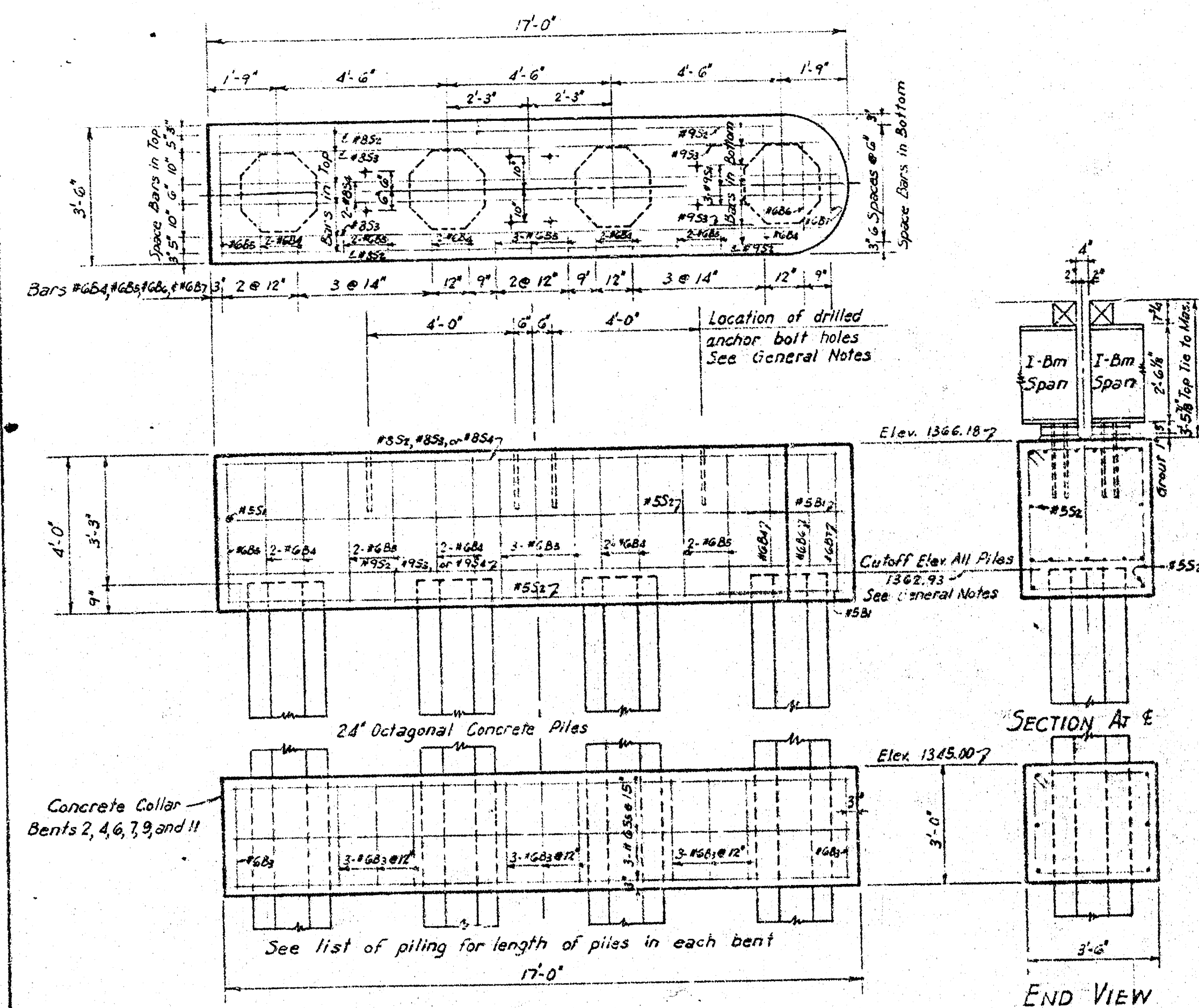
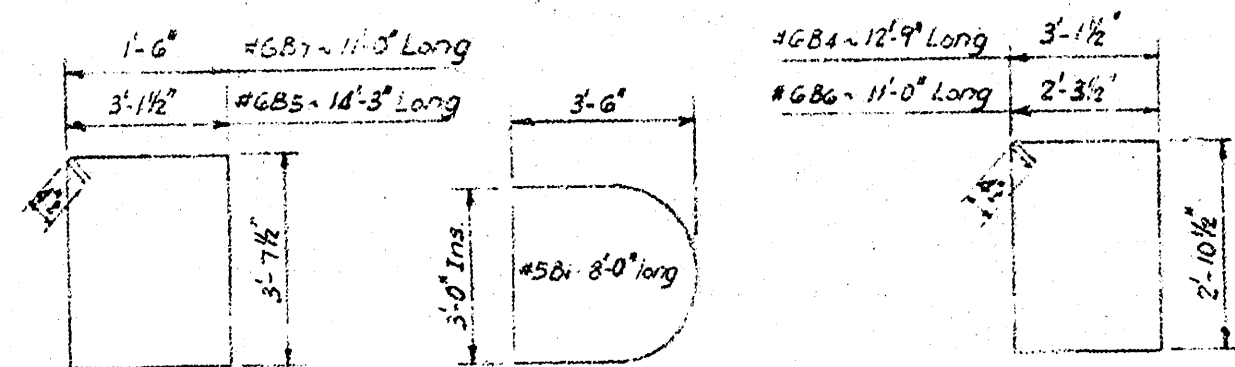




LIST OF REINFORCING STEEL FOR BENTS

Location	Number	Mark	Size	Length Feet	Remarks
Cap	7	84	#6	12.4	Bent
	8	96	#6	14.3	"
	1	12	#6	11.0	"
	1	12	#6	11.0	"
	2	24	#5	8.0	Straight
	2	24	#5	15.0	"
	2	24	#5	16.0	"
	2	24	#5	17.0	"
	2	24	#5	18.0	"
	2	24	#5	19.0	"
	3	36	#5	16.0	"
	1	12	#5	3.0	"
	4	48	#5	15.0	"

Weight: 1055 Lbs. ea. - 12,660 Lbs. for 12 Bents



Dimensions are out to out unless otherwise noted

LIST OF REINFORCING STEEL FOR COLLARS

Number	Mark	Size	Length Feet	Remarks
11	66	#6	11.0	Bent
6	36	#6	16.0	Straight

Weight: 343 Lbs. ea. - 2058 Lbs. for 6 Collars

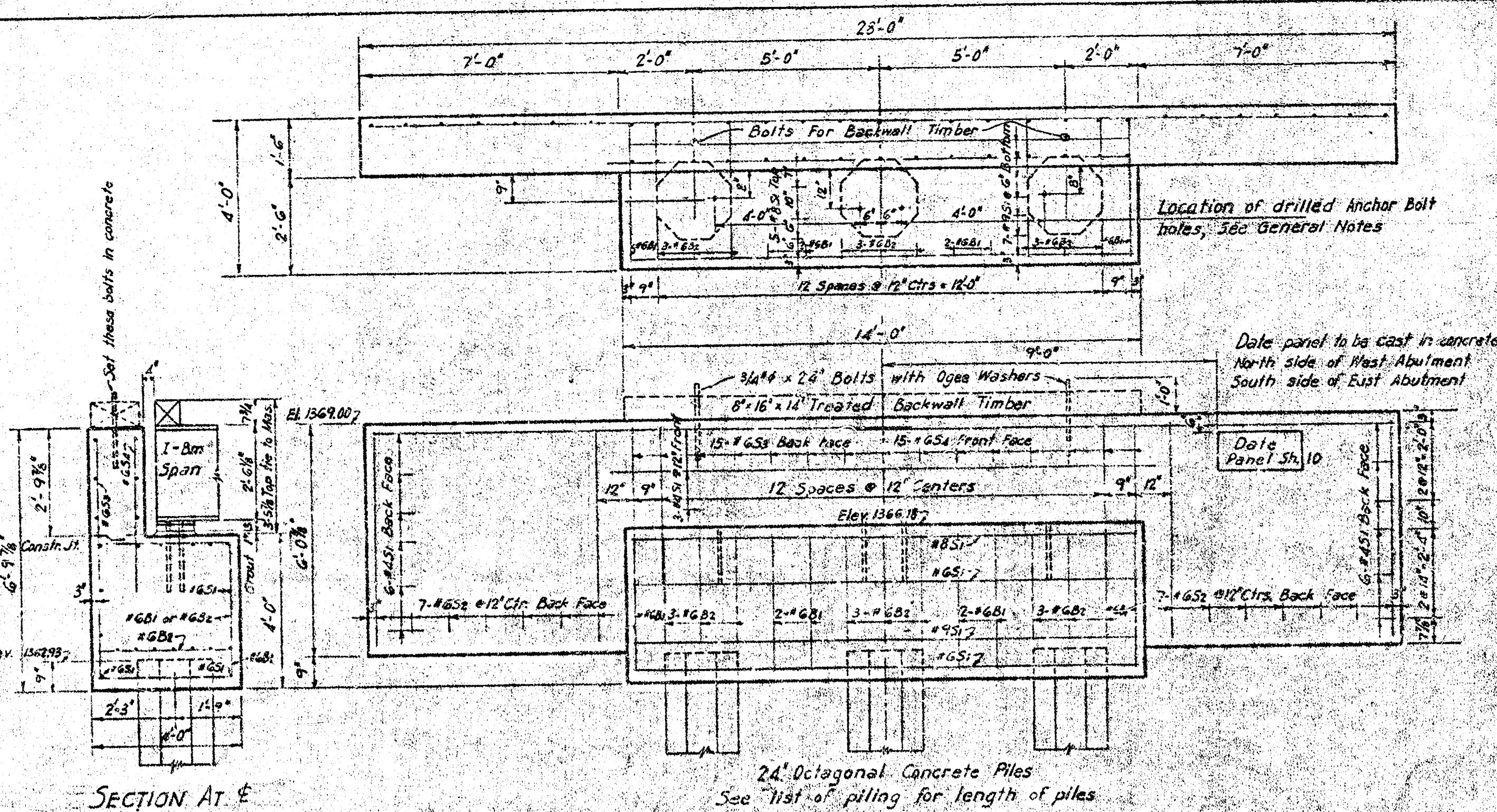
CONCRETE QUANTITIES

12 Bents --- 825 Cu. Yd. Each --- 99 Cu. Yd.
6 Collars --- 5.13 " " " --- 30.8 "

SPECIFICATIONS
Reinforcing Steel
Shall be deformed, new billet steel, intermediate grade, conforming to current A.S.T.M. Spec.
Concrete
Concrete proportions by weight proportioning dry weight of sand and coarse aggregate. Mix shall not have more than 6 gal. of water per sack of cement including free water in sand and coarse aggregate. Mix to have at least 5% sacks of cement per cubic yard of concrete. Aggregate to be clean, sound and uniformly graded to a maximum size of 1 1/4". Cement to be Type I-A Portland Cement.
Concrete Piles
Concrete is to have a compressive strength of 4000 psi at age of 28 days. Reinforcing steel to be structural or intermediate grade deformed steel conforming to current A.S.T.M. Specifications.

GENERAL NOTES

All piles are to be stripped for a distance of 2' above cut-off. Four symmetrically spaced reinforcing bars in the piles are to be flared out to the pile to concrete in abutment or bent. Piles are to be driven to develop a bearing value of 55 tons. Piles to have a minimum penetration of 25 ft. below elev. 1345.6 or to refusal in rock. All exposed edges of concrete to be beveled 1/4". Space reinforcing steel in bridge seat to miss anchor bolts. Holes for anchor bolts to be drilled after spurs are placed.



LIST OF REINFORCING STEEL FOR ABUTMENTS

Location	Number	Mark	Size	Length Feet	Remarks
Bridge Seat	9	12	#6	5.13	Bent
	9	12	#6	10.6	"
	7	14	#5	13.6	Straight
	3	10	#5	11.6	"
	3	2	#5	10.6	"
Backwall	15	30	#5	14.6	"
	14	28	#5	5.9	"
	15	30	#5	2.6	"
	15	30	#5	10.6	"

Weight: 1294 Lbs. ea. - 2588 Lbs.

3'-6" x 10'-0" Long

2'-0" x 10'-0" Long

BAR BENDING DIAGRAM

CONCRETE IN ABUTMENTS
14.74 Cu. Yd. each - Total of 29.48 Cu. Yd.
MISCELLANEOUS MATERIAL - ABUTMENTS
2 ft. x 8 ft. x 14 ft. Backwall Timbers - 515.74
4 ft. x 14 ft. Bolts - 30 heads and nuts with washers

LONGITUDINAL VIEW

Length of Pile	Longitudinal Reinforcing Bars "A" Bars "B"
45'-0" to 48'-0" Inclusive	4 - #4 (A) 4 - #4 (B)
49'-0" to 52'-0"	4 - #4 (A) 4 - #4 (B)
53'-0" to 56'-0"	4 - #4 (A) 4 - #4 (B)
57'-0" to 60'-0"	4 - #4 (A) 4 - #4 (B)
Weight of Pile About 500 Lbs. per foot	

LIST OF PILES REQUIRED

Location	Length	33'-0"
East Abut.		
Bent No. 1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
West Abut.		
Test Piles		2
Total		
Lin. Ft.		

Note: Length of piles to be determined from test piles driven in Bent 2 and Bent 6.

ST. LOUIS SAN FRANCISCO RY. CO.
NORTHERN DIV. BURLINGTON SUB DIV.

WICHITA - VALLEY CENTER PROJECT
LITTLE ARKANSAS RIVER DIVERSION

DETAIL OF MASONRY

BRG. F-516.5

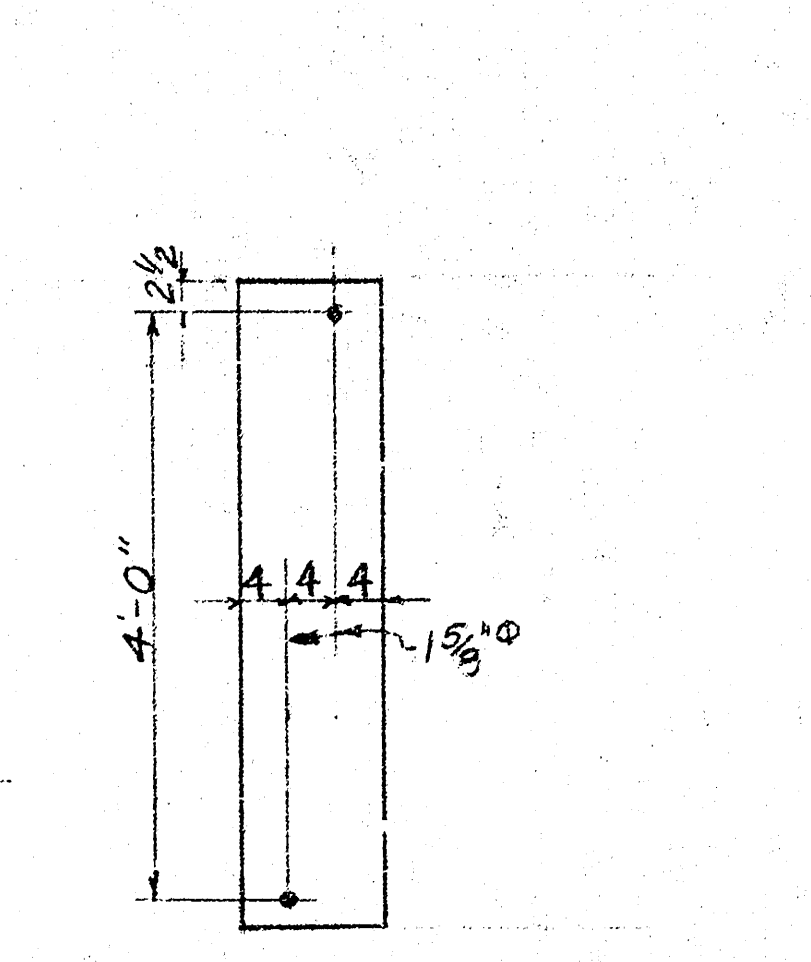
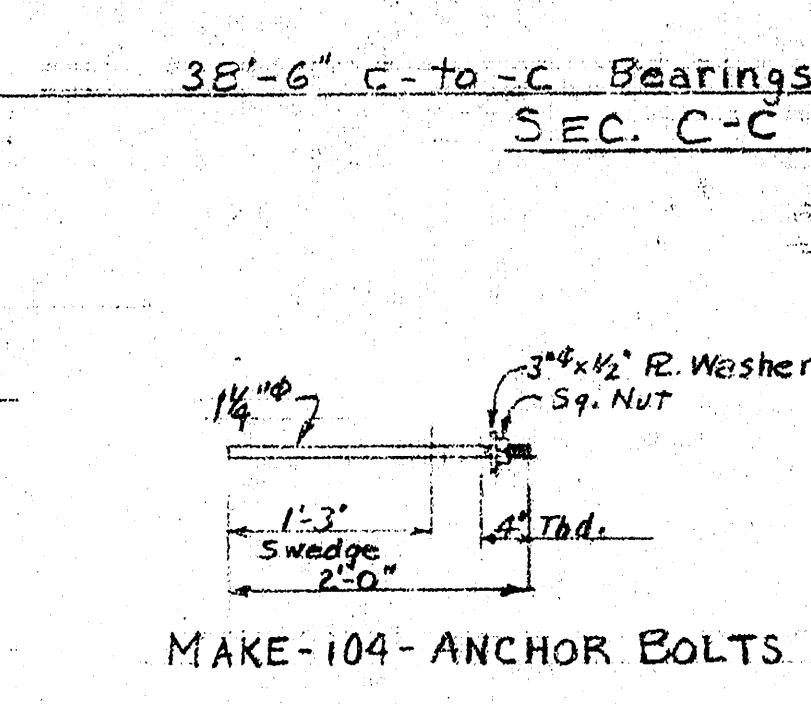
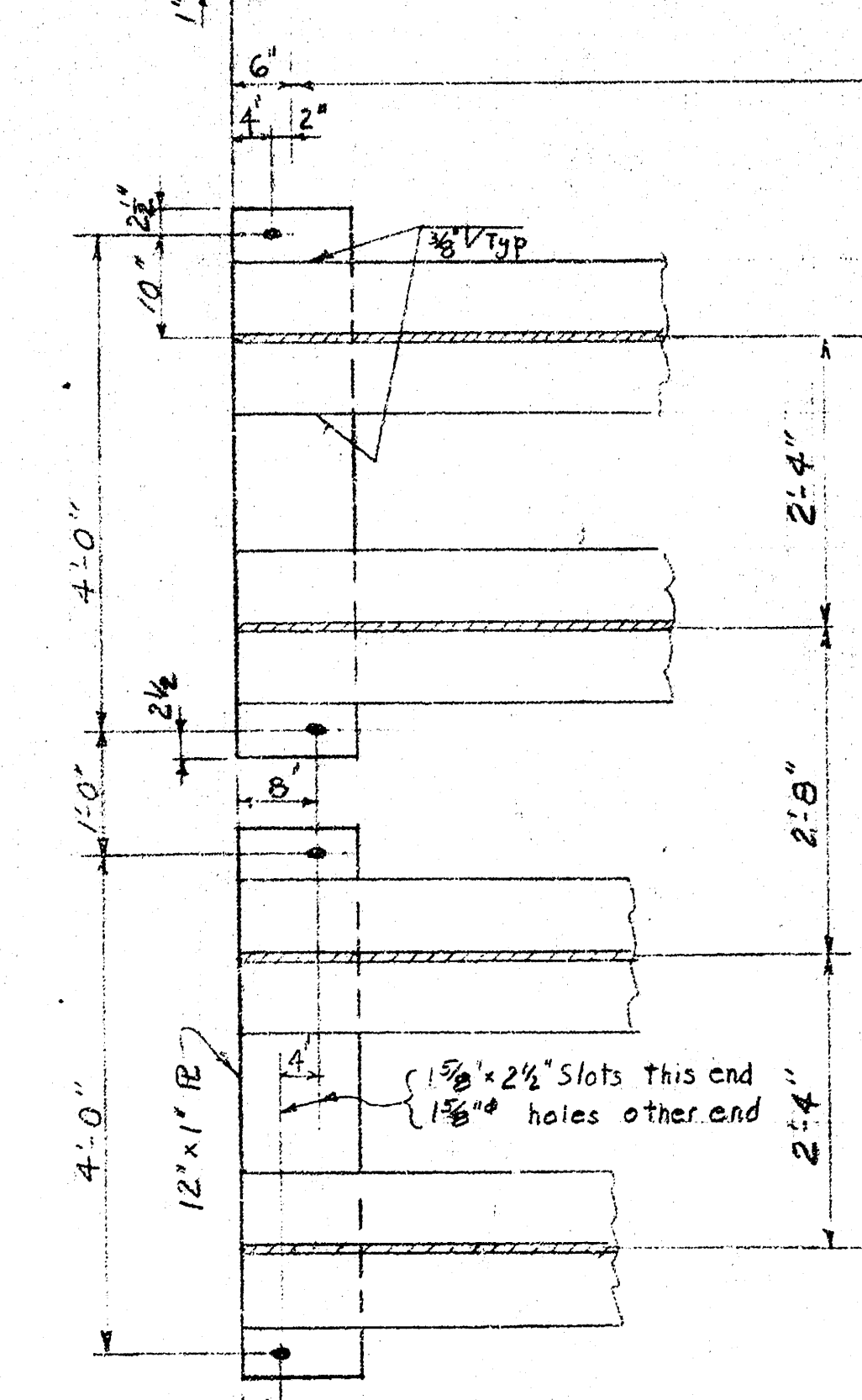
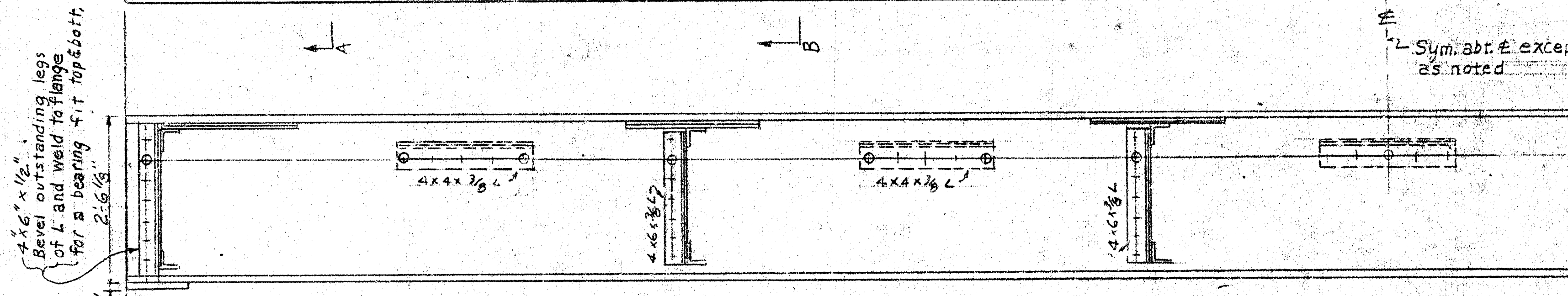
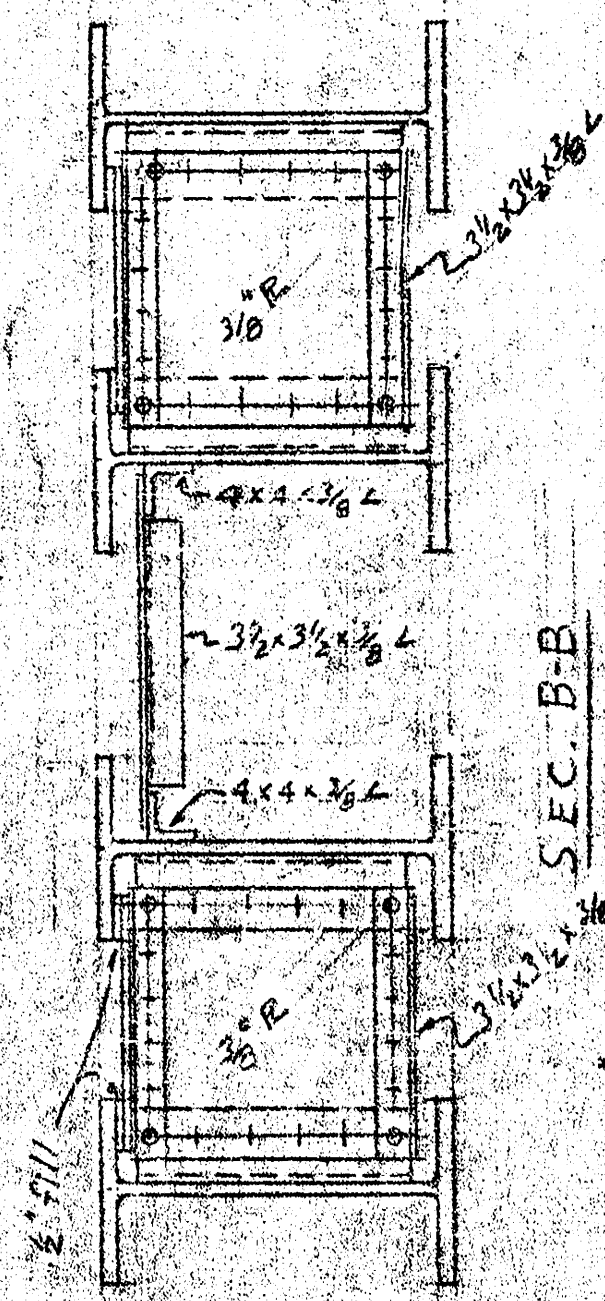
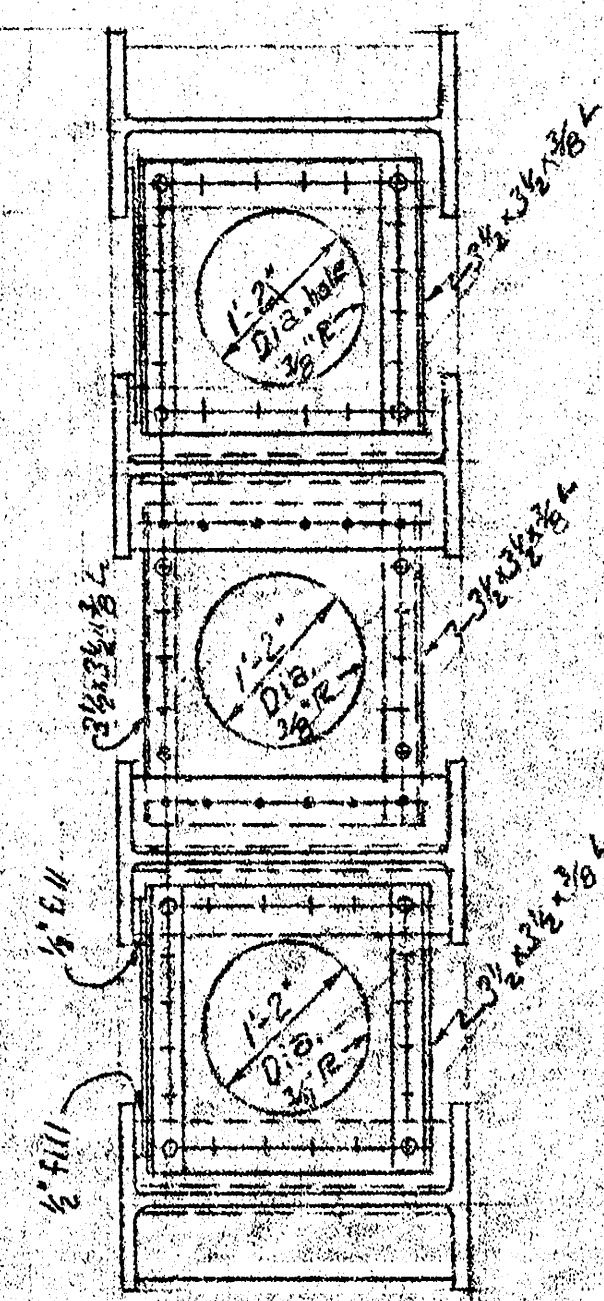
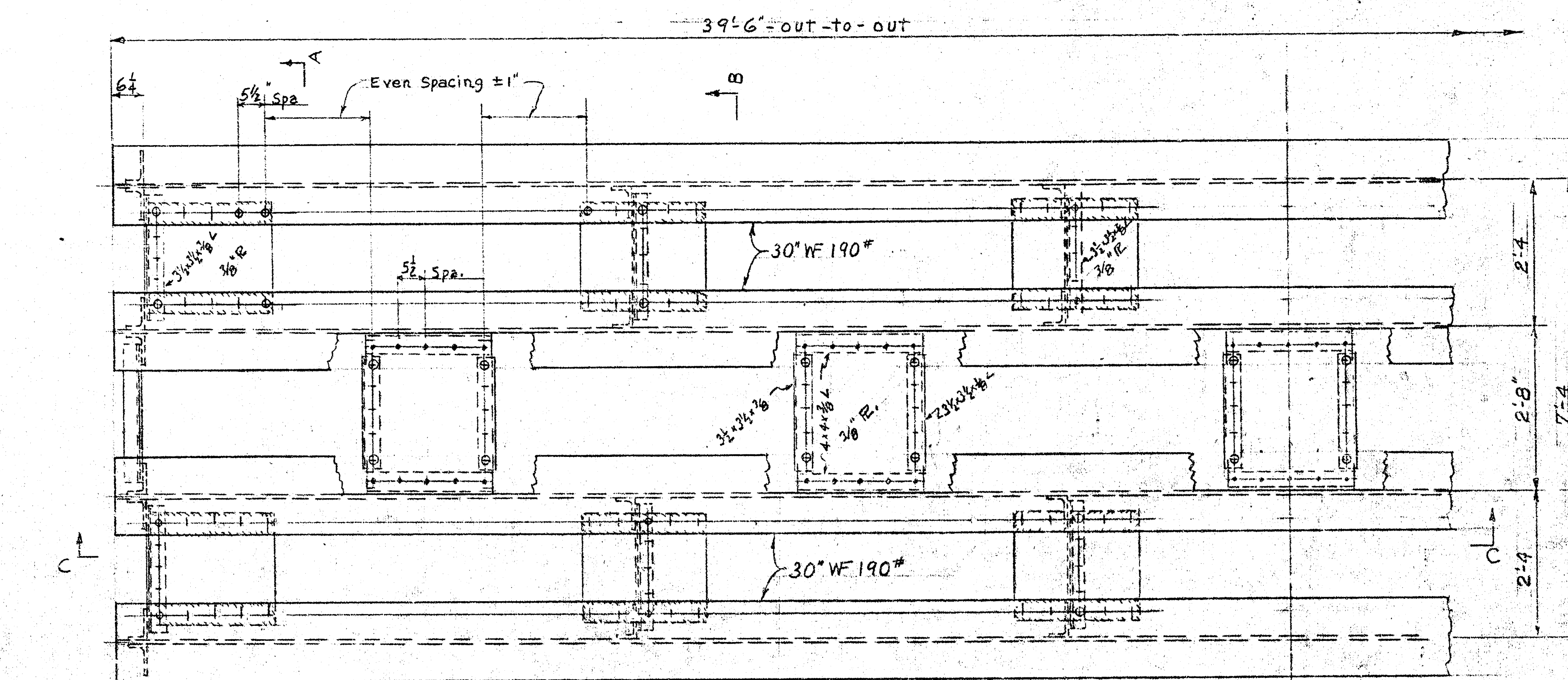
Scales: 3/4" = 1'-0"

OFFICE OF BRIDGE ENGINEER

SPRINGFIELD, MO. MAY 1956

Drawn by: Revisions: 27109-443

Checked by: SHEET 6 OF 10



MAKE-13-COMplete SPANS

Note: Field Connections to be made with high strength bolts with 2 special washers per bolt.

GENERAL NOTES

SPECIFICATIONS FOR DESIGN: American Railway Engineering Association's current "Specifications for Steel Railway Bridges" except modified for Coopers E-53-B Live Load.

MATERIAL, WORKMANSHIP, PAY, QUANTITIES: shall conform to current A.R.E.A. Specifications for Steel Railway Bridges, Structural and non-structural carbon steel.

Shop Rivets: 7/8 inch.

OPEN HOLES: 1 1/2 inch. Unless noted.

EDGE DISTANCE: 1 1/2 inch. Unless noted.

WELDING: To conform to current American Welding Society specifications.

SHOP PAINT: shall have not less than 25% of red lead per gallon of raw linseed oil. One coat of shop paint shall be applied to all surfaces except rivet coats. Shall be applied to top of top lateral plates and angles. No paint to be applied within 3 inches of open holes or to the sides or tops of top flanges of the beams. Cleaning and application shall conform to current A.R.E.A. specifications for Steel Railway Bridges.

BEAMING OF OPEN HOLES: Beam span to be completely shop assembled, all open holes reamed and parts match marked for field direction. Ship knocked down.

SHOP DRAWINGS: Shall be either ink or pencil on linen tracing cloth or reproductions on linen (22 x 36). The tracings shall be the property of and delivered to the Railway after the completion of the contract.

INSPECTION: Certified copies of the mill test reports will be accepted. Shop inspection will be handled by St. L. & S.F. Ry. Co. Notify M.A. Herzog, Engineer of Tests, Springfield, Mo.

SHIP TO: W.B. Mackenzie, Bridge Engineer, Wichita, Kansas. Send notice of shipment to W.B. Mackenzie, Frisco Bldg., Springfield, Mo.

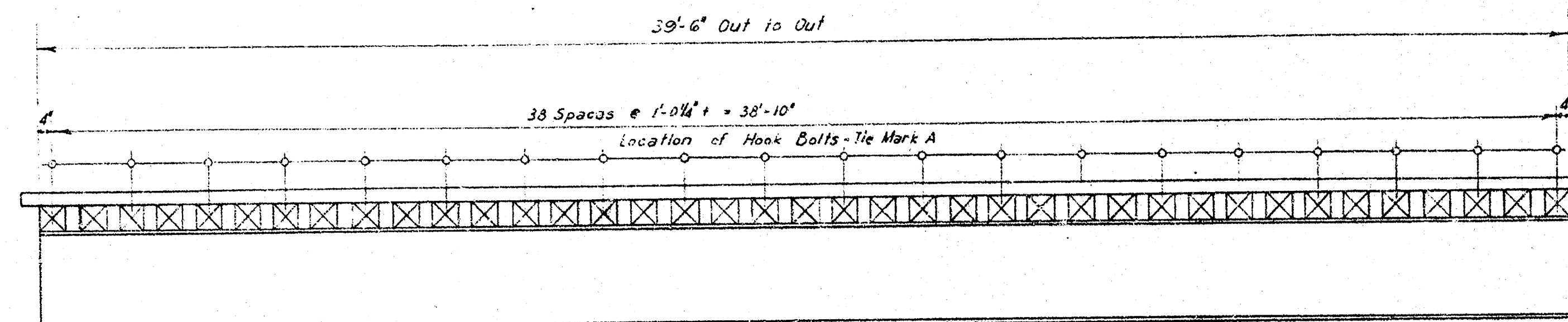
SPECIFICATIONS FOR BOLTS & WASHERS: Bolts to be A.S.P. 30 Hex. Head High-Strength Structural Bolts, carbon steel heat treated to ASTM Spec. A-325. One S.H.S. Hex. Nut, flat washers to be hardened A.S.H. Round Washers, ASTM Spec. A-325. This specification does not include anchor bolts.

ST. LOUIS-SAN FRANCISCO RY.
NORTHERN DIV. BURTON SUB.
WICHITA VALLEY CENTER PROJECT
LITTLE ARKANSAS RIVER DIVERSION
STEEL DESIGN
39'-6" I-BEAM SPAN
BRG-F-516.5
SCALE 3/4"=1'-0"

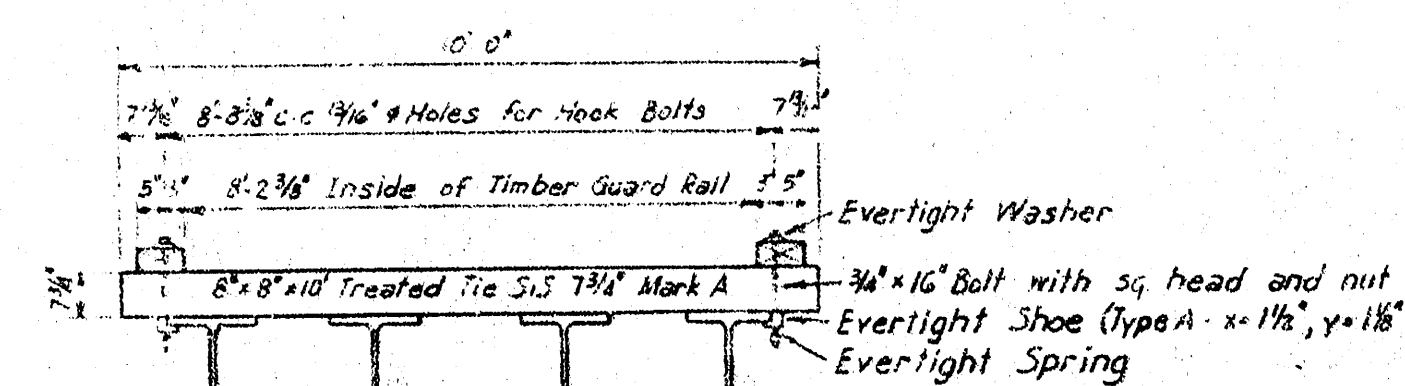
Total Estimated Weight = 477,700#
Lifting weight 2-webs = 17,150#

OFFICE OF BRIDGE ENGINEER
SPRINGFIELD, MO. MAY 1950

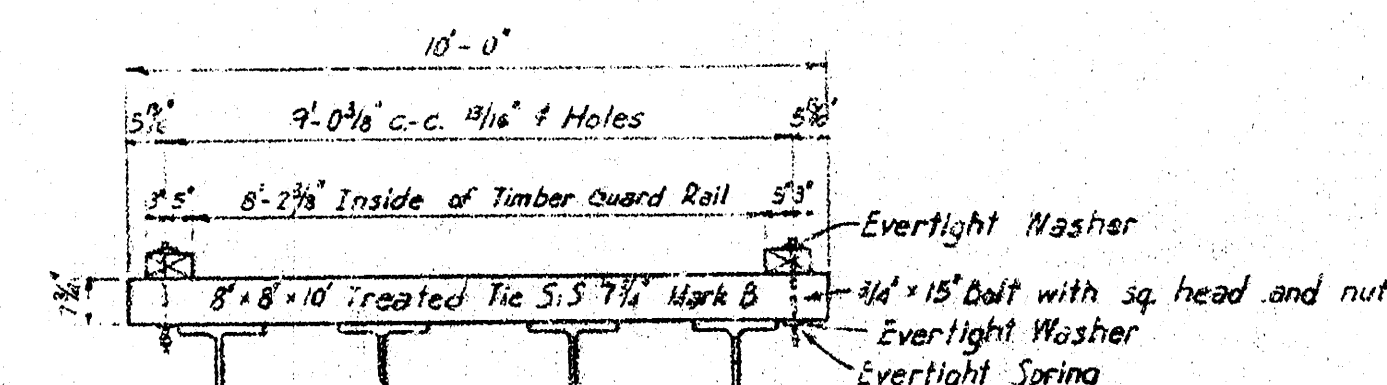
DRAWN-GS	REVISIONS	27109-443
TRACED-GS		
CHECKED-GS		SHEET 7 OF 10



TYPICAL DECK PLAN
Note: Break timber guard rail between spans



TIES FOR HOOK BOLTS - MARK A
20 Required per span - Total 260 Required



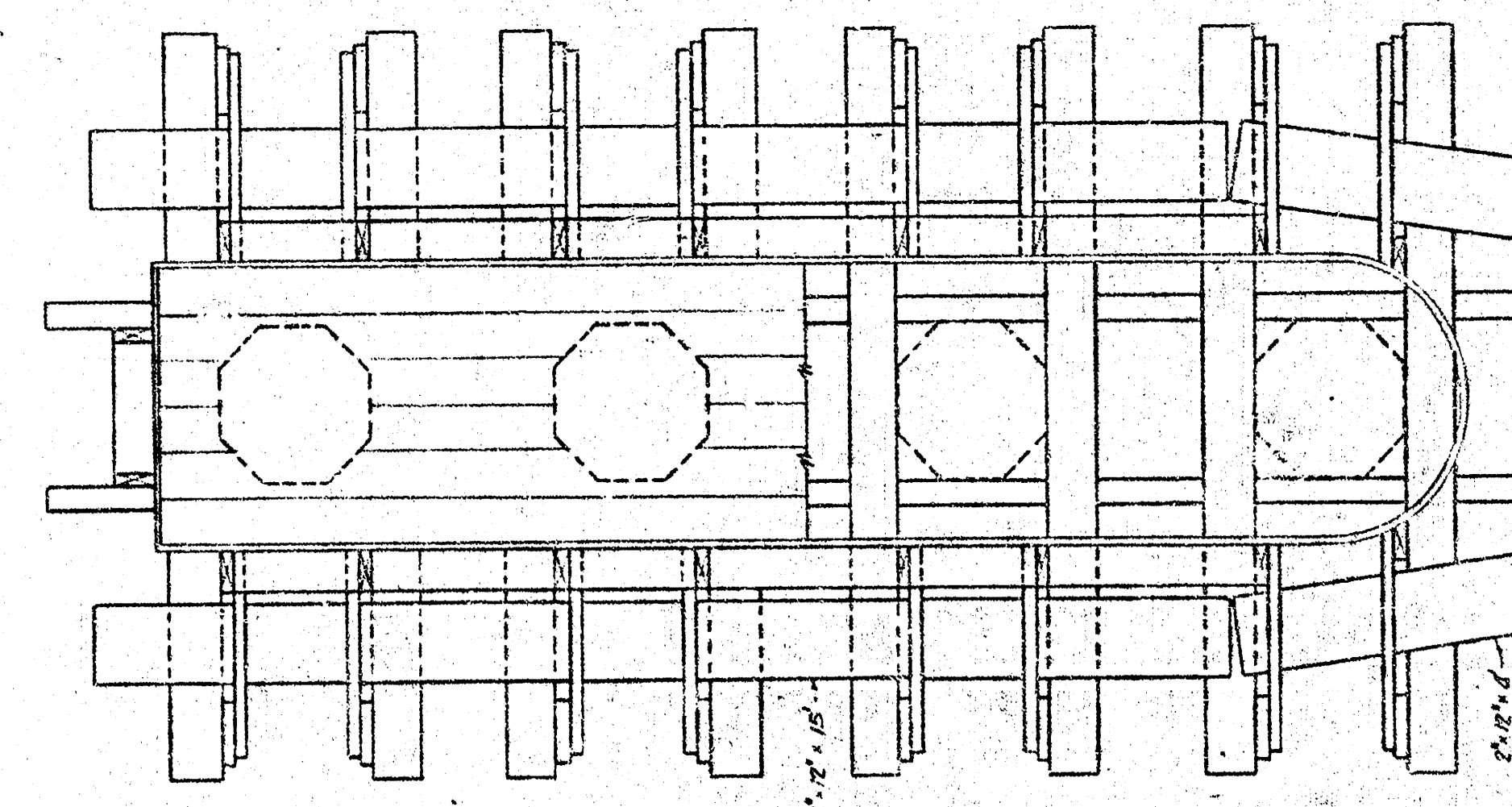
TIES FOR GUARD RAIL BOLTS - MARK B
19 Required per span - Total 247 Required

BILL OF MATERIAL FOR DECK

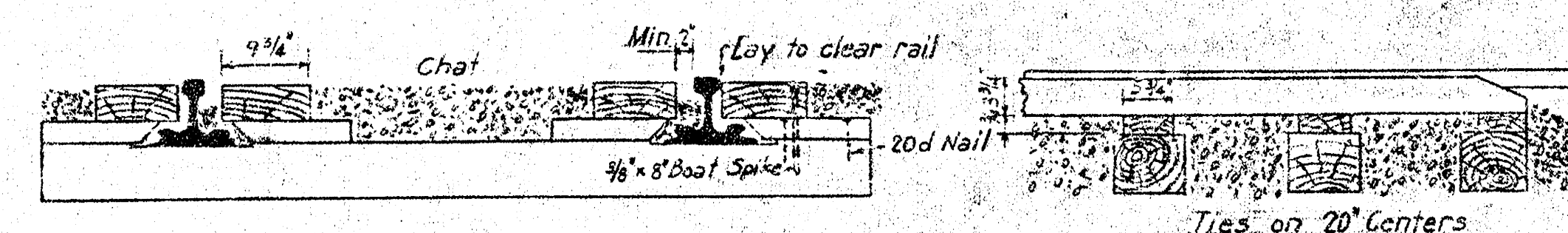
QUANTITY		ITEM
For 1 Span	For 13 Spans	
20	260	8'-0" 8'-0" Treated Tie Mark A S.S. 7/8"
19	247	8'-0" 8'-0" Treated Tie Mark B S.S. 7/8"
40	520	1/4" x 1/2" Bolts with sq. heads and nuts
38	494	1/4" x 1/2" Bolts with sq. heads and nuts
2	26	Everlight Shoes - Type A, 1/4" Bolt, with y 1 1/2"
12	156	Everlight Washers for 1/4" Bolts
78	1014	Everlight Springs for 1/4" Bolts
80 Lin Ft	1040 Lin Ft	4" x 8" Treated Timber Guard Rail
78	1014	Tie Pads

GENERAL NOTES

Ties are to be sized and bored before treating. Guard rail to be furnished blank and holes bored in field. Timber to receive a coat of hot creosote wherever cut in field. Spikes to be dipped in creosote before driving. Tighten Everlight fasteners on ties which are over rivet heads after these ties settle on beams.



FORM FOR CAP ON BENTS
See Sheet 6 for dimensions of cap



PRIVATE ROAD CROSSINGS (4-14' Crossings Required)
See Sheet 1 for Location

BILL OF MATERIALS FOR ROAD CROSSINGS

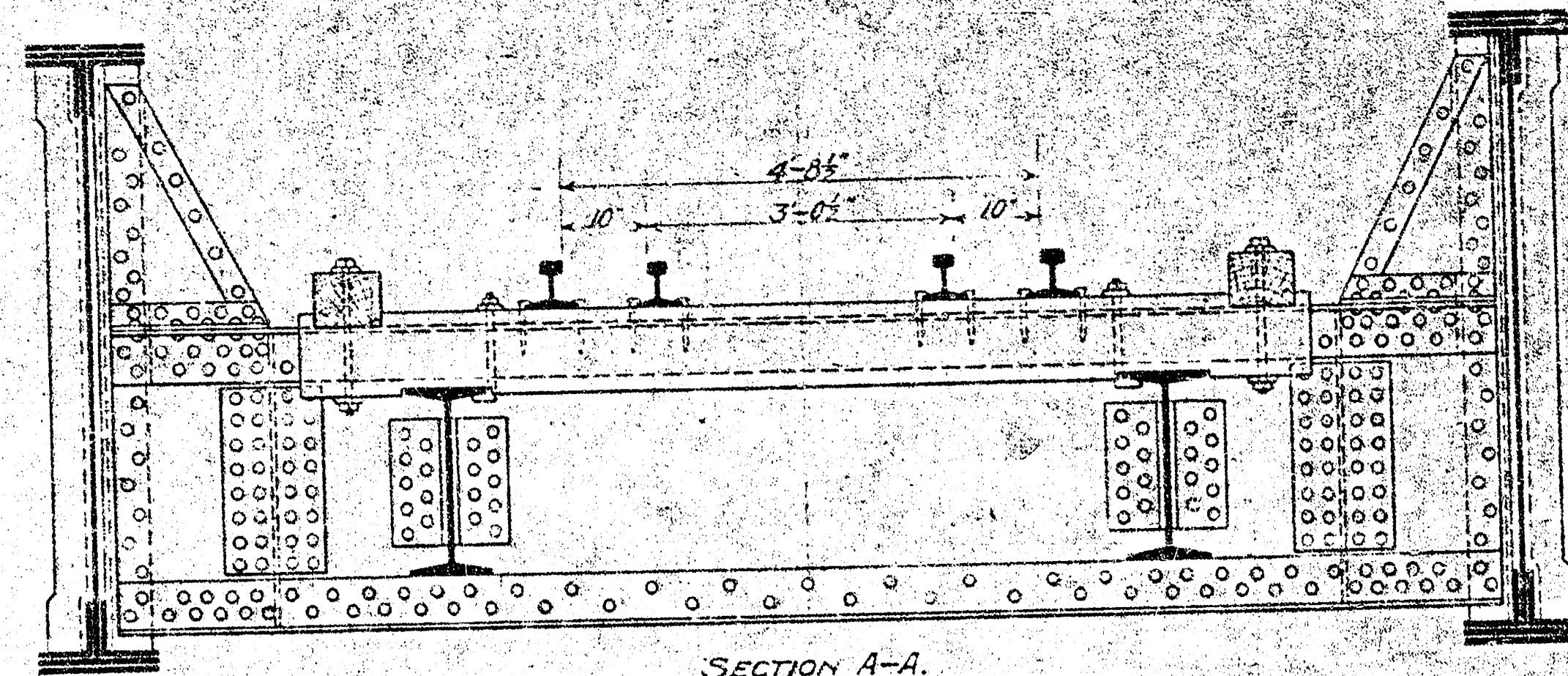
QUANTITY		ITEM
For 1	For 4	
4	16	Treated 4" x 10" x 14" Crossing Plank S.S. 3/4" x 9/16"
36	144	Treated 1" x 6" x 12" Timber Shims S.S. 3/4" x 5/8"
2 Lbs	8 Lbs	20d Nails
72 Lbs	48 Lbs	3/8" x 8" Boat Spikes

Furnish timber per plan 23530-629 for 70" Rail

ST. LOUIS SAN FRANCISCO RY. CO.
NORTHERN DIV. BURTON SUB DIV.
WICHITA - VALLEY CENTER PROJECT
LITTLE ARKANSAS RIVER DIVERSION
DECK PLAN, FORMS, & PVT. ROAD CROSSINGS
BRG. F-516.5
Scale: 1/4" = 1'

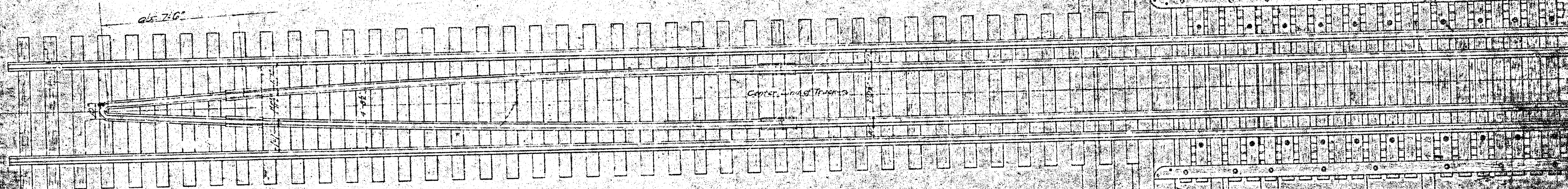
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SPRINGFIELD, MO. MAY, 1956
Drawn - LUK Revisions 27109-443
Traced - HRR
Checked - H

SHEET 8 OF 10

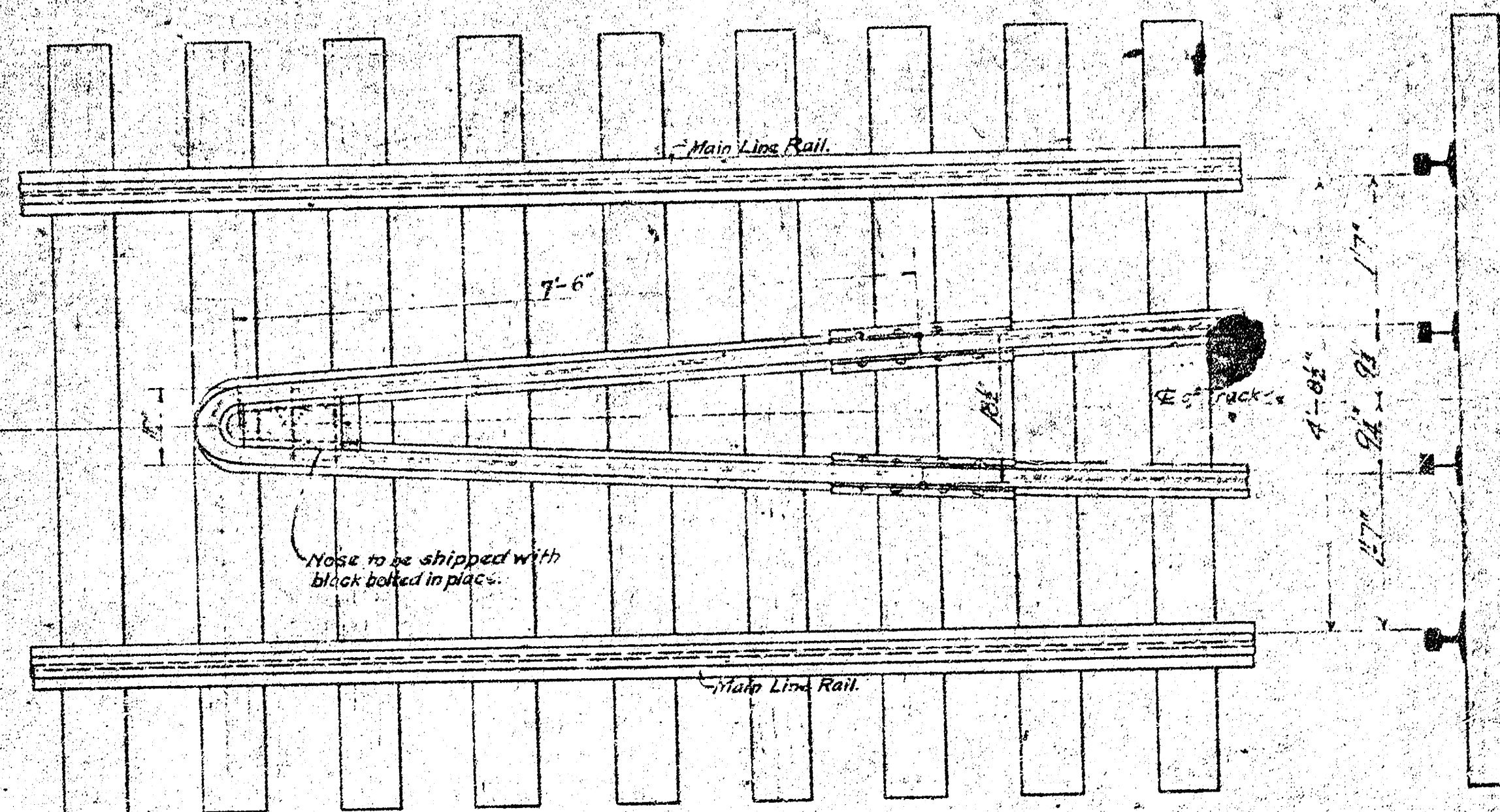


SECTION A-A.

20' Dist. bet. to adj. 3' Curve
30' Dist. bet. to adj. 3' Curve

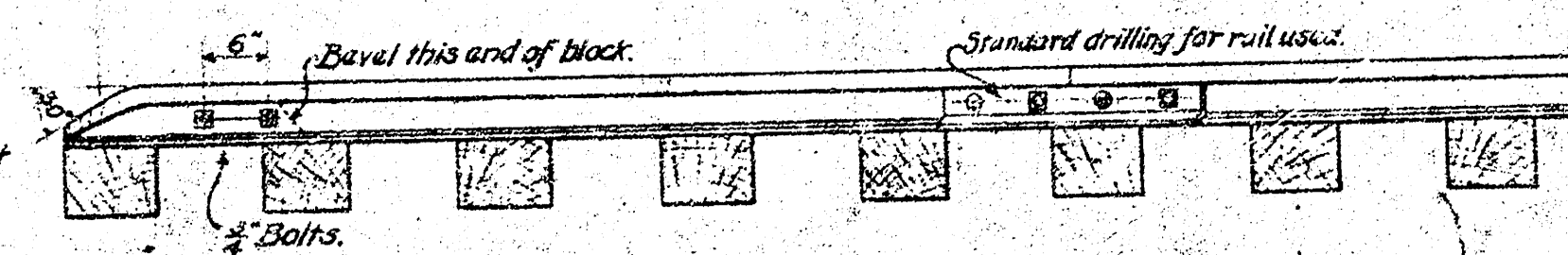


60'-0" Minimum for single track (see note below)
Length required dependent upon local conditions.



Nose to be shipped with black bolts in place.

Nose to be made from a 15'-0" section of rail, same weight as guard rail, and to be bent and point hammered down in shop, as shown.



GENERAL NOTES —

Inner steel guard rails shall be placed —
1. On all through truss and through girder steel bridges on both straight and curved track.
2. On deck steel bridges and viaducts over 50 feet long on curved track.

3. On high and important deck steel bridges and viaducts on straight track.

4. On high and important timber trestle bridges subject to approval of the Chief Engineer.

5. On tracks through tunnels and on tracks adjacent to columns, piers and abutments of important overhead structures.

The inner guard rail shall extend 60 feet beyond the structure at each end on single track. On double track it shall extend 60 feet beyond the structure on the approaching end and 15 feet on the leaving end.

Where there is a trestle approach to a steel span, if not over 300 feet long, the guard rail shall extend over it and the distance prescribed above, beyond its end. If over 300 feet long the guard rail shall be laid over the span and beyond its ends, as prescribed above, except as provided in Section 4 (above).

Inner steel guard rails shall be full spiked and full bolted their entire length.

JAS. W. LUSE, W. C. KILPATRICK, JR., ENGINEERS
ST. LOUIS & SAN FRANCISCO RAILROAD
INNER GUARD RAIL

SCALE: 1" = 10' (Horizontal)
1" = 10' (Vertical)

APPROVED: [Signature] DATE: [Blank]

ACCEPTED: [Signature] DATE: [Blank]

REVIEWED: [Signature] DATE: [Blank]

REVISIONS: [Blank]

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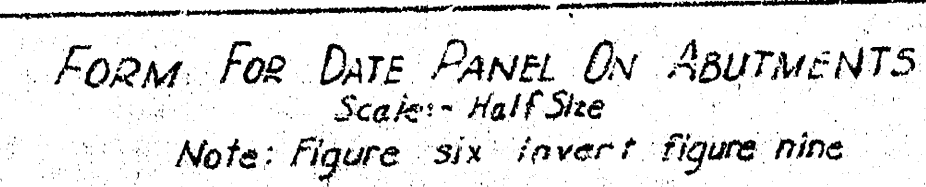
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ST. LOUIS SAN FRANCISCO RY. CO.
NORTHERN DIV. BURTON SUB DIV.
WICHITA - VALLEY CENTER PROJECT
LITTLE ARKANSAS RIVER DIVERSION
DATE PANEL & MATERIAL RECORD
BRG. F-516.5

Scale as Shown

OFFICE OF BRIDGE ENGINEER

SPRINGFIELD, MD. MAY 1956

Drawn-WHR	Revisions	27109-443
Traced-WHR		
Checked-WHR		
		SHEET 10 OF 10