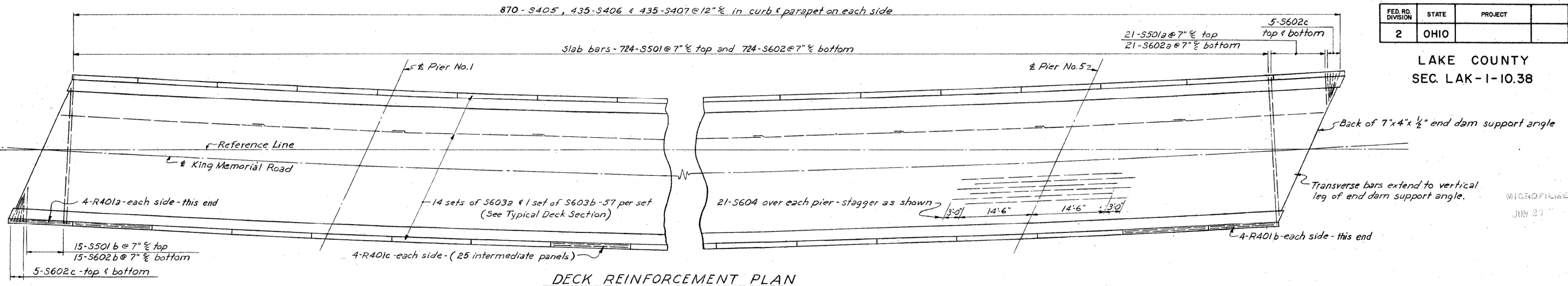


FED. RD. DIVISION	STATE	PROJECT
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LAKE COUNTY  
SEC. LAK-1-10.38

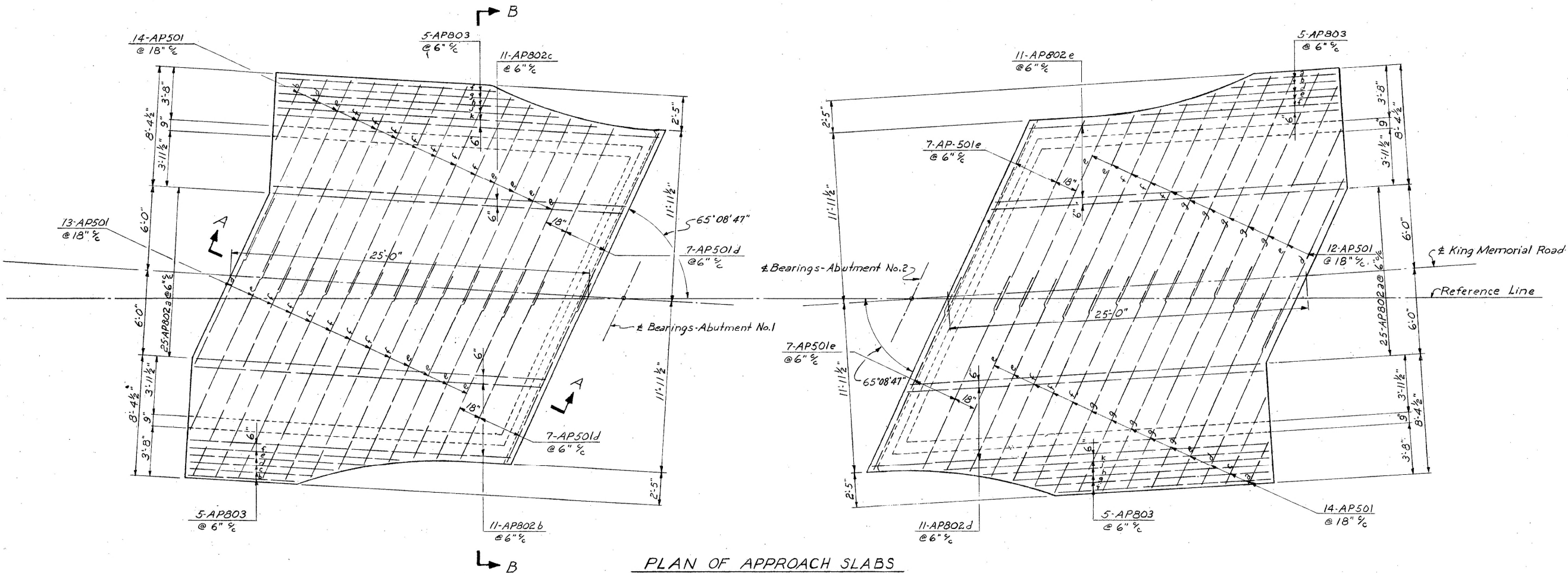
MICROFILMED  
JUN 27



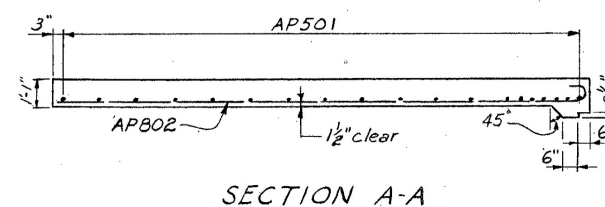
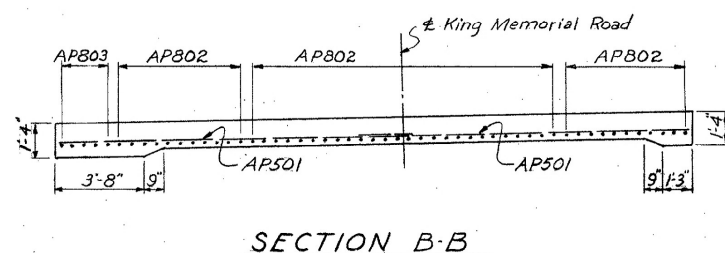
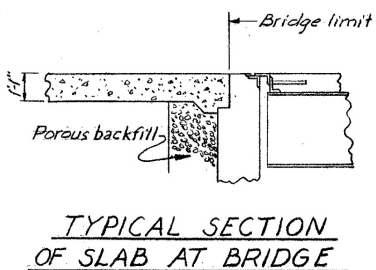
DECK REINFORCEMENT PLAN

NOTES

- Approach slabs shall be Class C Concrete
- Reinforcing steel and Premolded Expansion joint fill are included in Reinforced Concrete Approach Slab Item 1-7 and is not paid for separately.



PLAN OF APPROACH SLABS



SEC. C-31A

PREPARED BY  
CAPITOL ENGINEERING ASSOCIATES, DILLSBURG, OHIO

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

DECK & APPROACH SLABS  
BRIDGE NO. LAK-1-1050  
S.R.1 UNDER KING MEMORIAL ROAD  
LAKE COUNTY

STA. 199 + 91.1

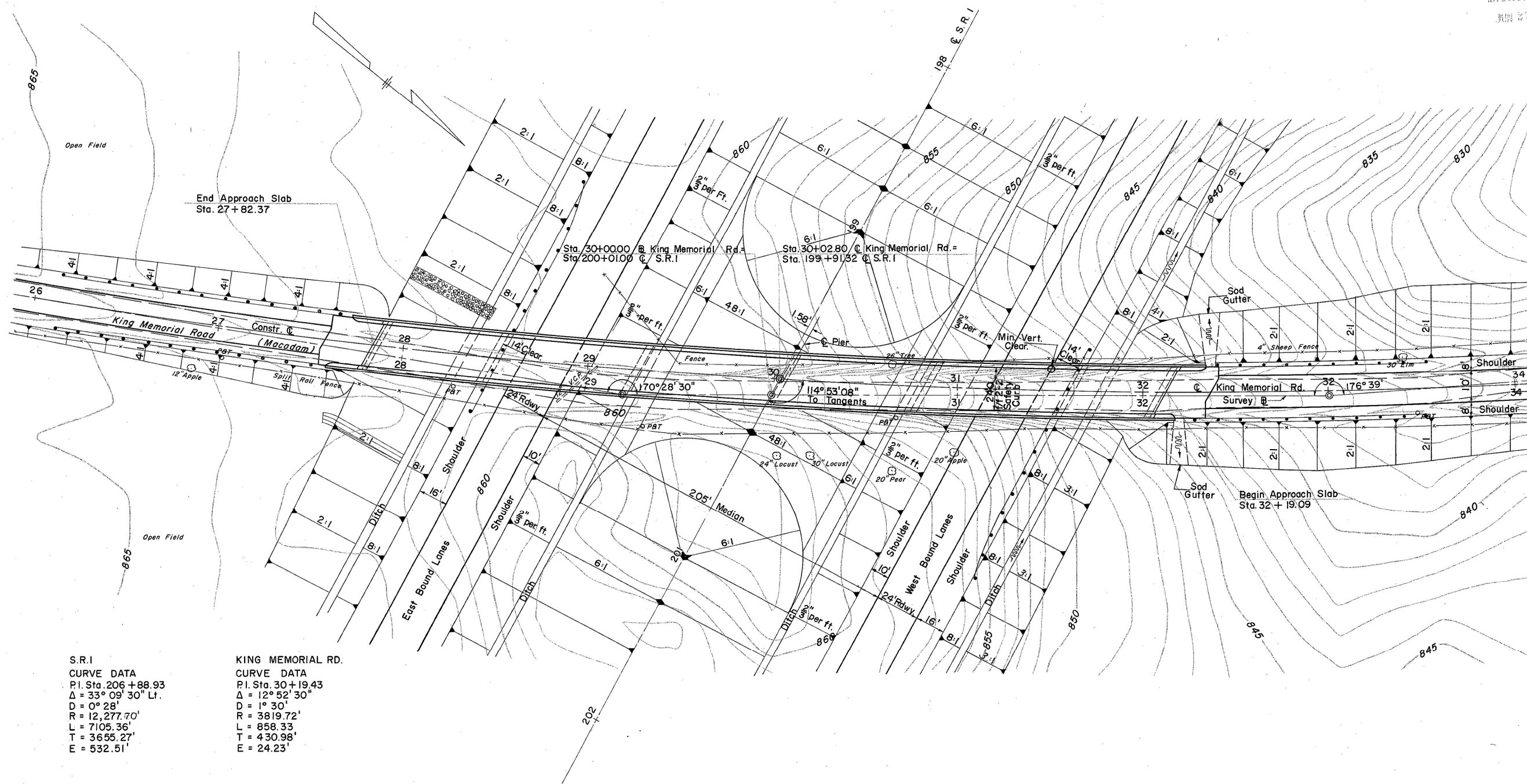
DESIGNED	DRAWN	TRACED	CHECKED	REVISED DATE
JFM	JFM		RB	



MICROFILMED  
JUN 27 1965

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

LAKE COUNTY  
SEC. LAK-1-1038



<p>S.R.I CURVE DATA P.I. Sta. 206 + 88.93 Δ = 33° 09' 30" Lt. D = 0° 28' R = 12,277.70' L = 7105.36' T = 3655.27' E = 532.51'</p>	<p>KING MEMORIAL RD. CURVE DATA P.I. Sta. 30 + 19.43 Δ = 12° 52' 30" D = 1° 30' R = 3819.72' L = 858.33' T = 430.98' E = 24.23'</p>
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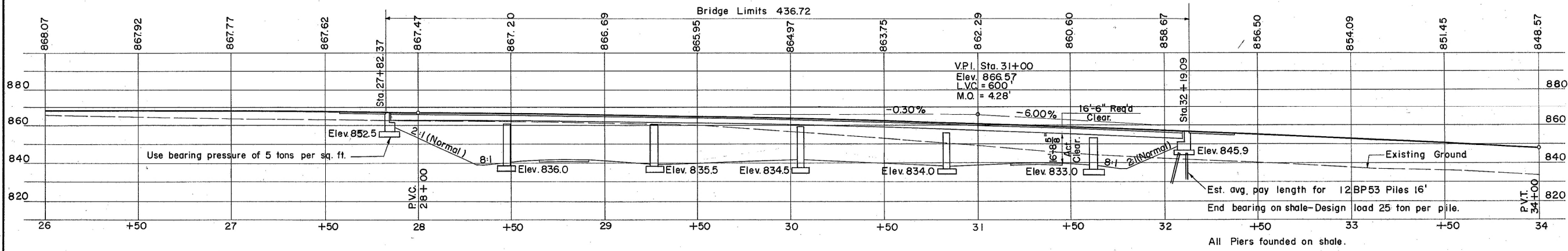
FOUNDATION SOUNDINGS:  
Foundation design and foundation quantities based on a study of rod soundings and soil sampling soundings made at the site. This sounding information may be inspected in the Bureau of Bridges in Columbus or in the Division Office, but the State does not guarantee the accuracy thereof.

PROPOSED STRUCTURE

- TYPE: 6-Span Continuous Rolled Beam with reinforced Concrete Deck & Substructure
- SPANS: 62'-9", 78'-6", 78'-6", 78'-6", 78'-6", 55'-6"
- ROADWAY: 24'-0" w/ 2'-2" Safety Curb.
- LOAD FREQUENCY: CF = 130
- SKEW: 24° 53' 08" Lt.
- WEARING SURFACE: 3/4" Monolithic.
- APPROACH SLABS: 25' Long.
- ALIGNMENT: 1° 30' Curve Left
- SUPERELEVATION: 0.025'/ft.
- TRAFFIC COUNT: 230 (1955), 460 A.D.T.

B.M. #22 Lag Bolt in Root of 18" Triple Poplar  
168' ± Left of C. Sta. 194 + 10  
Elev. 843.14'

B.M. #23 Lag Bolt in North Root 14" Twin Maple  
250' ± Right of C. Sta. 204 + 37  
Elev. 869.06'



SEC. C-31A

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DIVISION OF DESIGN AND CONSTRUCTION  
BUREAU OF BRIDGES

SITE PLAN  
BRIDGE NO. LAK-1-1050  
S.R.I UNDER KING MEMORIAL ROAD  
LAKE COUNTY

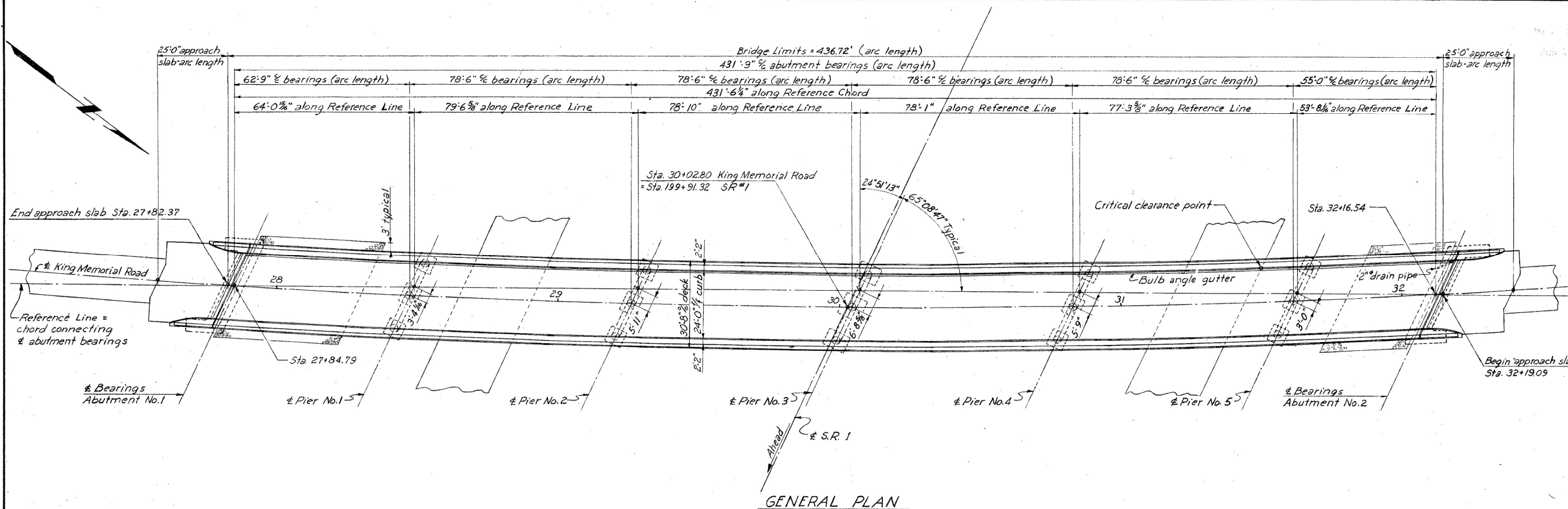
STA. 199 + 91

DESIGNED	DRAWN	TRACED	CHECKED	REVISED	DATE

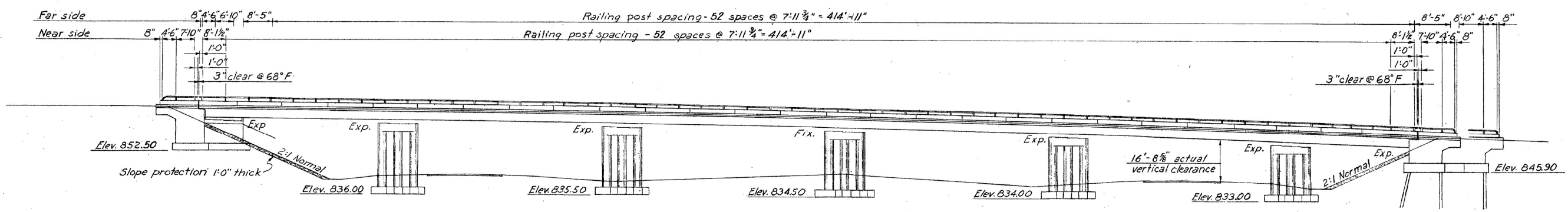
LAKE COUNTY  
SEC. LAK-1-10.38

GENERAL NOTES

- DESIGN SPECIFICATIONS: This structure conforms to the requirements of "Design Specifications for Highway Structures" of the State of Ohio, Department of Highways, dated 9-1-57 together with current revisions thereof.
- CRUSHED AGGREGATE SLOPE PROTECTION (110.0) one foot thick, shall be provided as indicated on General Plan.
- REFERENCE shall be made to Standard Drawings RB-1-55, revised 2-2-59; CSB-2-56 sheets 2 and 3 of 6, revised 2-2-59; AR-1-57, revised 2-2-59.
- PROPOSAL NOTES: See Proposal for notes concerning the requirements for A-37, Steel and Machine Finishing of Bridge Slabs.



GENERAL PLAN



ELEVATION

ESTIMATED QUANTITIES							
ITEM	TOTAL	UNIT	DESCRIPTION	SUPERSTR.	ABUTS.	PIERS	GENERAL
E-2	331	Cu. Yds.	Unclassified excavation		316	15	
E-2	138	Cu. Yds.	Shale excavation		8	130	
S-1	416	Cu. Yds.	Class "C" concrete, superstructure	416			
S-1	130	Cu. Yds.	Class "C" concrete, pier caps & columns			130	
S-1	107	Cu. Yds.	Class "E" concrete, abutments, above footings		107		
S-1	121	Cu. Yds.	Class "E" concrete, footings		61	60	
S-4	154,814	Lbs.	Reinforcing steel	108,225	12,163	34,426	
S-7	353,400	Lbs.	Structural steel	353,400			
S-8	353,400	Lbs.	Field painting of structural steel as per plan	353,400			
S-14	924	Lin. Ft.	Railing (aluminum rail and supports, concrete parapet)	868	56		
S-16	Lump	Sum	First test pile				Lump
S-18	272	Lin. Ft.	Steel piles, 12 BP53		272		
S-29	26	Cu. Yds.	Porous backfill		26		
I-10	365	Sq. Yds.	Crushed aggregate slope protection				365

-0.30%  
-6.00%  
V.P.I. Station 31+00  
Elevation 866.57  
L.V.C. 600'  
M.O. 4.28'  
VERTICAL CURVE DATA

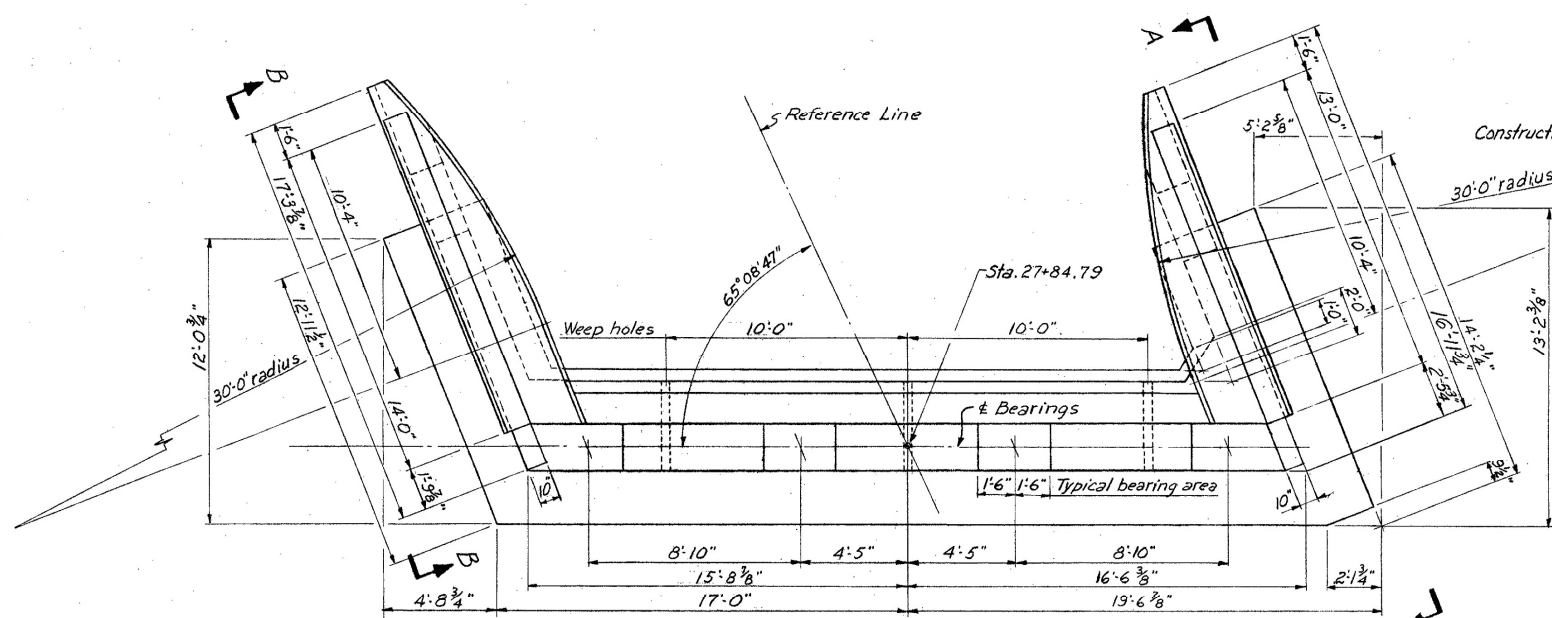
SEC. C-31A

PREPARED BY  
CAPITOL ENGINEERING ASSOCIATES, DILLSBURG, OHIO  
FOR  
STATE OF OHIO  
DEPARTMENT OF HIGHWAYS  
DIVISION OF DESIGN AND CONSTRUCTION  
BUREAU OF BRIDGES  
GENERAL PLAN  
BRIDGE NO. LAK-1-1050  
S.R.1 UNDER KING MEMORIAL ROAD  
LAKE COUNTY  
STA. 199+91.32

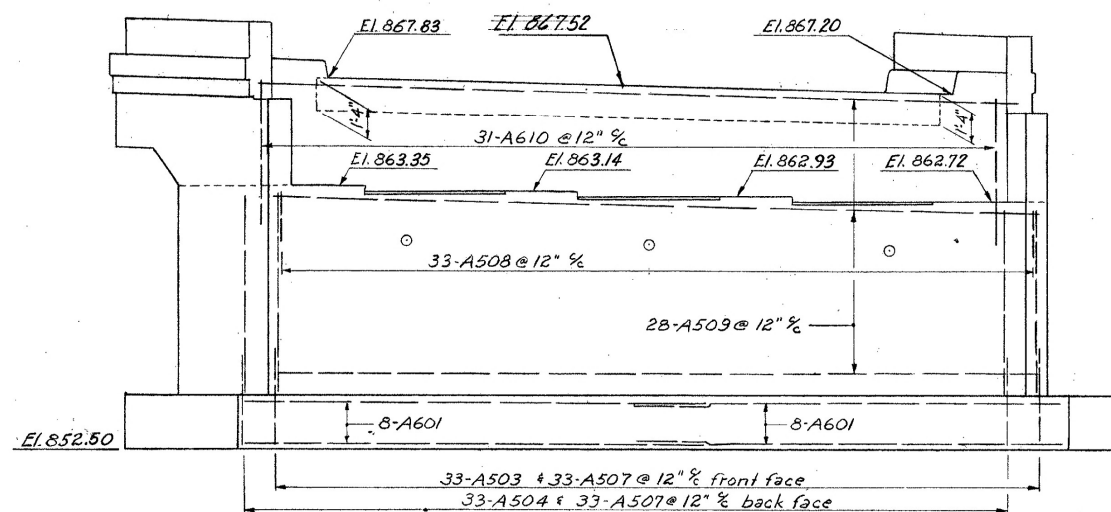
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FED. RD. DIVISION	STATE	PROJECT
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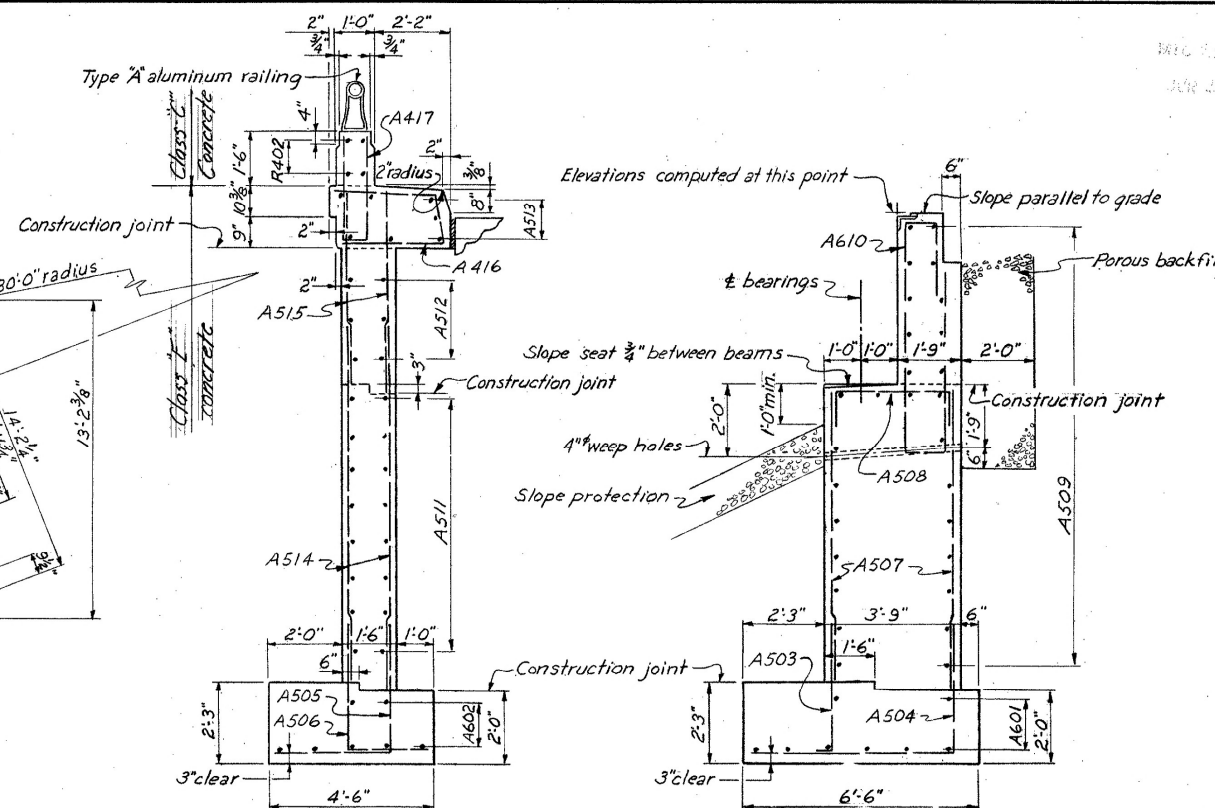
LAKE COUNTY  
SEC. LAK-1-10.38



PLAN - ABUTMENT NO. 1

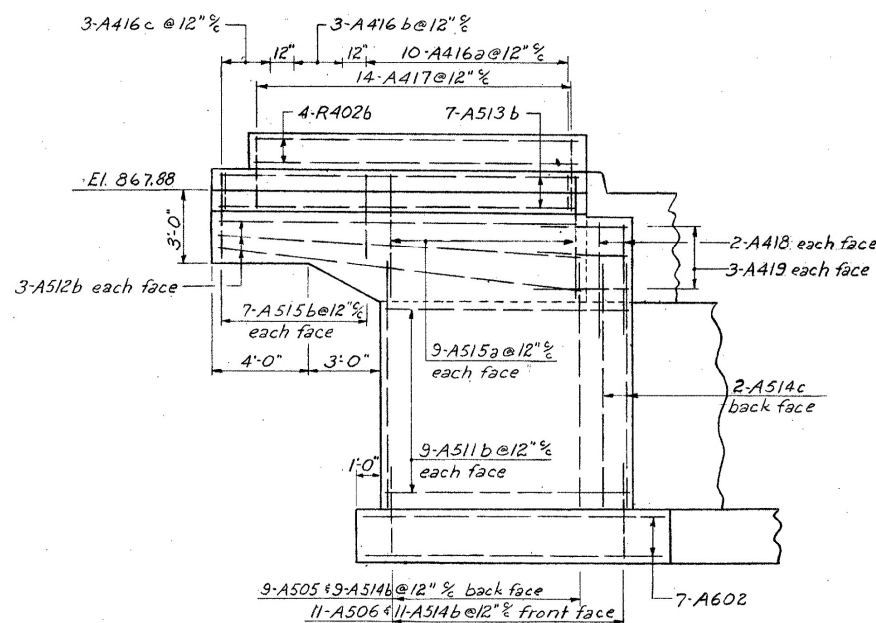


ELEVATION - ABUTMENT NO. 1

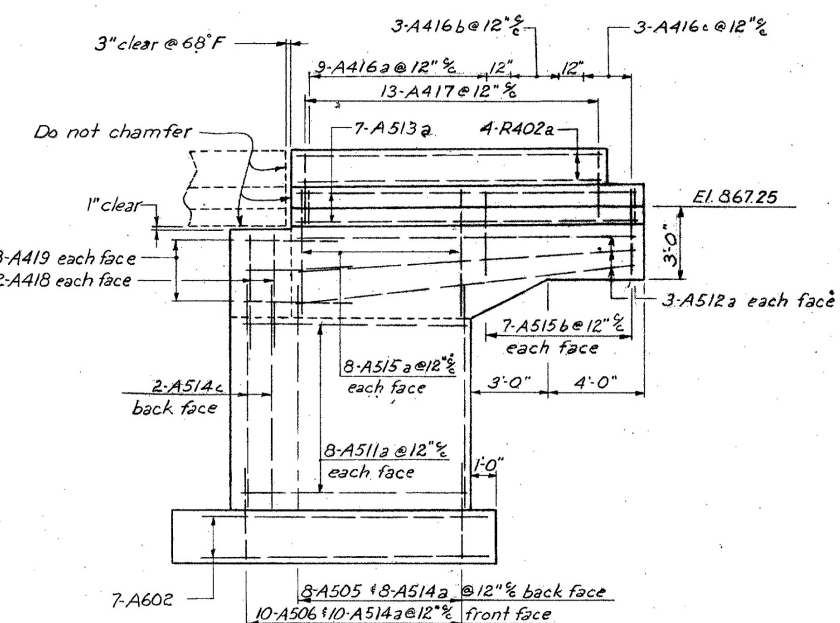


TYPICAL WING SECTION

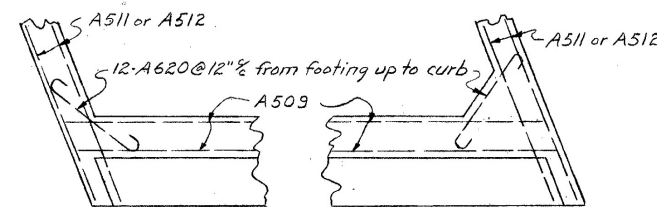
TYPICAL ABUTMENT SECTION



ELEVATION B-B



ELEVATION A-A



PART PLAN  
SHOWING CORNER REINFORCING

NOTES

- POROUS BACKFILL, 2 feet thick, full length of the abutment shall extend up to the underside of approach slab and outward to the wings. Excav. therefore, in excess of that required for the abutment shall be considered as included in the bid price per cu. yd. for porous backfill.
- FOUNDATION BEARING PRESSURE: Abutment footings are designed for a maximum bearing pressure of 2.3 tons per square foot.
- All abutment concrete shall be Class "E".
- EXCAVATION AND BACKFILL: Excavation quantity includes the removal of fill material between surface of the proposed embankment and the bottom of footings.
- FOOTINGS shall extend a minimum of 3' in shale or to the elevation shown, whichever is lower.

SEC. C-31A

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DEPARTMENT OF HIGHWAYS  
DIVISION OF DESIGN AND CONSTRUCTION  
BUREAU OF BRIDGES

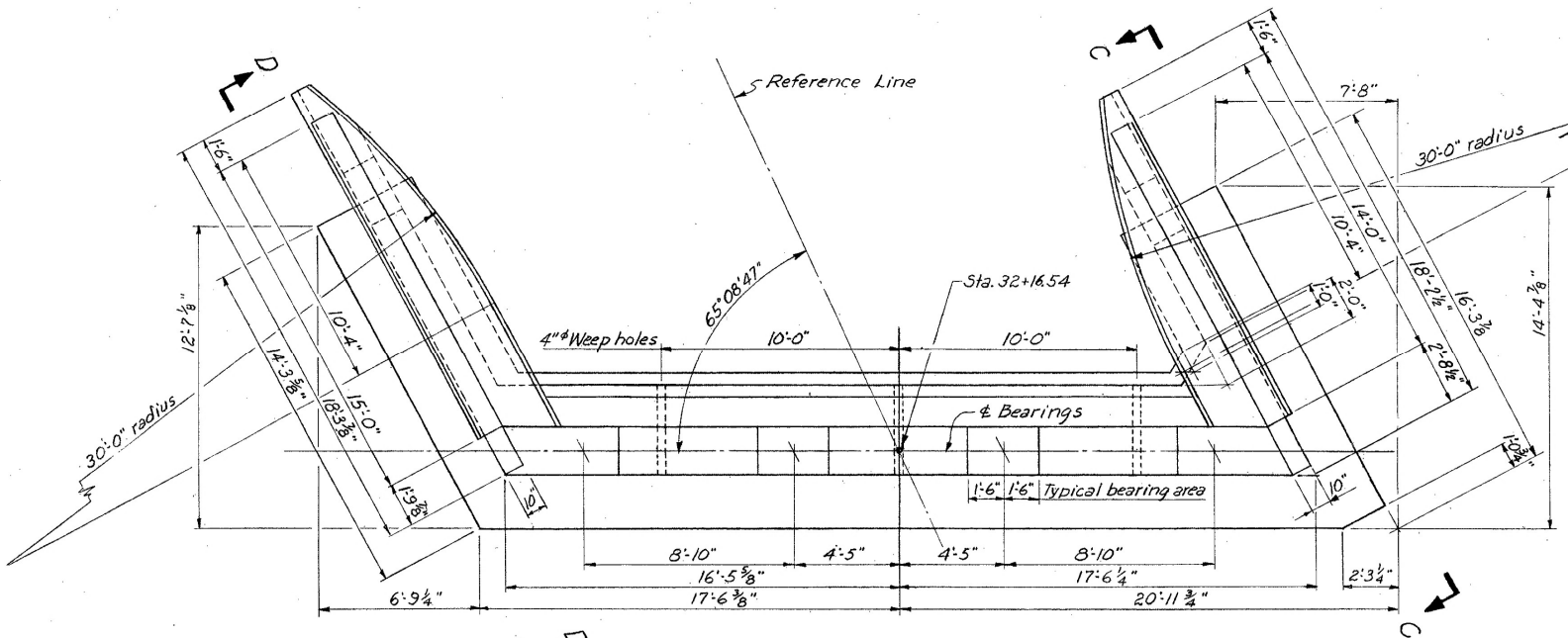
ABUTMENT NO. 1  
BRIDGE NO. LAK-1-1050  
S.R. 1 UNDER KING MEMORIAL ROAD  
LAKE COUNTY

STA. 199 + 91.

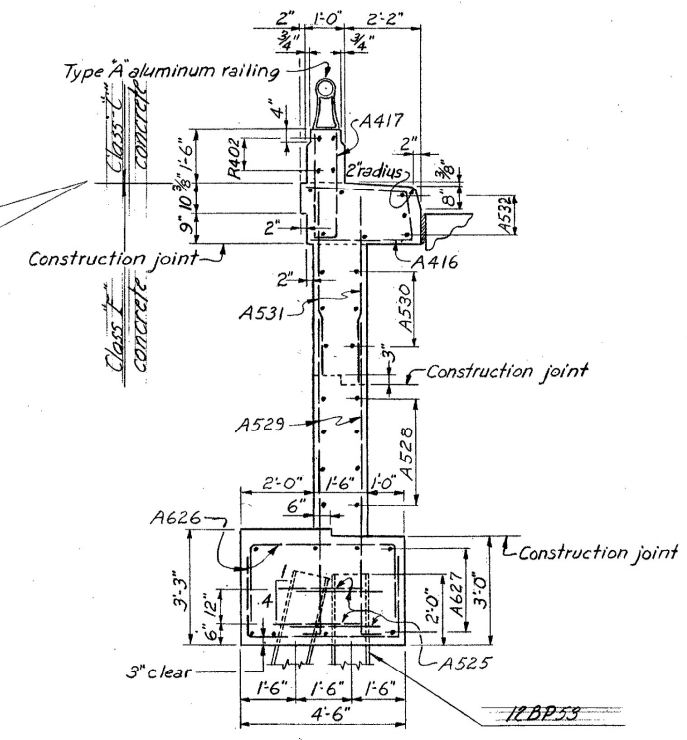
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FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

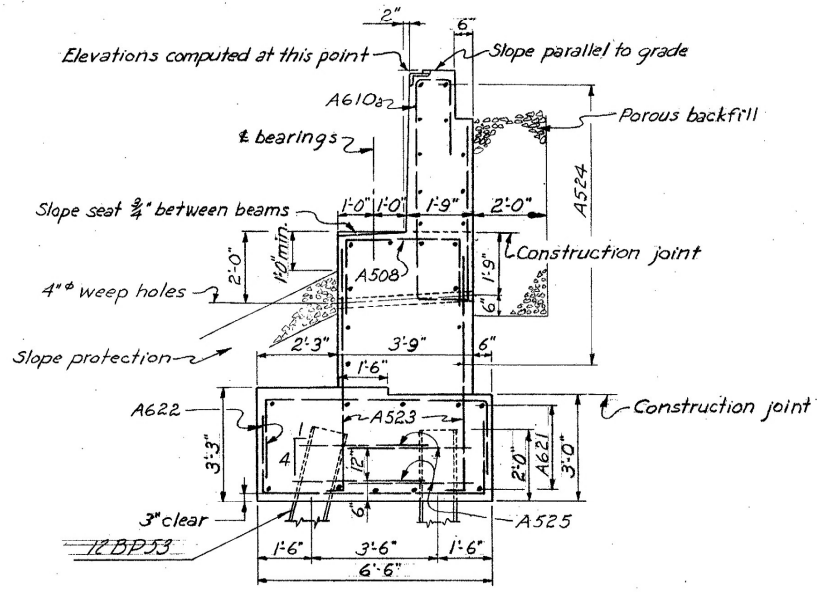
LAKE COUNTY  
SEC. LAK-1-10.38



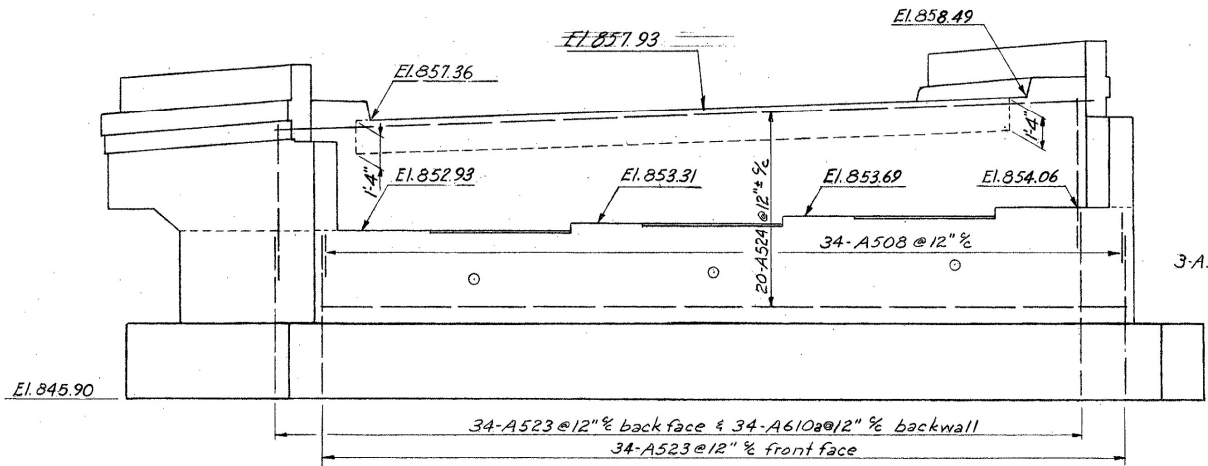
PLAN-ABUTMENT NO. 2



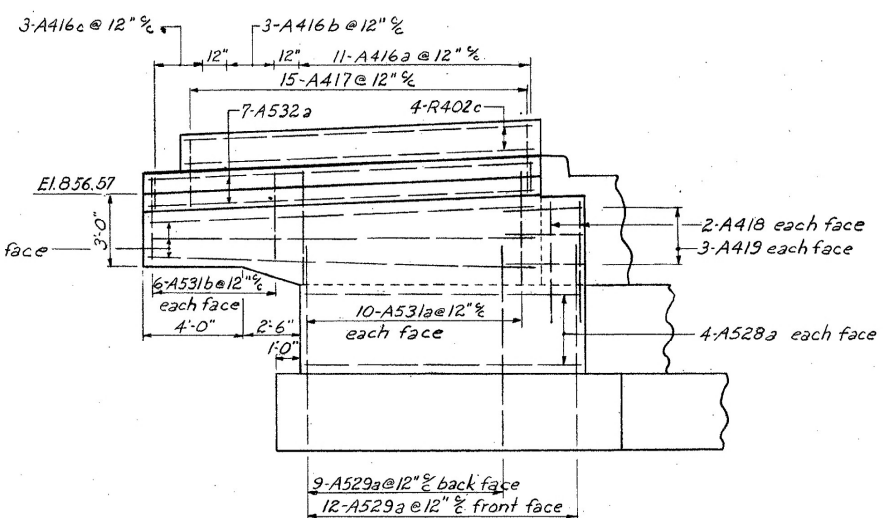
TYPICAL WING SECTION



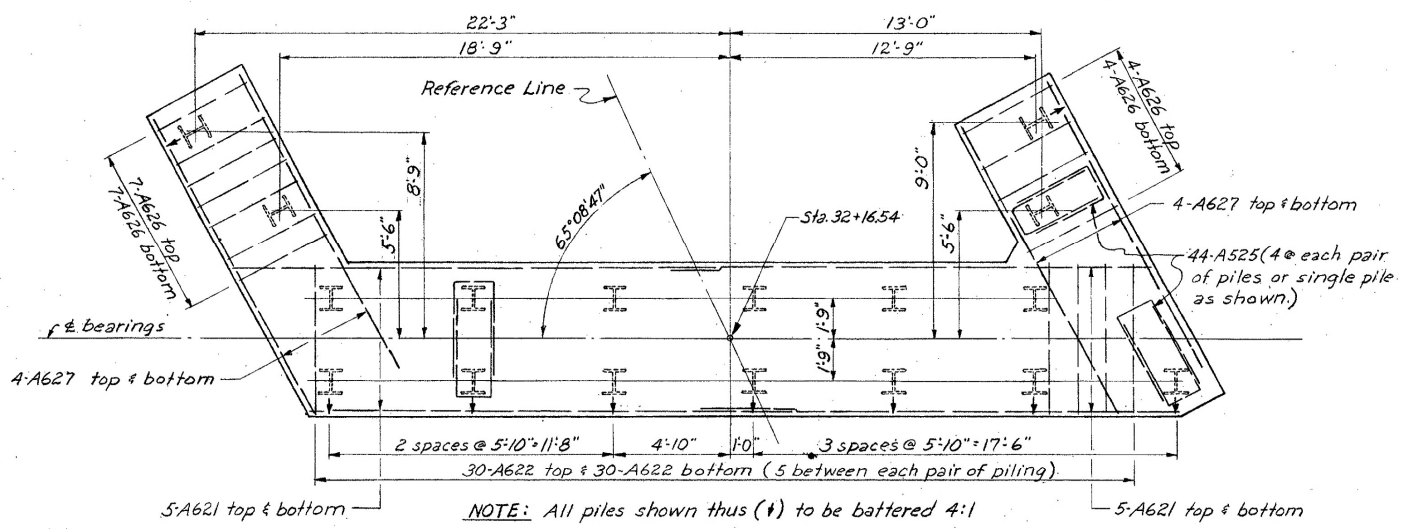
TYPICAL ABUTMENT SECTION



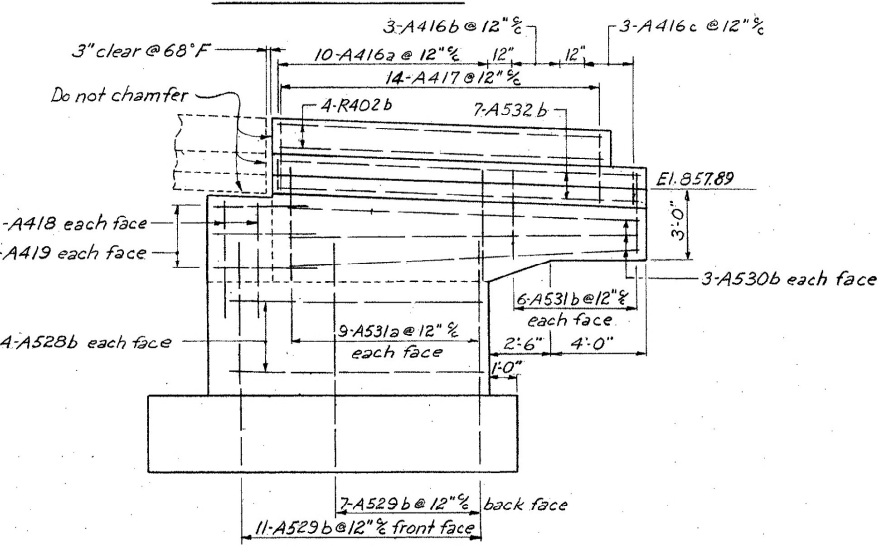
ELEVATION-ABUTMENT NO. 2



ELEVATION D-D



PILE LAYOUT & FOOTING REINFORCING



ELEVATION C-C

**NOTES**

- PILES shall be driven to firm contact with shale. If the length of penetration is approximately equal to the depth to shale according to the bridge foundation investigation report, the firm contact shall be considered as attained when the capacity according to the formula in Sec. 5-18.05 is not less than the following value for a pile having the indicated energy rating:
  - 43 tons per pile using a 7,000 ft. lb. hammer
  - 36 tons per pile using a 11,000 ft. lb. hammer
  - 34 tons per pile using a 15,000 ft. lb. hammer
- If the energy rating of the hammer is between the ratings specified above, the required formula capacity shall be determined by interpolation. The design load is 25 tons per pile.
- ADDITIONAL NOTES: For additional notes, see Abutment No. 1.

SEC. C-31A

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

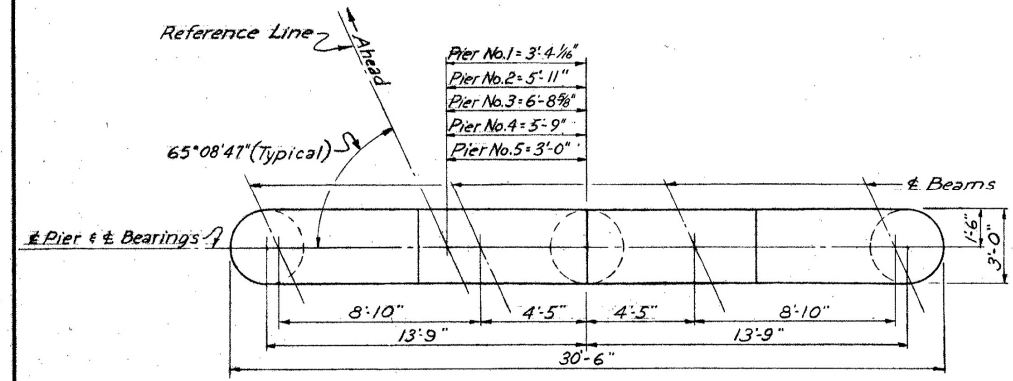
ABUTMENT NO. 2  
BRIDGE NO. LAK-1-1050  
S.R.I UNDER KING MEMORIAL ROAD  
LAKE COUNTY

STA. 199 + 91.3

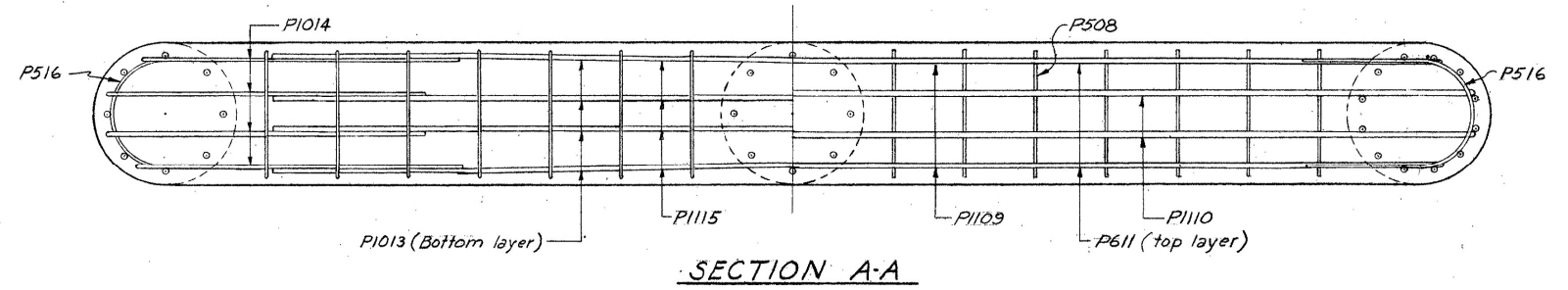
DESIGNED	DRAWN	TRACED	CHECKED	REVISED DATE	R
J.M.	J.M.		R.K.		3

NOTES

- FOOTINGS shall extend a minimum of 3" into solid shale or to the elevation shown, whichever is lower.
- FOUNDATION BEARING PRESSURE: Pier footings are designed for a maximum bearing pressure of 5 tons per square foot.
- Special care shall be taken in placing reinforcing in the bridge seat so that it will not interfere with the drilling of anchor bolt holes.

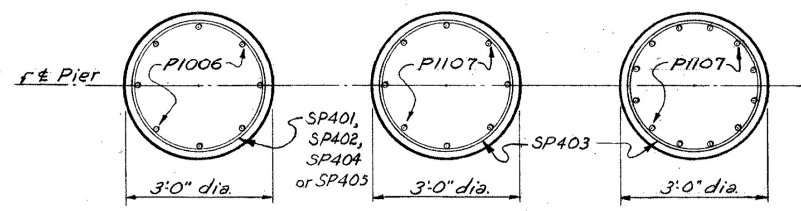


TYPICAL PIER CAP PLAN

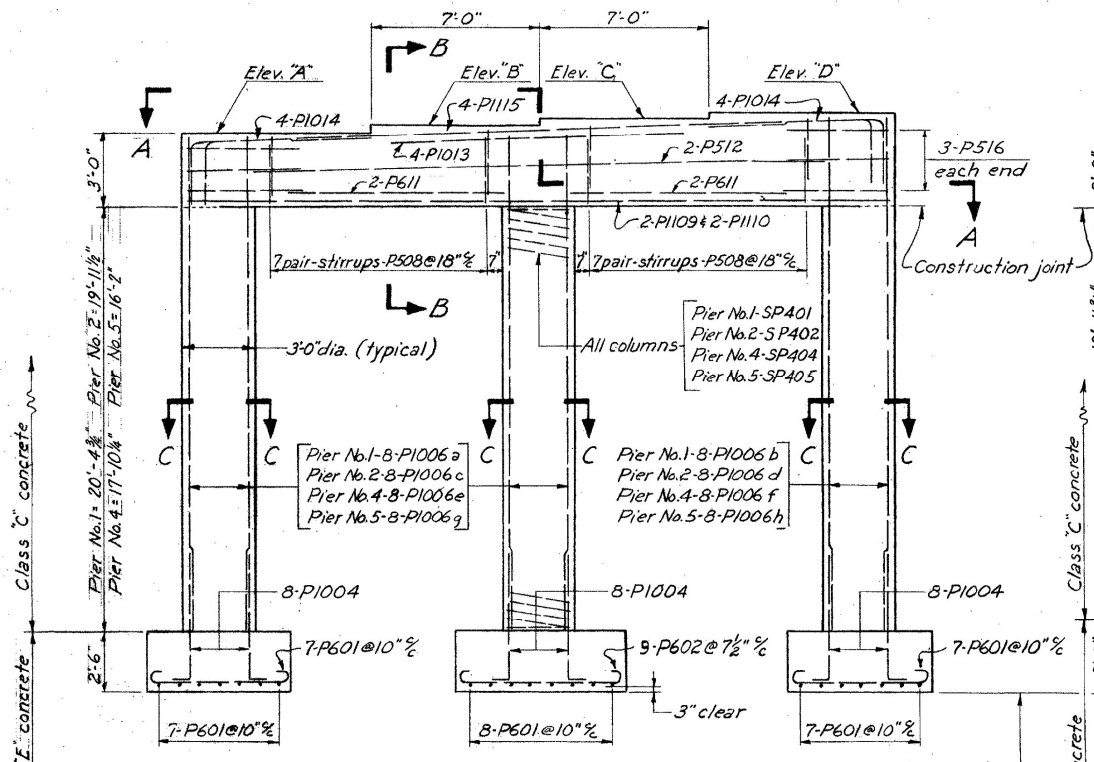


SECTION A-A

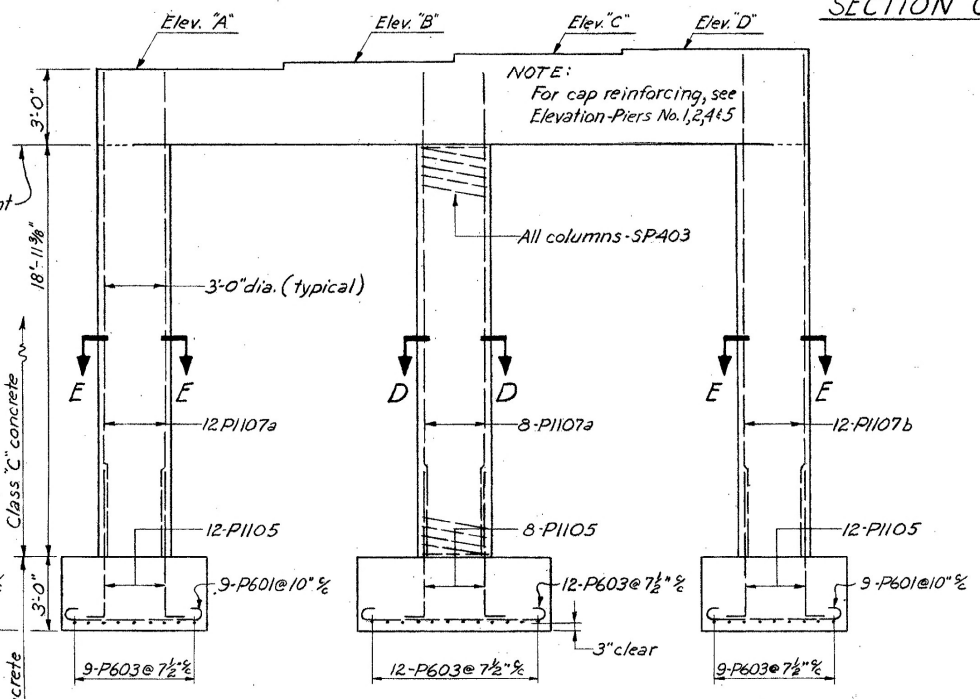
	A	B	C	D	Footing
Pier No. 1	861.90	862.13	862.35	862.57	836.00
Pier No. 2	860.96	861.22	861.47	861.72	835.50
Pier No. 3	859.45	859.73	860.02	860.30	834.50
Pier No. 4	857.35	857.66	857.98	858.30	834.00
Pier No. 5	854.67	855.02	855.37	855.72	833.00



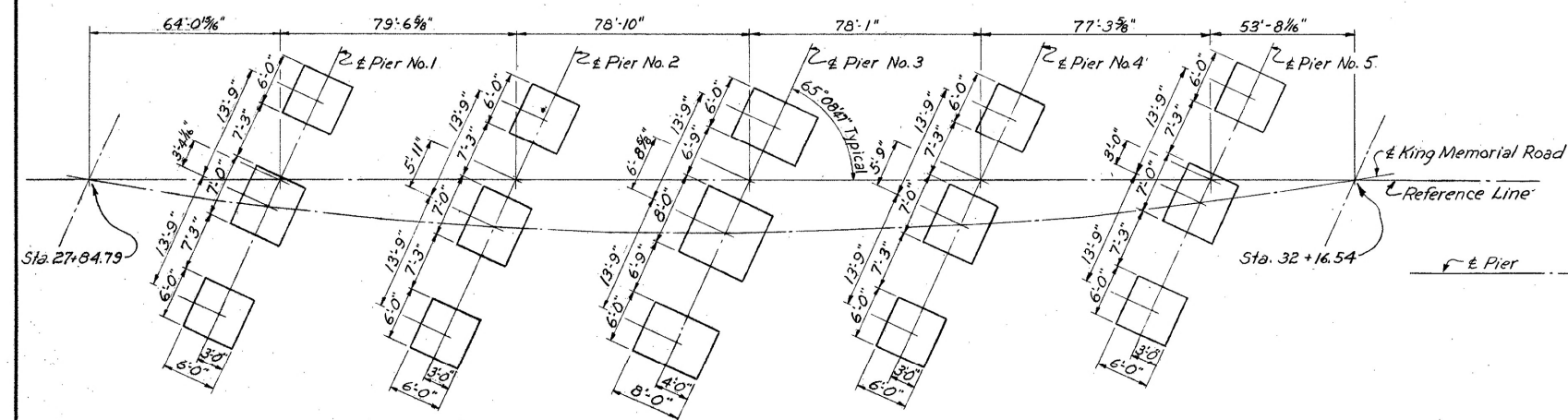
SECTION C-C SECTION D-D SECTION E-E



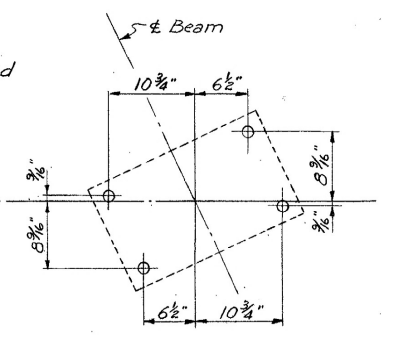
ELEVATION - PIERS NO. 1, 2, 4 & 5



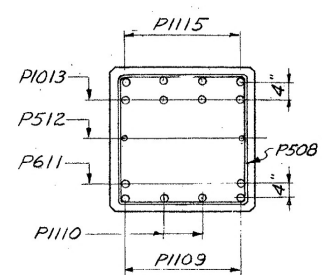
ELEVATION - PIER NO. 3



PIER FOOTING LAYOUT PLAN



ANCHOR BOLT LAYOUT PIER NO. 3



SECTION B-B

SEC. C-31A

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

PIERS  
BRIDGE NO. LAK-1-1050  
S.R.1 UNDER KING MEMORIAL ROAD  
LAKE COUNTY

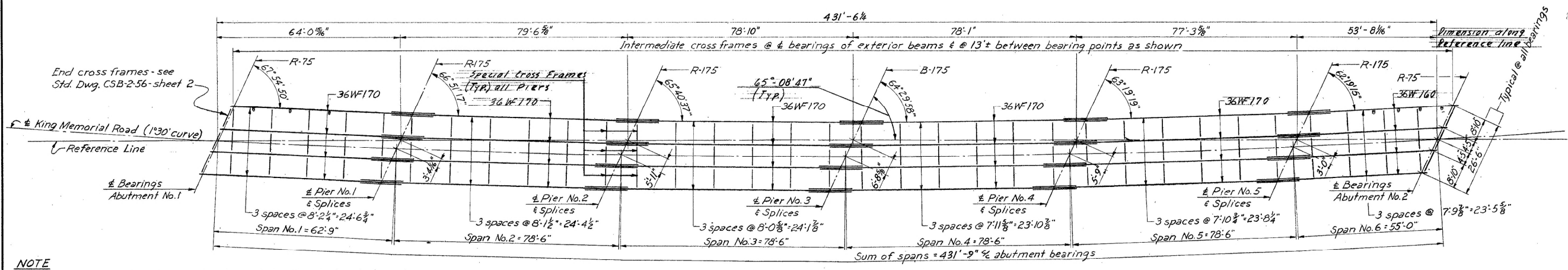
STA. 199 + 91.30

DESIGNED	DRAWN	TRACED	CHECKED	REVISED DATE	REVISION
zjm	zjm		RLK		3

**LAKE COUNTY  
SEC. LAK-1-10.38**

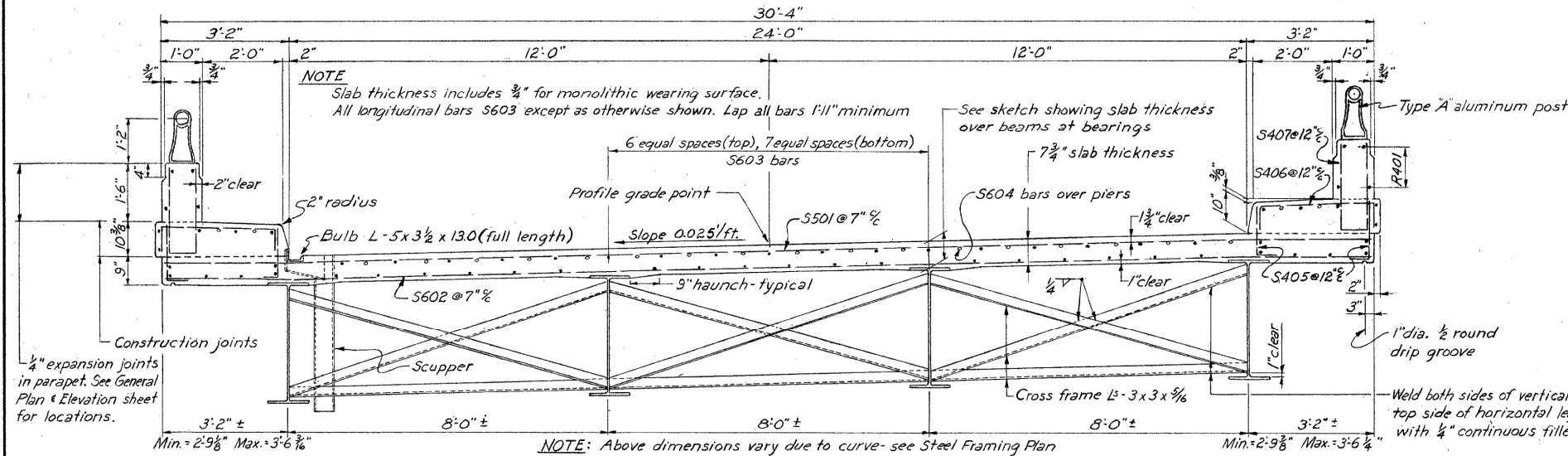
**NOTES**

- REFERENCE shall be made to Standard Drawing CSB-2-56, sheets 2-3 of 6, revised 2-2-59 for details of end gutters, scuppers, pipe drains and curb plates.
- REFERENCE shall be made to Standard Drawing RB-1-55 revised 2-2-59 for details of rockers and bolsters.
- REFERENCE shall be made to Standard Drawing AR-1-3 revised 2-2-59 for details of aluminum railing type and concrete parapet details.
- WELDING of structural steel shall be Class 'A' except as otherwise shown. Welds shown as field welds may, at the option of the Contractor, be made in the shop.
- PAINTING: After erection and after the shop coat has cleaned and, where necessary, repainted in accordance with Sec. 8.04, an additional coat of the same paint as used in the shop shall be applied over the outside face of the outside steel beams and all sides of bottom flange.
- DECK SLAB DEPTH: \*This is the nominal dimension. quantity of deck concrete to be paid for shall be based on this dimension, even though deviation from it may be necessary because the top flange of the beam may not have the exact camber or conformation required to place it parallel to the finished grade.
- CONCRETE DECK PLACING: In order to facilitate water of the concrete of the deck slab, the placing of concrete shall progress up grade. The slab may be placed in sections, between transverse construction joints which are parallel to transverse reinforcing steel and are located near the center of any span.
- BEAM SPLICE WELDING PROCEDURE: For stability during erection, splice procedure will begin at the fixed bearing as follows:
  1. Raise end of beam at Pier No. 4 - 3"
  2. Butt-weld beam flanges and web at Pier No. 3 using the following sequence: make two passes on each flange then two on the web; repeat, using one pass at each location, until welds are completed.
  3. Weld top and bottom flange moment plates at Pier No. 3.
  4. Lower end of beam at Pier No. 4.
  5. Make splices at Piers No. 4 and 5 in the same manner, raising the ends of the beams 2 3/4" at Pier No. 5 and 1 1/4" at Abutment No. 2.
  6. Then, make splices at Piers No. 2 and 1 in the same manner, raising the ends of the beams 2 3/8" at Pier No. 2 and 1 1/4" at Abutment No. 1.
- CONCRETE shall be Class 'C'.
- Concrete and reinforcing steel above parapet construction joint included with railing for payment.
- 3. Weld special crossframes into place before lowering the ends of beams.



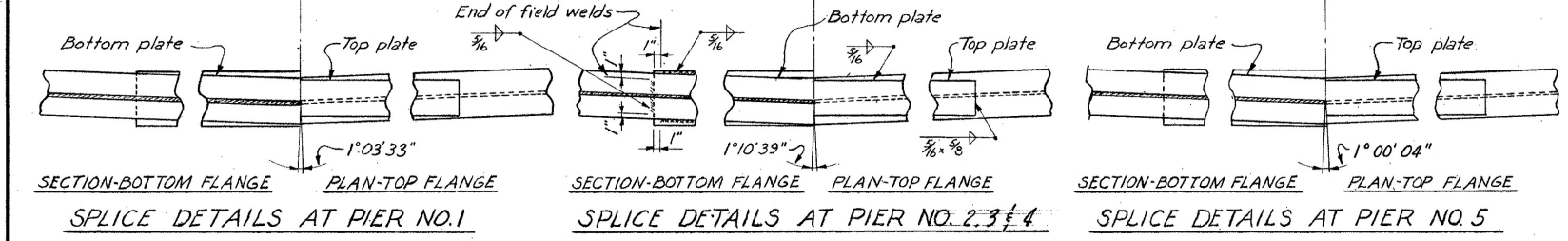
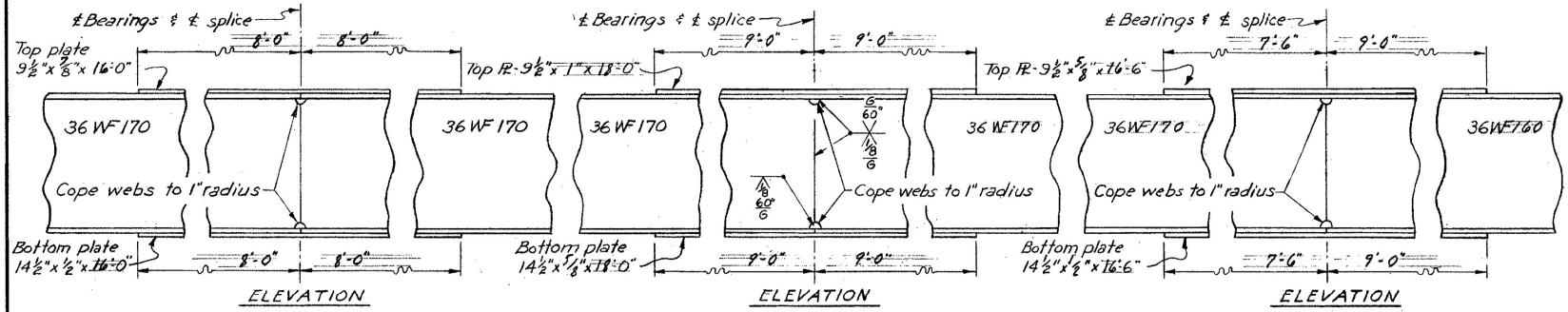
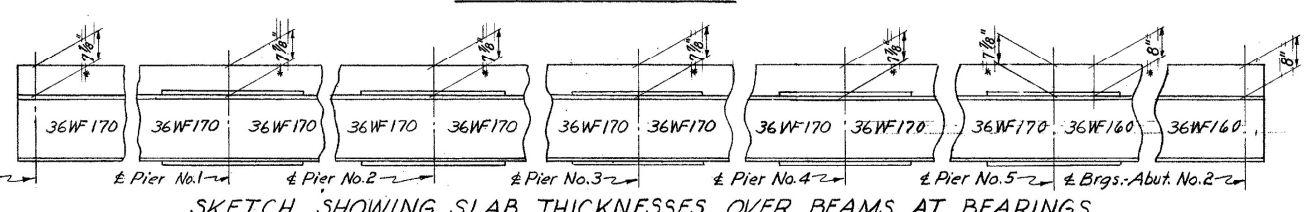
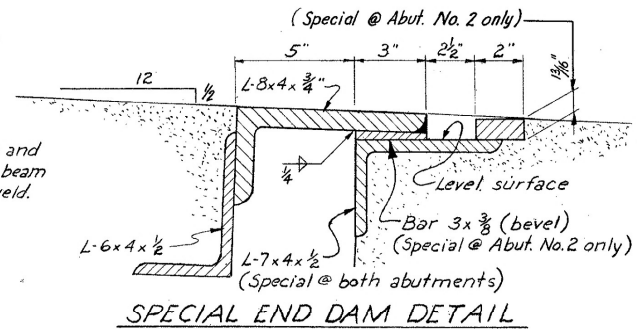
NOTE: Beams are centered on and are parallel to the chord of each span. B-2 denotes 6" free drop scupper.

**STEEL FRAMING PLAN**

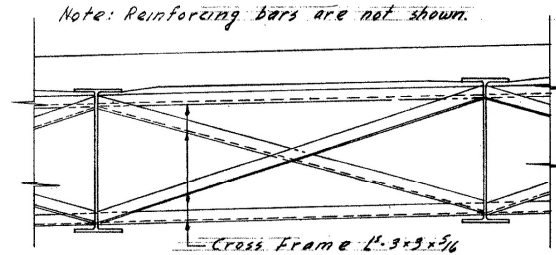


**DEFLECTION & CAMBER**

	SPAN NO. 1	SPAN NO. 2	SPAN NO. 3	SPAN NO. 4	SPAN NO. 5	SPAN NO. 6
Deflection due to weight of steel	1/16"	1/8"	1/8"	1/8"	1/8"	1/16"
Deflection due to remaining dead load	3/8"	7/8"	7/8"	3/8"	3/8"	1/2"
Convexity required for vertical curve	3/8"	7/8"	7/8"	3/8"	3/8"	7/8"
Sum of deflection and convexity	1"	1 7/8"	1 7/8"	1 3/8"	1 3/8"	5/8"
Required camber	1"	1 7/8"	1 7/8"	1 3/8"	1 3/8"	0



NOTE: All welds are similar to those shown for splice details @ Pier No. 4



**SPECIAL CROSS FRAME AT BEND POINTS**

SEC. C-31A

PREPARED BY  
CAPITOL ENGINEERING ASSOCIATES, DILLSBURG, OHIO

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

**STEEL FRAMING PLAN**  
BRIDGE NO. LAK-1-1050  
S.R.1 UNDER KING MEMORIAL ROAD  
LAKE COUNTY  
STA. 199 + 91.30

DESIGNED	DRAWN	TRACED	CHECKED	REVISED DATE	REVISION
3/21	3/21		H. M.		3