

DEC 10 1957

STATE OF IOWA
STATE HIGHWAY COMMISSION
DESIGN FOR
55' x 20' PRE-STRESSED CONCRETE BEAM BRIDGE
SECONDARY ROAD SYSTEM PROJ. S-2672 (1)
CRAWFORD COUNTY
AUGUST 1957.

MILEAGE SUMMARY: = 57'-0" = 0.01079 MILES.

SPECIFICATIONS:
 Design: A.A.S.H.O. Series of 1953.
 Construction: Standard Specifications of the Iowa State Highway Commission, Series of 1956, plus current Special Provisions except as noted.

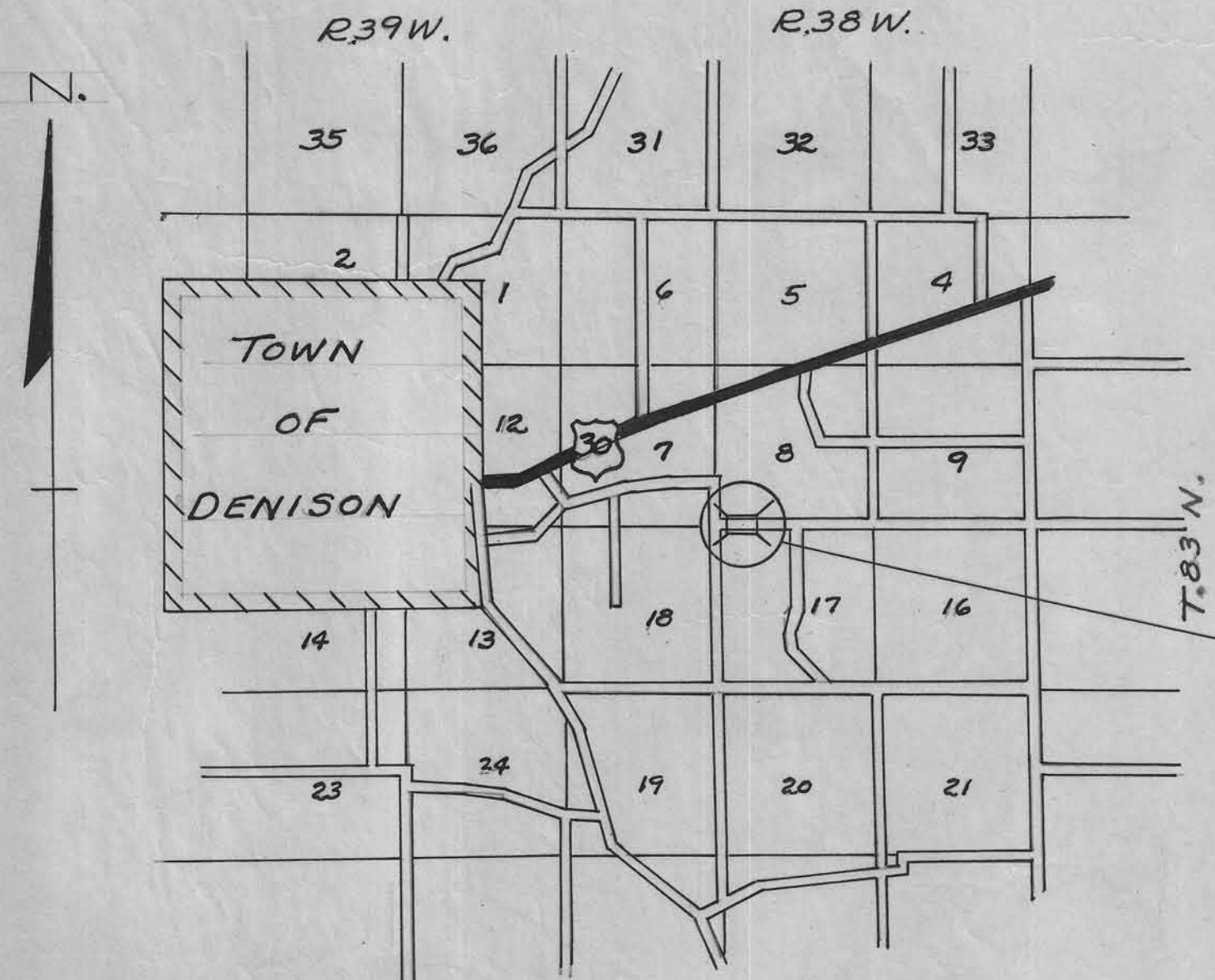
DESIGN-757, EAST BOYER TWP. CRAWFORD COUNTY
SEC. 8-17, STA. 86+13.5 OVER WALNUT CREEK.
55' x 20' PRESTRESSED CONCRETE BEAM BRIDGE

DESCRIPTION	ABUTMENTS		SUPERSTRUCT.		TOTAL	
CONCRETE Class - "A"	12.66	C.Y.	29.70	C.Y.	42.36	C.Y.
REIN. STEEL	1314	LBS.	6253	LBS.	7567	LBS.
STRUCT. STEEL	3464	"	1052	"	4516	"
PRE-STRESSED CONCRETE BEAMS			5 @ 55'-0" (a)		5 @ 55'-0" (a)	
HANDRAIL			130'-0"	L.F.	130'-0"	L.F.
EXCAVATION Class 21	14.4	C.Y.			14.4	C.Y.
WOOD RAIL POSTS 8"x6'			4		4	
TREATED WOOD PILING	* 880	L.F.			880	L.F.
TREATED LUMBER	6176	F.B.M.			6176	F.B.M.
GALVANIZED HARDWARE	170	LBS.			170	LBS.
EXCAVATION Class #20	462	C.Y.			462	C.Y.
" Class #10	731	C.Y.			731	C.Y.
REMOVAL OF OLD STRUCTURE					LUMP SUM.	

In letting of Dec. 10, 1957

* 12 @ 40' (OVERSIZE)
 16 @ 25'

NOTE: Crawford County Will furnish and place Bridge Sign Assemblies as Specified by S & T Instruction No. 11, Revised March 1, 1957.



LOCATION MAP
 SCALE 1" = 1 MILE.

DESIGN No. -757
 PROJECT No. S-2672 (1)

APPROVED

BOARD OF SUPERVISORS DATE

APPROVED

CHIEF ENGINEER. DATE
 IOWA HIGHWAY COMMISSION.

DEPARTMENT OF COMMERCE
 BUREAU OF PUBLIC ROADS.

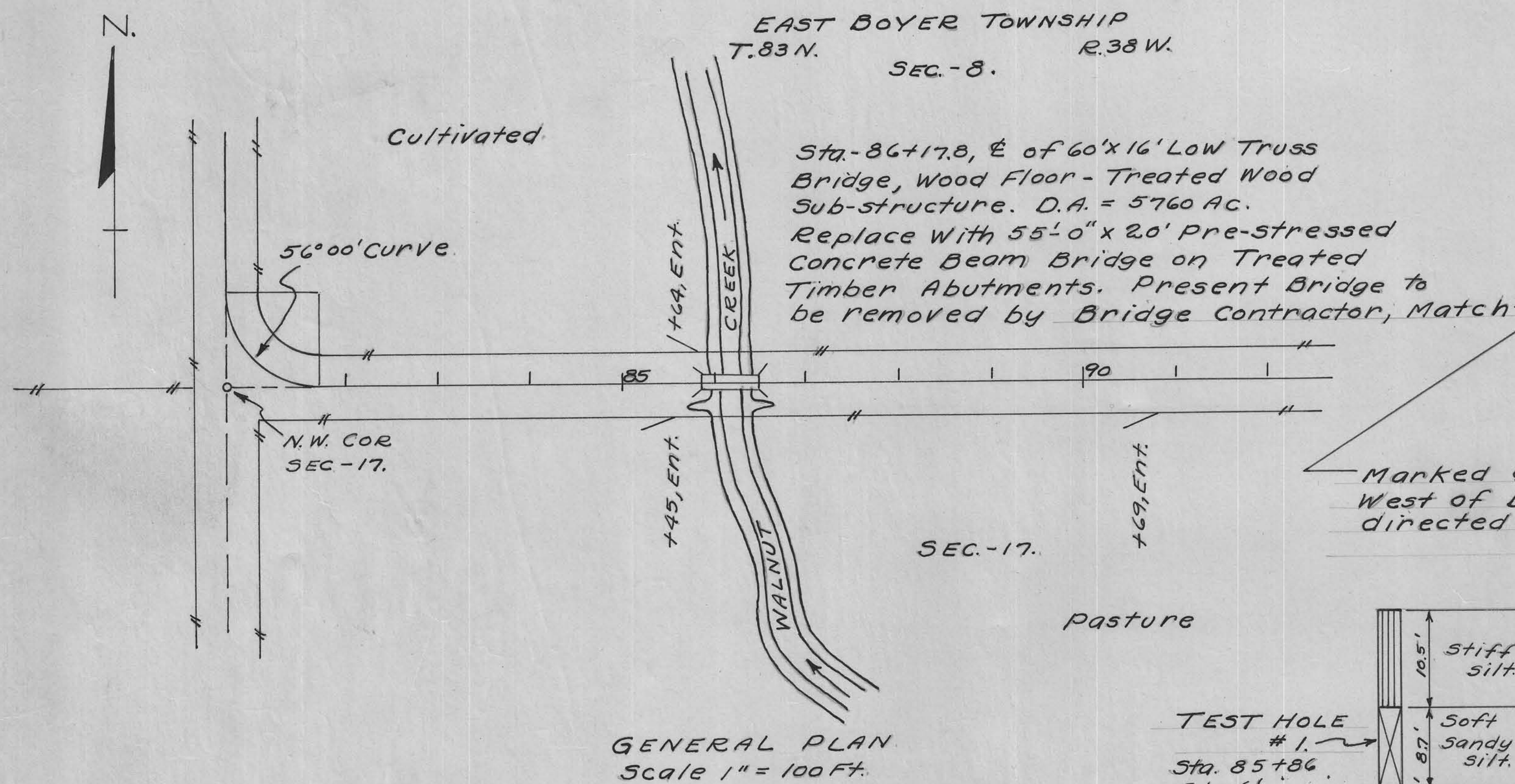
RECOMMENDED FOR APPROVAL

DISTRICT ENGINEER DATE

APPROVED

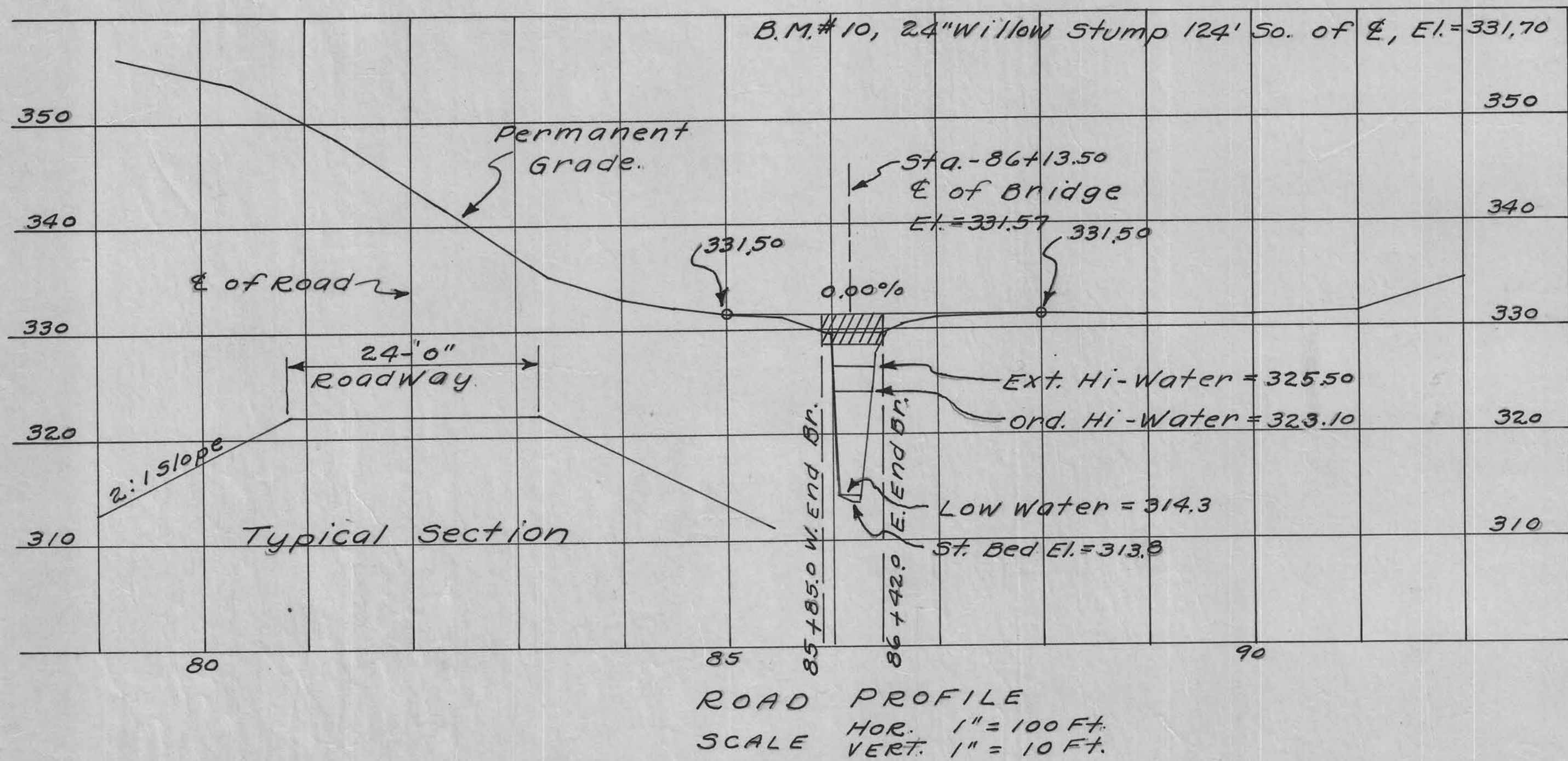
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 11-12-57

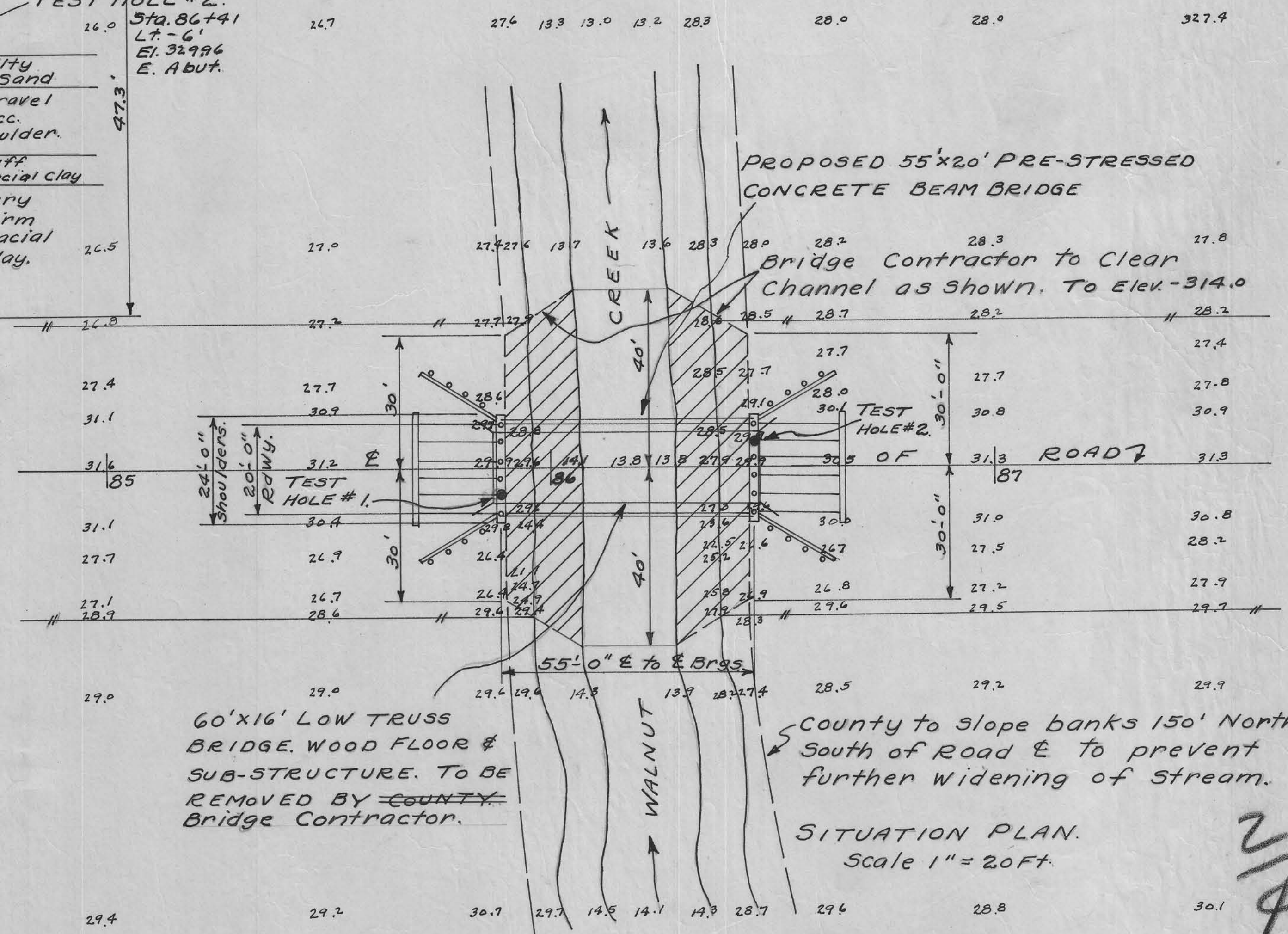
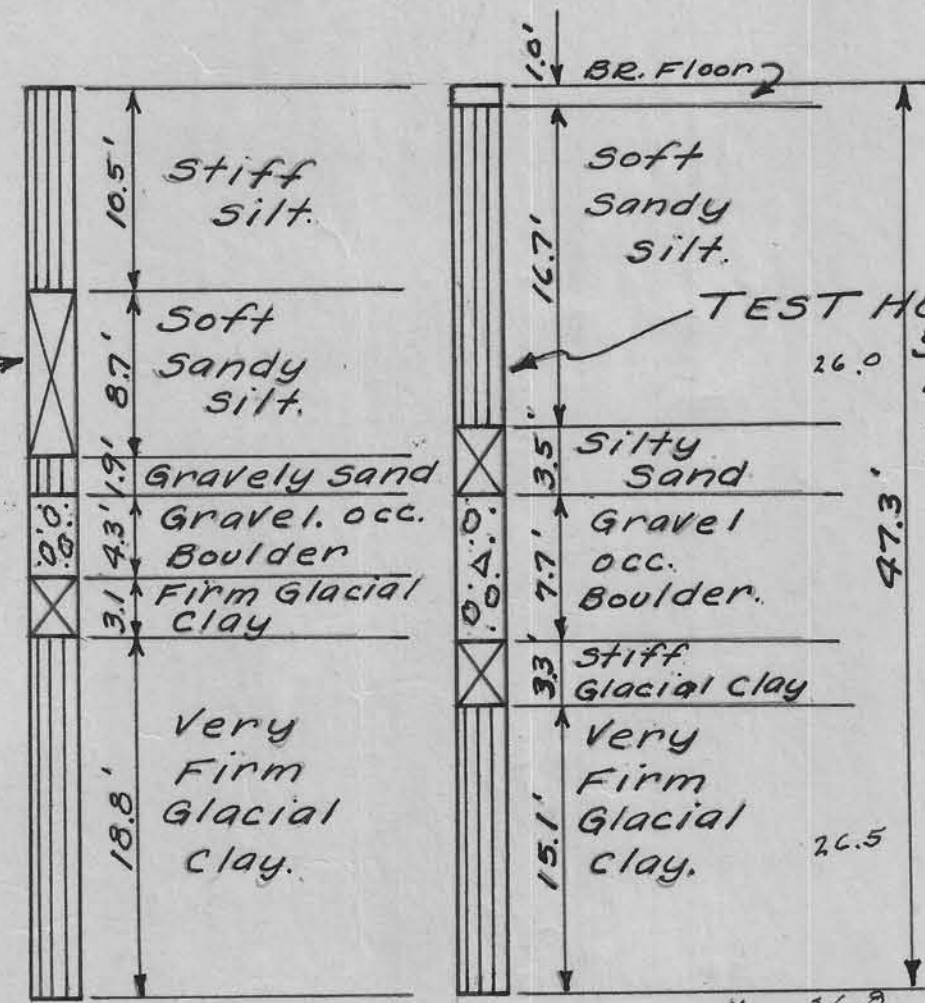
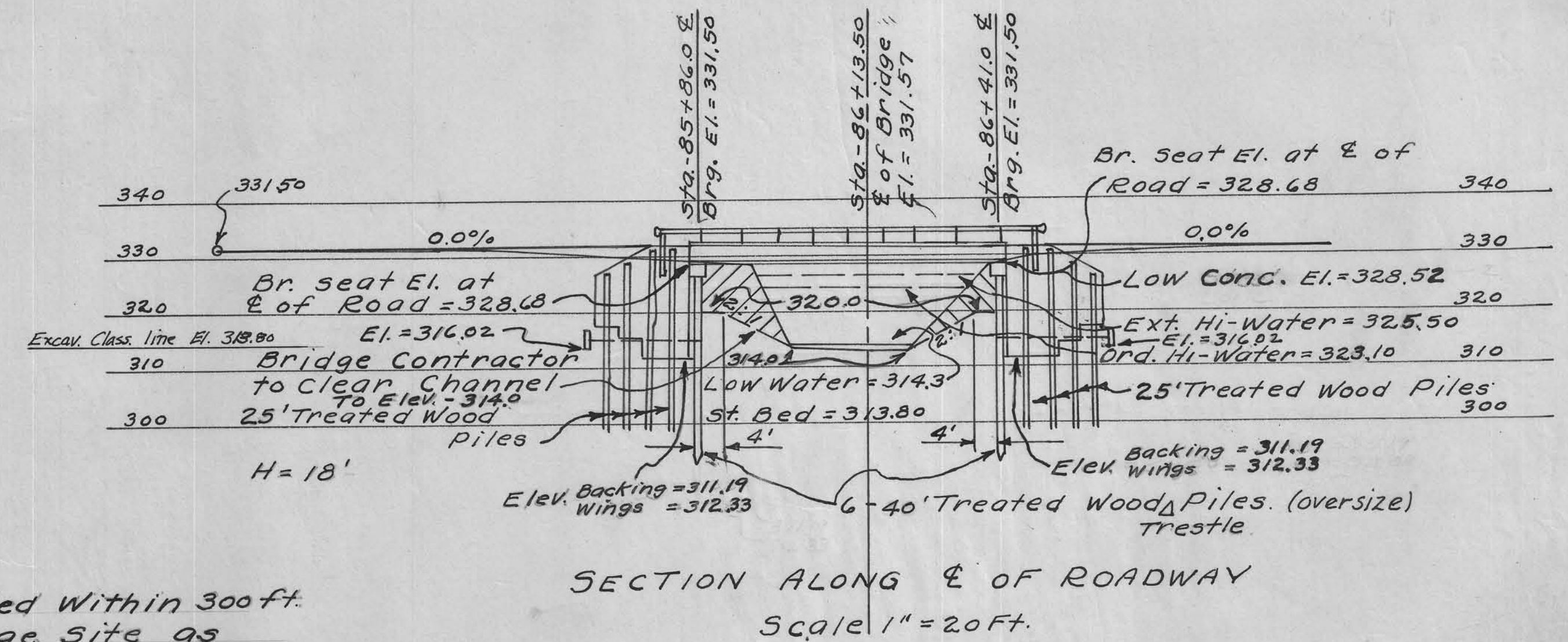


GENERAL NOTES:

All Lumber is to be Creosoted. Backing & Wing plank in 10" & 12" widths may be substituted for 8" plank shown but payment will be made on basis of quantities shown. All piling are to be Creosoted & are to comply with the specifications for Treated Timber Trestle Piles. All hardware is to be galvanized. C.I. Ogee or malleable Washers are to be used under all heads & nuts bearing on wood. All bolts to have square heads & nuts. For details of Super-structure refer to Iowa Highway Commission Standard PC-5 and for details of Abutments refer to Standard H10-2 with further details on sheet #3. of these plans. All materials & Construction to conform with the Iowa Highway Commission Standard Specifications, Series of 1956.



Marked & piled within 300ft. West of Bridge Site as directed by the Engineer.

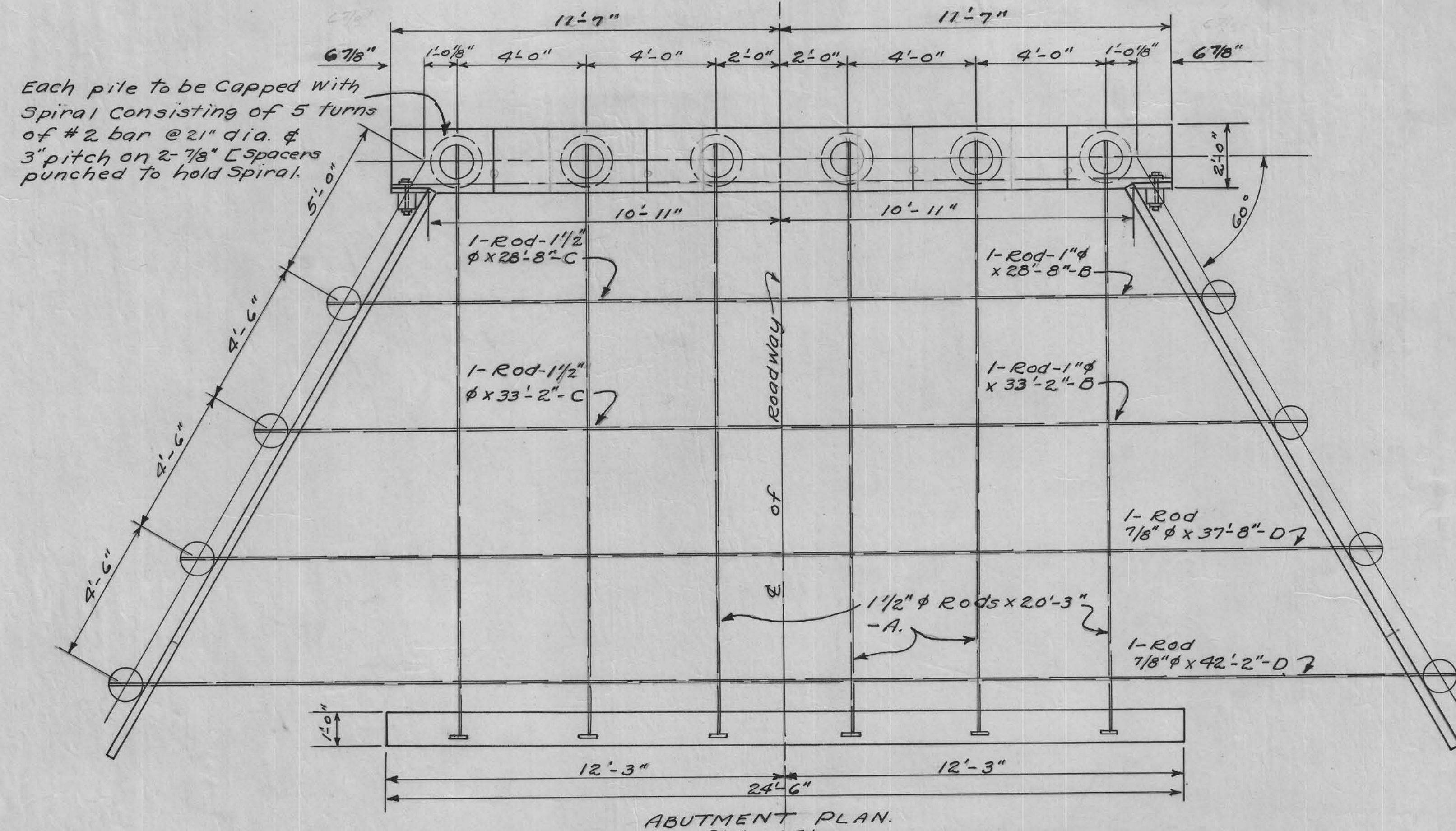
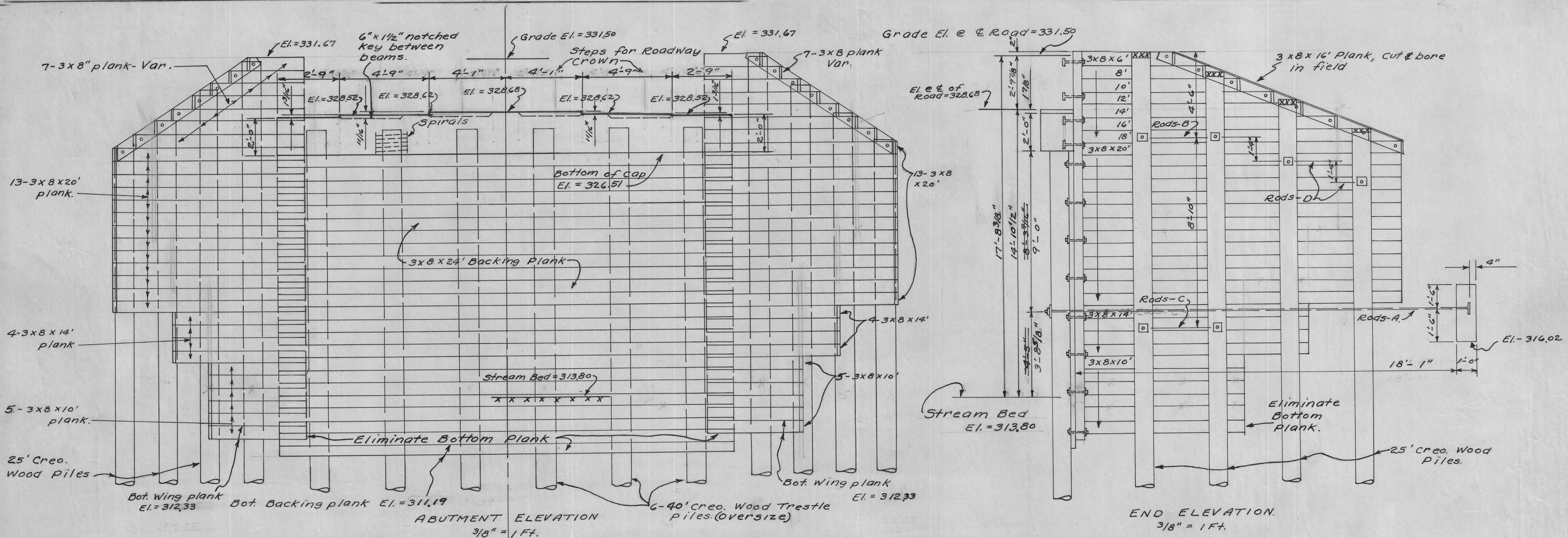


DESIGN FOR
55'x20' PRE-STRESSED CONCRETE BEAM BRIDGE
CONCRETE FLOOR - STEEL HANDRAIL TYPE "C"

Location:
Section 8-17
East Boyer Twp.
T.83 N. R.38 W.

STA-86+13.5
PROJECT No. S-2672.(1)
CRAWFORD COUNTY, IOWA.

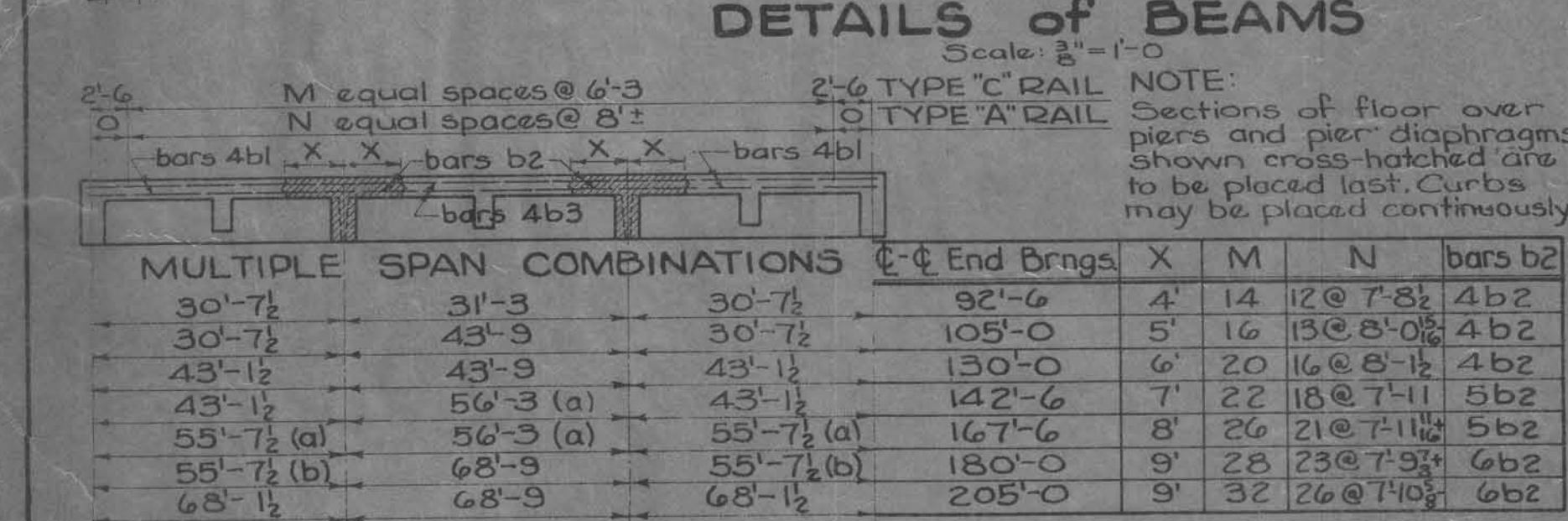
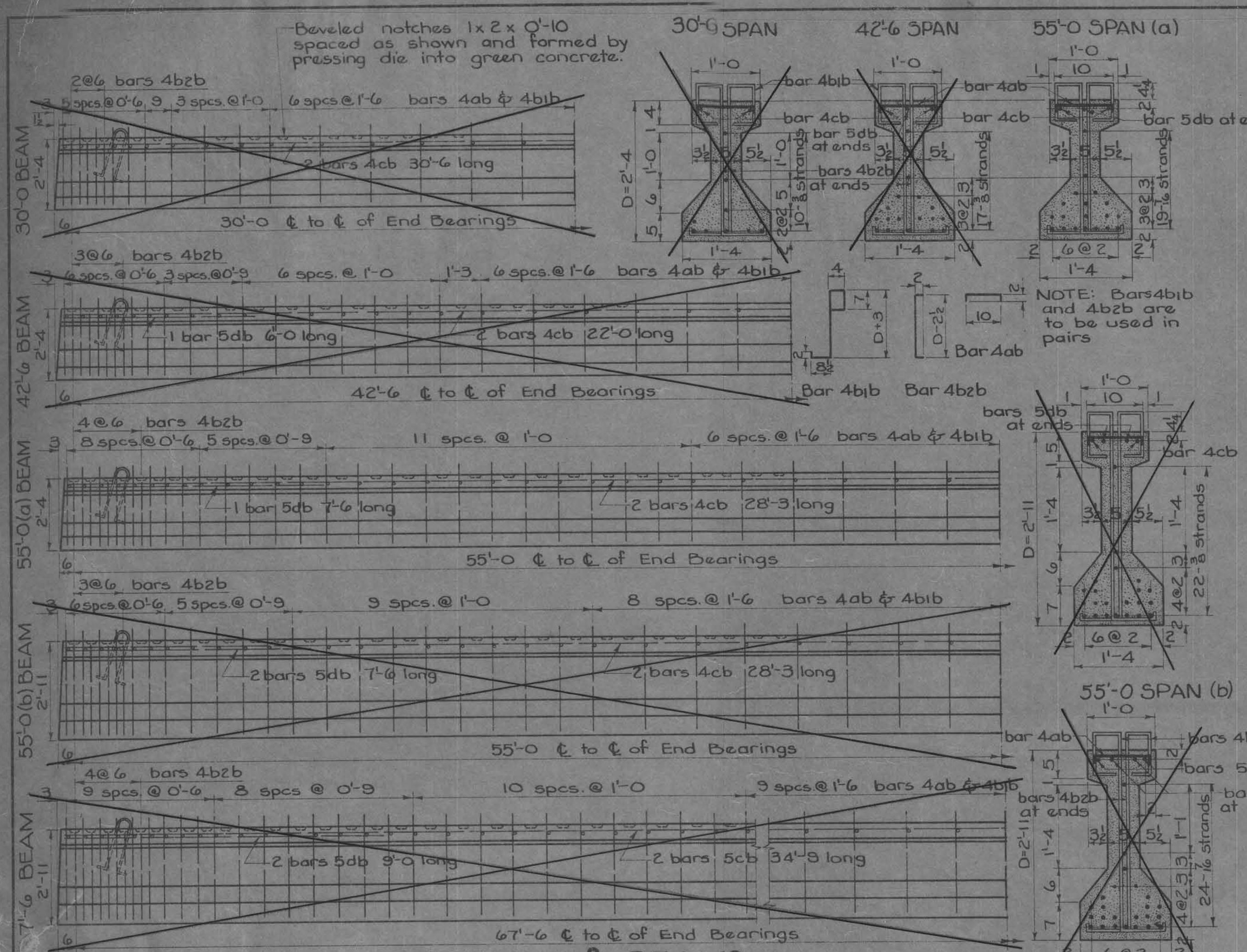
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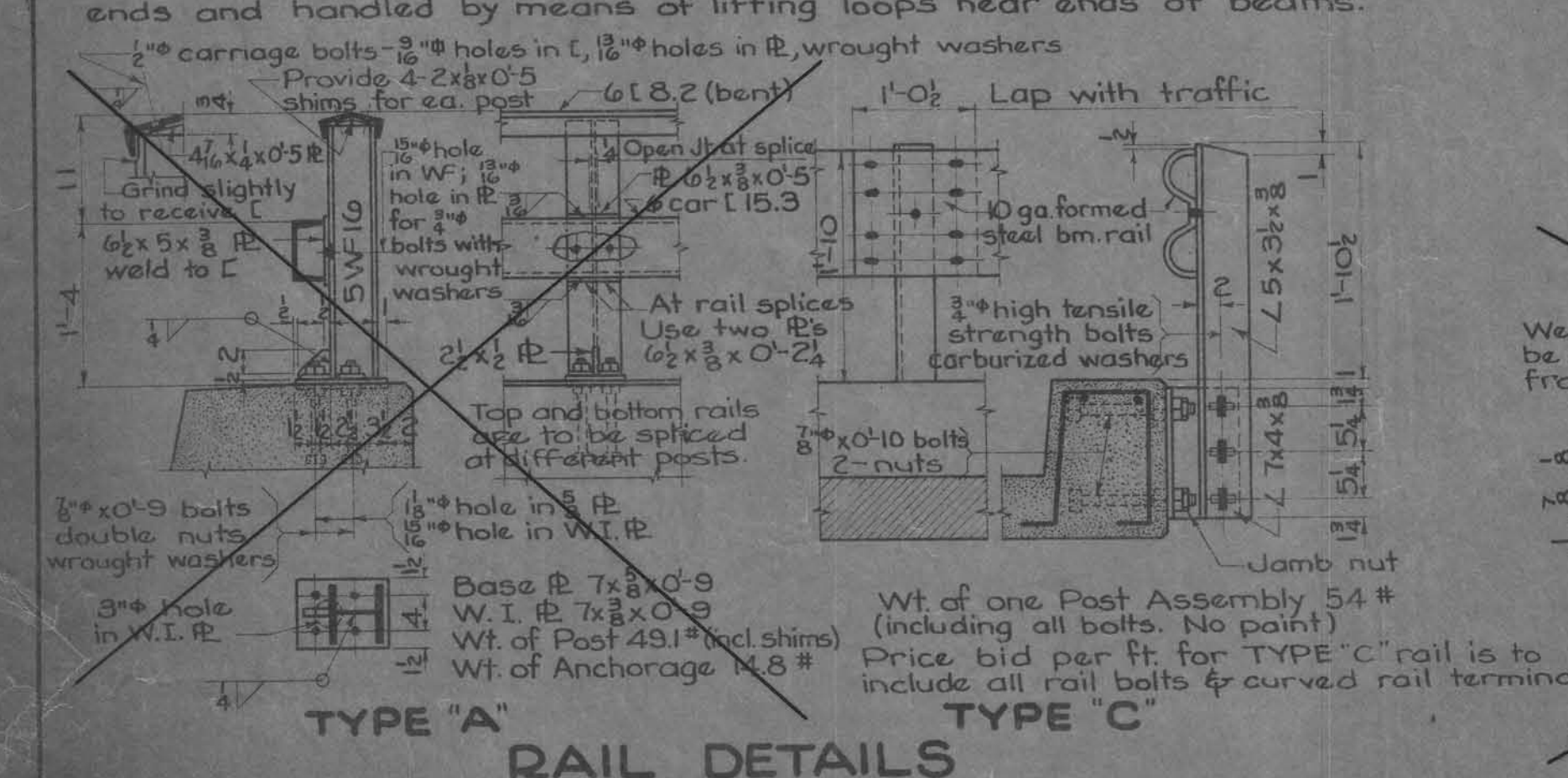
QUANTITIES - ONE ABUTMENT						
Mark	Description	Shape	Size	Length	No	Quant.
	Wing Piles			25'-0"	8	200 LF
	Brq. Piles (Oversize)			40'-0"	6	240 "
	Total Piling =					440 LF
	Backing Plank	3x8	10'-0"	23	460 FBM	
	" "	"	14'-0"	23	644 "	
	Wing Plank	"	6'-0"	2	24 "	
	" "	"	8'-0"	2	32 "	
	" "	"	10'-0"	12	240 "	
	" "	"	12'-0"	2	48 "	
	" "	"	14'-0"	10	280 "	
	" "	"	16'-0"	2	64 "	
	" "	"	18'-0"	2	72 "	
	" "	"	20'-0"	26	1040 "	
	" Slope	"	16'-0"	2	64 "	
	Nailers	6x6	20'-0"	2	120 "	
	Total Creosoted Lumber =					3088 FBM
	Struct Steel					1732 Lbs
	Concrete - Deadman					2.73 yds
	" - Abutment Cap					3.60 "
	Total Concrete					6.33 "
	Rein. Steel - Deadman					2.78 Lbs
	" - Abutment Cap					3.79 "
	Total Rein. Steel =					6.57 Lbs
	Galvanized Hardware					85 Lbs

GENERAL NOTE:
 For construction details not shown hereon refer to Iowa Highway Commission Standard H10-2.

DESIGN FOR
 55' x 20' PRE-STRESSED CONCRETE BEAM BRIDGE
 CONCRETE FLOOR - STEEL HANDRAIL TYPE "C"
 Location: Section 8-17, East Boyer Twp., 7.83 N. R. 38 W.
 STA. 86+13.5 PROJECT No. 5-2672(1)
 CRAWFORD COUNTY, IOWA.
 Sheet #3 of 4.
 CRAWFORD COUNTY. DESIGN No. - 757. PROJ. 5-2672(1)



NOTES ON PRESTRESSED BEAMS:
 Concrete in beams shall have a 28 day crushing strength of 5000 psi and a minimum of 4500 p.s.i. when stress is released. It shall contain no Class 'V' aggregate. The maximum size of coarse aggregate shall be 1".
 Prestressing tendons shall be 7 wire strands of high strength uncoated wire, stress relieved after stranding with a modulus of elasticity of about 25,000,000, ultimate breaking strength of 27,000 lbs. for 1/2 strands and 20,000 lbs. for 3/4 strands, yield strength (0.2% offset) of 85% of the ultimate and minimum elongation in 10" of 4%. Strands are to be initially stressed to 70% of the ultimate - 18,900 for 1/2 and 14,000 for 3/4. Stress is to be determined by the measured elongation and checked by gauges on calibrated jacks.
 After release of strands, beams are to be supported at all times near ends and handled by means of lifting loops near ends of beams.
 1/2" carriage bolts - 3/8" holes in L, 1/2" holes in R, wrought washers
 Provide 4 2x4x0.5 shims for ea. post
 6L8,2 (bent)
 1'-0" Lap with traffic
 Grind slightly to receive L
 6x5x3/8 R weld to L
 1/2" hole in W.F. for 3/8" car L15.3
 At rail splices use two R's 6x5x3/8 x 0'-2 1/2
 Top and bottom rails are to be spaced at different posts.
 3"x0'-9 bolts double nuts wrought washers
 3"x1 hole in W.F.
 Base R 7x2x0'-9 W.I. R 7x3x0'-9 Wt. of Post 49# (incl. shims) Wt. of Anchorage 14.8#
 Wt. of one Post Assembly 54# (including all bolts. No paint)
 Price bid per ft. for TYPE 'C' rail is to include all rail bolts & curved rail terminals.

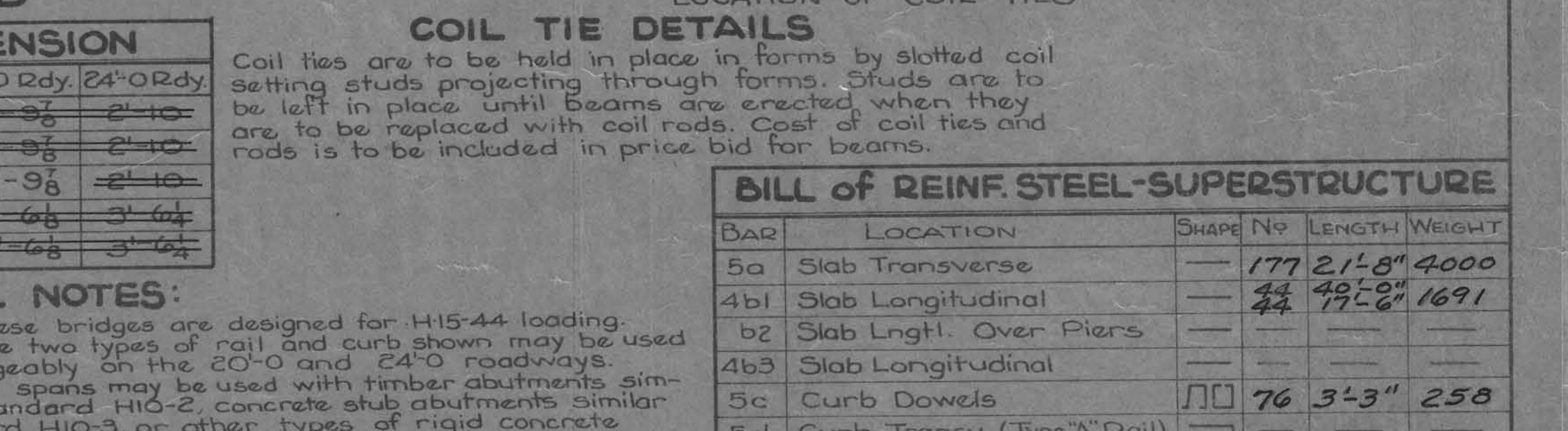
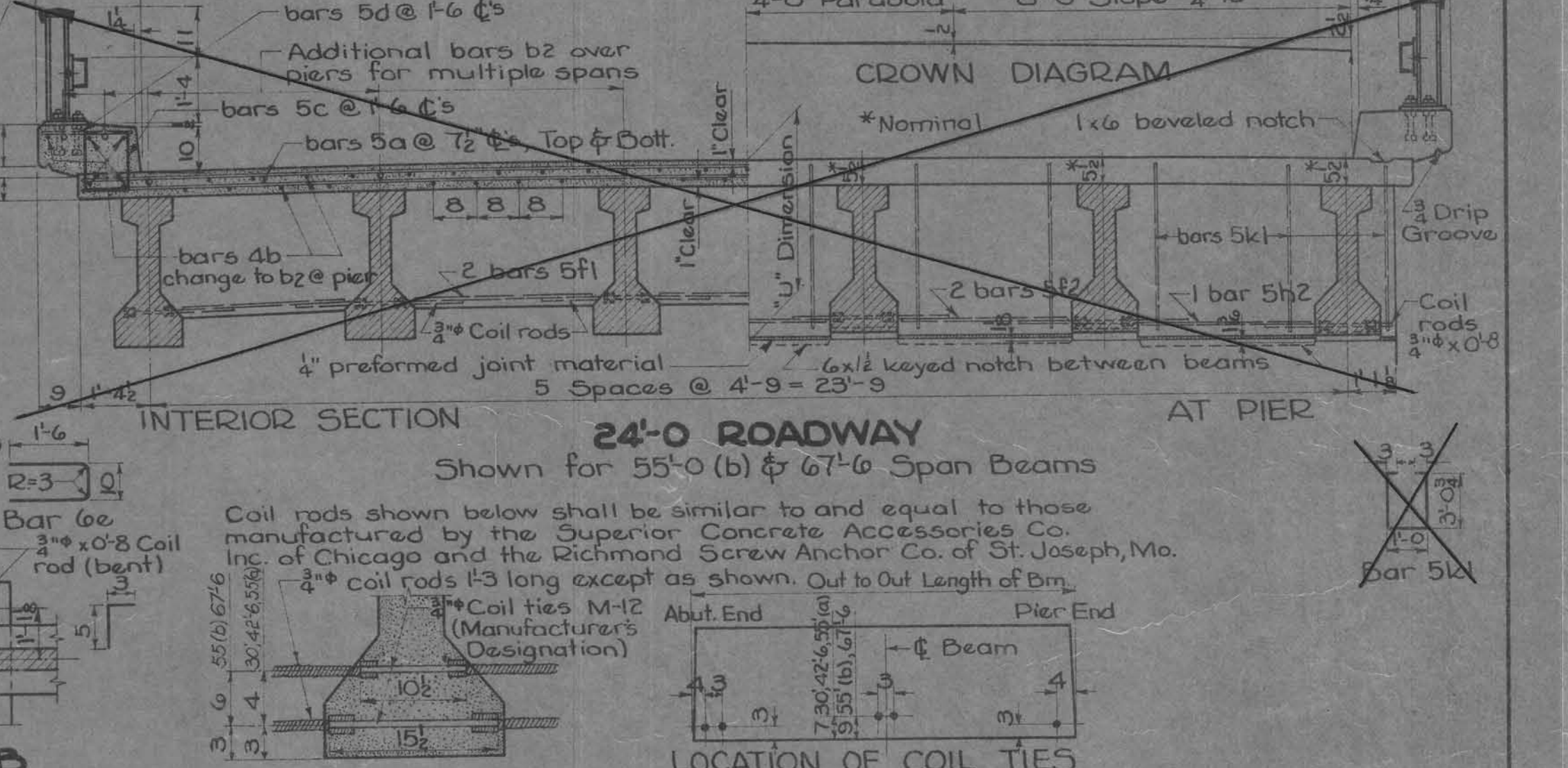
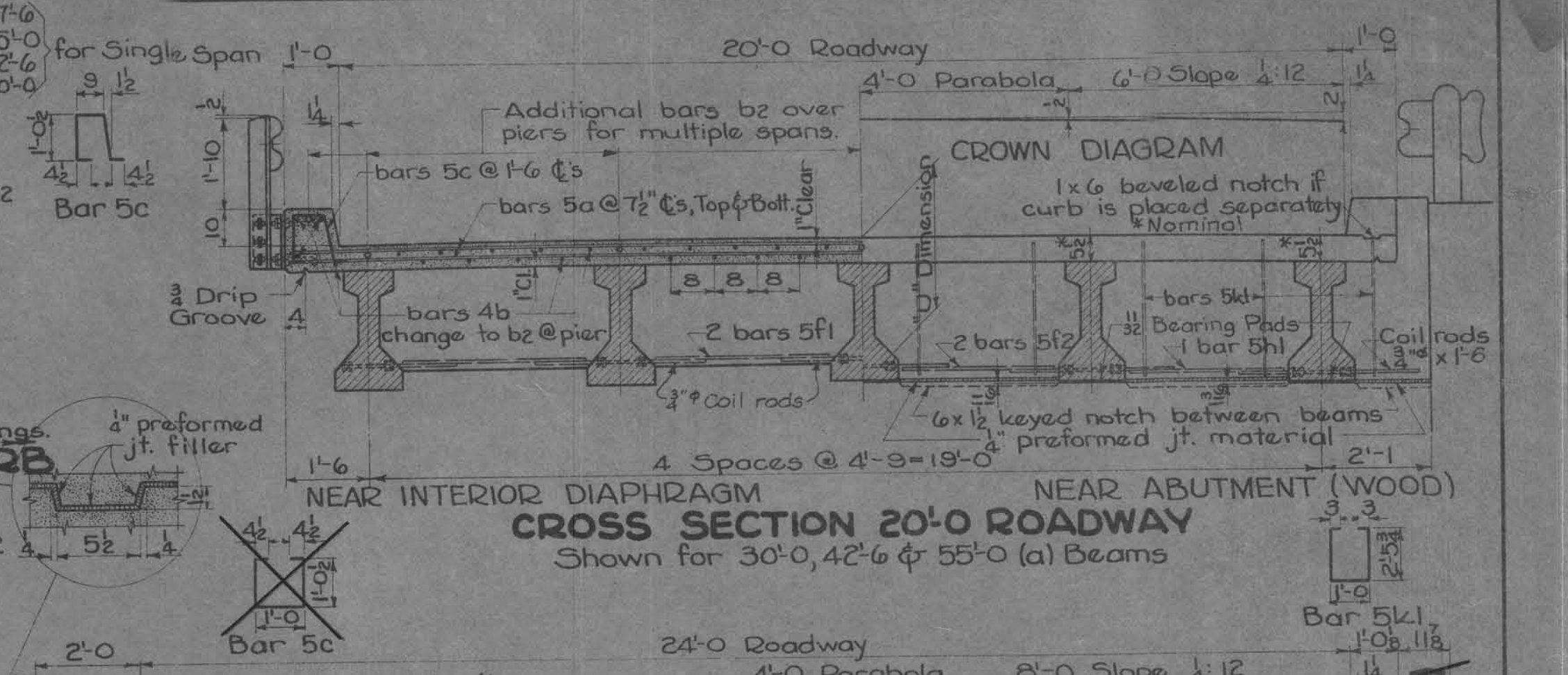
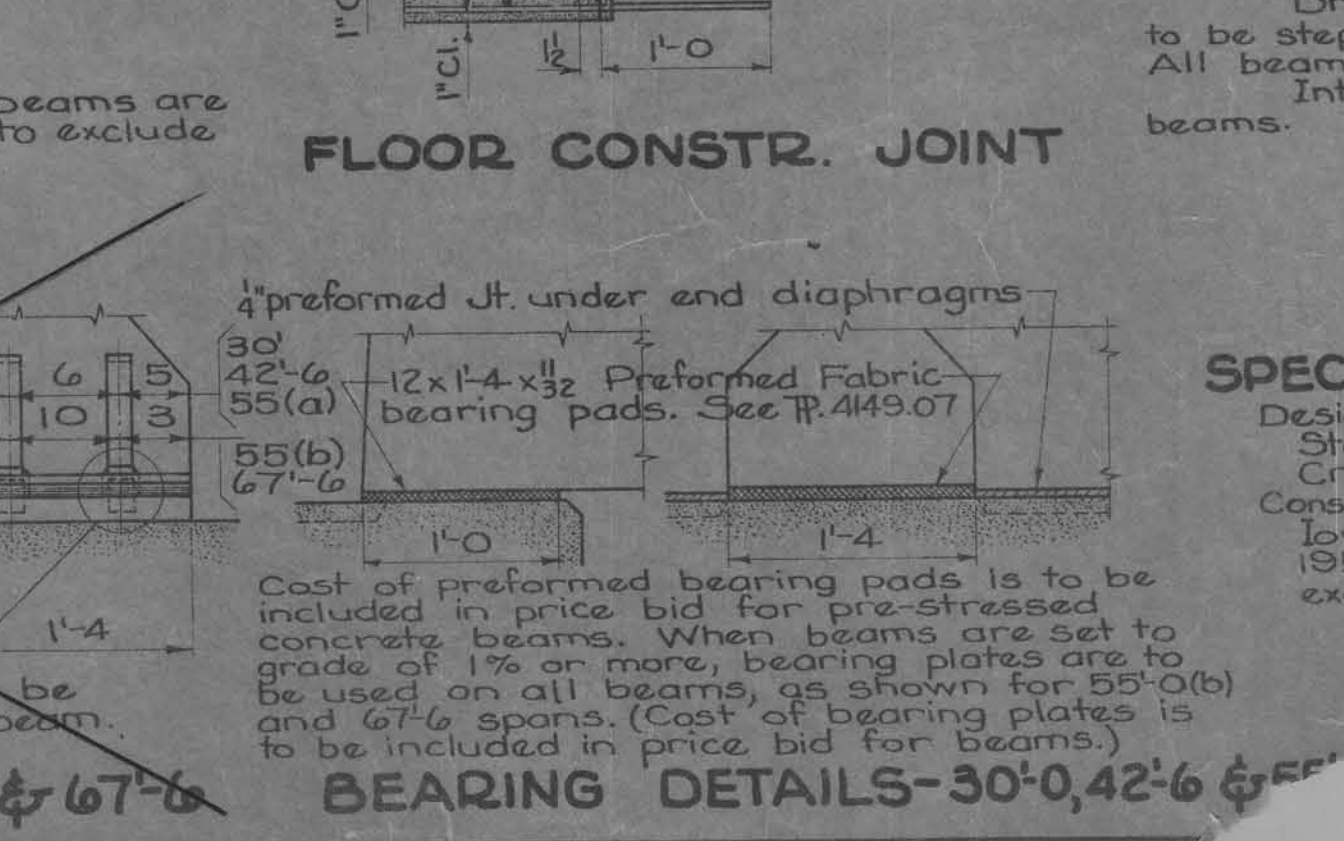
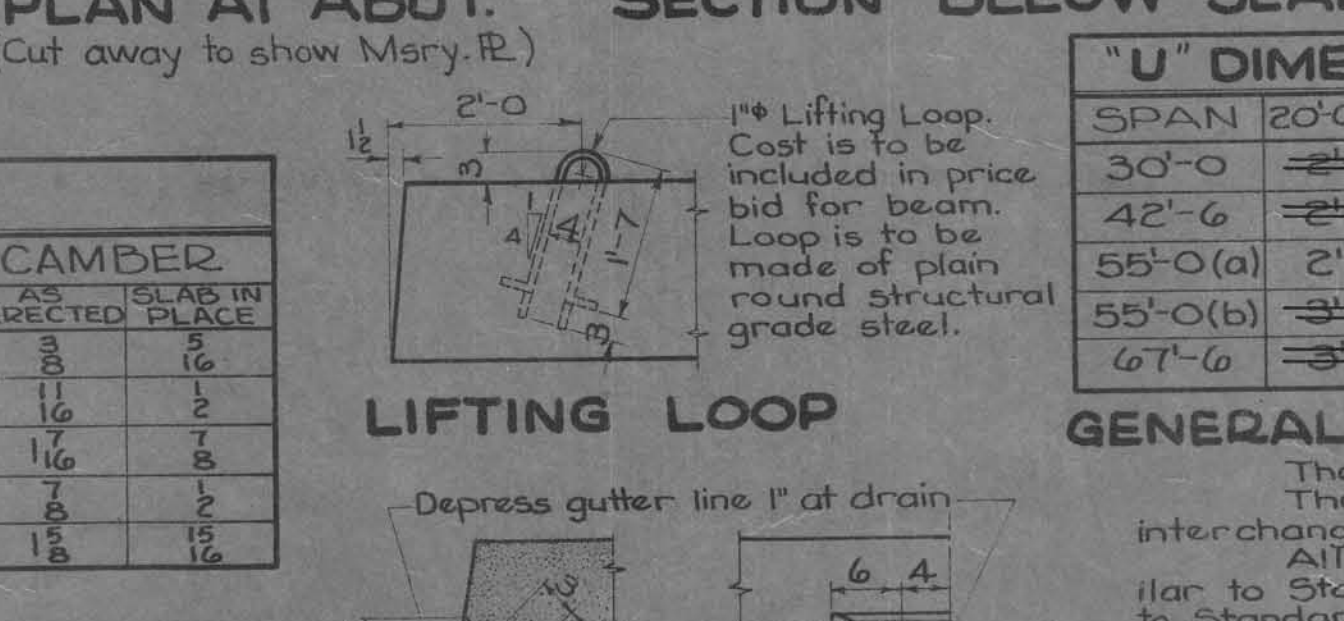
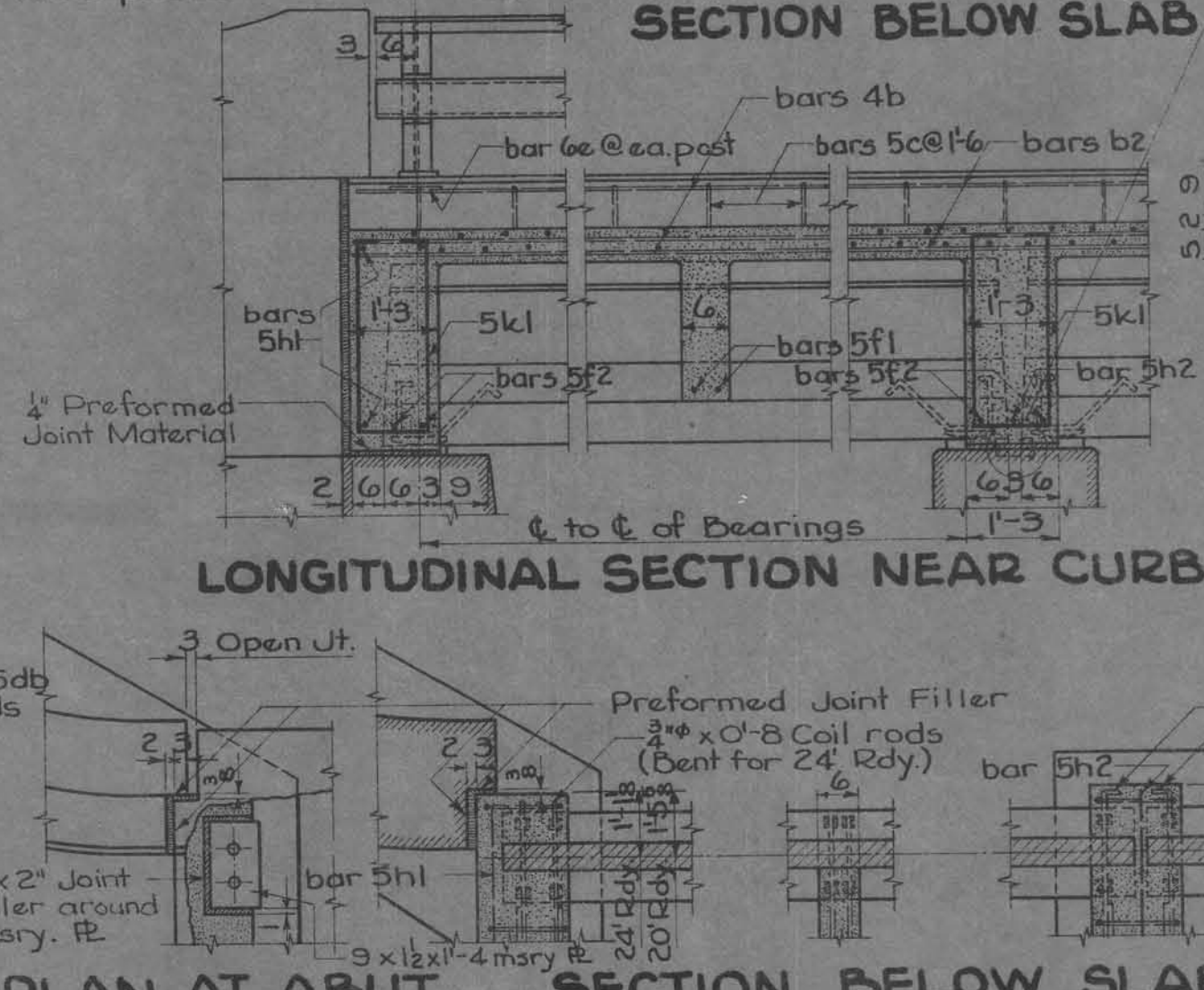
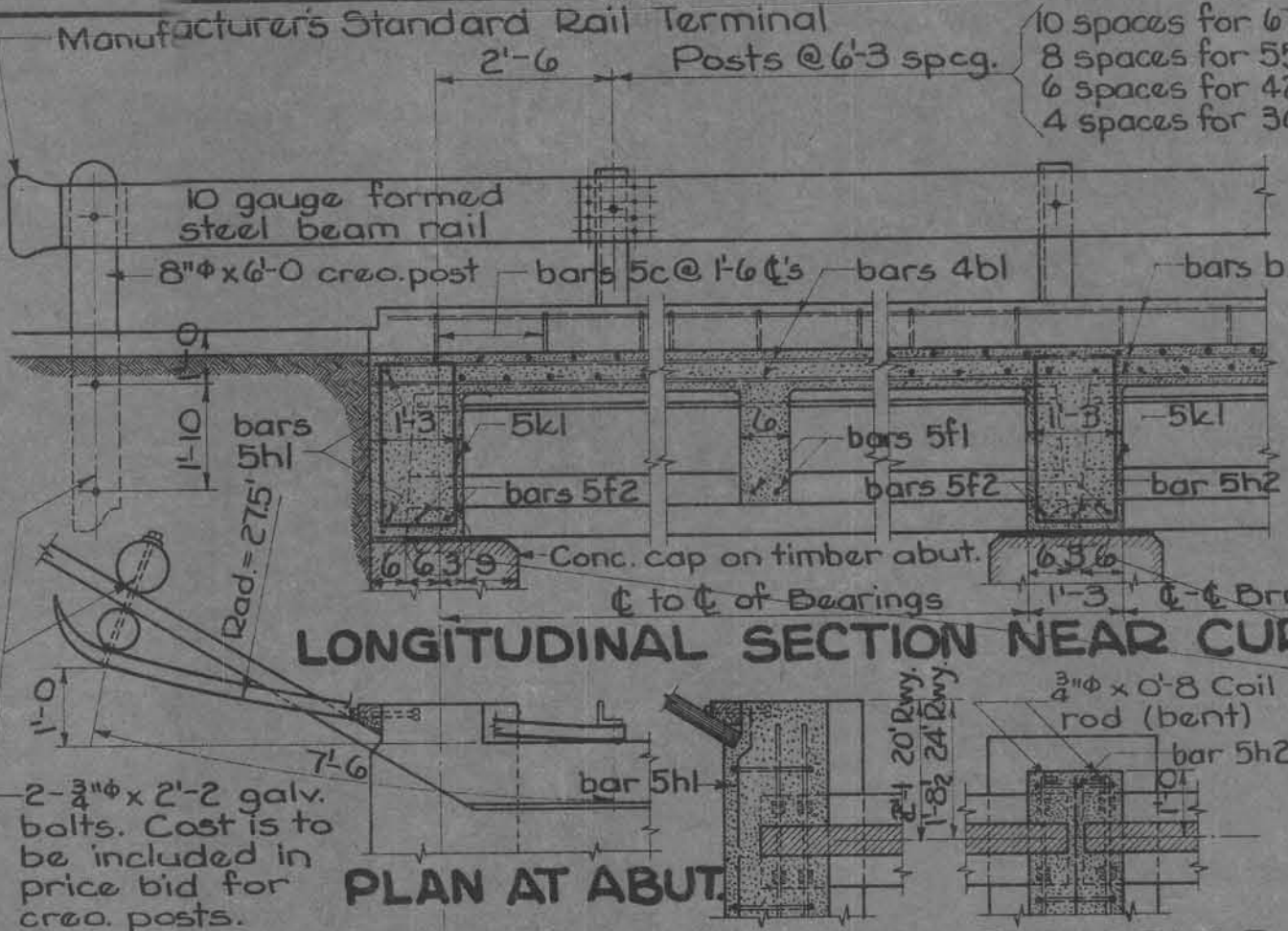
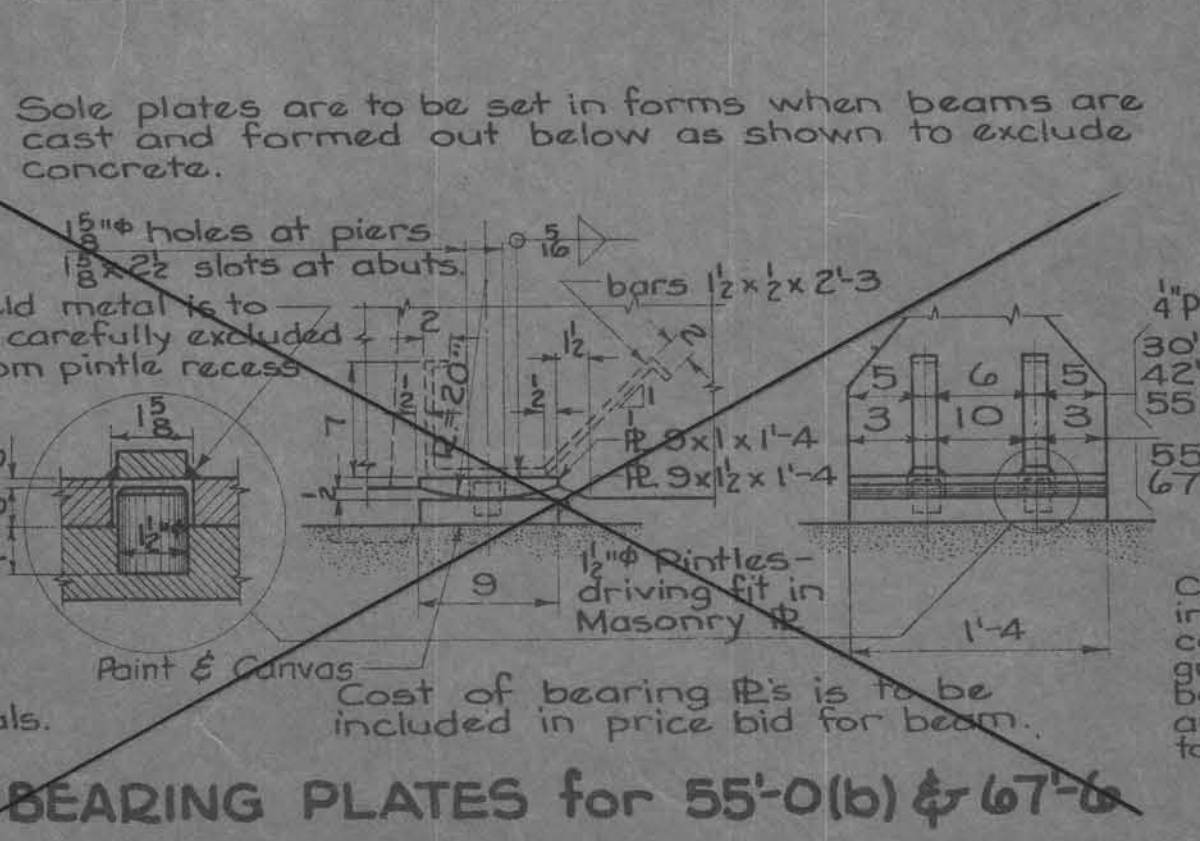


BEAM DATA

SPAN	DEPTH	STRANDS	CONC. cy.	DEINF. STEEL lbs.	STRUCT. STEEL lbs.	INITIAL PRE-STRESS AS APPLIED	CAMBER IN PLACE
30'-0	2'-4	10-3/8	2.06	262	*217	140 k	3/8"
42'-6	2'-4	17-3/8	2.90	393	*217	238 k	1/2"
55'-0(a)	2'-4	19-1/8	3.73	524	*217	360 k	1/2"
55'-0(b)	2'-11	22-3/8	4.66	557	217	308 k	1/2"
67'-6	2'-11	24-1/8	5.70	759	217	453 k	1/2"

BILL OF REINF. STEEL FOR ONE BEAM

BAR SHAPE	30'-0	42'-6	55'-0(a)	55'-0(b)	67'-6
4ab	31 1'-2	45 1'-2	61 1'-2	57 1'-2	73 1'-2
4b1b	62 4'-4	90 4'-4	122 4'-4	114 4'-11	146 4'-11
4b2b	12 2'-5	16 2'-5	20 2'-5	16 3'-0	20 3'-0
cb	4 2 30'-6	4 2 22'-0	4 2 28'-3	4 2 28'-3	5 2 34'-9
5db	-	2 6'-0	2 7'-6	4 7'-6	4 9'-0
TOTAL WT.	262	393	524	557	759



BILL OF REINF. STEEL-SUPERSTRUCTURE

BAR	LOCATION	SHAPE	NO	LENGTH	WEIGHT
5a	Slab Transverse	-	177	2'-8"	4000
4b1	Slab Longitudinal	-	34	49'-8"	1691
b2	Slab Longt. Over Piers	-	-	-	-
4b3	Slab Longitudinal	-	-	-	-
5c	Curb Dowels	□	76	3'-3"	258
5d	Curb Transv. (Type 'A' Rail)	-	-	-	-
6e	Rail Post Anchor (Type 'A' Rail)	-	-	-	-
5f1	Intermediate Diaphragm	-	8	3'-5"	28
5f2	Abut. & Pier Diaphs. Short	-	16	3'-3"	54
5h1	Abutment Diaphs. Long	-	4	22'-10"	95
5h2	Pier Diaphragms Long	-	-	-	-
5k1	Abutment & Pier Hoops	□	20	6'-1"	127
TOTAL =					6253

ESTIMATED QUANTITIES-SUPERSTRUCTURE

ITEM	UNIT	QUANTITY
Concrete	cuyd	29.70
Reinforcing Steel	lbs.	6253
Structural Steel	lbs.	1052
Pre-stressed Conc. Beams	Beam	5 @ 55'-0" (a)
Pre-stressed Conc. Beams	Beam	1 @ 67'-6"
Formed Steel Beam Rail	L.F.	130'-0"
Coated Wood Rail Posts	Post	4

SPECIFICATIONS:
 Design: A.A.S.H.O. Series of 1953, and United States Bureau of Public Roads Design Criteria for Prestressed Conc. Bridges, 1955 Construction Standard Specifications of the Iowa State Highway Commission, Series of 1956, plus current Special Provisions except as noted.
Location:
 Section 8-17
 East Boyer Twp.
 T.83N. R.38W.
 4-29-57 - Strands revised
 Design No. 757
 Proj. 5-2672 (1)
 Iowa State Highway Commission
 December 1956
 Sheet PC-5
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