

E. Amending:
- If amending is necessary to meet soil requirements specified herein, it shall be evenly spread over graded areas at the rate indicated in the soil analysis report and per the Project Biologist recommendations. The amendments shall be thoroughly disked into the soil to a depth of six (6) inches. Areas not amended shall be thoroughly disked into the soil to a depth of six (6) inches.

E. Finish Grading:
- Finish grading shall be done following any necessary amending. Micro-drainages/swales shall be rough graded and approved prior to finish grading. All graded surfaces shall be compacted to a maximum of 80%, floated smooth, and free from surface irregularities.
- Finished grade elevations shall be as specified on the plans, except where a local change in elevation is necessary to ensure proper drainage, sufficient inundation, or grade matching. All such changes shall be pre-approved by the Project Biologist. Minor changes in grading shall be performed as a part of this contract.

E. BMPs and Control of Erosion:
- Best Management Practices (BMPs) will be maintained and replaced to remain fully functional for the duration contract period or until removal is approved by the Qualified SWPPP Practitioner, in consultation with the Client and Project Biologist.
- The Contractor shall maintain earthwork surface true and smooth and protected from erosion. Contractor shall implement erosion control devices prior to forecasted rain, per the SWPPP.
- The Contractor shall promptly repair all rill, gully, and sedimentation from erosion that occurs during the course of work. Repair works shall include excavating, filling and grading as necessary to return earthwork surfaces to the finish grade specified on the plans and prevent offsite discharge, per the SWPPP.

9. PROTECTION

Contractor shall carefully and continuously protect all work areas and keep all potentially dangerous areas such as open trenches, excavations, holes, vertical drop-offs, steep slopes, soil stockpiles, and other items related to earthwork clearly and safely marked and covered as necessary during the entire course of work, including prior to leaving the site at the end of each work day. Contractor shall assume all responsibility for the safety of his/her employees, subcontractors, the general public, and others, as related to the contract work shown on the drawings and as specified herein.

10. CLEAN-UP

Contractor shall maintain all areas in a neat manner and remove trash and debris from the site and adjacent areas on a daily basis. Contractor shall continually sweep and clean all paved areas onsite and adjacent to the site to the satisfaction of the Owner. Any and all excess soil and debris resulting from construction activities, or surplus construction materials shall be removed from the project site within 24 hours of project completion.

PLANTING SPECIFICATIONS

1. SCOPE OF WORK

The work includes all labor, transportation, materials, tools, equipment, facilities, and services necessary for and incidental to performing all operations in connection with site/soil preparation, planting and hydroseeding of all revegetation areas as shown on these plans and specifications, as indicated herein.

2. DEFINITIONS

A. Plant names indicated in plant palettes conform to Hickman, J.C., 1993. "The Jepson Manual: Higher Plants of California". "Native" and "non-native" species will be identified from this source.

3. SUBMITTALS

A. Approval of any item, alternate, or substitute indicates only that the product or products apparently meet the requirements of the drawings and specifications on the basis of the information or samples submitted.

B. Contractor shall order plants/verify availability from a native plant nursery within thirty (30) days of contract award. Contractor shall submit evidence of a the plant order to the Project Biologist. The source of all propagules and/or seed shall have originated from coastal Orange County (As practicable).

C. Contractor shall purchase, take delivery and install all nursery-grown container plant material for the sole purpose of this project.

D. Contractor shall arrange for all seed material to be reserved and/or purchased for the sole purpose of this project.

E. Contractor shall submit copies of seed supplier acknowledgment/order verification, within thirty (30) days of contract award.

F. Contractor shall submit to the Project Biologist a list of seed to be provided with anticipated quantities of each included.

G. Samples: Project Biologist reserves the right to take and analyze samples of Contractor supplied materials at any time for conformity to specifications.
- Contractor shall furnish seed samples upon request. Samples of one half pound of each species or seed mix may be requested by Project Biologist, to be drawn at time of delivery to the mitigation site.
- Contractor shall submit all seed bag certification tags and a signed certificate from the installer listing quantities and type of materials used in seeding installation. Certification list shall include seed type (genus and species), quantity (weight), analysis, supplier name, geographic location of seed collection, seed purity percentage, seed germination percentage, and date seed was collected and tested. Copies of inspection certificates, required by law, shall be furnished to the Landscape Architect/Project Biologist without charge.
- At least one specimen of each species of plant materials (i.e. container plants) provided to the site shall be labeled with legible water-proof ink indicating the correct botanical name of the plant. Labeled samples shall remain on site and shall be maintained by Contractor for identification during planting. Labeled plants shall be incorporated into the work at the end of the project.

H. Rejection and Substitution: Once accepted by the Contractor, all plants not conforming to contract requirements shall be considered defective, and such plants, whether in place or not, shall be marked as rejected and be immediately removed from the site of the work and replaced with acceptable plant materials at the Contractor's expense. All plants shall be of the species, variety, size, age, flower color, and condition as specified herein, or as indicated on the drawings. Under no conditions will there be any substitution of plant variety, or reduced sizes for those listed on the accompanying drawings, except with the expressed written consent of the Project Biologist and Client.

4. DELIVERY, STORAGE, AND HANDLING

A. Special Handling: Contractor shall be responsible for providing seed that has properly prepared for sowing (pre-treated) by acceptable methods for appropriate species of plant seed as defined in Emery, Dara E. 1988. "Seed Propagation of Native California Plants". Santa Barbara Botanic Garden, Santa Barbara, California.

B. Packing and Shipping: Seed shall be delivered in unopened manufacturer's standard containers bearing original certification labels showing seed type (genus and species), quantity (weight), analysis, name of supplier, percentage seed purity, percentage seed germination, and date seed was tested.
- All seed shall be labeled according to state and federal law. Seed supplier shall certify to Project Biologist, in writing, location and date of seed collection.
- During delivery, Contractor shall protect plants from vandalism, wind, heat, and other conditions that damage or impair viability of plants. Contractor shall store plants in a cool, dry place. For prolonged storage on site, a temporary shade cloth structure may be required.
- Contractor shall furnish a copies of delivery reciepts for plant material stating nursery source, quantity and material type (container size, genus, and species). Copies shall be submitted to the Client and Project Biologist for approval prior to commencement of planting.

C. Storage: Store seed in a cool, dry place. Contractor shall protect all seed and container plants from vandalism, wind, heat, and other conditions that damage or impair seed and plant viability.
- During storage, Contractor shall protect plants from vandalism, wind, heat, and other conditions that damage or impair viability of plants. Keep plants in a cool, dry place, and/or shade if deemed appropriate.
- Plants shall be stored on site for no longer than 2 weeks (14 consecutive calendar days). Plants stored on site longer than two weeks will be considered defective and shall be replaced, in kind, quantity, and size, by the Contractor at Contractor's expense.

5. WARRANTY AND REPLACEMENTS

A. Contractor shall warranty all plant material to remain healthy and vigorously growing for one year from the date of final acceptance of project by the Project Biologist and the Client. All dead plants shall be replaced prior to the end of the plant establishment period.

B. Where plants show signs of failure to grow at any time during the life of the contract, including the specified maintenance period, and where plants are so injured, damaged, dead or diseased as to render them unsuitable for the intended purpose, Contractor shall replace plant materials at a 1:1 ratio, i.e., (1) new plant for each (1) plant removed within thirty (30) days of receipt of written notice by Biologist and at no additional cost to the Client.

C. Plants used for replacement shall be the same kind and size as specified in the original plant list. Replacement plants shall be furnished, planted, and fertilized as originally specified, without cost to the Client.

5. WARRANTY AND REPLACEMENTS (Continued)

D. The Contractor's warranty period may be extended in cases where plants are slow to establish. If Contractor fails to replace plants within the thirty (30) day time limit, Client may replace them at Contractor's expense five (5) days after written notice to Contractor.

E. Contractor shall not be held responsible for failures due to neglect by the Client, vandalism, and "Acts of Nature" during warranty period. Such conditions which exempt Contractor from the warranty shall be documented in writing by Contractor and delivered to Project Biologist and the Client within one (1) week of occurrence for approval.

6. SITE CONDITIONS

A. Prior to excavation of planting pits or placing of plant materials, the Contractor shall locate all existing underground utility lines and irrigation lines and take proper precautions to avoid damage to such improvements. In the event of a conflict between such lines and plant locations, notify the Client who shall arrange for the relocation of one or the other. The Contractor assumes responsibility for expenses incurred for all repairs of damage to utility lines resulting and existing irrigation lines from inadequate precautions by Contractor.

B. Actual planting shall be performed during those periods when weather and soil conditions are suitable in accordance with locally accepted horticultural practice, and/or as approved by Project Biologist. Hand seeding shall be conducted when wind and temperature are normal for season in which work is done. In cases of unseasonable weather, work shall be delayed until weather returns to normal.

C. Contractor shall remove from the mitigation site all debris accumulated during the duration of the project and shall dispose of material at a City/County landfill or a site approved by the Project Biologist.

7. PRODUCTS

A. Seed Sources: Native seed obtained for the project shall have originated from proximate coastal Orange County locations. Any special seed collection required shall be conducted by a supplier possessing staff experienced in native seed collection. Seed may be purchased from S&S Seed Company, Carpinteria, CA (805) 684-0436, or Albright Seed Company, Camarillo, CA (805) 484-0551, or an approved equal.

B. Plant Sources: Plants shall be contract grown by the Contractor or selected from existing nursery stock at a native plant nursery. Commercial native plants shall be grown by a nursery possessing a valid California Nursery License and a staff experienced with propagation of native species. Plants may be purchased from Tree of Life Nursery, San Juan Capistrano, CA (714) 728-0685; El Nativo Growers, Inc., Azusa, CA (818) 969-8449, or an approved equal.

C. Container Plant Backfill Mix: Planting backfill shall consist of 100% loose friable native soil with all trash, debris, rocks and clods over 1" diameter removed. Native soil shall be used to backfill all excavated plant pits in the installation of containerized plant materials. Planting fertilizer shall be (2) 'BEST PAKS' biodegradable controlled release (20-10-5 with minors) fertilizer packets, or approved equal.

D. Soil amendments shall be incorporated throughout the graded area based the results of agricultural suitability analysis from samples collected by the project biologist following grading. Soil amendments to be rototilled into the graded and container planted areas depicted on the plans.

E. Seed Materials: Contractor to furnish seed and hydroseed slurry mix as specified herein and as shown on the plans. Seed of each species shall be furnished in quantity and quality (meeting specified minimum percentage of pure live seed (PLS) as shown on the plans. For each seed type not conforming to specified PLS, each corresponding seed application rate (Lbs./acre) will be adjusted by the Project Biologist, using current test results. Increased seed quantities for this purpose shall be furnished by Contractor at Contractor's cost.
- Seeds are to be fresh, clean, new crop seed, composed of the varieties mixed in proportions and testing minimum PLS per industry standards.
- All seed shall be pre-treated as specified in Delivery, Storage and Special Handling. All seed shall have originated from coastal Orange County.
- The Contractor is responsible for contacting the seed supplier 30 days after award of contract to arrange for special seed collections and seed pre-treatment as necessary.

F. Plant Materials: Plant materials shall be furnished in quantities as shown on the plans by the Contractor, and shall be of the species, size, as described in plant palettes and in these specifications.
- Plants shall be healthy, vigorous, free from disease, insect pests or eggs, and be typical for the species. They shall have healthy, normal root systems, filling their containers, but not to the point of being root bound. Caliper, height and spread of all species shall be average for each species listed.
- The Project Biologist/Landscape Architect shall inspect plants upon delivery to the site.
- Vigorous, healthy well-proportioned plants are the intent of this specification. Plants that are "overgrown", or are showing signs of decline or lack of vigor, are subject to rejection. The size of the plants shall correspond with that normally expected for species and variety of commercially available nursery stock, or as specified or indicated on the drawings.
- Sizes of plant containers shall be as stated in the plant legend(s) on the plans. Container stock shall be grown in standard nursery containers and sized as specified in the plant legend.

G. Miscellaneous Materials: Materials not specifically described, but required for a complete and proper installation, shall be as selected by the Contractor subject to the approval by the Project Biologist and Client.

8. EXECUTION

A. The following section defines work tasks and indicates a sequence of work execution that Contractor shall adhere to without modification, unless prior approval by the Client and Project Biologist has been granted.

B. A minimum of two 'grow-kill' cycles (approximately 12 days per cycle) shall be implemented following installation of irrigation system and prior to plant installation. 'Grow-kill' cycles shall consist of the scheduled operation of the irrigation system to stimulate germination of existing non-native seeds. Herbicide shall be applied to treat geminating seedlings to exhaust the existing weed seed bank. Additional grow-kill cycles may be recommended by the Project Biologist based on viability of the existing weed seed bank.
- All existing weeds and debris are to be completely removed prior to implementing grow-kill cycles.

COUNTY OF ORANGE CALIFORNIA

APPR

County of Orange	
Public Works	
AS-BUILT	
Contractor:	Kiewit Infrastructure West Company
Resident Engineer:	Elmo Delos Santos (PreScience Corp.)
Senior RE:	Kevin Tran
Inspectors:	Tuan Tran (PreScience Corp.) Kenneth Junio
Construction Start Date:	May 8, 2017
Construction Completion Date:	August 5, 2019

MARK

PREPARED UNDER THE RESPONSIBLE CHARGE OF:

REGISTERED PROFESSIONAL ENGINEER — MICHAEL SWEESY — No. 73360 — CIVIL — STATE OF CALIFORNIA

JUNE 13, 2016 DATE

Michael Sweesy

CALIFORNIA RLA# 3319

DESIGNED BY: MICHAEL SWEESY
CHECKED BY: MICHAEL SWEESY
DRAWN BY: STUART FRASER
DRAWING CODE: F06-101-7
FILE NAME: SP-7360-10
PLOT DATE: 08/08/2016
SCALE: AS SHOWN

Orange County Public Works
300 North Flower Street
Santa Ana, Ca 92703-5000

PREPARED BY:
DUDEK
605 Third Street Encinitas, CA 92024
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EDINGER BRIDGE REPLACEMENT PROJECT
HABITAT MITIGATION PROJECT

SPECIFICATIONS

Sheet Reference Number

SP-2

Sheet10of 12

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AS-BUILT SEPTEMBER 2019

REVEGETATION SITE WORK SPECIFICATIONS

PLANTING SPECIFICATIONS (CONTINUED)

8. EXECUTION (CONTINUED)

C. Amending Site Soils/Vegetation Mulch Placement: Mulch placement and specified soil amendments for the revegetation areas depicted in the plans shall be conducted prior to installation of the irrigation system and implementation of grow-kill cycles and include:
- All existing weeds and debris are to be completely removed and removal work approved by the Project Biologist prior to placing salvaged mulch and amending site soils.
- See Grading Plan Notes and Grading Specifications for additional soil preparation requirements.
- The Soil and amendments shall be rototilled to a depth of 6". If the soil is too dense for a rototiller, the soil should first be broken up into large aggregates using a soil ripper. Soil amendments shall be evenly spread over the designated planting areas and shall be thoroughly incorporated to a uniform depth of six (6) inches by rototilling a minimum of two passes, the second pass perpendicular to the first pass. Spread and spade the topsoil as needed to bring planting areas to grade. Take care not to rototill grade changes/transitions.

D. Planting:
- Container plant layout materials shall be flagged/placed in the field by the Contractor (per the direction of the Project Biologist). Layout shall require approval by the Project Biologist prior to plant installation. All container plants shall, if necessary, be re-located as directed as part of the contract.
- Plants shall not be allowed to dry-out before or during installation. The Contractor shall keep exposed roots moist by means of wet saw dust, peat moss, or burlap at all times during planting operations. Roots shall not be exposed to air except when being placed in ground. Wilted plants, improperly located or installed, whether in place or not, shall not be accepted and shall be replaced at the Contractor's expense. Contractor shall be responsible for watering all container plants on site while being stored prior to planting.
- No area shall be planted where weeds and/or exotic species are present or there is evidence that a weed crop will germinate.
- All excavated holes shall have vertical sides with roughened surfaces and shall be twice the size of the root ball. Holes shall be, in all cases, large enough to permit handling and planting without injury or breakage of root balls or roots. After holes have been dug, they are to be filled with water and allowed to drain.
- Excess soil generated from the planting holes shall be spread on the site as directed by the Client and Project Biologist. Rocks and debris larger than six (6) inches in diameter generated from the planting holes shall be removed from the site.
- Contractor shall protect in-place all existing native plant materials outside of the limits of work and/or as otherwise directed.
- Plants shall be installed at approved locations with specified existing on site soil. The plants shall be placed in the planting pits on the backfill soil which has been hand tamped only. Fill plant pits with water and allow to completely drain prior to the placement of the plants. After setting the plants, the remaining backfill materials shall be carefully tamped and water settled around each rootball to fill all voids. Plantings will receive no additional fertilizers other than the amendments as specified herein and/or as recommended by soils analysis.
- Each container plant shall be placed in the center of the hole and shall be set plumb and held rigidly in position until the backfill soil has been tamped and water settled around each root ball.
- All plants shall be set at such a level that after settling they bear the same relationship to the surrounding finish grade as they bore to the soil line grade in the container (approx. 1" above finish grade at time of planting).
- Immediately after installation, Contractor shall water-in by hose or irrigation, each plant until soil around roots is moist from bottom of hole to finish grade.
- Install weed-free bark mulch layer to a uniform 3" depth, in an 18" diameter area around base of each container, as required by the plans.
- Throughout the Plant Establishment Period, Contractor shall provide adequate irrigation to each container plant using the above ground irrigation system, and as directed by the Project Biologist.

E. Seed Installation: Seed application must occur between Oct. through Mar., or as otherwise directed by the Project Biologist. Seed shall be installed using machine hydroseed methods as indicated on the plans.
- Contractor shall protect in place all existing native plant materials adjacent to the limits of work and newly planted material. Contractor shall be responsible for all costs associated with the replacement of damaged existing native plant material (at a 5:1 replacement ratio) or newly planted material at a 1:1 replacement ratio.
- Prior to seed application, soil surface shall be tilled and/or hand raked to create crevices in which seed will collect.
- No area located within the project area shall be seeded where weeds are present or there is evidence that a weed crop will germinate. All weeds shall be removed prior to seeding, as specified herein. Any concentrated development of weed growth appearing in the seed mix planting areas during the Plant Establishment Period shall be removed on a minimum of a monthly basis. The Contractor shall remove such concentrations of weeds by hand.
- Seed mix shall consist of a mixture of seed and slurry components (as indicated in plant legend)

F. Clean Up: As project progresses, Contractor shall neatly maintain all areas and remove unsightly trash and unsightly debris. After completion, Contractor shall remove all debris and empty containers.

G. Safety: Contractor shall be responsible for obtaining the necessary permission and for following required safety regulations when working within or adjacent to public rights-of-way and/or private property. The Contractor assumes all responsibility for the actions of his employees or representatives as they pertain to a violation of any applicable County, State, or Federal statute.

H. As-Built Conditions: Within four (4) weeks of work completion and acceptance of site preparation and planting by the Project Biologist, Contractor shall furnish and submit to the Project Biologist and Client one (1) full scale (to each), reproducible plan set showing all "as-built" field changes to erosion control, irrigation, and planting for the mitigation area. Plan base sheet shall be provided to Contractor by the Project Biologist. All changes shall be legibly drafted/marked on a print set in ink and supplied to the Project Biologist and Client. All reproduction costs are considered part of contract.

I. Maintenance: Contractor shall continuously maintain all involved planting areas of the Contract during the progress of work and during the Plant Establishment Period, until final acceptance of work by the Project Biologist and Client.
- Planting maintenance operations shall begin immediately after all plant and seed materials are installed per the approval of the Project Biologist. Plant material shall be kept in a healthy, optimum growing condition. Plants shall not be pruned or fertilized during the Plant Establishment Period. Pesticides and herbicides shall not be used in planting areas during the maintenance period unless approved and/or directed by the Project Biologist and Client.

8. EXECUTION (CONTINUED)

I. Maintenance (Continued):
- Weedy, non-native species, as defined by the Project Biologist, may invade planting areas and become a problem before or during the establishment of native plant associations. Throughout the maintenance period, these species should be hand removed as soon as they begin to invade and before they become too large for hand extraction.
- All damage caused by the Contractor during the landscape operations, as a result of malfunction of installed work during the Guarantee Period, shall be repaired at Contractor's expense.
- Maintenance of plant material shall include proper irrigation, control of weeds and exotic species, and control of plant diseases and animal pests (e.g., gophers, etc.).
- Project maintenance shall include all repairs to the revegetation/mitigation area caused by human activities and the repair of damage to plantings caused by animal pests.

9. PLANT ESTABLISHMENT PERIOD (90-DAY)

A. Establishment: Completion of all specified work, with acceptance and written approval from Project Biologist and Client establishes beginning of the Plant Establishment Period. The period shall extend for no less than ninety (90) continuous calendar days. Contractor shall perform all maintenance services
described herein for the duration of the Plant Establishment Period.
- Thirty (30) days prior to conclusion of the Plant Establishment Period, the mitigation site shall be inspected by Contractor, Client, and Project Biologist. Any plant material deemed to be defective will be subject to conditions defined in "Warranty and Replacements." Final acceptance will occur at successful conclusion of Plant Establishment Period and will begin warranty period.
- The Plant Establishment Period shall be extended when, in the opinion of the Project Biologist, improper maintenance and/or possible poor or unhealthy condition of planted materials are evident at the termination of the scheduled Plant Establishment Period. Contractor shall be responsible for additional maintenance of mitigation site(s) at no charge until all of the work is completed and acceptable to Project Biologist and the Client.

B. Maintenance Services: Contractor shall maintain all plants in a vigorous and thriving condition by irrigating, weeding, cultivating, and by any other necessary operations during the entire period of installation, Plant Establishment Period, and until final acceptance and approval by the Project Biologist and the Client. Improper maintenance, which may cause poor condition of planted material at termination of the scheduled contract period, will cause postponement of final acceptance of work.

C. Contractor shall conduct weed removal activities in Project Areas on a continual basis following plant installation:
- "Plant installation" includes installation of container plants and seeding.
- "Weed removal" includes the removal of weeds, their root system, and removal from the site.
- The Contractor shall be responsible for keeping all areas within the Project Area free of target exotic species during the maintenance period, as indicated herein, on the plans, and contract documents.
- The Contractor shall review the site for exotic species and exotic species resprouts on a monthly basis for the duration of the plant establishment period (minimum). Any exotics or weeds that have germinated or resprouted shall be treated and removed from the site each month (minimum) as specified herein.
- Contractor shall be responsible for immediately controlling any insect infestations and diseases that may spread throughout planted areas.
- Contractor shall be responsible for monitoring and control of herbivory of plants and shall inform the Client and Project Biologist within 24 hours of discovery, who shall then prescribe remedial action. Any remedial action such as fencing and/or protective cages, shall be provided.
- Leaf and branch drop shall be retained in place unless specifically designated for removal.
- Contractor shall remove and dispose off site all weeds, exotic plants and non-organic debris. Removal of trash and litter shall continue on a regular basis during the plant establishment period. Organic debris resulting from weed/exotic plant removal shall be removed from the site(s) and disposed of at County landfill to avoid further introduction of undesirable exotic seed and propagules.
- Contractor shall be responsible for monitoring and control of herbivory of plants and shall inform the Client and Project Biologist within 24 hours of discovery, who shall then prescribe remedial action. Any remedial action such as fencing and/or protective cages, shall be provided.
- Leaf and branch drop shall be retained in place unless specifically designated for removal.

10. PERFORMANCE STANDARDS DURING PLANT ESTABLISHMENT PERIOD

A. Container Plantings: All container plantings will be inspected by the Project Biologist at 30, 60 and 90 days after planting. Contractor shall immediately replace all dead, damaged, or diseased plants in-kind and at a 1:1 replacement ratio, to achieve 100% survival at the end of 90 days.

B. Seeded Areas: All seeded areas will be inspected by Project Biologist 90 days after seeding. Contractor shall re-seed all seeded areas that have not reached 20% germination cover. Contractor shall re-seed all bare areas greater than 100 square feet.

C. No planting area will be approved that supports more than 10% absolute coverage of non-native weed species.

D. Contractor shall keep exotic plant growth controlled and suppressed to acceptable levels throughout the project work limits. Resprouts or seedlings of exotic species shall not be allowed to obtain a height of more than four feet (4') before being retreated or removed.

E. Contractor shall schedule and perform monthly maintenance visits as necessary to prevent exotic species from producing fruit or setting seed. Failure to kill exotic and weeds prior to setting seed or producing fruit shall result in the Contractor having to perform an additional weeding effort of the effected area at no cost to the client. Additional weeding efforts will be required to be performed as directed by the Project Biologist.

IRRIGATION SPECIFICATIONS

1. SCOPE OF WORK

The work includes all labor, transportation, materials, tools, equipment, facilities, and services necessary for and incidental to performing all operations in connection with furnishing, delivery, and installation of "irrigation" complete as shown on the plans and specifications as indicated herein, and to the satisfaction of the Project Biologist and the Client.

2. QUALITY ASSURANCE

A. Explanation of Drawings: Due to the scale of the plans it is not possible to indicate all offsets, fittings, sleeves, etc. which may be required. Carefully investigate the finished and/or existing conditions affecting the irrigation installation and plan work accordingly, furnishing such fittings, etc. as may be required to meet site conditions.

B. The irrigation plans are generally diagramatic and indicative of the work to be installed. Install the work in such a manner as to avoid conflicts between the irrigation and existing utilities or existing irrigation systems. Contractor shall verify all existing utility locations, easements, and exiting site conditions prior to commencement of the job.

C. Discrepancies: Do not install the irrigation system as shown on the plans when it is obvious in the field that obstructions, grade differences, or discrepancies in project area dimensions exist that might not have been considered in project design. Bring such obstructions or differences to the attention of the Project Biologist. In the event this notification is not performed knowingly, the Contractor shall assume full responsibility for any revision of project plans and field work that is necessary.

D. Permits and Fees: The Contractor shall obtain and pay for any and all permits/fees and all observations required by the applicable Water District and/or the Client.

3. GUARANTEES AND REPLACEMENTS

A. Contractor guarantees all equipment, materials, and labor furnished or performed under the contract against defects in design, materials, and workmanship for a period of one year, unless otherwise specified. The guarantee shall commence from the date of final acceptance of work at the end of the plant establishment period.

B. All equipment and workmanship found to be defective within the guarantee period shall be replaced and installed by the Contractor at Contractor's expense. Replacement equipment shall be the same model and manufacturer as specific in the irrigation legend. Replacement equipment shall be furnished and installed as originally specified.

4. SUBMITTALS

A. Upon 15 days after Contractor has received the Client's Notice to Proceed, the Contractor shall submit to the Project Biologist of record the following product data:
- A complete list of materials proposed to be furnished and installed for this scope of work.
- Manufacturer's specifications, catalog cuts, and other data required to demonstrate compliance with the specified requirements.
- Manufacturer's recommended installation procedures which, when approved by the designer of record, will become the basis for accepting or rejecting actual installation procedures used in the field.

B. No substitutions of material or procedures shall be made concerning these documents without the written consent of an accepted equivalent by the Project Biologist and the Client.

C. Equipment or materials installed or furnished without prior approval of the Project Biologist and the Client, may be rejected and the Contractor shall be required to remove such materials from the site at his own expense.

D. Approval of substitution of material and/or products, other than those specified, shall not relieve the Contractor from complying with the requirements of the Plans and Specifications. The Contractor shall be responsible, at his own expense, for all changes by approved substitutions which affect other items of his own work and/or the work of other Contractors.

E. Samples of the equipment may be required at the request of the Project Biologist if the equipment is other than that specified.

F. Record Drawings (As-Builts): Dimension from 2 permanent points of reference, building corners, sidewalk, or road intersections, etc., the location of the following items:
- Connection to existing water supply line stub-out/point of connection (POC).
- Connection to existing controller.
- Backflow Preventor at POC.
- Routing of sprinkler pressure lines (dimension max. 100' along routing).
- Sprinkler control valves.
- Routing of control wiring.
- Quick coupling valves.
- Other related equipment as directed by the Landscape Architect/Project Biologist.

G. Operation and Maintenance Manuals:
- Prepare and deliver to the Project Biologist within ten calendar days prior to completion of construction hard cover binder with three rings containing the following information:
- Index sheet stating Contractor's address and telephone number, list of equipment with name and addresses of local manufacturer's representative.
- Catalog and parts sheets on every material and equipment installed under this contract.
- Guarantee statement.
- Complete operating and maintenance instructions on all major equipment.
- In addition to the above-mentioned maintenance manuals, show evidence in writing to the Project Biologist at the conclusion of the project that this service has been rendered.

H. Equipment to be furnished:
- Contractor shall supply the following tools:
- One (1) set of special tools required for removing, disassembling and adjusting each type of sprinkler and valve supplied on this project.
- One (1) quick coupler key and matching hose swivel ell for each type of quick coupling valve installed.

5. PROTECTION OF WORK AND PROPERTY

A. All materials and equipment shall be stored properly and protected as required by the Contractor. The Contractor shall be entirely responsible for damages or loss by weather or other cause to work under the Contract. Materials shall be furnished in ample quantities and at such times as to ensure uninterrupted progress of the work.

B. The Contractor shall continuously maintain adequate protection of all his work from damage, destruction, or loss, and shall protect the client or private property owners property from damage arising in connection with this Contract. Contractor shall make good any such damage, destruction, loss or injury. Contractor shall adequately protect adjacent property as provided by law and the contract documents.

C. Prior to excavation for irrigation piping or equipment, Contractor shall locate underground utility lines and existing irrigation lines and take proper precautions to avoid damage to such improvements. In the event of a conflict between such lines and irrigation piping or equipment locations, Contractor shall notify the client's representative and arrangements will be made for relocation as necessary. The Contractor assumes responsibility for making repairs for damages resulting from work as herein specified.

COUNTY OF ORANGE CALIFORNIA

County of Orange	
Public Works	
AS-BUILT	
Contractor:	Kiewit Infrastructure West Company
Resident Engineer:	Elmo Delos Santos (PreScience Corp.)
Senior RE:	Kevin Tran
Inspectors:	Tuan Tran (PreScience Corp.) Kenneth Junio
Construction Start Date:	May 8, 2017
Construction Completion Date:	August 5, 2019

MARK | DE | PR

PREPARED UNDER THE RESPONSIBLE CHARGE OF:
MICHAEL SWEESY, REGISTERED PROFESSIONAL ENGINEER, CIVIL, STATE OF CALIFORNIA
CALIFORNIA RL# 53519
DATE: JUNE 13, 2016

DESIGNED BY: MICHAEL SWEESY
DRAWN BY: STUART FRASER
CHECKED BY: MICHAEL SWEESY
DRAWING CODE: F06-101-7
FILE NAME: SP-7360-10
PLOT DATE: 06/08/2016
SCALE: AS SHOWN

Orange County Public Works
300 North Flower Street
Santa Ana, Ca 92703-5000

PREPARED BY:
DUDEK
605 Third Street Encinitas, CA 92024
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EDINGER BRIDGE REPLACEMENT PROJECT
HABITAT MITIGATION PROJECT

SPECIFICATIONS

Sheet Reference Number
SP-3

Sheet 11 of 12

P:\300.Environmental\7360 OC Public Works As-Needed Re...\Factory\10- Edinger Mitigation\Construction Docs\ments\SP-7360-10-060816

AS-BUILT SEPTEMBER 2019

REVEGETATION SITE WORK SPECIFICATIONS

IRRIGATION SPECIFICATIONS (CONTINUED)

6. PROTECTION OF EXISTING PLANT MATERIAL

A. All existing plant material to remain, which are within the revegetation area limits, shall be tagged and identified by the Project Biologist for the Contractor prior to start of work. Contractor shall provide the required maintenance to assure plant materials are protected during construction. All native vegetation outside of the revegetation area and within the designated ESA areas between the revegetation limits and the project point of connection (POC) shall be protected-in-place.

B. All existing plant material shall be protected at all times from damage by workers and equipment. All minor damages to existing plant materials shall be repaired at the Contractor's expense.

C. Damage to a tree or shrub, which results in death or permanent disfiguration, shall result in the Contractor's complete removal of said tree or shrub, including roots, from the site. The Contractor shall replace the plant material as established by the Project Biologist with one of equal value at his own expense. The Project Biologist shall be the sole judge of the replacement of any plant material.

7. POINTS OF CONNECTION

A. The Contractor shall establish the system POC at the location of the existing water source/existing revegetation mainline as indicated on the plans.

B. The Contractor shall be responsible to coordinate the installation of the new mainline to the Talbert Mitigation irrigation system, which serves as the water source and irrigation point of connection. The existing Talbert Mitigation irrigation system water meter and and service line to the meter will be utilized for this new system.

C. Any necessary electrical power supply connections shall be made by a licensed Electrical Contractor, per governing codes.

8. SITE OBSERVATIONS BY CLIENT'S REPRESENTATIVE

A. Contractor shall request site observations at least 48 hours in advance of all required reviews of the Project Biologist and the Client

B. In the event the Contractor calls for a site visit in which said visit cannot move forward due to lack of preparedness by the Contractor, and needs to get cancelled or rescheduled, the Contractor shall be responsible for reimbursing the Project Biologist at his current billing rates per hour, portal to portal (plus transportation costs), for the inconvenience. No further site visits will be scheduled until this charge has been paid and received.

C. Project review for irrigation installation by the Project Biologist shall be scheduled for the following operations:

- Approved staked layout of main line from revegetation area to established POC (Talbert Mitigation irrigation system main line), valve and controller locations.
- Establishment of point of connection at existing Talbert Mitigation irrigation system main line
- Layout of all Main Line and Lateral Line.
- Main Line Pressure Testing: At completion of installation, during testing, and prior to backfilling.
- Adjustment and Coverage Test: Adjust and test all installed irrigation systems prior to commencement of planting operations.
- Pre-Maintenance Observation: Entire irrigation system shall be completely installed and operational. This observation shall be coordinated with the pre-maintenance observation of the planting installation.
- A written "punch-list" indicating all items to be corrected and the beginning date of the maintenanceperiod will be sent to the Contractor. This is not final acceptance and does not relieve the Contractor from any of the responsibilities in the contract.
- Final Site Observation and Acceptance: At the conclusion of the Plant Establishment Period, a final site observation will be conducted. The Contractor shall show evidence that the Client has received all charts, records, drawings, and extra equipment as required before final site observation and operate each irrigation system in its entirety for the Project Biologist at time of final observation. Any items deemed not acceptable by the Project Biologist and the Client shall be re-worked to the complete satisfaction of the Client and Project Biologist.
- The Contractor shall show all corrections made from the "punch-list." Any items deemed not acceptable shall be reworked during the maintenance period, The Contractor will be notified in writing that the contract work and maintenance period has been accepted or that the maintenance period has been extended to correct any deficiencies remaining. Final acceptance shall establish the beginning date for the guarantee period.

D. When observations have been conducted by other than the Project Biologist, show evidence in writing of when and by whom these observations were made.

E. Site observation of the work shall not relieve the Contractor of the obligation to fulfill all conditions of the contract, nor requirements of the local jurisdictions.

9. PRODUCTS + MATERIALS

All products and materials shall be of standard, approved and first grade quality and shall be new and in perfect condition when installed and accepted.

A. Brass Pipe and Fittings:
- Brass pipe shall be IPS standard weight 125 LB 85 percent copper and 15 percent zinc, trade designation seamless red brass pipe conforming to the requirements of ASTM B43-91. Brass pipe fittings and connections shall be Standard 125 LB class 85 percent red brass fittings and connections.

B. Plastic Pipe and Fittings:
- All pipe shall be free of blisters, internal striations, cracks, or any other defects or imperfections. The pipe shall be continuously and permanently marked with the following information: manufacturer's name or trade mark, size, class and type of pipe, pressure rating, quality control identifications and date of extrusion.
- All fittings shall bear the manufacturer's name or trademark, material designation, size, applicable IPS schedule and NSF seal of approval.
- Pressure main line piping for sizes 1-1/2" and smaller: PVC Schedule 40 with solvent welded joints. 2" and larger shall be PVC Class 315 with solvent welded joints.
- PVC Plastic Pipe and Fittings: PVC pipe for use with solvent welded threaded fittings shall be manufactured polyvinyl chloride PVC 1120 (Type I, Grade I) conforming to ASTM D 1785, Sch. 40. Fittings shall be PVC 1120, (Type I, Grade I) conforming to ASTM D 2246, Sch. 40.

C. Pipe Connection Materials:
- Threaded Connections: Teflon tape or approved equivalent, UL listed.
- Solvent Weld Connections: Primer and adhesive solvent shall be type as recommended by manufacturer of pipe and fittings. All cans of solvents and primers shall have labels intact and shall be stamped with the date and manufacturer. No cans dated over two years old will be permitted.

9. PRODUCTS + MATERIALS (CONTINUED)

D. Zone Isolation Valves:
- PVC tru-union ball valve with ABS handle, size per plans.

E. Quick Coupling Valves:
- Quick coupling valves shall have a two-piece brass body designed for working pressure of 150 PSI, with quick coupler key and locking cover. Size and manuf. per plans.

F. Remote Control Valves:
- Remote control valves shall be electrically operated, single seat, normally closed configuration, equipped with flow control adjustment and capability for manual operation.
- See irrigation legend for manufacturer and model type. Valves shall be wired to controller in same numerical sequence as indicated on plans.

G. Backflow Preventer Assembly (not specified, but if required):
- Backflow preventers shall be one of the approved reduced pressure principle devices listed by the California Department of Health Services, Division of Drinking Water and Environmental Management, 601 North 7th Street, Mailing Station (MS) 92, P.O. Box 942732, Sacramento, CA 94234-7320.
- Backflow preventers shall be factory assembled and shall include 2 check valves, one pressure differential relief valve, 2 shut-off valves and 4 test cocks. Backflow preventer and valves shall be the same size as the pipeline in which they are installed, unless otherwise shown on the plans. Backflow preventer shut-off valves shall be manufactured from iron or bronze and shall be either resilient wedged gate valves, resilient seated and fully ported ball valves, or resilient seated butterfly valves. Threaded type shut-off valves shall be provided with a union on one side of each valve. Unions shall be brass or malleable iron.
- Backflow preventors shall be certified by the jurisdictional water district approved tester with all proper paperwork filed with the jurusdictional Water District prior to activation.

H. Pressure Regulator Valve (not specified, but if required):
- Pressure regulator valve shall be bronze body with screw fitting and shall be integrally assembled into backflow preventer assembly as shown on the drawings
- Additional pressure regulator shall be bronze body with screw fitting and installed in dedicated valve box and set to appropriate operating pressure as shown in drawings at location shown in drawings.

I. Valve Boxes:
- All valve boxes shall be marked "RCV", "BV", "QC", or "PB" respectively. Remote control valves shall be marked with station numbers embossed on the valve cover with a brass tag. (RCV boxes shall have locking covers.) Other boxes such as pull boxes, etc., shall be marked with appropriate identification.

J. Control Wiring:
- Make connections between the automatic controller and the electric control valves with direct burial copper wire AWG-U.F. 600 volt. Pilot wires shall be a different color wire for each control valve.
- Common wires shall be white. Install in accordance with valve manufacturer's specifications and wire chart. In no case shall wire size be less than #14 gauge.
- Wiring shall be installed along the same route as pressure supply or lateral lines wherever possible, and bundled and taped to the bottom side of the pipe.
- Where more than 1 wire is placed tape the wiring together at intervals of 10 feet.
- Provide an expansion curl within 3 ft. of each wire connection of sufficient length at each splice connection at each electrical control, so that in case of repair, the valve bonnet may be repaired without disconnecting the control wires. Lay control wires loosely on grade without stress or stretching or control wire connectors.
- Make all splices with water-proof "Scotch-Lok" connector sealing packs, "Rainbird Snap-Tite" wire connectors, or approved equal. Use one splice per connector sealing pack.
- Field splices between the automatic controller and electrical control valves will not be allowed without prior approval of the Project Biologist. All splices shall be housed in a circular valve box.

K. Controller Unit:
- Controller shall be a solar controller, as indicated and specified on the drawings.

11. EXECUTION

Inspection of Site Conditions:

A. All scaled plan dimensions are approximate. Check and verify all size dimensions, system design pressures, flow requirements as shown on plans.

B. Exercise extreme care in excavating and working near existing utilities. Contractor will be responsible for damages to utilities which are caused by his/her operations or neglect.

C. Coordinate installation of all irrigation materials including pipe, so there shall be no interferences with utilities or other construction, or difficulty in planting shrubs, trees, or ground covers.

D. Carefully check all grades to be sure that installation may safely proceed before starting work on the sprinkler irrigation system.

Preparation:

A. All existing weeds and debris are to be completely removed and removal work approved by the Project Biologist prior to installing system.

B. Physical Layout:
- Prior to installation, stake out all pressure supply lines, routing and location of sprinkler heads.
- Have layout approved by Project Biologist prior to installation.

B. Water Supply:
- Connect sprinkler irrigation system to water supply at point of connection indicated on plans.
- Make connections at approximate locations shown on plans. Contractor will be responsible for minor changes caused by actual field conditions.

C. Control Wire Supply:
- Make control wire connections for automatic controller at point of connection of wire stub-outs as indicated.
- Make connections at approximate locations as shown on plans. Contractor shall be responsible for minor changes caused by actual site conditions.

11. EXECUTION (CONTINUED)

Installation:

A. Staking:
- Provide for staking of all above ground heads and pipe with rebar stakes as shown on details.
- Assemblies:
  1. Routing of irrigation lateral lines shall be field adjusted by Contractor to provide coverage to all planting areas.
  2. Layout to be approved by the Project Biologist.
  3. Install all assemblies in accordance with Orange County Public Works Standard Plans. In absence of details or specifications pertaining to specific items required to complete work, perform such work in accordance with best standard irrigation practice, with prior approval of the Client and Project Biologist.
- Thoroughly clean PVC pipe and fittings of dirt, dust and moisture before installation. Installation and solvent welding methods shall be as recommended by the pipe and fitting manufacturer.
- On PVC to metal connections, work the metal connections first. Use teflon tape or approved equal on all threaded connections. Where connections are required, use adapters into which the pipe may be welded.

B. Piping Assembly:
- General:
  1. Install assemblies and pipe where shown diagrammatically on plans, using first class workmanship and best standard practices as approved. All fittings that are necessary for proper connections such as swing joints, offsets, and reducing bushings that are not indicated shall be installed as necessary and directed as part of the work.
  2. Do not install multiple assemblies on plastic lines. Provide each assembly with its own outlet.
  3. Dielectric unions shall be used in any connections of dissimilar metals.
- Handling PVC Pipe and Fittings: Exercise care in handling, loading, unloading and storing of PVC pipe and fittings. Transport all PVC pipe in a vehicle which allows the length of pipe to lie flat so as not to be subject to undue bending or concentrated external load at any point. Any section of pipe that has been dented or damaged will be discarded and, if installed, shall be replaced with new piping.
- Solvent Weld or Threaded Plastic Pipe:
  1. Installation of all pipe and fittings shall be in strict accordance with manufacturer's specifications.
  2. Because of the nature of plastic pipe and fittings, exercise caution in handling, loading and storing, to avoid damage. All pipe and fittings shall be stored under cover until used. Any pipe that has been dented or damaged shall be discarded until damaged section is cut out and rejoined with coupling.
  3. Pipe shall be cut using approved PVC pipe cutters only. Sawed joints are disallowed. All field cuts shall be beveled to remove burrs and excess before gluing.
  4. Pipe ends and fittings shall be wiped with MEK or equal, before welding solvent is applied. Welded joints shall be given a minimum of 15 minutes to set before moving or handling. Excess solvent on the exterior of the joint shall be wiped clean immediately after assembly.

11. CLEAN UP

Contractor shall continually maintain all areas in a neat manner and remove trash and debris on a daily basis. Contractor shall keep the project site clean to the satisfaction of the Project Biologist and Client. Any and all excess debris resulting from construction activities, or surplus construction materials shall be removed from the project site within 24 hours of project completion.

County of Orange	
Public Works	
AS-BUILT	
Contractor:	Kiewit Infrastructure West Company
Resident Engineer:	Elmo Delos Santos (PreScience Corp.)
Senior RE:	Kevin Tran
Inspectors:	Tuan Tran (PreScience Corp.) Kenneth Junio
Construction Start Date:	May 8, 2017
Construction Completion Date:	August 5, 2019

COUNTY OF ORANGE CALIFORNIA

MARK	DESCRIPTION	DATE	APPR

PREPARED UNDER THE RESPONSIBLE CHARGE OF:

REGISTERED PROFESSIONAL ENGINEER — MICHAEL SWEESY — No. 18313 — CIVIL — STATE OF CALIFORNIA

DATE: JUNE 13, 2016

CALIFORNIA RL# 3319

DESIGNED BY: MICHAEL SWEESY
DRAWN BY: STUART FRASER
CHECKED BY: MICHAEL SWEESY
DRAWING CODE: F08-101-7
FILE NAME: SP-7360-10
PLOT DATE: 08/05/2016
SCALE: AS SHOWN

Orange County Public Works
300 North Flower Street
Santa Ana, Ca 92703-5000

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DUDEK
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EDINGER BRIDGE
REPLACEMENT PROJECT
HABITAT MITIGATION PROJECT

SPECIFICATIONS

Sheet Reference Number

SP-4

Sheet12of 12

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