NPS Form 10-900
OMB No. 1024-0018
(Rev. 10/90)

United States Department of the Interior
National Park Service

National Register of Historic Places Registration Form

1. **Name of Property**

Historic name: N/A

Other name/site number: Eight Mile Creek Warren Truss Bridge (preferred); 30-LT-12

2. **Location** On Osborne Terrace, 0.2 miles west of the "Y" intersection with Eisenhower Terrace; 1.0 mile west of Main Street, Ottawa City.

not for publication

city or town Ottawa X vicinity

state code KS county Franklin county code 059 zip code 66067

3. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act of 1986, as amended, I hereby certify that this **XX** nomination ___request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60. In my opinion, the property **XX** meets does not meet the National Register criteria. I recommend that this property be considered significant ___nationally **XX** statewide ___locally. (___ See continuation sheet for additional comments.)

Richard D. Pankratz 4/09/03

Signature of certifying official Date

KANSAS STATE HISTORICAL SOCIETY

State or Federal agency and bureau

In my opinion, the property ___meets ___does not meet the National Register criteria. (___ See continuation sheet for additional comments.)

Signature of commenting or other official Date

State or Federal agency and bureau

4. National Park Service Certification

I, hereby, certify that this property is:

___ entered in the National Register.
___ See continuation sheet
___ determined eligible for the National Register.
___ See continuation sheet
___ determined not eligible for the National Register.
___ removed from the National Register.
___ other, (explain:)

Signature of Keeper Date of Action

5. Classification

Ownership of Property	Category of Property	No. of Resources within Property	
		contributing	noncontributing
___ private	___ building(s)	____	____ buildings
X public-local	___ district	____	____ sites
___ public-State	___ site	1	____ structures
___ public-Federal	X structure	____	____ objects
	___ object	1	0 Total

Name of related multiple property listing:
(Enter "N/A" if property is not part of a multiple property listing.):

Metal Truss Bridges in Kansas

No. of contributing resources previously listed in the National Register

0

6. Functions or Use

Historic Functions
(Enter categories from instructions.)

TRANSPORTATION: Road-related (vehicular)

Current Functions
(Enter categories from instructions.)

TRANSPORTATION: Road-related (vehicular)

7. Description

Architectural Classification
(Enter categories from instructions.)

OTHER: Warren Truss, Polygonal Top Chord

Materials
(Enter categories from instructions.)

Foundation Concrete
Walls
Roof
Other Metal: Steel

Narrative Description (Describe the historic and current condition of the property on one or more continuation sheets.)

8. Statement of Significance

Applicable National Register Criteria (Mark "x" in one or more boxes for the criteria qualifying the property for National Register listing.)

____ A Property is associated with events that have made a significant contribution to the broad patterns of our history.

____ B Property is associated with the lives of persons significant in our past.

_X_ C Property embodies the distinctive characteristics of a type, period, or method of construction or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components lack individual distinction.

____ D Property has yielded, or is likely to yield, information important in prehistory or history.

Criteria Considerations (Mark "x" in all the boxes that apply.)

____ A owned by a religious institution or used for religious purposes.

____ B removed from its original location.

____ C a birthplace or a grave.

____ D a cemetery.

____ E a reconstructed building, object, or structure.

____ F a commemorative property.

____ G less than 50 years of age or achieved significance within the past 50 years.

Areas of Significance (Enter categories from instructions.)	Period of Significance	Significant Dates
ENGINEERING	c.1920	c.1920
TRANSPORTATION		

Cultural Affiliation

N/A

Significant Person

N/A

Architect/Builder

unknown

Narrative Description (Describe the historic and current condition of the property on one or more continuation sheets.)

9. Major Bibliographical References

(Cite the books, articles, and other sources used in preparing this form on one or more continuation sheets.)

Previous documentation on file (NPS):

____ preliminary determination of individual listing (36 CFR 67) has been requested

____ previously listed in the National Register

____ previously determined eligible by the National Register

____ designated a National Historic Landmark

____ recorded by Historic American Buildings Survey # _____

____ recorded by Historic American Engineering Record # _____

Primary location of additional data:

X State Historic Preservation Office

____ Other State agency

____ Federal agency

X Local government

____ University

____ Other

Specify repository:

10. Geographical Data

Acreage of property <1 acre

UTM References

	Zone	Easting	Northing		Zone	Easting	Northing
1	15	306106	4278105	3	/	/ / / / /	/ / / / / /
2	/	/ / / / /	/ / / / / /	4	/	/ / / / /	/ / / / / /

___ See continuation sheet

Verbal Boundary Description (Describe the boundaries of the property on a continuation sheet.)

Boundary Justification (Explain why the boundaries were selected on a continuation sheet.)

11. Form Prepared By

name/title Kerry Davis, Architectural Historian & Elizabeth Rosin, Partner

organization Historic Preservation Services date August 5, 2002

street & number 323 West Eighth Street, Suite 112 telephone (816) 221-5133

city or town Kansas City state Missouri zip code 64105

Additional Documentation

Submit the following items with the completed form:

Continuation Sheets

Maps

A USGS map (7.5 or 15 minute series) indicating the property's location.

A sketch map for historic districts and properties having large acreage or numerous resources.

Photographs

Representative black-and-white photographs of the property.

Additional items (Check with the SHPO or FPO for any additional items.)

Property Owners (Complete this item at the request of the SHPO or FPO.)

Name County of Franklin

street & number 315 South Main Street telephone 785-229-3550

city or town Ottawa state KS zip code 66067

DESCRIPTION

LOCATION AND SETTING

The Eight Mile Creek Warren Truss Bridge is located 1.0 mile west of Main Street, Ottawa City, in the Osage Hills region of eastern Kansas; NW ½ of Section 26, Township 16S, Range 19E. The region is defined by broad plains hills interrupted by tree-lined creek valleys. The Eight Mile Creek Warren Truss Bridge carries Osborne Terrace across Eight Mile Creek, a wide, deep branch of the Marais des Cygnes River. The gravel roadway, flanked by sparse woods and low lands, aligns directly with the Eight Mile Creek Warren Truss Bridge. The Atchison, Topeka & Santa Fe railroad bed and bridge abutments are intact approximately 25 yards to the south, running parallel to the Eight Mile Creek Warren Truss Bridge.

TRUSS TYPE

The Eight Mile Creek Warren Truss Bridge consists of a riveted pony truss[1] that measures 92 feet in length and three, 32⅓-foot, flat, concrete girder approach spans, two of which approach from the west and one of which approaches from the east. The deck is 20 feet wide. Poured concrete abutments support the outer ends of the outermost approach spans. Three concrete piers support the ends of the inner approach spans and the truss bearings. The abutment side walls extend approximately 12 feet along the approach grades.

Seven slopes form the polygonal top chord, creating an arched shape.[2] The top chords and inclined end posts consist of two channels, a cover plate, lacing bars, and stay plates; the bottom chords consist of two channels with stay plates.

The web members include vertical posts that form six equivalent panels and diagonal members that form the system of alternating equilateral triangles distinctive to the Warren truss. The vertical posts are composed of angle and plate stock; the diagonal members are alternately composed of angle stock with stay plates and riveted plate and angle stock.

The concrete deck is 20 feet wide with curbs and downspouts. It rises 17½ feet above the creek bed on steel I-beam stringers. Floor beams located at the base of each vertical post are structurally integrated among the stringers.

The historic, paired, parallel angle bar guardrails are intact along the length of the truss. The original cast concrete balustrade is intact along the full length of each approach span. Letters in relief read "INLAND" and "SCULLIN" on several structural steel components.

INTEGRITY

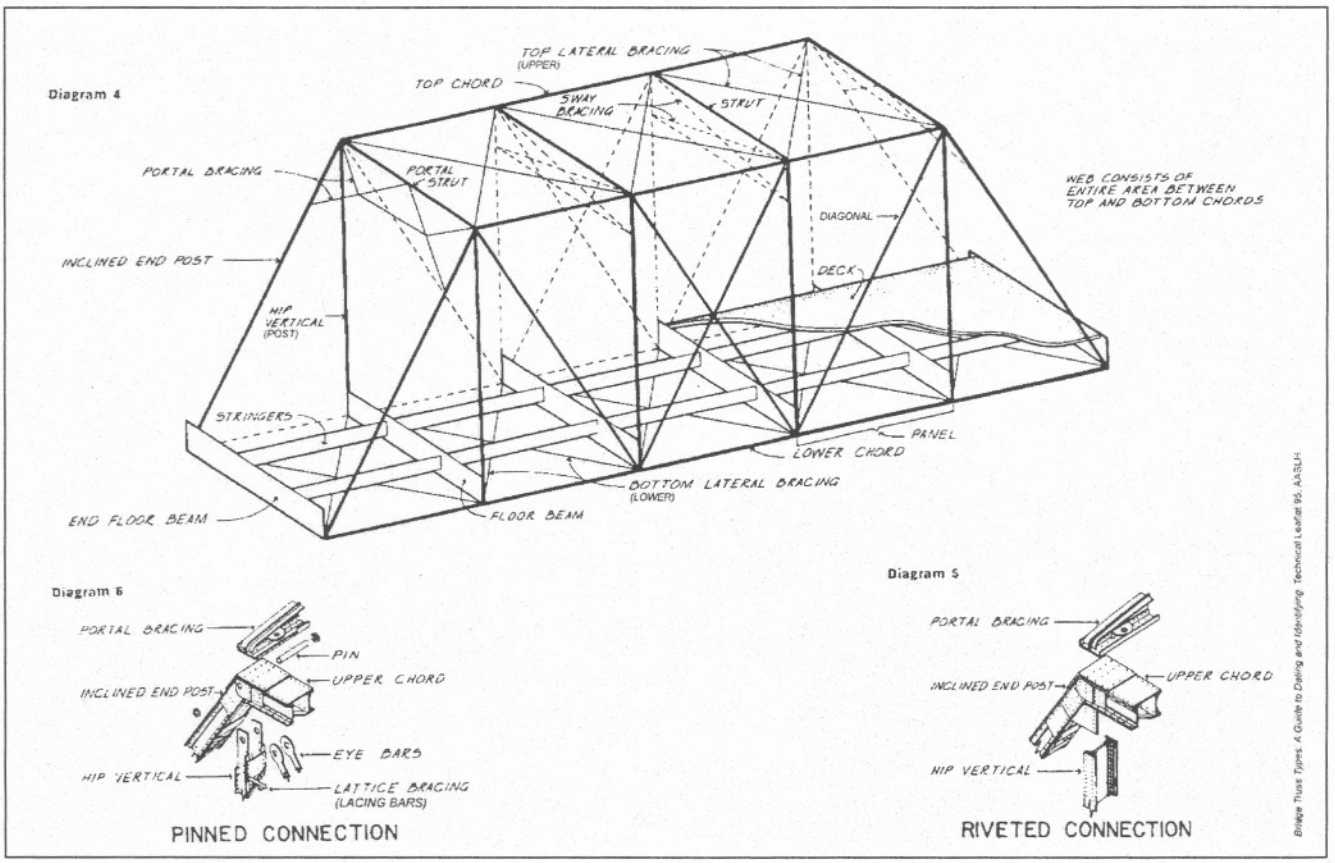
The Eight Mile Creek Warren Truss Bridge is an excellent example of this truss bridge type, historically very popular in Kansas.[3] With no apparent alterations made to the original design or materials, the Eight Mile Creek

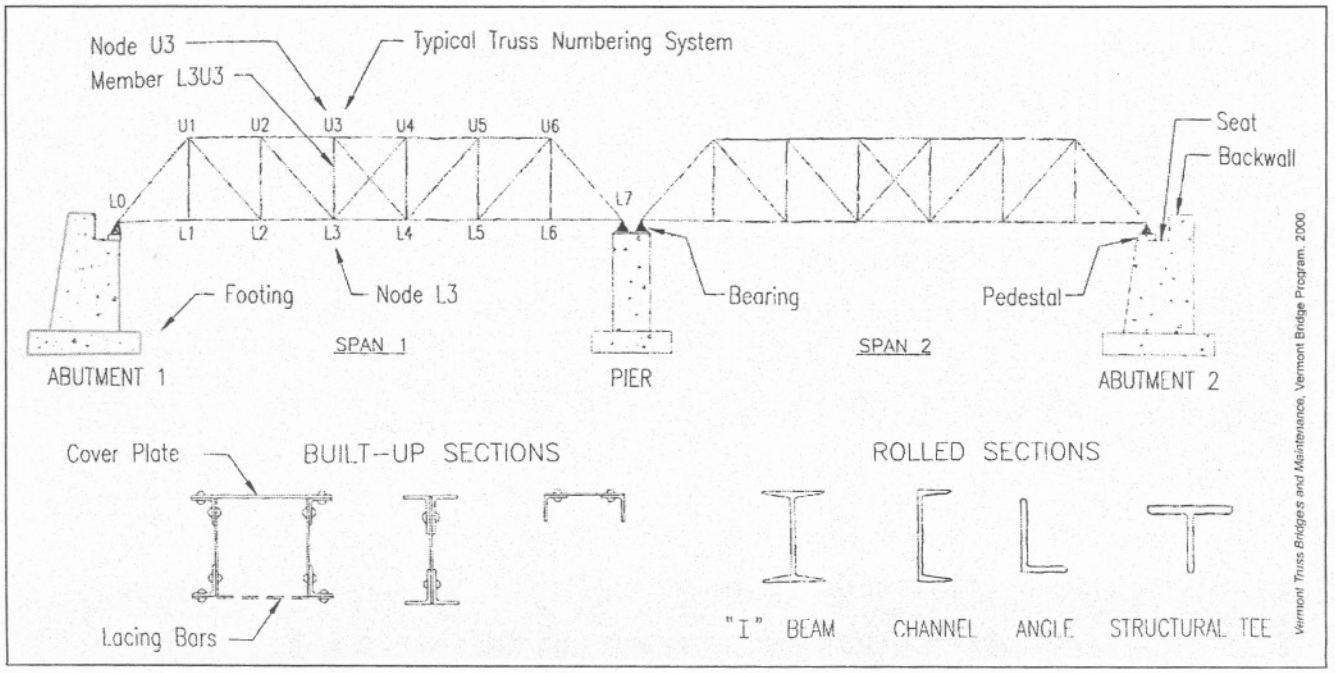
[1] A pony truss is also referred to as a low truss.
[2] A Warren truss with a polygonal top chord is also referred to as a modified Warren truss.

Warren Truss Bridge retains a high degree of integrity. The original workmanship, materials, design, setting, and feeling of the property are readily apparent. Furthermore, the potential for preservation of the bridge is high. Located on a lightly traveled road, it is unlikely that traffic requirements will necessitate alteration or replacement.

[3] Dale Nimz, *Activity III Review Initial Assessment Metal Truss Bridges.* (Topeka: Kansas State Historical Society, 1998), 6. Nimz stated there were approximately 400 extant Warren trusses in Kansas.

TRUSS TERMINOLOGY





STATEMENT OF SIGNIFICANCE

The Eight Mile Creek Warren Truss Bridge is significant under National Register Criterion C in the areas of Engineering and Transportation. As defined by the *Multiple Property Documentation Form for Metal Truss Bridges in Kansas*, it is an excellent example of the Warren truss bridge type. Built c.1920, the Eight Mile Creek Warren Truss Bridge represents a common bridge solution for a long span. Its riveted structure and concrete deck, abutments, and piers illustrate the standardization of these construction techniques and materials during the period of significance. As no historic name identifies this bridge, the preferred name "Eight Mile Creek Warren Truss Bridge" has been assigned. This describes the location, design, and function of the structure.

ELABORATION

The need for all-weather crossings of rivers and streams corresponded to the growth of the market economy across Kansas during the late nineteenth and early twentieth centuries. Bridges provided farmers easy access to markets and could make the difference between growth and stagnation for the many small, young communities across the state.[1] Proximity to a bridge often secured a town's economic stability, and it contributed to a local sense of modernity.

Prior to the 1930s, the railroad was the primary means of long-distance travel and there was little need for roads to extend more than a few dozen miles. With little stimulus for improving roads that would cross multiple jurisdictions, road construction and maintenance remained local concerns. County commissioners often carried the burden of selecting bridge locations, over which much contention was common.

The range of choices for bridge designs and companies was vast. Many of the larger bridge companies sold metal truss bridges through mail order catalogues. County commissioners could simply specify the span, clearance needs, and truss type (if there was a preference), then choose the lowest bidder from the numerous competing companies that had salesmen in the field.

By the late nineteenth century, fabrication of iron and steel was widespread. The speed of construction and the relatively low cost of metal truss bridge parts ensured their popularity over labor-intensive masonry bridges and short-lived timber bridges. Toward the end of the nineteenth century, the quality, quantity, and cost of steel improved to such a degree that it virtually replaced wrought iron for bridge construction by 1910.[2]

Most metal trusses were constructed of built-up members composed of mass-produced, standard-shaped channel, plate, and angle stock purchased from one or more of the numerous steel companies nationwide. The bridge companies preassembled trusses in their factories then simply shipped them to the bridge site for installation. Installation involved grading approaches, constructing abutments and piers, erecting preassembled floor and truss members, and placing deck material.

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[1] Larry Jochims, *Metal Truss Bridges in Kansas 1861-1939, National Register of Historic Places Multiple Property Documentation Form*, (Topeka: Kansas State Historical Society, 1989), E.
[2] Ibid, F.

Before 1900, generally all panel point connections – the locations at which structural bridge elements intersect – were made with the use of a pin. This technique was so widespread that it became one of the distinctive features of American bridge construction in the nineteenth century.[3] However, subsequent advancements in pneumatic riveting techniques greatly improved rivet installation quality, enabling more reliable panel point connections. With the increased portability of this construction technology, the more rigid riveting technique rapidly surpassed pin-connected bridge construction during the first years of the twentieth century. The riveted construction of the Eight Mile Creek Warren Truss Bridge illustrates the standardization of this technique.

In addition, the contemporary development of economic cement production promoted the widespread combination of steel and concrete in bridge construction. It was not uncommon for older metal truss bridges to receive new reinforced concrete decks or poured concrete reinforcements for older stone abutments. By the 1920s, reinforced concrete was the standard material for abutments, piers, and decks of steel truss bridges. The concrete deck, abutments, and piers of the Eight Mile Creek Warren Truss Bridge are typical of bridges built during this period.

The Eight Mile Creek Warren Truss Bridge is a classic example of the Warren truss design. Patented in 1848, the Warren truss has diagonal members alternately placed in either tension or compression, resulting in a visually distinctive system of alternating equilateral triangles. Vertical members are often incorporated to further strengthen the truss and many, such as the Eight Mile Creek Warren Truss Bridge, also include a polygonal top chord for additional structural stability.[4]

While the straightforward design of the Warren truss was desirable, the lack of counters and sometimes verticals subjected the center pins to extensive wear, making it less durable and therefore less popular than the Pratt truss during the nineteenth century. The later standardization of riveted techniques eliminated these issues and the Warren truss gained popularity as a bridge type.[5] In Kansas, Warren trusses were constructed well into the middle of the twentieth century, suggesting the appeal of the design's strength, simplicity, and economical construction costs. In 1998, approximately 400 Warren truss bridges, including the Eight Mile Creek Warren Truss Bridge, existed throughout the state of Kansas.[6]

STRUCTURE HISTORY

Platted in 1864 along a natural ford across the banks of the Marais Des Cygnes River, the nearby city of Ottawa grew rapidly from its inception. Within its first year of existence, Ottawa was designated the seat of Franklin County, a toll bridge was built above the ford, a sawmill, a general merchandise store, and a hostelry were established, and the first locomotive arrived on the Leavenworth, Lawrence & Galveston Railroad. The city became the hub of Franklin County with "spokes" of railroad lines leading in all directions. By the early 1880s, five of the six railroad lines that traversed Franklin County passed through Ottawa, including two branches of the

[3] Ibid, F.
[4] T. Allan Comp and Donald Jackson, *Bridge Truss Types: A guide to dating and identifying.* (Nashville, Tennessee: American Association for State And Local History, Technical Leaflet 95), 8.
[5] Jochims, E2.
[6] Nimz, 6.

Kansas City, Lawrence & Southern Kansas Railroad, the Ottawa & Burlington Railroad, the Leroy Branch of the Missouri Pacific Railroad, and the Kansas City & Emporia Railroad. As the commercial and cultural center of the county at the time, Ottawa supported several newspapers, eleven lawyers, eleven doctors, four dentists, a number of real estate agents, insurance men, and street brokers, two banks, three grist mills, an oil mill, a foundry and machine shops, two furniture companies, and a saw mill. In 1903, the Warner Manufacturing Company moved its plants from Waverly and Melvern, establishing a large factory in Ottawa. Within two months, the plant was turning out 22 miles of woven wire fencing per day in addition to small engines and power equipment.[7] Within the first decade of the twentieth century, natural gas was discovered near the city, spurring further commercial and industrial development. By the late 1930s, Ottawa boasted two railroad stations, service to three bus lines, two hotels, three tourist camps, three motion picture houses, several hatcheries, two mail order printing houses, a stone-crushing plant, a foundry and woodwork factory, and the car shops and division headquarters of the Santa Fe Railway. Ottawa was typical of cities throughout Kansas that served not only as trading and shipping points for the surrounding agricultural community, but as cultural and governmental centers for the county. As a result, fords and bridges that provided access to and from the city's municipal buildings and commercial markets were critical to the survival of the regional economy.

According to the Franklin County Road and Bridge records, the Eight Mile Creek Warren Truss Bridge was constructed c.1920. No further construction history has presently been located.[8] While the builder is unknown, markings on the structural members indicate that Inland Steel Company of Chicago, Illinois and Scullin Steel Company of St. Louis, Missouri produced the stock metal.

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[7] "Warner was one of first manufacturers in Ottawa," *OttawaHerald.com* [article on-line]; available from http://wire.dailynews.net/ottawa/2000/warner.html; Internet; accessed 20 June 2002.

[8] Inquiry into the Franklin County Road and Bridge records, Kansas Department of Transportation records, Kansas State Historical Society archives, and *Western Contractor* revealed no further construction history specific to the Eight Mile Creek Warren Truss Bridge.

BIBLIOGRAPHY

Comp, T. Allan and Donald Jackson. *Bridge Truss Types: A guide to dating and identifying.* Nashville, Tennessee: American Association for State and Local History, Technical Leaflet 95.

Cutler, William G. *History of the State of Kansas*. Chicago: A. T. Andreas, 1883.

Delaware Historic Bridges, Survey and Evaluation. Historic Architecture and Engineering Series, No. 89. Dover: Delaware Department of Transportation, Division of Highways, 1991.

Historic Highway Bridges in Pennsylvania. Harrisburg: Pennsylvania Department of Transportation and Pennsylvania Historical and Museum Commission, 1986.

"Industrial Images from the Library of Congress," *Illustrated Pittsburgh Retrospective* [article on-line]; available from **http://www.andrew.cmu.edu/user/vck/pghretro.htm**; Internet; accessed 18 March 2002.

Jochims, Larry. *Metal Truss Bridges in Kansas 1861-1939, National Register of Historic Places Multiple Property Documentation Form.* Topeka: Kansas State Historical Society, 1989.

Jochims, Larry. *Riley Creek Bridge, National Register of Historic Places Registration Form.* Topeka: Kansas State Historical Society, 1989.

Kansas Historic Bridge Rating System. Kansas Department of Transportation, 1980-1983.

Nimz, Dale E. *Activity III Review Initial Assessment Metal Truss Bridges.* Topeka: Kansas State Historical Society, 1998.

The Second Ohio Historic Bridge Inventory:Evaluation and Preservation Plan. Columbus: Ohio Department of Transportation, 1990.

Vermont Truss Bridges and Maintenance. Vermont Bridge Program, 2000.

"Warner was one of first manufacturers in Ottawa," *OttawaHerald.com* [article on-line]; available from **http://wire.dailynews.net/ottawa/2000/warner.html;** Internet; accessed 20 June 2002.

WPA Guide to 1930s Kansas. Lawrence: University of Kansas Press, 1984.

GEOGRAPHICAL DATA

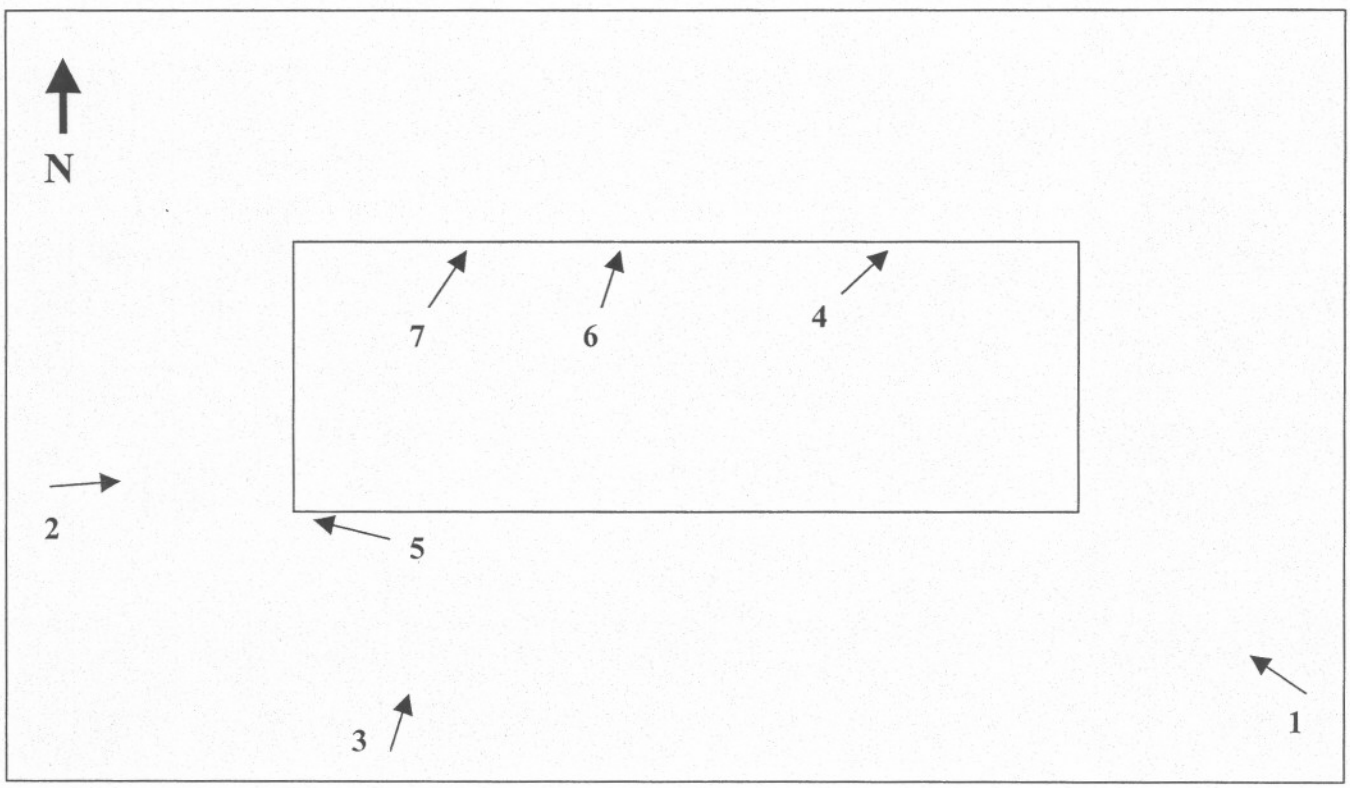
Verbal Boundary Description:
Located on the W ½ of Section 26, Township 16S, Range 19E, the Eight Mile Creek Warren Truss Bridge encompasses an area measuring approximately 189 feet by 20 feet. The northwest corner of this area corresponds to the northwest corner of the bridge.

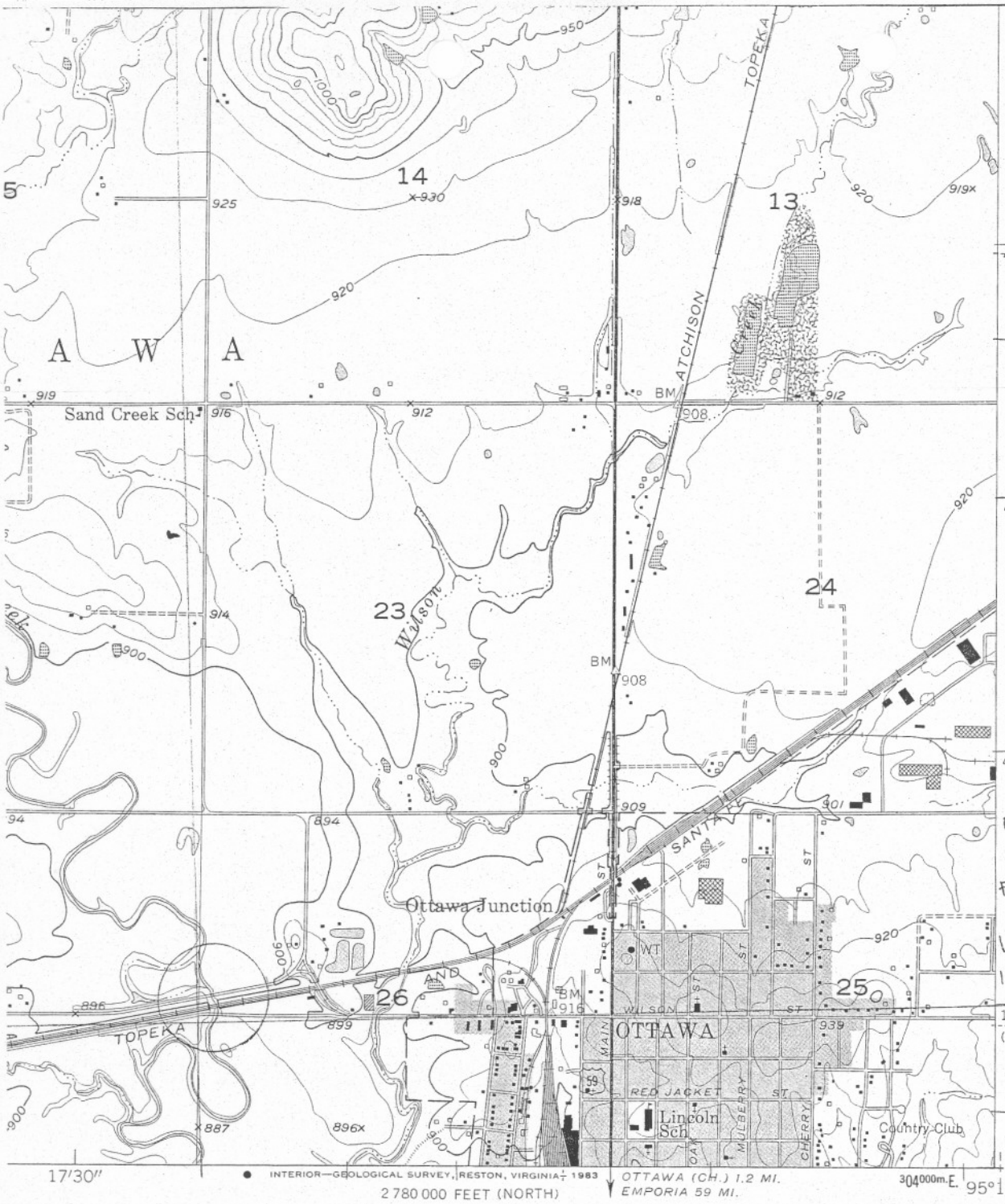
Boundary Justification:
The boundary includes the truss, deck, abutments, and associated approaches that represent the significant features associated with the bridge structure.

PHOTO LOG

Photographer: Kerry Davis
Date of Photographs: February 2002
Location of Original Negative: Kansas State Historical Society, Topeka, Kansas

Photograph Number	Camera View
1.	View NW, bridge truss and approach spans
2.	View E, bridge truss and roadway
3.	View N, bridge truss and piers
4.	View NE, detail, upper chord and nodes
5.	View W, detail, southwest bearing and abutment seat
6.	View NE, detail, maker mark
7.	View NE, detail, maker mark





EIGHT MILE CREEK
WARREN TRUSS BRIDGE
FRANKLIN CO., KANSAS
UTM REFERENCE:
15/301060/4278105

1 MILE

ROAD CLASSIFICATION

Heavy-duty ——— Light-duty ———

Unimproved dirt - - - - - -

U. S. Route

KANSAS

QUADRANGLE LOCATION

Revisions shown in purple compiled from aerial photographs taken 1981 and other sources
This information not field checked. Map edited 1983

Purple tint indicates extension of urban area

OTTAWA NORTH, KANS.

N3837.5—W9515/7.5

1956
PHOTOREVISED 1983
DMA 6961 III NE–SERIES V878