

FOR ACCURATE RIGHT OF WAY AND ACCESS DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

NOTES:

- COORDINATES, DISTANCES AND BEARINGS ARE BASED ON CCS 1983, ZONE 3.
- ELEVATIONS ARE BASED ON 1929 NATIONAL GEODETIC VERTICAL DATUM (NGVD).
- SEE STRUCTURE PLANS FOR BRIDGE No. 28-0009, DETAILS.

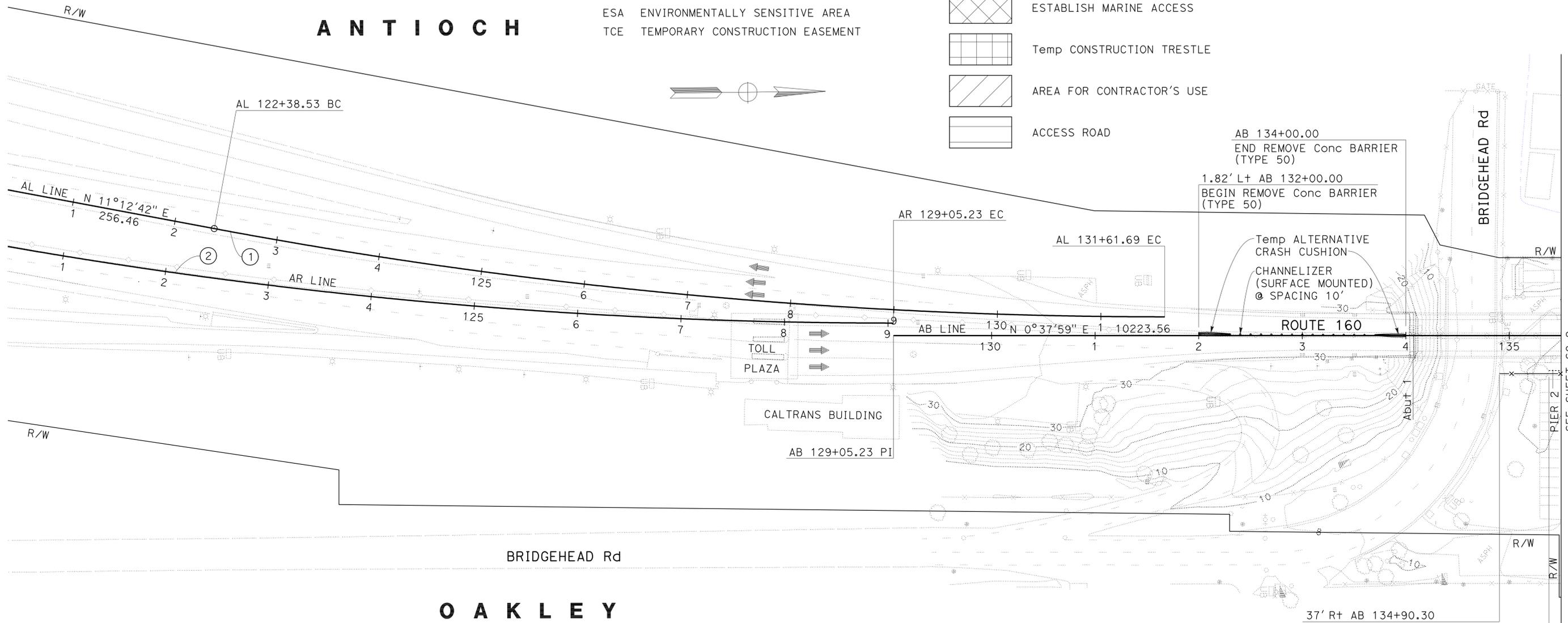
ABBREVIATIONS:

- ESA ENVIRONMENTALLY SENSITIVE AREA
 TCE TEMPORARY CONSTRUCTION EASEMENT

LEGEND:

- DIRECTION OF TRAFFIC
- CURVE NUMBER
- ESA
- TCE
- Temp CONSTRUCTION ROADWAY
- ESTABLISH MARINE ACCESS
- Temp CONSTRUCTION TRESTLE
- AREA FOR CONTRACTOR'S USE
- ACCESS ROAD

TRINH LAI
 REVISOR
 TL
 7/29/09
 DATE REVISOR
 SID PAWAR
 CHECKED BY
 FUNCTIONAL SUPERVISOR
 SID PAWAR
 DEPARTMENT OF TRANSPORTATION
 DESIGN
 STATE OF CALIFORNIA
 Caltrans



STAGE 1

CONSTRUCTION

- ESTABLISH MARINE ACCESS, CONSTRUCT TEMPORARY CONSTRUCTION TRESTLES, TEMPORARY CONSTRUCTION ROADWAYS, ACCESS ROAD, AND AREA FOR CONTRACTOR'S USE.
- INSTALL TEMPORARY FENCE (TYPE BW, 5 STRAND, METAL POST) PER STANDARD PLAN A-86.
- AT GRADE: REMOVE CONCRETE BARRIER (TYPE K), AND INSTALL TEMPORARY RAILING (TYPE K) AND TEMPORARY FENCE (CL-8), BETWEEN ABUTMENT 1 AND PIER 7.
- AT GRADE: STATION 132+00 TO 134+00, REMOVE CONCRETE BARRIER (TYPE 50), PLACE HMA (TYPE A) AND INSTALL ALTERNATIVE TEMPORARY CRASH CUSHIONS AND CHANNELIZERS (SURFACE MOUNTED). PROVIDE TRAFFIC HANDLING PER DETOUR No. 1. (SEE TRAFFIC HANDLING PLAN)
- ON BRIDGE: STATION AB 177+00 TO AB 179+00, REMOVE CONCRETE BARRIER (TYPE 50), FENCE HMA (TYPE A) AND INSTALL ALTERNATIVE TEMPORARY CRASH CUSHIONS AND CHANNELIZERS (SURFACE MOUNTED). PROVIDE TRAFFIC HANDLING PER DETOUR No. 2.
- AT GRADE: STATION AB 234+13, INSTALL ALTERNATIVE TEMPORARY CRASH CUSHIONS.

AS SHOWN ON CS SHEETS

CURVE DATA

No.	R	Δ	T	L	N-COORDINATE	E-COORDINATE
①	5000.00'	10°34'43.068"	462.90'	923.16'	2194929.94	6196118.73
②	5000.00'	10°34'43.047"	462.90'	923.16'	2194667.87	6196121.84

2 REVISED PER ADDENDUM NO. 2 DATED FEBRUARY 24, 2010
STAGE CONSTRUCTION PLAN (STAGE 1)
 SCALE: 1"=50'

THIS PLAN ACCURATE FOR STAGE CONSTRUCTION WORK ONLY

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
 DESIGN

FUNCTIONAL SUPERVISOR: SID PAWAR
 CHECKED BY: SID PAWAR
 CALCULATED/DESIGNED BY: TRINH LAI
 REVISIONS: TL 7/29/09

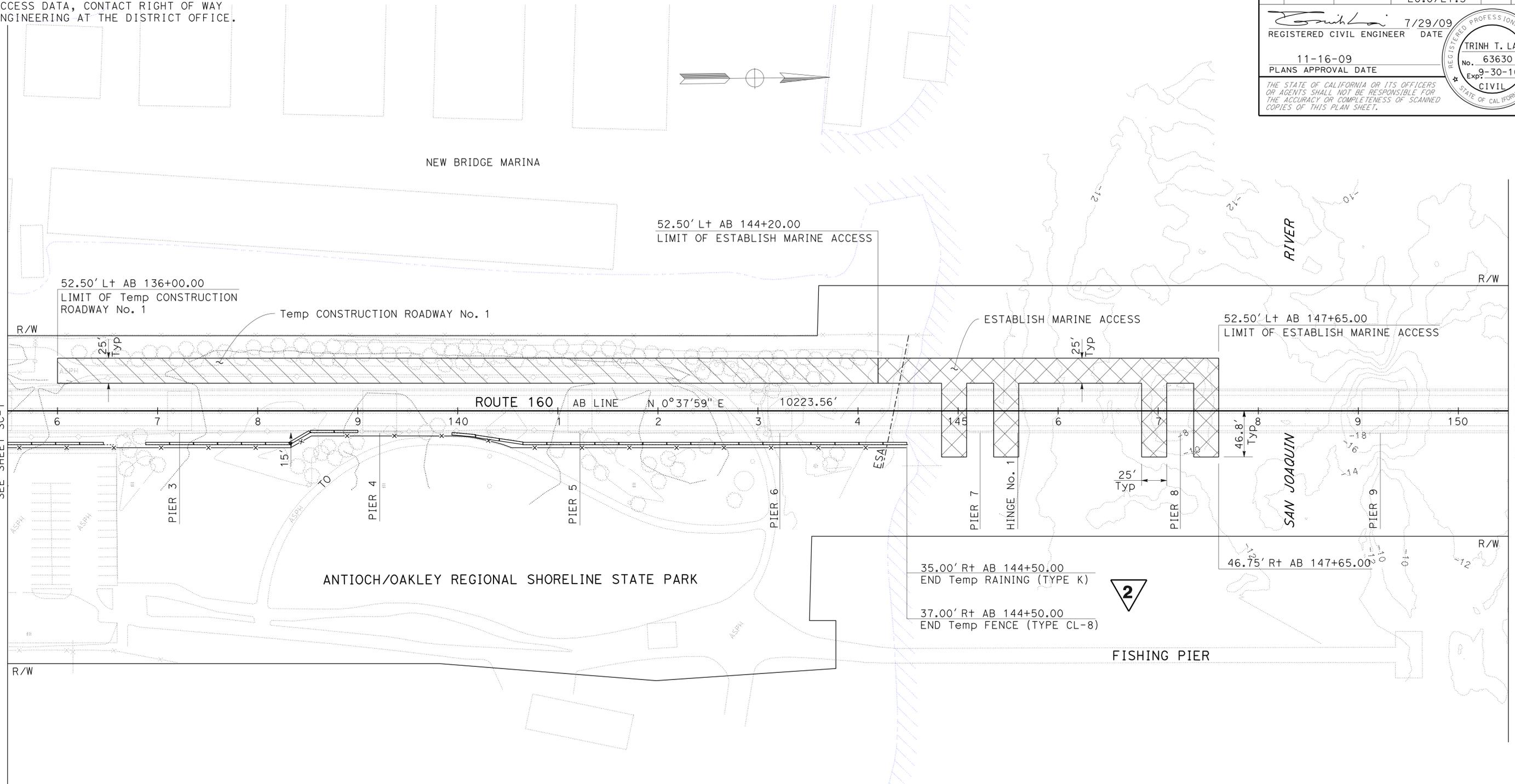
FOR ACCURATE RIGHT OF WAY AND ACCESS DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	CC, Sac	160	0.8/1.3 L0.0/L1.3	30	168

REGISTERED CIVIL ENGINEER: TRINH T. LAI
 No. 63630
 Exp. 9-30-10
 CIVIL

DATE: 7/29/09
 PLANS APPROVAL DATE: 11-16-09

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2 REVISED PER ADDENDUM NO. 2 DATED FEBRUARY 24, 2010

STAGE CONSTRUCTION PLAN (STAGE 1)

SCALE: 1"=50'

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET SC-1

THIS PLAN ACCURATE FOR STAGE CONSTRUCTION WORK ONLY

SC-2

SEISMIC SENSOR ENCLOSURE IDENTIFICATION TABLE

ENCL NO.	NO. OF SENSORS	SENSOR CABLE NO.	LOCATION DESCRIPTION	ENCL. TYPE NO.	HINGE LOCATION	COMMENTS
SSE-1	2	1-1.1 1-1.2	Abutment 1, north face of concrete bearing support of west steel girder, below isolator	1	West	
SSE-2	2	1-2.1 1-2.2	Abutment 1, north face of beam stiffener at bearing support of west steel girder, above isolator	1	West	
SSE-3	1	1-3.1	Pier 4, north face of beam stiffener at bearing support of west steel girder, above isolator (Catwalk level)	2	West	
SSE-4	2	1-4-1 1-4-2	Pier 6, north face of beam stiffener at bearing support of west steel girder, above isolator (Catwalk level)	1	West	
SSE-5	2	1-5.1 1-5.2	Pier 6, top of concrete face, at center of pier cap, below isolator	5	South	
SSE-6	1	1-6.1	Pier 10, north face of beam stiffener at bearing support of west steel girder, above isolator (Catwalk level)	2	West	
SSE-7	3	1-7.1 1-7.2 1-7.3	Pier 14, top of concrete face, at center of pier cap, below isolator	4	South	
SSE-8	2	1-8.1 1-8.2	Pier 14, upper part of pile cap, on northwest corner	7	N/A	
SSE-9	1	1-9.1	Pier 14, upper part of pile cap on northeast corner	7	N/A	
SSE-10	3	1-10.1 1-10.2 1-10.3	Hinge between Pier 14 and 15, north face of beam stiffener on south side of hinge of west steel girder	4	West	
SSE-11	3	1-11.1 1-11.2 1-11.3	Hinge between Pier 14 and 15, north face of beam stiffener on north side of hinge of west steel girder	4	West	
SSE-12	1	1-12.1	Hinge between Pier 14 and 15, south side of hinge of west steel girder	6	West	Relative displacement sensor. Leave an extra 20 feet of sensor cable with no pigtail or sensor plate inside JB.
SSE-13	1	1-13.1	Hinge between Pier 14 and 15, south side of hinge of east steel girder	6	East	Relative displacement sensor. Leave an extra 20 feet of sensor cable with no pigtail or sensor plate inside JB.
SSE-14	1	1-14.1	Pier 17, north face of beam stiffener at bearing support of west steel girder, above isolator (Catwalk level)	2	West	
SSE-15	2	2-15.1 2-15.2	Pier 19, north face of beam stiffener at bearing support of west steel girder, above isolator (Deck level)	1	West	
SSE-16	3	2-16.1 2-16.2 2-16.3	Pier 19, north face of beam stiffener at bearing support of west steel girder, above isolator (Catwalk level)	4	West	
SSE-17	3	2-17.1 2-17.2 2-17.3	Pier 19, top of concrete face, at center of pier cap, below isolator	4	South	
SSE-18	3	2-18.1 2-18.2 2-18.3	Pier 19, upper part of pile cap, on northwest corner	7	N/A	
SSE-19	1	2-19.1	Pier 19, upper part of pile cap, on southwest corner	7	N/A	
SSE-20	2	2-20.1 2-20.2	Pier 19, upper part of pile cap, on southeast corner	7	N/A	
SSE-21	2	2-21.1 2-21.2	Mid-span between Piers 19 and 20, north face of beam stiffener	5	West	
SSE-22	2	2-22.1 2-22.2	Pier 20, north face of beam stiffener at bearing support of west steel girder, above isolator (Catwalk level)	5	West	
SSE-23	3	2-23.1 2-23.2 2-23.3	Pier 20, top of concrete face, at center of pier cap, below isolator	4	South	

Recorder Location #1 At Pier 5

Recorder Location #2 At Pier 19

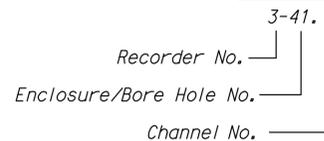
SEISMIC SENSOR ENCLOSURE IDENTIFICATION TABLE (Continued)

ENCL NO.	NO. OF SENSORS	SENSOR CABLE NO.	LOCATION DESCRIPTION	ENCL. TYPE NO.	HINGE LOCATION	COMMENTS
SSE-24	1	2-24.1	Mid-span between Piers 20 and 21, north face of beam stiffener (South of the observation access door)	3	West	
SSE-25	1	2-25.1	Pier 21, north face of beam stiffener at bearing support of west steel girder, above isolator (Catwalk level)	2	West	
SSE-26	2	2-26.1 2-26.2	Pier 25, north face of beam stiffener at bearing support of west steel girder, above isolator (Catwalk level)	1	West	
SSE-27	2	2-27.1 2-27.2	Pier 25, top of concrete face, at center of pier cap, below isolator	5	South	
SSE-28	2	2-28.1 2-28.2	Pier 25, upper part of pile cap, on center line of pier, west side	7	N/A	
SSE-29	1	2-29.1	Pier 28, north face of beam stiffener at bearing support of west steel girder, above isolator (Catwalk level)	2	West	
SSE-30	3	3-30.1 3-30.2 3-30.3	Pier 32, north face of beam stiffener at bearing support of west steel girder, above isolator (Catwalk level)	4	West	
SSE-31	3	3-31.1 3-31.2 3-31.3	Pier 38, north face of beam stiffener at bearing support of west girder, above isolator (Catwalk level)	4	West	
SSE-32	3	3-32.1 3-32.2 3-32.3	Pier 38, top of concrete face, at center of pier cap, below isolator	4	South	
SSE-33	2	3-33.1 3-33.2	Pier 41, north face of beam stiffener at bearing support of west steel girder, above isolator (Catwalk level)	1	West	
SSE-34	2	3-34.1 3-34.2	Near Pier 41, in enclosed section of bridge north of Pier 41, underside of concrete slab	5	West	
SSE-35	2	3-35.1 3-35.2	Abutment 71, in enclosed section of bridge south of Abutment 71, underside of concrete slab	5	West	
BH-36	3	3-36.1 3-36.2 3-36.3	 Downhole, 4 feet depth, near surface	N/A	N/A	North geotechnical array between Piers 35 and 36, downhole sensor package in 4" PVC casing
BH-37	3	3-37.1 3-37.2 3-37.3	Downhole, 20 feet depth	N/A	N/A	
BH-38	3	3-38.1 3-38.2 3-38.3	Downhole, 50 feet depth	N/A	N/A	
BH-39	3	3-39.1 3-39.2 3-39.3	Downhole, 80 feet depth	N/A	N/A	
BH-40	3	3-40.1 3-40.2 3-40.3	Downhole, 160 feet depth	N/A	N/A	
BH-41	3	3-41.1 3-41.2 3-41.3	Downhole, 250 feet depth	N/A	N/A	

Recorder Location #2 At Pier 19

Recorder Location #3 At Pier 41

LEGEND (This sheet only)



2 REVISED PER ADDENDUM No. 2 DATED FEBRUARY 24, 2010

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	CC, Sac	160	0.8/1.3, L0.0/L1.3	98	168

11-3-09 DATE

11-16-09 PLANS APPROVAL DATE

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General Note:
For enclosure type details, see sheet EE-19.



DESIGN BY <i>Imran Saeed</i>	CHECKED <i>Tech Ngov</i>	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES ELECTRICAL-MECHANICAL-WATER AND WASTEWATER DESIGN	BRIDGE NO. 28-0009	ANTIOCH BRIDGE SEISMIC RETROFIT	SHEET EE-2
DETAILS BY <i>Kathl Andreasen</i>	CHECKED <i>Imran Saeed</i>		POST MILE 0.8	SEISMIC SENSOR ENCLOSURE IDENTIFICATION TABLE		
QUANTITIES BY <i>Imran Saeed</i>	CHECKED <i>Tech Ngov</i>		CU 04253 EA 1A5211	DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES (PRELIMINARY STAGE ONLY)	SHEET OF

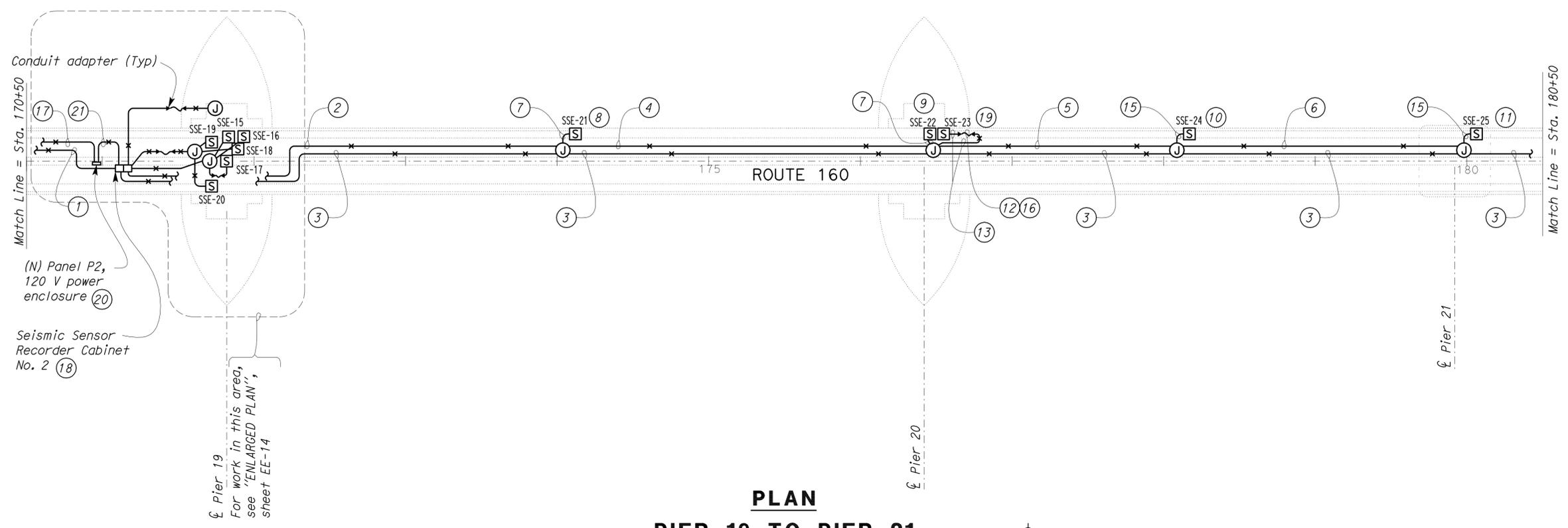
DOES SD Imperial Rev. 1/07 ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

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DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
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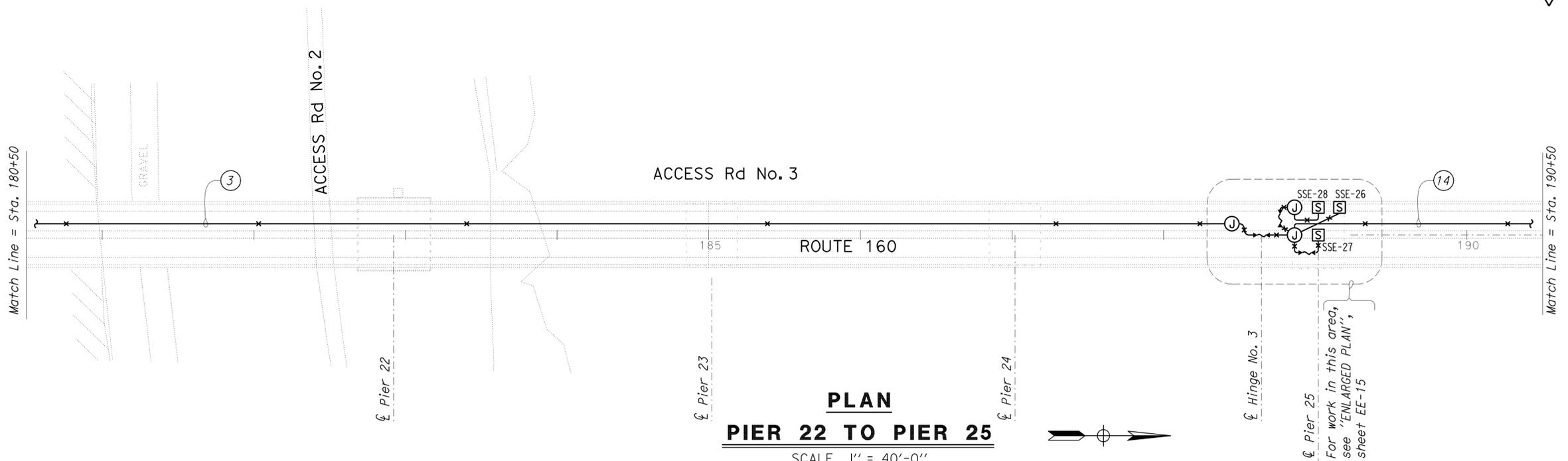
11-3-09
 REGISTERED ELECTRICAL ENGINEER DATE
 11-16-09
 PLANS APPROVAL DATE
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REGISTERED PROFESSIONAL ENGINEER
IMRAN SAEED
 No. E 18781
 Exp. 6/30/11
 ELEC
 STATE OF CALIFORNIA



PLAN
PIER 19 TO PIER 21
SCALE 1" = 40'-0"

- Notes:**
- ① 1"C, 1 IC, and 6 pair ISDN.
 - ② 2"C, 9 SSC, and 1 spare SSC.
 - ③ 2"C, 7 SSC, 2 spare SSC, 1 IC, and 6 pair ISDN.
 - ④ 1½"C, 7 SSC, and 1 spare SSC.
 - ⑤ 1½"C, 2 SSC, and 1 spare SSC.
 - ⑥ 1½"C, 1 SSC, and 1 spare SSC.
 - ⑦ 1"C, 2 SSC.
 - ⑧ For SSE-21 mounting location detail, see sheet EE-34.
 - ⑨ For SSE-22 mounting location detail, see sheet EE-31.
 - ⑩ For SSE-24 mounting location detail, see sheet EE-34.
 - ⑪ For SSE-25 mounting location detail, see sheet EE-31.
 - ⑫ Provide conduit allowance for bridge structure movement. See detail on sheet EE-20. See Detail 3 for conduit allowance across hinges and Detail 4 for conduit allowance across isolation bearings on sheet EE-20.
 - ⑬ 1"C, 3 SSC.
 - ⑭ 1½"C, 1 SSC, 1 spare SSC, 1 IC, and 6 pair ISDN.
 - ⑮ 1"C, 1 SSC, and 1 spare SSC.
 - ⑯ 1"C, Flex, liquidtight, 3 SSC.
 - ⑰ 1"C, 2#8, 1#10G.
 - ⑱ For detail, see sheet EE-25.
 - ⑲ For SSE-23 mounting location detail, see sheet EE-32.
 - ⑳ For detail, see sheet EE-26.
 - ㉑ 1"C, 2#10, 1#12G.



PLAN
PIER 22 TO PIER 25
SCALE 1" = 40'-0"

2 REVISED PER ADDENDUM No. 2 DATED FEBRUARY 24, 2010

THIS DRAWING IS ACCURATE FOR ELECTRICAL WORK ONLY.

DESIGN	BY <i>Imran Saeed</i>	CHECKED <i>Tech Ngov</i>
DETAILS	BY <i>Kathl Andreasen</i>	CHECKED <i>Imran Saeed</i>
QUANTITIES	BY <i>Imran Saeed</i>	CHECKED <i>Tech Ngov</i>

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
ELECTRICAL-MECHANICAL-WATER AND WASTEWATER DESIGN

BRIDGE NO. 28-0009	ANTIOCH BRIDGE SEISMIC RETROFIT	SHEET EE-6
POST MILE 0.8		
SEISMIC SENSOR LAYOUT 3 PIER 19 TO PIER 25		

DOES SD Imperial Rev. 1/07

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

CU 04253
EA 1A5211

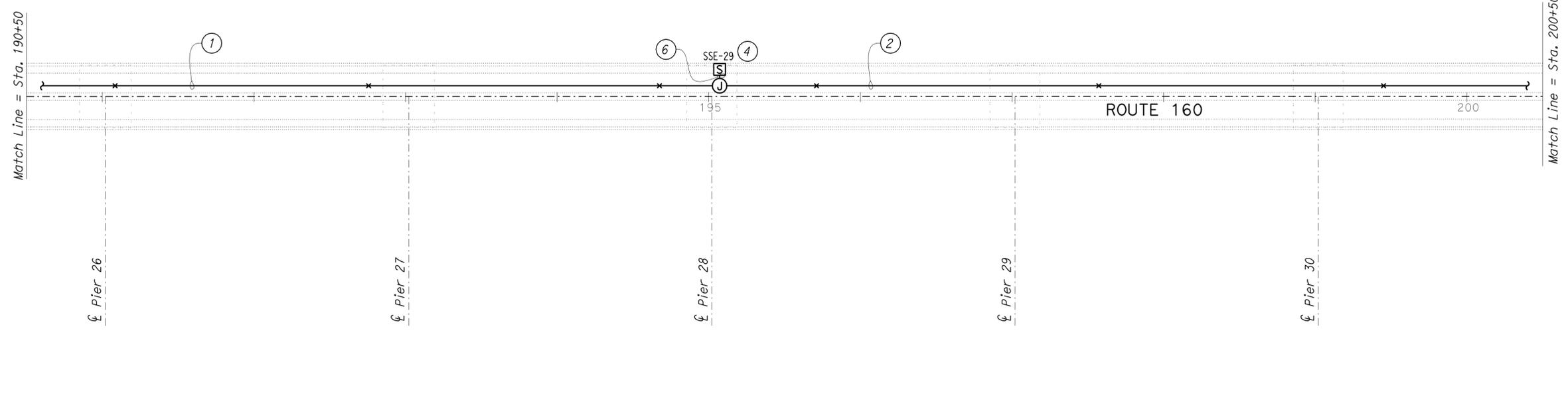
DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES (PRELIMINARY STAGE ONLY)	SHEET OF
	8/7/09 8/28/09 9/17/09 10/28/09 11/3/09	

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	CC, Sac	160	0.8/1.3, LO.0/L1.3	103	168

<i>Imran Saeed</i>	11-3-09
REGISTERED ELECTRICAL ENGINEER	DATE

11-16-09
PLANS APPROVAL DATE

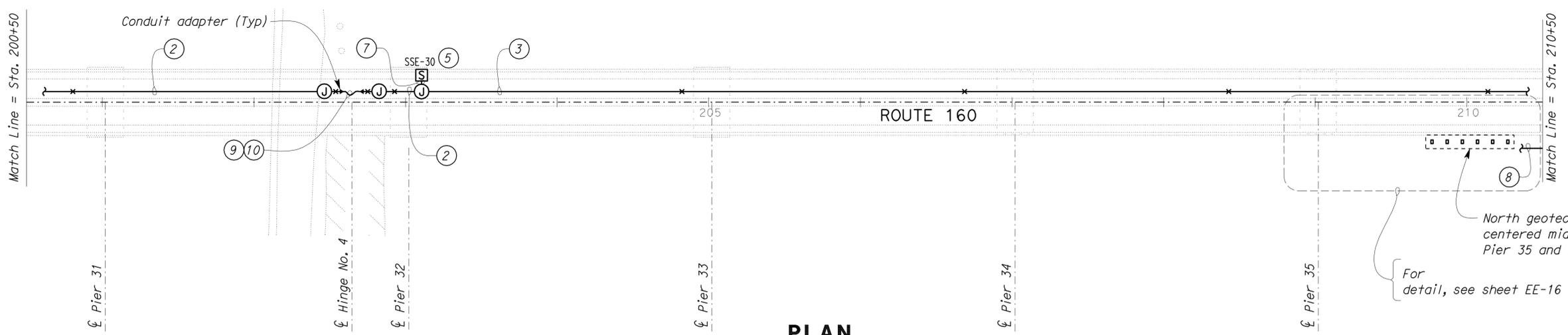
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PLAN
PIER 26 TO PIER 30
SCALE 1" = 40'-0"



- Notes:**
- ① 1½"C, 1 SSC, 1 spare SSC, 1 IC, and 6 pair ISDN.
 - ② 1½"C, 1 IC, and 6 pair ISDN.
 - ③ 1½"C, 3 SSC, 1 spare SSC, 1 IC, and 6 pair ISDN.
 - ④ For SSE-29 mounting location detail, see sheet EE-31.
 - ⑤ For SSE-30 mounting location detail, see sheet EE-31.
 - ⑥ 1"C, 1 SSC, and 1 spare SSC.
 - ⑦ 1"C, 3 SSC, and 1 spare SSC.
 - ⑧ (6) 1½"C, PVC coated MC, with pull rope only, to north geotechnical array downholes. For continuation, see sheet EE-8. For details, see sheet EE-17.
 - ⑨ 1½"C, Flex, liquidtight, 1 IC, and 6 pair ISDN.
 - ⑩ Provide conduit allowance for bridge structure movement. See detail on sheet EE-20. See Detail 3 for conduit allowance across hinges and Detail 4 for conduit allowance across isolation bearings on sheet EE-20.



PLAN
PIER 31 TO PIER 35
SCALE 1" = 40'-0"



REVISED PER ADDENDUM No. 2 DATED FEBRUARY 24, 2010

THIS DRAWING IS ACCURATE FOR ELECTRICAL WORK ONLY.

DESIGN	BY <i>Imran Saeed</i>	CHECKED <i>Tech Ngov</i>
DETAILS	BY <i>Kathl Andreasen</i>	CHECKED <i>Imran Saeed</i>
QUANTITIES	BY <i>Imran Saeed</i>	CHECKED <i>Tech Ngov</i>

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
ELECTRICAL-MECHANICAL-WATER AND WASTEWATER DESIGN

BRIDGE NO.	28-0009
POST MILE	0.8

ANTIOCH BRIDGE SEISMIC RETROFIT

SEISMIC SENSOR LAYOUT 4
PIER 26 TO PIER 35

SHEET **EE-7**

DOES SD Imperial Rev. 1/07

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

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CU 04253
EA 1A5211

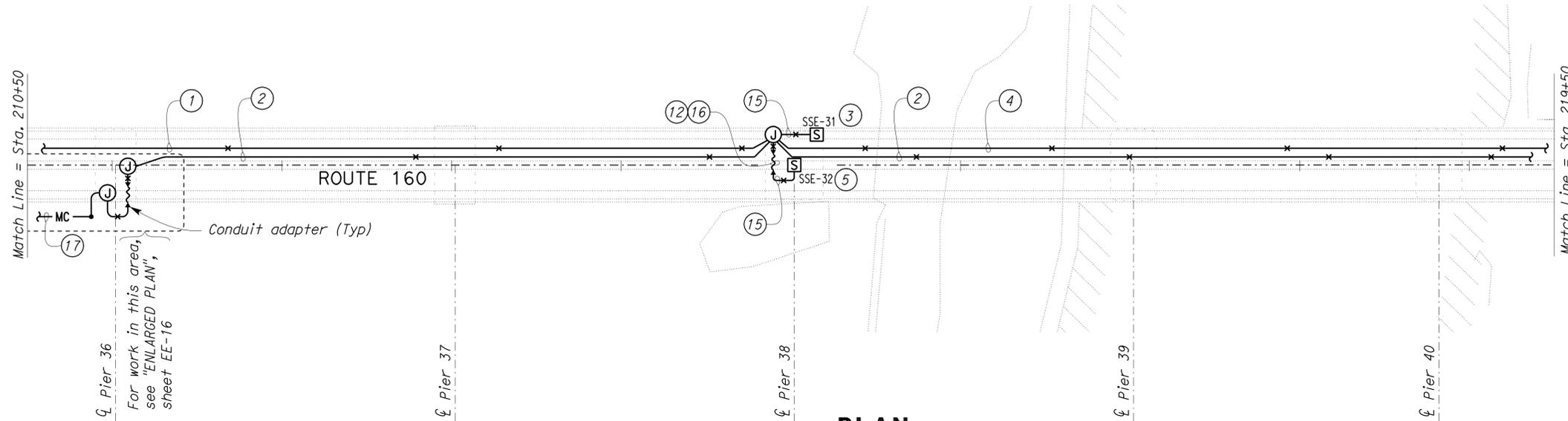
DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES (PRELIMINARY STAGE ONLY)					
8/7/09	8/28/09	9/7/09	10/28/09	11/3/09	

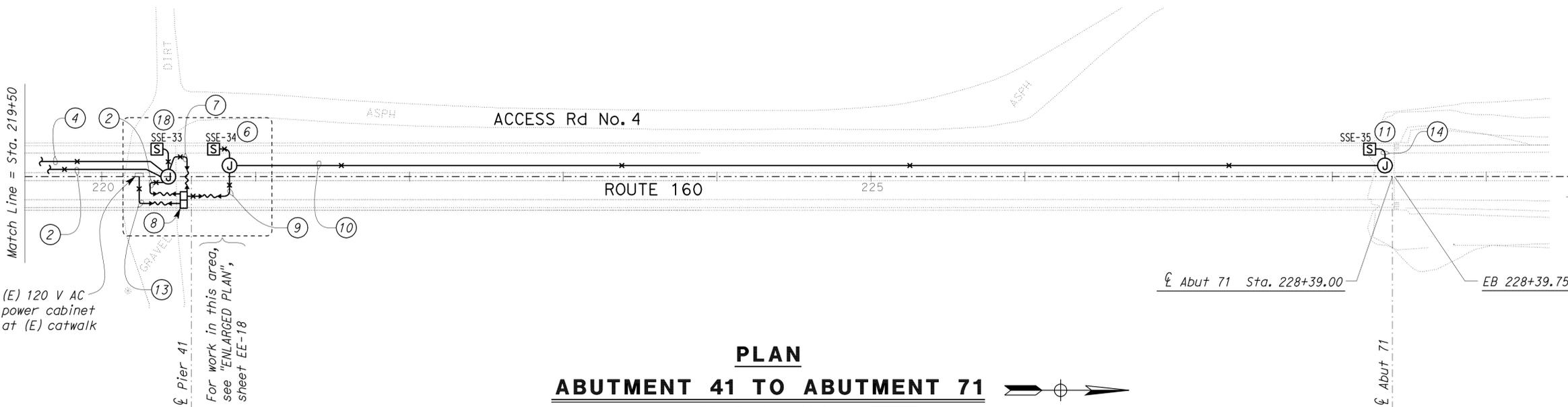
SHEET OF

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	CC,Sac	160	0.8/1.3, L0.0/L1.3	104	168

REGISTERED ELECTRICAL ENGINEER *Imran Saeed* DATE 11-3-09
 IMRAN SAEED No. E 18781 Exp. 6/30/11 ELEC STATE OF CALIFORNIA
 11-16-09 PLANS APPROVAL DATE
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PLAN
PIER 36 TO PIER 40
SCALE 1" = 40'-0"



PLAN
ABUTMENT 41 TO ABUTMENT 71
SCALE 1" = 40'-0"

- Notes:**
- 1) 1½"C, 3 SSC, 1 spare SSC, 1 IC, and 6 pair ISDN.
 - 2) 2½"C, 18 SSC, and 1 spare SSC.
 - 3) For SSE-31 mounting location detail, see sheet EE-31.
 - 4) 2"C, 9 SSC, 1 spare SSC, 1 IC, and 6 pair ISDN.
 - 5) For SSE-32 mounting location detail, see sheet EE-32.
 - 6) For SSE-34 mounting location detail, see sheet EE-41.
 - 7) 2½"C, 11 SSC, 1 spare SSC, 1 IC and 6 pair ISDN.
 - 8) Seismic Sensor Recorder Cabinet No. 3, at ground.
 - 9) 1½"C, 4 SSC, and 1 spare SSC.
 - 10) 1"C, 2 SSC, and 1 spare SSC.
 - 11) For SSE-35 mounting location detail, see sheet EE-41.
 - 12) Provide conduit allowance for bridge structure movement. See detail on sheet EE-20. See Detail 3 for conduit allowance across hedges and Detail 4 for conduit allowance across isolation bearings on sheet EE-20.
 - 13) 1"C, 2#12, 1#12G.
 - 14) 1"C, 2 SSC and 1 spare SSC
 - 15) 1"C, 3 SSC.
 - 16) 1"C, Flex, liquidtight, 3 SSC.
 - 17) (6) 1½"C, PVC coated, with pull rope only, to north geotechnical array freefield downholes. For details, see sheet EE-17.
 - 18) For SSE-33 mounting location detail, see sheet EE-40.

THIS DRAWING IS ACCURATE FOR ELECTRICAL WORK ONLY.

REVIS **2** **REVISED PER ADDENDUM No. 2 DATED FEBRUARY 24, 2010**

DESIGN	BY <i>Imran Saeed</i>	CHECKED <i>Tech Ngov</i>
DETAILS	BY <i>Kathl Andreasen</i>	CHECKED <i>Imran Saeed</i>
QUANTITIES	BY <i>Imran Saeed</i>	CHECKED <i>Tech Ngov</i>

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
ELECTRICAL-MECHANICAL-WATER AND WASTEWATER DESIGN

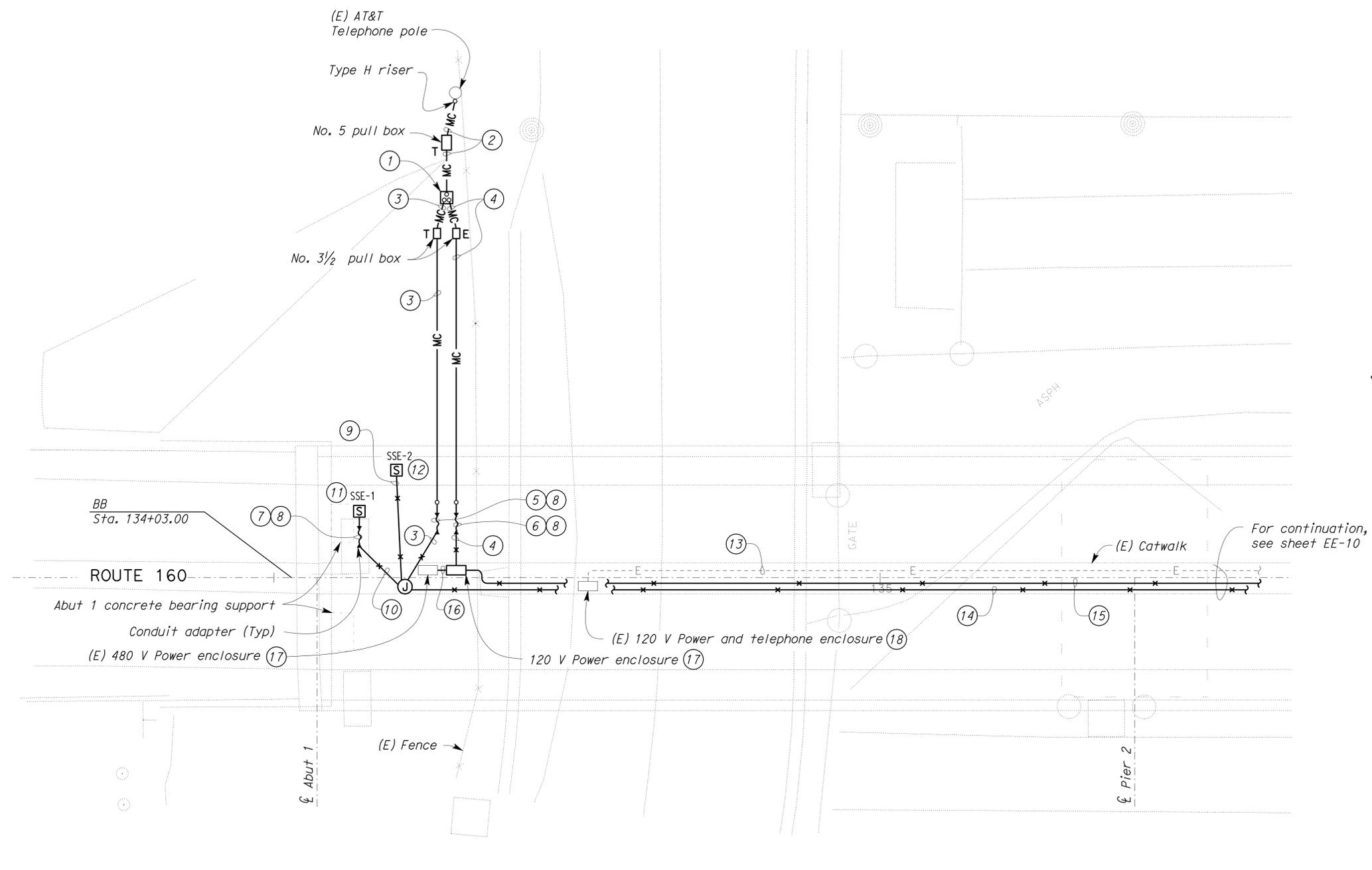
BRIDGE NO.	28-0009	ANTIOCH BRIDGE SEISMIC RETROFIT	SHEET EE-8
POST MILE	0.8		
SEISMIC SENSOR LAYOUT 5 PIER 36 TO ABUTMENT 71			

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	CC, Sac	160	0.8/1.3, LO.0/L1.3	105	168

<i>Imran Saeed</i>	11-3-09
REGISTERED ELECTRICAL ENGINEER	DATE

11-16-09
PLANS APPROVAL DATE

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- Notes:**
- 1 Install Type B telephone demarcation cabinet.
 - 2 2" C, MT.
 - 3 1" C, 6 pair ISDN cable.
 - 4 1" C, 2#10, 1#10G.
 - 5 1" C, Flex, liquidtight, 6 pair ISDN cable.
 - 6 1" C, Flex, liquidtight, 2#10, 1#10G.
 - 7 1" C, Flex, liquidtight, 2 SSC.
 - 8 Provide conduit allowance for bridge structure movement. ~~See detail on sheet EE-20.~~ See Detail 3 for conduit allowance across hedges and Detail 4 for conduit allowance across isolation bearings on sheet EE-20.
 - 9 1" C, 2 SSC, and 1 spare SSC.
 - 10 1" C, 2 SSC.
 - 11 For SSE-1 mounting location details, see sheet EE-29.
 - 12 For SSE-2 mounting location details, see sheet EE-30.
 - 13 Existing 3/4" C, 2#12, 1#12G, and telephone cable, to existing seismic recorder cabinet located at east side of Pier 4, on ground.
 - 14 2" C, 4 SSC, 1 spare SSC, and 6 pair ISDN.
 - 15 1" C, 2#10, 1#10G, to Seismic Sensor Recorder Cabinet No. 1, located at Pier 5, on ground.
 - 16 2#10, 1#12G.
 - 17 For details, see sheet EE-24.
 - 18 Existing seismic recorder cabinets at Pier 4. 120-Volt power and telephone is fed from this enclosure.

ENLARGED PLAN
ABUTMENT 1 TO PIER 2
 SCALE 1" = 10'-0"

2 REVISED PER ADDENDUM No. 2 DATED FEBRUARY 24, 2010

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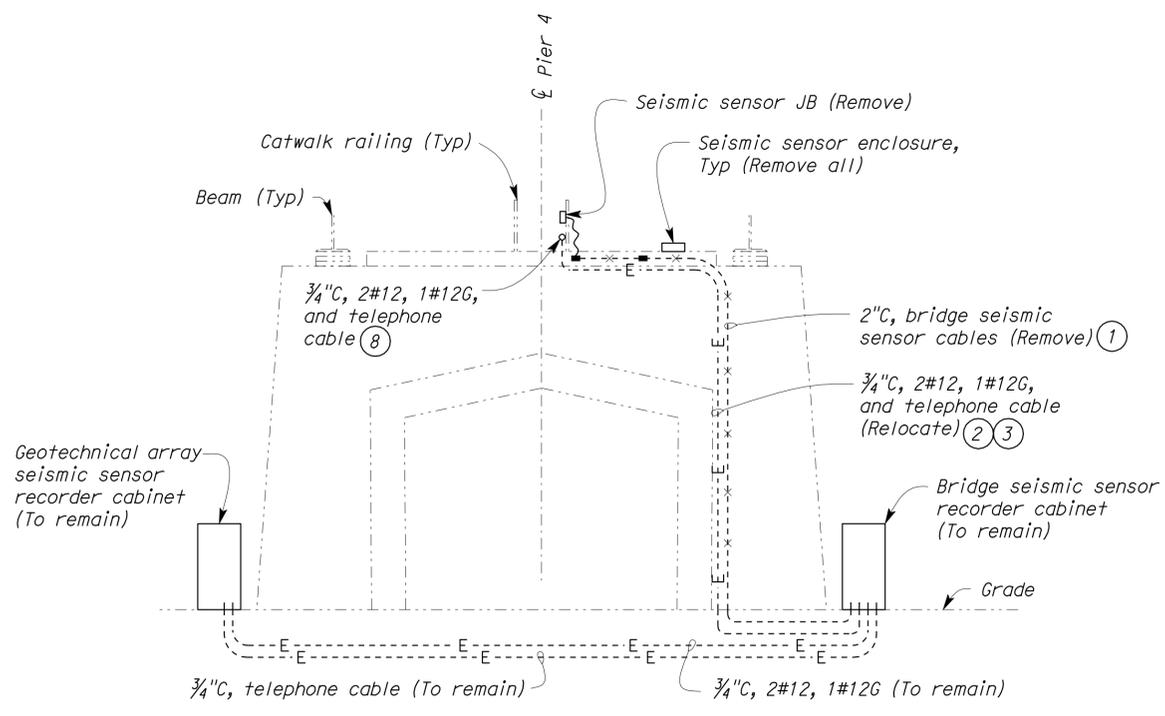
DESIGN BY <i>Imran Saeed</i>	CHECKED <i>Tech Ngov</i>	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES ELECTRICAL-MECHANICAL-WATER AND WASTEWATER DESIGN	BRIDGE NO. 28-0009	ANTIOCH BRIDGE SEISMIC RETROFIT	SHEET EE-9		
				POST MILE 0.8				
				ENLARGED PLAN ABUTMENT 1 TO PIER 2				
DETAILS BY <i>Kathl Andreasen</i>	CHECKED <i>Imran Saeed</i>	ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3	CU 04253 EA 1A5211	REVISION DATES (PRELIMINARY STAGE ONLY)				SHEET OF
QUANTITIES BY <i>Imran Saeed</i>	CHECKED <i>Tech Ngov</i>			8/7/09	8/25/09	9/7/09	10/6/09	

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	CC, Sac	160	0.8/1.3, L0.0/L1.3	107	168

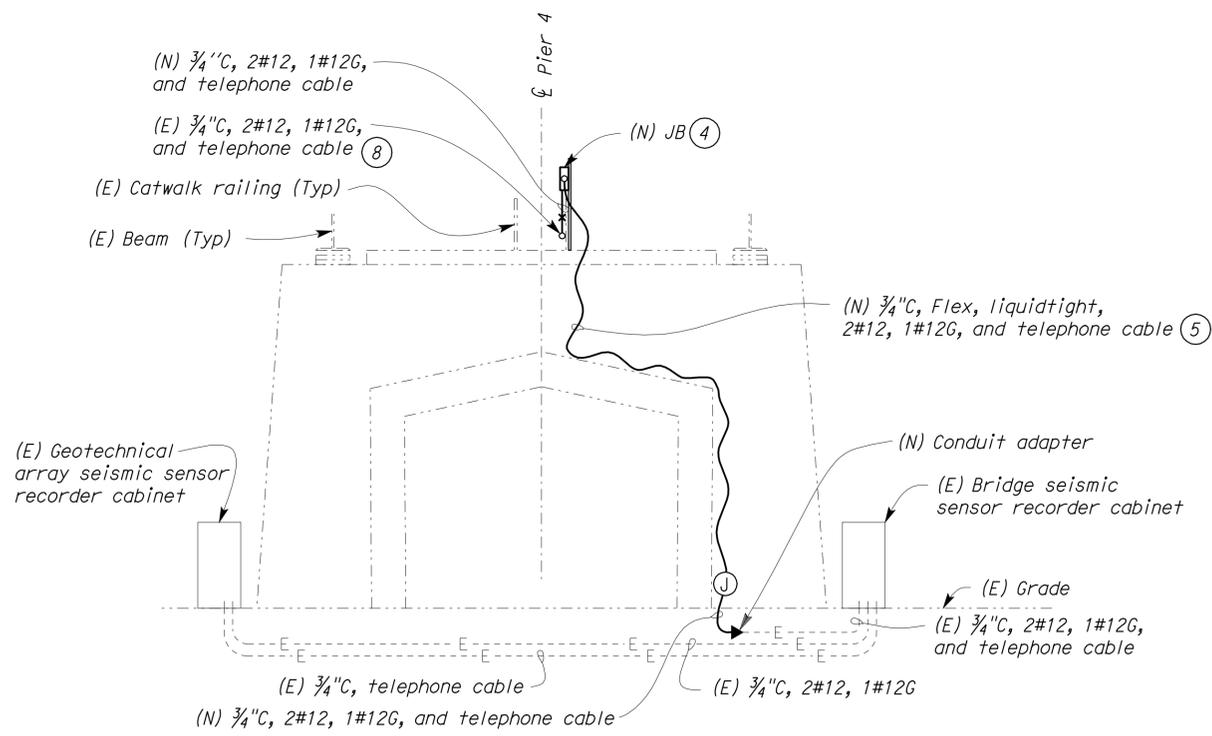
<i>Imran Saeed</i>		11-3-09
REGISTERED ELECTRICAL ENGINEER	DATE	

11-16-09
PLANS APPROVAL DATE

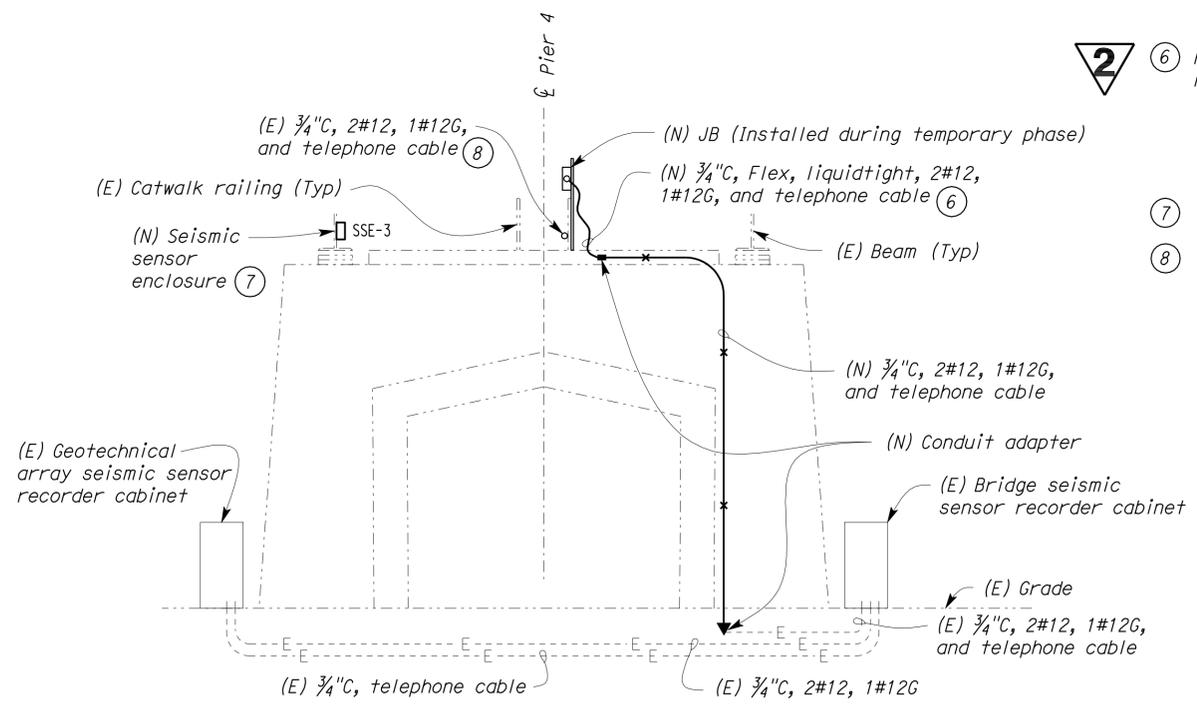
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A EXISTING ELEVATION
NO SCALE
(Looking North)



B MODIFIED TEMPORARY ELEVATION
NO SCALE
(Looking North)



C MODIFIED PERMANENT ELEVATION
NO SCALE
(Looking North)

- Notes:
- 1 Cut and remove exposed conduit. Remove cables and abandon underground portion of conduit.
 - 2 During retrofit construction work at Pier 4, the Contractor shall cut existing 3/4 inch C power and telephone conduit and provide temporary power and telephone connection to bridge seismic sensor recorder cabinet. For detail, see "MODIFIED TEMPORARY ELEVATION B", this sheet.
 - 3 After retrofit construction work is over at Pier 4, the Contractor shall provide permanent power and telephone connection to bridge seismic sensor recorder cabinet. For detail, see "MODIFIED PERMANENT ELEVATION B", this sheet.
 - 4 Cut the existing 3/4 inch C at catwalk and install a new junction box for cable splicing. Splice to existing power and telephone wires.
 - 5 Provide enough cable slack and conduit allowance to protect from damage during bridge structure jacking up operation.
 - 6 Provide conduit allowance for bridge structure movement. See detail on sheet EE-20. See Detail 3 for conduit allowance across hedges and Detail 4 for conduit allowance across isolation bearings on sheet EE-20.
 - 7 For SSE-3 mounting detail, see sheet EE-31.
 - 8 Existing conduit from existing 120 V power and telephone enclosure at Abutment 1. For continuation, see sheet EE-9.

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2 REVISED PER ADDENDUM No. 2 DATED FEBRUARY 24, 2010

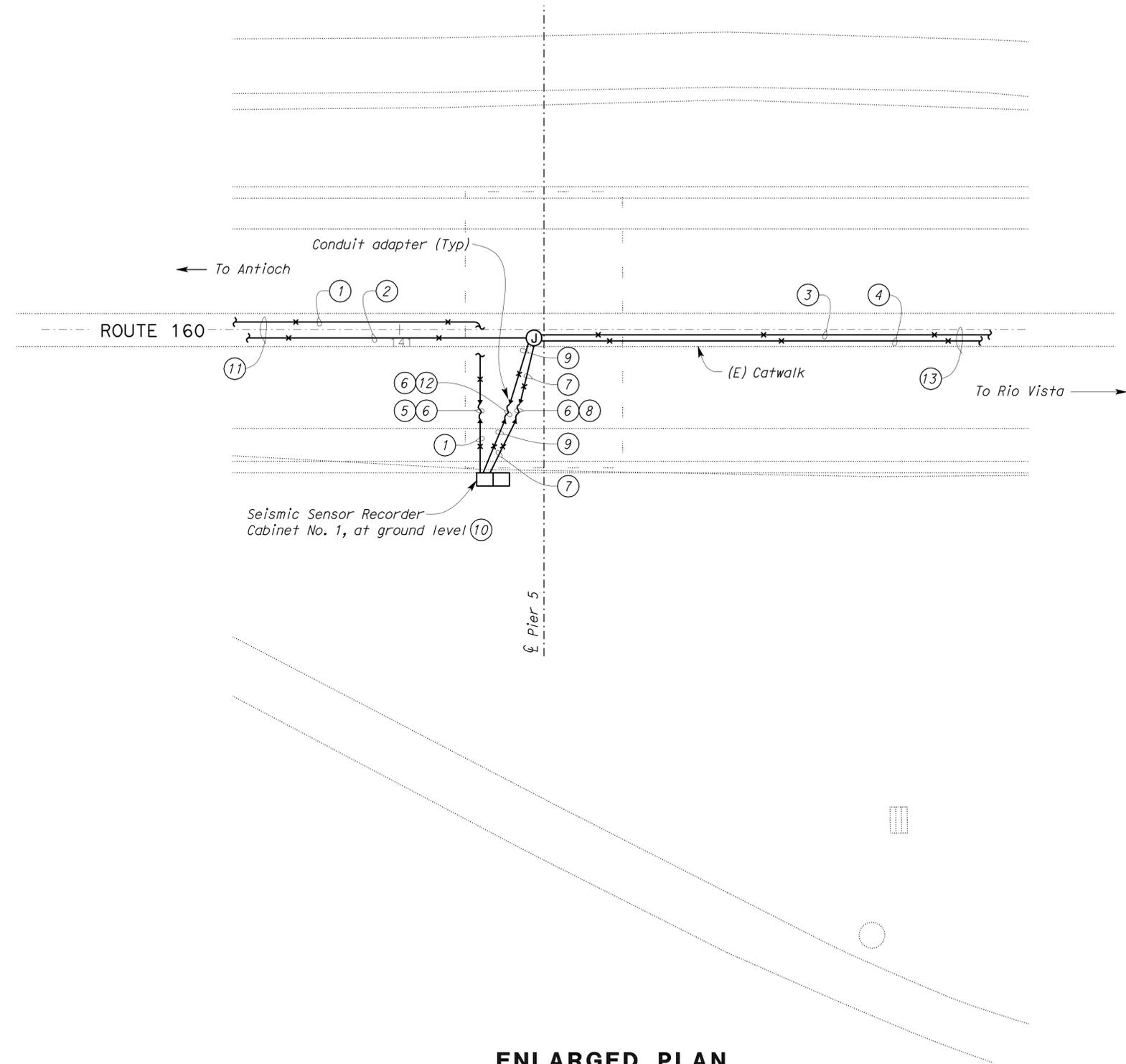
DESIGN	BY	Imran Saeed	CHECKED	Tech Ngov	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES ELECTRICAL-MECHANICAL-WATER AND WASTEWATER DESIGN	BRIDGE NO.	28-0009	ANTIOCH BRIDGE SEISMIC RETROFIT	SHEET EE-11	
	DETAILS	BY	Kathl Andreasen	CHECKED			Imran Saeed	POST MILE			0.8
	QUANTITIES	BY	Imran Saeed	CHECKED			Tech Ngov	PIER 4 DETAILS			
ORIGINAL SCALE IN INCHES FOR REDUCED PLANS					0 1 2 3	CU 04253 EA 1A5211	DISREGARD PRINTS BEARING EARLIER REVISION DATES			REVISION DATES (PRELIMINARY STAGE ONLY)	SHEET OF

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	CC, Sac	160	0.8/1.3, LO.0/L1.3	108	168

11-3-09
 REGISTERED ELECTRICAL ENGINEER DATE
 IMRAN SAEED
 No. E 18781
 Exp. 6/30/11
 ELEC
 STATE OF CALIFORNIA

11-16-09
 PLANS APPROVAL DATE

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- Notes:
- ① 1" C, 2#10, 1#10G.
 - ② 2" C, 5 SSC, 1 spare SSC, and 6 pair ISDN.
 - ③ 2" C, 11 SSC, and 1 spare SSC.
 - ④ 2" C, 9 SSC, 1 spare SSC, 1 IC, and 6 pair ISDN.
 - ⑤ 1" C, Flex, liquidtight, 2#10, 1#10G.
 - ⑥ Provide conduit allowance for bridge structure movement. See detail on sheet EE-20. See Detail 3 for conduit allowance across hinges and Detail 4 for conduit allowance across isolation bearings on sheet EE-20.
 - ⑦ 2 1/2" C, 9 SSC, 1 spare SSC, 1 IC, and 6 pair ISDN.
 - ⑧ 2 1/2" C, Flex, liquidtight, 9 SSC, 1 spare SSC, 1 IC, and 6 pair ISDN.
 - ⑨ 2 1/2" C, 16 SSC, 2 spare SSC, and 6 pair ISDN.
 - ⑩ Install Type S cabinet. For wiring and details, see sheet EE-23.
 - ⑪ For continuation, see sheet EE-4.
 - ⑫ 2 1/2" C, Flex, 16SSC, 2 spare SSC, and 6 pair ISDN.
 - ⑬ For continuation, see sheet EE-4.

ENLARGED PLAN

PIER 5

SCALE 1" = 10'-0"



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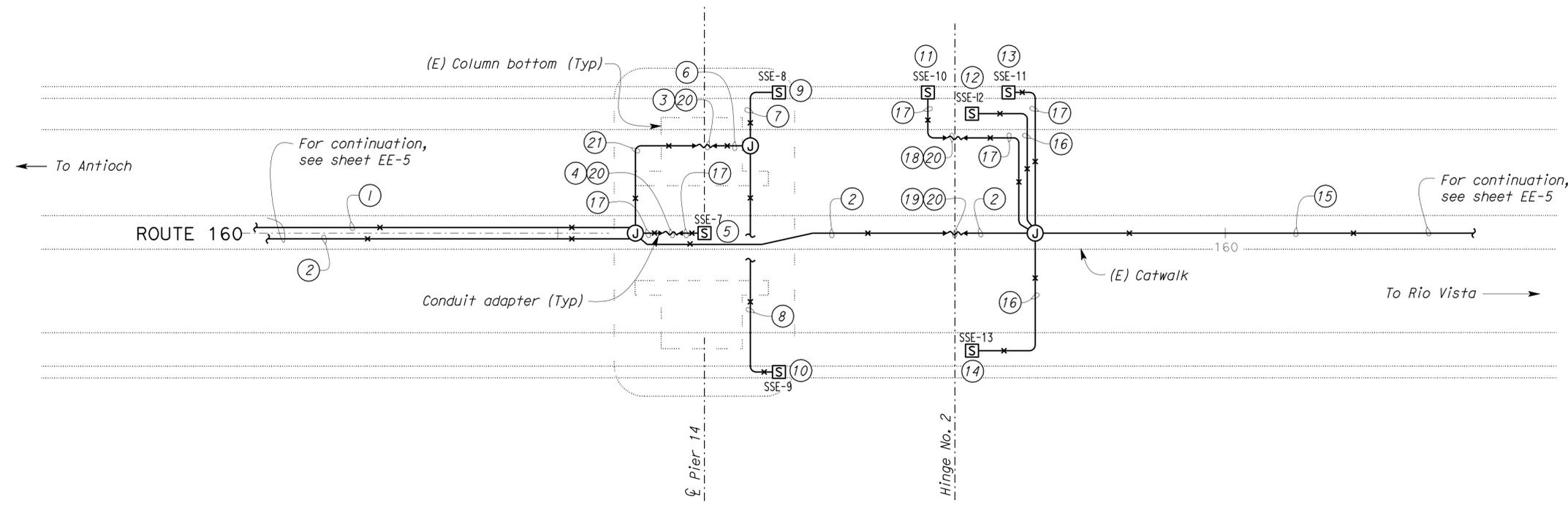
DESIGN BY <i>Imran Saeed</i>	CHECKED <i>Tech Ngov</i>	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES ELECTRICAL-MECHANICAL-WATER AND WASTEWATER DESIGN	BRIDGE NO. 28-0009	ANTIOCH BRIDGE SEISMIC RETROFIT	SHEET EE-12		
				POST MILE 0.8				
				ENLARGED PLAN PIER 5				
DETAILS BY <i>Kathl Andreasen</i>	CHECKED <i>Imran Saeed</i>	ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3	CU 04253 EA 1A5211	REVISION DATES (PRELIMINARY STAGE ONLY)				SHEET OF
QUANTITIES BY <i>Imran Saeed</i>	CHECKED <i>Tech Ngov</i>			8/7/09	8/28/09	9/15/09	11/3/09	

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	CC, Sac	160	0.8/1.3, L0.0/L1.3	109	168

<i>Imran Saeed</i>	11-3-09
REGISTERED ELECTRICAL ENGINEER	DATE

11-16-09
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ENLARGED PLAN
PIER 14
 SCALE 1" = 10'-0"

- Notes:
- ① 1/2" C, 6 SSC, and 1 spare SSC.
 - ② 2" C, 9 SSC, 1 spare SSC, 1 IC, and 6 pair ISDN.
 - ③ 1" C, Flex, 3 SSC, and 1 spare SSC.
 - ④ 1" C, Flex, 3 SSC.
 - ⑤ For SSE-7 mounting location details, see sheet EE-32.
 - ⑥ 1" C, PVC coated, 3 SSC, and 1 spare SSC.
 - ⑦ 1" C, PVC coated, 2 SSC.
 - ⑧ 1" C, PVC coated, 1 SSC, and 1 spare SSC.
 - ⑨ For SSE-8 mounting location details, see sheet EE-35.
 - ⑩ For SSE-9 mounting location details, see sheet EE-35.
 - ⑪ For SSE-10 mounting location details, see sheet EE-36.
 - ⑫ For SSE-12 mounting location details, see sheet EE-37.
 - ⑬ For SSE-11 mounting location details, see sheet EE-36.
 - ⑭ For SSE-13 mounting location details, see sheet EE-37.
 - ⑮ 1/2" C, 1 SSC, 1 spare SSC, 1 IC, and 6 pair ISDN.
 - ⑯ 1" C, 1 SSC.
 - ⑰ 1" C, 3 SSC.
 - ⑱ 1" C, Flex, 3 SSC.
 - ⑲ 2" C, Flex, 9 SSC, and 1 spare SSC, 1 IC, and 6 pair ISDN.
 - ⑳ Provide conduit allowance for bridge structure movement. See detail on sheet EE-20. See Detail 3 for conduit allowance across hinges and Detail 4 for conduit allowance across isolation bearings on sheet EE-20.
 - ㉑ 1" C, 3 SSC, and 1 spare SSC.

2 REVISED PER ADDENDUM No. 2 DATED FEBRUARY 24, 2010

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	DETAILS	BY	Kathl Andreasen	CHECKED			Imran Saeed	POST MILE			0.8
	QUANTITIES	BY	Imran Saeed	CHECKED			Tech Ngov	ENLARGED PLAN PIER 14			
ORIGINAL SCALE IN INCHES FOR REDUCED PLANS					0	1	2	3	DISREGARD PRINTS BEARING EARLIER REVISION DATES		
					CU 04253 EA 1A5211			REVISION DATES (PRELIMINARY STAGE ONLY)		SHEET OF	

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DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	CC, Sac	160	0.8/1.3, LO.0/L1.3	110	168

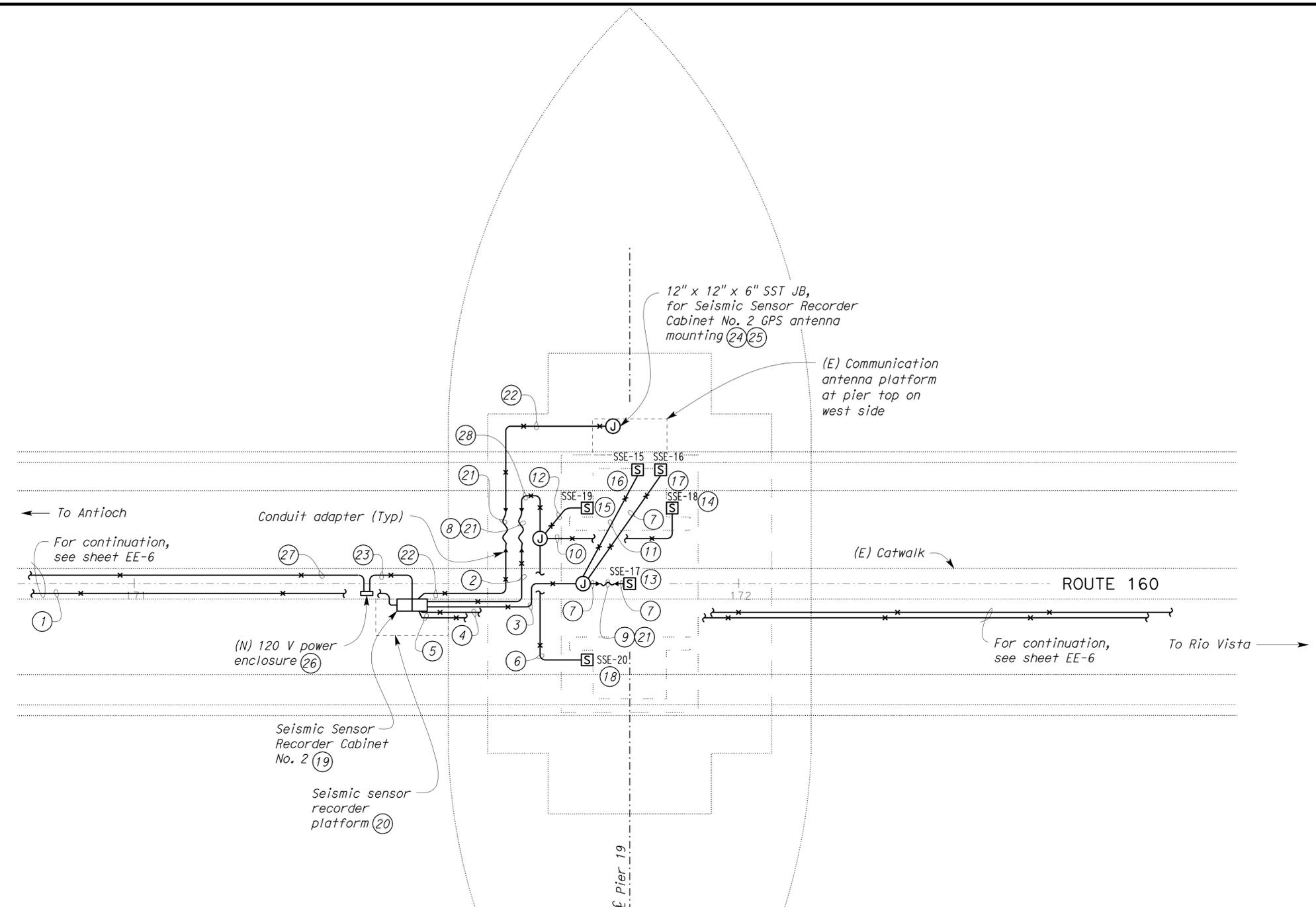
REGISTERED ELECTRICAL ENGINEER: *Imran Saeed*
 DATE: 11-3-09
 No. E 18781
 Exp. 6/30/11
 ELEC
 STATE OF CALIFORNIA

11-16-09
PLANS APPROVAL DATE

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Notes:

- ① 1½"C, 1 IC, and 6 pair ISDN.
- ② 1½"C, 6 SSC, and 1 spare SSC.
- ③ 1½"C, 8 SSC.
- ④ 2"C, 9 SSC, and 1 spare SSC.
- ⑤ 2"C, 7 SSC, 2 spare SSC, 1 IC, and 6 pair ISDN.
- ⑥ 1"C, PVC coated, 2 SSC.
- ⑦ 1"C, 3 SSC.
- ⑧ 1½" C, Flex, liquidtight, 6 SSC, and 1 spare SSC.
- ⑨ 1"C, Flex, liquidtight, 3 SSC.
- ⑩ 1"C, PVC coated, 3 SSC, and 1 spare SSC.
- ⑪ 1"C, 2 SSC.
- ⑫ 1"C, PVC coated, 1 SSC.
- ⑬ For SSE-17 mounting location details, see sheet EE-32.
- ⑭ For SSE-18 mounting location details, see sheet EE-38.
- ⑮ For SSE-19 mounting location details, see sheet EE-38.
- ⑯ For SSE-15 mounting location details, see sheet EE-33.
- ⑰ For SSE-16 mounting location details, see sheet EE-31.
- ⑱ For SSE-20 mounting location details, see sheet EE-38.
- ⑲ For details, see sheet EE-25.
- ⑳ For details, see sheet ~~ST-1~~ AS-1
- ㉑ Provide conduit allowance for bridge structure movement. ~~See detail on sheet EE-20.~~ See Detail 3 for conduit allowance across hedges and Detail 4 for conduit allowance across isolation bearings on sheet EE-20.
- ㉒ 1½"C, MT, pull rope only.
- ㉓ 1"C, 2#10, 1#12G.
- ㉔ For junction box mounting detail, see ²/_{EE-21}.
- ㉕ GPS antenna and wiring will be installed by CGS.
- ㉖ For details, see sheet EE-26.
- ㉗ 1"C, 2#8, 1#12G.
- ㉘ 1½"C, PVC coated, 6 SSC, and 1 spare SSC.



2 REVISED PER ADDENDUM No. 2 DATED FEBRUARY 24, 2010

ENLARGED PLAN

PIER 19
SCALE 1" = 10'-0"



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	DETAILS	BY	Kathl Andreasen	CHECKED			Imran Saeed	POST MILE			0.8
	QUANTITIES	BY	Imran Saeed	CHECKED			Tech Ngov	ENLARGED PLAN PIER 19			
ORIGINAL SCALE IN INCHES FOR REDUCED PLANS					0	1	2	3	DISREGARD PRINTS BEARING EARLIER REVISION DATES		
DOES SD Imperial Rev. 1/07					CU 04253 EA 1A5211			REVISION DATES (PRELIMINARY STAGE ONLY)		SHEET	OF

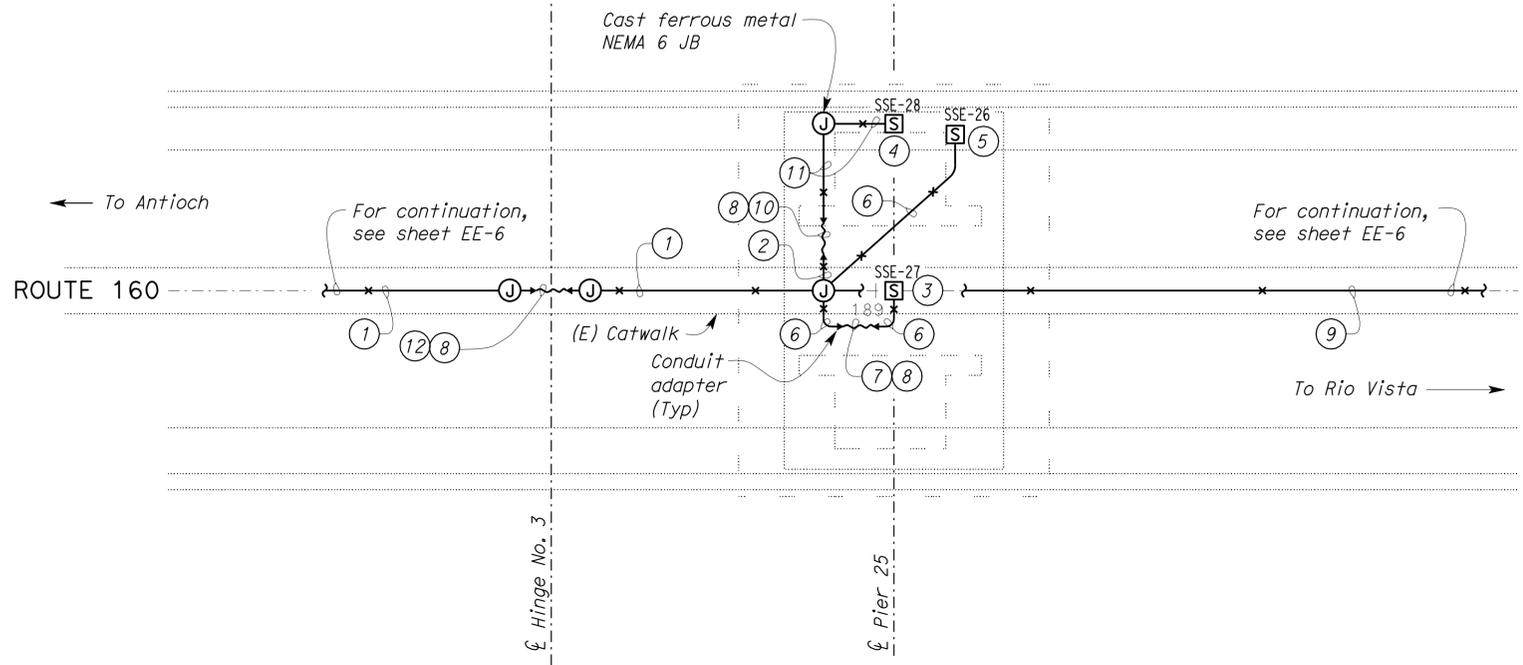
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DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	CC, Sac	160	0.8/1.3, LO.0/L1.3	111	168

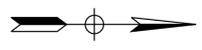
REGISTERED ELECTRICAL ENGINEER: *Imran Saeed*
 DATE: 11-3-09
 PLANS APPROVAL DATE: 11-16-09

REGISTERED PROFESSIONAL ENGINEER
 IMRAN SAEED
 No. E 18781
 Exp. 6/30/11
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ENLARGED PLAN
PIER 25
SCALE 1" = 10'-0"



- Notes:**
- ① 2"C, 7 SSC, 2 spare SSC, 1 IC, and 6 pair ISDN.
 - ② 1"C, 2 SSC, and 1 spare SSC.
 - ③ For SSE-27 mounting location details, see sheet EE-32.
 - ④ For SSE-28 mounting location details, see sheet EE-39.
 - ⑤ For SSE-26 mounting location details, see sheet EE-31.
 - ⑥ 1"C, 2 SSC.
 - ⑦ 1" C, Flex, liquidtight, 2 SSC.
 - ⑧ Provide conduit allowance for bridge structure movement. See detail on sheet EE-20. See Detail 3 for conduit allowance across hinges and Detail 4 for conduit allowance across isolation bearings on sheet EE-20.
 - ⑨ 1/2"C, 1 SSC, 1 spare SSC, 1 IC, and 6 pair ISDN.
 - ⑩ 1"C, Flex, liquidtight, 2 SSC, and 1 spare SSC.
 - ⑪ 1"C, PVC coated, 2 SSC, and 1 spare SSC.
 - ⑫ 2"C, Flex, liquidtight, 7 SSC, 2 spare SSC, 1 IC, and 6 pair ISDN.

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2 REVISED PER ADDENDUM No. 2 DATED FEBRUARY 24, 2010

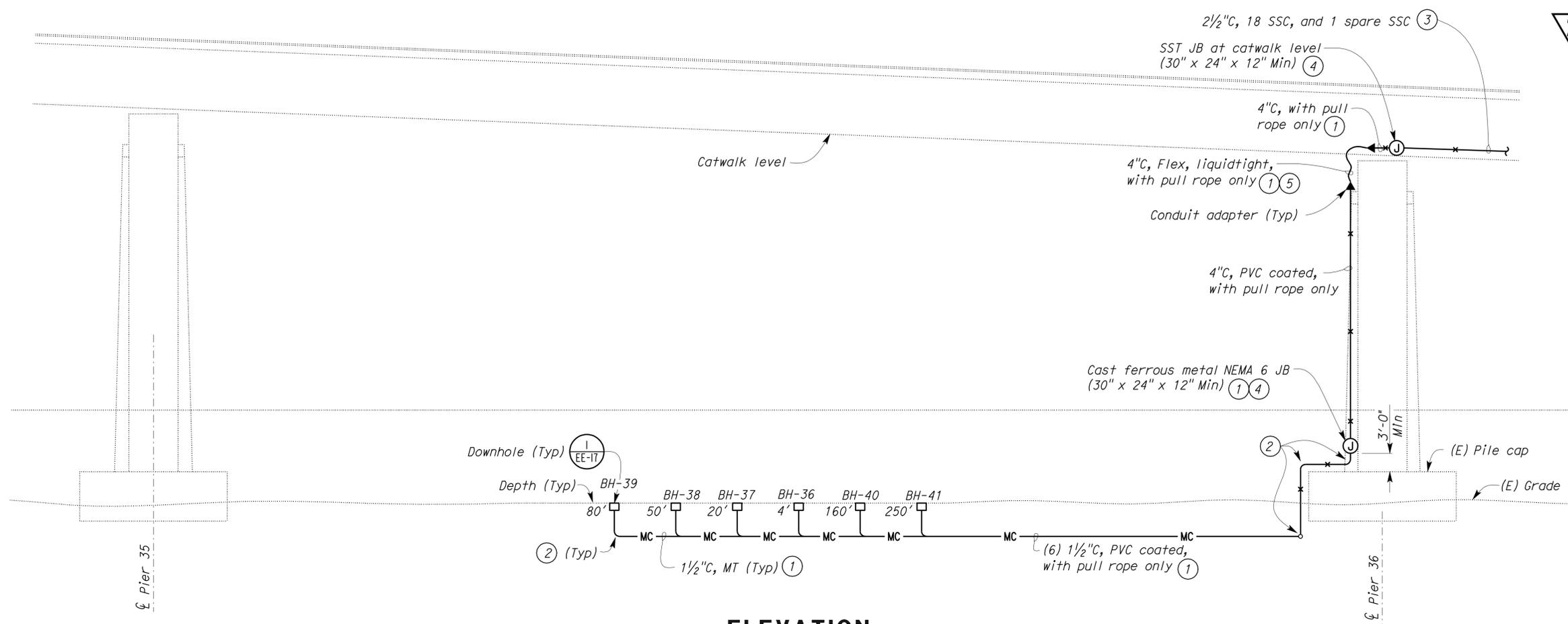
DESIGN BY <i>Imran Saeed</i>	CHECKED <i>Tech Ngov</i>	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES ELECTRICAL-MECHANICAL-WATER AND WASTEWATER DESIGN	BRIDGE NO. 28-0009	ANTIOCH BRIDGE SEISMIC RETROFIT	SHEET EE-15	
				POST MILE 0.8			
				ENLARGED PLAN PIER 25			
DETAILS BY <i>Kathl Andreasen</i>	CHECKED <i>Imran Saeed</i>	ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3	CU 04253 EA 1A5211	REVISION DATES (PRELIMINARY STAGE ONLY)			SHEET OF
QUANTITIES BY <i>Imran Saeed</i>	CHECKED <i>Tech Ngov</i>			DISREGARD PRINTS BEARING EARLIER REVISION DATES	8/7/09	8/28/09	

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	CC,Sac	160	0.8/1.3, LO.0/L1.3	112	168

11-3-09 DATE
 REGISTERED ELECTRICAL ENGINEER
 IMRAN SAEED No. E 18781
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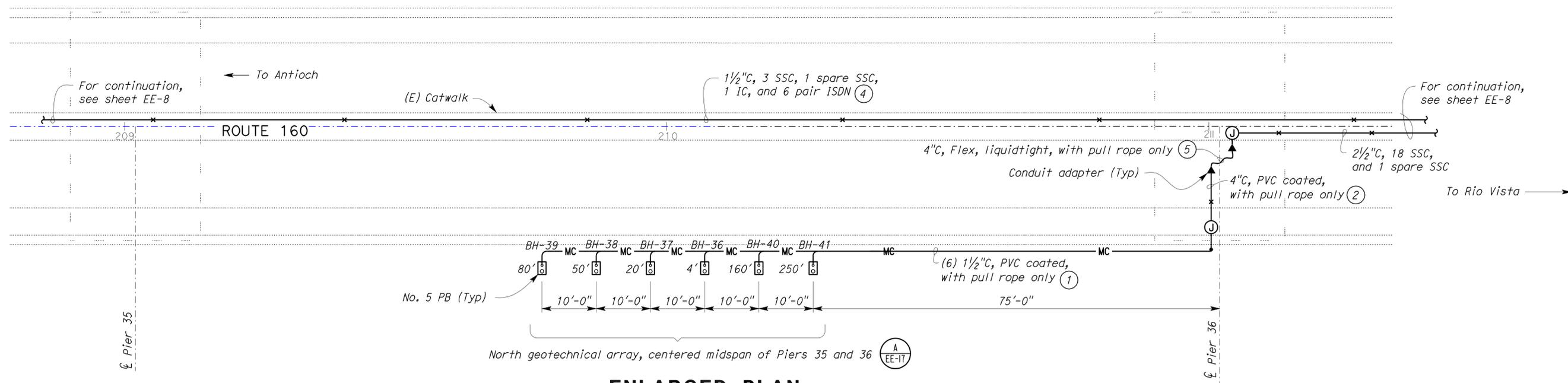
11-16-09
 PLANS APPROVAL DATE

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ELEVATION

- Notes:
- Downhole sensor cable installed in conduit by CGS.
 - Conduit shall have 24-inch minimum radius bend.
 - For continuation, see sheet EE-8.
 - Downhole sensor cables in the junction box shall be spliced to the seismic sensor cables by CGS.
 - Provide conduit allowance for bridge structure movement. See Detail 3 for conduit allowance across hinges and Detail 4 for conduit allowance across isolation bearings on sheet EE-20.



**ENLARGED PLAN
PIER 35 TO PIER 36**

THIS DRAWING IS ACCURATE FOR ELECTRICAL WORK ONLY.

SCALE 1" = 10'-0"

**2 REVISED PER ADDENDUM
No. 2 DATED FEBRUARY 24, 2010**

DESIGN BY <i>Imran Saeed</i>	CHECKED <i>Tech Ngov</i>	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES ELECTRICAL-MECHANICAL-WATER AND WASTEWATER DESIGN	BRIDGE NO. 28-0009	ANTIOCH BRIDGE SEISMIC RETROFIT	SHEET EE-16	
				POST MILE 0.8			
				ENLARGED PLAN PIER 35 TO PIER 36			
DETAILS BY <i>Kathl Andreasen</i>	CHECKED <i>Imran Saeed</i>	ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3	CU 04253 EA 1A5211	REVISION DATES (PRELIMINARY STAGE ONLY)			SHEET OF
QUANTITIES BY <i>Imran Saeed</i>	CHECKED <i>Tech Ngov</i>			8/7/09	8/28/09	9/28/09	

DOES SD Imperial Rev. 1/07

DISREGARD PRINTS BEARING EARLIER REVISION DATES

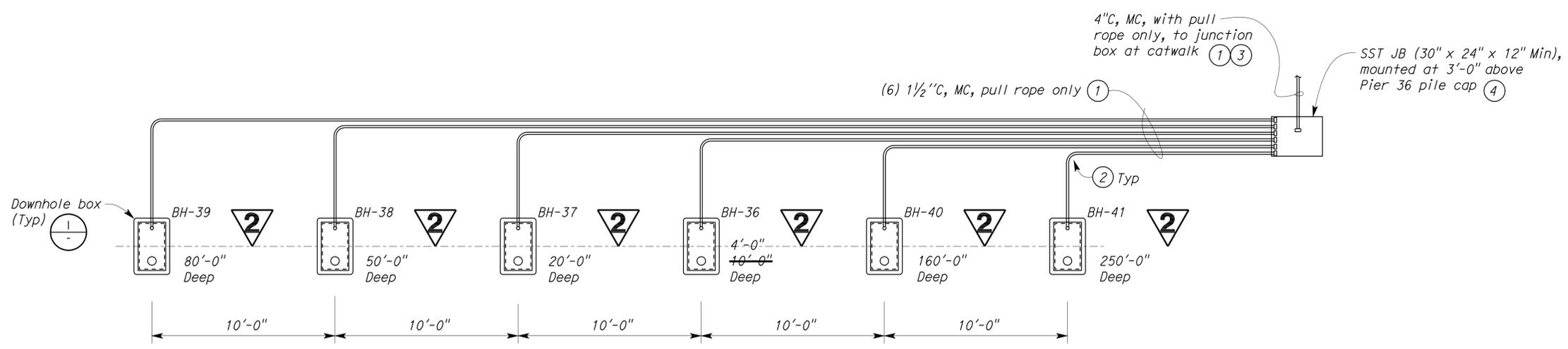
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DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	CC,Sac	160	0.8/1.3, L0.0/L1.3	113	168

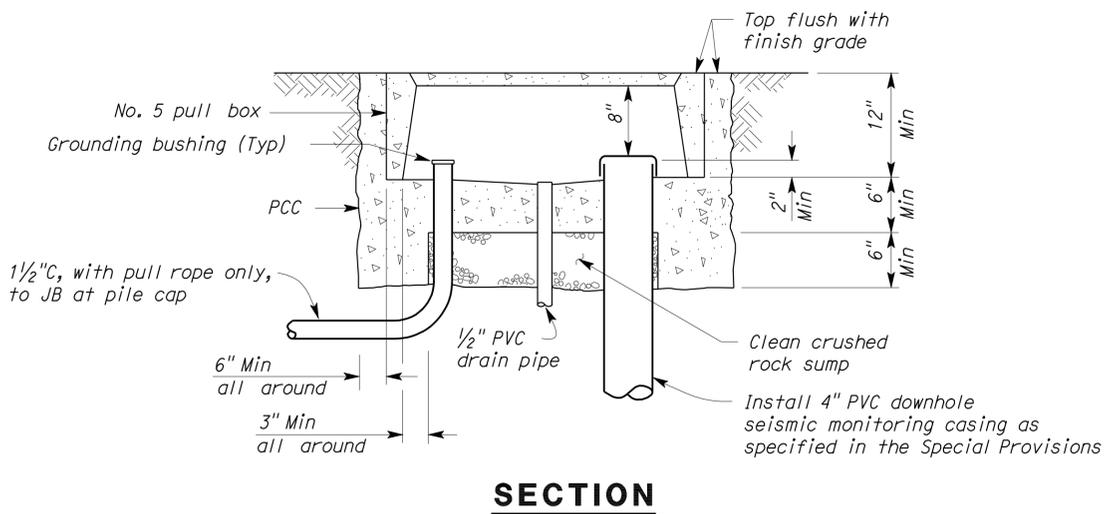
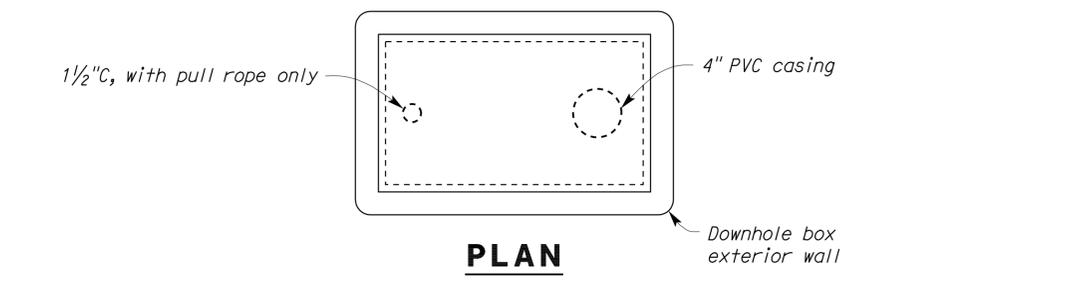
<i>Imran Saeed</i>		11-3-09
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A NORTH GEOTECHNICAL ARRAY PLAN BETWEEN PIER 35 AND 36
NO SCALE



1 DOWNHOLE BOX DETAIL
NO SCALE

2 REVISED PER ADDENDUM No. 2 DATED FEBRUARY 24, 2010

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			28-0009			
			POST MILE 0.8			
DETAILS BY <i>Kathl Andreasen</i> CHECKED <i>Imran Saeed</i>			NORTH GEOTECHNICAL ARRAY PLAN			
QUANTITIES BY <i>Imran Saeed</i> CHECKED <i>Tech Ngov</i>						
DOES SD Imperial Rev. 1/07	ORIGINAL SCALE IN INCHES FOR REDUCED PLANS	0 1 2 3	CU 04253 EA 1A5211	DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES (PRELIMINARY STAGE ONLY)	SHEET OF

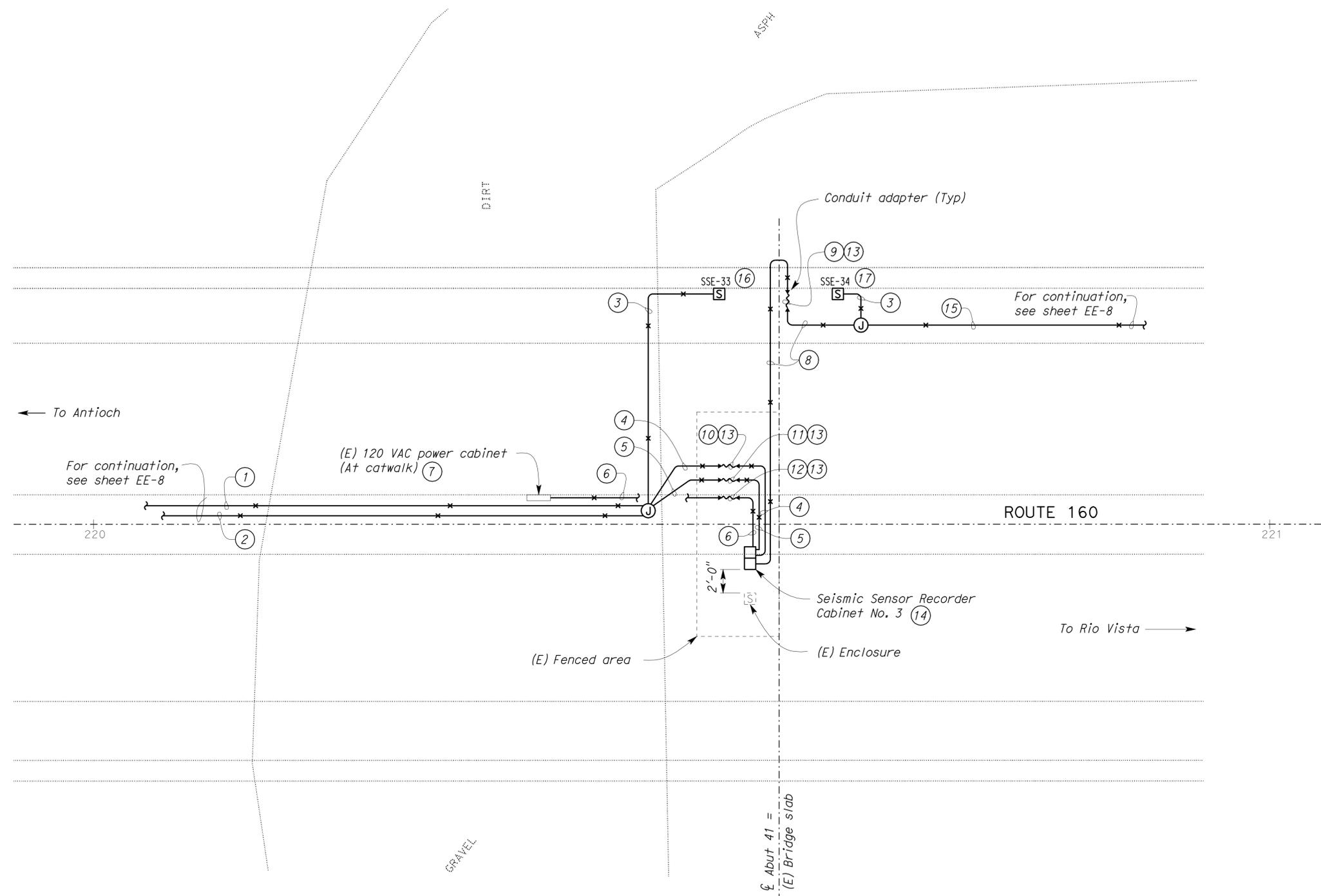
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DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	CC, Sac	160	0.8/1.3, LO.0/L1.3	114	168

REGISTERED ELECTRICAL ENGINEER: *Imran Saeed*
 DATE: 11-3-09
 PLANS APPROVAL DATE: 11-16-09

REGISTERED PROFESSIONAL ENGINEER
 IMRAN SAEED
 No. E 18781
 Exp. 6/30/11
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- Notes:**
- ① 2" C, 9 SSC, 1 spare SSC, 1 IC, and 6 pair ISDN.
 - ② 2½" C, 18 SSC, and 1 spare SSC.
 - ③ 1" C, 2 SSC.
 - ④ 2½" C, 11 SSC, 1 spare SSC, 1 IC, and 6 pair ISDN.
 - ⑤ 2½" C, 18 SSC, and 1 spare SSC.
 - ⑥ 1" C, 2#10, 1#12G.
 - ⑦ Install a new 15-ampere, 1-pole circuit breaker inside existing 120-volt AC power cabinet, to feed electrical power to Seismic Sensor Recorder Cabinet No. 3. For details, see sheet EE-28.
 - ⑧ ½" C, 4 SSC, and 1 spare SSC.
 - ⑨ ½" C, Flex, liquidtight, 4 SSC, and 1 spare SSC.
 - ⑩ 2½" C, Flex, liquidtight, 11 SSC, 1 spare SSC, 1 IC, and 6 pair ISDN.
 - ⑪ 2½" C, Flex, liquidtight, 18 SSC, and 1 spare SSC.
 - ⑫ 1" C, Flex, liquidtight, 2#10, 1#12G.
 - ⑬ Provide conduit allowance for bridge structure movement. For detail, see sheet EE-20. See Detail 3 for conduit allowance across hinges and Detail 4 for conduit allowance across isolation bearings on sheet EE-20.
 - ⑭ For wiring and details, see sheet EE-27.
 - ⑮ 1" C, 2 SSC, and 1 spare SSC.
 - ⑯ For SSE-33 mounting location details, see sheet EE-40.
 - ⑰ For SSE-34 mounting location details, see sheet EE-41.

ENLARGED PLAN
ABUTMENT 41
 SCALE 1" = 5'-0"

2
REVISED PER ADDENDUM No. 2 DATED FEBRUARY 24, 2010

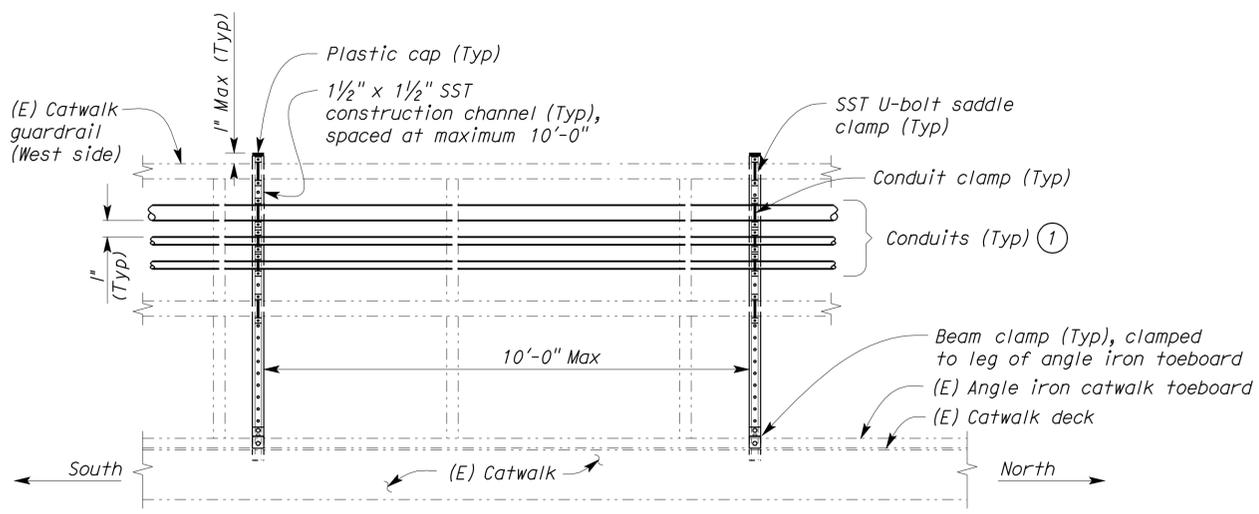
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DESIGN	BY	Imran Saeed	CHECKED	Tech Ngov	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES ELECTRICAL-MECHANICAL-WATER AND WASTEWATER DESIGN	BRIDGE NO.	28-0009	ANTIOCH BRIDGE SEISMIC RETROFIT	SHEET EE-18	
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	QUANTITIES	BY	Imran Saeed	CHECKED			Tech Ngov	ENLARGED PLAN ABUTMENT 41			
ORIGINAL SCALE IN INCHES FOR REDUCED PLANS					0	1	2	3	DISREGARD PRINTS BEARING EARLIER REVISION DATES		
DOES SD Imperial Rev. 1/07					CU 04253 EA 1A5211			REVISION DATES (PRELIMINARY STAGE ONLY)		SHEET	OF

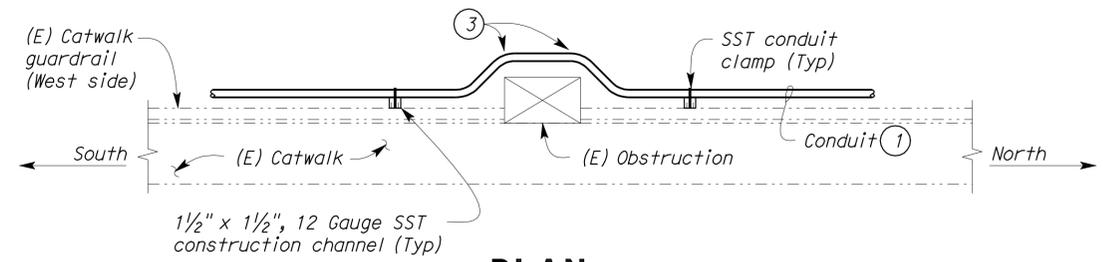
DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	CC, Sac	160	0.8/1.3, L0.0/L1.3	116	168

REGISTERED ELECTRICAL ENGINEER	DATE
<i>Imran Saeed</i>	11-3-09
PLANS APPROVAL DATE	
11-16-09	

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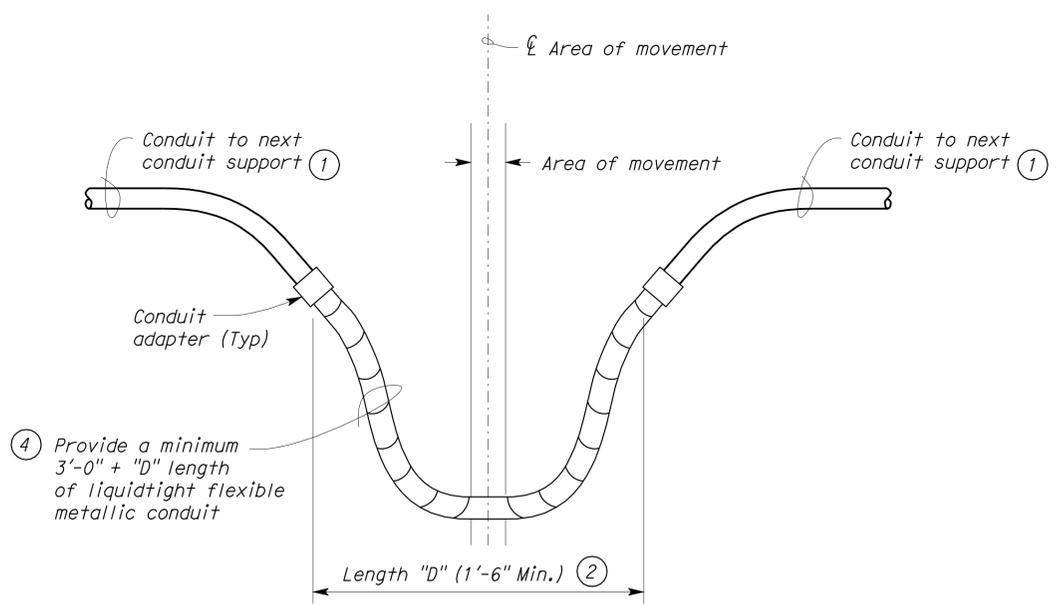


1 MOUNTING DETAIL
NO SCALE

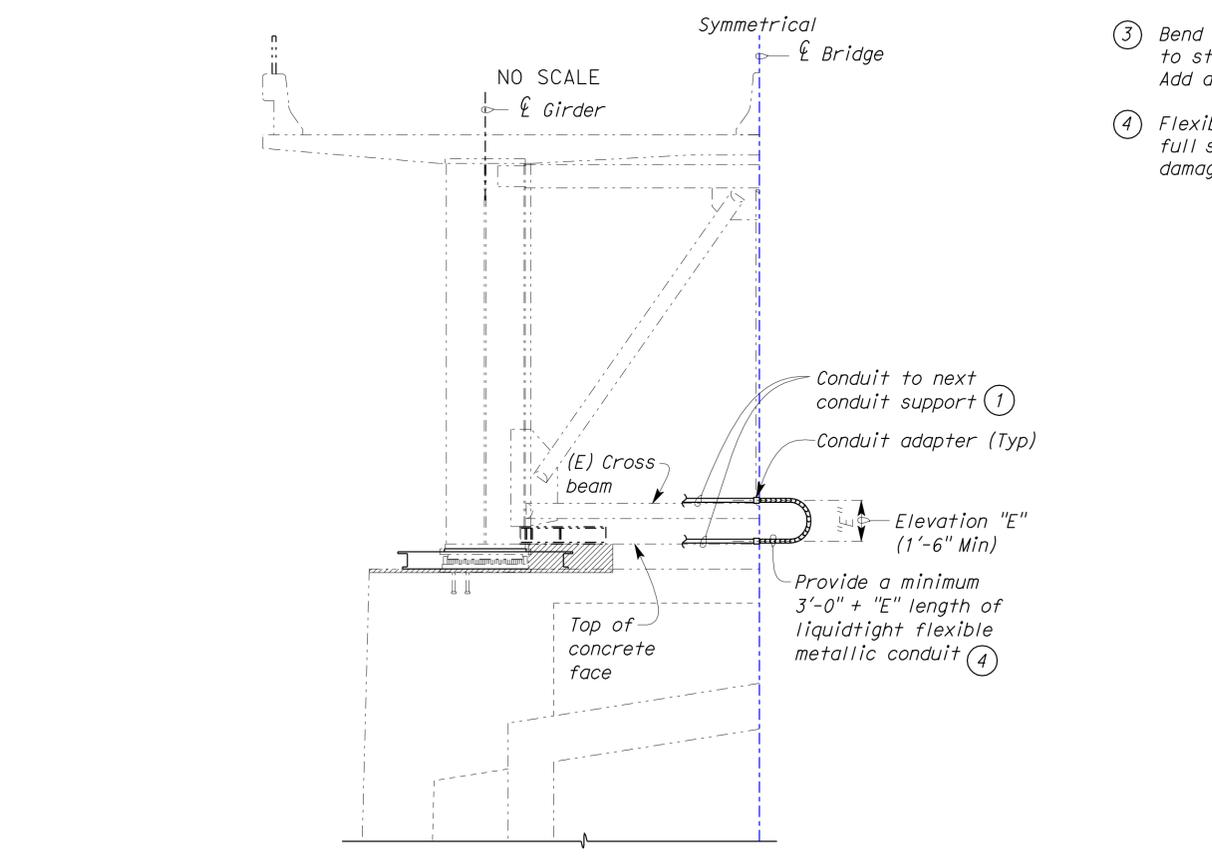


2 CONDUIT ROUTING PAST OBSTRUCTION
NO SCALE

- Notes:
- See plan sheets for actual number of conduits and cables.
 - Those conduits which do not run alongside the catwalk shall still have a minimum 3'-0" + "D" length of liquidtight flexible metallic conduit between the rigid steel conduit as shown. Conduit supports shall be as required for the location and as directed by the Engineer.
 - Bend conduit to miss obstructions and attach to structural members with clamps, as necessary. Add additional pull boxes as required.
 - Flexible conduits shall be installed to allow for full structure movement without sustaining damage.



3 CONDUIT ALLOWING FOR BRIDGE MOVEMENT ACROSS HINGES 1, 2, 3 & 4
NO SCALE



4 CONDUIT ALLOWING FOR BRIDGE MOVEMENT ACROSS ISOLATION BEARINGS AT PIERS 4, 6, 14, 19, 20, 25, 36 & 38 (ABUTMENT 1 & ABUTMENT 41 SIMILAR)
NO SCALE

THIS DRAWING ACCURATE FOR ELECTRICAL WORK ONLY.

2 REVISED PER ADDENDUM No. 2 DATED FEBRUARY 24, 2010

DESIGN	BY	<i>Imran Saeed</i>	CHECKED	<i>Tech Ngov</i>	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES ELECTRICAL-MECHANICAL-WATER AND WASTEWATER DESIGN	BRIDGE NO.	28-0009	ANTIOCH BRIDGE SEISMIC RETROFIT	SHEET EE-20	
	DETAILS	BY	<i>Kathl Andreasen</i>	CHECKED			<i>Imran Saeed</i>	POST MILE			0.8
	QUANTITIES	BY	<i>Imran Saeed</i>	CHECKED			<i>Tech Ngov</i>	CONDUIT SUPPORT DETAILS			
ORIGINAL SCALE IN INCHES FOR REDUCED PLANS					0 1 2 3	CU 04253 EA 1A5211	DISREGARD PRINTS BEARING EARLIER REVISION DATES			REVISION DATES (PRELIMINARY STAGE ONLY)	SHEET OF

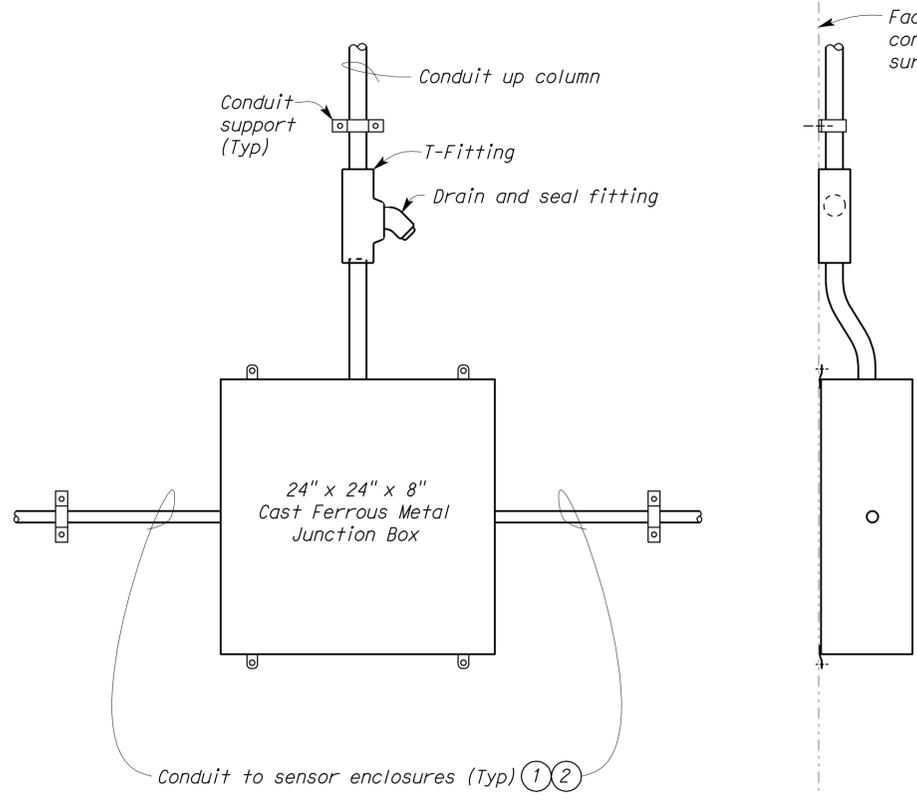
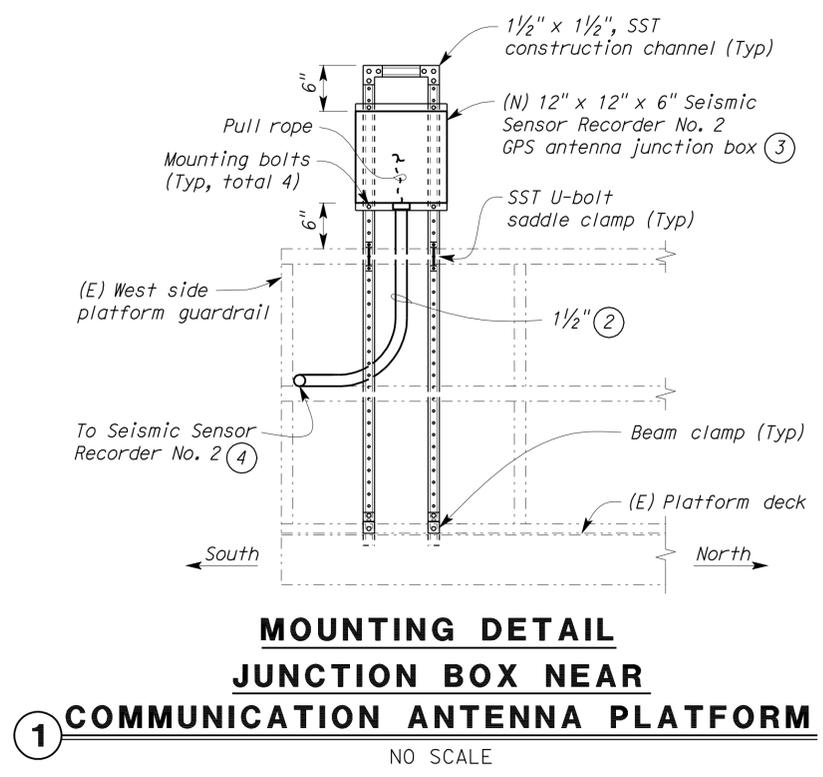
17-FEB-2010 06:24 ee_20.add

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	CC, Sac	160	0.8/1.3, LO.0/L1.3	118	168

<i>Imran Saeed</i>	11-3-09
REGISTERED ELECTRICAL ENGINEER	DATE

11-16-09
PLANS APPROVAL DATE

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- Notes:
- ① For junction box located at pier wall and pile cap, conduits to sensor enclosures shall exit from the side of junction box. A drain fitting shall be installed at the bottom of junction box.
 - ② See plan sheets for actual number of conduits and cables.
 - ③ GPS antenna and wiring will be installed by CGS.
 - ④ For continuation, see sheet EE-14.

THIS DRAWING ACCURATE FOR ELECTRICAL WORK ONLY.

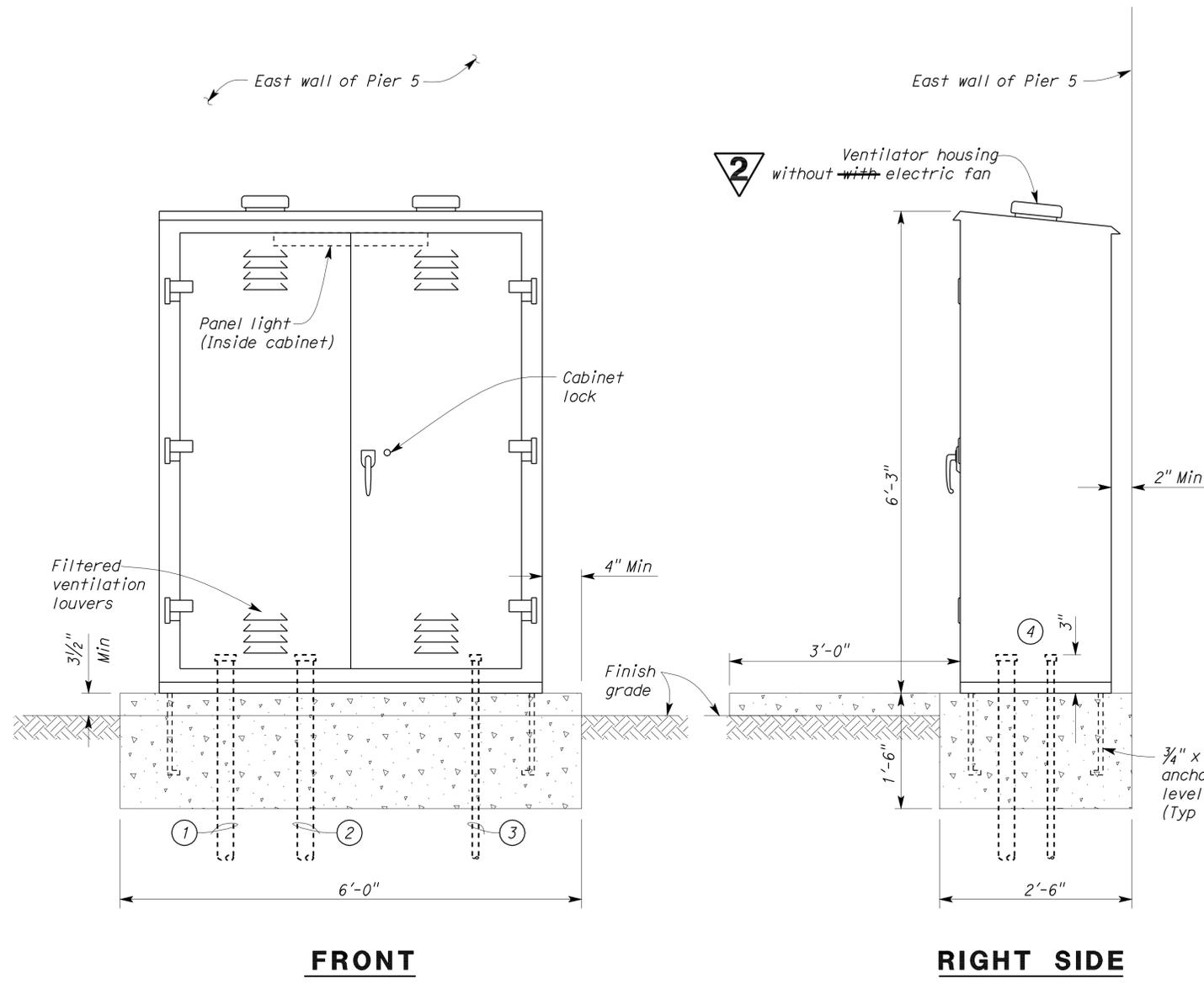
2 REVISED PER ADDENDUM No. 2 DATED FEBRUARY 24, 2010

DESIGN	BY	<i>Imran Saeed</i>	CHECKED	<i>Tech Ngov</i>	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES ELECTRICAL-MECHANICAL-WATER AND WASTEWATER DESIGN	BRIDGE NO.	28-0009	ANTIOCH BRIDGE SEISMIC RETROFIT	SHEET EE-22		
	DETAILS	BY	<i>Kathl Andreasen</i>	CHECKED			<i>Imran Saeed</i>	POST MILE			0.8	JUNCTION BOX MOUNTING DETAILS NO. 2
	QUANTITIES	BY	<i>Imran Saeed</i>	CHECKED			<i>Tech Ngov</i>	REVISION DATES (PRELIMINARY STAGE ONLY)				
ORIGINAL SCALE IN INCHES FOR REDUCED PLANS					0	1	2	3	DISREGARD PRINTS BEARING EARLIER REVISION DATES	8/28/09 9/18/09 10/7/09 11/3/09	SHEET OF	

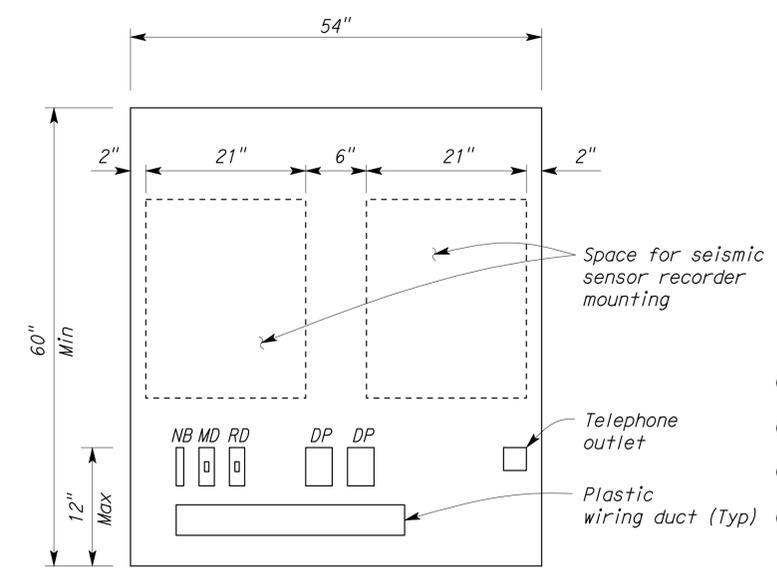
DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	CC, Sac	160	0.8/1.3, L0.0/L1.3	119	168

REGISTERED ELECTRICAL ENGINEER
 IMRAN SAEED
 No. E 18781
 Exp. 6/30/11
 ELEC
 STATE OF CALIFORNIA

11-3-09 DATE
 11-16-09 PLANS APPROVAL DATE
 The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

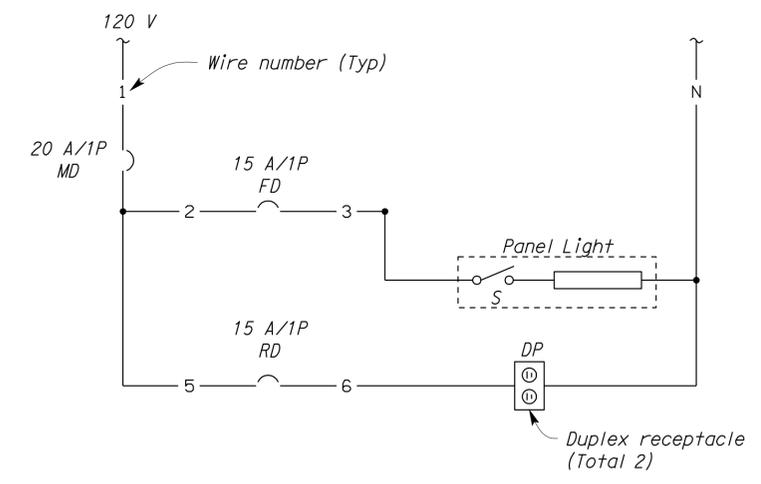


1 SEISMIC SENSOR RECORDER CABINET NO. 1 (5) (6)
NO SCALE



2 MOUNTING PANEL
NO SCALE

- Notes:
- 2 1/2" C, 9 SSC, 1 spare SSC, 1 IC, and 6 pair ISDN.
 - 2 1/2" C, 16 SSC, 2 spare SSC, and 6 pair ISDN.
 - 1" C, 2#10, 1#10G.
 - Install conduit bushing and stub up each conduit 3" above finish floor.
 - For wiring diagram, see (3).
 - For mounting panel, see (2).



3 WIRING DIAGRAM
NO SCALE

2 REVISED PER ADDENDUM No. 2 DATED FEBRUARY 24, 2010

THIS DRAWING ACCURATE FOR ELECTRICAL WORK ONLY.

DESIGN BY <i>Imran Saeed</i> CHECKED <i>Tech Ngov</i>	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES ELECTRICAL-MECHANICAL-WATER AND WASTEWATER DESIGN	BRIDGE NO. 28-0009	ANTIOCH BRIDGE SEISMIC RETROFIT	SHEET EE-23	
			POST MILE 0.8			SEISMIC SENSOR RECORDER CABINET NO. 1 DETAILS
			CU 04253 EA 1A5211			
DETAILS BY <i>Kathl Andreasen</i> CHECKED <i>Imran Saeed</i>	ORIGINAL SCALE IN INCHES FOR REDUCED PLANS	0 1 2 3	REVISION DATES (PRELIMINARY STAGE ONLY)	9/16/09 9/16/09 9/28/09 10/7/09 11/3/09	SHEET OF	
QUANTITIES BY <i>Imran Saeed</i> CHECKED <i>Tech Ngov</i>					ee_23.add	

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	CC, Sac	160	0.8/1.3, LO.0/L1.3	121	168

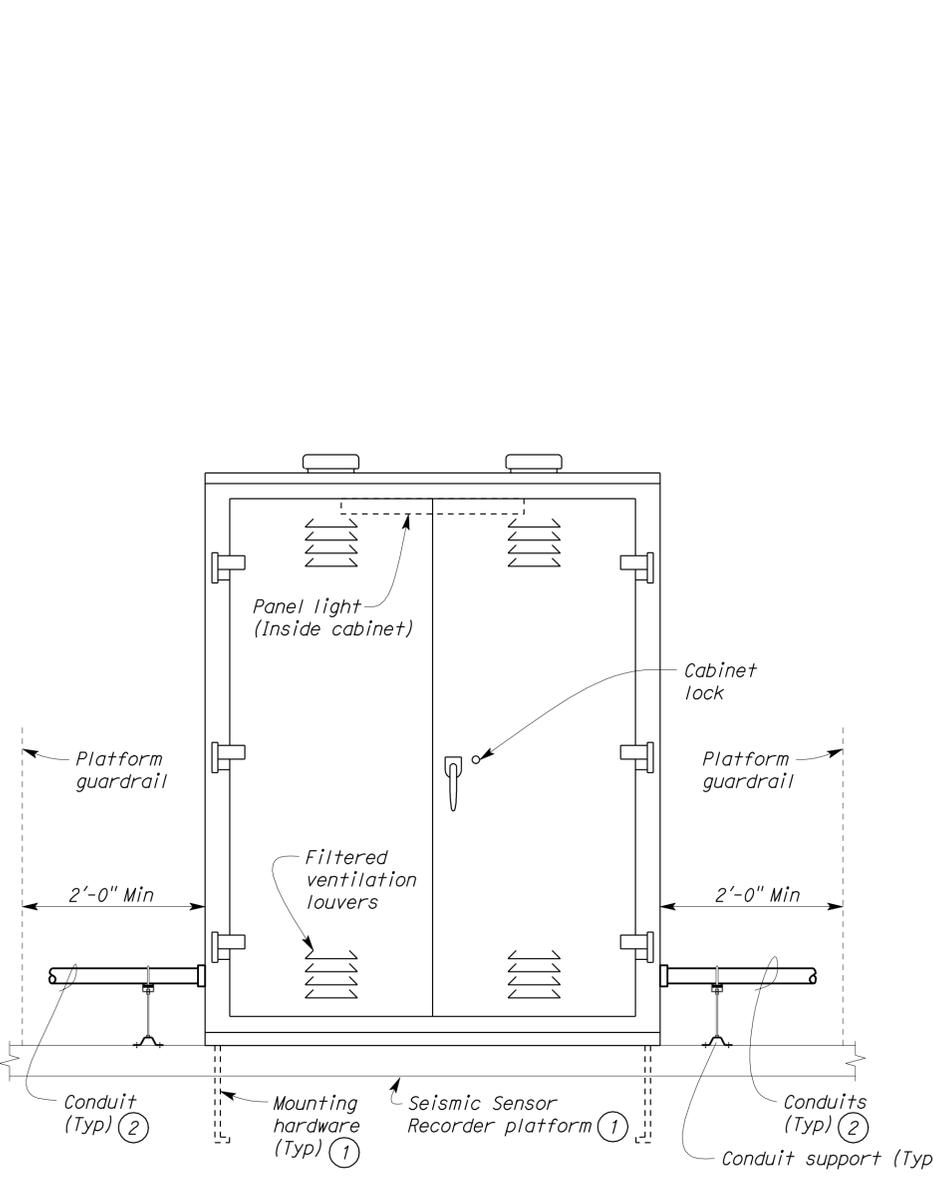
<i>Imran Saeed</i>	11-3-09
REGISTERED ELECTRICAL ENGINEER	DATE

11-16-09
PLANS APPROVAL DATE

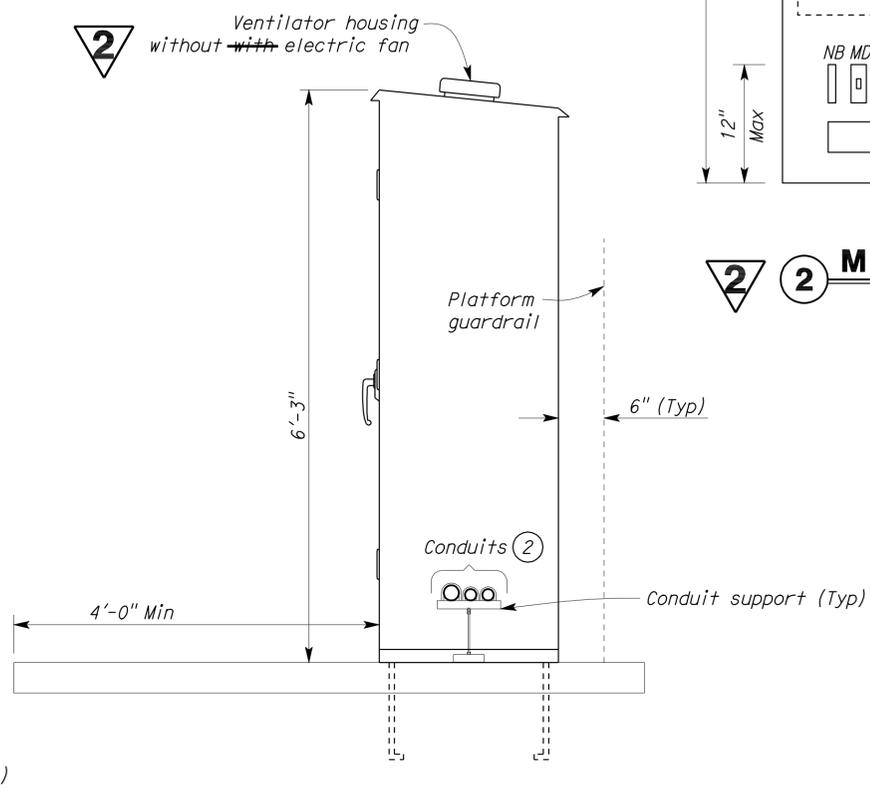
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.



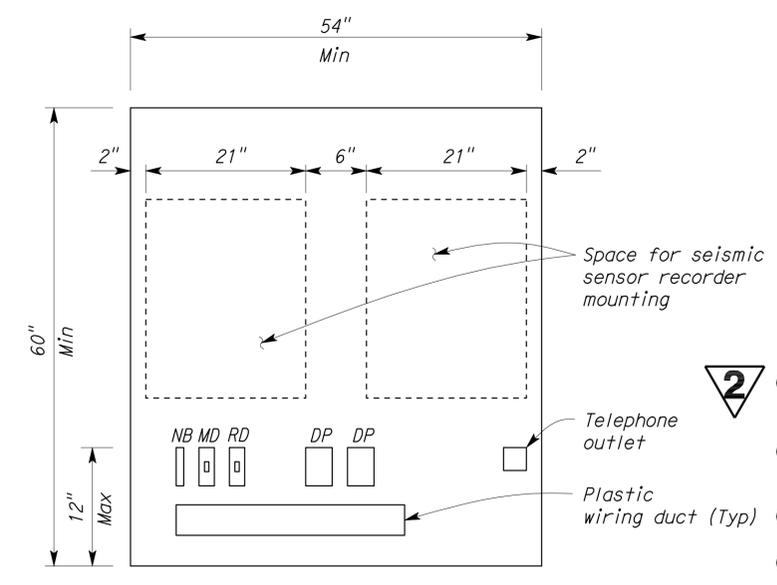
- Notes:
- For platform and mounting hardware details, see sheet ~~ST-1~~ AS-1.
 - For exact number of conduits and wires, see sheet EE-14.
 - For wiring diagram, see $\frac{3}{-}$.
 - For mounting panel, see $\frac{2}{-}$.



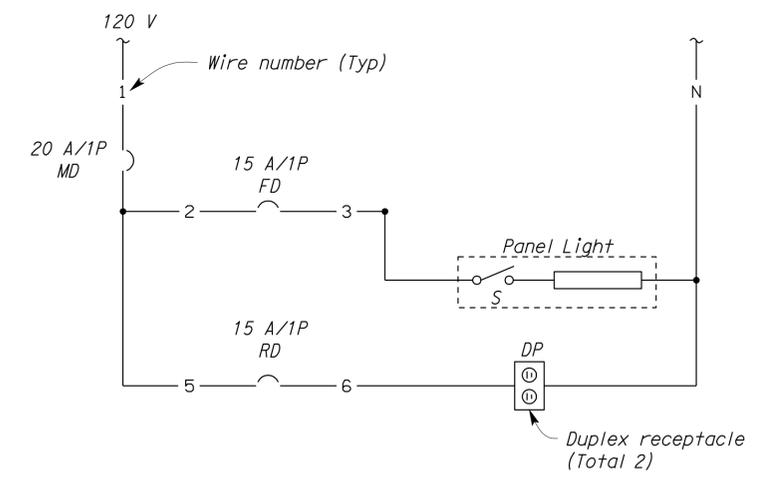
1 SEISMIC SENSOR RECORDER CABINET NO. 2 $\frac{3}{-}$ $\frac{4}{-}$
NO SCALE



RIGHT SIDE



2 MOUNTING PANEL
NO SCALE



3 WIRING DIAGRAM
NO SCALE

2 REVISED PER ADDENDUM No. 2 DATED FEBRUARY 24, 2010

THIS DRAWING ACCURATE FOR ELECTRICAL WORK ONLY.

DESIGN	BY <i>Imran Saeed</i>	CHECKED <i>Tech Ngov</i>
DETAILS	BY <i>Kathl Andreasen</i>	CHECKED <i>Imran Saeed</i>
QUANTITIES	BY <i>Imran Saeed</i>	CHECKED <i>Tech Ngov</i>

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
ELECTRICAL-MECHANICAL-WATER AND WASTEWATER DESIGN

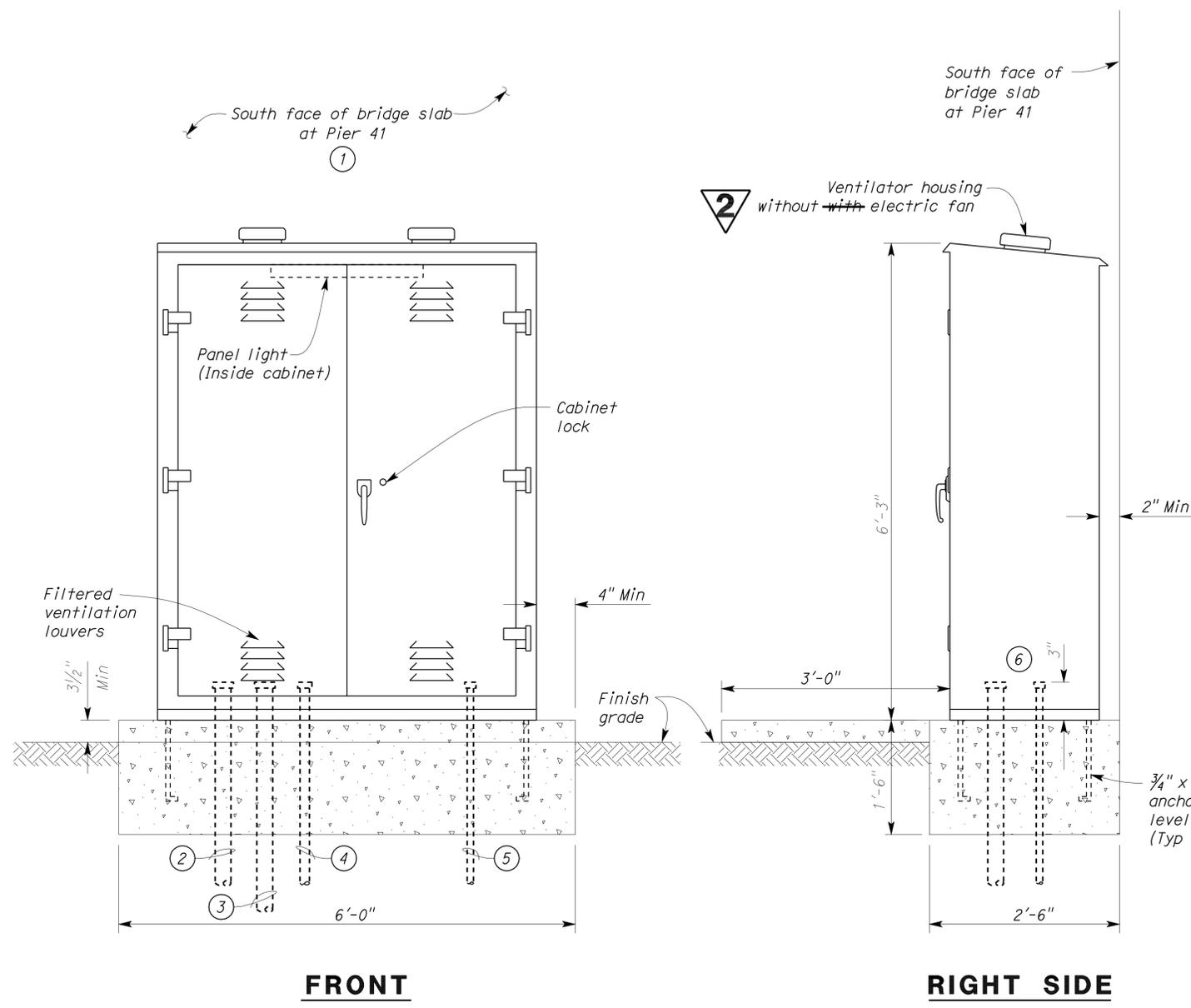
BRIDGE NO.	28-0009	ANTIOCH BRIDGE SEISMIC RETROFIT
POST MILE	0.8	
SEISMIC SENSOR RECORDER CABINET NO. 2 DETAILS		SHEET OF
		EE-25

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
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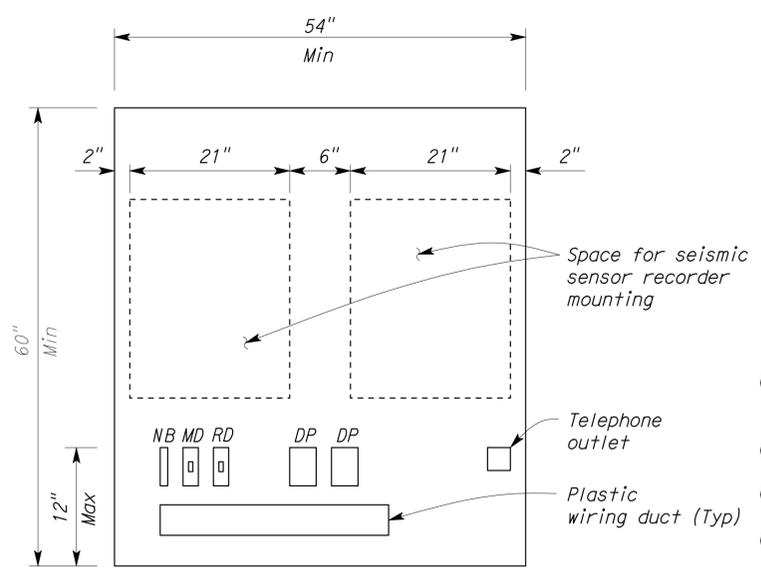
<i>Imran Saeed</i>		11-3-09
REGISTERED ELECTRICAL ENGINEER	DATE	

11-16-09
PLANS APPROVAL DATE

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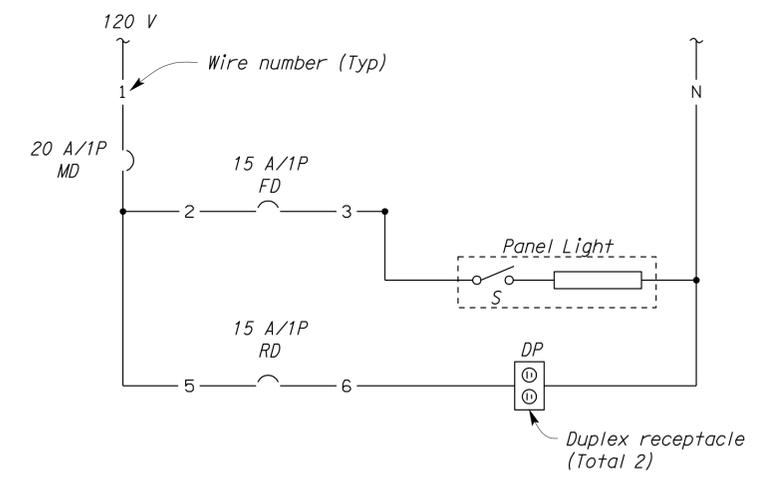


1 SEISMIC SENSOR RECORDER CABINET NO. 3 (7) (8)
NO SCALE



2 MOUNTING PANEL
NO SCALE

- Notes:
- Install seismic sensor recorder cabinet inside existing fenced area at Pier 41.
 - 2 1/2" C, 18 SSC, and 1 spare SSC.
 - 2 1/2" C, 11 SSC, 1 spare SSC, 1 IC, and 6 pair ISDN.
 - 1 1/2" C, 4 SSC, and 1 spare SSC.
 - 1" C, 2#10, 1#12G.
 - Install conduit cap and stub up each conduit 3" above finish floor.
 - For wiring diagram, see (3).
 - For mounting panel, see (2).



3 WIRING DIAGRAM
NO SCALE

2 REVISED PER ADDENDUM No. 2 DATED FEBRUARY 24, 2010

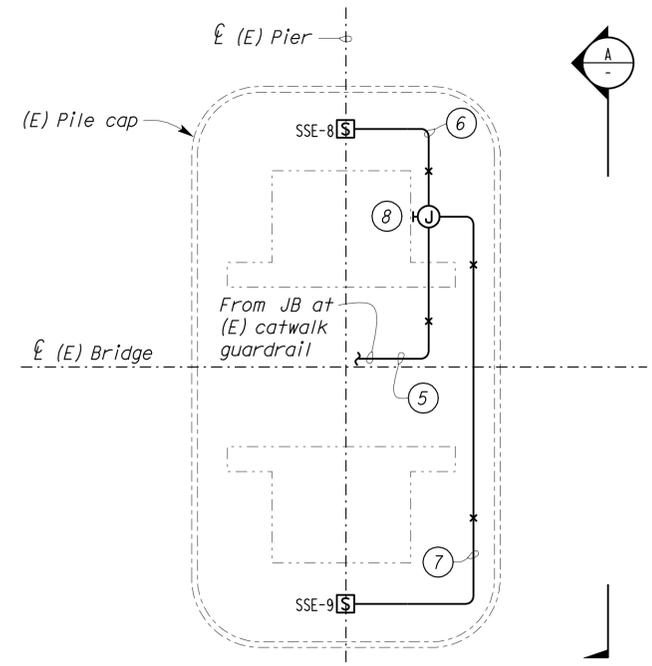
DESIGN BY <i>Imran Saeed</i> CHECKED <i>Tech Ngov</i>	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES ELECTRICAL-MECHANICAL-WATER AND WASTEWATER DESIGN	BRIDGE NO. 28-0009	ANTIOCH BRIDGE SEISMIC RETROFIT	SHEET EE-27	
			POST MILE 0.8			SEISMIC SENSOR RECORDER CABINET NO. 3 DETAILS
			CU 04253 EA 1A5211			REVISION DATES (PRELIMINARY STAGE ONLY)
DETAILS BY <i>Kathl Andreasen</i> CHECKED <i>Imran Saeed</i>			DISREGARD PRINTS BEARING EARLIER REVISION DATES	9/28/09 10/7/09 11/3/09	SHEET OF	
QUANTITIES BY <i>Imran Saeed</i> CHECKED <i>Tech Ngov</i>					ee_27.add	

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	CC, Sac	160	0.8/1.3 LO.0/L1.3	131	168

<i>Imran Saeed</i>	11-3-09
REGISTERED ELECTRICAL ENGINEER	DATE

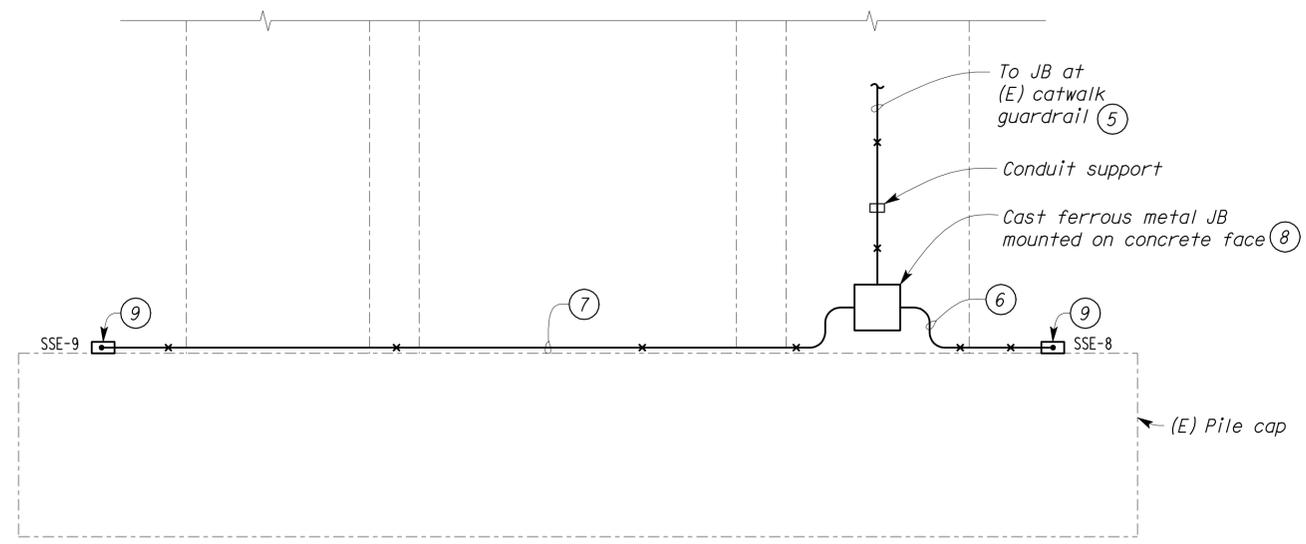
11-16-09
PLANS APPROVAL DATE

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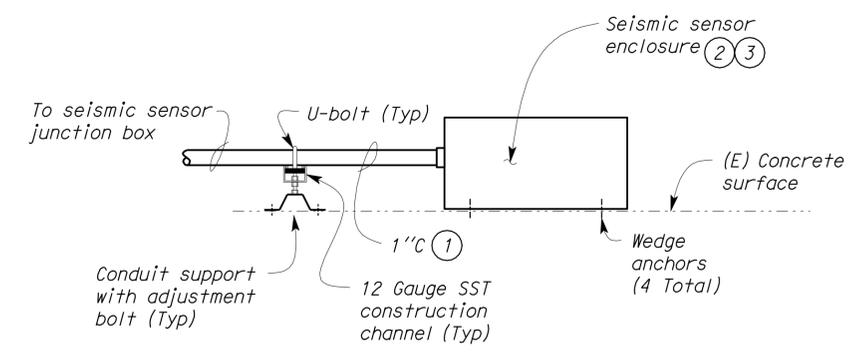


SSE-8,9
TYPICAL PLAN - TOP OF PILE CAP ④
 NO SCALE

- Notes:
- ① See plan sheets for number of cables inside conduit.
 - ② For dimension of seismic enclosures, see sheet EE-19.
 - ③ Exact mounting location of seismic enclosures shall be marked by CGS after site meeting with the Contractor during construction phase.
 - ④ This is a typical detail for illustration only.
 - ⑤ 1" C, PVC coated, 3 SSC, and 1 spare SSC.
 - ⑥ 1" C, PVC coated, 2 SSC.
 - ⑦ 1" C, PVC coated, 1 SSC, and 1 spare SSC.
 - ⑧ For junction box mounting detail, see ②/EE-22.
 - ⑨ For seismic sensor mounting detail, see ①.



SSE-8,9
TYPICAL ELEVATION ④
 NO SCALE



1 **DETAIL**
 NO SCALE

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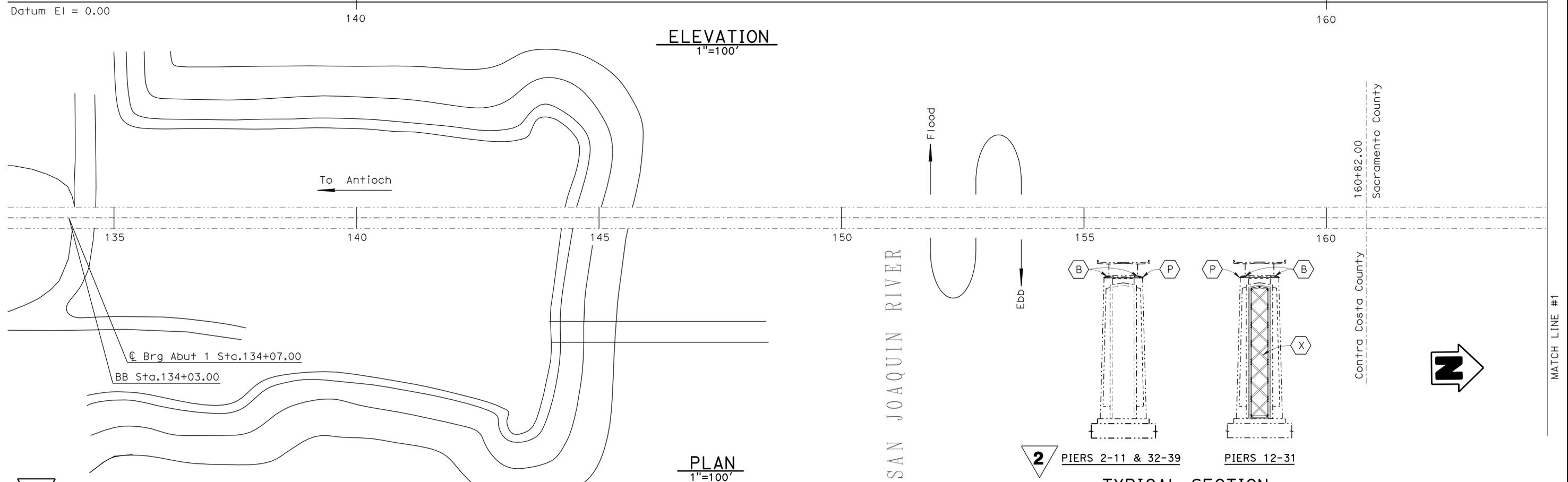
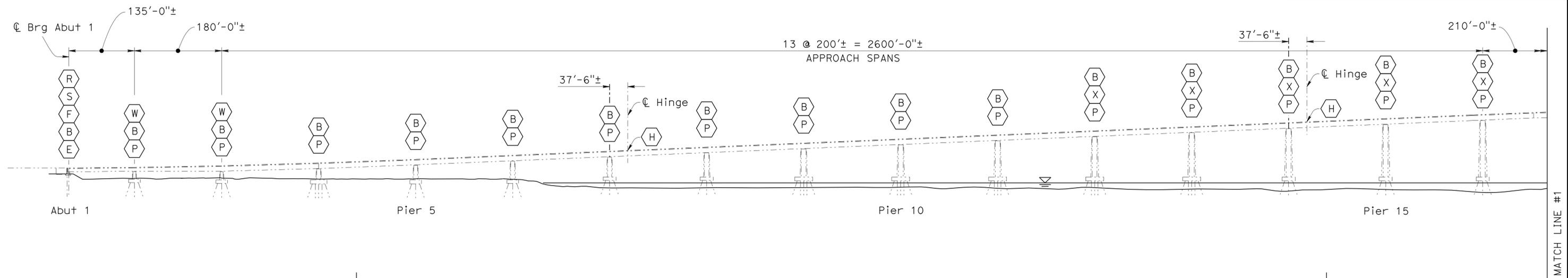
2 REVISED PER ADDENDUM No. 2 DATED FEBRUARY 24, 2010

DESIGN BY <i>Imran Saeed</i> CHECKED <i>Tech Ngov</i>	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES ELECTRICAL-MECHANICAL-WATER AND WASTEWATER DESIGN	BRIDGE NO. 28-0009	ANTIOCH BRIDGE SEISMIC RETROFIT	SHEET EE-35
			POST MILE 0.8		
			SSE-8, 9 PIER 14 MOUNTING DETAILS		
DETAILS BY <i>Kathl Andreasen</i> CHECKED <i>Imran Saeed</i>	ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3	CU 04253 EA 1A5211	DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES (PRELIMINARY STAGE ONLY) 10/28/09 11/3/09	SHEET OF

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	CC, Sac	160	0.8/1.3 L0.0/L1.3	139	168

REGISTERED CIVIL ENGINEER **Yong Pil Kim** No. C48365
 DATE 8-3-09
 PLANS APPROVAL DATE 11-16-09
 Exp. 06-30-10
 STATE OF CALIFORNIA
 CIVIL

- LEGEND:**
- (B) Replace Existing Bearings with Isolation Bearings
 - (E) Construct Abutment Concrete Seat Extension
 - (H) Install Shearkey System at Hinge
 - (P) Post-tension Bentcap
 - (X) Install Steel Cross Bracings Between Columns
 - (F) Backfill Eroded Abutment Embankment
 - (S) Make Sawcut Incisions to Concrete Backwall
 - (R) Remove Steel Bumper Bars and Rubber Bumpers
 - (W) Removed barbed wires at Pier Top and Reinstall after Construction



2 REVISED PER ADDENDUM No. 2 DATED FEBRUARY 24, 2010

DESIGN	BY Yong Pil Kim	CHECKED Richard Heninger
DETAILS	BY Eric Hallstrom/C. Cancino	CHECKED Yong Pil Kim
QUANTITIES	BY Tomoko Kusumi	CHECKED Antonio Carreon

STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
 STRUCTURE DESIGN
 DESIGN BRANCH **8**

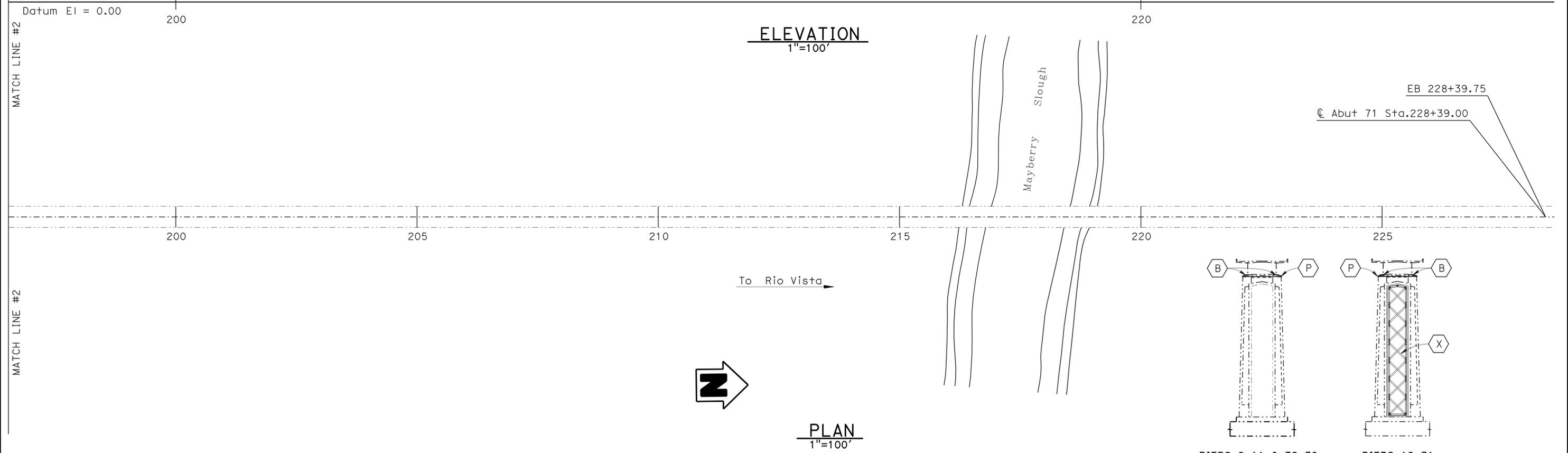
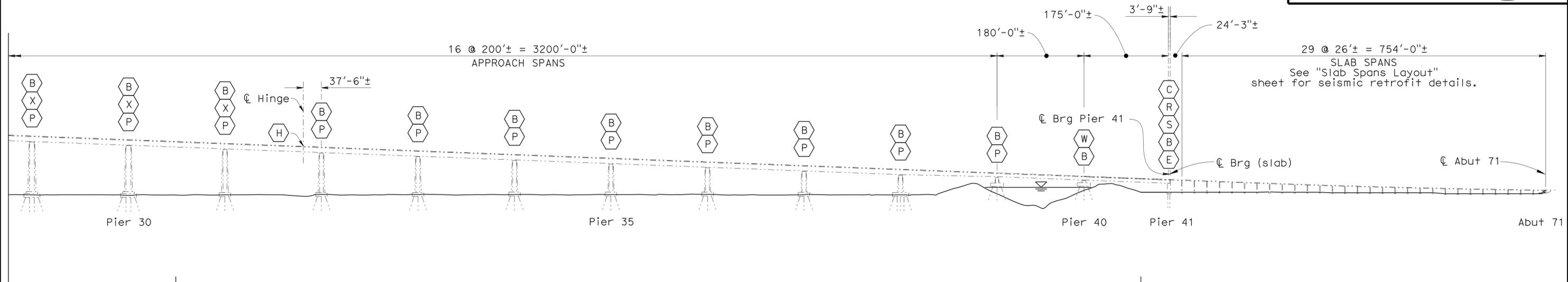
BRIDGE NO.	28-0009
POST MILE	0.8

ANTIOCH BRIDGE SEISMIC RETROFIT
 STRUCTURE PLAN NO. 1

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	CC, Sac	160	0.8/1.3 0.0/1.3	141	168

REGISTERED CIVIL ENGINEER **Yong Pil Kim** DATE 8-3-09
 CC, Sac
 PLANS APPROVAL DATE
 YONG PIL KIM No. C48365 Exp. 06-30-10 CIVIL
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- LEGEND:**
- (B) Replace Existing Bearings with Isolation Bearings
 - (E) Construct Abutment Concrete Seat Extension
 - (H) Install Shearkey System at Hinge
 - (P) Post-tension Bentcap
 - (X) Install Steel Cross Bracings Between Columns
 - (S) Make Sawcut Incisions to Concrete Backwall
 - (R) Remove Steel Bumper Bars and Rubber Bumper
 - (C) Install Seat Extender (See "SLAB SPAN LAYOUT" sheet)
 - (W) Remove barbed wires at Pier Top and Reinstall after Construction



2 REVISED PER ADDENDUM No. 2 DATED FEBRUARY 24, 2010



STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 10/25/05)	DESIGN	BY Yong Pil Kim	CHECKED Richard Heninger	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 8	BRIDGE NO.	ANTIOCH BRIDGE SEISMIC RETROFIT STRUCTURE PLAN NO. 3
	DETAILS	BY Eric Hallstrom/C. Cancino	CHECKED Yong Pil Kim			28-0009	
	QUANTITIES	BY Tomoko Kusumi	CHECKED Antonio Carreon			POST MILE 0.8	
ORIGINAL SCALE IN INCHES FOR REDUCED PLANS					CU 04253 EA 1A5211	DISREGARD PRINTS BEARING EARLIER REVISION DATES	
FILE => 28-0009-c-sp3.add					REVISION DATES		SHEET 4 OF 31

INDEX TO PLANS

SHEET NO.	TITLE
1	GENERAL PLAN
2	STRUCTURE PLAN NO. 1
3	STRUCTURE PLAN NO. 2
4	STRUCTURE PLAN NO. 3
5	INDEX TO PLANS
6	PIER BRACING DETAILS NO. 1
7	PIER BRACING DETAILS NO. 2
8	PIER BRACING DETAILS NO. 3
9	PIER BRACING DETAILS NO. 4
10	BEARING REPLACEMENT DETAILS NO. 1
11	BEARING REPLACEMENT DETAILS NO. 2
12	BEARING REPLACEMENT DETAILS NO. 3
13	ISOLATION BEARING DETAILS NO. 1
14	ISOLATION BEARING DETAILS NO. 2
15	ISOLATION BEARING DETAILS NO. 3
16	MEDIAN CONCRETE BARRIER DETAILS
17	BENT CAP POST-TENSIONING DETAILS NO. 1
18	BENT CAP POST-TENSIONING DETAILS NO. 2
19	EXISTING BASE SYSTEM PLATFORM DETAILS
20	HINGE RETROFIT DETAILS NO. 1
21	HINGE RETROFIT DETAILS NO. 2
22	HINGE DRAINAGE MODIFICATION DETAILS
23	TEMPORARY SUPPORT PLAN
24	GIRDER MODIFICATION DETAILS
25	NAVIGATION CHANNEL CLEARANCE DETAILS
26	ABUTMENT 1 BACKFILL DETAILS
27	DRAINAGE PIPE MODIFICATION DETAILS
28	SLAB SPAN LAYOUT
29	SEAT EXTENDER DETAILS NO. 1
30	SEAT EXTENDER DETAILS NO. 2
31	STEEL COLUMN CASING DETAILS

STANDARD PLANS DATED MAY 2006

PLAN NO.	PLAN TITLE
A10A	ACRONYMS AND ABBREVIATIONS (SHEET 1 OF 2)
A10B	ACRONYMS AND ABBREVIATIONS (SHEET 2 OF 2)
B7-8	DECK DRAINAGE DETAILS



CONSTRUCTION SEQUENCE

- PIER 2 THRU PIER 40 :
1. Install Pier Bracings where applicable, Post-tension bentcap, Construct Girder Modifications and install Temporary Support in any order.
 2. Raise bridge.
 3. Remove existing bearing and portion of bentcap concrete. Then, install new isolation bearings.
 4. Hinge Shear key System can be installed independently from the above sequence.

GENERAL NOTES

LOAD AND RESISTANCE FACTOR DESIGN

DESIGN: AASHTO LRFD Bridge Design Specifications, Third Edition with the 2005 and 2006 Interim Revisions and the Caltrans Amendments V3.06.01

SEISMIC DESIGN: Caltrans Seismic Design Criteria (SDC) Version 1.4, dated June 2006. Caltrans Guide Specification for Seismic Design of Steel Bridges, First Edition, dated December 2001.

DEAD LOAD: Includes 25 psf of wearing surface.
LIVE LOAD: HL93 with "Low Boy" and Permit Design Load.

REINFORCED CONCRETE: fy=60 ksi
f'c=5.0 ksi
n=7

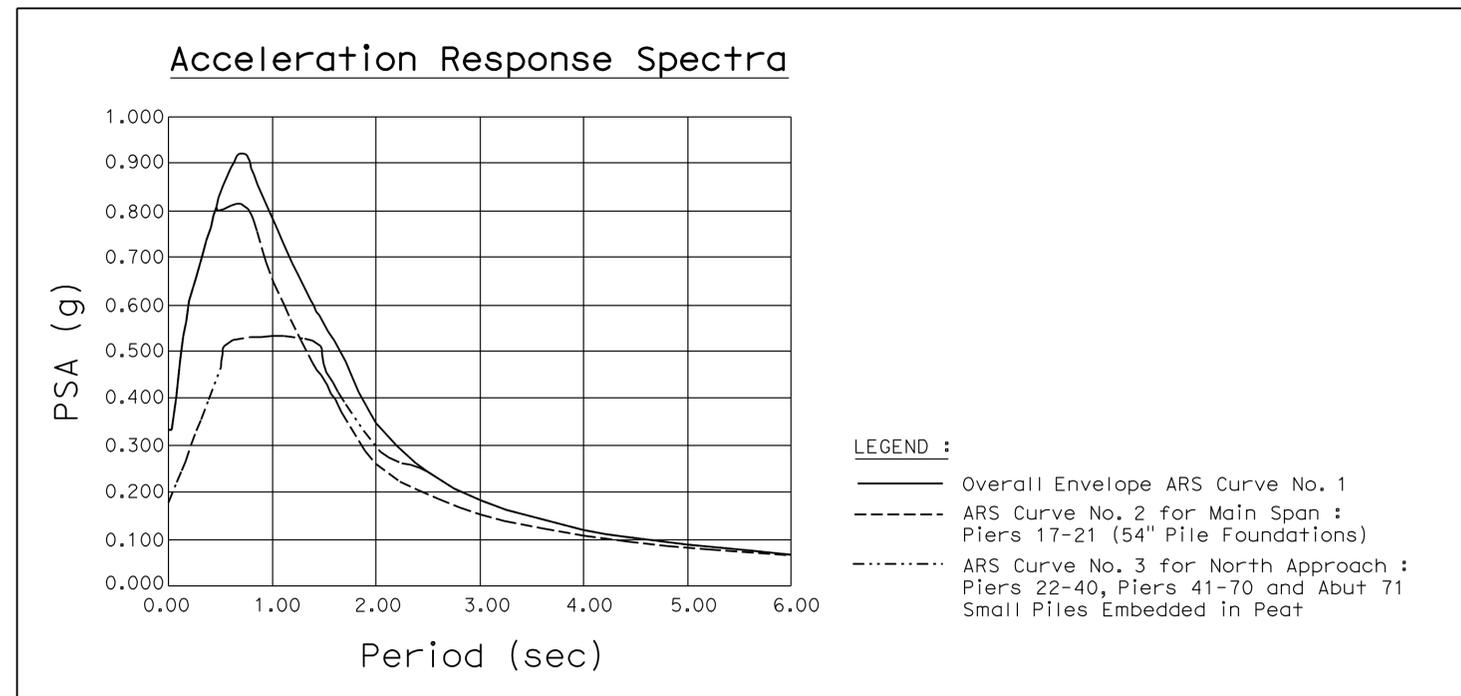
STRUCTURAL STEEL:

Plates and shapes:	fy=50 ksi	ASTM A709, Grade 50W
Steel Tubings:	fy=50 ksi	ASTM A847
Column Casing:	fy=50 ksi	ASTM A709, Grade 50
High Strength Bolts:		ASTM A325, Type 3 for unpainted members (superstructure)
High Strength Bolts:		ASTM A325, Type 1 for painted members (suberstructure)
High Strength Bolts for Shear Lug Anchors:		ASTM A354
High Strength Cap Screws:		ASTM A449
Anchor Bolts:		ASTM A307
Bolts for hinge drainage:		ASTM A307 galvanized
Nuts:		ASTM A563, C3 or DH#, Plain
Washers:		ASTM F436, Weathering
Miscellaneous Metal: (Seat Extenders)		ASTM A709, Grade 50 (Hotdip Galvanized)

PRESTRESSED CONCRETE: See "PRESTRESSING NOTES" on "BENT CAP POST-TENSIONING DETAILS NO. 1" sheet.



REVISED PER ADDENDUM No. 2 DATED FEBRUARY 24, 2010



LEGEND :

- Overall Envelope ARS Curve No. 1
- - - - - ARS Curve No. 2 for Main Span : Piers 17-21 (54" Pile Foundations)
- · - · - · ARS Curve No. 3 for North Approach : Piers 22-40, Piers 41-70 and Abut 71 Small Piles Embedded in Peat

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	CC,Sac	160	0.8/1.3 0.0/L1.3	142	168

Yong Pil Kim 8-3-09
REGISTERED CIVIL ENGINEER DATE

CC,Sac
PLANS APPROVAL DATE

YONG PIL KIM
No. C48365
Exp. 6-30-10
CIVIL
STATE OF CALIFORNIA

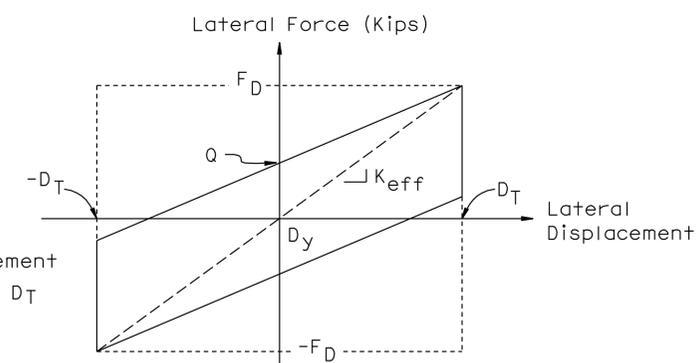
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DESIGN BY Yong Pil Kim	CHECKED Richard Heninger	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 8	BRIDGE NO. 28-0009	ANTIOCH BRIDGE SEISMIC RETROFIT INDEX TO PLANS
DETAILS BY Carlo Cancino	CHECKED Yong Pil Kim			POST MILE 0.8	
QUANTITIES BY Tomoko Kusumi	CHECKED Antonio Carreon				

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	CC, Sac	160	0.8/1.3 0.0/1.3	150	168

YONG PIL KIM 8-3-09
 REGISTERED CIVIL ENGINEER DATE
 11-16-09
 PLANS APPROVAL DATE
 YONG PIL KIM
 No. C48365
 Exp. 6-30-10
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K_R = Restoring Stiffness
 K_{eff} = Effective Stiffness = F_D / D_T
 N = Normal Force (Varies)
 μ = Average Dynamic Coefficient of Friction = Q/N
 D_y = Initial Displacement
 Q = Initial Lateral Load at D_y
 D_T = Design Seismic Lateral Displacement
 F_D = Design Seismic Lateral Load at D_T



**LONGITUDINAL OR TRANSVERSE DIRECTION
 LATERAL FORCE / DISPLACEMENT
 CHARACTERISTICS AND HYSTERESIS LOOP**

FRICITION PENDULUM ISOLATOR BEARING

No Scale

NOTES:

- The Contractor shall verify all controlling field dimensions prior to installing isolation bearings, removing existing concrete at pedestals and top of bent caps, and before ordering or fabricating bevel plates.
- Isolation Bearings are "LOW PROFILE FRICTION PENDULUM BEARINGS" with an articulated slider element and concave housing plate which provide Lateral Restoring Stiffness.
- Isolation Bearing properties are provided in the "LOW PROFILE SINGLE FRICTION PENDULUM ISOLATION BEARING DATA TABLE".
- The articulated slider in the Isolator Bearing shall have no eccentricity with respect to the superstructure mounting plate at installation.
- Jacking system shall be compatible with Isolation Bearings. See "ISOLATION BEARING DETAILS NO. 2" sheet for Isolation Bearing dimensions.
- All holes in mounting plates, housing plates and other connection plates shall be drilled with matching metal templates.
- Isolator Bearing installation shall be per manufacturer's instructions and recommendations, subject to approval of the Engineer.
- Place non-shrink grout by pumping after leveling and setting concave plate to proper elevation.
- Minimum thread length into isolation bearing upper housing for cap screws is 2 inches.
- EDC - The Energy Dissipated per Cycle is defined as: $EDC = 4 \times Q \times D_T / DL$
- Rated Vertical Load includes the Overturning Load due to Earthquake (EQ).
- Restoring Stiffness K_R corresponds to the Dead Load on Bearing (DL) condition: $K_R = DL / RE$, where RE is the effective radius of the Isolation Bearing.
- Design Seismic Lateral Displacement (D_T) = Seismic Lateral Displacement for the Isolation Bearing.
- Average Dynamic Coefficient of Friction at Initial Lateral Displacement: $\mu = Q / N$.
- Design Seismic Lateral Force (F_D) = Seismic Lateral Force transferred through the Isolator Bearing at Design Seismic Lateral Displacement (D_T) under Dead Load (DL) condition.
- Non-Seismic Lateral Force = The Design Non-Seismic Lateral Force (Wind Load) transferred through the Isolator Bearing. Isolator Bearing wind-locks designed to break away in the range between the maximum and minimum values of Non-Seismic Lateral Force.
- Isolator Bearing Relative Rotation Capacity (plus/minus) provides clearance between upper housing cover and lower housing unit at the specified rotation.
- Windlock Assemblies shall be connected to the bottom bearing plate by a cable or chain, as specified by the manufacturer.

LOW PROFILE SINGLE FRICTION PENDULUM ISOLATION BEARING DATA TABLE		
Bearing Type	TYPE I	TYPE II
Bearing Location	P17-P22	Abut1-P16 & P23-P41
Number of Isolator Bearings	12	70
Ave. Dynamic Coefficient of Friction, μ (See Note 14)	6%	6%
Effective Stiffness, K_{eff}	0.0065 kips/in/kips	0.0090 kips/in/kips
Energy Dissipation, EDC (See NOTE 10)	5.44 kips-in/kips	4.71 kips-in/kips
Effective Radius, RE	256 in	166 in
Design Seismic Lateral Force, F_D (See NOTE 15)	323 kips	192 kips
Design Seismic Lateral Displacement, D_T (See NOTE 13)	23 in	20 in
Rated Maximum Lateral Displacement	26 in	22 in
Rated Shear Force Capacity	700 kips	450 kips
Relative Rotation Capacity (See NOTE 17)	1.0 degree	1.5 degree
Non-Seismic Lateral Force (Wind Load) (See NOTE 16)	Max	185 kips
	Min	110 kips
Rated Dead Load on Bearing (DL)	2160 kips	1064 kips
Rated Dead and Live Loads (DL + LL)	3600 kips	1750 kips
Rated Vertical Load (DL + EQ) (See NOTE 11)	3600 kips	1750 kips
Effective Period of Bearing (T) $T = 6.28 \sqrt{RE/386.4}$	5.1 Seconds	4.1 Seconds

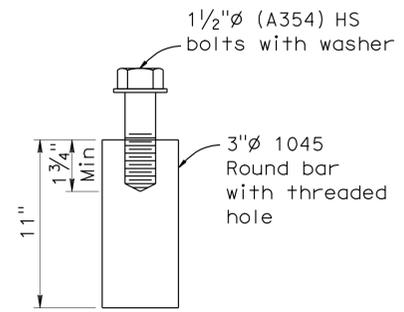
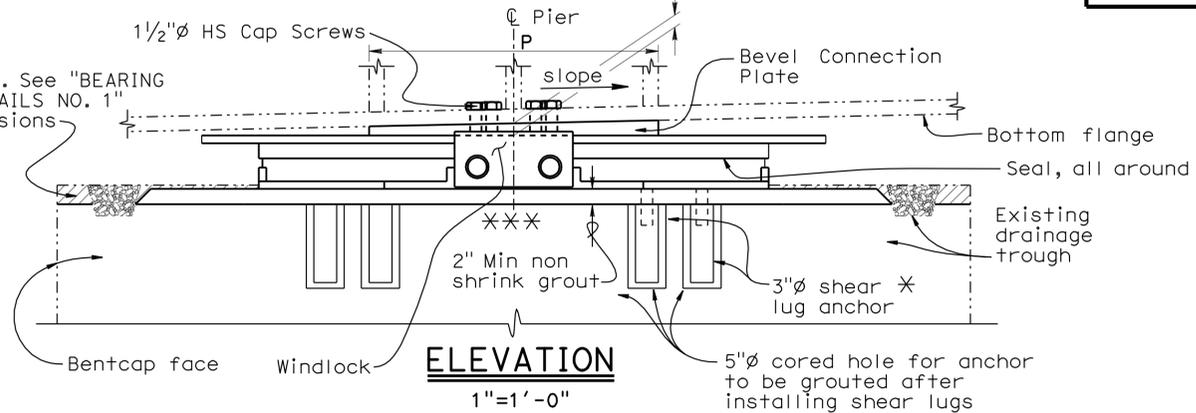
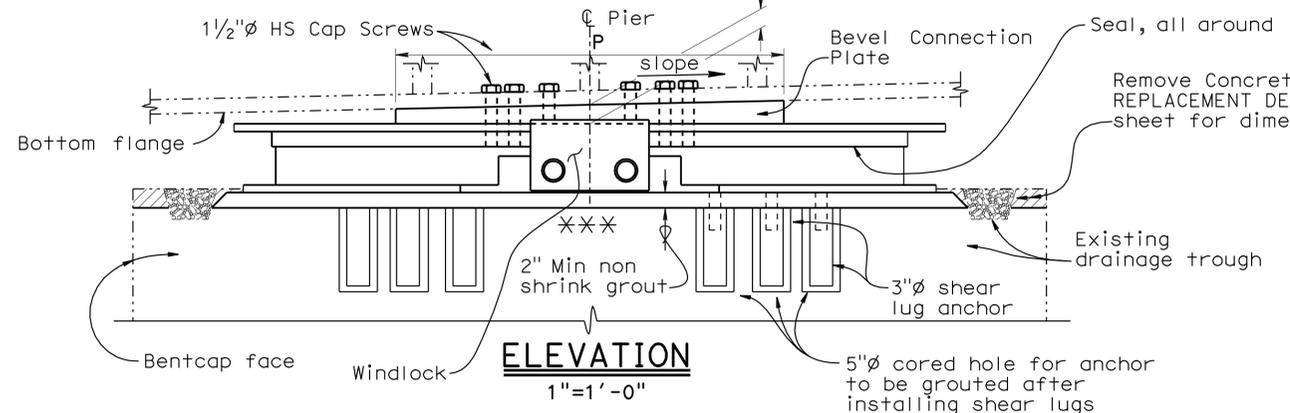
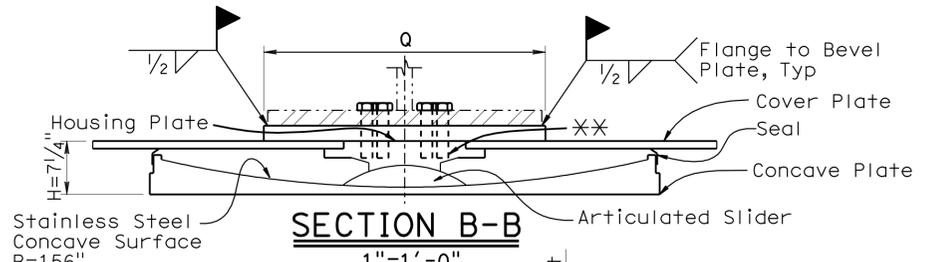
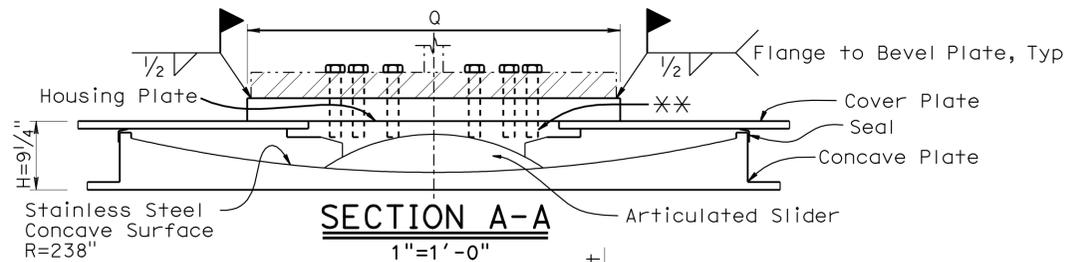
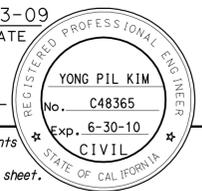
2 REVISED PER ADDENDUM No. 2 DATED FEBRUARY 24, 2010

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 10/25/05)	DESIGN	BY Yong Pil Kim	CHECKED Nora Kyo	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 8	BRIDGE NO.	28-0009	ANTIOCH BRIDGE SEISMIC RETROFIT ISOLATION BEARING DETAILS NO.1	
	DETAILS	BY Carlo Cancino	CHECKED Nora Kyo			POST MILE	0.8		
	QUANTITIES	BY Tomoko Kusumi	CHECKED Antonio Carreon						
			ORIGINAL SCALE IN INCHES FOR REDUCED PLANS	0 1 2 3	CU 04253 EA 1A5211	DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES	01-07-09 01-28-09 02-17-09 03-07-09 03-16-09 03-27-09 05-14-09 06-30-09	SHEET 13 OF 31

FILE => 28-0009-g-tisobrgdetail11.dwg

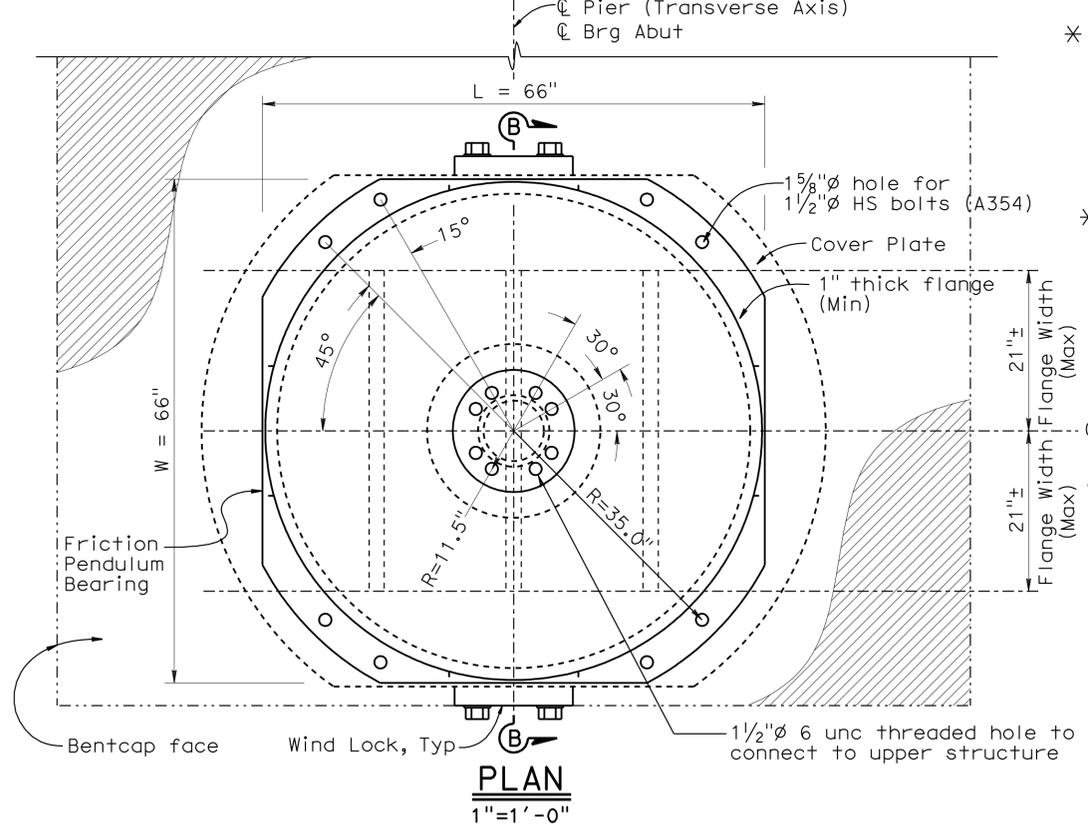
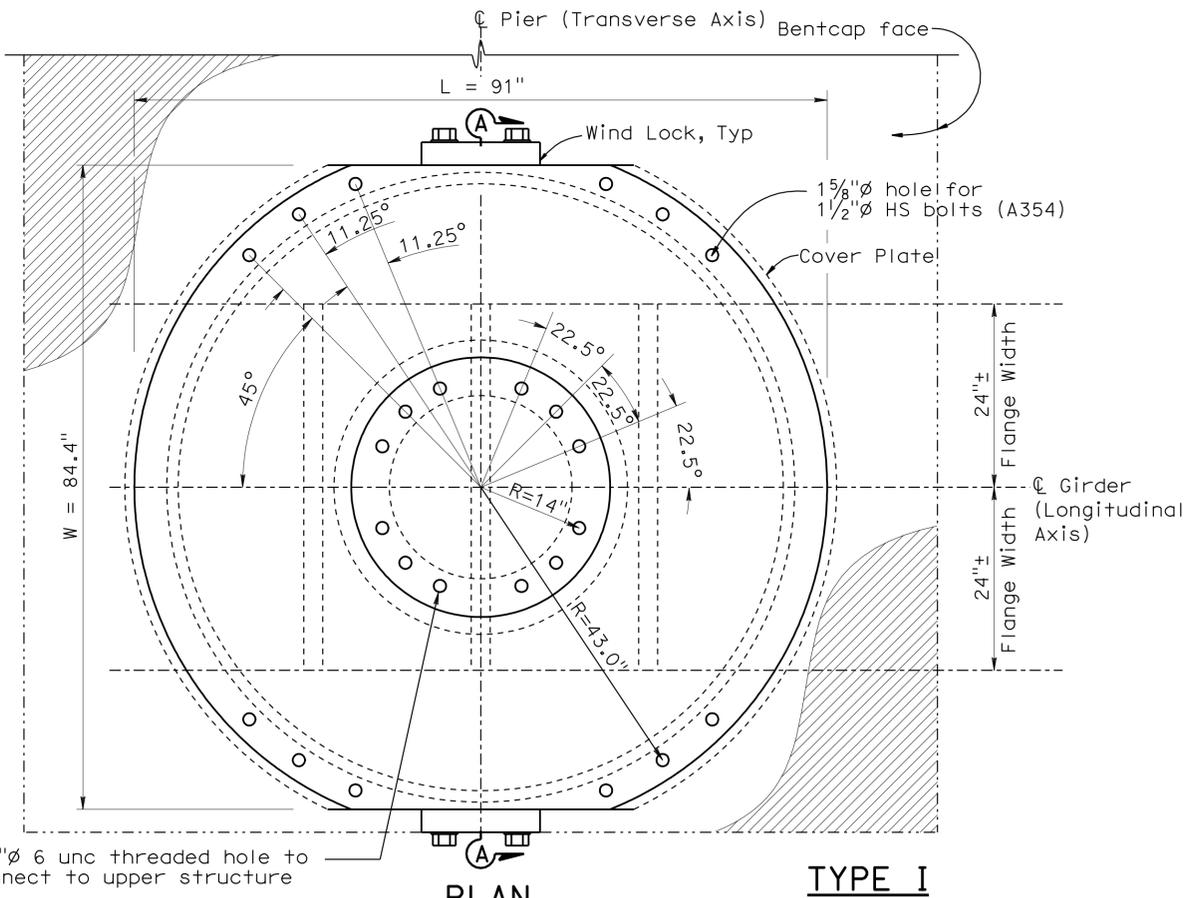
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04	CC, Sac	160	0.8/1.3 10.0/11.3	151	168
			8-3-09		
			11-16-09		
			REGISTERED CIVIL ENGINEER DATE PLANS APPROVAL DATE The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.		



* **SHEAR LUG ANCHOR DETAIL**
No Scale

** Minimum embedment of cap screws into the upper housing is 2 inches.
*** Place grout pad up to the edge of drainage trough, where possible and up to "A" distance from center line of girder as shown on "BEARING REPLACEMENT DETAILS NO. 1" sheet.



ISOLATION BEARING TOLERANCES :
 1. Plan dimensions : ±1/2"
 2. Bolt hole location dimensions : ±1/16"
 3. Height dimensions : ±1/4"

LEGEND :
 - - - - - Indicates Existing
 [Hatched Area] Indicates portion of existing concrete pedestal and top of bent cap to be removed

- NOTES :
- The Contractor shall verify all controlling field dimensions prior to installing isolation bearings, removing existing concrete at pedestals and top of bent caps, and before ordering or fabricating bevel plates.
 - For dimensions of the bevel plates (P, Q, t and slope) see "ISOLATION BEARING DETAILS NO. 3" sheet.

LOW PROFILE FRICTION PENDULUM BEARINGS

2 REVISED PER ADDENDUM No. 2 DATED FEBRUARY 24, 2010

DESIGN	BY Yong Pil Kim	CHECKED Nora Kyo
DETAILS	BY Carlo Cancino	CHECKED Nora Kyo
QUANTITIES	BY Tomoko Kusumi	CHECKED Antonio Carreon

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
STRUCTURE DESIGN
DESIGN BRANCH 8

BRIDGE NO.	28-0009
POST MILE	0.8

ANTIOCH BRIDGE SEISMIC RETROFIT
ISOLATION BEARING DETAILS NO. 2

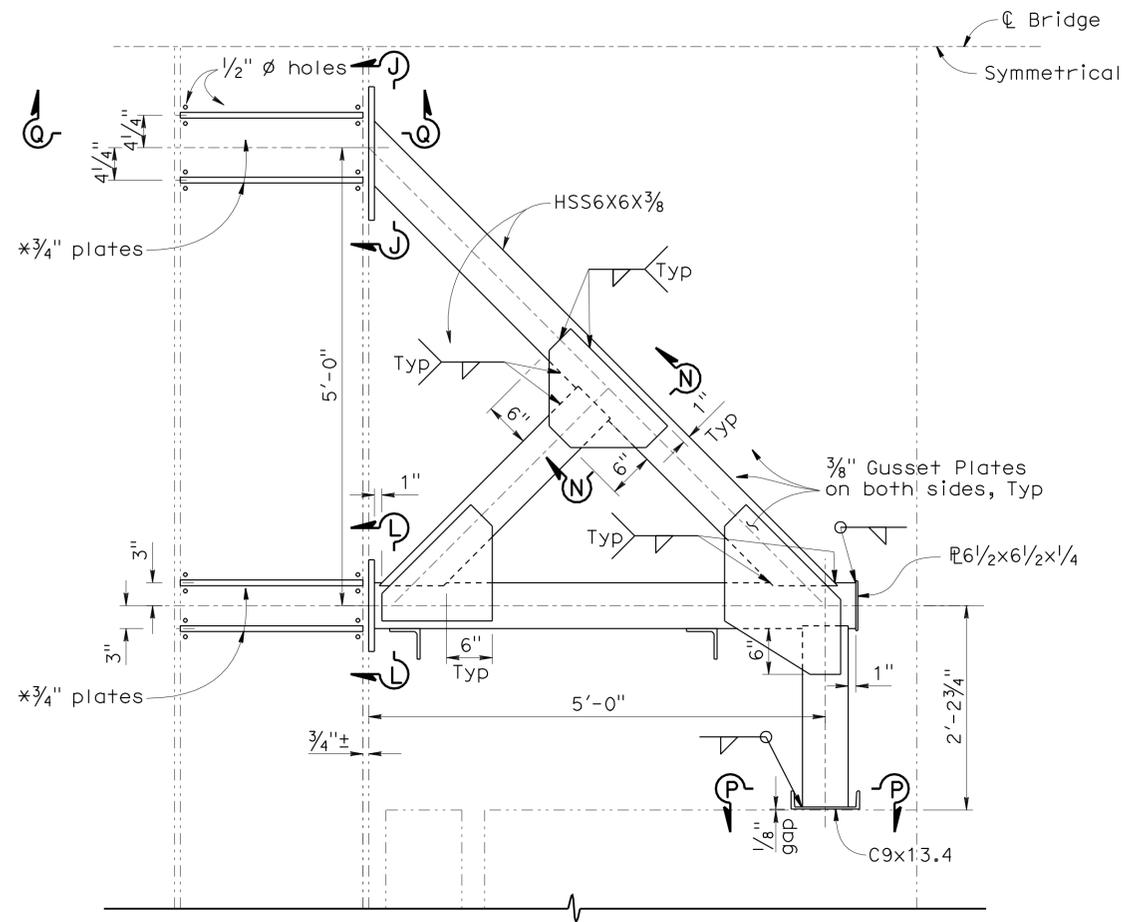
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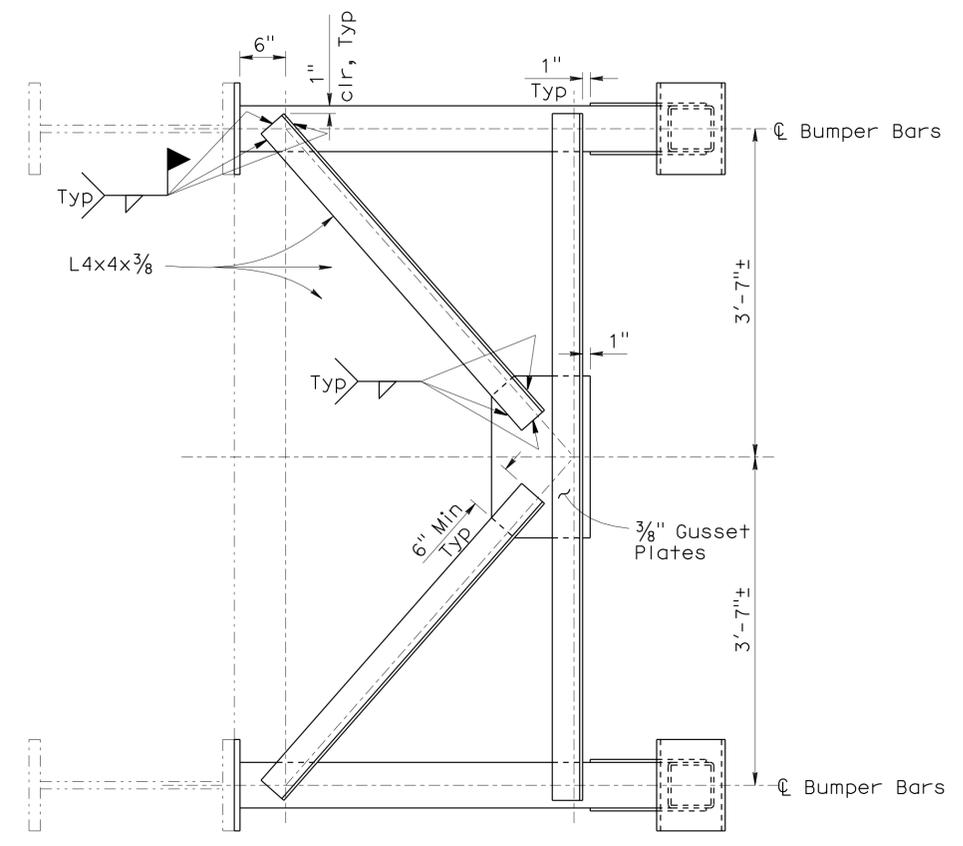
REGISTERED CIVIL ENGINEER
 YONG PIL KIM
 No. C48365
 Exp. 6-30-10
 CIVIL
 STATE OF CALIFORNIA

8-3-09
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 11-16-09
 PLANS APPROVAL DATE

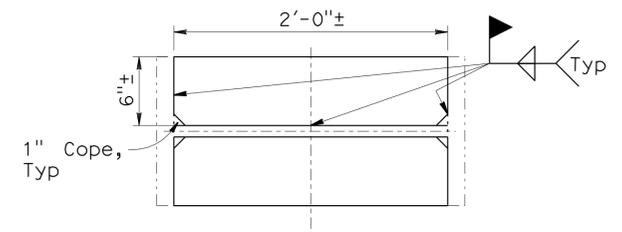
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DETAIL "X"
1"=1'-0"

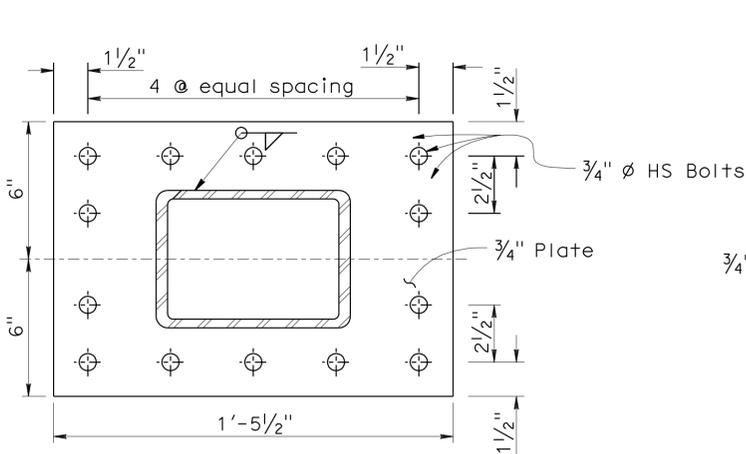


SECTION H-H
1"=1'-0"

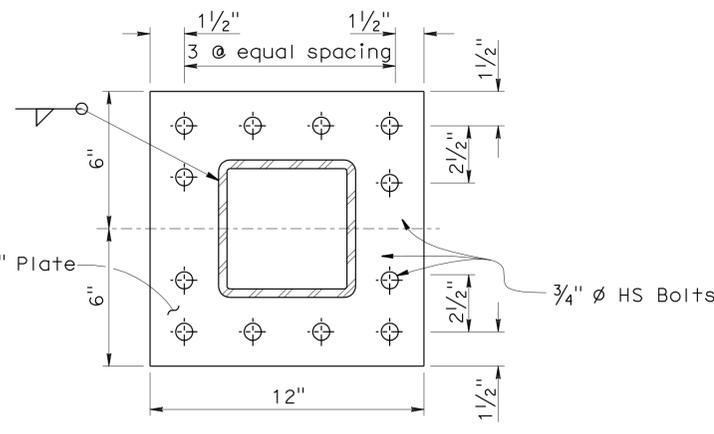


SECTION Q-Q
1/2"=1'-0"

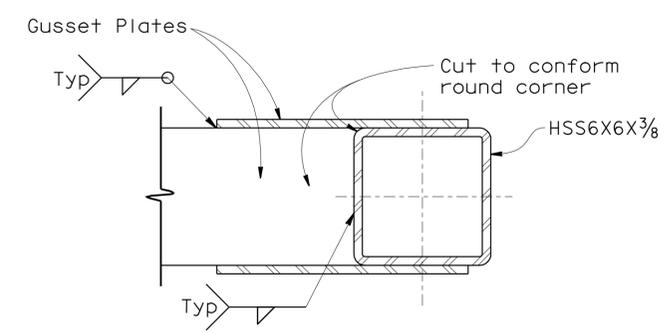
* Omit at top side of existing upper built up beam



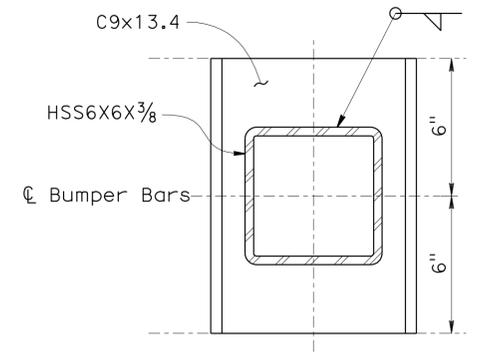
SECTION J-J
3"=1'-0"



SECTION L-L
3"=1'-0"



SECTION N-N
3"=1'-0"



SECTION P-P
3"=1'-0"

- NOTES:**
1. The Contractor shall verify all controlling field dimensions before ordering or fabricating any material.
 2. The details for the hinge shear key system shown are only at one side of the bridge. The details for the other side of the hinge shear key system are symmetrical.

2 REVISED PER ADDENDUM No. 2 DATED FEBRUARY 24, 2010

DESIGN	BY Yong Pil Kim	CHECKED Mary Beall
DETAILS	BY Carlo Cancino	CHECKED Mary Beall
QUANTITIES	BY Tomoko Kusumi	CHECKED Antonio Carreon

STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
 STRUCTURE DESIGN
DESIGN BRANCH 8

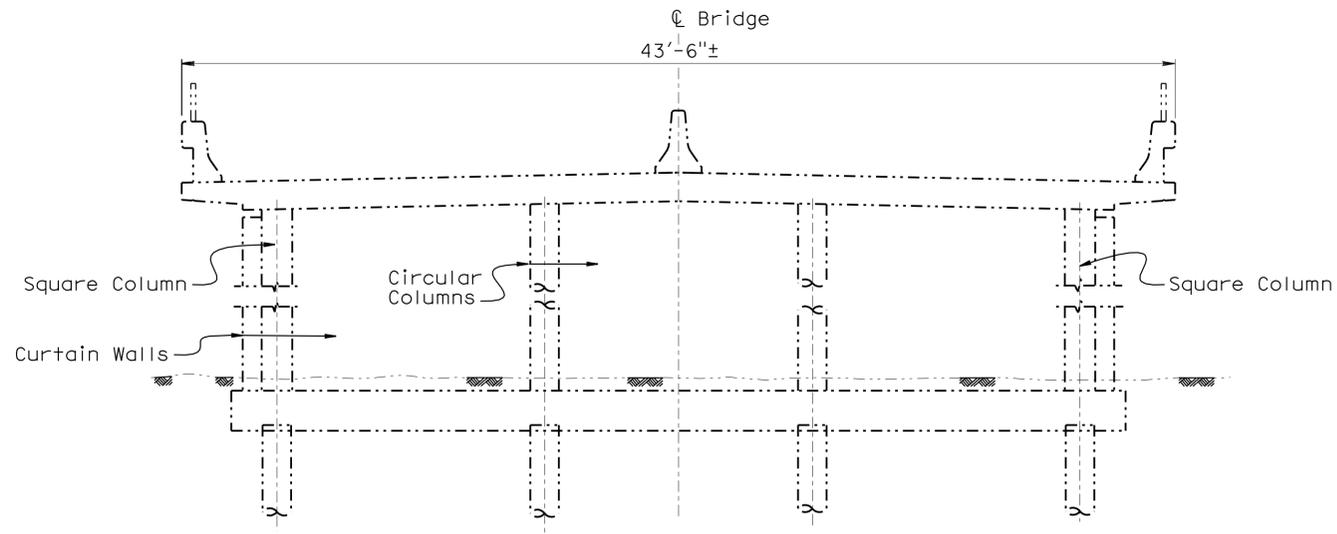
BRIDGE NO.	28-0009
POST MILE	0.8

ANTIOCH BRIDGE SEISMIC RETROFIT
HINGE RETROFIT DETAILS NO.2

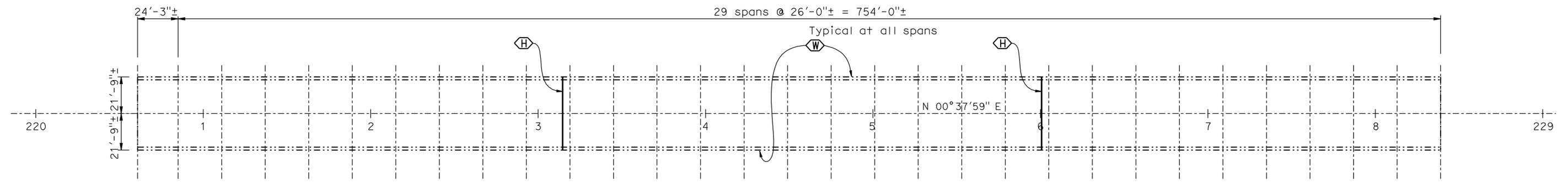
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	CC, Sac	160	0.8/1.3 L0.0/L1.3	165	168

YONG PIL KIM
 REGISTERED CIVIL ENGINEER DATE 8-3-09
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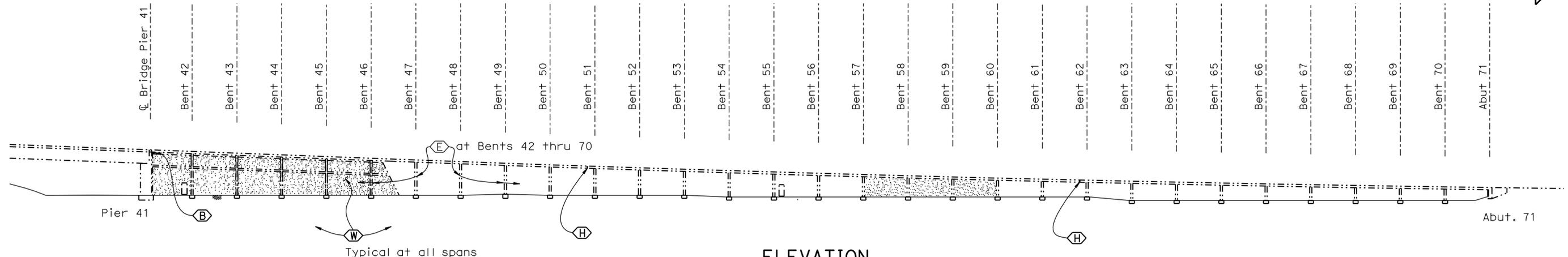
- LEGEND :**
- - - - - Indicates Existing
 - (B) Install seat extender and keys (Pier 41)
 - (W) Remove existing curtain wall
 - (H) Install hinge seat extender
 - (E) Install Steel Column Casings



TYPICAL SECTION @ BENT
 1/4" = 1'-0"



PLAN
 1" = 30'



ELEVATION
 1" = 30'

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

2 REVISED PER ADDENDUM No. 2 DATED FEBRUARY 24, 2010

DESIGN	BY Pat Hiple	CHECKED Rangina Amir
DETAILS	BY Carlo Cancino	CHECKED Pat Hiple
QUANTITIES	BY Tomoko Kusumi	CHECKED Antonio Carreon

STATE OF CALIFORNIA
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DIVISION OF ENGINEERING SERVICES
 STRUCTURE DESIGN
 DESIGN BRANCH **8**

BRIDGE NO. 28-0009
 POST MILE 0.8
ANTIOCH BRIDGE SEISMIC RETROFIT
SLAB SPAN LAYOUT