

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
BRO-68-43.57
PERRY TOWNSHIP
BROWN COUNTY

BROWN COUNTY	OHIO
BRO-68-43.57	FHWA REGION 5
STATE	FEDERAL PROJECT

1
6

PLAN NO. BR-32-78

DEC 16 1965

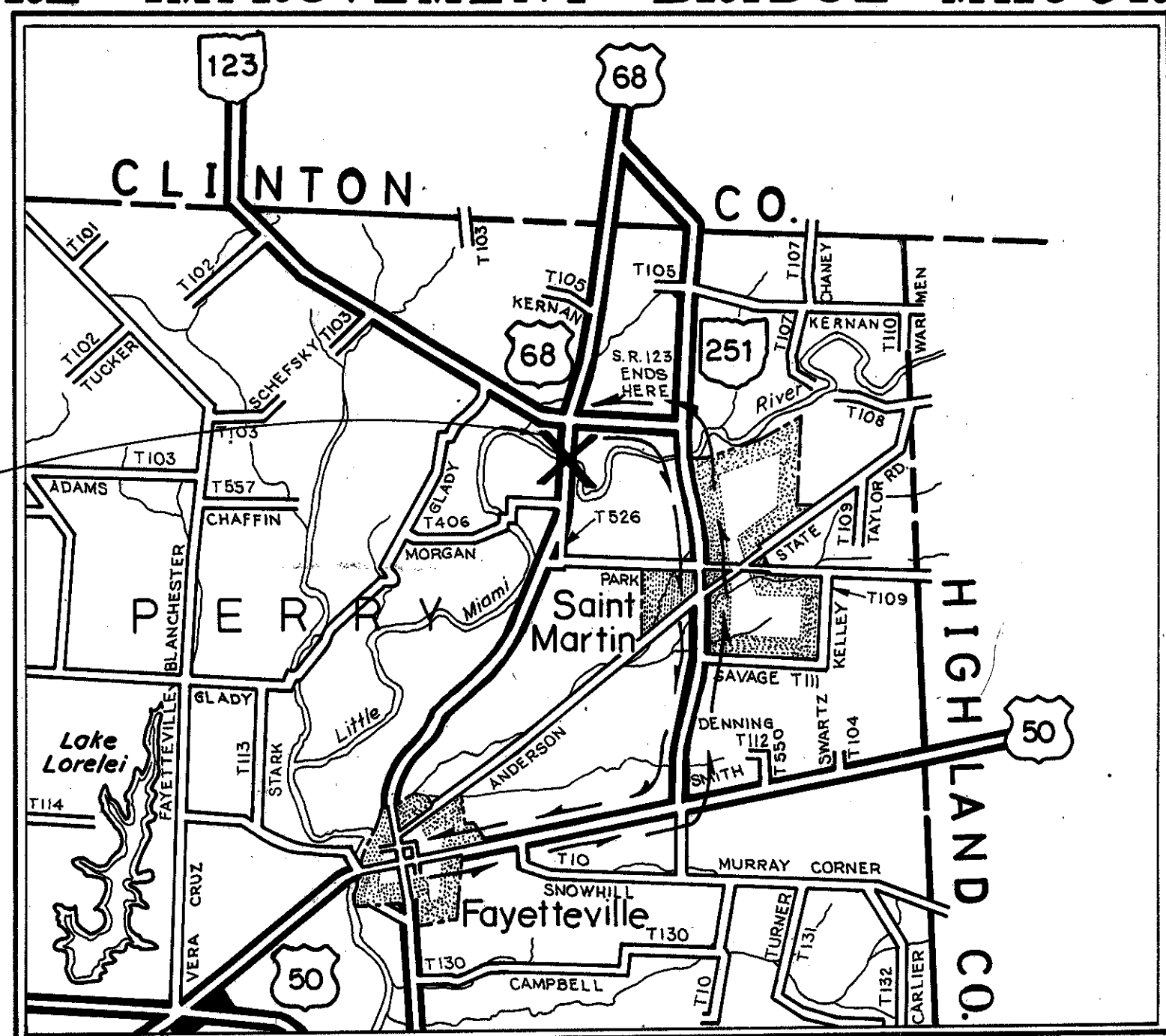
STRUCTURE IMPROVEMENT - BRIDGE MAJOR REPAIR

CONVENTIONAL SIGNS

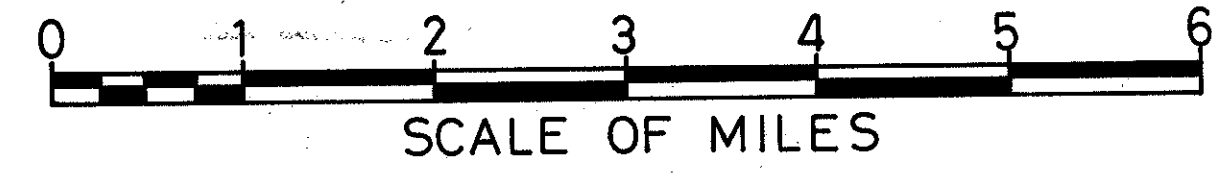
- | | |
|--|---|
| County Line _____ | Limited Access (only) _____ LA _____ |
| Township Line _____ | Right of Way (only) _____ RW _____ |
| Section Line _____ | Limited Access & Right of Way _____ LA & RW _____ |
| Corporation Line _____ or _____ | Existing Right of Way _____ |
| Fence Line (existing) -x-x- (proposed) -x-x- | Property Line — — (in existing fence) - — |
| Center Line _____ 352 _____ 353 _____ | Railroad _____ |
| Trees (to be removed) ~ (to be removed) ~ | Guardrail (existing) -o-o-o- (proposed) -o-o-o- |
| Utility Poles: Telephone φ, Power φ, Light φ | |

INDEX OF SHEETS

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| Abutment Details | 4-5 |
| Pier Details & Steel List | 6 |



LOCATION AND DETOUR MAP



- Portion to be improved _____
- State Roads _____
- Other Roads _____

LINE DATA

Begin Work Sta. 2441+86.95
End Work Sta. 2446+74.45
Net Length of work = 487.50 Lin. Ft. or 0.092 Miles

SCALES

- Plan _____ 20' 0' 20'
- Profile: _____ Horizontal _____ Vertical _____ 2' 0' 2'
- Cross Section: Horizontal _____ Vertical _____

1977 SPECIFICATIONS

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

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

I hereby approve these plans and declare that the making of this improvement will require the closing to traffic of the highway and that provisions for the maintenance and safety of the traffic will be as set forth on the plans and estimates.

- Approved _____
Date 2-28-78 District Deputy Director of Transportation.
- Approved _____
Date 5-31-78 Engineer, Bureau of Bridges and Structural Design.
- Approved _____
Date 6-2-78 Chief Engineer, Operations.
- Approved _____
Date 6-2-78 Director, Department of Transportation.

SUPPLEMENTAL PRINTS OF STANDARD CONSTRUCTION DRAWINGS

BP-5	8-11-75			
GR-2B	12-6-76			
GR-3	12-6-76			
GR-4	12-6-76			
DBR-2-73	4-10-73			
PSBD-1-71	9-1-71			
MC-3	6-1-73			

SUPPLEMENTAL SPECIFICATIONS

UTILITY OWNERS

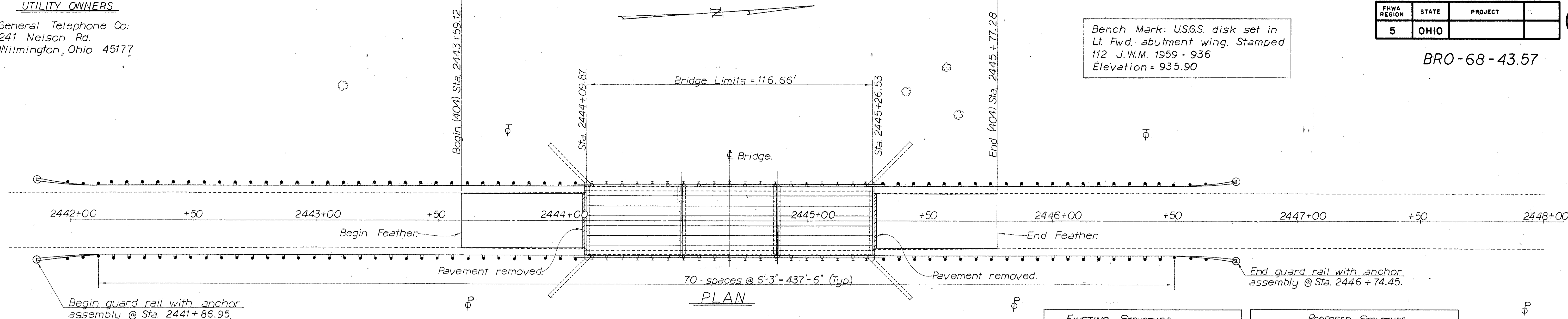
General Telephone Co.
241 Nelson Rd.
Wilmington, Ohio 45177

FHWA REGION	STATE	PROJECT
5	OHIO	

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BRO-68-43.57

Bench Mark: U.S.G.S. disk set in
Lt. Fwd. abutment wing. Stamped
112 J.W.M. 1959 - 936
Elevation = 935.90

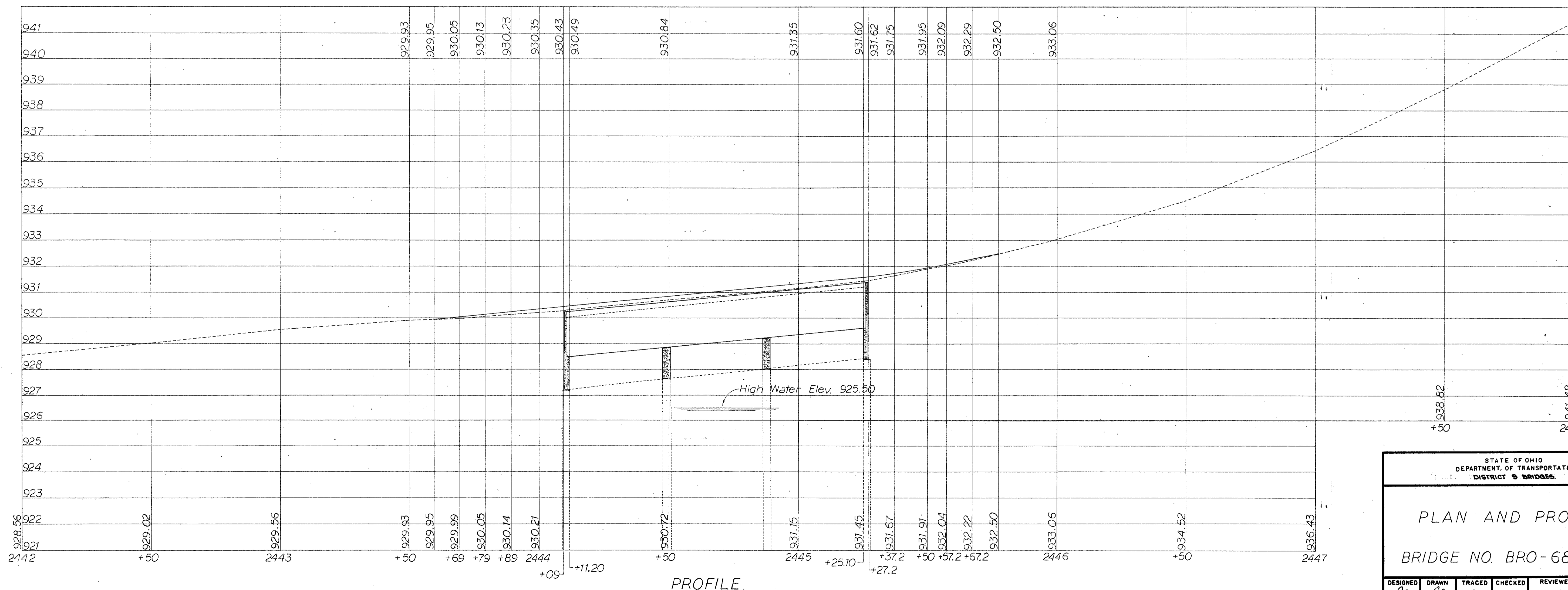


EXISTING STRUCTURE

Type: Concrete Beam
Span Length: 3 @ 36'-0"
Width: 24'-0" f/r Curbs
Loading: H15
Skew: 0°
Wearing Surface: 3" Bituminous
Approach Slabs: None
Alignment: Tangent

PROPOSED STRUCTURE

Type: Prestressed Conc. Box Beams
Span Length: 3 @ 38'-6"
Width: 28'-0" f/r Railing
Loading: HS 20-44
Skew: 0°
Wearing Surface: 2 1/2" Asphalt Conc.
Approach Slabs: None
Alignment: Tangent



STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
DISTRICT 9 BRIDGES

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PLAN AND PROFILE
BRIDGE NO. BRO-68-4629

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
J.R.H.	J.R.H.	J.R.H.	HJ	Jim Bandholtz	2-28-78	

GENERAL NOTES

REFERENCE SHALL BE MADE TO STANDARD DRAWINGS:

BP-5	(REVISED)	8/11/75
GR-2B	(REVISED)	12/6/76
GR-3	(REVISED)	12/6/76
GR-4	(REVISED)	12/6/76
DBR-2-73	DATED	4/10/73
PSBD-1-71	DATED	9/1/71
MC-3	DATED	6/1/73

DESIGN SPECIFICATIONS: THIS STRUCTURE CONFORMS TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY OFFICIALS, 1973, INCLUDING THE 1974, 1975 AND 1976 INTERIM SPECIFICATIONS AND THE OHIO "SUPPLEMENT" TO THESE SPECIFICATIONS.

DESIGN DATA:

DESIGN LOADING - HS-20-44 AND THE ALTERNATE MILITARY LOADING

CONCRETE CLASS C - UNIT STRESS 1200 P.S.I. FOR SUPERSTRUCTURE

UNIT STRESS 1333 P.S.I. FOR SUBSTRUCTURE

REINFORCING STEEL - ASTM A615, A616, OR A617 - UNIT STRESS 20,000 P.S.I.

CONCRETE FOR PRESTRESSED CONCRETE BEAMS - UNIT STRESS 2200 P.S.I. COMPRESSION

44 P.S.I. TENSION

PRESTRESSING STRAND ASTM #416 F's = 270,000 P.S.I. INITIAL STRESS = 0.70 F's

POROUS BACKFILL, 1'-0" THICK, SHALL EXTEND UP TO THE PLANE OF THE SUBGRADE AND LATERALLY TO THE ENDS OF THE WING WALLS.

BRIDGE SEAT REINFORCING: REINFORCING STEEL IN THE VICINITY OF THE BRIDGE SEAT SHALL BE ACCURATELY PLACED TO AVOID INTERFERENCE WITH THE DRILLING OF ANCHOR BAR HOLES.

ITEM 407 TACK COAT: TACK COAT SHALL BE APPLIED AT THE RATE DETERMINED AT THE PRECONSTRUCTION CONFERENCE PRIOR TO THE START OF WORK, BUT IN NO CASE SHALL THE RATE OF APPLICATION EXCEED 0.10 GAL. PER SQ. YD.

503, COFFERDAMS, CRIBS AND SHEETING: THIS ITEM SHALL BE USED TO BRACE THE ABUTMENT WALLS WHILE THE EXISTING SUPERSTRUCTURE IS BEING REMOVED AND UNTIL THE PRESTRESSED BEAMS ARE ERECTED.

617, COMPACTED AGGREGATE IS INTENDED FOR 2 FOOT WIDE AND 2" THICK BERMS ALONG RESURFACED PAVEMENT.

FIELD OFFICE: THE CONTRACTOR SHALL PROVIDE A SUITABLE FIELD OFFICE HAVING A MINIMUM OF 150 SQ. FT. OF FLOOR SPACE AND IN ADDITION TO THE REQUIREMENTS OF ITEM 619, HE SHALL PROVIDE AND MAINTAIN SANITARY PROVISIONS, AS PER 107.06. ALL OF THE ABOVE IS INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 619, FIELD OFFICE.

REMOVAL OF EXISTING STRUCTURE: WHEN NO LONGER NEEDED TO MAINTAIN TRAFFIC, THE EXISTING SUPERSTRUCTURE SHALL BE REMOVED. SUITABLE WASTE MASONRY MAY BE PLACED AS BANK PROTECTION AS DIRECTED BY THE ENGINEER.

ITEM 516, 1/8" PREFORMED BEARING PADS, SHALL BE USED AS SHIMS IF NECESSARY TO ASSURE PROPER SEATING OF BEAMS ON 1" BEARING PADS.

UTILITY LINES: THE CONTRACTOR IS REQUIRED TO WORK AROUND EXISTING UTILITY LINES.

PRESTRESSED BEAMS

- DESIGN LOADING:
LIVE LOAD HS 20-44 WITH INTERSTATE ALTERNATE LOADING.
SUPERIMPOSED DEAD LOAD 225 LBS. PER LIN. FT.
- CONCRETE STRESSES:
MIN. CONCRETE STRENGTH AT 28 DAYS F'C = 5,500 P.S.I.
MIN. CONCRETE STRENGTH AT TIME OF INITIAL PRESTRESS F'CI = 4,000 P.S.I.
- PRESTRESSING STRANDS, 1/2" DIA, 270K SEVEN WIRE, UNCOATED.
STRESS - RELIEVED STRAND AS = 0.154 IN.
INITIAL TENSION - 28,900 LBS. PER STRAND.
- APPLICABLE PSBD-1-71 DETAILS.
SECTION SHOWING WALL THICKENING AT GUARD RAIL ANCHORS.
BEAM LIFTING INSERTS.
ANCHOR DOWELS

DETAILS OF TRANSVERSE TIE RODS.
NORMAL CROWN TREATMENT, JOINT OFFSET FROM CL ROADWAY
BEAM DIMENSIONAL TOLERANCES.
48" WIDE NON-COMPOSITE BEAMS, B21-48.
- BEAM SHOP DRAWINGS SHALL SHOW COMPLETE DETAILS OF REINFORCING STEEL.

WORK PLAN

- ERECT WING BARRICADES.
- BRACE ABUTMENT WALLS.
- CLOSE ROAD AND REMOVE SUPERSTRUCTURE, EXISTING BACKWALLS AS REQUIRED.
- FORM AND CAST NEW BEAM SEATS ON EXISTING ABUTMENTS AND PIERS.
- ERECT PRECAST CONCRETE BOX BEAMS.
- CAST BACKWALLS.
- BACKFILL BEHIND BACKWALLS AND WATERPROOF BEAMS.
- PAVE BRIDGE AND APPROACHES.
- INSTALL BRIDGE RAILING AND APPROACH GUARD RAIL.
- OPEN TO TRAFFIC.

ITEM SPECIAL Curing and sealing compound - Material shall be Mark 725, a two part epoxy compound system as manufactured by Poly-Carb Inc. Newbury, O. to be furnished and applied according to the manufacturer's recommendations as soon as practical after removing forms.

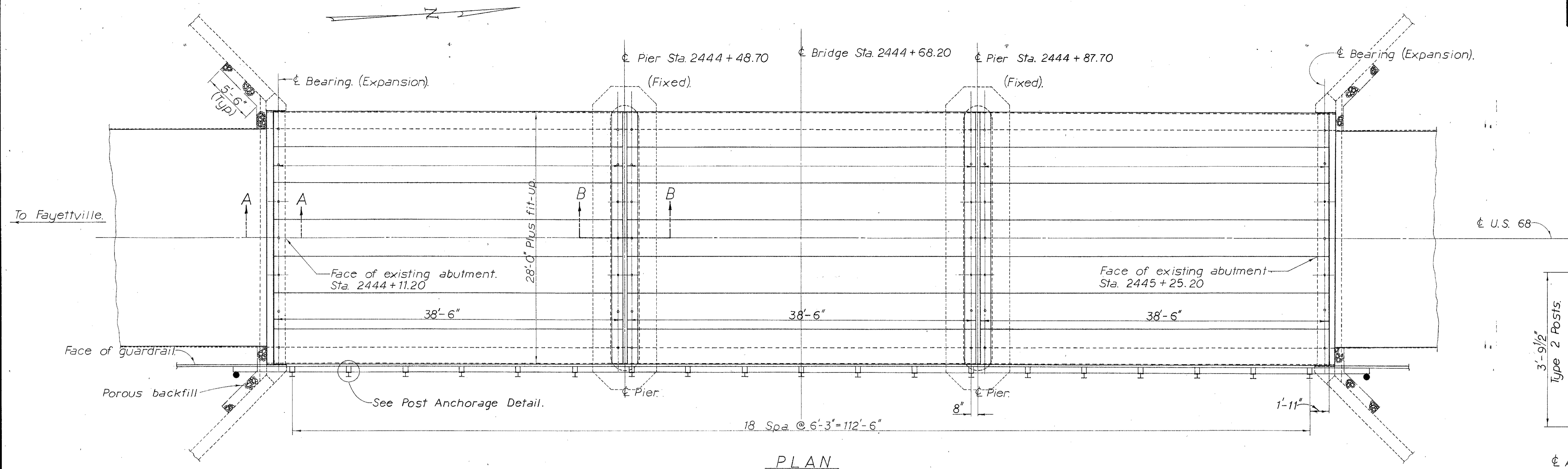
GENERAL SUMMARY			
ITEM	TOTAL	UNIT	DESCRIPTION
202		LUMP	PORTIONS OF STRUCTURE REMOVED
202	6	Sq. Yd.	PAVEMENT REMOVED
403	26	Cu. Yd.	ASPHALT CONCRETE, AC-20
404	15	Cu. Yd.	ASPHALT CONCRETE, AC-20
407	27	GAL.	TACK COAT, MS-2, PS-1, RC-250, SS-1 OR SS-1H
407	1	Ton	COVER AGGREGATE
503	7	Cu. Yd.	UNCLASSIFIED EXCAVATION
503		LUMP	COFFERDAMS, CRIBS AND SHEETING
509	953	LBS.	REINFORCING STEEL
510	116	EA.	DOWEL HOLES
511	16	Cu. Yd.	CLASS C CONCRETE, ABUTMENTS AND PIERS
511	5	Cu. Yd.	HIGH EARLY STRENGTH CONCRETE
512	20	Sq. Yd.	TYPE B WATERPROOFING
512	368	Sq. Yd.	TYPE D WATERPROOFING
515	21	EA.	PRESTRESSED CONCRETE BRIDGE MEMBERS (21"x48"x38'-6")
516	62	Lin. Ft.	JOINT SEALER, 705.02
516	176	Sq. Ft.	1" PREFORMED EXPANSION JOINT FILLER AASHO-M-153
516	84	EA.	1" THICK ELASTOMERIC BEARING PADS (1"x5"x18")
517	233.32	Lin. Ft.	RAILING (DEEP BEAM RAIL WITH TUBULAR BACK-UP STEEL POSTS AND BOLTS)
518	7	Cu. Yd.	POROUS BACKFILL
606	641.68	Lin. Ft.	GUARD RAIL, TYPE 5, AS PER PLAN
606	4	EA.	BRIDGE TERMINAL ASSEMBLY, TYPE B
606	4	EA.	ANCHOR ASSEMBLY
614		LUMP	MAINTAINING TRAFFIC
619		LUMP	FIELD OFFICE
623		LUMP	CONSTRUCTION LAYOUT STAKES
SPECIAL	201	Sq. Ft.	STEEL DRIP STRIP
617	3	Cu. Yd.	COMPACTED AGGREGATE
516	84	EA.	1/8" PREFORMED BEARING PADS, 711.21
SPECIAL	35	SQ. YDS.	CURING AND SEALING COMPOUND.

STATE OF OHIO		3/6	
DEPARTMENT OF TRANSPORTATION			
BUREAU OF BRIDGES AND STRUCTURAL DESIGN			
GENERAL NOTES, WORK PROCEDURE AND GENERAL SUMMARY			
BRIDGE NO. BRO-68-4629			
DESIGNED	DRAWN	TRACED	CHECKED
REVIEWED	DATE	REVISED	

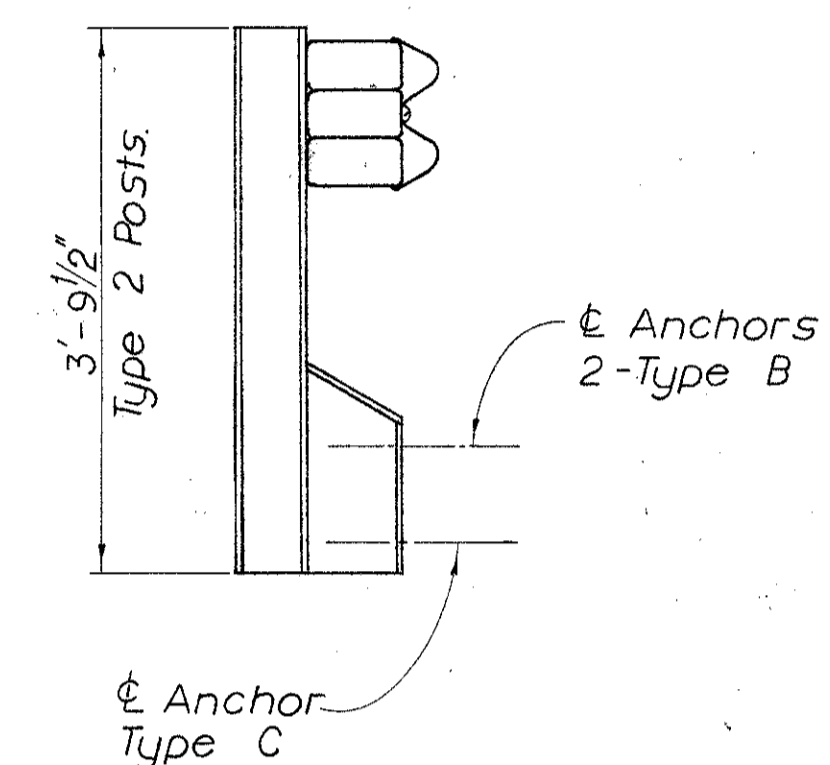
FHWA REGION	STATE	PROJECT	
5	OHIO		

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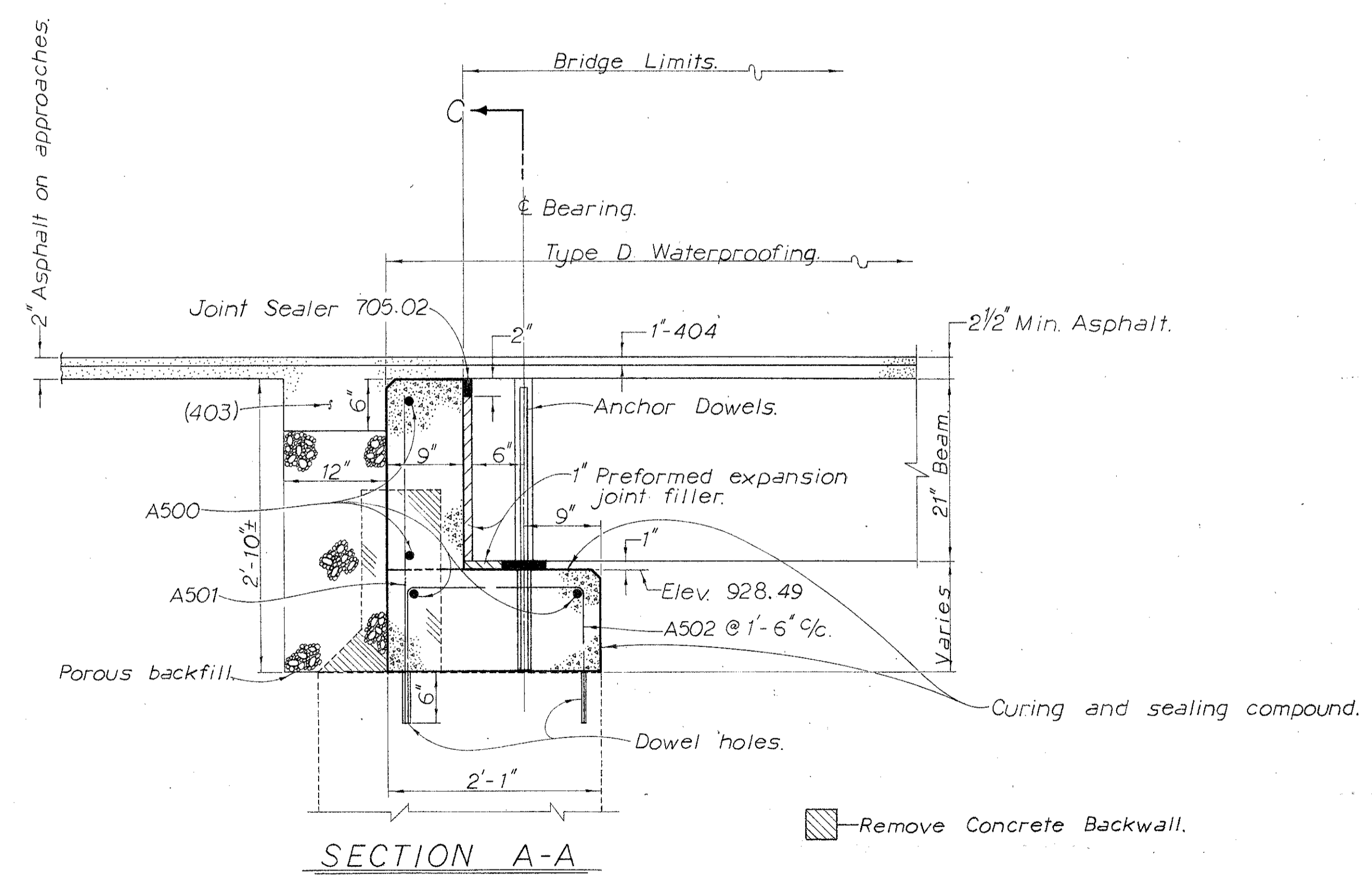
BRO-68-43.57



PLAN

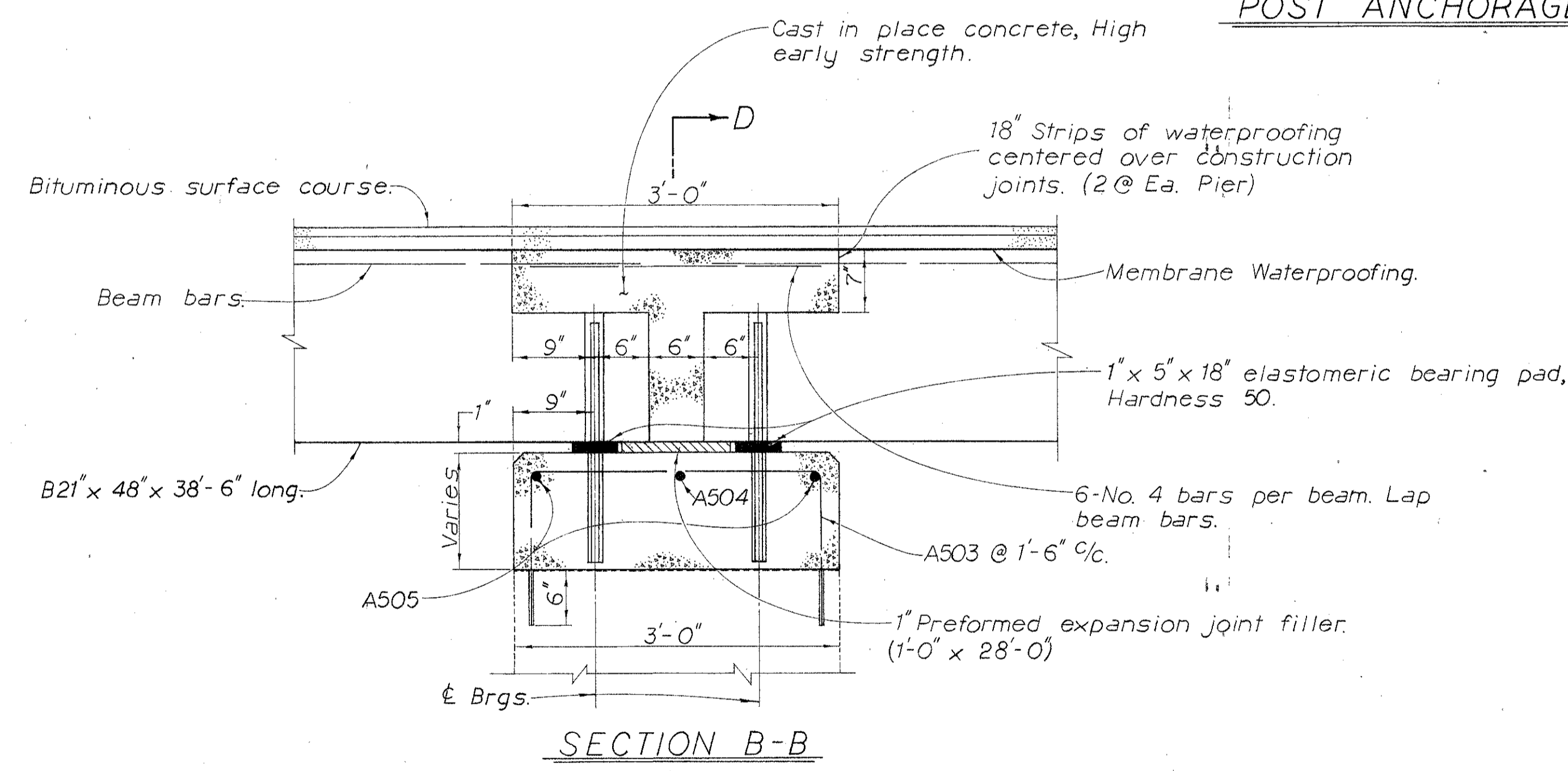


POST ANCHORAGE DETAIL



SECTION A-A

(See Sheet No. 5.)



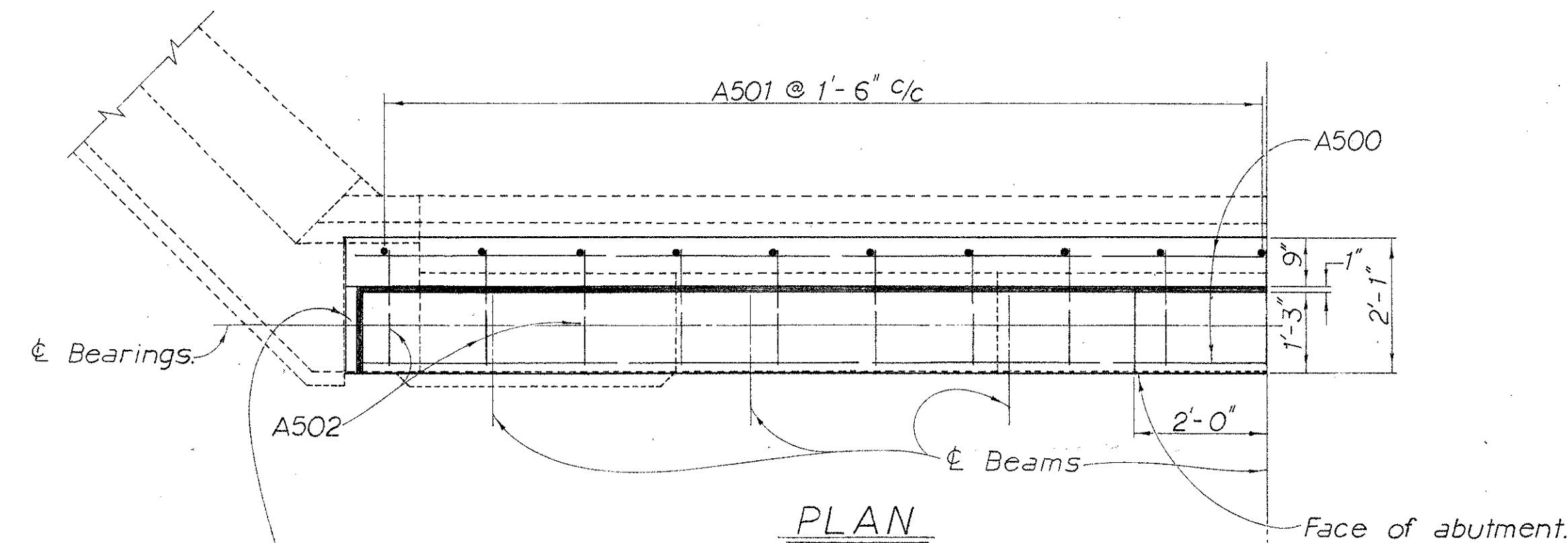
SECTION B-B

(See Sheet No. 5.)

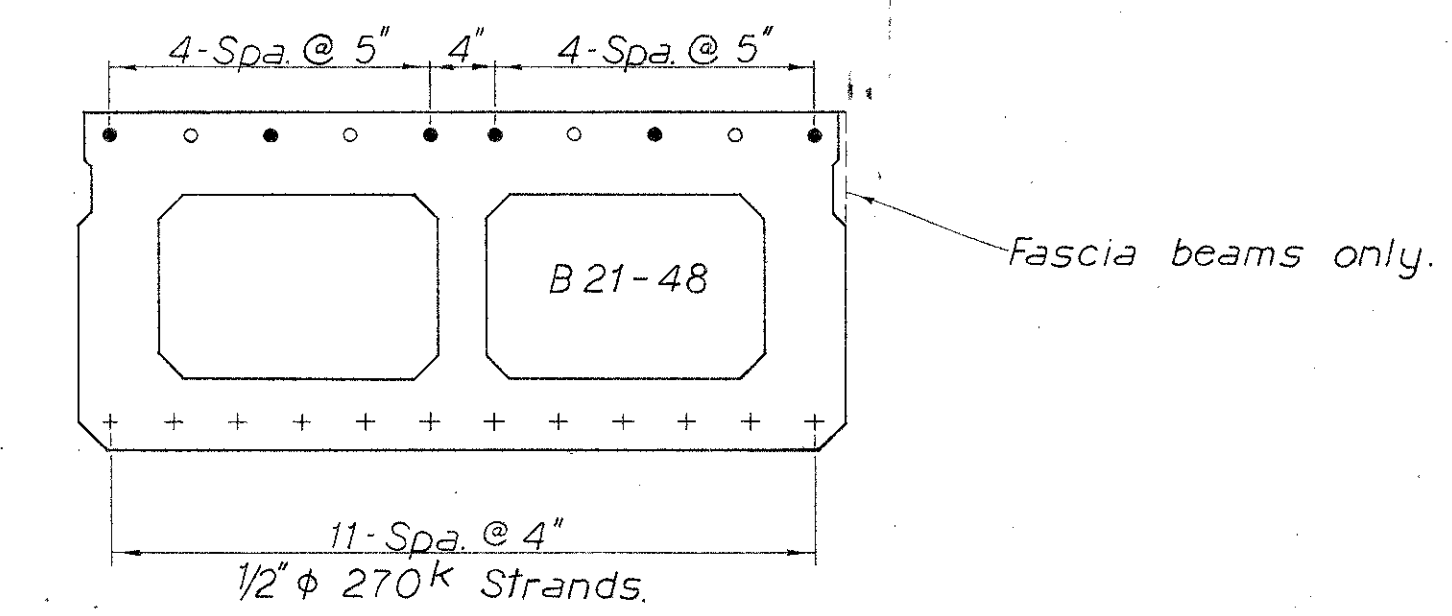
Note:
Anchor dowels and the No. 4 bars over the piers shall be included with the price of the beams.

STATE OF OHIO DEPARTMENT OF TRANSPORTATION DISTRICT 5 BRIDGES		4 / 6
ABUTMENT AND BEAM DETAILS		
BRIDGE NO. BRO-68-4629		
DESIGNED	DRAWN	TRACED
CHECKED	REVIEWED	DATE
REVISED		

- #4 Bars Full Length.
- #4 Bars 6'-0" Long Ea. End.



PLAN



Fascia beams only.

The fabricators shop drawings shall show complete details of reinforcing.

Reference shall be made to Standard Drawing PSBD-1-71.

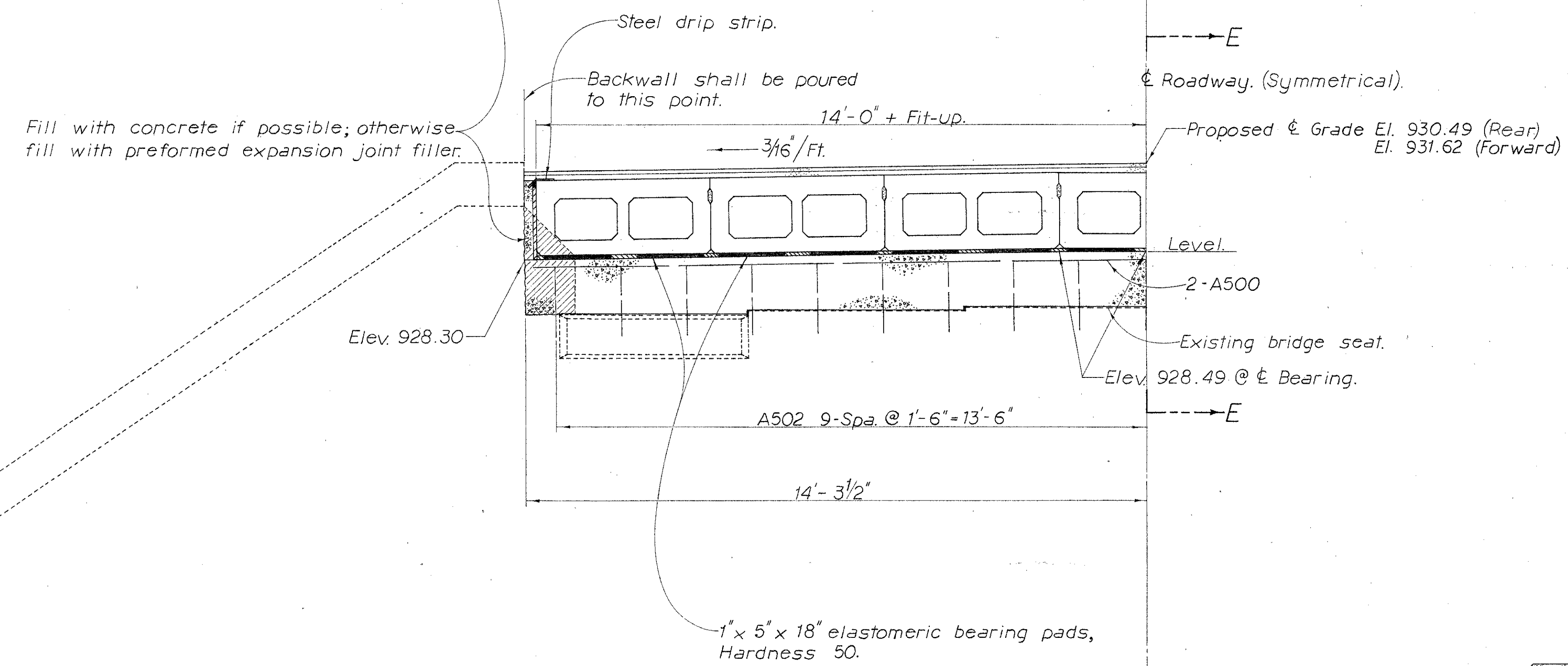
Calculated camber at time of paving, including allowance for camber growth due to creep, is 0.58" = 9/16" +

Calculated deflection due to weight of surface course and railing is 0.049"

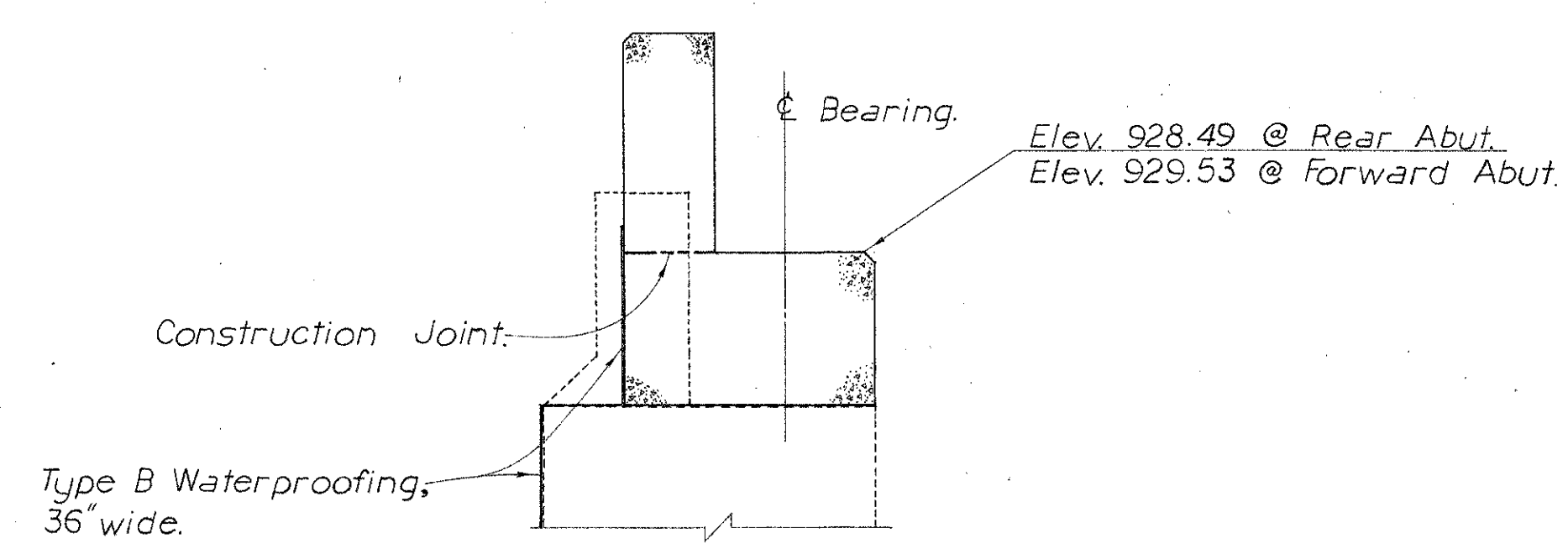
Net final camber of beams is 0.531". This is 0.531" in excess of the amount required to place the top of the beams parallel to profile grade. This excess amount shall be compensated for by thickening the 403 leveling course from 1 1/2" at center of span to 2 1/2" at ends of span.

Asphalt concrete surface course shall consist of a variable thickness of 403 and a 1" thickness of 404. The 403 shall be placed in two operations. The first course shall be of 1/2" uniform thickness. The second course shall be feathered to place the surface parallel to and 1" below final pavement surface elevation.

In lieu of texturing as provided in 451.09 the top surface of the prestressed concrete box beams shall be finished with a burlap drag or by other means, to provide a uniform surface with a gritty texture, suitable for waterproofing. The top edge of the fascia beams shall be finished smooth where the drip strip will be placed.



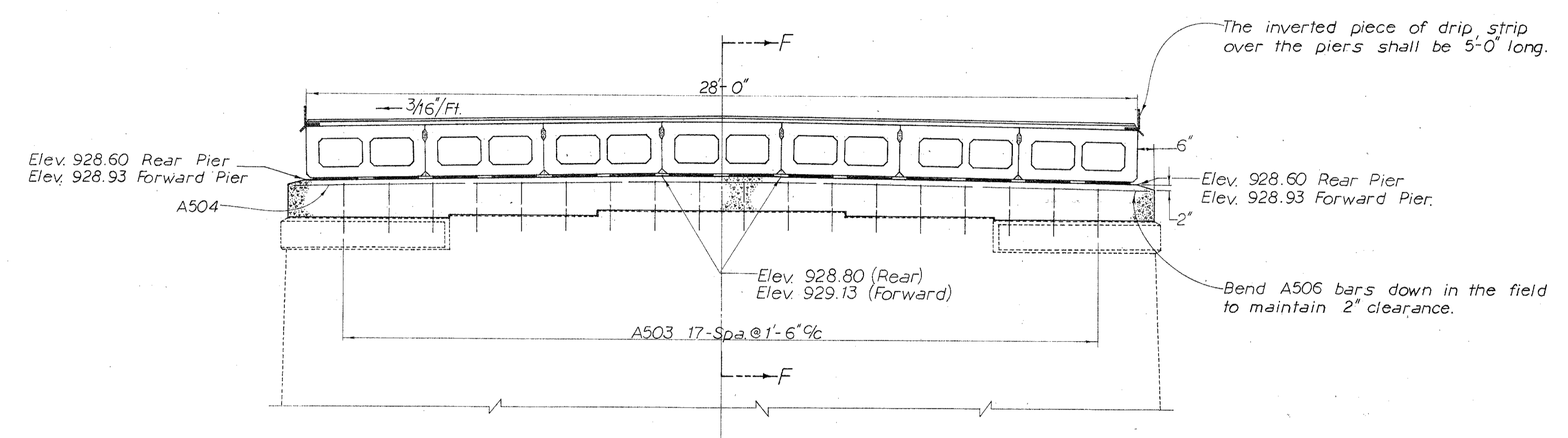
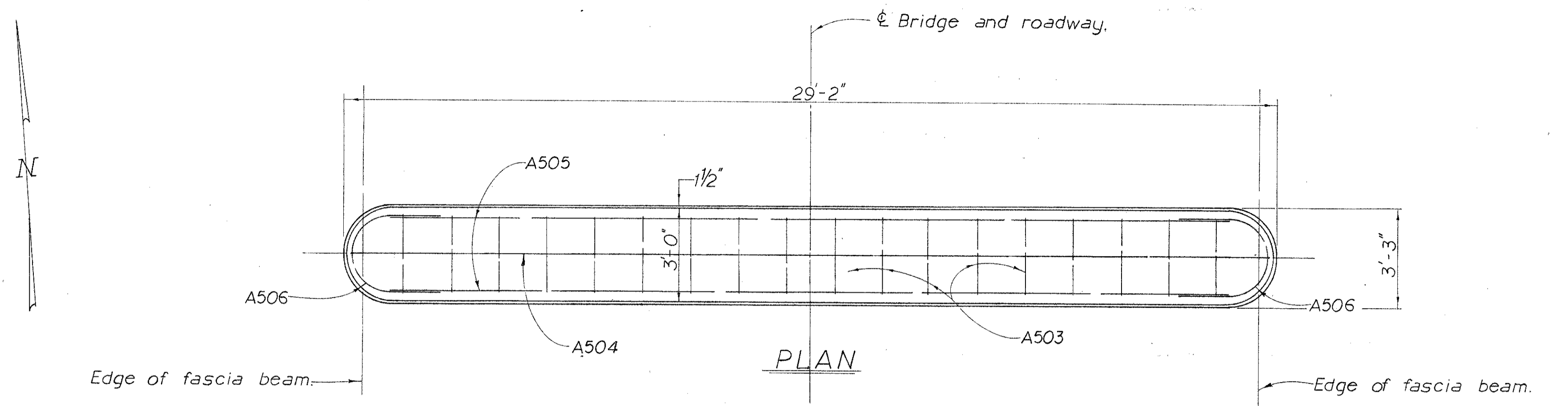
HALF SECTION C-C



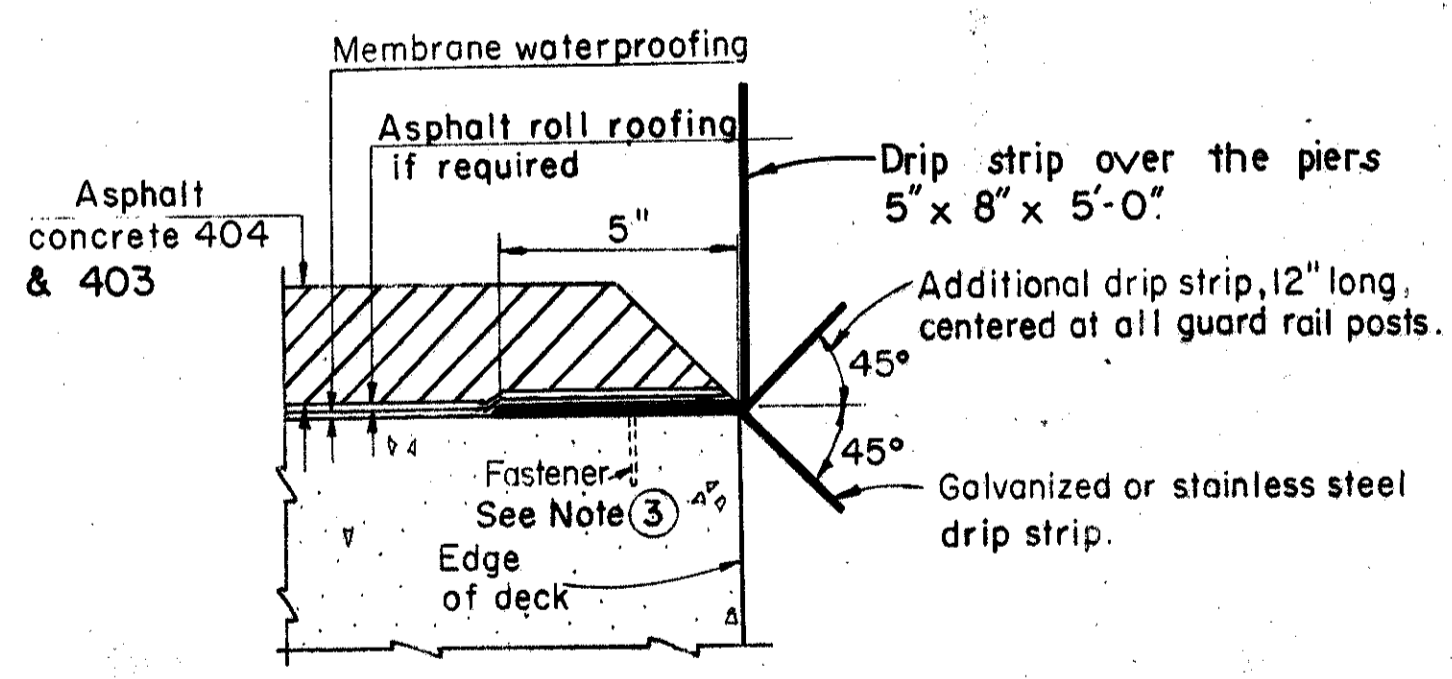
SECTION E-E

Remove.

STATE OF OHIO DEPARTMENT OF TRANSPORTATION DISTRICT 5 BRIDGES						5 / 6
ABUTMENT DETAILS						
BRIDGE NO. BRO-68-4629						
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
S.R.H.	S.R.H.	S.R.H.	H.S.	Jim Bantock	2-28-78	

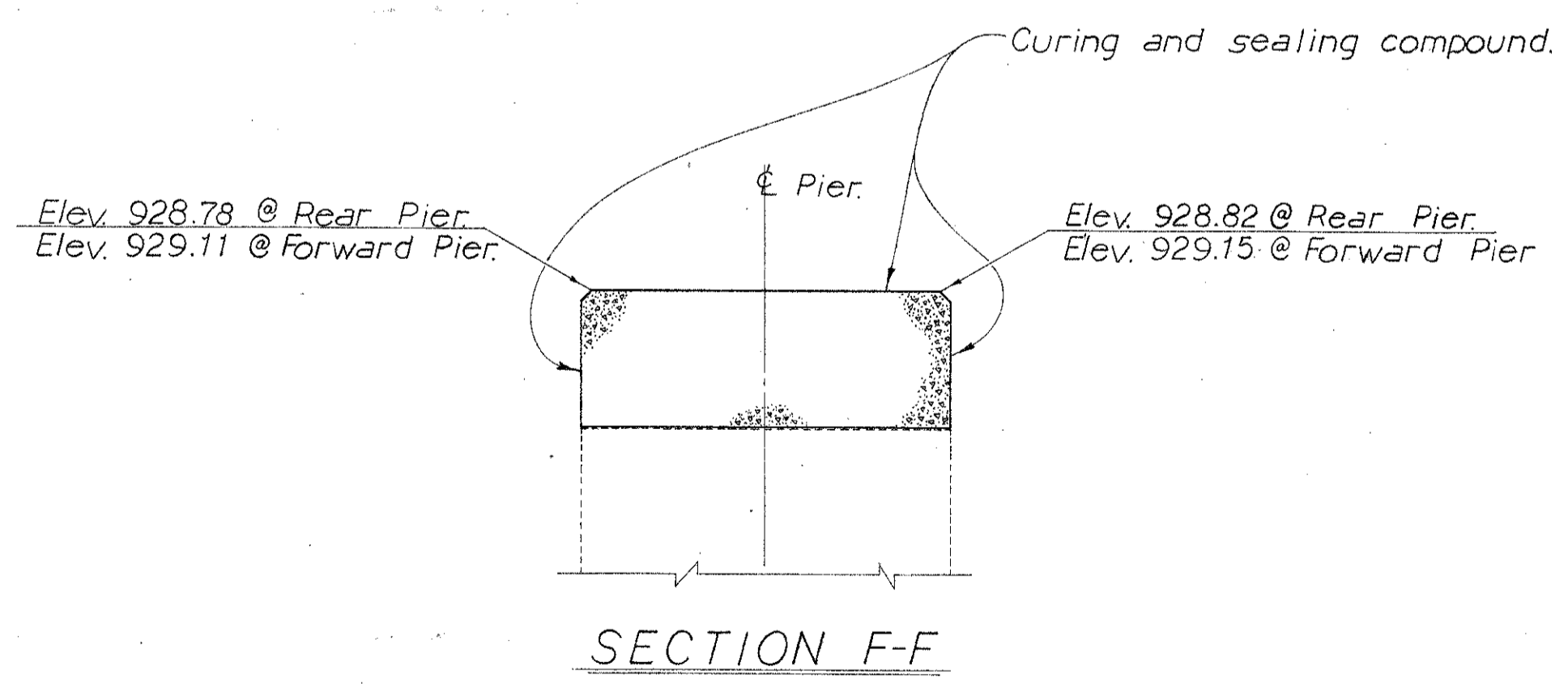


SECTION D-D
(TYPICAL PIER)



DRIP STRIP
BRIDGES WITHOUT CURBS

DRIP STRIP: Prior to applying deck membrane waterproofing, a bent drip strip shall be installed along the edges of the deck as shown. The strips shall be fastened at 1'-6" c/c maximum with power driven pins or #10 galvanized screws and expansion anchors, subject to the approval of the Engineer. The strips shall be placed the full length of the deck, ending at the face of abutment wingwall or steel end dam angle. Where splices are required a 3" (Min.) lap shall be used with a fastener through the lap. Steel for galvanized strips shall be 8"x0.105" and shall meet the requirements of ASTM A568. Galvanizing shall be in accordance with 711.02. Stainless steel shall be 20 gauge ASTM A167, Type 304. Payment shall be at the contract price bid for item Special Sq. Ft. Steel Drip Strip, which shall include all materials, labor, tools and incidentals necessary to complete item.



SECTION F-F

STEEL LIST					BENDING DIAGRAMS	
MARK	NO.	LENGTH	WEIGHT	SHAPE		
A500	8	28'-3"	236	S	[Bending diagram for A500: 1'-9 1/2" x 1'-4"]	
A501	38	3'-2"	126	S	[Bending diagram for A501: 2'-8" x 1'-8"]	
A502	38	4'-5"	176	B	[Bending diagram for A502: 2'-10 3/8" x 1'-7" with 1'-3 3/8" R.]	
A503	36	6'-0"	226	B	[Bending diagram for A503: 2'-6 3/4" x 1'-7"]	
A504	2	28'-7"	60	S		
A505	4	26'-3"	110	S		
A506	4	4'-5 3/8"	19	B		

Refer to CMS sections 106.03, 709.01 through 709.05 and 709.08. Sufficient additional reinforcing steel shall be provided for sampling. Random samples shall be replaced in the structure by the additional steel spliced in accordance with 509.08.

BRO-68-43.57

STATE OF OHIO DEPARTMENT OF TRANSPORTATION DISTRICT 9 BRIDGES		6/6
PIER DETAILS AND STEEL LIST		
BRIDGE NO BRO-68-4629		
DESIGNED	DRAWN	TRACED
CHECKED	REVIEWED	DATE
REVISED		