

STATE OF OHIO  
DEPARTMENT OF HIGHWAYS  
STA.-241-07.63

OVER  
TUSCARAWAS RIVER, U.S. 21, PENNSYLVANIA R.R.  
BALTIMORE & OHIO R.R. AND NORFOLK & WESTERN R.Y.

CITY OF MASSILLON  
STARK COUNTY  
TREMONT AVE. VIADUCT IMPROVEMENT

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

1  
29

PE-7-23

We, the Commissioners of Stark County in formal session hereby approve these plans.

Approved \_\_\_\_\_

Approved Richard O. Kuhn

Approved Joe D. Baul

Date April 29, 1965

Approved Joseph A. Stennell

Date Apr. 29, 1965 County Engineer, Stark County

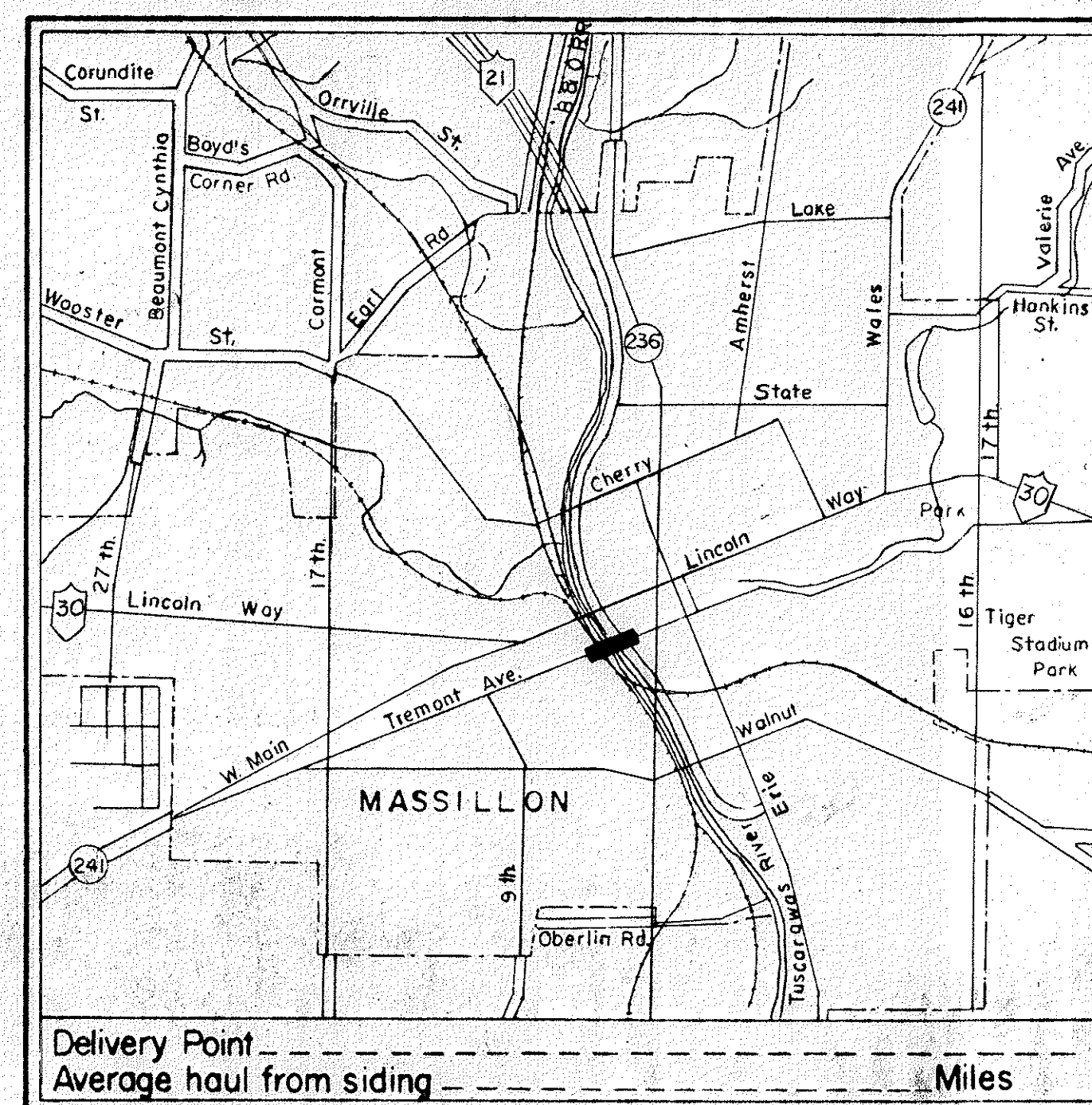
Approved Robert A. Kolopus

Date April 29, 1965 Bridge Engineer, Stark County

INDEX SHEETS

Sheet No.

- 1 This sheet
- 2 New profile and location of railroads and U.S.21
- 3-5 East Abutment
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LOCATION MAP

SCALE OF MILES



Portion to be improved

1963 SPECIFICATIONS

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

No right of way for this improvement will be required.

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

Approved Clifford H. Spindel

Date 4-29-65 Division Deputy Director

Approved \_\_\_\_\_

Date \_\_\_\_\_ Engineer of Bridges

Approved \_\_\_\_\_

Date \_\_\_\_\_ Engineer of Location and Design

Approved \_\_\_\_\_

Date \_\_\_\_\_ Deputy Director of Design and Construction

Approved \_\_\_\_\_

Date \_\_\_\_\_ Deputy Director of Right of Way

Approved \_\_\_\_\_

Date \_\_\_\_\_ Deputy Director of Planning and Programming

Approved \_\_\_\_\_

Date \_\_\_\_\_ First Assistant Director

Approved \_\_\_\_\_

Date \_\_\_\_\_ Director of Highways

PLANS PREPARED BY

RACKOFF ASSOCIATES  
ENGINEERS  
COLUMBUS, OHIO

Melvin Rackoff  
MELVIN RACKOFF

Supplemental Prints of Standard Construction Drawings

FSB-1-62 REV. 1-15-63  
AS-1-54 REV. 7-5-62  
SD-2-64 DATED 11-25-64

Supplemental Specifications

S-101, DATED 7-12-62

File No. \_\_\_\_\_  
Date of Letting \_\_\_\_\_ 19  
Contract No. \_\_\_\_\_



GENERAL NOTES

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		



PE-7-23

REFERENCE SHALL BE MADE TO:

CORPS OF ENGINEERS DRAWINGS NO. 0271-PM2-66/17 THROUGH 66/35, DATED APRIL 1947.

STANDARD DRAWINGS FSB-1-62, REVISED 1-15-63  
STANDARD DRAWING AS-1-54, REVISED 7-5-62  
STANDARD DRAWING SD-2-64, DATED 11-25-64

SUPPLEMENTAL SPECIFICATIONS NO. S-101, DATED 7-12-62

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.

DESIGN LOADING - CP 460 (57)

CONCRETE CLASS C - BASIC UNIT STRESS 1,333 p.s.i.

CONCRETE CLASS E - BASIC UNIT STRESS 1,133 p.s.i.

ALL NEW STRUCTURAL STEEL - ASTM A36 - BASIC UNIT STRESS 20,000 p.s.i.  
(ASTM A7 AND A373 STEEL NOT PERMITTED)

REINFORCING STEEL - ASTM A15, A16, A160, DEFORMED, INTERMEDIATE OR HARD GRADE BASIC UNIT STRESS 20,000 p.s.i.

CONCRETE DECK PLACING: IN ORDER TO FACILITATE WATER CURING OF THE CONCRETE OF THE DECK SLAB, THE PLACING OF CONCRETE SHALL PROGRESS UPGRADE. 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.

MACHINE FINISH: THE CONCRETE BRIDGE DECK MAY BE FINISHED BY THE USE OF A FINISHING MACHINE.

POROUS BACKFILL, 2 FEET THICK, SHALL BE PLACED FULL LENGTH OF THE ABUTMENTS AND SHALL EXTEND FROM ELEVATION 942.15 AT THE EAST ABUTMENT AND FROM ELEVATION 964.20 AT THE WEST ABUTMENT, UP TO THE UNDERSIDE OF THE APPROACH SLAB AND THE SIDEWALK PAVEMENT.

ITEM S-7: UNDER ITEM S-7.10, HIGH-STRENGTH STEEL BOLTS, NUTS AND WASHERS, PARAGRAPH TWO (2) SHALL BE COMPLETELY REVISED TO READ AS FOLLOWS: "IN THE FINAL ASSEMBLY OF THE PARTS TO BE BOLTED, DRIFT PINS SHALL BE PLACED IN A SUFFICIENT NUMBER OF HOLES (NOT LESS THAN 25 PERCENT FOR FIELD ERECTION) TO PROVIDE AND MAINTAIN ACCURATE ALIGNMENT OF HOLES AND PARTS, AND SUFFICIENT BOLTS SHALL BE INSTALLED AND BROUGHT TO A SNUG TIGHT CONDITION TO BRING THE PARTS INTO COMPLETE CONTACT. BOLTS SHALL THEN BE INSTALLED IN ANY REMAINING OPEN HOLES AND TIGHTENED TO A SNUG TIGHT FIT, AFTER WHICH ALL BOLTS SHALL BE TIGHTENED COMPLETELY BY CALIBRATED WRENCHES OR BY THE TURN-OF-NUT METHOD. DRIFT PINS SHALL THEN BE REPLACED WITH BOLTS, TIGHTENED IN THE SAME MANNER. BOLT LENGTHS DETERMINED BY THE USE OF TABLE NO. 1 SHALL BE ADJUSTED TO THE NEXT 1/4 INCH LENGTH INCREMENT".

HOLES FOR ALL NEW BOLTS IN THE STRINGER SPLICES SHALL BE REAMED IN THE FIELD.

ITEM S-9: FIELD PAINTING OF STRUCTURAL STEEL, SHALL INCLUDE THE FOLLOWING:

1. FIELD PAINTING OF ALL NEW STRUCTURAL STEEL ACCORDING TO SEC. S-8.06
2. CLEANING AND PAINTING THE EXISTING STEEL WHERE REQUIRED ACCORDING TO SEC. S-8.06.
3. THE THIRD FIELD COAT SHALL COVER ALL STRUCTURAL STEEL NEW, REUSED AND EXISTING.

ITEM S-22: REMOVAL OF PART OF THE EXISTING SUBSTRUCTURE, SHALL INCLUDE THE FOLLOWING ITEMS:

1. THE APPROACH SLABS.
2. PORTIONS OF SIDEWALK AND CURB- BACK TO END OF APPROACH SLAB.
3. EXCAVATION NECESSARY TO PERFORM THE WORK AT THE ABUTMENTS.
4. PORTIONS OF THE REINFORCED CONCRETE ABUTMENTS AS SHOWN ON THE DRAWINGS.
5. BACKFILL BEHIND THE ABUTMENTS AND UNDER THE APPROACH SLABS AND SIDEWALK PAVEMENT SHALL BE INCLUDED IN THIS ITEM. THE BACKFILL SHALL BE GRANULAR MATERIAL AND PLACED ACCORDING TO SEC. E-2.08.

ITEM S-22: REMOVAL OF PORTION OF EXISTING SUPERSTRUCTURE, SHALL INCLUDE THE FOLLOWING ITEMS:

1. THE ENTIRE BRIDGE ROADWAY AND SIDEWALK DECK INCLUDING THE END DAMS AND EXPANSION DAMS AND OTHER STEEL AS REQUIRED BY THE PLANS.
2. ALL SCUPPERS.
3. PART OF THE I-BEAM BRACING BETWEEN THE OUTSIDE STRINGERS.
4. BLAST PLATES ABOVE RAILROAD TRACKS.
5. RIVETS TO BE REMOVED IN ORDER TO STRENGTHEN THE SPLICES ACCORDING TO THE DRAWINGS.
6. INCLUDES PAYMENT FOR DISPOSAL OF REMOVED MATERIAL NOT SEPARATELY ITEMIZED.

LAMP STANDARDS AND CABLE SHALL BE REMOVED BY THE OWNER AND THE REMOVAL OF THIS ITEM IS NOT A PART OF THIS CONTRACT.

SPECIAL ITEM: BEARINGS.

THE EXISTING STRUCTURE HAS 110 ROCKERS AND 40 BOLSTERS ACCORDING TO CORPS OF ENGINEERS DRAWING. OF THESE THE BEST OF 96 ROCKERS AND 36 BOLSTERS SHALL BE REUSED.

THE BOLSTERS SHALL BE PLACED AT PIER 2, PIER 7 (SPAN H) AND PIER 10. THE ROCKERS SHALL BE PLACED AT THE ABUTMENTS, PIERS 1, 3, 7 (SPAN G), 8 AND 9. ANY DAMAGED BEARINGS SHALL BE DISCARDED AND ALL BEARINGS TO BE REUSED SHALL BE APPROVED BY THE ENGINEER BEFORE ERECTION.

BEARINGS ACCORDING TO STANDARD DRAWING FSB-1-62 SHALL BE INSTALLED AT PIERS 4, 5 AND 6.

ALL NEW STEEL SHALL BE ACCORDING TO SEC. S-7 AND PAINTED ACCORDING TO SEC. S-8.

THE LUMP SUM PAYMENT FOR THIS ITEM SHALL INCLUDE THE FOLLOWING:

1. REMOVAL, STORAGE, CLEANING AND PAINTING (SEC. S.06) AND ERECTION OF THE EXISTING BEARINGS.
2. FURNISHING AND INSTALLING NEW BEARINGS.
3. FURNISHING AND INSTALLING ALL REQUIRED ANCHOR BOLTS, SHIM PLATES, SHEET LEAD OR PREFORMED BEARING PADS.
4. REQUIRED LENGTHENING OF THE EXISTING ANCHOR BOLTS.
5. DISPOSAL OF DISCARDED MATERIAL.

SPECIAL ITEM: RAILING.

THE EXISTING RAILING BETWEEN THE ABUTMENTS AND THE FIRST PANEL EAST OF THE EAST ABUTMENT SHALL BE DISMANTELED AND REUSED. THE RAILING POSTS AT THE PIERS AND EXPANSION DAMS, WHICH ARE BUILT OF CONCRETE AND STEEL SHALL BE DISCARDED AND REPLACED WITH STEEL POSTS AS SHOWN ON SHEET NO. 25.

THE LUMP SUM PAYMENT FOR THIS ITEM SHALL INCLUDE: THE REMOVAL, STORAGE, CLEANING, PAINTING AND ERECTION OF THE REUSED RAILING. THE PAINTING SHALL BE ACCORDING TO SEC. S-8.06. FURNISHING AND ERECTION OF NEW STEEL ACCORDING TO SEC. S-7. THE NEW STEEL SHALL BE PAINTED ACCORDING TO SEC. S-8.

THE COLOR OF THE RAILING SHALL BE ALUMINUM.

THE DIMENSIONS SHOWN ON THESE PLANS ARE TAKEN FROM THE CORPS OF ENGINEERS DRAWINGS AND ELEVATIONS SHOWN ARE EITHER FROM THE SAME PLANS OR FROM A FIELD SURVEY IN DEC. 1964.

THE CONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND SHALL FURNISH ALL ENGINEERING AND SURVEYING NECESSARY TO REBUILD THIS STRUCTURE ACCORDING TO THESE PLANS.

MAINTENANCE AND PROTECTION OF TRAFFIC:

THREE LANES OF TRAFFIC WITH A MIN. WIDTH OF 36'-0" FOR THE NORTHBOUND LANES AND TWO LANES OF TRAFFIC WITH A MIN. WIDTH OF 26'-0" FOR THE SOUTH-BOUND LANES SHALL BE MAINTAINED ON US-21 AT ALL TIMES.

THE THREE NORTHBOUND LANES OF US-21 PASS UNDER SPAN B AND THE TWO SOUTHBOUND LANES UNDER SPAN C.

THE CONTRACTOR SHALL SAFEGUARD THE TRAVELING PUBLIC BY PROVIDING PLATFORMS, NETS OR OTHER SUITABLE PROTECTION ABOVE THE TRAVELED LANES. A MINIMUM VERTICAL CLEARANCE OF 13-6 SHALL BE PROVIDED AT ALL TIMES.

CONSTRUCTION CLEARANCE OF 20' VERTICALLY ABOVE THE TOP OF THE RAILROAD RAILS AND 8' HORIZONTALLY FROM THE CENTER OF TRACKS SHALL BE MAINTAINED AT ALL TIMES.

BEFORE CONSTRUCTION IS STARTED, 18 SETS OF PRINTS, SHOWING DETAILS OF TRESTLES, JACKING PROCEDURE AND PROTECTION OF TRAFFIC, SHALL BE SUBMITTED TO THE DIRECTOR FOR APPROVAL BY THE DEPARTMENT OF HIGHWAYS AND BY THE RAILROAD COMPANIES.

DURING CONSTRUCTION AND ESPECIALLY DURING THE JACKING OF THE SUPER-STRUCTURE THE CONTRACTOR SHALL TAKE SPECIAL CARE NOT TO DAMAGE THE WATER PIPE UNDER THE NORTH SIDEWALK OR THE TELEPHONE CABLES UNDER THE SOUTH SIDEWALK, AND THE RAILROAD AERIAL LINES AND OTHER UTILITIES.

THE COST OF SUPPORTING AND MAINTAINING THE WATER PIPE IN SERVICE SHALL BE INCLUDED FOR PAYMENT WITH THE LUMP SUM ITEM FOR "FALSEWORK AND JACKING OPERATIONS".

THE CONTRACTOR IS REQUESTED TO COOPERATE WITH THE UTILITY COMPANIES AND THE RAILROAD COMPANIES BY ARRANGING HIS WORK IN SUCH A MANNER THAT INCONVENIENCE TO THESE COMPANIES WILL BE HELD TO A MINIMUM.

ESTIMATED QUANTITIES

AS BUILT

ITEM	TOTAL	UNIT	DESCRIPTION	SUPER.	ABUT.	PIER	GEN.		
Special	lump	sum	Falsework and jacking operations						
S-1	84	cu.yds.	Class "C" concrete, abutments		84				
S-1	60	cu.yds.	Class "C" concrete, pier caps			60			
S-1	911	cu.yds.	Class "C" concrete superstructure	911					
S-4	266,687	lbs.	Reinforcing steel	254,305	6,401	5,981			
S-7	186,100*	lbs.	New structural steel	186,100					
S-8	lump	sum	Field painting of structural steel						
S-22	lump	sum	Removal of portions of existing substructure						
S-22	lump	sum	Removal of portions of existing superstructure						
S-22	lump**	sum	Removal of existing reinforced concrete manhole at Pier No.6						
S-23	300	lin.ft.	Dowel holes		40	260			
S-29	58	cu.yds.	Porous backfill		58				
S-29	38	each	Scuppers,including supports	38					
S-101	911	each	Water-reducing set-retarding admixture	911					
Special	lump	sum	Bearings						
Special	lump	sum	Railing						
I-3	lump	sum	Maintenance of traffic						
I-7	226	sq.yds.	Reinforced concrete approach slabs				226		
I-13	476	sq.ft.	Concrete sidewalks				476		

\* 3,200 lbs. shall be paid for by The Ohio Bell Telephone Co.

\*\* This item shall be paid for by The Ohio Bell Telephone Co.

THE ADDRESSES OF THE UTILITY COMPANIES AND THE RAILROADS ARE AS FOLLOWS:

THE OHIO BELL TELEPHONE COMPANY  
401 CLEVELAND AVENUE, N.W.  
CANTON, OHIO

THE OHIO EDISON COMPANY  
BOX 387  
MASSILLON, OHIO

OHIO WATER SERVICE COMPANY  
161 LINCOLN WAY EAST  
MASSILLON, OHIO

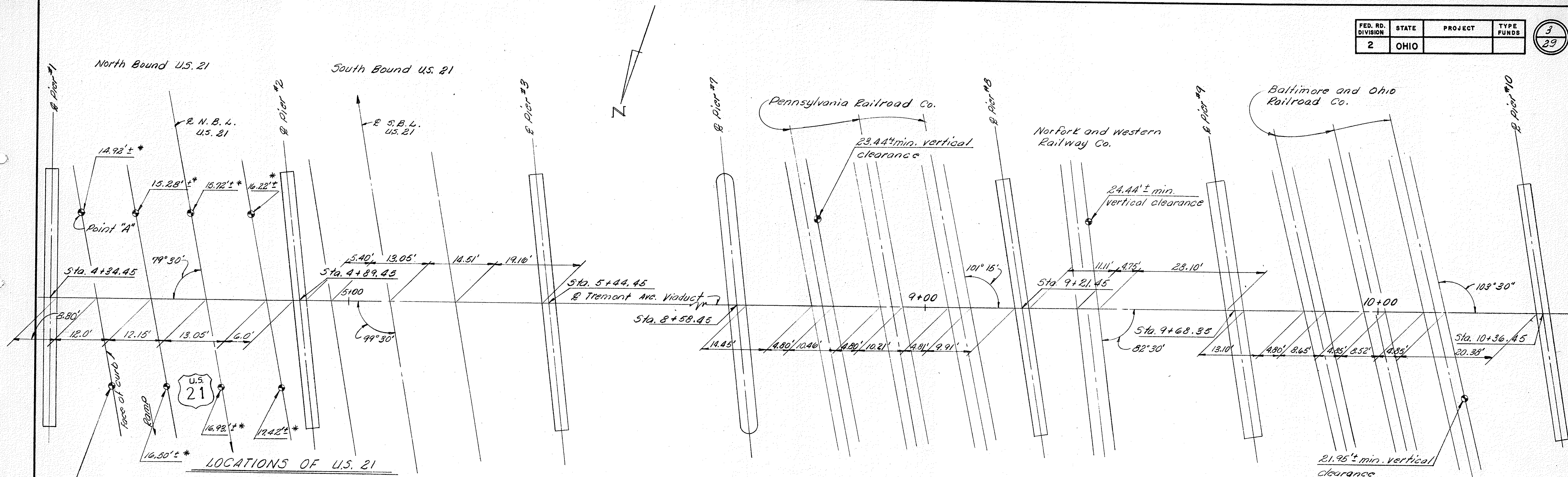
MR. J. T. COLLINSON, CHIEF ENGINEER  
THE BALTIMORE AND OHIO RAILROAD COMPANY  
2 NORTH CHARLES STREET  
BALTIMORE, MARYLAND, 21201

MR. G. R. JANOSKO, CHIEF ENGINEER  
NORFOLK AND WESTERN RAILWAY COMPANY  
700 PUBLIC SQUARE BUILDING  
CLEVELAND, OHIO 44101

MR. G. A. WILLIAMS, AREA ENGINEER  
PENNSYLVANIA RAILROAD COMPANY  
623 PENNSYLVANIA STATION  
PITTSBURGH, PENNSYLVANIA, 15222

RACKOFF ASSOCIATES ENGINEERS						
CLEVELAND, OHIO			COLUMBUS, OHIO			
GENERAL NOTES AND ESTIMATED QUANTITIES						
TREMONT AVE. VIADUCT MASSILLON, OHIO STARK COUNTY						
Designed	Drawn	Traced	Checked	Reviewed	Date	Revised
	E.D.A.		L.F.L.	llb	4-19-65	





\* The vertical clearance shown for North Bound U.S. 21 are the existing vertical clearance, as determined by field measurement. The final minimum vertical clearance is at Point "A" and is equal to 15.13'.

Begin Project  
Begin Approach slab  
Sta. 3+57.28  
Elev. = 948.31

Transition to existing  
grade by County forces

Face of abutment backwall =  
Sta. 3+83.03  
Elev. = 949.67  
+ 4.78 %

New P.V.I. Sta. 9+76.45  
Tan. Elev. = 978.03

End Project  
End Approach slab  
Sta. 11+28.10

Transition to existing  
grade by County forces

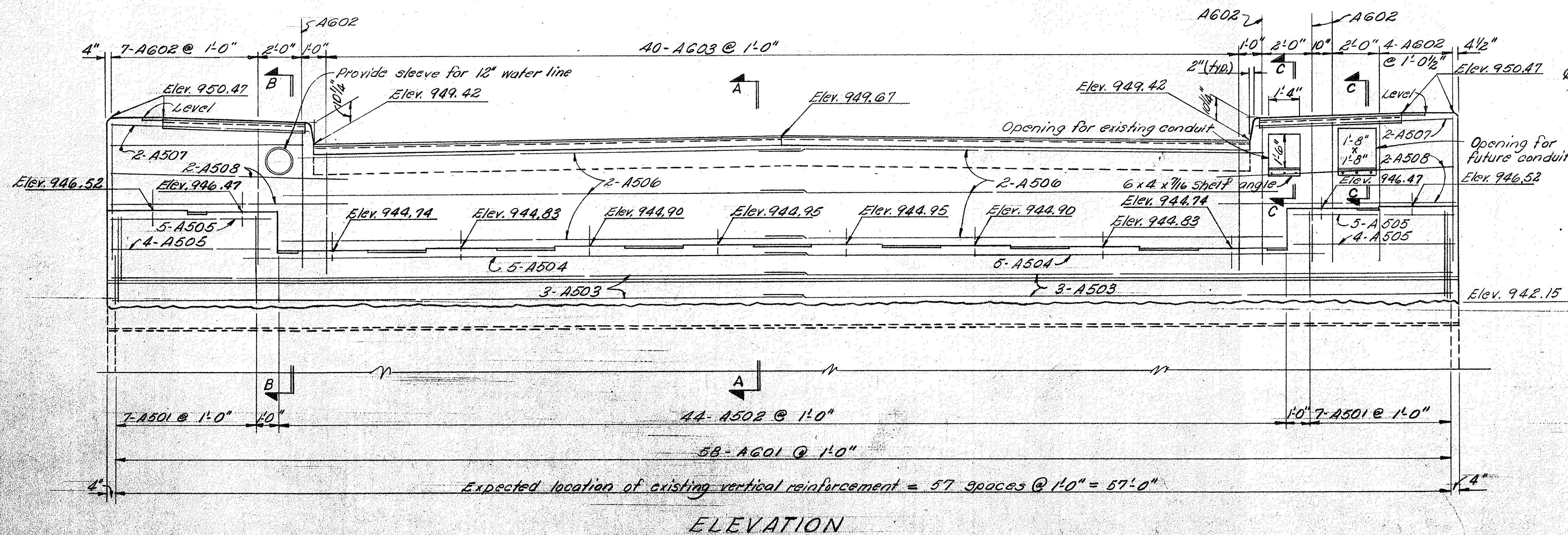
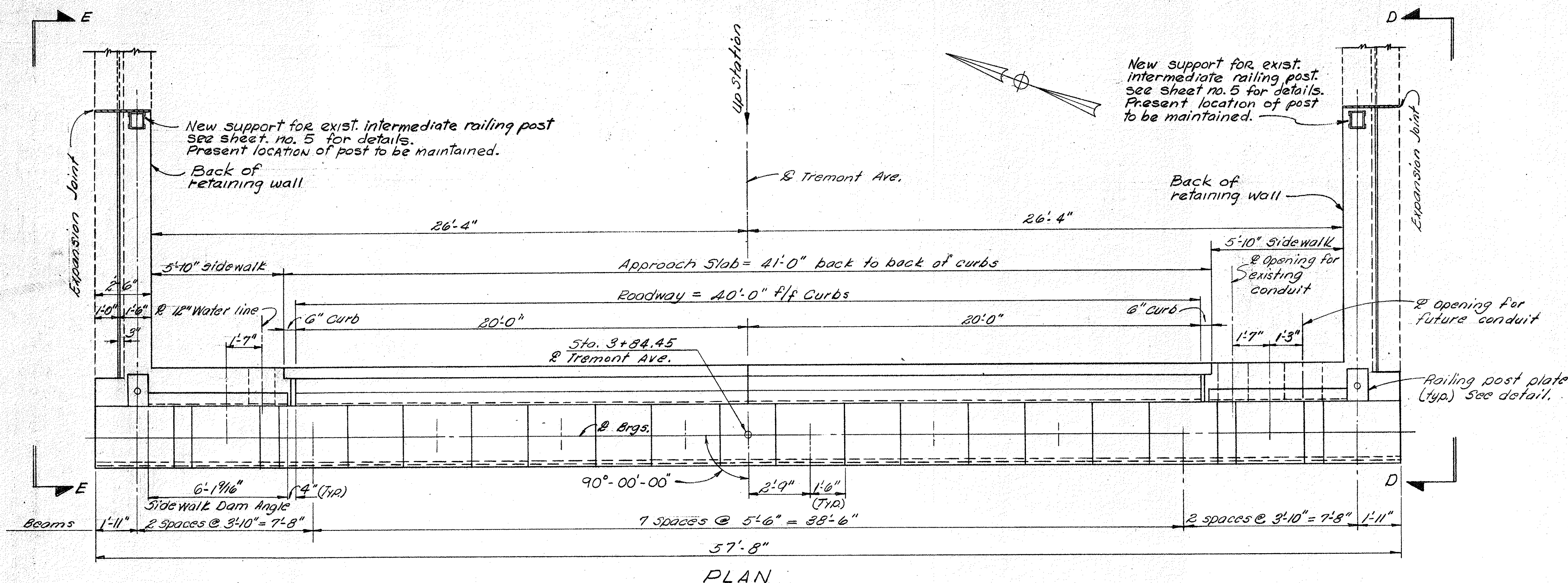
New P.V.I. Sta. 8+58.45  
Elev. = 972.89

236' V.C.

New P.V.I. Sta. 10+98.45  
Elev. = 970.95

NEW PROFILE GRADE





NOTES

SECTIONS: For Sections A-A, B-B, D-D, and E-E, see next sheet. For Section C-C, see sheet No. 7.

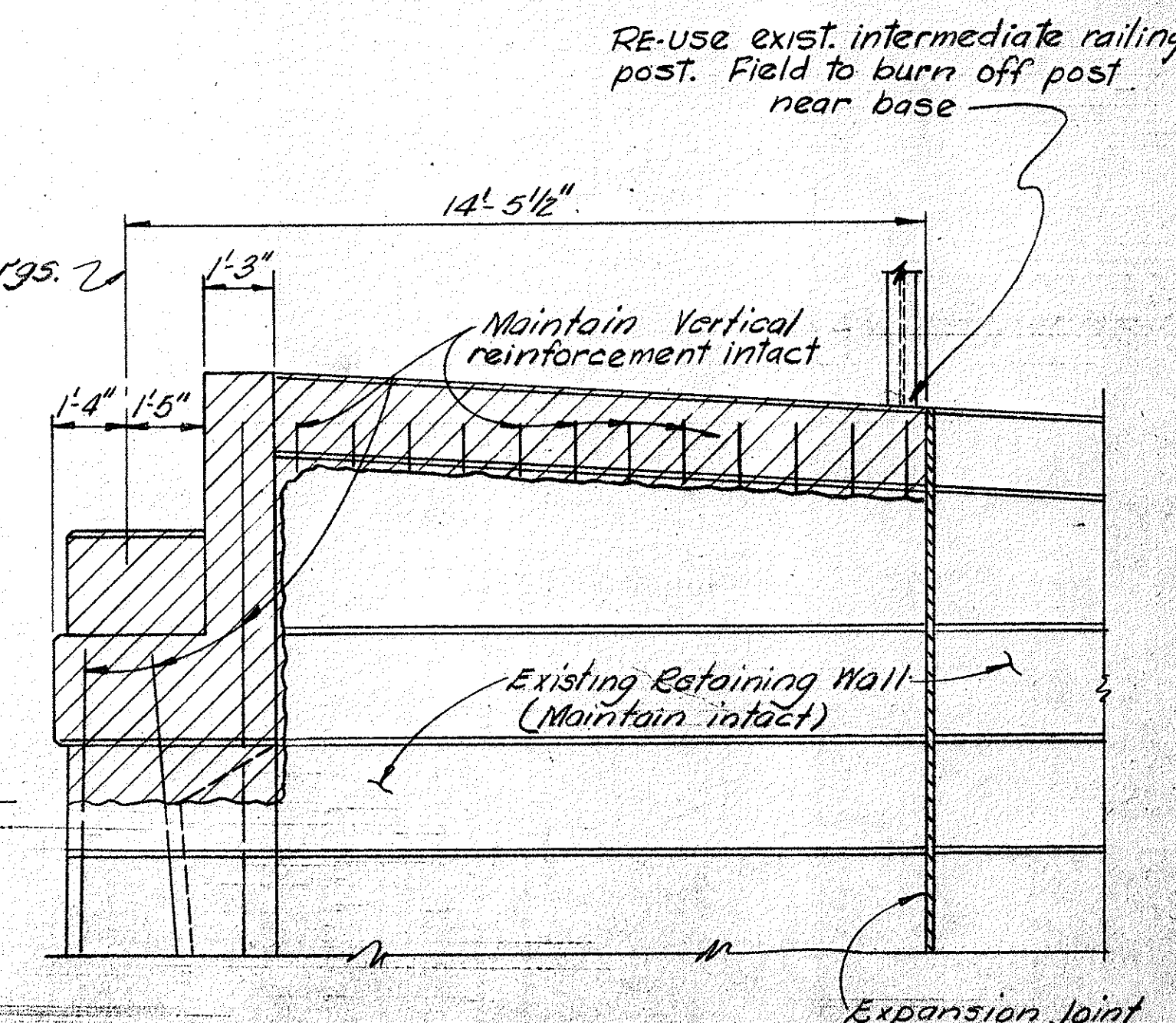
ROCKERS: Use existing rockers (12 required) placed on  $\frac{1}{8}$ " sheet lead or preformed bearing pads.

CURBS ON APPROACH SLAB : Raised concrete curbs 6" wide shall be cast integral with the approach slab. The curb height varies from 10 1/4" at the abutment backwall to 6" in accordance with the detail on sheet No. 7.

CONCRETE : Abutment concrete shall be class "C".

**UTILITY OPENINGS:** The location and elevation of utility openings in the abutment backwall shall be checked by the utility companies and may have to be adjusted in the field.

*EXISTING REINFORCEMENT : Where necessary, the ends of existing vertical reinforcement maintained intact shall be burned off to provide a minimum of 2" clearance from the face of the concrete of the bridge seat. (East abutment only).*



EXISTING END ELEVATION  
(Showing concrete to be removed)

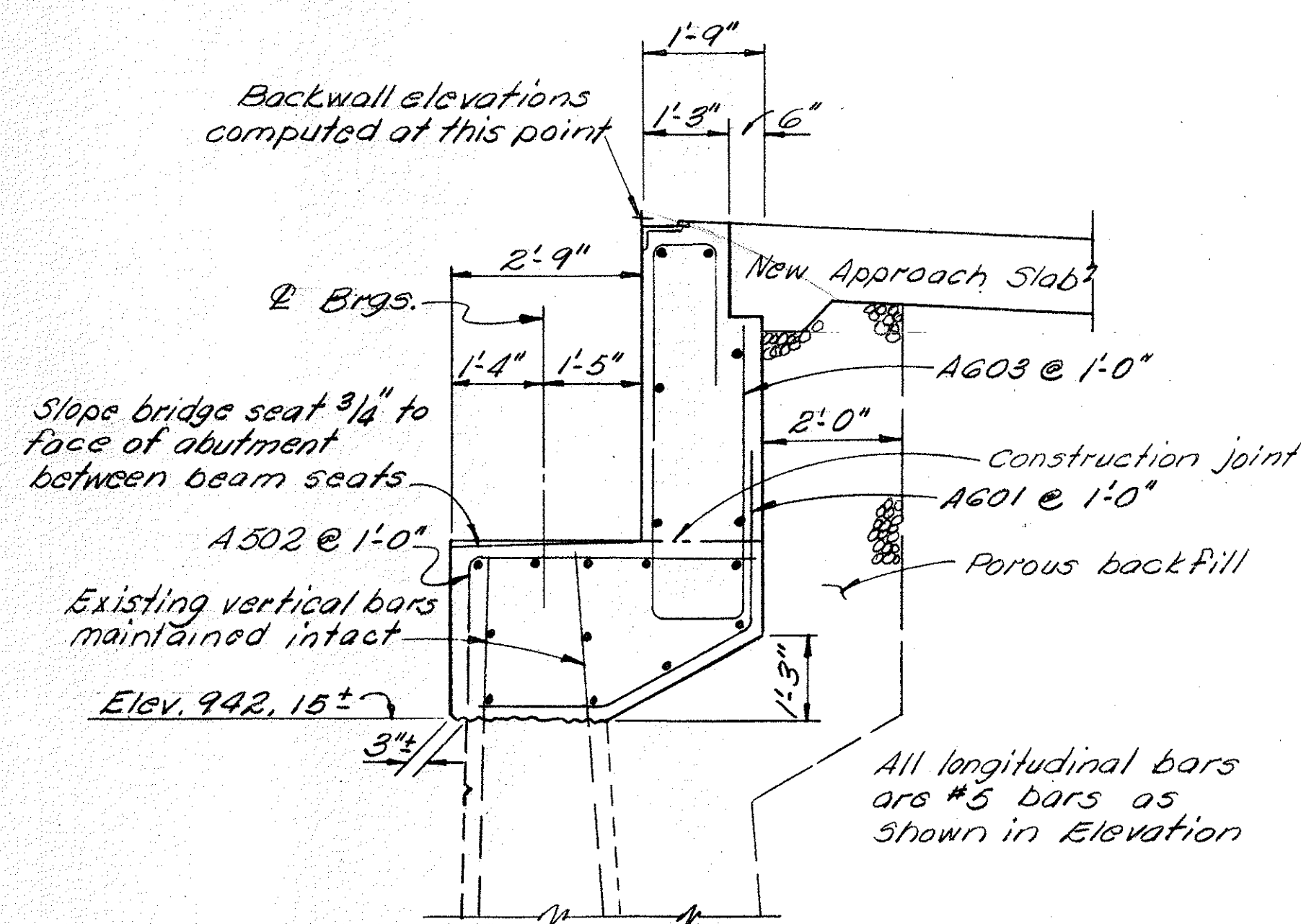
**RACKOFF ASSOCIATES**  
**ENGINEERS**

CLEVELAND, OHIO COLUMBUS, OHIO

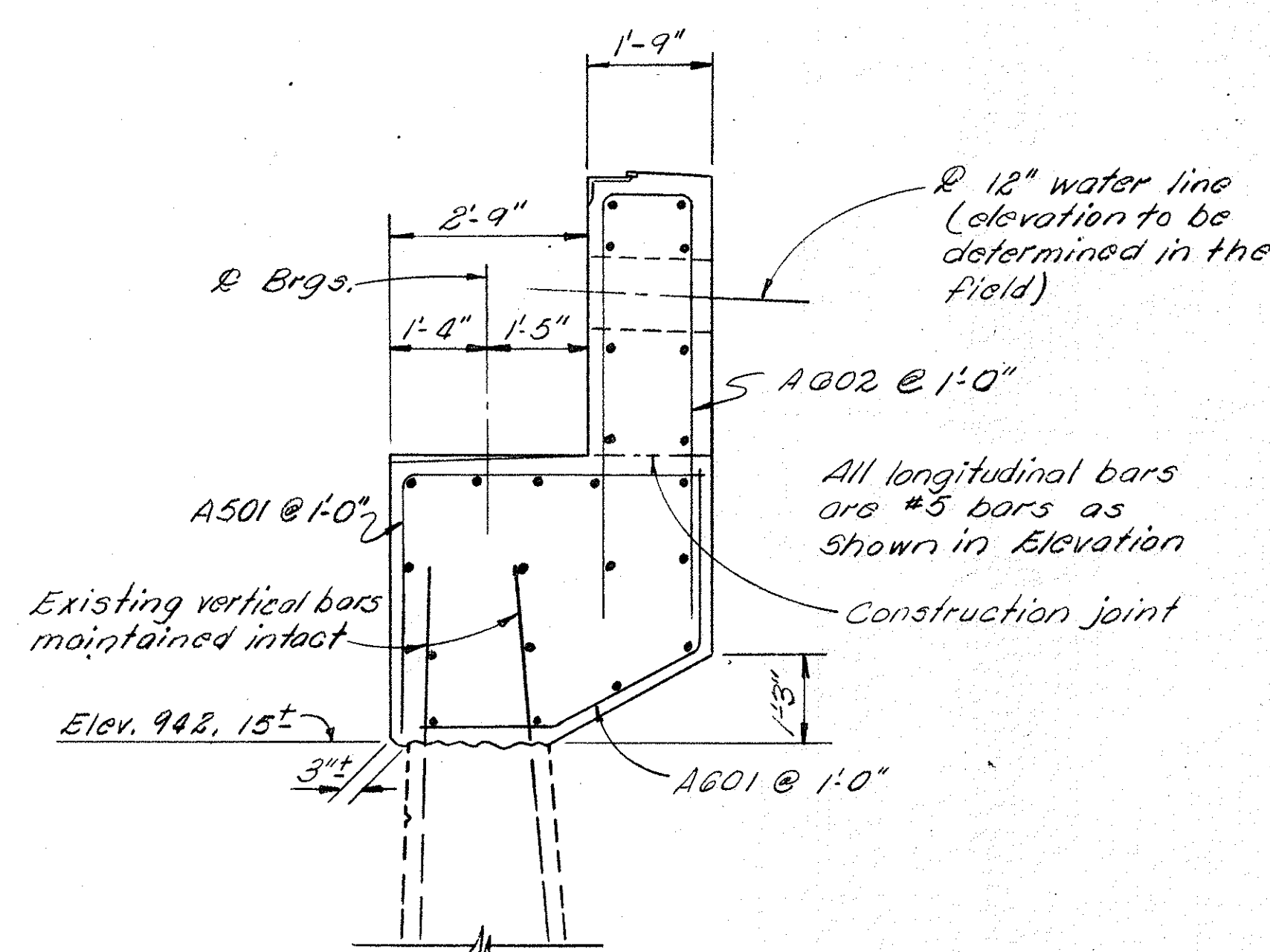
EAST ABUTMENT  
TREMONT AVE. VIADUCT  
MASSILLON, OHIO  
STARK COUNTY

Designed	Drawn	Traced	Checked	Reviewed	Date	Revised
L.F.L.	L.F.L.	E.D.A.	R.J.	<i>BBB</i>	4-19-65	

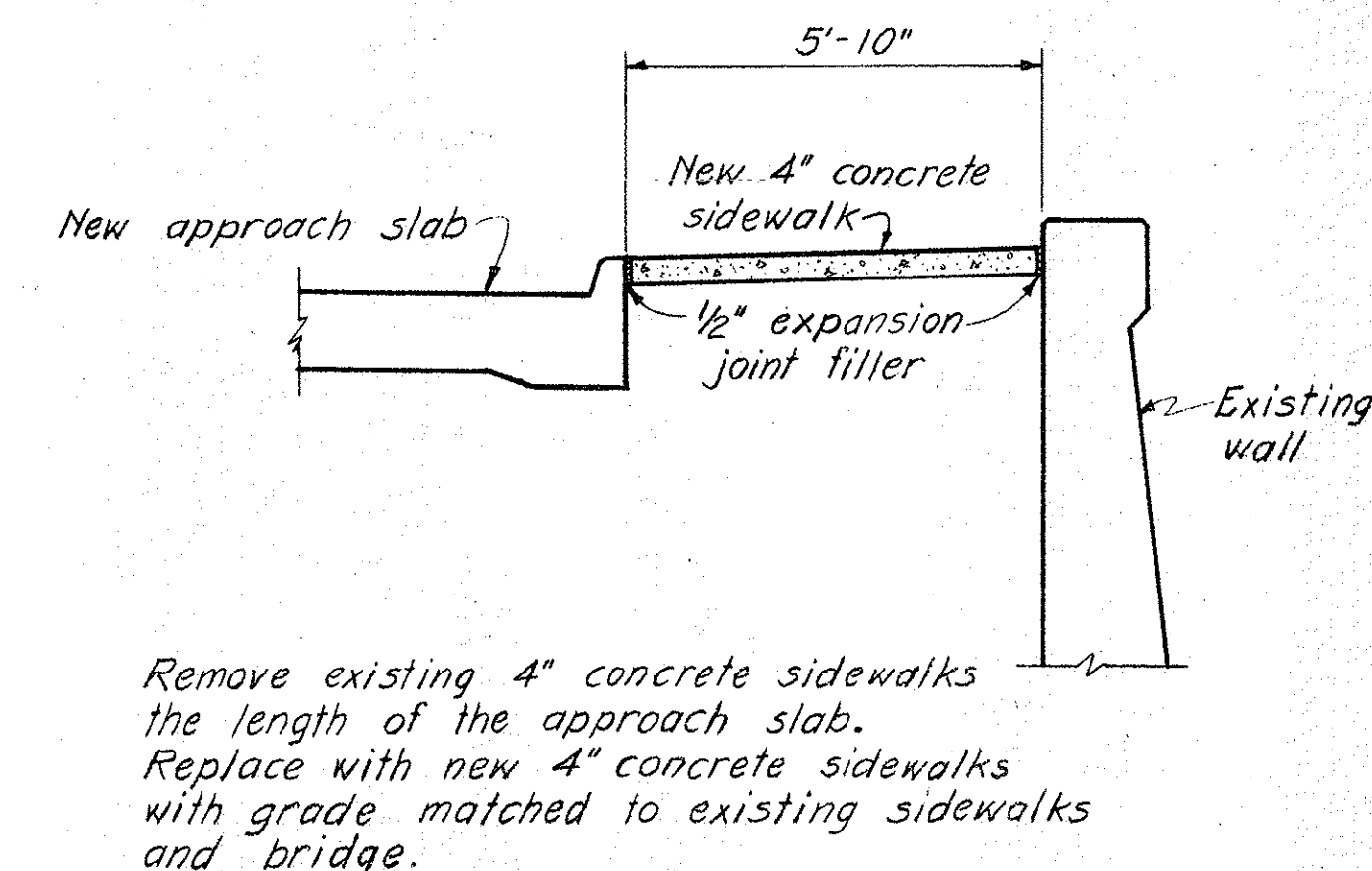




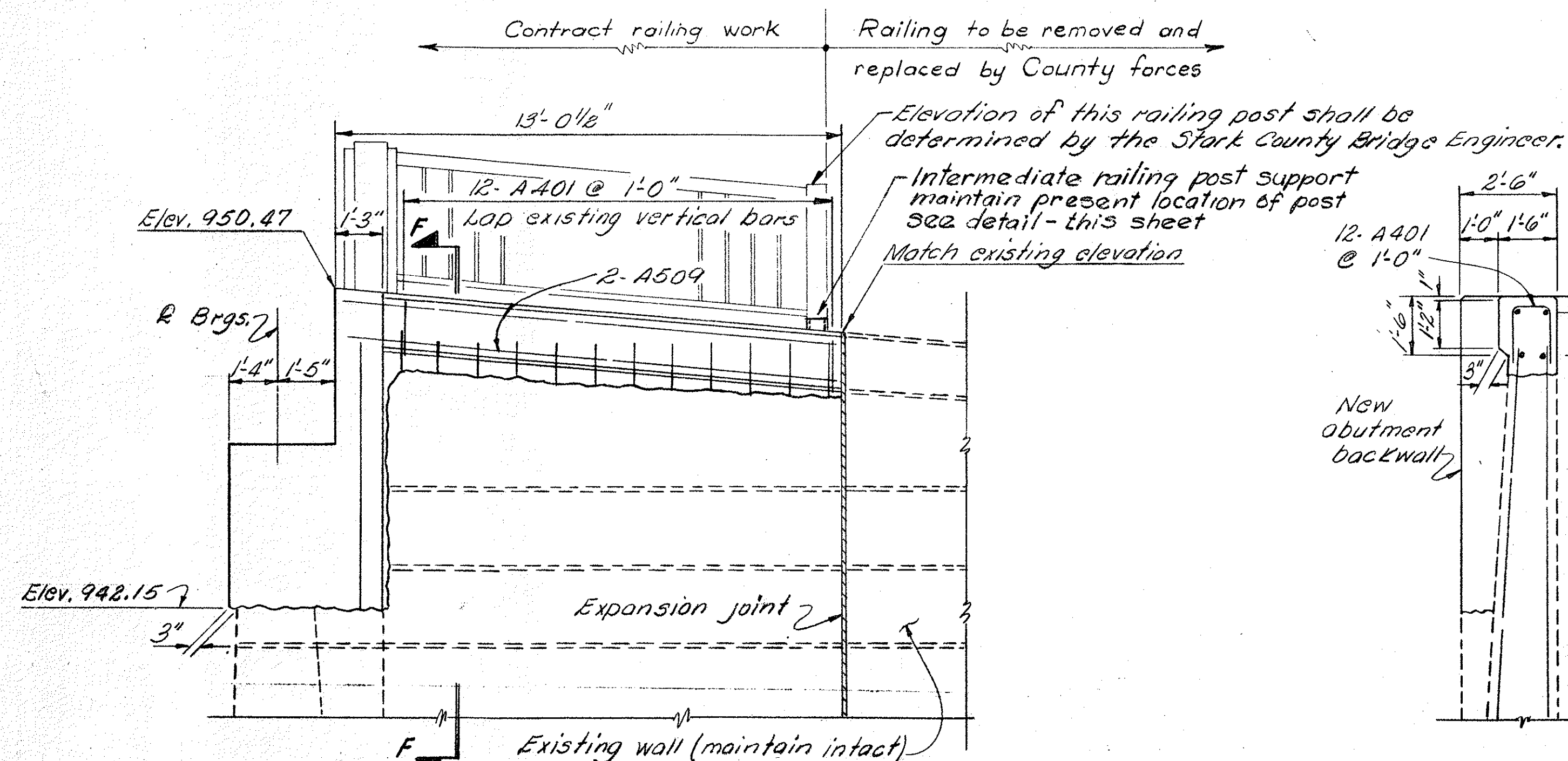
SECTION A-A



SECTION B-B

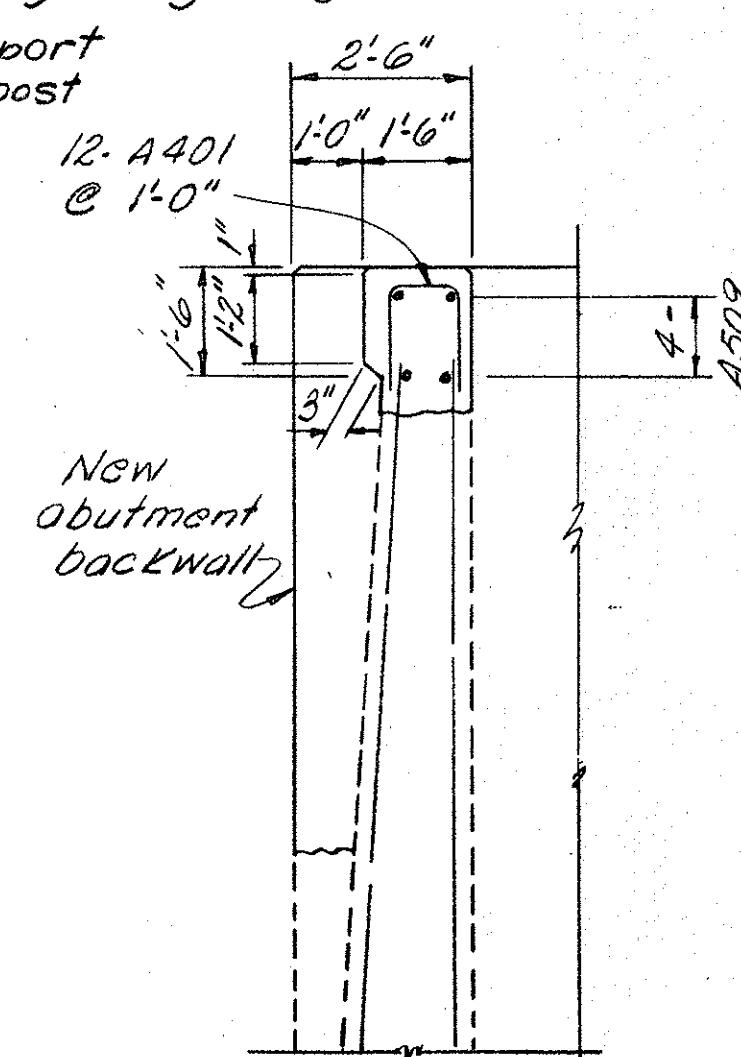


SIDEWALK DETAIL - EAST ABUTMENT  
TYPICAL BOTH SIDES OF ROADWAY

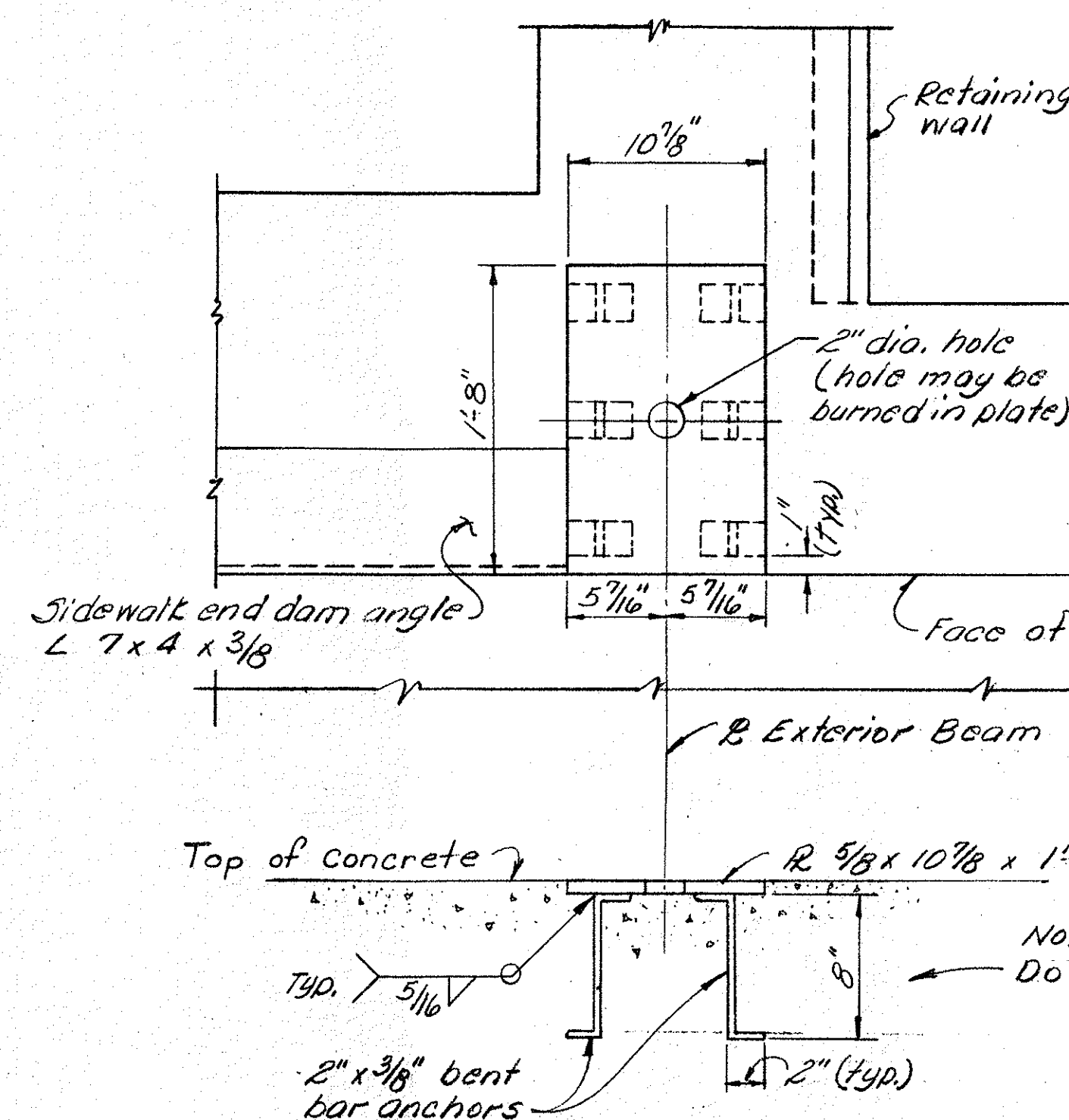


SECTION D-D

SECTION E-E OPPOSITE HAND

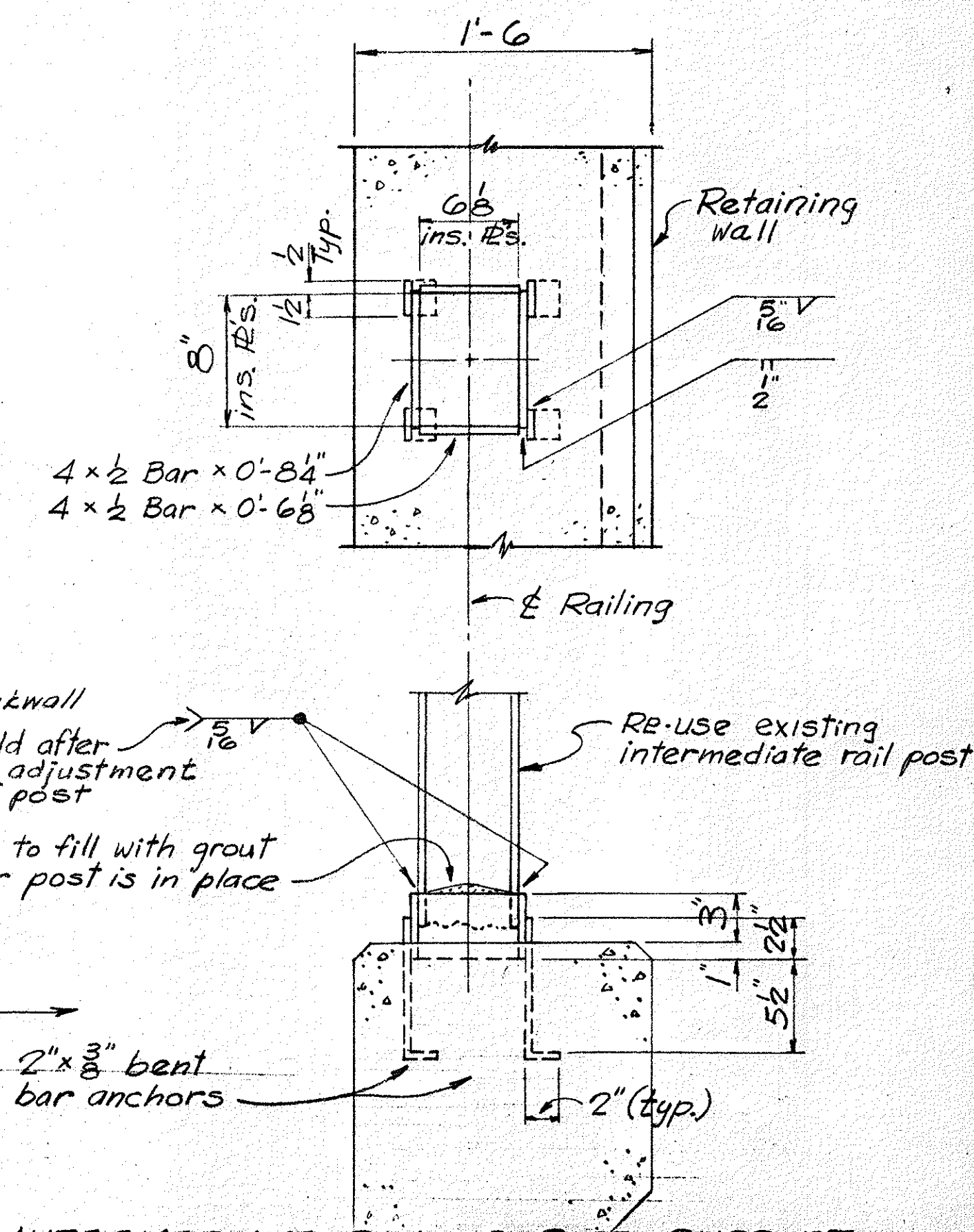


SECTION F-F



RAILING POST PLATE DETAIL

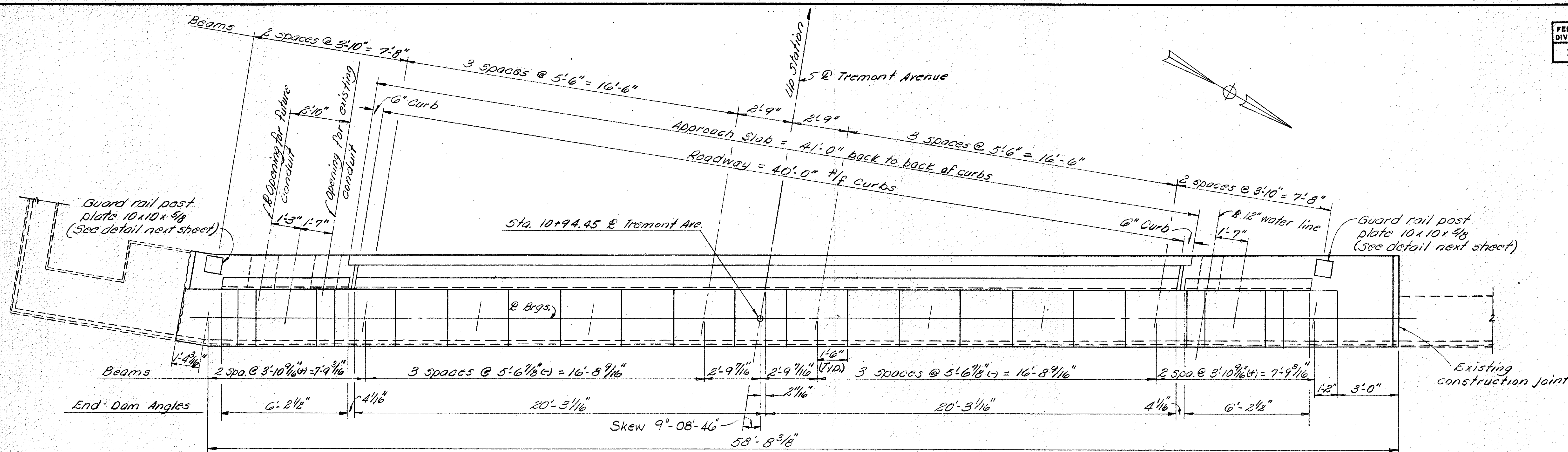
BOTH SIDES OF EAST ABUTMENT



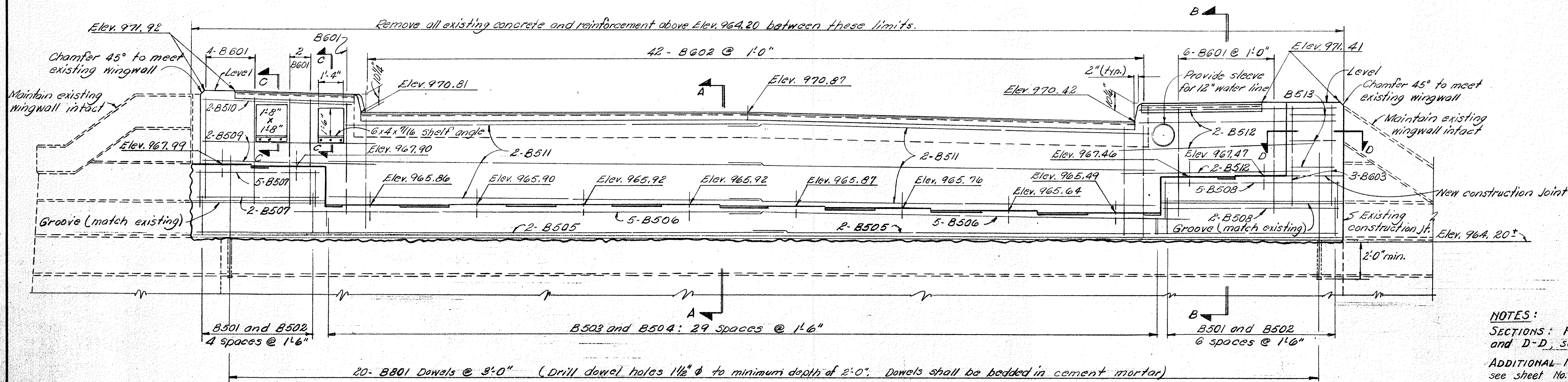
INTERMEDIATE RAILING POST SUPPORT

ONE REQ'D. EACH SIDE OF BRIDGE ON EAST ABUTMENT RETAINING WALLS.





PLAN



ELEVATION

**NOTES:**  
 SECTIONS: For Sections A-A, B-B, C-C, and D-D, see next sheet.  
 ADDITIONAL NOTES: For additional notes see sheet No. 4.

RACKOFF ASSOCIATES ENGINEERS	
CLEVELAND, OHIO	COLUMBUS, OHIO
WEST ABUTMENT TREMONT AVE. VIADUCT MASSILLON, OHIO STARK COUNTY	
Designed	Drawn
Traced	Checked
Reviewed	Date
L.F.L.	4-19-65



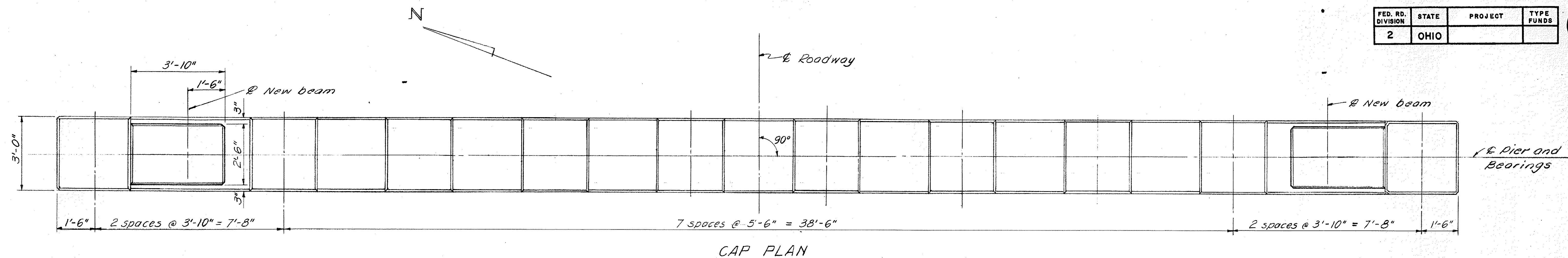




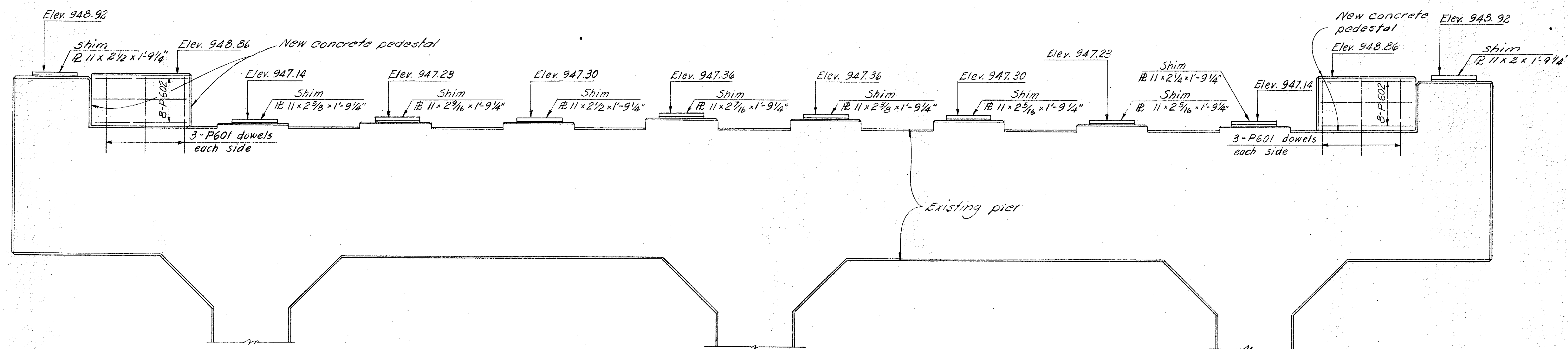
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

8  
29

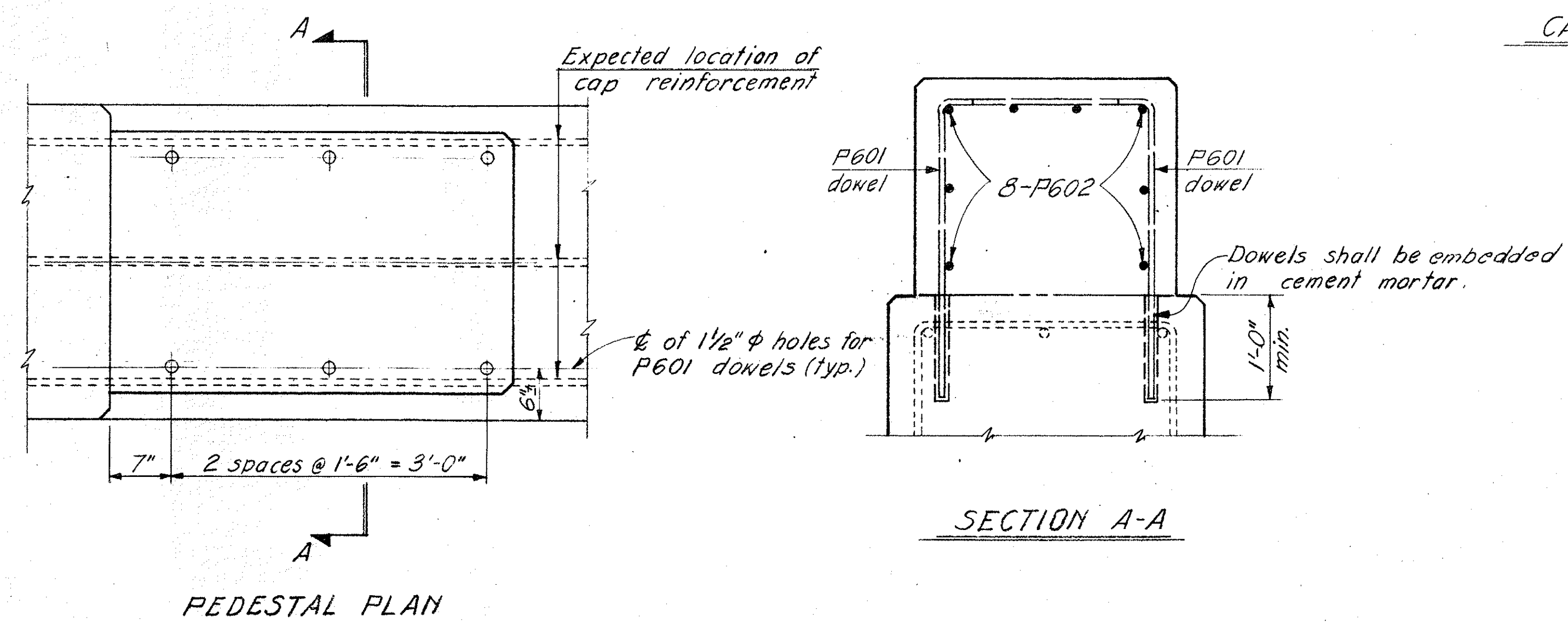
PE-7-23



CAP PLAN



CAP ELEVATION



SECTION A-A

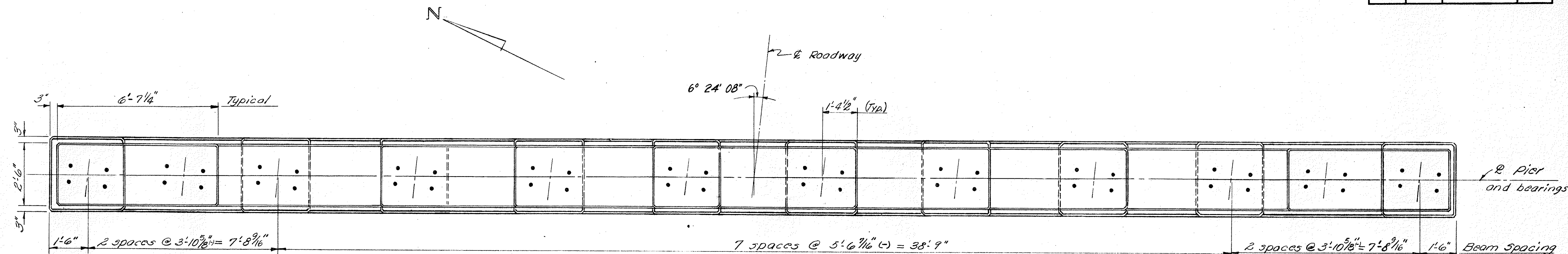
PEDESTAL PLAN

NOTES:

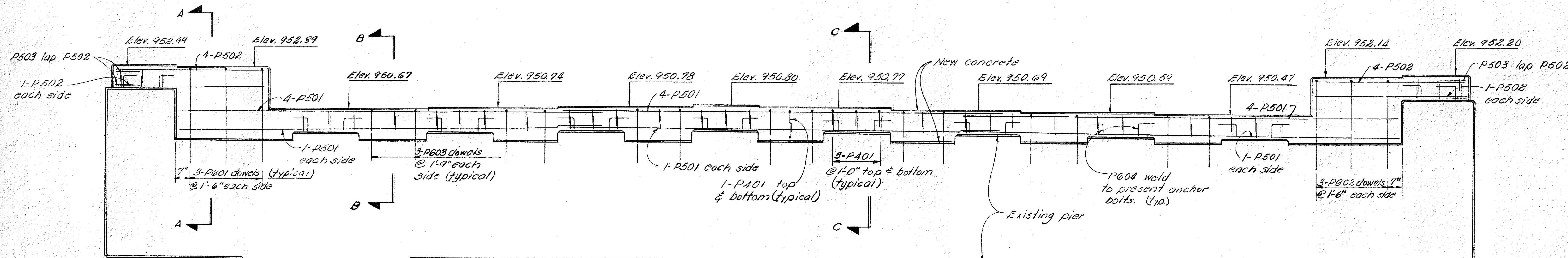
- Use existing rockers (12 required) placed on new shim plates and 1/8" sheet lead or preformed bearing pads.
- Burn off existing anchor rods and grind flush with top of concrete.
- The shim thicknesses shown are nominal. Shims shall be furnished in thicknesses necessary to obtain the bearing elevations shown.

RACKOFF ASSOCIATES ENGINEERS						CLEVELAND, OHIO	COLUMBUS, OHIO
PIER NO. 1 TREMONT AVE. VIADUCT MASSILLON, OHIO STARK COUNTY							
Designed	Drawn	Traced	Checked	Reviewed	Date	Revised	
V. K.	E.D.A.		H. H.	688	4-19-65		

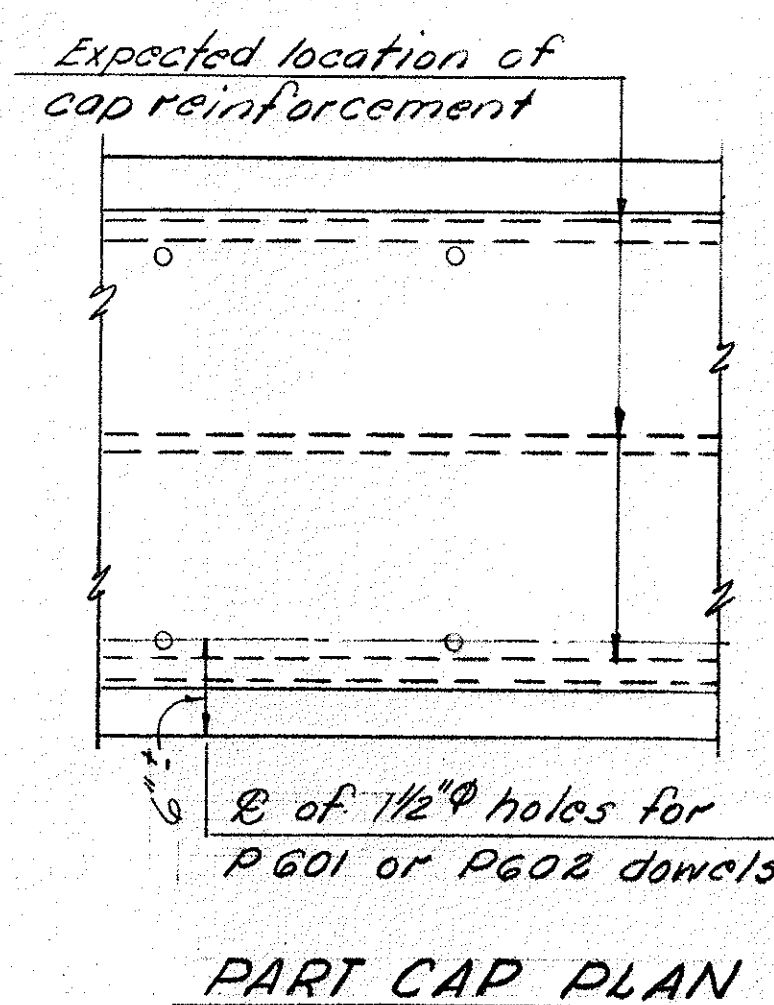




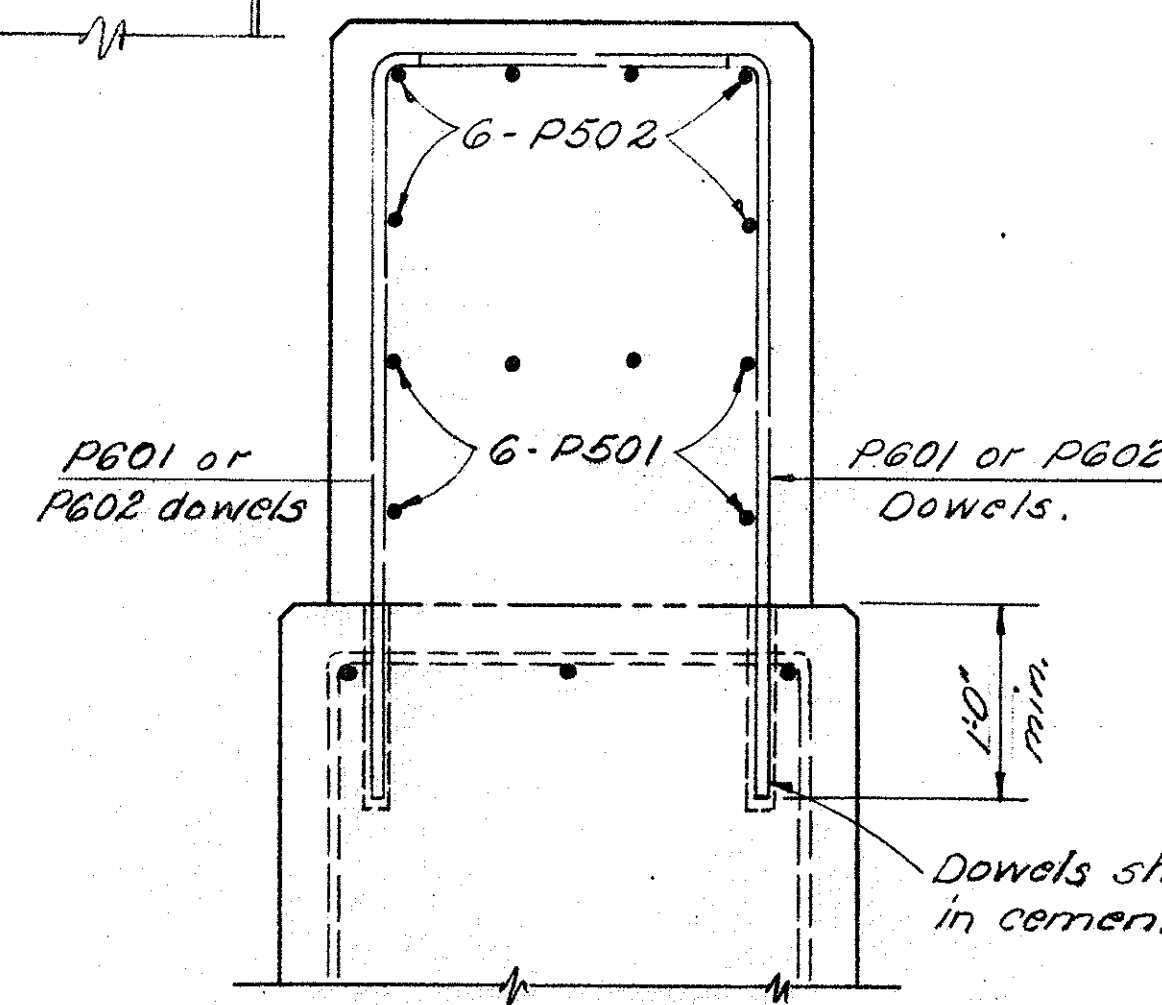
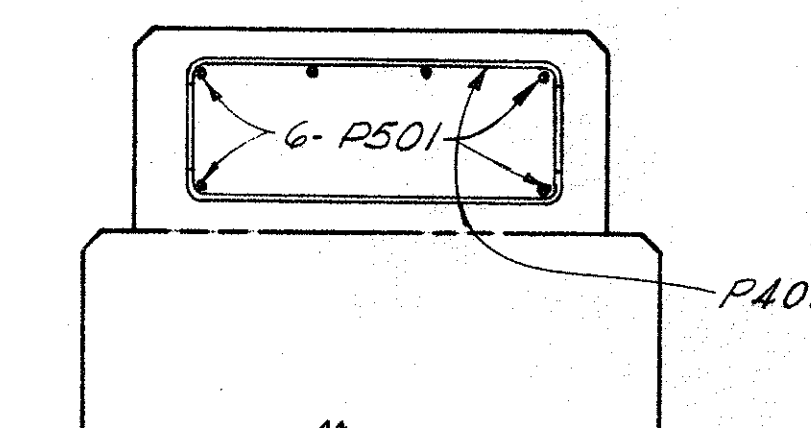
CAP PLAN



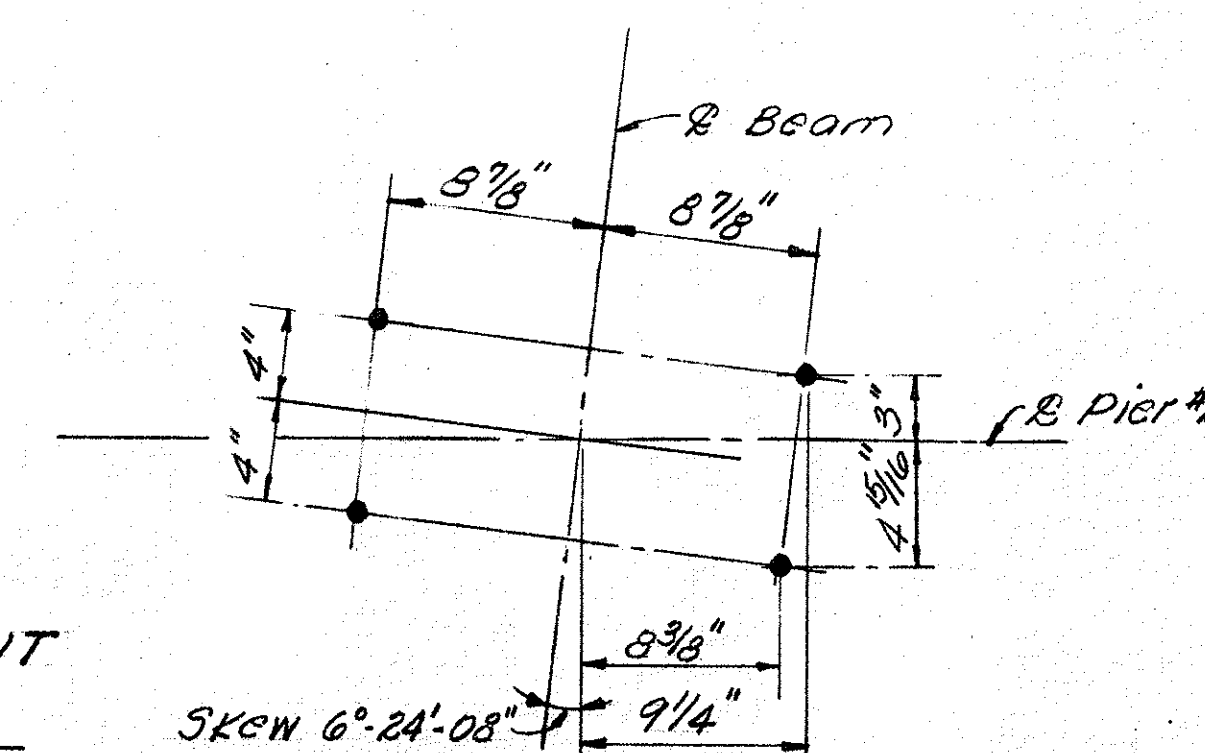
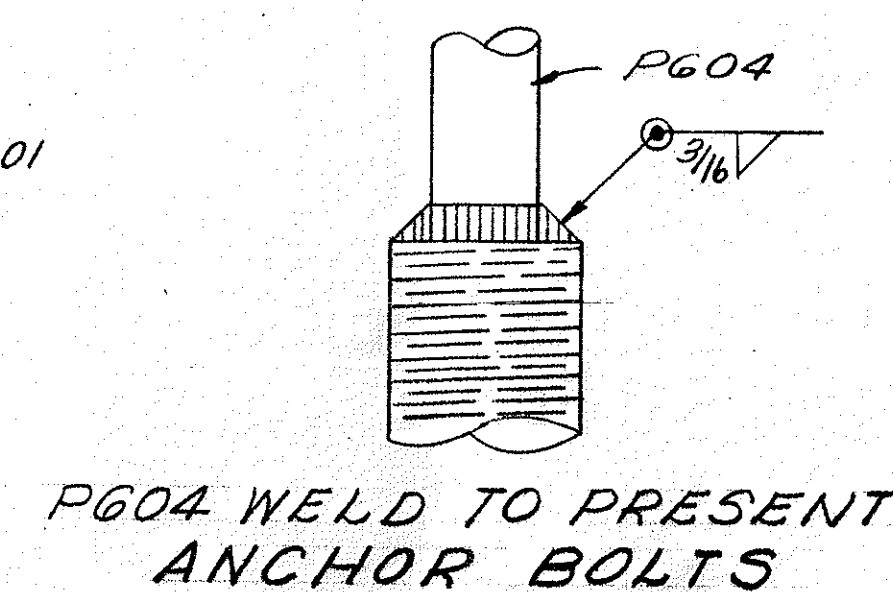
CAP ELEVATION



PART CAP PLAN


SECTION A-A  
Section B-B Similar


SECTION C-C



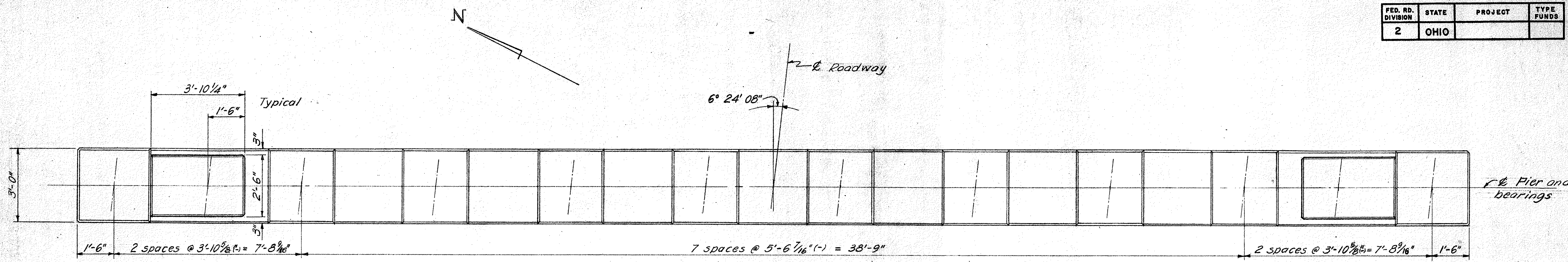
ANCHOR ROD LAYOUT

## NOTES:

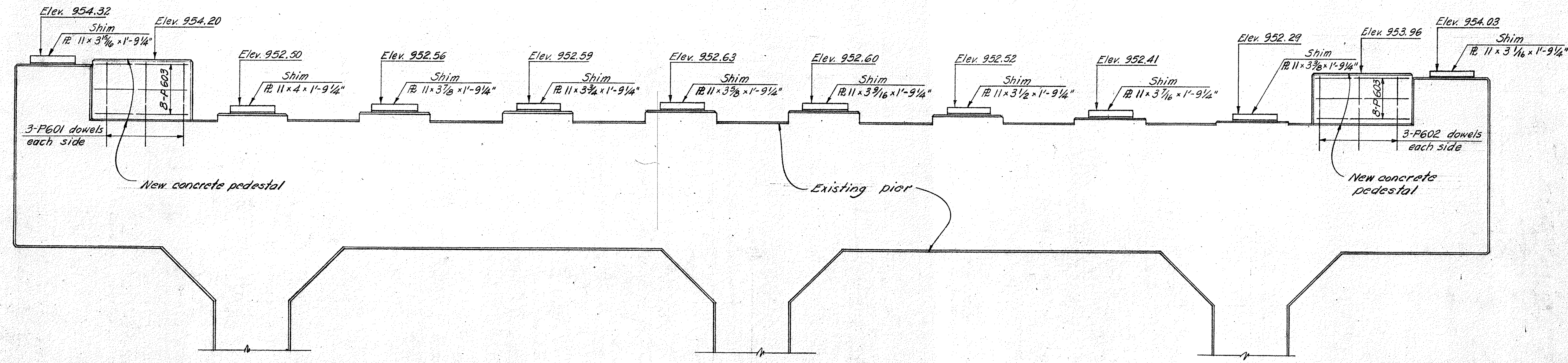
- Use existing bolsters (12 required) placed on 1/8" sheet lead or preformed bearing pad.
- Set anchor rod 1'-0" min. into concrete.
- Special care shall be taken in placing reinforcing steel in the bridge seat, so as to avoid interference with the drilling of anchor rod holes.

RACKOFF ASSOCIATES ENGINEERS						
CLEVELAND, OHIO			COLUMBUS, OHIO			
PIER NO. 2 TREMONT AVE. VIADUCT MASSILLON, OHIO STARK COUNTY						
Designed	Drawn	Traced	Checked	Reviewed	Date	Revised
V. K.	E.D.A.		H. H.	666	4-19-65	

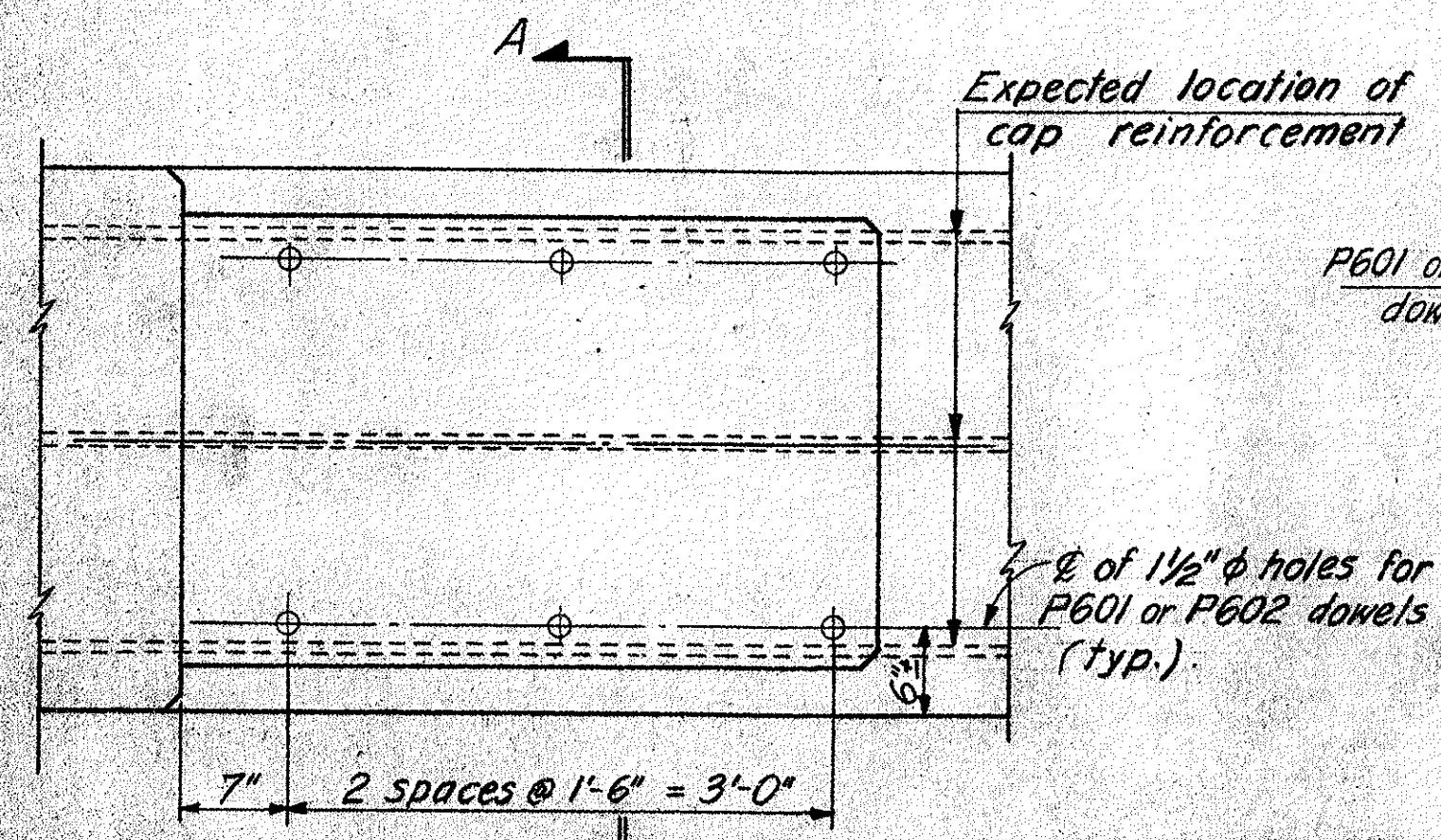




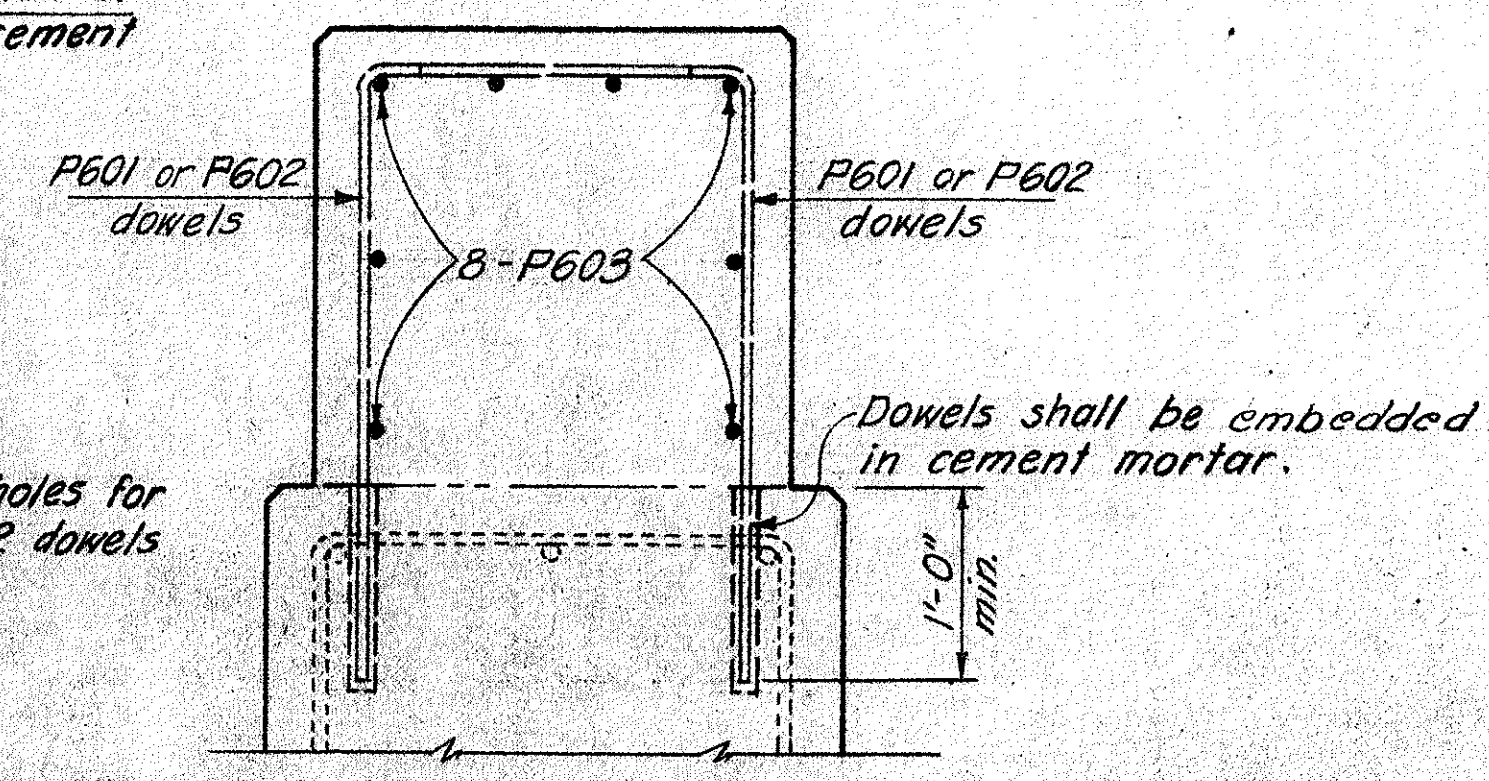
CAP PLAN



CAP ELEVATION



PEDESTAL PLAN



SECTION A-A

**NOTES:**

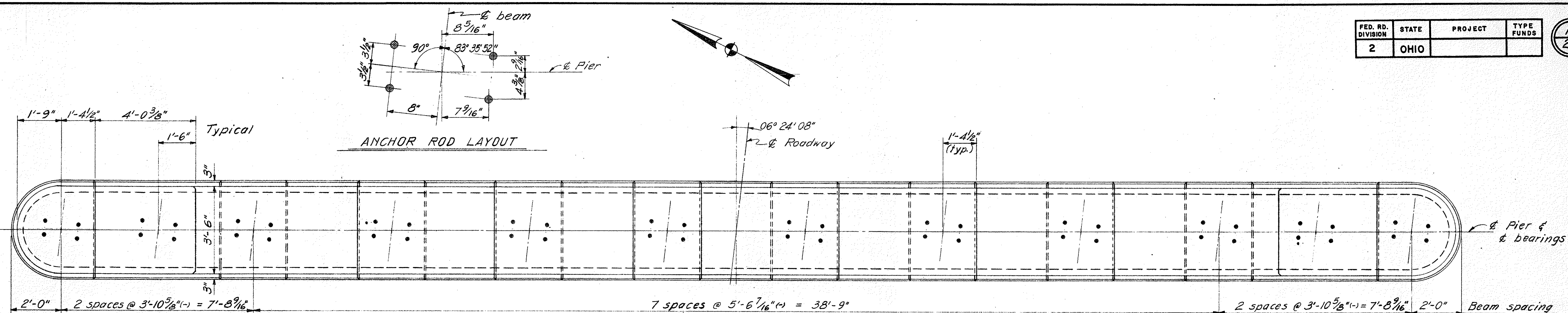
- Use existing rockers (12 required) placed on new shim plates and 1/8" sheet lead or preformed bearing pads.
- Burn off existing anchor rods and grind flush with top of concrete.
- The shim thicknesses shown are nominal. Shim shall be furnished in thicknesses necessary to obtain the bearing elevations shown.

RACKOFF ASSOCIATES ENGINEERS	
CLEVELAND, OHIO	COLUMBUS, OHIO
<b>PIER NO. 3</b> <b>TREMONT AVE. VIADUCT</b> <b>MASSILLON, OHIO</b> <b>STARK COUNTY</b>	
Designed V. K.	Drawn E.D.A.
Traced H. H.	Checked H. H.
Reviewed 4-19-65	Date 4-19-65

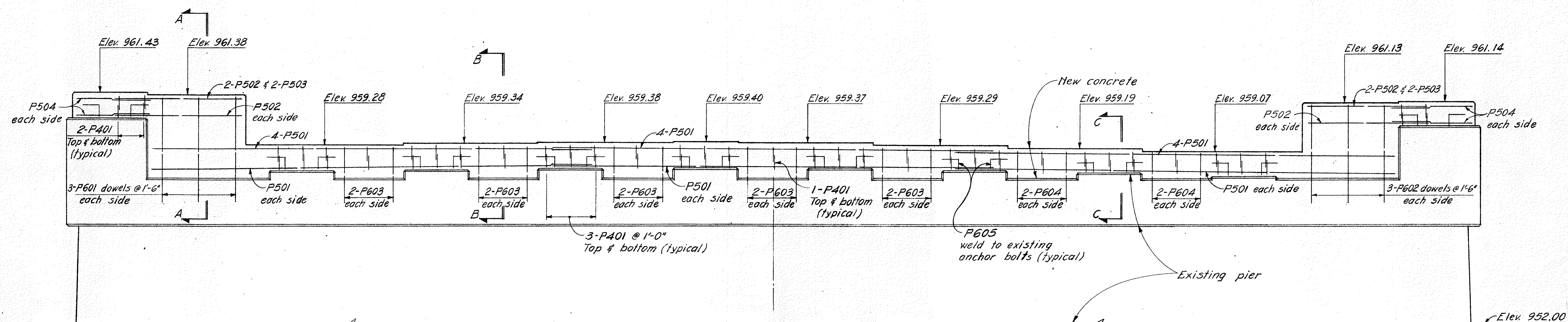




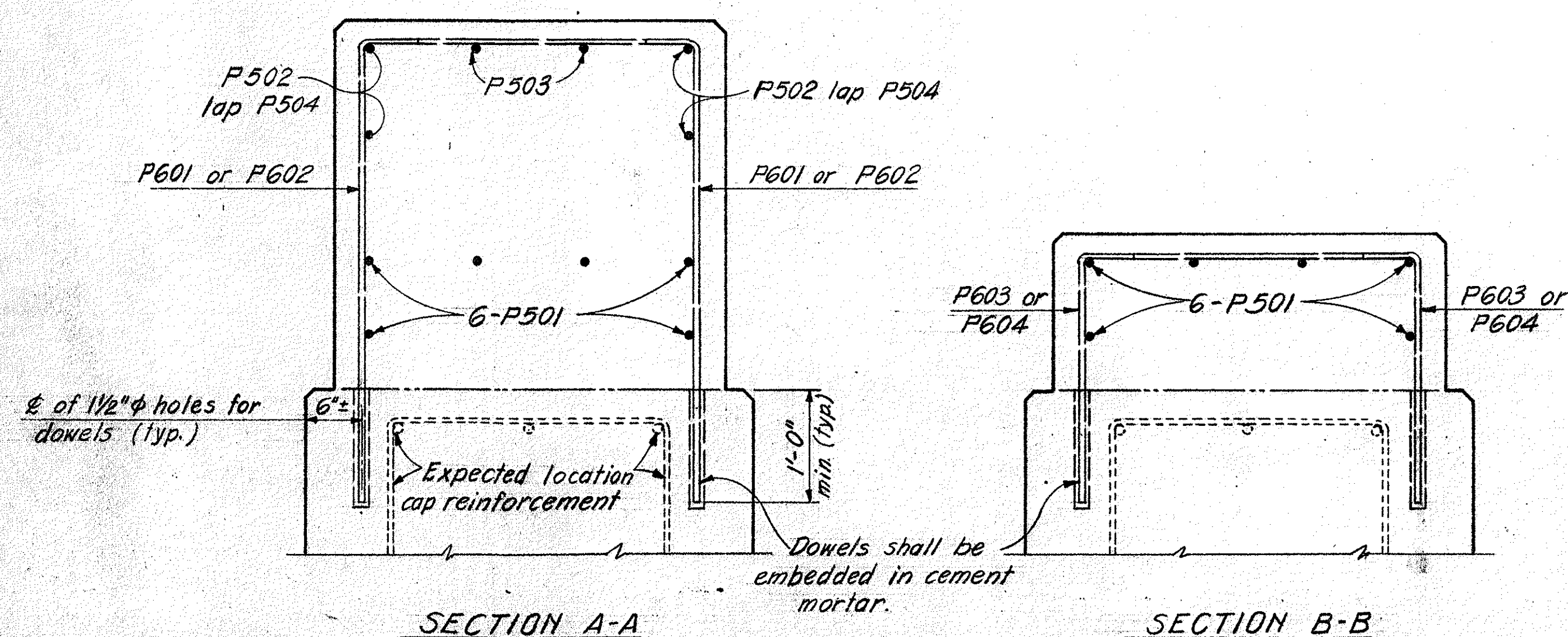




CAP PLAN

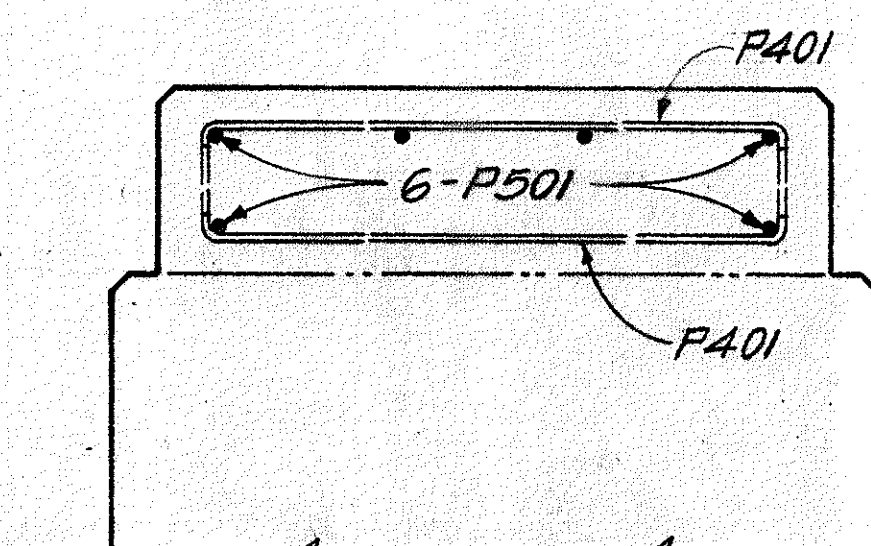


CAP ELEVATION

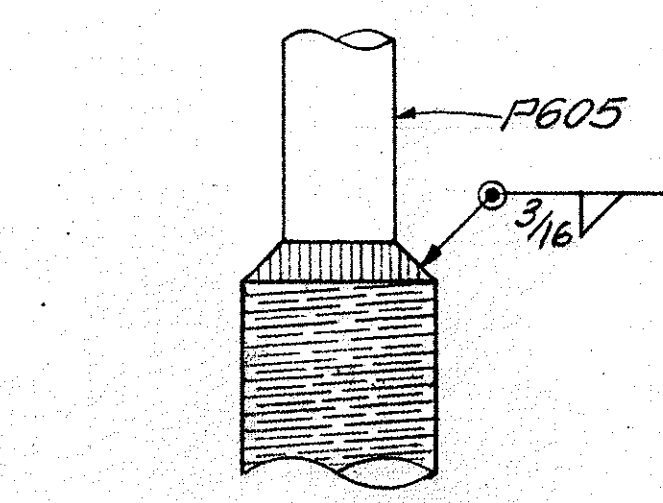


SECTION A-A

SECTION B-B



SECTION C-C



P605 WELD TO PRESENT ANCHOR BOLTS

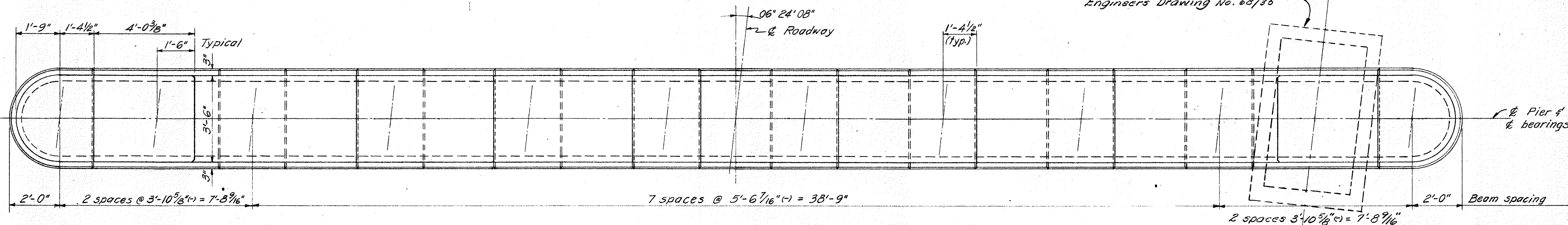
## NOTES:

- Fixed bearings F-150 (12 required).
- Set anchor rods 1'-0" min. into concrete.
- Special care shall be taken in placing reinforcing steel in the bridge seat, so as to avoid interference with the drilling of anchor rod holes.

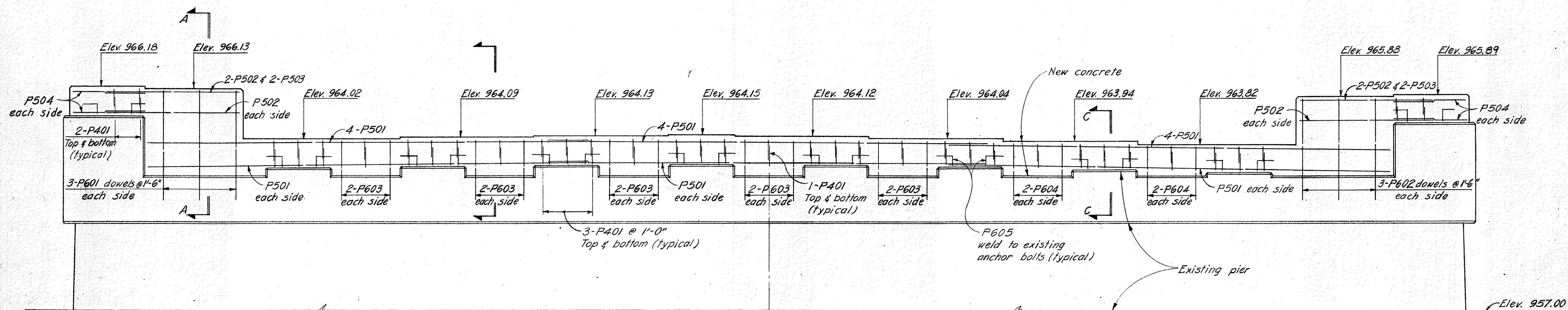
RACKOFF ASSOCIATES ENGINEERS							
CLEVELAND, OHIO				COLUMBUS, OHIO			
PIER NO. 5 TREMONT AVE. VIADUCT MASSILLON, OHIO STARK COUNTY							
Designed	Drawn	Traced	Checked	Reviewed	Date	Revised	
V. K.	M. R.		H. H.	666	4-19-65		



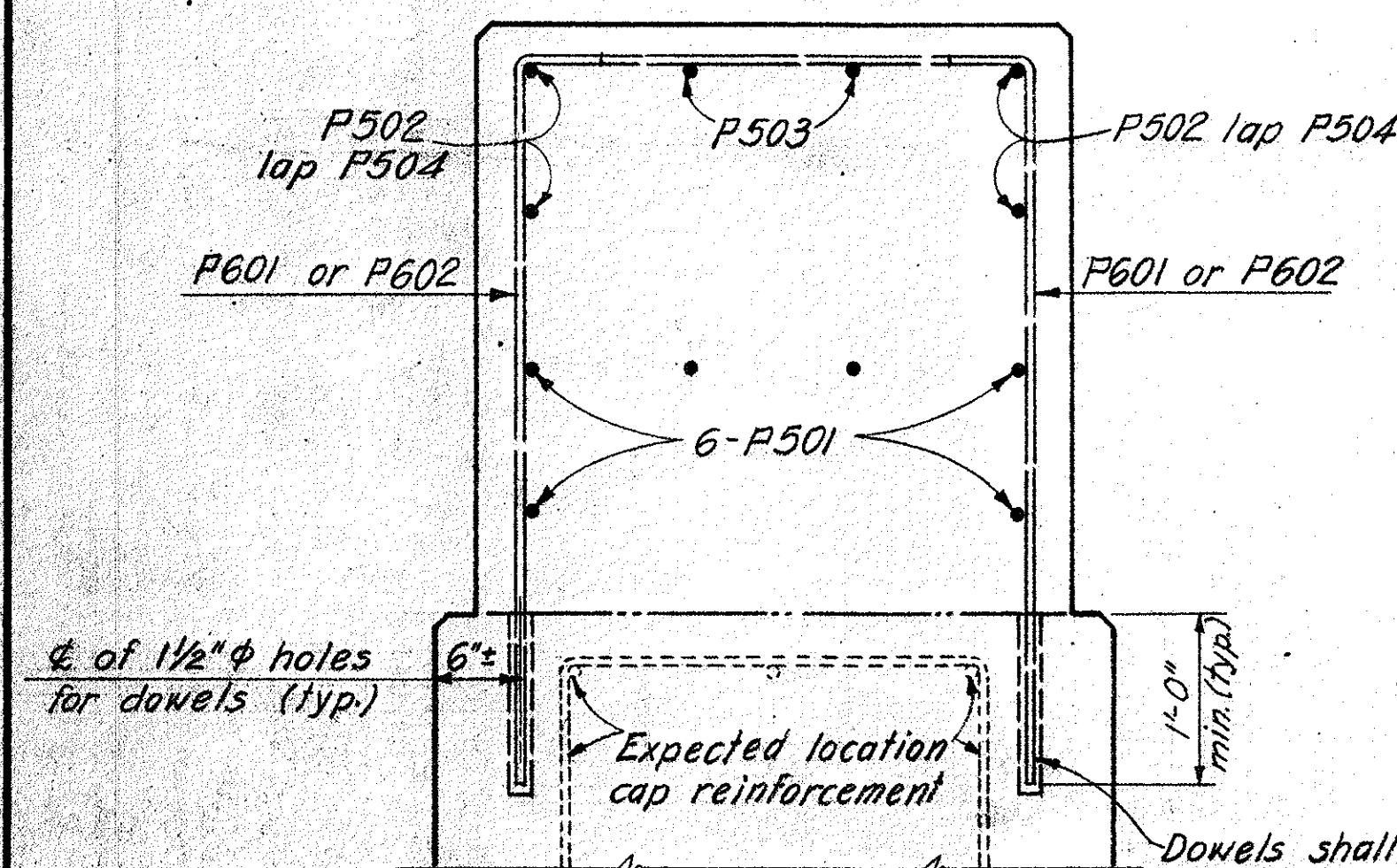
Existing reinforced concrete manhole shall be removed. For details see Corps of Engineers Drawing No. 68/35



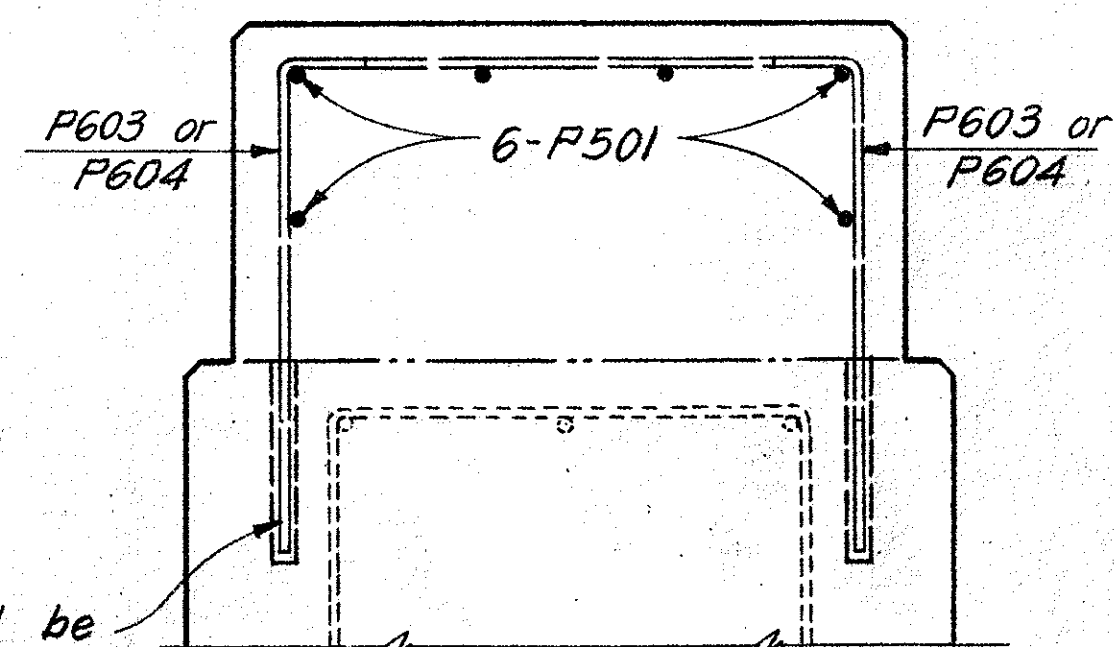
CAP PLAN



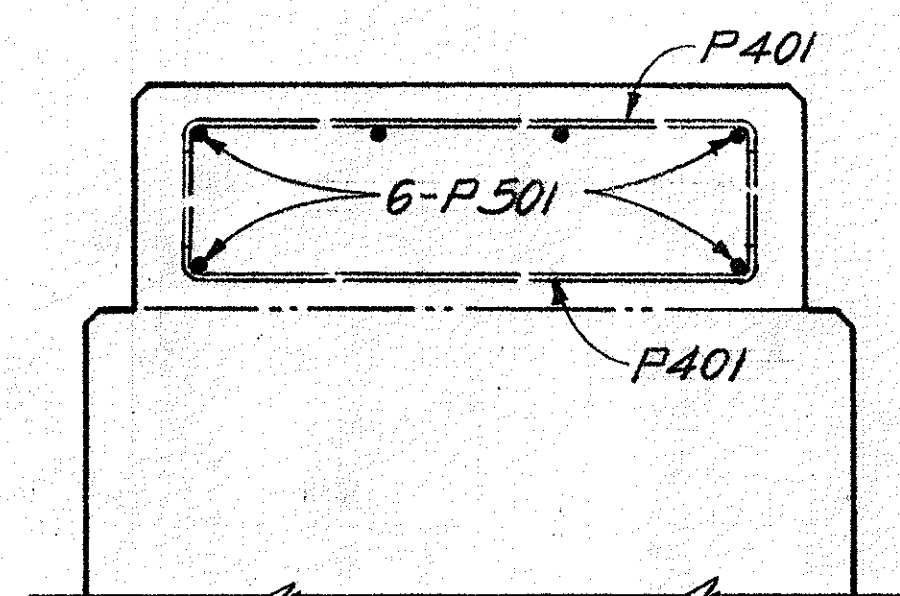
CAP ELEVATION



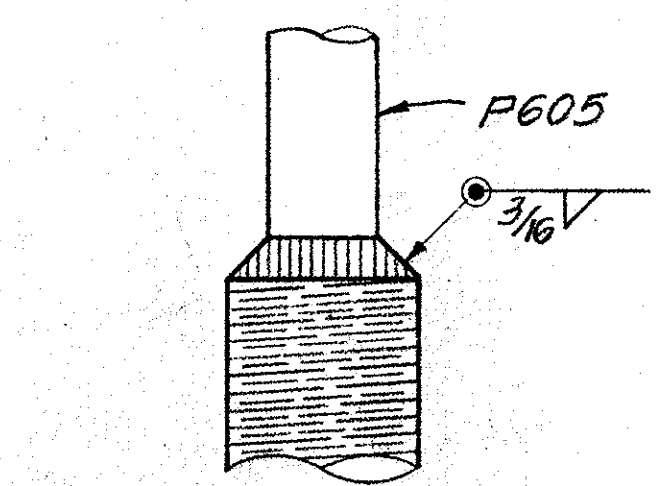
SECTION A-A



SECTION B-B



SECTION C-C

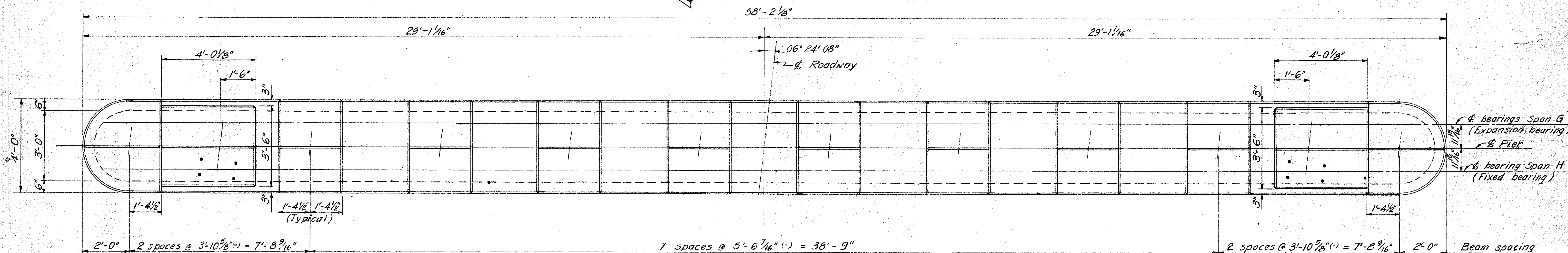


P605 WELD TO PRESENT ANCHOR BOLTS

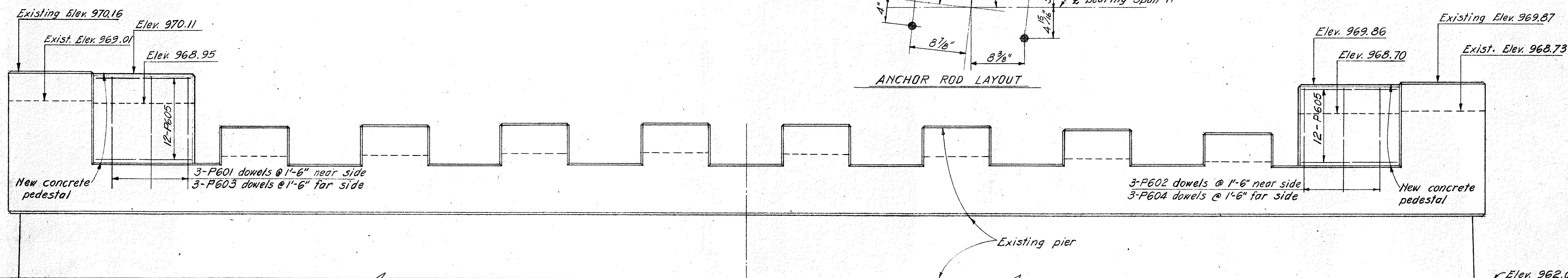
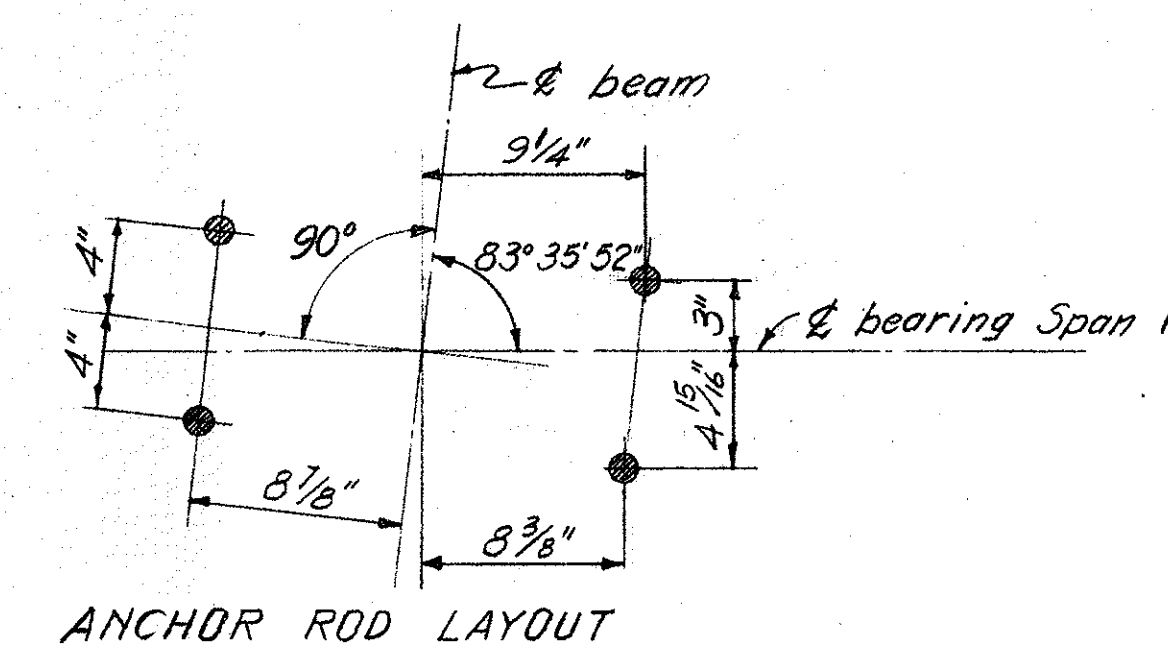
NOTE:  
• Expansion bearings E-150 (12 required)

RACKOFF ASSOCIATES ENGINEERS		COLUMBUS, OHIO				
CLEVELAND, OHIO						
PIER NO. 6 TREMONT AVE. VIADUCT MASSILLON, OHIO STARK COUNTY						
Designed	Drawn	Traced	Checked	Reviewed	Date	Revised
V. K.	M. R.		H. H.	666	4-19-65	

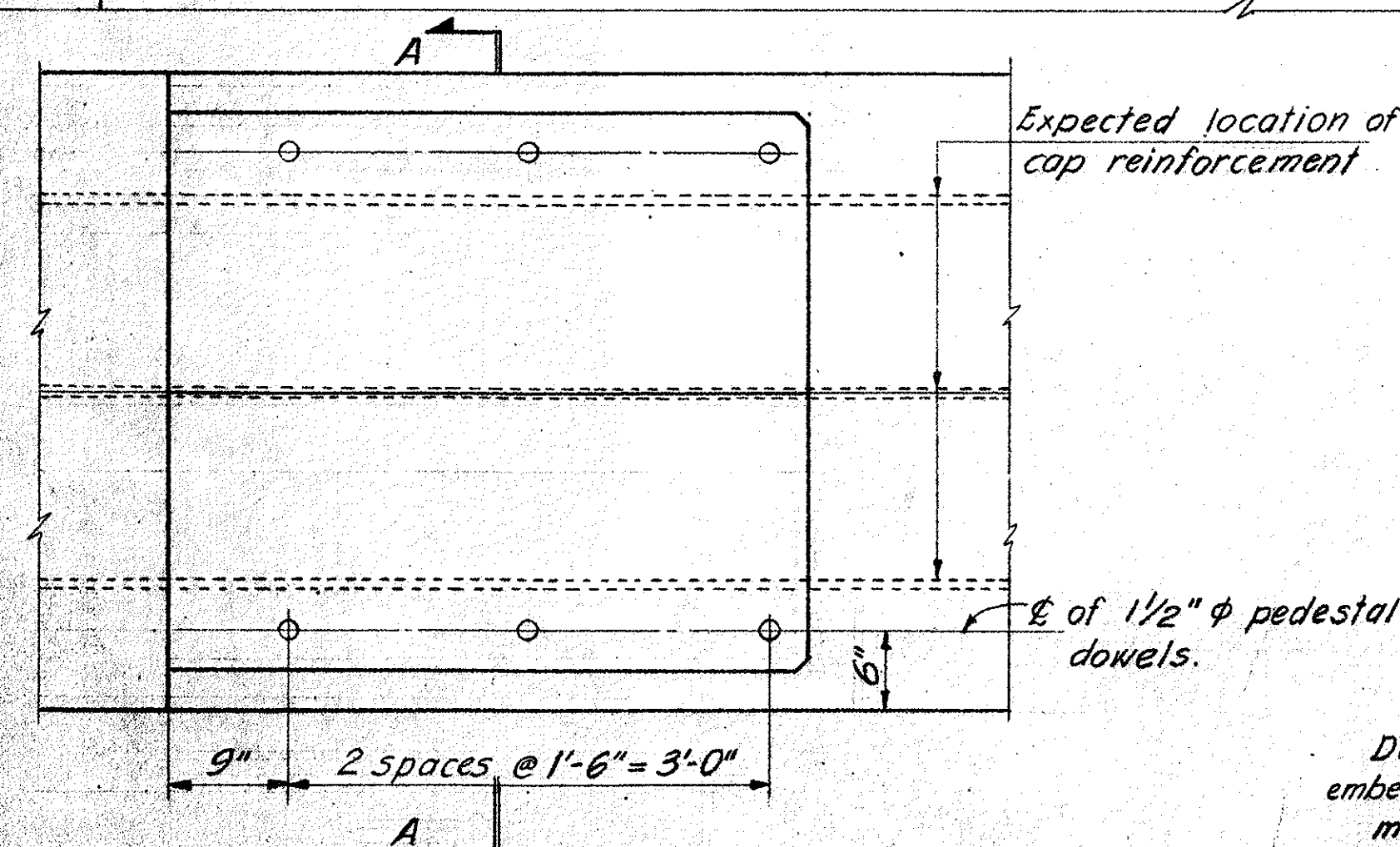




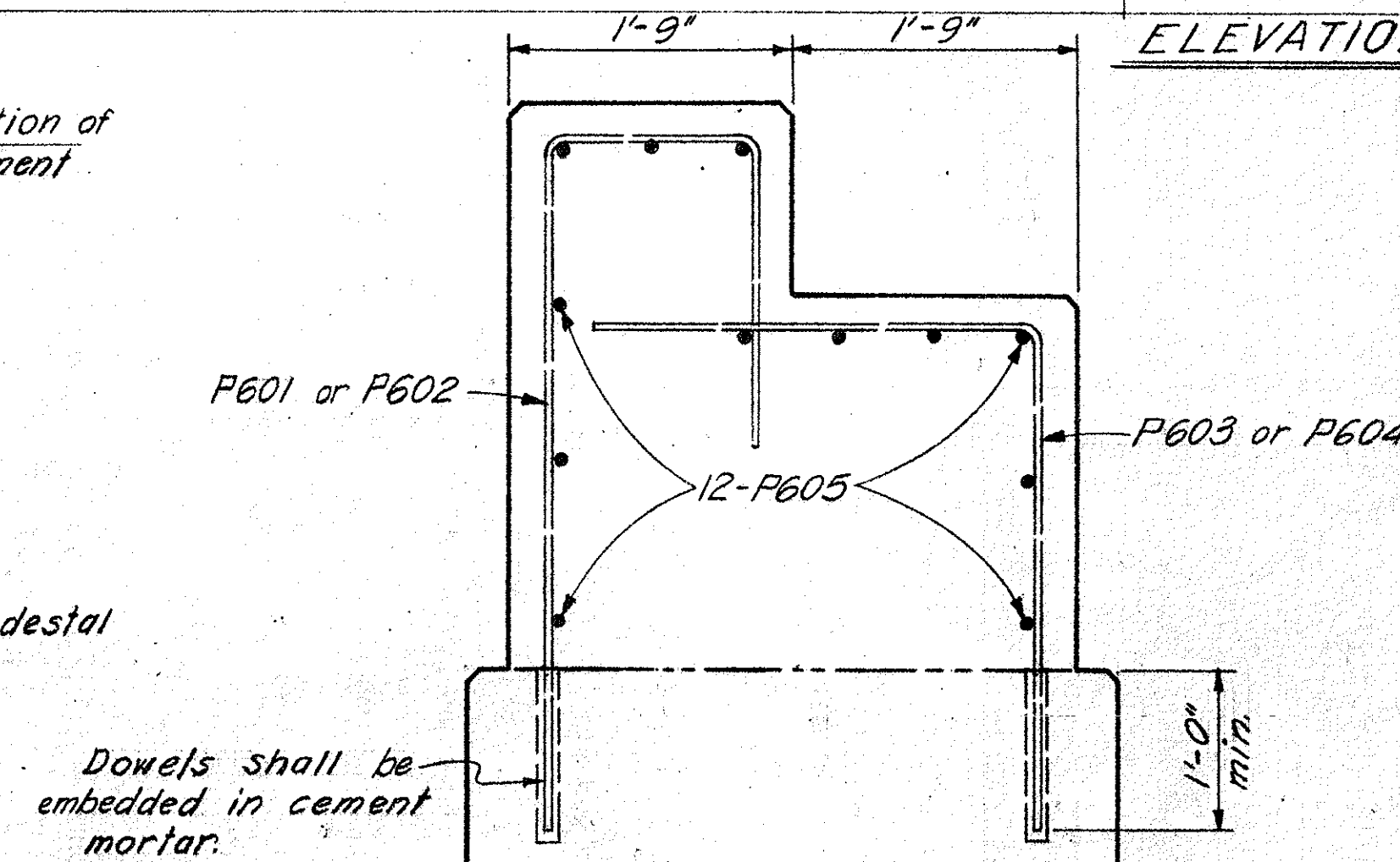
CAP PLAN



ELEVATION



PEDESTAL PLAN

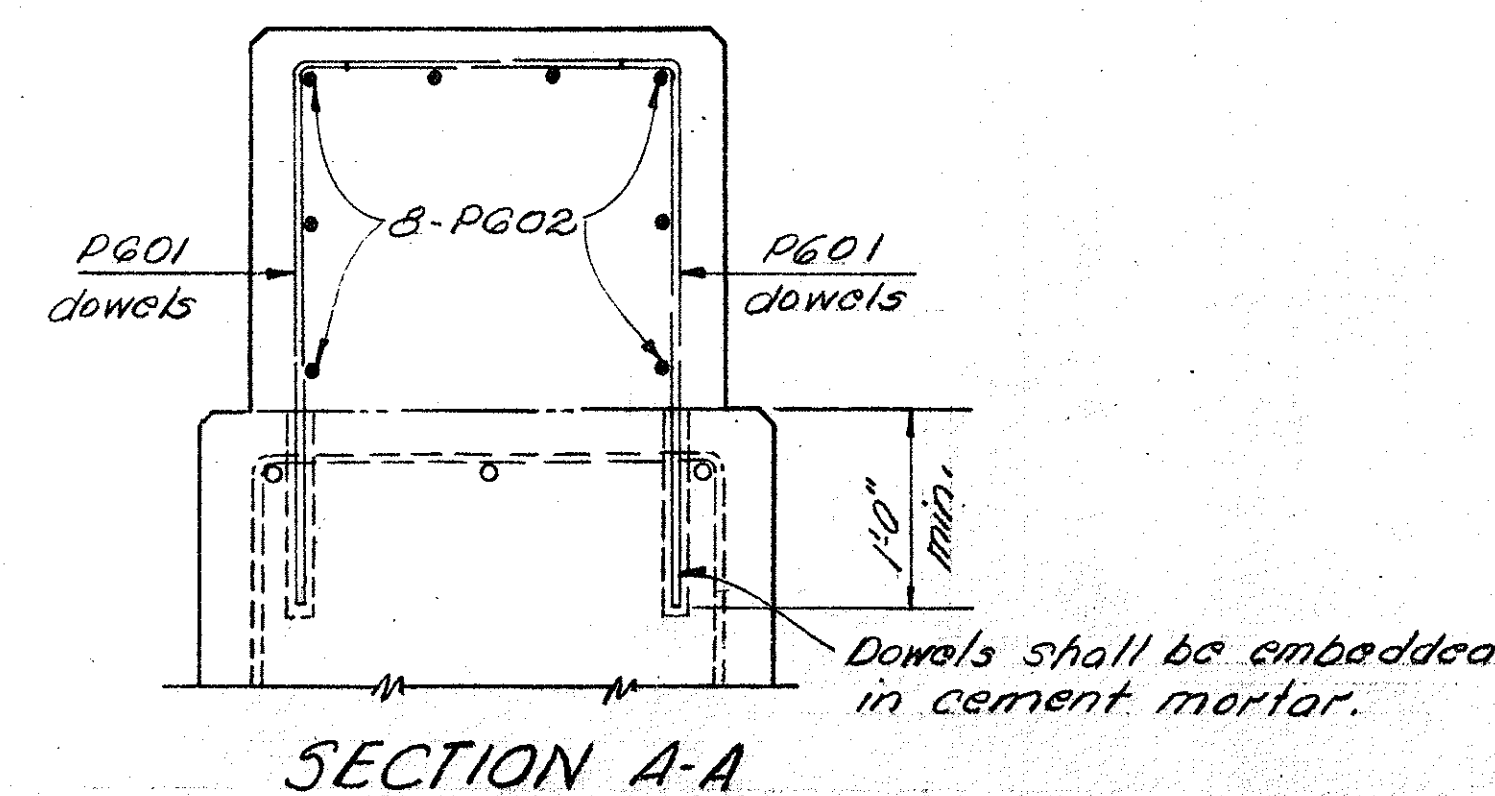
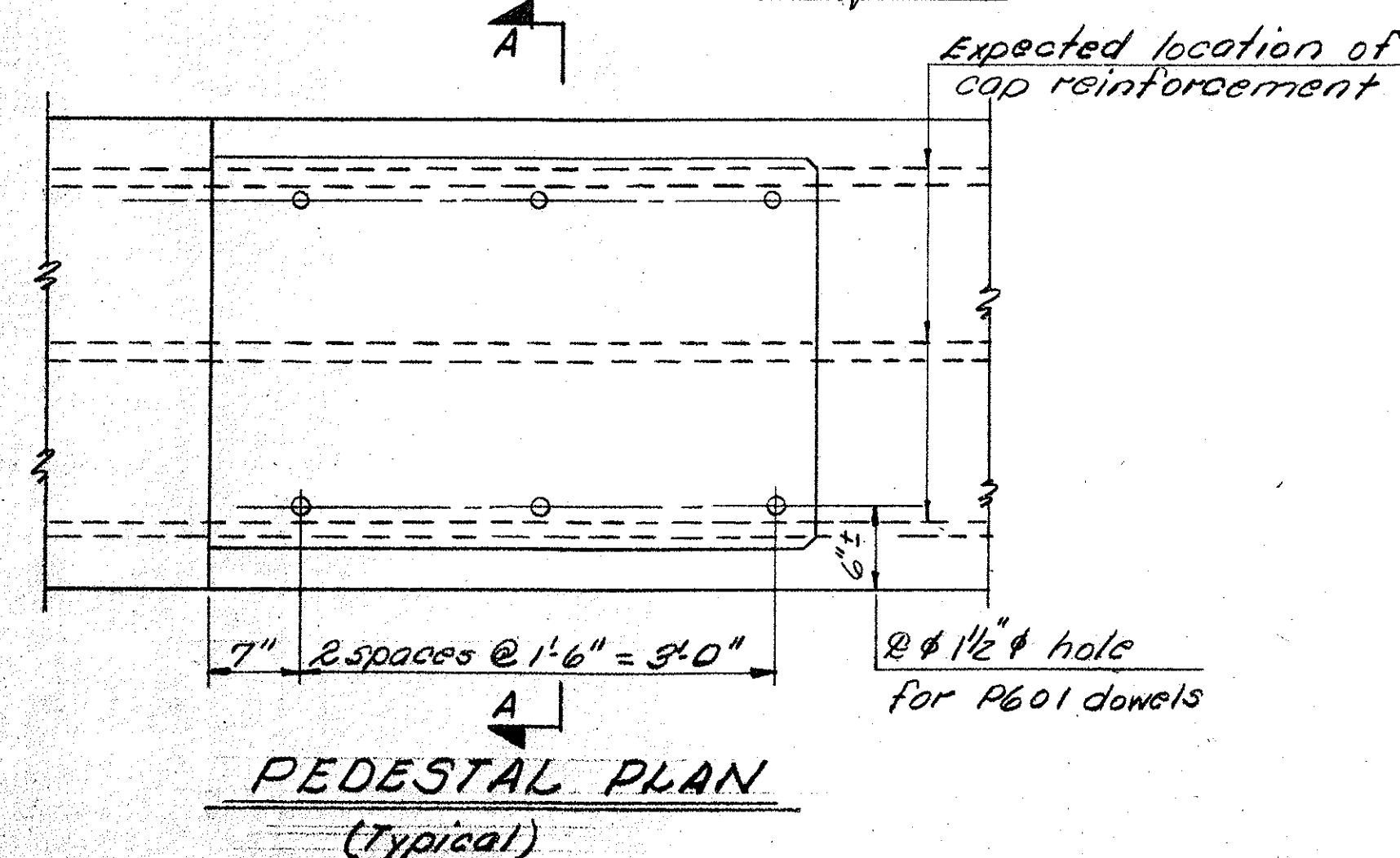
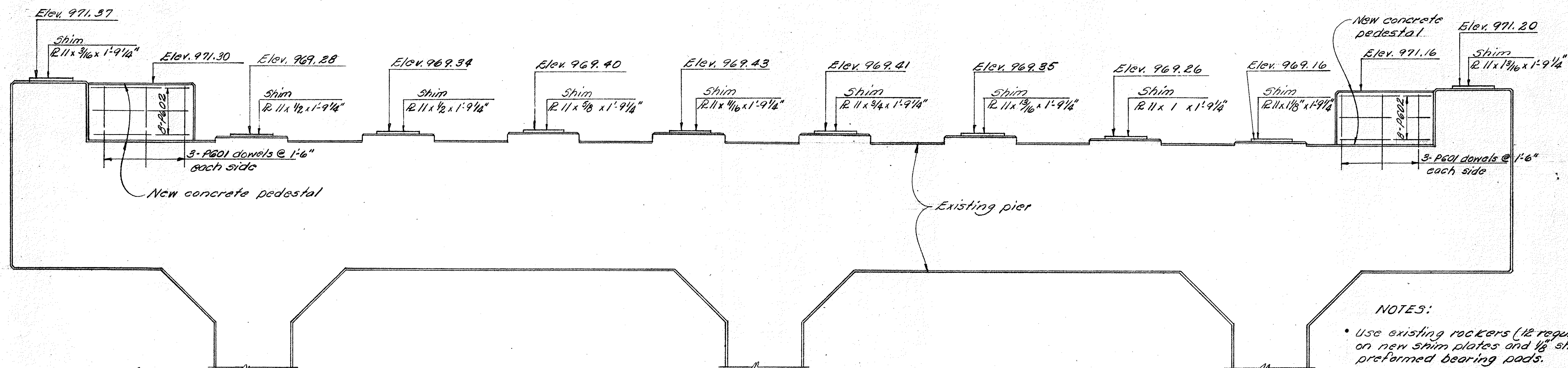
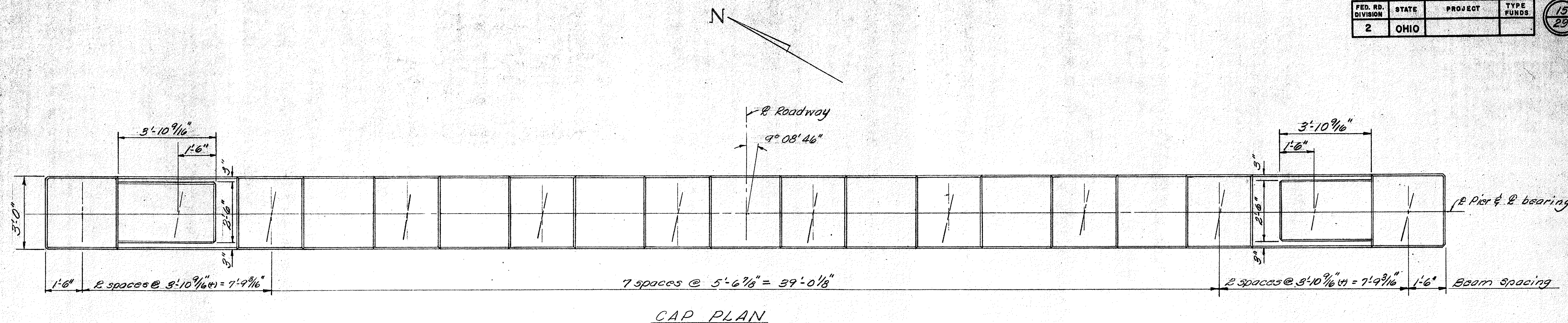


SECTION A-A

NOTES:

- Use existing rockers (12 required) for Span G and existing bolsters (12 required) for Span H placed on 1/8 sheet lead or preformed bearing pads.
- Set anchor rods at pedestals 1'-0" min. into concrete.
- Special care shall be taken in placing reinforcing steel in the bridge seat for pedestals, so as to avoid interference with the drilling of anchor rod holes.
- Burn off existing anchor rods for Span G and grind flush with top of concrete.



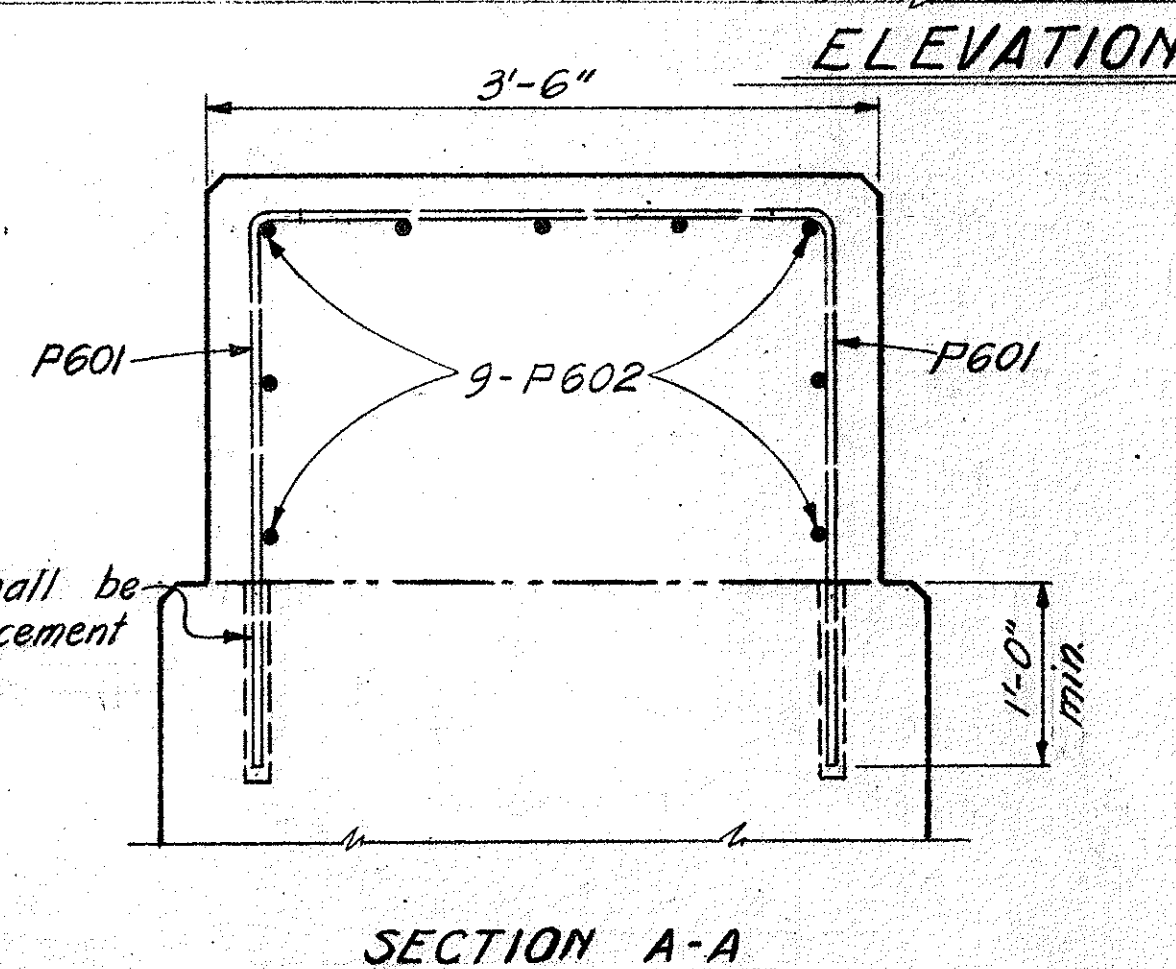
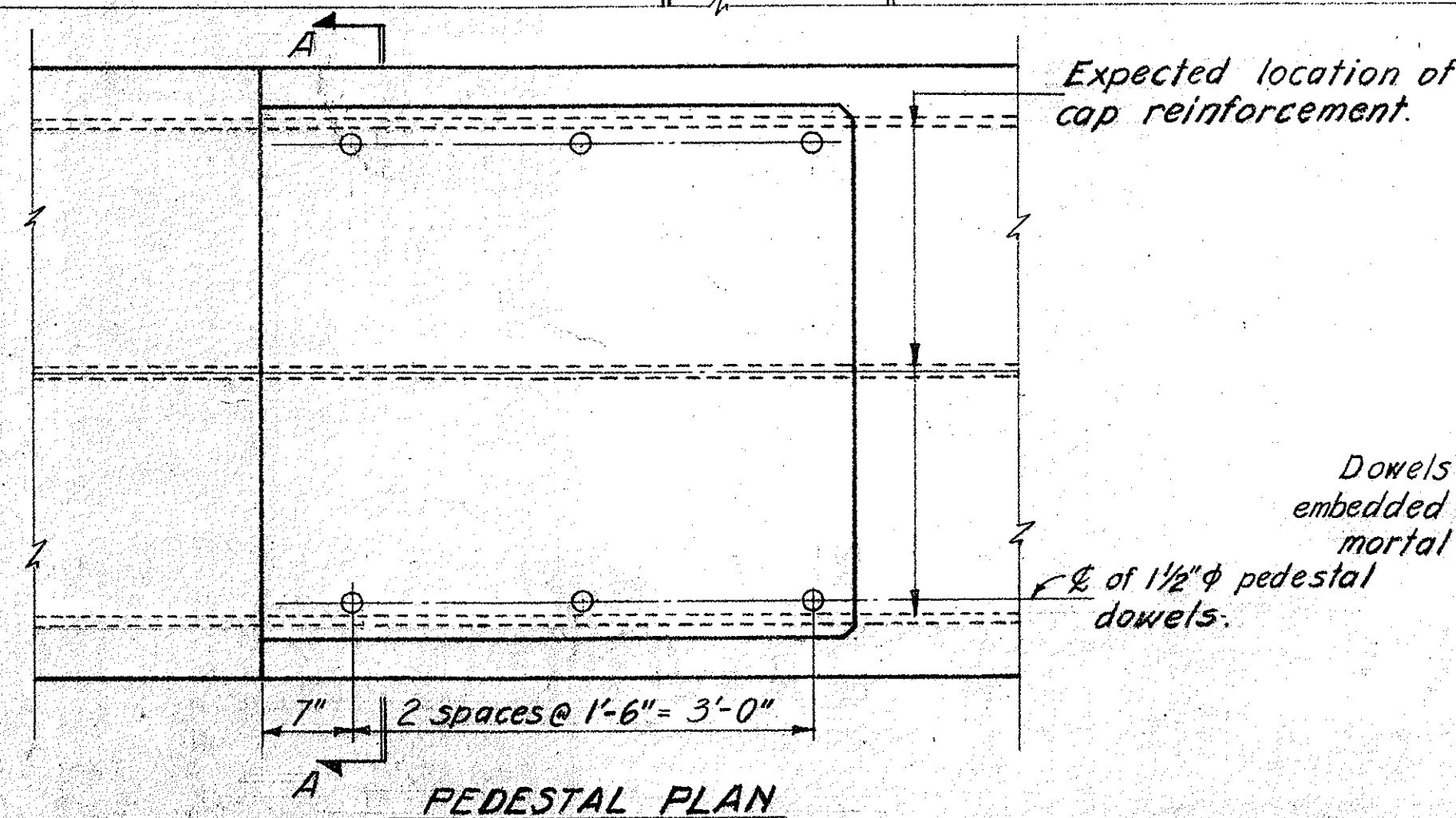
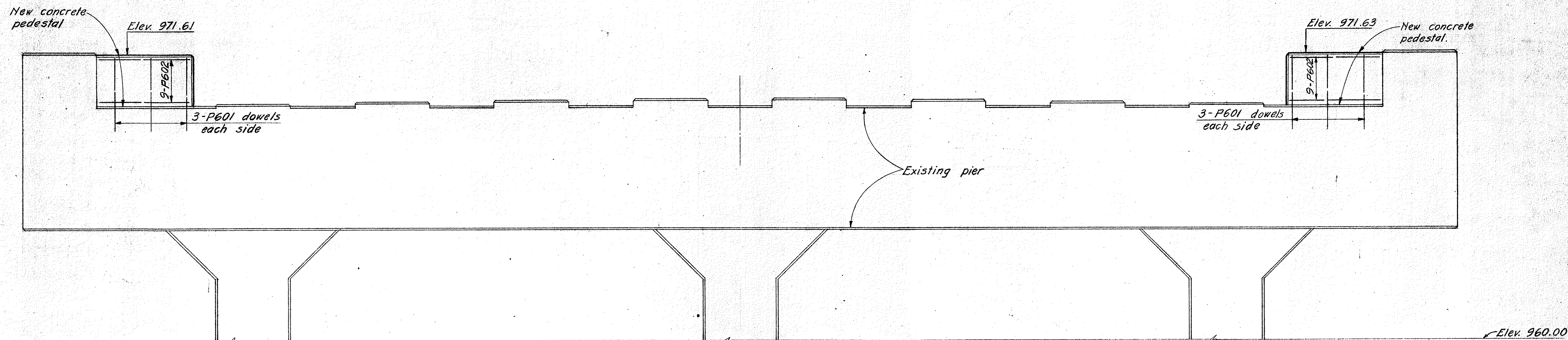
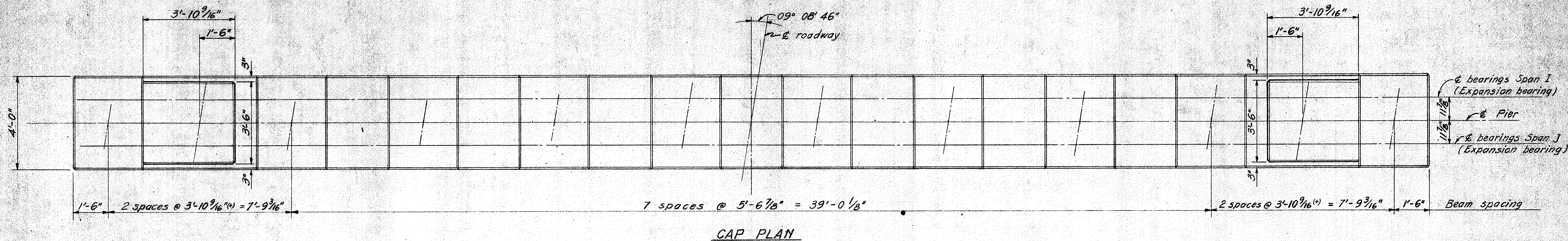


# NOTES:

- Use existing rockers (12 required) placed on new shim plates and 1/8" sheet lead or preformed bearing pads.
- Burn off existing anchor rods and grind flush with top of concrete.
- The shim thicknesses shown are nominal. Shims shall be furnished in thicknesses necessary to obtain the bearing elevations shown.

RACKOFF ASSOCIATES ENGINEERS						
CLEVELAND, OHIO			COLUMBUS, OHIO			
PIER NO. 8 TREMONT AVE. VIADUCT MASSILLON, OHIO STARK COUNTY						
Designed	Drawn	Traced	Checked	Reviewed	Date	Revised
V. K.	E.D.A.		H. H.	666	4-19-65	

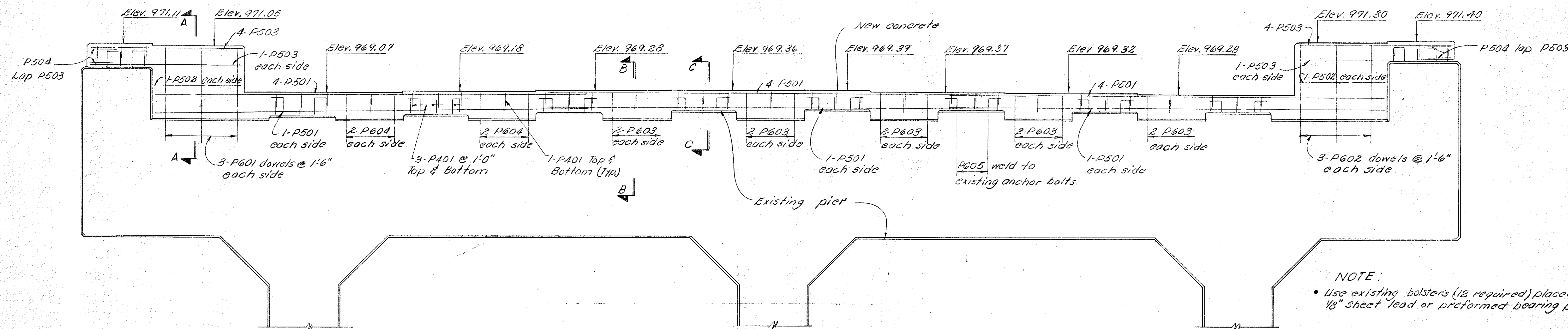
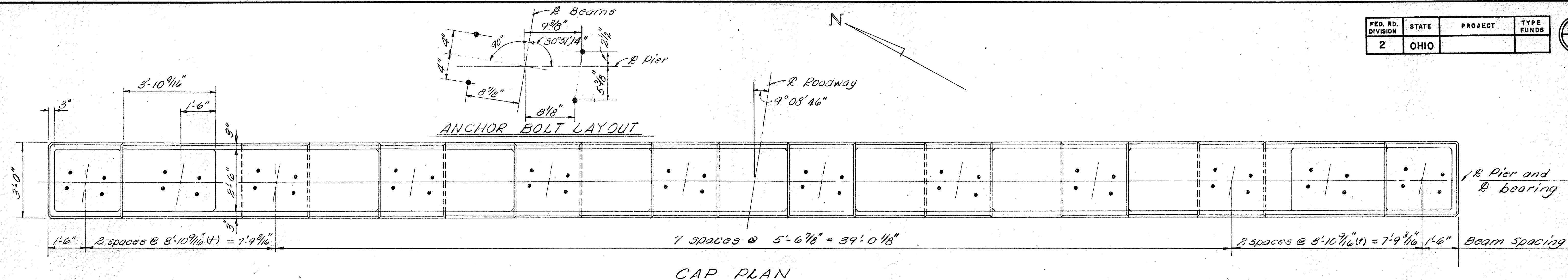




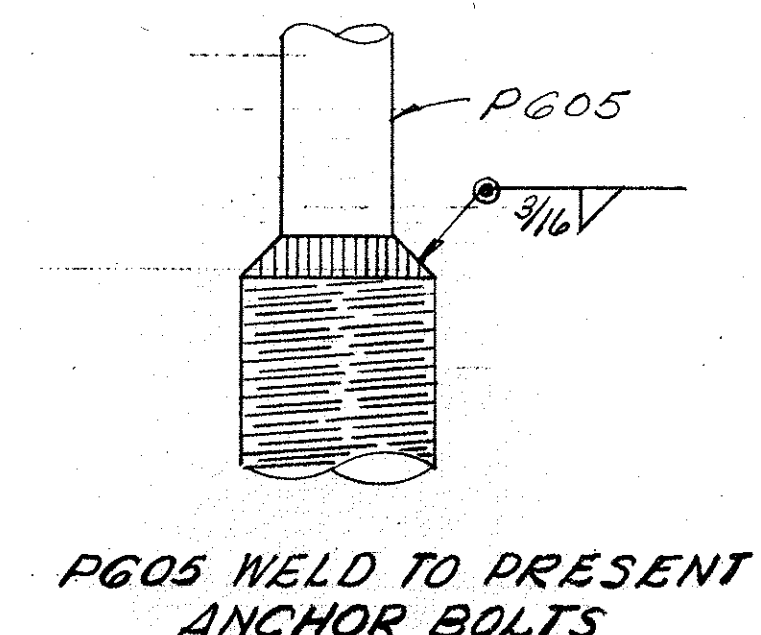
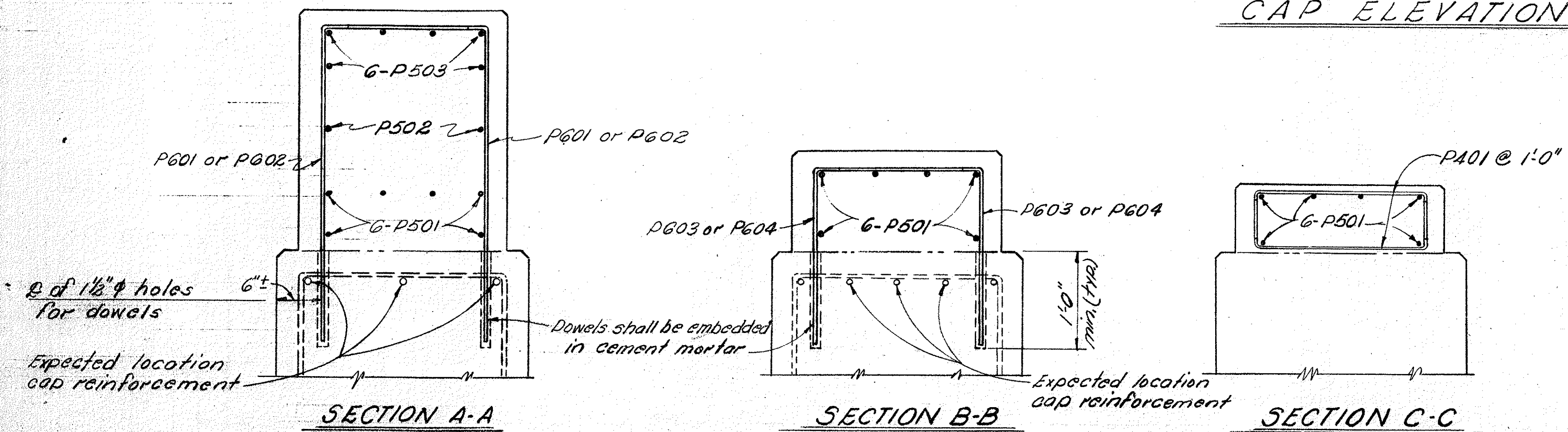
NOTES:

- Use existing rockers (24 required) placed on 1/8 sheet lead or preformed bearing pad.
- Burn off existing anchor rods and grind flush with top of concrete.



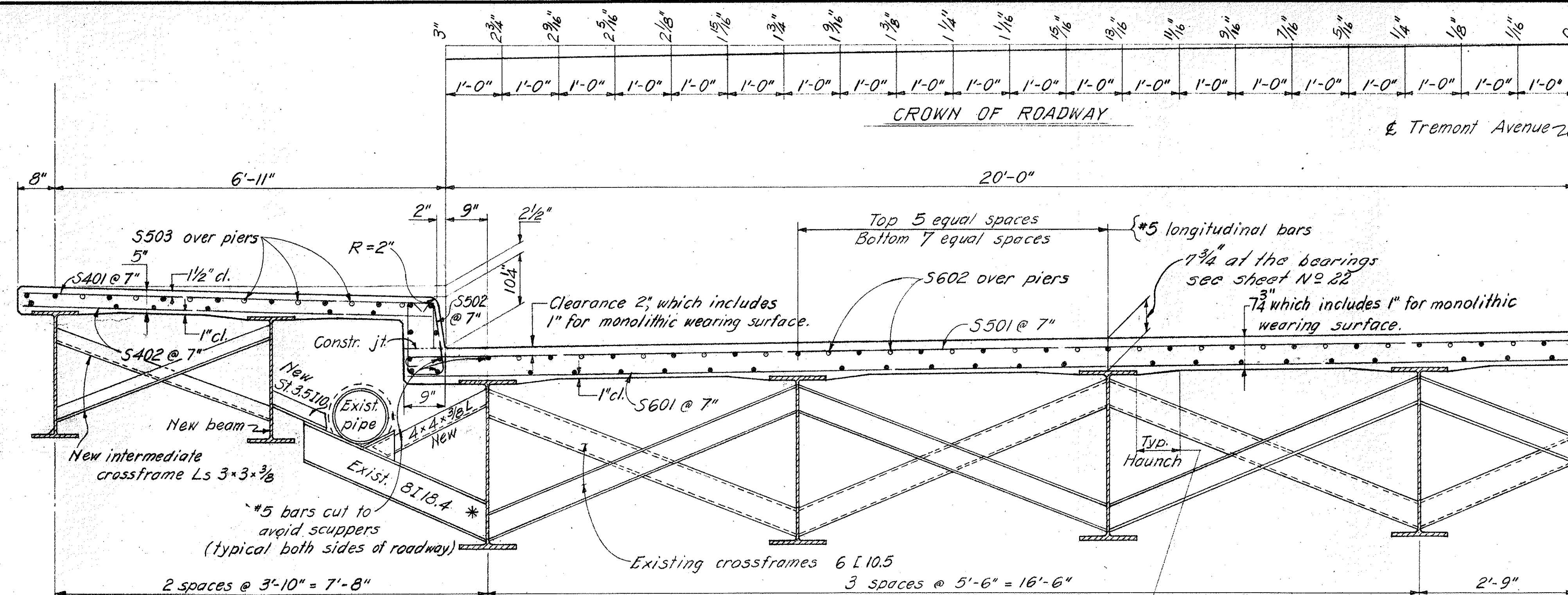


- NOTE:**
- Use existing bolsters (12 required) placed on 1/8" sheet lead or preformed bearing pads.
  - Special care shall be taken in placing reinforcing steel in the bridge seat so as to avoid interference with the drilling of anchor rod holes.
  - Set anchor rods 1'-0" min. in the concrete.

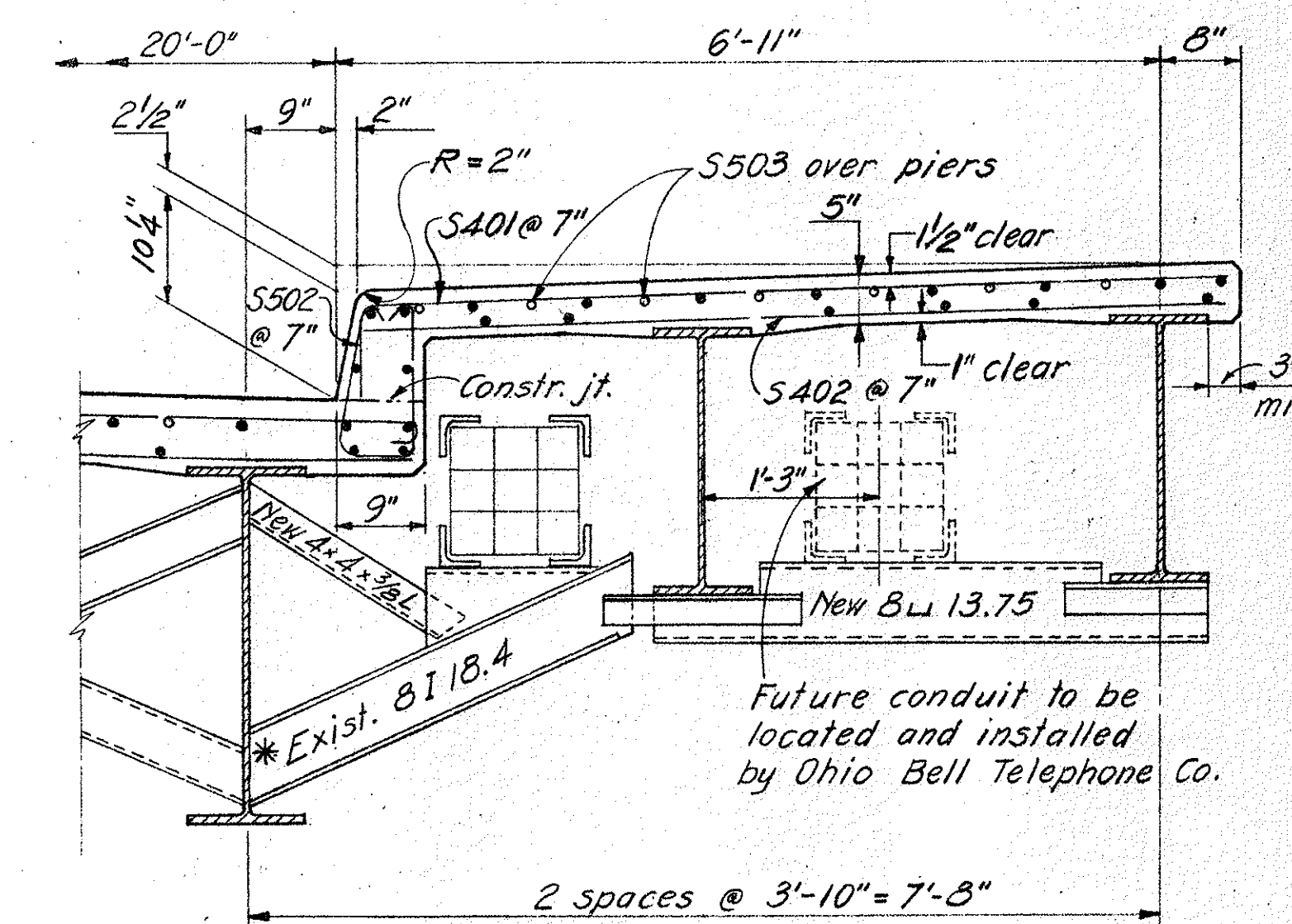


RACKOFF ASSOCIATES ENGINEERS						
CLEVELAND, OHIO			COLUMBUS, OHIO			
PIER NO. 10						
TREMONT AVE. VIADUCT						
MASSILLON, OHIO						
STARK COUNTY						
Designed	Drawn	Traced	Checked	Reviewed	Date	Revised
V. K.	EDA.		H. H.	688	4-19-65	



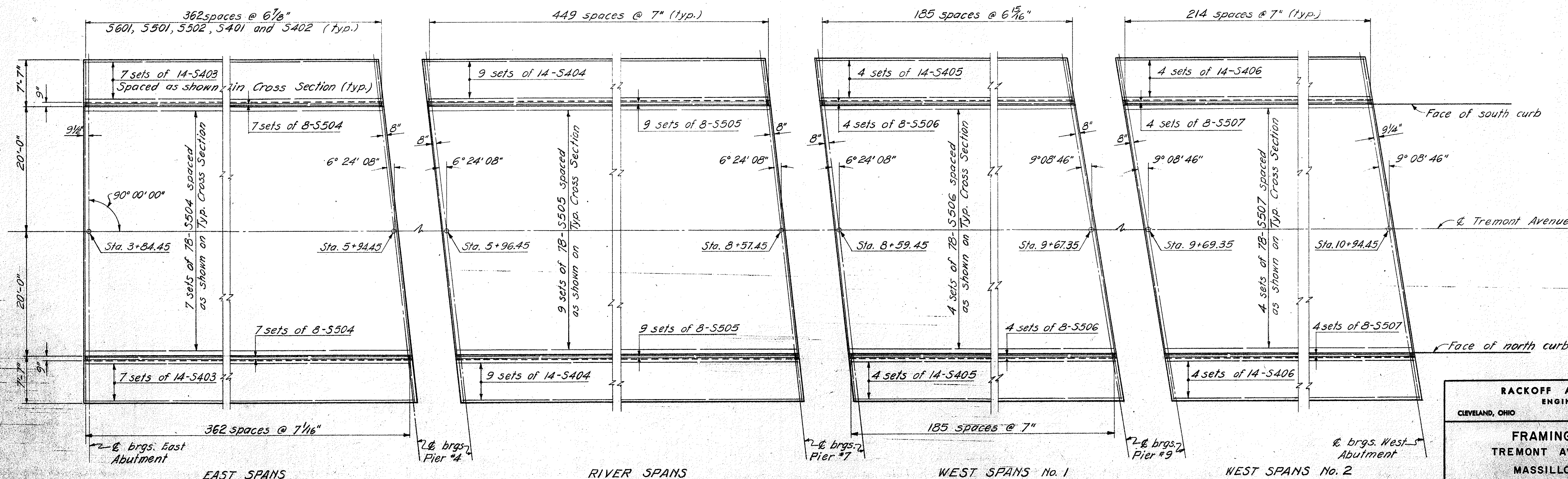


**TYPICAL CROSS SECTION**  
(For beam sizes see Framing Plans).



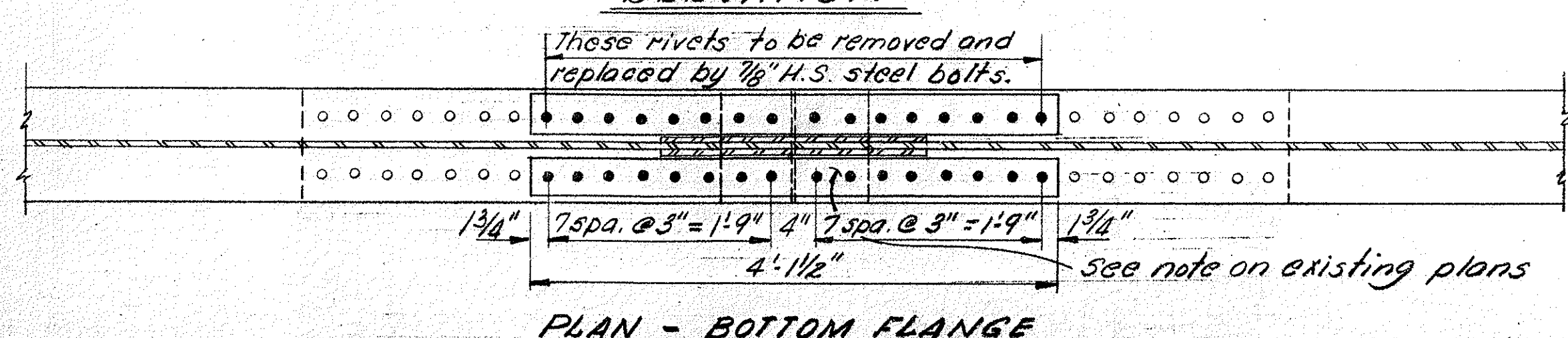
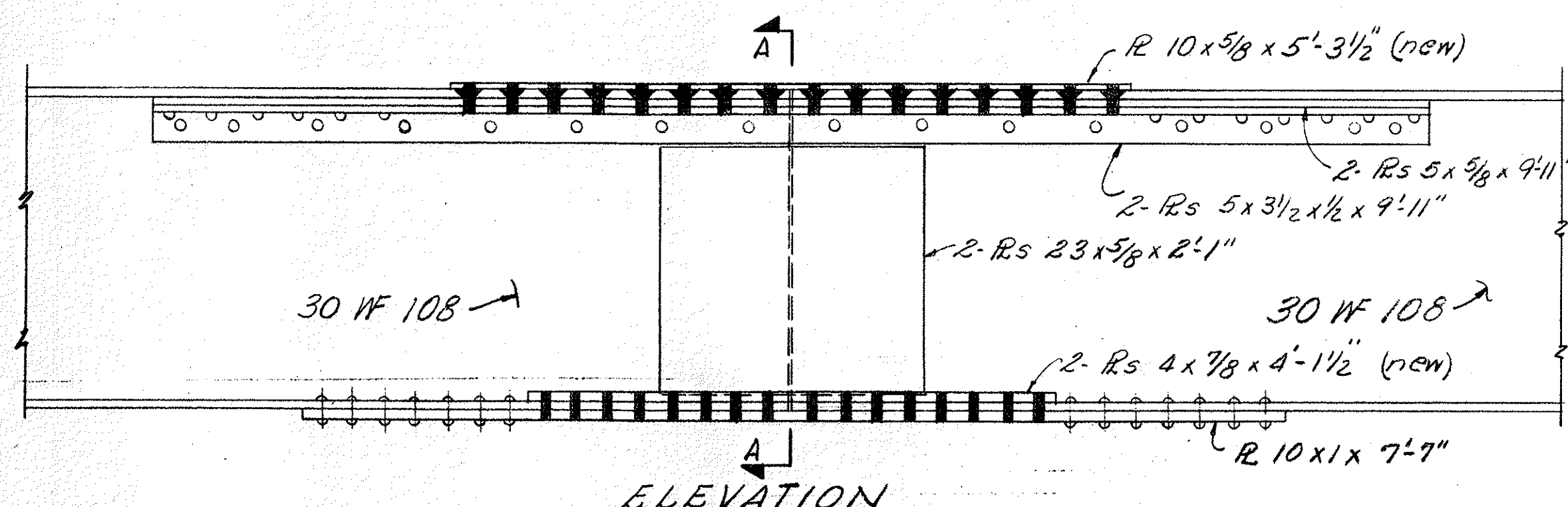
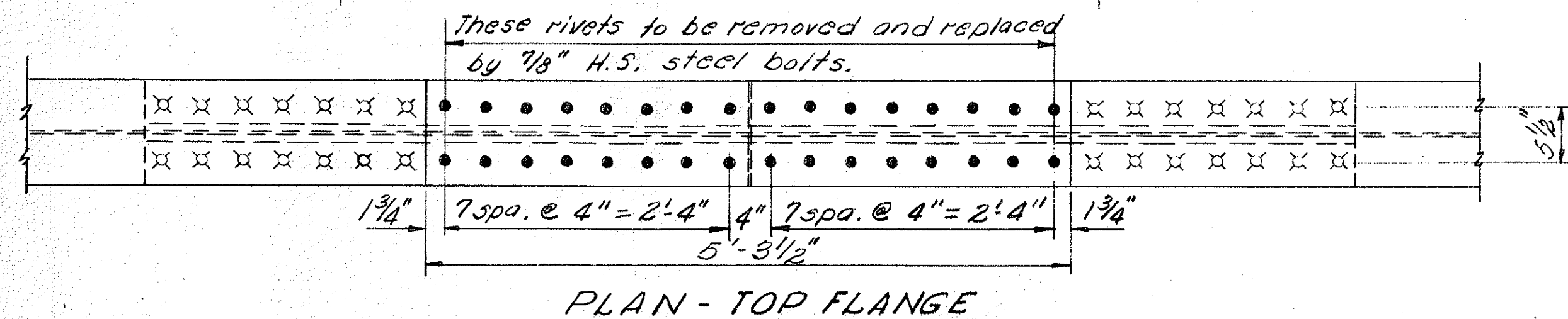
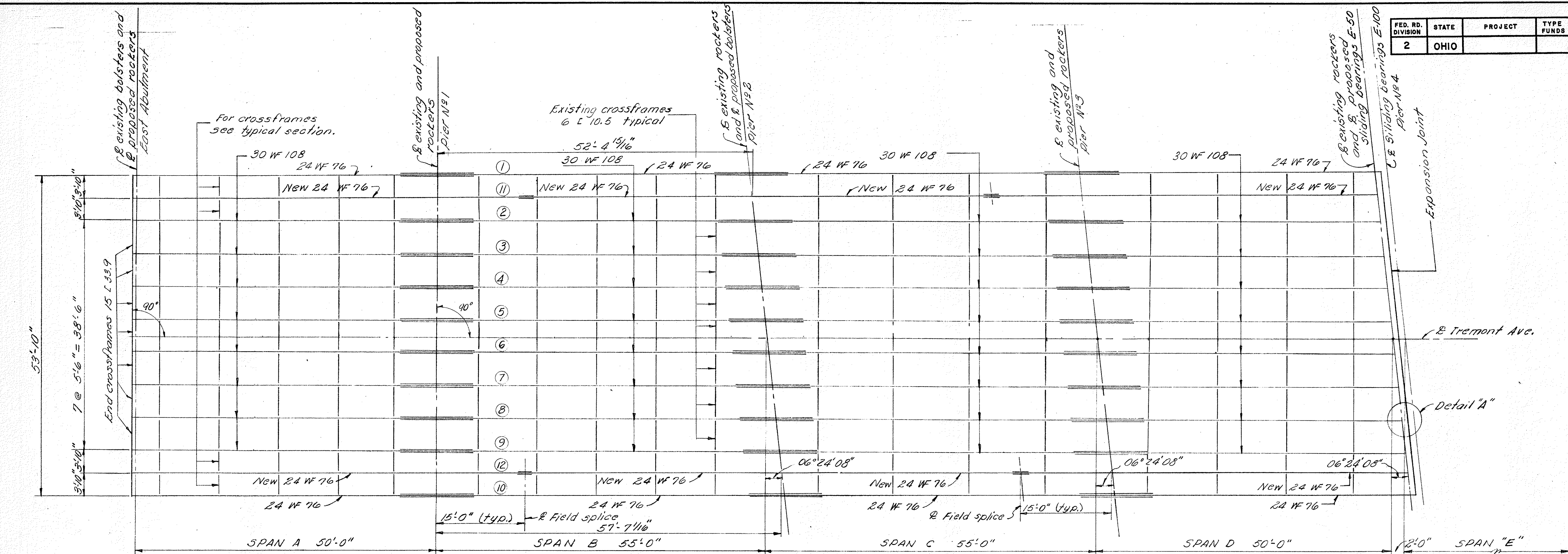
**SOUTH SIDEWALK**

\* The existing  $\frac{3}{8}$ " weld connecting the support bracket to the existing 8" I-beam, and the I-beam to the bridge W-beams shall be inspected as to structural adequacy and rewelded where necessary as determined by the Project Engineer.



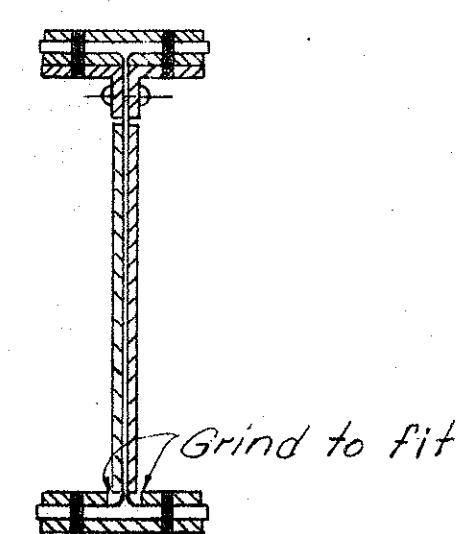
**PLACEMENT OF SLAB REINFORCING**  
(Transverse bars are spaced along face of curbs).





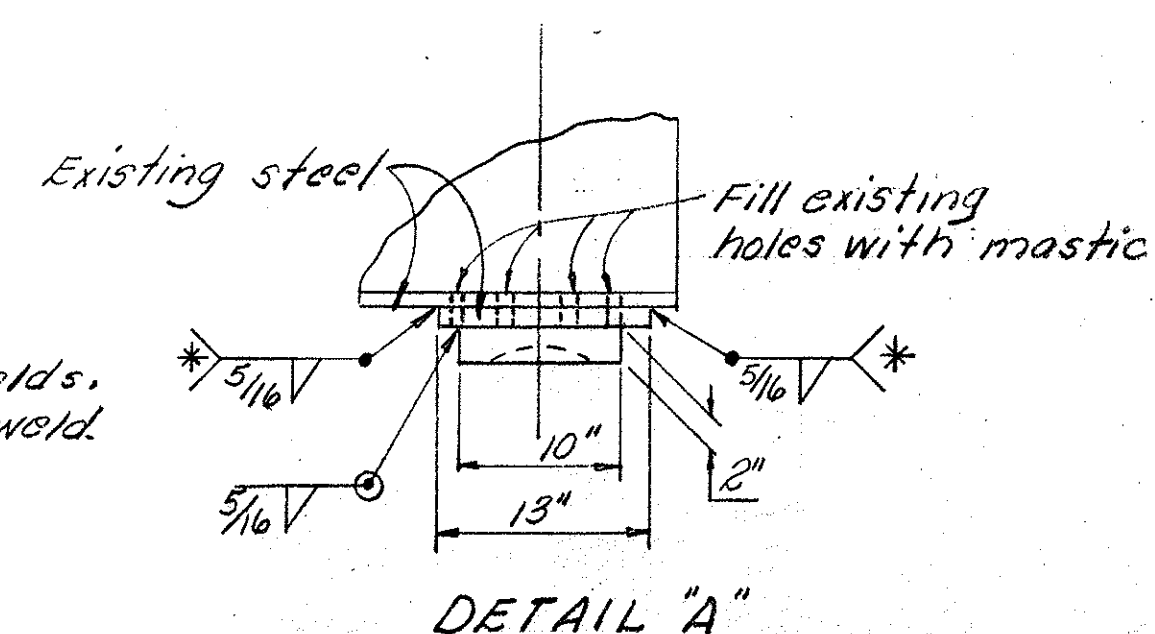
### EAST SPANS FRAMING PLAN

NOTES: For splice details not shown  
see existing plans on sheets No 30 & 34  
For field splices of new beams see  
Standard Drawing 5D-2-64



### SECTION A-A

\* Investigate existing welds.  
if satisfactory omit weld.



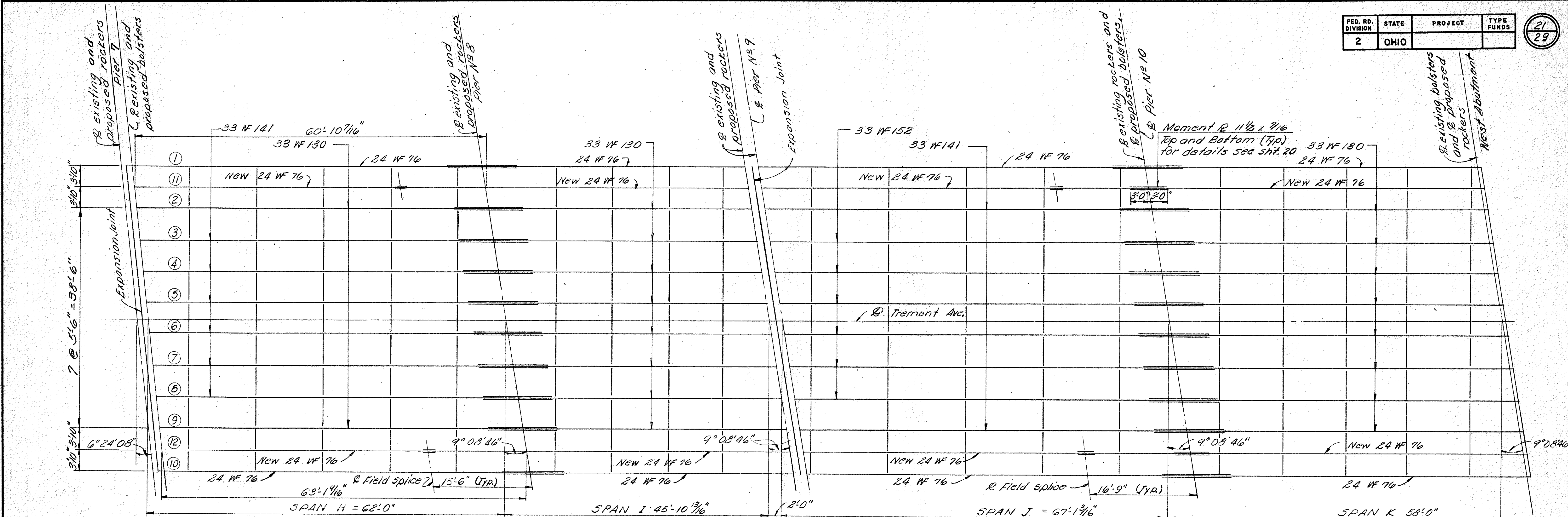
### DETAIL 'A'

RACKOFF ASSOCIATES ENGINEERS							
CLEVELAND, OHIO				COLUMBUS, OHIO			
FRAMING PLAN TREMONT AVE VIADUCT MASSILLON, OHIO STARK COUNTY							
Designed	Drawn	Traced	Checked	Reviewed	Date	Revised	
V. K.	E.D.A.		H. H.	lll	4-19-65		



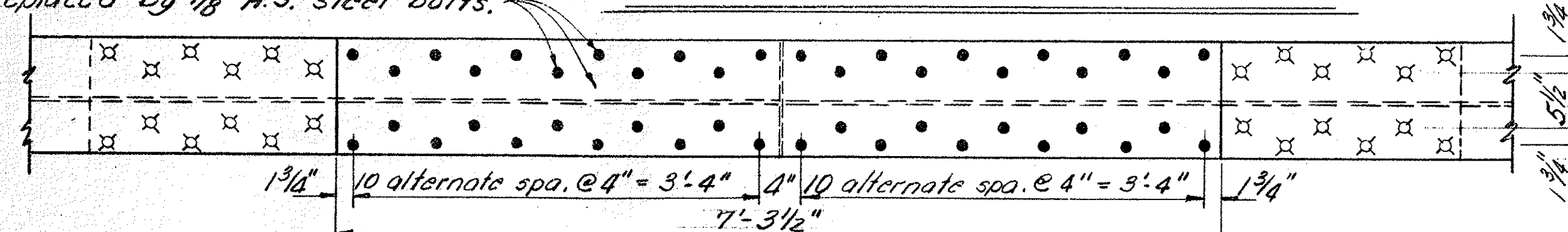




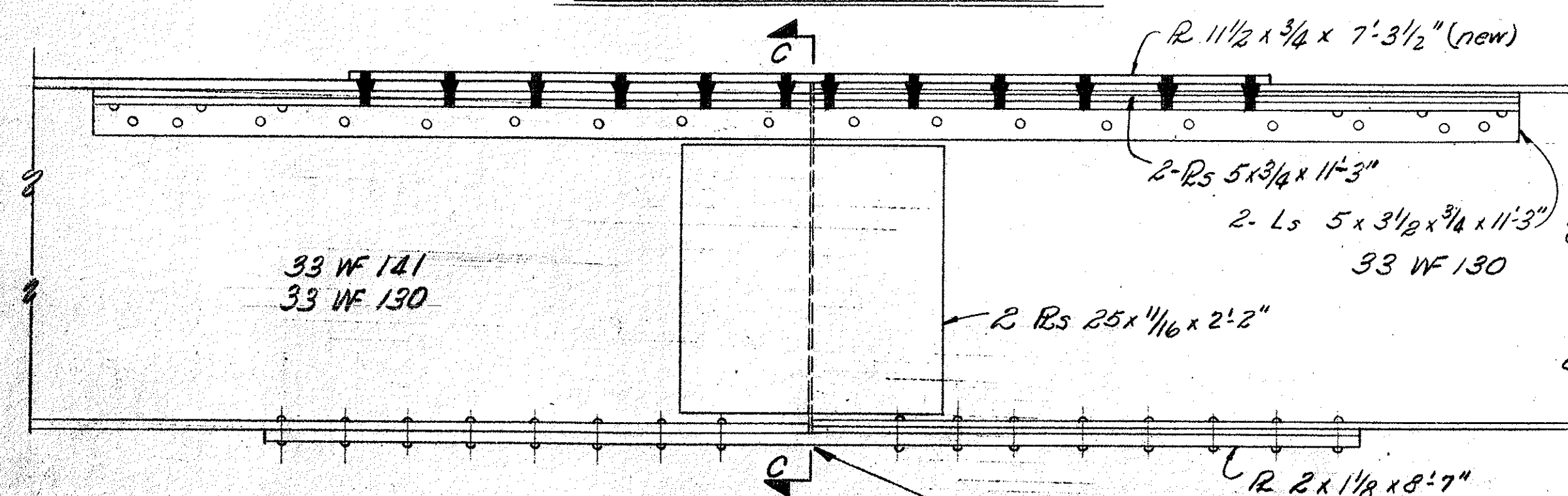


These rivets to be removed and replaced by 7/8" H.S. steel bolts.

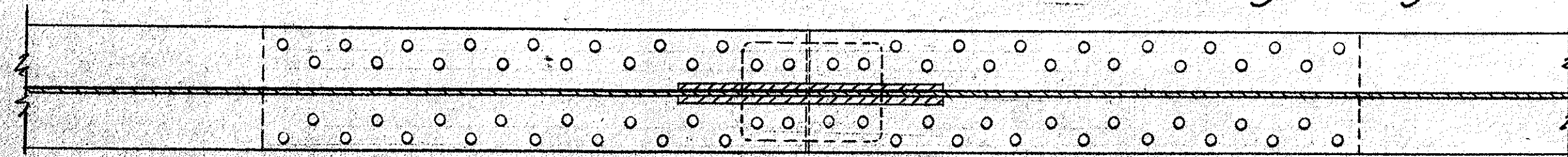
WEST SPANS NO. 1 FRAMING PLAN



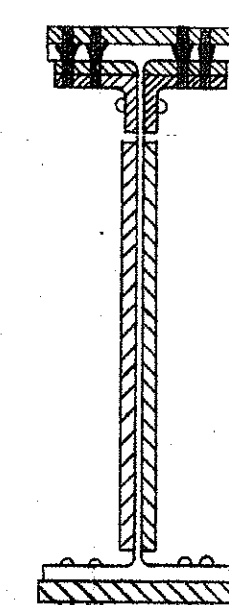
PLAN - TOP FLANGE



ELEVATION



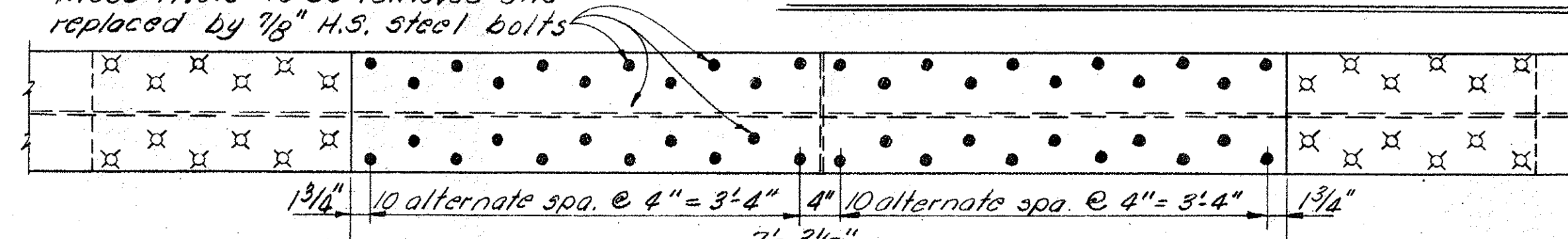
PLAN - BOTTOM FLANGE



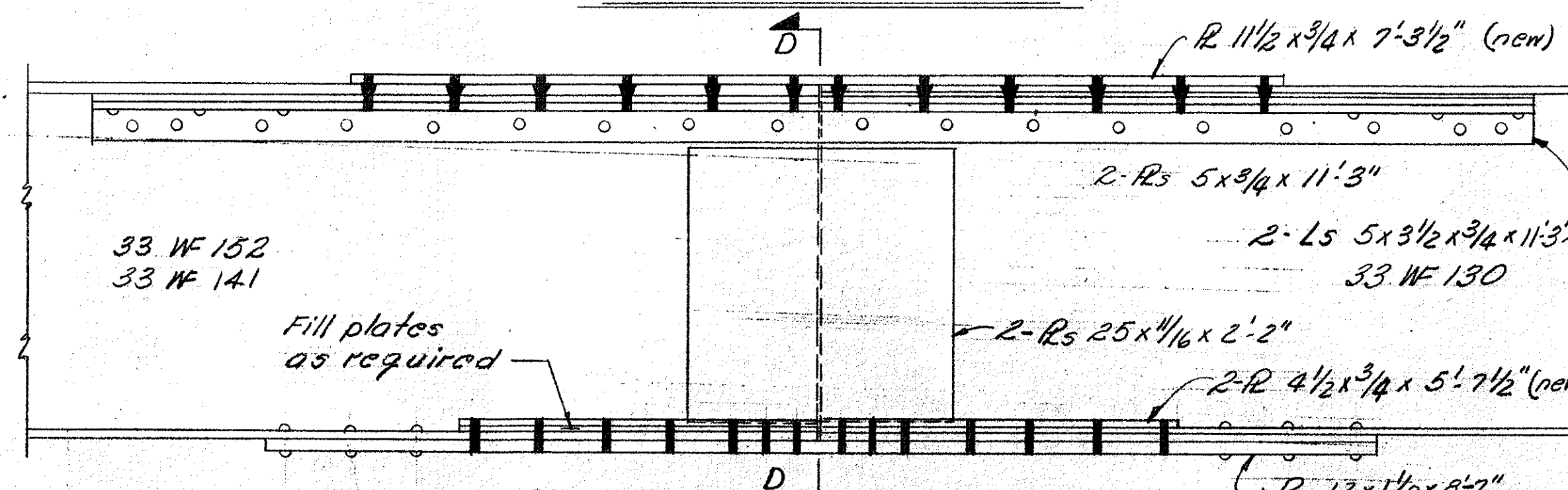
SECTION C-C

These rivets to be removed and replaced by 7/8" H.S. steel bolts.

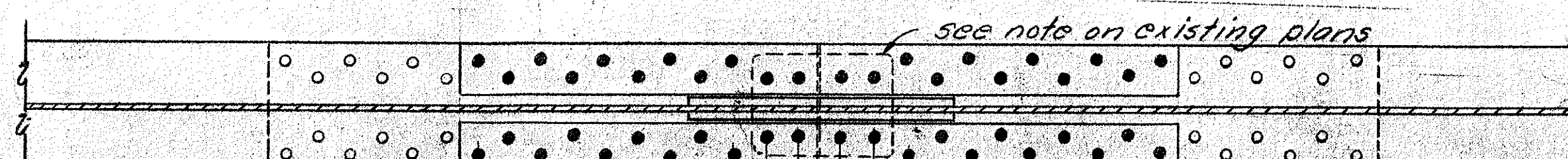
WEST SPANS NO. 2 FRAMING PLAN



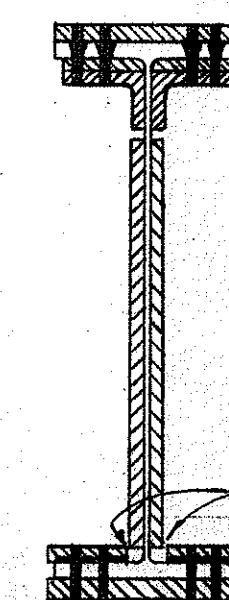
PLAN - TOP FLANGE



ELEVATION



PLAN - BOTTOM FLANGE



SECTION D-D

RACKOFF ASSOCIATES  
ENGINEERS  
CLEVELAND, OHIO COLUMBUS, OHIO

FRAMING PLAN  
TREMONT AVE. VIADUCT  
MASSILLON, OHIO  
STARK COUNTY

Designed	Drawn	Traced	Checked	Reviewed	Date	Revised
V. K.	E. D. A.		H. H.	666	4-19-65	

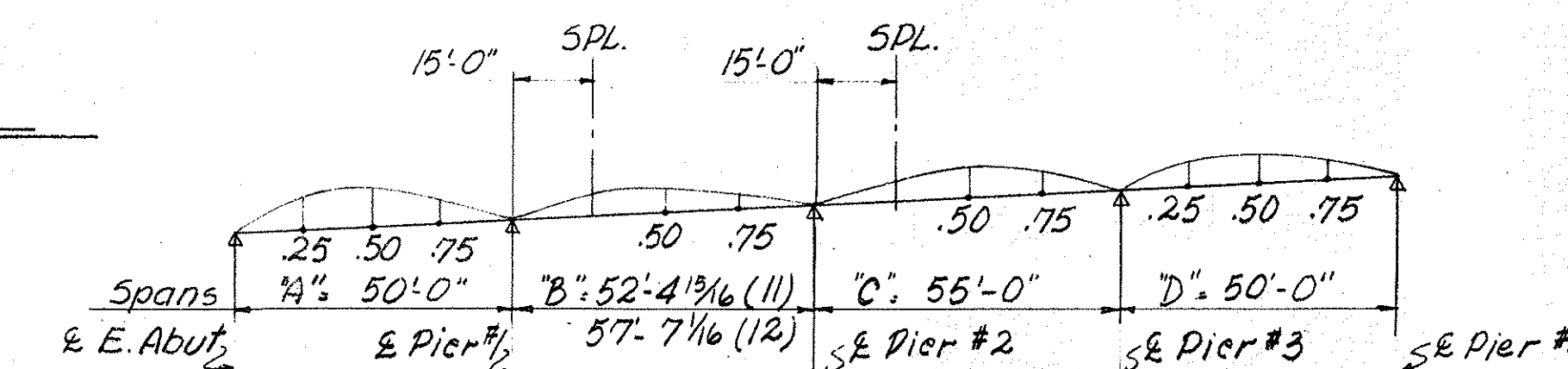


LOCATION	SPANS A & D *			SPAN B, 11 only			SPAN B, 12 only			SPAN C			SPAN E & G *			SPAN F			SPAN H, 11 only			SPAN 12, 10 <sup>B</sup> only			SPAN I			SPAN J			SPAN K			
	.25	.50	.75	SPL.	.50	.75	SPL.	.50	.75	SPL.	.50	.75	.25	.50	.75	SPL.	.50	SPL.	.25	.50	SPL.	.25	.50	SPL.	.25	.50	.75	.25	.50	SPL.	.25	.50	.75	
Deflection due to weight of steel	1/16	1/16	1/16	0	1/16	0	0	1/16	1/16	0	1/16	0	1/16	1/2	1/8	1/4	3/16	5/16	3/16	3/16	1/4	1/8	3/16	1/4	1/8	0	0	0	1/4	5/16	3/16	1/16	1/8	1/8
Deflection due to remaining dead load	5/16	3/8	3/16	1/16	3/16	1/8	1/8	1/4	1/8	1/8	1/4	1/8	1/2	1/8	1/4	9/16	1/8	9/16	3/4	1	9/16	7/8	1/8	5/8	-1/16	1/16	1/8	1/16	15/16	1/16	1/8	7/16	7/16	
Adjustment required for vertical curve	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1 7/8	2 9/16	17/8	2 1/16	2 3/4	2 1/16	1 1/16	1 7/16	1 1/16	2 1/4	3 1/16	2 1/4	1 3/4	2 5/16	1 3/4	
Sum of deflection and convexity	3/8	7/16	1/4	1/16	1/4	1/8	1/8	5/16	3/16	1/8	5/16	1/8	1 5/16	2 3/8	1 3/16	3/4	17/16	3/4	2 13/16	3 13/16	2 9/16	3 1/8	4 1/8	2 13/16	1	1 1/2	1 3/16	3 9/16	4 1/16	3 1/8	1 5/16	2 7/8	2 5/16	
Required shop camber	3/8	7/16	1/4	1/16	1/4	1/8	1/8	5/16	3/16	1/8	5/16	1/8	1 5/16	2 3/8	1 3/16	3/4	1 3/16	3/4	2 13/16	3 13/16	2 9/16	3 1/8	4 1/8	2 13/16	1	1 1/2	1 3/16	3 9/16	4 1/16	3 1/8	1 5/16	2 7/8	2 5/16	

\* .25 and .75 Span A identical to .75 and .25 Span D  
Same with Span E and G

### DEFLECTION AND CAMBER FOR NEW BEAMS 11 AND 12

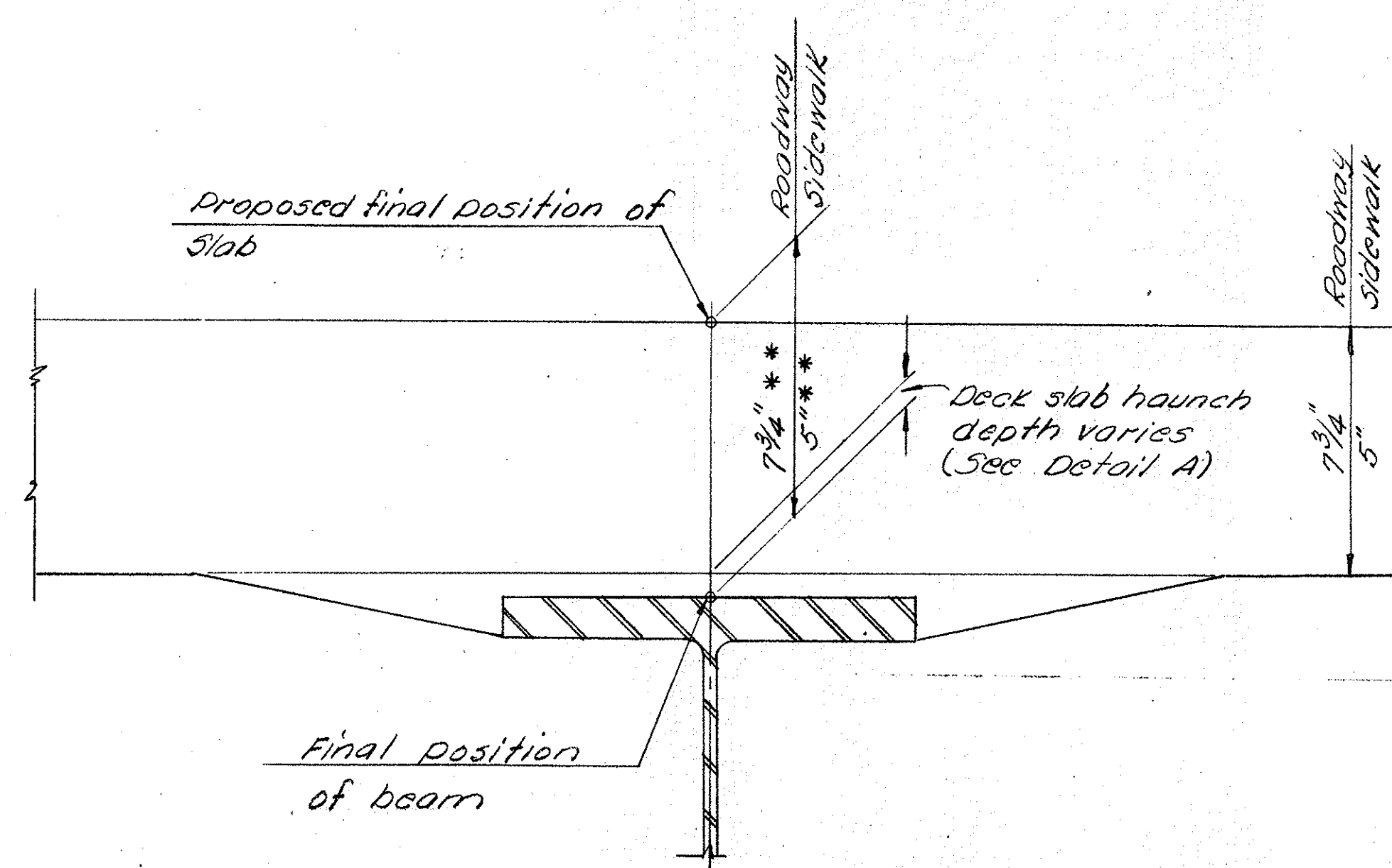
(Camber is measured from reference lines, which are straight lines between the supports. See Camber Diagram.)



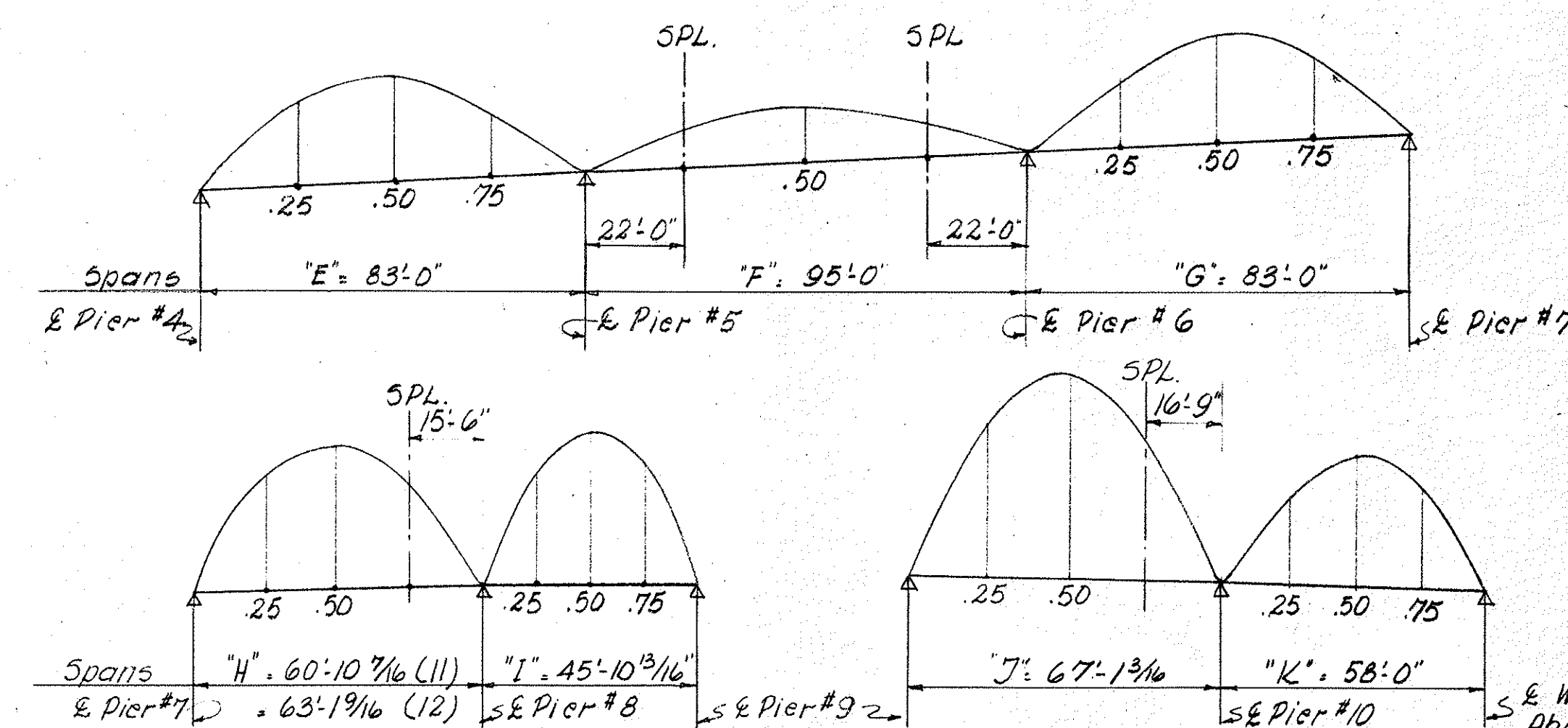
LOCATION	SPAN A & D *			SPAN B			SPAN C			SPANS E & G *			SPAN F			SPAN H			SPAN I			SPAN J			SPAN K		
	.25	.50	.75	.25	.50	.75	.25	.50	.75	.25	.50	.75	.25	.50	.75	.25	.50	.75	.25	.50	.75	.25	.50	.75	.25	.50	.75
Beam 1	.012	.015	.008	.003	.006	.004	.005	.008	.004	.059	.072	.037	.022	.043	.022	.029	.037	.021	.001	.003	.004	.041	.050	.026	.006	.017	.016
2	.018	.023	.012	.005	.011	.007	.008	.013	.006	.051	.063	.032	.019	.038	.019	.030	.038	.022	.001	.003	.004	.037	.045	.024	.006	.018	.016
3	"	"	"	.005	.011	.007	"	"	"	"	"	"	"	"	"	.031	.039	.022	"	"	"	"	"	"	"	"	"
4	"	"	"	.006	.012	.007	"	"	"	"	"	"	"	"	"	.031	.040	.022	"	"	"	"	"	"	"	"	"
5	"	"	"	.006	.013	.008	"	"	"	"	"	"	"	"	"	.032	.041	.023	"	"	"	"	"	"	"	"	"
6	"	"	"	.006	.013	.008	"	"	"	"	"	"	"	"	"	.032	.041	.023	"	"	"	"	"	"	"	"	"
7	"	"	"	.006	.014	.009	"	"	"	"	"	"	"	"	"	.033	.042	.024	"	"	"	"	"	"	"	"	"
8	"	"	"	.007	.015	.009	"	"	"	"	"	"	"	"	"	.033	.042	.024	"	"	"	"	"	"	"	"	"
9	.018	.023	.012	.007	.015	.009	.008	.013	.006	.051	.063	.032	.019	.038	.019	.034	.043	.024	.001	.003	.004	.037	.045	.024	.006	.018	.016
10	.012	.015	.008	.005	.010	.006	.005	.008	.004	.059	.072	.037	.022	.043	.022	.035	.044	.025	.001	.003	.004	.041	.050	.026	.006	.017	.016

NOTE: For location of beams  
See "Framing Plan" sheet

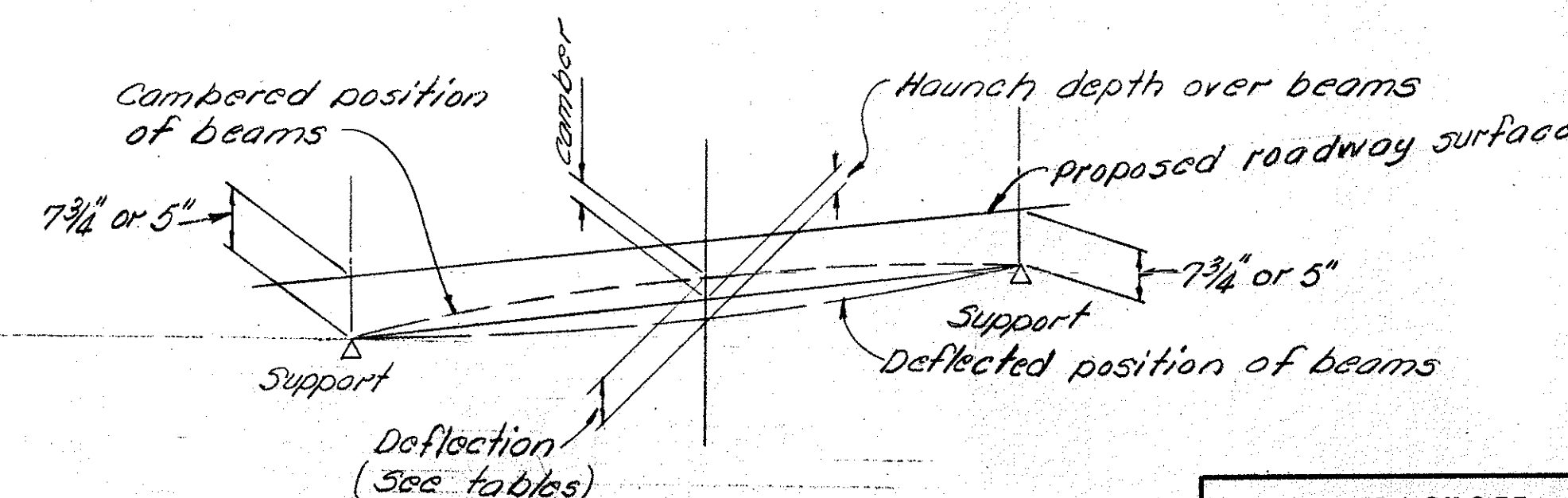
\*\* This is the nominal dimension. The quantity of deck concrete to be paid for shall be based upon this dimension, even though deviation from it will be necessary where the top flanges of the beams do not have the exact camber or conformation required to place them parallel to the new finished grade.



### SLAB DEPTH ABOVE BEAMS



### CAMBER DIAGRAM FOR NEW BEAMS



### DETAIL A

RACKOFF ASSOCIATES ENGINEERS						COLUMBUS, OHIO
CLEVELAND, OHIO						
DEFLECTION AND CAMBER						
TREMONT AVE. VIADUCT						
MASSILLON, OHIO						
STARK COUNTY						
Designed	Drawn	Traced	Checked	Reviewed	Date	Revised
H. H.	H. H.	E. D. A.	L. F. L.	<i>ell</i>	4-19-65	







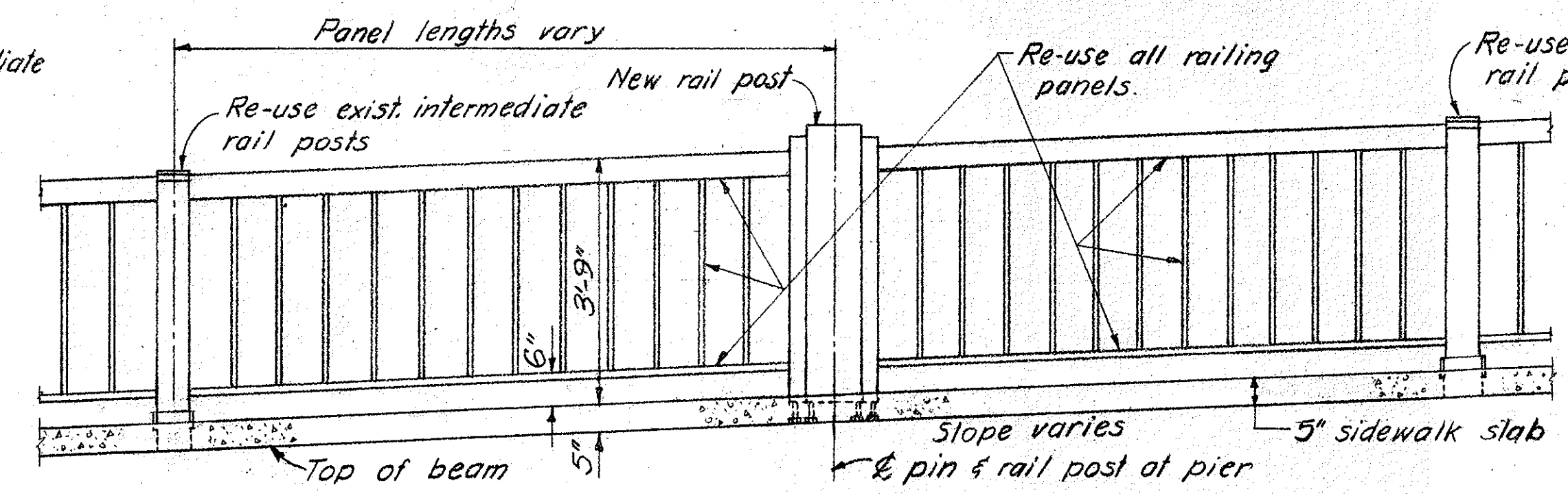
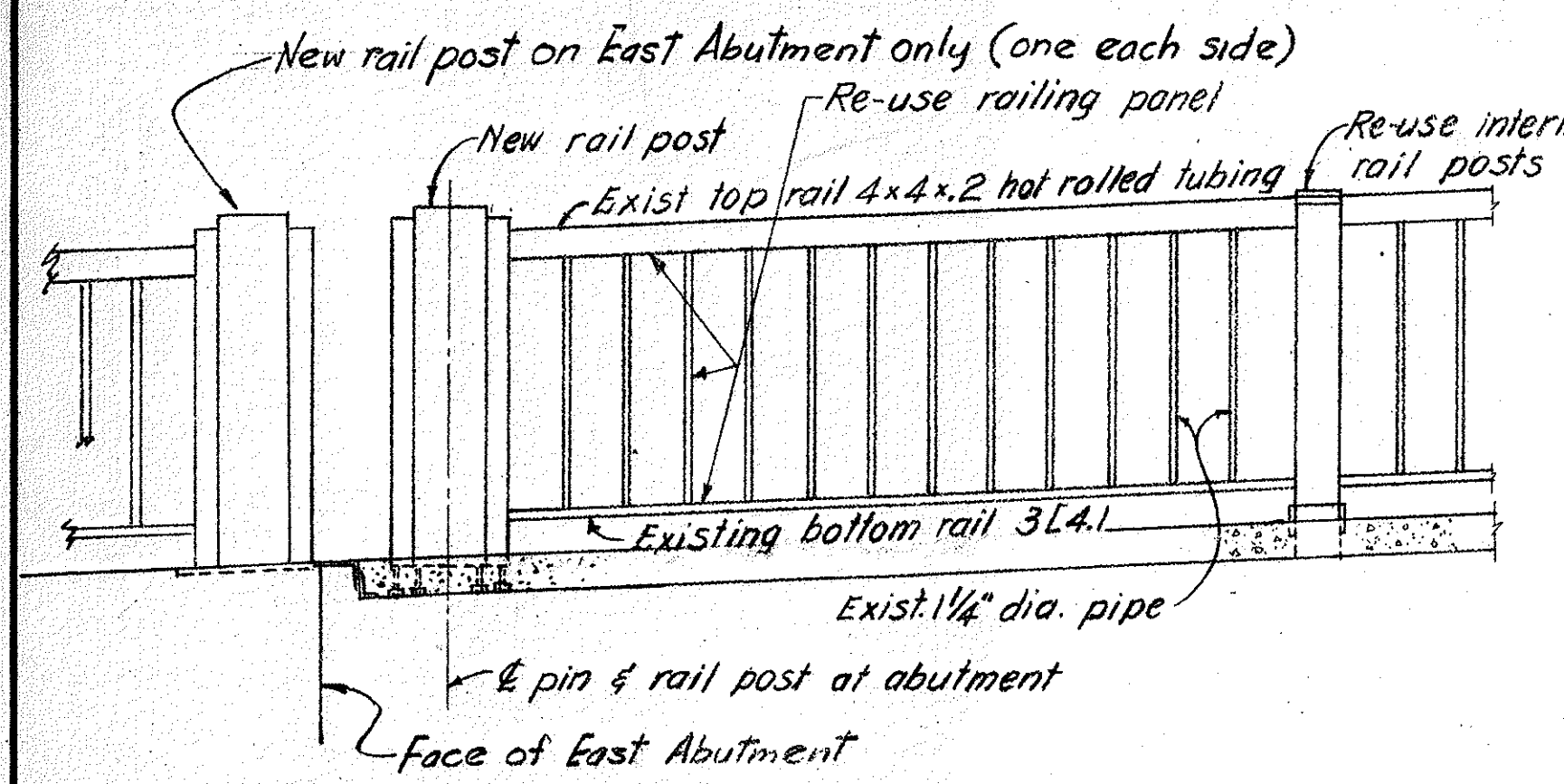




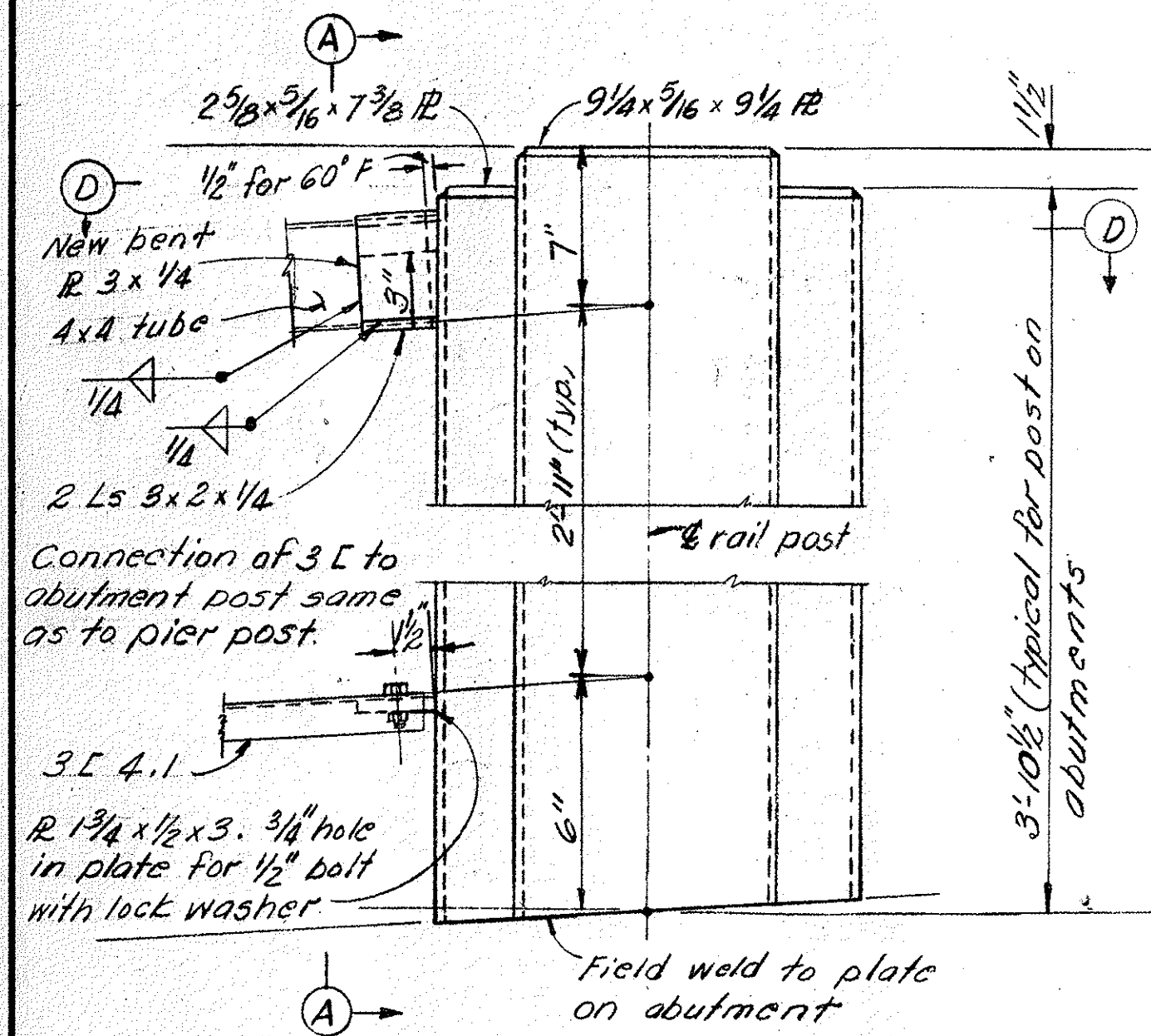
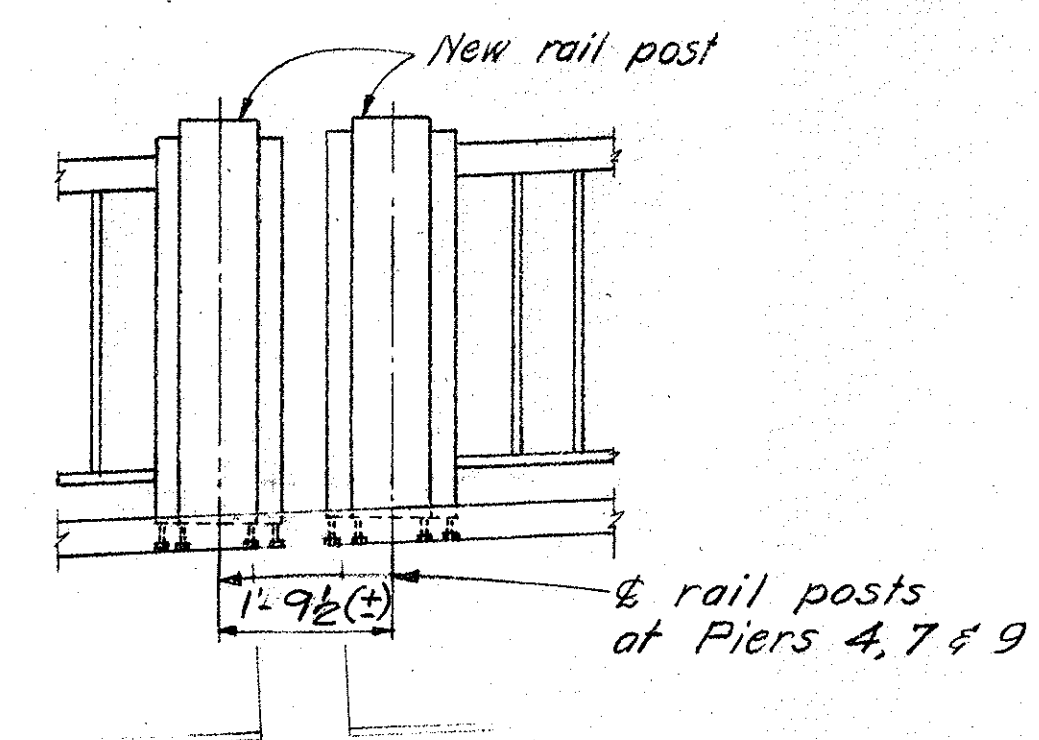
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

25  
29

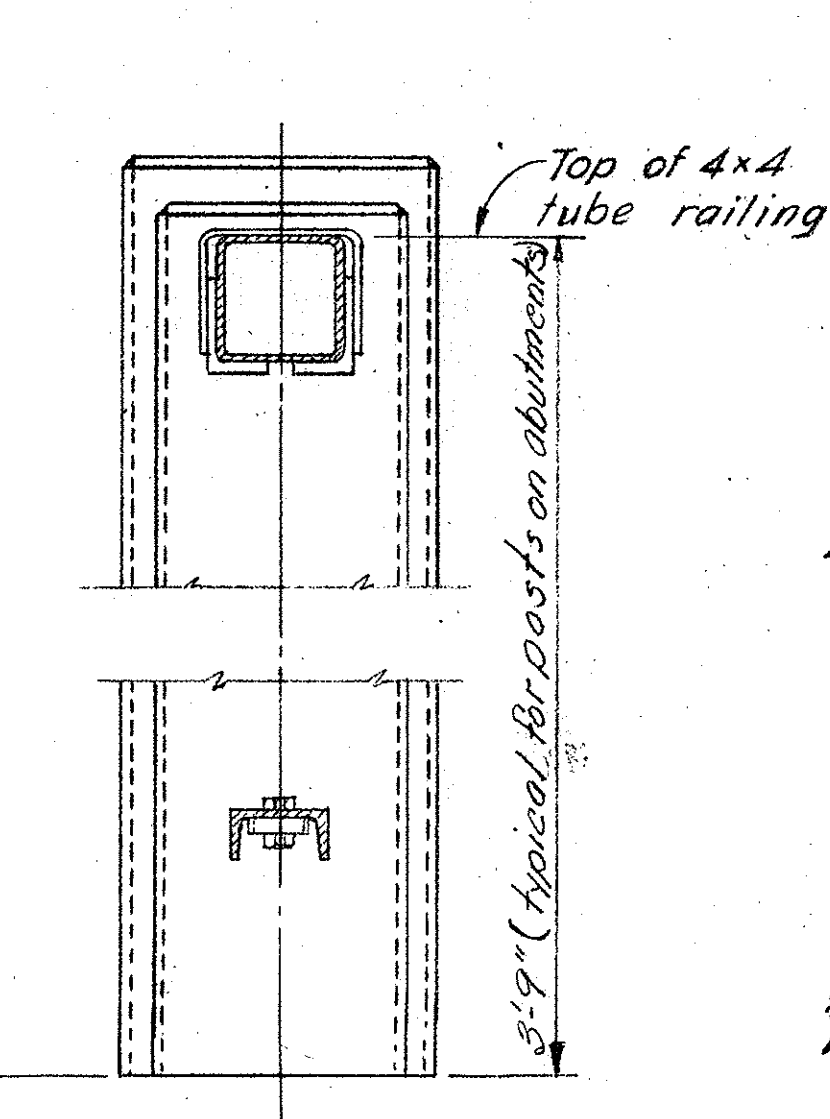
PE-7-23



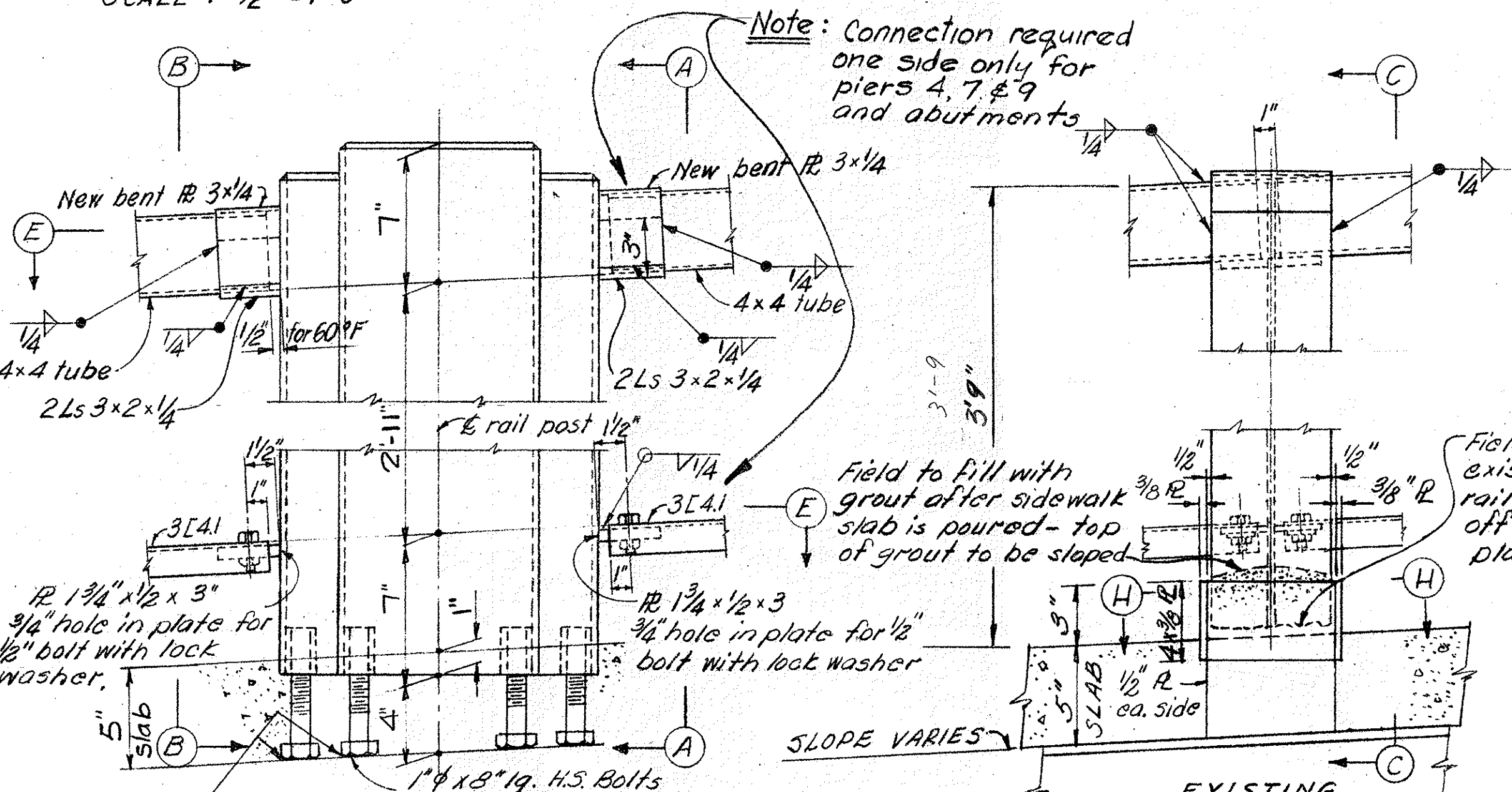
TYPICAL RAILING PANELS  
SCALE: 1/2" = 1'-0"



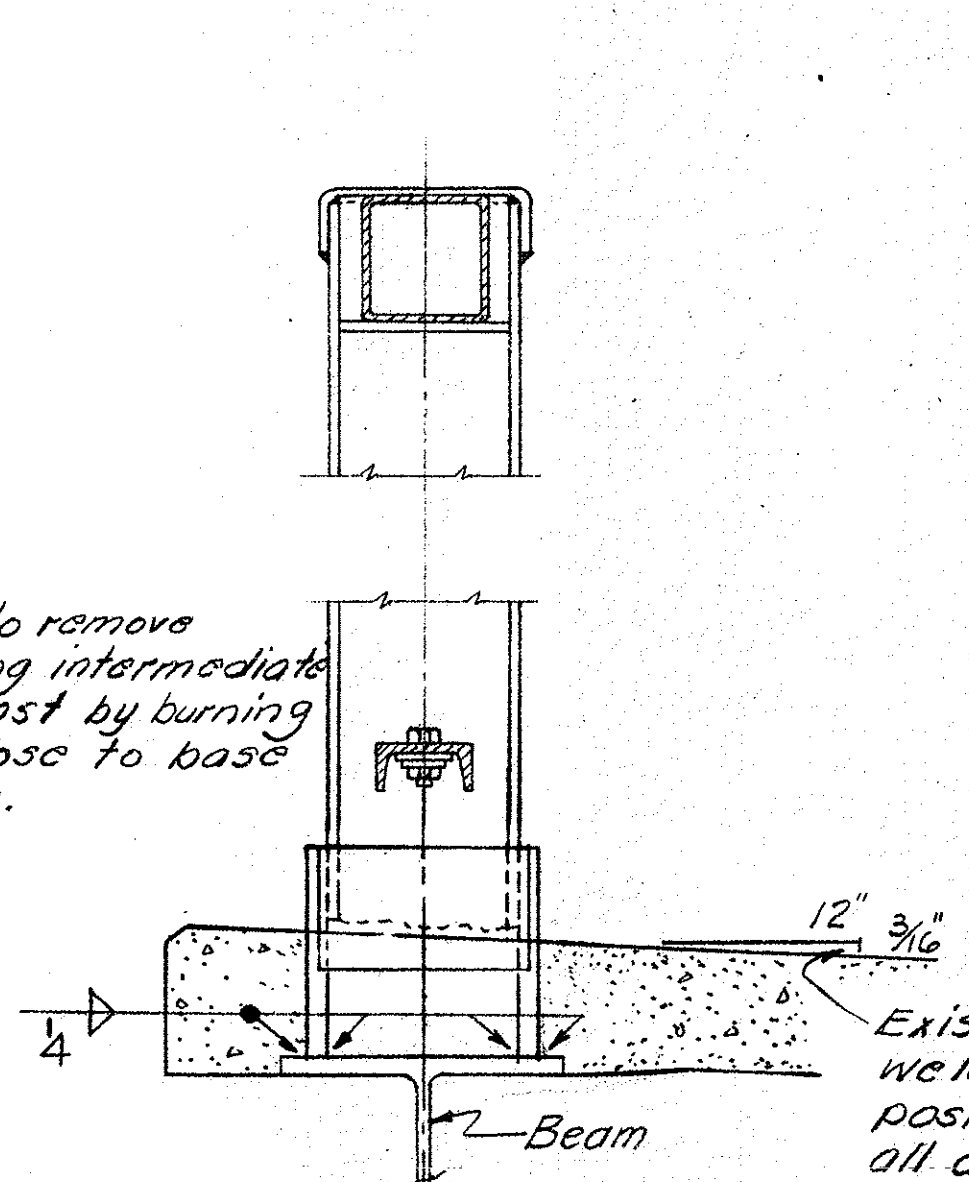
NEW STEEL RAIL POST ON EAST ABUTMENT  
(2 REQ'D.)



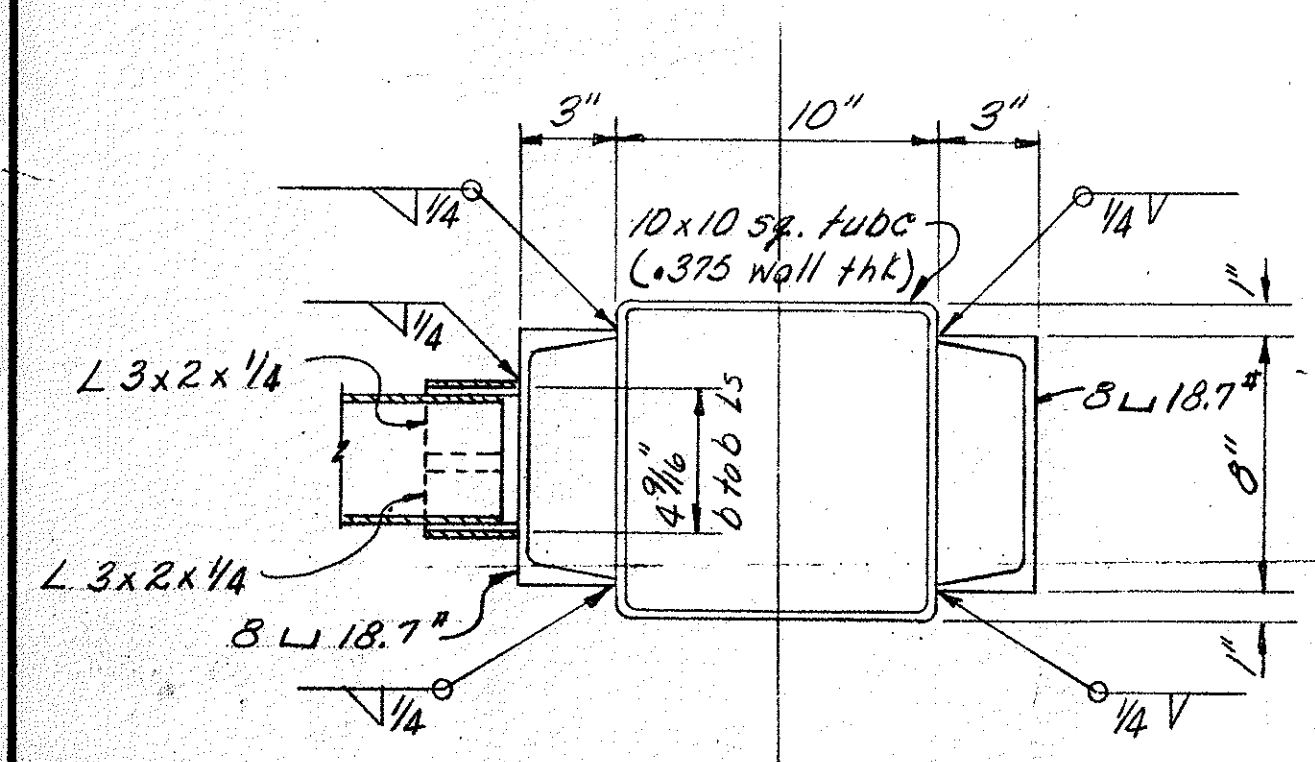
SECTION A-A AS SHOWN  
SECTION B-B OPP HAND



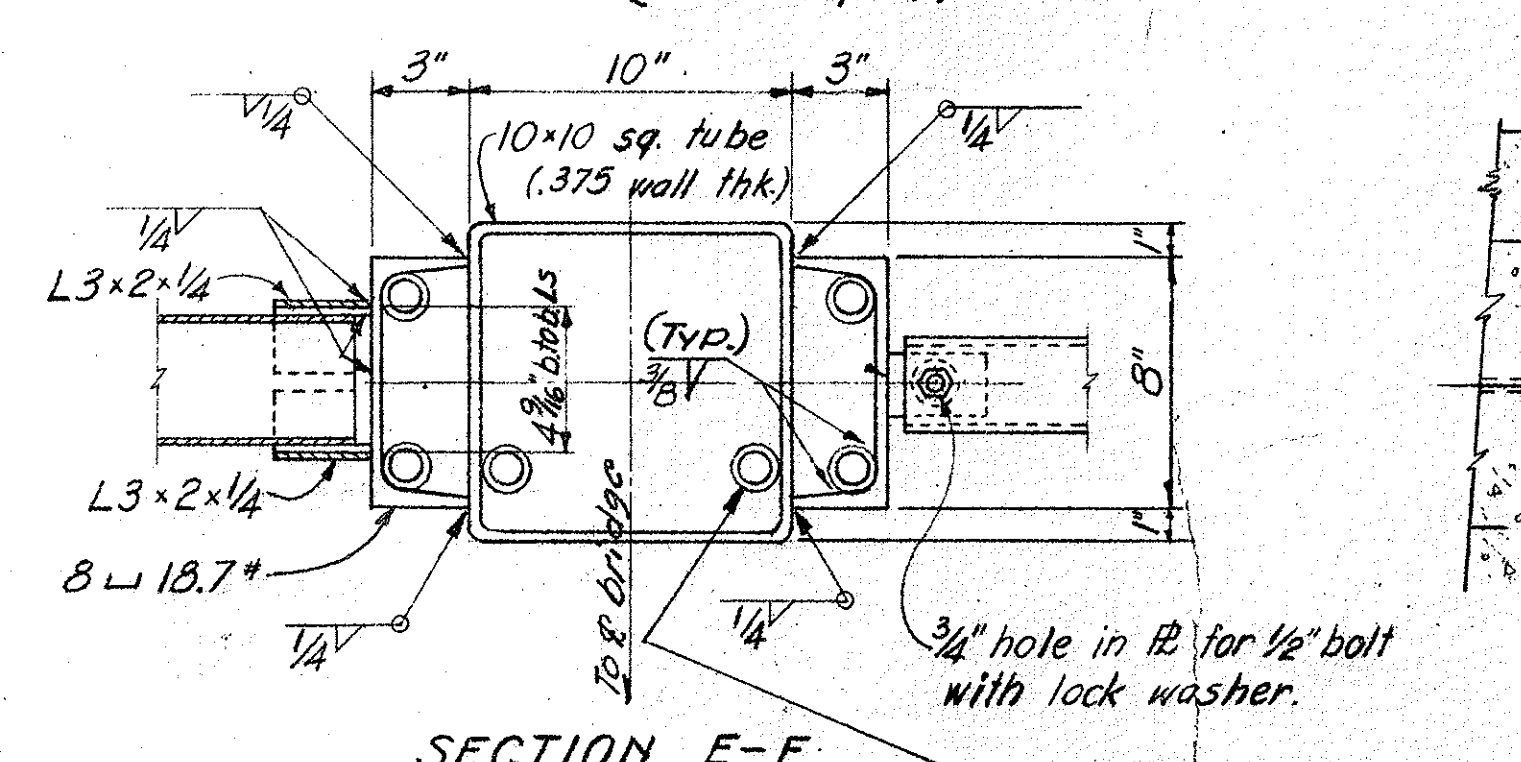
NEW STEEL RAIL POST AT PIERS 1 THRU 10  
AND AT END DAMS  
(30 REQ'D.)



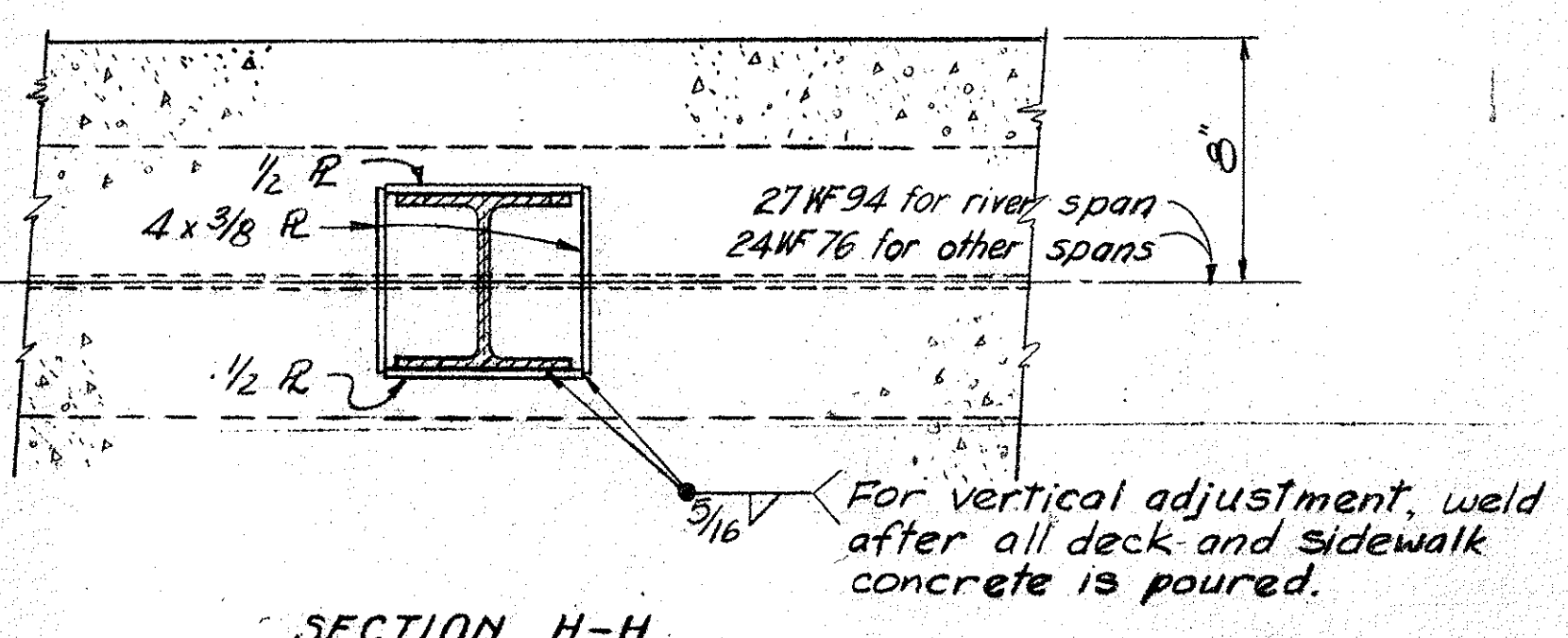
SECTION C-C



SECTION D-D



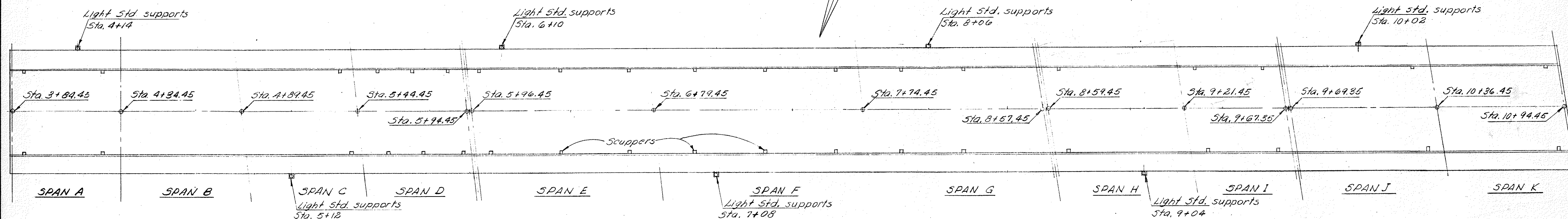
SECTION E-E



SECTION H-H

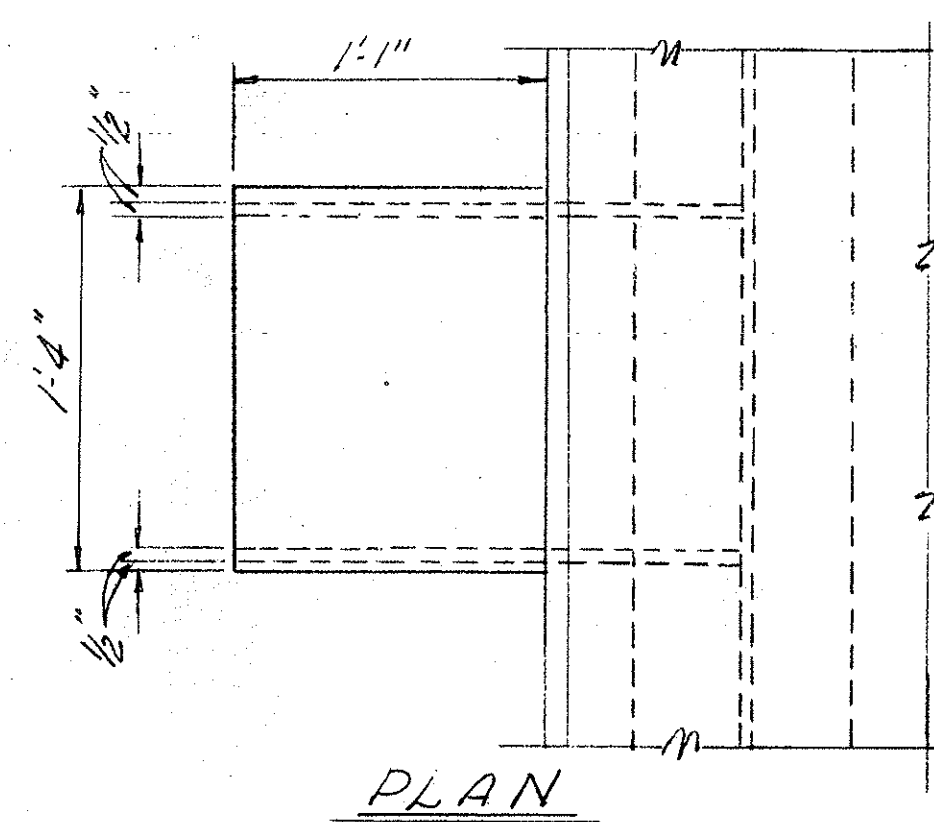
RACKOFF ASSOCIATES ENGINEERS							
CLEVELAND, OHIO				COLUMBUS, OHIO			
RAILING DETAILS TREMONT AVE. VIADUCT MASSILLON, OHIO STARK COUNTY							
Designed	Drawn	Traced	Checked	Reviewed	Date	Revised	
R.J.	M.R.	LL	L.F.L.	LL	4-19-65		



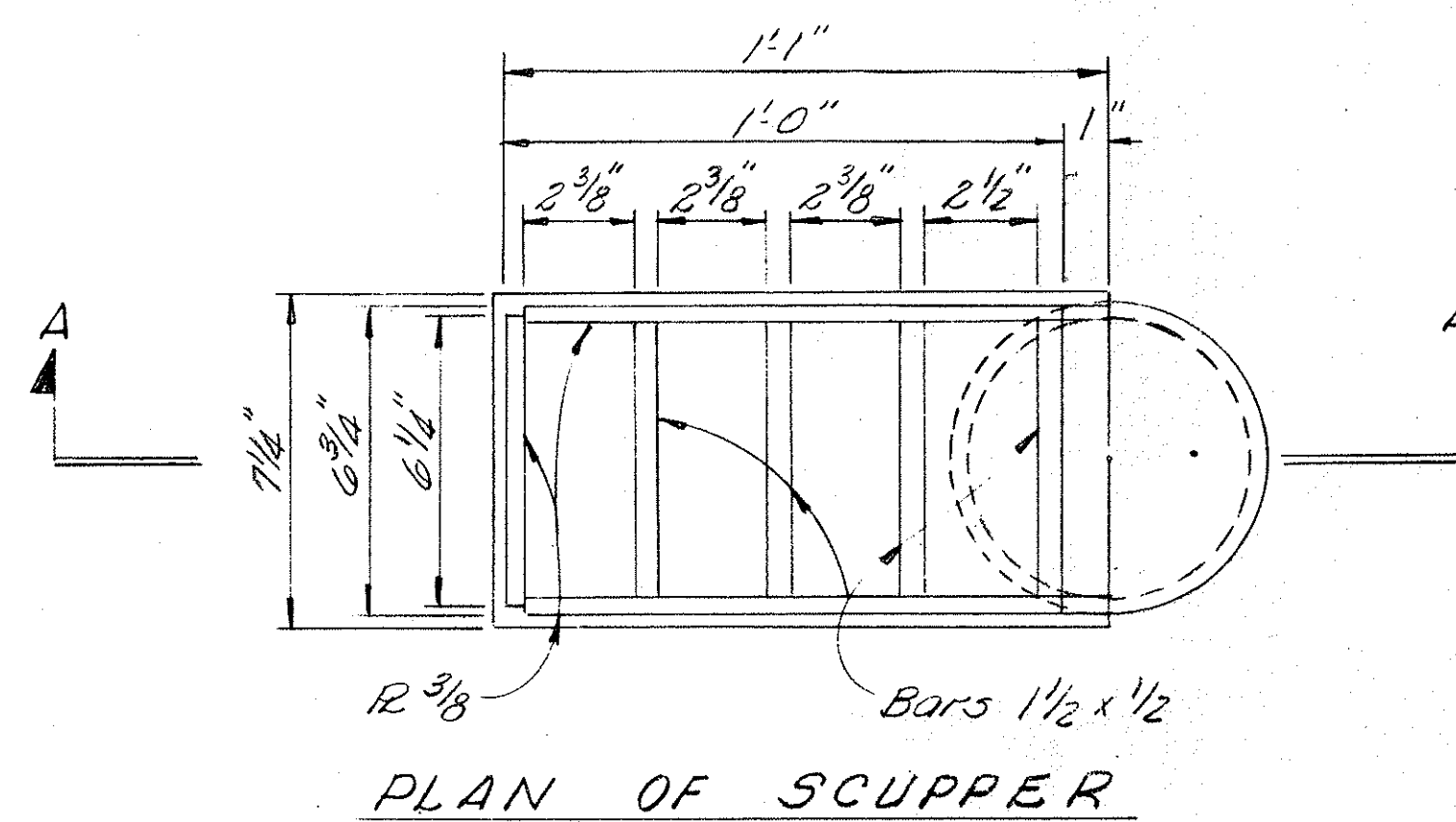


SUPERSTRUCTURE PLAN

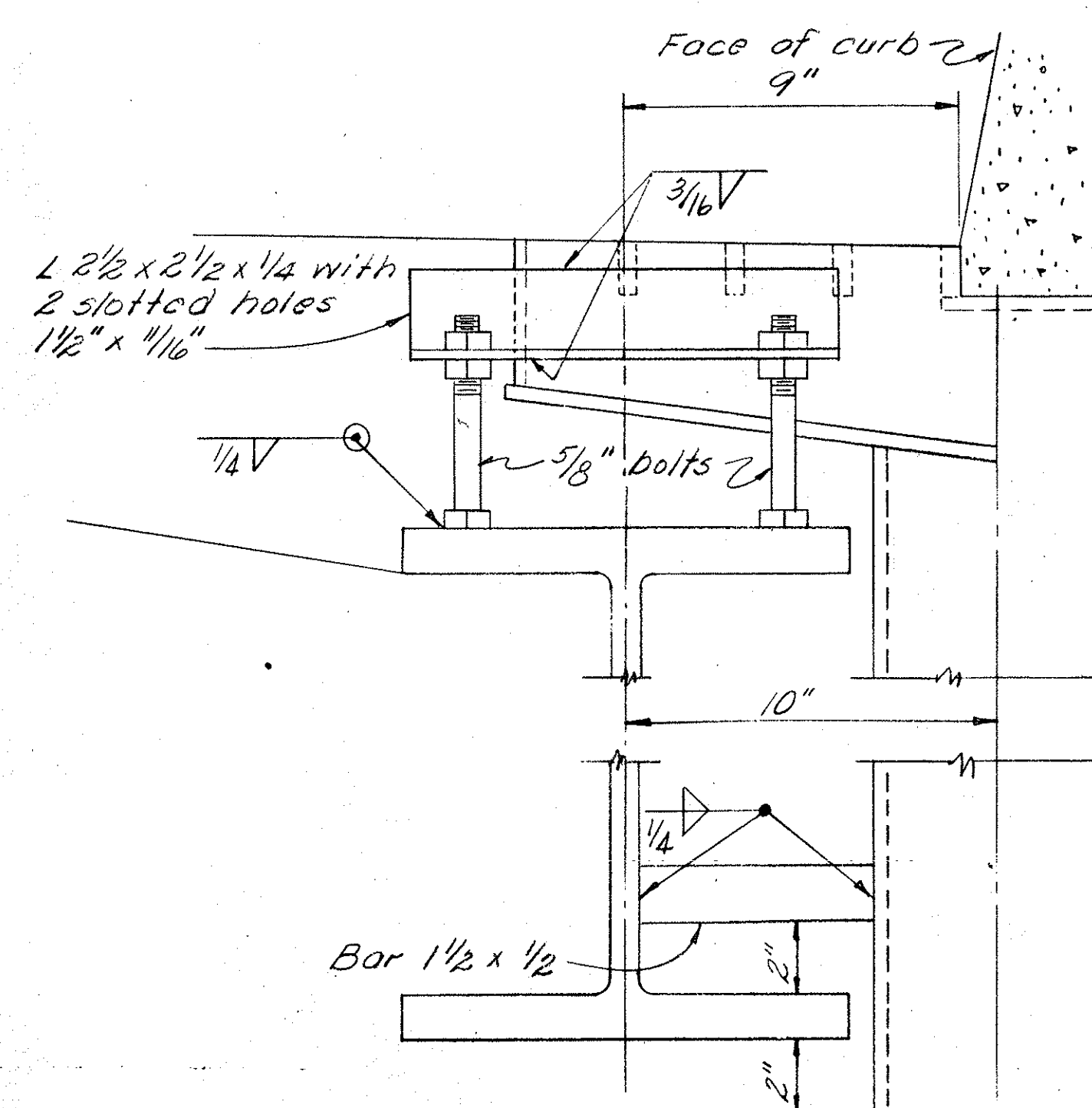
NOTE:  
Scuppers shall not be placed over railroad aerial lines and the location of scuppers may have to be moved on the direction of the Engineer.



PLAN



PLAN OF SCUPPER

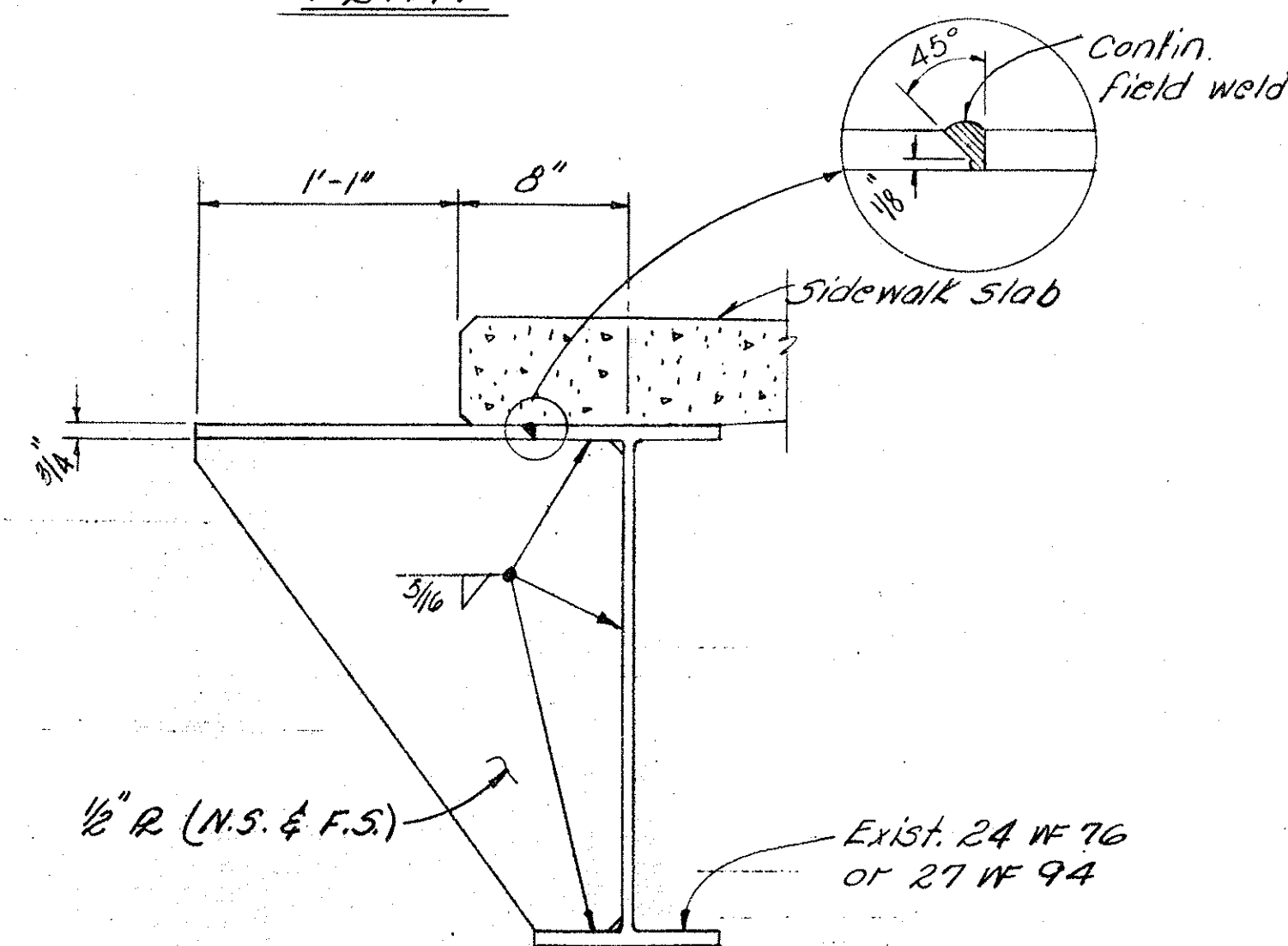


DETAIL OF SCUPPER SUPPORT

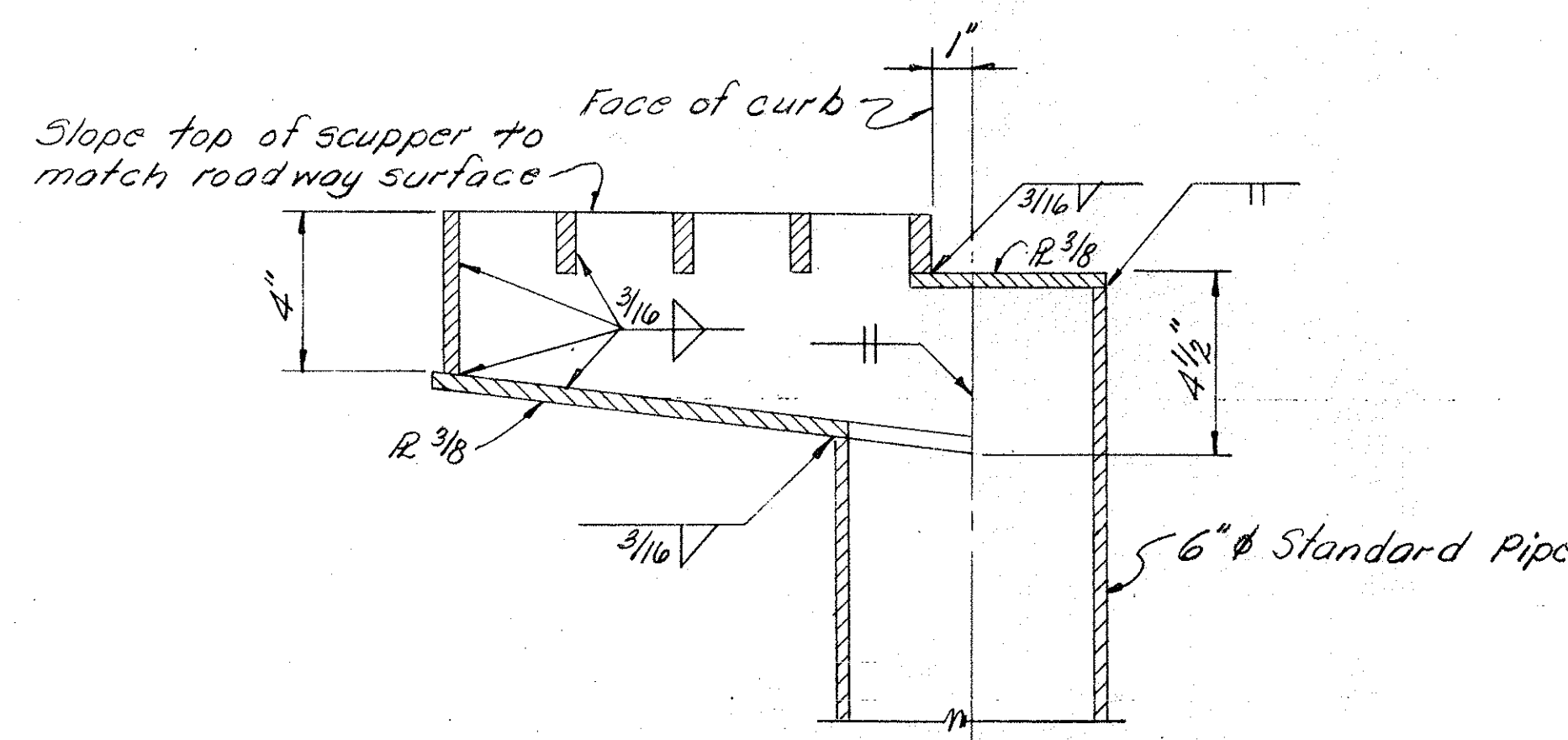
LOCATION OF SCUPPERS

NORTH SIDE OF ROADWAY	SOUTH SIDE OF ROADWAY
3+90	3+90
4+26	4+26
5+39	5+34
5+50	5+51
5+72	5+67
5+90	5+83
6+06	6+01
6+37	6+37
6+68	6+68
6+98	6+98
7+30	7+30
7+62	7+62
7+92	7+92
8+20	8+20
8+68	8+64
9+32	9+26
9+64	9+57
10+32	10+25
10+92	10+86

38 Scuppers Required



LIGHT STANDARD SUPPORT DETAILS



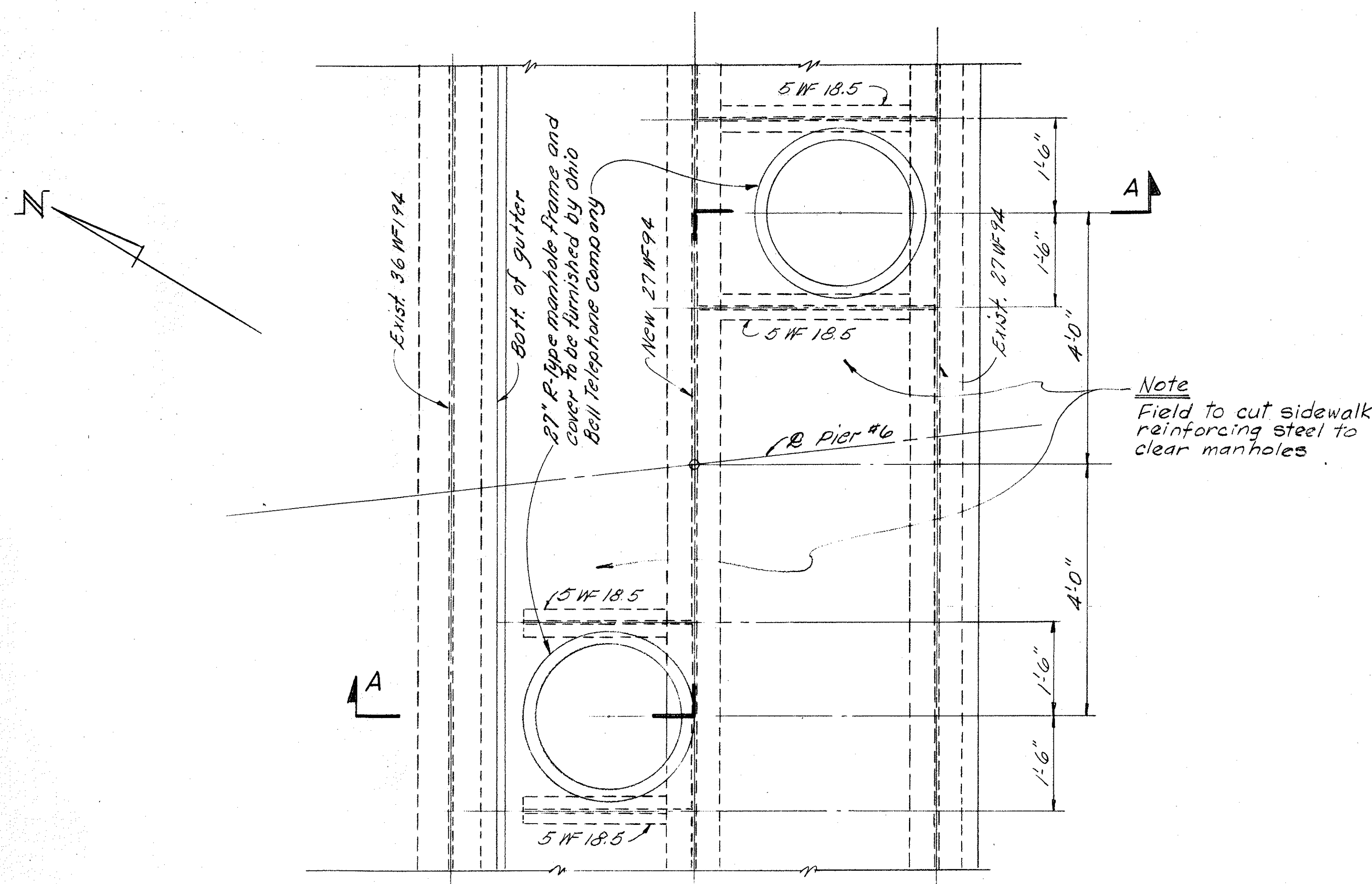
SECTION A-A

RACKOFF ASSOCIATES ENGINEERS						
CLEVELAND, OHIO			COLUMBUS, OHIO			
SCUPPERS & LIGHTING SUPPORTS TREMONT AVE. VIADUCT MASSILLON, OHIO STARK COUNTY						
Designed	Drawn	Traced	Checked	Reviewed	Date	Revised
L.F.L.	L.F.L.	E.D.A.	R. J.	666	4-19-65	

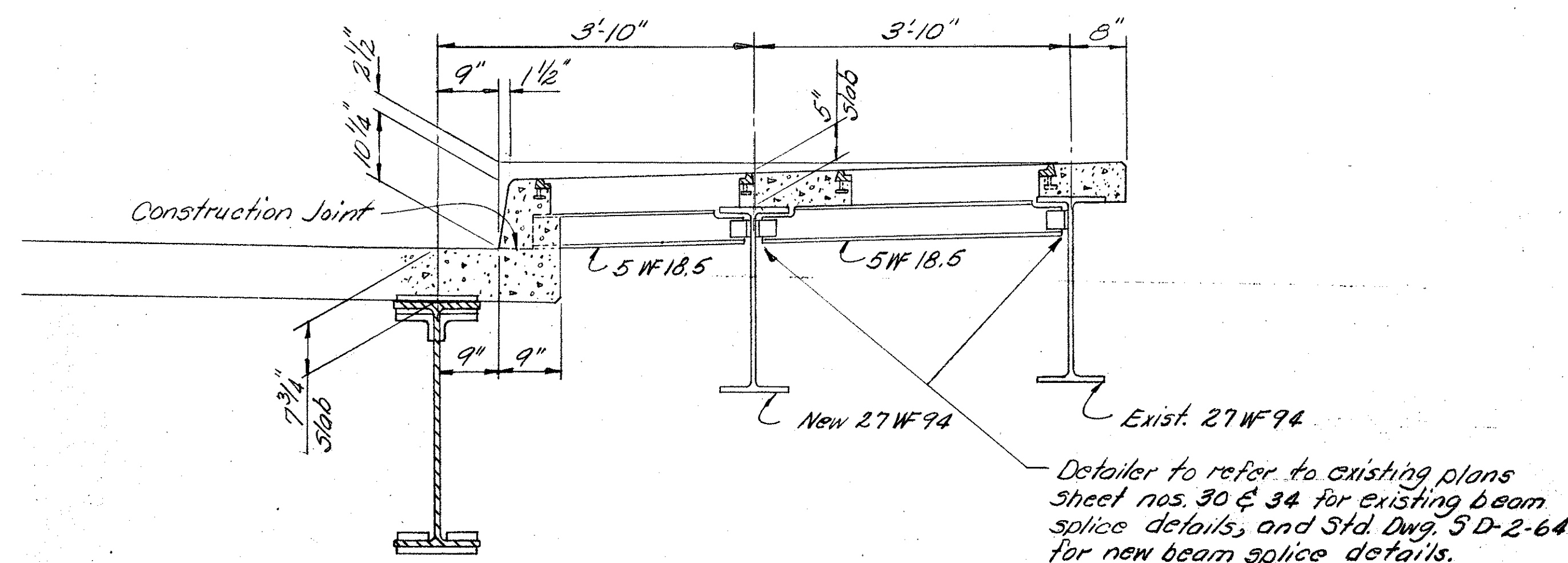




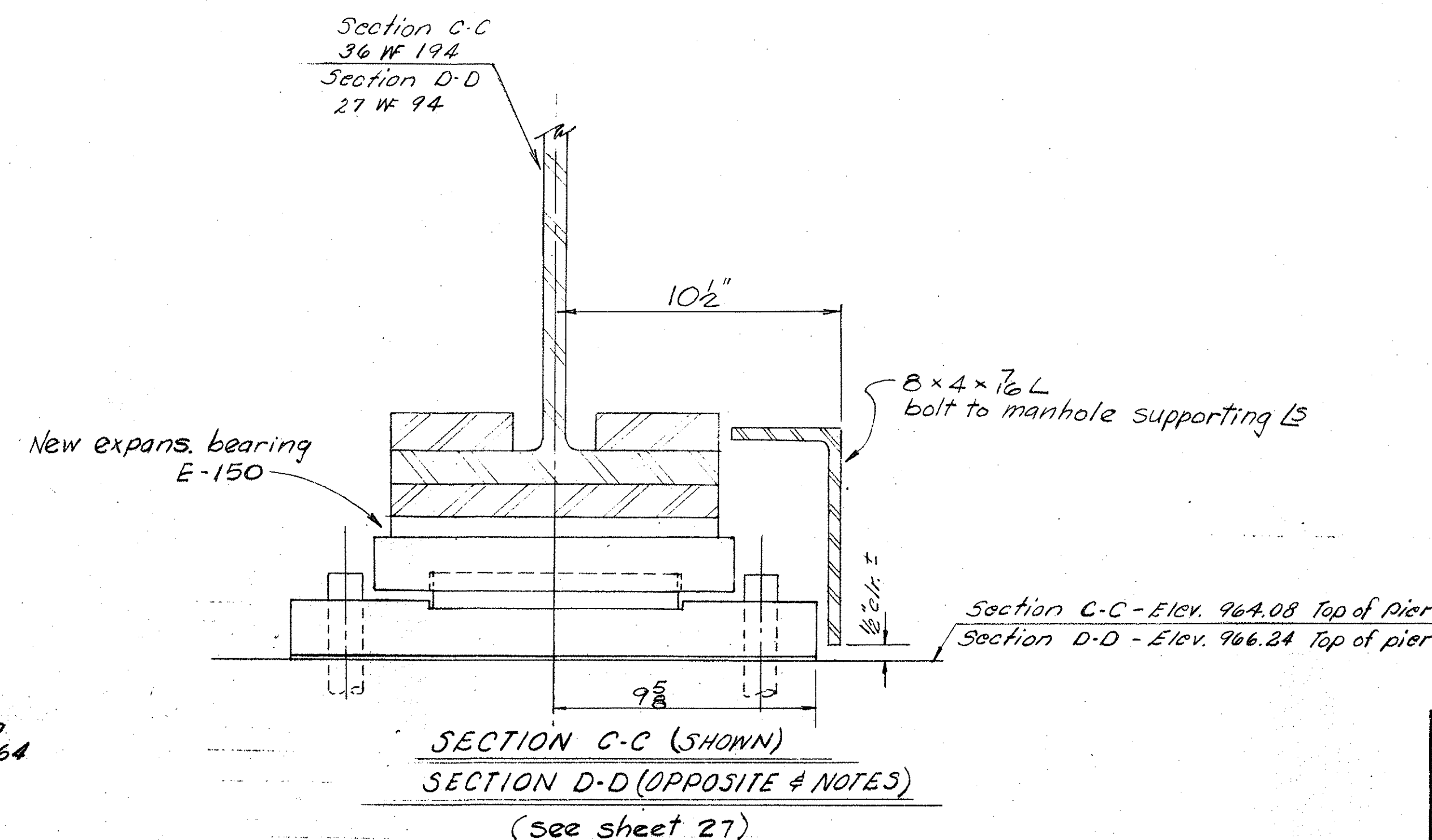




**FRAMING PLAN AT MANHOLES**  
See also Framing Plan Sheet 20



**SECTION A-A**





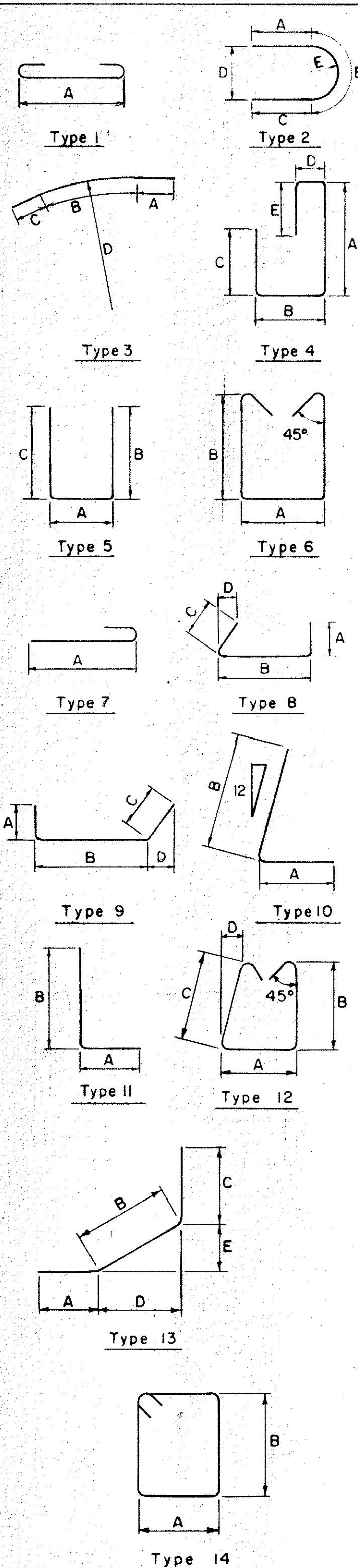
# REINFORCING STEEL LIST

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

29  
29

PE-7-23

BENDING DIAGRAM



S IN THE COLUMN FOR "TYPE" INDICATES STRAIGHT BARS.

MARK	NO.	LENGTH	WEIGHT	TYPE	A	B	C	D	E
<b>ABUTMENTS</b>									
<b>EAST ABUTMENT</b>									
A401	24	3-3	52	5	0-11	1-3	1-3		
A501	14	7-11	116	11	3-11	4-2			
A502	44	6-2	283	11	2-2	4-2			
A503	12	29-6	369	S					
A504	10	24-0	250	S					
A505	18	6-11	130	S					
A506	12	22-6	282	S					
A507	6	8-0	50	S					
A508	8	10-0	83	S					
A509	8	12-8	106	S					
A601	58	7-0	610	13	2-0	2-5	2-9	2-1	1-2
A602	15	13-1	295	5	1-5	6-0	6-0		
A603	40	13-5	806	4	5-6	1-5	4-3	0-11	2-0
<b>WEST ABUTMENT</b>									
B501	12	6-4	79	11	2-0	4-6			
B502	12	6-7	82	5	4-2	2-0	0-8		
B503	30	5-2	162	11	0-10	4-6			
B504	30	5-5	169	5	4-2	0-10	0-8		
B505	4	30-9	128	S					
B506	10	24-3	253	S					
B507	7	6-0	44	S					
B508	7	9-2	67	S					
B509	4	9-6	40	S					
B510	2	7-6	16	S					
B511	12	22-9	285	S					
B512	8	9-10	82	S					
B513	3	14-1	44	14	2-8	4-2			
B601	13	12-7	246	5	1-5	5-9	5-9		
B602	42	13-10	873	4	5-8	1-5	4-5	0-11	2-0
B603	6	5-9	52	S					
B801	20	6-6	347	S					
TOTAL			6,401						

MARK	NO.	LENGTH	WEIGHT	TYPE	A	B	C	D	E
<b>PIERS</b>									
<b>PIER NO. 1</b>									
P601	12	4-5	80	11	1-9	2-10			
P602	16	3-7	86	S					
<b>PIER NO. 2</b>									
P401	74	3-1	152	5	2-0	0-8	0-8		
P501	18	18-3	343	S					
P502	12	6-3	78	S					
P503	4	5-3	22	5	2-0	1-9	1-9		
P601	6	5-5	49	11	1-9	3-10			
P602	6	5-2	47	11	1-9	3-7			
P603	28	3-5	144	11	1-9	1-10			
P604	20	1-3	38	11	1-0	0-5			
<b>PIER NO. 3</b>									
P601	6	4-10	44	11	1-9	3-3			
P602	6	4-5	40	11	1-9	2-10			
P603	16	3-7	86	S					
<b>PIER NO. 4</b>									
P401	74	3-1	152	5	1-3	1-0	1-0		
P402	74	3-0	148	11	0-7	2-6			
P501	24	18-3	457	S					
P502	8	5-0	42	S					
P503	4	6-8	28	S					
P504	4	8-9	37	2	2-0	4-9	2-0	3-0	1-6
P601	6	6-10	62	11	2-6	4-6			
P602	6	6-3	56	11	2-6	3-11			
P603	10	4-11	74	11	2-9	2-4			
P604	4	4-8	28	11	2-9	2-1			
P605	10	4-9	71	5	1-3	2-10	1-0		
P606	4	4-5	27	5	1-3	2-6	1-0		
P607	40	1-3	75	11	1-0	0-5			
<b>PIER NO. 5</b>									
P401	70	4-8	218	5	3-6	0-8	0-8		
P501	18	18-3	343	S					
P502	8	5-0	42	S					
P503	4	6-8	28	S					
P504	4	8-9	37	2	2-0	4-9	2-0	3-0	1-6
P601	6	6-6	59	11	2-6	4-2			
P602	6	6-3	56	11	2-6	3-11			
P603	20	4-5	133	11	2-6	2-1			
P604	8	4-2	50	11	2-6	1-10			
P605	20	1-3	38	11	1-0	0-5			
<b>PIER NO. 6</b>									
P401	70	5-0	234	5	3-6	0-10	0-10		
P501	18	18-3	343	S					
P502	8	5-0	42	S					
P503	4	6-8	28	S					
P504	4	8-9	37	2	2-0	4-9	2-0	3-0	1-6
P601	6	6-7	59	11	2-6	4-3			
P602	6	6-4	57	11	2-6	4-0			
P603	20	4-7	138	11	2-6	2-3			
P604	8	4-4	52	11	2-6	2-0			
P605	20	1-3	38	11	1-0	0-5			

MARK	NO.	LENGTH	WEIGHT	TYPE	A	B	C	D	E
<b>SUPERSTRUCTURE</b>									
S401	2428	7-10	12,705	11	0-9	7-2			
S402	2428	7-3	11,759	S					
S403	196	31-7	4,135	S					
S404	252	30-3	5,092	S					
S405	112	28-5	2,126	S					
S406	112	32-6	2,432	S					
S501	1214	41-4	53,603	1	41-2				
S502	2428	3-7	9,074	12	0-8	1-2	1-2	0-2	
S503	98	38-0	3,884	S					
S504	546	31-10	18,128	S					
S505	702	30-6	22,332	S					
S506	312	28-8	9,329	S					
S507	312	32-9	10,657	S					
S601	1214	41-2	75,065	S					
S602	245	38-0	13,984	S					
TOTAL			254,305						
<b>PIERS (Continued)</b>									
<b>PIER NO. 7</b>									
P601	3	7-0	32	5	1-3	4-4	1-9		
P602	3	6-9	30	5	1-3	4-1	1-9		
P603	3	5-10	26	11	2-9	3-3			
P604	3	5-7	25	11	2-9	3-0			
P605	24	3-8	132	S					
<b>PIER NO. 8</b>									
P601	12	4-7	83	11	1-9	3-0			
P602	18	3-6	95	S					
<b>PIER NO. 9</b>									
P601	12	5-4	96	11	2-6	3-0			
P602	18	3-6	95	S					
<b>PIER NO. 10</b>									
P401	74	2-10	140	5	2-0	0-6	0-6		
P501	18	18-3	343	S					
P502	4	3-7	15	S					
P503	12	5-3	66	S					
P504	4	5-3	22	5	2-0	1-9	1-9		
P601	6	5-4	48	11	1-9	3-9			
P602	6	5-7	50	11	1-9	4-0			
P603	20	3-5	103	11	1-9	1-10			
P604	8	3-8	44	11	1-9	2-1			
P605	20	1-3	38	11	1-0	0-5			
TOTAL			5,981						
<b>REPLACEMENT BARS</b>									
RE401	2	5-3	—	S					
RE501	7	5-7	—	S					
RE601	5	5-11	—	S					
RE801	1	6-6	—	S					

## NOTES

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

RACKOFF ASSOCIATES ENGINEERS COLUMBUS, OHIO					
REINFORCING STEEL LIST TREMONT AVE VIADUCT MASSILLON, OHIO STARK COUNTY					
Designed	Drawn	Traced	Checked	Reviewed	Date
H. H.	M. R.		S. S.	666	4-19 65