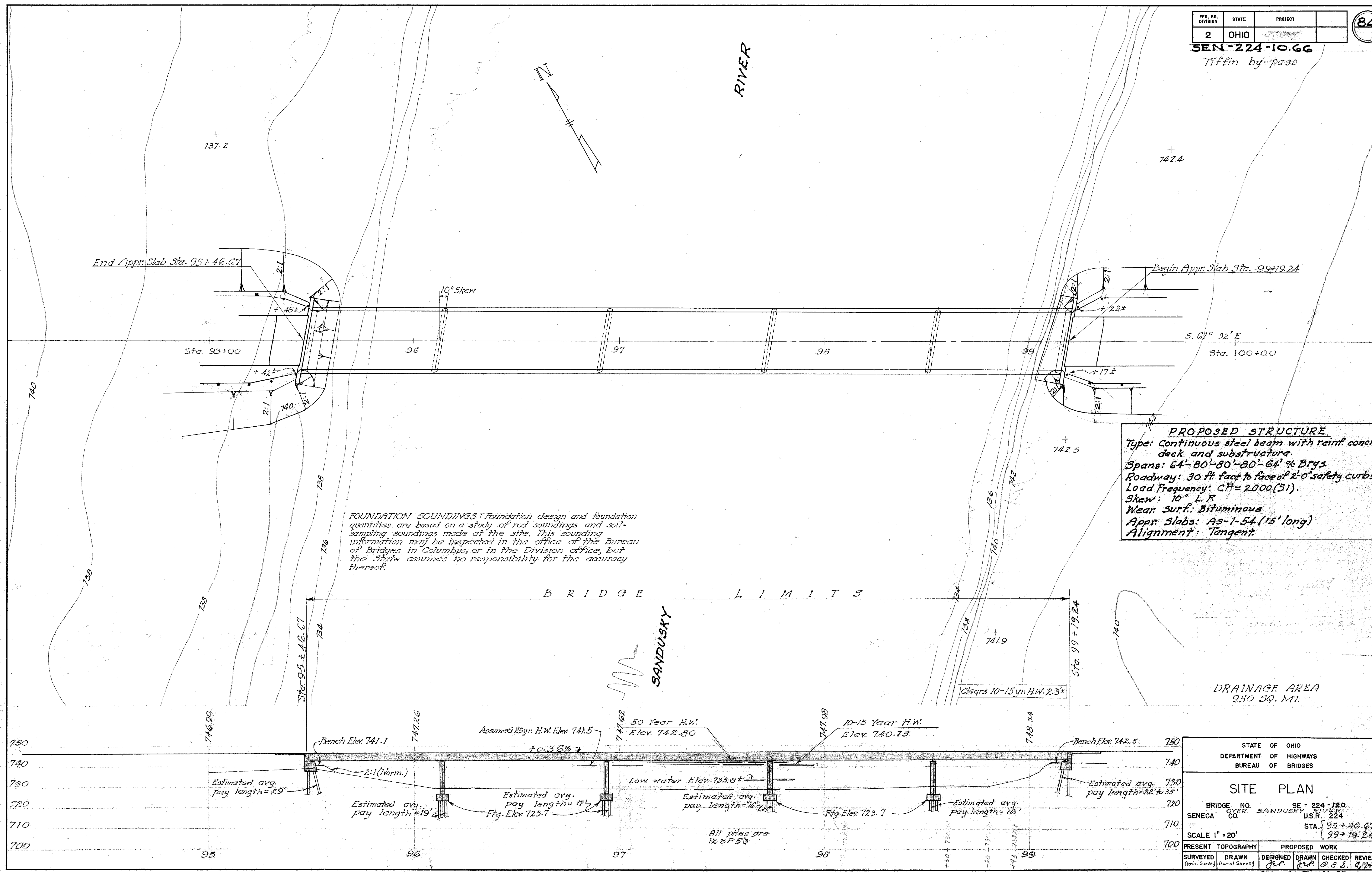


SEN-224-10.66
Tiffin by-pass



FOUNDATION SOUNDINGS: Foundation design and foundation quantities are based on a study of rod soundings and soil-sampling soundings made at the site. This sounding information may be inspected in the office of the Bureau of Bridges in Columbus, or in the Division office, but the State assumes no responsibility for the accuracy thereof.

PROPOSED STRUCTURE
 Type: Continuous steel beam with reinf. concr deck and substructure.
 Spans: 64'-80'-80'-64' 1/4 Brgs.
 Roadway: 30 ft. face to face of 2'-0" safety curbs.
 Load Frequency: CF = 2000 (51).
 Skew: 10° L.F.
 Wear Surf.: Bituminous
 Appr. Slabs: AS-1-54 (15' long)
 Alignment: Tangent.

DRAINAGE AREA
950 SQ. MI.

STATE OF OHIO			
DEPARTMENT OF HIGHWAYS			
BUREAU OF BRIDGES			
SITE PLAN			
BRIDGE NO.	SEN-224-120	SE	224-120
SENeca CO	OVER SANDUSKY RIVER	U.S.R.	224
STA.	95+46.67		99+19.24
SCALE 1" = 20'			
PRESENT TOPOGRAPHY		PROPOSED WORK	
SURVEYED	DRAWN	DESIGNED	DRAWN
Aerial Survey	Aerial Survey	J.P.P.	R.P.P.
		CHECKED	REVIEWED
		R.P.P.	R.E.S.
		C.D.A.	
BFG 987 3-30-55			

B R I D G E L I M I T S

SANDUSKY

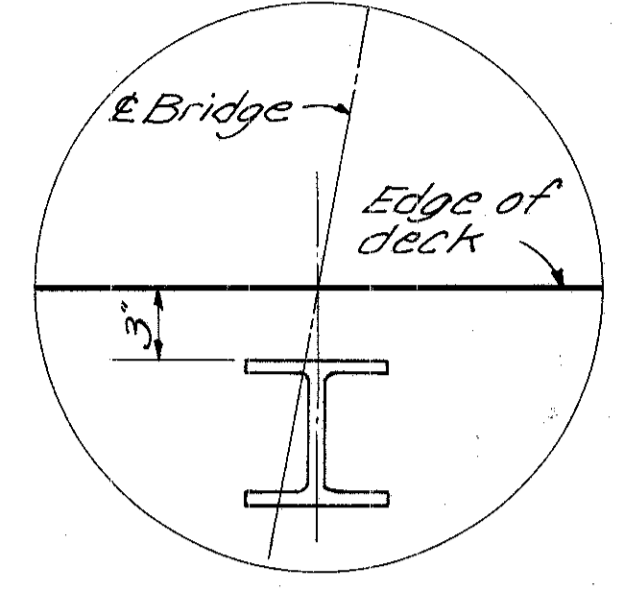
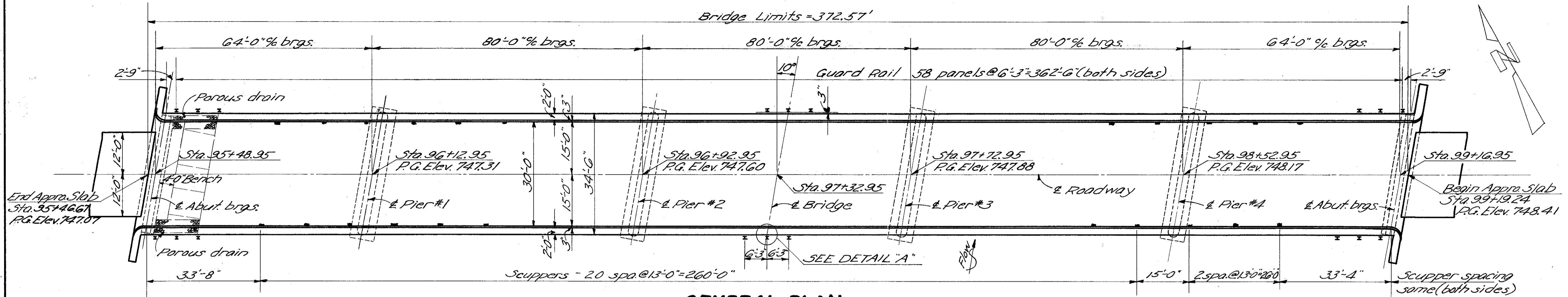
Assumed 25yr. H.W. Elev. 741.5
 50 Year H.W. Elev. 742.80
 10-15 Year H.W. Elev. 740.75

Estimated avg. pay length = 29'
 2:1 (Norm.)
 Estimated avg. pay length = 19'
 Estimated avg. pay length = 17'
 Fig. Elev. 723.7
 Low water Elev. 733.8±
 Estimated avg. pay length = 16'
 Fig. Elev. 723.7
 Estimated avg. pay length = 16'
 Estimated avg. pay length = 32' to 35'

All piles are 12 SP 53

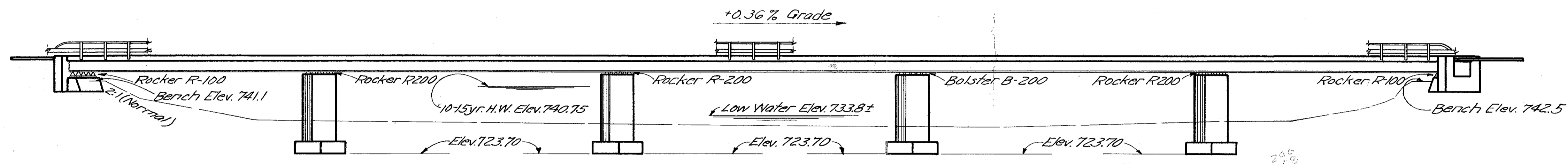
Clears 10-15 yr. H.W. 2.3±

SEN-224-10.66



GENERAL PLAN

DETAIL "A"



ELEVATION
Abutment and Pier piling not shown.

GENERAL NOTES

REFERENCE shall be made to Standard Drawing RB-1-47, revised 7-27-49.

DESIGN SPECIFICATIONS: This set of drawings conforms to the requirements of "Design Specifications for Highway Structures of the State of Ohio, Department of Highways, dated October 1, 1951, together with revisions thereof dated July 15, 1952, April 1, 1954 and Feb. 1, 1955.

PILES shall be driven to firm contact with rock which shall be considered as attained when the capacity according to the formula in Sec. 5-18.05 is at least 30 tons per pile for the pier piles and 35 tons for the abutment piles if a 7000 # steam hammer is used, or 40 tons for the pier piles and 25 tons for the abutment piles if a steam hammer or drop hammer of 15,000 # or greater energy is used and if the length of penetration is approximately equal to the depth to rock according to the bridge foundation investigation report. If the energy rating of the hammer is between these values, the required formula capacity shall be determined by interpolation. (The design load is 27 tons per pile for the pier piles and 21 tons for the abutment piles.)

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

POROUS DRAINS, at both rear corners of the bridge, shall be 4 ft. wide, one foot thick, and shall extend to Elev. 737.

GRAVEL, if used as the coarse aggregate, shall be according to Sec. M-3.93 instead of M-3.91 for Class "C" concrete in the superstructure. Gravel meeting the requirements of Sec. M-3.93 also may be used for other concrete in this structure.

WELDING 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 shown thus $\overline{\text{---}}$.

WELDED STEEL: The steel for the 33WF220 beams shall conform to A.S.T.M. Designation A-373. All other structural steel shall conform to either A.S.T.M. A-7 (as per Sec. M-74 (a) of the Construction and Material Specifications) or to A-373.

END FINISH shall be copper-bearing steel. A welded butt-joint in the end finish, at 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 which shall be closely butted, with one of the joints at the apex of the crown, but shall not be welded.

SURFACE FINISH OF CONCRETE: Curb faces and fascias of deck shall receive a rubbed surface finish. All other exposed surfaces shall be governed by the provisions of Item S-1.

RAILING: The guard rail and hand rail shall be painted white in accordance with Section I-15.07 of the Construction and Material Specifications. The galvanized posts and anchor bolts shall not be painted. The price per linear foot of railing, between the bridge limits, shall include payment for guard rail, hand rail, posts, anchors, connections, galvanizing and painting.

99 + 19.24
95 + 46.67
3 72.57

ESTIMATED QUANTITIES

ITEM	TOTAL	UNIT	DESCRIPTION	SUPERST.	ABUTS.	PIERS	GENERAL	As-Built
E-2	Lump	Sum	Cofferdams, cribs and sheeting.				Lump	
E-2	370	Cu. Yd.	Unclassified excavation.		80	290		
S-1	369	Cu. Yd.	Class "C" concrete, superstructure.	369				
S-1	202	Cu. Yd.	Class "E" concrete, pier walls.			202		
S-1	103	Cu. Yd.	Class "E" concrete, abutments.		103			
S-1	116	Cu. Yd.	Class "E" concrete, pier footings.			116		
S-3	1,234	Sq. Yd.	Type "C" waterproofing.	1,234				
S-4	122,796	Lb.	Reinforcing steel.	111,173	108,794	5,445	8,572	125,819
S-7	483,900	Lb.	Structural steel.	483,900				486,437
S-8	483,900	Lb.	Field painting of structural steel.	483,900				486,437
S-14	745.14	Lin. Ft.	Railing type I-15.13 with hand rail and galv. steel posts.	745.14				745.14
S-16	Lump	Sum	First test pile.				Lump	
S-18	2,270	Lin. Ft.	Steel piling, 12 BP53.		630	1640		1685
S-29	4	Cu. Yd.	Porous drains on embankment slopes.				4	
T-35	84	Cu. Yd.	Asphaltic concrete surface course, Type Bar "C" (70-80).	84				

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
DIVISION OF DESIGN AND CONSTRUCTION
BUREAU OF BRIDGES

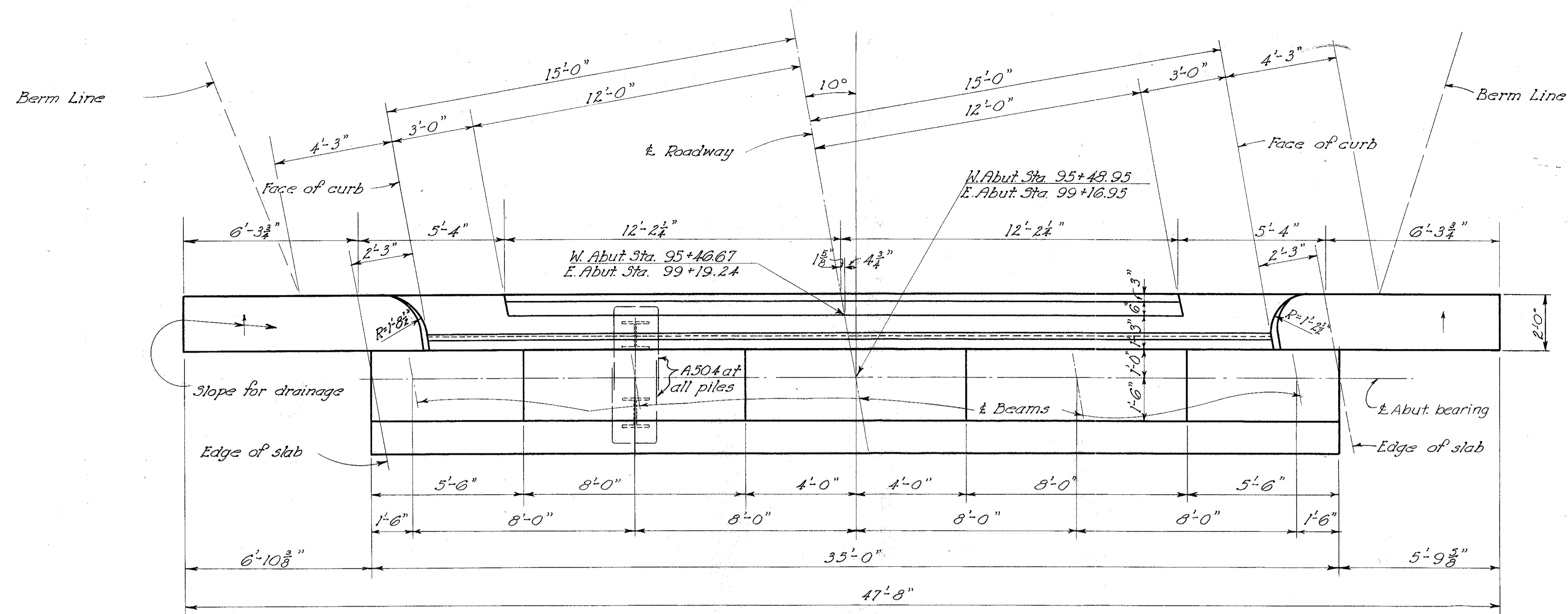
GENERAL PLAN, ELEVATION & NOTES & ESTIMATED QUANTITIES.

BRIDGE NO. SE-224-120
OVER SANDUSKY RIVER

SENECA COUNTY STA. 95+46.67
STA. 99+19.24

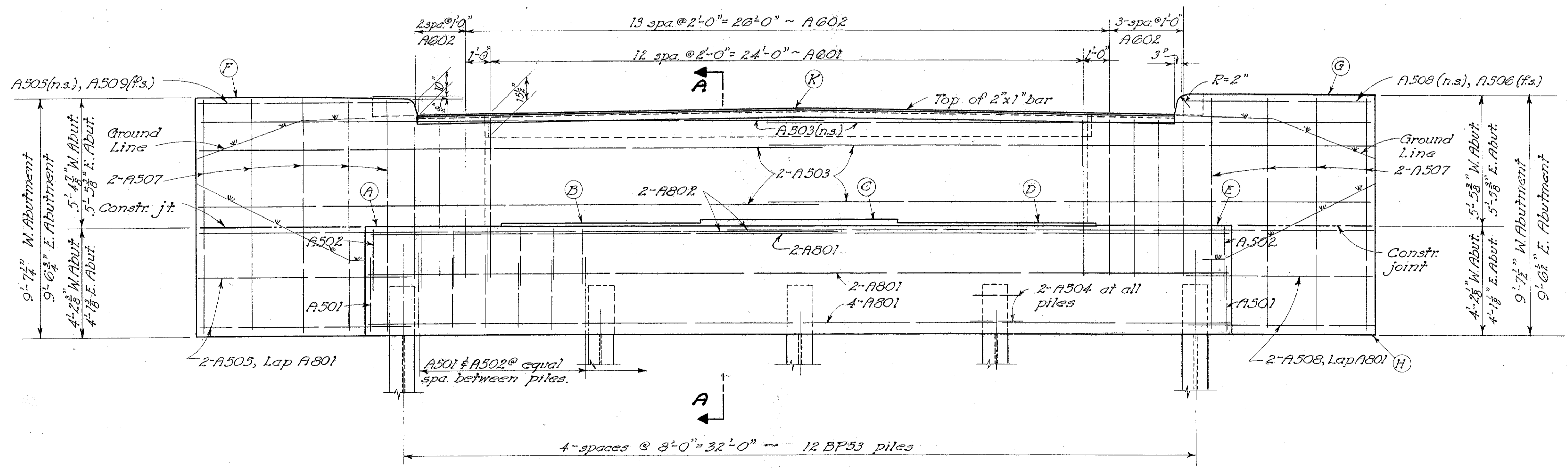
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
Blair	Blair	EA	R.H.N.	BFG	9-9-58	1-17-59

Revised As-Built 1-10-58 JVP

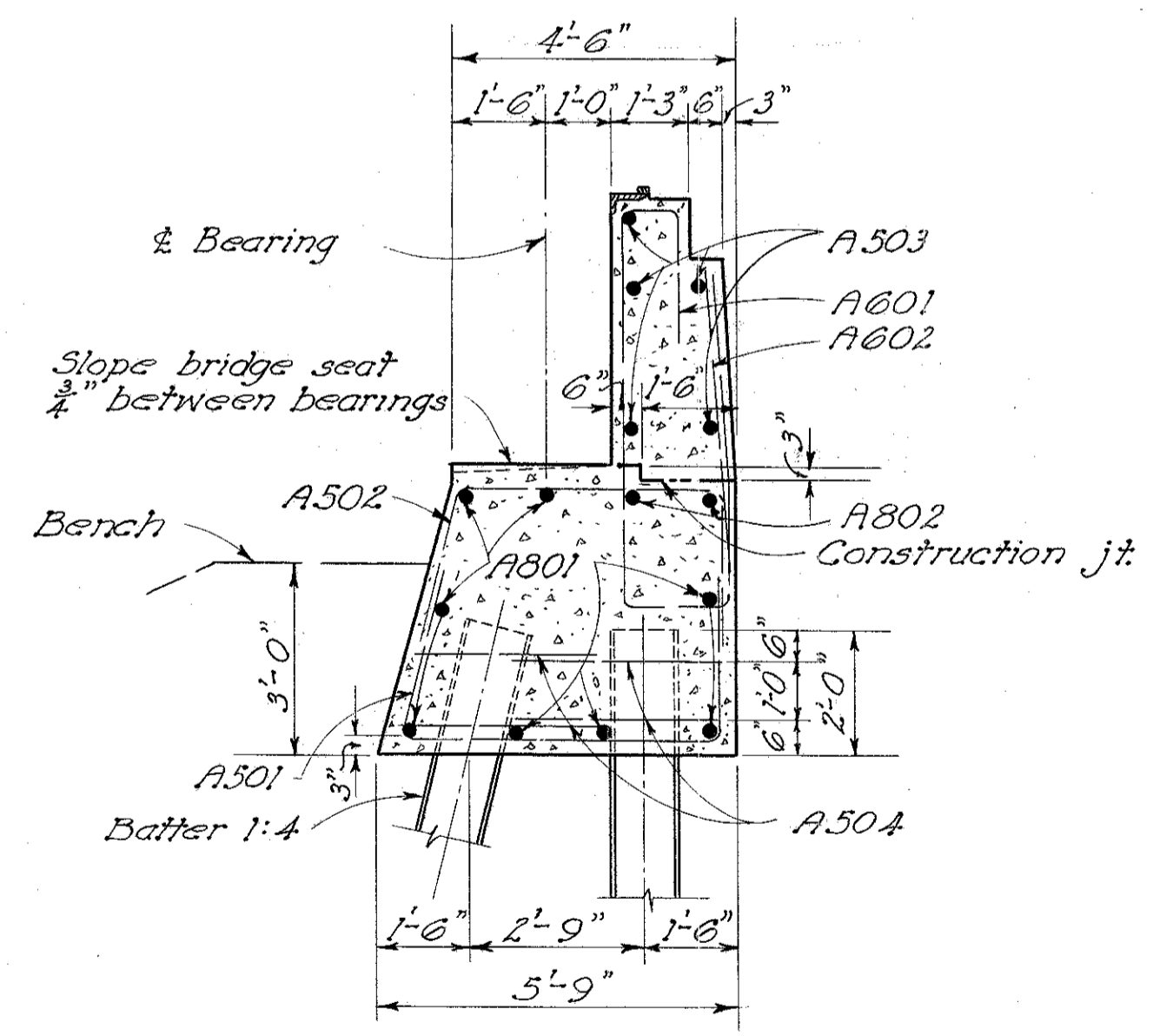


~ ABUTMENT PLAN ~

NOTE:
 All earth fill shall be made full height of earth bench. Excavation then shall be made for abutment cap, after which piling shall be driven.
 Concrete above bridge seat construction joint shall not be placed until after steel work is erected. Steel end finish shall be used as a template for top of backwall.
 All reinforcing steel shall be 2" clear from surface of concrete unless otherwise shown.



~ ABUTMENT ELEVATION ~



SECTION A-A

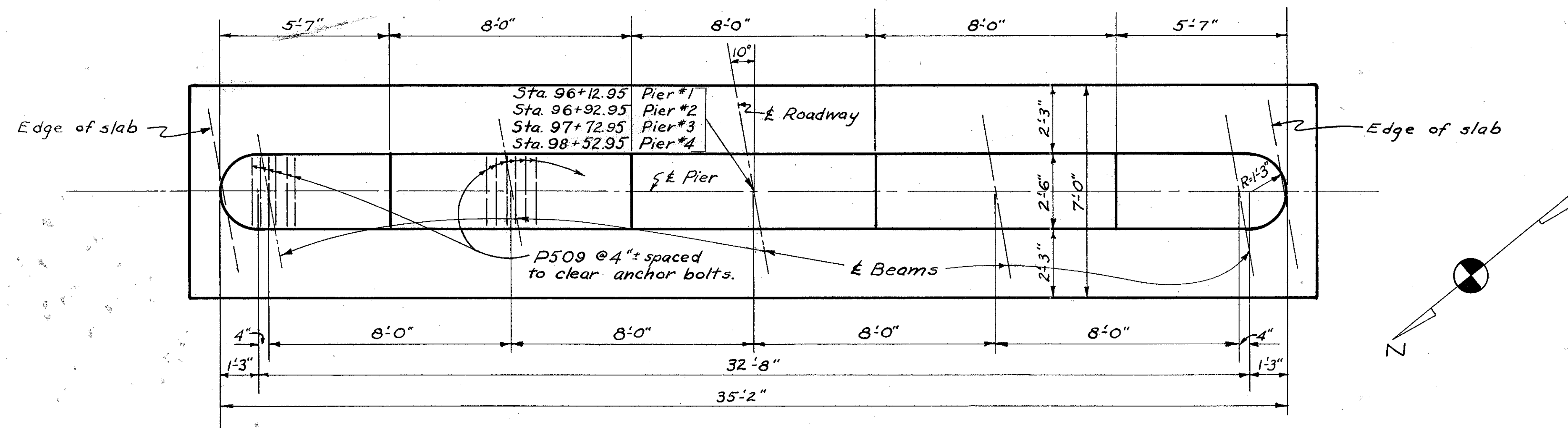
ELEVATIONS	
W. Abut.	E. Abut.
A	742.30
B	742.42
C	742.54
D	742.42
E	742.28
F	747.70
G	747.72
H	739.10
K	747.07

STATE OF OHIO
 DEPARTMENT OF HIGHWAYS
 DIVISION OF DESIGN AND CONSTRUCTION
 BUREAU OF BRIDGES

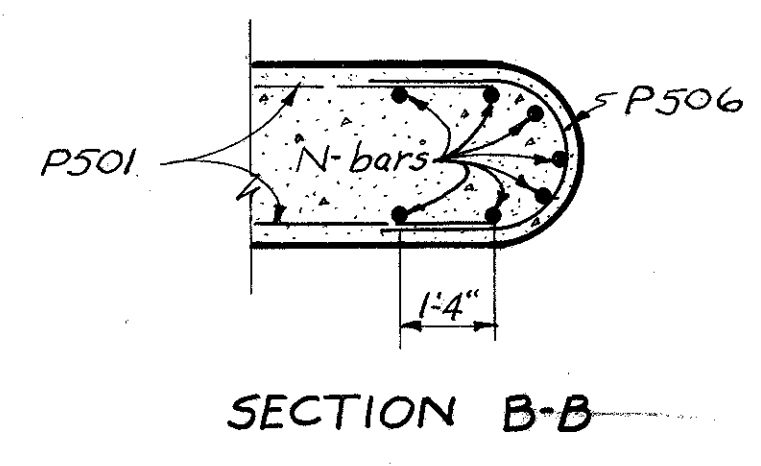
ABUTMENT DETAILS
 BRIDGE No. 5E-224-120
 OVER SANDUSKY RIVER

SENECA COUNTY Sta. 95+46.67
 Sta. 99+19.24

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
D.G.A.	D.G.A.	P.G.	R.H.W.	B.F.G.	9/2/55	3-30-55

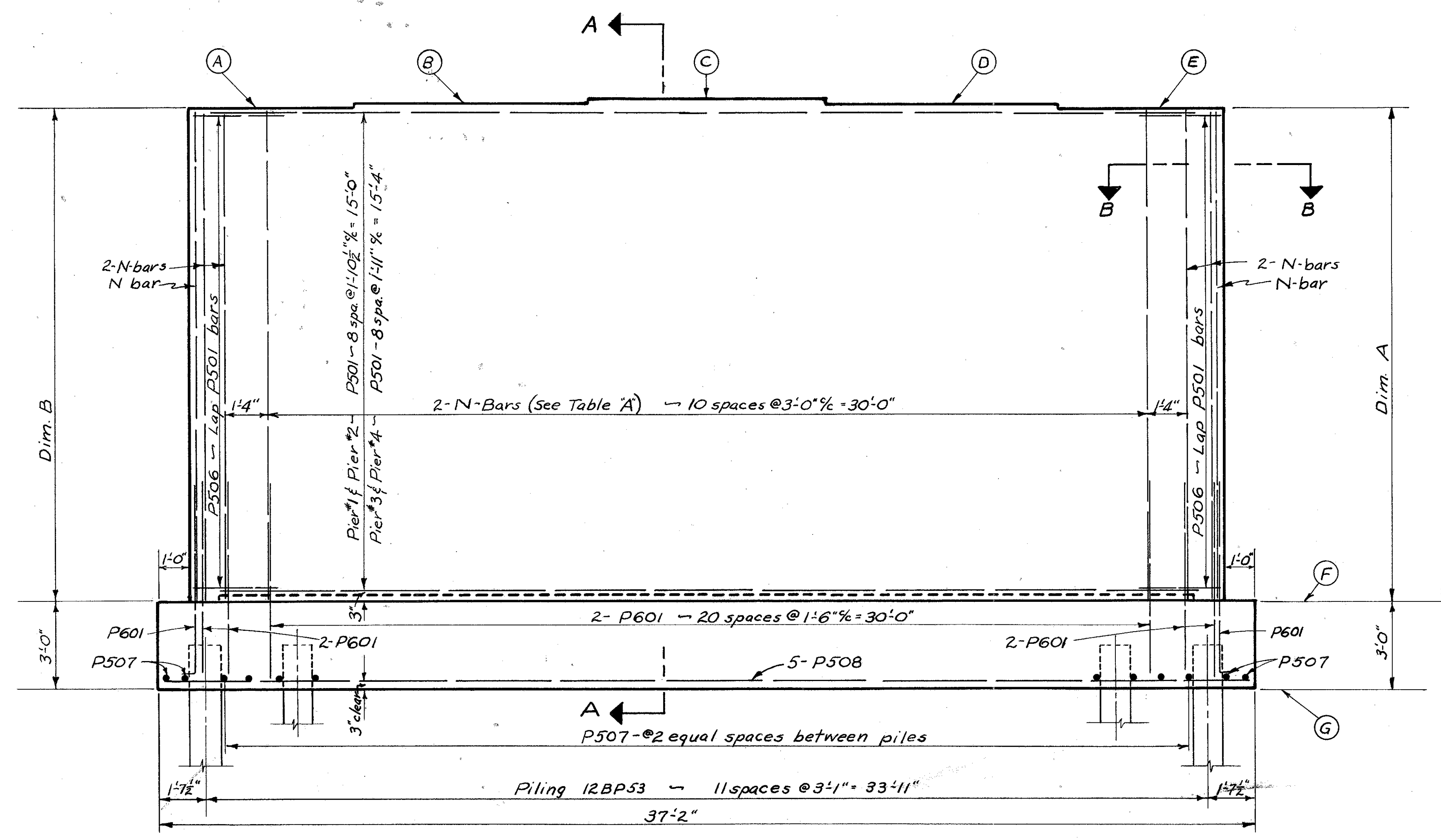


PIER PLAN

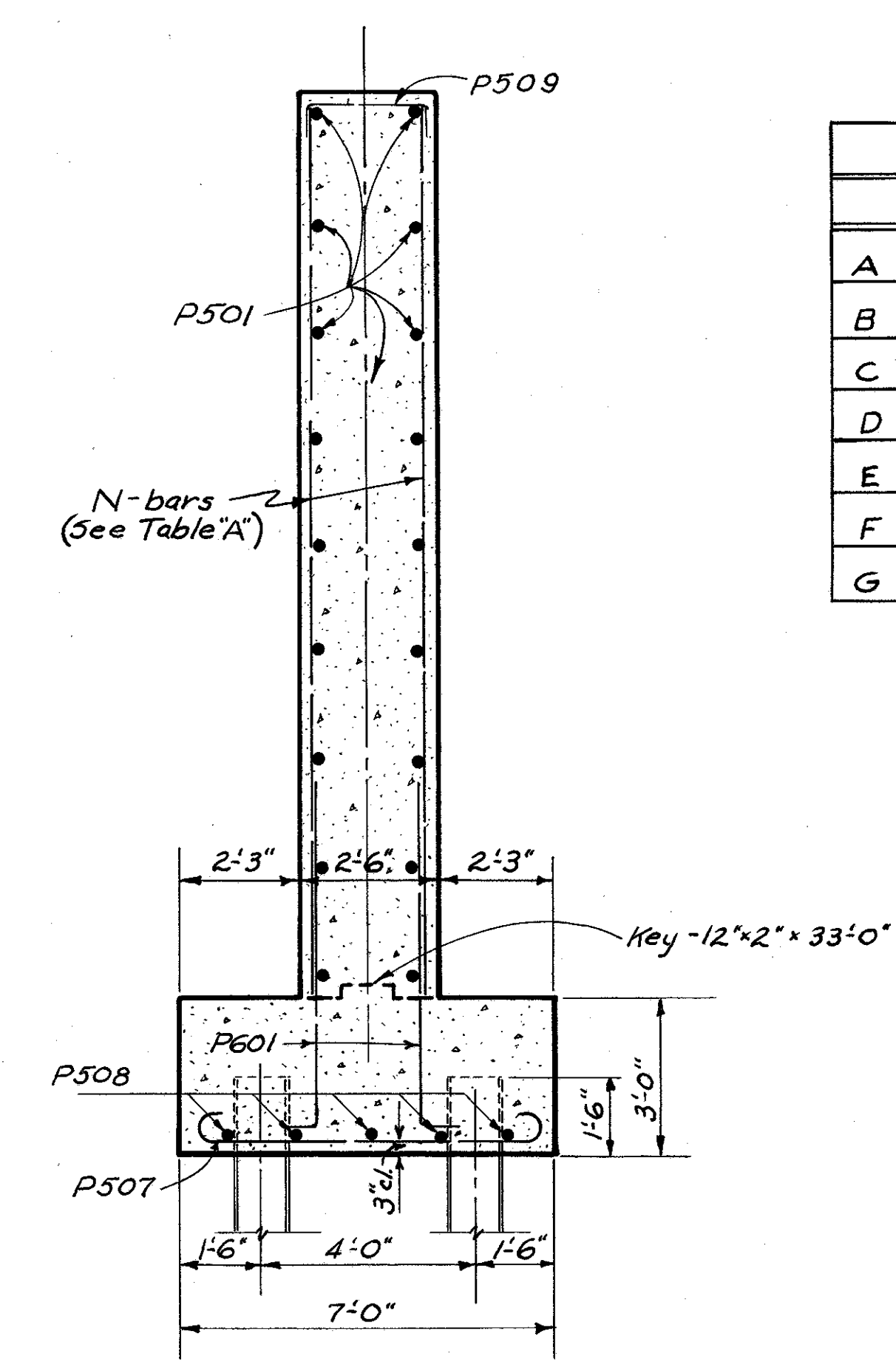


SECTION B-B

	Dim. A	Dim. B	N-Bars
PIER #1	15'-3 1/2"	15'-3 3/4"	P502
PIER #2	15'-7"	15'-7 1/4"	P503
PIER #3	15'-10 3/8"	15'-10 1/2"	P504
PIER #4	16'-1 3/4"	16'-2"	P505



PIER ELEVATION



SECTION A-A

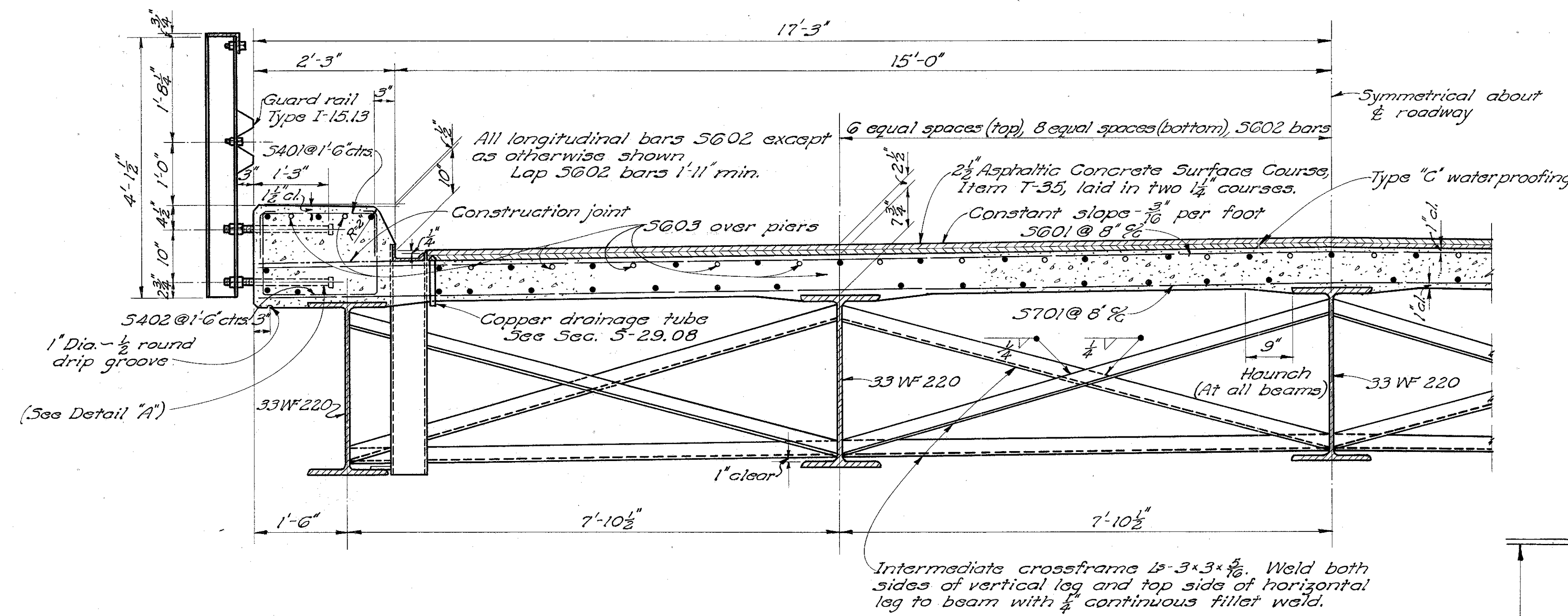
	PIER #1	PIER #2	PIER #3	PIER #4
A	742.01	742.30	742.58	742.87
B	742.13	742.42	742.70	742.99
C	742.25	742.54	742.82	743.11
D	742.12	742.41	742.69	742.98
E	741.99	742.28	742.56	742.85
F	726.70	726.70	726.70	726.70
G	723.70	723.70	723.70	723.70

Note:
All reinforcing steel shall be 2" clear from surface of concrete unless otherwise shown.

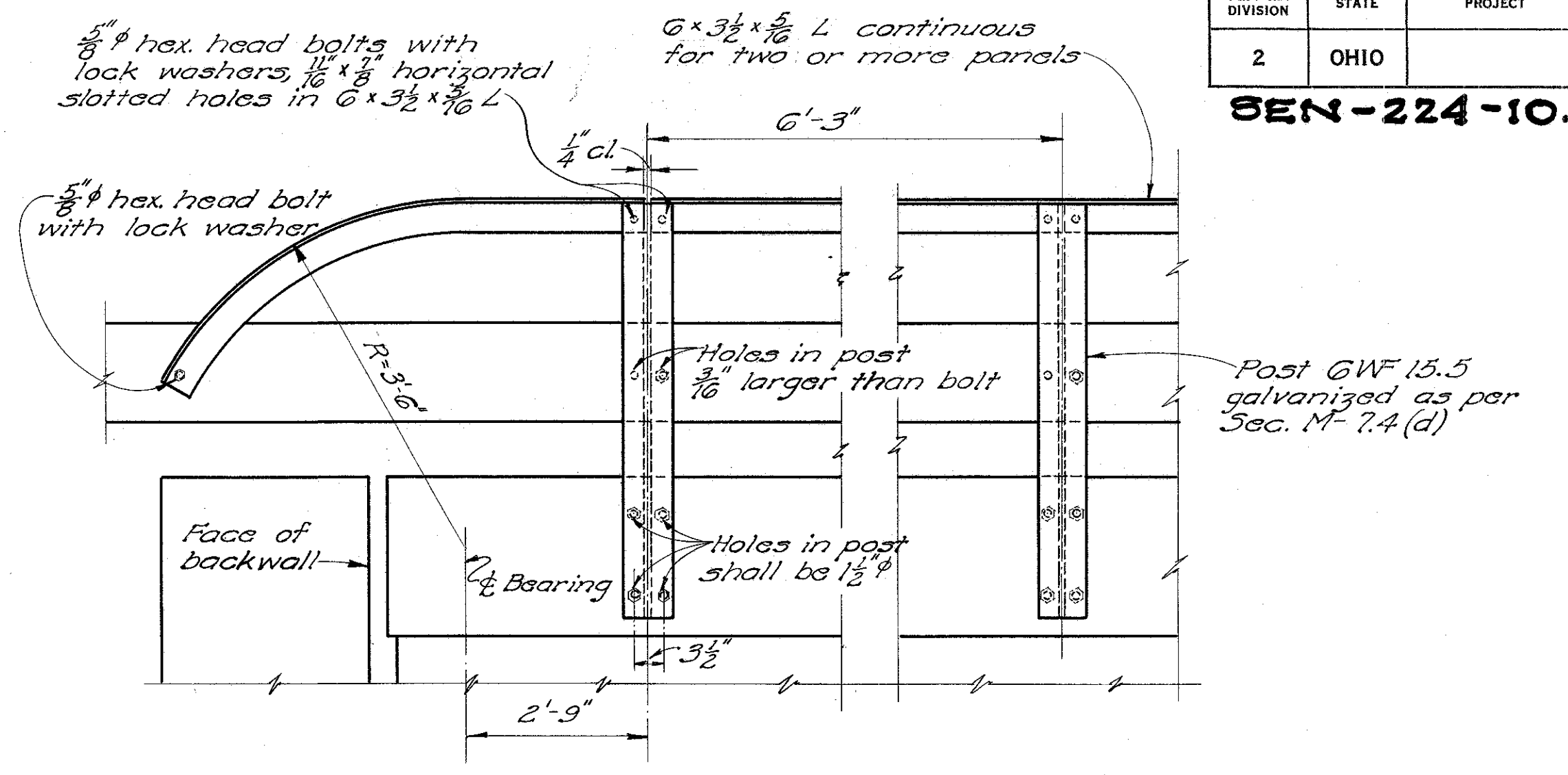
STATE OF OHIO
DEPARTMENT OF HIGHWAYS
DIVISION OF DESIGN AND CONSTRUCTION
BUREAU OF BRIDGES

PIER DETAILS
BRIDGE NO. SE-224-120
OVER SANDUSKY RIVER
SENECA COUNTY Sta. 95+46.67
Sta. 99+19.24

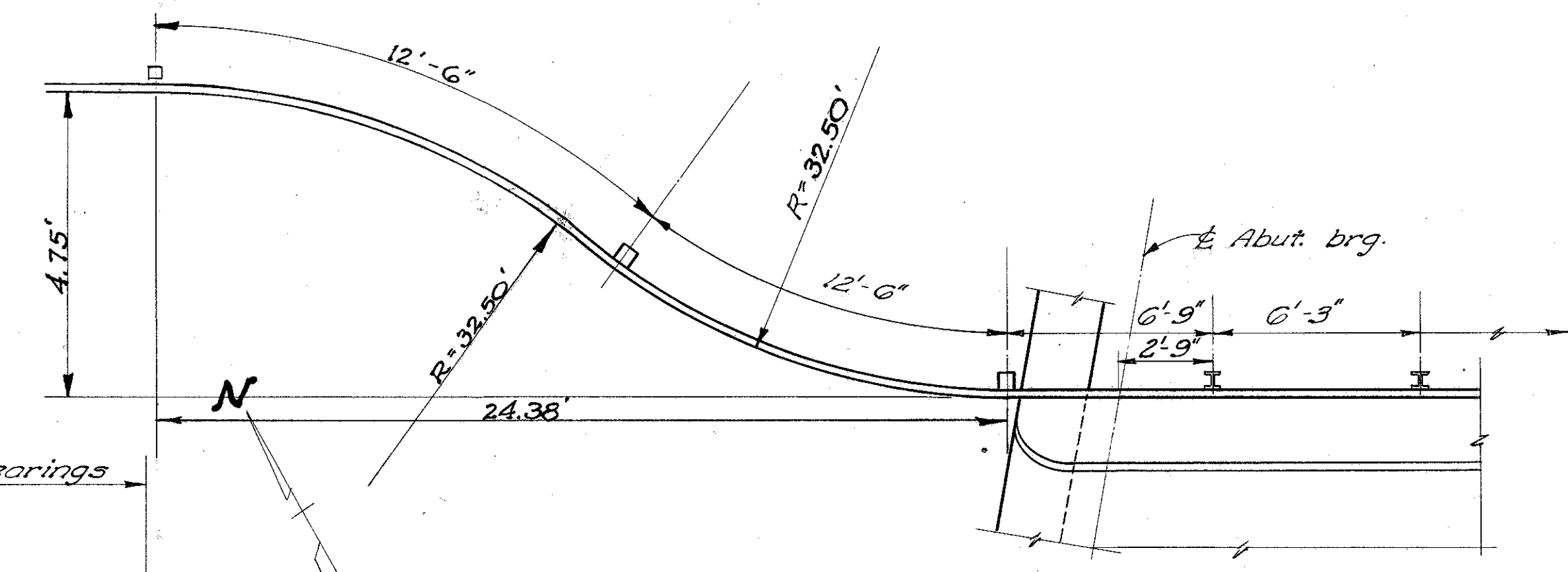
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
DLK	DLK	J	R.H.N.	BFG	3-30-55	



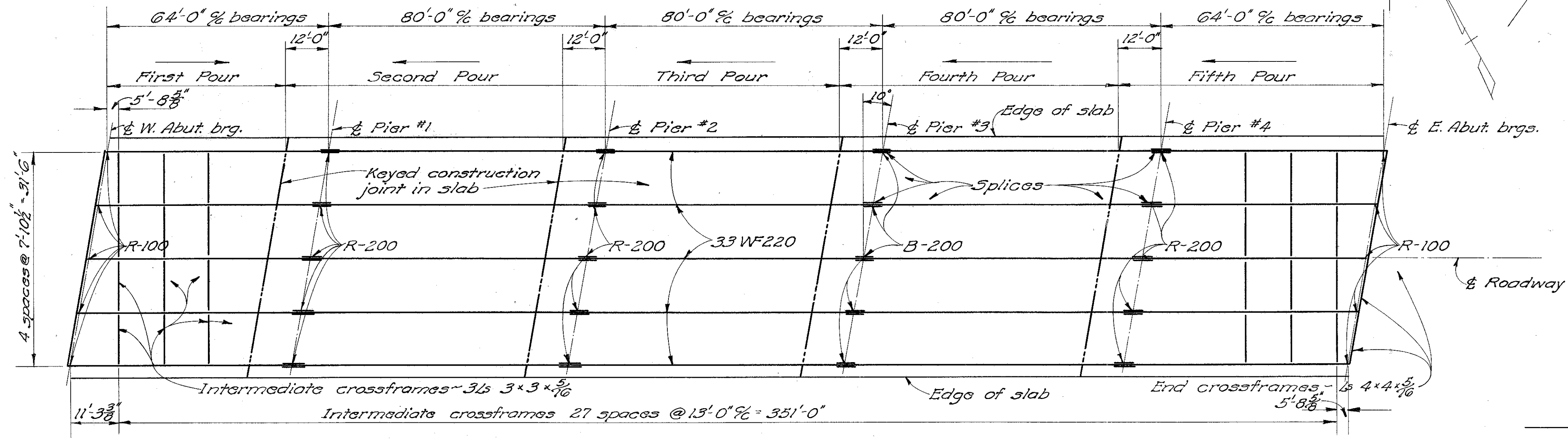
TRANSVERSE HALF SECTION



ELEVATION OF RAILING



PLAN OF END POSTS

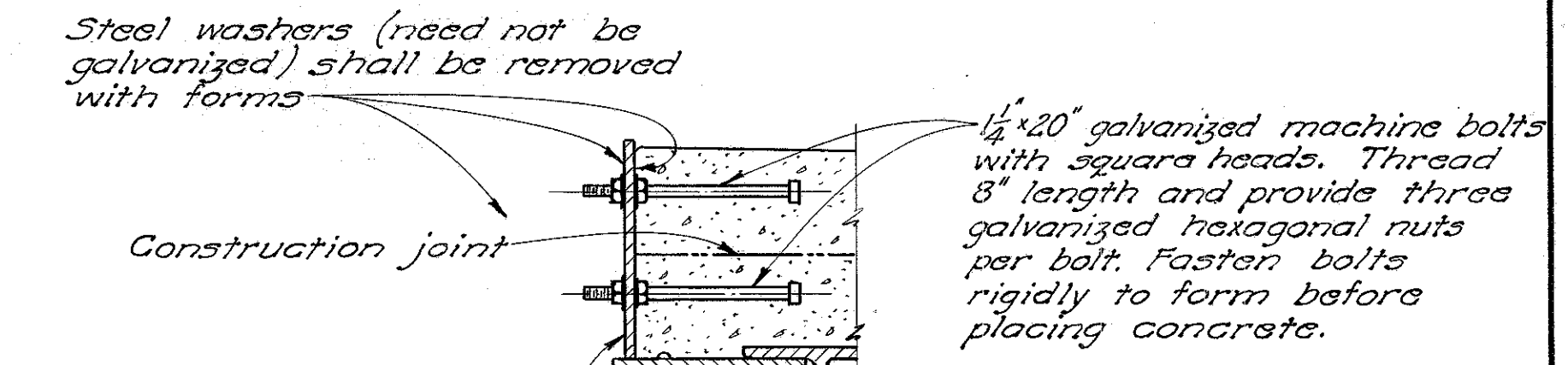


STEEL FRAMING PLAN AND SLAB POURING SEQUENCE

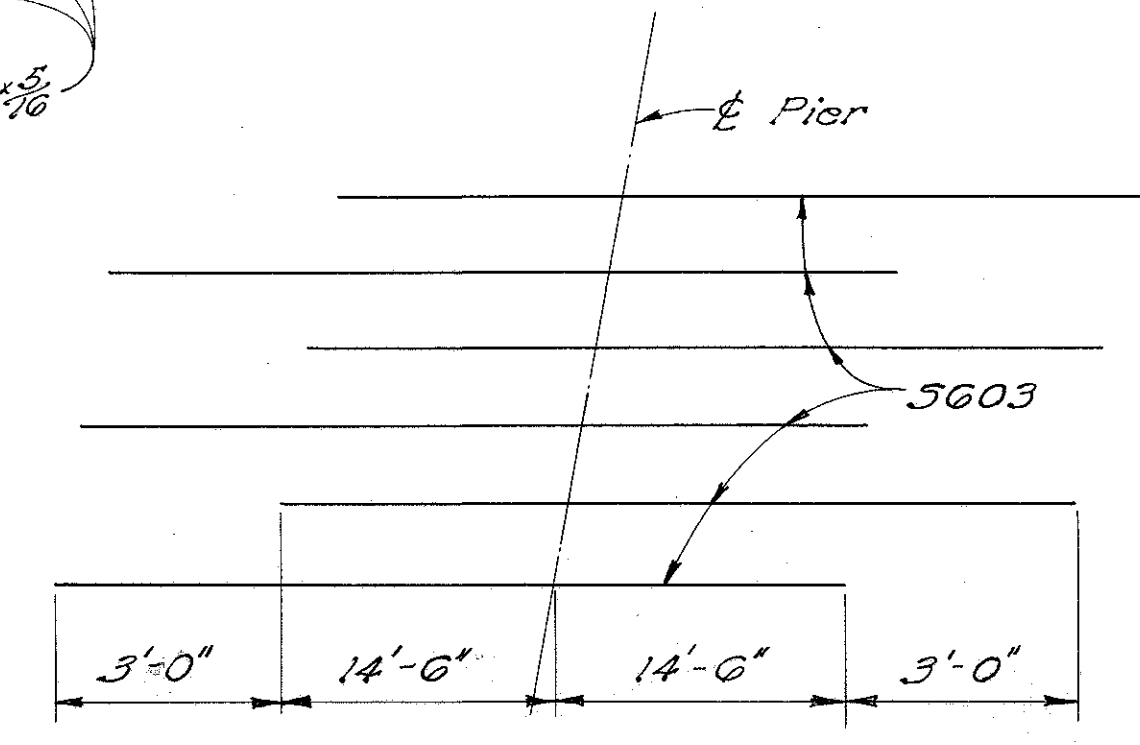
DECK CONSTRUCTION PROCEDURE
 The deck slab shall be placed in sections, between transverse construction joints, in the numerical order and in the direction indicated on the "Steel Framing Plan and Slab Pouring Sequence," in order that the major portion of the dead load deflection will occur prior to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

BEAM SPLICE WELDING PROCEDURE:
 1. Raise end of beam at second pier 2"
 2. Butt-weld beam flanges and web at first pier.
 3. Weld top and bottom flange splice plates at first pier.
 4. Lower end of beam at second pier.
 5. Continue in a like manner making splices at second, third, and fourth piers, raising ends of beams at 3rd and 4th pier 1 1/2". At 2nd abutment raise beams 1 1/2".

CAMBER: No cambering of beams is required but the beams shall be so fabricated that any curved beams will be placed with the convex flange up.

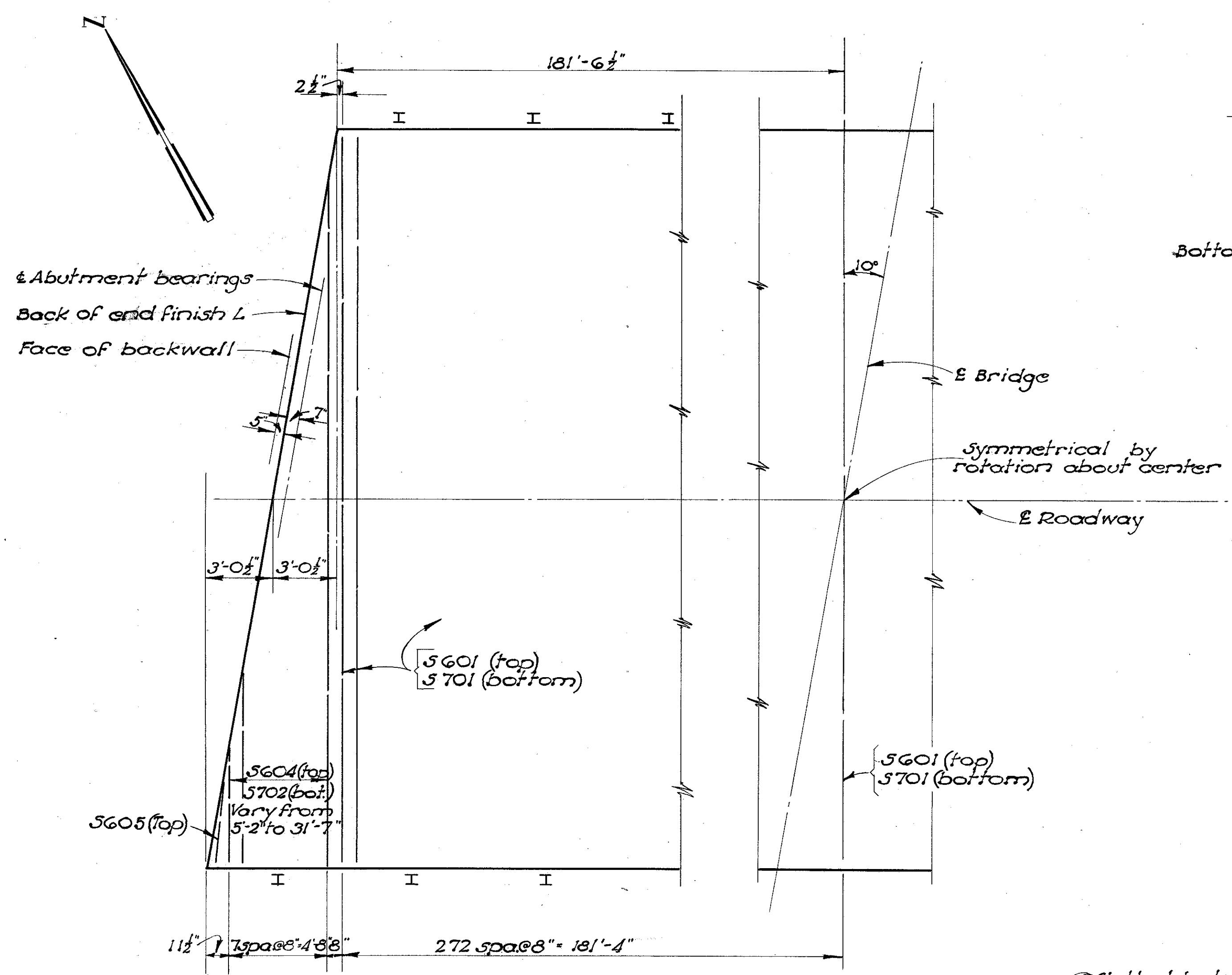


DETAIL 'A'

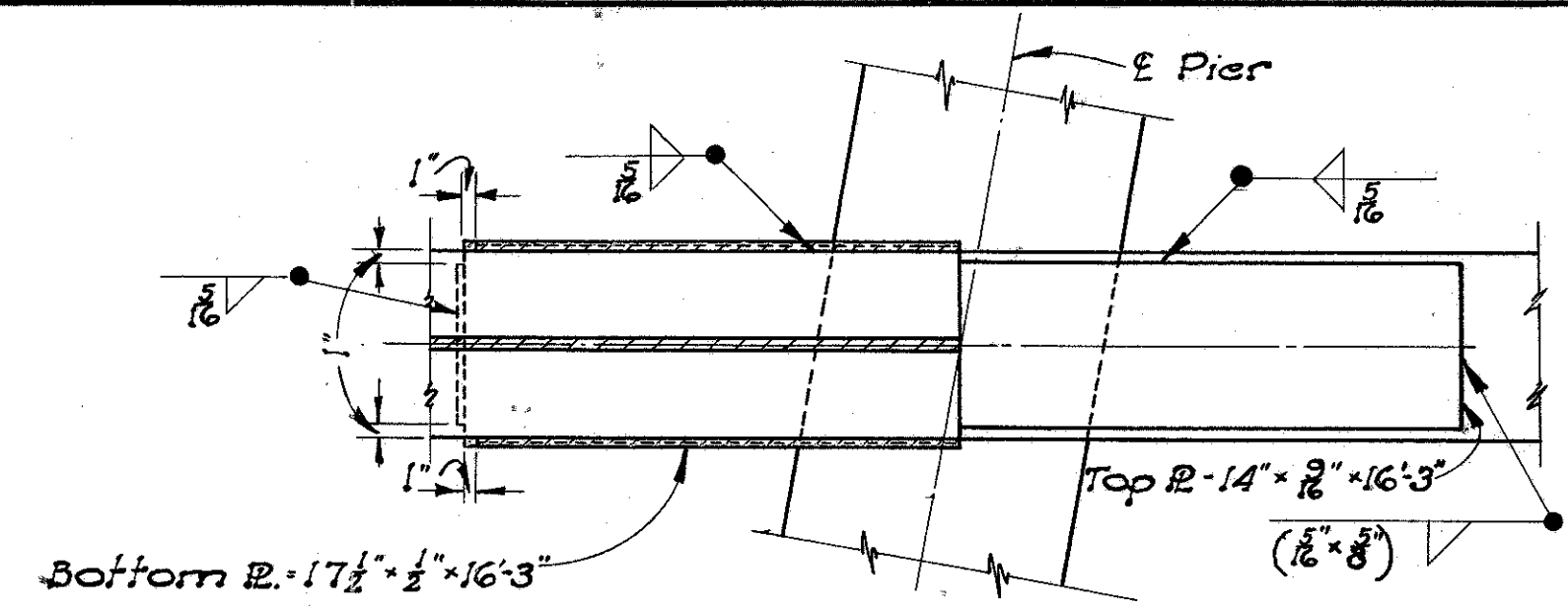


STAGGER OF 5603 BARS OVER PIERS

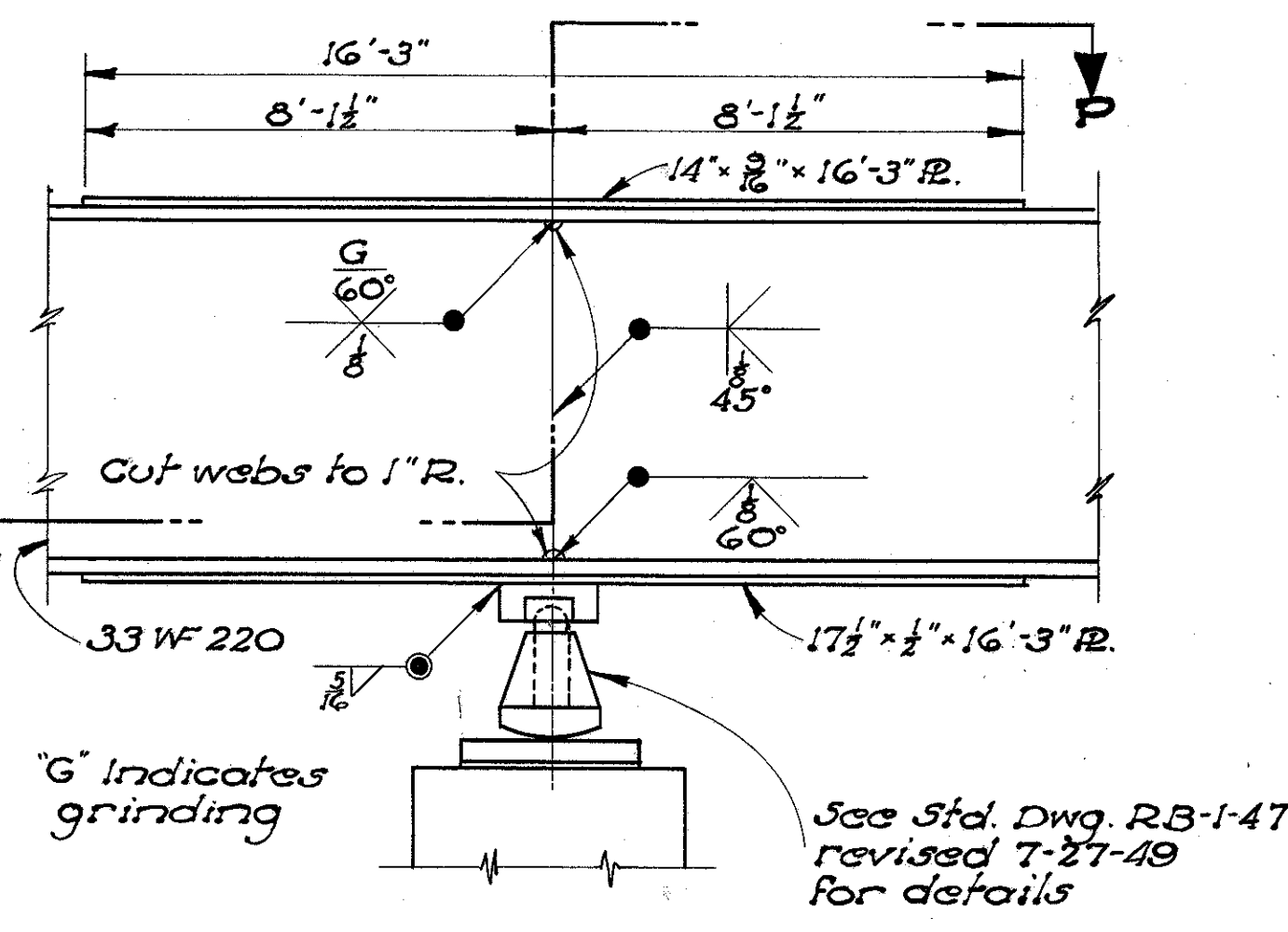
STATE OF OHIO DEPARTMENT OF HIGHWAYS DIVISION OF DESIGN AND CONSTRUCTION BUREAU OF BRIDGES						
SUPERSTRUCTURE DETAILS						
BRIDGE NO. SE-224-120 OVER SANDUSKY RIVER						
SENECA COUNTY			STA. 95 + 46.67 STA 99 + 19.24			
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
D.L.A.	D.L.A.	J.D.J.	R.H.N.	P.F.G.	3-30-59	



PART PLAN
Placing of main reinforcing

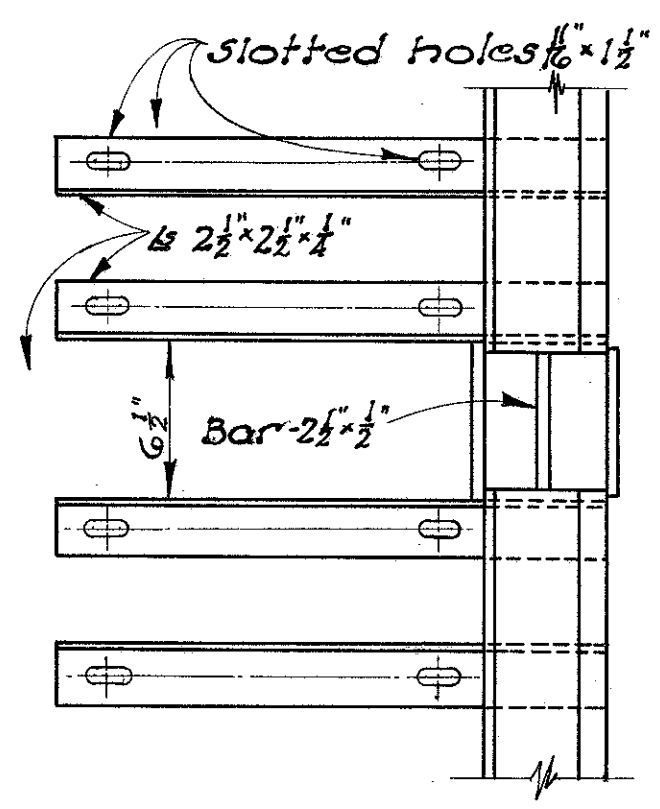


SECTION P-P

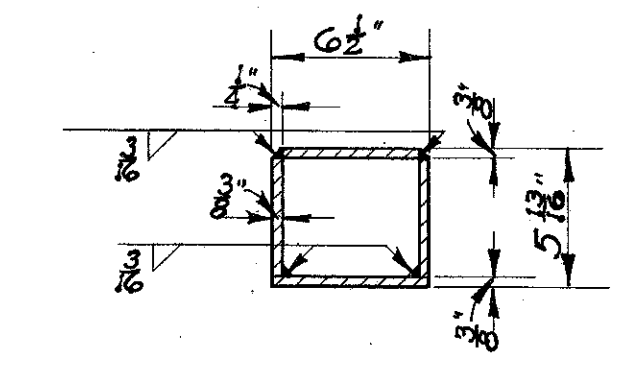


BEAM SPLICE DETAILS

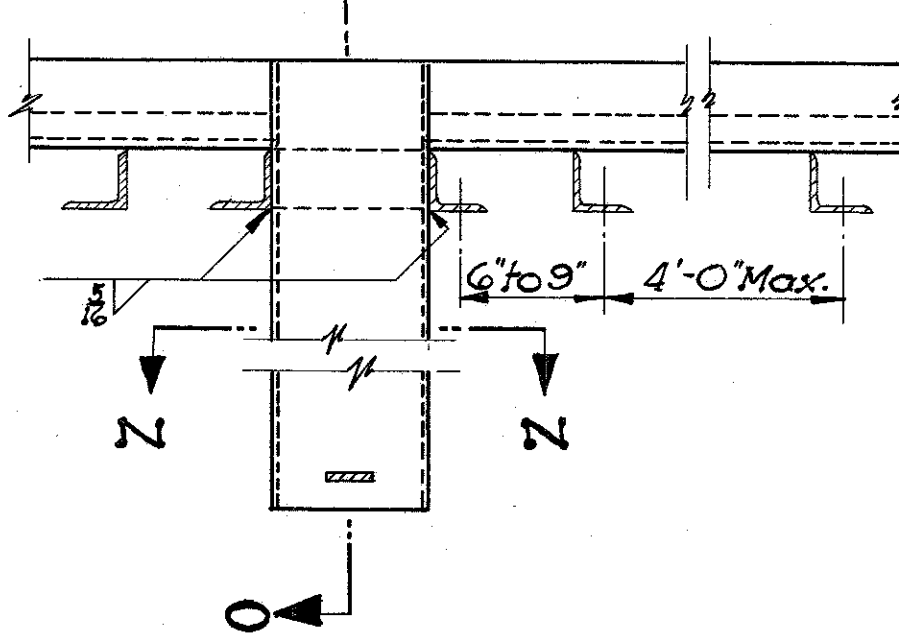
Mark	No.	Length	Weight	Shp.	Bending Diagrams
S401	494	2'-7"	851	B	1'-9" %
S402	494	4'-9"	1568	B	1'-9" %



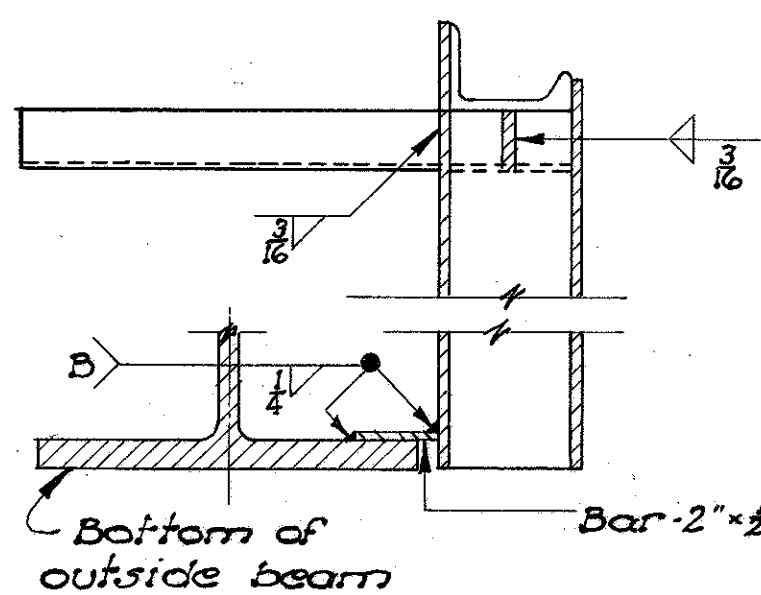
PART PLAN



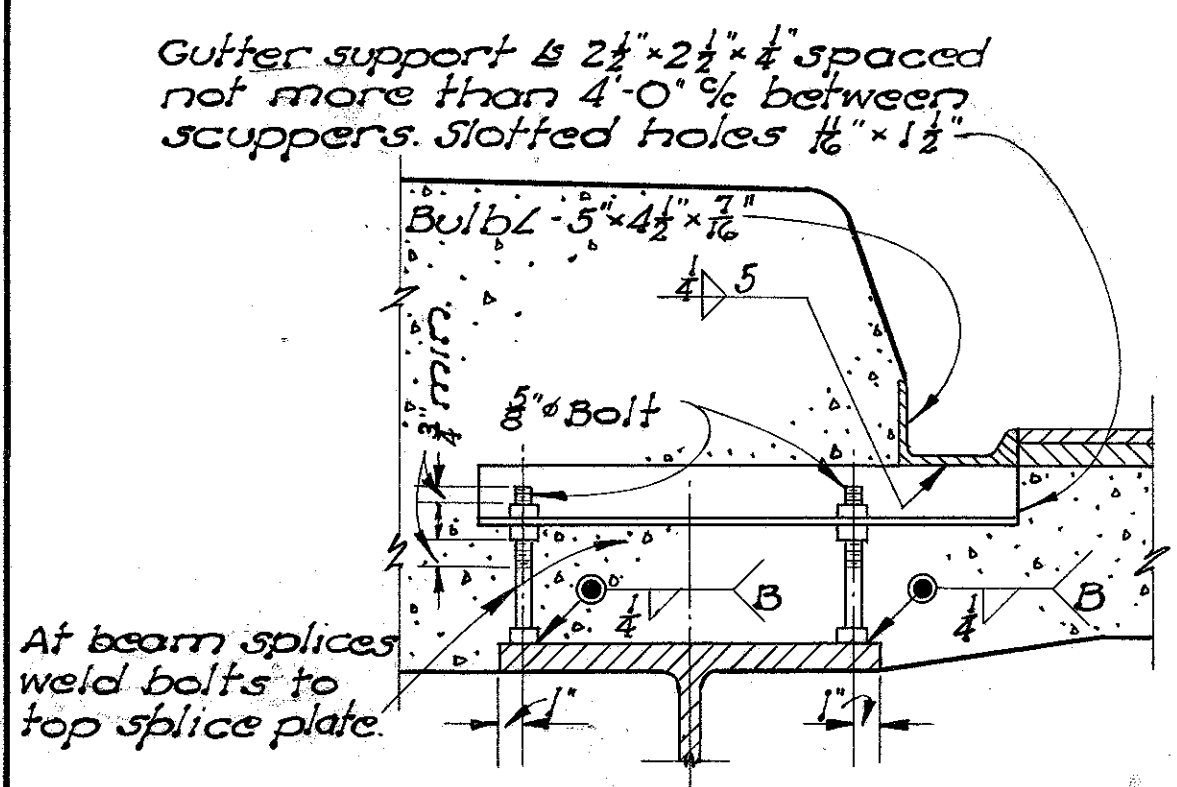
SECTION N-N



REAR ELEVATION



SECTION O-O



GUTTER SUPPORT

GUTTER AND SCUPPER DETAILS

REINFORCING STEEL LIST					BENDING DIAGRAMS			
MARK	NO.	LENGTH	WEIGHT	SHp.				
Superstructure								
S701	545	34'-2"	38,065	S	Vary by 3'-9 3/8" increments.			
S702	8	31'-7"	598	S				
S601	545	34'-2"	27,969	S				
S602	630	38'-9"	36,668	S				
S603	104	32'-0"	4,999	S	Vary by 3'-9 3/8" increments.			
S604	8	31'-7"	440	S				
S605	2	5'-0"	15	S				
Piers								
P601	208	5'-5"	16,96	B	P507	6'-6"		
P501	72	32'-8"	2453	S	P601 4'-7"			
P502	32	15'-3"	509	S				
P503	32	15'-6"	517	S				
P504	32	15'-9"	526	S				
P505	32	16'-1"	537	S	P506 2'-0" ±			
P506	72	7'-5"	557	B				
P507	148	7'-8"	1184	B				
P508	20	36'-8"	46	S				
P509	120	3'-8"	459	B	A501 4'-6" ±			
Abutments								
A801	16	34'-8"	1481	S			A502 5'-0" ±	
A802	8	24'-10"	530	S				
A601	26	15'-4"	599	B	A601 1'-8" ±			
A602	38	6'-0"	342	S				
A501	52	10'-8"	578	B				
A502	52	9'-7"	520	B				
A503	20	24'-4"	508	S	A501 2'-10" ±			
A504	40	8'-4"	348	B				
A505	10	8'-6"	89	S				
A506	2	8'-10"	18	S				
A507	36	9'-2"	344	S	A501 5'-4" ±			
A508	10	7'-6"	73	S				
A509	2	7'-0"	15	S				
Replacement Bars								
RE801	1	6'-6"	17	S	A504 3'-4" ±			
RE701	2	6'-2"	26	S				
RE601	4	5'-11"	36	S				
RE501	1	5'-7"	6	S				

BAR SIZE is indicated in the bar mark. The first digit where three digits are used, indicate the bar size number.

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
DIVISION OF DESIGN AND CONSTRUCTION
BUREAU OF BRIDGES

SUPERSTRUCTURE DETAILS & REINFORCING STEEL LIST

BRIDGE NO. SE-224-120 OVER SANDUSKY RIVER

SENECA COUNTY STA. 95+46.67
99+19.24

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
D.G.Z.	D.G.Z.	R.H.N.	R.H.N.	B.F.G.	3-30-55	1-17-56

Revised As-Built 7-10-58 JVP