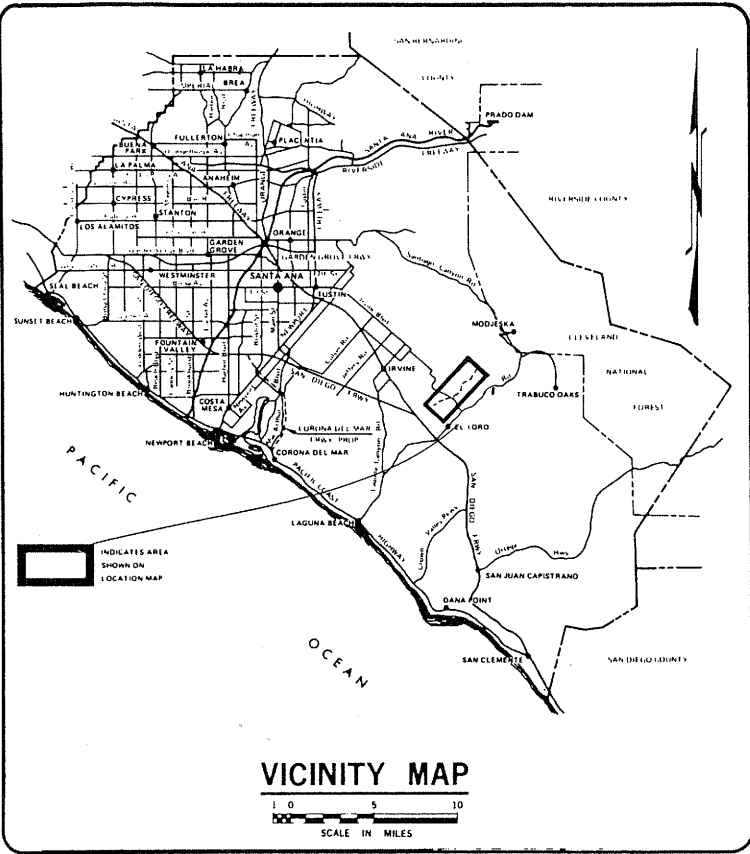


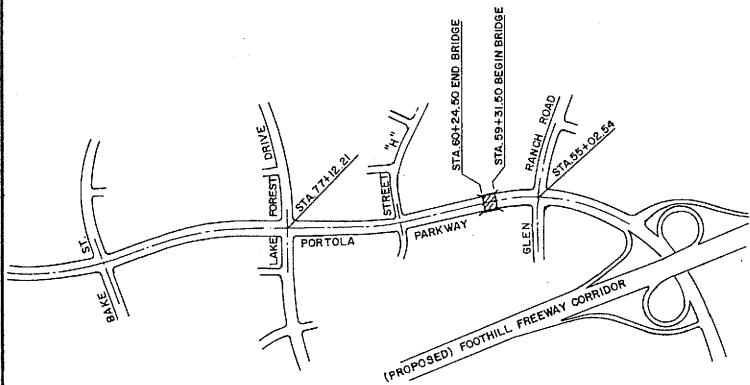
ORANGE COUNTY
ENVIROMENTAL MANAGEMENT AGENCY
SANTA ANA, CALIFORNIA
E. SCHNEIDER, DIRECTOR
PLANS
FOR
CONSTRUCTION
OF
PORTOLA PARKWAY BRIDGE
OVER
SERRANO CREEK
FROM

1687.71 FEET E/O LAKE FOREST DR.
TO
428.96 FEET W/O GLEN RANCH ROAD
TOTAL LENGTH = 0.02 MILES



VICINITY MAP
SCALE IN MILES

PROPOSED BRIDGE LOCATION
Latitude 33°40'20" N
Longitude 117°39'03" W
Calif. Co-ordinate System
Zone 6:
Northing 550,641
Easting 1573,299



LOCATION MAP
Scale: 1"=800'

EMA-TRAFFIC ENGINEERING DIVISION

APPROVED: _____ DATE: _____
R.C.E. _____ EXP. DATE: _____

THIS PLAN IS SIGNED BY EMA/T.E.D. FOR CONCEPT AND ADHERENCE TO COUNTY SIGNING AND STRIPING STANDARDS AND REQUIREMENTS ONLY. E.M.A./T.E.D. IS NOT RESPONSIBLE FOR DESIGN ASSUMPTIONS OR ACCURACY.

FUNDED BY:

COMMUNITY FACILITIES DISTRICT No. 87-4

EMA-PUBLIC WORKS

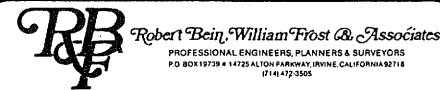
APPROVED FOR CONTRACT ADMINISTRATION

William L. Zann 12-4-89
DIRECTOR OF PUBLIC WORKS



OWNER/DEVELOPER

COUNTY OF ORANGE ENVIRONMENTAL
MANAGEMENT AGENCY PUBLIC WORKS
400 CIVIC CENTER DRIVE WEST
SANTA ANA, CALIF. 92702
(714) 834-2300



UNDER THE SUPERVISION OF:

James W. Bradford Mar. 13/89
JAMES W. BRADFORD S.E. NO. 1020 EXP. 12/92

INDEX OF SHEETS

SHEET	DESCRIPTION
1	TITLE SHEET
2	GENERAL PLAN
3	FOUNDATION PLAN
4	ABUTMENT NO. 1 & ABUTMENT NO. 2 DETAILS
5	SUPERSTRUCTURE DETAILS
6	WINGWALLS & RETAINING WALLS
7	DECK CONTOURS & CAMBER DIAGRAM
8	TYPE 26 MOD. CONCRETE BARRIER
9	REDWOOD BEAM RAILING
10	DECK ACCESS OPENING
11	EARTHWORK PAYMENT, UTILITY OPENING AND UTILITY SUPPORT
12	JOINT SEAL ASSEMBLY, LOG OF BORINGS AND DRAIN TYPE "B"
13	CONSTRUCTION SITE STORAGE AND ACCESS PLAN

UTILITY	CONTACTS	PHONE No.
PAC. BELL TELEPHONE	ROY FUJIMORI	(714) 259-4443
SOUTHERN CAL. EDISON	BILL VANDERZIEL	(714) 458-4440
SOUTHERN CALIF. GAS Co.	DOMINICK SORINO	(714) 364-2170
IRVINE RANCH	CHUCK BORKMAN	(714) 476-7651
UNDERGROUND SERVICE ALERT		(800) 422-4133

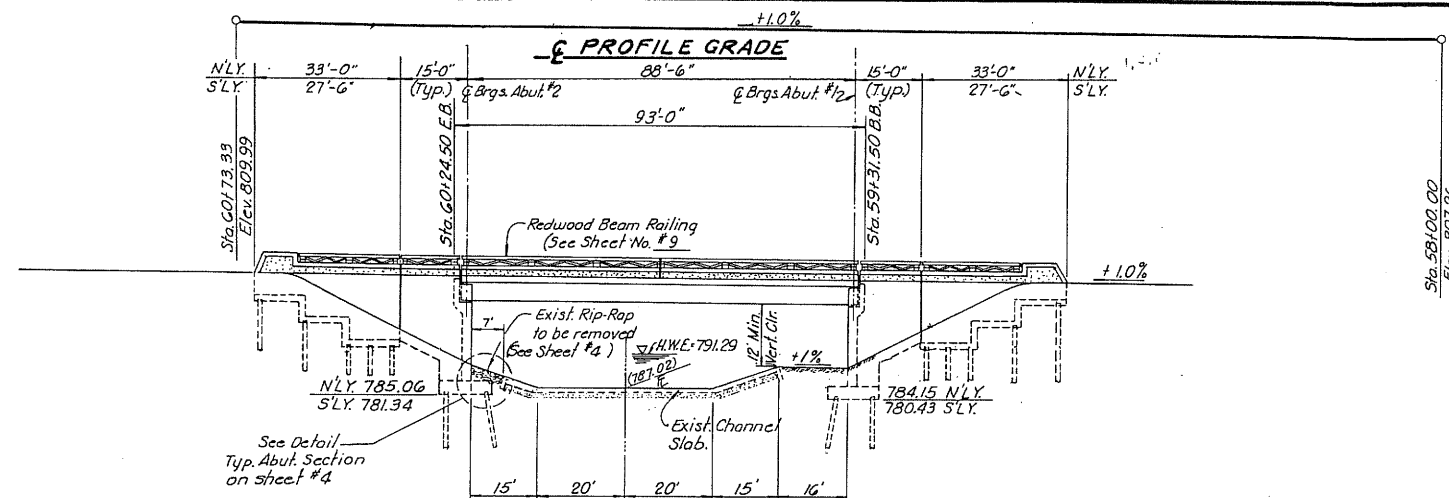
BENCH MARK:
35.95 78 ON THE NORTHERLY SIDE OF TRABUCO ROAD AT ITS JUNCTION WITH PASEO SOMBRA 7.7 FEET NORTH OF THE EASTERN MOST CURB RETURN OF TRABUCO 15 FEET NORTHWEST OF THE STREET SIGN POST. 17.6 FEET SOUTH OF THE SERRANO PARK STONE SIGN AT THE ANGLE POINT OF THE SIDEWALK AND THE ASPHALT WALKWAY. SET IN TOP OF A CONCRETE POST. FLUSH WITH WALK. ELEV. 432.58 ADJ. 1976

BASIS OF BEARING:
"STATE OF CALIFORNIA LAMBERT COORDINATE SYSTEM-ZONE III" BASED ON THE LINE BETWEEN ORANGE COUNTY SURVEYOR'S HORIZONTAL CONTROL STATIONS "3-1-12-68" AND "CAÑADA" (OCS 1-1-75 DATUM) BEING N77°20'41"E

NO.	DESCRIPTION	SHT.	APPROVED	DATE
REVISIONS				

W.O. NO. TD 0300
DWG. NO. _____

SHEET 1 OF 13

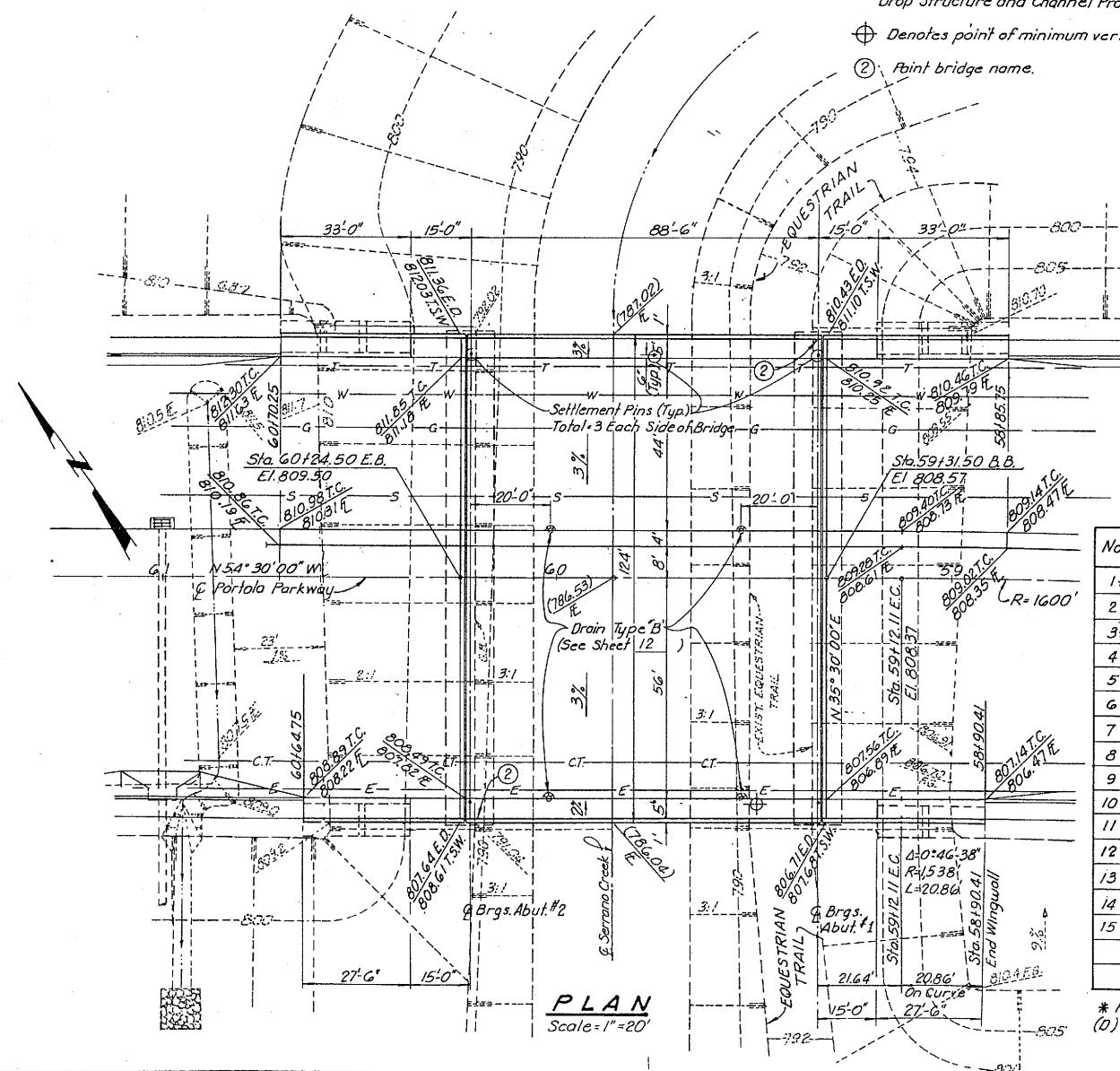


N.L.Y. ELEVATION
Scale: 1"=20'

NOTES:

- 1- For Footing Elevations of Retaining Walls See Sheet No. 6.
- 2- Channel Slab to be constructed Summer of 1989 by others. Maximum Channel Slab Loading shall not exceed 1200 p.s.f. For Channel Slab reinforcing details see sheet no. 4.
- 3- Drop Structure and Channel Protection Plans "R.B.F. J.N. 24931."

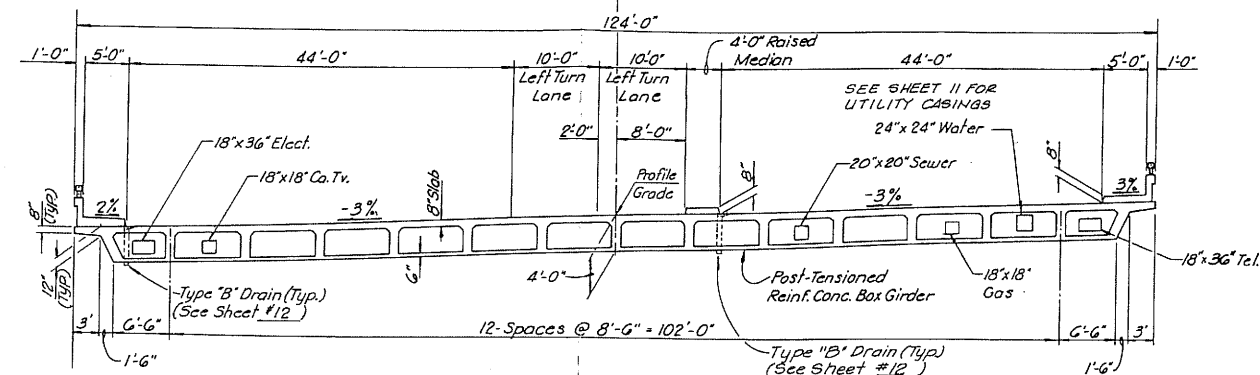
- ⊕ Denotes point of minimum vertical clearance. (See Plan)
- ② Point bridge name.



QUANTITY ESTIMATES

No.	Item	Quantity
1*	Structure Concrete $f_c = 3250$ p.s.i.	940 C.Y.
2*	Structure Concrete $f_c = 4500$ p.s.i.	700 C.Y.
3*	Bar Reinforcing Steel	326,000 Lbs.
4	Structure Excavation	1,450 C.Y.
5	Structure Backfill	3,700 C.Y.
6	Furnish HP 12 x 74 Steel Piles ($F_y = 50$ ksi)	8,140 L.F.
7	Furnish HP 12 x 74 Steel Piles ($F_y = 36$ ksi)	1,540 L.F.
8	Drive HP 12 x 74 Steel Piles	192 Ea.
9	Prestressing Concrete	1 L.S.
10	Redwood Beam Railing	322 L.F.
11	Joint Seal Assembly	248 L.F.
12	Pervious Backfill	403 C.Y.
13	Miscellaneous Steel	2,500 Lbs.
14	Concrete Barrier	358 L.F.
15	Utility Encasement and Support (206 L.F.) (D)	1 L.S.

* Final Pay Quantities
(D) Deletable Item



SPECIFICATIONS:

- Design** — AASHTO Design Specifications for Highway Bridge Dated 1983 with subsequent revisions and additions from the State of California Department of Transportation Bridge Design and Detail Manuals.
- Construction** — State of California Department of Transportation Standard Specifications Dated January 1988 and The Special Provisions.
- Dead Load** — Includes 35 p.s.f. for Future Wearing Surface.
- Live Load** — HS 20-44 and Alternate and Permit Design Loads (P13)
- Seismic Loads** — Causative Fault: Whittier-Elsinore, Maximum Credible Richter Magnitude 7.5, Distance to Fault: 11 Miles NE, Depth to Rock-Like Material 10' to 80' Maximum Credible Peak Rock Accel. "A" = 0.41g, Method Used: Response Spectrum Max. Mode Shape No. 3
- Piles** — Abutments #1 and #2 HP 12 x 74 (A.S.T.M. Grade A572, $F_y = 50$ ksi) 70 Ton Steel Piles, Retaining Walls HP 12 x 74 (A.S.T.M. Grade A36, $F_y = 36$ ksi) 45 Ton Steel Piles.
- Reinforcement** — Embedment is clear to the outside of the bar and is 2" to Main Reinforcement except as shown. Back for hooks is four bars diameter except as shown. Where reinforcement bars are spliced: Lap 45 bar diameters minimum for #3 - #8 Lap 60 bar diameters minimum for #9 - #11
- Concrete** — Superstructure (Bridge Deck) $f_c = 4,500$ p.s.i. at 28 days.
All other Concrete - 3,250 p.s.i. (Includes Abutments, Wingwalls, Retaining Walls, Barriers, Sidewalks, Median, Etc.)
- Reinforcement** — $F_y = 60,000$ p.s.i. (A.S.T.M. A615 Grade 60 Steel)
- Prestressing Strands** — $F_y = 270,000$ p.s.i. Low Relaxation Strands.
- Pile Driving** — Minimum Driving Energies: Abutment Piles 23,600 Ft.-Lbs. Retaining Wall Piles 17,600 Ft.-Lbs.

PRESTRESSING NOTES

$P_j = 17,900$ kips total at Jacking End. $A_s = P_j / 0.75 f_s$.

Total number of Girders = 15

Concrete: $f_c = 4,500$ p.s.i. at 28 days. $f_{ci} = 3,500$ p.s.i. at time of stressing (Minimum of 10 days after Deck Placement)

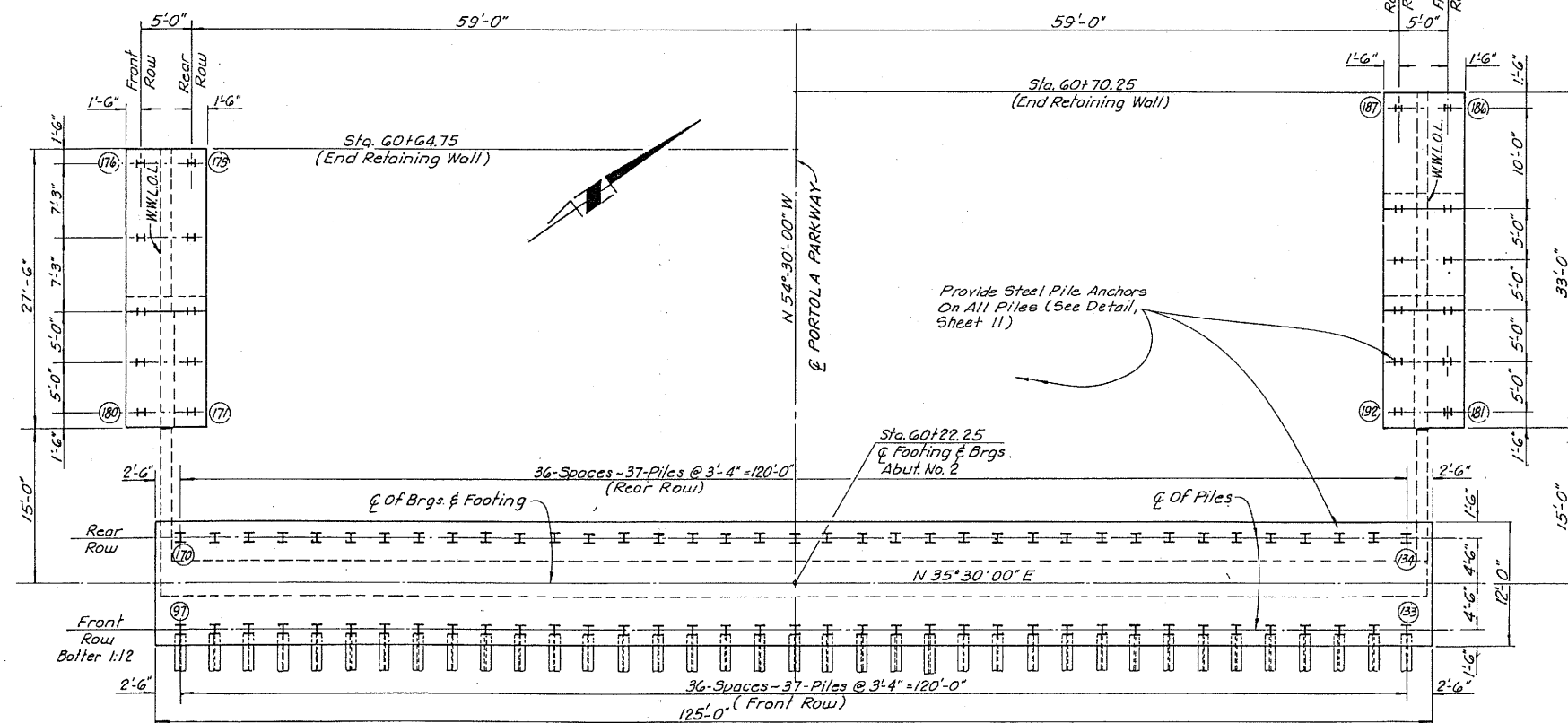
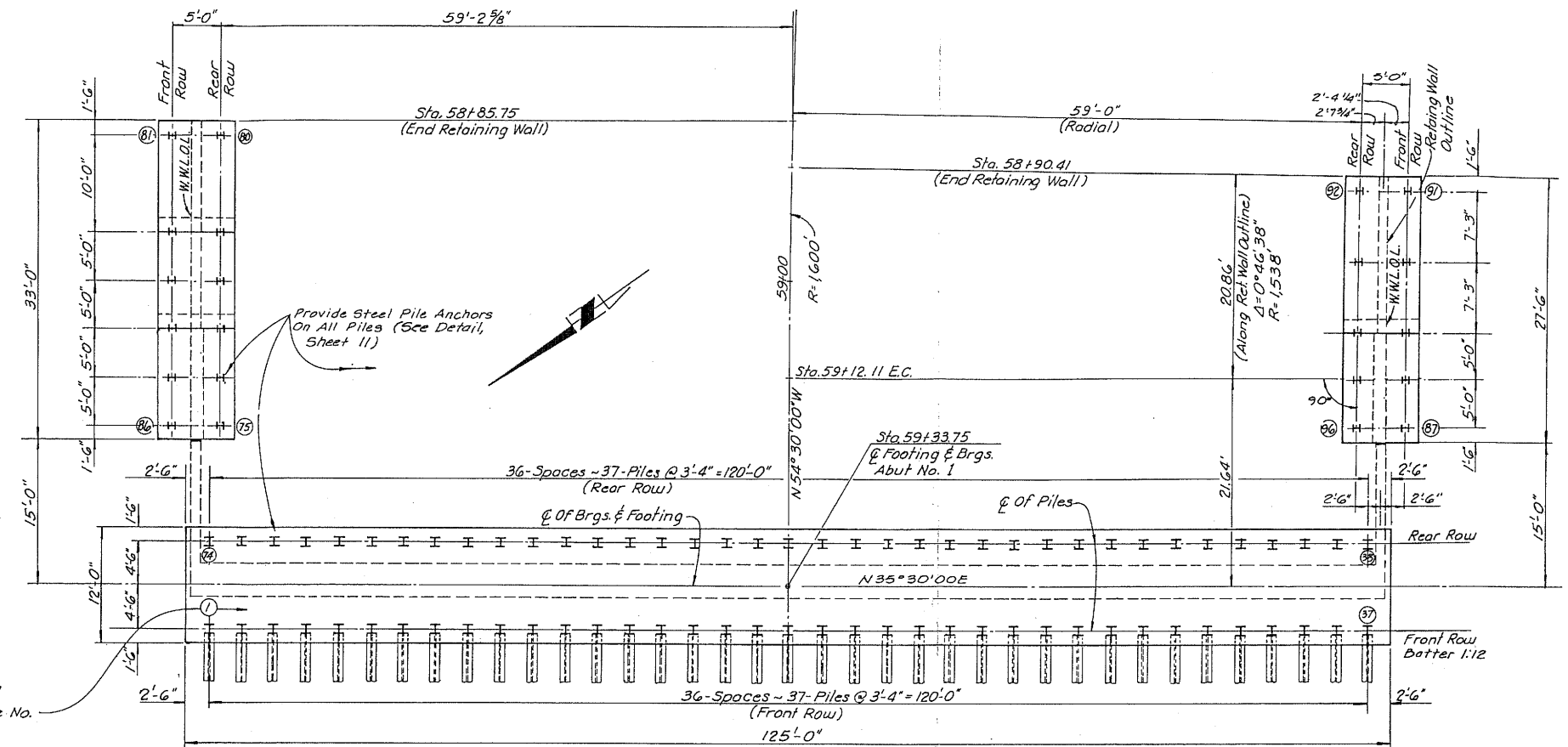
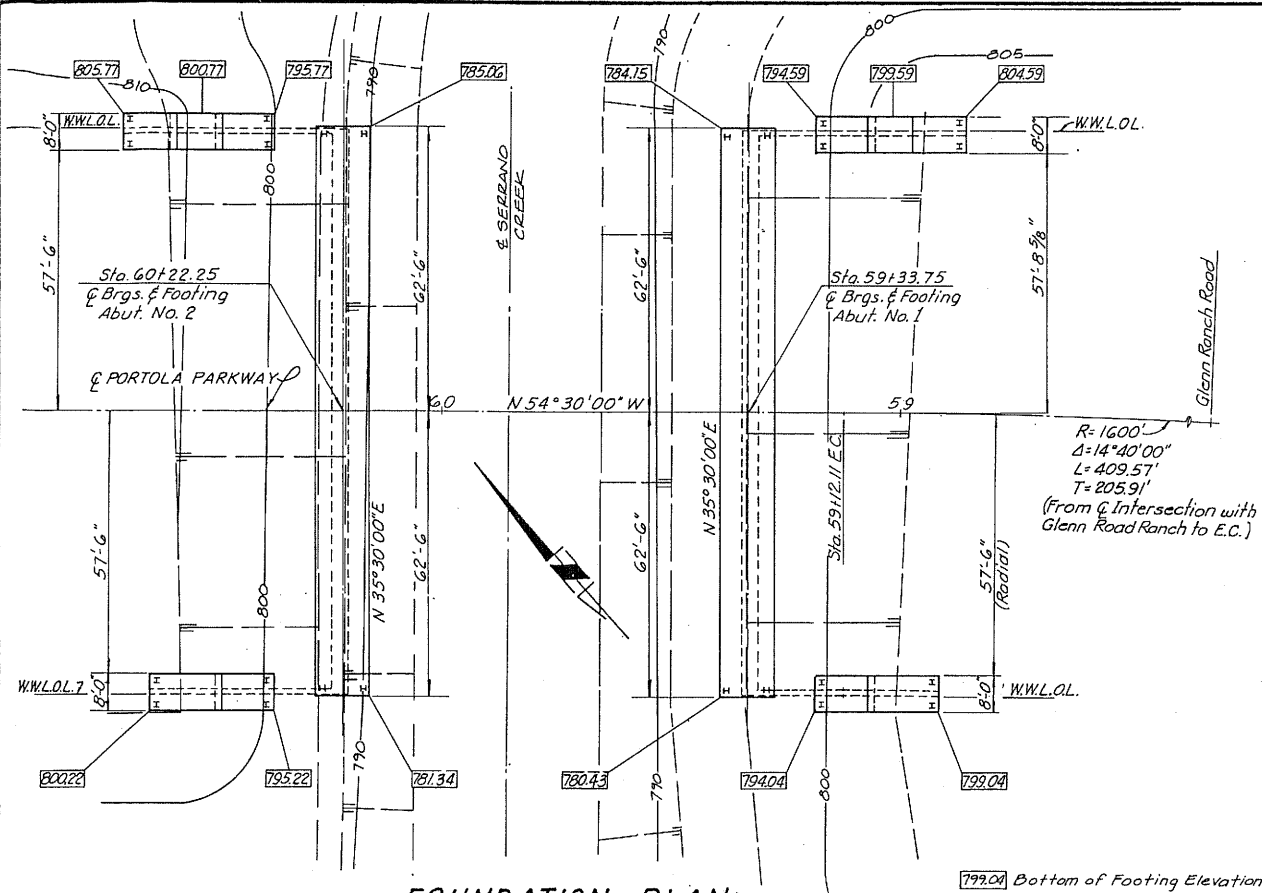
- 1- Design is based on $U = 0.25$ and $K = 0.0002$. P_j specified at jacking end includes friction losses & provision for 20,000 psi. loss in stress.
- 2- Tendons to be jacked to 0.75 f_s and anchored at an equivalent anchor set $5/8$ ".
- 3- Contractor to submit elongation and jacking calculations based on initial force coefficient being 0.950 at Sta. 59+33.75
- 4- Stressing shall be performed from right end - Abutment #1.

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



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(714) 472-3505

ORANGE COUNTY ENVIRONMENTAL MANAGEMENT AGENCY			
PORTOLA BRIDGE OVER SERRANO CREEK			
GENERAL PLAN			
MARK	DATE	DESCRIPTION	PREPARED UNDER SUPERVISION OF
DESIGNED	W. RESHAD	SCALE	DATE
DRAWN	J. SALDANA	CHECKED	J.W.B.
SHEET 2 OF 13		DWG. NO.	



ESTIMATED PILE DATA

LOCATION	NQ	PILE TYPE	AVERAGE CUT-OFF-ELEV.	AVERAGE TIP ELEV.	ESTIMATED LENGTH	GRADE OF PILE STL.
Abutment #1	74	70 Ton	783.42	728 * 728 **	55' * 55' **	Grade A572 Fy=50ksi
Abutment #2	74	70 Ton	783.42	728 * 728 **	55' * 55' **	Grade A572 Fy=50ksi
Abutment #1 NLY Ret. Wall	12	45 Ton	800.00	765 * 765 **	35' * 35' **	Grade A36 Fy=36ksi
Abutment #1 SLY Ret. Wall	10	45 Ton	796.96	762 * 762 **	35' * 35' **	Grade A36 Fy=36ksi
Abutment #2 NLY Ret. Wall	12	45 Ton	801.19	766 * 766 **	35' * 35' **	Grade A36 Fy=36ksi
Abutment #2 SLY Ret. Wall	10	45 Ton	798.14	763 * 763 **	35' * 35' **	Grade A36 Fy=36ksi

The information provided above is given for contractor's aid in estimating the work, and for the comparison of bids. The tip elevation given is a geotechnical estimate. Piles shall be driven to minimum depth as required by the Special Provisions and subject to the approval of the Engineer.

AS-BUILT PILE DATA

LOCATION	AVERAGE CUT-OFF-ELEV.	AVERAGE TIP ELEVATION	AVERAGE STROKES HEIGHT	AVERAGE BLOWS PER FT.	APPARENT BRG. (TONS)
Abutment #1					
Abutment #2					
Abut #1 NLY R. Wall					
Abut #1 SLY R. Wall					
Abut #2 NLY R. Wall					
Abut #2 SLY R. Wall					

- Notes:**
- The Data above is to be used by the Engineer to record the actual pile driving conditions and bearing encountered during construction.
 - The portion of piles embedded in concrete, pile cap or footing and 1'-0" (minimum) below the pile cap or footing shall be coated with coal tar epoxy per Manufactures Specifications. The entire upper portion of the piles including the perimeter of the pile anchor holes shall be coated with coal tar epoxy after all pile driving operations are completed. Do not coat pile anchor bars.
 - At least one (1) indicator pile shall be installed at each abutment to determine pile driveability and blow counts.

Pile Driver Make & Model: _____
Driving Action: _____
Rated Energy: _____
Ram Weight: _____
Max. Stroke: _____
Bearing Formula: _____

* = Front Row
** = Rear Row

Denotes 1:12 Battered Piles

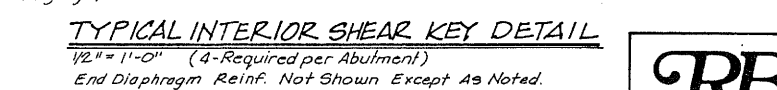
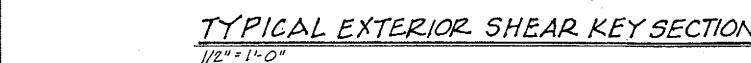
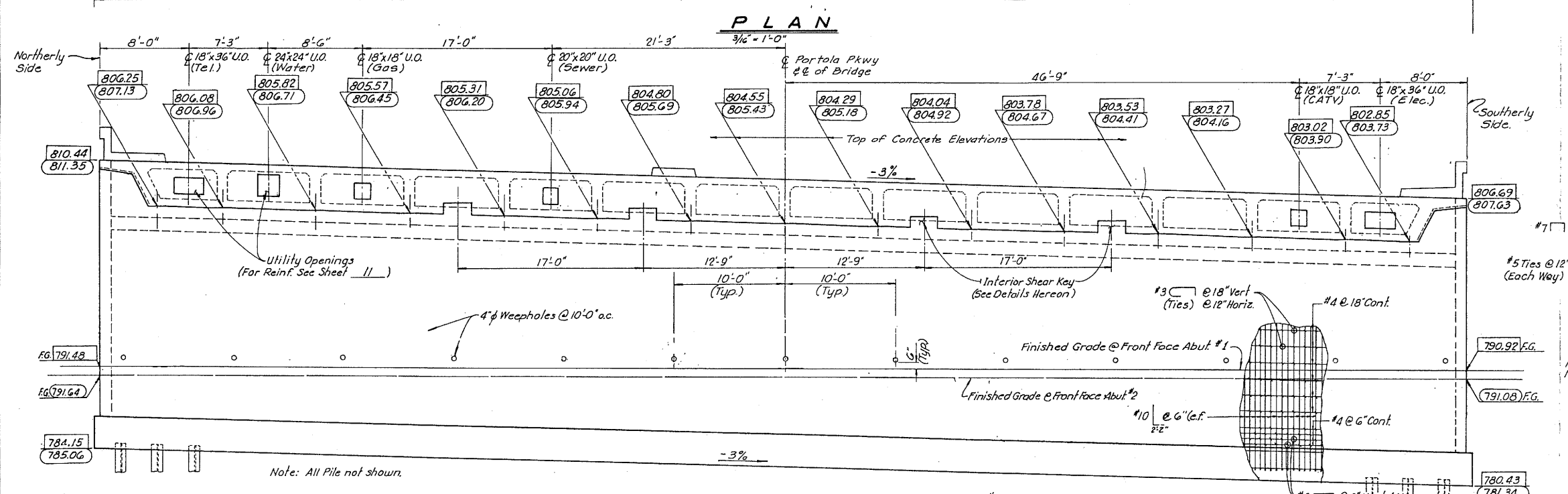
Denotes Vertical Piles

Denotes Bottom of Footing Elevations

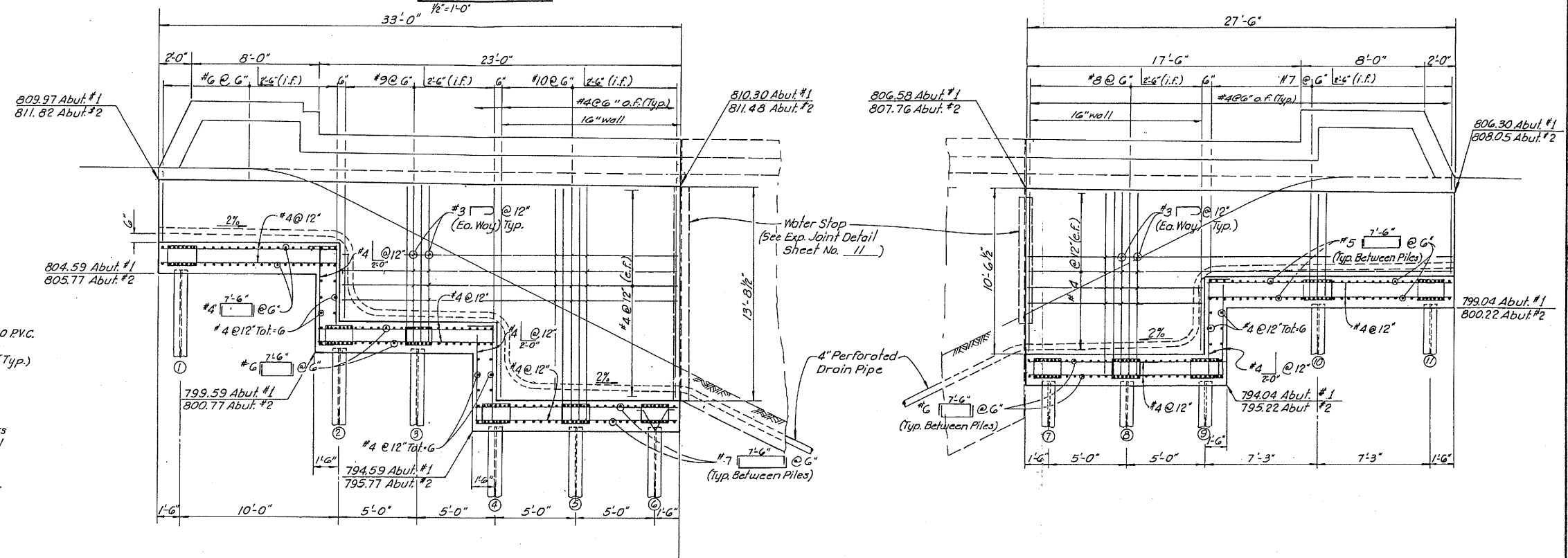
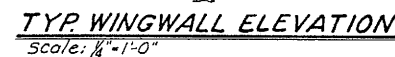
1 1/2 0 2
3 inches on original drawing

Robert Bein, William Frost & Associates
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(714) 472-3555

ORANGE COUNTY ENVIRONMENTAL MANAGEMENT AGENCY		PORTOLA BRIDGE OVER SERRANO CREEK		FOUNDATION PLAN	
MARK	DATE	DESCRIPTION	PREPARED UNDER SUPERVISION OF	DATE	SHEET
DESIGNED	W. RESHAD	SCALE	AS SHOWN	DATE	OF
DRAWN	J. SALDANA	CHECKED	J.W.B.	DWG. NO.	13



			ORANGE COUNTY ENVIRONMENTAL MANAGEMENT AGENCY	
			PORTOLA BRIDGE OVER SERRANO CREEK	
			ABUTMENT NO. 1 AND ABUTMENT NO.2 DETAILS	
MARK	DATE	DESCRIPTION	PREPARED UNDER SUPERVISION OF	SHEET
REVISIONS			1. <i>Revised</i> 8/18/89 JAMES W. BRADFORD DATE	4
DESIGNED W. RESHAD			SCALE	DATE
DRAWN J. SALDANA CHECKED J.W.B.			AS SHOWN	DWG. NO.
				OF 13

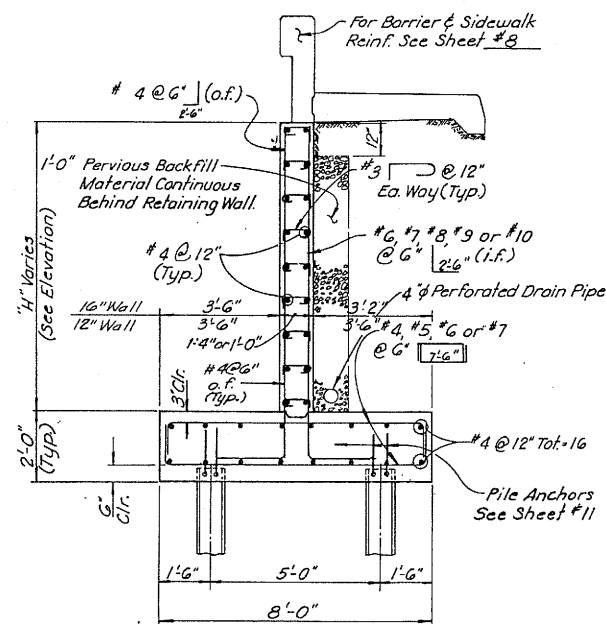


ABUTMENT #1 & #2 N'LY. RETAINING WALLS
Scale: $\frac{1}{4}" = 1'-0"$

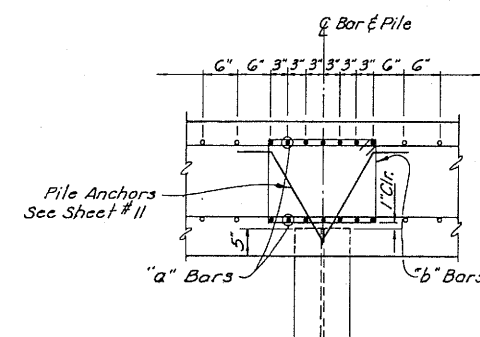
ABUTMENT #1 & #2 S'LY. RETAINING WALLS
Scale: $\frac{1}{4}" = 1'-0"$



LOCATION	ELEV. "A"	ELEV. "B"
<i>Abut. #1 N/y.</i>	<i>810.44</i>	<i>810.30</i>
<i>Abut. #1 S/y.</i>	<i>806.72</i>	<i>806.58</i>
<i>Abut. #2 N/y.</i>	<i>811.35</i>	<i>811.48</i>
<i>Abut. #2 S/y.</i>	<i>807.63</i>	<i>807.76</i>



TYP. RETAINING WALL SECTION
Scale: $\frac{3}{8}" = 1'-0"$



SECTION OVER PILES
Scale: $\frac{3}{4}" = 1'-0"$

SECTION OVER PILE	"a" BARS  TOP & BOTTOM	"b" BARS 
①	7-#5 @ 3"	#4 @ 3"
②③	7-#7 @ 3"	#4 @ 3"
④⑤⑥	7-#9 @ 3"	#5 @ 3"
⑦⑧⑨	7-#7 @ 3"	#4 @ 3"
⑩⑪	7-#6 @ 3"	#4 @ 3"

1 1/2 0 1 2

3 inches on original drawing



ORANGE COUNTY
ENVIRONMENTAL MANAGEMENT AGENCY

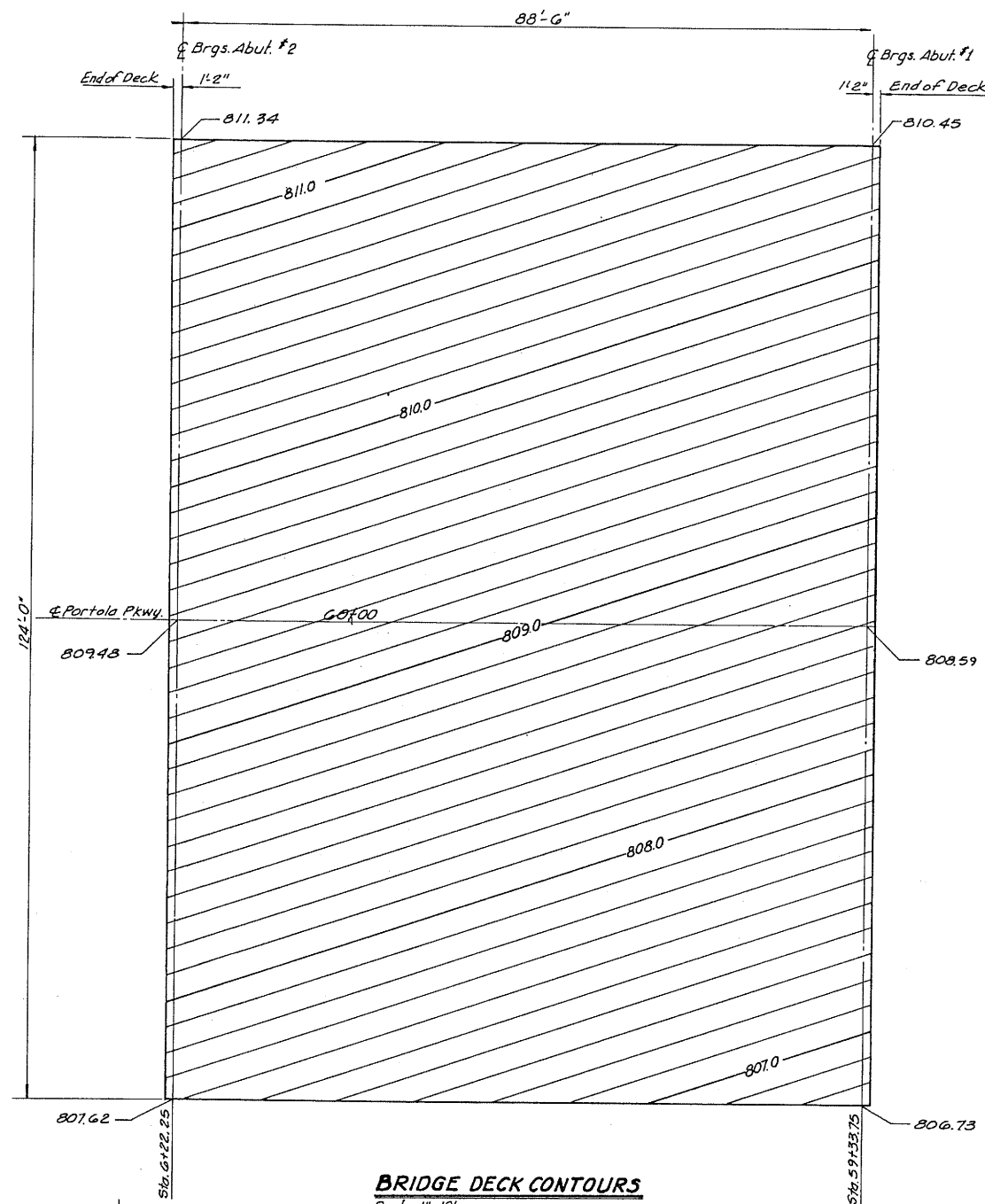
PORTOLA BRIDGE
OVER
SERRANO CREEK

WINGWALLS AND RETAINING WALLS

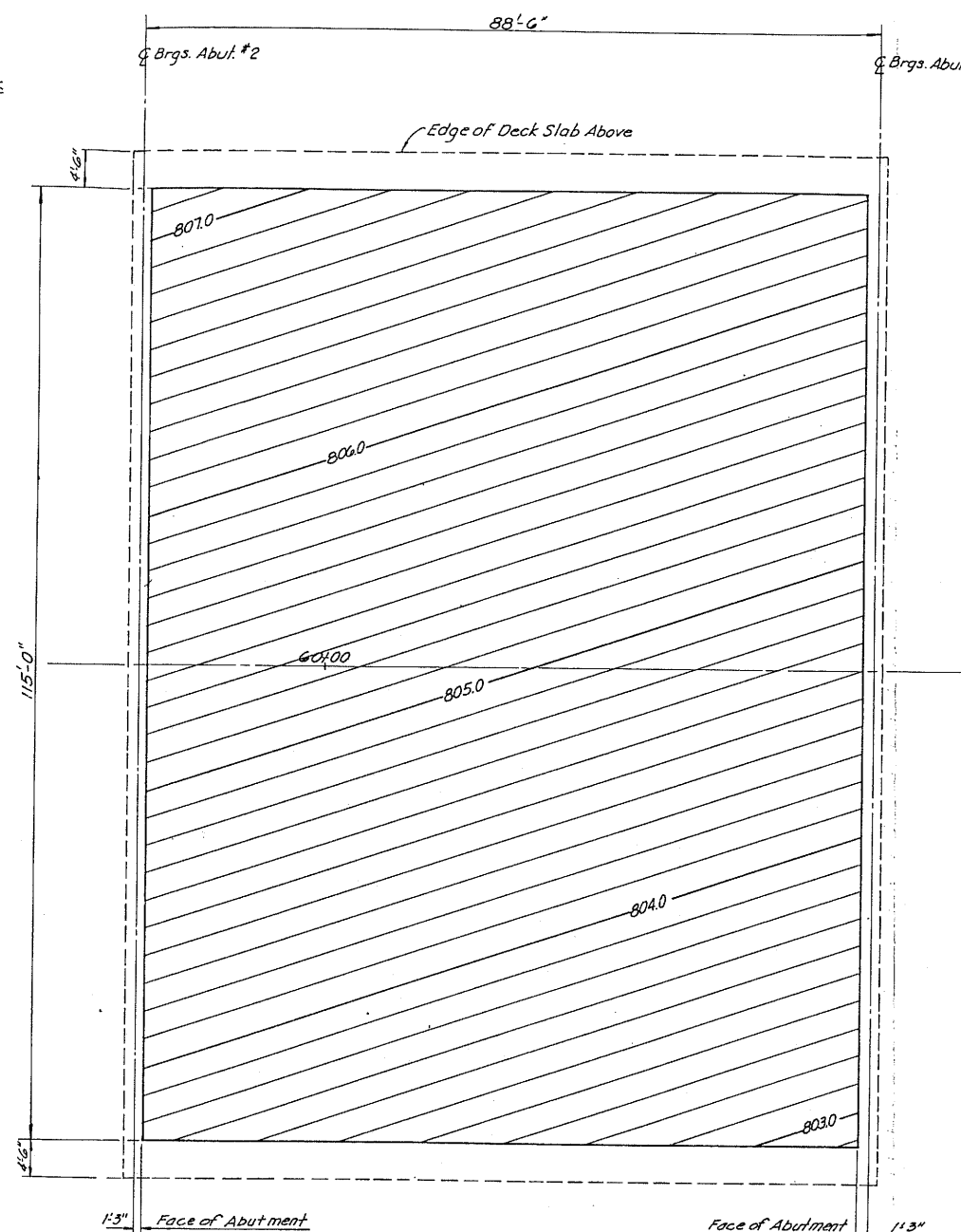
RE

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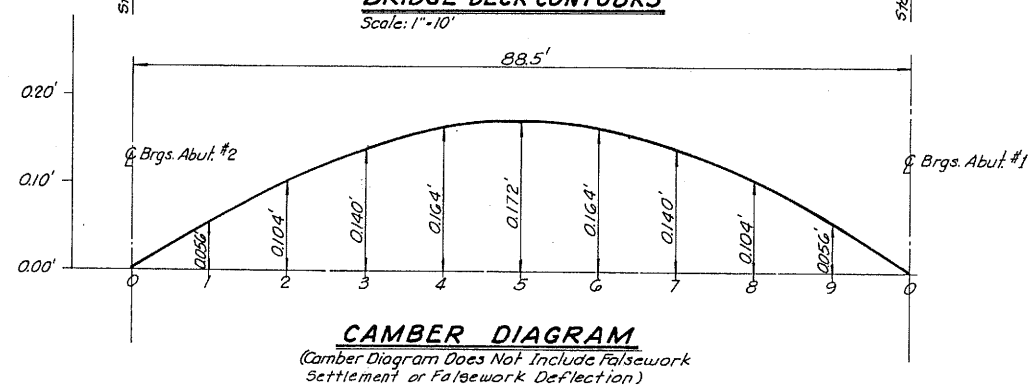
MARK	DATE	DESCRIPTION	PREPARED UNDER SUPERVISION OF	SHEET 6 OF 13
REVISIONS			DATE	
DESIGNED <u>W. RESHAD</u>		SCALE	DWG. NO.	
DRAWN <u>U.S. ALDANA</u>		CHECKED <u>J.W.B.</u>	AS SHOWN	



BRIDGE DECK CONTOURS
Scale: 1"=10'



SOFFIT DECK CONTOURS
Scale: 1"=10'



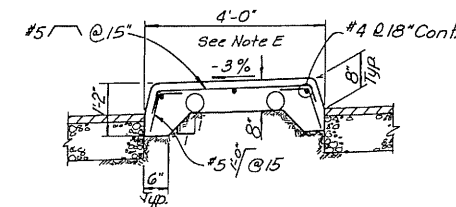
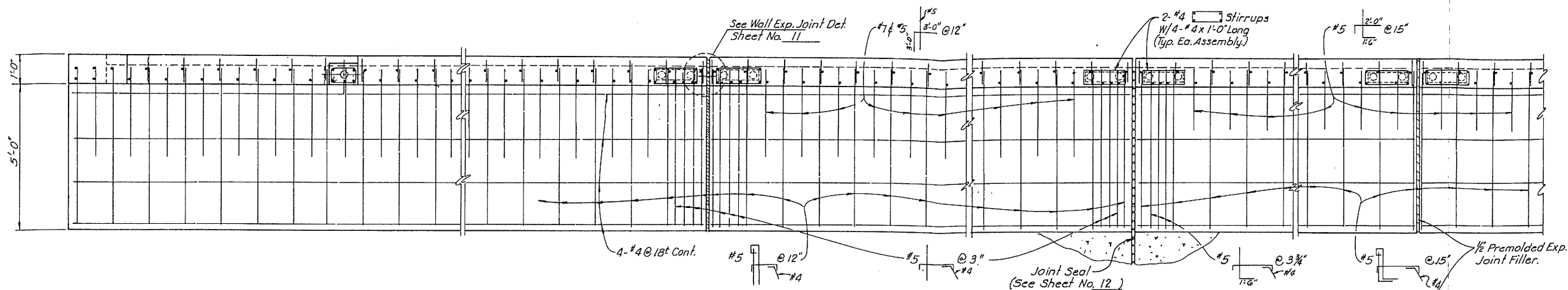
CAMBER DIAGRAM
(Camber Diagram Does Not Include Falsework Settlement or Falsework Deflection)

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

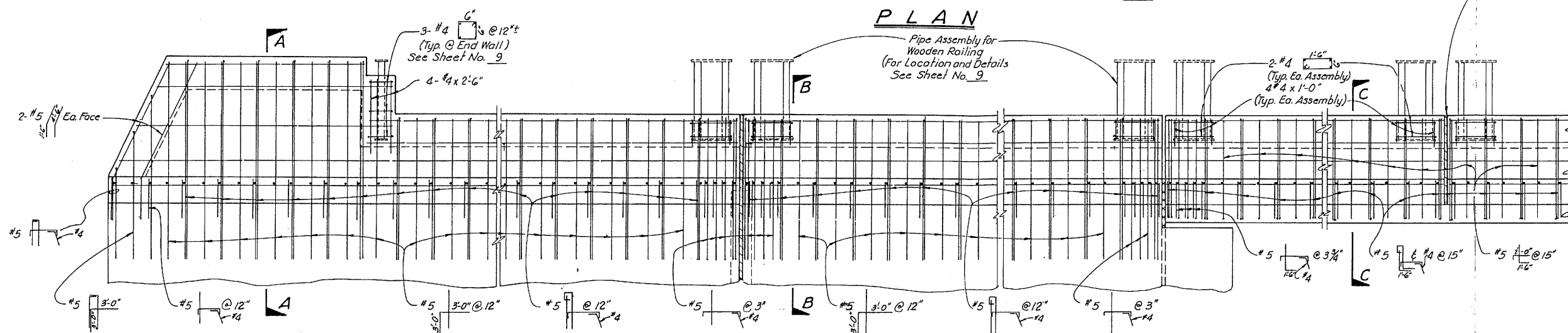


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ORANGE COUNTY ENVIRONMENTAL MANAGEMENT AGENCY			
PORTOLA BRIDGE OVER SERRANO CREEK			
DECK CONTOURS AND CAMBER DIAGRAM			
MARK	DATE	DESCRIPTION	PREPARED UNDER SUPERVISION OF
DESIGNED	W. RESHAD	SCALE	DATE
DRAWN	J. SALDANA	CHECKED	J.W.B.
AS SHOWN			DWG. NO.
			7 OF 13



TYP. MEDIAN OFF BRIDGE SECTION
From Sta. 58+85.75 To Sta. 59+31.50
From Sta. 60+24.50 To Sta. 60+70.25

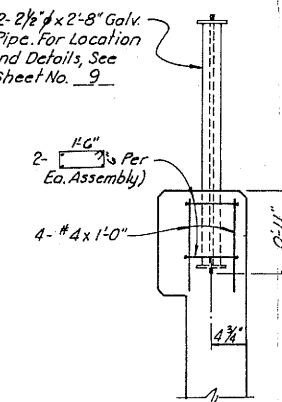


RET. WALL JOINT

DECK SLAB JOINT AT ABUTMENTS

ELEVATION
1/2" = 1'-0"

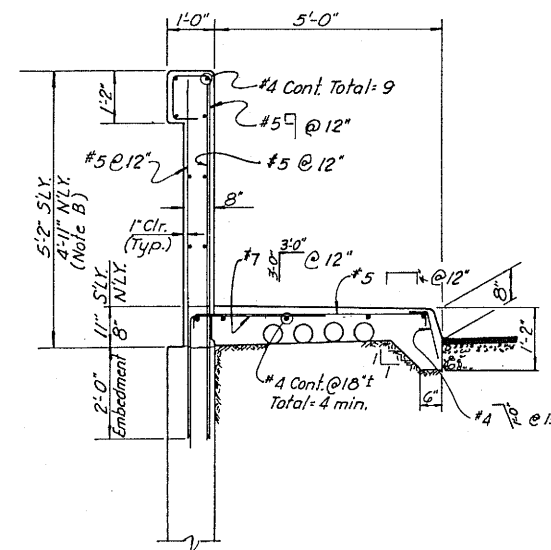
2-2 1/2" x 2-8" Galv. Pipe. For Location and Details, See Sheet No. 9



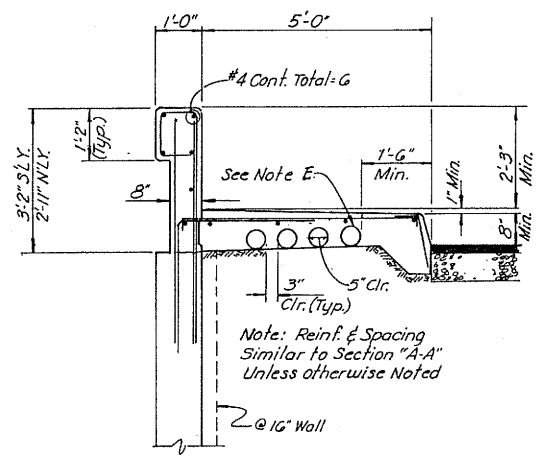
TYP. REINF. DETAIL AT RAIL POST
1" = 1'-0"

- NOTES:**
- A - For wood railing notes and details not shown, see "Wood Hand Railing" sheet No. 9.
 - B - Dimensions will vary with cross slope and with certain thicknesses of surfacing. See Bridge Plans.
 - C - Walls are to be backfilled before railing is placed.
 - D - Clearance to reinforcing steel in curbs and railing to be 1" except as noted. Longitudinal reinforcement to stop at all expansion joints.
 - E - A minimum of 4'-0" @ Sidewalks & 2'-0" @ Median are req. for future utilities. Openings are to be sealed at ends and extended 8' min. past end of sidewalk and medians if not used. Duct forms are to be tied down and spaced @ 3'.

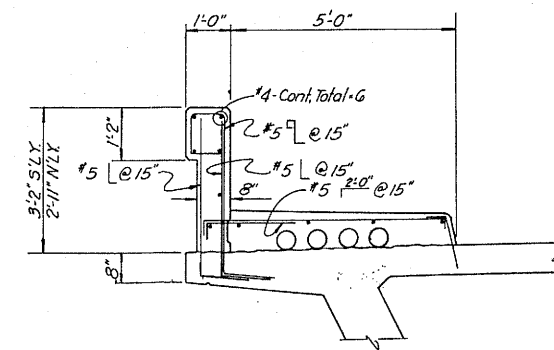
1 1/2 0 1 2
3 inches on original drawing



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



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

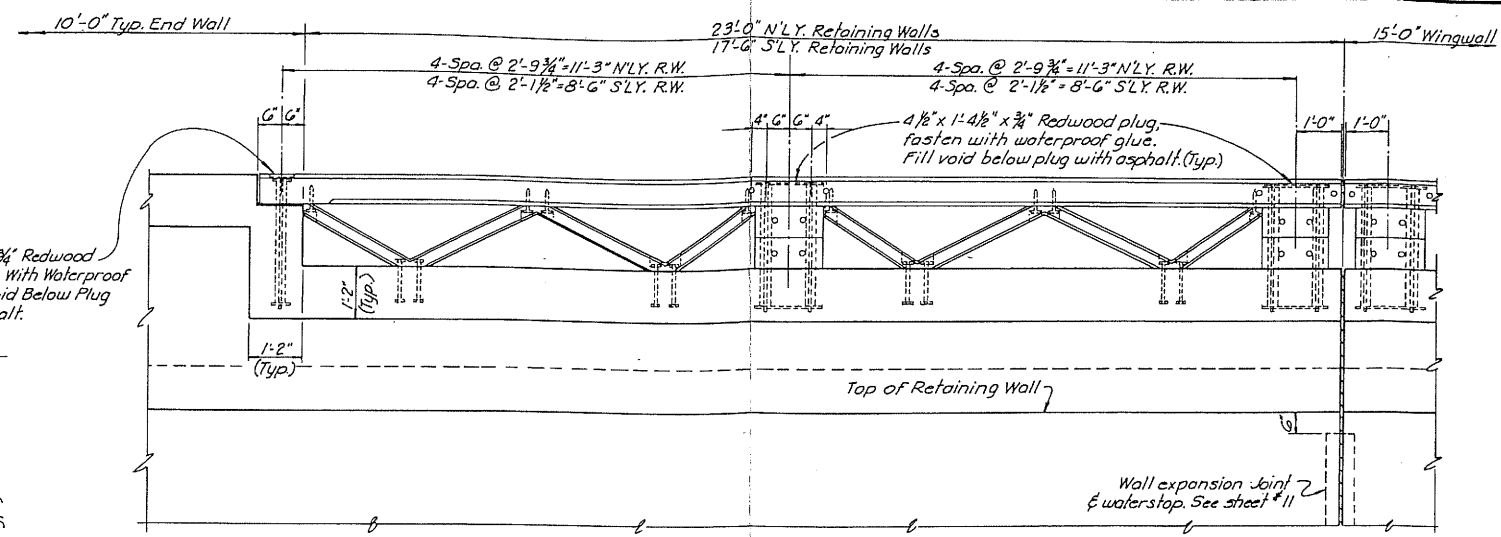


SECTION "C-C"
1/2" = 1'-0"

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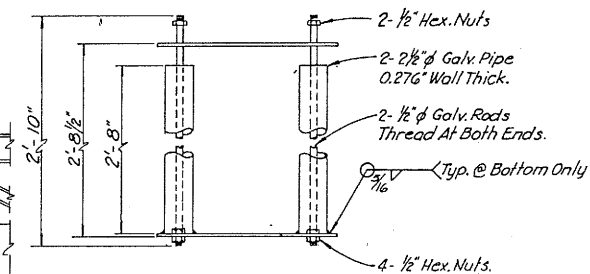
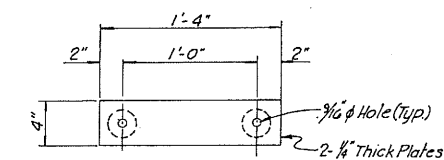


ORANGE COUNTY ENVIRONMENTAL MANAGEMENT AGENCY			
PORTOLA BRIDGE OVER SERRANO CREEK			
TYPE 26 MOD. CONC. BARRIER			
MARK	DATE	DESCRIPTION	PREPARED UNDER SUPERVISION OF
DESIGNED	W. RESHAD	SCALE	DATE
DRAWN	J. SALDANA	CHECKED	J.W.B.
SHEET			8
OF			13



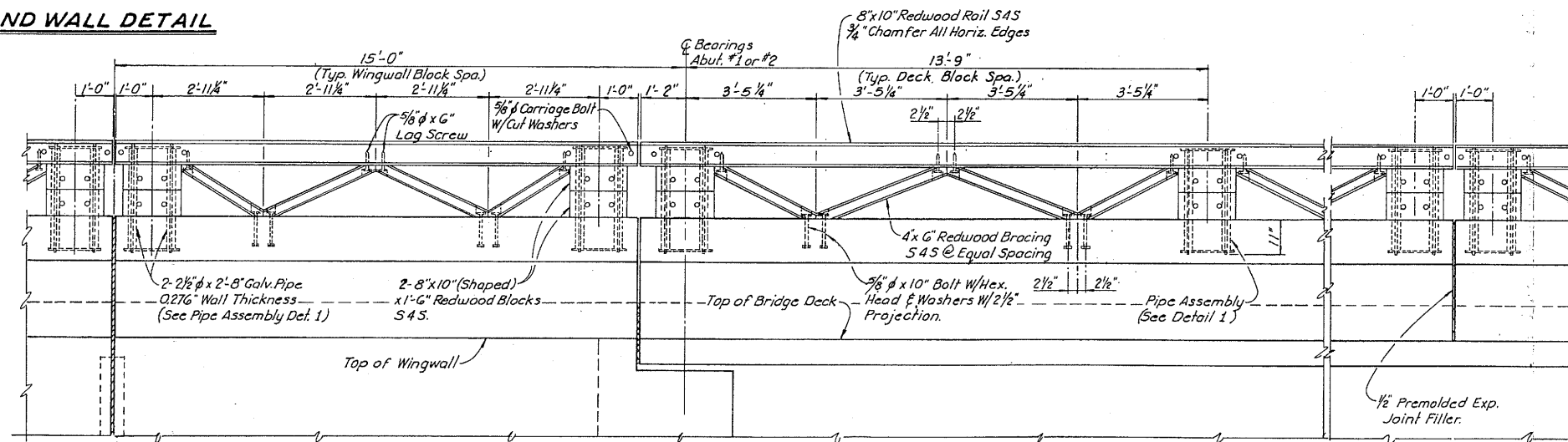
$\frac{1}{2}" = 1'-0"$
(For Information Not Shown See End Wall, Wingwall & Deck Railing Details)

- 1- Countersink all lag screw and bolts at timber connections, do not plug countersinks.
- 2- Posts and rails including diagonal members shall be no. 2 California Redwood with a minimum bending stress $F_b = 1400 \text{ p.s.i.}$ or better.
- 3- All timber connectors shall be galvanized.



DETAIL 1
PIPE ASSEMBLY
1 1/2" = 1'-0"

TYP. END WALL DETAIL
 $\frac{3}{4}" = 1'-0"$



TYP. WINGWALL WOOD RAILING
1/2" x 1'-0"

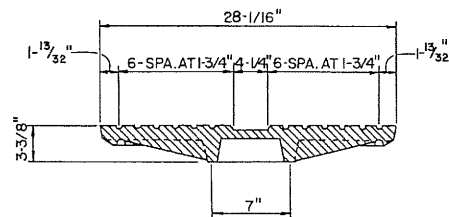
TYP. DECK WOOD RAILING
1/2"=1'-0"

JOINT @ MID-SPAN
1/2" x 1'-0"

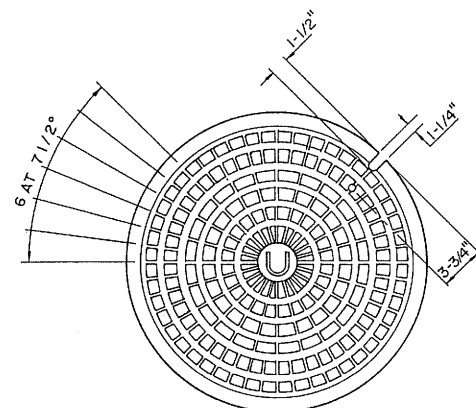


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(714) 472-3505

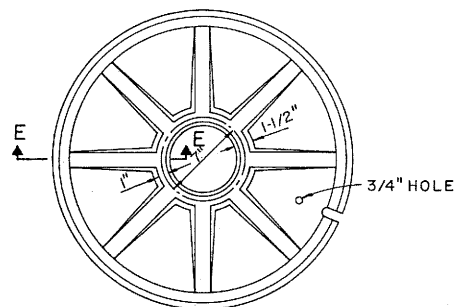
			ORANGE COUNTY ENVIRONMENTAL MANAGEMENT AGENCY	
			PORTOLA BRIDGE OVER SERRANO CREEK	
			REDWOOD BEAM RAILING	
MARK	DATE	DESCRIPTION	PREPARED UNDER SUPERVISION OF	SHEET 9 OF 13
REVISIONS			<i>James W. Bradford 4/15/83</i> JAMES W. BRADFORD DATE	
DESIGNED <u>W. RESHAD</u>			SCALE	
DRAWN BY <u>SAL DANA</u> CHECKED <u>J.W.B.</u>			AS SHOWN	
			DATE	DWG. NO.



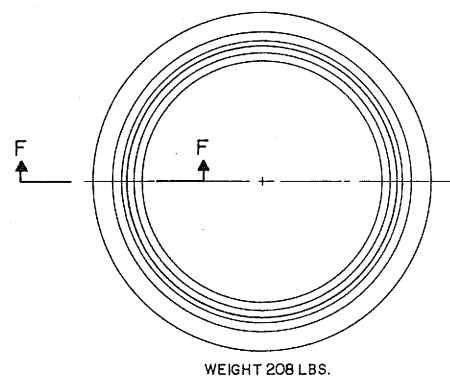
SECTION OF COVER



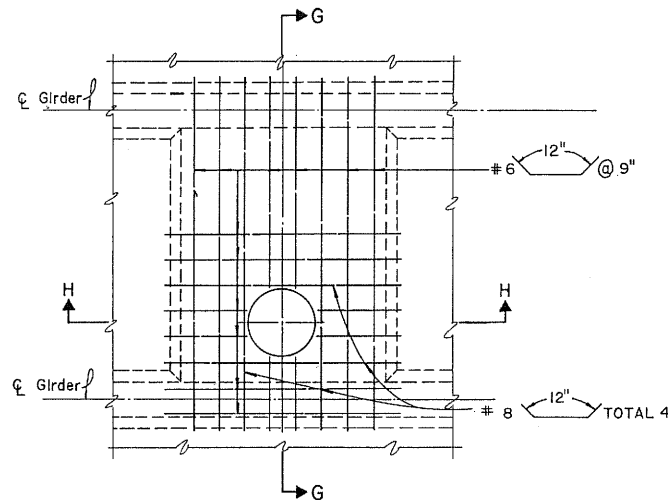
TOP PLAN OF COVER



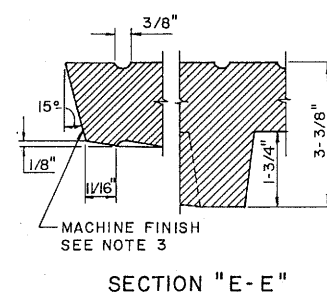
BOTTOM PLAN OF COVER



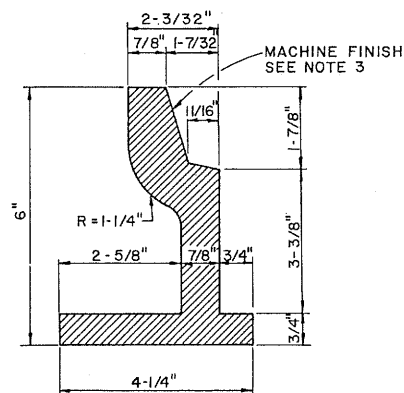
PLAN OF FRAME



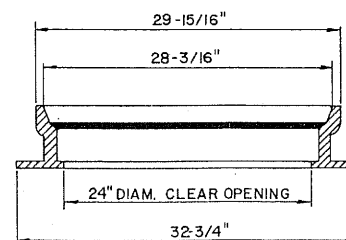
PART PLAN



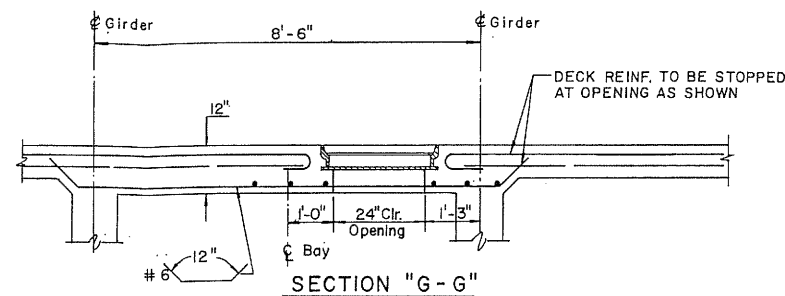
SECTION "E-E"



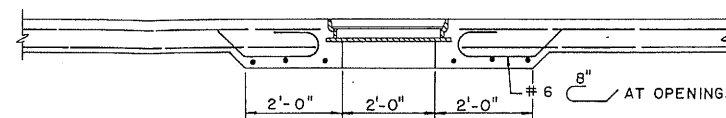
SECTION "F-F"



SECTION OF FRAME



SECTION "G-G"

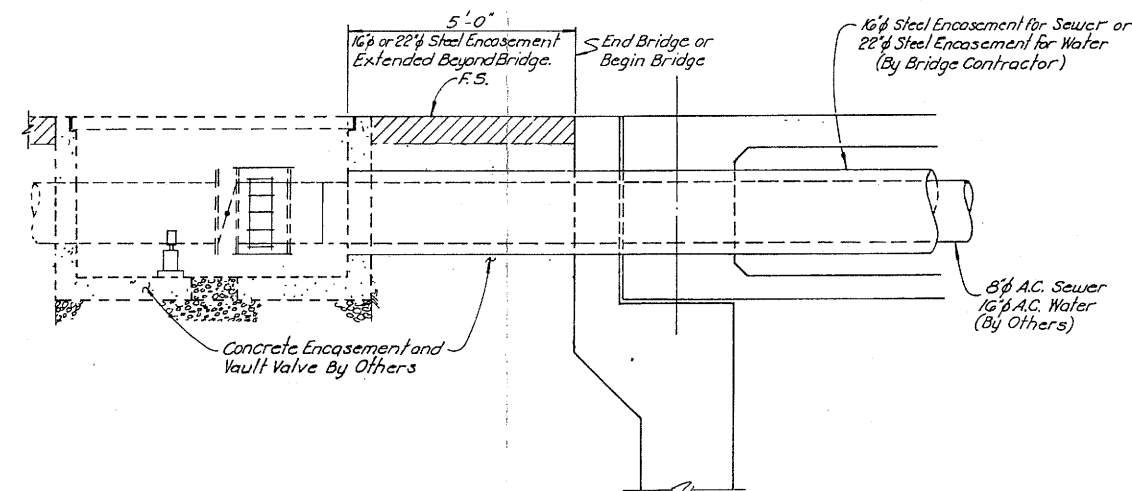


SECTION "H-H"

DECK ACCESS OPENING

NOTES.

- 1 THE MANHOLE FRAME AND COVER SHALL BE MADE OF GRAY CAST IRON.
- 2 ALL PARTS OF THE MANHOLE FRAME AND COVER EXCEPT MACHINED SURFACES SHALL BE COATED WITH ASPHALTUM PAINT.
- 3 THE MANHOLE FRAME AND COVER SHALL BE TESTED FOR ACCURACY OF FIT AND SHALL BE MARKED IN SETS BEFORE DELIVERY. THE COVER SHALL FIT THE FRAME SNUGLY BUT NOT TIGHTLY.
- 4 COVERS FOR USE ON OPENINGS FOR UTILITIES SHALL HAVE THE LETTER "U"
- 5 THE WEIGHTS OF THE FRAME AND COVER SHALL NOT VARY MORE THAN TWO PERCENT FROM THOSE GIVEN HEREON.

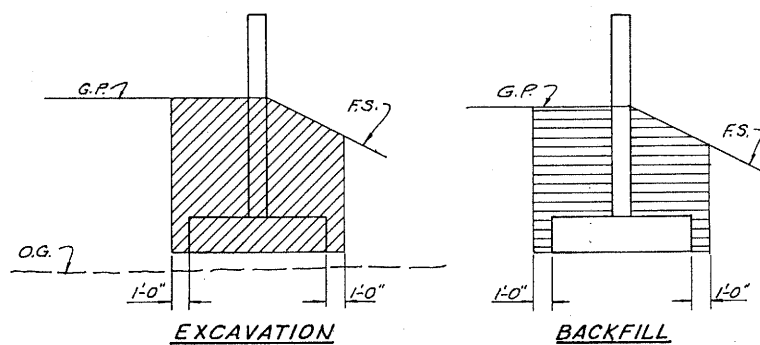
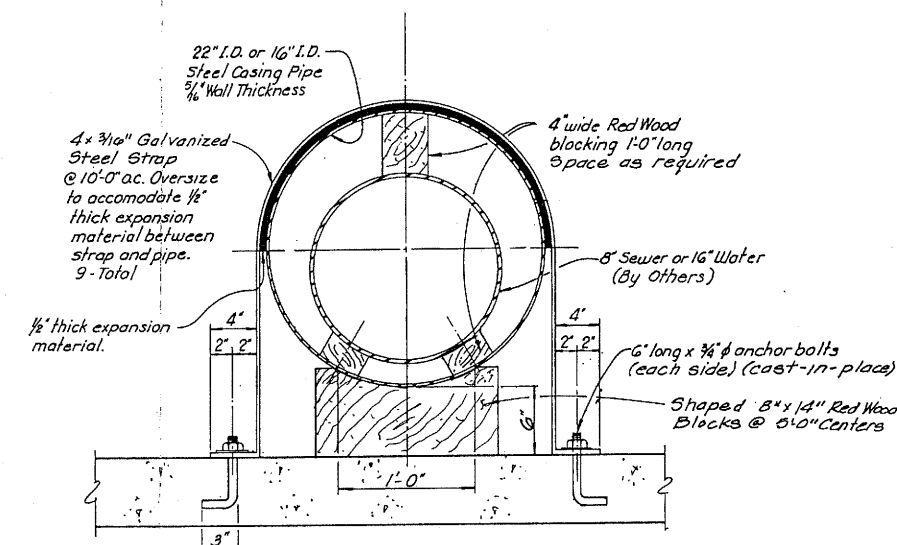
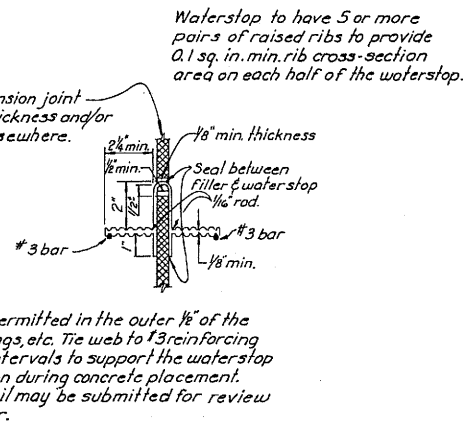
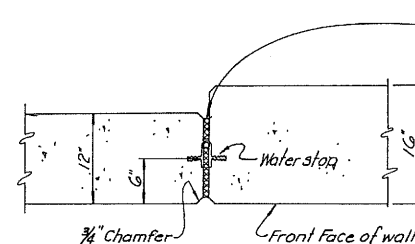
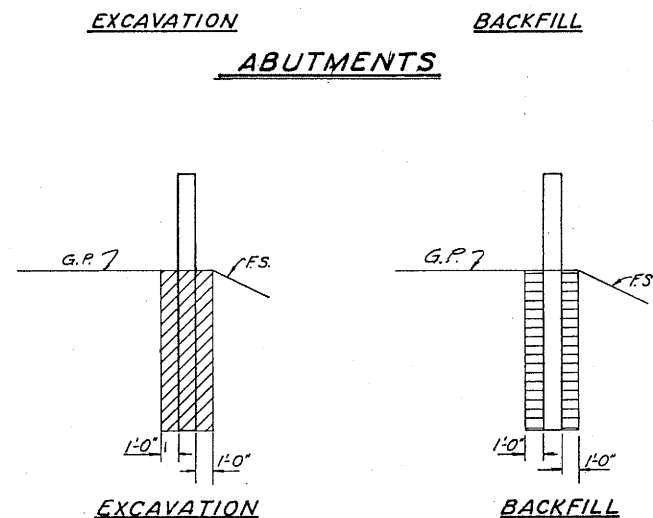
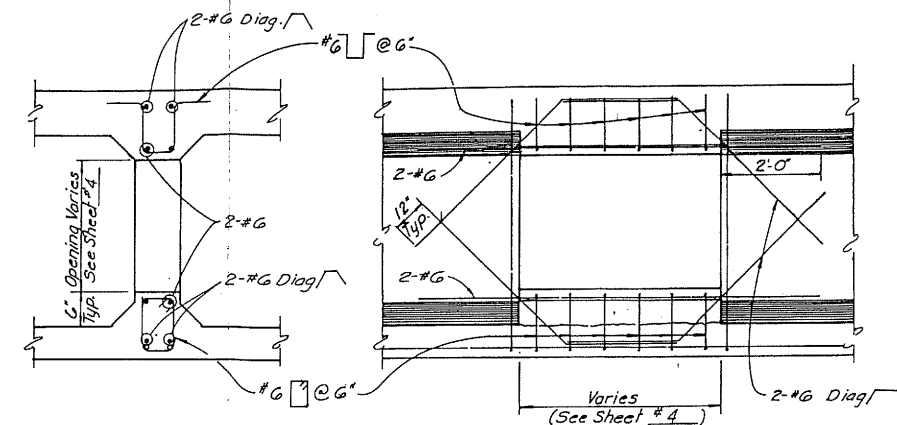
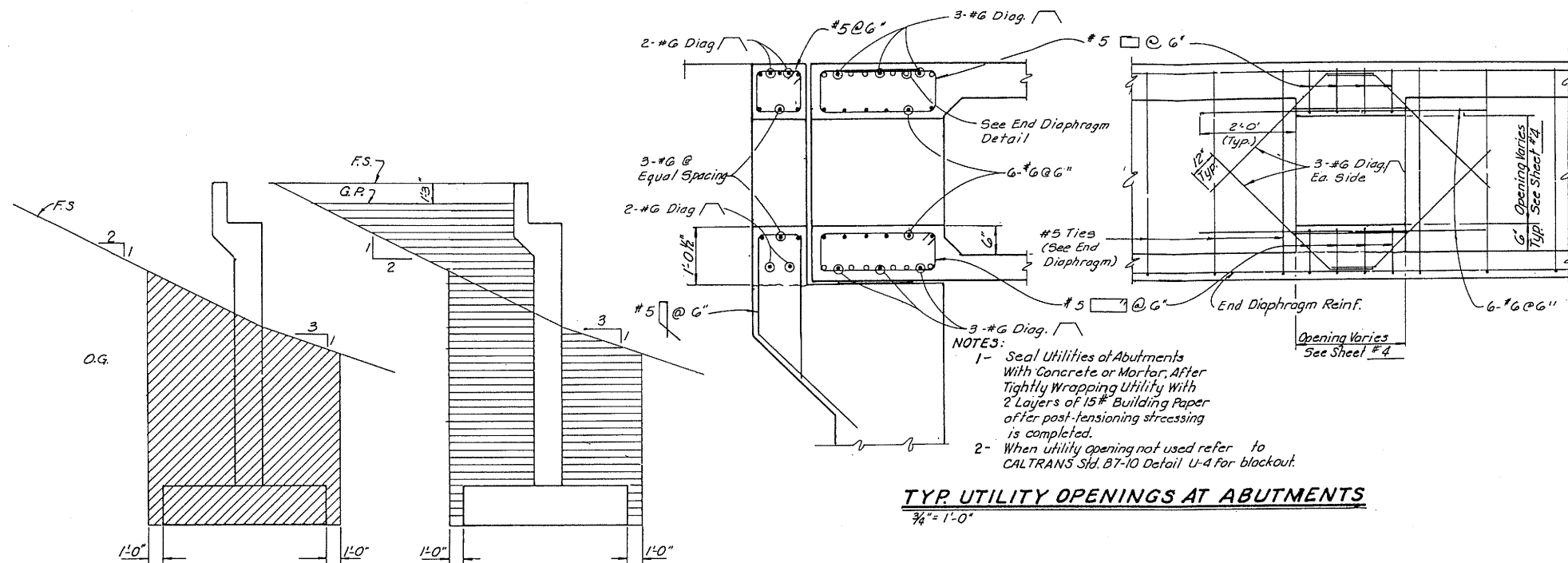


16" OR 22" STEEL CASING EXTENSION
N.T.S.



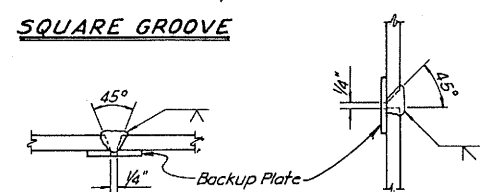
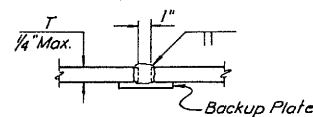
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(714) 472-3505

ORANGE COUNTY ENVIRONMENTAL MANAGEMENT AGENCY			
PORTOLA BRIDGE OVER SERRANO CREEK			
DECK ACCESS OPENING			
MARK	DATE	DESCRIPTION	PREPARED UNDER SUPERVISION OF
DESIGNED	W. RESHAD	SCALE	DATE
DRAWN	J. SALDANA	CHECKED	J.W.B.
AS SHOWN			DWG. NO.
			SHEET 10 OF 13



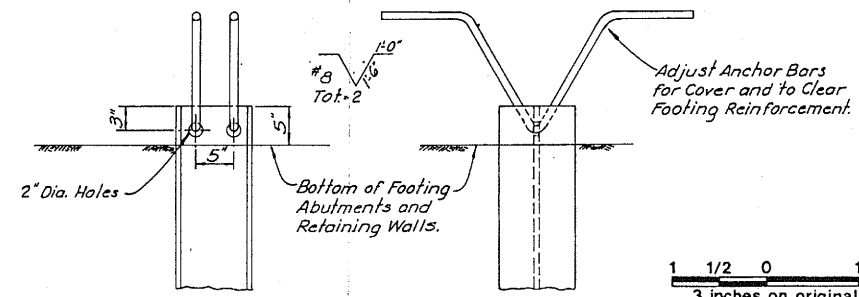
ABBREVIATIONS
 O.G. - Original Ground
 F.S. - Planned Finished Surface
 G.P. - Planned Grading Plane

LEGEND
 Structure Excavation
 Structure Backfill

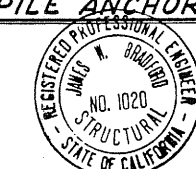


PILE WELDING DETAIL-BUTT JOINTS
 $\frac{3}{4}" = 1'-0"$

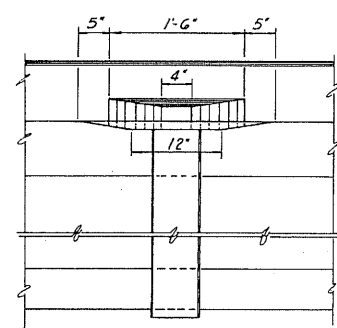
NOTES:
 1- Single Vee-Groove and Square Groove Permitted for all Positions.
 2- Single Bevel-Groove Permitted for Horizontal Joints Only.



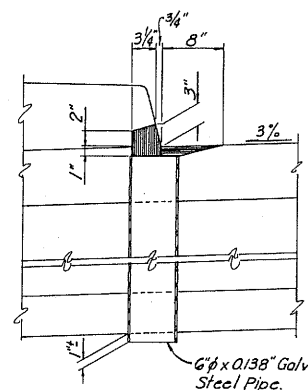
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ORANGE COUNTY ENVIRONMENTAL MANAGEMENT AGENCY			
PORTOLA BRIDGE OVER SERRANO CREEK			
EARTHWORK PAYMENT, UTILITY OPENINGS & UTILITY SUPPORT			
MARK	DATE	DESCRIPTION	PREPARED UNDER SUPERVISION OF
DESIGNED	W. RESHAD	SCALE	DATE
DRAWN	J. SALDANA	CHECKED	J.W.B.
AS SHOWN			DWG. NO.
			DATE
			OF 13

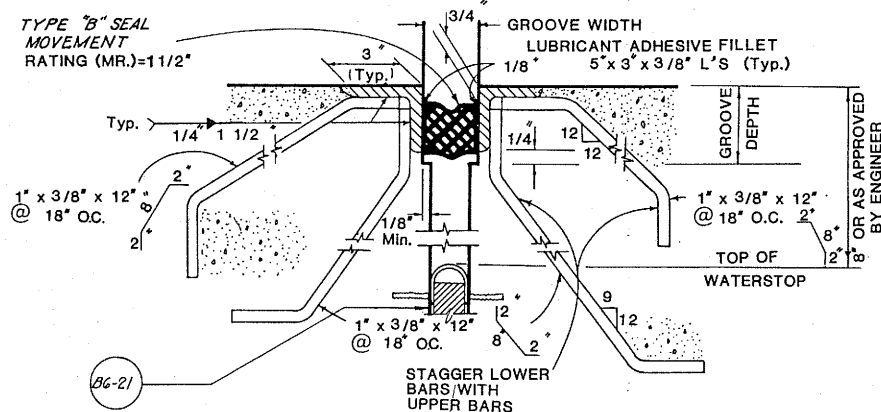


SECTION "B-B"



SECTION "A-A"

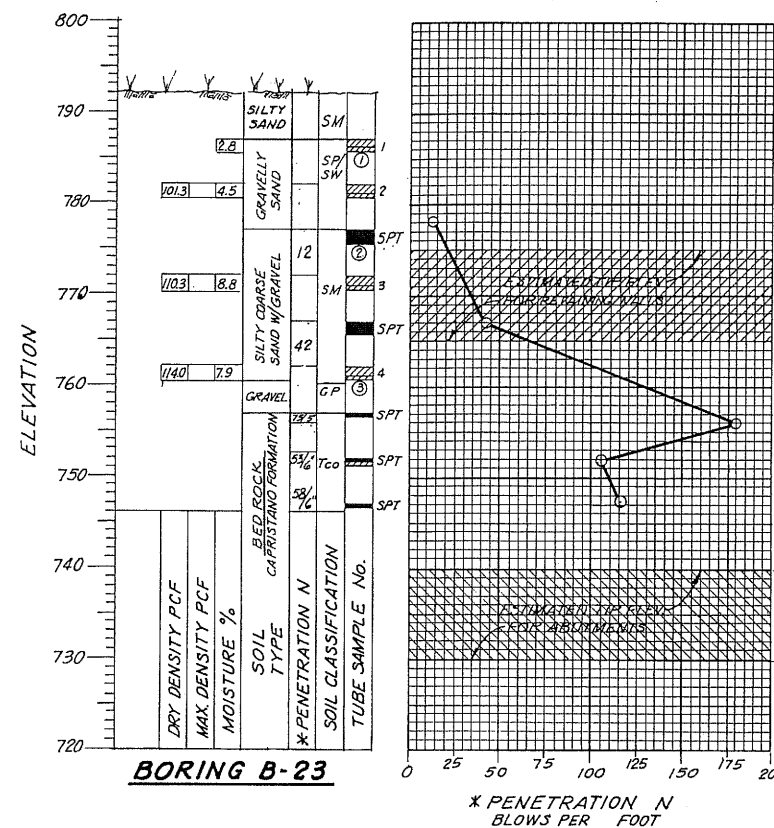
DRAIN TYPE "B"
(At Sidewalk and Median)
1" = 1'-0"



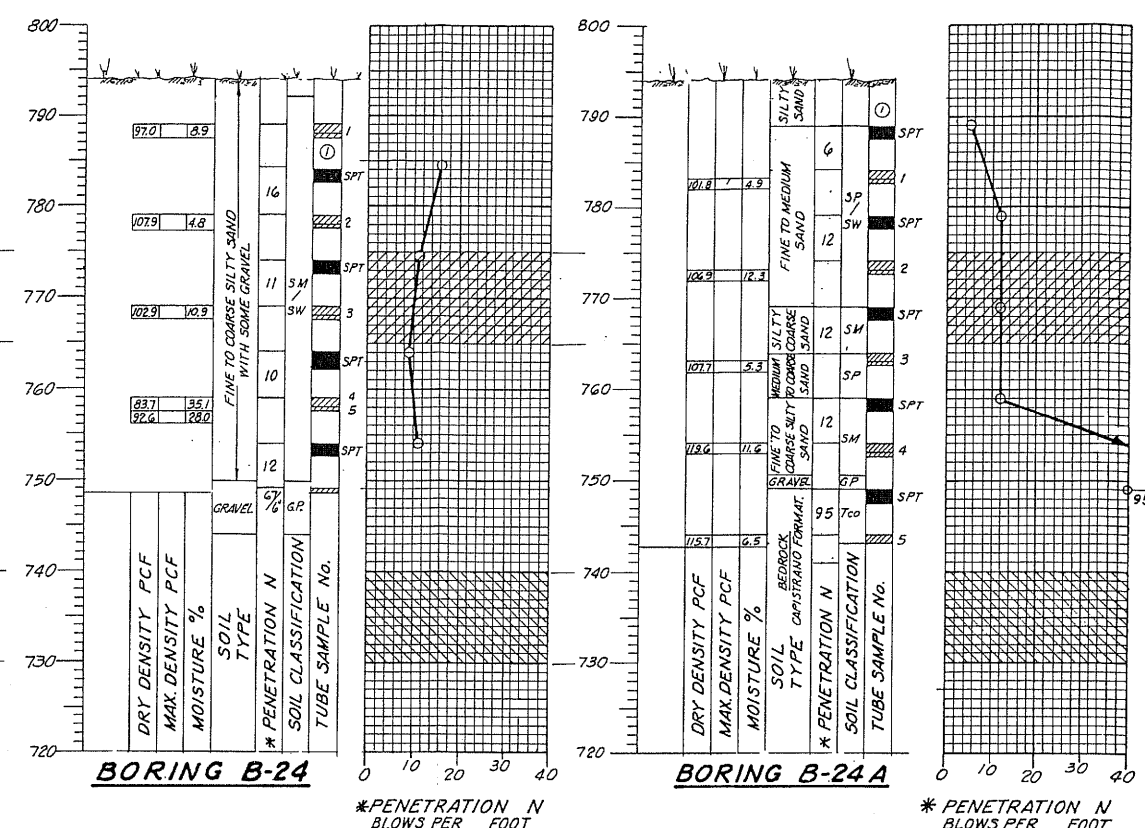
NOTES:

1. FORMED GROOVE WIDTH SHALL BE ORDERED BY THE ENGINEER.
2. FORMED GROOVE DEPTH SHALL BE EQUAL TO OR GREATER THAN THE DEPTH OF THE SEAL MEASURED ALONG THE CONTACT SURFACE, WHEN COMPRESSED TO MINIMUM WIDTH POSITION, PLUS 1/2".
3. MAKE SMOOTH CUTS FROM THE BOTTOM OF SEAL TO 1 1/2" CLR. OF TOP LEAVING AT LEAST ONE COMPLETE CELL BETWEEN THE TOP OF THE CUT AND THE TOP OF THE SEAL. WHEN NECESSARY CUT BACK OF SEAL TO CLEAR CONDUIT.

TYP. JOINT SEAL ASSEMBLY

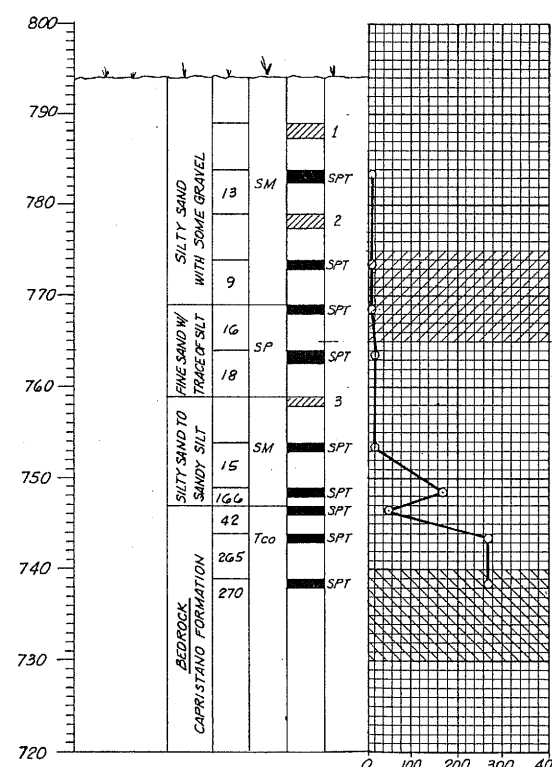


BORING B-23



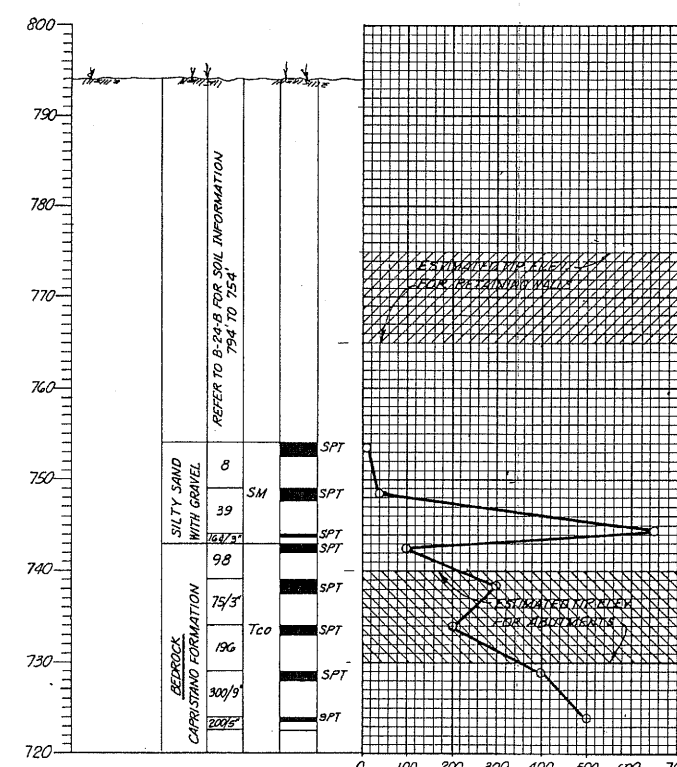
BORING B-24

BORING B-24A

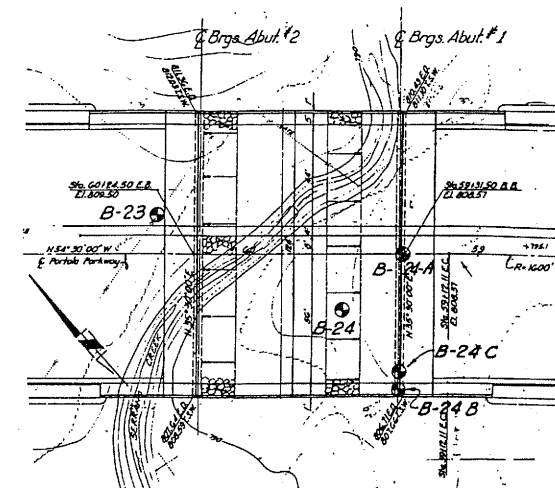


BORING B-24 B

NOTE: Refusal at 738'
Drill Bit Damaged.



BORING B-24 C



LOCATION OF BORINGS

Scale: 1" = 40'

ORANGE COUNTY
ENVIRONMENTAL MANAGEMENT AGENCY

PORTOLA BRIDGE
OVER
SERRANO CREEK

JOINT SEAL ASSEMBLY
LOG OF BORINGS
AND DRAIN TYPE "B"

MARK	DATE	DESCRIPTION	PREPARED UNDER SUPERVISION OF	SHEET 12 OF 13
REVISONS			<i>James W. Bradford</i> JAMES W. BRADFORD DATE	
DESIGNED <u>W. RESHAD</u>			SCALE	
DRAWN <u>J. SAL DANA</u> CHECKED <u>J. W. B.</u>			DATE	DWG. NO.
AS SHOWN				

SHEET
12
OF
13



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