OHIO DEPARTMENT OF TRANSPORTATION

HISTORIC BRIDGE SURVEY REPORT

1/21/2011

SFN #: 4734734 **County:** LORAIN **Municipality:** HENRIETTA TWP

NR Rec: **NR Listed** **Previous Inventory/Date:** **Status:** NR Listed

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ODOT District: 03 **Owner:** COUNTY **Lat/Long:** 41.205400 / 82.203600

Location: 1.0MI.NORTH OF SR 113 **UTM:**

Feature On: DEAN ROAD

Feature Intersected: VERMILION RIVER

Type: THRU TRUSS **Design:** DOUBLE INTERSECTION PRATT (WHIPPLE)

Material: METAL

Railing Type: PIPE RAILINGS

 # Spans: 1 **Overall Length:** 176 ft. **Out to Out Width:** 18.8 ft. **Roadway Width:** 15.4 ft.

Year Built: 1898 **Alteration (Date):** 1992 **Source:** ODOT Inspection Files

Designer/Builder MASSILLON BRIDGE CO (MASSILLON, OH)

Setting/Context:

The bridge carries a 2 lane road over a stream in a sparsely developed, wooded setting.

Physical Description:

The 1 span, 176'-long, pin-connected, double-intersection Pratt through truss bridge has built-up compression members and eyebar tension members. It has lattice portal bracing with arched, latticed brackets. The floorbeams are connected to the verticals well above the lower-chord pins. There are knee braces from the lower chord pins to the floorbeams -- an unusual detail.

Integrity:

Summary of Significance:

The 1898 Dean Road Bridge is NR listed (1978). This is a later example of its type/design (Whipple trusses were most popular in the 1870s-1880s) but it has some interesting details and was fabricated by a prominent Ohio bridge company. There has been no significant change in the bridge's status since the prior inventory.

Double-intersection Pratt trusses, also known as Whipple or Murphy-Whipple trusses, were among the most successful of long-span thru truss designs (up to 300' long) of the 1860s to 1890s for both railroad and vehicular crossings. Surviving examples are uncommon nationally and considered technologically significant; Ohio with at least 14 identified examples dating from 1881 to 1898 (Phase 1A survey, 2008) has a very high number in comparison to most other states. The truss design is characterized by diagonals that extend over two panels. In 1847, Squire Whipple, one of America's foremost bridge engineers, developed the design figuring that the double-intersection configuration increased the depth of panel without altering the optimal angle of the diagonals, thus allowing for increased span length. His design was further refined in 1859 by John W. Murphy, the talented chief engineer of Pennsylvania's Lehigh Valley RR, who substituted wrought-iron pins for cast-iron connecting pieces, thus developing the connection detail that would prove to be advanced construction practice for this and other truss designs for the next several decades. Ohio's surviving examples, which mostly date to the 1880s, were not cutting edge for their time, but they show how the form had evolved into the preferred long-span thru truss design of the period. Most have documented associations with prominent Ohio-based fabricators.

Reviewed By/ Date: JPH (2/08)

Notes:

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No previous ODOT inventory form located. Reconstructed in 1992.

For Eligible Bridge:

Level of Significance: Moderate

Justification:

There are 13 examples of the bridge type important to the development and maturation of the pin-connected thru truss bridge. They date from 1881 and concentrated in the 1880s. Even though there are more than 12 extant examples in Ohio, each built in the 1880s has high significance based on overall scarcity (everywhere but in Ohio) of the design. This is a major and technologically significant bridge type. The bridge has moderate significance because it is a later example of the type/design.

In Management Plan (2009)? No