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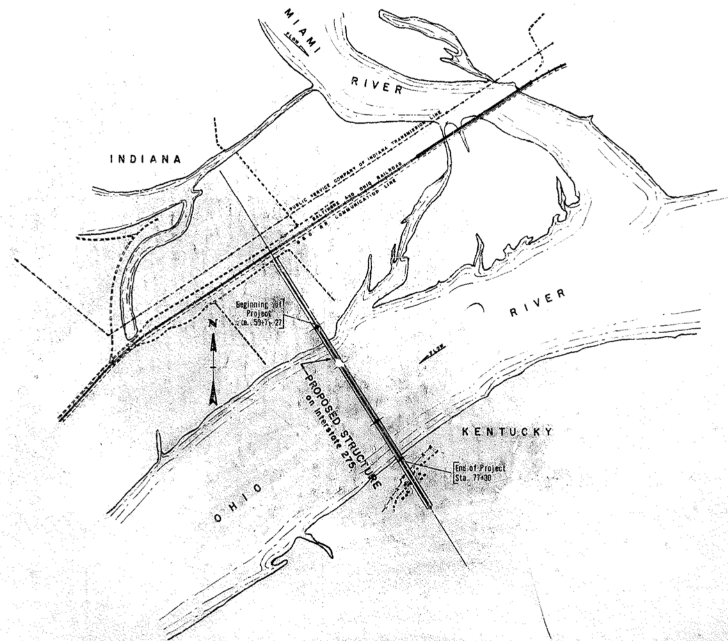
COMMONWEALTH OF KENTUCKY
STATE OF INDIANA
STATE HIGHWAY DEPARTMENTS

PLAN AND PROFILE OF PROPOSED
STATE HIGHWAY
BOONE COUNTY
PROJECT I-275-9(19)0



LAYOUT MAP

SCALE IN FEET

GROSS LENGTH 1,758.73 LIN. FT. 0.333 MILES
NET LENGTH 1,758.73 LIN. FT. 0.333 MILES

RECOMMENDED FOR APPROVAL
HAZELET AND ERDAL
CONSULTING ENGINEERS
File No. 872-A

BY Robert M. Wood

DATE Dec. 15, 1967

STATE OF KENTUCKY ROBERT M. WOOD 1590 REGISTERED PROFESSIONAL ENGINEER

ROBERT M. WOOD REGISTERED No. INDIANA RESIDENT OF KENTUCKY PROFESSIONAL ENGINEER

APPROVED BY KENTUCKY DEPARTMENT OF HIGHWAYS

BY A. O. Neiser DATE 12-19-67
STATE HIGHWAY ENGINEER

BY W. B. Hazelrigg DATE 12-19-67
COMMISSIONER OF HIGHWAYS

APPROVED BY INDIANA STATE HIGHWAY COMMISSION

BY [signature] DATE 12-20-67
CHIEF ENGINEER

BY M. L. Hayes DATE 12-22-1967
EXECUTIVE DIRECTOR

SHEET 1 OF 21

DEPARTMENT OF COMMERCE
BUREAU OF PUBLIC ROADS

RECOMMENDED FOR APPROVAL:

DISTRICT ENGINEER DATE

APPROVED:

DIVISION ENGINEER DATE

DRAWING NO. 17208

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

GENERAL NOTES

SPECIFICATIONS: Kentucky Department of Highways Standard Specifications current edition, with Revisions and Special Note for Substructure, Main River Spans, shall apply to this Project.

DESIGN LOAD: Bridge designed for HS20-44 loading as specified in 1961 AASHO Specifications, including Interim Specifications for 1961, 1962, 1963 and 1964 or alternate loading of two 24 kip axles spaced 4 feet apart, whichever produces the greater stress, and modifications as per the Design Specifications for this Project. Dead load includes 20 pounds per square foot of roadway surface allowance for futura wearing surface.

DESIGN STRESSES: For reinforced concrete:

f_s = 20,000 psi. u = 200 psi. for embedment
f'_c = 3,000 psi. u = 300 psi. for Σ_o
f_c = 1,200 psi. n = 10

FOUNDATION PRESSURE: Footings are designed for a maximum pressure of 18,000 pounds per square foot and piles are designed for a maximum load of 117 tons per pile. These maximums are for Group I loads with increases allowed for other loading groups in accordance with AASHO Specifications, Article 1.4.1.

TYPE OF PILE: The Contractor shall use 14" Structural Steel Bearing Pile at 89 pounds.

PILING: Piling shall be driven to refusal or to solid rock. Test piles shall be driven where designated on the plans to determine the length required. All test piles shall be accurately located so that they may be used in the finished structure.

COORDINATION WITH CONTRACTORS ON ADJACENT PROJECTS: In addition to the requirements of Article 1.5.6 of the Standard Specifications, this Contractor shall coordinate his work with that of Contractors on adjacent sections of this Project. See Special Note for Substructura, Main River Spans.

CONCRETE: Class 'A' Concrete is to be used throughout.

CIRCULAR SECTION REINFORCED CONCRETE COLUMNS: This note modifies the requirements of Article 404.3.1 and 403.3.8 for pier columns. The Concrete shall be placed, finished and cured as specified in Article 404.3.1 except as required by tha 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) The surface shall be finished as specified in Article 403.3.8-B.

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 furnishing the forms, placing the concrete and finishing as specified shall be included in the unit price bid for Concrete, Class 'A'.

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

CONSTRUCTION JOINTS: All construction joints shall be carefully formed. The Contractor shall furnish sufficient mixer capacity to place the concrete between construction joints, as noted on the plans, in a period not to exceed ten (10) hours continuous run. After one section of the concrete has been placed, the construction joint shall be thoroughly cleaned of all laitance and loose or foreign material just before the concrete takes its final set (which is about six hours). The joint shall then be covered with burlap and kept completely saturated with water. Flush the joint with 1:2 Portland Cement Mortar before placing the adjoining section.

SLOPE PROTECTION: Slope Protection shall be Dry Cyclopean Stone Riprap in accordance with Article 501.3.5 of the Standard Specifications.

REINFORCEMENT: Dimensions shown from face of concrete to bars are to center of bars unless noted as clear distance. Spacing of bars is from center to center of bars. See Special Note for Substructure, Main River Spans, for splicing of reinforcement.

PROTECTING EXPOSED STEEL REINFORCEMENT: Exposed steel reinforcement at the tops of all columns shall be protected by painting with Type 1 Red Lead or other protective measures as may be approved by the Engineer. The cost of protecting the exposed steel reinforcement shall not be paid for separately but shall be included in the unit price bid for 'Steel Reinforcement.'

SPIRAL REINFORCEMENT: Splices for spirals where desired by the Contractor shall be made with a minimum of one and one-half turns of spiral, or the splices may be butt welded in accordance with the requirements for welding in the Special Notes. No additional payment will be made for these splices, but 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 Section 641.5.0 of the Standard Specifications.

PIER LIGHTS: During construction, from completion of Piers B and C to any elevation above the tops of their respective cofferdams, each end of each pier shall be marked by a fixed 360 degree red light. Lights shall be navigation type with 155 mm marine beacons, aluminum lanterns complete with 360 degree red acrylic Fresnel wide vertical divergence lens, lampchanger, four prefocused 0.46 amp lamps, Sun Switch and 6 volt, 2500 ampere-hour carbonaire battery, or equal. A weather-tight wood battery box to protect the battery is to be furnished and securely placed convenient to each light at each location. Lights shall be raised with each successive lift of concrete until they are in place at final elevation at top of each pier.

The above lights shall be displayed from both downstream and upstream ends of the cofferdams at Piers B and C while the cofferdams are in existence. Temporary lights shall be visible against the background lighting for a distance of at least 2,000 yards, 90 percent of the nights of the year.

Upon completion of the contract, the lights shall remain in place. The cost of furnishing, erecting, moving and maintaining these lights until acceptance of the Project by the Kentucky Department of Highway, will be included in the lump sum bid for the pay item, 'Pier Lights'.

CLEARANCE GAGES: A clearance gage consisting of painted marks and numerals as shown on the Plans shall be painted on the upstream and downstream ends of Pier C only. The marks and numerals are to be accurately located as shown on the Plans. The area to be painted shall be thoroughly cleaned before painting. The marks and numerals shall be painted directly on the concrete with two coats of black paint as specified herein. The paint shall be similar and/or equal to any of the following:

a. No. 801 Coroc Synthetic Enamel, black, as manufactured by the Cook Paint and Varnish Company, 1412 Knox Avenue, Kansas City, Missouri.

b. Hydroflex Swimming Pool Paint, black, as manufactured by the Phelan-Faust Paint Manufacturing Company, 932 Loughborough Avenue, St. Louis, Missouri.

c. DuPont 353-801 White and 353-802 Black, alkali resisting paints, as manufactured by the E. I. DuPont DeNemours and Company, 2100 Elston Avenue, Chicago, Illinois.

The work covered by this section shall be paid for at the contract lump sum price for 'Painting Clearance Gages', which payment and price shall be full compensation for all materials, transportation, all equipment and tools, all work and labor, and all incidentals necessary to complete the work.

GROUT: Grout for use in grouting the reinforcing bars into the seal pours of Pier D shall be of the non-shrinking type. The grout shall be made from cement, sand and water with admixtures as necessary or desirable to obtain non-shrink properties. The cement, sand and water shall meet the requirements of the Standard Specifications and, in addition, the sand shall all pass a No. 30 sieve and 50 percent shall pass a No. 50 sieve and 20 percent shall pass a No. 100 sieve. The proportions of cement to sand may vary from a neat grout to a 1:1 mix. A minimum amount of water shall be used to obtain a flowable grout. The grout shall have the consistency of thick cream or heavy paint. Sample mixes shall be made to determine satisfactory consistency for use and these mixes shall be made into test specimens to demonstrate the strength and shrinkage characteristics which must be approved by the Engineer prior to the use of the grout in the construction. The cost of grouting at Pier D will be incidental to the construction of the pier.

FOUNDATION SEAL, CLASS 'A' CONCRETE: The concrete foundation seals to be placed under water shall be constructed in accordance with Articles 403.3.3-B and 404.3.1-B of the Standard Specifications except that a Type D Water-Reducing and Set-Retarding admixture conforming to the requirements of ASTM C494-67T shall be used in the mix as recommended by the admixture manufacturer for tremie concrete. The slump of the tremie concrete shall be not less than four (4) inches nor more than eight (8) inches. The admixture will not be paid for separately, but the cost shall be included in the price bid for 'Foundation Seal, Class 'A' Concrete'. The volume of 'Foundation Seal, Class 'A' Concrete' to be paid for shall be that volume as outlined by plan dimensions or as ordered in writing by the Engineer. The volume of concrete displaced by the pile heads shall be deducted from the pay quantities. The accepted quantities, thus measured, shall be paid for at the contract unit price per cubic yard for 'Foundation Seal, Class 'A' Concrete'. Such payment shall be full compensation for all materials, including admixtures as specified, forms, falsework, placing and finishing, all equipment, tools, labor, and incidentals necessary to complete the work.

ESTIMATED QUANTITIES

ITEM	UNIT	PIER A	PIER B	PIER C	PIER D	TOTALS
Foundation Seal, Class 'A' Concrete	Cu. Yds.	243	1,788	6,608(2) 5,344(3)	683	9,320(2) 8,056(3)
Concrete, Class 'A'	Cu. Yds.	1,831.3	4,258.6	6,028.3	2,303.8	14,422.0
Steel Reinforcement	Lbs. 139,838	139,628	168,167	233,794	190,436	732,025 — 732,235
Structure Excavation - Common	Cu. Yds.	2,200	3,030	7,330	1,210	13,770
Structure Excavation - Solid Rock	Cu. Yds.			1,155	555	1,710
Cofferdams						Lump Sum
Steel Piles(14BP89) - Furnishing	Lin. Ft.	4,300	7,600			11,900
Steel Piles(14BP89) - Driving	Lin. Ft.	4,300	7,600			11,900
Slope Protection (1)	Sq. Yds.	690				690
Pier Lights						Lump Sum
Painting Clearance Gages						Lump Sum

(1) Dry Cyclopean Stone Riprap
(2) If internally braced cofferdam is employed at Pier C.
(3) If self-supporting cofferdam is employed at Pier C.

** PIER LIGHTS (Cont.): Immediately prior to final acceptance of the project by the Kentucky Department of Highways, the Contractor shall fully recharge the batteries and replace all the lamps (bulbs) and perform any other maintenance necessary as directed by the Engineer so as to leave the temporary pier lights in satisfactory automatic operating condition.

FALSEWORK: The Contractor shall submit to the Division of Construction for submission to U.S. Coast Guard for approval and temporary navigation lighting requirements six (6) sets of falsework plans showing the plan, elevation, and location of any and all temporary structures to be used in connection with the construction of this bridge.

SPECIAL PROVISIONS

No. 6-A For Staking (F. A. Projects).
No. 15 Relating to Bid Proposal Guaranty and Contract Bonds.
No. 40-B For Grading Requirements for Coarse Aggregates.
No. 46 Relative to Water Pollution.

PR 1278 (Rev. 12-65) Required Contract Provisions Federal-Aid Contracts Interstate Highways (Act of 1956)

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

SPECIAL NOTE

For Substructure, Main River Spans

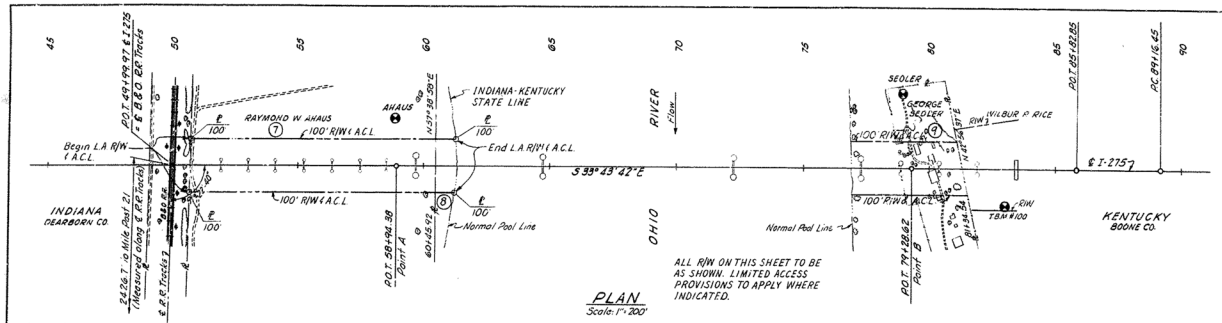
DESIGNED BY RDG CHECKED BY DATE REVISED Revised Foundation Seal Cl. A Conc. Quantity
DETAILED BY WES CHECKED BY RDG DATE REVISED Wt. of reinforcement steel
TRACED BY CHECKED BY DATE REVISED Falsework Note

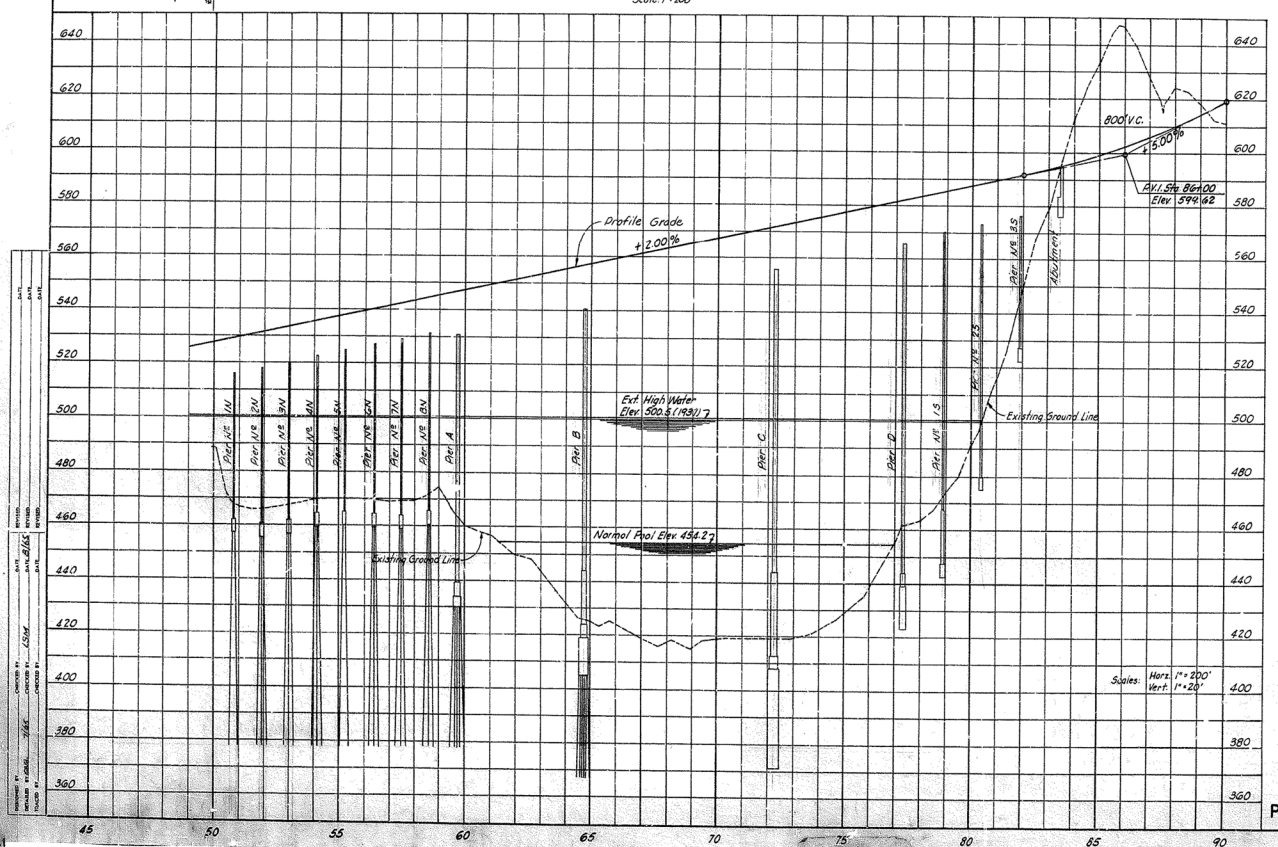
KENTUCKY DEPARTMENT OF HIGHWAYS
INDIANA STATE HIGHWAY COMMISSION
PROJECT I 275-9 ( )0
BRIDGE OVER OHIO RIVER ON I 275
BETWEEN BOONE COUNTY, KENTUCKY AND DEARBORN COUNTY, INDIANA

STATION 68+50.56

ESTIMATED QUANTITIES & GENERAL NOTES

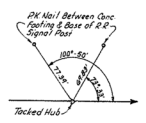
HAZELET & ERDAL Consulting Engineers File No. 872-A	BRIDGE NUMBER	DRAWING NO. 17208	INDEX



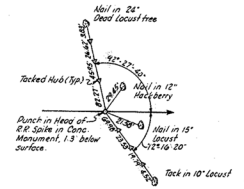


HYDRAULIC DATA

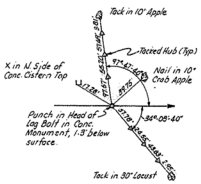
Max. Flood (1937)	Elev. 500.5
Max. Flood Discharge	960,000 c.f.s.
Max. Flood Frequency	150 years - plus
Design Flood (1937)	Elev. 500.5
Design Discharge	960,000 c.f.s.
Backwater caused by Bridge	Negligible



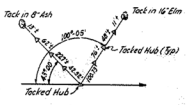
P.O.T. 49+99.97 ℄ I-275
= ℄ B & O R.R. Tracks



P.O.T. 58+94.38
Point A



P.O.T. 79+28.62
Point B



P.O.T. 85+82.85

BENCH MARKS

INDIANA — AHAUS Elev. 474.340
Survey Disk set in top of concrete cylinder projecting 2" and stamped AHAUS 1964, 178' Lt. Sta. 58+85

KENTUCKY — SEDLER Elev. 482.620
Survey Disk set in top of concrete cylinder projecting 3" and stamped SEDLER 1964, 279' Lt. Sta. 78+92

T.B.M. #100 Elev. 573.098
R.P. Spike in N. Root of 42" White Oak, 136' Rt. Sta. 83+09

NOTE:
Elevations Refer to Mean Sea Level U.S.C. & G.S. - 1929 General Adjustment.

UTILITIES

None

SHEET 3 OF 21

KENTUCKY DEPARTMENT OF HIGHWAYS
INDIANA STATE HIGHWAY COMMISSION

PROJECT I 275-9 ( ) 0

BRIDGE OVER OHIO RIVER ON I 275

BETWEEN BOONE COUNTY, KENTUCKY AND DEARBORN COUNTY, INDIANA

STATION

PLAN & PROFILE

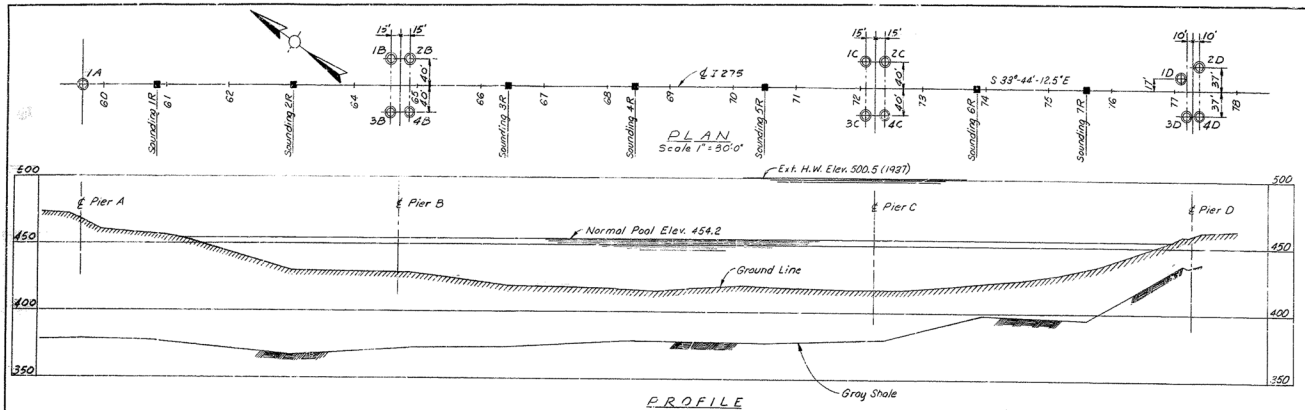
HAZELET & ERDAL Consulting Engineers File No. 877

BRIDGE NUMBER

DRAWING NO. 17208

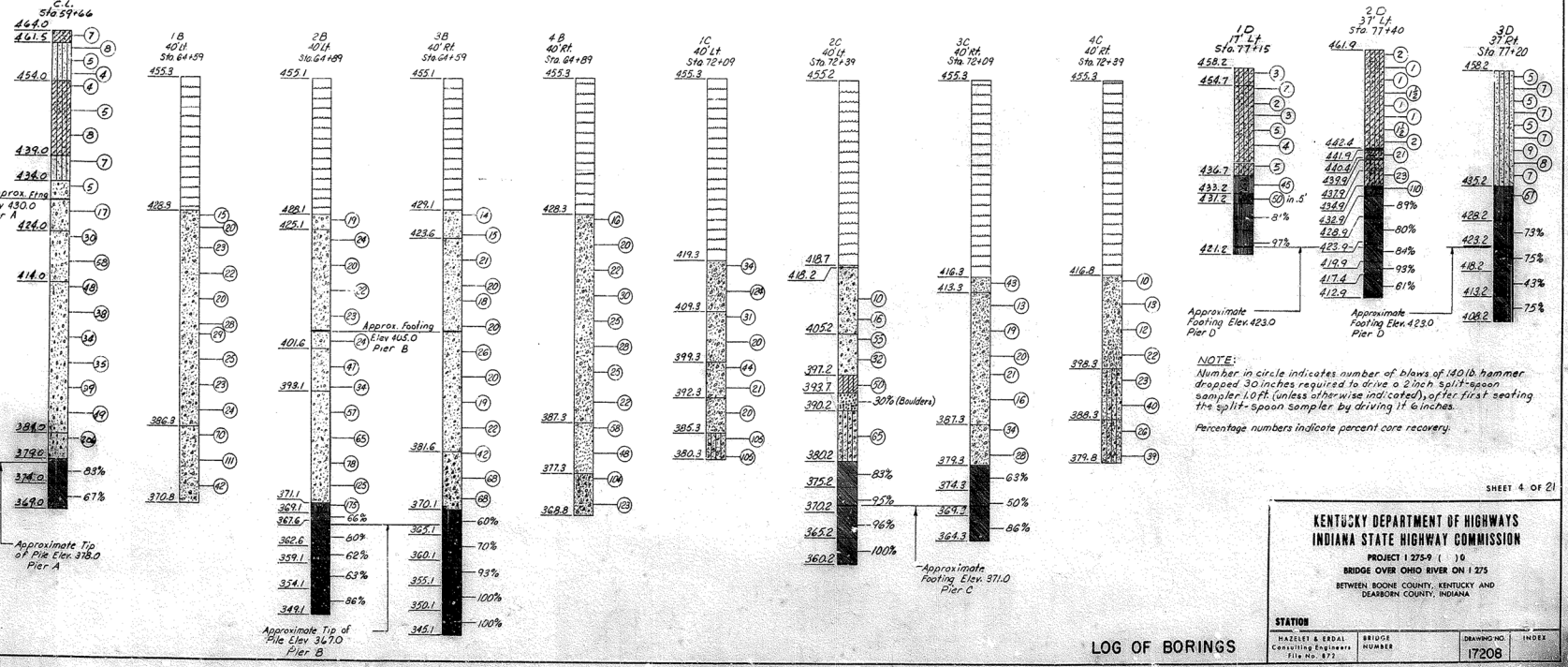
INDEX

FED. ROAD DIST.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
7	KY.		1966		



SOIL TYPE LEGEND

- Water
- Silty Clay with rock fragments
- Weathered brown & gray shale with limestone fragments.
- Limestone
- Brown & Gray Shale
- Layered gray shale and fossiliferous limestone
- Gray Shale
- Silty Clay
- Sand, Silt
- Silt, Clay, Sand
- Sand & Gravel
- Sand, Gravel & Silt
- Sand, Gravel & Rock Fragments
- Sand, clay
- W Weathered



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 1ft 6 inches.

Percentage numbers indicate percent core recovery.

SHEET 4 OF 21

KENTUCKY DEPARTMENT OF HIGHWAYS
INDIANA STATE HIGHWAY COMMISSION

PROJECT I 275-9 ( ) 0

BRIDGE OVER OHIO RIVER ON I 275

BETWEEN BOONE COUNTY, KENTUCKY AND DEARBORN COUNTY, INDIANA

STATION

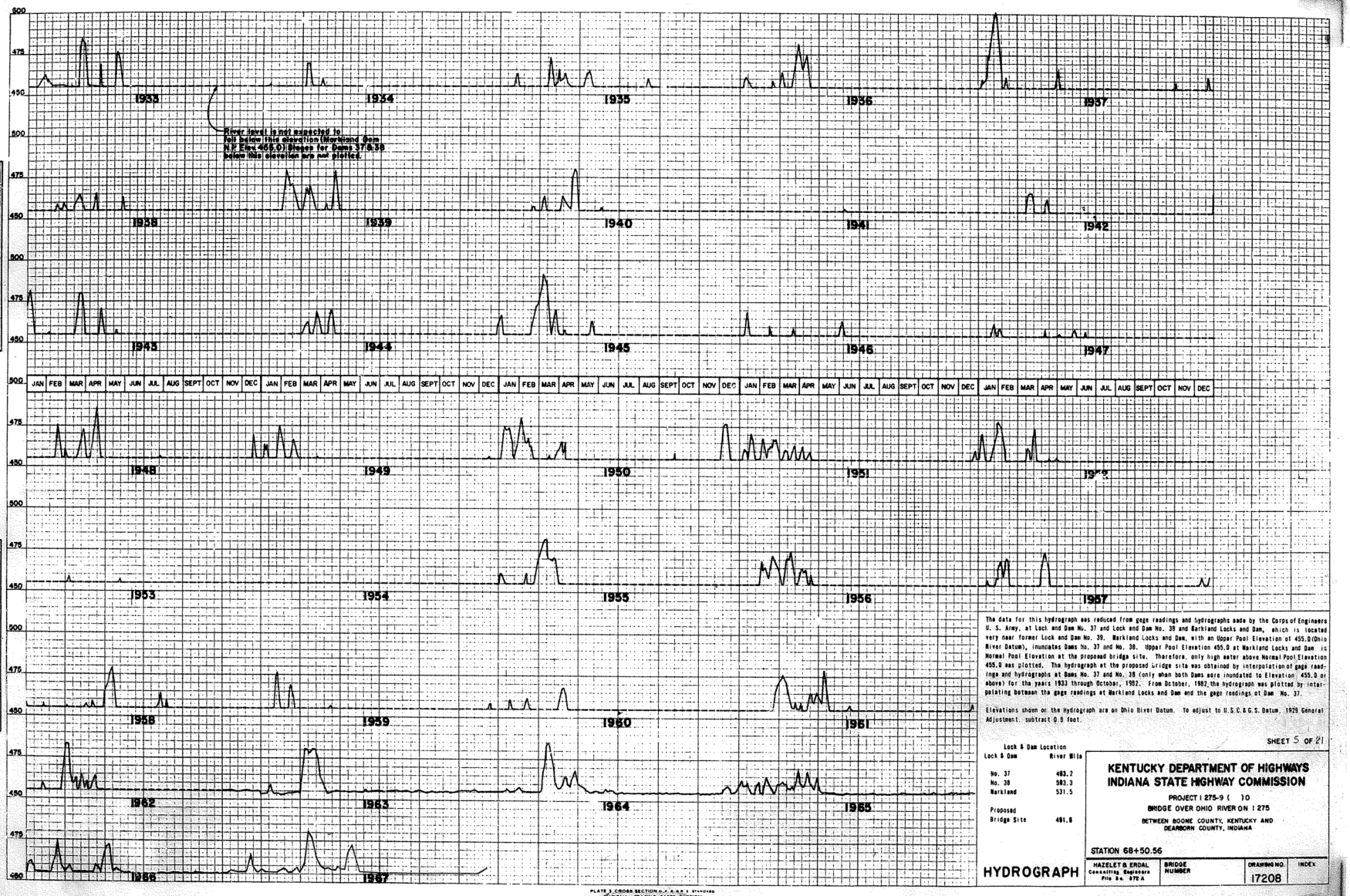
HAZELET & ERDAL Consulting Engineers File No. 872

BRIDGE NUMBER

DRAWING NO. 17208

INDEX

LOG OF BORINGS



FINAL SURVEY — PLOTTED / CHECKED / TRACED / NOTE BOOK / NO. / DATE / BY

ORIGINAL SURVEY — PLOTTED / CHECKED / TRACED / NOTE BOOK / NO. / DATE 8-59 / BY CPW W.R.T.

The data for this hydrograph was reduced from gage readings and hydrographs made by the Corps of Engineers U. S. Army, at Lock and Dam No. 37 and Lock and Dam No. 38 and Markland Locks and Dam, which is located very near former Lock and Dam No. 39. Markland Locks and Dam, with an Upper Pool Elevation of 455.0 (Ohio River Datum), inundates Dams No. 37 and No. 38. Upper Pool Elevation 455.0 at Markland Locks and Dam is Normal Pool Elevation at the proposed bridge site. Therefore, only high water above Normal Pool Elevation 455.0 was plotted. The hydrograph at the proposed bridge site was obtained by interpolation of gage readings and hydrographs at Dams No. 37 and No. 38 (only when both Dams were inundated to Elevation 455.0 or above) for the years 1933 through October, 1982. From October, 1982 the hydrograph was plotted by interpolating between the gage readings at Markland Locks and Dam and the gage readings at Dam No. 37.

Elevations shown on the Hydrograph are on Ohio River Datum. To adjust to U.S.C.&G.S. Datum, 1929 General Adjustment, subtract 0.5 foot.

SHEET 5 OF 21

Lock & Dam Location	
Lock & Dam	River Mile
No. 37	493.2
No. 38	583.3
Markland	531.5
Proposed Bridge Site	481.8

KENTUCKY DEPARTMENT OF HIGHWAYS
INDIANA STATE HIGHWAY COMMISSION

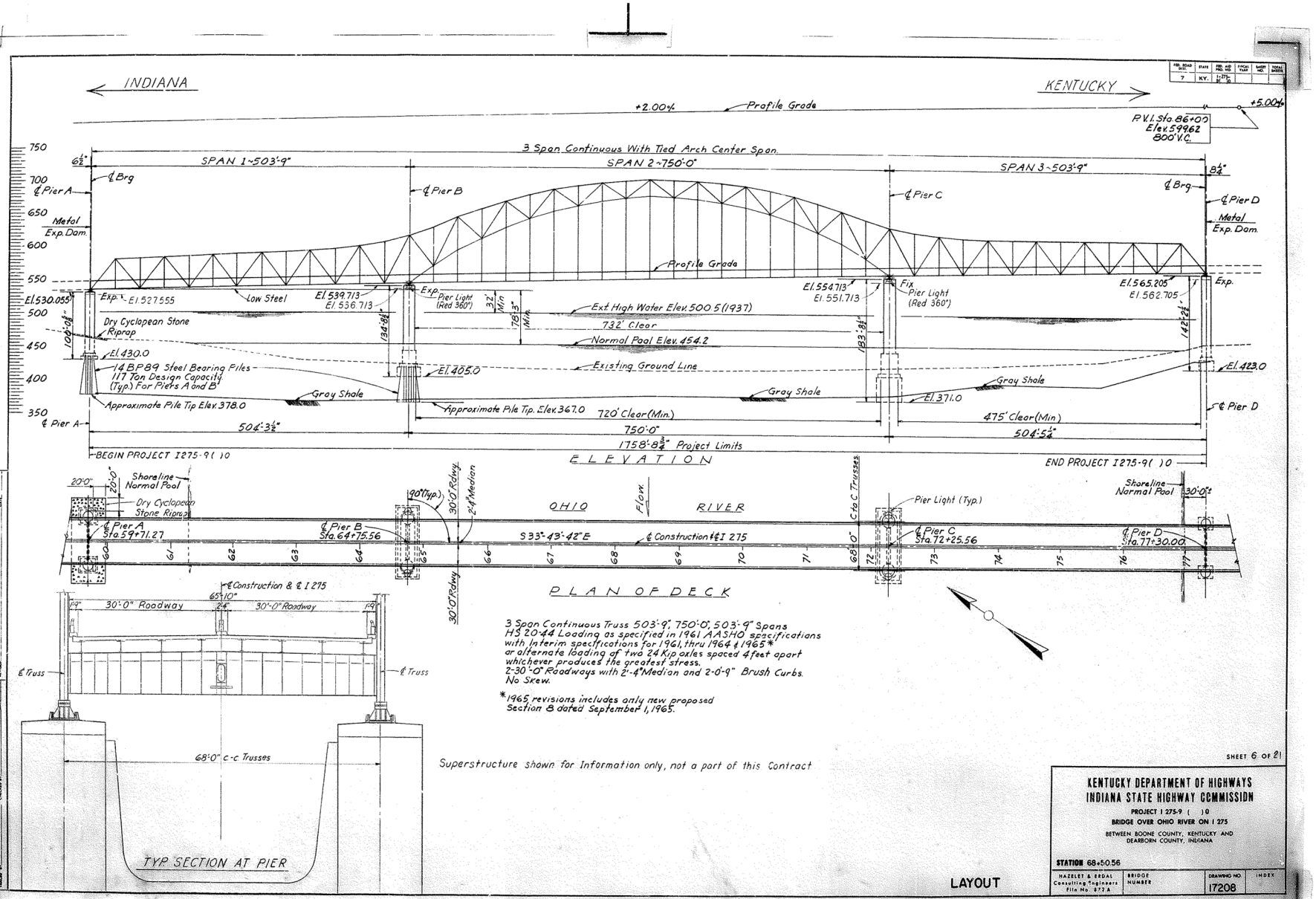
PROJECT I 275-9 ( ) 0
BRIDGE OVER OHIO RIVER ON I 275
BETWEEN BOONE COUNTY, KENTUCKY AND DEARBORN COUNTY, INDIANA

STATION 68+50.56

HYDROGRAPH

HAZELET & ERDAL Consulting Engineers File No. 872.A	BRIDGE NUMBER	DRAWING NO. 17208	INDEX

PLATE 2 CROSS SECTION
NATIONAL TRACING PAPER DIVISION



3 Span Continuous Truss 503'-9", 750'-0", 503'-9" Spans
HS 20-44 Loading as specified in 1961 AASHO specifications with Interim specifications for 1961, thru 1964 & 1965* or alternate loading of two 24 Kip axles spaced 4 feet apart whichever produces the greatest stress.
2-30'-0" Roadways with 2'-4" Median and 2-0-9" Brush Curbs.
No Skew.

*1965 revisions includes only new proposed Section 8 dated September 1, 1965.

Superstructure shown for Information only, not a part of this Contract

LAYOUT

SHEET 6 OF 21

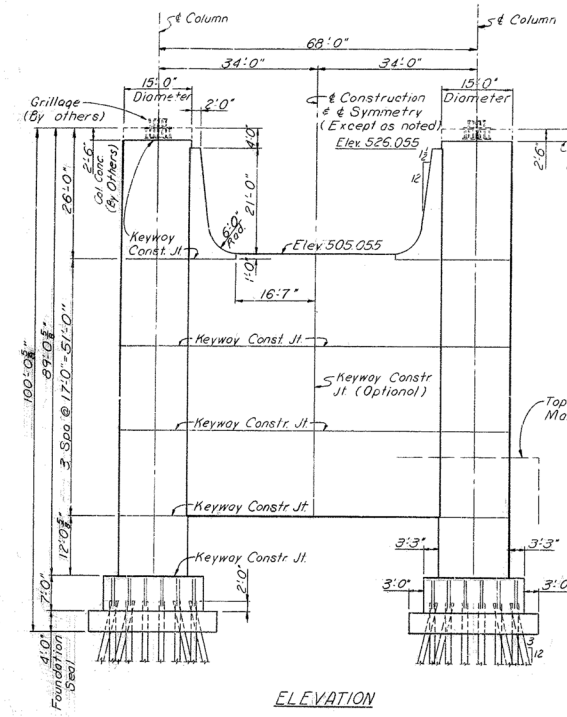
KENTUCKY DEPARTMENT OF HIGHWAYS
INDIANA STATE HIGHWAY COMMISSION

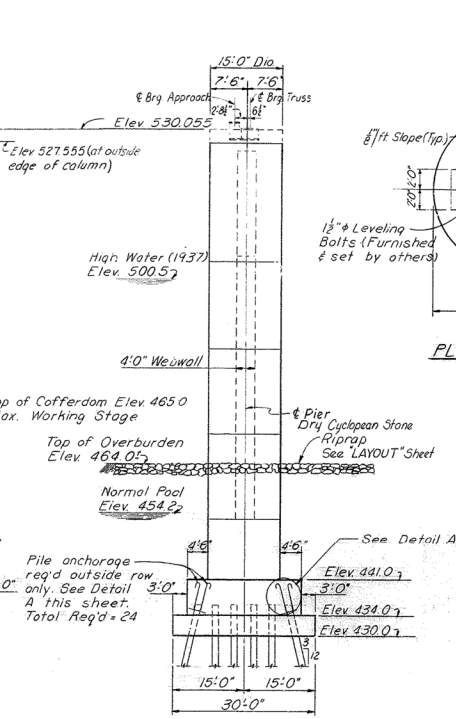
PROJECT I 275-9 ( )0
BRIDGE OVER OHIO RIVER ON I 275
BETWEEN BOONE COUNTY, KENTUCKY AND DEARBORN COUNTY, INDIANA

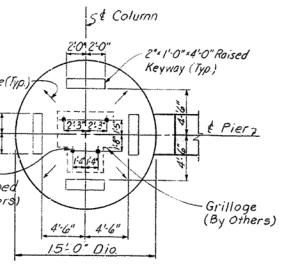
STATION 68+50.56

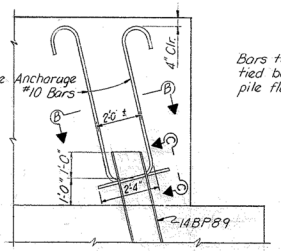
HAZELET & ERDAL Consulting Engineers File No. 873 A	BRIDGE NUMBER	DRAWING NO. 17208	INDEX

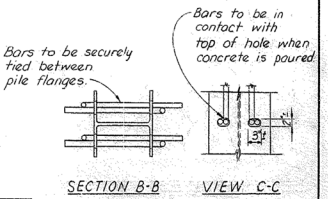
DESIGNED BY L.M.H. DATE
DRAWN BY DATE
TRACED BY DATE
CHECKED BY DATE
CHECKED BY DATE

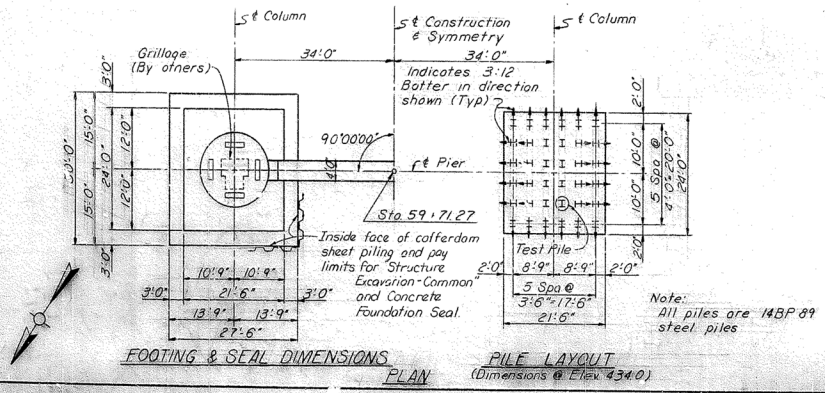












Note:
All piles are 14BP89 steel piles

ESTIMATE OF QUANTITIES

Foundation Seal-Class "A" Concrete	(Cu. Yds.)	243	
Concrete Class "A"	(Cu. Yds.)	1,831.3	
Steel Reinforcement	(Lbs.)	(139,628)	139,838
Structure Excavation-Common-(Cu. Yds.)		2,200	
Steel Piles (14BP89)-Furnishing (Lin. Ft.)		4,300	
Steel Piles (14BP89)-Driving (Lin. Ft.)		4,300	
Slope Protection	(Sq. Yds.)	090	

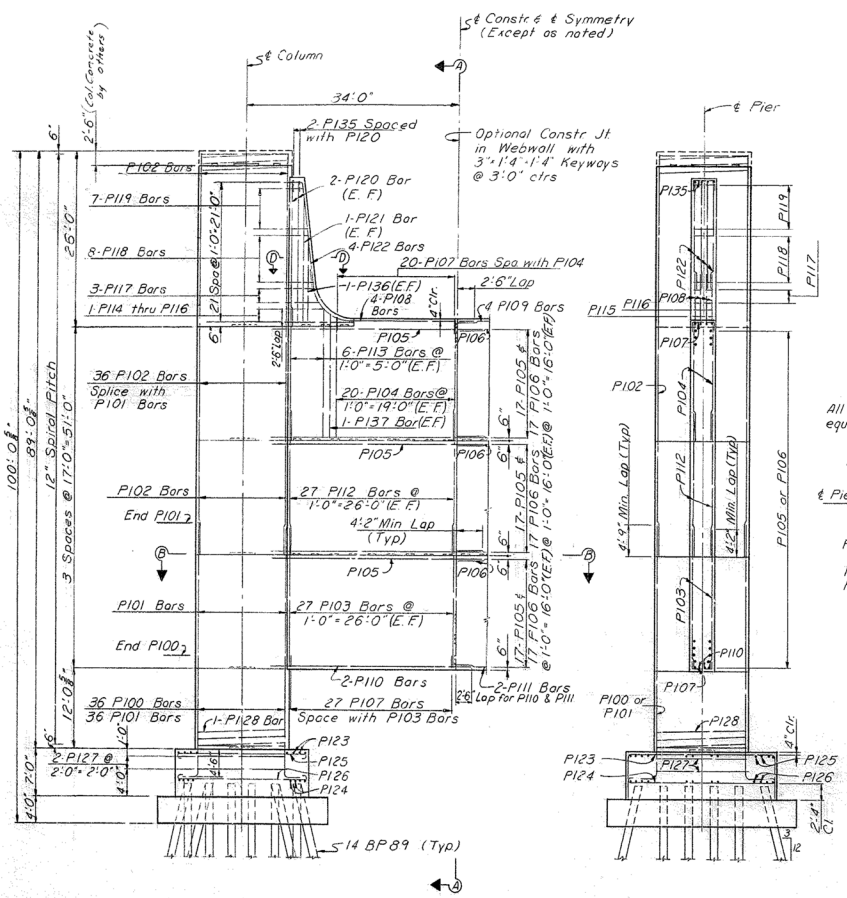
Notes:
Work this sheet with Sheet 8
For reinforcing bar details, see Sheet 15
For General Notes, see Sheet 2
For Grounding Details, see Sheet 16
The cost of furnishing #10 anchor bars is incidental to "Steel Piles (14BP89) Furnishing"

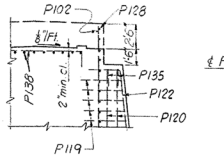
PIER A

SHEET 7 OF 21

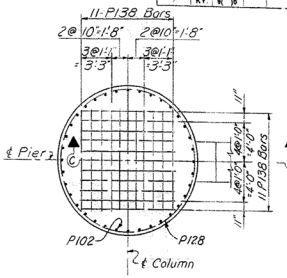
KENTUCKY DEPARTMENT OF HIGHWAYS
INDIANA STATE HIGHWAY COMMISSION
PROJECT I 275-9 ( )0
BRIDGE OVER OHIO RIVER ON I 275
BETWEEN BOONE COUNTY, KENTUCKY AND DEARBORN COUNTY, INDIANA
STATION 60+50.56

HAZELET & ERDAL Consulting Engineers File No. 6718	BRIDGE NUMBER	DRAWING NO. 17208	INDEX

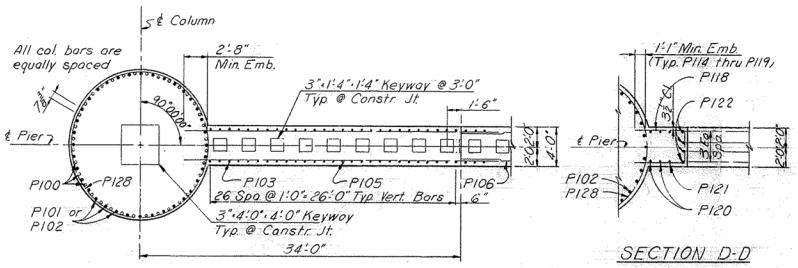




SECTION C-C

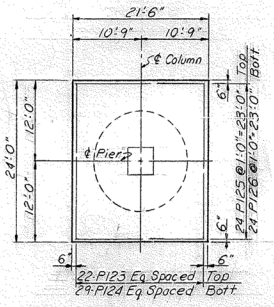


PLAN OF COLUMN



SECTION B-B

SECTION D-D



FOOTING PLAN
(Column bars not shown)

Notes:
Splices in vertical column bars P102 may be added if desired. The lap of such splices shall be 40 bar diameters.

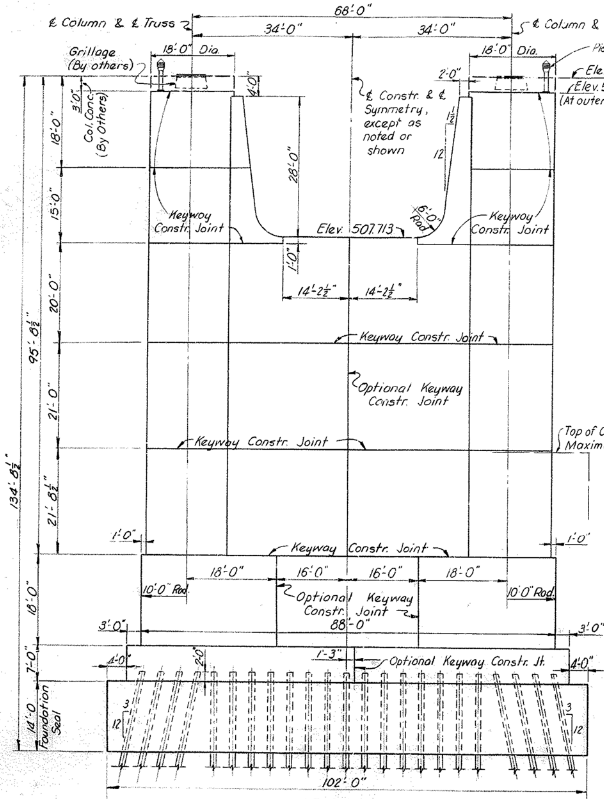
Work this sheet with Sheet 7
For reinforcing bar details, see Sheet 15
Bars P138, shown in Sect C-C, are to be accurately located as shown so that they do not interfere with the drilling of holes for placing of leveling bolts.
E.F denotes Each Face
4" clear cover to reinforcing bars maintained throughout except as noted.

SHEET 8 OF 21

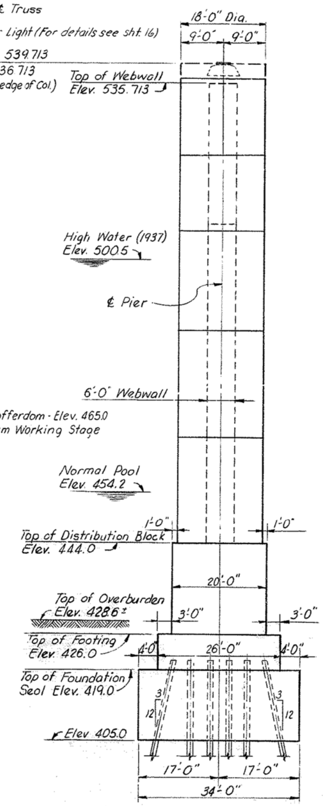
KENTUCKY DEPARTMENT OF HIGHWAYS
INDIANA STATE HIGHWAY COMMISSION
PROJECT I 275-9 ( )0
BRIDGE OVER OHIO RIVER ON I 275
BETWEEN BOONE COUNTY, KENTUCKY AND DEARBORN COUNTY, INDIANA
STATION 68+50.56

HAZELET & ERDAL Consulting Engineers File No. 873 A	BRIDGE NUMBER	DRAWING NO. 17208	INDEX

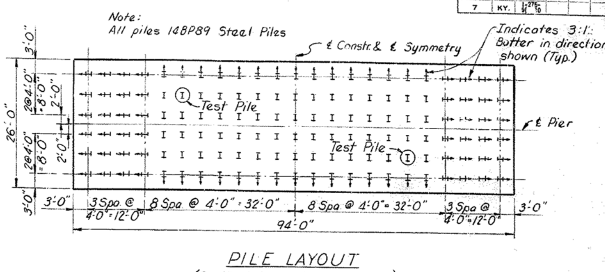
PIER A



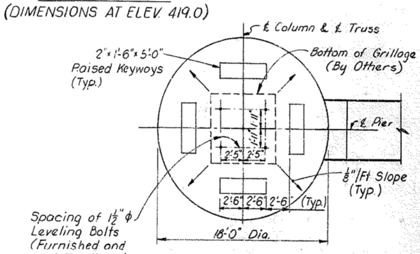
ELEVATION



END VIEW

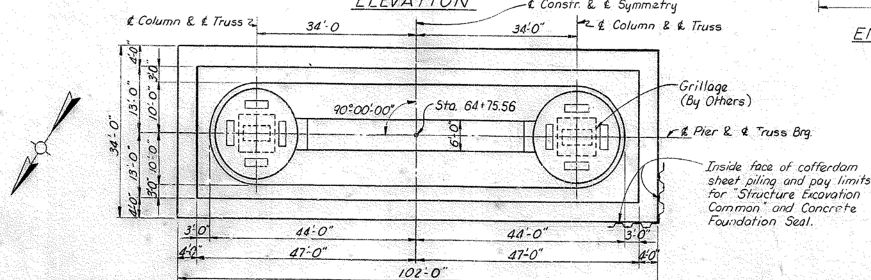


PILE LAYOUT
(DIMENSIONS AT ELEV. 419.0)



PLAN OF COLUMN

Notes:
Work this sheet with Sheet 10
For Reinforcing Bar Details, see Sheet 15
For Pier Light, Ladder and Grounding Details, see Sheet 16
For General Notes, see Sheet 2



PLAN

ESTIMATE OF QUANTITIES

Foundation Seal - Class "A" Concrete	(Cu. Yds.)	1,786
Concrete - Class "A"	(Cu. Yds.)	4,258.6
Steel Reinforcement	(Lbs.)	168,167
Structure Excavation - Common	(Cu. Yds.)	3,030
Steel Piles (14BP89) - Furnishing	(Lin. Ft.)	7,600
Steel Piles (14BP89) - Driving	(Lin. Ft.)	7,600

Designed by R. Lin, Checked by DMH, Date 10-66
Detailed by DMH, Checked by R. Lin, Date 10-66

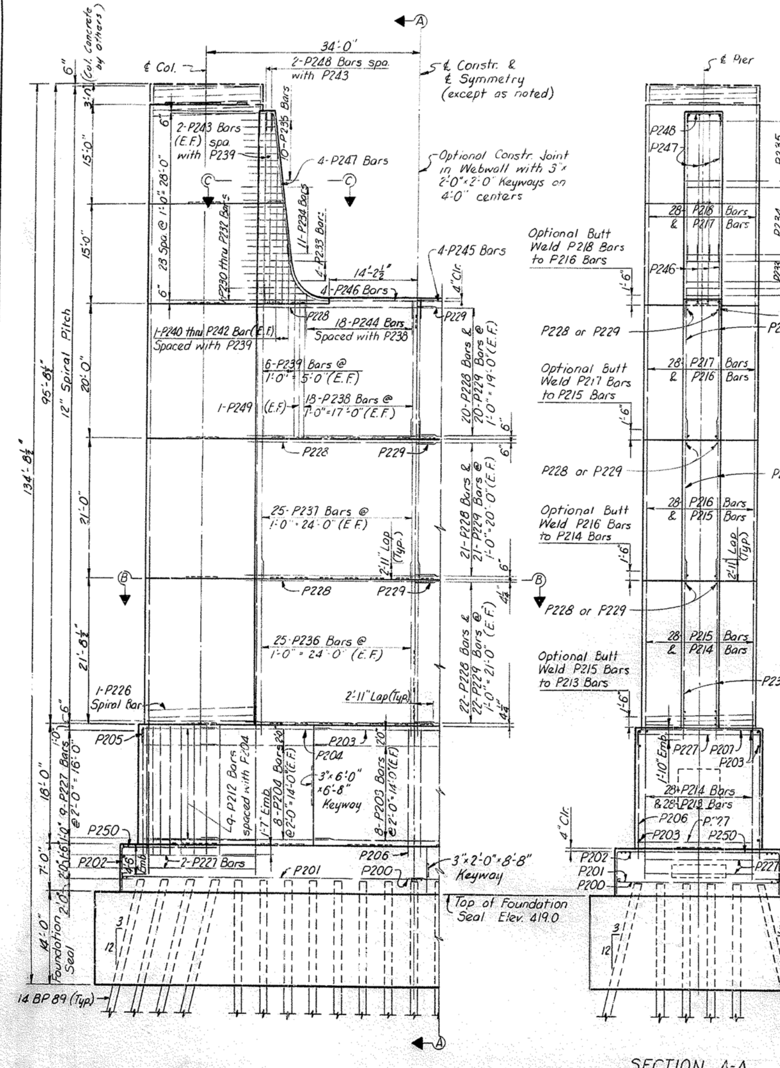
KENTUCKY DEPARTMENT OF HIGHWAYS
INDIANA STATE HIGHWAY COMMISSION

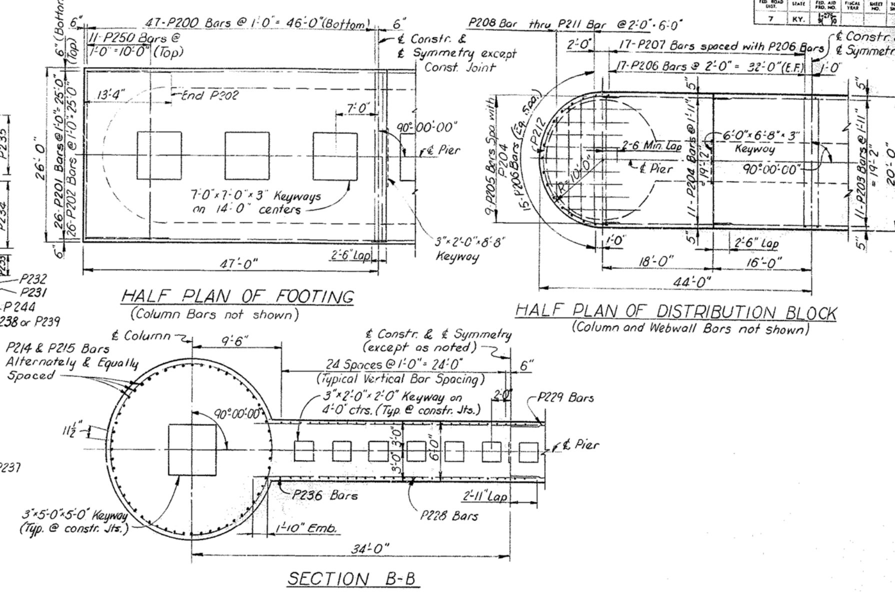
PROJECT I 275-9 ( ) 0
BRIDGE OVER OHIO RIVER ON I 275
BETWEEN BOONE COUNTY, KENTUCKY AND DEARBORN COUNTY, INDIANA

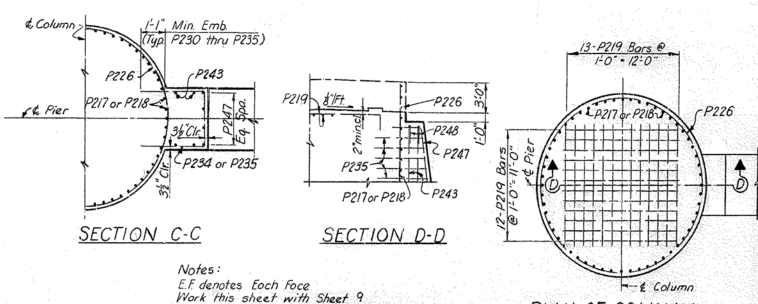
STATION 68+50.56

HAZELET & ERDAL Consulting Engineers File No. 872A	BRIDGE NUMBER	DRAWING NO. 17208	INDEX

PIER B







Notes:

E.F. denotes Each Face.

Work this sheet with Sheet 9.

For Reinforcement Bar Details, see Sheet 15.

P219 Bars of section D-D are to be accurately located as shown so that they do not interfere with the drilling of leveling bolt holes.

4" clear cover to reinforcing bars maintained throughout except as noted.

"Optional Butt Weld" indicates that the welded splices in vertical column bars may be omitted or varied if the use of longer bars than detailed is desired. Such splices in adjacent bars shall be staggered vertically at least 30 bar diameters.

PIER B

KENTUCKY DEPARTMENT OF HIGHWAYS
INDIANA STATE HIGHWAY COMMISSION

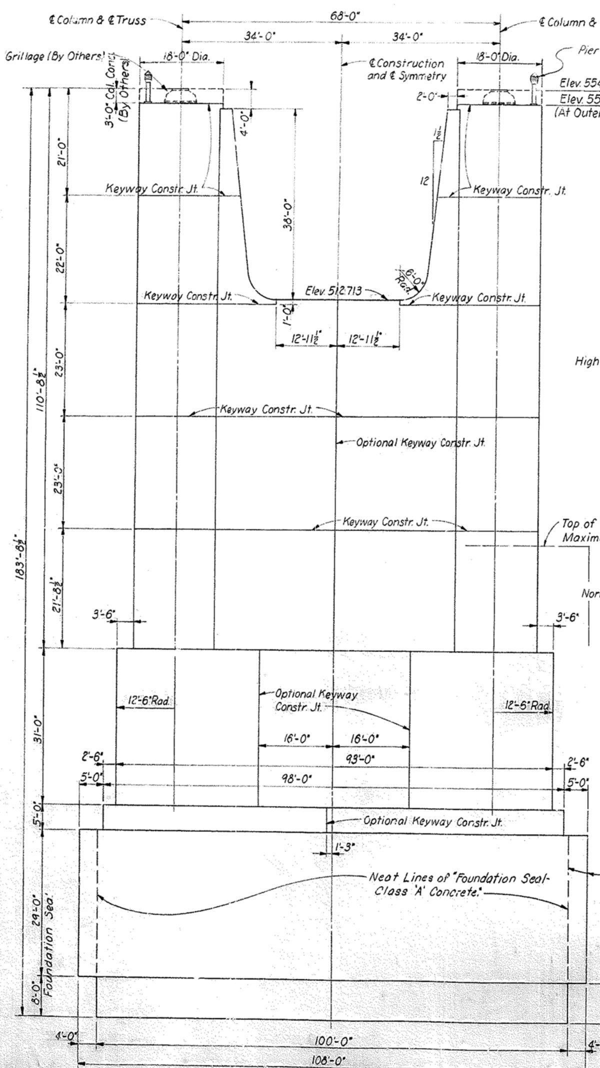
PROJECT I 275-9 ( ) 0
BRIDGE OVER OHIO RIVER ON I 275
BETWEEN BOONE COUNTY, KENTUCKY AND DEARBORN COUNTY, INDIANA

STATION 68+50.56

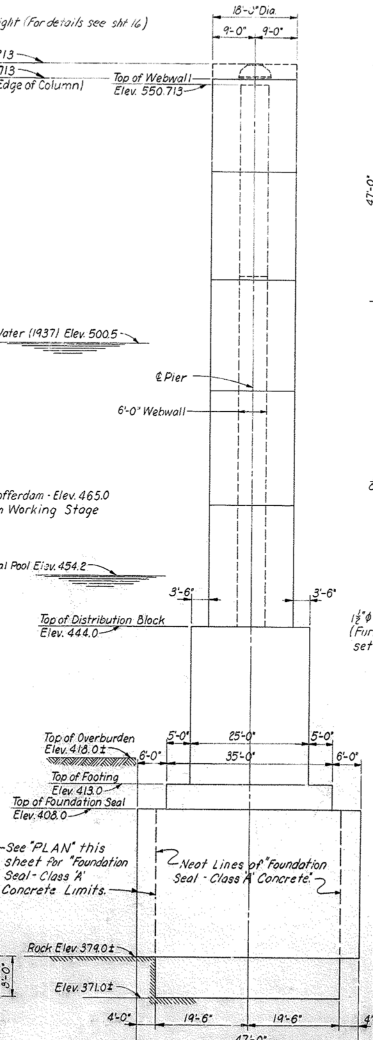
HAZELET & ERDAL Consulting Engineers File No. 872A	BRIDGE NUMBER	DRAWING NO. 17208	INDEX

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

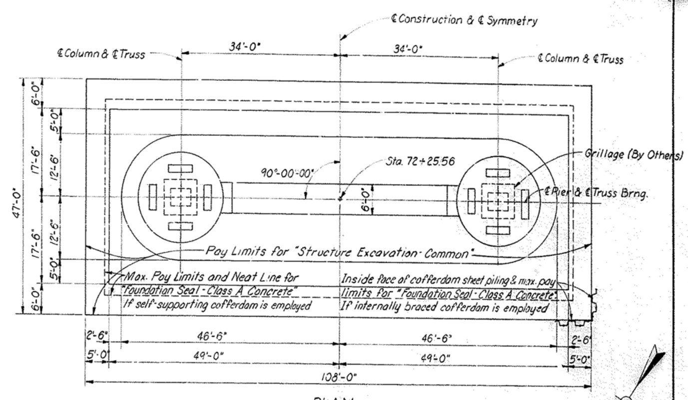
DESIGNED BY R. LIN DATE 10.66 — CHECKED BY DMH — DETAILED BY DMH DATE 11.66 — CHECKED BY R. LIN



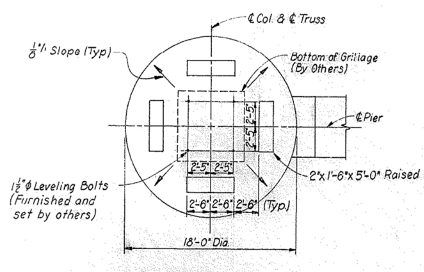
ELEVATION



END ELEVATION



PLAN



PLAN OF COLUMN

ESTIMATE OF QUANTITIES

Foundation Seal - Class "A" Concrete	(Cu. Yds.)	6,608 *	5344 †
Concrete - Class "A"	(Cu. Yds.)	6,028.3	
Steel Reinforcement	(Lbs.)	233,794	
Structure Excavation - Common	(Cu. Yds.)	7,330	
Structure Excavation - Solid Rock	(Cu. Yds.)	1,155	

* If internally braced cofferdam is employed.
† If self-supporting cofferdam is employed.

NOTES:
For General Notes, see Sheet 2
Work this Sheet with Sheet 12
For Reinforcement Bar Details, see Sheet 15
For Pier Light, Ladder, Vertical Clearance Gage and Grounding Details, see Sheet 16

KENTUCKY DEPARTMENT OF HIGHWAYS
INDIANA STATE HIGHWAY COMMISSION

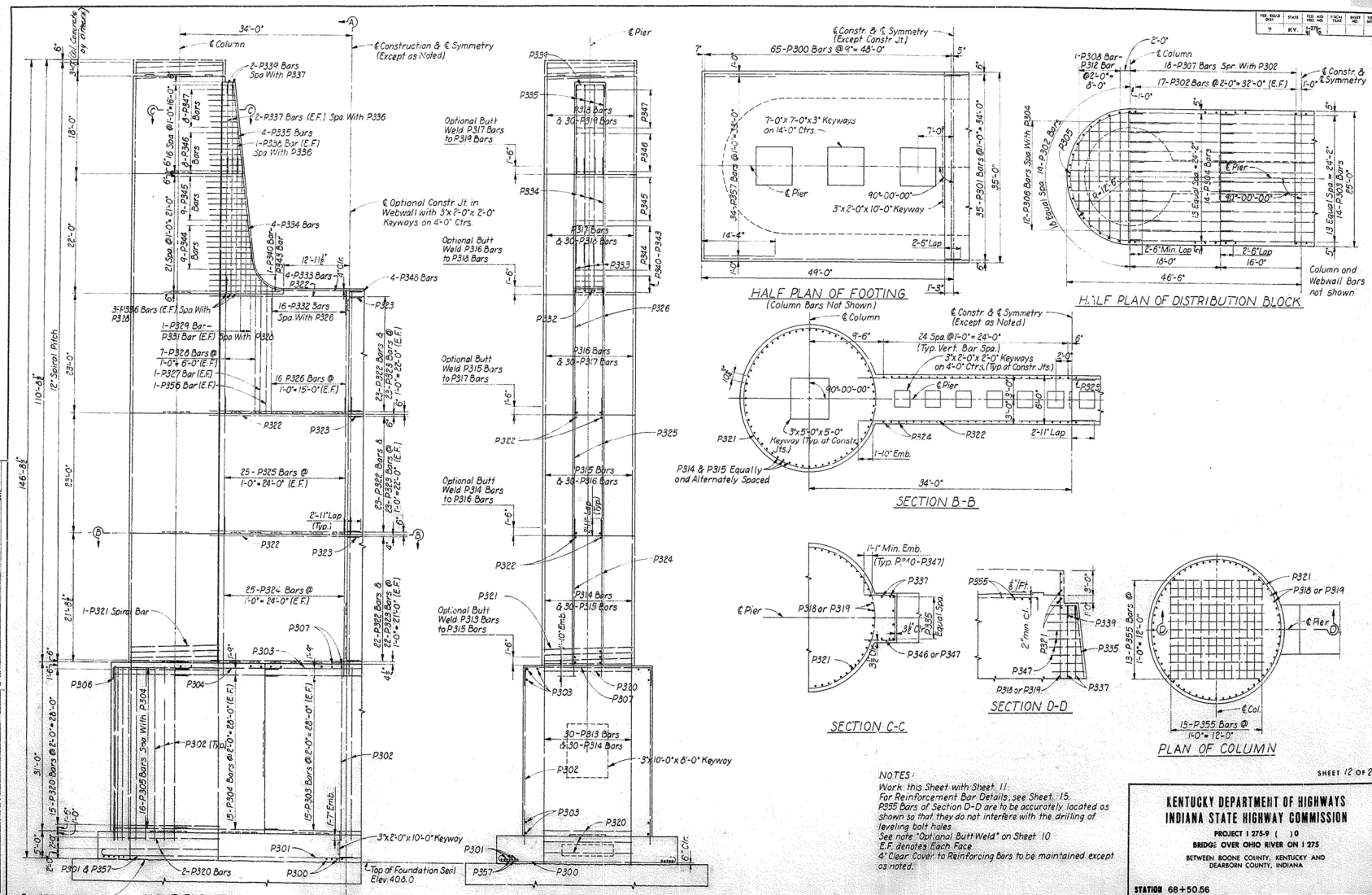
PROJECT I 275-9 ( ) 0
BRIDGE OVER OHIO RIVER ON I 275
BETWEEN BOONE COUNTY, KENTUCKY AND DEARBORN COUNTY, INDIANA

STATION 68+50.56

PIER C

HAZELET & ERDAL Consulting Engineers File No. 872A	BRIDGE NUMBER	DRAWING NO. 17208	INDEX

Added neat lines for Found. Seal Cl. 'A' Conc. 5-6-68
Designed by RDG — Checked by PME — Date 11-66
Drawn by PME — Checked by R. Lin — Date 11-66



NOTES:
Work this Sheet with Sheet 11.
For Reinforcement Bar Details, see Sheet 15.
P355 Bars of Section D-D are to be accurately located as shown so that they do not interfere with the drilling of leveling bolt holes.
See note "Optional Butt Weld" on Sheet 10.
E.F. denotes Each Face.
4" Clear Cover to Reinforcing Bars to be maintained except as noted.

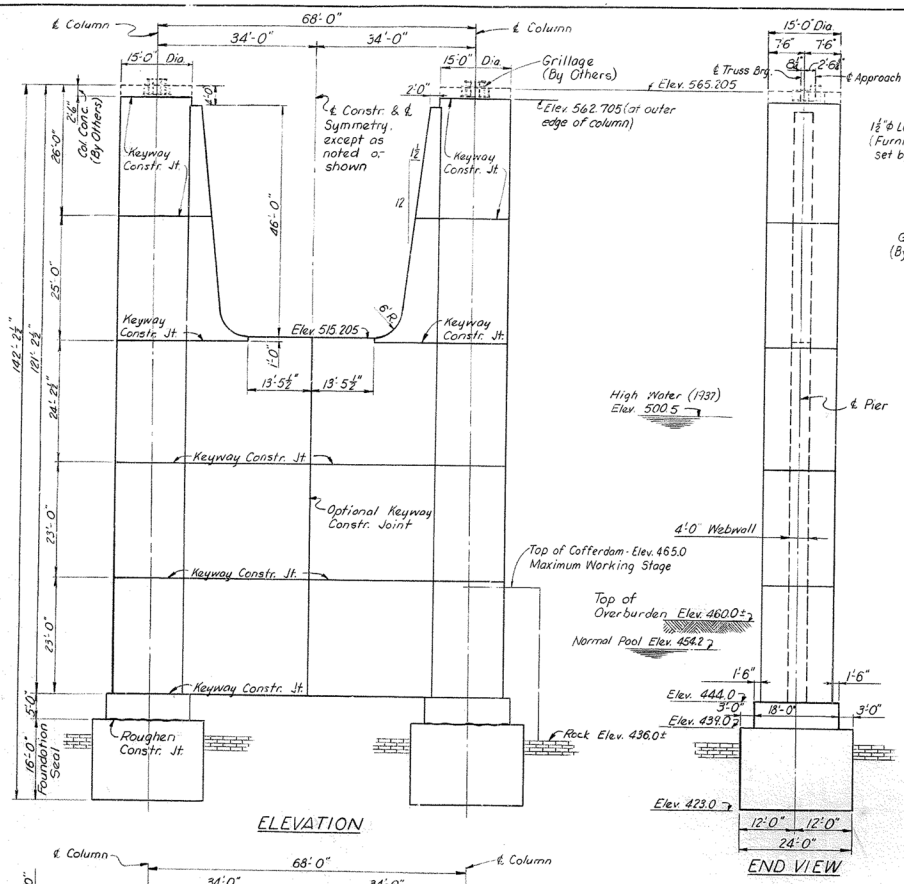
SHEET 12 OF 21

KENTUCKY DEPARTMENT OF HIGHWAYS
INDIANA STATE HIGHWAY COMMISSION

PROJECT I 275-9 ( )0
BRIDGE OVER OHIO RIVER ON I 275
BETWEEN BOONE COUNTY, KENTUCKY AND DEARBORN COUNTY, INDIANA

STATION 68+50.56

HAZZLET & ERDAL Consulting Engineers File No. 872 A	BRIDGE NUMBER	DRAWING NO. 17208	INDEX



Notes:
Work this sheet with Sheet 14
For reinforcing bar details, see Sheet 15
For General Notes, see Sheet 2
For Grounding Details, see Sheet 16

ESTIMATE OF QUANTITIES

Foundation Seal - Class "A" Concrete	(Cu. Yds.)	683
Concrete - Class "A"	(Cu. Yds.)	2,303.8
Steel Reinforcement	(Lbs.)	190,436
Structure Excavation - Common	(Cu. Yds.)	1,210
Structure Excavation - Solid Rock	(Cu. Yds.)	555

PIER D

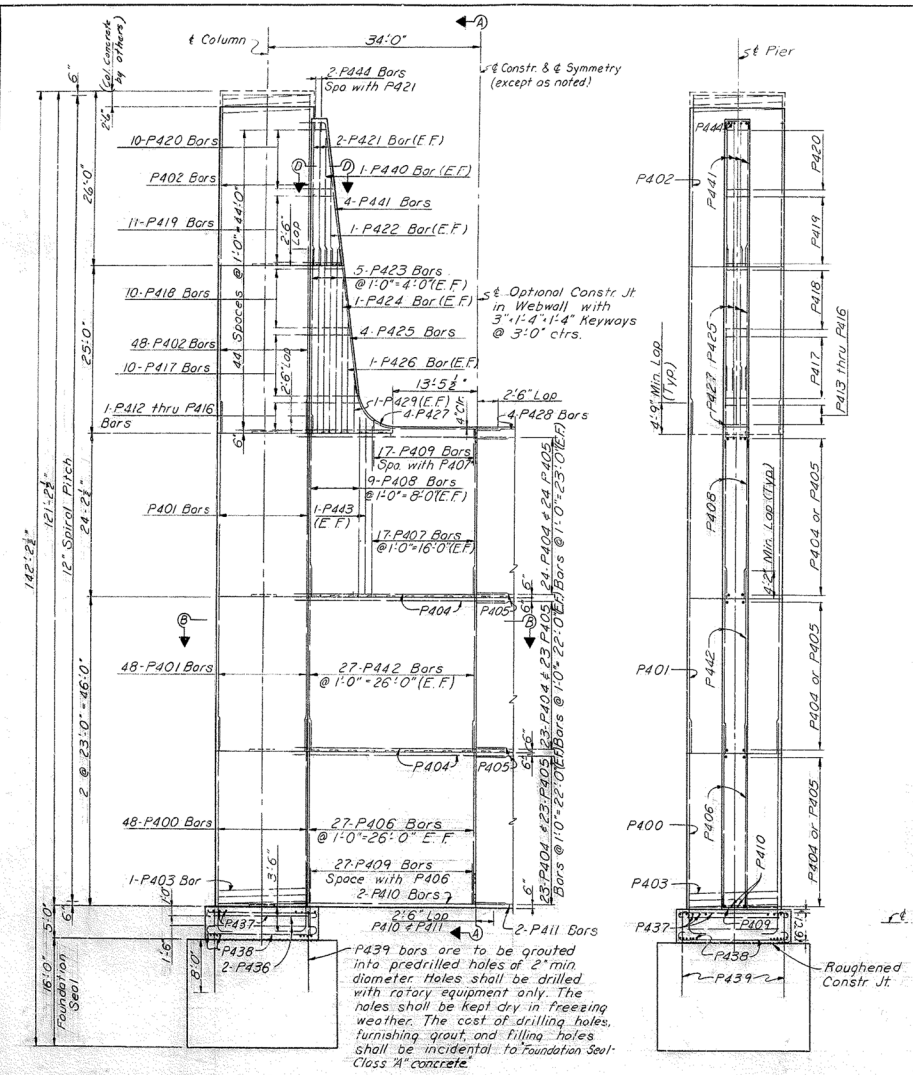
SHEET 13 OF 21

KENTUCKY DEPARTMENT OF HIGHWAYS
INDIANA STATE HIGHWAY COMMISSION

PROJECT I 275-9 ( )0
BRIDGE OVER OHIO RIVER ON I 275
BETWEEN BOONE COUNTY, KENTUCKY AND DEARBORN COUNTY, INDIANA

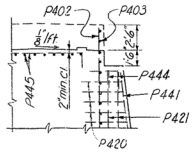
STATION 68+50.56

HAZELET & ERDAL Consulting Engineers File No. 872 A | BRIDGE NUMBER | DRAWING NO. 17208 | INDEX

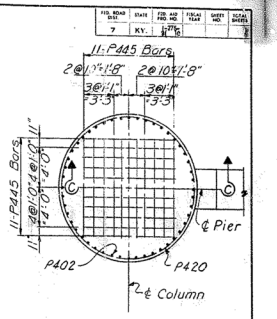


HALF ELEVATION

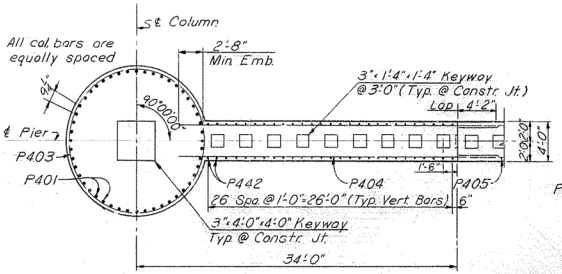
SECTION A-A



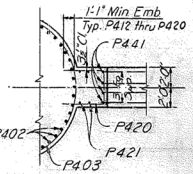
SECTION C-C



PLAN OF COLUMN



SECTION B-B



SECTION D-D

Notes:

Splices in vertical column bars P401 and P402 may be varied if desired. The lap of splices shall be 40 diameters.

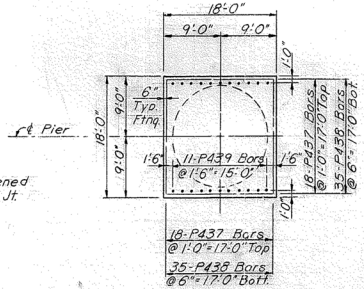
Work this sheet with Sheet 13

For reinforcing bar details, see Sheet 15

Bars P445 shown in Section C-C, are to be accurately located as shown so they do not interfere with the drilling of holes for placing of leveling bolts.

E.F. denotes Each Face.

4" clear cover to reinforcing bars maintained throughout except as noted.



FOOTING PLAN
(Column bars not shown)

PIER D

SHEET 14 OF 21

KENTUCKY DEPARTMENT OF HIGHWAYS
INDIANA STATE HIGHWAY COMMISSION

PROJECT I 275-9 ( )0

BRIDGE OVER OHIO RIVER ON I 275

BETWEEN BOONE COUNTY, KENTUCKY AND DEARBORN COUNTY, INDIANA

STAYION 68+50.56

HAZELET & ERDAL Consulting Engineers File No. 872 A	BRIDGE NUMBER	DRAWING NO. 17208	INDEX

BILL OF REINFORCEMENT - PIER A

Mark	Type	Size	No. of Bars	Length Ft	Length In	Dim "a" Ft	Dim "a" In	Dim "b" Ft	Dim "b" In	Dim "c" Ft	Dim "c" In	Location
P100	(23)	#14s	72	20	7	2	6½	18	6			Column
P101	(23)	#14s	72	40	4	2	6½	38	3			"
P102	Str.	#11	72	59	8							"
P103	Str.	#10	108	20	10							Webwall
P104	Str.	#10	80	17	8							"
P105	Str.	#10	102	33	11							"
P106	Str.	#10	102	29	9							"
P107	(17)	#4	94	6	8	1	8	1	8	3	4	"
P108	(24)	#6	4	30	9	2	6	9	2	19	1	"
P109	(24)	#6	4	28	3	2	6	9	2	16	7	"
P110	Str.	#6	2	31	2							"
P111	Str.	#6	2	28	8							"
P112	Str.	#10	108	21	2							"
P113	Str.	#10	24	19	7							"
P114	(17)	#4	2	22	11	9	9	9	9	3	5	"
P115	(17)	#4	2	20	5	8	6	8	6	3	5	"
P116	(17)	#4	2	17	11	7	3	7	3	3	5	"
P117	(17)	#4	6	16	1	6	4	6	4	3	5	"
P118	(17)	#4	16	14	1	5	4	5	4	3	5	"
P119	(17)	#4	14	12	1	4	4	4	4	3	5	"
P120	Str.	#6	8	21	8							"
P121	Str.	#6	4	17	9							"
P122	(25)	#6	8	18	9	3	4	15	5			"
P123	(17)	#9	44	36	4	6	6	6	6	23	4	Footing
P124	(1)	#10	58	26	2	23	4	1	½	0	11¼	"
P125	(1)	#6	48	22	2	20	10	0	6	0	6	"
P126	(1)	#7	48	22	6	20	10	0	7	0	7	"
P127	(T3)	#5	4	46	11	14	4					"
P128	(T5)	5/8"φ	2	4171	0	14	4					Column
P129												
P130												
P131	Not Used											
P132												
P133												
P134												
P135	(17)	#4	4	5	10	1	8	1	8	3	6	Webwall
P136	Str.	#6	4	9	9							"
P137	Str.	#6 (circled; #10)	4	18	9							"
P138	(17)	#6	44	13	2	1	7	1	7	10	0	Column

BILL OF REINFORCEMENT - PIER B

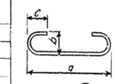
Mark	Type	Size	No. of Bars	Length Ft	Length In	Dim "a" Ft	Dim "a" In	Dim "b" Ft	Dim "b" In	Dim "c" Ft	Dim "c" In	Location
P200	(1)	#6	94	26	8	25	4	0	6	0	6	Footing
P201	(22)	#6	52	48	7	47	11	0	6	0	6	"
P202	(23)	#8	52	19	6	6	6	13	0			"
P203	Str.	#6	27	31	10							Dist. Block
P204	Str.	#6	54	20	7							"
P205	(23)	#6	18	14	8	2	6	12	2			"
P206	Str.	#6	98	19	3							"
P207	(17)	#6	34	24	4	2	6	2	6	19	4	"
P208	(17)	#6	2	24	2	2	6	2	6	19	2	"
P209	(17)	#6	2	23	4	2	6	2	6	18	4	"
P210	(17)	#6	2	21	6	2	6	2	6	16	6	"
P211	(17)	#6	2	18	4	2	6	2	6	13	4	"
P212	(10)	#6	18	35	2	2	6	30	2	9	7¼	"
P213	Str.	#14s	56	24	0							Column
P214	Str.	#14s	56	45	9							"
P215	Str.	#14s	56	42	9							"
P216	Str.	#14s	56	41	0							"
P217	Str.	#14s	56	51	2							"
P218	Str.	#14s	56	31	2							"
P219	(17)	#6	50	15	4	1	7	1	7	12	2	"
P220												
P221												
P222	Not Used											
P223												
P224												
P225												
P226	(T5)	5/8"φ	2	5416	0	17	4					Column
P227	(T3)	#5	22	56	4	17	4					Dist. Block & Footing
P228	Str.	#7	126	30	7							Webwall
P229	Str.	#7	126	27	8							"
P230	(17)	#4	2	26	3	10	5	10	5	5	5	"
P231	(17)	#4	2	24	7	9	7	9	7	5	5	"
P232	(17)	#4	2	21	11	8	3	8	3	5	5	"
P233	(17)	#4	8	20	5	7	6	7	6	5	5	"
P234	(17)	#4	22	17	11	6	3	6	3	5	5	"
P235	(17)	#4	20	15	1	4	10	4	10	5	5	"
P236	Str.	#7	100	26	6							"
P237	Str.	#7	100	23	11							"
P238	Str.	#7	72	20	8							"
P239	Str.	#7	24	22	11							"
P240	Str.	#7	4	5	9							"
P241	Str.	#7	4	12	9							"
P242	Str.	#7	4	20	9							"
P243	Str.	#7	8	28	8							"
P244	(17)	#4	36	8	8	1	8	1	8	5	4	"
P245	(24)	#7	4	26	4	3	0	9	2	14	2	"
P246	(24)	#7	4	29	4	3	0	9	2	17	2	"
P247	(25)	#7	8	26	0	3	6	22	6			"
P248	(17)	#4	4	8	10	1	8	1	8	5	6	"
P249	Str.	#7	4	22	0							"
P250	(17)	#8	22	38	4	6	6	6	6	25	4	Footing

BILL OF REINFORCEMENT - PIER C

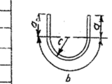
Mark	Type	Size	No. of Bars	Length Ft	Length In	Dim "a" Ft	Dim "a" In	Dim "b" Ft	Dim "b" In	Dim "c" Ft	Dim "c" In	Location
P300	(1)	#11	130	37	6	34	4	1	2	1	¾	Footing
P301	(22)	#6	70	50	7	49	11	0	6	0	6	"
P302	Str.	#6	106	32	3							Dist. Block
P303	Str.	#6	44	31	10							"
P304	Str.	#6	88	20	7							"
P305	(10)	#6	32	42	11	2	6	37	11	12	1¼	"
P306	(23)	#6	24	17	2	2	6	14	8			"
P307	(17)	#6	36	29	4	2	6	2	6	24	4	"
P308	(17)	#6	2	19	0	2	6	2	6	14	0	"
P309	(17)	#6	2	23	5	2	6	2	6	18	5	"
P310	(17)	#6	2	26	3	2	6	2	6	21	3	"
P311	(17)	#6	2	28	0	2	6	2	6	23	0	"
P312	(17)	#6	2	29	0	2	6	2	6	24	0	"
P313	Str.	#14s	60	37	6							Column
P314	Str.	#14s	60	59	3							"
P315	Str.	#14s	60	44	9							"
P316	Str.	#14s	60	46	0							"
P317	Str.	#14s	60	45	0							"
P318	Str.	#14s	60	41	2							"
P319	Str.	#14s	60	19	2							"
P320	(T3)	#5	34	56	4	17	4					"
P321	(T5)	5/8"φ	2	6,135	0	17	4					"
P322	Str.	#7	136	30	7							Webwall
P323	Str.	#7	136	27	8							"
P324	Str.	#7	100	26	6							"
P325	Str.	#7	100	25	11							"
P326	Str.	#7	64	23	8							"
P327	Str.	#7	4	25	7							"
P328	Str.	#7	28	25	11							"
P329	Str.	#7	4	7	9							"
P330	Str.	#7	4	15	9							"
P331	Str.	#7	4	23	9							"
P332	(17)	#4	32	8	8	1	8	1	8	5	4	"
P333	(24)	#7	4	28	0	2	11	9	2	15	11	"
P334	Str.	#7	8	19	0							"
P335	(25)	#7	8	20	0	3	6	16	6			"
P336	Str.	#7	12	24	11							"
P337	Str.	#7	8	16	8							"
P338	Str.	#7	4	9	9							"
P339	(17)	#4	4	8	10	1	8	1	8	5	6	"
P340	(17)	#4	2	32	9	13	8	13	8	5	5	"
P341	(17)	#4	2	27	5	11	0	11	0	5	5	"
P342	(17)	#4	2	24	7	9	7	9	7	5	5	"
P343	(17)	#4	2	22	11	8	9	8	9	5	5	"
P344	(17)	#4	18	21	9	8	2	8	2	5	5	"
P345	(17)	#4	18	19	1	6	10	6	10	5	5	"
P346	(17)	#4	16	16	11	5	9	5	9	5	5	"
P347	(17)	#4	16	14	11	4	9	4	9	5	5	"
P348	(24)	#7	4	25	0	2	11	9	2	12	11	"
P349												
P350												
P351	Not Used											
P352												
P353												
P354												
P355	(17)	#6	52	15	4	1	7	1	7	12	2	Column
P356	Str.	#7	4	24	7							Webwall
P357	(22)	#7	68	14	10	14	0	0	7	0	7	Footing

BILL OF REINFORCEMENT - PIER D

Mark	Type	Size	No. of Bars	Length Ft	Length In	Dim "a" Ft	Dim "a" In	Dim "b" Ft	Dim "b" In	Dim "c" Ft	Dim "c" In	Location
P400	(23)	#14s	96	33	4	2	6½	31	3			Column
P401	Str.	#11	96	52	0							"
P402	Str.	#11	96	50	8							"
P403	(T5)	5/8"φ	2	5662	0	14	4					"
P404	Str.	#10	140	33	11							Webwall
P405	Str.	#10	140	29	9							"
P406	Str.	#10	108	26	10							"
P407	Str.	#10	68	24	11							"
P408	Str.	#10	36	26	9							"
P409	(17)	#6	88	6	8	1	8	1	8	3	4	"
P410	Str.	#6	2	31	2							"
P411	Str.	#6	2	28	8							"
P412	(17)	#4	2	28	11	12	9	12	9	3	5	"
P413	(17)	#4	2	26	5	11	6	11	6	3	5	"
P414	(17)	#4	2	23	11	10	3	10	3	3	5	"
P415	(17)	#4	2	22	3	9	5	9	5	3	5	"
P416	(17)	#4	2	21	3	8	11	8	11	3	5	"
P417	(17)	#4	20	20	7	8	7	8	7	3	5	"
P418	(17)	#4	20	18	1	7	4	7	4	3	5	"
P419	(17)	#4	22	15	5	6	0	6	0	3	5	"
P420	(17)	#4	20	12	9	4	8	4	8	3	5	"
P421	Str.	#6	8	21	8							"
P422	Str.	#6	4	9	9							"
P423	Str.	#6	20	27	6							"
P424	Str.	#6	4	18	9							"
P425	Str.	#6	8	21	6							"
P426	Str.	#6	4	10	9							"
P427	(24)	#6	4	27	8	2	6	9	2	16	0	"
P428	(24)	#6	4	25	1	2	6	9	2	13	5	"
P429	Str.	#6	4	4	9							"
P430												
P431												
P432	Not Used											
P433												
P434												
P435												
P436	(T3)	#5	4	46	11	14	4					Footing
P437	(1)	#6	72	18	8	17	4	0	6	0	6	"
P438	(1)	#11	140	20	6	17	4	1	2	1	¾	"
P439	(22)	#11	44	14	3	12	8	1	2	1	¾	"
P440	Str.	#6	4	17	9							Webwall
P441	(25)	#6	8	25	0	3	4	21	8			"
P442	Str.	#10	108	27	9							"
P443	Str.	#10	4	26	0							"
P444	(17)	#6	4	6	10	1	8	1	8	3	6	"
P445	(17)	#6	44	13	2	1	7	1	7	10	0	Column



Type (1)



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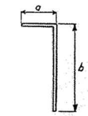

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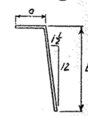

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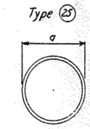
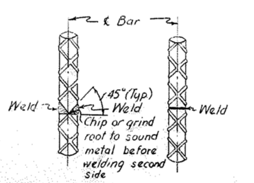


Type (T5)

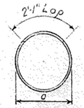
Mark	Turns
P128	91
P226	98
P321	113
P403	123½

1½ turns @ 0" pitch top and bottom



SHIELDED ARC WELD   THERMIT WELD

SPLICE DETAIL
FOR 14s BARS
(See Special Note for Substructure, Main River Spans)



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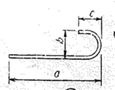
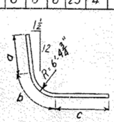


Type (22)



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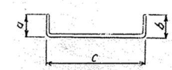

Type (17)

REVISED Size of Bar P137 DATE 5/2/68
DESIGNED BY ___ CHECKED BY ___ DATE ___
DETAILED BY JES CHECKED BY R. LIN DATE 11-66
TRACED BY ___ CHECKED BY ___ DATE ___

FED. ROAD DIST.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
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SHEET 15 OF 21

KENTUCKY DEPARTMENT OF HIGHWAYS
INDIANA STATE HIGHWAY COMMISSION
PROJECT I 275-9 ( ) 0
BRIDGE OVER OHIO RIVER ON I 275
BETWEEN BOONE COUNTY, KENTUCKY AND DEARBORN COUNTY, INDIANA

STATION 68+50.56

BILL OF REINFORCEMENT

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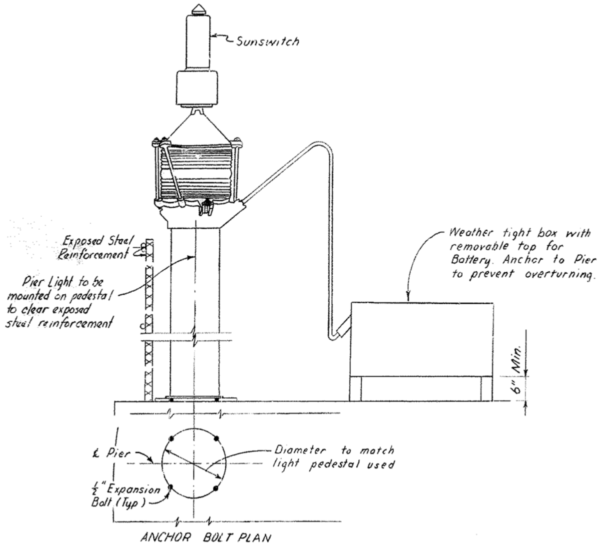
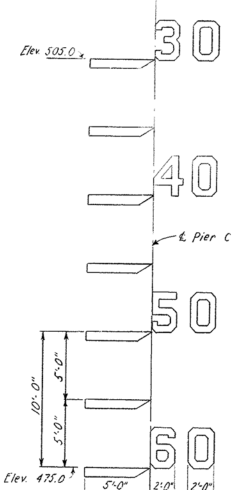
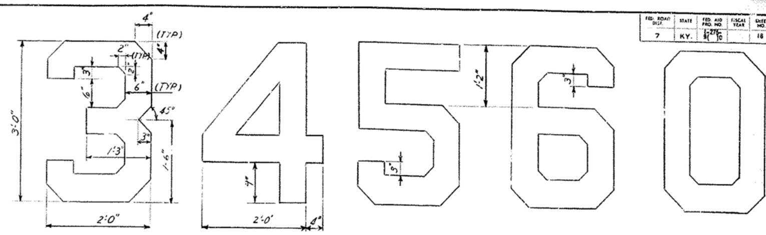


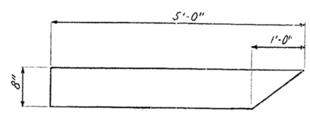
PIER LIGHT

(See General Notes Sht. 2 for Pier Light Details)

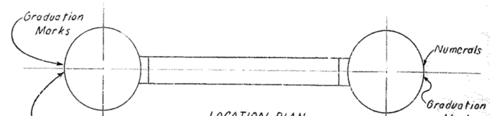




NUMERAL DETAILS



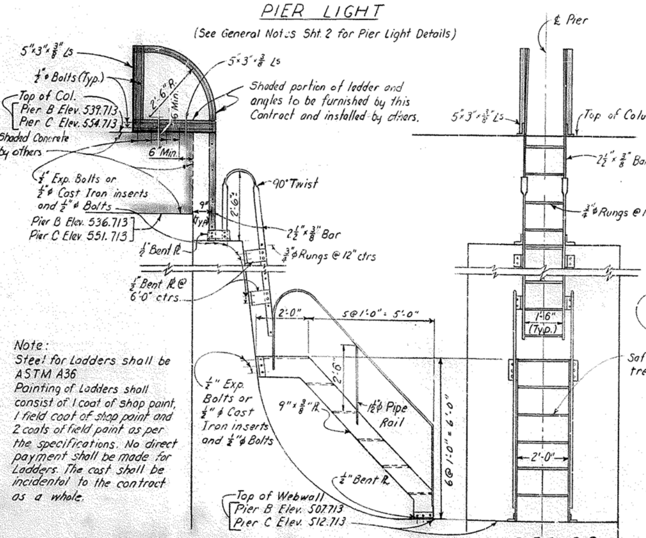
GRADUATION MARKS

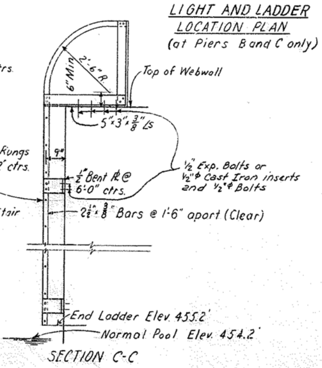


LOCATION PLAN
(at Pier C only)

VERTICAL CLEARANCE GAGE DETAILS

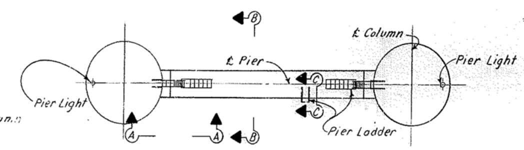
Numerals and Graduation Marks shall be painted directly on concrete with 2 coats of paint.
(See General Notes Sheet 2 for paint specifications)





LADDER DETAILS

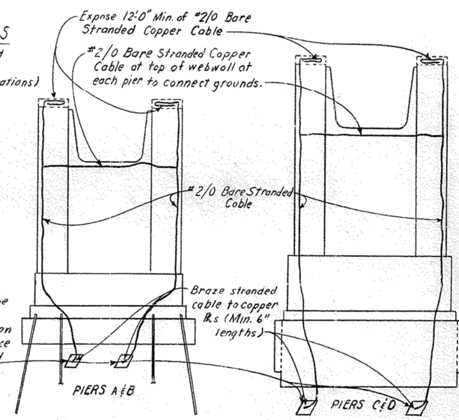
Note:
Steel for Ladders shall be ASTM A36
Painting of Ladders shall consist of 1 coat of shop paint, 1 field coat of shop paint and 2 coats of field paint as per the specifications. No direct payment shall be made for Ladders. The cost shall be incidental to the contract as a whole.



LIGHT AND LADDER LOCATION PLAN
(at Piers B and C only)

Ground ℞s to be copper 2"x1"x⅛" (min. size) and are to be placed on river bottom prior to pouring foundation seal concrete. Resistance to Ground not to exceed 25 ohms.

Copper cable may be supported by steel reinforcement



PIER ELEVATION SHOWING METHOD OF GROUNDING STEEL
(for Piers A, B, C, and D)

Note:
Run a continuous circuit from Ground and expose copper cable on all piers
No direct payment shall be made for Grounding. It shall be incidental to the construction of the Contract as a whole.

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KENTUCKY DEPARTMENT OF HIGHWAYS
INDIANA STATE HIGHWAY COMMISSION
PROJECT I 275-9 ( )0
BRIDGE OVER OHIO RIVER ON I 275
BETWEEN BOONE COUNTY, KENTUCKY AND DEARBORN COUNTY, INDIANA

STATION 68+50.56

MISCELLANEOUS DETAILS

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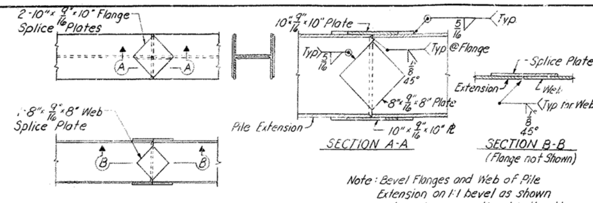
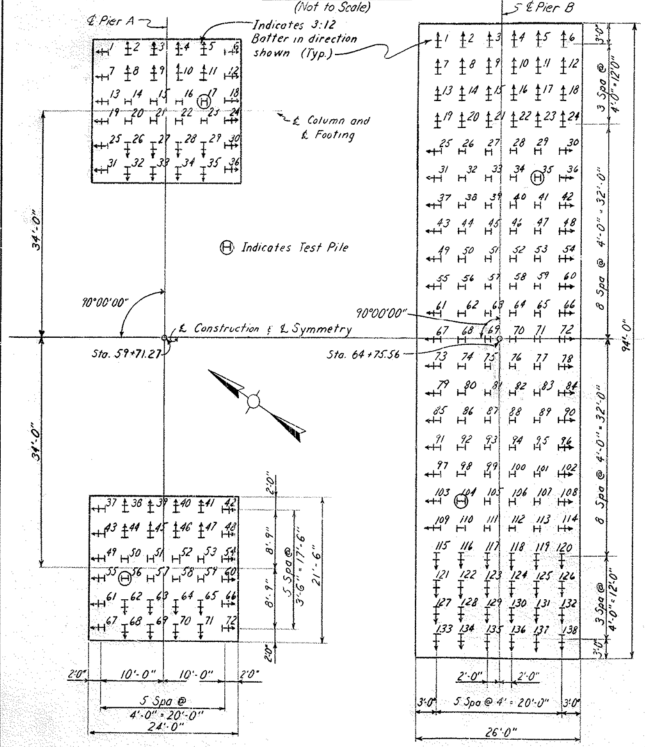
DESIGNED BY J.S. | CHECKED BY R. LIN | DATE 11-66



Note: Bevel Flanges and Web of Pile Extension on 1:1 bevel as shown and employ conventional butt weld.

PILE SPLICE DETAIL
(Not to Scale)



Note:
All Piles 14BP89 Steel Piles

PIER A
(Dimensions at Elev. 434.0)

PIER B
(Dimensions at Elev. 419.0)

PILING PLAN

PIER A

Pile No.	Cutoff Elevation	Tip of Piles Elevation as Driven	Length of Piles in Place	Calculated Bearing Capacity Tons
1	436.00			
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
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62				
63				
64				
65				
66				
67				
68				
69				
70				
71				
72	436.00			

PIER B

Pile No.	Cutoff Elevation	Tip of Piles Elevation as Driven	Length of Piles in Place	Calculated Bearing Capacity Tons
1	421.00			
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
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64				
65				
66				
67				
68				
69				
70				
71				
72	421.00			

PIER B (CONT.)

Pile No.	Cutoff Elevation	Tip of Piles Elevation as Driven	Length of Piles in Place	Calculated Bearing Capacity Tons
73	421.00			
74				
75				
76				
77				
78				
79				
80				
81				
82				
83				
84				
85				
86				
87				
88				
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130				
131				
132				
133				
134				
135				
136				
137				
138	421.00			

FED. ROAD DIST.	STATE	FED. AID PRO. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
7	KY.	I-275-9( )0			

NOTES:

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

GENERAL NOTES FOR STEEL PILES (14BP89):

Specifications: Piling shall be in accordance with Standard Specifications and Revisions. Structural staal piles shall conform to ASTM A36-66 with a minimum copper content of (2/10%) two tenths of one percant.

Splice Plates: Splice plates shall conform to ASTM Specifications A36-66 and may be furnishad in non-coppar bearing steel.

Field Welding: Field Welding Material and Workmanship for all piling shall conform to Standard Specifications and Revisions. Piles shall be spliced as indicatad on plans only when drivan balow cut-off elavation.

Payment: Payment for furnishing and driving the piles in accordance with plans and specifications shall be made at the contract price per linear foot. Paymant for splicing piles for extensions shall be made in accordance with the Specifications.

Paint: No paint shall be requirud on steel piles.

Reports: Three copies of mill orders, mill shipping statements and notarized mill test reports for all steel to be used shall be furnished the Department of Highways showing that all material furnished conforms to the Specifications.

Pile Lengths: Steel piles shall be ordered full length as shown on plans or ordered full length as shown on the order list furnished by the Engineer.

TEST PILE LENGTHS	
PIER A	68'
PIER B	64'

KENTUCKY DEPARTMENT OF HIGHWAYS
INDIANA STATE HIGHWAY COMMISSION

PROJECT I 275-9 ( ) 0
BRIDGE OVER OHIO RIVER ON I 275
BETWEEN BOONE COUNTY, KENTUCKY AND DEARBORN COUNTY, INDIANA

STATION 68+50.56

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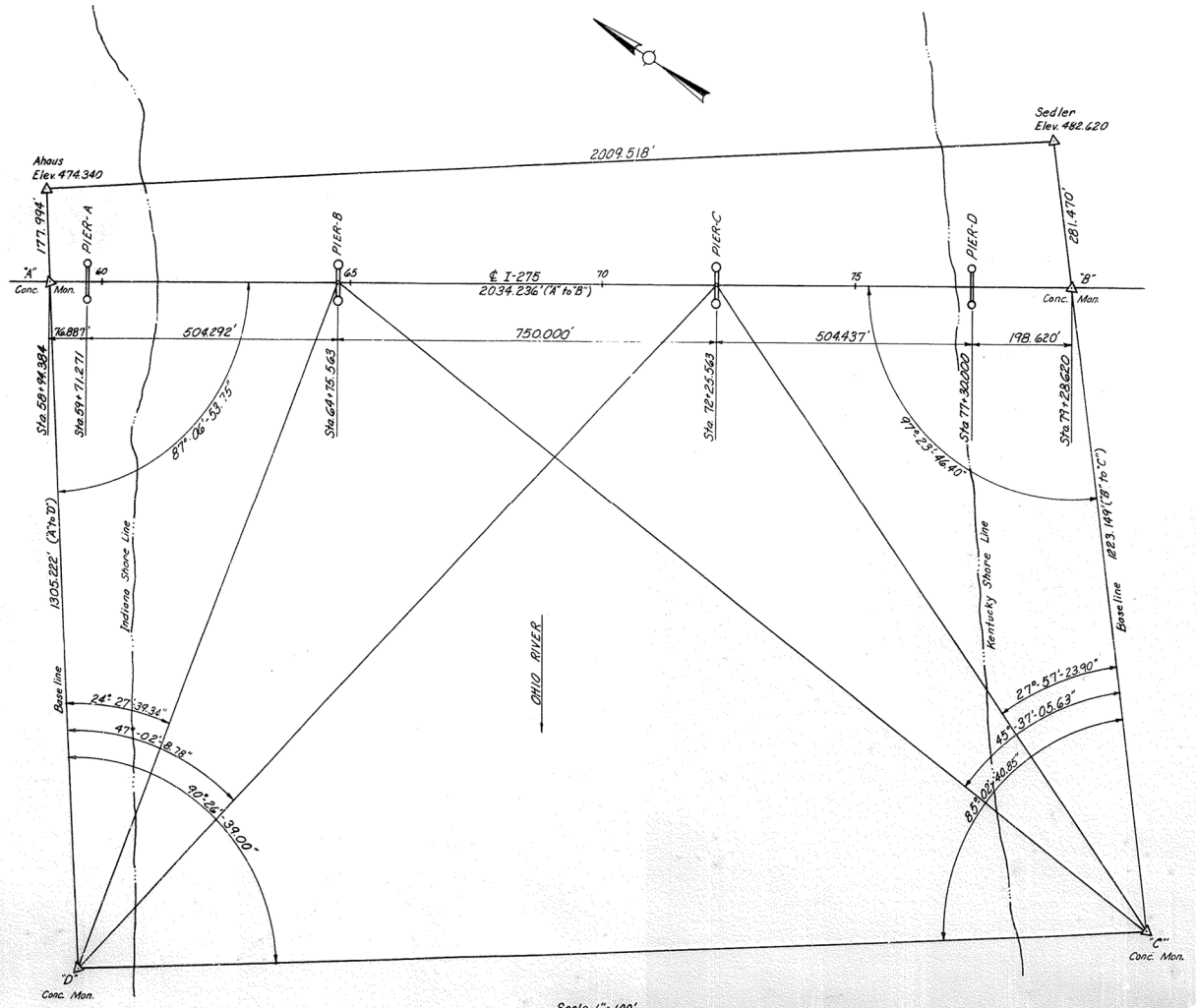
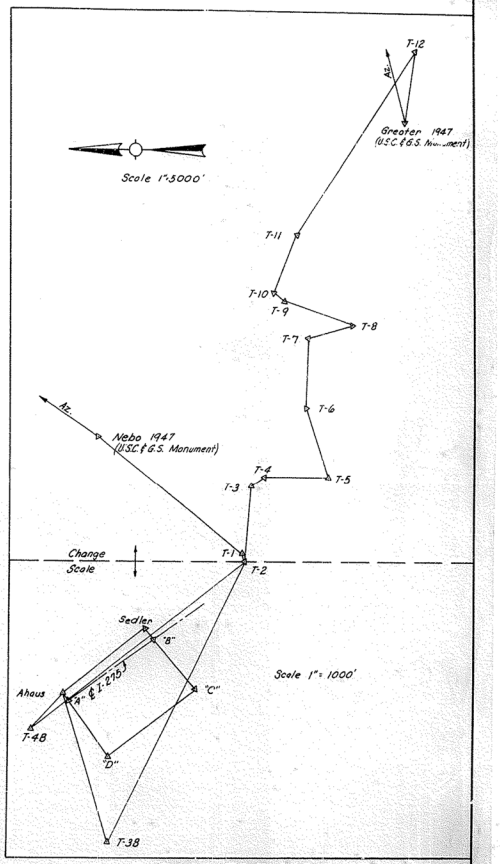
PILE RECORD

DESIGNED BY ____ CHECKED BY ____ DATE ____ REVISED ____
DETAILED BY J.E.S. CHECKED BY R. LIN DATE 11-66 REVISED ____
TRACED BY ____ CHECKED BY ____ DATE ____ REVISED ____





TRIANGULATION NETWORK

BASE TRAVERSE

SHEET 18 OF 21

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

KENTUCKY DEPARTMENT OF HIGHWAYS
INDIANA STATE HIGHWAY COMMISSION

PROJECT I 275-9 ( )0

BRIDGE OVER OHIO RIVER ON I 275

BETWEEN BOONE COUNTY, KENTUCKY AND DEARBORN COUNTY, INDIANA

STATION 66+50.56

HAZELET & ERDAL Consulting Engineers File No. 672A	BRIDGE NUMBER	DRAWING NO. 17208	INDEX

DESIGNED BY A.B.H. CHECKED BY
DETAILED BY I.S.M. CHECKED BY
TRACED BY CHECKED BY

U. S. ARMY ENGINEER DISTRICT, LOUISVILLE

CORPS OF ENGINEERS
830 WEST BROADWAY
LOUISVILLE, KENTUCKY 40201

ADDRESS REPLY TO:
DISTRICT ENGINEER
U. S. ARMY ENGINEER DISTRICT, LOUISVILLE
CORPS OF ENGINEERS
P. O. BOX 59
LOUISVILLE, KY. 40201

IN REPLY REFER TO ORLOP-A(Bridge Over Ohio River Near Lawrenceburg, Ind.-Mi 491.6)

23 November 1964

Commonwealth of Kentucky
Department of Highways
Frankfort, Kentucky

ATTN: D.H. Bray, State Highway Engineer

Gentlemen:

Your application to construct a highway bridge across the Ohio River near Lawrenceburg, Indiana, dated 20 August 1964, is approved.

In compliance with your request there is inclosed an instrument of approval issued by direction of the Secretary of the Army, dated 12 November 1964, authorizing the construction of a highway bridge across the Ohio River at Mile 491.6 near Lawrenceburg, Indiana. Should changes in the location or plans of the structure or work become necessary, revised plans shall be submitted to this office for approval before construction is commenced.

Please inform this office, as early as possible, the actual date upon which construction will begin and also the date when all physical work is completed. The latter information should also state whether or not the structure has been completed in accordance with the terms of the instrument and approved plans. It is requested that this office be furnished, when available, a set of the detailed construction plans of the project.

Very truly yours,

MORRIS L. GARDNER
Major, Corps of Engineers
Deputy District Engineer

Incl
Orig. Instrument of Approval w/plans attached.

Proposed Bridge Across Ohio River)
near Lawrenceburg, Indiana)
Mile 491.6)

Kentucky Department of Highways
Commonwealth of Kentucky
Frankfort, Kentucky

FINDINGS OF FACT

1. The proposed bridge is a fixed structure across the Ohio River between Boone County, Kentucky and Dearborn County, Indiana at Mile 491.6 below Pittsburgh, Pennsylvania about 1.4 miles upstream from Lawrenceburg, Indiana. The structure will consist of three steel truss spans; 506 feet, 750 feet, 506 feet, center to center of piers respectively, with fill and trestle work approaches. The main channel span in about mid-river will provide a horizontal clearance of 720 feet (clear opening). The minimum vertical clearance provided at the low point of steel at the north or Indiana end of the bridge will be 78.3 feet above normal pool level, which is 32 feet above the 1937 High Water.

2. The proposed highway bridge does not replace any other structure but is an additional link in the interstate highway system in the area.

3. A preliminary conference was held in the office of Hazelet & Erdal, Consulting Engineers for the applicant in Louisville, Kentucky, on 5 August 1964, to discuss navigation clearances to be provided in the proposed structure. Those attending represented the following:

Indiana State Highway Commission
Kentucky Department of Highways
Bureau of Public Roads, Indiana & Kentucky Division
Corps of Engineers
American Commercial Lines, Inc.) Member of Bridge Clearance
The Ohio River Company) Committee - American
Mississippi Valley Barge Line Co.) Waterway Operators.
Hazelet & Erdal

The clearances and pier locations as shown on the plans accompanying this application are those agreed upon by all concerned at this conference.

4. The present governing bridge clearances on the waterway are horizontal clearance of 241.5 feet in the span of the Pennsylvania Railroad Bridge across the Louisville Portland Canal Mile 604.4, and vertical clearance of 69.8 feet at low point of steel with this bridge in raised position.

5. No preliminary investigation has been made in this case, by the District Engineer since it is believed that the bridge proposed has adequate clearances for any foreseeable navigation and flood control purposes. There are no established standard bridge clearances on the Ohio River.

6. A notice of public hearing to consider the application and plans was issued on 27 August 1964. A public hearing was held at Burlington, Kentucky on 29 September 1964. The hearing was attended by 26 interested parties. Two prepared statements favoring the proposed construction were received and accompany the report on this application.

7. The principal method of handling traffic on the Ohio River is in tows of tank and cargo barges propelled by towboats. These barges vary in size. Those used in long haul tows by the large common carriers are principally 26 feet wide by 175 feet long and 35 feet wide by 195 feet long, and are capable of being loaded to a draft of 9 feet or more. They may be rafted into tows of from 1 to 20 or more barges. The present largest long haul tows for pool navigation are about 105 feet in width and not over 1200 feet in length, loaded to an 8-1/2 feet draft with a cargo of from 12,000 to 25,000 tons. It is not likely that the above size of tows will be greatly exceeded during normal pool stages of the river. During open river stages tows of somewhat greater length and width than mentioned above may be used.

The traffic which passed the site of the proposed bridge in 1963 amounted to approximately 20,400,000 tons, as compared with about 26,400,000 tons at Paducah, Kentucky; about 25,700,000 tons at Louisville, Kentucky and about 20,100,000 tons at Cincinnati, Ohio. The tonnage at the bridge site was composed principally of iron, steel, petroleum products, coal, coke, chemicals, sand, gravel, stone, sulphur and unclassified commodities.

8. The potential commercial, industrial and physical development along the Ohio River is steadily increasing and will create a further demand for river transportation for many commodities not now being shipped by water. It is believed that the proposed bridge is suitably located and provides adequate navigation clearances; it will not constitute an unreasonable hazard or menace to increased navigation and therefore, will have no adverse effect on prospective development of the area.

9. Requirements of extremes of navigation: - A large percentage of the towboats operating on the Ohio River in the vicinity of the proposed bridge range in height of 35 feet to 40 feet. At maximum locking stage of the new Markland Dam there will be a minimum clearance of 52.0 feet available in the proposed bridge. The vertical clearance proposed in the structure will not restrict or hamper the operations of the larger class of towboats. During extreme high river stages such as in 1937 and 1945 there is no navigation in the reach of the river due to the fact that most of the terminal landings are inundated.

10. The bridge is designed for increased road traffic on the interstate highway systems of Kentucky and Indiana. The bridge as proposed is believed to have sufficient floodway openings to adequately pass any flood that reasonably may be expected to occur. The navigation clearances provided are believed ample for present boating needs and for any foreseeable navigation purposes.

11. The criteria used in establishing the minimum vertical clearance of 78.3 feet above normal pool level in this bridge is based on the grade and elevation of Interstate 275 at this particular site. The grade is more or less fixed by the roadway project immediately south of the bridge. The high bluffs above the river and the deep cuts necessary result in a grade which is higher than would be necessary for navigational purposes. The 720 foot clear channel width in the mid-river span was considered ample clearance by representatives of the National Bridge Committee of the American Waterways Operators, Inc. Therefore, there is no justification for an increase in cost of construction, operation and maintenance of the bridge to provide increased clearances for any foreseeable prospective navigation.

12. Other pertinent data: None.

13. Conclusions:

a. The proposed bridge is within the legally navigable portion of the Ohio River.

b. Approval of the location and plans of the proposed bridge is required by the Secretary of the Army and the Chief of Engineers.

c. The structure is authorized by the General Bridge Act of 1946, subject to the approval of the location and plans.

d. The application and description of the proposed bridge was duly publicized; a public hearing was held on 29 September 1964.

e. No protests were received from navigation or other interests.

f. That the clearances provided for the structure are sufficient for present navigation in this reach of the river and will not adversely affect any possible future navigation.

g. The bridge will have no adverse effect on flood heights or the passage of drift.

From the foregoing facts I find that the approval of the proposed plans should be recommended to the Secretary of the Army in the best interests of the general public.

DEPARTMENT OF THE ARMY
APPROVAL OF LOCATION AND PLANS OF BRIDGE

Whereas *by Title V of an act of Congress approved August 2, 1946, entitled General Bridge Act of 1946 (33 U. S. C., 525-533, as amended) the consent of Congress was granted for the construction, maintenance, and operation of bridges and approaches thereto over the navigable waters of the United States;*

And whereas *section 502(b) of said act provides that: "The location and plans for such bridges shall be approved by the Chief of Engineers and the Secretary of the Army before construction is commenced, and, in approving the location and plans of any bridge, they may impose any specific conditions relating to the maintenance and operation of the structure which they may deem necessary in the interest of public navigation, and the conditions so imposed shall have the force of law;"*

And whereas *the* KENTUCKY DEPARTMENT OF HIGHWAYS *has submitted plans and a map of the location of a bridge to be constructed across* the OHIO RIVER near Lawrenceburg, *in the State of* Indiana;

Now therefore, *This is to certify that the location and attached plans are hereby approved by the Chief of Engineers and by the Secretary of the Army, pursuant to the above-mentioned act of Congress, subject to the following conditions:*

1. The district engineer in charge of the locality within which the bridge is to be built may supervise its construction in order that said plans shall be complied with.

2. All work shall be so conducted so that the free navigation of the waterway shall not be unreasonably interfered with and the present navigable depths shall not be impaired. The channel or channels through the structure shall be promptly cleared of all falsework, piling, or other obstructions placed therein or caused by the construction of the bridge, to the satisfaction of the said district engineer, when in his judgment the construction work has reached a point where such action should be taken, and in any case not later than ninety *days after the bridge has been opened to traffic.*

3. The approval hereby granted shall cease and be null and void unless the actual construction of the bridge be commenced within 2 *year(s) and completed within* 4 *years from the date of this instrument.*

4. No deviation from the approved plans shall be made either before or after completion of the structure unless the modification of said plans has previously been submitted to and received the approval of the Chief of Engineers and of the Secretary of the Army.

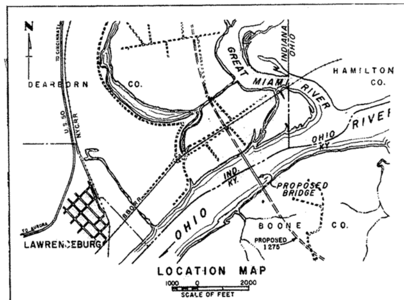
5. Clearance gauges, of a type to be approved by the said district engineer, shall be installed on the upstream and downstream ends of the Kentucky or south pier of the mid-river span by end at the expense of the owners of or operators of the bridge and shall be kept in good legible condition.

In witness whereof *I have hereunto set my hand by direction of the Chief of Engineers this* 5th *day of* November 1964

JACKSON GRAHAM
Major General, USA
Director of Civil Works

In witness whereof *I have hereunto set my hand by direction of the Assistant Secretary of the Army this* 12th *day of* November 1964

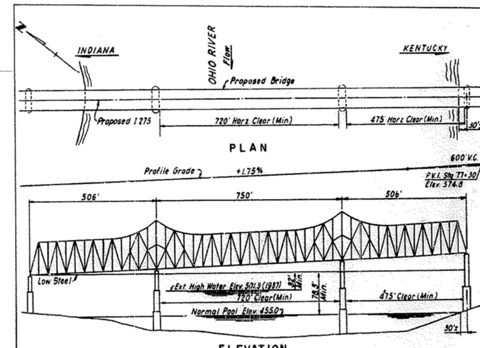
R. A. HERTZLER
Chief, Office of Civil Functions



The Proposed Bridge is to be located at Ohio River Mile 491.6, approx. 488 miles from the convergence of the Mississippi and Ohio Rivers.

PROPOSED BRIDGE OVER
OHIO RIVER
BOONE CO., KY.-DEARBORN CO., IND.
APPLICATION BY
KENTUCKY DEPT. OF HIGHWAYS
SHEET 1 of 2 DATE 8-20-64

PREPARED BY
HAZELET AND ERDAL
CONSULTING ENGINEERS
LOUISVILLE, KENTUCKY



Elevations are in feet and refer to Mean Sea Level.
Bridge to be located at Ohio River Mile 491.6
Normal Pool Elevation corresponds to an elevation of 455.0 feet above Mean Sea Level. (Ohio River Datum)

SCALES OF FEET
HORIZONTAL
VERTICAL

PROPOSED BRIDGE OVER
OHIO RIVER
BOONE CO., KY.-DEARBORN CO., IND.
APPLICATION BY
KENTUCKY DEPT. OF HIGHWAYS
SHEET 2 of 2 DATE 8-20-64

PREPARED BY
HAZELET AND ERDAL
CONSULTING ENGINEERS
LOUISVILLE, KENTUCKY

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

SHEET 19 OF 21

COMMONWEALTH OF KENTUCKY
DEPARTMENT OF HIGHWAYS
FRANKFORT

PROJECT I 275-9 ( )0
BRIDGE OVER OHIO RIVER ON I 275
BETWEEN BOONE COUNTY, KENTUCKY AND DEARBORN COUNTY, INDIANA

STATION 68+50.56

CONSTRUCTION PERMIT INFORMATION

BRIDGE NUMBER
DRAWING NO. 17208

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

DEPARTMENT OF TRANSPORTATION
UNITED STATES COAST GUARD

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

INSTRUMENT

29 NOV 1967

WHEREAS by an instrument signed on 5 November 1964 and 12 November 1964, the Chief of Engineers and the Secretary of the Army approved the map of location and plans of a bridge to be constructed by the Kentucky Department of Highways across the Ohio River near Lawrenceburg, Indiana, under authority of the General Bridge Act of 1946;

AND WHEREAS condition 3 of said instrument of approval fixed the times for commencing and completing construction of said bridge at 12 November 1966 and 12 November 1968;

AND WHEREAS the times for commencing and completing construction have been previously extended to 12 November 1967 and 12 November 1969;

AND WHEREAS construction of said bridge has not been commenced;

AND WHEREAS the functions, powers and duties of the Chief of Engineers and the Secretary of the Army under the General Bridge Act of 1946 have been transferred to and vested in the Secretary of Transportation by section 6(g)(6)(C) of the Department of Transportation Act (80 Stat. 931) and delegated by the Secretary of Transportation to the Commandant of the Coast Guard in title 49 Code of Federal Regulations, part 1:

AND WHEREAS the — KENTUCKY DEPARTMENT OF HIGHWAYS - now requests that the times for commencing and completing construction of said bridge be extended;

NOW THEREFORE, This is to certify that the times for commencing and completing construction of said bridge are hereby extended to 12 November 1968 and 12 November 1970, all other conditions of the previous instrument of approval remaining unchanged, except condition 4 which is modified as follows:

4. No deviation from the approved plans shall be made either before or after completion of the structure unless the modification of said plans has previously been submitted to and received the approval of the Commandant of the Coast Guard.

W. J. SMITH
Admiral, U. S. Coast Guard
Commandant

DEPARTMENT OF THE ARMY
LOUISVILLE DISTRICT, CORPS OF ENGINEERS
P. O. BOX 59, 830 WEST BROADWAY
LOUISVILLE, KENTUCKY 40201

IN REPLY REFER TO: ORLOP-AN(Bridge Over Ohio River Near Lawrenceburg, Ind. Mi 491.6)

12 December 1967

Commonwealth of Kentucky
Department of Highways
Frankfort, Kentucky 40601

ATTN: Mr. Charles G. Cook, Director
Division of Bridges

Gentlemen:

Reference your letter dated 19 October 1967 requesting an extension of time to the original instrument of the Approval of Location and Plans of Bridge across the Ohio River near Lawrenceburg, Indiana.

Inclosed is an Instrument dated 29 November 1967, issued by the Department of Transportation, United States Coast Guard, extending the time of commencing and completing construction of said bridge to 12 November 1968 and 12 November 1970 respectively. This Instrument shall become a part of the original Instrument approved 12 November 1964.

Acknowledgement of receipt of this Instrument is requested.

Very truly yours,

JOHN R. BLEIDT
Chief, Operations Division

Incl
As stated

Copy furnished:

Commander, 2nd Coast Guard District (o)
1520 Market Street - Federal Bldg.
St. Louis, Mo. 63103

DEPARTMENT OF THE ARMY
U. S. ARMY ENGINEER DISTRICT, LOUISVILLE
P. O. BOX 59, 830 WEST BROADWAY
LOUISVILLE, KENTUCKY 40201

IN REPLY REFER TO: ORLOP-A (Bridge Over Ohio River Near Lawrenceburg, Ind. - Mile 491.6)

11 March 1966

Commonwealth of Kentucky
Department of Highways
Frankfort, Kentucky

ATTN: Mr. Guy E. Vanzent, Jr.,
Director, Division of Bridges

Gentlemen:

Reference is made to your letter of 4 March 1966, requesting an extension of time for commencing and completing construction of a highway bridge across the Ohio River, 491.6 miles below Pittsburgh, Pennsylvania near Lawrenceburg, Indiana.

Condition 3 of the Instrument of Approval of the location and plans of the bridge, signed by the Chief of Engineers and the Secretary of the Army on 5 November 1964 and 12 November 1964, fixed the times for commencing and completing construction of the bridge at 12 November 1966 and 12 November 1968.

This is to certify that by authority of the Secretary of the Army and the Chief of Engineers, the times for commencing and completing construction of the bridge are extended to 12 November 1967 and 12 November 1969, all other conditions of the original Instrument of Approval remaining unchanged.

Sincerely yours,

W. ROPER
Colonel, Corps of Engineers
District Engineer

CONSTRUCTION PERMIT INFORMATION

SHEET 20 OF 21

COMMONWEALTH OF KENTUCKY
DEPARTMENT OF HIGHWAYS
FRANKFORT

PROJECT I 275-9 ( )0
BRIDGE OVER OHIO RIVER ON I 275
BETWEEN BOONE COUNTY, KENTUCKY AND
DEARBORN COUNTY, INDIANA

STATION 68+50.56

BRIDGE NUMBER | DRAWING NO. 17208 | INDEX

LEGEND

L.A.R.W. ——— Limited Access Right of Way
A.C.L. ——— Access Control Line
F.F.T.F. ——— Farm Field Type Fence
R/W ——— Right of Way
+ 87 ——— Property Line, Unfenced
L.A.R/W ——— Limited Access Right of Way
State Line ——— State Line

Landscape Area

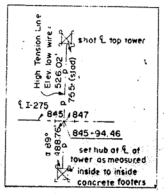
PUBLIC UTILITY OWNERS

ALL POWER LINES & POLES THROUGHOUT THIS PROJECT ARE OWNED BY
THE PUBLIC SERVICE COMPANY
OF SOUTHERN INDIANA
1000 E. MAIN STREET
PLAINFIELD, INDIANA
46168

RAILROADS

THE B&O SW RR. CO.
(ST. LOUIS DIVISION)
WASHINGTON, INDIANA.

PARCEL 1 ON PROJECT I-275-2(2)0 AND PARCEL 7 ON PROJECT I-275-9(5)0 COVER THE SAME LAND, WITH ACQUISITION THEREOF ENTIRELY UNDER SAID PROJECT I-275-2(2)0



GENERAL NOTES

Standard Divided Lane Sections for Federal Aid Interstate Projects Adopted May 1967 as shown on sheet No 4 to be used on this project.

Standard Pavement Section E-II-JR Revised 11-17-66 to be used on this Project.

Standard Ramp Section, Adopted May. 1967 to be used on this Project.

Typical Cross Sections as shown on Sheets 2 and 3 to be used on this Project.

Indiana State Highway Commission Standard Specifications Dated 1963 to be used with these plans.

Standards under dates as listed in index on Title Sheet to be used on this project.

Grade Line as shown on profile represents top of Finished Surface.

The Contractor must accept plan quantities of Subbase as given on the "Estimate of Quantities" Sheet (See Special Provisions)

A Keyway Joint is to be constructed on Median Side of each pavement.

All Ditches of 1.00% grade and over Shall be Sodded except where Ditch is in Rock Cut or where Paved Side Ditch is to be constructed.

All Earth Shoulders Cut and Fill Slopes shall be Seed or Mulched Seeded except where Sodding is specified.

Shoulders are to be sodded as shown on Standard and Typical Cross Sections and on Miscellaneous Standard Sheet "B"

Sodding shall be placed along Paved Side Ditch as shown on Miscellaneous Standard Sheet "E"

Excavation Quantities as shown on Plan and Profile Sheets include estimated excavation Public and Private Approaches.

Curves on Mainline shall be Superelevated as shown on the Superelevation Detail Sheets.

Quantities for Pipe Culvert Headwalls are based on using Standard Headwalls for retaining 2:1 or 3:1 slopes and Private Drive Headwalls for retaining 4:1 or flatter slope.

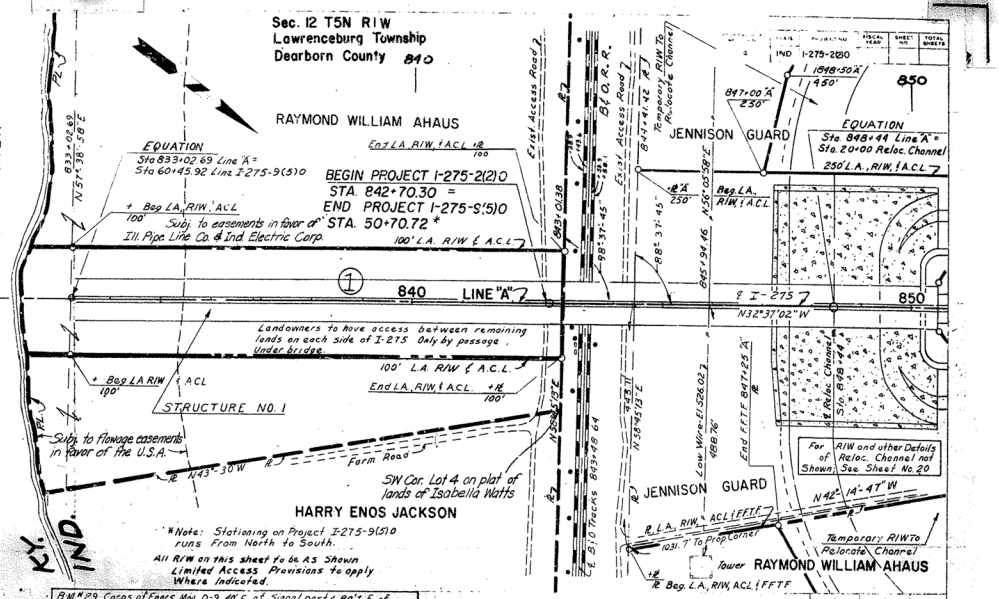
For kinds of Pipe permitted for each size and classification as shown in "Structure Notes", See Miscellaneous Standard Sheet "Pand Pa"

All Limited Access R/W (L.A. R/W) to be fenced with Chain Link "Type Fence (C.L.T. Fence) or Farm Field Type Fence (F.F.T. Fence) as specified in the Plans.

The Minimum Grade for "Subsurface Drains" shall be 0.20%. Where the profile grade is less than 0.20%, special grades for Subsurface Drains shall be established by the Engineer.

The pipe gage given in structure notes applies to the C.M. Option However, any type pipe specified under the group may be used.

Paper Relocation is to be cross-sectioned by the Project Engineer before construction.



BM #29 Corps of Engrs. Mon. D-9 46'± of Signal post & 80'± E. of ℄ B&O Tracks & ℄ I-275 on S. Side of tracks El 489.340

BM #28 R.R. Spike in power pole 875'± E. of Sta. 843+48.64 ℄ of B&O Tracks & ℄ I-275 on South Side of tracks El. 487.534

BM #28A Corps of Engrs. Mon. D-10 925'± E. of Sta. 843+48.64 (℄ of B&O Tracks & ℄ I-275) on S. side of tracks El. 488.815

BM #288- Mark is set in the top of the SE. end of the NE Concrete abutment of the B&O S.W.R.R. Bridge over The Great Miami River at the Ohio-Indiana State Line, 53' SE. of the SE. Rail and about 1' below the track. El. 494.436.

B.M. "AHAUS" Survey Disc set in conc. cylinder 2' above ground stamped "AHAUS 1964" 178' Lt. of Sta. 48+85 (Proj. I-275-9(1)0 set by others El. 474.476

Bench Mark Equation
I-275-2(1)0 B.M. "AHAUS" from N. El. 474.476
I-275-9(1)0 B.M. "AHAUS" from S. El. 474.340