

2022 PRE-INSPECTION REPORT

BRIDGE NO: HAM-50-0376L

SFN: 3102521

PID No.: 100838

City of Clevel



Submitted to ODOT District 8
April 2022

Prepared by

AECOM



OHIO DEPARTMENT OF
TRANSPORTATION

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1. INTRODUCTION

1.1. Inspection Details

Bridge no.:	HAM-50-0376L
Features intersected:	Great Miami River
Locations to Inspect:	In-Depth Element Level, Fracture Critical
No. of Inspection Days:	Anticipated 5 days
Inspection Dates:	Days: July 25, 2022 - July 29, 2022
Inspection Hours:	9am-3pm
Inspection Access Equipment:	60-foot manlift (Upper Truss Members and Gussets) Climbing (Lower Chords and Gussets) Beam Rollers/Clamps (Floorbeams and Stringer Connections) Ladders/Walking (All Other Elements)

1.2. Fracture Critical Inspection Requirements

The inspection will consist of an In-Depth “Arms-Reach” inspection, performed in accordance with the guidelines of the current FHWA National Bridge Inspection Standards for Fracture Critical Members. To perform an effective Fracture Critical Inspection, the following tasks must be performed:

1. Determine Resource Requirements.
(Identify qualified inspection staff, use appropriate inspection access and inspection equipment).
2. Identify the Fracture Critical Members.
3. Develop the Inspection Procedure.
(Procedure contained in this document)
4. Prepare Follow-up Procedure.
(Recommendations will be made as part of this current project)
5. Provide Quality Control/Quality Assurance for the inspection and report.
(Procedure contained in this document)
6. Develop a Periodic Inspection Plan
(Already in place with the Ohio Department of Transportation, District 8)

1.3. Bridge Descriptions

HAM-50-0376L is a four-span structure that carries two lanes of U.S. Route 50 westbound vehicular traffic over the Great Miami River in Cleves, Ohio. Eastbound traffic is carried by an adjacent bridge. The overall bridge length is 895'-8" feet and was opened to traffic in 1959. Bridge was rehabilitated in 1992 and 2017-2018.

The structure consists of four simply supported modified Pratt Truss spans, with interior spans (Spans 2 & 3) measuring 250'-0" and end spans (Spans 1 & 4) measuring 191'-4". Interior spans and end spans consist of 10 panels at 25'-0" and 8 panels at 23'-11" respectively. The truss upper and lower chord members consist of channels, angles, plates, and lacing bars with rivet and bolt connections. The truss verticals and diagonals are rolled wide flange sections. Sway bracing and upper lateral bracing are riveted to gusset plates and truss members at panel points. No lower lateral bracing exists on the structure. The floor system consists of five stringers spaced at 7'-0" with nine floorbeams spaced at panel points in end spans, and eleven floorbeams spaced at panel points in interior spans. The Piers and rear abutment are wall type substructures, but the forward abutment is a stub type substructure.

The nomenclature for this bridge follows a west to east stationing with trusses labeled as north and south. Floor beams are labeled as 0 to 8 (Spans 1 and 4) and 0 to 10 (Spans 2 and 3) from the west to the east. The stringers are labeled as 1 to 5 from the north to the south (left to right looking forward). Abutments are labeled as Rear Abutment (west) and Forward Abutment (east). Piers are labeled as 2 to 4 (west to east).

1.4. Fracture Critical Member Locations

Fracture critical member are shown on Figure 1 and Figure 2.

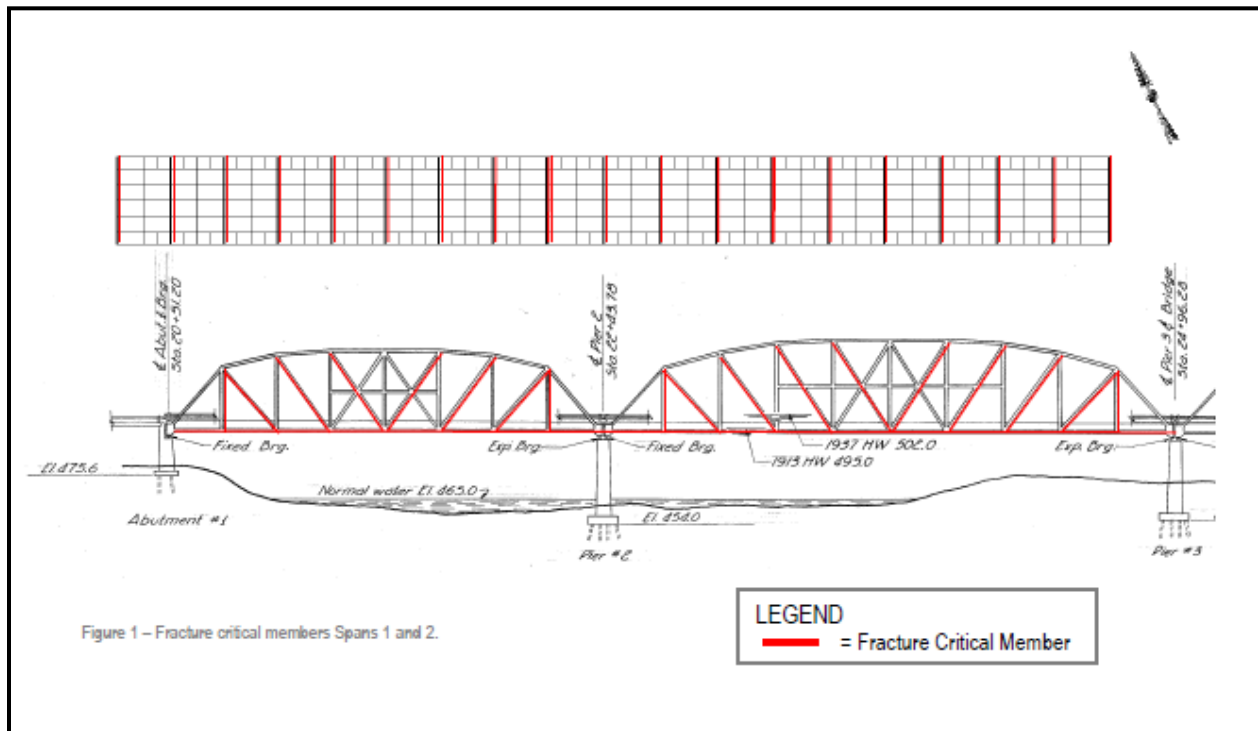


Figure 1- Plan and Elevation for Span 1 and 2

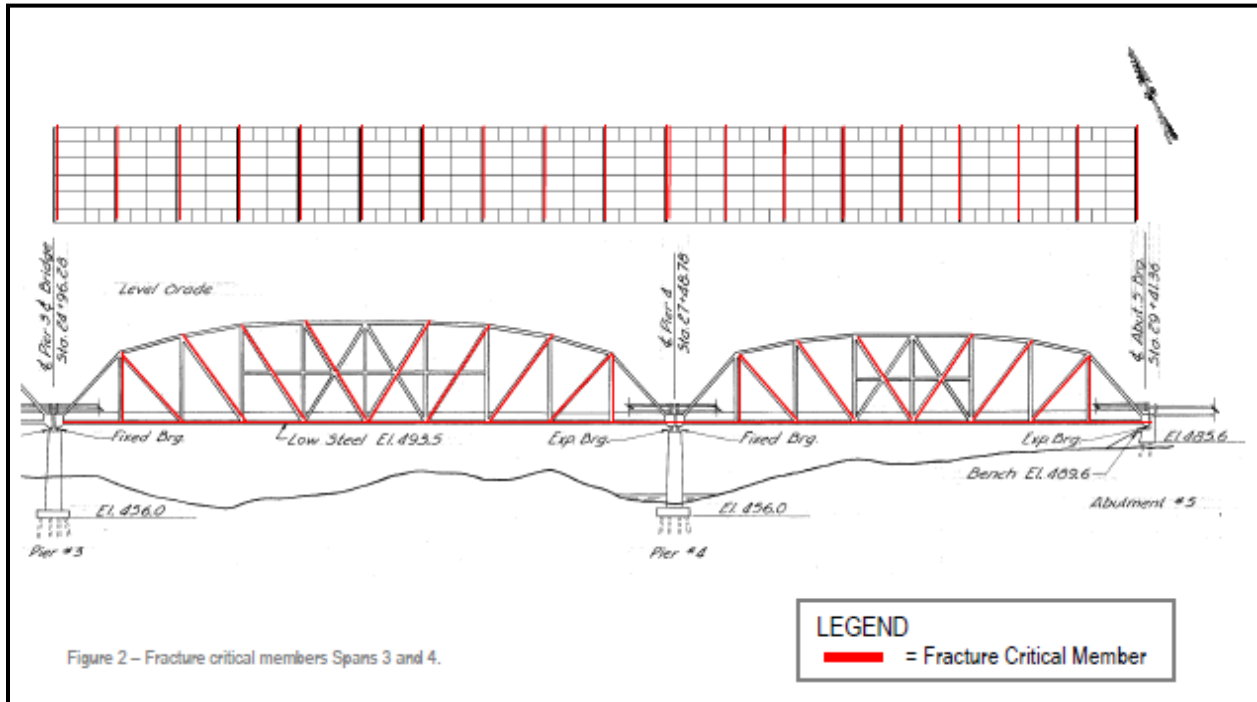


Figure 2: Plan and Elevation for Span 3 and 4

1.5. Fatigue Prone Details

The stringers are welded to floor beam webs via a connection plate on both sides of the stringer web, as well as along the stringer bottom flange. This creates susceptible locations for fatigue cracking in floor beams. The welded plate connection of the stringer web to the floor beam web, and the stringer bottom flange weld, are both Category E details.

Tack welds are typical between chord members and fill plates, lower chord web plates and internal diaphragms, lower chord web plates and gusset plates, lateral bracing connection angles and upper chord splice plates, and lateral brace connection plates to upper chord cover plate.

2. INSPECTION METHODS & PLAN

The AECOM Team will perform inspections as defined by the Scope of Services. Traffic control will be provided by Intech Contracting according to the traffic control plans and standards shown in Appendix B.

2.1. Field Coordination Contacts

The following entities will be involved in coordinating and performing all field work associated with the inspection of this structure.

AECOM - Field Team Contacts:

Travis Baker, P.E.: Team Leader, Project Manager D: 513-419-3404
C: 513-266-9344

2.4. Quality Control and Quality Assurance

AECOM's Technical Quality Review Procedure - DCS (Procedure No. Q2[DCS]-351-PR1) will be followed. The team leaders for this inspection were chosen to ensure that inspector qualifications are met. The team leaders have completed the course FHWA-NHI-130078, "Fracture Critical Inspection Techniques for Steel Bridges."

2.5. Special Considerations

Based on the items discussed during the scoping meeting and in the previous inspection reports, the following will receive special consideration:

- Damaged guardrail from vehicular impacts.
- Previously repaired gusset plates and section loss on gusset plates.
- Broken keep right sign noted in 2020 inspection.
- Debris piles from pier 3 upstream nose.
- Debris in the expansion joint.

Appendix A:
ODOT Right of Entry Permit Application

MR 509
Permit No. 22-12844

Office Use Only

State of Ohio
Department of Transportation
Permit

County or Jurisdiction HAM
Rte US50
Log Pt 3.75-3.89
Acc Cat

[1] Subject to all terms, conditions, and restrictions printed, written below and on the reverse side hereof, or attached,

Name: AECOM
Address: 525 Vine St. Ste. 1800 Cincinnati OH 45202
Company Phone: 513-419-3404

is hereby granted a permit under Section 5515.01 and 5515.02 of Ohio Revised Code, and permission to perform work necessary in the manner described and at the location indicated in the following or attached to this permit.

Lane Closure - (see attached sheets)

Description of Work: Single lane closures on US-50WB on and before bridge over Great Miami River to facilitate bridge inspection. All work to be performed as shown on plans submitted and attached. A lane closure of US 50 is permitted between the hours of 9a-3p.

[2] This permit shall be in the possession of employees /agents of permittee on site at all times who are in charge of the work and shall be shown, upon request, to any employee of the Department of Transportation.

Contact ODOT Representative 3 days before work begins, also contact ODOT Representative when work is completed for final inspection.
Failure to notify the ODOT Representative could result in work stoppage!

[3] No work authorized by this permit shall begin until the permittee has contacted and received instructions from
Chris Bass
chris.bass@dot.ohio.gov

NOTE: Any work performed by the permittee may be stopped if this requirement is not met.

[4] Prior to any excavation in the highway right-of-way, the Ohio811 <https://www.oups.org/excavators> must be contacted in accordance with ORC Section 3781.25 to 3781.32. Ohio811 can be reached at 1-800-362-2764 or 811.

[5] If your utility is above ground in any way, you must mark your utility with a fluorescent colored marker that corresponds with the universal OUPS color code. The marker must be no shorter than six feet in height and you must maintain the marker. Guide wires must be marked a fluorescent yellow. Failure to mark as described, will result in the Department of Transportation being held harmless and no reimbursement for damage to your property.

[6] All work requiring persons or vehicles within ODOT right of way shall comply with all applicable requirements of the Ohio Manual of Uniform Traffic Control Devices and Item 614 (Maintaining Traffic) of the Construction and Material Specifications, latest editions. Failure to comply with these requirements will be cause for immediate revocation or suspension of the permit until the proper traffic control devices have been provided.

[7] The permittee accepts the conditions, terms, and requirements printed, written on, or attached to this permit and understands that failure to comply fully with those conditions, terms, and requirements or any change in the use of the permit inconsistent with its terms and conditions will be considered a violation and cause for suspension, revocation, or annulment of the permit thereby rendering the permit illegal and subject to appropriate Department action, up to an including removal of the installation at the permittee's expense.

[8] Performance Bond Required? Yes No Company _____
Effective Date _____ Expiration Date _____ Amount \$ _____

[9] This permit shall be void if the work described herein does not comply with the conditions, terms, and requirements applicable to this permit, and if the work is not completed by 10/01/2022

Dated 03/31/2022

Rev 5/6/2021

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General Provisions Applicable to All Permits
(Sections 5515.01 and 5515.02 of O.R.C.)

- [1] This permit is not a substitute for satisfying the rights or obligations of any other party who may have an interest in the underlying fee interest.
- [2] The granting of this permit does not convey to the permittee or to the property served any rights, title, or interest in state highway rights of way or in the design or operation of the state highway; or in any way abridge the right of the Director of the Department of Transportation in his jurisdiction over state highways. If, in the process of any future work or for the benefit of the traveling public, it becomes necessary, in the opinion of the Director of Transportation to order the removal, reconstruction, relocation, or repair of any of the fixtures, or work performed under this permit, said removal, reconstruction, relocation, or repair shall be wholly at the expense of the owners thereof or the permittee and be made as directed by the Director of Transportation and within the time determined by the Director. Such changes in the state highway design or operation, necessary for improved safety and operation or for the benefit of the traveling public, shall not require a permit modification since the permit confers no private rights to the permittee over the control of the state highway.
- [3] The District Deputy Director acts for and on behalf of the Director in issuing and carrying out the provisions of all permits. The District Deputy Director has full authority to ensure that all provisions of the permit are met and to reject any materials, design, and workmanship that do not meet applicable Department standards. The District Deputy Director, at his/her discretion, may require a performance bond or certified check as a prerequisite to the issuance of a permit.
- [4] Failure on the part of the permittee to comply fully with the provisions and conditions of the permit will be cause for suspension, revocation, or annulment of the permit thereby rendering the permit illegal and subject to appropriate Departmental action. By accepting the permit, the permittee agrees to comply with all conditions, terms, and restrictions printed or written on or attached to the permit. If the permittee or its agent performs any work contrary to the conditions of the permit or to the instructions of the District Deputy Director and, after due notice, fails to correct the problem, the Department of Transportation may, with or without notice, correct or remove such work and the permittee shall reimburse the Department for the costs and shall hold the Department harmless for all results of such work.
- [5] The permittee shall indemnify and hold harmless the State of Ohio, Department of Transportation, its officers, representatives and assigns, from any and all loss, liability, damages, litigation costs, and claims for injury or death to any person, property, or business caused by or resulting from any act, omission, event, consequence, or occurrence, negligent or otherwise of the permittee, its employees, agents, or assigns as a result of the issuance of this permit.
- [6] All work authorized under the permit shall be performed to the Department's satisfaction, and the entire expense shall be borne by the permittee. No work shall be performed until the permittee has contacted the Department's appointed representative named on the permit and received instructions. The Department's representative may inspect all work covered by the permit, or the Department reserves the right, during the time any or all of the work is being performed, to appoint an inspector over the work who shall represent the interest of the State on the work and any compensation arranged for shall be paid wholly by the permit holder. Work not in compliance shall be halted and the District Deputy Director shall be notified of the cause. The permittee shall be notified of the Department's determination and given an opportunity to correct the problem. If the problem is not corrected timely or to the satisfaction of the Department, this permit will be revoked.
- [7] Failure to complete all work within the time specified on the permit shall void the permit, thereby making the permit illegal and subject to appropriate Departmental action. The permittee may request an extension in writing from the District Office, explaining why the extension is necessary and when the work is expected to be completed.
- [8] All work infringing on the pavement or shoulders shall comply with applicable standards and requirements regarding traffic control devices. Failure to comply will be cause for revocation or suspension of the permit. Any closure of lanes or shoulders shall be described in terms of location, duration, time of day, etc. Such work shall not begin until all traffic control devices are in place.

[9] If any grading, sidewalk, or other work allowed by a permit interferes with the drainage of the highway in any way, such catch basins and outlets as necessary shall be constructed to take proper care of said drainage and any materials such as pipes and tiles damaged during any installation or repair by the permittee or its employees or agents shall be repaired immediately at the sole cost of the permittee. Permittee shall timely notify the Department of any such damage and repairs thereto. Failure of the permittee to immediately repair the damage after it is discovered shall result in the Department performing the repair and the permittee shall reimburse the Department for the costs and shall hold the Department harmless for all the results of such work which may include removal of the permittee's facilities.

[10] Any damage to ODOT or another's property caused by the work shall be repaired by the permittee or permittee's agent or contractor in a timely manner and at the sole cost of permittee. If any emergency repairs to ODOT property are needed that cannot be performed by the permittee or permittee's agent or contractor, ODOT shall cause the repairs to be performed at the sole cost of permittee.

[11] Upon completion of the work, the permittee shall leave the highway clean of all rubbish, excess materials, temporary structures and equipment, and all parts of the highway shall be left in a condition acceptable to the Department. Upon satisfactory completion of the work authorized by the permit, the Department's appointed representative shall complete the Permit Inspection Certificate, Form No. MR 678 certifying that the permittee has complied with the terms of the permit.

[12] Except as herein authorized, no excavation shall be made or obstacle placed within the limits of the highway so as to interfere with the travel over the road.

[13] All pole lines are to be built in accordance with Rule 4901:3-1-08 of Ohio Administrative Code promulgated and enforced by the Public Utilities Commission of Ohio.

[14] All underground utilities shall be installed at a depth and horizontal distance from the road surface and any appurtenances in accordance with state and national safety standards and as pre-approved by the Department. After installation, the exact location of the utility shall be provided to the Department. The Department shall be held harmless for any damage to utilities due to insufficient or inaccurate installation or identification and all repairs shall be at the sole cost of the permittee.

[15] The permittee shall comply with the Air Pollution requirements of Rule 3745-17-08 of the Ohio Administrative Code promulgated and enforced by the Ohio Environmental Protection Agency.

[16] The permittee certifies that he or she is fully authorized to sign this permit. This permit shall apply to and be binding upon the permittee and any successors in interest. No change in ownership of the underlying property or of the facility owned by permittee shall in any way alter the permittee's obligations under this permit.

[17] The permittee(s) for herself/himself/themselves/itself, her/his/their/its personal representatives, and her/his/their/its successors in interest and assigns, as a part of the consideration hereof, do/does hereby covenant and agree that:

(1) No person on the grounds of race, color, or national origin, shall be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination in the use of the utility/facilities/ services of the permittee.

(2) In the construction of any improvements on, over, or under the above described property and the furnishing of services thereon, no person on the grounds of race, color, national origin, sex, age, or disability shall be excluded from the participation in, be denied the benefits of, or be otherwise subjected to discrimination.

(3) The above described property shall be used in a manner that at all times is in compliance with all other requirements imposed by or pursuant to Title 49, Code of Federal Regulations, U.S. DOT, Subtitle A, Office of the Secretary, Part 21, Non-discrimination in Federally-assisted programs of the U.S. DOT— Effectuation of Title VI of the Civil Rights Act of 1964, and as said Regulations may be amended.

(4) In the event that this instrument grants a lease, license, or permit and any of the above non-discrimination covenants is breached, then the State of Ohio, Department of Transportation, shall have the unfettered right to terminate

the lease, license or permit and to re-enter and repossess the above-described property and hold the same as if said lease, license or permit had never been made or issued.

This permit is granted subject to the following attached conditions:

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Appendix B: Traffic Control Details

pw:\decom-na-pw.bentley.com\AECOM_DS21_NA_2020\Documents\60652491-VAR D8 Brg Inspect 2021\900-CAD GIS\910_CAD\20_SHEETS\HAM-50-0376L\closure Sheet 3/18/2022 11:23:15 PM prateek.nepal

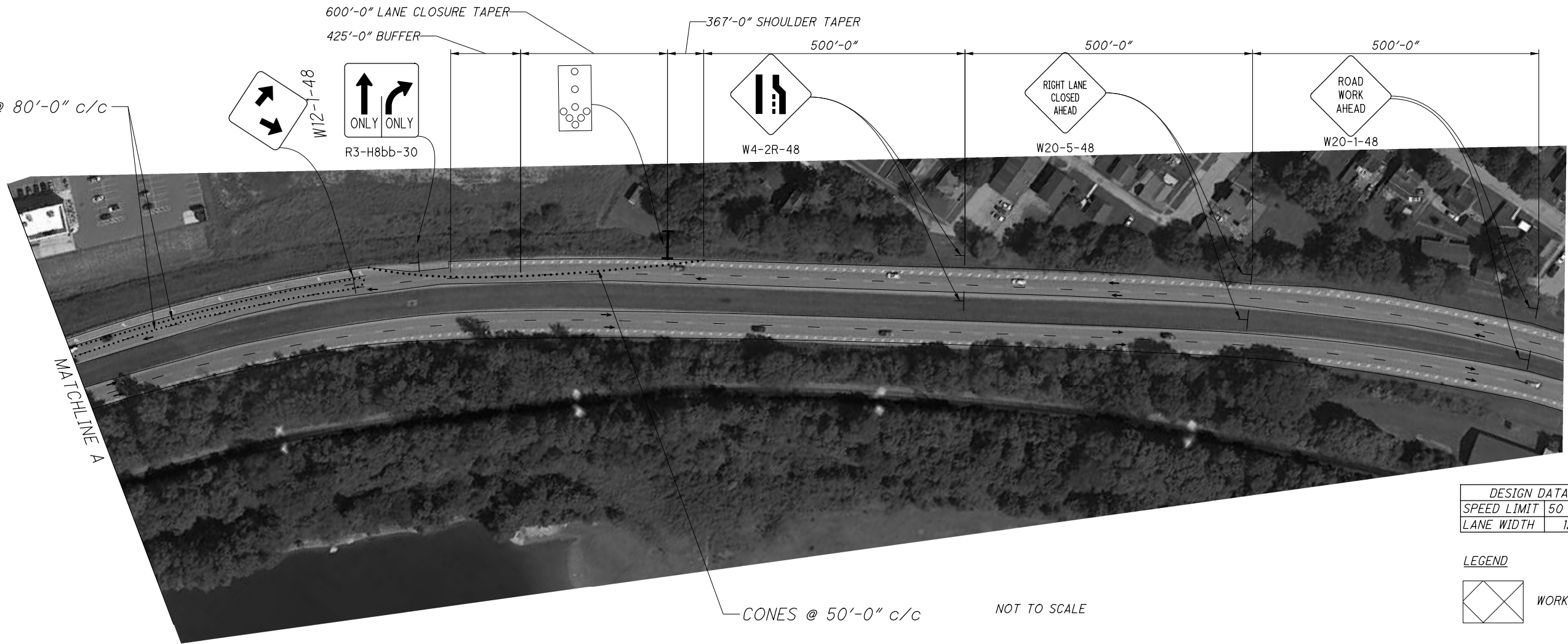
END ROAD WORK
G20-2-48



CONES @ 80'-0" c/c

CONES @ 80'-0" c/c

CONES @ 80'-0" c/c



CONES @ 50'-0" c/c

NOT TO SCALE

DESIGN DATA	
SPEED LIMIT	50 MPH
LANE WIDTH	12'

LEGEND



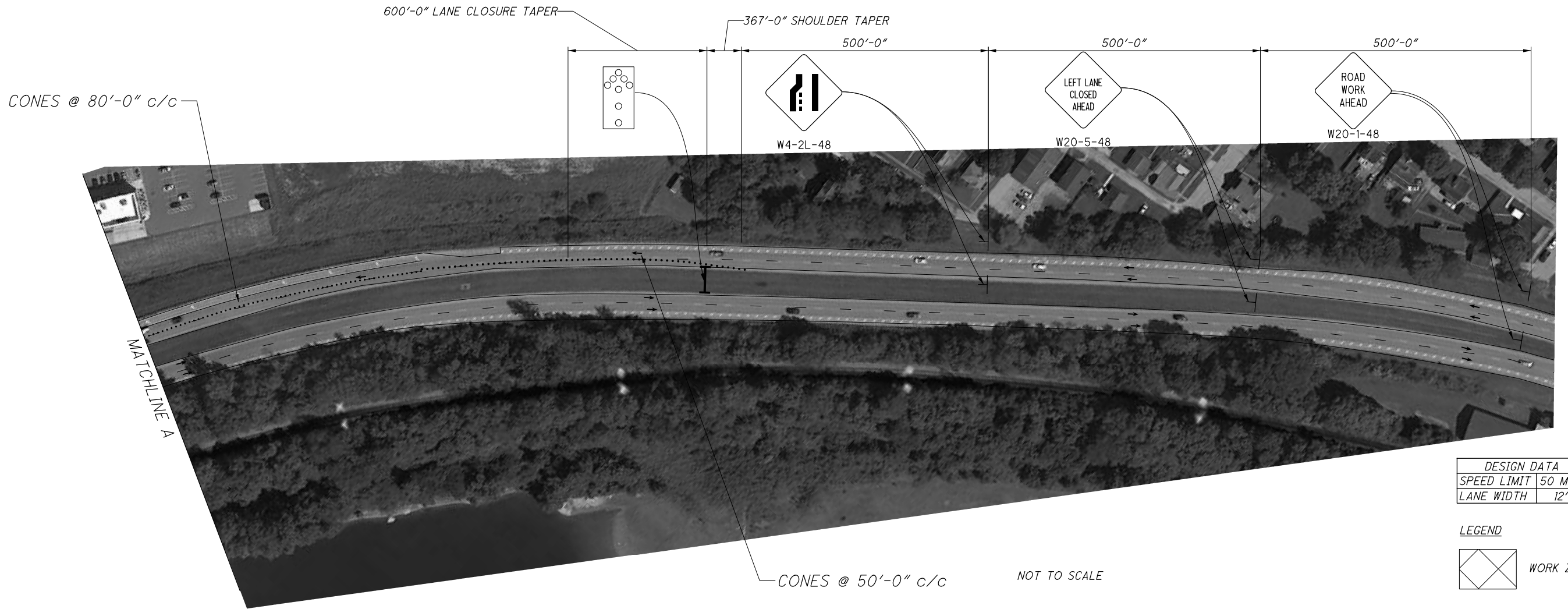
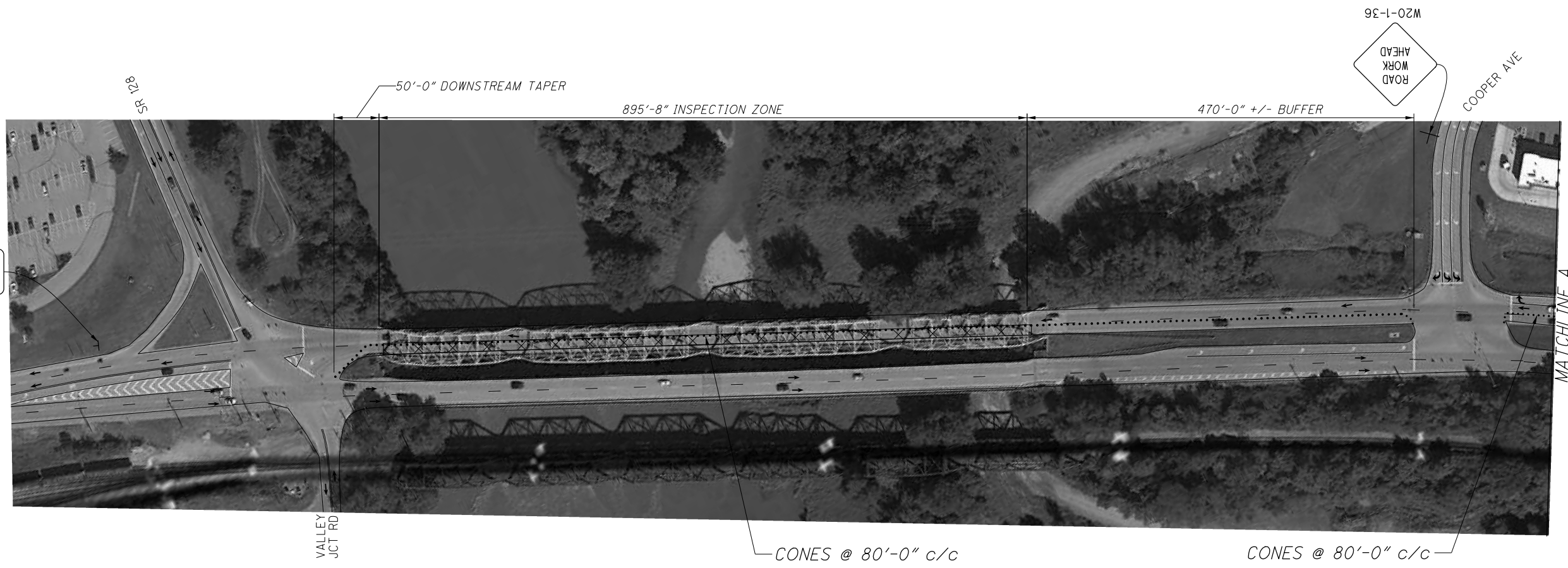
CALCULATED	PN
CHECKED	TMB

HAM-50-0376 RIGHT LANE CLOSED

CLOSURE A

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END ROAD WORK
G20-2-48



DESIGN DATA	
SPEED LIMIT	50 MPH
LANE WIDTH	12'

LEGEND



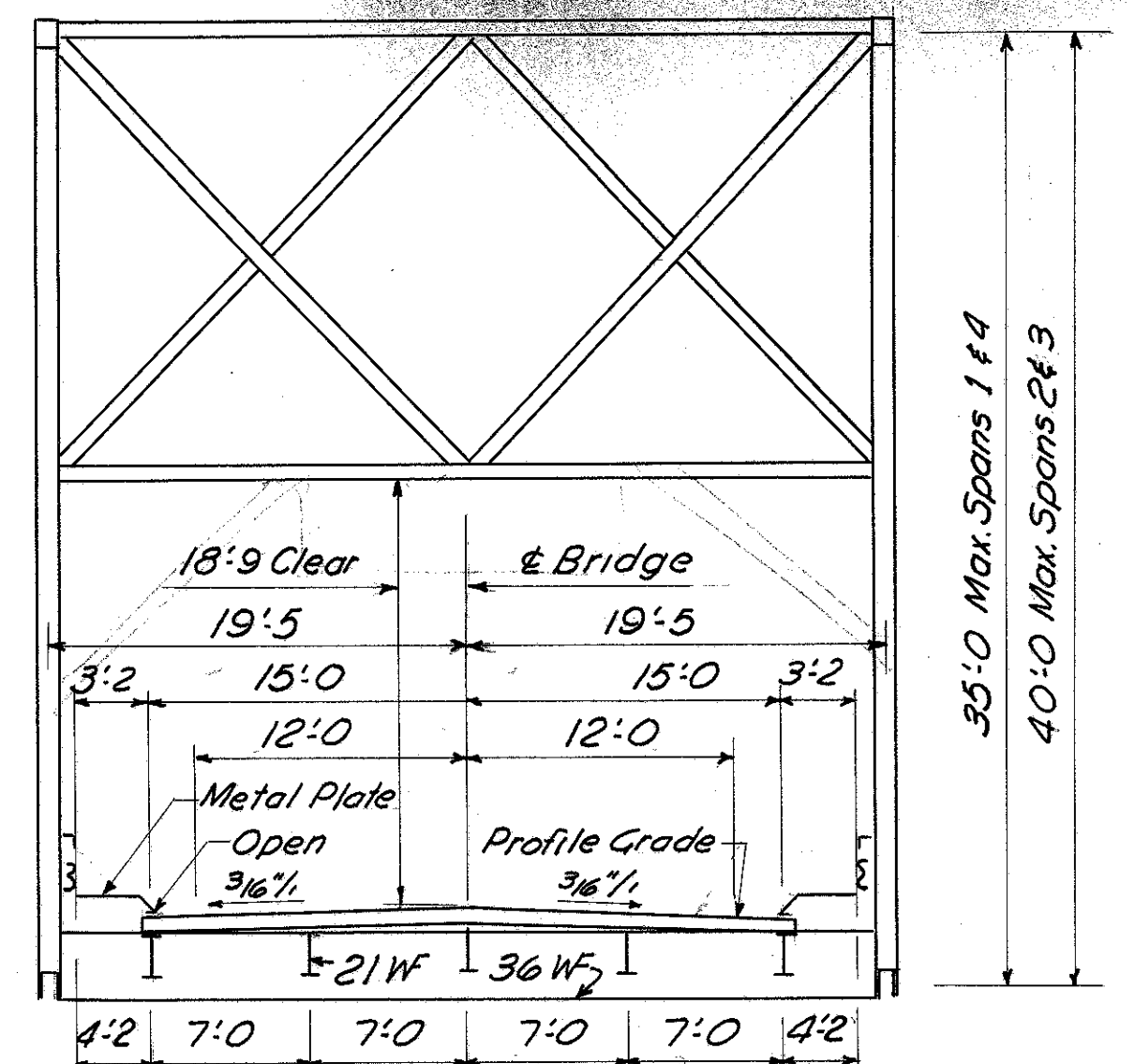
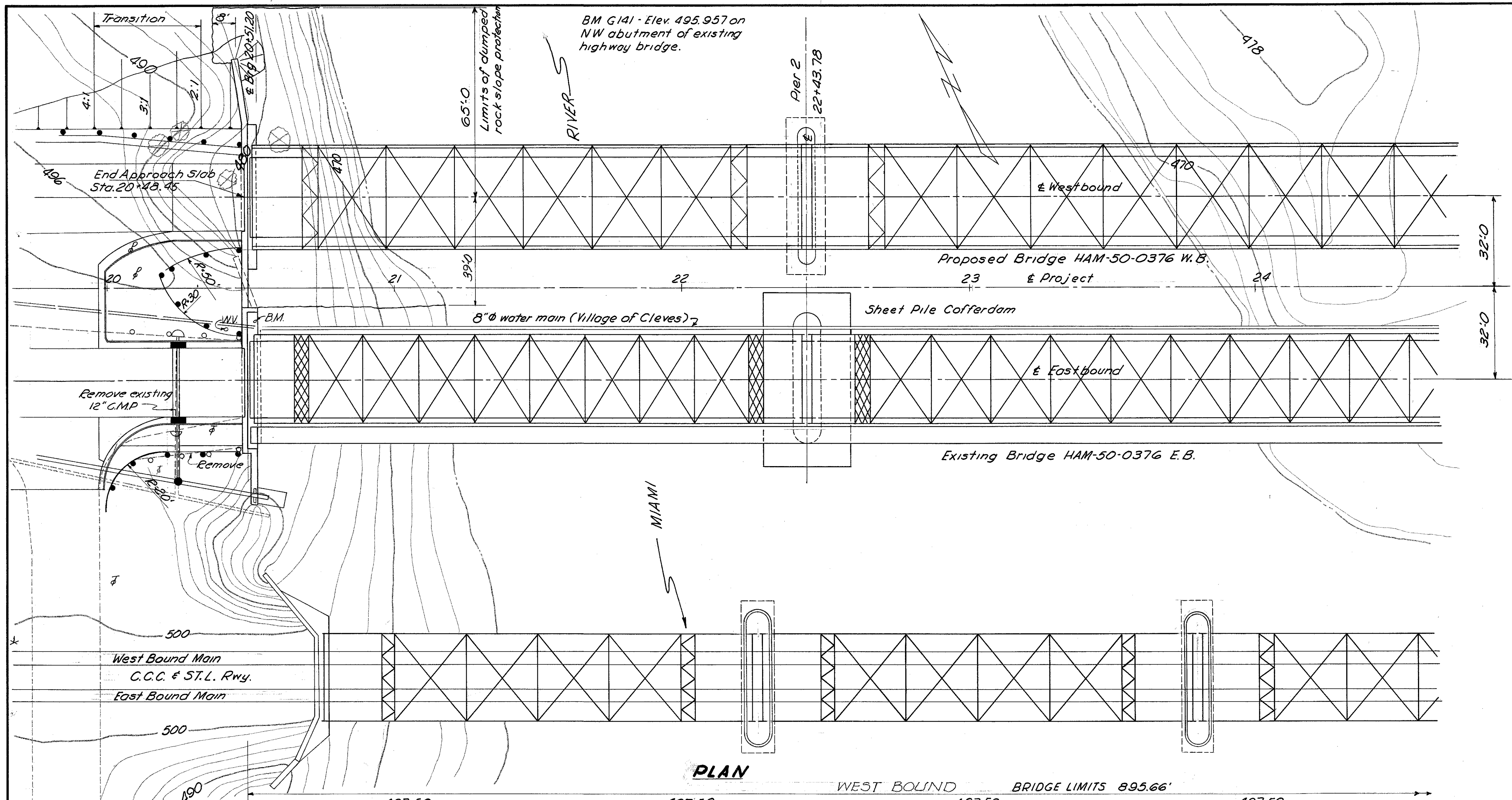
CALCULATED	PN
CHECKED	TMB

HAM-50-0376 LEFT LANE CLOSED

CLOSURE B

2
2

Appendix C: **Existing Plans**



TYPICAL SECTION

EXISTING BRIDGE DATA

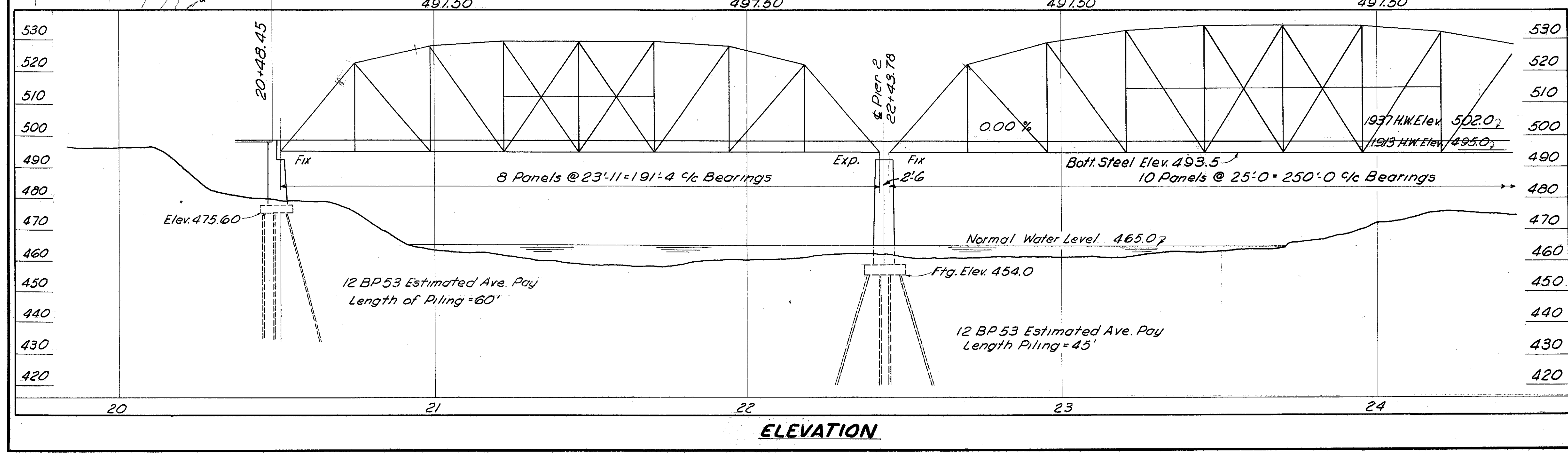
GREAT MIAMI RIVER BRIDGE HAM-50-0376 E.B.
 TYPE - High Truss - Conc. Deck & Substruct.
 SPANS - 190'-10, 250'-0, 250'-0, 190'-10
 ROADWAY - 26'-11 with 5'-9 sidewalk S. side
 WEARING SURFACE - Mono. Concrete
 LOADING - H-15
 SKEW - None
 DATE BUILT - 1914
 CONDITION - See Sheets 268, 269, 270 & 271
 C.C.C. & S.T.L. RAILWAY BRIDGE No. 132
 TYPE - Thru Truss - Masonry Substruct.
 SPANS - 6 @ 150' c/c Piers
 ROADWAY - Double track main line
 WEARING SURFACE - 139' rail
 LOADING -
 SKEW - None
 DATE BUILT - 1913
 CONDITION - Good

DRAINAGE AREA = 3,950 Sq. Mi

PROPOSED STRUCTURE

TYPE - High Truss, Concrete Deck & Substructure
 SPANS - 191'-4, 250'-0, 250'-0, 191'-4
 ROADWAY - 30'-0 Curb to Curb
 SIDEWALKS - 3'-0 Safety Walk each Side
 LIVE LOAD - CF-2000 (57), Adequate for AASHTO alternate loading.
 SKEW - None
 ALIGNMENT - Tangent
 APPROACH SLABS - 25' long, 24' wide
 WEARING SURFACE - 1" Monolithic

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 an abridged form in the Division office, but the State assumes no responsibility for the accuracy thereof.



ELEVATION

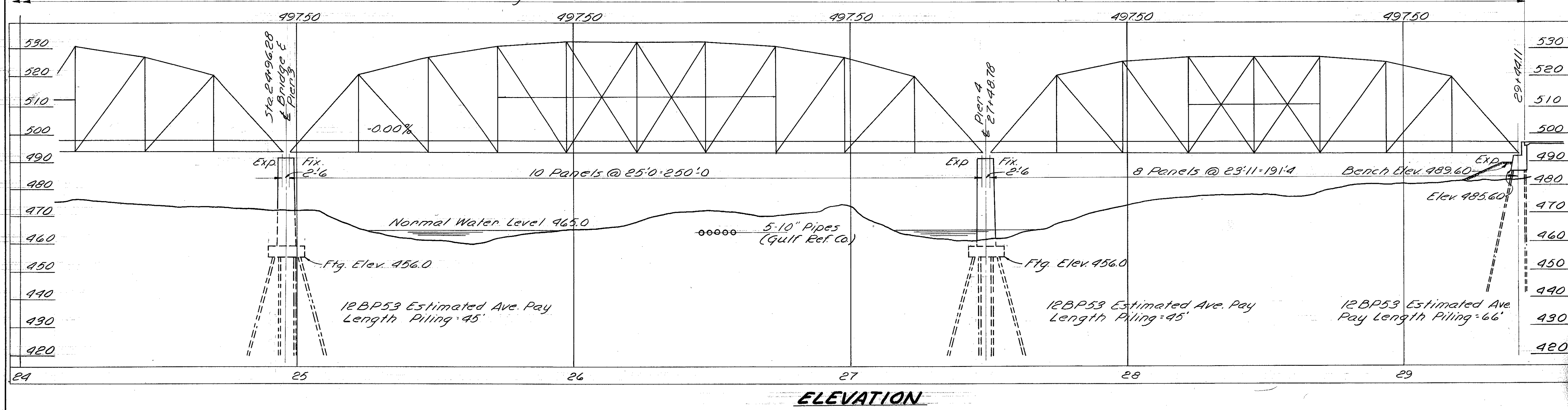
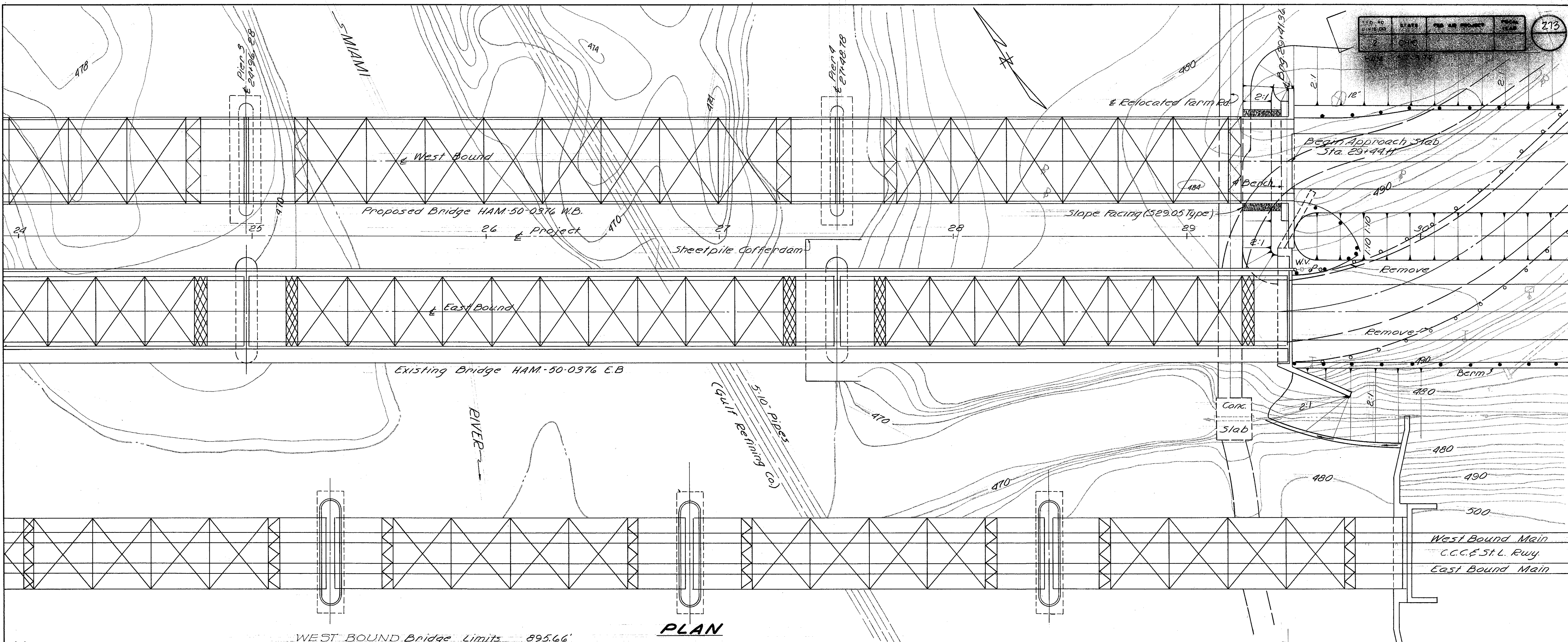
HARRY BACHE ENGINEERS
 2300 VICTORY PARKWAY
 CINCINNATI 6, O.

SITE PLAN

BRIDGE HAM-50-0376 E.B. & W.B.
 EXISTING & PROPOSED U.S. ROUTE 50
 OVER GREAT MIAMI RIVER

HAMILTON CO.
 SEC. 3, 72 STA. 21 + 96.28

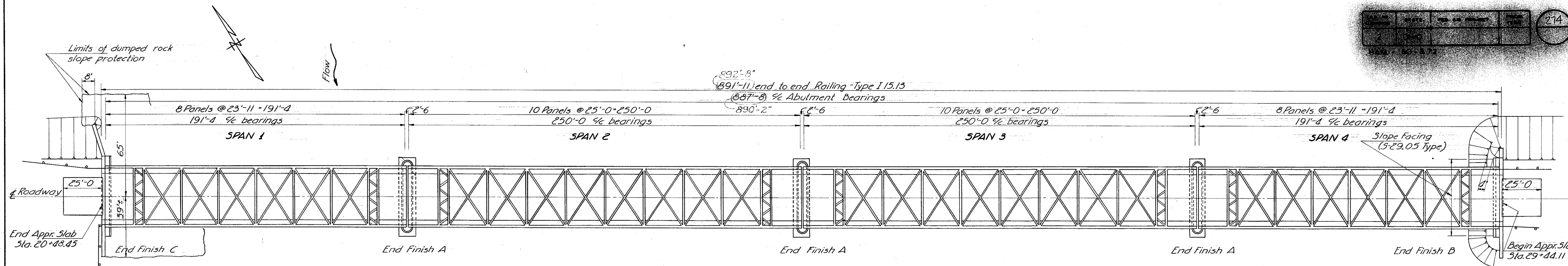
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RAK	RAK	D.S.	R.C.B.	A.C.A.	2/27/58	



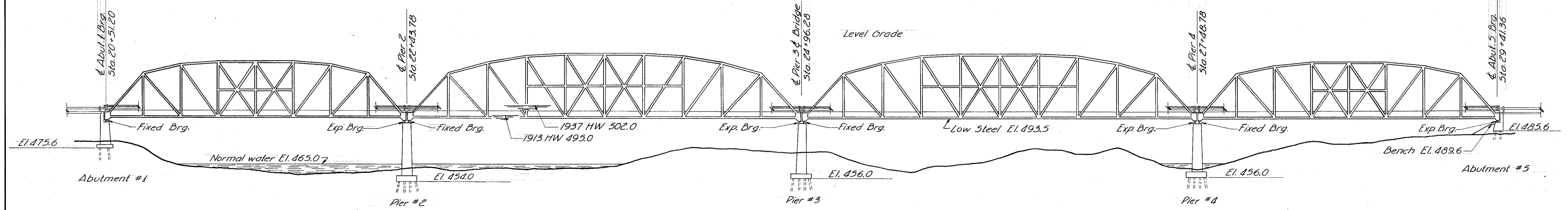
HARRY BALKE ENGINEERS
2330 VICTORY PARKWAY
CINCINNATI 6, O.

SITE PLAN
BRIDGE HAM-50-0376 EB&WB
EXISTING & PROPOSED U.S. ROUTE 50
OVER GREAT MIAMI RIVER
HAMILTON CO.
DEC 3, 1972 STA. 24+96.28

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE
RAK.	RAK.	DG	RCB	ACA	2/27/58



GENERAL PLAN



ELEVATION

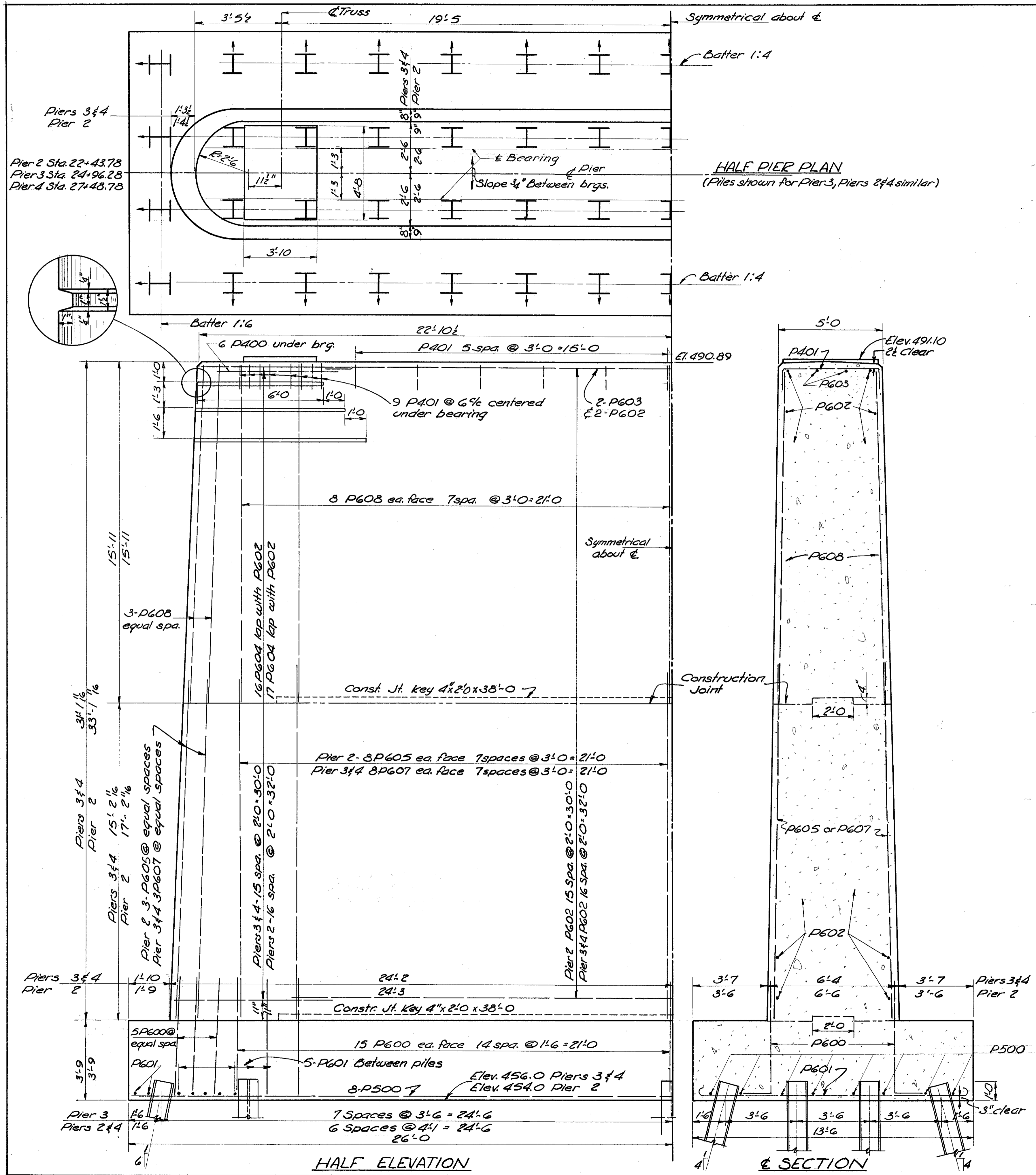
ESTIMATED QUANTITIES

ITEM	TOTAL	UNIT	DESCRIPTION	Abut. 1	Pier 2	Pier 3	Pier 4	Abut. 5	Superstr.	General
E-2	lump sum	lump sum	Cofferdams, cribs & sheeting							lump sum
E-2	1,372	cu. yds.	Unclassified excavation	227	264	561	186	134		
5-1	744.2	cu. yds.	Class "C" concrete, superstructure						744.2	
5-1	321.1	cu. yds.	Class "E" concrete, abutments	222.5				98.6		
5-1	378.6	cu. yds.	Class "E" concrete, footings	83.4	98.4	98.4	98.4			
5-1	933.8	cu. yds.	Class "E" concrete, piers above footings		327.6	303.1	303.1			
5-2	125	sq. ft.	Patching concrete		93					32
5-3	14	lin. ft.	Waterproofing, 1/2" premolded sealing strip (12" wide)		16					
5-4	265,971	lbs.	Reinforcing steel	12,764	7,476	74,222	74,222	7,293	223,594	
5-7	222,680	lbs.	Structural steel						222,680	
5-8	222,680	lbs.	Field painting of structural steel						222,680	
5-9	95	sq. ft.	1 in. Preformed expansion joint filler (Type M-10.02)	73				22		
5-14	4,783.83	lin. ft.	Railing (Type I-15.13 steel, 4x3x3/8 handrail, 6W-20 Posts)						1725.33	4783.83
5-16	lump sum	lump sum	First test pile							lump sum
5-18	11,185	lin. ft.	Steel piles (12 BP53)	2,160	2,700	2,700	2,700	925		
5-22	lump sum	lump sum	Removal of portions of existing structure							lump sum
5-29	115	cu. yds.	Porous backfill	76				39		
5-29	34	cu. yds.	Slope facing (S-29.05 Type)					34		
I-10	414	cu. yds.	Dumped rock fill	414						

GENERAL NOTES

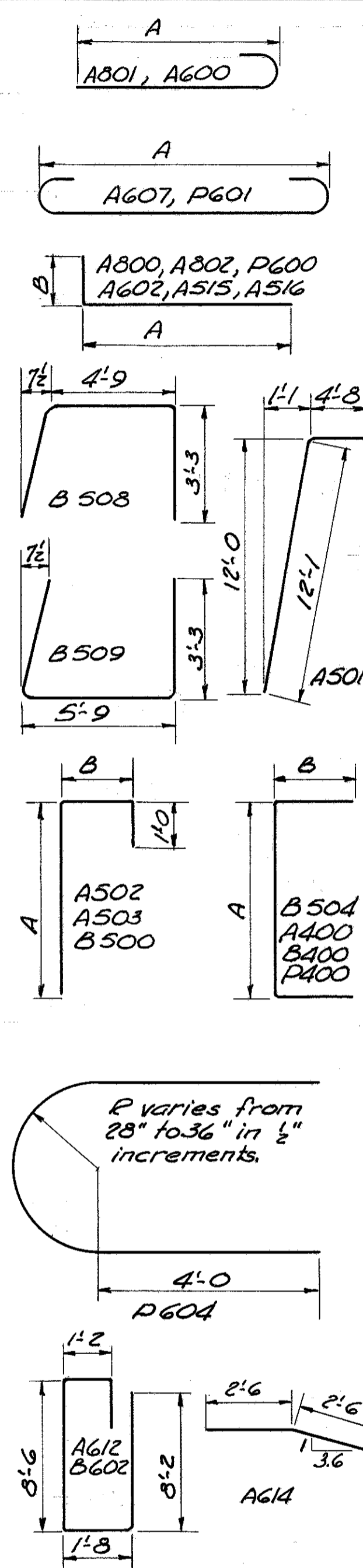
REFERENCE shall be made to Standard Drawing A5-1-54 dated December 1, 1954.
DESIGN SPECIFICATIONS: This structure conforms to the requirements of "Design Specifications for Highway Structures" of the State of Ohio, Department of Highways, dated Sept. 1, 1957.
PILING shall be driven to a minimum bearing capacity of 50 tons.
WELDING shall be class "A" unless otherwise shown. Any weld shown as a field weld may be made in the shop at the option of the contractor.
SLOPE FACING (S-29.05, TYPE) shall be provided under the structure at Abutment 5. The slope facing material shall be 12 inches thick and shall extend from the face of the abutment down to Elev. 484.0 and transversely to 3 ft. outside the edge of the superstructure.
DUMPED ROCK FILL 2 ft. thick shall be provided under the bridge at Abutment 1. The dumped rock fill shall be constructed above Elevation 463 and to the limits shown on the plans.
CONCRETE DECK PLACING: The slab may be placed in sections, between transverse construction joints which are normal to the centerline of the bridge and are located near the center of any span.
COFFERDAMS: Before construction is started on the Piers, three sets of prints showing details of the cofferdams at each pier shall be submitted to the Director for approval by the Department of Highways.

HARRY BALKE ENGINEERS
 2200 VICTORY ST. CLEVELAND, OHIO
**GENERAL PLAN & ELEVATION
 NOTES & ESTIMATED QUANTITIES**
 BRIDGE HAM-50-0376WB
 PROPOSED U.S. ROUTE 50
 OVER GREAT MIAMI RIVER
 HAMILTON CO. OHIO
 EMB. L.L.T. L.P. C.H.L. R.C.B. A.C.A. 8/27/50



REINFORCING STEEL LIST

Mark	No.	Length	Weight	Shape	A	B	Bending Diagrams	Mark	No.	Length	Weight	Shape	A	B	
ABUTMENT 1								PIER 2							
A800	34	30-9	2,791	B	26-9	4-0	A A801, A600	P600	68	7-3	740	B	6-0	1-3	
A801	11	7-6	220	B	6-5			P601	64	14-4	1,378	B	13-0		
A802	7	8-6	45	B	7-0	1-6		P602	36	36-6	1,974	S			
A600	78	11-5	1,338	B	10-9		A A607, P601	P603	2	10-6	32	S			
A601	22	26-6	876	S				P604	2ea	Varies	836	B			
A602	49	6-0	442	B	5-0	1-0	A A600, A802, P600 A602, A513, A516	P605	36	19-3	1,041	S			
A603	30	12-0	541	S				P608	36	15-9	852	S			
A604	23	19-3	665	S			A A502, A503, A500	P500	16	26-9	446	S			
A605	28	18-0	757	S				P400	12	6-0	48	S			
A606	20	33-0	991	S			A A501	P401	29	6-8	129	B	4-8	1-0	
A607	18	9-7	259	B	8-3			PIER 3							
A608	7	27-0	284	S			P600	68	7-3	740	B	6-0	1-3		
A609	6	16-6	149	S			P601	74	14-4	1,593	B	13-0			
A610	4	15-0	90	S			P602	34	36-6	1,864	S				
A611	3	13-6	61	S			P603	2	10-6	32	S				
A612	30	22-0	991	B	-	-	P604	2ea	Varies	785	B				
A613	1	20-0	30	S			P607	36	17-3	933	S				
A614	1	5-0	8	B			P608	36	15-9	852	S				
A500	56	5-0	292	S			P500	16	26-9	446	S				
A501	34	16-9	594	B			P400	12	6-0	48	S				
A502	9	21-8	203	B	19-0	1-8	P401	29	6-8	129	B	4-8	1-0		
A503	14	11-4	165	B	8-8	1-8	PIER 4								
A504	2	23-6	49	S			P600	68	7-3	740	B	6-0	1-3		
A505	2	9-9	20	S			P601	74	14-4	1,593	B	13-0			
A506	3	18-0	56	S			P602	34	36-6	1,864	S				
A507	3	16-6	52	S			P603	2	10-6	32	S				
A508	6	15-0	94	S			P604	2ea	Varies	785	B				
A509	3	13-6	42	S			P607	36	17-3	933	S				
A510	8	12-0	100	S			P608	36	15-9	852	S				
A511	6	10-6	66	S			P500	16	26-9	446	S				
A512	8	9-0	75	S			P400	12	6-0	48	S				
A513	14	21-6	314	S			P401	29	6-8	129	B	4-8	1-0		
A514	2	18-3	38	S			PIER 5								
A515	2	7-9	16	B	5-9	2-0	B800	32	30-9	2,627	S				
A516	2	4-9	10	B	2-9	2-0	B801	4	26-9	286	S				
A400	12	5-0	40	B	3-0	1-0	ABUTMENT 5								
								B600	18	18-0	216	S			
								B601	4	33-0	198	S			
								B602	30	22-0	991	B			
								B603	16	36-0	865	S			
								B604	14	9-9	205	S			
								B500	14	11-4	165	B	8-8	1-8	
								B501	20	14-8	306	B	12-0	1-8	
								B502	2	23-6	49	S			
								B503	2	9-9	20	S			
								B504	32	9-0	300	B	3-8	1-8	
								B505	10	7-9	81	S			
								B506	4	9-6	40	S			
								B507	4	11-0	46	S			
								B508	35	11-3	411	B			
								B509	35	12-3	447	B			
								A400	12	5-0	40	B	3-0	1-0	



REPLACEMENT BARS If reinforcing bars are fabricated from stock which has been previously tested and approved by the Ohio Highway Testing Laboratory, test samples as provided in Sec. 5-4.02 need not be furnished and replacement bars will not be required.

REINFORCING under bearings shall be placed to clear anchor bolts.

CONCRETE for piers shall be Class "C".

PILE DESIGN LOAD: 50 tons per pile

BAR SIZE is indicated in the bar mark. The first digit indicates the bar size number. For example A502 is a No. 5 size bar and A803 is a No. 8 size bar.

HARRY BALKE ENGINEERS
2840 VICTORY PARKWAY
CINCINNATI 5, O.

PIER DETAILS & REINFORCING BAR LIST

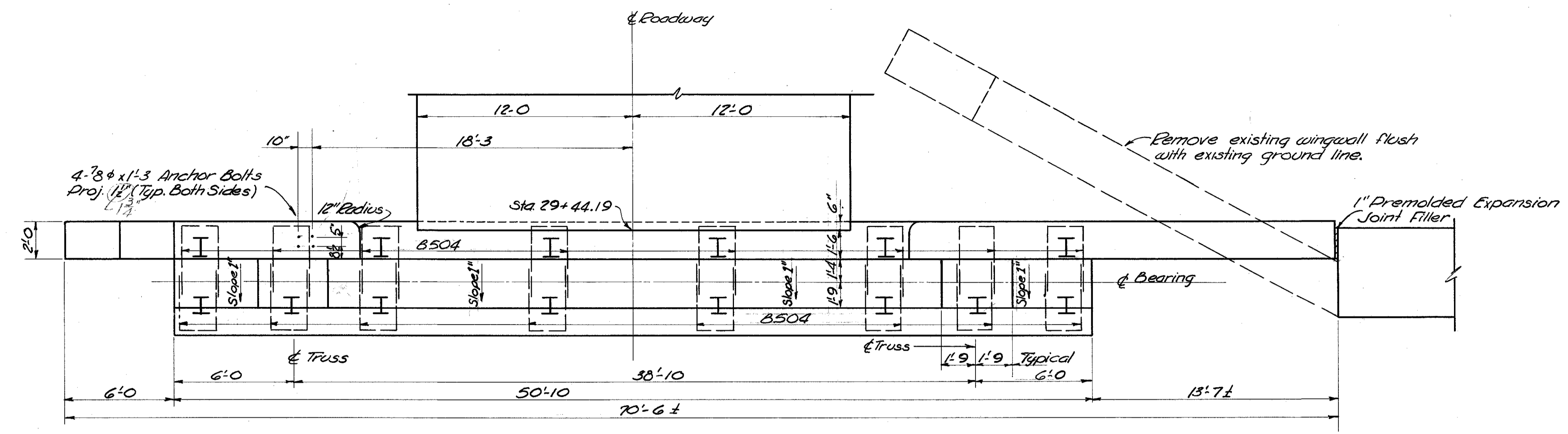
BRIDGE HAM - 50-03.76 W.B.
PROPOSED U.S. ROUTE 50
OVER GREAT MIAMI RIVER

HAMILTON CO.
SEC. 3-72

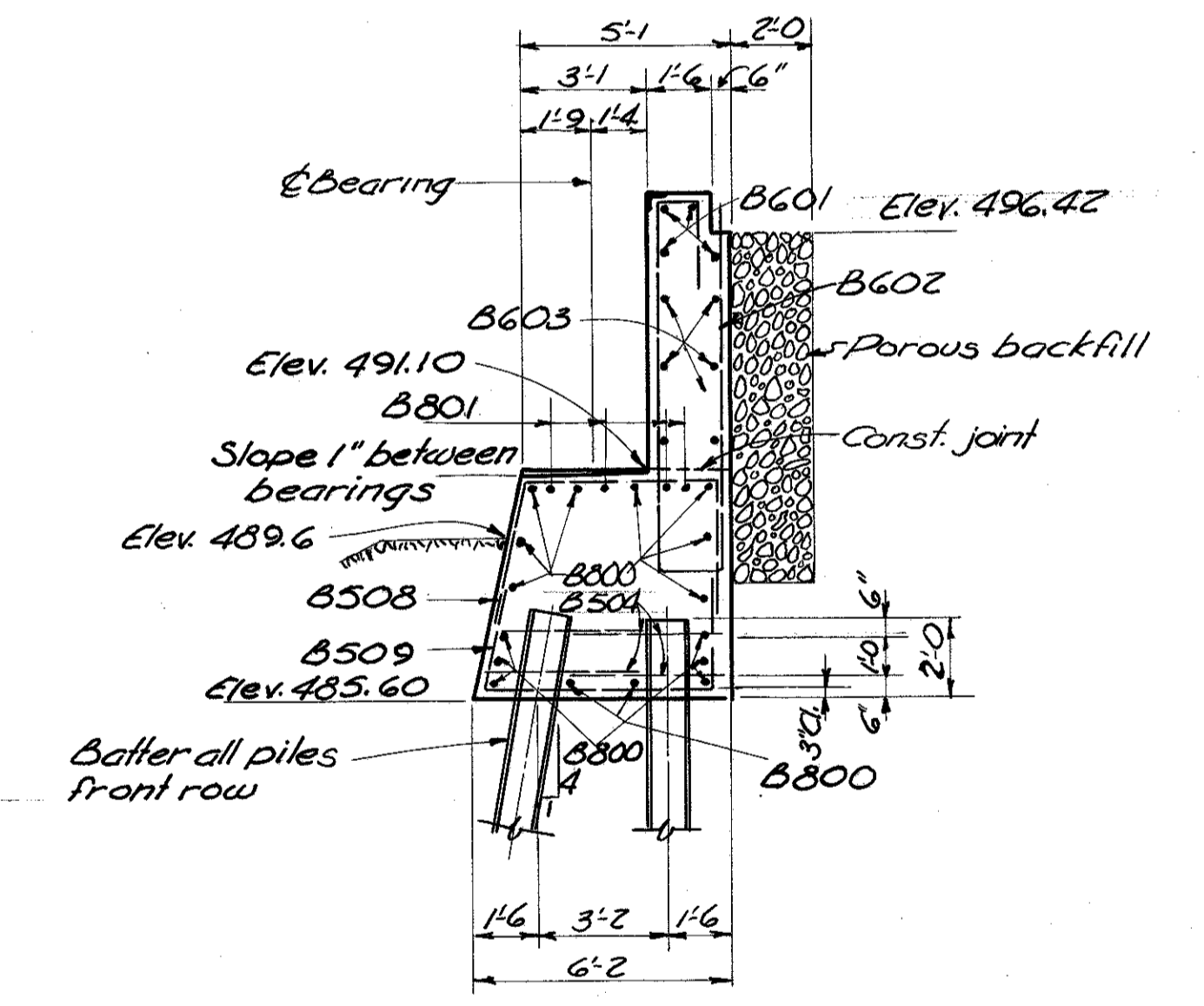
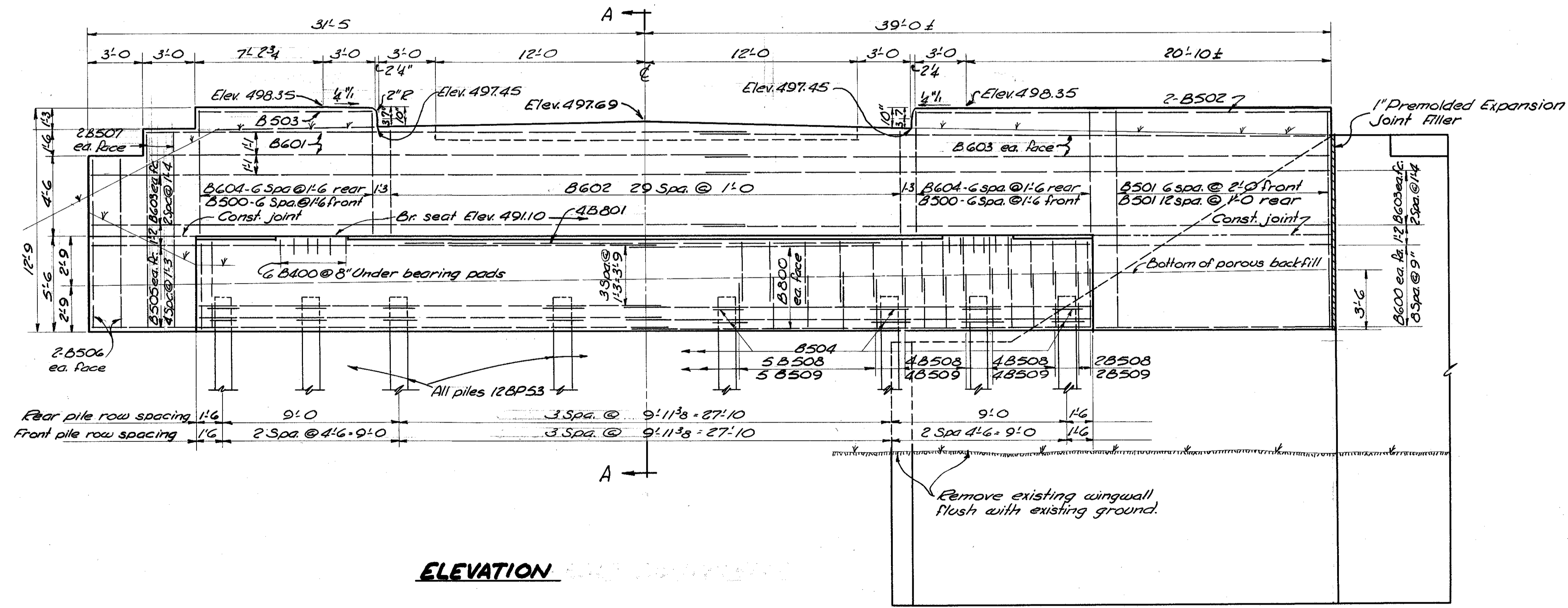
STA. 24+36.28

DATE: 2/27/58

BY: H.J. WH AL RCB A.C.A.



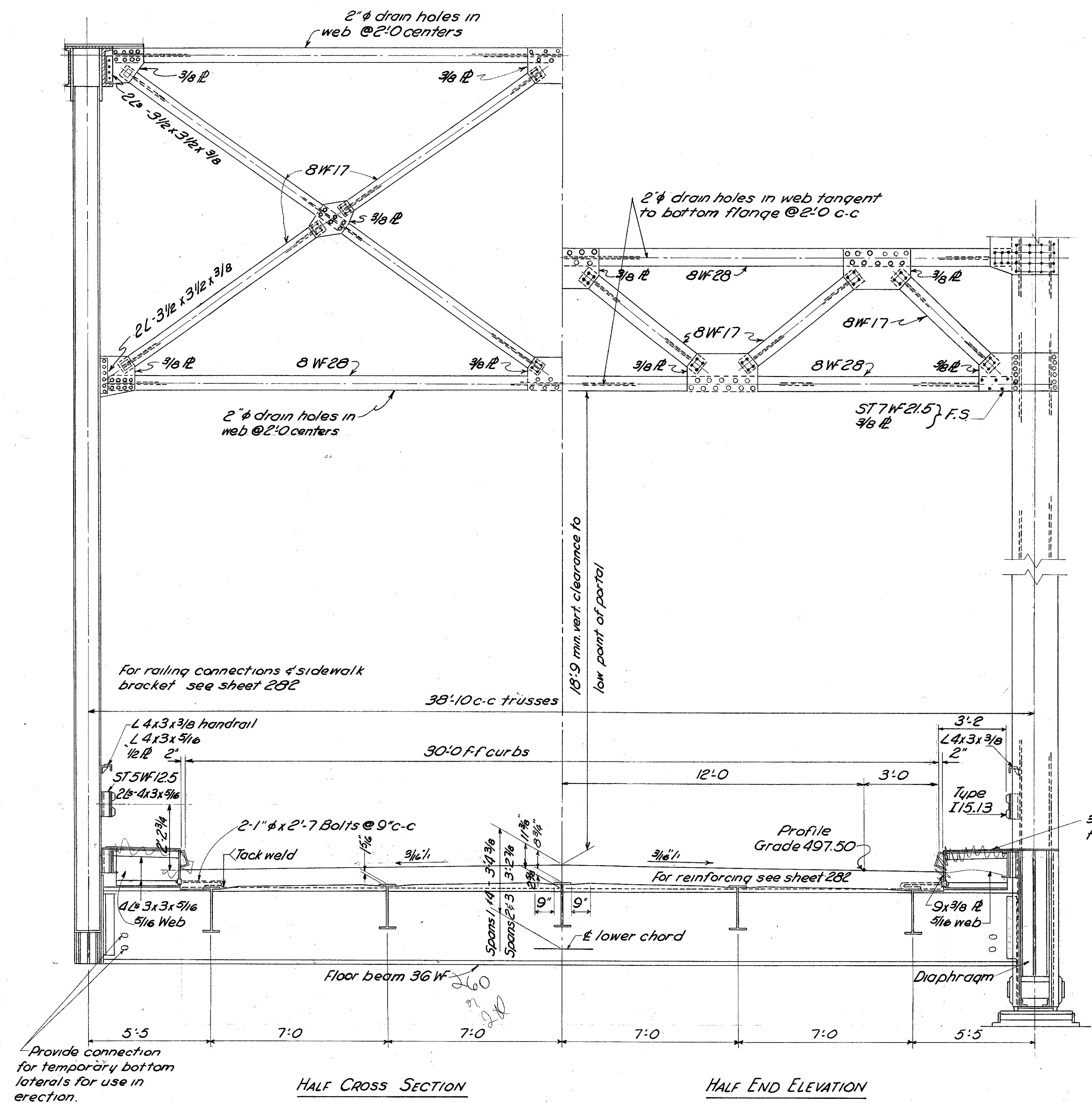
ABUTMENT NOTES
 See sheet 275
 PILE DESIGN LOAD: 45 tons per pile



HARRY BALKE ENGINEERS
 4840 VICTORY PARKWAY
 CINCINNATI 6, O.

ABUTMENT 5 DETAILS
 BRIDGE HAM-50-0376 WB
 PROPOSED U.S. ROUTE 50
 OVER GREAT MIAMI RIVER
 HAMILTON CO.
 SEC. 3.72 STA. 28+96.28

DESIGNED	DRAWN	FRAMED	CHECKED	REVIEWED	DATE
EA	HJ	AL	KM	ACA	2/27/58
			PCB		



TYPICAL FOR ALL SPANS

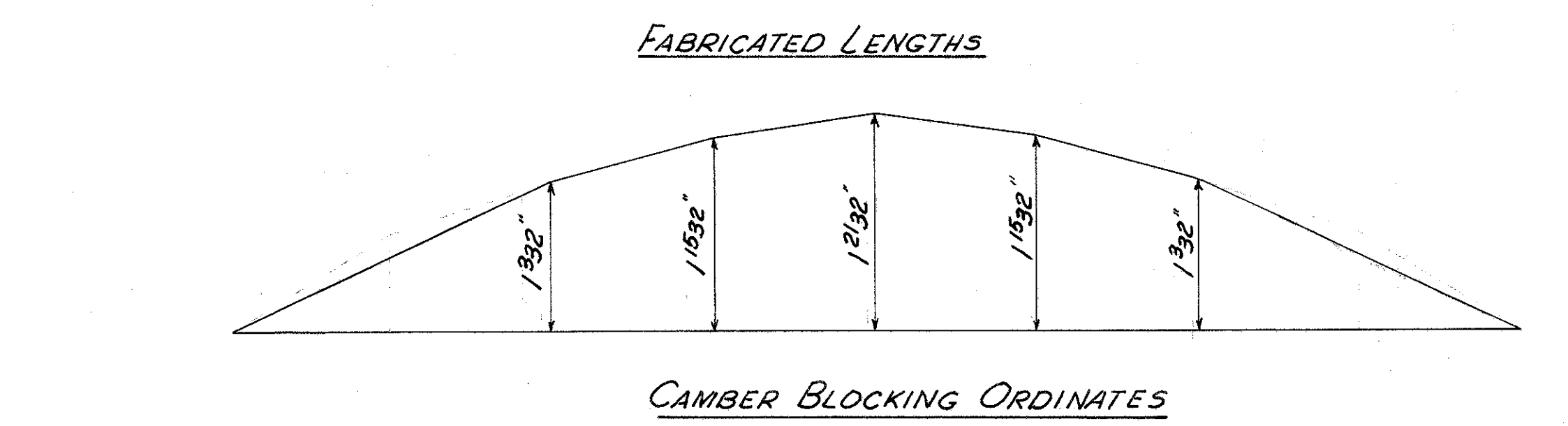
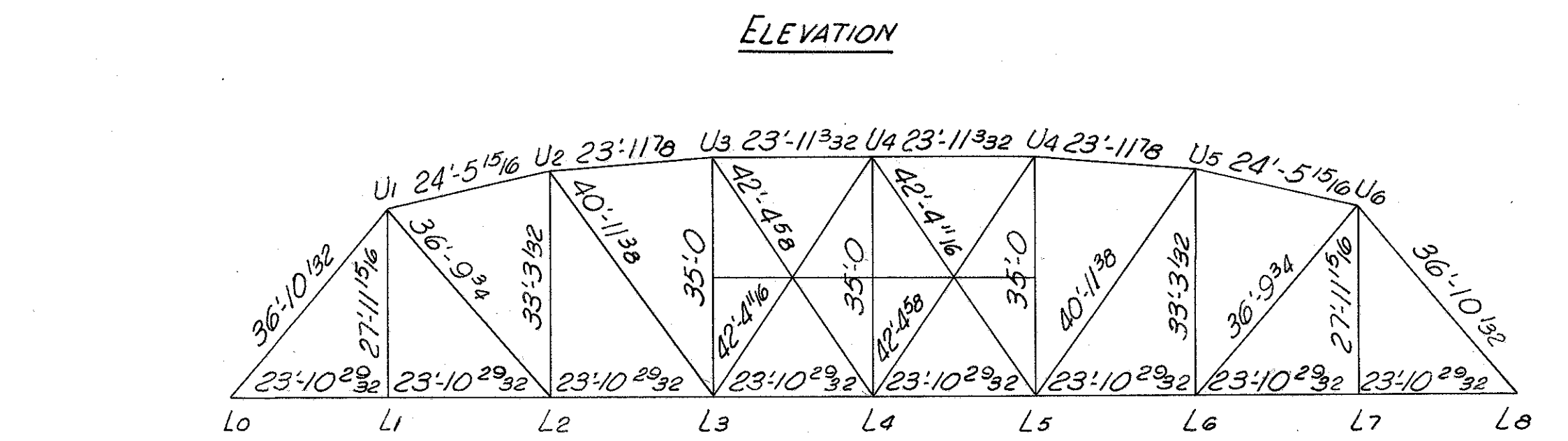
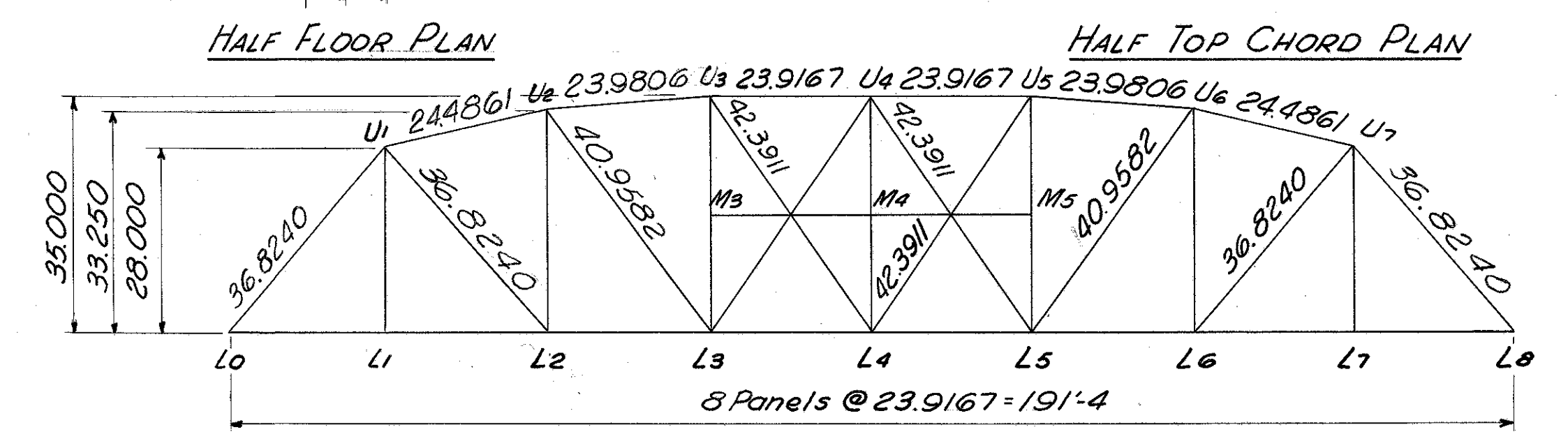
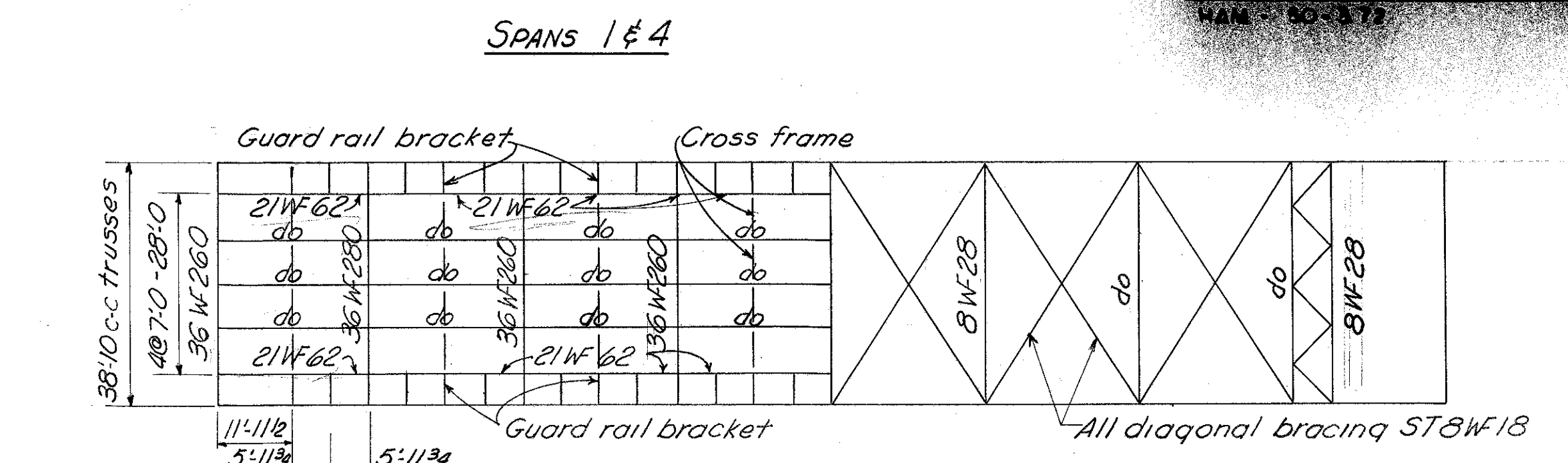


TABLE OF MODIFIED STRESSES (SPANS 1 & 4)

Member	Modified Stresses in Kips			Section	
	DL	LL & I	Total		
LoU1	-284	-200	-484	2-15x50	1-R 21x9/16
U1 U2	-275	-179	-454	2-15x40	1-R 21x12
U2 U3	-319	-210	-529	2-15x40	1-R 21x11/16
U3 U4	-340	-224	-564	2-15x50	1-R 21x9/16
Lo L2	+185	+121	+306	2-R 15x34	6 holes out
L2 L3	+268	+177	+445	2-R 15x11/16	2-R 15x38
L3 L4	+319	+207	+526	2-R 15x11/16	2-R 15x9/16
U1 L2	+129	+109	+238	12W58	4 holes out
U2 L3	+88	+96	+184	12W53	do
U3 L4	+39	+79	+118	12W36	do
U1 L1	+59	+108	+167	12W40	do
U2 L2	-36	-62	-98	12W65	do
U3 L3	-9	-63	-72	12W36	do
Substruts				12W36	do
Floor beam reactions	56.6	86.4	143		

All Rivets 7/8" unless noted

191'-4" TROSS

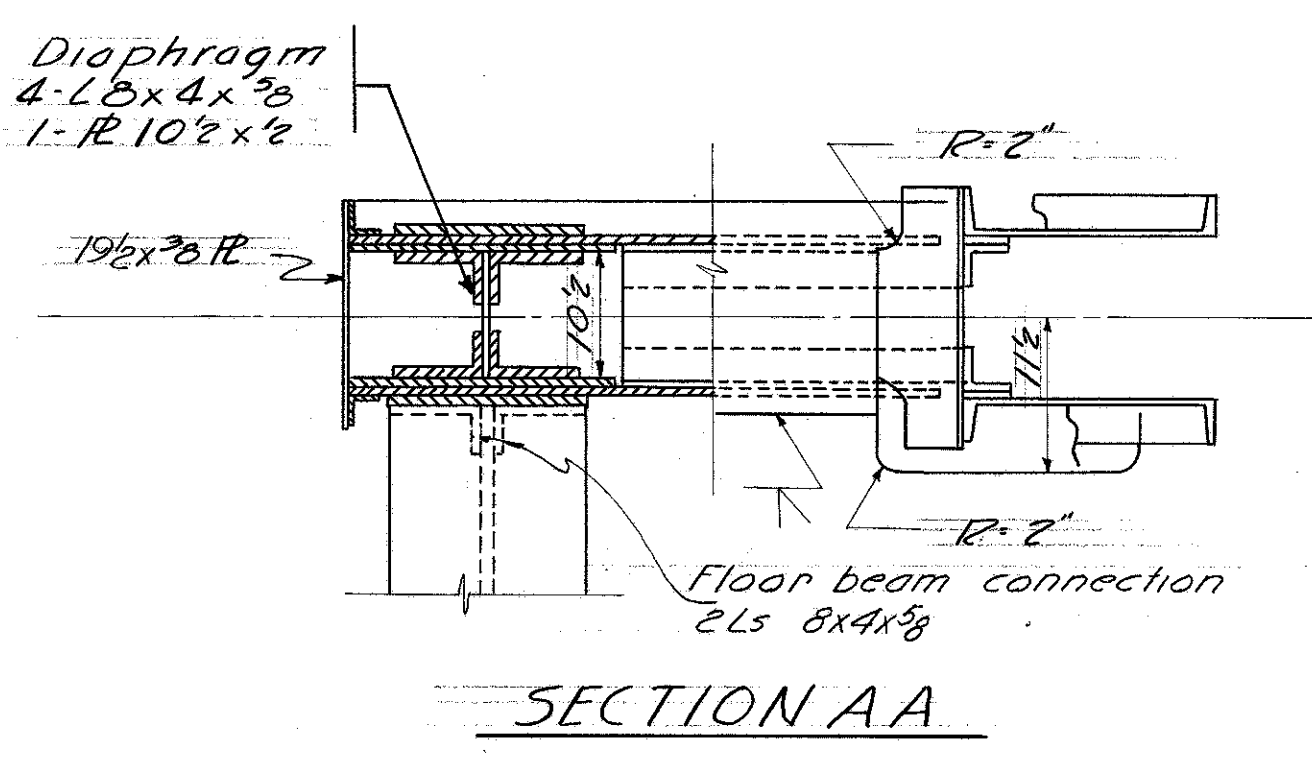
HARRY BALKE ENGINEERS
2830 VICTORY PARKWAY
CINCINNATI 8, O.

SUPERSTRUCTURE DETAILS

BRIDGE HAM-50-0376WB
PROPOSED US ROUTE 50
OVER GREAT MIAMI RIVER
HAMILTON CO.
SEC. 3.72 STA. 24+96.29

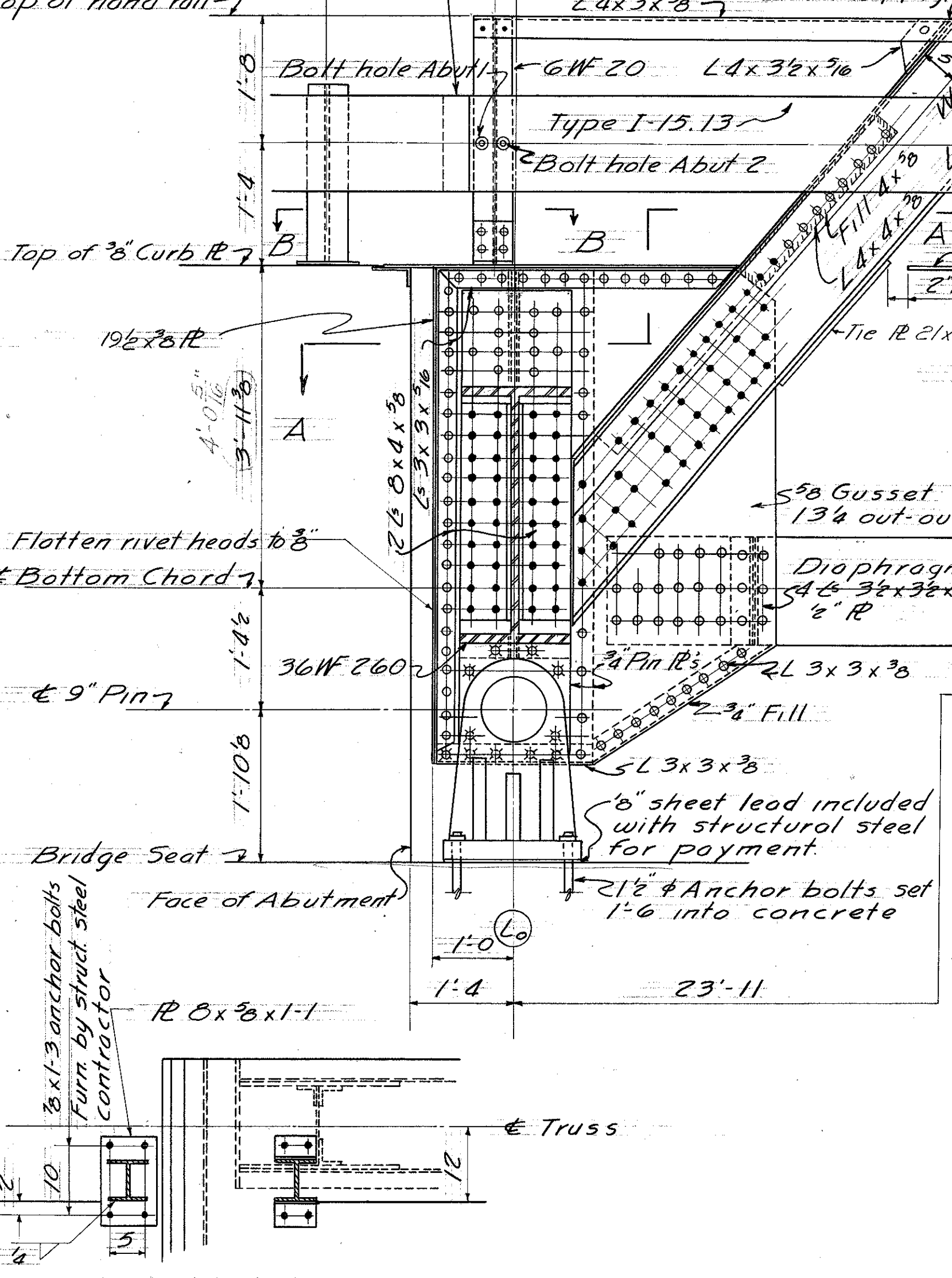
DATE: 2/27/58

Note: Stresses modified according to sec. 76 of the 1957 Design Specification



Abut. 1-N & S rail, use center splice & continue rail on roadway.
Abut. 1-N rail-use std splice & continue rail on roadway.
S rail-use std end flare
Abut. 2-top 4" Do not bolt.

Post @ Abut. 2 only



Note:
All rivets 5/8 unless noted

Diaphragm at Splice
4-L5 3/2 x 3/2 x 3/8
1-R 10

Diaphragm at Panel Points
4-L5 3/2 x 3/2 x 3/8
1-R 10

HARRY BALKE ENGINEERS
2300 VICTORY PARKWAY
CINCINNATI 9, O.

SUPERSTRUCTURE DETAILS

BRIDGE HAM-50-0376WB
PROPOSED U.S. ROUTE 50
OVER GREAT MIAMI RIVER

HAMILTON CO.
SEC. 3.72 STA. 21+96.28

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE
EWS	EWS	HS	RGB	ACA	2/27/58

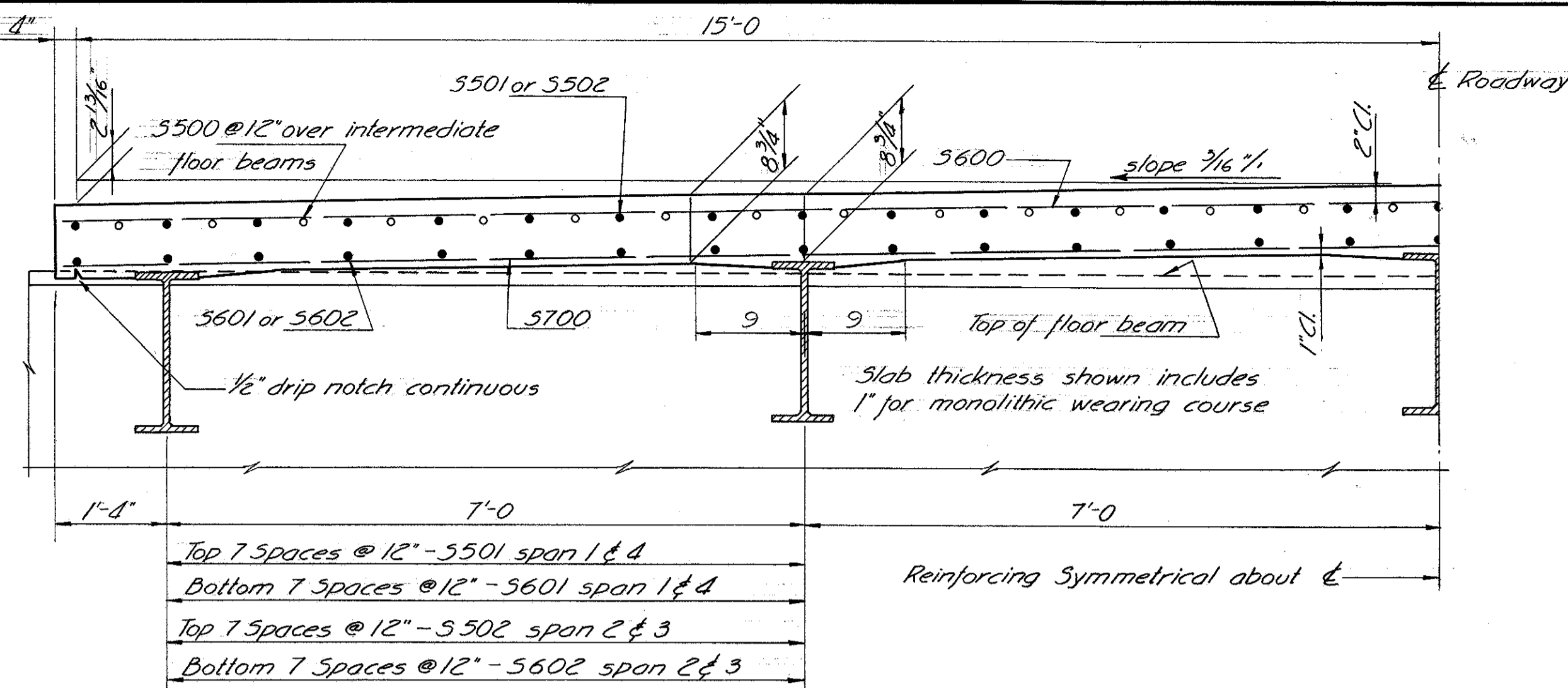
Diaphragm at all Top
Chord Panel Points
4-L5 3/2 x 3/2 x 3/8
1-R 10

HALF BOT SECTION
HALF TOP VIEW

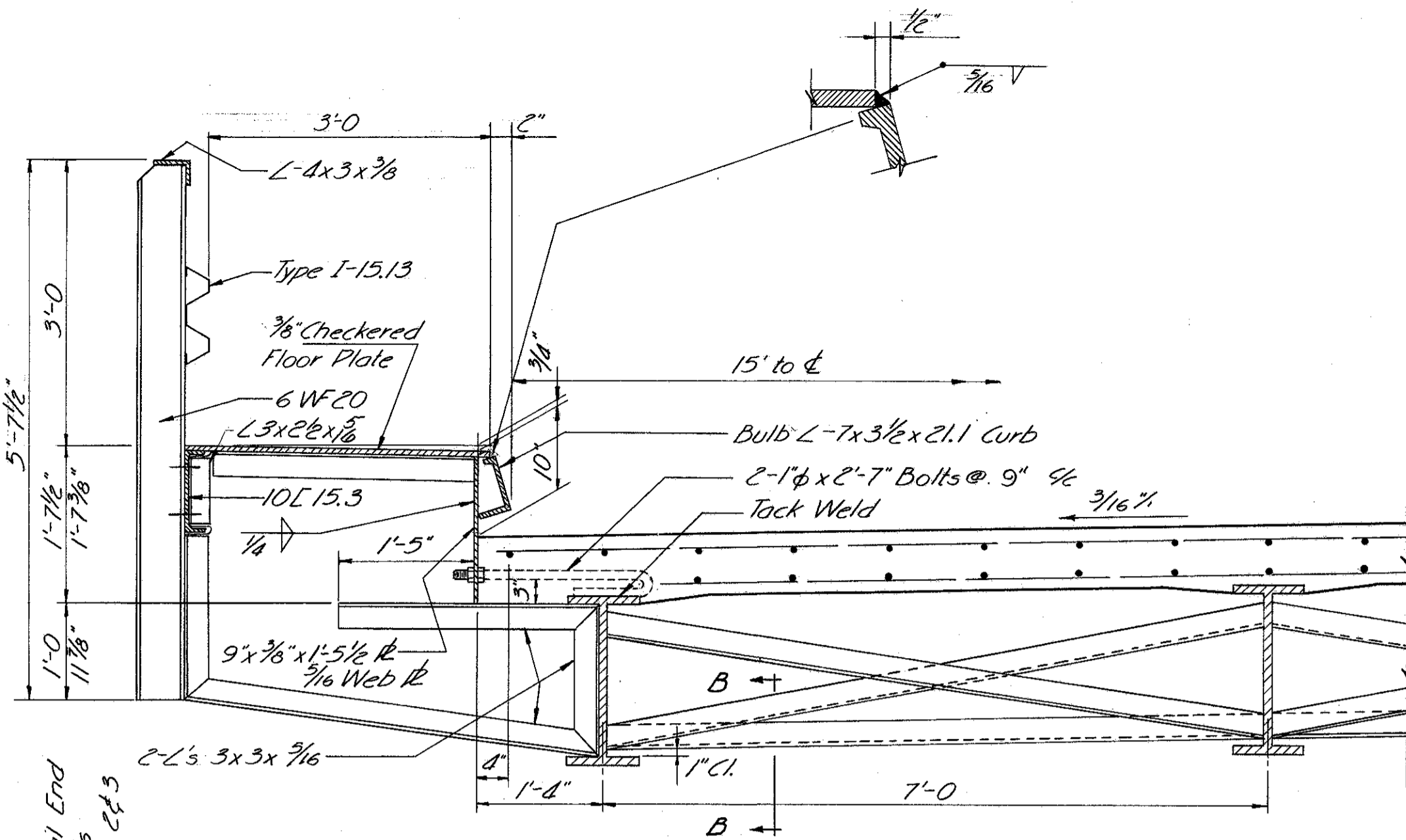
Stitch rivet as per Sec. 228 & 229 of the Design Spec.

Stitch rivet as per Sec. 228 of the 1957 Design Spec.

191'-4 TRUSS

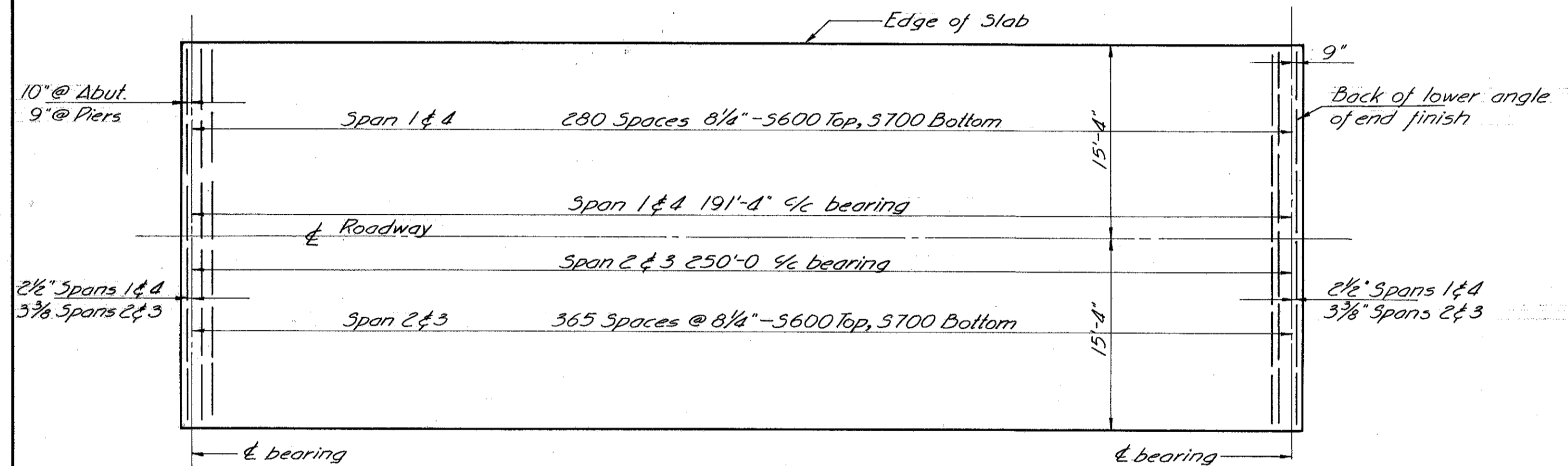


TYPICAL SECTION



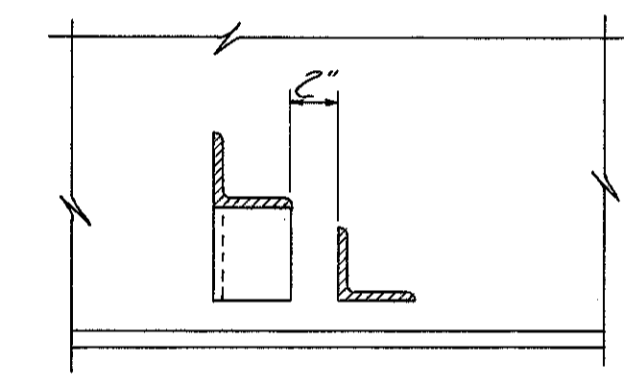
SECTION AT INTERMEDIATE CROSS FRAME

All slab concrete shall be class C. All welding shall be class A. Rivets 3/8" unless noted.

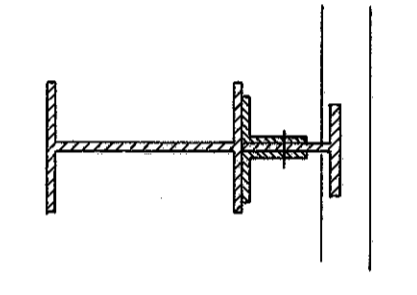


NOTE: One transverse, keyed construction joint may be used in each truss span, at the Contractor's option. If used, the joint shall be located not less than four feet from a transverse floor beam.

SLAB PLAN

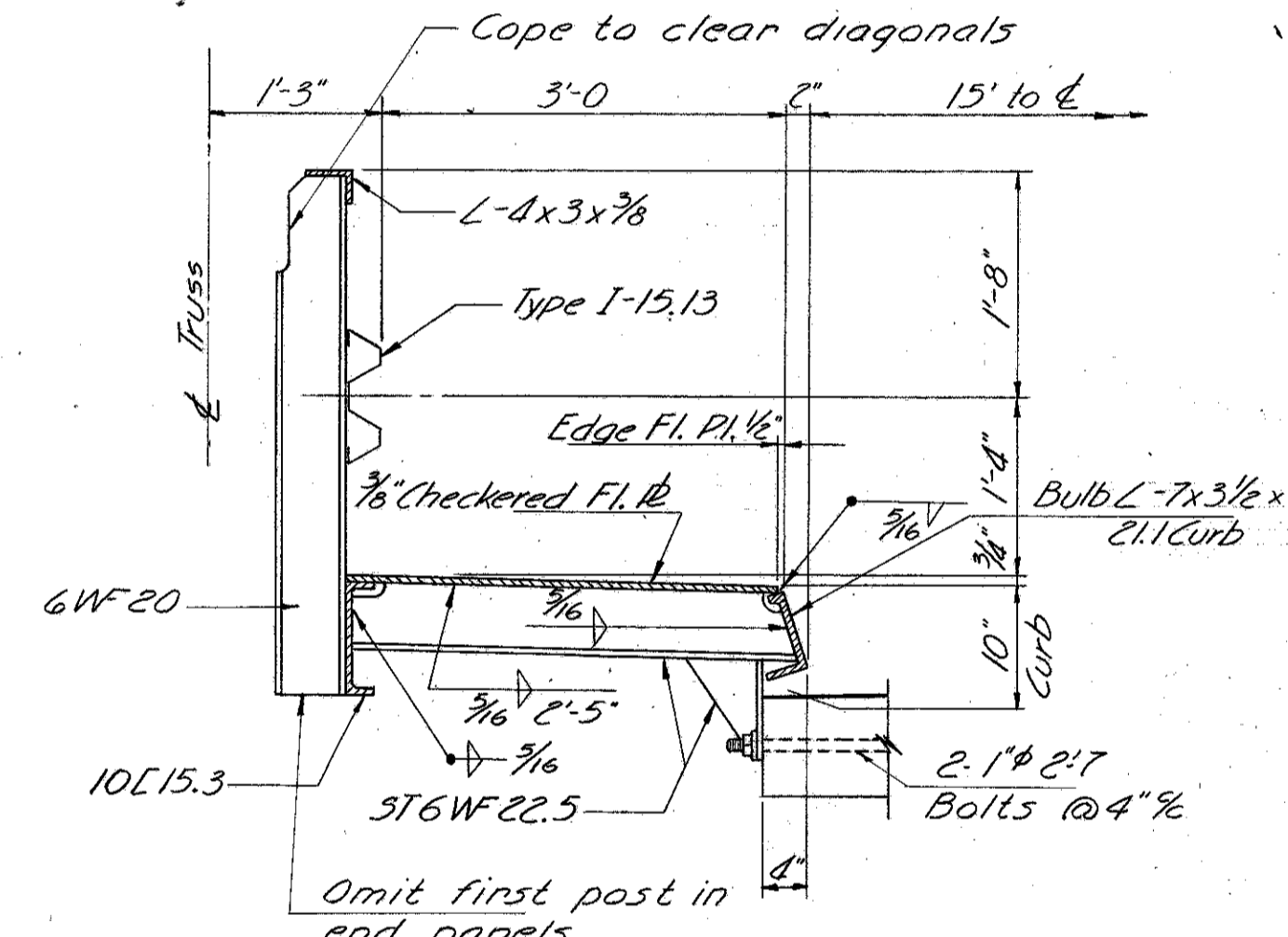


SECTION B-B

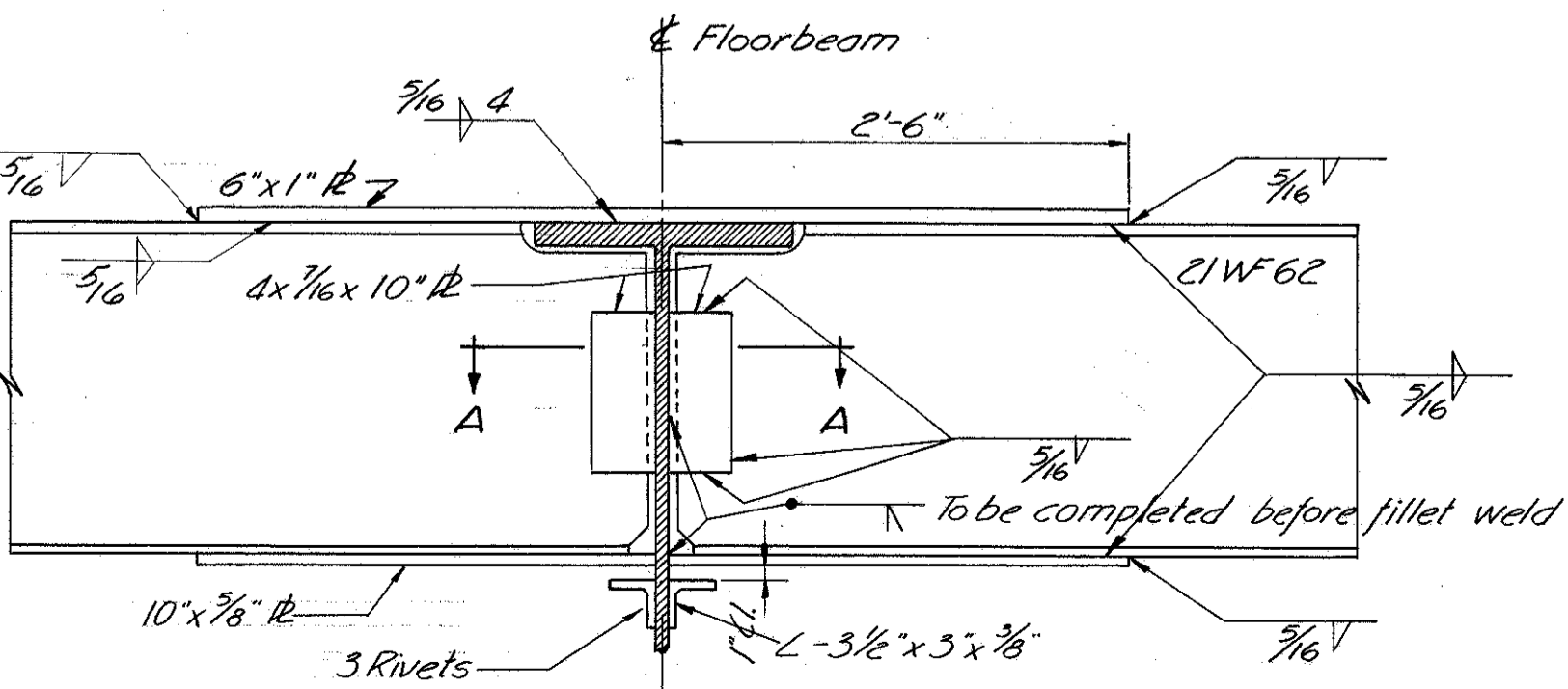
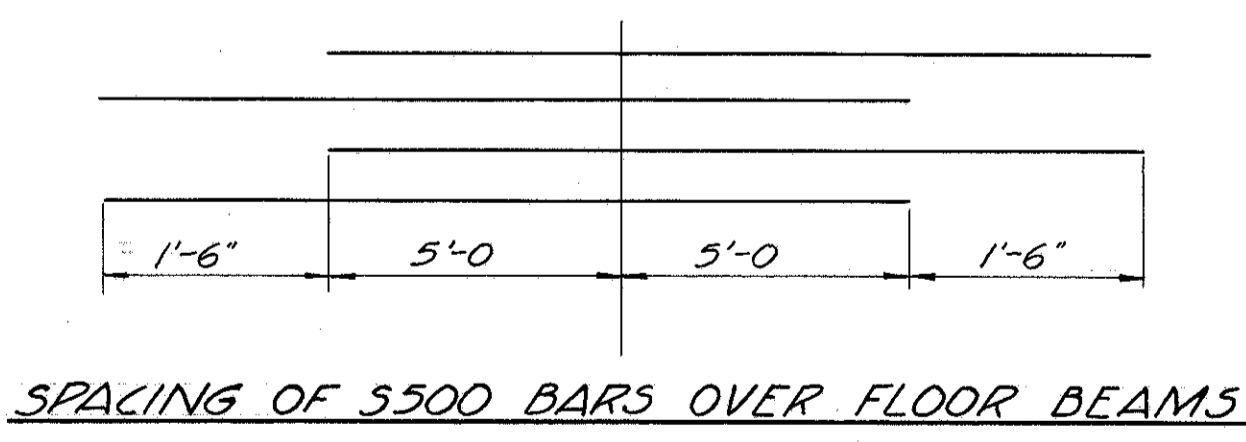


SECTION D

NOTE: 5-14, shall include the type I-15.13 railing, 4x3x3/8 top angle railing, railing post and railing connections to trusses for payment.

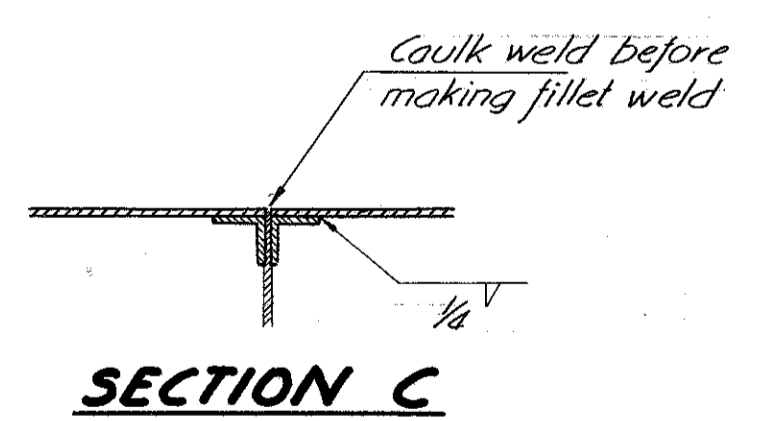


INTERMEDIATE RAILING AND CURB SUPPORT

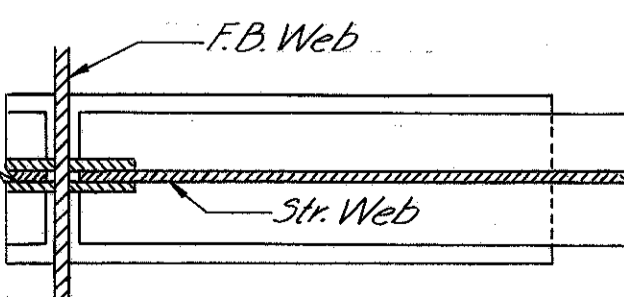


SPlice DETAIL

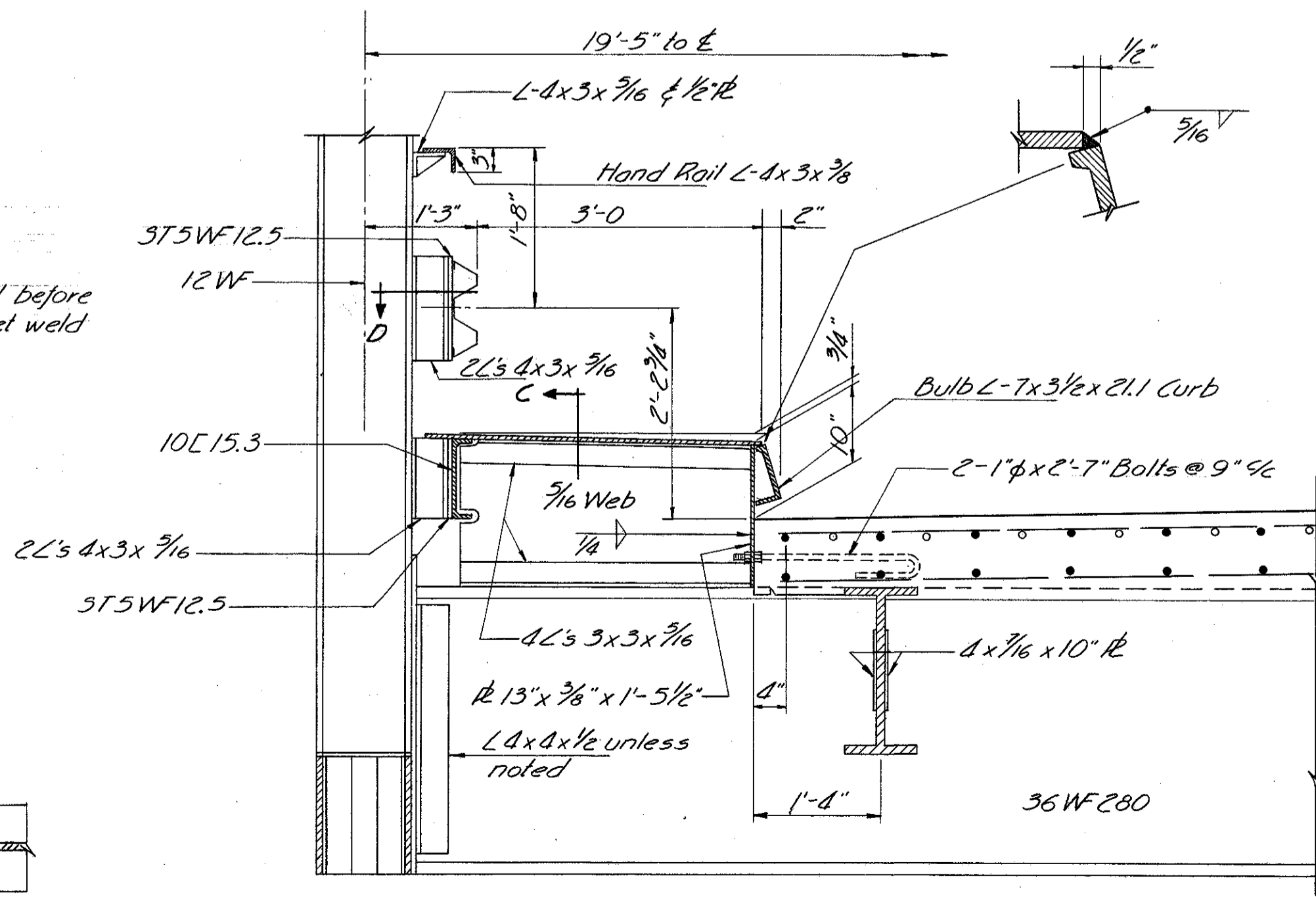
NOTE: See sheet 276 for reinforcing steel schedule



SECTION C



SECTION A-A



SECTION AT FLOOR BEAM

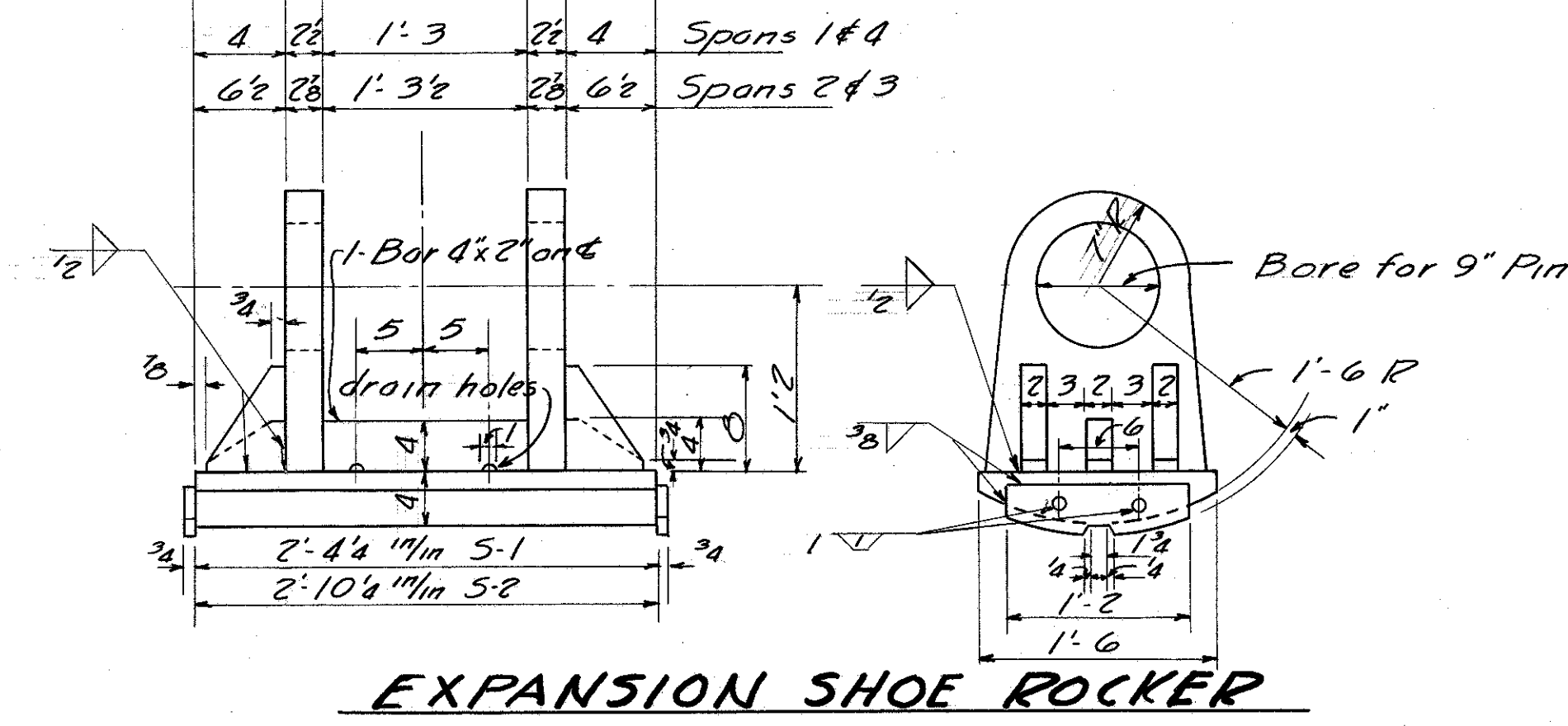
HARRY BALKE ENGINEERS
2830 VICTORY PARKWAY
CINCINNATI 5, O.

SUPERSTRUCTURE DETAILS

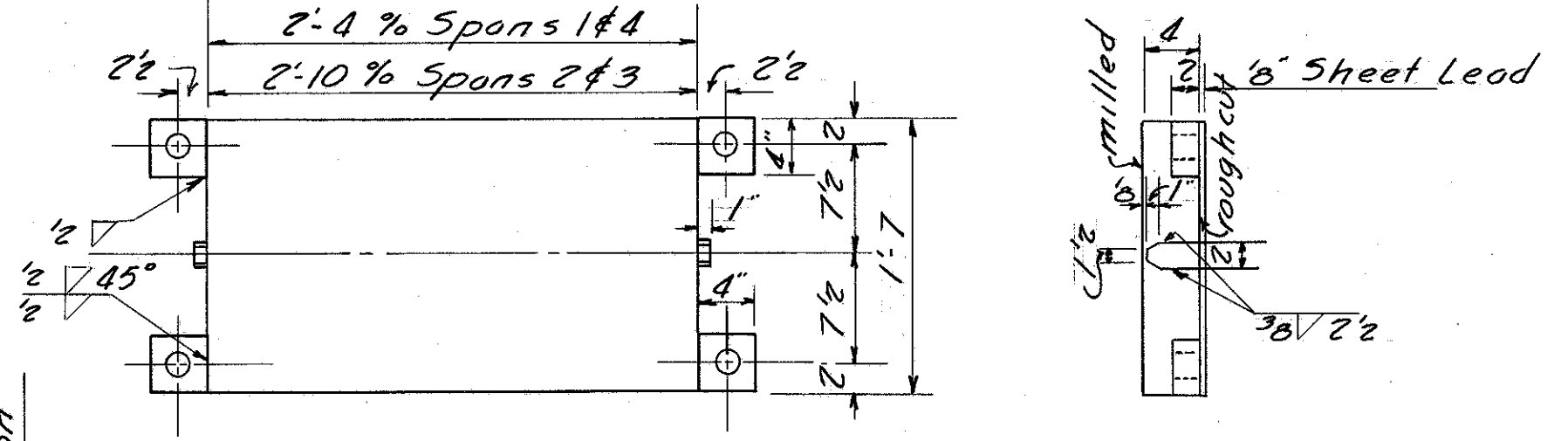
BRIDGE HAM-50-0376 WB
PROPOSED US ROUTE 50
OVER GREAT MIAMI RIVER
HAMILTON CO.
SEC 3.72

STA 24+96.78

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE
LLT	AL	CL	RCB	ACA	2/27/58

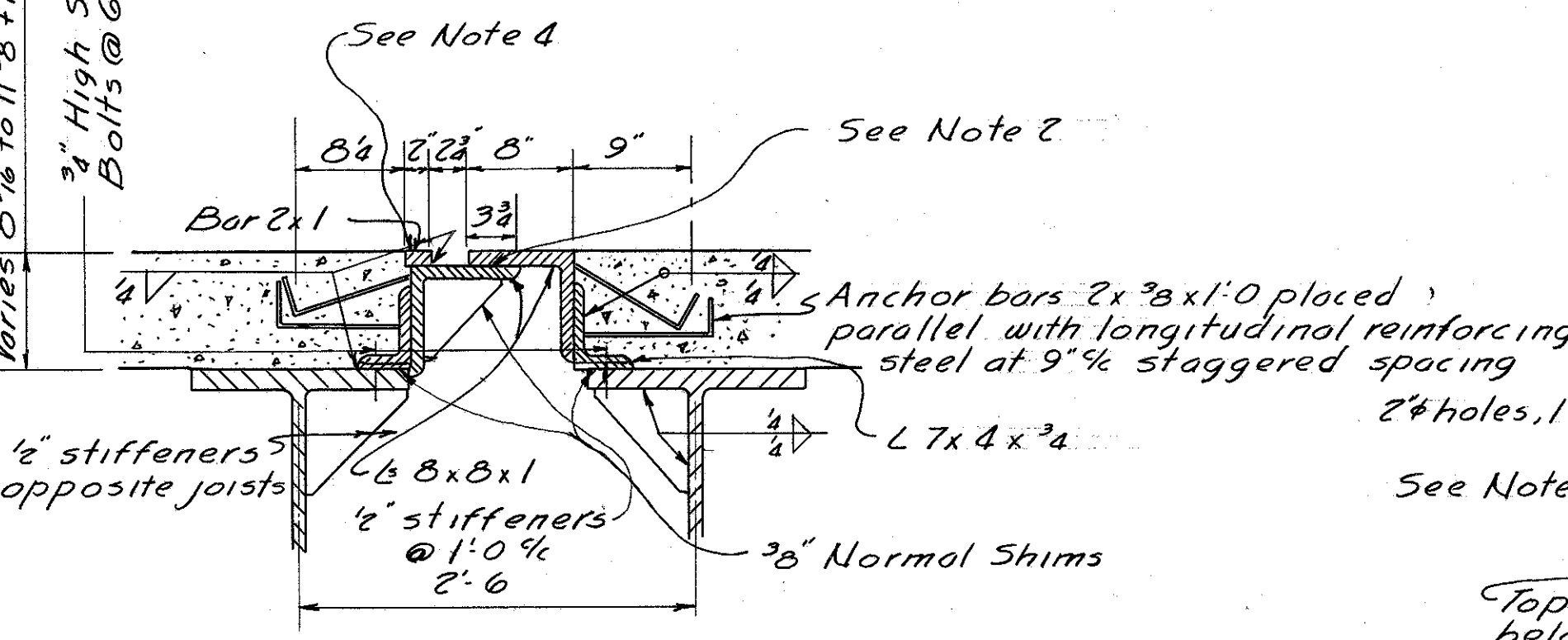


EXPANSION SHOE ROCKER

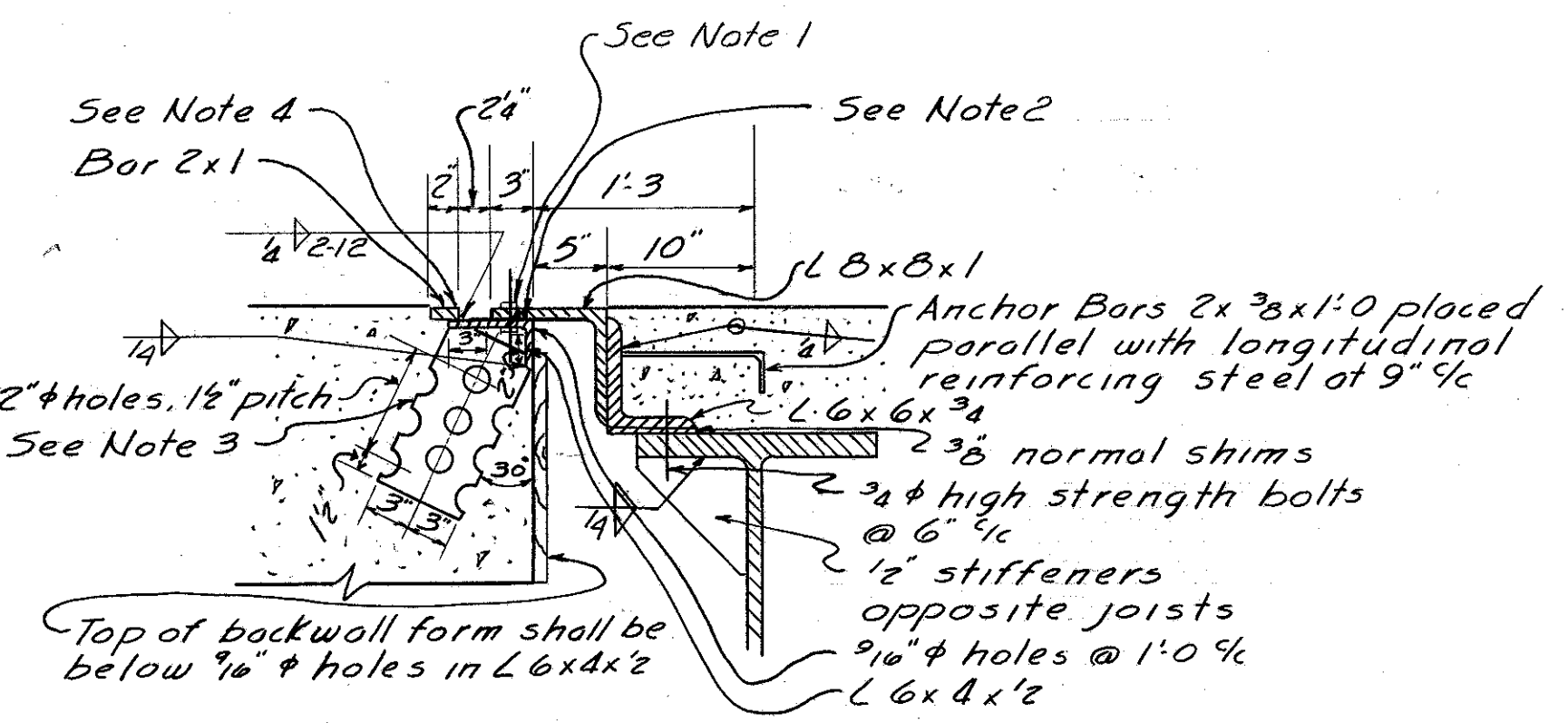


BASE PLATE FOR EXPANSION ROCKER
All edges are to be square and true

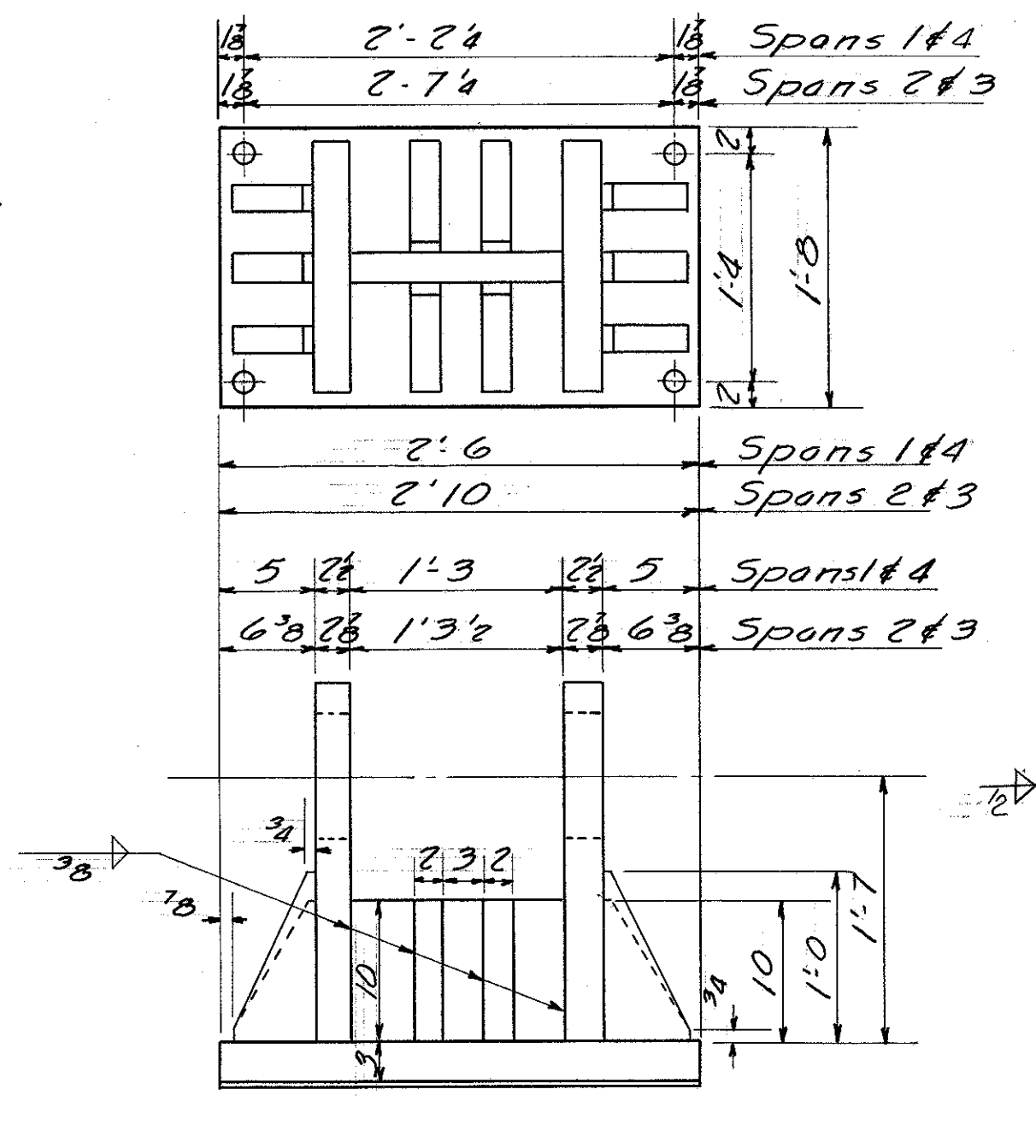
Varies 8% to 11 3/4% D.L. Deflection



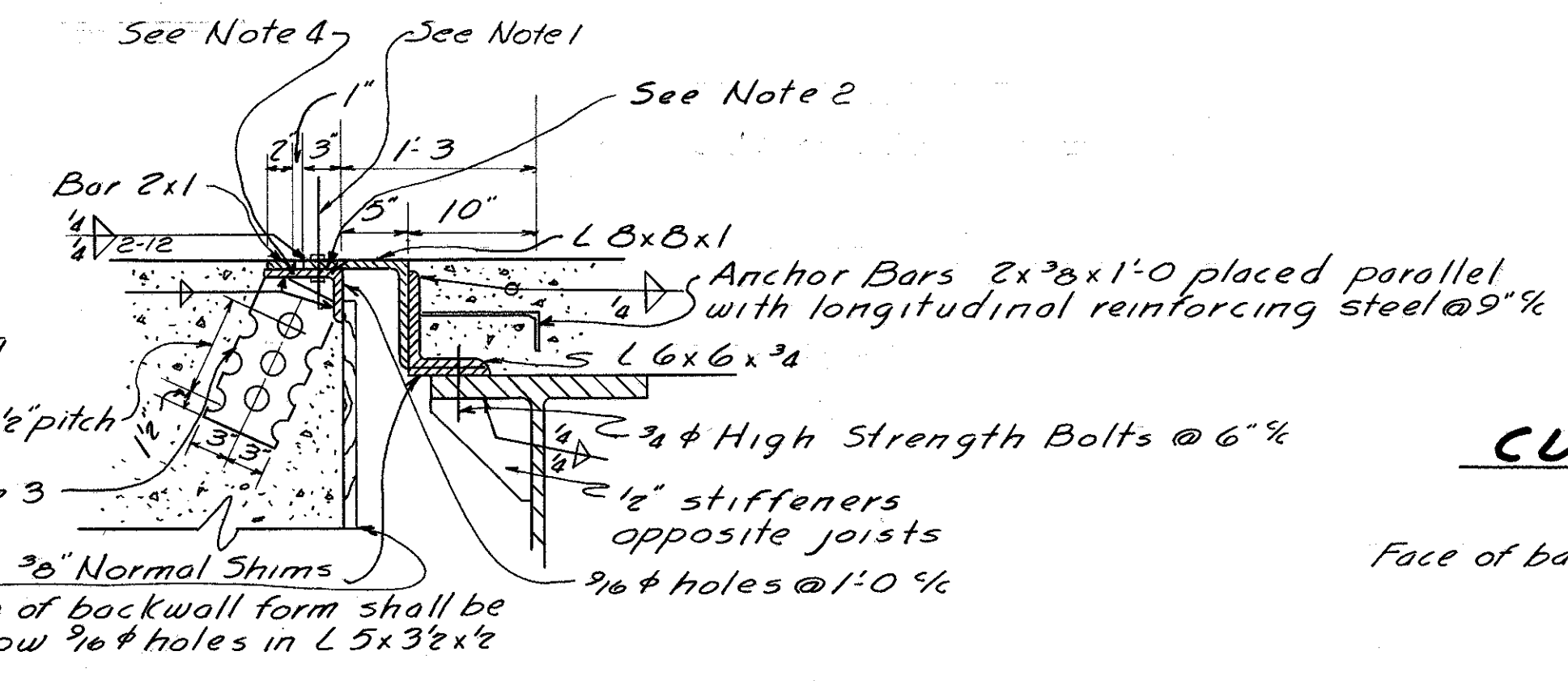
ROADWAY END FINISH 'A'



ROADWAY END FINISH 'B'



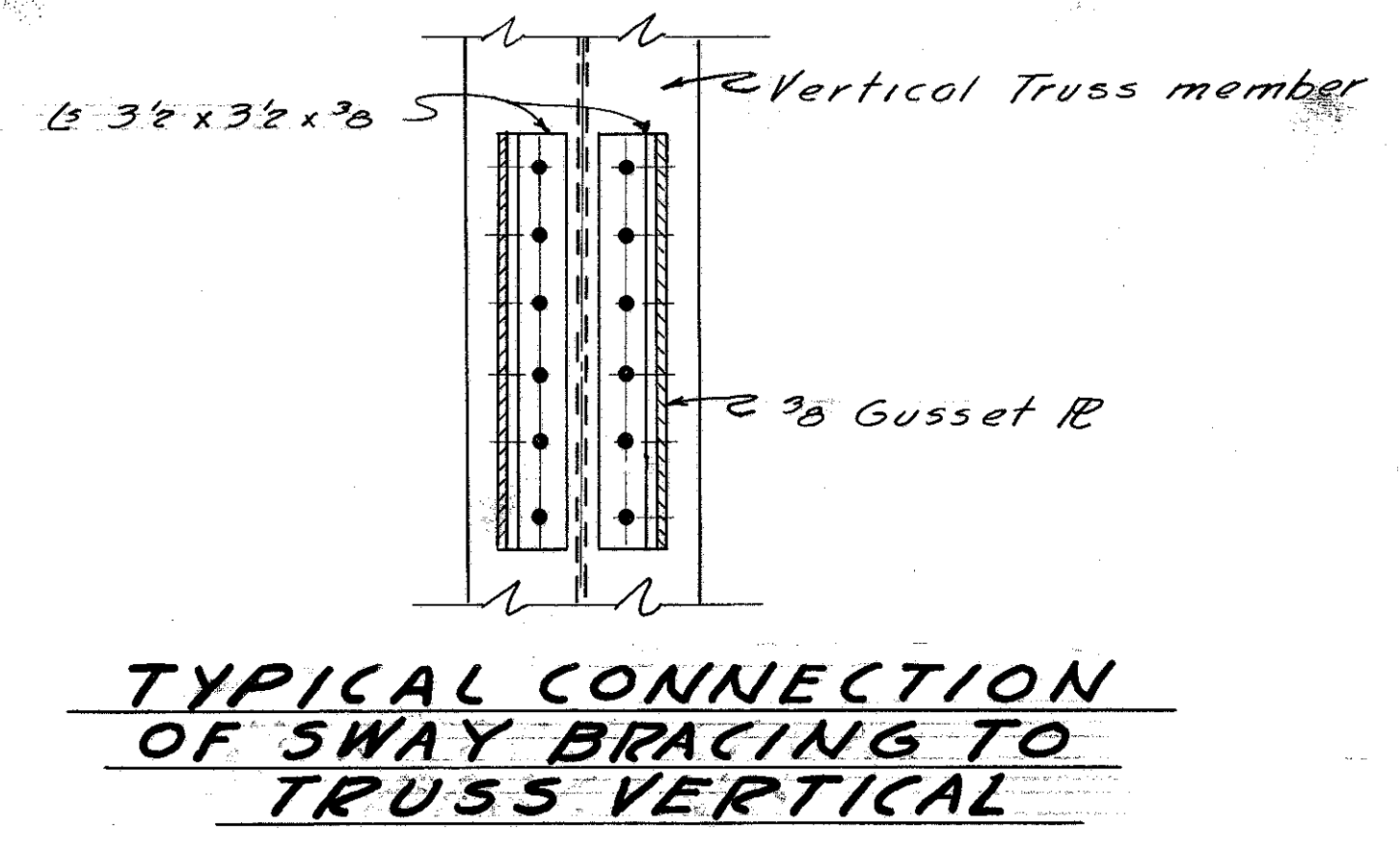
FIXED SHOES
All edges are to be square and true



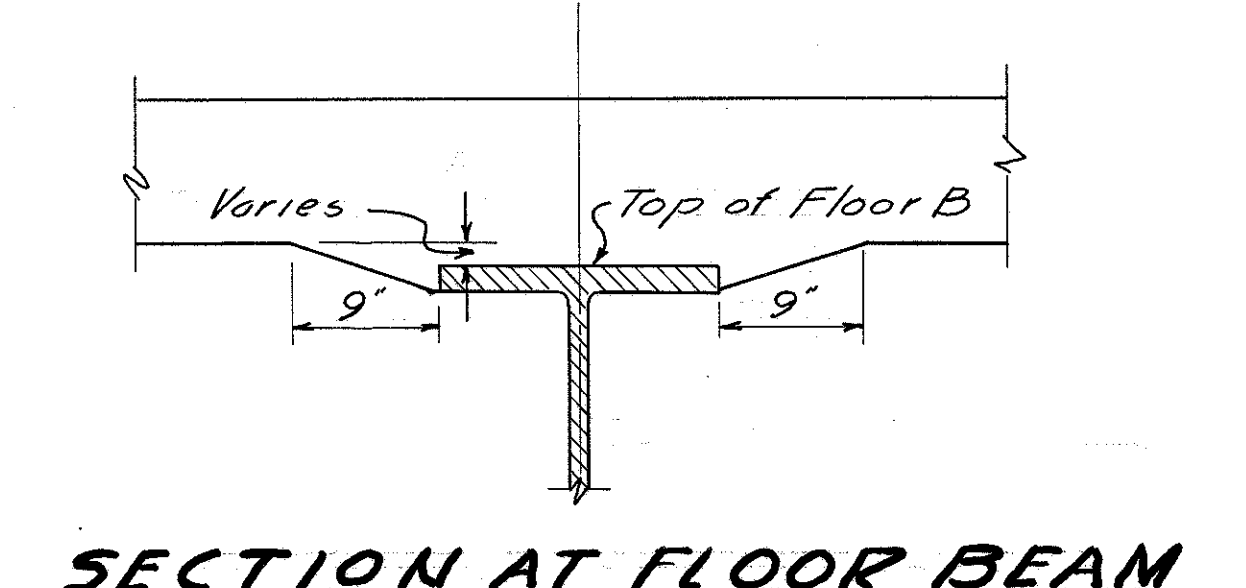
ROADWAY END FINISH 'C'

NOTES:

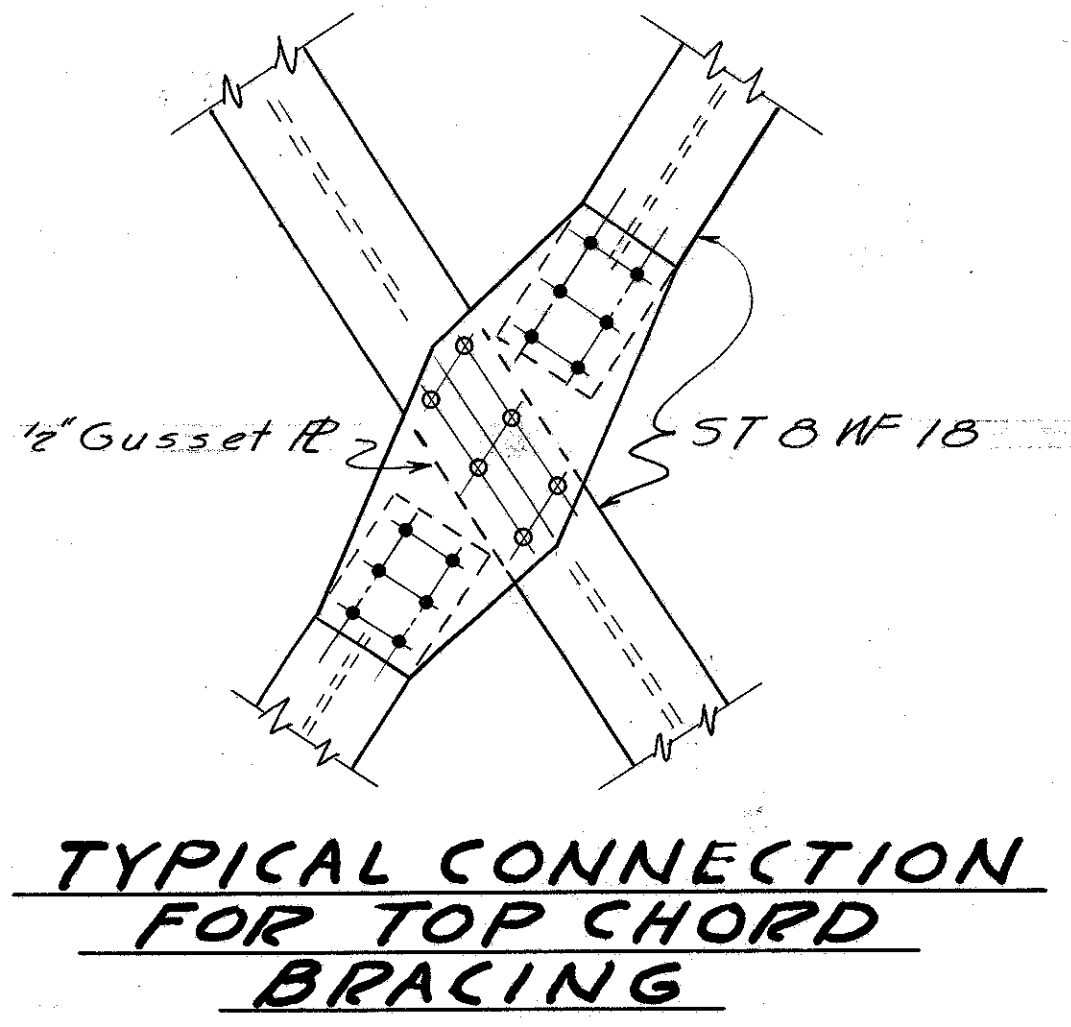
- 3/8 x 2 bolts at not more than 2'-0" with nuts tack-welded to under side of lower angle. 1/16" holes in upper angle. Center 3/8" bolts in 1 1/8" holes. Apply flake graphite between washers and angles. Turn bolt tight and release one-half turn. Remove bolts as soon as concrete has reasonably set preferably within two hours, to avoid effect of temperature expansion or contraction of superstructure. Fill hole with bituminous material.
- This contact surface shall not be painted and shall be lubricated with flake graphite prior to placing of backwall concrete.
- 6' x 12" plates spaced at approximately 15" except near joints in the angle, where the plates shall be placed within 6" of each side of the joint. The holes may be burned in the plate.
- Provide a joint in the edge bar and in the angle on the center line of the roadway. Additional joists may be provided in them of a minimum spacing of 6'-0". (Joints shall not be welded.)



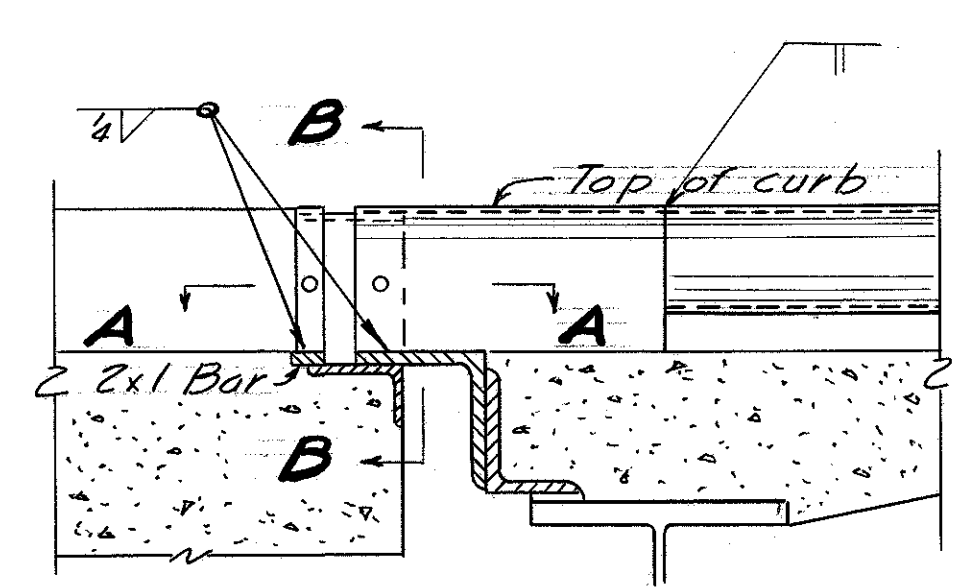
TYPICAL CONNECTION OF SWAY BRACING TO TRUSS VERTICAL



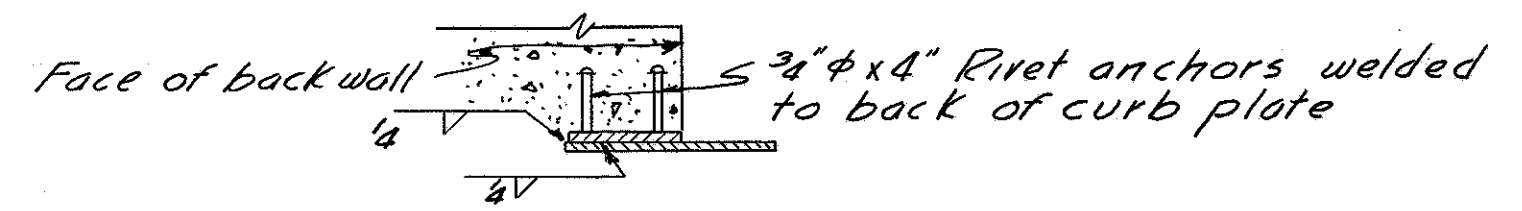
SECTION AT FLOOR BEAM



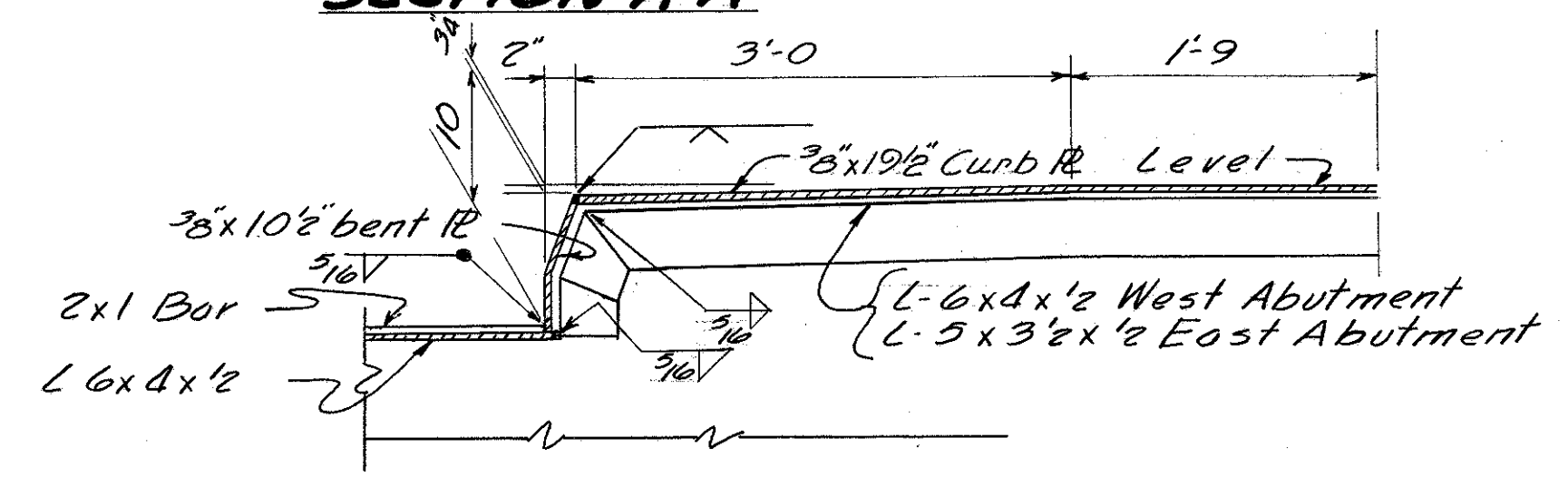
TYPICAL CONNECTION FOR TOP CHORD BRACING



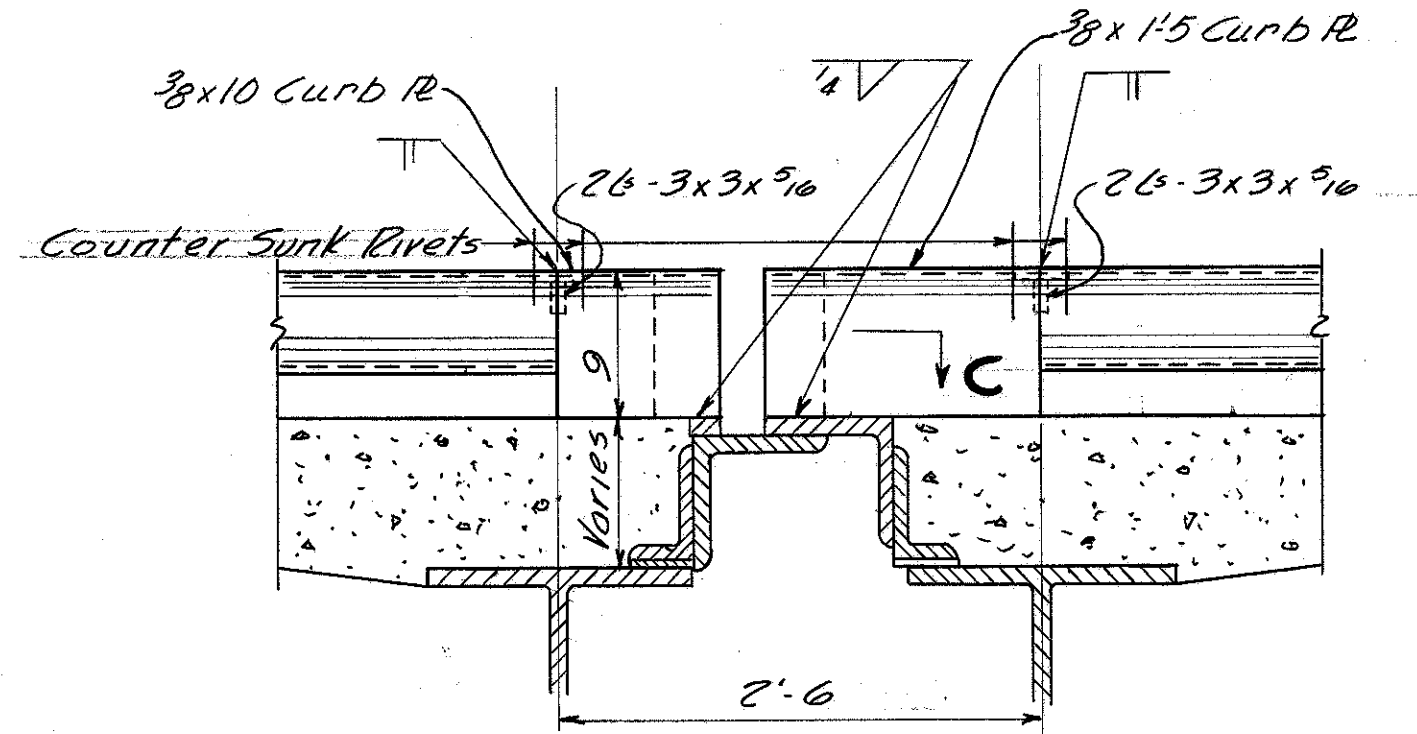
CURB PLATE AT ABUTMENT



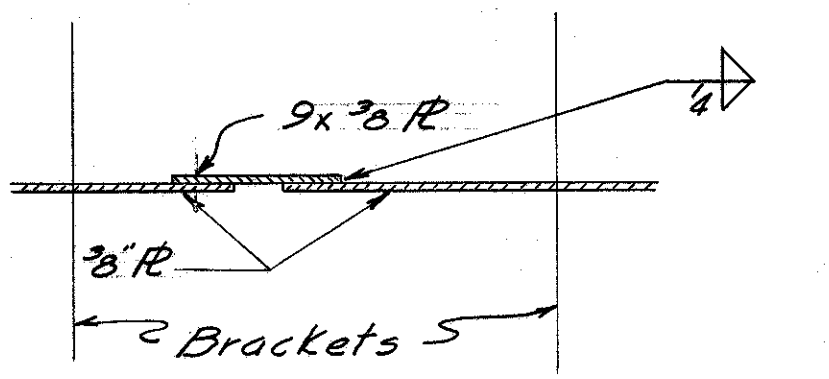
SECTION A-A



SECTION B-B



CURB PLATE AT PIERS



SECTION C-C

See Sheets 279 and 280 for Railing details for bridge ends

HARRY BALKE ENGINEERS 2330 VICTORY PARKWAY CINCINNATI 6, O.				
SUPERSTRUCTURE DETAILS				
BRIDGE HAM-50-0376 WB PROPOSED US ROUTE 50 OVER GREAT MIAMI RIVER				
HAMILTON CO. SEC. 3.72		STA 24+96.28		
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED
LLT	AL	J.S	RCB	ACA
EWG				2/27/55