

HORTON ROAD BRIDGE
Spanning Black Creek at Horton Road
Adrian Vicinity
Lenawee County
Michigan

HAER No. MI-64

HAER
MICH
46-ADRI.V,
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PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD
National Park Service
Northeast Region
U.S. Custom House
200 Chestnut Street
Philadelphia, PA 19106

HISTORIC AMERICAN ENGINEERING RECORD

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HORTON ROAD BRIDGE

HAER No. MI-64

Location: Horton Road, Spanning Black Creek
Lenawee County, Michigan

UTM: 17.251200.4630228
Quad: Palmyra, MI, 1:24,000

Date of Construction: 1900

Engineer: Unknown
Architect: Unknown

Present Owner: Lenawee County Road Commission
2461 Treat Highway
Adrian, MI 49221

Present Use: Vehicular traffic (closed, demolished, 9/92)

Significance: The bridge is part of Lenawee County's local roadway system which primarily serves existing agricultural development and related traffic. The bridge is a steel camelback, pony truss, structure with pinned connections. It is one of three bridges of similar design known to exist within the State of Michigan.

Project Information: An evaluation (1989) advised replacement of the bridge. To mitigate the adverse effect, the State Historic Preservation Officer stipulated documentation of design elements of the bridge. This documentation was undertaken to fulfill the above stipulation.

Gerald L. Adams
Westshore Engineering & Surveying, Inc.
Consultants to the Lenawee County Road Commission
2534 Black Creek Road
Muskegon, MI 49444

Summary Description of Bridge and Setting

This bridge carries Horton Road over Black Creek. The bridge is locally known as the Horton Road Bridge. The bridge is located near the City of Adrian, MI, on the common line of Sections 6 and 7, Ogden Township, Lenawee County, MI (T7S, R4E). This location is approximately 7.5 miles south of the City of Adrian and 6.5 miles west of the Village of Blissfield (MI). The bridge site is 2.5 miles directly east of Michigan State Highway M-52, 5.5 miles south of Federal Highway US-223, and approximately 0.5 miles east of Hodges Highway (a local county road).

The bridge was originally constructed in 1900 as a public structure to permit the crossing of Black Creek by farm livestock and vehicles.

The Horton Road Bridge is a steel camelback, pony truss, bridge with pinned connections. The bridge has a total length of 76 feet with 1 span at 74 feet and is 13.8 feet in width. The approaches consist of a bituminous surface over a compacted sand and gravel base. The bridge has been closed since October of 1984 due to its deteriorated condition.

The area near the bridge site is agricultural. Adjacent properties are used for grain crops and pasture. The nearest structures (home and associated farm buildings) are approximately 800 feet distant. It has been determined by the State Historic Preservation Officer that removal of the bridge will not impact said structures.

Based on a detailed inspection of the bridge by a qualified Michigan Professional Engineer (Brechting Bridge and Engineering, Inc., Spring Lake, Michigan) completed during 1989, the following deficiencies were noted:

- a) Super-structure: Poor condition with extensive and, in certain instances, total deterioration. All major components need replacement.
- b) Sub-structure: Poor condition with cracked and broken abutments. Spalling and erosion occurring at the waterline.
- c) Deck: Jack-arch deck in very poor condition with numerous failed members.
- d) Bridge Railings: Poor condition due to rusting and metal fatigue. Design does not meet current safety standards.
- e) Paint: Paint coat very poor due to surface rust and general deterioration.
- f) Channel: Poor condition with lack of potential for maintenance.
- g) Operating Rating: None, bridge closed. Prior to closure--3 tons. Rating refers to per axle load limit capability

- at time of rating (prior inventory).
- h) Inventory Rating: None, bridge closed. Bridge will not support vehicular loads. Rating refers to per axle load limit capability based on engineering assessment completed as part of the inspection referenced above (Brechtig Bridge and Engineering, 1989).
- i) Safe Load Capacity: Bridge will not support vehicular loads. There is no safe load capacity based on the condition of the bridge.
- j) Structural Condition: Intolerable condition with continued closure recommended.
- k) Geometry: Intolerable condition with structure not meeting acceptable standards. Roadway width is 13.8 feet. Design standard for this location is 27.9 feet clear width.

Maintenance and Alterations (Bridge and Site)

Since the original construction, no record of alterations has been maintained. Based on visual observation of the road bed, abutments, and approaches, it appears limited maintenance may have taken place to prevent total deterioration and continued use. Since closure of the bridge (October, 1984), no maintenance has occurred.

Detail Pursuant To Those Involved With Bridge Design and Construction

The designer and contractor of the bridge are not known. The bridge contains no name plate or plaque. No bridge plans are available. (Source: Lenawee County Road Commission, Adrian, Michigan).

Technology Used

The bridge was constructed based on a pin-connected, camelback, pony truss design. The trusses exhibit a "camelback" or "humped" appearance. No other aspects of the bridge pursuant to construction labor force, type of equipment, or construction tools are known to be significant.

Use of Structure

Prior to closure of the bridge in 1984, Horton Road served primarily agricultural traffic with associated commercial vehicles. Secondary use included non-farm home owners, residential delivery vehicles, postal vehicles, school busses, emergency vehicles, and transient through traffic. The bridge was also occasionally used for the movement of livestock (cattle) from one side of the creek to the other.

Horton Road served as a direct link between Treat Highway to the west and Hodges Road to the east. Treat Highway and Hodges Road are inter-county highways providing for north/south vehicular movement. Treat Highway (a system which changes to Park Highway as it nears the City of Adrian) enters the City of Adrian directly from the south. Hodges Road provides linkage to several of the area's local and primary roads including East Gorman Road and Weston Road. Both highways are components of the region's broader roadway network with ultimate connections to US-223 and M-52.

Historical Significance

The bridge is one of three listed on the Michigan Historic Bridge Inventory as a pin-connected, camelback, pony truss. The bridge is significant due to the limited number of similarly designed structures currently existing in 1992 within the State of Michigan. Based on information provided by the Michigan State Historic Preservation Officer, three bridge of similar design are known to exist within the State.

Background and Contextual Information

Historically, the system of local roads within the State of Michigan was based on the use of (land survey) section lines for location and construction purposes. The results of this are evidenced throughout the state. One has only to examine local county roadway maps, particularly in rural locations, to observe that most public roads clearly follow section line boundaries. The lack of deviation from the above thus established a majority of the state's water crossing locations. Locational modifications to the use of section lines generally happened only through the occurrence of a major physical (natural) obstacle which demanded an alignment change. For instance, road builders faced with an extremely wide river crossing might seek a narrower passage.

The crossing of Black Creek at section 6 and 7, Ogden Township, did not present a physical barrier of any significant magnitude. The land throughout the area was

(and continues to be) relatively flat. The crossing (area of water impact) was (and continues to be) approximately 40 feet. Consequently, the bridge was placed in its current location.

Significance of the Crossing

The crossing is most significant to local farmers and farming operations and residents (farm and non-farm). Currently, detours ranging from 4 to 6 miles are required pursuant to east/west movement. Annually, this results in significant losses of productive time, adds to vehicular and equipment wear, and promotes energy inefficiency. The movement of livestock between pastures for adjacent farm fields now requires trucking versus foot travel.

In later years of use, the design and configuration of the existing bridge also prevented the safe movement of farm equipment as equipment size increased. The bridge width (13.8 feet) impacted the safe movement of large combining equipment, plows, mowers, and the like. Such equipment was generally not in existence at the time of bridge construction.

At closure, daily traffic was estimated at 100 vehicles per day. If the bridge were to be reopened and improved to current State/Federal design standards, it is estimated counts would increase to 300 vehicles per day with approximately 10 to 15 percent trucks. Counts over the next twenty years are estimated to increase to 500 vehicles per day. The increases in traffic are due to areawide growth in residential development.

SOURCES OF INFORMATION/BIBLIOGRAPHY

A. Engineering drawings: No drawings or design plans of the bridge are known to exist. (Based on examination of records of the Lenawee County Road Commission, Lenawee County Clerk, and Ogden Township.)

B. Historic views: No historic views of the bridge are known to exist. (Based on an examination of records or contact with the Lenawee County Road Commission, Lenawee County Planning Department, Region II Planning Commission, Lenawee County Historical Society, Lenawee County Clerk, State Historic Preservation Officer, and Ogden Township.)

C. Interviews:

Michael P. Schultz, P.E., County Highway Engineer
Lenawee County Road Commission
Adrian, MI

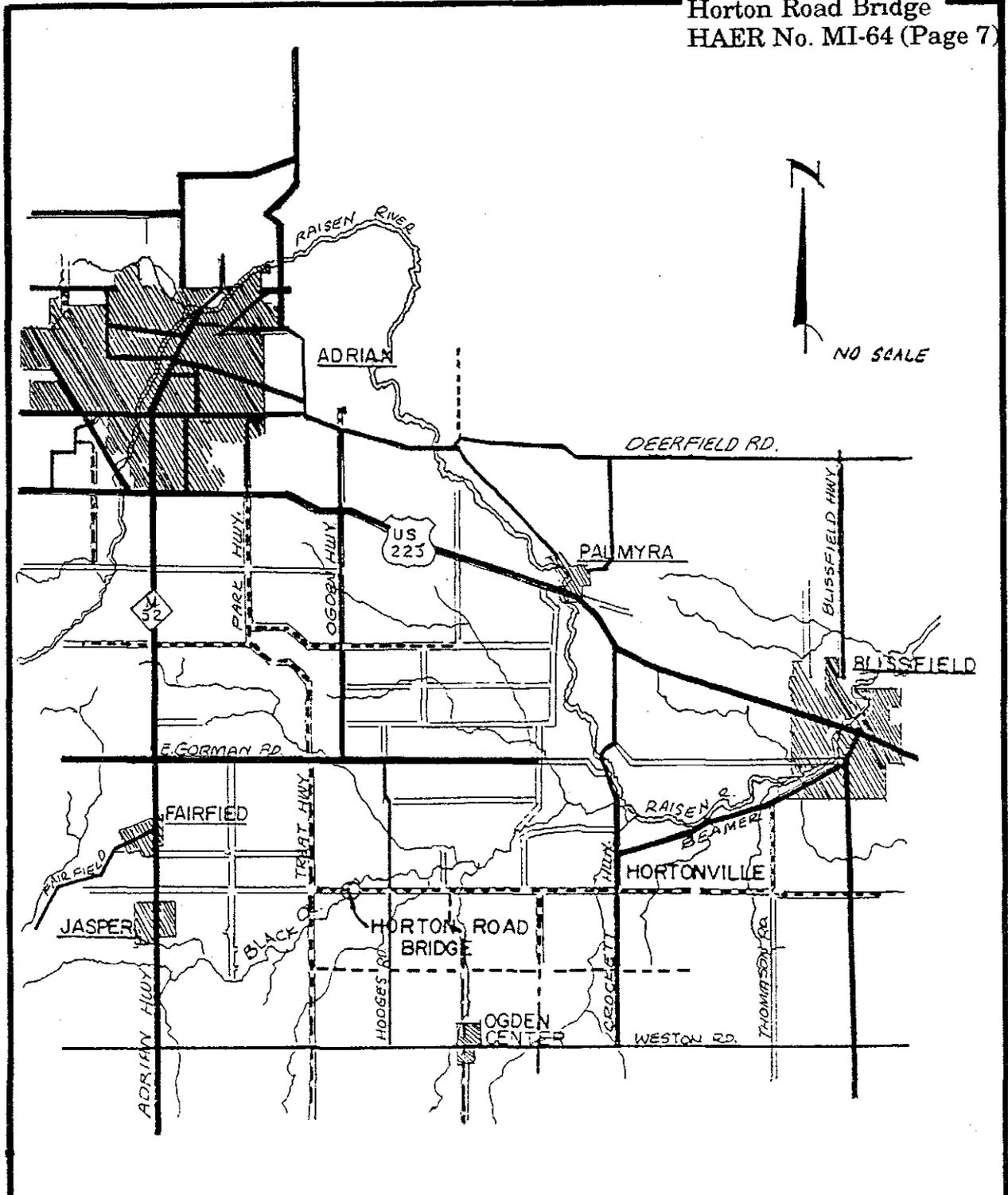
Interviews conducted during the period of September, 1990 to September, 1992.

D. Bibliography:

Environmental Assessment and Programmatic Section 4(f) Evaluation of the Horton Road Bridge Over Black Creek. Lenawee County Road Commission in cooperation with the Michigan Department of Transportation. Adrian, MI, 1992. (Document on file at the offices of the Lenawee County Road Commission, 2461 Treat Highway, Adrian, MI, 49221, and the Michigan Department of Transportation, Local Services Division, P.O. Box 30050, Lansing, MI, 48909.)

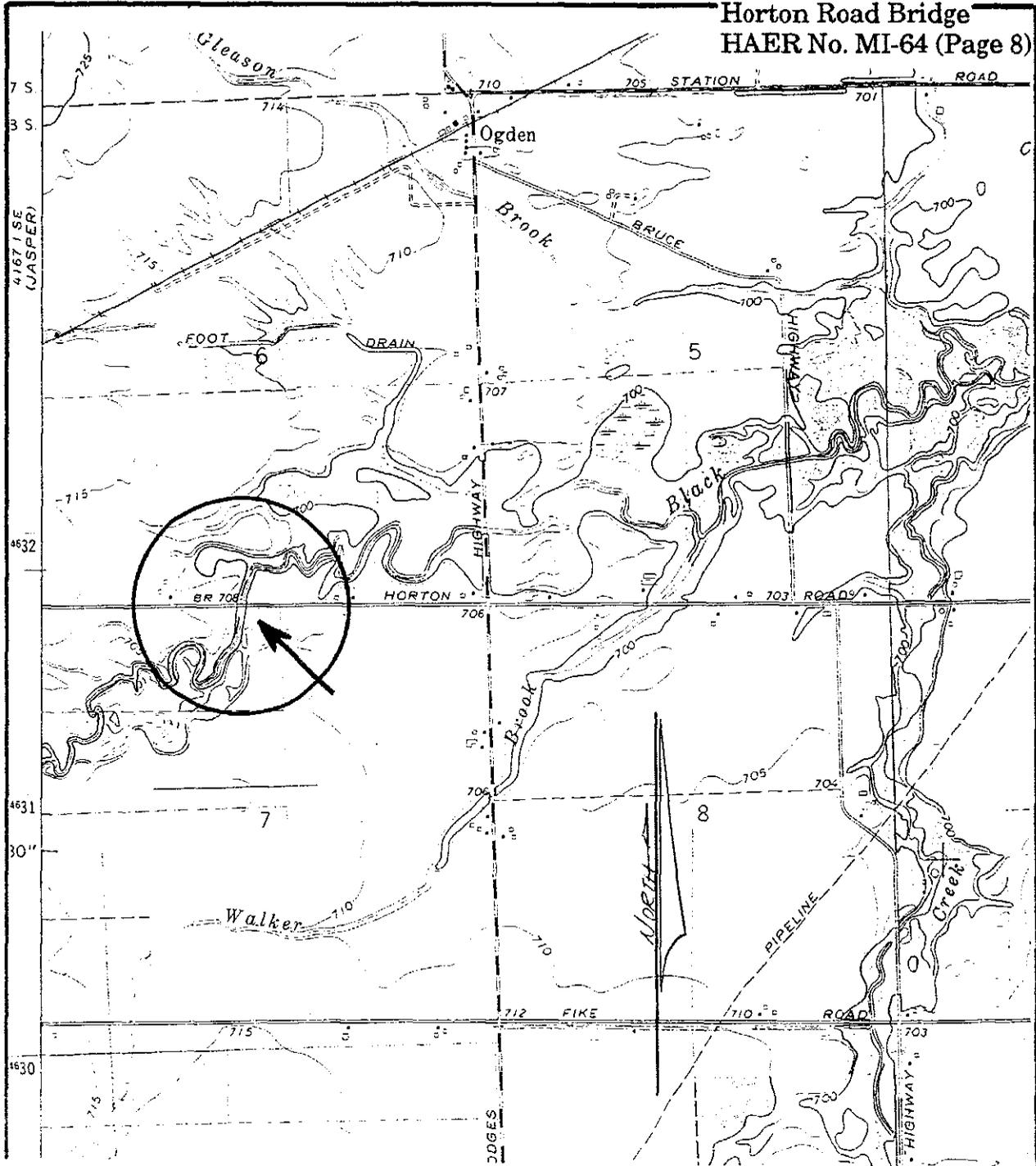
E. Likely sources not yet investigated: No additional sources of information are known. (Local and county sources investigated included the Lenawee County Road Commission, Lenawee County Historical Society, Region II Planning Commission, Lenawee County Planning Commission, Lenawee County Clerk, and Ogden Township.)

F. Supplemental material: No supplemental material has been attached.



Regional Location Map
Horton Road Bridge, Spanning the Black Creek
Ogden Township (Adrian, MI, 49221, vicinity)
Lenawee County
Michigan

Horton Road Bridge
HAER No. MI-64 (Page 8)



Site Location Map
Horton Road Bridge, Spanning the Black Creek
Horton Road
Section Lines 6 and 7
T7S, R4E
Ogden Township (Adrian, MI, 49221, vicinity)
Lenawee County
Michigan