
Bridge Inspection Records Information System

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State of California
Department of Transportation

**Division of Maintenance
Structures Maintenance & Investigations**



DEPARTMENT OF TRANSPORTATION
Structure Maintenance & Investigations

Bridge Number : 55C0103
Facility Carried: HAMILTON-VICTORIA
Location : 0.15 MI E BROOKHURST ST
City :
Inspection Date : 13-AUG-01

Bridge Inspection Report

Inspection Type
Routine ☐ Group A ☐ Underwater ☐ Special ☐ Other ☒

Name : SANTA ANA RIVER

CONSTRUCTION INFORMATION

Year Built : 1979 Skew (degrees): 16
Year Widened : 1992 No. of Joints : 0
Length (m) : 136.6 No. of Hinges : 1

Description of Structure : Continuous 7 span CIP/RC box girder (9 cells) with RC piers and RC open end diaphragm abutments, all supported upon concrete piles.

Span Configuration : (W) 24.4 m, 3 @ 28.8 m, 24.8 m, 28.6 m, 28.2 m (E)

LOAD CAPACITY AND RATINGS

Design Live Load : MS - 18 OR HS - 20
Inventory Rating : 44.4 metric tons Calculation Method : LOAD FACTOR
Operating Rating : 73.4 metric tons Calculation Method : LOAD FACTOR
Permit Rating : PPPPP
Posting Load : Type 3 N/A english tons Type 3S2 N/A english tons Type 3-3 N/A english tons

DESCRIPTION ON STRUCTURE

Bridge width : (N) 0.3 m br, 1.5 m sw, 23.8 m, 1.5 m sw, 0.3 m br (S)

Total Width : 24.4 m Net Width : 23.80 m No. of Lanes : 4
Rail Description : (S) Type 11 Railing (N) Metal Beam Rail Code : 1000
Min. Vertical Clearance : Unimpaired

DESCRIPTION UNDER STRUCTURE

Channel Description : Santa Ana River: Sandy bottom with grouted rock slopes through the site.
Greenville-Banning: Sandy bottom with RC vertical walls.

HISTORY

The 1986 bridge report mentioned the storm drain at southeast wingwall is eroding the channel embankment. The other bridge reports did not indicate any hydraulic or scour problems.

REVISIONS

The National Bridge Inventory Item 113 Code has been revised from a 6 to 8.

SCOUR

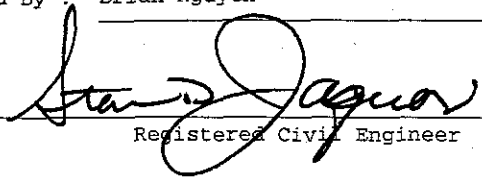
This report addresses hydraulic issues only. The structure's scour potential has been assessed in accordance with the FHWA Technical Advisory T5140.23, "Evaluating Scour at Bridges". The National Bridge Inventory Item 113 Code, "Vulnerability to Scour", has been changed to 8: "Bridge foundations determined to be stable for the assessed or calculated scour conditions. Scour is determined to be above top of footing by assessment, by calculation, or by installation of properly designed countermeasures."

A field investigation was conducted at the time of this report in which a channel cross-section was taken. During this time, there was water flowing in the sandy channel. Grouted rock slope protection at Abutment 1 was noted. There is a flood control structure under Span 7. Rock slope protection at the flood control structural wall near Pier 7 was observed. The flood control structure is separated from the Santa Ana River, therefore Pier 7 can be treated as an abutment for hydraulic analysis. No hydraulic skew or obvious signs of scour were observed. The result of the hydraulic analysis revealed this structure is NOT SCOUR CRITICAL.

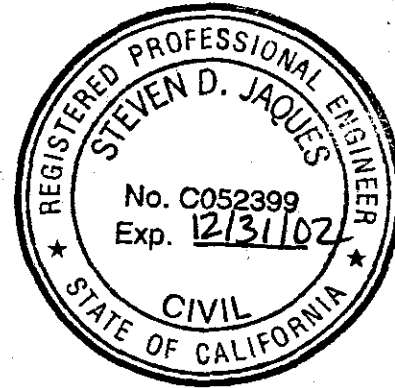
AUG 13 2002

Bridge No.: 55C0103 Location: 0.15 MI E BROOKHURST ST Inspection Date: 13-AUG-01

Inspected By : Brian Nguyen



Registered Civil Engineer



CC : Steve Jaques, Hydraulics

Bridge No.: 55C0103

Location: 0.15 MI E BROOKHURST ST

Inspection Date: 13-AUG-01

CHANNEL X-SECTION

Side : Upstream

X-Section Date : 13-AUG-01

Measured From : Soffit (deck thickness 1.6 m)

Location	Horiz (m)	Vert (m)	Comments
Abutment 1	0.00	0.51	Face of abutment
	8.66	1.90	Top of RSP
	17.45	3.81	Toe of slope
	21.58	3.99	Edge of pavement
	21.61	4.61	Break point
Pier 2	24.77	4.71	Centerline of pier
	26.32	6.34	In water
	35.75	6.40	
	42.05	6.49	
	47.75	6.66	
Pier 3	53.57	6.85	Centerline of pier
	55.01	6.91	
	62.43	6.91	
	68.50	6.95	
	75.94	7.05	
Pier 4	82.37	7.17	Centerline of pier
	83.79	6.74	
	91.22	7.00	
	104.99	6.88	
	106.23	6.85	
Pier 5	111.18	7.03	Centerline of pier
	112.31	6.43	
	116.25	6.57	
	125.87	6.89	
	129.00	6.83	
	133.41	7.05	
Pier 6	135.94	7.04	Centerline of pier
	137.29	7.21	
	141.90	7.55	
	147.91	7.53	
	153.59	3.46	Edge of water
	159.20	3.31	Toe of slope
	160.95	3.32	
Pier 7	164.57	3.32	Centerline of pier
	168.57	3.32	
	172.57	7.02	
	188.60	7.02	
	188.60	3.32	
	189.50	3.32	

Bridge No.: 55C0103

Location: 0.15 MI E BROOKHURST ST

Inspection Date: 13-AUG-01

CHANNEL X-SECTION

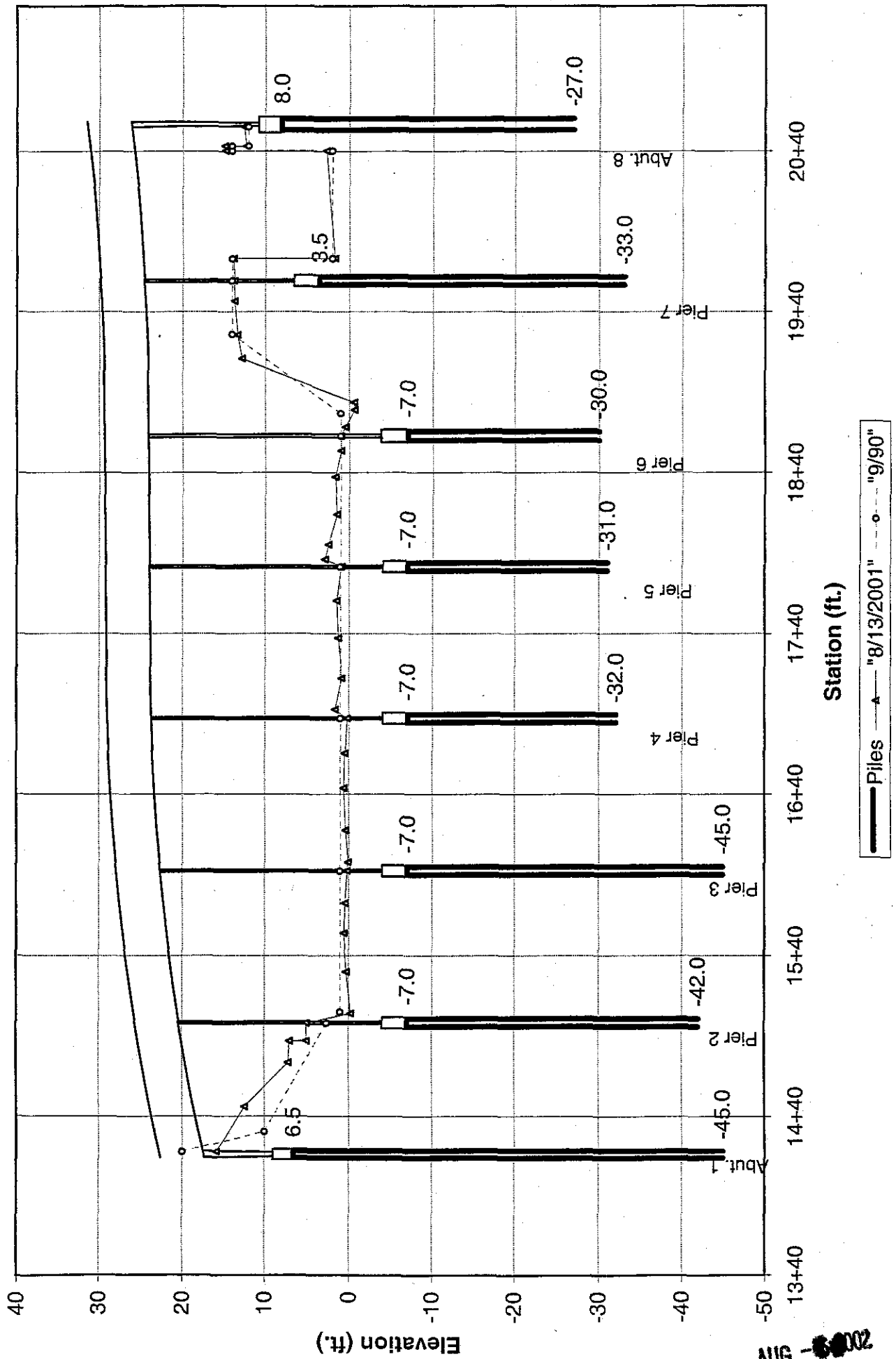
Side : Upstream

X-Section Date : 13-AUG-01

<u>Location</u>	<u>Horiz (m)</u>	<u>Vert (m)</u>	<u>Comments</u>
	189.50	4.12	
Abutment 8	193.20	4.12	Face of abutment

AUG - 6 2002

Santa Ana River - Upstream





DEPARTMENT OF TRANSPORTATION
Structure Maintenance & Investigations

Bridge Number : 55C0103
Facility Carried: HAMILTON-VICTORIA
Location : 0.15 MI E BROOKHURST ST
City :
Inspection Date : 29-MAY-01

Bridge Inspection Report

Inspection Type

Routine ☒ Group A ☐ Underwater ☐ Special ☐ Other ☐

Name : SANTA ANA RIVER

CONSTRUCTION INFORMATION

Year Built : 1979 Skew (degrees): 16
Year Widened : 1992 No. of Joints : 0
Length (m) : 136.6 No. of Hinges : 1

Description of Structure : Continuous 7 span CIP/RC box girder (9 cells) with RC piers and RC open end diaphragm abutments, all supported upon concrete piles.

Span Configuration : (W) 24.4 m, 3 @ 28.8 m, 24.8 m, 28.6 m, 28.2 m (E)

LOAD CAPACITY AND RATINGS

Design Live Load : MS - 18 OR HS - 20
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Operating Rating : 73.4 metric tons Calculation Method : LOAD FACTOR
Permit Rating : PPPPP
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DESCRIPTION ON STRUCTURE

Bridge width : (N) 0.3 m br, 1.5 m sw, 23.8 m, 1.5 m sw, 0.3 m br (S)

Total Width : 24.4 m Net Width : 23.80 m No. of Lanes : 4
Rail Description : (S) Type 11 Railing (N) Metal Beam Rail Code : 1000
Min. Vertical Clearance : Unimpaired

DESCRIPTION UNDER STRUCTURE

Channel Description : Santa Ana River: Sandy bottom with grouted rock slopes through the site.
Greenville-Banning: Sandy bottom with RC vertical walls.

CONDITION OF STRUCTURE

A weld in the lower member of the northerly handrailing is cracked over the most easterly span.

The easterly AC approach has subsided 0.3m near the northeast quadrant of the structure. Possibly caused by a leaked in the drainage structure for the catch basin there.

Otherwise, the structure is in good condition.

MISCELLANEOUS

The cracks in the concrete deck have been sealed with methacrylate.

Inspect the bridge during low tide.

Transients are living beneath the bridge at the west abutment.

ELEMENT LEVEL INSPECTION RATINGS

F#	Element Description	Env	Total Units Quantity	Qty in each Condition State				
No.				St. 1	St. 2	St. 3	St. 4	St. 5
01 12	Concrete Deck - Bare	2	3030 sq.m.	3030	0	0	0	0
01 105	Reinforced Concrete Closed Webs/Box Girder	2	390 m.	390	0	0	0	0
01 210	Reinforced Conc Pier Wall	2	180 m.	180	0	0	0	0
01 215	Reinforced Conc Abutment	2	60 m.	60	0	0	0	0

Bridge No.: 55C0103

Location: 0.15 MI E BROOKHURST ST

Inspection Date: 29-MAY-01

F#	Elem No.	Element Description	Env	Total Units Quantity	Qty in each Condition State				
					St. 1	St. 2	St. 3	St. 4	St. 5
01 227		Reinforced Conc Submerged Pile	2	1 ea.	1	0	0	0	0
01 302		Compression Joint Seal	2	87 m.	87	0	0		
01 331		Reinforced Conc Bridge Railing	2	350 m.	350	0	0	0	
01 335		Other Bridge Railing	2	150 m.	150	0	0		

WORK RECOMMENDATIONS

Remove the temporary shelters and the transients from beneath the structure at the west abutment.

<u>Item#</u>	<u>Rec. Date</u>	<u>Work By</u>	<u>Work Id.</u>	<u>Prog. Method</u>	<u>Cost</u>
1	21-JAN-1999	County Agency	40103X99021X		

Repair the drainage structure and/or overlay the AC pavement at the northeast quadrant of the structure.

<u>Item#</u>	<u>Rec. Date</u>	<u>Work By</u>	<u>Work Id.</u>	<u>Prog. Method</u>	<u>Cost</u>
2	29-MAY-2001	County Agency	40103X01149X		

Inspected By : M. Ogata

M. Ogata

 Registered Civil Engineer



CC : TMRut
 Orange County

Bridge No.: 55C0103

Location: 0.15 MI E BROOKHURST ST

Inspection Date: 29-MAY-01

STRUCTURE INVENTORY AND APPRAISAL REPORT

***** IDENTIFICATION *****

(1) STATE NAME - CALIFORNIA 069
 (8) STRUCTURE NUMBER 55C0103
 (5) INVENTORY ROUTE (ON/UNDER) - ON 1 40 0M036N
 (2) HIGHWAY AGENCY DISTRICT 12
 (3) COUNTY CODE 059 (4) PLACE CODE 00000
 (6) FEATURE INTERSECTED - SANTA ANA RIVER
 (7) FACILITY CARRIED - HAMILTON-VICTORIA
 (9) LOCATION - 0.15 MI E BROOKHURST ST
 (11) MILEPOINT/KILOMETERPOINT 0
 (12) BASE HIGHWAY NETWORK - NOT ON NET 0
 (13) LRS INVENTORY ROUTE & SUBROUTE
 (16) LATITUDE 33 DEG 39 MIN 03 SEC
 (17) LONGITUDE 117 DEG 57 MIN 07 SEC
 (98) BORDER BRIDGE STATE CODE % SHARE %
 (99) BORDER BRIDGE STRUCTURE NUMBER

***** STRUCTURE TYPE AND MATERIAL *****

(43) STRUCTURE TYPE MAIN: MATERIAL - CONCRETE CONT
 TYPE - TEE BEAM CODE 2 04
 (44) STRUCTURE TYPE APPR: MATERIAL -
 TYPE - CODE
 (45) NUMBER OF SPANS IN MAIN UNIT 7
 (46) NUMBER OF APPROACH SPANS 0
 (107) DECK STRUCTURE TYPE CIP CONCRETE CODE 1
 (108) WEARING SURFACE / PROTECTIVE SYSTEM:
 A) TYPE OF WEARING SURFACE - CONCRETE CODE 1
 B) TYPE OF MEMBRANE - NONE CODE 0
 C) TYPE OF DECK PROTECTION - NONE CODE 0

***** AGE AND SERVICE *****

(27) YEAR BUILT 1979
 (106) YEAR RECONSTRUCTED 1992
 (42) TYPE OF SERVICE: ON - HIGHWAY-PEDESTRIAN 5
 UNDER - WATERWAY 5
 (28) LANES: ON STRUCTURE 04 UNDER STRUCTURE
 (29) AVERAGE DAILY TRAFFIC 25000
 (30) YEAR OF ADT 1999 (109) TRUCK ADT 1%
 (19) BYPASS, DETOUR LENGTH 5 KM

***** GEOMETRIC DATA *****

(48) LENGTH OF MAXIMUM SPAN 28.8 M
 (49) STRUCTURE LENGTH 136.6 M
 (50) CURB OR SIDEWALK: LEFT 1.5 M RIGHT 0 M
 (51) BRIDGE ROADWAY WIDTH CURB TO CURB 23.8 M
 (52) DECK WIDTH OUT TO OUT 24.4 M
 (32) APPROACH ROADWAY WIDTH (W/SHOULDERS) 20.4 M
 (33) BRIDGE MEDIAN - CLOSED (NO BARRIER) 2
 (34) SKEW 16 DEG (35) STRUCTURE FLARED NO
 (10) INVENTORY ROUTE MIN VERT CLEAR 99.99 M
 (47) INVENTORY ROUTE TOTAL HORIZ CLEAR 23.8 M
 (53) MIN VERT CLEAR OVER BRIDGE RDWY 99.99 M
 (54) MIN VERT UNDERCLEAR REF - NOT H/RR 0 M
 (55) MIN LAT UNDERCLEAR RT REF - NOT H/RR 0 M
 (56) MIN LAT UNDERCLEAR LT 0 M

***** NAVIGATION DATA *****

(38) NAVIGATION CONTROL - NOT APPLICABLE CODE N
 (111) PIER PROTECTION - NOT REQUIRED CODE 1
 (39) NAVIGATION VERTICAL CLEARANCE 0 M
 (116) VERT-LIFT BRIDGE NAV MIN VERT CLEAR 0 M
 (40) NAVIGATION HORIZONTAL CLEARANCE 0

***** SUFFICIENCY RATING = 92.1 *****

STATUS =

HEALTH INDEX = 100

***** CLASSIFICATION ***** CODE

(112) NBIS BRIDGE LENGTH - YES Y
 (104) HIGHWAY SYSTEM - NOT ON NHS 0
 (26) FUNCTIONAL CLASS - MINOR ARTERIAL URBAN 16
 (100) DEFENSE HIGHWAY - NOT STRAHNET 0
 (101) PARALLEL STRUCTURE - NONE EXISTS N
 (102) DIRECTION OF TRAFFIC - 2 WAY 2
 (103) TEMPORARY STRUCTURE -
 (105) FEDERAL LANDS HIGHWAY - NOT APPLICABLE 0
 (110) DESIGNATED NATIONAL NETWORK - NOT ON NET 0
 (20) TOLL - ON FREE ROAD 3
 (21) MAINTAIN - COUNTY HIGHWAY AGENCY 2
 (22) OWNER - COUNTY HIGHWAY AGENCY 2
 (37) HISTORICAL SIGNIFICANCE - NOT ELIGIBLE 5

***** CONDITION ***** CODE

(58) DECK 7
 (59) SUPERSTRUCTURE 7
 (60) SUBSTRUCTURE 7
 (61) CHANNEL & CHANNEL PROTECTION 9
 (62) CULVERTS N

***** LOAD RATING AND POSTING ***** CODE

(31) DESIGN LOAD - MS - 18 OR HS - 20 5
 (63) OPERATING RATING METHOD - LOAD FACTOR 1
 (64) OPERATING RATING - 73.4
 (65) INVENTORY RATING METHOD - LOAD FACTOR 1
 (66) INVENTORY RATING - 44.4
 (70) BRIDGE POSTING - Equal to or above legal loads 5
 (41) STRUCTURE OPEN, POSTED OR CLOSED - A
 DESCRIPTION - OPEN, NO RESTRICTION

***** APPRAISAL ***** CODE

(67) STRUCTURAL EVALUATION 7
 (68) DECK GEOMETRY 9
 (69) UNDERCLEARANCES, VERTICAL & HORIZONTAL N
 (71) WATER ADEQUACY 9
 (72) APPROACH ROADWAY ALIGNMENT 8
 (36) TRAFFIC SAFETY FEATURES 1000
 (113) SCOUR CRITICAL BRIDGES 6

***** PROPOSED IMPROVEMENTS *****

(75) TYPE OF WORK - CODE
 (76) LENGTH OF STRUCTURE IMPROVEMENT M
 (94) BRIDGE IMPROVEMENT COST
 (95) ROADWAY IMPROVEMENT COST
 (96) TOTAL PROJECT COST
 (97) YEAR OF IMPROVEMENT COST ESTIMATE
 (114) FUTURE ADT 50000
 (115) YEAR OF FUTURE ADT 2019

***** INSPECTIONS *****

(90) INSPECTION DATE 05/01 (91) FREQUENCY 24 MO
 (92) CRITICAL FEATURE INSPECTION: (93) CFI DATE
 A) FRACTURE CRIT DETAIL - NO -1 MO A)
 B) UNDERWATER INSP - NO -1 MO B)
 C) OTHER SPECIAL INSP - NO -1 MO C)

SUPPLEMENTARY BRIDGE REPORT

DS-M19 (REV. 2/93)

Bridge Number 55C-103

Location 12 - Ora - FAU M036-CR
Dist.-Co.-Rte.-City

Date of Investigation June 21, 1994

TYPE OF INVESTIGATION/REPORT

BIENNIAL	<u>X</u>	DAMAGE	___
CATEGORY A	___	OTHER	___
UNDERWATER	___	OFFICE	___

Name SANTA ANA RIVER (Hamilton-Victoria, 0.2 mile east of Brookhurst Street)

CONDITION RATINGS:

Condition ratings of all bridge elements are shown on the PONTIS DATA FORM (Attachment A).

Channel & Channel Protection

9

SCOUR CRITICAL:

The scour rating of A-3 is appropriate.

CONDITION OF STRUCTURE:

There are numerous of transverse concrete cracks in bridge deck. Otherwise the structure is in good condition.

WORK RECOMMENDED:

Clean and seal the bridge deck cracks by coating the entire deck with methacrylate.

M. H. Behrooj *HMB*

By

S. A. Zanganeh
S. A. Zanganeh

SAZ:cd

cc: CDHarris
Orange County
WLindsey

C-41777

26

DISTRICT	12
COUNTY	ORA
ROUTE	
POSTMILE	
NAME	

SCOUR CRITICAL	NO
CATEGORY A	NO
FRACTURE CRITICAL	NO
ELIGIBLE FOR RAIL UPGRADE	NO
UNDERWATER INSPECTION	NO

BY: W27

Bridge Number 55C-103

Location 12 - Ora- FAU M036-CR
Dist.-Co.-Rte.-City

Date of Investigation June 10, 1992

TYPE OF INVESTIGATION/REPORT

BIENNIAL	<u>X</u>	DAMAGE	___
CATEGORY A	___	OTHER	___
UNDERWATER	___	OFFICE	___

Name SANTA ANA RIVER (Hamilton-Victoria, 0.2 mile east of Brookhurst Street)

CONDITION RATINGS:

Deck

7

Superstructure

8

Substructure

8

Channel & Channel Protection

9

Culvert

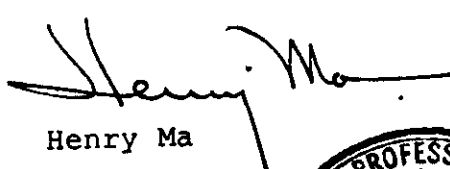
N

DISCUSSION:

On date of this inspection, this structure is undergoing major structural rehabilitation and reconstruction with detour traffic on portions of the bridge.

CONDITION OF STRUCTURE:

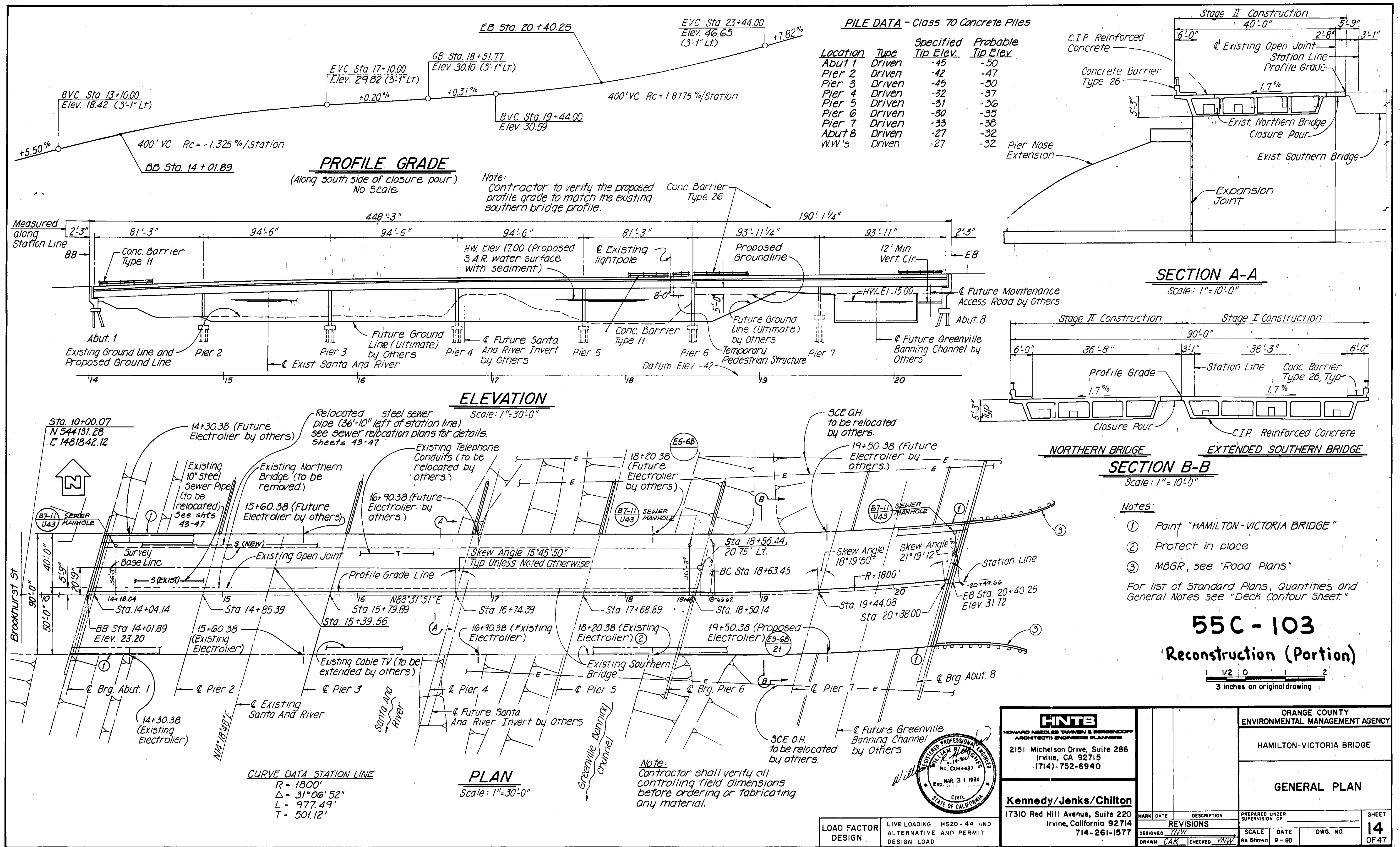
Condition of the structure is good.


Henry Ma

HM:cd

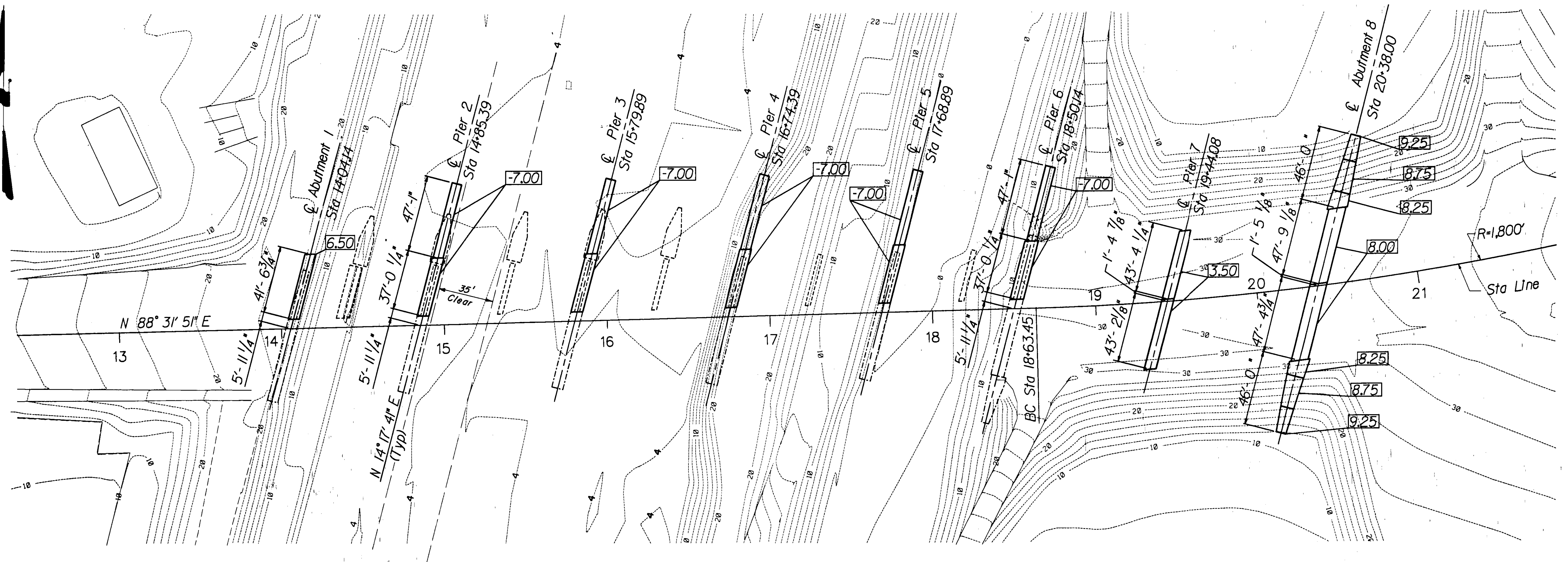
cc: INagai (2)
County of Orange





SANTA ANA RIVER CHANNEL

1992



NOTES:

1. Dimensions are typical for Piers 2 thru 5.
2. All footings to be parallel.
3. All piles not shown, see Abutment and Pier plans for detail.
4. One 35 foot by 15 foot passageway shall be provided when bridge deck falsework is erected.

LEGEND:

- denotes new pile foundation.
- - - - denotes existing southern foundation.
- - - - denotes existing northern foundation to be removed.
- denotes bottom of footing elevation.

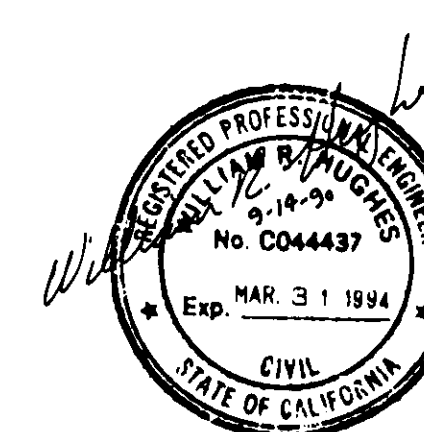
FOUNDATION PLAN

Scale : 1" = 30'-0"

AS-BUILT PILE DRIVING DATA

	CUT - OFF ELEVATION	MAXIMUM TIP ELEVATION	MAXIMUM TIP LENGTH	AVERAGE *AS BUILT* TIP ELEVATION	AVG. STROKE HEIGHT	AVG. BLOWS PER FOOT	AVG. BEARING VALUE (TONS)
ABUTMENT NO. 1							
PIER NO. 2							
PIER NO. 3							
PIER NO. 4							
PIER NO. 5							
PIER NO. 6							
PIER NO. 7							
ABUTMENT NO. 8							

TABLE AND DATA ABOVE FOR USE OF RESIDENT ENGINEER
UPON COMPLETION OF CONSTRUCTION



HNTB
HOWARD NEEDLES TAMMEN & BERENDSON
ARCHITECTS ENGINEERS PLANNERS
2151 Michelson Drive, Suite 286
Irvine, CA 92715
(714)-752-6940

Kennedy/Jenks/Chilton
17310 Red Hill Avenue, Suite 220
Irvine, California 92714
714-261-1577

MARK	DATE	DESCRIPTION	PREPARED UNDER SUPERVISION OF	SHEET
DESIGNED	YJW	REVISIONS		16
DRAWN	YJW	CHECKED	WJR	OF 47

55C-103

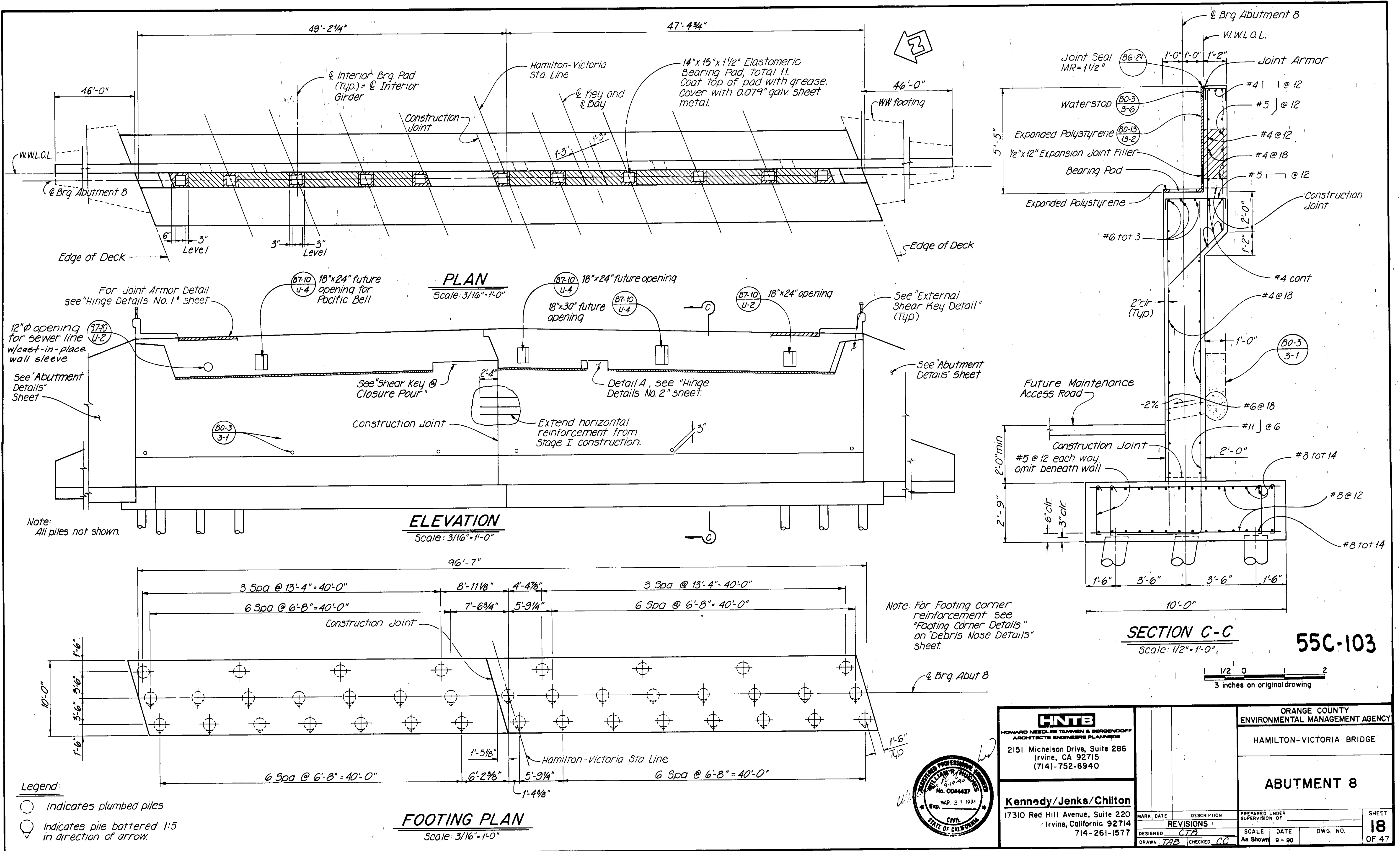
1 1/2 0 1 2
3 inches on original drawing

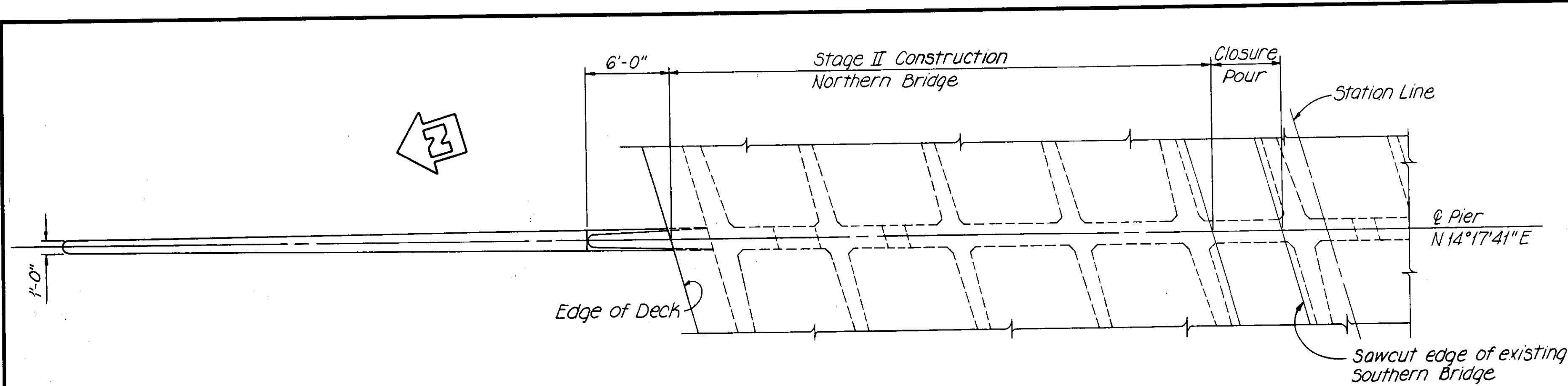
ORANGE COUNTY
ENVIRONMENTAL MANAGEMENT AGENCY

HAMILTON-VICTORIA BRIDGE

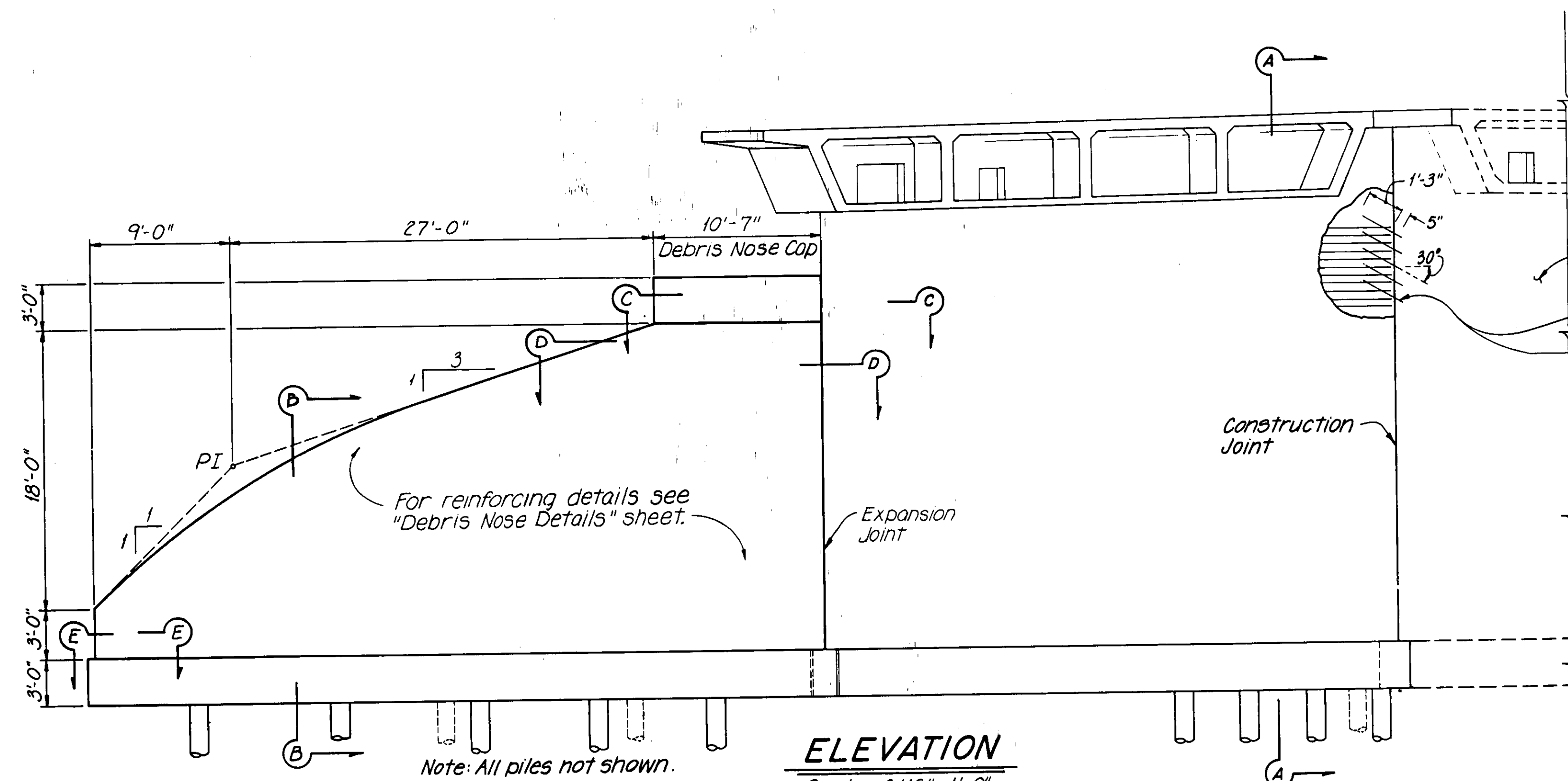
FOUNDATION PLAN

SCALE	DATE	DWG. NO.
As Shown	9 - 90	

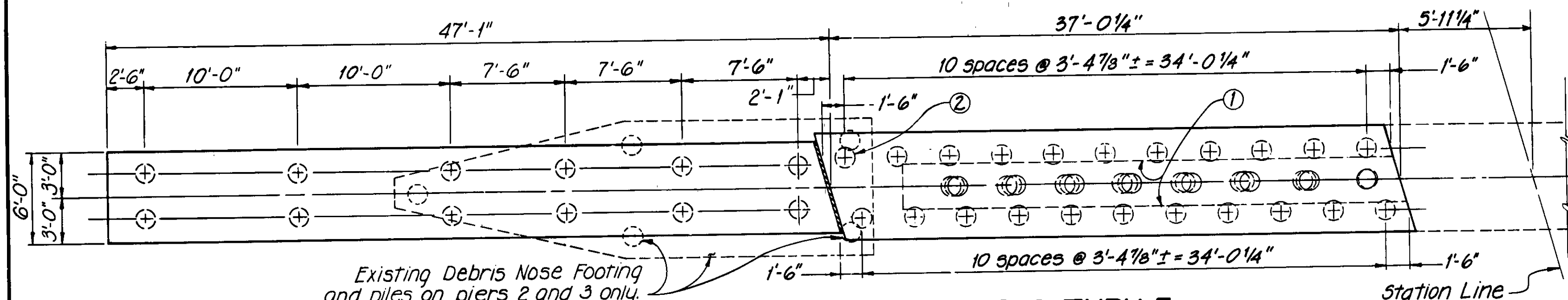




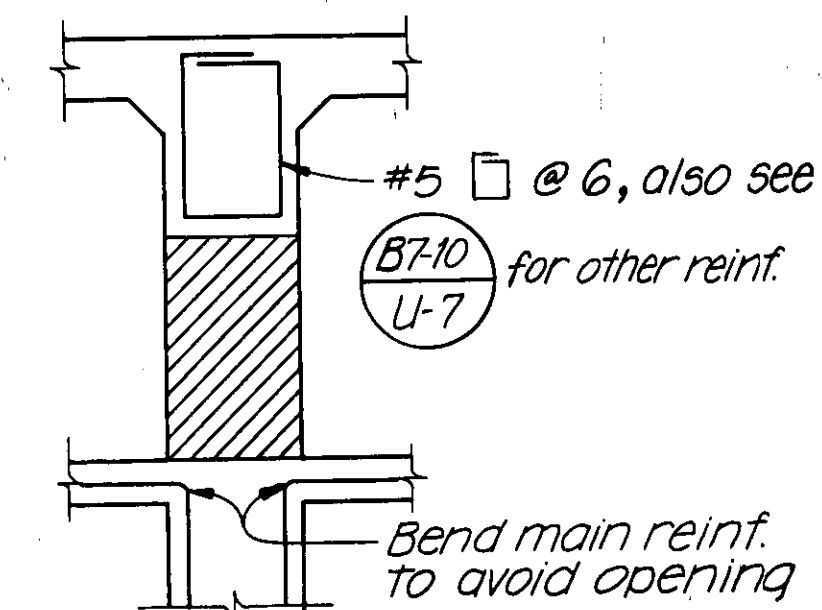
PLAN
Scale: 3/16" = 1'-0"



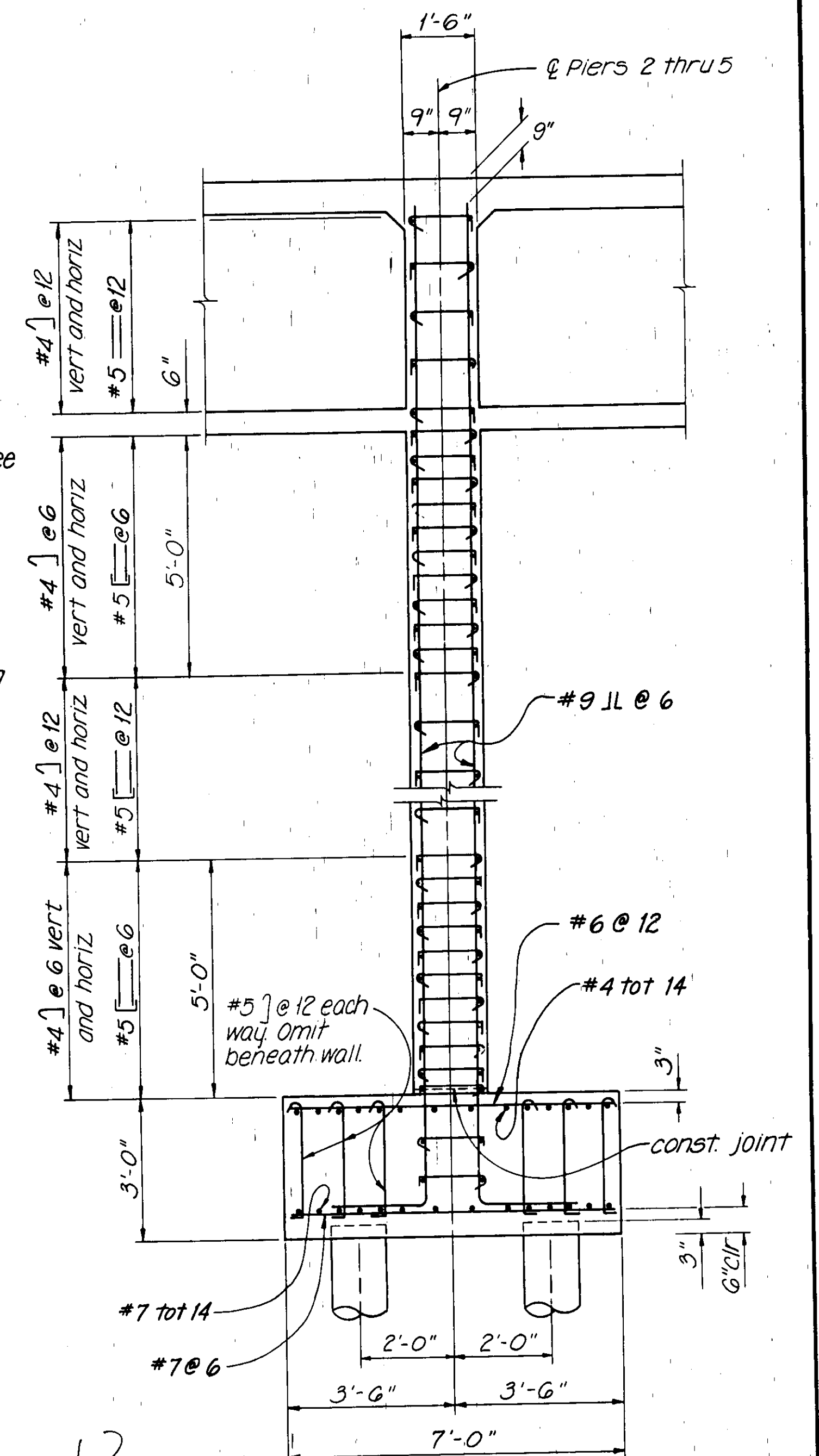
ELEVATION
Scale: 3/16" = 1'-0"



FOOTING PLAN - PIERS 2 THRU 5
Scale: 3/16" = 1'-0"



SECTION AT UTILITY OPENING
PIERS 2-5, 7
Scale: 1/2" = 1'-0"



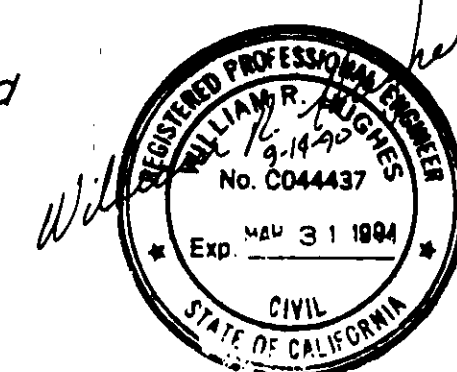
SECTION A-A
Scale: 1/2" = 1'-0"

Legend:

- Denotes proposed piles
- Denotes existing Debris Nose and Pier 2 & 3 piles. Existing piles to be cut off below footing.
- Denotes existing Debris Nose and Pier 2 & 3 piles
- Denotes existing Pier 4 piles
- Denotes existing Pier 5 piles

Notes:

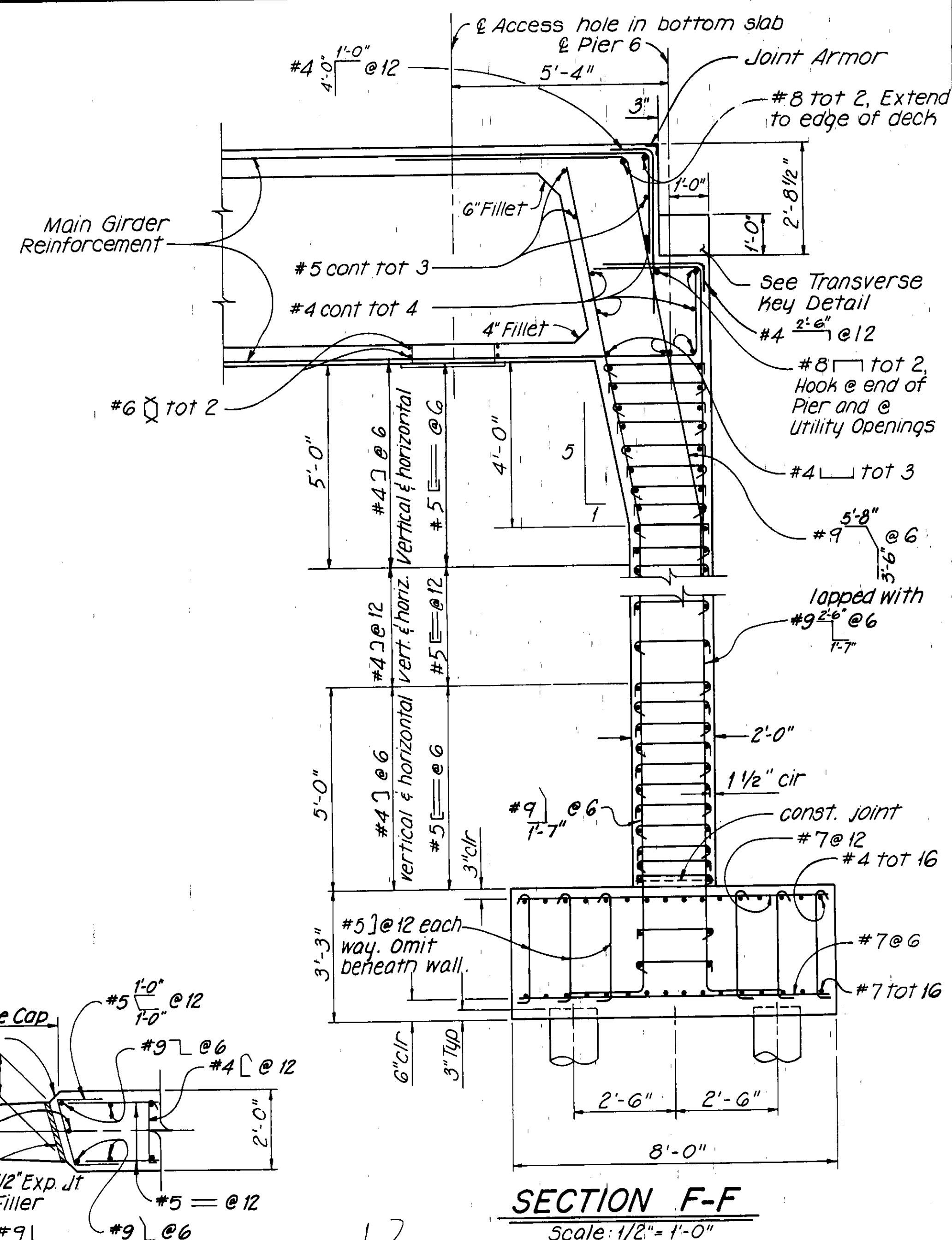
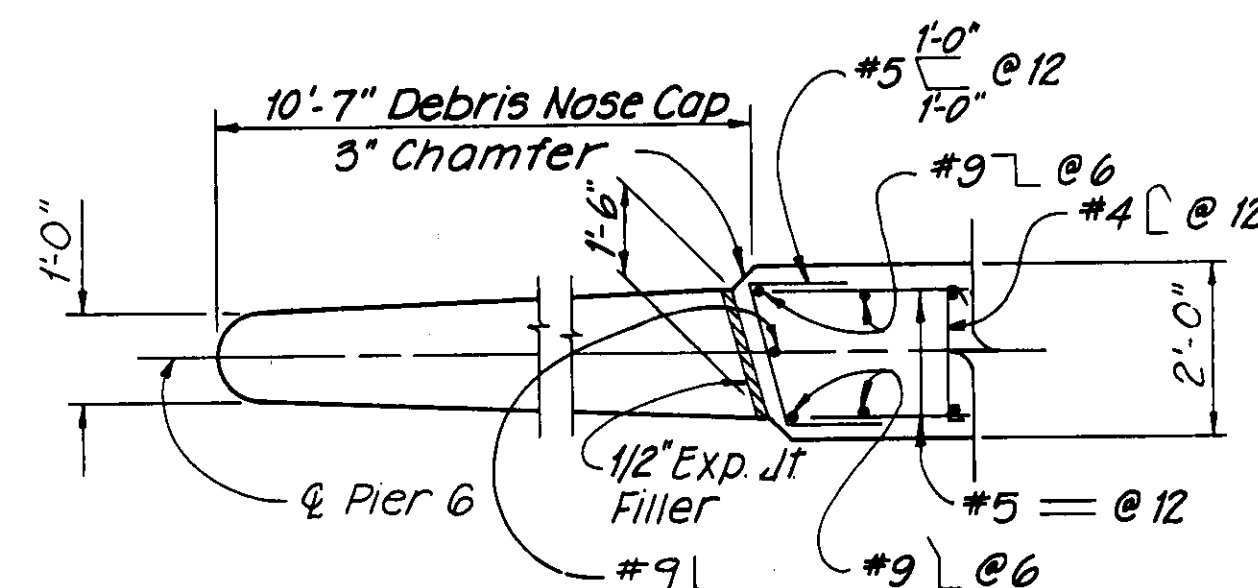
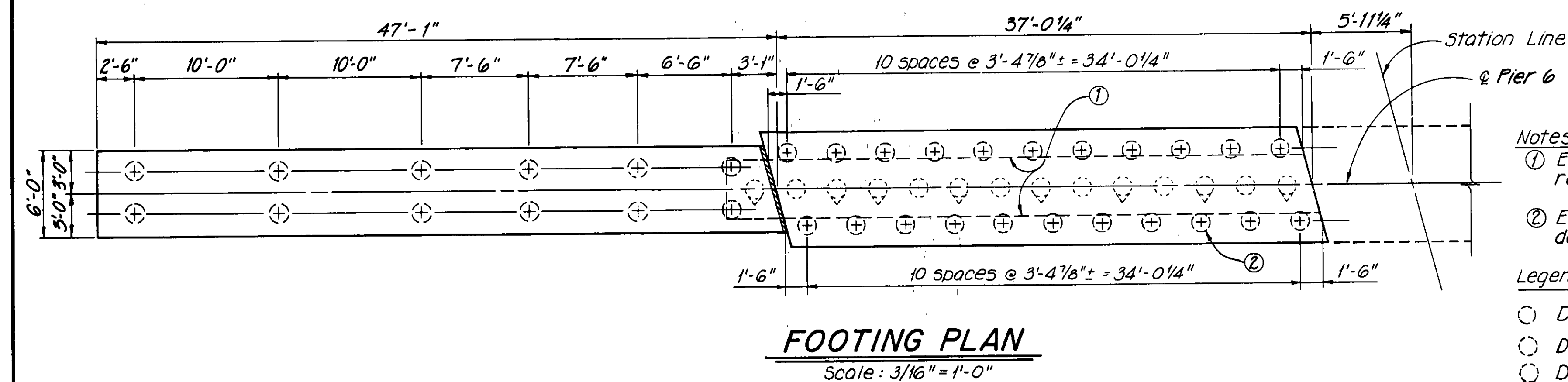
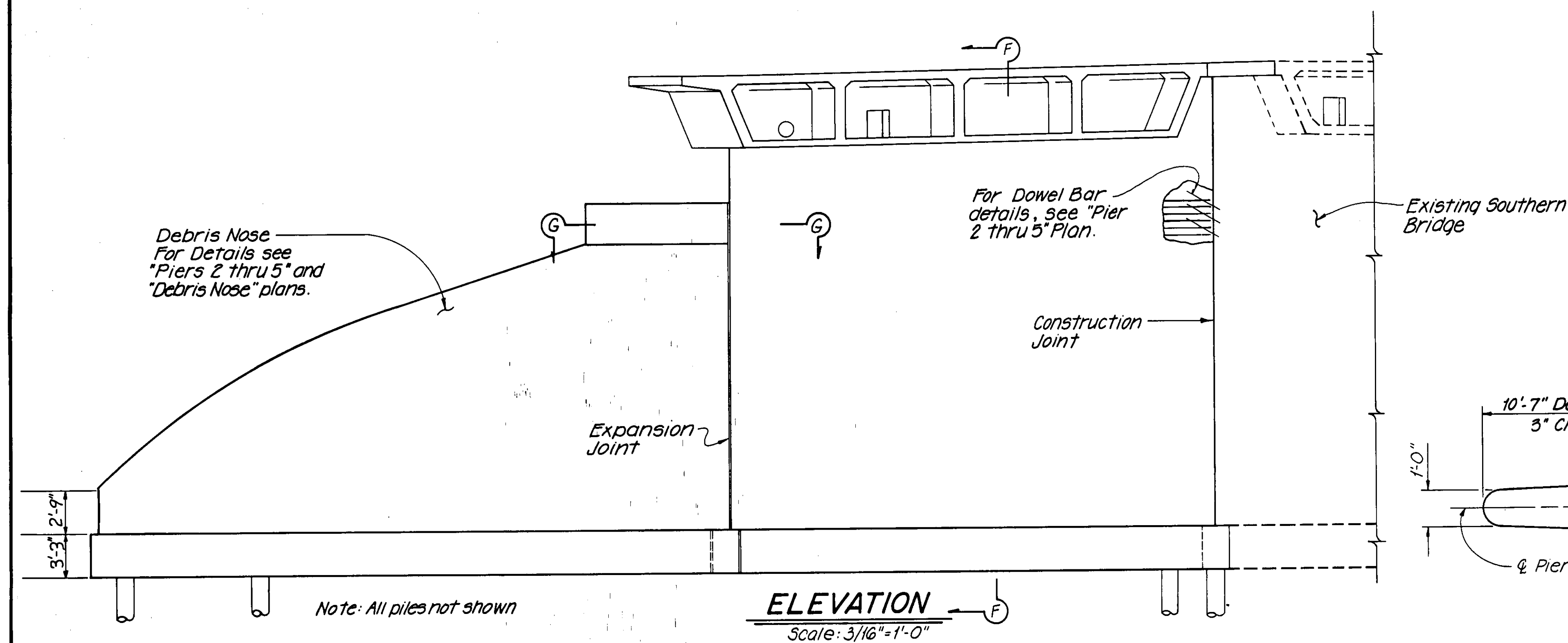
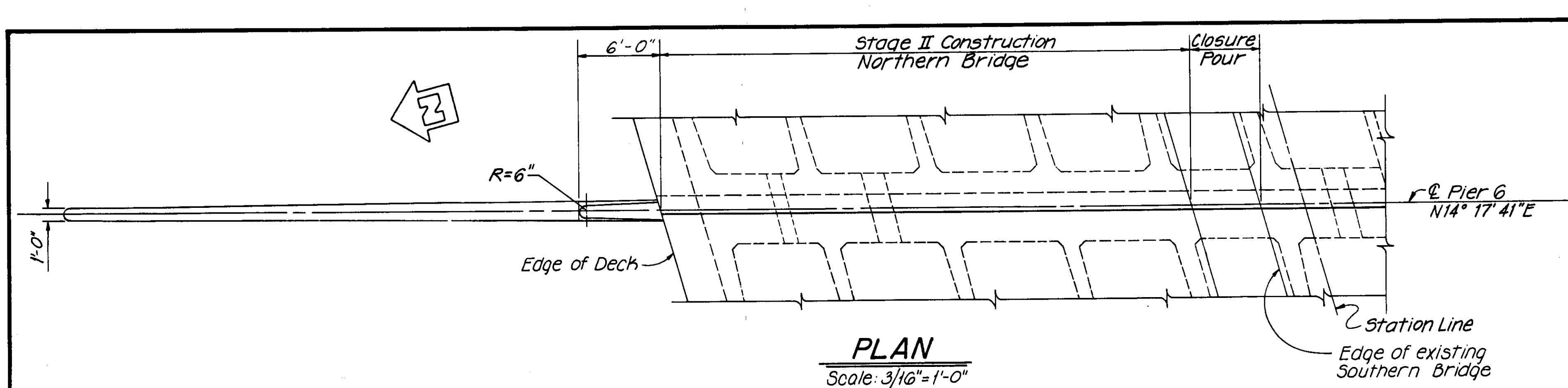
- ① Existing 1959 footings to be removed.
- ② Exact location of piles to be determined in the field.



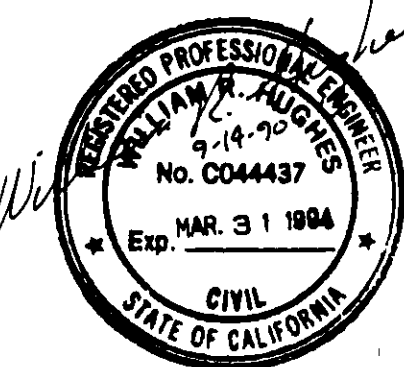
55C-103

1/2" 0 2
3 inches on original drawing

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF ARCHITECTS ENGINEERS PLANNERS 2151 Michelson Drive, Suite 286 Irvine, CA 92715 (714)-752-6940		ORANGE COUNTY ENVIRONMENTAL MANAGEMENT AGENCY HAMILTON-VICTORIA BRIDGE	
		PIERS 2 THRU 5	
Kennedy/Jenks/Chilton 17310 Red Hill Avenue, Suite 220 Irvine, California 92714 714-261-1577		MARK DATE DESCRIPTION DESIGNED <i>SAW</i> DRAWN <i>THB</i> CHECKED <i>YWW</i>	PREPARED UNDER SUPERVISION OF SCALE DATE DWG. NO. As Shown 9-90
		SHEET 20 OF 47	



- Notes:**
- Existing 1959 footing to be removed.
 - Exact location of piles to be determined in the field.
- Legend:**
- Denotes proposed piles
 - Denotes existing piles
 - Denotes existing piles battered 1:4



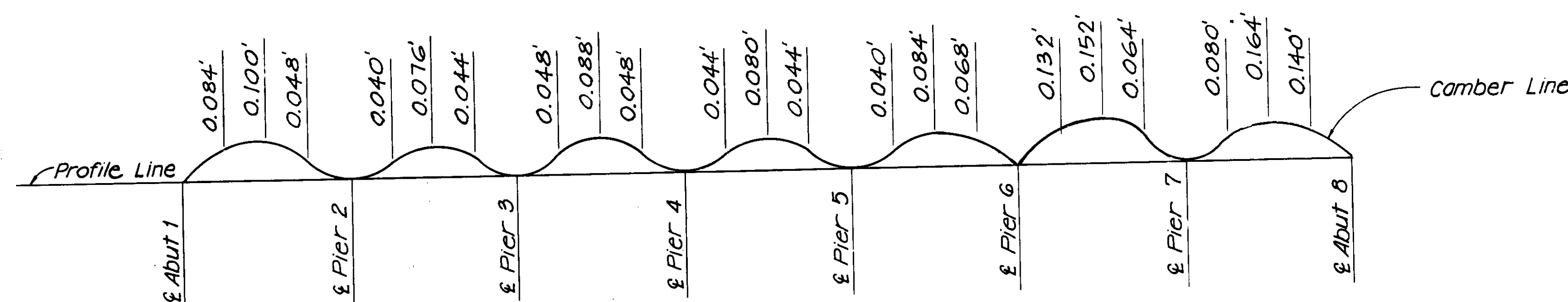
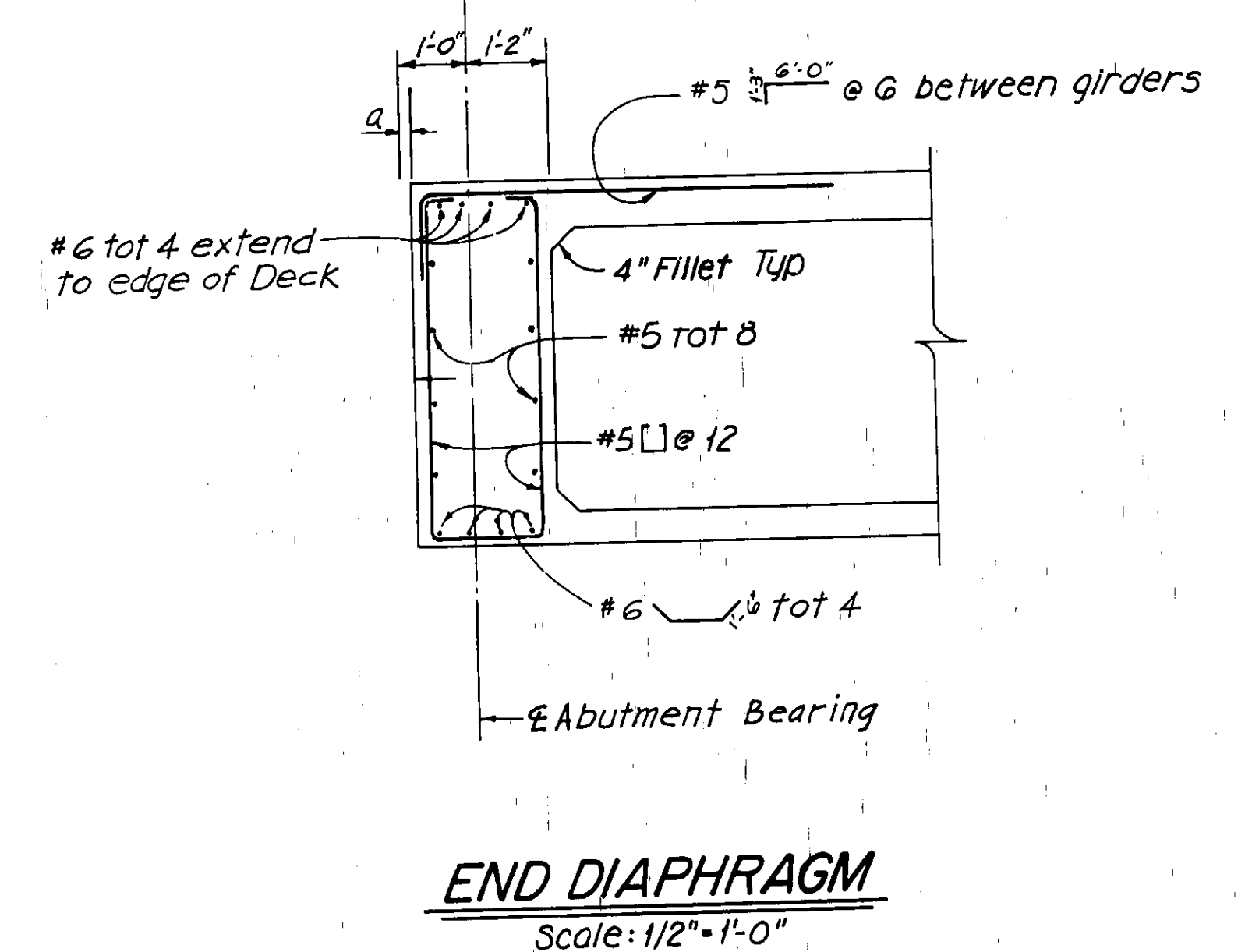
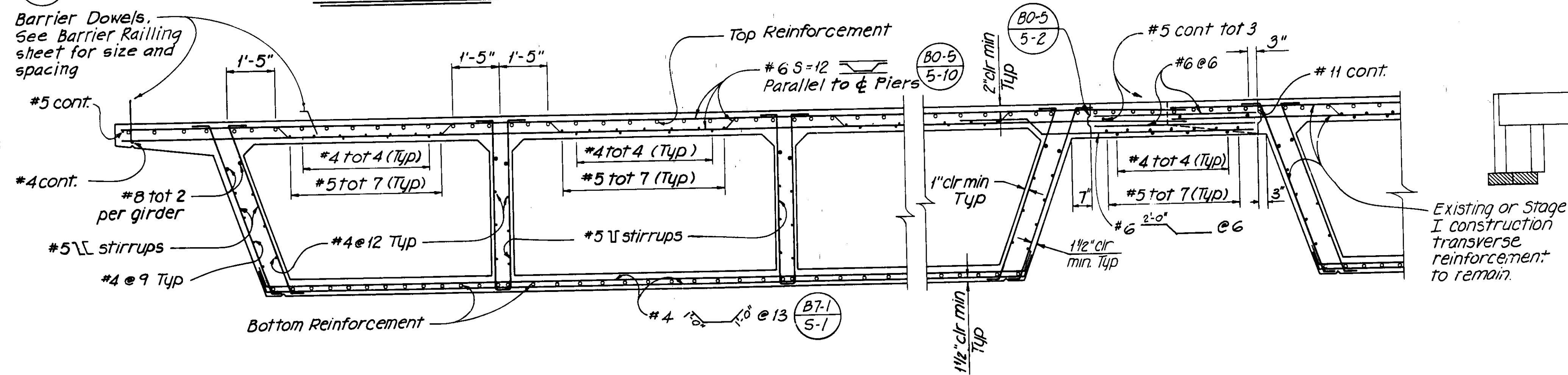
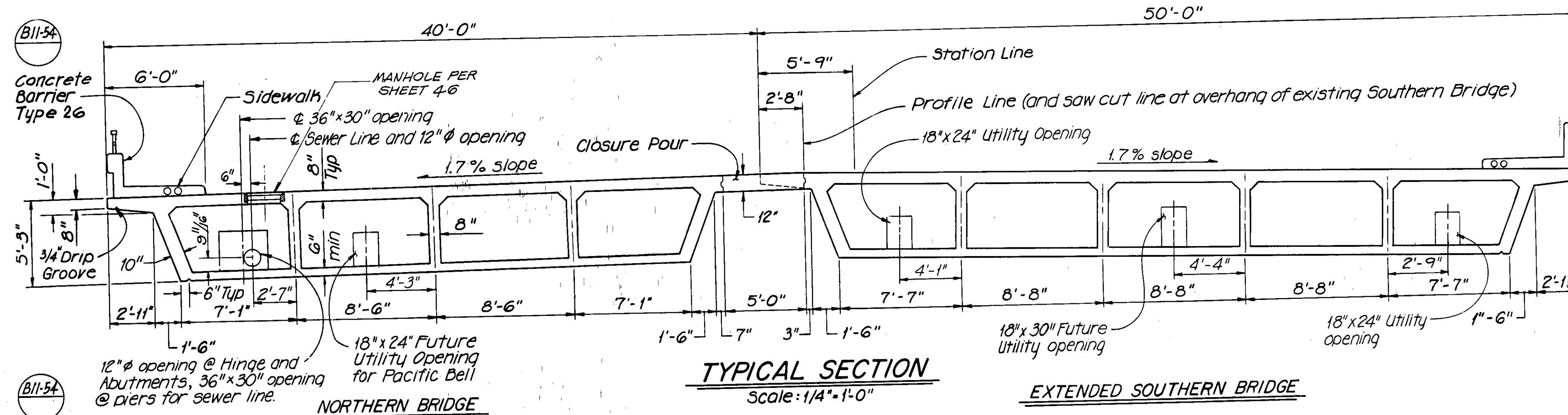
1/2 0 2
3 inches on original drawing

55C-103

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Irvine, CA 92715
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17310 Red Hill Avenue, Suite 220
Irvine, California 92714
714-261-1577

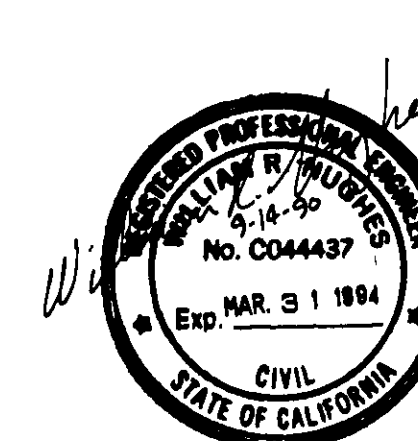
ORANGE COUNTY ENVIRONMENTAL MANAGEMENT AGENCY			
HAMILTON-VICTORIA BRIDGE			
PIER 6			
MARK	DATE	DESCRIPTION	PREPARED UNDER SUPERVISION OF
REVISIONS			
DESIGNED	SAW	SCALE	DATE
DRAWN	TAB	CHECKED	MMW
As Shown			8 - 90
DWG. NO.			22 OF 47



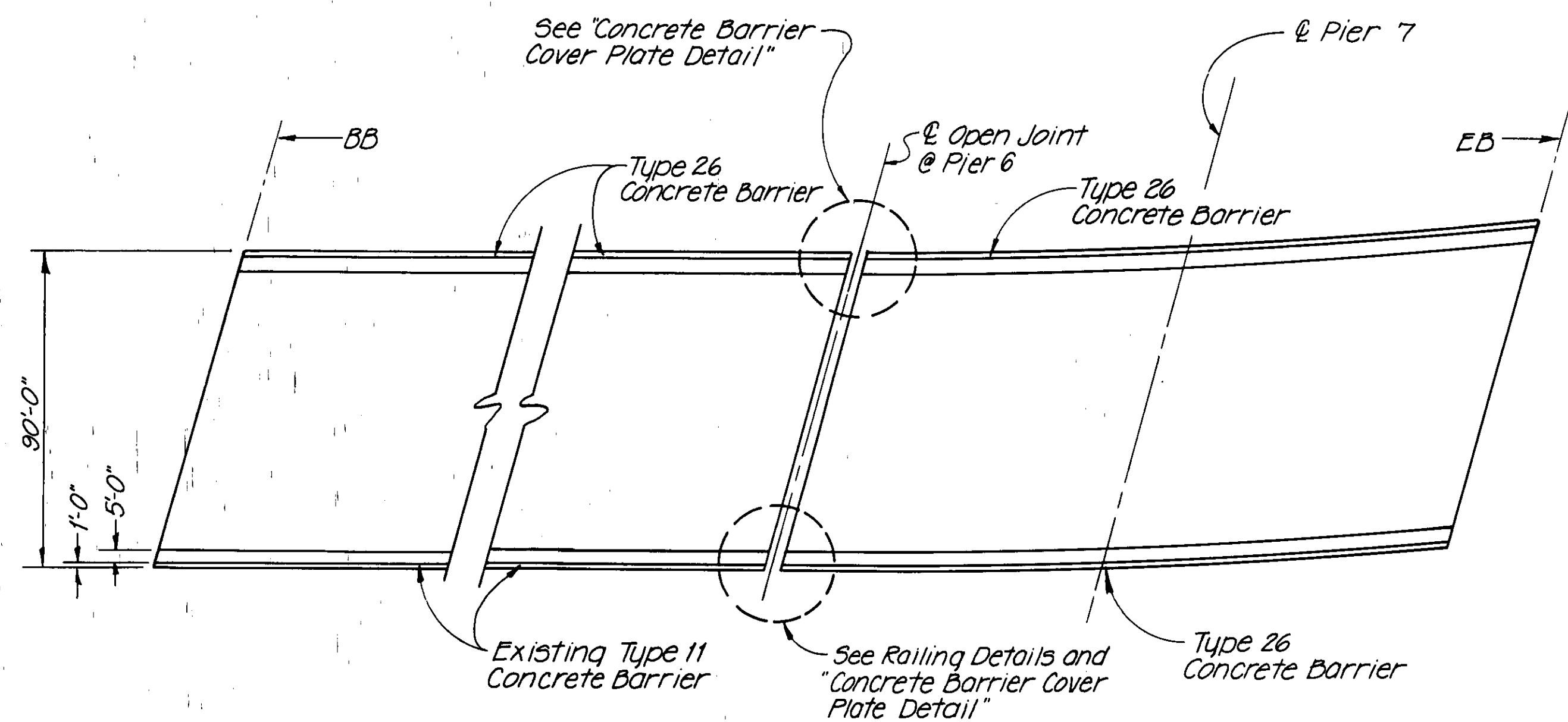
Note: Does not include allowance for falsework settlement

- Structural Concrete, Bridge (3500 psi) ①
 Structural Concrete, Pier Nose (3500 psi)
 Structural Concrete, Footing (3500 psi)
 ① See Special Provisions for Top Slab and Closure Pour

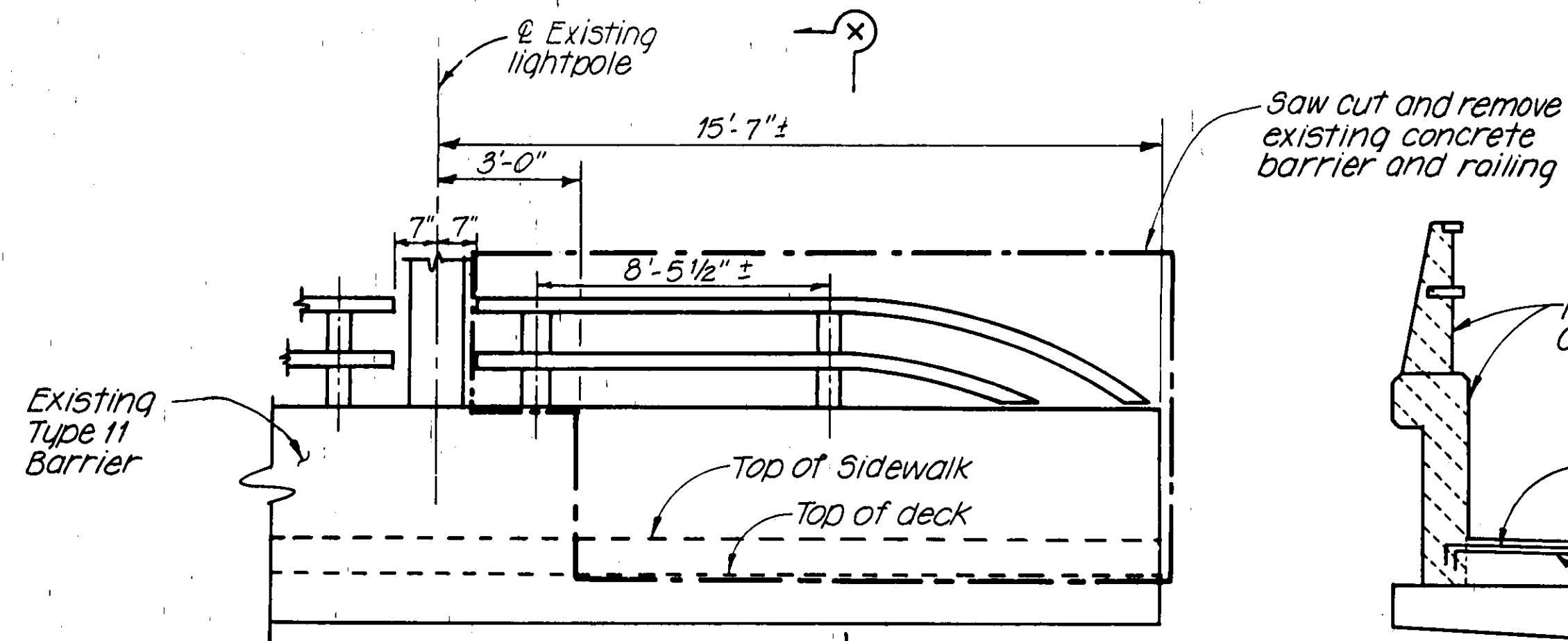
CONCRETE STRENGTH AND TYPE LIMITS
No Scale



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Kennedy/Jenks/Chilton 17310 Red Hill Avenue, Suite 220 Irvine, California 92714 714-261-1577		TYPICAL SECTION	
MARK DATE DESIGNED YNK DRAWN TAB	DESCRIPTION REVISIONS CHECKED KJH	PREPARED UNDER SUPERVISION OF SCALE As Shown DATE 9-80	DWG NO. SHEET 24 OF 47

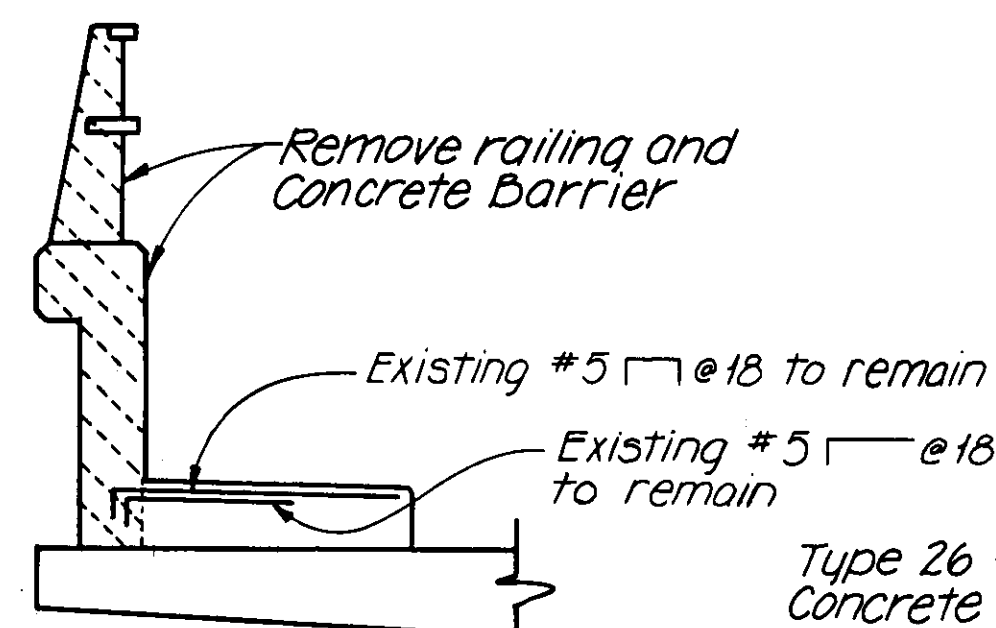


PLAN
No Scale

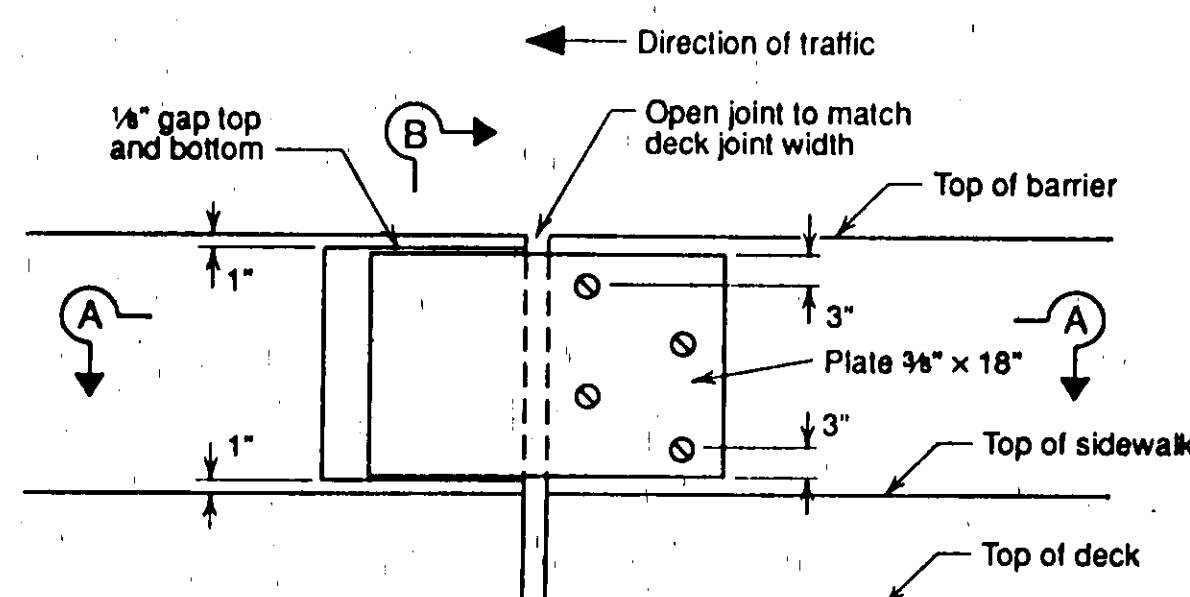


ELEVATION
Looking North

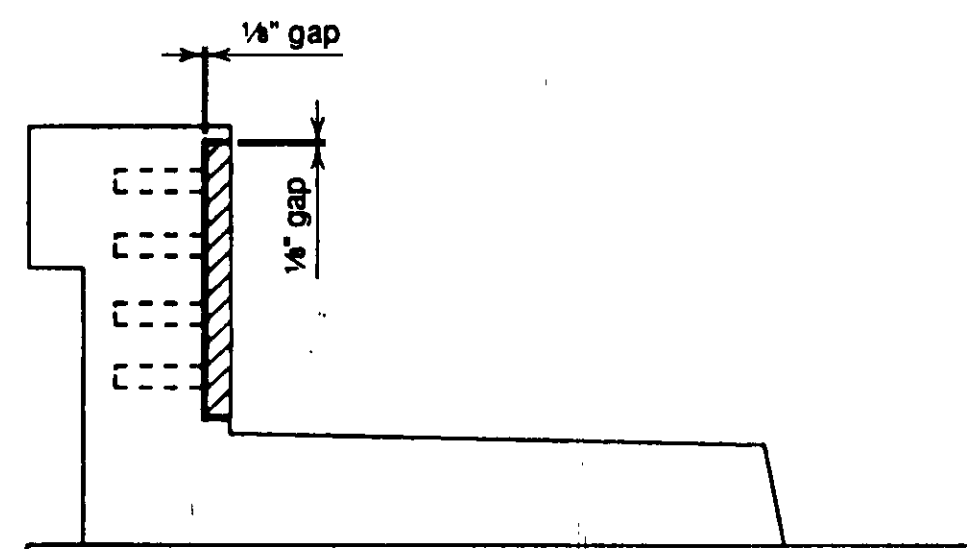
RAILING REMOVAL DETAILS
No Scale



SECTION X-X

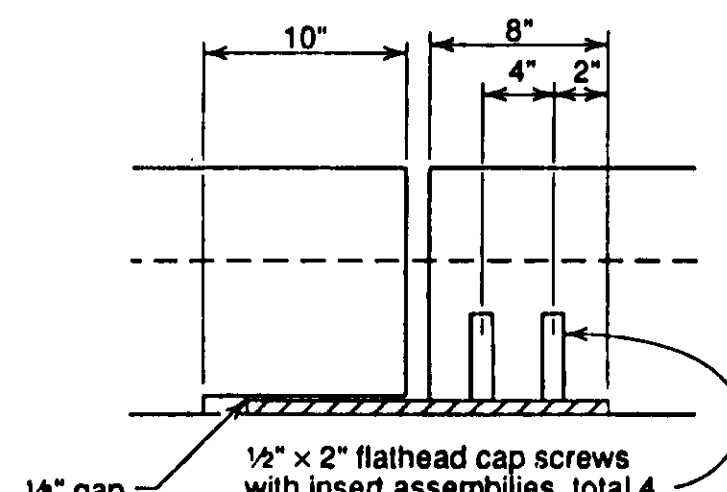


Elevation

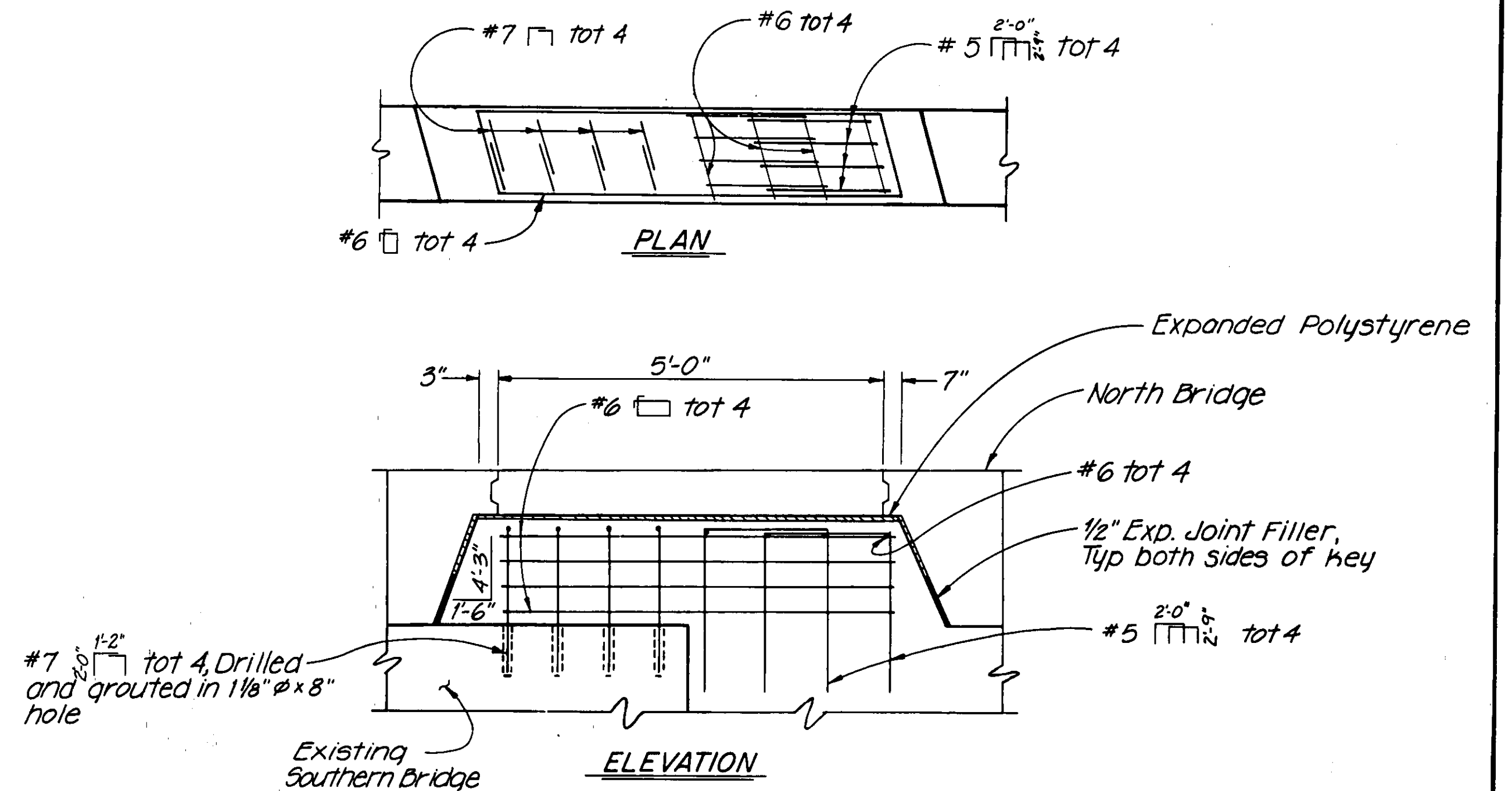


Section B-B

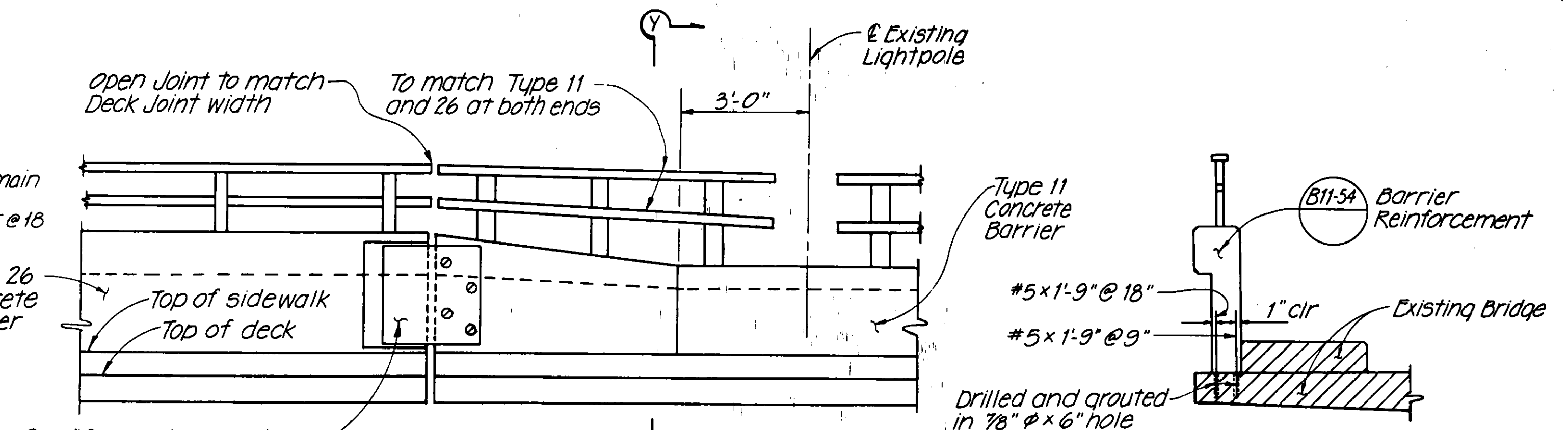
CONCRETE BARRIER COVER PLATE DETAIL
No Scale



Section A-A



DETAIL C
No Scale



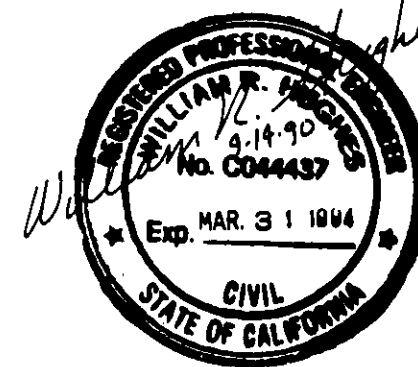
ELEVATION
Looking South

RAILING TRANSITION DETAILS
No Scale

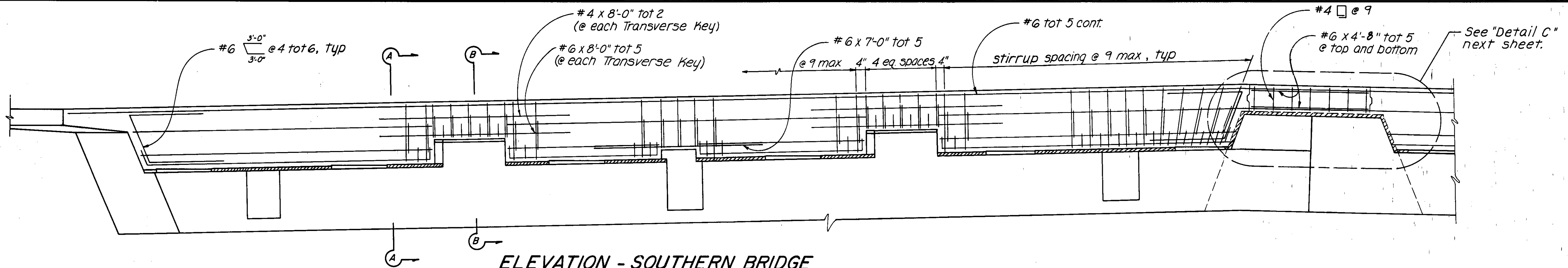
SECTION Y-Y

55C-103

1/2 0 2
3 inches on original drawing

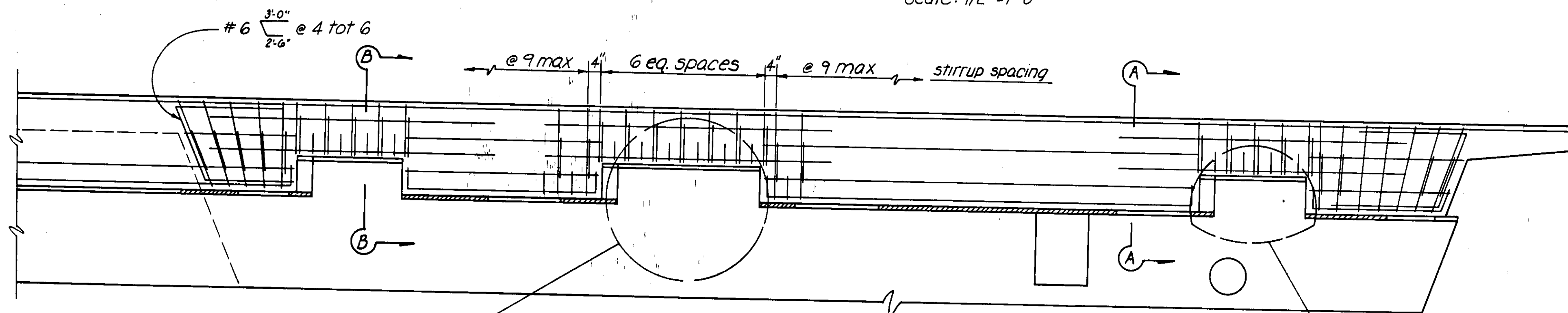


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Kennedy/Jenks/Chilton 17310 Red Hill Avenue, Suite 220 Irvine, California 92714 714-261-1577		HINGE DETAILS NO. 3	
MARK DATE DESCRIPTION DESIGNED CC DRAWN JEN CHECKED YWH	REVISIONS SCALE As Shown DATE 9-90 DWG. NO.	PREPARED UNDER SUPERVISION OF SCALE DATE DWG. NO.	SHEET 33 OF 47



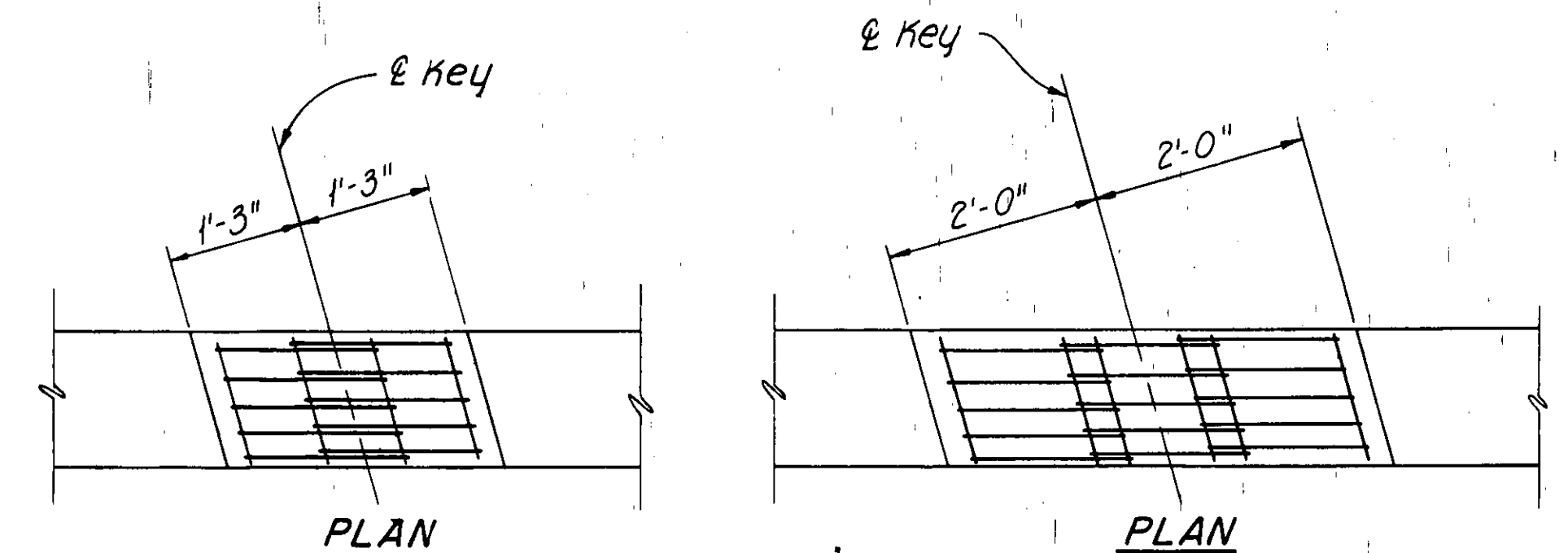
ELEVATION - SOUTHERN BRIDGE

Scale: 1/2" = 1'-0"



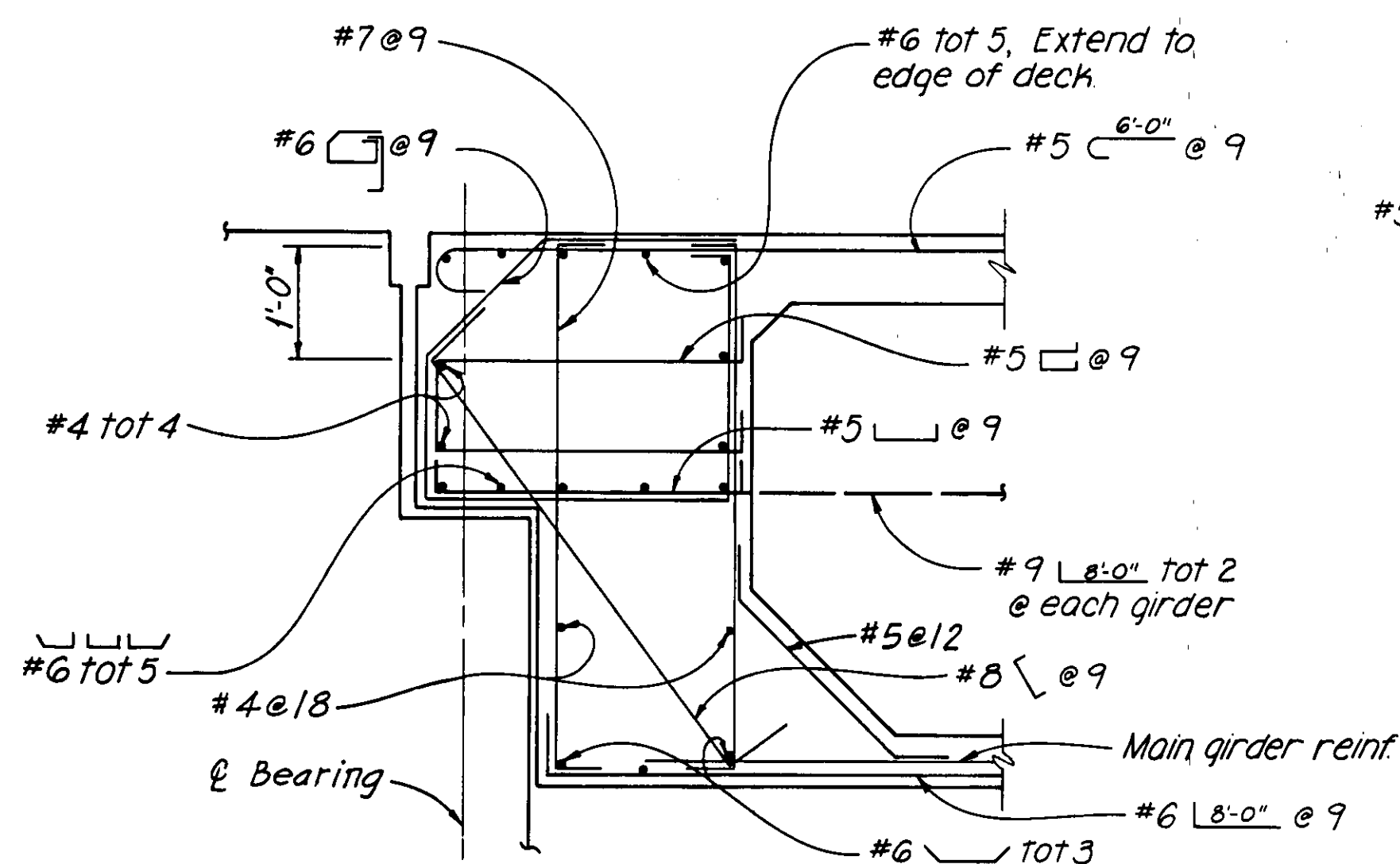
ELEVATION - NORTHERN BRIDGE

Scale: 1/2" = 1'-0"



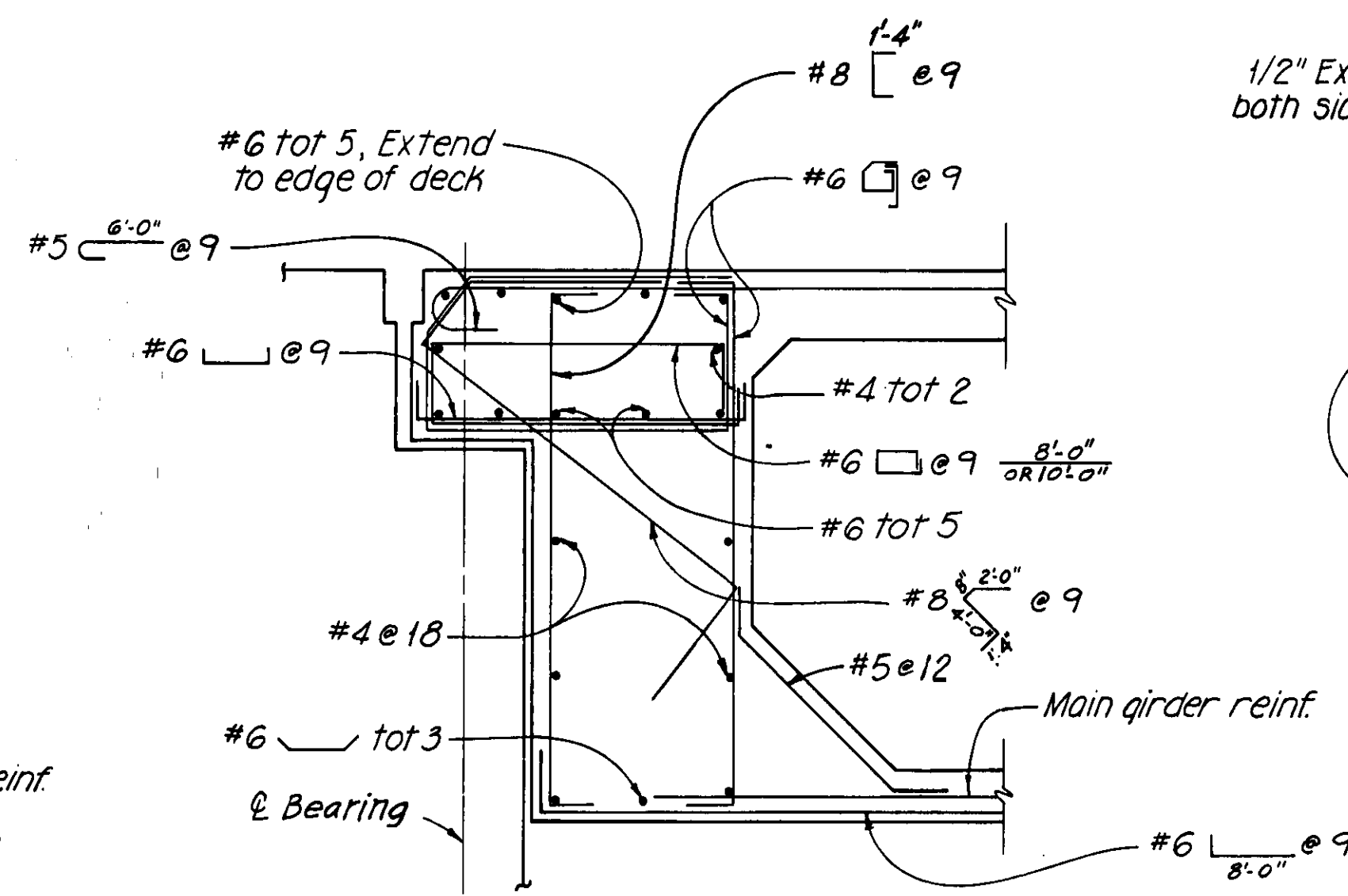
PLAN

PLAN



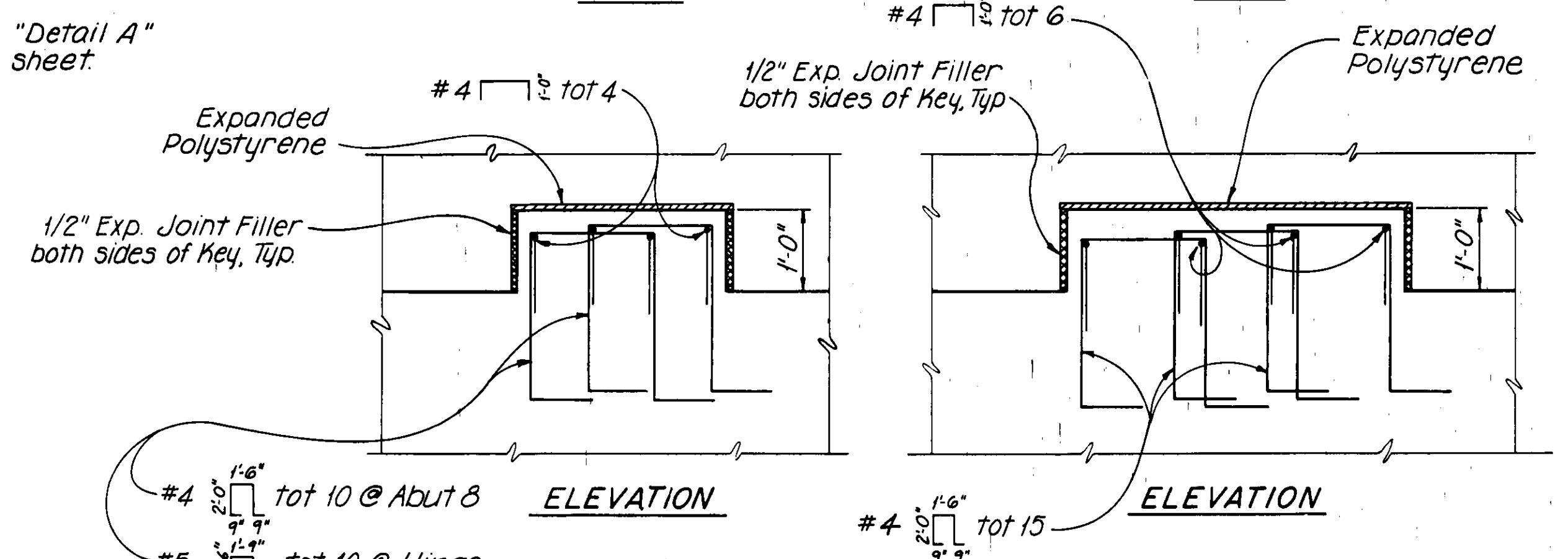
SECTION A - A

Scale: 3/4" = 1'-0"



SECTION B - B

Scale: 3/4" = 1'-0"



ELEVATION

ELEVATION

DETAIL A

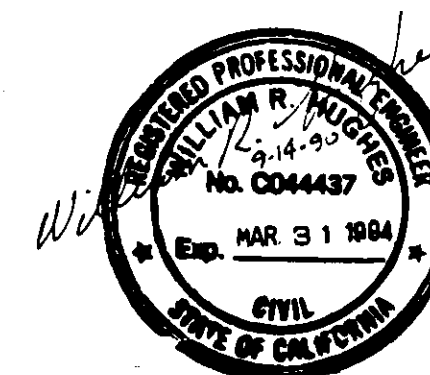
Scale: 3/4" = 1'-0"

DETAIL B

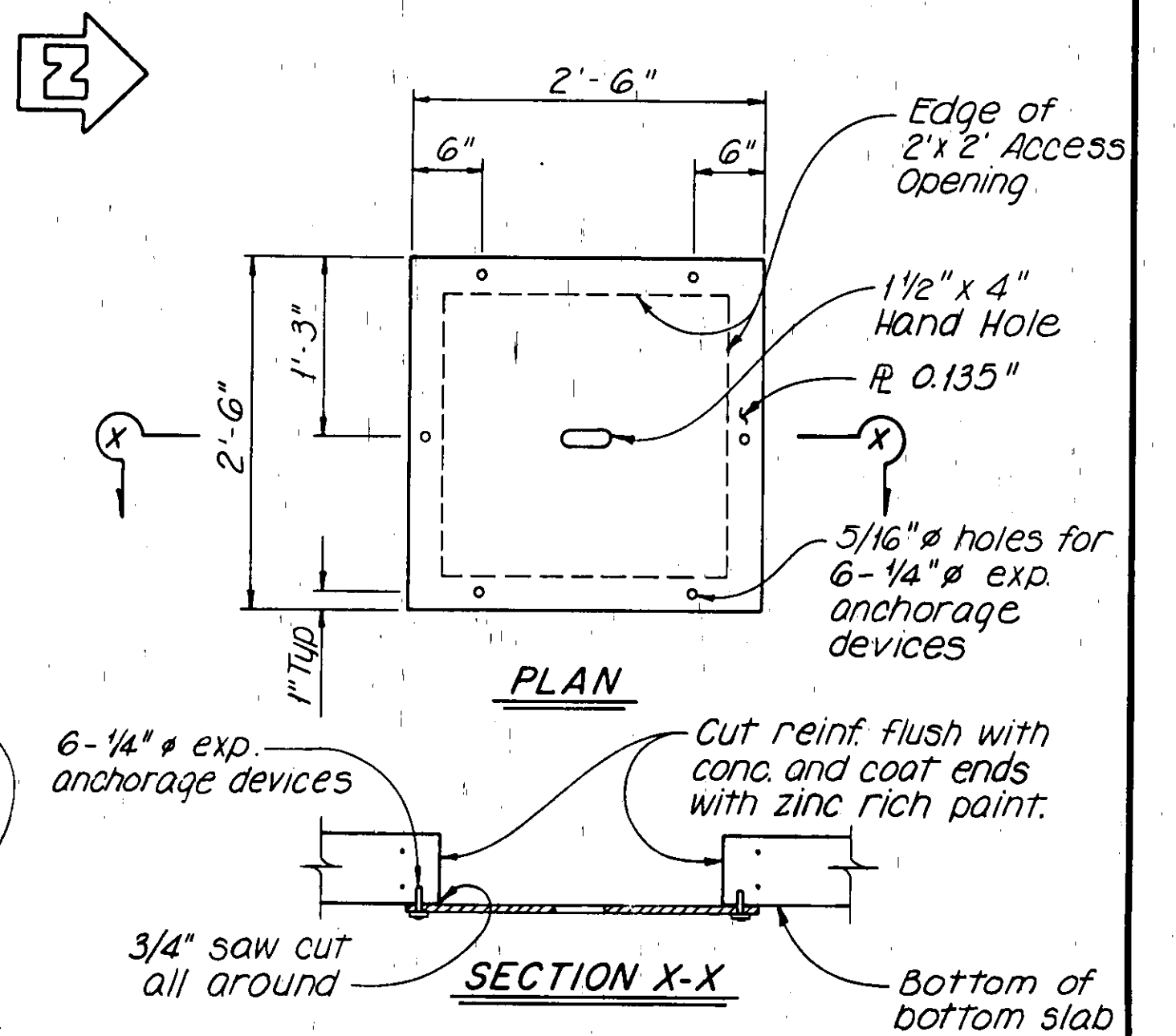
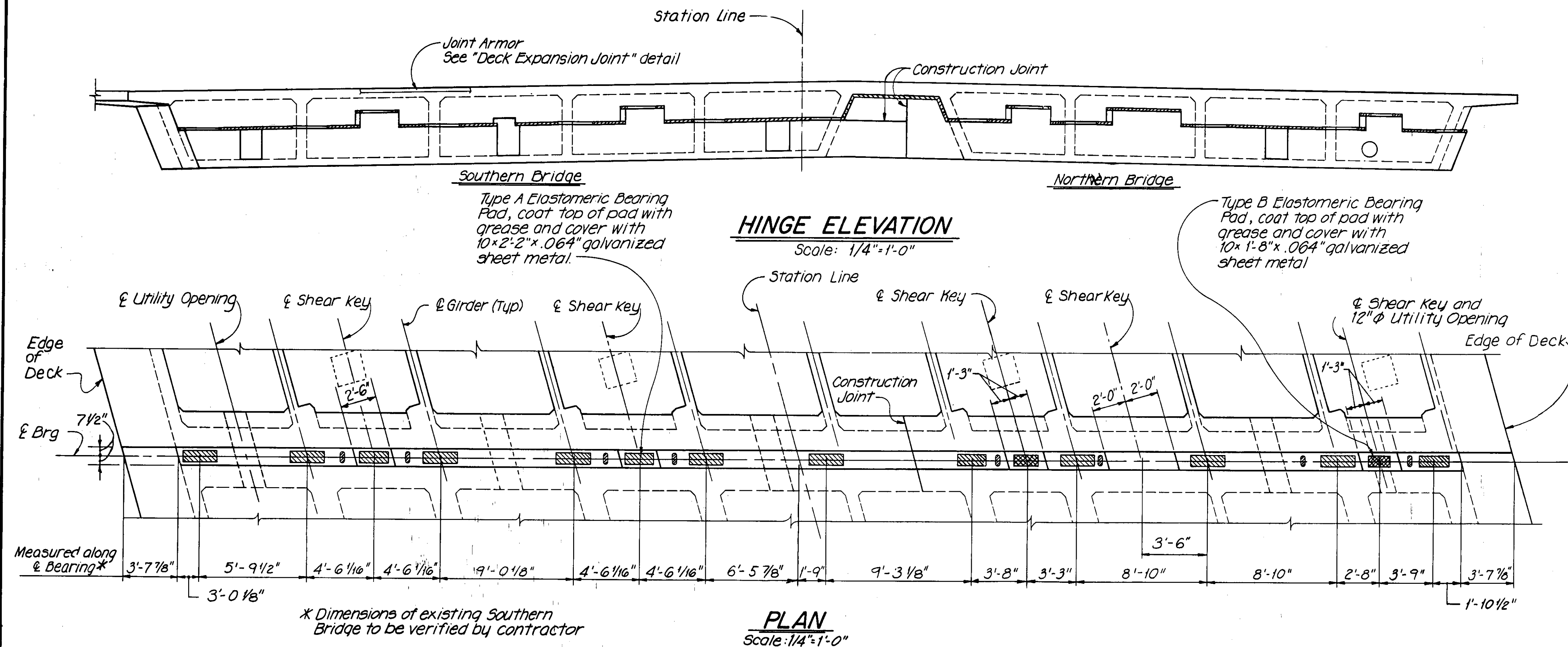
Scale: 3/4" = 1'-0"

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1/2 0 1 2
3 inches on original drawing

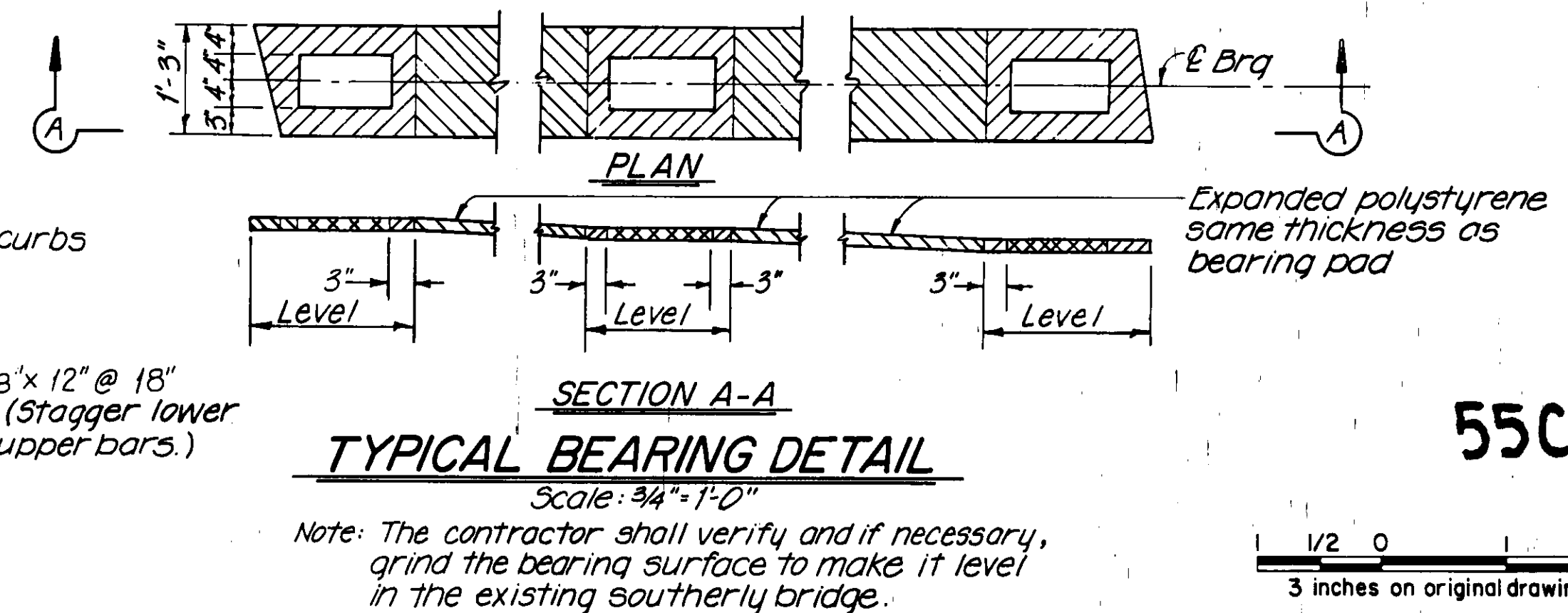
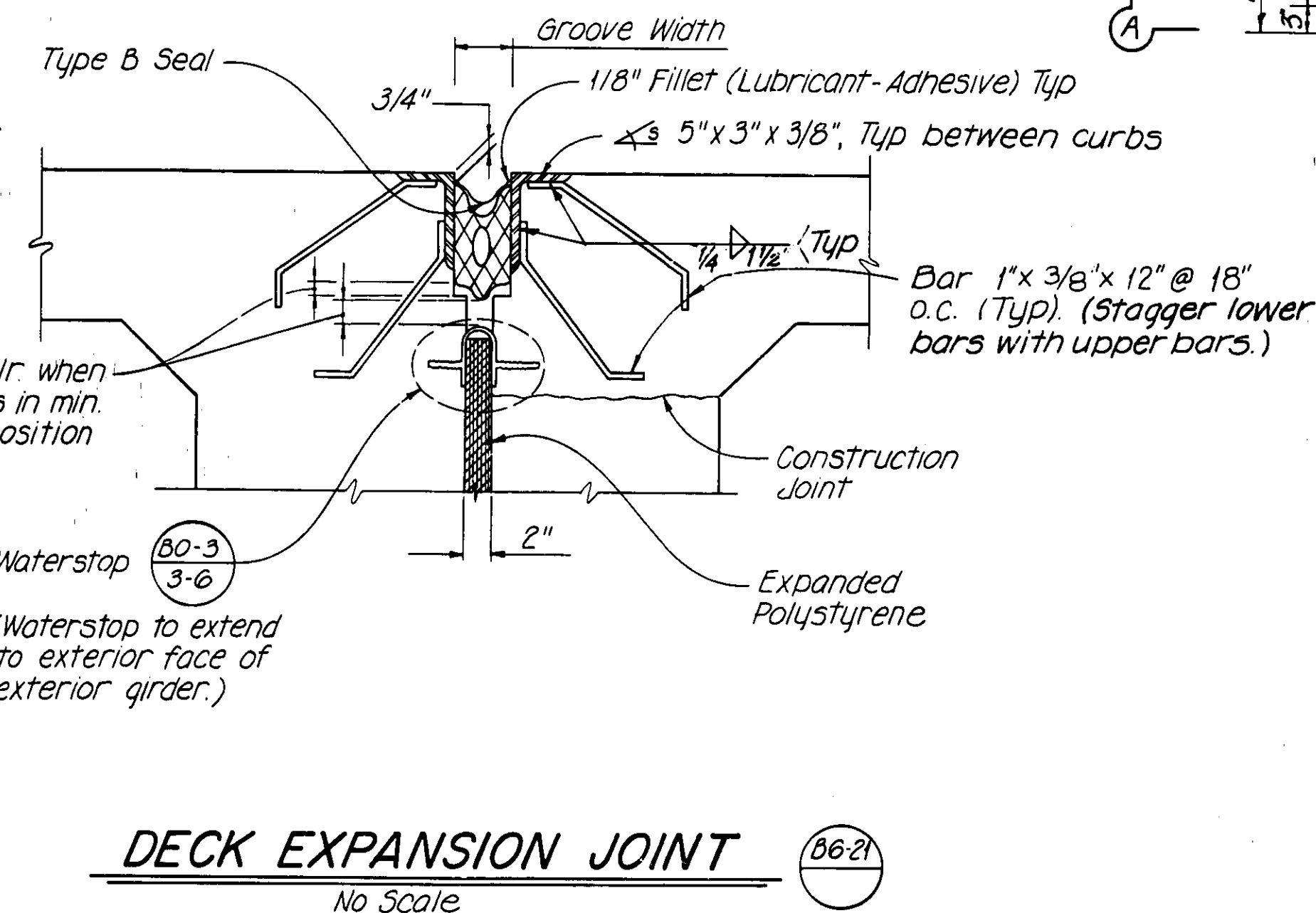
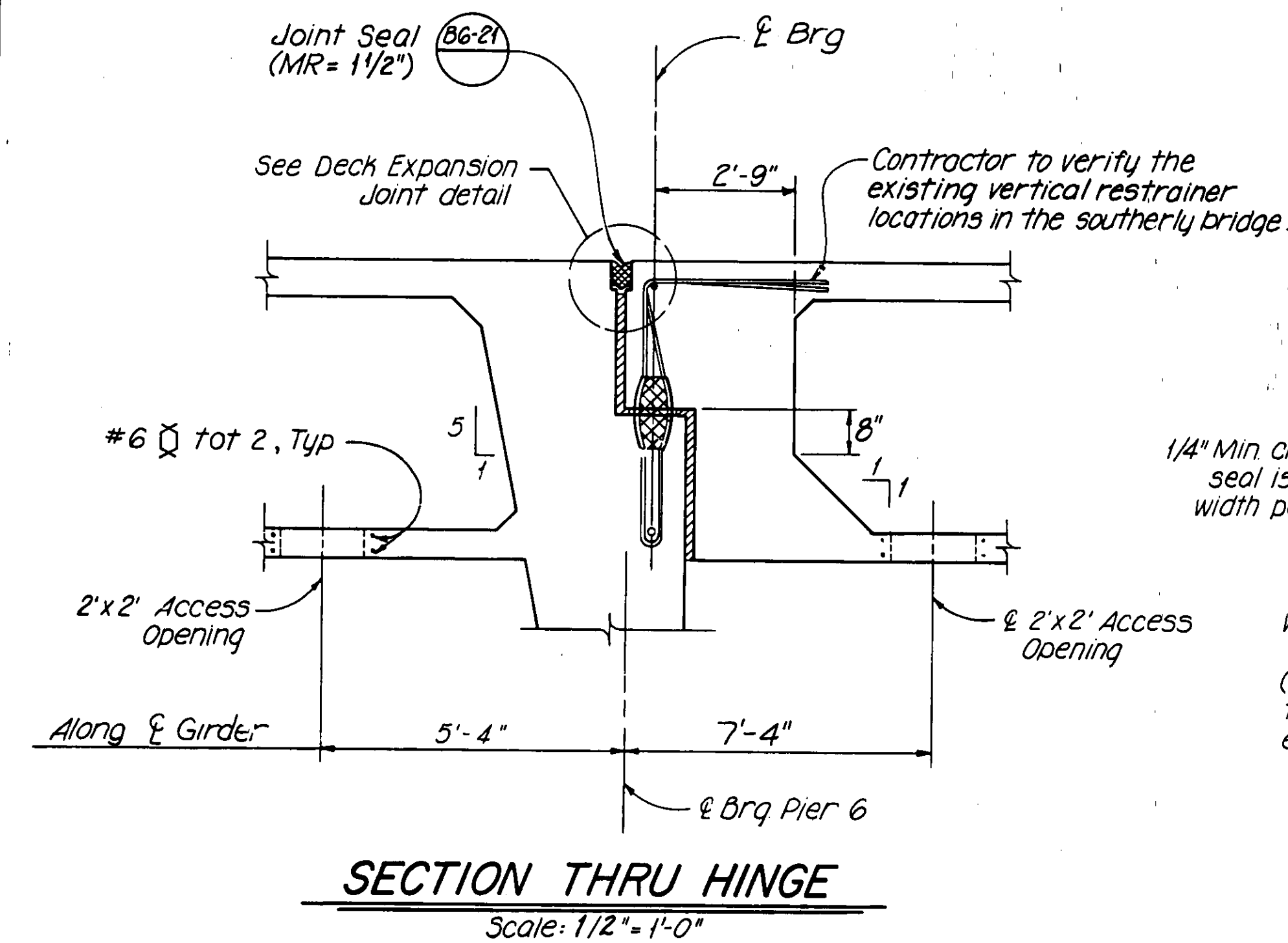


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Kennedy/Jenks/Chilton 17310 Red Hill Avenue, Suite 220 Irvine, California 92714 714-261-1577		HINGE DETAILS NO.2	
MARK	DATE	DESCRIPTION	PREPARED UNDER SUPERVISION OF
REVISIONS			
DESIGNED	CC	SCALE	DATE
DRAWN	TAB	CHECKED	YNW
As Shown			DWG. NO.
9-90			SHEET
32			OF 47

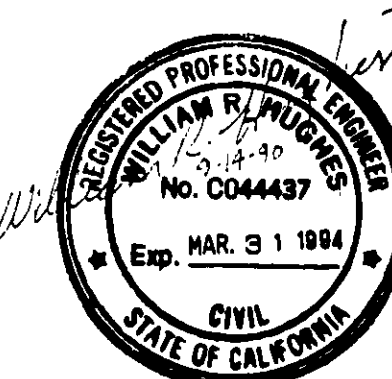


Legend:

- Type A 8x2'-0"x1 1/2" total 13
- Type B 8x1'-6"x1 1/2" total 2
- Vertical Restrainer



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17310 Red Hill Avenue, Suite 220
Irvine, California 92714
714-261-1577

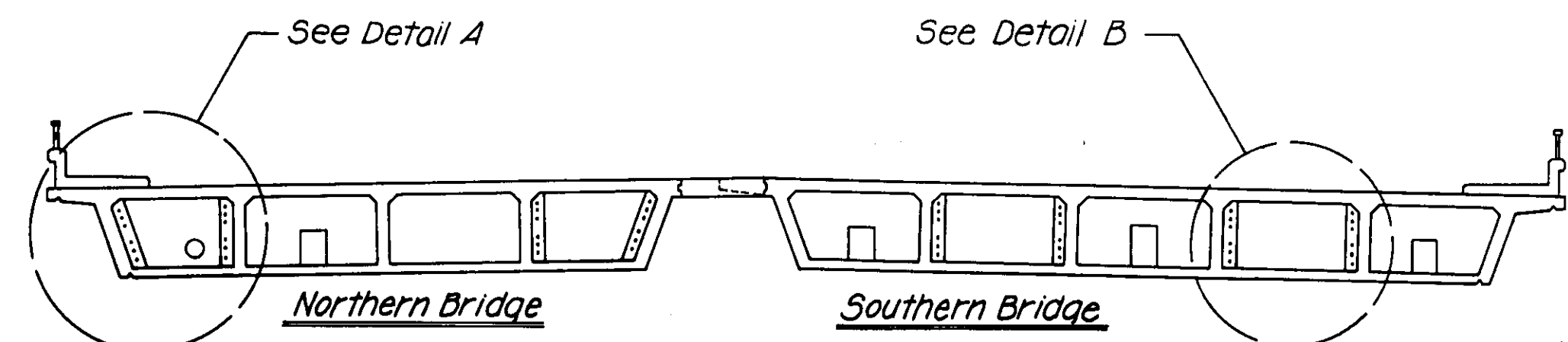
MARK	DATE	DESCRIPTION	PREPARED UNDER SUPERVISION OF	SHEET
REVISIONS				31 OF 47
DESIGNED	CC	SCALE	DATE	
DRAWN	TAB	CHECKED	YVW	

ORANGE COUNTY
ENVIRONMENTAL MANAGEMENT AGENCY

HAMILTON-VICTORIA BRIDGE

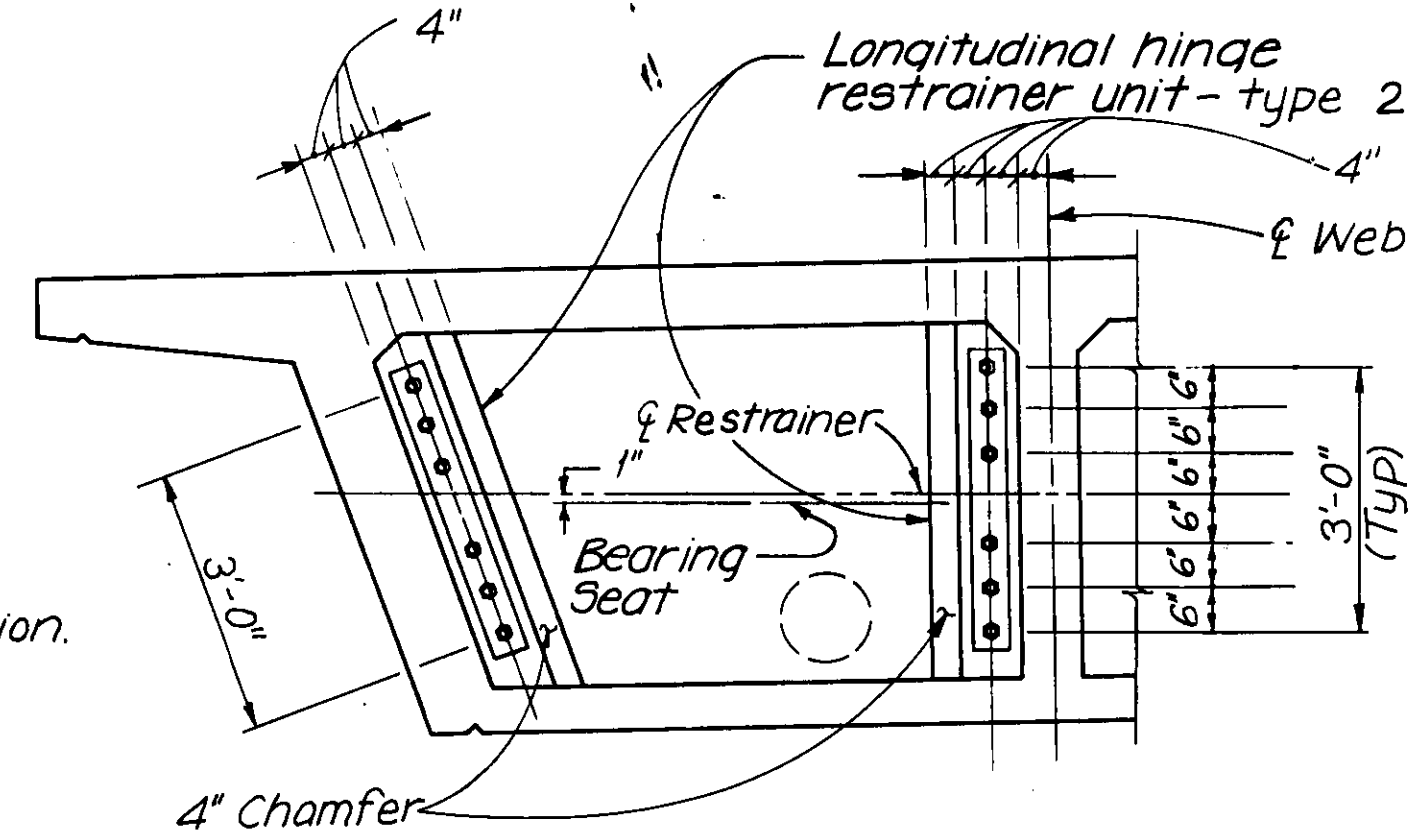
**HINGE DETAILS
NO. 1**

SCALE	DATE	DWG. NO.
As Shown	9-90	

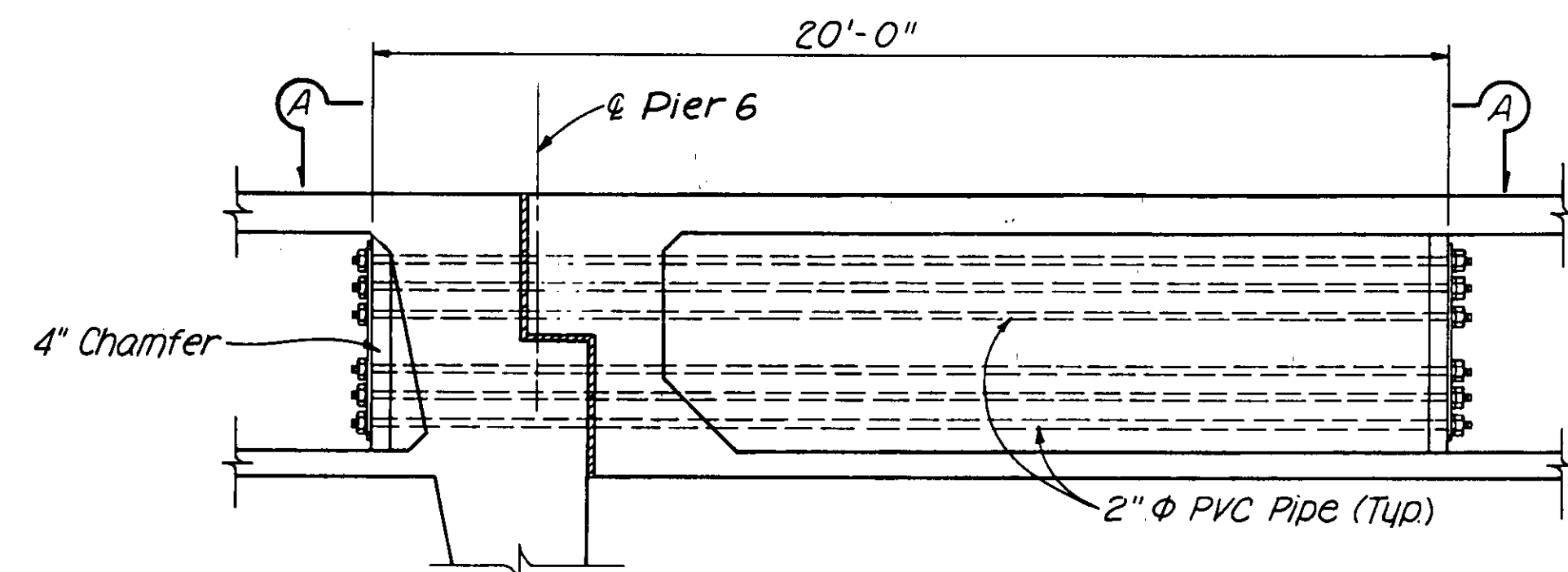


TYPICAL SECTION
Scale: 1/8" = 1'-0"

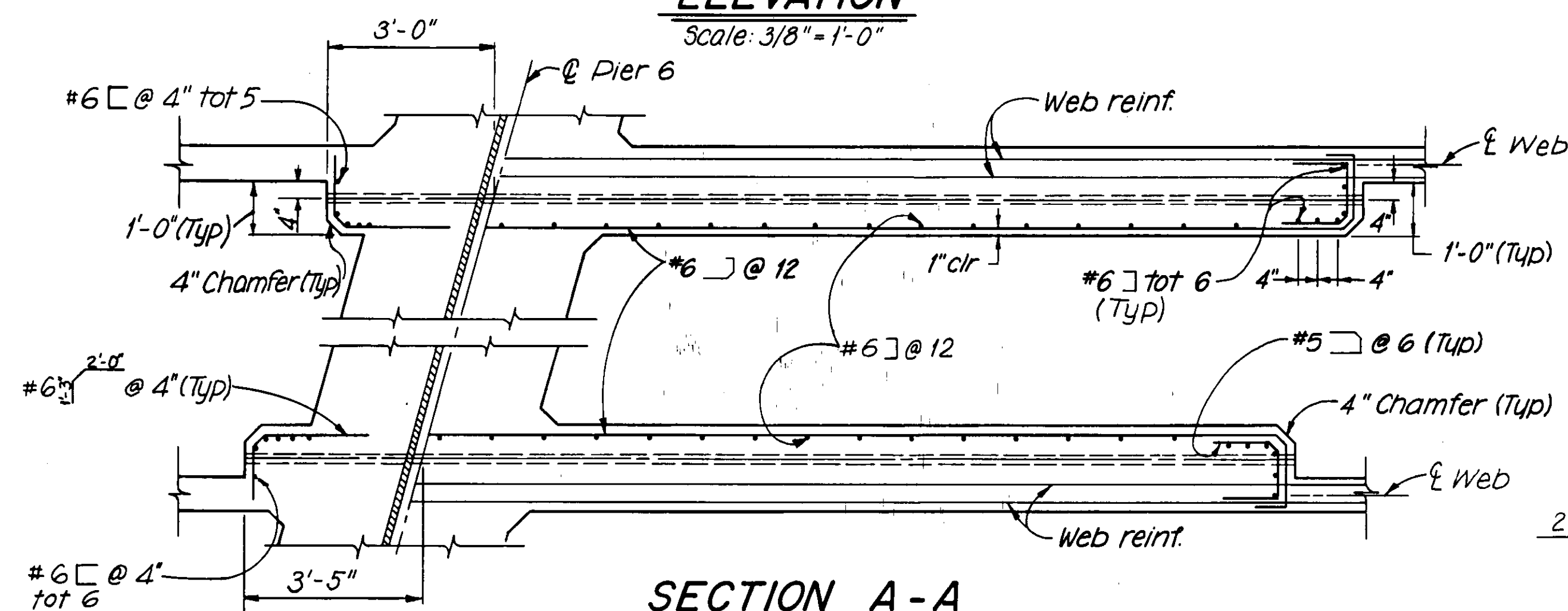
Note: Contractor shall verify the location of the existing restrainer block out before fabrication.



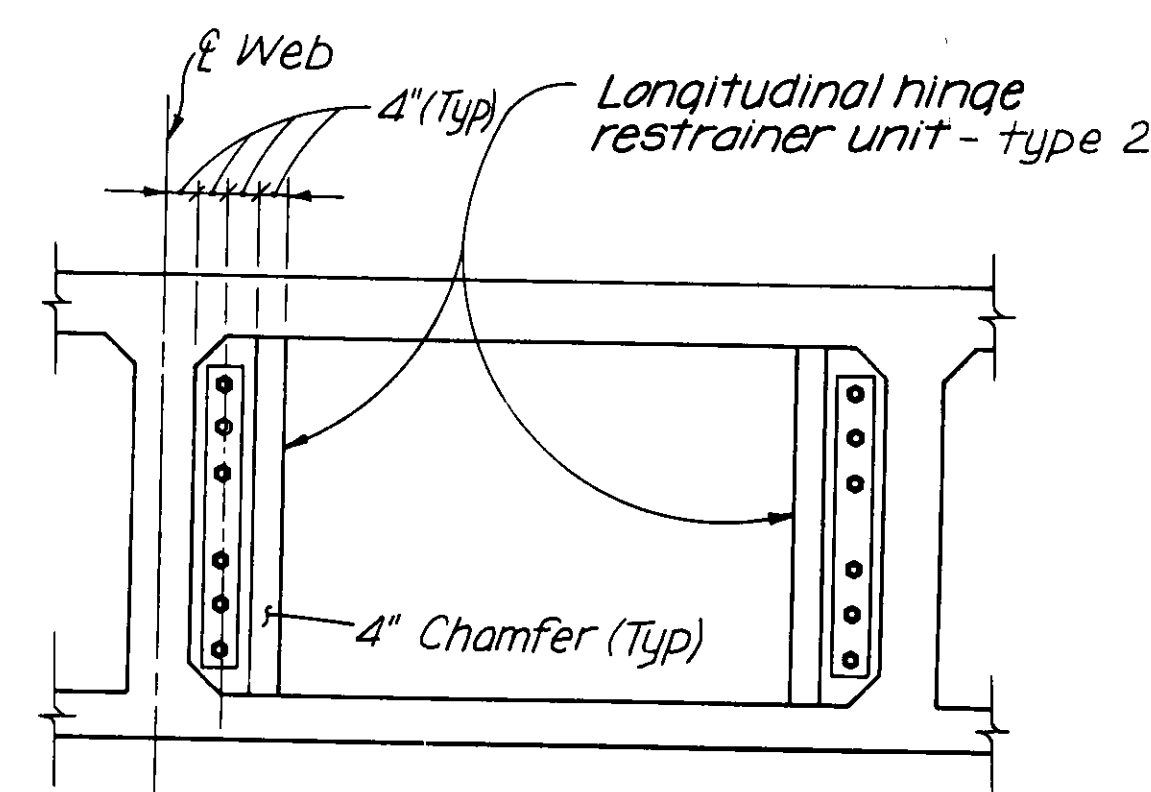
DETAIL A
Scale: 1/2" = 1'-0"



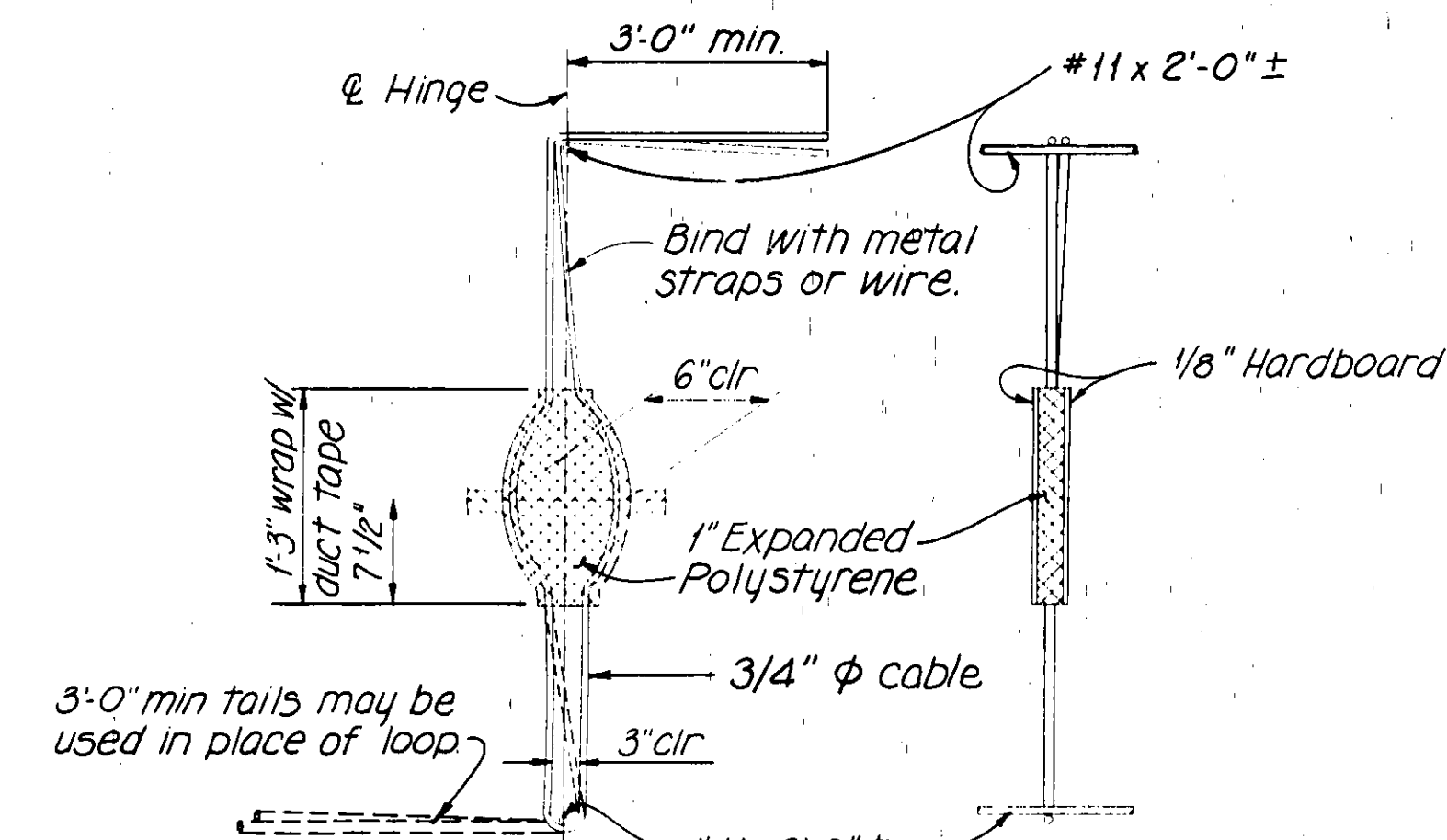
ELEVATION
Scale: 3/8" = 1'-0"



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



DETAIL B
Scale: 1/2" = 1'-0"



ELEVATION SECTION

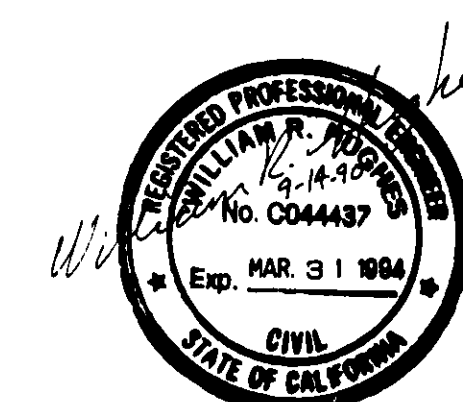
VERTICAL RESTRAINER
No Scale

ANCHORING PROCEDURE AT ONE END OF LONGITUDINAL RESTRAINER UNIT

1. Snug each cable to remove slack from system.
2. Turn each nut one turn per 5 feet of restrainer length.
3. Back nut off a distance equal to the maximum additional amount that the hinge joint is expected to open as shown on the plans for joint movement rating.
4. Set anchor nut, washer and jam nut each end.

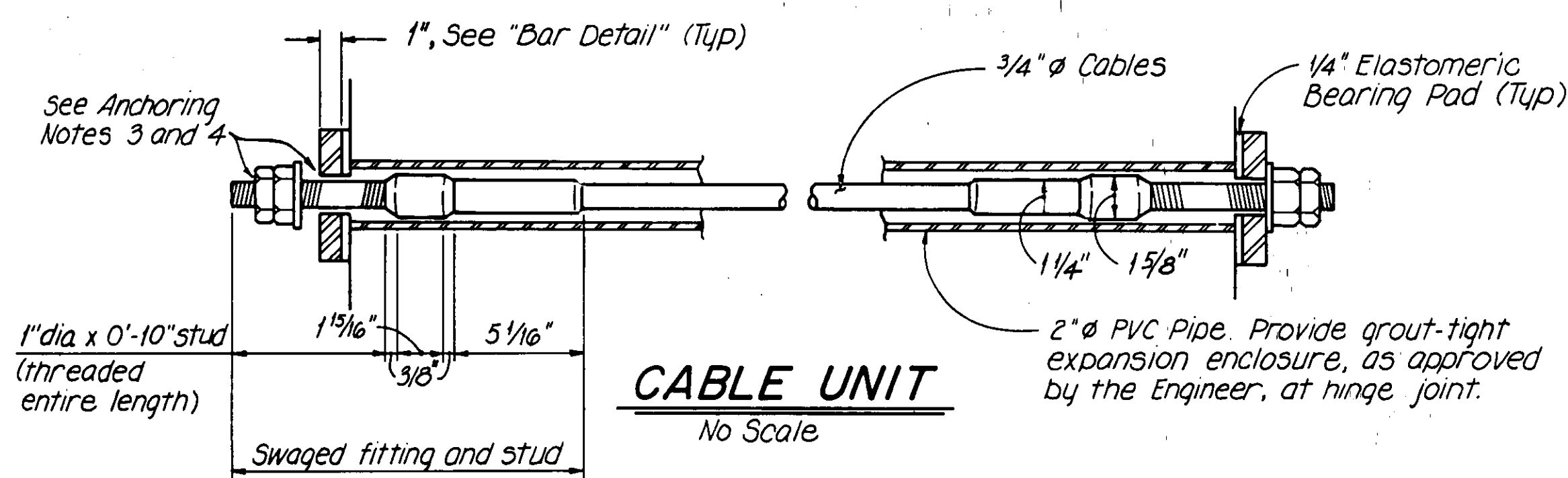
NOTES

Restrainer units to be on tangent alignment. Anchor nuts shall not be set until 30 days following completion of casting concrete for CIP bridges. Contractor may install restrainers in horizontal arrangement with approval of the Engineer. The location shall be in the middle 1/3 depth of the structure. An alternative is to place restrainers in two horizontal layers, equally located above and below the mid structure depth. The number of restrainers in each layer shall not differ by more than one.

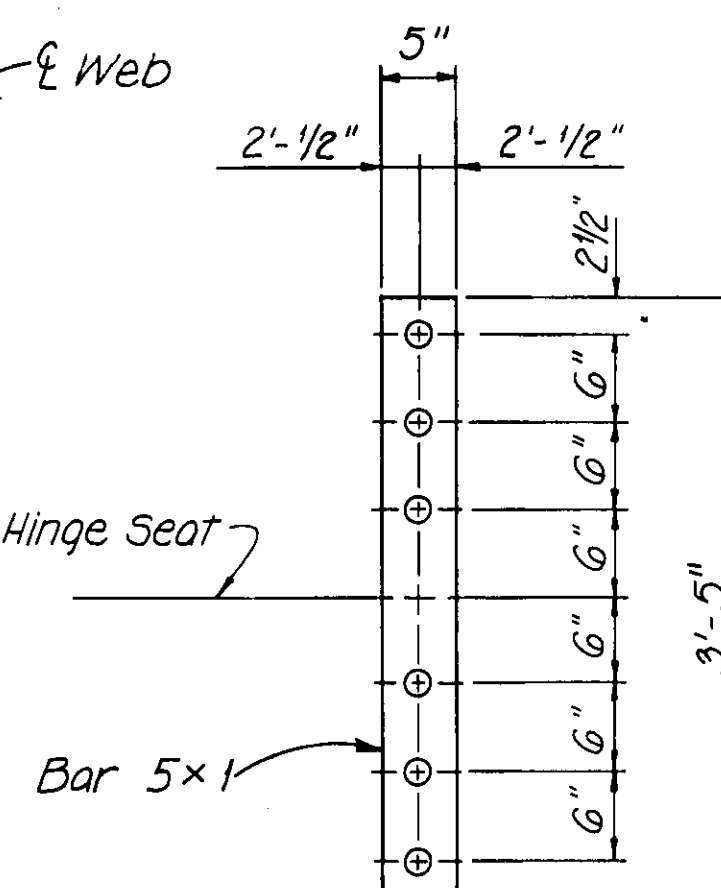


55C-103

1 1/2 0 1 2
3 inches on original drawing



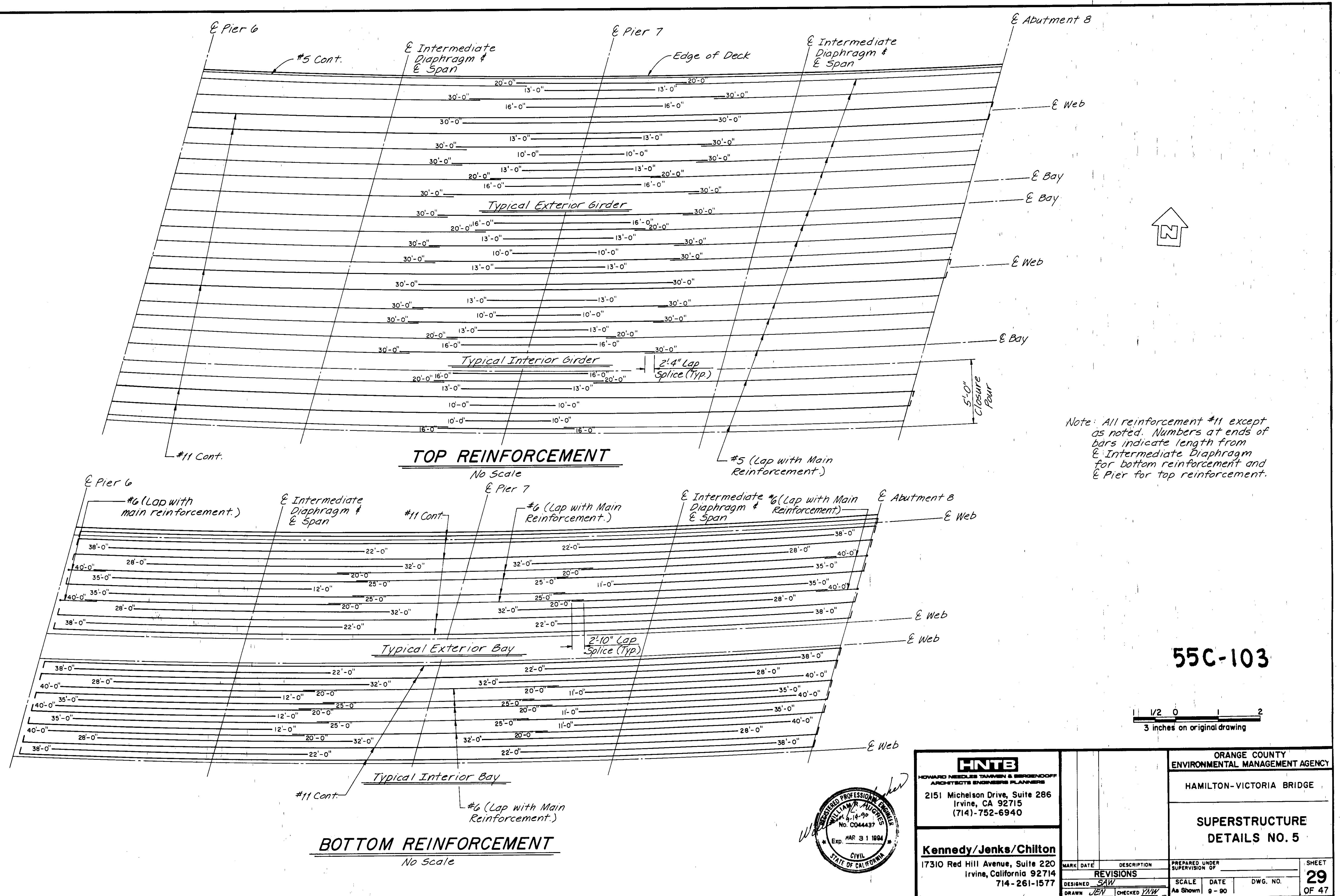
CABLE UNIT
No Scale

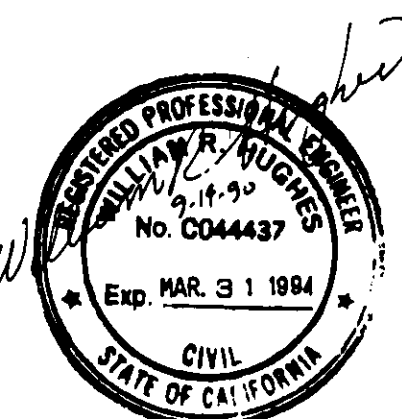
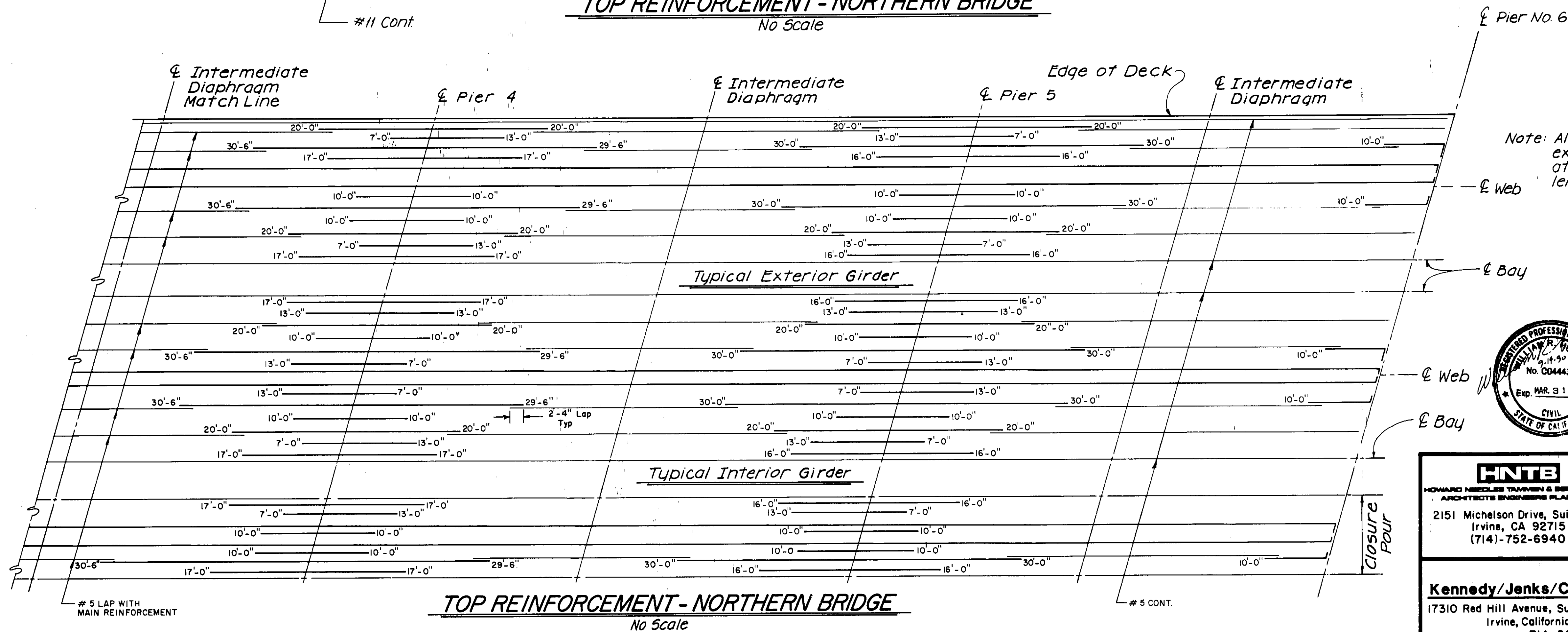
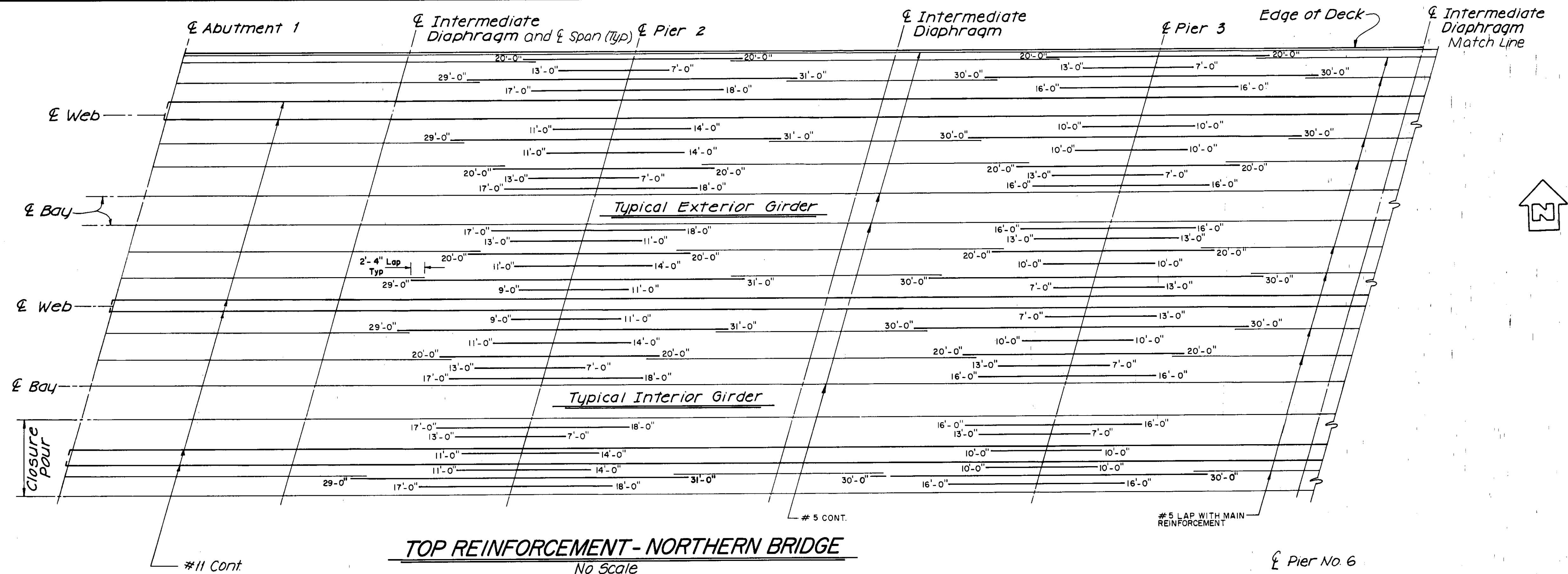


BAR DETAIL
Scale: 1" = 1'-0"

LONGITUDINAL HINGE RESTRAINER

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Kennedy/Jenks/Chilton 17310 Red Hill Avenue, Suite 220 Irvine, California 92714 714-261-1577		RESTRAINER DETAILS	
MARK DATE DESIGNED <i>WVW</i> DRAWN <i>THB</i>	DESCRIPTION REVISIONS CHECKED <i>SAW</i>	PREPARED UNDER SUPERVISION OF SCALE DATE As Shown 9-80	DWG. NO. SHEET 30 OF 47

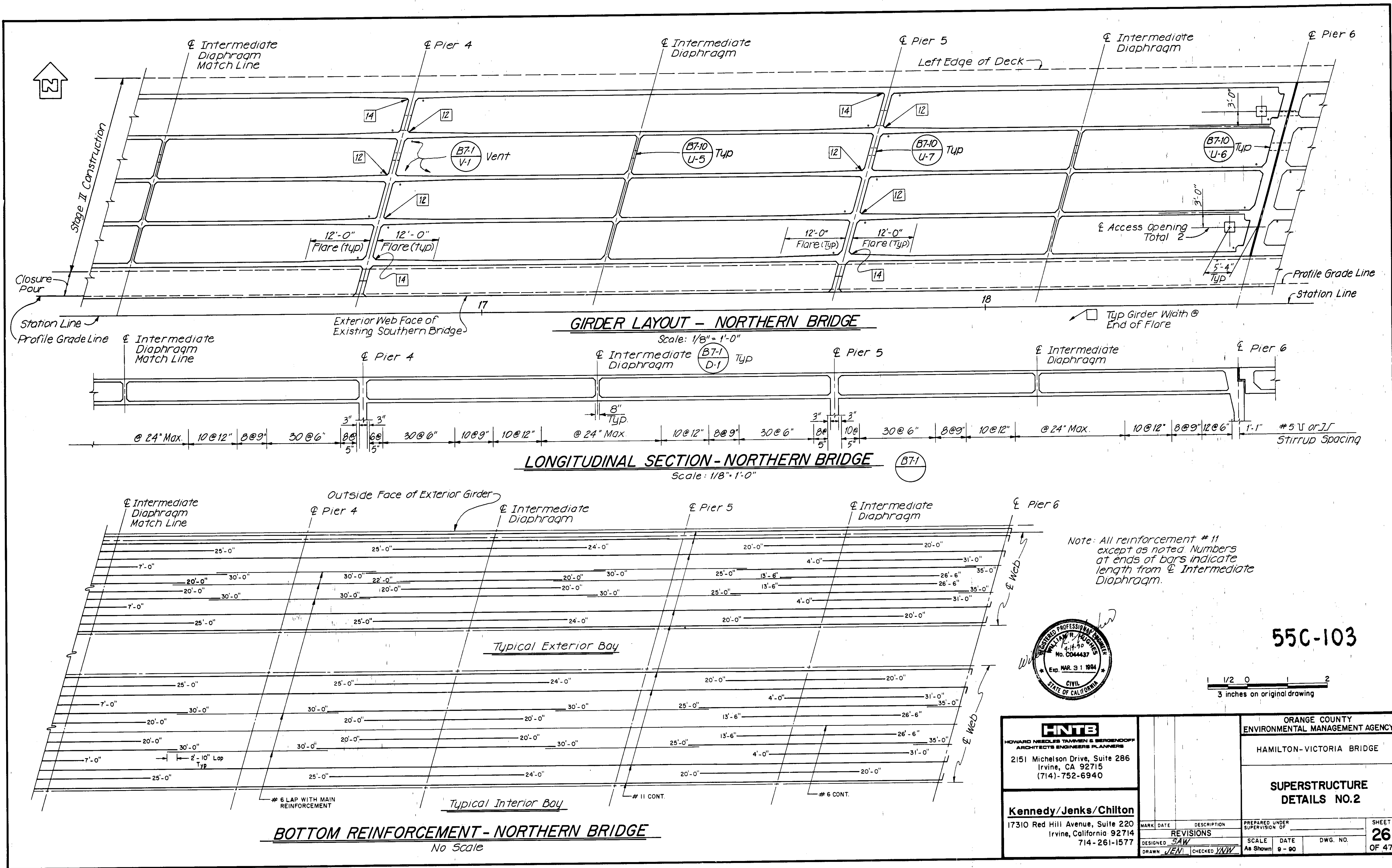


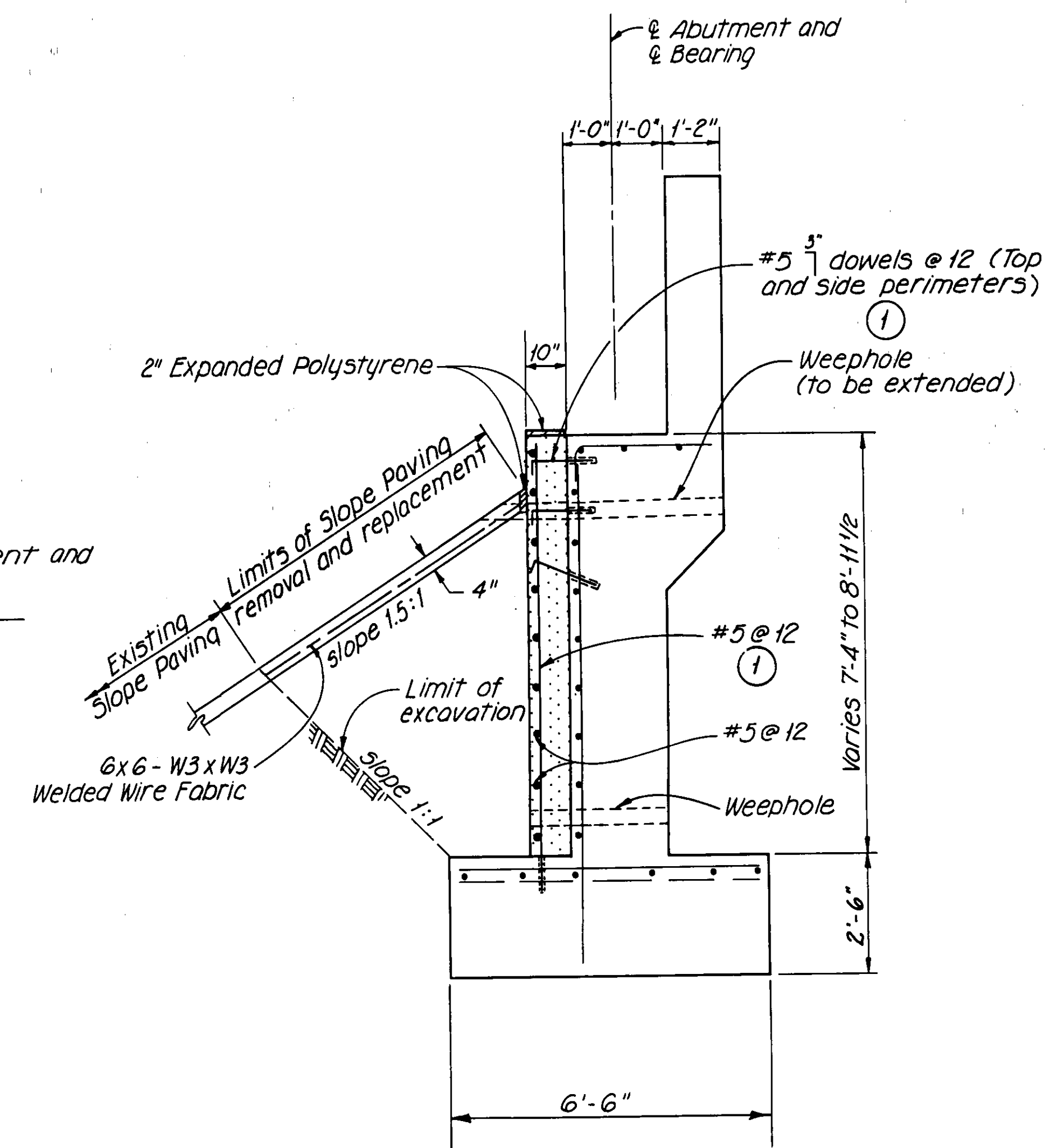
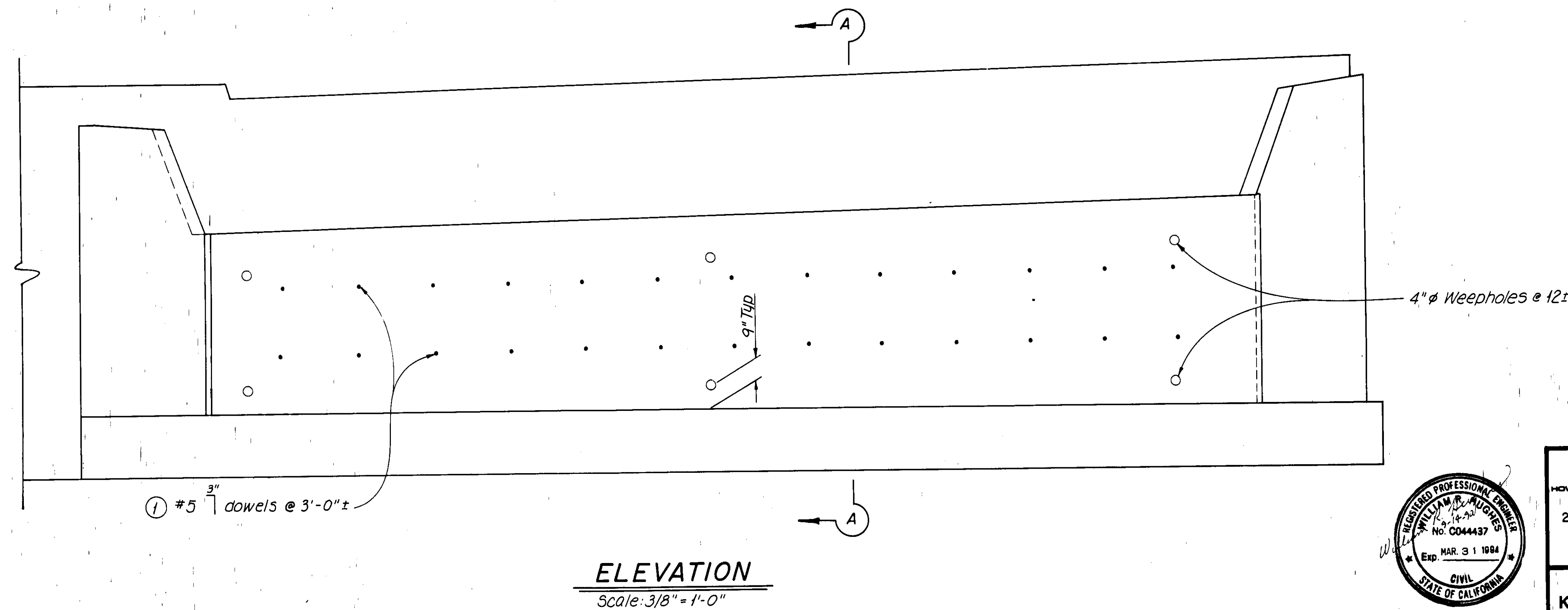
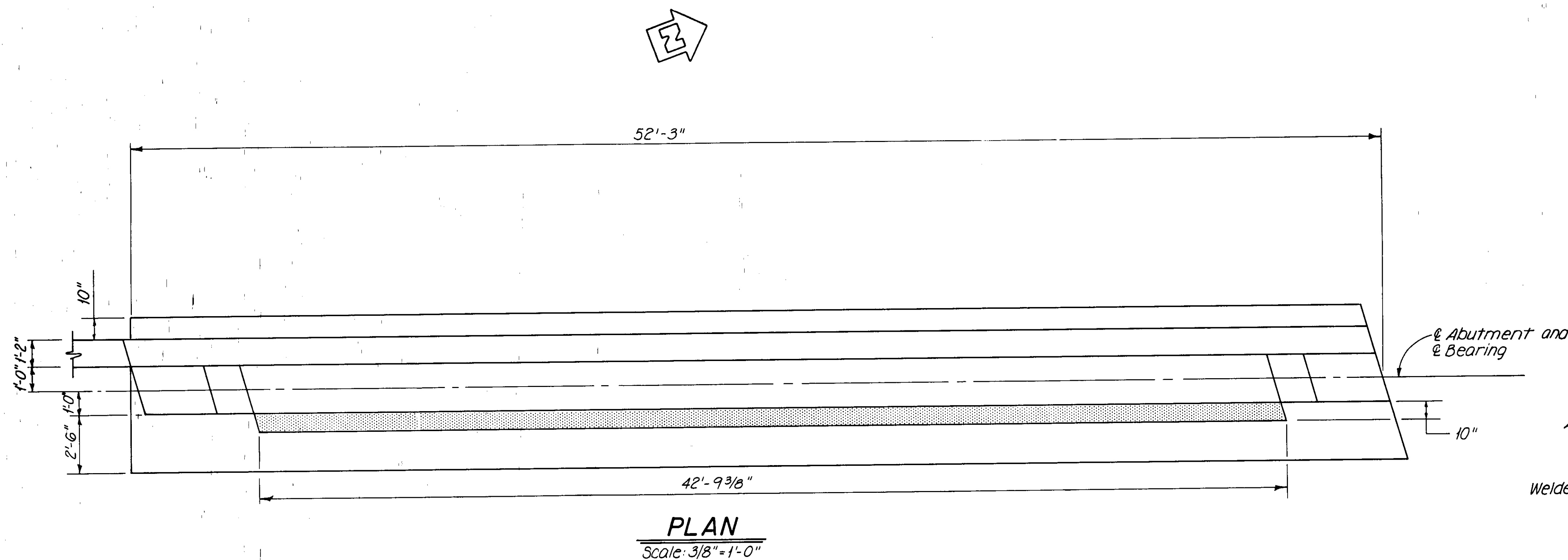


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1/2 0 1 2
3 inches on original drawing

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Kennedy/Jenks/Chilton 17310 Red Hill Avenue, Suite 220 Irvine, California 92714 714-261-1577		PREPARED UNDER SUPERVISION OF REVISIONS DESIGNED <i>SAW</i> DRAWN <i>JEN</i> CHECKED <i>YMW</i>	
SCALE As Shown		DATE 9-90	
DWG. NO. 27 OF 47		SHEET 27 OF 47	

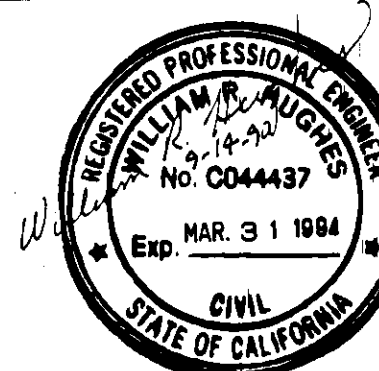
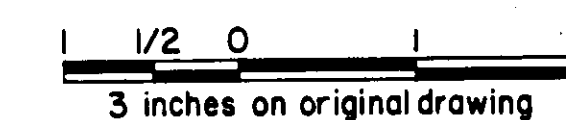




Notes:

Existing reinforcement shown for information.
See as-built plans for additional information.
See special provisions.

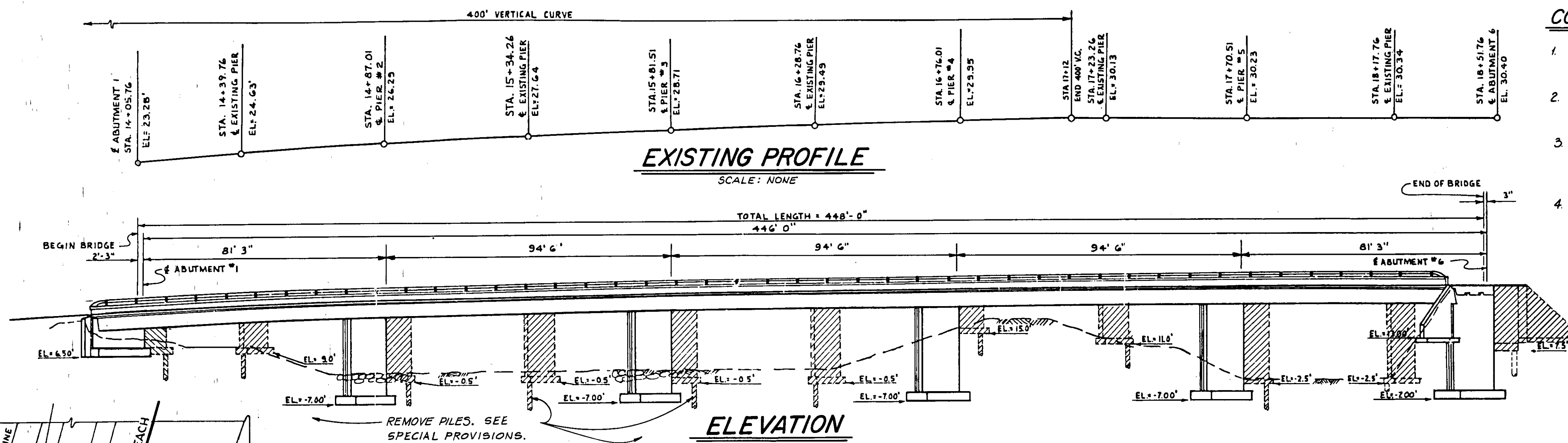
- ① Embed 5" (Typical) in 7/8" ϕ hole. Grout per std specs 51-1.13.



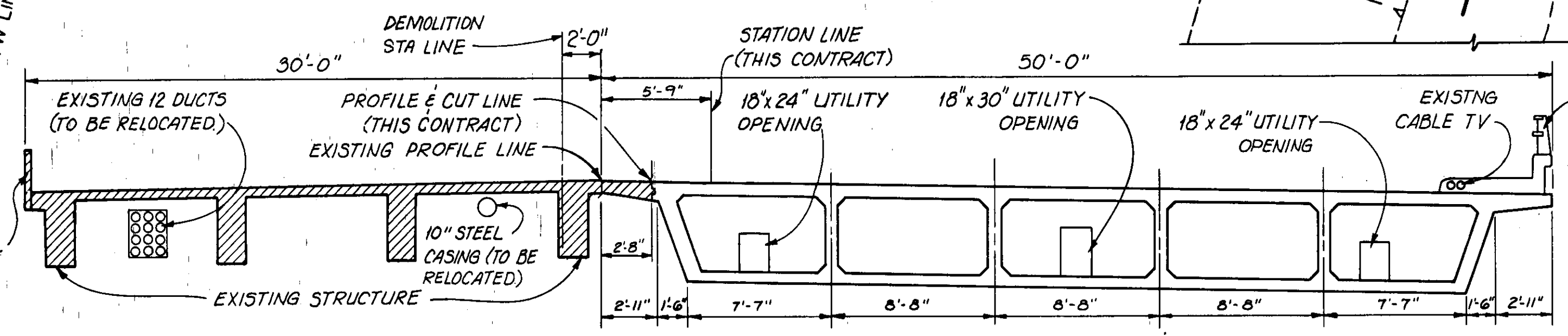
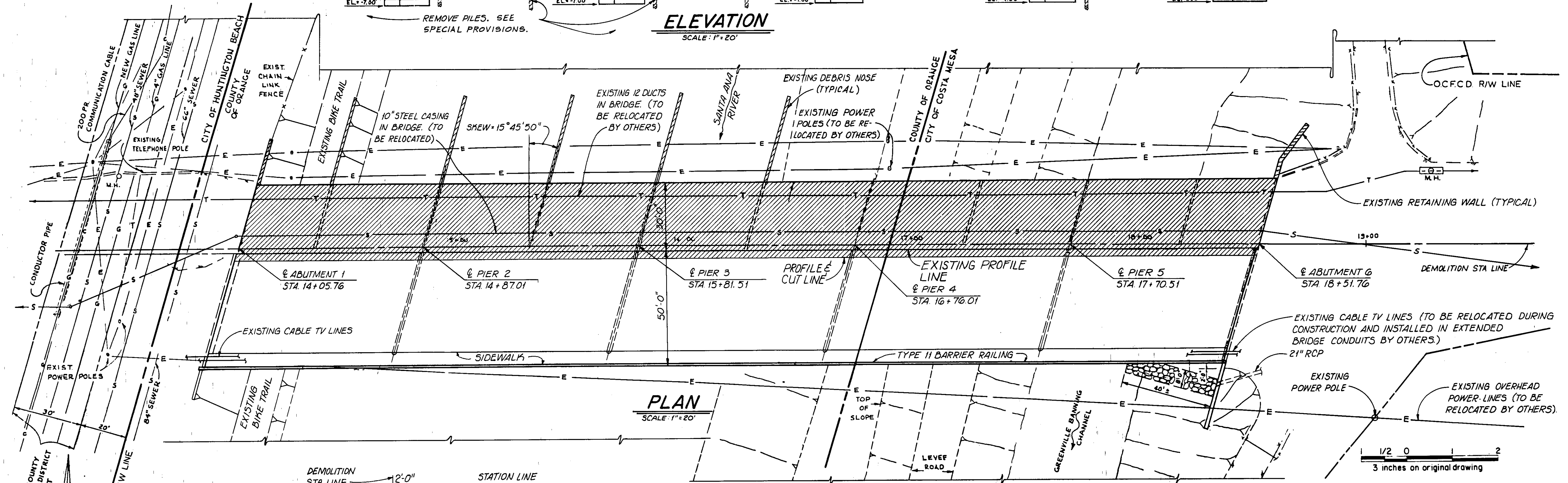
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ORANGE COUNTY ENVIRONMENTAL MANAGEMENT AGENCY			
HAMILTON-VICTORIA BRIDGE			
EXISTING ABUTMENT NO.1 RETROFITTING			
MARK	DATE	DESCRIPTION	PREPARED, UNDER SUPERVISION OF
REVISIONS			
DESIGNED	WRH	SCALE	DATE
DRAWN	TAB	As Shown	9-90
CHECKED	YNW	DWG. NO.	
			SHEET 40 OF 47

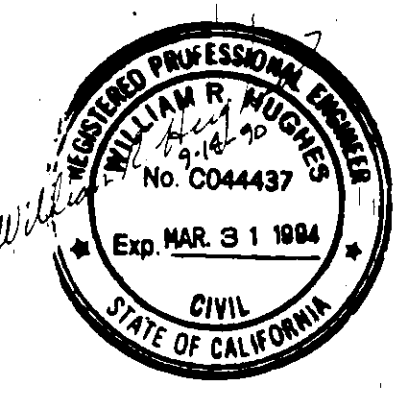


- CONSTRUCTION NOTES:**
1. SEE SPECIAL PROVISIONS FOR ADDITIONAL BRIDGE REMOVAL INFORMATION.
 2. SEE RIVER IMPROVEMENT PLANS FOR CHANNEL MODIFICATIONS.
 3. STATIONING AND PROFILE ARE FROM EXISTING 1977 BRIDGE AS-BUILT PLANS AND ARE RESTATED HERE FOR INFORMATION ONLY.
 4. BRIDGE DEMOLITION WORK TO BE DONE IN STAGE II OF PROJECT.



LEGEND:

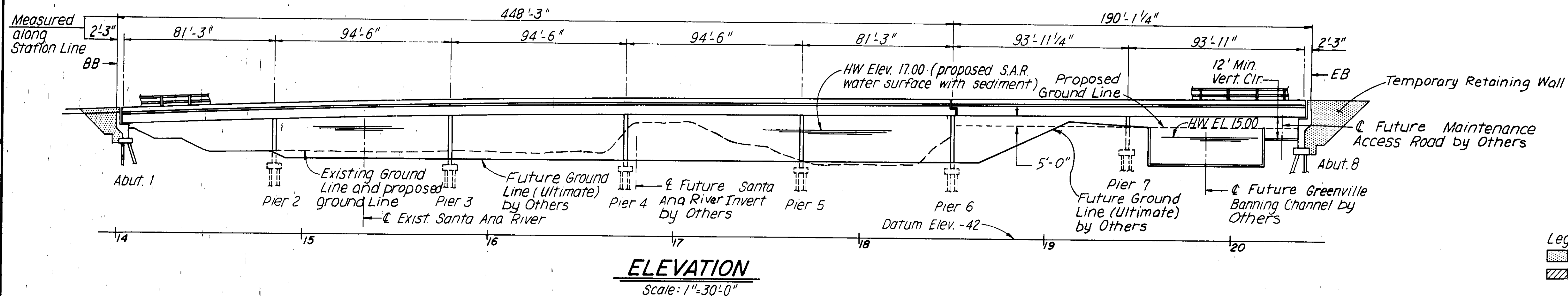
■ DENOTES Structure to be removed



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714-261-1577

55C-103		ORANGE COUNTY ENVIRONMENTAL MANAGEMENT AGENCY	
		HAMILTON-VICTORIA BRIDGE	
		BRIDGE DEMOLITION PLAN	
MARK	DATE	DESCRIPTION	PREPARED UNDER SUPERVISION OF
REVISIONS			
DESIGNED	DATE	SCALE	DATE
DRAWN	DATE	CHECKED	DATE
As Shown		9-90	DWG NO
			SHEET 39 OF 47



Legend:

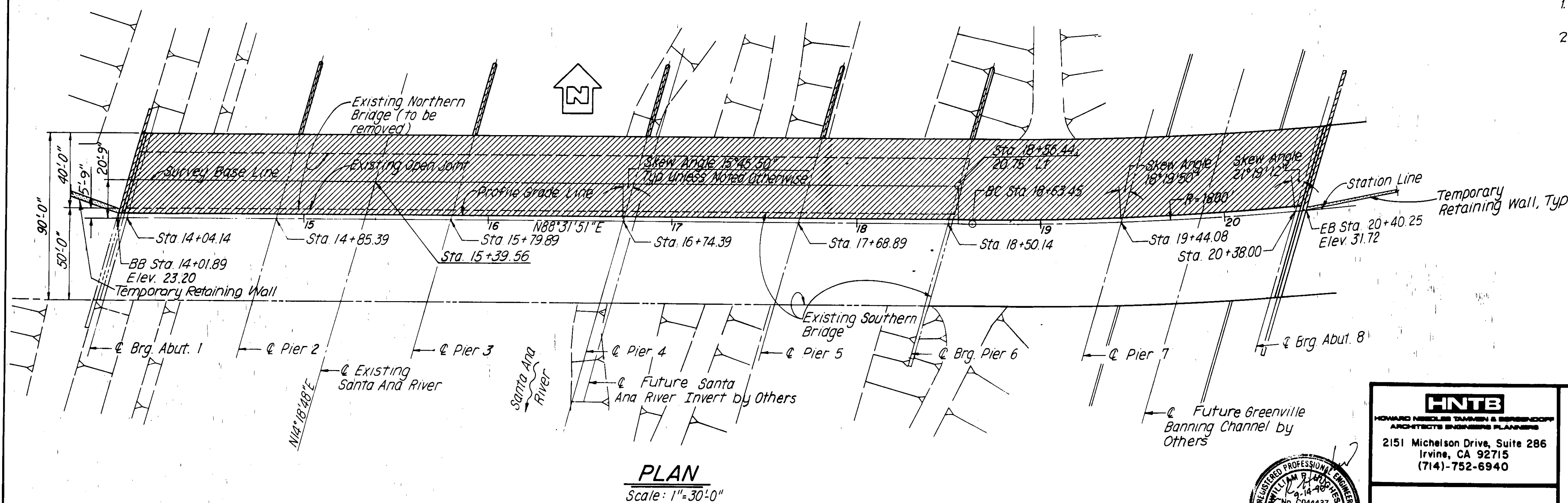
denotes Temporary Retaining Wall

denotes Stage II Construction

Notes:

1. See Special Provisions for additional requirements.

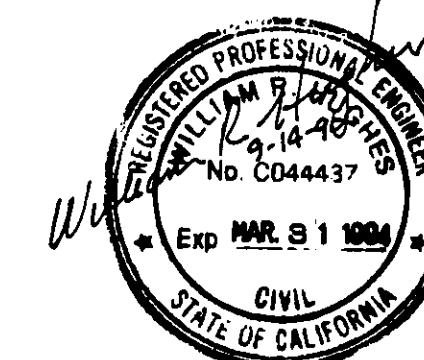
2. See Traffic Control and Construction Phasing Plan.

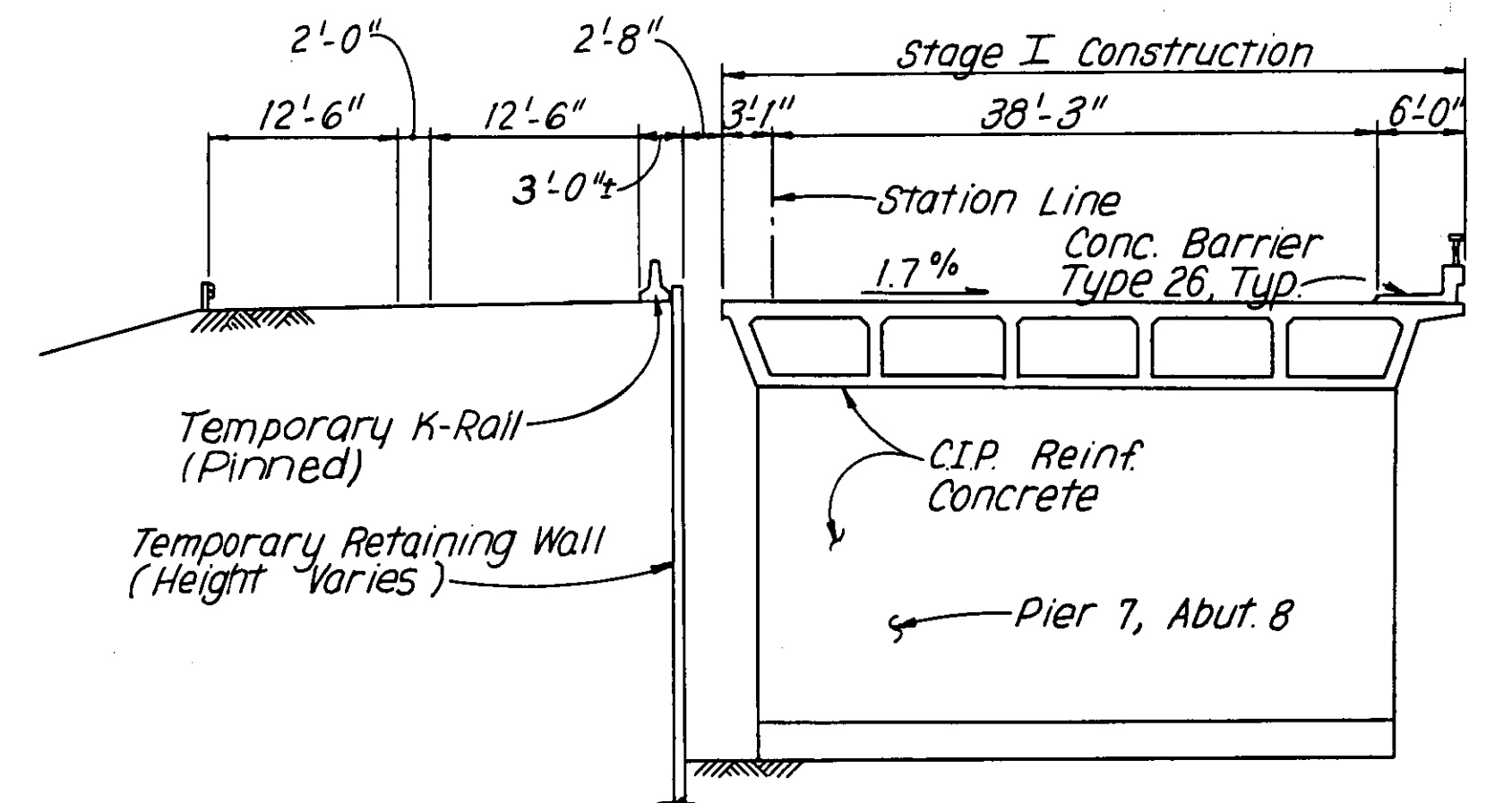
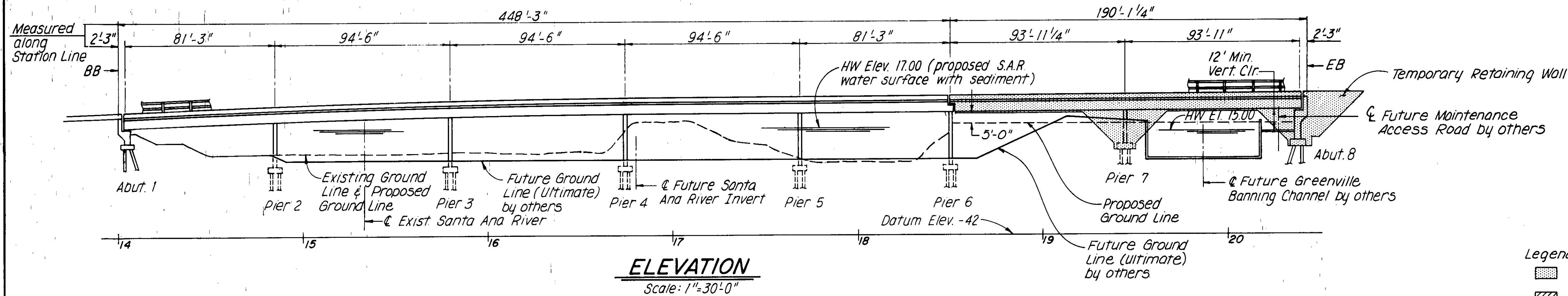


55C-103

1 1/2 0 2
3 inches on original drawing

HNTB HOWARD NEEDLES TAMM & BERNDTSON ARCHITECTS ENGINEERS PLANNERS 2151 Michelson Drive, Suite 286 Irvine, CA 92715 (714)-752-6940		ORANGE COUNTY ENVIRONMENTAL MANAGEMENT AGENCY HAMILTON-VICTORIA BRIDGE STAGE II CONSTRUCTION	
Kennedy/Jenks/Chilton 17310 Red Hill Avenue, Suite 220 Irvine, California 92714 714-261-1577		MARK DATE DESCRIPTION PREPARED UNDER SUPERVISION OF DESIGNED YNW/JRH DRAWN CAK CHECKED YNW SCALE As Shown DATE 9-90 DWG. NO. 38 OF 47	





Note:
This detail represents one possible solution that the Contractor might use for excavation on the east approach-Stage I.

SECTION A-A

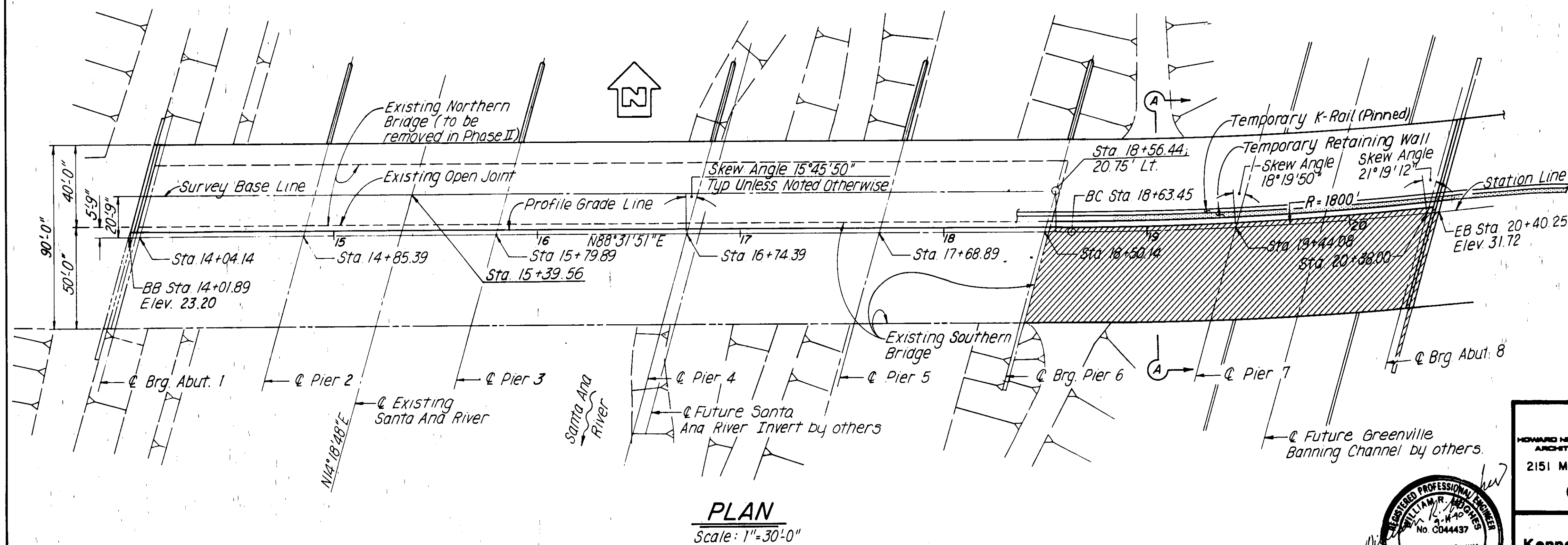
Scale: 1"=10'-0"

Legend:

- denotes Temporary Retaining Wall
- denotes Stage I Construction

Notes:

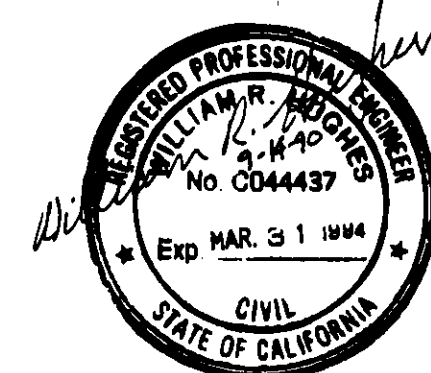
1. See Special Provisions for additional requirements.
2. See Traffic Control and Construction Phasing Plan.

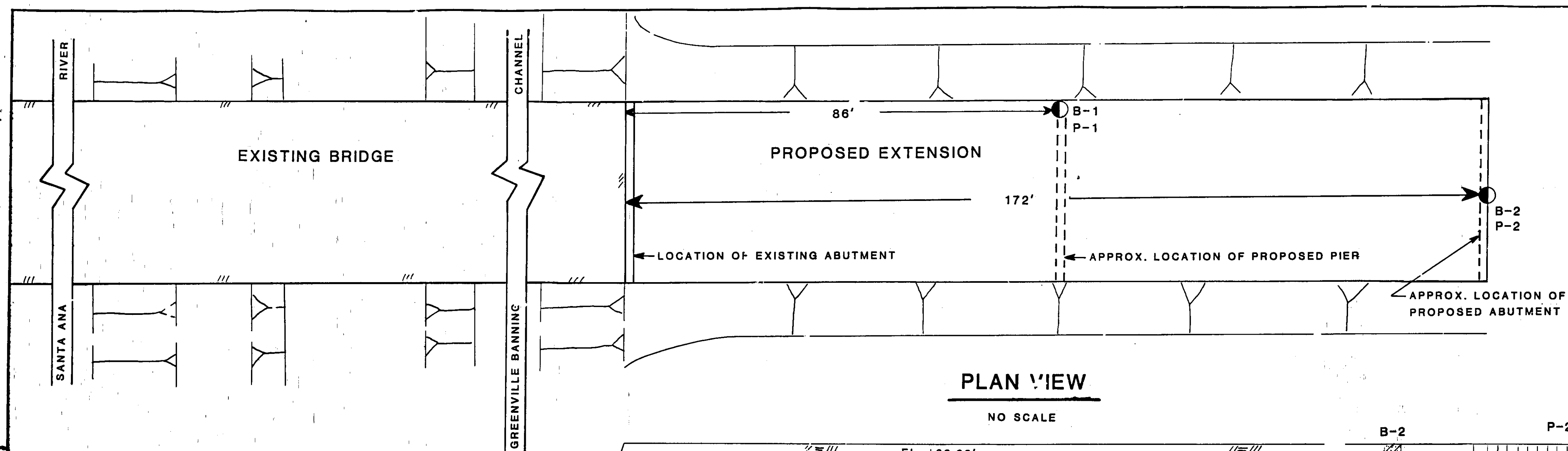


55C-103

1/2 0 2
3 inches on original drawing

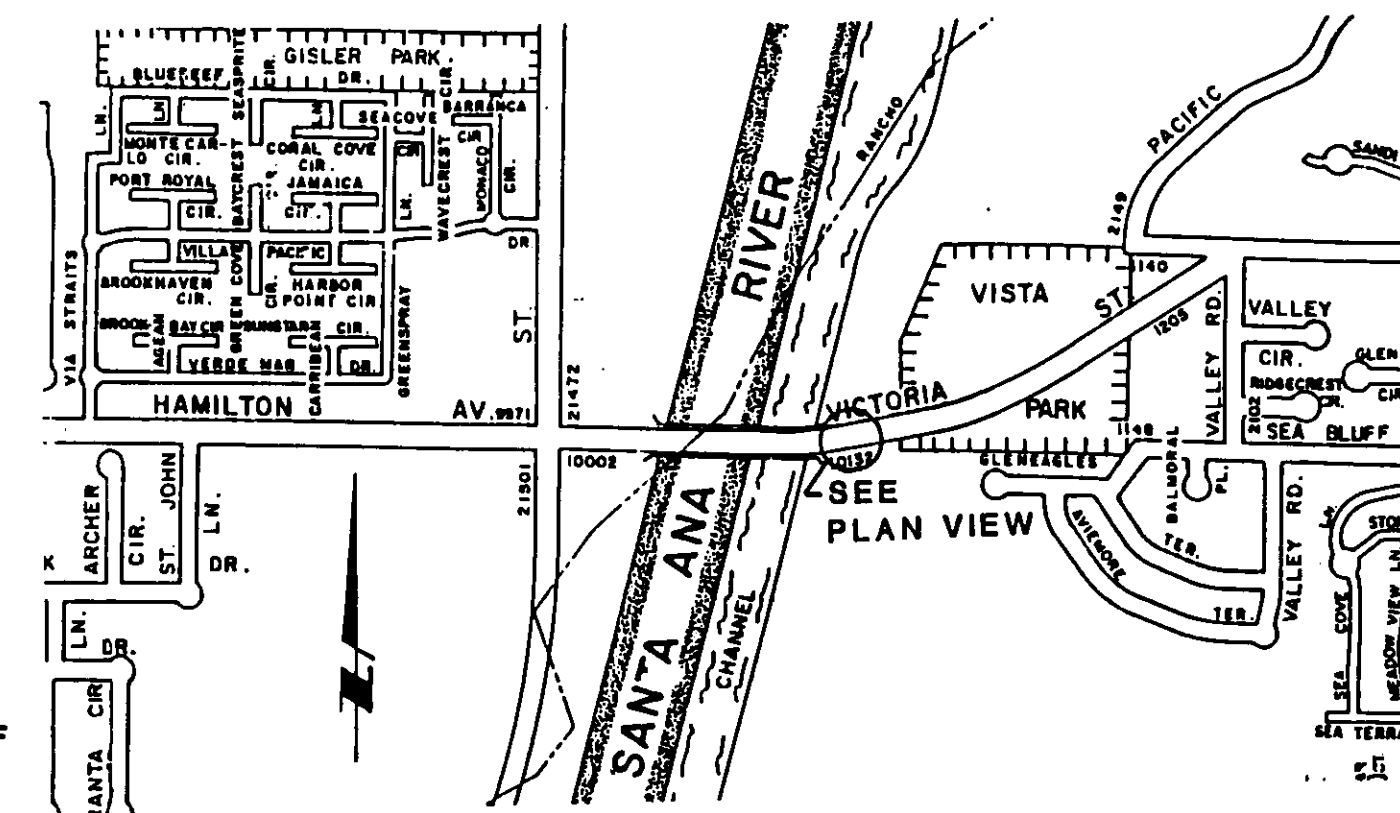
HNTB HOWARD NEEDLES TAMMEN & BERENSON ARCHITECTS ENGINEERS PLANNERS 2151 Michelson Drive, Suite 286 Irvine, CA 92715 (714)-752-6940		ORANGE COUNTY ENVIRONMENTAL MANAGEMENT AGENCY	
		HAMILTON-VICTORIA BRIDGE	
Kennedy/Jenks/Chilton 17310 Red Hill Avenue, Suite 220 Irvine, California 92714 714-261-1577		STAGE I CONSTRUCTION	
MARK DATE DESIGNED: YVW/WKH DRAWN: CAX	DESCRIPTION REVISIONS	PREPARED UNDER SUPERVISION OF	SHEET 37 OF 47
SCALE As Shown	DATE 8-90	DWG. NO.	



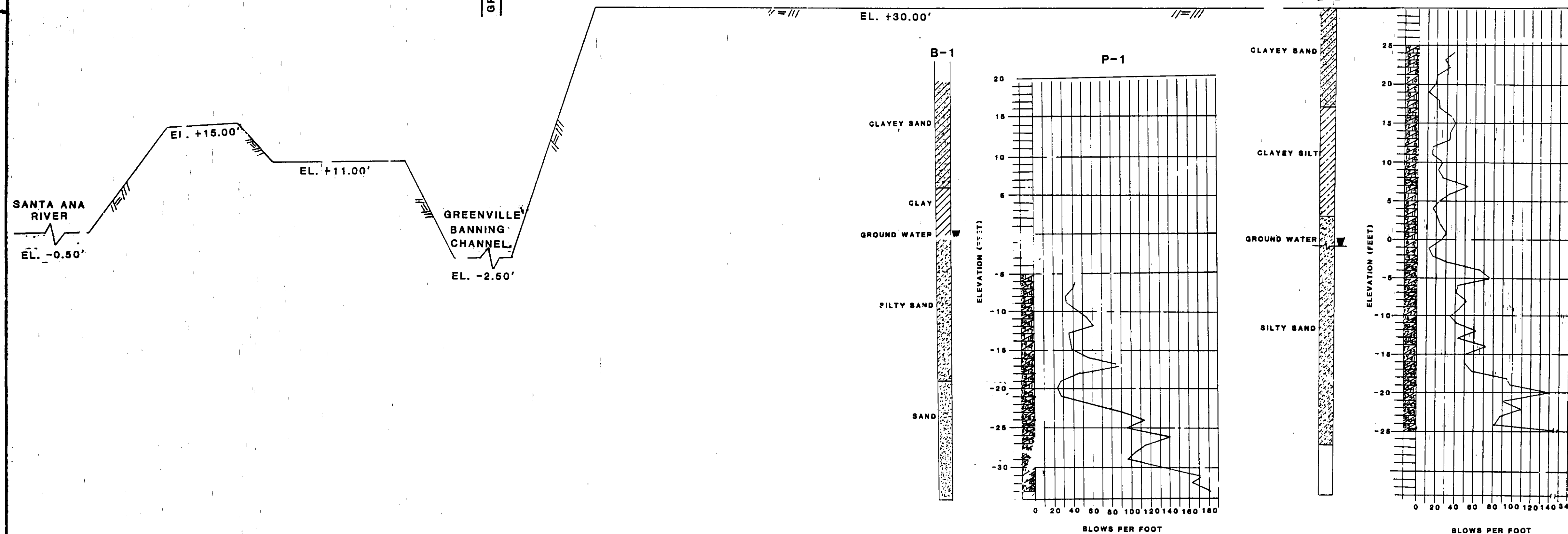


PLAN VIEW

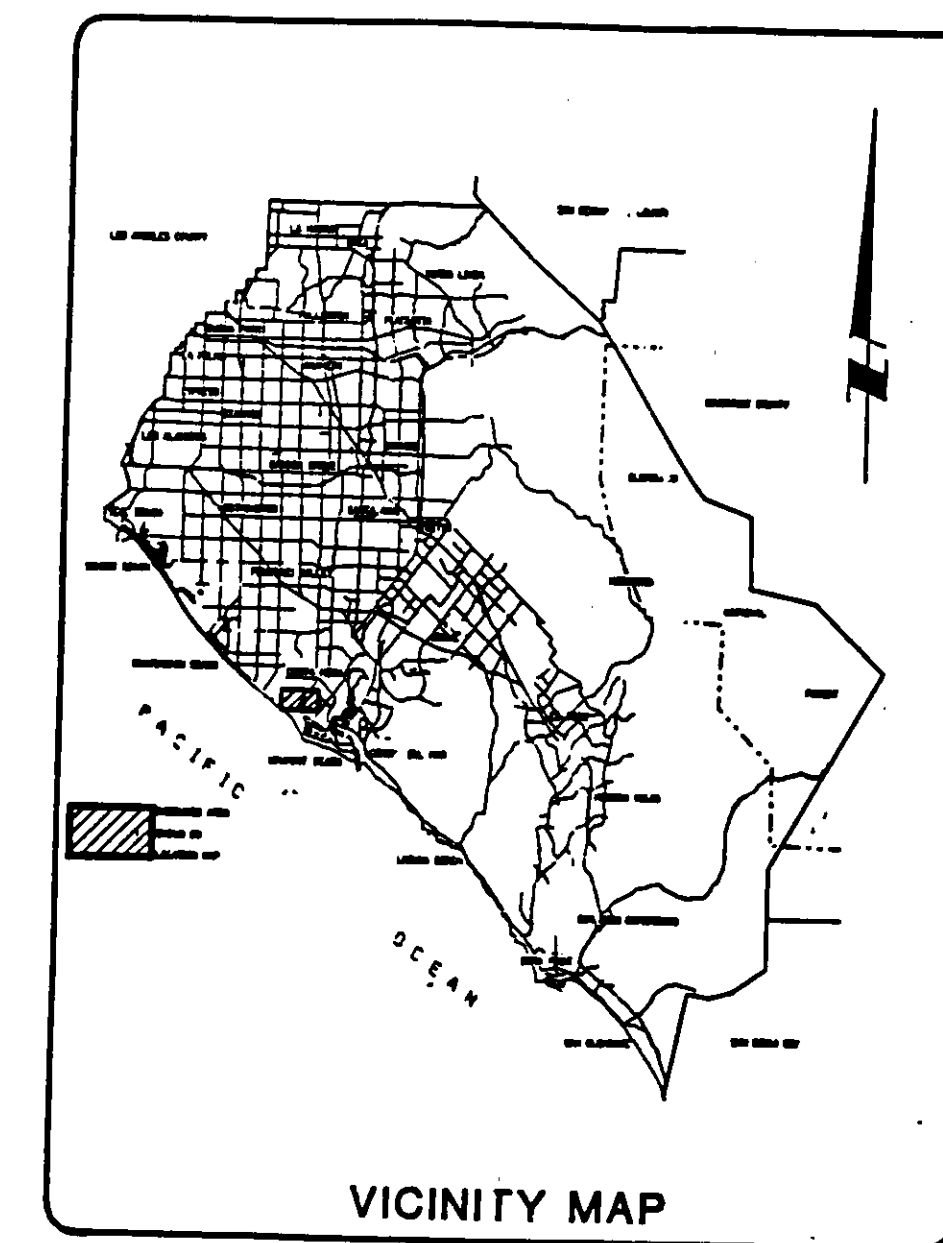
NO SCALE



LOCATION MAP



CROSS SECTIONAL VIEW

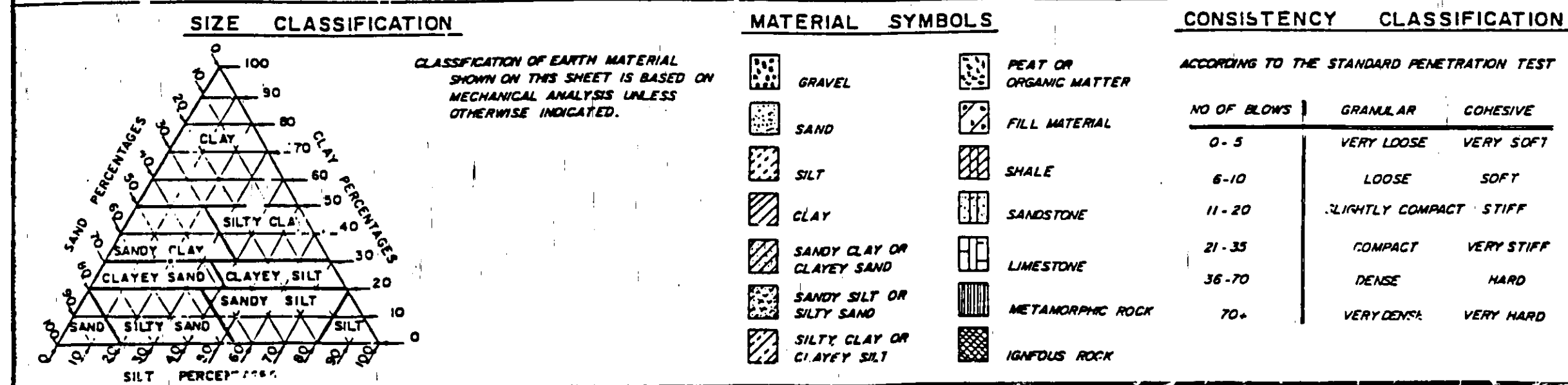


VICINITY MAP

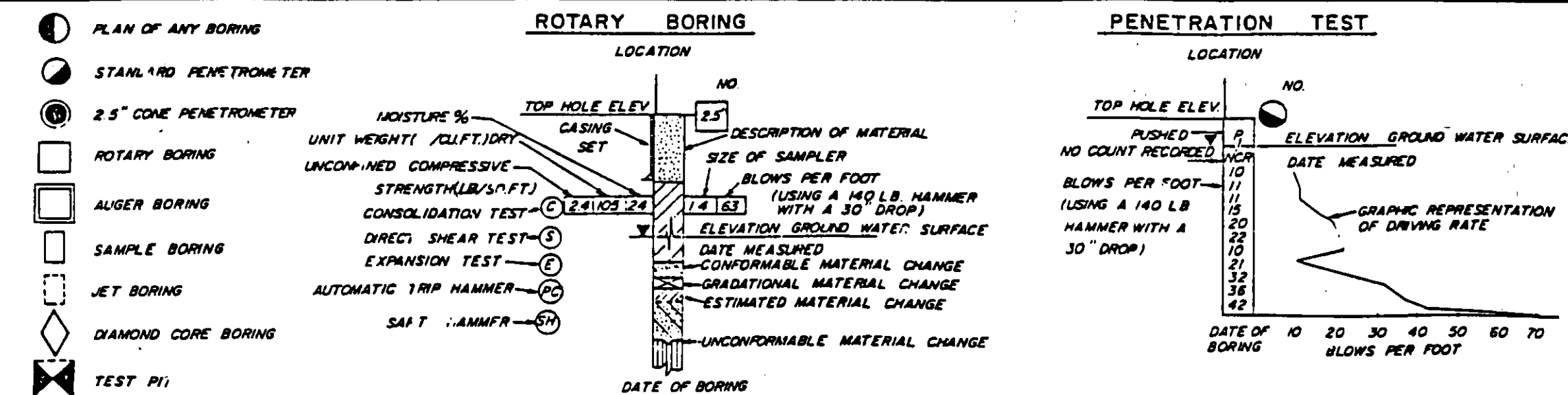
55C-103

1 1/2 0 1 2
3 inches on original drawing

LEGEND OF EARTH MATERIALS



LEGEND OF BORING OPERATIONS



ORANGE COUNTY
ENVIRONMENTAL MANAGEMENT AGENCY

HAMILTON-VICTORIA
BRIDGE EXTENSION

LOG OF TEST BORINGS NO. 3

MARK	DATE	DESCRIPTION	PREPARED UNDER SUPERVISION OF	DATE	AS SHOWN
DESIGNED	MICHAEL W. COSTELLO	SCALE	DATE	DWG. NO.	36
DRAWN	J.T.C.	CHECKED	M.W.C.	AS SHOWN	OF 47

A-12

DIST.	COUNTY	ROUTE	SECTION	POST	TOTAL

55C-103

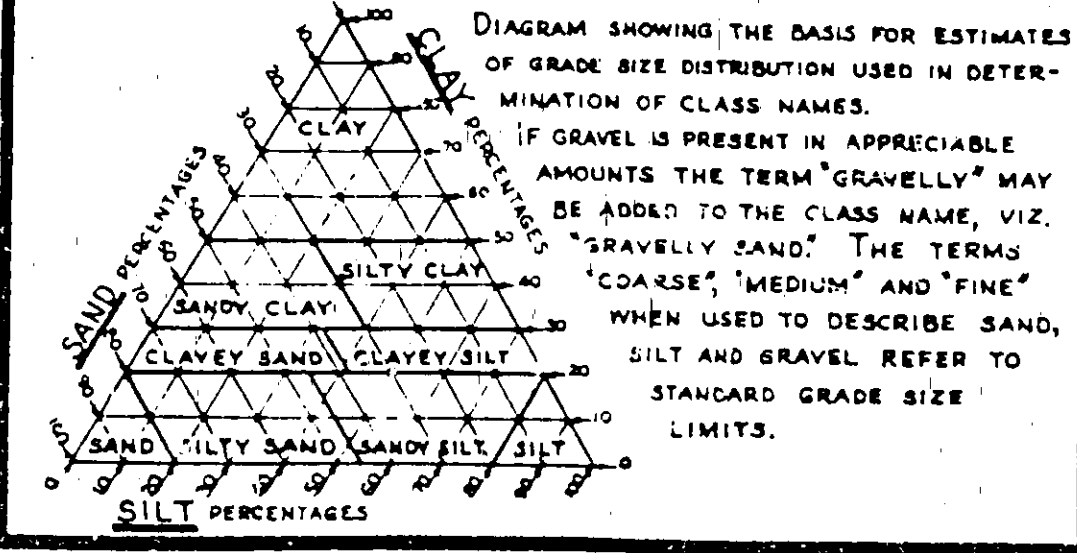
BM: O.C.S. Monument
Int' Brookhurst & Hamilton St #2
Elev. 5.870

Note: The log of Borings #1 & #2
are shown on the Log of
Borings for the Hamilton
St Crossing of the Greenville
Banning Channel

MICROFILMED
JUN 5 1962

Log of Test Borings
HAMILTON ST. BRIDGE
R.D. 23.5
BLACK LINE

CLASSIFICATION OF MATERIAL BASED ON STANDARD GRADE SIZE LIMITS



LEGEND OF EARTH MATERIALS

- GRAVEL
- SAND
- SILT
- CLAY
- SANDY CLAY OR CLAYEY SAND
- SANDY SILT OR SILTY SAND
- SILTY CLAY OR CLAYEY SILT
- PEAT AND/OR ORGANIC MATTER
- FILL MATERIAL
- IGNEOUS ROCK
- SEDIMENTARY ROCK
- METAMORPHIC ROCK

LEGEND OF BORING OPERATIONS

- PLAN OF ANY BORING
 - PENETROMETER
 - 2 1/4" CONE PENETROMETER
 - SAMPLER BORING (DRY)
 - ROTARY BORING (WET)
 - AUGER BORING (DRY)
 - JET BORING
 - CORE BORING
 - TEST PIT
- Top Hole El. 8.42
Casing 2' vertical
Blows per foot (Using 14 lb hand hammer with 12" free fall)
Description of material
Sample taken
Pulled pipe
500
Date of boring
1" SOIL TUBE
- Top Hole El. 8.42
Casing 2' vertical
Blows per foot (Using 14 lb hand hammer with 12" free fall)
Description of material
Sample taken
Pulled pipe
500
Date of boring
1" SOIL TUBE
- Top Hole El. 8.42
Casing 2' vertical
Blows per foot (Using 14 lb hand hammer with 12" free fall)
Description of material
Sample taken
Pulled pipe
500
Date of boring
1" SOIL TUBE

NOTES

The contractor's attention is directed to Section 2, Article (c) of the Standard Specifications and to the Special Provisions accompanying this set of plans. Classification of earth material as shown on this sheet is based upon field inspection and is not to be construed to imply mechanical analysis.

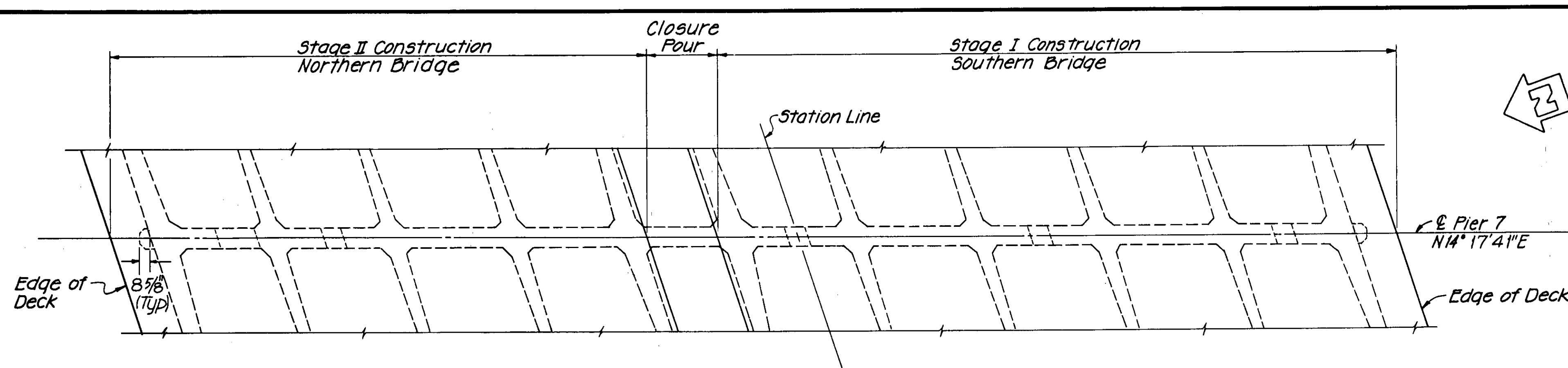
HAMILTON STREET BRIDGE

ACROSS
SANTA ANA RIVER

LOG OF TEST BORINGS NO. 1

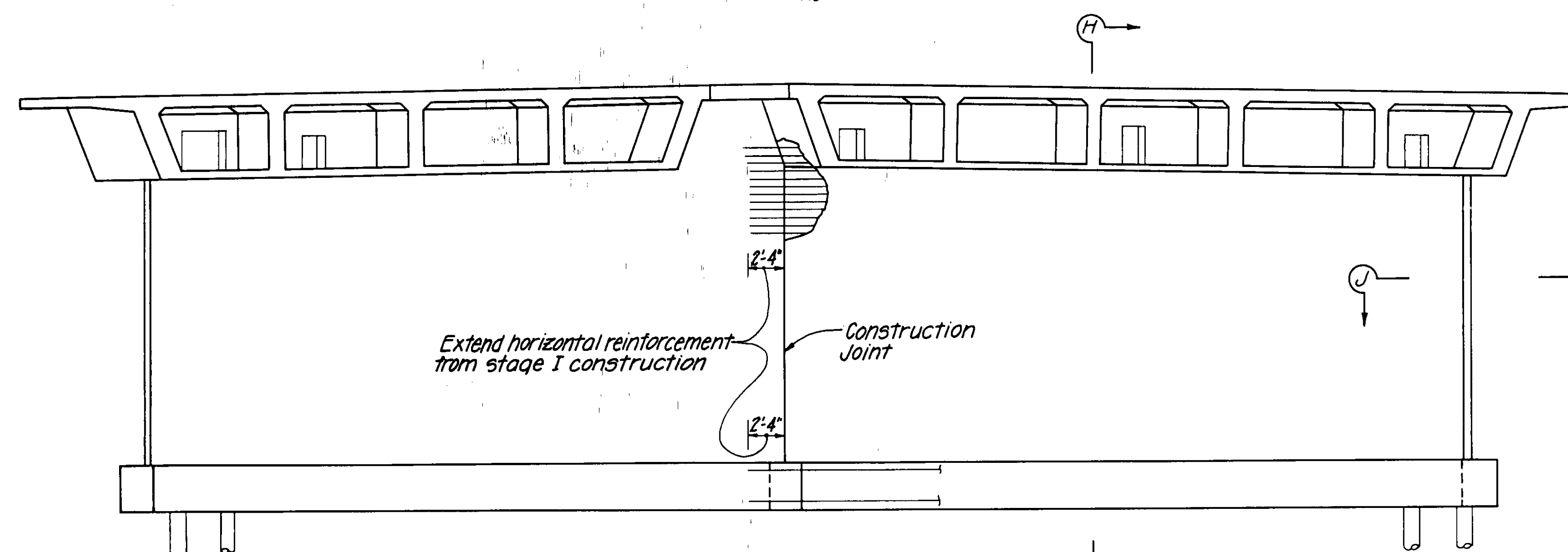
Scale 1" = 10'
SCALE 1" = 10'

SHEET
34
OF 47



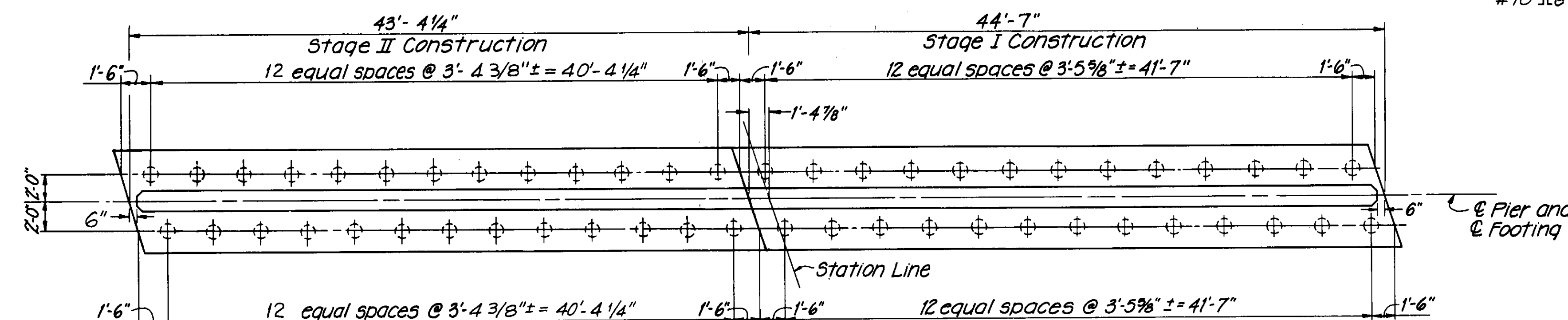
PLAN
Scale: 3/16" = 1'-0"

Note:
For Utility Opening Reinforcements
see "Section at Utility Opening"
of "Piers 2 thru 5" sheet.

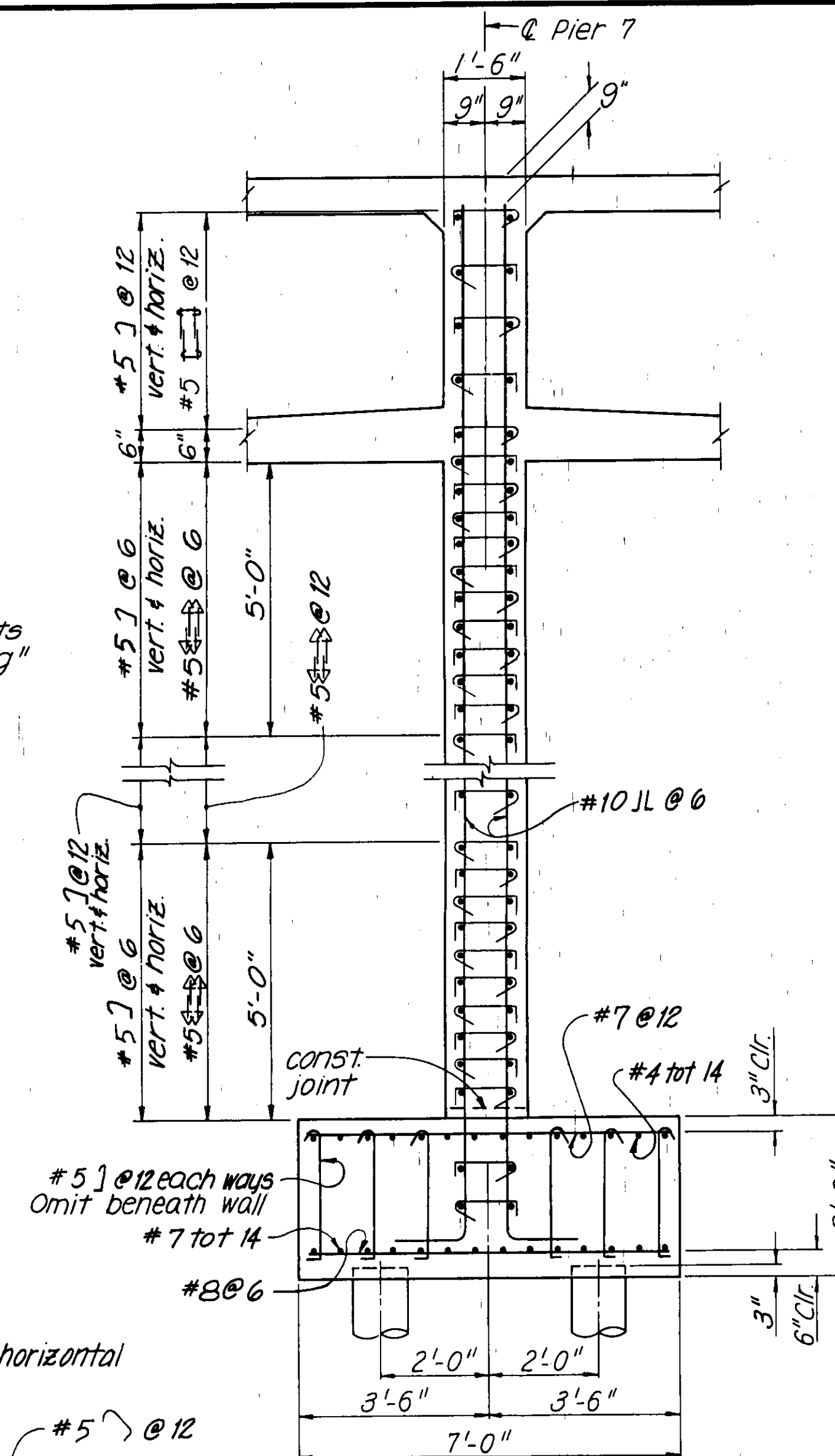


Note: All piles not shown

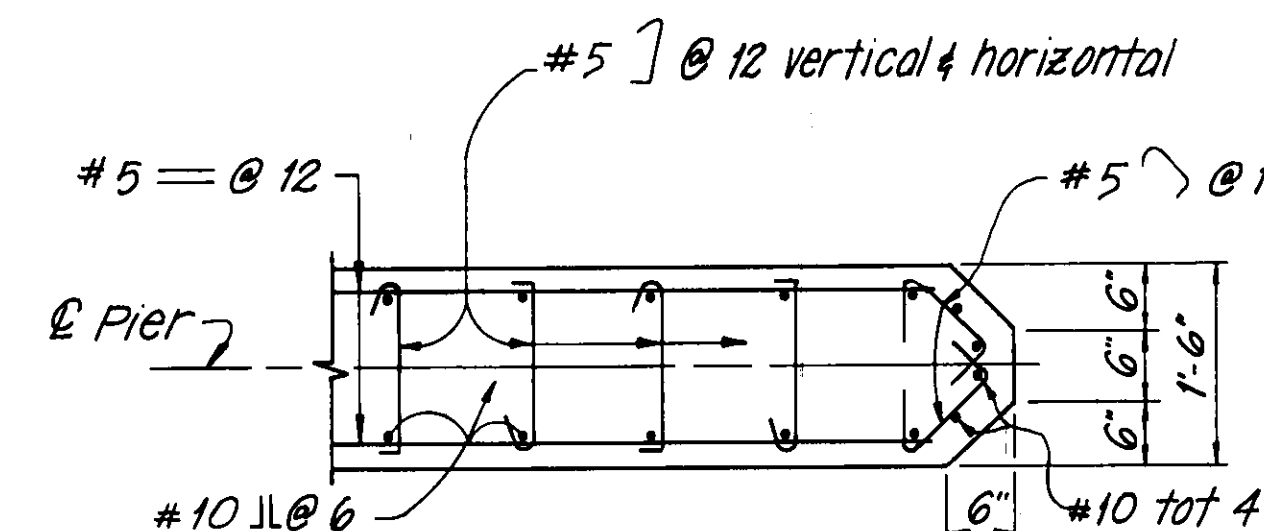
ELEVATION
Scale: 3/16" = 1'-0"



FOOTING PLAN
Scale: 3/16" = 1'-0"



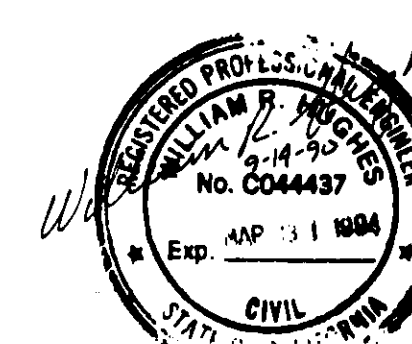
SECTION H-H
Scale: 1/2" = 1'-0"



SECTION J-J
Scale: 3/4" = 1'-0"

55C-103

1 1/2 0 2
3 inches on original drawing



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ARCHITECTS ENGINEERS PLANNERS
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Irvine, CA 92715
(714)-752-6940

Kennedy/Jenks/Chilton
17310 Red Hill Avenue, Suite 220
Irvine, California 92714
714-261-1577

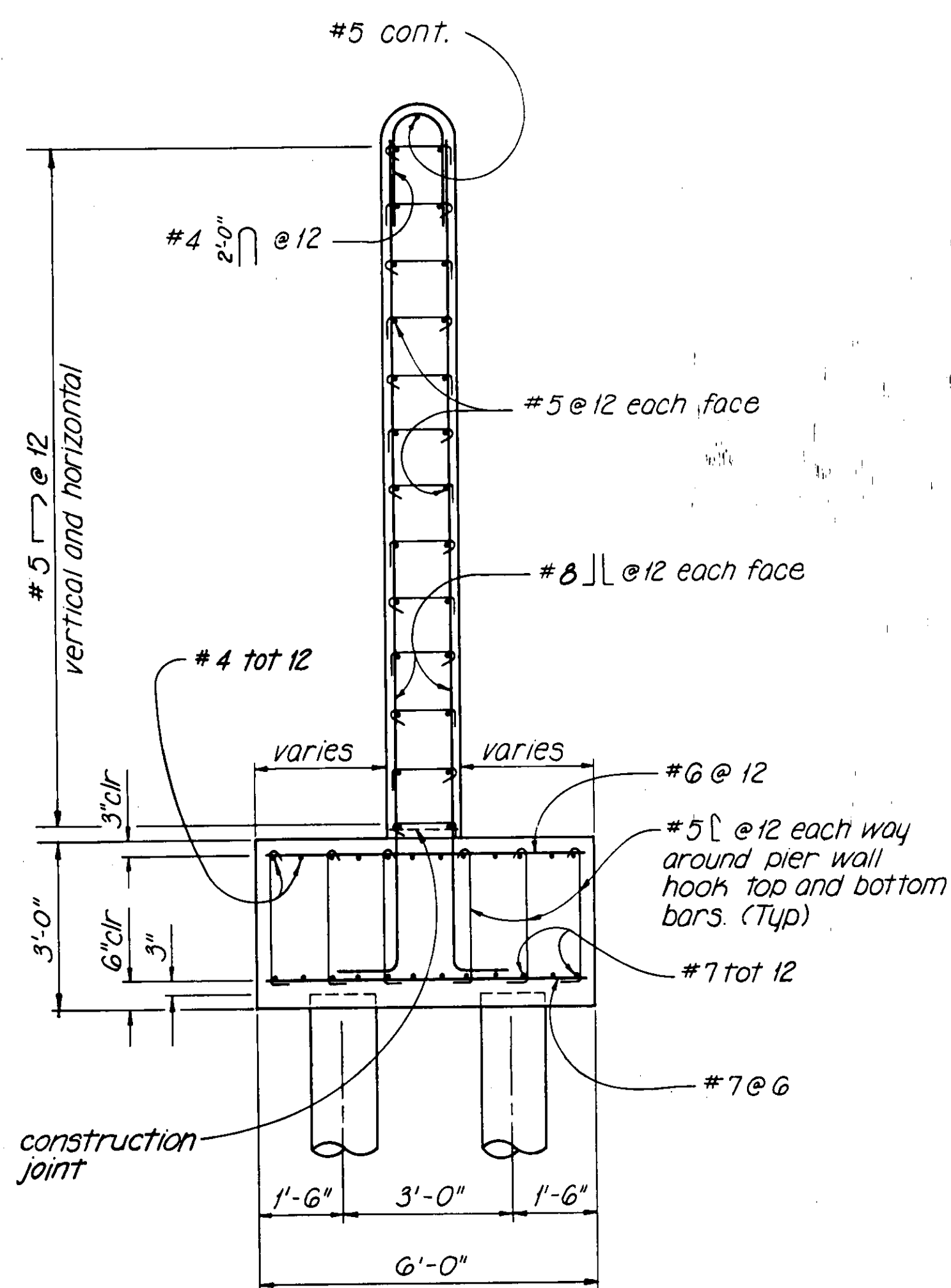
ORANGE COUNTY
ENVIRONMENTAL MANAGEMENT AGENCY

HAMILTON-VICTORIA BRIDGE

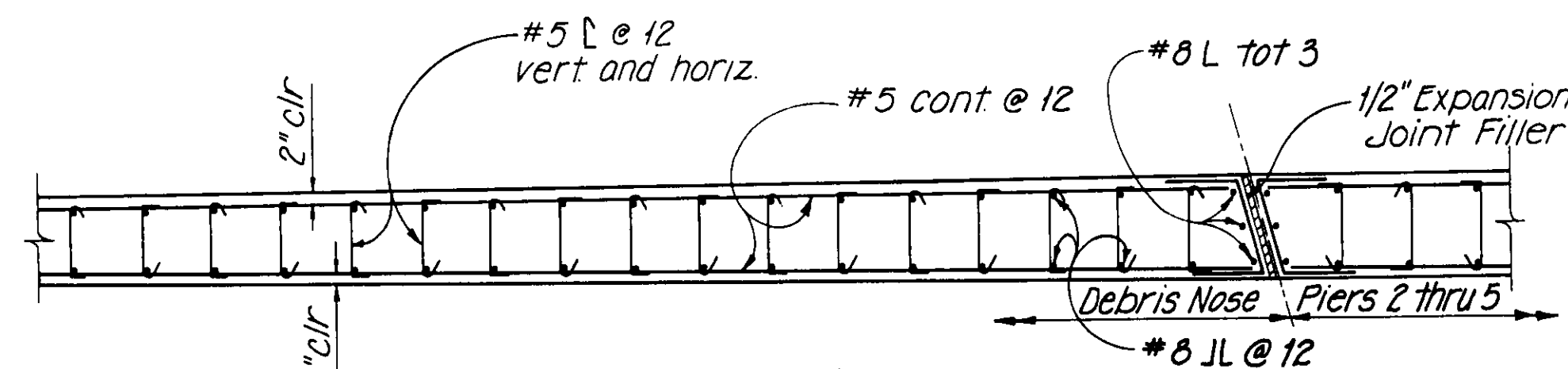
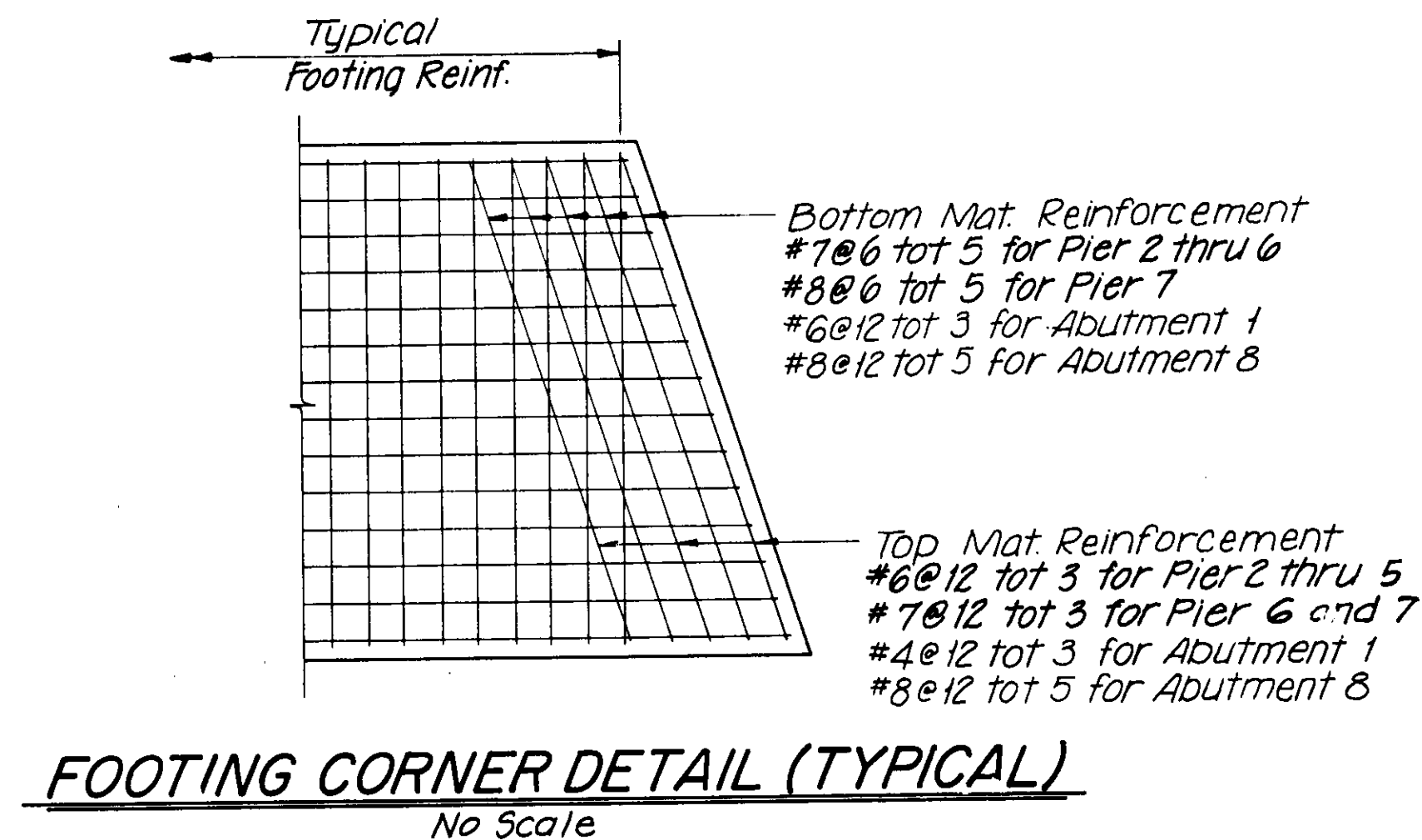
PIER 7

MARK	DATE	DESCRIPTION	PREPARED UNDER SUPERVISION OF	SHEET
REVISIONS				23
DESIGNED	SAW	SCALE	DATE	DWG. NO.
DRAWN	TAB	CHECKED	YUV	9-90

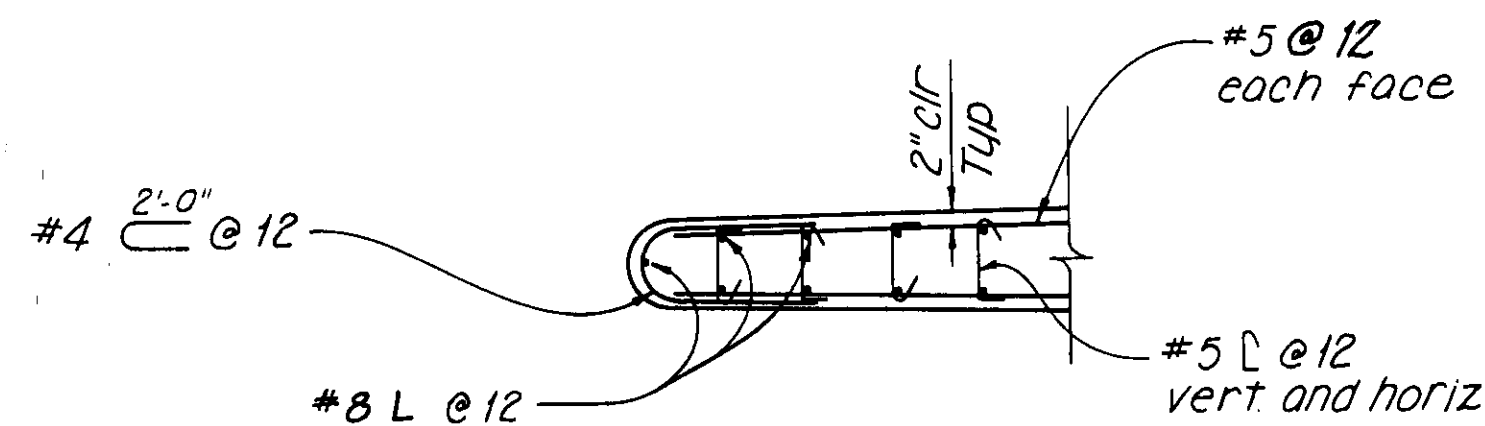
OF 47



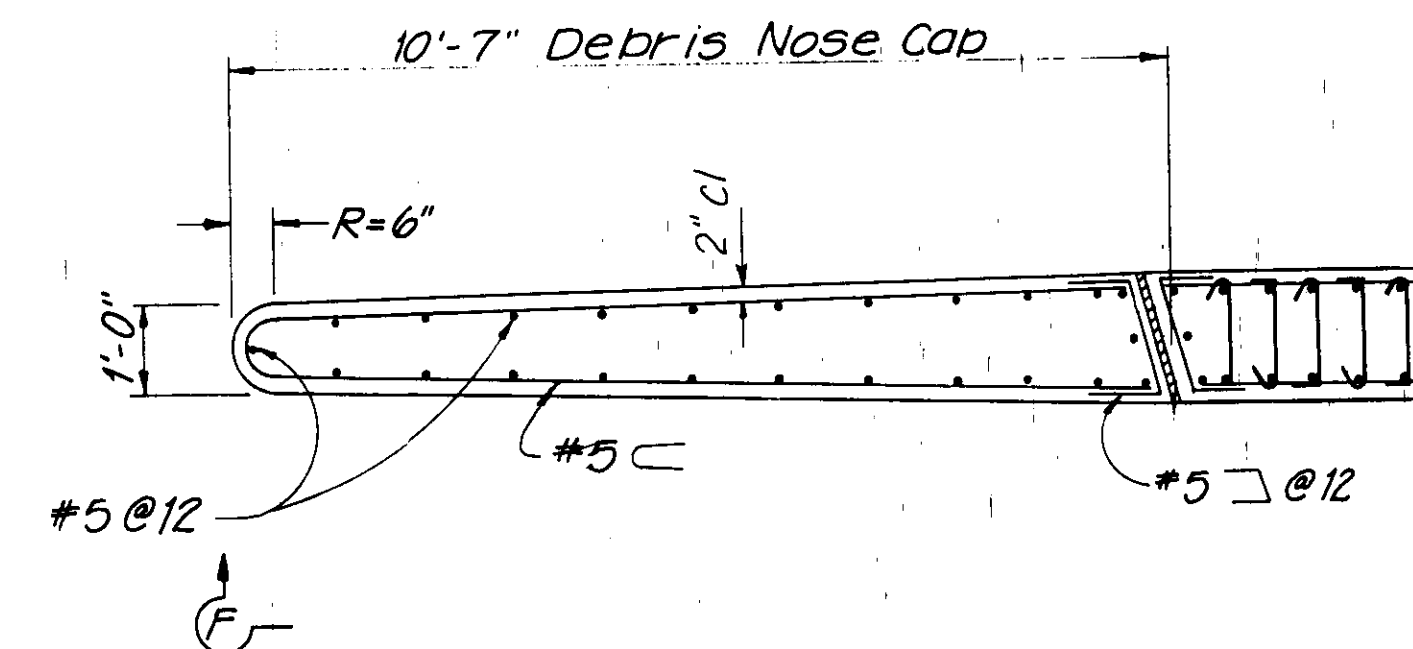
SECTION B-B
Scale: 1/2" = 1'-0"



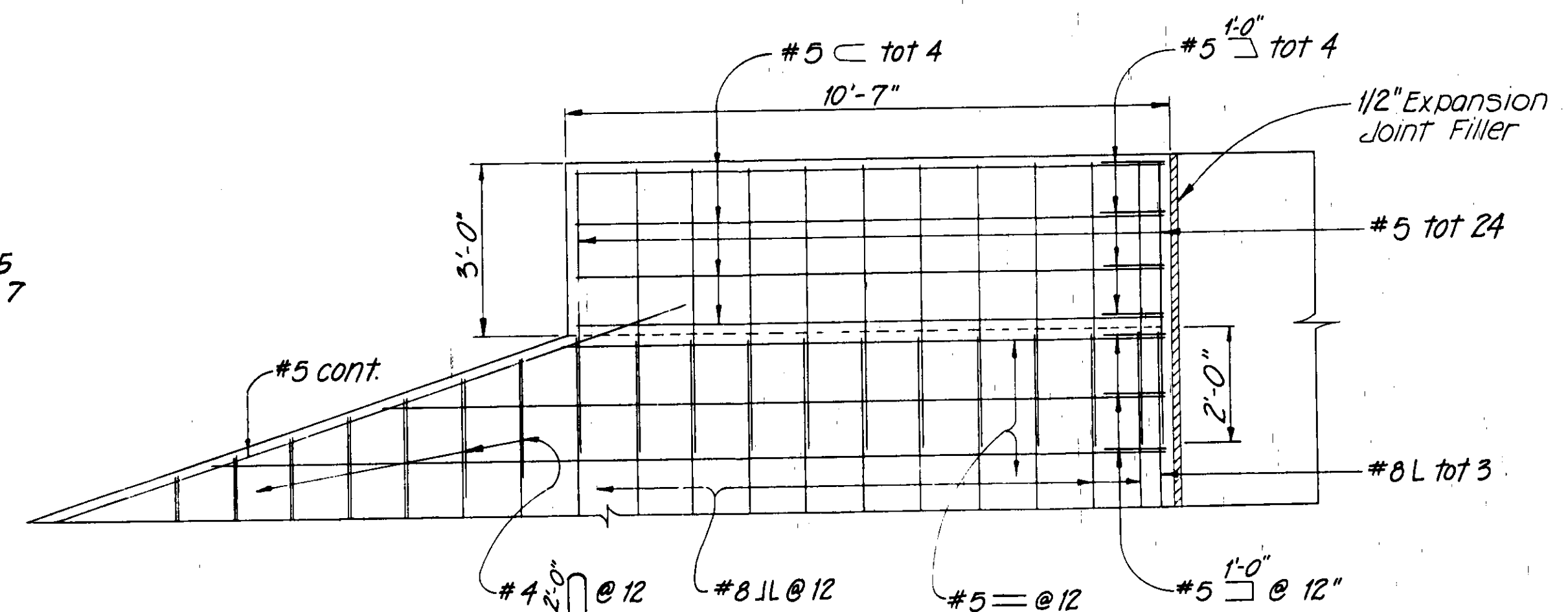
SECTION D-D
Scale: 1/2" = 1'-0"



SECTION E-E
Scale: 1/2" = 1'-0"



SECTION C-C
Scale: 1/2" = 1'-0"



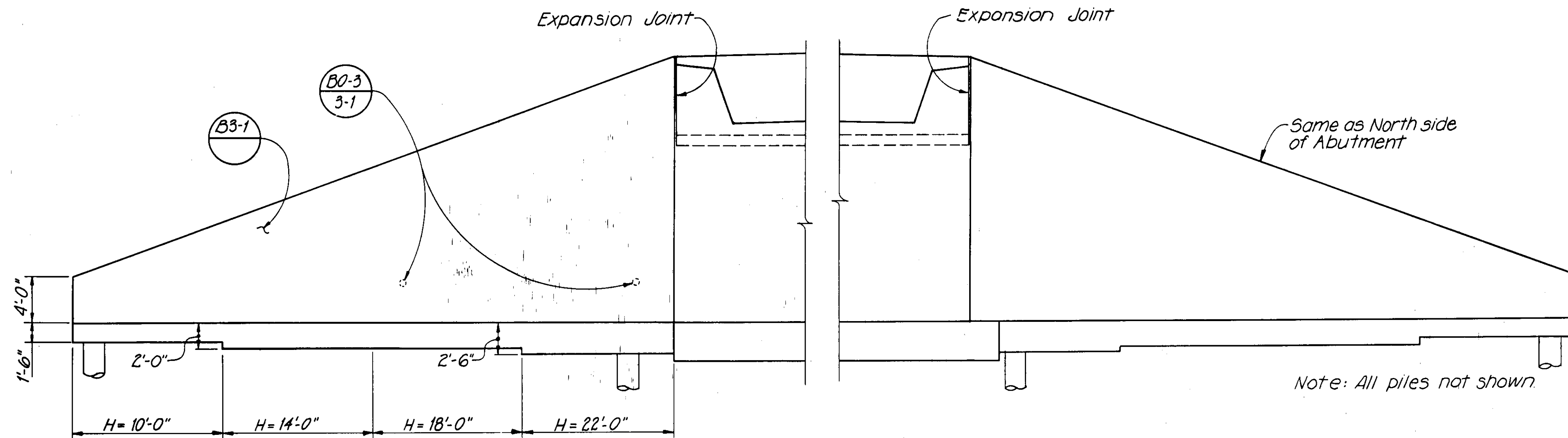
SECTION F-F
Scale: 1/2" = 1'-0"

55C-103

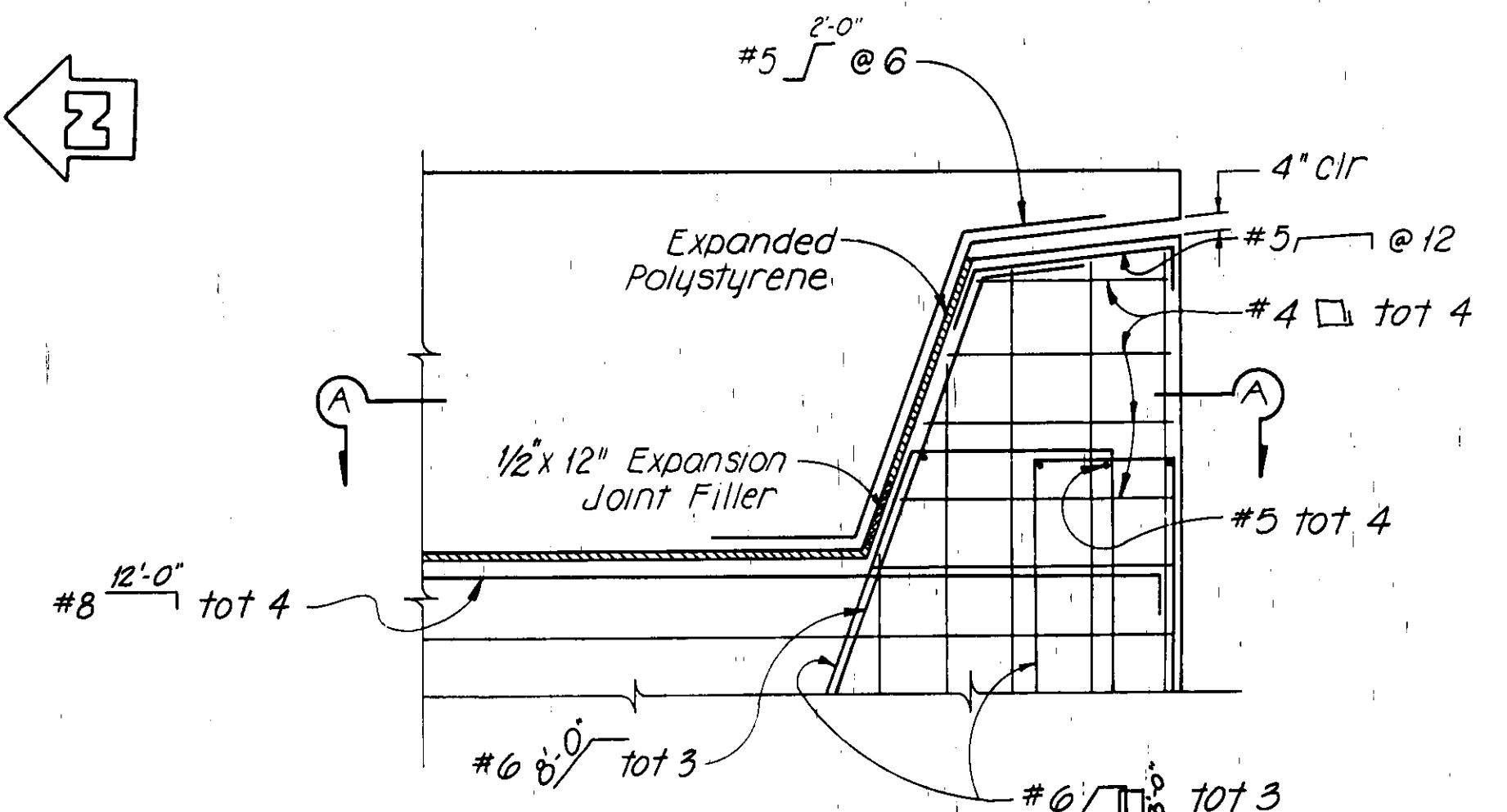
1/2 0 2
3 inches on original drawing



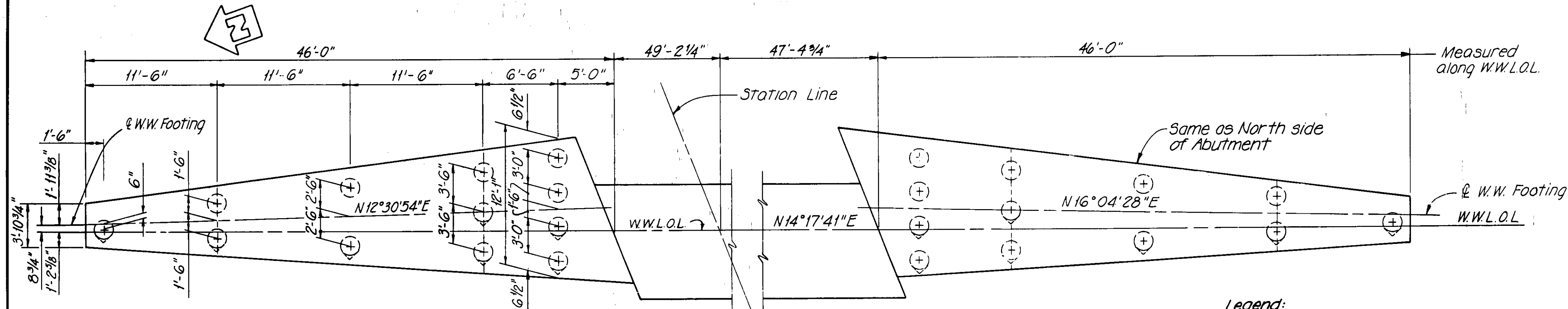
HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF ARCHITECTS ENGINEERS PLANNERS 2151 Michelson Drive, Suite 286 Irvine, CA 92715 (714)-752-6940		ORANGE COUNTY ENVIRONMENTAL MANAGEMENT AGENCY HAMILTON-VICTORIA BRIDGE	
Kennedy/Jenks/Chilton 17310 Red Hill Avenue, Suite 220 Irvine, California 92714 714-261-1577		DEBRIS NOSE DETAILS	
MARK DATE DESIGNED <i>SAW</i> DRAWN <i>TAB</i>	DESCRIPTION REVISIONS CHECKED <i>YVW</i>	PREPARED UNDER SUPERVISION OF SCALE DATE DWG. NO.	SHEET 21 OF 47



ELEVATION



ELEVATION



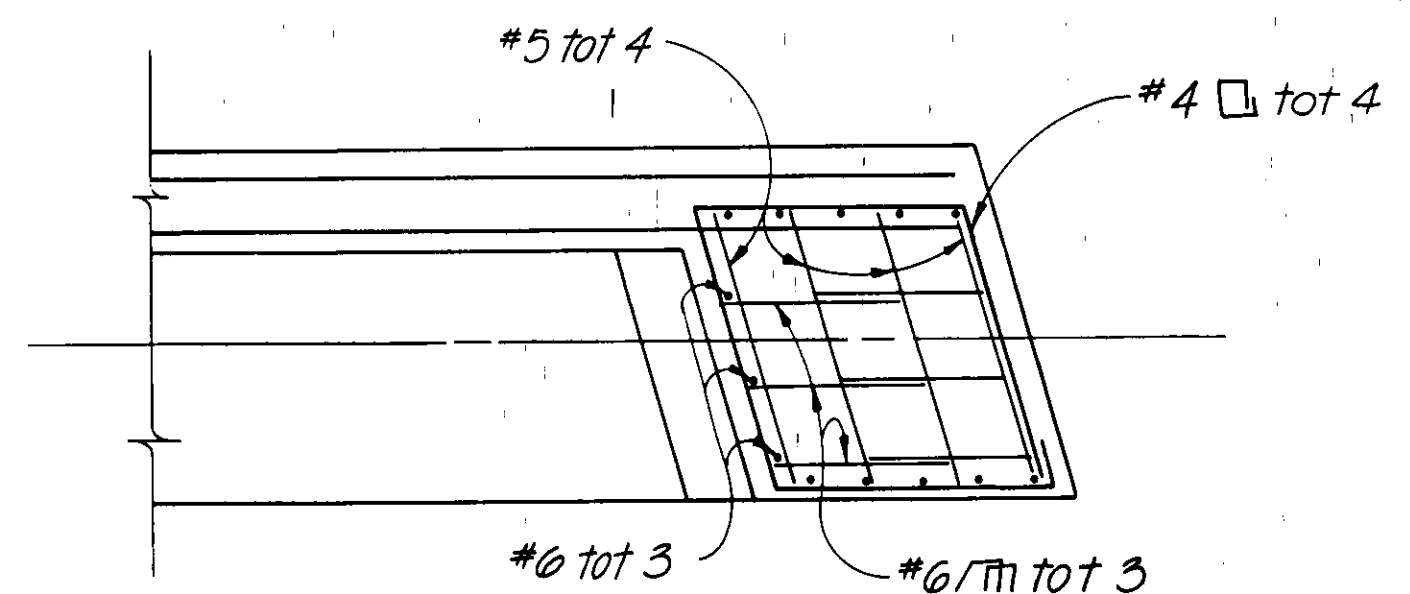
FOOTING PLAN

ABUTMENT 8 WING WALLS

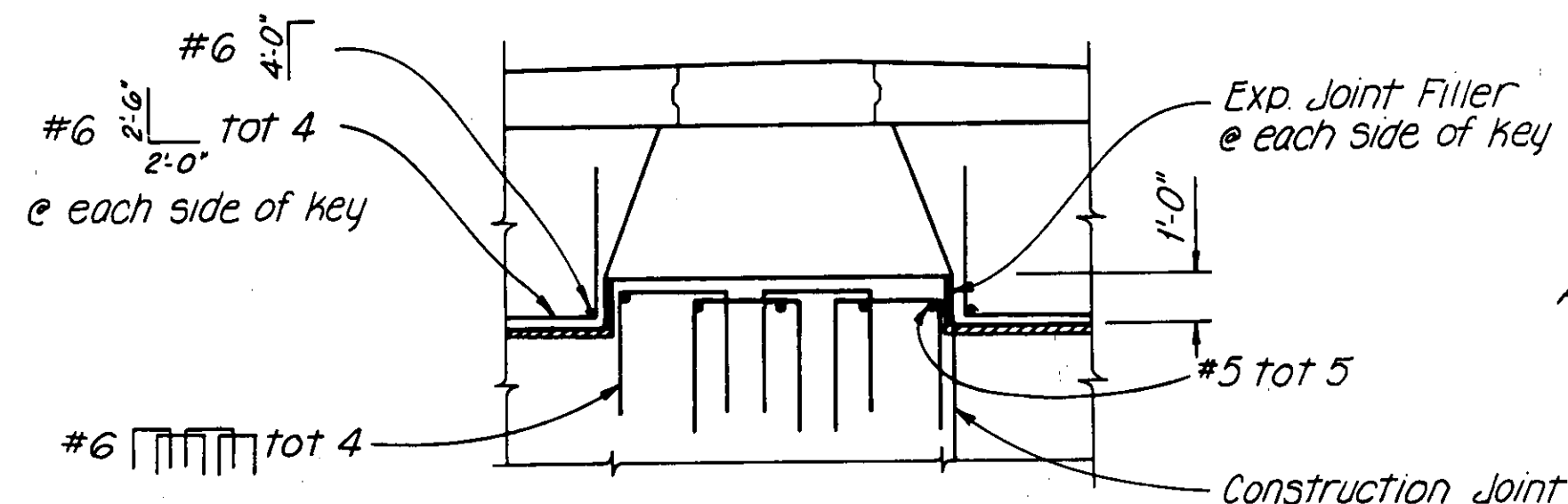
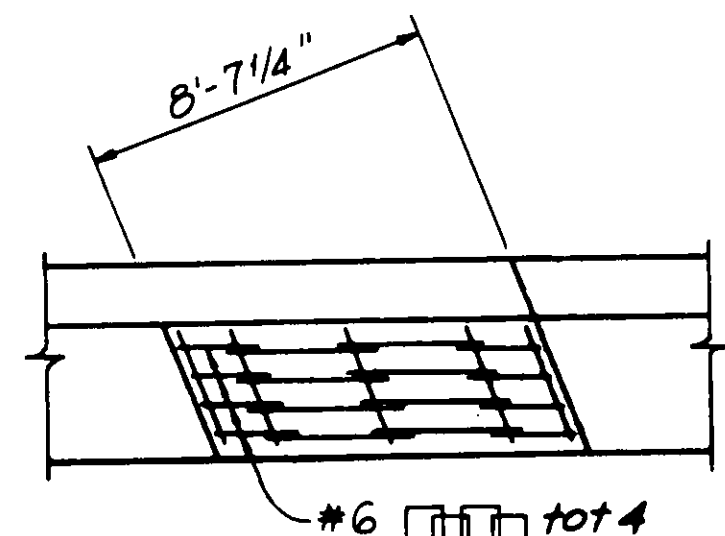
Scale: 3/16" = 1'-0"

Legend:

- Indicates plumbed pile
- Indicates pile battered 1:6 in direction of arrow

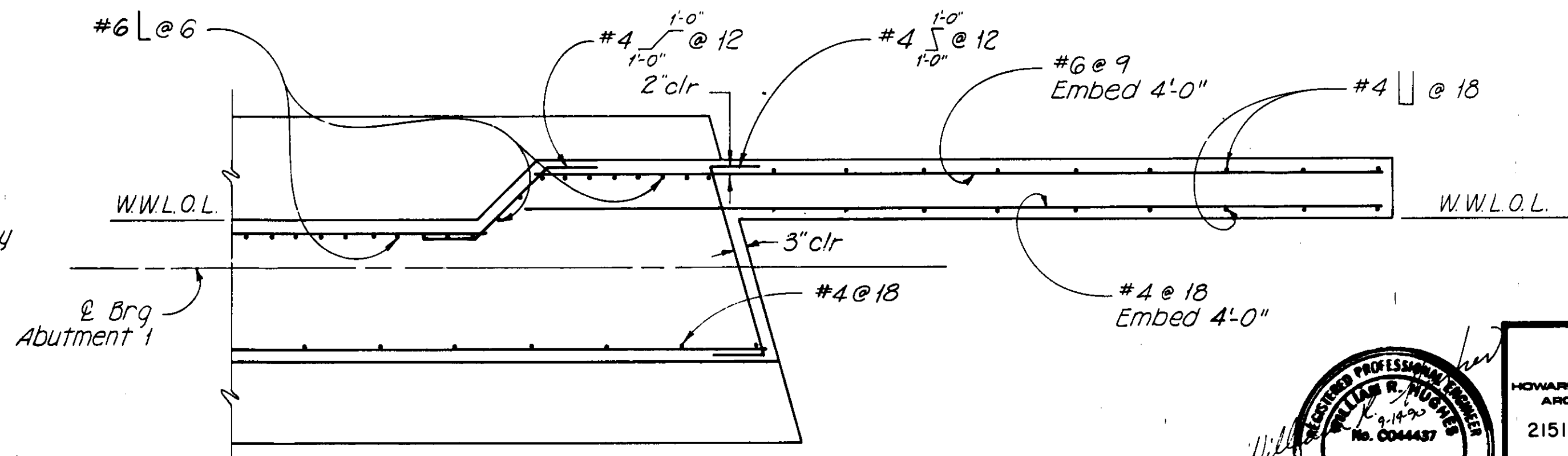


SECTION A-A



INTERNAL SHEAR KEY AT CLOSURE POUR

No Scale



WING WALL TRANSITION DETAIL AT ABUTMENT 1

Scale: 1/2" = 1'-0"

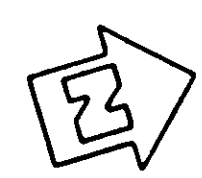
EXTERNAL SHEAR KEY

55C-103

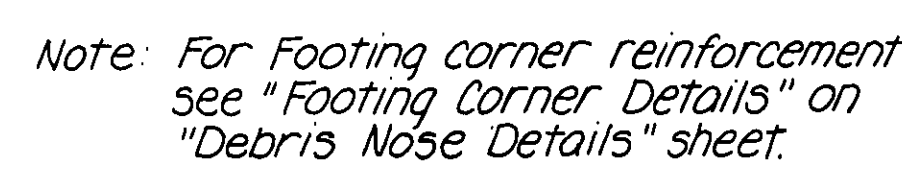
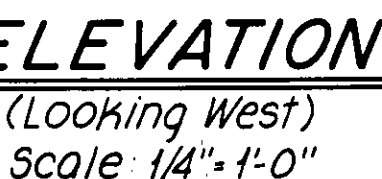
1 1/2 0 2
3 inches on original drawing



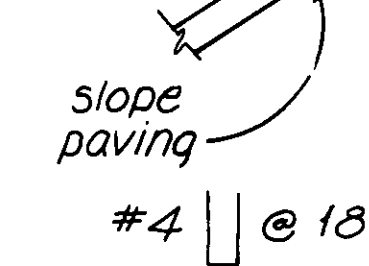
HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF ARCHITECTS ENGINEERS PLANNERS 2151 Michelson Drive, Suite 286 Irvine, CA 92715 (714)-752-6940		ORANGE COUNTY ENVIRONMENTAL MANAGEMENT AGENCY HAMILTON-VICTORIA BRIDGE	
Kennedy/Jenks/Chilton 17310 Red Hill Avenue, Suite 220 Irvine, California 92714 714-261-1577		ABUTMENT DETAILS	
MARK	DATE	DESCRIPTION	PREPARED UNDER SUPERVISION OF
REVISIONS			
DESIGNED	DATE	SCALE	DWG. NO.
DRAWN	CHECKED	As Shown	9-90
			SHEET 19 OF 47



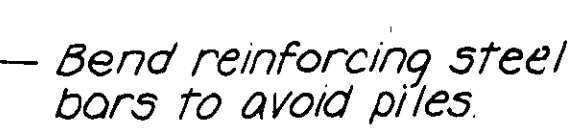
Scale: $1/4" = 1'-0"$



FOOTING PLAN
Scale: 1/4" = 1'-0"



SECTION B-B
Scale: 1/2" = 1'-0"



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

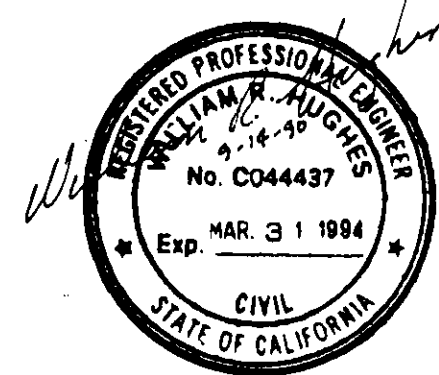
3 inches on original drawing

ABUTMENT I

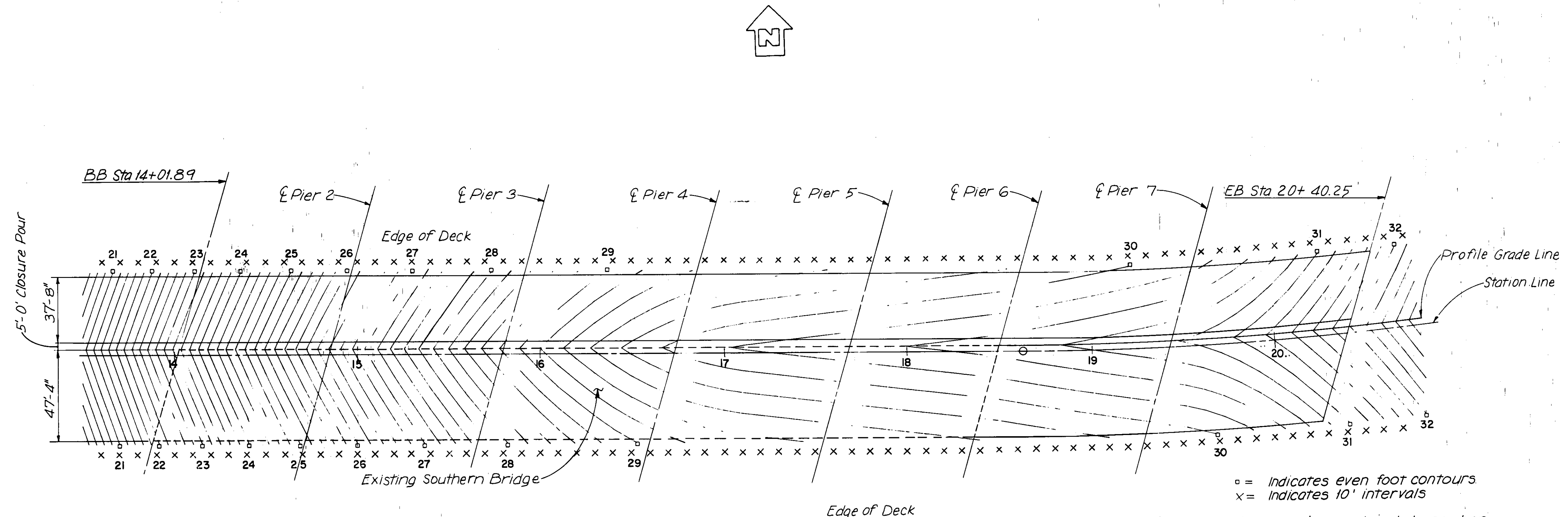
SHEET
17
OF 47

Legend:

- Indicates plumbed pile
- ◐ Indicates pile battered 1:6 in direction of arrow
- ⊗ Existing piles cut off below footing



Note:
Deck Contour is based on the assumed
profile and plan cross slope.
Contractor shall verify existing Southern
Bridge Deck Contour.



BRIDGE QUANTITIES

REMOVE EXISTING BRIDGE	1	LS
(F) STRUCTURAL EXCAVATION, BRIDGE	4,330	CY
(F) STRUCTURAL BACKFILL, BRIDGE	3,200	CY
(F) PERVIOUS BACKFILL MATERIAL	89	CY
(F) STRUCTURAL EXCAVATION, RETROFIT EXISTING ABUT. 1	23	CY
(F) STRUCTURAL BACKFILL, RETROFIT EXISTING ABUT. 1	13	CY
(F) STRUCTURAL CONCRETE, RETROFIT EXISTING ABUT. 1	11	CY
(F) BAR REINFORCING STEEL, RETROFIT EXISTING ABUT. 1	892	LB
DEWATERING (BRIDGE)	1	LS
(F) STRUCTURAL CONCRETE, BRIDGE FOOTING	563	CY
(F) STRUCTURAL CONCRETE, BRIDGE	2,960	CY
(F) BAR REINFORCING STEEL, BRIDGE	1,128,891	LB
(F) MISCELLANEOUS METAL, BRIDGE	6,145	LB
JOINT SEAL (MR= 2")	44	LF
JOINT SEAL (MR=1 1/2")	187	LF
FURNISH CONCRETE PILES (CLASS 70)	9,950	LF
DRIVE CONCRETE PILES (CLASS 70)	296	EA
CONCRETE BARRIER, TYPE 26	830	LF
TUBULAR HAND RAILING	830	LF
WATER STOP	221	LF
BRIDGE LIGHTING	1	LS
REMOVE EXISTING RIPRAP	1	LS
TEMPORARY RETAINING WALLS	1	LS
REMOVE & RECONSTRUCT RAILING TRANSITION	15	LF
FALSEWORK	1	LS

(F) denotes Final Pay Quantities.

NOTE TO CONTRACTOR:
These quantities do not necessarily represent true quantities.
For correct values refer to Bid Documents.

PLAN

Scale: 1"=30'-0"

STANDARD PLANS DATED JANUARY 1988

A62-C	EXCAVATION AND BACKFILL-BRIDGE
B0-1	BRIDGE DETAILS
B0-3	BRIDGE DETAILS
B0-5	BRIDGE DETAILS
B0-13	BRIDGE DETAILS
B2-5	PILE DETAILS - CLASS 45 & CLASS 70
B3-1	RETAINING WALL TYPE 1, H=4'-30"
B3-8	RETAINING WALL DETAILS NO. 1
B3-9	RETAINING WALL DETAILS NO. 2
B6-21	JOINT SEALS
B7-1	BOX GIRDER DETAILS
B7-10	UTILITY OPENING - BOX GIRDER
B11-30	TEMPORARY RAILING (TYPE K)
B11-51	TUBULAR HAND RAILING
B11-52	CHAIN LINK RAILING TYPE 7
B11-54	CONCRETE BARRIER TYPE 26
ES-6B	LIGHTING STANDARDS - TYPE 15 AND 21

Standard Plan Sheet No.
Detail No.

GENERAL NOTES LOAD FACTOR DESIGN

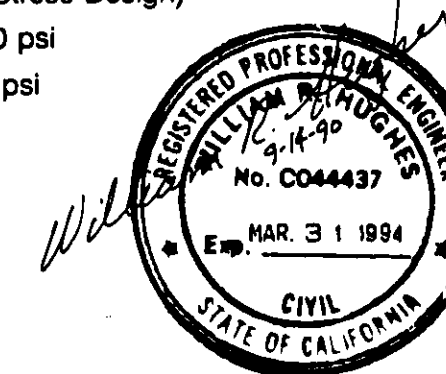
DESIGN: BRIDGE DESIGN SPECIFICATIONS
(1983 AASHTO with Interims and Revisions by CALTRANS)

DEAD LOAD: Includes 35 psf for Future Wearing Surface.

LIVE LOADING: HS20-44 and Alternative and Permit Design
Load.

REINFORCED CONCRETE: $f_y = 60,000$ psi
 $f'_c = 3500$ psi
 $n = 9$

Transverse deck slabs (Working Stress Design)
 $f_y = 20,000$ psi
 $f'_c = 1,200$ psi
 $n = 10$



55C-103

1/2 0 1 2
3 inches on original drawing

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Kennedy/Jenks/Chilton 17310 Red Hill Avenue, Suite 220 Irvine, California 92714 714-261-1577		DECK CONTOURS	
MARK	DATE	DESCRIPTION	PREPARED UNDER SUPERVISION OF
REVISIONS			
DESIGNED	YWH	SCALE	DATE
DRAWN	SEC	CHECKED	YWH
As Shown			9-90
DWG. NO.			SHEET 15 OF 47

BRIDGE REPORT

DS-M58 (REV. 4/90)

14W21

Bridge No. 55C - 103

Location 12 - Ora - FAU M036-CR
Dist Co Rte City

REVISED ORIGINAL REPORT

Date of Investigation May 24, 1990

Name SANTA ANA RIVER (Hamilton-Victoria, 0.2 mile East of Brookhurst Street)

Lat. 33° - 39.0'N Long. 117° - 57.0'W

Custodian County of Orange Owner County of Orange

STRUCTURAL DATA AND HISTORY

Year Built 1959 By Orange County Contract No. Unknown
See Page 2

Designed by: Orange County Plans Avail. @ DOS

Description: 10 span continuous CIP RC "T" beam (4 each) widened by 5 span continuous CIP RC box girder (5 cells), all supported by RC pier walls and open end RC diaphragm abutments on concrete piles.

Spans (South 1/2):(W) 81'; 3 @ 94'; 81' (E); (North 1/2):(W) 34'; 8 @ 47'; 34' (E)
Length 448' NBIS Bridge Length Yes Skew 16° Right
Number Of Intermediate Joints: @Hinges See Page 2 @Bents N
Maximum Column/Pier Height: (Less than 20') X (20'-29') (30' & Over)
Design Live Load H20-S16-44 Design Method Unknown

DESCRIPTION - ON STRUCTURE

Bridge Width (S) 1'br; 5'sw; 28'; 11'm; 34.5'; 0.3'br (N)
Total Width 80' Net Width 73.5' Lanes 4 Tracks None
Median Double double painted stripe (S) Type 11 (N) Metal beam 0000
Vert. Clearance over deck Unimpaired Appr. Rdwy. Width 67'
Deck Type 1 Wearing Surface/Prot. Sys. 100 Concrete
Alignment Tangent

DESCRIPTION - UNDER STRUCTURE

Roadway Section None
Clearances: Road: Vert. Horiz. Lt. ; Rt.
Lanes Tracks
Facilities Crossed Santa Ana River (E01) & Greenville-Banning Channel (D03)

May 24, 1990

DESCRIPTION - HYDRAULICS

Channel Sandy channel with RC side slopes

Navigable: Yes ☐ No ☒ Clearances: Vert.

Horiz.

Pier/Abutment Protection (For Navigation) ☐

TRAFFIC INFORMATION	DECK	YEAR	UNDER	YEAR
Average Daily Traffic & Year :	23,000	1989	N	
Average Daily Traffic (Future) :	25,000 Est	2010	N	
Average Daily Trucks (% OF ADT) :	1% Est		N	
Bypass Detour Length	3 miles		N	
Shell Route:	No		N	
Functional Classification :	16		N	
LOAD RATINGS:	Inventory HS 27	Operating HS 45		
	Permit P P P P P	Computation Method	Load Factor	

CONDITION RATINGS:

Deck	7	Superstructure	8	Substructure	8
Channel & Channel Protection	9	Culvert	N	Widenable	Yes

APPRAISAL RATINGS:

Waterway Adequacy	9	Approach Roadway Alignment	8
-------------------	---	----------------------------	---

Date of Revisions

STRUCTURAL DATA AND HISTORY (Con't.)

Date of Revision: 1979 - Widened 50' on south side by Orange County.

Number of Intermediate Joints: @ Hinges: 2 (North 1/2 of structure)

CONDITION OF STRUCTURE:

There is moderate random and block cracking in the concrete bridge deck, more severe in north portion (original construction) of the bridge.

AC driveway adjacent to southeast end of bridge sidewalk has subsided 4" to 5".

Condition of the structure is good.

May 24, 1990

ENCROACHMENT:

12-4" transite pipes in north exterior bay.

10" steel pipe in 3rd bay from north.


Henry Ma

HM:ms

cc: INagai (2)
County of Orange



STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
SUPPLEMENTARY BRIDGE REPORT
DS-M19 (REV. 2/75)

Bridge No. 55C-103

Location 7-Ora-FAU M036-CR
Dist - Co - Mte - PM - City

Date of Investigation May 11, 1988

Name SANTA ANA RIVER (Hamilton- Victoria, 0.15 mile east of Brookhurst St)

CONDITION RATING:

APPRAISAL RATING:

Deck 7 Superstructure 8 Substr. & Pipes 8 Overall 8
Channel & Channel Protection 8 Retaining Walls N

Widenable? Yes ☒ No ☐ Conditional ☐

Action Required by COUNTY Yes ☐ No ☒

WORK DONE:

All previously recommended work (i.e. epoxy inject cracked concrete barrier rail, replace missing steel rail element, remove vegetation growth and repair erosion) has been done.

REVISION:

Average Daily Traffic - 23,000 (1987)

CONDITION OF STRUCTURE:

The structure is in good condition.

RECOMMENDED POSTING:

None

WORK RECOMMENDED:

None

HM/pht
cc: INagai (2)
Orange County (2)

Henry Ma



STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
SUPPLEMENTARY BRIDGE REPORT
DH-05 M19 (REV. 1/74)

55C-103

Bridge No. 7-Ora-FAU M036-CR
Location Sta - Co - Rte - Pb - City
Date of Investigation May 28, 1986

Name SANTA ANA RIVER (Hamilton-Victoria, 0.15 mile east of Brookhurst Street)

CONDITION RATING:

Deck (7) Superstructure 8 Substr. & Pipes 8 Overall (7)
Channel & Channel Protection 8 Retaining Walls N

APPRAISAL RATING:

Widenable? Yes ☒ No ☐ Conditional ☐

Action Required by County Yes ☒ No ☐

PRIORITY

A - Immediate Action
B - Early Scheduling
C - Routine Maint.
O - For Record Only

REVISION:

Condition Rating - Deck 7
Appraisal Rating - Overall 7

CONDITION OF STRUCTURE:

There is moderate transverse and random deck cracking in the south 2/3 of the structure (1979 widening) and extensive deck cracking in the north portion (1959 construction). 0

Traffic damage has bent one section of south tubular steel rail and cracked the concrete at two post anchors about 60 feet from west end.

There is one section of 2" x 2" tubular steel rail (12'+) missing at the southeast end of the barrier rail.

Vegetation is growing from east abutment girder seat at south end.

Storm drain outfall at southeast wingwall is eroding channel embankment.

Otherwise, the overall condition of the structure is good.

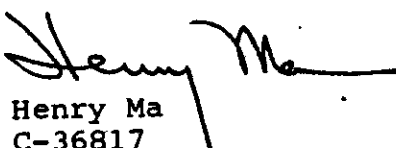
RECOMMENDED POSTING:

None

Report No. 55C-103
Sheet 2 of 2
Date May 28, 1986

WORK RECOMMENDED:

1. Epoxy inject crack in barrier rial post anchor in south rail near west end. C
2. Replace missing tubular steel rail at southeast end. C
3. Remove vegetation at southeast girder abutment seat. C
4. Repair erosion near southeast wingwall. C


Henry Ma
C-36817

HM:pht

cc: INagai (2)
County of Orange (2)

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
SUPPLEMENTARY BRIDGE REPORT
DH-OS M19 (REV. 1/74)

Bridge No. 55C-103
Location 7-Ora-FAU M036-CR
Dist - Co - Rte - PM - City
Date of Investigation May 4, 1984

Name SANTA ANA RIVER (Hamilton-Victoria, 0.15 mile east of Brookhurst St.)

CONDITION RATING:

APPRAISAL RATING:

Deck 8 Superstructure 8 Substr. & Pipes 8 Overall 8
Channel & Channel Protection 8 Retaining Walls N

Widenable? Yes ☒ No ☐ Conditional ☐

Action Required by County ~~District~~ Yes ☐ No ☒

PRIORITY

A - Immediate Action
B - Early Scheduling
C - Routine Maint.
O - For Record Only

CONDITION OF STRUCTURE:

The overall condition of the structure is good.

RECOMMENDED POSTING:

None.

RECOMMENDATION:

None.

E. L. Neff

E. L. Neff
C 28703

ELN:cd

cc: DRHiggins (2)
Orange County (2)

14W21
STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
SUPPLEMENTARY BRIDGE REPORT
DH-OS M19 (REV. 1/74)

Bridge No. 55C-103
Location 07-Oran-FAU M036-CR
Dist. - Co. - Hq. - City (On deck)

Date of Investigation June 10, 1982

Name SANTA ANA RIVER (Hamilton Avenue - Victoria Street)

CONDITION RATING:

APPRAISAL RATING:

Deck 8 Superstructure 8 Substr. & Pipes 8 Overall 8
Channel & Channel Protection 8 Retaining Walls N

Widenable? Yes ☒ No ☐ Conditional ☐

County

Action Required by District: Yes ☐ No ☒

CONDITION OF STRUCTURE:

The overall condition of the structure is good.

RECOMMENDATION:

None

E. L. Neff
E. L. Neff
C-28703

ELN:pdh
cc: DRHiggins (2)
Orange County (2)

DIST 07	ROUTE CO RD	COUNTY 55 C	STRU. NO 0103	POSTMILE .	RATING 050.0	WIDTH-FT	STRU TYPE CGB	YR ORIG CONST 77	MAR. 06, 1981		
	RATING FACTOR	PT	SPAN	ULT MOM CAP TOP IN COM	ULT MOM CAP BOT IN COM	POS HS20 MOMENT	NEG HS20 MOMENT	POS PURP MOMENT	NEG PURP MOMENT	DEAD LOAD MOMENT	SECONDARY MOMENT
INV	1.91	5	4	21366.4	0.0	3840.9	-1245.3	7441.8	-1787.0	4247.3	0.0
APER	3.17	5	4	21366.4	0.0	3840.9	-1245.3	7441.8	-1787.0	4247.3	0.0
PURP	1.64	5	4	21366.4	0.0	3840.9	-1245.3	7441.8	-1787.0	4247.3	0.0

THE NUMBER OF AXLES ON THE TRUCK THAT CAUSES THE PURPLE RATING FACTOR IS 11.
 FC = 1.30 FY = 60.

IF THE REPORTED ULTIMATE MOMENT CAPACITY IS 0, IT WAS DETERMINED NOT TO BE CRITICAL

SANTA ANA RIVER (HAMILTON-VICTORIA) (SA-38) WIDENING
 CONT 5 SPAN RC BOX GIRDER W/NO AC SURFACING ASSUMED
 BRIDGE WIDENED ON DS SIDE OF 10 SPAN T-BEAM BRIDGE
 ORIG 10 SPAN T-BEAM CONTROL FOR RATING

HMM 3/8/1

PPPPP

DIST 07 ROUTE CO RD COUNTY 55 C STRU. NO 0103 POSTMILE . RATING WIDTH-FT 050.0 STRU TYPE C6B YR ORIG CONST 77 MAR. 06, 1981

INFLUENCE LINE FOR CRITICAL INVENTORY RATING POINT SPAN 4 10TH POINT 5

MEM NO	LEFT	.1	.2	.3	.4	.5	.6	.7	.8	.9	RIGHT
2	0.0	0.111	0.244	0.381	0.505	0.598	0.643	0.624	0.521	0.319	0.0
3	0.0	-0.449	-0.985	-1.538	-2.039	-2.416	-2.600	-2.520	-2.107	-1.290	0.0
4	0.0	1.861	4.356	7.490	11.260	15.667	11.261	7.492	4.359	1.862	0.0
5	0.0	-1.140	-1.922	-2.383	-2.563	-2.503	-2.243	-1.823	-1.282	-0.661	0.0

THE CRITICAL OPERATING RATING POINT IS THE SAME AS THE CRITICAL INVENTORY RATING POINT

THE CRITICAL PURPLE RATING POINT IS THE SAME AS THE CRITICAL INVENTORY RATING POINT

2 SANTA ANA RIVER (HAMILTON-VICTORIA) (SA-38) WIDENING
 3 CONT 5 SPAN RC BOX GIRDER W/NO AC SURFACING ASSUMED
 4 BRIDGE WIDENED ON OS SIDE OF 10 SPAN T-BEAM BRIDGE

Bridge No. 55C-103

Other No. Ora. Co. SA-38

P.U.C. No.

Location 07-Ora-FAU M036-CR
Dist - Co - Rte - PM - City FAU M036 (On Deck)

Date of Investigation February 5, 1981

REVISED SEE REVISED
ORIGINAL REPORT

Name SANTA ANA RIVER (Hamilton-Victoria)

Lat. 33°-39.0' Long. 117°-57.0'

STRUCTURAL DATA AND HISTORY

Year Built 1959 By Orange County Contract No. Unknown

Date of Revisions 1979+ Widening 50' southernly by Orange County

Designed by: B.D. ☐ Orange County Plans Avail. @ B.D.

Description: Continuous RC "T" beam with RC wall piers and abutments, all supported on driven concrete piles.
Widening: 5 span continuous RC box girder (5 cells) on RC wall piers and open diaphragm abutments, all supported on Class 70 concrete piles.

Spans (1959) 1 @ 34', 8 @ 47', 1 @ 34' (1979) 1 @ 81', 3 @ 94', 1 @ 81'

Length 448' Skew 16° Rt. Design LL H20-S16-44

Ratings: Inventory HS 27/LF Operating HS 45/LF Permit PPPPP/LF

DESCRIPTION - ON STRUCTURE

Bridge Width (S) 5'sw, 5'sh, 2 @ 12', 10'M, 2 @ 12', 10'sh (N)

Total Width 80' Lanes 4 Tracks None
(S) Type 11

Median Double double yellow stripe Rail Type (N) MBGR (0000)

Vert. Clearance over deck Unimpaired Appr. Rdwy. Width 24'

Wearing Surface None Deck Seal None

Alignment Tangent

DESCRIPTION - UNDER STRUCTURE

Roadway Section Span 2: 12' service road. Span 10: 12' bicycle trail
Span 2 : 13'-4" None 5'

Clearances: Vert. Span 10: 10'-2" Horiz. 1' Lt. 1' Rt.

Lanes 2 Tracks None Pumpplant: None ☒ See Br. No.

Facilities Crossed Santa Ana River & Greenville-Banning Channel

cc:

(1) CON'T.

Bridge No. 55C-103

Date February 5, 1981

DESCRIPTION - HYDRAULICS

Channel A flood control channel with RC slope paved dikes paralleled by a wide natural earth channel.

Navigable: Yes ☐ No ☒ Clearances: Vert. N Horiz. N

MAINTENANCE

Custodian Orange County Owner Orange County

**ORIGINAL
CONDITION RATING**

Deck	<u>8</u>
Superstructure	<u>8</u>
Substructure & Pipes	<u>8</u>
Channel & Channel Protection	<u>8=</u>
Retaining Walls	<u>N</u>
Approach Rdwy. Alignment	<u>9</u>
Estimated Remaining Life	<u>50</u>

**ORIGINAL
APPRAISAL**

Overall	<u>8</u>
Deck Geometry	<u>8</u>
Underclearances	Vert. <u>N</u>
	Horiz. <u>N</u>
Safe Load Capacity	<u>9</u>
Waterway Adequacy	<u>8</u>
Approach Rdwy. Alignment	<u>9</u>

Widenable? Yes ☒ No ☐ Conditional ☐

Action Required by District: Yes ☐ No ☒

AVERAGE DAILY TRAFFIC - 17,000 Estimated 1981

BYPASS DETOUR LENGTH - 6 miles

ENCROACHMENTS - There are 12 transite telephone conduits on suspenders in the north bay. One 10" steel pipeline in 3rd bay from the north.

SEISMIC RETROFIT - Not applicable.

WORK DONE - The previously recommended work has been done.

CONDITION OF STRUCTURE - There are a few transverse deck cracks in the westbound lane in Span 5.

There is up to 5/8" differential settlement in the deck along the open longitudinal construction joint between the old and new structure; this condition may be hazardous to a person on a two wheel vehicle.

Otherwise, the overall condition of the structure is good.

LOAD CAPACITY - The inventory, operating and permit ratings shown were designed in accordance with the 1979 AASHTO Standard Specifications for Highway Bridges utilizing the "Frame Rate" program using the load factor method of analysis.

POSTING RECOMMENDATIONS - None.

E. L. Neff
E. L. NEFF
C 28703

ELN:11
cc: DRHiggins (2)
Orange County (2)

Bridge No. 55C-103

Location 07-ORA-FAU-M036-0, 04-Oran Co.
Dist. Ct. No. 101 City

Date of Investigation July 9, 1976

Name SANTA ANA RIVER (HAMILTON/VICTORIA)

CONDITION RATING:

APPRAISAL RATING:

Deck 7 Superstructure 8 Substr. & Pipes 8 Overall 8
Channel & Channel Protection 8 Retaining Walls 8

Widenable? Yes ☒ No ☐ Conditional ☐

Action Required by ^{County}~~District~~ XXXX Yes ☒ No ☐

This structure is now on Federal-Aid Route FAU M036.

CONDITION OF STRUCTURE:

The condition of deck appears to be unchanged from that described in the investigation and report of October, 1975. There are several areas where the deck surface is spalled over the transverse deck reinforcing steel due to lack of sufficient concrete cover ($\frac{1}{2}$ " or less). Incipient deck spalling is also visible in the areas adjacent to existing spalls where the deck surface is cracked over the reinforcing steel.

Two rail posts, in span 7 in the bridge rail on the downstream side are damaged. The east end post and the rail terminal section have been damaged in the bridge rail on the upstream side.

REVISED PERMIT RATING:

The permit rating is PPPPP/LF.

RECOMMENDATIONS:

1. Remove loose concrete around exposed reinforcing steel in deck surface, abrasive clean it, and provide a protective coating. See suggested repairs in previous recommendations.
2. Repair damage bridge railing.


A. L. Clemence

cc: WJJurkovich
Orange County (2)

DIST	ROUTE	COUNTY	STRU. NO	POSTMILE	RATING	WIDTH-FT	STRU TYPE	YR ORIG CONST			
08		55 C	0103	.	030.0		CGC	60	OCT. 14, 1975		
	RATING FACTOR	PT	SPAN	ULT MOM CAP TOP IN COM	ULT MOM CAP BOT IN COM	POS HS20 MOMENT	NEG HS20 MOMENT	POS PURP MOMENT	NEG PURP MOMENT	DEAD LOAD MOMENT	SECONDARY MOMENT
INV	1.35	5	8	4927.6	1413.4	1220.3	-480.7	1649.8	-601.9	-12.5	0.0
OPER	2.24	5	8	4927.6	1413.4	1220.3	-480.7	1649.8	-601.9	-12.5	0.0
PURP	1.79	5	8	4927.6	1413.4	1220.3	-480.7	1649.8	-601.9	-12.5	0.0

THE NUMBER OF AXLES ON THE TRUCK THAT CAUSES THE PURPLE RATING FACTOR IS 5.
 FC = 1.20 FY = 40.

- 2 HAMILTON STREET BRIDGE - SA-38
- 3 RC TEE BEAM OVER SANTA ANA RIVER & GREENVILLE-
- 4 BANNING CHANNEL - ASSUMED NO AC SURFACING 10/75

AE

AE

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
BRIDGE REPORT
DH-OS M58 (REV. 3/74)

Bridge No. **55C-103**
Other No. **Ora. Co. SA-38**
P.U.C. No. _____
Location **07-Ora-County Road**
Dist - Co - Rte - PM - City
Date of Investigation **October 8 & October 14, 1975**

Name **SANTA ANA RIVER (Hamilton-Victoria)**
Lat. **33° 39'** Long. **117° 57'**

STRUCTURAL DATA AND HISTORY

Year Built **1959** By **County** Contract No. _____

Date of Revisions _____

Designed by: B.D. ☐ **County** Plans Avail. @ **LAND**

Description: **Continuous R.C. "T" beam with R.C. wall piers and abutments; supported on driven concrete piles.**

Spans **1034'-8047'-1034'**
Length **446'** Skew **Rt. 16°** Design LL **H20-S16-44**
Ratings: Inventory **HS27/LF** Operating **HS45/LF** Permit **P-13 / LF**

DESCRIPTION - ON STRUCTURE

Bridge Width **1030'**
Total Width **30'** Lanes **2** Tracks **0**
Median **None** Rail Type **NBGR (1000)**
Vert. Clearance over deck **Unimpaired** Appr. Rdwy. Width **42'**
Wearing Surface **None** Deck Seal **None**
Alignment **Tangent**

DESCRIPTION - UNDER STRUCTURE

Roadway Section **None**
Clearances: Vert. **----** Horiz. **----** Lt. **-----** Rt. **-----**
Lanes **----** Tracks **-----** Pumpplant: None ☒ See Br. No. _____
Facilities Crossed **Santa Ana River & Greenville-Banning Channel**
& Bicycle Trail in Span 2
cc: **Orange County (2)**

Bridge No. 55C-103
Date October 8 & October 14, 1975

DESCRIPTION - HYDRAULICS

Channel Wide natural channel paralleled by flood control channel both protected by earth dikes.
Navigable: Yes ☐ No ☒ Clearances: Vert. _____ Horiz. _____

MAINTENANCE

Custodian _____ County _____ Owner _____ County _____

ORIGINAL
CONDITION RATING

Deck	<u>7</u>
Superstructure	<u>8</u>
Substructure & Pipes	<u>8</u>
Channel & Channel Protection	<u>8</u>
Retaining Walls	<u>8</u>
Approach Rdwy. Alignment	<u>8</u>
Estimated Remaining Life	<u>50</u>

ORIGINAL
APPRAISAL

Overall	<u>8</u>
Deck Geometry	<u>8</u>
Underclearances	Vert. <u>N</u>
	Horiz. <u>N</u>
Safe Load Capacity	<u>5</u>
Waterway Adequacy	<u>8</u>
Approach Rdwy. Alignment	<u>9</u>

Widenable? Yes ☒ No ☐ Conditional ☐

Action Required by District: Yes ☐ No ☒

The structure was investigated on the above dates to determine the present load carrying capacity. The investigation was made at the request of the County of Orange. (Letter from J. W. Williams to J. Kozak dated September 23, 1975.)

WORK DONE:

The deck surface was sounded with a drag chain to detect any subsurface fracturing or delaminations.

Electrical potentials within the deck were measured with a copper-copper sulfate half cell to check active corrosion of the reinforcement. (See California Division of Highways Research Report by R. F. Stratfull entitled "Half Cell Potentials and the Corrosion of Steel in Concrete.") *

CONDITION OF STRUCTURE:

No deck delaminations were found with the drag chain and the half cell potentials recorded indicate no active corrosion in the deck steel.

* CA-HY-MR-5116-7-72-42, November 1972,
Highway Research Record #433, 1973

CONDITION OF STRUCTURE:

There are a few transverse deck bars exposed in the westbound lane in Span 5 and 1 longitudinal main bar is exposed in the eastbound lane at Pier 7. The condition is due to inadequate concrete cover on the steel at these locations. (Less than 1/2")

The deck has some light to moderate transverse cracking on the surface which is more pronounced in Spans 5 and 6 where there is some random cracking. The deck soffit appears to be almost completely free of visible cracks.

The superstructure has no significant defects. The expansion hinges have narrow seats (5") and are not earthquake restrained.

The substructure appears in good condition.

There is a minor concrete spall at the vertical joint between the south wingwall and the west abutment wall.

The metal beam rail on the structure has suffered some minor damage from vehicle impacts. No structural damage was observed at these locations.

ENCROACHMENTS:

There are 12 transite telephone conduits on suspenders in the north bay and a 10" steel pipeline in the south.

CAPACITY RATING:

The condition of the deck does not inhibit the load carrying capacity of the structure. The structure can carry legal loads by design and inspection. Overload calculations using Load Factor methods indicate the structure carry a P-13 overload.

RECOMMENDATIONS:

Although the deck problem is of a minor nature and not likely to deteriorate, repairs can be made as follows:

With a light chipping hammer remove all loose and fractured concrete from the periphery of the exposed section of deck bars.

NOTE: The bars may be completely unbonded where exposed and have loose or broken concrete beneath.

RECOMMENDATIONS:

Abrasive clean the bar and the concrete in the chipped depression.

Fill the depression to deck level or slightly above with fast setting liquid epoxy, and top surface of paste with coarse sand to conform to deck texture.

Estimated Cost: \$300
(Considering only those
bars noted in Sp. 5 & 6)

Original signed by

William Baker
Associate Bridge Engineer
CE #16500

WRB:ah