HAZELET & ERDAL, CONSULTING ENGR'S
FILE NO. 918-03 WITH
WRIGHT, MORGAN & BROWN, INC.

LETTING DATE

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS
HAMILTON COUNTY-OHIO APPROACH
U.S. 25-U.S. 42 REPLACEMENT BRIDGE
OVER OHIO RIVER

REFERENCE AND ESTIMATE OF QUANTITIES

ITEM / LOCATION	SHEET NO.	CONCRETE CU. YD. CL. 'A'	CONCRETE CU. YD. CL. 'AA'	REINF. STEEL LB.	STR. EXC. CU. YD. COMM.	STR. EXC. CU. YD. S.R.	END BENT BACKFILL CU. YD.	STRUCTURAL STEEL LUMP SUM (1)	ALTERATION TO C&O R.R. LUMP SUM (5)	NO. 6 STONE TONS	CHAIN LINK FENCE LIN. FT.	PEDESTRIAN RAILING LIN. FT.	14" CONCRETE PILES LIN. FT. (7) FURNISH	14" CONCRETE PILES LIN. FT. (7) DRIVE	STYRENE BUTADIENE PROTECTIVE COATING GAL.	LINSEED OIL PROTECTIVE COATING SQ. YDS.	PILE LOAD TEST EACH	REMOVING PILES LIN. FT.	REMOVAL OF EXISTING STRUCTURES LUMP SUM (2)	6"ϕ DRAIN PIPE LIN. FT.	TELEPHONE CONDUIT LUMP SUM (3)	PRESORING FOR CONCRETE PILES LIN. FT.	MODULAR EXPANSION JOINT 4 SEALS LUMP SUM (10)	MODULAR EXPANSION JOINT 3 SEALS LUMP SUM (11)
QUANTITIES	1																							
NOTES	2																							
LAYOUT	3-5																							
SOUNDINGS	6,7																							
STAKEOUT	8																							
PILE RECORD	9-14&89																							
ABUTMENT 2	29-32	34.8	57.7	57,973	1054	10	125			23			5210	5,210	2	11	1	600		115 (9)				
PIER 11	15, 27	129.5		22,317	80	5							1010	1,010	3		1	240						
PIER 12	16, 27	158.7		30,213	130	5							1,510	1,510	3			120						
PIER 13	17, 27	130.5		22,376	80								1010	1010	3									
PIER 14	18, 27	110.3		20,057	80								1,210	1,210	3									
PIER 15	19, 27	151.8		31, 350	130								1,510	1,510	3									
PIER 16	20, 27	111.7		20,221	80								910	910	3									
PIER 17	21, 27	120.5		22,900	80								1,210	1,210	4									
PIER 18	22,27&28	74.5		13,510	98								1310	1310	1									
PIER 19	23,27,28	55.0		5,126	80								1,210	1,210	1									
PIER 20	24,27&28	43.7		5,066	64	5							810	810	1			120						
PIER 21	25,27&28	119.2		18,962	82								1,360	1,360	4									
PIER 22	26-28	111.1		18,295	93	5							1,360	1,360	4			120						
SUPERSTRUCTURE	33-68	3.7	2653.1	722,654				(1)			487	1,154.0			61	8,804				565			(4)	(4)
ELEVATIONS	69-77																							
RAILING	60,61,68																							
EXISTING STRUCTURE REMOVAL	78-82																		(2)					
TELEPHONE CONDUIT	90-93							(3) (8)													(3)			
ALTERATION TO C&O RAILROAD	83-89	(6)		(6)	(6)			(6)	(5)				(6)	(6)					(6)					
SUPERSTRUCTURE TOTALS		3.7	2653.1	722,654				(1)			487	1,154.0			61	8804				565			(4)	(4)
SUBSTRUCTURE TOTALS		1658.3	577	238,366	2,111	30	125			23			19630	19630	35	11	2	1200		115 (9)		3,200 (12)		
TOTALS		1662.0	2,710.8	1011,020	2,111	30	125	(1)	(5)	23	487	1,154.0	19630	19630	96	8815	2	1200	(2)	680	(3)	3,200 (12)	(4)	(4)

(1) Approximately 3,084,689 Lbs. to be included in Lump Sum Bid for Structural Steel
(2) For Removal of Existing Structure see Sh. 78-82.
(3) Non Participating Item (Non Participating indicates non participation of Federal Funds)
(4) Modular Expansion Joint, see Sheets 52-54
(5) For Quantities, Items of work and materials for Alteration to C.&O. R.R., see Sheet 85.
(6) Does not include quantities required for Alteration to C.&O. R.R.
(7) For Optional Types of Piles, see General Note, Sheet 2.
(8) Weight of Structural Steel to be included in lump sum bid for "Telephone Conduit" is 53,600 Lbs, this is not included in, but is an addition to (1).
(9) 6"ϕ Perforated Drain Pipe, see sheet 32. (10) At Piers 13 & 20 (11) At Pier 16 (12) See Special Notes

BILL OF INCIDENTAL MATERIAL

ITEM	NO.	SIZE & LOCATION
Prem. Cork Exp. Jt. Matl.	1	1⅜"x8"x75'-0"@ 1⅜" Joint, Abutment 2
Preformed Jt. Seal	1	2½"x2¾"x75'-0"@ 1⅜" Joint, Abutment 2
Prem. Cork Exp. Jt. Matl.	1	1"x2'-2"x24'-6"@ Jt., Abut. 2 Wing Wall
" " " "	1	1"x3'-6"x13'-0"@ Jt., Abut. 2 Footing
" " " "	2	½"x 2"x13'-0"@ Jt., Abut. 2 Fty.
" " " "	2	½"x 2"x 24'-6"@ Jt. Abut. 2 Wing Wall

STANDARD DRAWINGS

Standard Drawings listed below are the Current Edition, and are to be used with these plans:

AE1-D, AE2-D, AWS3A (35 hts), G353 F, G354 C, P2A, P20A, P21B, SF2B, P23A, 17.08 b

SPECIAL PROVISIONS

"8B - Linseed Oil Protective Coating.
"30B - Membrane Curing of Concrete Structure.
"31 - Pile Load Tests.
"35B - Class 'AA' Concrete.
"36A - Set Retarding Admixtures for Concrete.
"37B - Preformed Compression Joint Seals.
"77C - Styrene Butadiene Protective Coating.
"79 - Concrete Bridge Deck Finishing Machine.
"80B - Blast Cleaning and Painting Structural Steel.

SPECIAL NOTES

Relative to flagging and other protection of the several Railroad Companies over the Covington and Cincinnati Elevated Railroad and Transfer and Bridge Company's Bridge during construction of U.S. 25 and U.S. 42 replacement bridge over Ohio River between Covington and Cincinnati.

Regarding coordination of Contractor's operations with Hilltop Concrete Corporation.

For Bridge Construction.

DESIGNED BY J.B. & C.H. DATE 12-20-71 REVISED
DETAILED BY DATE REVISED
TRACED BY CHECKED BY R.D.G. DATE REVISED
DATE REVISED

CHIC APPROACH SHEET 1 of 93

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

BRIDGE OVER OHIO RIVER ON U.S. 25
KENTON COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

STATION 81 + 76 P.E. PROJECT NO. F 141 (1)

HAZELET & ERDAL Consulting Engineers File No. 918-03 | CONSTRUCTION PROJECT NO. F.R 141 (7) Contract C | DRAWING NO. 18577

THIS IS A REDUCED SIZE PRINT — NOT TO SCALE

LETTING DATE

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

DESIGN LOAD: This bridge is designed for HS20-44 live load as specified in the 1969 AASHO Specifications, including interim specifications, or alternate loading of two 24-kip Axles spaced four feet apart, whichever produces the greater stress. This bridge is designed for a wind load based on a wind velocity of 84 M.P.H. Dead Load includes 30#/sq. ft. on full width of roadway for future wearing surface.

DESIGN STRESSES: For Reinforced Concrete

CLASS "A"	CLASS "AA"
f_s = 20,000 psi	f_s = 20,000 psi
f_c = 1,200 psi	f_c = 1,600 psi for other than slabs
f'_c = 3,000 psi	
u = 200 psi for embedment	f_c = 1,200 psi for deck slabs
u = 300 psi for sum of perimeters	f'_c = 4,000 psi
n = 10	u = 200 psi for embedment
	u = 300 psi for sum of perimeters
	n = 8

For Structural Steel
f_s = 20,000 psi for A36 Steel

FOUNDATION PRESSURE: Piles are designed for a maximum axial load of 60 tons per pile and a maximum horizontal shear of 1 ton per pile.

CONCRETE: Class "AA" Concrete is to be used throughout the superstructure, and is to be used in the portions of the substructure above the bearing seats. Class "A" Concrete is to be used in the substructure below the bearing seats except in the Concrete Piles. Class "D" Concrete is to be used in the Concrete Piles.

REINFORCEMENT: Dimensions shown from the face of concrete to bars are clear distances unless otherwise shown. Spacing of bars is from center to center of bars.

BEVELED EDGES: All exposed edges shall be beveled 7/8" unless otherwise shown.

BILL OF INCIDENTAL MATERIAL: The quantities shown in the bill of incidental material are approximate only and the Contractor is responsible for furnishing enough material to complete the work in accordance with the plans and specifications. The cost of these items is to be included in the unit price bid for Class "AA" Concrete.

PAYMENT FOR STRUCTURAL STEEL: The lump sum bid for Structural Steel shall be full payment for all structural steel, bolts, washers, steel pins, cast iron, lead plates, molten lead, bronze plates, welding and welding materials, floor drains, 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, steel supports for Telephone Conduit nor the quantity of Structural Steel in Alterations for C&O Railway.

PILING: Piling shall be driven to a minimum driving resistance as determined by successful load tests. Test piles shall be driven where designated on the Plans to determine the length of pile required. All test piles shall be accurately located so that they may be used in the finished structure.

OPTIONAL TYPES OF PILES: The Contractor shall use one of the following options throughout the structure:

Option 1 - Standard 14" Reinforced Concrete Pile, see Standard Drawing, P2, current edition.
Option 2 - Cast-in-place Concrete Pile, seamless steel or welded pipe shell, see Standard Drawing, P20, current edition.
Option 3 - Cast-in-place Concrete Pile, fluted steel shell, see Standard Drawing, P21, current edition.
Option 4 - Standard Precast Prestressed 14" Concrete Pile, see Standard Drawing, P23, current edition.

PAINT: All structural steel shall be cleaned and painted in accordance with the Special Provision for Blast Cleaning and Painting Structural Steel, current edition, except that the field coating for Span 16 shall be a Fire Retardant Coating in accordance with Section 824 of the Special Notes.

SPIRAL COLUMN TIES: Splices for spirals where desired by the Contractor shall be made with a minimum of one and one-half turns of spiral. No additional payment will be made for these splices, and the cost will be considered incidental to the cost of the developed length of spiral shown on the Plans. Spiral reinforcement shall meet the requirements of Article 641.5.0 of the Specifications.

TEMPORARY SUPPORTS: Temporary Supports or shoring will not be permitted under the girders when pouring the concrete floor slab or when taking 'top of beam' elevations.

CONSTRUCTION IDENTIFICATION: The names of the prime contractor and the subcontractor 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.

TREPANNED SELF-LUBRICATING BEARING PLATES, BRONZE: Self-Lubricating bronze plates shall be an article of standard production by an established manufacturer of such equipment. They shall be in accordance with Article 643.6.0 of the Specifications except that Copper Alloy No. 913 is required. Trepanned recesses shall be in accordance with Article 643.8.0 of the Specifications.

APPROACH EMBANKMENT: Construction of the approach embankment shall be completed prior to the placement of any superstructure components.

ANCHOR BOLT HOLES: Holes of depth and dimensions shown shall be drilled for anchor bolts or dowels, after base plates are properly set, by the Contractor who shall be responsible for keeping holes dry in freezing weather. After base plates are properly set, anchor bolt holes drilled, and anchor bolts are placed in drilled holes, molten lead shall be poured in holes and packed until holes are completely filled flush to top of base plates. The cost of drilling anchor bolt holes, furnishing lead, and filling holes with molten lead shall be incidental to and included in the Lump Sum Bid for Structural Steel.

DRAIN DETAILS: Foundry Note - All drains shall be gray iron castings, ASTM A48, current edition, Class 30B. Report of field inspection of castings, current form, shall be submitted to the Division of Materials.

The Drain Pipe shall be 6" standard weight in accordance with Article 643.12.0 of the Specifications.

Pipe, Fittings, and Connections shall be included in the Unit Price per Linear Foot of 6" Drain Pipe complete in place. Pipe and all Fittings shall be painted in accordance with the Special Provision for Blast Cleaning and Painting Structural Steel, current edition.

MEMBRANE CURING COMPOUND: White Pigmented Curing Compound shall be applied to the bridge deck including pedestrian walk in accordance with the Special Provision, except that the membrane compound used shall have a resinous base.

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 to the top of pedestrian walk and shall not be applied until after the Styrene-Butadiene Protective Coating has been applied to the barrier curb.

CONCRETE FINISH: Exposed surfaces of concrete on barrier curb above the slab, and fascia shall be given a rubbed surface finish in accordance with Article 403.3.8-C of the Specifications. Should it be necessary to grind the concrete in order to secure a straight line, and the grinding exposes the coarse aggregate in any section, then that section will not be acceptable and shall be removed and replaced. When forms are not held to true lines and grades within the limits as set out in *PERMISSIBLE VARIATIONS*, or if the barrier curb does not meet the minimum requirements of workmanship, the sections involved shall be removed and replaced. Other exposed surfaces of concrete shall receive an Ordinary Surface Finish in accordance with Article 403.3.8-B.

CIRCULAR SECTION REINFORCED CONCRETE COLUMNS: This note modifies the requirements of Article 403.3.8 and 404.3.1 for pier columns of this project. The concrete shall be placed, finished and cured as specified in Article 404.3.1 except as required by the following:

(a) All forms for the circular section columns shall be made of metal or shall be plastic or plastic-lined so as to give the surface a true, smooth cylindrical shape free from fins, joints and irregularities.

(b) The concrete shall be placed in, and carefully vibrated against the forms to assure smooth surfaces without voids, honeycomb, air pockets or irregularities, in the surface.

(c) No extra payment will be made to the Contractor for the use of metal, plastic or plastic lined forms, nor for placing or finishing the concrete. The cost of forming, placing the concrete and finishing shall be included in the unit price bid for Concrete, Class "A".

STYRENE-BUTADIENE PROTECTIVE COATING: The protective coating shall be applied in accordance with the Special Provision to the barrier curb.

CAMBER: Girder web plates shall be cut to provide for the camber of the girder. 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 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. The type of adjustment shall be at the option of the contractor but the method of accomplishing the adjustment shall be approved by the Engineer.

PILE LOAD TESTS: Pile load tests shall be made where indicated on the plans and in accordance with the Specifications and Special Provision for Pile Load Tests except as herein noted. The load test piles shall be located so as to be a part of the finished structure. The test load shall be twice the designed load shown on the plans and shall be applied in increments of twenty-five percent (25%) of the full test load at time intervals such that the rate of settlement does not exceed 0.01 foot per hour for a minimum interval of two (2) hours. The full test load shall remain on the pile for sixty (60) hours. The pile shall be considered as satisfactory if no settlement occurs during the last twelve (12) hours of the full load period and the permanent net settlement, after rebound, does not exceed one-quarter (1/4) inch. If failure occurs before the maximum test load is reached or because of excessive settlement under full test load as prescribed above, the test load shall be removed, the pile spliced if necessary, redriven and another loading test performed as directed by the Engineer. A completed test load shall be removed in twenty-five percent (25%) increments with readings taken after the removal of each increment. A final reading shall be taken twelve (12) hours after the complefe removal of the test load to determine the total rebound.

Payment for 'Pile Load Test' shall be in accordance with Article 402.5.7 of the Standard Specifications and shall be full compensation for performing the load test as described above, splicing additional pile length to original pile if necessary, and furnishing the test load and all incidentals necessary to complete the test. Retesting piles, if required, will be paid for at the contract price each for "Pile Load Test."

MATERIALS: ASTM Specification, current edition, as designated below, shall govern the materials furnished, except where AWS is shown, and as noted elsewhere in the Plans.

MATERIALS	DESIGNATIONS
Structural Steel, 36,000 psi, min. yield	A36-70a
Gray Iron Castings, Class 30B	A48-64
Mild Steel Covered Arc-Welding Electrodes	AWS A5.1-69
Bare Mild Steel Electrodes & Fluxes for Submerged-Arc Welding	AWS A5.17-69
Drain Pipe	Art. 643.12.0 (Ky. Standard Specifications)
High Strength Carbon Steel Bolts for Structural Joints, including suitable Nuts and plain hardened Washers (Type 1, unless noted)	A325-70a
Sheet Lead and Pig Lead	B29-55
Premolded Cork Filler, Type II	D1752-67

CONNECTIONS: Unless otherwise provided on the plans, all connections shall be 7/8" diameter high strength bolts. Open holes shall be 15/16" diameter. All joints are designed as friction type connections. Tightening shall be done by the turn-of-nut method. Open holes shall be 1 1/16" diameter for 1" diameter bolts.

DIMENSIONS: Dimensions are for a normal temperature of 60 Degrees Fahrenheit. Layout dimensions are horizontal measurements.

POURING SEQUENCE: The pouring sequence of the slab may be changed with the written approval of the Engineer.

WELDING PROCEDURE: Qualification tests of all welding procedures shall be completed by the Contractor and approved by the Engineer prior to the final approval of the shop drawings and welding procedure and the start of the 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 the 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.

WELDING: All welding shall conform to AWS 02.0-69 'Specifications for Welded Highway and Railway Bridges', 8th edition, of the American Welding Society with Modifications and Additions as stated on the Plans and Standard Drawing AWS3, current edition.

SHOP ASSEMBLING: General reaming of holes for each bolted splice and connection of the continuous girders shall be required. Each continuous girder line shall be progressively shop assembled with at least three contiguous shop sections adjusted to line, elevations, camber and fit for drilling or reaming except as noted hereafter. At least one shop section shall be added at the advancing end of the assembly before any shop section is removed from the rearward end so that the assembled portion of the structure is never less than three contiguous shop sections. For the splices and connections of the continuous girders to the steel pier girders, the girder line shall be fully assembled in the shop or alternatively, each continuous girder shall be assembled with steel templates or a steel template unit replacing the steel pier girder or box girder in the assembly and the connections reamed to steel templates. In units which involve steel pier girders, a minimum of three continuous spans shall be assembled for reaming and the splices and connections reamed successively until reaming is complete for a continuous girder line. The compression flange splice plates shall be subdrilled and reamed in accordance with the dimensions from the milled ends shown on the plans; so that the splice plates shall be brought to full bearing against the pier girder unit when erected. Girder sections shall remain assembled for inspection by the Department of Highways Inspector and are to be matchmarked while assembled.

In lieu of subpunching or subdrilling holes and reaming to full size with the parts assembled, electronic computer or numerical tape controlled drills may be used to drill holes full size. Holes drilled by this method shall be located within a tolerance whereby 85 percent of the holes in any contiguous group shall show no offset greater than 1/32 inch between adjacent thickness of metal. The Contractor shall submit to the Engineer for approval his proposed procedure for drilling the holes and assuring correct fit of the members. In the event that the Contractor drills the holes full-size by electronic computer or numerical tape controlled methods at least twenty-five (25) percent of the splices shall be assembled in the shop, to prove adequacy and accuracy of the method.

SHOP ASSEMBLY (continued): If the holes do not match, or if camber and alignment are not correct in any one assembly, all spans shall be assembled and reamed, if necessary to secure correct fit.

Also in lieu of sub-punching or sub-drilling holes for the field bolted plate girder splices and reaming holes to full size while the girders are completely assembled in the shop, the field splice connection holes may be drilled full size in the solid material by inserting the drill through a pre-drilled splice plate or template in its final position in the connection (web-to-web and flange-to-flange). This work may be done immediatily prior to and during the flange-to-web fitting operation with a minimum of three adjoining girder sections worked together. The joints shall be match-marked prior to disassembly. The Contractor shall submit complete details of his proposed method of drilling and control of the assembly to the Engineer for approval.

Connections for the cross frames, diaphragms, longitudinal bracing, expansion joints and other minor members may be punched or drilled full size without assembly subject to the requirements in the specifications' for general reaming.

ULTRASONIC TESTING OF WEB PLATE: Prior to groove welding the hanger bracket to Pier 20 cross girder web plate, the surface area of the web plate immediately beneath the weld and within twelve inches thereof shall be ultrasonically tested for laminations and other defects. Any discontinuity indication of a defect greater than one inch in diameter shall be cause for rejection and the web plate shall be repaired, or replaced, as required by the Engineer. The results will be reported to the Engineer by the Inspector on forms approved by the Engineer. The Contractor shall sign and date each report to acknowledge that he has received the Inspector's interpretation of the results. The ultrasonic testing shall be performed in accordance with the "Standard Method for Longitudinal-Wave Ultrasonic Inspection of Steel Plates for Pressure Vessels", ASTM Designation; A435, except that the scanning shall be on grid lines spaced 3-inch centers measured along the axis of the weld.

DRIVING PILING ADJACENT TO EXISTING RAILROAD PIERS: The Contractor's attention is called to the proximity of existing railroad piers, highway bridge piers and existing buildings to many of the proposed piers. When driving piling for the proposed piers, the Contractor shall closely observe the adjacent bridge piers or buildings by instrumentation or a telltale system for any movement or settlement. The instrumentation, its installation, and personnel for observing movement or settlement shall be furnished by the Contractor and approved by the Engineer prior to driving any piling. If any movement or settlement is observed, driving of piling shall cease and the situation reported to the Engineer. Refer to Special Notes Section 402 for pile driving procedures.

EXISTING UTILITIES: The Contractor is advised to exercise extreme caution in his operations owing to the presence of gas lines, water lines, underground electrical conduit, or other lines carrying hazardous material The Contractor shall use all possible care in driving the piling and constructing the foundations in order that the existing utilities shall not be disturbed. Where noted on the plans for protection of utilities, piling shall be prebored and temporary sheet piling shall be placed before driving piles. Any utility disturbed or damaged by the Contractor's operations shall be replaced or repaired by the Contractor whether shown in the Plans or not. Any replacement or repair necessary shall be at the Contractor's expense with no extra cost to the Department and such work shall include excavation, sheeting, materials, labor and all incidentals necessary to complete the work to the satisfaction of the Engineer.

LIGHTING, TRAFFIC CONTROL, ELECTRIC WORK & SIGNING: All details and quantities for light standards and brackets, strain poles, luminaires lane control signals, conduit and junction boxes, controls, wiring, etc. are shown in the Roadway Plans for this Contract.

DESIGNED BY ____ CHECKED BY ____ DATE ____ REVISED ____
DETAILED BY SJN CHECKED BY RGJ DATE 9-71 REVISED ____
TRACED BY ____ CHECKED BY ____ DATE ____ REVISED ____

OHIO APPROACH SHEET 2

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

BRIDGE OVER OHIO RIVER ON U.S. 25

KENTON COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

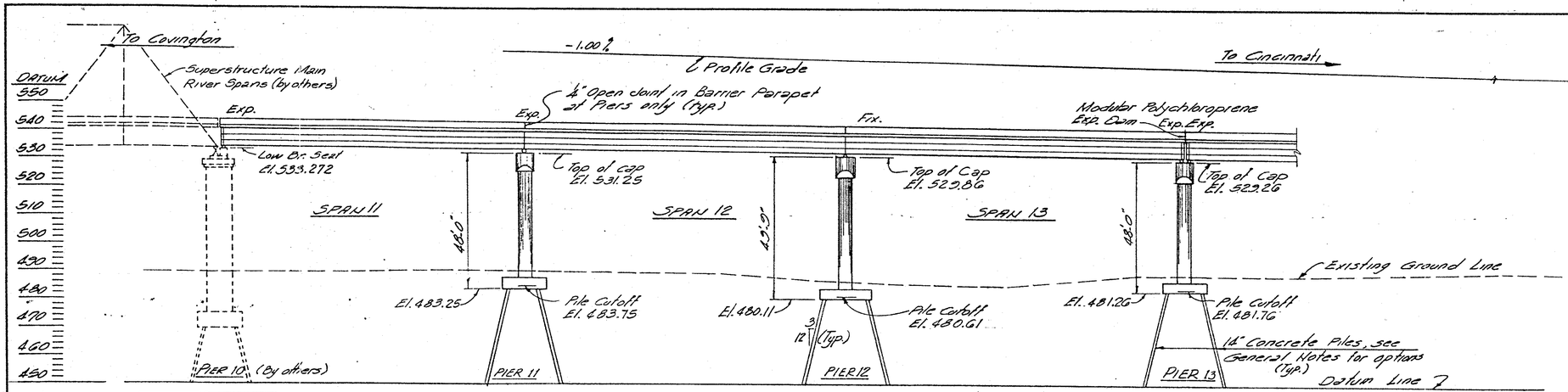
STATION 81+76 P.E. PROJECT NO. F141 (1)

HAZELET & ERDAL Consulting Engineers File No. 918	CONSTRUCTION PROJECT NO.	DRAWING NO. 18577

GENERAL NOTES

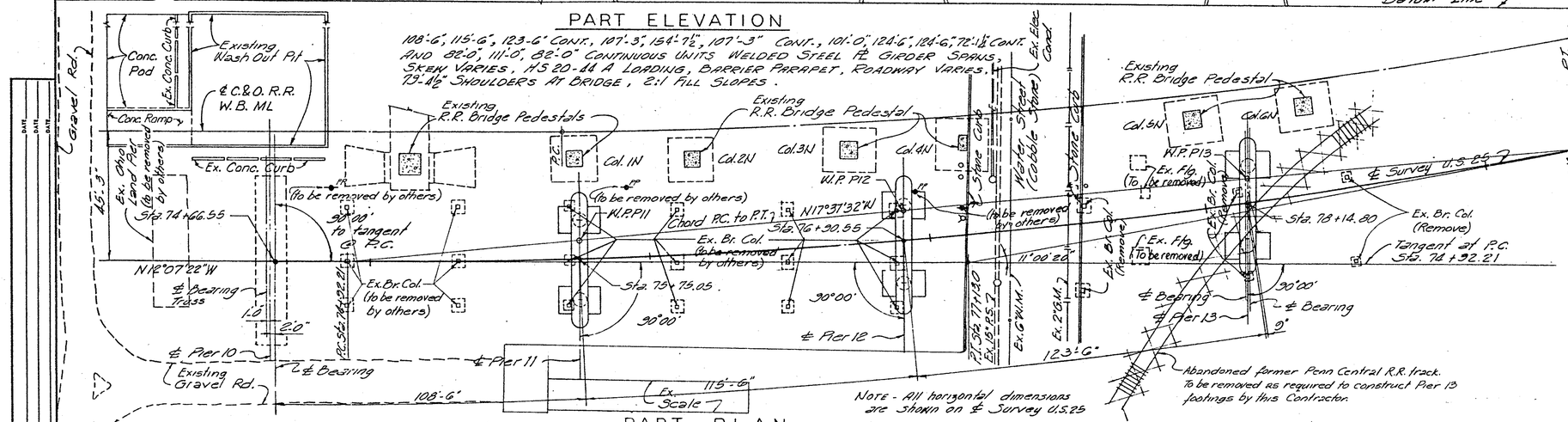
THIS IS A REDUCED SIZE PRINT — NOT TO SCALE

LETTING DATE

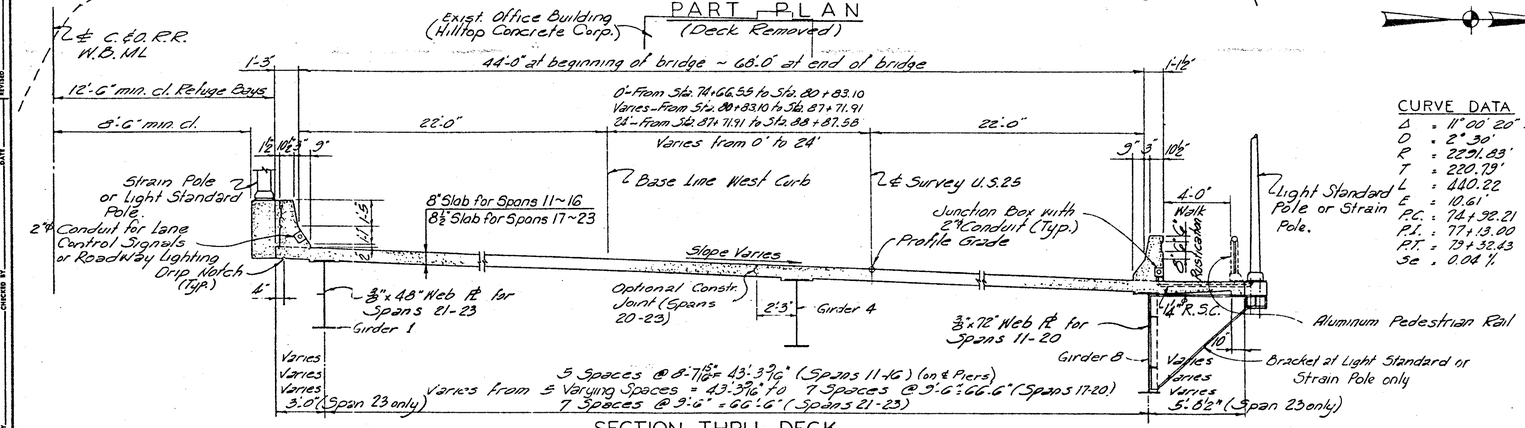


PART ELEVATION

108'-6", 115'-6", 123'-6" Const., 107'-3", 164'-7½", 107'-3" Cont. And 82'-0", 111'-0", 82'-0" Continuous Units Welded Steel ℄ Girder Spans, Skew Varies. HS 20-44 A Loading, Barrier Parapet, Roadway Varies. 79'-4½" Shoulders At Bridge, 2:1 Fill Slopes.



PART PLAN (Deck Removed)



SECTION THRU DECK

CURVE DATA	
Δ	= 11°00'20" Lt.
D	= 2°30'
R	= 2291.83'
T	= 220.79'
L	= 440.22
E	= 10.61'
P.C.	= 74+92.21
P.I.	= 77+13.00
P.T.	= 79+32.63
Se	= 0.04 %

LAYOUT

88+84
74+66
14 18

OHIO APPROACH SHEET 3

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

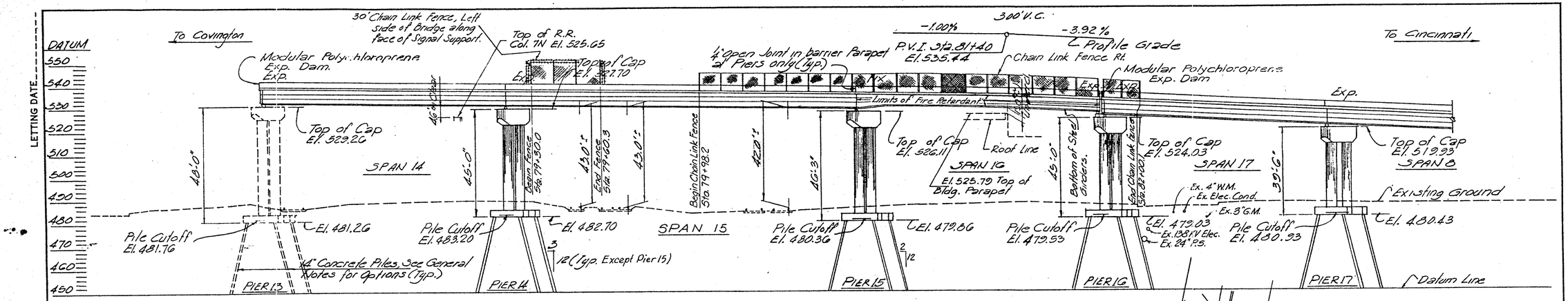
BRIDGE OVER OHIO RIVER ON U.S. 25
KENTON COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

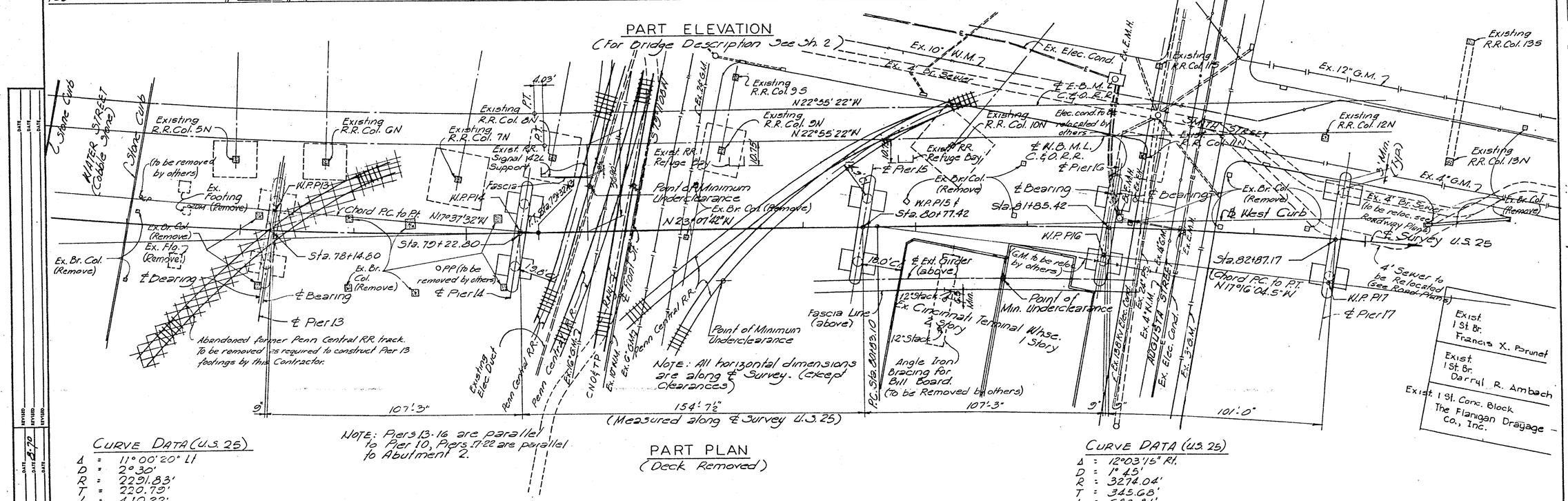
STATION 81 + 76 P.E. PROJECT NO. F 141 (1)

HAZELET & ERDAL Consulting Engineers File No. 918-03	CONSTRUCTION PROJECT NO.	DRAWING NO. 18577

DESIGNED BY JMM DATE
DETAILED BY DCM DATE
TRACED BY DCM DATE
CHECKED BY DATE
CHECKED BY DATE
REVISED
REVISED

THIS IS A REDUCED SIZE PRINT — NOT TO SCALE





PART ELEVATION
(For Bridge Description See Sh. 2)

NOTE: Piers 13-16 are parallel to Pier 10, Piers 17-22 are parallel to Abutment 2.

PART PLAN
(Deck Removed)

CURVE DATA (U.S. 25)

Δ = 11°00'20" Lt.
D = 2°30'
R = 2291.83'
T = 220.79'
L = 440.22'
E = 10.61'
P.C. = 74+92.21
P.I. = 77+13.00
P.T. = 79+32.43
S/E = 0.04'/'

CURVE DATA (U.S. 25)

Δ = 12°03'15" Rt.
D = 1° 45'
R = 3274.04'
T = 345.68'
L = 688.81'
E = 18.20'
P.C. = 80+83.10
P.I. = 84+28.78
P.T. = 87+71.91
S/E = 0.03'/'

LAYOUT

OHIO APPROACH
SHEET 4

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

BRIDGE OVER OHIO RIVER ON U.S. 25
KENTON COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

STATION 81+76
P.E. PROJECT NO. F 141 (1)

HAZELET & ERDAL
Consulting Engineers
File No. 918-03

CONSTRUCTION PROJECT NO.
DRAWING NO. 18577

DESIGNED BY BJC
DETAILED BY
TRACED BY
CHECKED BY
CHECKED BY
CHECKED BY
DATE 8-70
REVISED
REVISED
REVISED

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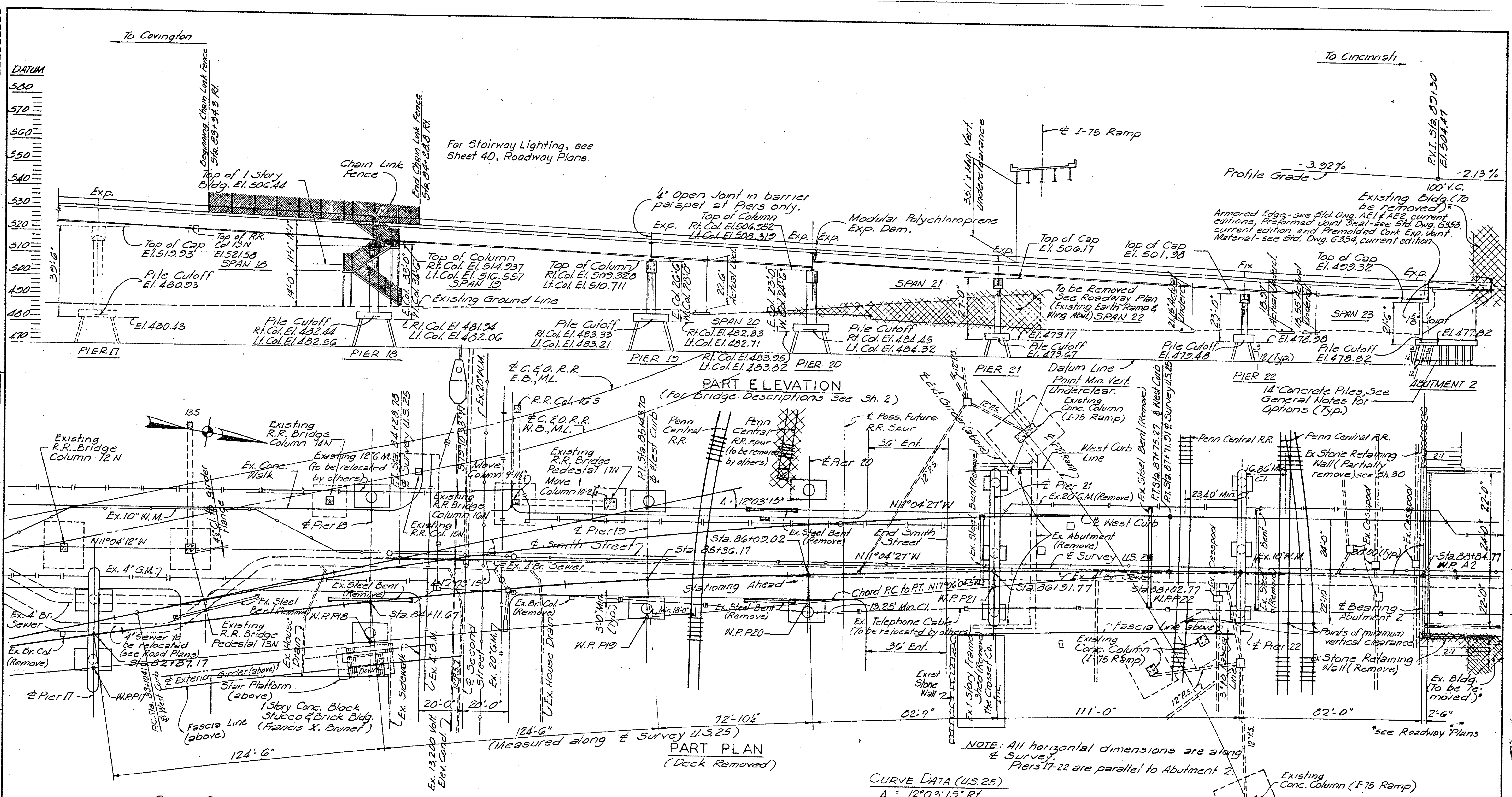

NOTE: All horizontal dimensions are along ℄ Survey.
Piers 17-22 are parallel to Abutment 2.

Existing Conc. Column (I-75 Ramp)

CURVE DATA (℄ WEST CURB)
Δ = 12°03'15" Rt.
D = 2°35'35.1"
R = 2209.57'
T = 233.29'
L = 464.86'
E = 12.28'
P.C. = 83+10.41
P.I. = 85+43.70
P.T. = 87+75.27
S/E = 0.03%

CURVE DATA (U.S. 25)
Δ = 12°03'15" Rt.
D = 1°45'
R = 3274.04'
T = 345.68'
L = 638.81'
E = 16.20'
P.C. = 80+83.10
P.I. = 84+28.78
P.T. = 87+71.91
S/E = 0.03%

OHIO APPROACH

SHEET 5

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

BRIDGE OVER OHIO RIVER ON U.S. 25

KENTON COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

STATION 81+76
P.E. PROJECT NO. F141 (1)

HAZELET & ERDAL
Consulting Engineers
File No. 918-03

CONSTRUCTION PROJECT NO.

DRAWING NO. 18577

LAYOUT

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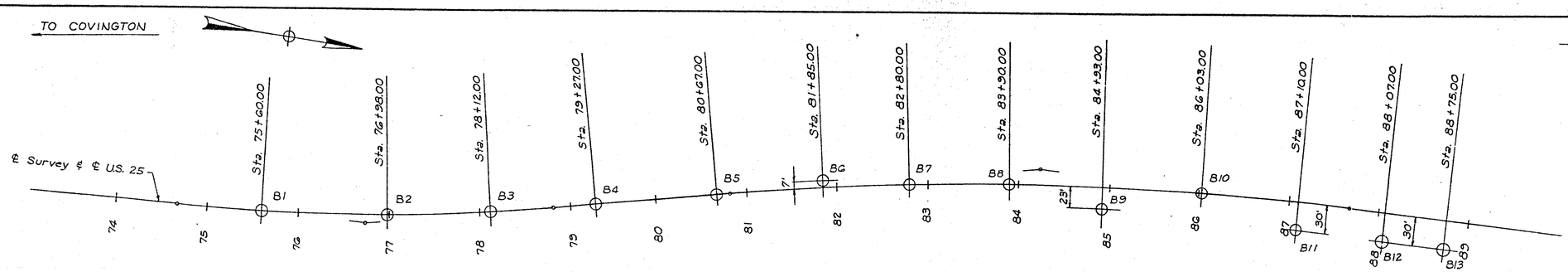

PLAN

Scale : 1" = 60'

Sta. 75+60.00 Centerline Hole No. B1

Cinders, gravel and clay (fill) moist - dense	489.8	
	487.3	29
Cinders and gravel (fill) moist - medium dense to loose		23
	482.3	7
Cinders and gravel (fill) moist - medium dense to loose		12
		7
	474.8	9
Brown silty clay with cinders (fill) moist - stiff		12
	469.8	10
Sand, clay, cinders and brick, (fill) moist - medium dense		21
		12
	459.8	13
Brown and gray silty clay with fine sand lenses, moist - stiff to medium stiff		14
	449.8	20
		19
Brown and gray silty fine to coarse sand with fine gravel, wet - medium dense		23
		21
	429.8	10
Brown fine sand, wet - medium dense		11
		27
	414.8	53
Brown and gray fine to coarse sand with fine gravel, wet - dense		34
		32
	399.8	32

Sta. 76+98.00 Centerline Hole No. B2

	486.3	
Clay, sand, cinders and brick, (fill) moist - medium dense		21
	476.3	15
		8
Brown silty clay with fine sand lenses, moist - medium stiff		7
		8
	461.3	10
Brown fine sand with silt lenses, moist - loose		14
	456.3	12
Brown silty clay with fine sand lenses, very moist - soft to medium stiff		18
	446.3	19
Brown silty fine to coarse sand and gravel, wet - medium dense		29
	431.3	36
Brown fine sand, wet - dense		63
	426.3	63
		30
Brown and gray fine to coarse sand with fine gravel, wet - very dense to dense		36
		57
		38
	396.3	52
Brown fine to medium sand, wet - very dense to dense		31
	386.3	68
Brown fine to coarse sand with fine gravel, wet - very dense	381.3	48
Brown fine to coarse sand and gravel, wet - dense to very dense		18
	373.3	No Pene. (100)

Sta. 78+12.00 Centerline Hole No. B3

Cinders (fill) moist - loose	487.2	
	484.7	8
Brown silty clay with cinders (fill) moist - stiff to medium stiff		9
	479.7	4
Brown silty clay with fine sand lenses, moist - medium stiff		4
	472.2	4
Brown fine sand with silt layers, moist - loose to medium dense		8
		11
Brown fine to medium sand, moist - medium dense	462.2	16
Brown silty clay with fine sand lenses, moist - medium stiff	457.2	4
	452.2	18
Brown silty fine to coarse sand and gravel, wet - medium dense		24
	442.2	36
Brown fine to coarse sand with fine gravel, wet - dense to very dense		61
	432.2	27
Brown clayey fine to coarse sand with fine gravel, wet - medium dense	427.2	33
Brown fine to coarse sand with fine gravel, wet - dense to very dense		51
	415.7	68

Sta. 79+27.00 Centerline Hole No. B4

	487.6	
Cinders, brick and clay (fill) moist - medium dense to loose		18
	480.1	5
		9
Brown and gray silty clay with silt and fine sand seams and organic traces, moist - medium stiff		13
		7
		5
		7
Brown fine to coarse sand and gravel, moist - very dense	457.6	61
	454.6	29
Brown fine to coarse sand and gravel, wet medium dense to dense		25
		31
	437.6	22
		22
		23
Brown and gray fine to coarse sand with fine gravel, wet - medium dense to dense		39
		33
		44
		50
	402.6	52
Brown and gray fine to coarse sand with fine gravel, wet - very dense to dense		43
	392.6	46
Brown fine sand with silt layers, wet - dense		49
		46
	377.6	76
Brown silty fine to coarse sand and gravel with cobbles, wet - very dense	373.6	
		Refusal

Sta. 80+67.00 Centerline Hole No. B5

	487.4	3
Cinders and slag (fill) moist - medium dense	486.4	0
Brown silty clay with fine sand lenses, moist - stiff	482.4	4
		5
Gray silty clay with silt layers and organic traces, moist - stiff to medium stiff	467.4	5
		6
Brown silty clay with fine sand lenses and wood, moist - medium stiff		5
		4
	452.4	13
Gray Clayey fine to coarse sand and gravel, wet - medium dense		14
	442.4	34
Brown fine to coarse sand and gravel, wet - medium dense to dense		27
		33
	427.4	26
Brown and gray fine to coarse sand with fine gravel, wet - dense to very dense	420.9	53

Sta. 81+85.00 7' Left Hole No. B6

	487.3	11
Sand, cinders and brick fragments (fill), moist - medium dense		18
	477.3	10
Cinders, sand and clay (fill), very moist - loose		7
	470.3	7
Brown and gray silty clay, very moist - soft		8
	457.3	10
Brown and gray silty clay with silt lens, very moist - soft		9
	449.3	8
Gray silty clay with organics, silt and fine sand lenses very moist - soft	442.3	23
		25
Brown and gray silty fine to coarse sand, trace of fine gravel, wet medium - dense		26
	427.3	31
Dark gray silty fine to coarse sand with fine gravel, wet - dense	422.3	37
		40
Brown fine to medium sand, trace of fine gravel, wet - dense	412.3	35
		50
		36
		37
Brown fine to coarse sand with some fine to coarse gravel, trace of cobbles, wet - dense to very dense		38
		36
		61
	375.1	89
		Refusal

Note:

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.

ELEVATION

Scale: 1" = 10'

LOG OF BORINGS

DRAWN BY: TB DATE: 4-72
DETAILED BY: MMA DATE:
TRACED BY: DATE:
CHECKED BY: DATE:
CHECKED BY: DATE:
REVISED
REVISED
REVISED

OHIO APPROACH SHEET 6

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

BRIDGE OVER OHIO RIVER ON U.S. 25

KENTON COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

STATION 81+76 P.E. PROJECT NO. F 141 (1)

HAZELET & ERDAL Consulting Engineers File No. 918-03	CONSTRUCTION PROJECT NO.	DRAWING NO. 18577

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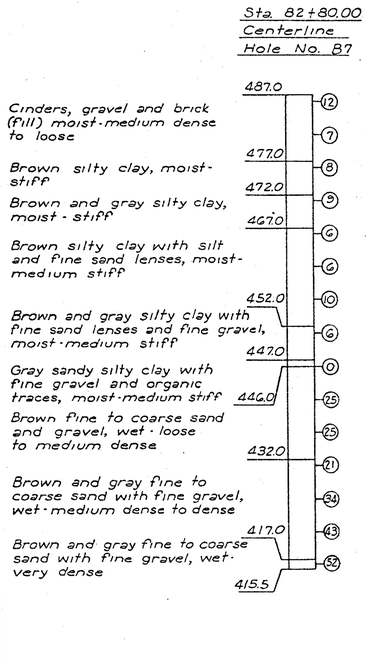

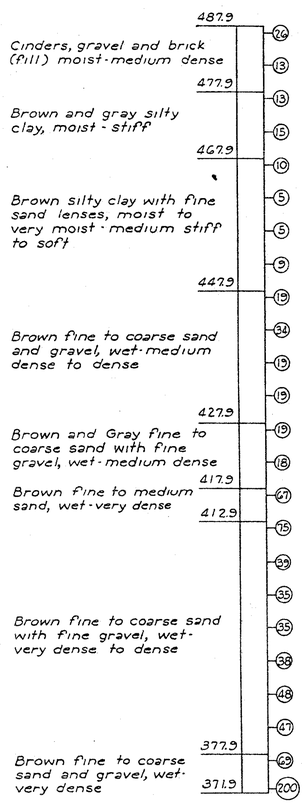

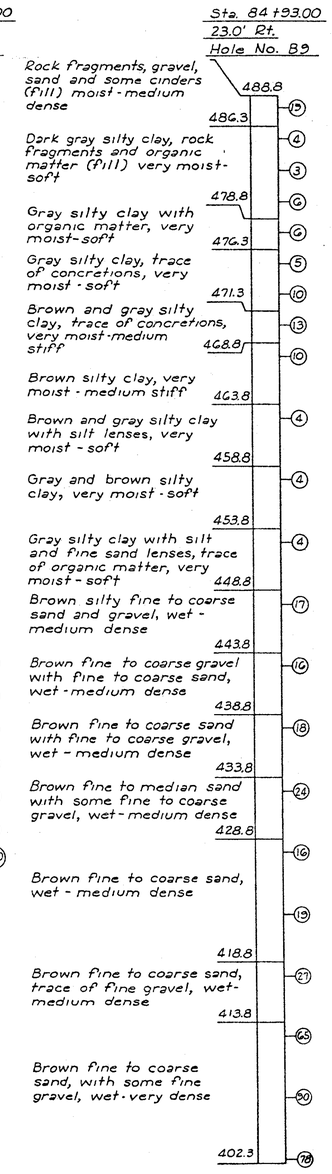

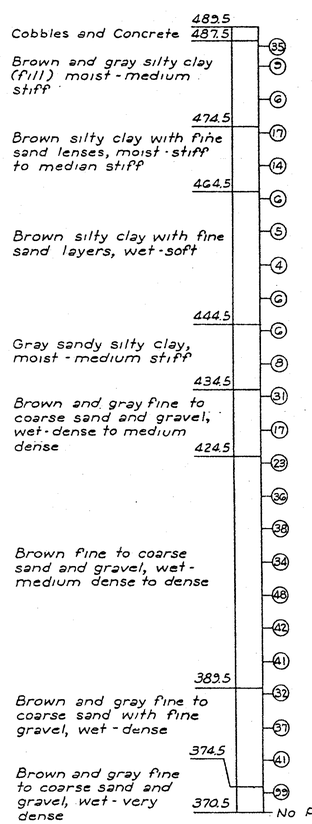

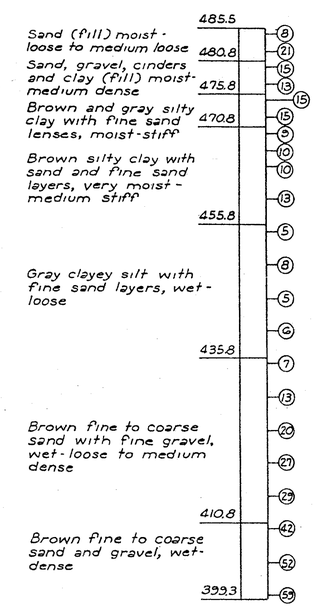

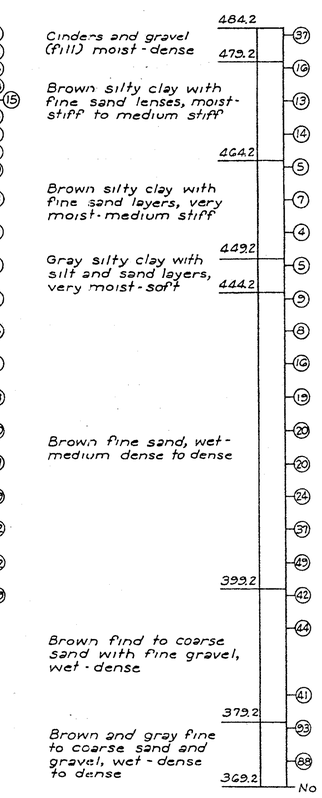

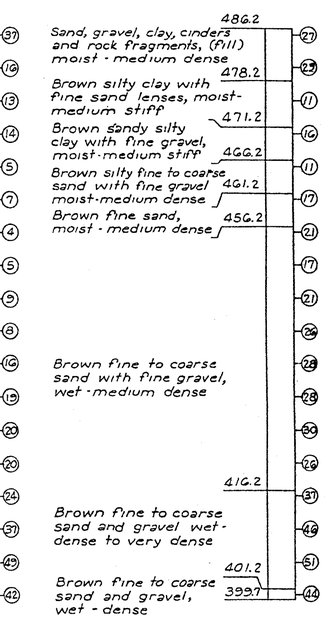

Note:
Number in circle indicates number of blows of 140 lb. hammer dropped 30 inches required to drive a 2 inch split-spoon sampler 1.0 ft. (unless otherwise indicated), after first seating the split-spoon sampler by driving it 6 inches.

Note:
For location of holes, see plan on sheet 6 .

ELEVATION
No Scale

LOG OF BORINGS

OHIO APPROACH SHEET 7

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

BRIDGE OVER OHIO RIVER ON U.S. 25
KENTON COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

STATION 81+76 P.E. PROJECT NO. F 141 (1)

HAZELET & ERDAL
Consulting Engineers
File No. 918 03

CONSTRUCTION PROJECT NO.

DRAWING NO. 18577

DESIGNED BY
DETAILED BY TB
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CHECKED BY DATE
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REVISED DATE
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REVISED DATE

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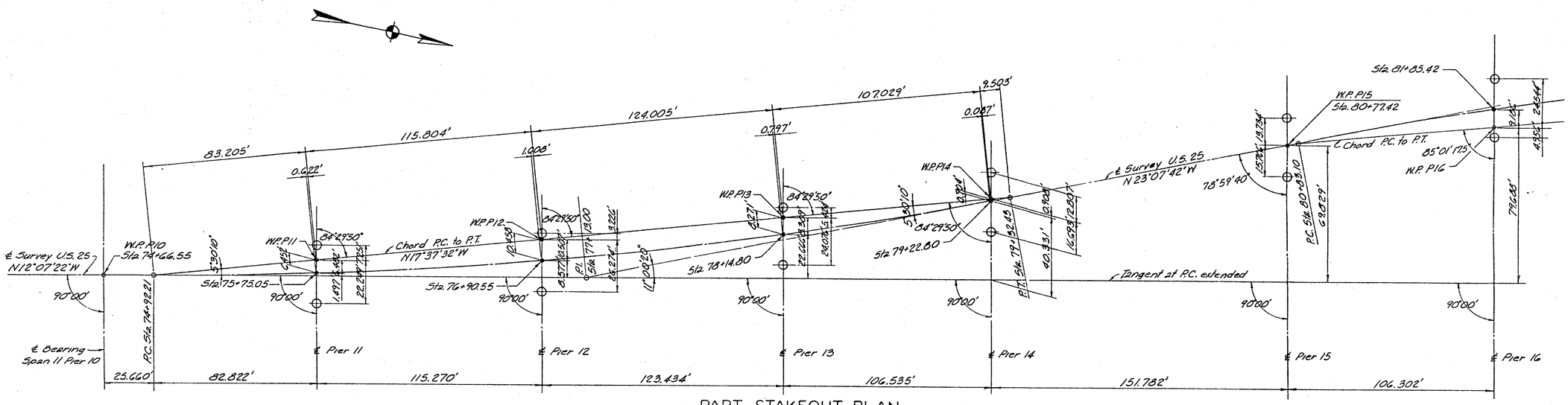
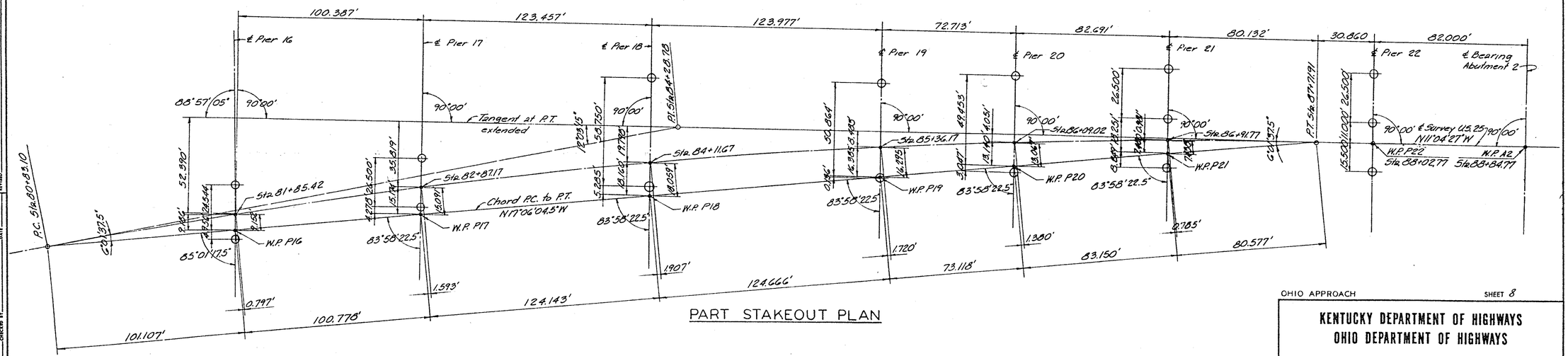


PART STAKEOUT PLAN



PART STAKEOUT PLAN

STAKEOUT

OHIO APPROACH SHEET 8

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

BRIDGE OVER OHIO RIVER ON U.S. 25

KENTON COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

STATION 81+76 P.E. PROJECT NO. F 141 (1)

HAZELET & ERDAL Consulting Engineers File No. 918-03	CONSTRUCTION PROJECT NO.	DRAWING NO. 18577

DESIGNED BY LMM DATE
DETAILED BY LMM CHECKED BY BCH/EDB DATE 8-'71
TRACED BY CHECKED BY DATE
REVISED REVISED REVISED

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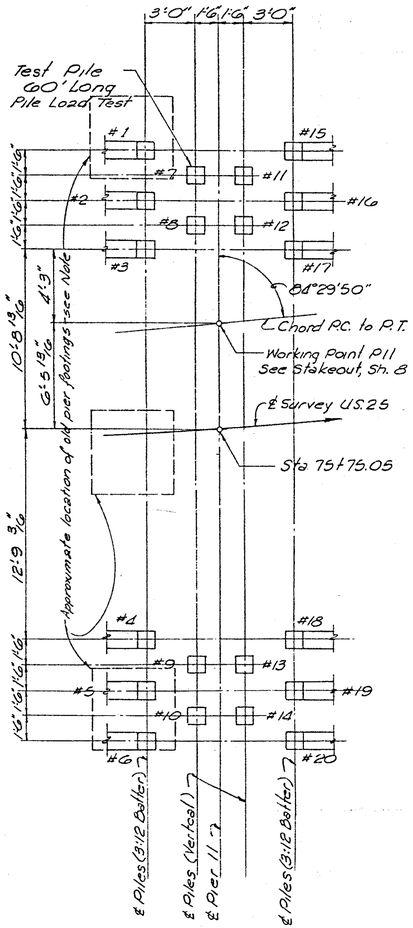
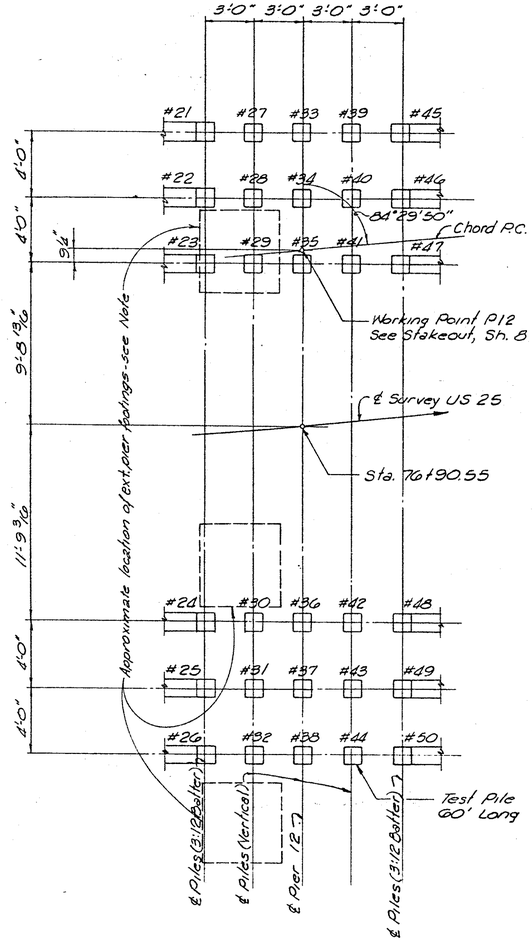
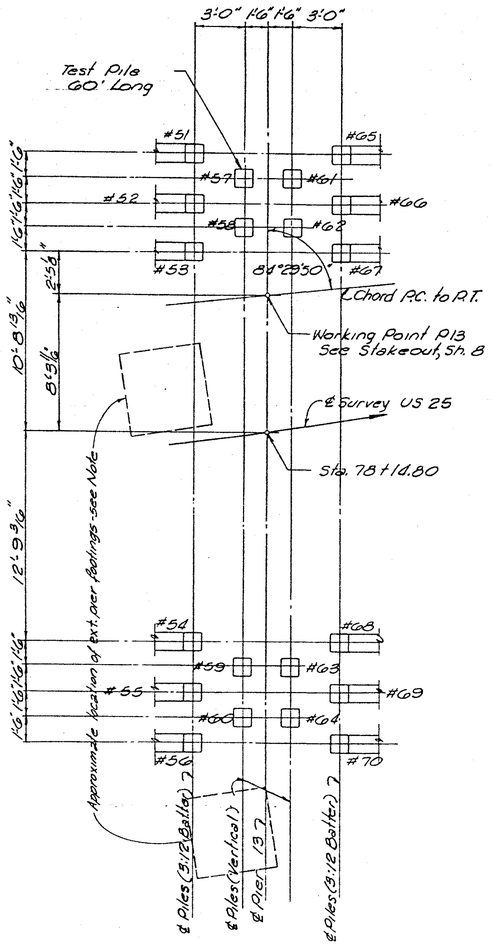


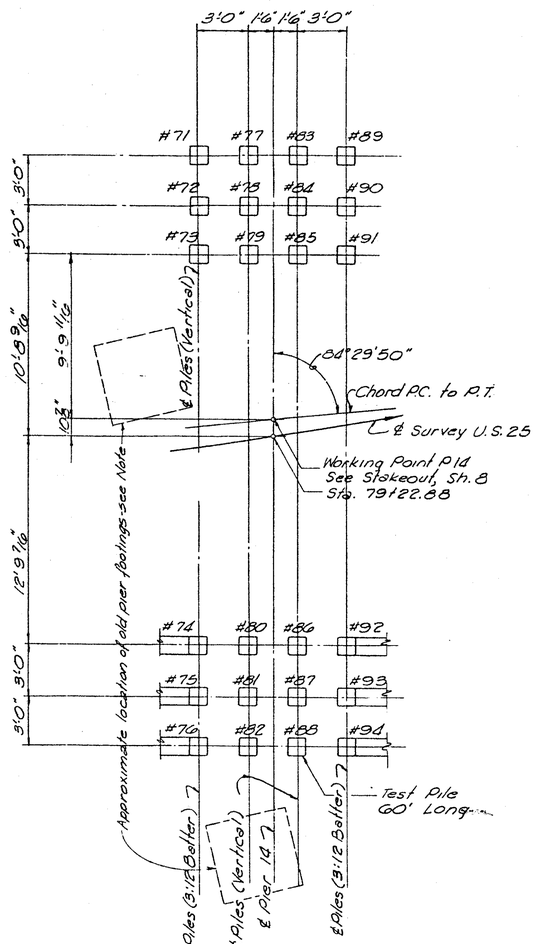
PIER 11



PIER 12



PIER 13



PIER 14

NOTE-
Where new construction will interfere with existing footings of the bridge being replaced, which is evident at Piers 11, 12, 20 and 22 and at Abut. 2, and possible at Piers 13-16, the old bridge footings will be removed as required. This work, which is not covered by the lump sum payment for Removal of Existing Structures (i.e. it is greater than one foot below existing ground), will be paid for at the unit price bid per Cu. Yd. for Solid Rock Excavation. Where existing piling will interfere with driving the piles shown, it shall be removed. See Special Notes.

PILE RECORD

DESIGNED BY _____ CHECKED BY _____ DATE _____ REVISED _____
DETAILED BY DRB CHECKED BY BEC DATE 8-71 REVISED _____
TRACED BY _____ CHECKED BY _____ DATE _____ REVISED _____

OHIO APPROACH SHEET 9

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

BRIDGE OVER OHIO RIVER ON U.S. 25
KENTON COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

STATION 81+76 P.E. PROJECT NO. F 141 (1)

HAZELET & ERDAL Consulting Engineers File No. 918-03	CONSTRUCTION PROJECT NO.	DRAWING NO. 18577

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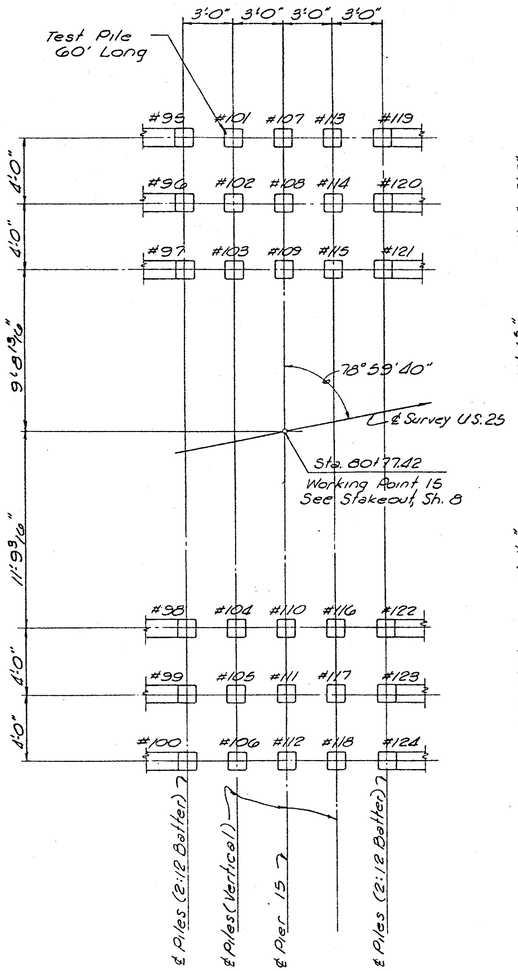
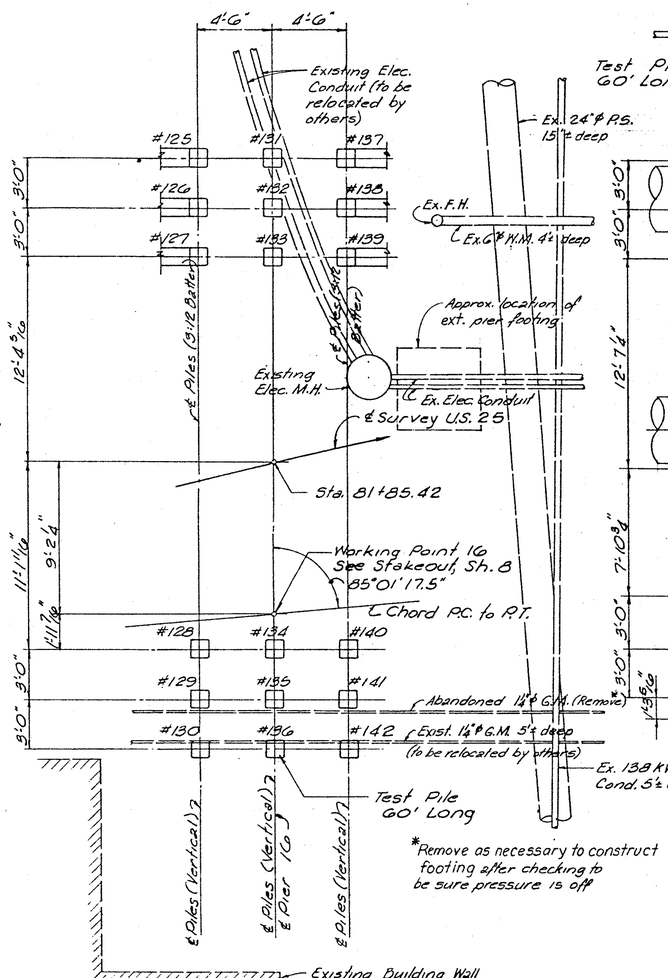
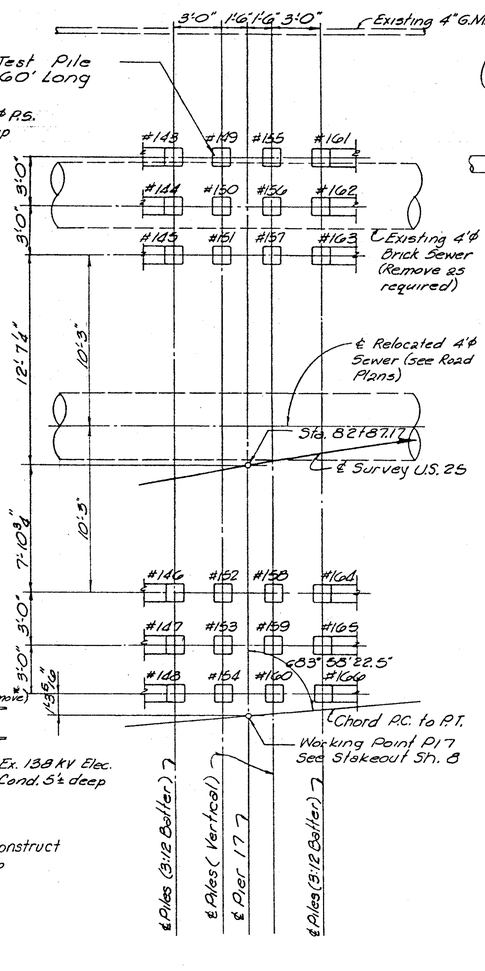


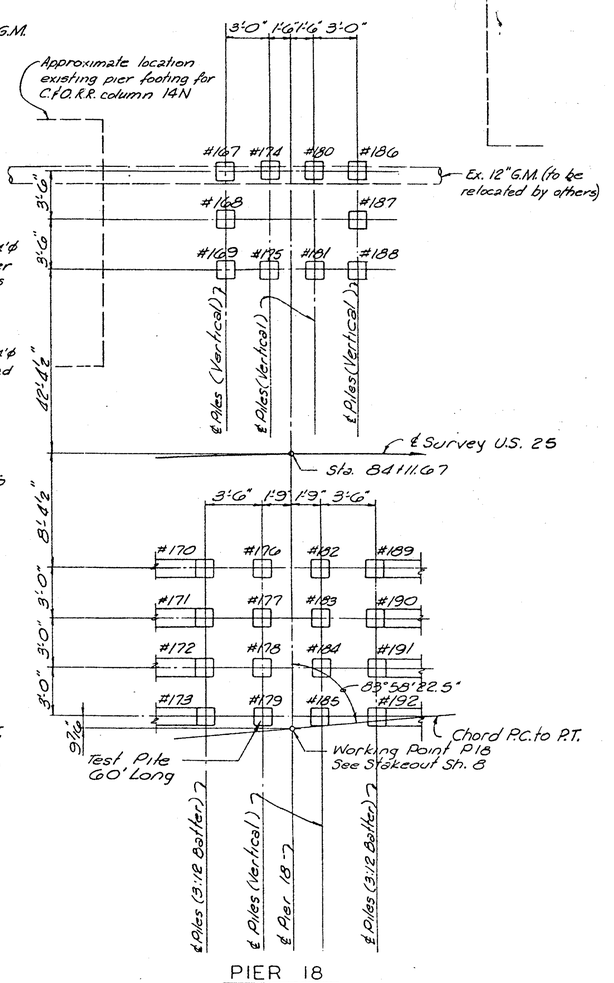
PIER 15



PIER 16



PIER 17



PIER 18

Note-
See General Notes, Sheet 2 for required protection of existing utilities.

PILE RECORD

DESIGNED BY ORB CHECKED BY DATE 8-71 REVISED
DETAILED BY BEC CHECKED BY DATE REVISED
TRACED BY CHECKED BY DATE REVISED

OHIO APPROACH SHEET 10

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

BRIDGE OVER OHIO RIVER ON U.S. 25

KENTON COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

STATION 81+76 P.E. PROJECT NO. F141 (1)

HAZELET & ERDAL
Consulting Engineers
File No. 918-03

CONSTRUCTION PROJECT NO.

DRAWING NO. 18577

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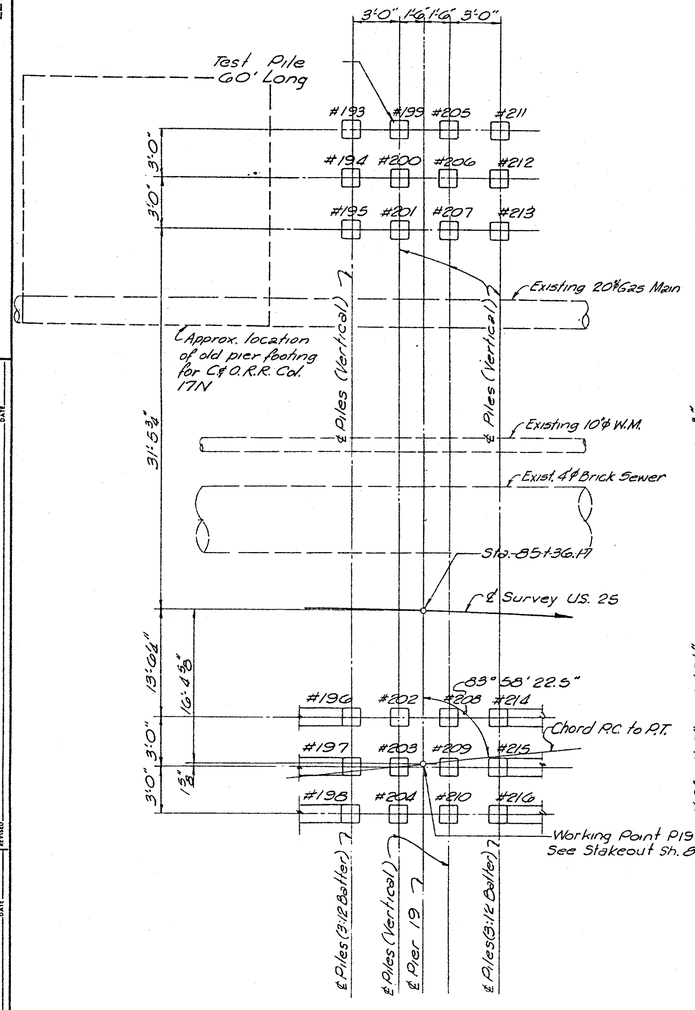

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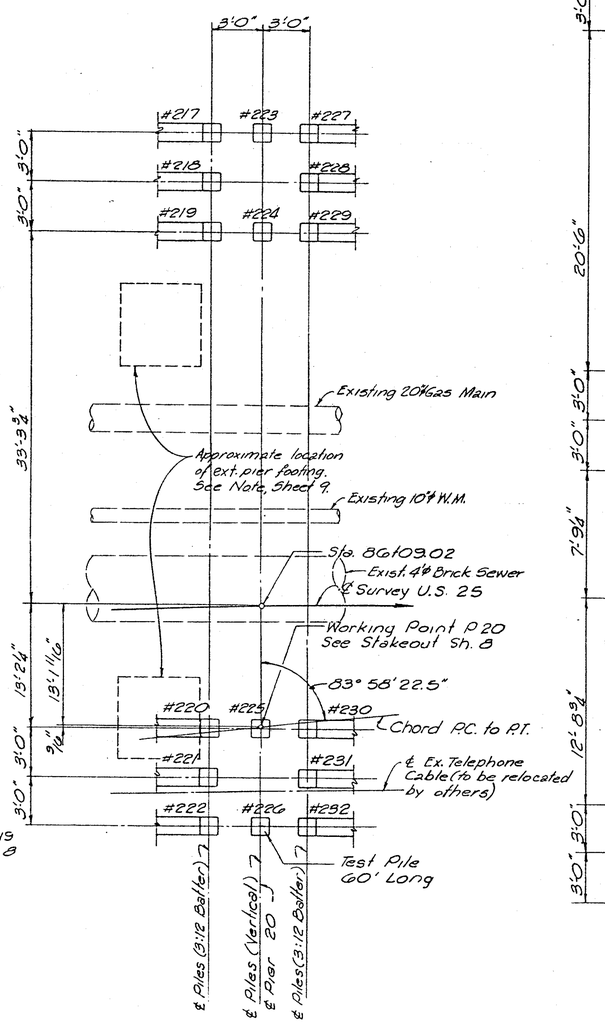

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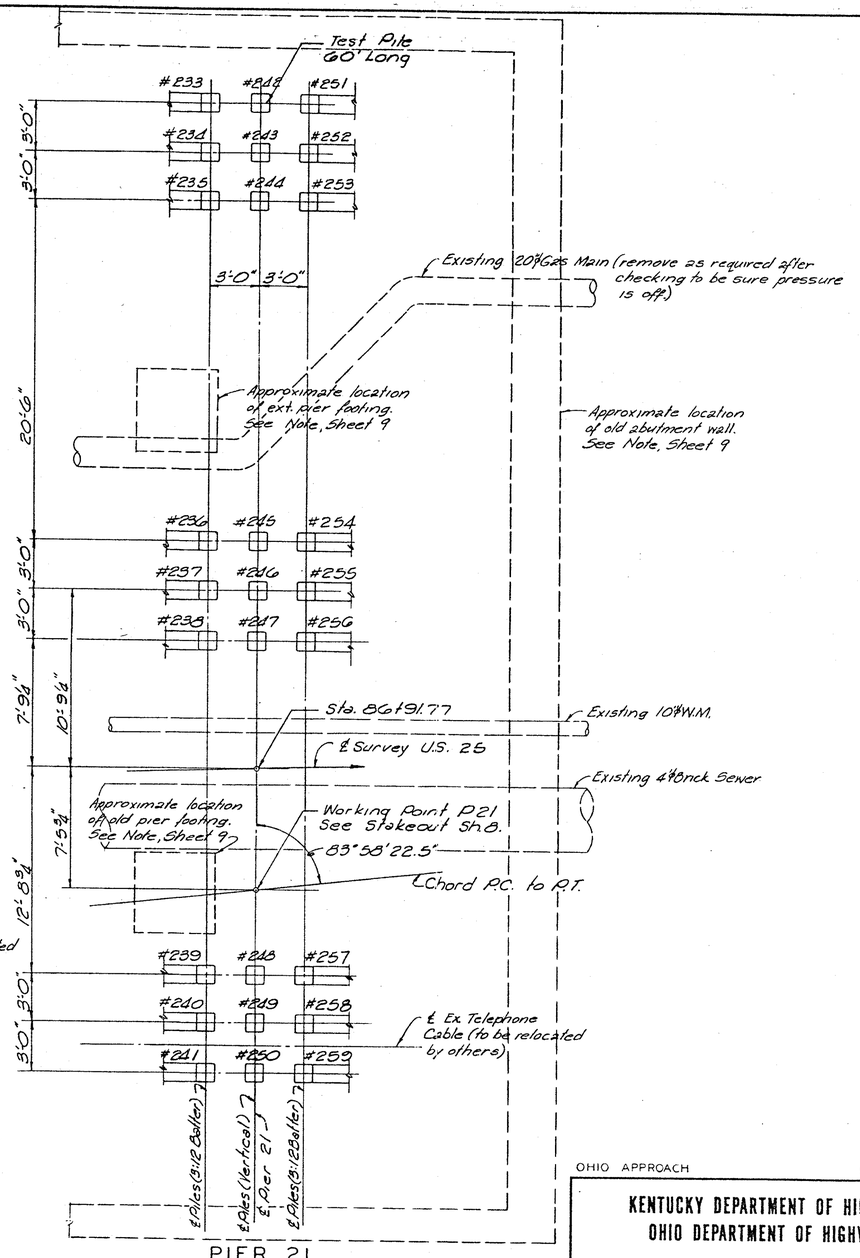

PIER 21

PILE RECORD

DESIGNED BY ORB DATE
DETAILED BY DATE
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CHECKED BY DATE
REVISED DATE
REVISED DATE
REVISED DATE

OHIO APPROACH SHEET //

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

BRIDGE OVER OHIO RIVER ON U.S. 25

KENTON COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

STATION 81+76 P.E. PROJECT NO. F 141 (1)

HAZELET & ERDAL Consulting Engineers File No. 918-03

CONSTRUCTION PROJECT NO.

DRAWING NO. **18577**

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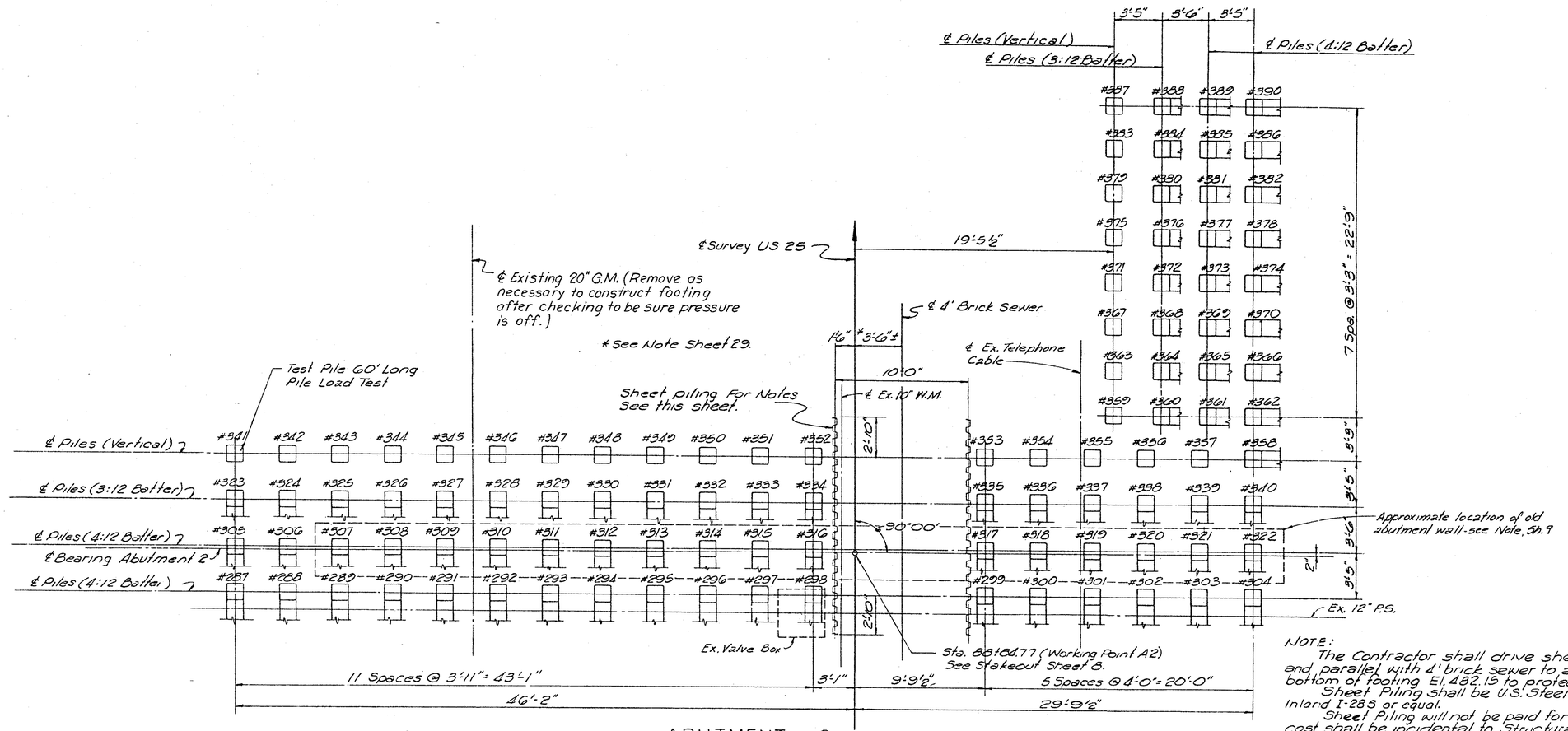
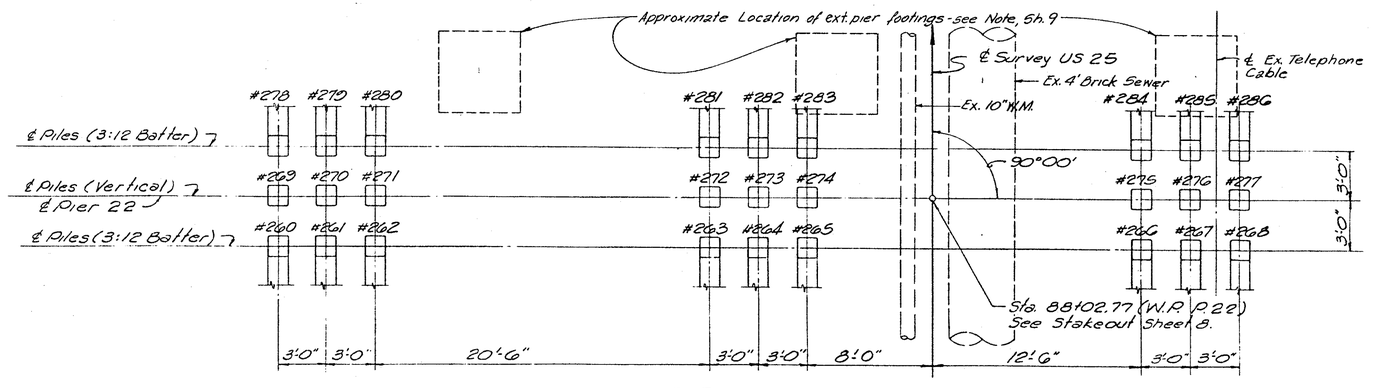


ABUTMENT 2

NOTE:
The Contractor shall drive sheet piling each side and parallel with 4' brick sewer to a depth of 10 feet below bottom of footing El. 482.15 to protect the 4' brick sewer.
Sheet Piling shall be U.S. Steel MP101, Bethlehem SP28, Inland I-28S or equal.
Sheet Piling will not be paid for separately, but the cost shall be incidental to Structural Excavation, common.
See General Notes - Sheet 2, regarding required protection of utilities.



PIER 22

PILE RECORD

DESIGNED BY
DETAILED BY DJB
TRACED BY
CHECKED BY BEC
CHECKED BY
CHECKED BY
DATE 8-71
REVISED
REVISED

OHIO APPROACH SHEET 12

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

BRIDGE OVER OHIO RIVER ON U.S. 25
KENTON COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

STATION 81+76 P.E. PROJECT NO. F141 (1)

HAZELET & ERDAL Consulting Engineers File No. 918 03	CONSTRUCTION PROJECT NO.	DRAWING NO. 18577

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PILE RECORD

Location	Pile No.	Cutoff Elev. Shown	Tip of Pile Elevation as Driven	Pile Length in Place (Lin. Feet)	Calculated Bearing Capacity (Tons)
Pier 11	1	483.75			
"	2	"			
"	3	"			
"	4	"			
"	5	"			
"	6	"			
"	7	"			
"	8	"			
"	9	"			
"	10	"			
"	11	"			
"	12	"			
"	13	"			
"	14	"			
"	15	"			
"	16	"			
"	17	"			
"	18	"			
"	19	"			
"	20	483.75			
Pier 12	21	480.61			
"	22	"			
"	23	"			
"	24	"			
"	25	"			
"	26	"			
"	27	"			
"	28	"			
"	29	"			
"	30	"			
"	31	"			
"	32	"			
"	33	"			
"	34	"			
"	35	"			
"	36	"			
"	37	"			
"	38	"			
"	39	"			
"	40	"			
"	41	"			
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"	44	"			
"	45	"			
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"	49	"			
"	50	480.61			
Pier 13	51	481.76			
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"	65	481.76			
Pier 13	66	481.76			
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"	70	481.76			
Pier 14	71	483.20			
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"	90	"			
"	91	"			
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"	93	"			
"	94	483.20			
Pier 15	95	480.36			
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"	124	480.36			
Pier 16	125	479.53			
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Pier 16	131	479.53			
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"	137	"			
"	138	"			
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Pier 17	143	480.93			
"	144	"			
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"	160	"			
"	161	"			
"	162	"			
"	163	"			
"	164	"			
"	165	"			
"	166	480.93			
Pier 18	167	482.56			
"	168	"			
"	169	"			
"	170	482.44			
"	171	"			
"	172	"			
"	173	"			
"	174	482.56			
"	175	"			
"	176	482.44			
"	177	"			
"	178	"			
"	179	"			
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"	182	482.44			
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"	186	482.56			
"	187	"			
"	188	"			
"	189	482.44			
"	190	"			
"	191	"			
"	192	"			
Pier 19	193	483.21			
"	194	"			
"	195	"			

NOTE

After all piles have been driven, the Resident Engineer shall record for each pile, tip of pile as driven, the length of pile in place, and the calculated bearing capacity and shall return one blue print copy of this sheet with this data to the Director of the Division of Bridges so that the data may be recorded on the original plans. Lengths of piles in place shown hereon are the actual lengths of piles in the finished structure below cutoff elevation and are not necessarily pay items. This pile record does not replace other records of piles required to be kept and submitted by the Resident Engineer.

PILE RECORD

DRAWN BY ORB DATE
DETAILED BY DATE
TRACED BY DATE
CHECKED BY BEC DATE 8-71
CHECKED BY DATE
CHECKED BY DATE
REVISED
REVISED
REVISED

OHIO APPROACH SHEET 13

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

BRIDGE OVER OHIO RIVER ON U.S. 25

KENTON COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

STATION 81+76 P.E. PROJECT NO. F 141 (1)

HAZELET & ERDAL
Consulting Engineers
File No. 918-03

CONSTRUCTION PROJECT NO.

DRAWING NO. 18577

THIS IS A REDUCED SIZE PRINT — NOT TO SCALE

LETTING DATE

PILE RECORD

Location	Pile No.	Cutoff Elev. Shown	Tip of Pile Elevation as Driven	Pile Length in Place (Lin. Feet)	Calculated Bearing Capacity (Tons)
Pier 19	196	483.33			
"	197	"			
"	198	"			
"	199	483.21			
"	200	"			
"	201	"			
"	202	483.33			
"	203	"			
"	204	"			
"	205	483.21			
"	206	"			
"	207	"			
"	208	483.33			
"	209	"			
"	210	"			
"	211	483.21			
"	212	"			
"	213	"			
"	214	483.33			
"	215	"			
"	216	"			
Pier 20	217	484.32			
"	218	"			
"	219	"			
"	220	484.45			
"	221	"			
"	222	"			
"	223	484.32			
"	224	"			
"	225	484.45			
"	226	"			
"	227	484.32			
"	228	"			
"	229	"			
"	230	484.45			
"	231	"			
"	232	"			
Pier 21	233	479.67			
"	234	"			
"	235	"			
"	236	"			
"	237	"			
"	238	"			
"	239	"			
"	240	"			
"	241	"			
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"	253	"			
"	254	"			
"	255	"			
"	256	"			
"	257	"			
"	258	"			
"	259	479.67			
Pier 22	260	479.48			
"	261	479.48			
"	262	"			
"	263	"			
"	264	"			
"	265	"			
"	266	"			
"	267	"			
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"	280	"			
"	281	"			
"	282	"			
"	283	"			
"	284	"			
"	285	"			
"	286	479.48			
Abutment 2	287	478.82			
"	288	"			
"	289	"			
"	290	"			
"	291	"			
"	292	"			
"	293	"			
"	294	"			
"	295	"			
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"	319	"			
"	320	"			
"	321	"			
"	322	"			
"	323	"			
"	324	"			
"	325	"			
Abutment 2	326	478.82			
"	327	"			
"	328	"			
"	329	"			
"	330	"			
"	331	"			
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"	383	"			
"	384	"			
"	385	"			
"	386	"			
"	387	"			
"	388	"			
"	389	"			
"	390	478.82			

Location	Pile No.	Cutoff Elev. Shown	Tip of Pile Elevation as Driven	Pile Length in Place (Lin. Ft.)	Calculated Bearing Capacity (Tons)

For Notes See Sheet 13.

PILE RECORD

DRAWN BY DRB DATE
DETAILED BY BEC DATE 2-71
TRACED BY DATE
CHECKED BY DATE
CHECKED BY DATE
REVISED
REVISED
REVISED

OHIO APPROACH SHEET 14

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

BRIDGE OVER OHIO RIVER ON U.S. 25

KENTON COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

STATION 81+76 P.E. PROJECT NO. F 141 (1)

HAZELET & ERDAL
Consulting Engineers
File No. 918-03

CONSTRUCTION PROJECT NO.

DRAWING NO. 18577

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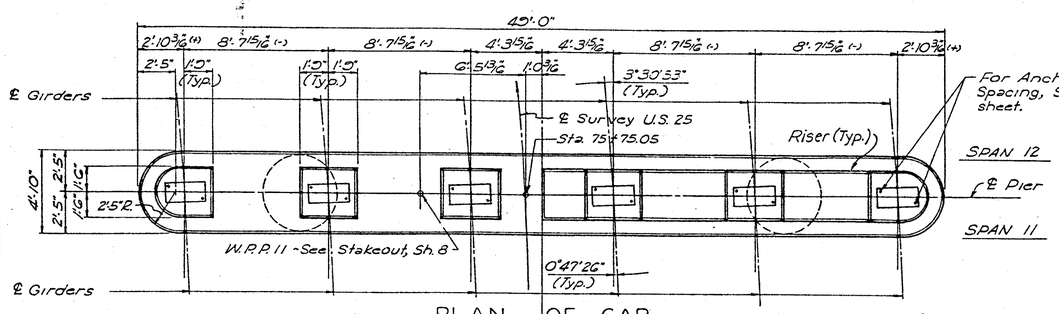
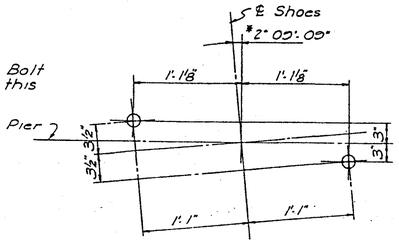
LETTING DATE



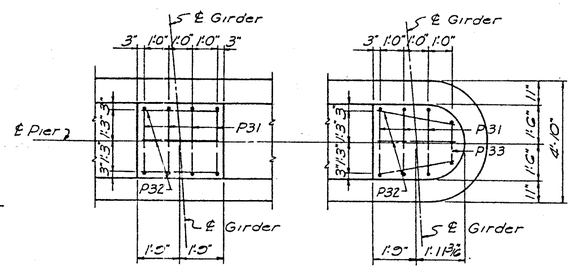
PLAN OF CAP



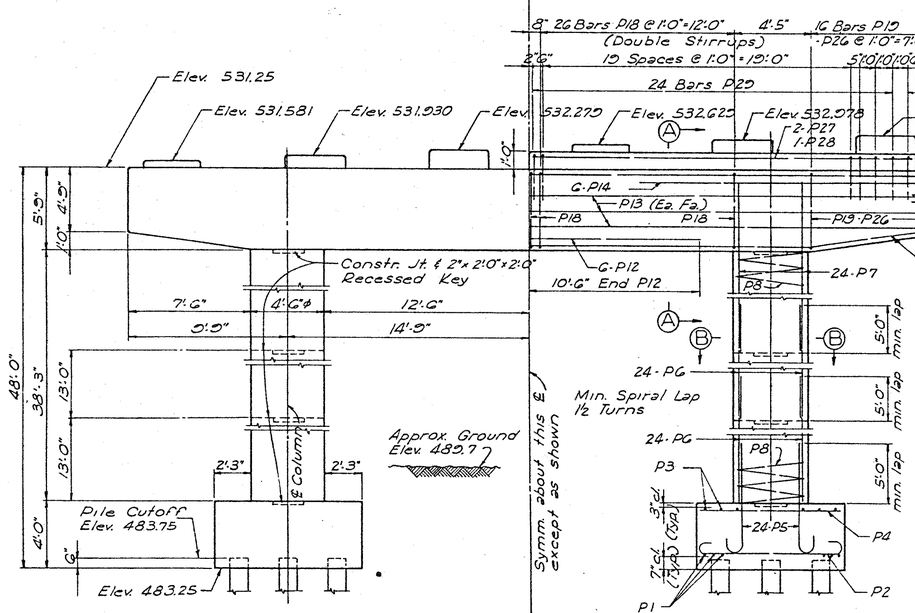
ANCHOR BOLT SPACING

* This angle is to be used for setting the shoe only.

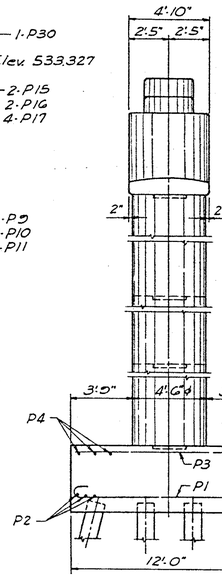
NOTE: Care to be used in placing bars in top of cap to provide clearance for Anchor Bolts. See Anchor Bolt Note, Sh. 2.



PAD DETAILS

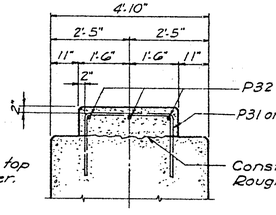


ELEVATION

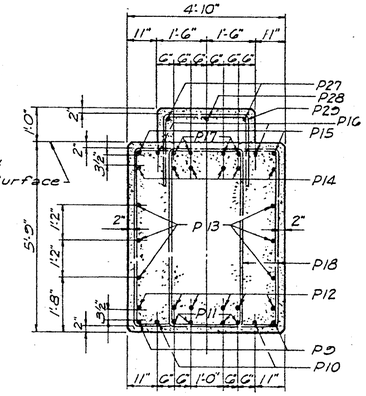


END ELEVATION

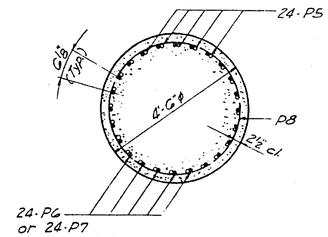
Note: Bend P31 & P33 in field @ top of pier for pads on riser.



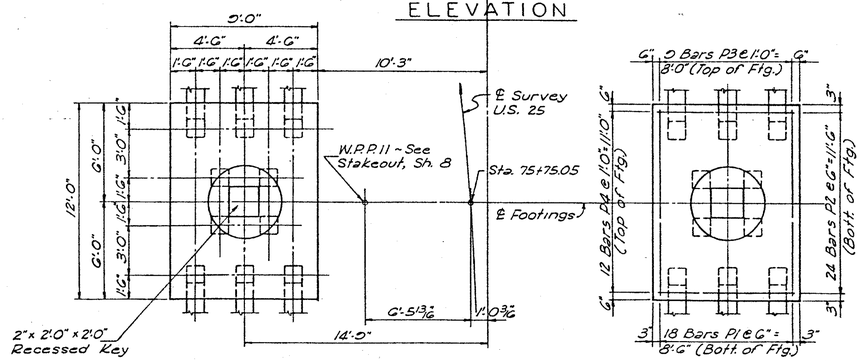
SECTION THRU PAD



SECTION A-A



SECTION B-B



PLAN OF FOOTINGS

ESTIMATE OF QUANTITIES

Concrete Class 'A'	120.5	Cu. Yds.
Reinforcement	22,317	Lbs.

DATE	REVISED	CHECKED BY
6-71		BEC
6-71		

DRAWN BY PCW

OHIO APPROACH SHEET 15

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

BRIDGE OVER OHIO RIVER ON U.S. 25
KENTON COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

STATION 81+76 P.E. PROJECT NO. F 141 (1)

HAZELET & ERDAL Consulting Engineers File No. 918-03

CONSTRUCTION PROJECT NO.

DRAWING NO. 18677

PIER 11

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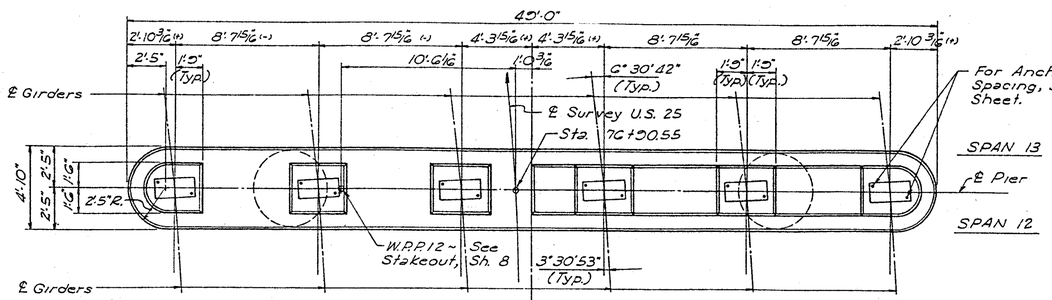
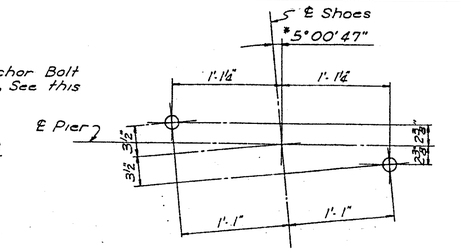


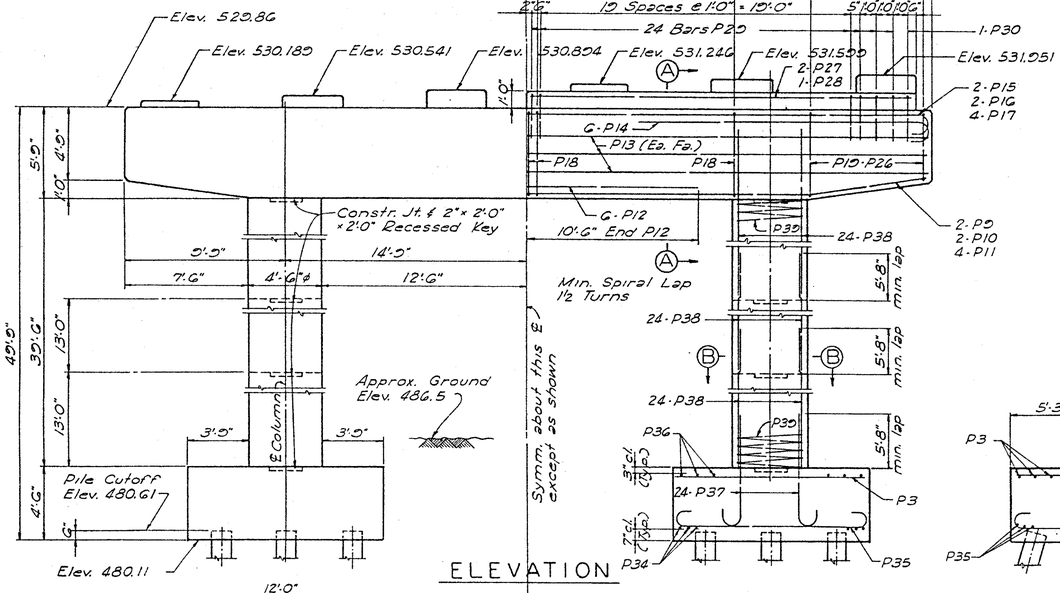
PLAN OF CAP



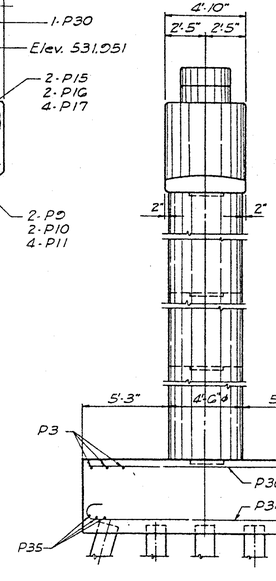
ANCHOR BOLT SPACING

*This angle is to be used in setting shoe only

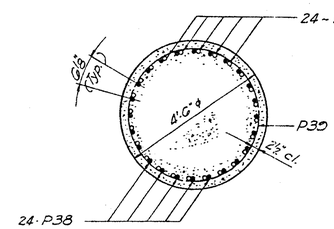
Note: Care to be used in placing bars in top of cap to provide clearance for Anchor Bolts. See Anchor Bolt Note, Sh. 2.



ELEVATION

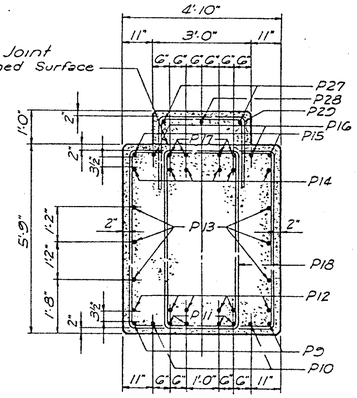


END ELEVATION

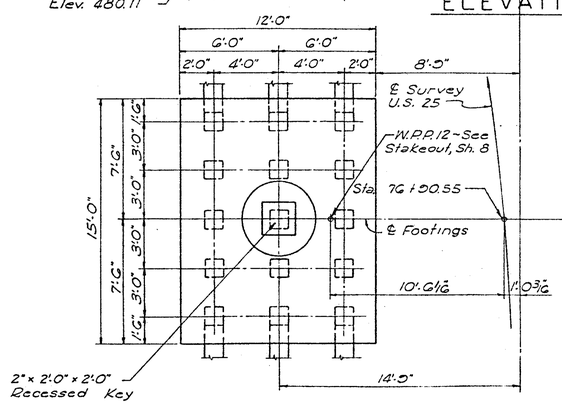


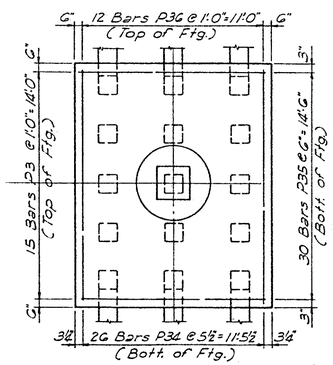
SECTION B-B

Note: For pad details & reinforcement, see sheet 15.



SECTION A-A





PLAN OF FOOTINGS

ESTIMATE OF QUANTITIES

Concrete Class "A"	158.7	Cu. Yds.
Reinforcement	30,213	Lbs.

DESIGNED BY PCW DATE G-71 REVISED
DETAILED BY FB DATE G-71 REVISED
CHECKED BY BEC DATE
TRACED BY DATE

OHIO APPROACH SHEET 16

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

BRIDGE OVER OHIO RIVER ON U.S. 25
KENTON COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

STATION 81+76 P.E. PROJECT NO. F 141 (1)

HAZELET & ERDAL Consulting Engineers File No. 918 03 | CONSTRUCTION PROJECT NO. | DRAWING NO. 18577

PIER 12

LETTING DATE

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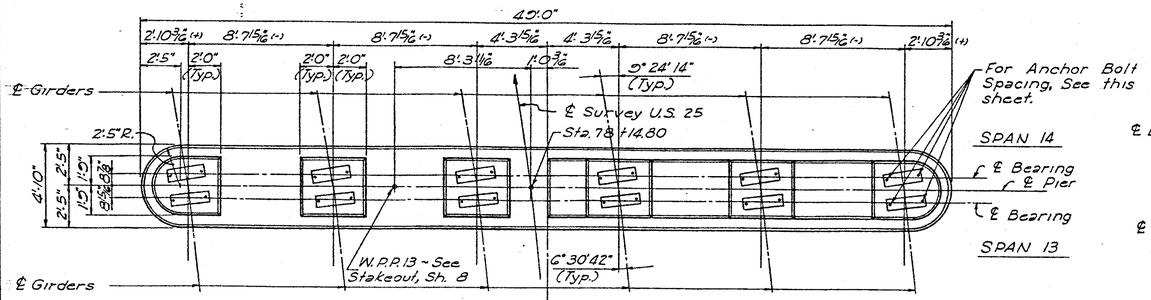
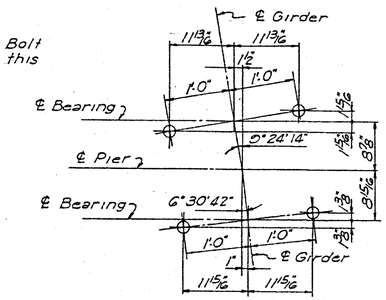
LETTING DATE

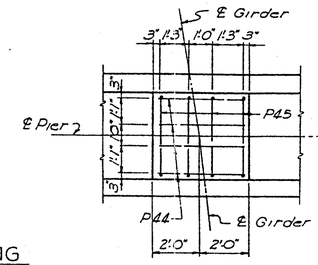


PLAN OF CAP

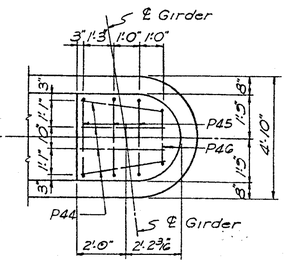


ANCHOR BOLT SPACING

Note: Care to be used in placing bars in top of cap to provide clearance for Anchor Bolts. See Anchor Bolt Note, Sh. 2.

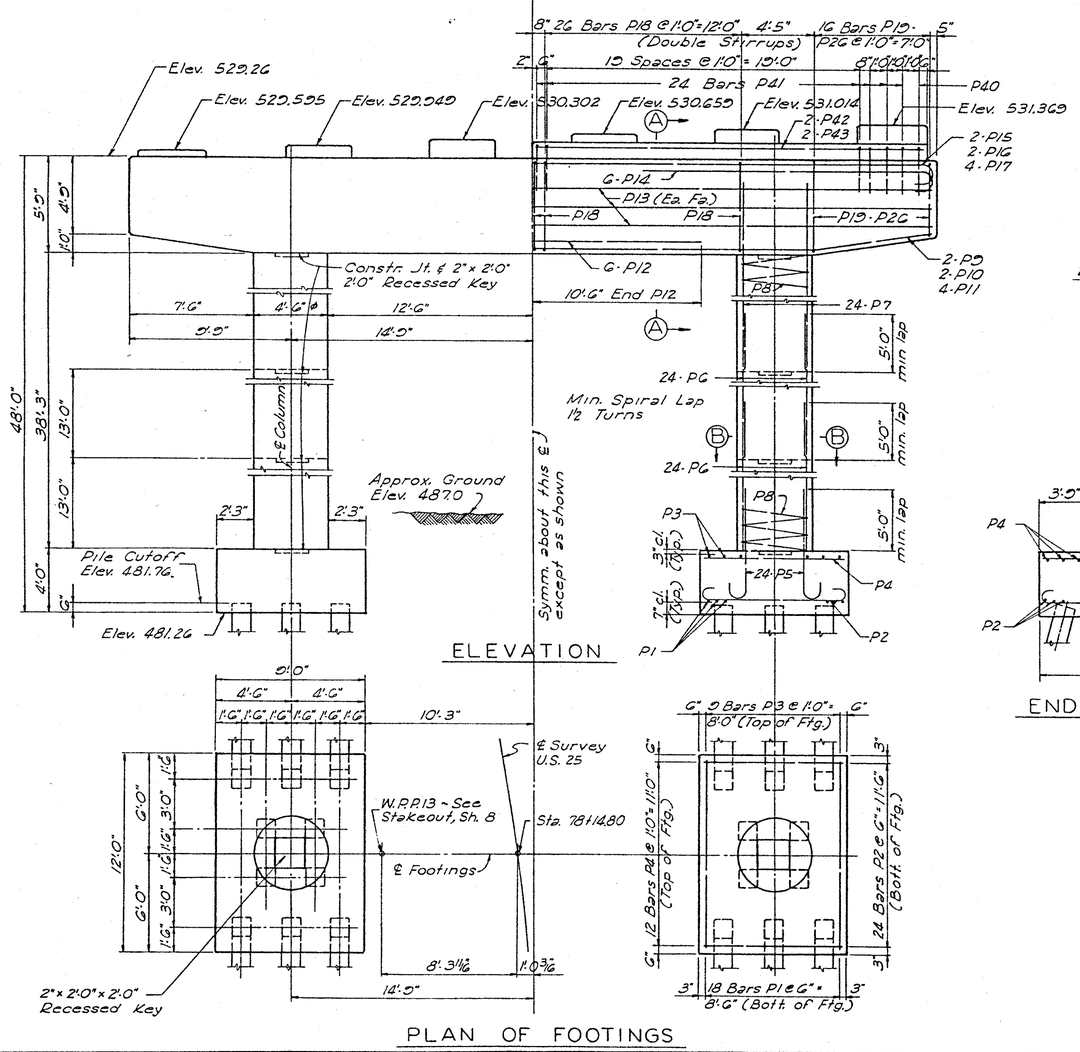


INTERIOR PAD

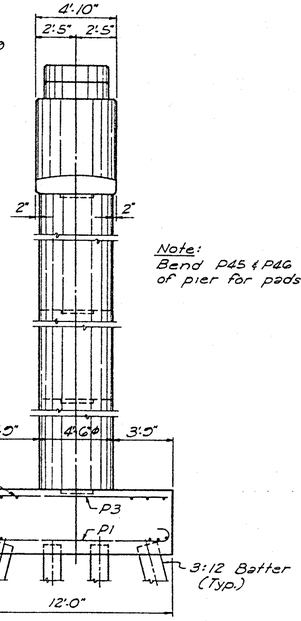


EXTERIOR PAD

PAD DETAILS

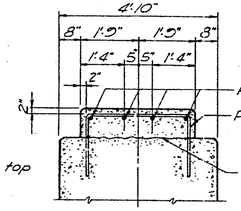


ELEVATION

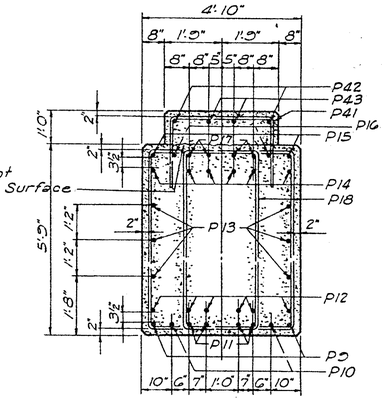


END ELEVATION

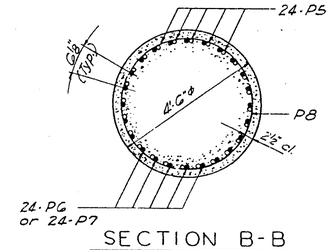
Note:
Bend P45 & P46 in field @ top of pier for pads on riser.



SECTION THRU PAD



SECTION A-A



SECTION B-B

PLAN OF FOOTINGS

ESTIMATE OF QUANTITIES

Concrete Class "A"	130.5	Cu. Yds.
Reinforcement	22,376	Lbs.

DESIGNED BY DCW DATE 6-71
DETAILED BY BEC DATE 6-71
TRACED BY TB DATE
CHECKED BY DATE
CHECKED BY DATE
REVISED
REVISED
REVISED

OHIO APPROACH SHEET 17

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

BRIDGE OVER OHIO RIVER ON U.S. 25
KENTON COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

STATION 81+76 P.E. PROJECT NO. F 141 (1)

HAZELET & ERDAL
Consulting Engineers
File No. 918-03

CONSTRUCTION PROJECT NO.

DRAWING NO. 18577

PIER 13

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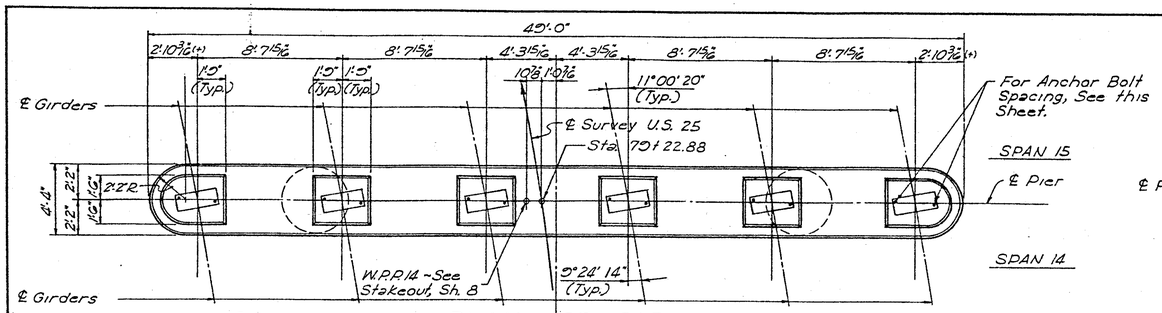
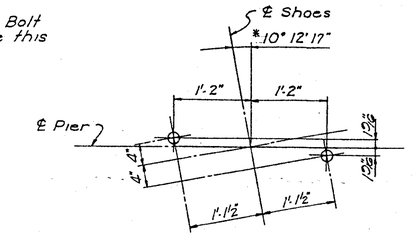


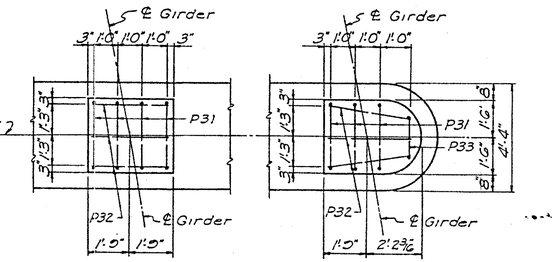
PLAN OF CAP



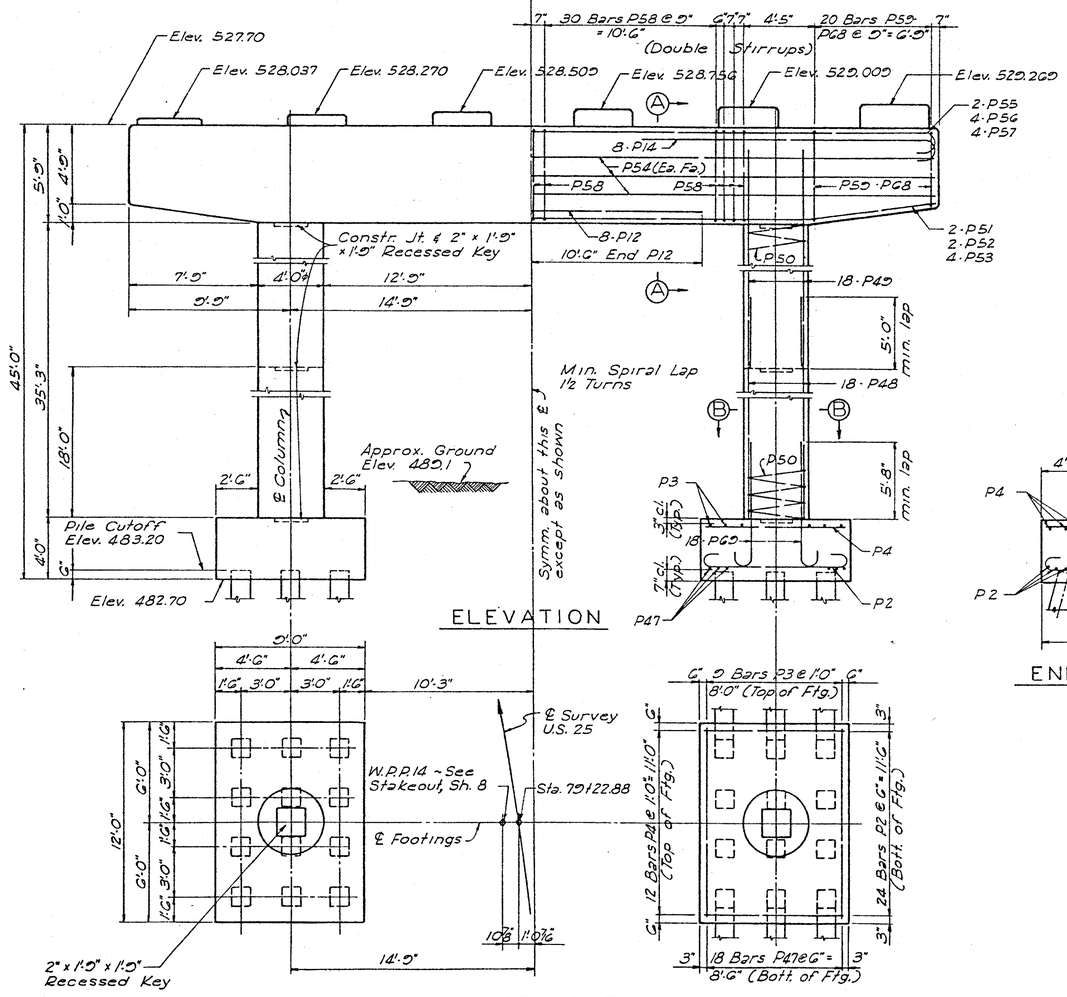
ANCHOR BOLT SPACING

* This angle is to be used for setting the shoe only.

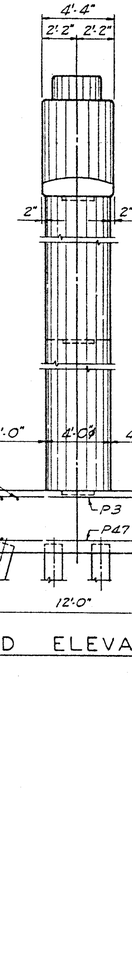
Note: Care to be used in placing bars in top of cap to provide clearance for Anchor Bolts. See Anchor Bolt Note, Sh. 2.

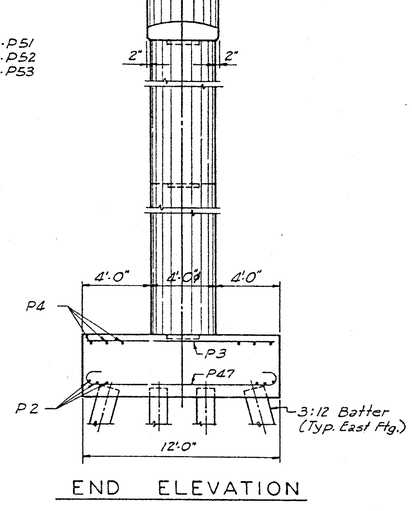


PAD DETAILS



ELEVATION





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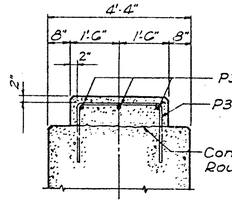
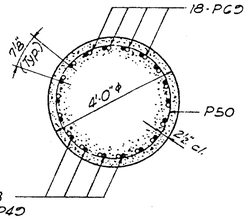
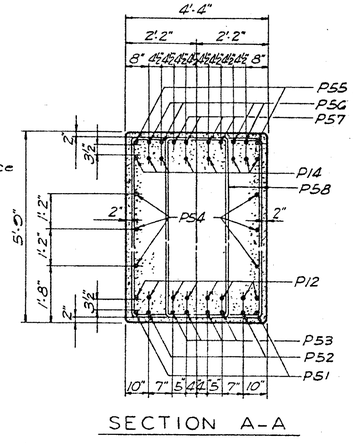


SECTION THRU PAD



SECTION B-B



SECTION A-A

PLAN OF FOOTINGS

ESTIMATE OF QUANTITIES

Concrete Class "A"	110.3	Cu. Yds.
Reinforcement	20,057	Lbs.

PIER 14

OHIO APPROACH SHEET 18

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

BRIDGE OVER OHIO RIVER ON U.S. 25
KENTON COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

STATION 81+76 P.E. PROJECT NO. F141 (1)

HAZELET & ERDAL Consulting Engineers File No. 918-03 | CONSTRUCTION PROJECT NO. | DRAWING NO. 18577

DESIGNED BY PCW DATE 6-71
DETAILED BY T.B. CHECKED BY B.E.C. DATE 6-71
TRACED BY CHECKED BY DATE
4/7/1120 4/7/1120 4/7/1120

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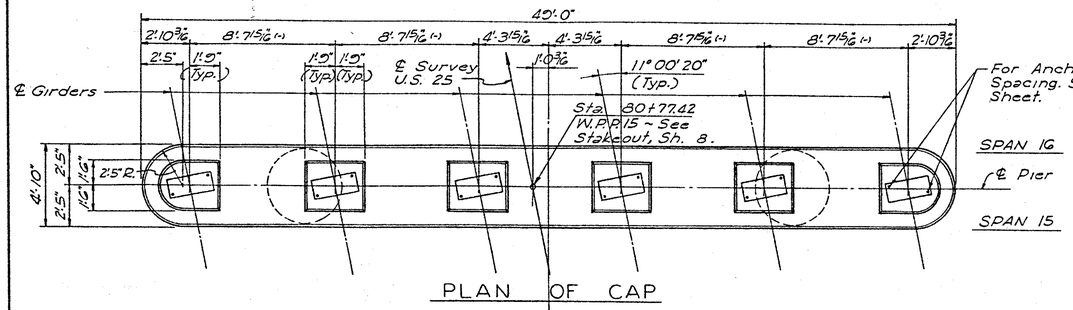
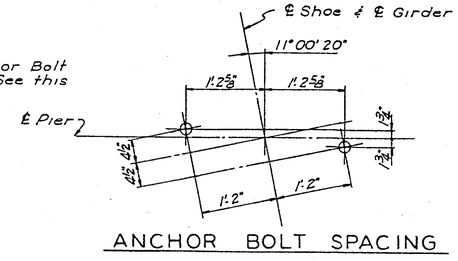
LETTING DATE

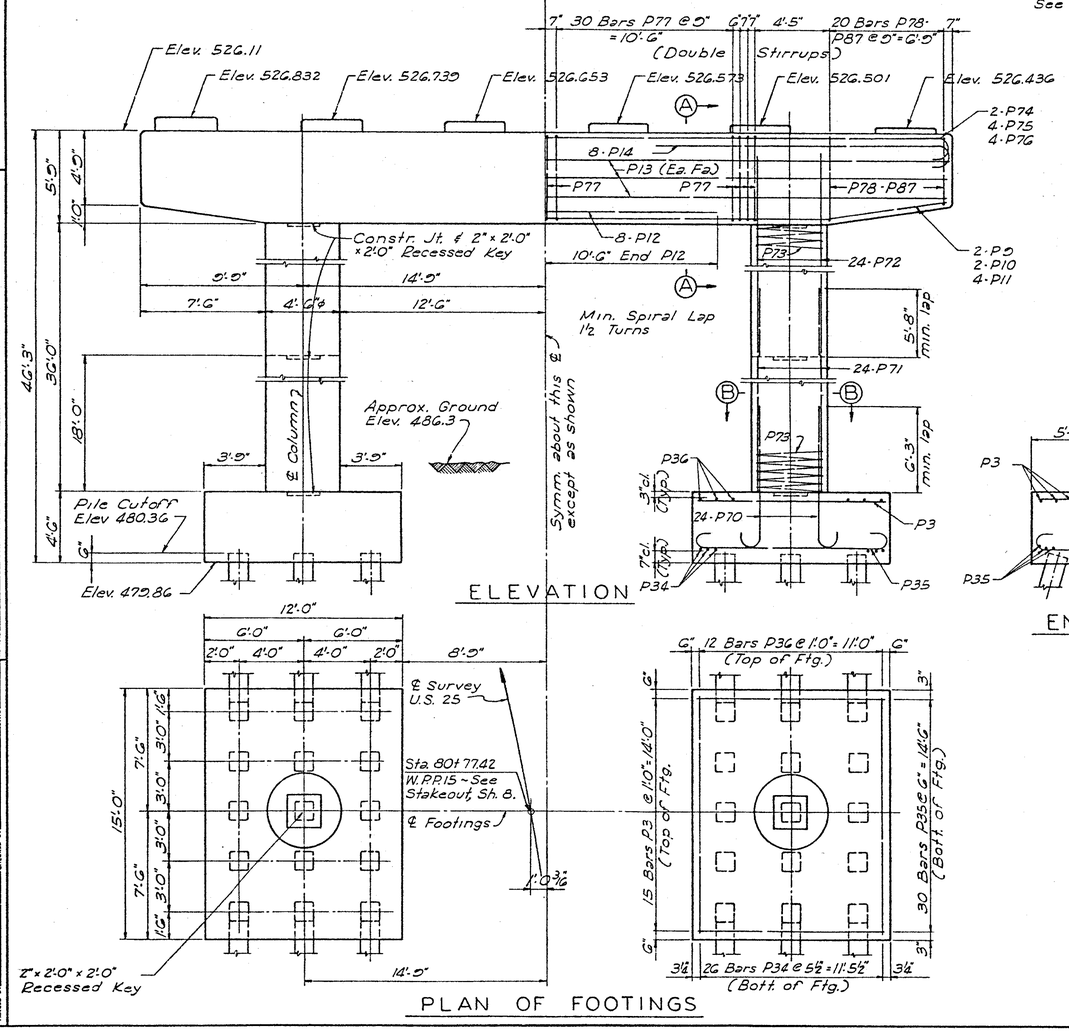


PLAN OF CAP



ANCHOR BOLT SPACING

Note: Care to be used in placing bars in top of cap to provide clearance for Anchor Bolts. See Anchor Bolt Note, Sh. 2.



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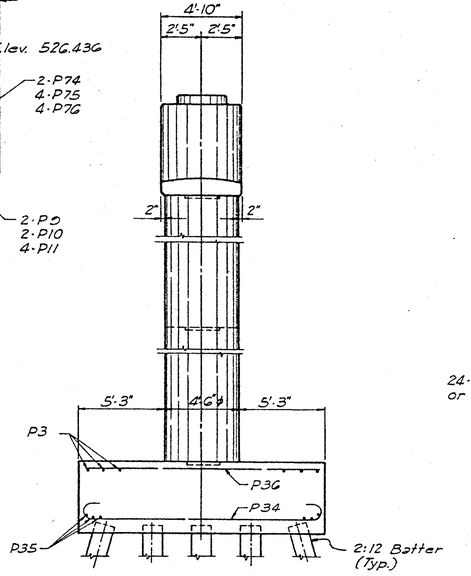
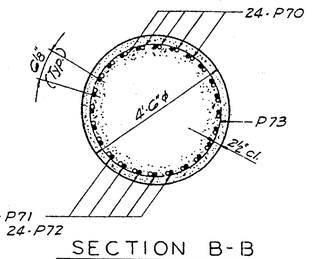
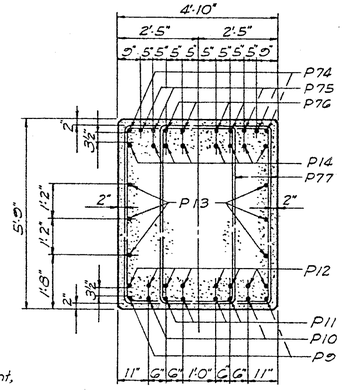


END ELEVATION



SECTION B-B

Note: For pad details & reinforcement, see sheet 15.



SECTION A-A

PLAN OF FOOTINGS

ESTIMATE OF QUANTITIES

Concrete Class "A"	151.8	Cu. Yds.
Reinforcement	31,350	Lbs.

PIER 15

OHIO APPROACH

SHEET 19

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

BRIDGE OVER OHIO RIVER ON U.S. 25

KENTON COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

STATION 81+76

P.E. PROJECT NO. F 141 (1)

HAZELET & ERDAL Consulting Engineers File No. 918-03

CONSTRUCTION PROJECT NO.

DRAWING NO. 18577

DESIGNED BY PCW DATE 6-71 REVISED
DETAILED BY FB DATE 6-71 REVISED
CHECKED BY BEC DATE REVISED
FILED BY CHECKED BY DATE REVISED

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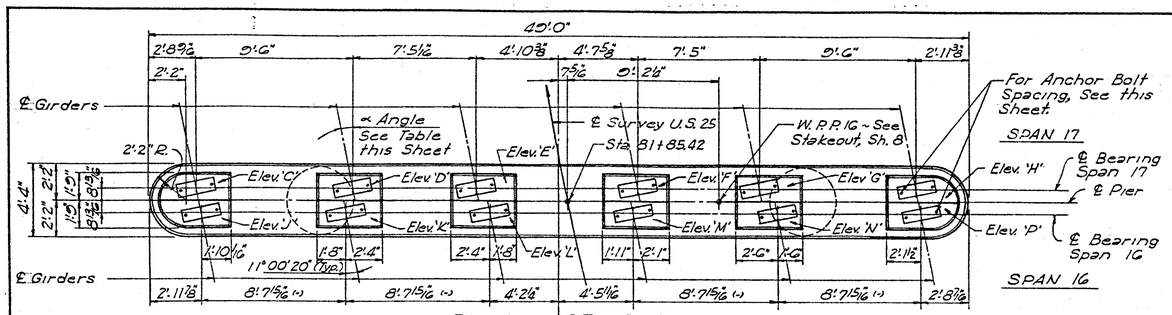
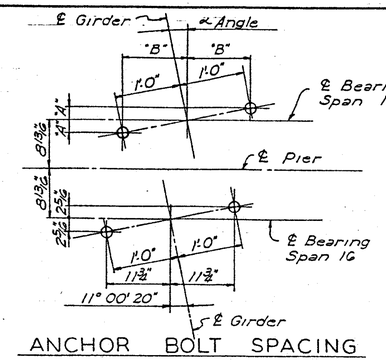
LETTING DATE

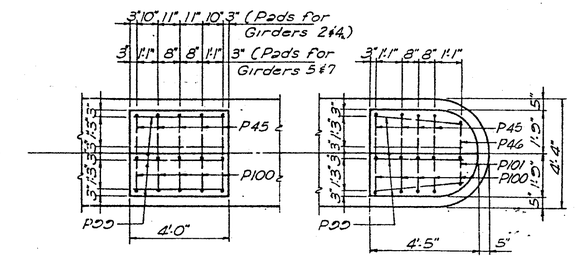


PLAN OF CAP



ANCHOR BOLT SPACING

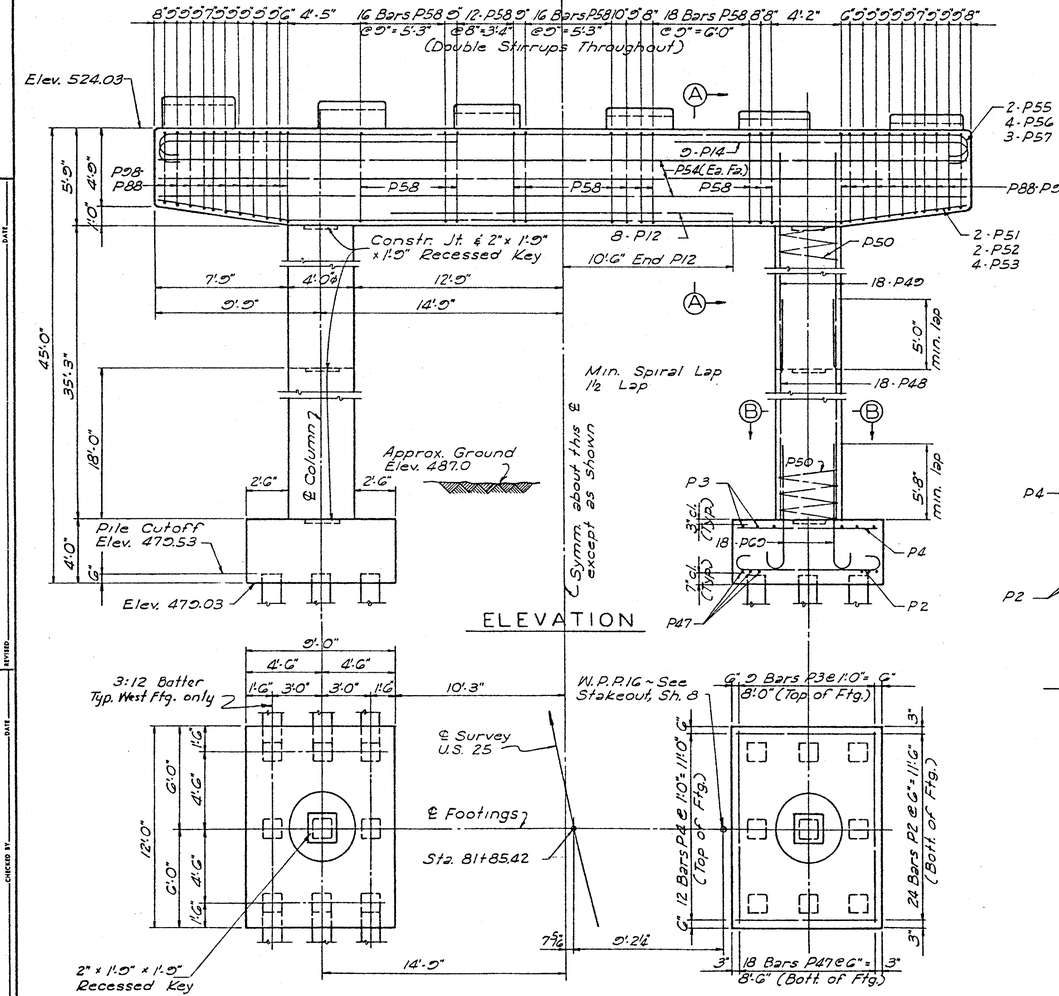
TABLE OF DIMENSIONS & ANGLES						
	Girder 1	Girder 2	Girder 4	Girder 5	Girder 7	Girder 8
∝ Angle	10°55'46"	11°00'56"	5°17'05"	5°18'05"	7°32'27"	7°33'17"
Dim. "A"	2 5/16	2 5/16	1 15/16	1 15/16	1 5/16	1 3/16
Dim. "B"	11 3/4"	11 3/4"	11 13/16"	11 13/16"	11 7/8"	11 7/8"



INTERIOR PAD EXTERIOR PAD

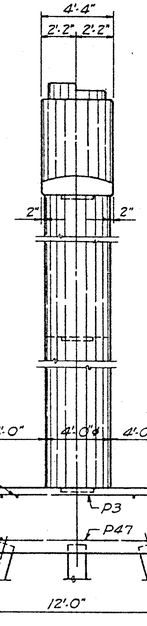
PAD DETAILS

Note: Care to be used in placing bars in top of cap to provide clearance for Anchor Bolts. See Anchor Bolt Note, Sh. 2.

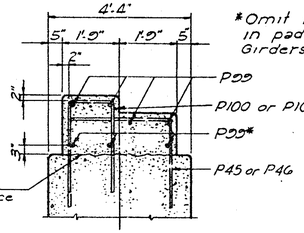


ELEVATION

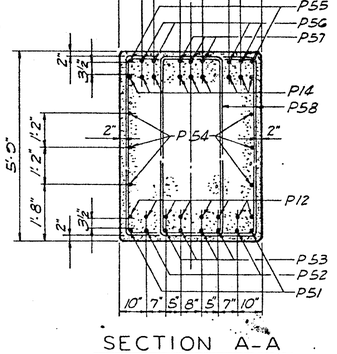
TABLE OF ELEVS.	
Elev. 'C'	525.443
Elev. 'D'	525.206
Elev. 'E'	525.021
Elev. 'F'	524.783
Elev. 'G'	524.598
Elev. 'H'	524.361
Elev. 'J'	525.576
Elev. 'K'	525.755
Elev. 'L'	525.542
Elev. 'M'	525.326
Elev. 'N'	525.110
Elev. 'P'	524.894



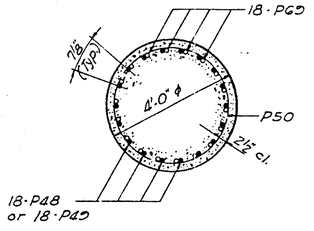
END ELEVATION



SECTION THRU PAD



SECTION A-A



SECTION B-B

PLAN OF FOOTINGS

ESTIMATE OF QUANTITIES

Concrete Class "A"	111.7	Cu. Yds.
Reinforcement	20,221	Lbs.

OHIO APPROACH SHEET 20

PIER 16

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

BRIDGE OVER OHIO RIVER ON U.S. 25

KENTON COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

STATION 81 + 76 P.E. PROJECT NO. F 141 (1)

HAZELET & ERDAL Consulting Engineers File No. 918-03

CONSTRUCTION PROJECT NO.

DRAWING NO. 18577

DESIGNED BY PCW DATE 6-71 REVISED DATE
CHECKED BY BEC DATE 6-71 REVISED DATE
DRAWN BY TB DATE REVISED DATE
TRACED BY DATE

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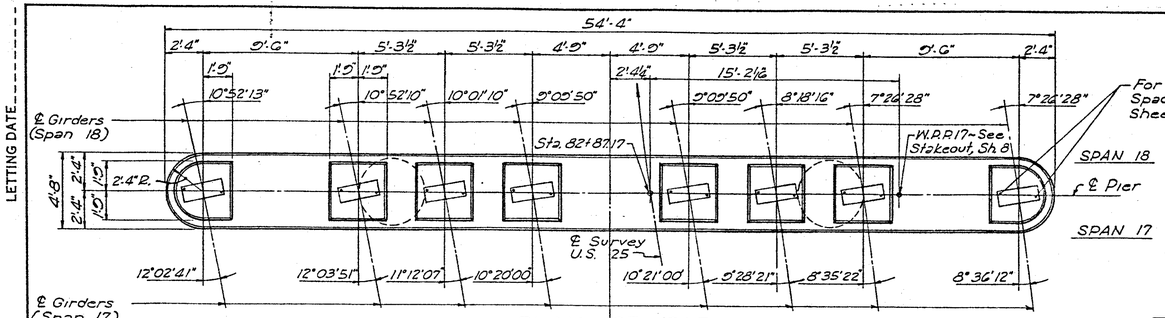
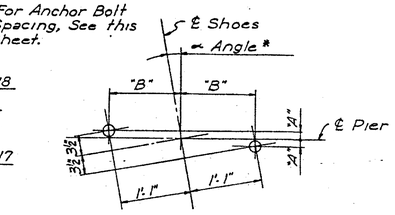


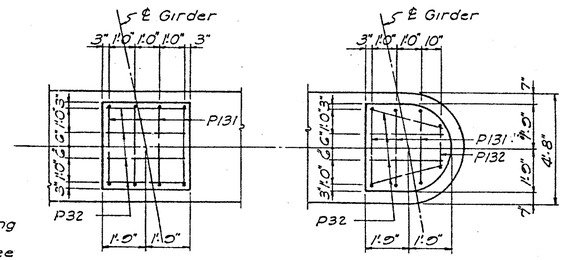
PLAN OF CAP



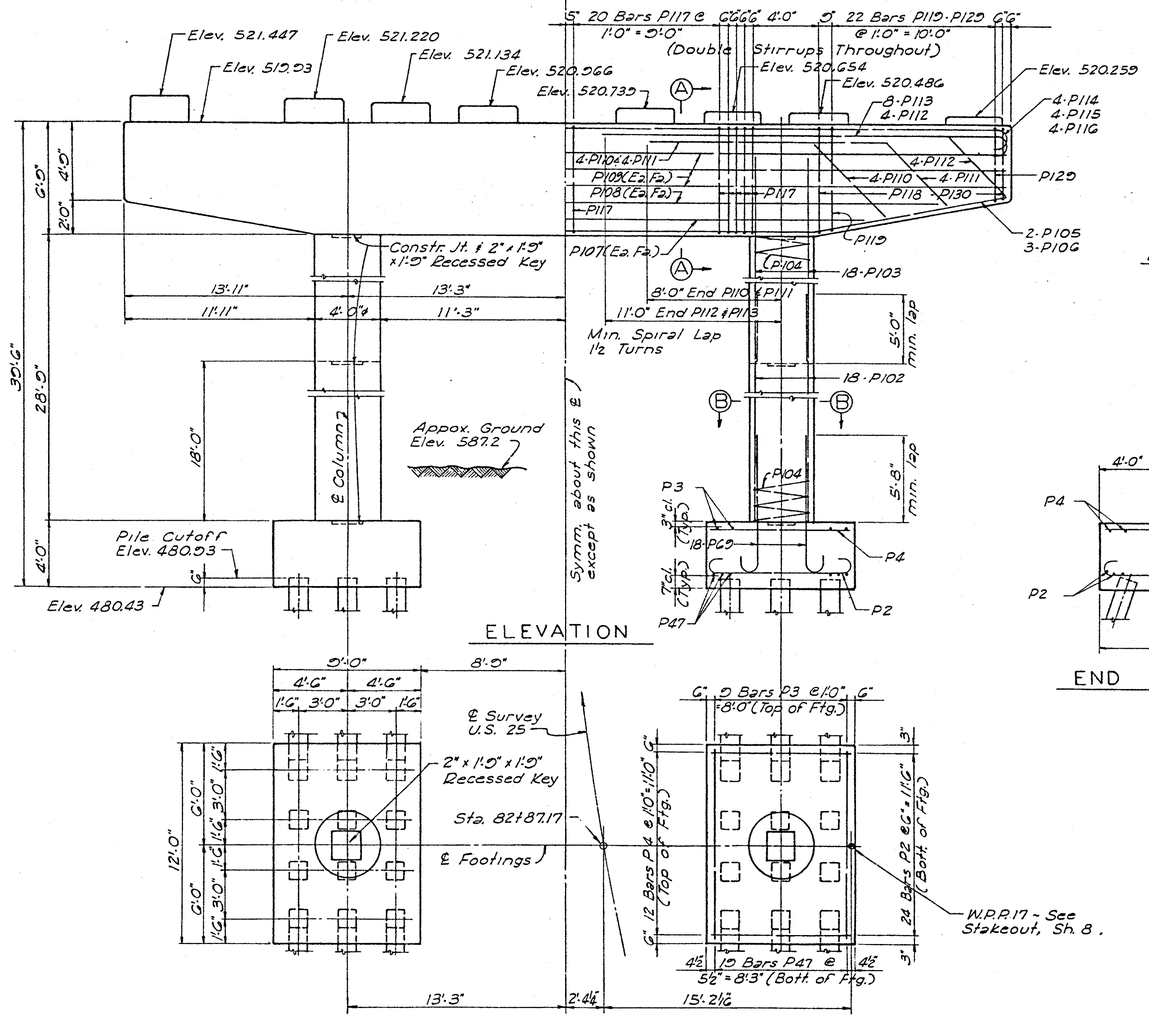
ANCHOR BOLT SPACING

* This angle is to be used for setting the shoe only.

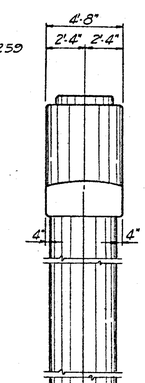
TABLE OF DIMENSIONS & ANGLES								
	Girder 1	Girder 2	Girder 3	Girder 4	Girder 5	Girder 6	Girder 7	Girder 8
Angle	11° 27' 27"	11° 28' 11"	10° 36' 35"	9° 44' 55"	9° 45' 25"	8° 53' 15"	8° 00' 55"	8° 01' 20"
Dim. "A"	1'-3"	1'-3"	1'-1½"	1'-1"	1'-1"	1'-1"	1'-1"	1'-1"
Dim. "B"	1'-1⅞"	1'-1⅞"	1'-1⅞"	1'-1⅜"	1'-1⅜"	1'-1⅜"	1'-1⅜"	1'-1⅜"



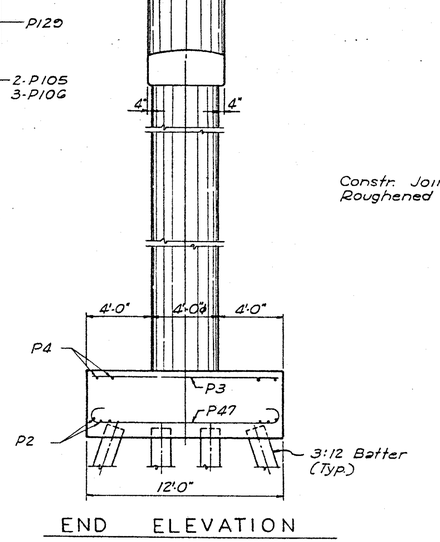
PAD DETAILS



ELEVATION



NOTE: Care to be used in placing bars in top of cap to provide clearance for Anchor Bolts. See Anchor Bolt Note, Sh. 2.



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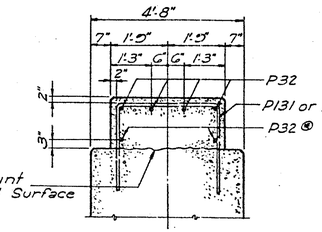
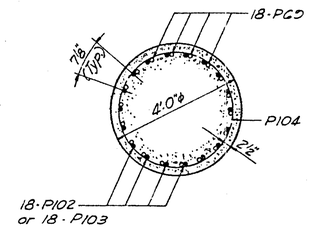
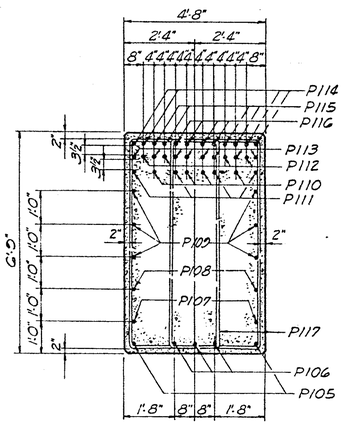


SECTION THRU PAD

⑧ Omit these bars in pads for girders 5-8.



SECTION B-B



SECTION A-A

PLAN ON FOOTINGS

ESTIMATE OF QUANTITIES

Concrete Class "A"	120.5	Cu. Yds.
Reinforcement	22,900	Lbs.

OHIO APPROACH SHEET 21

PIER 17

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

BRIDGE OVER OHIO RIVER ON U.S. 25
KENTON COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

STATION 81+76 P.E. PROJECT NO. F 141 (1)

HAZELET & ERDAL Consulting Engineers File No. 918-03

CONSTRUCTION PROJECT NO.

DRAWING NO. 18577

DESIGNED BY PCW DATE 6-71
DETAILED BY BEC CHECKED BY DATE 6-71
TRACED BY TB CHECKED BY DATE
REVISED DATE
REVISED DATE
REVISED DATE

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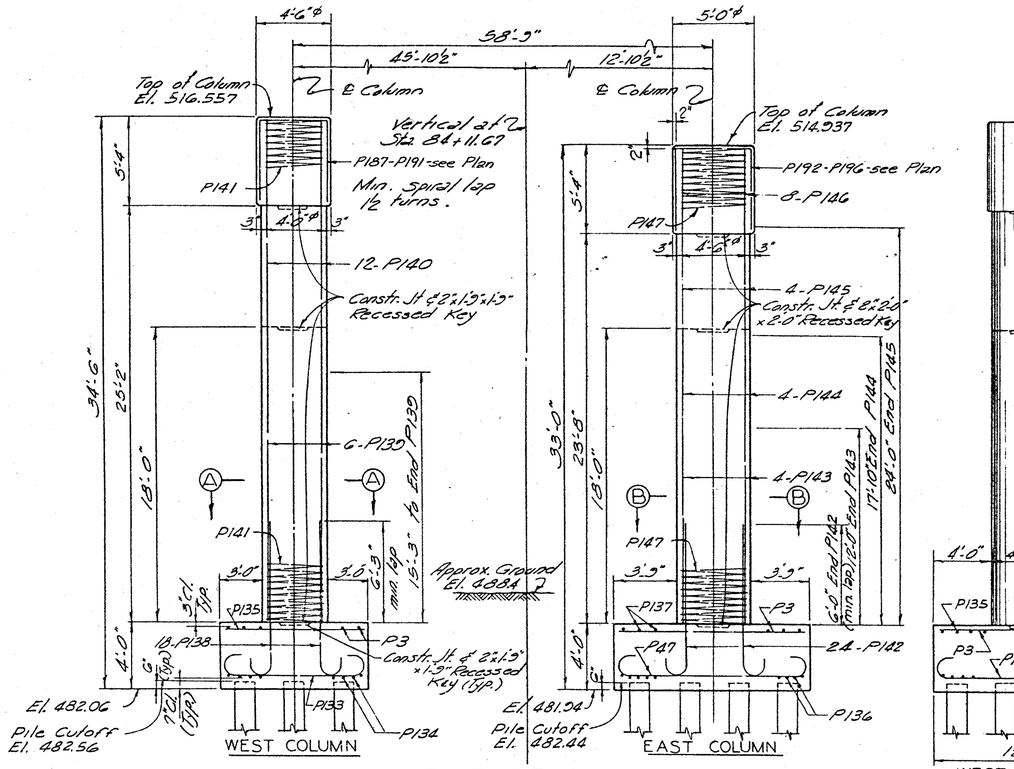

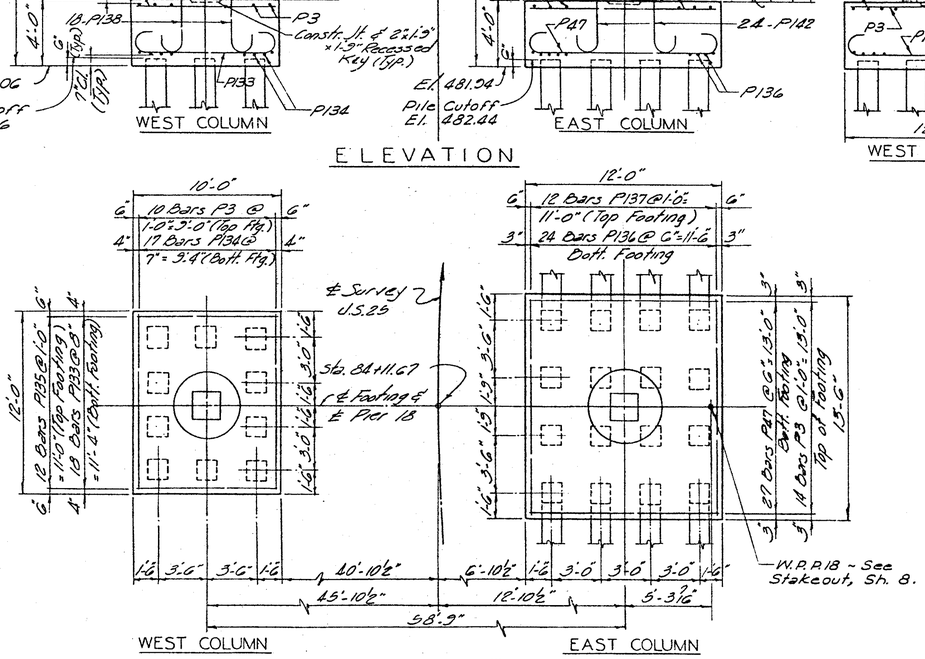

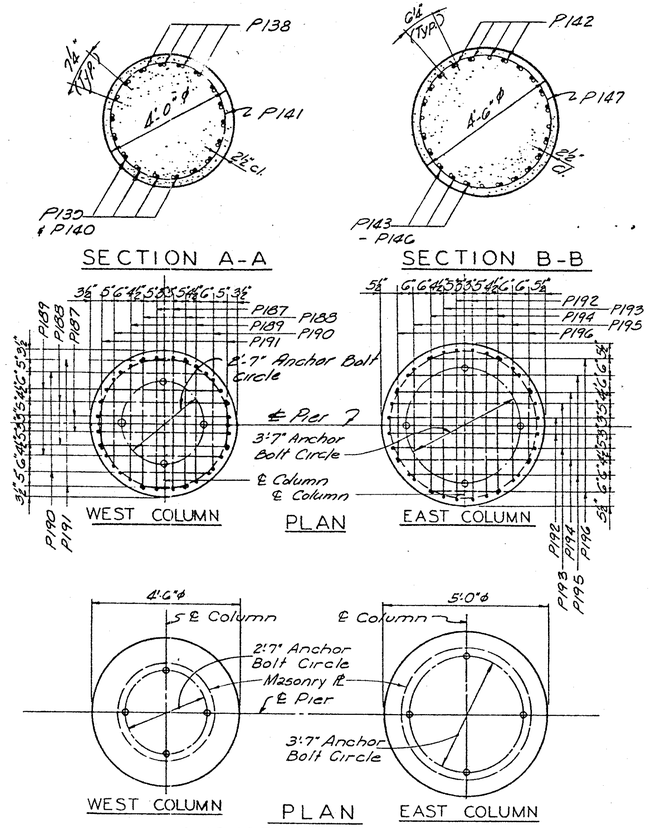

Note: Anchor Bolt Holes to be drilled before Superstructure is in place.

ESTIMATE OF QUANTITIES

Concrete, Class 'A'	74.5	Cu Yds
Reinforcement	13,510	Lbs.

PIER 18

OHIO APPROACH SHEET 22

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

BRIDGE OVER OHIO RIVER ON U.S. 25

KENTON COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

STATION 81 + 76 P.E. PROJECT NO. F141 (1)

MAZELET & ERDAL Consulting Engineers File No. 918-03

CONSTRUCTION PROJECT NO.

DRAWING NO. 18577

DRAWN BY BCL DATE 6-71
DETAILED BY BCL CHECKED BY B.E.C. DATE 6-71
TRACED BY CHECKED BY DATE
REVISED REVISED REVISED

LETTING DATE

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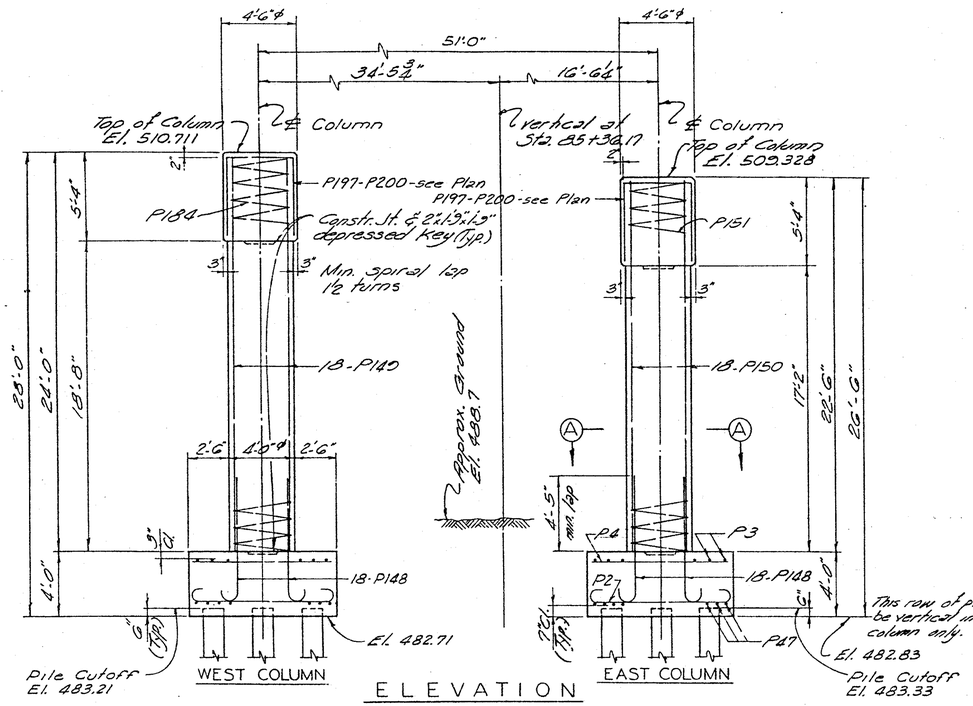
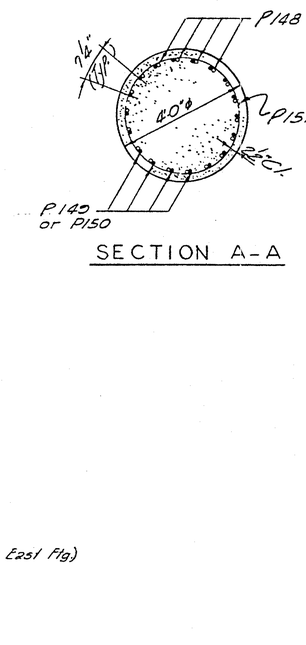
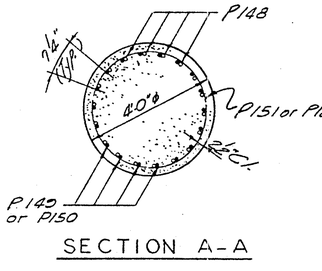
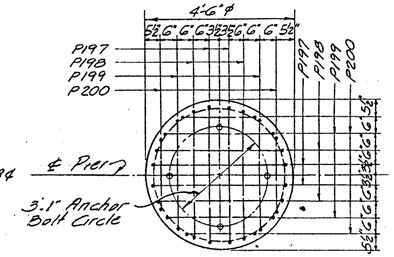
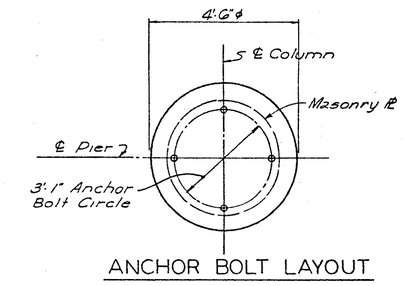
LETTING DATE



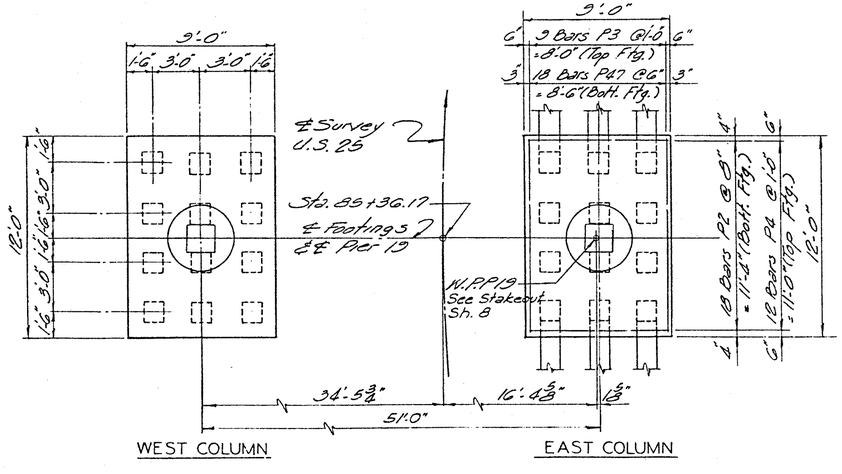








Note: Anchor Bolt Holes to be drilled before superstructure is in place.



ESTIMATE OF QUANTITIES

Concrete, Class 'A'	55.0	Cu. Yds.
Reinforcement	5126	Lbs.

PIER 19

DESIGNED BY BZW DATE 6-71 REVISED
DETAILED BY EJK DATE 6-71 REVISED
TRACED BY CHECKED BY BEC DATE REVISED
CHECKED BY

OHIO APPROACH SHEET 23

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

BRIDGE OVER OHIO RIVER ON U.S. 25

KENTON COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

STATION 81+76 P.E. PROJECT NO. F 141 (1)

HAZELET & ERDAL Consulting Engineers File No. 918-03	CONSTRUCTION PROJECT NO. .	DRAWING NO. 18577

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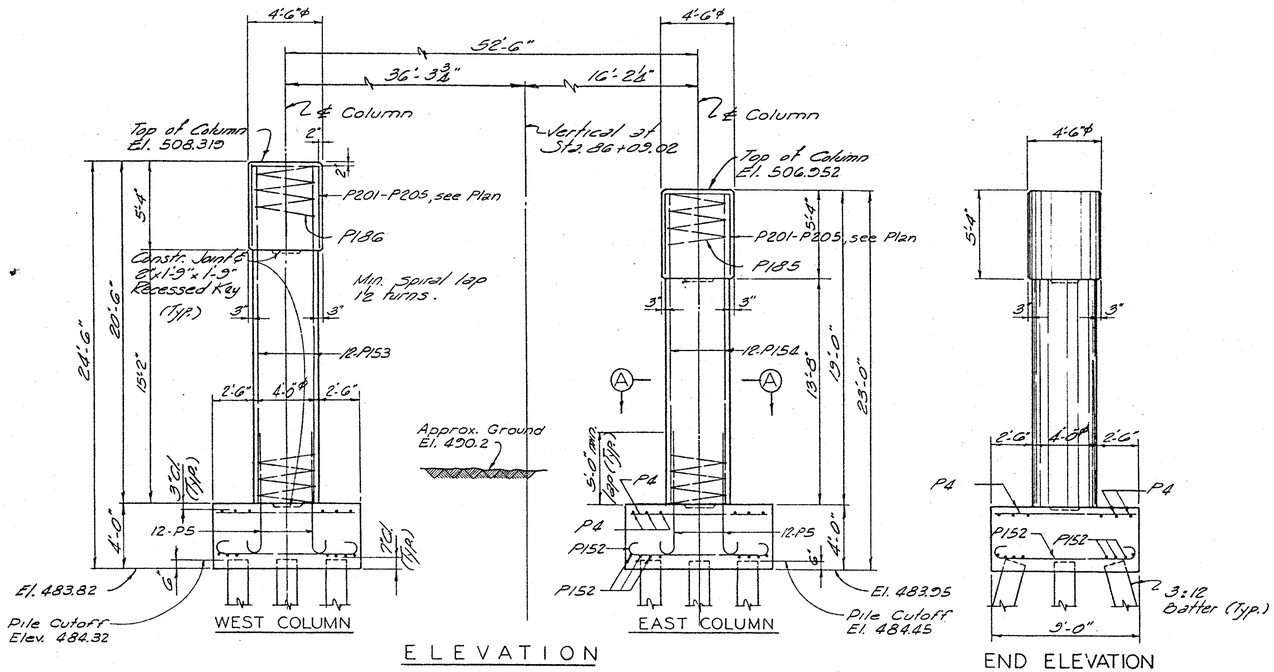
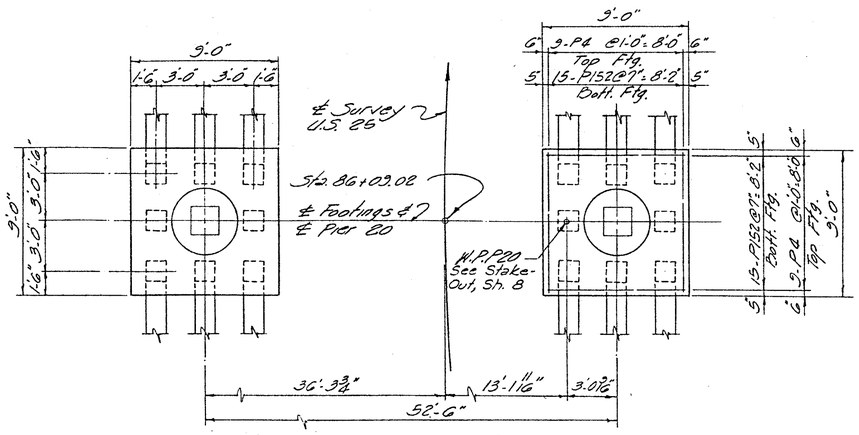
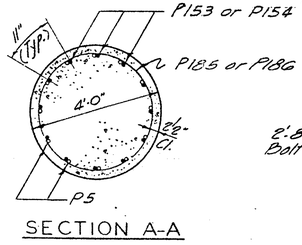
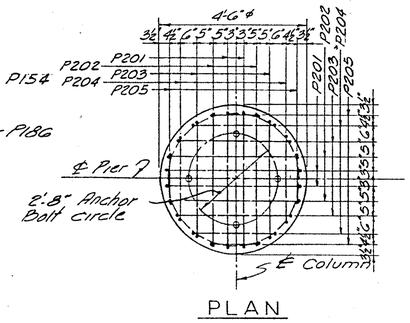
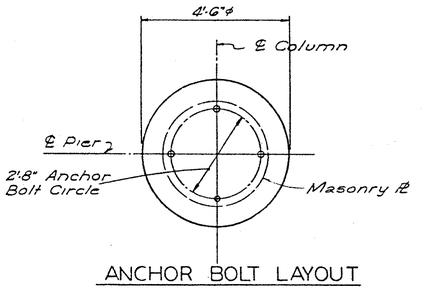
LETTING DATE











Note: Anchor Bolt Holes to be drilled before superstructure is in place.

ESTIMATE OF QUANTITIES

Concrete, Class 'A'	43.7	Cu. Yds.
Reinforcement	5,066	Lbs.

PIER 20

DESIGNED BY Red DETAILED BY Rex TRACED BY — CHECKED BY — CHECKED BY BEC — CHECKED BY — DATE 6-71 — REVISED — DATE 6-71 — REVISED — DATE — REVISED — DATE

OHIO APPROACH SHEET 24

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

BRIDGE OVER OHIO RIVER ON U.S. 25

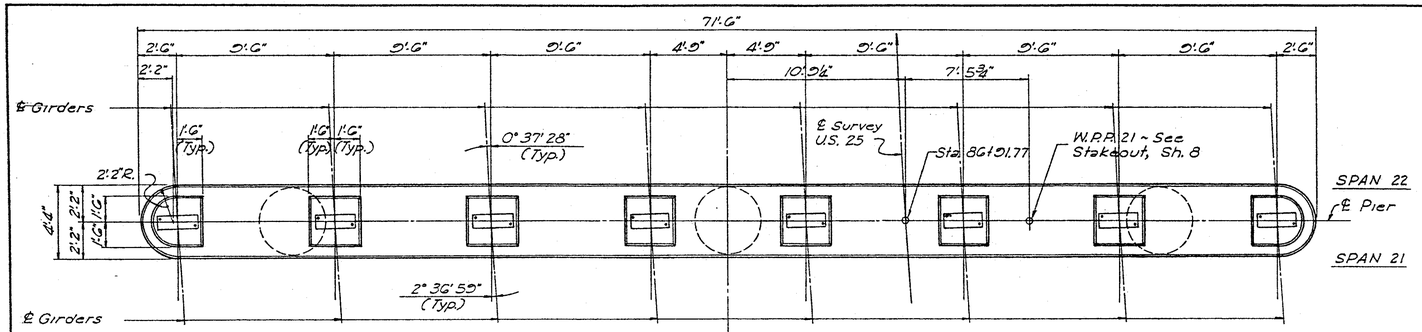
KENTON COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

STATION 81+76 — P.E. PROJECT NO. F141 (1)

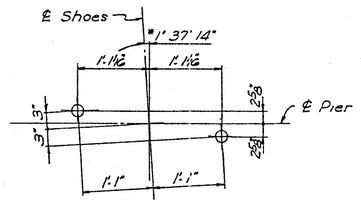
HAZELET & ERDAL Consulting Engineers File No. 918-03 — CONSTRUCTION PROJECT NO. — DRAWING NO. 18577

THIS IS A REDUCED SIZE PRINT. — NOT TO SCALE

LETTING DATE



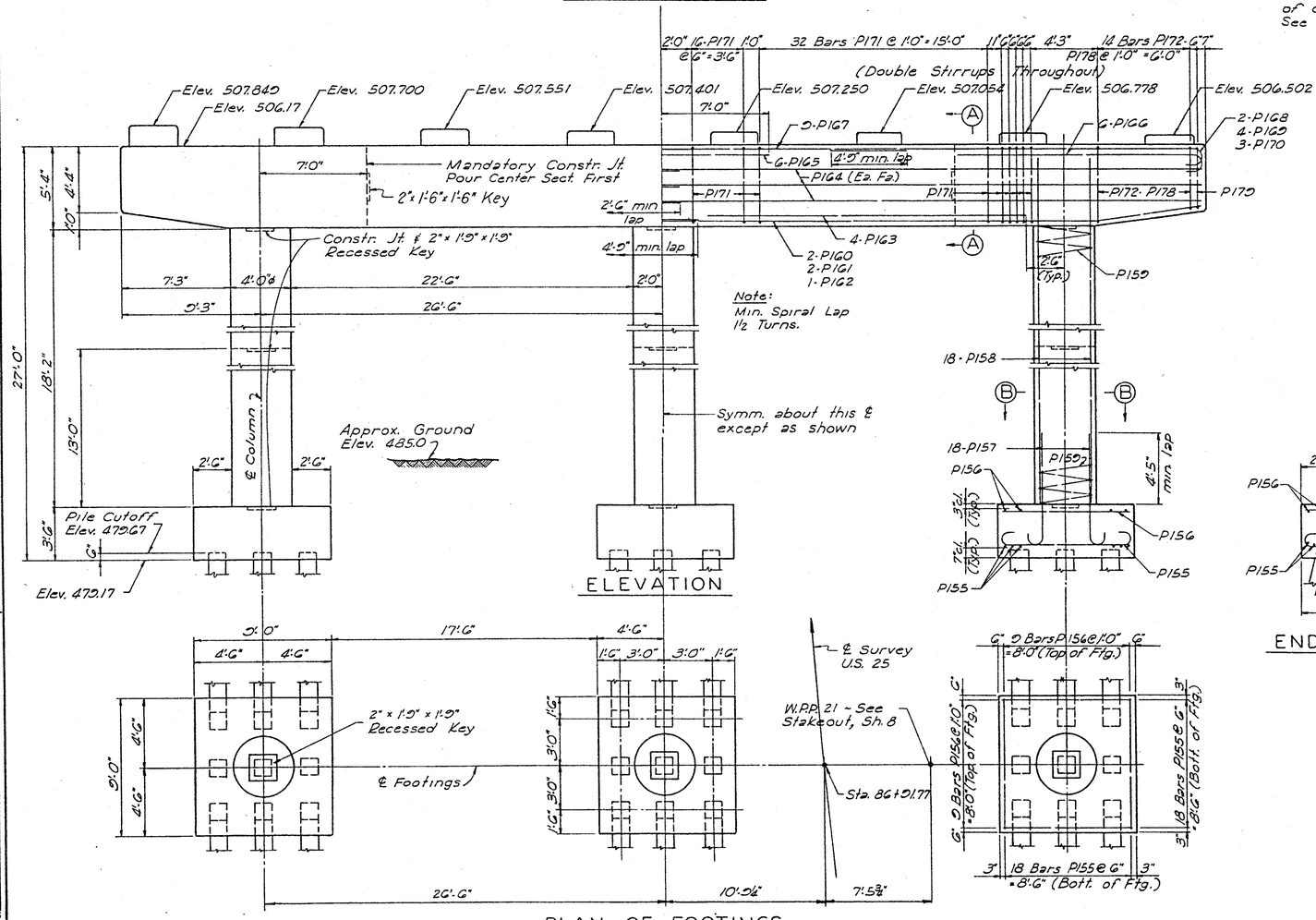
PLAN OF CAP

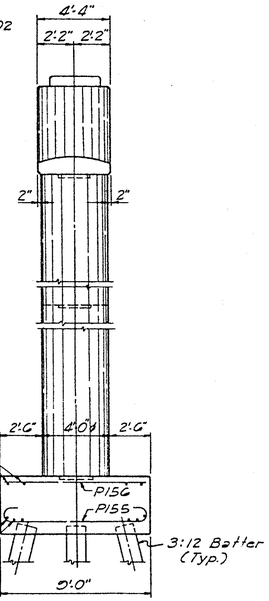


ANCHOR BOLT SPACING

* This angle is to be used for setting the shoe only.

Note: Care to be used in placing bars in top of cap to provide clearance for Anchor Bolts. See Anchor Bolt Note, Sh. 2.





END ELEVATION

Note:
For Section A-A, Section B-B, & Pad Details, See Sh. 26.

ESTIMATE OF QUANTITIES

Concrete Class 'A'	113.2	Cu. Yds.
Reinforcement	18,962	Lbs.

PIER 21

DESIGNED BY PCW DATE 7-71 REVISED
CHECKED BY BEC DATE 7-71 REVISED
DRAWN BY TB CHECKED BY DATE REVISED
TRACED BY CHECKED BY DATE REVISED

OHIO APPROACH SHEET 25

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

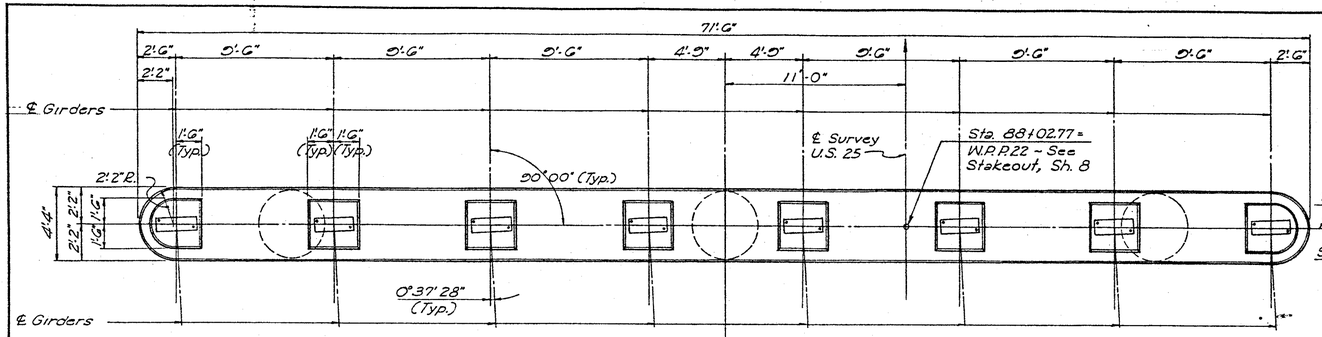
BRIDGE OVER OHIO RIVER ON U.S. 25
KENTON COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

STATION 81+76 P.E. PROJECT NO. F 141 (1)

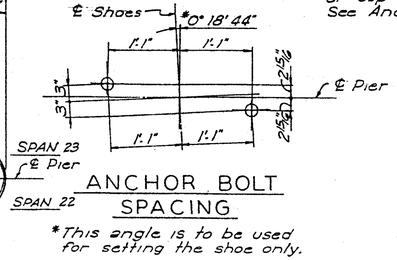
HAZELET & ERDAL Consulting Engineers File No. 918-03	CONSTRUCTION PROJECT NO.	DRAWING NO. 18577

THIS IS A REDUCED SIZE PRINT — NOT TO SCALE

LETTING DATE



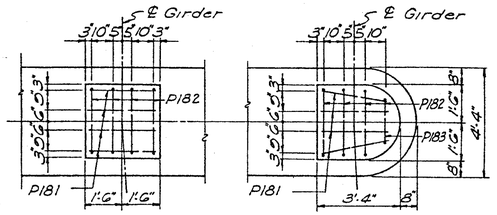
PLAN OF CAP



ANCHOR BOLT SPACING

*This angle is to be used for setting the shoe only.

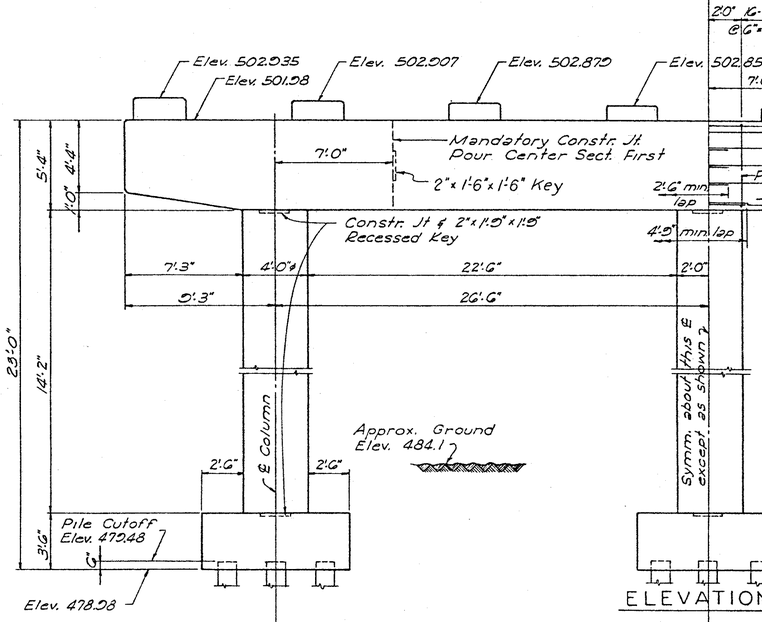
Note: Care to be used in placing bars in top of cap to provide clearance for Anchor Bolts. See Anchor Bolt Note, Sh. 2.



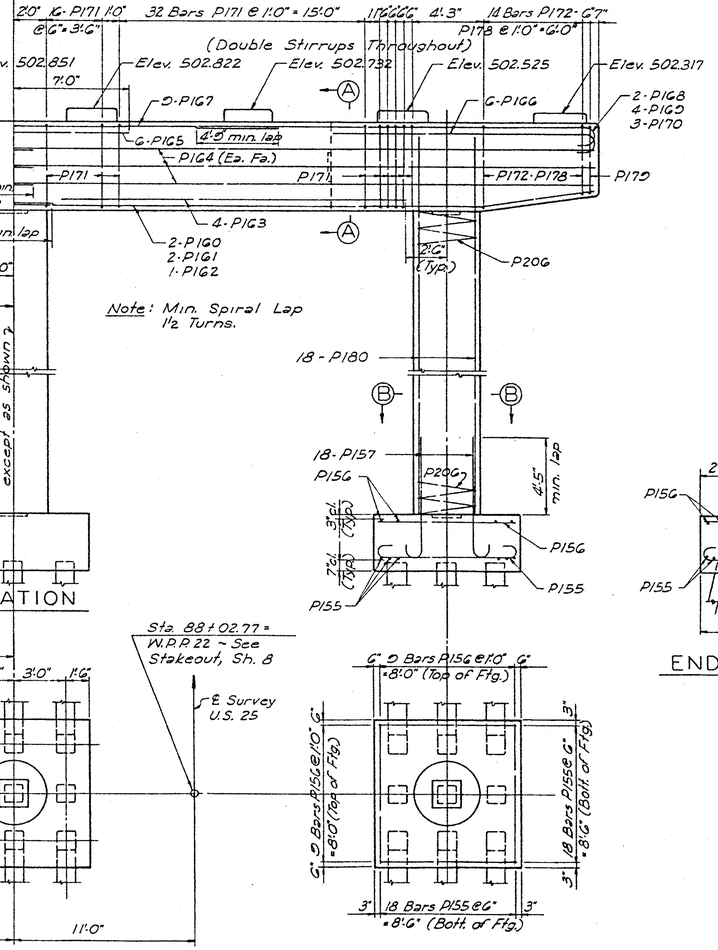
INTERIOR PAD

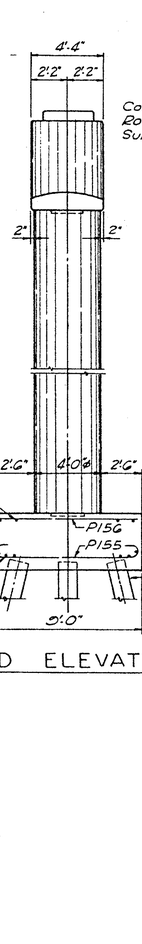
EXTERIOR PAD

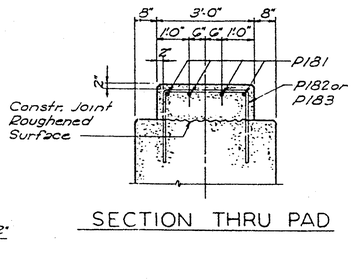
PAD DETAILS



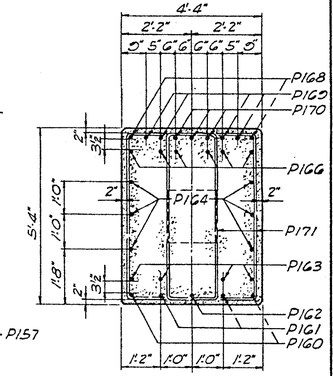
ELEVATION



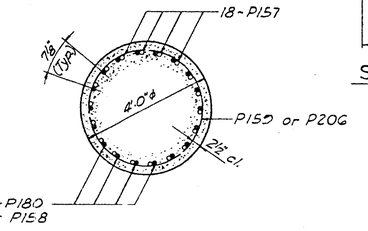




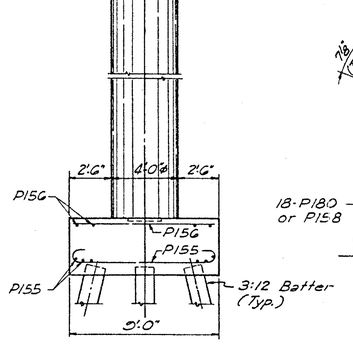
SECTION THRU PAD



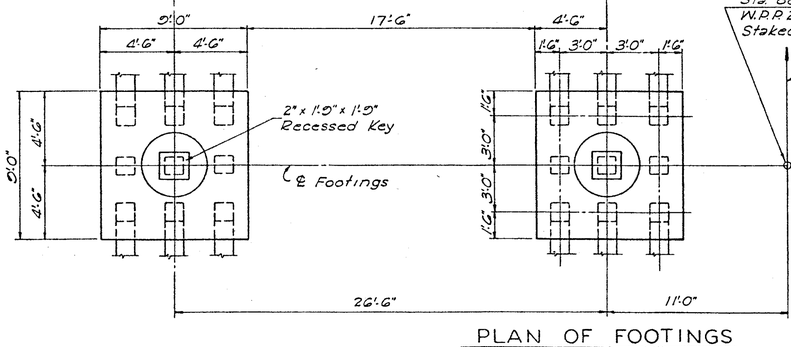
SECTION A-A



SECTION B-B



END ELEVATION



PLAN OF FOOTINGS

ESTIMATE OF QUANTITIES

Concrete Class 'A'	111.1	Cu. Yds.
Reinforcement	18,205	Lbs.

PIER 22

OHIO APPROACH SHEET 26

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

BRIDGE OVER OHIO RIVER ON U.S. 25

KENTON COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

STATION 81+76 P.E. PROJECT NO. F141 (1)

HAZELET & ERDAL Consulting Engineers File No. 918-03

CONSTRUCTION PROJECT NO.

DRAWING NO. 18577

DESIGNED BY PCW DATE 7-71
DETAILED BY TB CHECKED BY BEC DATE 7-71 REVISED
TRACED BY CHECKED BY DATE REVISED

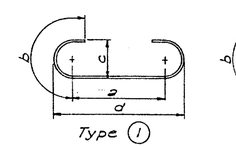
THIS IS A REDUCED SIZE PRINT — NOT TO SCALE

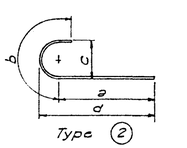
LETTING DATE

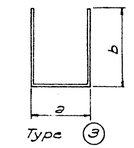
BILL OF REINFORCEMENT

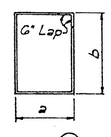
Mark	Type	Number P.11	P.12	P.13	P.14	P.15	P.16	P.17	P.18	P.19	P.20	P.21	P.22	Bar Size	Length Ft.	Length In.	Location	a Ft.	a In.	b Ft.	b In.	c Ft.	c In.	d Ft.	d In.
P1	①	36		36										9	14	1	Bott. of Ftg.	10	9	1	8	0	11¼	11	8¼
P2	①	48		48	48		48	48		36				6	10	2	" " "	8	2	1	0	0	6	8	8
P3	Str.	18	30	18	18	30	18	18	24	18				5	11	8	Top of Ftg.								
P4	Str.	24		24	24		24	24		24	36			5	8	8	" " "								
P5	②	48		48							24			9	9	8	Column Dowels	8	0	1	8	0	11¼	8	5⅜
P6	Str.	96		96										9	18	0	Columns								
P7	Str.	48		48										9	17	6	"								
P8	④	2		2										W20	530	9	Column Spirals	38	3	1	0	4	1		
P9	⑦	2	2	2		2								11	45	6	Cap	34	0	5	9	0	9	5	8
P10	⑦	2	2	2		2								11	47	8	"	34	0	6	10	0	11	6	9
P11	⑦	4	4	4		4								11	48	4	"	34	0	7	2	0	11½	7	1
P12	Str.	6	6	6	8	8	8							11	21	0	"								
P13	Str.	6	6	6		6								6	45	4	"								
P14	②	12	12	12	16	16	18							11	18	10	"	16	10	2	0	1	2¼	17	5⅜
P15	①	2	2	2										11	47	10	"	43	10	2	0	1	2¼	45	0¼
P16	①	2	2	2										11	50	0	"	46	0	2	0	1	2¼	47	2¼
P17	①	4	4	4										11	50	10	"	46	10	2	0	1	2¼	48	0¼
P18	⑤	54	54	54										5	18	7	Cap Stirrups	3	6	5	5				
P19	⑤	4	4	4										5	18	6	" "	3	6	5	4½				
P20	⑤	4	4	4										5	18	3	" "	3	6	5	3				
P21	⑤	4	4	4										5	18	0	" "	3	6	5	1½				
P22	⑤	4	4	4										5	17	9	" "	3	6	5	0				
P23	⑤	4	4	4										5	17	6	" "	3	6	4	10½				
P24	⑤	4	4	4										5	17	3	" "	3	6	4	9				
P25	⑤	4	4	4										5	15	6	" "	2	9	4	7½				
P26	⑤	4	4	4										5	12	8	" "	1	6	4	5½				
P27	Str.	1	1											5	23	3	Riser Block								
P28	Str.	2	2											5	22	3	" "								
P29	③	24	24											4	6	7	" "	2	8	2	0				
P30	③	1	1											4	5	7	" "	1	8	2	0				
P31	③	22	22		22	22								4	7	7	Pads	2	8	2	6				
P32	Str.	24	24		24	24		40						5	3	2	"								
P33	③	2	2		2	2								4	6	5	"	1	6	2	6				
P34	①		52			52								8	17	0	Bott. of Ftg.	14	0	1	6	0	8	14	8
P35	①		60			60								6	13	2	" " "	11	2	1	0	0	6	11	8
P36	Str.		24			24								5	14	8	Top of Ftg.								
P37	②		48											10	10	11	Column Dowels	9	1	1	10	1	0¾	9	7⅜
P38	Str.		144											10	18	8	Columns								
P39	④		2											W31	1776	8	Column Spiral	39	6	0	3½	4	1		
P40	③			2										4	5	9	Riser Block	1	10	2	0				
P41	③			24										4	7	1	" "	3	2	2	0				
P42	Str.			2										5	22	7	" "								
P43	Str.			2										5	24	0	" "								
P44	Str.			24										5	3	8	Pads								
P45	③			22			28							4	8	1	"	3	2	2	6				
P46	③			2			2							4	6	7	"	1	8	2	6				
P47	①				36		36	38	27	36				8	14	0	Bott. of Ftg.	11	0	1	6	0	8	11	8
P48	Str.				36		36							9	23	0	Columns								
P49	Str.				36		36							9	22	5	"								
P50	④				2		2							W20	432	3	Column Spiral	35	3	1	0	3	7		
P51	⑦				2		2							11	45	6	Cap	33	6	6	0	0	9¼	5	11¼
P52	⑦				2		2							11	47	6	"	33	6	7	0	0	10¾	6	11¼
P53	⑦				4		4							11	48	2	"	33	6	7	4	0	11¼	7	3¼
P54	Str.				6		6							6	45	6	"								
P55	①				2		2							11	48	4	"	44	4	2	0	1	2¼	45	6¼
P56	①				4		4							11	50	0	"	46	0	2	0	1	2¼	47	2¼
P57	①				4		3							11	51	0	"	47	0	2	0	1	2¼	48	2¼
P58	⑤				74		70							5	17	5	Cap Stirrups	2	11	5	5				
P59	⑤				4									5	17	3	" "	2	11	5	4				
P60	⑤				4									5	17	1	" "	2	11	5	3				
P61	⑤				4									5	16	11	" "	2	11	5	2				
P62	⑤				4									5	16	9	" "	2	11	5	1				
P63	⑤				4									5	16	6	" "	2	11	4	11½				
P64	⑤				4									5	16	4	" "	2	11	4	10½				
P65	⑤				4									5	16	2	" "	2	11	4	9½				
P66	⑤				4									5	15	11	" "	2	11	4	8				
P67	⑤				4									5	15	3	" "	2	8	4	7				
P68	⑤				4									5	13	3	" "	1	9	4	6				
P69	②				36		36	36						10	10	5	Column Dowels	8	7	1	10	1	0¾	9	1⅜
P70	②					48								11	11	7	" "	9	7	2	0	1	2¼	10	2⅛
P71	Str.					48								11	23	8	Columns								
P72	Str.					48								10	23	3	"								
P73	④					2								W31	1622	8	Column Spiral	36	0	0	3½	4	1		
P74	①					2								11	47	10	Cap	43	10	2	0	1	2¼	45	0¼
P75	①					4								11	49	10	"	45	10	2	0	1	2¼	47	0¼
P76	①					4								11	50	9	"	46	9	2	0	1	2¼	47	11¼
P77	⑤					74								5	18	5	Cap Stirrups	3	5	5	5				
P78	⑤					4								5	18	3	" "	3	5	5	4				
P79	⑤					4								5	18	1	" "	3	5	5	3				
P80	⑤					4								5	17	11	" "	3	5	5	2				

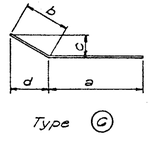
Mark	Type	Number P.11	P.12	P.13	P.14	P.15	P.16	P.17	P.18	P.19	P.20	P.21	P.22	Bar Size	Length Ft.	Length In.	Location	a Ft.	a In.	b Ft.	b In.	c Ft.	c In.	d Ft.	d In.
P81	⑤					4								5	17	9	Cap Stirrups	3	5	5	1				
P82	⑤					4								5	17	6	" "	3	5	4	11½				
P83	⑤					4								5	17	4	" "	3	5	4	10½				
P84	⑤					4								5	17	2	" "	3	5	4	9½				
P85	⑤					4								5	16	11	" "	3	5	4	8				
P86	⑤					4								5	15	7	" "	2	10	4	7				
P87	⑤					4								5	13	5	" "	1	10	4	6				
P88	⑤						4							5	17	5	" "	2	11	5	5				
P89	⑤						4							5	17	3	" "	2	11	5	4				
P90	⑤						4							5	17	1	" "	2	11	5	3				
P91	⑤						4							5	16	11	" "	2	11	5	2				
P92	⑤						4							5	16	8	" "	2	11	5	0½				
P93	⑤						4							5	16	6	" "	2	11	4	11½				
P94	⑤						4							5	16	4	" "	2	11	4	10½				
P95	⑤						4							5	16	2	" "	2	11	4	9½				
P96	⑤						4							5	16	0	" "	2	11	4	8½				
P97	⑤						4							5	15	5	" "	2	9	4	7				
P98	⑤						4							5	13	5	" "	1	10	4	6				
P99	Str.						33							5	3	8	Pads								
P100	③						28							4	7	4	"	1	5	3	0				
P101	③						2							4	6	10	"	0	11	3	0				
P102	Str.							36						10	23	0	Columns								
P103	Str.							36						9	17	0	"								
P104	④							2						W31	358	10	Column Spiral	28	9	1	0	3	7		
P105	⑦							2						9	50	10	Cap	30	6	10	2	1	8	10	0
P106	⑦							3						9	54	0	"	30	6	11	9	1	11½	11	7
P107	Str.							2						6	40	6	"								
P108	Str.							2						6	45	0	"								
P109	Str.							6						6	50	6	"								
P110	⑥							8						11	16	2	"	10	2	6	0	4	3	4	3
P111	⑥							8						11	18	10	"	12	10	6	0	4	3	4	3
P112	⑥							8						11	25	8	"	20	0	5	8	4	0	4	0
P113	②							16						11	20	1	"	24	1	2	0	1	2¼	24	8⅛
P114	①							4						11	53	4	"	45	4	2	0	1	2¼	50	6¼
P115	①							4						11	55	8	"	51	8	2	0	1	2¼	52	10¼
P116	①							4						11	56	6	"	52	6	2	0	1	2¼	53	8¼
P117	⑤							56						5	19	7	Cap Stirrups	3	0	6	5				
P118	⑤							4						5	19	5	" "	3	0	6	4				
P119	⑤							4						5	19	3	" "	3	0	6	3				
P120	⑤							4						5	18	11	" "	3	0	6	1				
P121	⑤							4						5	18	7	" "	3	0	5	11				
P122	⑤							4						5	18	3	" "	3	0	5	9				
P123	⑤							4						5	17	11	" "	3	0	5	7				
P124	⑤							4						5	17	7	" "	3	0	5	5				
P125	⑤							4						5	17	3	" "	3	0	5	3				
P126	⑤							4						5	16	11	" "	3	0	5	1				
P127	⑤							4						5	16	7	" "	3	0	4	11				
P128	⑤							4						5	16	3	" "	3	0	4	9				
P129	⑤							4						5	14	9	" "	2	5	4	7				
P130	⑤							4						5	12	11	" "	1	7	4	6				
P131	③							30						4	8	1	Pads	3	2	2	6				
P132	③							2						4	6	7	"	1	8	2	6				
P133	①								18					6	11	2	Bott. of Ftg.	9	2	1	0	0	6	9	8
P134	①								17					7	13	5	" " "	11	1	1	2	0	7	11	6
P135	Str.								12					5	9	8	Top of Ftg.								
P136	①								24					9	15	7	Bott. of Ftg.	12	3	1	8	0	11½	13	2¼
P137	Str.								12					5	13	2	Top of Ftg.								
P138	②								18					11	11	1	Column Dowels	9	1	2	0	1	2¼	9	8⅛

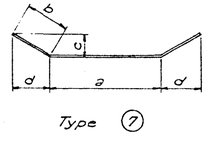


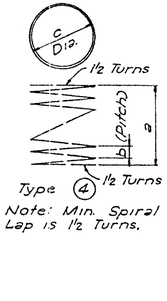


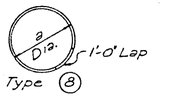












PIERS

OHIO APPROACH

SHEET 27

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

BRIDGE OVER OHIO RIVER ON U.S. 25

KENTON COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

STATION 81+76 P.E. PROJECT NO. F141 (1)

HAZELET & ERDAL Consulting Engineers File No. 918-03	CONSTRUCTION PROJECT NO.	DRAWING NO. 18577

DESIGNED BY T.B. & C.H. CHECKED BY BEC DATE 7-71
DETAILED BY CHECKED BY DATE
TRACED BY CHECKED BY DATE
REVISED
REVISED
REVISED

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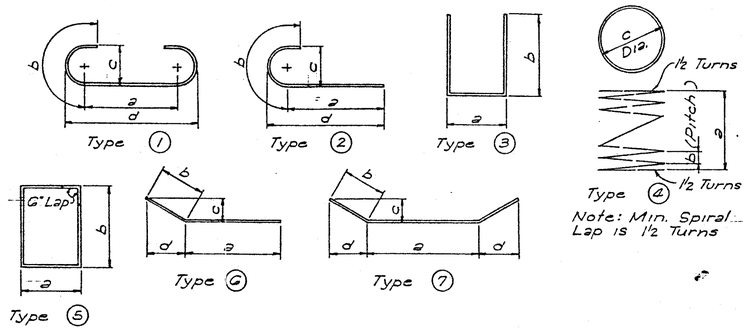
BILL OF REINFORCEMENT

Mark	Type	Number P.18	P.19	P.20	P.21	P.22	Bar Size	Length Ft.	Length In.	Location	a Ft.	a In.	b Ft.	b In.	c Ft.	c In.	d Ft.	d In.
P139	Str.	6					11	15	3	Column								
P140	Str.	12					11	30	4	"								
P141	④	1					W31	1205	2	Column Spiral	30	4	0	3¼	3	7		
P142	②	24					10	10	9	Column Dowel	8	11	1	10	1	0¾	9	5⅜
P143	Str.	4					10	12	0	Column								
P144	Str.	4					10	17	10	"								
P145	Str.	4					10	24	0	"								
P146	Str.	8					10	28	10	"								
P147	④	1					W31	1404	8	" Spiral	28	10	0	3¼	4	1		
P148	②		36				8	9	0	Column Dowels	7	6	1	6	0	8	7	10
P149	Str.		18				8	23	10	Columns								
P150	Str.		18				8	22	4	"								
P151	④		1				W31	286	4	Column Spiral	22	4	1	0	3	7		
P152	①			60			7	10	5	Bott. of Ftg.	8	1	1	2	0	7	8	8
P153	Str.			12			9	20	4	Columns								
P154	Str.			12			9	18	10	"								
P155	①				108	108	6	10	2	Bott. of Ftg.	8	2	1	0	0	6	8	8
P156	Str.				54	54	5	8	8	Top of Ftg.								
P157	②				54	54	8	8	6	Column Dowel	7	0	1	6	0	8	7	4
P158	Str.				54		8	23	0	Columns								
P159	④				3		W20	235	3	Column Spiral	18	2	1	0	3	7		
P160	⑥				4	4	11	38	0	Cap	30	11	7	1	0	11½	7	0
P161	⑥				4	4	11	37	9	"	30	11	6	10	0	11	6	9
P162	⑥				2	2	11	36	6	"	30	11	5	7	0	9	5	6½
P163	Str.				8	8	11	21	6	"								
P164	Str.				12	12	11	35	3	"								
P165	Str.				6	6	11	14	0	"								
P166	②				12	12	11	17	5	"	15	5	2	0	1	2¼	16	0⅛
P167	Str.				9	9	11	31	6	"								
P168	②				4	4	11	24	7	"	22	7	2	0	1	2¼	23	2⅛
P169	②				8	8	11	25	7	"	23	7	2	0	1	2¼	24	2⅛
P170	②				6	6	11	26	1	"	24	1	2	0	1	2¼	24	5⅛
P171	⑤				116	116	5	16	5	Cap Stirrups	2	10	5	0				
P172	⑤				4	4	5	16	3	" "	2	10	4	11				
P173	⑤				4	4	5	16	1	"	2	10	4	10				
P174	⑤				4	4	5	15	9	" "	2	10	4	8				
P175	⑤				4	4	5	15	7	" "	2	10	4	7				
P176	⑤				4	4	5	15	3	" "	2	10	4	5				
P177	⑤				4	4	5	14	11	" "	2	10	4	3				
P178	⑤				4	4	5	14	1	" "	2	6	4	2				
P179	⑤				4	4	5	12	5	" "	1	9	4	1				
P180	Str.					54	8	10	0	Columns								
P181	Str.				32	32	5	2	8	Pads								
P182	③				30	30	4	8	3	"	2	8	2	10				
P183	③				2	2	4	7	5	"	1	10	2	10				
P184	⑥		1				W31	303	3	Column Spiral	23	10	1	0	3	7		
P185	④			1			W31	246	9	" "	18	10	1	0	3	7		
P186	④			1			W31	263	5	" "	20	4	1	0	3	7		
P187	③	4					5	14	0	Column Top	4	1	5	0				
P188	③	4					5	13	10	" "	3	11	5	0				
P189	③	4					5	13	6	" "	3	7	5	0				
P190	③	4					5	12	8	" "	2	9	5	0				
P191	③	4					5	11	4	" "	1	5	5	0				
P192	③	4					5	14	6	" "	4	7	5	0				
P193	③	4					5	14	4	" "	4	5	5	0				
P194	③	4					5	14	1	" "	4	2	5	0				
P195	③	4					5	13	5	" "	3	6	5	0				
P196	③	4					5	12	2	" "	2	3	5	0				
P197	③		8				5	14	0	" "	4	1	5	0				
P198	③		8				5	13	9	" "	3	10	5	0				
P199	③		8				5	13	2	" "	3	3	5	0				
P200	③		8				5	12	0	" "	2	1	5	0				
P201	③			8			5	14	0	" "	4	1	5	0				
P202	③			8			5	13	10	" "	3	11	5	0				
P203	③			8			5	13	5	" "	3	6	5	0				
P204	③			8			5	12	7	" "	2	8	5	0				
P205	③			8			5	11	4	" "	1	5	5	0				
P206	④					3	W20	104	1	Column Spiral	14	2	1	0	3	7		



PIERS

LETTING DATE

DESIGNED BY ____ DATE ____ REVISED ____
DETAILED BY T.B. & C.H. DATE 7-71 REVISED ____
CHECKED BY BEC DATE ____ REVISED ____
TRACED BY ____ CHECKED BY ____ DATE ____ REVISED ____

OHIO APPROACH SHEET 28

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

BRIDGE OVER OHIO RIVER ON U.S. 25

KENTON COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

STATION 81+76 P.E. PROJECT NO. F141 (1)

HAZELET & ERDAL
Consulting Engineers
File No. 918-03

CONSTRUCTION PROJECT NO.

DRAWING NO. 18577

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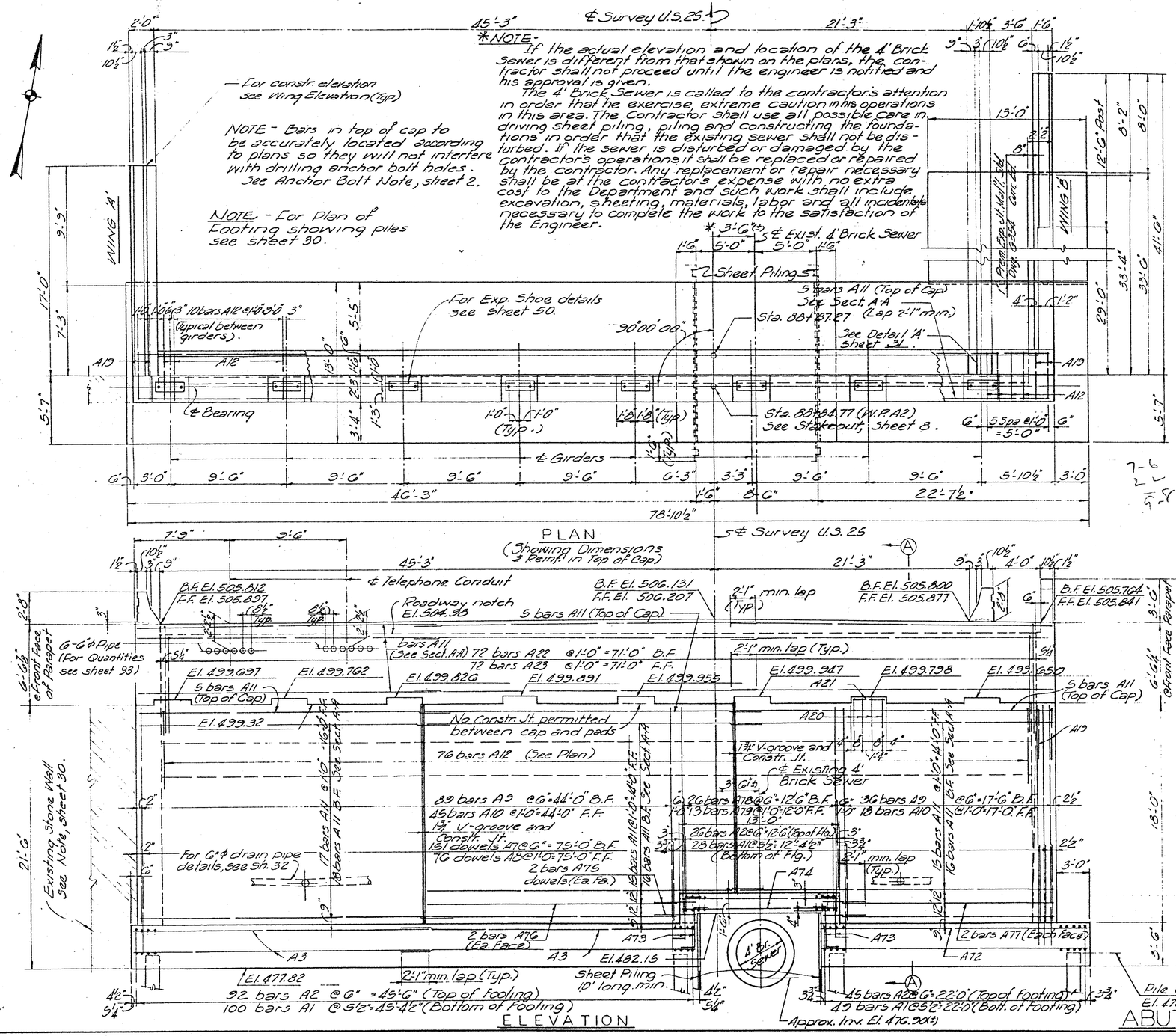
*NOTE- If the actual elevation and location of the 4' Brick Sewer is different from that shown on the plans, the contractor shall not proceed until the engineer is notified and his approval is given.
The 4' Brick Sewer is called to the contractor's attention in order that he exercise extreme caution in his operations in this area. The Contractor shall use all possible care in driving sheet piling, piling and constructing the foundations in order that the existing sewer shall not be disturbed. If the sewer is disturbed or damaged by the contractor's operations, it shall be replaced or repaired by the contractor. Any replacement or repair necessary shall be at the contractor's expense with no extra cost to the Department and such work shall include excavation, sheeting, materials, labor and all incidentals necessary to complete the work to the satisfaction of the Engineer.

NOTE - Bars in top of cap to be accurately located according to plans so they will not interfere with drilling anchor bolt holes. See Anchor Bolt Note, sheet 2.

NOTE - For Plan of Footing showing piles see sheet 30.



DESIGNED BY CEB	CHECKED BY	REVISED	DATE 6-21
DETAILED BY CEB	CHECKED BY	REVISED	DATE 7-21
TRACED BY	CHECKED BY	REVISED	DATE

OHIO APPROACH SHEET 29

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

BRIDGE OVER OHIO RIVER ON U.S. 25
KENTON COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

STATION 31+76 P.E. PROJECT NO. F141 (1)

HAZELET & ERDAL Consulting Engineers File No. 918-03 | CONSTRUCTION PROJECT NO. | DRAWING NO. 18577

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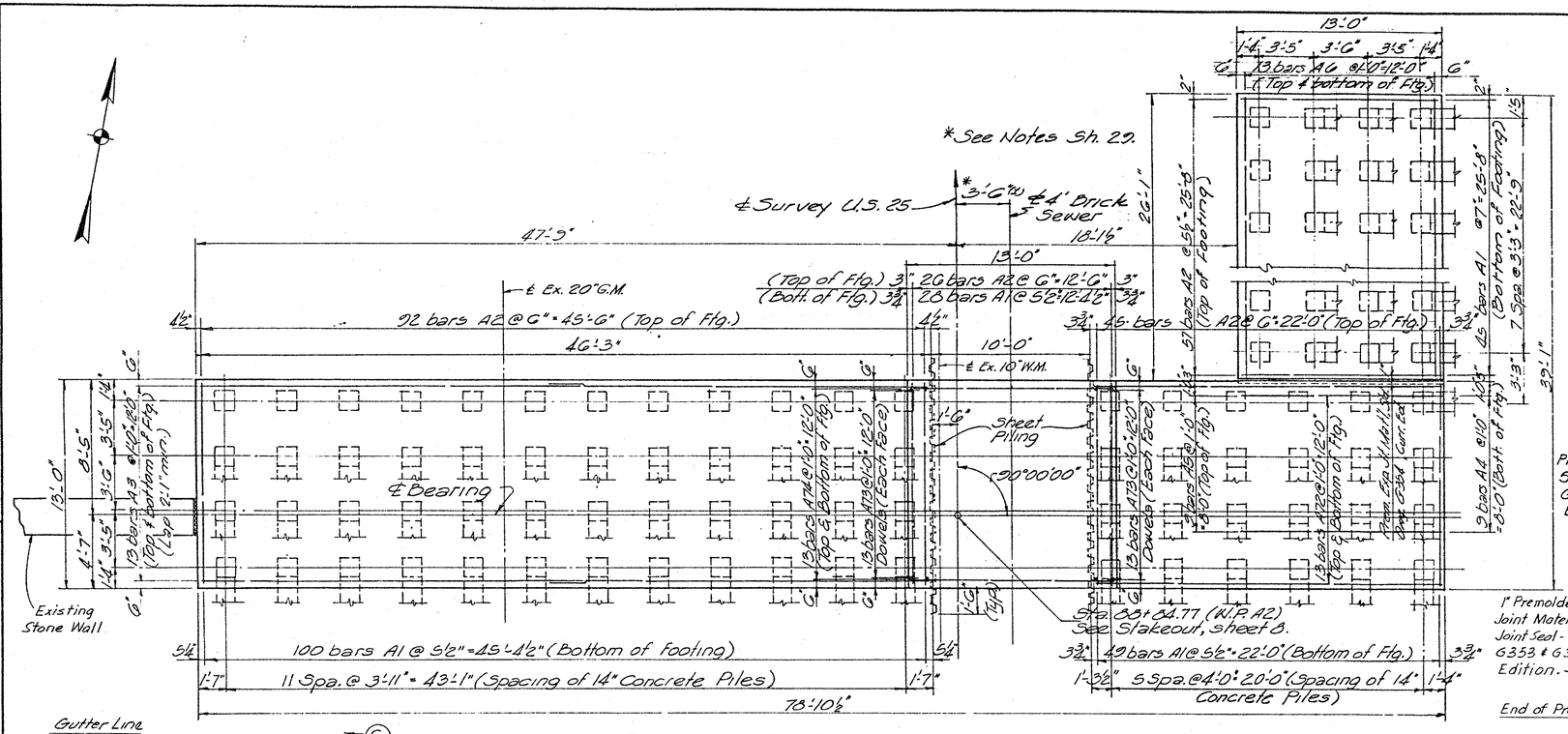
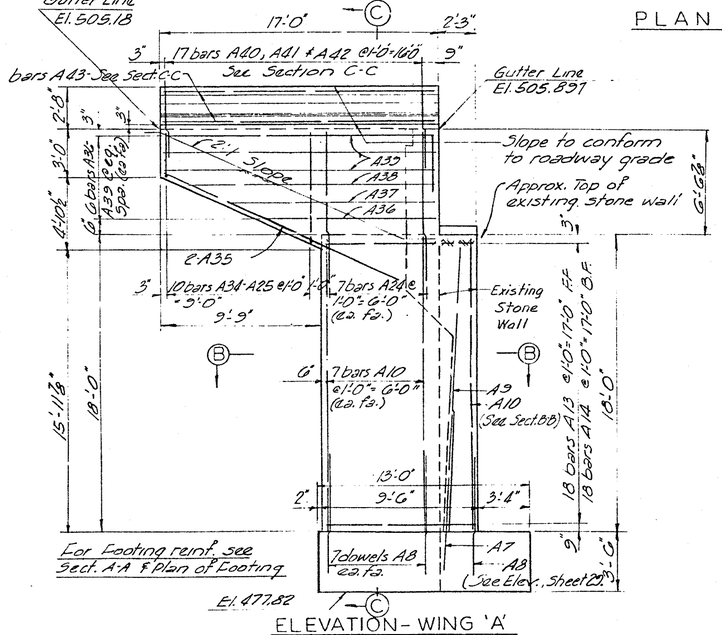
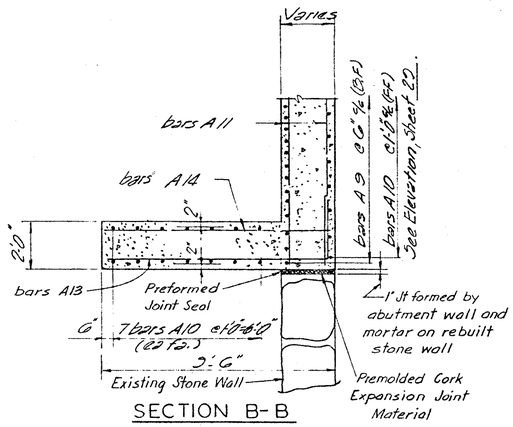


PLAN OF FOOTING

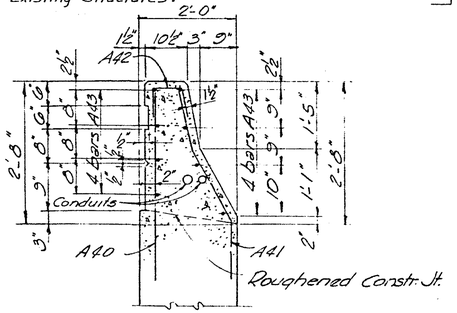
SECTION C-C

NOTE - Existing Stone Wall to be removed as required for working space. After abutment walls are constructed the stone wall shall be replaced as directed by the Engineer against the abutment wall. The cost of replacing this portion of the stone wall is to be incidental to the unit price bid for Class 'A' Concrete and no extra payment will be allowed for this work. The cost of removing the stone wall is included in the lump sum bid for Removal of Existing Structures.





SECTION B-B



PART SECTION C-C

ABUTMENT 2

DESIGNED BY CEB CHECKED BY ZW DATE 6-71
DETAILED BY CEB CHECKED BY ACW DATE 7-71
TRACED BY CHECKED BY DATE
REVISED
REVISED
REVISED

OHIO APPROACH SHEET 30

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

BRIDGE OVER OHIO RIVER ON U.S. 25

KENTON COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

STATION 61 + 76 P.E. PROJECT NO. F141 (1)

HAZELET & ERDAL Consulting Engineers File No. 918-03	CONSTRUCTION PROJECT NO.	DRAWING NO. 18577

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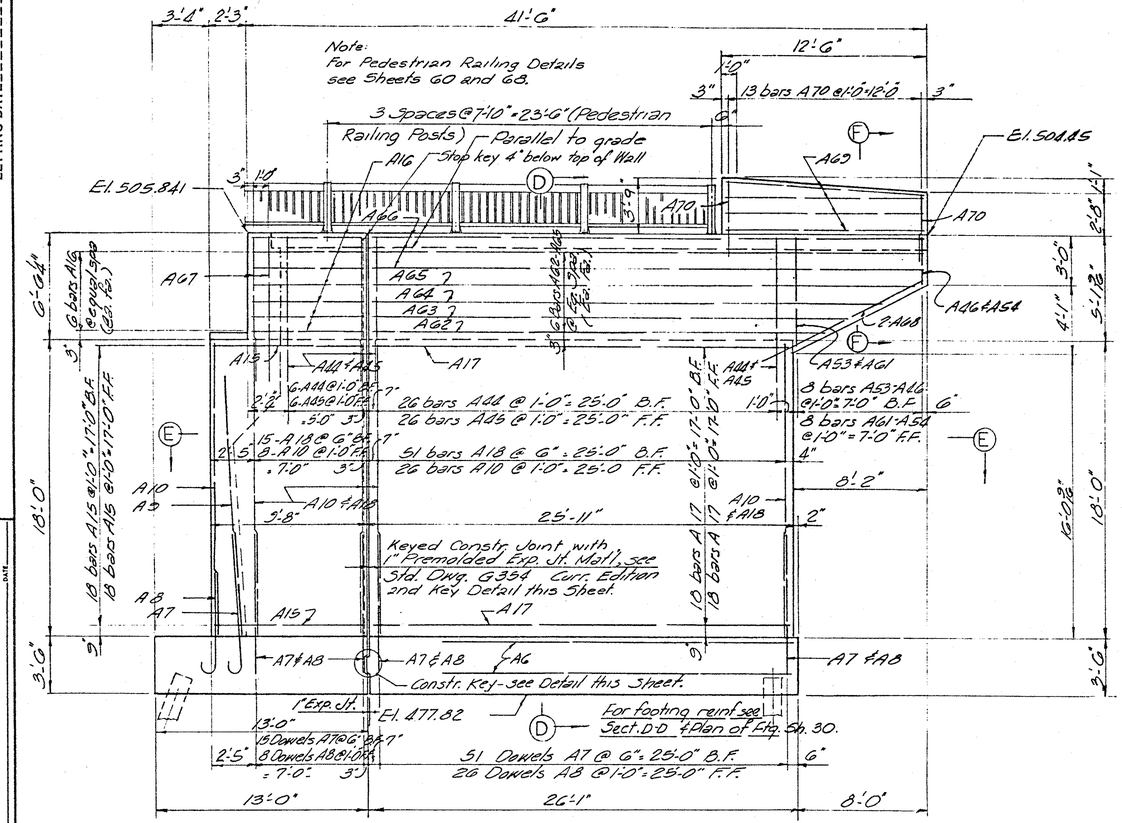
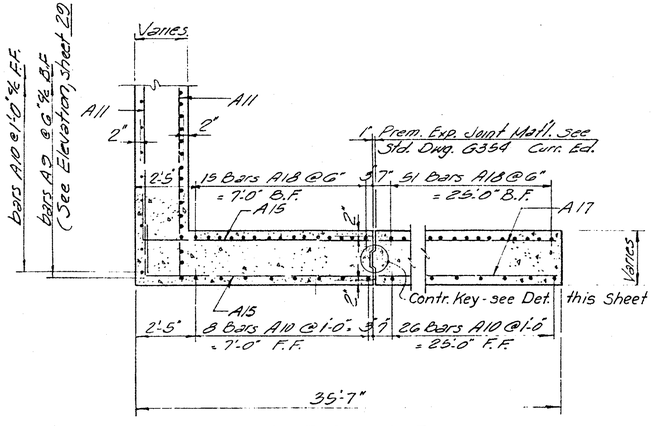
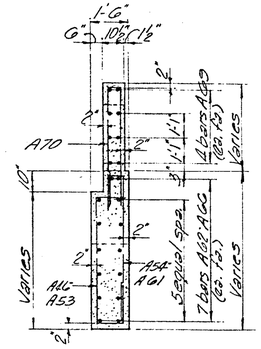


ELEVATION—WING 'B'

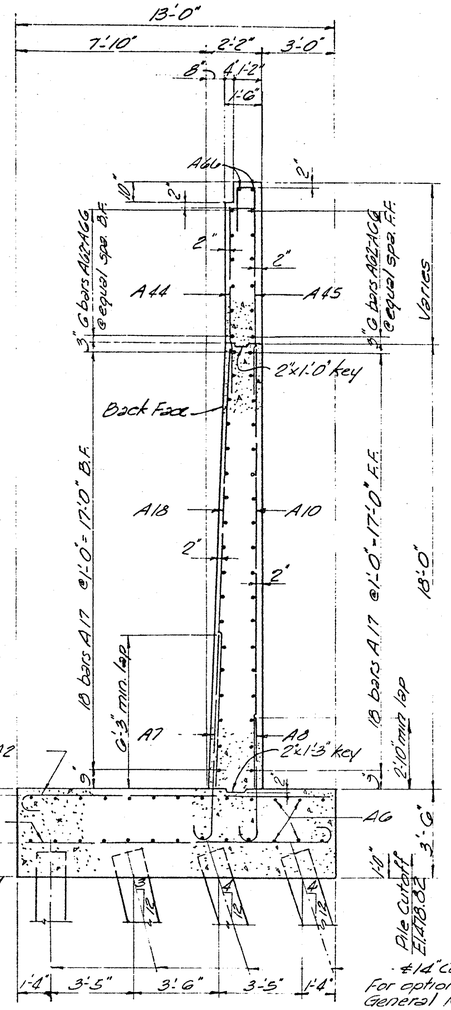
NOTE ~ B.F. denotes back face. F.F. denotes front face.



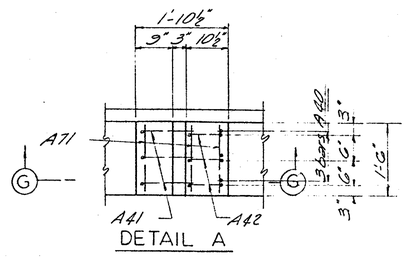
SECTION E-E

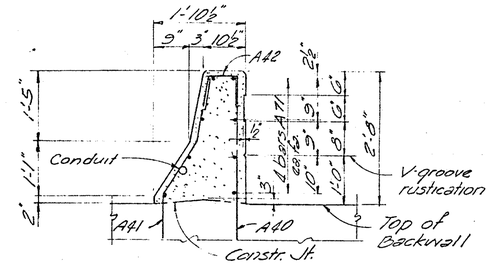


SECTION F-F

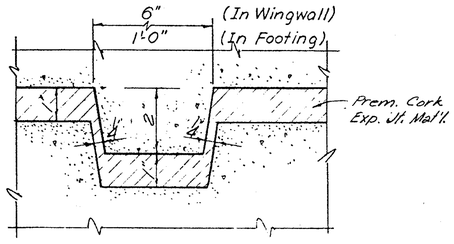


SECTION D-D





SECTION G-G



KEY DETAIL

OHIO APPROACH SHEET 31

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

BRIDGE OVER OHIO RIVER ON U.S. 25

KENTON COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

STATION 81 + 76 P.E. PROJECT NO. F141 (1)

HAZELET & ERDAL
Consulting Engineers
File No. 918-03

CONSTRUCTION PROJECT NO.

DRAWING NO. 18577

ABUTMENT 2

DESIGNED BY DEB CHECKED BY DATE 6/7/
DRAWN BY ZFB CHECKED BY DATE 7/7
TRACED BY CHECKED BY DATE
REVISED REVISED REVISED

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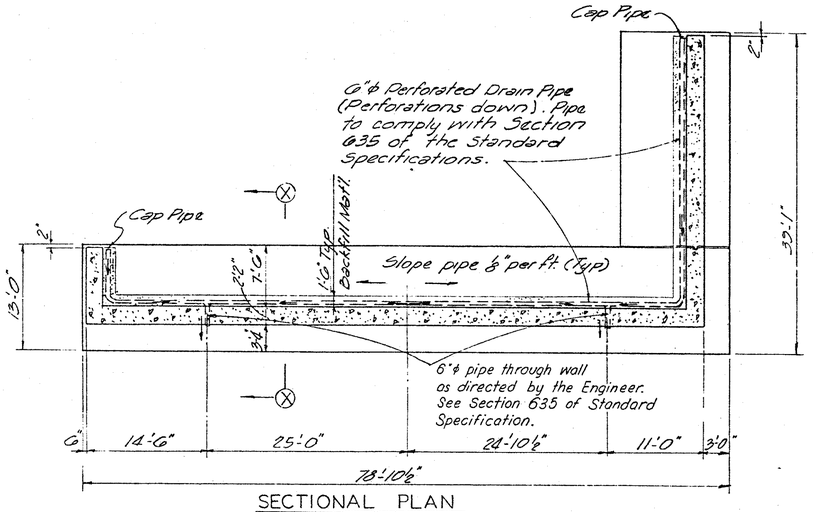
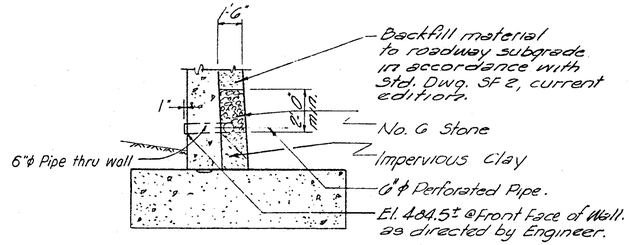
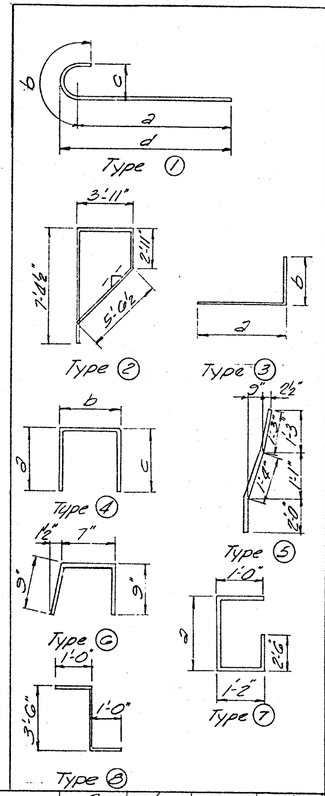


SECTIONAL PLAN
(Showing Drain Pipe)



SECTION X-X

Note: 6"ϕ Pipe thru wall shall be the same type as the perforated pipe, except without perforations. Perforated drain pipe and pipe through wall shall be measured in linear feet and paid for as 6"ϕ Drain Pipe. See General Notes sheet 2 for 6"ϕ Drain Pipe notes.



Mark	Type	No.	Bar Size	Length Ft.	Length In.	Location	a Ft.	a In.	b Ft.	b In.	c Ft.	c In.	d Ft.	d In.
AG2	Str.	2	G	27	5	Wing Wall								
AG3	"	2	G	29	5	" "								
AG4	"	2	G	31	5	" "								
AG5	"	2	G	33	5	" "								
AG6	"	G	G	33	10	" "								
AG7	④	2	G	18	8	" "	8	10	1	2	8	10		
AG8	Str.	2	G	11	0	Wing Post								
AG9	"	8	5	12	2	" "								
A70	④	13	5	11	11	" "	5	9	0	6½	5	9		
A71	Str.	8	4	1	2	Parapet Wall								
A72	Str.	26	5	22	4	Footing								
A73	⑫	52	5	5	5	Dowels-Footing								
A74	Str.	26	5	12	8	Footing								
A75	"	8	5	3	5	Dowels-Footing								
A76	"	4	5	20	3	Wall								
A77	"	4	5	17	10	"								
A78	"	26	9	15	2	"								
A79	Str.	13	5	16	6	Wall								

BILL OF REINFORCEMENT

Mark	Type	No.	Bar Size	Length Ft.	Length In.	Location	a Ft.	a In.	b Ft.	b In.	c Ft.	c In.	d Ft.	d In.
A1	①	222	6	13	5	Footing	12	5	1	0	0	6	12	8
A2	"	220	8	13	10	"	12	4	1	6	0	8	12	8
A3	Str.	52	5	24	0	"								
A4	①	9	6	13	9	"	12	9	1	0	0	6	13	0
A5	Str.	9	8	13	0	"								
A6	"	26	5	25	9	"								
A7	①	217	11	3	11	Dowels into Ftg.	7	11	2	0	1	24	8	6½
A8	①	124	5	5	9	" "	4	11	0	10	0	5	5	1½
A9	Str.	125	9	17	6	Wall								
A10	"	111	5	17	10	"								
A11	"	148	5	26	8	Wall, Cap & Parapet								
A12	②	70	5	19	7	Cap								
A13	③	18	5	11	7	Wall	9	1	2	6				
A14	Str.	18	5	9	2	"								
A15	③	36	5	11	7	"	9	1	2	6				
A16	Str.	14	5	7	2	"								
A17	"	36	5	25	7	"								
A18	"	66	9	17	10	"								
A19	④	4	5	9	10	Cap	3	0	3	11	3	0		
A20	"	32	5	6	10	Pads	2	6	1	11	2	6		
A21	Str.	32	5	3	1	"								
A22	③	22	7	10	2	Parapet	8	7	1	8				
A23	④	72	6	12	6	"	9	2	1	2	2	3		
A24	Str.	14	6	8	10	Wing Wall								
A25	④	1	5	15	11	" "	7	2	1	8	7	2		
A26	"	1	5	14	11	" "	6	8	1	8	6	8		
A27	"	1	5	13	11	" "	6	2	1	8	6	2		
A28	"	1	5	12	11	" "	5	8	1	8	5	8		
A29	"	1	5	11	11	" "	5	2	1	8	5	2		
A30	"	1	5	10	11	" "	4	8	1	8	4	8		
A31	"	1	5	9	11	" "	4	2	1	8	4	2		
A32	"	1	5	8	11	" "	3	8	1	8	3	8		
A33	"	1	5	7	11	" "	3	2	1	8	3	2		
A34	"	1	5	6	11	" "	2	8	1	8	2	8		
A35	Str.	2	C	13	3	" "								
A36	"	2	6	11	11	" "								
A37	"	2	6	13	11	" "								
A38	"	2	6	15	11	" "								
A39	"	6	6	16	8	" "								
A40	"	20	5	4	3	Wing Post								
A41	⑤	20	5	4	7	" "								
A42	⑫	20	5	2	0	" "								
A43	Str.	8	5	16	8	" "								
A44	③	32	6	9	2	Wing Wall	8	0	1	2				
A45	④	32	6	11	10	" "	8	10	0	10	2	3		
A46	⑦	1	5	7	4	" "	2	10						
A47	"	1	5	7	10	" "	3	4						
A48	"	1	5	8	4	" "	3	10						
A49	"	1	5	8	10	" "	4	4						
A50	"	1	5	9	4	" "	4	10						
A51	"	1	5	9	10	" "	5	4						
A52	"	1	5	10	4	" "	5	10						
A53	"	1	5	10	10	" "	6	4						
A54	④	1	5	5	7	" "	2	10	0	8	2	3		
A55	"	1	5	6	1	" "	3	4	0	8	2	3		
A56	"	1	5	6	7	" "	3	10	0	8	2	3		
A57	"	1	5	7	1	" "	4	4	0	8	2	3		
A58	"	1	5	7	7	" "	4	10	0	8	2	3		
A59	"	1	5	8	1	" "	5	4	0	8	2	3		
A60	"	1	5	8	7	" "	5	10	0	8	2	3		
A61	"	1	5	9	1	" "	6	4	0	8	2	3		

ESTIMATE OF QUANTITIES

Concrete, Class 'A'	341.8	Cu Yd.
Concrete, Class 'AA'	57.7	Cu. Yd
Reinforcement	57,973	Lbs.

See Piling Record, sheet 12 for method of payment for sheet piling around 4' brick sewer

ABUTMENT 2

DESIGNED BY CEB DATE 6-71
DETAILED BY CEB DATE 7-71
TRACED BY RCW DATE
CHECKED BY RCW DATE
CHECKED BY DATE
CHECKED BY DATE
REVISED
REVISED
REVISED

OHIO APPROACH SHEET 32

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

BRIDGE OVER OHIO RIVER ON U.S. 25
KENTON COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

STATION 81 + 76 P.E. PROJECT NO. F 141 (1)

HAZELET & ERDAL
Consulting Engineers
File No. 918-03

CONSTRUCTION PROJECT NO.

DRAWING NO. 18577

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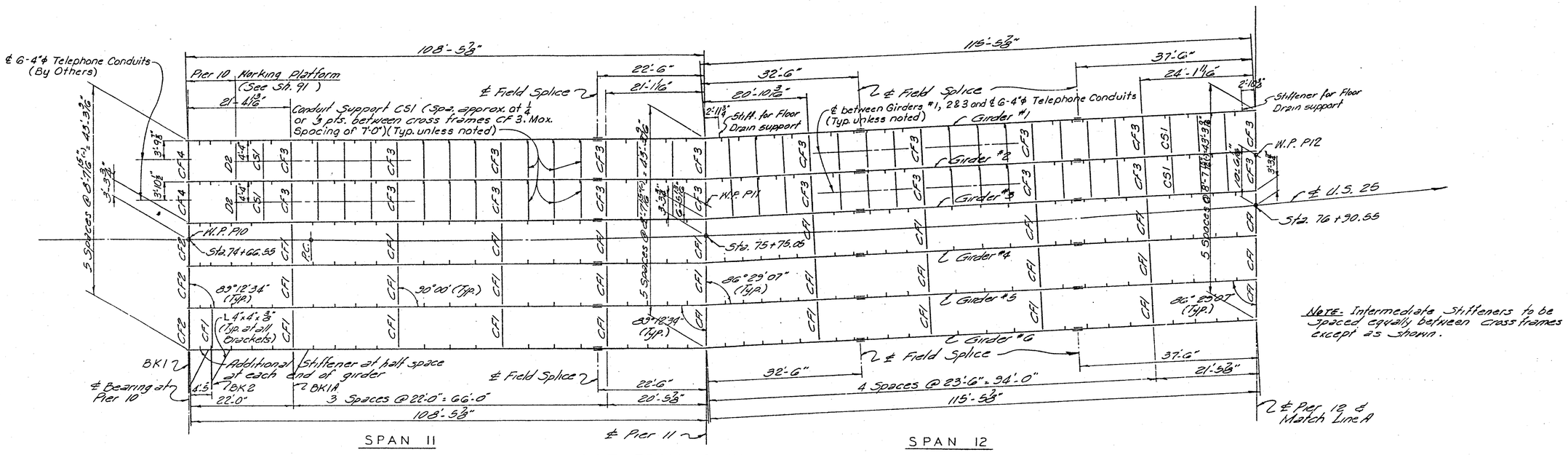
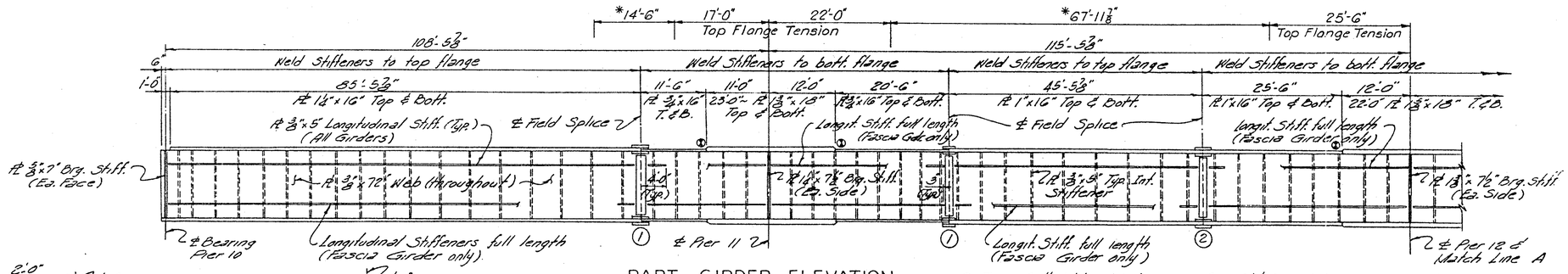
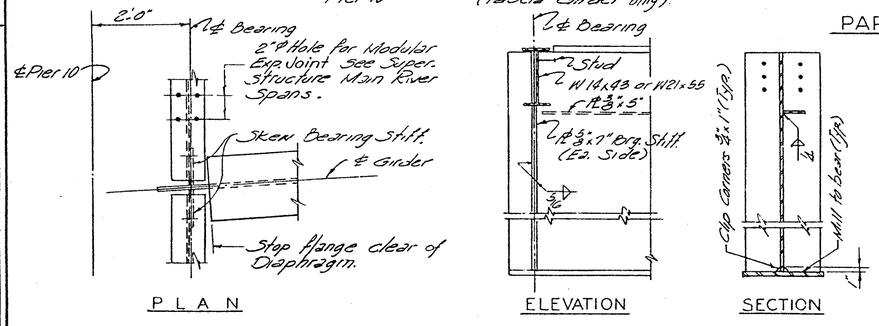


PART FRAMING PLAN



PART GIRDER ELEVATION

① Flange Butt Weld in tensile area - See Std. Dwg. AWS 3, Current Edition.
* Indicates areas of stress reversal.



PLAN ELEVATION SECTION

BEARING DETAILS AT PIER 10

Notes:-
Intermediate Stiffeners to be placed normal to grade where shown.
Bearing Stiffeners to be vertical.
Dimensions shown are horizontal.
Exterior Girders to have top and bottom longitudinal stiffeners full length.
For Details of Splices ① & ② see Sh. 34
All Structural Steel to be ASTM A36.

SPANS 11 & 12 SUPERSTRUCTURE

OHIO APPROACH SHEET 33

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

BRIDGE OVER OHIO RIVER ON U.S. 25
KENTON COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

STATION 81+76 P.E. PROJECT NO. F 141 (1)

HAZELET & ERDAL Consulting Engineers File No. 918-03

CONSTRUCTION PROJECT NO.

DRAWING NO. 18577

LETTING DATE

DESIGNED BY MAM DATE 6-71 REVISED
DETAILED BY Rad DATE 7-71 REVISED
CHECKED BY Rad DATE REVISED
TRACED BY DK CHECKED BY REVISED

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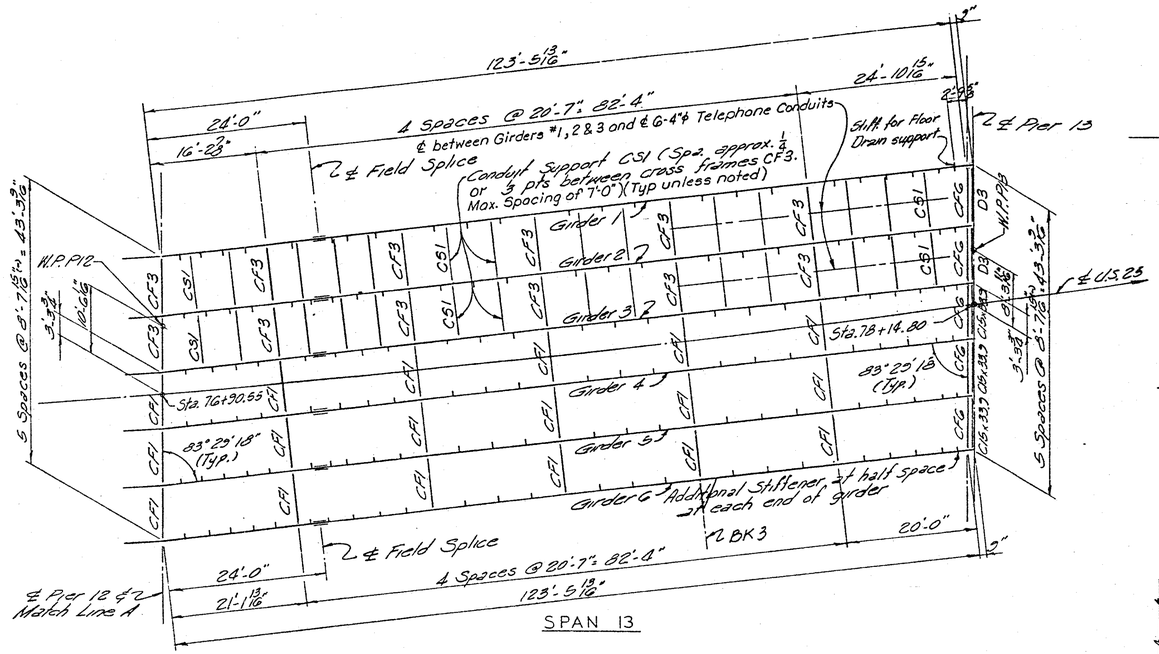
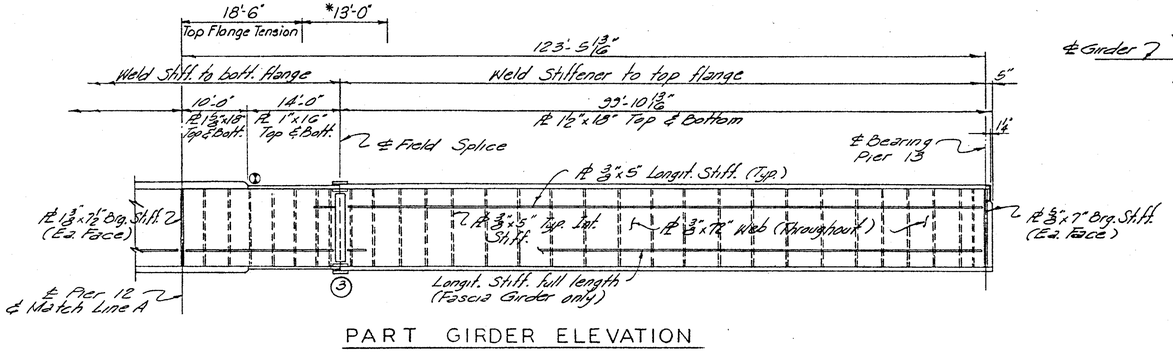
LETTING DATE

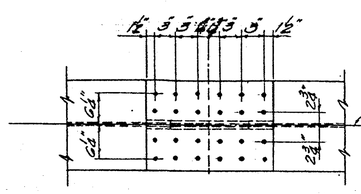


SPAN 13

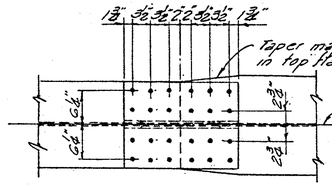
PART FRAMING PLAN



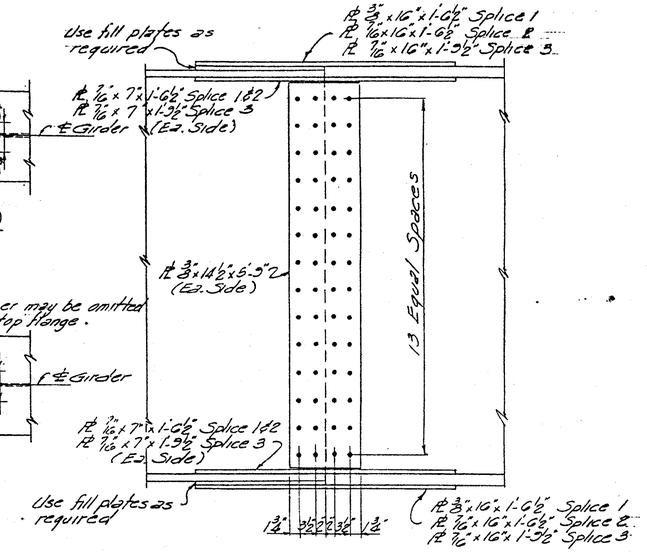
PART GIRDER ELEVATION



PLAN SPLICE ①&②

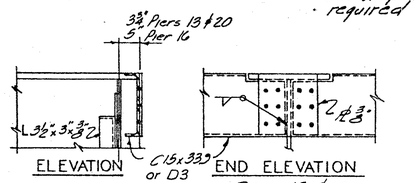


PLAN SPLICE ③

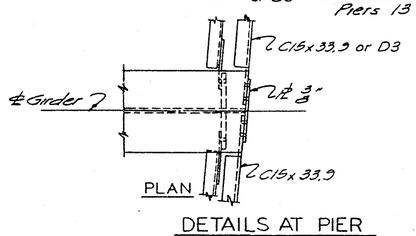


ELEVATION SPLICES ①②&③

(7/8"ø H.S. Bolts to be used throughout Splice 1 & 2)
(1"ø H.S. Bolts to be used throughout Splice 3)

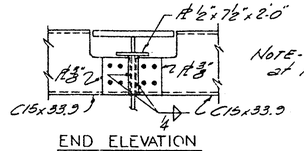


ELEVATION — END ELEVATION Piers 13 & 16



PLAN

DETAILS AT PIER
Piers 13, 16 & 20



Note- For Plan view of End elevation at Pier 20, see Section C-C Sh. 46.

END ELEVATION
Pier 20

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DESIGNED BY JWH DATE 6-21
DETAILED BY PSK CHECKED BY Rad DATE 7-21
TRACED BY CHECKED BY DATE
REVISED REVISED REVISED

OHIO APPROACH SHEET 34

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

BRIDGE OVER OHIO RIVER ON U.S. 25
KENTON COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

STATION 81+76 P.E. PROJECT NO. F 141 (1)

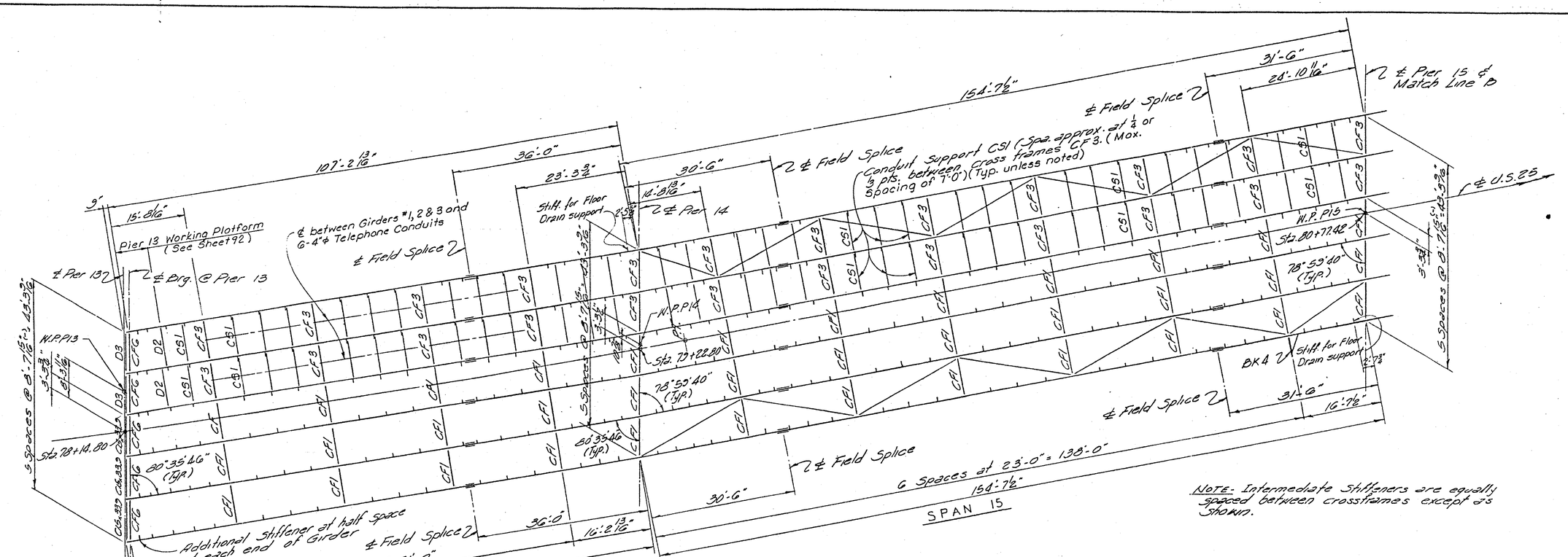
HAZELET & ERDAL
Consulting Engineers
File No. 918-03

CONSTRUCTION PROJECT NO.

DRAWING NO. 18577

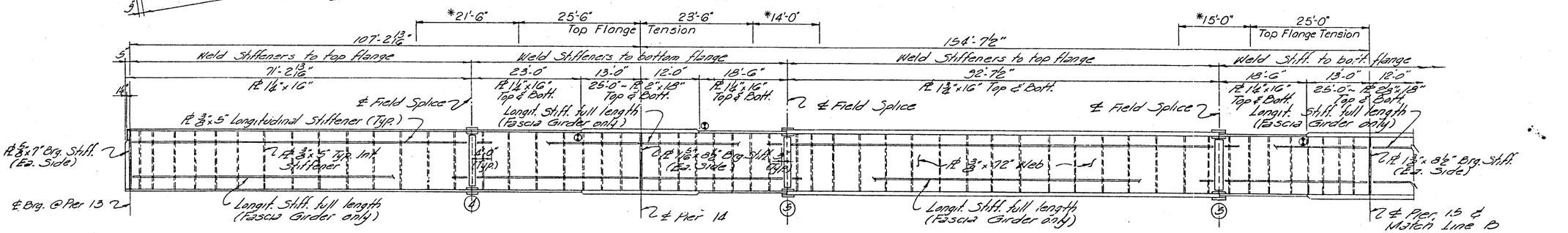
SPAN 13
SUPERSTRUCTURE

LETTING DATE



PART FRAMING PLAN

Note: Intermediate Stiffeners are equally spaced between crossframes except as shown.



PART GIRDER ELEVATION

① Flange Butt Weld in tensile area - see Std. Dwg. AWS 3, Current Edition.

* Indicates areas of stress reversal

NOTES-
Intermediate Stiffeners to be placed normal where shown.
Bearing Stiffeners to be vertical.
Dimensions shown are horizontal.
Exterior Girders to have top and bottom longitudinal Stiffeners full length.
For Details of Splices ② & ③ see Sh. 36.

SPANS 14 & 15
SUPERSTRUCTURE

OHIO APPROACH

SHEET 35

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

BRIDGE OVER OHIO RIVER ON U.S. 25
KENTON COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

STATION 81+76 — P.E. PROJECT NO. F 141 (1)

HAZELET & ERDAL
Consulting Engineers
File No. 918-03

CONSTRUCTION PROJECT NO.

DRAWING NO. 18577

DESIGNED BY JWH DATE 6/21 CHECKED BY RSL
DETAILED BY RSL DATE 6/21 CHECKED BY RSL
TRACED BY DATE CHECKED BY
REVISED
REVISED
REVISED

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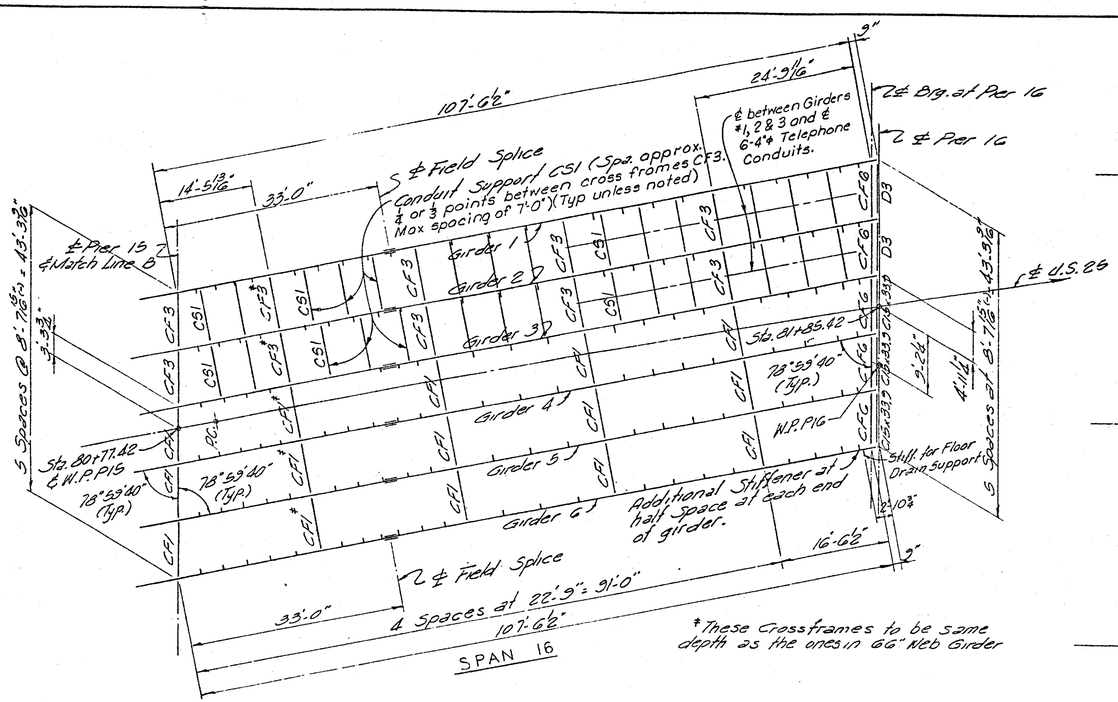
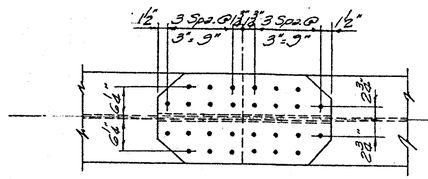
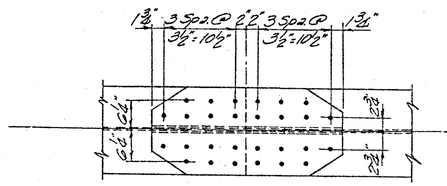


*These Crossframes to be same depth as the ones in 66" Neb Girder

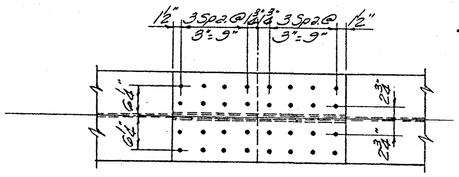
PART FRAMING PLAN



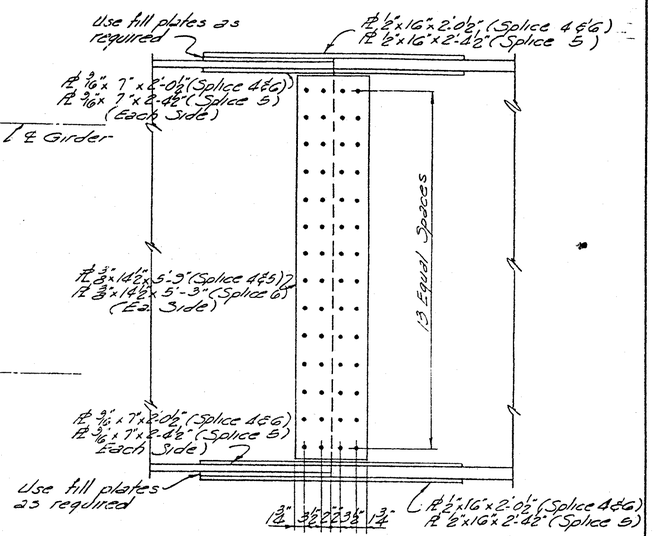
PLAN SPLICE ④



PLAN SPLICE ⑤

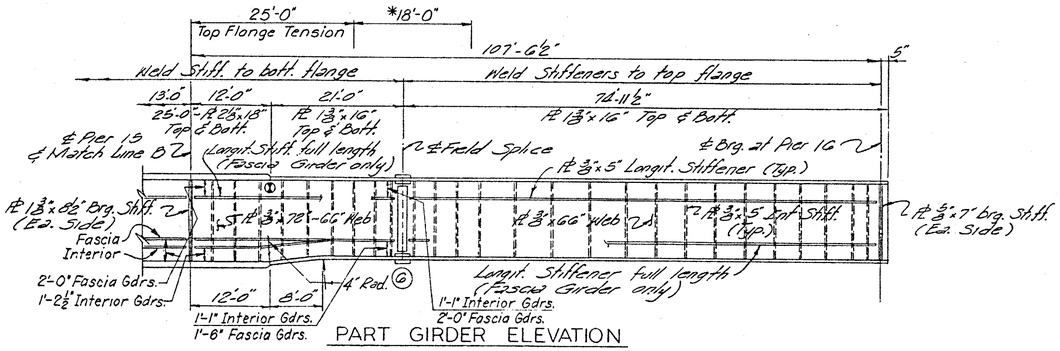


PLAN SPLICE ⑥



ELEVATION, SPLICES ④, ⑤ & ⑥

(⅞" H.S. Bolts to be used throughout Splice 4 & 6)
(1" H.S. Bolts to be used throughout Splice 5)



PART GIRDER ELEVATION

SPAN 16
SUPERSTRUCTURE

OHIO APPROACH SHEET 36

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

BRIDGE OVER OHIO RIVER ON U.S. 25

KENTON COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

STATION 81 + 76 P.E. PROJECT NO. F 141 (1)

HAZELET & ERDAL
Consulting Engineers
File No. 918-03

CONSTRUCTION PROJECT NO.

DRAWING NO. 18577

DESIGNED BY ____ DATE 6-71
DETAILED BY BCW DATE 7-71
TRACED BY ____ DATE ____
CHECKED BY ____ DATE ____
CHECKED BY ____ DATE ____

LETTING DATE

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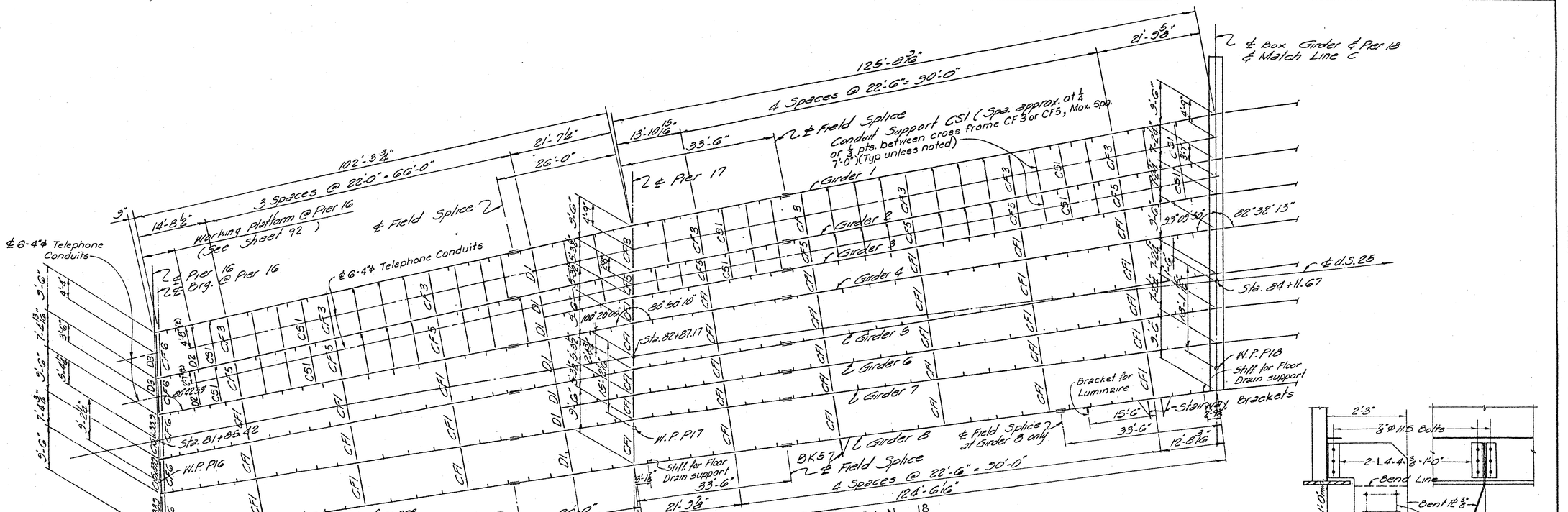
LETTING DATE



Note - Numbers in ( ) are theoretical for girder extended.

TABLE OF DIMENSIONS

GIRDER	SPAN 17 Angle @ Pier 16	Dim. A	Dim. B	Angle @ Pier 17	SPAN 18 Angle @ Pier 17	Dim. A	Dim. B	Angle @ Pier 18	C	D
Gdr. 1	79°00'14"	102'-3 3/4"	76'-8 3/4"	102°02'41"	79°07'47"	125'-8 3/16"	81'-2 1/16"	100°52'13"	1 3/8"	24"
Gdr. 2	78°59'06"	102'-1 1/2"	76'-6 1/2"	102°03'54"	79°07'47"	125'-8 3/16"	81'-2 1/16"	100°52'13"	1 3/8"	24"
Gdr. 3	(79°50'48")	(101'-3 1/16")	(76'-2 1/16")	101°12'07"	79°58'50"	125'-4 1/16"	80'-10 1/16"	100°01'10"	*1 3/8"	24"
Gdr. 4	80°42'55"	101'-2 1/16"	75'-9 1/16"	100°20'00"	80°50'10"	125'-0 3/8"	80'-6 3/8"	99°09'50"	1 3/8"	24"
Gdr. 5	80°41'55"	101'-2 3/8"	75'-7 3/8"	100°21'00"	80°50'10"	125'-0 3/8"	80'-6 3/8"	99°09'50"	1 3/8"	24"
Gdr. 6	(81°38'34")	(100'-10 3/16")	(75'-3 3/16")	99°23'21"	81°41'44"	124'-9 3/16"	80'-3 1/16"	98°18'16"	*1 3/8"	24"
Gdr. 7	82°27'33"	100'-6 3/4"	74'-11 3/4"	98°35'27"	82°33'32"	124'-6 1/16"	80'-0 1/16"	97°26'28"	1 3/8"	24"
Gdr. 8	82°26'43"	100'-6 1/16"	74'-9 1/16"	98°36'10"	82°33'32"	124'-6 1/16"	80'-0 1/16"	97°26'28"	1 3/8"	24"

NOTES -
Intermediate Stiffeners to be placed normal where shown.
Bearing Stiffeners to be vertical.
Dimensions shown are horizontal.
Exterior Girders to have top and bottom longitudinal Stiffeners full length.

* Extend PL to end of Girder
For Details of Splices ⑦ & ⑧, see Sh. 38.
For Details of Splice ⑨, see Sh. 43.
For Details of Box Girder, see Sh. 42 & 43.
For Details of Girder 1 through 7 Splice at Pier 18, see Sh. 43.

① Flange Butt Weld in tensile area - see Std. Dwg. ANS 3, Current Ed. At Girder 8
* Indicates areas of stress reversal.

SPANS 17 & 18
SUPERSTRUCTURE

OHIO APPROACH SHEET 37

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

BRIDGE OVER OHIO RIVER ON U.S. 25
KENTON COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

STATION 81+76 P.E. PROJECT NO. F 141 (1)

HAZELET & ERDAL Consulting Engineers File No. 918-03

CONSTRUCTION PROJECT NO. —

DRAWING NO. 18577

DESIGNED BY JMM DATE 6-71 REVISED
DETAILED BY BK DATE 7-71 REVISED
TRACED BY DATE REVISED
CHECKED BY RDM DATE REVISED
CHECKED BY RDM DATE REVISED

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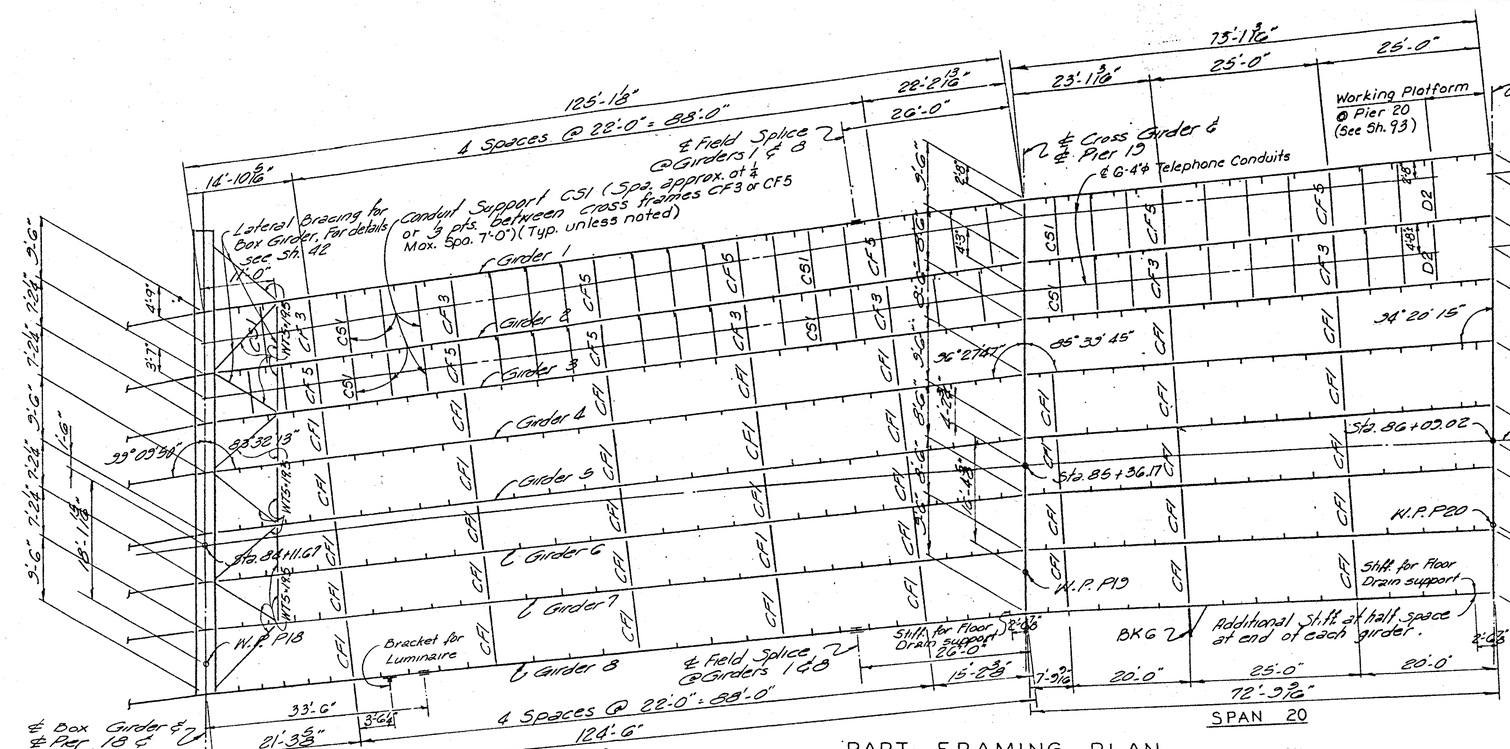
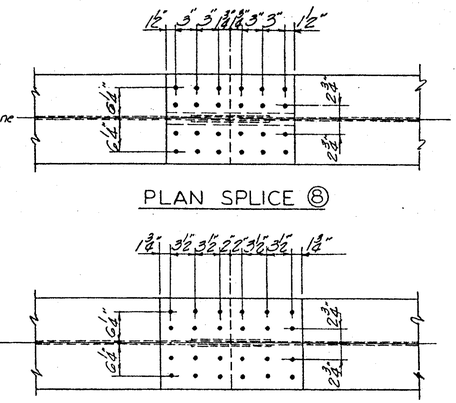
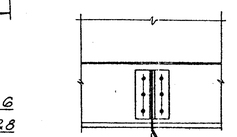


PART FRAMING PLAN

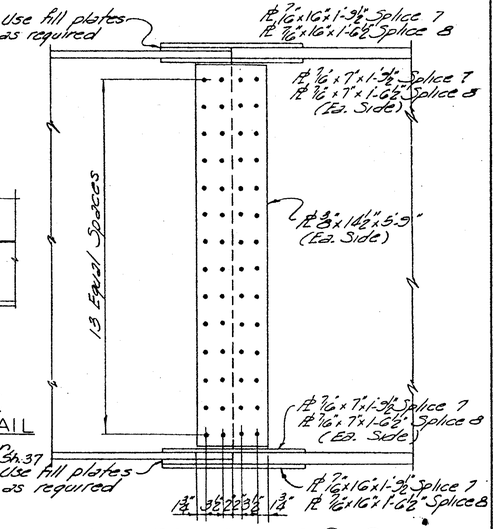
PART GIRDER ELEVATION





LUMINAIRE BRACKET DETAIL

For details not shown, see Luminaire Bkt. Det. Sh. 37



ELEVATION, SPLICES ⑦&⑧

(⅞"ϕ H.S. bolts to be used throughout Splice 8)
(1"ϕ H.S. bolts to be used throughout Splice 7)

For Details of Splices ⑨ & ⑩ see Sh. 43.
For Details of Box Girder see Sh. 42 & 43.
For Details of Girders 1 thru 7 Splice at Pier 18, see Sh. 43.

For Details of Cross Girder at Pier 19, see Sh. 44
For Details of Girders 2 thru 7 Splice at Pier 19, see Sh. 44

For Details of Cross Girder at Pier 20, see Sh. 45

TABLE OF DIMENSIONS

GIRDER	SPAN 19 Angle @ Pier 18	Dim. A	Dim. B	Angle @ Pier 19	SPAN 20 Angle @ Pier 19	Dim. A	Dim. B	Angle @ Pier 20	D	E
Gdr. 1	82° 20' 32"	125'-1⅛"	103'-1⅛"	97° 39' 28"	84° 05' 57"	73'-1⅜"	66'-7⅜"	95° 54' 03"	24"	2"
Gdr. 2	82° 20' 32"	125'-1⅛"	103'-1⅛"	97° 39' 28"	84° 05' 57"	73'-1⅜"	66'-7⅜"	95° 54' 03"	24"	2"
Gdr. 3	82° 56' 27"	124'-11⅛"	102'-11⅛"	97° 03' 40"	83° 52' 47"	73'-0⅛"	66'-6⅛"	95° 07' 13"	23"	2"
Gdr. 4	83° 32' 13"	124'-3½"	101'-3½"	96° 27' 47"	83° 39' 45"	72'-11⅝"	66'-5⅛"	94° 20' 15"	21"	2"
Gdr. 5	83° 32' 13"	124'-3½"	101'-3½"	96° 27' 47"	83° 39' 45"	72'-11⅝"	66'-5⅛"	94° 20' 15"	21"	2"
Gdr. 6	84° 08' 12"	124'-7⅜"	101'-7⅜"	95° 51' 48"	86° 26' 48"	72'-10⅛"	66'-4⅛"	93° 33' 12"	21"	21"
Gdr. 7	84° 18' 19"	124'-6"	101'-6"	95° 45' 45"	87° 13' 56"	72'-3⅜"	66'-3⅜"	92° 46' 04"	21"	2"
Gdr. 8	84° 18' 19"	124'-6"	101'-6"	95° 45' 45"	87° 13' 56"	72'-3⅜"	66'-3⅜"	92° 46' 04"	21"	2"

① Flange Butt Weld in tensile area - See Std. Dwg. AMS 3, Current Edition
* Indicates area of stress reversal.

SPANS 19 & 20
SUPERSTRUCTURE

OHIO APPROACH SHEET 38

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

BRIDGE OVER OHIO RIVER ON U.S. 25
KENTON COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

STATION 81+76 P.E. PROJECT NO. F141 (1)

HAZELET & ERDAL Consulting Engineers File No. 918-03	CONSTRUCTION PROJECT NO.	DRAWING NO. 18577

DESIGNED BY: PCW DATE: 6-71 REVISED
DETAILED BY: PCW DATE: 7-71 REVISED
CHECKED BY: PCW DATE: REVISED
TRACED BY: DATE: REVISED

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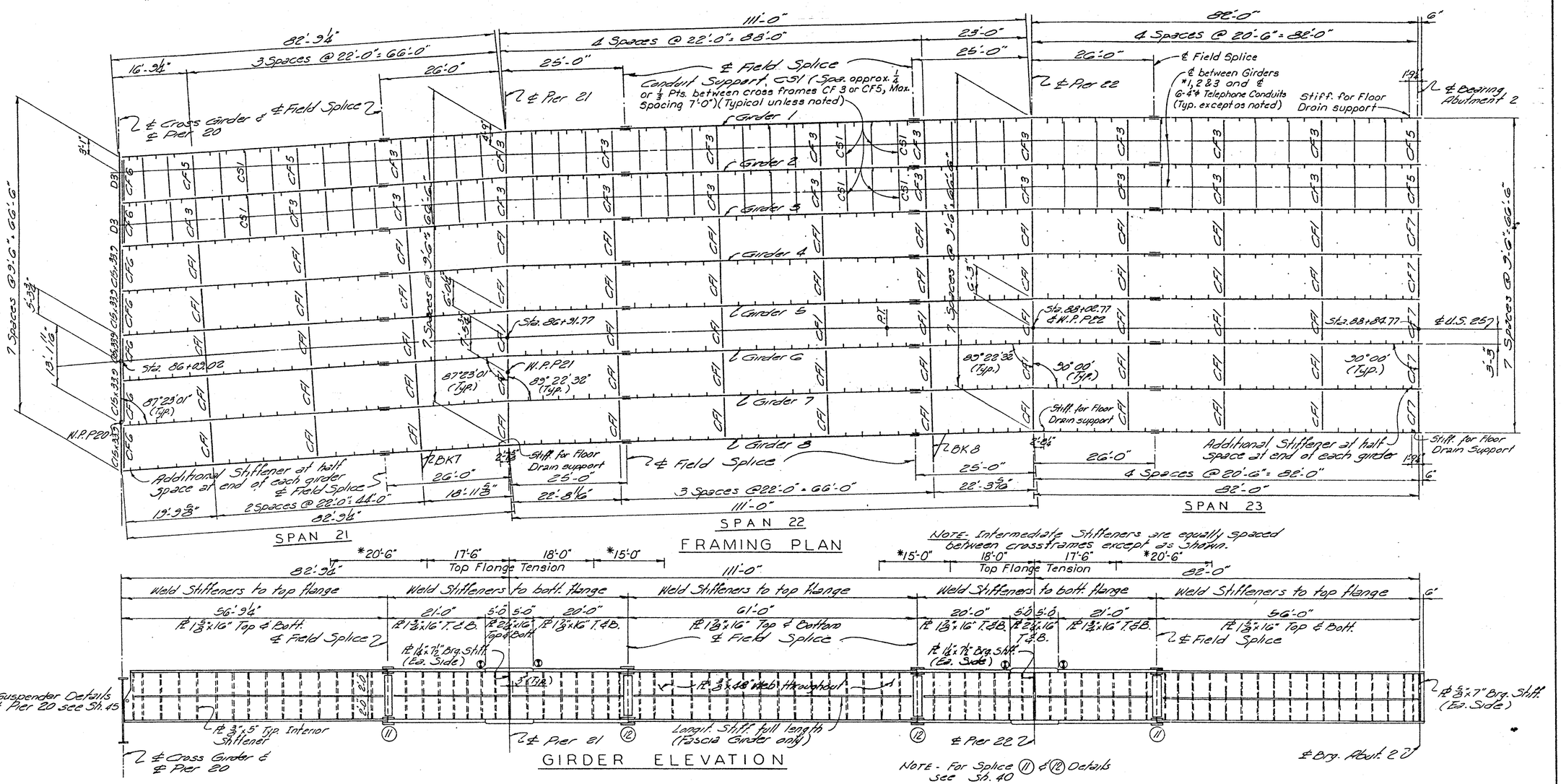
LETTING DATE



(1) Flange Butt Weld in tensile area - See Std. Org. AWS 3, current Edition.
* Indicates areas of stress reversal.

NOTES-
Intermediate Stiffeners to be placed normal where Shown.
Bearing Stiffeners to be vertical.
Dimensions Shown are horizontal.

DESIGNED BY
DETAILED BY
TRACED BY
CHECKED BY
REVISED DATE 6-71
REVISED DATE 2-71

OHIO APPROACH

SHEET 39

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

BRIDGE OVER OHIO RIVER ON U.S. 25

KENTON COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

STATION 81 + 76

P.E. PROJECT NO. F 141 (1)

HAZELET & ERDAL
Consulting Engineers
File No. 918-03

CONSTRUCTION PROJECT NO.

DRAWING NO. 18577

SPANS 21, 22 & 23 SUPERSTRUCTURE

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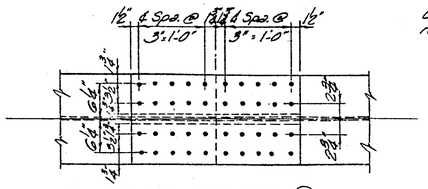
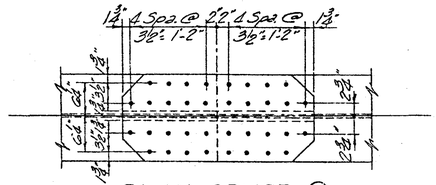
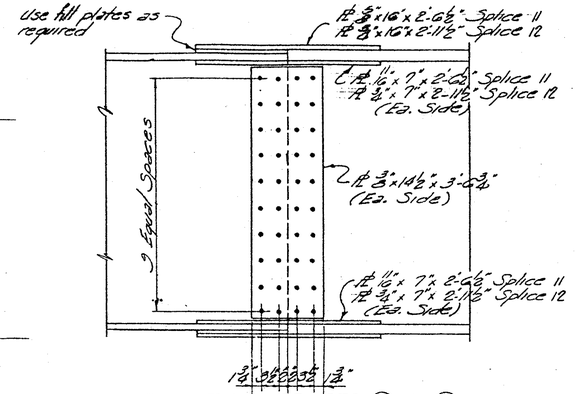
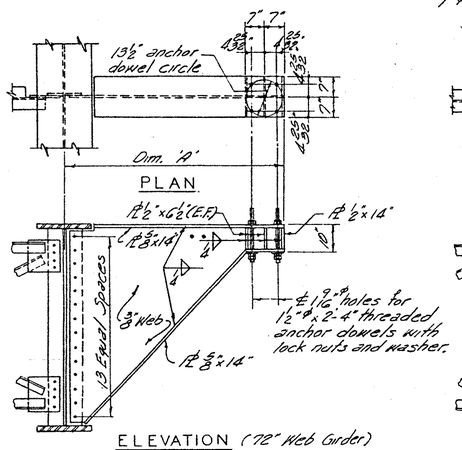
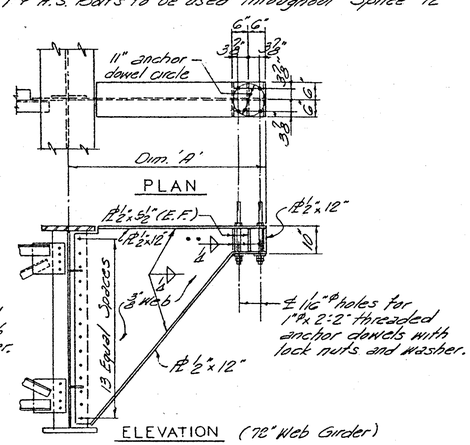


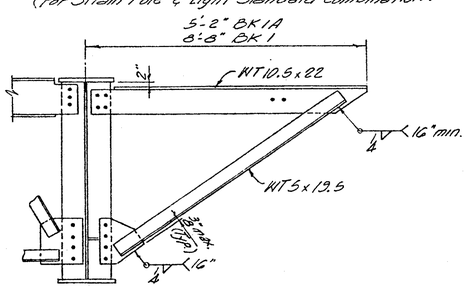


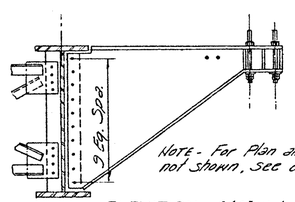


3/4" H.S. Bolts to be used throughout Splice 11
1" H.S. Bolts to be used throughout Splice 12



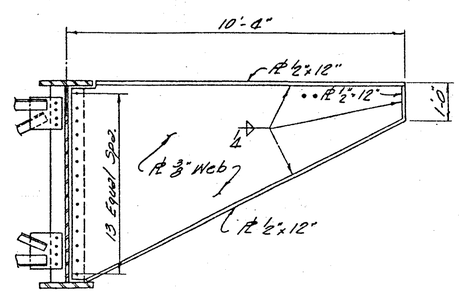


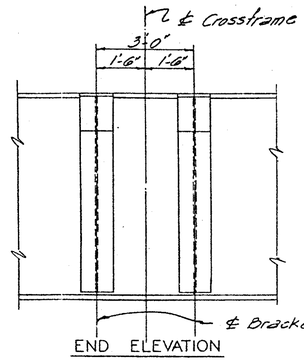




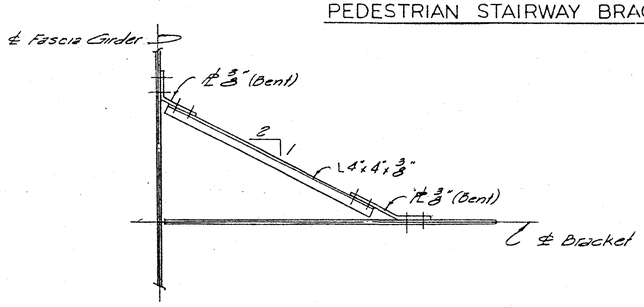
Note: All Pole Bolt Circle Details shall be co-ordinated with Standard furnished for the Project

	BK2	BK3	BK4	BK5	BK6	BK7	BK8
Dim. 'A'	9'-4⅝"	7'-1½"	6'-8½"	6'-3"	6'-1¾"	6'-2¾"	6'-4⅝"

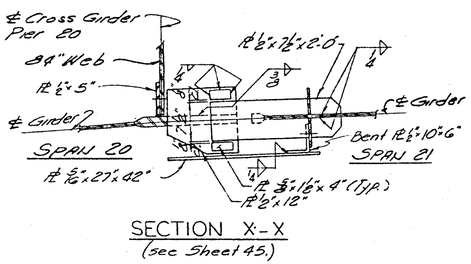


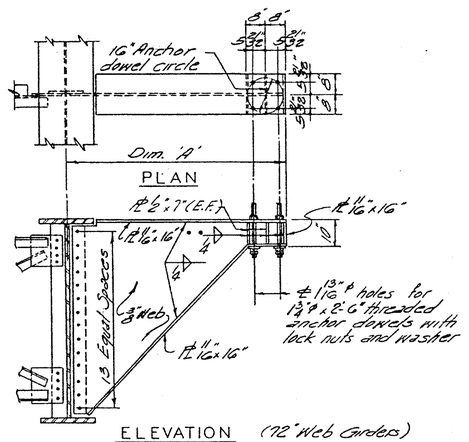


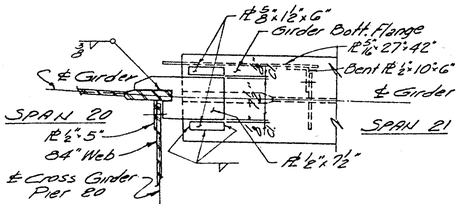
PEDESTRIAN STAIRWAY BRACKET

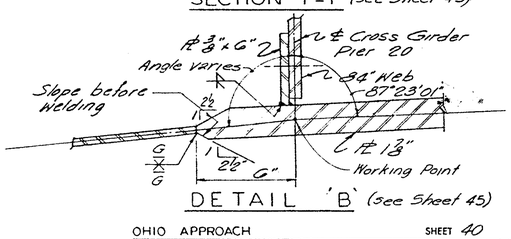


DETAIL FOR BRACKET LATERAL BRACE









SUPERSTRUCTURE

OHIO APPROACH SHEET 40

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

BRIDGE OVER OHIO RIVER ON U.S. 25
KENTON COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

STATION 81+76 P.E. PROJECT NO. F 141 (1)

HAZELET & ERDAL Consulting Engineers File No. 918-03	CONSTRUCTION PROJECT NO.	DRAWING NO. 18577

LETTING DATE

DESIGNED BY MAH CHECKED BY RCJ DATE 6-71
DETAILED BY BK CHECKED BY RCJ DATE 2-72
TRACED BY CHECKED BY DATE
REVISED
REVISED

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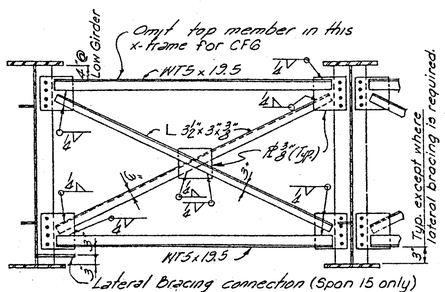
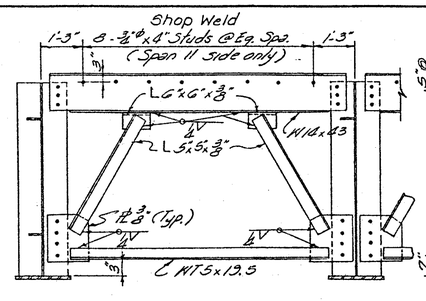
LETTING DATE



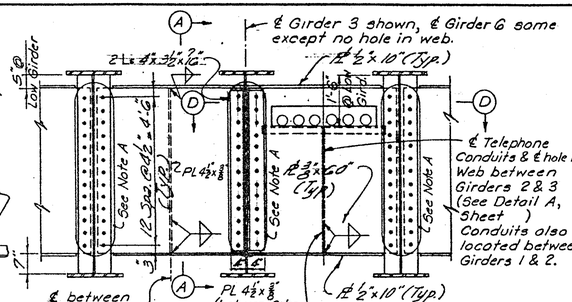
Lateral Bracing connection (Span 15 only)
(Weld all members of crossframe with 16 l.in. in. 4" fillet weld. Typ)

CROSSFRAME CF1 & CF6

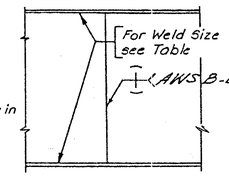


(Weld all members of crossframe with 16 l.in. in. 4" fillet weld - typ.)

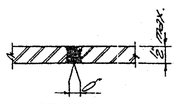
CROSSFRAME CF 2



DIAPHRAGM D1

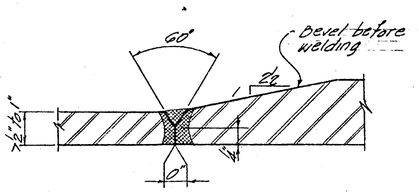


ELEVATION

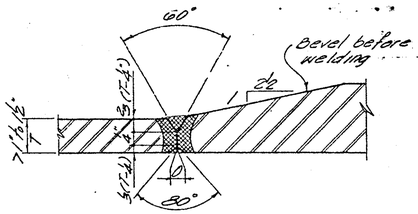


SECTION

SHOP WEB SPLICE
AWS B-L1-S
(Submerged Metal Arc Weld)



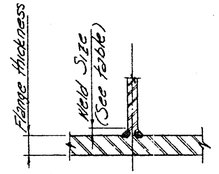
SHOP FLANGE SPLICE
AWS B-L2B-S
(Submerged Metal Arc Weld)



SHOP FLANGE SPLICE
AWS B-L3-S
(Submerged Metal Arc Weld)

WELD SIZES	
Flange Thickness	Weld Size
¾" & under	4"
Over ¾" to 1½"	5/16"
Over 1½" to 2½"	⅜"
Over 2½" to 6"	* ½"

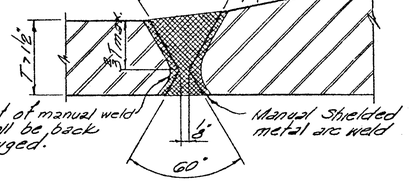
* but not larger than thinner thickness connected.



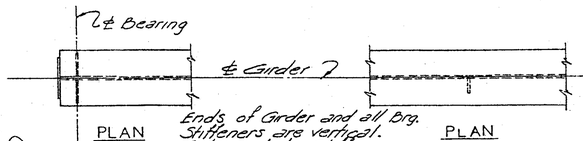
SECTION

FLANGE TO WEB WELD

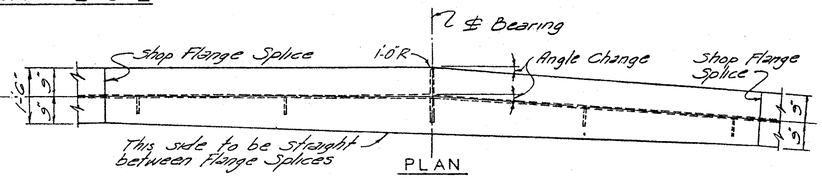
Flange to web welds to be automatic submerged Arc fillet Welds. (See Special Notes). Parts are to be assembled with edge of web plate tight against flange plate before welding.



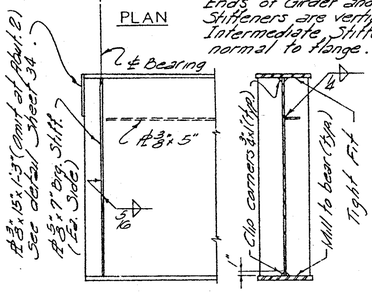
SHOP FLANGE SPLICE
AWS B-U3B-S
(Submerged Metal Arc Weld)



PLAN PLAN



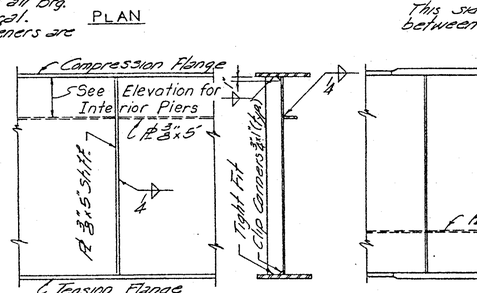
PLAN



ELEVATION SECTION

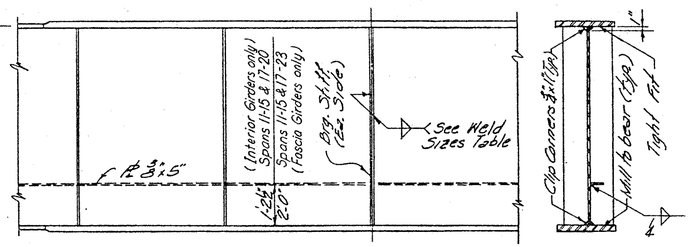
BEARING STIFFENER DETAILS

At Piers 13 & 16 & Abut. 2
See also Details at Pier, Sh. 34



ELEVATION SECTION

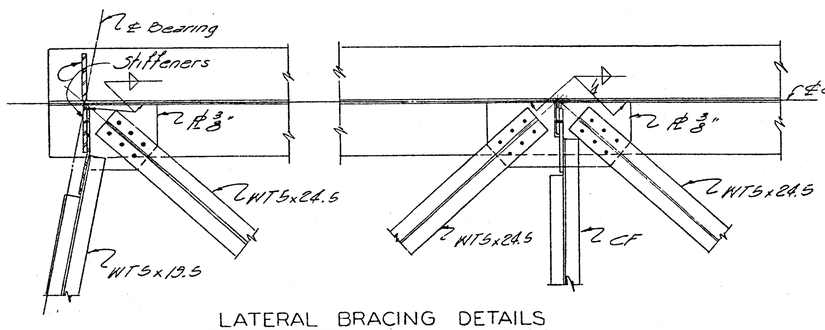
INTERMEDIATE STIFFENER DETAILS



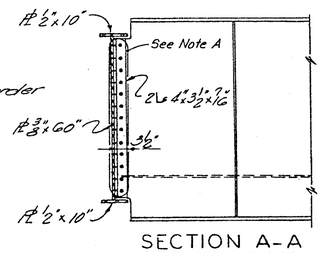
ELEVATION

SECTION

BEARING STIFFENER AT PIERS 11, 12, 14, 15, 17, 21 & 22
(Note - Extra longitudinal Stiffener on Fascia Girder not Shown)

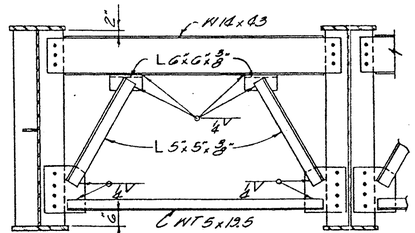


LATERAL BRACING DETAILS



SECTION A-A

Note A:
These bolted connections shall be drilled or reamed in the shop with connecting parts assembled or shall be drilled or reamed to a metal template without assembly.
Top of web of Girder 3 at diaphragm D1 shall be on line with tops of webs of Girders G2 and G4. Top of web of Girder G6 at Diaphragm D1 shall be on line with tops of webs of Girders G5 and G7.



(Weld all members of x-frame with 16 l.in. in. 4" fillet weld-typ)

CROSSFRAME CF 7

Note- Web & Flange butt weld splices shown are typical suggested types, but Fabricator shall submit proposed welding procedures for approval, see Std. Dwg. AWS 3, current edition.

SUPERSTRUCTURE

DESIGNED BY Jmm DATE 6-72 REVISED
DETAILED BY BKC DATE 7-72 REVISED
CHECKED BY RCW DATE REVISED
CHECKED BY RCW DATE REVISED
TRACED BY CHECKED BY DATE REVISED

OHIO APPROACH SHEET 41

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

BRIDGE OVER OHIO RIVER ON U.S. 25
KENTON COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

STATION 81+76 P.E. PROJECT NO. F 141 (1)

HAZELET & ERDAL
Consulting Engineers
File No. 918-03

CONSTRUCTION PROJECT NO.

DRAWING NO. 18577

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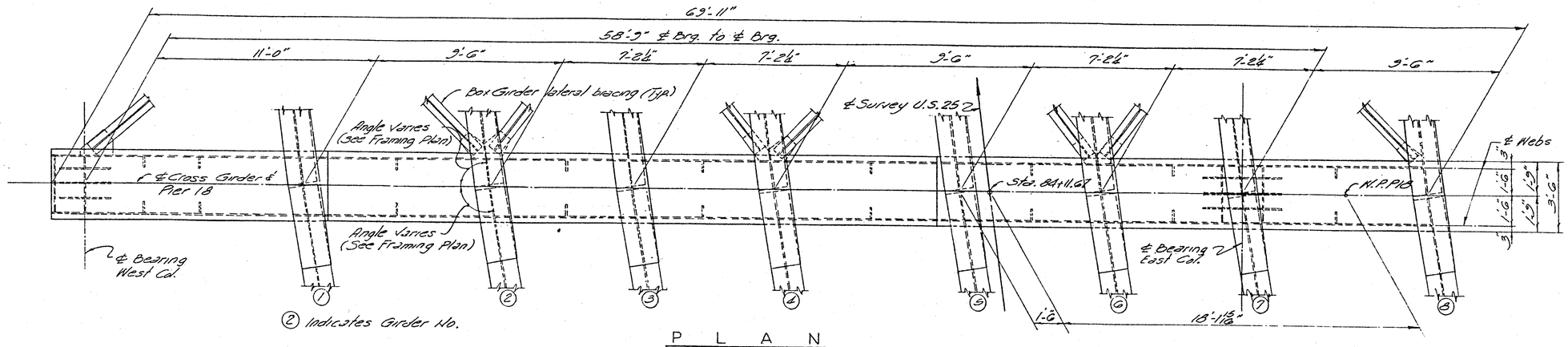
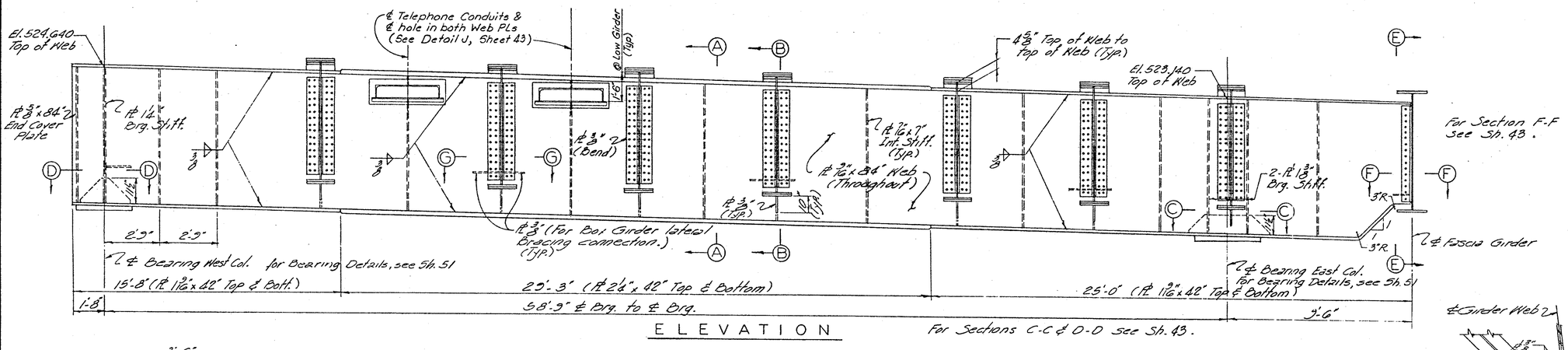
LETTING DATE



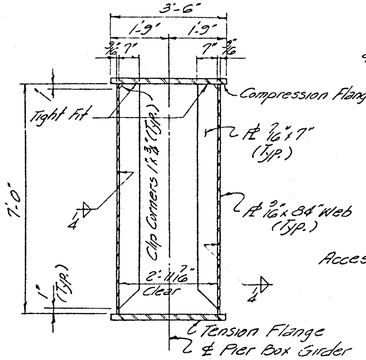
P L A N

Note - All horizontal dimensions shown are along ℄ Cross Girder.

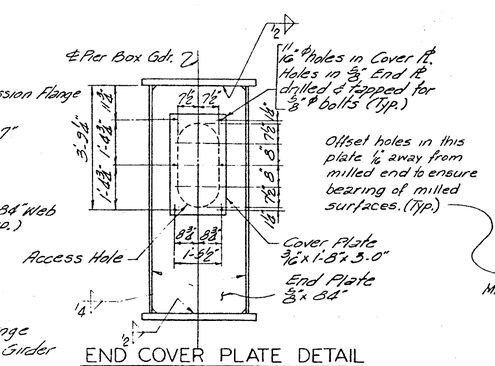


E L E V A T I O N

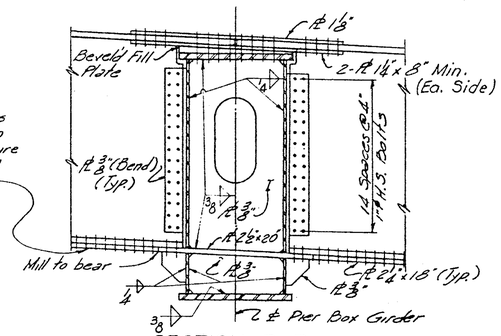
For Sections C-C & D-D see Sh. 43.



SECTION A-A

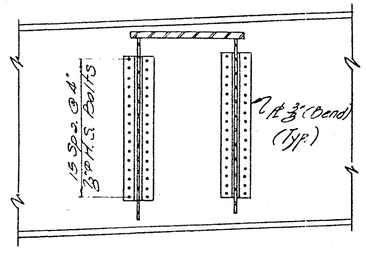


END COVER PLATE DETAIL

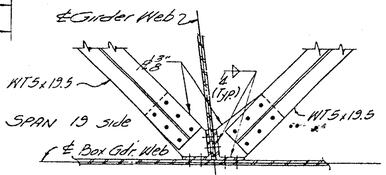


SECTION B-B

For Plan of Top & Bott. Flange see Sh. 43)



SECTION E-E



SECTION G-G

(Showing Box Girder lateral bracing) For Details not Shown see lateral bracing Sheet 41.

DESIGNED BY MM DATE 6-71 REVISED
DETAILED BY RM DATE 7-71 REVISED
TRACED BY DATE REVISED
CHECKED BY DATE
CHECKED BY DATE
CHECKED BY DATE

OHIO APPROACH SHEET 42

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

BRIDGE OVER OHIO RIVER ON U.S. 25
KENTON COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

STATION 81 + 76 P.E. PROJECT NO. F 141 (1)

HAZELET & ERDAL Consulting Engineers File No. 918-03

CONSTRUCTION PROJECT NO.

DRAWING NO. 18577

PIER BOX GIRDER 18

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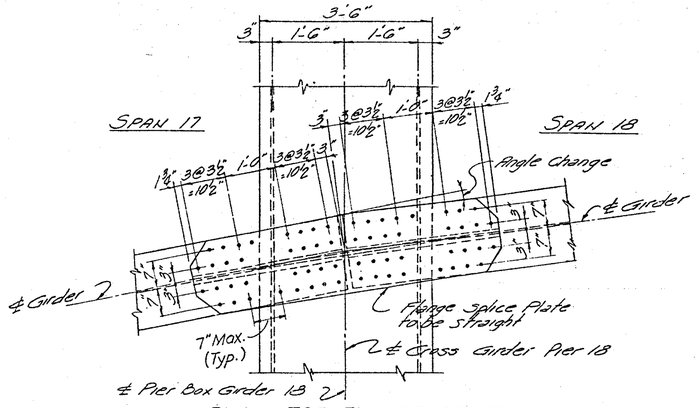
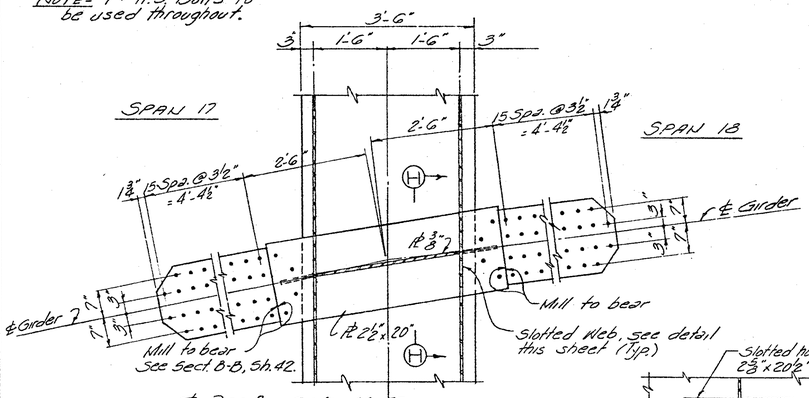
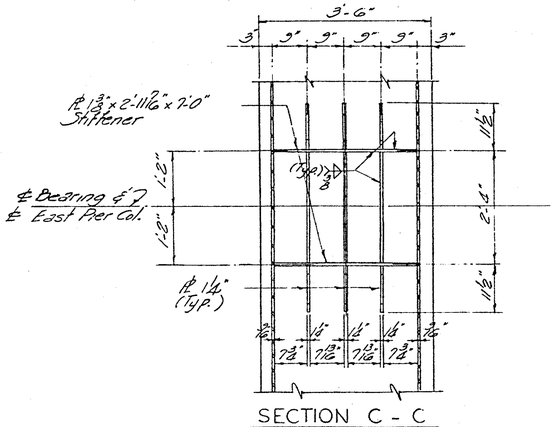


PLAN TOP FLANGE SPLICE
(Girders 1-7 only)

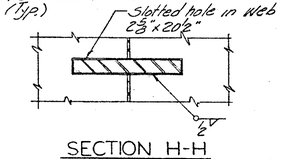
NOTE- 1"ϕ H.S. Bolts to be used throughout.



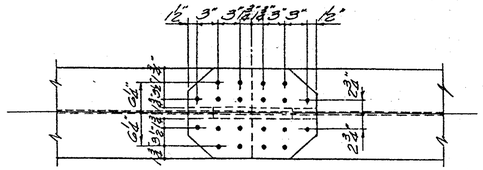
PLAN BOTTOM FLANGE SPLICE
(Girders 1-7 only)



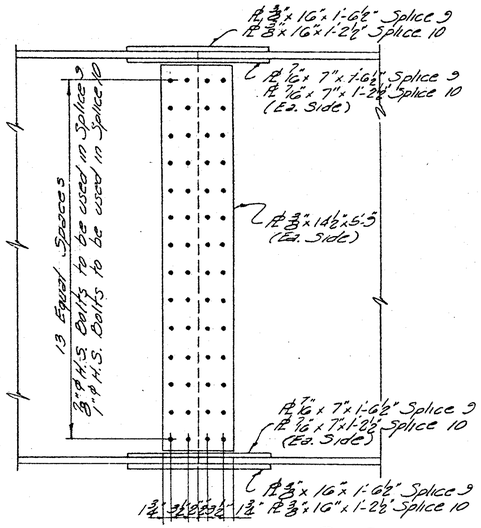
SECTION C - C



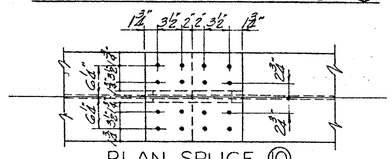
SECTION H-H
(Showing detail of slotted hole)
℄ Pier Box Girder 18 ℄



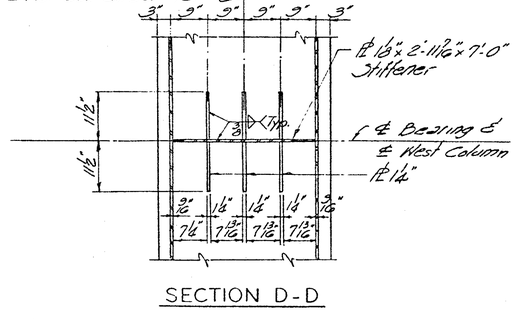
PLAN SPLICE ⑨
⅞"ϕ H.S. Bolts to be used.



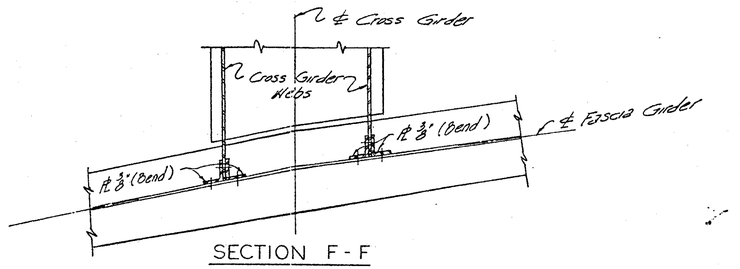
ELEVATION, SPLICE NO. ⑨ & ⑩



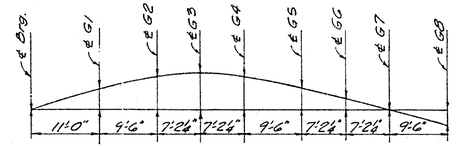
PLAN SPLICE ⑩
1"ϕ H.S. Bolts to be used.



SECTION D-D

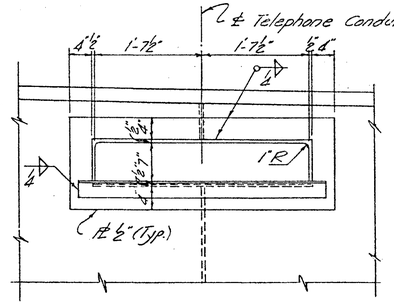


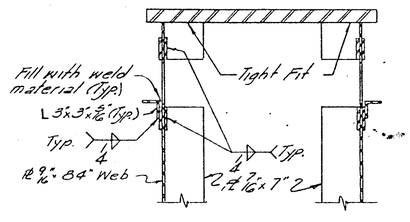
SECTION F - F



DEAD LOAD CAMBER

	℄ Brg.	G1	G2	G3	G4	G5	G6	G7	G8
Steel	0	1/16"	5/16"	5/16"	5/16"	1/16"	1/16"	0	-1/16"
Concr.	0	4/16"	3/16"	1/16"	3/16"	5/16"	5/16"	0	-3/16"
Total	0	5/16"	2/16"	6/16"	2/16"	3/16"	3/16"	0	-4/16"





DETAIL 'J'

DESIGNED BY CMM DATE 6-71
DETAILED BY RGD DATE 2-71
TRACED BY CHECKED BY DATE
REVISED
REVISED

OHIO APPROACH SHEET 43

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

BRIDGE OVER OHIO RIVER ON U.S. 25
KENTON COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

STATION 81 + 76 P.E. PROJECT NO. F 141 (1)

HAZELET & ERDAL
Consulting Engineers
File No. 918-03

CONSTRUCTION PROJECT NO.

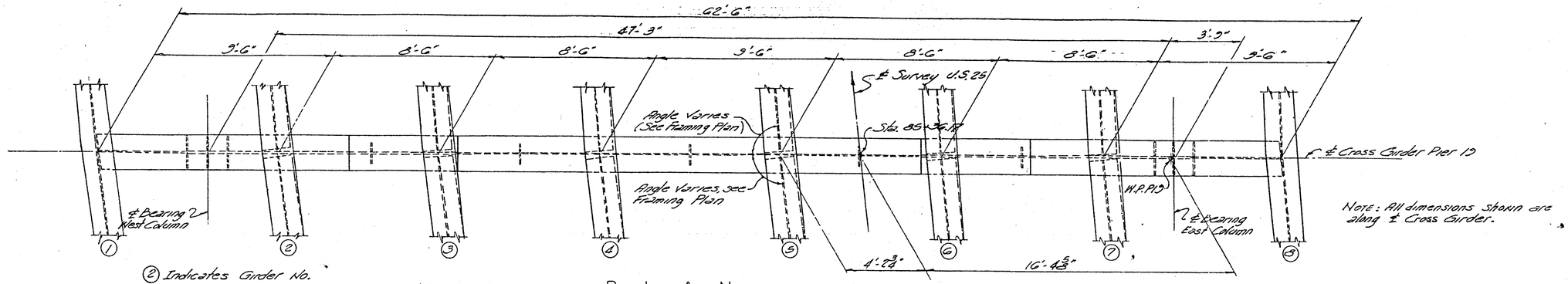
DRAWING NO. 18577

PIER BOX GIRDER 18

LETTING DATE

THIS IS A REDUCED SIZE PRINT — NOT TO SCALE

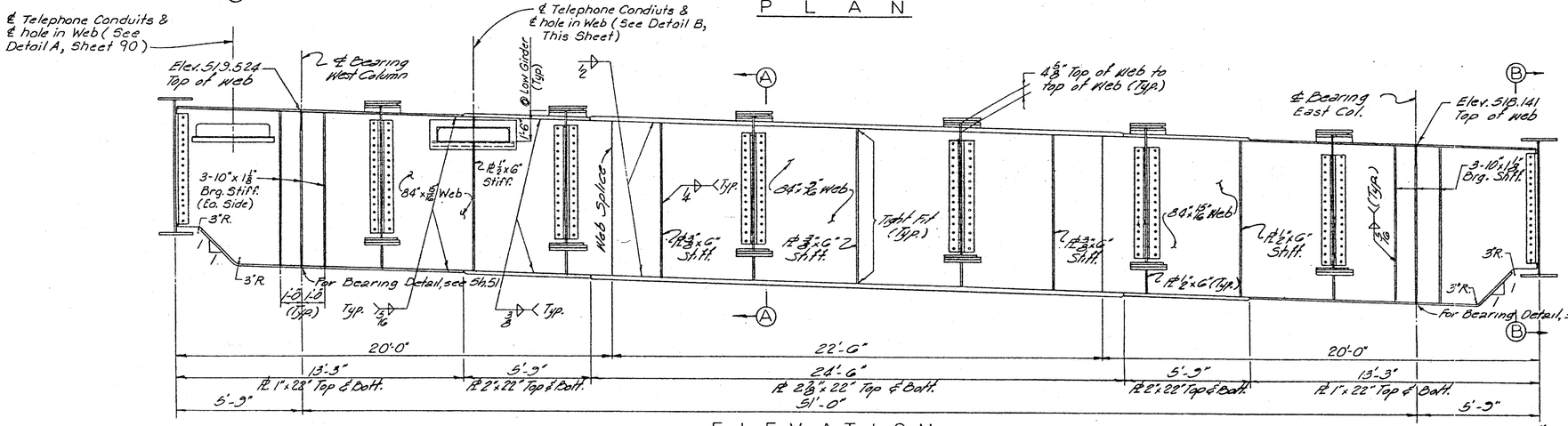
LETTING DATE



② Indicates Girder No.

PLAN

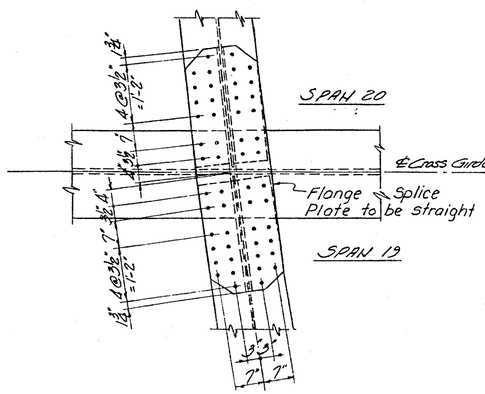
Note: All dimensions shown are along ℄ Cross Girder.



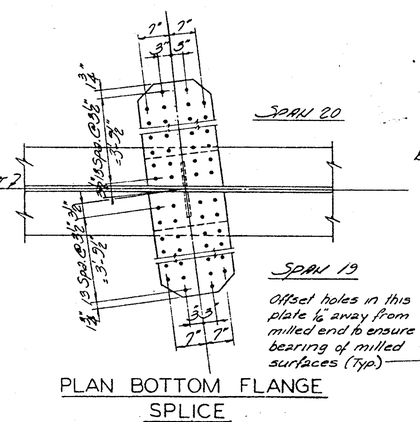
ELEVATION

DEAD LOAD CAMBER					
	G1, G8	℄ Brg.	G2, G7	G3, G6	G4, G5
Steel	-½"	0	0	½"	1"
Concr.	-⅜"	0	⅜"	¼"	⅜"
Total	-⅞"	0	⅜"	¾"	1⅜"

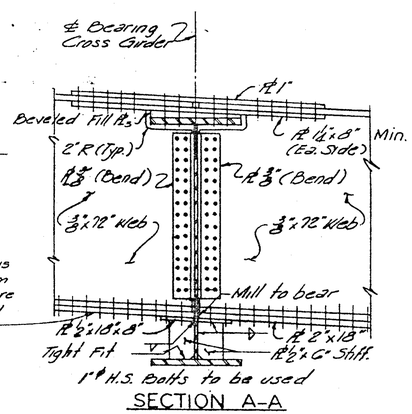
Positive camber is upward.



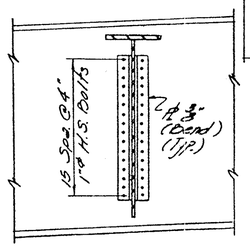
PLAN TOP FLANGE SPLICE



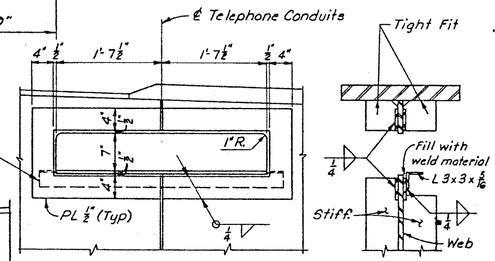
PLAN BOTTOM FLANGE SPLICE



SECTION A-A



SECTION B-B



DETAIL B

OHIO APPROACH SHEET 44

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

BRIDGE OVER OHIO RIVER ON U.S. 25

KENTON COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

STATION 81+76 P.E. PROJECT NO. F 141 (1)

HAZELET & ERDAL Consulting Engineers File No. 918-03

CONSTRUCTION PROJECT NO.

DRAWING NO. 18577

CROSS GIRDER PIER 19

DRAWN BY DMM DATE 6-71
DETAILED BY Pcs DATE 7-71
TRACED BY DATE
CHECKED BY Pcs DATE
CHECKED BY DATE
REVISED
REVISED
REVISED

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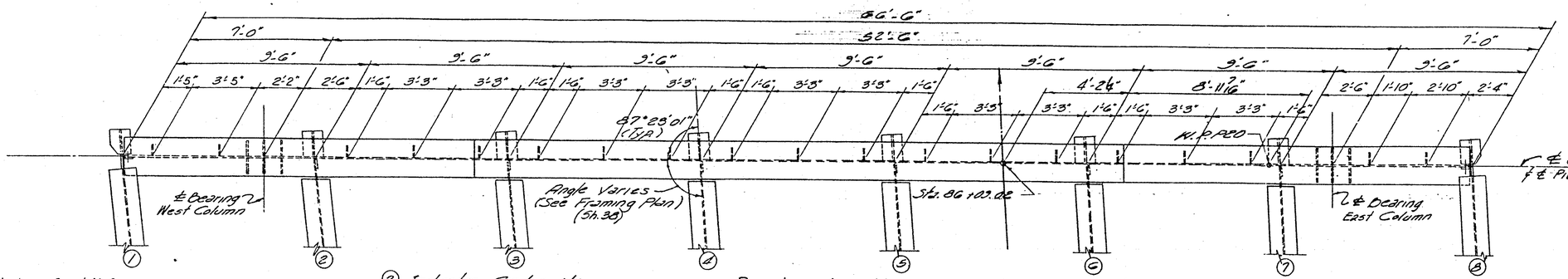
LETTING DATE

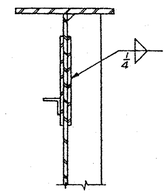


② Indicates Girder No.

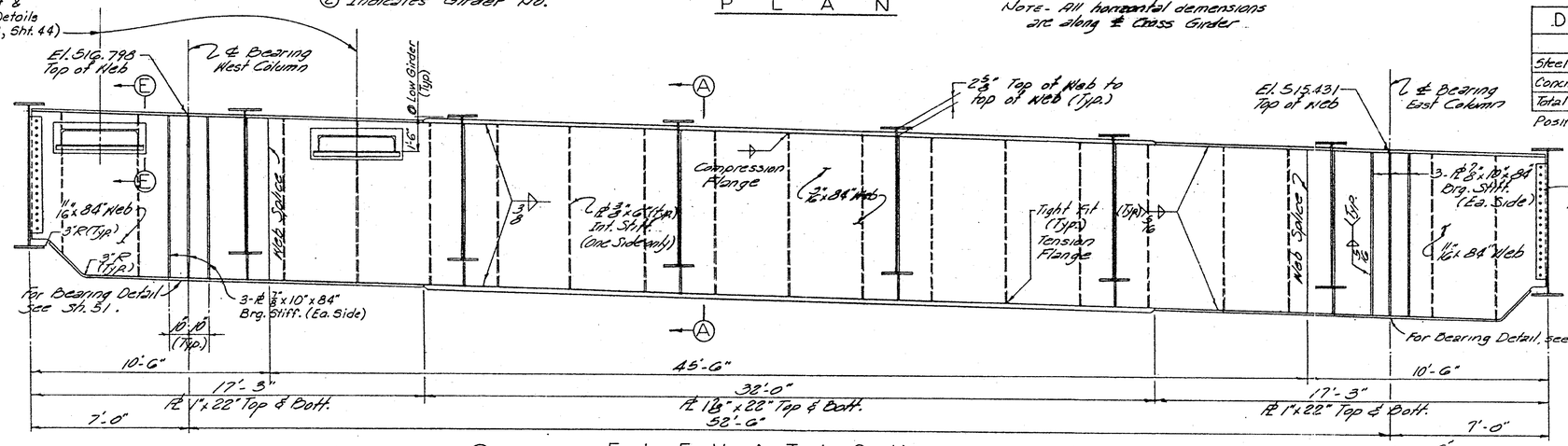
P L A N

Note - All horizontal demensions are along ℄ Cross Girder

℄ Telephone Conduit & ℄ hole in web. (for Details not shown see Detail B, Sht. 44)



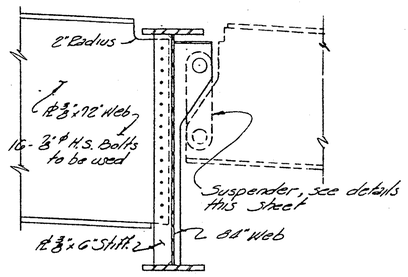
SECTION E-E



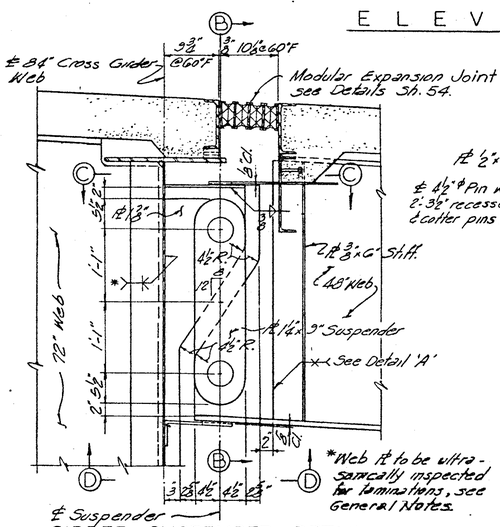
ELEVATION

DEAD LOAD CAMBER					
	G1,G8	℄ Brg.	G2,G7	G3,G6	G4,G5
Steel	0	0	0	1/2"	1/2"
Concr.	5/8"	0	1/2"	5/8"	3/4"
Total	5/8"	0	1/2"	1 1/8"	1 1/4"

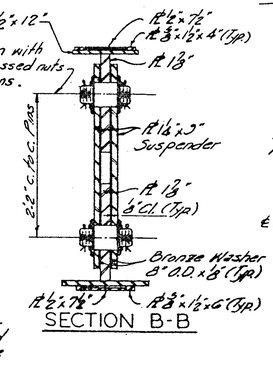
Positive camber is upward.



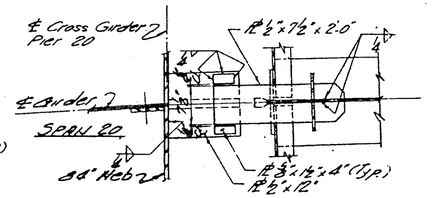
SECTION A-A



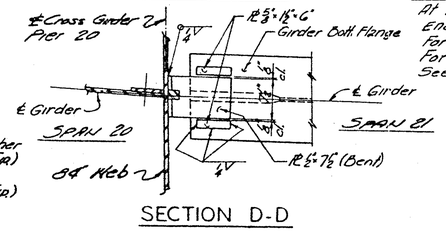
GIRDER SUSPENDER DETAIL
(Interior Girder)



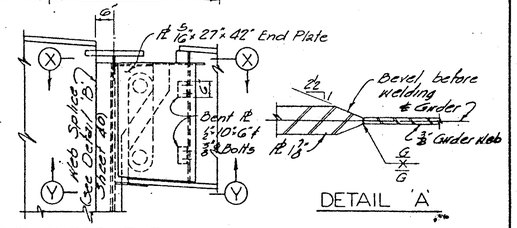
SECTION B-B



SECTION C-C



SECTION D-D



SUSPENDER ELEVATION

At Fascia Girder Showing End Plate connection.
For Suspender details, see Interior Girder this sheet.
For Sections X-X & Y-Y and Detail 'B' see Sheet 40.
See also Details at Pier, Sheet 34.

CROSS GIRDER PIER 20

OHIO APPROACH SHEET 45

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

BRIDGE OVER OHIO RIVER ON U.S. 25
KENTON COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

STATION 81 + 76 P.E. PROJECT NO. F 141 (1)

HAZELET & ERDAL Consulting Engineers File No. 918-03

CONSTRUCTION PROJECT NO.

DRAWING NO. 18577

DRAWN BY: JJ DATE: 6-71 REVISED
TRACED BY: DATE: REVISED
CHECKED BY: DATE: REVISED
CHECKED BY: DATE:

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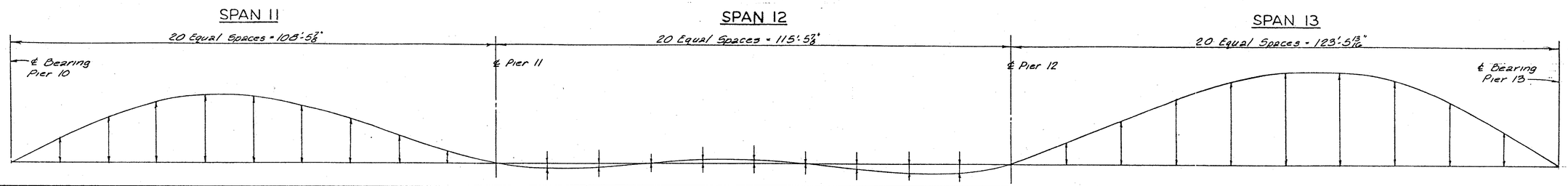
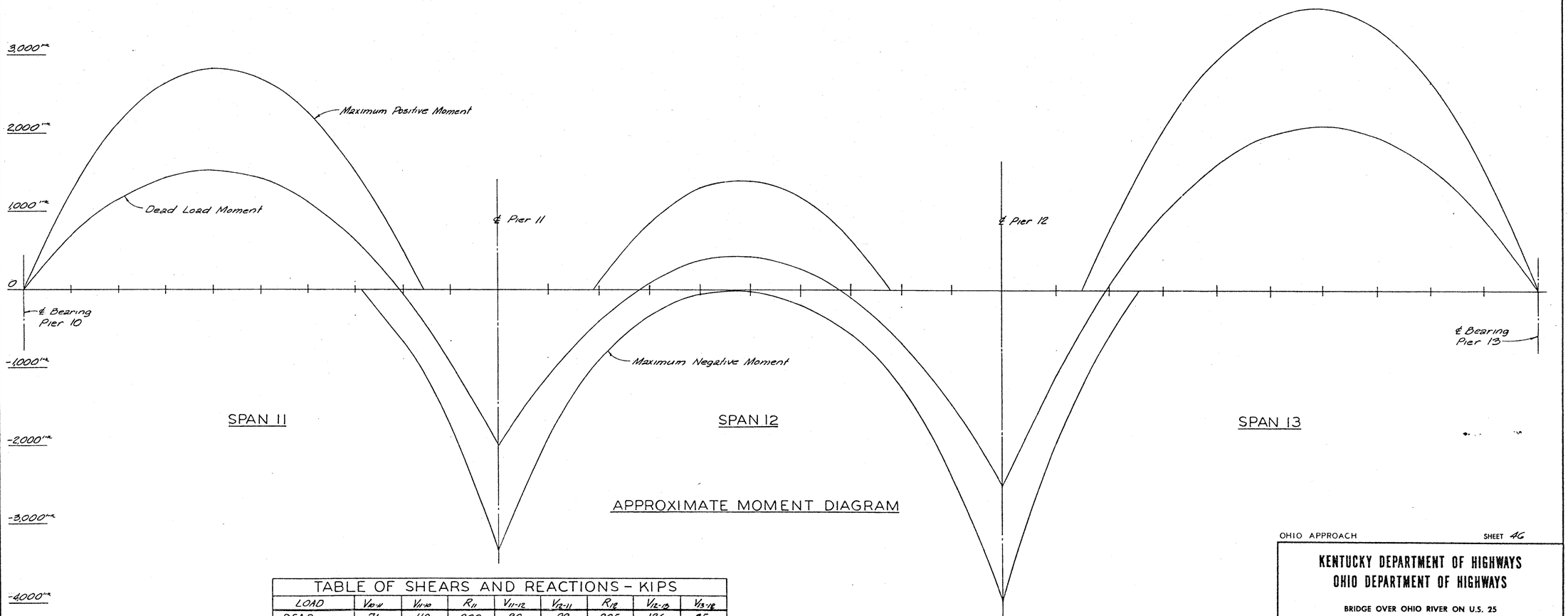
LETTING DATE

DEAD LOAD CAMBER



Location	-	.1		.2		.3		.4		.5		.6		.7		.8		.9		P11	.1		.2		.3		.4		.5		.6		.7		.8		.9		P12	.1		.2		.3		.4		.5		.6		.7		.8		.9		P13
Steel Δ	1/16"	1/16"	1/16"	3/16"	1/16"	1/4"	1/16"	1/4"	1/16"	1/4"	1/16"	1/4"	1/16"	1/4"	3/16"	1/16"	1/16"	1/16"	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-1/16"	-1/16"	-1/16"	-1/16"	0	0	1/16"	1/16"	1/8"	3/16"	3/16"	1/4"	1/4"	3/16"	3/16"	3/16"	3/16"	1/8"	3/16"	1/8"	1/16"	0
Conc. Δ	3/16"	1/16"	3/16"	3/16"	1/16"	1"	1/16"	1/8"	1/16"	1/8"	1/16"	1/4"	1/8"	3/16"	1/16"	1/16"	1/16"	1/16"	0	0	-1/16"	-1/16"	-1/16"	-1/16"	0	0	1/16"	1/16"	1/16"	1/16"	0	-1/16"	-1/16"	-1/16"	-1/16"	-1/16"	-1/16"	-1/16"	-1/16"	0	0	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	0
Total Δ	1/4"	1/8"	1/4"	1/16"	1/8"	1 1/4"	1 1/16"	1 3/8"	1 1/16"	1 3/8"	1 1/16"	1 5/8"	1 1/8"	1 7/16"	1/2"	1/16"	1/16"	1/16"	0	0	-1/16"	-1/8"	-1/8"	-1/16"	-1/16"	0	0	1/16"	1/16"	1/16"	1/16"	0	-1/16"	-1/8"	-1/8"	-1/16"	-1/16"	-1/8"	-1/8"	0	0	1/16"	1/8"	1/8"	1/16"	1/8"	1/8"	1/8"	1/8"	1/8"	1/8"	1/8"	1/8"	1/8"	0



APPROXIMATE MOMENT DIAGRAM

TABLE OF SHEARS AND REACTIONS - KIPS								
LOAD	V_{10-11}	V_{11-10}	R_{11}	V_{11-12}	V_{12-11}	R_{12}	V_{12-13}	V_{13-12}
DEAD	71	110	200	90	99	225	126	85
LIVE + IMPACT	67	71	111	69	71	117	75	67
TOTAL	138	181	311	159	170	342	201	152

DESIGNED BY LMM DATE 4-72
DETAILED BY LMM DATE 5-72
TRACED BY DATE
CHECKED BY RCW DATE
CHECKED BY RCW DATE
CHECKED BY DATE
REVISED
REVISED
REVISED

SPANS 11, 12, 13 SUPERSTRUCTURE

OHIO APPROACH SHEET 46

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

BRIDGE OVER OHIO RIVER ON U.S. 25
KENTON COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

STATION 81+76 P.E. PROJECT NO. F 141 (1)

HAZELET & ERDAL
Consulting Engineers
File No. 918-03

CONSTRUCTION PROJECT NO.

DRAWING NO. 18577

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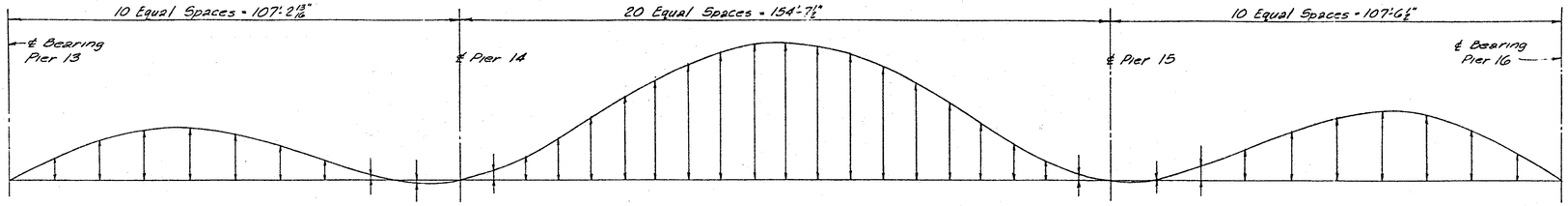
LETTING DATE

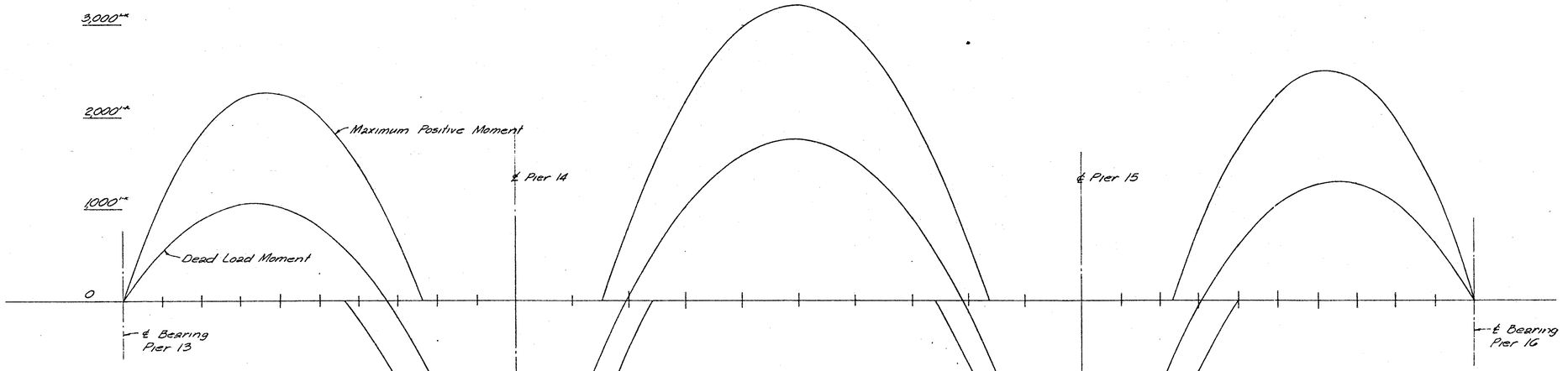
DEAD LOAD CAMBER

Tabular values do not include Vertical Curve correction, which must be added in Spans 15 & 16.

SPAN 14 — SPAN 15 — SPAN 16



Location	P13	.1	.2	.3	.4	.5	.6	.7	.8	.9	P14	.	.1	.2	.3	.4	.5	.6	.7	.8	.9		P15	.1	.2	.3	.4	.5	.6	.7	.8	.9	P16
Steel Δ	0	1/16"	1/8"	3/16"	1/4"	5/16"	3/8"	7/16"	1/2"	9/16"	0	0	0	1/16"	1/8"	3/16"	1/4"	5/16"	3/8"	7/16"	1/2"	9/16"	0	0	0	0	1/16"	1/4"	5/16"	3/8"	7/16"	1/2"	0
Concr. Δ	0	1/4"	1/2"	3/4"	1"	1 1/4"	1 1/2"	1 3/4"	2"	2 1/4"	0	1/4"	5/16"	3/8"	7/16"	1/2"	9/16"	5/8"	11/16"	3/4"	13/16"	7/8"	0	0	3/16"	1/4"	5/16"	3/8"	7/16"	1/2"	9/16"	5/8"	0
Total Δ	0	5/16"	5/8"	15/16"	1 1/4"	1 9/16"	1 7/8"	2 3/16"	2 1/2"	2 13/16"	0	1/4"	5/16"	7/16"	9/16"	11/16"	13/16"	15/16"	1 1/16"	1 3/16"	1 5/16"	1 7/16"	0	0	3/16"	1/4"	5/16"	3/8"	7/16"	1/2"	9/16"	5/8"	0



APPROXIMATE MOMENT DIAGRAM

TABLE OF SHEARS AND REACTIONS-KIPS

LOAD	V_{13-14}	V_{14-13}	R_{14}	V_{14-15}	V_{15-14}	R_{15}	V_{15-16}	V_{16-15}
DEAD	58	117	244	127	131	265	134	70
LIVE + IMPACT	66	73	122	77	77	73	122	66
TOTAL	124	190	366	204	208	338	256	136

DESIGNED BY JHM DATE 8-71 REVISED
DETAILED BY JHM CHECKED BY PCM DATE 8-71 REVISED
TRACED BY JHM CHECKED BY PCM DATE REVISED

SPANS 14, 15, 16
SUPERSTRUCTURE

OHIO APPROACH SHEET 47

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

BRIDGE OVER OHIO RIVER ON U.S. 25
KENTON COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

STATION 81+76 P.E. PROJECT NO. F 141 (1)

HAZELET & ERDAL
Consulting Engineers
File No. 918-03

CONSTRUCTION PROJECT NO.

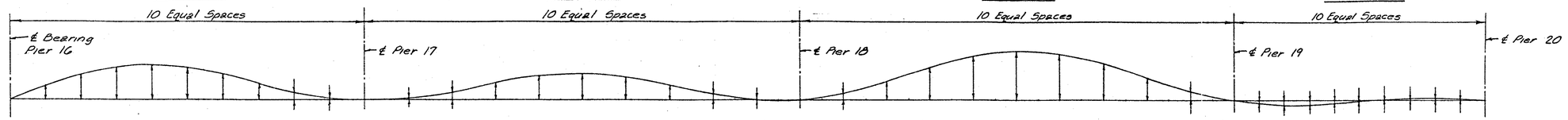
DRAWING NO. 18577

THIS IS A REDUCED SIZE PRINT — NOT TO SCALE

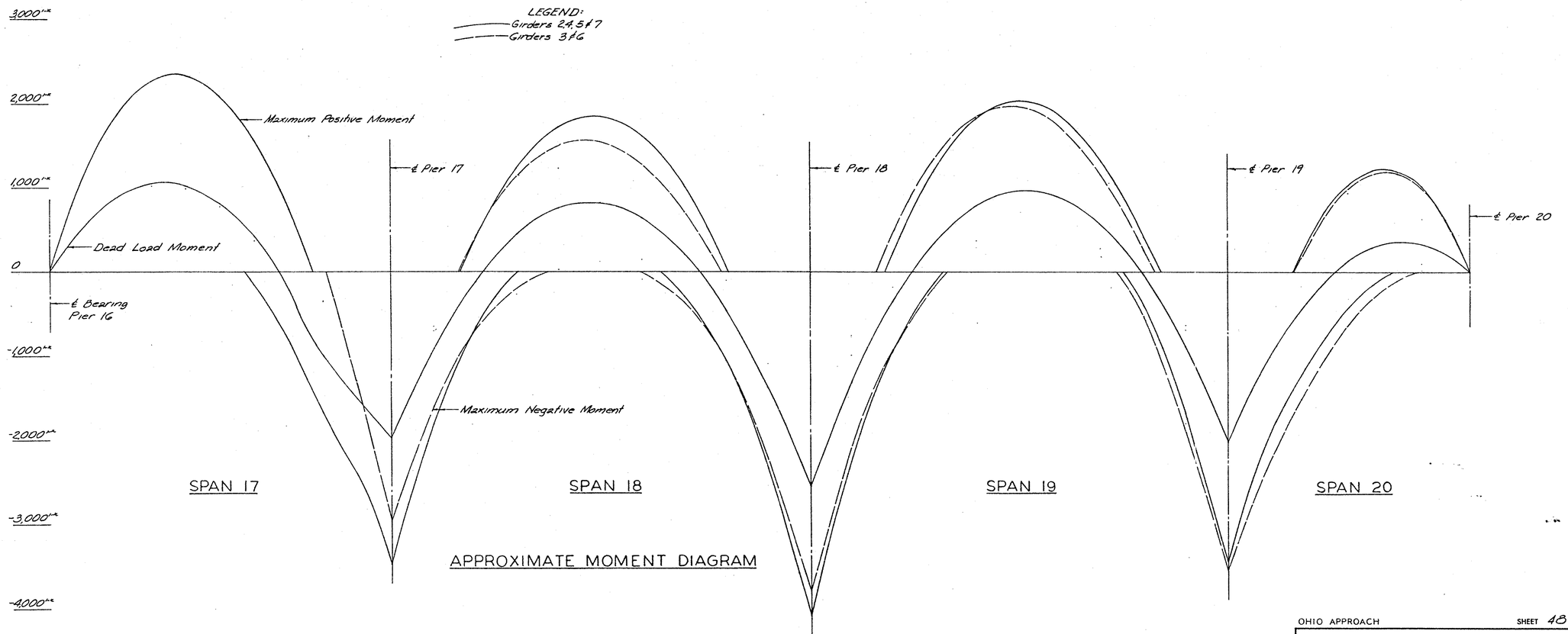
LETTING DATE

DEAD LOAD CAMBER

Tabular values do not include Vertical Curve correction, which must be added in Span 17



Location	P16	.1	.2	.3	.4	.5	.6	.7	.8	.9	P17	.1	.2	.3	.4	.5	.6	.7	.8	.9	P18	.1	.2	.3	.4	.5	.6	.7	.8	.9	P19	.1	.2	.3	.4	.5	.6	.7	.8	.9	P20
Steel Δ	0	1/16"	1/16"	1/8"	1/8"	1/16"	1/16"	1/16"	0	0	0	0	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	0	0	0	0	1/16"	1/16"	1/16"	3/32"	3/32"	1/16"	1/16"	0	0	0	0	0	0	0	0	0	0	0	0
Concr. Δ	0	1/16"	1/16"	3/32"	3/32"	1/16"	1/16"	1/16"	0	0	0	0	3/32"	3/32"	1/16"	1/16"	1/16"	1/16"	1/16"	0	0	0	3/32"	3/32"	3/32"	1/16"	1/16"	1/16"	1/16"	1/16"	0	0	-1/16"	-1/8"	-1/8"	-1/16"	0	0	1/16"	1/16"	0	0
Total Δ	0	1/16"	1/16"	1/8"	1/8"	1/8"	1/16"	1/16"	0	0	0	0	1/16"	1/8"	1/16"	1/16"	1/16"	1/16"	1/16"	0	0	0	1/8"	1/16"	1/16"	1/8"	1/16"	1/16"	1/16"	1/16"	0	0	-1/16"	-1/8"	-1/8"	-1/16"	0	0	1/16"	1/16"	0	0



APPROXIMATE MOMENT DIAGRAM

TABLE OF SHEARS AND REACTIONS-KIPS

	LOAD	V_{16-17}	V_{17-16}	R_{17}	V_{17-18}	V_{18-17}	R_{18}	V_{18-19}	V_{19-18}	R_{19}	V_{19-20}	V_{20-19}
G2&6&5&7	DEAD	60	63	157	94	104	213	109	101	193	92	35
	LIVE + IMPACT	71	74	116	71	72	117	74	76	117	75	70
	TOTAL	131	137	273	165	176	330	183	177	310	167	105
G3&6	DEAD		154	241	87	87	187	100	100	193	93	33
	LIVE + IMPACT		38	50	47	67	114	68	73	112	73	70
	TOTAL		192	291	134	154	301	168	173	305	166	103

SPANS 17, 18, 19, 20 SUPERSTRUCTURE

DRAWN BY MAH DATE 4-71
CHECKED BY PEN DATE 5-71
CHECKED BY DATE
CHECKED BY DATE
TRACED BY CHECKED BY DATE
REVISED
REVISED
REVISED

OHIO APPROACH SHEET 48

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

BRIDGE OVER OHIO RIVER ON U.S. 25
KENTON COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

STATION 81+76 P.E. PROJECT NO. F 141 (1)

HAZELET & ERDAL Consulting Engineers File No. 918-03 | CONSTRUCTION PROJECT NO. | DRAWING NO. 18577

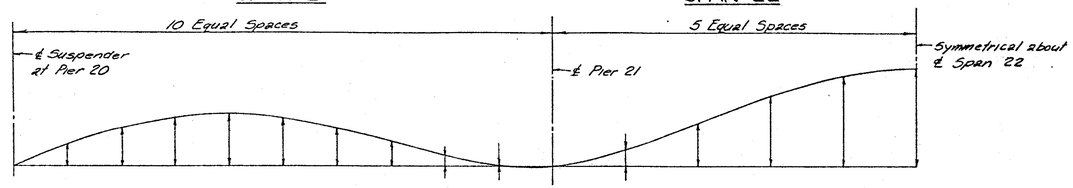
THIS IS A REDUCED SIZE PRINT — NOT TO SCALE

LETTING DATE

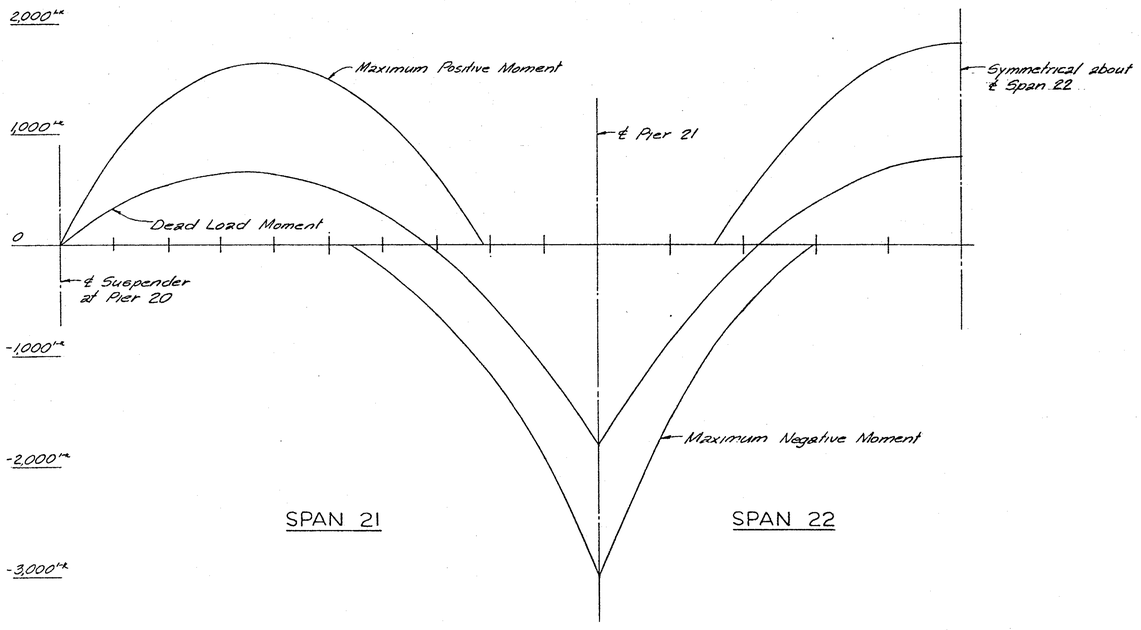
DEAD LOAD CAMBER

Tabular values do not include Vertical Curve correction, which must be included in Span 23

SPAN 21 | SPAN 22



Location	P20	.1	.2	.3	.4	.5	.6	.7	.8	.9	P21	.1	.2	.3	.4	.5
Steel Δ	0	1/16"	3/16"	5/16"	7/16"	9/16"	11/16"	13/16"	15/16"	1"	0	0	1/16"	3/16"	5/16"	7/16"	9/16"
Concr. Δ	0	1/4"	7/16"	9/16"	11/16"	13/16"	15/16"	1"	1 1/16"	1 1/8"	0	0	3/16"	7/16"	11/16"	15/16"	1 3/16"
Total Δ	0	5/16"	1/2"	3/4"	1"	1 1/4"	1 7/16"	1 5/8"	1 13/16"	2"	0	0	1/4"	5/8"	1 1/16"	1 3/8"	1 5/8"



APPROXIMATE MOMENT DIAGRAM

TABLE OF SHEARS AND REACTIONS-KIPS				
LOAD	$V_{20\text{-}21}$	$V_{21\text{-}20}$	R_{21}	$V_{21\text{-}22}$
DEAD	47	92	187	95
LIVE + IMPACT	70	76	110	75
TOTAL	117	168	297	170

DESIGNED BY JMM DATE 4-71 REVISED
DETAILED BY JMM DATE 5-71 REVISED
CHECKED BY PEN DATE REVISED
CHECKED BY PEN DATE REVISED
TRACED BY CHECKED BY DATE REVISED

SPANS 21, 22, 23
SUPERSTRUCTURE

OHIO APPROACH SHEET 49

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

BRIDGE OVER OHIO RIVER ON U.S. 25
KENTON COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

STATION 81+76 P.E. PROJECT NO. F 141 (1)

HAZELET & ERDAL Consulting Engineers File No. 918-03 | CONSTRUCTION PROJECT NO. | DRAWING NO. 18577

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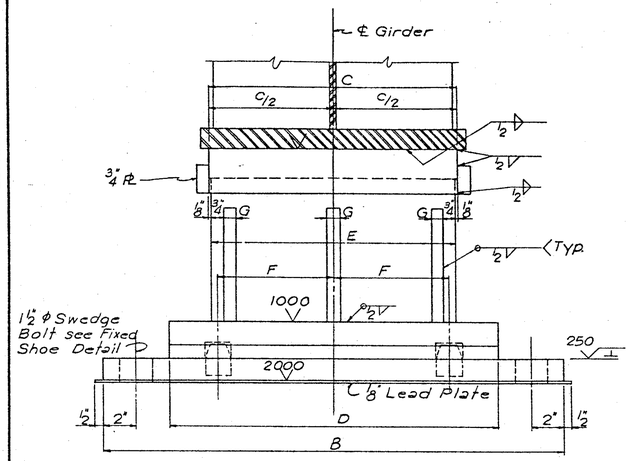
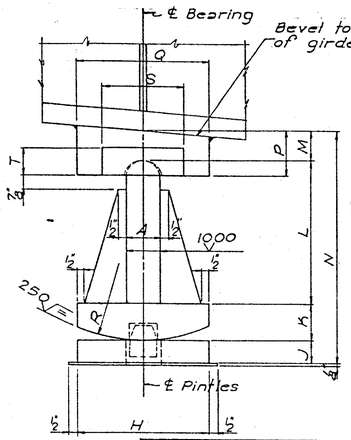
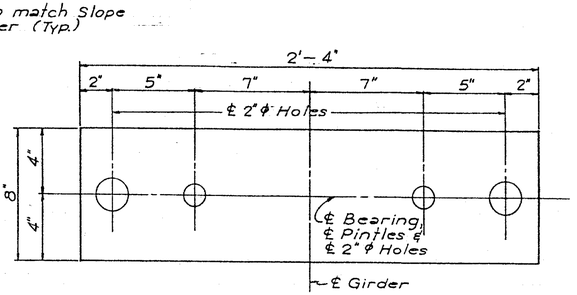
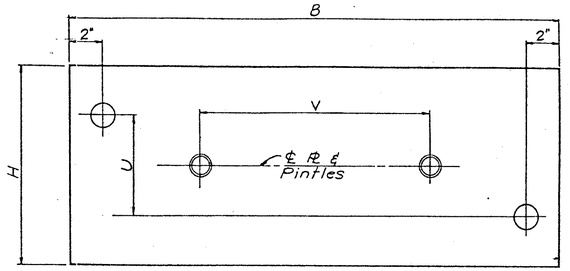


DETAIL OF EXPANSION SHOE





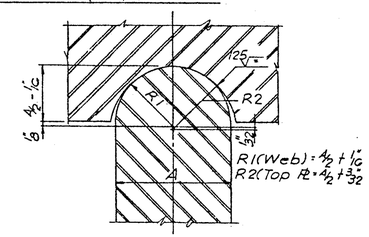
PLAN OF BOTTOM PLATE
AT PIERS 10, 13, 16 & ABUT. 2



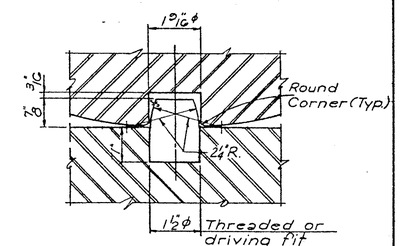
PLAN OF BOTTOM PLATE
AT PIERS 11, 14, 17 & 21

DIMENSIONS FOR EXPANSION SHOES

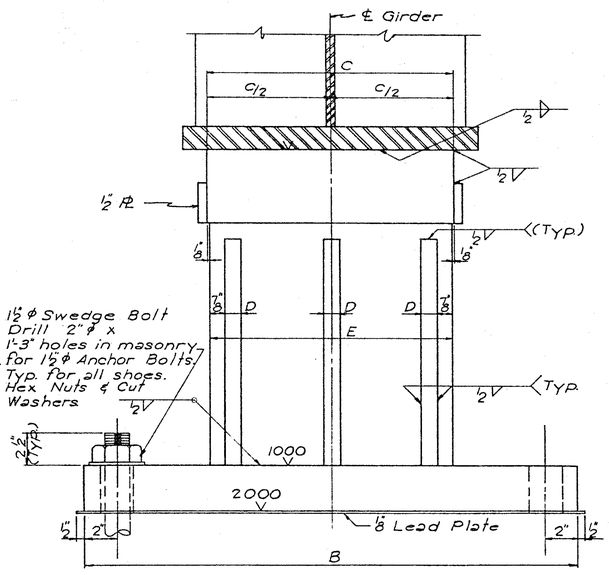
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	U	V
Pier 10 & Abut. 2	2"	2'-4"	1'-3"	1'-8"	1'-2¾"	7"	¾"	8"	1¼"	2¼"	8 15/16"	1 1/16"	1'-2"	2 5/8"	8"	10"	5"	1 3/32"	—	—
Pier 11	3¼"	2'-6"	1'-3"	1'-10"	1'-2¾"	7"	1"	1'-2"	2½"	3"	11 5/16"	2 9/16"	1'-7 31/32"	4⅝"	8"	1'-0⅜"	4¾"	2 5/16"	7"	1'-2"
Pier 13	2"	2'-4"	1'-3"	1'-8"	1'-2¾"	7"	¾"	8"	1⅜"	2¼"	8 15/16"	1 1/16"	1'-2¼"	2 3/4"	8"	10"	5"	1¾"	—	—
Pier 14	3½"	2'-7"	1'-5"	1'-11"	1'-4¾"	7"	1"	1'-3"	2¾"	3"	1'-2 3/16"	2 5/16"	1'-10⅜"	4½"	9"	1'-3⅜"	5"	2 1/16"	8"	1'-2"
Pier 17	3"	2'-6"	1'-5"	1'-10"	1'-4¾"	7"	1"	1'-2"	2¾"	3"	1'-1 3/16"	2 5/16"	1'-5½"	4"	9"	1'-2⅝"	4½"	2 5/16"	7"	1'-2"
Pier 21	3¼"	2'-6"	1'-3"	1'-10"	1'-2½"	7"	¾"	1'-1"	2½"	3"	10 5/16"	2 1/16"	1'-6¼"	4"	8"	11⅞"	4¾"	2 5/16"	6"	1'-2"

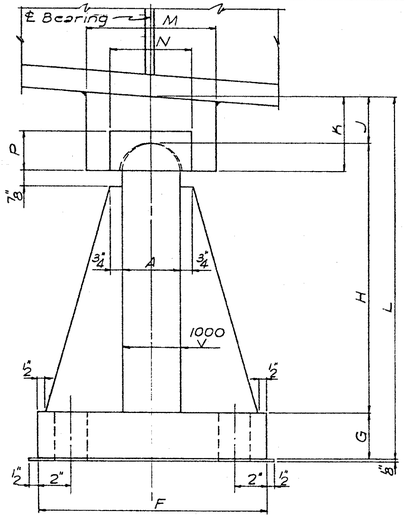


TOP BEARING DETAIL

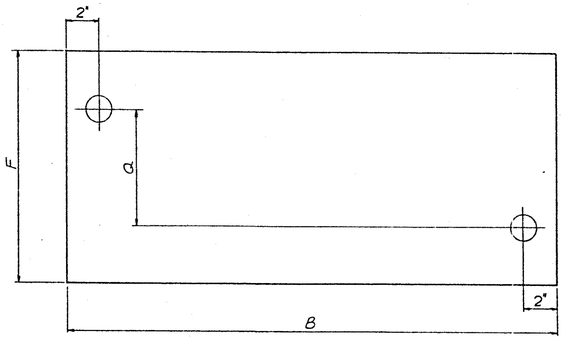


PINTLE DETAIL





DETAIL OF FIXED SHOE



PLAN OF BOTTOM PLATE

DIMENSIONS FOR FIXED SHOES

	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q
Pier 12	3½"	2'-6"	1'-3"	1"	1'-2¾"	1'-2"	2¾"	1'-4 1/16"	2 11/16"	4⅜"	1'-7⅝"	8"	5"	2 1/16"	7"
Pier 15	3¾"	2'-8"	1'-5"	1"	1'-4¾"	1'-4"	3"	1'-5 5/16"	2 13/16"	4⅝"	1'-11⅜"	9"	5¼"	2 5/16"	9"
Pier 22	3¼"	2'-6"	1'-3"	¾"	1'-2¾"	1'-1"	2½"	1'-1 5/16"	2 1/16"	4"	1'-6¼"	8"	4¾"	2 5/16"	6"

NOTES:

White Lead & Tallow: Finished surfaces of structural steel formed by Radii R1 & R2, shall be coated with white lead and tallow in accordance with current Standard Specifications of the Kentucky Department of Highways.

Scribing: At each bearing the centerlines in both directions are to be scribed on all matching parts to facilitate proper field erection.

Materials: All Steel A-36.

Finish Symbols: For machine finish symbols see A.N.S.I. 84G1-current edition.

SHOES
SUPERSTRUCTURE

DESIGNED BY JMM DATE 6-71
DETAILED BY CH DATE 7-71
TRACED BY DATE
CHECKED BY PCW DATE
CHECKED BY CEB DATE
REVISED
REVISED
REVISED

OHIO APPROACH SHEET 50

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

BRIDGE OVER OHIO RIVER ON U.S. 25

KENTON COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

STATION 811+76 P.E. PROJECT NO. F 141 (1)

HAZELET & ERDAL
Consulting Engineers
File No. 918-03

CONSTRUCTION PROJECT NO.

DRAWING NO. 18577

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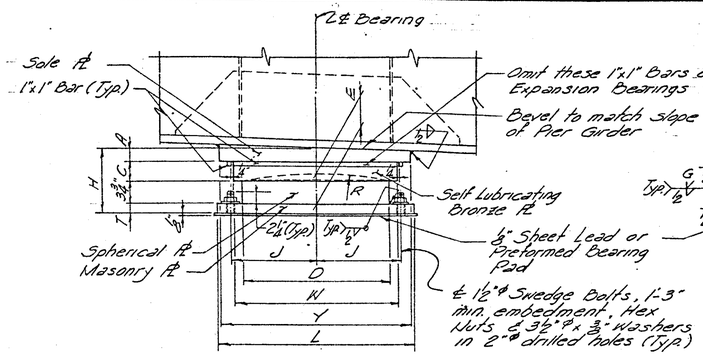
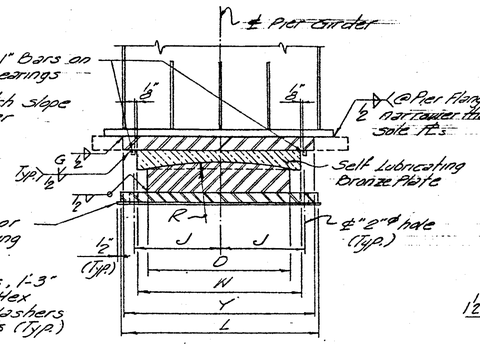


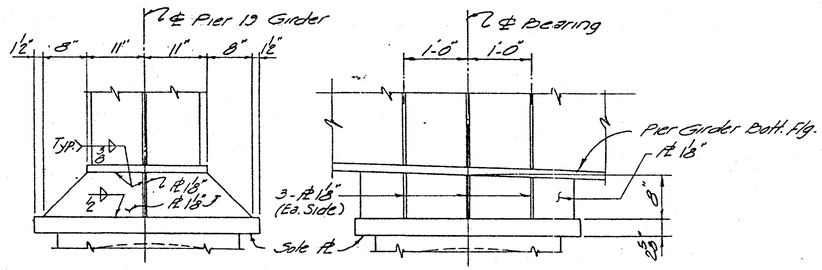
SIDE ELEVATION

Sole Pl connection shown is for Pier 18, for Pier 19 & 20 see Bearing Details this Sheet.



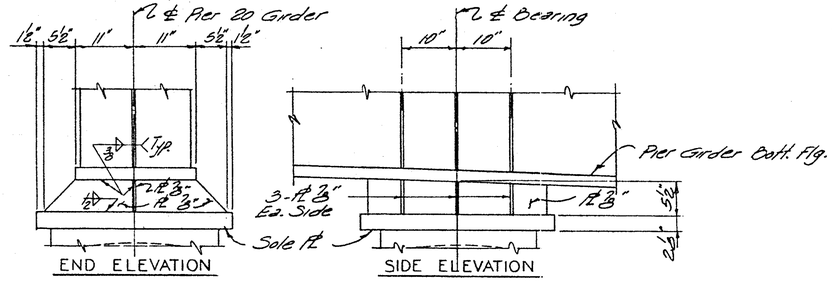
SECTION A-A

TABLE OF DIMENSIONS																									
PIER	Brg. Type	Capacity kips	No. Req'd	O ø		W ø		L ø		Y		R		T		C		A		H		E		J	
				Ft	In	Ft	In	Ft	In	Ft	In	Ft	In	Ft	In	Ft	In	Ft	In	Ft	In	Ft	In	Ft	In
Pier 18 West	Fix.	809	1	2	3	2	6	3	0	2	11	4	0	0	1⅝	0	3⅝	0	2½	0	11⅛	0	5⅛	1	3½
Pier 18 East	Fix.	1128	1	3	3	3	6	4	0	3	11	5	0	0	1⅝	0	4⅝	0	2½	1	0⅜	0	7	1	3½
Pier 19	Exp.	1863	2	2	3	3	0	3	6	3	5	4	0	0	1⅝	0	4⅝	0	2⅝	1	0½	0	6⅛	1	6½
Pier 20	Exp.	896	2	2	4	2	7	3	1	3	0	4	0	0	1⅝	0	3½	0	2⅝	0	11	0	5⅜	1	4



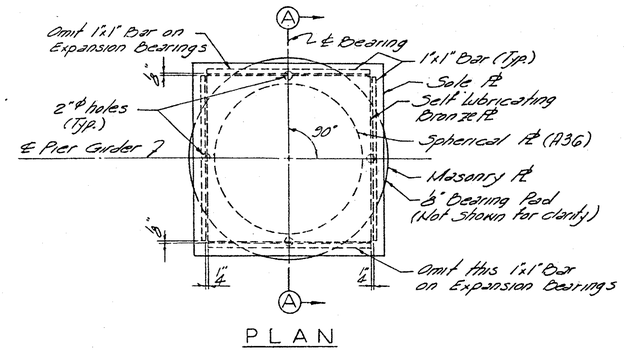
END ELEVATION SIDE ELEVATION

BEARING DETAILS AT PIER 19



END ELEVATION SIDE ELEVATION

BEARING DETAILS AT PIER 20



PLAN

NOTES-
All Plates must be true and free of warp.
All Steel is A-36 material.
Self Lubricating bronze plates shall be A.S.T.M. B22-70 Copper Alloy No. 913
Weight of Bronze Plates (5,227 lb.) is included in and incidental to the 'Lump Sum Bid' for Structural Steel.

LETTING DATE

DESIGNED BY JMM	CHECKED BY RCW	DATE 6-71	REVISED	DATE
DETAILED BY BKJ	CHECKED BY CED	DATE 7-71	REVISED	DATE
TRACED BY	CHECKED BY	DATE	REVISED	DATE

PIER GIRDER 18,19&20
BEARING SHOES

OHIO APPROACH SHEET 51

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

BRIDGE OVER OHIO RIVER ON U.S. 25
KENTON COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

STATION 81 + 76 P.E. PROJECT NO. F 141 (1)

HAZELET & ERDAL Consulting Engineers File No. 918-03 | CONSTRUCTION PROJECT NO. | DRAWING NO. 18577

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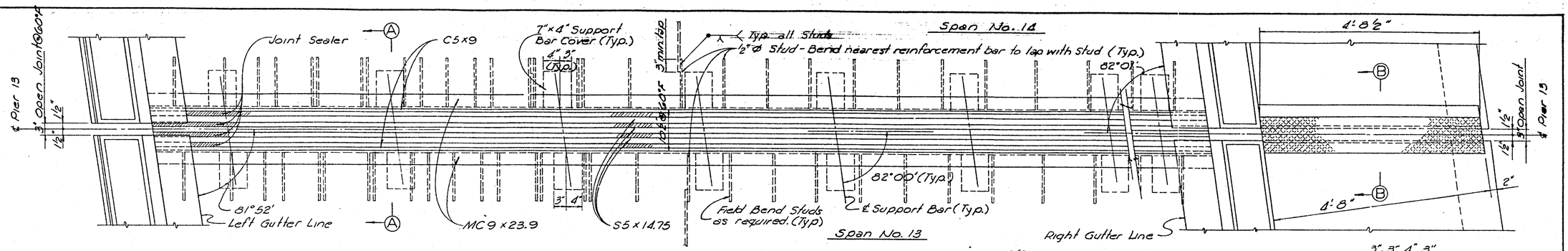
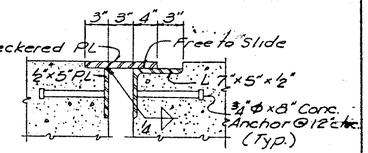
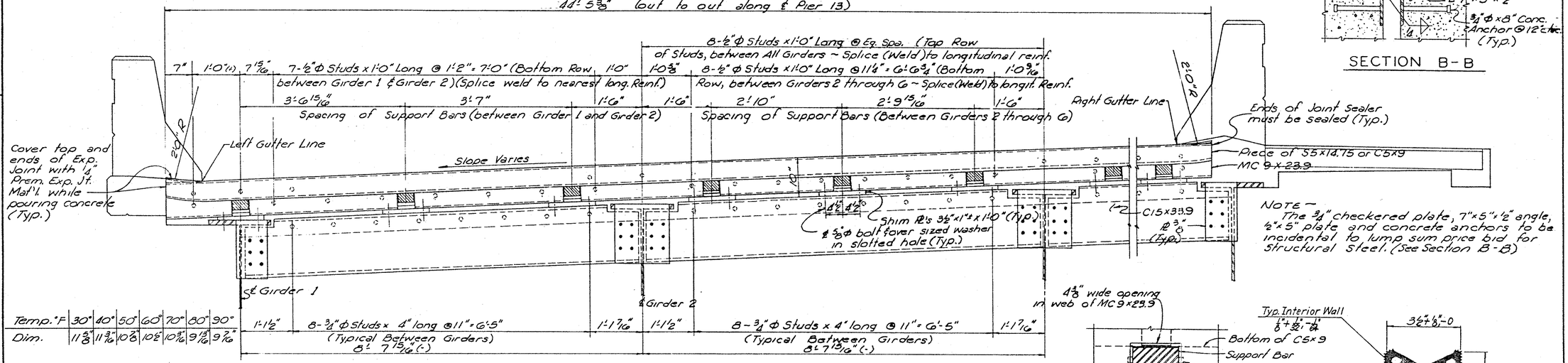


PLAN OF EXPANSION JOINT AT PIER NO. 13

For Modular Expansion Joint Notes See Special Notes Relative to Modular Expansion Joints.

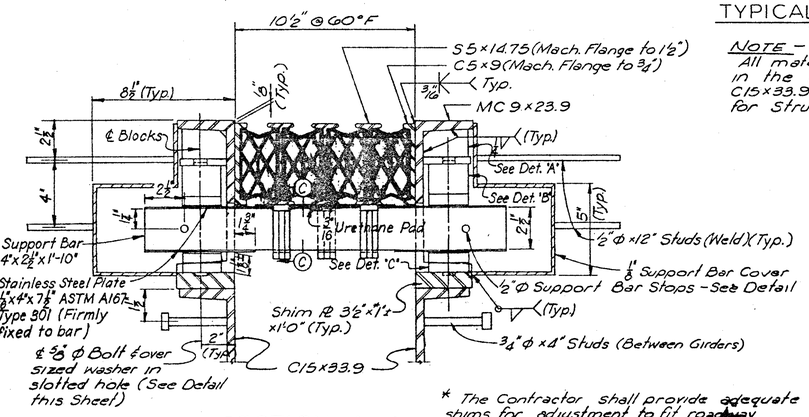


SECTION B-B



TYPICAL SECTION EXPANSION JOINT

NOTE — The 3/4" checkered plate, 7"x5"x1/2" angle, 1/2"x5" plate and concrete anchors to be incidental to lump sum price bid for Structural Steel. (See Section B-B)

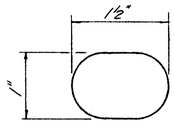


SECTION A-A

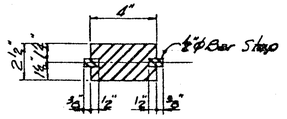
For Details 'A', 'B' & 'C' and Sect. C-C see Sheet 54

* The Contractor shall provide adequate shims for adjustment to fit roadway elevations including crown and superelevation.

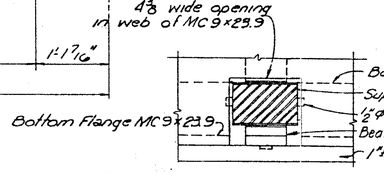
NOTE — All material above C15x33.9 shall be included in the lump sum bid for the Expansion Joint. C15x33.9 will be included in the lump sum bid for Structural Steel.



SLOTTED HOLE DETAIL

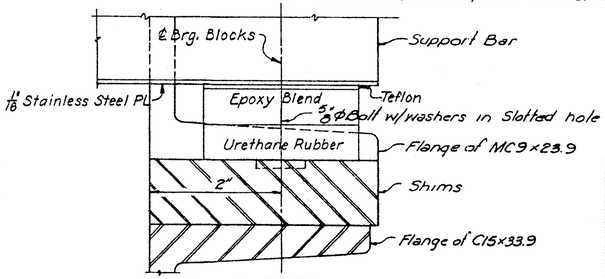


SUPPORT BAR STOP DETAIL

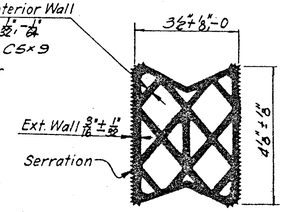


END VIEW OF SUPPORT BAR

Bar at Piers 13 & 20 shown, Bar at Pier 16 similar



BEARING DETAIL



PREFORMED POLYCHLOROPRENE JOINT SEALER

EXP. JOINT PIER 13 SUPERSTRUCTURE

OHIO APPROACH SHEET 52

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

BRIDGE OVER OHIO RIVER ON U.S. 25
KENTON COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

STATION 81+76 P.E. PROJECT NO. F141 (1)

HAZELET & ERDAL Consulting Engineers File No. 918-03 | CONSTRUCTION PROJECT NO. | DRAWING NO. 18577

DRAWN BY DRB DATE 7-71 REVISED
DETAILED BY CEB DATE REVISED
CHECKED BY CEB DATE REVISED
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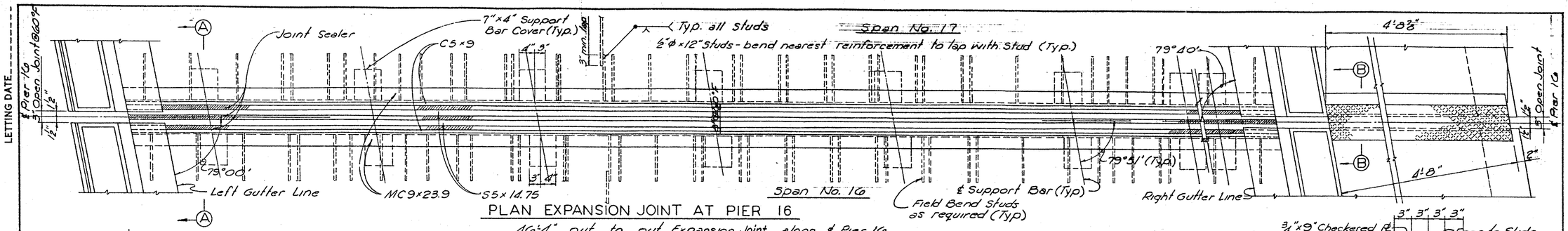
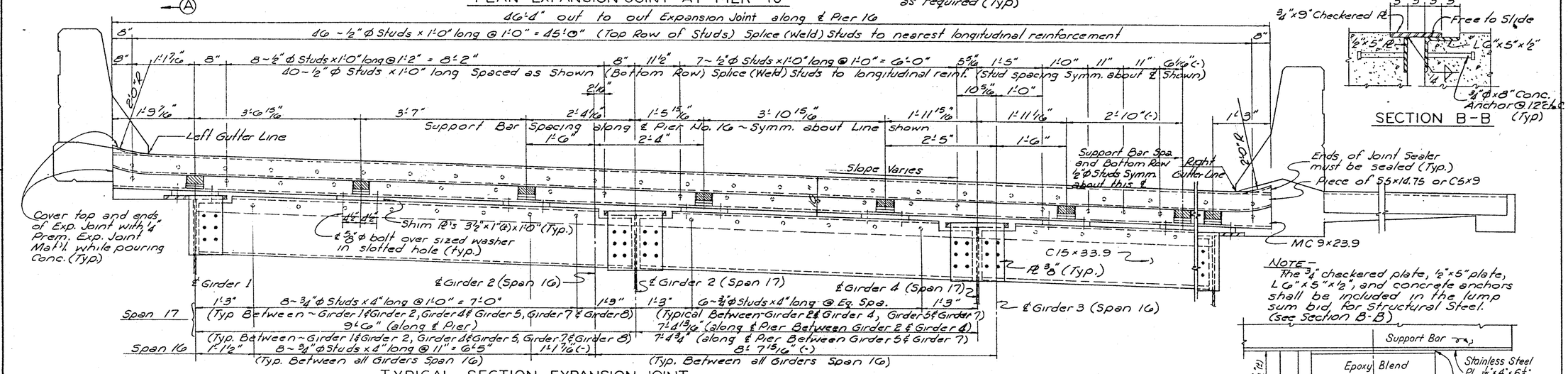
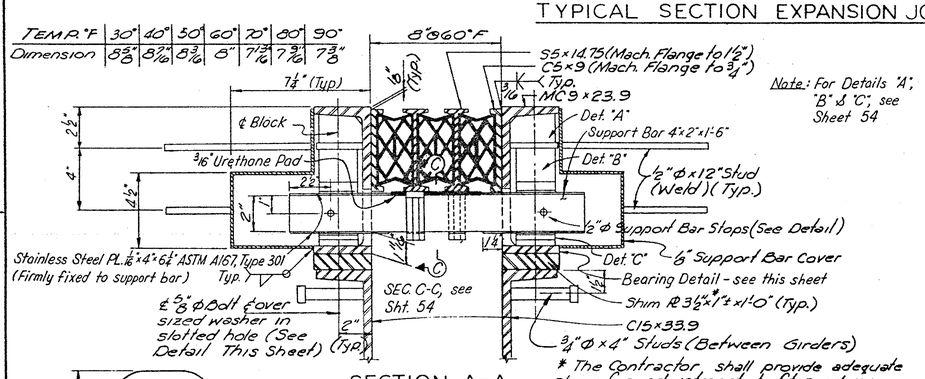


PLAN EXPANSION JOINT AT PIER 16



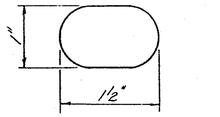
TYPICAL SECTION EXPANSION JOINT



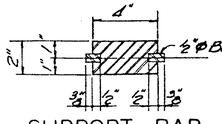
SECTION A-A

Note: For Details 'A', 'B' & 'C', see Sheet 54

* The Contractor shall provide adequate shims for adjustment to fit roadway elevations including crown and super-elevation.



SLOTTED HOLE DETAIL



SUPPORT BAR STOP DETAIL

Note - All material above C15x33.9 shall be included in the lump sum bid for the Expansion Joint. C15x33.9 will be included in the lump sum bid for Structural steel.

Modular Expansion Joint Notes

All steel parts of the assembly shall be painted in accordance with the special provision for Blast Cleaning and Painting Structural Steel, current edition except areas in contact with the preformed joint seals or areas which are covered with urethane rubber pad.

Steel in expansion joints, except support Bar covers and stops, shall be ASTM A588.

No splices will be permitted in the joint sealer.

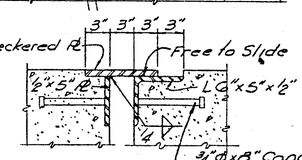
The fabricator shall provide prestressing bolts placed through the entire unit after assembling. Assembly is to be prefabricated and shipped to site with width preset for 60°F. Final adjustment for width shall be made at the time of installation. Prestressing bolts shall be removed prior to pouring concrete against the joints.

Any holes for prestressing bolts in top flanges of steel channels shall be sealed by plug welding.

The expansion joints shall be fabricated to follow the contour of the top of roadway slab.

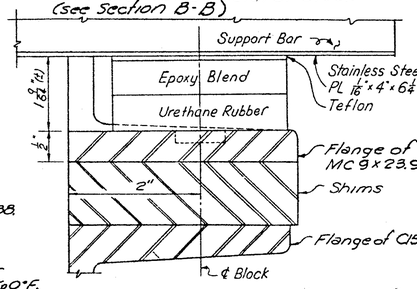
For material specifications for polychloroprene sealer, urethane and adhesives, see Special Notes.

Preformed compression joint seal ends shall be cut square and sealed with polychloroprene sponge cemented to the full perimeter and walls.



SECTION B-B

NOTE - The ¾" checkered plate, ½"x5" plate, LG"x5"x½", and concrete anchors shall be included in the lump sum bid for Structural Steel. (see Section B-B)



BEARING DETAIL

NOTES
For preformed polychloroprene joint sealer detail, see Sheet 52.
For end view of support bar see Sheet 52.

OHIO APPROACH SHEET 53

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

BRIDGE OVER OHIO RIVER ON U.S. 25
KENTON COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

STATION 81+76 P.E. PROJECT NO. F 141 (1)

HAZELET & ERDAL Consulting Engineers File No. 918-03	CONSTRUCTION PROJECT NO.	DRAWING NO. 18377

EXP. JOINT PIER 16 SUPERSTRUCTURE

DRAWING BY	CHECKED BY	DATE	REVISED
DAB	CEA	7-71	

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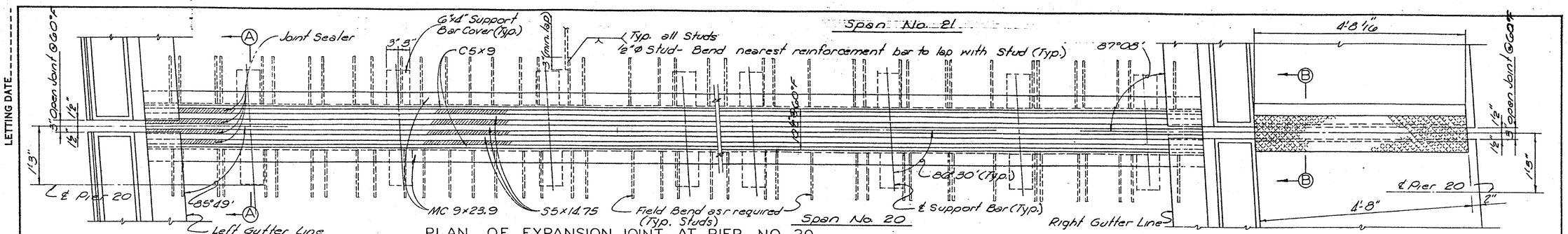
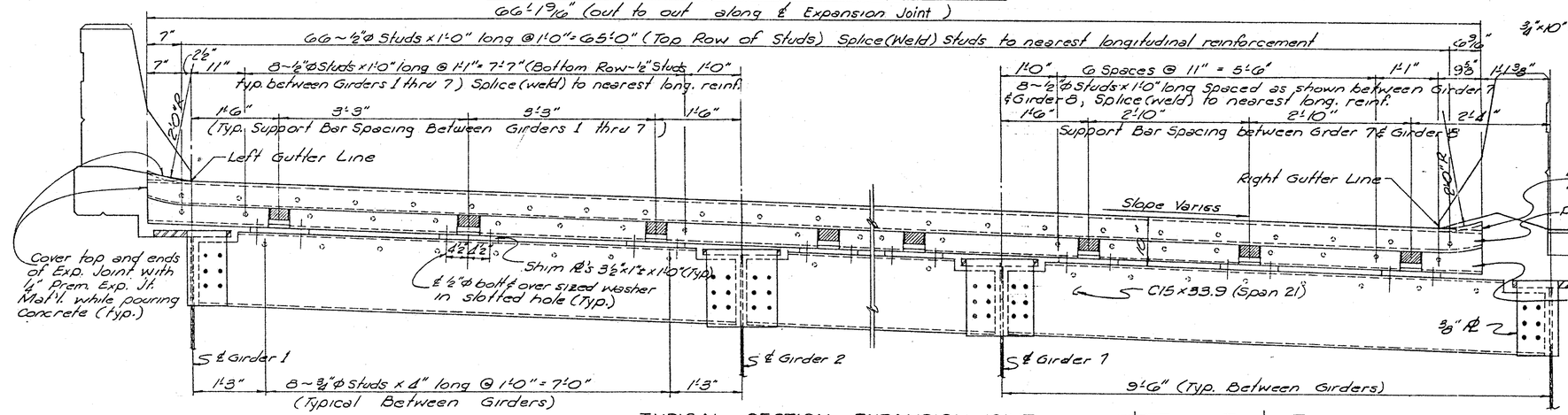
LETTING DATE

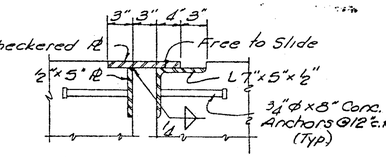


PLAN OF EXPANSION JOINT AT PIER NO. 20

66'-1 9/16" (out to out along ℄ Expansion Joint)

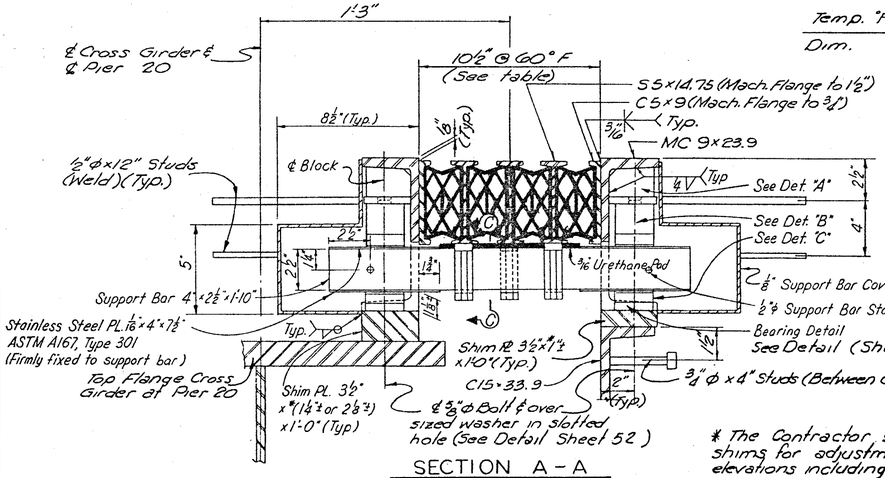


TYPICAL SECTION EXPANSION JOINT



SECTION B-B

NOTE ~
The ¾" checkered plate, 7"x5"x½" angle, ½"x5" plate and concrete anchors to be incidental to lump sum price bid for Structural Steel. (See Section B-B)

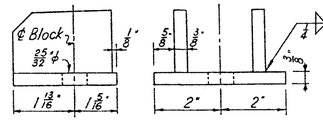


SECTION A-A

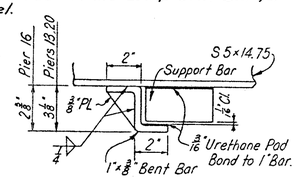
Temp. °F	30°	40°	50°	60°	70°	80°	90°
Dim.	11 5/8"	11 3/16"	10 7/8"	10 5/8"	10 3/8"	9 15/16"	9 7/16"

NOTE ~
All material above C15x33.9 and Cross Girder at Pier 20 shall be included in the lump sum bid for the Expansion Joint. C15x33.9 and Cross Girder at Pier 20 will be included in the Lump Sum Bid for Structural Steel.

* The Contractor shall provide adequate shims for adjustment to fit roadway elevations including crown and superelevation.



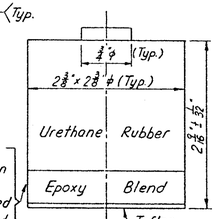
DETAIL "A"



SECTION C-C

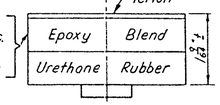
Hold down bars shall be on all I-bars at every other support bar.

Upper Spring Loaded Block Watson-Bowman Assoc. Part Wabo-100 UET-U or an approved equal (Precompressed to 1 kip load when installed)



DETAIL "B"

Lower Bearing Block Watson-Bowman Assoc. Part Wabo-100 UET-L or an approved equal



DETAIL "C"

Note:
For preformed polychloroprene joint sealer detail, see Sht. 52.
For End View of Support Bar, see Sht. 52.
For Modular Expansion Joint Notes, see Sht. 53.

OHIO APPROACH SHEET 54

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

BRIDGE OVER OHIO RIVER ON U.S. 25
KENTON COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

STATION 81+76 P.E. PROJECT NO. F 141 (1)

HAZELET & ERDAL Consulting Engineers File No. 918-03 | CONSTRUCTION PROJECT NO. | DRAWING NO. 18577

EXP. JOINT PIER 20 SUPERSTRUCTURE

MANAGED BY DDB DATE
DETAILED BY CEB DATE 2/21 REVISED
CHECKED BY DATE REVISED
CHECKED BY DATE REVISED

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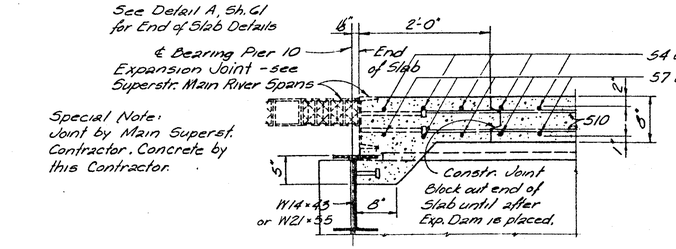
LETTING DATE

299 Bars 53 @ 1'-2" = 347'-8" (Top of Slab at Fascia)
347 Bars 52 @ 1'-0" = 346'-0" (Parapet)
347 Bars 51 - space with 52 (Parapet)
115'-6½" (Spacing of 1" open joints in Parapet)
Measured on Left Gutter Line
108'-6"
℄ 10"ϕ Strain Pole Bkt. for details, see Sh. G1
℄ Drain (see Sh. G4)
℄ 8"ϕ Lt. Std. Bkt. for details, see Sh. G1
4-S12 (Top of Parapet)
4-S13 (Top of Parapet)
4-S14 (Top of Parapet)
124'-3⅜"
Left Gutter Line
℄ Girder 1
℄ Girder 2
℄ Girder 3
℄ Girder 4
℄ Girder 5
℄ Girder 6
Fascia Beam
Right Gutter Line
℄ Pier 10
℄ Pier 11
℄ Pier 12
℄ Pier 13
End of Slab
Optional Constr. Joint
End Post
℄ Bearing Pier 10
Chord P.C. to P.T.
W.P. P10 Sta. 74+66.55
W.P. P11
W.P. P12
W.P. P13
Sta. 75+75.05
Sta. 76+90.55
Sta. 78+14.80
℄ Survey U.S. 25
90°00'
P.C.
5 Spaces @ 8'-7⅛" = 43'-3½"
107 Bars S10 spaced as shown in Section A-A (Sh. 54) (Top 2'-1")
594 Bars 54 @ 7" = 345'-11" (Top of Slab - lap 2'-6" min. with 55 or 56)
594 Bars 57 @ 7" = 345'-11" (Bottom of Slab - lap 2'-6" min. with 58 or 59)
559 Bars 56 @ 7" = 325'-6" (Top of Slab - lap 2'-6" min. with 54)
559 Bars 59 @ 7" = 325'-6" (Bottom of Slab - lap 2'-6" min. with 57)
35 Bars 55 @ 7": 19'-10" (Top of Slab)
35 Bars 58 @ 7": 19'-10" (Bottom of Slab) (lap 2'-6" min. with 54 & 57 resp.)
349 Bars C1 @ 1'-0" = 348'-0" (Fascia Beam) (Measured on Fascia Line)
9 Bars S11 Bar as shown in Part Section B-B
3-C2
℄ 10"ϕ Lt. Std. Bkt. for details see Sh. G1
22'-0⅜"
3'-6½"
Measured on Right Gutter Line
115'-5⅞" (Spacing of 1" open joints in Parapet)
347 Bars 52 @ 1'-0" = 346'-0" (Parapet)
347 Bars 51 - space with 52 (Parapet)
See Detail A, Sh. G1 for End of Slab Details

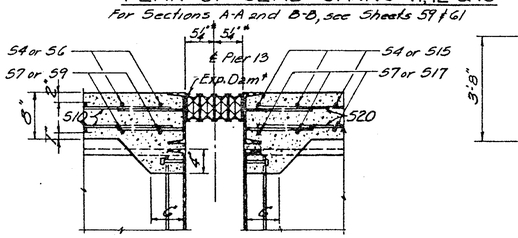
53 (Top)
54 (Top) / 57 (Bottom)
55 (Top) / 58 (Bottom)
56 (Top) / 59 (Bottom)

PLAN OF SLAB - SPANS 11, 12 & 13

For Sections A-A and B-B, see Sheets 59 & 61

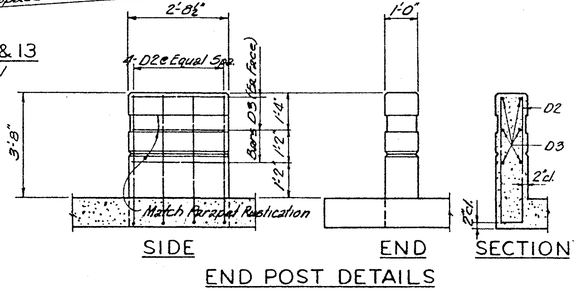


SECTION C-C



SECTION D-D

*@ 60°F
*For details, see Sh. 52



SIDE END SECTION

END POST DETAILS

SPANS 11, 12 & 13 SUPERSTRUCTURE

OHIO APPROACH SHEET 55

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

BRIDGE OVER OHIO RIVER ON U.S. 25
KENTON COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

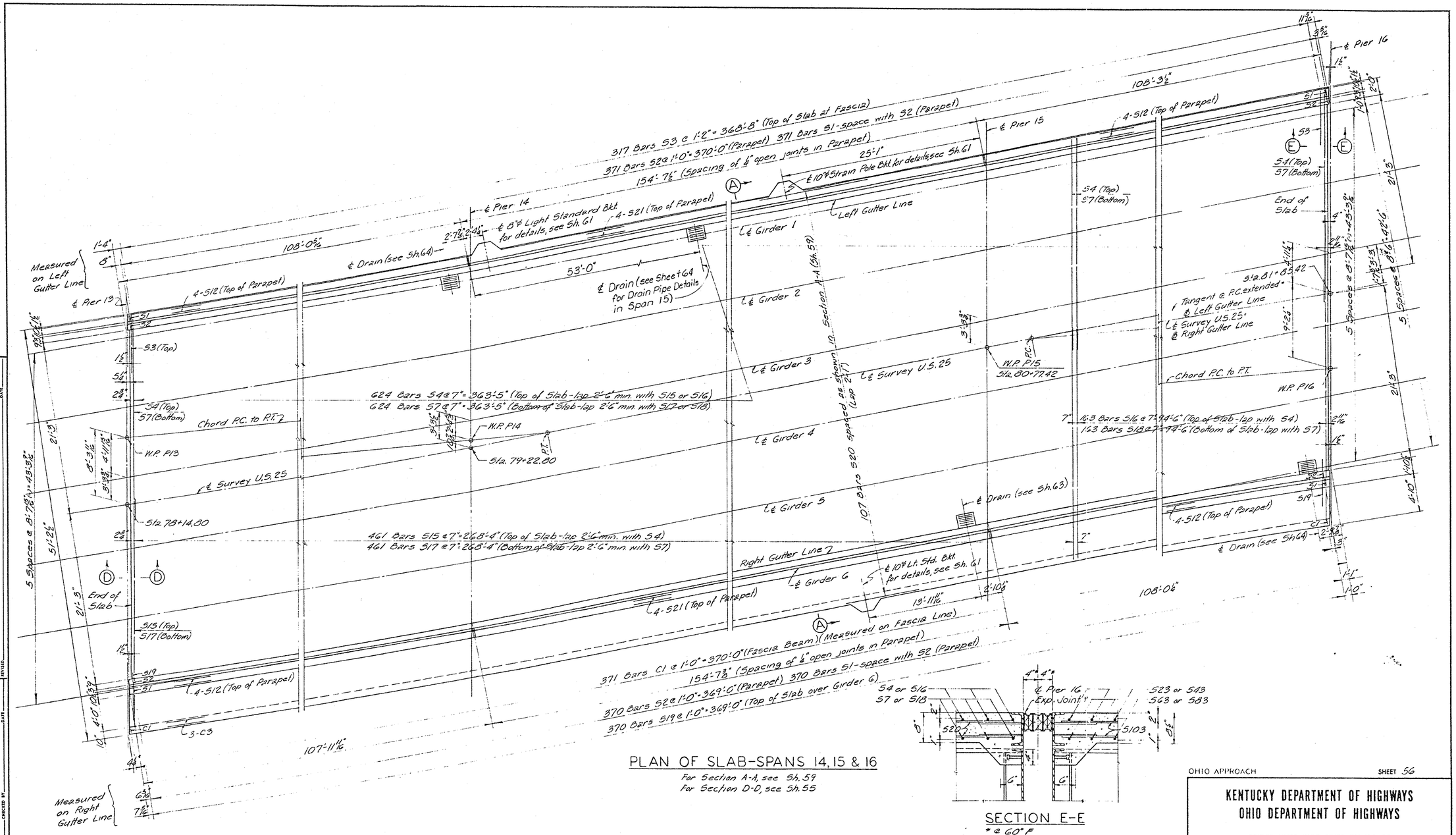
STATION 81+76 P.E. PROJECT NO. F 141 (1)

HAZELET & ERDAL Consulting Engineers File No. 918-0.3 | CONSTRUCTION PROJECT NO. | DRAWING NO. 18577

DESIGNED BY JMM DATE 2-71 REVISED
DETAILED BY MAH DATE 2-71 REVISED
TRACED BY DATE REVISED
CHECKED BY PCM DATE 2-71
CHECKED BY DATE

THIS IS A REDUCED SIZE PRINT — NOT TO SCALE

LETTING DATE



PLAN OF SLAB-SPANS 14, 15 & 16

SECTION E-E

* @ 60° F

† For details, see Sh. 53

SPANS 14, 15 & 16 SUPERSTRUCTURE

DESIGNED BY LMM DATE
DETAILED BY LMM CHECKED BY PCW DATE 5-'77
TRACED BY CHECKED BY PCW DATE 6-'77
CHECKED BY DATE
REVISED
REVISED
REVISED

OHIO APPROACH SHEET 56

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

BRIDGE OVER OHIO RIVER ON U.S. 25

KENTON COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

STATION 81+16 P.E. PROJECT NO. F 141 (1)

HAZELET & ERDAL Consulting Engineers File No. 918-03	CONSTRUCTION PROJECT NO.	DRAWING NO. 18577

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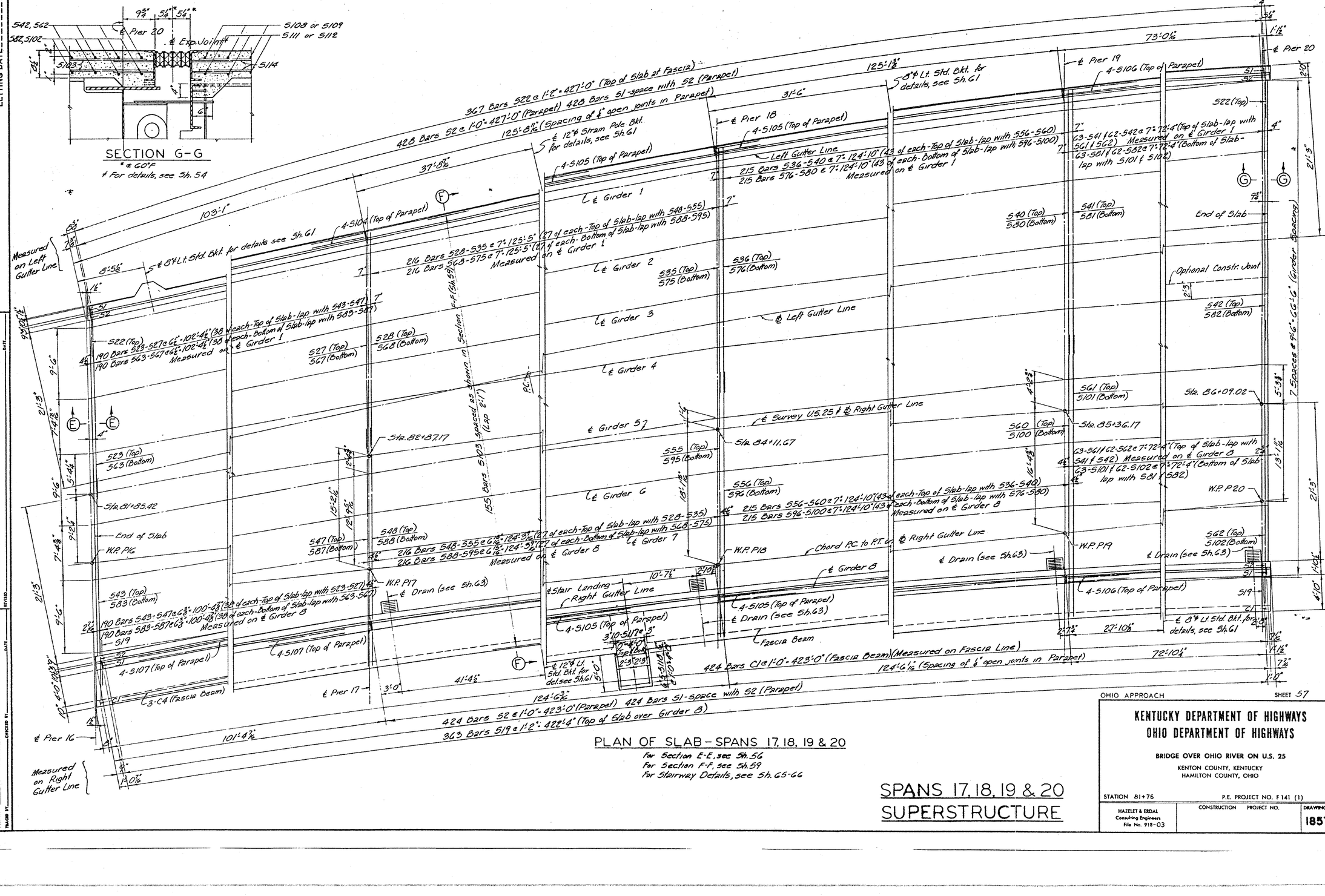
LETTING DATE

SECTION G-G

"e 60°F

℄ For details, see Sh. 54



PLAN OF SLAB – SPANS 17, 18, 19 & 20

For Section E-E, see Sh. 56
For Section F-F, see Sh. 59
For Stairway Details, see Sh. G5-G6

SPANS 17, 18, 19 & 20 SUPERSTRUCTURE

DESIGNED BY	JMM	CHECKED BY	RCM
DETAILED BY	DMM	CHECKED BY	RCM
TRACED BY		CHECKED BY	

DATE 4-77 REVISED
DATE 6-77 REVISED
DATE DATE REVISED

OHIO APPROACH SHEET 57

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

BRIDGE OVER OHIO RIVER ON U.S. 25
KENTON COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

STATION 81+76 P.E. PROJECT NO. F 141 (1)

HAZELET & ERDAL Consulting Engineers File No. 918-03

CONSTRUCTION PROJECT NO.

DRAWING NO. 18577

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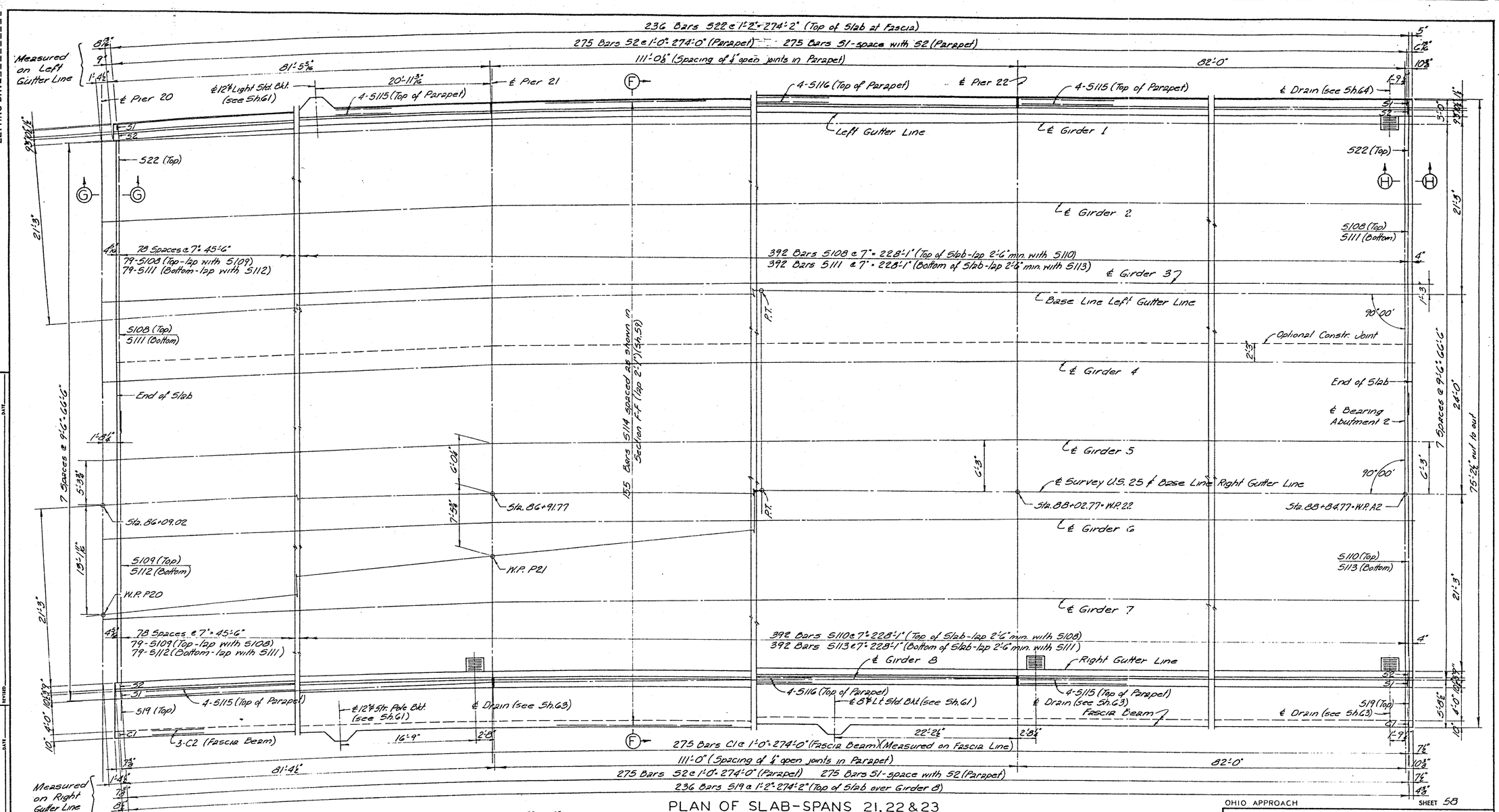
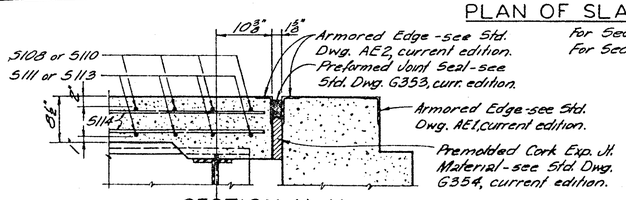
LETTING DATE



PLAN OF SLAB - SPANS 21, 22 & 23

For Section F-F, see Sh. 59
For Section G-G, see Sh. 57



SECTION H-H

SPANS 21, 22 & 23 SUPERSTRUCTURE

OHIO APPROACH

SHEET 58

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

BRIDGE OVER OHIO RIVER ON U.S. 25

KENTON COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

STATION 81+76 — P.E. PROJECT NO. F141 (1)

HAZELET & ERDAL Consulting Engineers File No. 918-03	CONSTRUCTION PROJECT NO.	DRAWING NO. 18577

DESIGNED BY JHH — DATE 6-71 — REVISED
DETAILED BY DHH — DATE 6-72 — REVISED
TRACED BY — DATE — REVISED
CHECKED BY RCH — DATE — REVISED
CHECKED BY RCH — DATE — REVISED
CHECKED BY — DATE — REVISED

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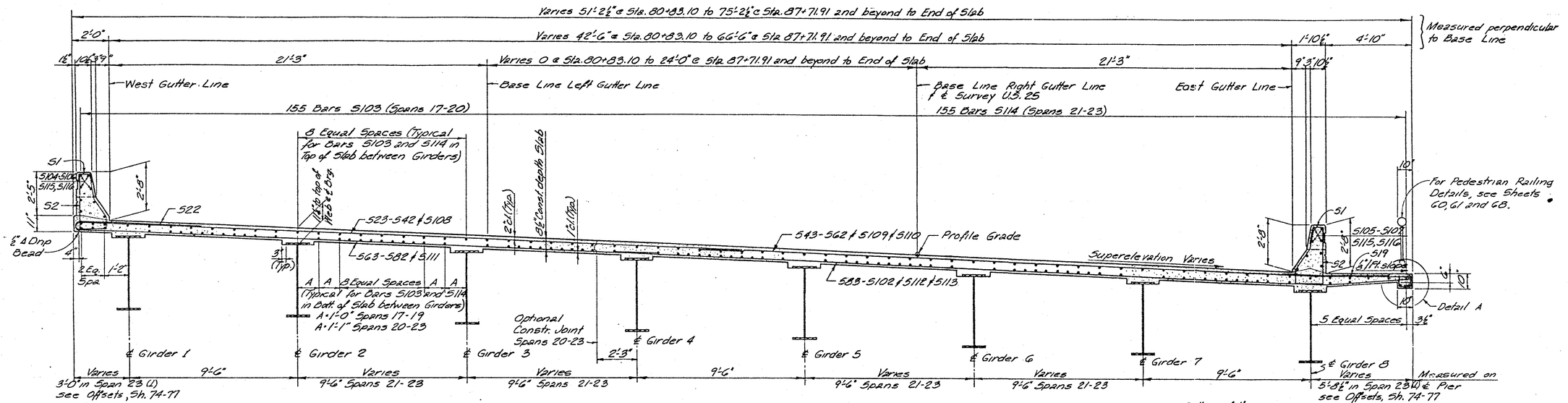
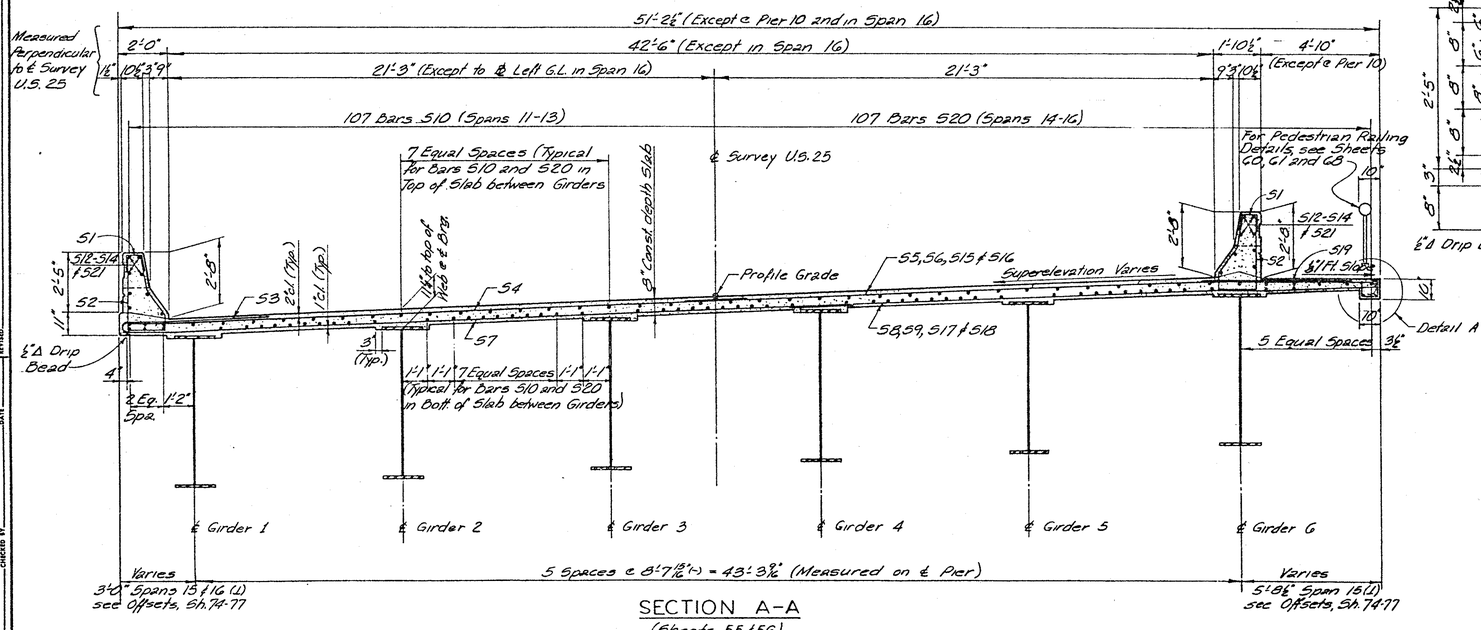
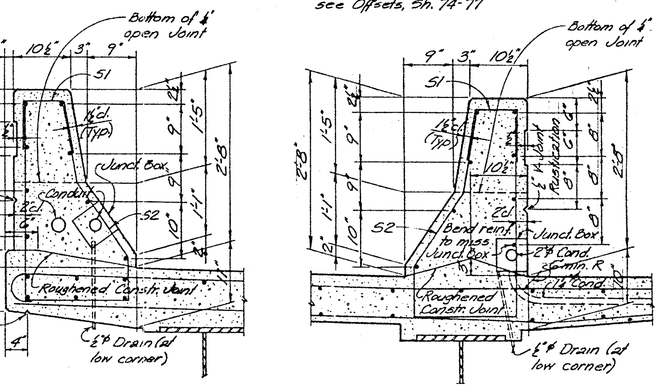
LETTING DATE



SECTION F-F
(Sheets 57 ℄ 58)

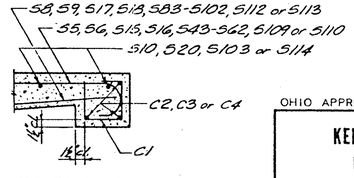


SECTION A-A
(Sheets 55 ℄ 56)



PARAPET DETAILS

Bars S1 to be in place before Parapet is poured.
Bars S2 to be in place before Slab is poured.



DETAIL A
(F 6C12 Beam)

SUPERSTRUCTURE

OHIO APPROACH — SHEET 59

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

BRIDGE OVER OHIO RIVER ON U.S. 25
KENTON COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

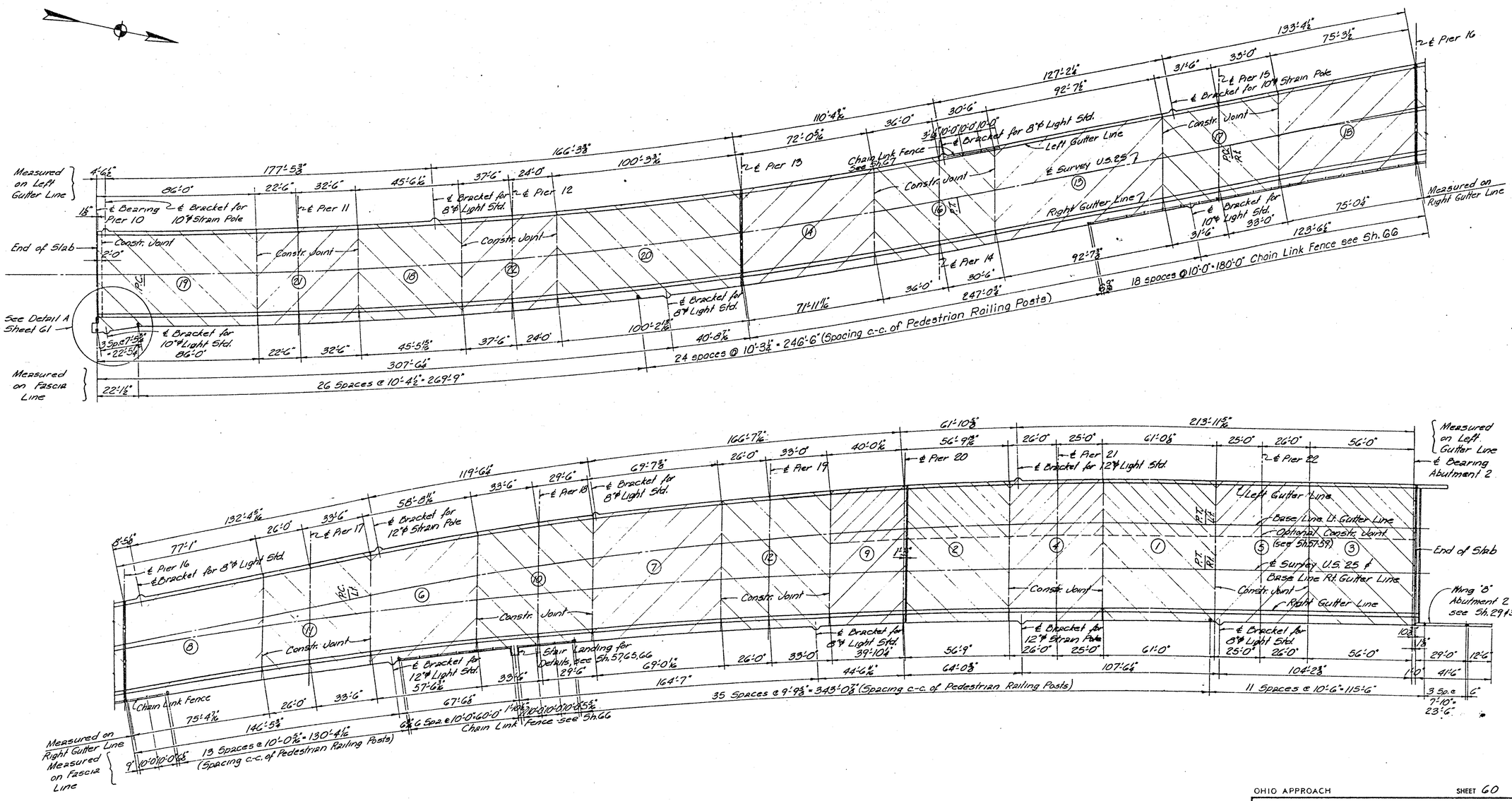
STATION 81+76 — P.E. PROJECT NO. F 141 (1)

HAZELET & ERDAL Consulting Engineers File No. 918-03	CONSTRUCTION PROJECT NO.	DRAWING NO. 18577

DESIGNED BY JMM DATE 8-71
DETAILED BY JMM DATE 8-71
TRACED BY DATE
CHECKED BY RCW DATE 8-71
CHECKED BY REW DATE
CHECKED BY DATE

THIS IS A REDUCED SIZE PRINT — NOT TO SCALE

LETTING DATE



PLAN SHOWING LIGHTING BRACKETS, POURING ORDER, RAILING SPACING

Note:
In following the above pouring sequence, the Contractor shall allow sufficient time between pours in any one continuous unit for the most recently poured concrete to reach a compressive strength of 3,000 psi as determined by cylinder tests before the next pour is made in that unit. Pours may be made in other units while waiting for the earlier pours to gain strength; e.g. pours 1, 6, 13 and 18 may be made concurrently.

SUPERSTRUCTURE

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OHIO APPROACH

SHEET 60

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

BRIDGE OVER OHIO RIVER ON U.S. 25

KENTON COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

STATION 81+76
P.E. PROJECT NO. F 141 (1)

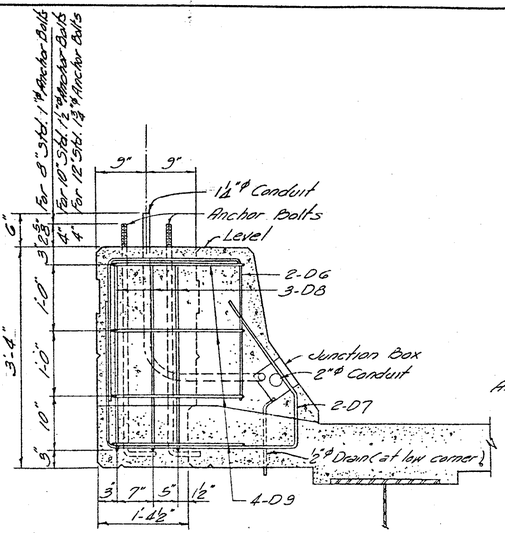
HAZELET & ERDAL
Consulting Engineers
File No. 918-03

CONSTRUCTION PROJECT NO.

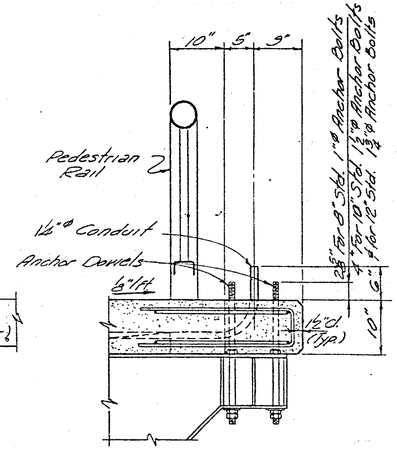
DRAWING NO.
18577

DESIGNED BY UMM CHECKED BY PCW DATE 6-'71 REVISED DATE
DETAILED BY UMM CHECKED BY PCW DATE 7-'71 REVISED DATE
TRACED BY CHECKED BY DATE REVISED DATE

LETTING DATE

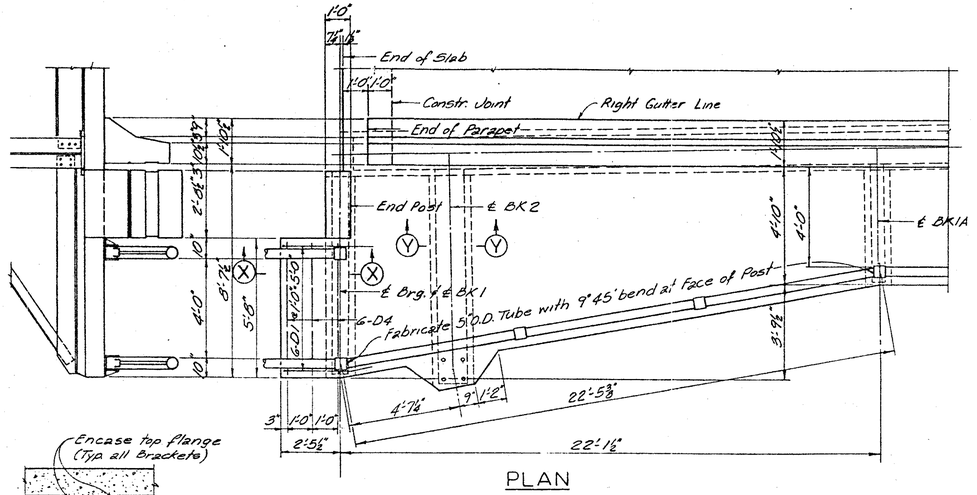


SECTION A-A

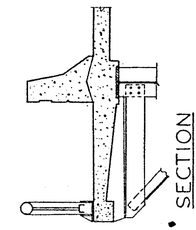


SECTION B-B

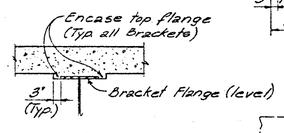
END ELEVATION



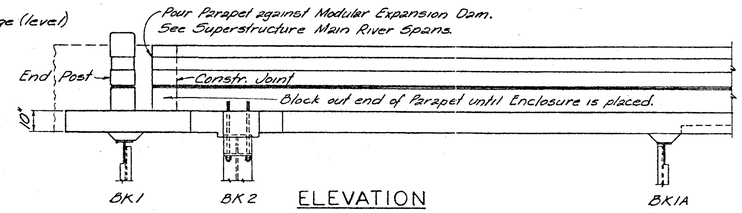
PLAN



SECTION



SECTION Y-Y



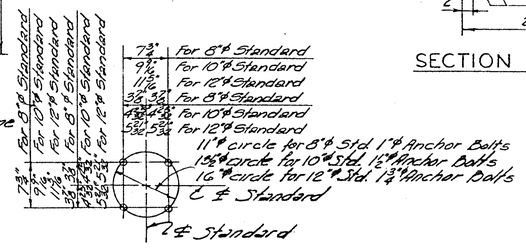
ELEVATION

DETAIL A
(see Sheet G1)

PLAN OF LEFT FASCIA LINE BRACKET

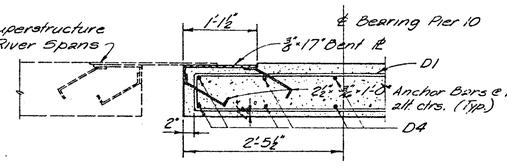
PLAN OF RIGHT FASCIA LINE BRACKET

NOTE-
For location of Light Standard and Strain Pole Brackets, see Sh. G0.

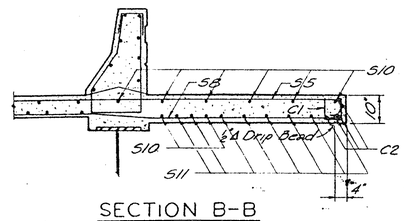


LIGHT STANDARD & STRAIN POLE BOLT CIRCLE DETAILS

These dimensions shall be coordinated with Light Standards and Strain Poles furnished for the Project.



SECTION X-X



SECTION B-B
(Sheet 55)

SUPERSTRUCTURE

OHIO APPROACH — SHEET G1

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

BRIDGE OVER OHIO RIVER ON U.S. 25
KENTON COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

STATION 81+76 — P.E. PROJECT NO. F 141 (1)

HAZELET & ERDAL
Consulting Engineers
File No. 918-03

CONSTRUCTION PROJECT NO.

DRAWING NO. 18577

DESIGNED BY: MHH — CHECKED BY: RCH — DATE: 5-72
DETAILED BY: MHH — CHECKED BY: MHH — DATE: 7-71
TRACED BY: — CHECKED BY: — DATE:
REVISED / REVISED / REVISED

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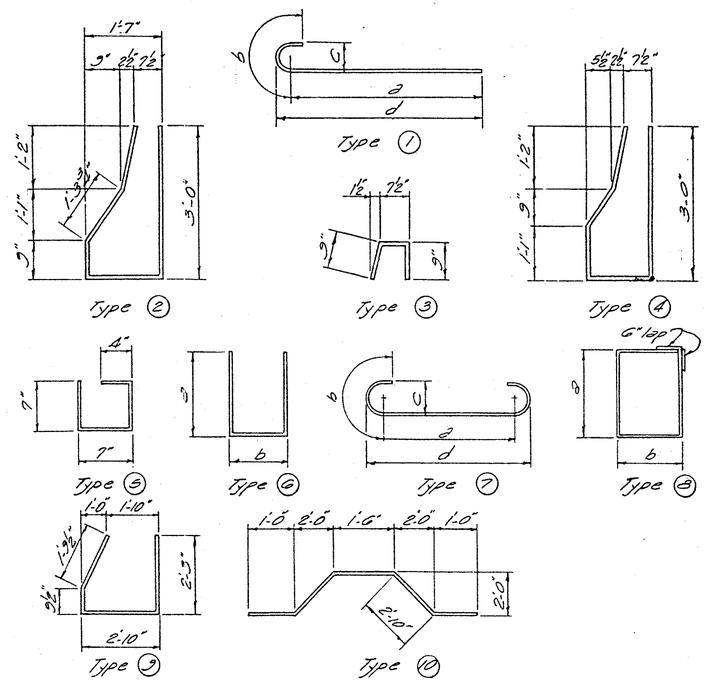
LETTING DATE

BILL OF REINFORCEMENT

Mark	Type	No.	Bar Size	Length Ft.	Length In.	Location	a Ft.	a In.	b Ft.	b In.	c Ft.	c In.	d Ft.	d In.
S1	③	2,837	5	2	1	Parapet								
S2	②	2,837	5	7	3	"								
S3	①	616	4	7	3	Slab - Top	6	7	0	8	0	4	6	3
S4	"	1,218	6	25	3	" "	24	3	1	0	0	6	25	0
S5	"	35	6	33	0	" "	32	0	1	0	0	6	32	3
S6	"	369	6	23	3	" "	22	3	1	0	0	6	23	0
S7	Str.	1,218	6	23	6	Slab - Bottom								
S8	"	35	6	27	3	" "								
S9	"	369	6	24	6	" "								
S10	"	1,070	5	36	8	Slab - longitudinal								
S11	"	8	8	22	6	" "								
S12	"	72	4	36	10	Top of Parapet								
S13	"	24	4	37	6	" " "								
S14	"	32	4	32	3	" " "								
S15	①	461	6	30	3	Slab - Top	29	3	1	0	0	6	29	6
S16	"	163	6	31	3	" "	30	3	1	0	0	6	31	0
S17	Str.	461	6	25	0	Slab - Bottom								
S18	"	163	6	26	6	" "								
S19	"	369	4	6	0	Slab - Top								
S20	"	1,070	5	39	0	Slab - Longitudinal								
S21	"	32	4	40	0	Top of Parapet								
S22	①	603	5	7	5	Slab - Top	6	7	0	10	0	5	6	9½
S23	"	38	6	25	4	" "	24	4	1	0	0	6	24	7
S24	"	38	6	26	0	" "	25	0	1	0	0	6	25	3
S25	"	38	6	26	7	" "	25	7	1	0	0	6	25	10
S26	"	38	6	27	3	" "	26	3	1	0	0	6	26	6
S27	"	38	6	28	0	" "	27	0	1	0	0	6	27	3
S28	"	27	6	28	6	" "	27	6	1	0	0	6	27	9
S29	"	27	6	28	10	" "	27	10	1	0	0	6	28	1
S30	"	27	6	29	4	" "	28	4	1	0	0	6	28	7
S31	"	27	6	29	9	" "	28	9	1	0	0	6	29	0
S32	"	27	6	30	3	" "	29	3	1	0	0	6	29	6
S33	"	27	6	30	9	" "	29	9	1	0	0	6	30	0
S34	"	27	6	31	2	" "	30	2	1	0	0	6	30	5
S35	"	27	6	31	8	" "	30	8	1	0	0	6	30	11
S36	"	43	6	32	2	" "	31	2	1	0	0	6	31	5
S37	"	43	6	32	9	" "	31	9	1	0	0	6	32	0
S38	"	43	6	33	3	" "	32	3	1	0	0	6	32	6
S39	"	43	6	33	9	" "	32	9	1	0	0	6	33	0
S40	"	43	6	34	3	" "	33	3	1	0	0	6	33	6
S41	"	63	6	34	9	" "	33	9	1	0	0	6	34	0
S42	"	62	6	35	3	" "	34	3	1	0	0	6	34	6
S43	"	38	6	33	3	" "	32	3	1	0	0	6	32	6
S44	"	38	6	33	7	" "	32	7	1	0	0	6	32	10
S45	"	38	6	34	0	" "	33	0	1	0	0	6	33	3
S46	"	38	6	34	3	" "	33	3	1	0	0	6	33	6
S47	"	38	6	34	6	" "	33	6	1	0	0	6	33	9
S48	"	27	6	35	0	" "	34	0	1	0	0	6	34	3
S49	"	27	6	35	7	" "	34	7	1	0	0	6	34	10
S50	"	27	6	36	0	" "	35	0	1	0	0	6	35	3
S51	"	27	6	36	6	" "	35	6	1	0	0	6	35	9
S52	"	27	6	37	0	" "	36	0	1	0	0	6	36	3
S53	"	27	6	37	5	" "	36	5	1	0	0	6	36	8
S54	"	27	6	37	11	" "	36	11	1	0	0	6	37	2
S55	"	27	6	38	4	" "	37	4	1	0	0	6	37	7
S56	"	43	6	38	11	" "	37	11	1	0	0	6	38	2
S57	"	48	6	39	5	" "	38	5	1	0	0	6	38	8
S58	"	43	6	39	11	" "	38	11	1	0	0	6	39	2
S59	"	43	6	40	6	" "	39	6	1	0	0	6	39	9
S60	"	43	6	41	1	" "	40	1	1	0	0	6	40	4
S61	"	63	6	41	7	" "	40	7	1	0	0	6	40	10
S62	"	62	6	42	1	" "	41	1	1	0	0	6	41	4
S63	Str.	38	6	19	10	" "								
S64	"	38	6	20	6	" "								
S65	"	38	6	21	1	" "								
S66	"	38	6	21	9	" "								
S67	"	38	6	22	6	" "								
S68	"	27	6	23	0	" "								
S69	"	27	6	23	6	" "								
S70	"	27	6	23	10	" "								
S71	"	27	6	24	3	" "								
S72	"	27	6	24	9	" "								
S73	"	27	6	25	3	" "								
S74	"	27	6	25	8	" "								
S75	"	27	6	26	2	" "								
S76	"	43	6	26	8	" "								
S77	"	43	6	27	3	" "								
S78	"	43	6	27	9	" "								
S79	"	43	6	28	3	" "								
S80	"	43	6	28	9	" "								

Mark	Type	No.	Bar Size	Length Ft.	Length In.	Location	a Ft.	a In.	b Ft.	b In.	c Ft.	c In.	d Ft.	d In.
S81	Str.	63	6	23	3	Top of Slab								
S82	"	62	6	23	9	" " "								
S83	"	38	6	37	3	" " "								
S84	"	38	6	37	7	" " "								
S85	"	38	6	38	0	" " "								
S86	"	38	6	38	3	" " "								
S87	"	38	6	38	6	" " "								
S88	"	27	6	39	0	" " "								
S89	"	27	6	39	7	" " "								
S90	"	27	6	40	0	" " "								
S91	"	27	6	40	6	" " "								
S92	"	27	6	41	0	" " "								
S93	"	27	6	41	5	" " "								
S94	"	27	6	41	11	" " "								
S95	"	27	6	42	4	" " "								
S96	"	43	6	42	11	" " "								
S97	"	43	6	43	5	" " "								
S98	"	43	6	43	11	" " "								
S99	"	43	6	44	6	" " "								
S100	"	43	6	45	1	" " "								
S101	"	63	6	45	7	" " "								
S102	"	62	6	46	1	" " "								
S103	"	1,060	5	37	6	Slab - Longitudinal								
S104	"	12	4	35	6	Parapet								
S105	"	64	4	32	8	"								
S106	"	16	4	37	10	"								
S107	"	12	4	34	11	"								
S108	①	471	6	38	3	Top of Slab	37	3	1	0	0	6	37	6
S109	"	79	6	39	3	" " "	38	9	1	0	0	6	38	6
S110	"	392	6	40	3	" " "	39	3	1	0	0	6	39	6
S111	Str.	471	6	32	9	Bott. of Slab								
S112	"	73	6	43	9	" " "								
S113	"	392	6	44	9	" " "								
S114	"	1280	5	36	0	Slab - Longitudinal								
S115	"	43	4	28	5	Top of Parapet								
S116	"	24	4	38	0	" " "								
S117	"	10	4	6	0	Stair landing								
S118	⑨	5	4	10	3	" "	0	7	4	2				
S119	Str.	10	4	3	2	" "								
S120	"	20	4	4	2	" "								
C1	⑤	1,419	3	1	11	Fascia Beam								
C2	Str.	36	3	36	0	" "								
C3	"	30	3	38	2	" "								
C4	"	33	3	40	0	" "								
D1	⑥	6	5	8	0	Sidewalk at Pier 10	3	3	0	6½				
D2	"	4	6	8	11	End Post	4	2	0	8				
D3	Str.	6	4	2	5	" "								
D4	"	6	4	5	4	Sidewalk at Pier 10								
D5	⑥	14	5	5	1	Lighting Bracket	2	4	0	7				
D6	"	16	5	6	3	" "	2	2	2	0				
D7	⑨	16	5	7	6	" "								
D8	⑧	24	5	9	7	" "	2	10	1	7				
D9	⑩	46	5	9	2	" "								
D10	⑦	56	6	6	9	At Drains, Right Gutter	5	9	1	0	0	6	6	0
D11	④	16	5	7	5	" " " "								
D12	Str.	28	5	7	10	At Drains								
F1	⑦	17	6	3	2	Stair Footing	1	2	1	0	0	6	1	8
F2	Str.	8	6	5	2	" "								
F3	"	2	6	6	2	" "								



ESTIMATE OF QUANTITIES

Concrete, Class 'AA'	2,653.1 Cu.Yd.
Reinforcement	722,654 Lb.

DESIGNED BY LMM DATE 6-71
DETAILED BY RK CHECKED BY RCW DATE 7-71
TRACED BY CHECKED BY RCW DATE
CHECKED BY DATE
REVISED
REVISED
REVISED

OHIO APPROACH SHEET 62

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

BRIDGE OVER OHIO RIVER ON U.S. 25

KENTON COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

STATION 81 + 76 P.E. PROJECT NO. F 141 (1)

HAZELET & ERDAL
Consulting Engineers
File No. 918-03

CONSTRUCTION PROJECT NO.

DRAWING NO. 18577

SUPERSTRUCTURE

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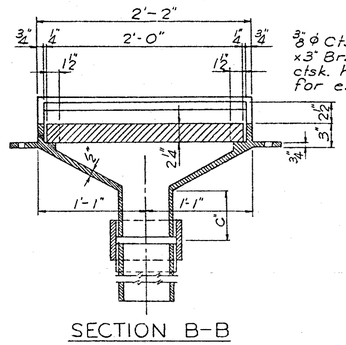
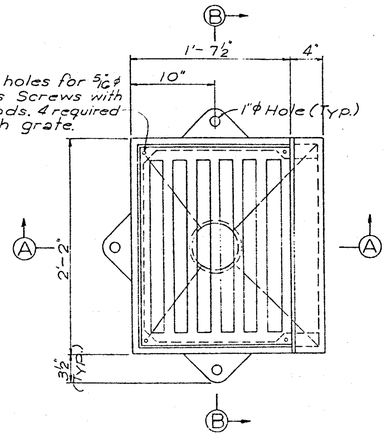
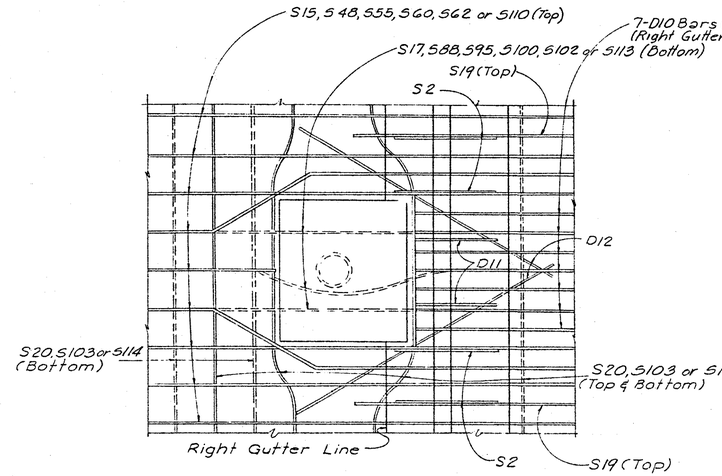


SECTION B-B



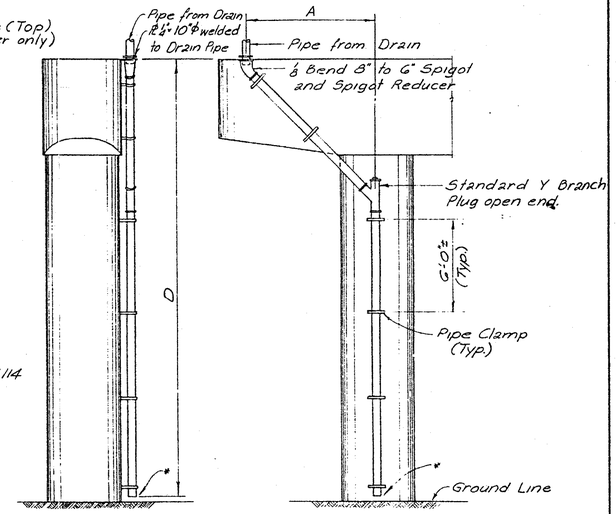
3/8" ϕ Ctsk. holes for 5/16" ϕ x 3" Brass Screws with ctsk. heads. 4 required for each grate.

DECK DRAIN A
(8 Required)
For locations, see Sh. 56-58



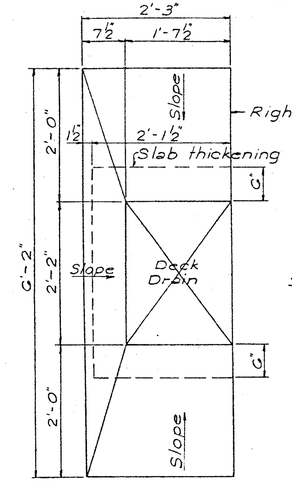
PLAN OF REINFORCEMENT AT DECK DRAIN

Cut or bend top reinforcement at deck drain similar to plan shown. Place extra Bars D10, D11 and D12 as shown at each drain location. Bend bottom reinforcement around downspout as necessary to maintain minimum cover.

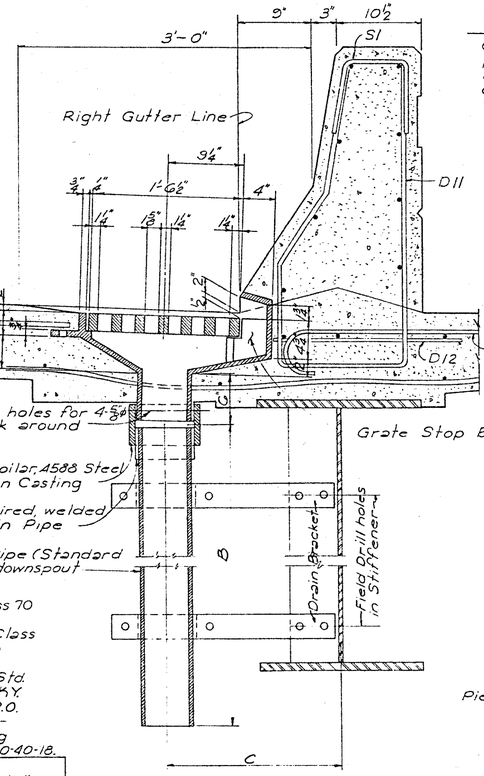


END VIEW FRONT VIEW

PIERS 11-17



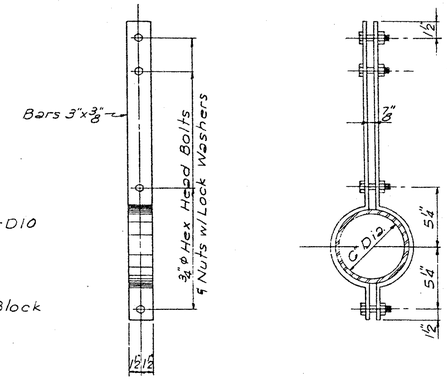
PLAN OF SLAB AT DRAIN
(Showing slopes to 1/2" recess)



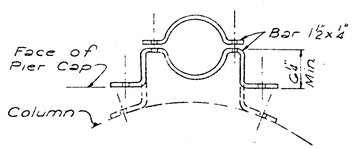
SECTION A-A

MATERIALS:
Drain Grate: ASTM A48G Class 70 Steel Casting.
Body of Drain: ASTM A48 Class No. 30 B Gray Iron Casting.
Drain Pipe & Downspout: C" ϕ Std. Wt. Steel Pipe - See KY. Std. Spec. Art. 843.12.0.
Alternate: Material for Grate - Ductile Iron Casting ASTM A536, Grade 60-40-18.

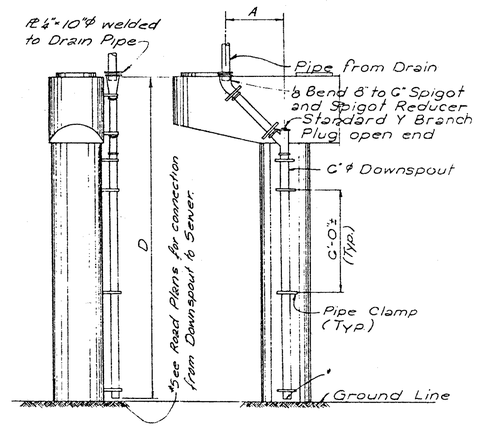
SHOP DRAWINGS:
The Contractor shall submit to the Engineer for approval shop details for all drain pipe showing proposed cuts, fittings, welds, clamps, hangers, etc.



DRAIN PIPE BRACKETS
(Incidental to C" ϕ Drain Pipe)



PIPE CLAMP



END VIEW FRONT VIEW

PIERS 21 & 22

Note:
For dimensions A, B, C & D, see Table, Sh. G4

SUPERSTRUCTURE

OHIO APPROACH SHEET G3

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

BRIDGE OVER OHIO RIVER ON U.S. 25

KENTON COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

STATION 81+76 P.E. PROJECT NO. F141 (1)

HAZELET & ERDAL Consulting Engineers File No. 918-03	CONSTRUCTION PROJECT NO.	DRAWING NO. 18577

DESIGNED BY ____ CHECKED BY ____ DATE ____ REVISED
DETAILED BY C.H. CHECKED BY MAM DATE 2-71 REVISED
TRACED BY ____ CHECKED BY ____ DATE ____ REVISED

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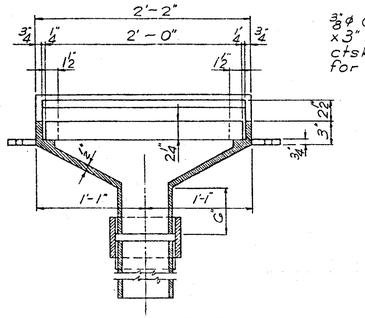
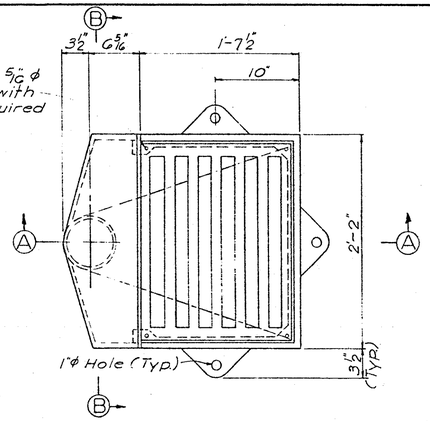
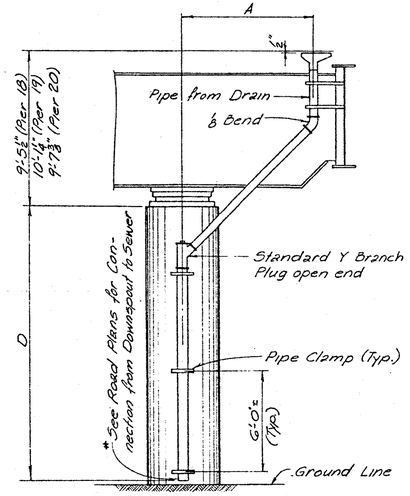
LETTING DATE



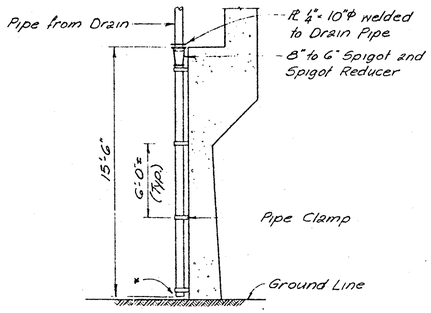
SECTION B-B



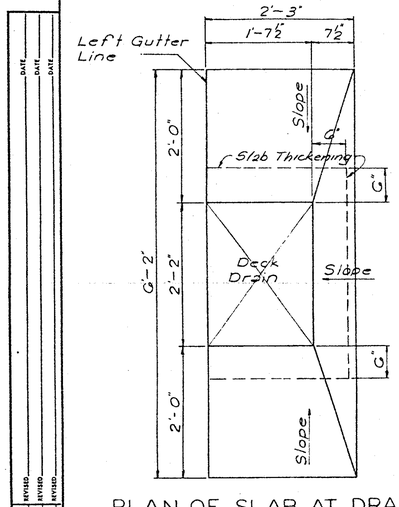
DECK DRAIN B
(7 Required)
For locations see Sh. 55, 56, 58



PIERS 18-20



ABUTMENT 2



PLAN OF SLAB AT DRAIN
(Showing slopes to ½" recess)

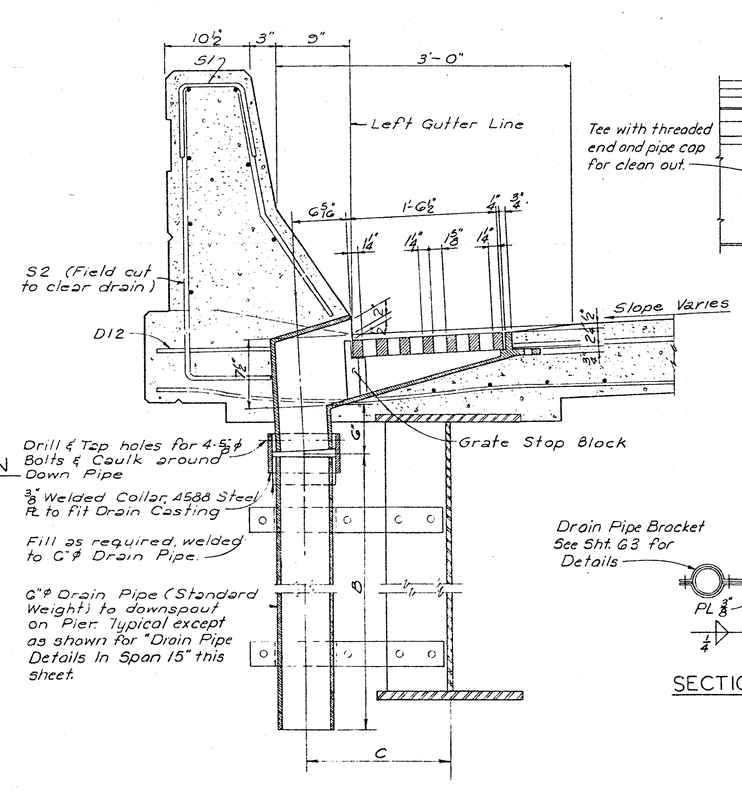
NOTES:

For details of Drain Pipe Brackets and Pipe Clamp see Sheet G3.

For Materials Note see Sheet G3.

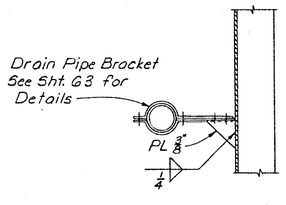
This type Drain is used at the Right Gutter Line at Pier 16.

Shop Drawings: See Note, Sheet G3.

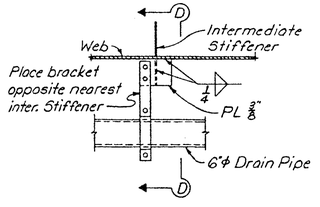


SECTION A-A

DRAIN PIPE DETAILS IN SPAN 15



SECTION D-D



SECTION C-C

TABLE OF DIMENSIONS

Gutter	Location	A	B	C	D	Type
Lt.	Pier 11	8'-0 3/8"	8'-0"	1'-0½"	41'-6"	B
Lt.	Pier 12	7'-9"	8'-3"	1'-1"	43'-3"	B
Lt.	Pier 13	7'-8 3/8"	8'-7"	1'-2 3/8"	42'-3"	B
Lt.	Pier 14	7'-10 3/8"	——	1'-5 3/8"	38'-6"	B
Rt.	Pier 15	5'-8"	8'-6"	1'-9 3/4"	39'-10"	A
Rt.	Pier 16	8'-4 3/8"	7'-8"	† 10 3/8"	37'-0"	B
Rt.	Pier 17	9'-4 3/8"	8'-1"	1'-9 3/8"	32'-9"	A
Rt.	Pier 18	8'-0 3/8"	2'-6"	1'-10 5/8"	27'-3"	A
Rt.	Pier 19	4'-2½"	5'-0"	1'-9 3/8"	20'-8"	A
Rt.	Pier 20	4'-5½"	3'-6"	2'-8 3/8"	16'-9"	A
Rt.	Pier 21	4'-8 3/8"	6'-0"	2'-0 3/8"	21'-2"	A
Rt.	Pier 22	4'-11½"	5'-11½"	1'-9½"	17'-10"	A
Lt.	Abut. 2	——	5'-8"	1'-6 5/8"	15'-6"	B
Rt.	Abut. 2	——	5'-8"	1'-9 3/8"	15'-6"	A
Lt.	Sta. 79+80	——	——	1'-6 3/8"	——	B

† Notch Girder Flange to accomodate drain.

DESIGNED BY C.H. DATE
DETAILED BY C.H. DATE
CHECKED BY DATE
CHECKED BY DATE
TRACED BY DATE
REVISED
REVISED
REVISED

OHIO APPROACH SHEET G4

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

BRIDGE OVER OHIO RIVER ON U.S. 25

KENTON COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

STATION 81+76 P.E. PROJECT NO. F 141 (1)

HAZELET & ERDAL Consulting Engineers File No. 918-03	CONSTRUCTION PROJECT NO.	DRAWING NO. 18577

SUPERSTRUCTURE

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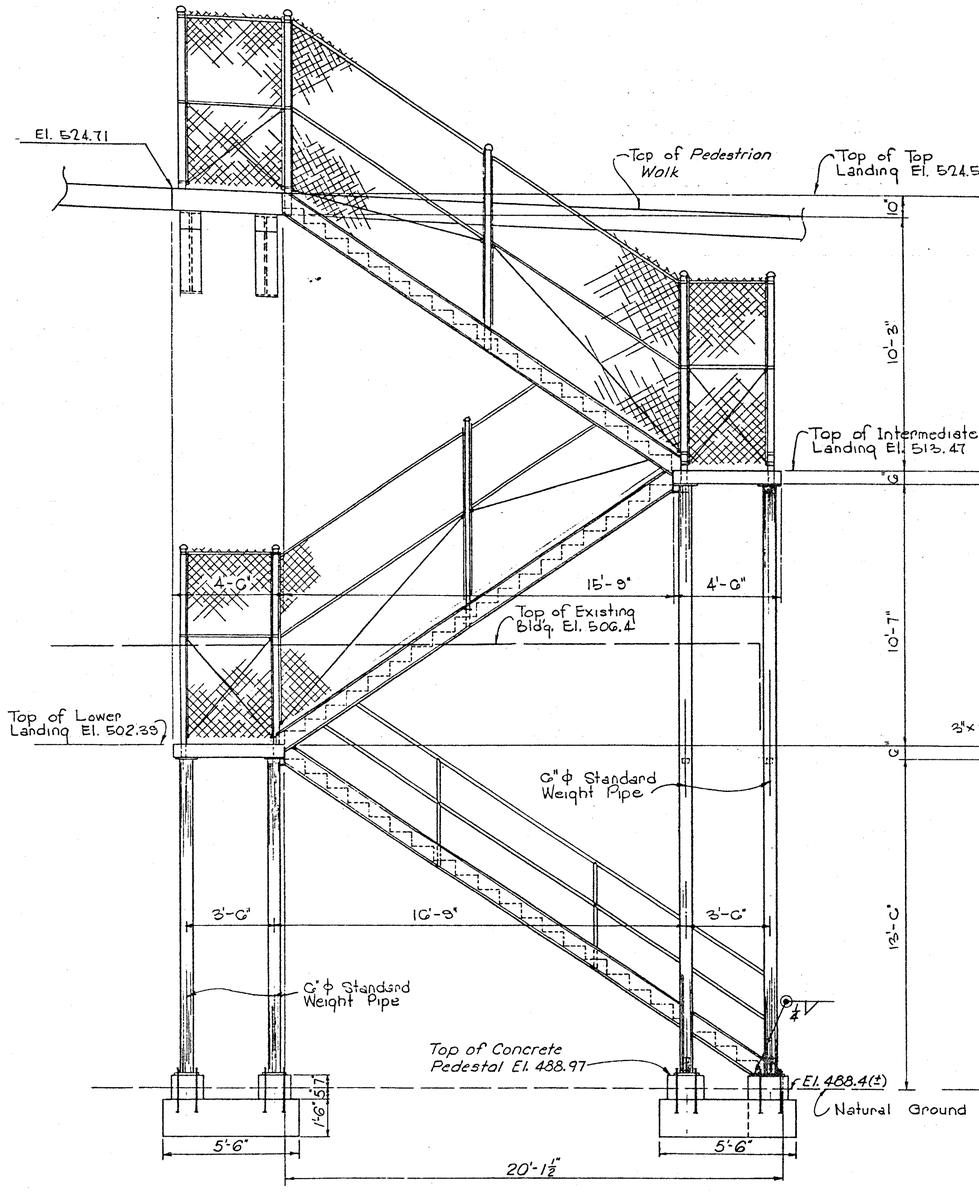
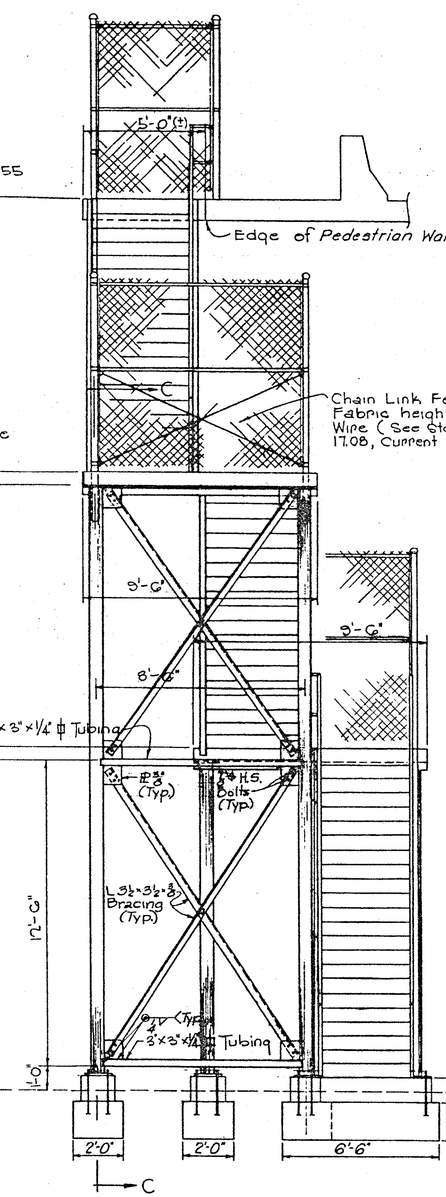
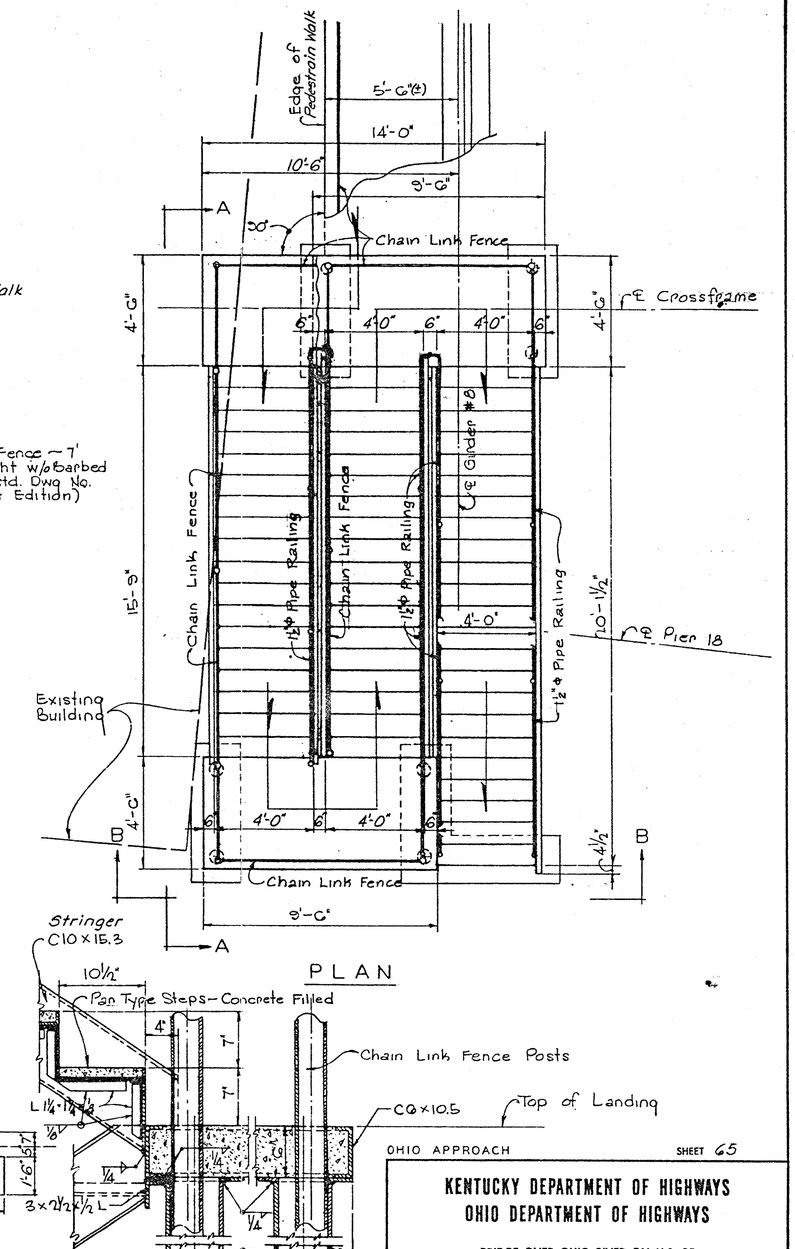


ELEVATION A-A



ELEVATION B-B



PLAN

SECTION C-C

PEDESTRIAN STAIRWAY
NEAR PIER 18

DESIGNED BY J.S.M DATE 7-77
DETAILED BY JMM DATE
CHECKED BY DATE
CHECKED BY DATE
TRACED BY DATE
REVISED DATE
REVISED DATE
REVISED DATE

OHIO APPROACH SHEET 65

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

BRIDGE OVER OHIO RIVER ON U.S. 25
KENTON COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

STATION 81+76 P.E. PROJECT NO. F 141 (1)

HAZELET & ERDAL Consulting Engineers File No. 918-03

CONSTRUCTION PROJECT NO.

DRAWING NO. 16577

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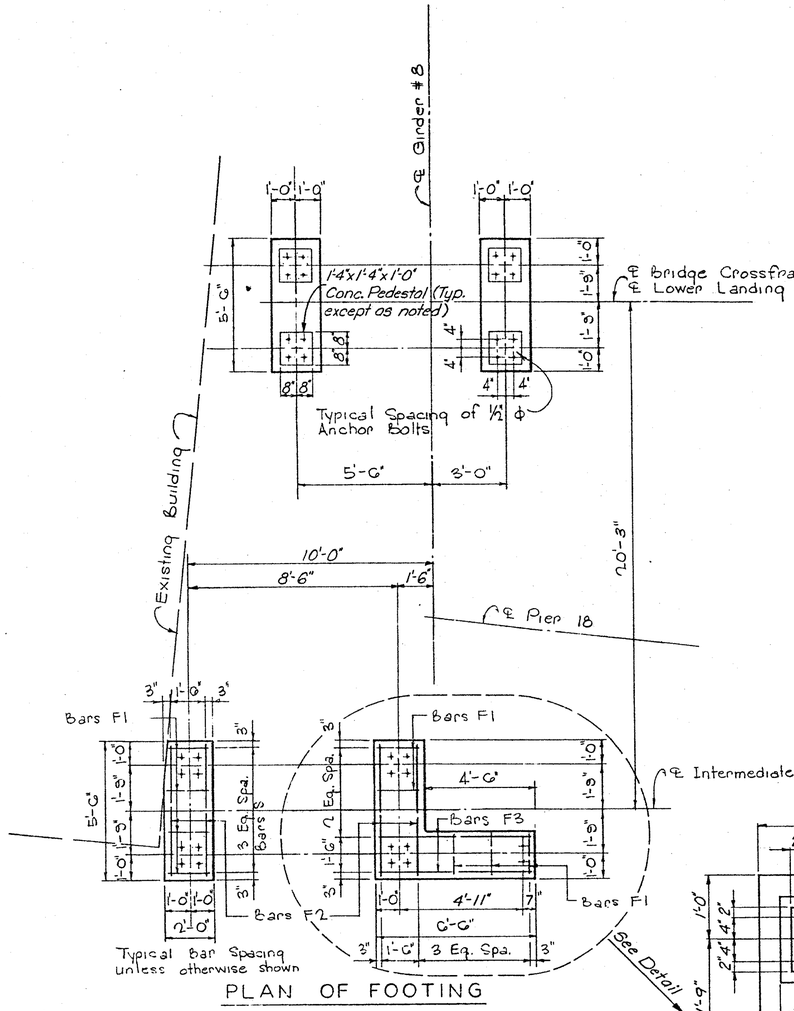
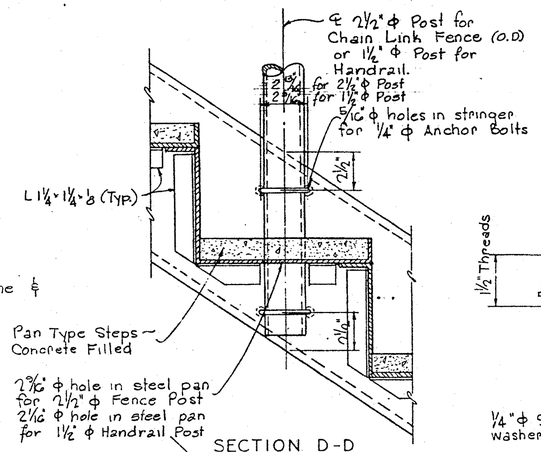
LETTING DATE



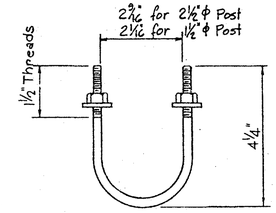
PLAN OF FOOTING

Note:
All reinforcing bars to have 4" clear from bottom of footings.



SECTION D-D

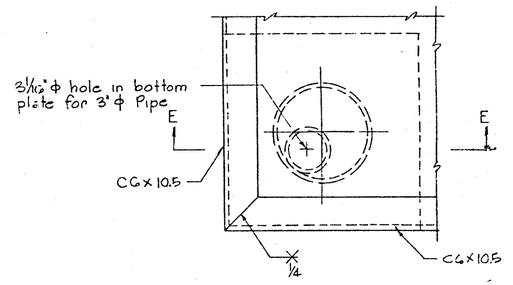
PART PLAN OF STAIRS



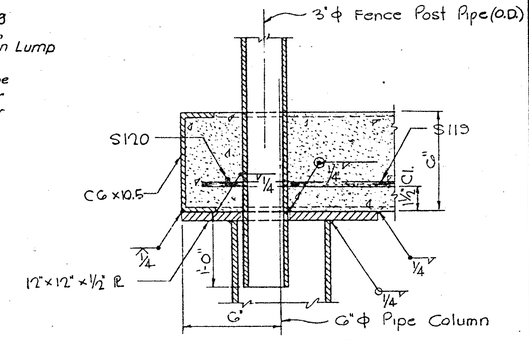
¼" ϕ Steel U-bolts with washers and hex nuts

POST ANCHOR BOLT

Cost of Structural Steel stair framing including anchor bolts, pan treads, and concrete filling (Class D) included in Lump Sum Bid for Structural Steel. Cost of Chain Link Fence and 1½" ϕ Pipe Handrail, including posts, rails, anchor bolts, sleeve anchors, etc. to be paid for at unit price bid per linear foot for Chain Link Fence.



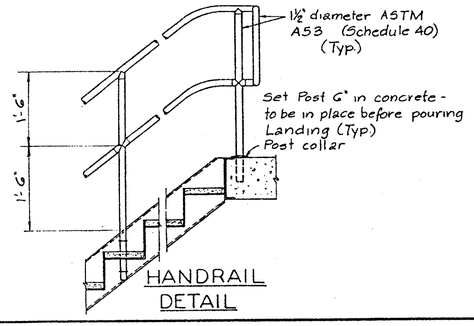
PART PLAN



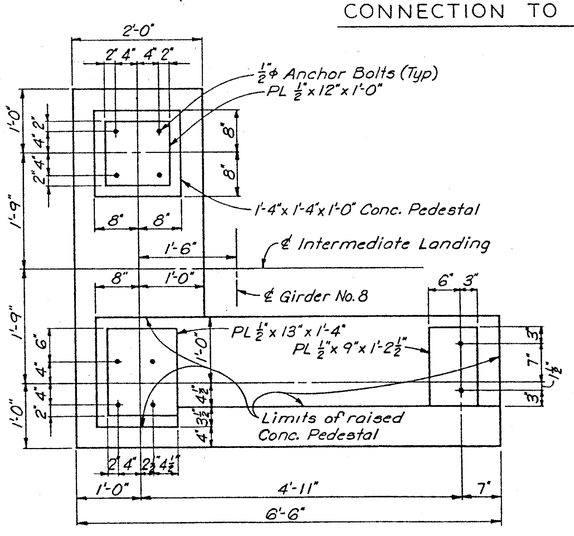
SECTION E-E

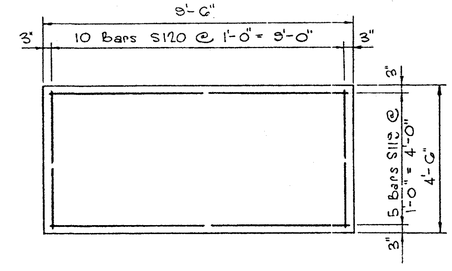
LANDING CORNER DETAIL

DETAIL OF FENCE POST CONNECTION TO STRINGER



HANDRAIL DETAIL





PLAN OF INTERMEDIATE AND LOWER LANDINGS
(Showing Reinforcement)

PEDESTRIAN STAIRWAY AND FENCE DETAILS

DESIGNED BY — DETAILED BY — TRACED BY — CHECKED BY — DATE 7-77 — J.S.M.

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OHIO APPROACH — SHEET 66

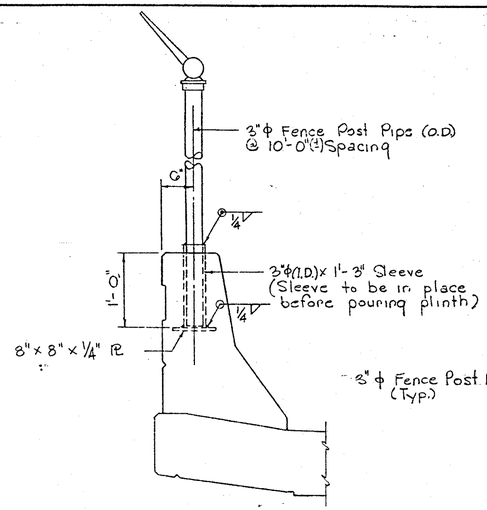
KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

BRIDGE OVER OHIO RIVER ON U.S. 25
KENTON COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

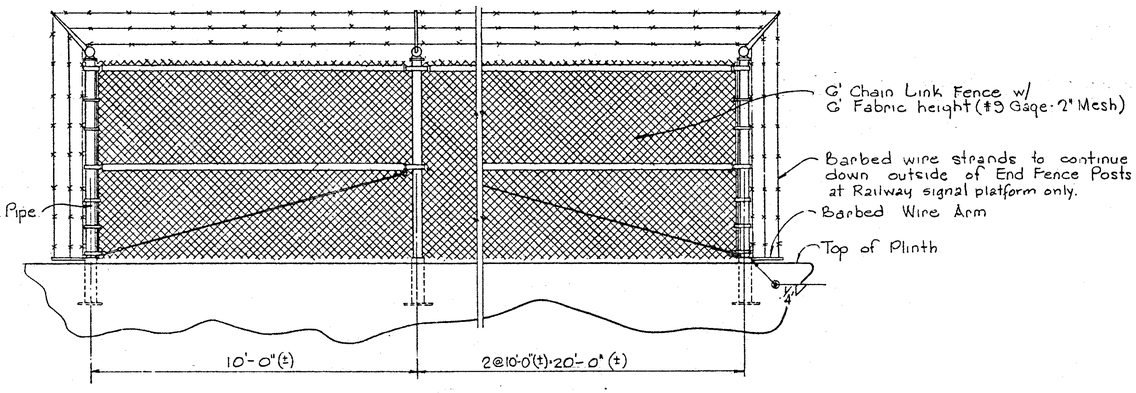
STATION 81+76 — P.E. PROJECT NO. F141 (1)

HAZELET & ERDAL Consulting Engineers File No. 918 03 — CONSTRUCTION PROJECT NO. — DRAWING NO. 18577

LETTING DATE



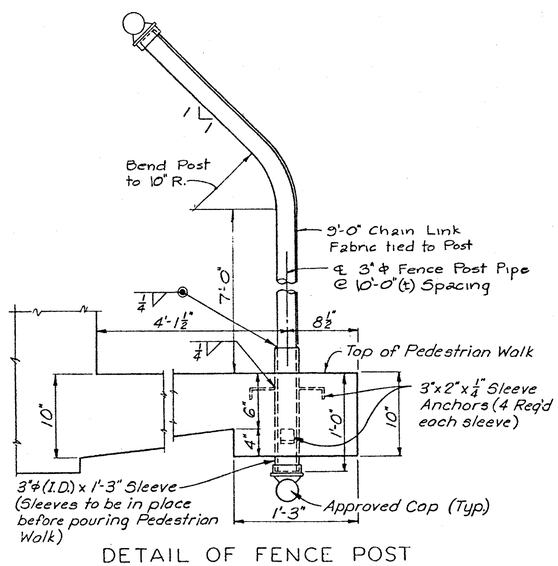
DETAIL OF FENCE POST CONNECTION TO PLINTH



CHAIN LINK FENCE INSTALLATION

AT STA. 79+30.0 TO 79+60.3 LT.

NOTE: For Additional details and notes, See Ky. Hwy Dept. Standard Drawing No. 17.08, Current Edition.



DETAIL OF FENCE POST CONNECTION TO PEDESTRIAN WALK

TYPICAL: STA. 79+98.2 TO 82+00.1, STA 83+34.3 TO 83+94.8, STA.83+98.6 TO 84+28.8

DESIGNED BY JSM DATE 2-71
DETAILED BY CHECKED BY DATE
TRACED BY CHECKED BY DATE
REVISED DATE
REVISED DATE
REVISED DATE

CHAIN LINK FENCE DETAILS

OHIO APPROACH SHEET 67

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

BRIDGE OVER OHIO RIVER ON U.S. 25
KENTON COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

STATION 81+76 P.E. PROJECT NO. F 141 (1)

HAZELET & ERDAL Consulting Engineers File No. 918-03

CONSTRUCTION PROJECT NO.

DRAWING NO. 18577

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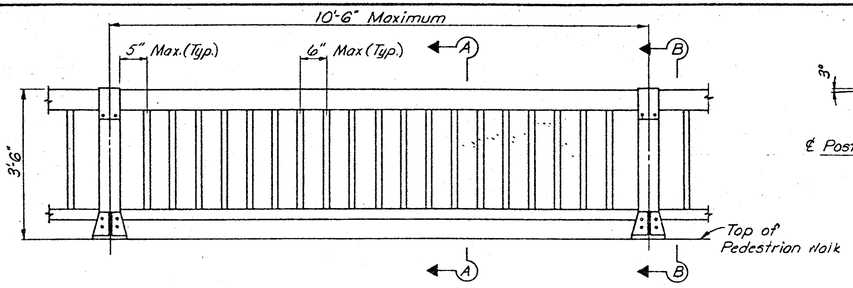
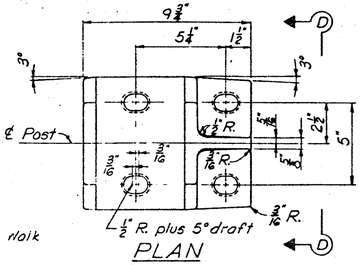
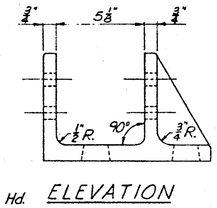


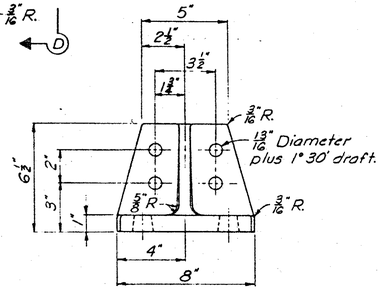
TYPICAL PANEL



PLAN

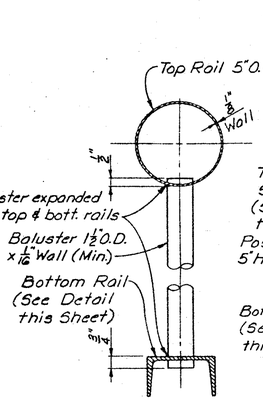


ELEVATION

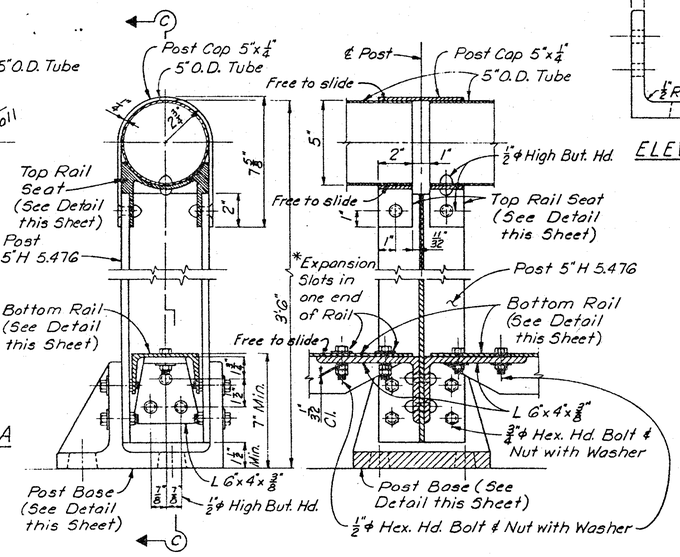


VIEW D-D

POST BASE DETAIL



SECTION A-A



SECTION B-B

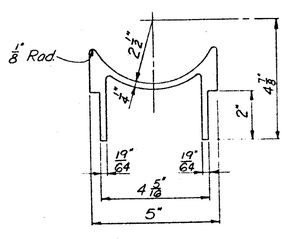
SECTION C-C
*Provide ½" movement in either direction

PLAN

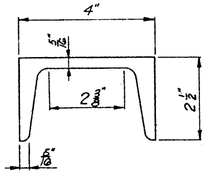
ELEVATION

ANCHOR BOLT SETTING DETAIL

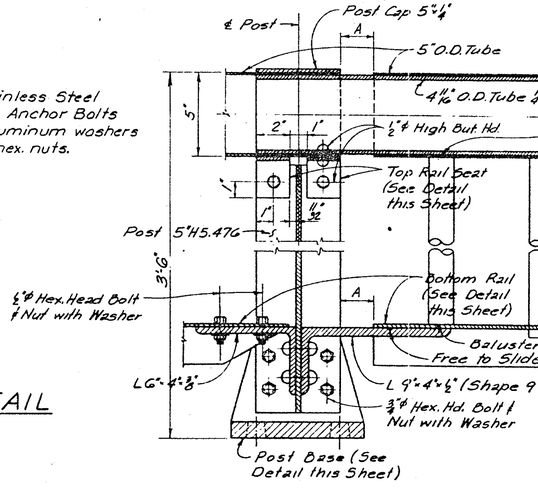
DIMENSION A				
Temp.	Pier 13	Pier 16	Pier 20	Abut. 2
90°F	1⅜"	1¼"	1⅜"	1⅛"
80°F	1⅛"	1⅛"	1⅛"	1⅜"
70°F	2 3/16"	1⅜"	2 3/16"	1 7/16"
60°F	2½"	2"	2½"	1½"
50°F	2 13/16"	2¼"	2 13/16"	1 9/16"
40°F	3⅛"	2½"	3⅛"	1⅝"
30°F	3⅜"	2 13/16"	3 7/16"	1 11/16"



TOP RAIL SEAT DETAIL



BOTTOM RAIL DETAIL



SECTION C-C
(At first post South of Piers 13, 16 & 20 and Abutment 2)

PEDESTRIAN RAILING

GENERAL NOTES

SPECIFICATIONS: Kentucky Department of Highways Standard Specifications for Road and Bridge Construction, current edition with revisions. AASHO, ASTM, AWS and Aluminum Assoc. Material Specifications, current edition, are also applicable as designated hereon.

FABRICATION

GENERAL: Post spacing is governed by the details shown on the Bridge Plans. The end result shall be a continuous rail, with each rail section being attached as detailed in the plans. Fabricator's Shop Detail Plans must be approved by the Kentucky Department of Highways, and the Contractor is responsible for furnishing these plans to the Department for approval prior to fabrication.

APPEARANCE: Pieces having surfaces so scored or marked as to cause an objectionable appearance will be rejected.

CUTTING: All cuts are to be sawed and milled.

HOLES: All holes in castings shall be cored.

WELDING: Welding shall be done by an arc welding process in which no welding flux is used. Filler material for welding shall conform to AWS A5.10, current specification, classification ER 4043 or ER 5356.

ERECTION, MEASUREMENT AND PAYMENT

ERECTION: Posts shall be set at right angles to the bridge fascia line and vertical. The alignment of the railing shall be parallel to the Fascia Line. Special fabrication of curvature will be required when Fascia Lines are curved. U-Shaped washer shims having a maximum thickness of 1/8" may be used under the posts to obtain desired alignment of post or rail. The void space under the post base shall be filled with Alumilastic Compound, or an approved equal, so as to completely insulate the aluminum from the concrete.

MEASUREMENT: The work actually completed and accepted in place shall be measured along the rail in Linear Feet within the pay length limits.

PAYMENT: Payment will be made for the quantity measured as described above at the contract unit price per Linear Foot and such payment shall be full compensation for all materials and work necessary for completion.

MATERIAL

TUBING, BALUSTERS, RAIL SEATS - ASTM B429, Alloy 6061-T6

POSTS AND CHANNELS - ASTM B308, Alloy 6061-T6

BASE CASTINGS - ASTM B108, Alloy SG70A-T6

RIVETS - ASTM B316, Alloy 6061-H13

RAIL TO POST AND BASE TO POST HARDWARE: Bolts ASTM B211 Alloy 2024-T4
Nuts ASTM B211 Alloy 6061-T6
PostCaps, Washers & Shims ASTM B209 Alloy Alclad 2024-T3

Nuts and Bolts shall be hexagon and in accordance with USNAI Specification B18.2. Threads shall conform to Standards of Class 2B.

ANCHOR BOLTS - ASTM A276 Type 430 Stainless Steel. Threads shall be rolled.

MILL TEST: Notarized Mill Test Reports or Statements certifying that the Materials comply with the Specifications, shall be furnished in triplicate to the Department of Highways.

OHIO APPROACH SHEET 68

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

BRIDGE OVER OHIO RIVER ON U.S. 25
KENTON COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

STATION 81+76 P.E. PROJECT NO. F 141 (1)

HAZELET & ERDAL Consulting Engineers File No. 918-03

CONSTRUCTION PROJECT NO.

DRAWING NO. 18577

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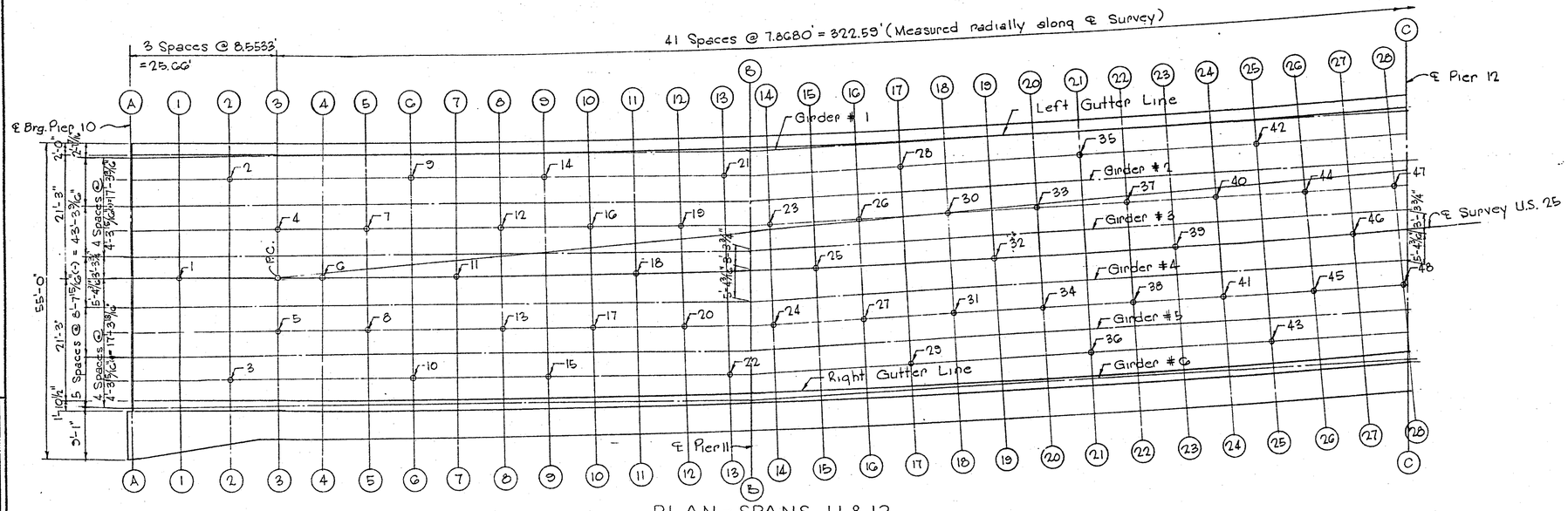
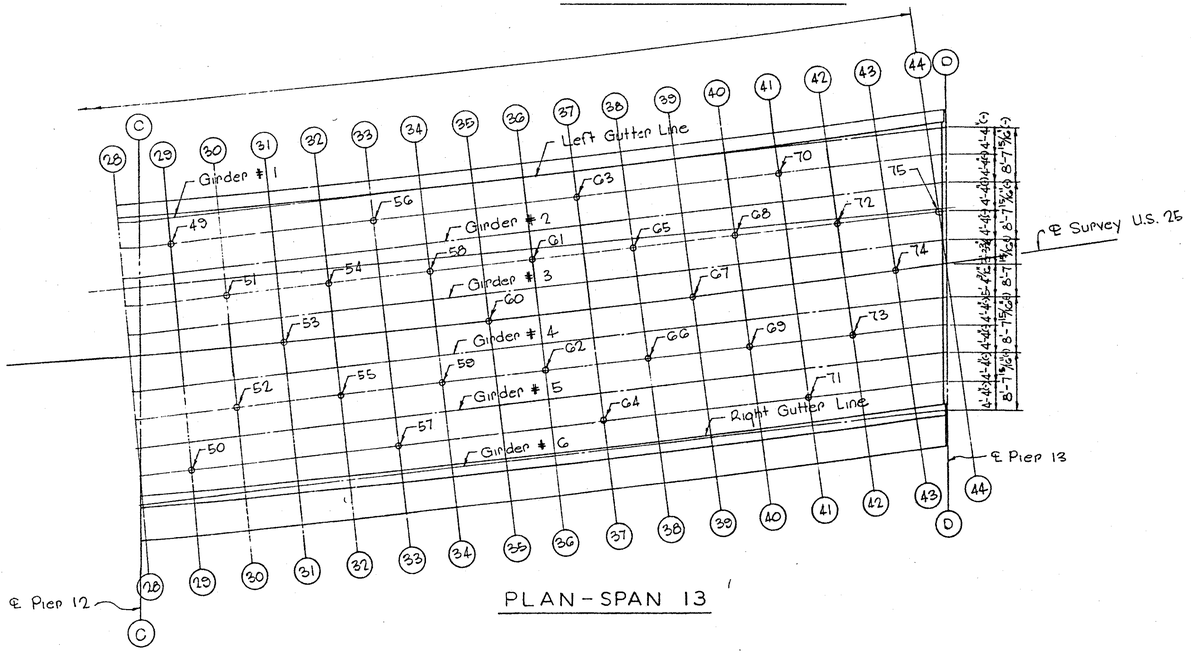


PLAN - SPANS 11 & 12



PLAN - SPAN 13

ELEVATIONS

OHIO APPROACH SHEET 69

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

BRIDGE OVER OHIO RIVER ON U.S. 25

KENTON COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

STATION 81 + 76 P.E. PROJECT NO. F141 (1)

MAZELET & ERDAL Consulting Engineers File No. 918-03	CONSTRUCTION PROJECT NO.	DRAWING NO. 18577

DRAWN BY J.S.M. DATE 7-71
DETAILED BY J.M.M. DATE
TRACED BY DATE
CHECKED BY DATE
CHECKED BY DATE
REVISED DATE
REVISED DATE
REVISED DATE

LETTING DATE

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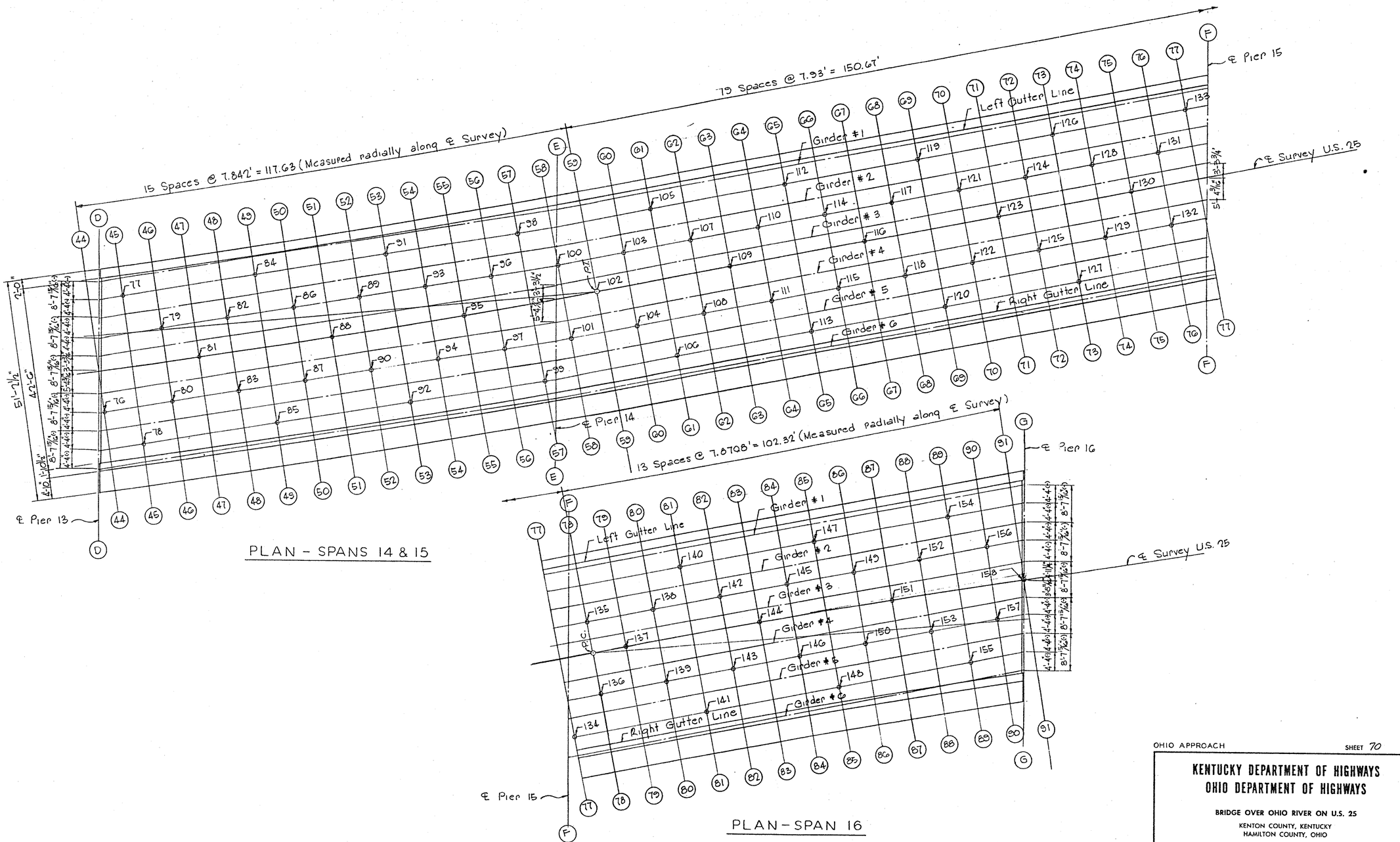

PLAN - SPANS 14 & 15

PLAN - SPAN 16

ELEVATIONS

DESIGNED BY J.S.M. DATE 7-71 REVISED
DETAILED BY J.M.M. DATE REVISED
TRACED BY DATE REVISED
CHECKED BY DATE
CHECKED BY DATE
CHECKED BY DATE

OHIO APPROACH SHEET 70

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

BRIDGE OVER OHIO RIVER ON U.S. 25

KENTON COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

STATION 81 + 76 P.E. PROJECT NO. F 141 (1)

HAZELET & ERDAL Consulting Engineers File No. 918-03	CONSTRUCTION PROJECT NO.	DRAWING NO. 18577

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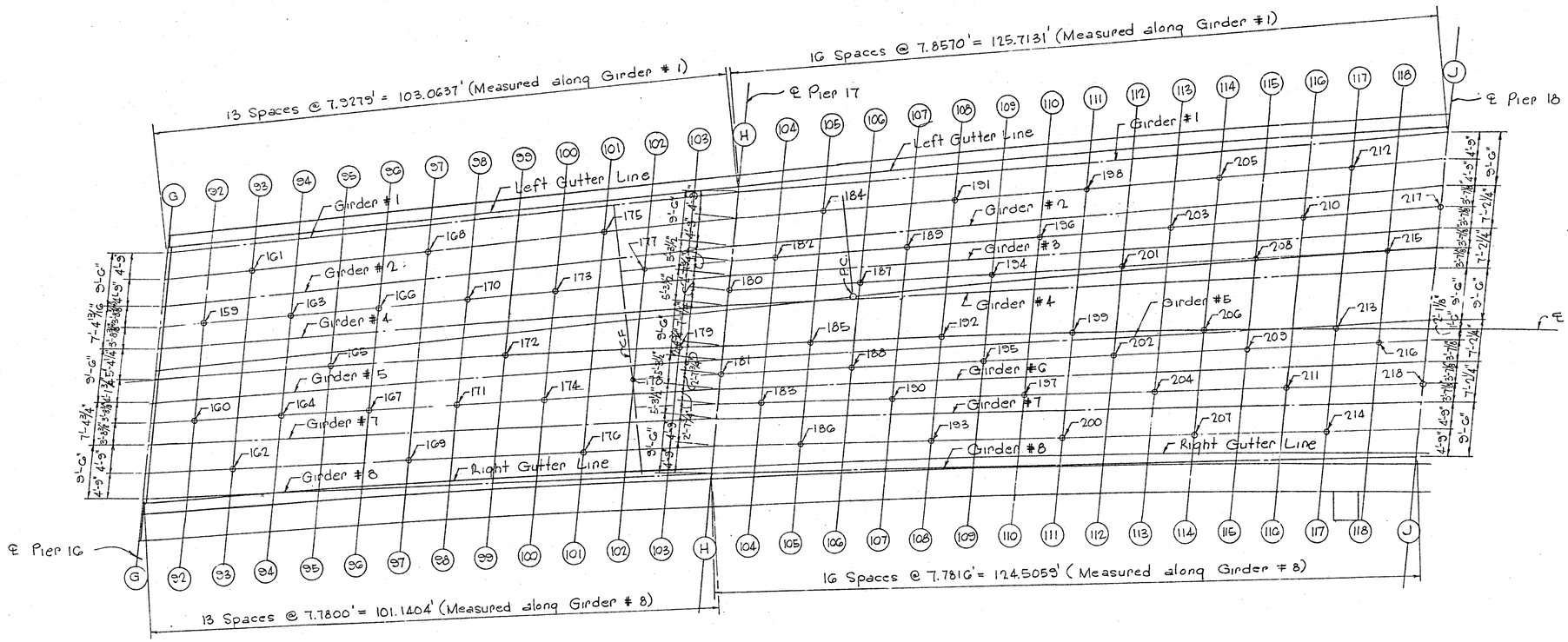

PLAN – SPANS 17 & 18

ELEVATIONS

LETTING DATE

DESIGNED BY J.S.M.	CHECKED BY	DATE 7-71	REVISED
DETAILED BY J.S.M.	CHECKED BY	DATE	REVISED
TRACED BY	CHECKED BY	DATE	REVISED

OHIO APPROACH SHEET 71

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

BRIDGE OVER OHIO RIVER ON U.S. 25

KENTON COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

STATION 81 + 76 P.E. PROJECT NO. F 141 (1)

HAZELET & ERDAL Consulting Engineers File No. 918 03	CONSTRUCTION PROJECT NO.	DRAWING NO. 18577

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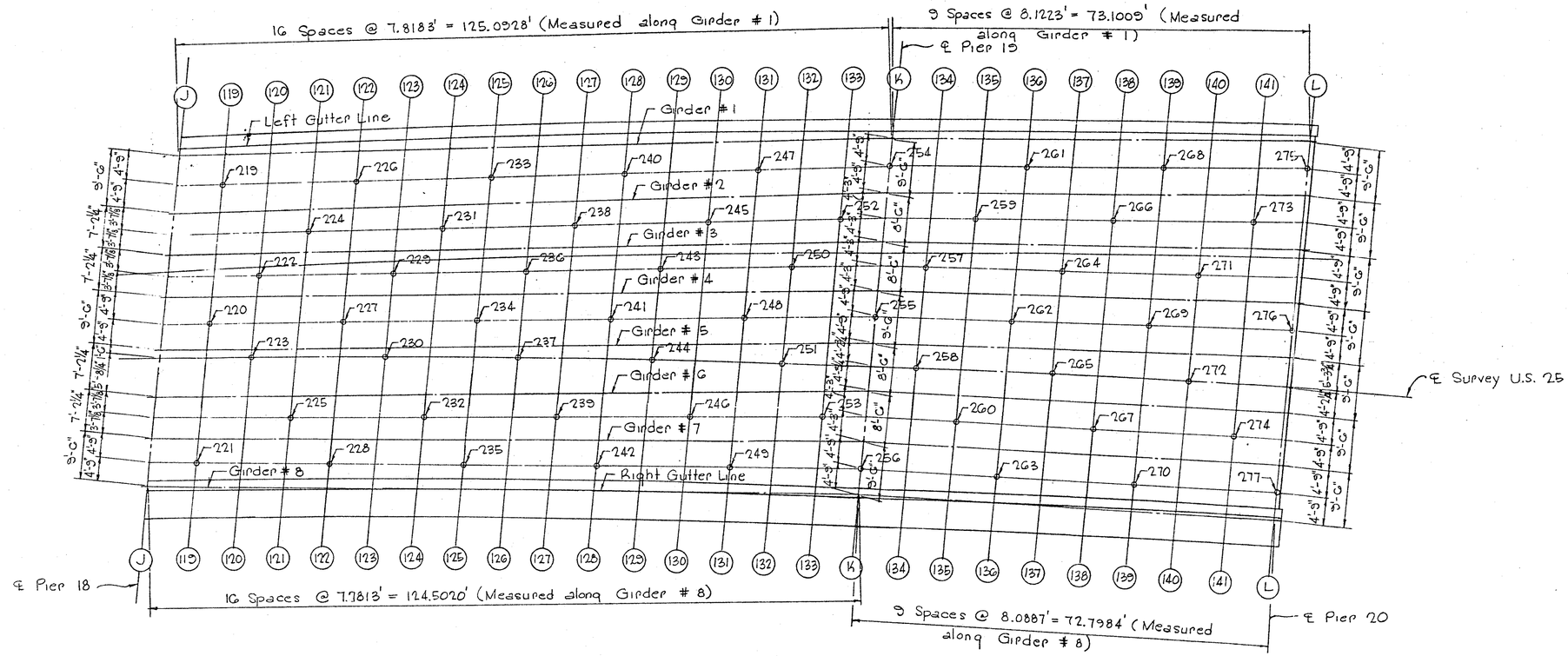

PLAN – SPANS 19 & 20

ELEVATIONS

LETTING DATE

DESIGNED BY J.S.M. CHECKED BY J.M.M. DATE 7-71
DETAILED BY CHECKED BY DATE
TRACED BY CHECKED BY DATE
REVISED
REVISED
REVISED

OHIO APPROACH SHEET 72

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

BRIDGE OVER OHIO RIVER ON U.S. 25

KENTON COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

STATION 81 + 76 P.E. PROJECT NO. F 141 (1)

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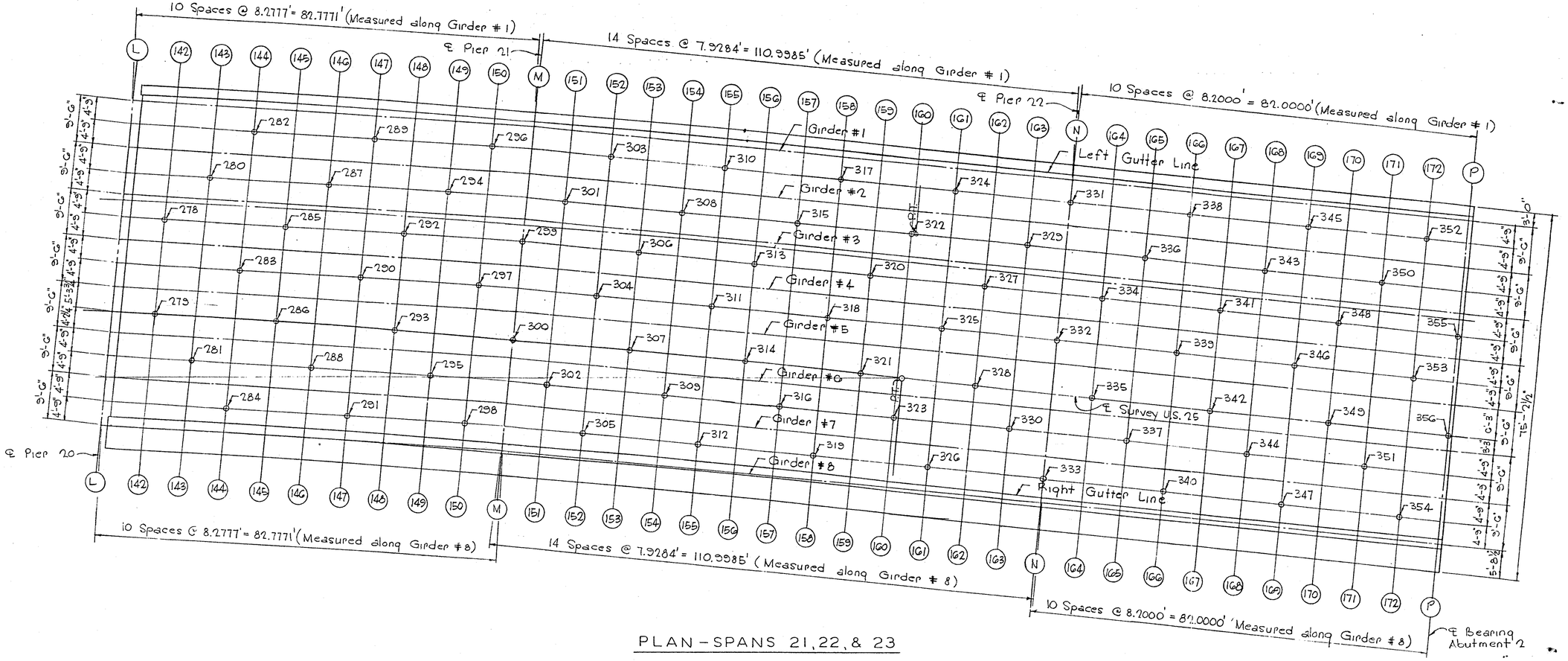

PLAN – SPANS 21, 22, & 23

ELEVATIONS

DESIGNED BY J.S.M. CHECKED BY J.M.M. DATE 4-71
DETAILED BY CHECKED BY DATE
TRACED BY CHECKED BY DATE
REVISED REVISED REVISED

OHIO APPROACH SHEET 73

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

BRIDGE OVER OHIO RIVER ON U.S. 25

KENTON COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

STATION 81 + 76 P.E. PROJECT NO. F 141 (1)

HAZELET & ERDAL Consulting Engineers File No. 918-03	CONSTRUCTION PROJECT NO.	DRAWING NO. 18577

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LETTING DATE

TABLE OF ELEVATIONS

Section	Left Gutter Line				Girder # 2			Girder # 3			Girder # 4			Girder # 5			Girder # 6			Girder # 7			Right Gutter Line			
	Const. El.	Top of Steel	Dim. "X"	Offset	Const. El.	Top of Steel	Dim. "X"	Const. El.	Top of Steel	Dim. "X"	Const. El.	Top of Steel	Dim. "X"	Const. El.	Top of Steel	Dim. "X"	Const. El.	Top of Steel	Dim. "X"	Const. El.	Top of Steel	Dim. "X"	Const. El.	Top of Steel	Dim. "X"	Offset
A - A	541.470			.615	541.778			542.065			542.352			542.639			—			—			542.879			1.416
B - B	—			—	540.607			540.356			541.306			541.655			—			—			—			—
C - C	—			—	539.448			539.800			540.153			540.505			—			—			—			—
D - D	537.812			.833	538.202			538.557			538.912			539.267			—			—			539.572			1.205
E - E	—			—	537.280			537.520			537.766			538.020			—			—			—			—
F - F	—			—	535.812			535.776			535.646			535.574			—			—			—			—
G - G	533.705			1.020	533.446			533.354			533.261			533.024			532.932			532.840			532.550			- .488
H - H	530.347			1.043	530.055			529.968			529.841			529.614			529.487			529.361			529.157			.993
J - J	525.730			1.014	525.473			525.292			525.106			524.854			524.659			524.463			524.229			.995
K - K	521.020			1.035	520.751			520.534			520.310			520.052			519.815			519.572			519.323			.965
L - L	518.131			.039	517.504			517.676			517.443			517.205			516.949			516.674			516.453			1.577
M - M	514.517			.770	514.350			514.207			514.057			513.907			513.710			513.434			513.194			1.223
N - N	509.595			1.000	509.563			509.535			509.507			509.479			509.389			509.181			508.995			1.000
P - P	505.241			1.000	506.012			506.076			506.141			506.205			506.197			506.048			505.916			1.000
1 - 1	541.361			.501	541.686			541.992			542.300			542.607			—			—			542.867			1.298
2 - 2	.253			.383	.593			.920			.247			.574			—			—			.855			1.180
3 - 3	.138			.765	.494			.841			.188			.534			—			—			.838			1.062
4 - 4	.073			.170	.426			.772			.118			.466			—			—			.772			.966
5 - 5	.003			.103	.352			.700			.046			.383			—			—			.703			.897
6 - 6	540.926			.062	.275			.621			541.368			.314			—			—			.626			.855
7 - 7	.844			.048	.192			.538			.886			.231			—			—			.544			.841
8 - 8	.757			.061	.106			.451			.757			.144			—			—			.456			.854
9 - 9	.666			.101	.016			.362			.708			.054			—			—			.364			.835
10 - 10	.572			.167	540.925			.270			.605			541.962			—			—			.270			.962
11 - 11	.475			.260	.833			.178			.525			.871			—			—			.174			1.057
12 - 12	.380			.380	.742			.087			.434			.780			—			—			.078			1.180
13 - 13	.283			.527	.655			.002			.348			.695			—			—			541.987			1.329
14 - 14	.200			.561	.569			540.914			.259			.605			—			—			.838			1.289
15 - 15	.117			.331	.478			.824			.170			.515			—			—			.817			1.115
16 - 16	.038			.247	.384			.739			.086			.432			—			—			.738			.969
17 - 17	539.962			.130	.318			.659			.005			.351			—			—			.662			.850
18 - 18	.887			.040	.235			.581			540.927			.272			—			—			.588			.758
19 - 19	.813			-.023	.158			.504			.848			.196			—			—			.514			.693
20 - 20	.738			-.060	.081			.427			.772			.118			—			—			.438			.656
21 - 21	.659			-.070	.001			.347			.692			.038			—			—			.358			.646
22 - 22	.577			-.053	539.920			.266			.611			540.957			—			—			.275			.693
23 - 23	.494			-.005	.839			.185			.530			.874			—			—			.192			.707
24 - 24	.410			.061	.758			.103			.448			.794			—			—			.108			.719
25 - 25	.327			.158	.679			.023			.369			.715			—			—			.026			.878
26 - 26	.245			.282	.602			539.948			.294			.639			—			—			540.945			1.005
27 - 27	.168			.433	.531			.878			.225			.571			—			—			.870			1.164
28 - 28	.098			.611	.469			.816			.163			.509			—			—			.803			1.323
29 - 29	.031			.585	.401			.746			.092			.437			—			—			.739			1.116
30 - 30	538.969			.408	.332			.675			.026			.372			—			—			.680			.936
31 - 31	.911			.258	.268			.616			539.963			.308			—			—			.623			.783
32 - 32	.852			.135	.205			.552			.899			.244			—			—			.565			.657
33 - 33	.795			.038	.143			.490			.837			.183			—			—			.507			.559
34 - 34	.734			-.031	.079			.425			.772			.117			—			—			.444			.488
35 - 35	.670			-.074	.014			.359			.706			.050			—			—			.377			.444
36 - 36	.601			-.090	538.942			.286			.633			539.977			—			—			.304			.428
37 - 37	.527			-.075	.868			.212			.556			.900			—			—			.226			.438
38 - 38	.447			-.042	.788			.131			.474			.817			—			—			.142			.477
39 - 39	.361			.022	.704			.047			.388			.731			—			—			.052			.542
40 - 40	.269			.113	.616			538.958			.298			.641			—			—			539.957			.634
41 - 41	.173			.231	.523			.864			.204			.546			—			—			.857			.754
42 - 42	.072			.375	.427			.768			.086			.437			—			—			.751			.902
43 - 43	537.967			.546	.328			.667			.006			.347			—			—			.644			1.076
44 - 44	.856			.744	.227			.565			538.907			.252			—			—			.551			1.117
45 - 45	.776			.722	.150			.494			.838			.183			—			—			.489			.946
46 - 46	.714			.580	.082			.425			.768			.114			—			—			.426			.801
47 - 47	.648			.465	.010			.354			.698			.041			—			—			.356			.684
48 - 48	.578			.377	537.936			.280			.622			538.966			—			—			.283			.594
49 - 49	.506			.315	.860			.203			.545			.886			—			—			.206			.531
50 - 50	.427			.275	.780			.121			.462			.802			—			—			.124			.495
51 - 51	.345			.270	.696			.036			.377			.717			—			—			.038			.486
52 - 52	.257			.288	.627			537.955			.284			.612			—			—			538.921			.504
53 - 53	.242			.333	.564			.875			.186			.496			—			—			.787			.549
54 - 54	.183			.404	.501			.795			.087			.381			—			—			.654			.621
55 - 55	.145			.501	.438			.716			537.992			.269			—			—			.523			.721
56 - 56	.102			.625	.381			.641			.903			.163			—			—			.398			.847
57 - 57	.063			.776	.303			.573			.818			.062			—			—			.278			1.001
58 - 58	.029			.954	.289			.510			.737			537.964			—			—			.164			1.013
59 - 59	.001			.938	.237			.448			.659			.870			—			—			.057			.999
60 - 60	536.980			.998	.198			.393			.588			.782			—			—			537.954			.999
61 - 61	.964			.998	.167			.340			.519			.696			—			—			.853			.999
62 - 62	.950			.998	.130			.290			.449			.610			—			—			.752			.999
63 - 63	.937			.998	.096			.239			.381			.524			—			—			.649			.999
64 - 64	.921			.998	.060			.185			.309			.434			—			—			.543			.999
65 - 65	.903			.998	.021			.128			.234			.340			—			—			.433			.999
66 - 66	.873			.998	536.978			.066			.153			.240			—			—			.317			.999

DESIGNED BY J.M.M. DATE 7-71
DETAILED BY J.S.M. CHECKED BY DATE
TRACED BY CHECKED BY DATE
REVISED DATE
REVISED DATE
REVISED DATE

THIS IS A REDUCED SIZE PRINT — NOT TO SCALE

OHIO APPROACH SHEET 74

ELEVATIONS

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

BRIDGE OVER OHIO RIVER ON U.S. 25
KENTON COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

STATION 81+76 P.E. PROJECT NO. F 141 (1)

HAZELET & ERDAL Consulting Engineers File No. 918 03

CONSTRUCTION PROJECT NO.

DRAWING NO. 18577

LETTING DATE

TABLE OF ELEVATIONS

Section	Left Gutter Line				Girder #2			Girder #3			Girder #4			Girder #5			Girder #6			Girder #7			Right Gutter Line			
	Const. El.	Top of Steel	Dim. "X"	Offset	Const. El.	Top of Steel	Dim. "X"	Const. El.	Top of Steel	Dim. "X"	Const. El.	Top of Steel	Dim. "X"	Const. El.	Top of Steel	Dim. "X"	Const. El.	Top of Steel	Dim. "X"	Const. El.	Top of Steel	Dim. "X"	Const. El.	Top of Steel	Dim. "X"	Offset
G7 - G7	536.843			.998	536.827			536.936			537.066			537.134			—			—			537.195			.999
G8 - G8	.808			.998	.864			.916			536.967			.017			—			—			.061			.999
G9 - G9	.756			.998	.782			.874			.856			536.888			—			—			536.916			.999
70 - 70	.690			.998	.706			.718			.738			.746			—			—			.758			.999
71 - 71	.616			.998	.610			.605			.601			.536			—			—			.592			.999
72 - 72	.530			.998	.505			.482			.459			.436			—			—			.416			.999
73 - 73	.435			.998	.390			.350			.309			.269			—			—			.233			.999
74 - 74	.333			.998	.268			.211			.153			.090			—			—			.046			.999
75 - 75	.226			.998	.142			.068			535.994			535.920			—			—			535.855			.999
76 - 76	.116			.998	.014			535.924			.832			.742			—			—			.662			.999
77 - 77	.005			.998	535.885			.778			.671			.565			—			—			.471			.999
78 - 78	535.884			.998	.757			.634			.514			.389			—			—			.281			.999
79 - 79	.787			.998	.631			.492			.353			.215			—			—			.092			.990
80 - 80	.678			.999	.504			.349			.194			.038			—			—			534.901			.962
81 - 81	.570			.999	.377			.205			.033			534.861			—			—			.709			.915
82 - 82	.458			.999	.248			.058			534.865			.679			—			—			.508			.850
83 - 83	.342			1.000	.111			534.903			.697			.489			—			—			.300			.766
84 - 84	.217			1.000	534.980			.748			.515			.290			—			—			.082			.662
85 - 85	.084			1.000	.812			.568			.324			.080			—			—			533.852			.541
86 - 86	534.913			1.000	.639			.382			.127			533.871			—			—			.628			.400
87 - 87	.724			1.001	.438			.181			533.915			.653			—			—			.419			.240
88 - 88	.514			1.001	.227			533.970			.711			.435			—			—			.198			.062
89 - 89	.293			1.001	.004			.740			.487			.209			—			—			532.967			-.135
90 - 90	.062			1.002	533.772			.515			.254			532.987			—			—			.728			-.351
91 - 91	533.825			1.002	.533			.275			—			—			—			—			—			—
92 - 92	.531			1.023	533.738			—			533.048			532.811			—			532.622			532.379			-.761
93 - 93	.283			1.025	.022			—			532.827			.591			—			.396			.159			-.053
94 - 94	.058			1.026	532.798			—			.597			.362			—			.162			531.931			.137
95 - 95	532.824			1.028	.564			—			.358			.124			—			531.915			.692			.307
96 - 96	.579			1.030	.320			—			.109			531.876			—			.665			.443			.459
97 - 97	.323			1.031	.066			—			531.849			.617			—			.401			.183			.592
98 - 98	.059			1.033	531.802			—			.580			.348			—			.127			530.916			.705
99 - 99	531.786			1.035	.530			—			.303			.072			—			530.845			.634			.800
100 - 100	.504			1.036	.249			—			.016			530.786			—			.555			.346			.877
101 - 101	.213			1.038	530.964			—			530.726			.497			—			.260			.053			.934
102 - 102	530.929			1.039	.675			530.554			.433			.204			530.083			529.961			529.756			.972
103 - 103	.638			1.041	.380			.262			.138			529.909			529.786			.662			.458			.992
104 - 104	.059			1.209	529.802			529.672			529.542			.313			.183			.052			528.851			1.134
105 - 105	529.773			1.375	.512			.420			.245			.015			528.880			528.746			.545			1.256
106 - 106	.491			1.532	.225			.083			528.952			528.720			.581			.442			.243			1.360
107 - 107	.212			1.661	528.943			528.803			.662			.429			.286			.143			527.943			1.444
108 - 108	528.933			1.762	.660			.518			.373			.138			527.991			527.844			.644			1.510
109 - 109	.651			1.835	.377			.231			.083			527.846			.695			.543			.343			1.557
110 - 110	.367			1.879	.091			527.941			527.790			.552			.390			.240			.038			1.585
111 - 111	.081			1.895	527.804			.651			.496			.256			.036			526.935			526.732			1.595
112 - 112	527.788			1.883	.511			.355			.196			526.955			526.790			.625			.420			1.585
113 - 113	.495			1.843	.218			.059			526.896			.653			.485			.315			.107			1.557
114 - 114	.199			1.774	526.924			526.761			.594			.350			.177			.003			525.792			1.510
115 - 115	526.900			1.678	.627			.461			.291			.045			525.867			525.689			.475			1.444
116 - 116	.604			1.554	.334			.163			525.989			526.742			.560			.377			.159			1.360
117 - 117	.309			1.402	.042			525.869			.691			.442			.256			.068			524.845			1.257
118 - 118	.018			1.222	526.747			.578			.397			.146			524.956			524.764			.534			1.135
119 - 119	525.443			1.223	.179			.004			524.808			524.556			.358			.159			523.936			1.133
120 - 120	.157			1.405	524.888			524.703			.513			.260			.060			523.858			.619			1.253
121 - 121	524.875			1.558	.607			.414			.222			523.969			523.766			.561			.334			1.354
122 - 122	.536			1.684	.319			.129			523.934			.681			.476			.268			.042			1.431
123 - 123	.315			1.762	.034			523.843			.646			.392			.184			522.973			522.748			1.500
124 - 124	.033			1.852	523.750			.556			.356			.102			522.892			.678			.454			1.545
125 - 125	523.746			1.895	.461			.264			.063			522.808			.595			.378			.154			1.571
126 - 126	.458			1.909	.171			522.973			522.768			.514			.298			.078			521.853			1.578
127 - 127	.160			1.896	522.874			.678			.466			.211			521.992			521.770			.544			1.567
128 - 128	522.860			1.856	.573			.370			.161			521.905			.685			.459			.231			1.537
129 - 129	.555			1.788	.270			.064			521.853			.597			.373			.145			520.915			1.488
130 - 130	.247			1.692	521.964			521.756			.542			.286			.060			520.878			.595			1.421
131 - 131	521.938			1.569	.658			.447			.231			520.974			520.745			.511			.275			1.335
132 - 132	.629			1.418	.352			.139			520.920			.663			.432			.184			519.955			1.230
133 - 133	.324			1.240	.051			520.836			.615			.357			.123			519.882			.639			1.107
134 - 134	520.708			1.043	520.438			.716			519.988			519.719			519.488			.241			518.998			1.151
135 - 135	.402			1.021	.130			519.903			.671			.412			.167			518.917			.678			1.317
136 - 136	.097			.969	519.824			.594			.357			.097			518.848			.595			.360			1.462
137 - 137	519.794			.888	.524			.786			.046			518.784			.532			.276			.044			1.587
138 - 138	.490			.777	.221			518.980			518.736			.472			.217			517.956			517.728			1.692
139 - 139	.183			.627	518.917			.673			.424			.160			517.901			.637			.411			1.777
140 - 140	518.835			.467	.579			.343			.099			517.844			.584			.317			.093			1.842
141 - 141	.483			.268	.242			.010			517.772			.525			.767			516.936			516.773			1.887
142 - 142	517.753			.150	517.568			517.348			.124			516.894			516.643			.368			.148			1.937
143 - 143	.449			.431	.228			.016			516.800			.579			.333			.058			515.838			1.942
144 - 144	.100			.581	516.884			516.675			.471			.253			.018			515.743			.523			1.926
145 - 145	516.742			.701	.532			.335			.136			515.932			515.697			.421			.200			1.889
146 - 146	.377			.789	.173			515.384			515.793			.599			.368			.093			514.870			1.830

16

REVISED DATE 7-7-71 BY JWM
REVISED DATE BY
REVISED DATE BY
CHECKED BY
CHECKED BY
CHECKED BY
DESIGNED BY JSM
DETAILED BY
TRACED BY

THIS IS A REDUCED SIZE PRINT — NOT TO SCALE

OHIO APPROACH SHEET 75

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

BRIDGE OVER OHIO RIVER ON U.S. 25

KENTON COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

STATION 81+76 P.E. PROJECT NO. F141 (1)

ELEVATIONS

HAZELET & ERDAL
Consulting Engineers
File No. 918 03

CONSTRUCTION PROJECT NO.

DRAWING NO. 18577

LETTING DATE

TABLE OF ELEVATIONS

Section	Left Gutter Line				Girder # 2			Girder # 3			Girder # 4			Girder # 5			Girder # 6			Girder # 7			Right Gutter Line				
	Const. El.	Top of Steel	Dim. "X"	Offset	Const. El.	Top of Steel	Dim. "X"	Const. El.	Top of Steel	Dim. "X"	Const. El.	Top of Steel	Dim. "X"	Const. El.	Top of Steel	Dim. "X"	Const. El.	Top of Steel	Dim. "X"	Const. El.	Top of Steel	Dim. "X"	Const. El.	Top of Steel	Dim. "X"	Offset
147 - 147	516.005			.847	515.805			515.628			515.445			515.255			515.035			514.760			514.534			1.751
148 - 148	515.629			.874	.441			.768			.093			514.916			514.698			.473			.194			1.650
149 - 149	.254			.870	.075			514.910			514.743			.575			.364			.088			513.857			1.519
150 - 150	514.876			.835	514.711			.554			.396			.236			.032			513.756			.521			1.386
151 - 151	.176			.954	.021			513.880			513.739			513.597			513.404			.127			512.883			1.322
152 - 152	513.837			1.111	513.689			.556			.423			.290			.101			512.873			.586			1.402
153 - 153	.511			1.235	.371			.747			.122			512.997			512.812			.533			.297			1.463
154 - 154	.177			1.338	.045			512.929			512.813			.696			.515			.236			.001			1.504
155 - 155	512.850			1.410	512.727			.619			.511			.403			.226			511.946			511.711			1.524
156 - 156	.510			1.483	.396			.286			.197			.087			511.925			.644			.408			1.578
157 - 157	.058			1.469	.062			511.971			511.880			511.789			.622			.339			.101			1.512
158 - 158	511.809			1.456	511.714			.631			.549			.466			.309			.021			510.787			1.476
159 - 159	.448			1.415	.363			.289			.215			.140			510.985			510.701			.460			1.420
160 - 160	.015			1.345	510.998			510.934			510.868			510.802			.653			.368			.124			1.346
161 - 161	510.704			1.255	.640			.583			.526			.470			.335			.065			509.836			1.259
162 - 162	.324			1.173	.271			.224			.177			.130			.010			509.763			.546			1.173
163 - 163	509.958			1.086	509.916			509.879			509.841			509.803			509.699			.471			.269			1.086
164 - 164	.778			1.000	.707			.185			.170			.152			.075			508.888			508.770			1.000
165 - 165	508.870			1.000	508.860			508.851			508.843			508.834			508.771			.604			.455			1.000
166 - 166	.515			1.000	.515			.516			.517			.518			.468			.319			.187			1.000
167 - 167	.164			1.000	.175			.185			.195			.205			.160			.012			507.875			1.000
168 - 168	507.809			1.000	507.830			507.849			507.868			507.887			507.849			507.700			.568			1.000
169 - 169	.448			1.000	.473			.508			.536			.564			.531			.383			.250			1.000
170 - 170	.081			1.000	.122			.158			.196			.233			.207			.059			506.926			1.000
171 - 171	506.705			1.000	506.756			506.802			506.849			506.895			506.876			506.726			.593			1.000
172 - 172	.324			1.000	.385			.441			.496			.552			.537			.383			.256			1.000

CONSTRUCTION NOTES

Layout Section 1-1 to 172-172 as shown in plan, on sheets 69-73. (centch punch marks on top of girders for elevation points.)

Take elevations on top of steel at points indicated after cross frames are in place and after all false work has been removed, but before forms for concrete slab have been put in place. Read elevations to three decimals using a target rod and enter readings in table under "Top of Steel."

Compute Dimension "X" as follows: Construction elevation minus Top of Steel equals Dim. "X". Construction elevations include camber due to weight of concrete slab, parapet, handrail, and future surfacing.

For setting templates, measure Dimension "X" above Top of Steel for top of template. Do not set template by elevations.

Construct Parapet to curb grade. Do not add camber to Parapet.

NOTE: For plan of slab, see sheets 69-73. For Typical Section showing location of elevation points, see sheet 77.

TABLE OF ELEVATIONS FOR CONTROL OF SLAB THICKNESS

Slab Check Point	Top of Slab Elev.	Bott. of Slab Elev.	Computed Slab Thickness	Slab Check Point	Top of Slab Elev.	Bott. of Slab Elev.	Computed Slab Thickness	Slab Check Point	Top of Slab Elev.	Bott. of Slab Elev.	Computed Slab Thickness	Slab Check Point	Top of Slab Elev.	Bott. of Slab Elev.	Computed Slab Thickness	Slab Check Point	Top of Slab Elev.	Bott. of Slab Elev.	Computed Slab Thickness	Slab Check Point	Top of Slab Elev.	Bott. of Slab Elev.	Computed Slab Thickness	Slab Check Point	Top of Slab Elev.	Bott. of Slab Elev.	Computed Slab Thickness	Slab Check Point	Top of Slab Elev.	Bott. of Slab Elev.	Computed Slab Thickness
1	542.089			49	539.228			97	538.033			145	534.869			193	527.776			241	522.033			289	515.839			334	509.180		
2	541.430			50	540.611			98	537.195			146	534.403			194	528.151			242	521.325			290	515.352			335	509.101		
3	542.737			51	539.506			99	538.185			147	534.934			195	527.771			243	521.959			291	514.672			336	508.856		
4	541.668			52	540.199			100	537.405			148	533.959			196	528.016			244	521.518			292	515.181			337	508.688		
5	542.361			53	539.717			101	537.851			149	534.511			197	527.318			245	521.860			293	514.788			338	508.515		
6	541.839			54	539.375			102	537.516			150	533.999			198	527.919			246	520.944			294	514.993			339	508.518		
7	541.526			55	540.072			103	537.296			151	533.993			199	527.282			247	521.777			295	514.226			340	508.245		
8	542.220			56	538.370			104	537.685			152	534.098			200	526.814			248	521.103			296	514.789			341	508.190		
9	541.102			57	540.356			105	537.074			153	533.583			201	527.276			249	520.375			297	514.316			342	508.115		
10	542.487			58	539.252			106	537.785			154	534.134			202	526.873			250	521.030			298	513.619			343	507.840		
11	541.604			59	539.945			107	537.210			155	533.100			203	527.133			251	520.562			299	514.132			344	507.775		
12	541.478			60	539.402			108	537.530			156	533.644			204	526.400			252	520.944			300	513.782			345	507.465		
13	541.971			61	539.114			109	537.159			157	533.126			205	527.039			253	520.003			301	513.951			346	507.550		
14	540.843			62	539.805			110	537.123			158	533.128			206	526.356			254	520.872			302	513.766			347	507.309		
15	542.227			63	538.696			111	537.372			159	533.143			207	525.879			255	520.181			303	513.755			348	507.178		
16	541.098			64	540.072			112	536.928			160	532.717			208	526.376			256	519.435			304	513.357			349	507.216		
17	541.784			65	538.955			113	537.393			161	533.140			209	525.956			257	520.102			305	512.684			350	506.775		
18	541.288			66	539.646			114	537.022			162	532.213			210	526.245			258	519.610			306	513.185			351	506.801		
19	540.915			67	539.088			115	537.157			163	532.697			211	525.465			259	520.017			307	512.884			352	506.358		
20	541.607			68	538.787			116	536.680			164	532.762			212	526.158			260	519.042			308	512.987			353	506.524		
21	540.483			69	539.470			117	536.830			165	532.221			213	525.420			261	519.947			309	512.316			354	506.315		
22	541.867			70	538.353			118	536.992			166	532.215			214	524.941			262	519.227			310	512.781			355	506.109		
23	540.742			71	539.717			119	536.776			167	531.771			215	525.488			263	518.458			311	512.457			356	506.200		
24	541.432			72	538.598			120	536.904			168	532.182			216	525.051			264	519.166			312	511.806						
25	540.975			73	539.762			121	536.712			169	531.785			217	525.383			265	518.657			313	512.247						
26	540.567			74	538.774			122	536.740			170	531.651			218	524.561			266	519.102			314	511.993						
27	541.259			75	538.396			123	536.496			171	531.238			219	525.295			267	518.087			315	512.017						
28	540.141			76	539.080			124	536.454			172	531.156			220	524.682			268	519.042			316	511.481						
29	541.524			77	537.978			125	536.448			173	531.133			221	524.029			269	518.292			317	511.755						
30	540.408			78	539.355			126	536.411			174	530.671			222	524.608			270	517.500			318	511.508						
31	541.100			79	538.253			127	536.249			175	531.075			223	524.217			271	518.221			319	510.880						
32	540.660			80	538.942			128	536.140			176	530.145			224	524.508			272	517.700			320	511.252						
33	540.254			81	538.459			129	536.125			177	530.615			225	523.664			273	518.126			321	511.045						
34	540.945			82	538.108			130	536.014			178	530.144			226	524.436			274	517.132			322	510.967						
35	539.829			83	538.704			131	535.969			179	529.973			227	523.808			275	518.017			323	510.511						
36	541.211			84	537.689			132	535.787			180	529.505			228	523.137			276	517.374			324	510.668						
37	540.093			85	539.057			133	535.939			181	529.551			229	523.745			277	516.537			325	510.498						
38	540.784			86	537.950			134	535.511			182	529.727			230	523.342			278	517.236			326	509.935						
39	540.346			87	538.332			135	535.696			183	529.118			231	523.653			279	516.754			327	E.O. 200						
40	539.931			88	538.145			136	535.452			184	529.626			232	522.785			280	517.122			328	510.053						
41	540.621			89	537.751			137	535.435			185	529.069			233	523.579			281	516.196			329	509.898						
42	539.506			90	538.448			138	535.426			186	528.631			234	522.936			282	516.986			330	509.585						
43	540.888			91	537.409			139	535.116			187	529.020			235	522.246			283	516.365			331	509.578						
44	539.775			92	538.652			140	535.463			188	528.651			236	522.871			284	515.606			332	509.493						
45	540.467			93	537.648			141	534.776			189	528.813			237	522.451			285	516.236			333	509.077						
46	540.031			94	538.234			142	535.153			190	528.215			238	522.774			286	515.800										
47	539.643			95	537.830			143	534.774			191	528.775			239	521.881			287	516.079										
48	540.336			96	537.511			144	534.762			192	528.180			240	522.692			288	515.231										

For Slab Thickness Control Note, See sheet 77.

ELEVATIONS

DESIGNED BY ____ DATE ____ REVISED
DETAILED BY JSM CHECKED BY JMM DATE 7-71 REVISED
TRACED BY ____ CHECKED BY ____ DATE ____ REVISED

OHIO APPROACH SHEET 76

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

BRIDGE OVER OHIO RIVER ON U.S. 25

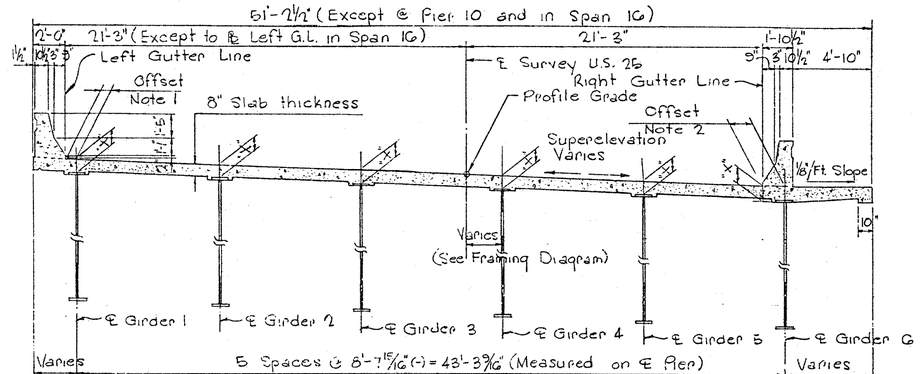
KENTON COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

STATION 81 + 76 P.E. PROJECT NO. F 141 (1)

HAZELET & ERDAL Consulting Engineers File No. 918 03	CONSTRUCTION PROJECT NO.	DRAWING NO.
	.	18577

THIS IS A REDUCED SIZE PRINT — NOT TO SCALE

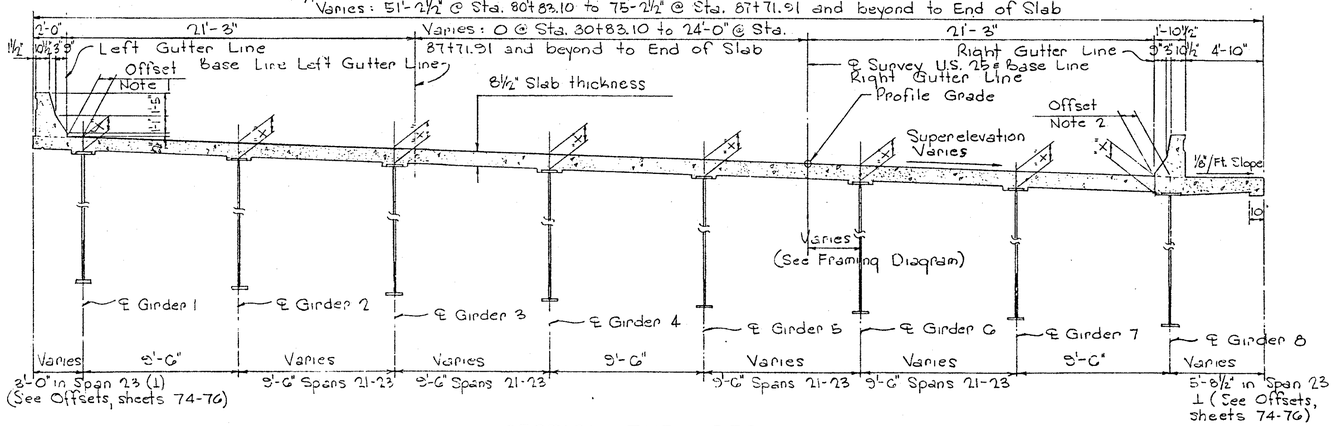
LETTING DATE



SECTION THRU DECK

(Typical ~ Span 11 thru Span 10)

Varies: 51'-2½" @ Sta. 80+83.10 to 75'-2½" @ Sta. 87+71.91 and beyond to End of Slab



SECTION THRU DECK

(Typical ~ Span 17 thru Span 23)

NOTE 1: A negative offset indicates Girder is outside Left Gutter Line. (Measured along Elevation line)

NOTE 2: A negative offset indicates Girder is inside Right Gutter Line. (Measured along Elevation line.)

SLAB THICKNESS CONTROL – After the slab forms are erected and before the slab reinforcement is placed, the Resident Engineer shall take elevations at the slab thickness check points and enter them in the table in the space provided. The slab thickness shall then be computed. If the computed slab thickness varies more than ¼" from the plan thickness, allowing 1/360 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.

ELEVATIONS

DESIGNED BY JSM DATE 7-71
DETAILED BY JMM DATE
TRACED BY CHECKED BY DATE
REVISED REVISED REVISED

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OHIO APPROACH SHEET 77

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

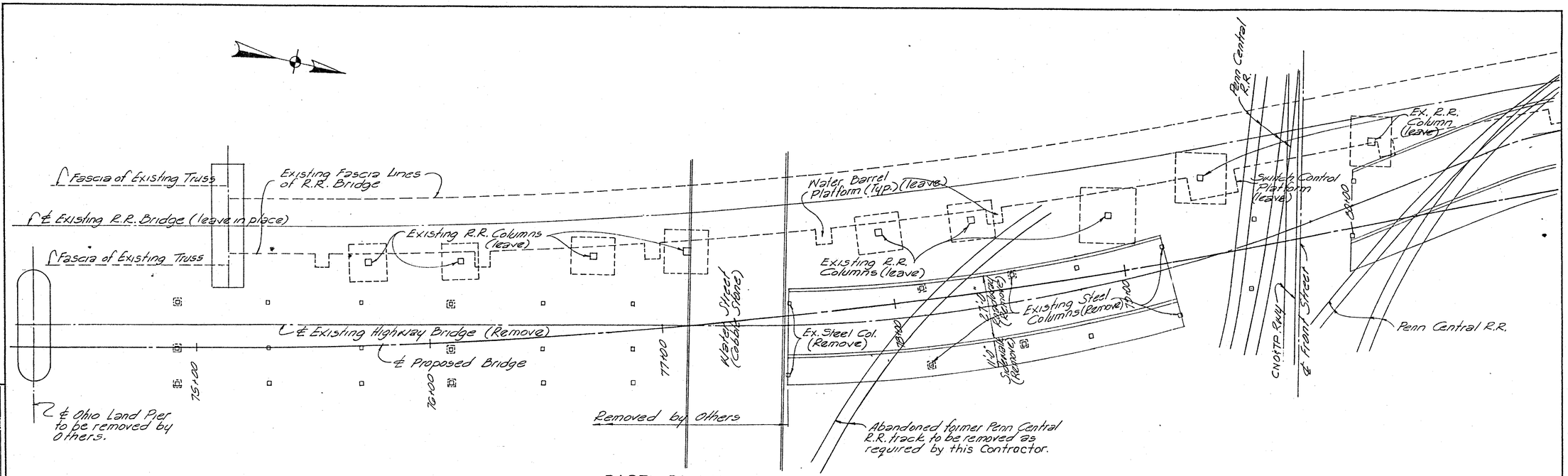
BRIDGE OVER OHIO RIVER ON U.S. 25

KENTON COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

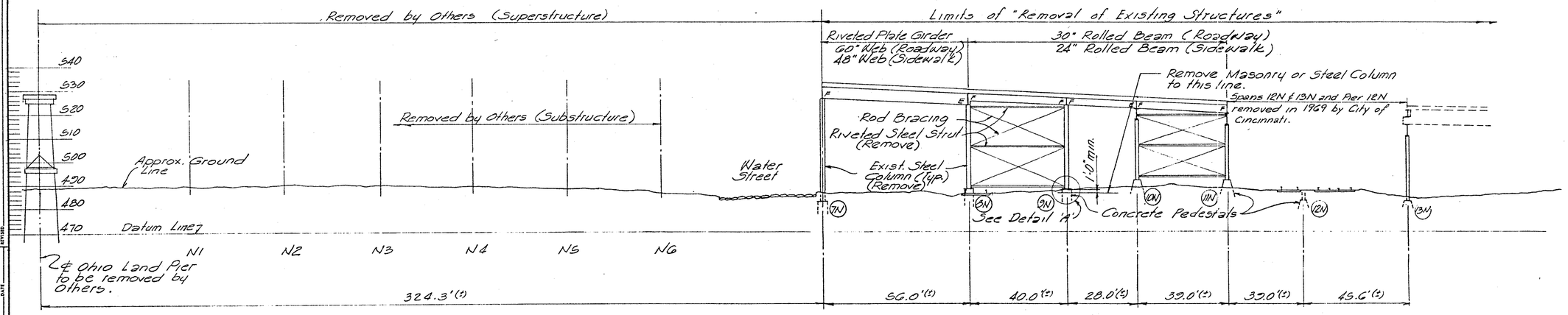
STATION 81 + 76 P.E. PROJECT NO. F 141 (1)

HAZELET & ERDAL Consulting Engineers File No. 918-03	CONSTRUCTION PROJECT NO.	DRAWING NO. 18577

LETTING DATE

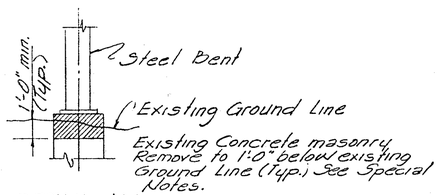


PART PLAN



PART ELEVATION

(1N) Indicates Bent Number.



DETAIL 'A'

Note: For Details of Bents see Sheets 81 & 82.

Note -
Details of approach structure to be removed are not necessarily accurate. The Contractor is assumed to have inspected the existing structure before submitting his bid. For details not shown, refer to original shop plans and/or design plans on file at the Kentucky Department of Highways, Frankfort, Kentucky. The Department will furnish the successful bidder a set of prints necessary for his information.

For General Notes see sh. 80.

EXISTING STRUCTURE REMOVAL

OHIO APPROACH SHEET 78

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

BRIDGE OVER OHIO RIVER ON U.S. 25

KENTON COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

STATION 511+76 P.E. PROJECT NO. F 141 (1)

MAZELET & ERDAL Consulting Engineers File No. 918-03	CONSTRUCTION PROJECT NO.	DRAWING NO. 18577

DESIGNED BY ____ DATE ____ REVISED ____
DETAILED BY REC DATE 2-71 REVISED ____
TRACED BY ____ CHECKED BY ____ DATE ____ REVISED ____
CHECKED BY ____ DATE ____

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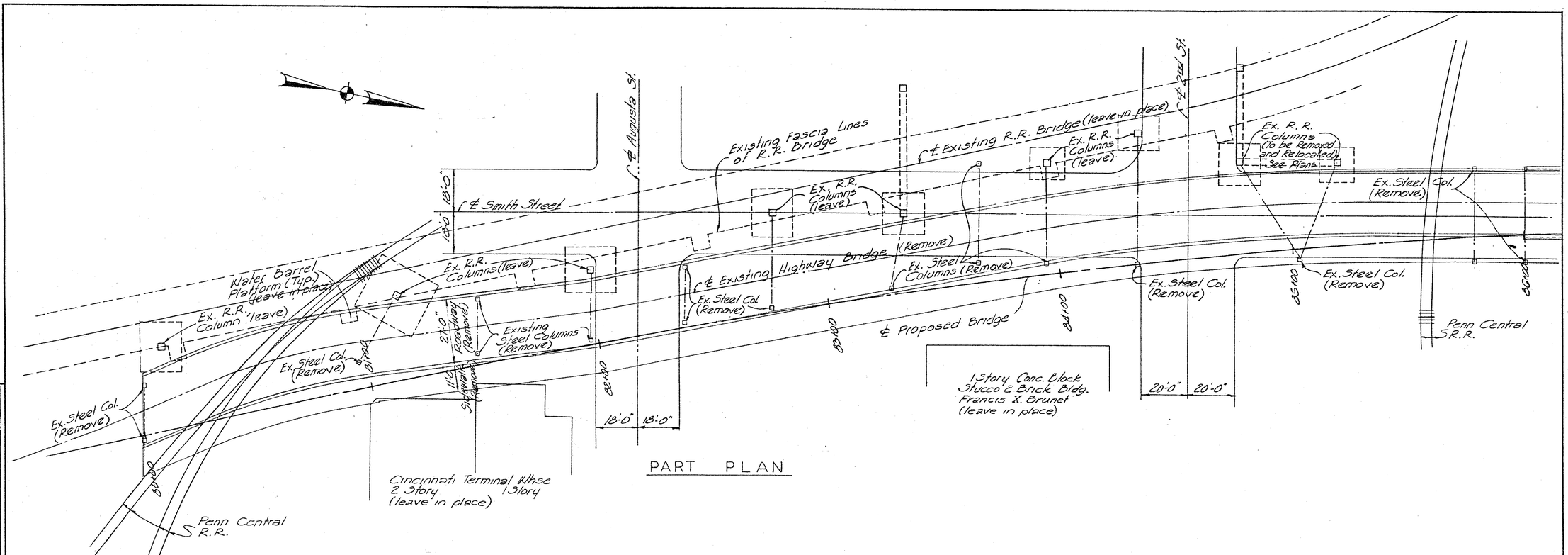
LETTING DATE



NOTE: For Details of Bents see Sheets 81 & 82.

OHIO APPROACH SHEET 79

DESIGNED BY BEC DETAILED BY CHECKED BY CHECKED BY TRACED BY CHECKED BY

DATE 7-71 REVISED DATE REVISED DATE

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

BRIDGE OVER OHIO RIVER ON U.S. 25

KENTON COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

STATION 81+76 P.E. PROJECT NO. F141 (1)

HAZELET & ERDAL Consulting Engineers File No. 918-05 | CONSTRUCTION PROJECT NO. | DRAWING NO. 18577

EXISTING STRUCTURE REMOVAL

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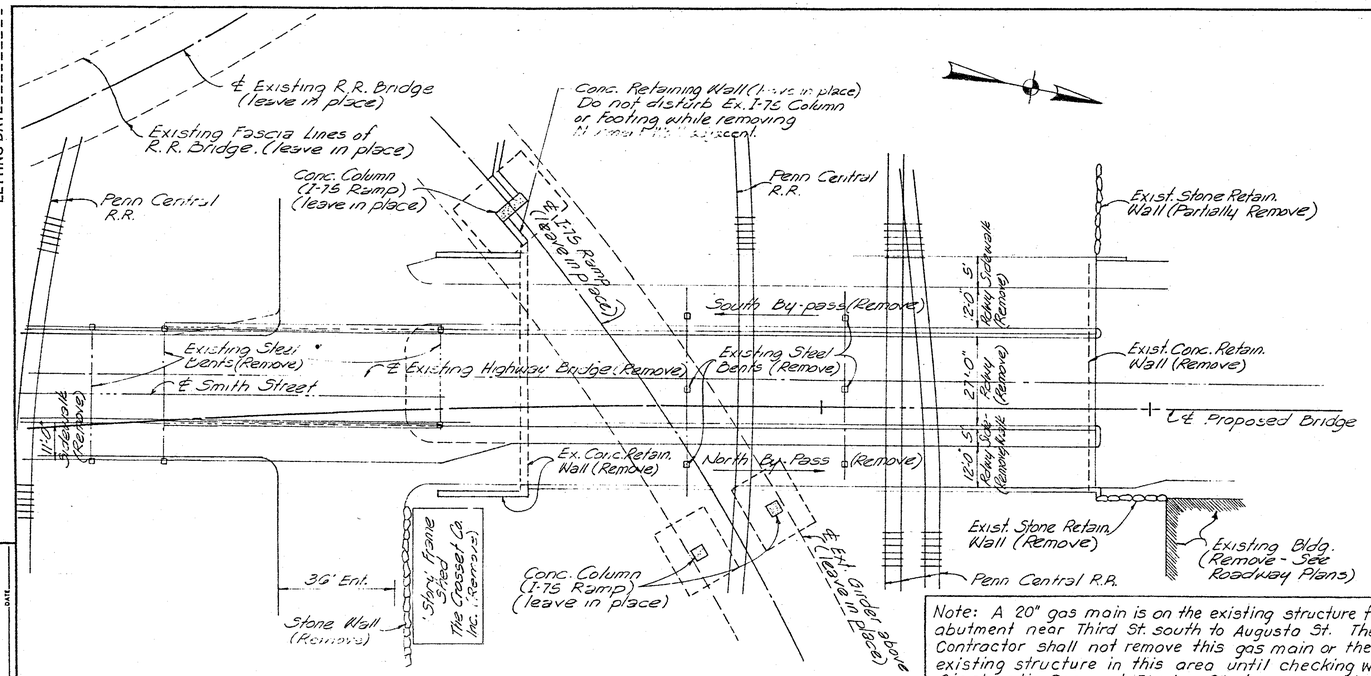


PART PLAN

Note: A 20" gas main is on the existing structure from abutment near Third St. south to Augusto St. The Contractor shall not remove this gas main or the existing structure in this area until checking with Cincinnati Gas and Electric Co. to make certain that gas line has been abandoned and is out of service.

GENERAL NOTES

The approach structures to be removed generally consists of the following types of construction:

Superstructure - 12"± reinforced concrete roadway slab and 6"± reinforced concrete sidewalk slab supported on simple and continuous span, either riveted plate girders or rolled beams.

Substructure - Steel column bents and braced towers supported on concrete pedestals. Bents and Towers are braced with x-system of steel angles or channels. Tops of bents are steel plate girders.

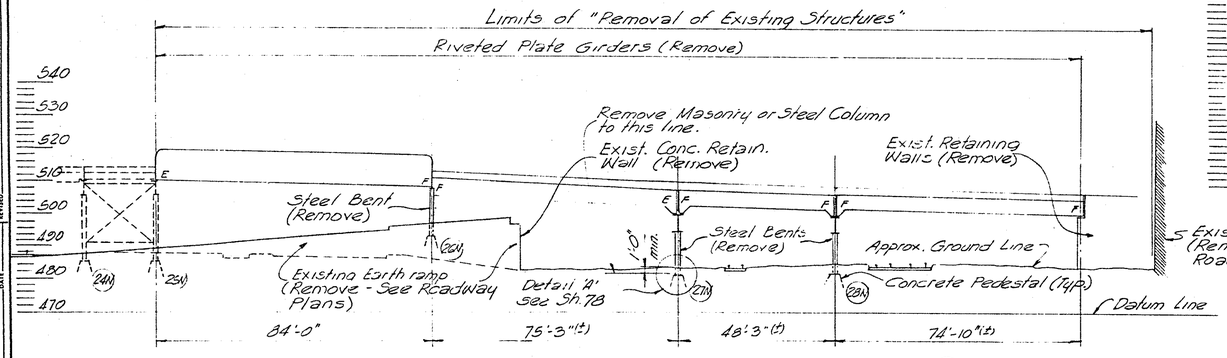
Reinforced Concrete Retaining Walls - All existing concrete structures within the area covered by the existing and proposed US 25 bridge are to be removed to 1'-0"± min. below existing ground except all streets, sidewalks, buildings, utilities and existing R.R. Columns that do not interfere with the proposed structure. The Stone retaining wall located at north end of the existing structure to be removed to limits shown on roadway plans. Where existing structures will interfere with the proposed bridge footings they shall be removed to make room for the footings.

Miscellaneous Items - The removal and relocation of existing R.R. columns 16N and 17N, as per plans, is not included in this item, cost to be included in the lump sum bid for "Alterations to C. & O. Railway.

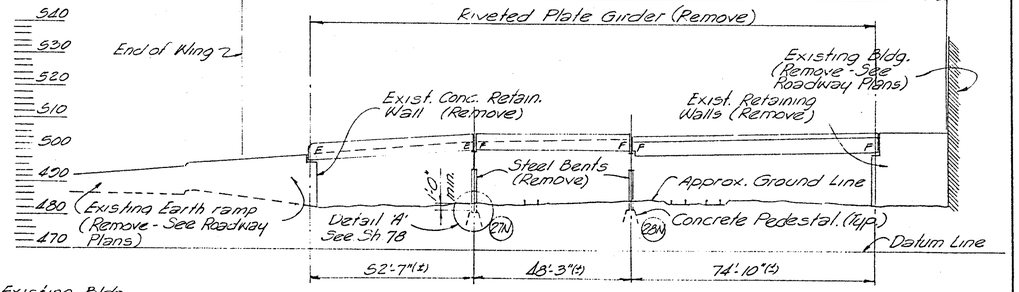
The removal of Smith St. earth approach to existing bridge, is not included in this item. See Roadway Plans.

The removal of existing building located at north end of structure at corner of Third St. is not included in this item. See Roadway Plans.

Order of Work - Existing Structure Removal is the first item of work to be done.



PART ELEVATION
(Showing Existing Highway Bridge)



ELEVATION
(Showing Existing North By-pass Bridge)
(South By-pass Bridge Similar)

Note: For Details of Bents see Sheets 81 & 82.

EXISTING STRUCTURE REMOVAL

DESIGNED BY BEC DETAILED BY CHECKED BY TRACED BY CHECKED BY CHECKED BY
DATE 2-71 REVISED DATE REVISED DATE

OHIO APPROACH SHEET 80

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

BRIDGE OVER OHIO RIVER ON U.S. 25

KENTON COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

STATION 81+76 P.E. PROJECT NO. F 141 (1)

HAZELET & ERDAL Consulting Engineers File No. 918-03	CONSTRUCTION PROJECT NO.	DRAWING NO. 18577

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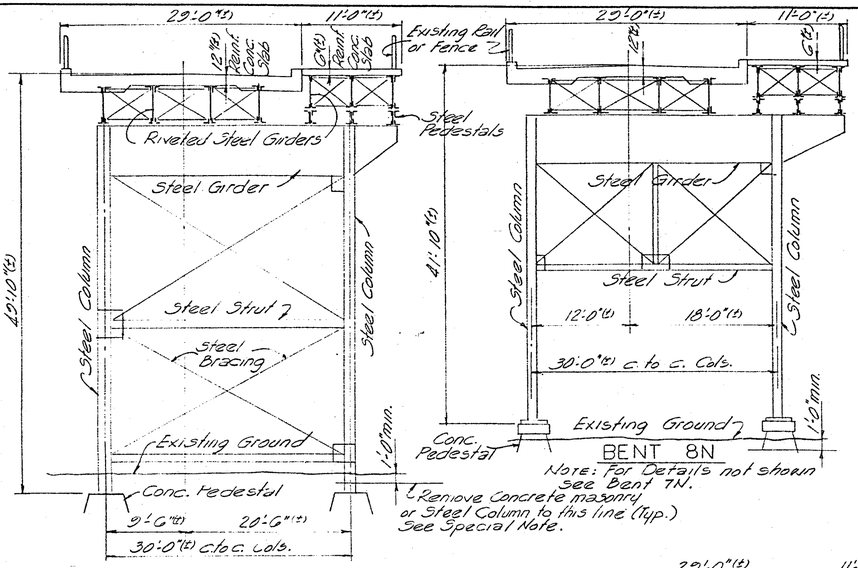
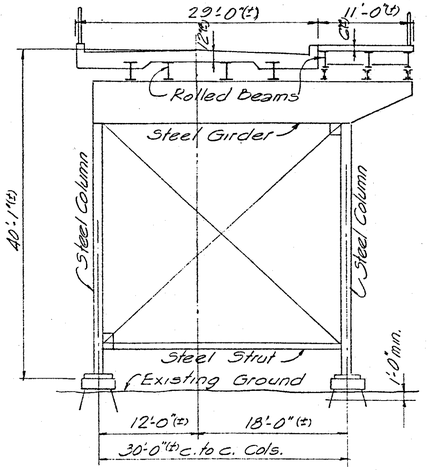


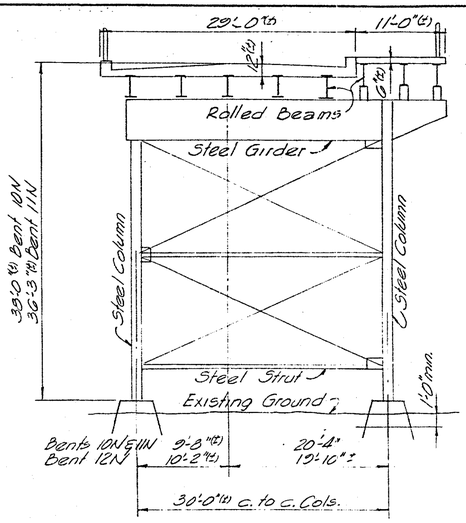
BENT 8N

NOTE: For Details not shown see Bent 7N.



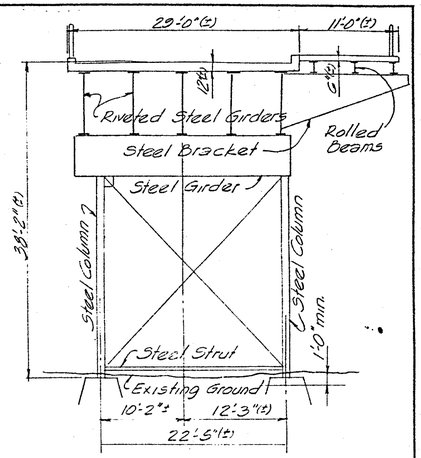
BENT 9N

NOTE: For Details not shown see Bent 7N.



BENTS 10N & 11N

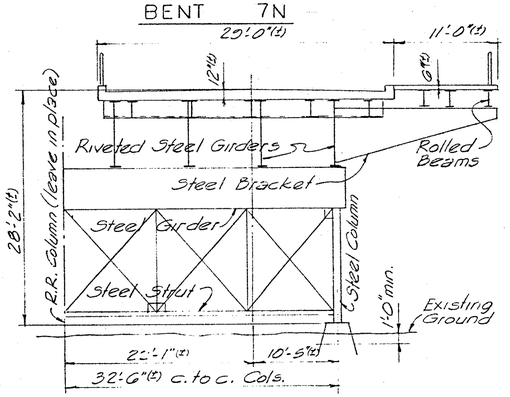
NOTE: for Details not shown see Bent 7N.



BENT 13N

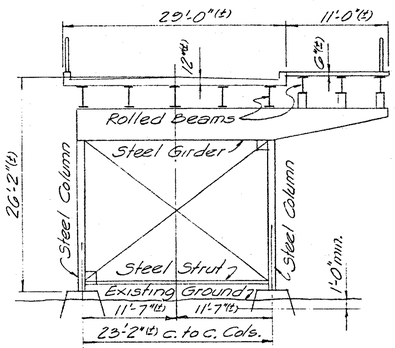
NOTE: For Details not shown see Bent 7N.

BENT 7N



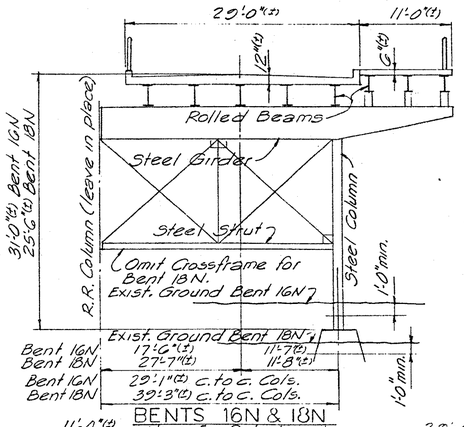
BENT 14N

NOTE: For Details not shown see Bent 7N.



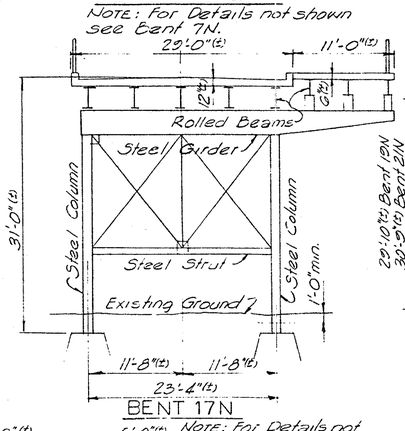
BENT 15N

NOTE: For Details not shown see Bent 7N.



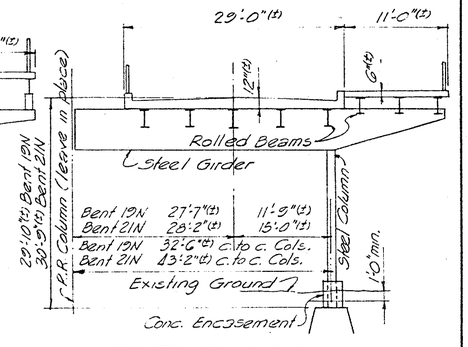
BENTS 16N & 18N

NOTE: For Details not shown see Bent 7N.



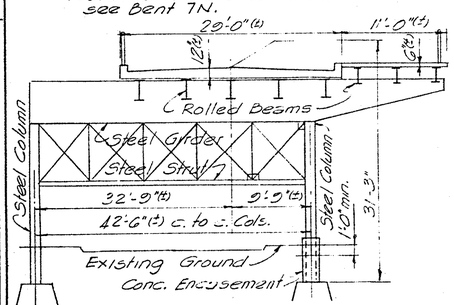
BENT 17N

NOTE: For Details not shown see Bent 7N.



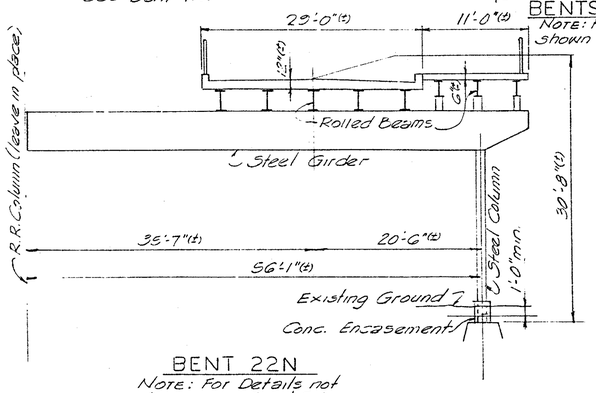
BENTS 19N & 21N

NOTE: For Details not shown see Bent 7N.



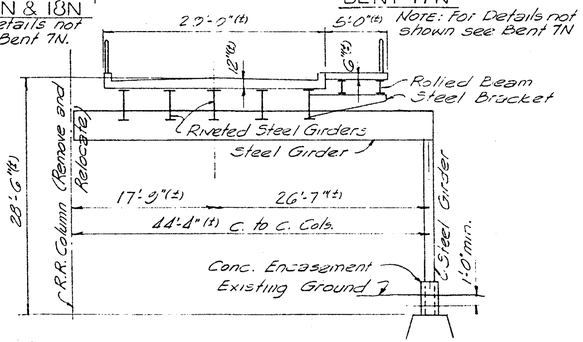
BENT 20N

NOTE: For Details not shown see Bent 7N.



BENT 22N

NOTE: For Details not shown see Bent 7N.



BENT 23N

NOTE: For Details not shown see Bent 7N.

EXISTING STRUCTURE REMOVAL

OHIO APPROACH

SHEET 81

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

BRIDGE OVER OHIO RIVER ON U.S. 25

KENTON COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

STATION 81+76 — P.E. PROJECT NO. F 141 (1)

HAZELET & ERDAL Consulting Engineers File No. 918-02	CONSTRUCTION PROJECT NO.	DRAWING NO. 18577

DESIGNED BY BEC — DETAILED BY MMH — TRACED BY — CHECKED BY — CHECKED BY — CHECKED BY

DATE — REVISED — DATE 2-21 — REVISED — DATE — REVISED — DATE

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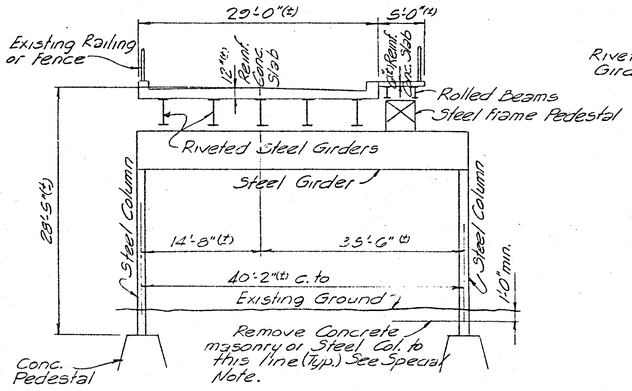
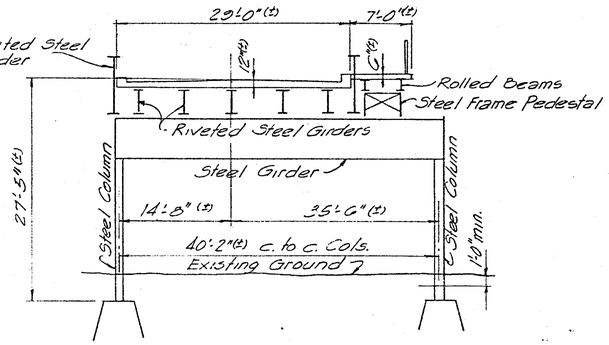
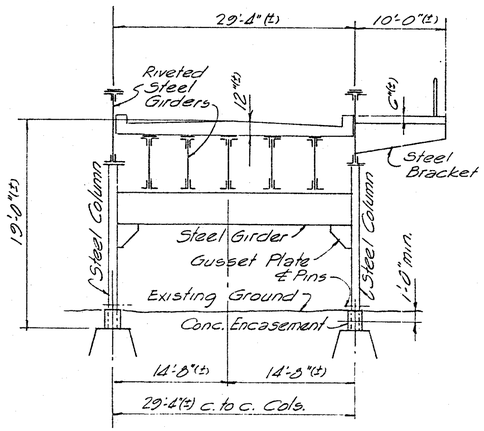


BENT 24N



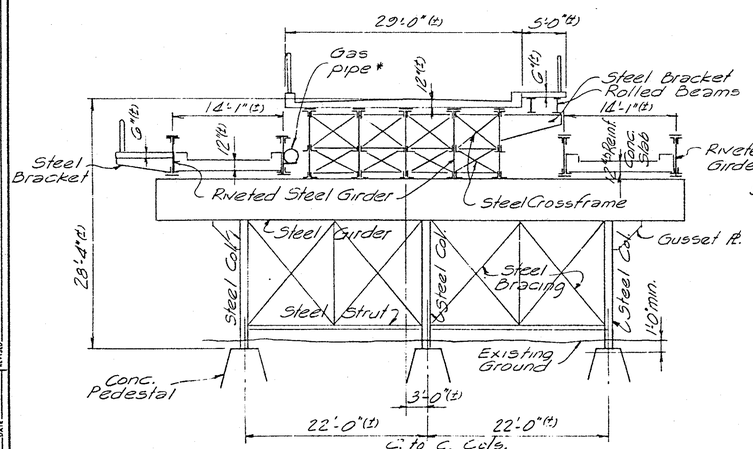
BENT 25N

NOTE: For Details not shown see Bent 24N.



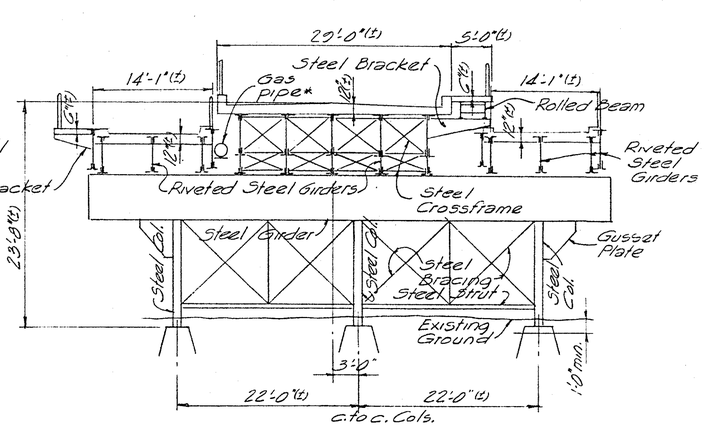
BENT 26N

NOTE: For Details not shown see Bent 24N.



BENT 27N

NOTE: For Details not Shown see Bent 24N.



BENT 28N

NOTE: For Details not Shown see Bent 24N.

* Remove Gas Pipe after making sure pressure is off.

EXISTING STRUCTURE REMOVAL

DESIGNED BY — CHECKED BY — DATE — REVISED
DETAILED BY BSC CHECKED BY JMM DATE 2-71 REVISED
TRACED BY — CHECKED BY — DATE — REVISED

OHIO APPROACH — SHEET 82

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

BRIDGE OVER OHIO RIVER ON U.S. 25
KENTON COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

STATION 81+76 — P.E. PROJECT NO. F 141 (1)

HAZELET & ERDAL Consulting Engineers File No. 918-03 — CONSTRUCTION PROJECT NO. — DRAWING NO. 18577

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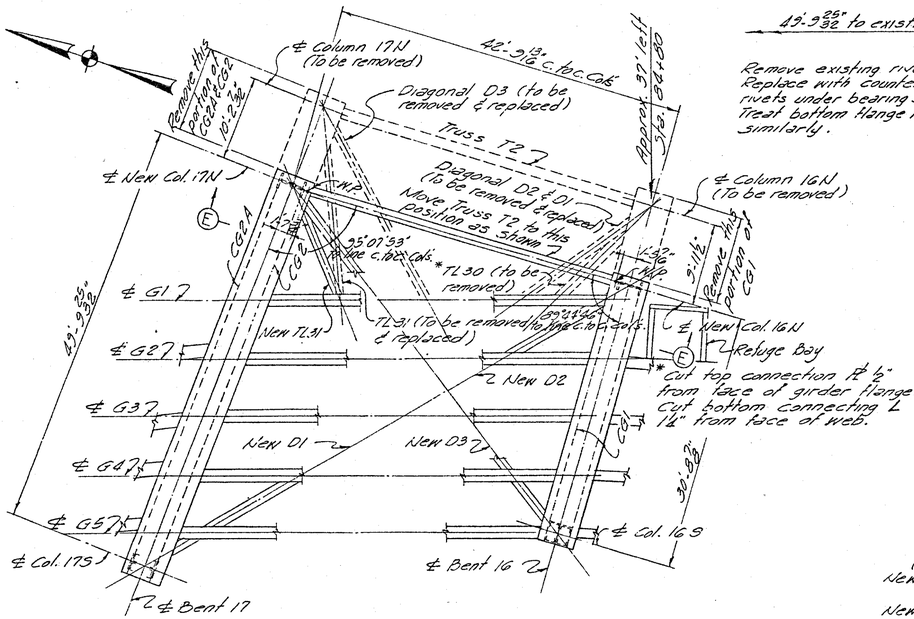
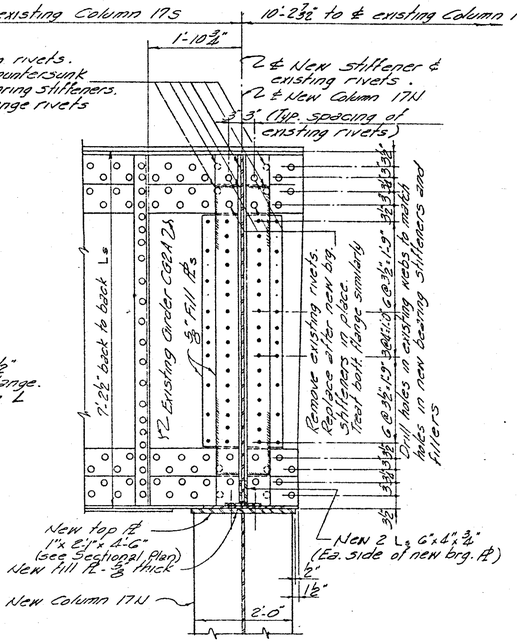


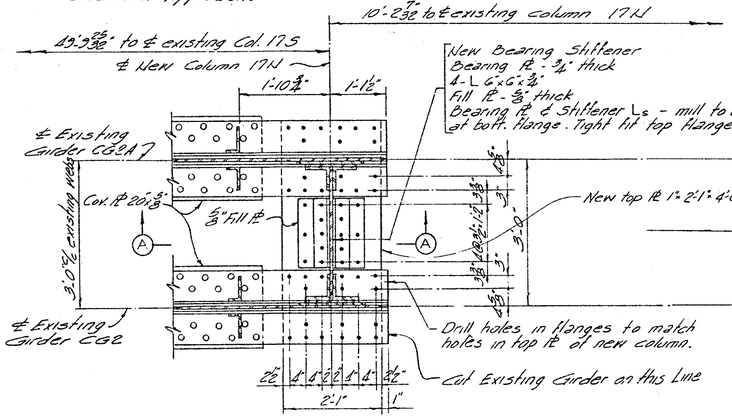
PLAN - SPAN 17

NOTE - The designations given for the pieces shown above are taken from Fort Pitt Bridge Works Shop drawings (Contract 6393) for the existing bridge. The bridge is therein designated as "Chesapeake & Ohio Ry. Co. Bridge No. 6660 Cincinnati Approach."

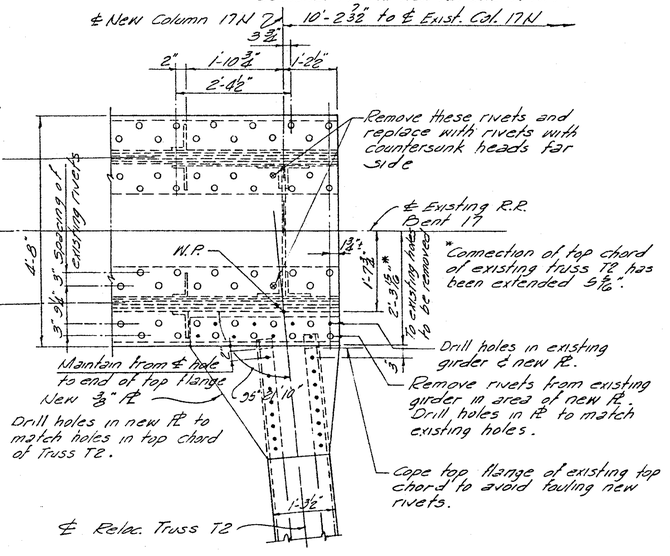


SECTION A-A

Also see Sect. B-B Sh. 84 & Sectional Plan at New R.R. Column 17N



SECTIONAL PLAN AT NEW R R COLUMN 17N



PLAN - CONNECTION OF TRUSS T2 TO GIRDER CG2

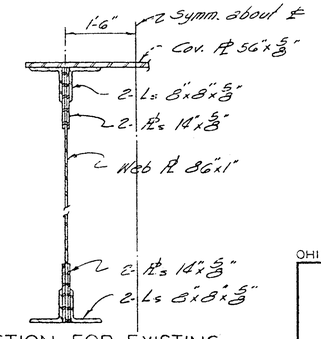
ORDER OF PROCEDURE

The order of procedure shall be as follows:

1. Excavate for new footings for new columns 16N & 17N.
2. Remove concrete from existing footing column 16N as shown.
3. Drive piles for new footings 16N & 17N. See Pile Record Sh. and Special Notes
4. Pour new footings.
5. Install base plates.
6. Prepare holes in existing cross girders CG1, CG2 & CG2A for new Stiffeners as shown.
7. Install new bearing stiffeners in cross girders as shown. See Sectional Plan at New Column 17N, Sh. 1 & 16N Sh. 2. Note that holes for connecting Truss T2 and new diagonals D2 & D3 must be left open at this time. New inner connector plates for Truss T2 may be riveted in place.
8. Prepare holes in existing cross girders for new connections for:- a - Columns, b - Top lateral System, c - Diagonals, d - Truss T2.
9. Prepare holes in existing columns 16S and 17S as shown for new X-bracing System.
10. Jack up cross girders CG1, CG2 & CG2A as required to insert new columns. (Maximum movement to be 1/4"). (To allow for elastic deformation of new piles and columns under transferred loading.)
11. Install new columns as shown.
    Note - Steps 10 & 11 to be done between trains without interference with traffic, as directed by Railway Engineer.
12. Install new x-bracing system between 16S - 16N, 17S - 17N & 17N - 16N as shown.
13. Remove top laterals TL 30 & TL 31.
14. Replace new top lateral System as shown.
15. Remove diagonals D1, D2 and D3.
16. Install new diagonal system as shown. Connect new diagonal system to main girders using existing flange rivet holes as shown.
    Note - Steps 13-16 may be done prior to step 3 to facilitate driving piles. D3 and TL31 may be left out until after the piles, below them are driven (as short a time as possible). Connections of D3 and D2 which will interfere with step 7 must be temporarily bolted until step 7 is performed.
17. Remove Truss T2. Modify end connections.
18. Install Truss T2 in to new location. Truss to be removed, modified and re-erected in one 12-hour day or less. Connections may be bolted temporarily.
19. Cut off ends of CG1 and CG2, CG2A as shown.
20. Cut off existing columns 16N and 17N below grade.
21. Paint in accordance with C & O Railway Co. Specifications: one coat red lead and black mixed, and one coat black paint.

Note - For General Notes see Sheet 85.

Note - Existing and New Rivets are 3/4"ϕ, New holes - 15/16"ϕ.



SECTION FOR EXISTING CG2 & CG2A

ALTERATION TO BENT 16 & 17
C. & O. RAILWAY CO.

OHIO APPROACH SHEET 83

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

BRIDGE OVER OHIO RIVER ON U.S. 25
KENTON COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

STATION 81 + 76 P.E. PROJECT NO. F 141 (1)

HAZELET & ERDAL Consulting Engineers File No. 918 05	CONSTRUCTION PROJECT NO.	DRAWING NO. 18577

DESIGNED BY — DATE — CHECKED BY
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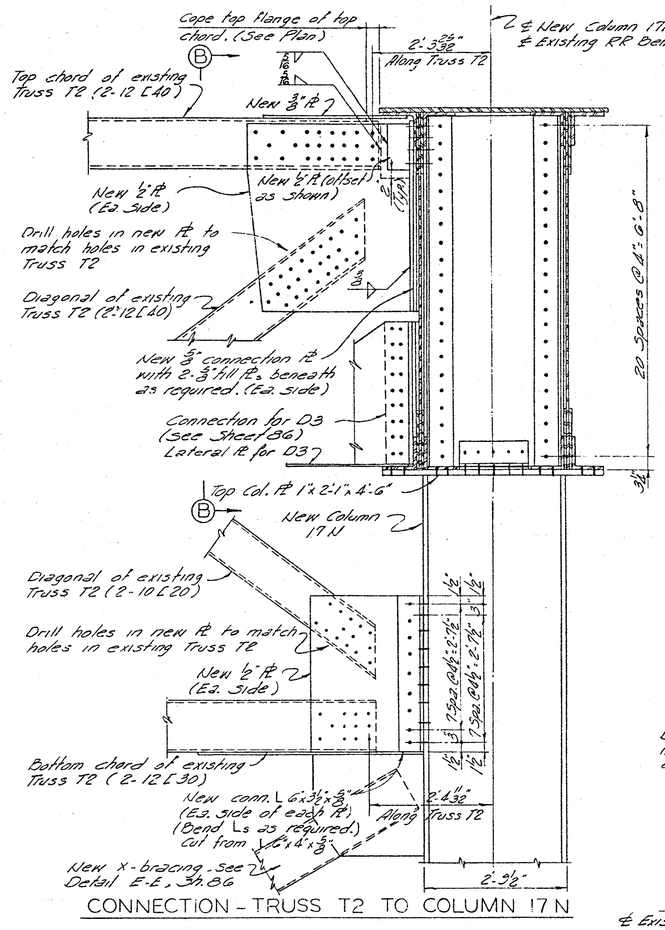
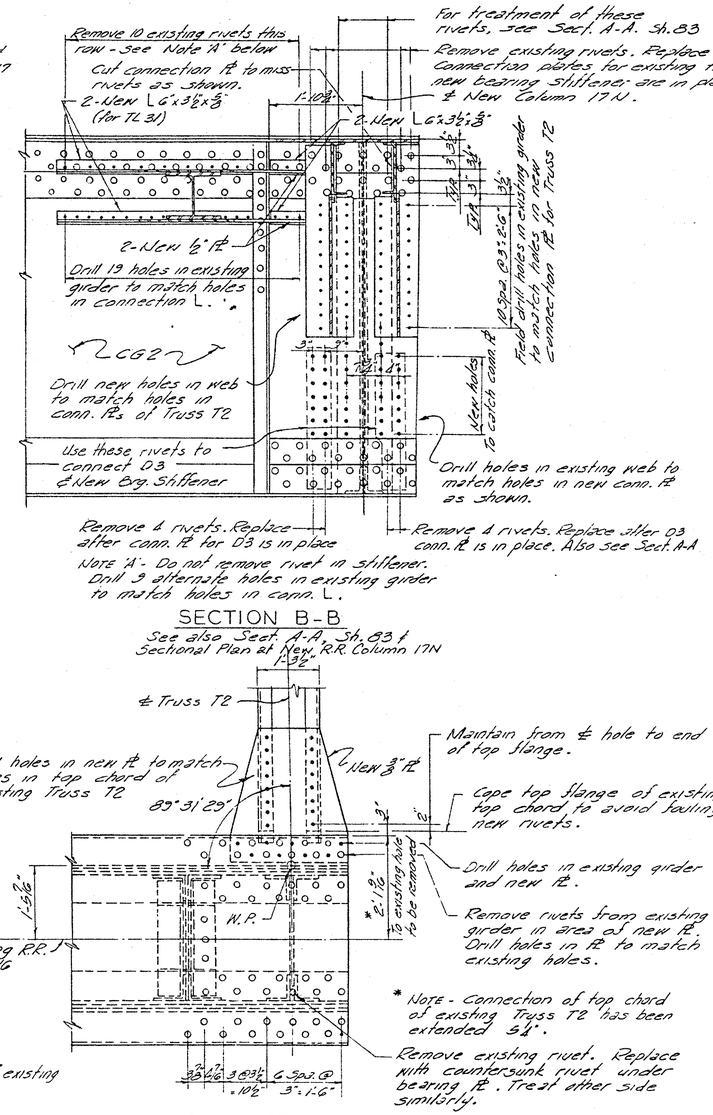
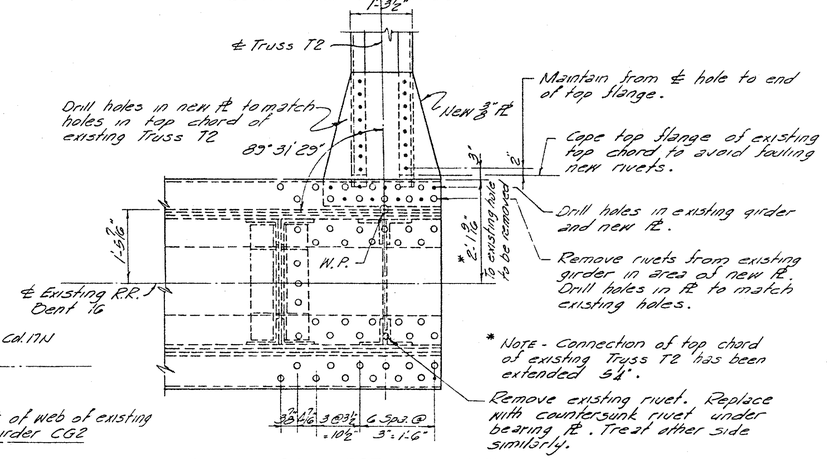


CONNECTION - TRUSS T2 TO COLUMN 17N

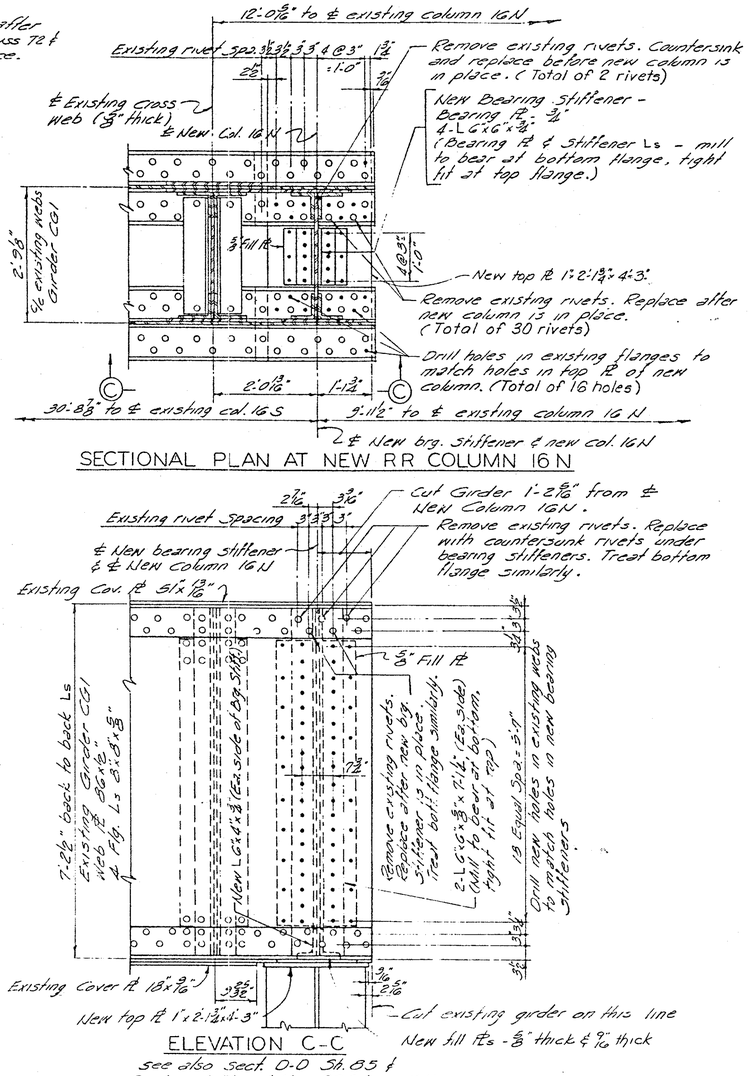


SECTION B-B

See also Sect. A-A Sh. 83 & Sectional Plan at New R.R. Column 17N



PLAN - CONNECTION OF TRUSS T2 TO GIRDER CG1



SECTIONAL PLAN AT NEW R.R. COLUMN 16N

ELEVATION C-C

see also Sect. D-D Sh. 85 & Sectional Plan at New R.R. Column 16N

PLAN - CONNECTION OF TOP LATERAL TL 31 TO GIRDER CG2

ALTERATION TO BENT 16 & 17
C. & O. RAILWAY CO.

OHIO APPROACH

SHEET 84

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

BRIDGE OVER OHIO RIVER ON U.S. 25

KENTON COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

STATION 81+76 P.E. PROJECT NO. F141 (1)

HAZELET & ERDAL Consulting Engineers File No. 918 02	CONSTRUCTION PROJECT NO.	DRAWING NO. 18577

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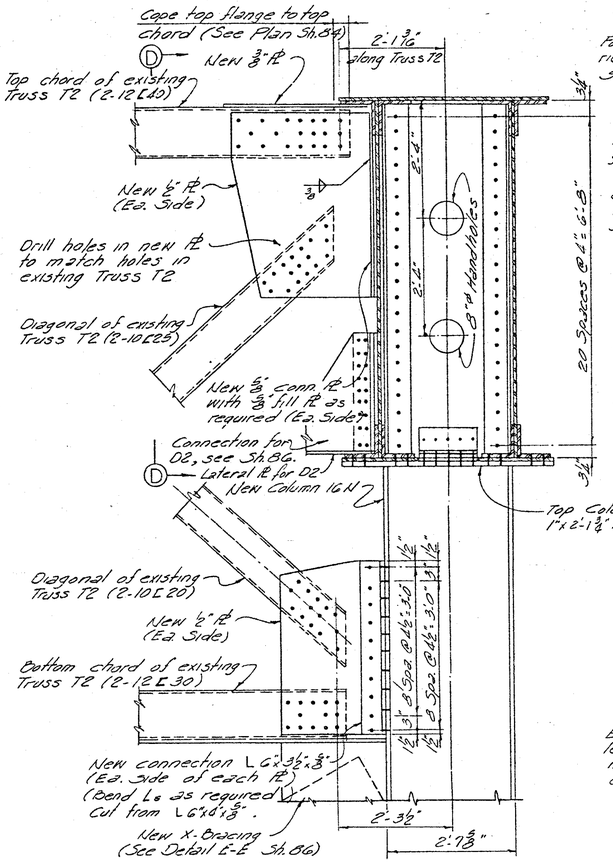
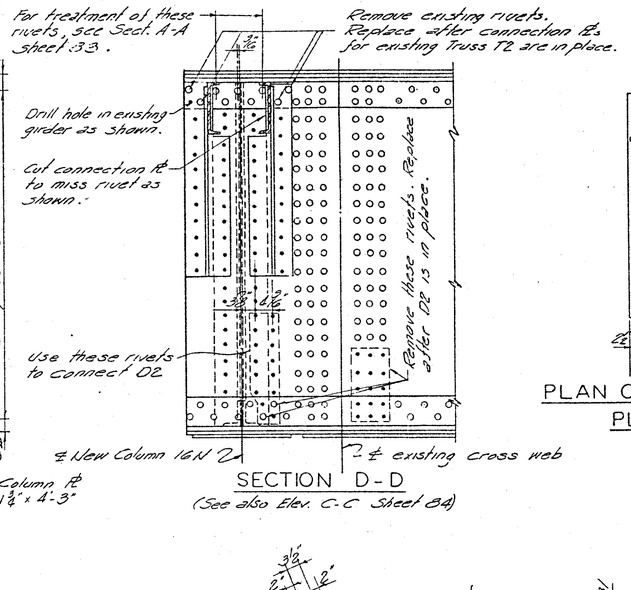
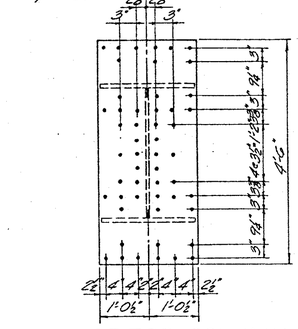


CONNECTION TRUSS T2 TO COLUMN 16N



SECTION D-D
(See also Elev. C-C Sheet 84)



PLAN OF TOP COLUMN
PLATE 17N

GENERAL NOTES *

*Applicable for the alterations to railroad bents 16 & 17

SPECIFICATIONS: American Railway Engineering Association Manual of Recommended Practice and Kentucky Department of Highways Standard Specifications (Current Editions with Revisions) as applicable.

DESIGN LOAD: A.R.E.A. Cooper E 70 loading with steam locomotive impact.

DIMENSIONS: The Contractor shall verify all existing dimensions.

CONNECTIONS: All connections to be riveted in so far as possible with ¾"ø rivets conforming to A.S.T.M. A502, Grade 1. Where not possible to use rivets, ¾"ø bolts conforming to A.S.T.M. A325, Type 3 may be used on the approval of the Engineer but the approval for the use of such bolts will be given for each individual bolt and not for the connection as a whole. Holes to be sub-drilled and reamed with connecting parts in place.

FOUNDATION PRESSURE: Piles are designed for maximum axial load of 60 tons per pile and maximum horizontal shear of 1 ton per pile.

OPTIONAL TYPES OF PILES: The Contractor shall use one of the following options throughout the Structure:
Option 1 - Standard 14" reinforced concrete pile, see Std. Dwg. P2, current edition.
Option 2 - Cast-in-place concrete pile, seamless steel or welded pipe shell, see Standard Dwg. P20, current edition.
Option 3 - Cast-in-place concrete pile, fluted steel shell see Standard Dwg. P21, current edition.
Option 4 - Standard precast prestressed 14" concrete pile, see Standard Dwg. P23, current edition.

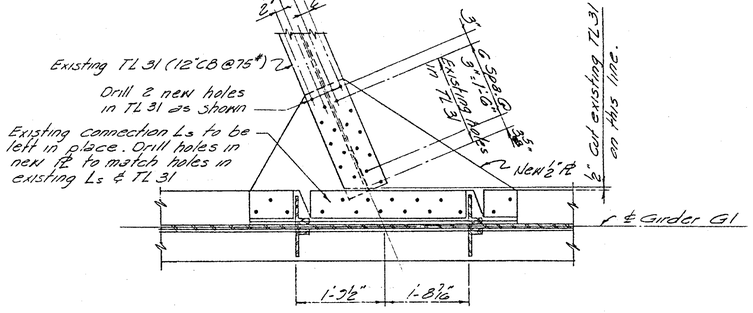
ANCHOR BOLT HOLES: To be drilled after steel is in place. Fill holes with Embeco Grout and force bolts into place.

PAYMENT: The Lump Sum Bid for Alteration to C & O Railroad shall be full payment for all excavation, concrete, reinforcing steel, furnishing and driving piling, structural steel, paint, rivets, bolts, washers, welding and welding materials and all labor and materials necessary to remove existing structure and replace it in accordance with the Plans and Specifications. The quantities below are not included in the totals shown on Sheet 1.

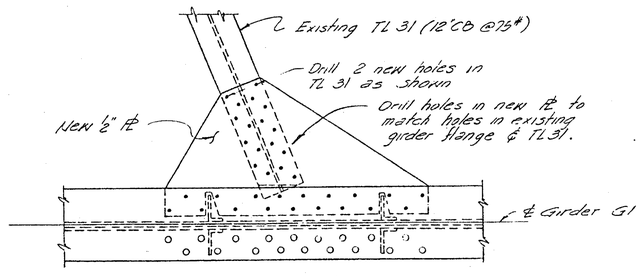
QUANTITIES - MODIFICATION FOR R.R. BENTS 16 & 17

Excavation Cu. Yds.		Concrete Class A Cu. Yds.	Reinf. Steel Lbs.	Structural Steel	*14" Conc. Piling Lin. Ft.		Removal of Existing Structure
Comm.	Rock				Furnish	Drive	
78	12 (3)	39.0	1,612	(1)	896	896	(2)

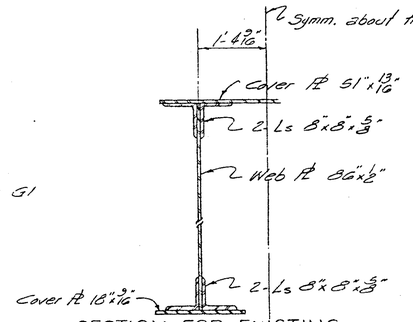
(1) Approximate weight of Structural Steel 86,080 Lbs
(2) Ends of CG1, CGB & CGBA, Col. 16N & 17N, Braces T2-30, T2-31, D1, D2, D3 & Girder between 16S & 16N.
(3) Removal of portions of existing footings, loading dock, etc.
* For Piling options, see General Notes above.



CONNECTION - BOTTOM FLANGE TL 31
TO GIRDER G1

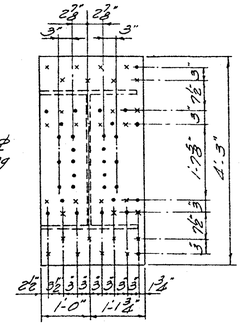


CONNECTION - TOP FLANGE TL 31
TO GIRDER G1



SECTION FOR EXISTING
CG1

Holes in column ℄ to match existing holes in flange



PLAN OF TOP COLUMN PLATE 16N

Note - Holes marked (x) match existing rivets. Holes marked (•) match new holes in flange.

ALTERATION
TO BENT 16 & 17 C. & O. R.CO.

OHIO APPROACH — SHEET 85

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

BRIDGE OVER OHIO RIVER ON U.S. 25
KENTON COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

STATION 81+76 — P.E. PROJECT NO. F 141 (1)

DESIGNED BY	DETAILED BY	TRACED BY	CHECKED BY	CHECKED BY	CHECKED BY
JWH	JWH	EKC	DATE	DATE	DATE

REVISED	REVISED	REVISED
DATE	DATE	DATE

HAZELET & ERDAL
Consulting Engineers
File No. 918-03

CONSTRUCTION PROJECT NO.

DRAWING NO. 18577

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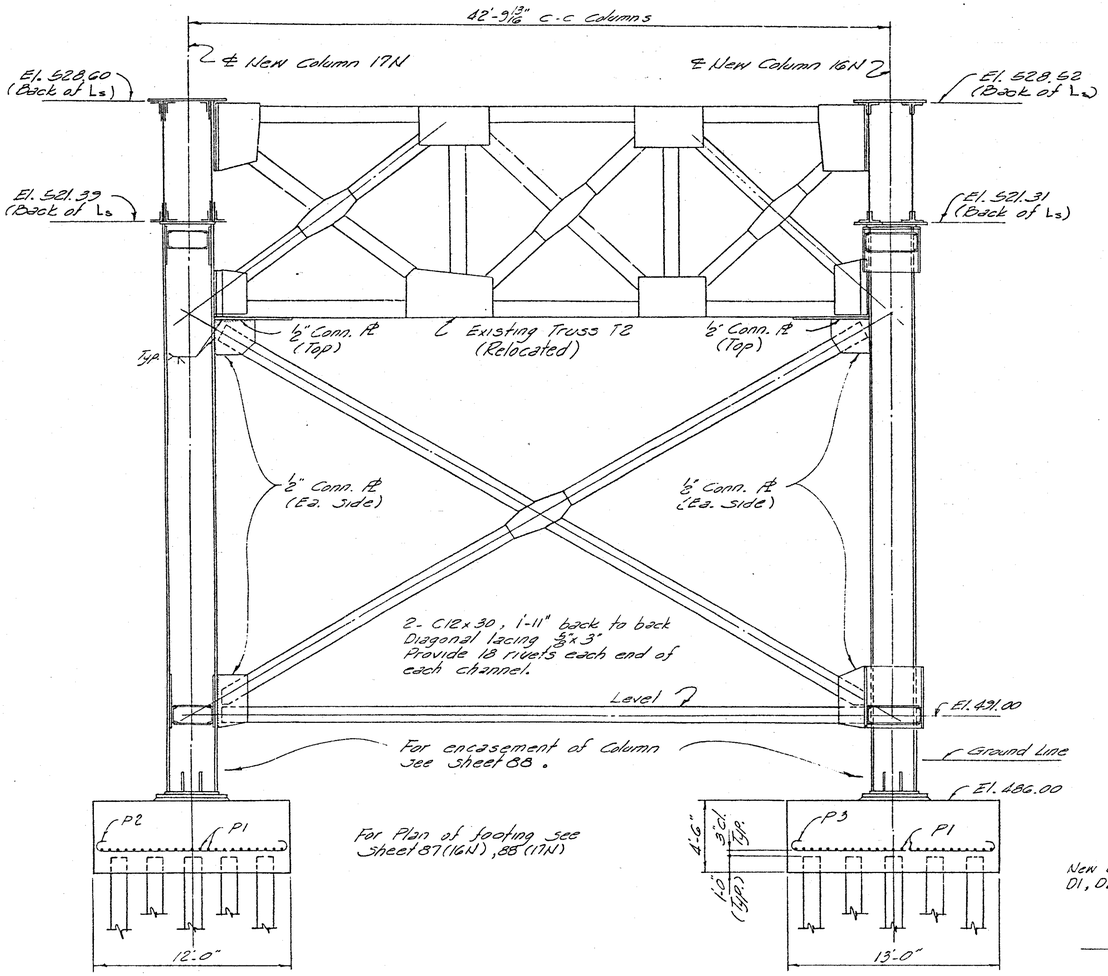


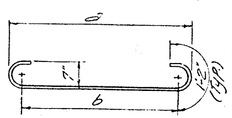
For Plan of footing see Sheet 87 (16N), 88 (17N)

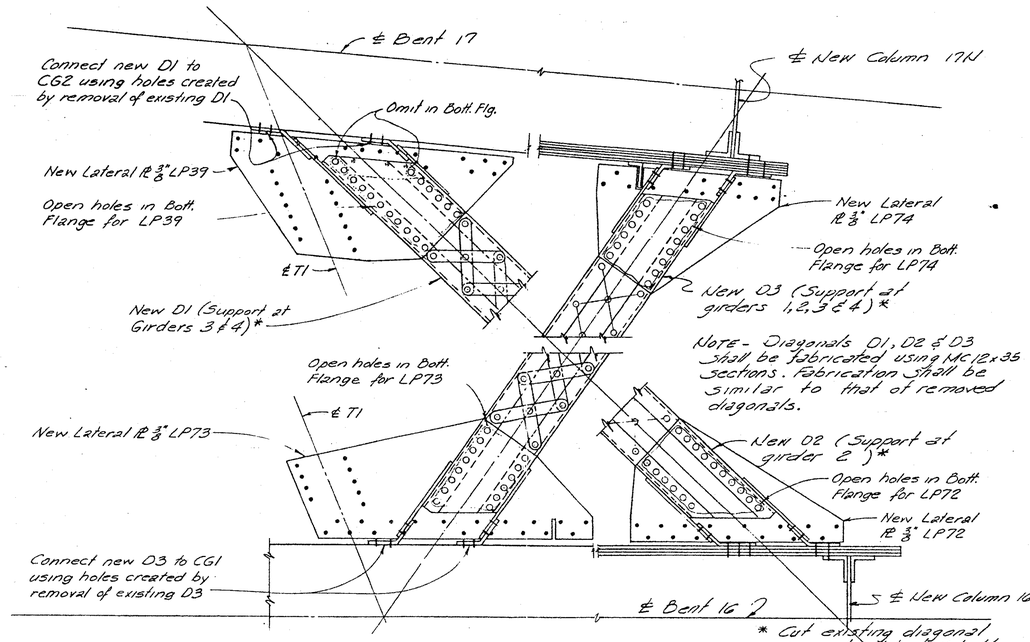
ELEVATION E-E
(See Plan Span 17, Sh. 83)

BILL OF REINFORCEMENT

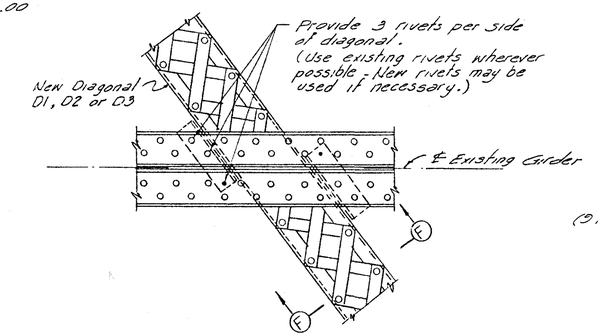
Mark	Number P17N	Number P16N	S/L	a Ft.	a In.	b Ft.	b In.	Length Ft.	Length In.
P1	23	25	7	7	2	6	7	8	11
P2	19	–	7	11	8	11	1	13	5
P3	–	19	7	12	8	12	1	14	5

NOTE - All bars are located in the footings.

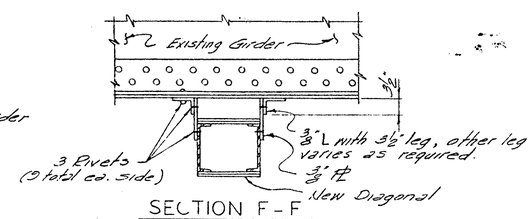




PLAN OF DIAGONAL BRACING



PLAN OF CONNECTION DIAGONAL TO GIRDER
(See Plan of Diagonal Bracing for location.)



SECTION F-F

OHIO APPROACH SHEET 86

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

BRIDGE OVER OHIO RIVER ON U.S. 25
KENTON COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

STATION 81 + 76 P.E. PROJECT NO. F 141 (1)

HAZELET & ERDAL Consulting Engineers File No. 918 03 | CONSTRUCTION PROJECT NO. | DRAWING NO. 18577

ALTERATION TO BENT 16&17
C. & O. RAILWAY CO.

DESIGNED BY S. Hale CHECKED BY
DETAILED BY RVC CHECKED BY
TRACED BY CHECKED BY
REVISED DATE
REVISED DATE
REVISED DATE

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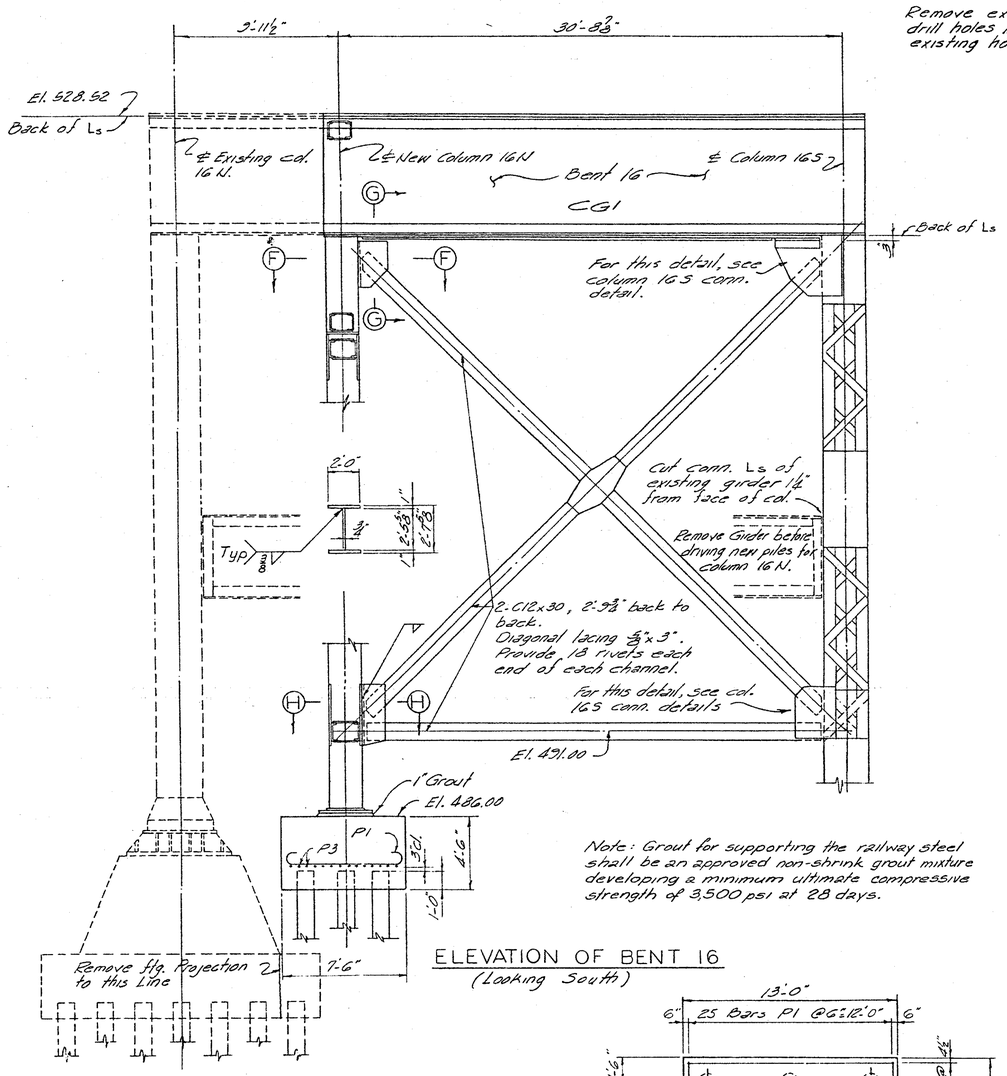
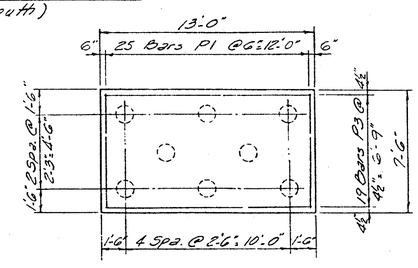


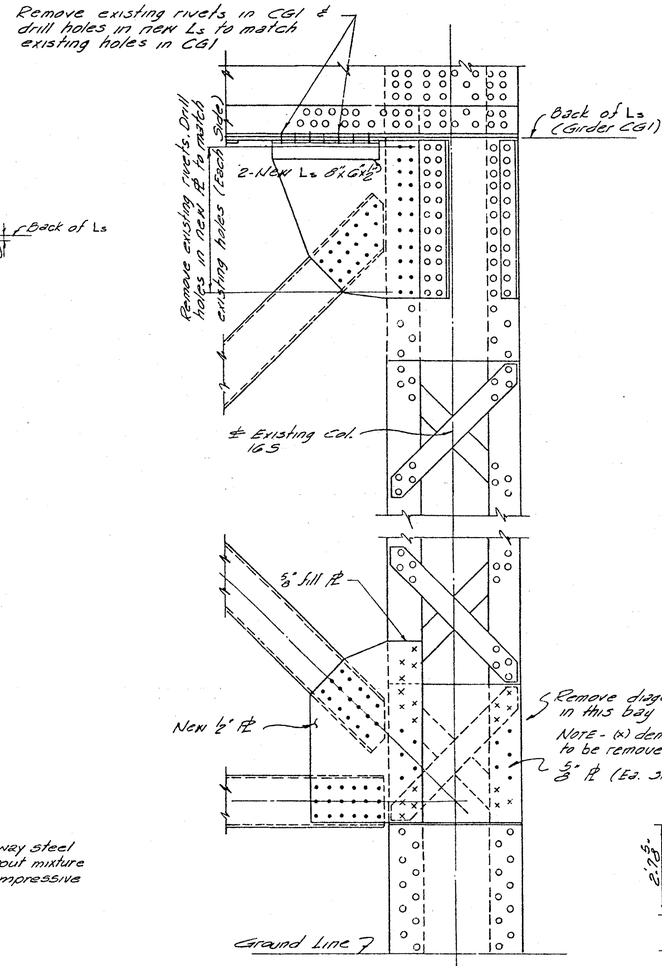
ELEVATION OF BENT 16
(Looking South)

Note: Grout for supporting the railway steel shall be an approved non-shrink grout mixture developing a minimum ultimate compressive strength of 3,500 psi at 28 days.

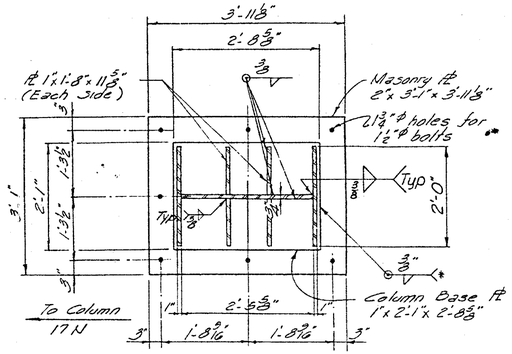


PLAN OF COLUMN FOOTING
(Column 16 N)

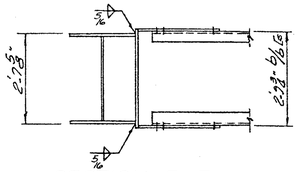
PILE NOTE- Piling shall be of a type and furnished in lengths which can be driven with existing steelwork in place and spliced by welding as required to install piling with the length necessary to secure bearing as determined from test loaded piles designated elsewhere in the plans. Cost of splicing piling shall be included in the price for driving piles. If any difficulty develops in driving new piling, driving shall stop and the problem be discussed with the Engineer. If driving new piles results in settlement or displacement of the steel superstructure of the railway bridge, it shall be jacked and adjusted to proper elevation and alignment when new steelwork is placed at no additional cost to the State.



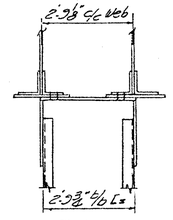
COLUMN 16S CONNECTION DETAILS



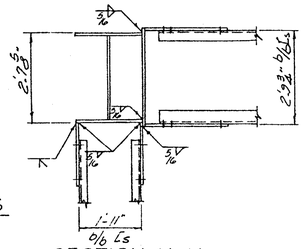
PLAN OF COLUMN BASE PLATE
* To be welded after column is in place. (Column 16 N)



SECTION F-F



SECTION G-G



SECTION H-H

OHIO APPROACH

SHEET 87

DESIGNED BY S. Wek CHECKED BY JMM DATE
DETAILED BY SAK CHECKED BY JMM DATE
TRACED BY PSJ CHECKED BY JMM DATE
REVISED DATE
REVISED DATE
REVISED DATE

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

BRIDGE OVER OHIO RIVER ON U.S. 25
KENTON COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

STATION 81+76 P.E. PROJECT NO. F 141 (1)

HAZELET & ERDAL
Consulting Engineers
File No. 918-03

CONSTRUCTION PROJECT NO.

DRAWING NO. 18577

ALTERATION TO BENT 16&17
C. & O. RAILWAY CO.

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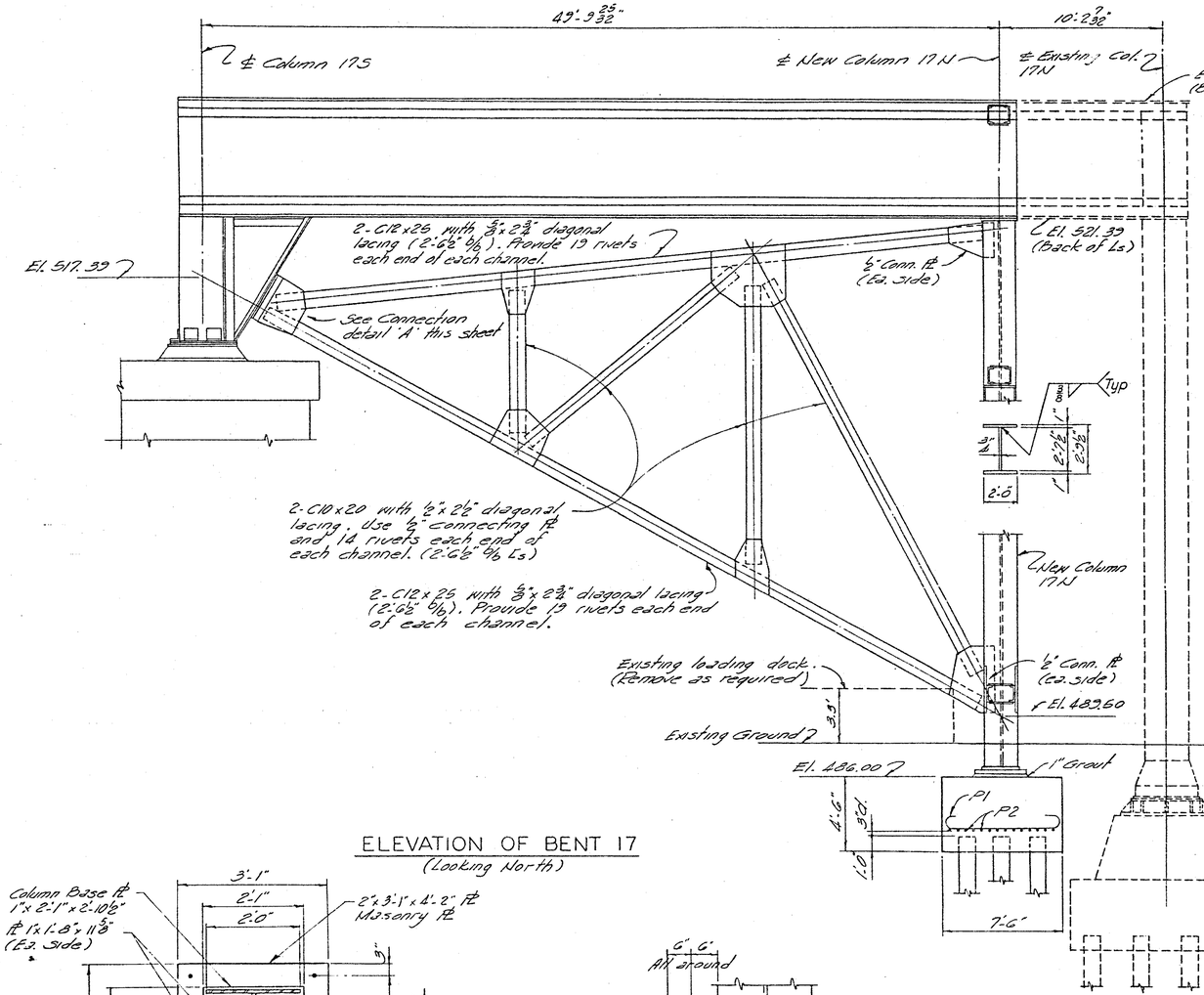
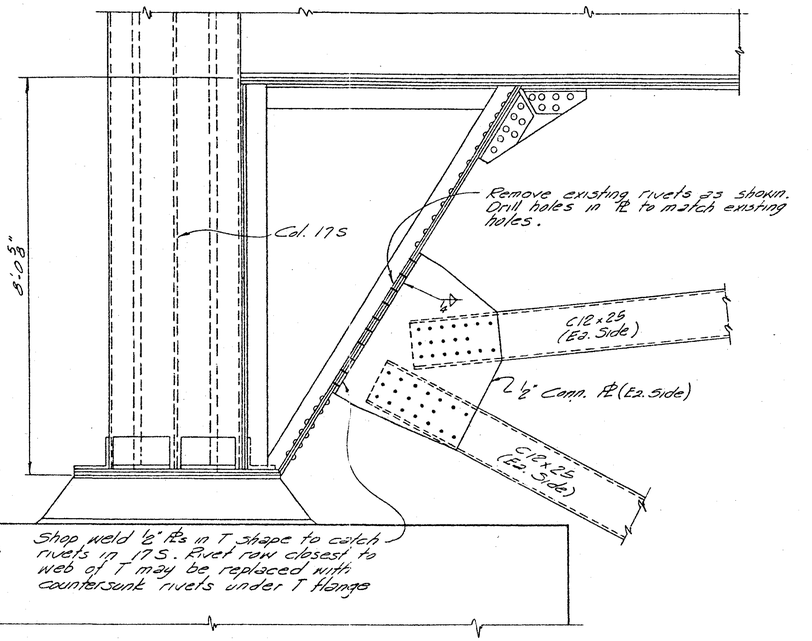
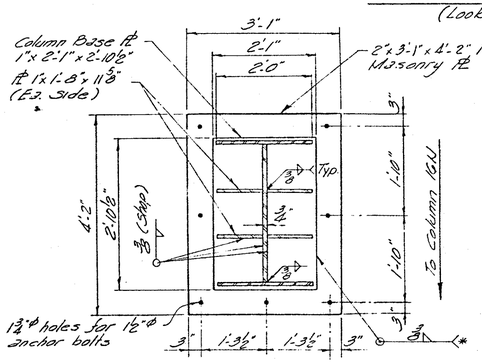
LETTING DATE



ELEVATION OF BENT 17
(Looking North)

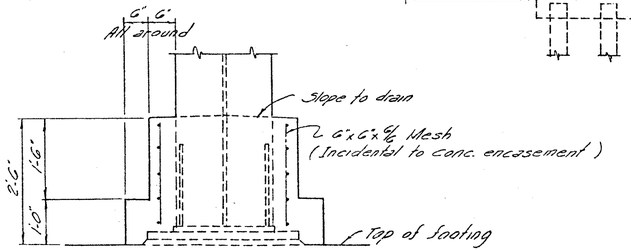


CONNECTION DETAIL 'A'

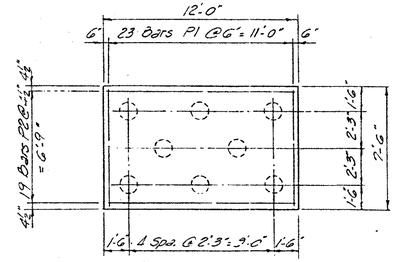


PLAN OF COLUMN BASE PLATE

* To be welded after column is in place. (Column 17N)



DETAIL OF CONCRETE ENCASEMENT
COLUMN 16N & 17N



PLAN OF COLUMN FOOTING
Column 17N
(See 'Piling Note' Sheet 87)

ALTERATION TO BENT 16 & 17
C. & O. RAILWAY CO.

OHIO APPROACH SHEET 88

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

BRIDGE OVER OHIO RIVER ON U.S. 25

KENTON COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

STATION 81+76 P.E. PROJECT NO. F 141 (1)

HAZELET & ERDAL Consulting Engineers File No. 918 0.1	CONSTRUCTION PROJECT NO.	DRAWING NO. 18577

DESIGNED BY
DETAILED BY
TRACED BY
CHECKED BY
CHECKED BY
CHECKED BY
REVISED
REVISED
REVISED
DATE
DATE
DATE

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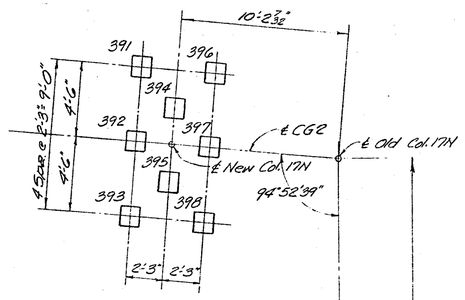
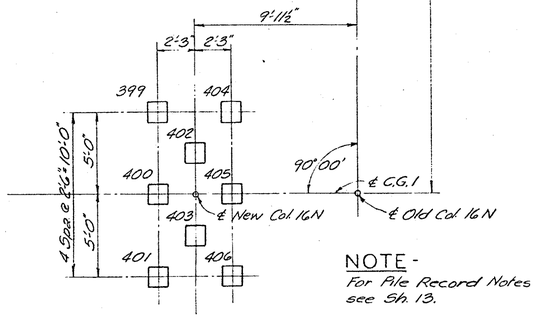
LETTING DATE



COLUMN 17N

42'-9 7/8" c. to c. Cols.



NOTE -
For Pile Record Notes see Sh. 13.

COLUMN 16N

PILE RECORD

Location	Pile No.	Cutoff Elev. Shown	Tip of Pile Elevation as Driven	Pile Length in Place (Lin. Ft.)	Calculated Bearing Capacity (Tons)
Column 17N	391	482.50			
" "	392	"			
" "	393	"			
" "	394	"			
" "	395	"			
" "	396	"			
" "	397	"			
" "	398	"			
Column 16N	399	"			
" "	400	"			
" "	401	"			
" "	402	"			
" "	403	"			
" "	404	"			
" "	405	"			
" "	406	"			

DESIGNED BY ____ CHECKED BY ____ DATE ____
DETAILED BY MMA CHECKED BY ____ DATE 9-71
TRACED BY ____ CHECKED BY ____ DATE ____
REV'ISED ____ REV'ISED ____ REV'ISED ____

ALTERATION TO BENT 16 & 17
C. & O. RAILWAY CO.

OHIO APPROACH SHEET 39

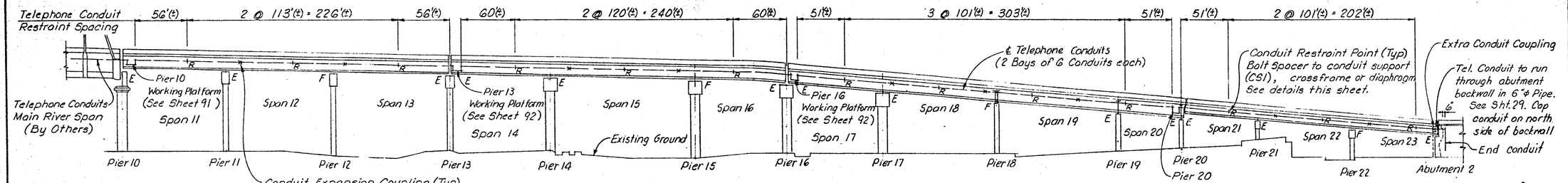
KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

BRIDGE OVER OHIO RIVER ON U.S. 25
KENTON COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

STATION 411+16 P.E. PROJECT NO. F 141 (1)

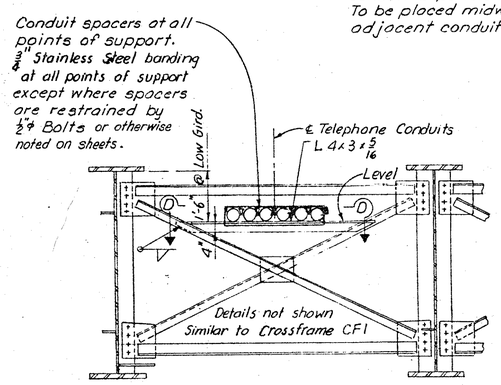
HAZELET & ERDAL Consulting Engineers File No. 918-03	CONSTRUCTION PROJECT NO.	DRAWING NO. 18577

THIS IS A REDUCED SIZE PRINT — NOT TO SCALE

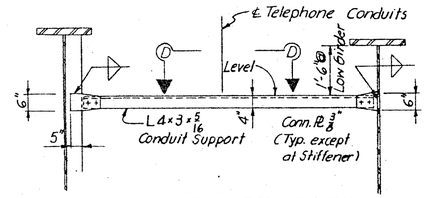


ELEVATION

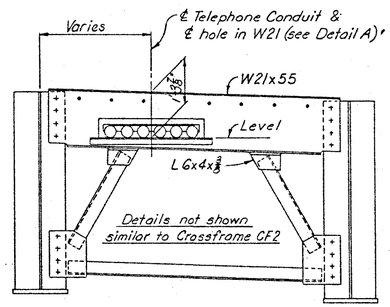
Scale: Vertical 1" = 20'
Horizontal 1" = 50'



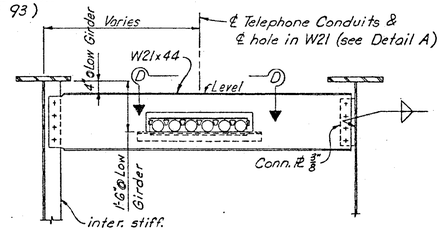
CROSSFRAME CF3



CONDUIT SUPPORT CS1



CROSSFRAME CF4



DIAPHRAGM D2

NOTES:

4" Plastic Conduit: Conduits shall be 4" inside diameter, special plastic, rigid, heavy wall with belled ends. Conduit is made from virgin poly vinyl chloride which conforms to ASTM specifications for rigid PVC D1784, Type 1, Grade 1. Conduit to be flame and ultraviolet resistant. (Bell System Specification AT-8546.)

Expansion Couplings: Conduit shall be joined with plastic expansion couplings which provide a sealed movable joint at locations shown on the plans.

Telephone conduits shall be installed before placing deck forms where possible.

All Railing shall be 1 1/2" diameter ASTM A53 (Schedule 40).

Cleaning and painting railings, platforms and ladders, etc., shall be in accordance with Special Provision 80-B.

All Steel shall be A36 unless noted otherwise.

All welds shall be 1/4" unless noted otherwise or larger if governed by material thickness.

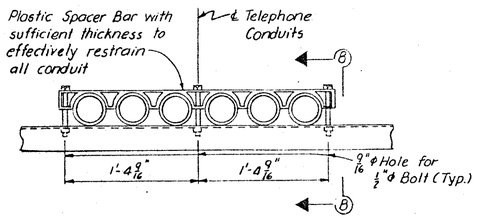
Grating shall be welded to supports.

All Bolts are 7/8" ϕ H.S. Bolts unless noted.

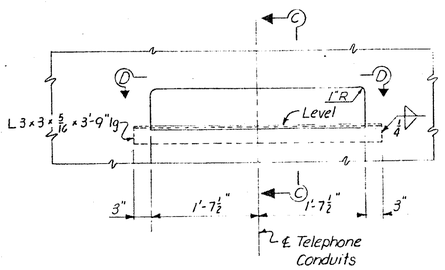
All structural steel including gratings, pipe railing, ladders, bolts and miscellaneous materials necessary to complete the working platforms and steel conduit are included in and are to be paid for, by the lump sum bid for "Telephone Conduits".

Payment for telephone conduits: The lump sum bid for "Telephone Conduits" shall be full payment for all plastic conduit, couplings, spacers, banding, fastenings, structural steel and all labor and materials necessary to install the conduit and working platforms in accordance with the plans and specifications.

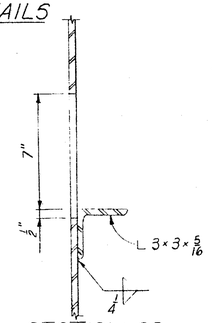
Installation of telephone cables in the conduits is not a part of this contract.



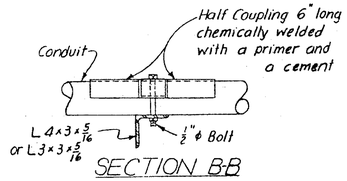
CONDUIT SPACER & RESTRAINT DETAILS



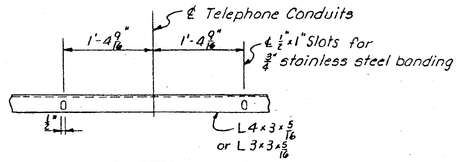
DETAIL "A"



SECTION C-C

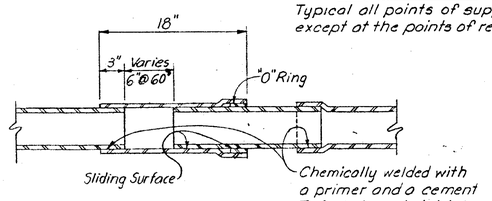


SECTION B-B

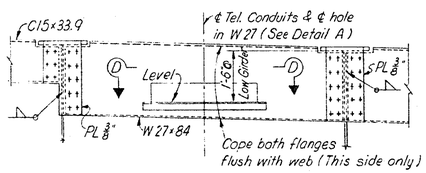


SECTION D-D

Typical all points of support except at the points of restraint

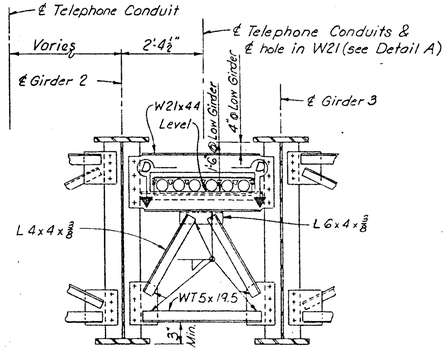


CONDUIT EXPANSION COUPLING



DIAPHRAGM D3

Note: For location of ¾"ϕ studs, see sheet 41.



CROSSFRAME CF5

SHEET 90

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

BRIDGE OVER OHIO RIVER ON U.S. 25
KENTON COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

STATION | P.E. PROJECT NO. F 141 (1)

HAZELET & ERDAL Consulting Engineers File No. 918 | CONSTRUCTION PROJECT NO. | DRAWING NO. 18577

TELEPHONE CONDUIT DETAILS

LETTING DATE

DESIGNED BY RND DATE 8-71 REVISED
DETAILED BY R. LIN DATE REVISED
CHECKED BY DATE REVISED
CHECKED BY DATE REVISED
TRACED BY

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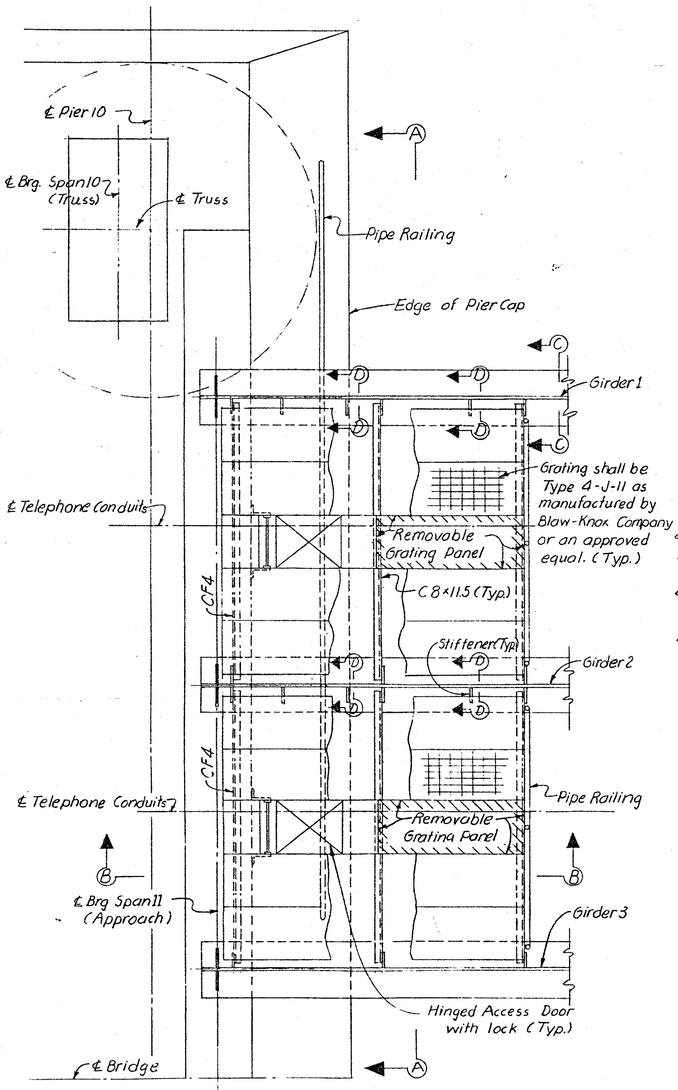
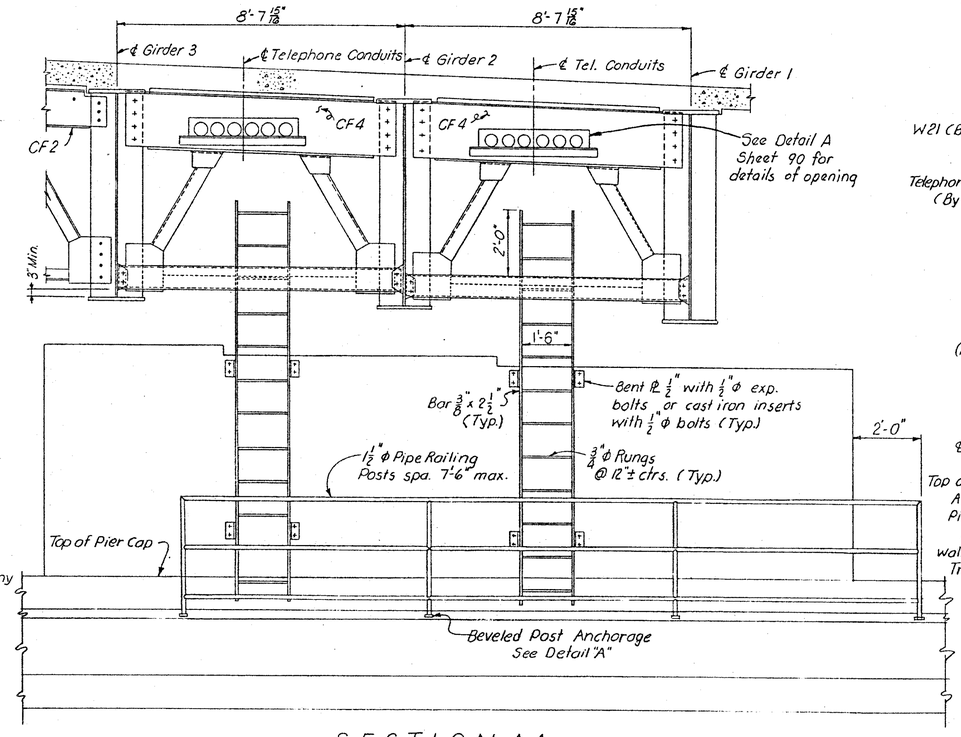
LETTING DATE

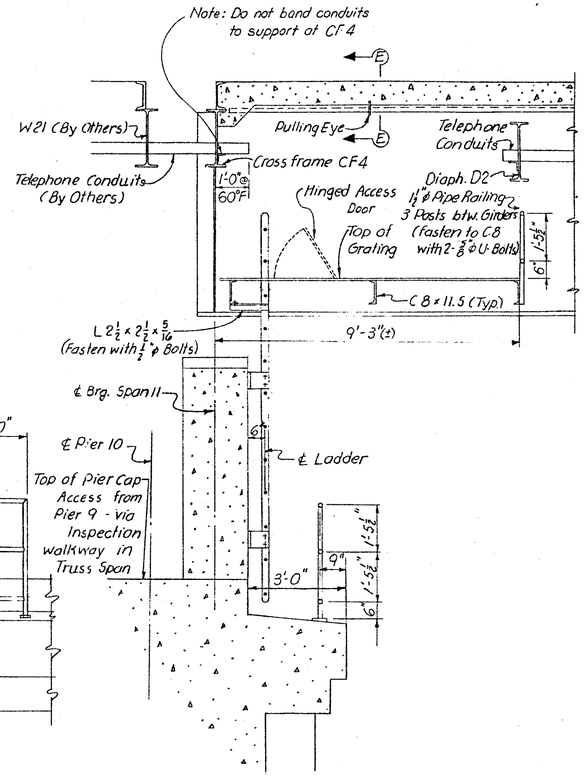


PLAN - PIER 10 WORKING PLATFORM

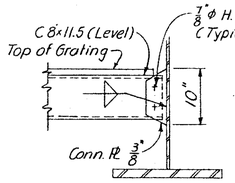
Note: For Section D-D See Sht. 92.



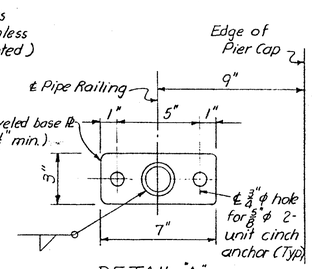
SECTION A-A



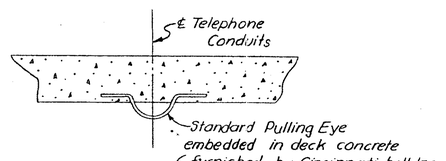
SECTION B-B



SECTION C-C
(Typical Web Connection)



DETAIL "A"
(Typical Post Anchorage)



SECTION E-E

DESIGNED BY RND DETAILED BY RND TRACED BY
CHECKED BY R. LIN CHECKED BY CHECKED BY
DATE 8-71 DATE DATE
REVISED REVISED

SHEET 91

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

BRIDGE OVER OHIO RIVER ON U.S. 25
KENTON COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

STATION | P.E. PROJECT NO. F 141 (1)

HAZELET & ERDAL Consulting Engineers File No. 918 | CONSTRUCTION PROJECT NO. | DRAWING NO. 18577

TELEPHONE CONDUIT DETAILS

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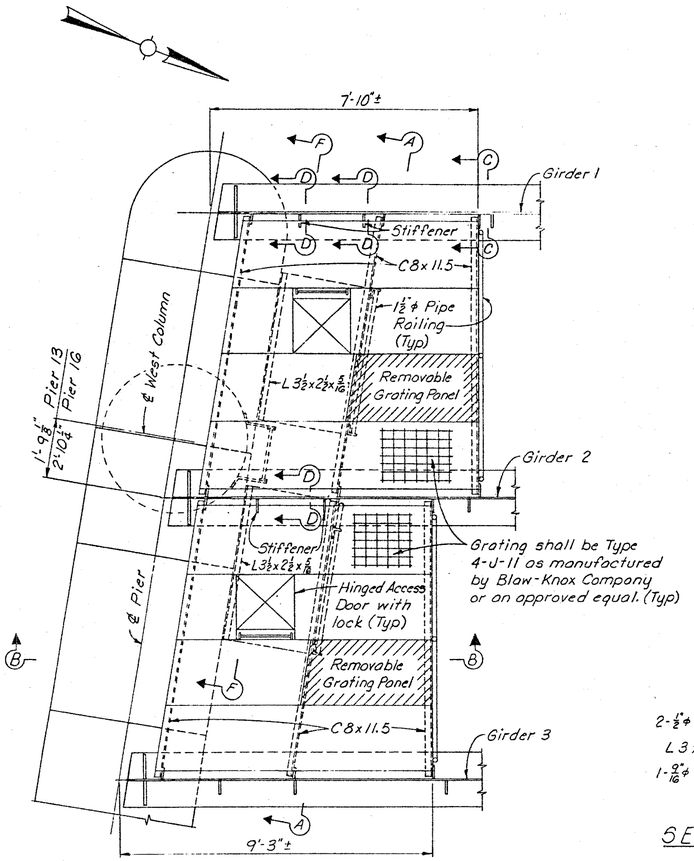
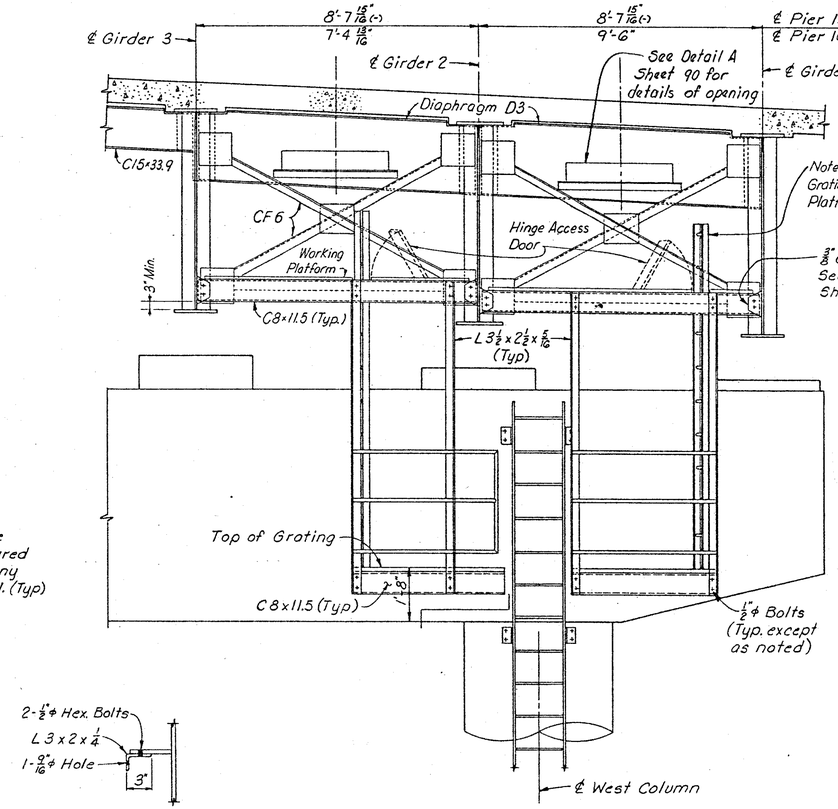
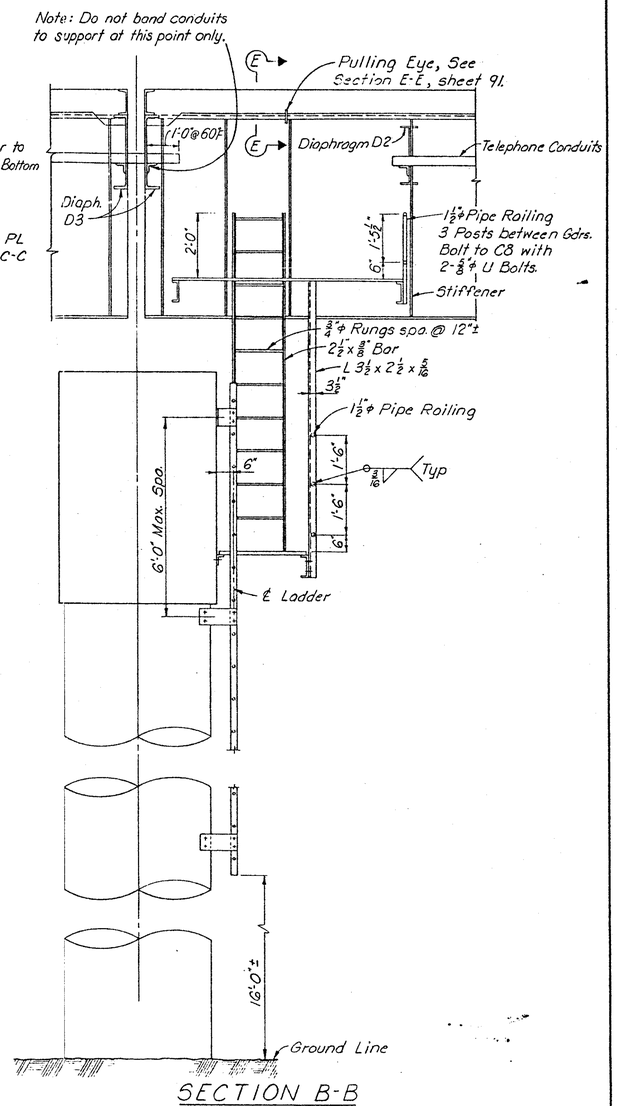


PLAN - WORKING PLATFORM

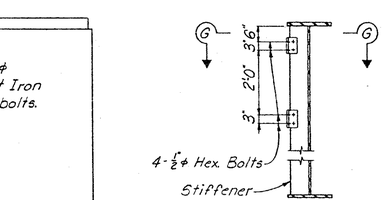
Pier 13 shown, Pier 16 similar



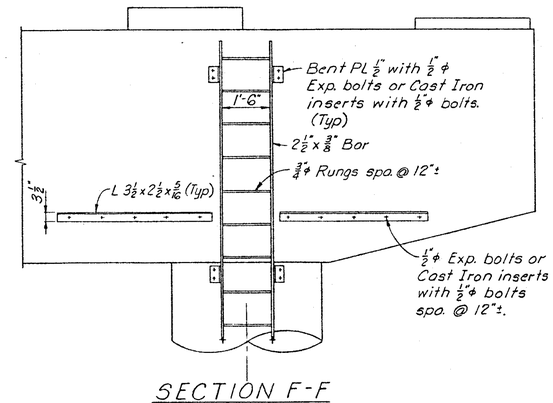
SECTION A-A



SECTION B-B



SECTION G-G



SECTION F-F

SECTION D-D

Cable Rack Support

DESIGNED BY	DATE	REVISED
DETAILED BY W.B.T. 6-16-71	CHECKED BY R. LIN 8-71	
TRACED BY	CHECKED BY	

SHEET 92

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

BRIDGE OVER OHIO RIVER ON U.S. 25

KENTON COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

STATION

P.E. PROJECT NO. F 141 (1)

HAZELET & ERDAL Consulting Engineers File No. 918	CONSTRUCTION PROJECT NO.	DRAWING NO. 18577

TELEPHONE CONDUIT DETAILS

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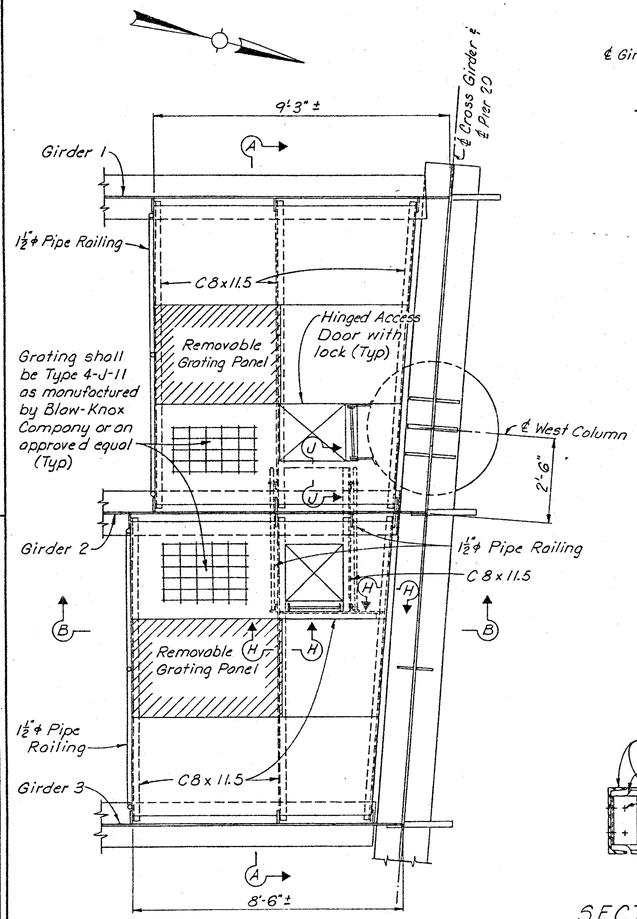
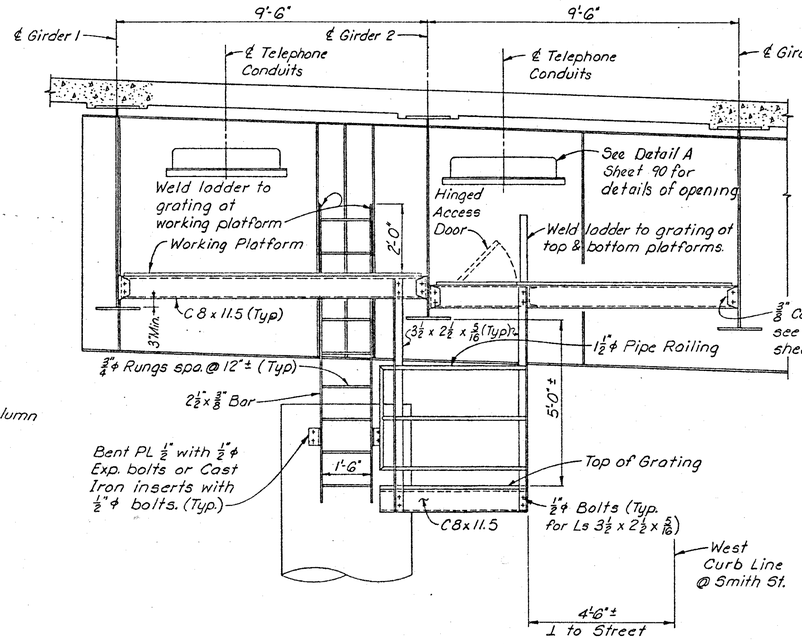
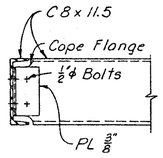


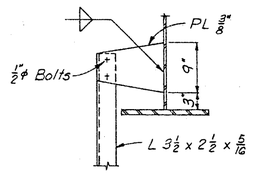
PLAN - PIER 20 - WORKING PLATFORM



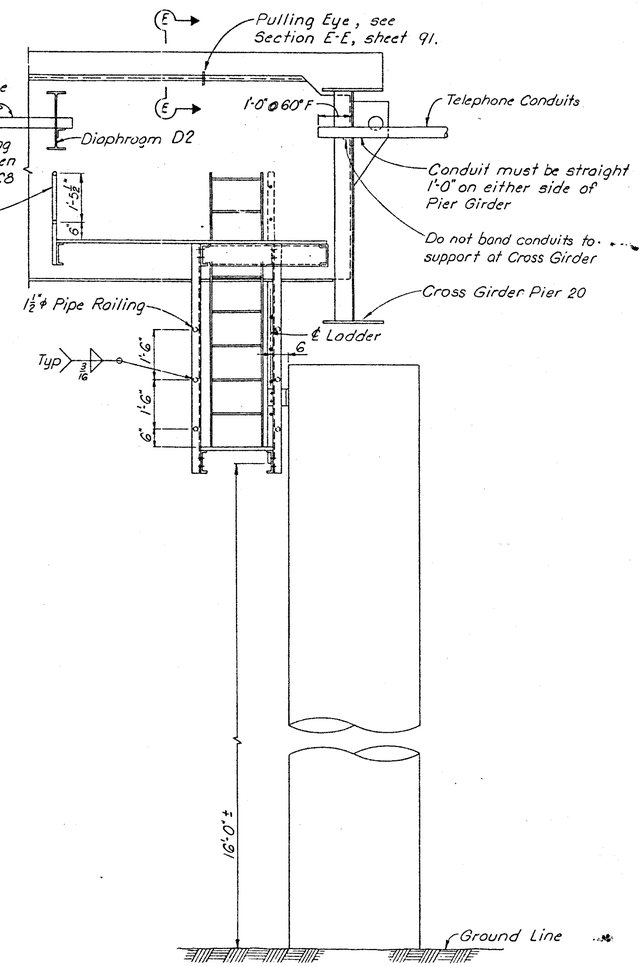
SECTION A-A



SECTION H-H



SECTION J-J



SECTION B-B

LIST OF MATERIALS FOR TELEPHONE CONDUIT		
ITEM	UNIT	AMOUNT
Structural Steel	Lbs.	* 53,600
4" I.D. Plastic Conduit	Lin. Ft.	16,800
1" Plastic Spacers	Each	496
Expansion Couplings	Each	120
¾" Stainless Steel Bonding	Lin. Ft.	3,055
* 6" Galvanized Steel Pipe	Lin. Ft.	24

* ASTM 53 - Schedule 40.

Quantities shown are approximate only and the Contractor shall furnish sufficient quantities of each item and equipment to complete the installation.
* The estimated weight of structural steel includes conduit supports, additional weight of diaphragms, service platforms, ladders, anchors and miscellaneous steelwork made necessary by installation of the telephone conduit.

DESIGNED BY
DETAILED BY W.R.T. DATE 8-71 REVISED
CHECKED BY R. LIN DATE REVISED
TRACED BY DATE REVISED

SHEET 93

KENTUCKY DEPARTMENT OF HIGHWAYS
OHIO DEPARTMENT OF HIGHWAYS

BRIDGE OVER OHIO RIVER ON U.S. 25
KENTON COUNTY, KENTUCKY
HAMILTON COUNTY, OHIO

STATION P.E. PROJECT NO. F 141 (1)

HAZELET & ERDAL Consulting Engineers File No. 918

CONSTRUCTION PROJECT NO.

DRAWING NO. 18577

TELEPHONE CONDUIT DETAILS

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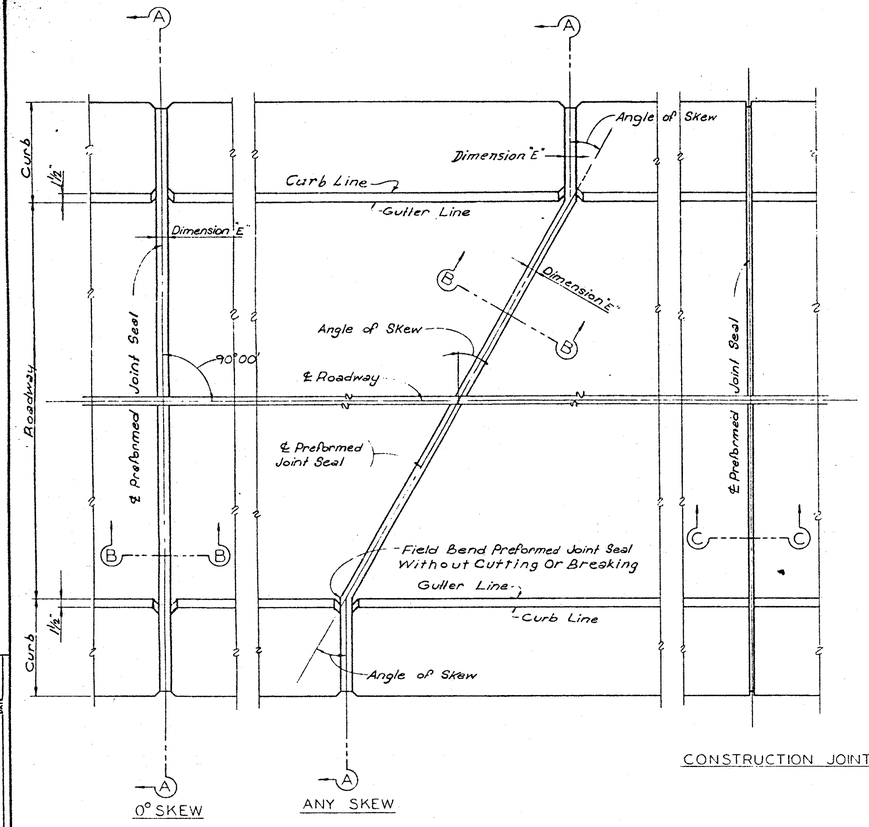
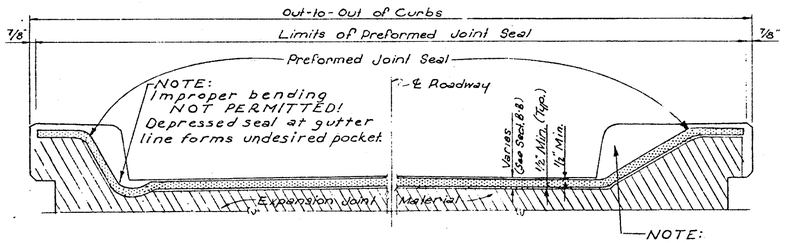
FED. ROAD DIST.	STATE	PROJ. APP. NO.	FISCAL YEAR	SHEET NO.
7	KY.			

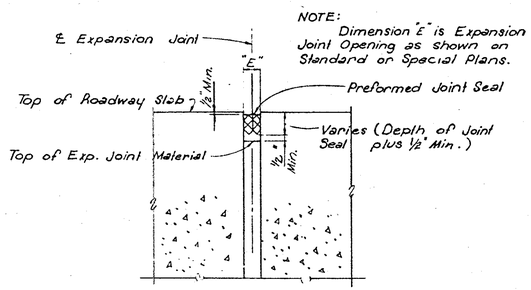


PART PLAN - EXPANSION JOINTS

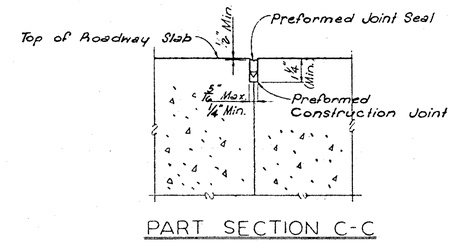


PART ELEVATION A-A

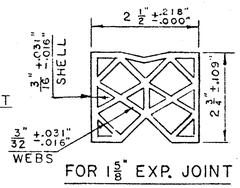
NOTE:
Allow extra depth into faces of curb for bending radius of preformed seal without cutting or breaking preformed seal.



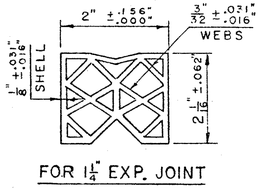
PART SECTION B-B



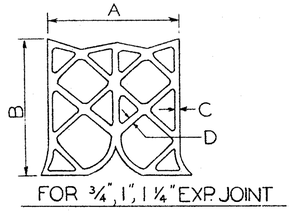
PART SECTION C-C



FOR 1⅝" EXP. JOINT

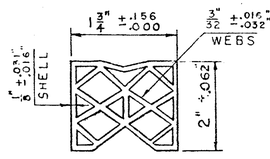


FOR 1¼" EXP. JOINT

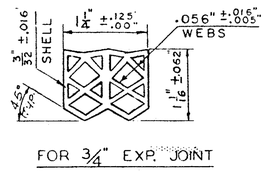


FOR ¾", 1", 1¼" EXP. JOINT

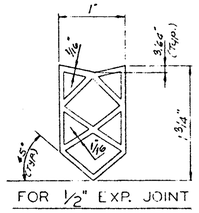
ALTERNATE PERMISSABLE JOINT SEAL TYPES



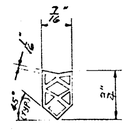
FOR 1" EXP. JOINT



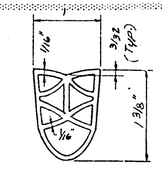
FOR ¾" EXP. JOINT



FOR ½" EXP. JOINT



FOR ¼" CONST. JOINT



FOR ½" EXP. JOINT

CROSS SECTION DETAILS OF PREFORMED JOINT SEAL SHAPES

GENERAL NOTE

SPECIFICATIONS: The Kentucky Department of Highways Standard Specifications, current edition with revisions.

JOINT TREATMENT: All joints shall be sealed with Preformed Compression Joint Seal as set forth in the Special Provision for this Material. The Special Provision governs material requirements, sampling and testing, joint preparation, application, measurement and payment. If the joint as constructed has been widened in excess of the required width, the thickness of seal used shall be increased in thickness at the direction of the Engineer.

APPROVAL OF JOINT SEALS: Approved shapes and sizes of joint seals are shown hereon. Other joint seal shapes may be used only after they have been approved by one of the procedures listed in the Special Provision for Preformed Compression Joint Seals.

FORMING SEAL SPACE AT TOP OF JOINT: Top edges of concrete shall not be rounded. To obtain sharply defined joint edges employ, at top of joint, a dummy form smoothly finished on all sides and oiled for ease of removal.

VERTICAL FACES FOR SEAL SHAPES: Outside vertical faces of joint seal shapes must be parallel unless otherwise approved by the Kentucky Department of Highways Material Testing Labortory.

TYPE OF JOINT	SIZE	SEAL WIDTH	A	B	C	D
EXP.	¾"	1¼"	$1\frac{1}{4}\ ^{+\frac{1}{8}}_{-0}$	$1\frac{1}{4} \pm \frac{1}{8}$	$\frac{1}{16}\ ^{+\frac{1}{32}}_{-\frac{1}{64}}$	C
EXP.	1"	1¾"	$1\frac{3}{4}\ ^{+\frac{5}{32}}_{-0}$	$1\frac{3}{4} \pm \frac{1}{8}$	$\frac{5}{64}\ ^{+\frac{1}{32}}_{-\frac{1}{64}}$	C
EXP.	1¼"	2"	$2\ ^{+\frac{5}{32}}_{-0}$	$2 \pm \frac{1}{8}$	$\frac{3}{32}\ ^{+\frac{1}{32}}_{-\frac{1}{64}}$	C

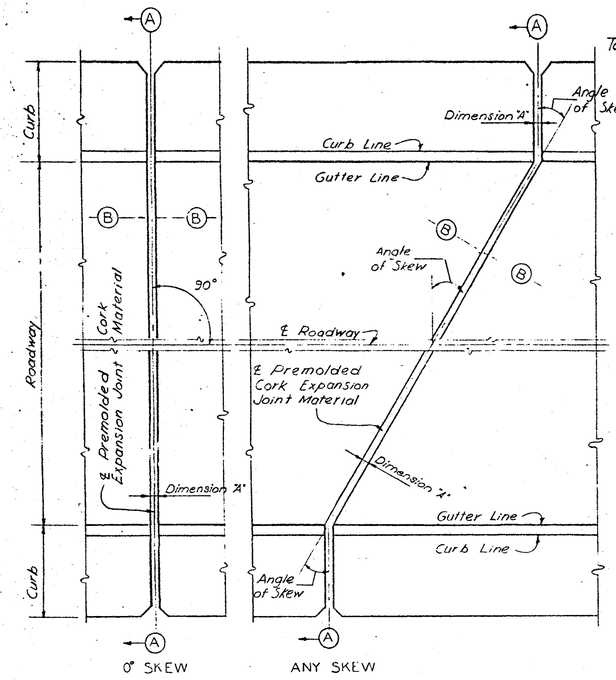
COMMONWEALTH OF KENTUCKY
DEPARTMENT OF HIGHWAYS
FRANKFORT

PREFORMED JOINT SEAL DETAILS FOR CONCRETE BRIDGE FLOOR

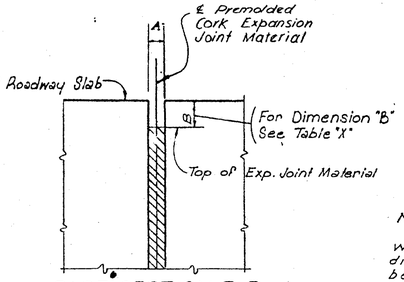
APPROVED _____ STANDARD NO. G35-11

Approved by D. L. Gr... 4/62

DESIGNED BY ____ DATE ____ REVISED
DRAWN BY ____ DATE ____ REVISED
CHECKED BY ____ DATE ____ REVISED
TRACED BY S. Holmes DATE ____ CHECKED BY ____



PART PLAN – EXPANSION JOINTS



PART SECTION B–B

* Dimension "A" is Expansion Joint opening as shown on standard or special plans. This dimension is to be used as thickness of Premolded Cork Expansion Joint Material.

TABLE "X"	
Joint Size	"B"
1/2"	2 1/2"
3/4"	1 13/16"
1"	2 1/16"

Note:
When working this drawing with Standard Drawing G-353, dimension "B" at vertical faces of Curbs is be increased to allow for bending radius of preformed Seal.

GENERAL NOTE

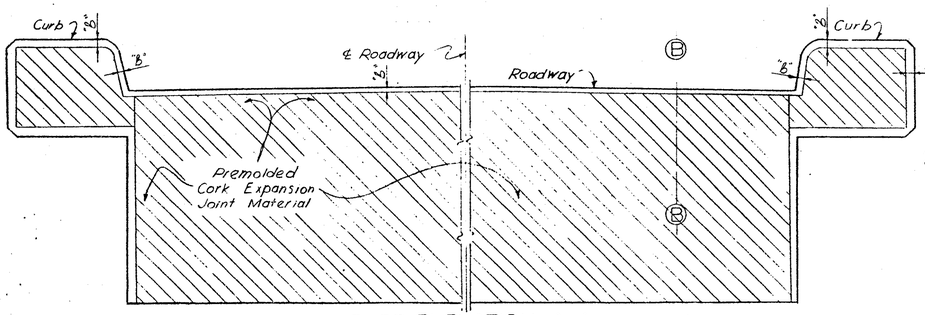
SPECIFICATIONS: The Kentucky Department of Highways Standard Specifications, current edition, with Supplements.

CONSTRUCTION NOTE: This drawing is to be used in conjunction with standard or special plans for concrete floors on bridges when so noted on the standard or special plans. The joint between the spans shall have the premolded cork filler so placed as to prevent contact of concrete between spans and to provide the full width of joint shown on plans. The premolded cork filler shall be accurately placed and rigidly held in correct position. The cork filler on the roadway and curbs shall be trimmed or placed below the concrete surface a distance equal to dimension "B" as shown in Table "X". Joint shall be sealed as required on plans.

No direct payment will be made for material or installation of cork filler. The cost of material and installation shall be included in the unit price bid for Class "A" Concrete.

PREMOLDED CORK EXPANSION JOINT MATERIAL: Premolded cork filler shall conform to A.S.T.M. Specification D1752-60T, Type II.

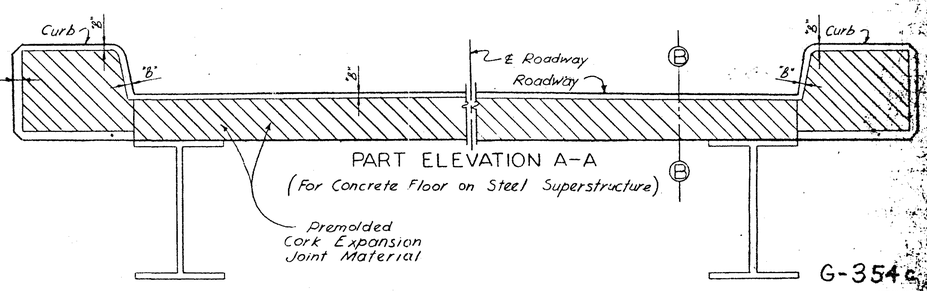
FORMING SEALER SPACE AT TOP OF JOINT: Top edges of concrete shall not be rounded. To obtain sharply defined joint edges employ, at top of joint, a dummy form smoothly finished on all sides and oiled for ease of removal.



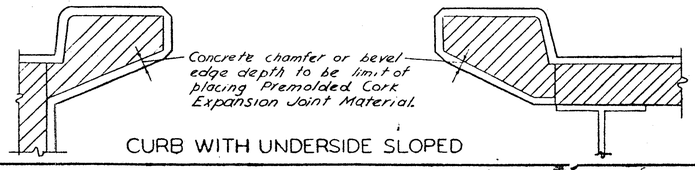
PART ELEVATION A–A
(For Concrete Deck Girder Span)

Premolded Cork Expansion Joint Material of the thickness shown on plans to be used in joint over area shown as shaded above. Joint to be left open in unshaded areas not required to be sealed.

Concrete chamfer or bevel edge depth to be limit of placing Premolded Cork Expansion Joint Material. Allow extra depth when preformed seal is being used.



PART ELEVATION A–A
(For Concrete Floor on Steel Superstructure)



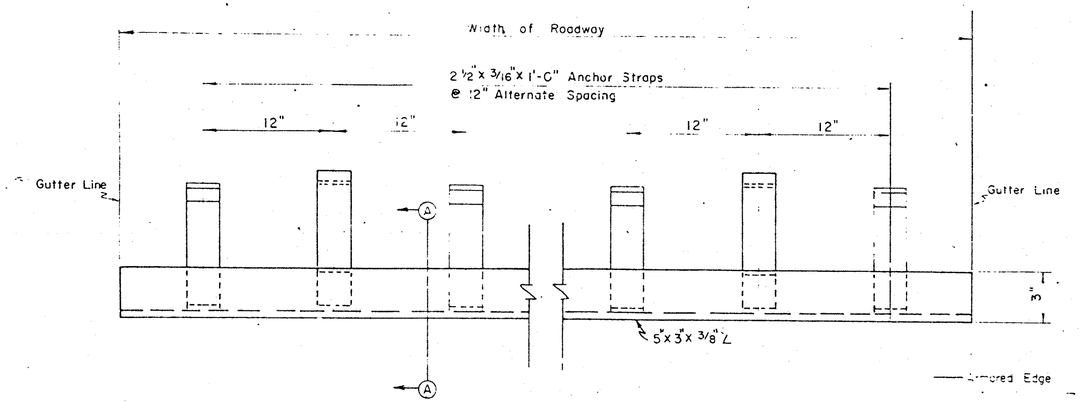
CURB WITH UNDERSIDE SLOPED

G-354c

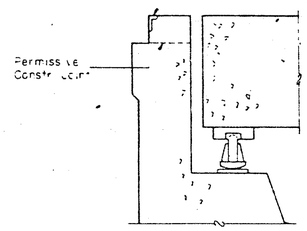
COMMONWEALTH OF KENTUCKY
DEPARTMENT OF HIGHWAYS
FRANKFORT

PREMOLDED CORK EXPANSION JOINT MATERIAL DETAILS FOR CONCRETE BRIDGE FLOORS

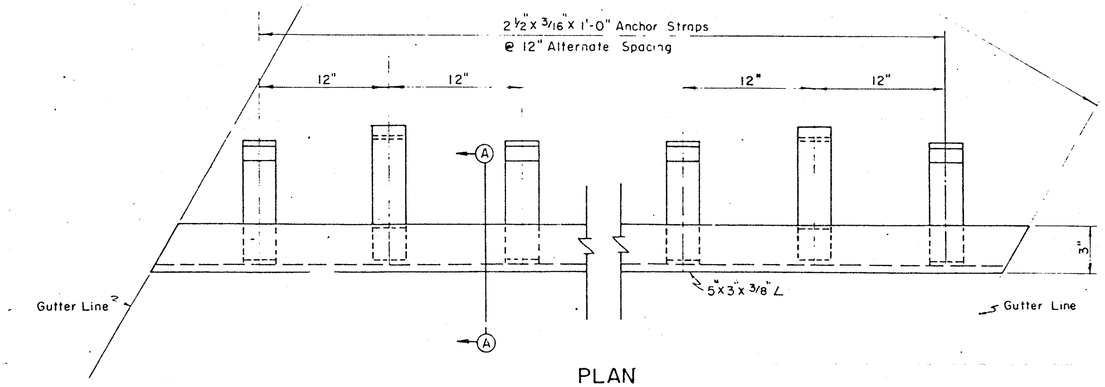
APPROVED



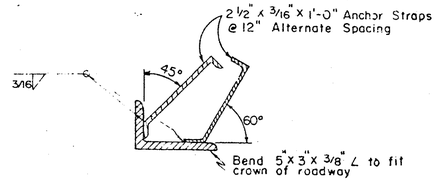
PLAN
(FOR STRAIGHT BRIDGE)



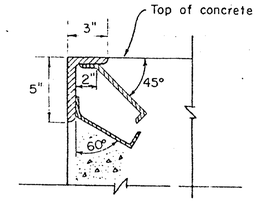
CROSS SECTION OF ARMORED EDGE AT ABUTMENT



PLAN
(FOR SKEWED BRIDGE)



SECTION A-A



TYPICAL SECTION

GENERAL NOTE

SPECIFICATIONS: Kentucky Department of Highways Current Specifications with revisions.

PAINT: All structural steel shown on this sheet shall be cleaned and painted in accordance with the Special Provision for Blast Cleaning and Painting.

WELDING SPECIFICATIONS: All welding materials, welding techiques and welding procedure shall comply with American Welding Society Standard Specifications for Welding Highway and Railway Bridges, Current Edition.

WELDING AND WELDING MATERIAL: The cost of welding, welding material and labor to be included in the lump sum bid for structural steel. No direct payment will be made for welding and welding material.

MILL TEST REPORTS: Notarized statements in triplicate shall be furnished the Department of Highways showing that all structural steel furnished meets the specifications.

SHOP DETAIL PLANS: The contractor shall submit shop detail plans for approval prior to fabrication in accordance with plans and specifications.

ANCHOR STRAPS: When armored edge is used in conjunction with expansion dam, the location of 2 ½" x 3/16" x 1'-0" anchor straps should be spaced not to interfere with anchor straps located on expansion dam.

MATERIAL SPECIFICATION: Steel material shall conform to A S T M designation A 36.

PAYMENT: The cost of furnishing and placing armored edge shall be included in the lump sum bid for Structural Steel.

LOCATION: The location of armored edge shall be shown on the detail plans.

WEIGHT: Weight per foot of assembly = 11.39 lbs.

APPROVED [signature] DIRECTOR DIV. OF BRIDGES — REVIEWED BY [signature] ASST. STATE HIGHWAY ENGINEER

DESIGNED BY — CHECKED BY — DATE 6/67 — REVISED — UPDATED — DATE 2-68

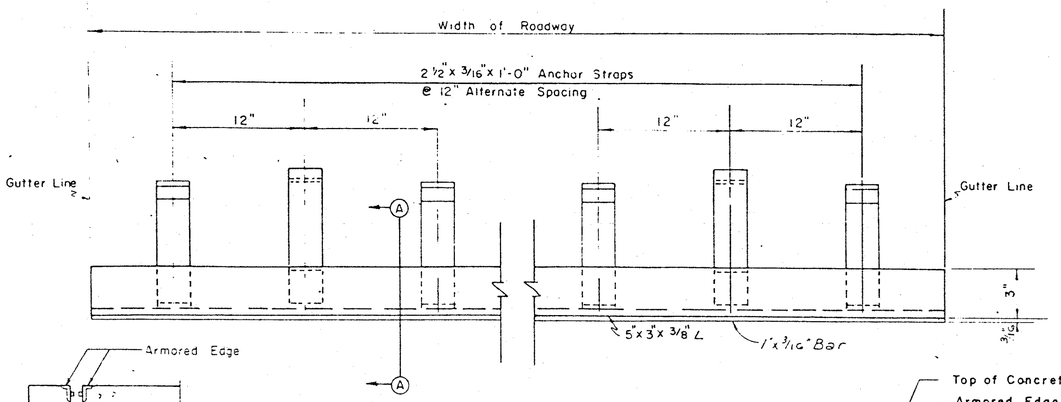
DETAILED BY S. MC/A.S.D. — CHECKED BY — DATE — REVISED — DATE

TRACED BY — CHECKED BY — DATE — REVISED — DATE

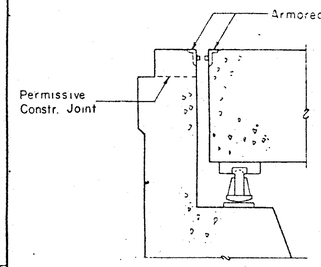
COMMONWEALTH OF KENTUCKY
DEPARTMENT OF HIGHWAYS
FRANKFORT

STANDARD ARMORED EDGE FOR CONCRETE

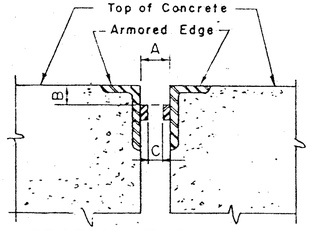
APPROVED [signature] STATE HIGHWAY ENGINEER | DRAWING NO. AEI-D | DATE 3-3-70



PLAN
(FOR STRAIGHT BRIDGE)

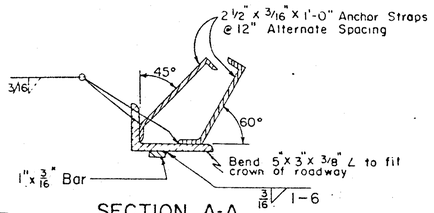


CROSS SECTION OF ARMORED
EDGE AT ABUTMENT

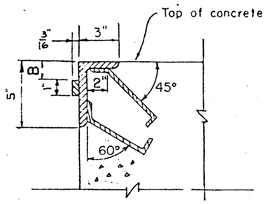


SECTION THRU JOINT

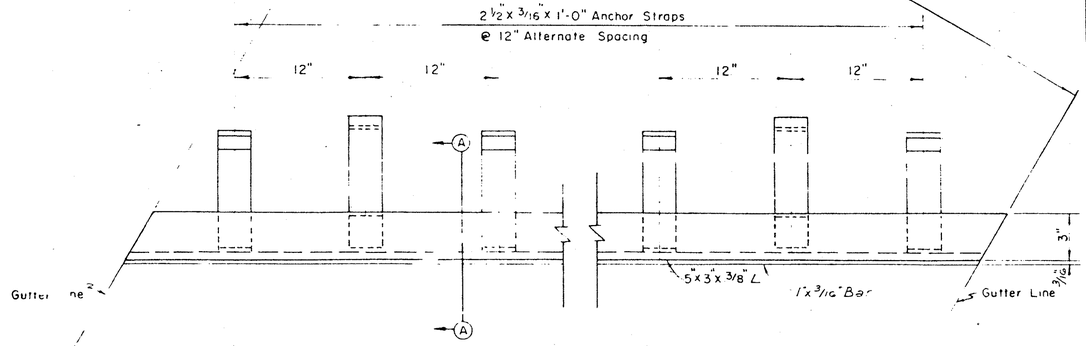
Joint Size		
A	B	C
¾"	1 7/8"	⅜"
1"	2 ⅛"	½"
1¼"	2 ¾"	⅞"
1⅝"	3 ⅜"	1¼"



SECTION A-A



TYPICAL SECTION



PLAN
(FOR SKEWED BRIDGE)

GENERAL NOTE

SPECIFICATIONS: Kentucky Department of Highways Current Specifications with revisions.

PAINT: All structural steel shown on this sheet shall be cleaned and painted in accordance with the Special Provision for Blast Cleaning and Painting.

WELDING SPECIFICATIONS: All welding materials, welding techniques and welding procedure shall comply with American Welding - Society Standard Specifications for Welding Highway and Railway Bridges, Current Edition.

WELDING AND WELDING MATERIAL: The cost of welding, welding material and labor to be included in the lump sum bid for structural steel. No direct payment will be made for welding and welding material.

MILL TEST REPORTS: Notarized statements in triplicate shall be furnished the Department of Highways showing that all structural steel furnished meets the specifications.

SHOP DETAIL PLANS: The contractor shall submit shop detail plans for approval prior to fabrication in accordance with specifications.

ANCHOR STRAPS: When armored edge is used in conjunction with expansion dam, the location of 2 ½" x 3/16" x 1'-0" anchor straps should be spaced not to interfere with anchor straps located on expansion dam.

MATERIAL SPECIFICATION: Steel material shall conform to ASTM designation A36.

PAYMENT: The cost of furnishing and placing armored edge shall be included in the lump sum bid for Structural Steel.

LOCATION: The location of armored edge shall be shown on the detail plans.

WEIGHT: Weight per foot of assembly = 12.03 lbs.

JOINT SIZE: This drawing to be used only with Joints ¾" or larger.

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
KY			

DESIGNED BY — DATE
DETAILED BY — DATE
TRACED BY — DATE
CHECKED BY — DATE
CHECKED BY — DATE
REVISED — DATE
REVISED — DATE
REVISED — DATE
UPDATED — DATE 5-68
DIVISION ENGINEER

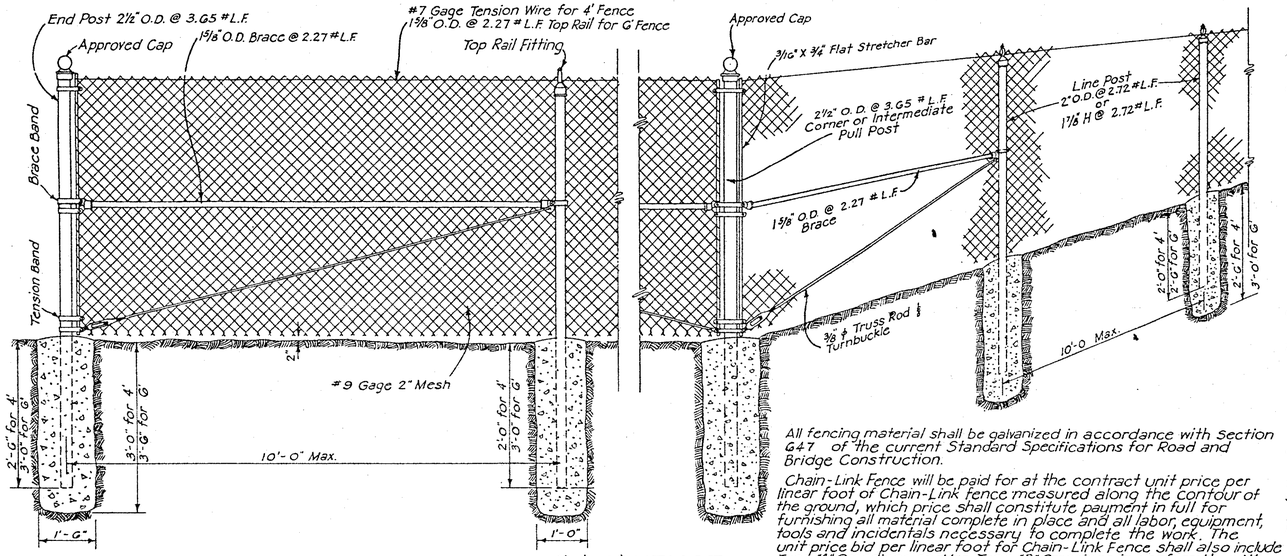
COMMONWEALTH OF KENTUCKY
DEPARTMENT OF HIGHWAYS
FRANKFORT

STANDARD ARMORED EDGE FOR JOINTS IN CONCRETE

APPROVED A. O. Pierce
STATE HIGHWAY ENGINEER

DRAWING NO. AE2-D

DATE 3-3-70



4' & 6' FENCE

All fencing material shall be galvanized in accordance with Section 647 of the current Standard Specifications for Road and Bridge Construction.

Chain-Link Fence will be paid for at the contract unit price per linear foot of Chain-Link fence measured along the contour of the ground, which price shall constitute payment in full for furnishing all material complete in place and all labor, equipment, tools and incidentals necessary to complete the work. The unit price bid per linear foot for Chain-Link Fence shall also include Type "A" Crossings and/or Type "B" Crossings in conformity with "Standard Drawing No. 17.02", when and where ordered on construction by the Engineer.

-NOTES-

Fabric used in Chain-Link Fence shall be No. 9 Gage 2" Mesh as set out in AASHO Specification M181 unless otherwise specified on the plans or in the proposal. See Section 647 of the current Specifications.

When Chain-Link Fence is constructed as Right-of-Way Fence it shall be installed parallel to and 2" inside the Right-of-Way Line.

All pipe sizes shown are nominal and weights indicated are subject to an allowable tolerance of 5 per cent.

All posts shall be set in concrete to the dimensions as indicated on this drawing.

The 4' and 6' Fence shall have the top selvages knuckled and bottom selvages twisted and barbed. The 8' and greater fence shall have both top and bottom selvages twisted and barbed.

The number of Tension Bands required per post shall be one less than height of fence measured in feet.

Fabric Ties shall be No. 9 gage Aluminum or No. 11 gage Galvanized Steel as noted in Section 647.

Tie wires on Tension Wire and Top Rail shall be spaced 24 inches on centers.

Tie wires on Intermediate or Line Posts shall be spaced 14 inches on centers.

Tie wires on Gates shall be spaced 12 inches on centers.

Chain-Link Fence installed around Utility Installations shall face the Highway and the Barb Wire Arm shall be at a 45° angle extending toward the highway.

A 1⅝" O.D. @ 2.27 #L.F. Bottom Rail shall be required around all Utility Installations and at other locations designated by the Engineer.

All concrete used in Chain-Link Fence installations shall be Class "B" except where noted.

Brace Bands shall be ⅛" X ⅞" material, as noted in Section 647, with ⅝" X 1¼" Carriage Bolts.

Post caps and socket type brace end connections shall be as noted in Section 647. They shall be designed in a manner to exclude moisture from inside posts and rails.

The method of connection at cross roads, cattle crossings and culverts shall be as shown on the plans and as detailed on Standard Drawing 17.02.

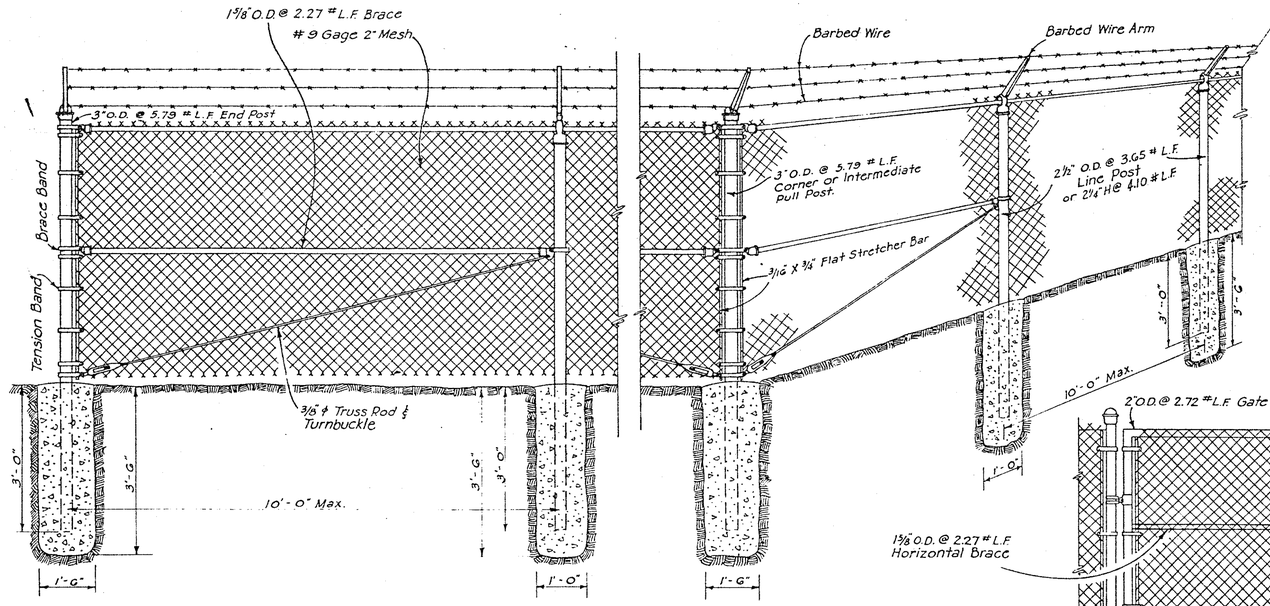
Vehicular, Pedestrian and Water Gates shall be machined notched, and electrically welded so as to be rigid and water tight. All joints shall be cleaned and painted with two (2) coats of aluminum paint. Vehicular and Pedestrian Gates shall be fitted with galvanized malleable iron ball and socket hinges and a padlock latching device.

Water Gates shall be constructed in conformity with the details and dimensions shown on Standard Drawing No. 17.01d with the exception that the fabric shall be chain link as specified herein.

Vehicular Gates, Pedestrian Gates, and Water Gates will be paid for at the contract unit price per each, which price shall be payment in full for furnishing the gates, including all necessary fittings and hardware for satisfactory installation of the gates complete and in place. The Contractor is not to order gates of any type until their necessity and location have been certified by the Engineer.

(Posts set in rock) When solid rock is encountered, a hole 12 inches deep and slightly larger than the O.D. of the post or brace shall be drilled in the rock, and the posts grouted in. All excavation above rock, below grade, shall be backfilled in 4 and 6 inch layers, each layer thoroughly tamped in place. The posts and braces shall be field cut to fit maximum depth whenever solid rock is encountered. No seperate payment will be allowed for drilling, excavation or backfilling in connection therewith when solid rock is encountered, but all cost thereof shall be included in the prices bid for the various fence items scheduled in the proposal.

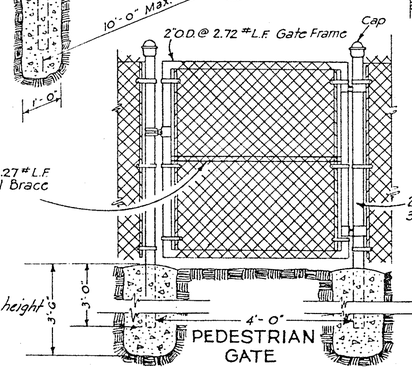
Fence shall be installed facing the property owner except on horizontal curves when the fence shall be installed so as to pull against all posts. Sufficient tension shall be applied between pull posts so as to make fence stock-tight. Pull posts shall be installed at all P.C. and P.T. of Curves and at all other breaks in horizontal alignment. Curves up to 1° pull posts shall be spaced a maximum of 500 feet on centers; curves 1° to 3° shall have the pull posts spaced 250 feet on centers; and curves over 3° shall have pull post installed wherever the angle of deflection exceeds 5°. Pull posts shall be installed at sharp breaks in vertical alignment as shown on Standard Drawing No. 17.02 and approximately 500 feet centers on straight runs.



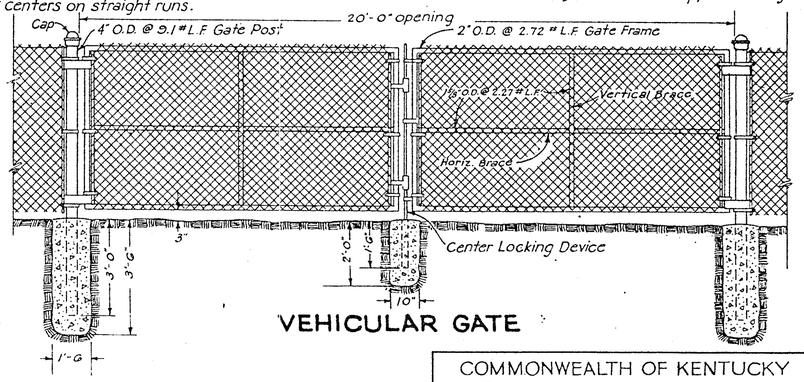
8' TO 12' FENCE

Fabric heights for the various heights of fence shall be as follows:

4' Fence - 4' Fabric height	9' Fence - 8' Fabric height	12' Fence - 11' Fabric height
6' Fence - 6' Fabric height	10' Fence - 9' Fabric height	
8' Fence - 7' Fabric height	11' Fence - 10' Fabric height	



PEDESTRIAN GATE



VEHICULAR GATE

COMMONWEALTH OF KENTUCKY
DEPARTMENT OF HIGHWAYS

CHAIN LINK RIGHT-OF-WAY FENCE

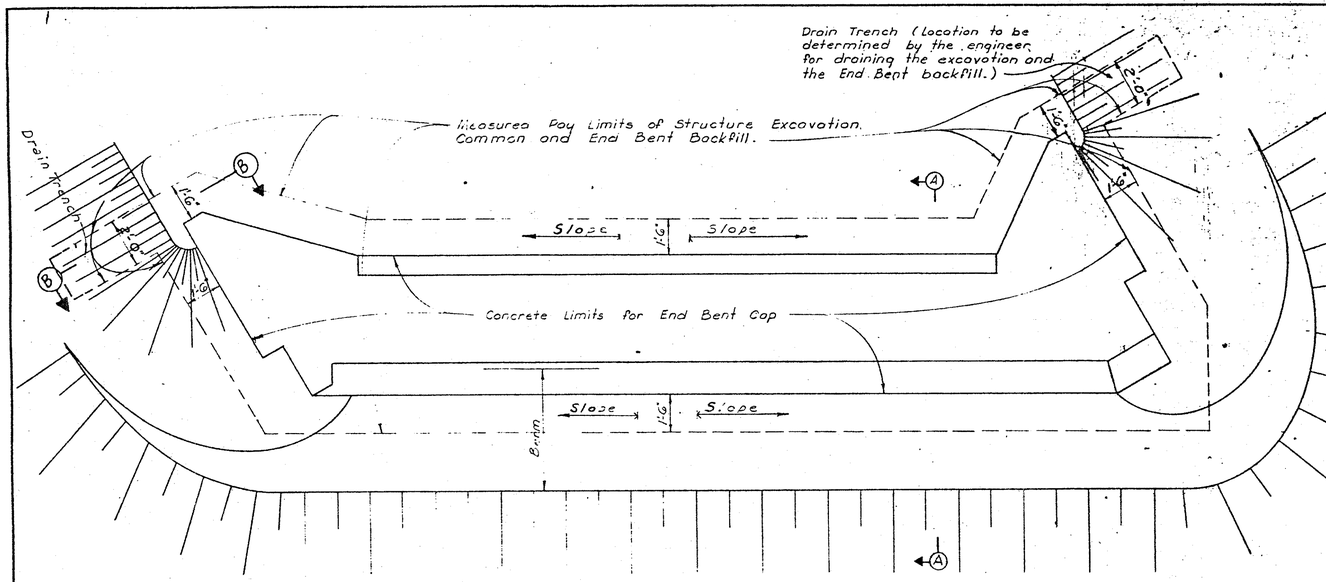
DATE
9-17-58
7-15-65
11-1-65

STANDARD DRAWING NO. 17.08b

APPROVED _____
STATE HIGHWAY ENGINEER

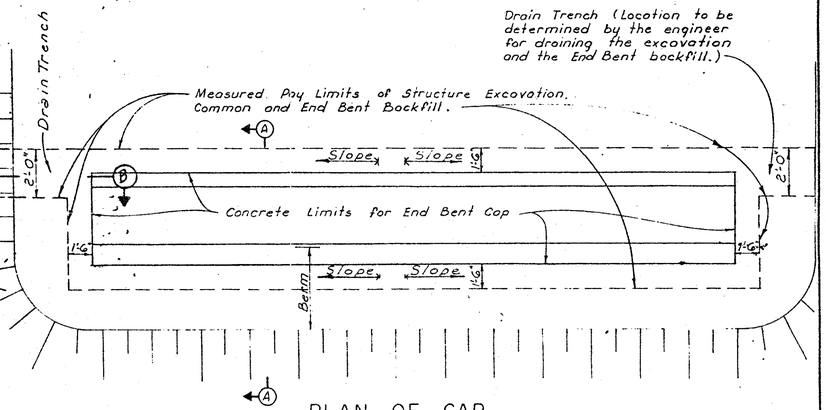
P.W.&T.D.C.-F.J.S.

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



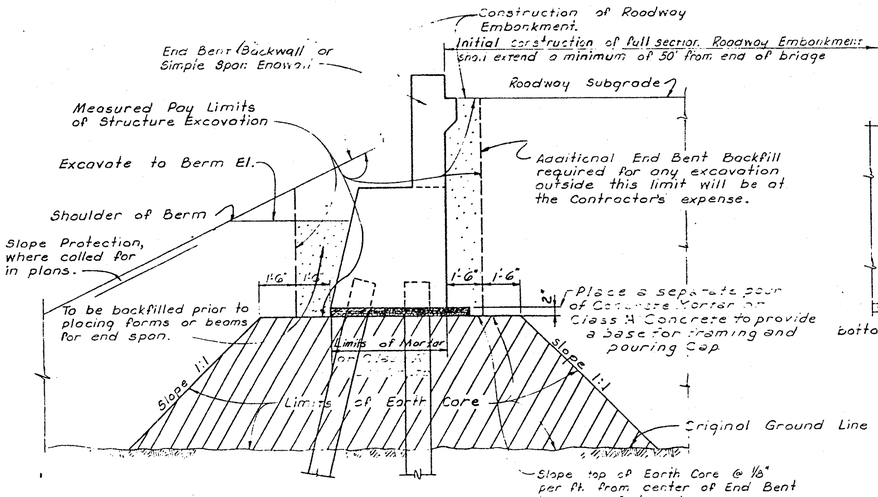
PLAN OF CAP

Showing End Bent with Wings and Backfill

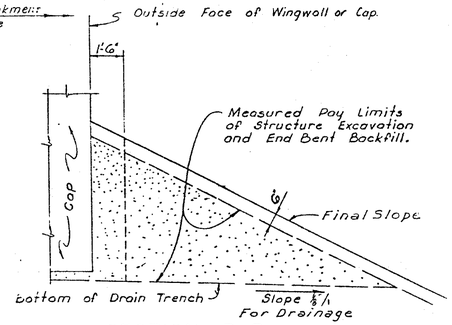


PLAN OF CAP

Showing End Bent Cap without Wings



SECTION A-A



SECTION B-B

NOTE: THE EARTH CORE, IN ADDITION TO MEETING THE REQUIREMENTS FOR EMBANKMENT MATERIALS IN ACCORDANCE WITH THE SPECIFICATIONS, SHALL BE FREE OF BOULDERS OR ANY OTHER OBSTRUCTION WHICH WOULD INTERFERE WITH THE DRIVING OF PILES. THIS MATERIAL SHALL BE OBTAINED FROM WITHIN THE LIMITS OF THE RIGHT-OF-WAY AND PAID FOR AT THE CONTRACT UNIT PRICE PER CUBIC YARD BID FOR "ROADWAY EXCAVATION". IF NOT AVAILABLE WITHIN THE LIMITS OF THE RIGHT-OF-WAY IT SHALL BE OBTAINED OFF THE RIGHT-OF-WAY FROM SITES ACQUIRED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER. PAYMENT FOR BORROW MATERIAL SHALL BE AT THE CONTRACT UNIT PRICE PER CUBIC YARD BID FOR "BORROW EXCAVATION". NO DIRECT PAYMENT WILL BE ALLOWED FOR OVERHAUL OF BORROW MATERIAL OR FOR NECESSARY MANIPULATION, INCLUDING DOUBLE HANDLING.

NOTES

MATERIALS: END BENT BACKFILL : END BENT BACKFILL MATERIAL SHALL CONSIST OF NATURAL SAND, CONCRETE SAND, OR DENSE GRADED AGGREGATE MEETING REQUIREMENTS OF THE SPECIFICATIONS; OR SAND, CRUSHED OR UNCRUSHED GRAVEL, CRUSHED LIMESTONE, CRUSHED SANDSTONE, CRUSHED SLAG OR A COMBINATION THEREOF, MEETING THE FOLLOWING REQUIREMENTS:

GRADATION	SIEVE SIZE	PERCENT PASSING
	3½ INCH	100
	1½ INCH	50-90
	3/8 INCH	20-40

SOUNDNESS ____ PERCENTAGE LOSS AFTER SUBJECTION TO FIVE ALTERNATIONS OF THE SODIUM SULFATE SOUNDNESS TEST, NOT MORE THAN 20.
WEAR ____ PERCENT, NOT MORE THAN 50.
SHALE ____ PERCENT, NOT MORE THAN 5.
DIRT ____ PERCENT, NOT MORE THAN 5.

CONSTRUCTION METHODS: ROADWAY EMBANKMENT AT END BENTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE SPECIFICATIONS FOR "EXTRA COMPACTION" TO THE ROADWAY SUBGRADE ELEVATION FOR FULL EMBANKMENT SECTION. EXTENDING A MINIMUM OF 50 FT. FROM THE END OF THE BRIDGE. AFTER THE EMBANKMENT HAS BEEN CONSTRUCTED, EXCAVATE TO 2" BELOW THE BOTTOM OF BENT CAP. ELEVATION WITHIN THE LIMITS INDICATED BEFORE DRIVING PILES. AFTER PILES ARE DRIVEN (SEE GENERAL NOTES) SLOPE BOTTOM OF EXCAVATION TOWARDS ENDS OF TRENCH AS NOTED FOR DRAINAGE. PLACE A SEPARATE POUR OF CONCRETE MORTAR OR CLASS A CONCRETE TO PROVIDE A BASE FOR FORMING AND POURING CAP. SIDE FORMS FOR END BENT MAY BE PLACED AS SOON AS MORTAR HAS SET SUFFICIENTLY TO SUPPORT WORKMAN AND FORMS WITHOUT BEING DISTURBED. AFTER CONCRETE CAP HAS BEEN PLACED THE EXCAVATION SHALL BE FILLED WITH "END BENT BACKFILL" MATERIAL NOTED ABOVE TO LEVEL OF THE BERM PRIOR TO PLACING BEAMS FOR THE BRIDGE. AFTER END BENT BACKWALL HAS BEEN COMPLETED, OR AFTER R.C. SPAN ENDWALL HAS BEEN COMPLETED. THE "END BENT BACKFILL" SHALL BE PLACED UP TO THE SUBGRADE ELEVATION.
IF THE ORIGINAL EXCAVATION HAS BEEN ENLARGED BEYOND THE LIMITS SHOWN, THE ENTIRE EXCAVATION, REGARDLESS OF THE LIMITS, SHALL BE BACKFILLED WITH THE END BENT BACKFILL MATERIAL.
IN NO EVENT SHALL BACKFILL BE PLACED BEFORE REMOVAL OF ADJACENT FORMWORK.
END BENT BACKFILL SHALL BE PLACED IN DRAINAGE TRENCHES AT ENDS OF THE EXCAVATION TO EMBANKMENT SIDE SLOPES, AS SHOWN IN SECTION B B. THE BACKFILL SHALL BE TAMPED BY HAND TAMPERS, PNEUMATIC TAMPERS, OR OTHER MEANS APPROVED BY THE ENGINEER. CARE SHALL BE EXERCISED TO THOROUGHLY COMPACT THE BACKFILL UNDER THE HAUNCHES OF THE STRUCTURE TO INSURE THAT THE BACKFILL IS IN INTIMATE CONTACT WITH THE SIDES OF THE STRUCTURE. THE DENSITY OF THE BACKFILL SHALL BE AT LEAST EQUAL TO THAT REQUIRED FOR THE ADJACENT EMBANKMENT.

MEASUREMENT AND PAYMENT: EXCAVATION FOR THE PILE END BENT SHALL BE MEASURED AS SHOWN IN "PLAN" AND "SECTION" AND WILL BE PAID FOR AS "STRUCTURE EXCAVATION, COMMON" IN ACCORDANCE WITH THE SPECIFICATIONS. PAY LIMITS FOR STRUCTURE EXCAVATION SHALL SERVE AS LIMITS FOR DETERMINING QUANTITY FOR PAYMENT FOR "END BENT BACKFILL" WHICH QUANTITY SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE PER CUBIC YARD BID FOR "END BENT BACKFILL", EXCEPT THAT THE VOLUME OF CONCRETE END BENT CAP AND VOID DIRECTLY ABOVE THE BERM AND END BENT CAP SHALL BE DEDUCTED FROM THE MEASUREMENT FOR "STRUCTURE EXCAVATION" TO ESTABLISH THE QUANTITY FOR PAYMENT FOR "END BENT BACKFILL". CLASS "A" CONCRETE OR MORTAR PLACED UNDER THE END BENT CAP WILL NOT BE PAID FOR SEPARATELY AND SHALL BE INCIDENTAL TO AND INCLUDED IN THE UNIT PRICE BID FOR CLASS "A" CONCRETE.

END BENT BACKFILL AND EARTH CORE

APPROVED BY: Earlon J. Lee DIRECTOR DIV. OF BRIDGES
REVIEWED BY: L.A. Slate ASST. STATE HIGHWAY ENGINEER 7/9/69
DESIGNED BY: ____ DATE: ____ REVISED: ____ DATE: ____
CHECKED BY: G.F. Kanaat DATE: 11/64 REVISED: Incidental notes & C.M. 4-11-69 DATE: 3/69
DETAILED BY: V.E.T. & G.E.S. DATE: 9/64 REVISED: ____ DATE: ____
TRACED BY: ____ CHECKED BY: ____ DATE: ____ REVISED: ____ DATE: ____

COMMONWEALTH OF KENTUCKY
DEPARTMENT OF HIGHWAYS
FRANKFORT

STANDARD DETAILS FOR PLACING END BENT BACKFILL AND EARTH CORE

APPROVED A.D. Wilson STATE HIGHWAY ENGINEER | DRAWING NO. SF2B | DATE 7-14-69

SPECIFICATION. The Kentucky Department of Highways Standard Specifications for Road and Bridge Construction, current edition with Revisions, shall apply to this project.

WELDING SPECIFICATIONS: Welding, welders, welding material, and welding procedure shall comply with the American Welding Society Specifications for Welded Highway and Railway Bridges, AWS D2.0-69 edition, with paragraph modifications and additions hereinafter listed.

SECTION 1 – GENERAL PROVISIONS

102. Base Metal

(f) When an ASTM A514 quenched and tempered steel is to be welded, the welding procedure shall be submitted to the Engineer for approval and the procedure qualified by tests as prescribed in Appendix A, Part 1, of these Specifications prior to the start of production welding. The Engineer, at his discretion, may accept evidence of previous qualification of the procedure to be used.

(g) When an ASTM A517 steel is to be welded, the requirements pertaining to ASTM A514 steel in these Specifications, shall apply to ASTM A517 steel.

103. Welding Processes

(a) Manual shielded metal– arc and submerged arc welding procedures which conform with the provisions of Sections 2,3, and 4 shall be deemed as prequalified and are therefore approved for use without performing procedure qualification tests.

(b) Gas metal-arc, flux cored-arc, electroslag, and electrogas may not be used. Stud welding, when required may be used provided the procedures conform to the applicable provisions of Sections 2,3 and 4 and the Contractor qualifies them in accordance with the requirements of Art. 502.

SECTION 2 – DESIGN OF NEW BRIDGES
PART III STRUCTURAL DETAILS

214. Girders and Beams

(d) Girders (Built–up I sections) shall preferably be made with one plate in each flange, i.e., without cover plates. The unsupported projection of a flange shall not be more than 12 times the thickness of the plate except as specified by the AASHO specifications for compression members. The thickness and width of a flange may be varied by butt welding parts of different thickness or width with transitions conforming to the requirements of Art. 221.

(e) (1) Cover plates shall be limited to one on any flange. The maximum thickness of a cover plate on a flange shall not be greater than 1½ times the thickness of the flange to which the cover plate is attached. The thickness and width of a cover plate may be varied by butt welding parts of different thickness or width with transitions conforming to the requirements of Art. 221. Such plates shall be assembled and welds ground smooth before attaching to the flange. The width of a cover plate, with recognition of dimensional tolerances allowed by ASTM Specification A6, shall allow suitable space for a fillet weld along each edge of the joint between the flange and the cover plate.

PART IV DESIGN OF WELDED JOINTS

221. Transition of Thicknesses or Widths

(a) When butt joints are used to join material of different thicknesses or widths, there shall be smooth transition between offset surfaces or edges at a slope of not more than 1 in 2½ with the surface of either part except as otherwise permitted in Paragraph 221 (b). See Fig. 221 (a) and 221 (b). The transition of thickness may be accomplished by sloping weld faces, by chamfering the thicker part or by a combination of the two methods.

(b) Butt joints subject only to shear or compressive stress shall be made with the above specified smooth transition when the offset between surfaces at either side of the joint is greater than the thickness of the thinner part connected. When the offset is equal to or less than this amount, the face of the weld shall be sloped 1 in 2½ from the surface of the thinner part or shall be sloped to the surface of the thicker part if this requires a lesser slope except that truss member joints and beam and girder flange joints shall be made with smooth transitions of the type specified in Paragraph 221(a).

225. Plug and Slot Welds

(a) Plug and slot welds may be used to transmit shear in a lap joint (except as noted in Table 2B) or to prevent the bucking or separation of lapped parts. They shall conform in details to the requirements of this paragraph and the requirements of Appendix D. Plug and slot welds shall not be used on A514 steel.

226. Details of Groove Welded Joints

(b) Groove welds shall be finished smooth by grinding in the direction of applied stress to a tolerance of plus 1 32 inch and minus zero inches in relation to the face of the basemetal, each face.

SECTION 3 – WORKMANSHIP

302. Preparation of Material

(a) Surfaces and edges to be welded shall be smooth, uniform and free from fins, tears, cracks and other defects which would adversely affect the quality or strength of the weld. Surfaces to be welded and surfaces adjacent to a weld shall also be free from loose scale, slag, rust, grease, moisture or other material that will

than 3/16 inch deep, on otherwise satisfactory surfaces, shall be removed by machining or grinding. Cut surfaces and edges shall be left free of slag. Correction of defects shall be faired to the oxygen cut surfaces with a slope not exceeding 1 in 10. For steels other than A514, defects in oxygen cut edges shall not be repaired by welding except with the approval of the Engineer for occasional notches or gouges less than 7 16 inch deep for material up to 4 inches thick and less than 5 8 inch deep for material over 4 inches thick. Such weld repairs shall be made by suitably preparing the defect, welding with low hydrogen electrodes not exceeding 5 32 inch in diameter, observing the applicable requirements of Art. 408 and 409 and grinding the completed weld smooth and flush with the adjacent surface to produce a workmanlike finish.

(c) (3) For A514 steel, defects in oxygen cut edges shall not be repaired by welding except with the approval of the Engineer for occasional gouges and notches as follows

A. Notches or gouges not more than 3 16 inch deep in plate edges which will form the faces of a groove weld joint and which will subsequently be completely fused with the weld shall be repaired by welding. Nonmetallic stringers or pipes opening to these edges shall be removed to a depth of 1 4 inch below the surface by grinding or chipping and the gouge repaired by welding. Laminations opening to these edges shall be removed to a depth of 1 2 inch below the surface by grinding or chipping and the gouge repaired by welding.

B. Notches or gouges not more than 3 16 inch deep in plate edges which will form a fillet-welded corner joint shall be repaired by welding only on the part of the edge which will become the fraying surface for the joint and the fusion zone of the fillet weld. The part of the defect outside the toe of the completed fillet weld shall be removed by machining or grinding and faired to the oxygen cut surfaces with a slope not exceeding 1 in 10.

Such weld repairs shall be made by suitably preparing the defective area, welding with low-hydrogen electrodes of classification E 11018-M, AWS A5.5, not exceeding 5 32 inch in diameter, observing the applicable requirements of Art. 408 and 409 and grinding the completed weld smooth and flush with the adjacent surface to produce a workmanlike finish.

(g) Oxygen cut surfaces of members carrying calculated stress shall have the corners rounded to 1 16 inch radius by grinding after cutting.

(h) Details of welded joints shown on the design drawings may indicate joint preparation for a manual shielded metal-arc process or for a submerged-arc process. Shop details shall indicate the proper joint preparation for the welding procedure proposed by the shop in instances where the shop prefers a method not detailed on design drawings.

(i) In addition to the provisions of Par. 302(b), the following will be required.

Sheared plates to be used for webs of built-up members shall be ordered with sufficient additional width to allow for trimming of edges where built-in camber is required. Plates with rolled edges shall be trimmed.

Universal mill plates to be used for webs of built-up members shall be ordered with sufficient additional width to allow for trimming of both edges.

The fraying surfaces of the web and flange plates and the adjacent surfaces that are to be fillet welded shall be cleaned by grinding prior to assembly and welding of web to flange.

303. Assembly

(g) Tack Welds.

(2) Tack welds which are not incorporated into the final weld shall be removed. Tack welds which are incorporated into final welds shall be made with electrodes meeting the mechanical requirements of the final welds and shall be cleaned thoroughly. Multiple pass tack welds shall have cascaded ends.

304. Control of Distortion and Shrinkage Stresses

(c) Before the start of welding on a member or structure in which shrinkage stresses or distortion is likely to affect the adequacy of the structure, the program for welding sequence and distortion control shall be approved by the Engineer. Regardless of the Engineer's approval, it shall be the Contractor's responsibility to develop a welding procedure which will produce weldments meeting the quality and dimensional requirements of this Specification.

(h) The welding sequence outlined in the procedure specification shall be such as to avoid needless distortion and shrinkage stresses in accordance with Article 304. For welded plate girders the broad outline of sequence shall be as follows:

1. Flange groove weld
2. Web groove weld
3. Web to flange weld. A fully automatic submerged arc in accordance with Paragraph 414 (a) shall be used to connect the flange plates to the web plates.
4. Stiffeners to web welds
5. Stiffeners to flange weld

(i) All welded shop splices in flanges and webs of girders or frames shall be shown on the shop drawings.

305. Dimensional Tolerances

(b) Ends of members fabricated by welding which are to be field connected by welding shall be shop assembled or assembled to a template to insure conformance to Paragraph 303(a), (b) and (c).

307. Quality of Welds

SECTION 4 - TECHNIQUE

PART I GENERAL

401. Filler Metal Requirements

(a) The electrode, electrode-flux combination or grade of weld metal for making groove welds and fillet welds on main members shall be in accordance with Table 3a.

Table 3a - Filler Metal Requirements for Welds on Main Members

(Groove Welds and Fillet Welds)

Base Metal (1) (ASTM Designation)	Welding Process (2) (3)	
	Shielded Metal–Arc	Submerged Arc
A36 (4)	AWS A5.1 E7016, 18 or 28	AWS A5.17 F61, F62, F63 or F64 - EXXXX
A242, A441 A572 Gr. 42, 45 and 50 A588	AWS A5.1 E7016, 18 or 28	AWS A5.17 F71, F72, F73 or F74 - EXXXX
A514	AWS A5.5 E11018-M	Grade F110

Use of same type filler metal having next higher mechanical properties as listed in the AWS Specification is permitted.

(1) In joints involving base metals of different yield points or strengths, filler metal applicable to the lower strength base metal may be used.

(2) When welds are to be stress relieved the deposited weld metal shall not exceed 0.05 percent vanadium.

(3) Lower strength filler metal may be used for fillet welds and partial penetration groove welds when indicated on the plans or in the special provisions.

(4) AWS A5.1, E6010 or E6011 electrodes may be used for welding A36 steel not more than 1 inch thick.

(5) Electrodes of other classification in this specification will be acceptable if the manufacturer submits a certificate of test showing that the electrode he proposes to furnish has passed the required mechanical and soundness tests specified for the classification, or one of the classifications listed.

(c) For exposed bare unpainted applications of ASTM A588 steel requiring deposited weld metal with atmospheric corrosion resistance and coloring characteristics similar to that of the base metal, the filler metal for all welds shall be in accordance with Table 3b, except as otherwise permitted by Par. 401 (d).

Table 3b-Filler Metal Requirements for Unpainted ASTM A588 Steel

Welding Process (4)	
Shielded Metal-Arc	Submerged Arc
AWS A5.5 E8016 or 18-G (1,2) E8016 or 18-B1 (2) E8016 or 18-B2 (2) E8016 or 18-C1 E8016 or 18-C2 E8016 or 18-C3	AWS A5.17 (3) F71, F72, F73 or F74-EXXXX or Grade F80 (2, 3)

(1) Deposited weld metal shall have a chemical composition (percent) of 0.12 max. C, 0.50/1.10 Mn, 0.03 max. P, 0.04 max. S, 0.35/0.80 Si, 0.30/0.75 Cu, 0.40/0.80 Ni, and 0.45/0.70 Cr.

(2) Deposited weld metal shall have a impact strength, min., Charpy V-notch of 20 ft-lb at 0° F.

(3) Deposited weld metal shall have a chemical composition the same as that for any one of the weld metals obtained with the shielded metal-arc electrodes listed in this table.

(4) In multi-pass welds, the underlying layers may be deposited with one of the filler metals specified in Table 3a provided the last two layers are deposited with one of the filler metals specified in this table. This procedure may also be used where the weld is made from one side on a backing strip which will be removed, provided the same number of layers are deposited against the backing strip with a filler metal specified in this table. After removing run-off tabs, the exposed weld metal of the underlaying layers shall be removed by gouging to a minimum depth of 1 4 inch from the edge of the base material and replaced by welding with one of the filler metals specified in this table. The weld shall be ground flush with the edge of the material.

(d) For unpainted applications of A588 steel where welds with atmospheric corrosion resistance but not exact color match are acceptable to the Engineer, filler metals of Table 3a may be used as follows:

Shielded metal-arc process - For single pass fillet welds up to 1 4 inch maximum size.

Submerged arc process - For single pass fillet welds up to 5/16 inch maximum size and for groove welds

PART II MANUAL SHIELDED METAL-ARC WELDING

408. Electrodes for Manual Shielded Metal -Arc Welding

(a) All electrodes for manual shielded metal-arc welding shall conform to the requirements of the latest edition of "Specification for Mild Steel Covered Arc Welding Electrodes," AWS A5.1, or the latest edition of "Specification for Low Alloy Steel Covered Arc Welding Electrodes," AWS A5.5, and when used for welding on main members, shall be capable of producing weld metal having an impact strength of at least 20 ft-lbs., Charpy V-notch, at a Temperature of 0°F or below.

(b) All electrodes having low hydrogen coverings conforming to A5.1 shall be purchased in hermetically sealed containers or shall be dried for at least two hours between 450° and 500° F before they are used. Electrodes having low hydrogen coverings conforming to A5.5 shall be purchased in hermetically sealed containers or shall be dried at least one hour at temperatures between 700° and 800° F before being used. Electrodes shall be dried prior to use if the hermetically sealed container shows evidence of damage. Immediately after removal from hermetically sealed containers or from drying ovens electrodes shall be stored in ovens held at a temperature of at least 250° F. E70 electrodes that are not used within four hours, E80 within two hours, E90 within one hour and E100 and E110 within one-half hour after removal from hermetically sealed containers or removal from a drying or storage oven shall be redried before use. Electrodes which have been wet shall not be used. Electrodes of any classification lower than E100XX, when used for welding A 514 steel, shall be dried at least one hour at temperatures between 700° and 800° F before being used whether furnished in hermetically sealed containers or otherwise. Electrodes shall be redried no more than one time.

(c) The Contractor shall furnish certified copies of test reports, except as specified in Paragraph 408(d); of all pertinent required tests of AWS A5.1 or AWS A5.5, whichever is applicable, made on electrodes of the same class, size and brand and which were manufactured by the same process and with the same materials as the electrodes being used on the project. The tests shall have been for process qualification or quality control and shall have been made within one year prior to manufacture of the electrodes furnished. For sizes of electrodes for which tests are not required by AWS A5.1 or AWS A5.5, the test reports for electrodes of the size nearest to the size being delivered and of the same classification shall be furnished. The report shall include the manufacturer's certification that the process and material requirements were the same for manufacturing the tested electrodes and the furnished electrodes.

(d) In lieu of requiring a Contractor to furnish copies of test reports for each shipment of electrodes on a project, the Department shall maintain a list of approved brands of electrodes for which satisfactory reports of tests made within one year have been previously submitted. The list shall be available to project Engineers and Contractors.

Before placing a brand of electrodes on the approved list, the manufacturer shall agree to submit a new test report if the process or material requirements for the particular brand are changed at any time within the effective period of the previous test.

TABLE 4 Minimum Preheat and Interpass Temperature - This table shall be modified as follows:

(a) For A36 steel to 3/4 inch thickness, inclusive, when welded with other than low-hydrogen electrodes, the minimum preheat and interpass temperature shall be 150° F.

(b) For all steel to 3/4 inch thickness, inclusive when welded with low-hydrogen electrodes, or with submerged arc, the minimum preheat and interpass temperature shall be 50° F.

DIRECTOR DIV. OF BRIDGES   REVIEWED BY J.B. Drake 3/10/71 ASST. STATE HIGHWAY ENGINEER

DATE 1-71   REVISED Para 401.(a)(5), 407(b), 607(d)   J.M.W. DATE 9-28-71
DATE 1-71   REVISED   DATE
DATE   REVISED   DATE

APPROVED C.A. Dodd 3/11 DIRECTOR DIV. OF BRIDGES
DESIGNED BY RCP CHECKED BY C.A.D. DATE 2-71
DRAWN BY MS S.D.P. CHECKED BY C.A.D. DATE 2-71
TRACED BY CHECKED BY DATE
REVISED
REVISED
REVISED
REVIEWED BY [illegible] 3/10/71 ASST. STATE HIGHWAY ENGINEER
DATE
DATE

PART IH SUBMERGED ARC WELDING

412. Electrodes and Flux for Submerged-Arc Welding

(a) For bare mild steel electrodes and fluxes for submerged arc welding see Par. 401(a). All bare electrodes and fluxes used in combination for submerged-arc welding shall conform to the requirements in the latest edition, "Specifications for Bare Mild Steel Electrodes and Fluxes for Submerged Arc Welding," AWS A5.17, for the classification producing weld metal having a minimum impact strength of 20 ft.-lbs., Charpy V-notch, at a temperature of 0°F or below, and, when specified, shall be capable of producing low alloy weld metal having the mechanical properties listed below or low alloy weld metal conforming to the requirements of Paragraph 401(c). Low alloy weld properties shall be determined from a multiple pass weld made in accordance with the requirements of the latest edition," Specification for Bare Mild Steel Electrodes and Fluxes for Submerged Arc Welding" (AWS A5.17) or the welding procedure specification. Each user shall demonstrate that each combination of electrodes and flux will produce weld metal having the following mechanical properties until the applicable AWS Filler Metal Specification is issued; at that time the AWS Filler Metal Specification will control. The Engineer, at his discretion, may accept evidence of record of a combination that has been satisfactorily tested in lieu of the test required provided the same weld procedure is used.

(c) The Contractor shall furnish certified copies of test reports, except as specified in Paragraph 412(d), for all electrode and flux combinations used on a project in accordance with these Specifications. The report shall include the results of all pertinent required tests of AWS A5.17 made on the same classification or grade of electrode and flux combination of the same brand as being used on the project. The tests shall have been made on electrodes and flux which were manufactured by the same process and with the same materials as the electrodes and flux furnished. The tests may have been for process qualification or quality control and shall have been made within one year prior to manufacture of the electrodes furnished. The test report form shall contain all pertinent information concerning the tests required by the Specification.

(d) In lieu of requiring a Contractor to furnish copies of test reports for each shipment of electrodes and flux on a project, the Department will maintain a list of approved brands of electrode–flux combinations for which satisfactory reports of tests made within one year have been previously submitted. The list shall be available to project Engineers and Contractors.

413. Condition of Flux

(a) Flux used for submerged arc welding shall be non-hygroscopic, dry and free of contamination from dirt, mill scale, or other foreign material. All flux shall be purchased in packages capable of being stored under normal conditions for at least six months without storage affecting its welding characteristics or weld properties. Flux from damaged packages shall be discarded or shall be dried before use at a minimum temperature of 250°F for one hour. Flux shall be placed in dispensing system immediately upon opening a package or if used from an opened package, the top one inch shall be discarded. Flux which shows evidence of moisture pickup shall be dried by heating to above 300° F for a minimum of two hours. Flux that has been wet shall not be used. Flux which has been used, but not fused, shall be screened before re-use. Flux fused in welding shall not be reused.

414. Procedures for Submerged Arc Welding with a Single Electrode

(e) For automatic welding procedure qualification using single or dual electrodes in order to establish the current, voltage, and speed of travel test specimens will be required prior to the beginning of work for the types of tests outlined in Appendix A, Article A102. Upon acceptance by the Inspector of the tests, the values proposed for voltage, current, and speed of travel shall be the procedure specification and shall be maintained within the limits as set forth under Article 414. Deviation from this shall require requalifying the procedure. (See AWS Par. 502(a) for prequalification of procedures).

SECTION 5 - QUALIFICATION

503. Welders, Welding Operators and Tackers

(a) All welders, welding operators and tackers to be employed under these Specifications shall have been qualified by tests as prescribed in Appendix A, Parts II, III, and IV of these Specifications. If a fabricating shop prequalifies its welders, welding operators and tackers in accordance with these Specifications and certifies to the Engineer that the welder, welding operators or tacker has been prequalified within twelve months previous to the beginning of work on the subject structure, the Engineer may consider him qualified. The certificate shall state that the welder, welding operator or tacker has been doing satisfactory welding of the required type within the three month period previous to the subject work. A certification shall be submitted for each welder, welding operator or tacker, and for each project, stating the name of the welder, welding operator or tacker, the name and title of the person who conducted the examination, kind of specimens, the position of welds, the results of the tests and the date of the examination. Such a certification of prequalification may also be accepted as proof that a welder, welding operator and tacker is qualified, if the Contractor who submits it is properly staffed and equipped to conduct such an examination or if the examining and testing is done by a recognized agency which is staffed and equipped for such purpose.

(b) Before welding on A514 steel, evidence must be presented, satisfactory to the Engineer, that each welder, welding operator and tacker has had at least three months satisfactory experience welding such steel. In lieu of such experience, each welder, welding operator and tacker shall be instructed in welding A514 steel. The instruction course shall meet the approval of the Engineer as adequate to result in a working knowledge of the procedures for welding A514 steel.

504. Pre-Welding Conference

(a) Prior to the start of actual welding operations the Inspector and welding foreman shall hold a conference to insure that agreement has been reached regarding details of the procedure and sequence of welding to be followed, the current status of qualification tests or evidence of previous tests, and approval of electrodes and other materials to be used.

SECTION 6 - INSPECTION

601. General

(d) The intent of the inspection is to assure the highest quality of welding and workmanship so that in addition to visual inspection of the welding and the welds, radiographic and magnetic particle inspection of the welds will be required as specified herein. The radiographic and magnetic particle inspection will be performed by the Department of Highways with no direct cost to the Contractor except as specified in Paragraph 605(h).

605. Inspection of Work and Records

(h) The proper and adequate procedure for identifying both the steel being welded and the operator shall be the responsibility of the Contractor and shall be approved by the Engineer. When nondestructive testing is specified, the Inspector shall ascertain that equipment, procedures and techniques are in accordance with Article 607. The Inspector shall permit nondestructive testing to be performed only by personnel qualified in accordance with Par. 607(g). The Inspector shall view the making of nondestructive tests and examine and interpret the test results. Radiographic films of defective welding will be shown to the Contractor with the Inspector's interpretion. The Contractor shall sign and date each report to acknowledge the required welding repairs. In the event the Contractor questions the Inspector's interpretation of radiographic film, they shall review the film together and the Inspector's interpretation will be final. Subsequent to the assembly of the steel into final members or pieces, the Inspector will be required to furnish the Engineer a complete index properly identifying the radiographic film or films, report number and the final mark of the piece, member, or its location in the structure. The Contractor shall furnish to the Inspector, assembly marks for each member which will give the final location of each weld. If the radiographic inspection discloses defective welds, the defective material shall be removed and the pieces rewelded. The Inspector shall approve satisfactory methods proposed by the Contractor for repairing disapproved welds, and inspect the preparation and rewelding of disapproved welds. After repairs are made, additional radiographs of the repaired weld shall be made and reported as noted above. If the radiographic inspection of the repaired weld discloses further defective welds, the operations of repairing and radiographic inspecting shall continue until the repaired material meets the approval of the Inspector or is finally rejected. The Inspector shall record the locations of inspected areas and the findings of all nondestructive tests, together with descriptions of any repairs made. The Contractor shall be charged the current cost to the Department of Highways for each exposure for any and all radiographs required by reason of repair work and such charge will be deducted by the Department of Highways from any payment or payments due for the contract.

(i) The Inspector shall ascertain that magnetic particle equipment and process and surface preparation are in accordance with Article 607. The Inspector shall perform the magnetic particle inspections, examine and interpret the magnetic particle patterns, approve satisfactory welds, disapprove or reject unsatisfactory welds, approve satisfactory methods proposed by the Contractor for repairing disapproved welds, and inspect the preparation and rewelding of disapproved welds. The Inspector shall record the locations of inspected areas and defects found by magnetic particle inspection, together with the description of any repairs made.

606. Obligations of Contractor

(a) It shall be the Contractor's responsibility to comply with all requests of the Inspector to correct improper workmanship and to remove and replace, or correct as instructed, all welds found defective or deficient by visual inspection or by nondestructive testing in accordance with Art. 607.

(c) While every reasonable effort will be made to fit the inspection work to the shop fabricating schedule, the Contractor shall cooperate with the Inspector to assure that all the work may be inspected properly. The Contractor shall not be entitled to claims against the State for extra payment or extensions of contract time due to fabricating delays resulting from the inspection work.

(d) The responsibility for insuring adequate workmanship and techniques will not be upon the Inspector alone. The Contractor shall provide competent supervision and visual inspection of all welding and fabrication through his own shop inspectors who shall have no duties other than inspection.

(e) The Contractor shall furnish power and utilities for operating inspection equipment, shall provide office and shop space for the inspection work, shall handle the material as necessary and shall enforce the required safety precautions for radioactive exposure. No extra payment will be made for such incidentals, and the cost thereof shall be included in the lump sum bid for Structural Steel.

607. Nondestructive Testing

(a) Nondestructive testing of welds will be required as specified in Par. 607(c), 607(d), and 607(e). Methods of nondestructive testing other than those specified in the contract may be used for examination of weld passes or completed welds at the owner's expense.

(b) Refer to Paragraph 307(c).

(c) Radiographic tests for discontinuities of weld in girders, in which the thickness of the thinner member is equal to or less than 2½", are to be made by the Kentucky Department of Highways in accordance with Appendix B. This service is to be an inspection operation, whereby material is accepted or rejected. All parts and material which have been accepted should be marked permanently, with a characteristic identifying symbol which will indicate to subsequent or final inspectors, the fact of x-ray acceptance. This service including radiographs, custody and preservation, interpretation, and reports shall be arranged by the Kentucky Department of Highways. Welds of butt joints in main members shall be of satisfactory quality, as determined by radiographic inspection.

For groove welds, complete radiography shall be used in conjuction with procedure qualification to insure that the materials, machines, methods and workmen being used are producing work of radiographic quality.

All tension splices and all splices subject to reversals of stress, as noted on Design Drawing, shall be tested except that on beam and girder webs, only 1 '6 of the web depth, beginning at the point, or points, of maximum tension and 25 percent of the remainder of the web depth need be tested.

Twenty-five percent of each compression and shear splices shall be tested, except that for splices in built-up members requiring less than four feet of groove weld in compression, only one joint, connecting the thickest components in each splice, need be tested. Maximum spacing of radiographs shall be four times the length of the radiograph. Alternatively, 25 percent of the compression and shear splices, selected by the Engineer, shall be tested. With radiographic testing, if unacceptable defects are found in more than 10 percent of the radiographs in compression and shear splices of a member, all compression and shear splices of that member and succeeding members shall be tested until the accumulated rejection level falls to 10 percent or less, at which time the testing shall revert to the 25 percent level specified above.

(d) Ultrasonic tests for discontinuities of butt welds in girders, in which the thickness of the thinner member is greater than 2½" but equal to or less than 4", are to be made by the Kentucky Department of Highways. The procedure, technique and standards of acceptance shall be in accordance with Bureau of Public Roads, "Proposed Specification for the Ultrasonic Testing of Butt Welds in Highway and Railway Bridges," BPR-UT1, dated May 1, 1968

Where ultrasonic testing is required for the testing of discontinuities in groove welds at corner or Tee Joints, the procedure, technique and standards of acceptance shall be in accordance with Appendix C of the American Welding Society Specifications.

(e) Web-to-flange fillets in main girders and frames shall be inspected by the Dry Powder Magnetic Particle Inspection method in accordance with ASTM Designation E109. This inspection shall be conducted by the Kentucky Department of Highways Inspector who shall accept or reject the weld. Any section of fillet weld shown to have imperfections shall be removed and repaired, except that porosity and slag inclusions not exceeding the limits in size or frequency or occurence as listed in Article 307 will be acceptable. The Inspector shall schedule and perform his work in such a manner as to keep interference with regular fabrication operations to a minimum. The fabricator shall provide an adequate source of electrical current to the inspector and furnish the current required to conduct the inspection.

At least one foot of every 10-foot length of weld and one foot of each weld less than 10-feet in length of each size and type of web to flange fillets in main girders, frames, floor beams, stringers and other main members, including the end connections for such members, and fillet welds in bearing shoes, shall be tested by the Dry Powder Magnetic Particle Inspection Method in accordance with ASTM Designation E109. The tests shall be located at random in the members so as to be typical for each size of weld. The Inspector shall examine the magnetic particle tests and give his approval of the welds before the members will be accepted. If unacceptable defects are found in any test length of weld, the full length of the weld or five feet on either side of the test length which ever is lesser shall be magnetic particle tested. Welds requiring repairs shall be retested after the repairs are made. For A514 steel, all fillet welds and all other welds except the groove welds tested in accordance with Par. 607(c) shall be tested.

(g) Personnel performing nondestructive testing shall be qualified in accordance with the American Society for Nondestructive Testing Recommended Practice No. SNT–TC– 1A and the applicable Supplement A, B, C, (as modified in Par. 607 (d)), or D. Only individuals qualified for NDT LEVEL II, working under the supervision of an individual qualified for NDT LEVEL II or individuals qualified for, NDT LEVEL II or NDT LEVEL III may perform nondestructive testing.

608. Time of Inspection

(a) Visual inspection and nondestructive testing of welds in all steels other than ASTM A514 may begin immediately after they are completed. Welds in A514 steel shall be visually inspected and nondestructively tested not less than 48 hours after they are completed.

APPENDIX A PART I – PROCEDURE QUALIFICATION

A101. Limitations of Variables

(a) (1) The procedure specification shall be recorded as a part of the shop detail drawings and shall be submitted to the Director of Bridges for approval. The procedure specifications shall outline the welding sequence for each welded shop assembly including shoes and rockers. The procedure specification shall specify for each type of weld, prequalified or other, the following: joint preparation, fit up, electrode specification, electrode diameter, welding position, polarity, amperage, and number of passes, indicating any procedure change from one pass to the next in the same weld and indicating the maximum thickness in a weldment layer. Where preheating of the base metal is required it shall be indicated with the weld symbol on the shop drawings. Extension bars used in making butt welds shall be detailed on the shop detail drawings. Procedure specifications submitted which are not tailored to suit the particular work to be fabricated shall not be considered as fulfilling the requirements of the Contract. Qualification of a welding procedure established with ASTM A441, A572 grade 50 or A588 steels shall be considered as procedure qualification for welding the other two steels, combinations of them or with steels included in Art. 102 having a lower minimum specified yield point and for the other steels included in Art. 102 having a lower minimum specified yield point.

Welding of ASTM A242 steel is considered a special application and a welding procedure qualified for any of the other three steels listed may not be acceptable for A242 steel.

(c) For groove welds in ASTM A514 steel, the schedule of changes in variables shall be modified to require a new qualification:

(1) Whenever there is an increase in plate thickness or whenever there is a decrease in plate thickness of 1 inch or more.

(2) Whenever the number and location of passes is changed, except a proportional reduction in the number of passes is permissible without requalification whenever the thickness reduction is less than 1 inch and the heat input does not exceed the manufacturer's recommendation for the heat input of the thickness of material being welded.

(3) Whenever the heat input is changed by more than ± 10 percent.

(4) Whenever the arc voltage is changed by more than ± 7 percent.

(5) Whenever the speed of travel is changed by more than ± 10 percent.

(6) Whenever the interpass temperature is changed by more than ± 25°F.

(d) Reporting of the procedure qualification shall include specific values for all variables listed in Par. A101(b) and Par. A101 (c).

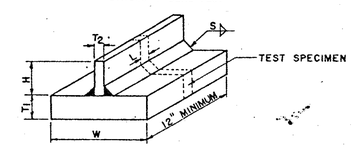
A105. Number of Test Welds Required

(a) (3) For groove welds in ASTM A 514 steel, one test weld shall be made in material of the maximum thickness to be used in construction for each procedure and position.

(b) (2) In addition, for fillet welds in ASTM A514 steel over 1 inch in thickness with weld metal having a minimum specified tensile strength of over 90,000 psi., a qualification test of "T"– joints shall be made in accordance with Figure 1.

FIGURE 1 – PROCEDURE QUALIFICATION FILLET WELDED TEE JOINT TEST
For A514 / A517 steel in flanges over 1 inch thick and with minimum specified tensil strength of deposited weld metal over 90,000 psi. Manual, Automatic and Semiautomatic

FILLET WELD KEYHOLE "T" BEND TEST



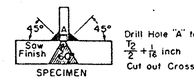
T_1 = Design Section – Flange — $H \geq 4T_2$ or 2"
T_2 = Design Section – Web — $W \geq 3T_1$ or 5"
S = Design Section – Fillet Weld — $L \geq 1\ 1/4T_1$ or $1\ 3/4$"

NOTES

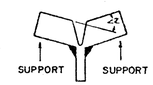
I. PREPARATION OF SPECIMENS
Test specimens may be sawed or machined (not flame cut) from a welded sample as illustrated above. These specimens are prepared as shown above.

II. TESTING
A. Macro Etch Test (See Procedure Qualification AWS D2.0)
B. Bend Tests
Specimen shall be loaded and failed as illustrated below.
C. Hardness Tests
Hardness Tests shall be made on a lightly etched section of Microetched test specimens with a suitable machine.

III. TEST RESULTS REQUIRED
A. Macro Etch Test – (See Procedure Qualification AWS D2.0).
B. Bend Tests
α must not be less than 18° at failure
C. Hardness
Brinell Hardness of weld metal shall be within the following limits
1. Max. Brinell Hardness
$$\frac{\text{Max. Specified or Tested Tensil Strength (*) of Parent Metal}}{500} + 70$$
2. Min. Brinell Hardness
$$\frac{\text{Min. Specified Tensil Strength of Weld Metal}}{500}$$
This test may be performed with a Rockwell Machine and converted to Brinell Hardness using ASTM conversion chart.
(*) Whichever is greater.



Drill Hole "A" to Equal $\frac{T_2}{2} + \frac{1}{8}$ inch
Cut out Cross Hatched Area



Load and bend to failure or until keyhole "V" notch is closed. Failure is indicated by opening in weld surface or cross section greater than 1 16 inch in any direction.

SHEET 2 OF 3

COMMONWEALTH OF KENTUCKY
DEPARTMENT OF HIGHWAYS
FRANKFORT

MODIFICATIONS AND ADDITIONS TO AWS D2.0-69 SPECIFICATIONS

APPROVED [signature] STATE HIGHWAY ENGINEER | DRAWING NO. AWS-3A | DATE 3/10/71

A106. Welding Procedure

The procedure of welding to be followed in fabrication shall be established by the fabricator in accordance with Paragraph A101(a).

A107. Test Specimens - Number, Type and Preparation

(a) Groove Welds

For groove welds the method of preparing the specimens shall be in accordance with the figures referred to in Table A-1 and the number of tests required shall be as given in the table. The test specimens shall be removed in the order given in Figs. A-8 or A-9. In addition to these tests, the test plates shall be radiographically or ultrasonically tested for soundness. Radiographic or ultrasonic testing shall apply only to that portion of the weld between the discard strips as indicated in the applicable figures of Appendix A except that a minimum of 6 inches of effective weld length shall be tested.

A108. Method of Testing Specimens

(f) The ultrasonic procedure and technique shall be in accordance with the requirements of Par. 607(d).

A109. Test Results Required

(a) (5) For acceptable qualification, the quality of the weld, as revealed by radiographic or ultrasonic testing, shall conform to the requirements of Art. 307 or Par. 607(d), whichever is applicable, except that for the procedure test for ASTM A514 steel, there shall be no defects other than that allowable porosity in the test weld.

APPENDIX B - RADIOGRAPHIC INSPECTION OF WELDS

B103. Radiographic Procedure

(c) Welds ground in accordance with Paragraph 226(b) shall be radiographed after grinding and after backing is removed, if any is used. If any reinforcement, within the tolerance outlined in Paragraph 226(b), remains after grinding, carbon steel shims shall be placed under the penetrameter so that the total thickness of steel between the penetrameter and the film is at least equal to the average thickness of the weld measured through its reinforcement.

B104. Acceptability of Welds

(a) This paragraph shall be deleted. Refer to Par. 307(c).

APPENDIX C – ULTRASONIC TESTING OF GROOVE WELDS

C 108. Testing Procedure

(g) This paragraph shall be deleted. Refer to Par. 307(c).

APPROVED BY C. Shelton Cook 3/9/71 DIRECTOR DIV. OF BRIDGES

DESIGNED BY RPD CHECKED BY J.D.H. DATE 1-71

DETAILED BY RPD CHECKED BY J.D.H. DATE 1-71

TRACED BY ____ CHECKED BY ____ DATE ____

REVISED ____ DATE ____

REVISED ____ DATE ____

REVISED ____ DATE ____

REVIEWED BY J. E. Hackney 3/10/71 ASST. STATE HIGHWAY ENGINEER DATE

SHEET 3 OF 3

COMMONWEALTH OF KENTUCKY
DEPARTMENT OF HIGHWAYS
FRANKFORT

MODIFICATIONS AND ADDITIONS TO AWS D2.0-69 SPECIFICATIONS

APPROVED J. L. Hackney
STATE HIGHWAY ENGINEER

DRAWING NO. AWS-3A

DATE 4/14/71

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

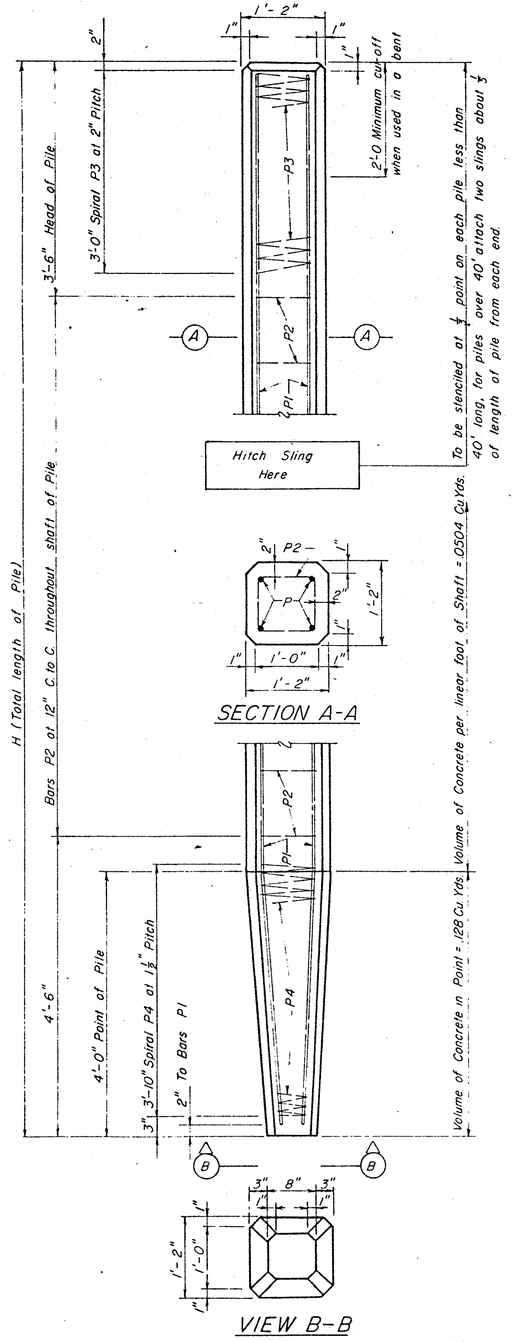


TABLE OF DIMENSIONS & QUANTITIES (FOR ONE PILE ONLY)

BILL & TYPES OF REINFORCEMENT (FOR ONE PILE ONLY)

H	ESTIMATE OF QUANTITIES		Bars P1: 4 - No. 8 (16' to 50'), 4 - No. 9 (Above 50')				Bars P2: No. 3 - 3'-8" Long	Bars P3: * ¼" Ø Spiral	Bars P4: * ¼" Ø Spiral
	Concrete Class "D"	Reinforcement	LENGTH		a				
FEET	CU.YDS.	LBS.	FT.	IN.	FT.	IN.	NUMBER	One in Head of each Pile	One in Point of each Pile
16	0.73	200	15	8	11	8	9		
18	0.83	224	17	8	13	8	11		
20	0.93	248	19	8	15	8	13		
22	1.04	272	21	8	17	8	15		
24	1.14	296	23	8	19	8	17		
26	1.24	320	25	8	21	8	19		
28	1.34	344	27	8	23	8	21		
30	1.44	368	29	8	25	8	23		
32	1.54	392	31	8	27	8	25		
34	1.64	417	33	8	29	8	27		
36	1.74	440	35	8	31	8	29		
38	1.84	465	37	8	33	8	31		
40	1.94	489	39	8	35	8	33		
42	2.04	513	41	8	37	8	35		
44	2.14	537	43	8	39	8	37		
46	2.24	561	45	8	41	8	39		
48	2.34	585	47	8	43	8	41		
50	2.44	609	49	8	45	8	43		
52	2.54	784	51	8	47	8	45		
54	2.64	814	53	8	49	8	47		
56	2.74	844	55	8	51	8	49		

* ¼" Plain round bars may be used in place of deformed bars

GENERAL NOTE

SPECIFICATIONS: Kentucky Department of Highways Standard Specifications for Road and Bridge Construction, current edition with revisions.

CONCRETE: Class 'D' concrete shall be used in Piles.

REINFORCEMENT: The cost of reinforcement shall be included in the price bid per linear foot of Piles. Concrete Piles must not be damaged below cutoff elevation. Concrete and Spiral above cutoff elevation to be removed. Bars P_1 and P_2 to remain and project into structure above. These Bars shall be bent in field if necessary to maintain clearance shown on Bridge details.

PILING: All Piles shall have a minimum penetration of 20' unless solid rock is encountered. Piles shall be driven to refusal or to support a minimum load of 50 tons per pile.

TEST PILES: Test Piles shall be driven where designated on Bridge Plans to determine the the length of Piles required.

All Test Piles shall be located so they will act as a part of the piling system.

PILE CUTOFF: No payment will be made for pile cutoff except as provided for in the Specifications.

APPROVED BY R. D. Bonds — Actg. DIRECTOR DIV. OF BRIDGES — REVIEWED BY — ASST. STATE HIGHWAY ENGINEER

DESIGNED BY S.H. — CHECKED BY — DATE — REVISED

DETAILED BY — CHECKED BY J.H.L. — DATE 8-22 — REVISED

TRACED BY — CHECKED BY — DATE — REVISED

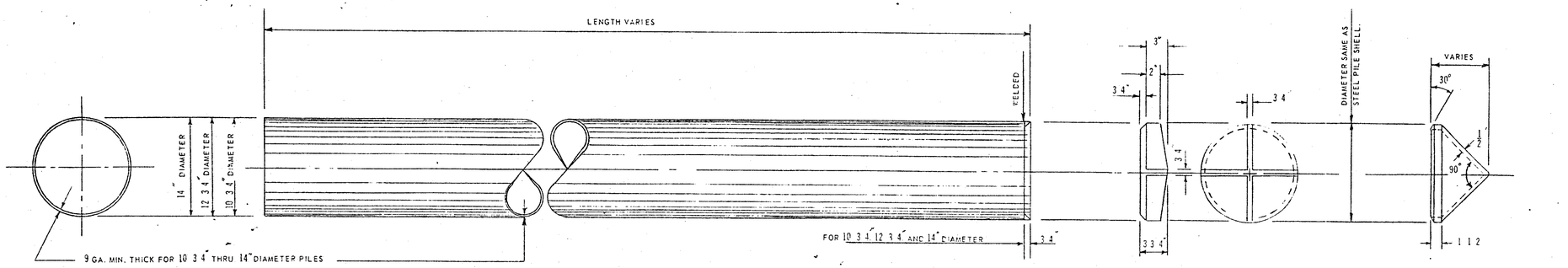
COMMONWEALTH OF KENTUCKY
DEPARTMENT OF HIGHWAYS
STANDARD 14" REINFORCED CONCRETE PILE

APPROVED A. O. Turner
STATE HIGHWAY ENGINEER

DRAWING NO. P2-A

DATE 8-21-69

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



FLAT PLATE — PLATE WITH CROSS — PRESSED STEEL CONE POINT

SEAMLESS STEEL OR WELDED PIPE PILE SHELL

SPECIFICATION: Kentucky Department of Highways Standard Specifications for Road and Bridge Construction, current edition with revisions.

CONCRETE: Class "D" concrete to be used for cast-in-place piles

REPORTS: Three copies each of mill orders, mill shipping statements, and notarized mill test reports for all steel to be used shall be furnished the Department of Highways.

PAINT: No paint shall be required on steel pile shell.

PAYMENT: Payment for cast-in-place concrete piling shall be in accordance with the Specifications.

WELDING: Welding and welding materials shall be in accordance with current standard Specifications for Welded Highway and Railway Bridges, American Welding Society.

SHELL MATERIAL: The steel shell shall be manfactured from material conforming to the requirements of A.S.T.M. Designation A 252, Grade 3, for welded or seamless steel pipe piles.

SPLICES: Splices shall be welded, employing the use of a back-up ring or sleeve, if necessary, to provide adequate strength for driving and to provide water-tightness. The method proposed shall be submitted to the Department of Highways for approval.

PILE POINTS: Pile points are to be flat plates of structural steel conforming to A.S.T.M. Designation A 36 current or conforming to the tensile properties of A.S.T.M. A 252, Grade 3. If rock or boulders are encountered Pressed Steel Cone Points, or End Plates with Cross shall be used. Pile Points are to be welded to the shell.

DRIVING HEAD: The pipe shall be driven with a good steel head having a projecting ring fitting inside the pipe. Clearance between ring and pipe should be 1/4". Other types of driving heads may be used if approved by the Engineer.

SHELL MATERIAL: Contractor shall select wall thickness sufficient to withstand driving without injury and resist harmful distortion and/or buckling due to soil pressure after driving.

APPROVED S. J. Goode Acting DIRECTOR DIV. OF BRIDGES — REVIEWED BY ... ASST. STATE HIGHWAY ENGINEER

DESIGNED BY		CHECKED BY	DATE
DETAILED BY		CHECKED BY	DATE
TRACED BY	J. L. L.	CHECKED BY	DATE

REVISED DATE / REVISED DATE / REVISED DATE

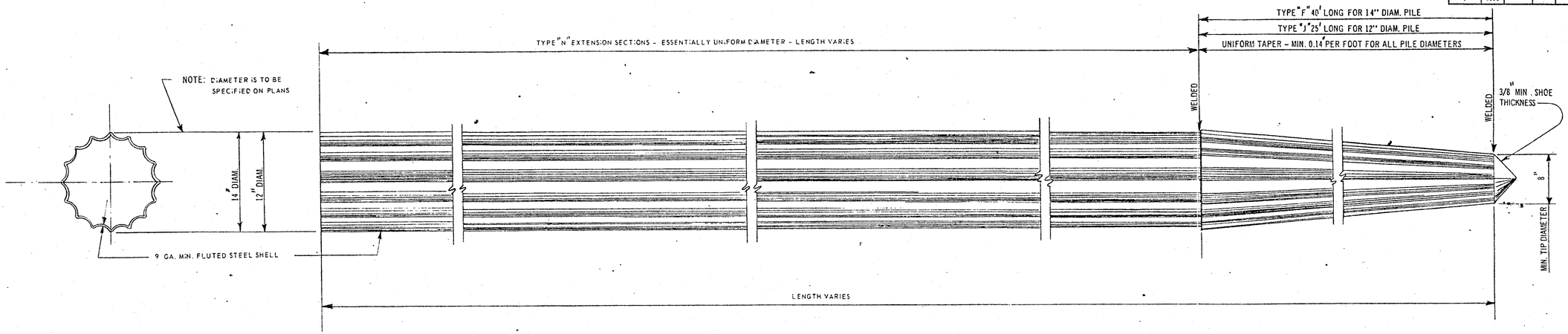
COMMONWEALTH OF KENTUCKY
DEPARTMENT OF HIGHWAYS

CAST-IN-PLACE CONCRETE PILE

SEAMLESS STEEL OR WELDED PIPE SHELL

APPROVED	DRAWING NO.	DATE
STATE HIGHWAY ENGINEER	P20-A	8-21-69

FED. ROAD DIST.	STATE	FED. AID PRO. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
7	KY.				



FLUTED STEEL PILE SHELL

GENERIAL NOTE

SPECIFICATIONS: KENTUCKY DEPARTMENT OF HIGHWAYS STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, CURRENT EDITION WITH REVISIONS.

CONCRETE: CLASS "D" CONCRETE TO BE USED FOR CAST-IN-PLACE PILES.

REPORTS: THREE COPIES EACH OF MILL ORDERS, MILL SHIPPING STATMENTS, AND NOTARIZED MILL TEST REPORTS FOR ALL STEEL TO BE USED SHALL BE FURNISHED THE DEPARTMENT OF HIGHWAYS.

PAINT: NO PAINT SHALL BE REQUIRED ON STEEL PILE SHELLS.

PAYMENT: PAYMENT FOR CAST-IN-PLACE CONCRETE PILING SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS.

WELDING: WELDING AND WELDING MATERIALS SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS.

SHELL MATERIAL: THE FLUTED STEEL SHELL SHALL BE MANUFACTURED FROM MATERIAL CONFORMING TO THE REQUIREMENTS OF S A E 1010 OR S A E 1015 (WITH CARBON CONTENT NOT TO EXCEED 0.16 PERCENT) CLASSIFICATION. THE MATERIAL FOR THE POINT SHALL CONFORM TO A S T M DESIGNATION A27 GRADE N-2 CURRENT FOR CAST STEEL OR S A E 1020 FOR FORGED STEEL. THE CONTRACTOR SHALL SELECT WALL THICKNESS SUFFICIENT TO WITHSTAND DRIVING WITHOUT INJURY AND RESIST HARMFULL DISTORTION AND/OR BUCKLING DUE TO SOIL PRESSURE AFTER DRIVING.

APPROVED BY L. J. Peak Acting DIRECTOR DIV. OF BRIDGES — REVIEWED BY L. J. Peak ASST. STATE HIGHWAY ENGINEER

DRAWING CHECKED BY	C.E. Vosseller	DATE 4-58 REVISED
Back Sheet Weld & Text	P21bm revised by R. Vosseller	DATE 3-59 REVISED
TRACED BY	M. Meiers CHECKED BY	A.C. Pistorino DATE 5-62 REVISED

COMMONWEALTH OF KENTUCKY
DEPARTMENT OF HIGHWAYS

CAST—IN—PLACE
CONCRETE PILE
FLUTED STEEL SHELL

STATION PROJECT NO.

APPROVED A.O. Neiss
STATE HIGHWAY ENGINEER

DRAWING NO. P21 B

DATE 8-21-49

LETTING DATE

DATE BY: Asst. State Highway Engineer

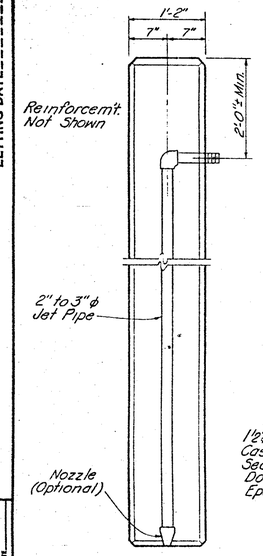
REVIEWED BY: Director of Bridges

DATE REVISED

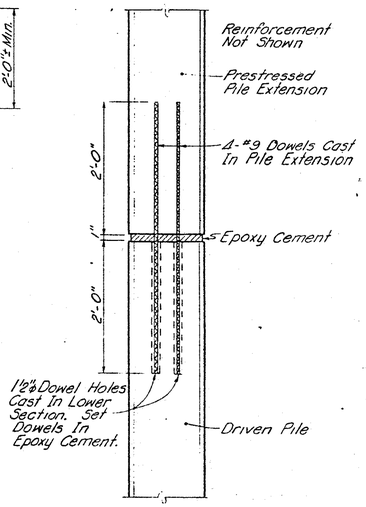
DATE CHECKED BY

DATE CHECKED BY

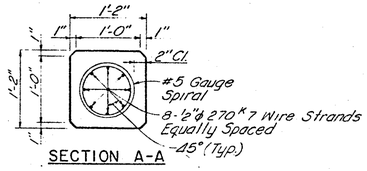
DATE CHECKED BY



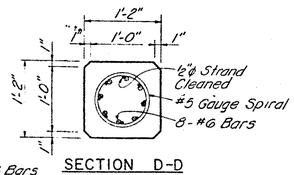
JET PIPE



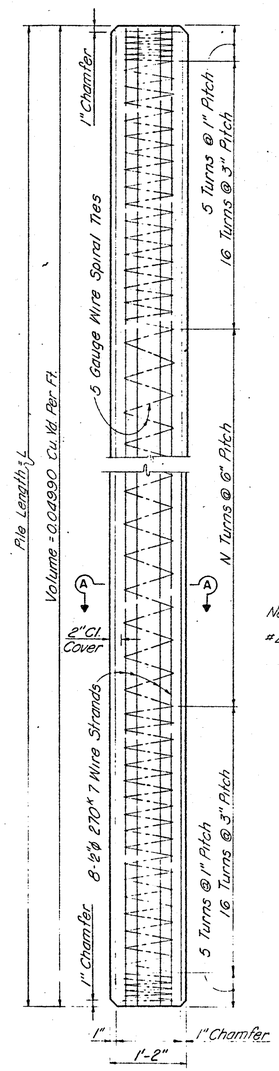
DOWELED SLICE



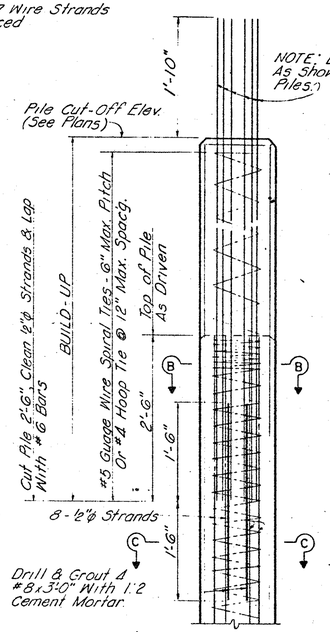
SECTION A-A



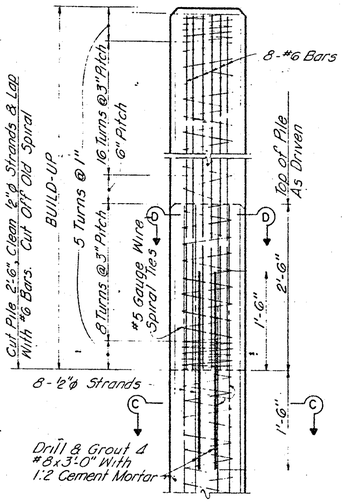
SECTION D-D



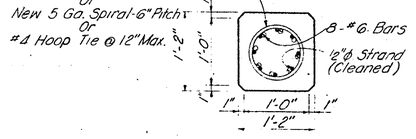
ELEVATION



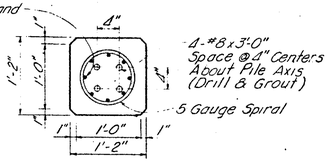
BUILD - UP
WITHOUT DRIVING



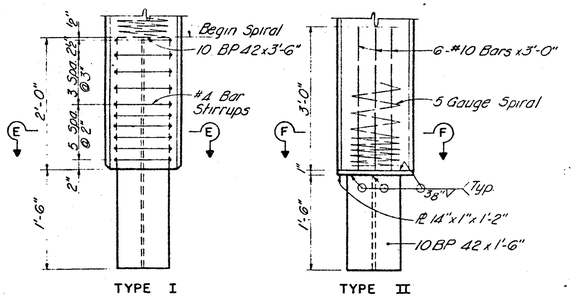
BUILD - UP
WITH DRIVING



SECTION B-B



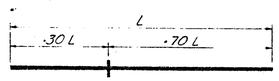
SECTION C-C



SECTION E-E SECTION F-F

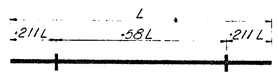
TYPE I TYPE II

ALTERNATE PILE TIPS



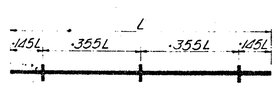
1 POINT PICKUP

Clearly Mark All Pick-Up Points..



2 POINT PICKUP

All Lifting To Be At Picking Points.



3 POINT PICKUP

PICKING POINTS

GENERAL NOTES

SPECIFICATIONS: Kentucky Department of Highways Standard Specifications for Road & Bridge Construction, current edition.

CONCRETE: For piles shall be Class "D" Modified. Cylinder strength shall be 4,000 psi at the time of release of the prestress strands and 5,000 psi minimum at 28 days.

PRESTRESS STRANDS: Prestressing reinforcement shall be ½ inch nominal diameter uncoated seven-wire stress-relieved strand conforming to the requirements of grade 270, ASTM Designation, A416, current edition.

DESIGN STRESSES: Initial strand tension - 29,100 pounds. f_s - 270,000 psi, (Strands) f_s - 20,000 psi. (Mild Reinf.) f'_c - 5,000 psi, f'_c @ Transfer - 4,000 psi. Spiral Reinforcement (#5 U.S. Steel Wire gauge) Conforming to ASTM A82.

DRIVING PILES: Piling shall be driven to refusal or solid rock. Test piles shall be driven where designated on the plans to determine the length of pile required. All test piles shall be accurately located so that they may be used in the finished structure. Pile heads shall be protected from direct hammer impact by using approved cushion blocks.

PICK-UP POINTS: For piles less than 60 feet long, use one pick-up point .30L from the head of the pile. For piles 60 feet to 90 feet long, two pick-up points .21L from each end of the pile. For piles 90 feet to 120 feet long, three pick-up points; one point at .5L and two points at .125L from each end of the pile. All picking points must be clearly marked and lifting slings are to be hitched at these points.

CHAMFERS & CORNERS: All corners shall be chamfered to one inch or rounded to approximately one inch radius.

BUILD-UP & SPLICES: Build-ups and splices may be used as detailed if authorized by the Engineer.

FORMS: For forming the exterior of piles, the use of steel forms on concrete casting beds is required unless otherwise approved by the Engineer. Steel form finish shall conform to article 403.3.8-B KDH. Specifications.

REJECTION: Piles with honeycomb of such extent as to affect the strength or resistance to deterioration will not be accepted.

PAYMENT: Payment shall be made on the basis of the unit price bid per linear foot of piling. See Section 402.5.1 of the Specifications.

COMMONWEALTH OF KENTUCKY
DEPARTMENT OF HIGHWAYS
FRANKFORT

STANDARD PRECAST PRESTRESSED

14" CONCRETE PILE

APPROVED: A.O. Heinz
STATE HIGHWAY ENGINEER

DRAWING NO. P 23A

DATE 10-20-