

STATE OF OHIO  
DEPARTMENT OF HIGHWAYS

Tube 13  
Yellow (1-100)  
S-283 (3)

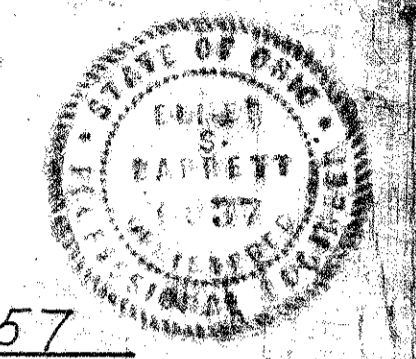
FED. RD. DIVISION	STATE	PROJECT
2	OHIO	S-283(3)

242

GREENE-MONTGOMERY COUNTY  
GRE - 69 - 0.08  
MOT - 69 - 8.94

# GRE-69-0.08 MOT-69-8.94 GREENE COUNTY-MONTGOMERY COUNTY

Plans Prepared by **ELMER S. BARRETT ASSOCIATES**  
*Elmer S. Barrett 4-1-57*  
249 S. Paint St. Chillicothe, Ohio



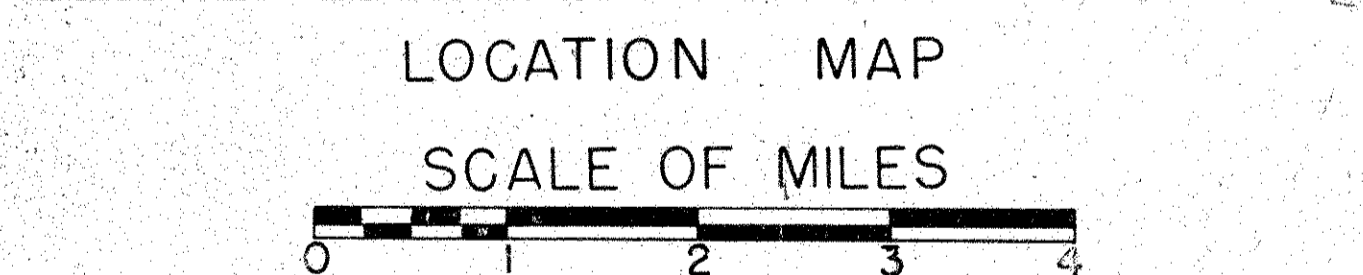
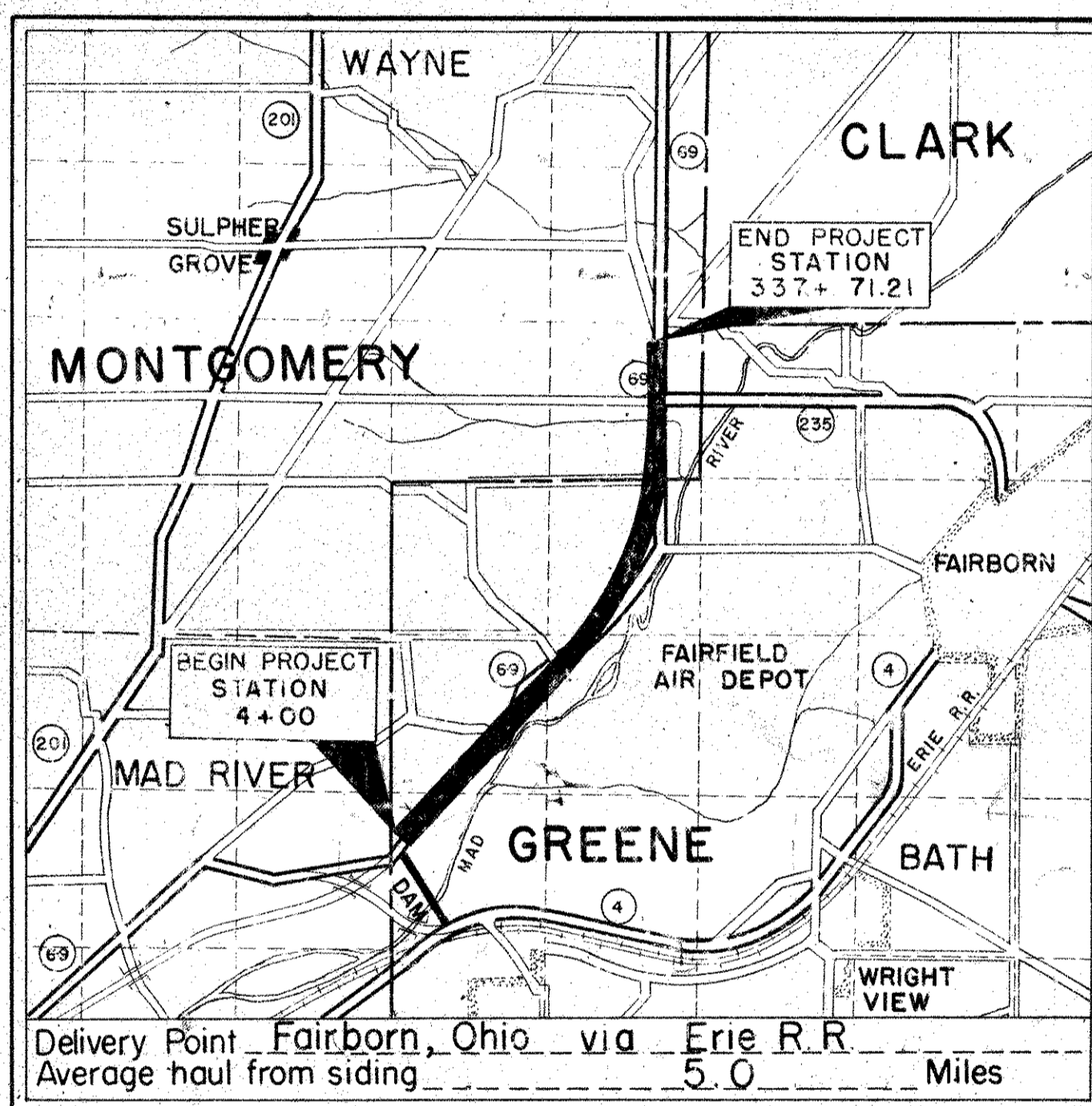
## BATH TOWNSHIP - WAYNE TOWNSHIP MAD RIVER TWP.

### CONVENTIONAL SIGNS

State Line	-----
County Line	-----
Township Line	-----
Section Line	-----
Center Line	-----
Corporation Line	-----
Fence Line	x x x x x
Guard Rail (existing)	o o o o o
Guard Rail (proposed)	o o o o o
Steam Railroad	-----
Power Poles	o o o o
Telephone Poles	o o o o
Trees & Stumps (Existing)	o o o o
Trees & Stumps (To be removed)	o o o o

### INDEX OF SHEETS

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Portion to be improved	=====
Federal Roads	=====
State Roads	=====
Other Roads	=====

SCALE

Plan: 1" = 50'  
Profile: Horizontal: 1" = 50'  
Profile: Vertical: 1" = 5' & 1" = 10'  
Cross Sections: 1" = 10'

The standard specifications of the State of Ohio, Department of Highways, including changes and supplemental specifications listed in the proposal shall govern this improvement.

The right of way necessary for this improvement will be provided by the State of Ohio.

I hereby approve these plans and declare that the making of this improvement will not require the closing to traffic of the highway and that provisions for maintenance and safety of traffic will be set forth on these plans and estimates.

- Approved: *E. D. Ackerman*  
Date: 4/29/57 Division Deputy Director
- Approved: *C. H. Mahoney*  
Date: 5-22-57 Deputy Director of Planning & Programming
- Approved: *W. C. Overman*  
Date: 5-17-57 Engineer of Bridges
- Approved: *P. E. Shultz*  
Date: 5-20-57 Engineer of Location & Design
- Approved: *P. E. Masterton*  
Date: 5-20-57 Deputy Director of Design & Construction
- Approved: \_\_\_\_\_  
Date: \_\_\_\_\_ First Asst Director
- Approved: *George J. Thompson*  
Date: 5/22/57 Acting Director of Highways.

### LIMITED ACCESS

This improvement is especially designed for through traffic and has been declared a limited access highway or freeway by action of the Director of Highways in accordance with the provisions of Section 551102 of the revised code of Ohio.

**DEPARTMENT OF COMMERCE  
BUREAU OF PUBLIC ROADS**

**APPROVED:** \_\_\_\_\_  
**DISTRICT ENGINEER** \_\_\_\_\_ **DATE** \_\_\_\_\_

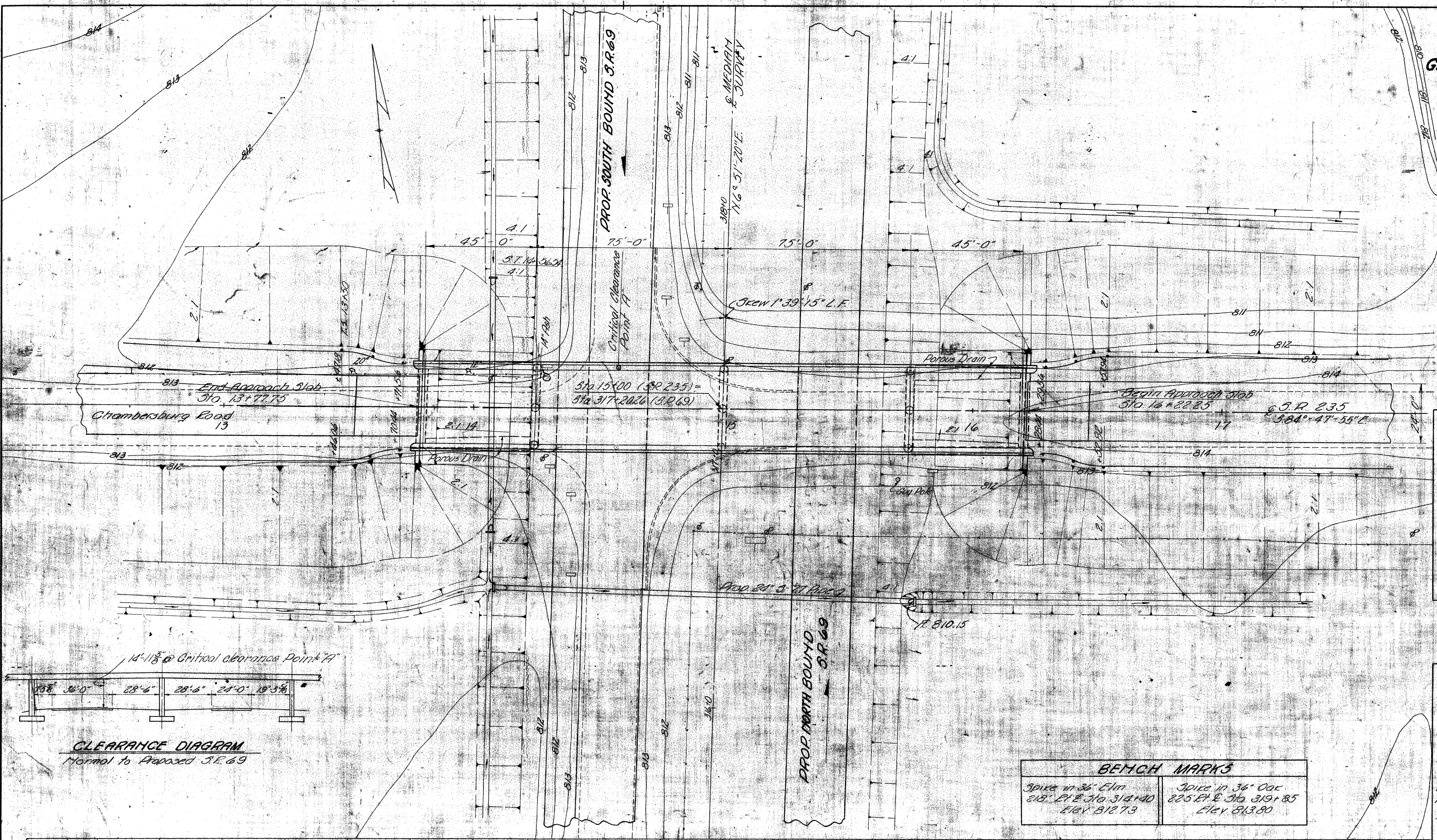
### LINE DATA

Begin Project	Sta. 4 + 00	
County Line Equation	Sta. 160+49.82 Back = Sta. 290+60.60 Ahead	15,649.82 Lin. Ft.
End Project	Sta. 337 + 71.21	4,710.61 Lin. Ft.
Gross Length of Project		20,360.43 Lin. Ft.
Deduction for Equation	Sta. 107+20.88 Back = Sta. 107+21.13 Ahead	-0.25
Net Length of Project		20,360.18 Lin. Ft. = 3.856 Mi.
Add for Approaches	Sta. 287+20.0 to Sta. 290+60.60	340.60 Lin. Ft.
Equation	Sta. 290+60.60 Back = Sta. 0+0 Ahead	
	Sta. 0+0 to, Sta. 4+0	400.00 Lin. Ft.
	Sta. 337+71.21 to Sta. 339+71.21	200.00 Lin. Ft.
Equation	Sta. 339+71.21 Back = Sta. 406+0 Ahead	
	Sta. 406+0 to Sta. 408+0	200.00 Lin. Ft.
Chambersburg Road & S. R. 235	Sta. 7+50 to Sta. 38+0	3050.00 Lin. Ft.
Net Length of Work		24,550.78 Lin. Ft. = 4.649 Mi.

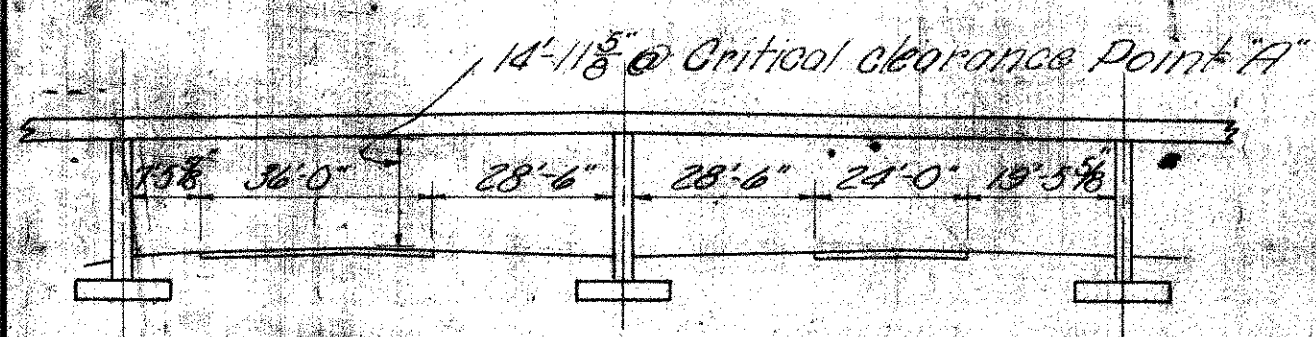
Supplemental Prints of Standard Construction Drawings											
B-T-71R	3-2-53	1-8CB2-382-45-152	L.J.No.1	7-1-55	S-P-53	7-21-53	RB-1-55	3-1-55			
B-T-50-70-71E-NR1	10-1-47	I-12	7-1-54	L-1	4-1-50	T-35	1-2-56	AS-1-54	12-1-54		
DR-1	1-3-55	T-14G	1-22-52	L-3	4-1-50	T-J	5-1-56	OS-2	12-17-56		
G-7.07	6-1-56	I-15 No.1	8-1-55	L-3-A	4-1-50	F-1	4-1-57				
I-1,2,3,4&5	2-20-45	I-15 No.2A	7-2-56	RI-1	1-3-55	CS-1-54 (2 sheets)	7-16-56				
1-8CB 2-2A&B	8-1-56	I-15 No.2	12-1-54	S-27, PC3	2-20-45	P-1-54	12-1-54				
I-8CB No.3A	5-1-52	I-21-23	8-1-56	S-27, PC4	1-4-54	A-1-54	12-1-54				

Supplemental Specifications			
5	6-8-55	S-114	8-30-55
18	Rev. 2-6-57	I-124	1-11-56
E-101	1-1-57		
M-206 (b)	1-1-56		
B-119	1-1-56		

Date of Letting \_\_\_\_\_ 195  
Contract No. \_\_\_\_\_



**FOUNDATION SOUNDINGS**  
 Foundation design and foundation quantities are based on a study made at the site, using the Standard Penetration Test with 1 1/2" spoon and 140 pound hammer. This sounding information may be inspected in the office of the Bureau of Bridges in Columbus, or in an abridged form in the Division Office, but the engineer assumes no responsibility for the accuracy thereof.

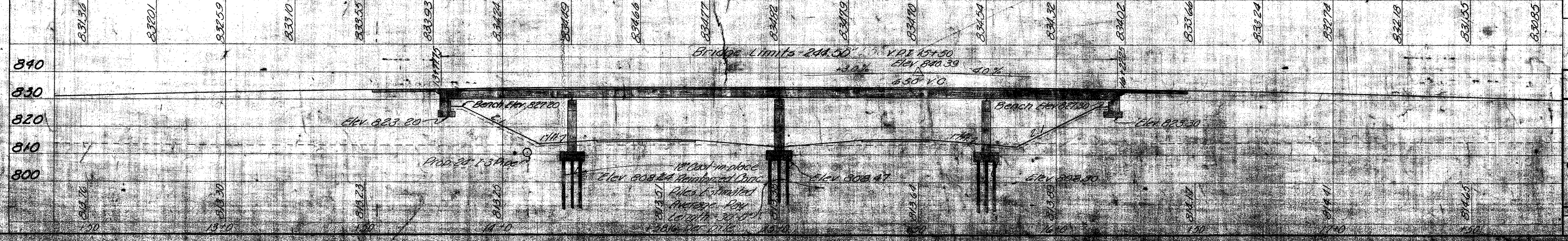


**CLEARANCE DIAGRAM**  
 Normal to Proposed S.R. 69

BENCH MARKS	
Spike in 36" Elm Sta. 318+21.8 Elev. 812.73	Spike in 36" Oak Sta. 319+85 Elev. 813.80

**PROPOSED BRIDGE DATA**

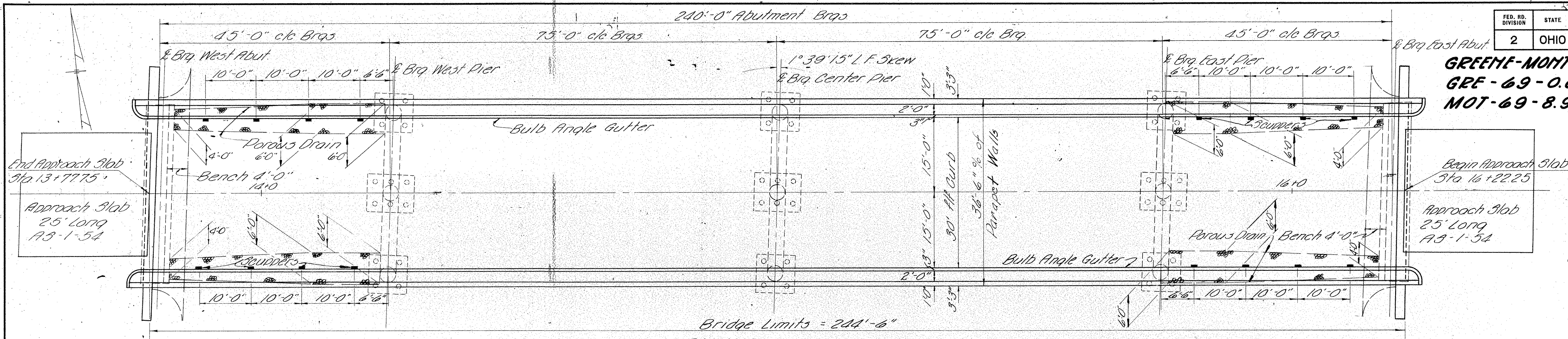
Type: Continuous Steel Beam  
 Concrete Deck & Concrete Substructure  
 Spans: 45'-0" 75'-0" 75'-0" 45'-0"  
 Roadway: 30'-0" 44'-2.5" Safety Curbs  
 Load Frequency: C.F. 400 (S1)  
 Skew: 1° 39' 15" R.F.  
 Wearing Surface: 1" Monolithic Concrete  
 Approach Slabs: A5-1-39-25 W.P.  
 Railing: Concrete Compact Work with Aluminum Rail and Supports  
 Alignment: Tangent



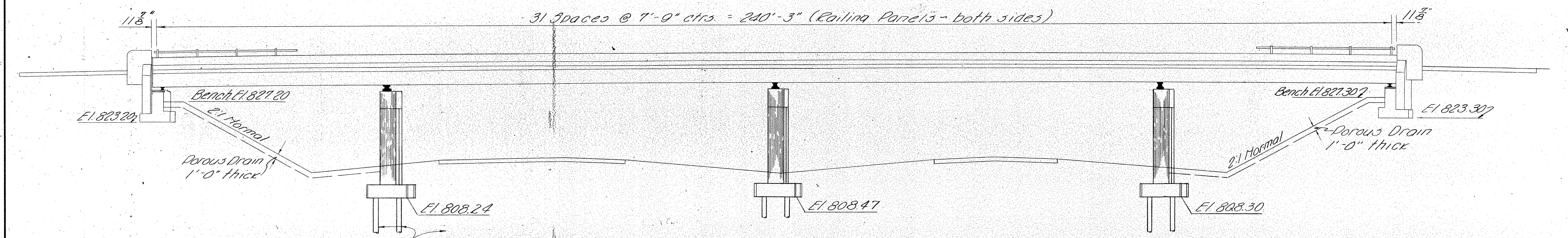
ELMER S. BARRETT ASSOCIATES  
 CONSULTING ENGINEERS  
 249 S. PAINT ST. CHILLICOTHE, OHIO

**SITE PLAN**  
 BRIDGE NO. MOT-69-0601  
 S.R. 69 UNDER S.R. 235  
 GREENE-MONTGOMERY COUNTY  
 STA. 317+00.00

**GREENE-MONTGOMERY COUNTY**  
**GRE-69-0.08**  
**MOT-69-8.94**



**GENERAL PLAN**



**GENERAL ELEVATION**

**GENERAL NOTES**

**REFERENCE** shall be made to Standard Drawing RB-1-55, dated 3-1-55 and to Supplemental Specifications 5-14, Aluminum for Railing, dated 8-30-55.

**PAINT**, both shop and field, shall be applied by brushing. Spray application will not be permitted.

**DESIGN SPECIFICATIONS:** This structure conforms to the requirements of "Design Specifications for Highway Structures" of the State of Ohio Dept. of Highways dated 10-1-51, together with revisions thereof dated 7-15-52, 4-1-54 and 2-1-55.

**CONCRETE AGGREGATE:** Gravel if used as course aggregate shall be according to Sec. M-3.93 for Class "C" concrete in the superstructure. Gravel meeting the requirements of Sec. M-3.93 may also be used for other concrete in this structure.

**SURFACE FINISH OF CONCRETE:** Abutment railing posts, curb faces, parapet walls, deck fascia and exposed surface of piers, abutments and wing walls shall receive a rubbed surface finish. All other surfaces shall be finished in accordance with the provisions of Item 5-1.

**POROUS BACKFILL** shall extend upward to the approach slab and to the surface of the earth shoulders and outward to the surface of the embankment slopes. Excavation therefore in excess of that required for construction of the footing shall be considered as paid for in the bid price per cu. yd., paid for as porous backfill.

**EXCAVATION:** Earthwork required to construct the roadway under the bridge to finished grade is classified as E-1 and included in Roadway Quantities.

**EXCAVATION QUANTITY FOR ABUTMENTS** includes the removal of fill material between the top of the earth bench and the bottom of the abutment.

**EXCAVATION QUANTITY FOR PIERS** includes the removal of material from the top of the finish grade or the existing ground line, whichever is lower to the bottom of the footer.

**WELDING** of structural steel shall be class "A" except as otherwise shown. Any welds shown as field welds may at the option of the contractor, be made in the shop. Class "B" welds are shown thus:  $\overline{\text{---}}$

**WELDED STEEL:** The steel for the longitudinal beams shall conform to ASTM Designation A-373. All other structural steel shall conform to either ASTM A-7 (as per Sec. M-74(a) of the Construction and Material Specifications) or to A-373.

**PILES** shall be driven to a minimum bearing capacity of 40 tons. The length of penetration of every pile shall be at least 80% of the estimated length of penetration as indicated on the plans unless a lesser penetration is approved by the Director.

**ESTIMATED QUANTITIES**

ITEM	QUANTITY	UNIT	DESCRIPTION	ABUTMENT	PIERS	SUPER	GENERAL	AS BUILT
E-2	Lump	Lump	Cofferdams, Cribbs and Sheet piling					
E-2	238	Cu Yds	Excavation for Structure, Unclassified	88	150			
5-1	280	Cu Yds	Class "C" concrete for Superstructure			280		
5-1	75	Cu Yds	Class "C" concrete for Pier Caps and Columns		75			
5-1	82	Cu Yds	Class "E" Concrete for Abutments	82				
5-1	72	Cu Yds	Class "E" Concrete for Footings	25	47			
5-4	105,913	Lbs	Reinforcing Steel	4,927	26,758	74,228		
5-7	281,400	Lbs	Structural Steel			281,400		
5-8	281,400	Lbs	Field Painting of Structural Steel			281,400		
5-14	503.58	Lin Ft	Railing (Aluminum Rail & Supports & Concrete Parapet & End Posts)			503.58		
5-18	1260	Lin Ft	12" Cast-in-Place reinforced Concrete Piles		1260			
5-29	35	Cu Yds	Porous Drains on Embankment Slopes				35	
5-29	33	Cu Yds	Porous Backfill	33				
5-16	Lump	Lump	First test pile				Lump	

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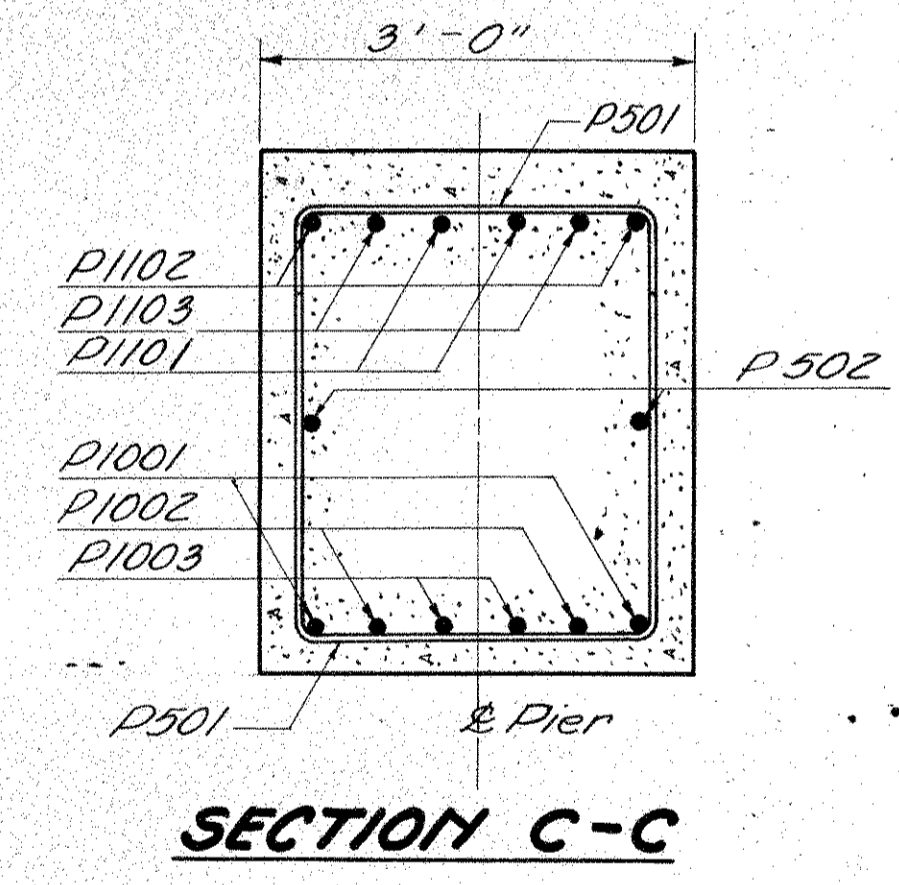
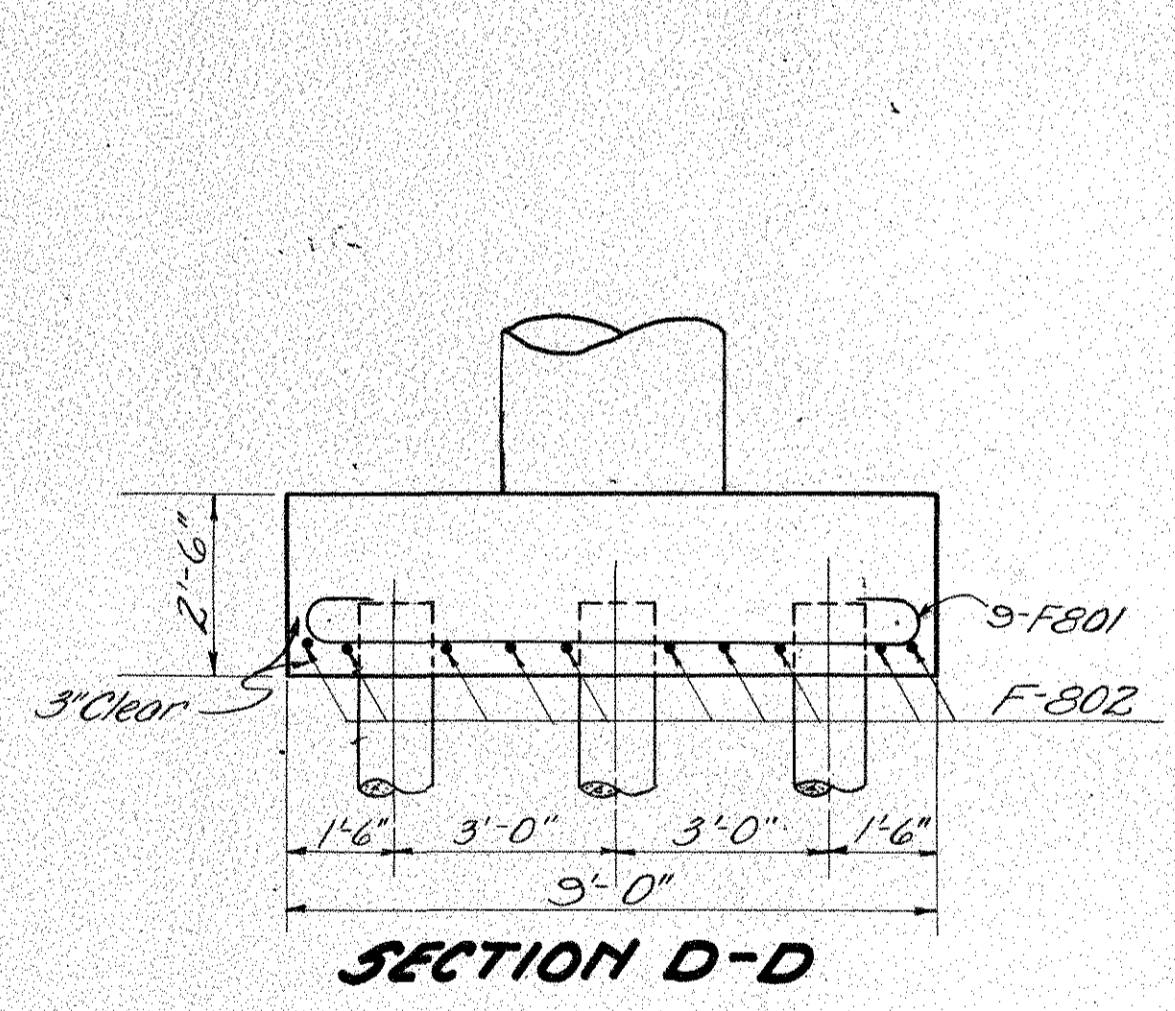
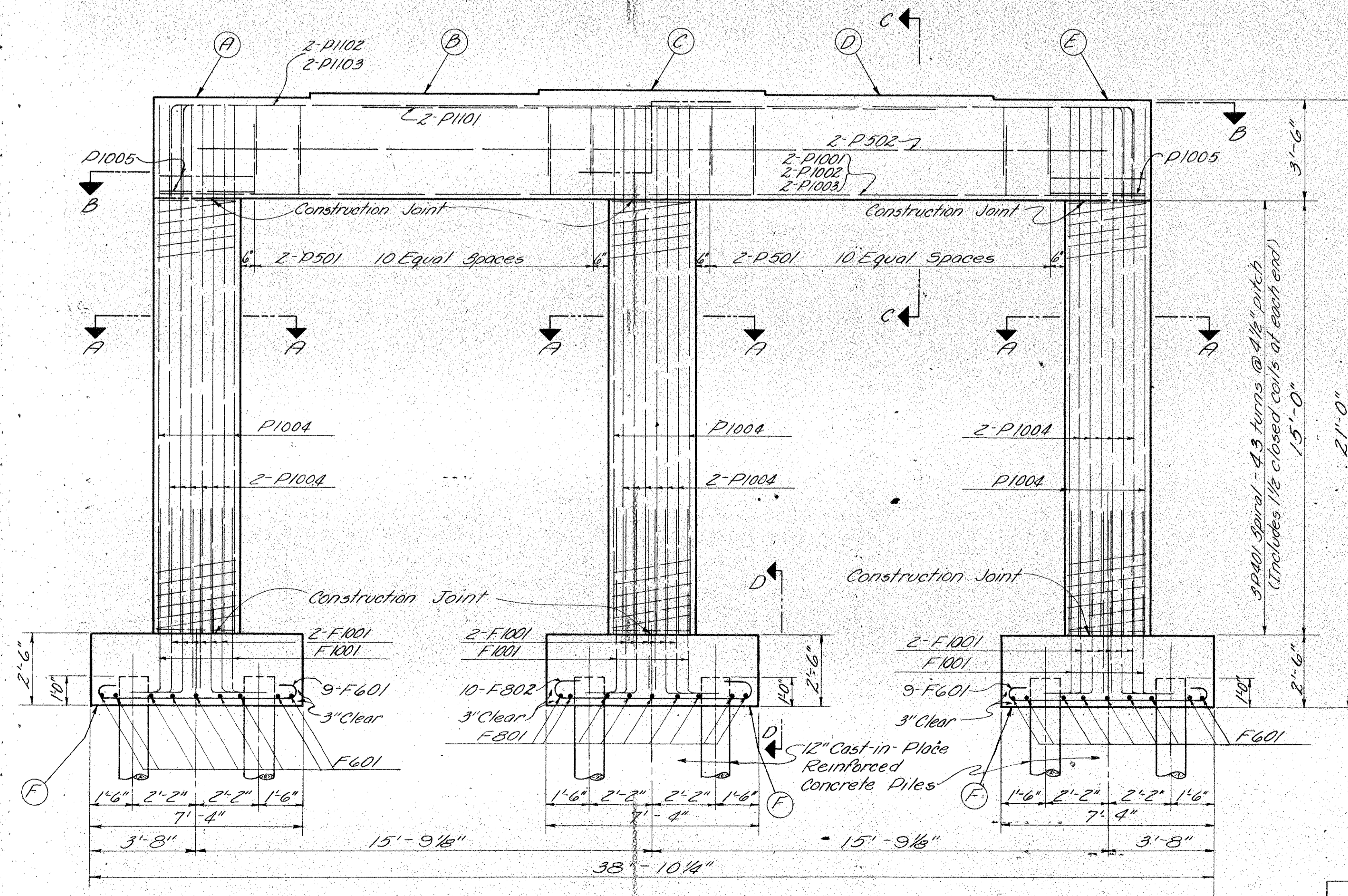
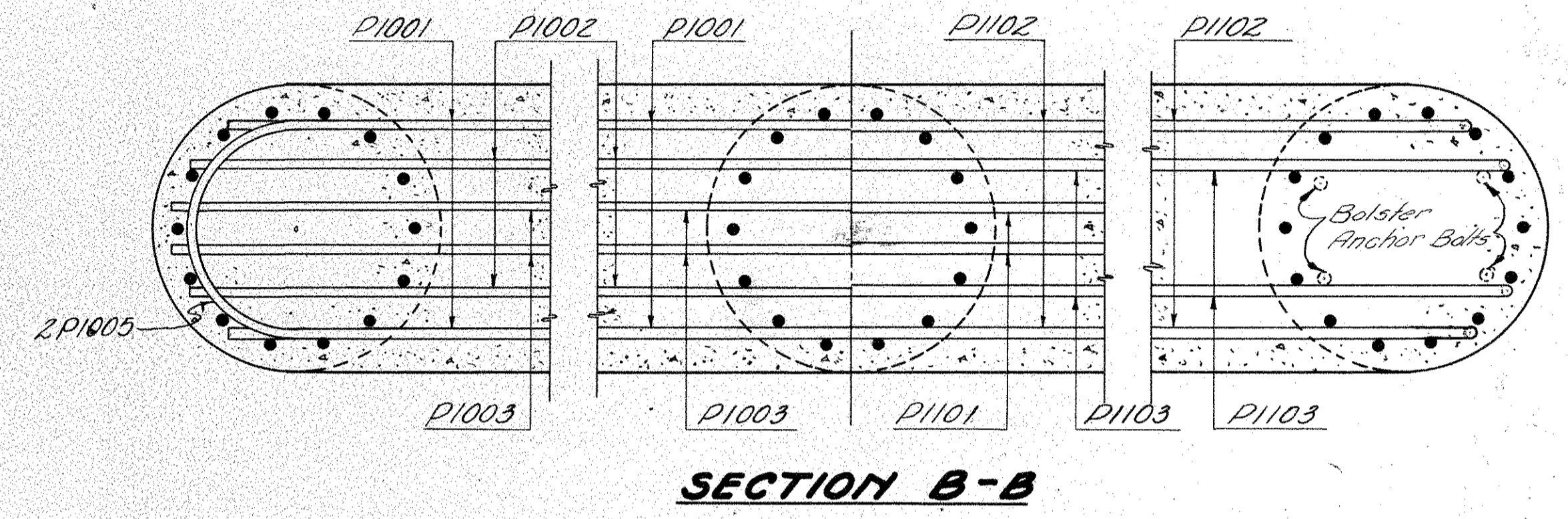
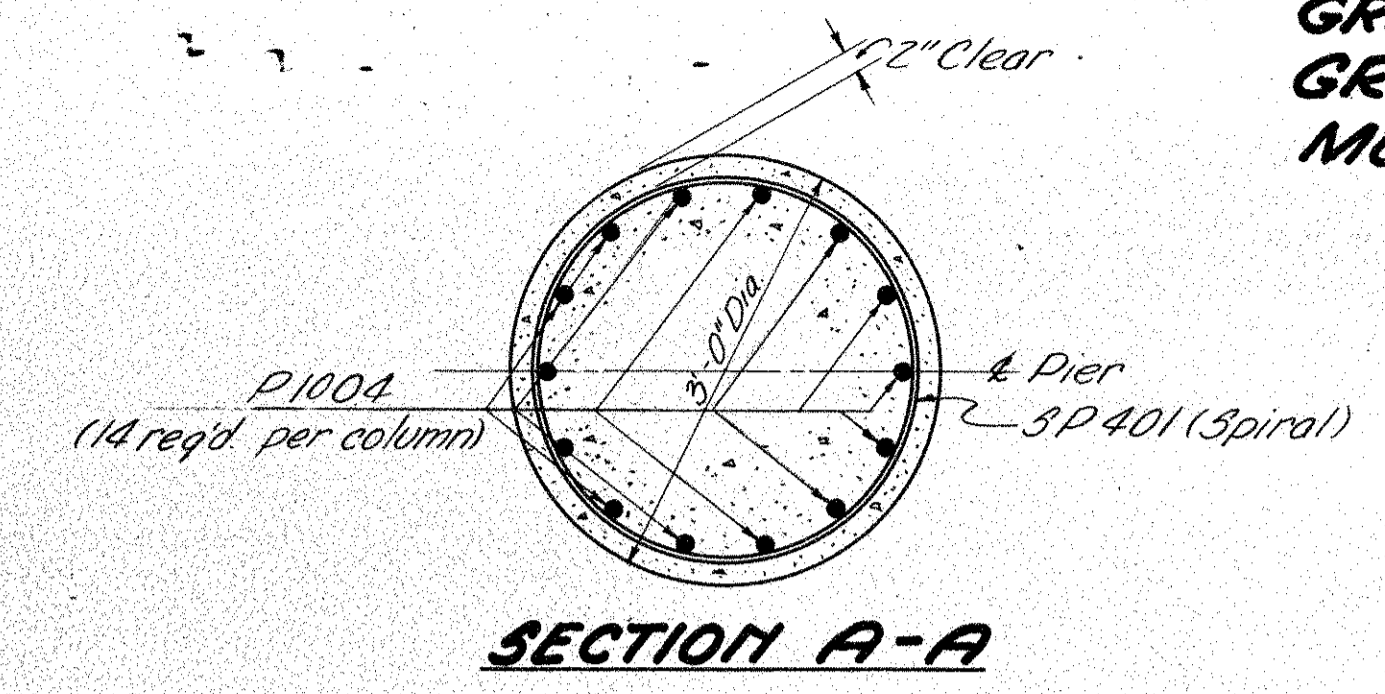
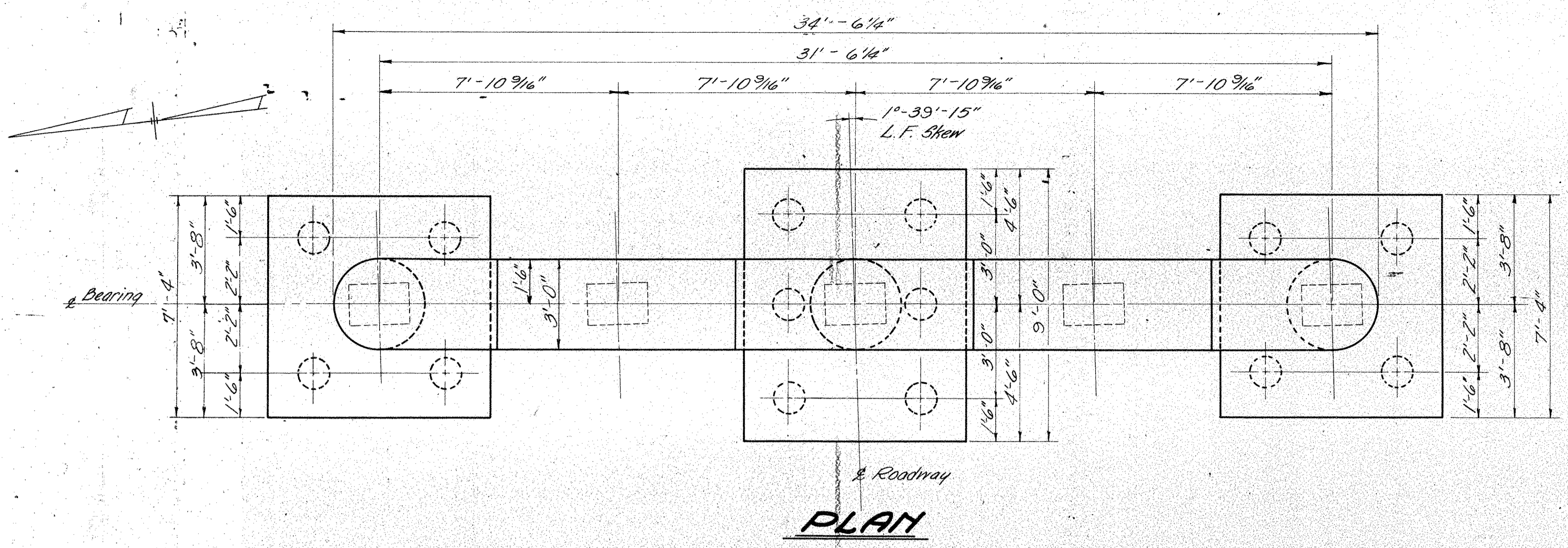
**GENERAL PLAN & ELEVATION**  
**GEN. NOTES & EST. QUANTITIES**

BRIDGE NO. MOT-69-0601  
 S.R. 69 UNDER S.R. 235  
 GREENE-MONTGOMERY COUNTY S.R. 69  
 STA. 317 + 20.26

SCALE	DATE					
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISION
F.H.S.	V.W.S.	J.C.E.	W.C.	M.H.	2/2/57	



**GREENE-MONTGOMERY COUNTY**  
**GRE-69-0.08**  
**MOT-69-8.94**



**PIER NOTES**

Special care shall be taken in placing reinforcing steel in the pier cap so that it will not interfere with the bolster anchor bolts.  
 Reinforcing steel shall clear the face of the concrete by 2", unless otherwise shown.

**ELEVATION**  
**WEST PIER - CENTER PIER - EAST PIER**

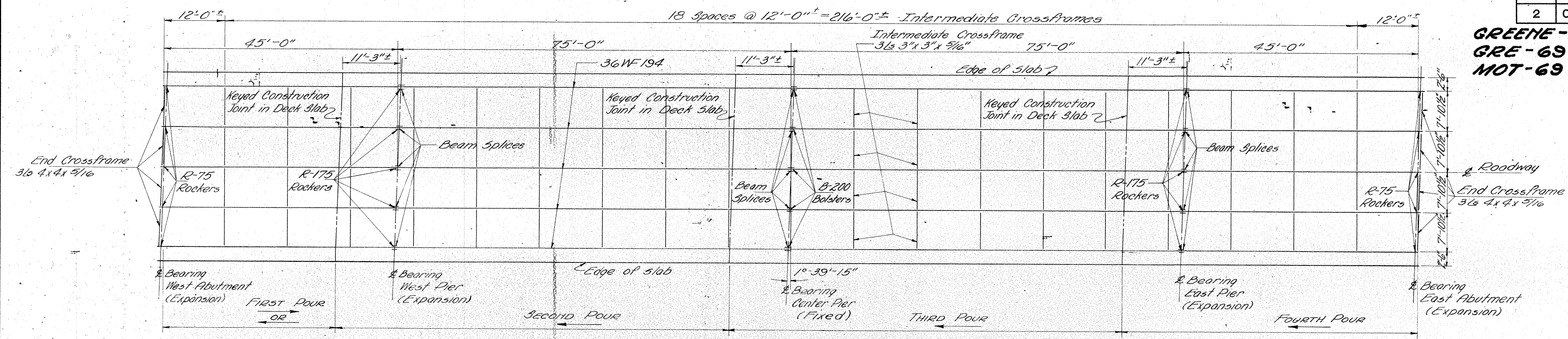
	ELEVATIONS					
	A	B	C	D	E	F
WEST PIER	829.25	829.37	829.49	829.36	829.24	808.24
CENTER PIER	829.47	829.59	829.71	829.59	829.47	808.47
EAST PIER	829.30	829.42	829.54	829.42	829.30	808.30

ELMER S. BARRETT ASSOCIATES  
 CONSULTING ENGINEERS  
 249 S. PAINT ST. CHILLICOTHE, OHIO

**PIER DETAILS**  
 BRIDGE NO. MOT-69-0601  
 S.R. 69 UNDER S.R.235  
 GREENE - MONTGOMERY COUNTY S.R. 69  
 STA. 317 + 20.26

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
F.H.S.	W.D.J.	W.D.J.	W.D.J.	K.H.H.	2/23/67	

**GREENE-MONTGOMERY COUNTY**  
**GRE-69-0.08**  
**MOT-69-8.94**



**ILLUSTRATION OF SKEWED FRAMING AND CONCRETE POURING SEQUENCE**

**NOTES**

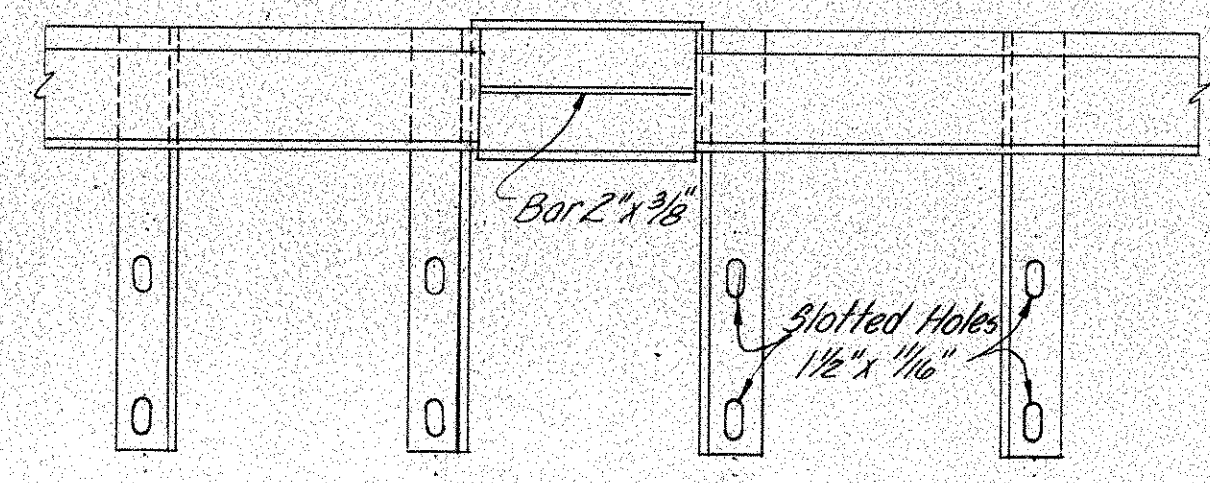
**DECK CONSTRUCTION PROCEDURE:** The deck slab shall be placed in sections, between transverse construction joints, in the numerical order and in the direction indicated on the "Illustration of Framing and Concrete Pouring Sequence," in order that the major portion of the dead load deflection will occur prior to placing concrete over each pier.

**DECK DRAINAGE:** Scuppers shall be made of steel. Milled joints will be permitted in bulb angles, but individual lengths shall be as long as practicable. Gutters shall be accurately adjusted for alignment and grade, with allowance for dead load deflection, before concrete is placed. Welding of scuppers shall be continuous fillet weld. Steel gutters and scuppers are included in the weight of structural steel, Item 3-7 for payment.

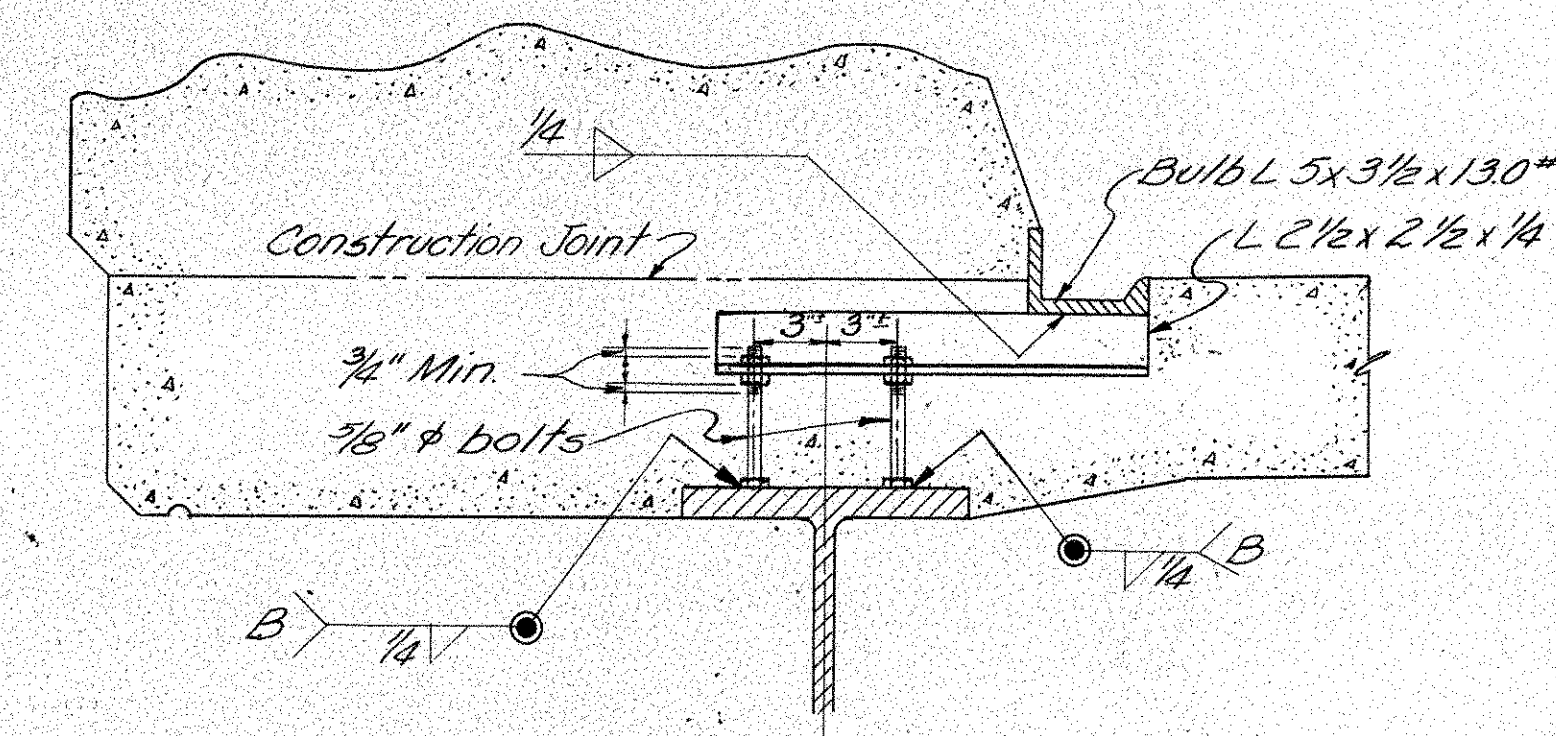
**BEAM SPlice WELDING PROCEDURE**

1. Raise end of beam at second pier 1/2".
2. Butt-weld beam flanges and web at first pier using the following sequence: Make one pass on each flange, then one on the web, repeat until welds are complete.
3. Weld top and bottom flange moment plates at first pier.
4. Lower end of beam at second pier.
5. Make splice at second and third pier in the same manner raising the end of the beams 1/8" at the piers and 1/2" at the abutment.

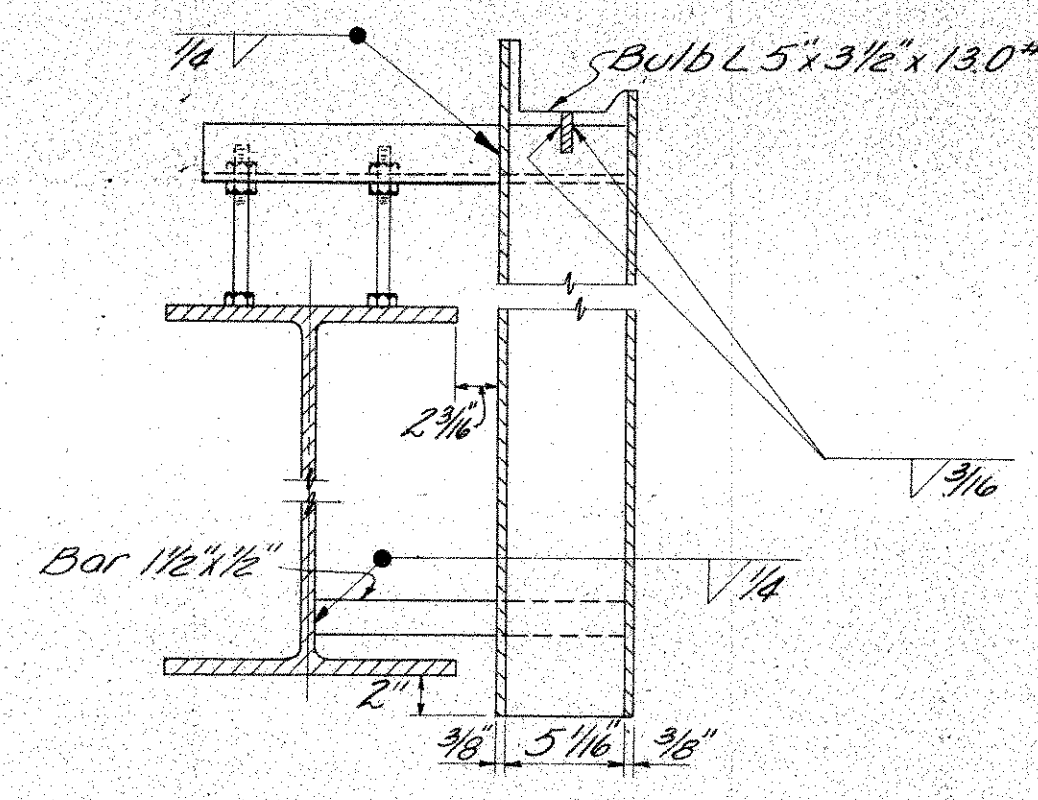
LOCATION	OUTSIDE BEAMS		INSIDE BEAMS	
	45' SPAN	75' SPAN	45' SPAN	75' SPAN
Deflection due to weight of steel	0"	1/8"	0"	1/8"
Deflection due to remaining dead load	0"	5/8"	0"	3/8"
Convexity required for vertical curve	3/8"	7/8"	3/8"	7/8"
Sum of Deflection and convexity	3/8"	1 5/8"	3/8"	1 3/8"
Required Camber	0"	1 5/8"	0"	1 3/8"



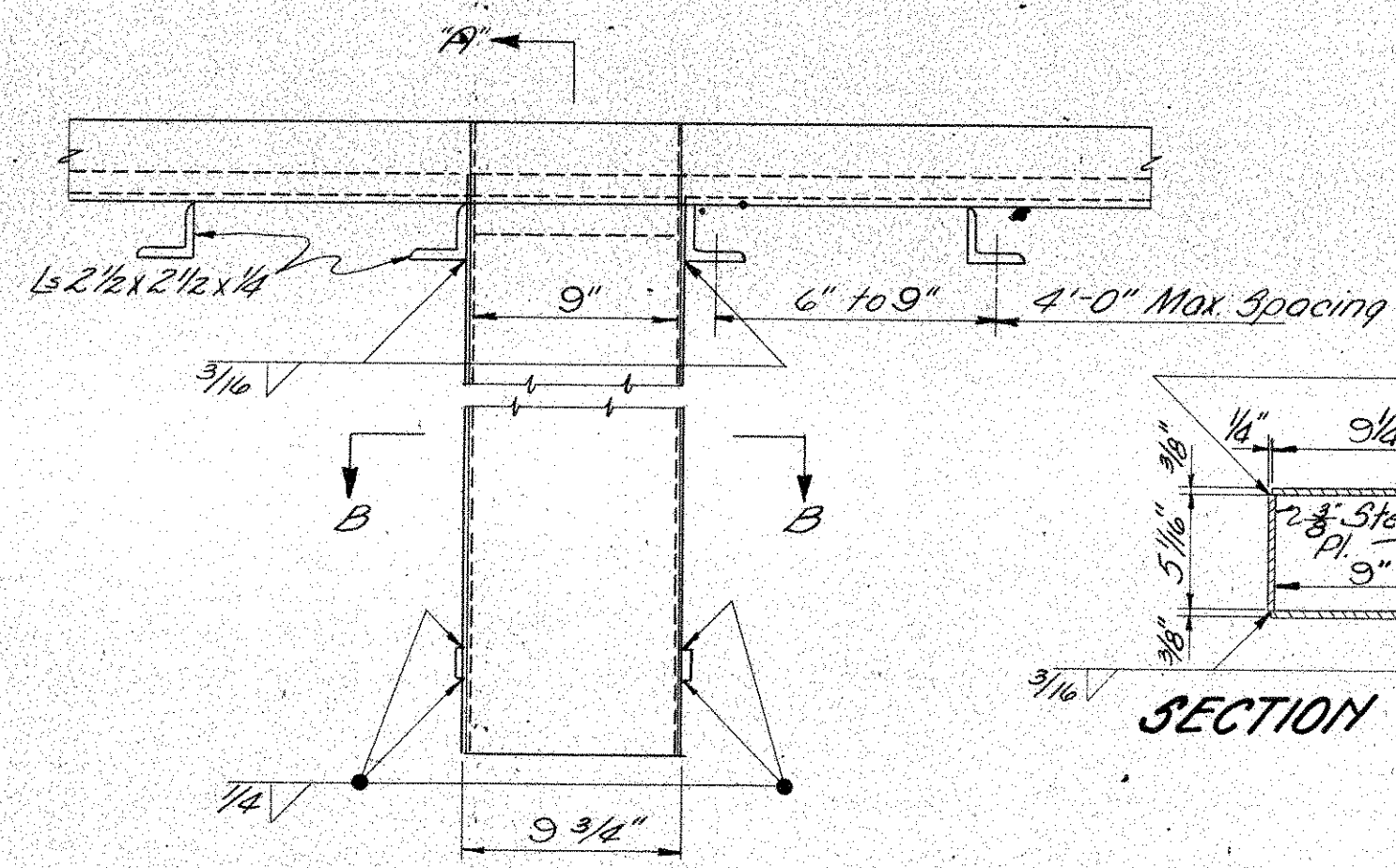
**PART PLAN**



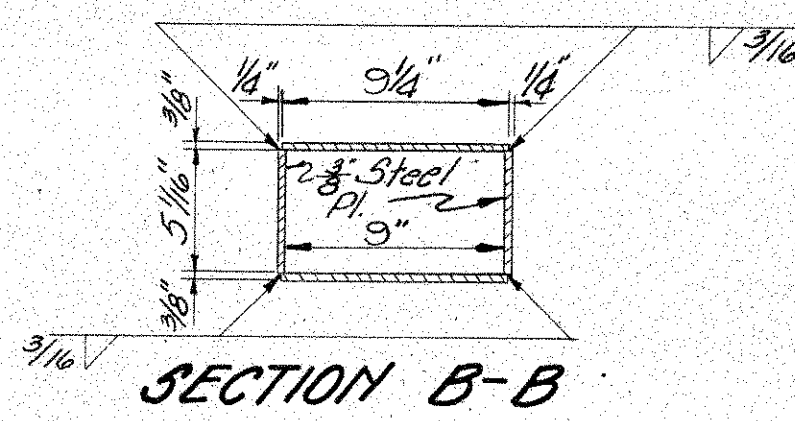
**GUTTER SUPPORT**



**SECTION A-A**



**ELEVATION**



**SECTION B-B**

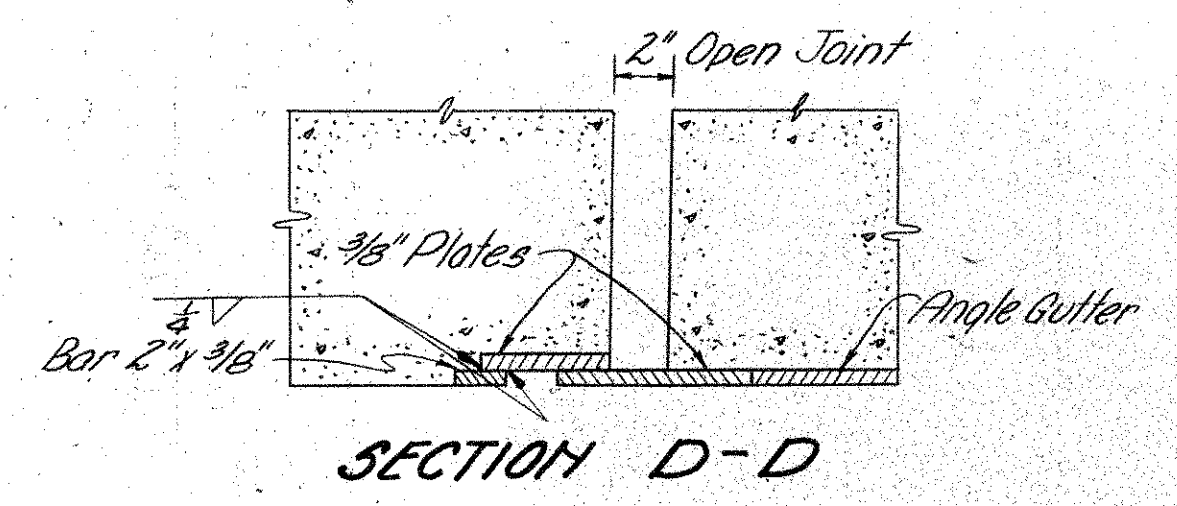
**GUTTER AND SCUPPER DETAILS IN END SPANS**

ELMER S. BARRETT ASSOCIATES  
CONSULTING ENGINEERS  
249 S. PAINT ST. CHILLICOTHE, OHIO

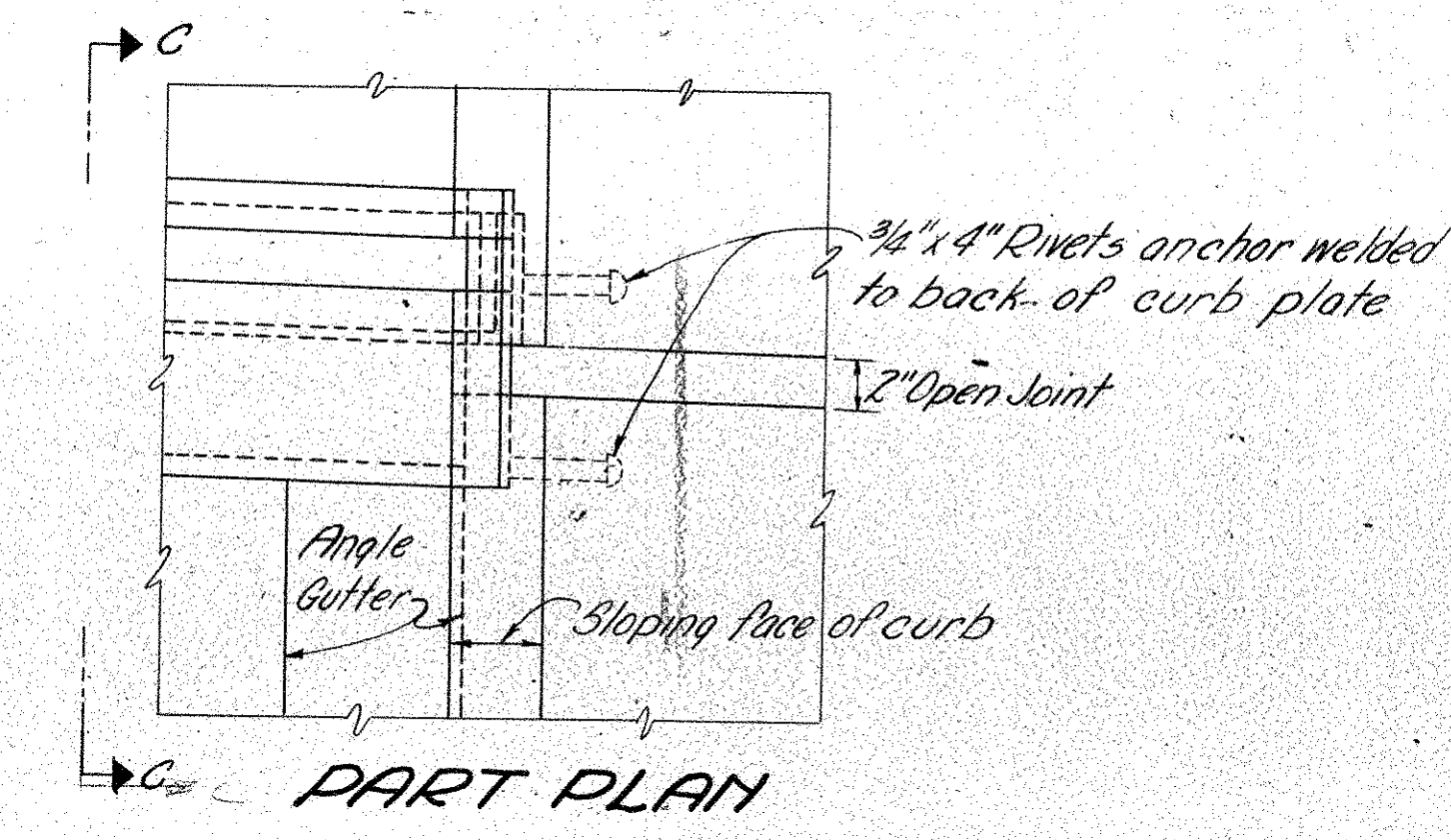
**SUPERSTRUCTURE DETAILS**  
BRIDGE NO. MOT-69-0601  
S.R. 69 UNDER S.R. 235  
GREENE-MONTGOMERY COUNTY STA. 317 + 20.26 S.R. 69

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
F.H.B.	W.W.L.	W.D.J.	W.K.	K.M.	2/25/67	

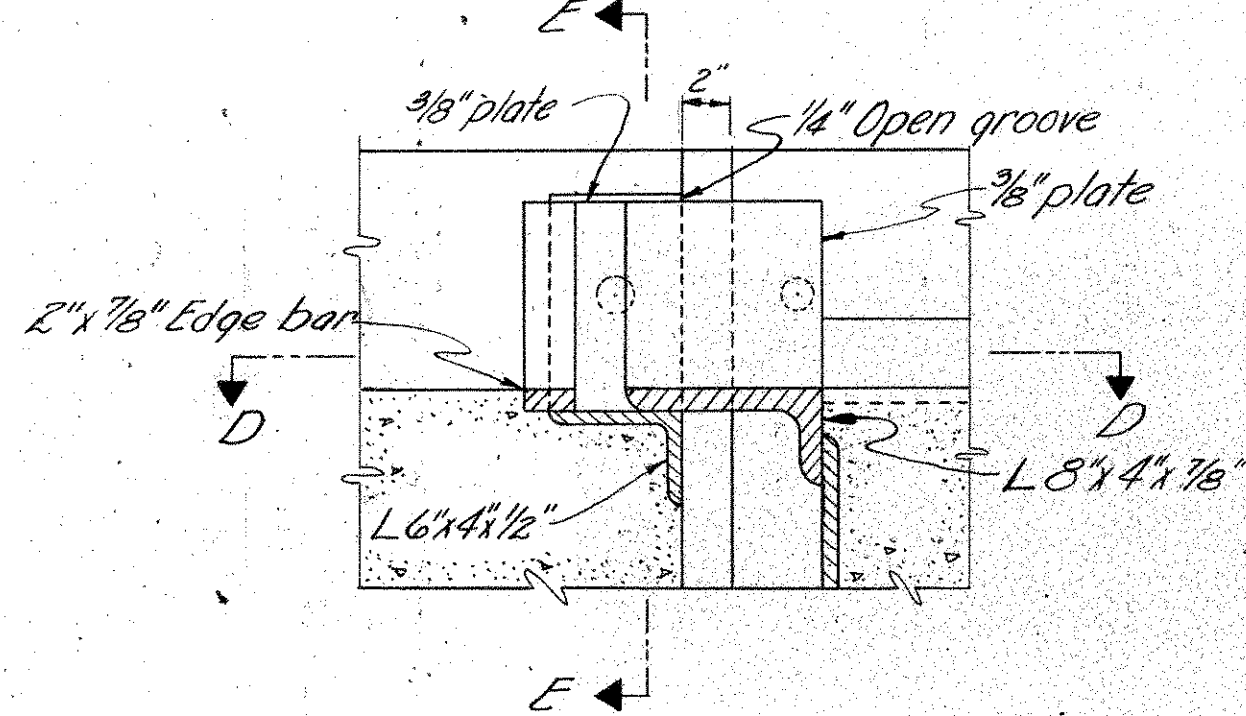
**GREENE-MONTGOMERY COUNTY**  
**GRE-69-0.08**  
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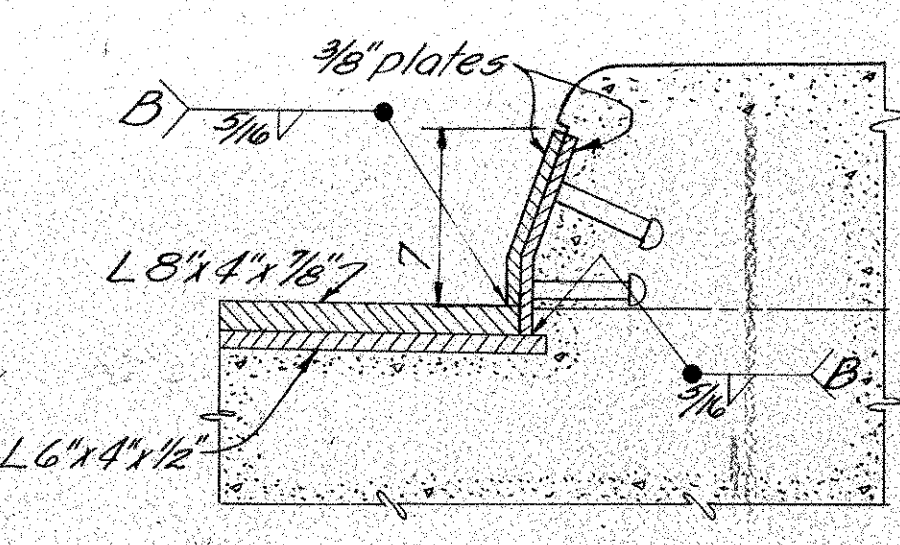
**SECTION D-D**



**PART PLAN**

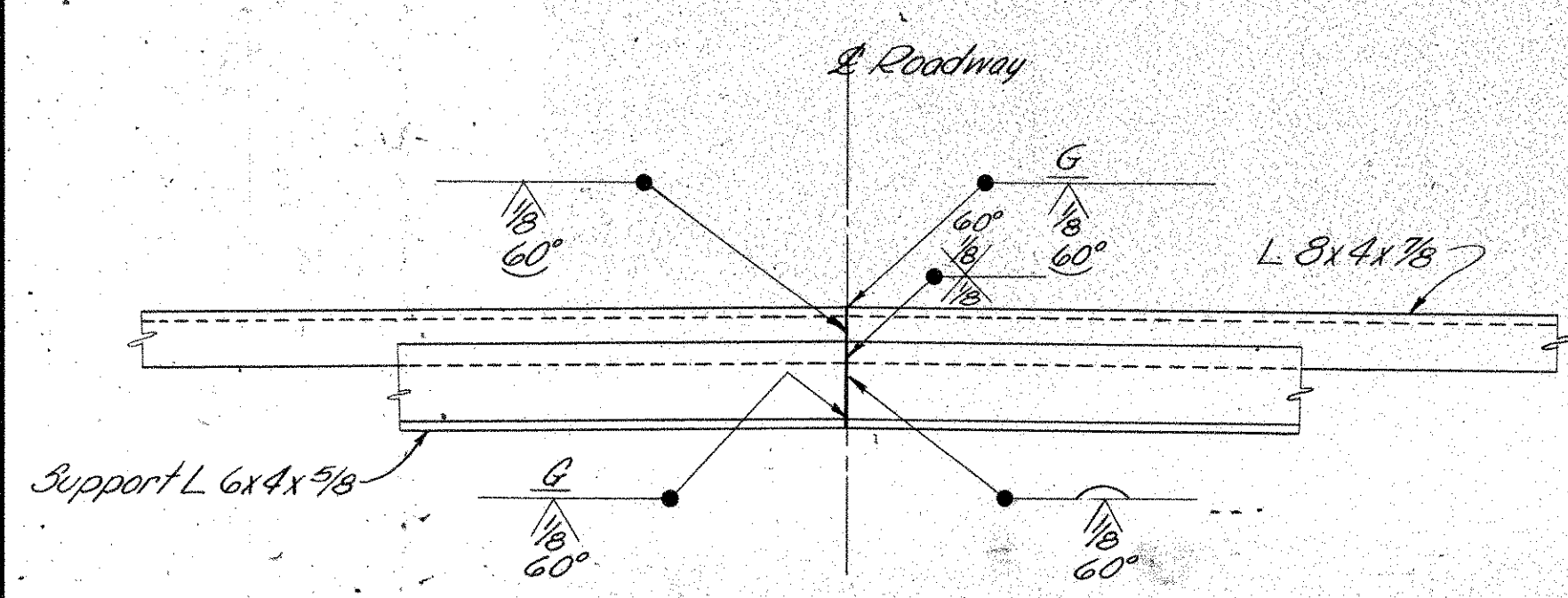


**VIEW C-C**

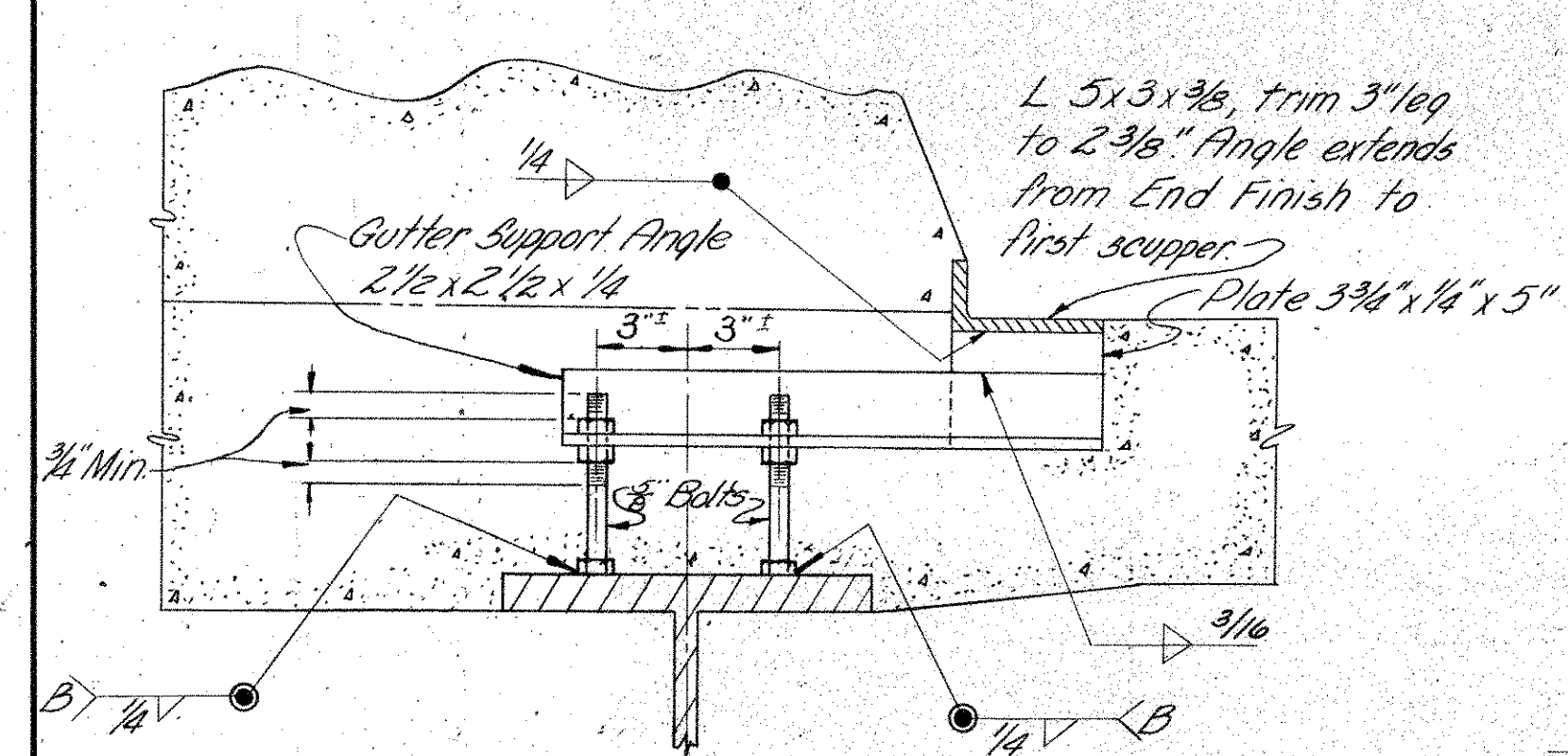


**SECTION E-E**

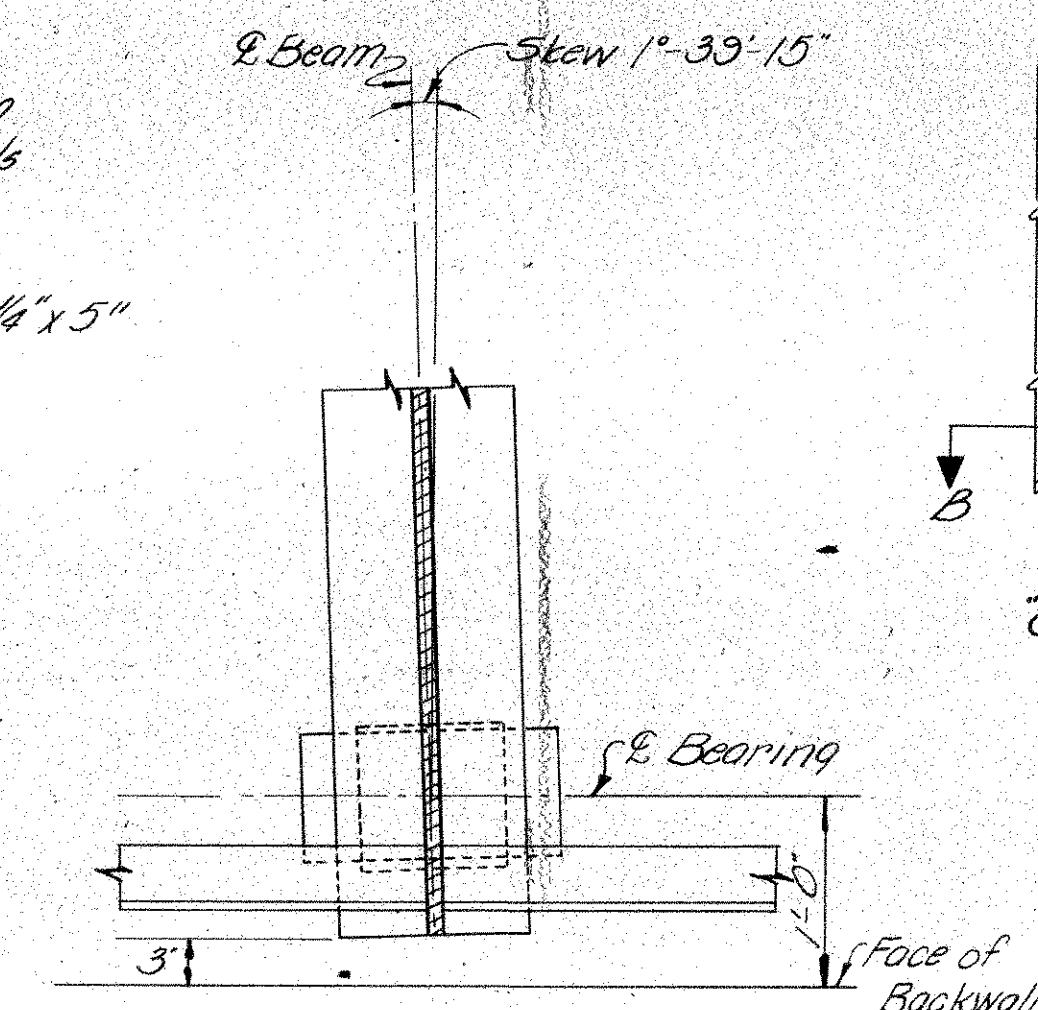
**CURB PLATE DETAILS**



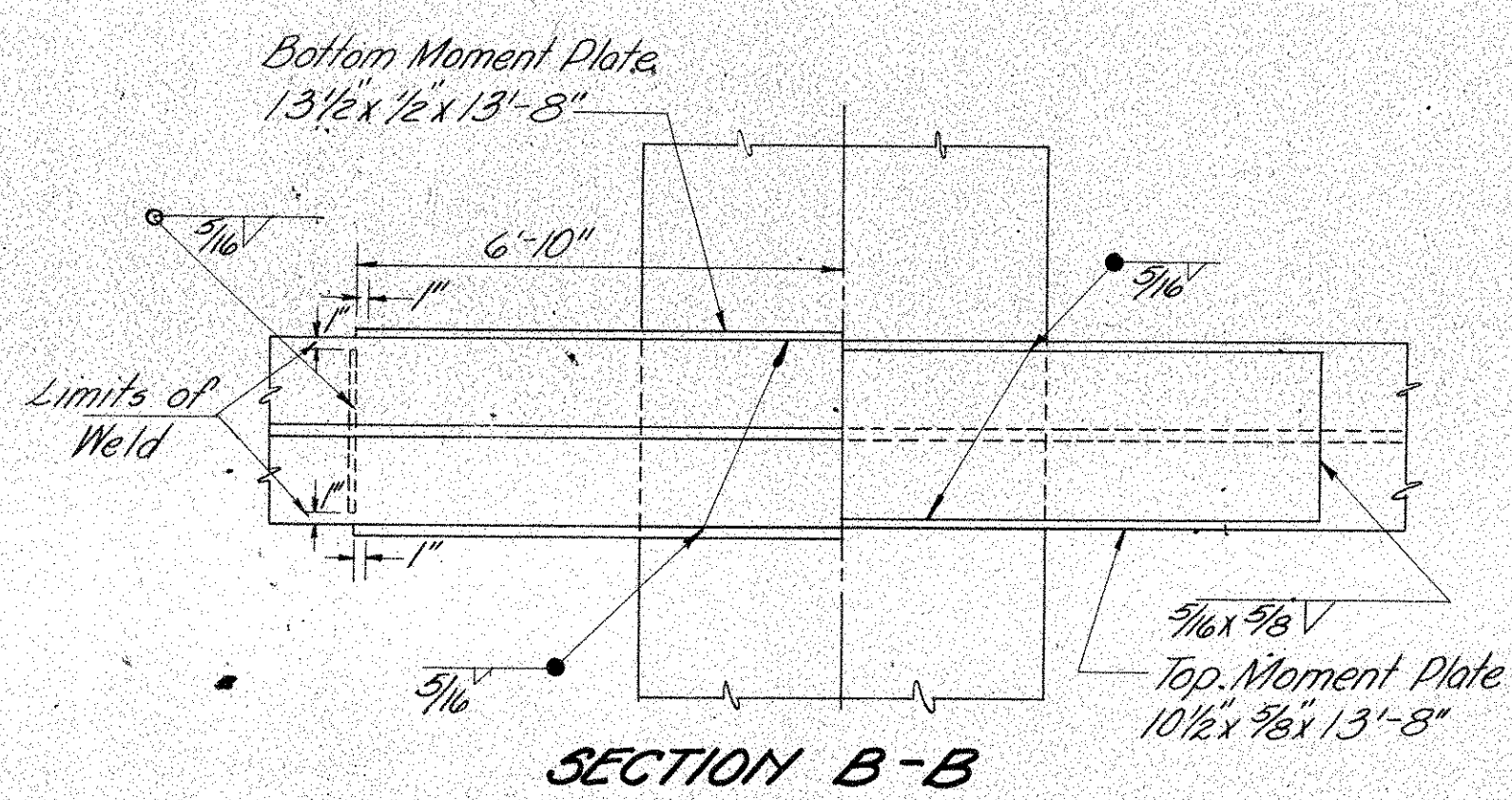
**WELDED BUTT JOINT IN SUPERSTRUCTURE END FINISH ANGLES AT E OF ROADWAY**



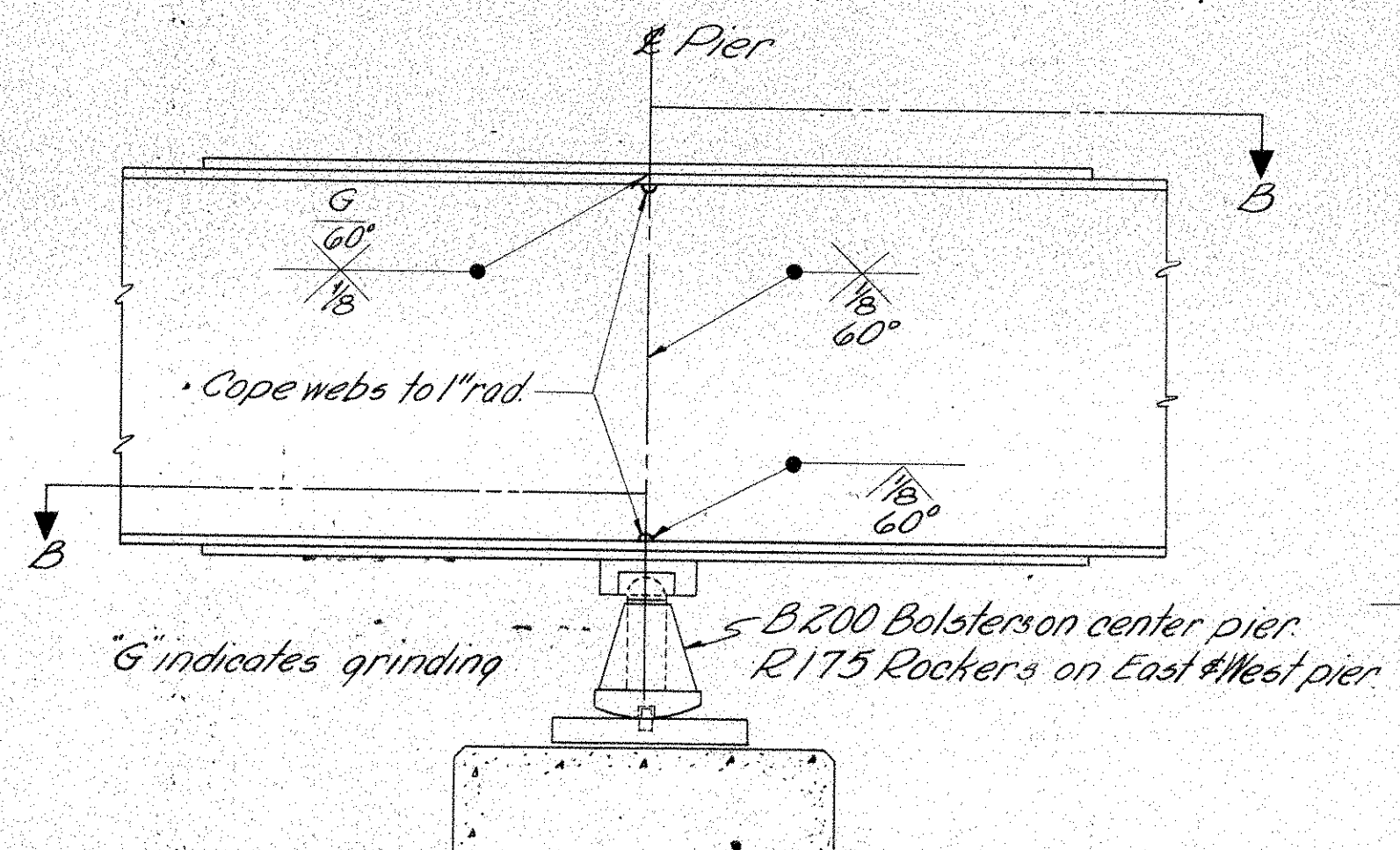
**ANGLE GUTTER DETAILS FOR DOWNY GRADE ENDS OF BRIDGE**



**SECTION F-F**



**SECTION B-B**



**BEAM SPLICE DETAIL WITH MOMENT PLATES**

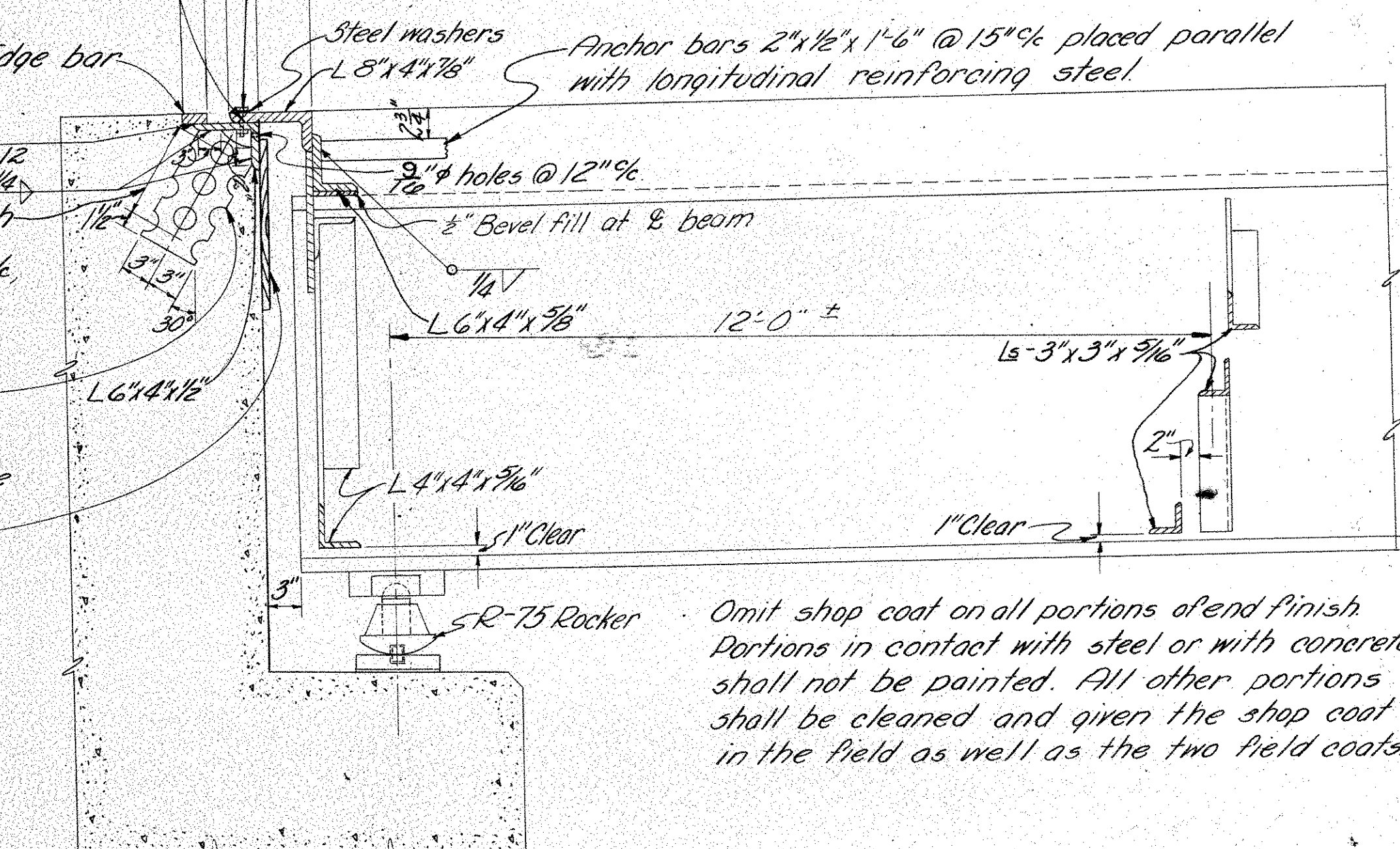
This contact surface shall not be painted and shall be lubricated with flake graphite prior to placing of backwall concrete.

A welded butt joint in the end finish along the centerline of roadway will be required for that portion of the end finish attached to the superstructure. The portion attached to the backwall shall be placed in segments not less than 6'-0" in length, with one of the joints at the apex of the crown. These shall be closely butted but shall not be welded.

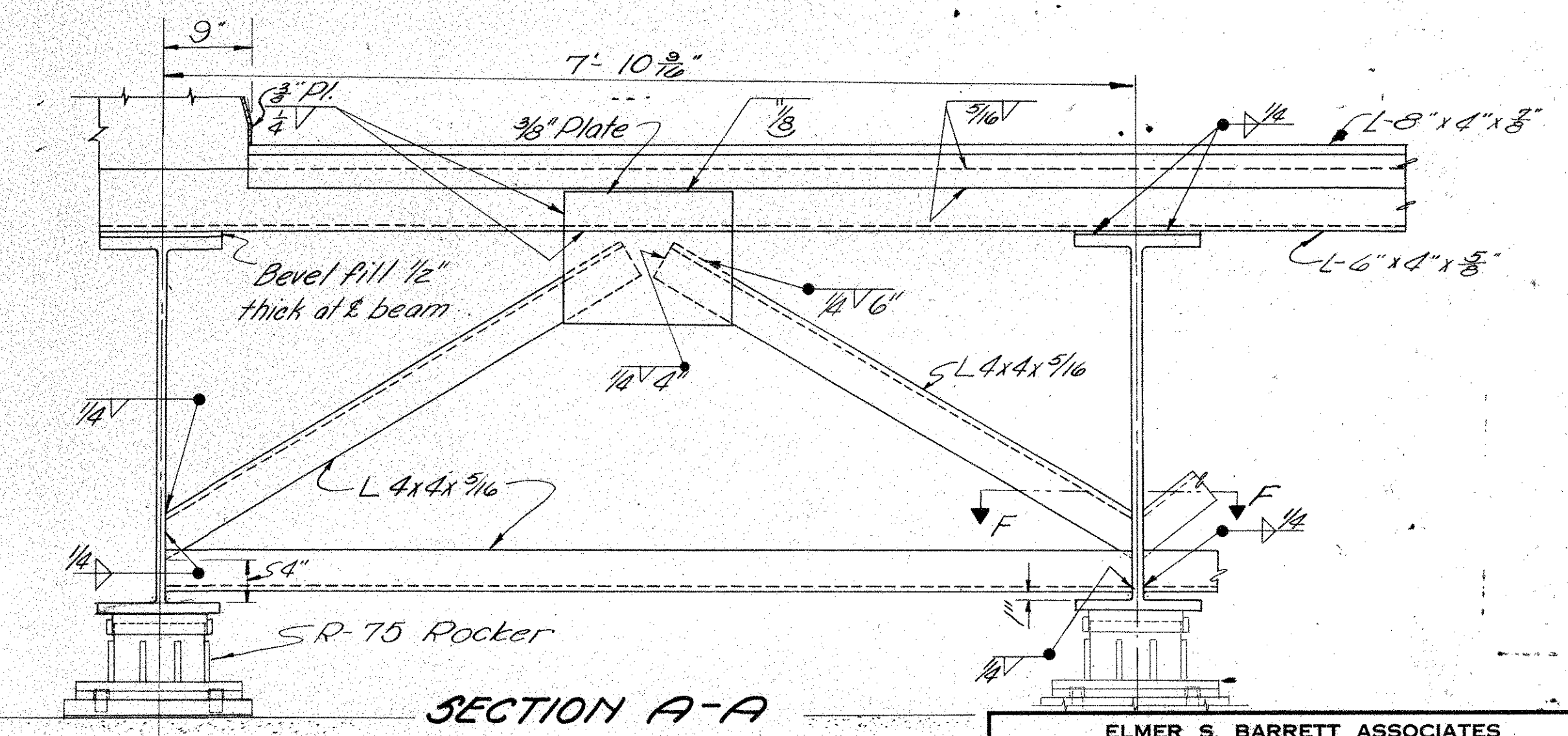
6" x 12" x 12" plates, spaced at approximately 15% except near joints in the angle, where the plates will be placed within 6" of each side of the joint. The holes may be burned in the plate.

Top of backwall form shall be below the 3/16" holes in the L 6" x 4" x 1/2"

3/8" x 2" bolts at not more than 2'-0" o.c., with nuts tack welded to under side of lower angle. 1/16" holes in upper angles. Center 3/8" bolts in 1/16" holes. Apply flake graphite between washers and angle. Turn bolt tight and release one half turn. Remove bolts as soon as concrete has been reasonably set, preferably within two hours after placing, to avoid damage of temperature expansion or contraction of superstructure. Fill holes with bituminous material.



**ROADWAY END FINISH**



**SECTION A-A**

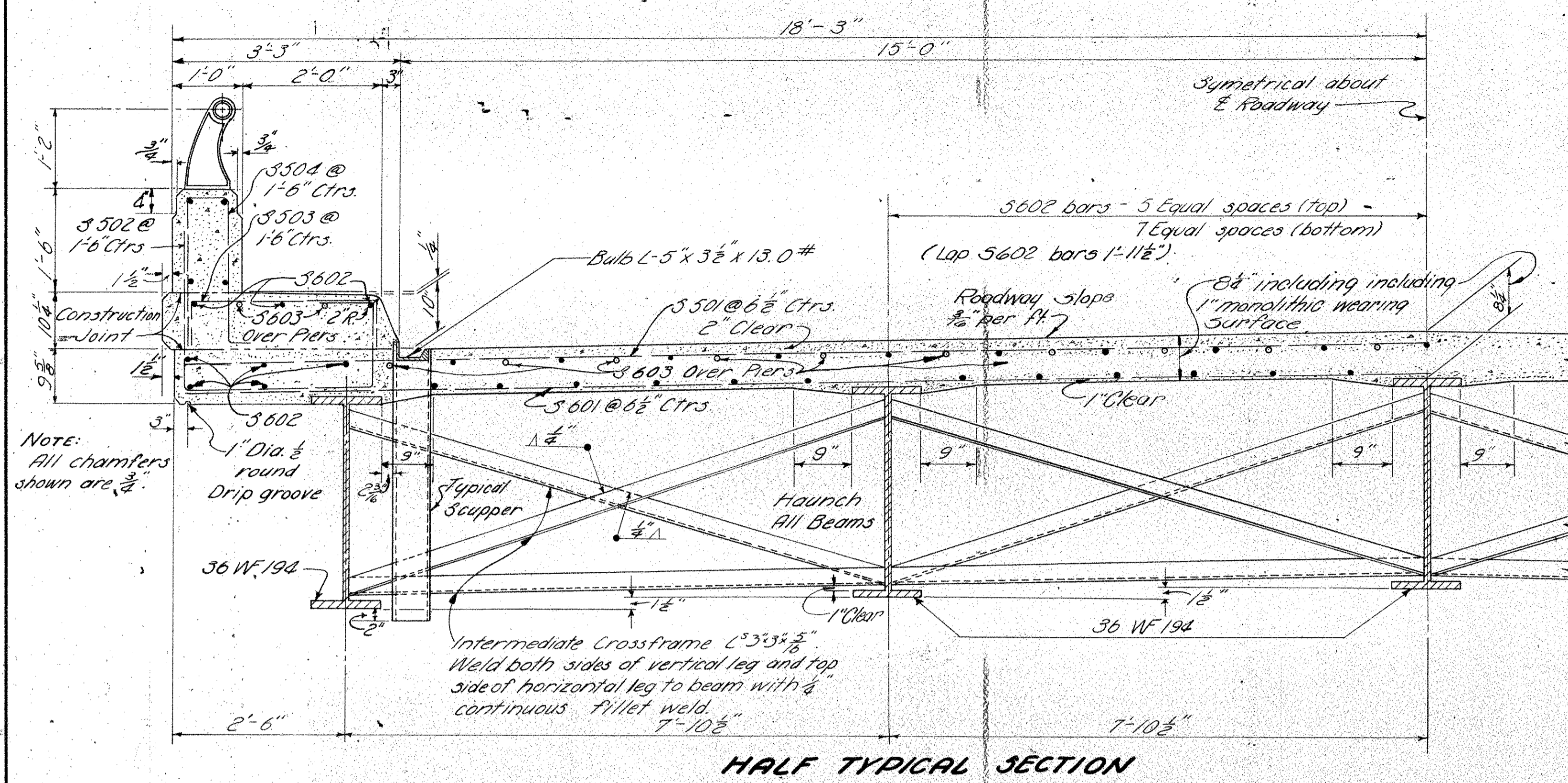
Omit shop coat on all portions of end finish. Portions in contact with steel or with concrete shall not be painted. All other portions shall be cleaned and given the shop coat in the field as well as the two field coats.

ELMER S. BARRETT ASSOCIATES  
CONSULTING ENGINEERS CHILLICOTHE, OHIO

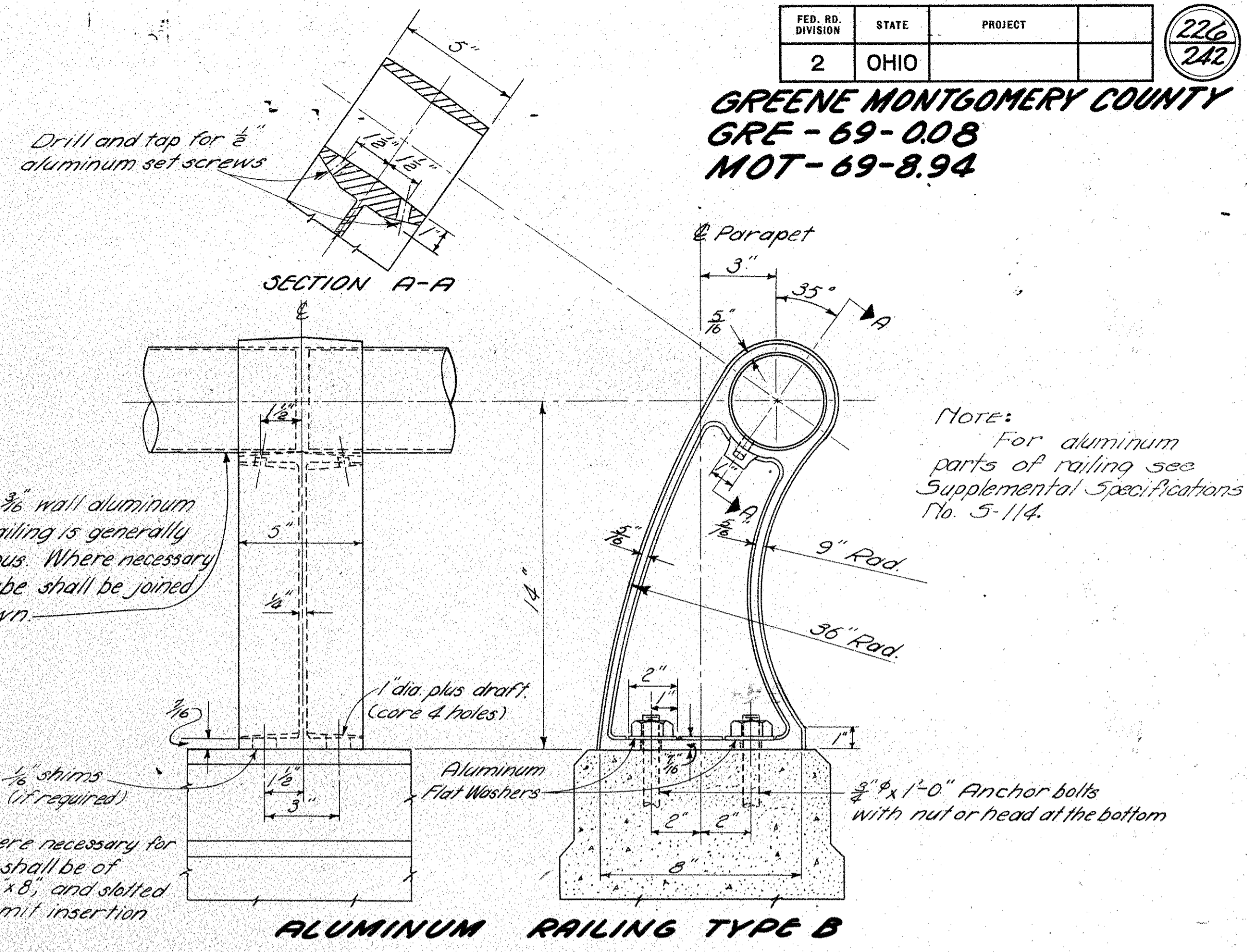
**SUPERSTRUCTURE DETAILS**  
BRIDGE NO. MOT-69-0601  
S.R.69 UNDER S.R.235  
GREENE-MONTGOMERY COUNTY S.R. 69  
STA. 317+20.26

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
F.H.S.	W.D.J.	W.D.J.	N/C	K.M.	5/25/57	

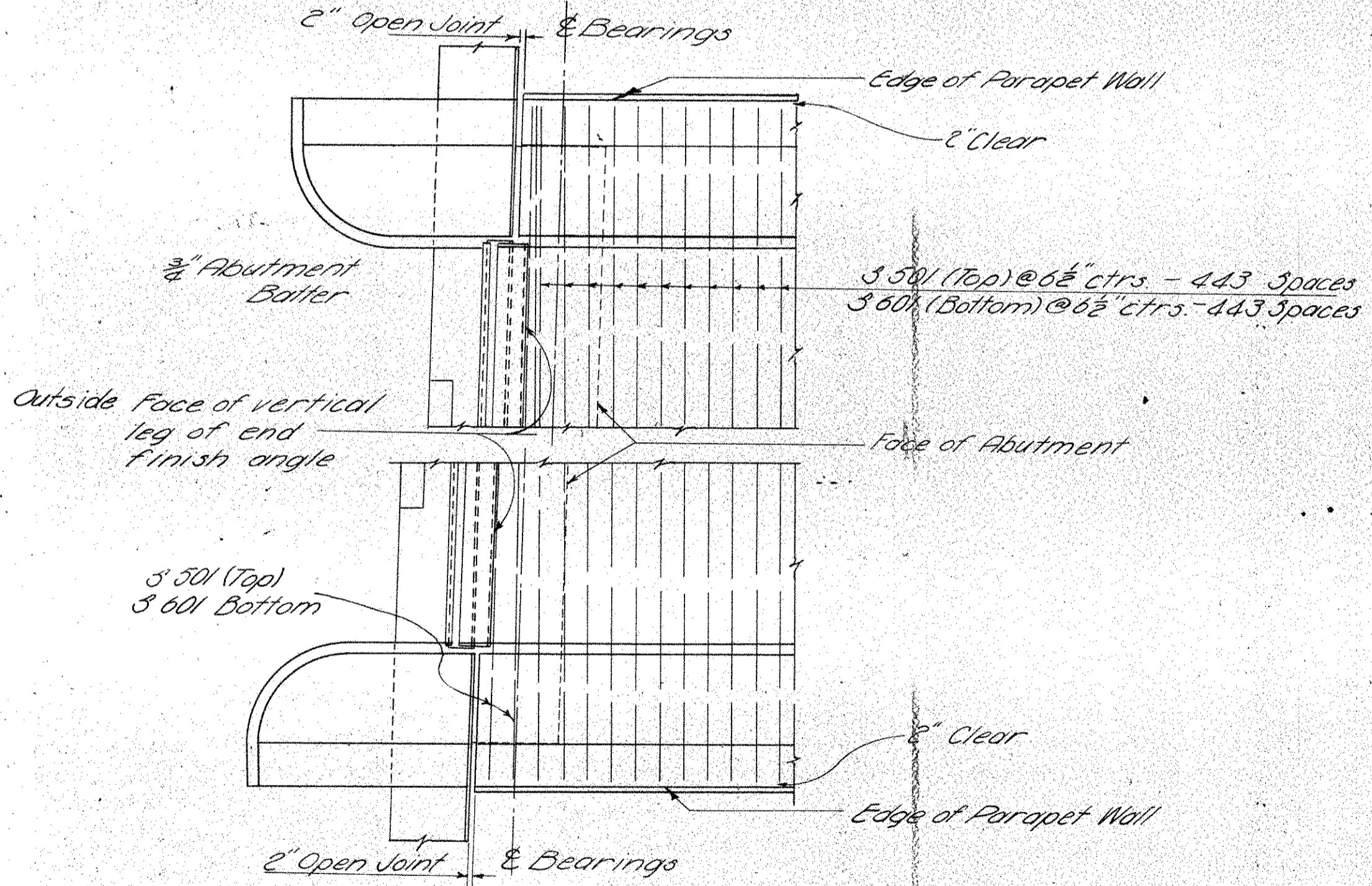
**GREENE MONTGOMERY COUNTY**  
**GRE-69-008**  
**MOT-69-8.94**



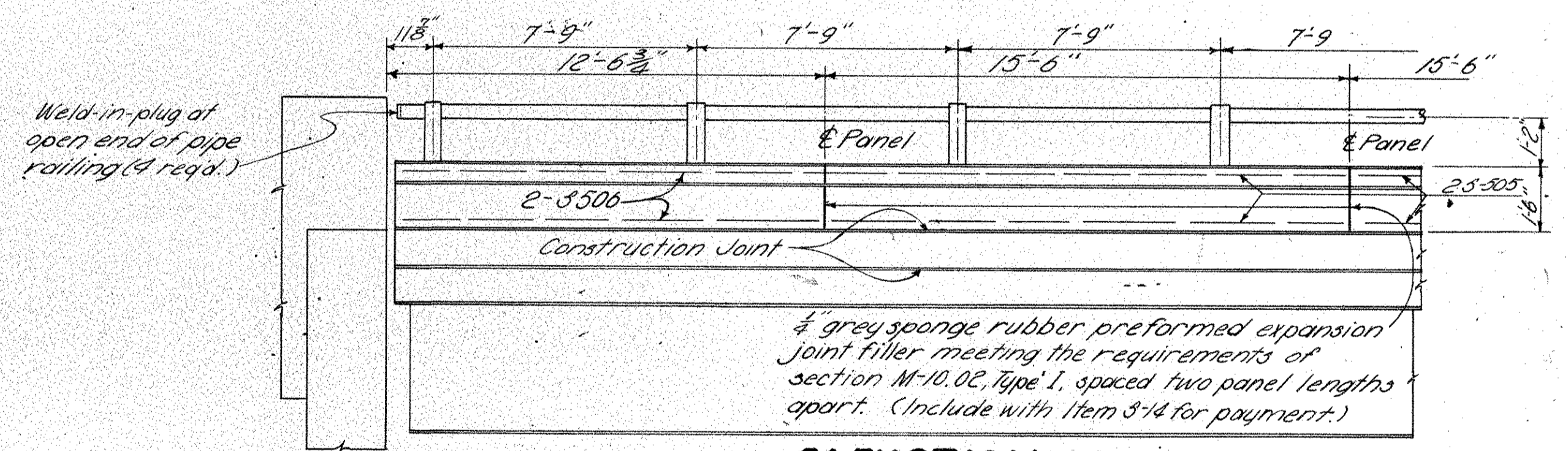
**HALF TYPICAL SECTION**



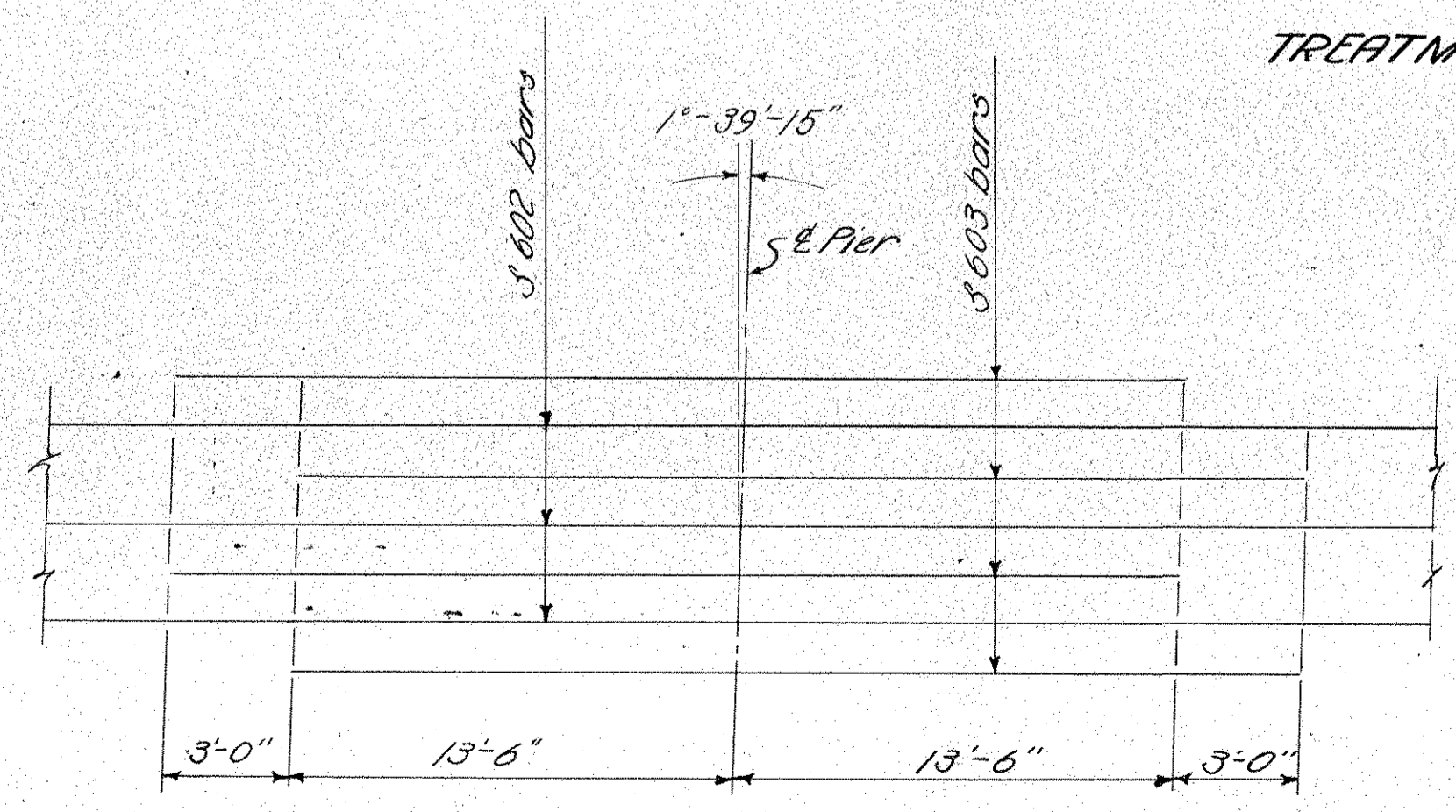
**ALUMINUM RAILING TYPE B**



**SLAB REINFORCING STEEL PLAN**



**ELEVATION TREATMENT OF PARAPET AND FASCIA**



**DIAGRAM SHOWING STAGGER OF 3603 BARS OVER PIERS**

ELMER S. BARRETT ASSOCIATES  
CONSULTING ENGINEERS  
249 S. PAINT ST. CHILLICOTHE, OHIO

**SUPERSTRUCTURE DETAILS**  
**BRIDGE NO. MOT-69-0601**  
**S.R.69 UNDER S.R.235**

GREENE-MONTGOMERY COUNTY S.R.69  
STA. 317+20.26

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
F.H.S.	U.M.S.	J.K.M.	W.C.	W.C.	2/25/57	



GREENE-MONTGOMERY COUNTY  
GRE-69-008  
MOT-69-894

## REINFORCING STEEL LIST

TWO ABUTMENTS					THREE PIERS					SUPERSTRUCTURE					REPLACEMENT					
BAR No.	No. Req'd	LENGTH	SHAPE	WEIGHT	BAR No.	No. Req'd	LENGTH	SHAPE	WEIGHT	BAR No.	No. Req'd	LENGTH	SHAPE	WEIGHT	BAR No.	No. Req'd	LENGTH	SHAPE	WEIGHT	
A601	62	16'-6"	Bent	1537	F1001	126	7'-7"	Bent	4111	S501	448	36'-2"	Str	24,336	RE1004	2	7'-7"	Str		
A501	50	4'-5"	Bent	230	F802	27	10'-8"	Bent	769	S502	472	31'-10"	Str	22,568	RE1001	1	7'-3"	Str		
A502	70	6'-0"	Bent	438	F601	108	8'-2"	Bent	1325	S503	324	3'-9"	Bent	1,267	RE602	3	5'-11"	Str		
A503	70	3'-9"	Str	274	P1004	126	18'-3"	Str	9895	S504	324	5'-3"	Bent	1,774	RE515	2	4'-3"	Str		
A504	24	34'-0"		851	P1102	6	38'-10"	Bent	1238	S505	112	15'-2"	Str	1,772	RE401	1	5'-3"	Bent		
A505	40	8'-10"		369	P1103	6	39'-7"	Bent	1262	S506	16	12'-0"	Str	200						
A506	8	5'-10"		49	P1101	6	19'-9"	Str	630	TOTAL SUPERSTRUCTURE 74,228										
A507	32	9'-3"		309	P1001	6	32'-11"	Str	850											
A508	8	8'-9"		73	P1002	6	33'-9"	Str	871											
A509	8	8'-3"		69	P1003	6	34'-1"	Str	880											
A510	8	7'-9"		65	P501	132	7'-3"	Bent	998											
A511	8	7'-3"		61	P502	6	31'-6"	Str	197											
A512	8	6'-9"	Str	56	P1005	12	9'-11"	Bent	512											
A513	8	10'-4"	Bent	86	TOTAL THREE PIERS 24,259															
A514	16	10'-3"	Bent	171	SPIRAL															
A515	16	4'-3"	Str	71	BAR No.	No. Req'd	COIL DIA.	LENGTH	PITCH	No. of TURNS	WEIGHT									
A516	24	6'-5"	Str	161	S9401	9	32"	15'-0"	4 1/2"	43	2,499									
A517	16	3'-5"	Str	57																
TOTAL TWO ABUTMENTS				4,927																

### NOTES

The "Length" shown in steel list for the spiral bars is the distance from the top of the footing to the top of the vertical reinforcing bars.

The "No. of Turns" shown in the steel list for spiral bars is the "Length" divided by the pitch, plus 3 turns (total number of closed coils), expressed as the nearest whole number.

Spiral reinforcing bars shall not have deformations but shall in other respects conform to Item 5-4.

1/2 closed coils shall be provided at the ends of each spiral unit.

Four steel channel, tee or angle spacers, weighing approximately 0.68 lb per lin. ft. of spacer, shall be provided for each spiral unit. They shall be equally spaced along the periphery of the coil. The number of pounds of these spacers, based on 0.68 lb. per lin. ft. will be paid for as reinforcing steel and is included in the tabulated quantity of spiral bars.

BAR SIZE is indicated in the bar mark. The first digit where three digits are used, and the first two digits where four are used, indicate the bar size number. For example, A501 is a No. 5 size bar and A1001 is a No. 10 size.

REPLACEMENT BARS: If reinforcing bars are fabricated from stock which has previously been tested and approved by the Ohio Highway Testing Laboratory, test sample as provided in Sec. 5-402 need not be furnished and replacement bars will not be required.

ELMER S. BARRETT ASSOCIATES CONSULTING ENGINEERS 249 S. PAINT ST. CHILlicothe, OHIO					
<b>REINFORCING STEEL LIST</b>					
BRIDGE NO. MOT-69-0601 S.R. 69 UNDER S.R. 235					
GREENE-MONTGOMERY COUNTY STA. 317+20.26					
SCALE _____ DATE _____					
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE
FHS	W.D.J.	W.F.S.	M.C.	K.H.W.	7/24/69