

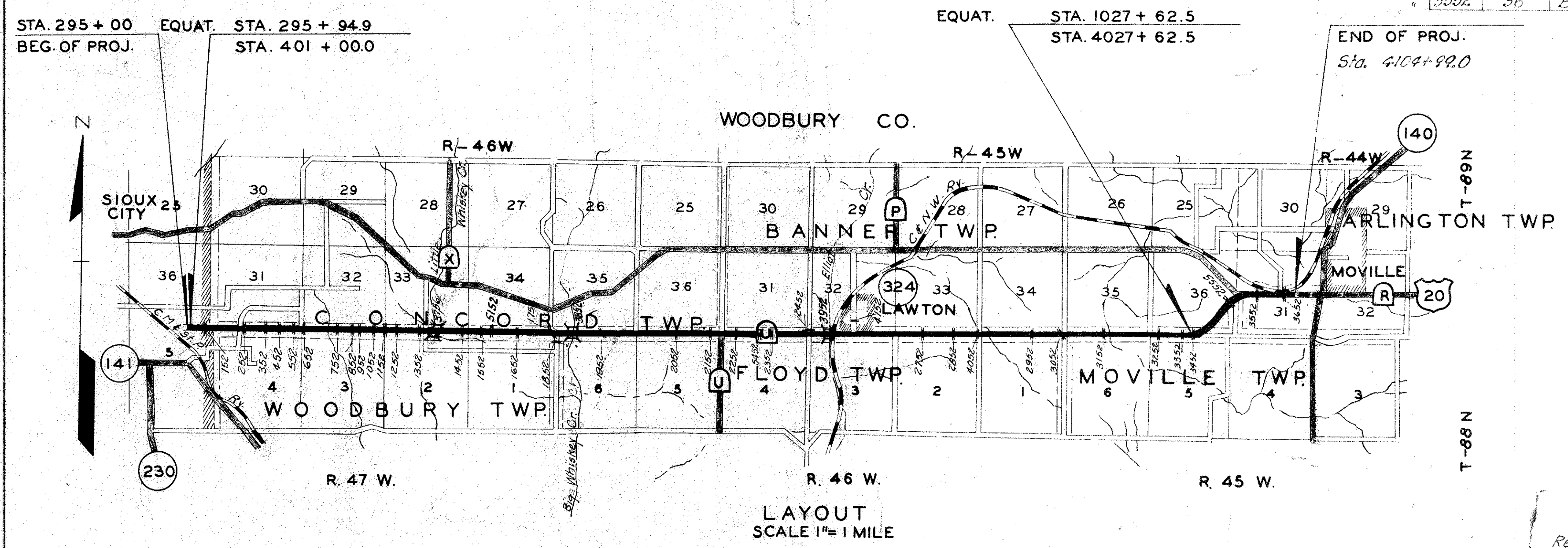
STATE OF IOWA  
STATE HIGHWAY COMMISSION  
DESIGNS FOR  
BRIDGES AND CULVERTS  
PRIMARY ROAD SYSTEM F. PROJECT NO. 2 (1) & F-2(6)  
WOODBURY COUNTY  
APRIL 1952

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	IOWA	F 2(1) & F-2(6)			

LOCATION	Design #3752 Sta 558+12 Section 2-33 Woodbury & Concord Twp.	Design #3852 Sta 640+10 Section 6-35 Floyd & Banner Twp.	Design #3952 Sta 804+17 Section 3-32 Banner & Floyd Twp.	TOTAL QUANTITIES
SIZE AND TYPE	120X28 CONTINUOUS CONC. SLAB BRIDGE	180X28 CONTINUOUS CONC. GIRDER BRIDGE	150X28 CONTINUOUS CONC. GIRDER BRIDGE	
ESTIMATE OF QUANTITIES				
Concrete Cu. Yd.	431.3 cy.	462.2 cu. yd.	381.3 cu. yd.	1274.8 cu. yd.
Reinforcing Steel	63,024 lb.	107,650 lb.	87,375 lb.	258,049 lb.
Structural Steel	151 lb.	8872 lb.	8,500 lb.	17,523 lb.
Untreated Piling	48230 = 1440 lin. ft.	56240 = 2240 lin. ft.	44240 = 1760 lin. ft.	5440 lin. ft.
Cresosoted Piling	30250 = 1500 lin. ft.	24260 = 1440 lin. ft.	24260 = 1440 lin. ft.	4380 lin. ft.
Excavation Class 10		120 cu. ft.	210 cu. yd.	330 cu. yd.
Class 20	367 cu. yd.	306 cu. yd.	313 cu. yd.	986 cu. yd.
Class 21	147 cu. yd.	160 cu. yd.	124 cu. yd.	431 cu. yd.
Removal of old bridge		Lump Sum	Lump Sum	

DESIGN	LOCATION			DESCRIPTION	ESTIMATE OF QUANTITIES							REMOVALS
	SECTION	TWP	STA.		CONCRETE CU. YD.	REINFORCING STEEL LB.	EXCAVATION CL. 20	CU. YD.	CL. 24	24" x 36" x 48"		
152	5-36	Sioux City	416+00	4'X4'X223' Reinf. Conc. Box	144.1	14985	75					
252	4-31	Woodbury	435+00	9'X11'X157' Con. Arch Culvert & Reinf.	324.6	28697	170					
352	4-31	"	451+60	24" F.I. Pipe with Flume	4.0	301	46	25	72			
452	4-31	"	459+60	"	3.1	233	56	34	120			
552	4-31	"	468+95	4'X4'X185' Reinf. Conc. Box	113.1	11231	230					
652	32	Concord	475+75	5'X5'X104' Reinf. Conc. Box & Flume	83.8	7389	253					20X16 Plank Br. 57' Rt. Sta. 471+73
752	3-32	Woodbury	495+63	8'X8'X177' " " "	355.1	37666	238					
852	3-32	"	503+65	48" F.I. Pipe with Flume	7.0	436	130	169				
952	3-32	"	509+30	24" F.I. " " "	3.0	229	59		78			
1052	3-32	"	517+40	" " " " "	3.5	265	20	90	66			
1152	3-32	"	527+22	4'X4'X121' Reinf. Conc. Box	62.9	5649	68					
1252	2-33	"	535+80	6'X6'X126' " " "	127.7	13526	98					
1352	2-33	"	549+98	12'X10'X55' " " "	160.7	16817	551					Salvage; 14X25 Wood Truss Bdg.
1452	2-33	"	574+50	3'X4'X191' " " "	95.3	7755	61					
1552	1-34	"	587+00	4'X5'X196' " " "	141.1	12657	50	139				
1652	1-34	"	608+00	24" F.I. Pipe with Flume	3.1	233	32	24	78			
1752	1-34	Concord	633+23	5'X5'X111' Reinf. Conc. Box	72.1	6338	198					
1852	1-6	Woodbury	655+63	8'X5'X46' " " "	60.1	5466	91					8'X25' Wood Culv. Sta. 655+63
1952	6-35	Floyd	663+24	4'X4'X66' " " "	35.8	3052	114					Salvage; 36" Conc. Pipe Sta. 663+24
2052	5-36	Concord	706+77	36" F.I. Pipe with Flume	37.5	376	165	96	138			" 24" Pipe at Sta. 706+77
Totals					1837.6	173301	2705	577	414	138	186	

DESIGN	LOCATION			DESCRIPTION	ESTIMATE OF QUANTITIES							REMOVALS
	SECTION	TWP	STA.		CONCRETE CU. YD.	REINFORCING STEEL LB.	EXCAVATION CL. 20	CU. YD.	CL. 24	24" x 30" x 36" x 42" x 48"		
2152	5-36	Floyd & Concord	731+652	5'X5'X59' Reinf. Conc. Box	42.5	3652	50					1-Beam Bdg. 20X120 3/4"
2252	4-31	"	748+58	12'X10'X50' " " "	150.8	15842	86					18'X16 Bdg. Sta. 748+58
2352	4-31	"	769+09	4'X4'X181' " " "	118.4	10834	118					Salvage; 36" Conc. Pipe 769+09
2452	31-32	Banner	793+97	8'X6'X34' Reinf. Conc. Box	53.2	6126	77					Sal. 88'X17'X20' Wood Culv.
2752	2-33	Floyd & Banner	867+00	24" X168' F.I. Pipe & Flume	3.0	222	40	114	168			Sal. 18" pipe Sta. 867+00
2852	2-33	"	884+67	30" X150' F.I. Pipe & Flume	3.9	271	77	55		150		" " " " 884+67
2952	1-34	"	936+10	42" X132' F.I. Pipe & 4'X3' Flume	6.6	369	63	160			132	" 24" " " 936+10
3052	6	Moivre	952+30	4'X4'X154' Reinf. Conc. Box	92.5	9301	110					Sal. 42" Pipe Sta. 952+30
3152	6-35	Arlington	975+92	8'X8'X177' " " "	356.5	37815	526					" 38.5'X161' Beam Bdg. Sta. 975+92
3252	5-36	"	1010+04	4'X4'X274' " " "	196.0	19000	343	170				36" X50' Conc. Pipe 1010+04
3352	5-36	"	1025+25	3'X2' Flume 186' X130' F.I. Pipe	4.8	338	145	62		186		
3452	5-36	"	1027+625	24" X12' F.I. Pipe & Flume	4.4	327	57	5	72			
3552	31	Arlington	1081+41	" X78' F.I. Pipe Ext.	.2	6	10	90	78			Plug as per plan
3652	31	"	1091+27	4'X4'X96' Reinf. Conc. Box	48.9	4683	90					As per plan some 30'X41' Conc. Pipe Sta. 1091+27
4052	1-33	Banner	1899+683	14' X12' Reinf. Conc. Box Culvert with 36" F.I. Pipe 144' X14' Conc. Box	528.0	62446	530	2670		114		Structures as per plan
4152	32	Banner	2828+60	10'X4'X12' Reinforced Conc. Box	100.4	10182	180					10X125 Wood culv. as per plan
Sub. Total 2152-4152					1710.1	182074	2602	3326	318	336	114	132
Brought Forward 152-2052					1837.6	173301	2705	577	414	138	186	
Totals					3547.7	355375	5307	3903	732	336	252	132
FN 5152	3A-1	Concord	590+00	4' 5 1/2' x 54' Reinf. Conc. Box	35.6	3173	19					
5452	51 1/2	Banner	764+00	4x52x68' Reinf. Conc. Box	44.6	3606	65					
5552	36	Banner	4069+57	4x5 1/2 x 55' Reinf. Conc. Box	36.1	3035	61					



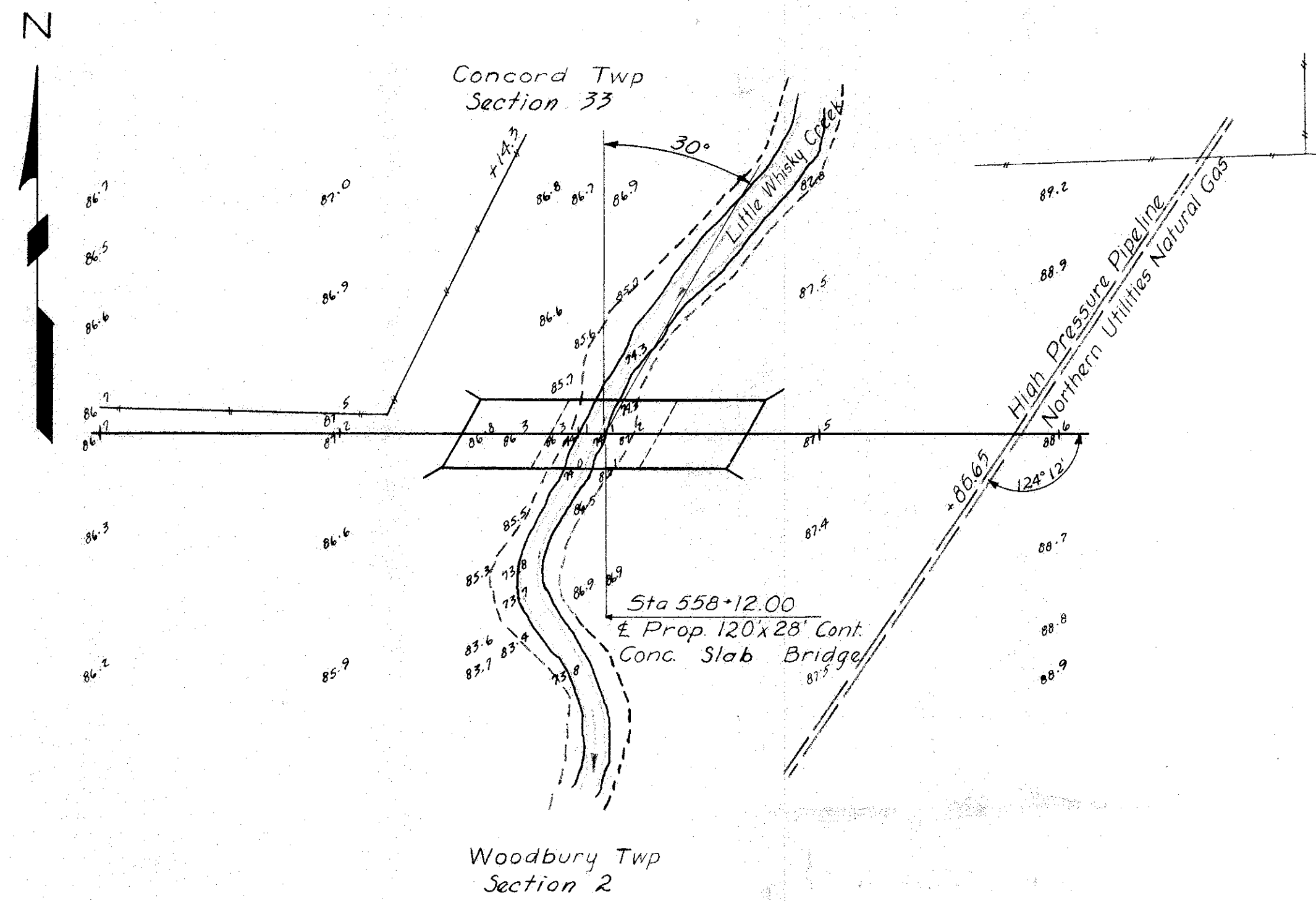
Construction Specifications:  
All materials and construction to be in accordance with Iowa State Highway Commission Standard Specifications, Series of 1952.

Design Specifications:  
A.A.S.H.O. Series of 1949.

APPROVED:	
CHIEF ENGINEER IOWA HIGHWAY COMMISSION	DATE
DEPARTMENT OF COMMERCE BUREAU OF PUBLIC ROADS	
RECOMMENDED FOR APPROVAL:	
DISTRICT ENGINEER	DATE
APPROVED:	
DIVISION ENGINEER	DATE

Revised 11-25-52 Designs 3752, 3852, & 3952 added, F2(6)  
Revised 10-24-52 Designs 5452 & 5552 added as FN-2  
Revised 7-11-52 Design 5152 Added as FN-2





**GENERAL PLAN**  
Scale: 1"=50'  
Hilly & Rolling  
D.A. = 3000 Ac.

#### GENERAL NOTES:

This bridge is designed for H20-44 Loading of AASHTO Specifications, Series of 1949, plus an allowance of 19 pounds per square foot of roadway for future wearing surface and according to modifications as listed on sheet 5.

Reinforcing steel is to be intermediate or hard grade or rail steel.

The dotted ground lines in the E Section indicate possible future channel clearance. The channel is not to be cleared at this time.

Approach fills as shown in the E Section are not a part of this estimate but are to be in place before the abutment piles are driven. The Bridge Contractor is to level and shape berms to elevations shown in E Section.

Red lines on tracing or faint lines on print indicate present construction.

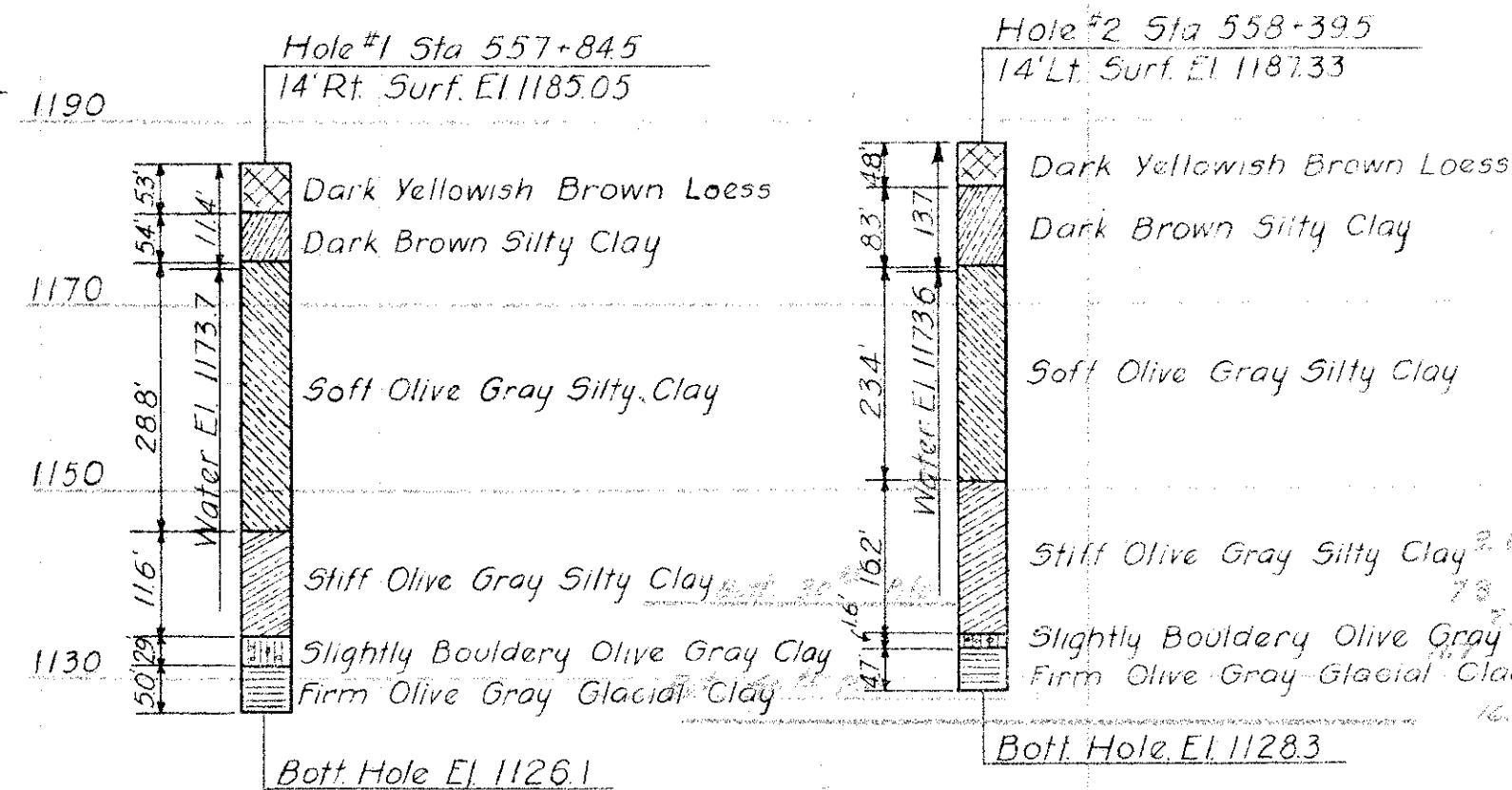
#### SPECIFICATIONS:

##### DESIGN:

AASHTO Specifications, Series of 1949, plus revisions T 50 and modifications listed on sheet 5.

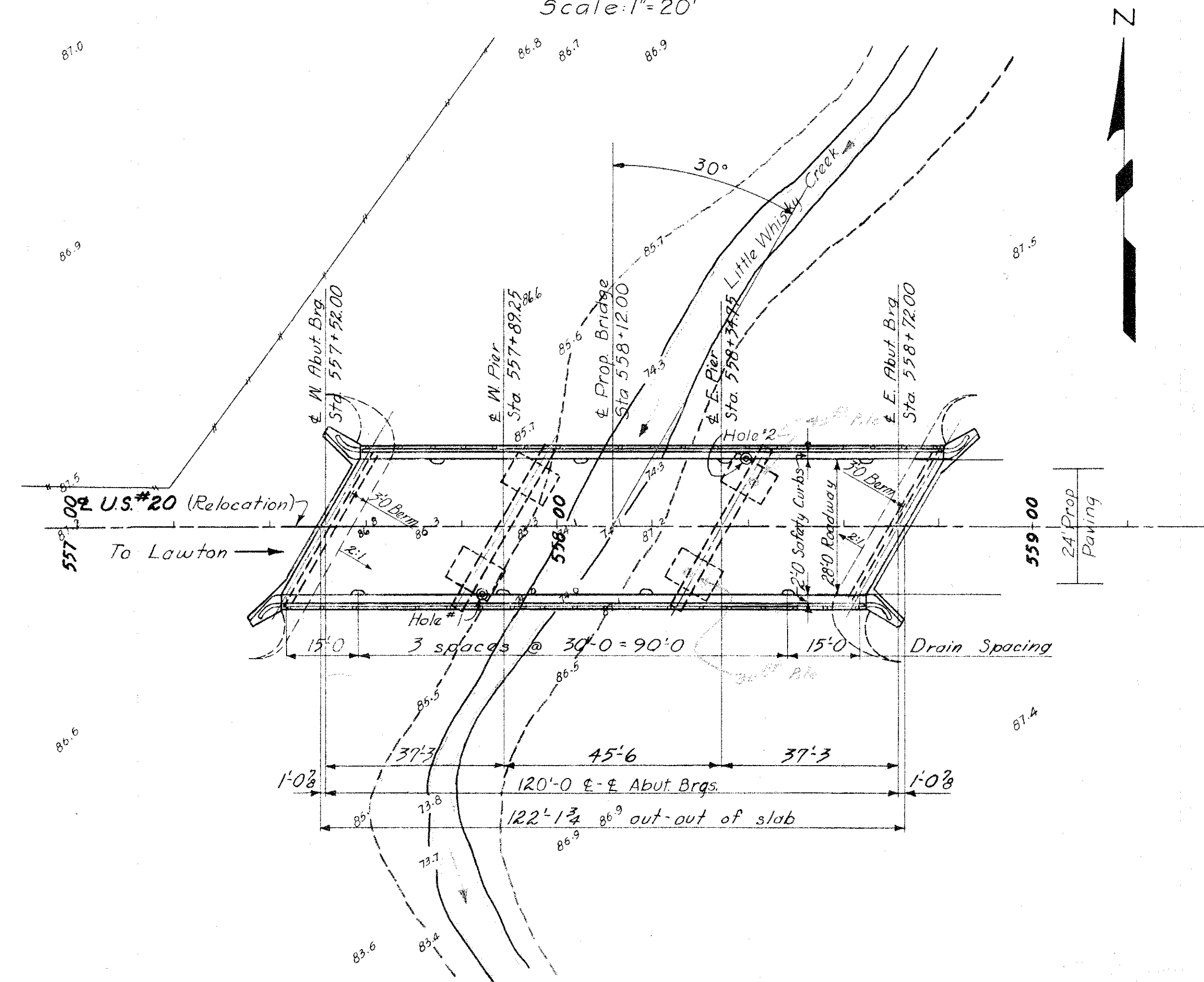
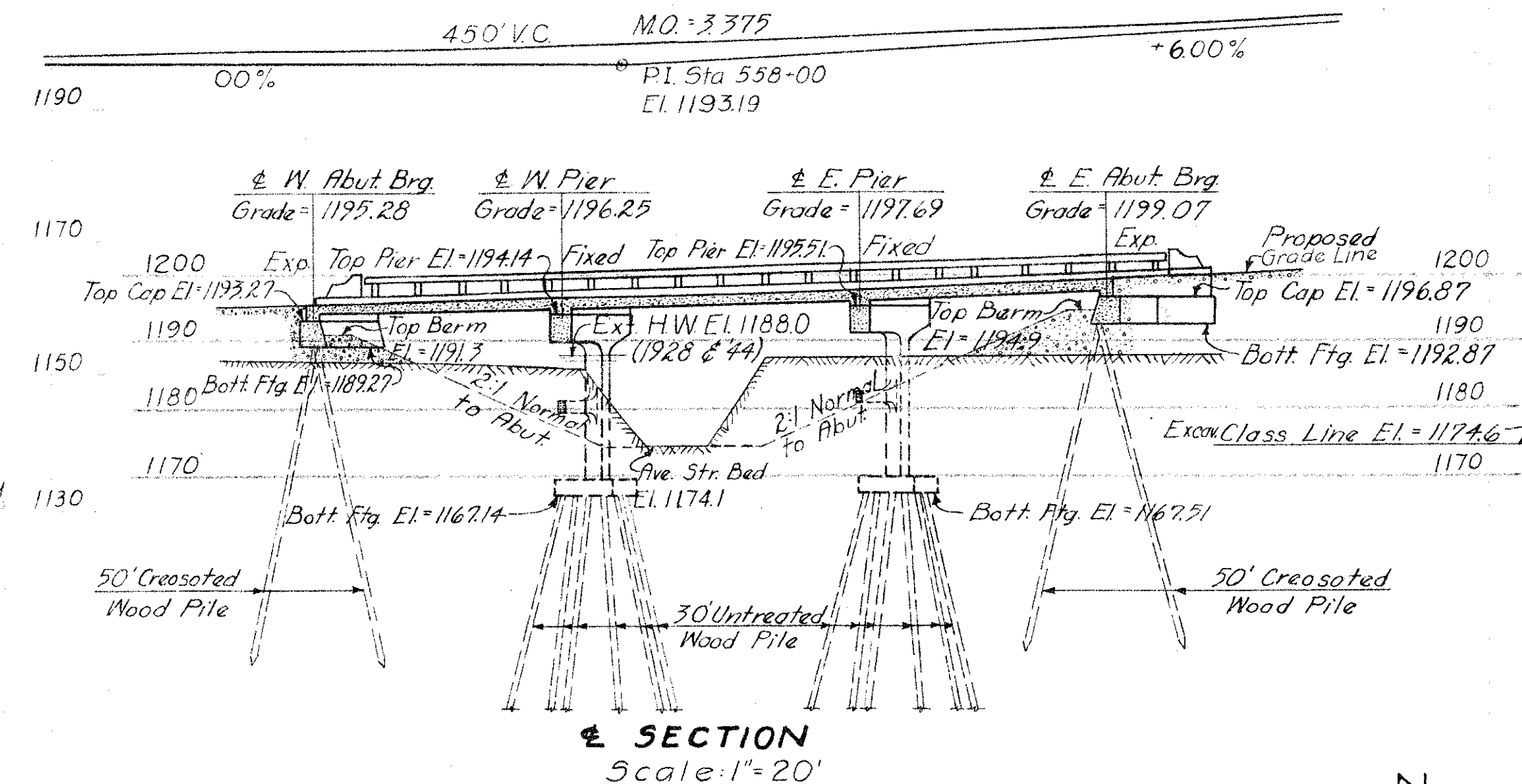
##### CONSTRUCTION:

Standard Specifications of the Iowa State Highway Commission, Series of 1952, plus Special Provisions for Construction Projects, Division II, dated November 5, 1952. Jan. 13, 1953



**SOUNDING DATA**  
Scale: 1"=20'

BENCH MARK: #55 Sta 554+00 60 d spike in NW side of 50" Cottonwood 450' Rt El 1185.85



**SITUATION PLAN**  
Scale: 1"=20'

ITEM	TOTAL ESTIMATED QUANTITIES			
	QUANTITY			
	Super	2 Abuts	2 Piers	Total
Concrete	284.0	58.5	88.8	431.3 cu
Reinforcing Steel	5126.0	2898	8936	63094 lb
Structural Steel	151			151 lb
Untreated Pile			48 @ 30'	1440 LF
Creosoted Pile		30 @ 50'		1500 LF
Class 20 Excavation		100	267	367 cu
Class 21 Excavation			147	147 cu

#### LOCATION:

Over Little Whiskey Creek  
Sections 2-33  
Woodbury-Concord Twps.  
Woodbury County

Design for 30° Skew  
**120x28' CONTINUOUS CONCRETE SLAB BRIDGE**  
37'-3" End Spans 45'-6" Center Span  
Concrete Rail & Substructure 2'0" Safety Curbs  
**SITUATION PLAN**  
Sta 558+12.00 Project F-2(6)  
**WOODBURY COUNTY**  
IOWA STATE HIGHWAY COMMISSION  
November, 1952 Sheet 1 of 5

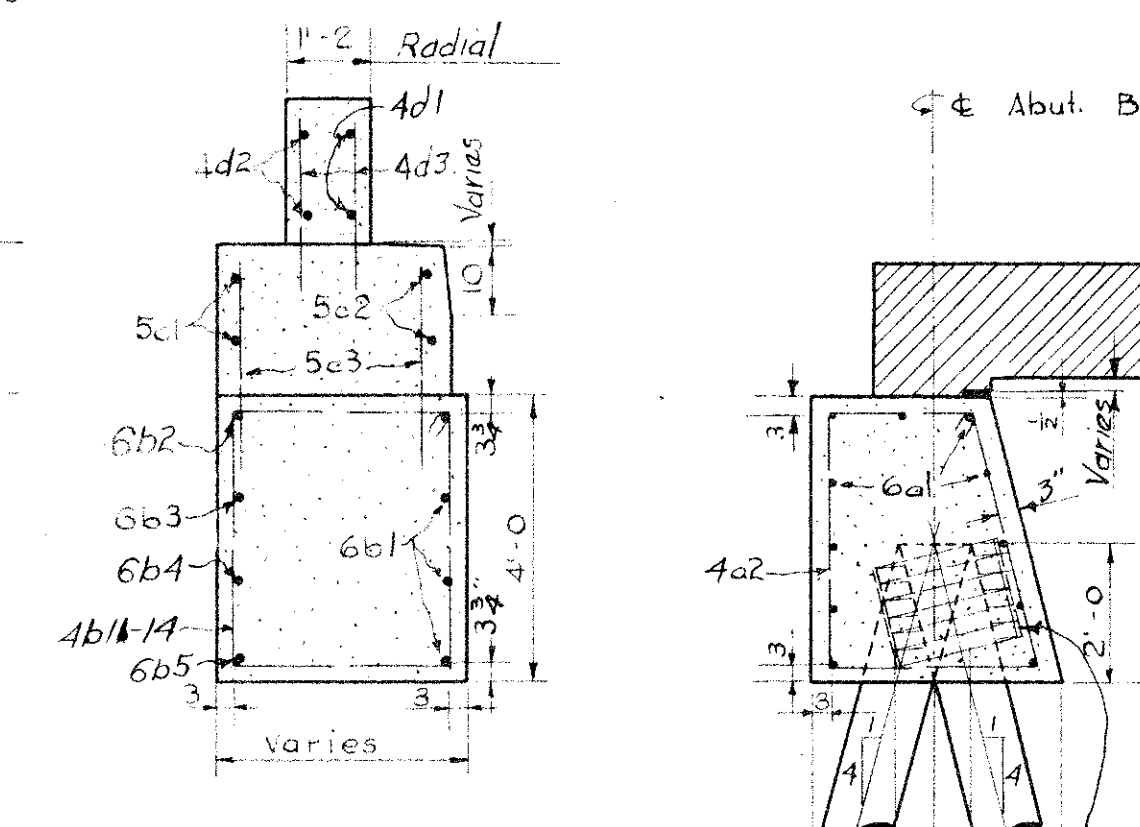
Revised Dec 24, 1952, Date of special provisions changed.

Design 3752

Woodbury County

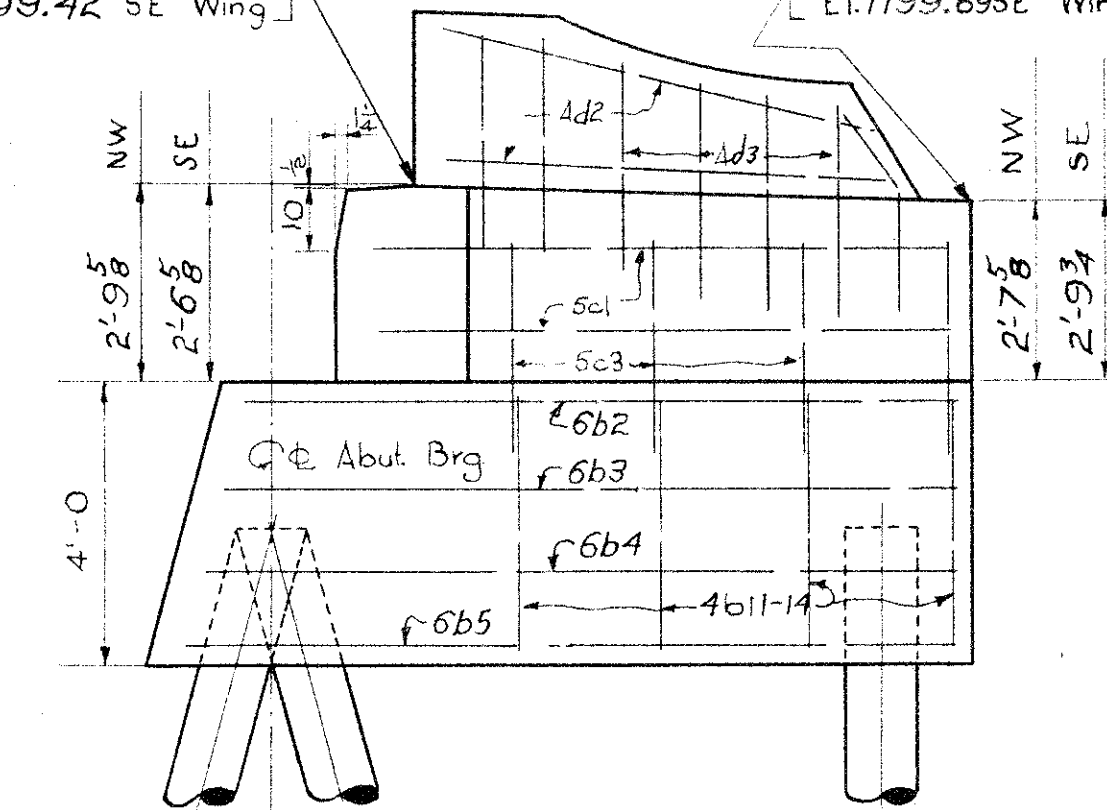
File No. 14945

El. 1196.07 NW Wing  
El. 1199.42 SE Wing



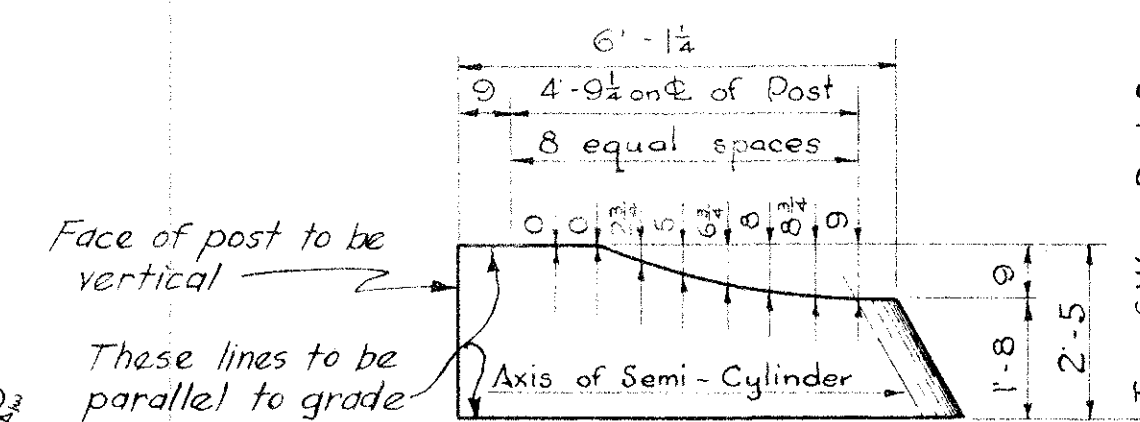
SECTION

VIEW B-B

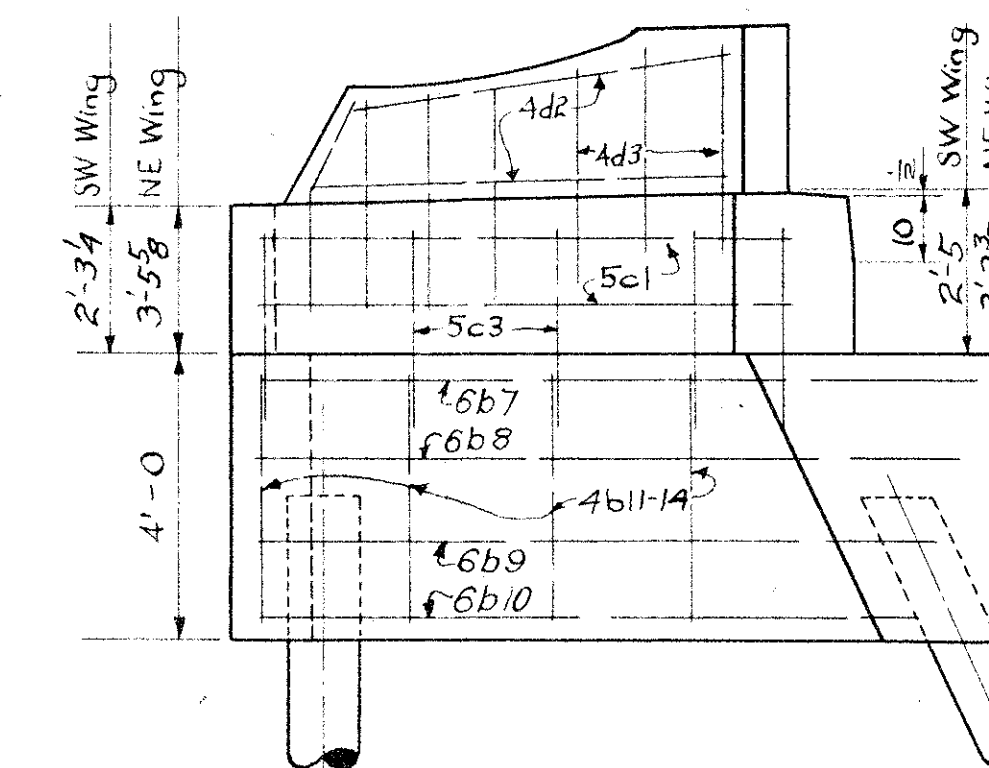


of West Abutment, East Abutment similar except for dimensions as shown.

Bottom Footing  
El. 1189.27 W.  
El. 1192.87 E.



Class C Concrete

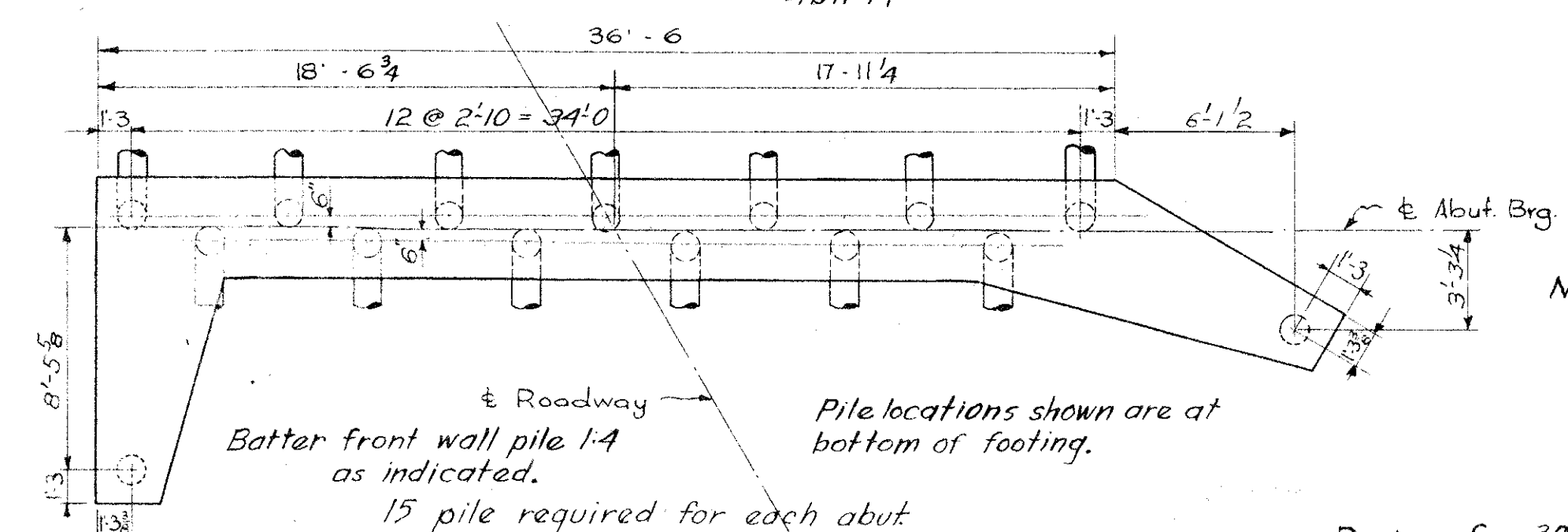


VIEW C-C  
SCALE:  $\frac{3}{8}$ " = 1'-0"

The diagrams show the following parts and dimensions:

- Top Left:** A square-like part with a diagonal cut. Dimensions:  $2'-0\frac{3}{4}"$ ,  $11"$ ,  $3'-9\frac{1}{2}"$ ,  $3'-7\frac{3}{4}"$ . Label:  $4a2$ .
- Bottom Left:** A square-like part with a diagonal cut. Dimensions:  $1'-11\frac{3}{4}"$ ,  $2'-4b11$ ,  $2'-6\frac{1}{4}"$ ,  $2'-9b12$ ,  $3'-0\frac{1}{2}"$ ,  $2'-4b13$ ,  $3'-7"$ ,  $2'-9b14$ ,  $4'-9\frac{1}{2}"$ . Label:  $4b11-14$ .
- Top Middle:** A curved part with multiple dimensions. Dimensions:  $6'-9"$ ,  $7'-4"$ ,  $7'-11"$ ,  $8'-7"$ ,  $12"$ ,  $3'-1"$ ,  $2'-7"$ ,  $2'-1"$ ,  $1'-8"$ ,  $6b7$ ,  $6b8$ ,  $6b9$ ,  $6b10$ . Label:  $6b7-10$ .
- Bottom Middle:** A curved part with dimensions. Dimensions:  $6'-7"$ ,  $5c1$ ,  $1'-6"$ ,  $3'-0"$ ,  $Rad = 2'-8\frac{3}{4}"$ ,  $52^\circ 30'$ ,  $5'-10\frac{1}{4}"$ ,  $2'-6'8"$ ,  $5c2$ ,  $1'-2"$ ,  $63"$ . Label:  $5c1$ .
- Top Right:** A curved part with dimensions. Dimensions:  $6b2$ ,  $10'-1"$ ,  $6b3$ ,  $10'-5"$ ,  $6b4$ ,  $10'-8"$ ,  $6b5$ ,  $10'-11"$ . Label:  $6b2-5$ .
- Bottom Right:** A curved part with dimensions. Dimensions:  $52^\circ 30'$ ,  $Rad = 4'-2\frac{3}{4}"$ ,  $Ad2$ ,  $Rad = 4'-11\frac{1}{8}"$ ,  $Ad1$ ,  $1'-18"$ ,  $Ad$ ,  $1'-26"$ ,  $Ad$ ,  $4'-6'8"$ ,  $3'-10'8"$ ,  $7'$ . Label:  $Ad1 \& Ad2$ .

S C A L E :  $\frac{3}{8}$  I - C



PILE LAYOUT  
SCALE:  $\frac{3}{16}'' = 1'-0''$

Design for 30° Skew

120' x 28' CONTINUOUS CONCRETE SLAB BRIDGE  
37'-3" END SPANS 45'-6" CENTER SPAN  
Concrete Rail & Substructure 2'0" Safety Curbs  
ABUTMENT DETAILS

Project No F 2(6)

WOODBURY COUNTY

Iowa State Highway Commission  
September 1952 Sheet 2 of 5

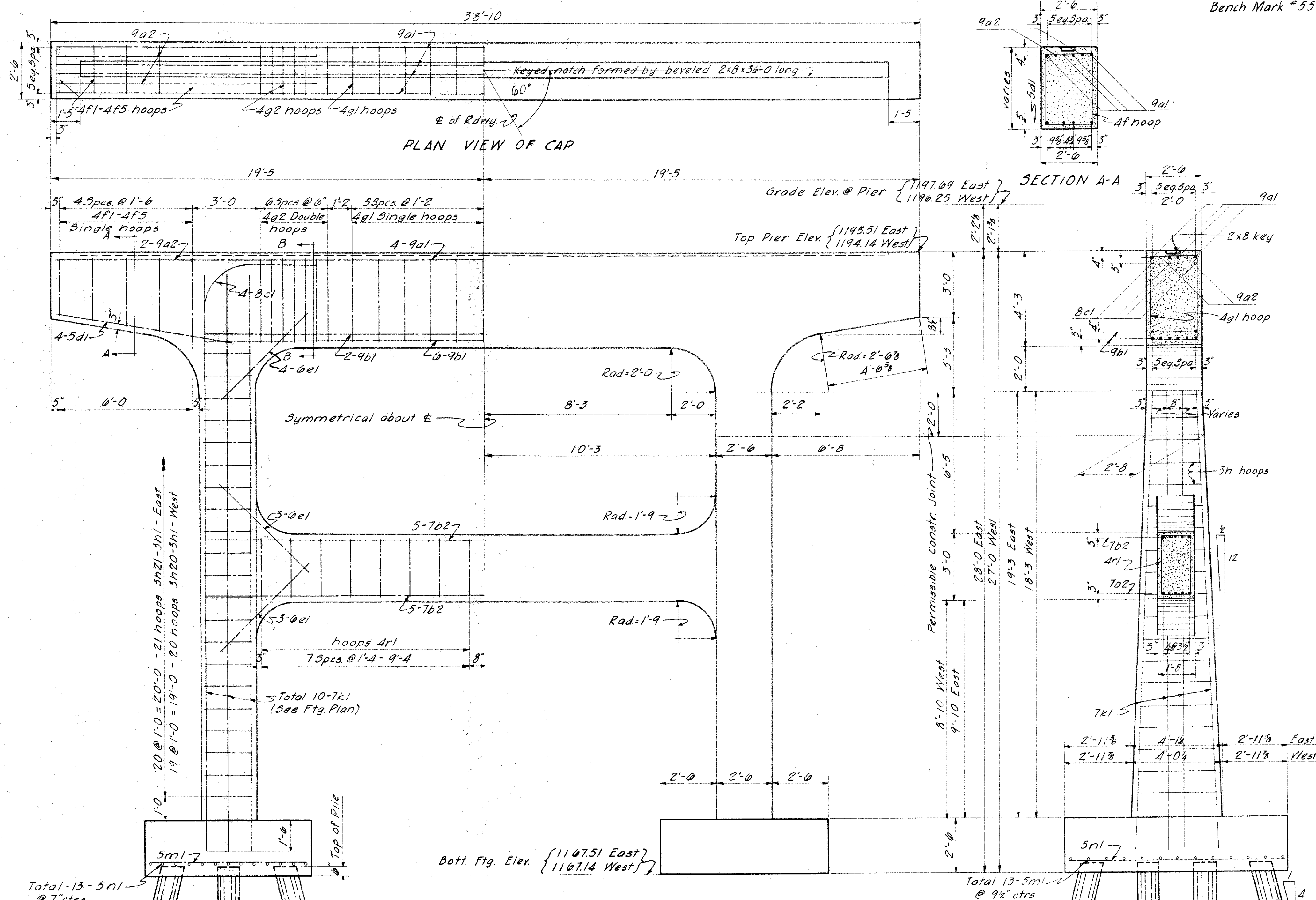
Design No 3752      Woodbury County      File No 14945

PLACEMENT QUANTITIES				
		East Abut.	West Abut.	Total
Footings		234	234	468 c
Wing	Post Bases	5.0	4.2	92 c
Wing	Post, Class 'C'	125	125	250 c

### PLACEMENT QUANTITIES



Bench Mark #55 60d spike in NW side of 60' cottonwood Sta 554+00 -450' Rt Elev 1185.85



BILL OF REINFORCING - TWO PIERS									
BAR				EAST PIER			WEST PIER		
Mark	Location	Shape	Size	No.	Length	Weight	No.	Length	Weight
9a2	Beam Top Longit	—	9	4	38'-4"	521	4	38'-4"	521
9a2	Beam Top Ends	—	9	4	11'-8"	159	4	11'-8"	159
9b1	Beam Bott. Longit	—	9	8	25'-0"	680	8	25'-0"	680
8c1	Corner Bars	└	8	8	11'-10"	253	8	11'-10"	253
7b2	Strut Longit. Top & Bott	—	7	10	25'-0"	511	10	25'-0"	511
7k1	Column Vertical	—	7	20	26'-0"	1063	20	25'-0"	1022
6e1	Fillet Bars	—	6	20	5'-6"	165	20	5'-6"	165
5d1	Can'tilever Bottom	—	5	8	8'-0"	67	8	8'-0"	67
5m1	Footing II to Pier &	—	5	26	7'-0"	190	26	7'-0"	190
5n1	Footing I to Pier &	—	5	26	9'-6"	258	26	9'-6"	258
4f1-4f5	Can'tilever Hoops	□	4	10	Varies	74	10	Varies	74
4g1	Beam Hoops	□	4	11	12'-7"	92	11	12'-7"	92
4r1	Strut Hoops	□	4	16	8'-6"	91	16	8'-6"	91
4g2	Beam Hoops	□	4	28	11'-0"	206	28	11'-0"	206
3h21-3h1	Column Hoops	□	3	42	Varies	163	40	Varies	154
3h20-3h1	Column Hoops	□	3						
Totals						4493			4443

Note: All dimensions are out to out

PIER CONCRETE PLACEMENT QUANTITIES		
ITEM	EAST PIER	WEST PIER
Footings	135 cu.yd.	135 cu.yd.
Cap & Column above Constr. Jt.	165 "	165 "
Column & Strut below Constr. Jt.	14.8 "	14.0 "
Totals	44.8 cu.yd.	44.0 cu.yd.

ESTIMATED PIER QUANTITIES			
ITEM	EAST PIER	WEST PIER	TOTAL
Concrete	44.8 cu.yd.	44.0 cu.yd.	88.8 cu.yd.
Reinforcing Steel	4493 lbs.	4443 lbs.	8936 lbs.
Untreated Wood Piles	24@30" = 720 L.F.	24@30" = 720 L.F.	1440 L.F.
Excavation C1.20	142 cu.yd.	125 cu.yd.	267 cu.yd.
Excavation C1.21	72 cu.yd.	75 cu.yd.	147 cu.yd.

**SUBSTRUCTURE NOTES:**

All concrete is to be Class "A", except wings rails on abutments which are to be Class "C" as shown.

Distance from face of concrete to center line of near bar is to be 2" unless noted otherwise.

Pier piles to be driven to full penetration if practicable but at least to 20 tons bearing value.

All exposed corners of 90° or sharper are to be filleted with a 3/4" dressed and beveled strip except vertical corners on wing rails as shown.

**SPECIFICATIONS:**

Design: A.A.S.H.O., Series of 1949.

Construction: Iowa State Highway Commission Standard Specifications, Series 1952, plus Special Provisions for Construction Projects, Division II, dated Nov. 5, 1952; Jan. 13, 1953.

**LOCATION:**

Over Little Whiskey Creek  
Section 2-33  
Woodbury - Concord Twp  
Woodbury County

Design for 30° Skew

**120'x28' CONTINUOUS CONCRETE SLAB BRIDGE**

37'-3" End Spans      45'-6" Center Span

Concrete Rail & Substructure      2'-0" Safety Curb

**PIER DETAILS**

Sta. 558+12.00      Project No. F-2(6)

**WOODBURY COUNTY**

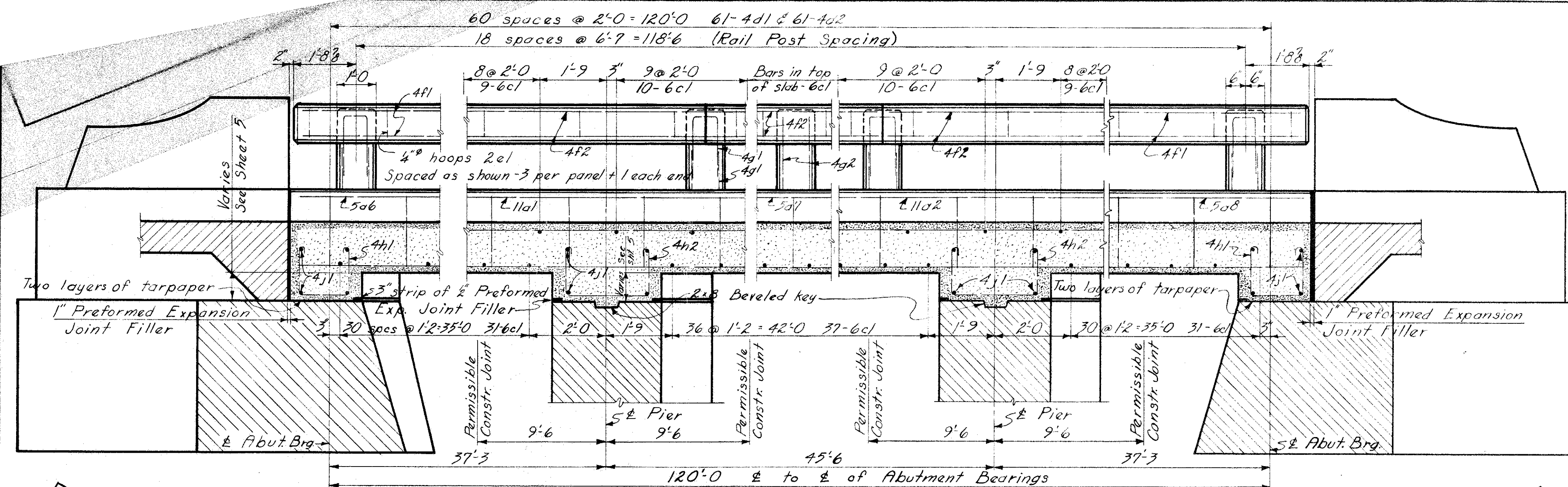
IOWA STATE HIGHWAY COMMISSION

October, 1952      Sheet 3 of 5

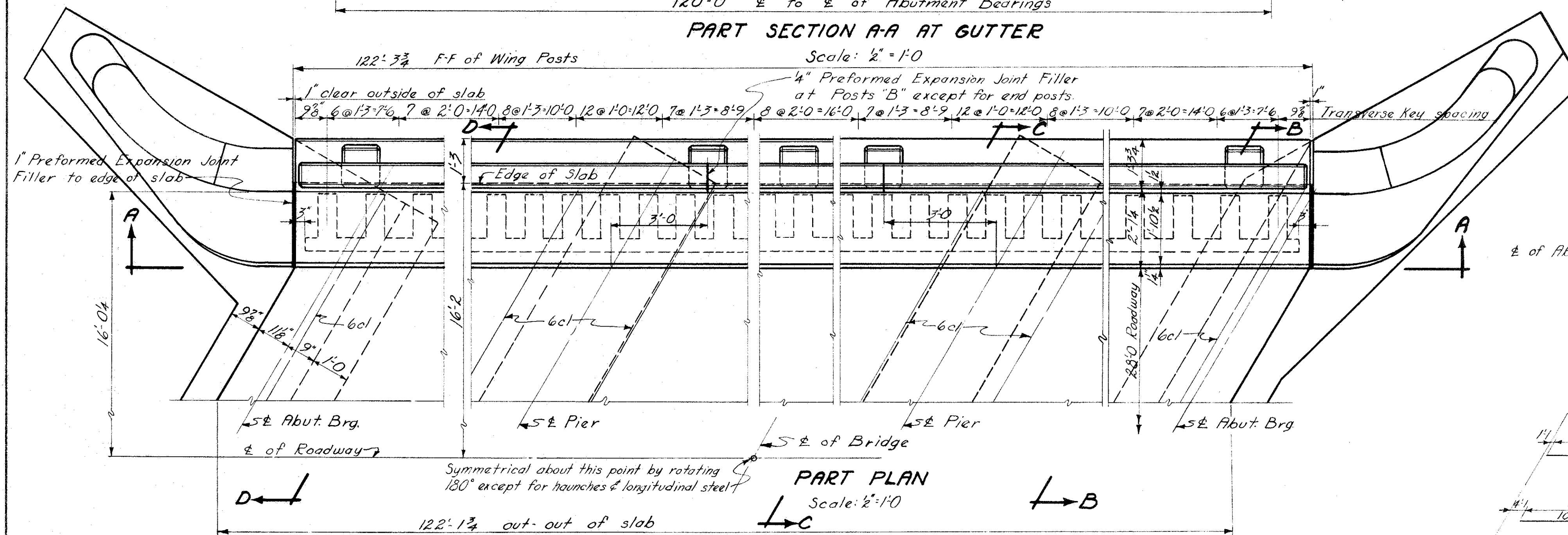
Design 3752      Woodbury Co.      File No. 14945

Revised Dec. 24, 1952. Date of special prov. changed.

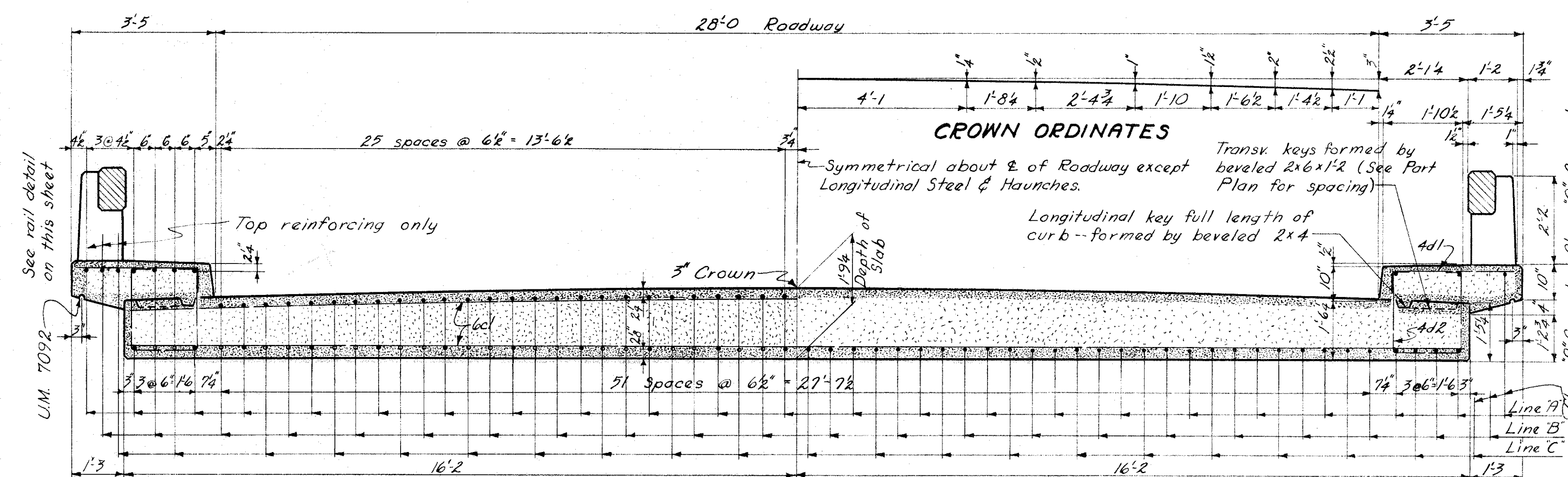




PART SECTION A-A AT GUTTER



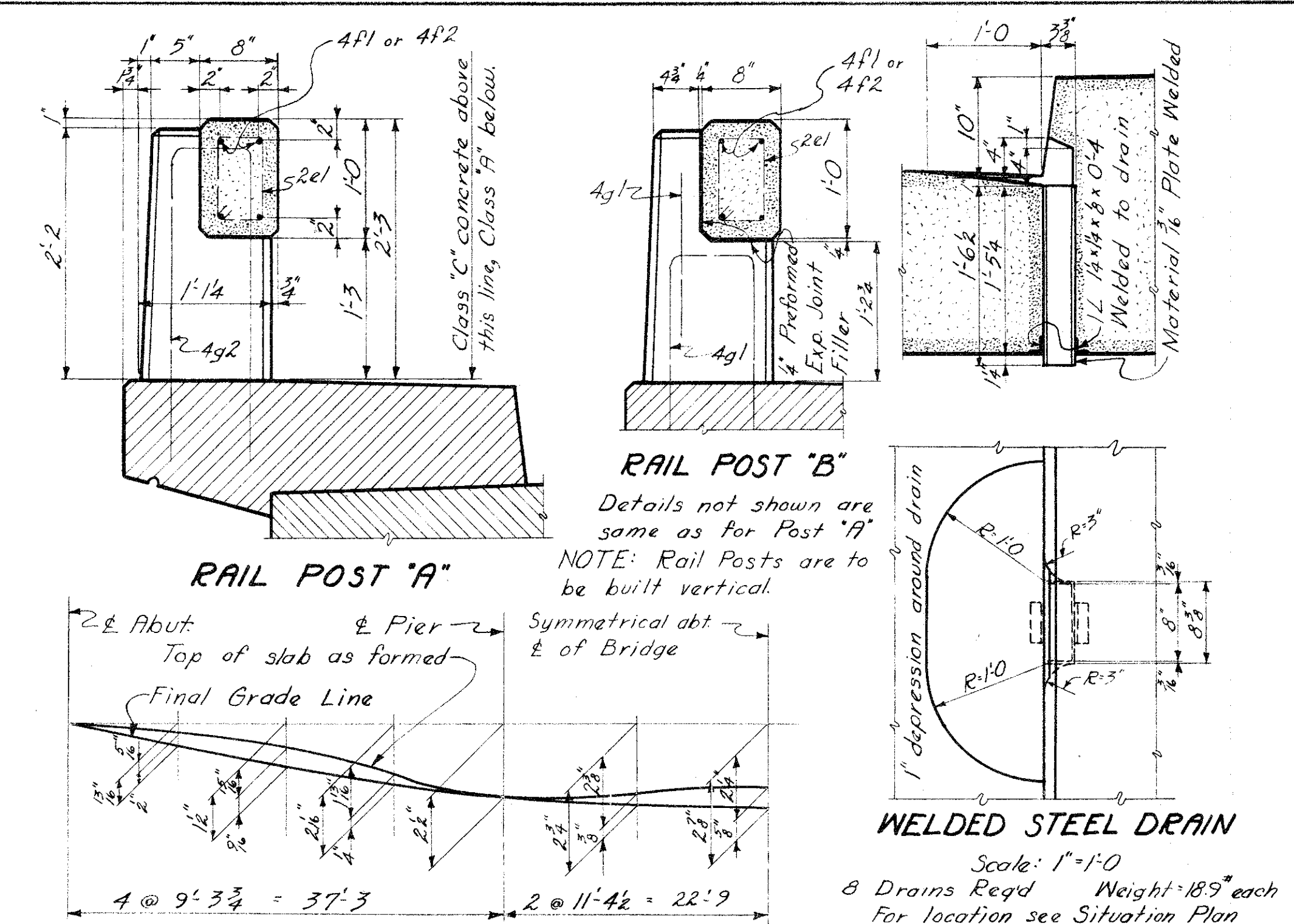
PART PLAN



HALF SECTION NEAR PIER

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

HALF SECTION NEAR ABUTMENT

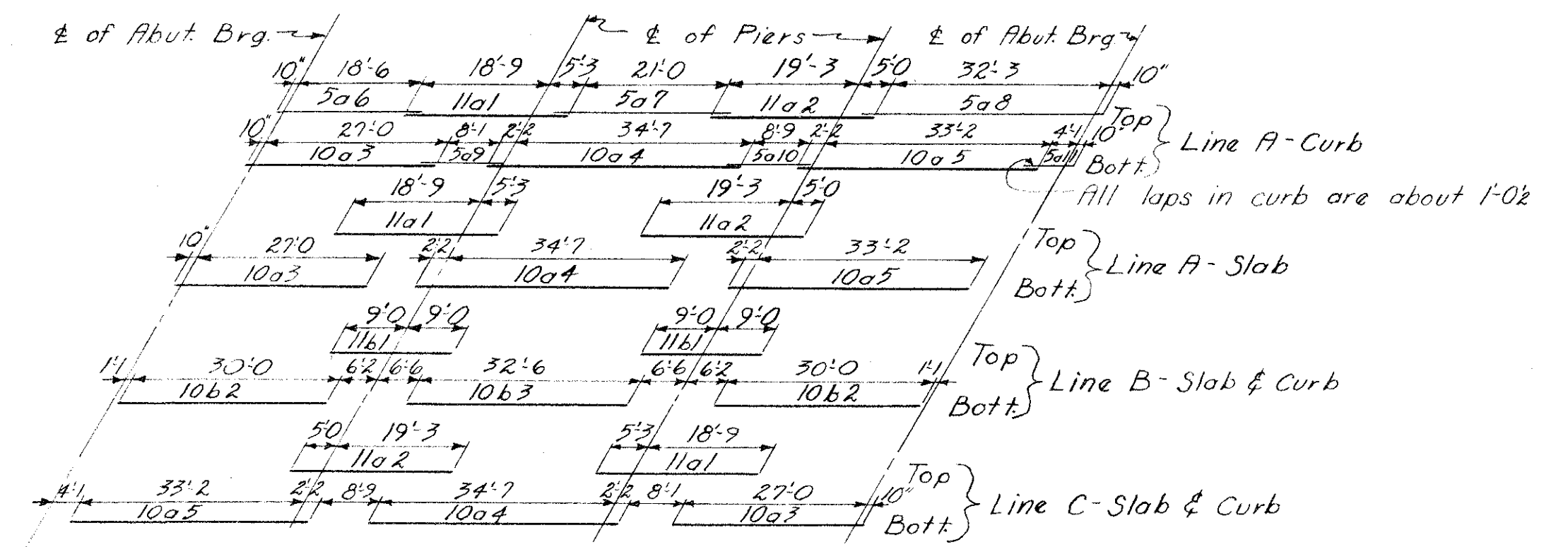


WELDED STEEL DRAIN

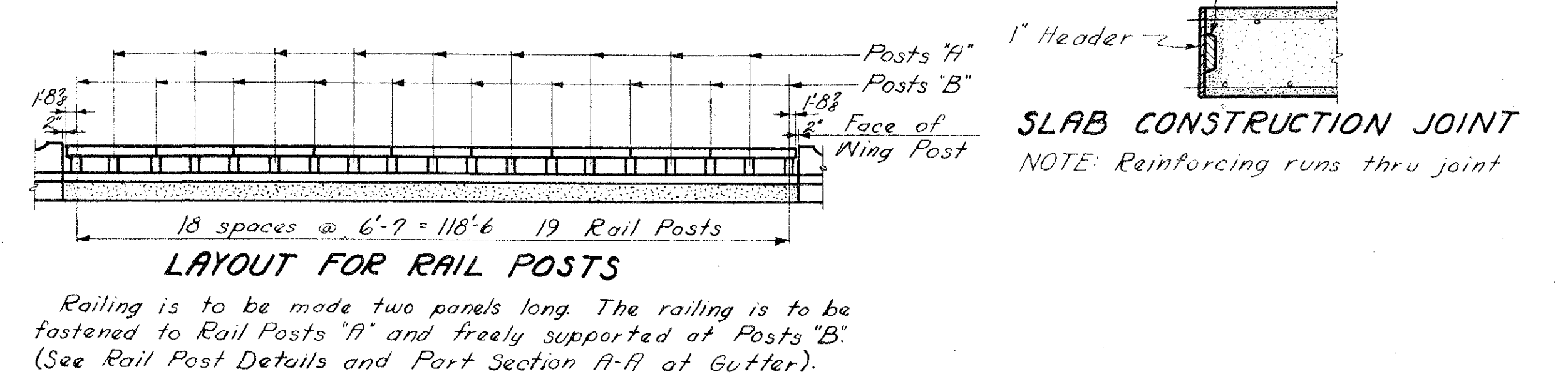
Scale: 1" = 1'-0"  
8 Drains Req'd Weight: 189# each  
For location see Situation Plan

BLOCKING DIAGRAM TO COMPENSATE FOR ULTIMATE DEAD LOAD DEFLECTION

This diagram shows the blocking required for the anticipated ultimate dead load deflection and includes plastic flow. These figures do not include any allowance for form settlement.



LAYOUT FOR LONGITUDINAL REINFORCING



LAYOUT FOR RAIL POSTS

Railing is to be made two panels long. The railing is to be fastened to Rail Posts 'A' and freely supported at Posts 'B'. (See Rail Post Details and Part Section A-A at Gutter).

NOTE: See sheet 5 for Bar List, Bar Details, Sections B-B, C-C & D-D, Placement Quantities, Estimated Quantities, Superstructure Notes, Specifications and haunch stirrup spacing.

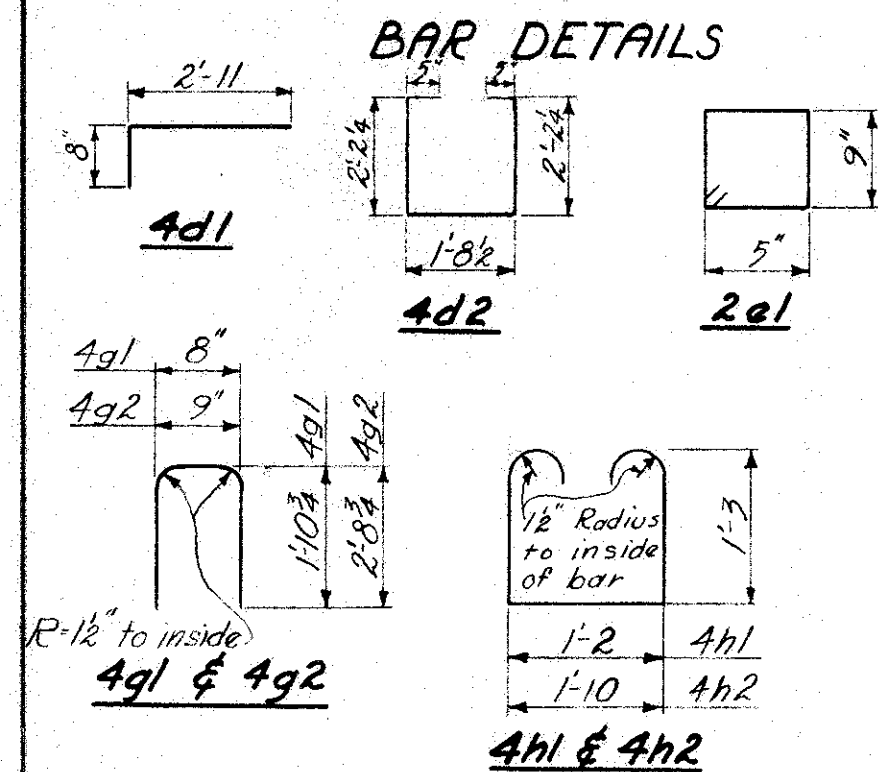
LOCATION:

Over Little Whiskey Creek  
Section 2 in Woodbury Twp.  
Section 33 in Concord Twp.  
Woodbury County

Design For 30° Skew  
**120'x28' CONTINUOUS CONCRETE SLAB BRIDGE**  
37'-3" End Spans 45'-6" Center Span  
Concrete Rail & Substructure 2'-0" Safety Curbs  
**SUPERSTRUCTURE DETAILS**  
Station 558+12.00 Project No. F-2(6)  
**WOODBURY COUNTY**  
IOWA STATE HIGHWAY COMMISSION  
October 1952 Sheet 4 of 5  
Design 3752 Woodbury County File No. 1494



REINFORCING STEEL FOR SUPERSTRUCTURE					
Bar	Location	Shape	Size	No.	Length/Weight
11a1	Slab & Curb Longitudinal-Top	—	11	44	24'0 5611
11a2	" " " " " " " " " " " "	—	11	44	24'3 5669
10a3	" " " " " " " " " " " "	—	10	40	27'10 4791
10a4	" " " " " " " " " " " "	—	10	40	36'9 6325
10a5	" " " " " " " " " " " "	—	10	40	35'4 6082
5a6	Curb Longitudinal-Top	—	5	6	20'4 127
5a7	" " " " " " " " " " " "	—	5	6	23'1 144
5a8	" " " " " " " " " " " "	—	5	6	34'2 214
5a9	" " " " " " " " " " " "	—	5	4	10'2 42
5a10	" " " " " " " " " " " "	—	5	4	10'10 45
5a11	" " " " " " " " " " " "	—	5	4	6'0 25
11b1	Slab & Curb Longitudinal-Top	—	11	44	18'0 4208
10b2	" " " " " " " " " " " "	—	10	40	30'0 5164
10b3	" " " " " " " " " " " "	—	10	20	32'6 2797
6c1	Slab Transverse-Top & Bott	—	6	137	37'0 7614
4d1	Curb Transverse	—	4	122	3'7 292
4d2	Curb Stirrups	—	4	122	6'8 543
2e1	Rail Hoops	—	2	112	2'9 51
4f1	Rail Longitudinal	—	4	16	14'7 156
4f2	" " " " " " " " " " " "	—	4	56	12'10 480
4g1	Rail Post Hoops "B"	—	4	60	4'3 170
4g2	" " " " " " " " " " " "	—	4	36	6'0 144
4h1	Haunch Stirrups (Abuts)	—	4	34	4'6 102
4h2	" " " " " " " " " " " "	—	4	34	5'2 117
4j1	Haunch Transverse	—	4	16	32'6 347
Total					51260 lb.



#### SUPERSTRUCTURE NOTES:

This bridge is designed for H20-44 Loading plus 19 pounds per square foot of roadway for future wearing surface in accordance with specifications of AASHTO, Series of 1949 with modifications as follows:

1. This bridge is designed so that an increase in the live load and impact of 100 % will not increase the total stress to more than 150 % of the specification stresses.
2. The concrete stresses are in accordance with the Tentative Revision T-50. ( $f_c = 1200$  psi). The slab as shown includes 1/2" wearing surface. Reinforcing Steel is to be intermediate grade, hard grade or rail steel ( $f_s = 20,000$  psi). Minimum distance from face of concrete to  $\pm$  of nearest reinforcing bar is to be 2" unless otherwise shown or noted.

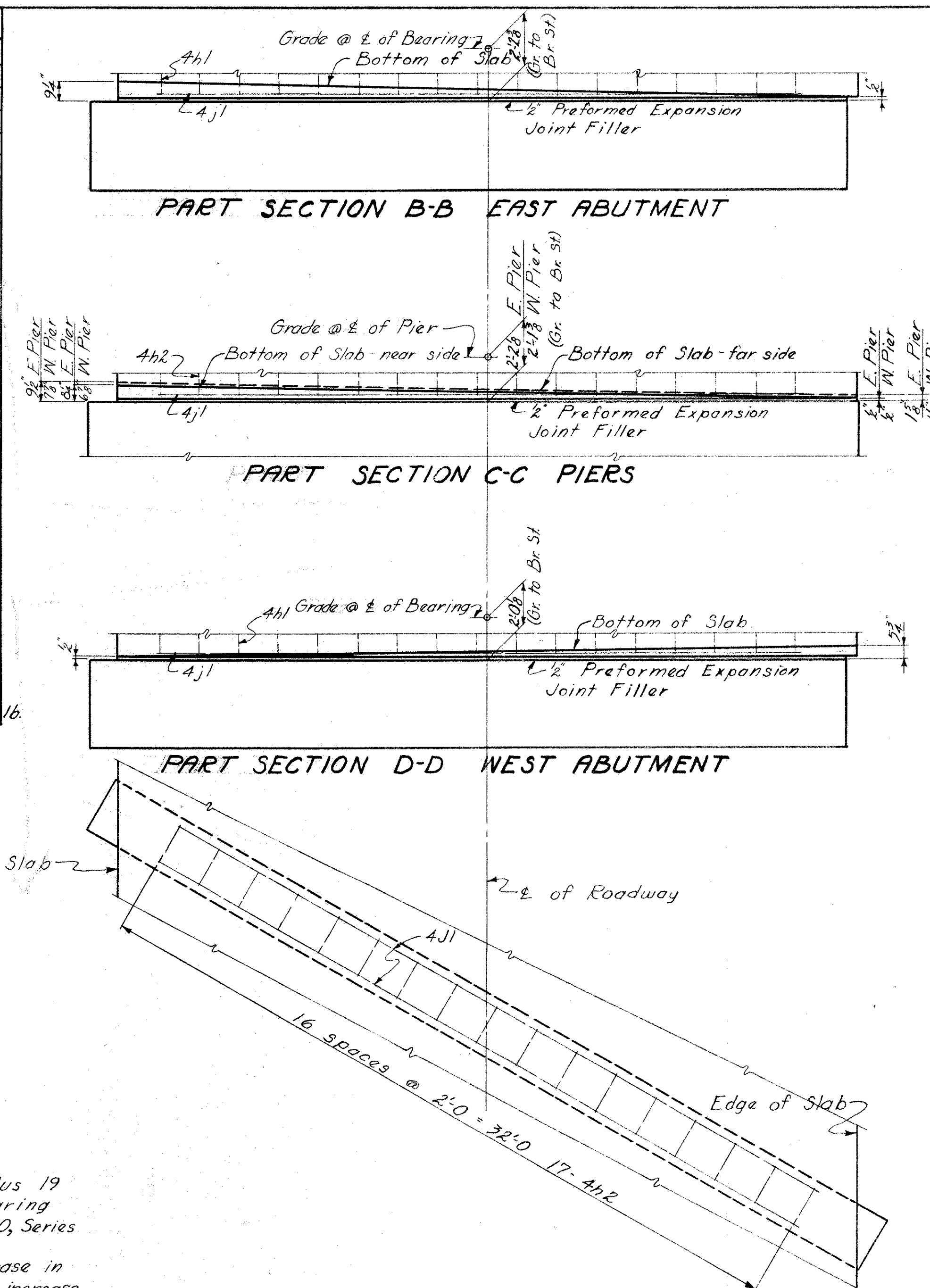
All exposed corners of 90° or sharper are to be filleted with 1/4" dressed and beveled strips.

The concrete slab is to be placed with a minimum of construction joints. Locations of permissible construction joints are shown in Part Section A-A at Butte. Each curb is to be placed in one continuous run from end to end of bridge. Curbs are to be placed while slab is supported by falsework.

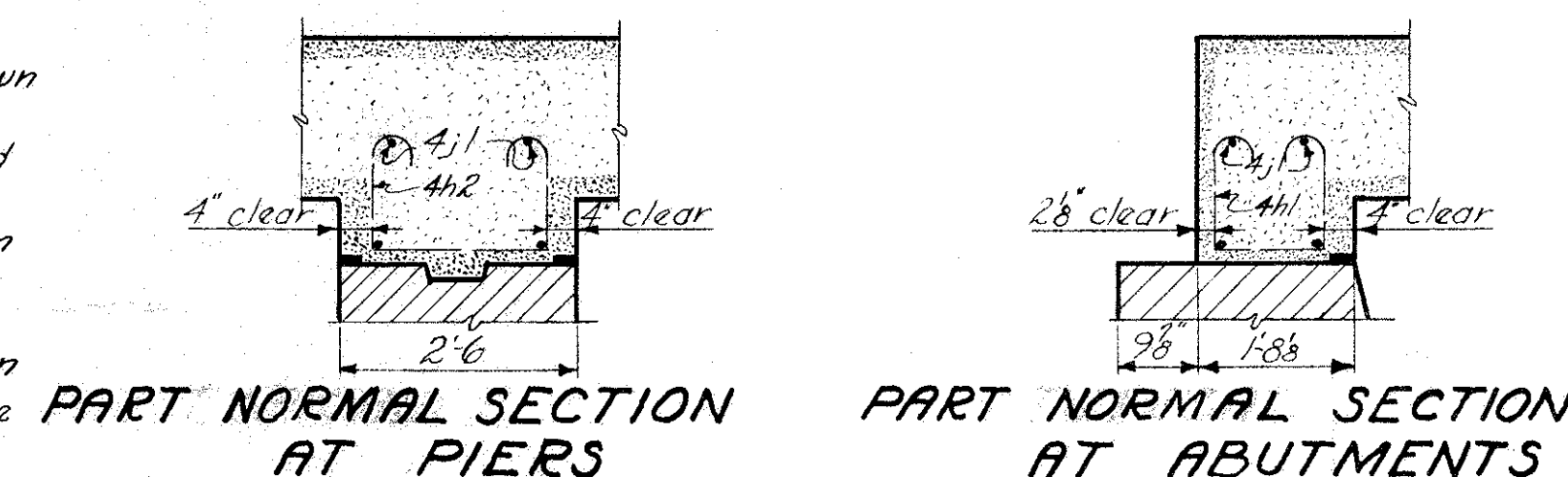
#### SPECIFICATIONS:

Design: Standard Specifications of AASHTO, Series of 1949 with modifications as above.

Construction: Iowa State Highway Commission Specifications, Series of 1952, plus Special Provisions for Construction Projects, Division II, dated Nov. 5, 1952. Jan 13, 1953



**PART PLAN SHOWING HAUNCH STIRRUPS**  
Stirrup spacing at Piers & Abutments similar



CONCRETE PLACEMENT QUANTITIES					
					TOTAL
Railing- Class "C"	(One Side- Posts = 12 cy. Railing = 30 cy)				8.4
Curb- Class "A"	(One Side = 14.3 c.y.)				28.6
Slab- Class "A"	(Without Haunches = 1.99 c.y./ft.)				242.8
Haunches	W. Abut. 0.6 c.y. W. Pier 1.2 c.y. E. Pier 1.4 c.y. E. Abut. 1.0 c.y.				4.2
Class "A"					
Total					284.0 c.y.

SUPERSTRUCTURE ESTIMATED QUANTITIES	
ITEM	QUANTITY
Concrete Class "C" = 8.4 c.y.	
Concrete Class "A" = 275.6 c.y.	284.0 c.y.
Reinforcing Steel	51260 lb.
Structural Steel (Drains)	151 lb.

#### LOCATION:

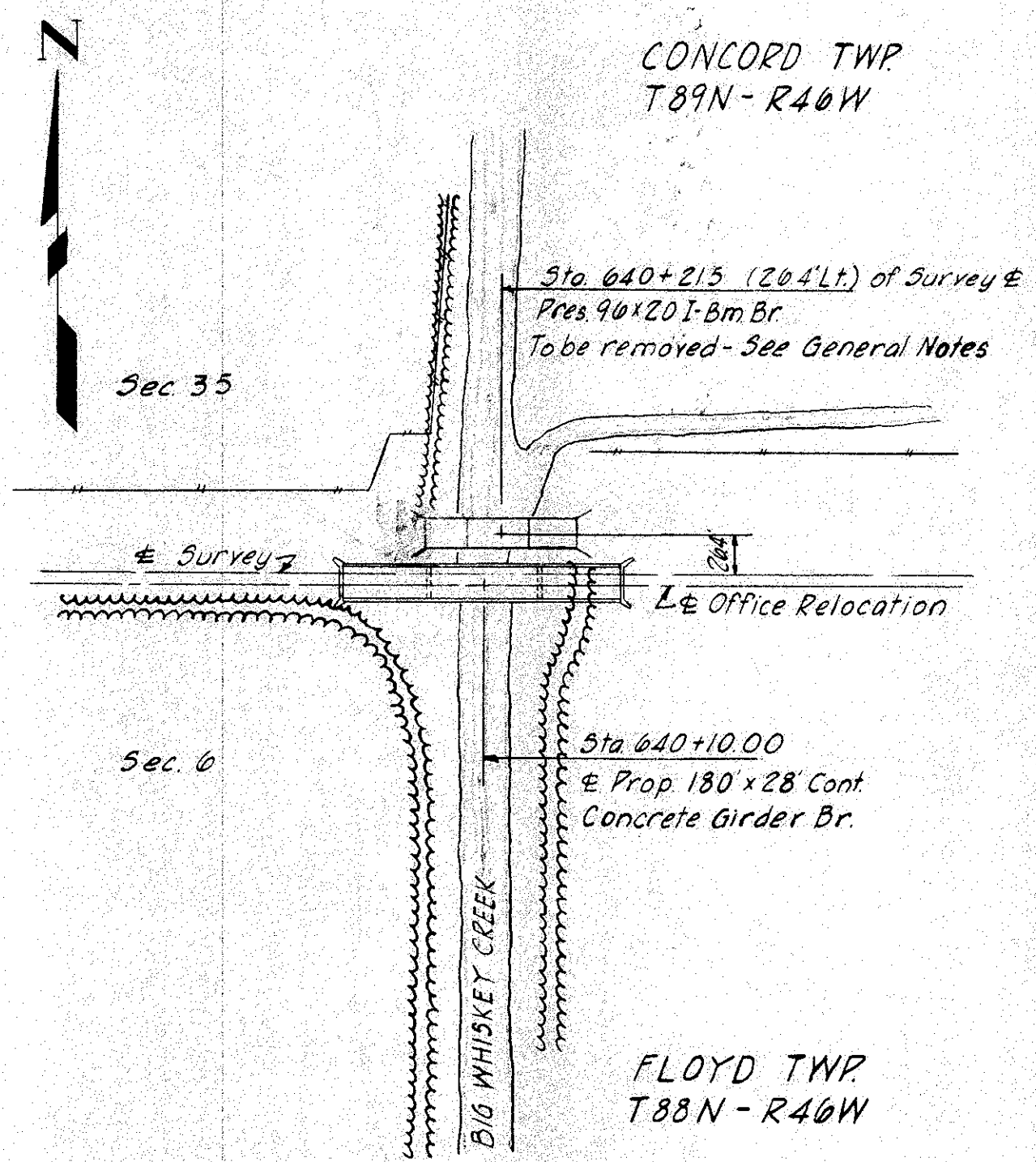
Over Little Whiskey Creek  
Section 2 in Woodbury Twp.  
Section 33 in Concord Twp.  
Woodbury County

Design For 30° Skew  
**120'x28' CONTINUOUS CONCRETE SLAB BRIDGE**  
37'3 End Spans 45'6 Center Span  
Concrete Rail & Substructure 2'0 Safety Curbs  
**SUPERSTRUCTURE DETAILS**  
Station 558+12.00 Project No F-2(6)  
**WOODBURY COUNTY**  
IOWA STATE HIGHWAY Commission  
October 1952 Sheet 5 of 5

Revised Dec 24, 1952, Date of special provisions changed.

Design 3752 Woodbury County File No. 1494





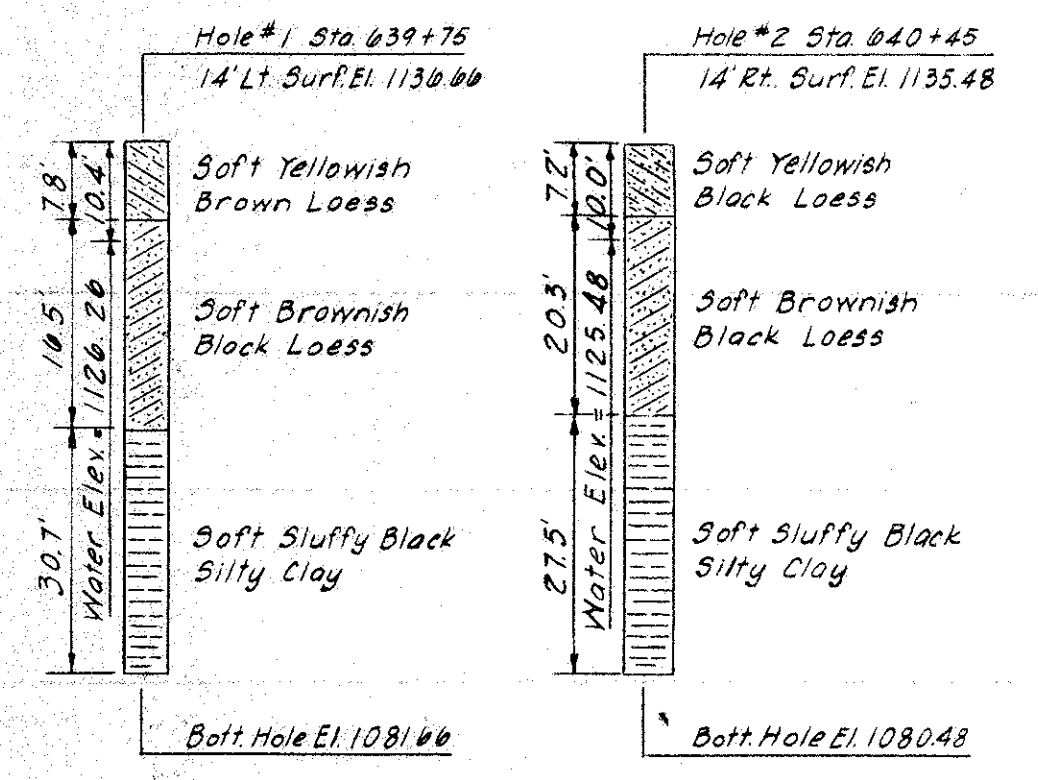
GENERAL PLAN  
D.A. = 51.5 sq. mi., Very Hilly  
Scale: 1" = 100'

**GENERAL NOTES:**

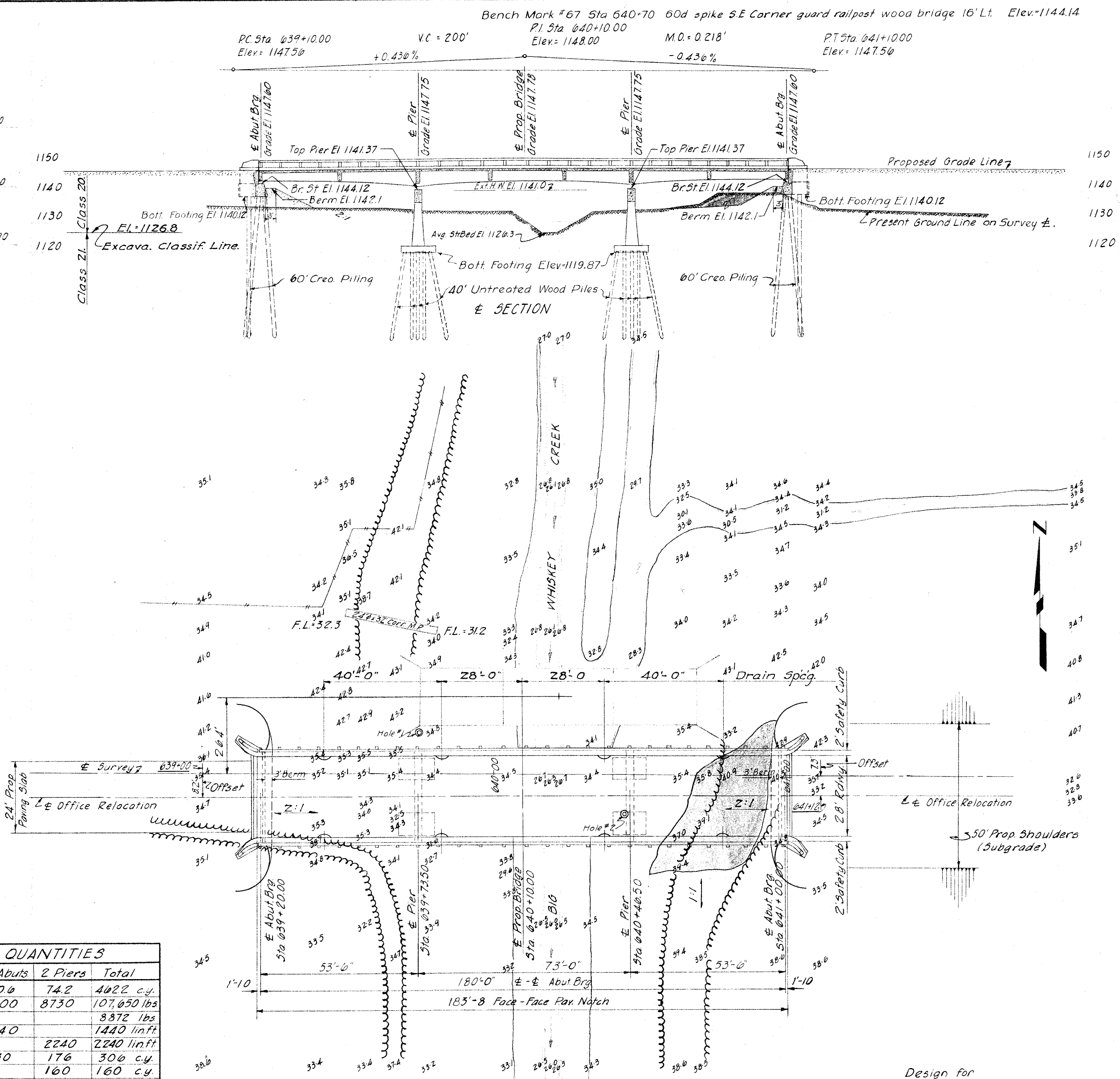
This Bridge is designed for H-20-44 loading plus 19 lbs. per sq. ft. of roadway for future wearing surface with the modifications listed on Sheet 5.  
Build proposed Bridge on Office Relocation.  
Approach Fills as shown are not a part of this estimate and are to be in place before abutment piles are driven. Bridge Contractor is to level off and shape berms to elevations shown.  
The present multiple span 90' x 20' I-Beam Bridge (29'-38'-29'), with wood floor and untreated wood pile substructure, is to be removed by the Bridge Contractor, for re-erection, in accordance with Section 2401 of the Standard Specifications. Old Bridge may be removed anytime during construction. Remove substructure to at least 6" below finished ground line. Nails are to be removed from all salvable lumber. Neatly pile all salvable material within 200' of the building site as directed by the Engineer.  
Bridge Contractor is to clear channel for a width to 25' each side of relocation & as shown by shaded area in Situation Plan and Section.  
Red lines on the tracing or faint lines on a print indicate parts of present structure.

**SPECIFICATIONS:**

Design: A.A.S.H.O. Series of 1949 plus revisions T-50 and with modifications listed on sheet 5.  
Construction: Iowa Highway Commission Series of 1952, plus Special Provisions for Construction Projects, Division II, Nov. 5, 1952. Jan. 13, 1953.



SOUNDING DATA  
Scale: 1" = 20'



TOTAL ESTIMATED QUANTITIES				
Part	Super	2 Abuts	2 Piers	Total
Concrete	317.4	70.6	74.2	462.2 c.y.
Reinforcing Steel	94,920	4000	8730	107,650 lbs
Structural Steel	8372			8372 lbs
Creosoted Piles		1440		1440 linft
Untreated Piles			2240	2240 linft
Class 20 Excar.		130	176	306 c.y.
Class 21 Excar.			160	160 c.y.
Channel Excar.				120 c.y.
Removal of Old Bridge				Lump Sum

SITUATION PLAN  
Scale: 1" = 20'

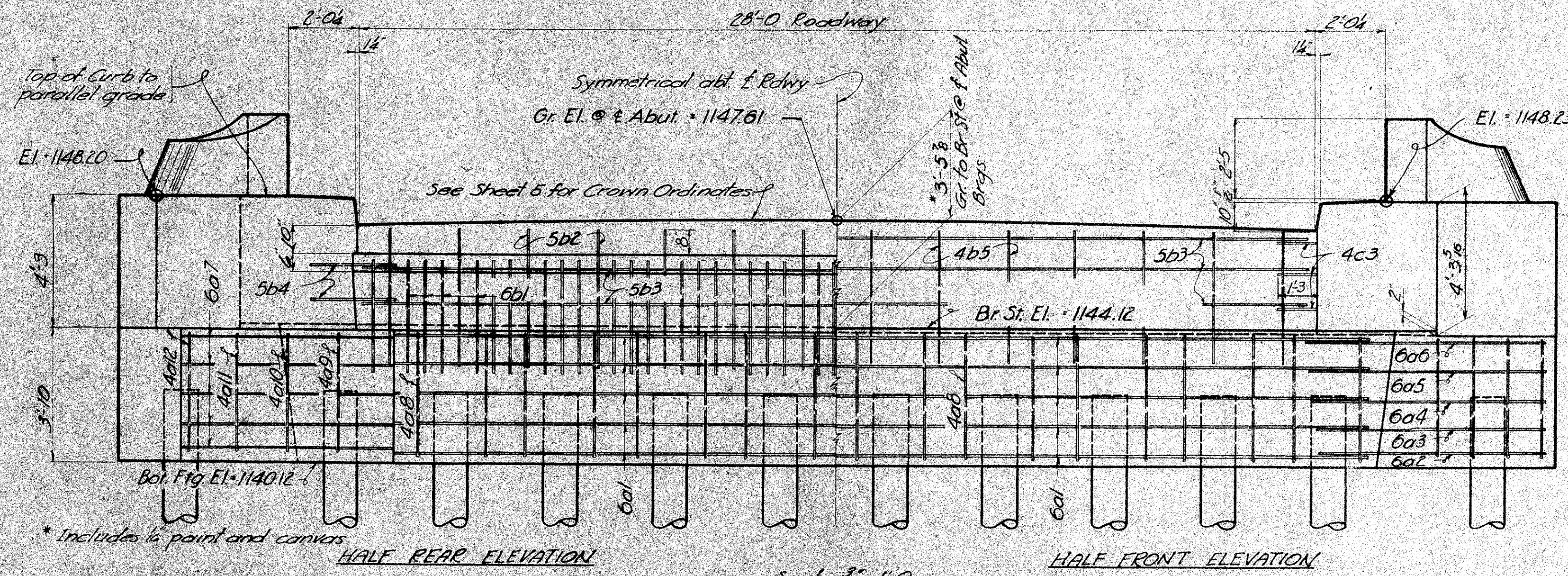
LOCATION:  
Over Big Whiskey Creek  
Section 6-35  
Floyd - Concord Twp.  
Woodbury County

Design for  
**180' x 28' CONTINUOUS CONCRETE GIRDER BRIDGE**  
53'-6" End Spans 73'-0" Center Span  
Concrete Rail & Substructure  
**SITUATION PLAN**  
Sta. 640+10.00 Project F-2(6)  
**WOODBURY COUNTY**  
IOWA STATE HIGHWAY COMMISSION  
November, 1952 Sheet 1 of 6

Revised Dec. 24, 1952, Date of special prov. changed.



BENCH MARK: No 67 Station 640+70 - 60d Spike in S.E. Corner of Guard Rail on Wood Bridge 16' Left Elev. 1144.14

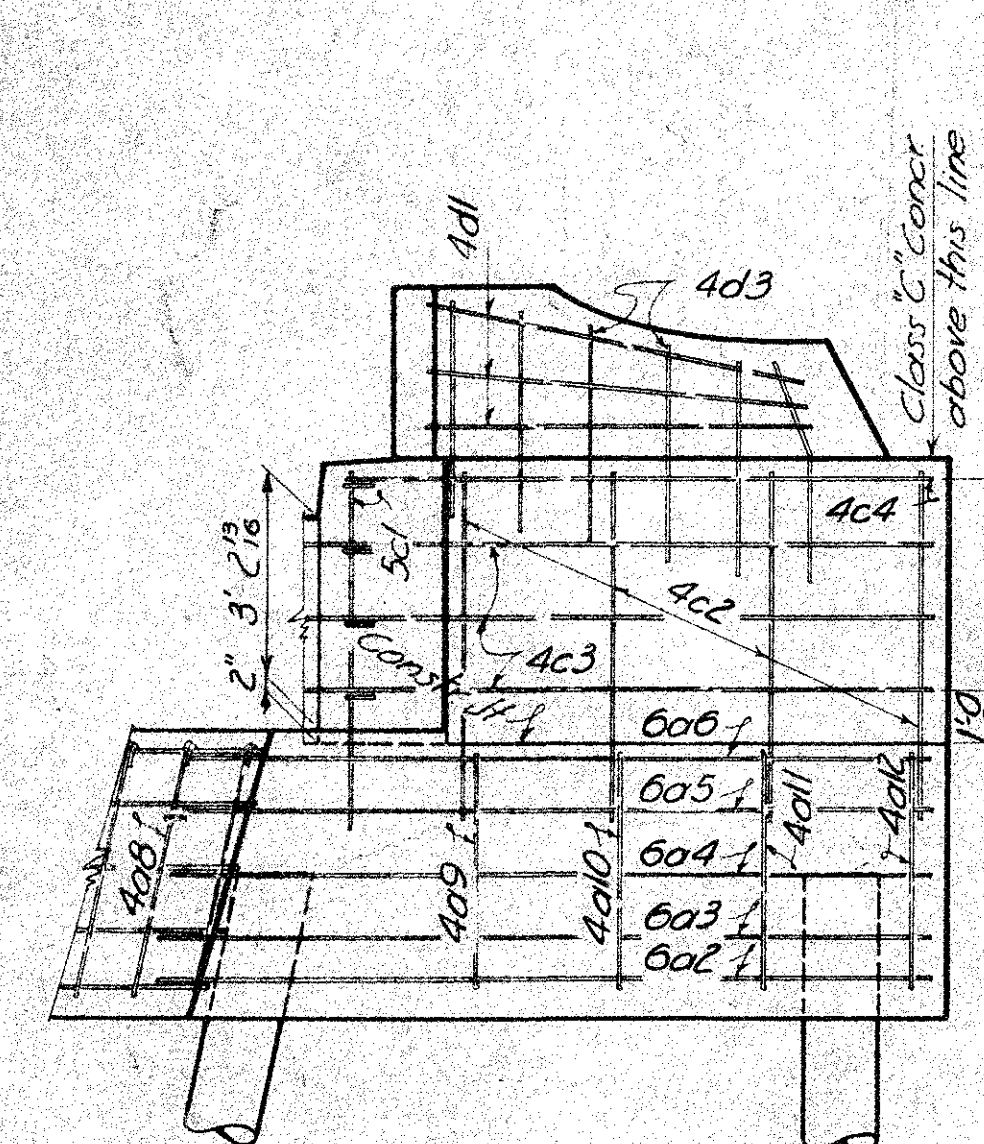


\* Includes 16" paint and canvas

HALF REAR ELEVATION

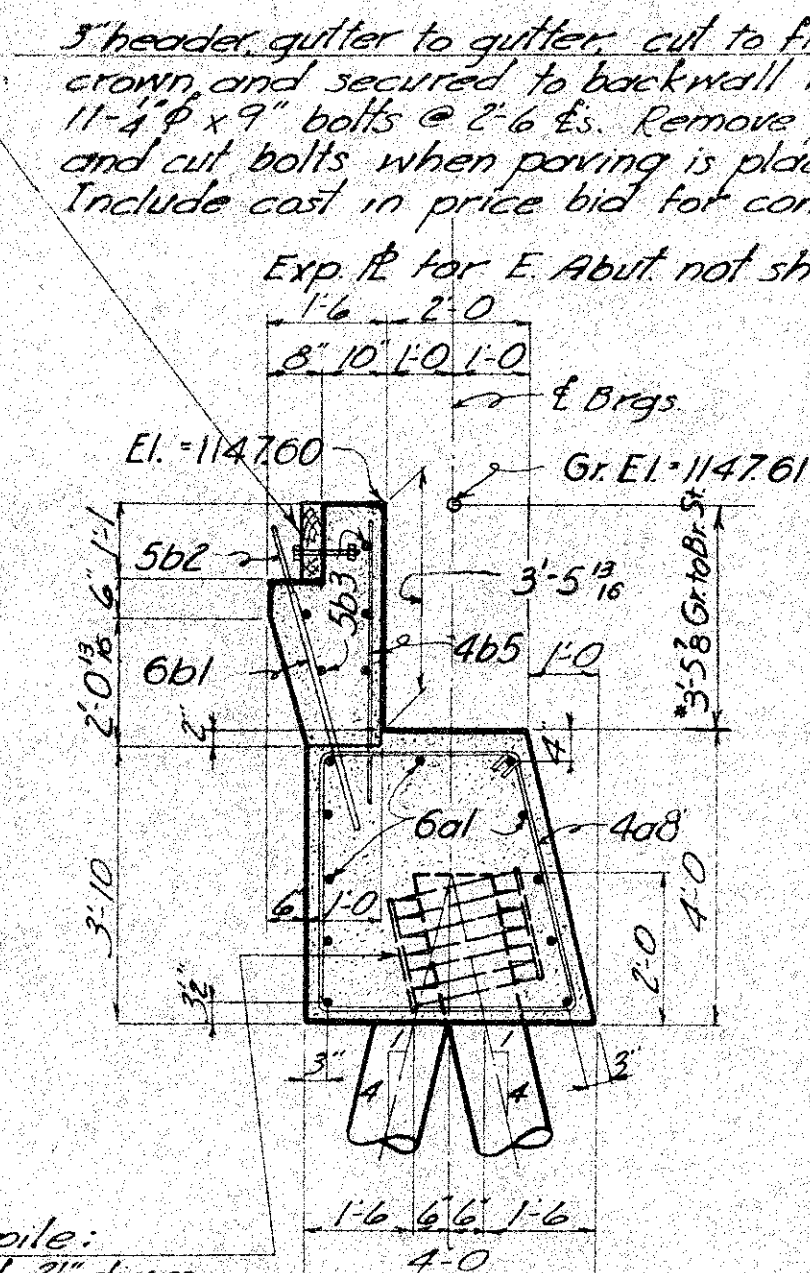
Scale:  $\frac{3}{8}'' = 1'-0''$

HALF FRONT ELEVATION



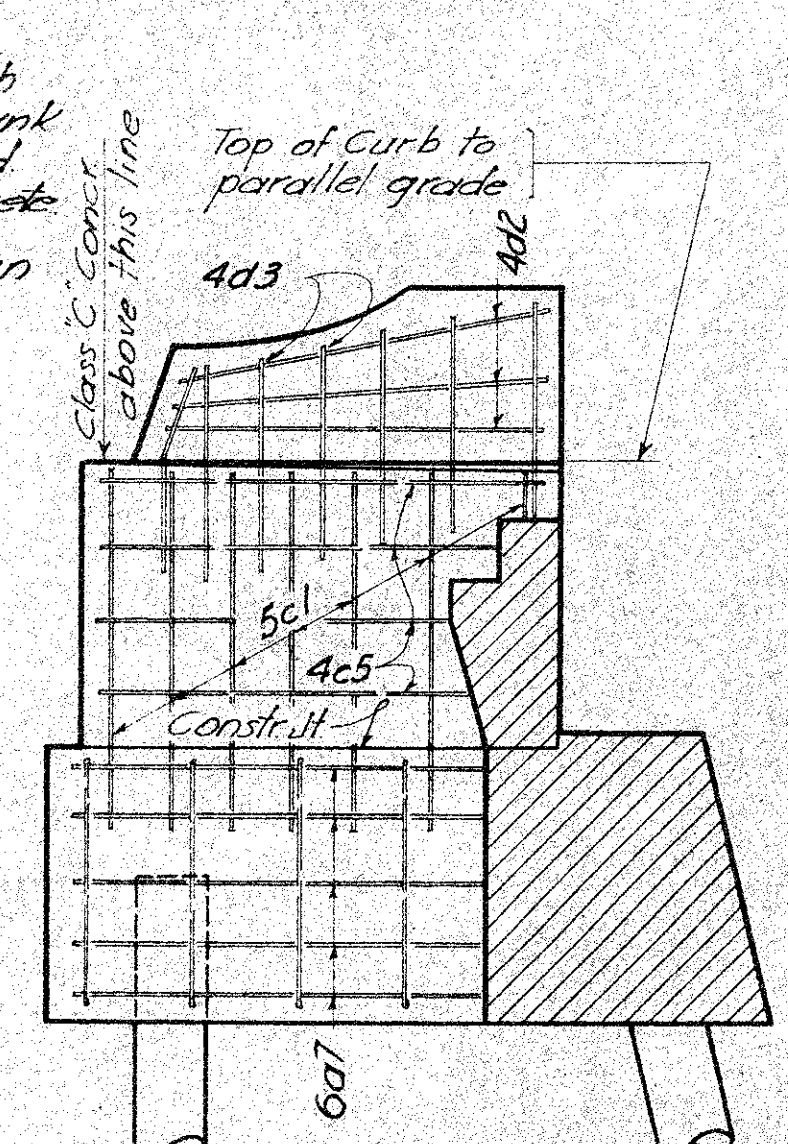
VIEW A-A

Spiral for each pile:  
7 turns of 2 rod 2" diam,  
3" pitch with 2-3/8" x 0.69" E  
spacers punched to hold  
spiral

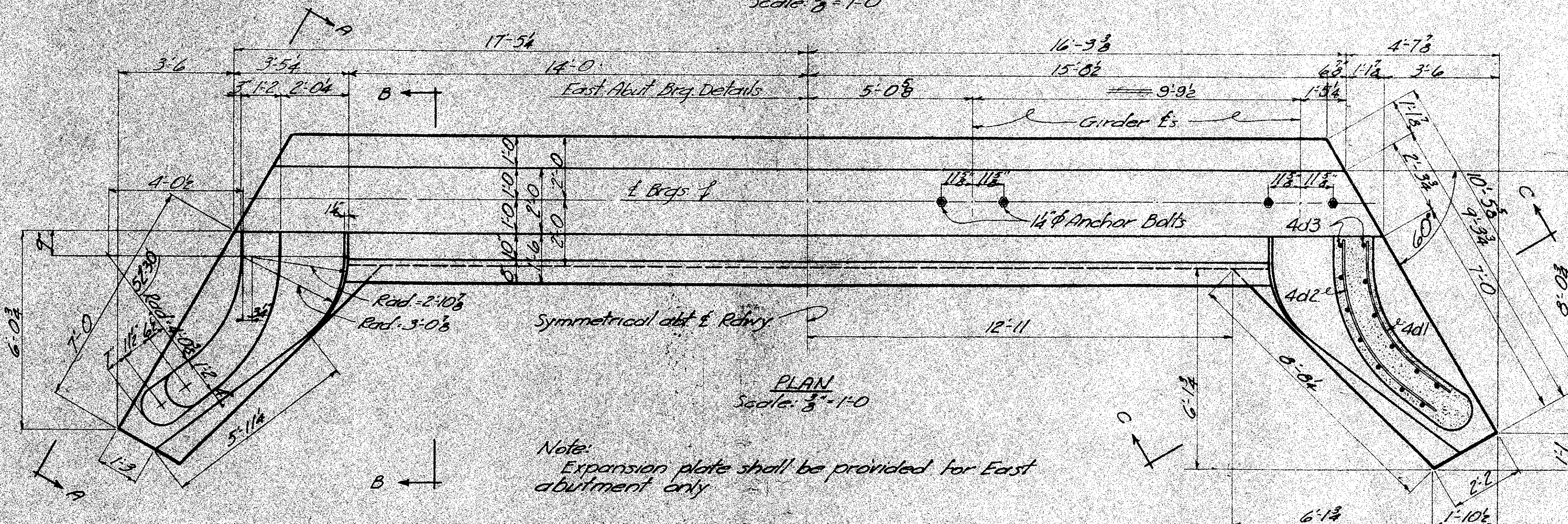


Exp.  $\mathbb{R}$  for E. Abut. not shown

## SECTION

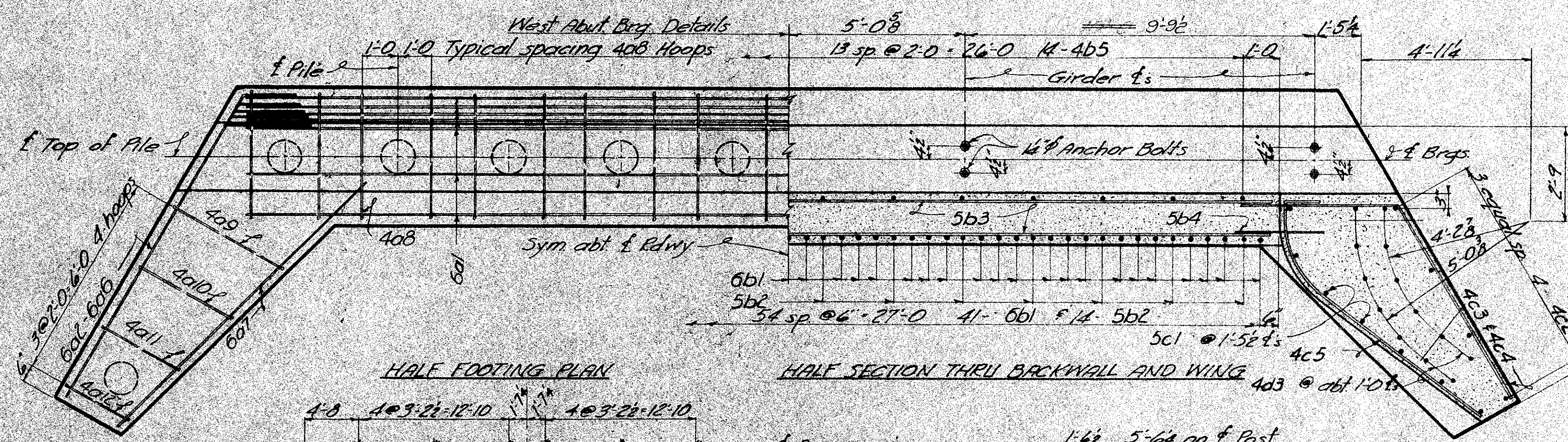


SECTION B-B



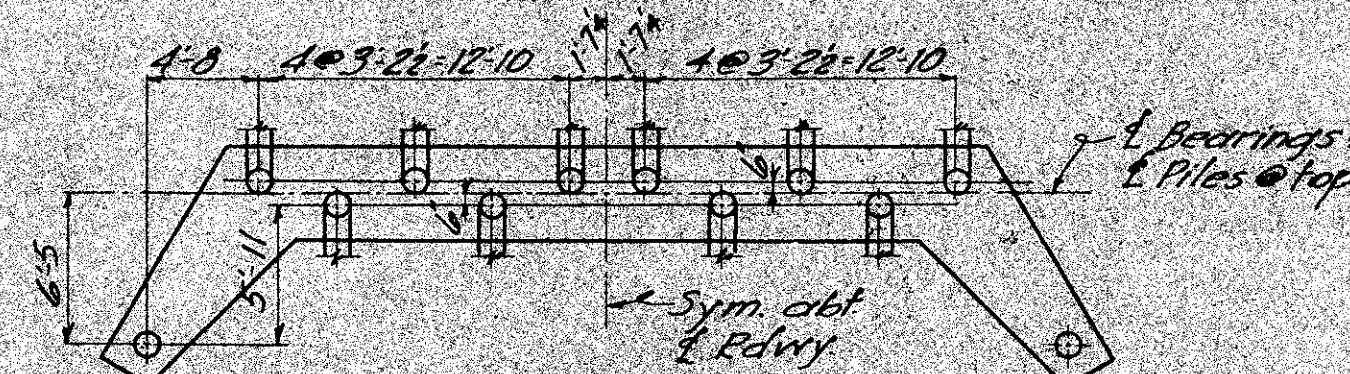
PLAN  
Scale:  $\frac{3}{8}'' = 1'-0''$

Note:  
Expansion plate shall be provided for East  
abutment only



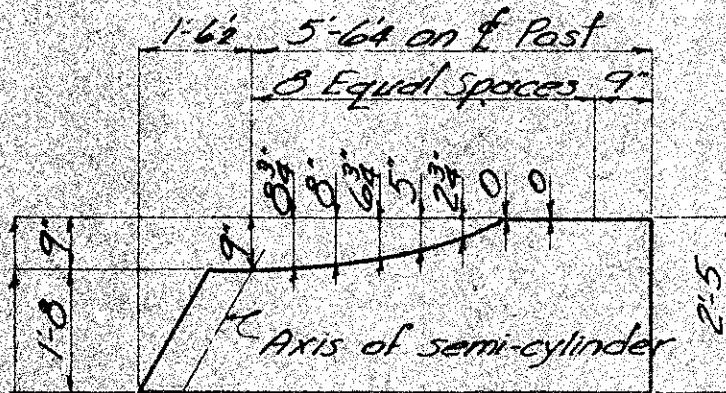
### HALF FOOTING PLAN

HALF SECTION THRU BACKWALL AND WING



## PILE PLAN

Dimensions indicate location of piles at the bottom of footing  
12'-60" Cree. East, 12'-60" Cree. West



WING POST DEVELOPED

REINFORCING STEEL ONE ABUT.				
Mark	Location	Shape	No.	Length Weight
6a1	Footing Length		11	31'-0 512 lb
6a2-6a6	Wing Footing FF Hor.		10	11'-6 173 "
6a7	" BF "		10	9'-7 144 "
6b1	Backwall BF Vert.		41	3'-9 230 "
5b2	Backwall BF Vert.		14	4'-8 68 "
5b3	" BF FF Hor.		5	27'-8 144 "
5c1	Wingwall BF Vert.		14	5'-2 75 "
5b4	Backwall BF Details		4	2'-6 10 "
4a6	Footing Transv. Hoops	□	20	14'-0 187 "
4a2-4a6	Wing Footing Hoops	□	8	Var. 71 "
4b5	Backwall BF Vert.		14	4'-4 41 "
4c2	Wingwall FF Vert.		8	5'-0 27 "
4c3	" " Hor.		6	11'-2 45 "
4c4	" " "		2	9'-10 13 "
4c5	" BF "		8	9'-9 32 "
4d1	Wing Post FF Hor.		6	5'-7 22 "
4d2	" BF "		6	6'-4 25 "
4d3	" FF & BF Vert.		26	3'-1 54 "
	Pile Spirals #2 Rod	2000	12	38'-6 77 "
	Spiral Spacers 81.0.69"		24	1'-10 30 "
			Total	Weight 2000 lb

# BAR DETAILS

CONC. PLACEMENT QUANTITIES - ONE ABUTMENT	
Footings	23.0 C.Y.
Wing Walls	6.8 C.Y.
Backwall	4.3 C.Y.
Total Class A'	34.1 C.Y.
Wing Posts (Class "C")	12 C.Y.

ESTIMATED QUANTITIES - TWO ABUTMENTS	
Class "A" Concrete	682.0 yd
Class "C" Concrete	24.0 yd
Reinforcing Steel	4000 Lbs
Precasted Piles	1440 Linf
Excavation (120' x 24' @ 60')	130.0 yd

### GENERAL NOTES

Edge distance from face of concrete to  $\frac{1}{2}$ " of near bar is to be 2" unless noted otherwise.  
All concrete is to be Class  $\frac{3}{4}$ " except as shown.  
All exposed corners of 90° or sharper, except vertical corners of rail posts, are to be filleted with a  $\frac{1}{4}$ " dressed and beveled strip.  
Masonry plates and fixed shoes are to be set in point and corners.  
Anchor bolts are to be preset with a 4 $\frac{1}{2}$ " projection above top of concrete. Weight of anchor bolts included in Superstructure structural steel estimator.  
SPECIFICATIONS - Construction  
Standard Specifications of the Iowa State Highway Commission, Series 1952, plus Special Provisions for Construction Projects, Division II, Dated ~~the 1952~~ Jan. 13, 1953.

LOCATION:

Over Big Whiskey Creek  
Sec. 6-35  
Floyd-Concord Twp.  
Woodbury County

Design For  
**180' x 28' CONTINUOUS CONCRETE GIRDER BRIDGE**  
53'-6" End Spans                      73'-0" Center Span  
Concrete Rail and Substructure  
**ABUTMENT DETAILS**

Station 640+10.00                      Project No. F-2 (6)

WOODBURY COUNTY

Iowa State Highway Commission

Sheet 2 of 6

Design 251a Linn County Sheet 2 of 6

Design 3852

Woodbury County

File No. 14945



SUPERSTRUCTURE REINFORCING STEEL						Bent Bar Details	
Mark	Location	Shape	No.	Length	Weight		
6a1	Slab Transverse-Top & Bottom	—	535	30'-8	24643		
6b1	Slab Long. W. End Span-Top & Bot.	—	33	35'-8	1768		
6b2	Slab Long. E. End Span-Top & Bot.	—	33	34'-1	1689		
6b3	Slab Long. Center Span-Top & Bot.	—	33	34'-3	1698		
6b4	Slab Long. Over Piers-Top & Bot.	—	70	41'-3	4337		
5c1	Curb Long. W. End Span	—	4	35'-6	148		
5c2	Curb Long. E. End Span	—	4	34'-1	143		
5c3	Curb Long. Center Span	—	4	34'-1	143		
5c4	Curb Long. Over Piers	—	8	41'-1	343		
4d1	Curb Transverse	┐	362	4'-5	1068		
11e1	Exterior Girder-Top Long-Top Layer	—	4	11'-6	244		
11e2	" " " " " " Bot Layer	—	8	29'-0	1233		
11e3	" " " " " " " " " "	—	8	21'-0	893		
11e4	" " " " " " " " " " - Top Layer	—	8	35'-6	1509		
11e5	" " " " " " " " " " " " " "	—	8	47'-0	1998		
6e6	" " " " " " " " " " " " " "	—	4	43'-0	258		
6e7	" " " " " " " " " " " " " "	—	4	32'-0	192		
6e8	" " " " " " " " " " " " " "	—	8	38'-0	457		
6e9	" " " " " " " " " " " " " "	—	8	32'-0	383		
8f1	Exterior Girder-Bot Long-Top Layer	—	4	24'-0	256		
8f2	" " " " " " " " " " " " " "	—	4	30'-6	326		
8f3	" " " " " " " " " " " " " "	—	8	20'-6	438		
8f4	" " " " " " " " " " " " " "	—	8	27'-3	582		
10f5	" " " " " " " " " " " " " " Bot Layer	—	4	36'-8	631		
10f6	" " " " " " " " " " " " " "	—	4	41'-0	706		
10f7	" " " " " " " " " " " " " "	—	8	37'-7	1294		
10f8	" " " " " " " " " " " " " "	—	8	39'-9	1368		
7f9	" " " " " " " " " " " " " "	—	16	20'-7	673		
7f10	" " " " " " " " " " " " " "	—	16	18'-5	602		
11g1	Interior Girder-Top Long	—	8	18'-3	776		
11g2	" " " " " " " " " " " " " "	—	8	24'-3	1031		
11g3	" " " " " " " " " " " " " "	—	8	32'-0	1360		
11g4	" " " " " " " " " " " " " "	—	8	41'-0	1743		
11g5	" " " " " " " " " " " " " "	—	8	50'-9	2157		
11g6	" " " " " " " " " " " " " "	—	8	57'-3	2433		
11g7	" " " " " " " " " " " " " "	—	8	56'-0	2380		
11g8	" " " " " " " " " " " " " "	—	4	42'-10	910		
6g9	" " " " " " " " " " " " " "	—	4	25'-6	153		
6g10	" " " " " " " " " " " " " "	—	8	25'-0	300		
6g11	" " " " " " " " " " " " " "	—	8	19'-6	234		
4h1	Exterior Girder	┐	192	5'-2	663		
4h2	" " " " " " " " " " " " " "	┐	60	5'-8	303		
4h3	" " " " " " " " " " " " " "	┐	80	7'-0	374		
4h4	Interior Girder	┐	208	5'-2	719		
4h5	" " " " " " " " " " " " " "	┐	256	5'-6	941		
4h6	" " " " " " " " " " " " " "	┐	192				

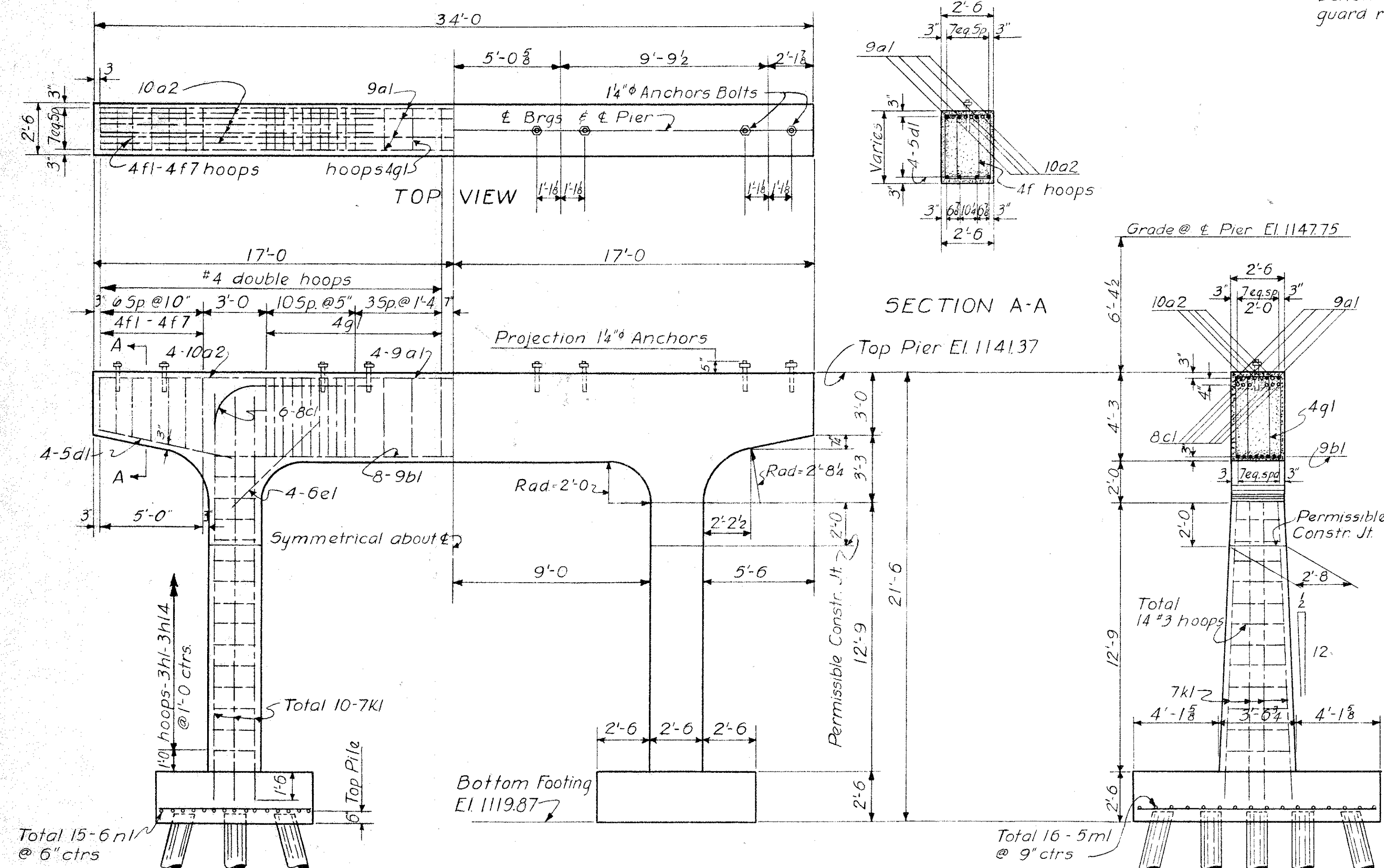


Diagram illustrating the layout of a 7' x 6' rug. The overall dimensions are 7'-6" (width) and 14'5" (length). The layout includes a central 7' x 6' area, a 3' wide border, and a 3' wide inner border. The rug is made of 15 Spa @ 9" = 11'3" and 14 Spa @ 6" = 7'0". The inner border is made of 15' 0" and 7' 0". The central area is 7' x 6'.

All outside piles to have a 1:4 vertical batter except as noted.

GENERAL NOTES FOR PIERS:  
All concrete is to be C  
or sharper are to be fillete  
strip.

Distance from face of concrete to center line of near bar is to be 2" unless noted otherwise.

Pier piles to be driven to full penetration if practicable but at least to 20 Ton bearing value.

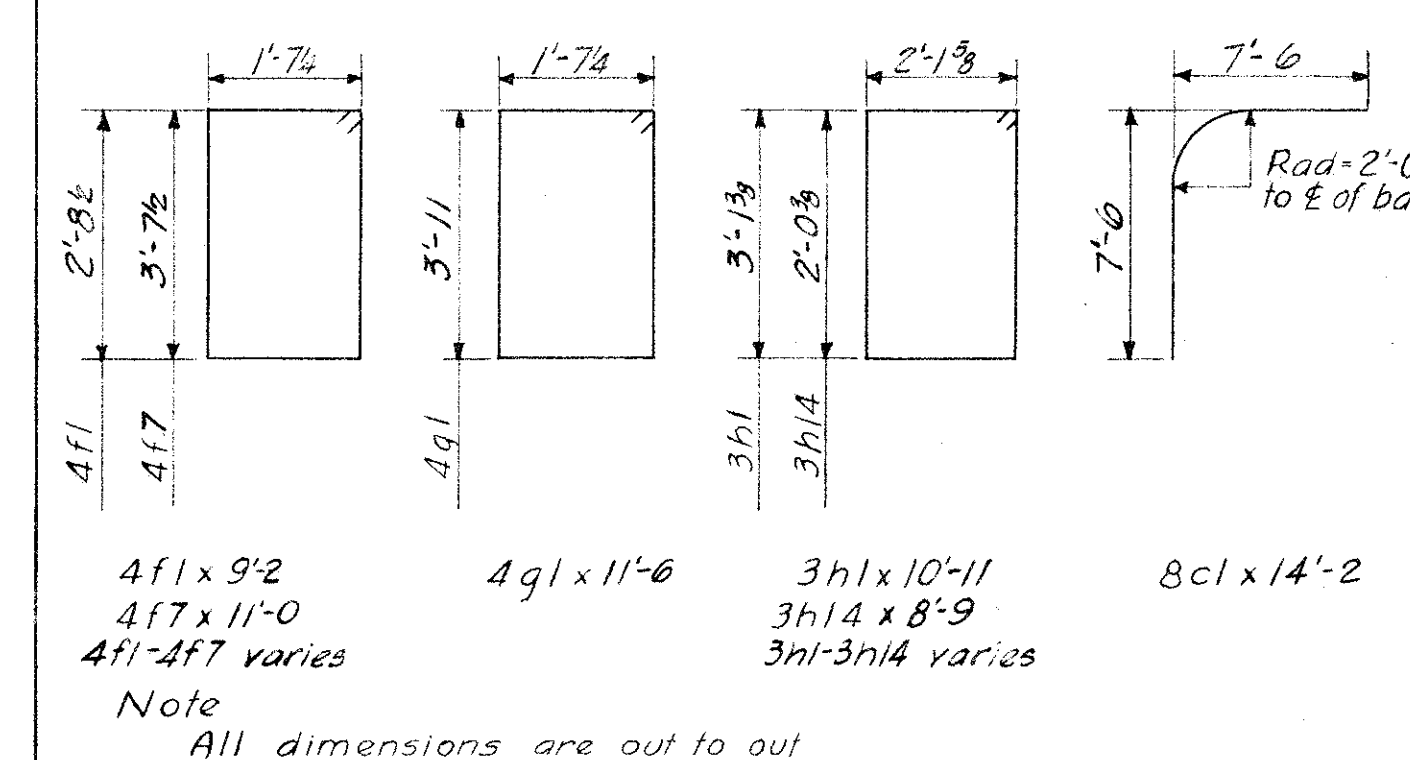
Anchor bolts are to be preset. Anchor bolt quantities are included in Structural Steel Estimate for Superstructure

Design - A.A.S.H.O. 1949  
Construction - Iowa State Highway Commission Standard  
Specifications, Series 1952, plus Special Provisions for Construction  
Project, Division II, dated ~~Nov 5, 1952~~ Jan 13, 1953

[illegible]

Total 16 - 5ml  
@ 9" ctrs

BILL OF REINFORCING - ONE PIER						
Mark	Location	Shape	No.	Size	Length	Weight
9a1	Beam Top Longit.	—	4	9	33'-6	456
10a2	Beam Top Ends	—	8	10	13'-0	448
9b1	Beam Bot. Longit.	—	8	9	22'-6	612
8c1	Corner Bars	┐	12	8	14'-2	454
7k1	Column Vertical	—	20	7	19'-6	797
6e1	Beam Fillet Bar	—	8	6	5'-6	66
6n1	Footing    to Rdwy. &	—	30	6	11'-3	507
5d1	Cantilever Bottom	—	8	5	6'-6	54
5m1	Footing    to Pier &	—	32	5	7'-0	234
4f1-4f7	Cantilever Hoops	□	28	4	Varies	203
4g1	Beam Hoops	□	56	4	11'-6	430
3h1-3h4	Columns Hoops	□	28	3	Varies	104
Totals						4305



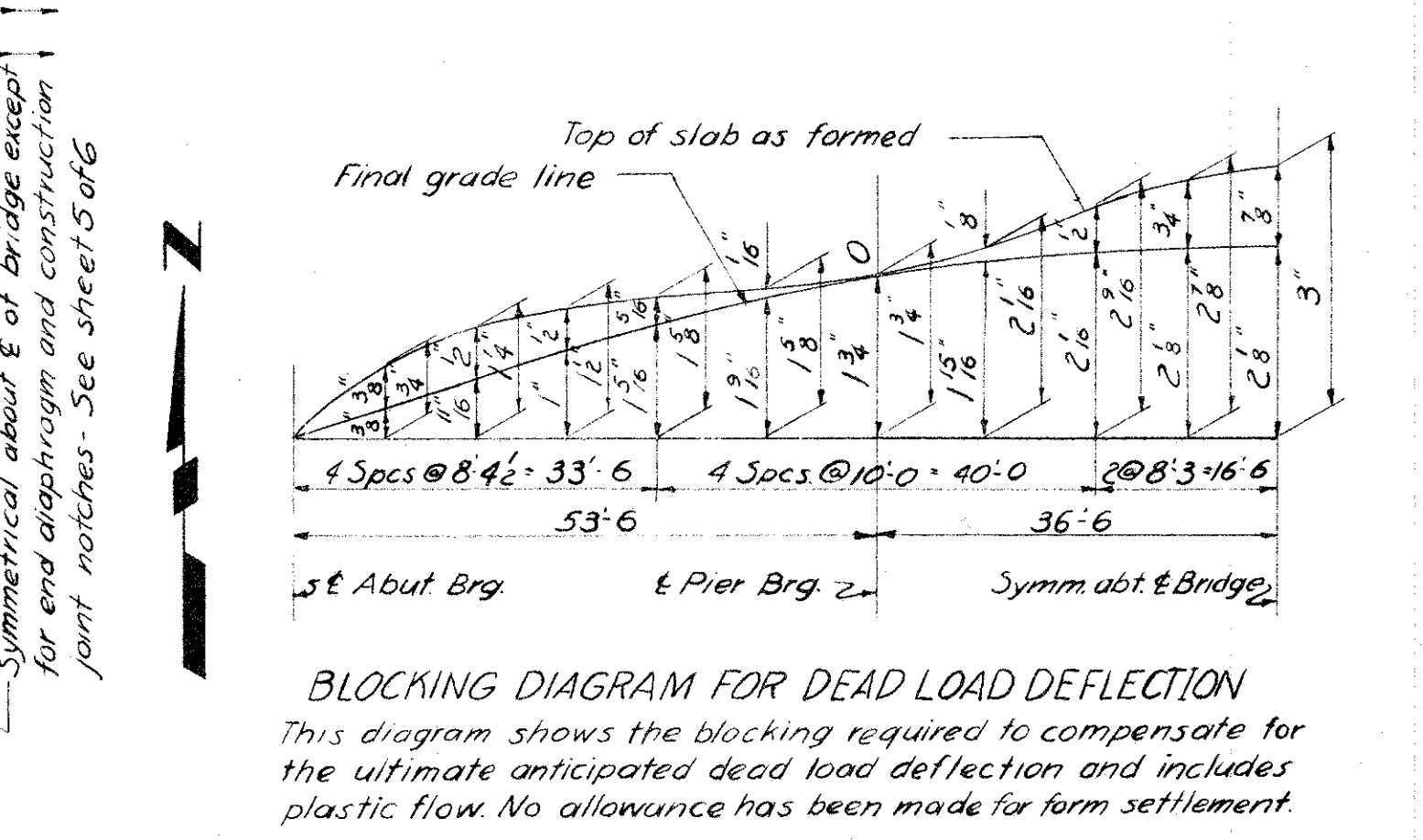
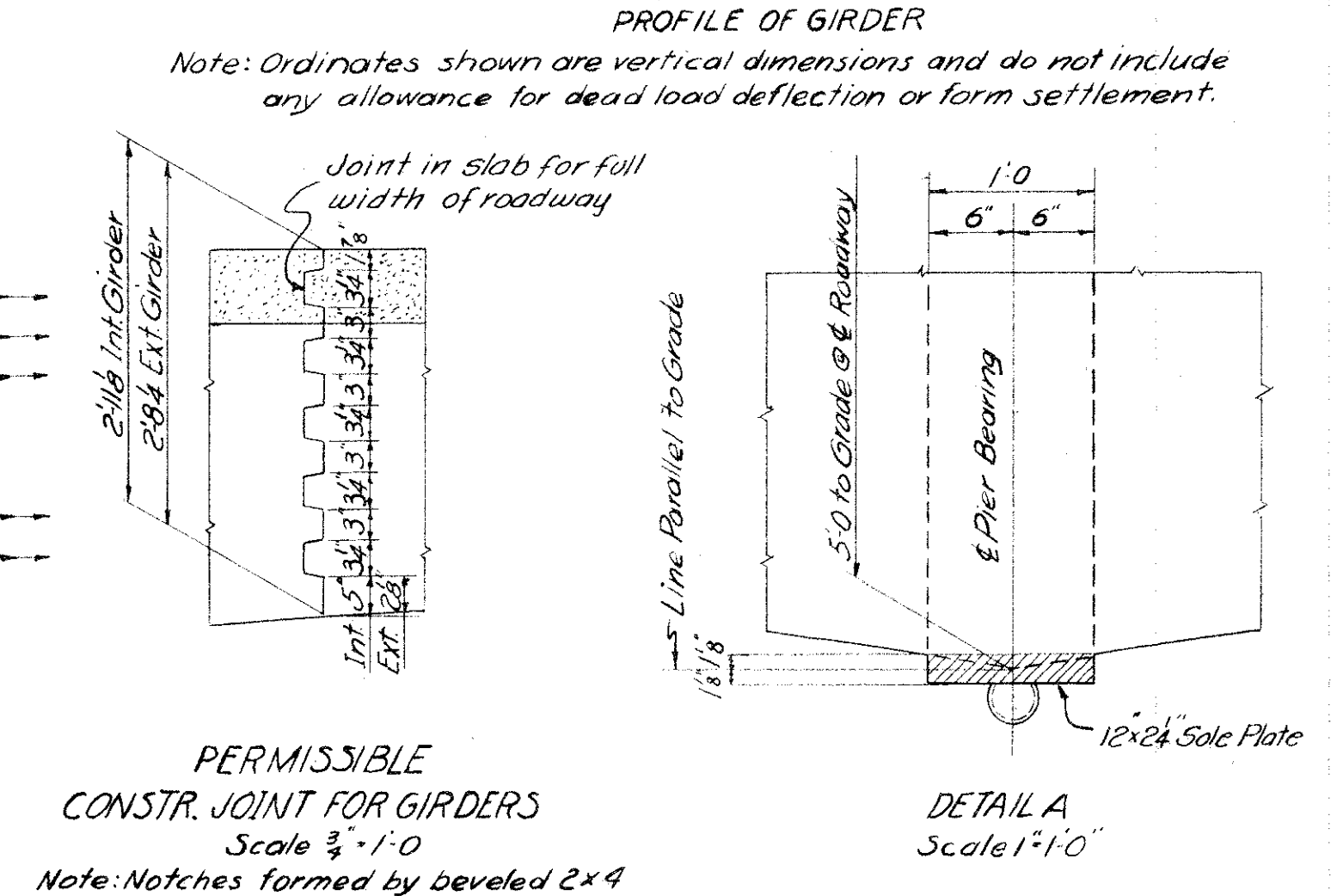
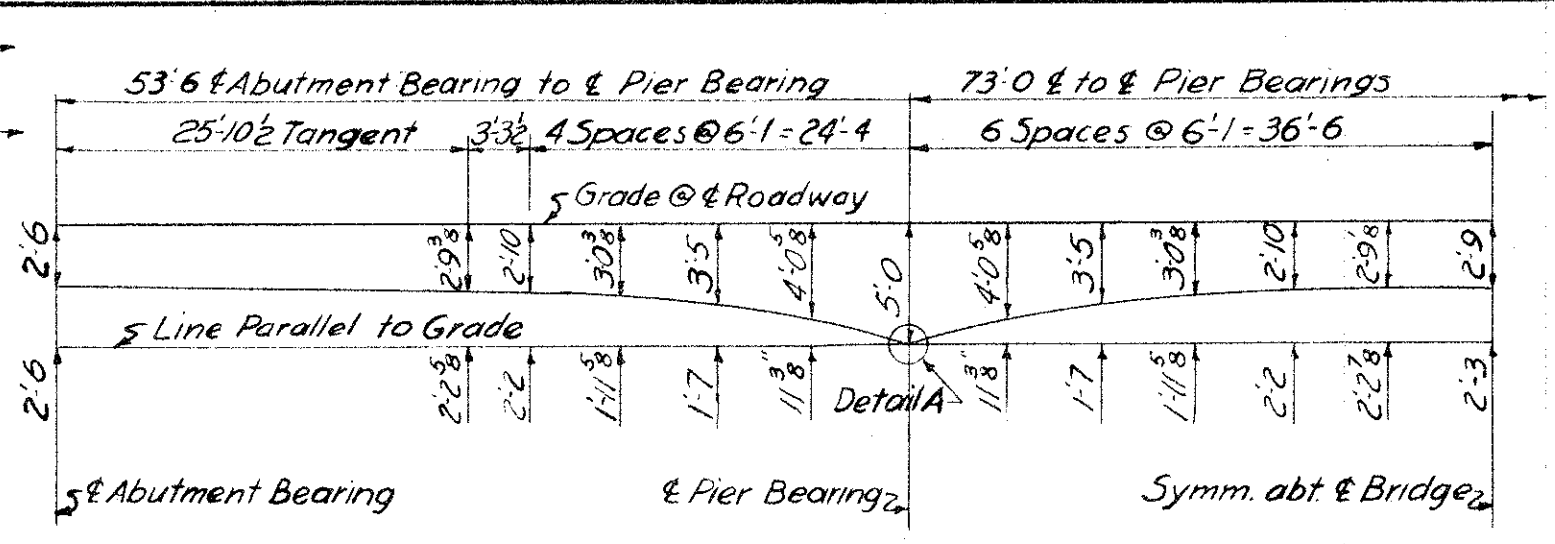
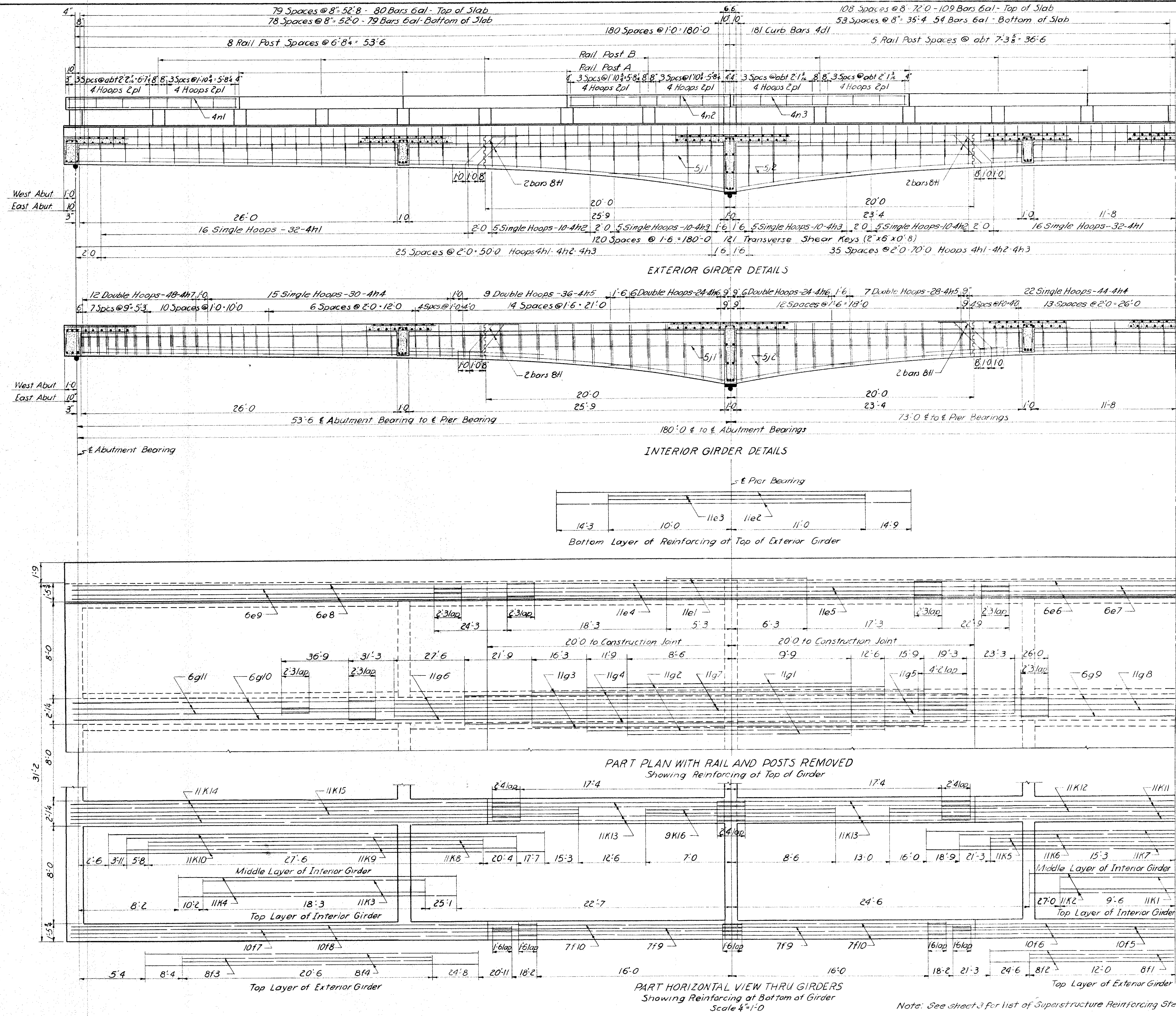
PIER CONCRETE PLACEMENT QUANTITIES	
ITEM	ONE PIER
Footings	100 cuyd
Cap & Columns above Constr.Jt.	14.9 "
Columns Below Constr.Jt.	0.2 "
Total	115.1 cuyd

ESTIMATED PIER QUANTITIES			
ITEM	WEST PIER	EAST PIER	TOTAL
Concrete	371 cu.yd.	371 cu.yd.	742 cu.yd.
Reinforcing Steel	4305 lbs.	4305 lbs.	8730 lbs.
Untreated Wood Piles	28@40' = 1120 L.F.	28@40' = 1120 L.F.	2240 L.F.
Excavation C120	88 cu.yd.	88 cu.yd.	176 cu.yd.
Excavation C121	80 cu.yd.	80 cu.yd.	160 cu.yd.

Design for  
180'x28' CONTINUOUS CONCRETE GIRDER BRIDGE  
53'-6" End Spans 73'-0" Center Span  
Concrete Rail & Substructure  
SUPERSTRUCTURE BAR LIST & PIER DETAILS  
Sta 640+00.00 Project F-2(6)  
WOODBURY COUNTY  
IOWA STATE HIGHWAY COMMISSION  
September, 1952 Sheet 3 of 6

LOCATION  
Over Big Whisky Creek  
Section 6-35  
Floyd-Concord Twps.  
Woodbury County





Moments in Ft. kips		MAXIMUM MOMENTS AND REACTIONS				Reactions in Kips			
Pos.	Neg.	Pos.	Neg.	Pos.	Neg.	Pos.	Neg.	Pos.	Neg.
Ext.	Int.	Ext.	Int.	Ext.	Int.	Ext.	Int.	Ext.	Int.
231.5	268.2	886.6	1006.1	248.7	286.1	27.5	33.4	128.4	153.5
Dead Load									
137.9	363.0	263.4	681.6	143.4	371.6	16.2	41.9	30.1	77.9
Live Load									
38.6	101.7	69.9	181.0	36.2	93.7	4.5	11.8	8.0	20.8
Impact									
Total	408.0	732.9	1219.9	1868.7	428.3	751.4	48.2	87.1	166.5

\* Truck Load Governs \*\* Double Live Load Governs  
Note: Normal Live Load Moments and Reactions are shown in all cases.  
Future Wearing Surface Moments and Reactions are included with the Dead Load

Design For  
**180'x28' CONTINUOUS CONCRETE GIRDER BRIDGE**  
53'-6" End Span 73'-0" Center Span

Concrete Rail and Substructure  
**SUPERSTRUCTURE DETAILS**

LOCATION  
Over Big Whiskey Creek  
Section 6 - Floyd Twp.  
Section 35 Concord Twp.  
Woodbury County

Station 640+10.00  
Project F2 (6)

WOODBURY COUNTY  
Iowa State Highway Commission

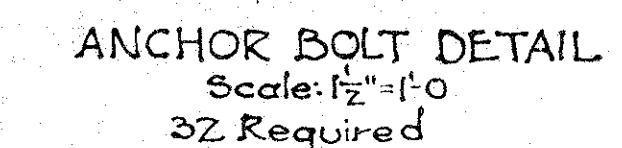
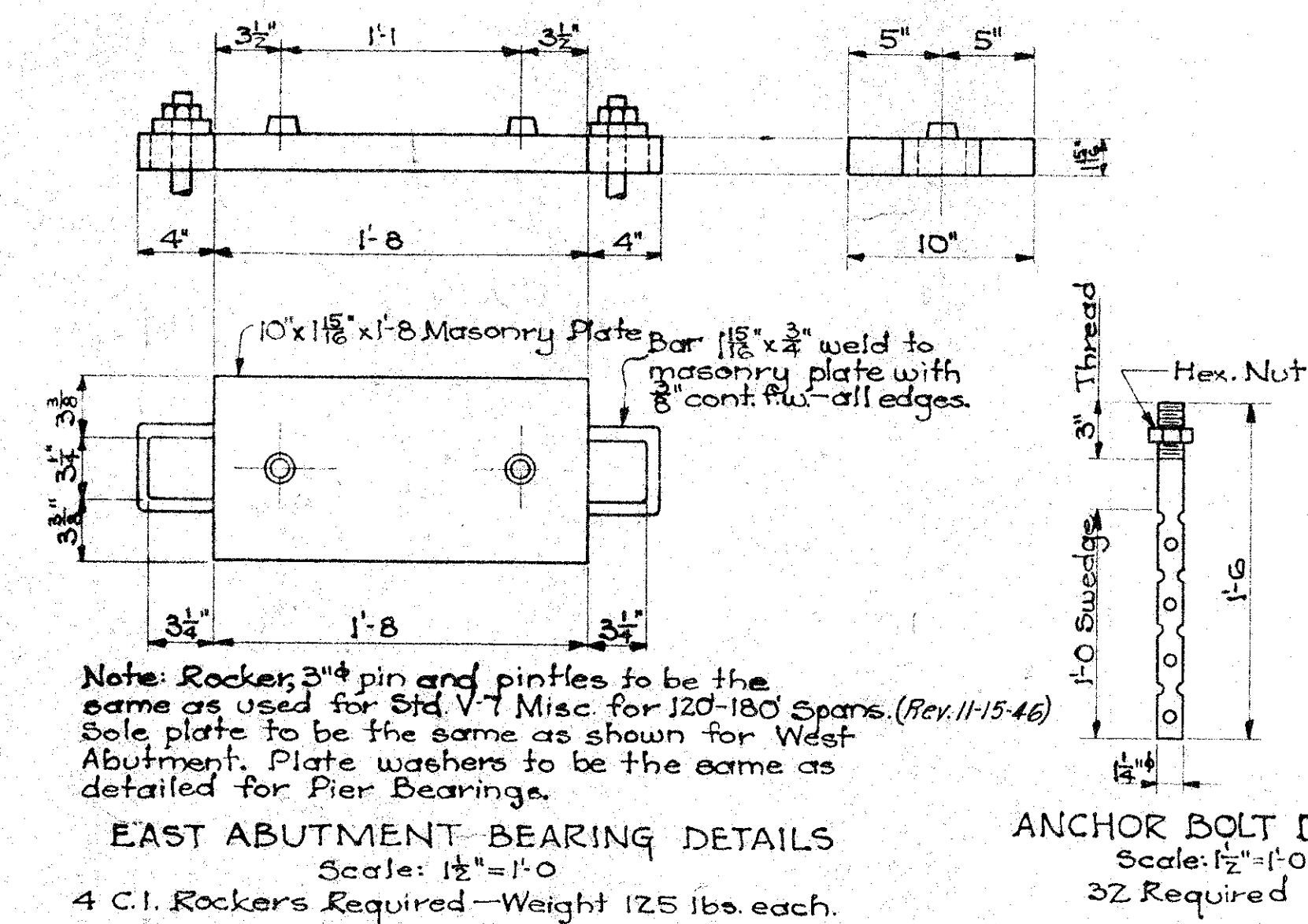
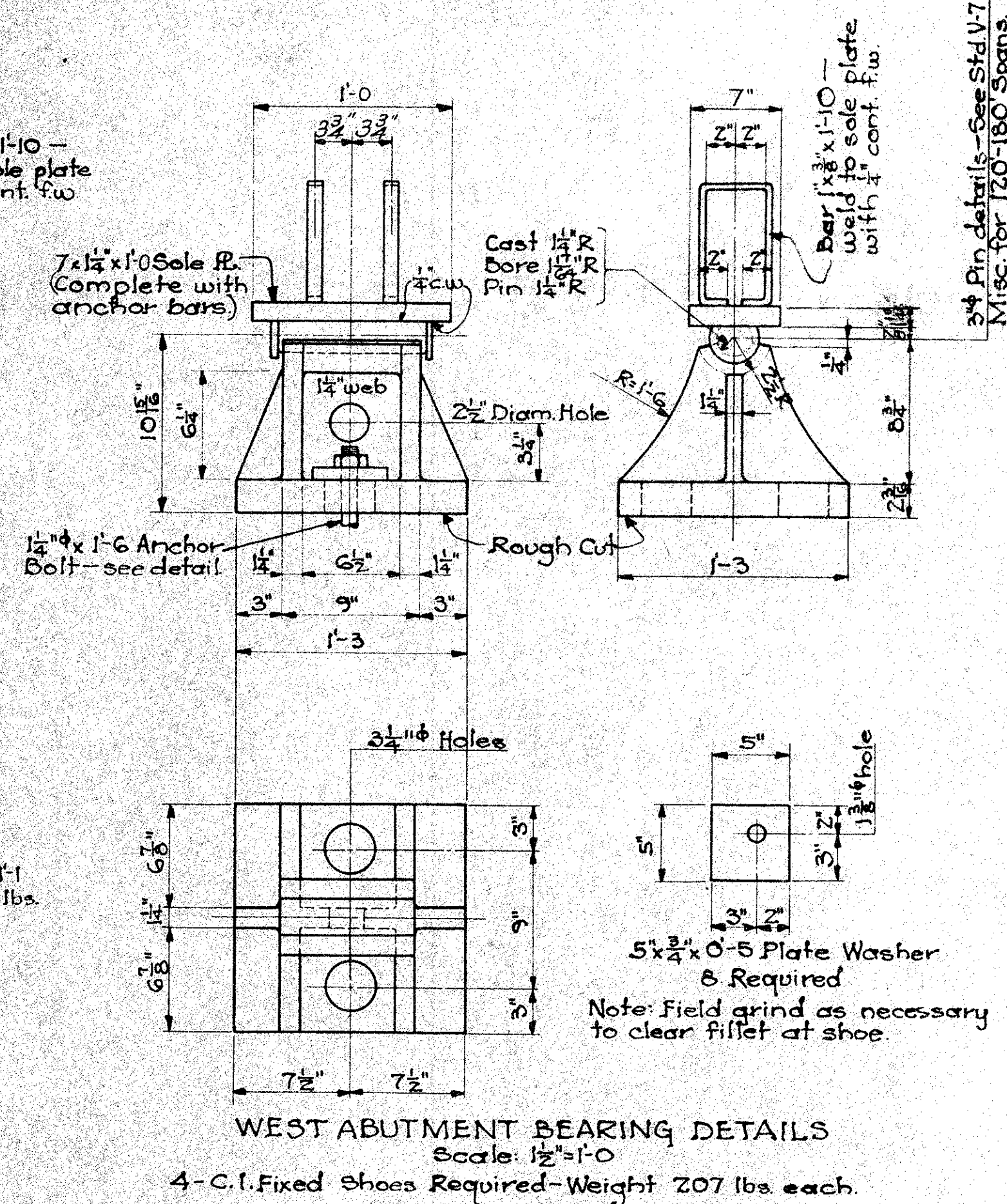
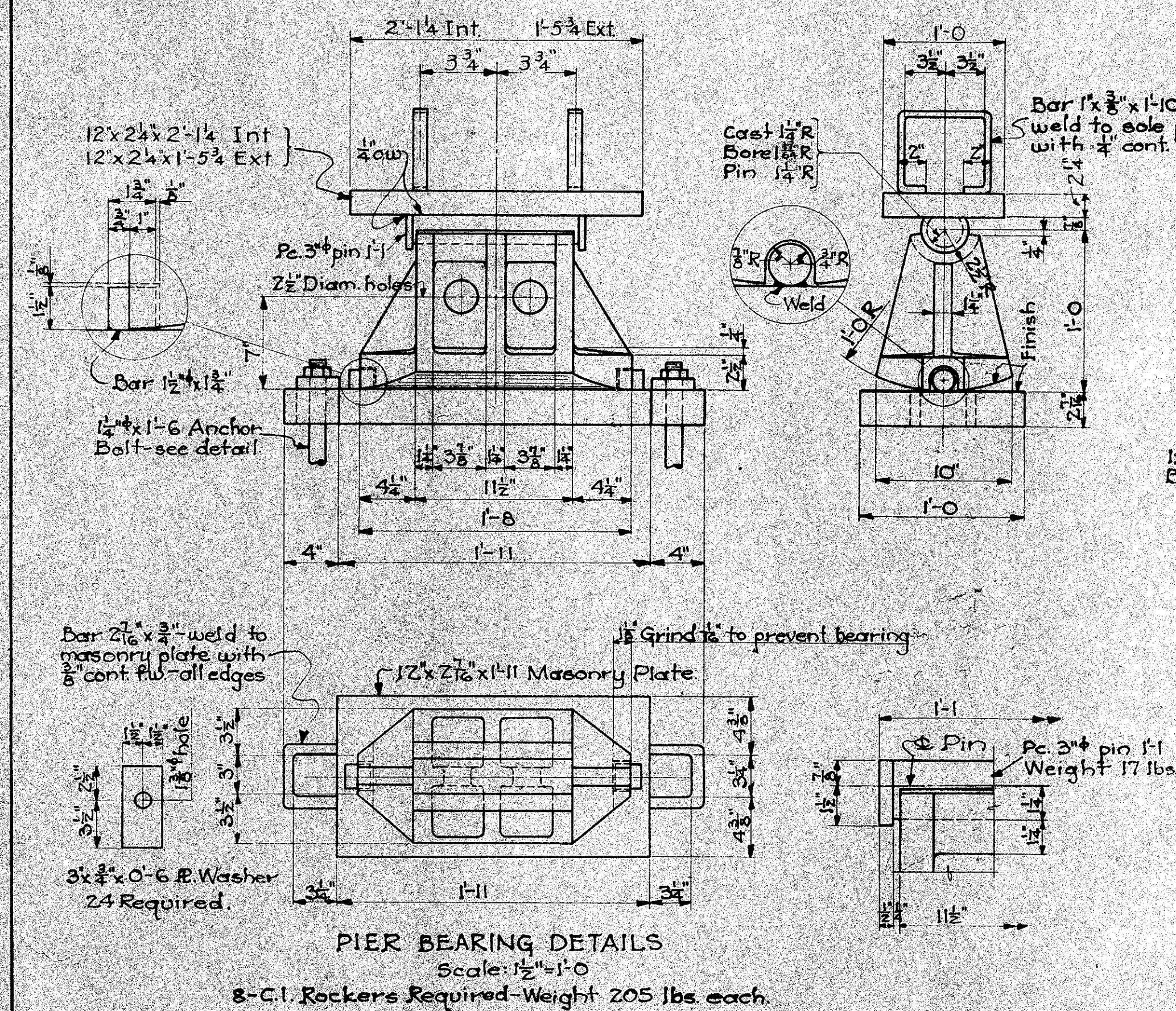
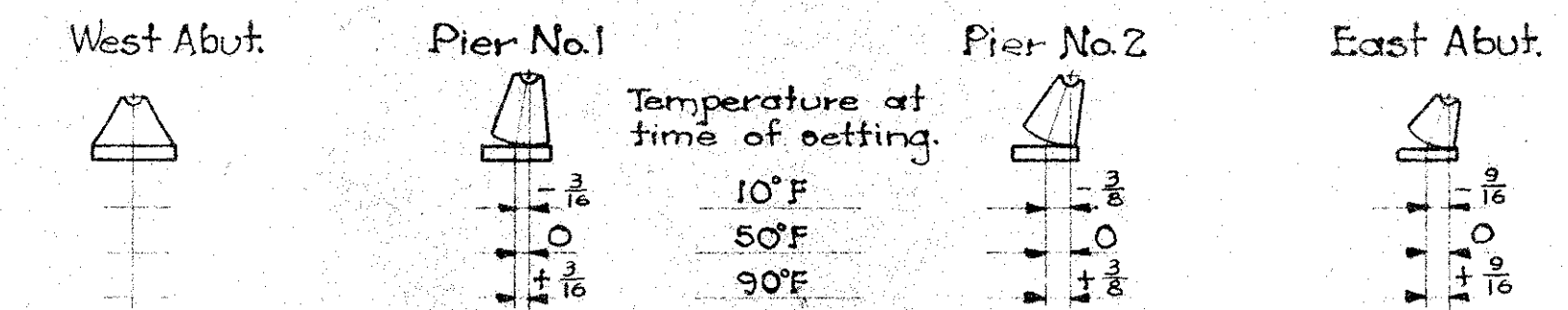
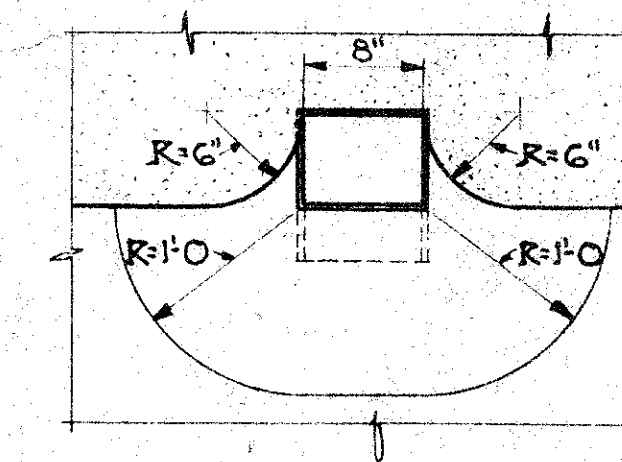
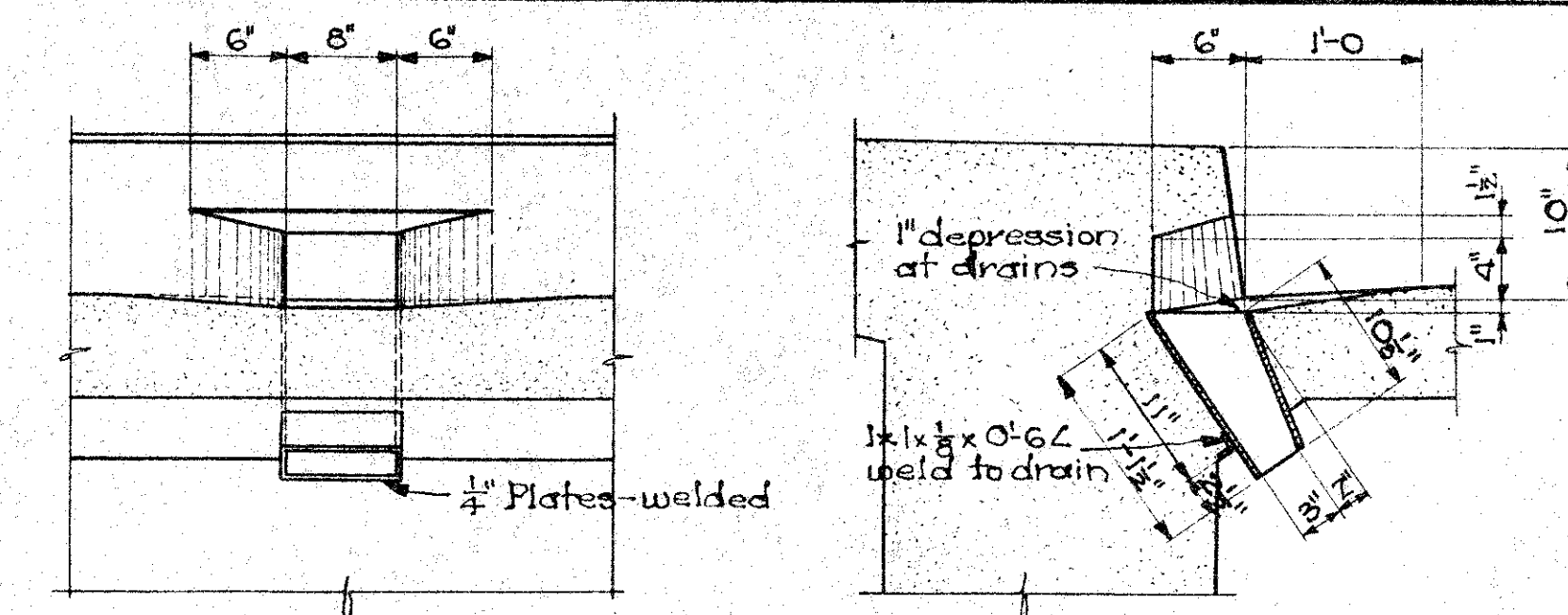
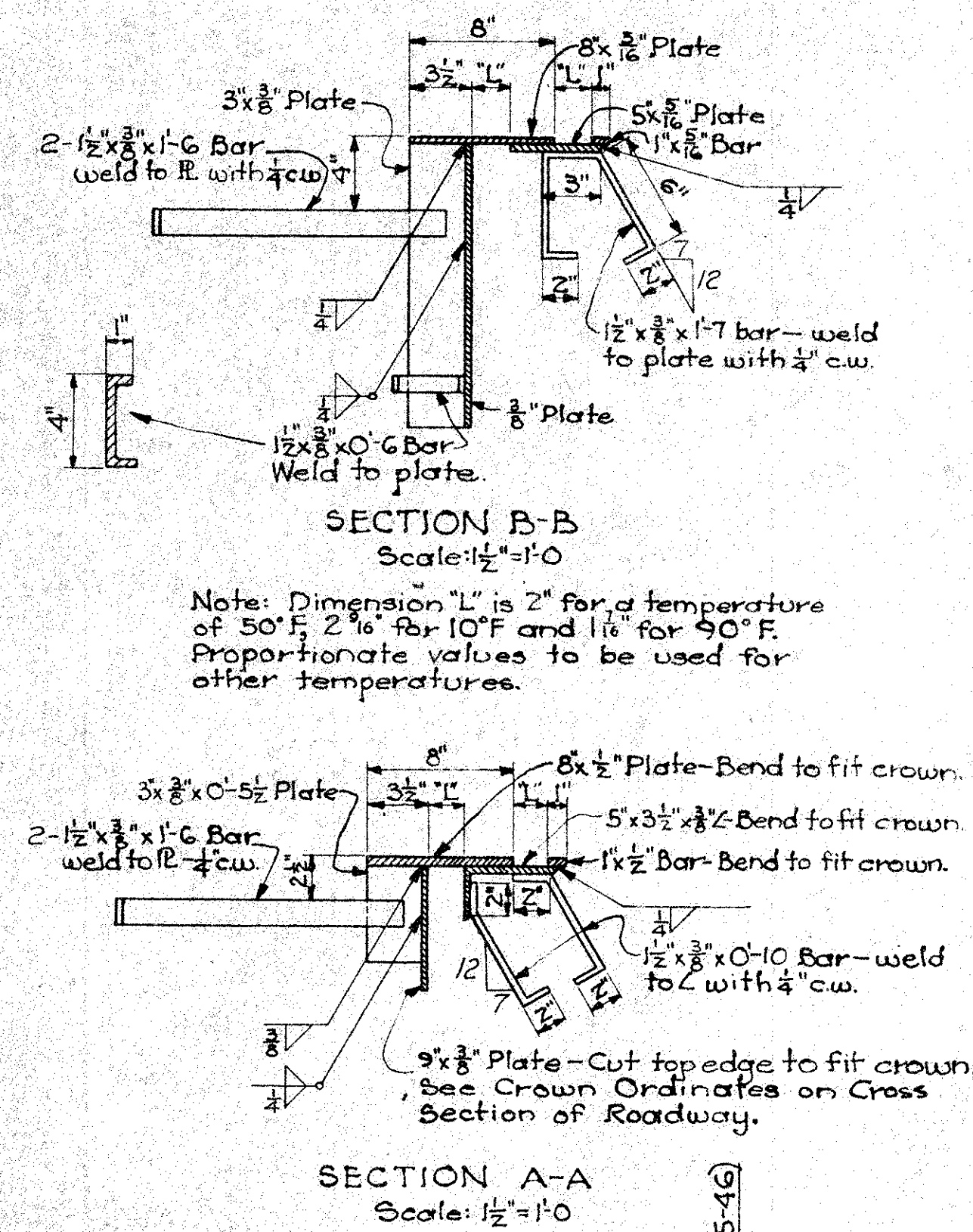
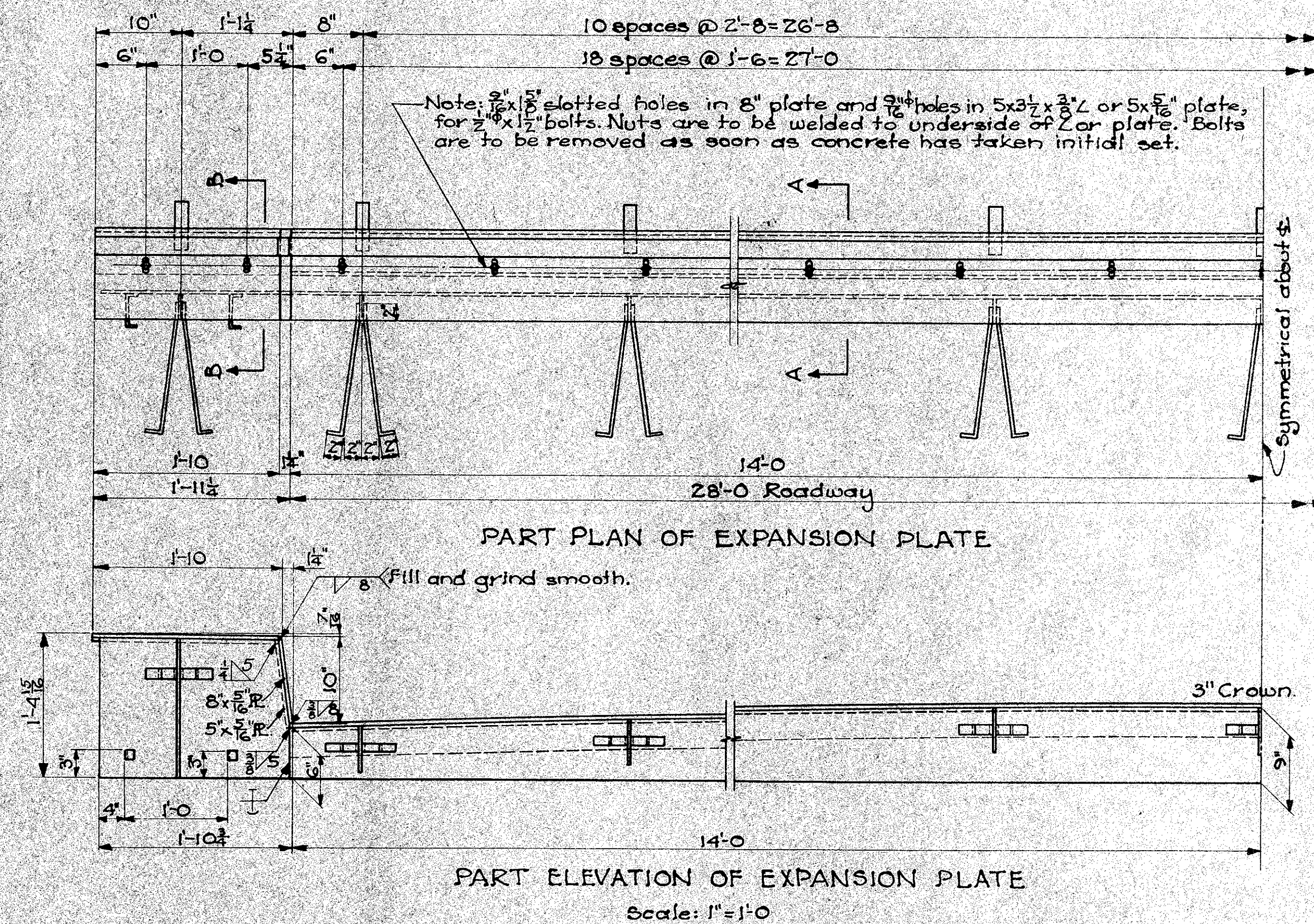
November 1952  
Design 3852 Woodbury Co

Sheet 4 of 6  
File No 14945









General Notes for Bearing Details:  
The unfinished surfaces of masonry and sole plates are to be flat and true.  
Anchor bolts for masonry plates and fixed shoes are to be preset. After shoe structure is in place and immediately before forms are removed, rockers are to be set as shown in diagram. The space around anchor bolts for rockers and fixed shoes is to be filled with mortar, washers are to be placed on anchor bolts and nuts are to be tightened.

**LOCATION**  
Over Big Whiskey Creek  
Floyd Twp - Sec. 6  
Concord Twp - Sec. 35  
Woodbury County

Design for  
180'x 28' CONTINUOUS CONCRETE GIRDER BRIDGE  
53'-6 End Spans 73'-0 Center Span  
Concrete Rail & Substructure  
SUPERSTRUCTURE DETAILS  
Sta. 640+10.00 Proj. F+2 (G)  
WOODBURY COUNTY  
Iowa State Highway Commission

November, 1952

Sheet 6 of 6

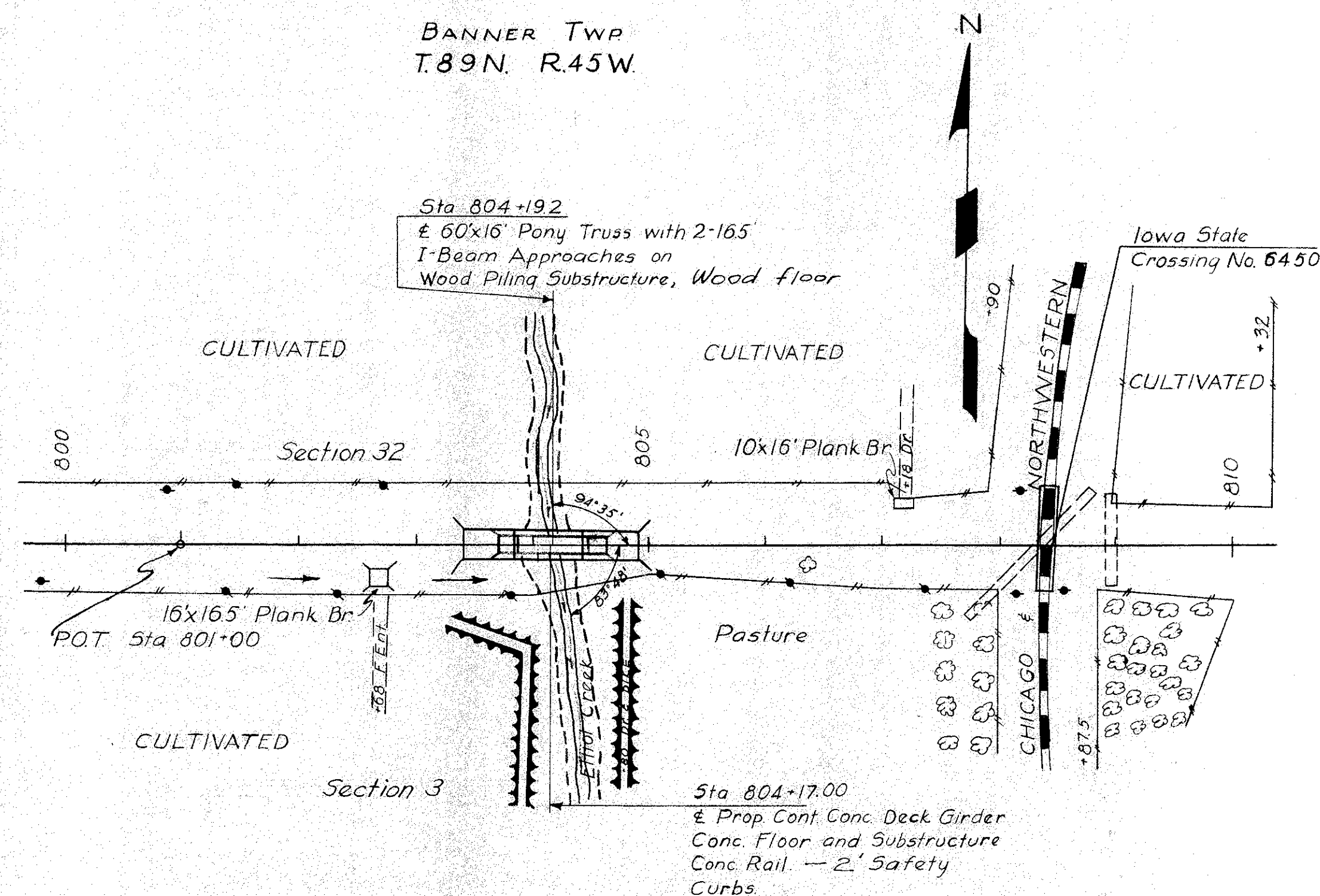
Design 251a Linn County Sheet 6 of 6

Design 3852      Woodbury County

File No. 14945



BANNER TWP  
T.89N. R.45W.



FLOYD TWP.  
T.88N. R.46W.  
GENERAL PLAN  
Scale: 1"=100'  
D.A. 35.59 mi. Hilly & Rolling

### GENERAL NOTES

This bridge is designed for H-20-44 loading plus an allowance of 19" of roadway for future wearing surface and with modifications listed on sheet 5.

Approach fills as shown are not a part of this estimate and are to be in place before abutment piles are driven. The bridge contractor is to level and shape berms to elevations shown.

The Bridge Contractor is to clear the channel as shown by the shaded areas in the & section and the situation plan.

The present 60'x16' Pony Truss Bridge with 2-16.5'x16' approach spans (County design) is to be removed by the Bridge Contractor for re-erection in accordance with section 2401 of the the Standard Specifications. The substructure is to be removed to 6" below finished ground line. All nails, bolts, spikes and hardware to be removed from salvable lumber. Cost of removing old bridge and substructure to be bid in a lump sum under item "Removal of old Bridge."

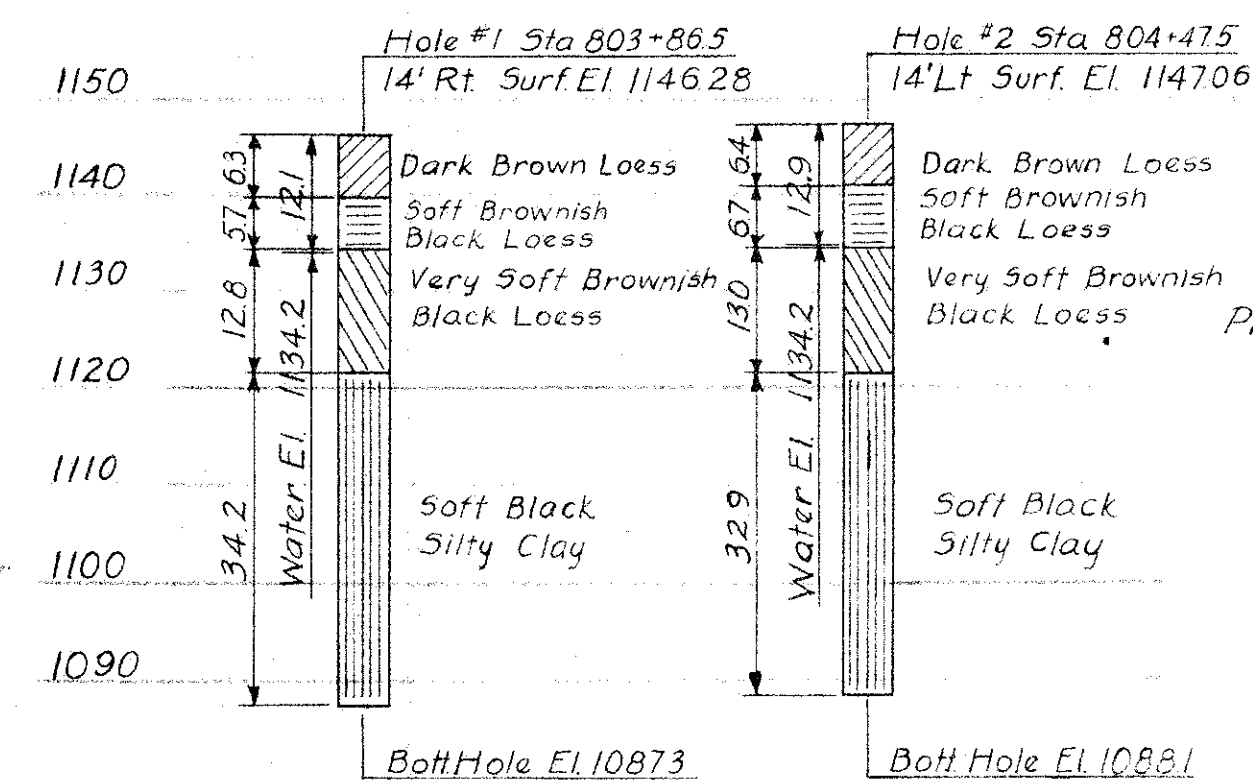
Red lines on tracings or faint lines on prints indicate present structures.

### SPECIFICATIONS:

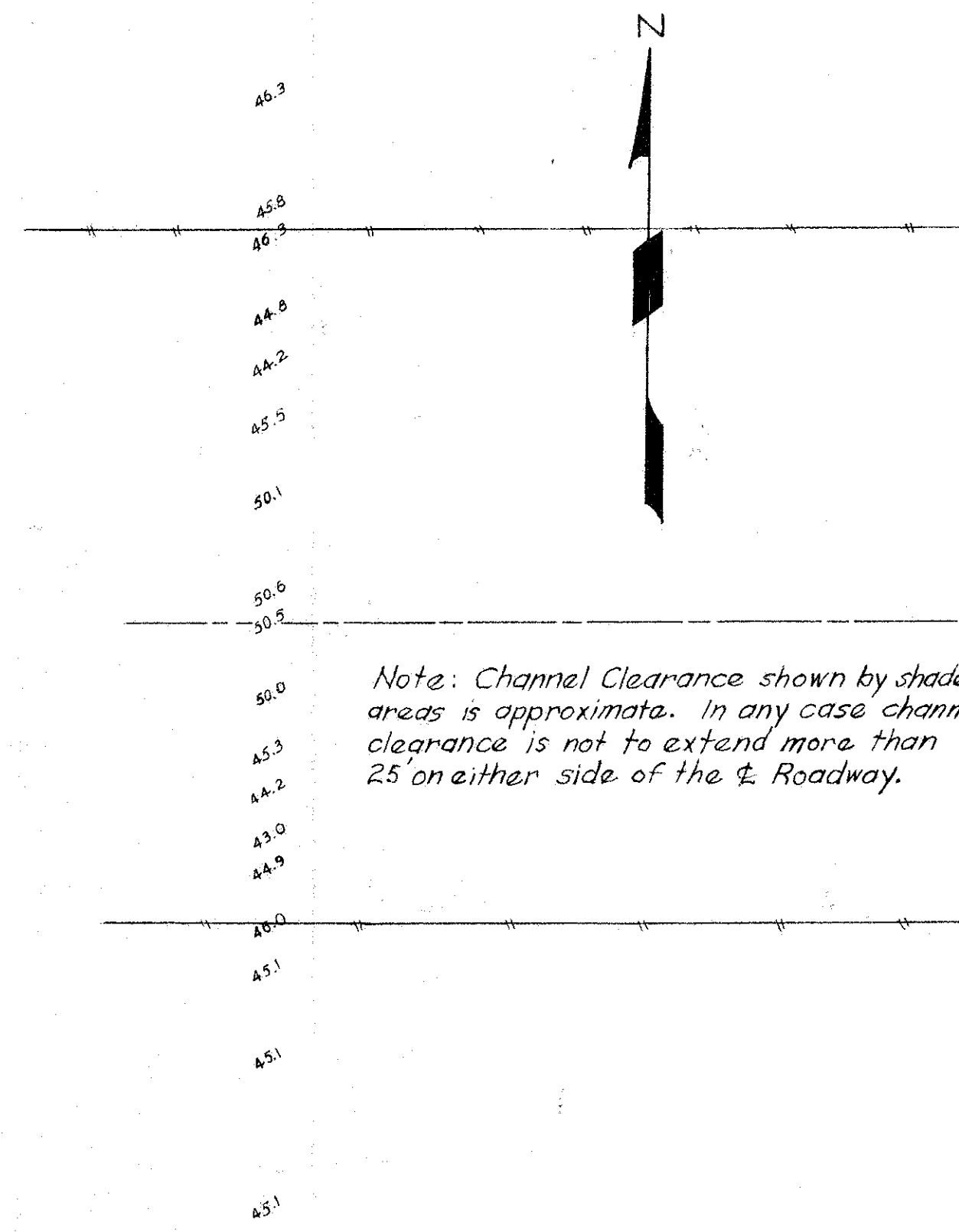
Design: A.A.S.H.O. Series of 1949 plus revisions T 50 and with modifications listed on sheet 5.

Construction: Iowa Highway Commission Series of 1952 plus Special Provisions for Construction Projects, Division II, Nov. 5, 1952. Jan 13, 1953

\* See General Notes on this sheet.



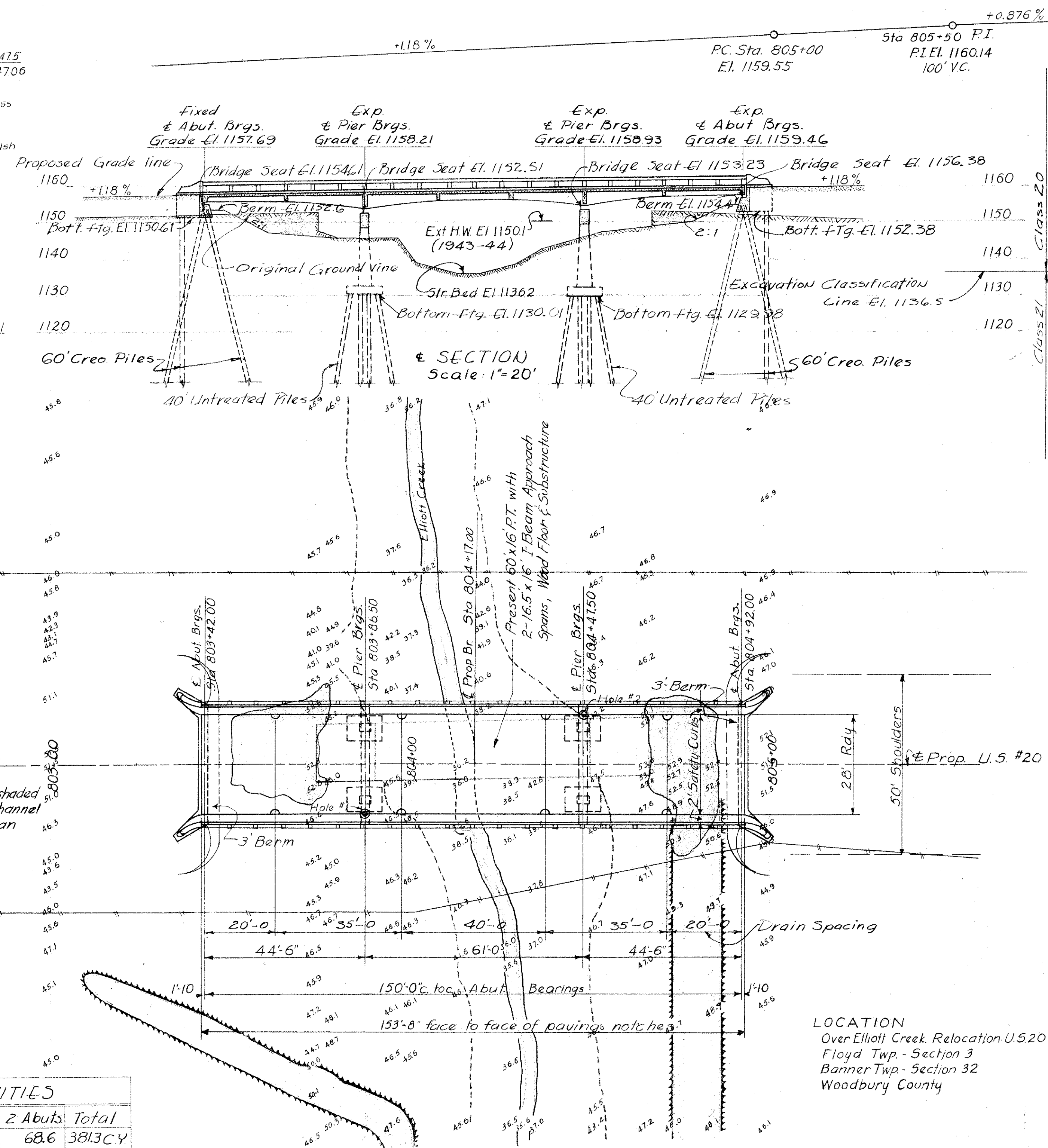
SOUNDING DATA  
Scale: 1"=20'



Note: Channel Clearance shown by shaded areas is approximate. In any case channel clearance is not to extend more than 25' on either side of the & Roadway.

ESTIMATED QUANTITIES				
Item	Super	2 Piers	2 Abuts	Total
Concrete	245.3	67.4	68.6	381.3 C.Y.
Reinforcing Steel	75,656	7,813	3,906	87,375 lbs.
Structural Steel	8,500			8,500 lbs.
Creosoted Piling			24@60	1,440 Lin.Ft.
Untreated Piling		44@40'		1,760 Lin.Ft.
Class 10 Excav.				210 C.Y.
Class 20 Excav.		183	130	313 C.Y.
Class 21 Excav.		124		124 C.Y.
Removal of old Bridge	*(60'x16' P.T. Approaches)			Lump Sum

Bench Mark #81 Sta 808+41 Head bolt diagonal brace center right pile R.R. trestle 11' Rt. El. 1150.90

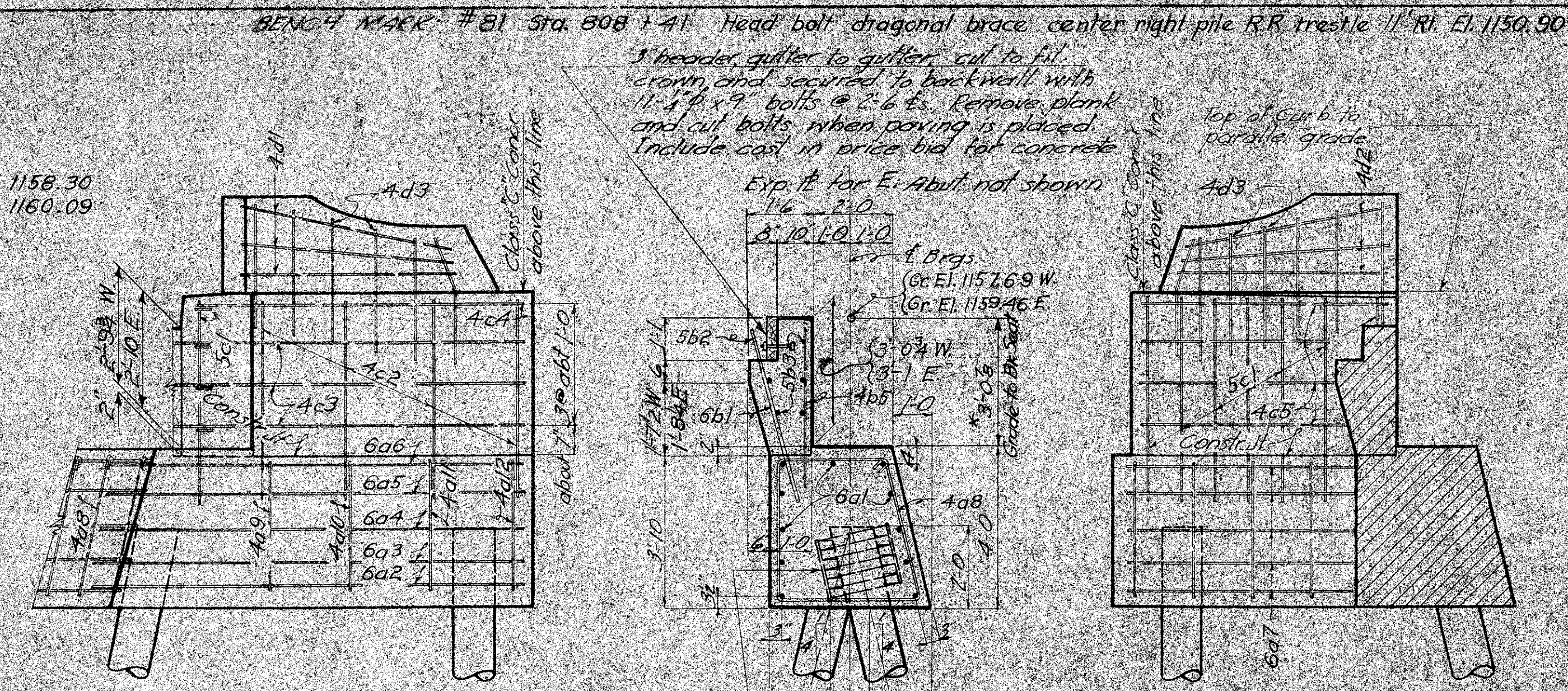


SITUATION PLAN  
Scale: 1"=20'

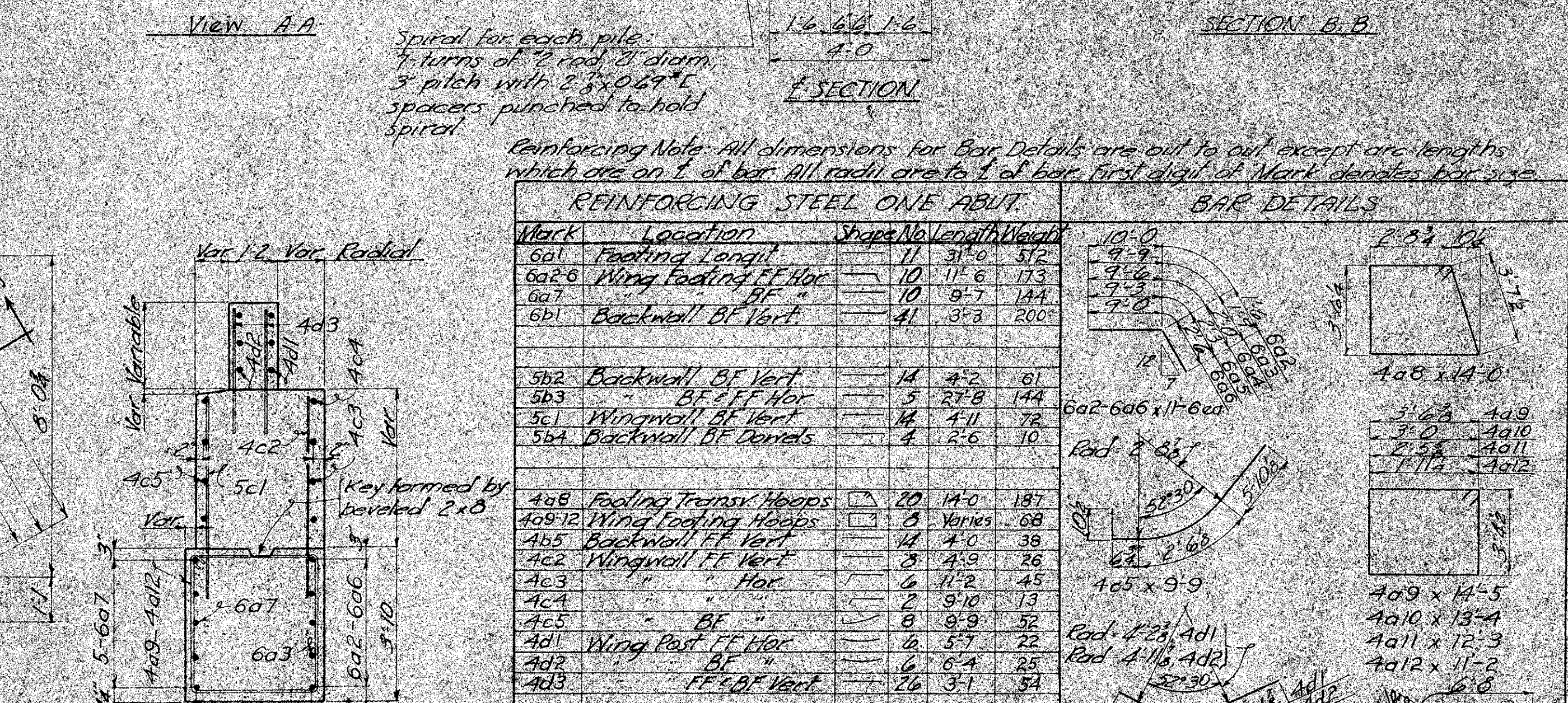
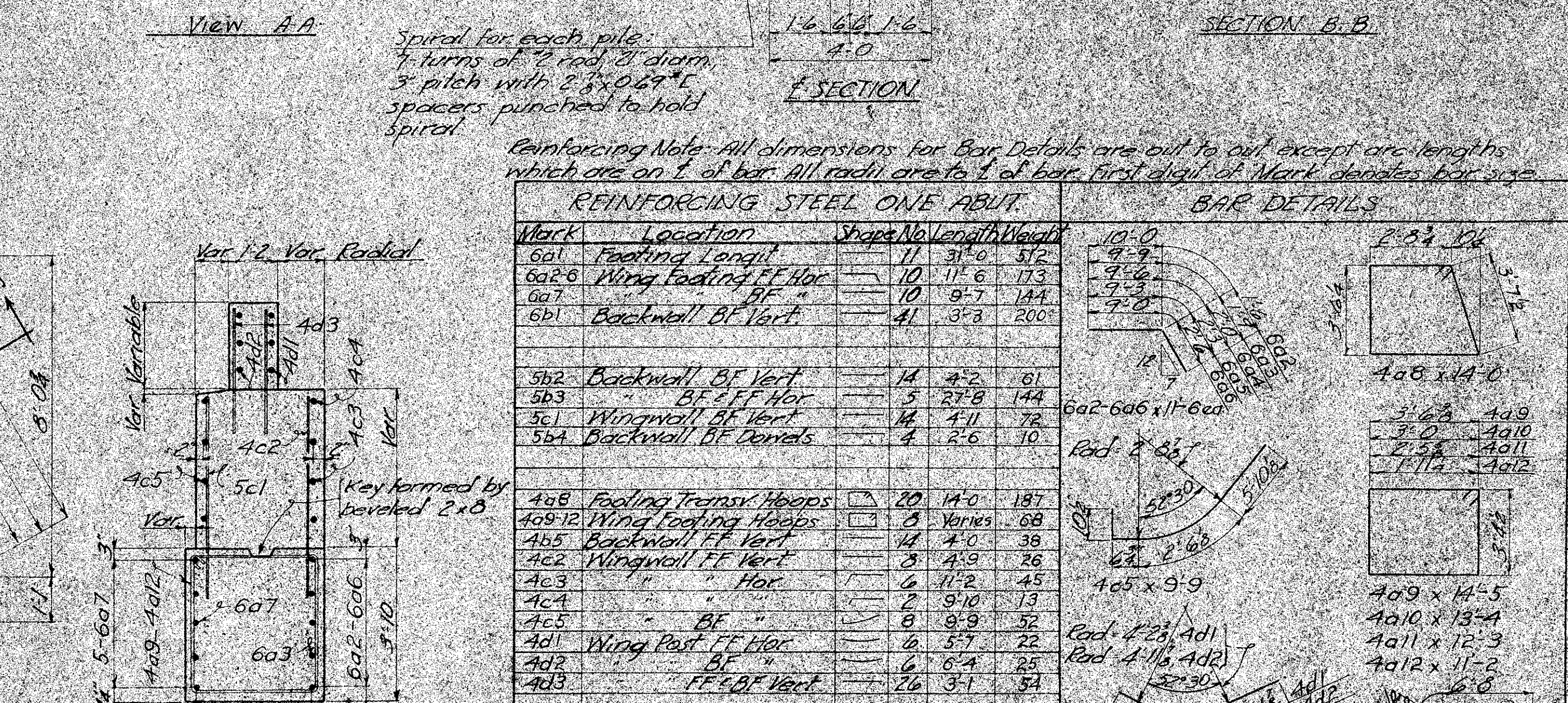
Design for  
150'x28' CONTINUOUS CONCRETE GIRDER BRIDGE  
44'-6" End Spans 61'-0" Center Span  
Concrete Rail and Substructure  
SITUATION PLAN  
Sta 804+17.00 Project F-2 (6)  
WOODBURY COUNTY  
IOWA STATE HIGHWAY COMMISSION  
November 1952 Sheet 1 of 6

Revised 12-24-52. Date of Spec. Prov. changed.





HALF FRONT ELEVATION


$$\frac{1.6}{2.8} \frac{6.6}{2.8} \frac{1.6}{2.8}$$


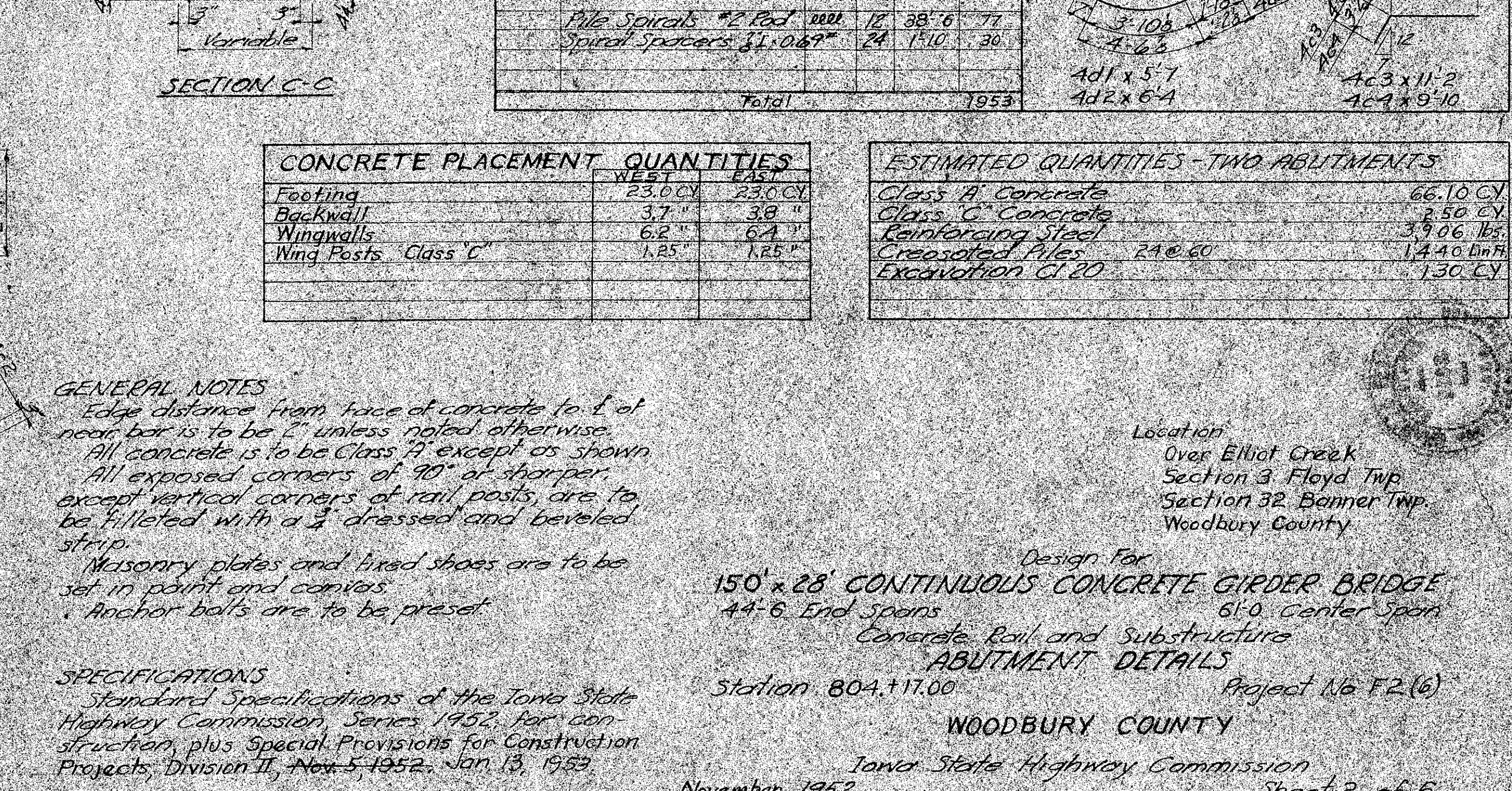
SECTION C

REINFORCING STEEL ONE ABUT.				
Mark	Location	Shape	No.	Length Width
6a1	Footing Length		11	3'-0" 512
6a2-8	Wing Footing FF Hor		10	11'-6" 113
6a7	" " BF "		10	9'-7" 144
6b1	Backwall BF Vert		41	3'-3" 200
5b2	Backwall BF Vert		14	4'-2" 61
5b3	" " BF & FF Hor		5	2'-8" 144
5c1	Wingwall BF Vert		14	4'-11" 72
5b4	Backwall BF Cornels		4	2'-6" 10
by				
4a8	Footing Transv. Hoops		20	14'-0" 187
4a9-12	Wing Footing Hoops		3	Varies 68
4b5	Backwall FF Vert		14	4'-0" 38
4c2	Wingwall FF Vert		3	4'-9" 26
4c3	" " Hor		6	11'-2" 45
4c4	" " BF "		2	9'-10" 13
4c5	" " BF "		8	9'-9" 52
4d1	Wing Post FF Hor		4	5'-7" 22
4d2	" " BF "		6	6'-4" 25
4d3	FF & BF Vert		26	3'-1" 54
	Pile Spirals #2 Rod 2000		12	38'-6" 77
	Spiral Spacers 3/4" 0.67"		24	15'-10" 30
	Total			1953

[illegible]

CONCRETE PLACEMENT		QUANTITIES
	WEST	EAST
Footings	23.00 CY	23.00 CY
Backwall	3.7 "	3.8 "
Wingwalls	6.2 "	6.4 "
Wing Posts Class "C"	1.25 "	1.25 "

ESTIMATED QUANTITIES - TWO ABUTMENTS	
Class A Concrete	66.10 CY
Class C Concrete	2.50 CY
Reinforcing Steel	3,906 lbs.
Crested Piles	14.40 Lin Ft
Excavation Cl 20	130 CY



HALF SECTION THRU BACKWALL AND WING 4d3 @ 6d1 FOL

PILE PLAN

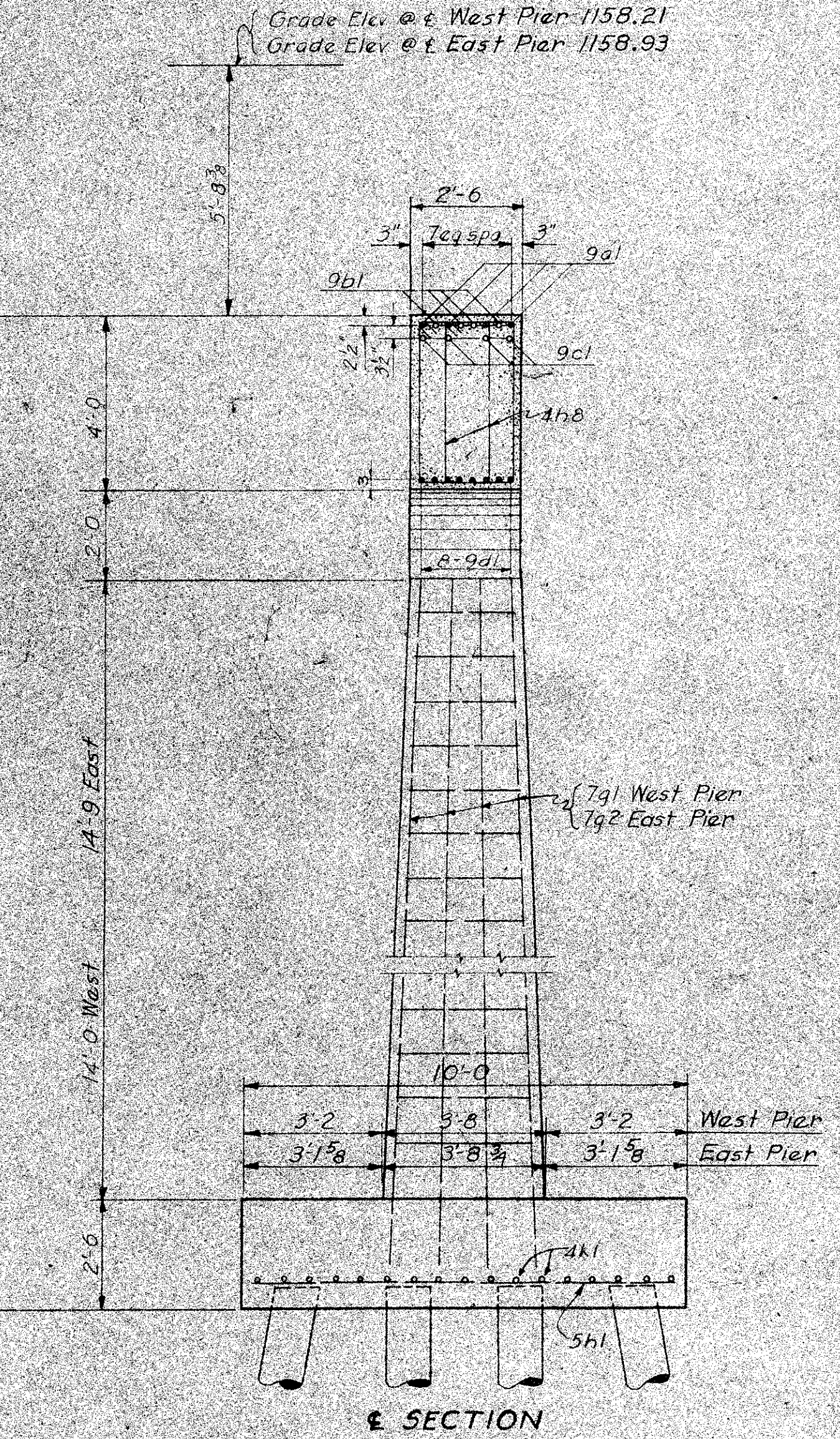
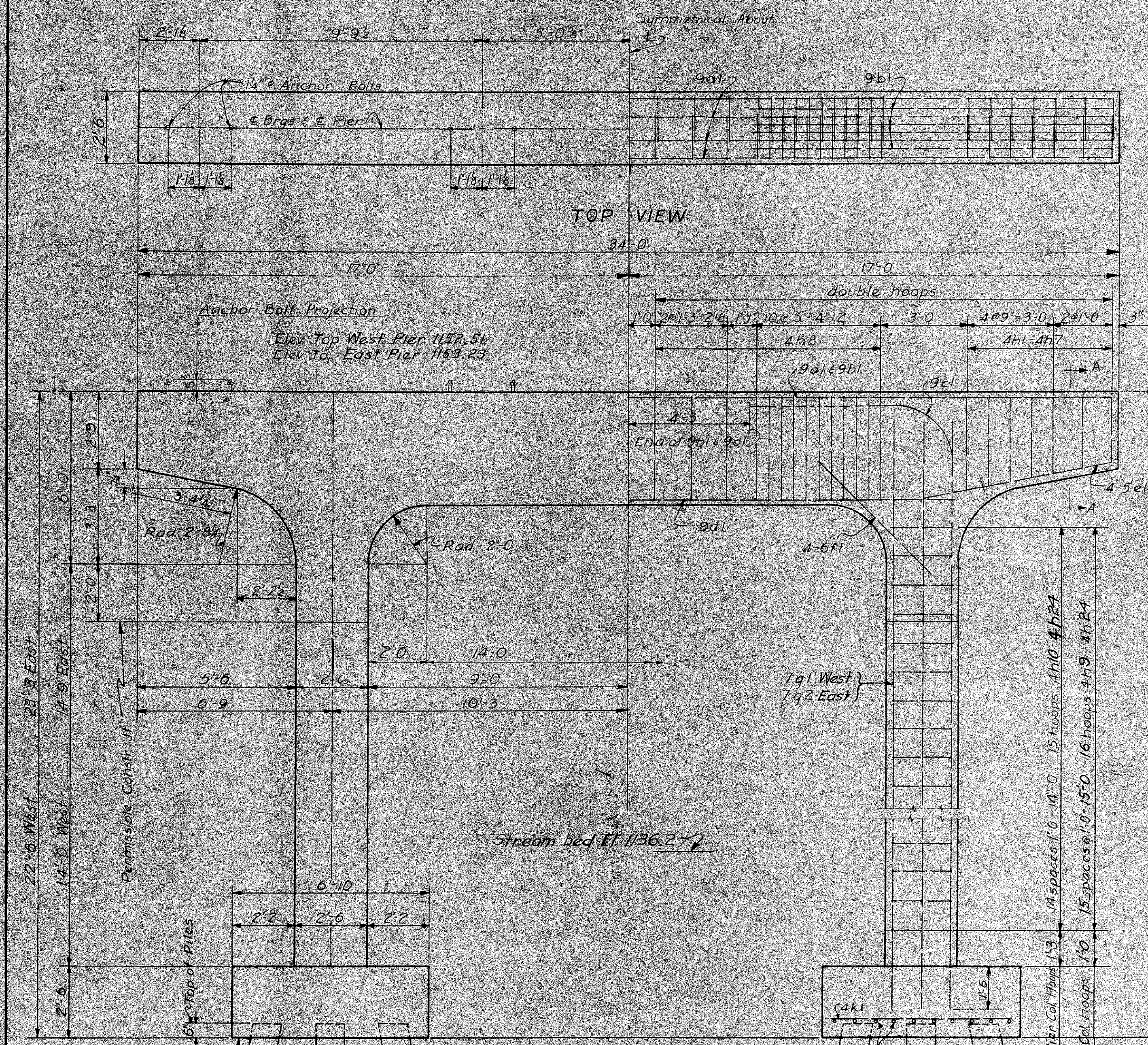
WING POST DEVELOPED

**GENERAL NOTES**  
Edge distance from face of concrete to l of  
near bar is to be 2" unless noted otherwise.  
All concrete is to be Class "A" except as shown.  
All exposed corners of 90° or sharper  
except vertical corners of rail posts, are to  
be filleted with a 3" dressed and beveled  
strip.  
Masonry plates and fixed shoes are to be  
set in point and convex.  
Anchor bolts are to be preset.

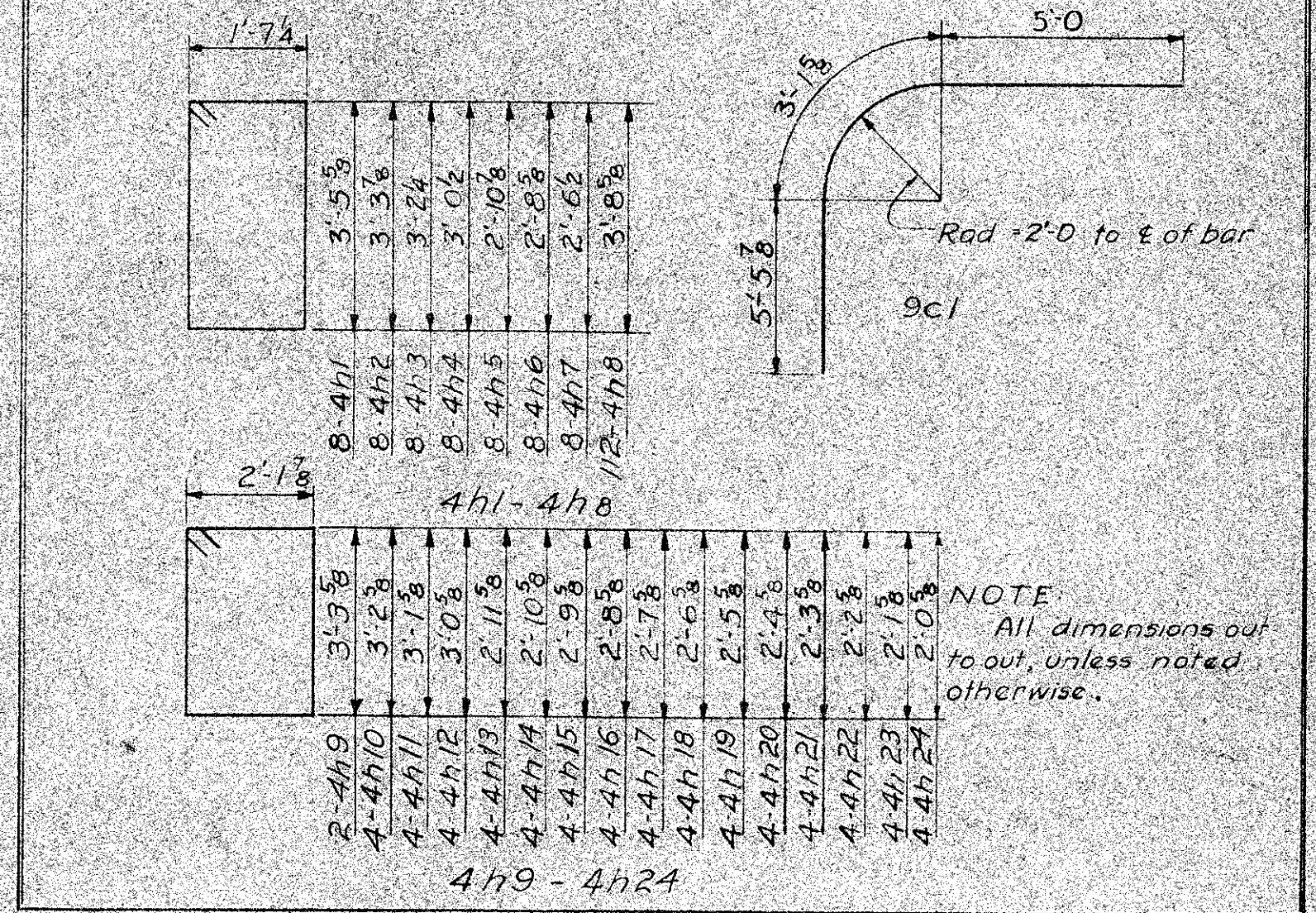
**SPECIFICATIONS**  
Standard Specifications of the Iowa State  
Highway Commission, Series 1952, for con-  
struction, plus Special Provisions for Construction  
Projects, Division II, Nov 5, 1952, Jan 13, 1953,  
revised 12-24-57. Date of spec. rev. changed.

Design for  
150' x 28' CONTINUOUS CONCRETE GIRDER BRIDGE  
44-6 End spans 61.0 Center Span  
Concrete, Rail and Substructure  
ABUTMENT DETAILS  
Station 804+17.00 Project No. F2(6)  
WOODBURY COUNTY  
Iowa State Highway Commission  
November 1952 Sheet 2 of 6





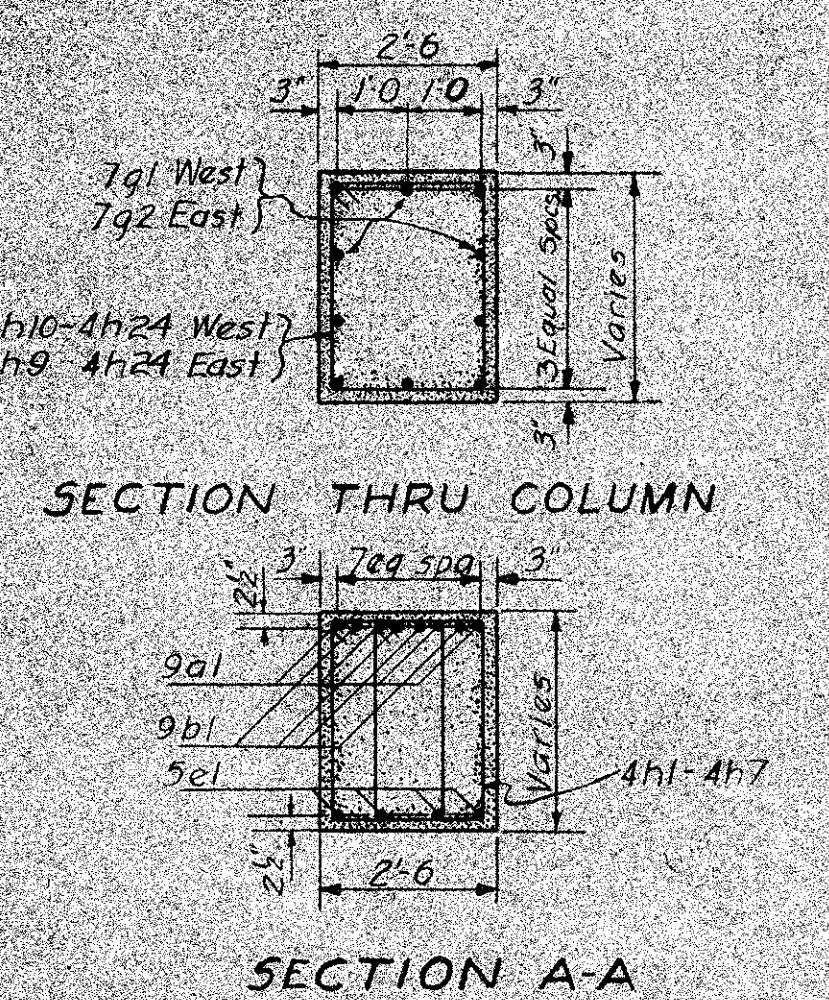
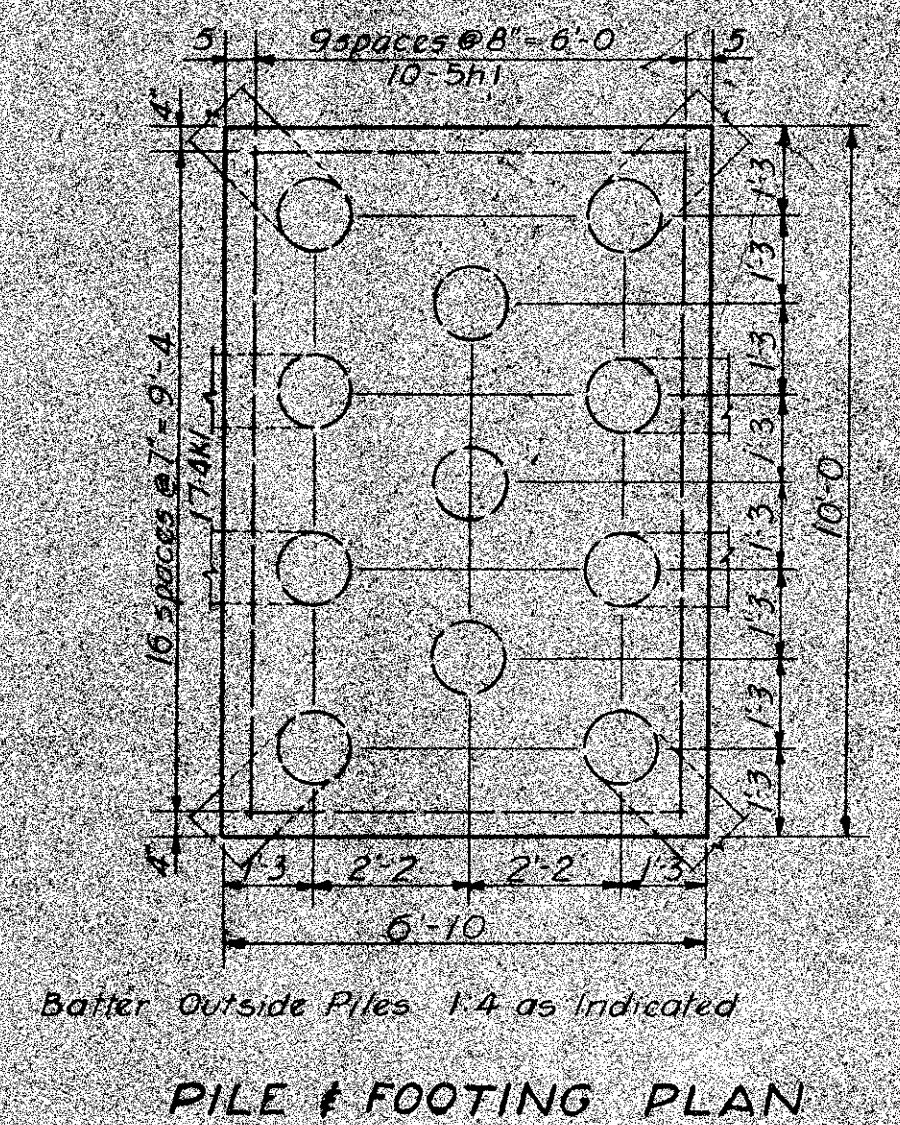
PIER REINFORCING STEEL							
			WEST PIER		EAST PIER		
Mark	Location	Shape	Length	No	Weight	No	Weight
9a1	Beam, top		33'-6"	4	456	4	456
9b1	" "		12'-6"	8	340	8	340
9c1	" corner bars		13'-7 1/2"	8	371	8	371
9d1	" bottom		22'-6"	8	612	8	612
5e1	Canilever, bottom		6'-6"	8	54	8	54
6f1	Fillets		5'-6"	8	66	8	66
7g1	Column Vertical		20'-6"	20	838		
7g2	" "		21'-3"			20	868
4h1-4h7	Canilever hoops		Varies	28	183	28	183
4h8	Beam hoops		11'-2 1/2"	56	419	56	419
4h10-4h24	Column hoops		Varies	30	203		
4h9-4h24	" "		Varies			32	218
Total					3884		3929



**GENERAL NOTES**  
All concrete is to be Class 'A'. All exposed corners of 90° or sharper are to be filleted with a 3/4" dressed and beveled strip. Distance from face of concrete to center line of near bar is to be 2" unless otherwise noted.  
Pier piles to be driven to full penetration, if practicable but at least to 20 Ton bearing value.  
Anchors bolts are to be preset. Anchor bolt quantities are included in Structural Steel Estimate for Superstructure.

PIER CONCRETE PLACEMENT QUANTITIES		
ITEM	WEST PIER	EAST PIER
Footings	12.3	12.3
Cols below Constr Jt	7.0	7.6
Cap and Cols above Constr Jt	14.1	14.1
Total	33.4	34.0

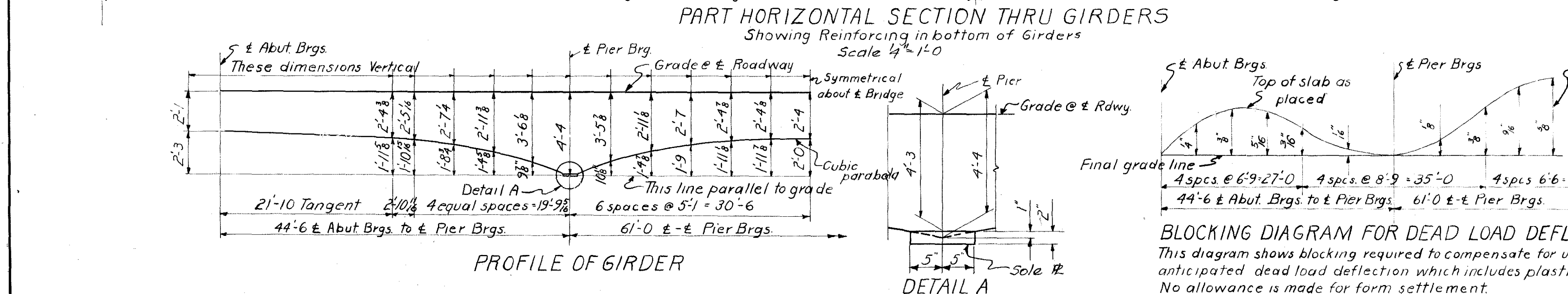
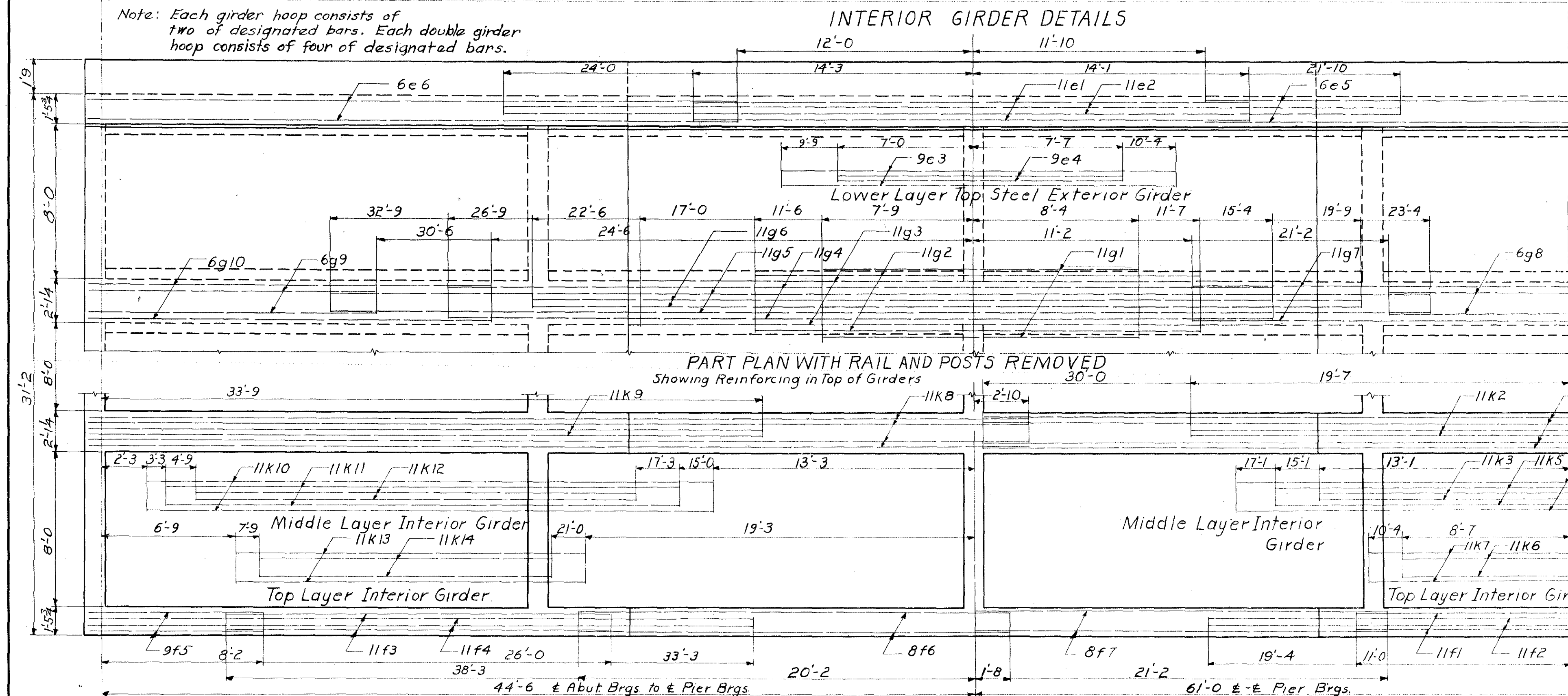
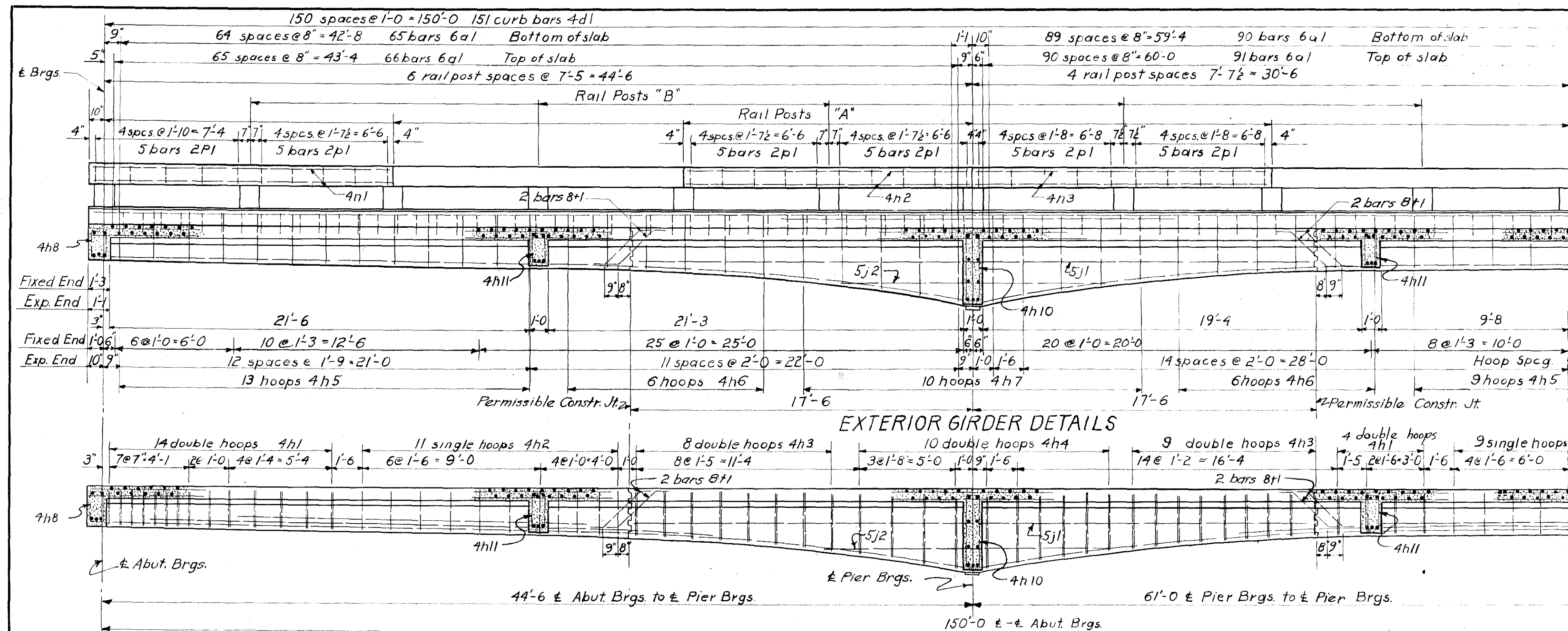
**SPECIFICATIONS**  
Design - A.A.S.H.O. 1949 - Plus revisions T 50  
Construction - Iowa State Highway Commission Standard Specifications, Series 1952, plus Special Provisions for Construction Projects, Division II, Nov. 5, 1952 Jan. 13, 1953



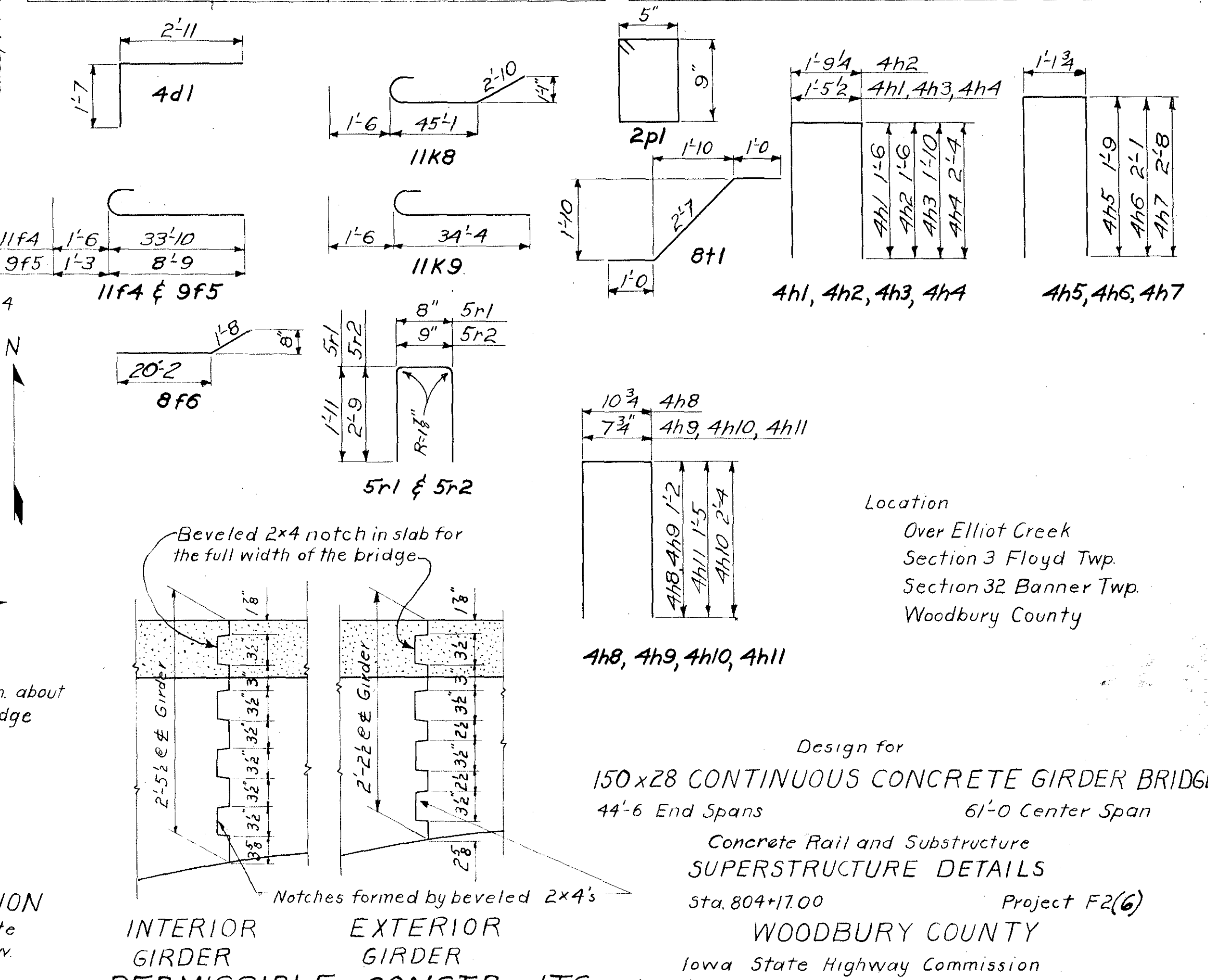
ESTIMATED PIER QUANTITIES			
ITEM	WEST PIER	EAST PIER	TOTAL
Concrete	33.4 CY	34.0 CY	67.4 CY
Reinforcing Steel	3,884 lbs	3,929 lbs	7,813 lbs
Untreated Wood Piles	22 @ 40'	22 @ 40'	1,760 Lin Ft
Excavation Cl. 20	85 CY	98 CY	183 CY
" Cl. 21	62 CY	62 CY	124 CY

**150x28' CONTINUOUS CONCRETE GIRDER BRIDGE**  
44'-0" End Spans 61'-0" Center Span  
Concrete Rail & Substructure  
PIER DETAILS  
LOCATION: Over Elliot Creek, Section 3 Floyd Twp., Section 32 Banner Twp., Woodbury County  
Sta. 804+17.00 Project F2(6)  
IOWA STATE HIGHWAY COMMISSION  
November, 1952 Sheet 3 of 6

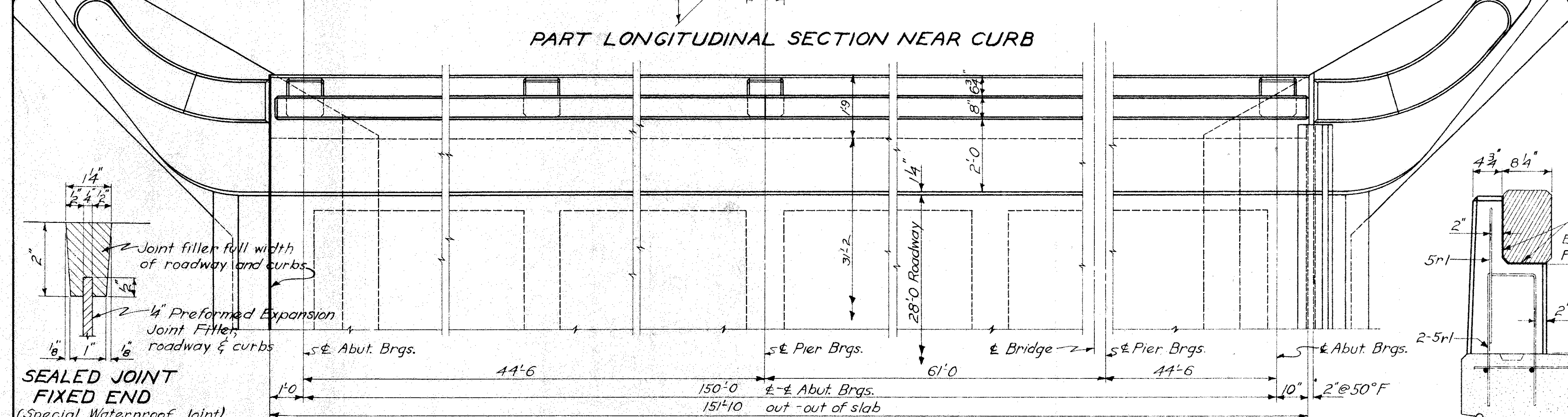
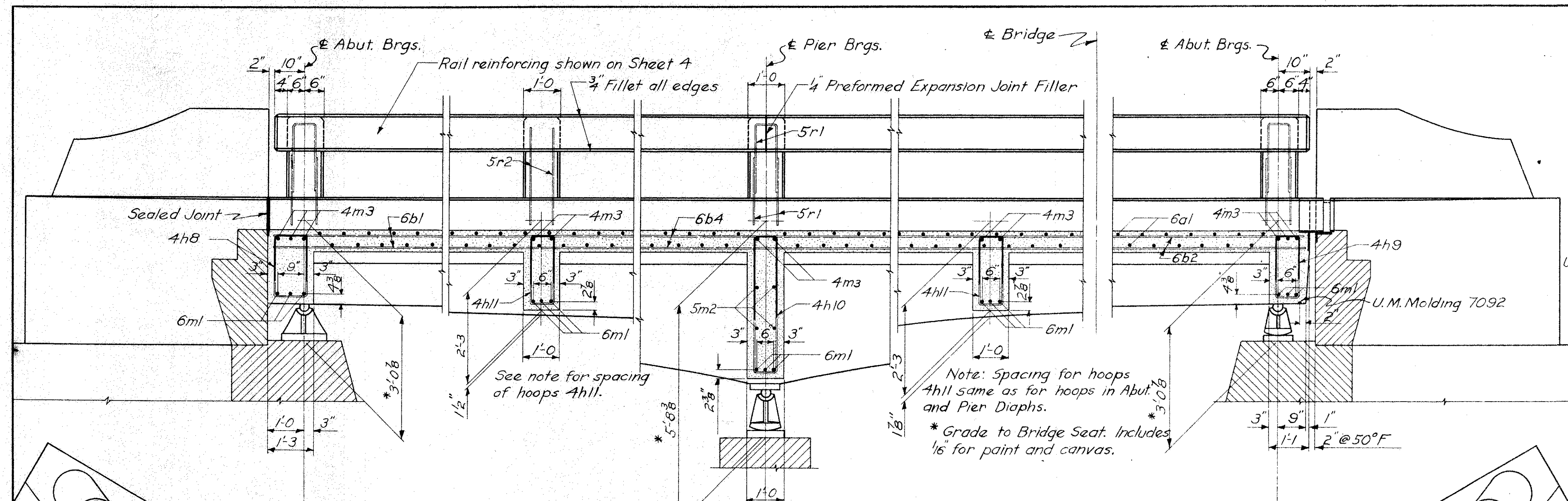




SUPERSTRUCTURE BILL OF REINFORCING												
Mark	Location	Shape	No	Length	Weight	Mark	Location	Shape	No	Length	Weight	
6a1	Slab transverse top & bott.	—	443	30'-8	20,405	4b4	Interior Girder hoops	□	160	6'-0	641	
6b1	Slab long.	—	33	29'-2	1,446	4b5	Exterior " "	□	140	4'-6	421	
6b2	" "	—	33	27'-7	1,367	4b6	" " "	□	96	5'-3	337	
6b3	" "	—	33	27'-3	1,351	4b7	" " "	□	80	6'-4	338	
6b4	" "	—	66	36'-3	3,594	4b8	West Abut Diaph.	□	42	3'-1	87	
5c1	Curb "	—	4	29'-0	121	4b9	East " "	□	42	2'-10	79	
5c2	" "	—	4	27'-7	115	4h10	Pier Diaph	□	84	5'-2	290	
5c3	" "	—	4	27'-1	113	4h11	Intermediate Diaph.	□	168	3'-4	374	
5c4	" "	—	8	36'-1	301							
4d1	" transverse	└	302	4'-5	891	5J1	Girder sides longit.	—	16	34'-4	573	
11e1	Ext. girder top, top layer	—	8	28'-4	1,204	5J2	" " "	—	16	15'-0	250	
11e2	" " " " "	—	8	45'-10	1,948							
9e3	" " " " bott. "	—	8	20'-1	546	11K1	Int. girder bott, bott. layer	—	8	60'-0	2,550	
9e4	" " " " " "	—	8	14'-7	397	11K2	" " " " " "	—	4	39'-2	832	
6e5	" " " " top "	—	4	37'-4	224	11K3	" " " " Middle "	—	4	26'-2	556	
6e6	" " " " " "	—	8	33'-2	399	11K4	" " " " " "	—	4	34'-2	726	
						11K5	" " " " " "	—	4	30'-2	641	
11f1	Ext. girder bott,	—	4	22'-0	468	11K6	" " " " Top "	—	4	17'-2	365	
11f2	" " " " " "	—	4	38'-8	822	11K7	" " " " " "	—	4	20'-8	439	
11f3	" " " " " "	—	8	19'-9	839	11K8	" " " " Bott. "	└	16	49'-5	4,201	
11f4	" " " " " "	—	8	35'-4	1,502	11K9	" " " " " "	└	8	35'-10	1,523	
9f5	" " " " " "	—	8	10'-0	272	11K10	" " " " Middle "	—	8	29'-0	1,233	
8f6	" " " " " "	—	8	21'-10	466	11K11	" " " " " "	—	8	26'-3	1,116	
8f7	" " " " " "	—	8	21'-2	452	11K12	" " " " " "	—	8	22'-6	956	
						11K13	" " " " Top "	—	8	18'-6	786	
11g1	Int. girder top	—	8	16'-1	684	11K14	" " " " " "	—	8	15'-9	669	
11g2	" " " " " "	—	8	23'-1	881							
11g3	" " " " " "	—	8	32'-4	1,374	6m1	Diaphragms transverse	—	24	30'-8	1,105	
11g4	" " " " " "	—	8	42'-1	1,789	5m2	Pier Diaphragms transverse	—	8	30'-8	256	
11g5	" " " " " "	—	8	56'-1	2,384	4m3	Diaphragm top transverse	—	18	30'-8	369	
11g6	" " " " " "	—	8	42'-3	1,796	4n1	Rail longit.	—	16	15'-4	164	
11g7	" " " " " "	—	4	38'-8	822	4n2	" "	—	32	14'-6	310	
6g8	" " " " " "	—	4	18'-8	112	4n3	" "	—	32	14'-11	319	
6g9	" " " " " "	—	8	14'-8	176							
6g10	" " " " " "	—	8	20'-8	248							
						2p1	Rail hoops	□	200	2'-7	86	
4h1	Int. girder hoops	□	288	4'-4	834	5r1	Rail post 'A'	□	66	4'-3	293	
4h2	" " " " " "	□	124	4'-8	387	5r2	Rail post 'B'	□	40	6'-0	250	
4h3	" " " " " "	□	272	5'-0	908							
						8+1	Girder Constr. Joint	~	64	4'-7	783	







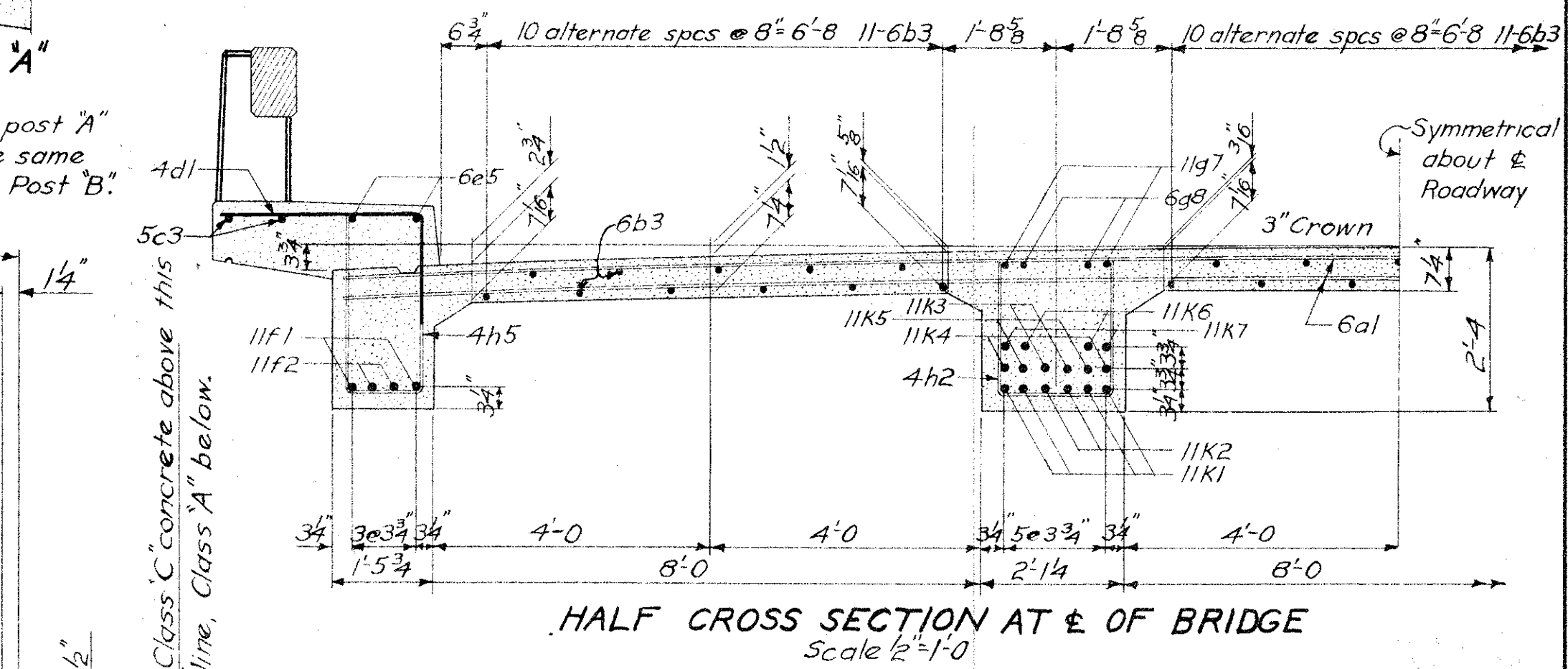
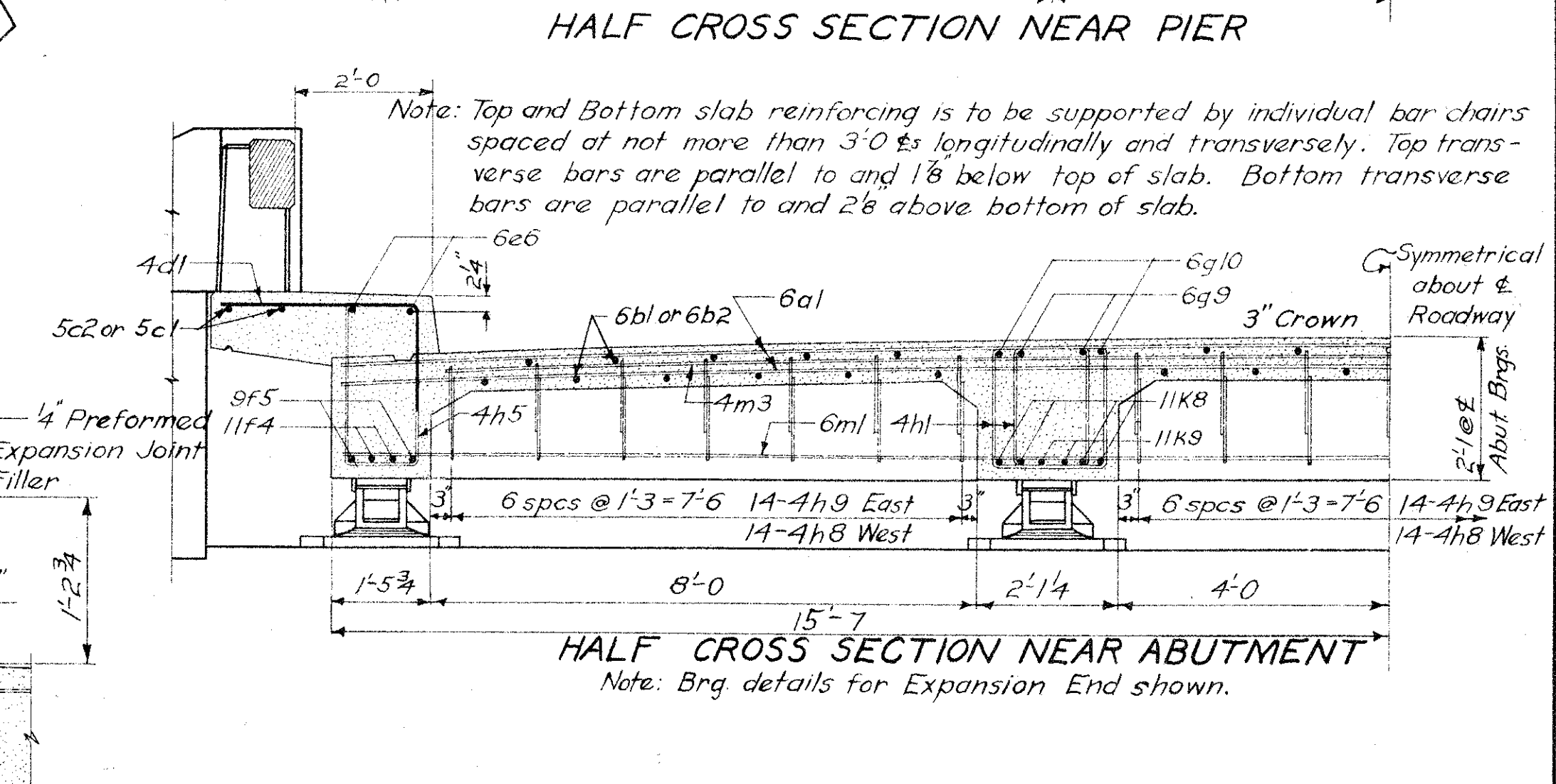
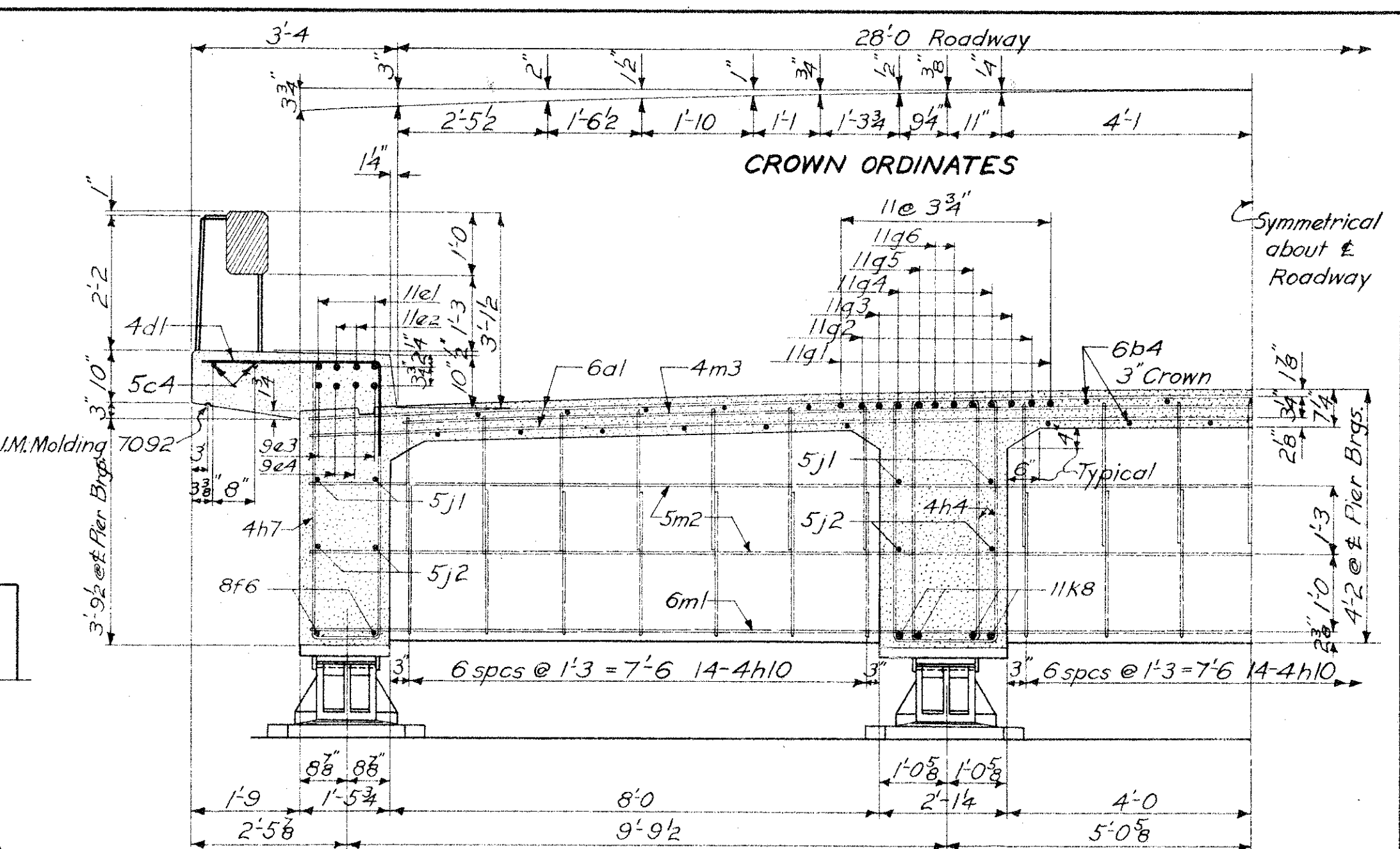
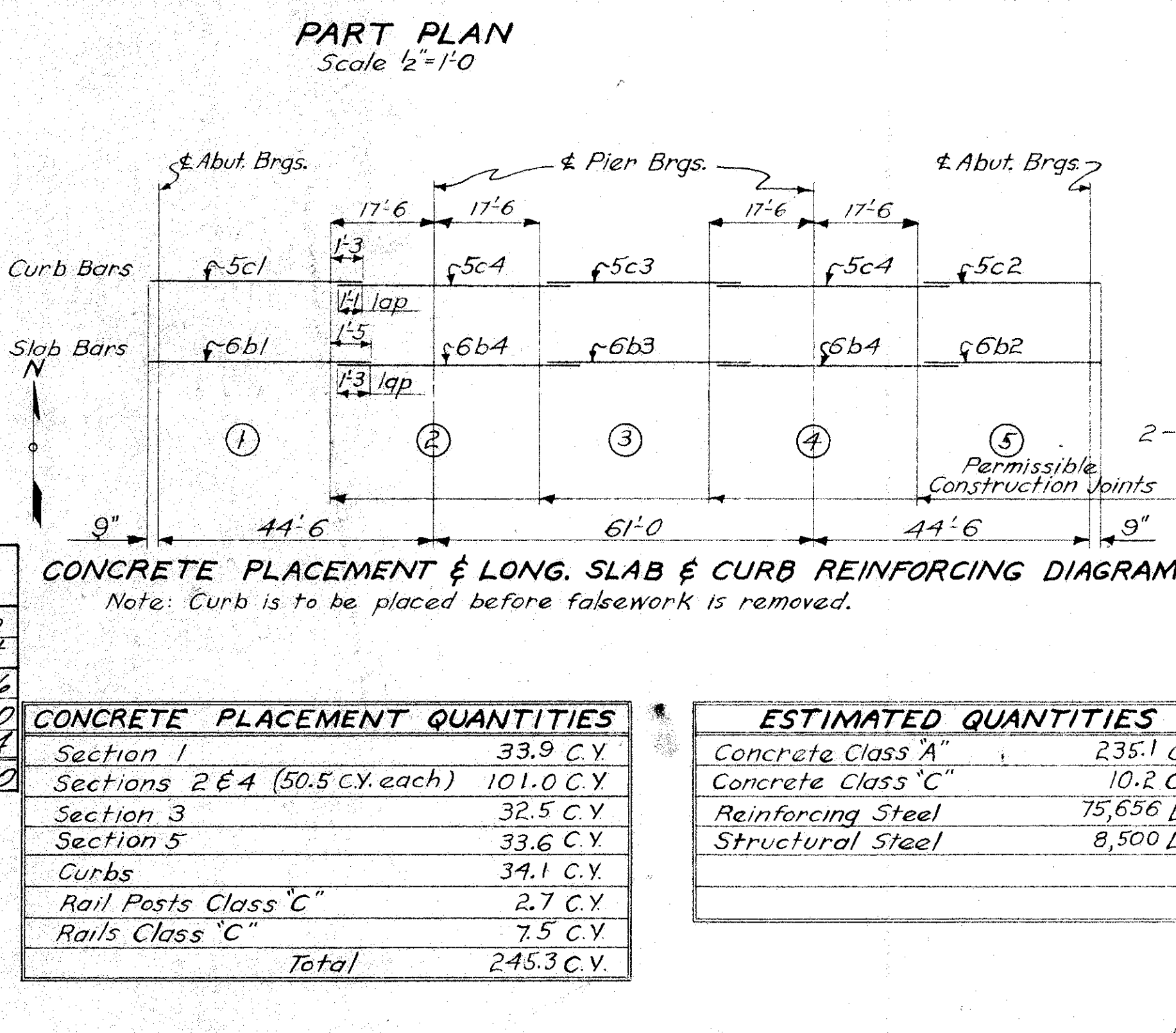
**SEALED JOINT FIXED END**  
(Special Waterproof Joint)

**Superstructure Notes**  
This bridge is designed for H 20-44 loading plus 19 #ft<sup>2</sup> of roadway for future wearing surface with the following modifications:  
1. Except for the floor slab this bridge is designed so that an increase in the Roadway Live Load and Impact of 100% will not increase the total stress to more than 150% of specification stresses.  
2. Allowable  $f_c$  for concrete = 1200 psi  
All exposed corners of 90° or sharper to be filleted with 3/4\" dressad, beveled strips.  
All masonry plates and fixed shoes to be set in paint and canvas.  
Allowable  $f_s$  for reinforcing steel = 20,000 psi.  
Slab as shown includes 1/2\" wearing surface.

**MAXIMUM MOMENTS AND REACTIONS**  
Moments in Ft-kips  
Reaction in kips

LOADS	Pos. Mem. End Sp.		Neg. Mem. Pier		Pos. Mem. Ctr. Sp.		Abut. Reaction		Pier Reaction	
	Ext.	Int.	Ext.	Int.	Ext.	Int.	Ext.	Int.	Ext.	Int.
Dead Load	150	167	573	656	162	185	231	263	1018	1184
Live Load	108	296	199	515	110	298	151	392	267	670
Impact	32	87	56	145	30	80	45	116	75	194
<b>TOTALS</b>	<b>290</b>	<b>550</b>	<b>828</b>	<b>1316</b>	<b>302</b>	<b>563</b>	<b>427</b>	<b>771</b>	<b>1360</b>	<b>2070</b>

Note: Normal Live Load Moments and Reactions are shown in all cases.  
Specifications:  
Design - AASHTO. Series of 1949 with modifications.  
Construction - Iowa Highway Commission Series of 1952  
plus Special Provisions for Construction Projects, Division II, November 5, 1952; Jan 13, 1953

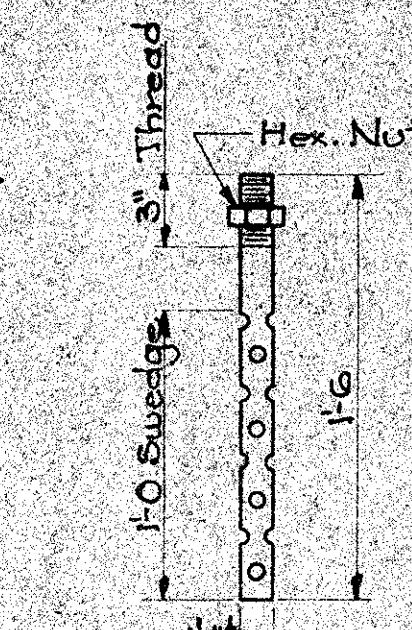
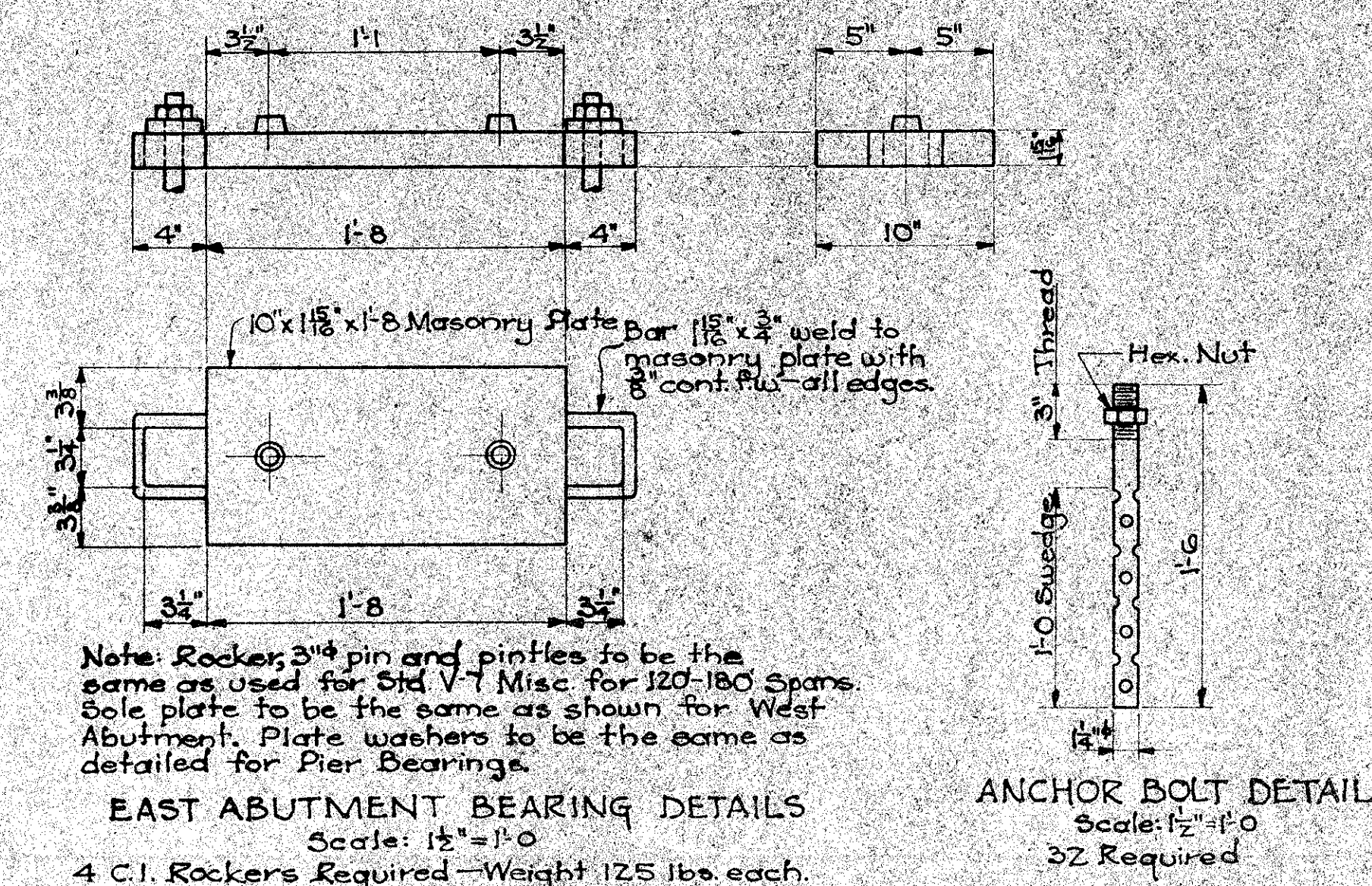
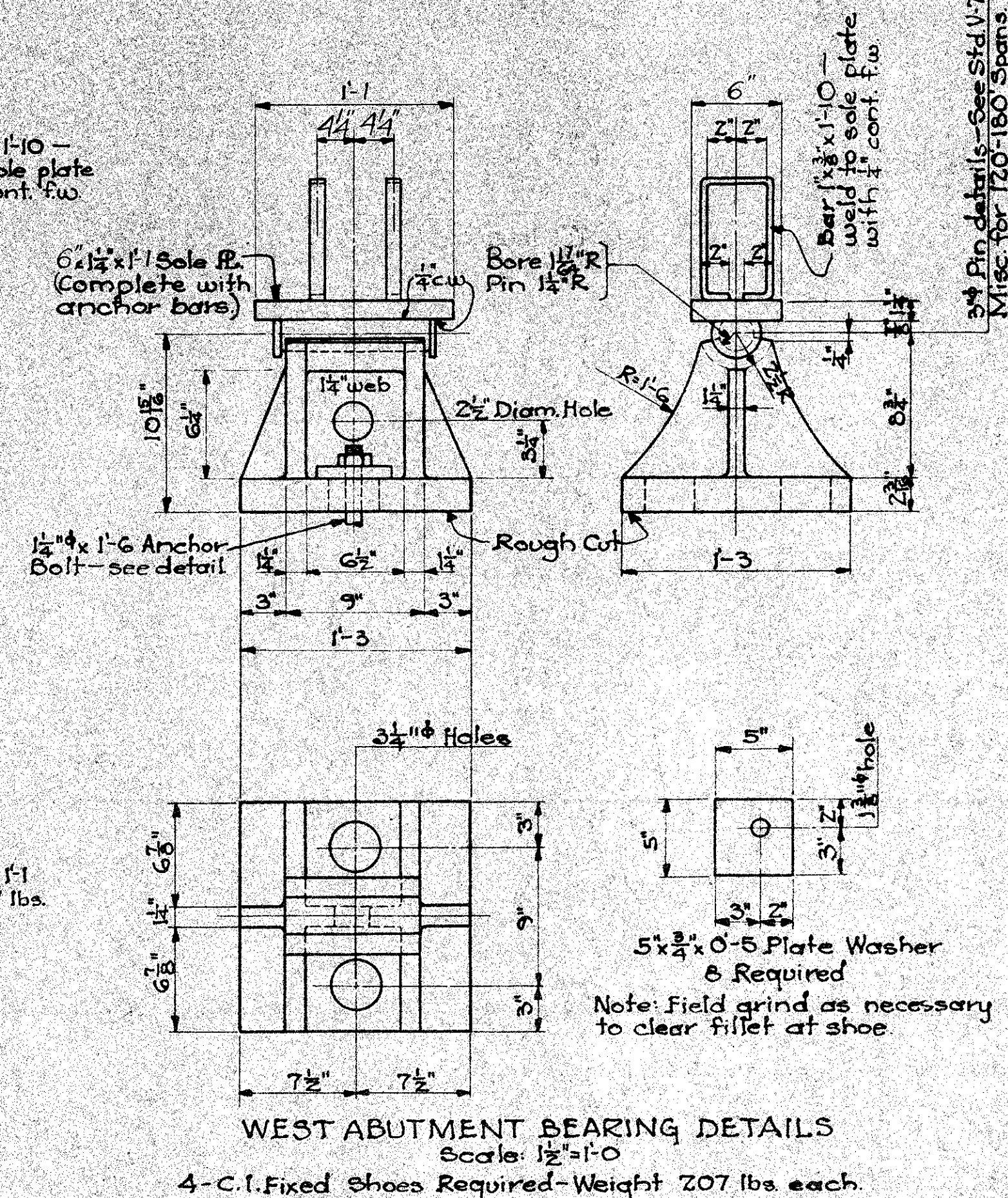
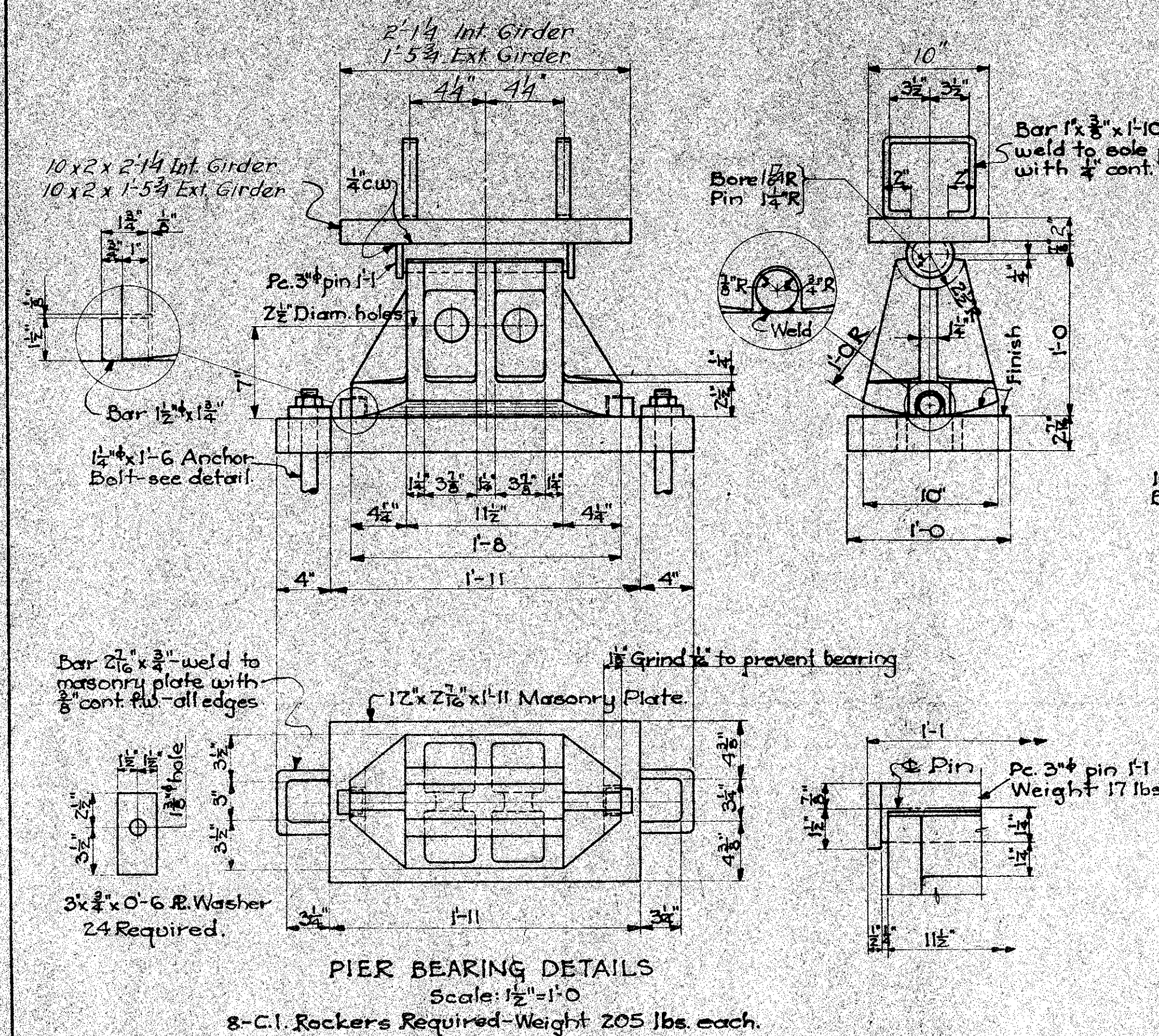
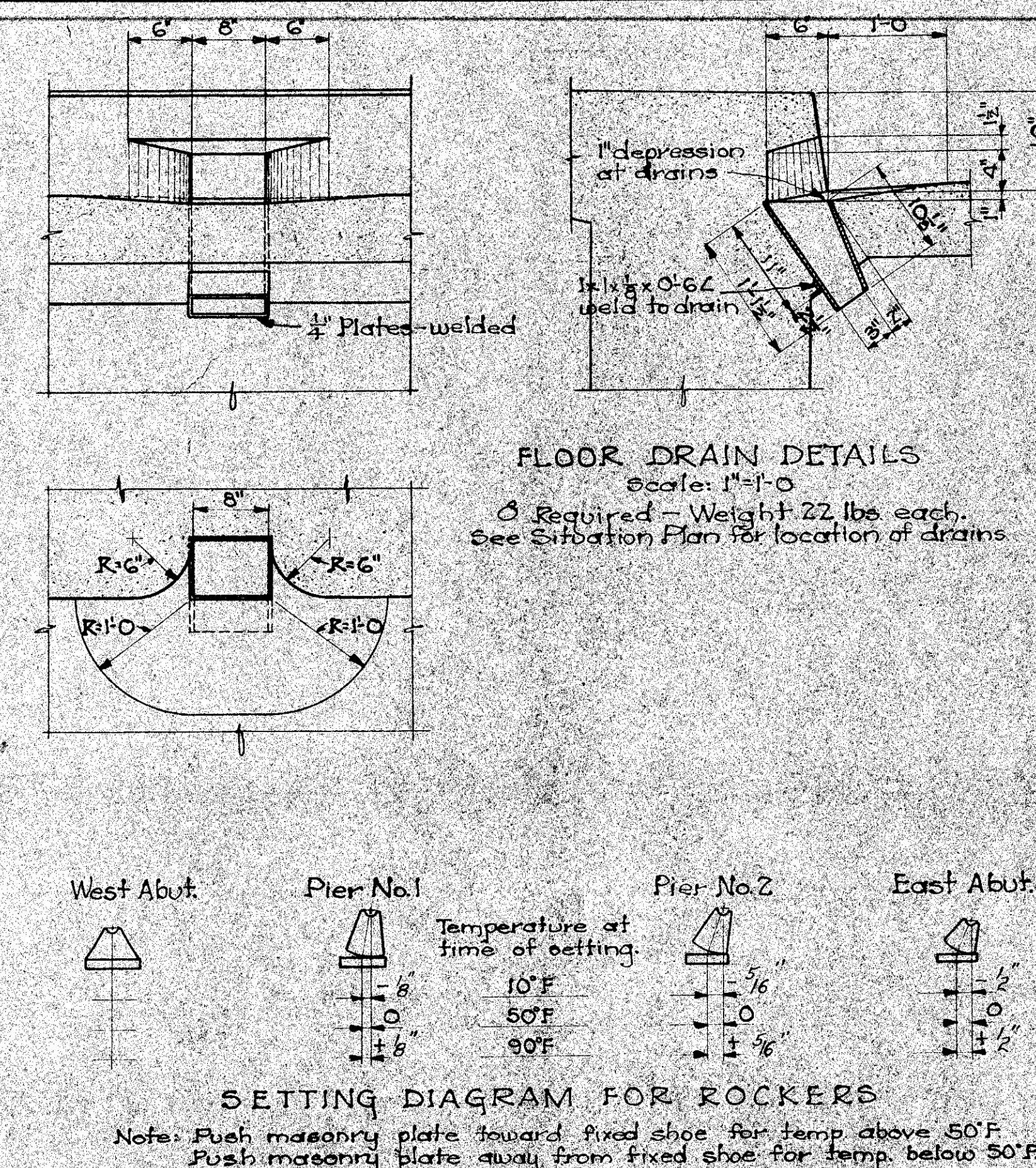
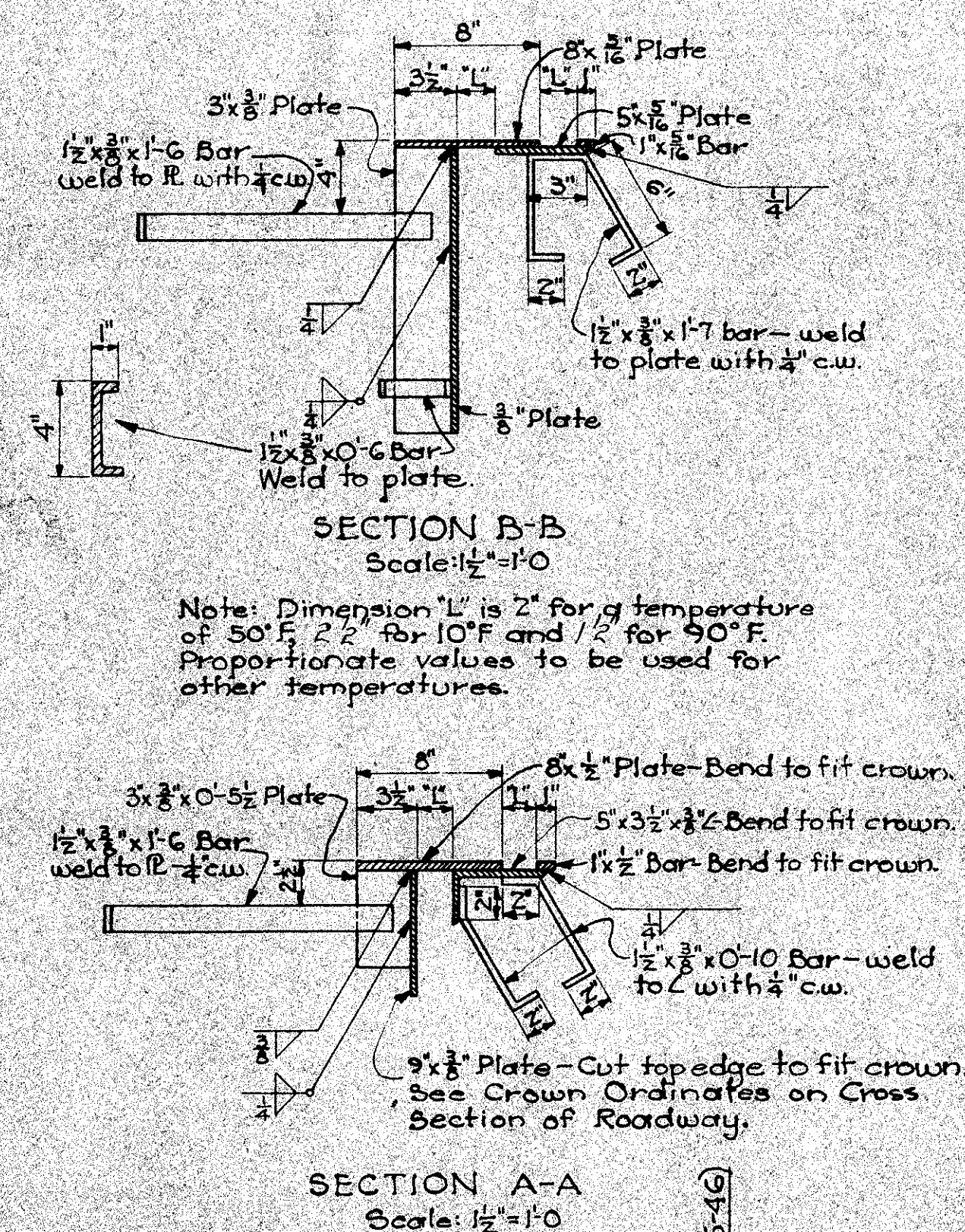
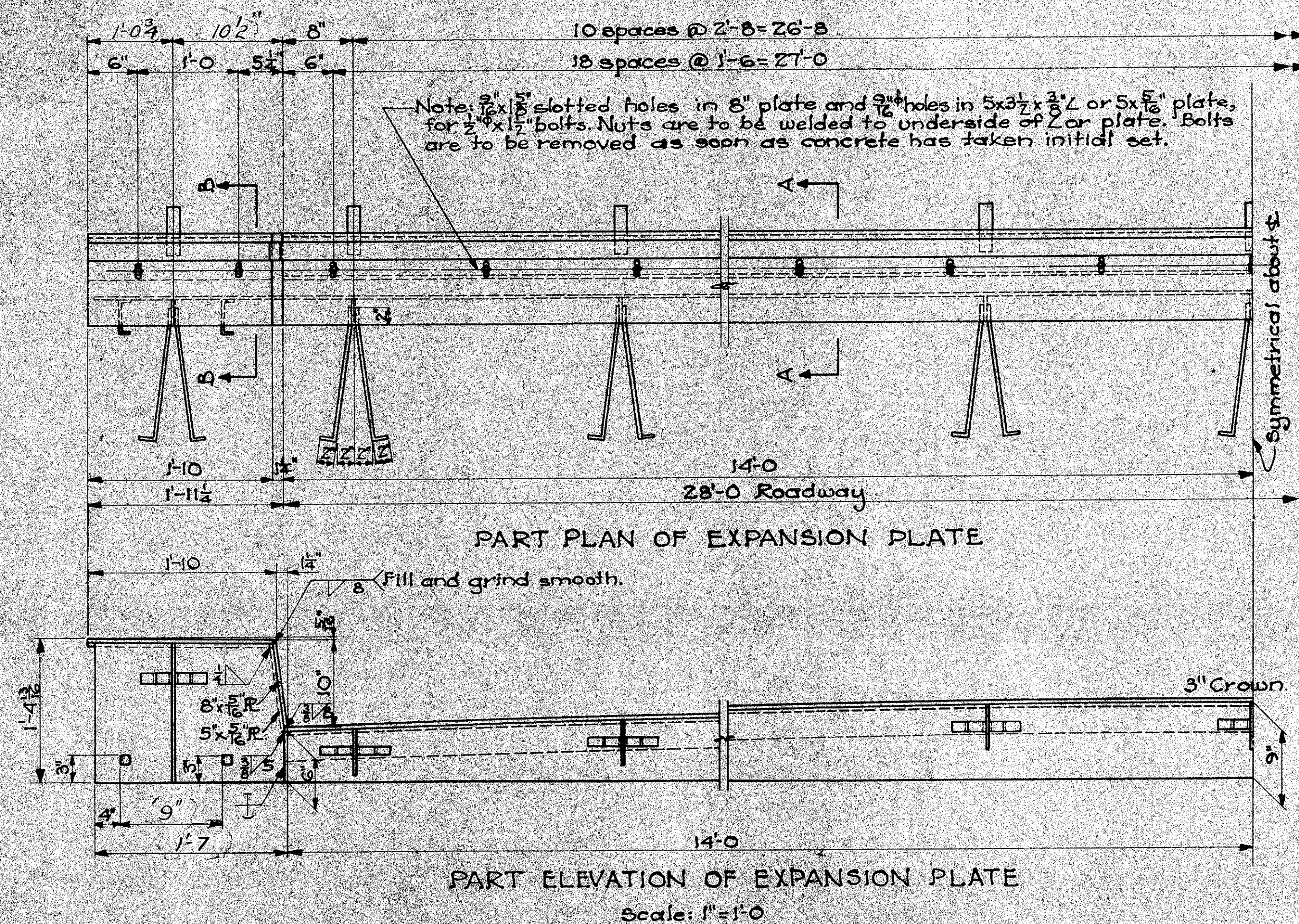


**RAIL POST "A"**  
Scale 1/2"=1'-0"  
Note: Details for post "A" not shown, to be the same as those shown for Post "B".

**RAIL POST "B"**  
Scale 1"=1'-0"  
Note: All rail posts to be vertical.

**Design for 150'x28' CONTINUOUS CONCRETE GIRDER BRIDGE**  
44'-6" End Spans  
61'-0" Center Span  
Concrete Rail and Substructure  
**SUPERSTRUCTURE DETAILS**  
Sta. 804+17.00  
Woodbury County  
Iowa State Highway Commission  
November 1952  
Sheet 5 of 6





**General Notes for Bearing Details:**  
The unfinished surfaces of masonry and sole plates are to be filled with mortar.  
Anchor bolts for masonry plates and fixed shoes are to be preset. After superstructure is in place and immediately before forms are removed, rockers are to be set as shown in diagram. The space around anchor bolts for rockers and fixed shoes is to be filled with mortar, washers are to be placed on anchor bolts and nuts are to be tightened.

Design for  
150 x 28' CONTINUOUS CONCRETE GIRDER BRIDGE  
44'6" End Spans 61'0" Center Span  
Concrete Rail & Substructure  
SUPERSTRUCTURE DETAILS  
Sta. 804+17.00 Proj. F2(6)  
WOODBURY COUNTY  
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