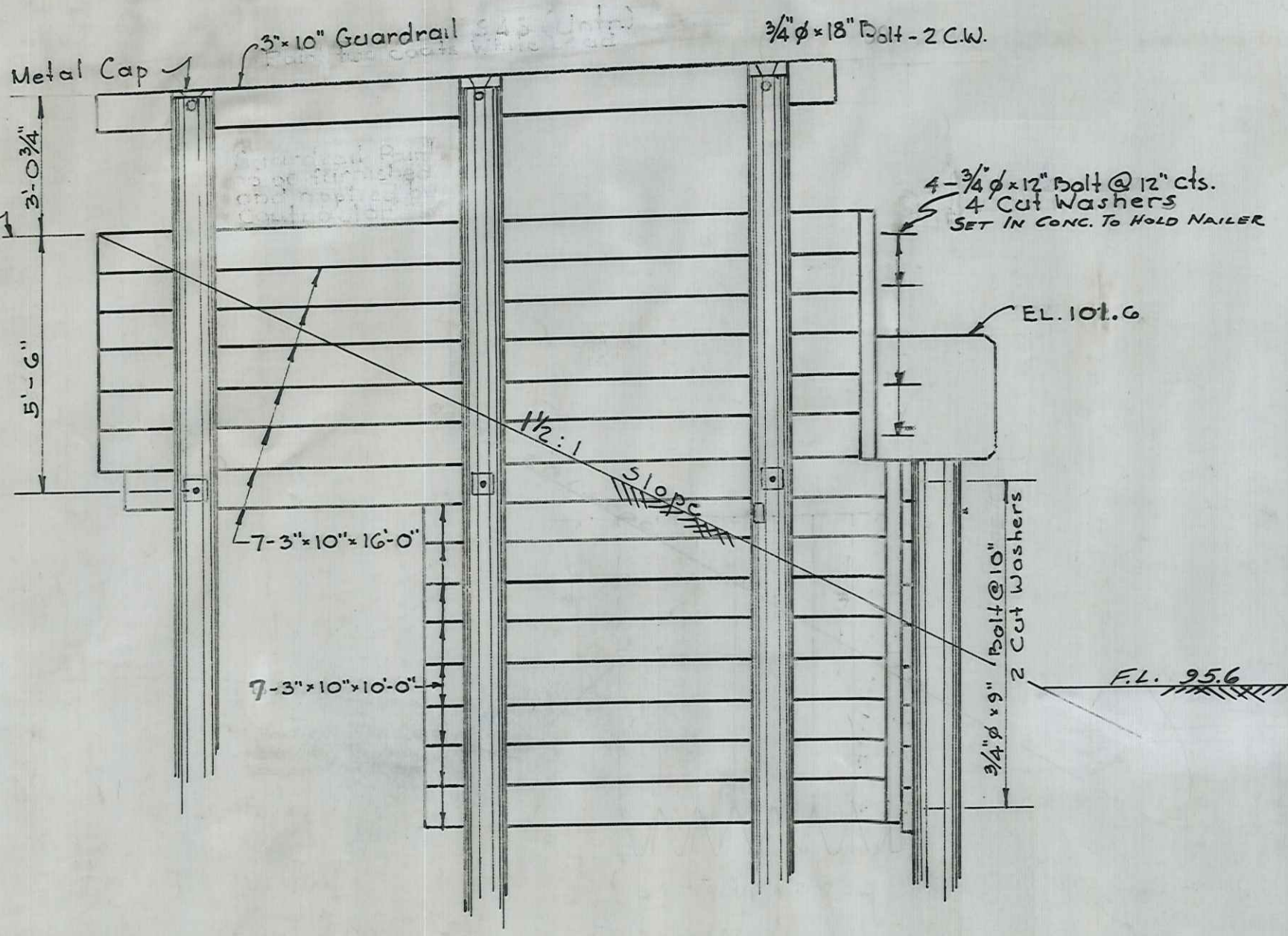
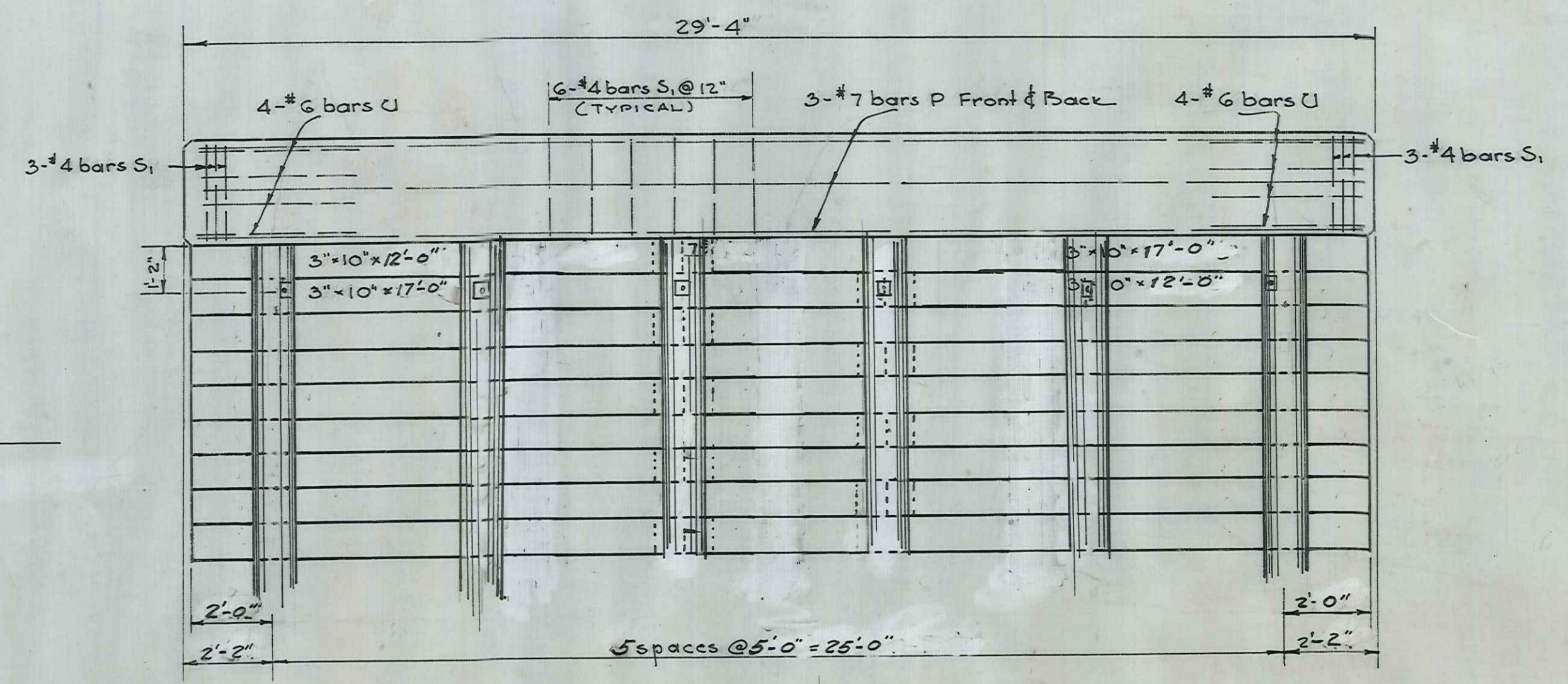


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WING ELEVATION



ELEVATION OF ABUTMENT

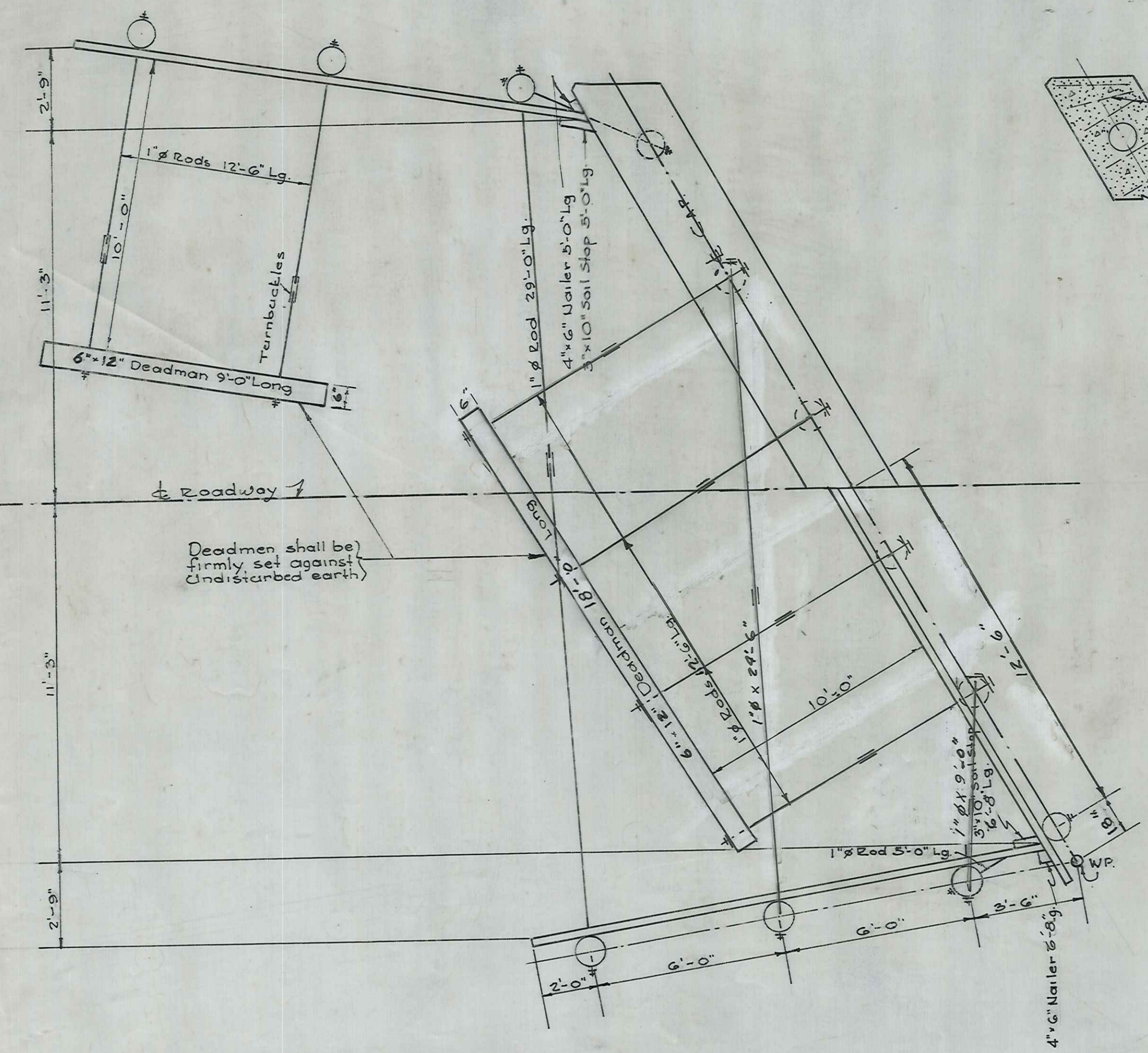
BILL OF MATERIAL - TWO ABUTMENTS

Bar	No.	Size	Length	Shape
P	20	#7	29'-0"	—
S ₁	60	#4	9'-9"	□
U	16	#6	9'-6"	—
Class X Concrete			Cu. Yds.	13.4
Reinforcement BARS			Lbs.	1805
Treated TIMBER			F.B.M.	3880
FURNISHING CREOSOTED PILES (25 Lg.)			Lin. ft.	300
FURNISHING CREOSOTED PILES (23 Lg.)			Lin. ft.	276
Test Piles			Ea.	1
Hardware			Lbs.	1260
METAL SHOES, E.S.			Ea.	12

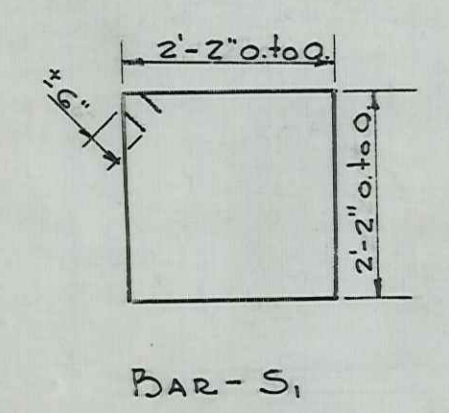
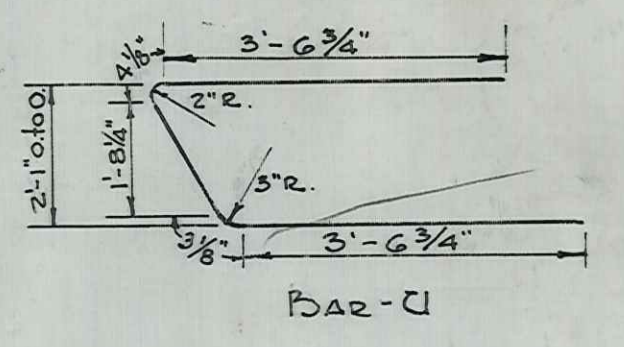
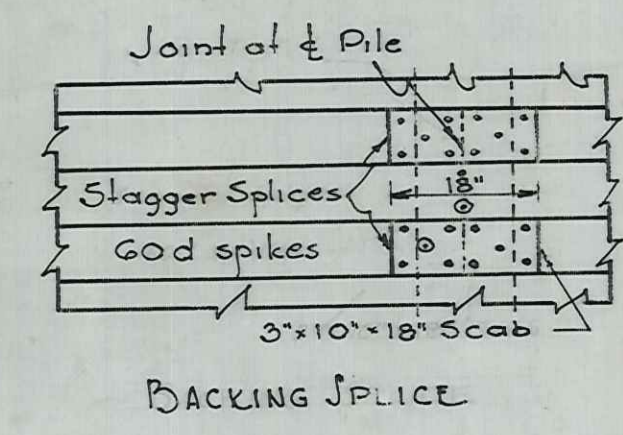
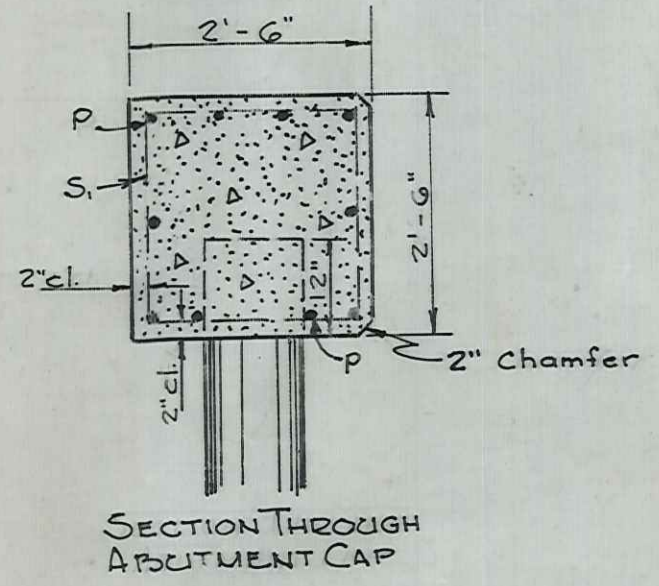
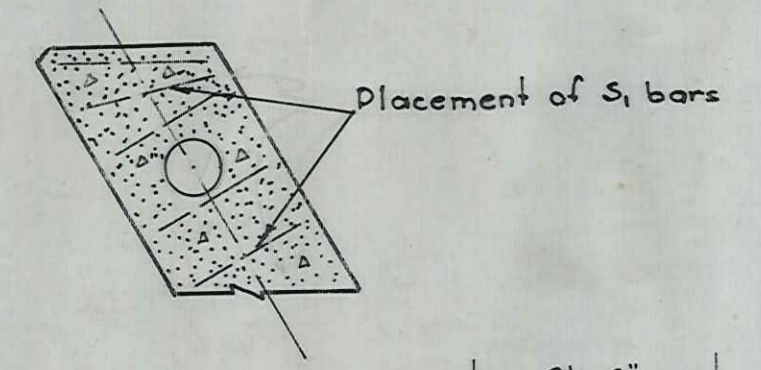
BILL OF LUMBER

Creosoted (full sawn rough)

No	Use	SIZE	LENGTH
28	Wing Backing	3" x 10"	16'-0"
28	"	"	10'-0"
16	Abut. Backing	"	12'-0"
16	"	"	17'-0"
16	Backing Splices	"	1'-6"
4	Soil Stops	"	5'-0"
4	"	"	6'-8"
4	Nailer	4" x 6"	5'-0"
4	"	4" x 6"	6'-8"
2	Deadmen	6" x 12"	18'-0"
2	"	6" x 12"	10'-0"
4	Guard rail	3" x 10"	16'-0"



PLAN OF WINGS



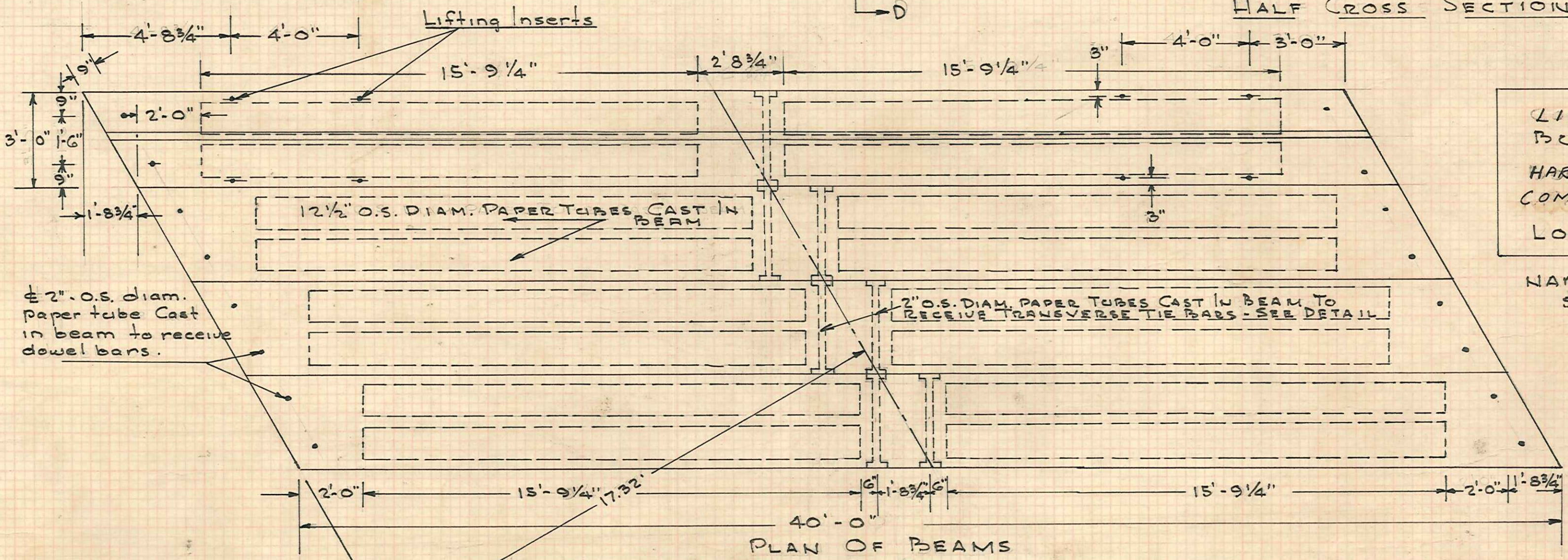
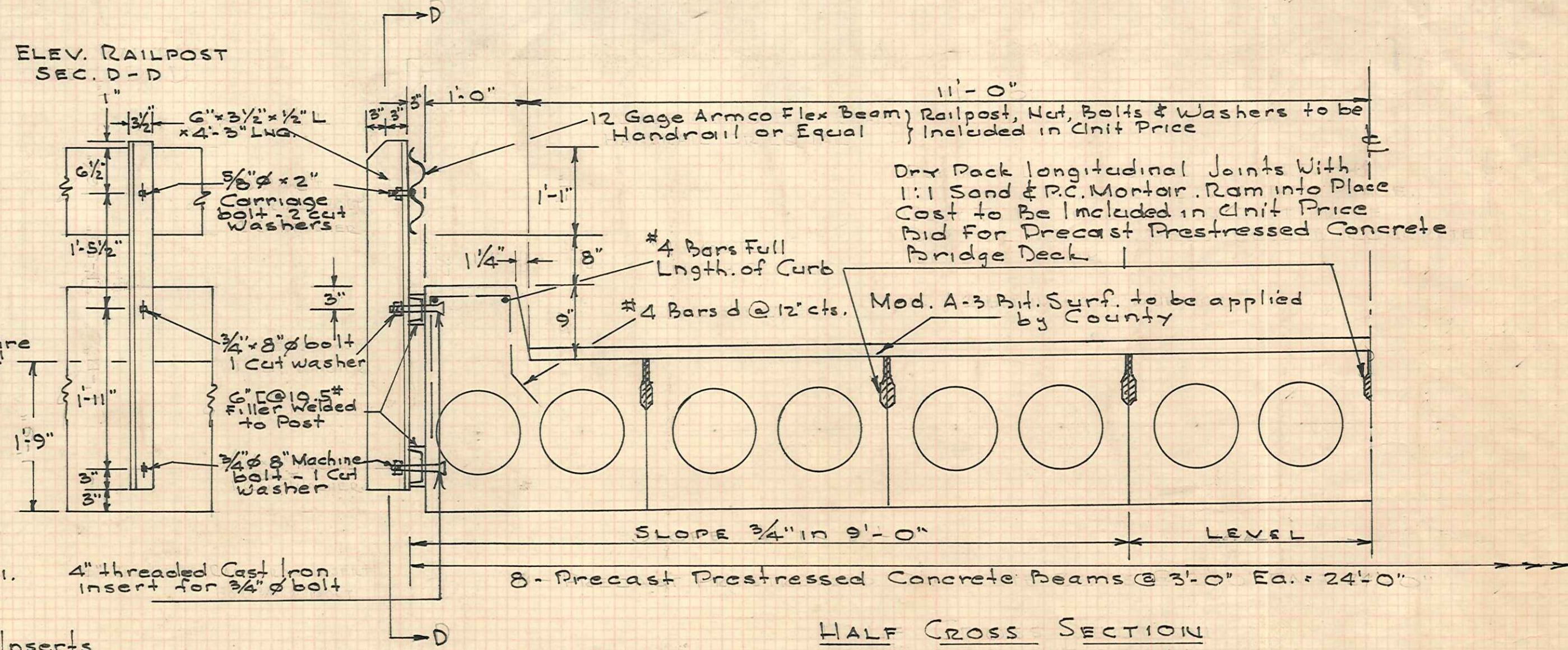
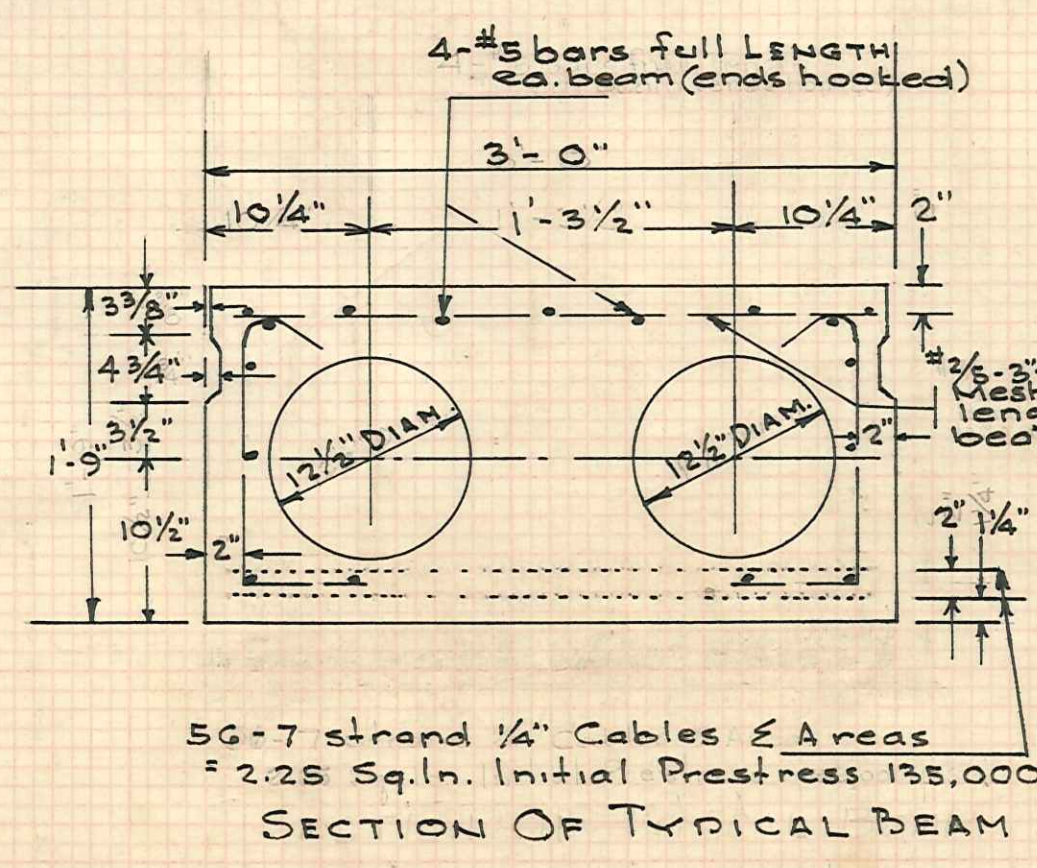
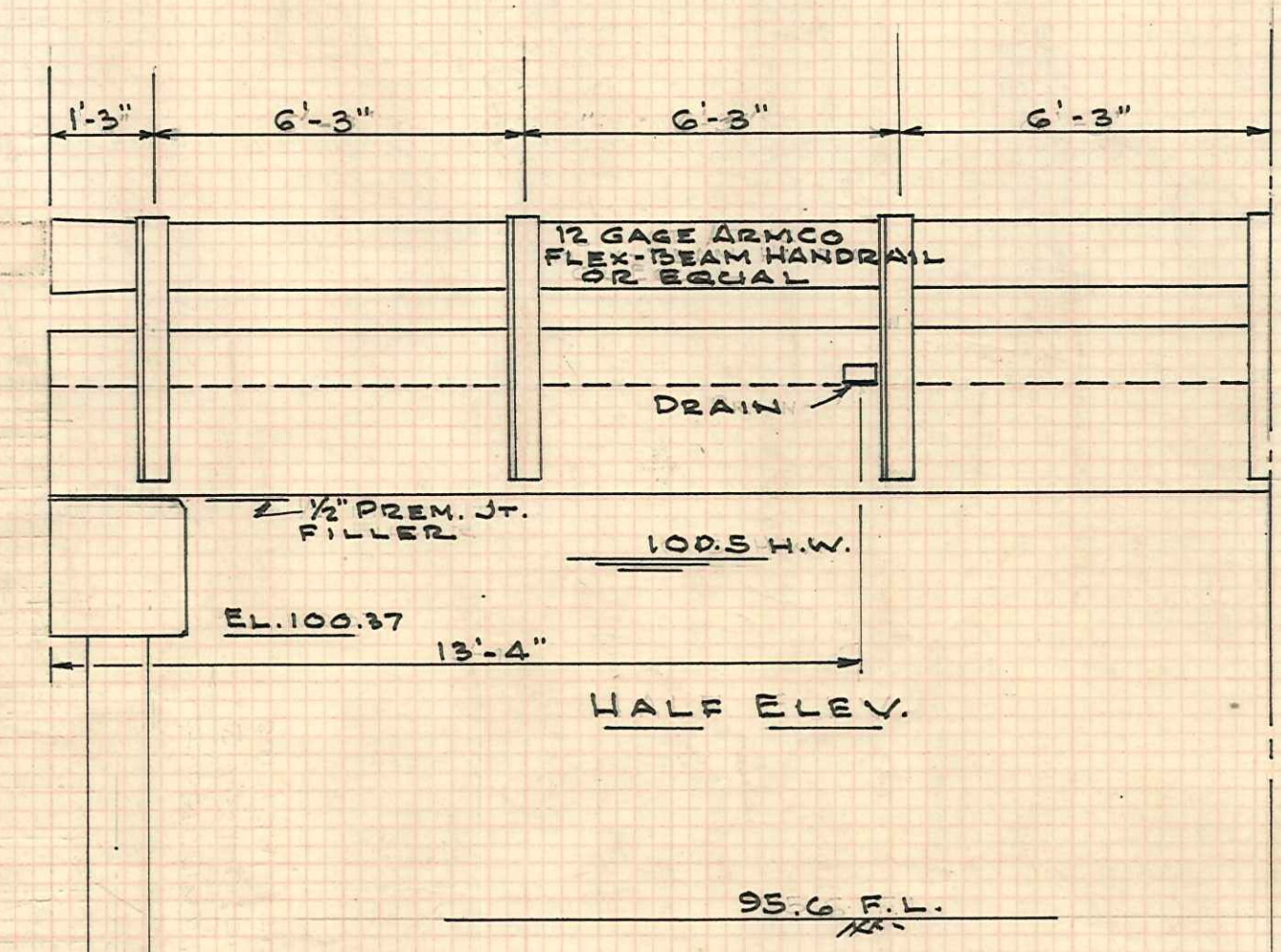
PILE DATA
 Abutment Piles
 18 Ton Capacity
 12 Required
 Est. Length 23'
 Wing Piles
 10 Ton Capacity
 12 Required
 Est. Length 25'

Note: All tie rods through piles shall be threaded 9" each end and provided with a 3/4" x 5/8" x 5/8" R Washer
 All hardware shall be hot dipped galvanized steel and shall be galvanized after fabrication 0.2% Copper bearing steel may be substituted for galvanized steel.
 The Contractor shall cut off at his own expense all rods projecting more than 1" beyond nut.

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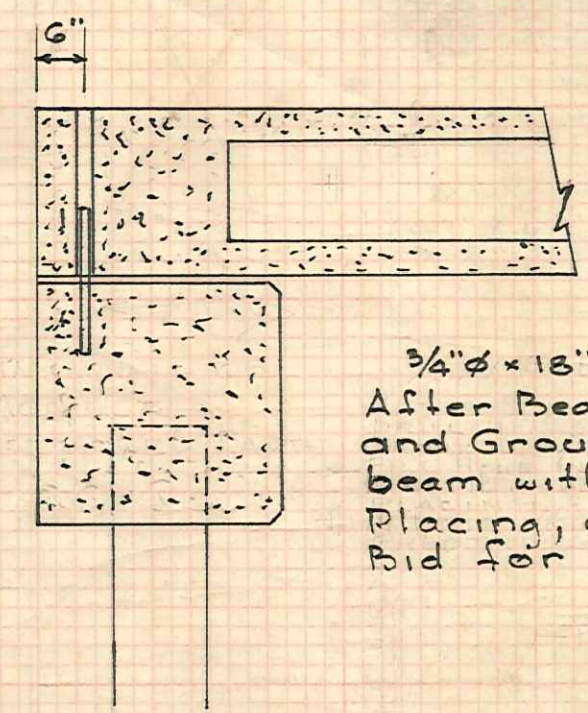
BILL OF HARDWARE

NO	ITEM	LENGTH
2	1" Rod	29'-0"
2	"	24'-6"
12	"	13'-0"
2	"	9'-0"
4	"	5'-0"
16	3/4" BOLTS	1'-0"
44	R Washer 3/4" x 5/8" x 5/8"	
112	Cut Washers 3/4"	
44	1" Nut	
60	3/4" Nut	
16	1" Turnbuckle	
1020 min	God Spikes	
32	3/4" BOLTS	0'-9"
12	3/4" BOLTS	1'-6"
12	METAL CAPS	

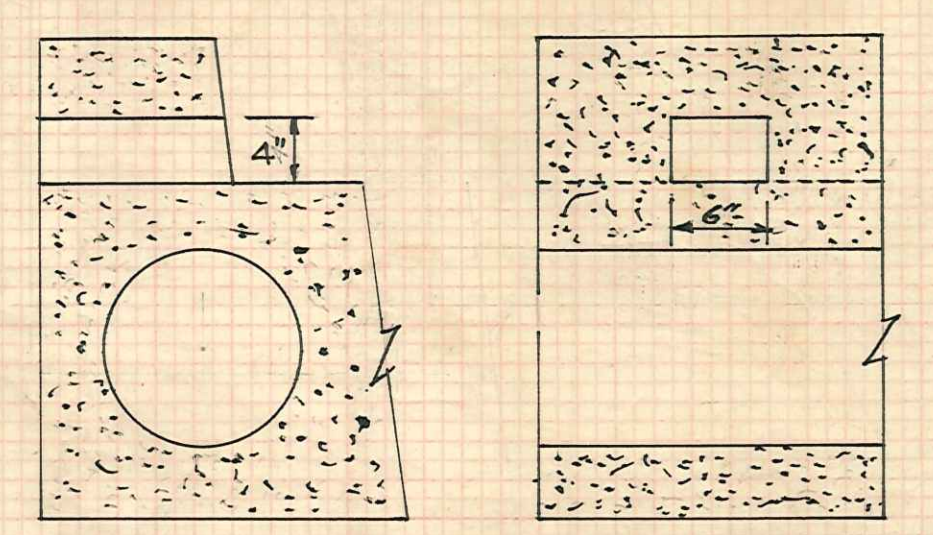


LINDER BRIDGE
BUILT 1957 HB-150
HAROLD YATES &
COMMISSIONER, UTILITY
LOADING H-15

NAME PLATE DETAIL
STD. 2113



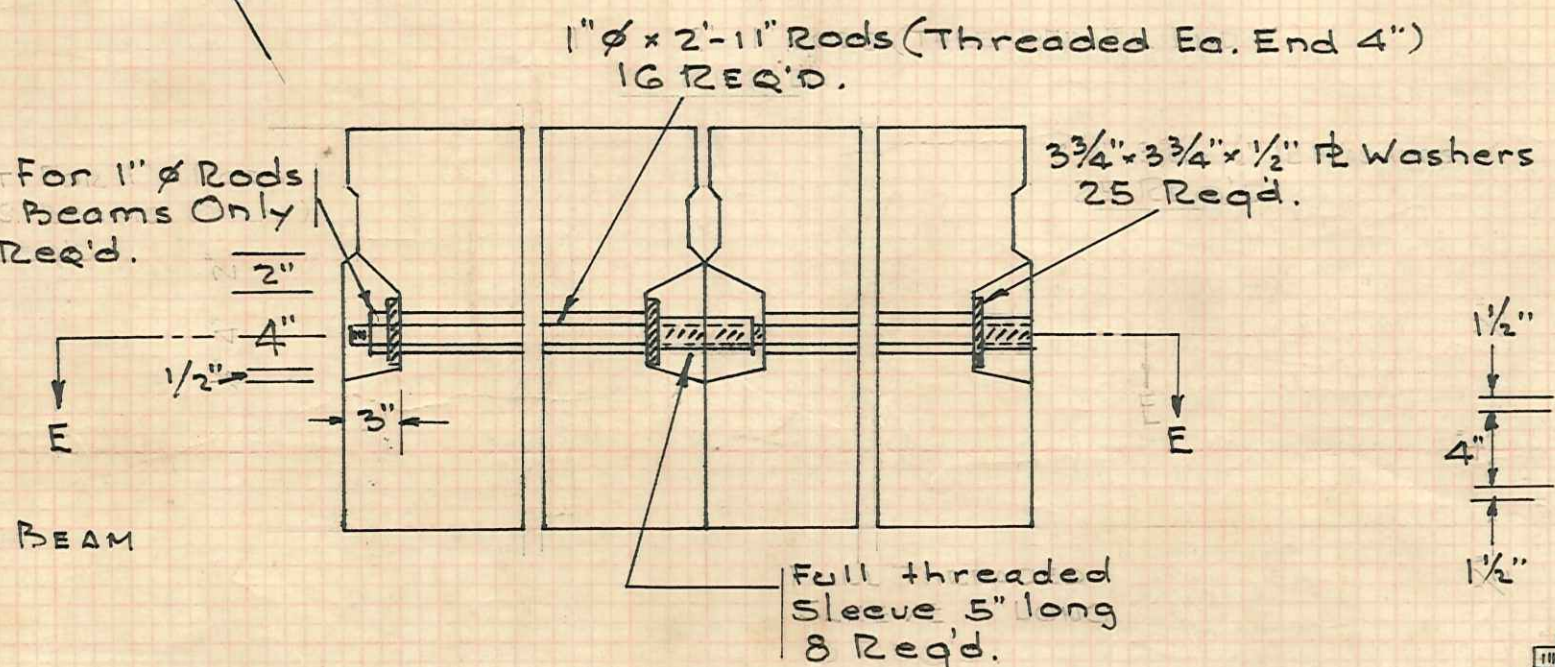
3/4" x 18" Dowel Bar
After Beams are in place drill holes in abut. and grout dowel bars into place - fill holes in beam with threaded mastic. Cost of dowels, drilling, placing, and grouting to be included in unit price bid for precast, prestressed, conc. bridge deck.



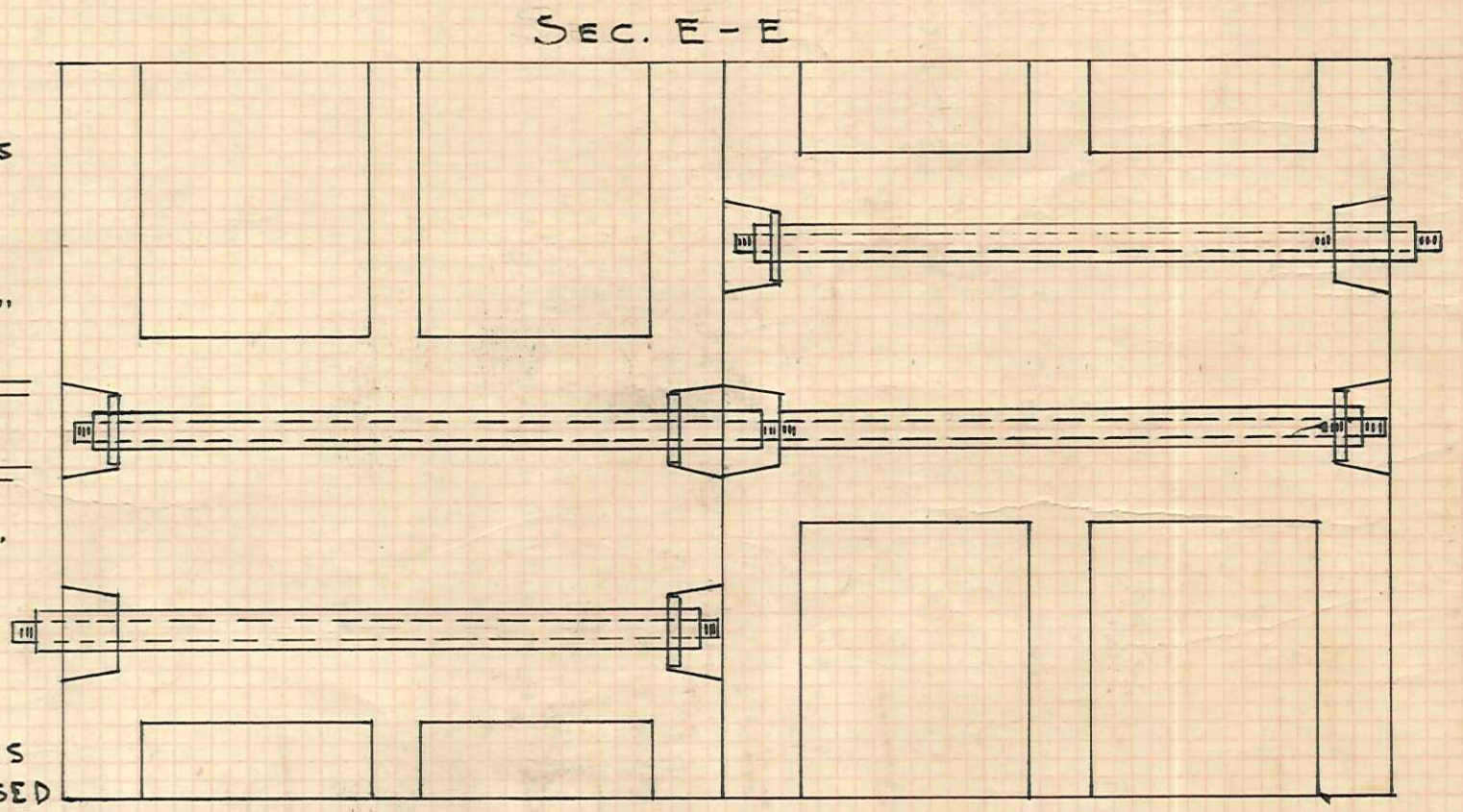
DRAIN DETAIL

SPECIFICATIONS FOR PRECAST PRESTRESSED CONCRETE BEAM SHALL BE FOUND IN SPECIAL PROVISIONS.
Precast Prestressed Curb Sections shall be fabricated by manufacturer.
Metal Plate Bridge Rail shall be in accordance with Section 94 of Standard Specifications except as otherwise noted on detail drawings of special provisions.
A Test Pile shall be driven as directed by the engineer. Test Pile shall be driven before ordering remainder of piling. Test Pile may be driven in place of a wing pile.

BILL OF MATERIAL SUPERSTRUCTURE	
Precast, Prestressed Conc. Bridge Deck	Sq. Ft. 720
Precast, Prestressed Conc. Curb Section	Sq. Ft. 240
Metal Plate Guard Rail	Lin. Ft. 80
Removal of Existing Structure	EA. 1
NAME PLATE	EA. 1



TYPICAL TRANSVERSE TIE ASSEMBLY
THE COST OF FURNISHING & ASSEMBLING TRANSVERSE TIES IS INCLUDED IN THE UNIT PRICE BID FOR "PRECAST PRESTRESSED CONCRETE BRIDGE DECK"



3055

ALTERNATE A
LINDER BRIDGE
BOONE COUNTY, MISSOURI
HAROLD YATES & COMPANY
DESIGNED BY HAROLD YATES
DRAWN BY J. W. STANLEY

- GENERAL NOTES -

Class X Concrete to be used throughout. Concrete floor slab and girders shall be poured in one continuous operation and floor slab shall be finished in accordance with Art. 51.18 of the Std. Spec.

The item "Hardware" includes all Rods, Bolts, Nuts, Spikes, Turnbuckles and Washers.

The item "Structural Steel" shall include Bearing plates, Lead plates and Anchor Bolts and shall receive one shop coat of lead and two field coats of aluminum paint, all paint to be furnished and applied by Contractor.

All full sawn rough and treated All Tumber shall conform to Art. 125.5 of the Standard Specifications.

Plank backing shall be fastened to each pile, guardrail post and railing strip with two 50# spikes.

Excavation for backing shall be made before driving piles.

Quantities of lumber and hardware are based on sizes and lengths shown.

No additional compensation will be allowed for splices not shown or waste.

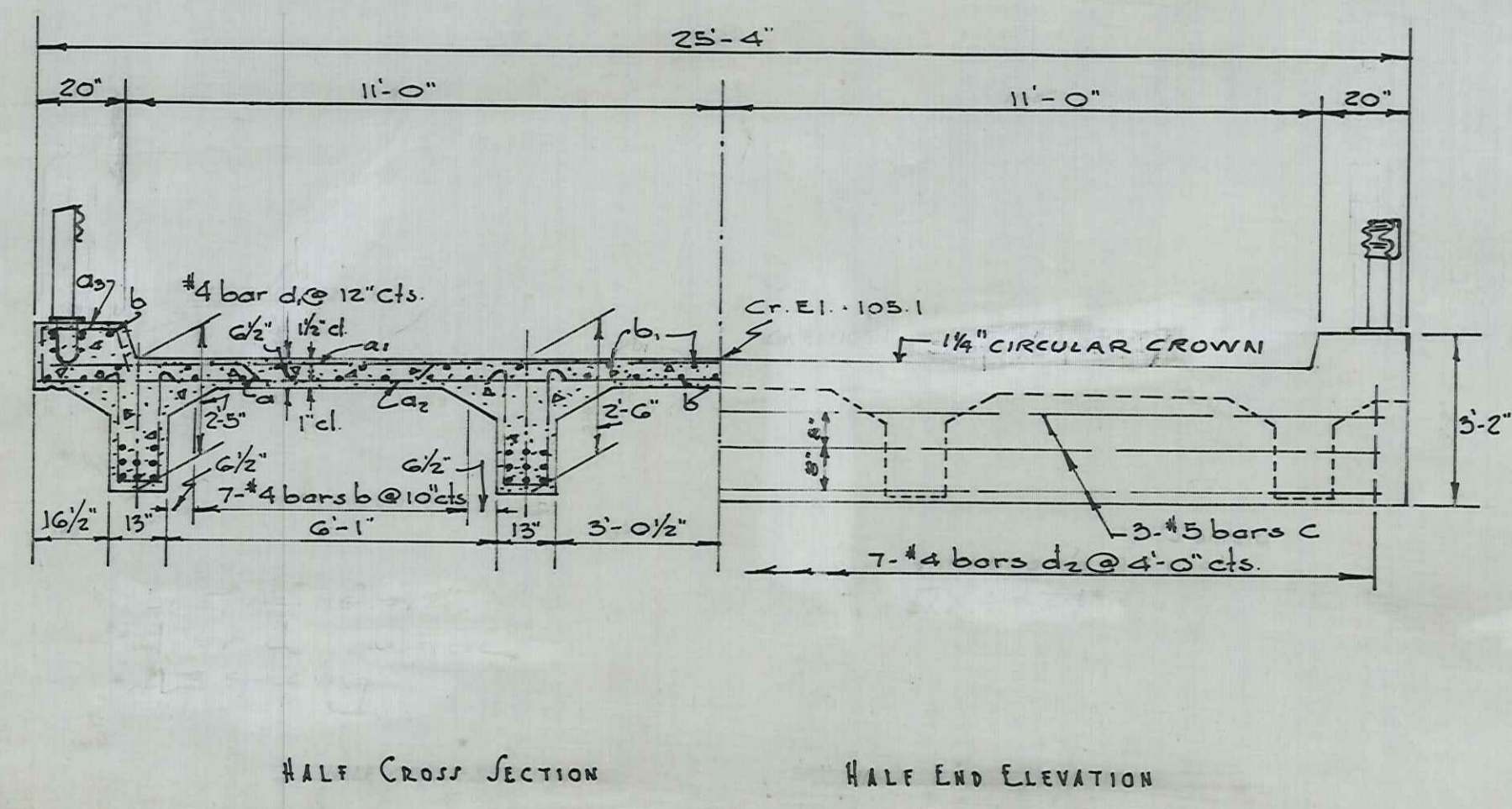
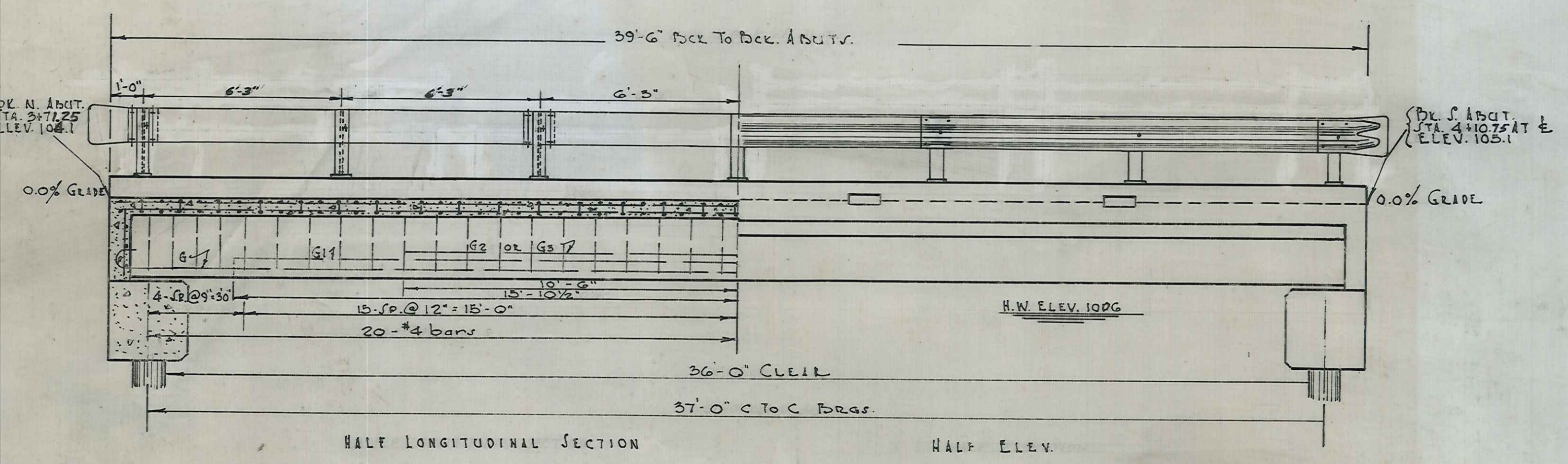
Deadmen shall be placed a minimum of 2 ft in natural earth.

All Abut. & Wing piles shall be treated in accordance with Art. 58.12 of Std. Specs.

Abutment Piles shall be driven to a minimum capacity of 18 tons and a minimum penetration of 10 ft. below stream bed. Wing piles shall be driven to a minimum capacity of 10 tons and a minimum penetration of 10 ft. below stream bed. One test pile shall be driven at directed by the engineer before ordering the remainder of the piles.

Channel shall be excavated within the limits of the Right of Way (10 ft. bottom, Metal slopes) and material disposed of, as directed by the Engineer.

ALL LUMBER, PILES AND HARDWARE SHALL BE FURNISHED, INSTALLED AND PAID FOR IN ACCORDANCE WITH SECTION 58 OF THE STANDARD SPECS.



Bill of Materials - SUPERSTRUCTURE

BAR	No.	SIZE	LENGTH	SHAPE
a ₁	31	#5	29'-9"	~
a ₂	32	#5	25'-0"	~
a ₃	20	#4	1'-3"	~
b	58	#4	19'-9"	~
b ₁	34	#5	19'-9"	~
c	6	#5	25'-0"	~
d ₁	80	#4	1'-0"	~
d ₂	14	#4	2'-3"	~
e	32	#4	0'-6"	~
G	12	#11	42'-6"	~
G ₁	12	#11	31'-9"	~
G ₂	8	#11	21'-0"	~
G ₃	2	#10	21'-0"	~
S	160	#4	6'-3"	~
CLASS X CONCRETE			Cu.Yds.	40.9
REINFORCEMENT BARS			LBS.	10,718.0
STRUCTURAL STEEL			LBS.	330.0
METAL PLATE GUARD RAIL			Lin.Ft.	82.0

*NOTE: All bars shall be round A.S.T.M. A 305-49 Size is the number of 1/8" in the nominal diameter.

TOTAL BILL OF MATERIAL

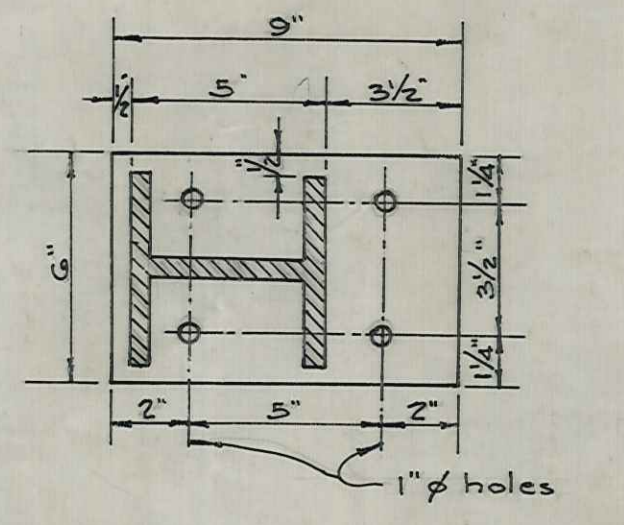
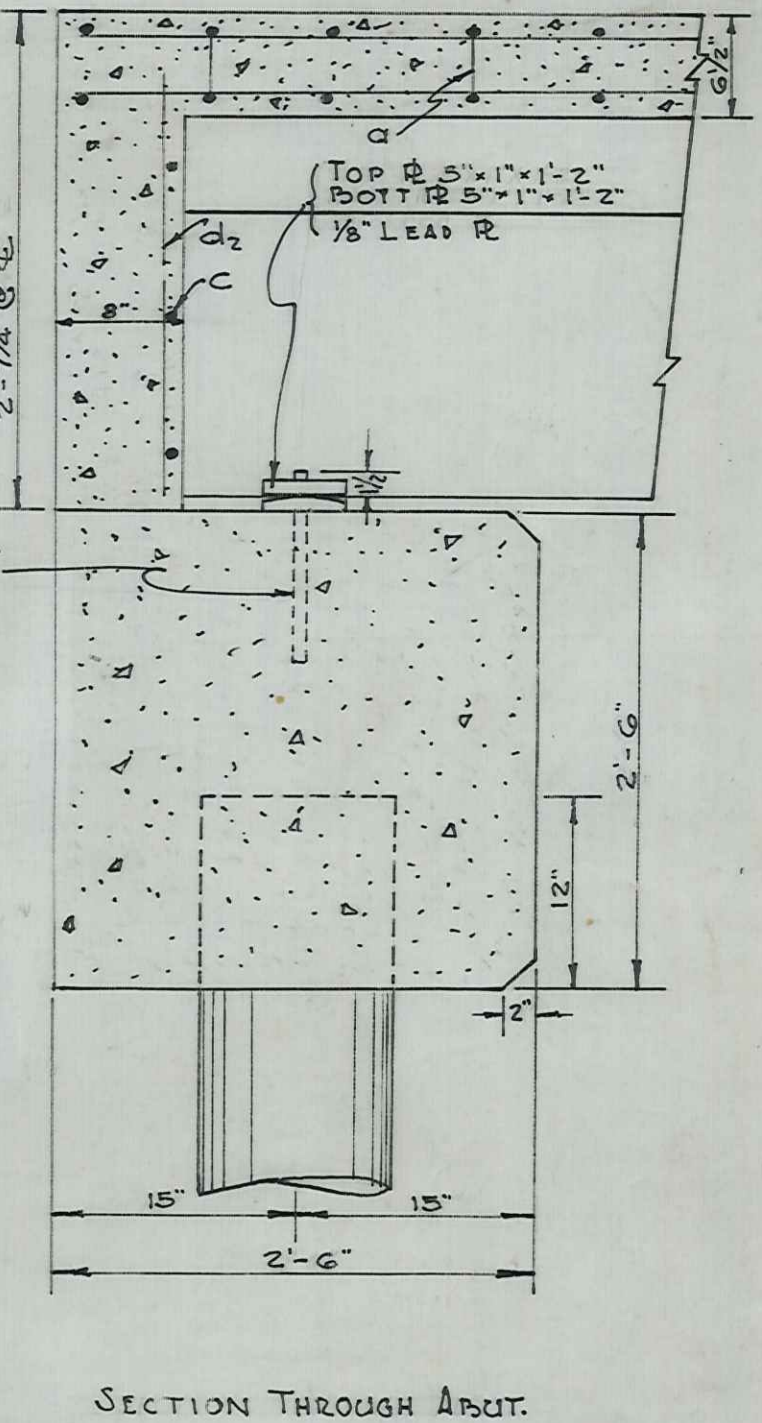
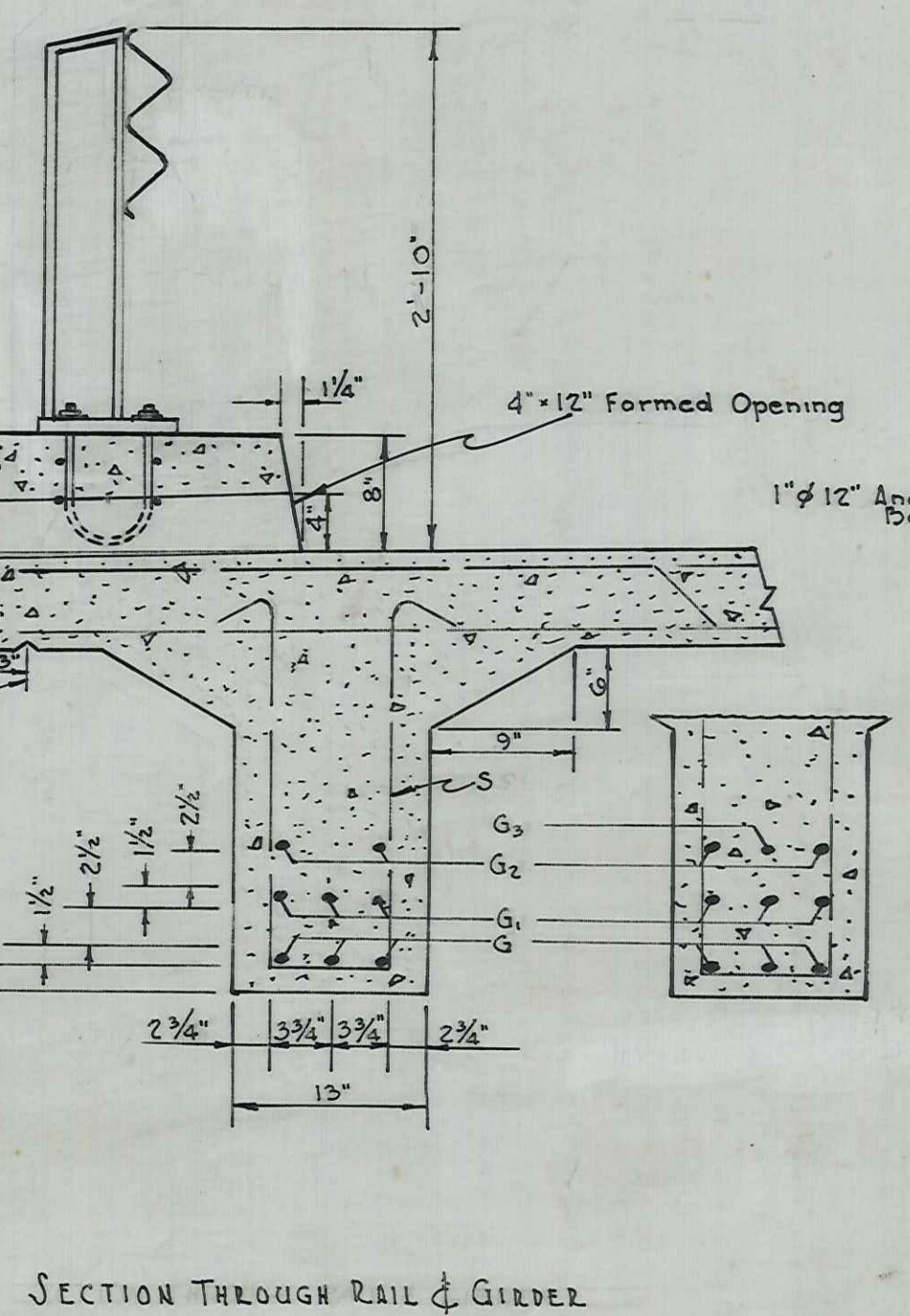
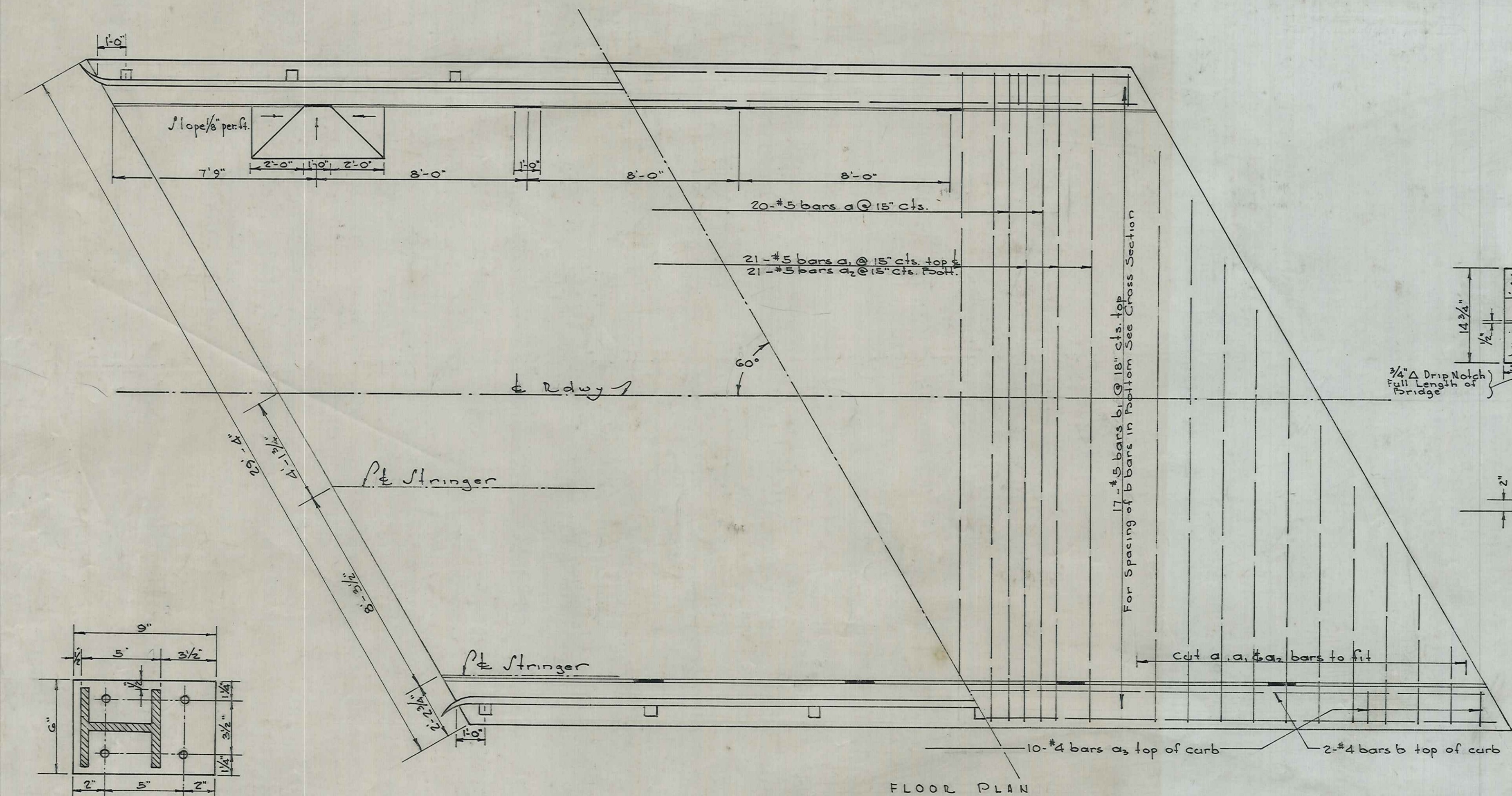
ITEM	SUPER.	SUB.	TOTAL	
CLASS X CONCRETE	Cu.Yds.	40.9	13.4	54.3
METAL PLATE GUARD RAIL	Lin.Ft.	82.0		82.0
REINFORCEMENT BARS	LBS.	10,718.0	1805.0	12,523.0
STRUCTURAL STEEL	LBS.	330.0		330.0
HARDWARE	LBS.		1260.0	1260.0
TREATED TIMBER	FBM.		3880	3880
NAME PLATES	EACH.	1		1
FOUNDING	CREG. PILES (25') Lin.Ft.		300.0	300.0
FOUNDING	CREG. PILES (25') Lin.Ft.		276	276
TEST PILES	EA.	1		1
REMOVAL OF EXISTING STRUCTURES		1		1

DESIGN STRESSES

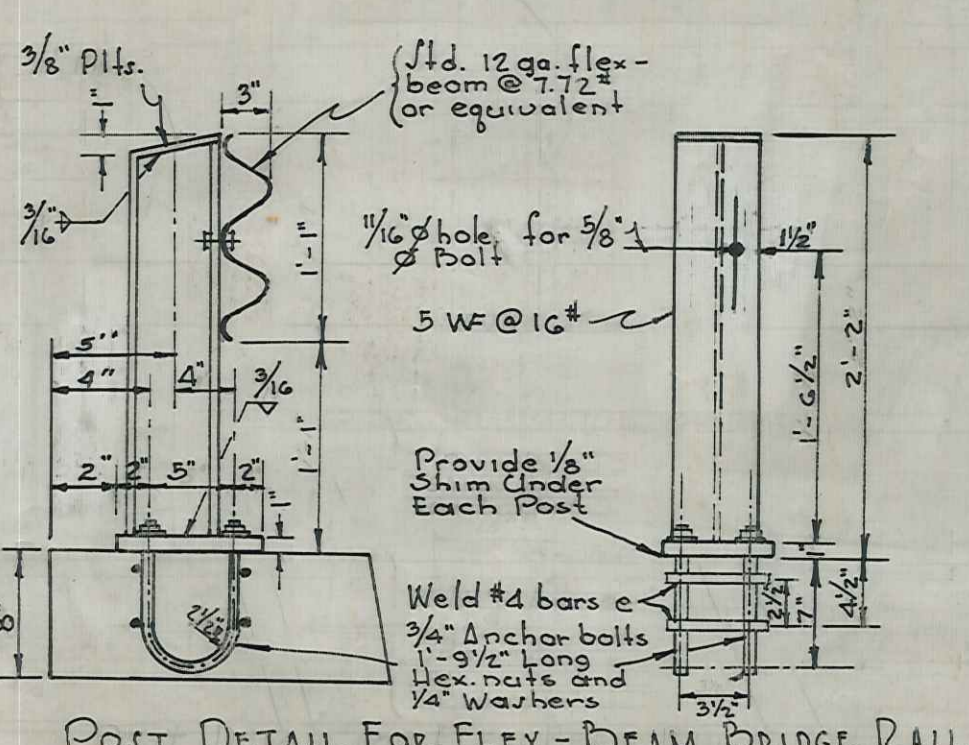
f_s = 18000 psi (STRUCTURAL)
 f_s = 20000 psi (REINFORCEMENT)
 f_c = 12000 psi (CONCRETE)
 f_t = 1600 psi (TIMBER)
 n = 10
 H-15 LOADING

WATERWAY INFORMATION

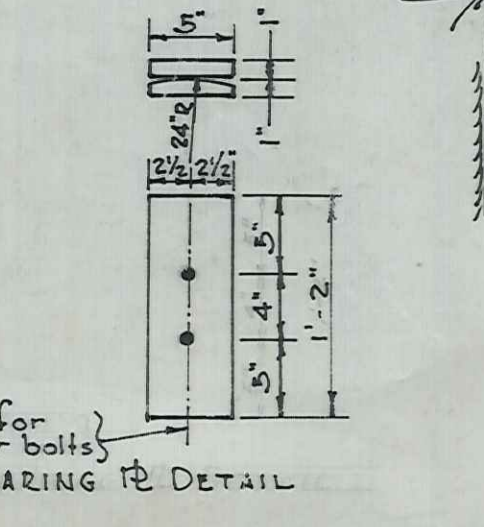
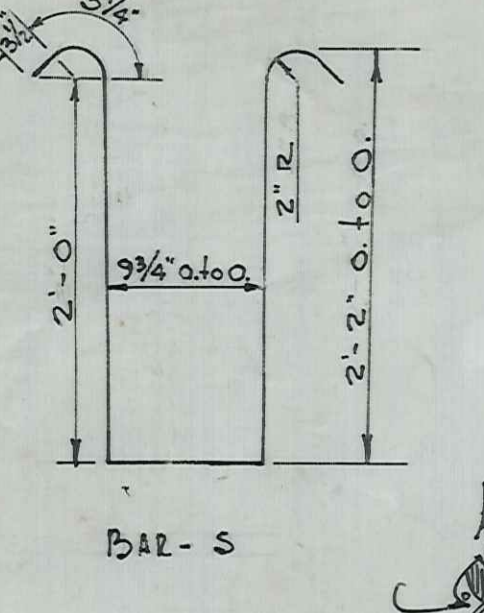
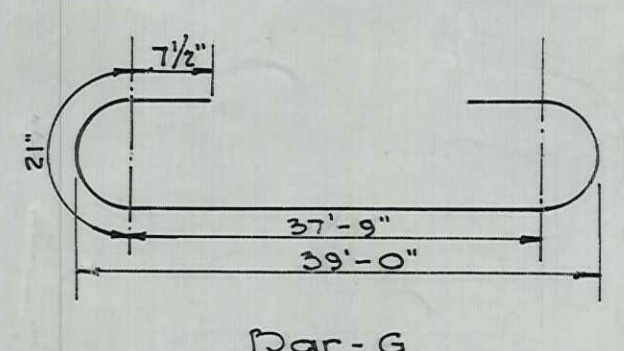
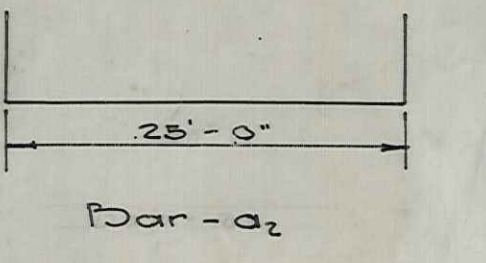
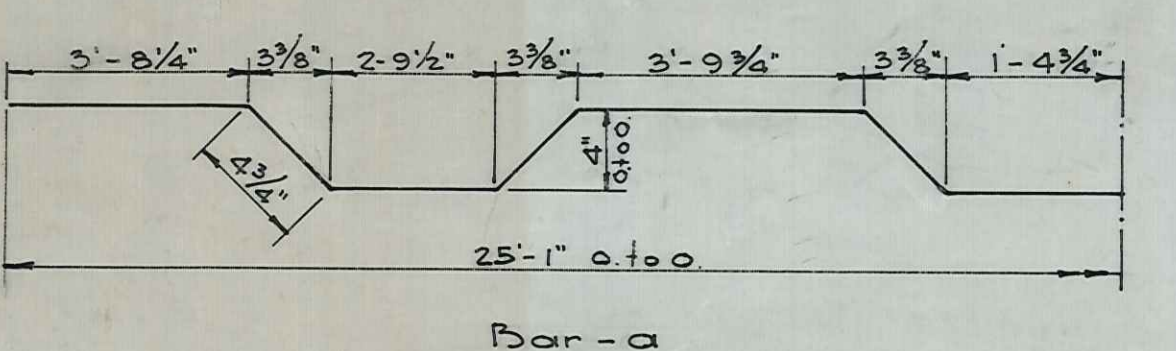
Drainage Area Character. Flat 7580 acres
 Opening Reg'd by Formula 170
 Present Opening 160
 Proposed Opening 188
 Assumed V_c VELOCITY 2.5/sec



TYPICAL SECTION BRIDGE RAIL
 RAIL POST, ANCHOR BOLTS, AND ALL MATERIAL AND LABOR NECESSARY TO INSTALL METAL PLATE GUARD RAIL TO BE PAID FOR AT THE CONTRACT UNIT PRICE PER LIN. FOOT



POST DETAIL FOR FLEX-BEAM BRIDGE RAIL



LINDER BRIDGE
 BUILT 1957 HB-150
 HAROLD YATES
 COMMISSIONER
 LOADING H-15
 NAME PLATE DETAIL
 STD 2113