

OHIO DEPARTMENT OF TRANSPORTATION
HISTORIC BRIDGE SURVEY REPORT

5/15/2014



SFN #: 0432474 County: ASHTABULA Municipality: HARPERSFIELD TWP
NR Rec: Eligible Previous Inventory/Date: FIRST INVENTORY, 1981 Status: Non-Select

ODOT District: 04 Owner: COUNTY Lat/Long: 41444400 / 80595700
Location: .4 MI. N. OF S. RIVER RD. UTM: 17.500040.4621330
Feature On: CLYDE HILL ROAD (T.H. 141A)
Feature Intersected: GRAND RIVER
Type: THRU TRUSS Design: PRATT (PINNED)
Material: METAL
Railing Type:
Spans: 2 Overall Length: 260 ft. Out to Out Width: 18.7 ft. Roadway Width: 16.7 ft.
Year Built: 1889 Alteration (Date): 2002 Source: ODOT Inspection Files
Designer/Builder: MORSE

Setting/Context:

The bridge is closed to traffic. It is in a wooded rural setting.

Physical Description:

The skewed, 2-span, 260'-long bridge has one pin-connected Pratt thru truss span with built-up compression members, eye bar or rod tension members, portal bracing with cruciform cutouts and brackets, and lattice railings. It was placed in 1889. A second similar span was lost in 2002 and replaced with a welded Warren pony truss.

Integrity:

Span replaced in 2002.

Summary of Significance:

The 1889 pin-connected truss bridge has lost one of its two original spans, which was replaced in 2002 with a Warren pony truss. The remaining span of the original bridge has integrity of original design. The builder is believed to be Morse Bridge Co. based on the unique portal flourishes (Nathan Holth, May 2013 email to ODOT).

Pratt trusses were undoubtedly the most popular truss design of the last quarter of the 19th century and continued to be built into the 20th century, although eventually superseded in popularity by Warren trusses. The design, which initially was a combination of wood compression and iron tension members, was patented in 1844 by Thomas & Caleb Pratt. Ohio has three covered bridges that use this combination configuration, but they are all modern reconstructions based on the Pratt patent. The great advantage of the Pratt over other designs was the relative ease of calculating the distribution of stresses. More significantly, it translated well into an all-metal design in lengths of less than 200'. Significant surviving examples of all-metal Pratt trusses mostly date to the last quarter of the 19th century, and they are found with thru, pony, and the less common bedstead configuration. Prior to about 1890, a variety of panel point connections were in widespread use (including bolts, cast-iron pieces, and pins), but engineering opinion was coalescing around pins as the most efficient and constructible. Many of the connection details were proprietary and associated with individual builders or companies, and thus earlier examples are generally taken to be technologically significant in showing the evolution of the design. Later post-1890 Pratt trusses show a progression toward less variation in their details such that by 1900 the design was quite formulaic with few significant differences between the designs of various builders. This marked the end of the pin-connected Pratt's technological evolution and, in fact, it was soon waning and eclipsed in the highway bridge market by more rigid, rivet-connected truss designs, particularly the Warren but also riveted Pratts. The transition to riveted connections, which happened even earlier with railroads than highways, was in

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no small part due to concerns about stress reversals at the pins under heavier loads and improvements in pneumatic field riveting equipment in the early 1900s. In Ohio, Pratt truss highway bridges, whether pinned or riveted, were almost always built under the auspices of counties and local units of government; the Pratt was not a standard design of the state highway department.

In Ohio, there are 185 Pratt trusses dating from ca. 1874 to 1945 with at least 60 dating prior to 1900 (Phase 1A, 2008). The technologically significant unaltered examples of pin-connected Pratt trusses for the most part date prior to 1900 and have documented or attributed builders and dates of construction and/or significant connection or member details. Later post-1900 examples are less technologically significant. Significant unaltered examples of riveted-connected Pratt trusses date from ca. 1900 to 1915.

Reviewed By/ Date: JPH (2/08)

Notes:

Clyde Hill Pin Connected Truss. Photo A before loss of one of the spans. Photo B courtesy of www.oldohiobridge.com, please do not reproduce without permission.

For Eligible Bridge:

Level of Significance:

Justification:

This is likely the only example of Morse Bridge Co. (Youngstown, Ohio) structures left in Ohio's inventory.

In Management Plan (2009)? No

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