

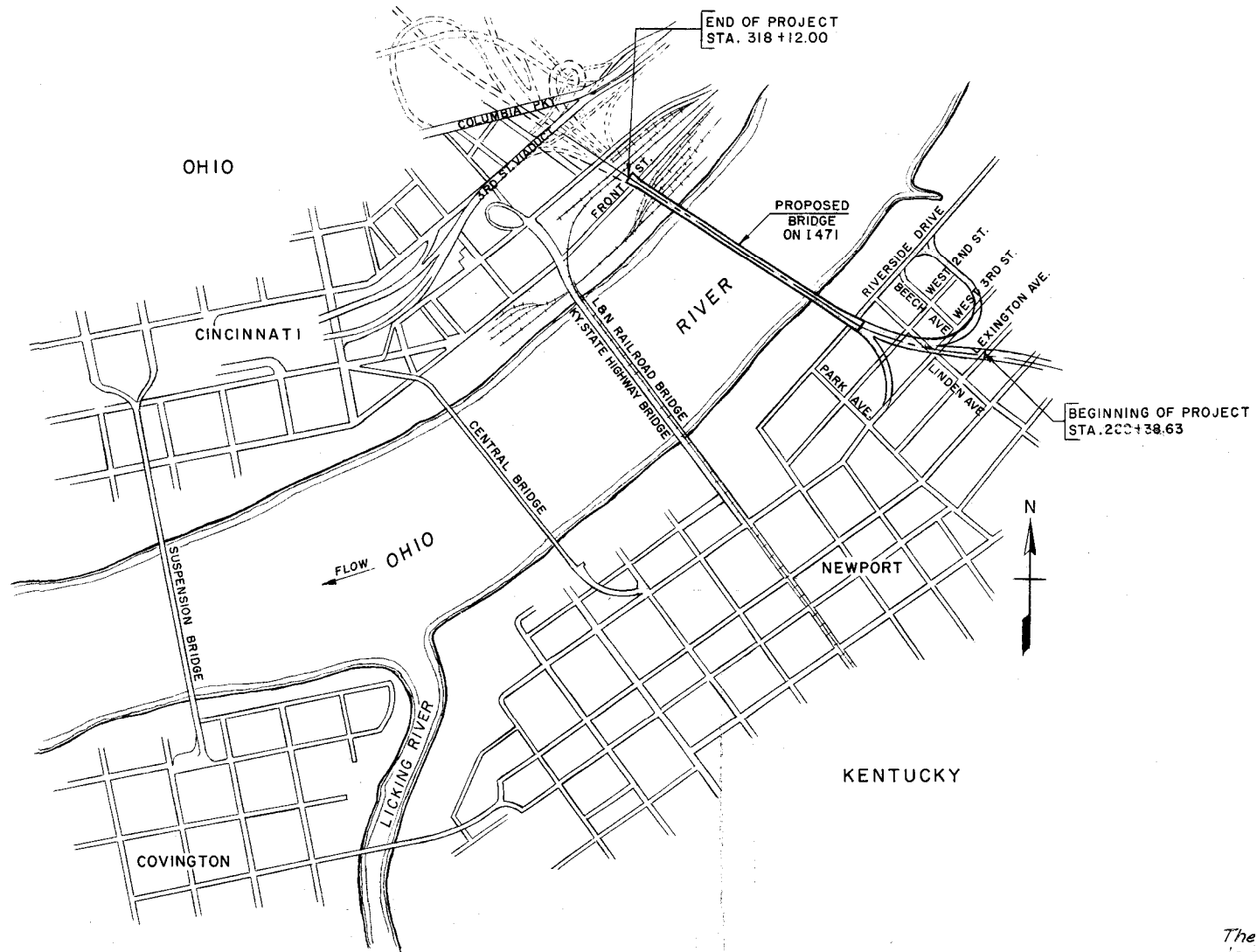
MICR FILMED-71

FED. ROAD DIST.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	KY. & OHIO	I 471-4(7)4		1	

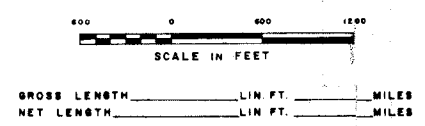
SHEET NO.	TITLE
1	INDEX AND TITLE SHEET
2	GENERAL NOTES
3	GENERAL NOTES AND QUANTITIES
4	PLAN AND PROFILE
5	SUPERELEVATION AND CROWN DETAILS
6-8	LOG OF BORINGS
9	HYDROGRAPH
10	GENERAL PLAN-SPANS 1 THRU 7
11	GENERAL PLAN-SPANS 8 THRU 11
12-14	SPANS 6 & 7 - STRUCTURAL STEEL
15	SPANS 6 & 7 - BEARING DETAILS
16	PIER 8 PLATFORM DETAILS
17	MODULAR EXPANSION JOINT AT PIER 6
18	MODULAR EXPANSION JOINT AT PIER 8
19	MODULAR EXPANSION JOINT AT PIER 9
20	PARAPET EXPANSION DETAILS
21	SPANS 6 & 7 - SLAB SECTIONS
22	SPANS 6 & 7 - SLAB PLAN
23	SPAN 6 - CONSTRUCTION ELEVATIONS
24	SPAN 7 - CONSTRUCTION ELEVATIONS
25	SPANS 6 & 7 - DRAINAGE DETAILS
26	SPAN 8 - LAYOUT
27	SPAN 8 - TYPICAL CROSS SECTIONS
28	SPAN 8 - MEMBER SECTIONS & GEOMETRY
29	SPAN 8 - STRESS SHEET
30	SPAN 8 - LOAD SHEET
31	SPAN 8 - FRAMING PLAN
32-35	SPAN 8 - ARCH RIB DETAILS
36-39	SPAN 8 - RIB BRACING DETAILS
40-41	SPAN 8 - TIE DETAILS
42	SPAN 8 - HANGER DETAILS
43-44	SPAN 8 - FLOORBEAM DETAILS
45	SPAN 8 - STRINGER DETAILS
46	SPAN 8 - STRINGER & DIAPHRAGM DETAILS
47	SPAN 8 - TELEPHONE CONDUIT DIAPHRAGM DETAILS
48	SPAN 8 - STRINGER EXP. JOINTS & MISC.
49-50	SPAN 8 - INSPECTION WALKS
51	SPAN 8 - PLATFORMS AND LADDERS
52	SPAN 8 - BEARING DETAILS AT PIER 8
53	SPAN 8 - BEARING DETAILS AT PIER 9
54-57	SPAN 8 - SLAB DETAILS
58	SPAN 8 - SLAB REINFORCEMENT & QUANTITIES
59	SPAN 8 - DRAINAGE DETAILS
60-65	SPAN 8 - CONSTRUCTION ELEVATIONS
66	TRIANGULATION NETWORK
67	CONSTRUCTION PERMIT INFORMATION
68	SIGN SUPPORTS
69-72	STANDARD OVERHEAD SIGN SUPPORTS

COMMONWEALTH OF KENTUCKY
STATE OF OHIO
STATE HIGHWAY DEPARTMENTS

**PLAN AND PROFILE OF PROPOSED
STATE HIGHWAY**
CAMPBELL COUNTY
PROJECT I 471-4 (7) 4
CONTRACT B



LAYOUT MAP



RECOMMENDED FOR APPROVAL
HAZELET AND ERDAL
CONSULTING ENGINEERS

By Lewis H. Hazeltine
DATE June 30, 1971

APPROVED BY KENTUCKY DEPARTMENT OF HIGHWAYS

By Charles S. Cook DATE 7/7/71
DIRECTOR OF BRIDGES

By J. P. Harrison DATE 7/7/71
STATE HIGHWAY ENGINEER

APPROVED BY OHIO DEPARTMENT OF HIGHWAYS

By [Signature] DATE 7-1-71
DEPUTY DIRECTOR, DIVISION OF DESIGN AND CONSTRUCTION

By [Signature] DATE 7/13/71
DIRECTOR OF HIGHWAYS

The Plans for this Project include drawings 18484, 18485 and 18486 and the three sets of drawings shall be worked together.

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED
DIVISION ENGINEER DATE

DESIGN SPECIFICATIONS: Standard Specifications for Highway Bridges, Tenth Edition, adopted by the American Association of State Highway Officials, 1969, and the Geometric Design Standards for the National System of Interstate and Defense Highways, adopted by the American Association of State Highway Officials July 12, 1956, Revised October 20, 1963, May 15, 1965 and September 15, 1966, as modified by the Design Specifications for this project.

DEAD LOAD: Actual weight plus 20 Lbs per sq. ft. on full width of roadways for future wearing surface. The slab is designed with 1-inch thick monolithic wearing surface. The notation dead load shall include future wearing surface (FWS) unless noted.

LIVE LOAD: Class HS20-44 or alternate loading of two 24,000 lb axles spaced four feet apart, whichever produces the greater stress in the member under consideration.

WIND LOAD: Design wind velocity = 82 m.p.h. (50 lbs per sq. ft.)

PERMISSIBLE UNIT STRESSES: (In lbs. per sq. in.)

Concrete Class AA:
 $f'_c = 4,000$ psi
 $f_c = 1,200$ psi
 $f_s = 20,000$ psi
 $u = 200$ psi for embedment
 $u = 300$ psi for Σ
 $n = 8$

A36 Steel:

Thickness: Up to 8" incl.
Tension** LL 20,000
DL 22,000

Compression: See Design Specifications as modified.
Bearing** (Milled Parts) LL 29,000
DL 32,000

Shear on Fasteners: 13,500 psi for friction type connections (A325 High Strength Bolts)

A588 Steel:

Thickness: 4" And Under	Over 4" to 5" Incl.	Over 5" to 8" Incl.
Tension: ** LL 27,000	25,000	23,000
DL 30,000	27,800	25,500

Compression: See Design Specifications as modified.
Bearing: ** LL 40,000 37,000 34,000
(Milled Parts) DL 44,400 41,000 37,800

Shear on Fasteners: 13,500 psi for friction type connections (A325 High Strength Bolts)

A441 Steel:

Thickness: $\frac{3}{4}$ " And Under	Over $\frac{3}{4}$ " to 1 $\frac{1}{2}$ " Incl.	Over 1 $\frac{1}{2}$ " to 4" Incl.
Tension: ** LL 27,000	25,000	23,000
DL 30,000	27,800	25,500

Compression: See Design Specifications as modified.
Bearing: ** LL 40,000 37,000 34,000
(Milled Parts) DL 44,400 41,000 37,800

Shear on Fasteners: 13,500 psi for friction type connections (A325 High Strength Bolts)

** For members to which the live load is applied directly, the permissible stresses for live load shall be used for dead load also. (See modification to Standard Specifications.)

Class A Bridge Strand: Minimum Breaking Strength:

2 $\frac{1}{2}$ " Diameter	452 Tons
2 $\frac{3}{4}$ " Diameter	494 Tons
3" Diameter	538 Tons

CONSTRUCTION SPECIFICATIONS: Kentucky Department of Highways Standard Specifications for Road and Bridge Construction, current edition, with revisions, Special Notes, and Special Provisions shall apply to this project.

EXISTING CONDITIONS: Piers 6, 7, 8 & 9 for this structure have been or are being constructed under separate contract. The Superstructure Contractor shall arrange his work to match the existing locations (both dimensions and elevations) of the substructure. Any discrepancies between the substructure in place and these Plans shall be called to the attention of the Engineer before proceeding.

ELEVATION DATUM: Mean Sea Level, United States Coast and Geodetic Survey, 1929 General Adjustment.

CONCRETE: Concrete in superstructure, including parapets, shall be Class AA.

SLAB FORMS: Stay-in-Place forms will not be permitted for the concrete bridge floors.

BEVELED EDGES: All exposed edges shall be beveled $\frac{3}{8}$ " unless otherwise shown.

REINFORCEMENT: Dimensions shown from face of concrete to bars are to center of bars unless noted as clear distance. Spacing of bars is from center to center of bars.

STRUCTURAL STEEL: All shop and field connections shall be high strength (H.S.) bolts (ASTM A325) unless noted otherwise on the Plans. Holes shall be $\frac{1}{16}$ " larger than nominal diameter of the bolts unless noted. The size of the bolts shall be as noted on the Plans. All steel shall be the type designated on the Plans. The bolts in the connection shall be placed with the heads on the outside of the member or gusset plate.

PAYMENT FOR STRUCTURAL STEEL: The Lump Sum bid for structural steel shall be full payment for all structural steel, bolts, washers, deck drains, steel pins, cast iron, lead plates, molten lead, inspection walk, welding & welding materials, shop detail drawings, paint, and all labor and materials necessary to erect the steel in accordance with the Plans and Specifications. The approximate weight of structural steel shown in the Estimate of Quantities does not include overrun or weld material.

DIMENSIONS: Dimensions shown on the Plans are for a normal temp. of 60°F with dead load without FWS on the structure. Tapes used by the contractor, including the structural steel fabricator and erector, shall have been calibrated correctly with the U.S. Bureau of Standards to insure correct fit of the steelwork.

WELDING NOTES: All groove welds are to be full penetration welds unless otherwise noted. All welds shall be made with an approved automatic process where practicable. The butt and fillet welds of the girders of Spans 6 & 7 shall be inspected in accordance with the AWS Specifications and the Special Notes. See Sheet No. 3 for special welding notes for Span 8.

FILLET WELDS: Sizes not shown shall be the minimum fillet weld size as determined by AWS D2.0-69 Article 224 (b) except that the minimum size shall be $\frac{1}{4}$ ".

WELD DETAILS: The butt weld symbols indicate only the general type of weld desired. The fabricator shall submit to the Engineer for approval the proposed weld geometry of the welds to be used in fabrication.

PROHIBITED FIELD WELDING: Except as shown on the Plans, no welding of any nature shall be performed on the load carrying members of the bridge without written consent of the Director, Division of Bridges, or his authorized representative, and then only in the manner and at the locations designated in the authorization.

CAMBER: Arch ribs and girders shall be cut to provide camber for full dead load excluding future wearing surface. Floorbeams are to be cambered for full dead load without future wearing surface. Provide for possible warpage of girders due to extra heat in top flange by virtue of shear connectors. Girders which do not conform to plan camber and grade in the erected position shall be considered as requiring, at no additional cost to the State, either an adjustment in depth of the concrete slab haunch over the steel supporting members, or a reworking of the girder camber to meet the plan grade and slab thickness. However, in no case shall the shear connectors be allowed to penetrate the slab less than two inches.

PAINTING STRUCTURAL STEEL: All structural steel shall be cleaned and painted in accordance with Special Provision No. 80 for Blast Cleaning and Painting of Structural Steel, current edition, and as indicated for Span 8.

ERECTION: Erection shall conform with the Standard Specifications and the Special Notes.

MATERIAL: All material shall conform to the ASTM Specifications designated in the Standard Specifications, Special Notes, and/or on the drawings.

GALVANIZING: All galvanizing shall be done in accordance with Article 643.19.3 of the Specifications.

MEMBRANE CURING COMPOUND: White pigmented curing compound shall be applied to the bridge deck in accordance with the Special Provision, except that the membrane compound used shall have a resinous base.

STYRENE-BUTADIENE PROTECTIVE COATING: Styrene-Butadiene Protective Coating shall be applied to the inside face of the parapets, and to the top horizontal surface of the parapets in accordance with the Special Provision.

LINSEED OIL PROTECTIVE COATING: Linseed Oil Protective Coating shall be applied in accordance with the Special Provision, except that it shall only be applied to the bridge deck between the gutter lines and shall not be applied until after the styrene-butadiene protective coating has been applied to the parapets.

CONSTRUCTION IDENTIFICATION: The names of the prime contractor and the sub-contractor shall be imprinted in the concrete with one inch letters at a location designated by the Engineer. The contractor shall furnish all plans, equipment and labor necessary to do the work, for which no direct payment will be made.

PAYMENT FOR SHEAR CONNECTORS: The "Lump Sum Bid" for shear connectors shall be full payment for all shear connectors, welding and welding material, and materials necessary to field weld or shop weld the shear connectors in place according to the plans and specifications.

OPTIONAL TYPES OF SHEAR CONNECTORS:

(a) The contractor shall use one of the following options throughout this structure.

Option 1 - $\frac{3}{4}$ " x 5" studs
Option 2 - 5" channel @ 6.7 #

(b) If the contractor wishes to use other than $\frac{3}{4}$ " x 5" stud shear connectors shown on the plans, the proposed arrangement shall be submitted for approval with the shop plans.

STUD WELDING: Studs shall be welded with approved welding equipment.

CONSTRUCTION IDENTIFICATION SIGNS: Two (2) construction identification signs will be required on this project, placed where and as directed by the Engineer.

DRAIN PIPE NOTES: The Drain Pipe shall be 6" standard weight in accordance with Article 411.3.5 of the Specifications. The pipe, fittings, bracket, and connections shall be included in the unit price per linear foot of 6" Drain Pipe complete in place. Pipe and brackets shall be painted in accordance with the Special Provision No. 80, current edition.

SHEET 2

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

PROJECT 1471-4 ()
BRIDGE OVER OHIO RIVER ON 1471
CAMPBELL COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

HAZELET & ERDAL
Consulting Engineers
File No. 889

BRIDGE
NUMBER

DRAWING NO.
18485

INDEX

GENERAL NOTES

SPAN 8 SPECIAL WELDING NOTES: The welding of the arch ribs, ties, floorbeams, bracing, etc. of Span 8 shall be inspected as noted below and/or as noted on the Plans.

All butt welds marked RT are to be radiographically inspected where possible and those that cannot be radiographically inspected are to be ultrasonically inspected subject to the approval of the Engineer.

All butt welds marked RTA are subject to radiographic inspection in accordance with the inspection requirements for Spans 6 & 7.

All butt welds marked MT are to be magnetic particle or ultrasonically inspected.

All fillet welds marked MT are to be magnetic particle inspected. All other fillet welds shall be subject to inspection in accordance with the inspection requirements for Spans 6 & 7.

Butt welds marked PP are partial penetration welds.

SPAN 8 SPECIAL PAINT NOTES: The painting of the structural steel for Span 8 shall be as noted in previous note and as noted below.

The inside of all arch tie box sections sealed by welding shall receive one shop coat primer.

The inside of the entire arch rib, end of tie sections at field connections, and inside areas of tie sections at each floorbeam connection shall be given three shop coats of primer and one field coat of non-leafing aluminum paint. The paint shall not be applied to contact surfaces of the bolted field connections. These connections shall be given three field coats of primer and one field coat of non-leafing aluminum paint.

The following refers to the cleaning and application of shop paint on the insides of the arch rib sections only and all other cleaning and painting shall be performed in accordance with the original specification.

Mechanical brush cleaning may be permitted in lieu of blast cleaning as specified in Special Provision 80, current edition.

BILLS OF INCIDENTAL MATERIAL: The quantities shown in the Bills of Incident Material are approximate only, and the Contractor is responsible for furnishing enough material to complete the work in accordance with Plans and Specifications. The cost of these items is to be included in the price bid for the indicated Bid Item.

BILL OF INCIDENTAL MATERIAL			
ITEM	PCS.	DESCRIPTION	LOCATION
Preformed Joint Seal.	8	2 1/2" x 2 3/4" x 54'3	Steel Strg. Exp. Jts. - Span 8
	16	2 1/2" x 2 3/4" x 2'10	Parpet Openings at Strg. Exp. Jts. - Span 8
(Included in the unit price for Concrete, class "AA")			

SPAN 8 BRIDGE STRAND PAINT NOTE:

The individual wires comprising the strand are to receive a zinc coating as detailed in the Special Notes and this zinc coating is intended to serve as the shop coat of primer normally required for structural steel.

No blast cleaning of the zinc coated surfaces will be permitted.

After strands are erected in the ultimate location in the structure, field painting will be required with the zinc coated surfaces prepared for painting as required by Section III A-4 of Special Provision No. 80-A, "Painting of Galvanized Surfaces." Following the sequence of preparation, the strands shall receive one field coat of primer paint, one field coat of non-leafing aluminum paint, and one field coat of leafing aluminum paint which shall complete the painting of the strands. All paint and painting will be in compliance with requirements of Special Provision No. 80-A.

ESTIMATE OF QUANTITIES

ITEM	UNIT	SPANS 6 & 7	SPAN 8 (KENTUCKY)	SPAN 8 (OHIO)	TOTAL
Concrete, Class "AA"	Cu. Yds.	2,090.3	2,470.8	262	4,823.1
Steel Reinforcement	Lbs.	497,590	655,744	69,600	1,222,934
Structural Steel - Spans 6 & 7	Lump Sum	L.S.	—	—	L.S. ①
Structural Steel - Span 8	Lump Sum	—	L.S.	L.S.	L.S. ①
Shear Connectors ⑪	Lump Sum	L.S.	—	—	L.S.
6" & Drain Pipe	Lin. Ft.	336	814	86	1,236
Modular Expansion Joint At Pier 6	Lump Sum	L.S.	—	—	L.S.
Modular Expansion Joint At Pier 8	Lump Sum	—	L.S.	—	L.S.
Modular Expansion Joint At Pier 9	Lump Sum	—	—	L.S.	L.S.
Protective Coating "A" ②	Gal.	46	60	8	114
Protective Coating "B" ③	Sq. Yds.	6,150	7,824	830	14,804
Telephone Conduit ⑨ ⑩	—	—	—	—	—
Lighting (Roadway and Navigation) ⑭	④	—	—	—	—
Overhead Sign Supports ⑫	Lump Sum	—	—	—	—

① The Bid Items "Structural Steel - Spans 6 & 7" and "Structural Steel - Span 8" includes the approximate estimated weights (in pounds) shown in the following table.

② Styrene-Butadiene Protective Coating.

③ Linseed Oil Protective Coating.

④ For breakdown of Lighting Bid Items and Quantities, see Drwg. 18484, sheet 67

⑪ The Bid Item "Shear Connectors" includes approx. 6112 lb. Stud Shear Connectors.

⑫ Non-Participation Item (Indicates non-participation of Federal Funds.)

⑬ These Items for entire bridge shown on Drawing No. 18484

ESTIMATED STRUCTURAL STEEL ⑧

TYPE STEEL	SPANS 6 & 7	SPAN 8 (KENTUCKY)	SPAN 8 (OHIO)	TOTAL
A588	1,660,640	3,725,950	394,540	5,781,130
A441	—	2,697,160	286,280	2,983,440
A36 ⑤	1,851,540	3,163,400	333,540	5,348,480
Bridge Strand ⑥	—	235,560	25,020	260,580
Bridge Shoes ⑦	52,030	143,740	15,260	211,030
Drain Castings	13,280	34,520	3,660	51,460
Bearing Bars & Pin Blocks ⑬	—	8,750	3,160	11,910
Total	3,577,490	10,009,080	1,061,460	14,648,030

⑤ Includes grating and H.S. bolts.

⑥ Includes sockets and pins.

⑦ Contains various types of steel.

⑧ These weights do not include any allowance for overrun for plates wider than 36 inches.

A588 steel may be used wherever A441 steel is called for in these plans.

A441 steel may be substituted for A588 plates 3/4" or less in thickness.

The non-participating weight of structural steel included in Telephone Conduit is shown on sheet 3 of Drawing 18484.

⑫ Sign Support bridges may be of the following optional types:

1. Aluminum, see Sheets 69 & 70

2. Galvanized Steel, see Sheets 71 & 72

⑬ Bearing Bars, greater than 4" thick only, see Note E, sheet 35 for optional type of steel.

REFERENCES

Note: The Standard Drawings listed below are the Current Edition and are to be used with these Plans.

AE2D Standard Armored Edge for Joints in Concrete.

G353F Preformed Joint Seal Details for Concrete Bridge Floors.

AW5-3 Modifications and Additions to AWS D2.0-69 Specifications.

SPECIAL PROVISIONS

No. 6-B For Staking.

No. 7-A For Construction Identification Signs on Federal-Aid Highway Projects.

No. 8-A For Linseed Oil Protective Coating.

No. 15 Relating to Bid Proposal Guaranty and Contract Bonds.

No. 30-B Membrane Curing of Concrete Structures.

No. 35-B For Class "AA" Concrete.

No. 37-B For Preformed Compression Joint Seals.

No. 46-C Water Pollution Controls.

No. 77-B For Styrene-Butadiene Protective Coating.

No. 79 Concrete Bridge Deck Finishing Machine.

No. 80-B Blast Cleaning and Painting Structural Steel (Alkyd System).

No. 82-A Roadway Lighting Systems.

No. 86-A For Set-Retarding Admixtures for Concrete.

No. 83 Partial Payment.

No. 90-A Contract Time

Plus: Special Notes for Bridge Construction
Special Notes for Bridge Deck Construction.

PR1273 (Rev. 10-69) Required Contract Provisions.

Chronological Listing of Revisions to the 1965 Edition of the Standard Specifications.

SHEET 3

**KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS**

PROJECT 1471-4 ()
BRIDGE OVER OHIO RIVER ON 1471

CAMPBELL COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

HAZELET & ERDAL
Consulting Engineers
File No. 889

BRIDGE
NUMBER

DRAWING NO.

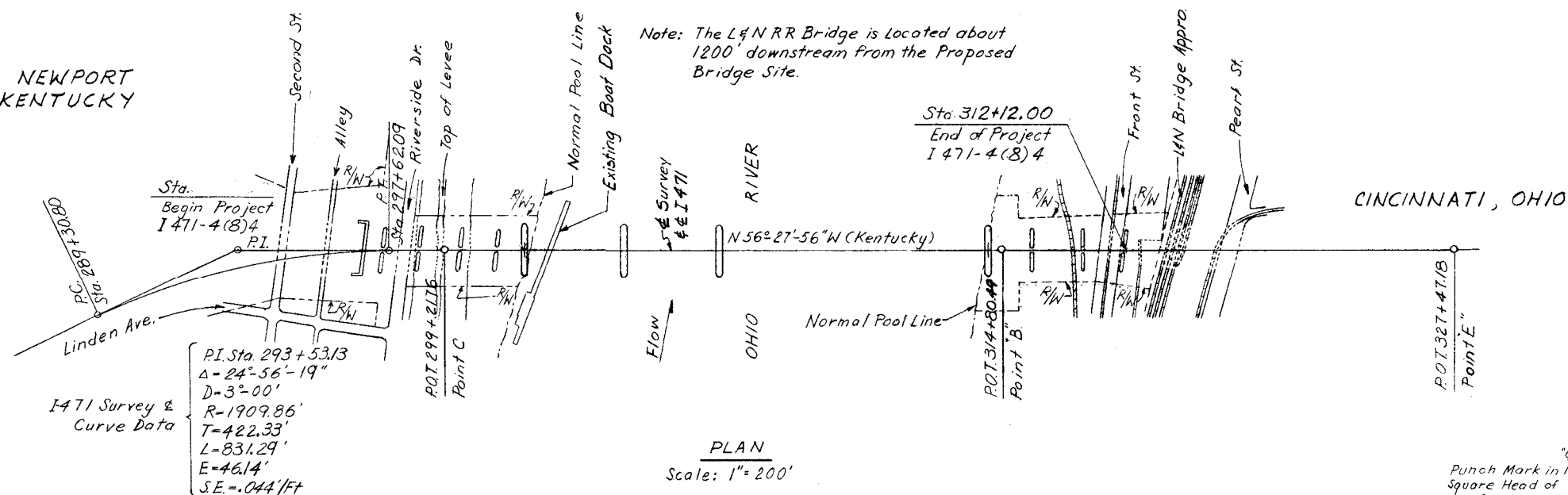
INDEX

15435

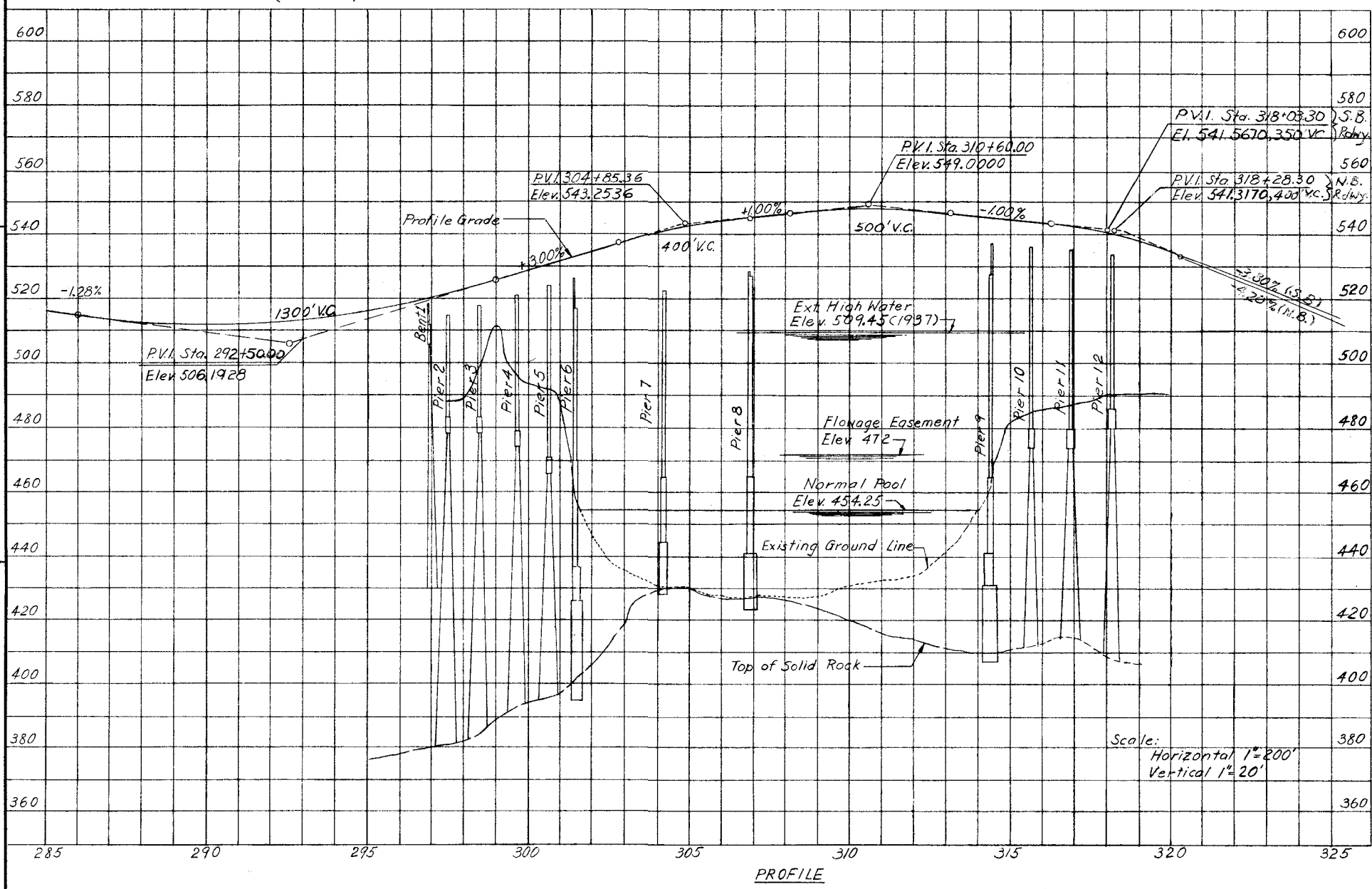
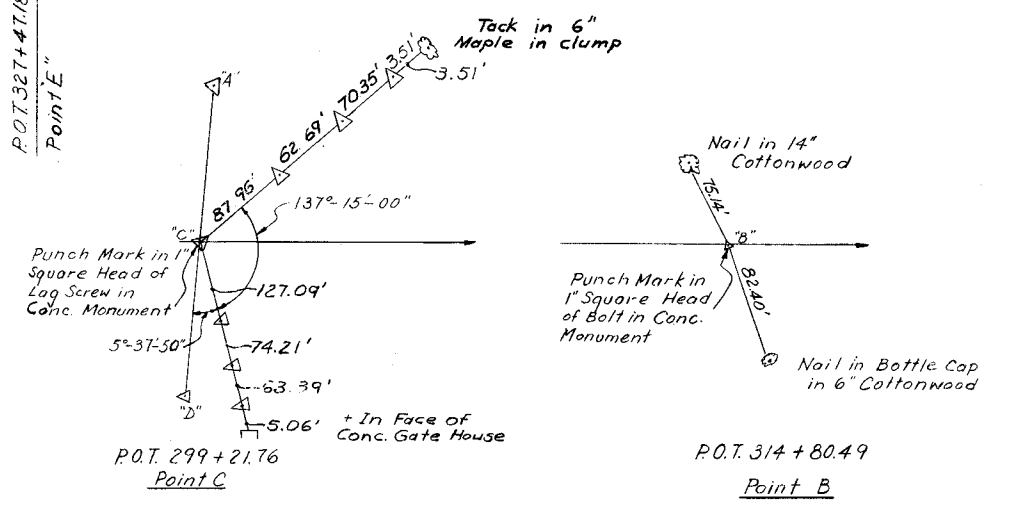
**GENERAL NOTES
AND QUANTITIES**

FED. ROAD DIST.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
7	KY.	I 471-4(8)4			

NEWPORT KENTUCKY



Note:
 Survey # I 471 bearing
 $N 56^\circ 27' 56'' N$ (Kentucky) equals
 bearing $N 55^\circ 19' 56'' N$ (Ohio).



PLAN & PROFILE

SHEET 4

**KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS**

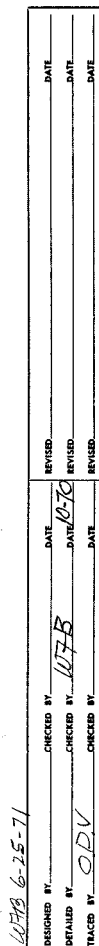
PROJECT I 471-4 ()
 BRIDGE OVER OHIO RIVER ON I 471
 CAMPBELL COUNTY, KENTUCKY
 HAMILTON COUNTY, OHIO

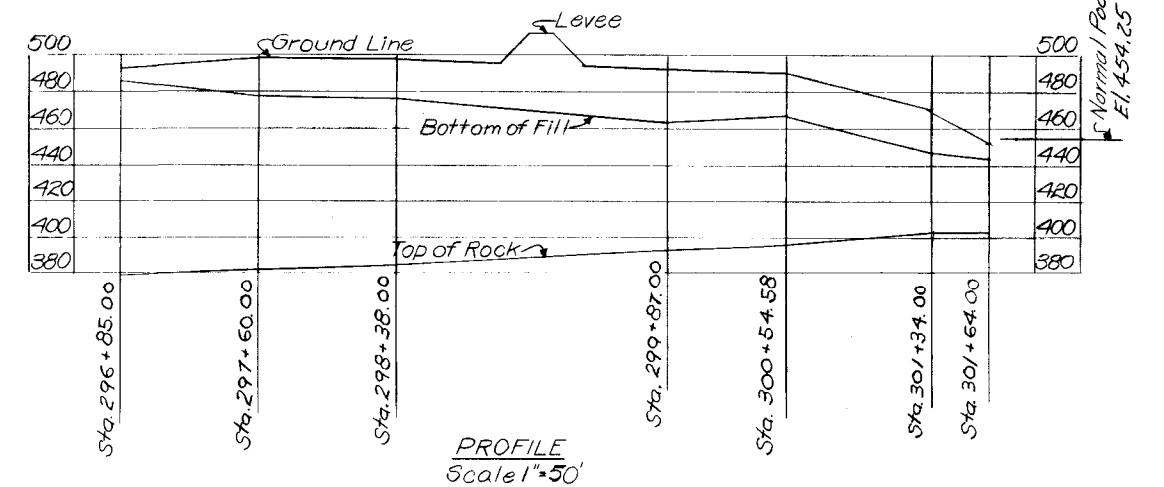
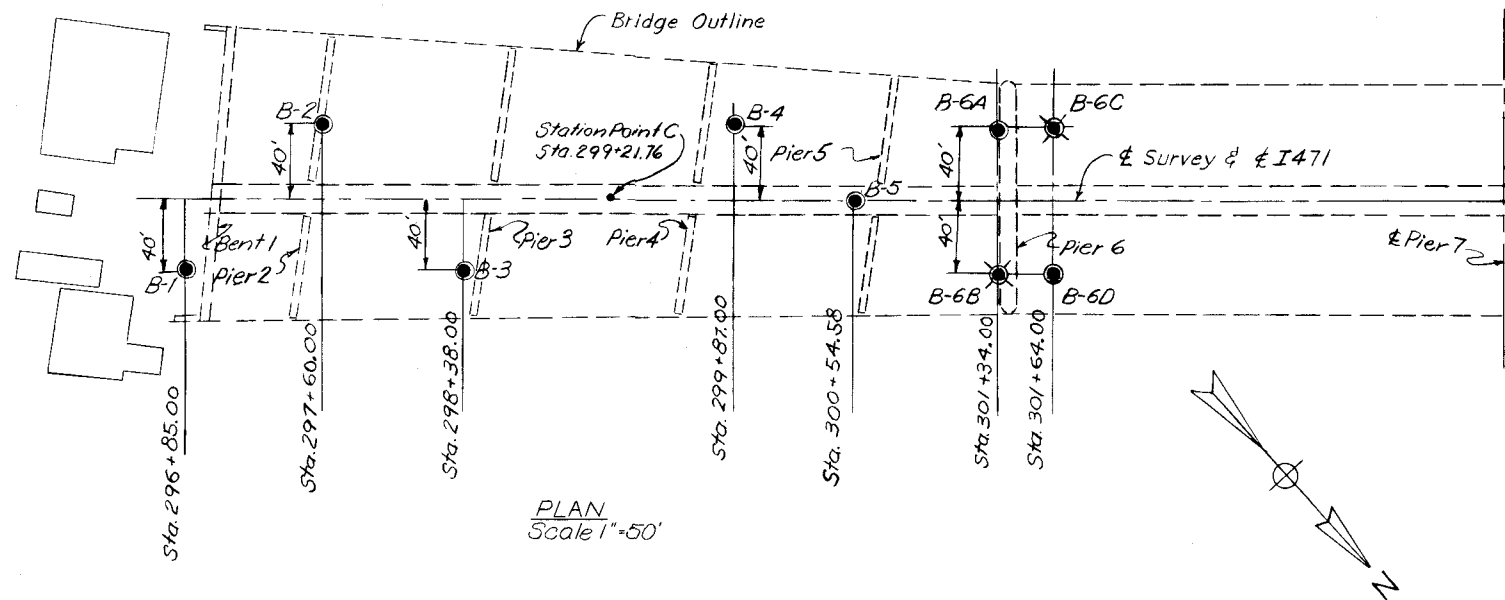
HAZELET & ERDAL Consulting Engineers File No. 889	BRIDGE NUMBER	DRAWING NO. 18485	INDEX
---	---------------	----------------------	-------

11/10 6-25-71

DESIGNED BY	DATE	REVISION	DATE
BY			
CHECKED BY	DATE	REVISION	DATE
BY			
TRACED BY	DATE	REVISION	DATE
BY			

Plan view of the proposed interchange showing the layout of the Southbound and Northbound Roadways, Ramps B and A, and the Kentucky P/G. The diagram includes stationing information: STA. 296 + 75.00 Thru STA. 297 + 62.09 (P.T.). Key dimensions include 54.50' for the main roadway width, 6.50' for the ramp width, and 30.00' for the main roadway width. Slopes are indicated as .006% and .044%.



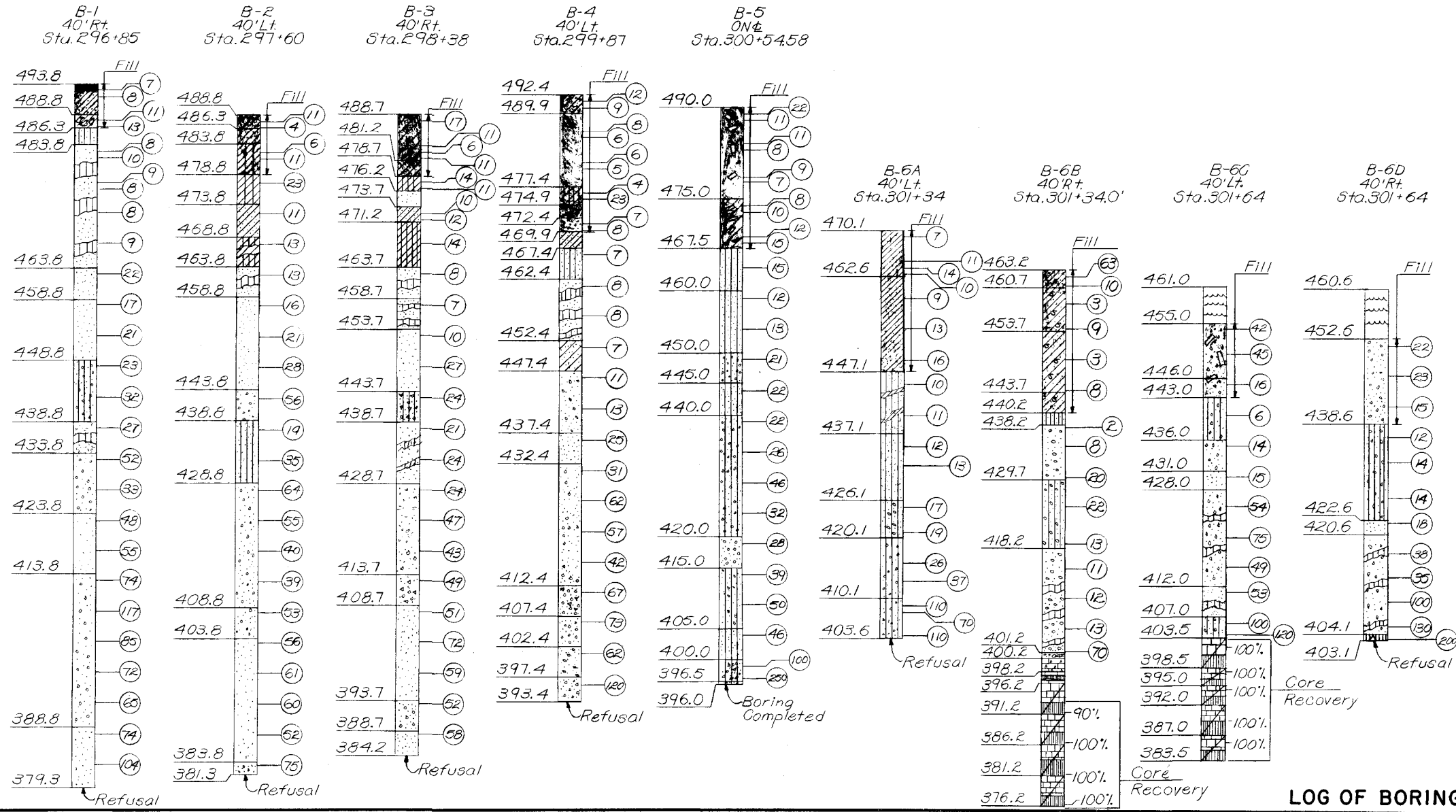
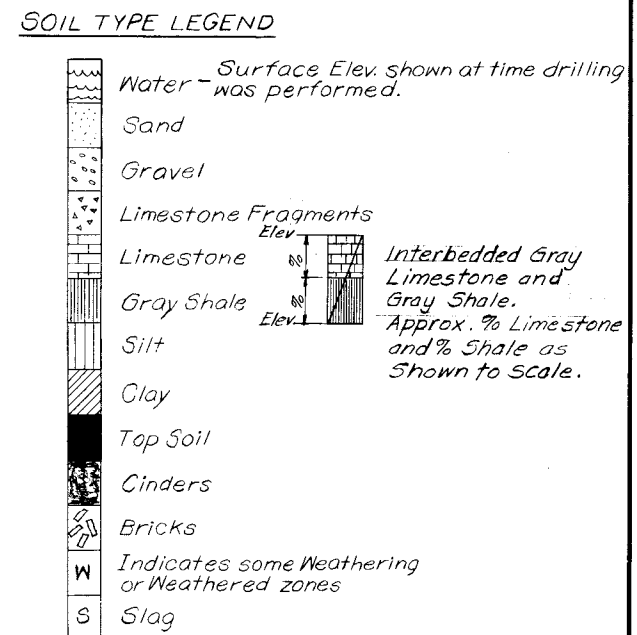


NOTES:

Number in Circle indicates number of blows of 140 lb. hammer dropped 30 inches required to drive a 2 inch split-spoon sampler 1.0 Ft. (unless otherwise indicated) after first seating the split-spoon sampler by driving it 6 inches.

Percentage numbers indicate % core recovery.

● = Borings to rock
⊙ = Borings drilled 20' into rock



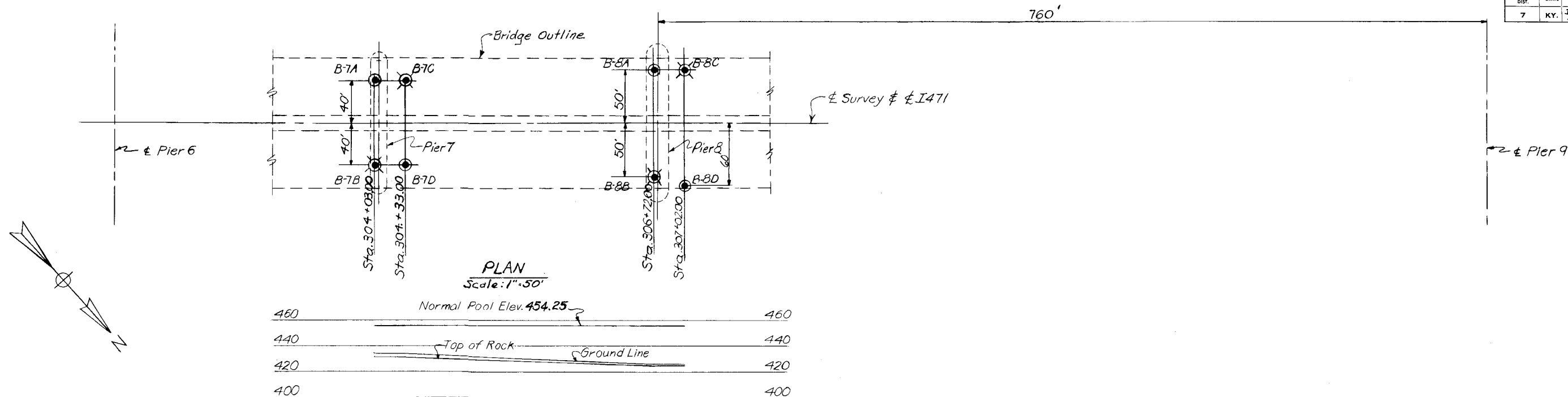
SHEET 6

**KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS**

PROJECT 1471-4 ()
BRIDGE OVER OHIO RIVER ON I 471
CAMPBELL COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

HAZELT & ERDAL Consulting Engineers File No. 889	BRIDGE NUMBER	DRAWING NO. 18485	INDEX
--	------------------	----------------------	-------

DESIGNED BY: HWT
CHECKED BY: M.K.
DATE: 6-25-71



NOTES:

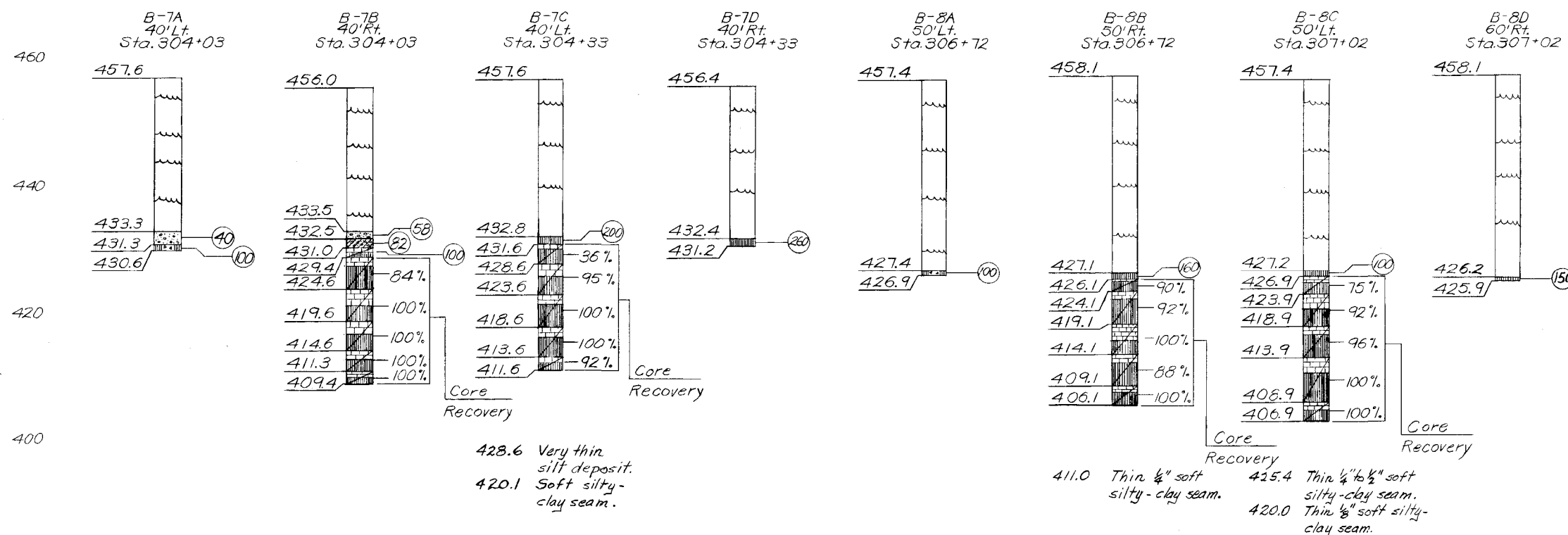
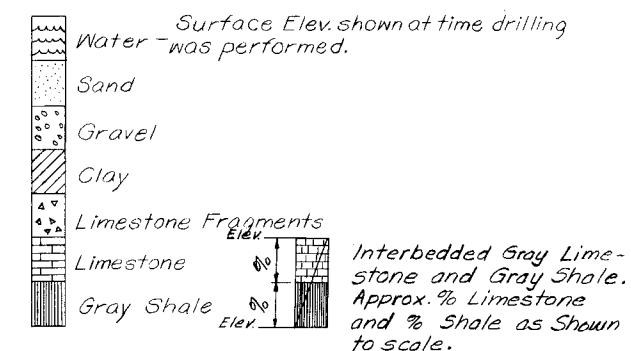
Number in circle indicates number of blows of 140 Lb. hammer dropped 30 inches required to drive a 2 inch split-spoon sampler 1.0 ft. (unless otherwise indicated) after first seating the split-spoon sampler by driving it 6 inches.

Percentage number indicates % core recovery.

● = Borings to rock

⊙ = Borings drilled 20' into rock

SOIL TYPE LEGEND



LOG OF BORINGS

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

PROJECT 1471-4 ()
BRIDGE OVER OHIO RIVER ON I 471
CAMPBELL COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

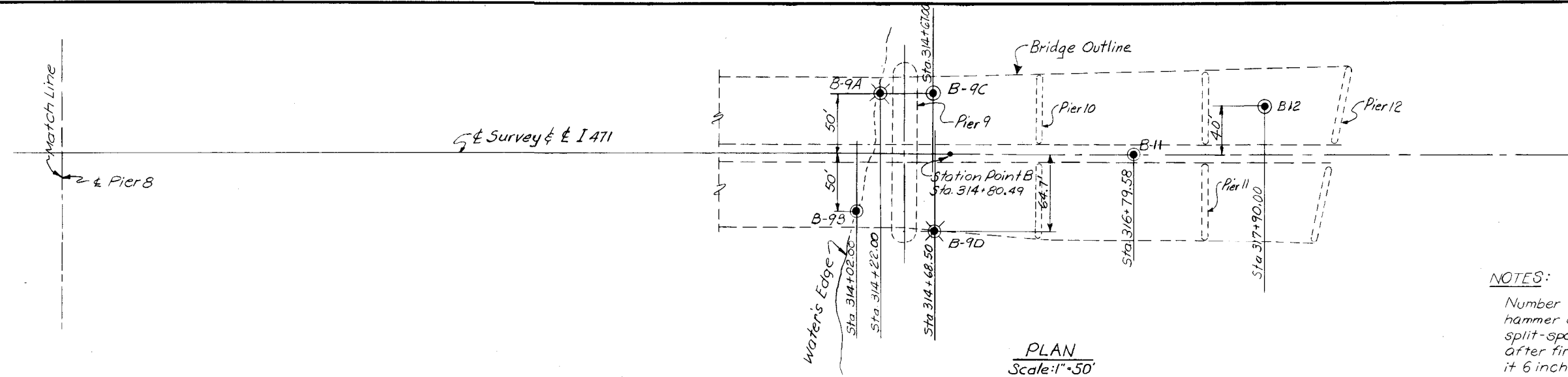
HAZELET & ERDAL
Consulting Engineers
File No. 889

BRIDGE
NUMBER

DRAWING NO.
18485

INDEX

DESIGNED BY
CHECKED BY
DATE
4/67
DATE
10-70
DATE
10-70



NOTES:

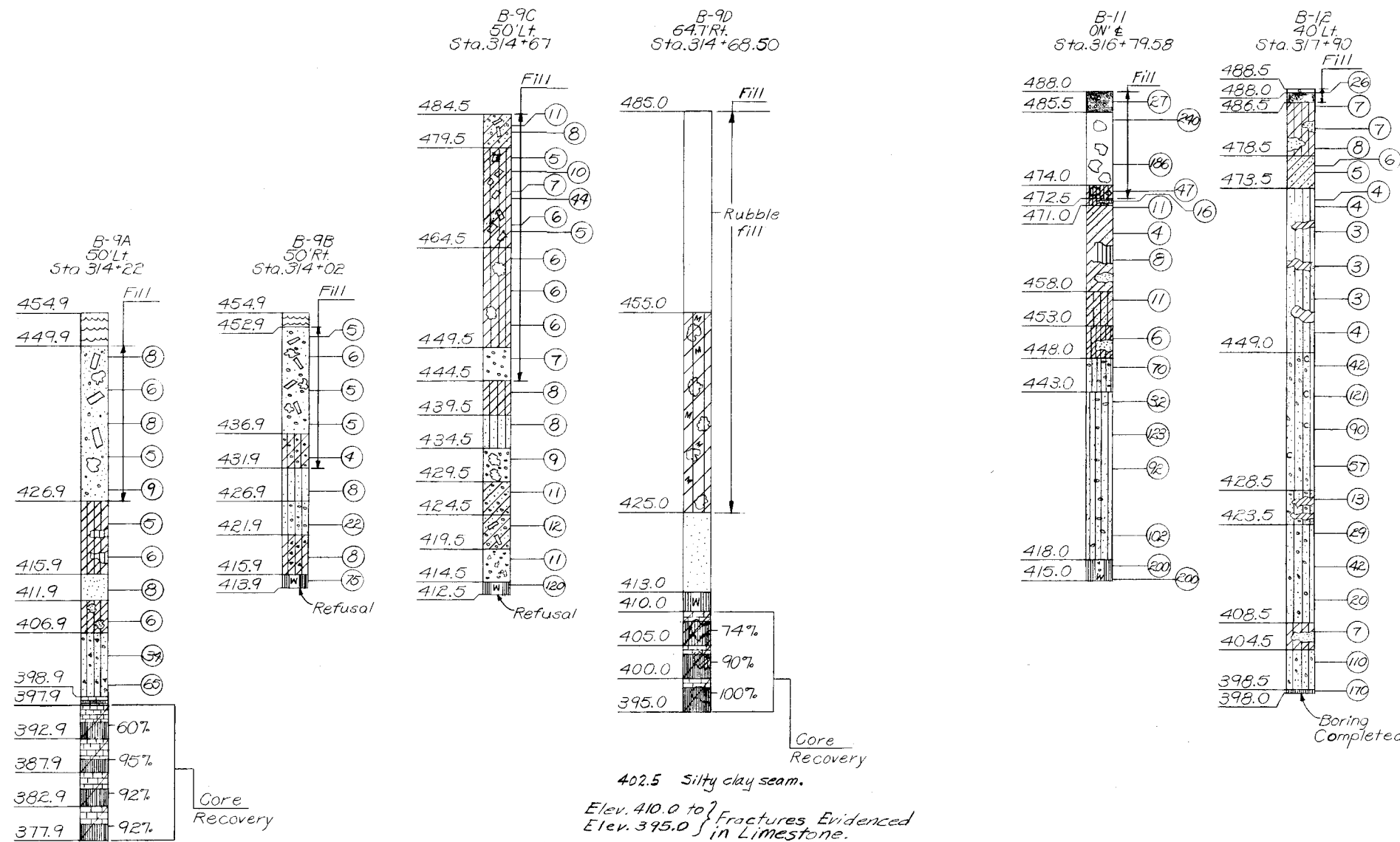
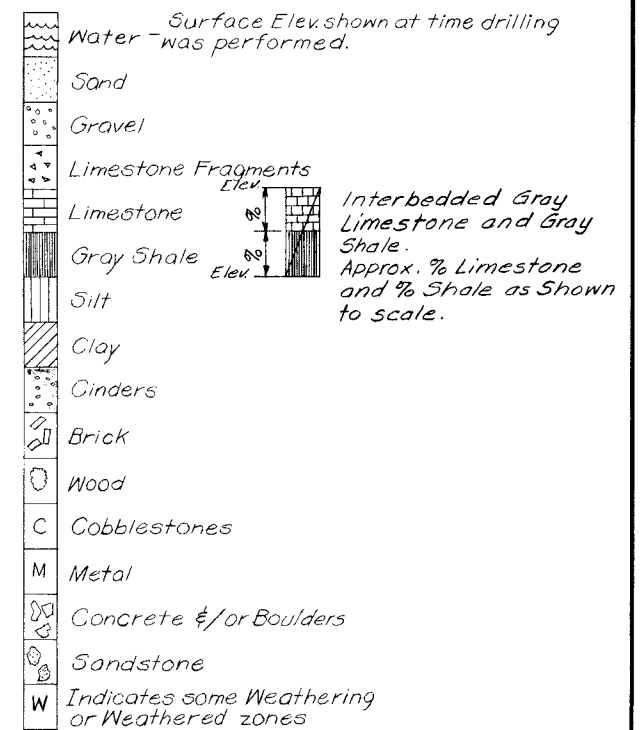
Number in circle indicates number of blows of 140 Lb. hammer dropped 30 inches required to drive a 2 inch split-spoon sampler 1.0 ft. (unless otherwise indicated) after first seating the split-spoon sampler by driving it 6 inches.

Percentage number indicates % core recovery.

● = Borings to rock

⊗ = Borings drilled 20' into rock

SOIL TYPE LEGEND



LOG OF BORINGS

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

PROJECT 1471-4 ()
BRIDGE OVER OHIO RIVER ON I 471
CAMPBELL COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

HAZELET & ERDAL
Consulting Engineers
File No. 689

BRIDGE
NUMBER

DRAWING NO.
18485

INDEX

DESIGNED BY: M.K. DATE: 4/67
CHECKED BY: H.T. DATE: 4/67
REVISOR: AFB DATE: 4-70
DATE: 6/25/71



FED. ROAD DIST.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
7	KY.	1471-4	1971	9	10

The data for this hydrograph was reduced from gage readings and hydrographs made by the Corps of Engineers U.S. Army, at the following Locations:

- Lock & Dam No. 36
- Lock & Dam No. 37
- U.S. Weather Bureau (in Cincinnati)
- Southern R.R. Bridge (near Mill Creek)
- Suspension Bridge (Cincinnati to Covington)
- Markland Locks and Dam, with an Upper Pool Elevation of 455.0 (Ohio River Datum) is located very near former Lock and Dam No. 39 and inundates Dams No. 36 and No. 37. Upper Pool Elevation 455.0 at Markland Locks and Dam is Normal Pool Elevation at the proposed bridge site. Therefore, only high water above Normal Pool Elevation 455.0 was plotted. The hydrograph at the proposed bridge site was obtained by interpolation of hydrographs at Dams No. 36 and No. 37 for the years 1923 thru 1939. From 1940, the hydrograph was plotted from the gage readings taken in Cincinnati.

Elevations shown on the hydrograph are on Ohio River Datum. To adjust to U.S.C. & G.S. Datum, 1929 General Adjustment, subtract 0.75 foot.

Lock & Dam Location	
Lock & Dam No. 36	460.9
Suspension Bridge	470.5
U.S.W.B. Southern R.R. Bridge	471.2
No. 37	483.2
Markland Dam	531.5

Proposed Bridge Site — 469.5

HYDROGRAPH

KENTUCKY DEPARTMENT OF HIGHWAYS OHIO DEPARTMENT OF HIGHWAYS

PROJECT 1471-4 ()
BRIDGE OVER OHIO RIVER ON I 471
CAMPBELL COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

HAZELEY & ERDAL
Consulting Engineers
File No. 889

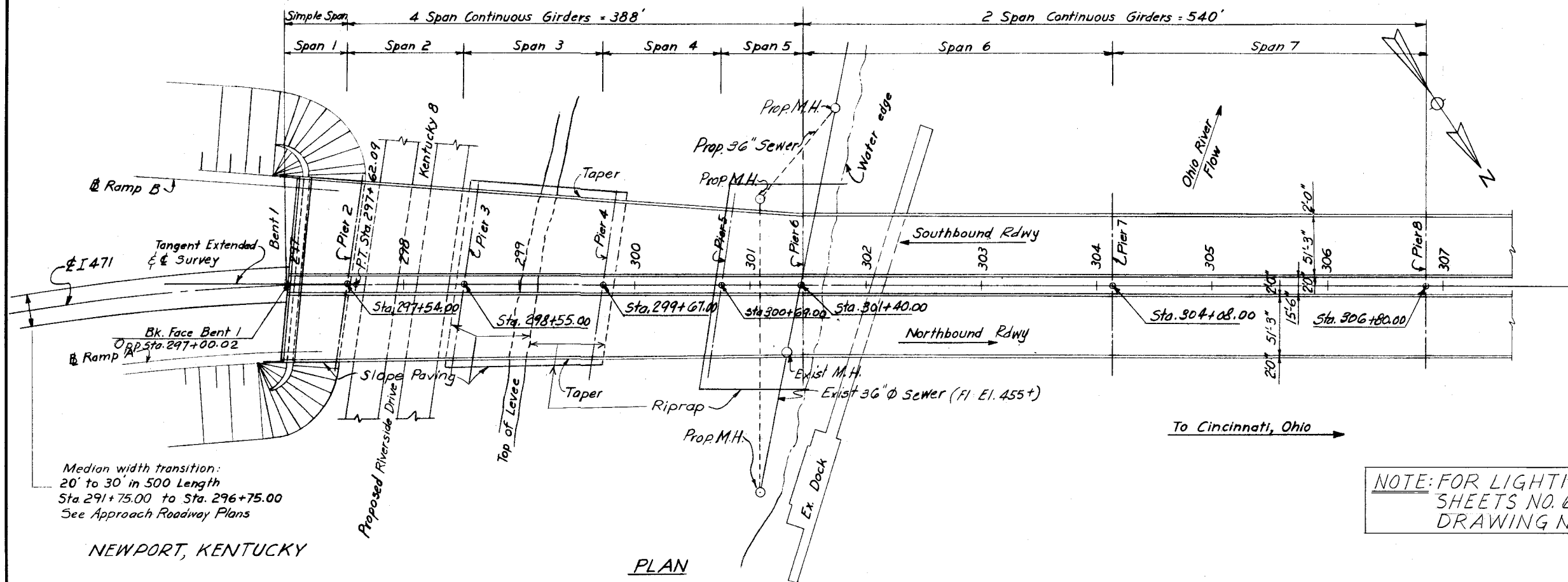
BRIDGE
NUMBER

DRAWING NO.
18485

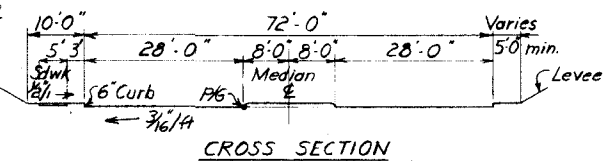
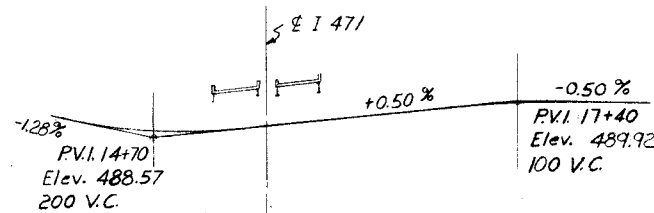
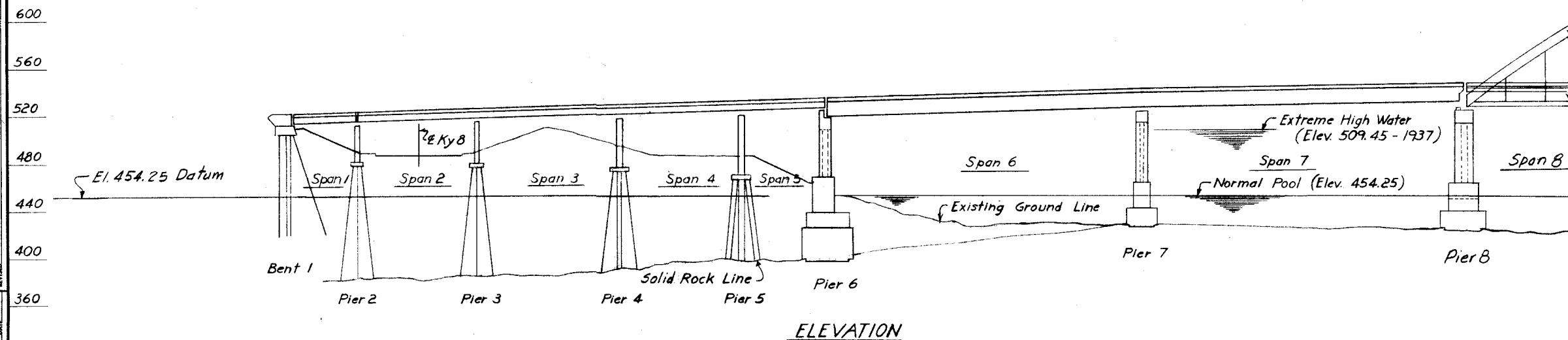
INDEX

SHEET 9

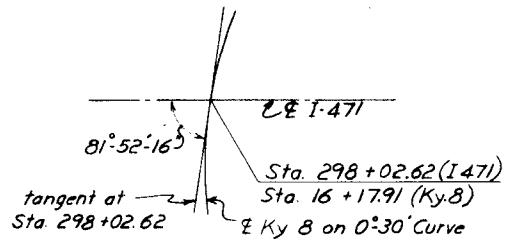
DESIGNED BY: MK & HT
CHECKED BY: ET & WFB
DATE: 5-5-67
REVISION: 1-10-70
DATE: 1-10-70



NOTE: FOR LIGHTING DETAILS SEE SHEETS NO. 62 THRU 67 OF DRAWING NO. 18484



KENTUCKY 8 (RIVERSIDE DRIVE) DATA



KENTUCKY 8 CURVE DATA

P.I. = 14+51.75
 Δ = 3°43'40"
D = 0°30'
R = 11459.16
T = 372.91
L = 745.56
E = 5.07

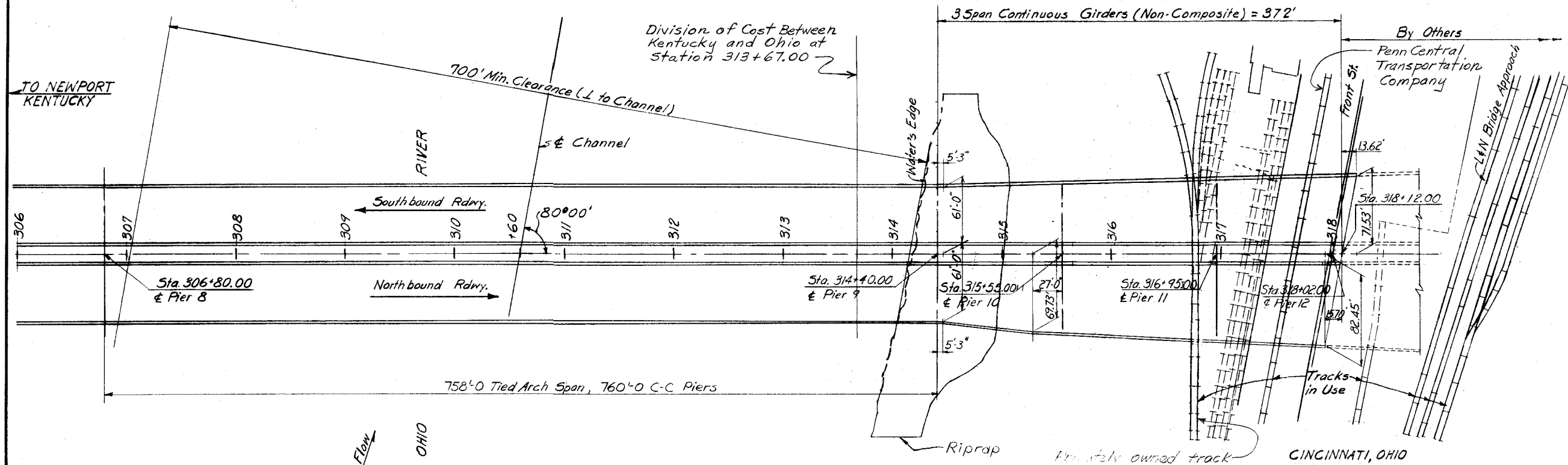
GENERAL PLAN SPANS 1 THRU 7

Work Sheets 10 & 11 Together SHEET 10

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

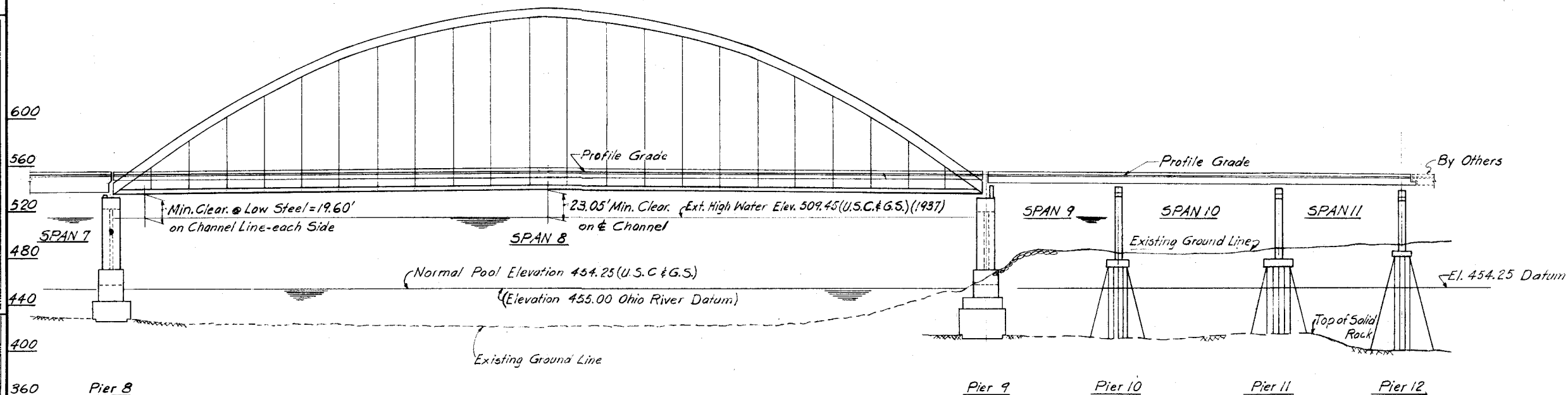
PROJECT 1471-4 ()
BRIDGE OVER OHIO RIVER ON I 471
CAMPBELL COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

FED. ROAD DIST.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
7	KY.	1471-4(8)4			



Note:
All material stored between the R/W lines and between the Ohio River and Front St. is to be removed by others.
All railroad tracks in the above area, except the two currently in use near Pier 11, are to be removed by others.

Abandoned Tracks (Typ.)
(Most are covered with junk)



Work Sheets 10 & 11 Together
SHEET 11

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

PROJECT 1471-4 ()
BRIDGE OVER OHIO RIVER ON I 471
CAMPBELL COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

GENERAL PLAN
SPANS 8 THRU 11

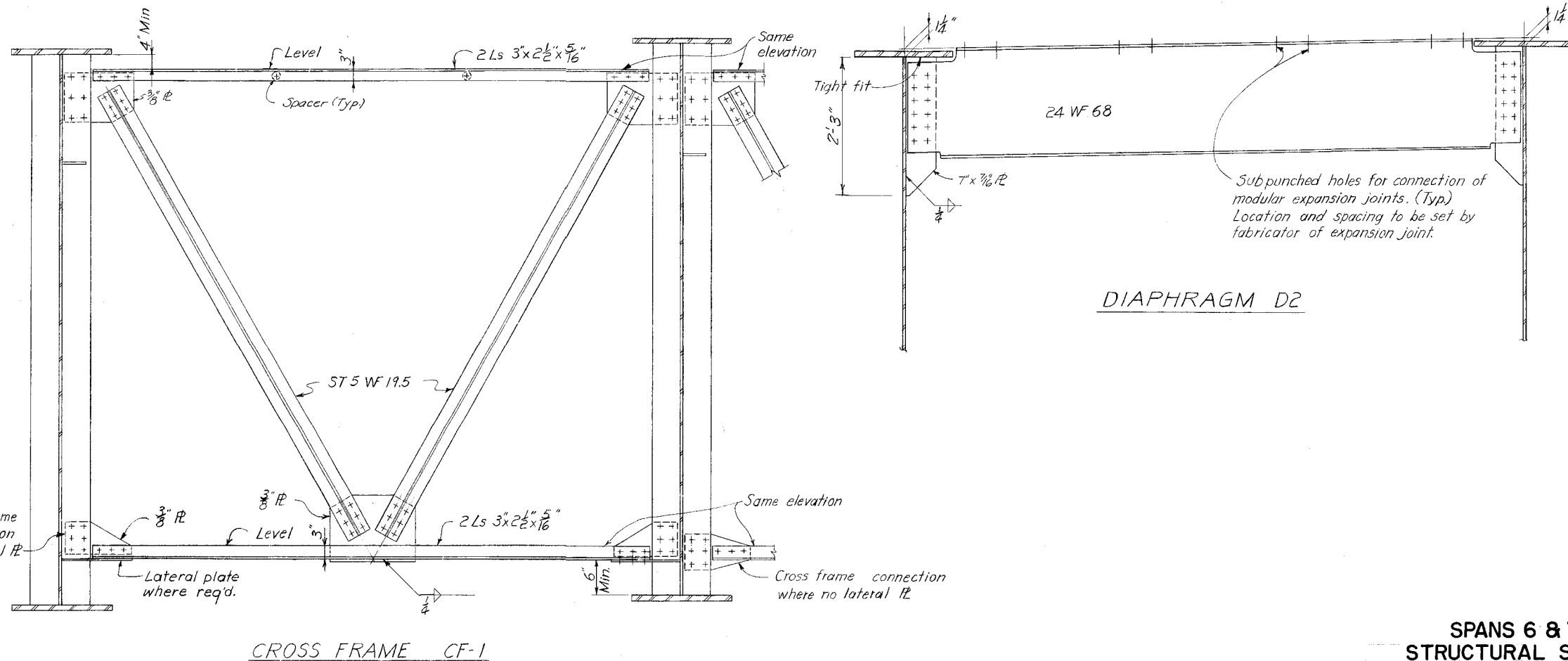
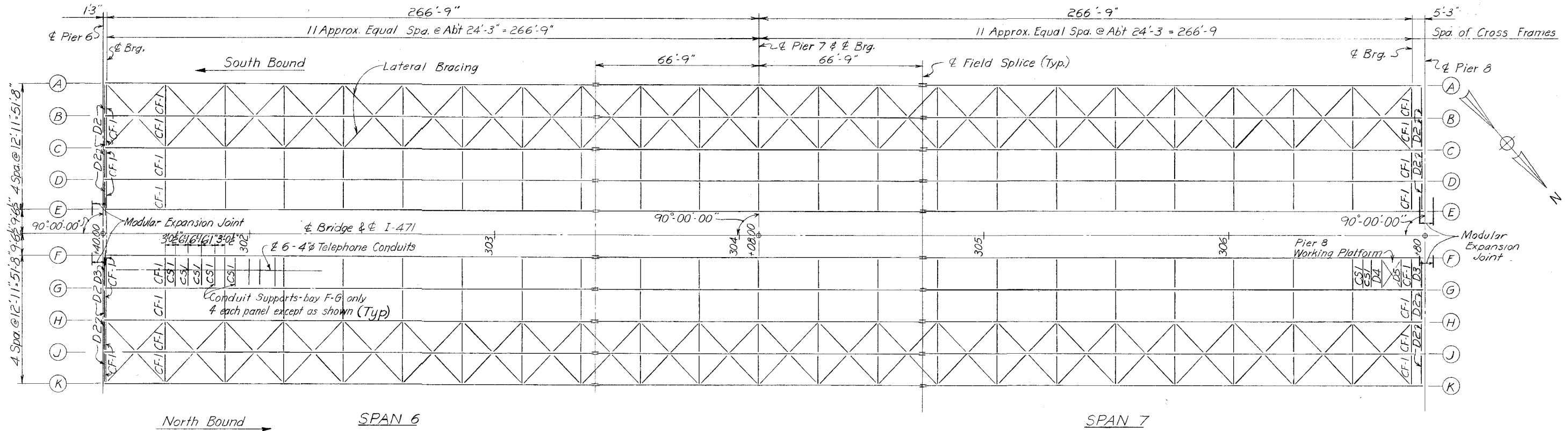
HAZELET & ERDAL
Consulting Engineers
File No. 889

BRIDGE
NUMBER

DRAWING NO.
18485

INDEX

DESIGNED BY JCE
CHECKED BY JCE
DATE 6-25-71



Note: All cross frames CF-1 unless noted.

Work sheets 12 thru 16 together SHEET 12

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

PROJECT 1471-4 ()
BRIDGE OVER OHIO RIVER ON I 471
CAMPBELL COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

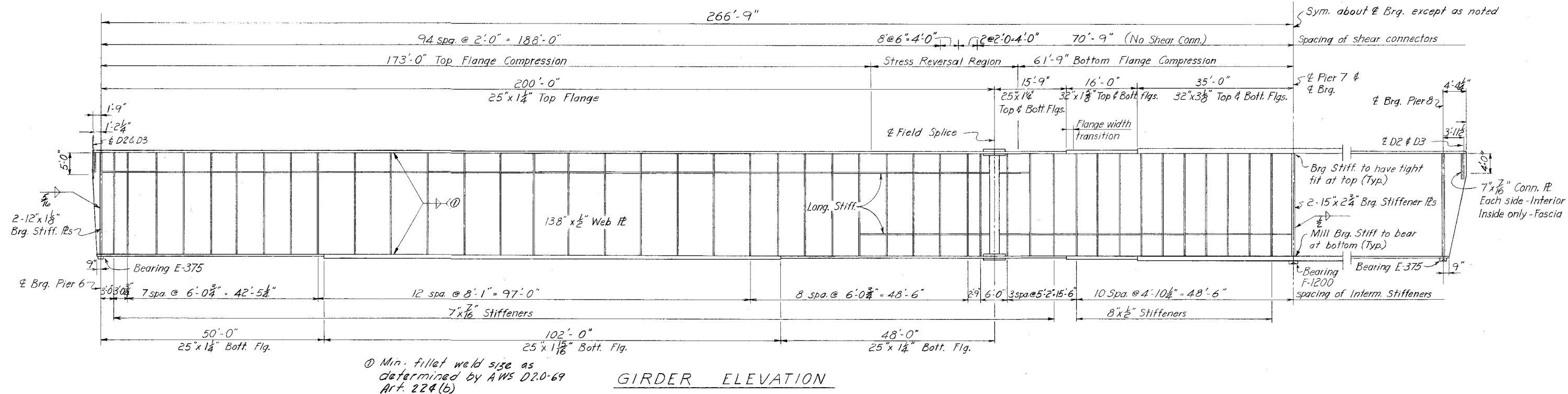
HAZELET & ERDAL
Consulting Engineers
File No. 889

BRIDGE
NUMBER

DRAWING NO.
18485

INDEX

DESIGNED BY A.S.R. 3-5-70 CHECKED BY
REVIEWED BY A.S.R. 3-5-70 CHECKED BY
TRACED BY C.D.V. 3-6-70 CHECKED BY



Structural Steel Spans 6 & 7 Notes:

Flanges and flange splice plates shall be ASTM A588. Steel except in flanges shall be ASTM A36.

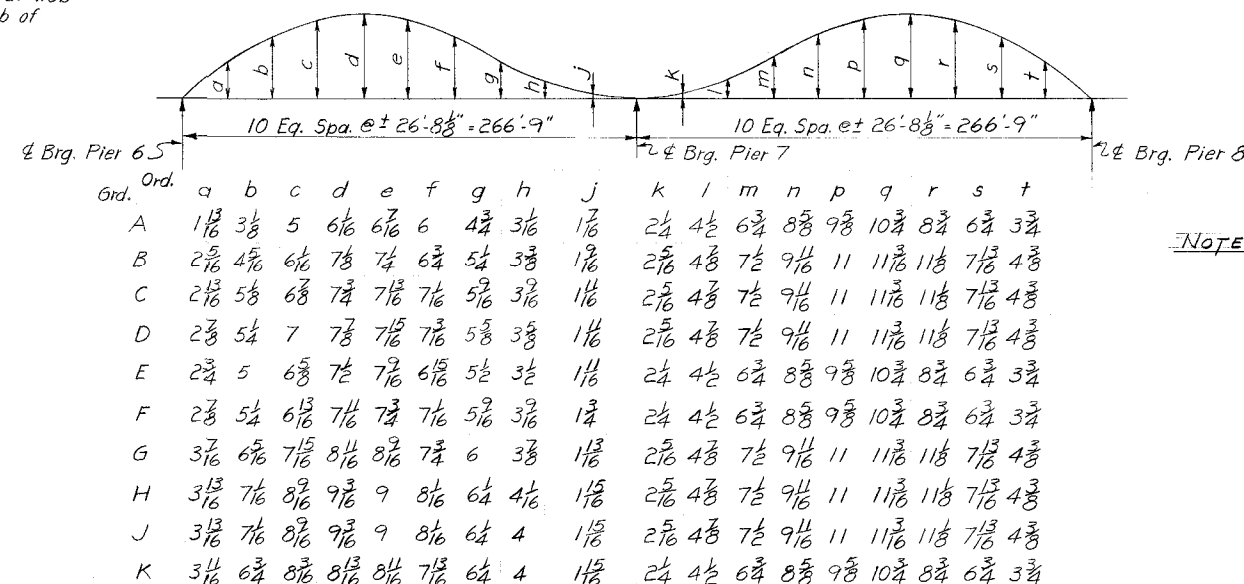
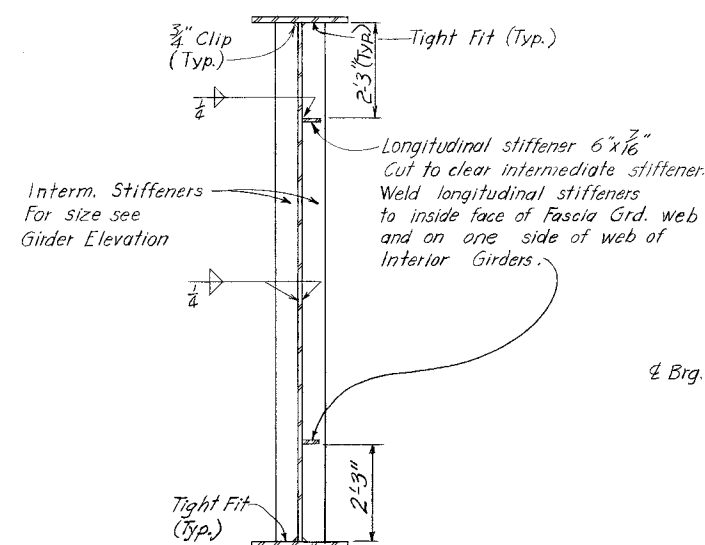
Shop connections shall be welded except as noted.

Field connections shall be made with 7/8" high strength bolts conforming to ASTM A325 except as noted.

Open holes shall be 1/8" except as noted.

All transverse and bearing stiffeners and splices are to be vertical.

All longitudinal dimensions are horizontal and girder lengths should be adjusted for grade.



NOTE:

Total camber includes effect of dead load and roadway geometry measured from chords between C's of bearing at bottom edge of web plates.

Work sheets 12 thru 16 together

SHEET 13

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

PROJECT 1471-4 ()
BRIDGE OVER OHIO RIVER ON 1471
CAMPBELL COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

HAZELET & ERDAL
Consulting Engineers
File No. 889

BRIDGE
NUMBER

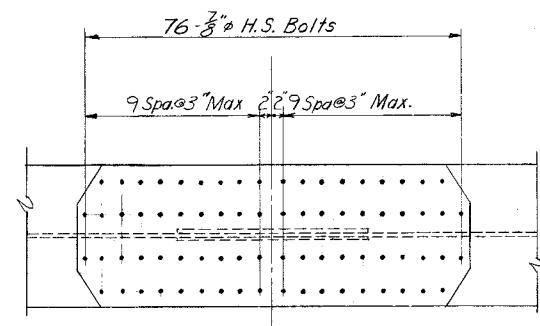
DRAWING NO.
18485

INDEX

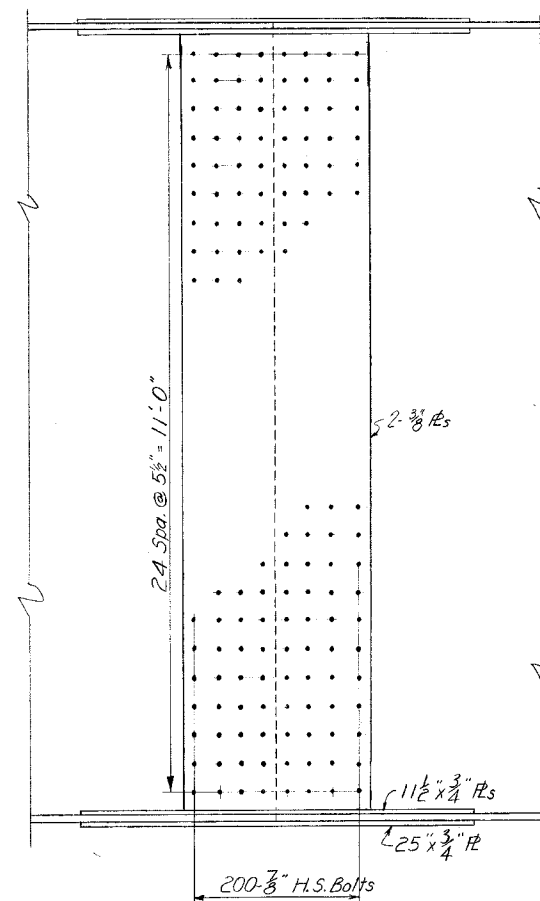
SPANS 6 & 7
STRUCTURAL STEEL

10749 6-25-71

DESIGNED BY: _____ CHECKED BY: _____ DATE: _____
TRACED BY: CDDV 3/29/70 CHECKED BY: CDDV 11-70

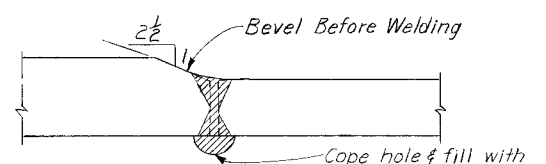


PLAN OF TOP AND BOTTOM FLANGE

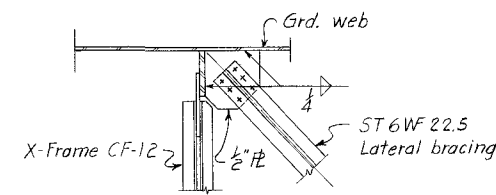


ELEVATION

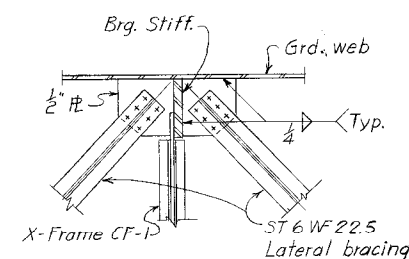
FIELD SPLICE DETAIL



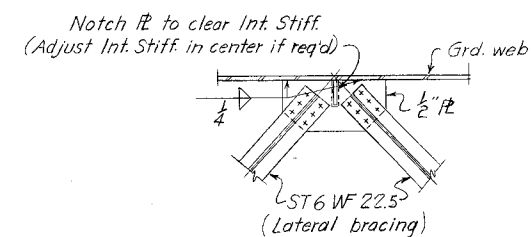
DETAIL A



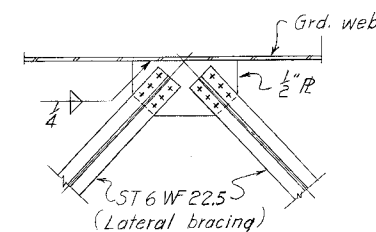
LATERAL BRACING CONNECTION
(At Brg. Pier 6 & Pier 8)



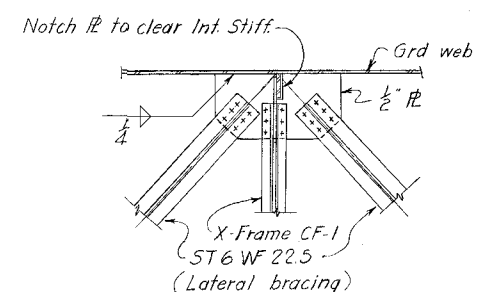
LATERAL BRACING CONNECTION
(At Brg. Pier 7)



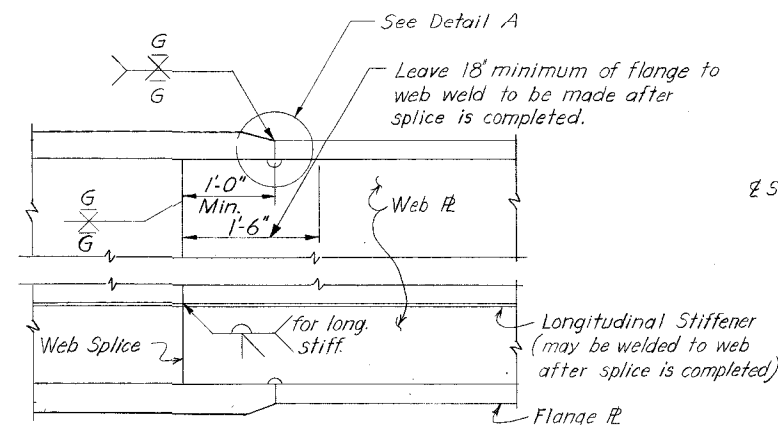
LATERAL BRACING CONNECTION
Between Crossframes @ Int. Stiff.
(Connections on other side of web are sym. about C web where req'd.)



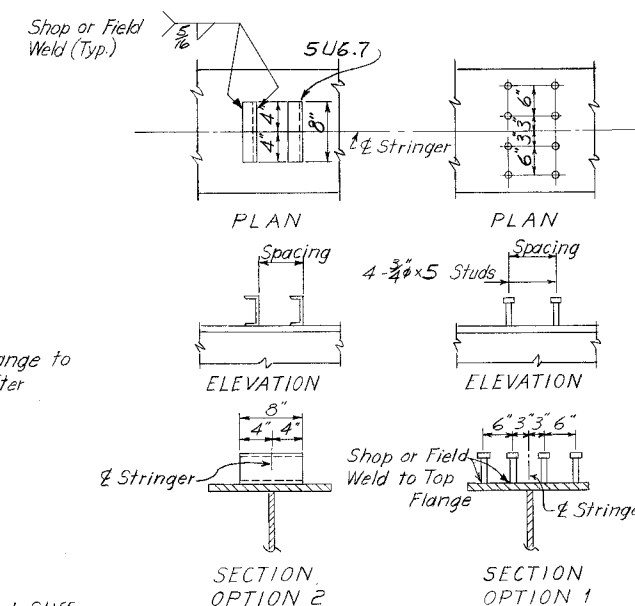
LATERAL BRACING CONNECTION
Between Crossframes
(Connections on other side of web are sym. about C web where req'd.)



LATERAL BRACING CONNECTION
At Crossframes CF-1 except at bearings



OPTIONAL YARD SPLICE



SHEAR CONNECTOR DETAILS

Work sheets 12 thru 16 together

SHEET 14

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

PROJECT I471-4 ()
BRIDGE OVER OHIO RIVER ON I 471
CAMPBELL COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

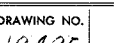
HAZELET & ERDAL
Consulting Engineers
File No. 889

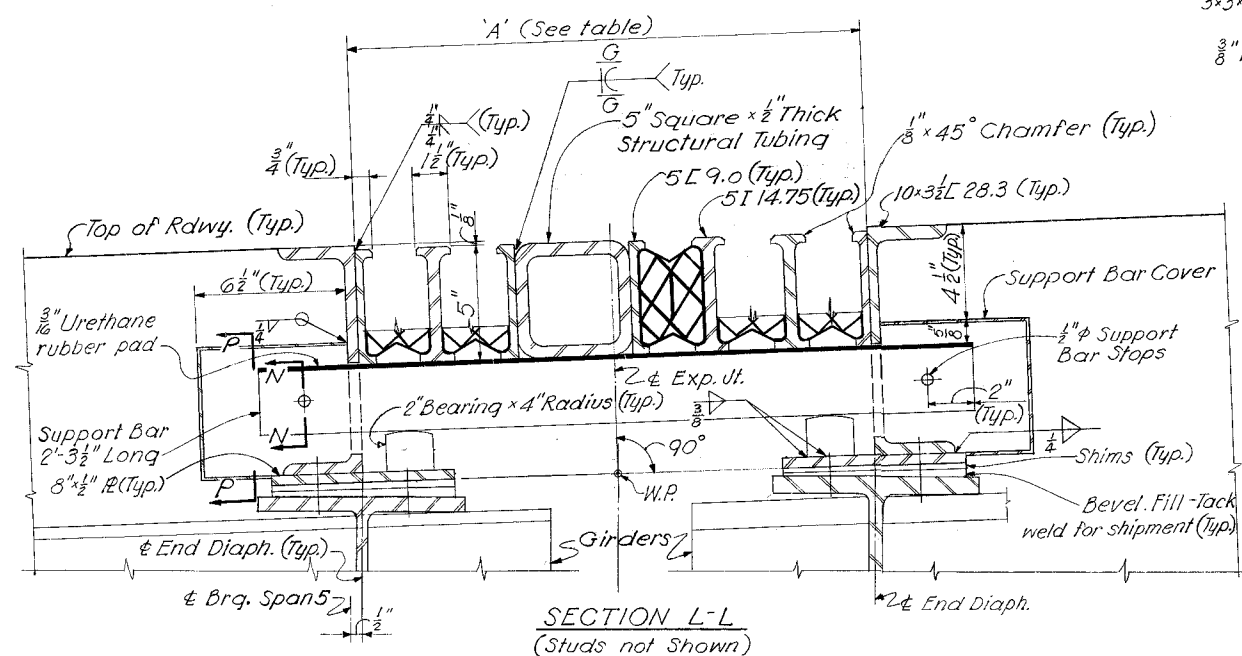
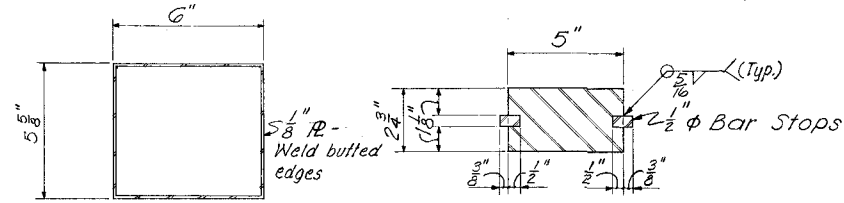
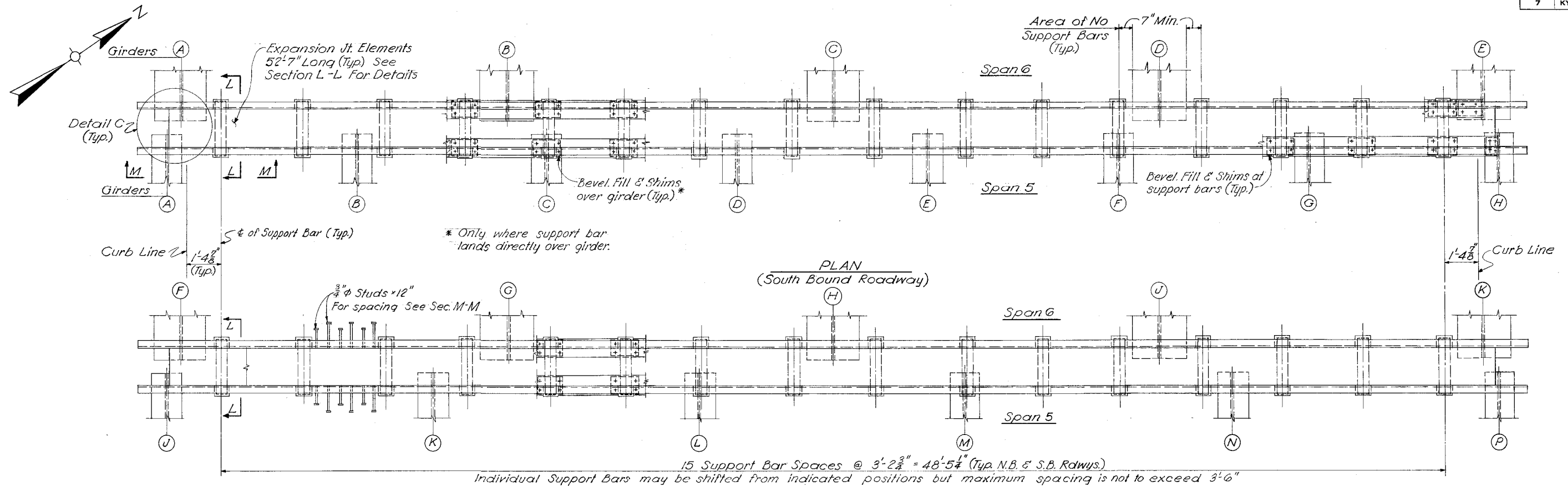
BRIDGE
NUMBER

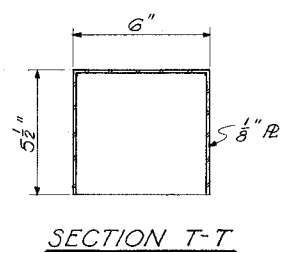
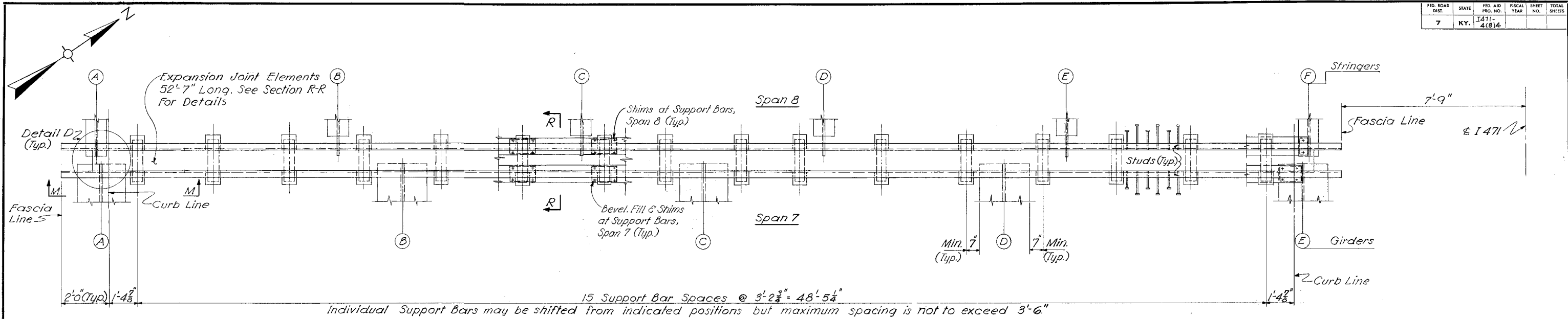
DRAWING NO.
18485

INDEX

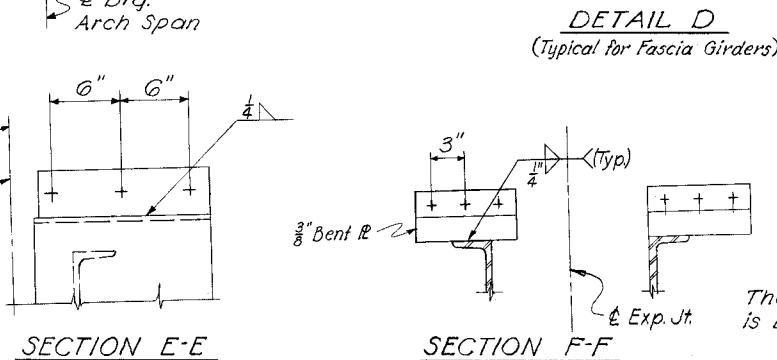
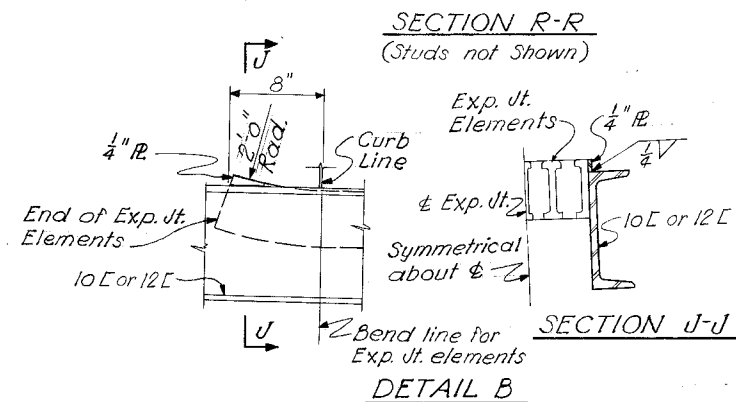
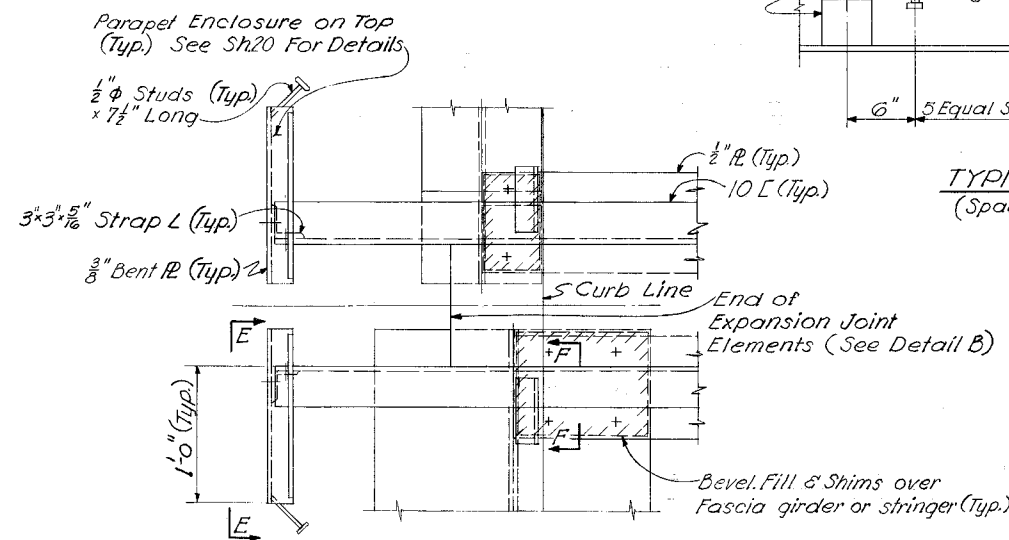
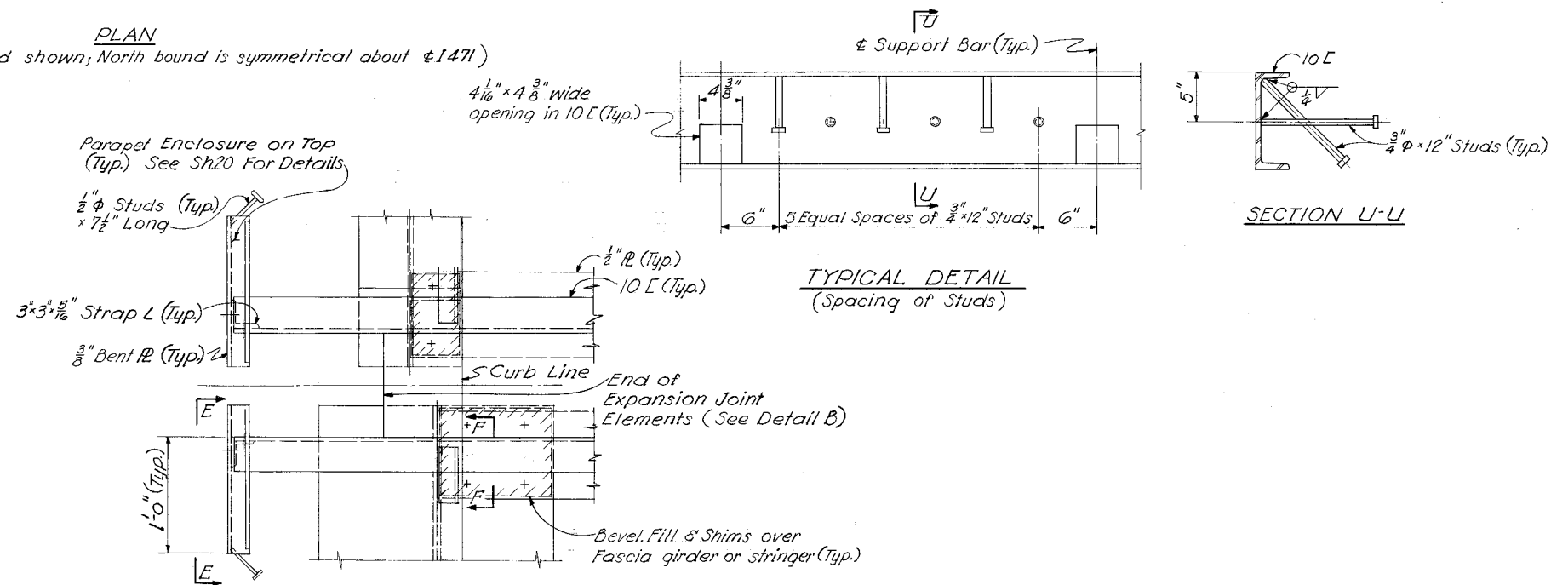
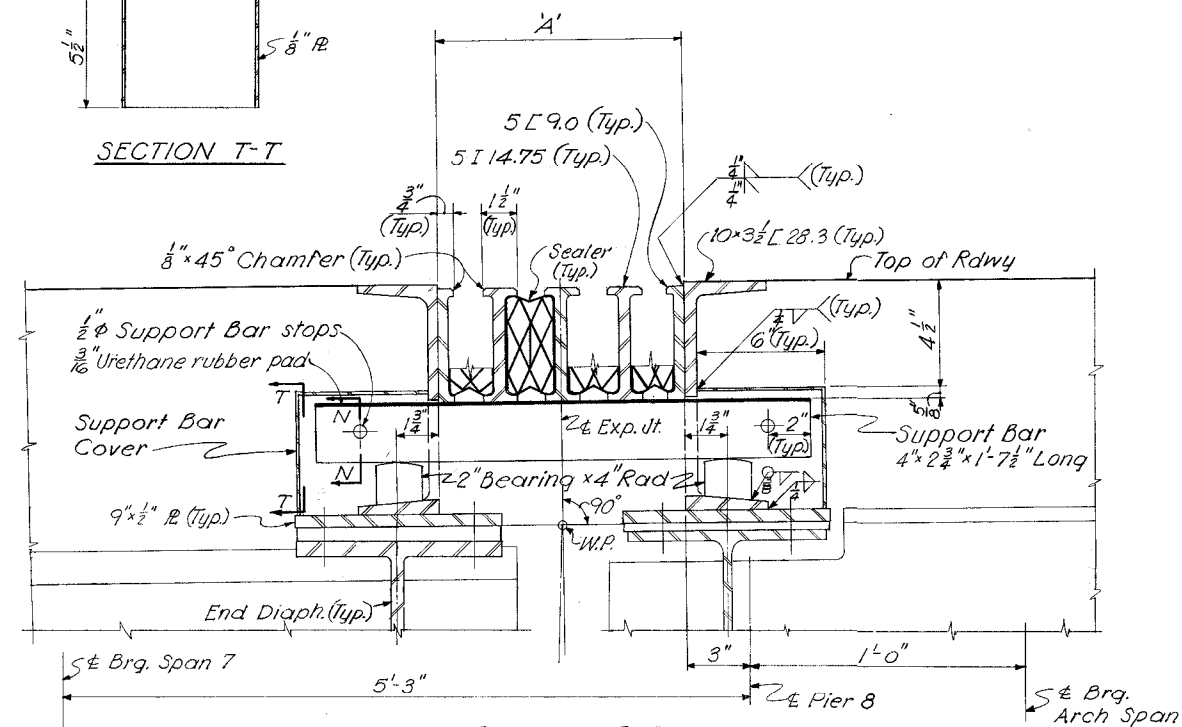
SPANS 6 & 7
STRUCTURAL STEEL







PLAN
(South bound shown; North bound is symmetrical about ± 1471)



Preset Width 'A' of Expansion Joint in inches							
30°	40°	50°	60°	70°	80°	90°	
11 3/8	11 3/8	10 15/16	10 3/4	10 9/16	10 5/16	10 1/8	

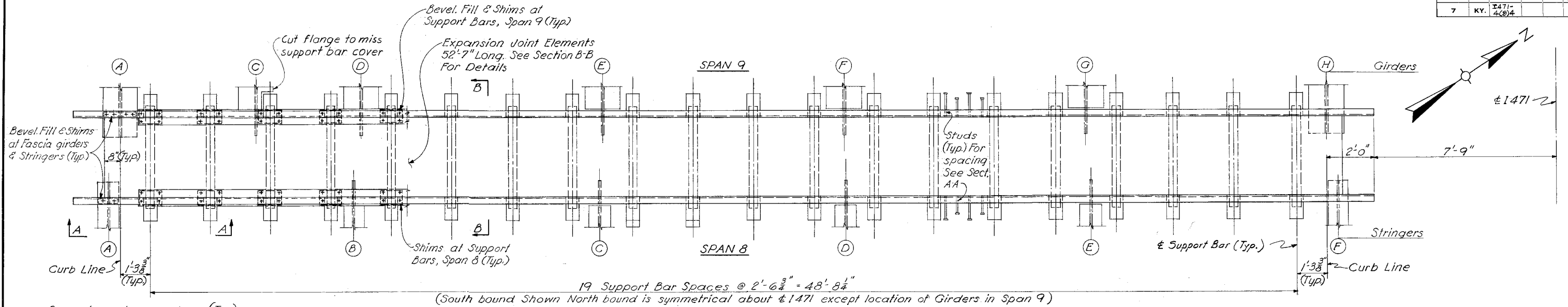
The movement, due to expansion and contraction, is based on a temperature range from -20°F. To +120°F.

For Section M-M See Sheet 17.
Work sheets 17 thru 20 together;

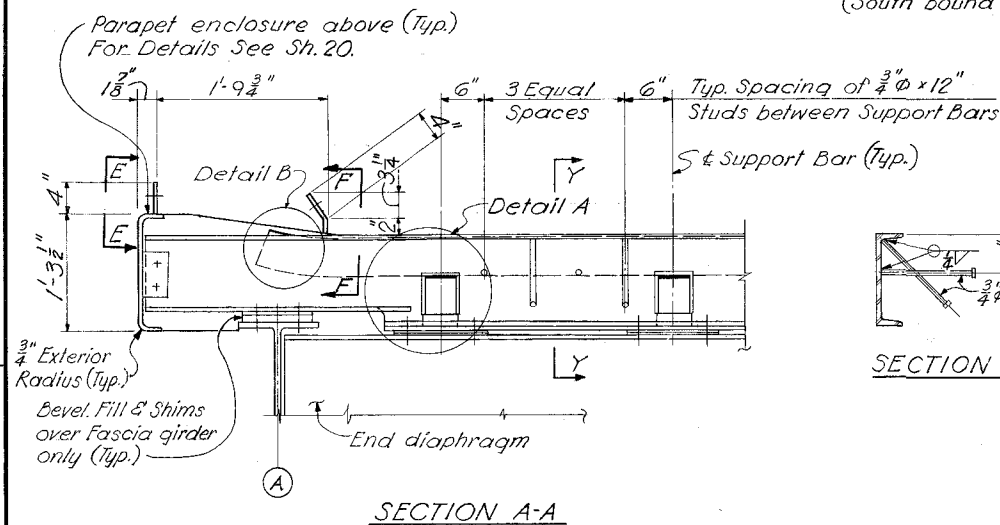
KENTUCKY DEPARTMENT OF HIGHWAYS OHIO DEPARTMENT OF HIGHWAYS PROJECT 1471-4 () BRIDGE OVER OHIO RIVER ON I 471 CAMPBELL COUNTY, KENTUCKY HAMILTON COUNTY, OHIO		BRIDGE NUMBER 18485	DRAWING NO. 18485	INDEX
---	--	------------------------	----------------------	-------

MODULAR EXPANSION JOINT AT PIER 8

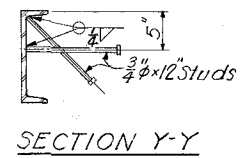
DESIGNED BY: HAZELET & ERDAL
 CHECKED BY: HAZELET & ERDAL
 DATE: 4/14/70
 TRACED BY: HAZELET & ERDAL
 DATE: 4/14/70



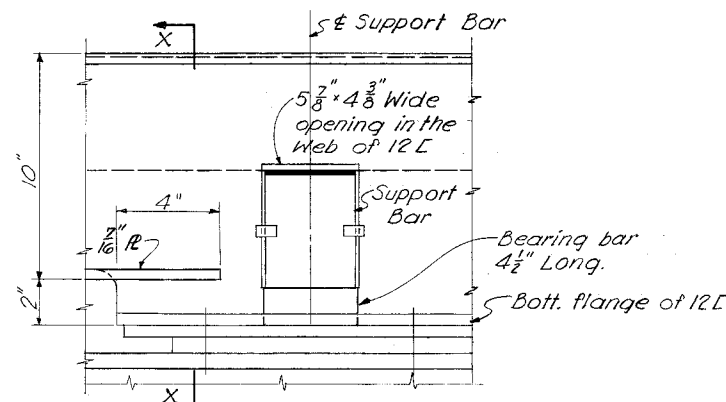
PLAN



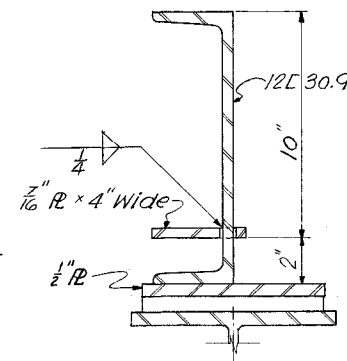
SECTION A-A



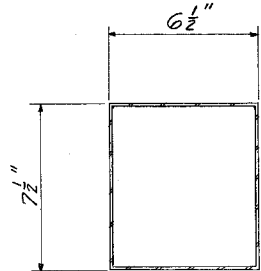
SECTION Y-Y



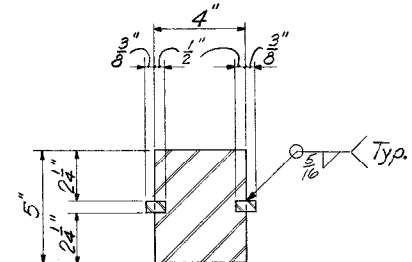
DETAIL A



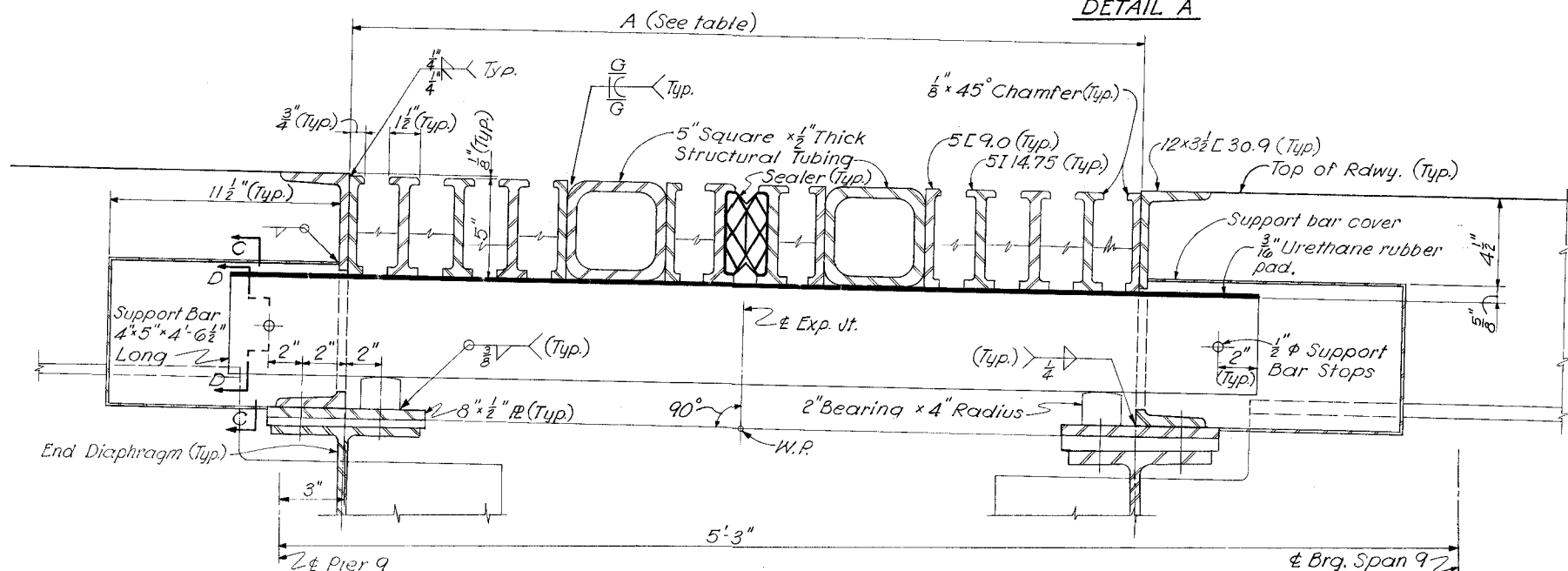
SECTION X-X



SECTION C-C

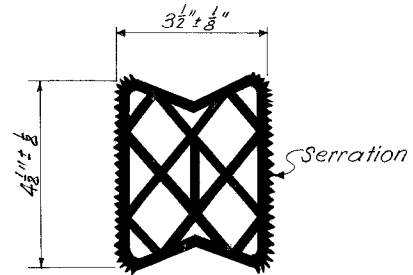


SECTION D-D



Preset Width 'A' of Expansion Joint in inches						
30°	40°	50°	60°	70°	80°	90°
43 1/2	42 11/16	41 13/16	41	40 3/16	39 5/16	38 1/2

The movement, due to expansion and contraction, is based on a temperature range from -20°F. to +120°F.



SEALER

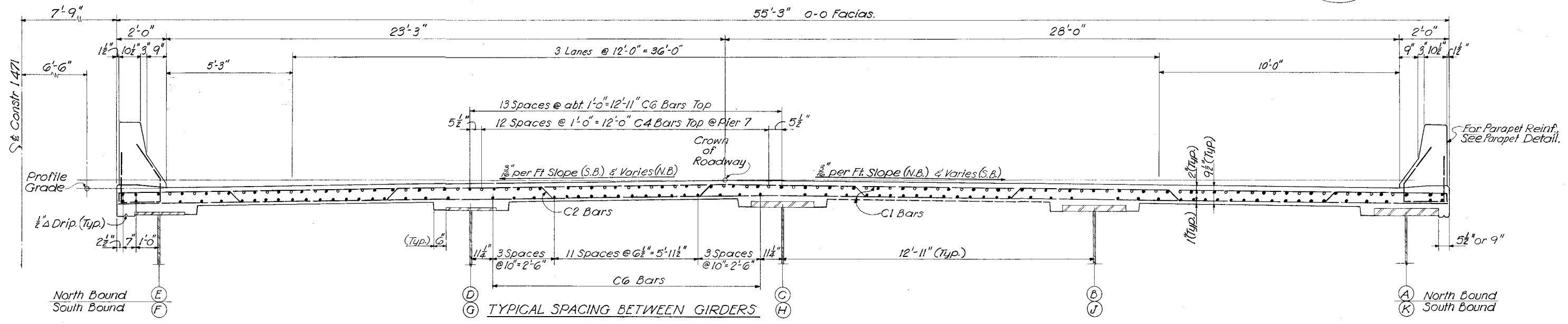
For Sections E-E, F-F, G-G, & Detail B, See Sheet 18.
Work sheets 17 thru 20 together.

SHEET 19

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS
PROJECT 1471-4 ()
BRIDGE OVER OHIO RIVER ON I 471
CAMPBELL COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

MODULAR EXPANSION JOINT AT PIER 9

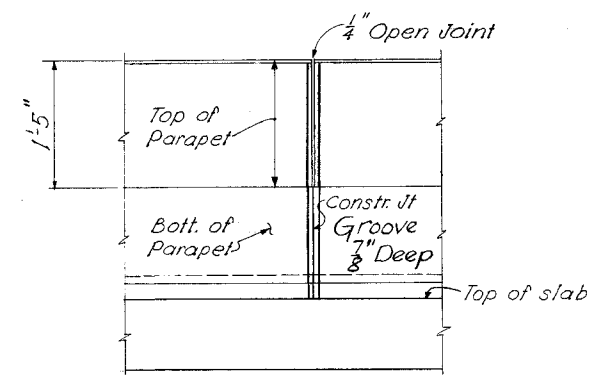
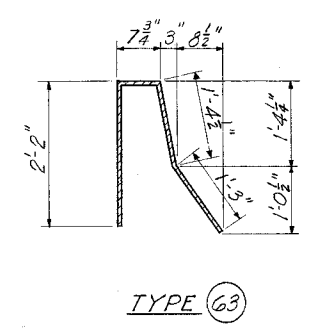
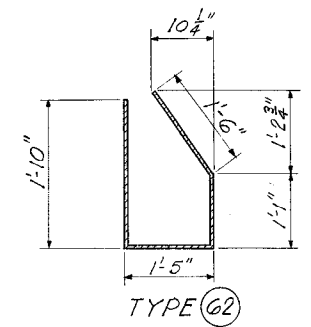
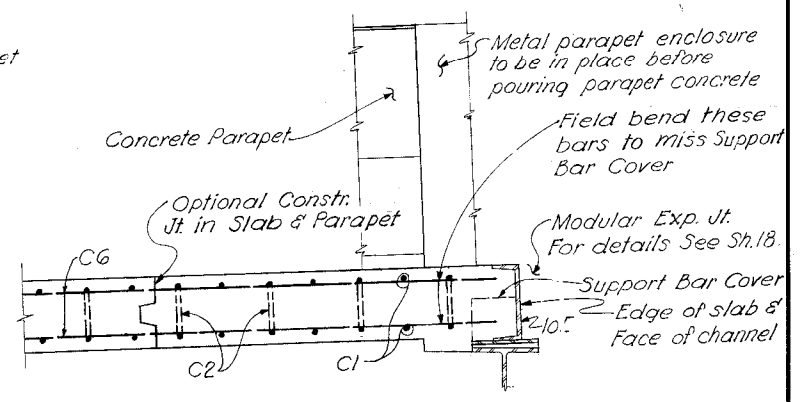
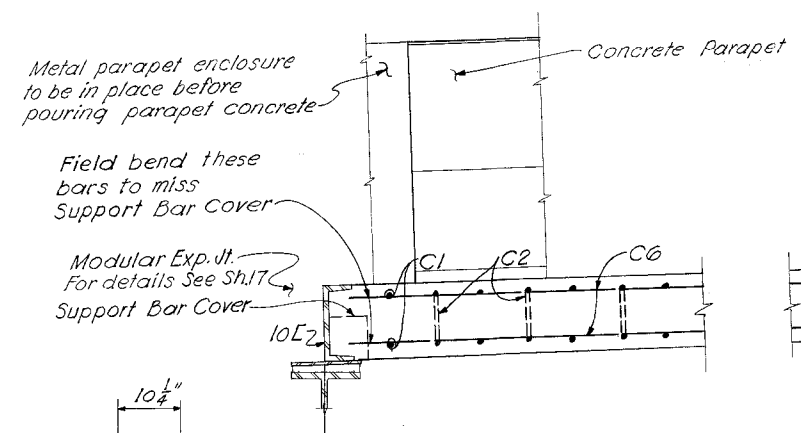
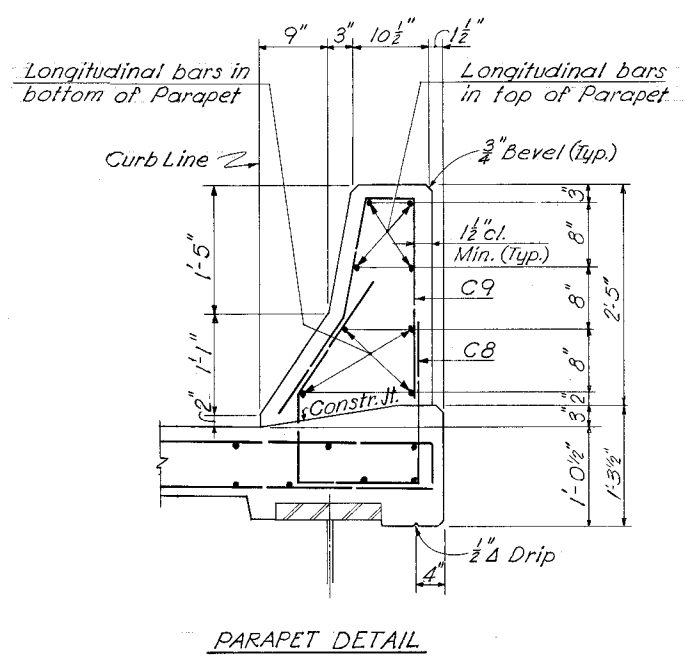
DESIGNED BY: WFB
CHECKED BY: WFB
DATE: 12-5-71
REVISIONS:
1. DATE: 12-5-71
2. DATE: 12-5-71
3. DATE: 12-5-71
4. DATE: 12-5-71
5. DATE: 12-5-71
6. DATE: 12-5-71
7. DATE: 12-5-71
8. DATE: 12-5-71
9. DATE: 12-5-71
10. DATE: 12-5-71
11. DATE: 12-5-71
12. DATE: 12-5-71
13. DATE: 12-5-71
14. DATE: 12-5-71
15. DATE: 12-5-71
16. DATE: 12-5-71
17. DATE: 12-5-71
18. DATE: 12-5-71
19. DATE: 12-5-71
20. DATE: 12-5-71
21. DATE: 12-5-71
22. DATE: 12-5-71
23. DATE: 12-5-71
24. DATE: 12-5-71
25. DATE: 12-5-71
26. DATE: 12-5-71
27. DATE: 12-5-71
28. DATE: 12-5-71
29. DATE: 12-5-71
30. DATE: 12-5-71
31. DATE: 12-5-71
32. DATE: 12-5-71
33. DATE: 12-5-71
34. DATE: 12-5-71
35. DATE: 12-5-71
36. DATE: 12-5-71
37. DATE: 12-5-71
38. DATE: 12-5-71
39. DATE: 12-5-71
40. DATE: 12-5-71
41. DATE: 12-5-71
42. DATE: 12-5-71
43. DATE: 12-5-71
44. DATE: 12-5-71
45. DATE: 12-5-71
46. DATE: 12-5-71
47. DATE: 12-5-71
48. DATE: 12-5-71
49. DATE: 12-5-71
50. DATE: 12-5-71
51. DATE: 12-5-71
52. DATE: 12-5-71
53. DATE: 12-5-71
54. DATE: 12-5-71
55. DATE: 12-5-71
56. DATE: 12-5-71
57. DATE: 12-5-71
58. DATE: 12-5-71
59. DATE: 12-5-71
60. DATE: 12-5-71
61. DATE: 12-5-71
62. DATE: 12-5-71
63. DATE: 12-5-71
64. DATE: 12-5-71
65. DATE: 12-5-71
66. DATE: 12-5-71
67. DATE: 12-5-71
68. DATE: 12-5-71
69. DATE: 12-5-71
70. DATE: 12-5-71
71. DATE: 12-5-71
72. DATE: 12-5-71
73. DATE: 12-5-71
74. DATE: 12-5-71
75. DATE: 12-5-71
76. DATE: 12-5-71
77. DATE: 12-5-71
78. DATE: 12-5-71
79. DATE: 12-5-71
80. DATE: 12-5-71
81. DATE: 12-5-71
82. DATE: 12-5-71
83. DATE: 12-5-71
84. DATE: 12-5-71
85. DATE: 12-5-71
86. DATE: 12-5-71
87. DATE: 12-5-71
88. DATE: 12-5-71
89. DATE: 12-5-71
90. DATE: 12-5-71
91. DATE: 12-5-71
92. DATE: 12-5-71
93. DATE: 12-5-71
94. DATE: 12-5-71
95. DATE: 12-5-71
96. DATE: 12-5-71
97. DATE: 12-5-71
98. DATE: 12-5-71
99. DATE: 12-5-71
100. DATE: 12-5-71



TYPICAL SECTION SPANS 6 & 7

Bill of Bar Reinforcement

MARK	TYPE	SIZE	LENGTH feet inch	No. of Bars	LOCATION
C1	Str.	#6	54 11	2148	Transverse
C2	Ⓢ	#6	57 8	1074	Transv. Truss Bar
C4	"	#8	60 0	104	Longt. @ Pier 7
C5	"	#5	55 1	80	Longt.
C6	"	#5	55 8	2820	" & Slab
C7	"	#5	55 5	80	Longt. Parapet
C8	Ⓢ	#6	5 10	2152	Transv. Parapet
C9	Ⓢ	#6	5 4	2152	"
C10	Str.	#6	5 0	128	Deck Drain
LS1	Ⓢ	#7	7 7	12	Light Stand. Bracket
LS2	Ⓢ	#5	9 0	18	"
LS3	Ⓢ	#7	6 1	12	"
LS4	Ⓢ	#5	7 2	6	"
LS5	Ⓢ	#5	9 10	18	"



SPANS 6 & 7
SLAB SECTIONS

Work Sheets 21 & 22 together

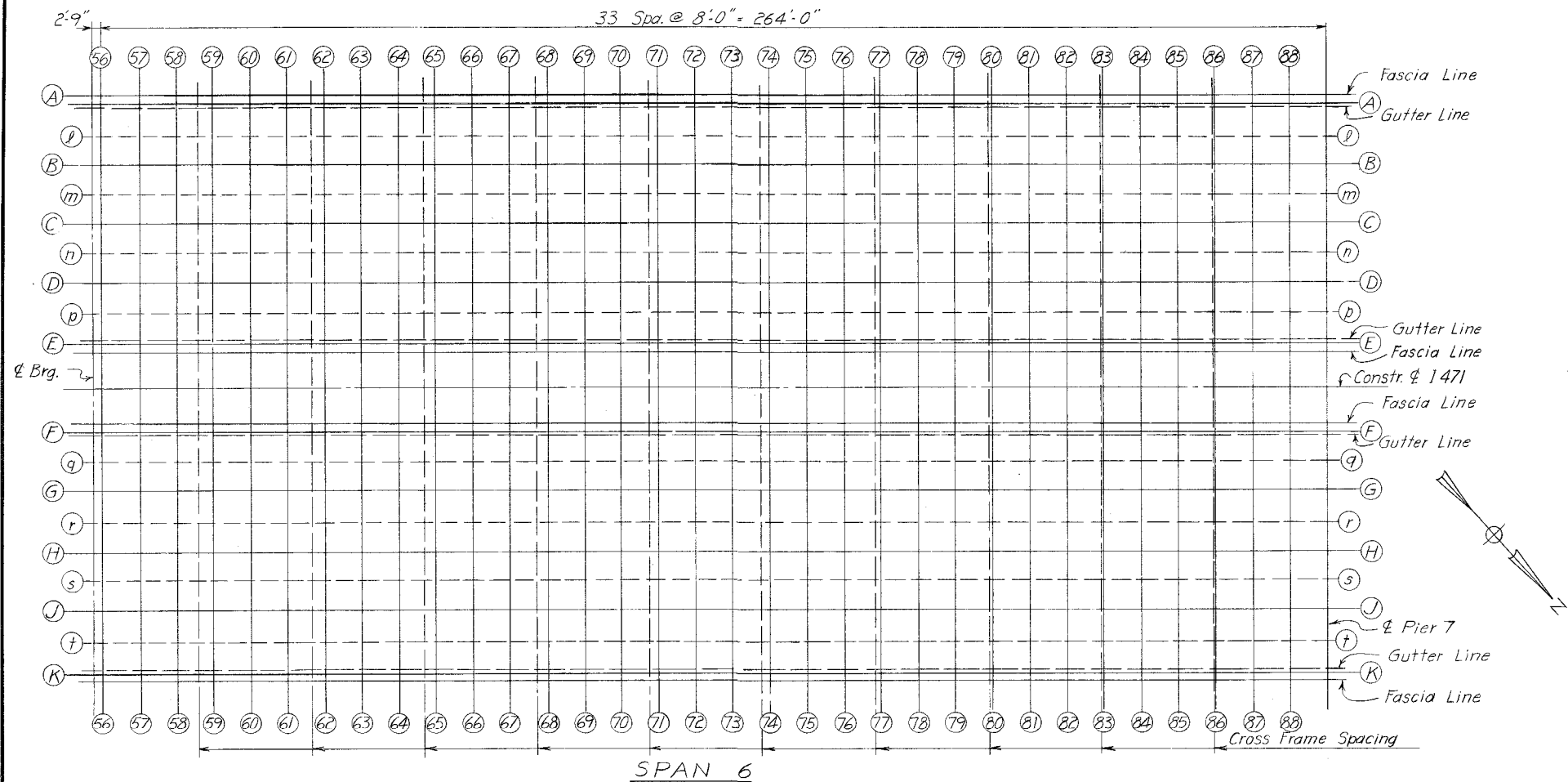
SHEET 21

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

PROJECT 1471-4 ()
 BRIDGE OVER OHIO RIVER ON I 471
 CAMPBELL COUNTY, KENTUCKY
 HAMILTON COUNTY, OHIO

HAZELEY & ERDAL Consulting Engineers File No. 889	BRIDGE NUMBER	DRAWING NO. 18485	INDEX
---	------------------	----------------------	-------

DESIGNED BY: N.M.P. 3/6
 CHECKED BY: N.M.P. 3/9
 TRACED BY: N.M.P. 3/9
 DATE: 6-25-71



SECTION	Line l	Line m	Line n	Line p	SECTION
	T B CST	T B CST	T B CST	T B CST	
57	533.506	533.634	533.663	533.461	57
60	534.271	534.445	534.501	534.299	60
63	535.047	535.249	535.323	535.121	63
66	.827	536.029	536.104	.902	66
69	536.589	.771	.845	536.643	69
72	537.267	537.469	537.543	537.341	72
75	.934	538.136	538.210	538.008	75
78	538.545	.747	.821	.619	78
82	539.315	539.517	539.591	539.389	82
85	.878	540.080	540.154	.952	85
87	540.254	.456	.531	540.329	87

SECTION	Line q	Line r	Line s	Line t	SECTION
	T B CST	T B CST	T B CST	T B CST	
57	533.409	533.539	533.444	533.242	57
60	534.279	534.453	534.370	534.168	60
63	535.121	535.323	535.249	535.047	63
66	.902	536.104	536.029	.827	66
69	536.643	.845	.771	536.589	69
72	537.341	537.543	537.469	537.267	72
75	538.008	538.210	538.136	.934	75
78	.619	.821	.747	538.545	78
82	539.389	539.591	539.517	539.315	82
85	.952	540.154	540.080	.878	85
87	540.329	.531	.456	540.254	87

TABLE OF ELEVATIONS FOR CONTROL OF SLAB THICKNESS
Lines l, m, n, p, q, r, s and t are midway between girder lines

TABLE OF ELEVATIONS																																		
SECTION	GIRDER A			GIRDER B			GIRDER C			GIRDER D			GIRDER E			SPAN 6			GIRDER F			GIRDER G			GIRDER H			GIRDER J			GIRDER K			SECTION
	W	X@Gutter	Y	Z	X	Y	Z	X	Y	Z	X	Y	Z	X@Gutter	Y	Z	W	W	X@Gutter	Y	Z	X	Y	Z	X	Y	Z	X	Y	Z	X@Gutter	Y	Z	
± Brg.		533.102			533.212			533.323			533.179			532.981					532.958			533.068			533.122			532.920			532.722			± Brg.
56		.186			.302			.419			.276			533.076					533.054			.171			.229			533.027			.827			56
57		.438			.571			.702			.562			.359					.341			.474			.544			.343			533.139			57
58		.687			.834			.980			.842			.639					.624			.772			.854			.652			.449			58
59		.930			534.102			534.262			534.127			.914					.903			534.075			534.168			.966			.753			59
60		534.179			.358			.532			.400			534.194					534.187			.366			.470			534.269			534.063			60
61		.420			.616			.805			.675			.466					.462			.658			.775			.573			.364			61
62		.661			.875			535.076			.949			.734					.733			.948			535.074			.875			.658			62
63		.926			535.148			.349			535.222			535.001					535.001			535.222			.349			535.148			.926			63
64		535.189			.413			.614			.487			.264					.264			.487			.614			.413			535.189			64
65		.447			.675			.874			.747			.522					.522			.747			.874			.675			.447			65
66		.702			.928			536.130			536.003			.777					.777			536.003			536.130			.928			.702			66
67		.952			536.180			.381			.254			536.027					536.027			.254			.381			536.180			.952			67
68		536.199			.427			.628			.501			.274					.274			.501			.628			.427			536.199			68
69		.441			.670			.871			.744			.516					.516			.744			.871			.670			.441			69
70		.679			.906			537.107			.980			.754					.754			.980			537.107			.906			.679			70
71		.913			537.140			.341			537.214			.988					.988			537.214			.341			537.140			.913			71
72		537.143			.368			.569			.442			537.218					537.118			.442			.569			.368			537.143			72
73		.371			.596			.797			.670			.446					.446			.670			.797			.596			.371			73
74		.595			.817			538.019			.892			.669					.669			.892			538.019			.817			.595			74
75		.814			538.035			.236			538.109			.888					.888			538.109			.236			538.035			.814			75
76		538.027			.244			.445			.318			538.101					538.101			.318			.445			.244			538.027			76
77		.235			.447			.648			.521			.309					.309			.521			.648			.447			.235			77
78		.436			.646			.847			.720			.511					.511			.720			.847			.646			.436			78
79		.634			.842			539.047			.916			.708					.708			.916			539.047			.842			.634			79
80		.827			539.035			.237			539.110			.901					.901			539.110			.237			539.035			.827			80
81		539.018			.226			.427			.300			539.093					539.093			.300			.427			.226			539.018			81
82		.210			.416			.617			.490			.285					.285			.490			.617			.416			.210			82
83		.402			.602			.804			.677			.476					.476			.677			.804			.602			.402			83
84		.591			.792			.993			.866			.665					.665			.866			.993			.792			.591			84
85		.779			.979			540.181			540.053			.853					.853			540.053			540.181			.979			.779			85
86		.968			540.168			.370			.243			540.042					540.042			.243			.370			540.168			.968			86
87		540.156			.355			.557			.430			.230					.230			.430			.557			.355			540.156			87
88		.345			.544			.745			.618			.419					.419			.618			.745			.544			.345			88
± Brg.		533			.732			.933			.806			.608					.608			.807			.933			.732			533			± Brg.

CONSTRUCTION NOTES FOR LINES A thru K
See Notes for lines A thru F for Span 8 on Sheet 61.

CONSTRUCTION NOTES FOR LINES l thru t
See Notes for lines n thru t for Span 8 on Sheet 61.

Work sheets 23 & 24 together

SHEET 23

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

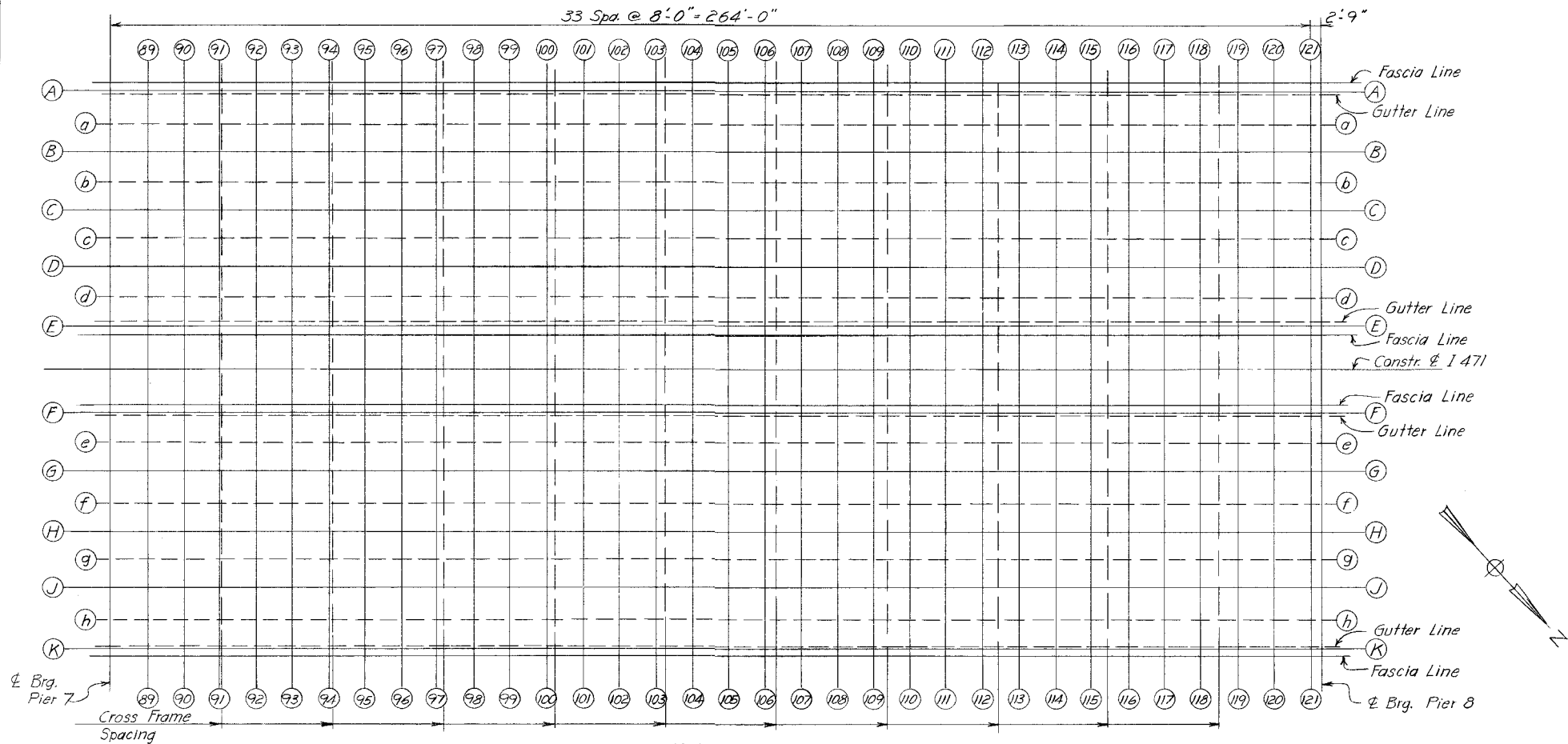
PROJECT 1471-4 ()
BRIDGE OVER OHIO RIVER ON I 471
CAMPBELL COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

HAZELEY & ERDAL
Consulting Engineers
File No. 889

BRIDGE
NUMBER

DRAWING NO.
INDEX
15485

SPAN 6 - CONSTRUCTION ELEVATIONS

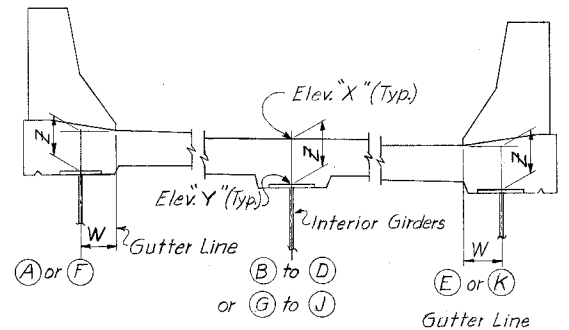


SECTION	Line l	B	CST	Line m	B	CST	Line n	B	CST	Line p	B	CST	SECTION
90	541.018			541.220			541.294			541.092			90
93	.597			.799			.874			.672			93
96	542.176			542.378			542.452			542.250			96
99	.741			.943			543.018			.816			99
102	543.275			543.477			.551			543.349			102
105	.754			.956			544.030			.828			105
108	544.171			544.373			.448			544.246			108
111	.516			.718			.792			.590			111
114	.796			.998			545.073			.871			114
117	545.002			545.203			.277			545.075			117
120	.162			.364			.439			.237			120

SECTION	Line q	B	CST	Line r	B	CST	Line s	B	CST	Line t	B	CST	SECTION
90	541.092			541.294			541.220			541.018			90
93	.672			.874			.799			.597			93
96	542.250			542.452			542.378			542.176			96
99	.816			543.018			.943			.741			99
102	543.349			.551			543.477			543.275			102
105	.828			544.030			.956			.754			105
108	544.246			.448			544.373			544.171			108
111	.590			.792			.718			.516			111
114	.871			545.073			.998			.796			114
117	545.075			.277			545.203			545.002			117
120	.237			.439			.364			.162			120

SPAN 7

TABLE OF ELEVATIONS SPAN 7																																		
SECTION	GIRDER A			GIRDER B			GIRDER C			GIRDER D			GIRDER E			GIRDER F			GIRDER G			GIRDER H			GIRDER J			GIRDER K			SECTION			
	W	X@Gutter	Y	Z	X	Y	Z	X	Y	Z	X	Y	Z	X@Gutter	Y	Z	W	W	X@Gutter	Y	Z	X	Y	Z	X	Y	Z	X	Y	Z		X@Gutter	Y	Z
89		.728			.926			.127			.000			.802					.802			.000			.127			.926			.728			89
90		.919			.119			.321			.193			.993					.993			.193			.321			.119			.919			90
91		.112			.312			.514			.388			541.186					541.186			.388			.514			.312			.112			91
92		.305			.505			.706			.581			.379					.379			.581			.706			.505			.305			92
93		.498			.698			.900			.773			.572					.572			.773			.900			.698			.498			93
94		.691			.892			542.093			.768			.766					.766			542.093			.892			.691			.892			94
95		.883			542.085			.286			542.159			.957					.957			542.159			.286			542.085			.883			95
96		542.074			.277			.478			.351			.148					.148			.351			.478			.277			542.074			96
97		.262			.466			.668			.551			.336					.336			.551			.668			.466			.262			97
98		.450			.656			.858			.730			.524					.524			.730			.858			.656			.450			98
99		.634			.842			843.044			.917			.708					.708			.917			843.044			.842			.634			99
100		.814			543.024			.226			543.099			.888					.888			543.099			.226			543.024			.814			100
101		.987			.203			.405			.278			543.061					543.061			.278			.405			.203			.987			101
102		543.156			.376			.578			.450			.230					.230			.450			.578			.376			543.156			102
103		.321			.544			.747			.620			.395					.395			.620			.747			.544			.321			103
104		.478			.703			.807			.779			.552					.552			.779			.807			.703			.478			104
105		.629			.855			544.057			.929			.703					.703			.929			544.057			.855			.629			105
106		.774			544.000			.204			544.076			.848					.848			544.076			.204			544.000			.774			106
107		.914			.140			.341			.214			.988					.988			.214			.341			.140			.914			107
108		544.045			.272			.474			544.119			.347					544.119			.347			.474			.272			544.045			108
109		.168			.395			.596			.242			.469					.469			.596			.395			.168			.395			109
110		.283			.510			.711			.584			.357					.584			.711			.510			.283			.510			110
111		.393			.617			.818			.691			.467					.467			.691			.818			.393			.617			111
112		.494			.720			.919			.792			.569					.569			.792			.919			.494			.720			112
113		.589			.812			545.012			.884			.663					.663			.884			545.012			.589			.812			113
114		.676			.897			.099			.972			.750					.750			.972			.099			.676			.897			114
115		.758			.971			.172			545.045			.832					.832			545.045			.172			.758			.971			115
116		.830			545.041			.242			.115			.905					.905			.115			.242			.830			.905			116
117		.899			.103			.303			.176			.973					.973			.176			.303			.103			.899			117
118		.957			.165			.366			.239			545.031					545.031			.239			.366			.165			.957			118
119		545.013			.213			.415			.087			.087					.087			.415			.213			545.013			.415			119
120		.060			.263			.465			.338			.134					.134			.338			.263			.060			.338			120
121		.106			.304			.506			.379			.180					.180			.379			.304			.106			.506			121
¢ Brg.		.121			.319			.521			.394			.190					.190			.394			.319			.121			.521			¢ Brg.



TYPICAL SECTION

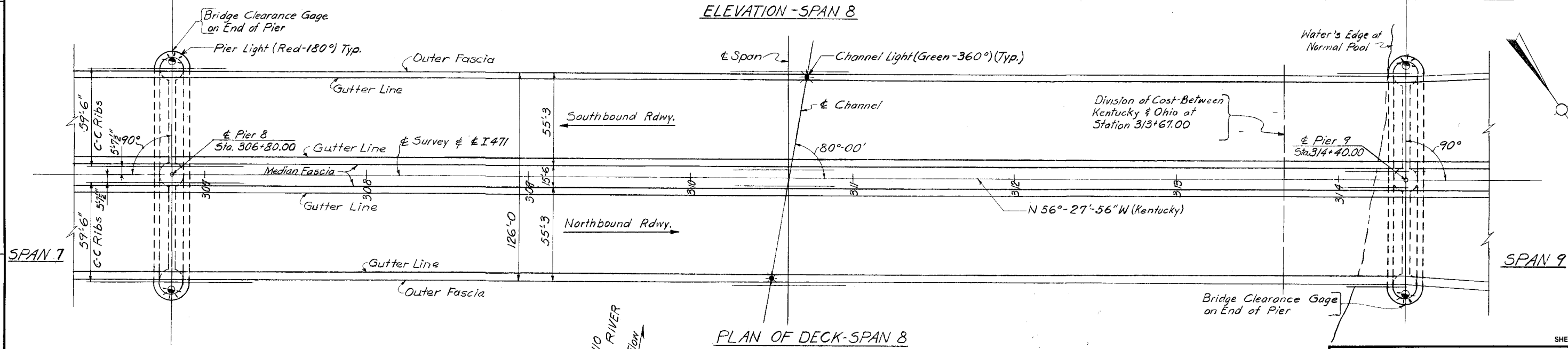
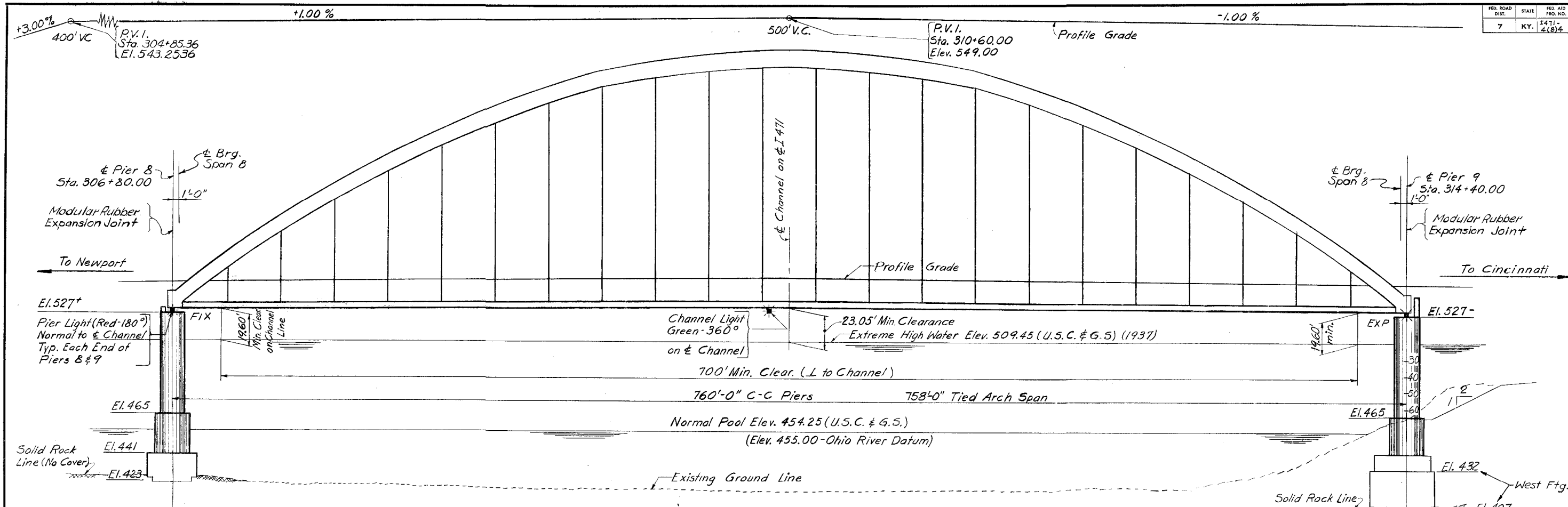
For construction notes see sheet 61
Work sheets 23 & 24 together

SHEET 24

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS
PROJECT 1471-4 ()
BRIDGE OVER OHIO RIVER ON I 471
CAMPBELL COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

SPAN 7 - CONSTRUCTION ELEVATIONS

FED. ROAD DIST.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
7	KY.	1471-4(8)4			



NOTE: For navigation lighting details see Sheets 62, 64, 65 & 66 of Drawing No. 18484

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

PROJECT 1471-4 ()
 BRIDGE OVER OHIO RIVER ON I 471
 CAMPBELL COUNTY, KENTUCKY
 HAMILTON COUNTY, OHIO

HAZELET & ERDAL
 Consulting Engineers
 File No. 889

BRIDGE NUMBER

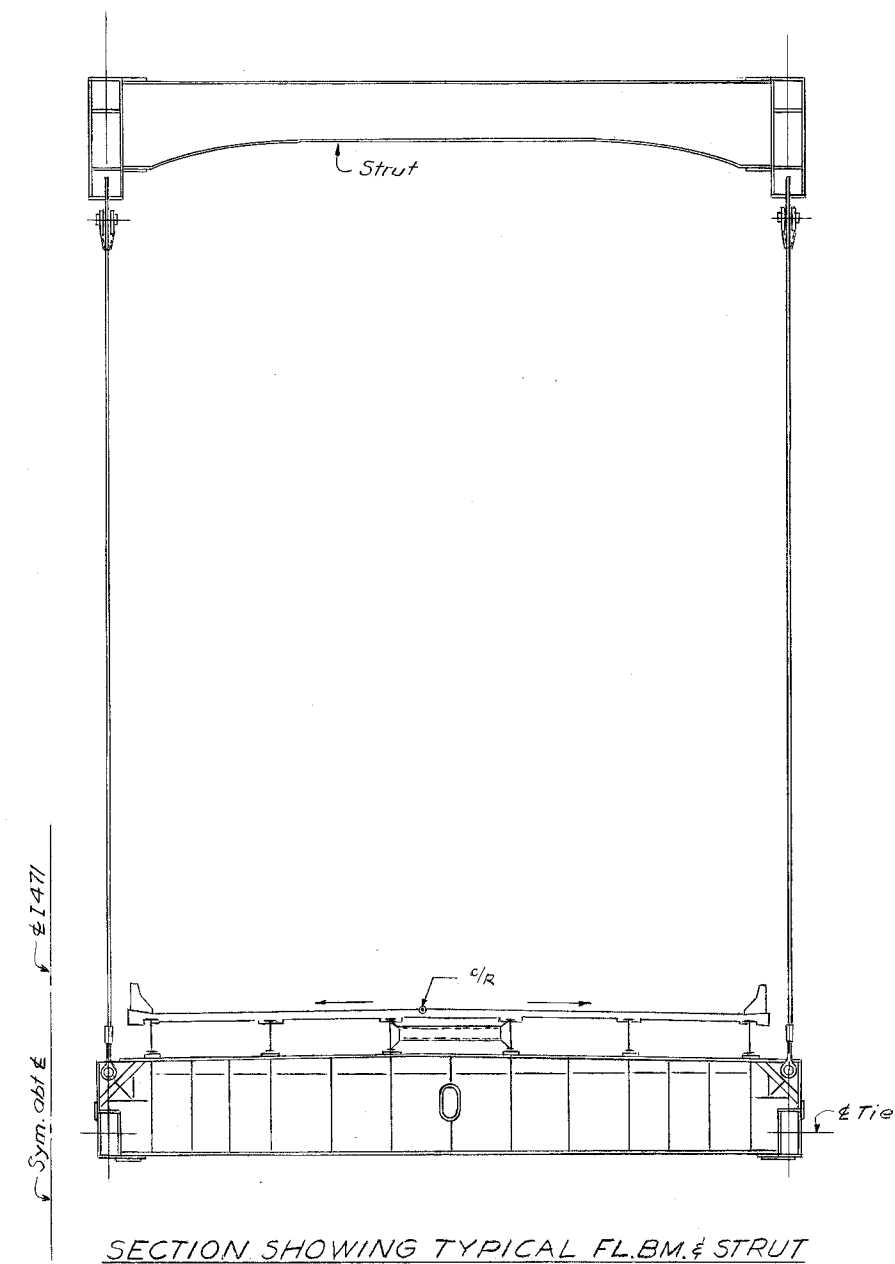
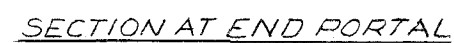
DRAWING NO. 18485

INDEX

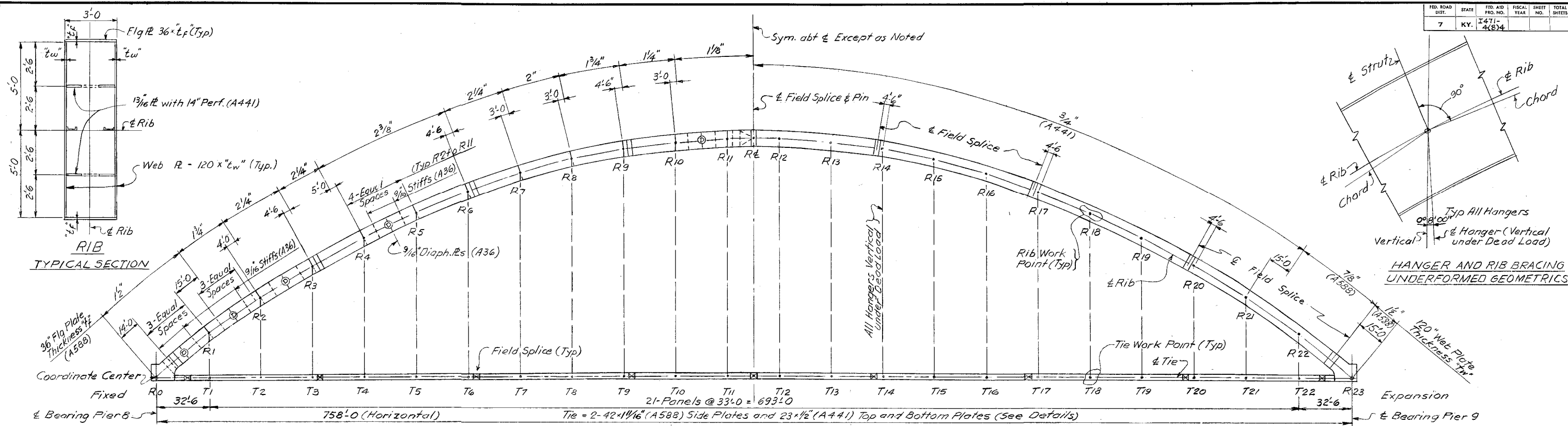
SPAN 8-LAYOUT

DESIGNED BY: JCE
 CHECKED BY: JCE
 DATE: 10-10-71

DESIGNED BY	CHECKED BY	DATE	REVISED	DATE
DRAWN BY	CHECKED BY	DATE	REVISED	DATE
TRACED BY	CHECKED BY	DATE	REVISED	DATE



SHEET 27



UNDEFORMED ARCH (FABRICATED) GEOMETRY

RIB WORK POINT	HORIZ. DIST. FROM COORD. CENTER (FT.)	ELEVATION OF ARCH AXIS (FT.)	RIB CHORD LENGTH (FT.)	ANGLE OF RIB CHORD TO HORIZ.	TIE WORK POINT	HORIZ. DIST. FROM COORD. CENTER (FT.)	ELEVATION OF TIE & - (FT.) (DEFORMED - SEE NOTES)	TIE CHORD LENGTH (FT.)	ANGLE OF TIE CHORD TO HORIZ.
R0	0.000	535.210	41.089	37° 53' 14"	R0	0.000	535.210	32.479	0° 34' 24"
R1	32.428	560.443	40.350	35° 16' 49"	T1	32.477	535.535	32.978	0° 34' 24"
R2	65.367	583.748	39.051	32° 27' 28"	T2	65.453	535.865	32.979	0° 34' 24"
R3	98.318	604.706	37.853	29° 26' 48"	T3	98.430	536.195	32.978	0° 34' 24"
R4	131.281	623.315	36.763	26° 15' 13"	T4	131.406	536.525	32.977	0° 31' 48"
R5	164.252	639.577	35.796	22° 52' 45"	T5	164.382	536.830	32.978	0° 27' 12"
R6	197.232	653.494	34.958	19° 19' 58"	T6	197.359	537.091	32.977	0° 22' 44"
R7	230.219	665.067	34.260	15° 37' 57"	T7	230.335	537.309	32.976	0° 18' 08"
R8	263.212	674.299	33.710	11° 47' 56"	T8	263.311	537.483	32.977	0° 13' 39"
R9	296.210	681.192	33.317	7° 51' 35"	T9	296.288	537.614	32.976	0° 09' 04"
R10	329.214	685.748	33.082	3° 50' 27"	T10	329.264	537.701	32.977	0° 04' 35"
R11	362.222	687.964	16.509	0° 49' 09"	T11	362.241	537.745	32.976	0° 00' 00"
R12	395.236	687.964	33.082	3° 50' 27"	T12	395.217	537.745	32.977	0° 04' 35"
R13	428.244	685.748	33.317	7° 51' 35"	T13	428.194	537.701	32.976	0° 09' 04"
R14	461.248	681.192	33.710	11° 47' 56"	T14	461.170	537.614	32.977	0° 13' 39"
R15	494.246	674.299	34.260	15° 37' 57"	T15	494.147	537.483	32.976	0° 18' 08"
R16	527.239	665.067	34.958	19° 19' 58"	T16	527.123	537.309	32.977	0° 22' 44"
R17	560.226	653.494	35.796	22° 52' 45"	T17	560.099	537.091	32.978	0° 27' 12"
R18	593.206	639.577	36.763	26° 15' 13"	T18	593.076	536.830	32.977	0° 31' 48"
R19	626.177	623.315	37.853	29° 26' 48"	T19	626.052	536.525	32.978	0° 34' 24"
R20	659.140	604.706	39.051	32° 27' 28"	T20	659.028	536.195	32.979	0° 34' 24"
R21	692.091	583.748	40.350	35° 16' 49"	T21	692.005	535.865	32.978	0° 34' 24"
R22	725.030	560.443	41.089	37° 53' 14"	T22	724.981	535.535	32.479	0° 34' 24"
R23	757.458	535.210			R23	757.458	535.210		

DEFORMED ARCH (FINAL) GEOMETRY

RIB WORK POINT	HORIZ. DIST. FROM COORD. CENTER (FT.)	ELEVATION OF ARCH AXIS (FT.)	TIE WORK POINT	HORIZ. DIST. FROM COORD. CENTER (FT.)	ELEVATION OF TIE & - (FT.)
R0	0.000	535.210	R0	0.000	535.210
R1	32.500	560.324	T1	32.500	535.535
R2	65.500	583.514	T2	65.500	535.865
R3	98.500	604.367	T3	98.500	536.195
R4	131.500	622.881	T4	131.500	536.525
R5	164.500	639.056	T5	164.500	536.830
R6	197.500	652.894	T6	197.500	537.091
R7	230.500	664.393	T7	230.500	537.309
R8	263.500	673.554	T8	263.500	537.483
R9	296.500	680.377	T9	296.500	537.614
R10	329.500	684.862	T10	329.500	537.701
R11	362.500	687.008	T11	362.500	537.745
R12	395.500	687.008	T12	395.500	537.745
R13	428.500	684.862	T13	428.500	537.701
R14	461.500	680.377	T14	461.500	537.614
R15	494.500	673.554	T15	494.500	537.483
R16	527.500	664.393	T16	527.500	537.309
R17	560.500	652.894	T17	560.500	537.091
R18	593.500	639.056	T18	593.500	536.830
R19	626.500	622.881	T19	626.500	536.525
R20	659.500	604.367	T20	659.500	536.195
R21	692.500	583.514	T21	692.500	535.865
R22	725.500	560.324	T22	725.500	535.535
R23	758.000	535.210	R23	758.500	535.210

GEOMETRY NOTES:

All steel shall be fabricated for a normal temperature of 60° F.

The UNDEFORMED ARCH (FABRICATED) GEOMETRY table is given for use in fabricating the Tie and the Rib. The coordinates and elevations allow for the deformations due to the full dead load excluding Future Wearing Surface unless noted.

The DEFORMED ARCH (FINAL) GEOMETRY table gives the final geometry after the structure is completed with the full dead load excluding FUTURE WEARING SURFACE applied.

See the Arch Rib and Arch Tie Notes for fabrication information relating to the Rib and the Tie.

Work Sheets 28 and 29 Together.

SHEET 28

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS
 PROJECT 1471-4 ()
 BRIDGE OVER OHIO RIVER ON I 471
 CAMPBELL COUNTY, KENTUCKY
 HAMILTON COUNTY, OHIO

SPAN 8
MEMBER SECTIONS & GEOMETRY

DESIGNED BY: WFB
 CHECKED BY: JAN E CBH
 DATE: 1-3-78
 REVISIONS:
 1. DATE: 10-10-78
 BY: FME/JAN
 REASON: WFB
 2. DATE: 1-3-78
 BY: WFB
 REASON: WFB

MEMBER STRESSES

FED. ROAD DIST.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
7	KY.	1471-484			

MEMBER	R ₀ -R ₁		R ₁ -R ₂		R ₂ -R ₃		R ₃ -R ₄		R ₄ -R ₅		R ₅ -R ₆		R ₆ -R ₇		R ₇ -R ₈		R ₈ -R ₉		R ₉ -R ₁₀	
JOINT	R ₁		R ₂		R ₃		R ₄		R ₅		R ₆		R ₇		R ₈		R ₉		R ₁₀	
GROSS AREA	350.9		339.3		375.3		375.3		384.3		384.3		375.3		357.3		339.3		303.3	
SECTION MODULUS	11,060		11,546		13,673		13,673		14,204		14,204		13,673		12,610		11,546		9,476	
MAX ϵ_r	40.3		26.0		32.5		31.6		30.9		30.1		29.2		28.2		27.4		26.3	
f ALLOWABLE ①	- 19.3		- 18.8		- 18.3		- 18.2		- 18.2		- 18.2		- 18.4		- 18.6		- 18.6		- 18.6	
	THRUST	MOMENT	THRUST	MOMENT	THRUST	MOMENT	THRUST	MOMENT	THRUST	MOMENT	THRUST	MOMENT	THRUST	MOMENT	THRUST	MOMENT	THRUST	MOMENT	THRUST	MOMENT
DL (STEEL)	- 2,234	- 6,710	- 2,162	- 13,355	- 2,088	- 18,325	- 2,018	- 18,475	- 1,958	- 16,815	- 1,905	- 13,975	- 1,858	- 7,585	- 1,823	- 2,625	- 1,796	+ 140	- 1,775	+ 2,505
DL (CONCRETE)	- 2,171	- 2,350	- 2,091	+ 2,945	- 2,030	+ 2,045	- 1,960	+ 7,240	- 1,914	+ 3,800	- 1,859	+ 5,185	- 1,817	+ 4,425	- 1,783	+ 1,525	- 1,751	+ 3,970	- 1,734	- 2,145
DL (F.W.S.)	- 307	- 660	- 295	- 140	- 287	- 425	- 277	+ 190	- 271	- 665	- 263	- 700	- 254	- 945	- 252	- 1,390	- 247	- 1,020	- 245	- 2,120
LL+I (FULLY LOADED)	- 724	- 12,240	- 688	- 18,705	- 670	- 24,095	- 647	- 25,025	- 637	- 27,310	- 618	- 26,510	- 608	- 25,335	- 599	- 24,270	- 586	- 21,425	- 585	- 22,095
LL+I (MAX COMPR. TOP)	- 339	- 59,285	- 273	- 106,125	- 253	- 139,535	- 225	- 156,315	- 255	- 166,120	- 278	- 162,550	- 264	- 150,950	- 301	- 133,160	- 332	- 108,215	- 336	- 89,850
LL+I (MAX COMPR. BOT)	- 482	+ 47,895	- 477	+ 89,630	- 476	- 119,205	- 437	+ 138,225	- 441	+ 147,770	- 389	+ 144,785	- 396	+ 135,065	- 393	+ 118,940	- 349	+ 96,855	- 304	+ 72,360
TOTALS																				
DL+LL+I (FULLY LOADED)	- 5,436	- 21,960	- 5,236	- 29,255	- 5,075	- 40,800	- 4,902	- 36,070	- 4,780	- 40,990	- 4,645	- 36,000	- 4,540	- 29,440	- 4,457	- 26,760	- 4,380	- 18,355	- 4,339	- 23,855
DL+LL+I (MAX COMPR. TOP)	- 5,051	- 69,005	- 4,821	- 116,675	- 4,658	- 156,240	- 4,480	- 167,360	- 4,398	- 179,800	- 4,305	- 172,040	- 4,196	- 155,055	- 4,159	- 135,650	- 4,126	- 105,125	- 4,090	- 91,610
DL+LL+I (MAX COMPR. BOT)	- 5,194	+ 38,175	- 5,025	+ 79,080	- 4,881	+ 102,500	- 4,692	+ 127,180	- 4,584	+ 134,090	- 4,416	+ 135,295	- 4,328	+ 130,960	- 4,251	+ 116,450	- 4,143	+ 99,945	- 4,058	+ 70,600
f (MAX AXIAL)	- 15.4		- 15.4		- 13.6		- 13.1		- 12.4		- 12.1		- 12.1		- 12.5		- 12.9		- 14.3	
f MAX (AXIAL+BEND) ②	- 21.0		- 24.6		- 23.9		- 24.2		- 24.1		- 23.8		- 23.8		- 23.8		4.2		-	
f MIN (AXIAL+BEND) ③	- 7.4		- 3.4		- 0.5		+ 0.6		+ 1.5		+ 1.8		+ 1.8		+ 1.1		+ 0.2		- 1.6	

MEMBER	R ₁₀ -R ₁₁		R ₁₁ -R ₁₂		R ₁₂ -R ₁₃ (Tie)	
JOINT	R ₁₁		R ₁₂		R ₁₃	
GROSS AREA	294.3		280.8		167.5	
SECTION MODULUS	8,883		8,878		1,455	
MAX ϵ_r	25.9		25.2		36.0	
f ALLOWABLE ①	- 18.4		- 18.4		+ 27.0	
	THRUST	MOMENT	THRUST	MOMENT	THRUST	MOMENT
DL (STEEL)	- 1,764	- 295	- 1,760	0.0	+ 1,760	- 455
DL (CONCRETE)	- 1,720	- 3,435	- 1,716	0.0	+ 1,716	- 245
DL (F.W.S.)	- 243	- 2,395	- 242	- 1,910	+ 242	- 45
LL+I (FULLY LOADED)	- 579	- 21,720	- 575	- 17,495	+ 586	- 95
LL+I (MAX COMPR. TOP)	- 339	- 79,725	- 760	- 73,480	—	- 5,315
LL+I (MAX COMPR. BOT)	- 324	+ 58,685	- 321	+ 55,960	—	+ 5,510
TOTALS						
DL+LL+I (FULLY LOADED)	- 4,306	- 27,845	- 4,293	- 19,405	+ 4,304	- 830
DL+LL+I (MAX COMPR. TOP)	- 4,066	- 85,850	- 4,478	- 75,390	—	- 6,050
DL+LL+I (MAX COMPR. BOT)	- 4,051	+ 52,560	- 4,039	+ 54,050	—	+ 4,775
f (MAX AXIAL)	- 14.6		@ R ₁₁ - 16.0		+ 25.8 (On Gross Area) + 29.0 (On Net Area)	
f MAX (AXIAL+BEND) ②	- 24.5		- 11.6		—	
f MIN (AXIAL+BEND) ③	- 2.7		+ 9.2		—	

STRESS SHEET NOTES:

Sign Convention

Thrust : - = Compression

+ = Tension

Moment : - = Compression Top Flange

+ = Compression Bottom Flange

Units of table values

Area = Square Inches

Section Modulus = Inches³

Thrust = Kips

Moment = Inch-Kips

f = Kips per Square Inch

The Structure is symmetrical about R₆.

The R₆ Joint is considered as Hinged

for DL (Steel) + DL (Conc.) and as

Fixed for DL (FWS) + LL + I.

Member R₀-R₁ design is governed by the

portal action due to wind forces

and by Joint R₀ design.

Members R₁-R₂, R₄-R₁₀, R₁₁-R₁₂, and

R₁₂-R₁₃ (Tie) are designed considering

the increased allowable DL stresses.

Member R₁₁-R₁₂ design is governed by

the R₆ Joint design.

① - f allowable as determined from

Curves based on Formula (A),

Appendix "C", AASHTO 1969, $\alpha = +1$.

② - stress given is the max compression

stress in the Top Flange.

③ - stress given is the min compression

or max tension in the Bottom Flange.

Work Sheets 28 and 29 Together.

SHEET 29

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

PROJECT 1471-4 ()
BRIDGE OVER OHIO RIVER ON I 471
CAMPBELL COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

HAZELET & ERDAL
Consulting Engineers
File No. 889

BRIDGE
NUMBER

DRAWING NO.

18485

INDEX

SPAN 8
STRESS SHEET

DESIGNED BY: JAN. 6, 1971
CHECKED BY: F.M. J. JAN. 6, 1971
TRACED BY: W.B. JAN. 6, 1971
DATE: 1-6-71

PANEL POINT LOADS (IN KIPS)

Panel Point		0	1	2	3	4	5	6	7	8	9	10	11	Σ
Rib Joint	Steel ①	47.6	62.5	81.6	77.4	70.4	68.2	71.3	62.7	58.8	57.9	50.7	44.1	32.6
	Steel ②	25.9	57.4	51.5	59.2	58.6	59.2	62.1	58.1	60.1	65.5	60.7	62.2	0
	Concrete	50.2	135.4	110.0	136.7	99.5	133.5	115.9	115.9	134.8	99.7	133.5	115.9	0
	F.W.S. ④	6.7	19.4	15.7	19.4	13.4	19.2	16.6	16.6	19.2	13.4	19.2	16.6	0
Tie Joint	Sub Total	82.8	212.2	177.2	215.3	171.5	211.9	194.6	190.6	214.1	178.6	213.4	194.7	0
	Rib + Tie DL Total	130.4	274.7	258.8	292.7	241.9	280.1	265.9	253.3	272.9	236.5	264.1	238.8	32.6
	Uniform Live Load	14.4	41.2	33.3	41.2	28.7	40.6	35.2	35.2	40.6	28.9	40.6	35.2	0
	Impact (5.7%)	0.8	2.3	1.9	2.3	1.6	2.3	2.0	2.0	2.3	1.6	2.3	2.0	0
	LL + I ③	15.2	43.5	35.2	43.5	30.3	42.9	37.2	37.2	42.9	30.5	42.9	37.2	0
	DL + LL + I Total	145.6	318.2	294.0	336.2	272.2	323.0	303.1	290.5	315.8	267.0	307.0	276.0	32.6

- ① Includes weight of Rib, Rib Bracing, and incidental details.
② Includes weight of Tie, Bottom Bracing, Floorbeam, Inspection Walks, Stringers, Diaphragms, Expansion Dams, Cable (includes two sockets), and incidental details plus the unbalanced vertical component of the Tie Stress.
③ Uniform LL + I only (does not include concentrated Load).
④ Future Wearing Surface applied after Hinge at the R_C Joint has been fixed.

HANGER ASSEMBLIES (FT.)

Panel	Deformed Length Rib to Tie ⑤	Deformed Length C-C Pins ⑥	Strand Elongation ⑦			
			⑬ Steel	Conc.	F.W.S.	Total
1	24.789	11.758	.005	.013	.002	.020
2	47.649	34.884	.016	.034	.005	.055
3	68.172	55.640	.027	.061	.009	.097
4	86.356	74.022	.042	.071	.010	.123
5	102.227	90.112	.043	.097	.014	.154
6	115.803	103.870	.056	.106	.015	.177
7	127.084	115.235	.059	.117	.017	.193
8	136.071	124.373	.060	.135	.019	.214
9	142.763	131.180	.082	.125	.017	.224
10	147.161	135.629	.066	.146	.021	.223
11	149.263	137.748	.075	.140	.020	.235

- ⑤ Vertical Distance from Work Point of Rib to Work Point of Tie.
⑥ Vertical Distance from ϵ Pin at Rib to ϵ Pin at Tie.
⑦ Modulus of Elasticity used for Strand Elongation = 23,000,000 psi For other "E"s, adjust deformation. Steel elongation includes weight of hanger.
⑬ Includes Δ due to unbalanced vertical component of the Tie Stress.

DEAD LOAD VERTICAL DEFLECTION (FT.)

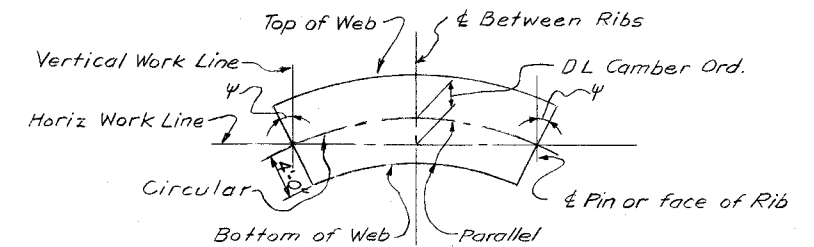
Panel Point		0	1	2	3	4	5	6	7	8	9	10	11	Σ
Rib	Steel ⑬	—	.075	.147	.208	.258	.297	.326	.347	.363	.378	.392	.406	.414
	Concrete	—	.044	.087	.131	.176	.224	.274	.327	.381	.437	.494	.549	.576
	Sub Total	—	.119	.234	.339	.434	.521	.600	.674	.744	.815	.886	.955	.990
	F.W.S.	—	.008	.015	.022	.029	.036	.043	.049	.054	.059	.062	.064	.064
Deck	⑪	—	.020	.055	.097	.123	.154	.177	.193	.214	.224	.233	.235	.235
Total ⑫	Rib + Deck	—	.147	.304	.458	.586	.711	.820	.916	1.012	1.098	1.181	1.254	1.289

- ⑪ See Strand Elongation of Hanger Assemblies.
⑫ Includes DL (Steel) + DL (Conc.) + DL (FWS) + Hanger Elongation.

FLOORBEAM MOMENTS, REACTIONS, STRESSES AND CAMBER

Floorbeam	⑧ Maximum Moment (Ft.-Kips.)				Max. Tension Kips/in. ²	⑨ End Reaction (Kips)				Max Shear Kips/in. ²	Dead Load Camber ⑩ (Inches)	Ψ Radians
	DL	LL	I	Total		DL	LL	I	Total			
FB11	1645	1365	370	3380	25.8	106	82	22	210	5.8	1/4	.00140
FB12	2775	1790	485	5050	26.4	185	109	30	324	9.0	3/8	.00210
FB13	2305	1765	475	4545	26.1	151	106	29	286	7.9	3/8	.00210
FB14	2200	1490	400	4090	26.5	142	87	24	253	7.0	3/8	.00210
Allowable					Tension = +27.0 $\frac{1}{in}^2$ Compr. = -25.8 $\frac{1}{in}^2$	Allowable Shear = 17.0 $\frac{1}{in}^2$						

- ⑧ Moment at ϵ Floorbeam.
⑨ Does not include Reaction due to Tie, Cable, socket and "K" Brdg. at Tie.
⑩ Camber for DL (Steel) + DL (Conc.) only.

CAMBER DIAGRAM
(Camber and End Rotation)

INTERIOR STRINGER MOMENTS, STRESSES AND REACTIONS ⑭

	Max Moment (Ft Kips)		Max Reactions (Kips)		
	Positive	Negative	@ End Support	@ 1st Interior Support	@ 2nd Interior Support
DL	125	-173	19	57	45
LL	266	-196	47	61	60
I (30%)	80	-58	14	18	17
Total	471	-427	80	136	122
Max Stress (Kips/in. ²)	17.3	16.9			
Max Shear (Kips/in. ²)			4.7	5.2	4.8
Tension & Compr. Allowable = 20.0 $\frac{1}{in}^2$ Shear Allowable = 12.0 $\frac{1}{in}^2$					

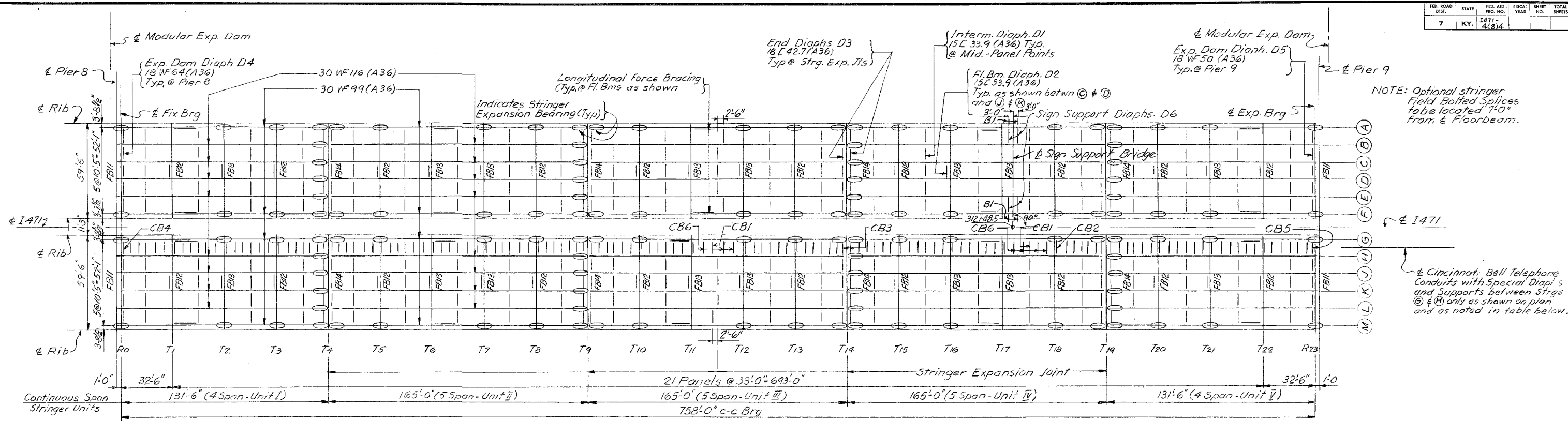
- ⑭ To produce the max. moment and/or max. reactions for Fascia Stringers multiply the table values by 1.03 for Dead Load and by 0.83 for Live Load. Sections are governed by 1/1200 LL + I deflection requirement.

SHEET 30

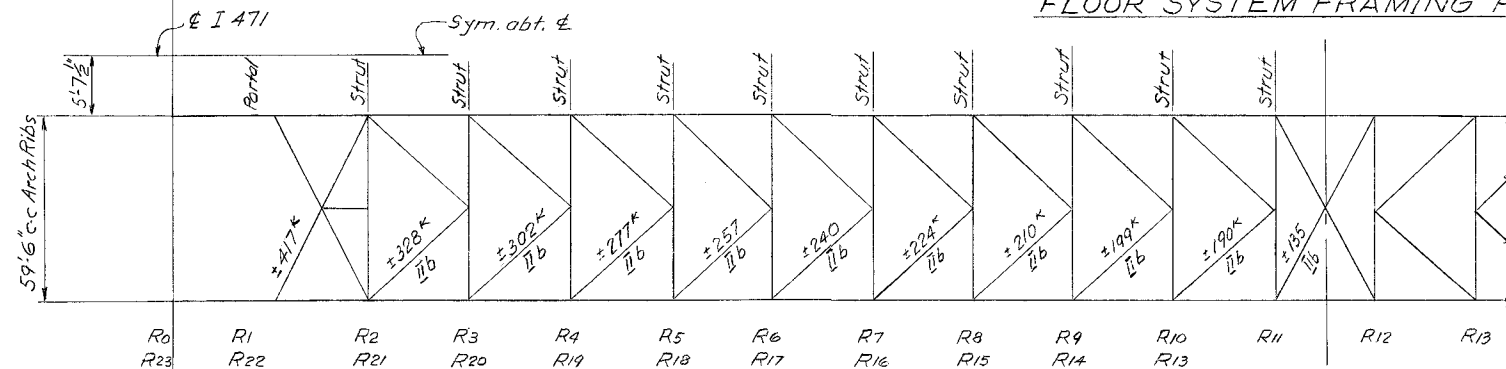
KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYSPROJECT 1471-4 ()
BRIDGE OVER OHIO RIVER ON I 471
CAMPBELL COUNTY, KENTUCKY
HAMILTON COUNTY, OHIOHAZELET & ERDAL
Consulting Engineers
File No. 889BRIDGE
NUMBERDRAWING NO.
18485

INDEX

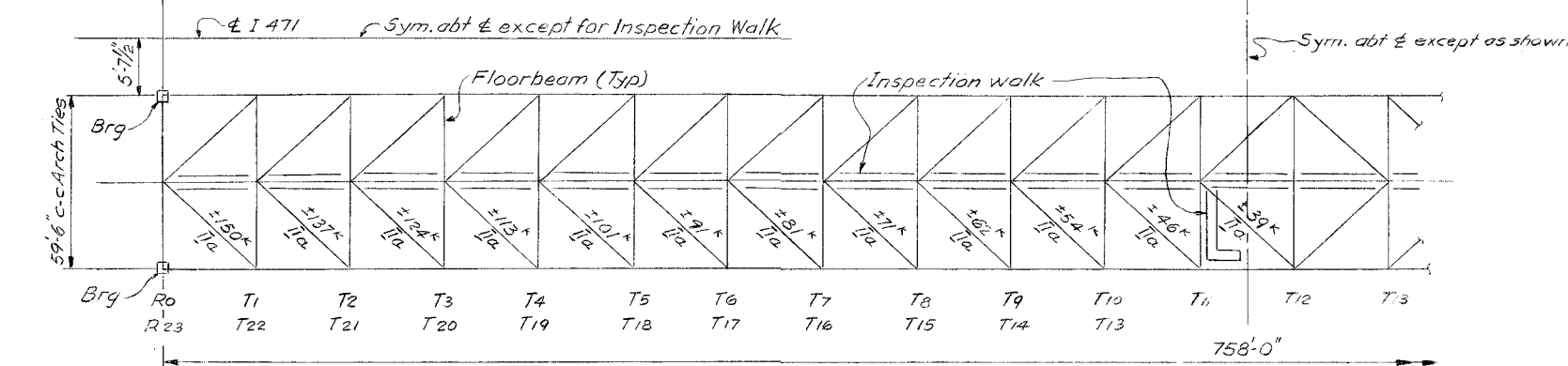
SPAN 8
LOAD SHEET



FLOOR SYSTEM FRAMING PLAN



PLAN OF TOP LATERAL BRACING



PLAN OF BOTTOM LATERAL BRACING

BRACING MEMBER STRESSES:

Stresses shown are tensile (+) or compressive (-).
Bracing is designed as a double system.
Ia Loading - 50⁺ psf wind @ 100% of allowable.
Iib Loading - 50⁺ psf wind + transverse shear of 2 1/2% of total axial dead load compressive stress in that panel @ 125% of allowable.

CINCINNATI BELL DIAPHRAGMS			
DIAPH	SECTION	MAT'L	LOCATION
CB1	21 B44	A36	At midpanel point of stringers
CB2	1-L 4 x 3 x 5/16	A36	At each interior stringer support
CB3	24 B55	A36	At stringer expansion joints
CB4	27 WF84	A36	At Pier 8 expansion joint
CB5	24 WF68	A36	At Pier 9 expansion joint
CB6	1-L 4 x 3 x 5/16	A36	Space to clear Drains with 7'-0" max. Ctrs.

SHEET 31

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

PROJECT I471-4 ()
BRIDGE OVER OHIO RIVER ON I 471
CAMPBELL COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

HAZELET & ERDAL
Consulting Engineers
File No. 889

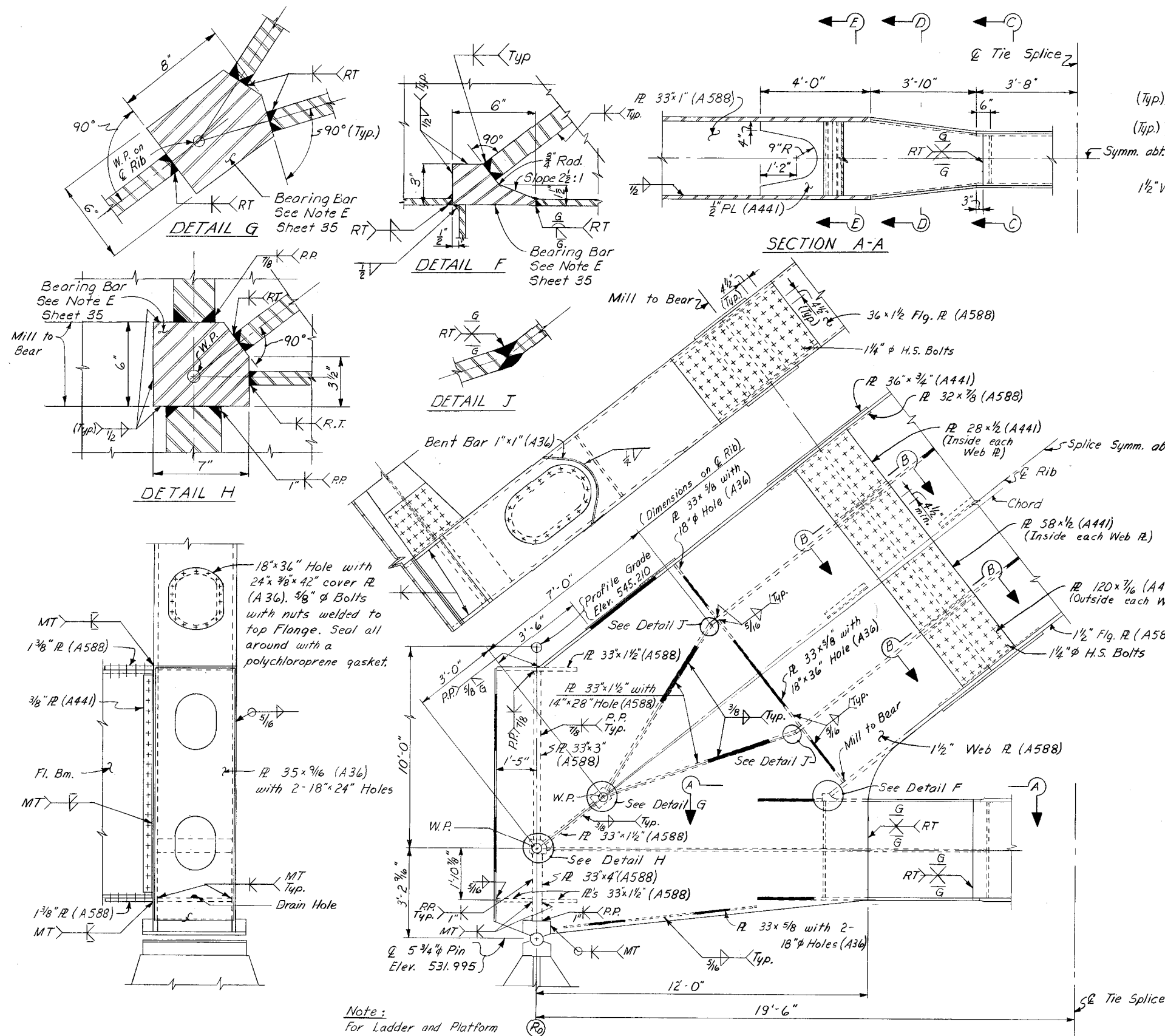
BRIDGE
NUMBER

DRAWING NO.
18485

INDEX

SPAN 8
FRAMING PLAN

DESIGNED BY: CGH
CHECKED BY: F.M.
DATE: 10-70
REVISIONS:
1. Added Overhead Sign Support Diaphragms 2-25-71
2. Revised



Note:
For Ladder and Platform connections not shown at R₀, see sheet 51.

ELEVATION AT R₀ (SHOWN)
(R 23 OPP. HAND)

ARCH RIB NOTES:

H.S. Bolts - 7/8" φ U.N.
Material - A 36 U.N.

The Arch Ribs are to be three hinged during all erection. After the concrete slabs and parapets have been placed, the @ Joint splice plates shall be bolted in place converting the Ribs to two hinged arches. See @ Joint sketch.

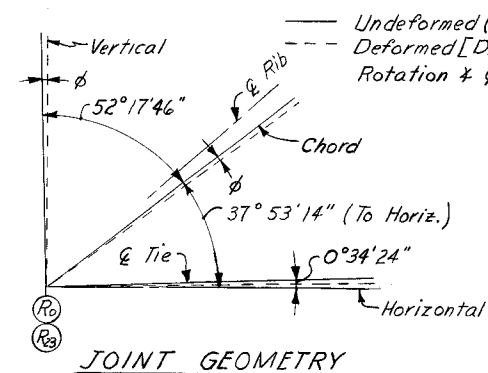
The Arch Ribs are to be fabricated to the coordinates and elevations given in the Undeformed Geometry table on Sheet 28. The Ribs are to be fabricated to a smooth curve. The formula for the curve thru the Rib Work Points for the deformed geometry coordinates and elevations is as follows:

$$y = [-0.00012545 + 9.6954(x/1000) - 12.882816(x/1000)^2]^{1000/12}$$

where x = horizontal distance from R₀ (in feet)
y = vertical distance from R₀ (in feet)

The fabricator may use the deformed geometry chord offsets as determined from the above formula for the undeformed geometry chord offsets or may submit an alternate method of obtaining the fabrication curve to the Engineer for approval.

The hanger connection plate fabrication geometry shall be as shown on sheet 28.
See sheet 42 for Hanger Connections.
See sheet 2 for General Notes.



SPAN 8 ARCH RIB DETAILS

Work Sheets 32 thru 35 Together.

SHEET 32

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

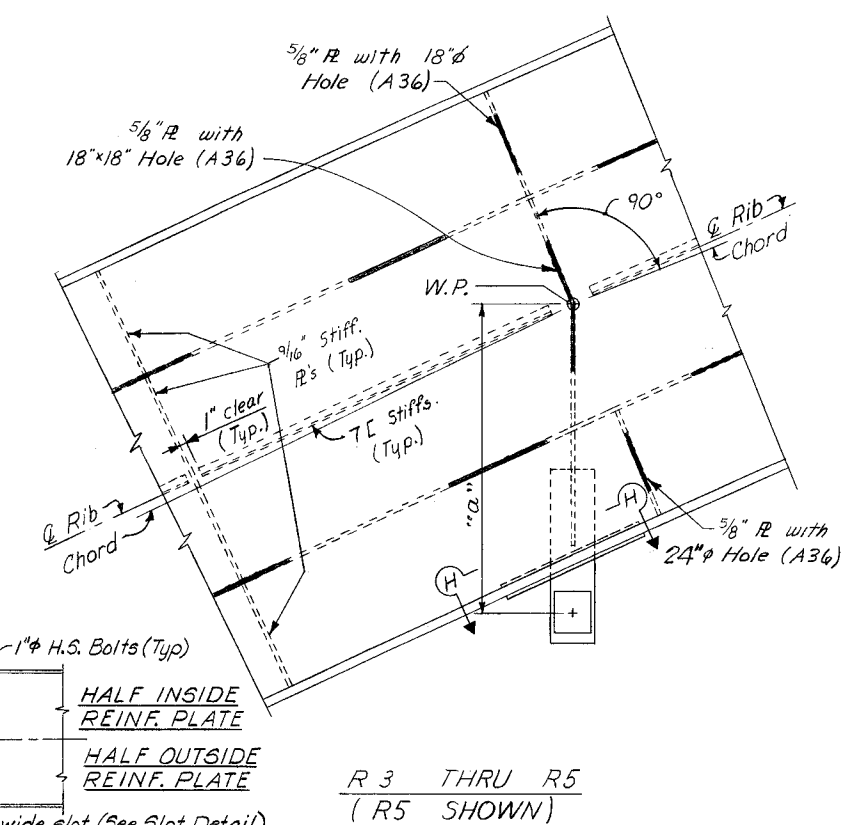
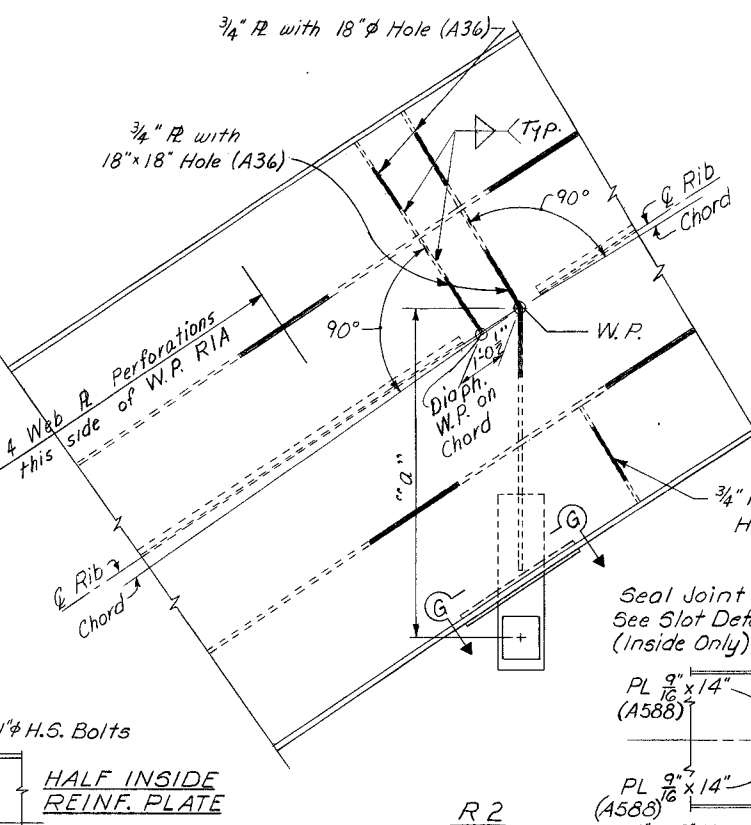
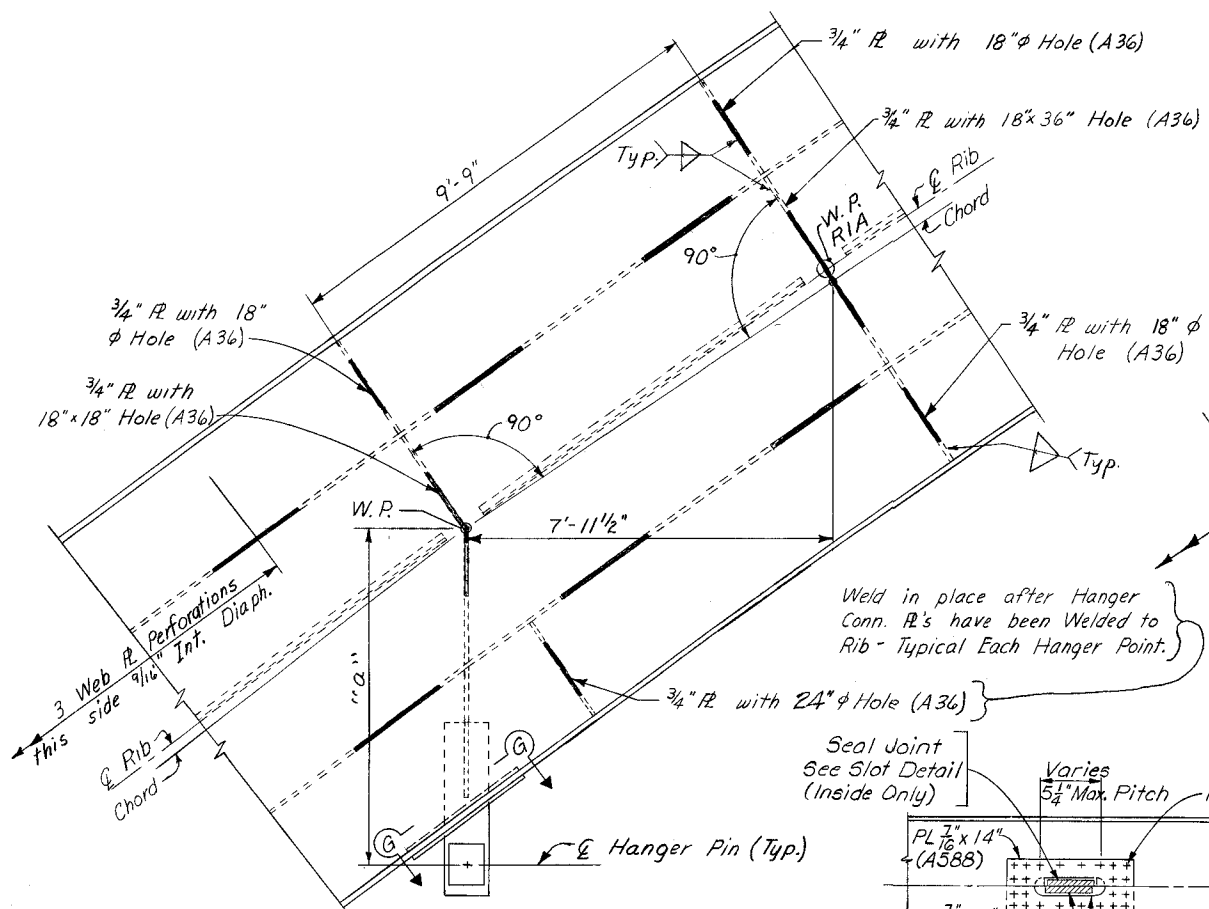
PROJECT 1471-4 ()
BRIDGE OVER OHIO RIVER ON I 471
CAMPBELL COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

HAZLET & ERDAL
Consulting Engineers
File No. 889

BRIDGE
NUMBER

DRAWING NO.
13485
INDEX

DESIGNED BY: WEB
CHECKED BY: JAN & CCH
DATE: 10-10-70
REVISION: 1
DATE: 11-12-70
REVISION: 2
DATE: 11-12-70
REVISION: 3
DATE: 11-12-70
REVISION: 4
DATE: 11-12-70
REVISION: 5
DATE: 11-12-70
REVISION: 6
DATE: 11-12-70
REVISION: 7
DATE: 11-12-70
REVISION: 8
DATE: 11-12-70
REVISION: 9
DATE: 11-12-70
REVISION: 10
DATE: 11-12-70
REVISION: 11
DATE: 11-12-70
REVISION: 12
DATE: 11-12-70
REVISION: 13
DATE: 11-12-70
REVISION: 14
DATE: 11-12-70
REVISION: 15
DATE: 11-12-70
REVISION: 16
DATE: 11-12-70
REVISION: 17
DATE: 11-12-70
REVISION: 18
DATE: 11-12-70
REVISION: 19
DATE: 11-12-70
REVISION: 20
DATE: 11-12-70
REVISION: 21
DATE: 11-12-70
REVISION: 22
DATE: 11-12-70
REVISION: 23
DATE: 11-12-70
REVISION: 24
DATE: 11-12-70
REVISION: 25
DATE: 11-12-70
REVISION: 26
DATE: 11-12-70
REVISION: 27
DATE: 11-12-70
REVISION: 28
DATE: 11-12-70
REVISION: 29
DATE: 11-12-70
REVISION: 30
DATE: 11-12-70
REVISION: 31
DATE: 11-12-70
REVISION: 32
DATE: 11-12-70
REVISION: 33
DATE: 11-12-70
REVISION: 34
DATE: 11-12-70
REVISION: 35
DATE: 11-12-70
REVISION: 36
DATE: 11-12-70
REVISION: 37
DATE: 11-12-70
REVISION: 38
DATE: 11-12-70
REVISION: 39
DATE: 11-12-70
REVISION: 40
DATE: 11-12-70
REVISION: 41
DATE: 11-12-70
REVISION: 42
DATE: 11-12-70
REVISION: 43
DATE: 11-12-70
REVISION: 44
DATE: 11-12-70
REVISION: 45
DATE: 11-12-70
REVISION: 46
DATE: 11-12-70
REVISION: 47
DATE: 11-12-70
REVISION: 48
DATE: 11-12-70
REVISION: 49
DATE: 11-12-70
REVISION: 50
DATE: 11-12-70
REVISION: 51
DATE: 11-12-70
REVISION: 52
DATE: 11-12-70
REVISION: 53
DATE: 11-12-70
REVISION: 54
DATE: 11-12-70
REVISION: 55
DATE: 11-12-70
REVISION: 56
DATE: 11-12-70
REVISION: 57
DATE: 11-12-70
REVISION: 58
DATE: 11-12-70
REVISION: 59
DATE: 11-12-70
REVISION: 60
DATE: 11-12-70
REVISION: 61
DATE: 11-12-70
REVISION: 62
DATE: 11-12-70
REVISION: 63
DATE: 11-12-70
REVISION: 64
DATE: 11-12-70
REVISION: 65
DATE: 11-12-70
REVISION: 66
DATE: 11-12-70
REVISION: 67
DATE: 11-12-70
REVISION: 68
DATE: 11-12-70
REVISION: 69
DATE: 11-12-70
REVISION: 70
DATE: 11-12-70
REVISION: 71
DATE: 11-12-70
REVISION: 72
DATE: 11-12-70
REVISION: 73
DATE: 11-12-70
REVISION: 74
DATE: 11-12-70
REVISION: 75
DATE: 11-12-70
REVISION: 76
DATE: 11-12-70
REVISION: 77
DATE: 11-12-70
REVISION: 78
DATE: 11-12-70
REVISION: 79
DATE: 11-12-70
REVISION: 80
DATE: 11-12-70
REVISION: 81
DATE: 11-12-70
REVISION: 82
DATE: 11-12-70
REVISION: 83
DATE: 11-12-70
REVISION: 84
DATE: 11-12-70
REVISION: 85
DATE: 11-12-70
REVISION: 86
DATE: 11-12-70
REVISION: 87
DATE: 11-12-70
REVISION: 88
DATE: 11-12-70
REVISION: 89
DATE: 11-12-70
REVISION: 90
DATE: 11-12-70
REVISION: 91
DATE: 11-12-70
REVISION: 92
DATE: 11-12-70
REVISION: 93
DATE: 11-12-70
REVISION: 94
DATE: 11-12-70
REVISION: 95
DATE: 11-12-70
REVISION: 96
DATE: 11-12-70
REVISION: 97
DATE: 11-12-70
REVISION: 98
DATE: 11-12-70
REVISION: 99
DATE: 11-12-70
REVISION: 100
DATE: 11-12-70
REVISION: 101
DATE: 11-12-70
REVISION: 102
DATE: 11-12-70
REVISION: 103
DATE: 11-12-70
REVISION: 104
DATE: 11-12-70
REVISION: 105
DATE: 11-12-70
REVISION: 106
DATE: 11-12-70
REVISION: 107
DATE: 11-12-70
REVISION: 108
DATE: 11-12-70
REVISION: 109
DATE: 11-12-70
REVISION: 110
DATE: 11-12-70
REVISION: 111
DATE: 11-12-70
REVISION: 112
DATE: 11-12-70
REVISION: 113
DATE: 11-12-70
REVISION: 114
DATE: 11-12-70
REVISION: 115
DATE: 11-12-70
REVISION: 116
DATE: 11-12-70
REVISION: 117
DATE: 11-12-70
REVISION: 118
DATE: 11-12-70
REVISION: 119
DATE: 11-12-70
REVISION: 120
DATE: 11-12-70
REVISION: 121
DATE: 11-12-70
REVISION: 122
DATE: 11-12-70
REVISION: 123
DATE: 11-12-70
REVISION: 124
DATE: 11-12-70
REVISION: 125
DATE: 11-12-70
REVISION: 126
DATE: 11-12-70
REVISION: 127
DATE: 11-12-70
REVISION: 128
DATE: 11-12-70
REVISION: 129
DATE: 11-12-70
REVISION: 130
DATE: 11-12-70
REVISION: 131
DATE: 11-12-70
REVISION: 132
DATE: 11-12-70
REVISION: 133
DATE: 11-12-70
REVISION: 134
DATE: 11-12-70
REVISION: 135
DATE: 11-12-70
REVISION: 136
DATE: 11-12-70
REVISION: 137
DATE: 11-12-70
REVISION: 138
DATE: 11-12-70
REVISION: 139
DATE: 11-12-70
REVISION: 140
DATE: 11-12-70
REVISION: 141
DATE: 11-12-70
REVISION: 142
DATE: 11-12-70
REVISION: 143
DATE: 11-12-70
REVISION: 144
DATE: 11-12-70
REVISION: 145
DATE: 11-12-70
REVISION: 146
DATE: 11-12-70
REVISION: 147
DATE: 11-12-70
REVISION: 148
DATE: 11-12-70
REVISION: 149
DATE: 11-12-70
REVISION: 150
DATE: 11-12-70
REVISION: 151
DATE: 11-12-70
REVISION: 152
DATE: 11-12-70
REVISION: 153
DATE: 11-12-70
REVISION: 154
DATE: 11-12-70
REVISION: 155
DATE: 11-12-70
REVISION: 156
DATE: 11-12-70
REVISION: 157
DATE: 11-12-70
REVISION: 158
DATE: 11-12-70
REVISION: 159
DATE: 11-12-70
REVISION: 160
DATE: 11-12-70
REVISION: 161
DATE: 11-12-70
REVISION: 162
DATE: 11-12-70
REVISION: 163
DATE: 11-12-70
REVISION: 164
DATE: 11-12-70
REVISION: 165
DATE: 11-12-70
REVISION: 166
DATE: 11-12-70
REVISION: 167
DATE: 11-12-70
REVISION: 168
DATE: 11-12-70
REVISION: 169
DATE: 11-12-70
REVISION: 170
DATE: 11-12-70
REVISION: 171
DATE: 11-12-70
REVISION: 172
DATE: 11-12-70
REVISION: 173
DATE: 11-12-70
REVISION: 174
DATE: 11-12-70
REVISION: 175
DATE: 11-12-70
REVISION: 176
DATE: 11-12-70
REVISION: 177
DATE: 11-12-70
REVISION: 178
DATE: 11-12-70
REVISION: 179
DATE: 11-12-70
REVISION: 180
DATE: 11-12-70
REVISION: 181
DATE: 11-12-70
REVISION: 182
DATE: 11-12-70
REVISION: 183
DATE: 11-12-70
REVISION: 184
DATE: 11-12-70
REVISION: 185
DATE: 11-12-70
REVISION: 186
DATE: 11-12-70
REVISION: 187
DATE: 11-12-70
REVISION: 188
DATE: 11-12-70
REVISION: 189
DATE: 11-12-70
REVISION: 190
DATE: 11-12-70
REVISION: 191
DATE: 11-12-70
REVISION: 192
DATE: 11-12-70
REVISION: 193
DATE: 11-12-70
REVISION: 194
DATE: 11-12-70
REVISION: 195
DATE: 11-12-70
REVISION: 196
DATE: 11-12-70
REVISION: 197
DATE: 11-12-70
REVISION: 198
DATE: 11-12-70
REVISION: 199
DATE: 11-12-70
REVISION: 200
DATE: 11-12-70
REVISION: 201
DATE: 11-12-70
REVISION: 202
DATE: 11-12-70
REVISION: 203
DATE: 11-12-70
REVISION: 204
DATE: 11-12-70
REVISION: 205
DATE: 11-12-70
REVISION: 206
DATE: 11-12-70
REVISION: 207
DATE: 11-12-70
REVISION: 208
DATE: 11-12-70
REVISION: 209
DATE: 11-12-70
REVISION: 210
DATE: 11-12-70
REVISION: 211
DATE: 11-12-70
REVISION: 212
DATE: 11-12-70
REVISION: 213
DATE: 11-12-70
REVISION: 214
DATE: 11-12-70
REVISION: 215
DATE: 11-12-70
REVISION: 216
DATE: 11-12-70
REVISION: 217
DATE: 11-12-70
REVISION: 218
DATE: 11-12-70
REVISION: 219
DATE: 11-12-70
REVISION: 220
DATE: 11-12-70
REVISION: 221
DATE: 11-12-70
REVISION: 222
DATE: 11-12-70
REVISION: 223
DATE: 11-12-70
REVISION: 224
DATE: 11-12-70
REVISION: 225
DATE: 11-12-70
REVISION: 226
DATE: 11-12-70
REVISION: 227
DATE: 11-12-70
REVISION: 228
DATE: 11-12-70
REVISION: 229
DATE: 11-12-70
REVISION: 230
DATE: 11-12-70
REVISION: 231
DATE: 11-12-70
REVISION: 232
DATE: 11-12-70
REVISION: 233
DATE: 11-12-70
REVISION: 234
DATE: 11-12-70
REVISION: 235
DATE: 11-12-70
REVISION: 236
DATE: 11-12-70
REVISION: 237
DATE: 11-12-70
REVISION: 238
DATE: 11-12-70
REVISION: 239
DATE: 11-12-70
REVISION: 240
DATE: 11-12-70
REVISION: 241
DATE: 11-12-70
REVISION: 242
DATE: 11-12-70
REVISION: 243
DATE: 11-12-70
REVISION: 244
DATE: 11-12-70
REVISION: 245
DATE: 11-12-70
REVISION: 246
DATE: 11-12-70
REVISION: 247
DATE: 11-12-70
REVISION: 248
DATE: 11-12-70
REVISION: 249
DATE: 11-12-70
REVISION: 250
DATE: 11-12-70
REVISION: 251
DATE: 11-12-70
REVISION: 252
DATE: 11-12-70
REVISION: 253
DATE: 11-12-70
REVISION: 254
DATE: 11-12-70
REVISION: 255
DATE: 11-12-70
REVISION: 256
DATE: 11-12-70
REVISION: 257
DATE: 11-12-70
REVISION: 258
DATE: 11-12-70
REVISION: 259
DATE: 11-12-70
REVISION: 260
DATE: 11-12-70
REVISION: 261
DATE: 11-12-70
REVISION: 262
DATE: 11-12-70
REVISION: 263
DATE: 11-12-70
REVISION: 264
DATE: 11-12-70
REVISION: 265
DATE: 11-12-70
REVISION: 266
DATE: 11-12-70
REVISION: 267
DATE: 11-12-70
REVISION: 268
DATE: 11-12-70
REVISION: 269
DATE: 11-12-70
REVISION: 270
DATE: 11-12-70
REVISION: 271
DATE: 11-12-70
REVISION: 272
DATE: 11-12-70
REVISION: 273
DATE: 11-12-70
REVISION: 274
DATE: 11-12-70
REVISION: 275
DATE: 11-12-70
REVISION: 276
DATE: 11-12-70
REVISION: 277
DATE: 11-12-70
REVISION: 278
DATE: 11-12-70
REVISION: 279
DATE: 11-12-70
REVISION: 280
DATE: 11-12-70
REVISION: 281
DATE: 11-12-70
REVISION: 282
DATE: 11-12-70
REVISION: 283
DATE: 11-12-70
REVISION: 284
DATE: 11-12-70
REVISION: 285
DATE: 11-12-70
REVISION: 286
DATE: 11-12-70
REVISION: 287
DATE: 11-12-70
REVISION: 288
DATE: 11-12-70
REVISION: 289
DATE: 11-12-70
REVISION: 290
DATE: 11-12-70
REVISION: 291
DATE: 11-12-70
REVISION: 292
DATE: 11-12-70
REVISION: 293
DATE: 11-12-70
REVISION: 294
DATE: 11-12-70
REVISION: 295
DATE: 11-12-70
REVISION: 296
DATE: 11-12-70
REVISION: 297
DATE: 11-12-70
REVISION: 298
DATE: 11-12-70
REVISION: 299
DATE: 11-12-70
REVISION: 300
DATE: 11-12-70
REVISION: 301
DATE: 11-12-70
REVISION: 302
DATE: 11-12-70
REVISION: 303
DATE: 11-12-70
REVISION: 304
DATE: 11-12-70
REVISION: 305
DATE: 11-12-70
REVISION: 306
DATE: 11-12-70
REVISION: 307
DATE: 11-12-70
REVISION: 308
DATE: 11-12-70
REVISION: 309
DATE: 11-12-70
REVISION: 310
DATE: 11-12-70
REVISION: 311
DATE: 11-12-70
REVISION: 312
DATE: 11-12-70
REVISION: 313
DATE: 11-12-70
REVISION: 314
DATE: 11-12-70
REVISION: 315
DATE: 11-12-70
REVISION: 316
DATE: 11-12-70
REVISION: 317
DATE: 11-12-70
REVISION: 318
DATE: 11-12-70
REVISION: 319
DATE: 11-12-70
REVISION: 320
DATE: 11-12-70
REVISION: 321
DATE: 11-12-70
REVISION: 322
DATE: 11-12-70
REVISION: 323
DATE: 11-12-70
REVISION: 324
DATE: 11-12-70
REVISION: 325
DATE: 11-12-70
REVISION: 326
DATE: 11-12-70
REVISION: 327
DATE: 11-12-70
REVISION: 328
DATE: 11-12-70
REVISION: 329
DATE: 11-12-70
REVISION: 330
DATE: 11-12-70
REVISION: 331
DATE: 11-12-70
REVISION: 332
DATE: 11-12-70
REVISION: 333
DATE: 11-12-70
REVISION: 334
DATE: 11-12-70
REVISION: 335
DATE: 11-12-70
REVISION: 336
DATE: 11-12-70
REVISION: 337
DATE: 11-12-70
REVISION: 338
DATE: 11-12-70
REVISION: 339
DATE: 11-12-70
REVISION: 340
DATE: 11-12-70
REVISION: 341
DATE: 11-12-70
REVISION: 342
DATE: 11-12-70
REVISION: 343
DATE: 11-12-70
REVISION: 344
DATE: 11-12-70
REVISION: 345
DATE: 11-12-70
REVISION: 346
DATE: 11-12-70
REVISION: 347
DATE: 11-12-70
REVISION: 348
DATE: 11-12-70
REVISION: 349
DATE: 11-12-70
REVISION: 350
DATE: 11-12-70
REVISION: 351
DATE: 11-12-70
REVISION: 352
DATE: 11-12-70
REVISION: 353
DATE: 11-12-70
REVISION: 354
DATE: 11-12-70
REVISION: 355
DATE: 11-12-70
REVISION: 356
DATE: 11-12-70
REVISION: 357
DATE: 11-12-70
REVISION: 358
DATE: 11-12-70
REVISION: 359
DATE: 11-12-70
REVISION: 360
DATE: 11-12-70
REVISION: 361
DATE: 11-12-70
REVISION: 362
DATE: 11-12-70
REVISION: 363
DATE: 11-12-70
REVISION: 364
DATE: 11-12-70
REVISION: 365
DATE: 11-12-70
REVISION: 366
DATE: 11-12-70
REVISION: 367
DATE: 11-12-70
REVISION: 368
DATE: 11-12-70
REVISION: 369
DATE: 11-12-70
REVISION: 370
DATE: 11-12-70
REVISION: 371
DATE: 11-12-70
REVISION: 372
DATE: 11-12-70
REVISION: 373
DATE: 11-12-70
REVISION: 374
DATE: 11-12-70
REVISION: 375
DATE: 11-12-70
REVISION: 376
DATE: 11-12-70
REVISION: 377
DATE: 11-12-70
REVISION: 378
DATE: 11-12-70
REVISION: 379
DATE: 11-12-70
REVISION: 380
DATE: 11-12-70
REVISION: 381
DATE: 11-12-70
REVISION: 382
DATE: 11-12-70
REVISION: 383
DATE: 11-12-70
REVISION: 384
DATE: 11-12-70
REVISION: 385
DATE: 11-12-70
REVISION: 386
DATE: 11-12-70
REVISION: 387
DATE: 11-12-70
REVISION: 388
DATE: 11-12-70
REVISION: 389
DATE: 11-12-70
REVISION: 390
DATE: 11-12-70
REVISION: 391
DATE: 11-12-70
REVISION: 392
DATE: 11-12-70
REVISION: 393
DATE: 11-12-70
REVISION: 394
DATE: 11-12-70
REVISION: 395
DATE: 11-12-70
REVISION: 396
DATE: 11-12-70
REVISION: 397
DATE: 11-12-70
REVISION: 398
DATE: 11-12-70
REVISION: 399
DATE: 11-12-70
REVISION: 400
DATE: 11-12-70
REVISION: 401
DATE: 11-12-70
REVISION: 402
DATE: 11-12-70
REVISION: 403
DATE: 11-12-70
REVISION: 404
DATE: 11-12-70
REVISION: 405
DATE: 11-12-70
REVISION: 406
DATE: 11-12-70
REVISION: 407
DATE: 11-12-70
REVISION: 408
DATE: 11-12-70
REVISION: 409
DATE: 11-12-70
REVISION: 410
DATE: 11-12-70
REVISION: 411
DATE: 11-12-70
REVISION: 412
DATE: 11-12-70
REVISION: 413
DATE: 11-12-70
REVISION: 414
DATE: 11-12-70
REVISION: 415
DATE: 11-12-70
REVISION: 416
DATE: 11-12-70
REVISION: 417
DATE: 11-12-70
REVISION: 418
DATE: 11-12-70
REVISION: 419
DATE: 11-12-70
REVISION: 420
DATE: 11-12-70
REVISION: 421
DATE: 11-12-70
REVISION: 422
DATE: 11-12-70
REVISION: 423
DATE: 11-12-70
REVISION: 424
DATE: 11-12-70
REVISION: 425
DATE: 11-12-70
REVISION: 426
DATE: 11-12-70
REVISION: 427
DATE: 11-12-70
REVISION: 428
DATE: 11-12-70
REVISION: 429
DATE: 11-12-70
REVISION: 430
DATE: 11-12-70
REVISION: 431
DATE: 11-12-70
REVISION: 432
DATE: 11-12-70
REVISION: 433
DATE: 11-12-70
REVISION: 434
DATE: 11-12-70
REVISION: 435
DATE: 11-12-70
REVISION: 436
DATE: 11-12-70
REVISION: 437
DATE: 11-12-70
REVISION: 438
DATE: 11-12-70
REVISION: 439
DATE: 11-12-70
REVISION: 440
DATE: 11-12-70
REVISION: 441
DATE: 11-12-70
REVISION: 442
DATE: 11-1



Weld in place after Hanger Conn. R's have been Welded to Rib - Typical Each Hanger Point.

Seal Joint See Slot Detail (Inside Only)

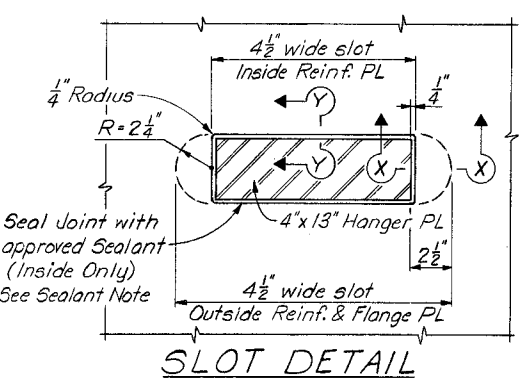
Varies 5 1/4" Max. Pitch 1" H.S. Bolts

HALF INSIDE REINF. PLATE

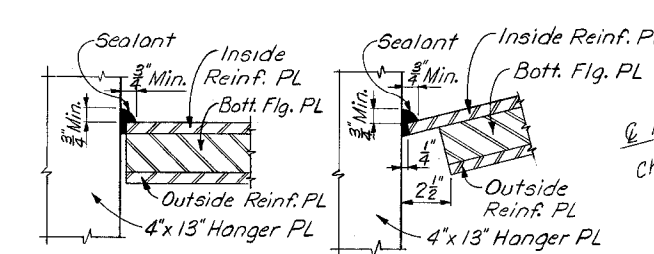
HALF OUTSIDE REINF. PLATE

4"x13" Hanger PL 4 1/2" wide slot (See Slot Detail)

SECTION G-G



SLOT DETAIL



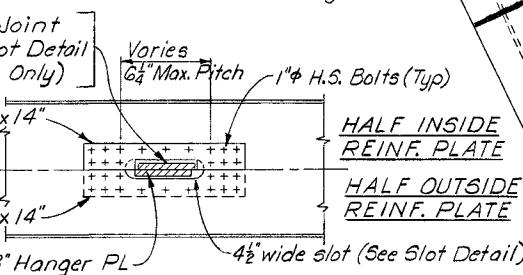
SECTION Y-Y SECTION X-X

Sealant Note: The sealant for the hanger plate joint is to be a silicone rubber or polysulfide base sealant. Complete Specifications and manufacturer's information for the materials to be used and a step by step procedure for application shall be submitted to the Engineer and approved by him before any material is applied. The application shall be to clean bright metal in strict accordance with the manufacturer's recommendations including the use of metal primer and back-up material. The cost of sealing these joints shall be included in the lump sum bid for Structural Steel.

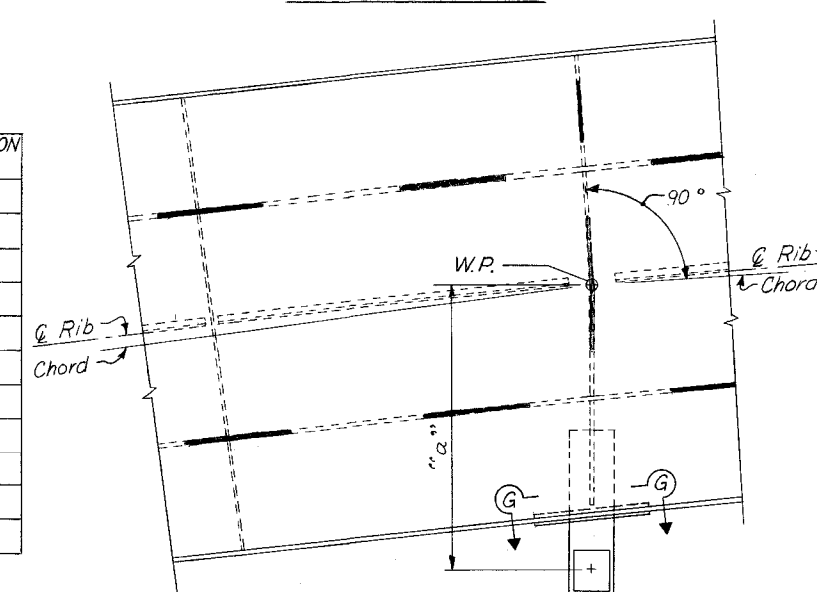
R6 THRU R8 (R8 SHOWN)

JOINT	DIMENSION "a"
R1, R22	7'-8"
R2, R21	7'-5"
R3, R20	7'-2"
R4, R19	7'-0"
R5, R18	6'-9"
R6, R17	6'-7"
R7, R16	6'-6"
R8, R15	6'-4"
R9, R14	6'-3"
R10, R13	6'-2"
R11, R12	6'-2"

DETAILS AT WORK POINTS (Rib is symmetrical abt. C Span)



SECTION H-H



R9 & R10 (R10 SHOWN)

Note: Lateral Bracing Gusset & Connection PLs not shown. See Sheets 36, 37 & 39 for locations & details.

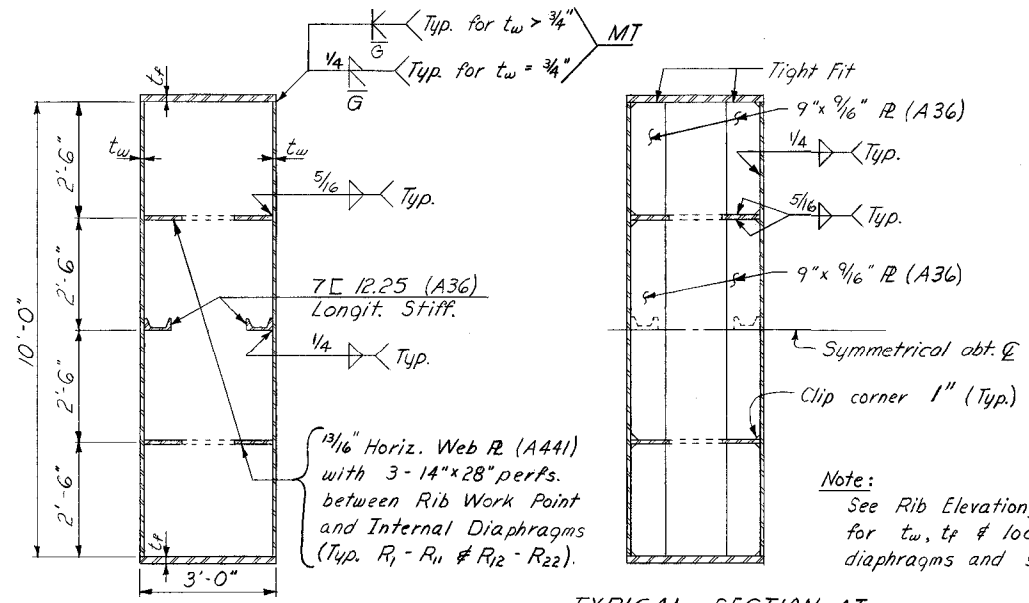
PERFORATION NOTES:
The perforation locations shown are approximate only. The spacing will vary in the various pannels and are to be spaced to clear the field splices and the diaphragms with 5'-4" min. centers.

Work Sheets 32 thru 35 Together. SHEET 33

**KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS**
PROJECT 1471-4 ()
BRIDGE OVER OHIO RIVER ON I 471
CAMPBELL COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

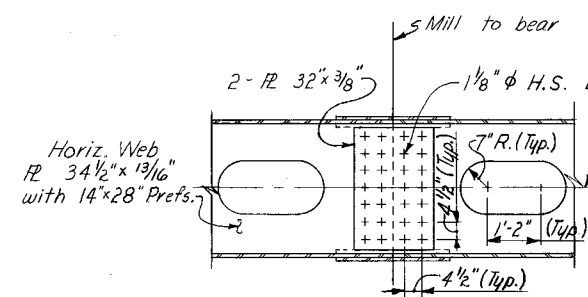
**SPAN 8
ARCH RIB DETAILS**

DESIGNED BY: WFB 6-25-71
 CHECKED BY: JAN & CGH
 DATE: 8/25
 TRACED BY: J.A.N.
 DATE: 10-70
 Hanger Details
 MPT 176 DATE 5-572

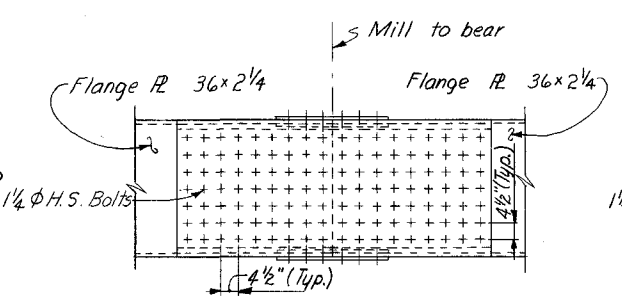


TYPICAL RIB SECTION

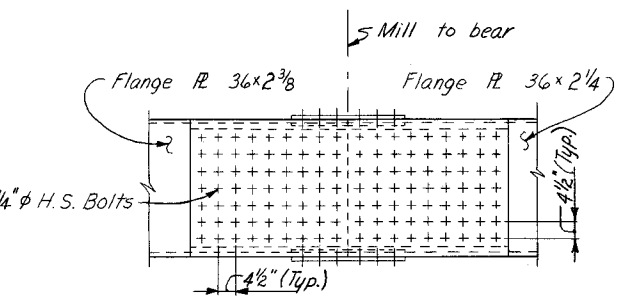
TYPICAL SECTION AT VERTICAL STIFFENERS



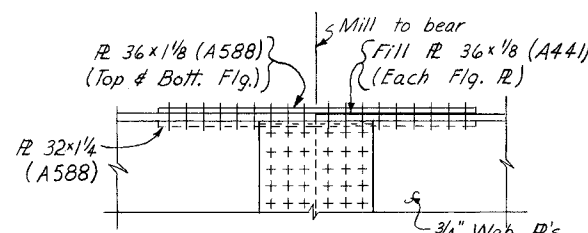
SECTION A-A



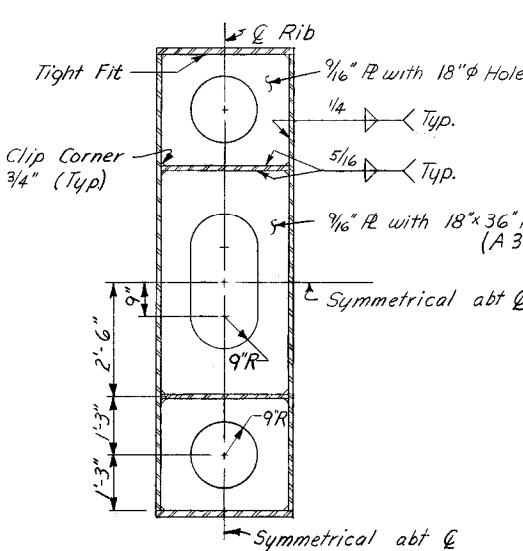
PLAN @ R3



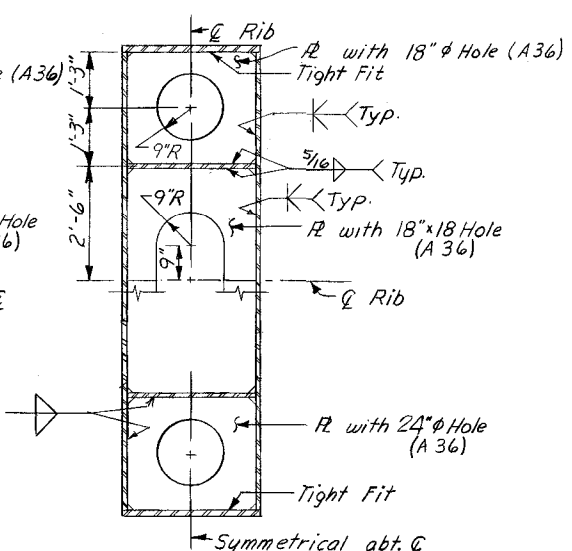
PLAN @ R6



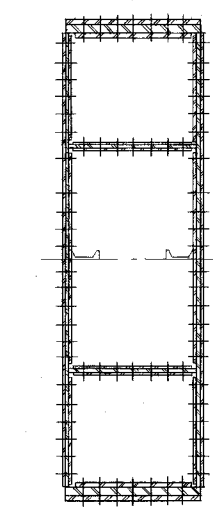
PART ELEVATION @ R6



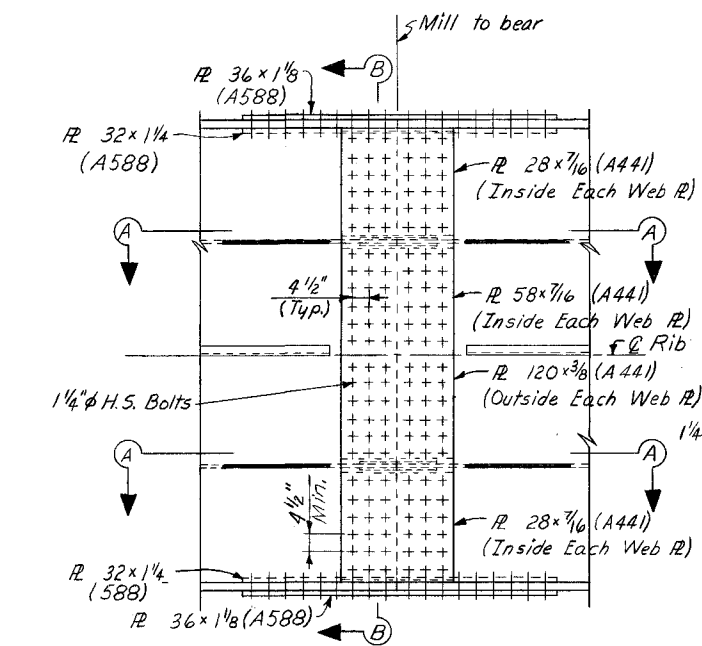
TYPICAL SECTION AT INTERNAL DIAPHRAGMS



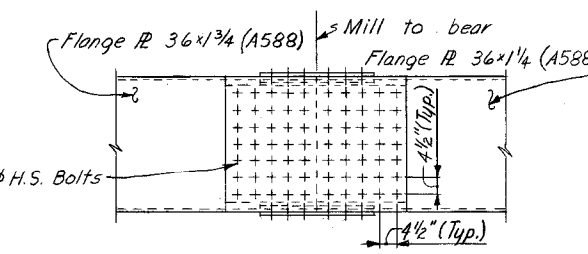
TYPICAL SECTION AT R1 THRU R5



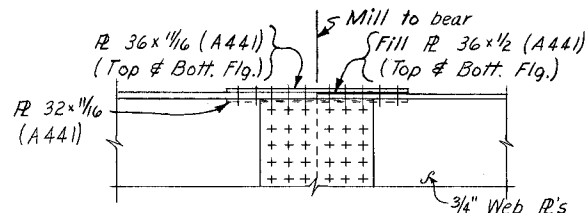
SECTION B-B



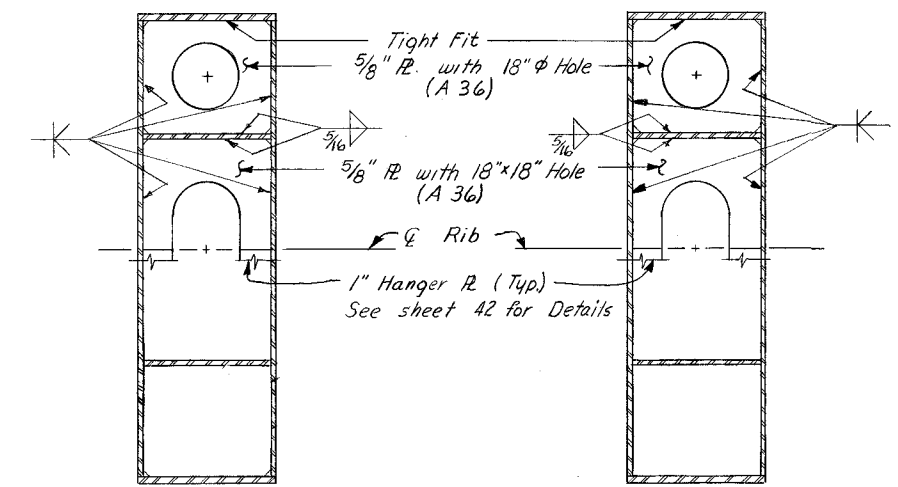
TYPICAL RIB SPLICE ELEVATION (SHOWN @ R3)



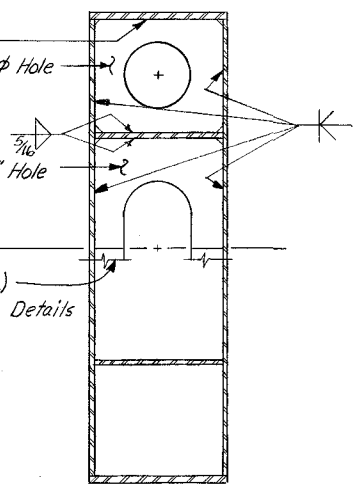
PLAN @ R9



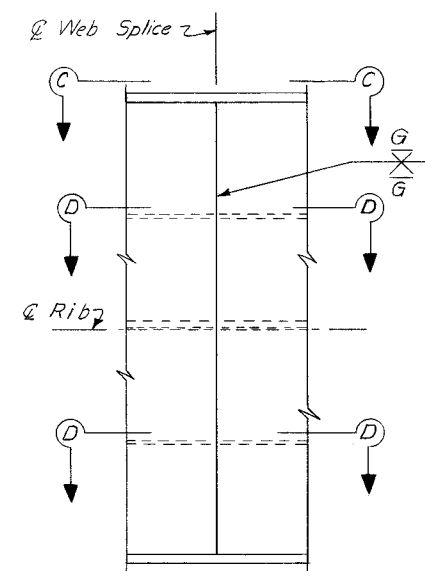
PART ELEVATION @ R9



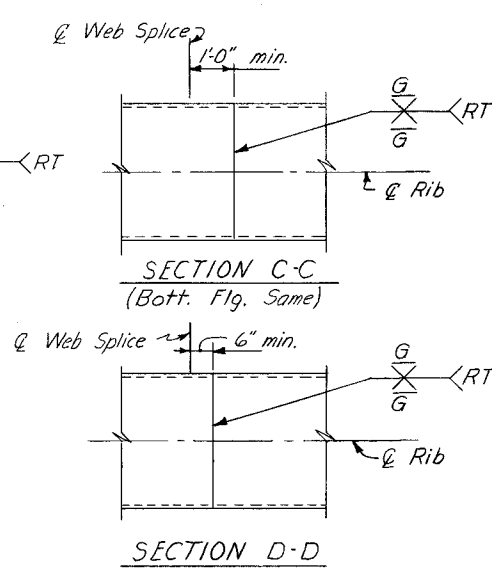
TYPICAL SECTION AT R6 THRU R8



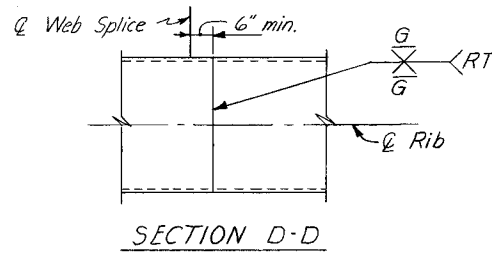
TYPICAL SECTION AT R9 & R10



SHOP WELDED SPLICES (Plates are to be spliced before fabrication of members.)



SECTION C-C (Bott. Flg. Same)



SECTION D-D

Work Sheets 32 thru 35 Together.

SHEET 34

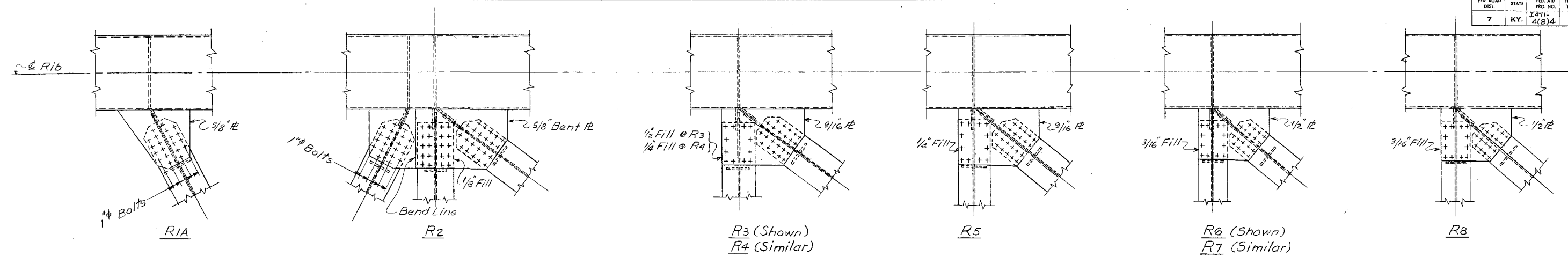
KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS
PROJECT 1471-4 ()
BRIDGE OVER OHIO RIVER ON I 471
CAMPBELL COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

SPAN 8
ARCH RIB DETAILS

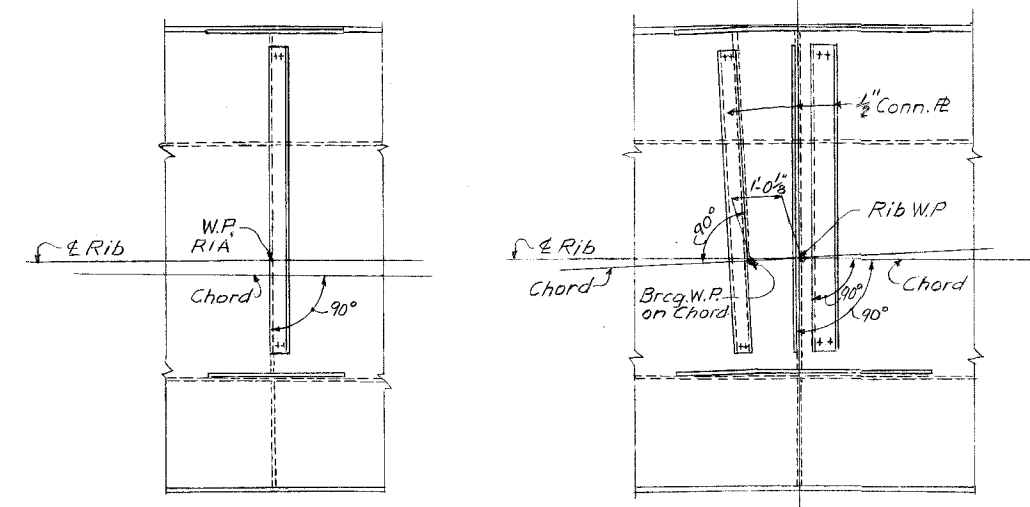
HAZLET & ERDAL Consulting Engineers File No. 889	BRIDGE NUMBER	DRAWING NO. 18485	INDEX
--	------------------	----------------------	-------

DESIGNED BY: JMB & CGH
CHECKED BY: JMB & CGH
DATE: 11-5-67
REVISIONS:
1. 11-5-67
2. 11-5-67
3. 11-5-67
4. 11-5-67
5. 11-5-67
6. 11-5-67
7. 11-5-67
8. 11-5-67
9. 11-5-67
10. 11-5-67
11. 11-5-67
12. 11-5-67
13. 11-5-67
14. 11-5-67
15. 11-5-67
16. 11-5-67
17. 11-5-67
18. 11-5-67
19. 11-5-67
20. 11-5-67
21. 11-5-67
22. 11-5-67
23. 11-5-67
24. 11-5-67
25. 11-5-67
26. 11-5-67
27. 11-5-67
28. 11-5-67
29. 11-5-67
30. 11-5-67
31. 11-5-67
32. 11-5-67
33. 11-5-67
34. 11-5-67
35. 11-5-67
36. 11-5-67
37. 11-5-67
38. 11-5-67
39. 11-5-67
40. 11-5-67
41. 11-5-67
42. 11-5-67
43. 11-5-67
44. 11-5-67
45. 11-5-67
46. 11-5-67
47. 11-5-67
48. 11-5-67
49. 11-5-67
50. 11-5-67
51. 11-5-67
52. 11-5-67
53. 11-5-67
54. 11-5-67
55. 11-5-67
56. 11-5-67
57. 11-5-67
58. 11-5-67
59. 11-5-67
60. 11-5-67
61. 11-5-67
62. 11-5-67
63. 11-5-67
64. 11-5-67
65. 11-5-67
66. 11-5-67
67. 11-5-67
68. 11-5-67
69. 11-5-67
70. 11-5-67
71. 11-5-67
72. 11-5-67
73. 11-5-67
74. 11-5-67
75. 11-5-67
76. 11-5-67
77. 11-5-67
78. 11-5-67
79. 11-5-67
80. 11-5-67
81. 11-5-67
82. 11-5-67
83. 11-5-67
84. 11-5-67
85. 11-5-67
86. 11-5-67
87. 11-5-67
88. 11-5-67
89. 11-5-67
90. 11-5-67
91. 11-5-67
92. 11-5-67
93. 11-5-67
94. 11-5-67
95. 11-5-67
96. 11-5-67
97. 11-5-67
98. 11-5-67
99. 11-5-67
100. 11-5-67

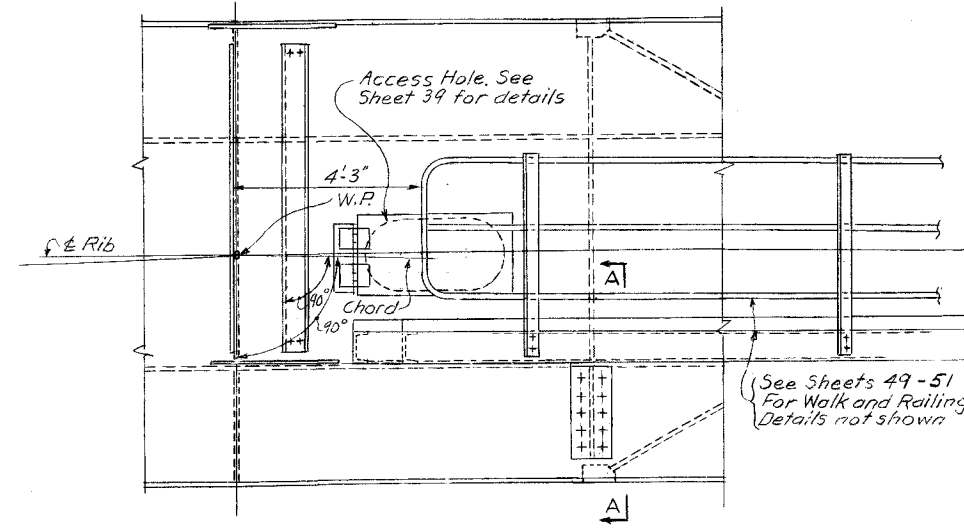
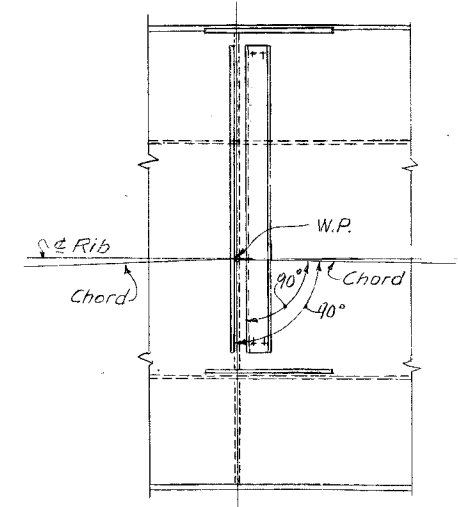
FED. ROAD DIST.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
7	KY.	1471-4(8)4			



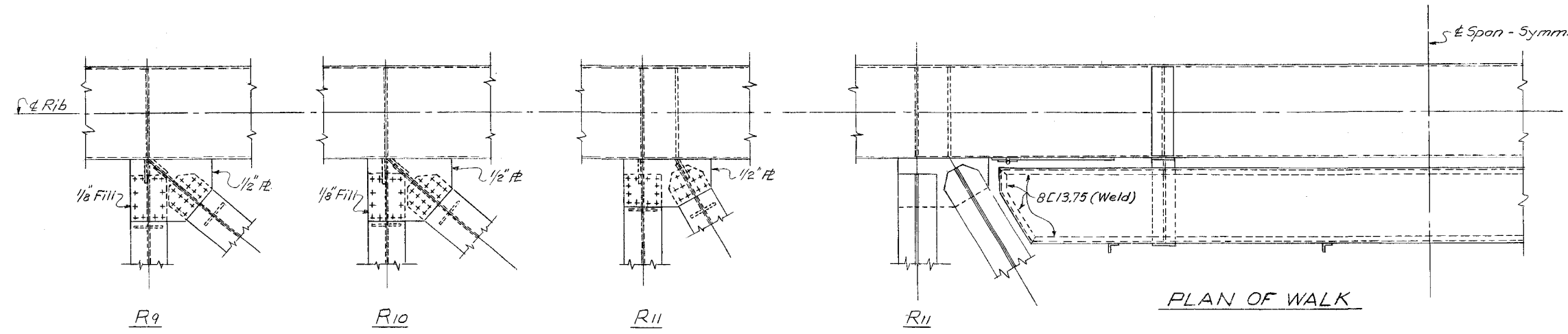
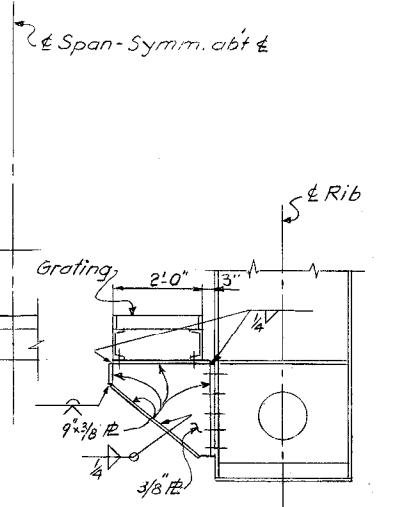
PLAN OF TOP CONNECTIONS AT RIB
(BOTTOM CONNECTIONS ARE SIMILAR)



ELEVATIONS



ELEVATION OF WALK



PLAN OF TOP CONNECTIONS AT RIB
(BOTTOM CONNECTIONS ARE SIMILAR)

PLAN OF WALK

Work sheets 36 thru 39 together
SHEET 37

KENTUCKY DEPARTMENT OF HIGHWAYS

OHIO DEPARTMENT OF HIGHWAYS

PROJECT 1471-4 ()

BRIDGE OVER OHIO RIVER ON I 471

CAMPBELL COUNTY, KENTUCKY

HAMILTON COUNTY, OHIO

HAZELET & ERDAL

Consulting Engineers

File No. 889

BRIDGE NUMBER

DRAWING NO.

18435

INDEX

SPAN 8
RIB BRACING DETAILS

DESIGNED BY: KEB
 CHECKED BY: CGH
 DATE: 12-72
 TRACED BY: F.M.
 DATE: 6-25-71

Technical drawing of a rectangular plate. The plate has a width of $128 \times \frac{3}{8}$ and a height of $30 \times \frac{3}{8}$. The drawing includes a vertical centerline on the left and a horizontal centerline at the bottom. The plate is shown with a cross-section on the left and a top view on the right. The labels are: $Fig. 128 \times \frac{3}{8}$ for the width and $Fig. 30 \times \frac{3}{8}$ for the height.

Diagram illustrating a bent plate with labels: $\frac{1}{2}$ Bent $\frac{1}{2}$, S Bend Line, Brca W.L., and Bend Line.

Diagram illustrating the reinforcement details for a column section. The diagram shows a cross-section of a column with reinforcement bars (labeled "Brcc. W.L." and "Brcc. W.P.") and a central vertical reinforcement bar (labeled "Strut"). The reinforcement bars are labeled "L5x5x1/2". The diagram also shows the "Brcc. W.L." (Bottom Reinforcement) and "Brcc. W.P." (Top Reinforcement) details.

NOTE: The 5×5 Ls will not be parallel due to fact that the diags and strut are not in the same plane

Work Sheets 36 thru 39 Together

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

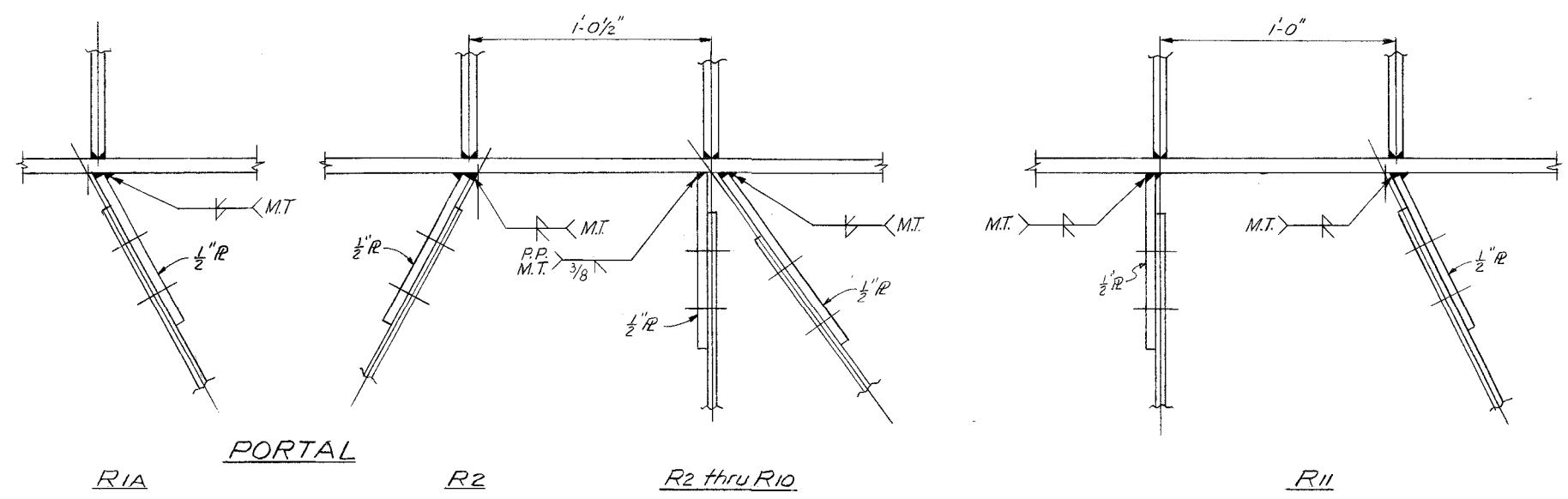
PROJECT 1471-4 ()
BRIDGE OVER OHIO RIVER ON I 471
CAMPBELL COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

HAZELET & ERDAL
Consulting Engineers
File No. 889

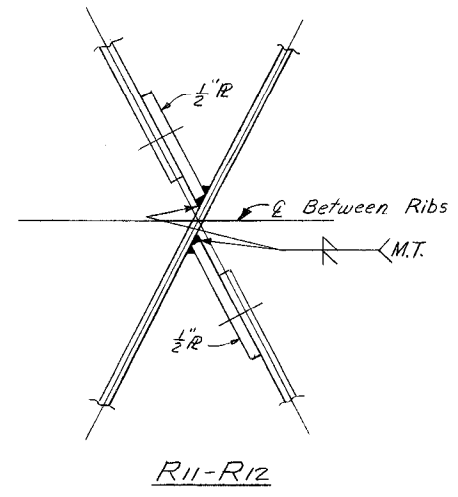
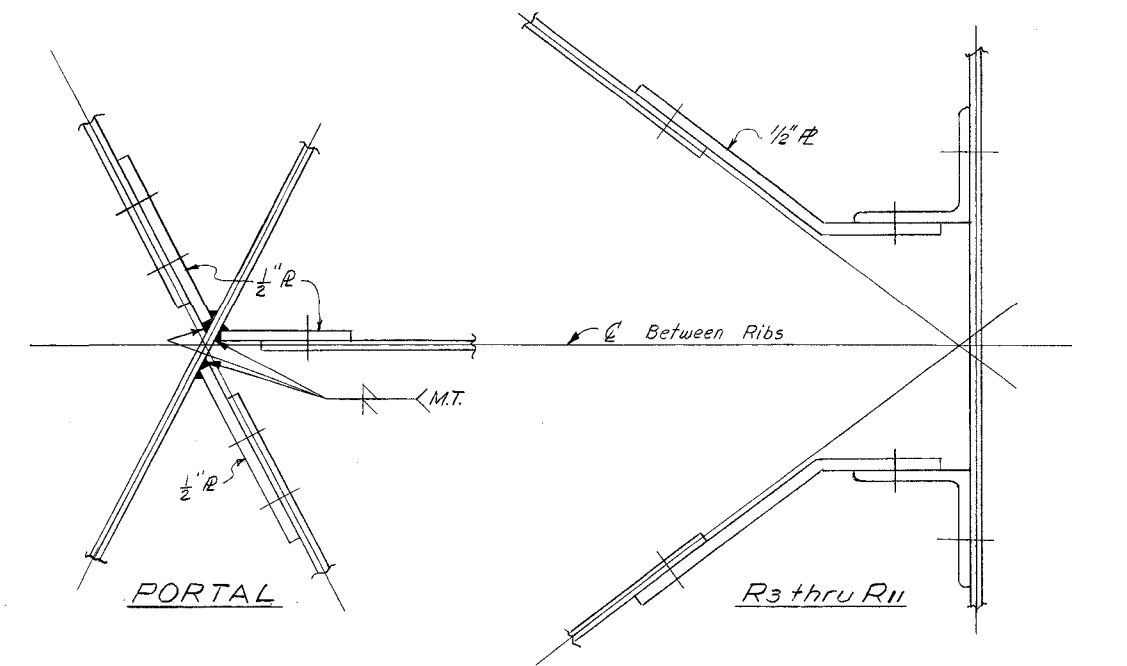
BRIDGE
NUMBER

DRAWING NO.
78435

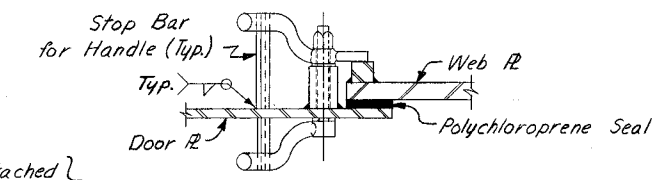
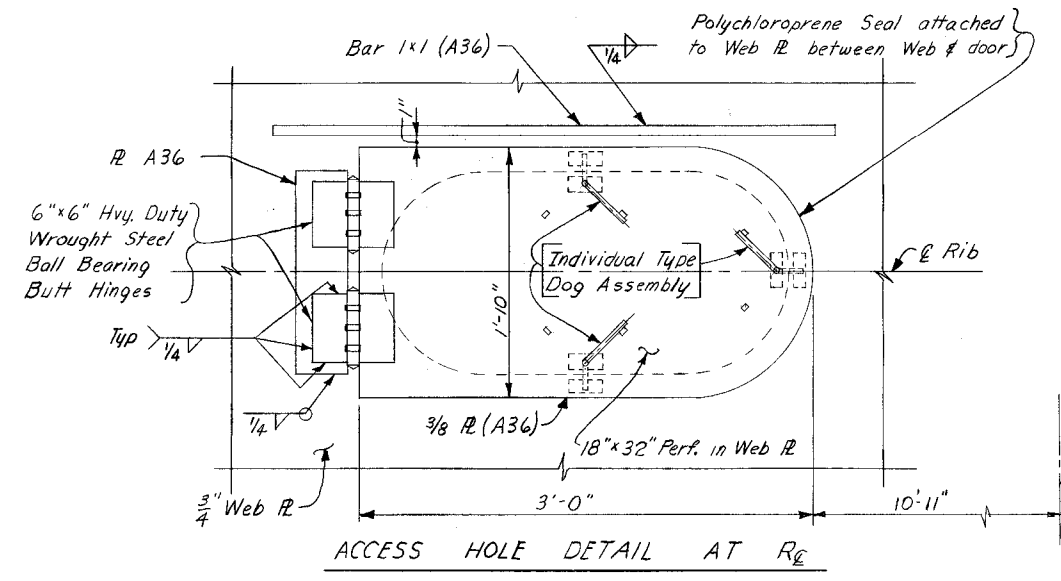
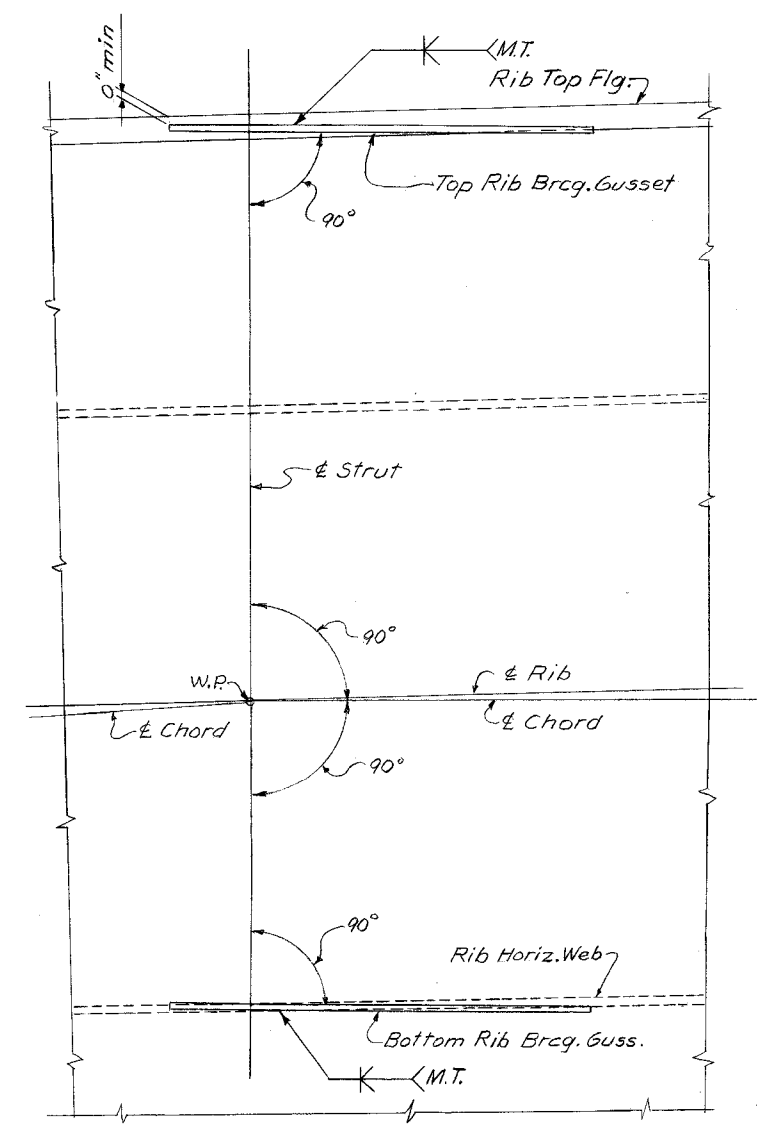
INDEX



RIB WEB CONNECTION DETAILS



BRACING & DETAILS



NOTE:

Door is to be water tight and air tight and is to be equipped with 3 Individual Type Dog Assemblies that can be operated from either side of door. The entire assembly shall be detailed as to keep a positive pressure on the seal.

Span - Symm. ab't. &

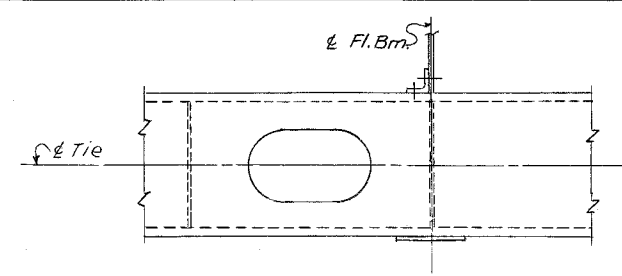
SPAN 8
RIB BRACING DETAILS

Work Sheets 36 thru 39 Together

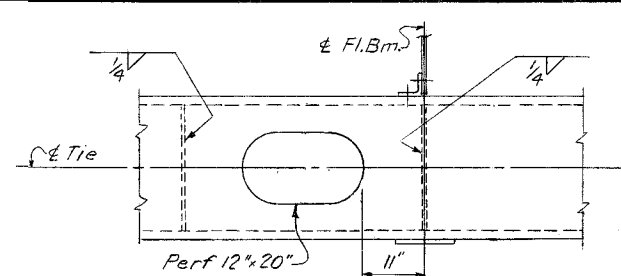
SHEET 39

KENTUCKY DEPARTMENT OF HIGHWAYS OHIO DEPARTMENT OF HIGHWAYS PROJECT 1471-4 () BRIDGE OVER OHIO RIVER ON 1471 CAMPBELL COUNTY, KENTUCKY HAMILTON COUNTY, OHIO			
HAZLET & ERDAL Consulting Engineers File No. 889	BRIDGE NUMBER	DRAWING NO. 18485	INDEX

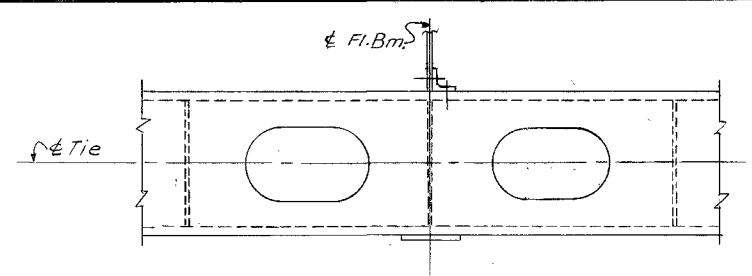
DESIGNED BY: WFB
 CHECKED BY: CGH
 DATE: 6-25-71
 TRACED BY: FM
 CHECKED BY: CGH
 DATE: 10-7-71



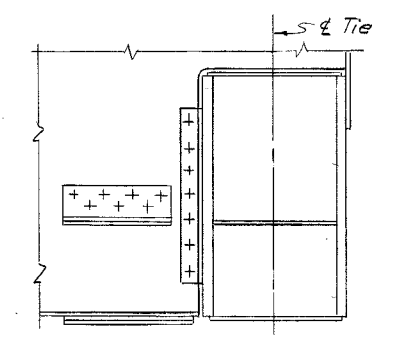
SECTION D-D



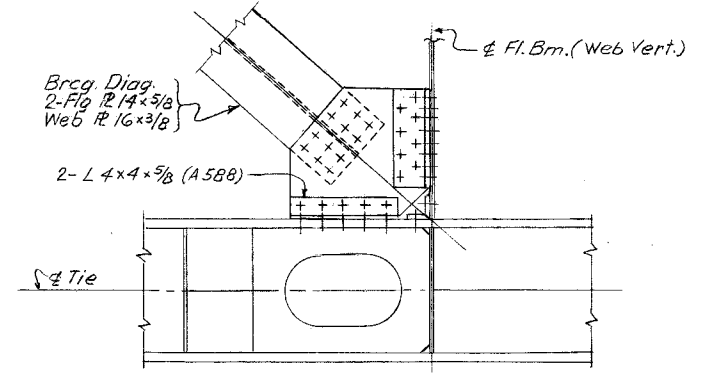
SECTION A-A



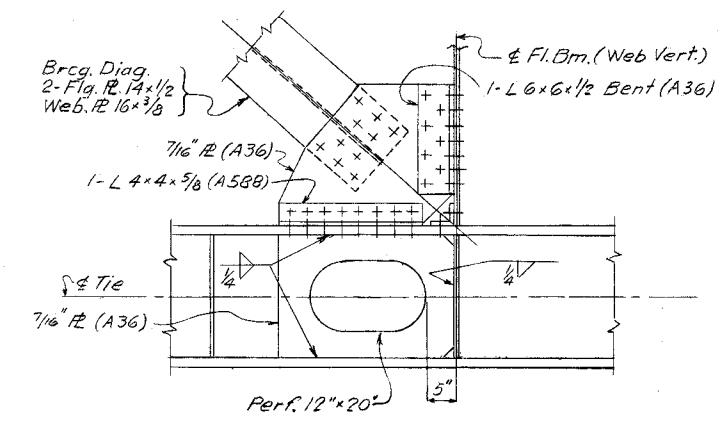
SECTION G-G



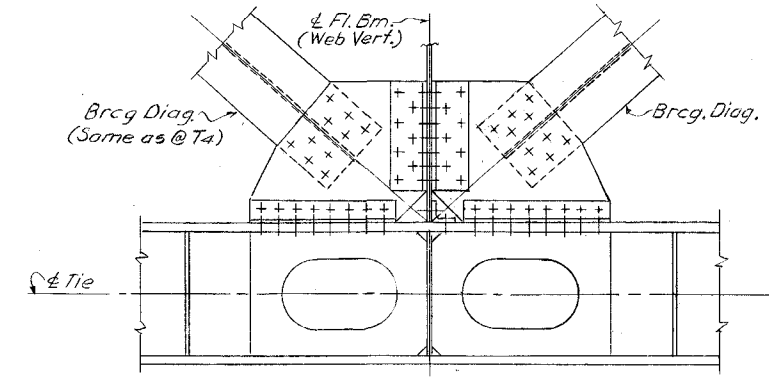
SECTION K-K
SECTION L-L (Opp. Hand)



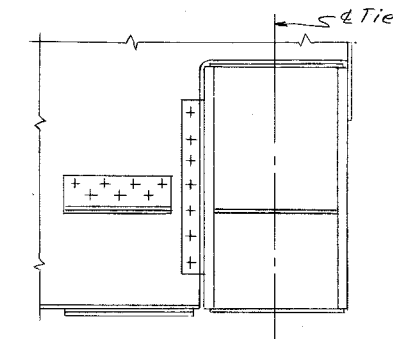
SECTION E-E



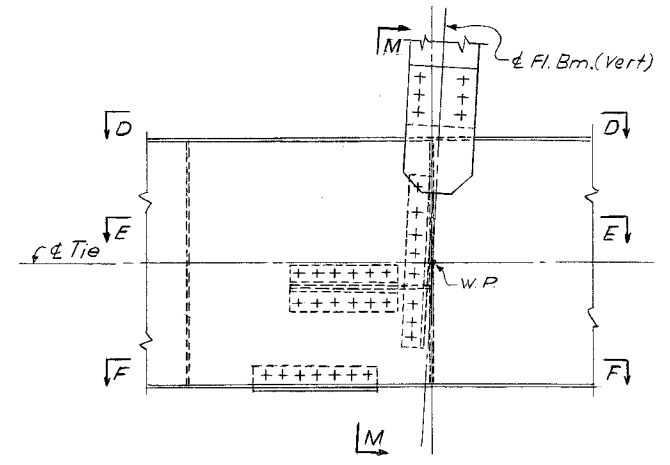
SECTION B-B



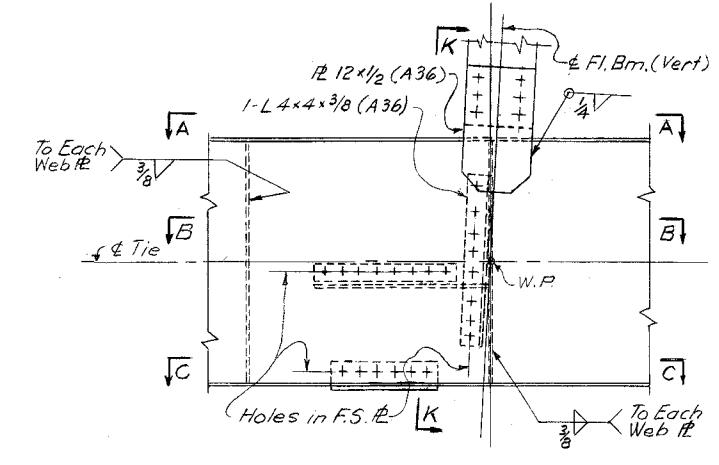
SECTION H-H



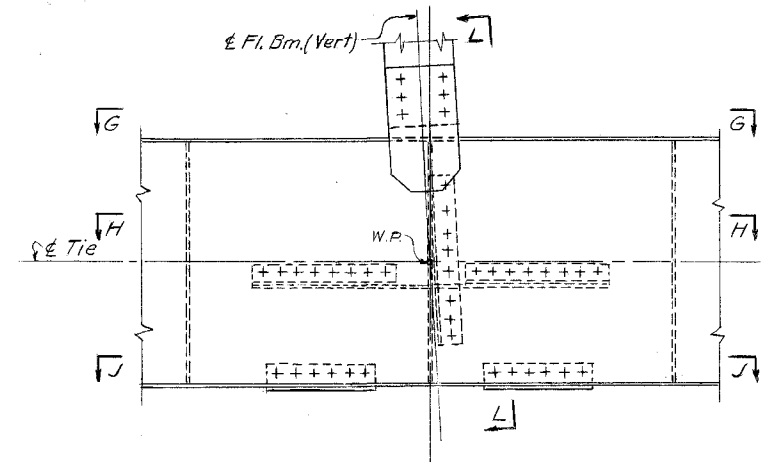
SECTION M-M



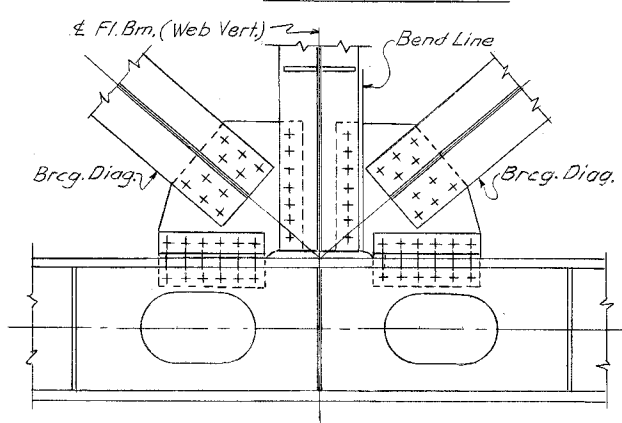
ELEVATION
(At T1, T2, T3, T20, T21 and T22)
(See T4 for Mat'l & Details not shown)



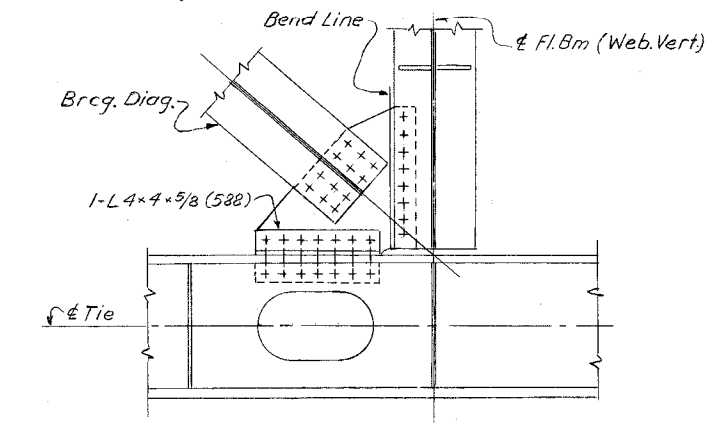
ELEVATION
(At T4 thru T11 and T13 thru T19)



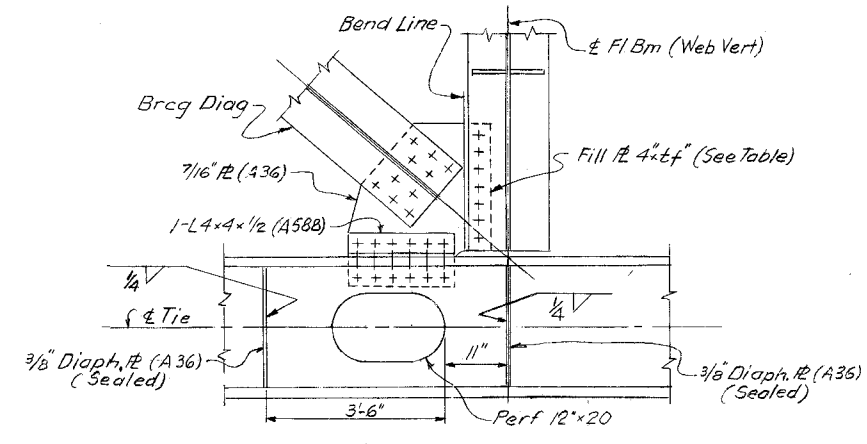
ELEVATION
(At T12)
(See T4 for Mat'l & Details not shown)



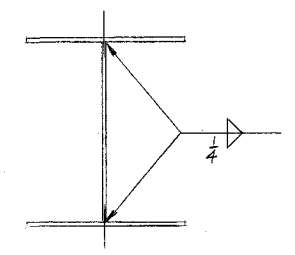
SECTION J-J



SECTION F-F



SECTION C-C



TYPICAL BRACING SECTION

SPAN 8
TIE DETAILS

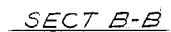
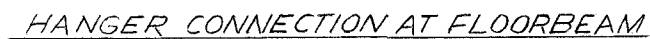
Work Sheets 40 thru 41 together

SHEET 40

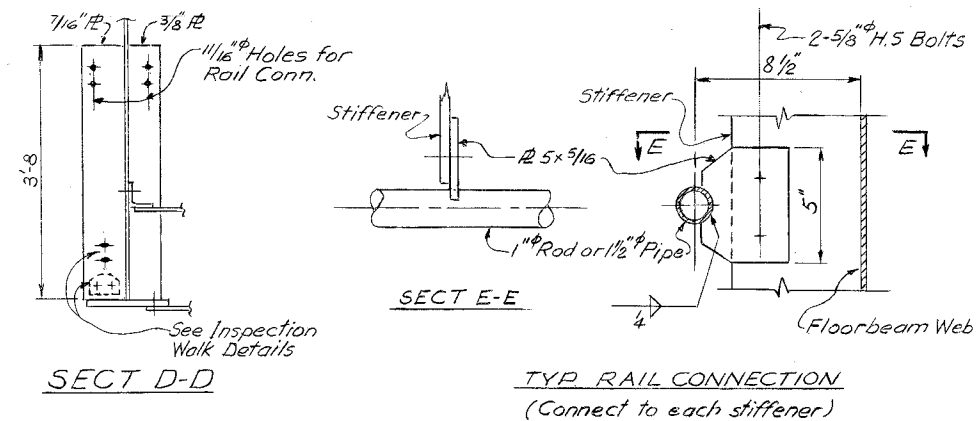
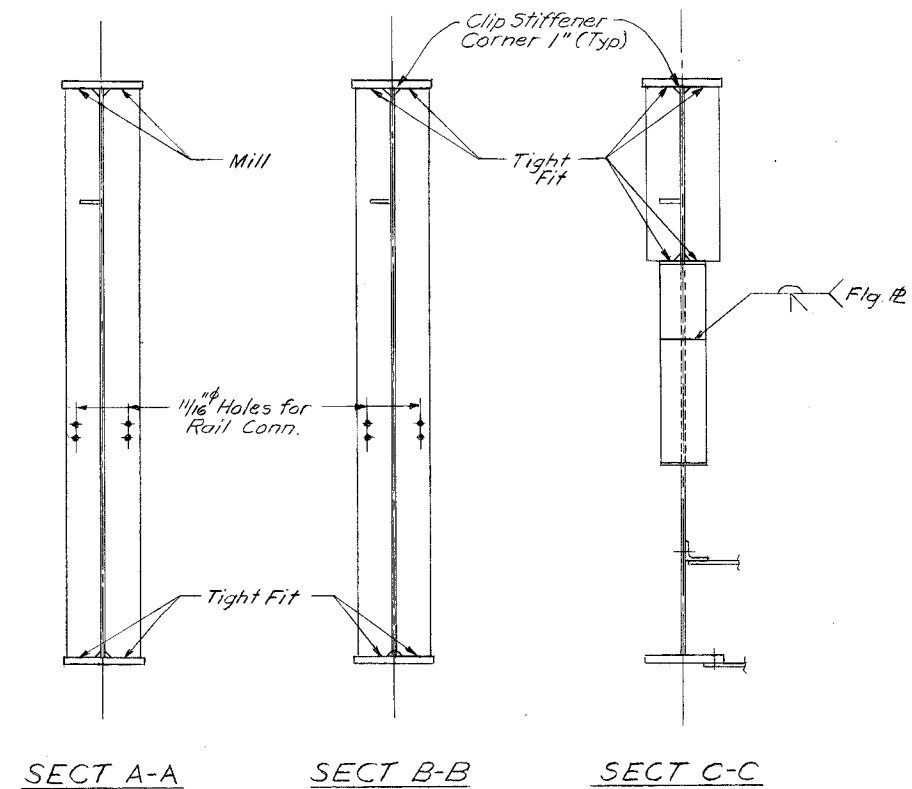
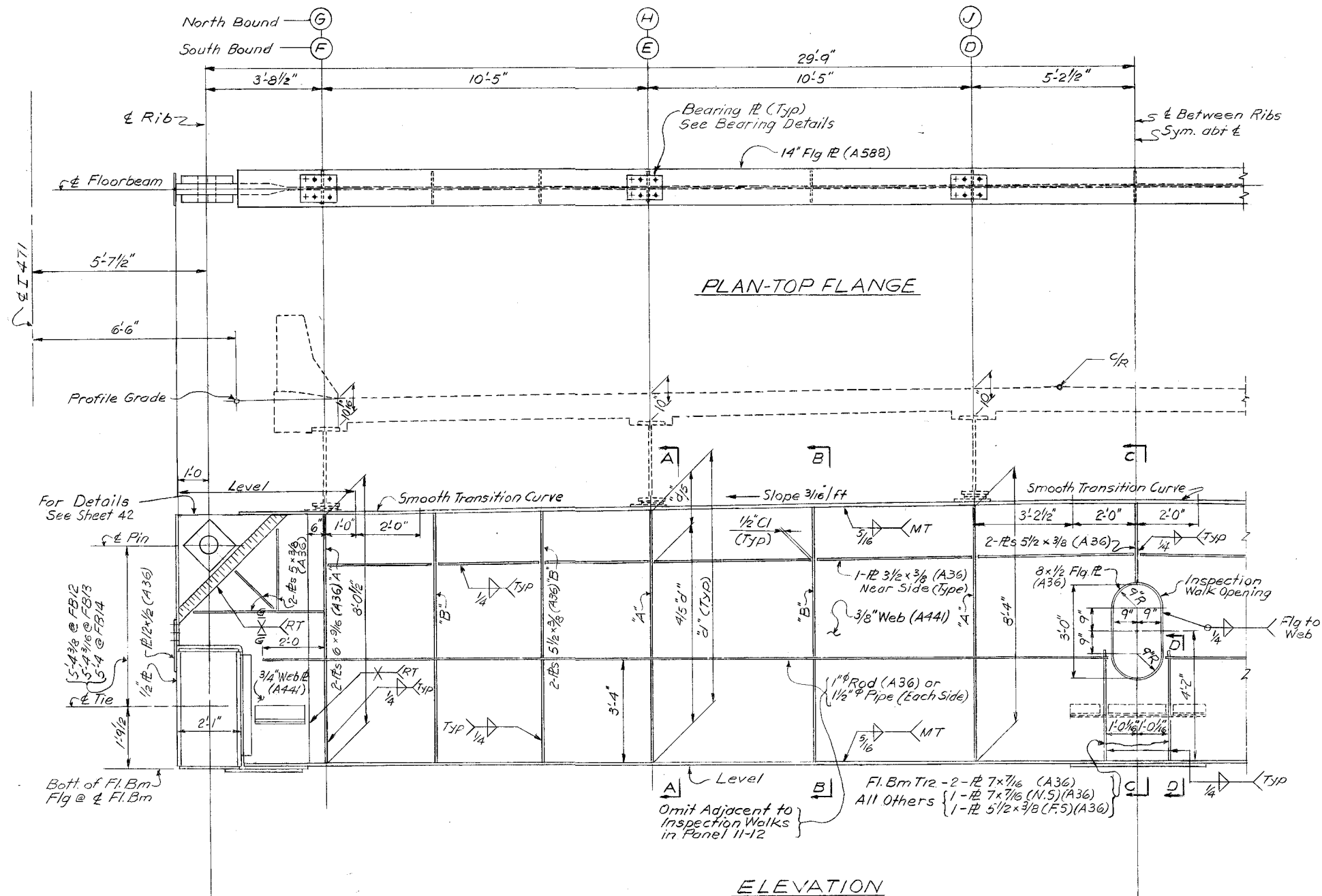
KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS
PROJECT 1471-4 ()
BRIDGE OVER OHIO RIVER ON I 471
CAMPBELL COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

HAZLET & ERDAL Consulting Engineers File No. 889	BRIDGE NUMBER	DRAWING NO. 13485	INDEX
--	------------------	----------------------	-------

DESIGNED BY: WEB
 CHECKED BY: CSH
 DATE: 12-25-71
 TRACED BY: FM
 DATE: 12-10-71



DRAWING NO.	INDEX
18485	



FLANGE PLATE THICKNESS			
FLOORBEAM	FB12	FB13	FB14
THICKNESS	1 3/8"	1 3/8"	1"

Work Sheets 43 and 44 together

SHEET 43

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

PROJECT 1471-4 ()
BRIDGE OVER OHIO RIVER ON I 471
CAMPBELL COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

HAZELET & ERDAL
Consulting Engineers
File No. 889

BRIDGE
NUMBER

DRAWING NO.
18485

INDEX

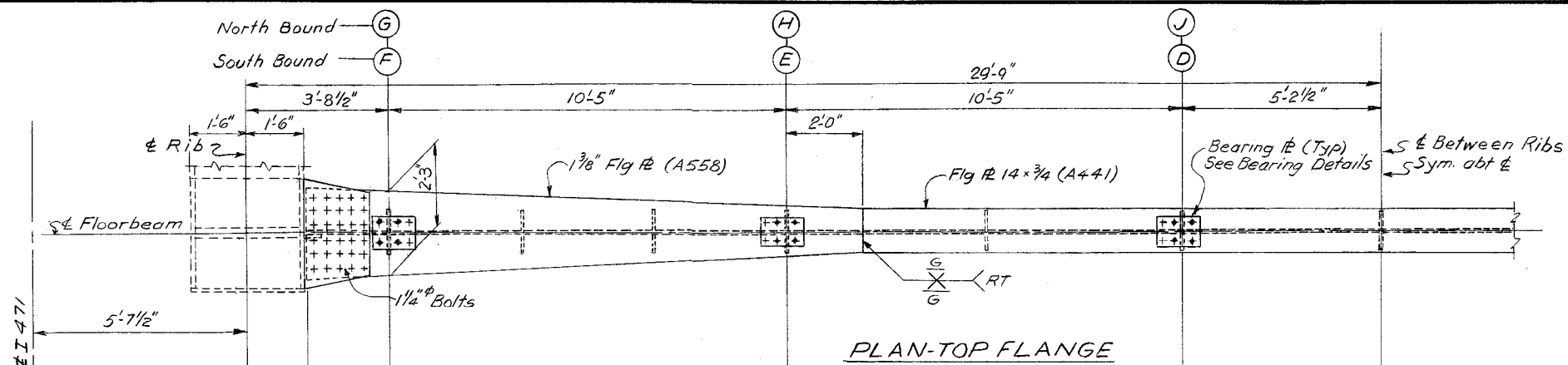
SPAN 8
FLOORBEAM DETAILS

PLAN BOTTOM FLANGE

FLOORBEAMS FB12, FB13 & FB14

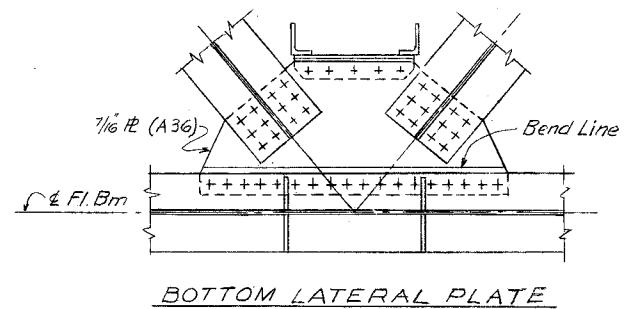
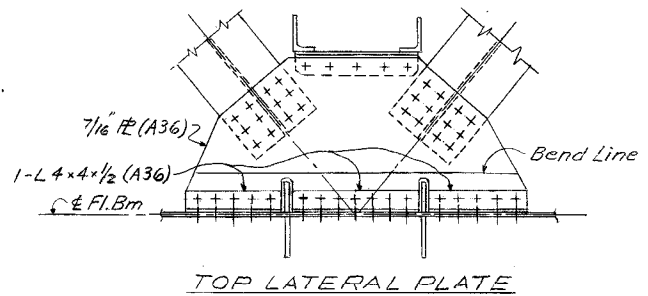
DESIGNED BY: WFB
CHECKED BY: CEB
DATE: 6-25-71
DATE: 5-5-72
DATE: 10-70
DATE: 10-70
DATE: 10-70
DATE: 10-70

FED. ROAD DIST.	STATE	FED. AID PRO. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
7	KY.	I471- 4(8)4			

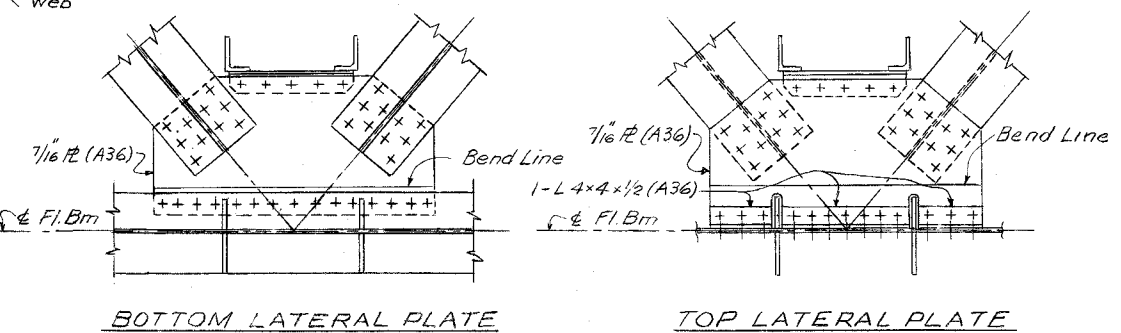


FLOORBEAM NOTES:

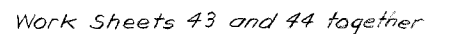
H.S. Bolts - 7/8" P.U.N.
Material - A36 Steel U.N.
Floorbeams are to cambered for
D.L Steel plus D.L Concrete.
See Sheet 42 for Hanger Connection.
See Sheet 2 for General Notes.
See Sheet 31 for Framing Plan.
Flange to web welds are to be sub-
merged arc fillet welds. Parts are to
be assembled with edge of web plate
tight against flange plate before
welding.



BOTTOM LATERAL PLATE
BOTTOM BRACING CONN.
FOR FLOORBEAMS AT
R₀, T₁, T₂, T₂₁, T₂₂ & R₂₃



BOTTOM BRACING CONN.
FOR FLOORBEAMS AT T₃ THRU T₂₀



HEET 44

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

PROJECT 1471-4 ()
BRIDGE OVER OHIO RIVER ON I 471
CAMPBELL COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

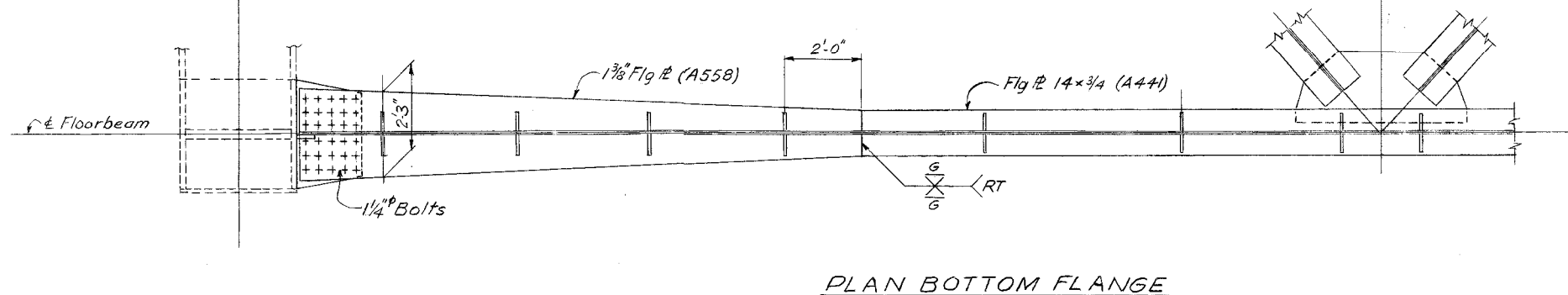
HAZELET & ERDAL
Consulting Engineers
File No. 889

BRIDGE
NUMBER

DRAWING NO.	INDEX
18485	

SPAN 8
FLOORBEAM DETAILS

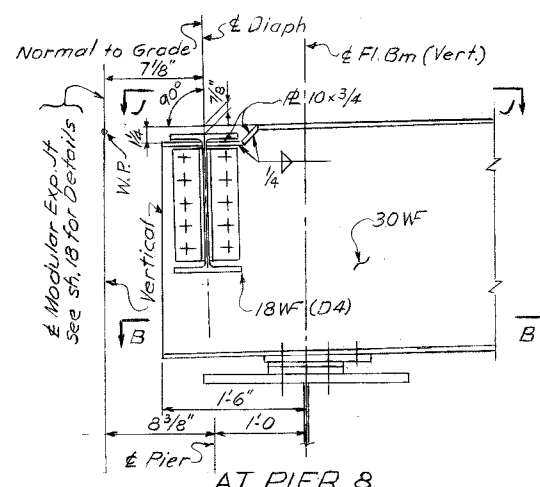
FLOORBEAM FB11



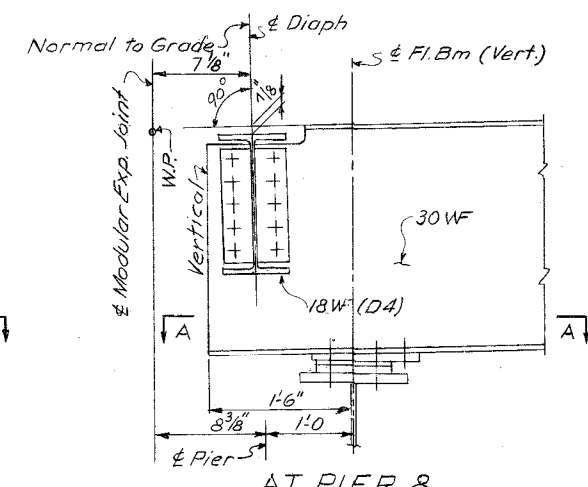
PLAN BOTTOM FLANGE

W7B 6-25-71

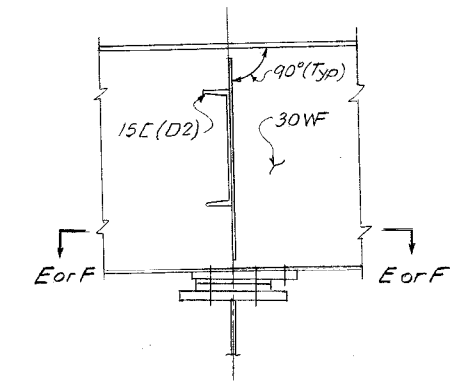
DESIGNED BY	CES	CHECKED BY	DM	DATE	
DETAILED BY	FM	CHECKED BY	CGH	DATE	10-70
TRACED BY		CHECKED BY		DATE	
		REVIEWED		DATE	



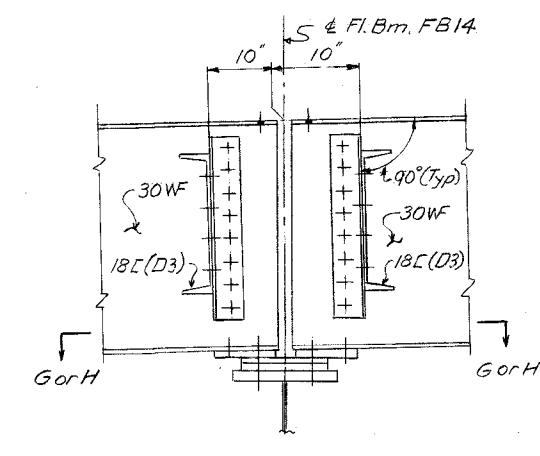
AT PIER 8
(Strgs A, F, G & M)



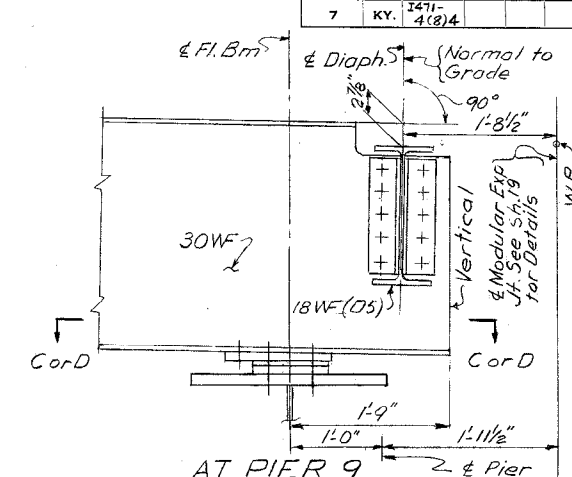
AT PIER 8
(Strgs B, C, D, E, H, J, K & L)



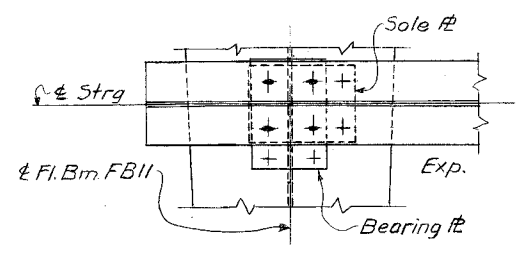
AT TYPICAL INTERIOR SUPPORT
(See Floor System Framing Plan for location of D2 Diaphs & Conn. R's)



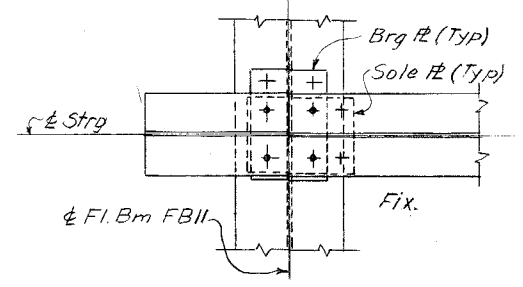
AT STRINGER EXP. JOINT



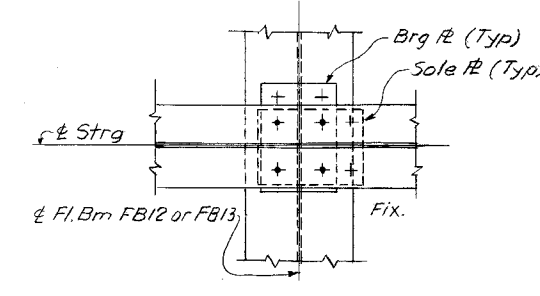
(Top Flg of strgs A, F, G & M to be recessed similar to those at Pier B)



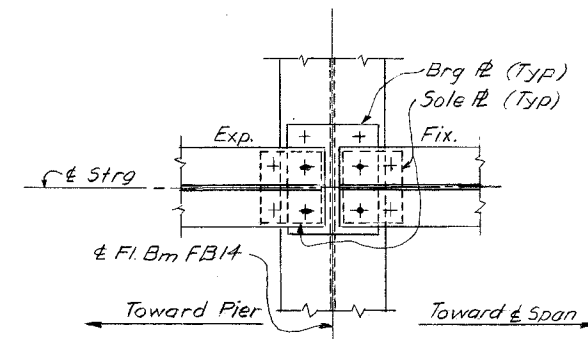
SECT. B-B
SECT. D-D (OPP. HAND)
(Strgs A, F, G & M)



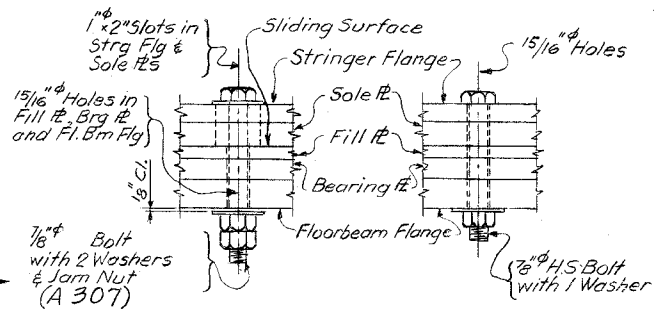
SECT. A-A
SECT. C-C (OPP. HAND)
(Strgs B, C, D, E, H, J, K & L)



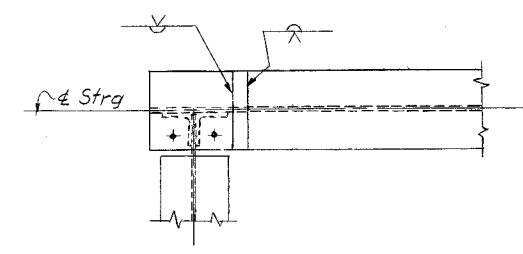
SECT. E-E
(Strgs B, C, D, E, H, J, K & L)
(Strgs A, F, G & M @ T1, T6, T11, T17 & T22)



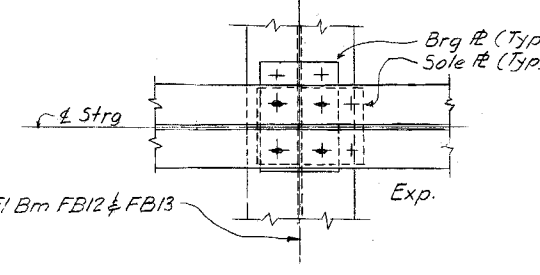
SECT. G-G
(Strgs B, C, D, E, H, J, K & L)



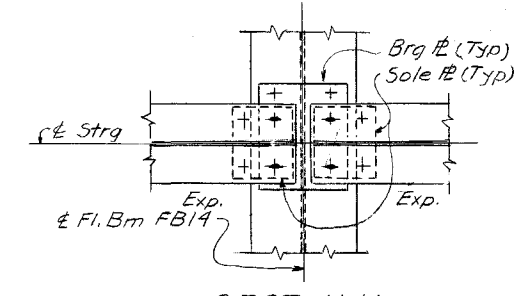
EXPANSION BEARING
FIXED BEARING
BOLT ASSEMBLY DETAILS



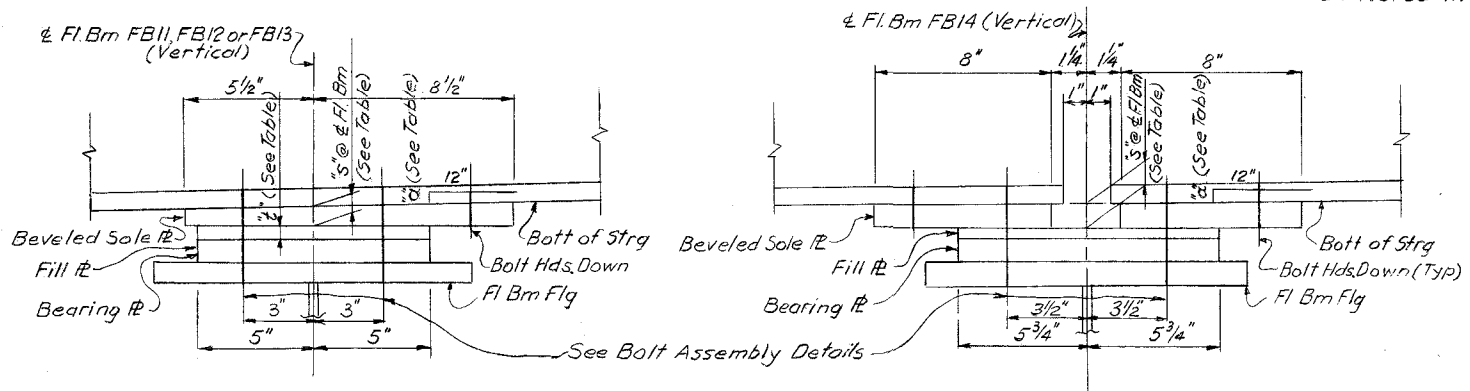
SECT. J-J



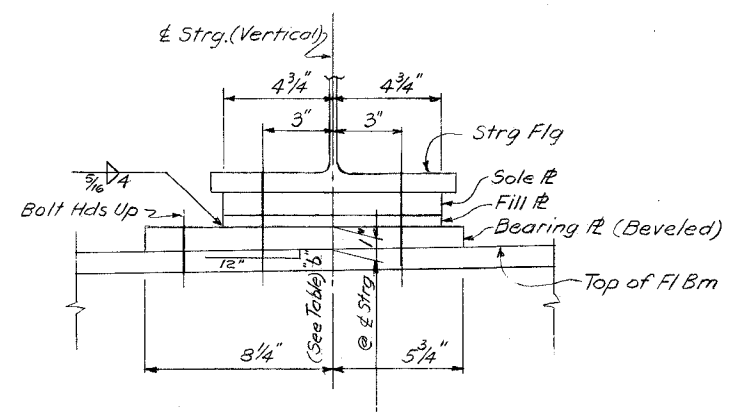
SECT. F-F
(Strgs A, F, G & M Except as Noted in Sect E-E)



SECT. H-H
(Strgs A, F, G & M)



STRINGER TO FLOORBEAM CONNECTION DETAILS



SPAN 8
STRINGER DETAILS

Work Sheets 45 thru 48 together
SHEET 45

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS
PROJECT 1471-4 ()
BRIDGE OVER OHIO RIVER ON I 471
CAMPBELL COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

DESIGNED BY: WFB
 CHECKED BY: CFB
 DATE: 6-25-71
 TRACED BY: FM
 CHECKED BY: CGH
 DATE: 10-70
 REVISIONS:

TABLE OF SOLE PLATE BEVELS "a"	
PANEL POINT	"a"
R ₀ , T ₁ , T ₂ , T ₃ , T ₄ , T ₁₉ , T ₂₀ , T ₂₁ , T ₂₂ , R ₂₃	1/8"
T ₅ , T ₆ , T ₇ , T ₈ , T ₁₅ , T ₁₆ , T ₁₇ , T ₁₈	1/16"
T ₉ , T ₁₀ , T ₁₁ , T ₁₂ , T ₁₃ , T ₁₄	0

SECT C-C
TYP DETAIL AT DIAPH D1

TABLE OF STRINGER BEARING DATA

STRINGERS		A&M				F&G				B,C,K&L				D,E,H&J			
FLOORBEAM		FB11	FB12	FB13	FB14	FB11	FB12	FB13	FB14	FB11	FB12	FB13	FB14	FB11	FB12	FB13	FB14
Sole Pl	"s"(inches)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Brg Pl	"b"(inches)	0	0	0	0	0	0	0	0	3/16	3/16	3/16	3/16	3/16	3/16	3/16	3/16
Fill Pl	"t"(inches)	13/16	3/16	9/16	15/16	1 1/16	1 1/16	1 1/16	1 1/16	*	0	3/8	3/4	1/2	7/8	1 1/4	1 5/8

* 5/8" Stringers B&L
1 1/4" Stringers C&K

† 2 1/8" Stringers D&J
1 1/2" Stringers E&H

STRINGER AND DIAPHRAGM NOTES

H.S. Bolts - 7/8"φ
Material - A36 Steel
Stringers are not to be cambered.
Steel in contact with concrete shall not be painted or oiled.
See Sheet 2 for General Notes.
See Sheet 31 for Framing Plan.
Sliding surfaces of stringer expansion bearings shall be shop coated with a hot mixture of white lead and tallow or other approved coating.
Diaphragms D4, D5, CB4 and CB5 support the Modular Expansion Joints. See sheets 17 thru 20 for details and connections.

Work Sheets 45 thru 48 together

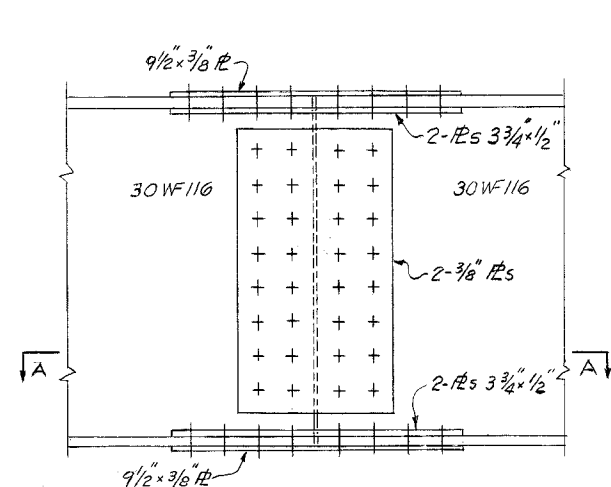
SHEET 46

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

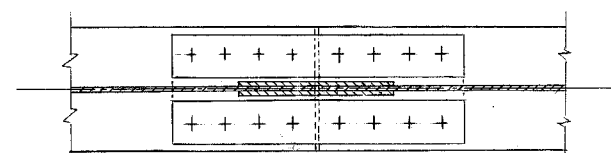
PROJECT 1471-4 ()
BRIDGE OVER OHIO RIVER ON I 471
CAMPBELL COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

SPAN 8
STRINGER & DIAPHRAGM
DETAILS

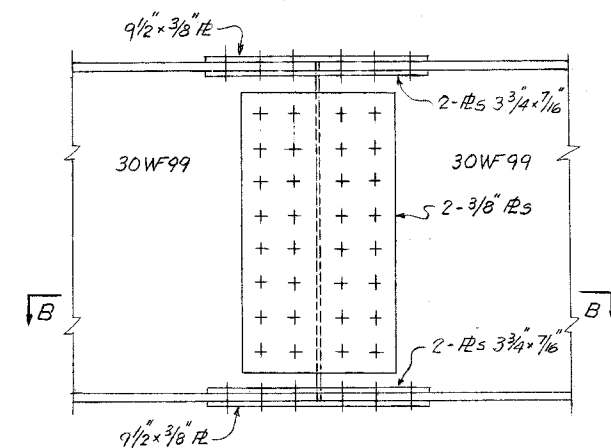
HAZELET & ERDAL Consulting Engineers File No. 889	BRIDGE NUMBER	DRAWING NO. 18485	INDEX
---	------------------	----------------------	-------



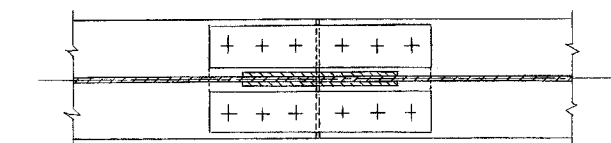
INTERIOR STRINGER SPLICE



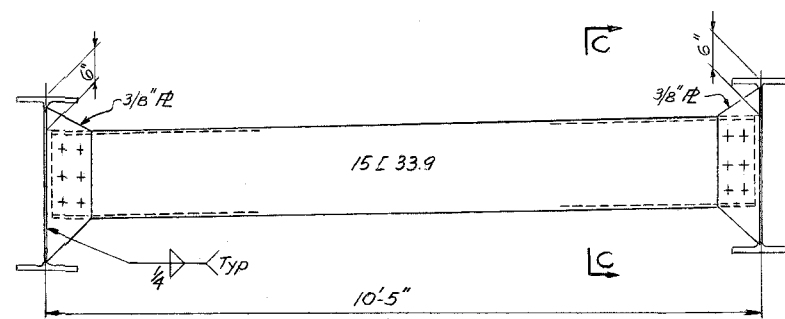
SECT. A-A



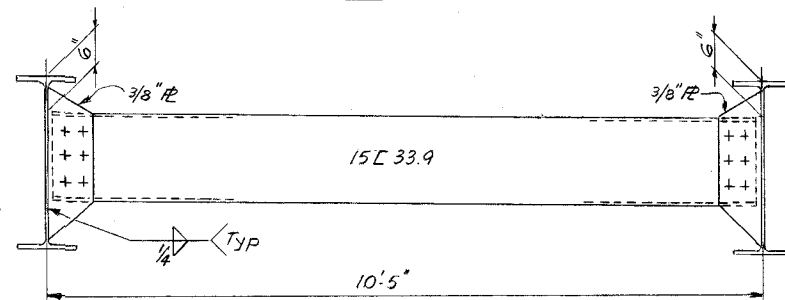
FASCIA STRINGER SPLICE



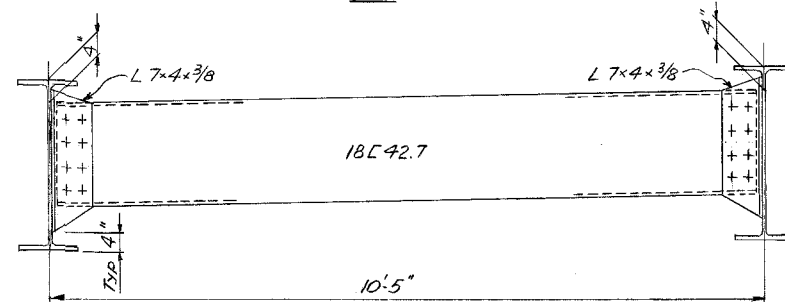
SECT. B-B



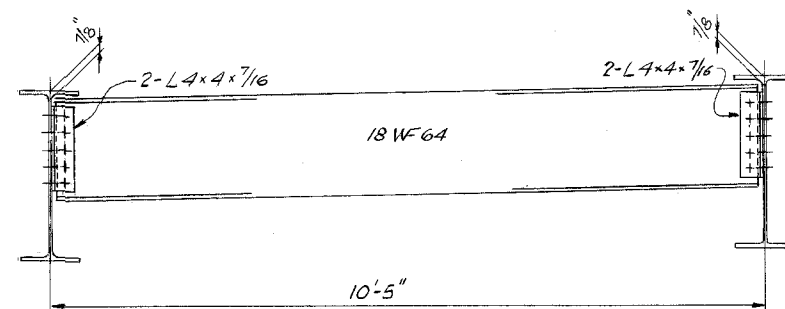
D1



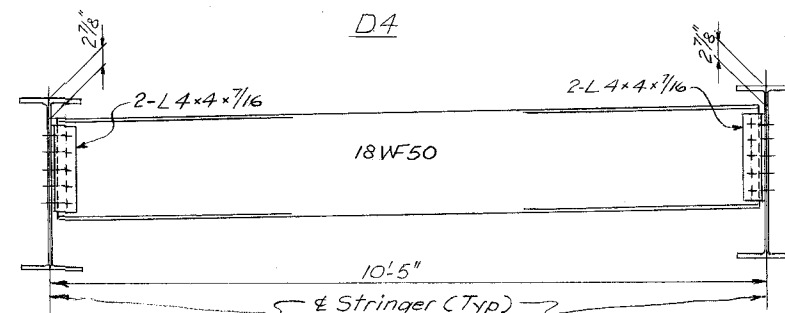
D2



D3



D4

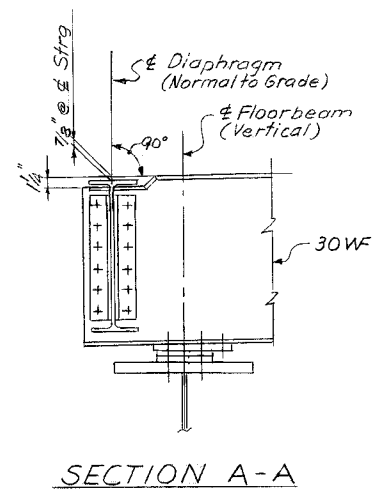
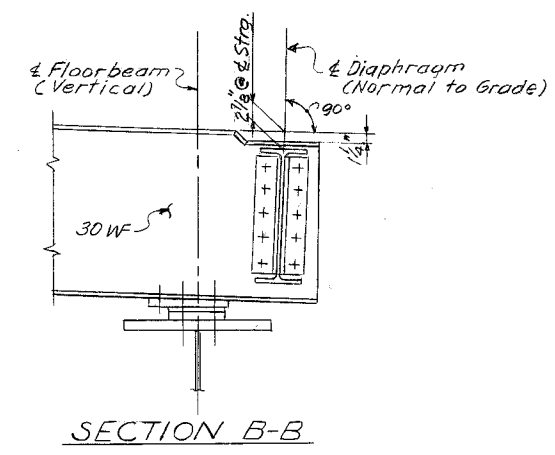
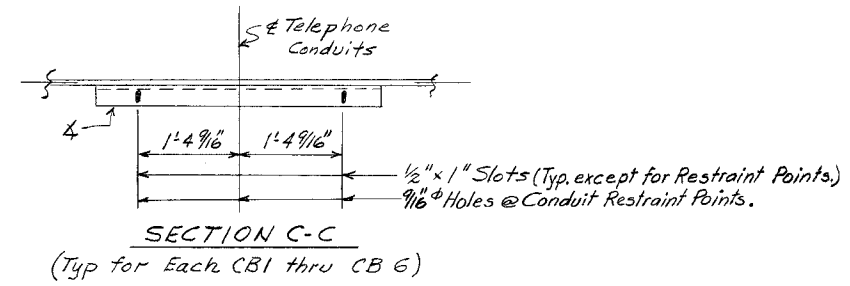
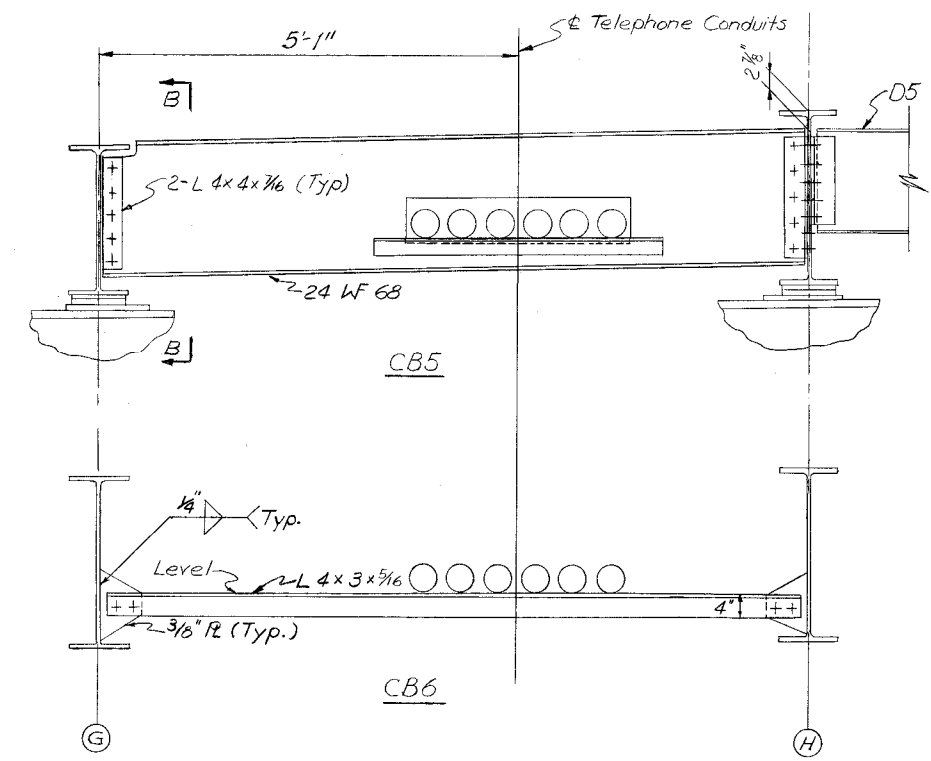
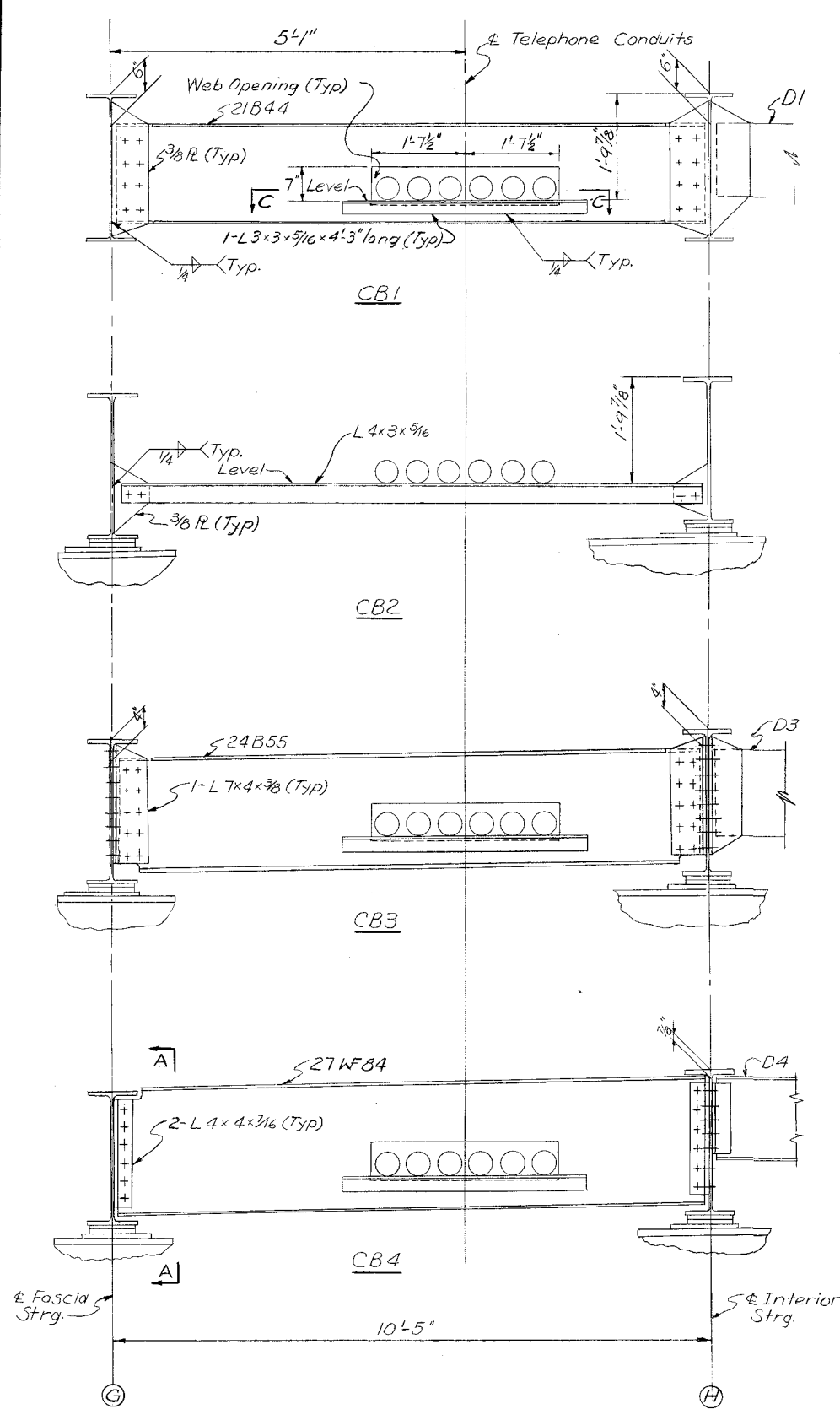


D5

DIAPHRAGM DETAILS

WAB 6-25-71

DESIGNED BY: HEB
CHECKED BY: CGH
DATE: 10-72
REVISIONS:
DATE: 10-72
REVISIONS:
DATE: 10-72
REVISIONS:
DATE: 10-72
REVISIONS:



TELEPHONE CONDUIT & DIAPHRAGM NOTES
 See sheet 46 for diaphragms notes.
 See sheets 55 & 56, Drawing No. 18484 for the general details, notes and contract limits for Telephone Conduit.

TELEPHONE CONDUIT DIAPHRAGM DETAILS
 Typical conduit support location details shown on CB1 & CB2.

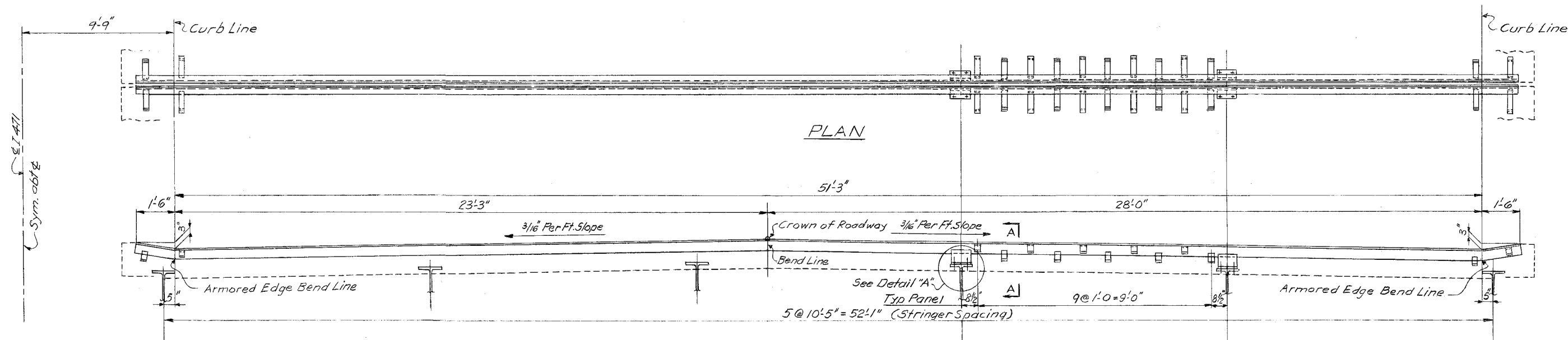
Work Sheets 45 thru 48 together

SHEET 47

SPAN 8
TELEPHONE CONDUIT
DIAPHRAGM DETAILS

KENTUCKY DEPARTMENT OF HIGHWAYS OHIO DEPARTMENT OF HIGHWAYS PROJECT 1471-4 () BRIDGE OVER OHIO RIVER ON I 471 CAMPBELL COUNTY, KENTUCKY HAMILTON COUNTY, OHIO			
HAZLET & ERDAL Consulting Engineers File No. 889	BRIDGE NUMBER	DRAWING NO. 18485	INDEX

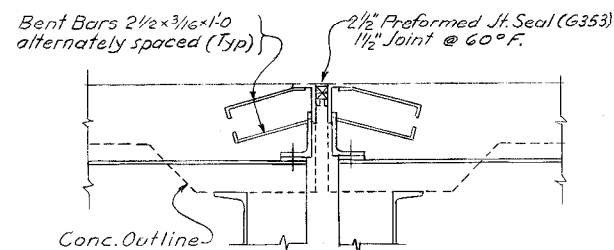
DESIGNED BY: CLEB
 CHECKED BY: M.L.
 DATE: 12-10-70
 TRACED BY: M.L.
 DATE: 12-10-70



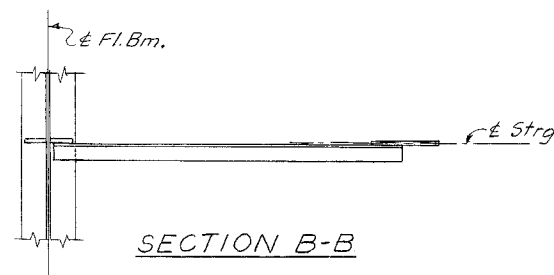
ELEVATION
STRINGER EXPANSION JOINT
 AT T4, T9, T14 & T19

STRINGER EXP. JOINT NOTES:

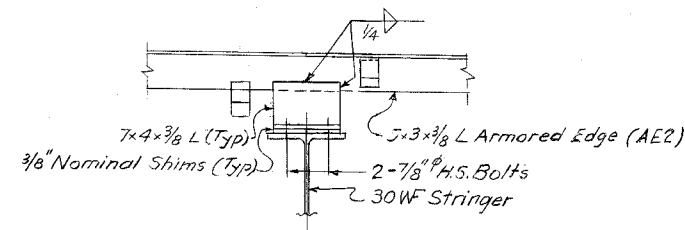
H.S. Bolts - 7/8" ϕ
 Material - A36 Steel
 The stringer expansion joints are to be erected after all other steel has been erected and after the concrete slabs (between transverse construction joints) of Units I thru V have been placed. The joints shall be set to match the roadway surface and with the indicated opening.
 For details of Armored Edge see "Standard Armored Edge for Joints in concrete", Std. AE2, current edition.
 For details of 2 1/2" Preformed Joint seal see "Preformed Joint Seal Details for concrete Bridge Floors", Std. G353, current edition.



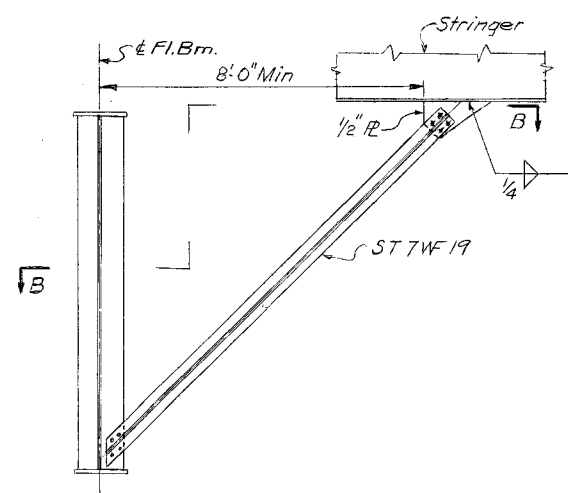
SECTION A-A



SECTION B-B



DETAIL "A"



LONGITUDINAL FORCE BRACE
 (See Framing Plan for Location)

Work Sheets 45 thru 48 together

SHEET 48

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

PROJECT 1471-4 ()
 BRIDGE OVER OHIO RIVER ON I 471
 CAMPBELL COUNTY, KENTUCKY
 HAMILTON COUNTY, OHIO

SPAN 8
STRINGER EXP. JOINTS & MISC.

HAZELET & ERDAL
 Consulting Engineers
 File No. 889

BRIDGE
 NUMBER

DRAWING NO.
 18485

INDEX

1471-4(8)

DESIGNED BY: CGH
 CHECKED BY: FM
 DATE: 10/7/71
 TRACED BY: CGH
 DATE: 10/7/71

Inspection Walk

Walk to Navig. Light

(Southbound)

Inspection Walk

(Northbound)

Channel

Walk to Navig. Light

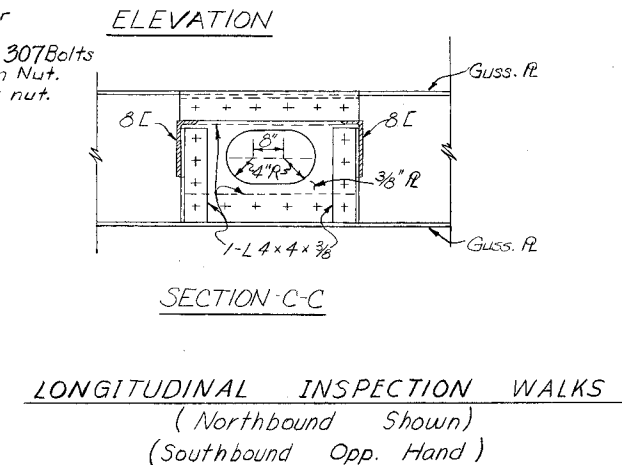
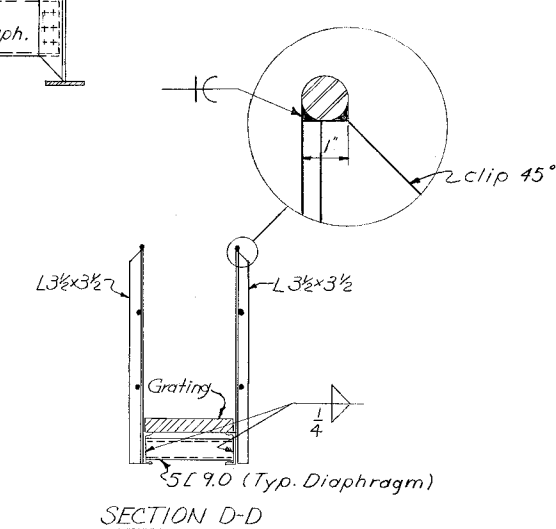
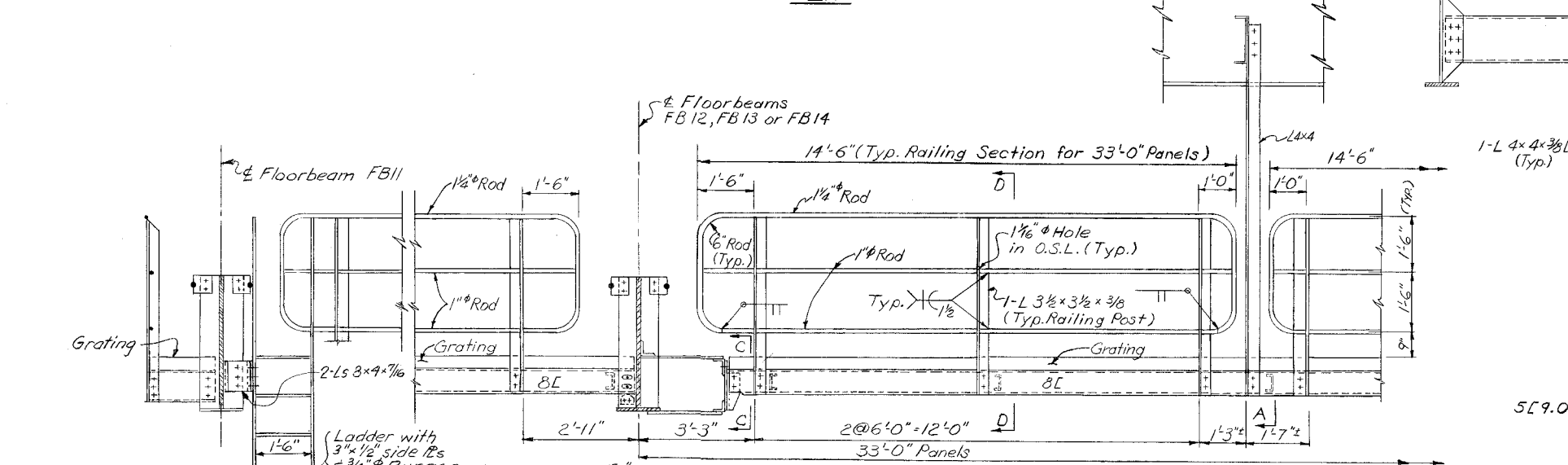
Brg. @ Pier 8

Brg. @ Pier 9

I 471

Between Ribs

LOCATION PLAN



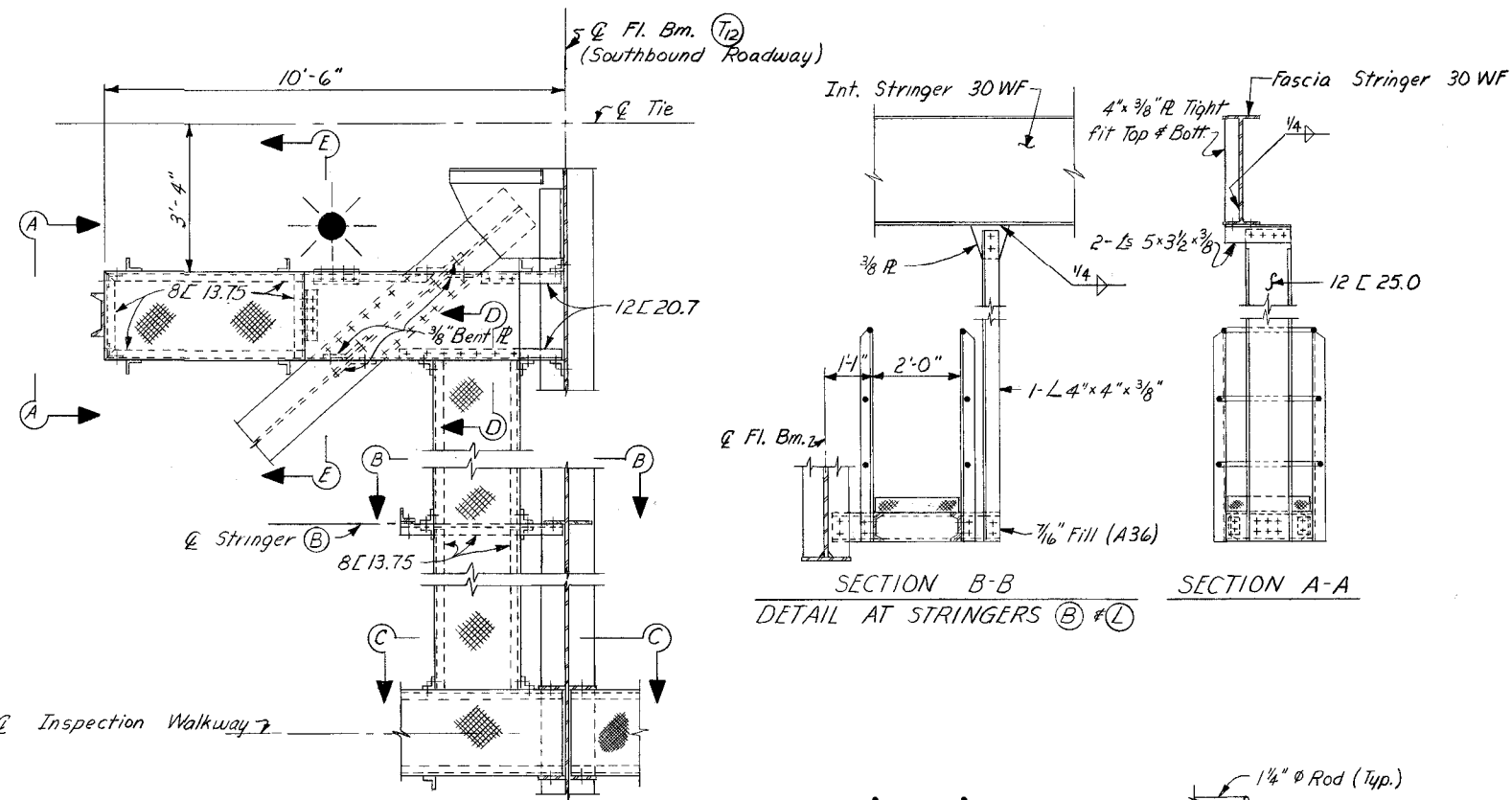
KENTUCKY DEPARTMENT OF HIGHWAYS OHIO DEPARTMENT OF HIGHWAYS

PROJECT 1471-4 ()

BRIDGE OVER OHIO RIVER ON I 471

CAMPBELL COUNTY, KENTUCKY HAMILTON COUNTY, OHIO

SPAN 8
INSPECTION WALKS



* INSPECTION WALK, PLATFORM & LADDER NOTES:

H.S. Bolts - $\frac{7}{8}$ " ϕ U.N. except bolts in safety cages for ladders may be $\frac{3}{4}$ " ϕ .

Material - A 36 steel U.N.

All welds shall be $\frac{1}{4}$ " U.N.

Galvanized grating for all Inspection Walks and Platforms shall be 18" wide Type W-3R Bustin Protecto-Way steel grating made from standard lengths as manufactured by the Bustin Steel Products Inc., Dover, New Jersey; or shall be 18^{3/4}" wide on 3" channels 12-gauge galvanized steel made up from standard lengths as manufactured by the Globe Company, Chicago, Illinois under the trade name of "Safety Grip Strut", with serrated grated surface; or shall be 18" wide 4" deep Interlock Grating as manufactured from 14-gauge Zinc - grip Steel by Armco Steel Corporation, Middletown, Ohio; or equal.

Connection $LS = 4 \times 4 \times \frac{3}{8}$ U.N.

Railing shall be A 36 steel rods of welded construction and may be shop or field fabricated.

Pipe railing may be used as an alternate. The railing shall be welded construction and may be shop or field fabricated. The rails shall be 1 1/2" Ø A53 Schedule 40 pipe. The posts, 1 1/2" Ø A53 Schedule 80 pipe or A36 structural steel sections. The proposed details shall be submitted to the Engineer for approval.

All rough edges and sharp corners shall be removed.
The grating may be welded to the supports and shall be painted where the galvanizing is destroyed.

The ladder safety cages shall be made up of $2\frac{1}{2} \times \frac{3}{8}$ bars.

The painting of all steel, rods, pipe, etc., except the galvanized grating, shall be in accordance with the Special Provision № 80, current edition.

The cost of the galvanized grating, galvanized carriage bolts with nuts, anchor parts, all steel plates and shapes, tools, labor, and all incidentals necessary to complete the installation of the inspection walk and all platforms, are included in the lump sum bid for Structural Steel - Span 8.

*These notes are not intended to apply to the Telephone Company service platforms and ladders.

Work sheets 49 thru 51 together

SHEET 50

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

PROJECT 1471-4 ()
BRIDGE OVER OHIO RIVER ON I 471
CAMPBELL COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

HAZELET & ERDAL
Consulting Engineers
File No. 889

BRIDGE
NUMBER

DRAWING NO.
18485

INDEX

SPAN 8
INSPECTION WALKS

INSPECTION WALKS
TO NAVIGATION LIGHTS

PLAN
(Northbound Rdwy.)

② Tie 2
② Fl. Bm. (T₁₁) (Northbound Roadway)

12[20.7 -

Bent R.

Stringer (L)

$\angle 13.75$

RF1375

10'-6"

10'-6"

See Section B-B
Sheet 49 for
Expansion Details.

1- $\angle$ 3 $\frac{1}{2}$ x 3 $\frac{1}{2}$ x $\frac{3}{8}$
(Typ. Railing Post)

3 1/2 x 3 1/2 x 3/8
Railings Post)

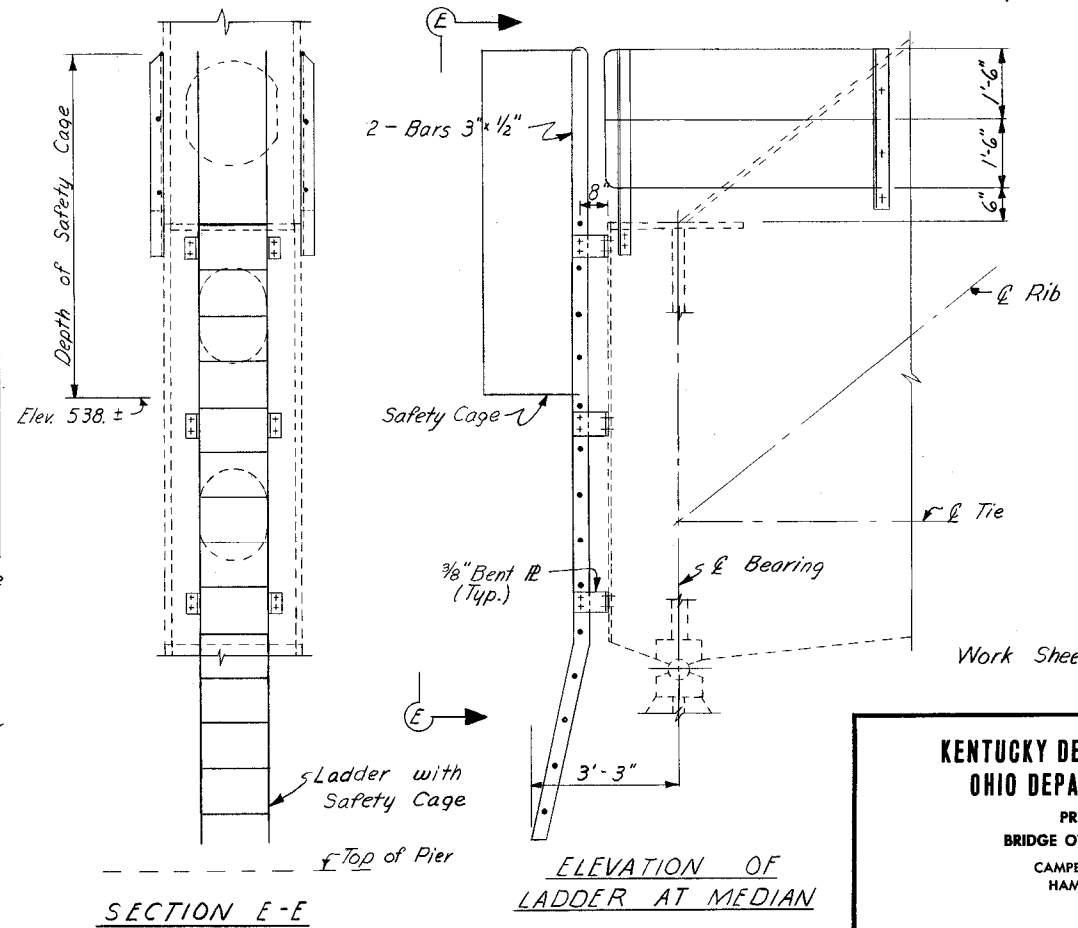
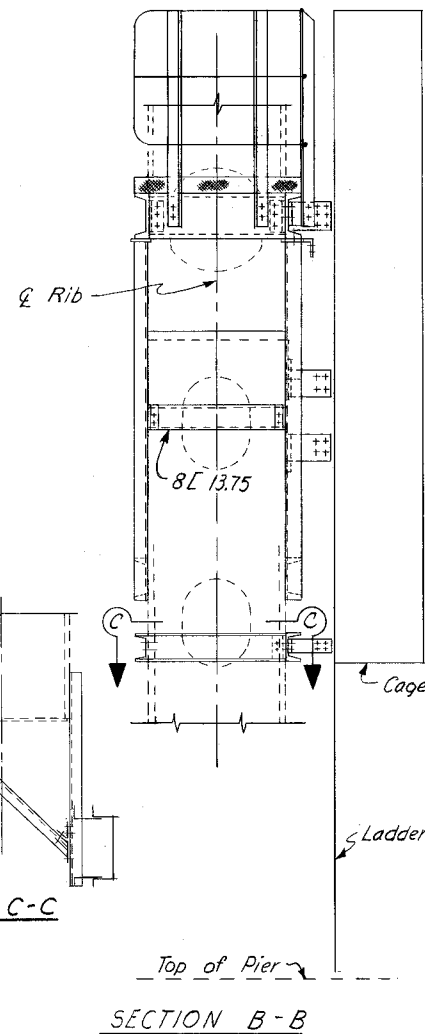
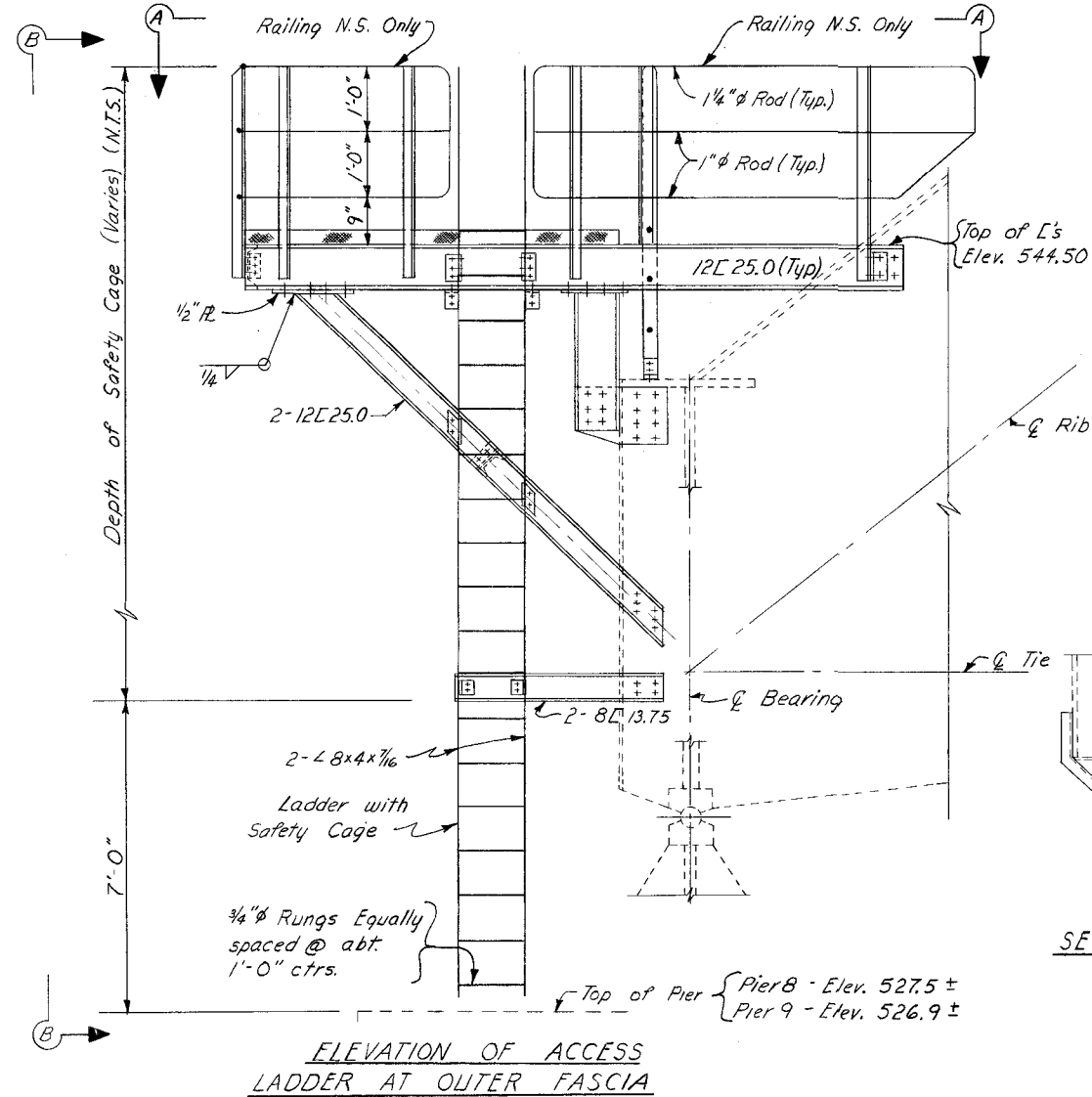
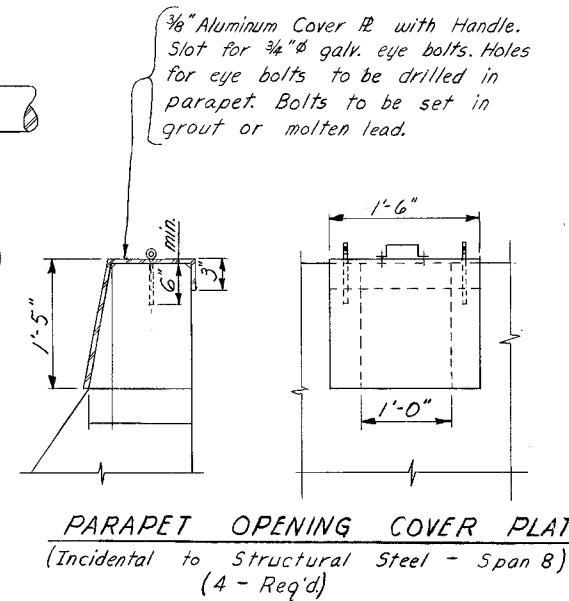
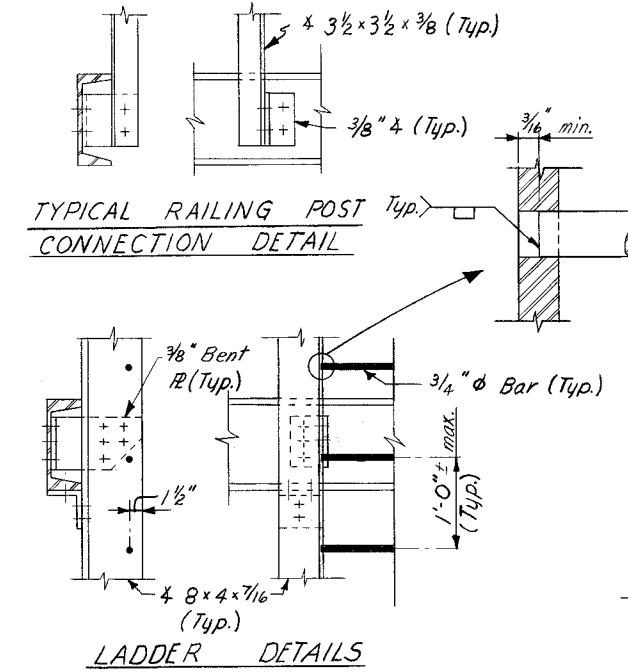
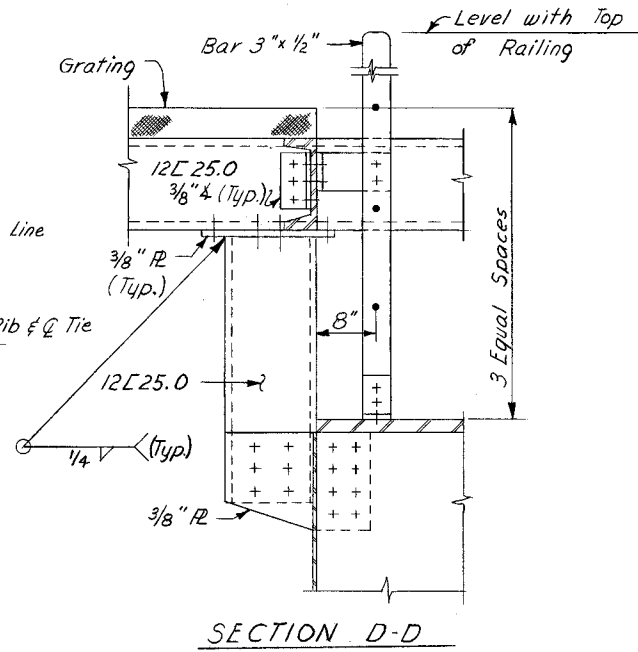
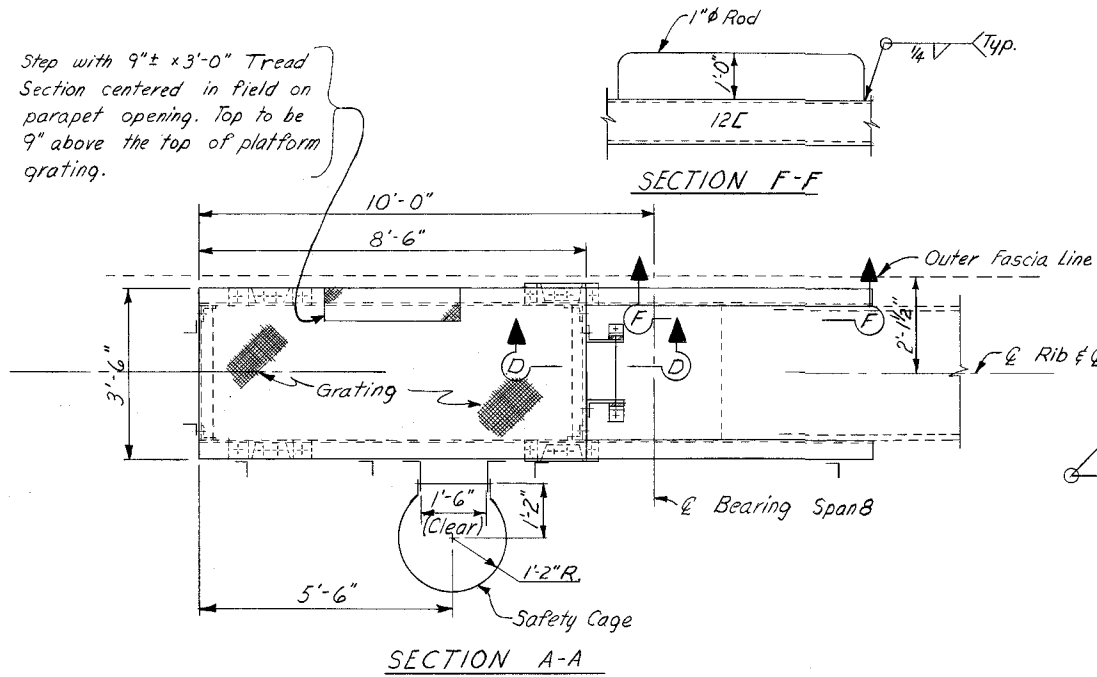
1 1/4" ϕ Rod (Typ.)
1" ϕ Rod (Typ.)

Grating (Top) $\frac{3}{8}$ " Floor Pl. Fasten with $\frac{5}{8}$ " ϕ Button Head Bolts.

Grating -
(Top)

3/8" Bent #

SECTION E-E



Note:
The furnishing and installation
of covers and bolts for the
parapet openings in Spans
7 and 9 is incidental to
the item "Structural
Steel - Span 8".

Work Sheets 49 thru 51 Together

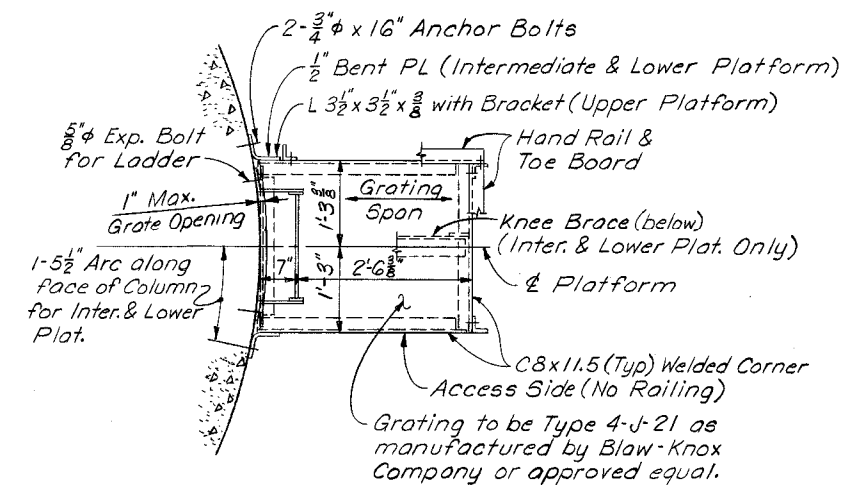
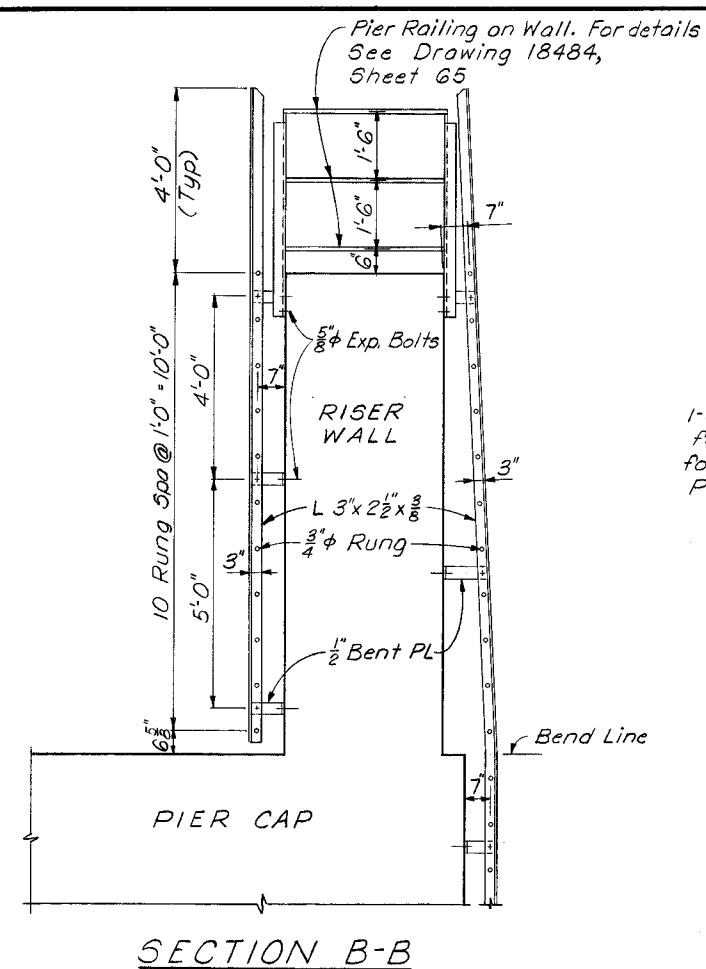
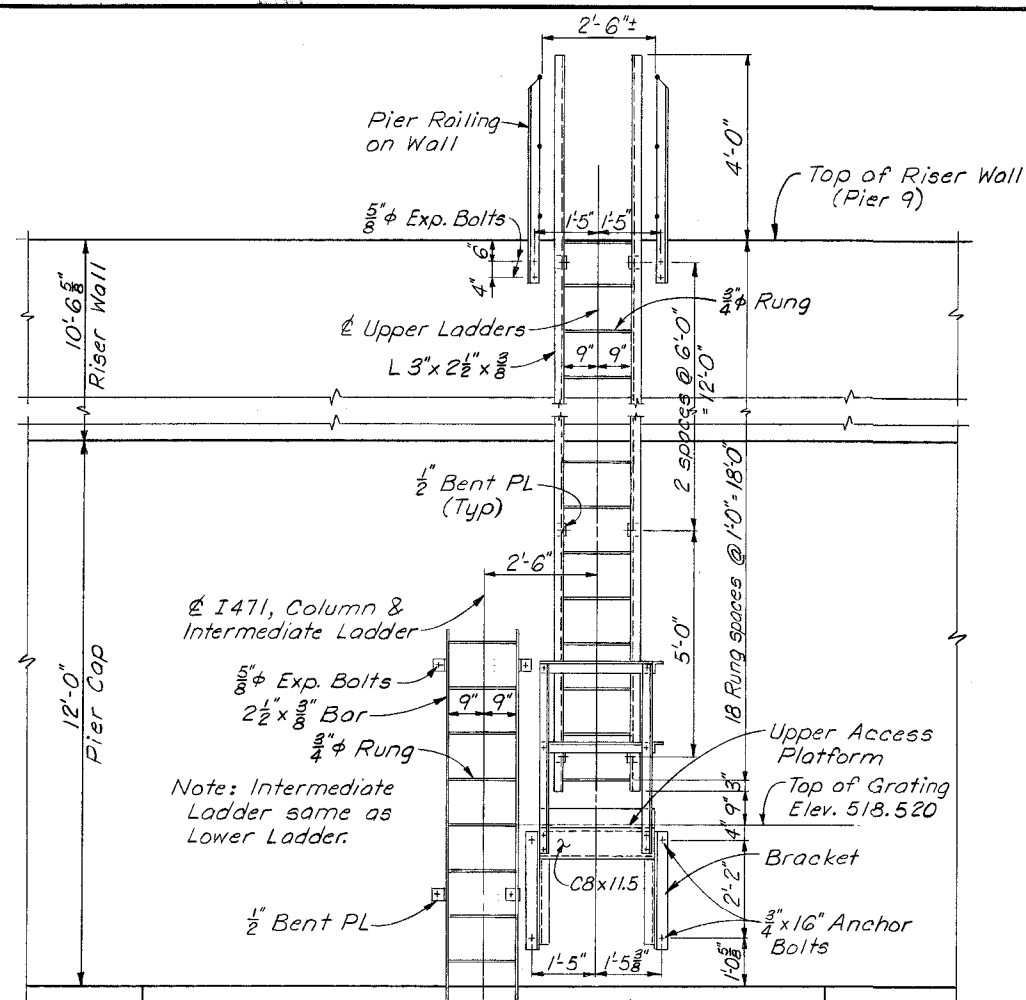
SHEET 51

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS
PROJECT 1471-4 ()
BRIDGE OVER OHIO RIVER ON I 471
CAMPBELL COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

SPAN 8
PLATFORMS AND LADDERS

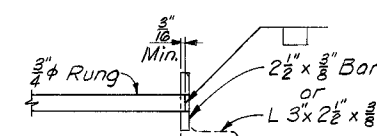
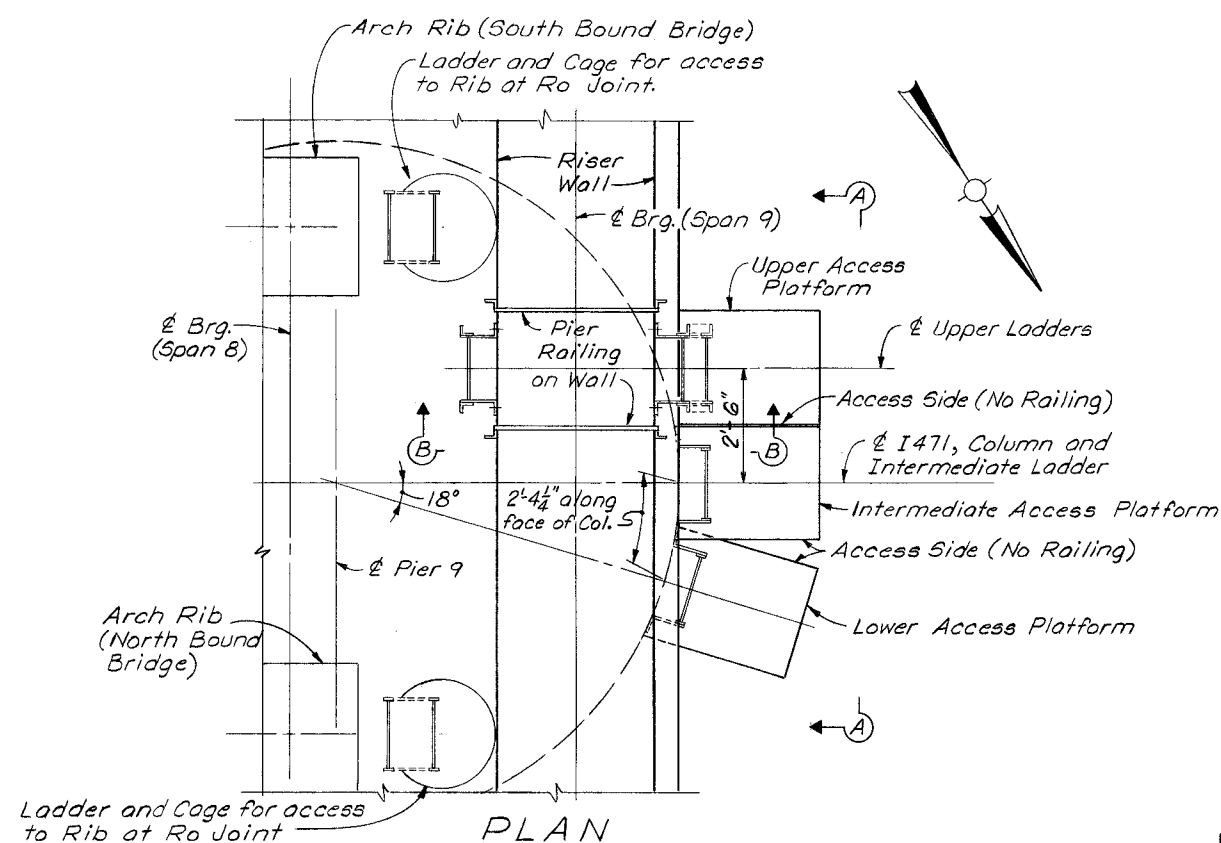
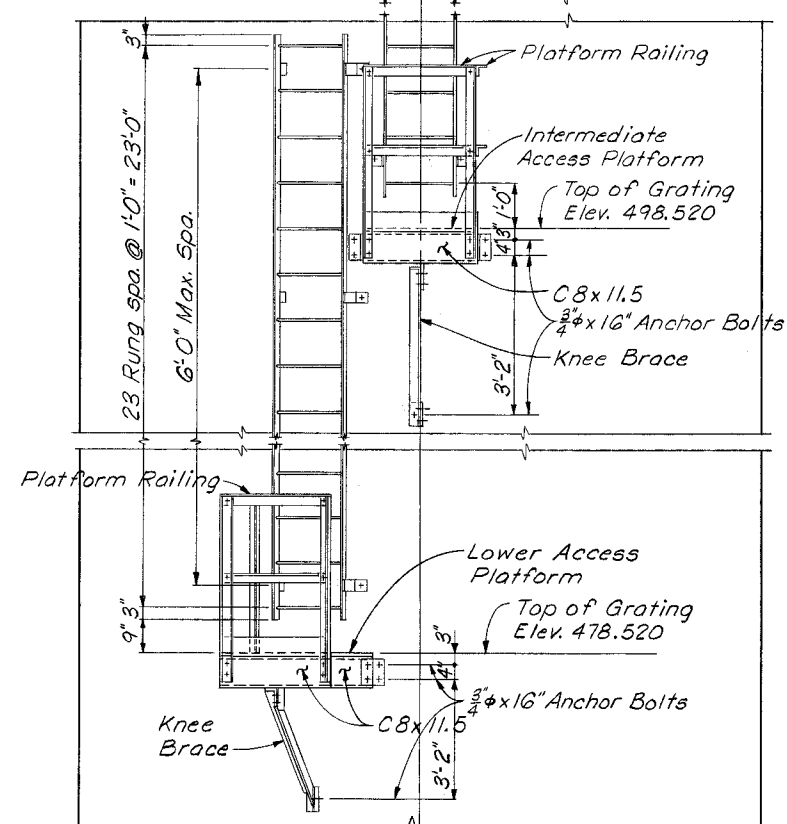
HAZELET & ERDAL Consulting Engineers File No. 889	BRIDGE NUMBER	DRAWING NO. 13435	INDEX
---	------------------	----------------------	-------

DESIGNED BY: J.A.M. 10/1
CHECKED BY: W.E.B. 11/10
DATE: 10/10
TRACED BY: W.E.B. 11/10
DATE: 11/10



ACCESS PLATFORM DETAILS

Drawn for Intermediate Access Platform. Upper and Lower Access Platforms similar except as shown in the Plan. For Upper Access Platform Details not shown see Section G-G, Drawing 18486, Sheet 28. For Intermediate and Lower Access Platform Details not shown and Platform Railing Details see Section E-E, Drawing 18486, Sheet 28. For Ladder Details see View A-A and Section B-B.



TYPICAL RUNG CONNECTION

Steel for ladder on Pier 9 is included in lump sum bid for Telephone Conduit.

SHEET 51A

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

PROJECT 1471-4 ()
BRIDGE OVER OHIO RIVER ON I 471
CAMPBELL COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

PIER 9
LADDER DETAILS

HAZELET & ERDAL
Consulting Engineers
File No. 889

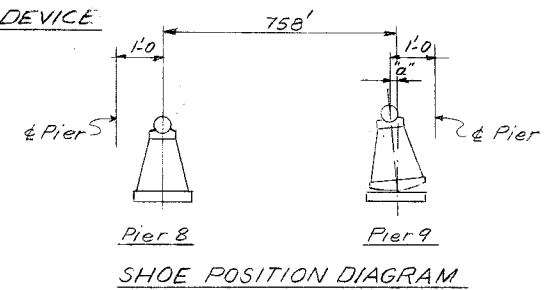
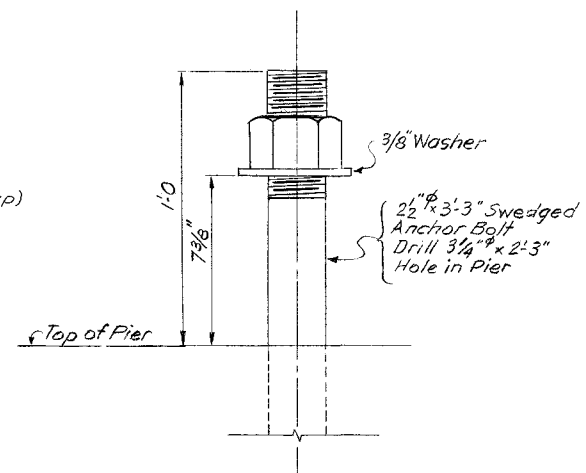
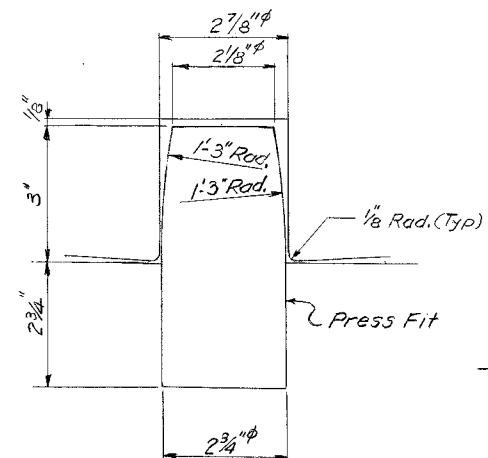
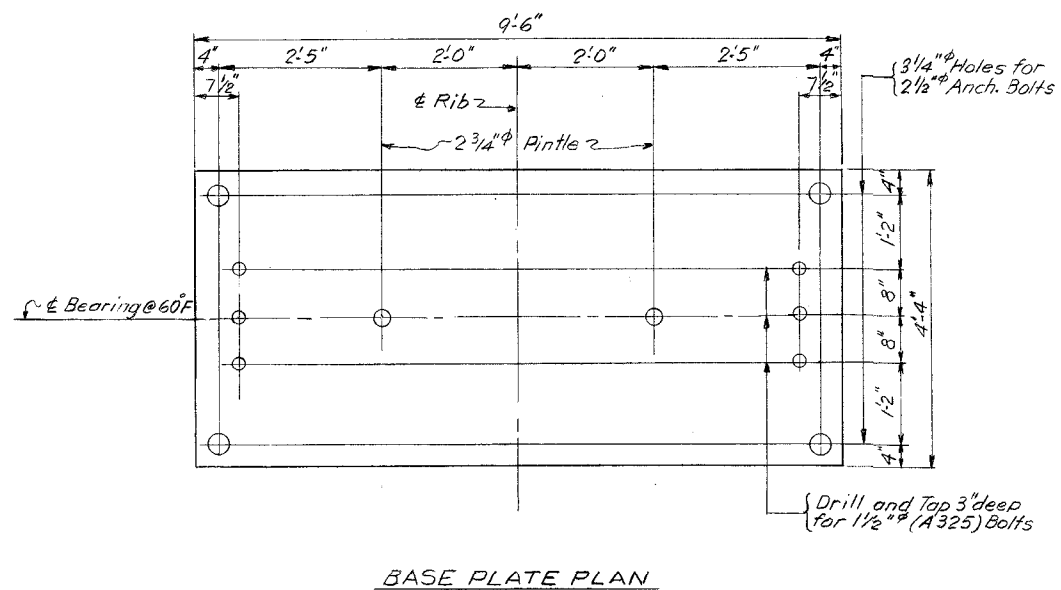
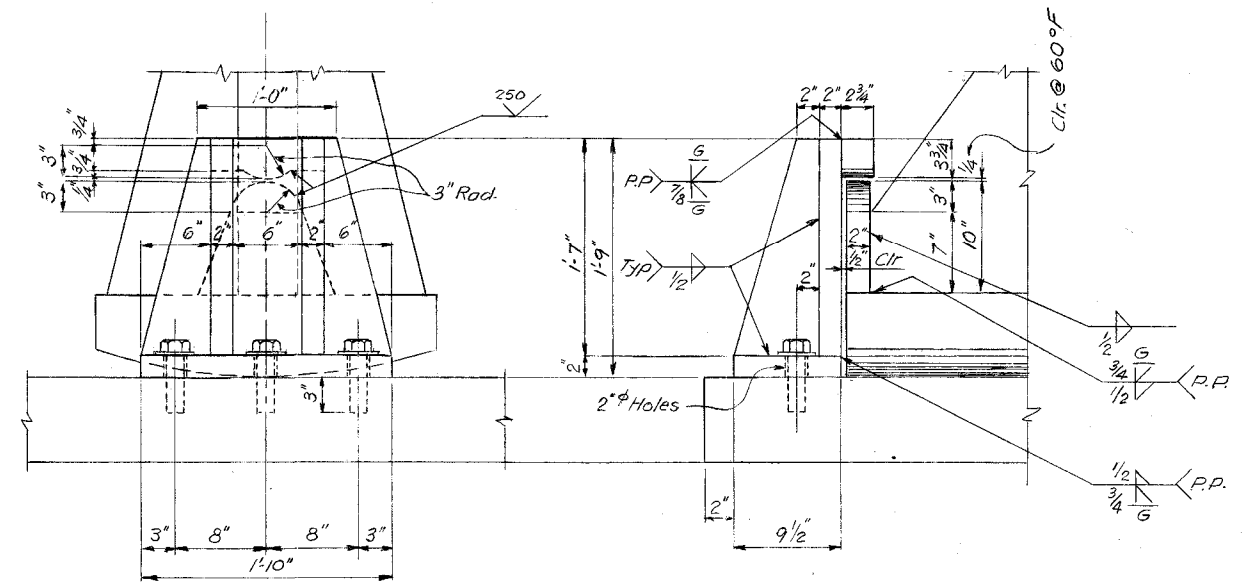
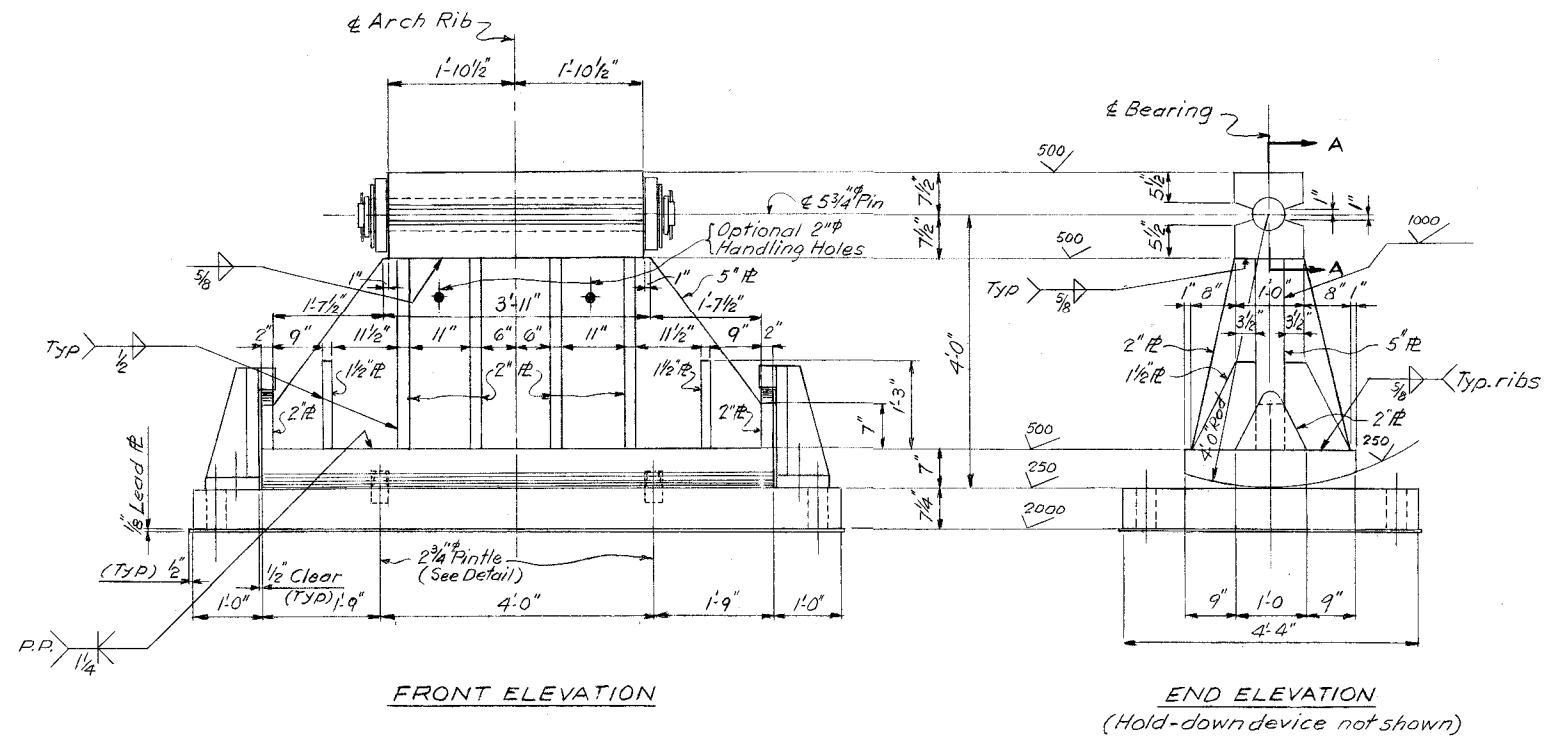
BRIDGE NUMBER	
------------------	--

DRAWING NO.
18485

INDEX

DESIGNED BY	CHECKED BY	DATE	REVISED	DATE
OBTAINED BY	CHECKED BY	DATE	REVISED	DATE
TRACED BY	CHECKED BY	DATE	REVISED	DATE

REVISION SHEET ADDED
 W.R.T. 5-15-72
 W.R.T. 5-22-72



Temp °F	-30	-20	0	20	40	60	80	100	120
No Load	11 ³ / ₁₆	11 ¹ / ₄	10 ¹ / ₁₆	8 ³ / ₈	7 ¹ / ₁₆	6 ¹ / ₁₆	5 ⁵ / ₁₆	4 ¹ / ₈	2 ⁵ / ₁₆
Steel/DL	8 ⁹ / ₁₆	8	6 ³ / ₁₆	5 ⁵ / ₈	4 ³ / ₁₆	3 ¹ / ₄	2 ¹ / ₁₆	7 ⁸ / ₁₆	-5 ¹ / ₁₆
*Steel/DL+Conc/DL	5 ⁵ / ₁₆	4 ³ / ₄	3 ⁹ / ₁₆	2 ³ / ₈	1 ³ / ₁₆	0	-1 ³ / ₁₆	-2 ³ / ₈	-3 ¹ / ₁₆

* Excluding F.W.S.

NOTE:
See sheet 52 for Pin details
See sheet 52 for Bearing Notes

Work sheets 52 and 53 together

SHEET 53

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

PROJECT 1471-4 ()
BRIDGE OVER OHIO RIVER ON I 471
CAMPBELL COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

HAZELET & ERDAL
Consulting Engineers
File No. 889

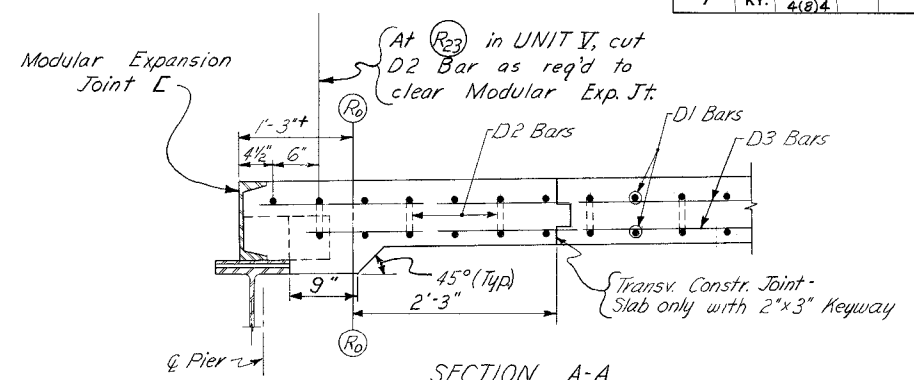
BRIDGE
NUMBER

DRAWING NO.
18485

INDEX

SPAN 8
BEARING DETAILS AT PIER 9

DESIGNED BY	WEB	CHECKED BY	CEB	REVISED	DATE
DETAILS BY	FM	CHECKED BY	CGH	REVISED	DATE
TRACED BY		CHECKED BY		REVISED	DATE



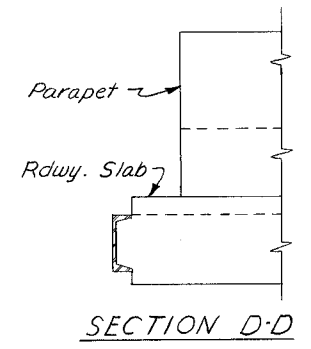
Hand-drawn cross-section diagram of a reinforced concrete slab joint. The diagram shows two slabs meeting at a central joint. Reinforcement includes D1 bars at the top, D2 bars at the bottom, and D9 or D3 bars running horizontally through the joint. Dimensions include a total width of 3'-6", a joint width of 6", and various bar spacings and offsets like 4 1/2", 3", 10 1/2", and 3/4". A 45-degree angle is indicated for the joint reinforcement. A note specifies "Transv. Constr. Joint - Slab only with 2" x 3" Keyway". A temperature reinforcement symbol (T4) is shown at the top right corner, with a note "Strng. Exp. Jt. X".

SLAB NOTES :

The slabs shall be broom finished. See Special Notes for Bridge Deck Construction.

See Sheet 63, Drawing No. 18484, for Light Standard Bracket that is monolithic with the parapet

See Sheet 59 for Type III Deck Drains and for Reinforcement at Deck Drains.



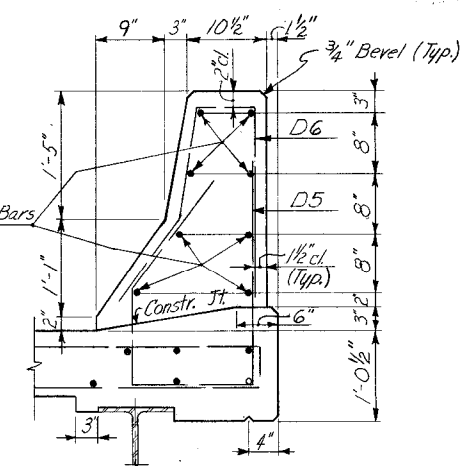
SECTION D-D

SPAN 8 SLAB DETAILS

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS
PROJECT 1471-4 ()
BRIDGE OVER OHIO RIVER ON 1471
CAMPELL COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

HAZELET & ERDAL Consulting Engineers File No. 889	BRIDGE NUMBER	DRAWING NO. 18485	INDEX
---	------------------	----------------------	-------

DESIGNED BY	WFB	CHECKED BY	C.E.B.	DATE	
DETAILED BY	J.A.N. 426	CHECKED BY		DATE	
TRACED BY	J.A.N. 426	CHECKED BY	WFB	DATE	10-70
		REVIEWED		DATE	
		REVIEWED	Added Overhead Sign Supports C.E.B. DATE 2-15-71		



1/4" Open Joint

1'-5"

1'-1"

8 1/2" Slab

5" Constr. Jt. Groove

7" Curb

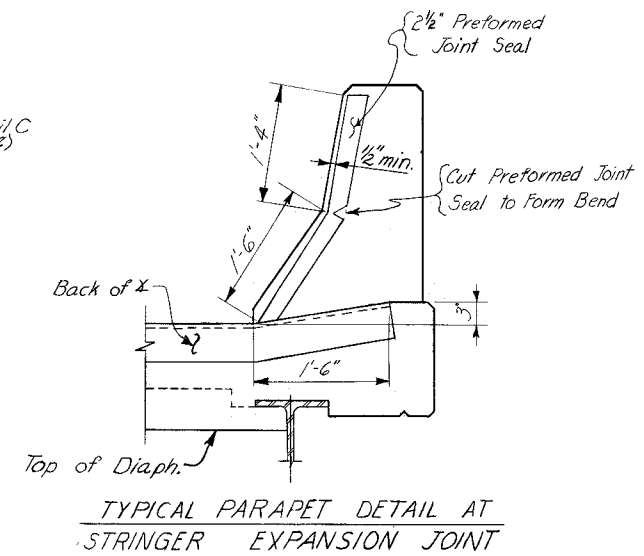
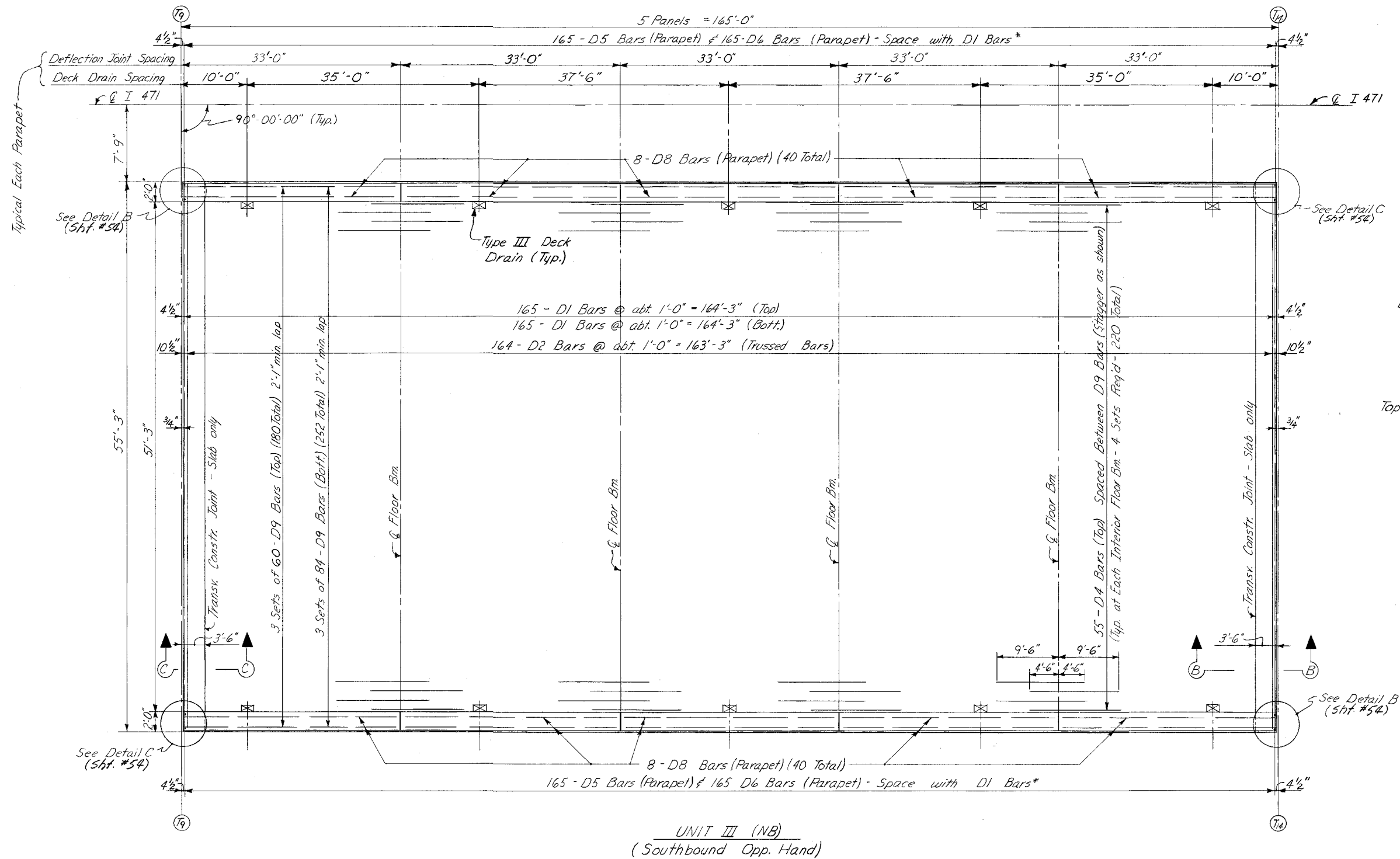
8" Floor Bm.

Top of Stringer

@ Light Standard
 Sta. 309+61 (Unit II)
 Sta. 311+59 (Unit IV)

HAZELET & ERDAL Consulting Engineers File No. 889	BRIDGE NUMBER	DRAWING NO. 18485	INDEX
---	------------------	----------------------	-------

FED. ROAD DIST.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
7	KY.	471-4(8)4			



WAB 6-25-71

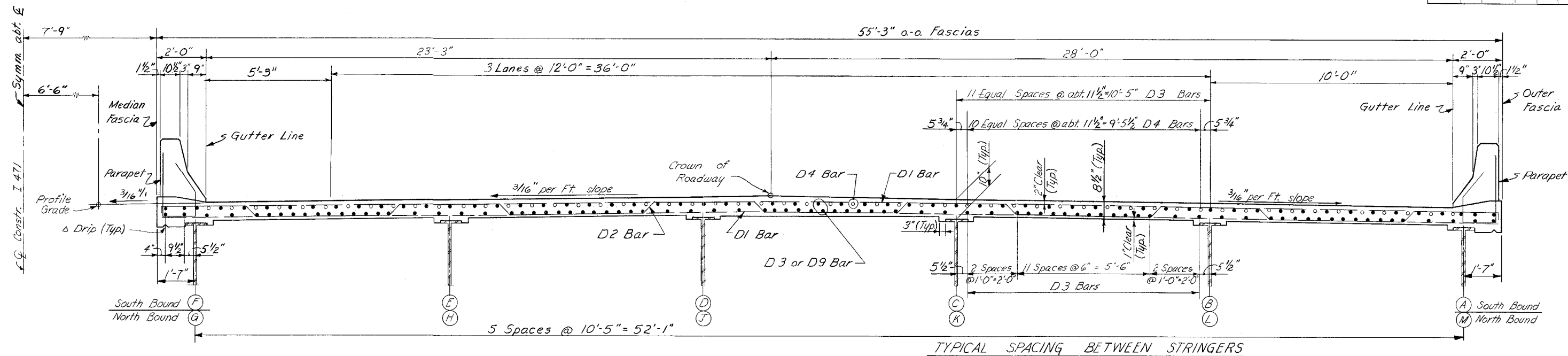
DESIGNED BY	WEB	CHECKED BY	CEB	DATE	
DETAILED BY	JAN	CHECKED BY	WFB	DATE	10-70
TRACED BY	JAN	CHECKED BY	WFB	DATE	10-70

Work Sheets 54 thru 59 Together
SHEET 56

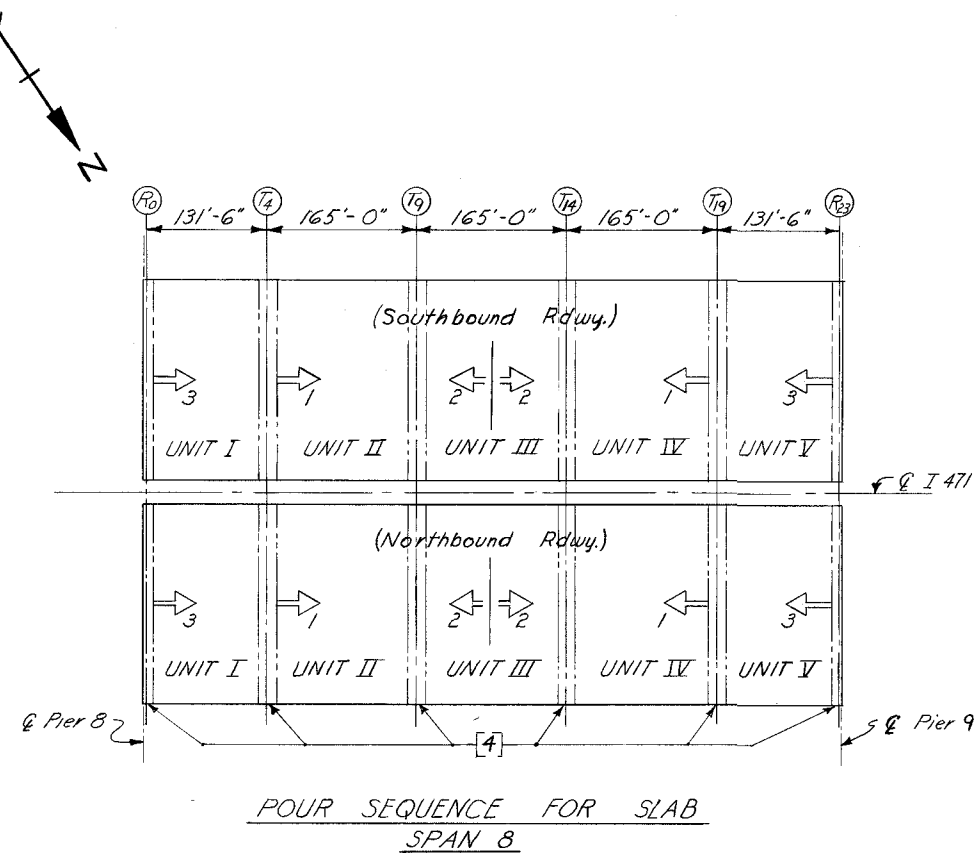
KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS
PROJECT 1471-4 ()
BRIDGE OVER OHIO RIVER ON I 471
CAMPBELL COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

SPAN 8
SLAB DETAILS

HAZLET & ERDAL Consulting Engineers File No. 889	BRIDGE NUMBER	DRAWING NO. 1E485	INDEX
--	------------------	----------------------	-------



TYPICAL SECTION - SPAN 8



POUR SEQUENCE - SPAN 8
(FOR NORTHBOUND AND SOUTHBOUND ROADWAYS)

- 1- Place UNIT II and UNIT IV simultaneously beginning 3'-6" from T4 & T19, pouring towards and to within 3'-6" of T9 and T14.
- 2- Place UNIT III starting at center of unit and simultaneously pouring toward and to within 3'-6" of T9 & T14.
- 3- Place UNIT I and UNIT V simultaneously beginning 2'-3" from R0 & R23 and pouring towards and to within 3'-6" of T4 and T19.
- 4- Set and adjust all of the Modular Expansion Joints and Stringer Expansion Joints. Complete the pours adjacent to these Joints.
- 5- The concrete in the Parapet shall not be poured until the deck has properly cured.
- 6- Parapet pours need not follow the above sequence, but should be kept symmetrical.
- 7- The pours for the light standard supports shall be monolithic with the Parapet pours.
- 8- In all pours the concrete shall be placed in such a manner as to load the span symmetrically about the C. A maximum variation of 33' (or one panel length) will be permitted in the simultaneous pours.

Work Sheets 54 thru 59 Together.
SHEET 57

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

PROJECT 1471-4 ()
BRIDGE OVER OHIO RIVER ON I 471
CAMPBELL COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

SPAN 8
SLAB DETAILS

HAZELET & ERDAL
Consulting Engineers
File No. 889

BRIDGE
NUMBER

DRAWING NO.
18485

INDEX

DESIGNED BY: J.A.N.
CHECKED BY: J.A.N.
DATE: 6-25-71

REVISIONS:
DATE: _____
BY: _____
REASON: _____

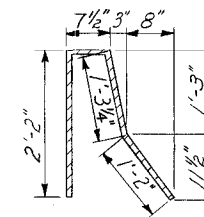
BILL OF BAR REINFORCEMENT - SPAN 8

MARK	TYPE	SIZE	LENGTH		NUMBER OF BARS					TOTAL	LOCATION
			Feet	Inches	UNIT I (NB) UNIT I (SB) Each	UNIT II (NB) UNIT II (SB) Each	UNIT III (NB) UNIT III (SB) Each	UNIT IV (NB) UNIT IV (SB) Each	UNIT V (NB) UNIT V (SB) Each		
D 1	Str.	# 6	54	10	265	330	330	330	265	3040	Transv. Slab
D 2	(61)	# 6	57	2	132	164	164	164	132	1512	Transv. Truss Slab
D 3	Str.	# 5	45	6	432	0	0	0	432	1728	Longit. Slab
D 4	Str.	# 5	14	0	165	220	220	220	165	1980	Longit. @ Int. Fl. Bm's.
D 5	(62)	# 6	6	5	264	330	330	330	264	3036	Transv. Parapet
D 6	(63)	# 6	5	2	264	330	330	330	264	3036	" "
D 7	Str.	# 5	32	5	16	0	0	0	16	64	Longit. Parapet
D 8	Str.	# 5	32	8	48	80	80	80	48	672	" "
D 9	Str.	# 5	56	3	0	432	432	432	0	2592	Longit. Slab
D 10	Str.	# 6	5	0	32	40	40	40	32	192	Deck Drain
LS 1	(62)	# 7	7	7	2	2	0	2	2	16	Light Std. Bracket
LS 2	(67)	# 5	9	0	3	3	0	3	3	24	" " "
LS 3	(64)	# 7	6	1	2	2	0	2	2	16	" " "
LS 4	(66)	# 5	7	2	1	1	0	1	1	8	" " "
LS 5	(65)	# 5	9	10	3	3	0	3	3	24	" " "
SF 1	(65)	# 5	11	5				12 *		12	Sign Supports
SF 2	(69)	# 6	10	1				12 *		12	"
SF 3	(68)	# 6	3	10				16 *		16	"
SF 4	(68)	# 6	4	4				8 *		8	"
SF 5	Str.	# 5	4	2				8 *		8	"

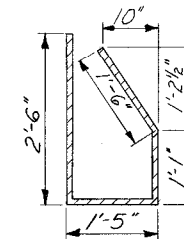
* Unit II (SB) only

ESTIMATE OF QUANTITIES - SPAN 8

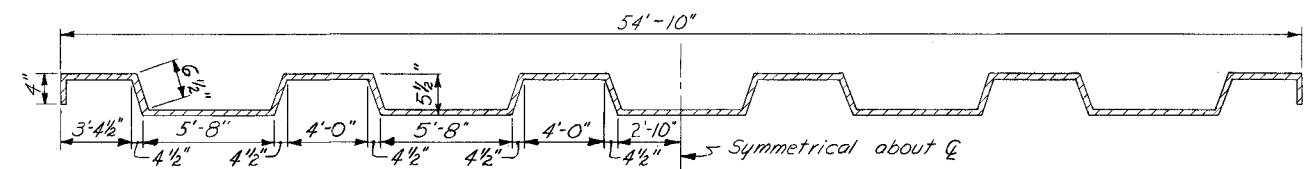
ITEM	UNIT	AMOUNT				
		UNIT I (NB) UNIT I (SB) Each	UNIT II (NB) UNIT II (SB) Each	UNIT III (NB) UNIT III (SB) Each	UNIT IV (NB) UNIT IV (SB) Each	UNIT V (NB) UNIT V (SB) Each
Concrete, Class "AA"	Cu. Yds.	237.9	296.6	296.1	296.6 (NB) 299.2 (SB)	237.9
Steel Reinforcement	Lbs.	63,205	78,711	78,588	78,711 (NB) 79,215 (SB)	63,205
Protective Coating "A"	Gals.	6	7	7	7	6
Protective Coating "B"	Sq. Yds.	755	939	939	939	755
6" Diameter Drain Pipe	Lin. Ft.	78	98	98	98	78



TYPE (63)



TYPE (62)

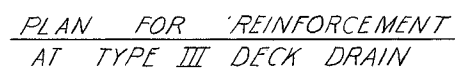


TYPE (61)

Work Sheets 54 thru 59 Together.
SHEET 58KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYSPROJECT 1471-4 ()
BRIDGE OVER OHIO RIVER ON I 471
CAMPBELL COUNTY, KENTUCKY
HAMILTON COUNTY, OHIOSPAN 8
SLAB REINFORCEMENT 8
QUANTITIESHAZELET & ERDAL
Consulting Engineers
File No. 889BRIDGE
NUMBERDRAWING NO.
18485

INDEX

DESIGNED BY: J.A.N. DATE: 6-25-71
CHECKED BY: WFB DATE: 10-70
TRACED BY: DATE: 10-70
REVISIONS: 1. ADDED OVERHEAD SIGN SUPPORT QTY. DATE: 2-25-72



BILL OF REINFORCEMENT					
Mark	Type	Size	No. Req'd.	Length	
				Ft.	In.
D 10	Str.	#6	4	5	0

Diagram illustrating a roof layout with dimensions:

- Overall width: 6'0"
- Overall height: 6'0"
- Left section width: 2'0"
- Right section width: 2'0"
- Top section height: 2'0"
- Bottom section height: 2'2"
- Central square dimensions: 2'2" x 2'2"
- Central square gap: 1/2"
- Top section width: 1'0"
- Right section width: 1'6"
- Right section height: 1/2"
- Central square height: 1/2"
- Gutter line indicated on the right side.

The drawing consists of two views: a Plan view and a Section B-B view.

Plan View: Shows a square manhole cover (2'-2" x 2'-2") with a central circular hole (1" diameter). The cover is mounted on a frame (1'-9 1/4" x 1'-9 1/4") with a 5" offset. The frame has a 3/4" thick top flange. The cover is secured by 4 brass screws with 3/8" diameter holes for 5/16" x 3" screws. A 1" diameter hole is shown in the frame (Typ.).

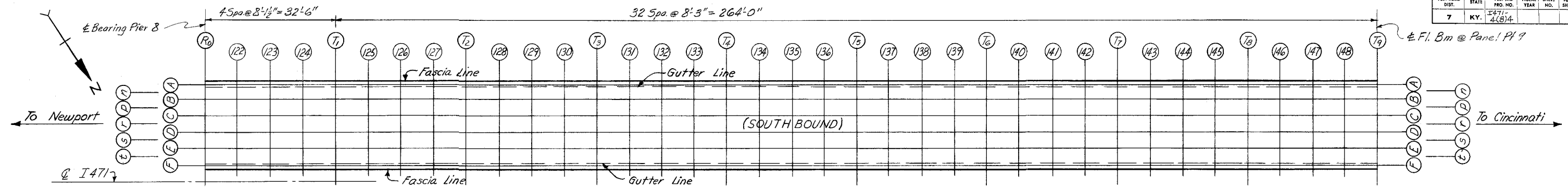
Section B-B: Shows a cross-section of the manhole cover and frame. The frame has a 1'-1" wide base and a 2'-0" wide top flange. The cover has a 1'-1" wide base and a 2'-0" wide top flange. The frame has a 3/4" thick top flange. The cover has a 1/2" thick top flange. The frame has a 1/4" thick top flange. The cover has a 1/4" thick top flange. The frame has a 1/4" thick top flange. The cover has a 1/4" thick top flange.

Labels: "Gutter Line", "A", "B", "5", "4", "1 3/4", "1'-9 1/4", "5", "3/4", "2'-2", "2'-0", "1/4", "3/4", "1/2", "2 1/4", "1'-1", "1" Hole (Typ.)", "3/8" ϕ Ctsk. holes for 5/16" x 3" Brass Screws with ctsk. heads 4 req'd for each grate", "PLAN", "SECTION B-B".

DECK DRAIN DETAIL
TYPE III

SHEET 59

DRAWING NO.	INDEX
	18485



PLAN

SPAN 8 - TABLE OF ELEVATIONS FOR UNIT I & II (SOUTHBOUND)																			
SECTION	STRINGER A			STRINGER B			STRINGER C			STRINGER D			STRINGER E			STRINGER F			SECTION
	X @ Gutter	Y	Z	X	Y	Z	X	Y	Z	X	Y	Z	X	Y	Z	X @ Gutter	Y	Z	
R ₀																		R ₀	
122																		122	
123																		123	
124																		124	
T ₁																		T ₁	
125																		125	
126																		126	
127																		127	
T ₂																		T ₂	
128																		128	
129																		129	
130																		130	
T ₃																		T ₃	
131																		131	
132																		132	
133																		133	
T ₄																		T ₄	
134																		134	
135																		135	
136																		136	
T ₅																		T ₅	
137																		137	
138																		138	
139																		139	
T ₆																		T ₆	
140																		140	
141																		141	
142																		142	
T ₇																		T ₇	
143																		143	
144																		144	
145																		145	
T ₈																		T ₈	
146																		146	
147																		147	
148																		148	
T ₉																		T ₉	

TABLE OF ELEVATIONS FOR CONTROL OF SLAB THICKNESS - UNIT I & II (SB)											
SLAB CHECK POINT	TOP OF SLAB ELEVATION	BOTTOM OF SLAB ELEVATION	COMP. SLAB T'N'SS	SLAB CHECK POINT	TOP OF SLAB ELEVATION	BOTTOM OF SLAB ELEVATION	COMP. SLAB T'N'SS	SLAB CHECK POINT	TOP OF SLAB ELEVATION	BOTTOM OF SLAB ELEVATION	COMP. SLAB T'N'SS
123-n				132-n				141-n			
-p				-p				-p			
-r				-r				-r			
-s				-s				-s			
-t				-t				-t			
126-n				135-n				144-n			
-p				-p				-p			
-r				-r				-r			
-s				-s				-s			
-t				-t				-t			
129-n				138-n				147-n			
-p				-p				-p			
-r				-r				-r			
-s				-s				-s			
-t				-t				-t			

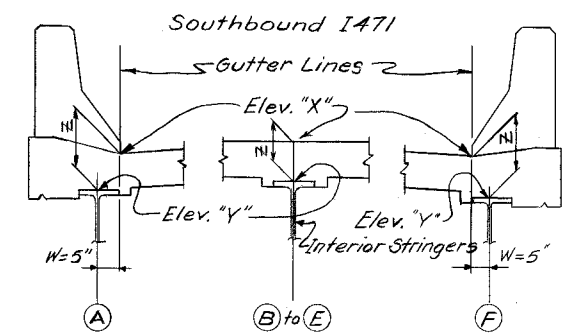
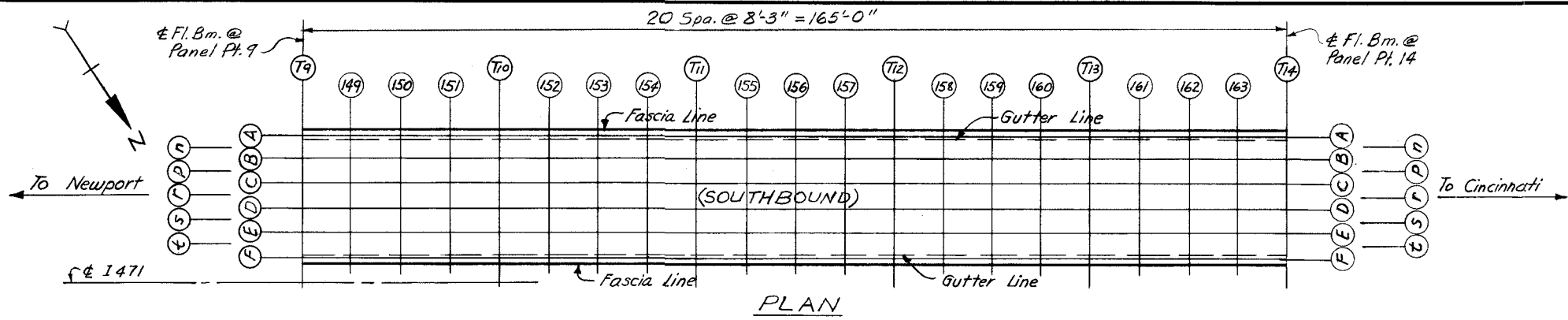
Notes for Tables:
Section 122 denotes Section Line (122) (Typ).
Slab Check Point 123-n denotes intersection of Section (123) and Line (n) (Typ).

Work Sheets 60 thru 65 Together
SHEET 60

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS
PROJECT 1471-4 ()
BRIDGE OVER OHIO RIVER ON I 471
CAMPBELL COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

SPAN 8
CONSTRUCTION ELEVATIONS

HAZELET & EBDAL Consulting Engineers File No. 689
BRIDGE NUMBER
DRAWING NO. 18485
INDEX



TYPICAL SECTION

SPAN 8 - TABLE OF ELEVATIONS FOR UNIT III (SOUTHBOUND)																			
SECTION	STRINGER A			STRINGER B			STRINGER C			STRINGER D			STRINGER E			STRINGER F			SECTION
	X @ Gutter	Y	Z	X	Y	Z	X	Y	Z	X	Y	Z	X	Y	Z	X @ Gutter	Y	Z	
T9																			T9
149																			149
150																			150
151																			151
T10																			T10
152																			152
153																			153
154																			154
T11																			T11
155																			155
156																			156
157																			157
T12																			T12
158																			158
159																			159
160																			160
T13																			T13
161																			161
162																			162
163																			163
T14																			T14

TABLE OF ELEVATIONS FOR CONTROL OF SLAB THICKNESS - UNIT III (SB)											
SLAB CHECK POINT	TOP OF SLAB ELEVATION	BOTTOM OF SLAB ELEVATION	COMP. SLAB TH'NESS	SLAB CHECK POINT	TOP OF SLAB ELEVATION	BOTTOM OF SLAB ELEVATION	COMP. SLAB TH'NESS	SLAB CHECK POINT	TOP OF SLAB ELEVATION	BOTTOM OF SLAB ELEVATION	COMP. SLAB TH'NESS
150-n				156-n				162-n			
-p				-p				-p			
-r				-r				-r			
-s				-s				-s			
-t				-t				-t			
153-n				159-n							
-p				-p							
-r				-r							
-s				-s							
-t				-t							

SPECIAL SPAN 8 CONSTRUCTION NOTES:

- The Span 8 - Construction Elevation sheets are included for the use of the Contractor in placing the forms and screeds for the Span 8 roadway slabs.
- The Contractor, if he desires, may compute Elevation "X" and use the "Table of Elevations" tables as noted in the "Construction Notes for Lines A, B, C, D, E & F". He may also compute the "Bottom of Slab Elevations" and use the "Table of Elevations for Control of Slab Thickness" tables as noted in the "Construction Notes for Lines n, p, r, s & t."
- The Contractor may also use the tables in any other manner, subject to the approval of the Engineer, to achieve the desired roadway slab.

Notes for Tables:

Section 149 denotes Section Line (149) - (Typ).
Slab Check Point 150-n denotes intersection of Section (150) and Line (n) - (Typ).

CONSTRUCTION NOTES FOR LINES A thru M Span 8 & A thru K Spans 6 & 7:

- Lay out Sections (150) - (150), (151) - (151), (T10) - (T10), etc. as shown in plan on the various Construction Elevation Sheets. Center punch marks on top of stringers for elevation points.
- After all steel is in place, and shoring and falsework have been removed, adjust the floorbeams to the proper elevations. Read elevations on top of stringers or girders before forms have been placed and concrete poured. These elevations are to be entered in the table as Elevation "Y".
- Compute Dimension "Z" (See Typical Sections). Top of concrete Elevation "X" minus Elevation "Y" equals Dimension "Z".
- Always measure from top of stringer or girders to top of slab (Dimension "Z") for setting templates. DO NOT set templates by Elevations "X".
- Elevation "X" includes calculated deflections due to weight of roadway slab and parapets only.
- Gutter line elevations (X @ Gutter) contain the deflections of the adjacent stringer as shown in Typical Sections. Dimension "Z" will indicate the difference in elevation of the top of stringer at the center punch mark and the gutter line at a point measured along the section line Dimension "W" from the E of stringer (center punch mark).
- Contractor shall adjust elevations of the modular expansion joints and the stringer expansion joints with adjacent elevations of completed slab so as to eliminate deviations in elevations.
- See Special Span 8 Construction Notes.

CONST. NOTES FOR LINES a-h, l, m, n, p-t SPANS 6 & 7 - n, p, r-y, SPAN 8

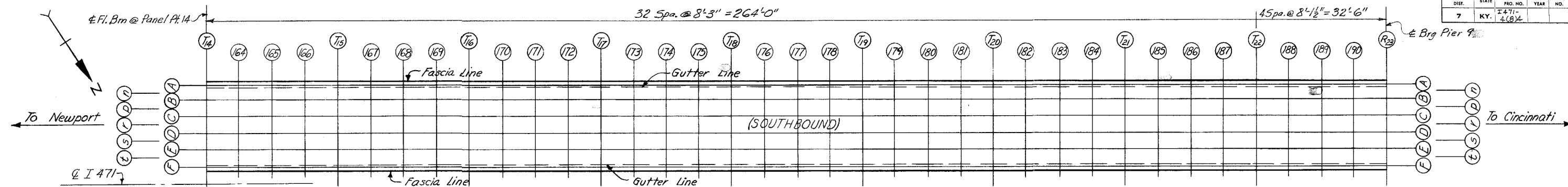
- After the slab forms are erected and before the slab reinforcement is placed, the Resident Engineer shall take field elevations at the slab thickness check points and enter them in the table in the space provided for Bottom of Slab Elevations.
- The slab thickness shall then be computed. If the computed slab thickness varies more than 1/4" from the plan thickness allowing 1/60 of the slab span for deflection of the form work, the form shall be adjusted until the computed slab thickness is within the tolerance allowed.
- Should the Contractor place any portion of the concrete in a Unit prior to completing step 1 above, he shall devise some other method suitable to the Engineer to assure the correct slab thickness.
- The Top of Slab Elevation does not include deflection due to slab forms.
- Lines n, p, r-y (Span 8) are midway between stringers.
Lines a-h, l, m, n, p-t (Spans 6 & 7) are midway between girders.
- See Special Span 8 Construction Notes.

Work Sheets 60 thru 65 Together
SHEET 61

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS
PROJECT 1471-4 ()
BRIDGE OVER OHIO RIVER ON I 471
CAMPBELL COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

SPAN 8
CONSTRUCTION ELEVATIONS

HAZLET & ERDAL Consulting Engineers File No. 889	BRIDGE NUMBER	DRAWING NO. 18485	INDEX
--	------------------	----------------------	-------



PLAN

SPAN 8 - TABLE OF ELEVATIONS FOR UNIT IV#V (SOUTHBOUND)

SECTION	STRINGER A			STRINGER B			STRINGER C			STRINGER D			STRINGER E			STRINGER F			SECTION
	X @ Gutter	Y	Z	X	Y	Z	X	Y	Z	X	Y	Z	X	Y	Z	X @ Gutter	Y	Z	
T ₁₄																			T ₁₄
164																			164
165																			165
166																			166
T ₁₅																			T ₁₅
167																			167
168																			168
169																			169
T ₁₆																			T ₁₆
170																			170
171																			171
172																			172
T ₁₇																			T ₁₇
173																			173
174																			174
175																			175
T ₁₈																			T ₁₈
176																			176
177																			177
178																			178
T ₁₉																			T ₁₉
179																			179
180																			180
181																			181
T ₂₀																			T ₂₀
182																			182
183																			183
184																			184
T ₂₁																			T ₂₁
185																			185
186																			186
187																			187
T ₂₂																			T ₂₂
188																			188
189																			189
190																			190
R ₂₃																			R ₂₃

TABLE OF ELEVATIONS FOR CONTROL OF SLAB THICKNESS - UNIT IV#V (SB)

SLAB CHECK POINT	TOP OF SLAB ELEVATION	BOTTOM OF SLAB ELEVATION	COMP. SLAB T/N'SS	SLAB CHECK POINT	TOP OF SLAB ELEVATION	BOTTOM OF SLAB ELEVATION	COMP. SLAB T/N'SS	SLAB CHECK POINT	TOP OF SLAB ELEVATION	BOTTOM OF SLAB ELEVATION	COMP. SLAB T/N'SS
165-n				174-n				183-n			
-p				-p				-p			
-r				-r				-r			
-s				-s				-s			
-t				-t				-t			
168-n				177-n				186-n			
-p				-p				-p			
-r				-r				-r			
-s				-s				-s			
-t				-t				-t			
171-n				180-n				189-n			
-p				-p				-p			
-r				-r				-r			
-s				-s				-s			
-t				-t				-t			

Notes for Tables:
Section 164 denotes Section Line (164)-(174).
Slab Check Point 165-n denotes intersection of Section (165) and Line (n)-(174).

Work Sheets 60 thru 65 Together
SHEET 62

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

PROJECT 1471-4 ()
BRIDGE OVER OHIO RIVER ON I 471
CAMPBELL COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

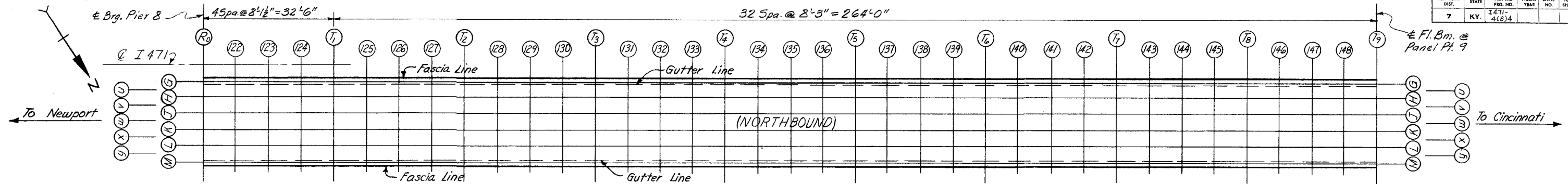
SPAN 8
CONSTRUCTION ELEVATIONS

HAZELET & ERDAL
Consulting Engineers
File No. 889

BRIDGE
NUMBER

DRAWING NO.
18485

INDEX



PLAN

SPAN 8 - TABLE OF ELEVATIONS FOR UNIT I & II (NORTHBOUND)

SECTION	STRINGER M			STRINGER L			STRINGER K			STRINGER J			STRINGER H			STRINGER G			SECTION
	X @ Gutter	Y	Z	X	Y	Z	X	Y	Z	X	Y	Z	X	Y	Z	X @ Gutter	Y	Z	
R ₀																			R ₀
122																			122
123																			123
124																			124
T ₁																			T ₁
125																			125
126																			126
127																			127
T ₂																			T ₂
128																			128
129																			129
130																			130
T ₃																			T ₃
131																			131
132																			132
133																			133
T ₄																			T ₄
134																			134
135																			135
136																			136
T ₅																			T ₅
137																			137
138																			138
139																			139
T ₆																			T ₆
140																			140
141																			141
142																			142
T ₇																			T ₇
143																			143
144																			144
145																			145
T ₈																			T ₈
146																			146
147																			147
148																			148
T ₉																			T ₉

TABLE OF ELEVATIONS FOR CONTROL OF SLAB THICKNESS - UNIT I & II (NB)

SLAB CHECK POINT	TOP OF SLAB ELEVATION	BOTTOM OF SLAB ELEVATION	COMP. SLAB T.N.S.S.	SLAB CHECK POINT	TOP OF SLAB ELEVATION	BOTTOM OF SLAB ELEVATION	COMP. SLAB T.N.S.S.	SLAB CHECK POINT	TOP OF SLAB ELEVATION	BOTTOM OF SLAB ELEVATION	COMP. SLAB T.N.S.S.
123-y				132-y				141-y			
-x				-x				-x			
-w				-w				-w			
-v				-v				-v			
-u				-u				-u			
126-y				135-y				144-y			
-x				-x				-x			
-w				-w				-w			
-v				-v				-v			
-u				-u				-u			
129-y				138-y				147-y			
-x				-x				-x			
-w				-w				-w			
-v				-v				-v			
-u				-u				-u			

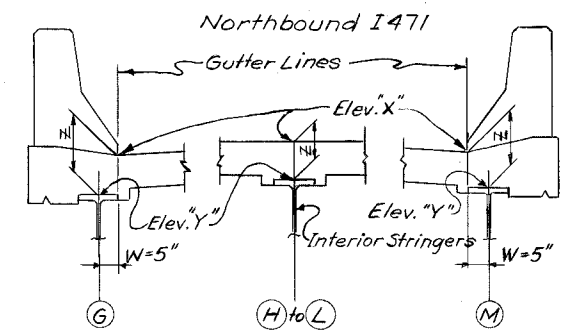
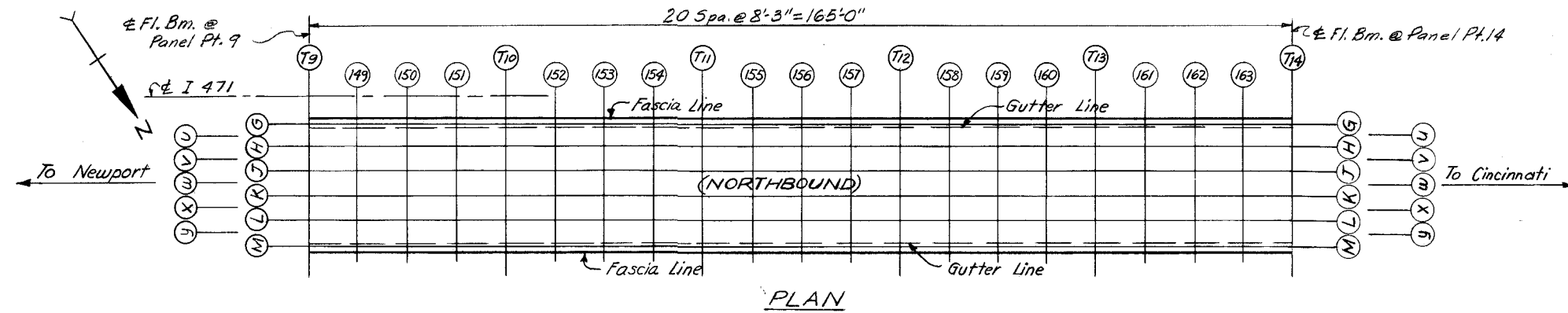
Notes for Tables:
Section 122 denotes Section Line (122) (Typ).
Slab Check Point 123-y denotes intersection of Section (123) and Line (y) (Typ).

Work Sheets 60 thru 65 Together
SHEET 63

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS
PROJECT 1471-4 ()
BRIDGE OVER OHIO RIVER ON I 471
CAMPELL COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

SPAN 8
CONSTRUCTION ELEVATIONS

HAZLET & EBDAL Consulting Engineers File No. 889
BRIDGE NUMBER
DRAWING NO. 18485
INDEX



SPAN 8 - TABLE OF ELEVATIONS FOR UNIT III (NORTHBOUND)

SECTION	STRINGER M			STRINGER L			STRINGER K			STRINGER J			STRINGER H			STRINGER G			SECTION
	X @ Gutter	Y	Z	X	Y	Z	X	Y	Z	X	Y	Z	X	Y	Z	X @ Gutter	Y	Z	
T9																			T9
149																			149
150																			150
151																			151
T10																			T10
152																			152
153																			153
154																			154
T11																			T11
155																			155
156																			156
157																			157
T12																			T12
158																			158
159																			159
160																			160
T13																			T13
161																			161
162																			162
163																			163
T14																			T14

TABLE OF ELEVATIONS FOR CONTROL OF SLAB THICKNESS - UNIT III (NB)

SLAB CHECK POINT	TOP OF SLAB ELEVATION	BOTTOM OF SLAB ELEVATION	COMP. SLAB T/W'S	SLAB CHECK POINT	TOP OF SLAB ELEVATION	BOTTOM OF SLAB ELEVATION	COMP. SLAB T/W'S	SLAB CHECK POINT	TOP OF SLAB ELEVATION	BOTTOM OF SLAB ELEVATION	COMP. SLAB T/W'S
150-y				156-y				162-y			
-x				-x				-x			
-w				-w				-w			
-v				-v				-v			
-u				-u				-u			
153-y				159-y							
-x				-x							
-w				-w							
-v				-v							
-u				-u							

CONSTRUCTION NOTES FOR LINES G, H, J, K, L & M

See Notes for lines A thru F.

CONSTRUCTION NOTES FOR LINES U, V, W, X & Y

See Notes for lines n thru t.

See Sheet 61 for "Special Span 8 Construction Notes."

Notes for Tables:

Section 149 denotes Section Line (149) (Typ).
Slab Check Point 150-y denotes intersection of Section (150) and Line (Y) (Typ).

Work Sheets 60 thru 65 Together
SHEET 64

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

PROJECT 1471-4 ()
BRIDGE OVER OHIO RIVER ON I 471
CAMPBELL COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

SPAN 8
CONSTRUCTION ELEVATIONS

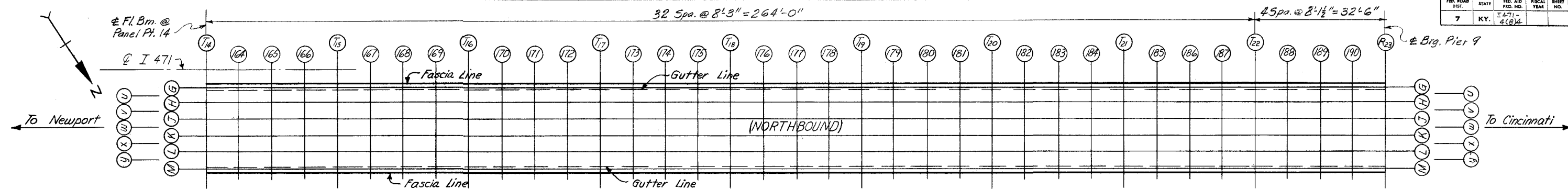
HAZELET & ERDAL
Consulting Engineers
File No. 889

BRIDGE
NUMBER

DRAWING NO.
18485

INDEX

DESIGNED BY: DATE: 12/13/65
CHECKED BY: JAN DATE: 1/10/66
REVISIONS: 1
DATE: 1/10/66
BY: WEB
DATE: 1/10/66
BY: JAN
DATE: 1/10/66
BY: JAN
DATE: 1/10/66



PLAN

SPAN 8 - TABLE OF ELEVATIONS FOR UNIT IV & V (NORTHBOUND)

SECTION	STRINGER M			STRINGER L			STRINGER K			STRINGER J			STRINGER H			STRINGER G			SECTION
	X @ Gutter	Y	Z	X	Y	Z	X	Y	Z	X	Y	Z	X	Y	Z	X @ Gutter	Y	Z	
T ₁₄																			T ₁₄
164																			164
165																			165
166																			166
T ₁₅																			T ₁₅
167																			167
168																			168
169																			169
T ₁₆																			T ₁₆
170																			170
171																			171
172																			172
T ₁₇																			T ₁₇
173																			173
174																			174
175																			175
T ₁₈																			T ₁₈
176																			176
177																			177
178																			178
T ₁₉																			T ₁₉
179																			179
180																			180
181																			181
T ₂₀																			T ₂₀
182																			182
183																			183
184																			184
T ₂₁																			T ₂₁
185																			185
186																			186
187																			187
T ₂₂																			T ₂₂
188																			188
189																			189
190																			190
R ₂₃																			R ₂₃

TABLE OF ELEVATIONS FOR CONTROL OF SLAB THICKNESS - UNIT IV & V (NB)

SLAB CHECK POINT	TOP OF SLAB ELEVATION	BOTTOM OF SLAB ELEVATION	COMP. SLAB TH'NESS	SLAB CHECK POINT	TOP OF SLAB ELEVATION	BOTTOM OF SLAB ELEVATION	COMP. SLAB TH'NESS	SLAB CHECK POINT	TOP OF SLAB ELEVATION	BOTTOM OF SLAB ELEVATION	COMP. SLAB TH'NESS
165-y				174-y				183-y			
-x				-x				-x			
-w				-w				-w			
-v				-v				-v			
-u				-u				-u			
168-y				177-y				186-y			
-x				-x				-x			
-w				-w				-w			
-v				-v				-v			
-u				-u				-u			
171-y				180-y				189-y			
-x				-x				-x			
-w				-w				-w			
-v				-v				-v			
-u				-u				-u			

Notes for Tables:
Section 164 denotes Section Line 164 (Typ).
Slab Check Point 165-y denotes intersection of
Section 165 and Line y (Typ).

Work Sheets 60 thru 65 Together
SHEET 65

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

PROJECT 1471-4 ()
BRIDGE OVER OHIO RIVER ON I 471
CAMPBELL COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

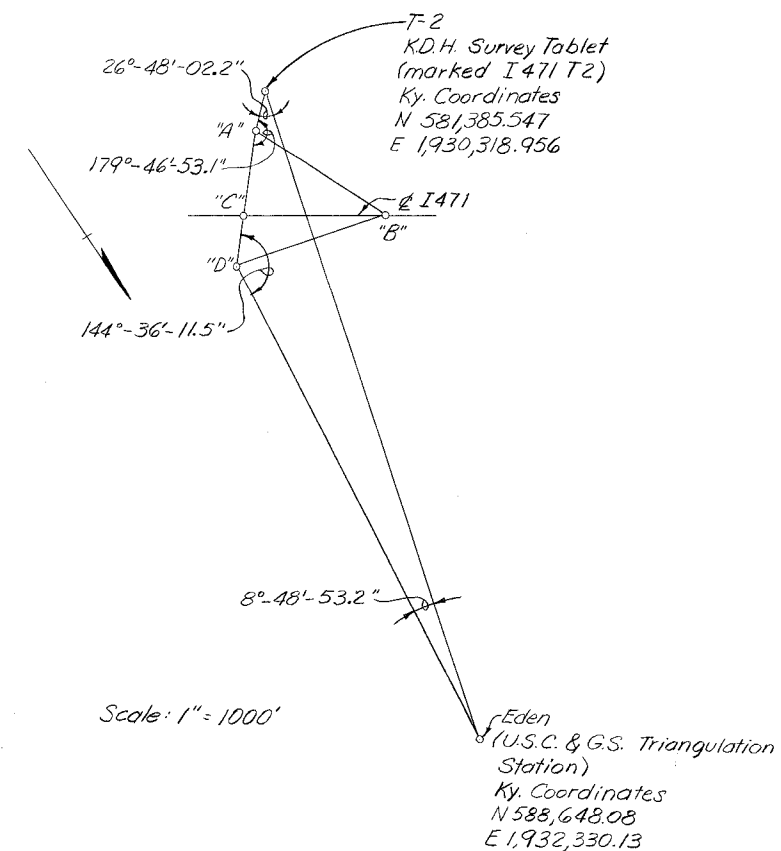
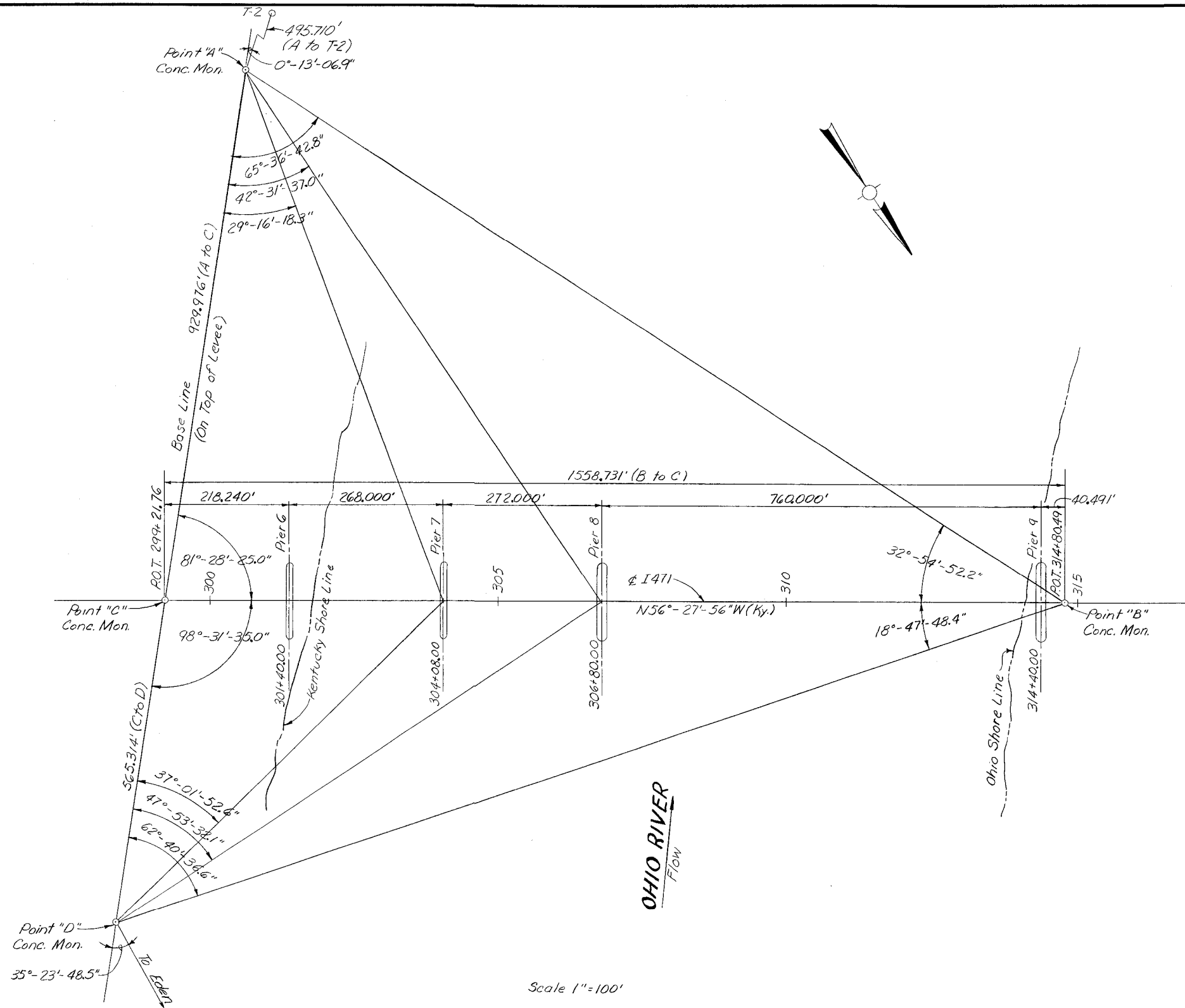
SPAN 8
CONSTRUCTION ELEVATIONS

HAZELET & EBDAL
Consulting Engineers
File No. 889

BRIDGE
NUMBER

DRAWING NO.
18485
INDEX

FED. ROAD DIST.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
7	KY.	I-471-4(8)4			



DESIGNED BY	DATE	REVISION	DATE
WFB 6-25-71			
CHECKED BY	DATE	REVISION	DATE
WFB 6-25-71			
TRACED BY	DATE	REVISION	DATE
WFB 6-25-71			

TRIANGULATION NETWORK

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

PROJECT 1471-4 ()
BRIDGE OVER OHIO RIVER ON I 471
CAMPBELL COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

HAZELET & ERDAL Consulting Engineers File No. 889	BRIDGE NUMBER	DRAWING NO. 18485	INDEX
---	------------------	----------------------	-------

SHEET 66

LETTER DATE



DEPARTMENT OF TRANSPORTATION
UNITED STATES COAST GUARD

Address reply to:
COMMANDER (Loan)
Second Coast Guard District
Federal Bldg
1520 Market St
St. Louis, Mo. 63103

3271
12 AUG 1970

Mr. Charles G. Cook
Director, Division of Bridges
Commonwealth of Kentucky
Department of Highways
Frankfort, Kentucky 40601

Re: Campbell County, Kentucky, Hamilton County, Ohio,
I-471-4(50)0, I-471 over Ohio River at Newport,
Kentucky, Mile 469.5

Dear Mr. Cook:

Your application dated 25 May 1970 requesting an extension of time for commencing and completing the construction of the above-referenced proposed dual bridges across the Ohio River, Mile 469.5, near Newport, Kentucky, has been approved by the Commandant, U. S. Coast Guard, Washington, D. C. The time for commencing construction has been extended to 6 August 1972. The time for completing construction has been extended to 6 August 1974. The instrument of approval, Amendment to Bridge Permit 163-68a dated 27 July 1970, is enclosed.

Your attention is invited to the new Condition No. 3 in the Amendment to Bridge Permit which requires your compliance with the provisions of any law or regulation under the jurisdiction of the Federal Water Quality Administration, Ohio Basin Region. Enclosed for your information is a copy of a letter dated 17 June 1970 from that agency which outlines its requirements for this work.

We note that you plan to let the substructure contract for this project on 28 August 1970. We would be pleased to attend the pre-construction conference for these bridges and answer any questions concerning the Coast Guard jurisdiction or requirements. You may contact Mr. S. W. Thoroughman, Chief, Bridge Section, at telephone number Area Code 314-622-4607, to make arrangements for a Coast Guard representative to attend the conference.

Very truly yours,

[Signature]
R. L. MOORE
Captain, U. S. Coast Guard
Chief, Operations Division
Acting
By direction of the District Commander

Encl: (1) USCG Amendment to Bridge Permit No. 163-68a
dtd 27 Jul 70
(2) Copy of ltr dtd 17 Jun 70 from USDI, FWQA,
Ohio Basin Region



DEPARTMENT OF TRANSPORTATION
UNITED STATES COAST GUARD

Address reply to:
COMMANDANT
U.S. COAST GUARD
WASHINGTON, D.C. 20591

AMENDMENT TO BRIDGE PERMIT
(163-68a)

JUL 27 1970

WHEREAS by a permit issued on 6 August 1968, the Commandant of the Coast Guard approved the map of location and plans of dual bridges to be constructed by the Commonwealth of Kentucky across the Ohio River between Newport, Kentucky and Cincinnati, Ohio, under authority of the General Bridge Act of 1946;

AND WHEREAS condition 6 of said permit fixed the time for commencing construction of said bridges at 6 August 1970, and the - COMMONWEALTH OF KENTUCKY - now requests that the time for commencing the construction of said bridges be extended;

NOW THEREFORE, This is to certify that the times for both commencing and completing the construction of said bridges are hereby extended. In granting this extension of time limits, all conditions to which the original permit was subject remain in force except conditions 3 and 6 are modified as follows:

3. Issuance of this permit does not relieve the permittee of the obligation or responsibility for compliance with the provisions of any other law or regulation as may be under the jurisdiction of the Federal Water Quality Administration, Ohio Basin Region, or any other federal, state or local authority having cognizance of any aspect of the location, construction, or maintenance of said bridges.

6. The approval hereby granted shall cease and be null and void unless the actual construction of the bridges be commenced by 6 August 1972 and completed by 6 August 1974.

[Signature]
W. D. MUTH
Captain, U. S. Coast Guard
Chief, Aids to Navigation Division



UNITED STATES
DEPARTMENT OF THE INTERIOR
FEDERAL WATER POLLUTION CONTROL ADMINISTRATION
Ohio Basin Region, Room 7017, Federal Building
550 Main Street, Cincinnati, Ohio 45202

RECEIVED

JUN 19 1970

BRIDGE SECTION

June 17, 1970

Commander (o-1)
Second Coast Guard District
Federal Building
1520 Market Street
St. Louis, Missouri 63103

Dear Sir:

We hereby acknowledge receipt of your letter dated 10 June 1970 regarding a request for a time extension to a permit for starting and completing construction of the referenced bridges across the Ohio River by the Kentucky Department of Highways. We have considered the water pollution potential connected with the construction of the bridges and the possible effects on water quality of the watercourse. We recommend that if a time extension is granted, it shall be subject to the following conditions:

1. Permittee will investigate for water supply intakes, or other activities immediately downstream which may be affected by suspended solids and turbidity increases caused by work in the watercourse. He will give notice before beginning work in the watercourse in sufficient time to allow the activities to prepare for any temporary change in water quality.
2. Excavation, dredging or filling in the watercourse will be done so as to minimize increases in suspended solids and turbidity which may degrade water quality and damage aquatic life outside the immediate area of operation.
3. Deposition of dredged or excavated materials on shore, and all earthwork operations on shore will be carried out in such a way that sediment runoff and soil erosion to the watercourse are controlled and minimized. Spoil materials from watercourse or on shore operations, including sludge deposits, will not be dumped into the watercourse.
4. Temporary sanitary facilities, for use during construction only, will be of the portable type rather than dug pit privies.
5. Permittee will employ measures to prevent or control spills from fuels or lubricants to keep them out of the watercourse.

Commander (o-1)
St. Louis, Missouri

June 17, 1970
Page 2

6. Upon completion of earthwork operations, all fills in the watercourse or on shore and other areas on shore disturbed during construction will be seeded, riprapped or given some other type of protection from subsequent soil erosion.

If a time extension is granted on this application, please send a copy of correspondence to this effect to Mr. Burton H. Atwood, Department of the Interior Regional Coordinator, Room 215, 2510 Dempster Street, Des Plaines, Illinois 60016.

Sincerely yours,

[Signature]
E. P. Baker, Jr., P.E., Chief
Federal Activities Section

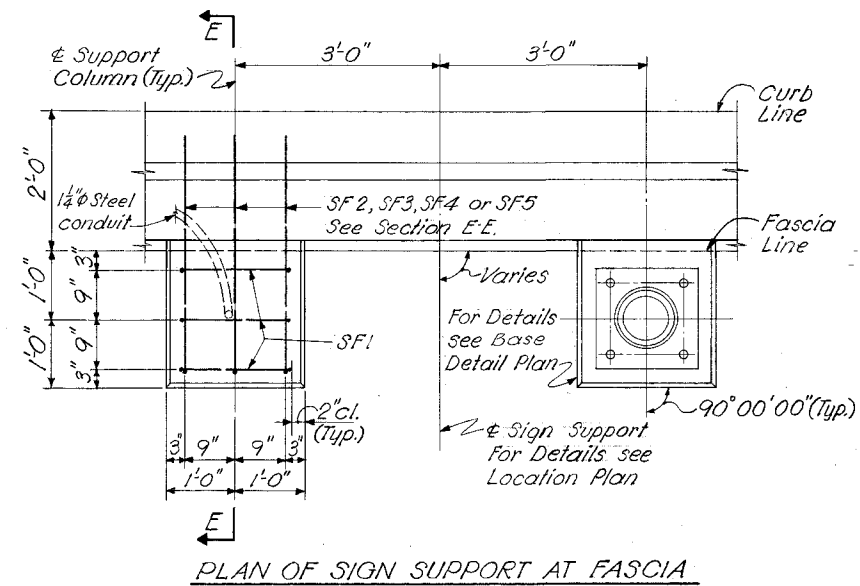
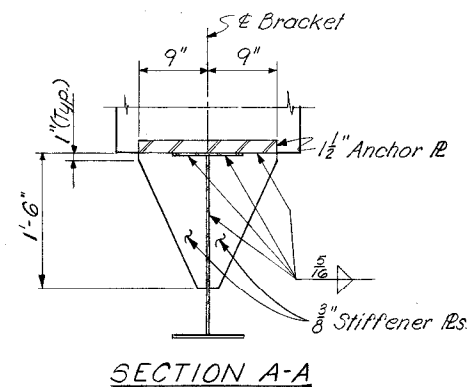
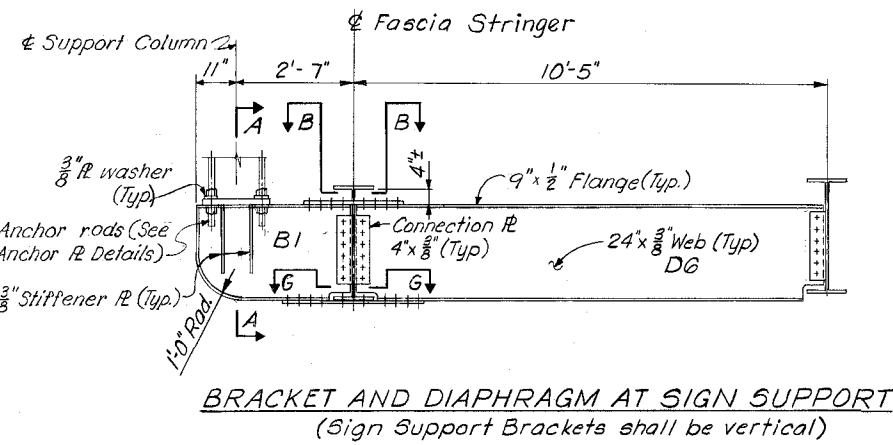
cc:
E. N. Kari
B. H. Atwood
M. E. Noecker, FWQA, Evansville
R. C. Pickard, Ky. WFOG
Attn: J. Cramer
C. T. Foust, Ohio DNR

SHEET 67

COMMONWEALTH OF KENTUCKY
DEPARTMENT OF HIGHWAYS
FRANKFORT

PROJECT I 471-4 ()
BRIDGE OVER OHIO RIVER ON I 471
CAMPBELL COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

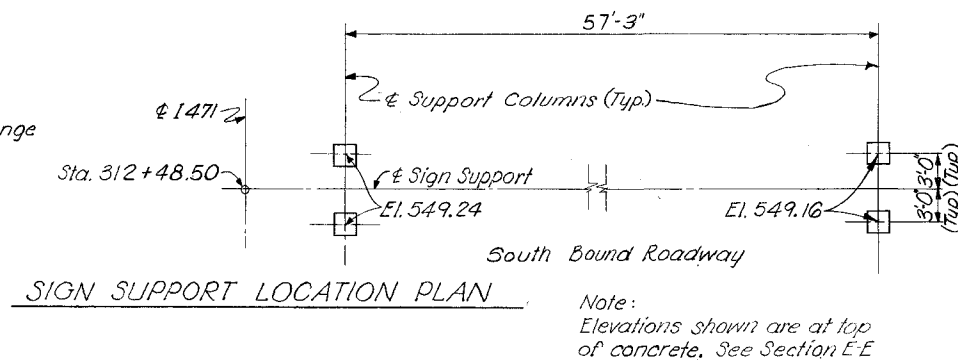
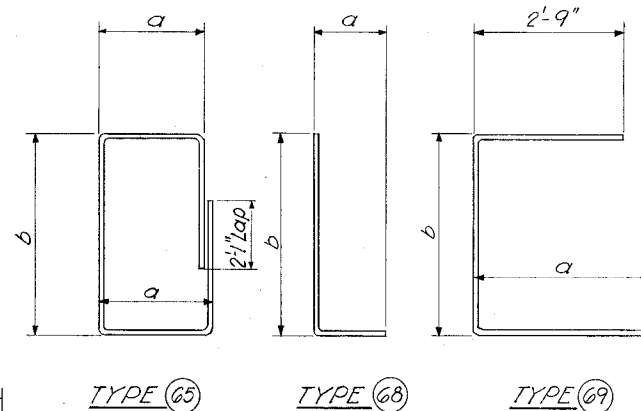
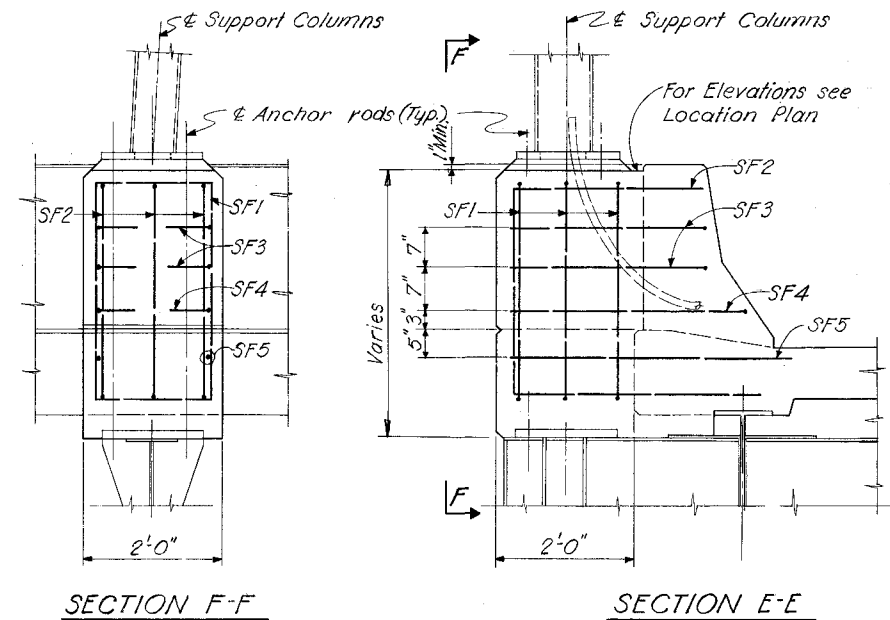
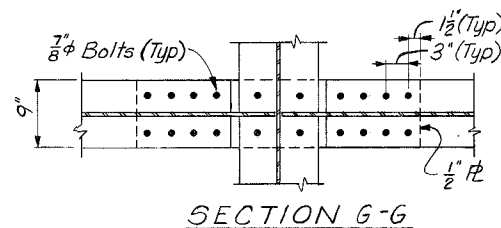
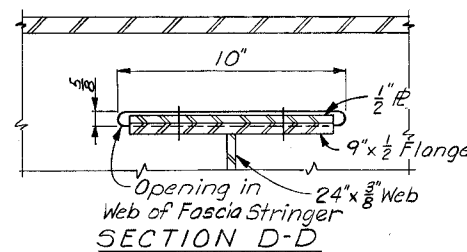
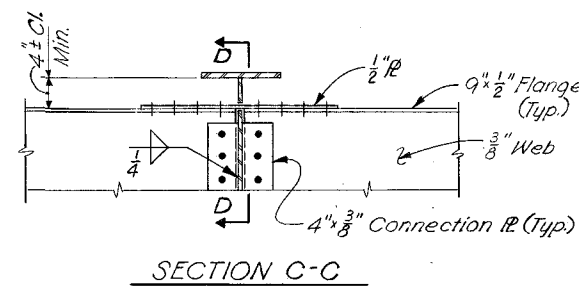
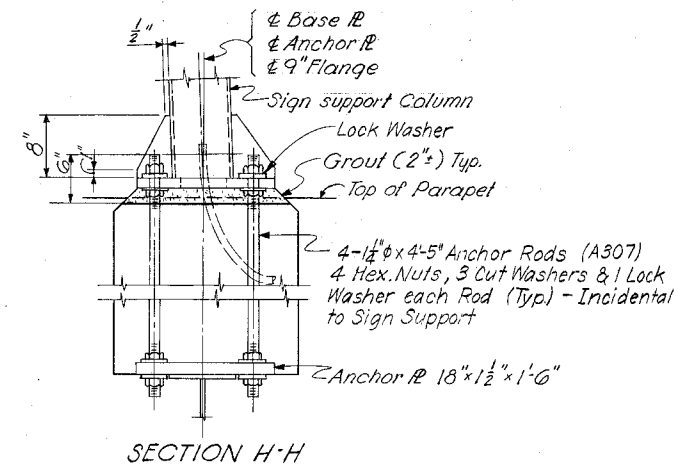
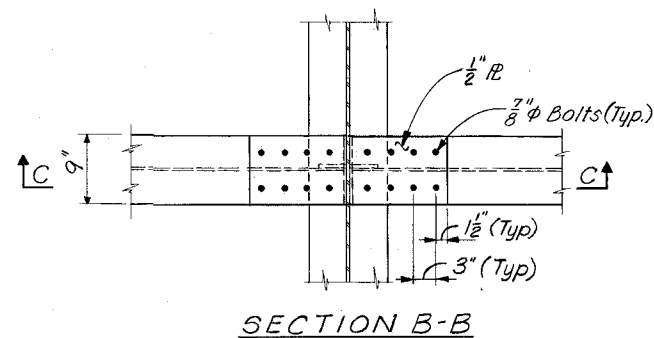
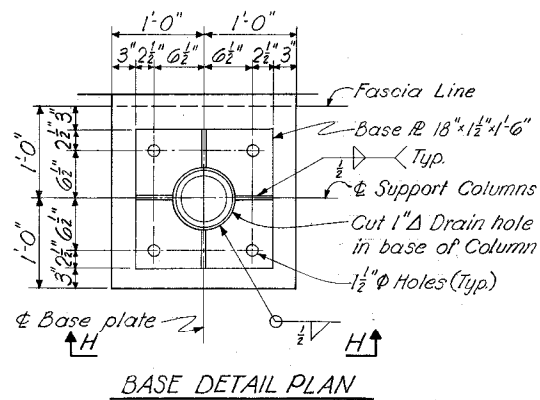
STATION	P. E. PROJECT NO.	DRAWING NO.
CONSTRUCTION PROJECT NO.	MAINTENANCE PROJECT NO.	18485



BILL OF BAR REINFORCEMENT*

MARK	TYPE	SIZE	NO.	LENGTH		a		b	
				ft.	in.	ft.	in.	ft.	in.
SF1	65	5	3	11	5	1	8	3	1 1/2
SF2	69	6	3	10	1	4	0	3	0
SF3	68	6	4	3	10	1	1	2	10
SF4	68	6	2	4	4	1	1	3	4
SF5	Str.	5	2	4	2				

*For one Bracket only



Work sheets 68 thru 72 together.

SHEET 68

**KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS**

PROJECT 1471-4 ()
BRIDGE OVER OHIO RIVER ON 1471
CAMPBELL COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

HAZELET & ERDAL
Consulting Engineers
File No. 889

BRIDGE
NUMBER

DRAWING NO.
18485

INDEX

SIGN SUPPORTS

DESIGNED BY: M.M.P. 10/5/70 CHECKED BY: R.L.K. DATE: 10/2/70
REVIEWED: 10/2/70
TRACED BY: DATE: 10/2/70

DESIGN: DESIGNED FOR 85 M.P.H. WIND ON A SIGN AREA OF 400 SQ. FT. IN ACCORDANCE WITH "SPECIFICATIONS FOR THE DESIGN AND CONSTRUCTION OF STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS" PUBLISHED BY A.A.S.H.O. 1961

~~LOCATION: ROADWAY STATION OF SIGN SUPPORT INDICATED ON THE PLANS IS APPROXIMATE ONLY. WHERE SHOULDER LINES ARE DIVERGING IN PLAN, IT MAY BE NECESSARY TO SHIFT THE LOCATION OF THE SUPPORT IN ORDER TO MAINTAIN SIDE CLEARANCE WITHOUT CHANGING THE SPAN LENGTH. CHANGES IN STATION OF MORE THAN 30 FEET WILL REQUIRE WRITTEN APPROVAL FROM THE DIRECTOR OF TRAFFIC.~~

SUPERELEVATION OF ROADWAY: THE CONTRACTOR SHALL ALLOW FOR DIFFERENCES IN ELEVATION ACROSS THE FULL SHOULDER WIDTH AS SHOWN ON THE ROADWAY PLANS IN MAINTAINING THE REQUIRED 18 FOOT MINIMUM VERTICAL CLEARANCE TO THE BOTTOM OF THE LOWEST PART OF THE SIGNS OR SUPPORT. SIGNS ARE TO BE CENTERED OVER THE LANE OR LANES TO WHICH THEY APPLY UNLESS SHOWN OTHERWISE.

~~CONCRETE. CLASS "A" CONCRETE IS TO BE USED THROUGHOUT.~~

~~REVELED EDGES. ALL EXPOSED CONCRETE EDGES ARE TO BE REVELED 7/8" UNLESS OTHERWISE SHOWN.~~

~~REINFORCEMENT: DIMENSIONS FROM FACE OF CONCRETE TO BARS ARE CLEAR DISTANCES EXCEPT AS OTHERWISE SHOWN. DIMENSIONS FOR BAR SPACINGS ARE DISTANCES CENTER TO CENTER OF BARS.~~

SHOP DRAWINGS: THE CONTRACTOR SHALL SUBMIT DETAILED SHOP DRAWINGS TO THE DIVISION OF CONSTRUCTION FOR APPROVAL PRIOR TO FABRICATION IN ACCORDANCE WITH THE SPECIFICATIONS.

FABRICATION: THE ALUMINUM SIGN SUPPORT SHALL BE FABRICATED IN ACCORDANCE WITH A.A.S.H.O. SPECIFICATIONS AND SECTION I OF PAPER 970 OF THE "JOURNAL OF THE STRUCTURAL DIVISION", PUBLISHED MAY 1956 BY THE AMERICAN SOCIETY OF CIVIL ENGINEERS.

WELDERS AND WELDING PROCEDURE: WELDED FABRICATION SHALL BE LIMITED TO THE INERT-GAS SHIELDED, TUNGSTEN OR CONSUMABLE ELECTRODE METHODS OF ARC WELDING. WELDING PROCEDURE, WELDERS AND WELDING OPERATORS SHALL BE QUALIFIED ACCORDING TO SECTION IX OF THE A.S.M.E. BOILER AND PRESSURE VESSEL CODE, 1962 EDITION, PART B, REQUIREMENTS FOR NON-FERROUS METALS. CERTIFIED COPIES IN TRIPLICATE OF A.S.M.E. BOILER CODE, APPENDIX II, QUALIFICATION TEST FORMS Q-1, Q-1G AND Q-1F SHALL BE SUBMITTED TO THE DEPARTMENT OF HIGHWAYS. THE PERTINENT FORMS SHALL INDICATE ACCEPTABLE QUALIFICATION OF WELDING PROCEDURES AND WELDER PERFORMANCE ON GROOVE AND FILLET WELDS.

OLTS MATERIAL SPECIFICATIONS: THE FOLLOWING A.S.T.M. DESIGNATIONS SHALL GOVERN ALL
NALS). MATERIAL USED.

A S T M	MATERIAL
B271-65	EXTRUDED TUBE, ALUMINUM ALLOY 6061-T6511
B271-65	PIPE, ALUMINUM ALLOY 6061-T6
B271-65	STRUCTURAL SHAPES, ALUMINUM ALLOY 6061-T6
B271-65	EXTRUDED BAR, ROD, AND SHAPES, ALUMINUM ALLOY 6061-T6511
B209-65	SHEET AND PLATE, ALUMINUM ALLOY 6061-T6
F28-61T	WELDING FILLER WIRE, ER 5356
A-20-64	STAINLESS STEEL HARDWARE, NUTS, BOLTS AND WASHERS
A165-55	TYPE N5, ZINCUM COATING FOR ASTM A36 ANCHOR BOLTS, NUTS AND WASHERS
E108-65	SAND MOLD CASTINGS, ALUMINUM ALLOY 320A-T6
B161-65	PENAFINITE MOLD CASTINGS, ALUMINUM ALLOY 5070B HEAT TREATED TO A TEMPER TO INSURE OF TEMPER T61 IN ACCORDANCE WITH AASHO M193-60

~~FOOTING: ALL FOOTINGS SHALL BE POURED AGAINST UNDISTURBED EARTH AND ARE DESIGNED TO TRANSFER NO MORE THAN 1/2 TONS PER SQUARE FOOT BEARING PRESSURE TO THE SOIL UNDER ANY DESIGN LOADING CONDITION.~~

VERTICAL DIMENSIONS VERTICAL DIMENSIONS HR AND HL SHALL NOT EXCEED 23' AND THE COMBINED DIMENSIONS $H_R + F_R$ AND $H_L + F_L$ SHALL NOT EXCEED 31' WITHOUT THE WRITTEN APPROVAL OF THE DIVISION OF BRIDGES.

MILL TEST REPORTS, NOTARIZED TEST REPORTS IN TRIPLICATE SHALL BE FURNISHED THE DEPARTMENT OF HIGHWAYS STATING THAT THE MATERIALS USED CONFORM TO THE SPECIFICATIONS.

L	X
50'	1"
55'	1 $\frac{1}{4}$ "
60'	1 $\frac{1}{2}$ "
65'	1 $\frac{3}{4}$ "
70'	2

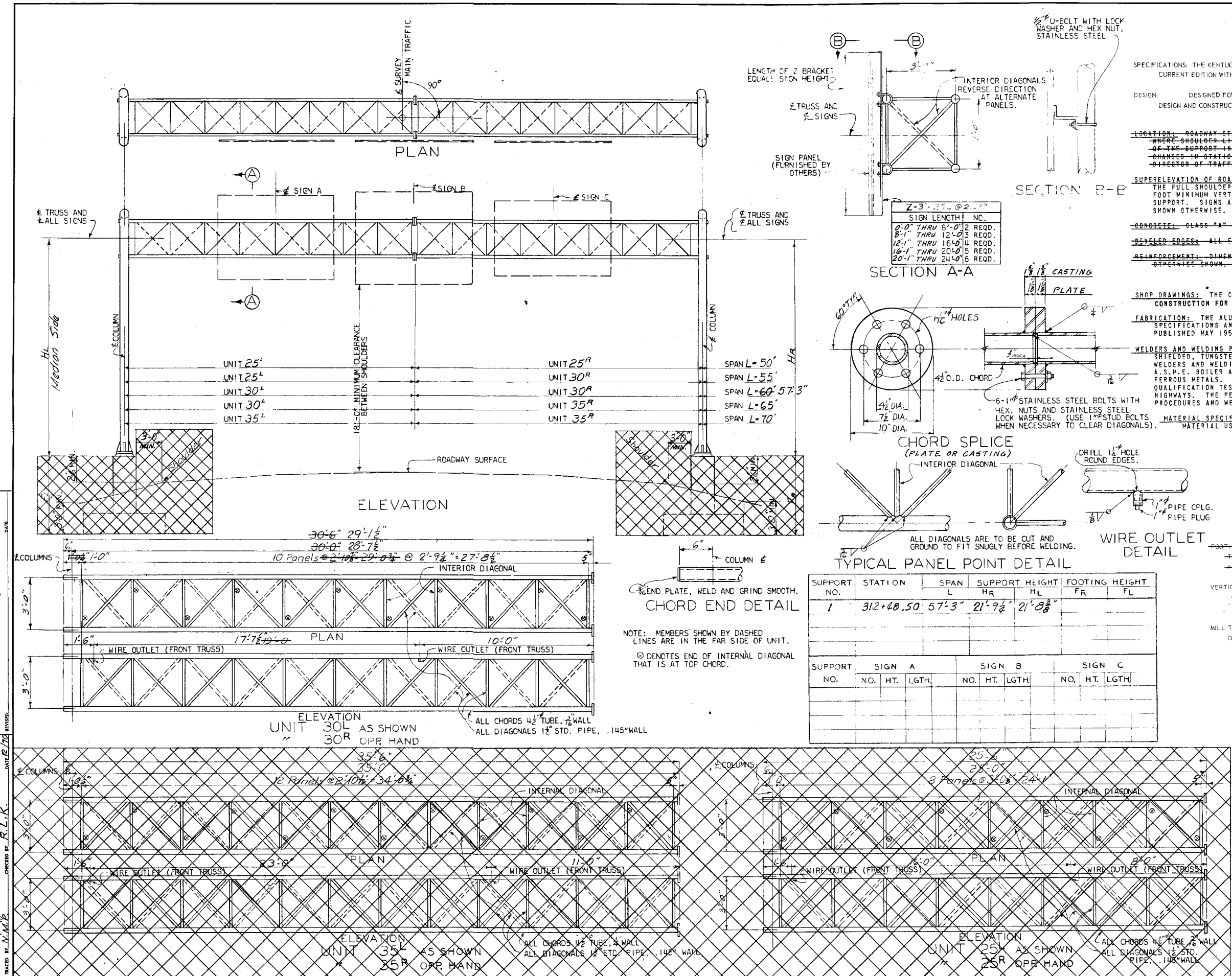
CAMBER DIAGRAM

Sheet 69
Work Sheets 68 thru 72 together.

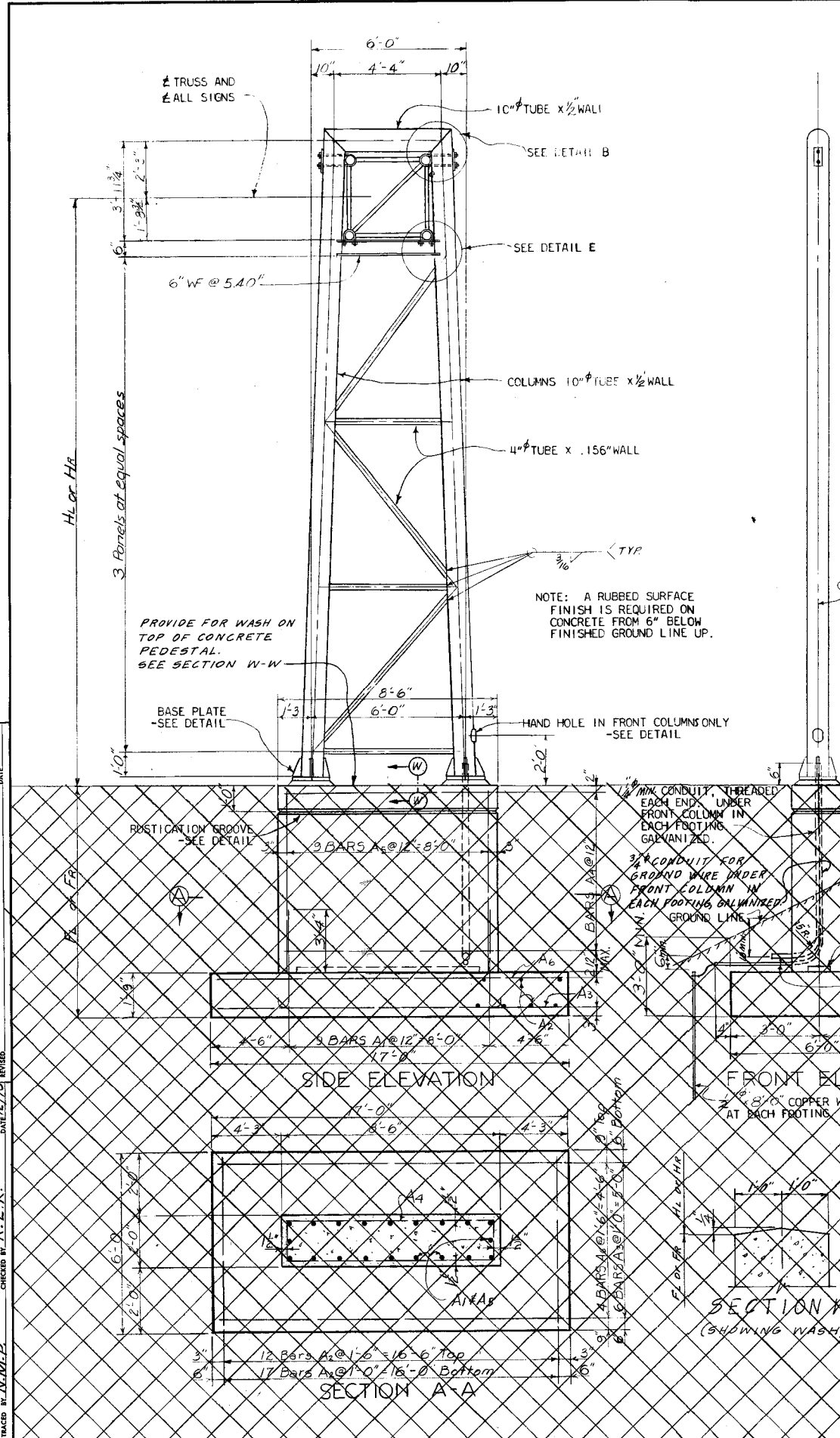
COMMONWEALTH OF KENTUCKY
DEPARTMENT OF HIGHWAYS
FRANKFORT

STANDARD OVERHEAD
SIGN SUPPORTS
50' TO 70' SPANS
ALUMINUM

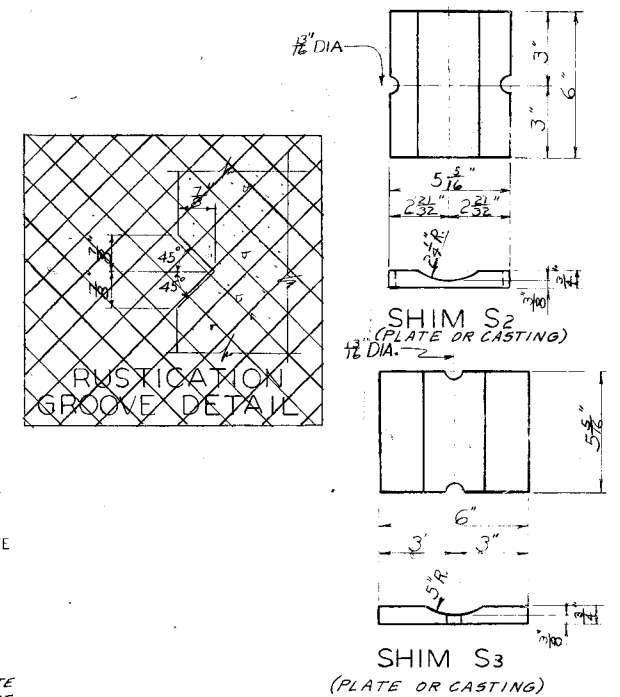
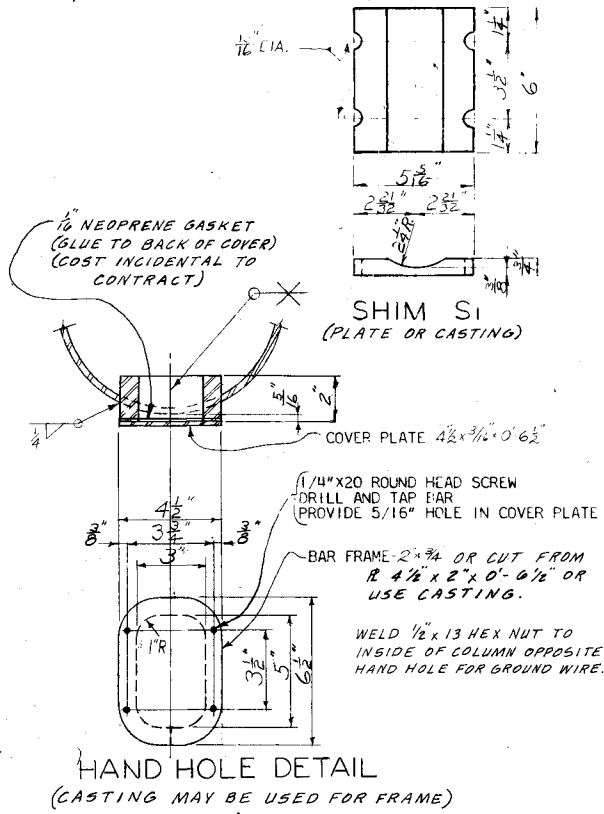
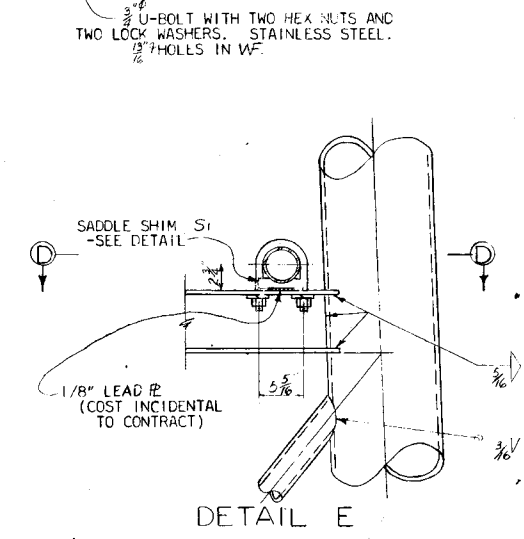
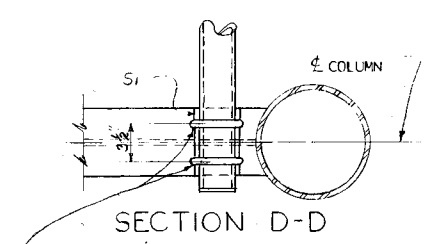
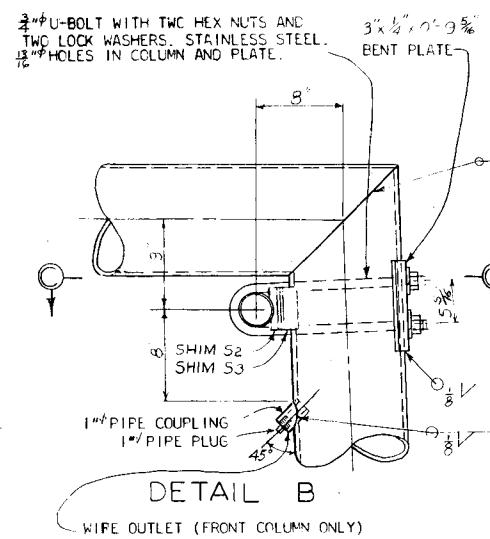
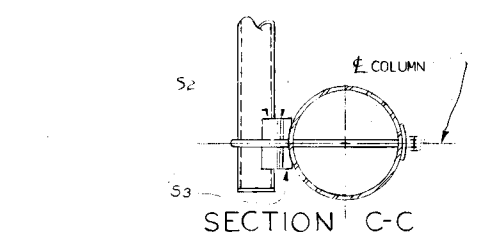
STATION		PROJECT NO.	
APPROVED	<i>[Signature]</i> STATE HIGHWAY ENGINEER	DRAWING 18485 NO.	INDEX



DESIGNED BY: *W. J. G. J.* CHECKED BY: *R. L. K.* DATE: *2/2/70*
 REVISION: *Added Castings, Changed Conduit* DATE: *11/16/66*
 REVISION: *Entire Set Added To Eng. 14455* DATE: *2/2/70*
 TRACED BY: *N.M.D.* CHECKED BY: *R.L.K.* DATE: *2/2/70*

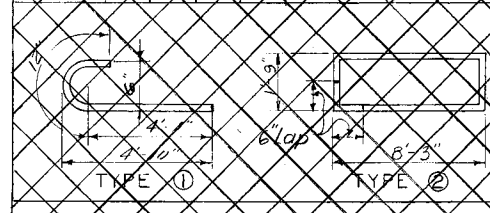


PROVIDE NECESSARY FILLER PLATES FOR FULL CLARING.



BILL OF REINFORCEMENT FOR ONE FOOTING

Work	Type	No.	Size	Length	Location	
A1	①	29	#6	5	7	Footing and Wall
A2	Str.	29	#5	5	8	"
A3	Str.	8	#4	16	8	"
A4	②	Varies	#4	20	9	Wall
A5	Str.	29	#5	5	1-1	"
A6	Str.	4	#5	16	8	Footing



* APPROX. ESTIMATE IS FOR INFORMATION ONLY. F AND FR SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD.

ESTIMATE OF QUANTITIES FOR ONE FOOTING

Concrete	Glass	Reinforcement	Additional
6'-0"	9.3 Cu. Yd.	0.63 Cu. Yd.	35 Lbs.

Work Sheets 68 thru 72 together.

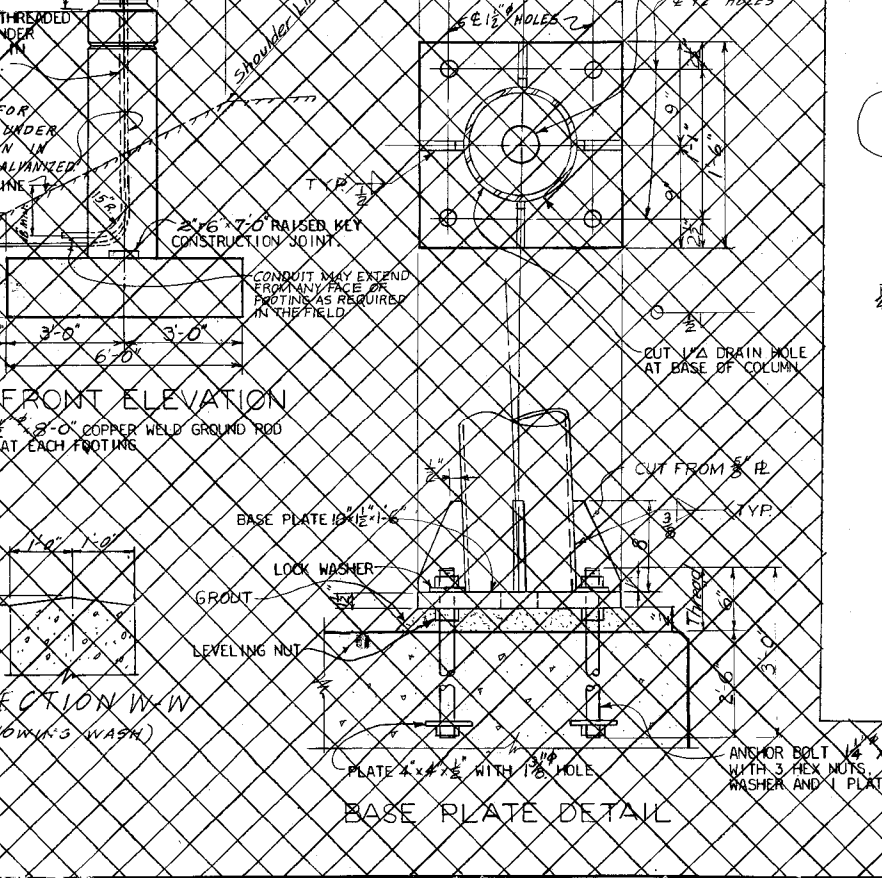
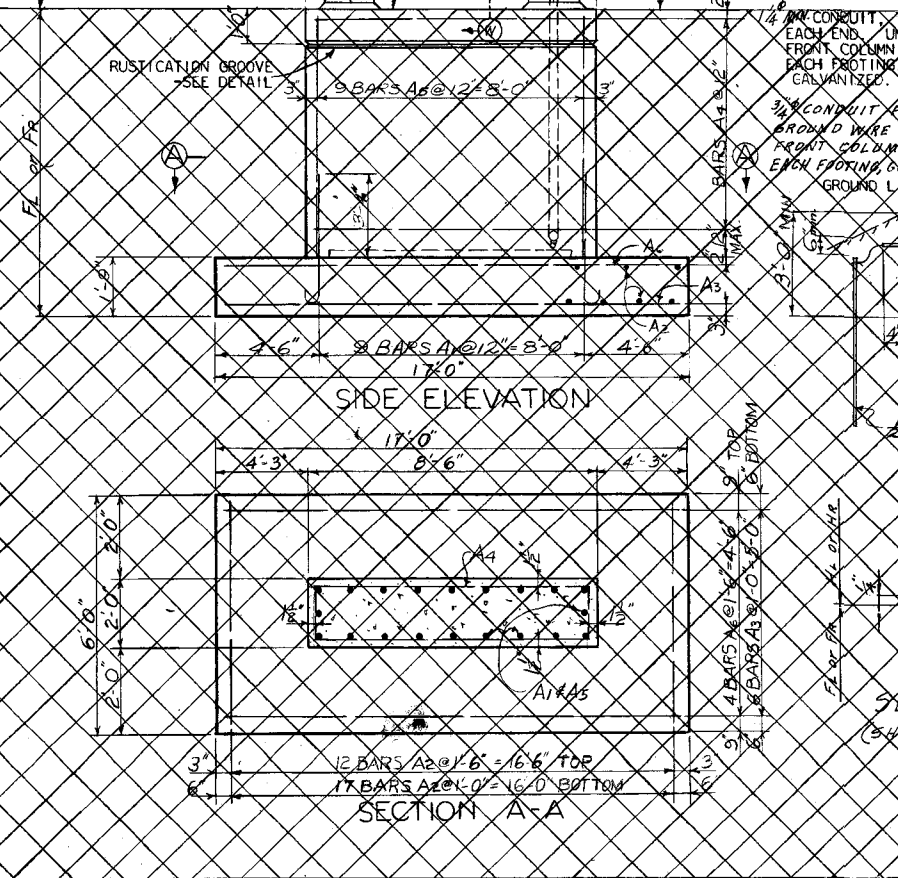
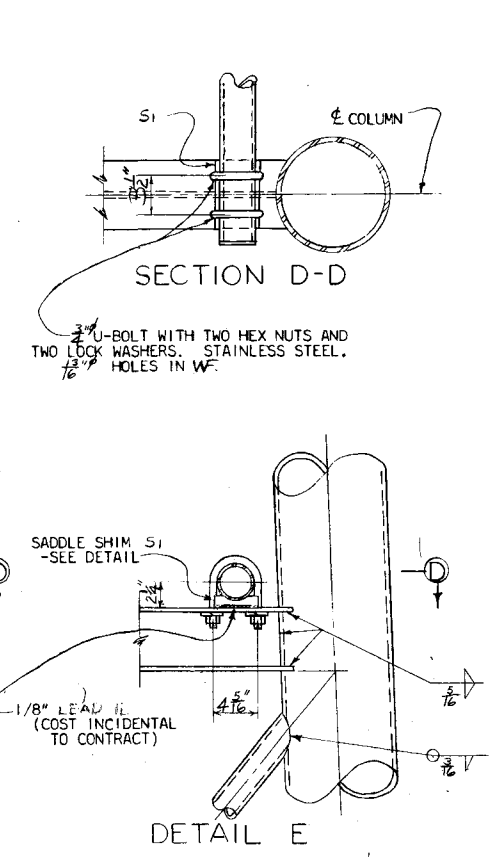
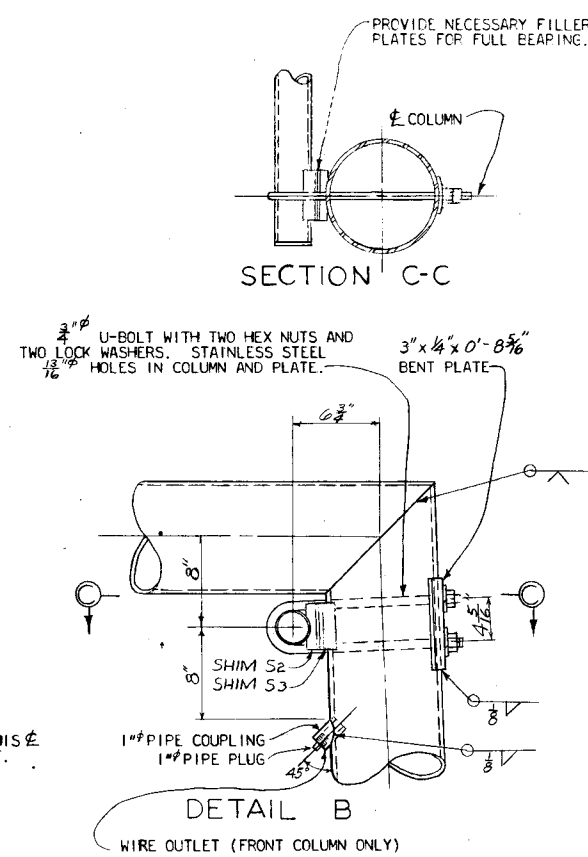
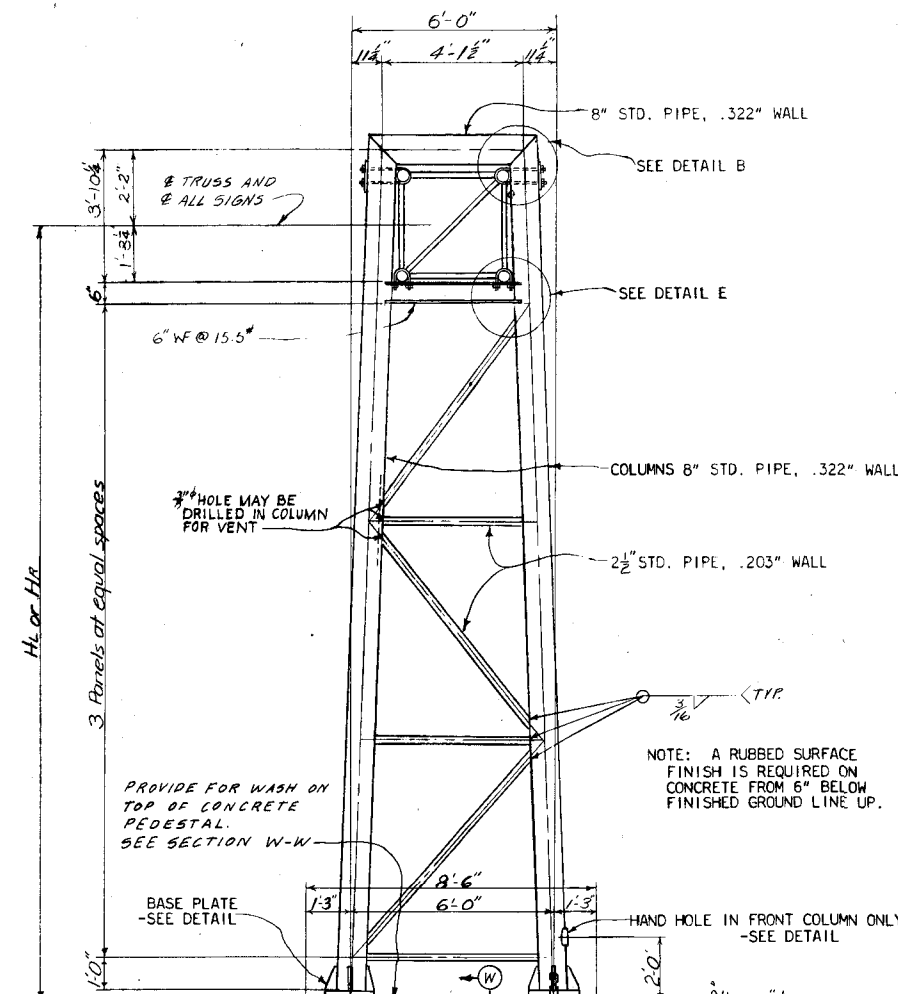
COMMONWEALTH OF KENTUCKY
DEPARTMENT OF HIGHWAYS
FRANKFORT
STANDARD OVERHEAD SIGN SUPPORTS
50' TO 70' SPANS.
ALUMINUM

STATION: _____ PROJECT NO.: _____

APPROVED: *[Signature]* STATE HIGHWAY ENGINEER

DRAWING NO.: **18485** INDEX

DESIGNED BY: *W. J. L. J.* CHECKED BY: *J. G. J.* DATE: *2/26/52*
 REVISION: *Added Casting, Changed Conduit* DATE: *2/26/52*
 REVISION: *Added Sign, Added 1/2" Dia. 1/4" Thick* DATE: *2/26/52*
 REVISION: *Added 1/2" Dia. 1/4" Thick* DATE: *2/26/52*
 REVISION: *Added 1/2" Dia. 1/4" Thick* DATE: *2/26/52*



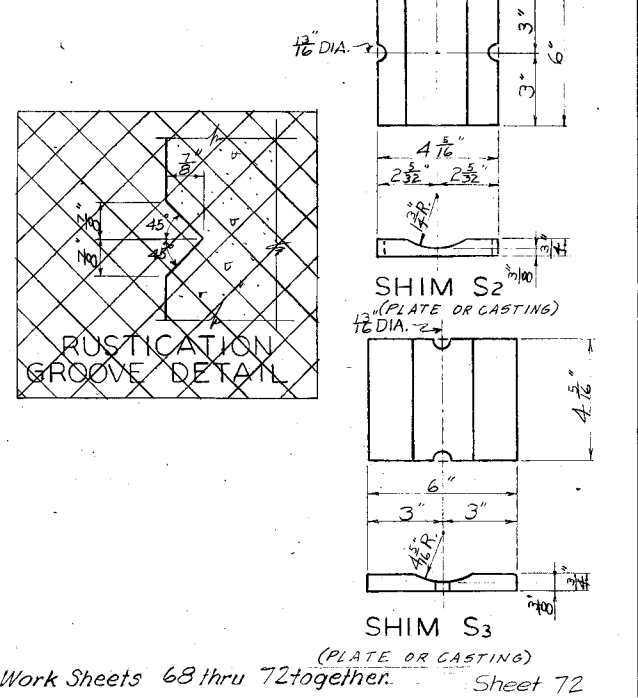
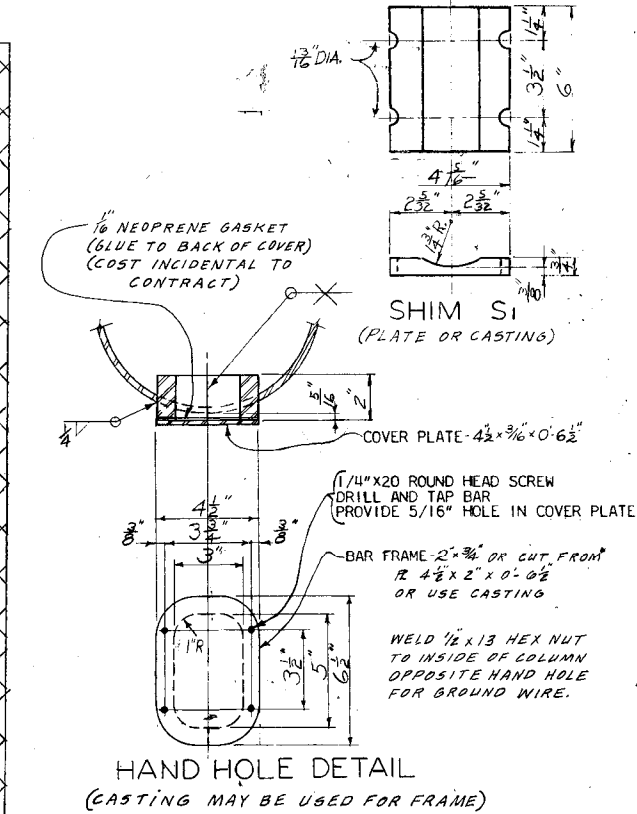
BILL OF REINFORCEMENT FOR ONE FOOTING					
Mark	Type	No.	Size	Length ft. in.	Location
A1	①	20	#6	3' 7"	Footings and Wall
A2	Str.	20	#5	5' 8"	"
A3	Str.	6	#7	16' 8"	"
A4	②	Varies	#4	20' 9"	Wall
A5	Str.	20	#5	5' 11 1/2"	"
A6	Str.	4	#5	16' 5"	Footings

TYPE ①

TYPE ②

* APPROX. ESTIMATE IS FOR INFORMATION ONLY.
PL AND F.R. SHALL BE DETERMINED BY THE
ENGINEER IN THE FIELD.

ESTIMATE OF QUANTITIES *			
FOR ONE FOOTING			
	5'-6'-0"	Additional 1' of Wall	
Concrete, Class "A"	9.6 Cu. Yd.	0.63	Cu. Yd.
Reinforcement	768 Lbs.	35.	Lbs.



COMMONWEALTH OF KENTUCKY
DEPARTMENT OF HIGHWAYS
FRANKFORT
STANDARD OVERHEAD
SIGN SUPPORTS
50' TO 70' SPANS.
GALVANIZED STEEL

STATION: _____ PROJECT NO.: _____
 APPROVED: _____ DRAWING NO.: **18485** INDEX: _____
 STATE HIGHWAY ENGINEER