
Documentation of the Historic Platte River Bridge at Farley

Bridge No. K0266
Platte County, Route 45
January 2012



Historic Platte River Bridge at Farley

MoDOT Bridge No. K0266

Platte County, Route 45
MoDOT Project No. J4P2203

Historical and Photographic Documentation

Prepared by:

John A. Eastman and Randall D. Dawdy

Submitted to:

State Historic Preservation Office
Missouri Department of Natural Resources

Prepared for:

Federal Highway Administration
In Compliance with Section 106 of the National Historic Preservation Act

Kevin Keith, Director
Missouri Department of Transportation

January 2012

Abstract

The Missouri Department of Transportation proposes to replace the Platte River Bridge (No. K0266), which carries Route 45 over the Platte River near the town of Farley in southwestern Platte County. This bridge has been determined eligible for listing on the National Register of Historic Places (NRHP) under Criterion C in the area of Engineering, and the proposed project will have an “adverse effect” on the historic structure.

In consultation with the Missouri State Historic Preservation Office and the National Advisory Council on Historic Preservation, a Memorandum of Agreement (MOA) for mitigation of the adverse effect was developed and signed on October 27, 2010. The MOA calls for documentation of the bridge with archival photographs and a historic narrative. This documentation is submitted to fulfill the MOA requirements for the historic Platte River Bridge No. K0266.

HISTORIC DOCUMENTATION
BRIDGE K0266
PLATTE RIVER BRIDGE

I. Introduction

Location: Highway Bridge carrying Missouri State Route 45 over the Platte River, approximately ½ mile south of Farley, Missouri.

Construction Date: 1933

Present Owner: Missouri Department of Transportation, Jefferson City, Missouri

Present Use: Highway bridge to be replaced; project to begin in 2011

Significance: The Platte River Bridge is technologically significant as a well-preserved example of an uncommon structural type. Pin-connected Parker trusses were built by the hundreds throughout Missouri in the late 19th and early 20th centuries. The Parker truss, a polygonal-chorded variant of the Pratt truss, was typically used for crossings requiring long spans, where economy in materials could be achieved by angling the upper chords (Parsons 2005). Riveted Parker trusses such as the Platte River Bridge were built far less often than pin-connected Parkers; fewer than 20 of this subtype built prior to 1951 remain in place today on Missouri's road system. Bridge K0266 is one of three that have multiple spans, and it is the only one with three spans.

Historian: John A. Eastman, Historic Preservation Section, Design Division, Missouri Department of Transportation, January 2012.

II. Historical background of Bridge K0266

A. Introduction

Missouri Bridge K0266 carries Route 45 over the Platte River, approximately ½ mile south of the town of Farley in Platte County, Missouri. The bridge consists of three steel rigid-connected Parker through truss spans, each measuring about 180 ft. long with a total length of 548 feet. The roadway is 22 feet wide from curb to curb with a concrete deck over steel stringers. Designed by the Missouri State Highway Department (MSHD) in 1933, the bridge was built by Snyder & Johnson of Humboldt, Iowa for a total cost of \$58,161.50.

The 1996 Missouri Historic Bridge Inventory originally evaluated it as “possibly” eligible for the National Register of Historic Places (NRHP) as a well-preserved example of multiple-span MSHD truss design, based on a study of 35 structures of the same subtype built before 1951 (Fraser 1996). Although its condition has deteriorated in the intervening 15 years, it is one of only 20 remaining bridges of this subtype. It is one of only three that have multiple spans, and the only one with three spans. In the late 19th and early 20th centuries, riveted Parker through trusses were far less common than their pin-connected counterparts. Today, Bridge K0266 is considered to be eligible for the NRHP under Criterion C in the area of Engineering and possibly under Criterion A for its high degree of historical integrity.

B. Local Transportation History

The town of Farley was platted on October 14, 1850 by Josiah Farley, a Kentuckian who had settled in Platte County soon after the opening of the Platte Purchase. He operated a ferry across the Missouri River, affording him a profitable business after the Kansas Territory opened for settlement in 1854. Rapp’s addition to Farley was platted Feb. 20, 1852 by John G. Rapp. Occupying a small parcel in the NE corner of Section 33, it was separated from the rest of the town by the “State Road to Parkville” (now River Road) that followed the section line east out of town toward the Platte River (Paxton 2006:427).

In the 19th century, railroads were the main land transportation mode. The present course of Route 45 through southwestern Platte County parallels the Burlington Northern Railroad tracks along the bluff line at the edge of the Missouri River floodplain (Figure 1). The first railroad in the region, the Platte County Railroad, was chartered in 1853, organized in 1857, and began service in 1869 under the name of Missouri Valley Railroad, linking St. Joseph to Kansas City via Iatan, Weston, and Parkville (Anonymous 1929). By 1877, it was operating as the Kansas City, St. Joseph, & Council Bluffs Railroad on a route that closely followed the bank of the Missouri River about a mile southwest of Farley (Figure 2). By 1907, the present Burlington Northern Railroad line was in place, designated as the “Beverly and Waldron Cut Off” paralleling the public road along the base of the bluff and skirting the southwestern corner of Farley (Figure 3). The original rail line along the Missouri River bank was eventually abandoned and now survives only as a farm road.

Early roads in the wagon and oxcart era generally followed Indian trails and natural ridge lines and relied on ferries to cross rivers. Building a bridge was an expensive undertaking, and

in many cases railroad companies were the only entities with sufficient capital to erect substantial bridges. In some cases, private investors built bridges at key crossings and charged tolls until the construction cost was recouped. The first bridge on the lower Platte River was built at the county seat, Platte City, in 1850 and was described as a “fragile lattice” structure. In 1869, it was replaced with an iron bridge at a cost of \$15,000. The iron bridge was replaced by a 3-span steel truss bridge in 1923, and again by a concrete structure in 1996 (Anonymous 1998). Located 8 miles in a straight line upstream from the Platte’s confluence with the Missouri River, the bridge at Platte City served regional traffic through the county seat but did little for downstream transportation.

Prior to the construction of Route 45 and Bridge K0266 in 1933, there were two options to cross the lower Platte River near Farley. River Road left town straight to the east, crossing the Platte River at a point ½ mile upstream from the present bridge, near the center of Section 34. It is unclear if that crossing was via bridge or ferry. Further upstream, the old county road from Farley to Platte City crossed the Platte River at Cow’s Ferry, in the NW corner of Section 23. Around 1917, this crossing was improved with the construction of the Detmer Bridge, a Pratt through truss that was also known locally as Cable Bridge. The Detmer Bridge was closed to traffic in 1987 and was later demolished. (Edwards Bros. 1877, Ogle 1907, Farley 1983, Eberhart 1990) Bridge K0299 and the present Route 45 southeast from Farley were built on new right-of-way starting in 1933.

C. Development of Route 45 and Bridging the Platte River

The general path followed by Route 45 has served as a transportation route through southwestern Platte County since at least the 1870s. The 1877 county atlas depicts a public road running along the present course of Route 45 through Weston, Beverly, and East Leavenworth to the southwestern corner of Farley. The Platte River Bridge was constructed as a part of Route 45, which was designated by the Missouri State Highway Commission in 1929 as a traffic relief (TR) highway for travel between Kansas City and St. Joseph. Route 45TR was originally delimited as “...connecting Route 52A, Buchanan-Platte County Line, through or near Weston, intersecting Route 92, between Platte City and Leavenworth, and connecting with Route 59, at or near Parkville, Missouri...” (MSHC 1929). This route parallels the Burlington Northern Railroad line along the edge of the Missouri River floodplain at the base of the bluffs. Following its designation as a state road in 1929, Route 45 was gradually upgraded to its present status in short segments throughout the 1930s.

In planning the crossing of the Platte River, highway designers had first considered a bridge configuration that included two 120’ spans with 100’ and 200’ approaches, but they soon scrapped that plan in favor of three 180’ spans to cover the 540’ length (MSHD 1933a). The superstructure was composed of standard highway truss bridge elements, with the specific design of the substructure completed in February of 1933 (MSHD 1933b). On February 14, 1933, the Commission approved the project plans for “constructing a bridge, together with any incidental work, on the State Road from Farley to Waldron, at Station 1263+00” (MSHC 1933a). On March 21, 1933, the Commission approved a tentative award of the contract for the bridge to the low bidder, Snyder & Johnson of Humboldt, Iowa, pending securing of the necessary right-of-way for which the department was still negotiating (MSHC 1933b).

Information on the builder is scant. No record has been found of Snyder & Johnson building any other bridge in Missouri, and this is the only bridge credited to the firm on the Bridgehunter website (Bridgehunter 2012). Snyder & Johnson merged with Herberger Construction in the 1940s. In 1961, Walter Herberger became the sole proprietor of Snyder, Johnson & Herberger and moved the company offices from Humboldt to Indianola to position the company closer to Iowa's burgeoning interstate system (Herberger 2012). Reorganized in 1981 as Herberger Construction Company Inc., the firm is still operated by descendants of the founders (Iowa Secretary of State 2012). In response to an inquiry about company records from the 1930s, Dennis Herberger stated that his grandfather, Carl Johnson, "threw everything out when he retired" (Herberger 2011).

The right-of-way purchase was soon concluded, and on April 28, 1933 the Commission approved the purchase of 1,000 tons of concrete aggregate for the bridge project from S.H. Atwood Quarry of Liberty, at the price of \$1.05 per ton (MSHC 1933c). Steel components were produced by the Inland Steel Company of East Chicago, Indiana (Fraser 1996). Construction was soon underway with the first pilings driven on July 5, 1933 and continued through December (MSHD 1933c). The final inspection was performed on December 29, 1933 and the bridge opened with little fanfare shortly thereafter (MSHD 1934). The total cost of the bridge was \$58,161.50 (MSHC 1934:187).

III. Physical Description of Bridge K0266R

Bridge No. K0266R spanning the Platte River at Route 45 consists of three steel, 9-panel rigid-connected Parker through truss spans, each measuring 180' in length. The superstructure is carried on reinforced concrete bents and piers. The total length of the bridge is 548' with a roadway width of 22' on a level grade at 771.38' elevation.

The substructure consists of two bents and two piers of reinforced concrete construction, numbered 1 through 4 from north to south. Bents 1 and 4 are two-column open bents. Each column rests atop a 3-tiered rectangular concrete footing measuring 16' x 11' at the base and 10' x 4.5' at the top. Each 3-stepped footing totals 7.5' high. Each footing is supported by 11 piles composed of 10" Carnegie steel beam driven to an average depth of 52.21' below 741.5' elevation. The rectangular columns, centered 24'6" apart, have a front batter of 2¼" per 1' and a rear batter of ¾" per 1'. Each column is 3' wide and 20'2" high. The columns are connected by a cap beam measuring 2'6" high. The wingwalls extend to a total width of 45' across. Bent No. 1 is infilled with mortared stone and backfilled to within a foot below the cap beam, while Bent No. 4 is backfilled almost to the top of the cap beam. Both bents lay outside the dikes that line the Platte River's floodplain, and a note on the plan sheet dictates that "dikes shall not be disturbed during construction."

Piers 2 and 3 are reinforced concrete "dumbbell" piers composed of circular columns connected by a 15" thick reinforced concrete web wall. Each column rests atop a 2-tiered concrete footing measuring 16' square at the bottom, 12' square at the top, and 8' high. A handwritten note on the plan sheet dictates that the lowest tier of Pier 3 footings should be 1 foot deeper than those of Pier 2, giving Pier 3's footings a total height of 9'. Each footing is supported by 16 piles composed of 10" Carnegie steel beam driven to an average depth of 46.48' below 732.0' elevation. The circular columns, centered 24'6" apart, have a batter of ½" per 1'. Each column is 4'8" diameter at the top, 7'4" diameter at the base, and 31'7" high. The columns are connected by a cap beam measuring 18" high. The web wall measures 16'7" in height below the cap beam, with its lower edge at 750.0' elevation.

Each of the three truss spans is anchored to the cap beams with fixed bearings at the north end and expanding rocker bearings at the south end. Each 180' span has nine panels of 20', and is rigid-connected with rivets. The trusses are centered 24'6" apart and are 20' high at the hip vertical and 30' high at the center vertical members. The end posts and upper chord consist of two 12" channels with cover plates and lacing. The lower chords are two 15" channels with flat batten plates. The hip verticals are four angles with single lacing. The other vertical members are two 9" channels with single lacing and batten plates. Diagonal members are two angles with batten plates. Project plans specify portal bracing consisting of two angle struts with diagonal bracing, but instead the horizontal member on all of the bridge's six portals consists of a single I-beam horizontal strut. Sway bracings at each panel are double X-frames of two angle struts and center verticals, and single angle diagonal braces. Project plans specify "14.0' minimum (vertical) clearance (from) crown of roadway to bottom of steel." Upper lateral cross bracings are composed of single angles.

The floor system of the Parker through truss includes 24" Carnegie beams for the floor beams connected by 21" Carnegie beams for the four longitudinal girders. Lower lateral cross-bracing is made of single angles on lateral hangers. With two layers of reinforcing steel bars, the concrete deck is 7½" thick and 22' wide between the curbs. The curbs originally had two 5' wide drainage outlets in each panel. Two 6" channel handrails running along the interior of the panels still retain their 90-degree outward bend at the ends of the bridge. The rails are bolted on 4" H-posts positioned at the center point of each panel.

In 1988, the bridge deck was rehabilitated and resurfaced. This included removal of the existing asphalt mat, repair of expansion joints, application of a seal coat and 2" of asphaltic concrete overlay.

Currently the deck is in *Serious* condition with a rating of 3, the steel superstructure is in *Poor* condition with a rating of 3, and the concrete substructure is in *Fair* condition with a rating of 4, all based on a scale of 0 through 9 with 9 being the best possible shape the bridge could be in (as on the day it was built) and 0 being the worst possible condition (as when it is out of service and beyond corrective action). Due to its condition it has speed restrictions for trucks over 17 tons and prohibits trucks over 40 tons (MoDOT 2011). Its deteriorating condition requires continual repairs that are not very effective due to its overall poor condition.

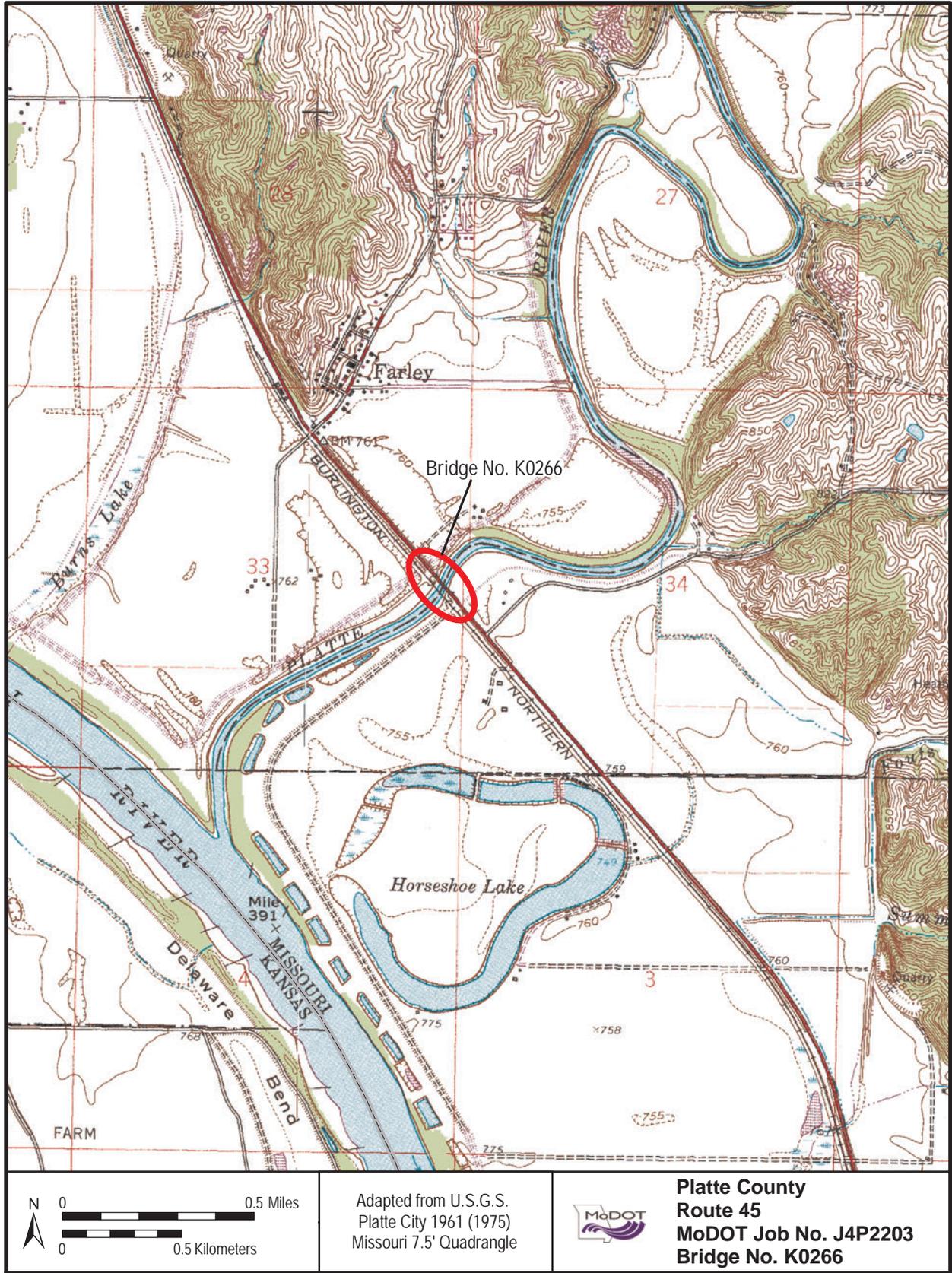


Figure 1. Topographic map showing the location of Bridge No. K0266.

TOWNSHIP 52 NORTH RANGE 35 WEST.

OF THE 5TH PRINCIPAL MERIDIAN.

Scale 2 Inches to the Mile.

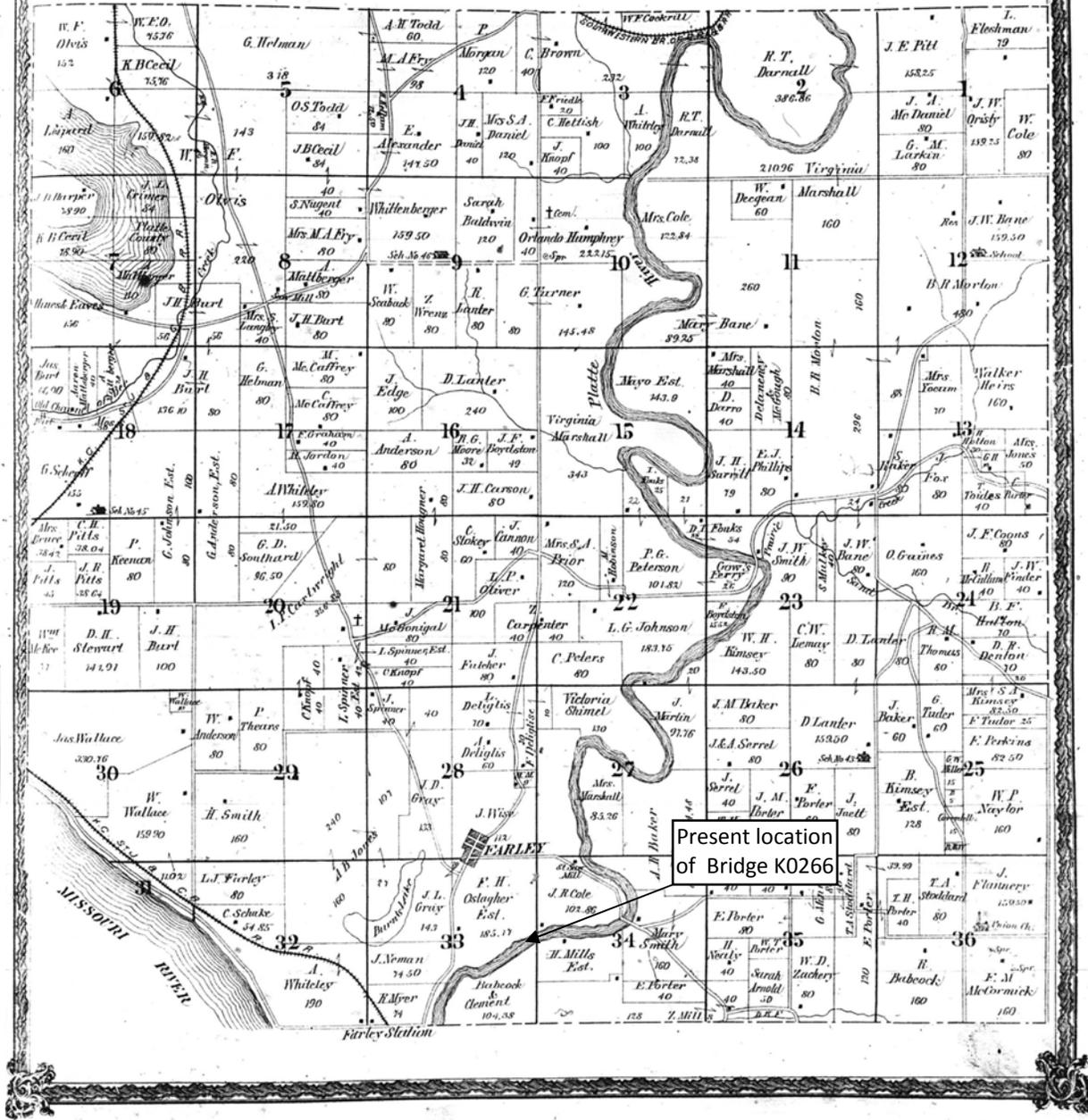


Figure 2. 1877 atlas map showing the location of Bridge No. K0266 (Edwards Bros. 1877).

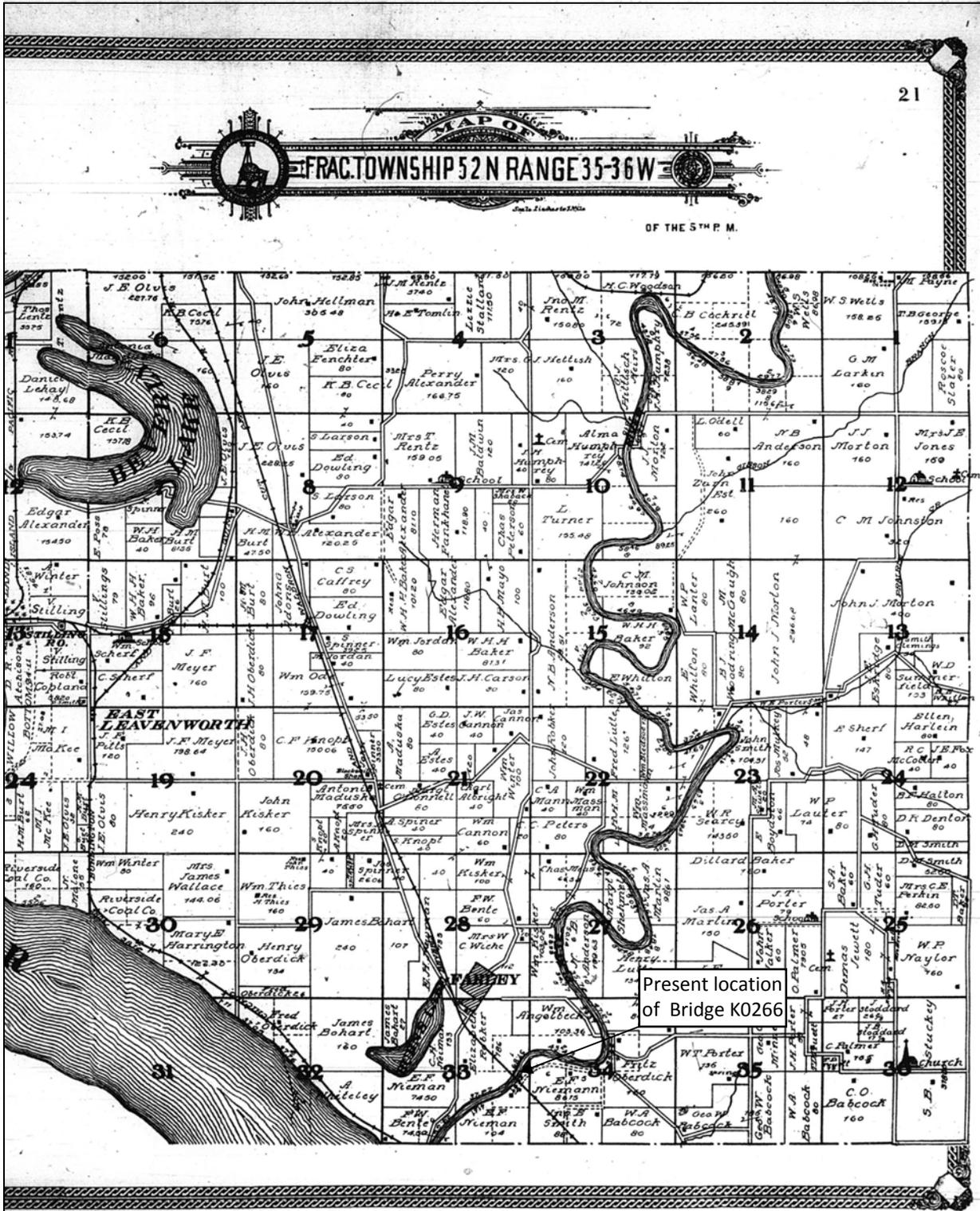


Figure 3. 1907 atlas map showing the location of Bridge No. K0266 (Ogle 1907).

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- 1933b "Bridge Over Platte River, State Road from Farley to Waldron, About 0.5 Miles S.E. of Farley, Project No. R45 TR-S8," February 1933, Bridge No. K-266 [bridge construction drawings, four sheets], on microfiche at the Bridge Division, Missouri Department of Transportation, Jefferson City.
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**Platte River Bridge (Bridge No. K0266)
Route 45, Platte County, Missouri**

Photographer: Randall Dawdy, Missouri Department of Transportation

Date: February 17, 2011

Location of Negatives: Digital Images Provided to
Missouri State Historic Preservation Office

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- #33 of 35. Bridge K0266. South end post with bridge number. View to north.
- #34 of 35. Bridge K0266. North portal. View to south.
- #35 of 35. Bridge K0266. North approach. View to south.

Photographic Methods and Processing:

The archival photographs were taken and processed according to the standards for photographs accompanying NRHP documentation (NPS 2008). Randall Dawdy took the photographs on February 17, 2011 using a digital single lens reflex camera. Images were captured in a raw (nef) format, which was manipulated for light contrast before being converted to a tagged image file format (.tiff) and printed. Images were numbered according to the NRHP Photographic Imaging Policy (NPS 2008) and burned onto compact discs, which were provided to the SHPO along with this report.

Prints were made on Epson Premium Glossy Photo Paper and used Epson Matte Black UltraChrome K3 Ink, both identified as “best” practices by the NRHP photo policy, and which Epson identifies as having an 85-year permanence under glass (NHRP 2009, Epson 2009). Kept in archival conditions the materials will exceed the 75 year permanence standard for the NRHP, which is the standard being used for this project. A copy of the Epson rating is attached.

The .tiff images were burned onto Delkin Archival Gold compact discs, and provided to the SHPO in that format. In addition, a copy of the .tiff file will be maintained by the MODOT Environmental and Historic Preservation Section, and a copy will be provided to the Platte County Historical Society.

Permanence rating for Epson prints framed under glass

MEDIA	6-Color Photo Dye Inks		DURABrite® Ink	PictureMate™ Ink	UltraChrome™ Ink	UltraChrome Hi-Gloss™ Inks
	Epson Stylus Photo 825/925/960/1280	Epson Stylus Photo R200/R300/R320/RX500/RX600	Epson Stylus C64/C66/C84/C86/CX4600/CX6400/CX6600	PictureMate Personal Photo Lab	Epson Stylus Photo 2200	Epson Stylus Photo R1800/R800
EPSON PREMIUM PHOTO PAPERS						
Premium Glossy Photo Paper		23 years			85 years	104 years
Premium Luster Photo Paper – Cut Sheet		22 years			71 years	64 years
Premium Semigloss Photo Paper		22 years			77 years	In progress
EPSON MATTE PAPERS						
Double-Sided Matte Paper	15 years					
Enhanced Matte Paper			71 years		76 years	110 years
Matte Paper Heavyweight	18 years	30 years	105 years			Over 150 years
Photo Quality Ink Jet Paper		8 years				In progress
PremierArt™ Matte Scrapbook Photo Paper for Epson			94 years		108 years	In progress
Premium Bright White Paper		5 years	74 years			In progress
EPSON FINE ART PAPERS						
UltraSmooth Fine Art Paper					108 years	
Epson Velvet Fine Art Paper					61 years	
Watercolor Paper Radiant White					92 years	
PremierArt Water-Resistant Canvas for Epson					75 years	
EPSON GLOSSY PAPERS						
ColorLife™ Photo Paper	27 years	36 years				
DURABrite Ink Glossy Photo Paper			55 years			
PictureMate Photo Paper				104 years		
Semigloss Scrapbook Photo Paper	27 years	36 years				

* Lightfastness ratings are based on accelerated testing of prints on specialty media displayed indoors, under glass. Actual print stability will vary according to media, printed image, display conditions, light intensity and atmospheric conditions. Lightfastness ratings do not measure paper deterioration, such as yellowing. Epson does not guarantee the longevity of prints. For maximum print life display all prints under glass or lamination or properly store them. Ratings based on testing conducted by Epson and Wilhelm Imaging Research www.wilhelm-research.com

**Testing currently in progress. Projected time estimated on current progress of test.

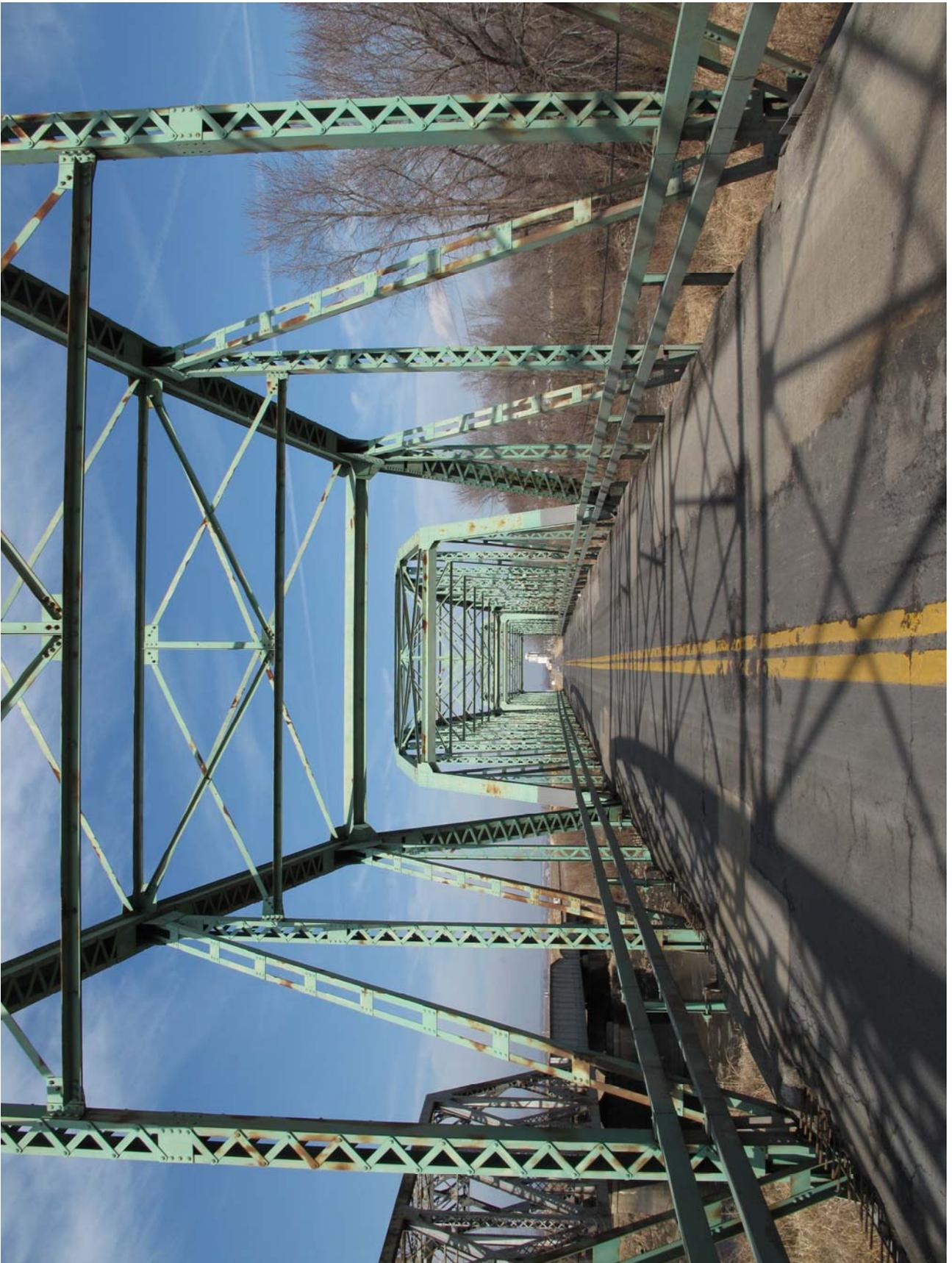
As with traditional photos, proper care will maximize display life. For indoor display, Epson recommends that prints be framed under glass or in a protective plastic sleeve to protect the prints from atmospheric contaminants like humidity, cigarette smoke, and high levels of ozone. And, as with all photographs, the prints should be kept out of direct sunlight. For proper storage, Epson recommends that your prints be stored in a photo album (or plastic photo storage box or museum storage box) in acid free, archival sleeves commonly available from most camera shops and other retailers. By taking these steps to protect prints from direct sunlight and contaminants, you can preserve your photos for many years.



#1 of 35. Bridge K0266. South approach. View to north.



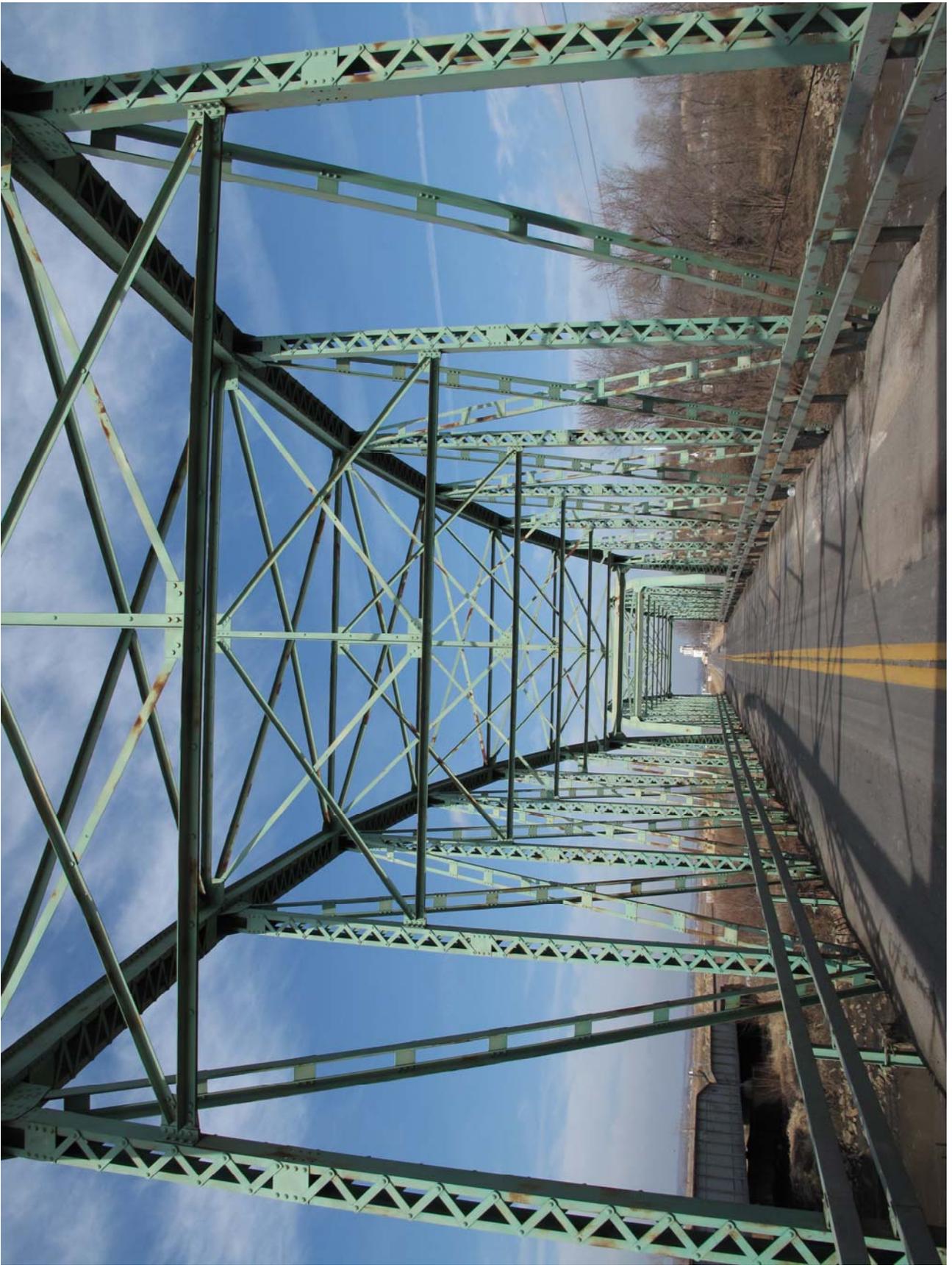
#2 of 35. Bridge K0266. South portal. View to north.



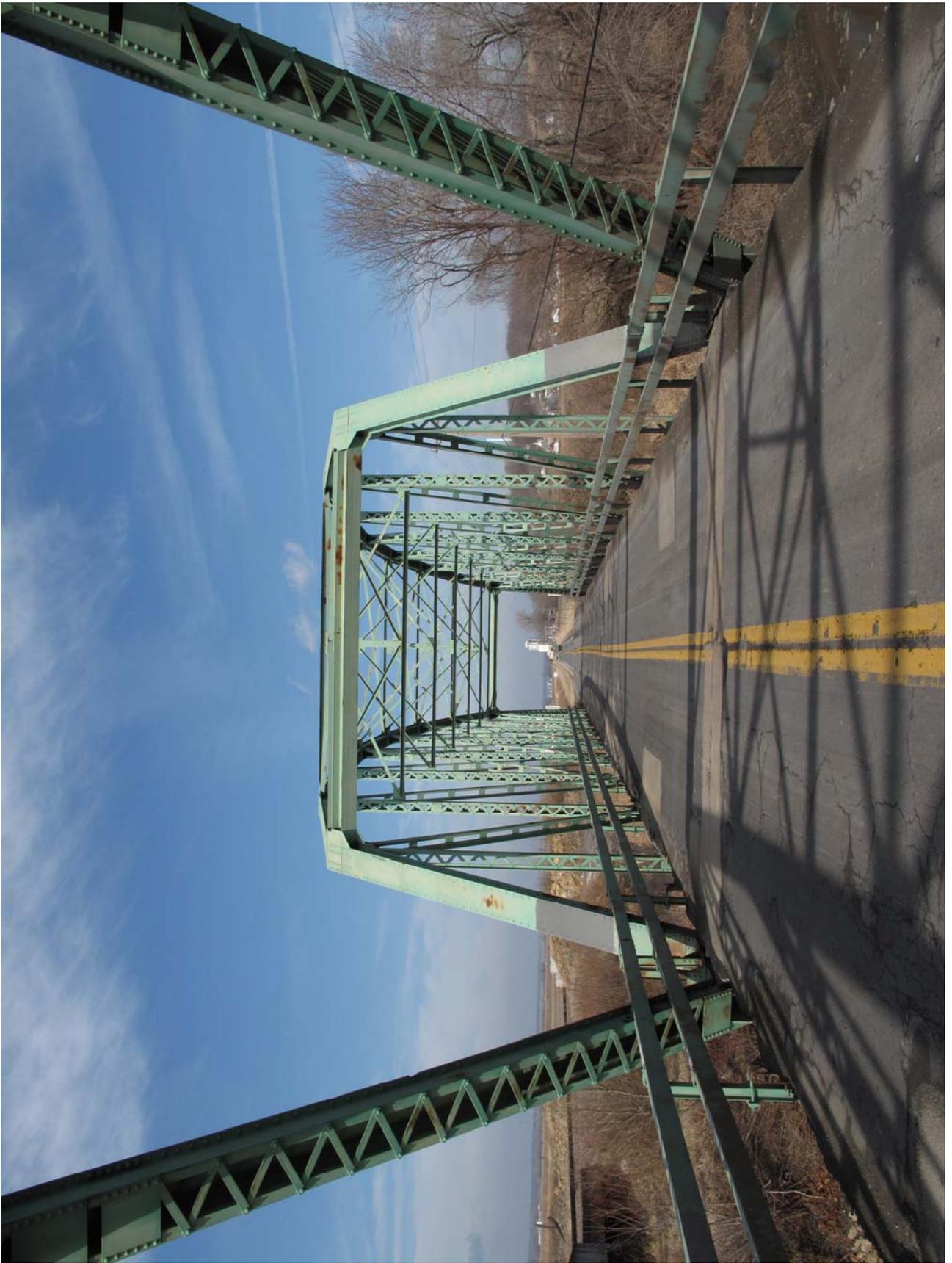
#3 of 35. Bridge K0266. North end of south span. View to north.



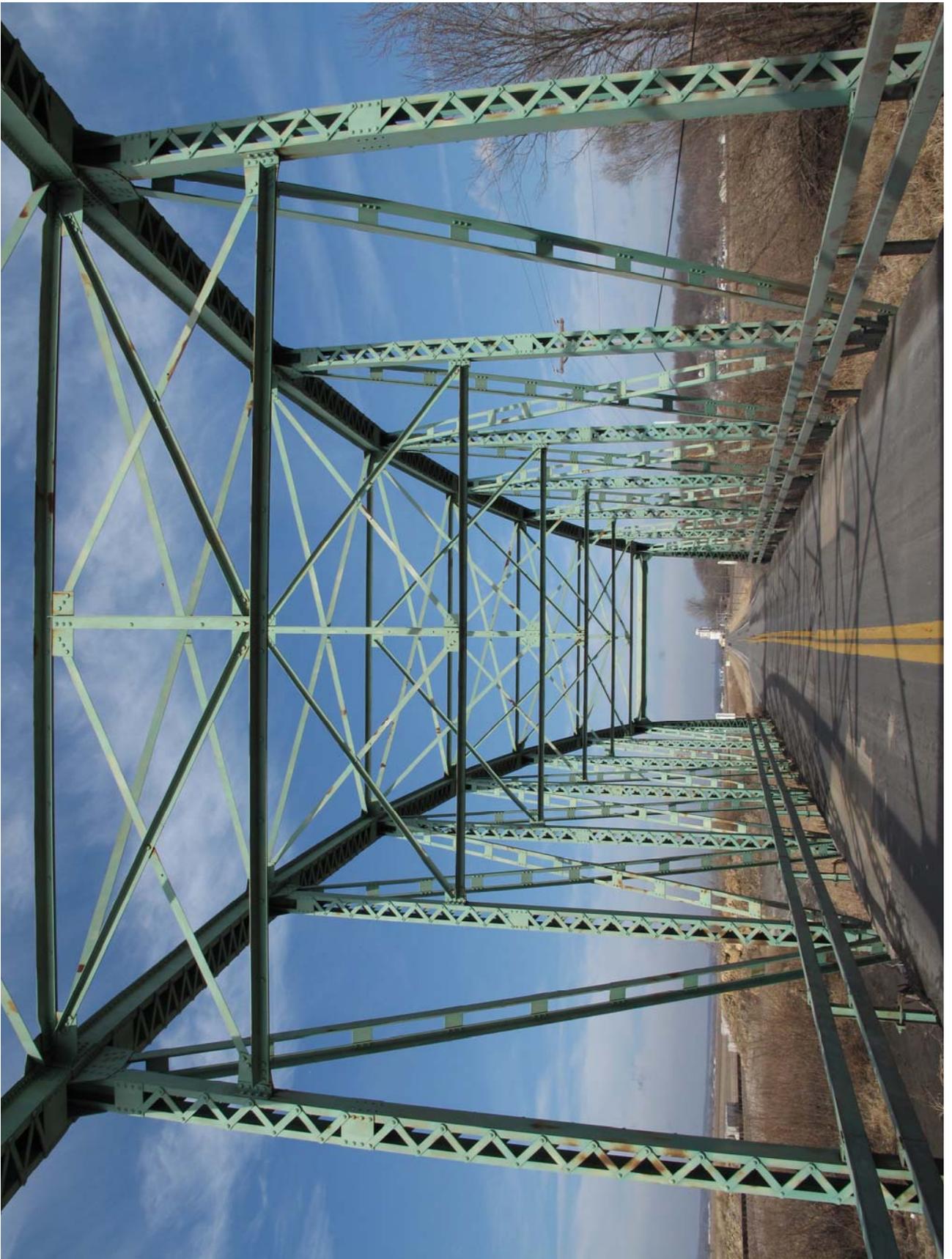
#4 of 35. Bridge K0266. South portal of center span. View to north.



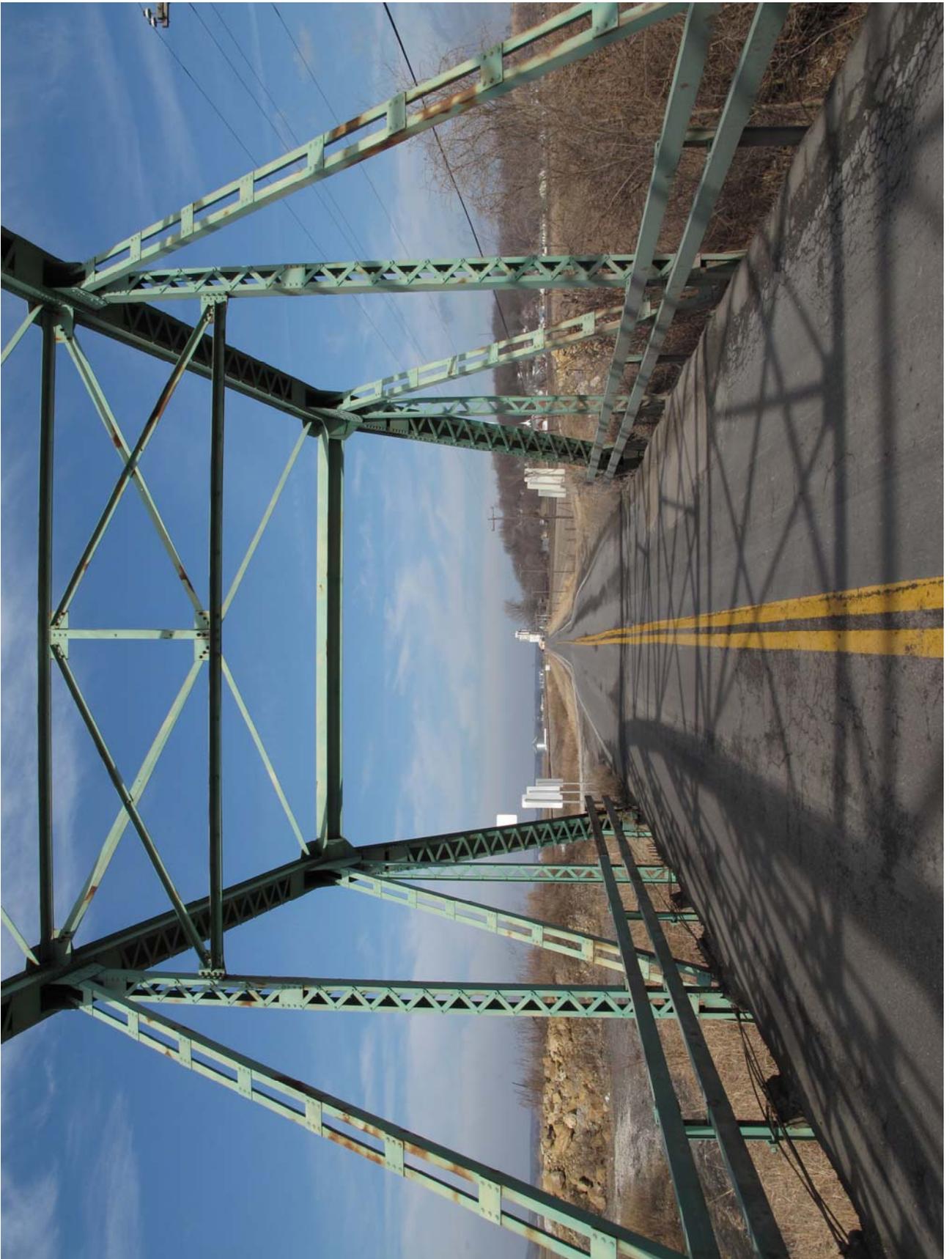
#5 of 35. Bridge K0266. Center span sway bracing. View to north.



#6 of 35. Bridge K0266. South portal of north span. View to north.



#7 of 35. Bridge K0266. North span sway bracing. View to north.



#8 of 35. Bridge K0266. North end of north span. View to north.



#9 of 35. Bridge K0266. Typical panels, north span. View to east.



#10 of 35. Bridge K0266. Lower chord connection. View to east.



#11 of 35. Bridge K0266. Upper chord connection. View to east.



#12 of 35. Bridge K0266. West side. View to southeast.



#13 of 35. Bridge K0266. Center span. View to southeast.



#14 of 35. Bridge K0266. South span. View to southeast.



#15 of 35. Bridge K0266. North span. View to northeast.



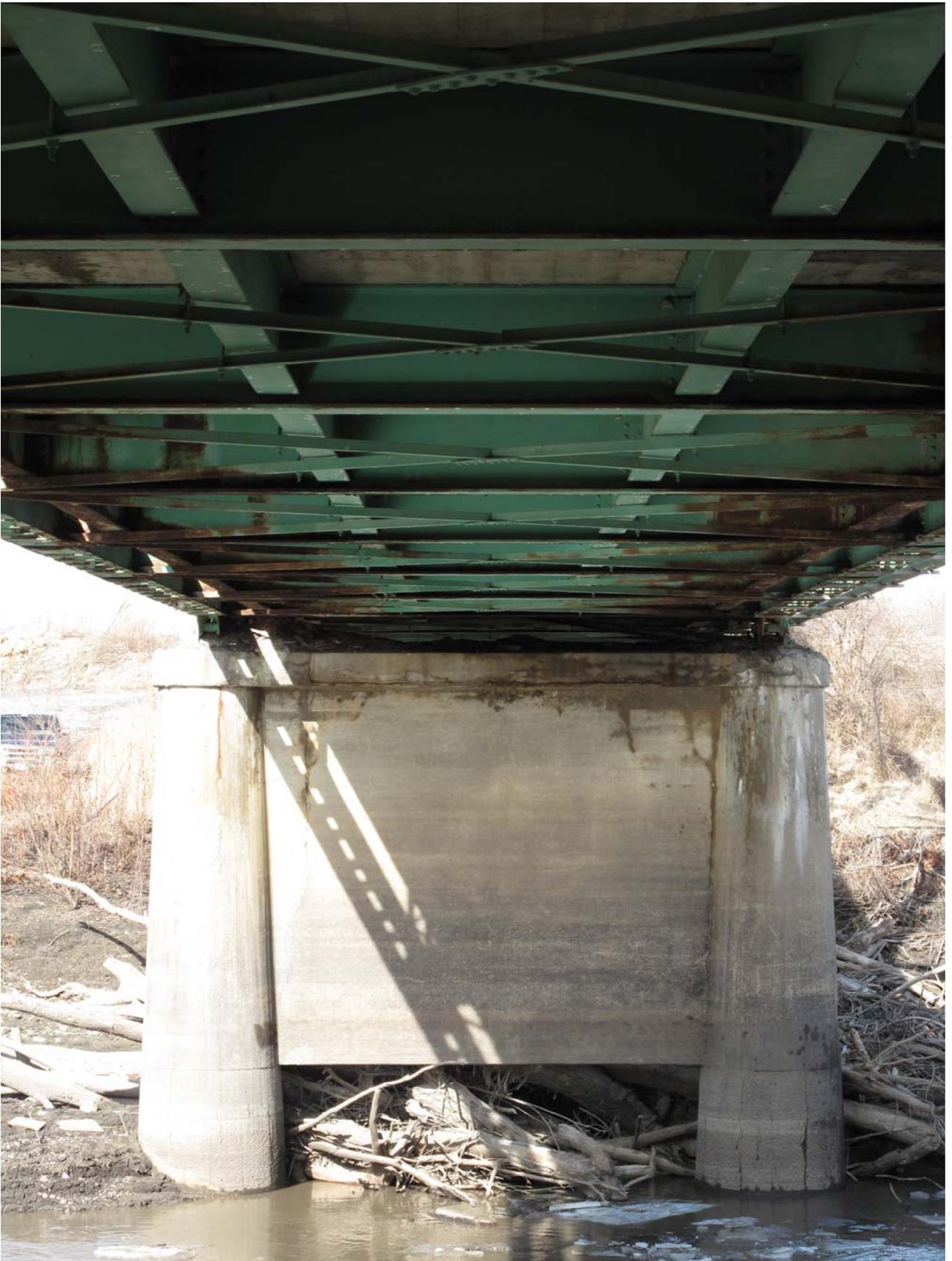
#16 of 35. Bridge K0266. Pier 2. View to east.



#17 of 35. Bridge K0266. Pier 2. View to east.



#18 of 35. Bridge K0266. Pier 2 detail. View to east.



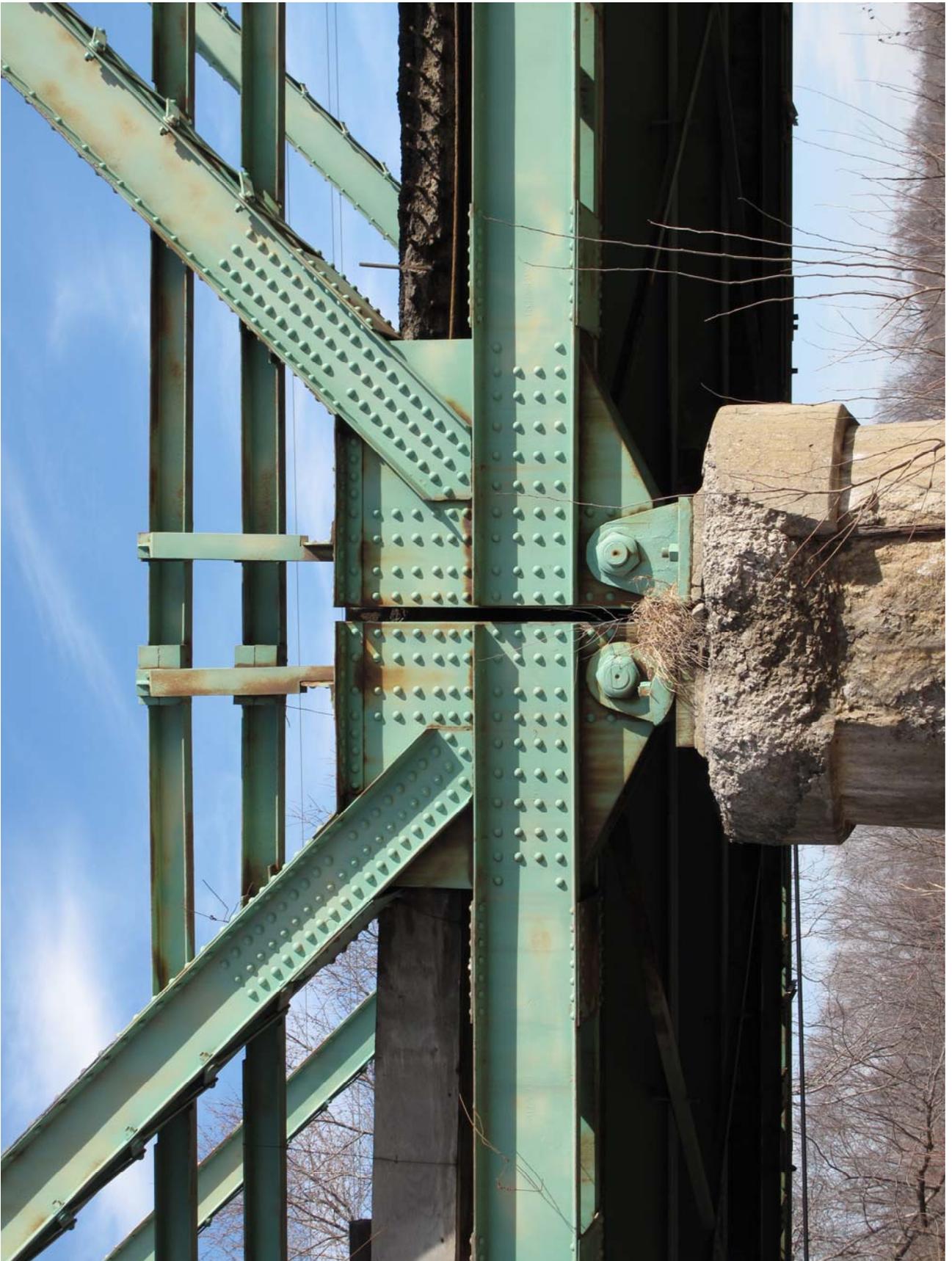
#19 of 35. Bridge K0266. Pier 2. View to north.



#20 of 35. Bridge K0266. Pier 3. View to northeast.



#21 of 35. Bridge K0266. Pier 3. View to east.



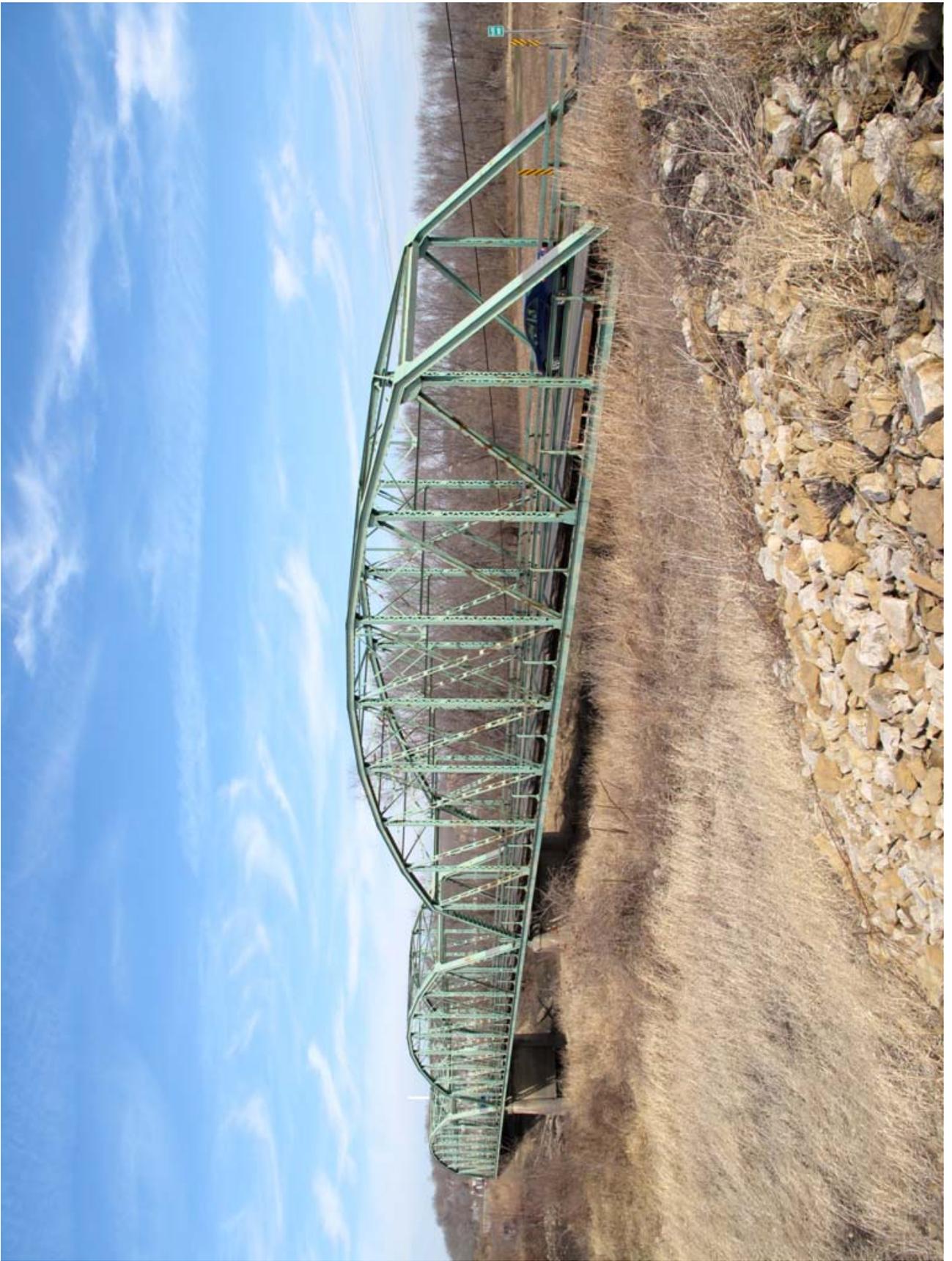
#22 of 35. Bridge K0266. Pier 3 detail. View to east.



#23 of 35. Bridge K0266. South span sub-deck. View to north.



#24 of 35. Bridge K0266. North span. View to northeast..



#25 of 35. Bridge K0266. West side. View to northeast.



#26 of 35. Bridge K0266. South span. View to northeast.



#27 of 35. Bridge K0266. East side. View to northwest.



#28 of 35. Bridge K0266. Upper chord connection. View to east.



#29 of 35. Bridge K0266. Upper chord connection. View to northeast.



#30 of 35. Bridge K0266. Upper chord connection. View to northeast.



#31 of 35. Bridge K0266. East guardrail detail. View to east.



#32 of 35. Bridge K0266. West guardrail detail. View to northwest.



#33 of 35. Bridge K0266. South end post with bridge number. View to north.



#34 of 35. Bridge K0266. North portal. View to south.



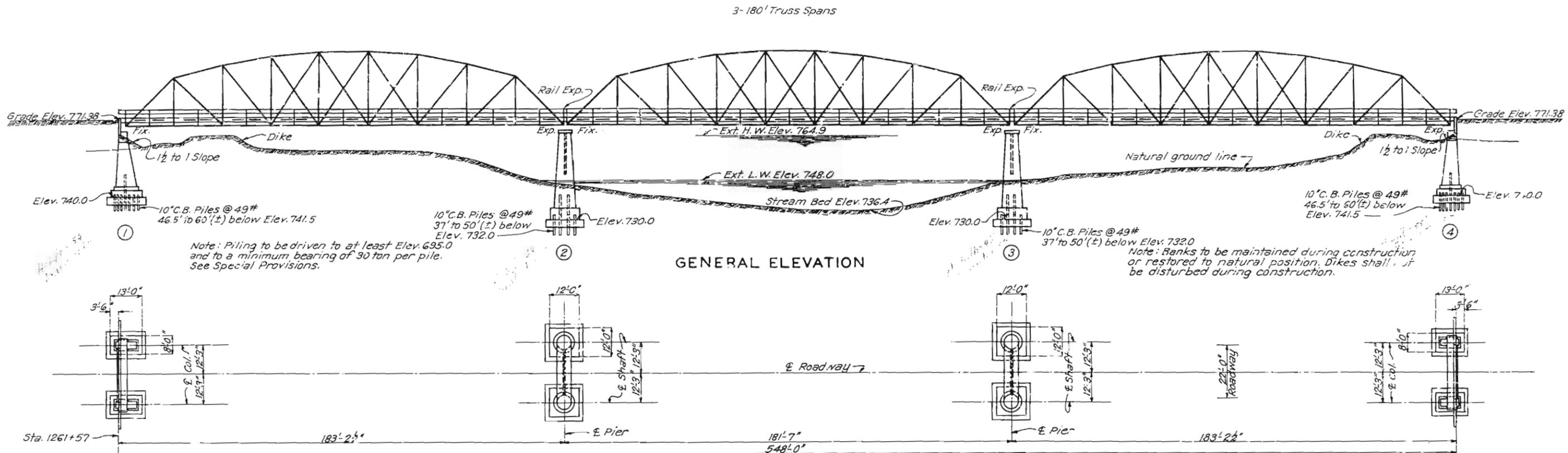
#35 of 35. Bridge K0266. North approach. View to south.

Bridge Plans and Standard Sheet

**Platte River Bridge (Bridge No. K0266)
Route 45, Platte County, Missouri**

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	R45 TR-58	19		



Note: Piling to be driven to at least Elev. 695.0 and to a minimum bearing of 30 ton per pile. See Special Provisions.

Note: Banks to be maintained during construction or restored to natural position. Dikes shall not be disturbed during construction.

GENERAL NOTES:

Concrete in slabs and curbs to be 1:2:3½ mix, Class "X". All other concrete to be 1:2:4 mix, Class "B".

Estimated quantity of Class "B" concrete includes concrete in seal courses to maximum horizontal limits of 18" outside of neat lines of footings. See Special Provisions.

Exposed edges to be beveled ¾" where no other bevel is noted. Where rubber compound is specified on plans for use in partition and expansion joints, the pre-moulded joint shall be securely stitched to one face of concrete with copper wire.

Two name plates type "B" as shown on Std. S-918R to be furnished and placed by contractor. Cost of name plates to be included in price bid for other items.

Details of expansion device at Bent #4 similar to Std. S-911 and fixed device at Bent #1 similar to Std. S-914. For exp. device at Piers #2 & 3 see Std. S-912.

Shop drawings for all structural steel shall be submitted to the Missouri State Highway Department in duplicate and shall be approved before steel is fabricated.

See Special Provisions in regard to permissible beam substitutions and basis of payment.

Rivets ¾", holes 13/16" except as noted. Holes for 5/8" rivets to be 11/16". Field connections riveted unless otherwise noted. See Special Provisions in regard to welding. For welding symbols see publication of American Welding Society Nov. 1929.

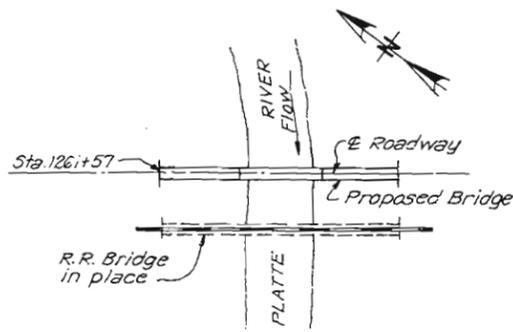
Bridge excavation in accordance with Section 1 of Standard Specifications issued April 1, 1930, except that quantities paid for will be computed from Ext. L.W. Elev. 748.0 where existing ground line is below this elevation, and that horizontal limits will be based on footings proper and not on seal courses. In case seal courses are omitted during construction by authority of the Engineer, the bottoms of footings are to be built to elevations shown on these design plans for footings proper.

All piles shall be driven with a steam hammer developing not less than 15000 Ft. lbs. at each full stroke of the piston.

Paint: Shop, none; Field, contact surfaces of bolted field connections one coat of red lead, surfaces inaccessible after erection three coats of red lead. No other paint to be applied by contractor. All paint required will be furnished by the State Highway Department.

ESTIMATED QUANTITIES			
Item	Substr.	Superstr.	Total
Bridge Excavation Class 1	Cu. Yds. 400		400
Bridge Excavation Class 2	Cu. Yds. 955		955
Concrete 1:2:4 Mix Class "B"	Cu. Yds. 612.4		612.4
Concrete 1:2:3½ Mix Class "X"		289.6	289.6
Fabricated Structural Steel		660000	660000
Cast Steel		3840	3840
Reinforcing Steel	Lbs. 18370	88650	107020
10" C.B. Piling (in place) *	Lbs. 249000		249000
Class 2 Exc. below piling			19

Bridge excavation above Elev. 748.0 will be paid for as Class 1 Bridge Excavation. Bridge excavation below Elev. 748.0 will be paid for as Class 2 Bridge Excavation. * 10" Beth. H10 @ 49# may be substituted for the 10" C.B. @ 49# specified for piles and pile caps. See Special Provisions for basis of payment.



LOCATION SKETCH

B.M. Elev. 768.85 - 4 on East end South abutment R.R. Bridge 110' Rt. Sta. 1266+85.

BRIDGE OVER PLATTE RIVER

STATE ROAD FROM FARLEY TO WALDRON
 ABOUT 0.5 MILES S.E. OF FARLEY
 PROJECT NO. R45 TR-58 STA. 1261 + 57

PLATTE COUNTY

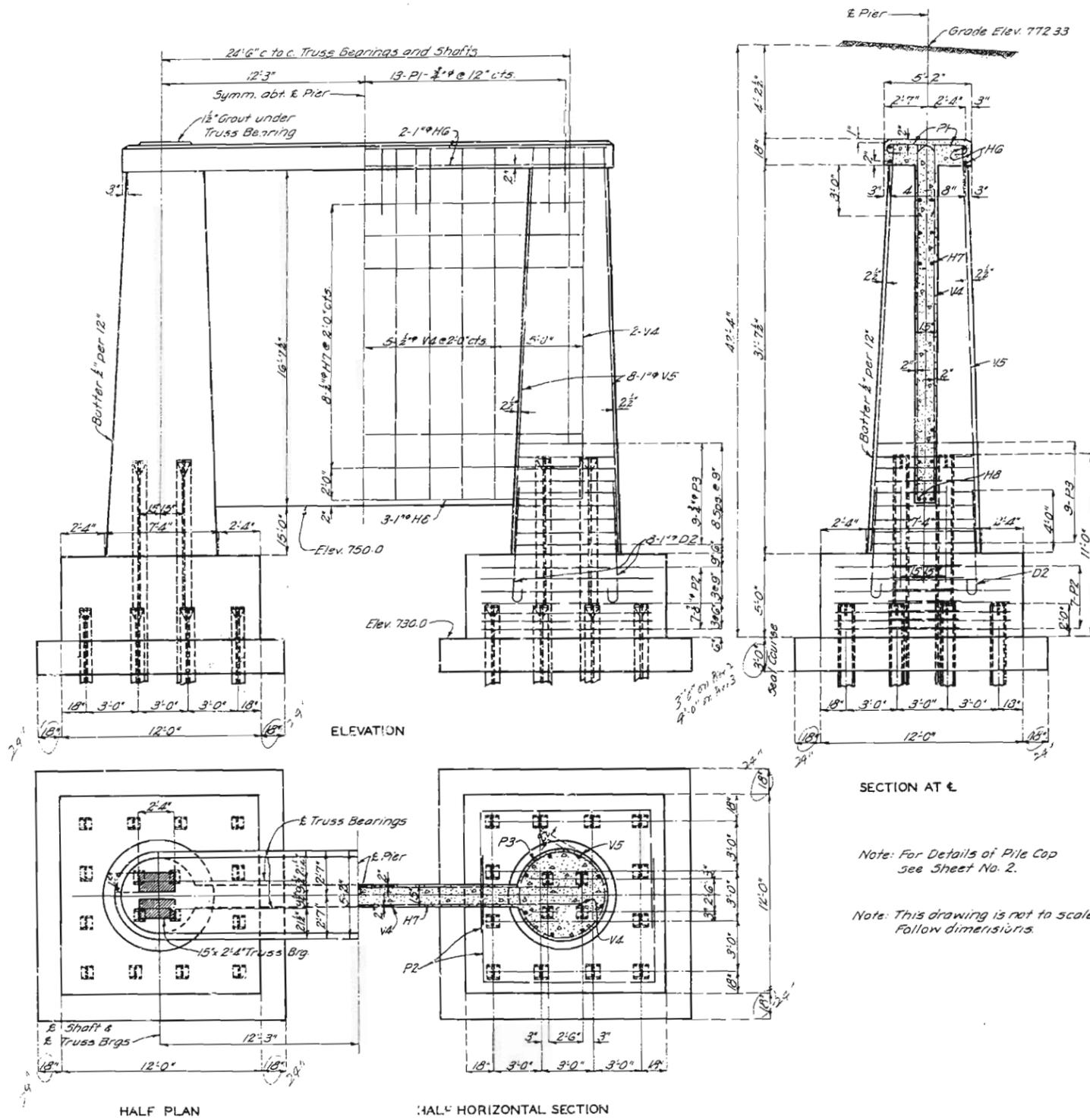
SUBMITTED BY *N.R. Jack* DATE 2/15/33
 APPROVED BY *T.H. Culler* DATE 2/15/33
BRIDGE ENGINEER CHIEF ENGINEER

STD. S-911
STD. S-918R
K-266

Drawn Feb. 1933 By L.H.
 Traced Feb. 1933 By R.J.G.
 Checked Feb. 1933 By H.D.

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.	R157R-58	54		

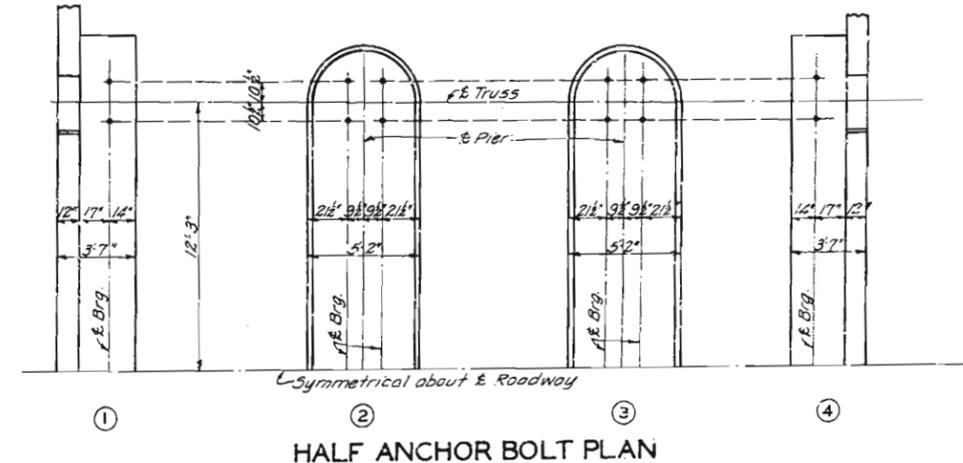


Note: For Details of Pile Cap see Sheet No. 2.

Note: This drawing is not to scale. Follow dimensions.

BILL OF REINFORCING STEEL - SUBSTR.					Bending Sketches & Cutting Diagrams	
No.	Size	Length	Mark	Location		
Bars No. 1 & 4						
24	1/2"	21'5"	D1	Footing		
16	1/2"	9'9"	F1	Haunch		
16	1/2"	9'0"	F2	"		
12	1/2"	15'3"	H1	Wing Wall		
14	1/2"	19'3"	H2	"		
8	1/2"	22'0"	H3	Backwall		
16	3/4"	32'3"	H4	Beam		
4	3/4"	30'3"	H5	"		
8	1/2"	17'3"	T1	Wing Wall		
4	3/4"	21'9"	T2	Backwall		
48	1/2"	16'0"	U1	Beam		
12	1/2"	16'9"	U2	"		
14	1/2"	7'9"	V1	Wing Wall		
24	1/2"	6'5"	V2	Backwall		
24	1/2"	22'6"	V3	Column		
32	3/4"	21'9"	P4	Footing		
20	3/4"	53'9"	P5	Column	Variable	
Piers No. 2 & 3						
8	1"	24'6"	H6	Coping		
32	1"	26'0"	H7	Web		
6	1"	26'6"	H8	"		
100	3/4"	8'3"	P1	Coping		
44	1"	17'9"	V4	Web		
32	1"	32'9"	V5	Shaft		
32	1"	8'0"	D2	Footing		
56	3/4"	24'9"	P2	"		
18	3/4"	48'0"	P3	Shaft	Variable	

Note: For superstructure Reinforcing see Sheet No. 4.
 Dimensions given are along centerline of bars and are for computed lengths.
 Reinforcing bars 1/2" or over in diameter, which are bent to an angle greater than 90°, shall be of structural grade.

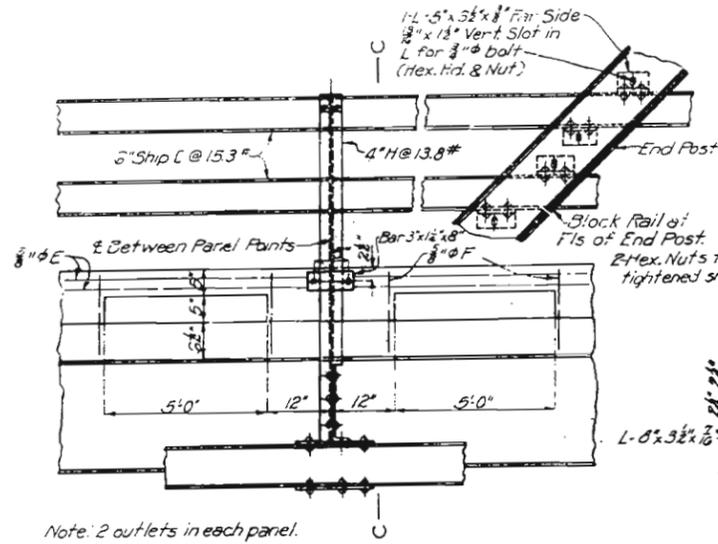


BRIDGE OVER PLATTE RIVER
 STATE ROAD FROM FARLEY TO WALDRON
 ABOUT 0.5 MILES S.E. OF FARLEY
 PROJECT NO. R45TR-58 STA. 1261+57
PLATTE COUNTY

Drawn Feb. 1933 by L.H.
 Traced Feb. 1933 by G.W.
 Checked Feb. 1933 by H.D.

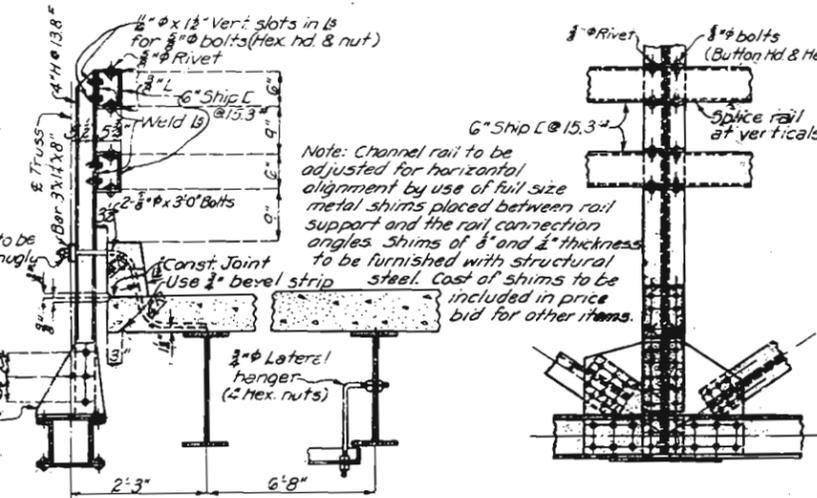
MISSOURI STATE HIGHWAY DEPARTMENT

FFD. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
3		MO. R45TR-SB	19		



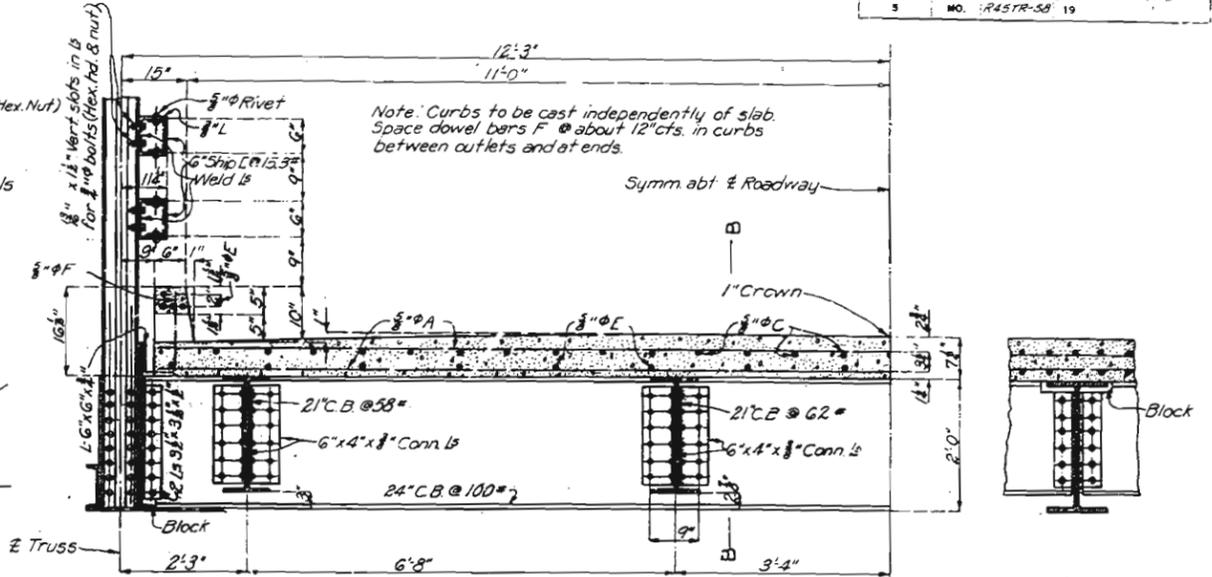
Note: 2 outlets in each panel.

PART ELEVATION OF HANDRAIL & OUTLETS



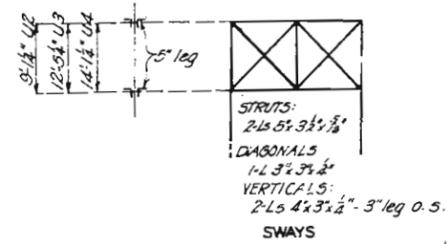
SECTION C-C

TYPICAL JOINT

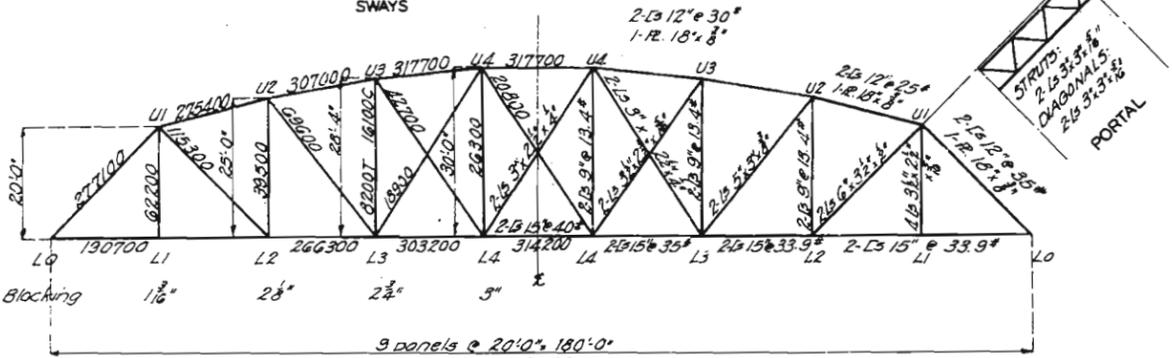


HALF TRANSVERSE SECTION A-A

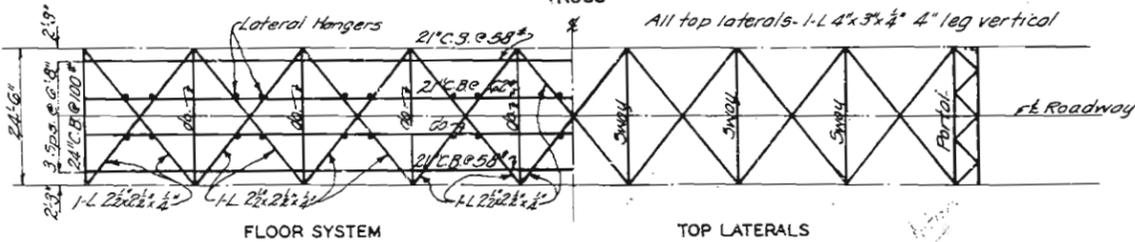
SECTION B-B



Note: 14'-0\"/>



180' TRUSS

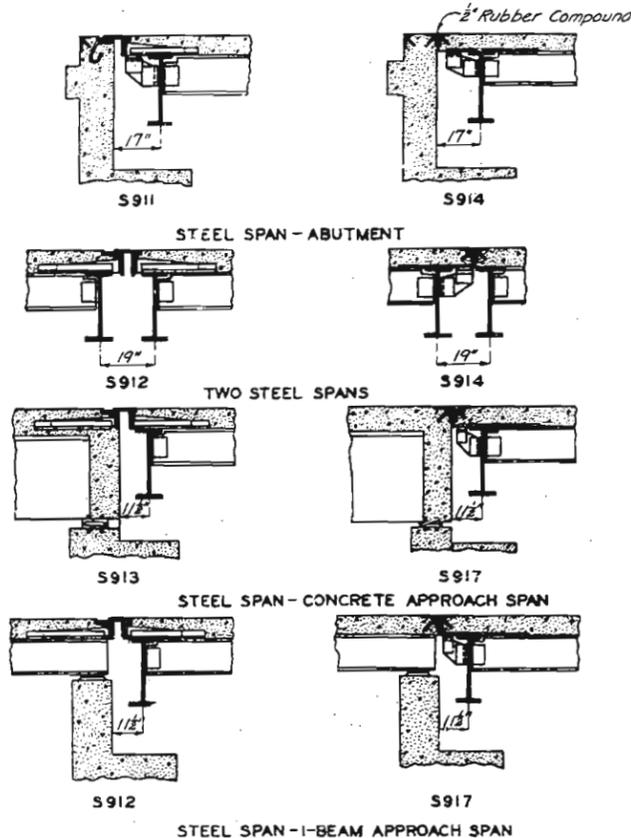


FLOOR SYSTEM

TOP LATERALS

PERMISSIBLE SUBSTITUTIONS		
Carriage Brs	Bath Brs	Std. I-Brms
24\"/>	24\"/>	24\"/>
21\"/>	20\"/>	20\"/>
21\"/>	20\"/>	20\"/>

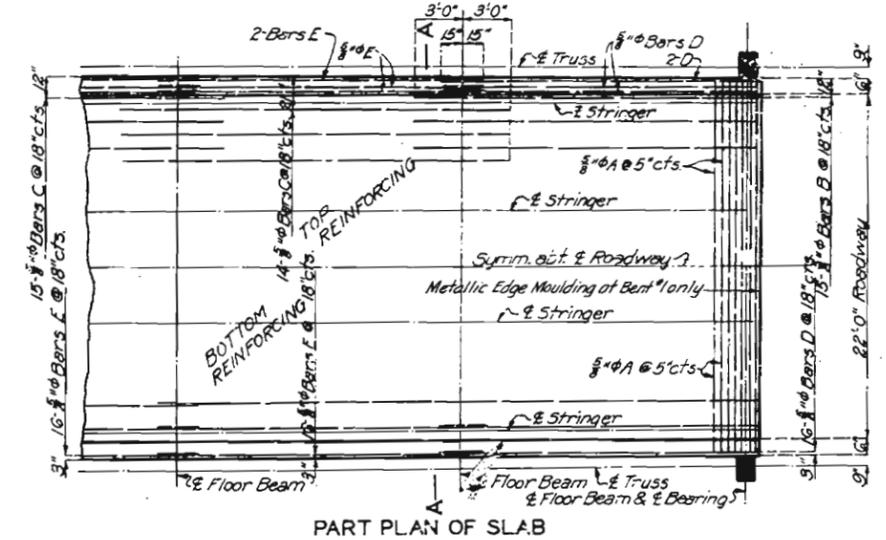
Note: See Special Provisions in regard to permissible substitutions and basis of payment.



EXPANSION ENDS

FIXED ENDS

DETAILS OF SLAB ENDS



PART PLAN OF SLAB

BILL OF REINFORCING			
No.	Size	Length	Mark
676	3/8"	22'-9"	A
30	3/8"	24'-0"	B
101	3/8"	26'-0"	C
48	3/8"	22'-0"	D
168	3/8"	2'-6"	E
220	3/8"	12"	F

Note: Reinforcing for one span only.

Note: For General Notes see Sheet No. 1. Rivets 3/8\"/>

BRIDGE OVER PLATTE RIVER

STATE ROAD FROM FARLEY TO WALDRON
ABOUT 0.5 MILES S.E. OF FARLEY
PROJECT NO. R45 TR-SB STA. 1261 + 57

PLATTE COUNTY

Assembled Jan. 1933 By H.D.-G.W.
Checked Jan. 1933 By L.H.
Drawn Sept. 1932 By L.H.
Traced Sept. 1932 By M.W.H.
Checked Sept. 1932 By F.W.H.

Note: This drawing is not to scale. Follow dimensions.

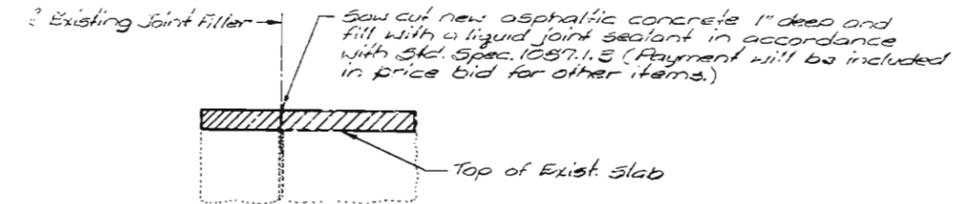
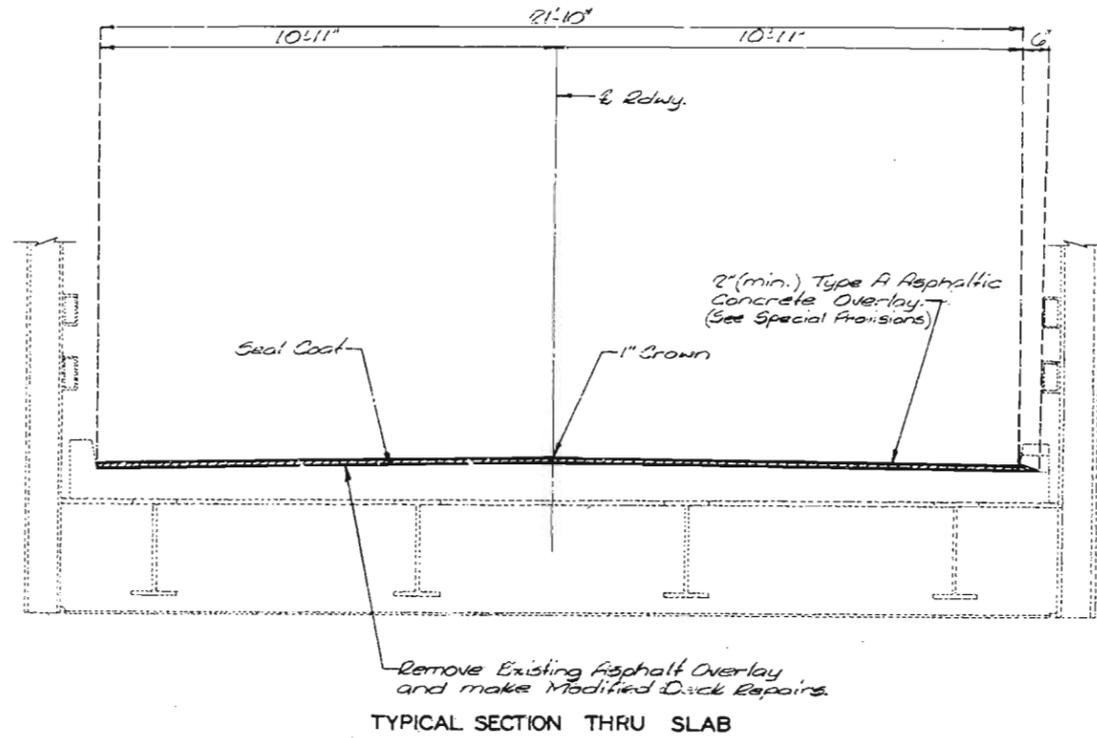
Sheet No. 4 of 4.

K-266

1-27-33

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

STATE	PROJ. NO.	SHEET NO.
MO		2
SEC./SUR. 33	TWP. 52N	RGE. 35W



SECTION THRU FILLED JOINT
(End Bent No. 1)

GENERAL NOTES:

- Existing Work:**
Outline of old work is indicated by light dashed lines. Heavy lines indicate new work.
- Traffic Maintained:**
Maintain one lane of traffic during construction. (See Roadway Plans)
- Adjacent Roadway:**
Roadway surfacing adjacent to bridge ends to match existing concrete deck plus 2".

ESTIMATED QUANTITIES		TOTAL
ITEM		
Modified Deck Repair	Sq. Ft.	120
Asphalt Cement (Asph. Conc.) 60-70 or AC20 (Type A Mix)	Ton	7.3
Mineral Aggregate (Asph. Conc.) (Type A Mix)	Ton	139
Polymer Modified Asphalt (Seal Coat)	Gal.	470
Cover Aggregate, See Spec. Provisions	Ton	70
Asphalt Removal (Bridges)	Sq. Ft.	11,968
Steel Bar Cams	Each	3

Note: Polymer Modified Asphalt Emulsion, Grade CR5-2P (Polymer Modified) shall be applied at a rate of .35 gal. per sq. yd.
Cover Aggregate (See Special Provisions) shall be applied at a rate of .015 tons per sq. yd.

REPAIRS TO
BRIDGE OVER PLATTE RIVER

STATE ROAD FROM FARLEY TO WALDRON
ABOUT .5 MILES SE. OF FARLEY
PROJECT NO. 4-P-45-886 SEC. A & B STA. 1261+57

JOB NO. 4-P-045-886 RTE 45
PLATTE COUNTY

DATE 2/5/88

STD. 712.40
STD.
K-266R

858 248 458

DESIGNED DEC. 1987
DETAILED DEC. 1987
CHECKED DEC. 1987

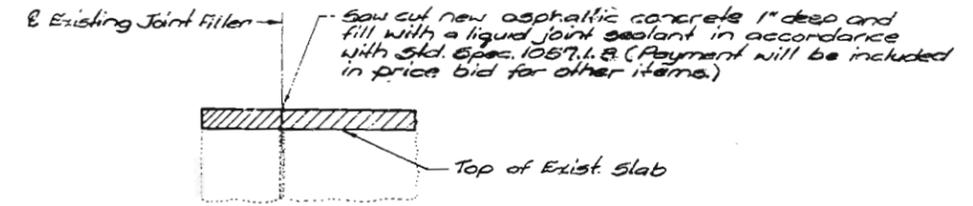
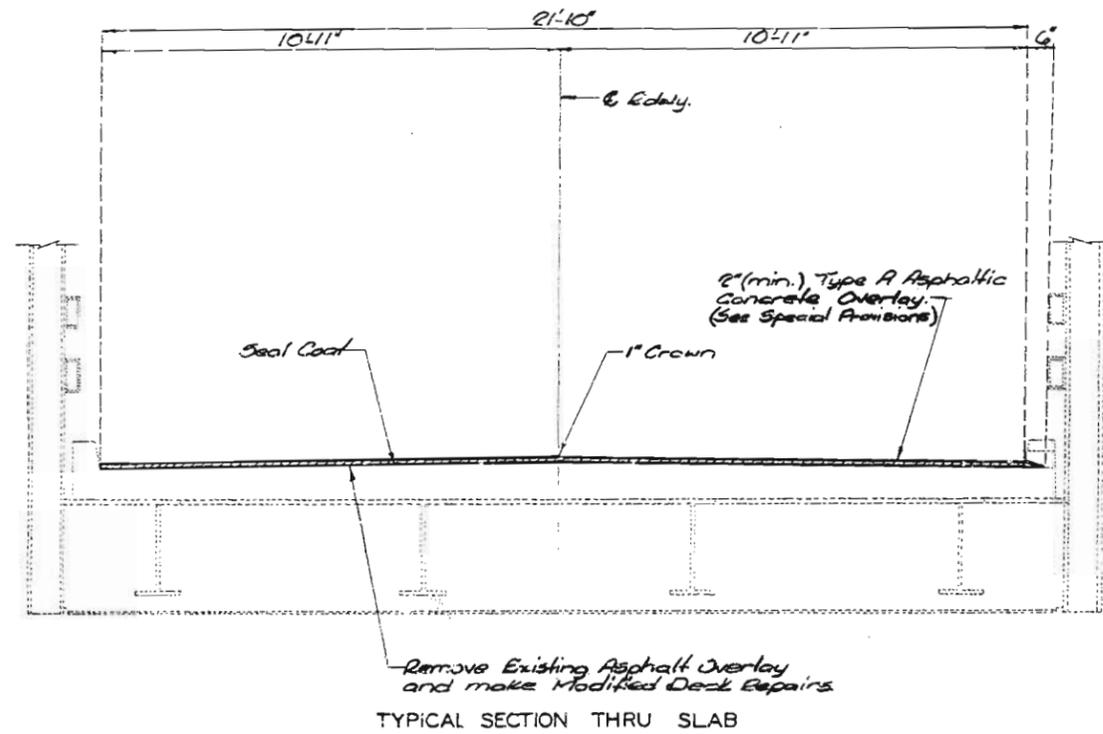
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 1 of 1.

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

STATE	PROJ NO	SHEET NO
MO	4-P-15-886 Sec A+B	2
SEC/SUR 33	TWP. 32N	RGE. 35W

FINAL PLANS



GENERAL NOTES:

- Existing Work:**
Outline of old work is indicated by light dashed lines.
Heavy lines indicate new work.
- Traffic Maintained:**
Maintain one lane of traffic during construction.
(See Roadway Plans)
- Adjacent Roadway:**
Roadway surfacing adjacent to bridge ends to match existing concrete deck plus 2".

ITEM	QUANTITIES	
		TOTAL
Modified Deck Repair	Sq. Ft.	225
Asphalt Cement (Asph. Conc.) 60-70 or AC20 (Type A Mix)	Ton	9.7
Mineral Aggregate (Asph. Conc.) (Type A Mix)	Ton	176
Polymer Modified Asphalt (Seal Coat)	Gal.	500
Cover Aggregate, See Spec. Provisions	Ton	1.7
Asphalt Removal (Bridges)	Sq. Ft.	1,965
Steel Bar Dams	Each	3

Note: Polymer Modified Asphalt Emulsion, Grade ORS-2P (Polymer Modified) shall be applied at a rate of .35 gal. per sq. yd.
Cover Aggregate (See Special Provisions) shall be applied at a rate of .015 tons per sq. yd.

REPAIRS TO
BRIDGE OVER PLATTE RIVER

STATE ROAD FROM FARLEY TO WALDRON
ABOUT .5 MILES SE. OF FARLEY
PROJECT NO. 4-P-15-886 SEC. A+B STA. 1261+57

JOB NO. 4-P-045-886 RTE. 45
PLATTE COUNTY

DATE 2/5/88

STD. 712.40
STD.
K-266R

DESIGNED DEC. 1987
DETAILED DEC. 1987
CHECKED DEC. 1987

Note: This drawing is not to scale. Follow dimensions.

Sheet No. 1A of 1.

854 289

