

HAER INVENTORY

Missouri Historic Bridge Inventory

NAME(S) OF STRUCTURE

Glasgow Bridge
MHTD: G 69R

SALI01

DATE(S) OF CONSTRUCTION

1922-25

LOCATION

State Highway 240 over Missouri River; S2/3, T51N, R18W
Glasgow; Saline/Howard County, Missouri

USE (ORIGINAL / CURRENT)

highway bridge / highway bridge

RATING NRHP eligible (score: 70)

CONDITION

good

OWNER

Missouri Highway and Transportation Department

span number: 5
span length: 343.0'
total length: 2244.0'
roadway wdt.: 20.3'

superstructure: steel, 10-, 12- and 14-panel, rigid-connected Pennsylvania through trusses; rigid-connected Pratt deck truss approach spans
substructure: concrete abutments; concrete bullnose and spill-through piers
floor/decking: concrete over metal plate deck
other features: upper chord and inclined end post: 2 channels with cover plate and lacing; lower chord: 2 channels with batten plates and lacing; vertical: 4 angles with batten plates and lacing; diagonal: 2 channels with batten plates and lacing; lateral bracing: 1 angle - lower, 4 angles with lacing - upper; strut: 4 angles with lattice and lacing; portal strut; 4 angles with lacing (W-frame); floor beam: I-beam; bridge plate: **Glasgow Bridge / Financed By / Howard County, Saline County / Federal Aid / Appropriated By / Missouri State Highway Commission / Designed By F.W. Adgate / Consulting Engineer / Chicago, Ill. / Supervised By / Missouri State Highway Department / B.H. Piepmeier, Chief Engineer / L.J. Sverdrup, Bridge Engineer / Contractors / Substructure / Union Bridge & Const. Co. / Kansas City, Mo / Superstructure / Mt. Vernon Bridge Co. / Mt. Vernon, Ohio / Completed 1925**

This multiple-span highway bridge carries State Highway 240 over the Missouri River at Glasgow, between Saline and Howard counties. Located immediately downriver from the Illinois Central Gulf Railroad's bridge, this immense structure consists of five truss spans varying between 224 feet to 343 feet in length. The first bridge built over the Missouri River at Glasgow was the Glasgow Steel Bridge—the first all-steel bridge in the world—built in 1879 by the Chicago & Alton Railroad Company. Positioned alongside the existing railroad bridge, the highway bridge was designed in 1922 with the objective of linking vehicular traffic between Saline and Howard counties. Comprised of five riveted Pennsylvania through trusses and series of deck truss and deck girder approach spans, the structure cost \$619,00.00–\$278.00 per lineal foot—and was financed in part by the two counties. Federal aid was also appropriated by the Missouri State Highway Commission. Designed by Consulting Engineer F. Adgate and supervised by the Missouri State Highway Department, the bridge extends some 2,244 feet in length. The contract to build the superstructure was awarded to the Mt. Vernon Bridge Company of Mt. Vernon, Ohio. The concrete substructure was built by the Union Bridge and Construction Company of Kansas City, Missouri. Throughout the years, rehabilitation efforts have taken place, including resurfacing the floor with asphalt, general painting and installation of a concrete-filled grid deck. Since its completion, the Glasgow Bridge has functioned as a strategically important state highway while

retaining its structural integrity.

The Glasgow Bridge, significant as one of the first over the Missouri River in this area of the state, has continuously provided a reliable year-round route to local and interstate vehicular traffic over the Missouri River since its construction. The structure is also significant as a well-preserved example of large-scale bridge construction in Missouri. Like several bridges built over the Missouri River in the 1920s, it incorporated long, fixed-span, simply supported trusses on concrete piers. The Pennsylvania trusses of the Glasgow Bridge fit well within the mainstream of great river bridge construction in the 1920s. Just as the pin-connected Whipple truss had been the industry standard for Missouri River railroad bridges in the 1880s and 1890s, the riveted Pennsylvania (or Petit) truss was the standard configuration for long-span highway bridge applications in the 1910s, 1920s and 1930s.

Its name derived from extensive use in the 19th century by the Pennsylvania Railroad, the Pennsylvania truss was patented in 1875 as a refinement of the standard Pratt truss, from which it was derived. Pennsylvania trusses featured vertical compression members and two-panel diagonals in tension, like the Whipple trusses they superseded. The primary differences lay in the substitution of a polygonal top chords for economy of materials and the addition of sub-struts or sub-ties. These relatively short diagonal members served to provide lateral support for the diagonals and stiffen the truss under heavy moving loads. Like most truss types in America, Pennsylvanias were pioneered by the railroads and were later used to carry vehicular traffic.

The first polygonal-chorded bridge over the Mississippi River - the double-track Merchants' Bridge at St. Louis, was a Pennsylvania truss. During the bridge boom along the Missouri River in the 1920s, fifteen of the eighteen fixed-span bridges featured Pennsylvania trusses. Almost identical, they varied only in span lengths, which were determined largely by adjacent railroad bridges.