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: Begley Bridge

Other name/site number: Stranger Creek Pratt Truss Bridge; 52-HT-01

2. **Location** On a perpendicular alignment between two unnamed farm roads flanking Stranger Creek 1.1 miles west of the intersection of 227th Street and Roe Road and 100 yards southwest of new bridge alignment; 1.75 miles northwest of the town of Millwood.

___ not for publication

city or town Millwood X vicinity

state code KS county Leavenworth county code 103 zip code 66077

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. Parkinson 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		___ structures
___ public-Federal	X structure	1	___ 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: Pratt Truss

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	1926	1926
TRANSPORTATION		

Cultural Affiliation

N/A

Significant Person

N/A

Architect/Builder

Leavenworth Bridge Company (Leavenworth, Kansas)

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	317160	4363240	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 Leavenworth

street & number 300 Walnut telephone 913-684-0470

city or town Leavenworth state KS zip code 66048-2756

DESCRIPTION

LOCATION AND SETTING

The Begley Bridge is located 1.75 miles north of the town of Millwood in northeast Kansas, on the SE ¼ of Section 25, Township 7S, Range 20E. The region is defined by rounded hills and broad, forested valleys. Roe Road (also known as Begley Road) has been realigned 100 yards to the northeast and no longer travels over Begley Bridge. The Leavenworth County Board of County Commissioners designated the Begley Bridge a public fishing bridge and the surrounding right-of-way as the Mottin-Tearney-Rohr Park. Now closed to vehicular traffic, the Begley Bridge crosses Stranger Creek, a wide, shallow creek that flows to the southeast to join the Kansas River near Linwood. The Begley Bridge has a northwest-southeast alignment, perpendicular to and between two parallel dirt roads flanked by cultivated fields.

TRUSS TYPE

The Begley Bridge consists of a riveted Pratt through truss[1] measuring 105 feet in length, with slightly inclined timber approach spans on each end. The northwest approach span measures approximately 32 feet in length and the southeast approach span measures approximately 17 feet in length. The deck is 16 feet wide. Timber and steel piles retain the planks that form the abutments supporting the outer ends of the approach spans. Poured concrete piers support the bearings of the truss and the inner ends of the approach spans. The two northwest piers are simple poured concrete pads that support the rocker bearings; the monolithic southeast pier has a central spandrel panel flanked by vertically tapered square posts that support the fixed bearings.

The inclined end posts rise from the bottom chords and meet the horizontal top chords to form a trapezoidal shape. The top chords and end posts consist of two channels, a cover plate, and lacing bars; the bottom chords consist of angle stock with stay plates.

The web members consist of vertical posts that form seven equivalent panels and diagonal ties that intersect within the central panel. Channel stock and stay plates compose the vertical posts; angle stock and stay plates compose the diagonal ties.

A riveted system of intersecting angle stock forms the portal and sway bracing; laced angle stock forms the sway struts that connect the top chords at each vertical post, leaving a vertical clearance of 24 feet. Upper lateral bracing bars intersect diagonally between the top chords.

The corrugated metal deck is 16 feet wide and rises 25 feet above the creek bed on timber stringers. Floor beams at the base of each vertical post support the stringers. A section of timber stringers at the southeast end of the deck has been damaged by fire.

A bronze plaque set into a concrete monument at the southeast approach has letters in relief that recount the history of the bridge. Modern steel guardrails extend the length of the bridge.

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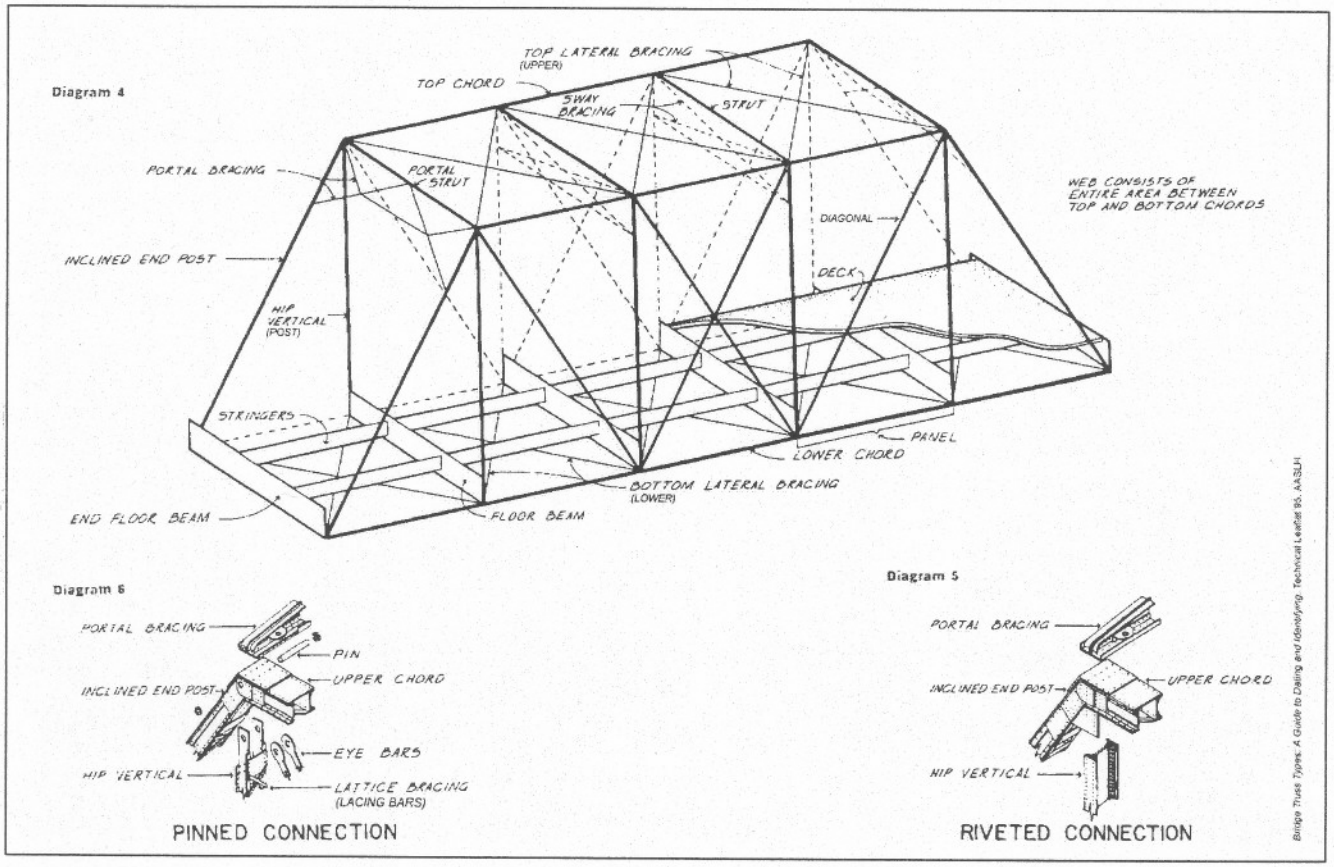
[1] A through truss is also referred to as a high truss.

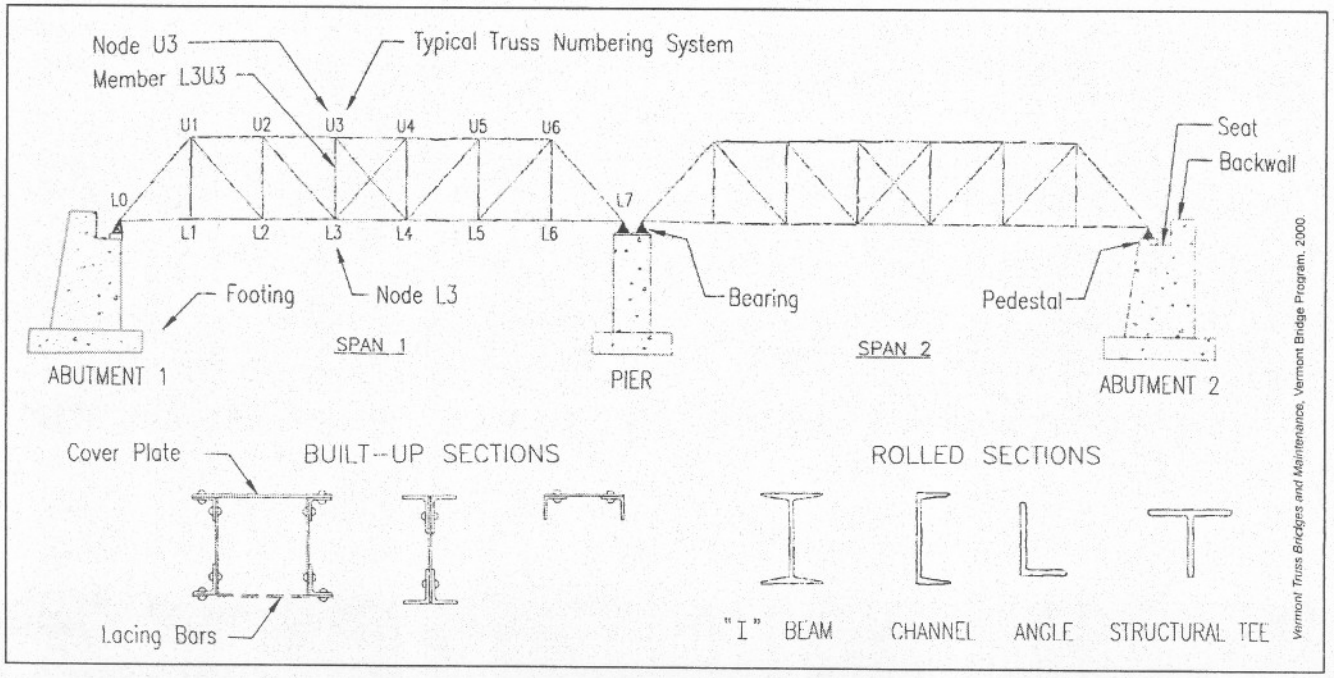
INTEGRITY

The Begley Bridge is an excellent example of the Pratt truss bridge type, historically the most popular built in Kansas.[2] In spite of the loss of original deck material, the Begley Bridge retains a good degree of integrity and the original workmanship, design, setting, and feeling of the property are readily apparent. Furthermore, the potential for preservation of the bridge is high. Removed from the road system and designated a public fishing bridge within a county park, alteration or replacement is unlikely.

[2] Larry Jochims, *Metal Truss Bridges in Kansas 1861-1939, National Register of Historic Places Multiple Property Documentation Form*, (Topeka: Kansas State Historical Society, 1989), E1. Jochims stated there were approximately 262 extant Pratt trusses in Kansas. Dale Nimz, *Activity III Review Initial Assessment Metal Truss Bridges*, (Topeka: Kansas State Historical Society, 1998), 6. Nimz stated there were approximately 800 extant Pratt trusses in Kansas.

TRUSS TERMINOLOGY





STATEMENT OF SIGNIFICANCE

The Begley 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 Pratt truss bridge type. Built in 1926, the Begley Bridge is a common bridge solution applied to a long span. Its riveted structure, timber abutments, and concrete piers illustrate the transition in construction techniques and materials that occurred during the period of significance.

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.

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

[1] Jochims, E.
[2] Jochims, F.

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 Begley 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 combination of timber abutments and poured concrete piers at the Begley Bridge illustrates the transition in construction technology and materials that occurred during the period of significance.

The Begley Bridge is a classic example of this truss design. Patented in 1844, the Pratt truss incorporates vertical members in compression and diagonal members in tension, a design that reduces the required length of compression members, helping to prevent bending or buckling.[4] The Pratt truss became the most common bridge type of the late nineteenth and early twentieth centuries and spawned numerous variations including Parker, Camelback, Baltimore, Truss Leg Bedstead, Lenticular, and Pennsylvania trusses.[5]

In Kansas, Pratt truss bridges were constructed well into the twentieth century, suggesting the appeal of the design's strength and economical construction costs.[6] In 1998, approximately 800 Pratt truss bridges, including the Begley Bridge, existed throughout the state of Kansas.[7]

STRUCTURE HISTORY

Founded circa 1876, the nearby village of Millwood owes its name to the Stranger Valley Mills established in 1869. Drawing farmers from throughout the fertile Stranger Valley, the mills provided a commercial anchor for cultural activity and Millwood soon boasted both a saloon and a Lutheran church. As railroad lines established station stops in Easton to the south and later in Potter, Atchison County, to the north, Millwood became destined to remain a small, but crucial market center. Typical of small towns throughout Kansas, it served as a trading point for the surrounding rural community. As a result, fords and bridges that provided area farmers with access to local markets were critical to the survival of the regional economy.

The Leavenworth Bridge Company, a prolific Kansas bridge builder, constructed the Begley Bridge in its current form in 1926. Leavenworth County advertised in *Western Contractor* during November 1925 for bridge construction bids on the "Begley Bridge, nr [sic] Potter," which called for almost 22 tons of structural steel. The

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[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] Ibid, 8.
[6] Jochims, F2.
[7] Nimz, 6.

Leavenworth Bridge Company won the bid and, according to the Leavenworth County Board of County Commissioners, they disassembled and moved the truss from the crossing of Stranger Creek at Linwood.[8] Local history recounts that this truss was originally constructed by the Missouri Valley Bridge & Iron Company in the early 1880s[9] and was a pin-connected structure. However, the current structure is entirely riveted. Therefore, construction either involved the complete disassembly of the original truss and subsequent reconstruction at the current location using contemporary riveting or the truss at Linwood was not reused. In addition to the construction of poured concrete piers, the reconstruction involved the introduction of gusset plates at each node and angle stock to form riveted web and chord members where eye bars and tension rods would have been. This drastically altered the original appearance and structural function of the truss.

The *Leavenworth Times* reported in March 1926 that the Leavenworth Bridge Company was completing the "east piece" of the Begley Bridge under the direct supervision of Buck Tearney. The bridge was complete by the end of 1926. In 1986, the Leavenworth Board of County Commissioners designated the Begley Bridge a public fishing bridge and the surrounding right-of-way as the Mottin-Tearney-Rohr Park.

J. B. "Buck" Tearney founded the Leavenworth Bridge Company, and from 1875 to circa 1930, he was involved in the construction of most of the bridges and culverts in Leavenworth and neighboring counties, often as a sub-contractor for the Missouri Valley Bridge & Iron Company.[10] Al Rohr, a former contracting agent for the Missouri Valley Bridge & Iron Company, partnered with Tearney to form Rohr & Tearney and was a silent partner in the Leavenworth Bridge Company. As owner of J. B. Tearney & Company, Tearney ensured that at least one of his companies would receive the contract at hand. The Leavenworth Bridge Company was essentially a bidding company, and J. B. Tearney & Company completed the majority of actual construction.[11]

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[8] "Resolution #1986-17," Leavenworth Board of County Commissioners, 17 April 1986.
[9] Ibid.
[10] Jochims, E3.
[11] Ibid.

BIBLIOGRAPHY

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

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Historic Bridge Inventory. Kansas Department of Transportation, 4 December 1981.

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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.

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"Three Bridges Are Under Way." *Leavenworth Times,* 17 March 1926, 5.

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

GEOGRAPHICAL DATA

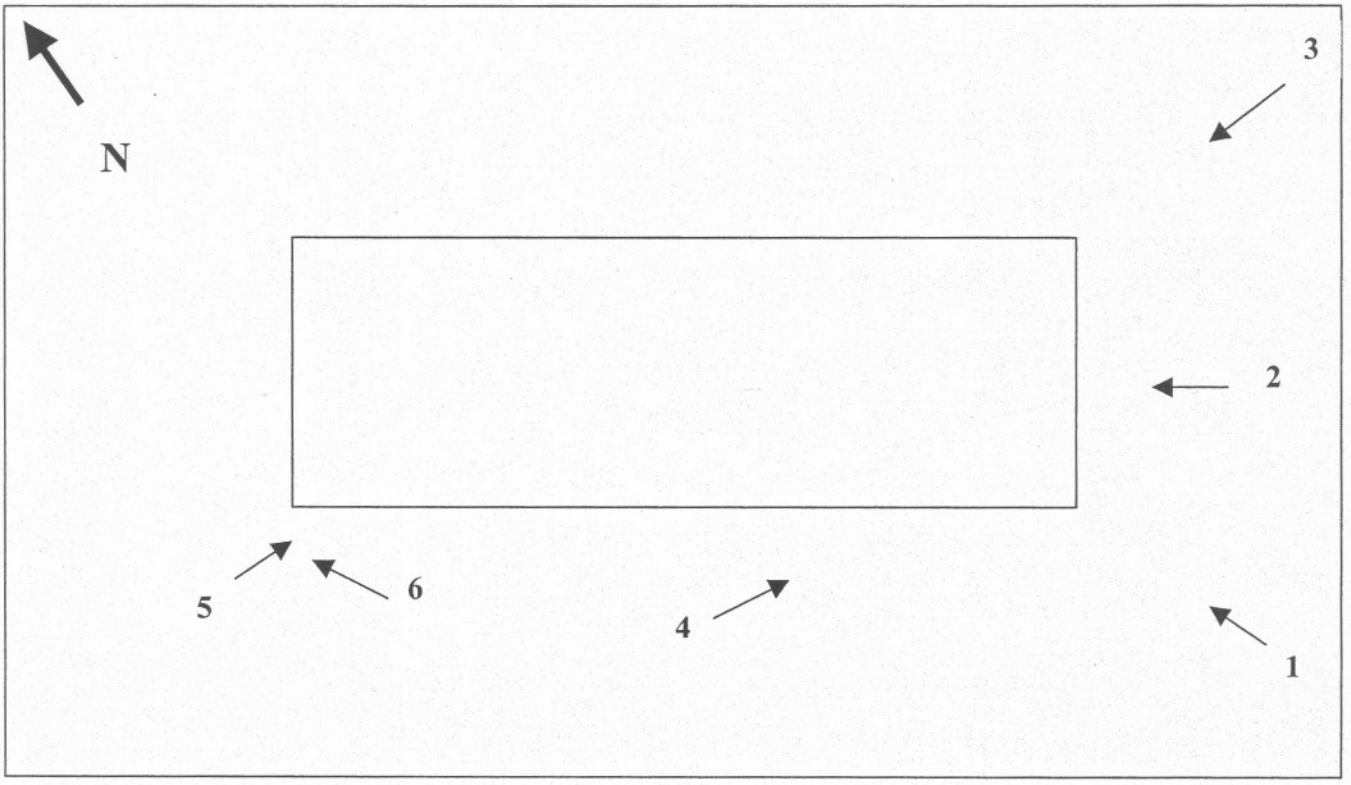
Verbal Boundary Description:
Located on the SE ¼ of Section 25, Township 7S, Range 20E, the Begley Bridge encompasses an area measuring approximately 154 feet by 16 feet. The northwest corner of this area corresponds to the northwest corner of the bridge.

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

PHOTO LOG

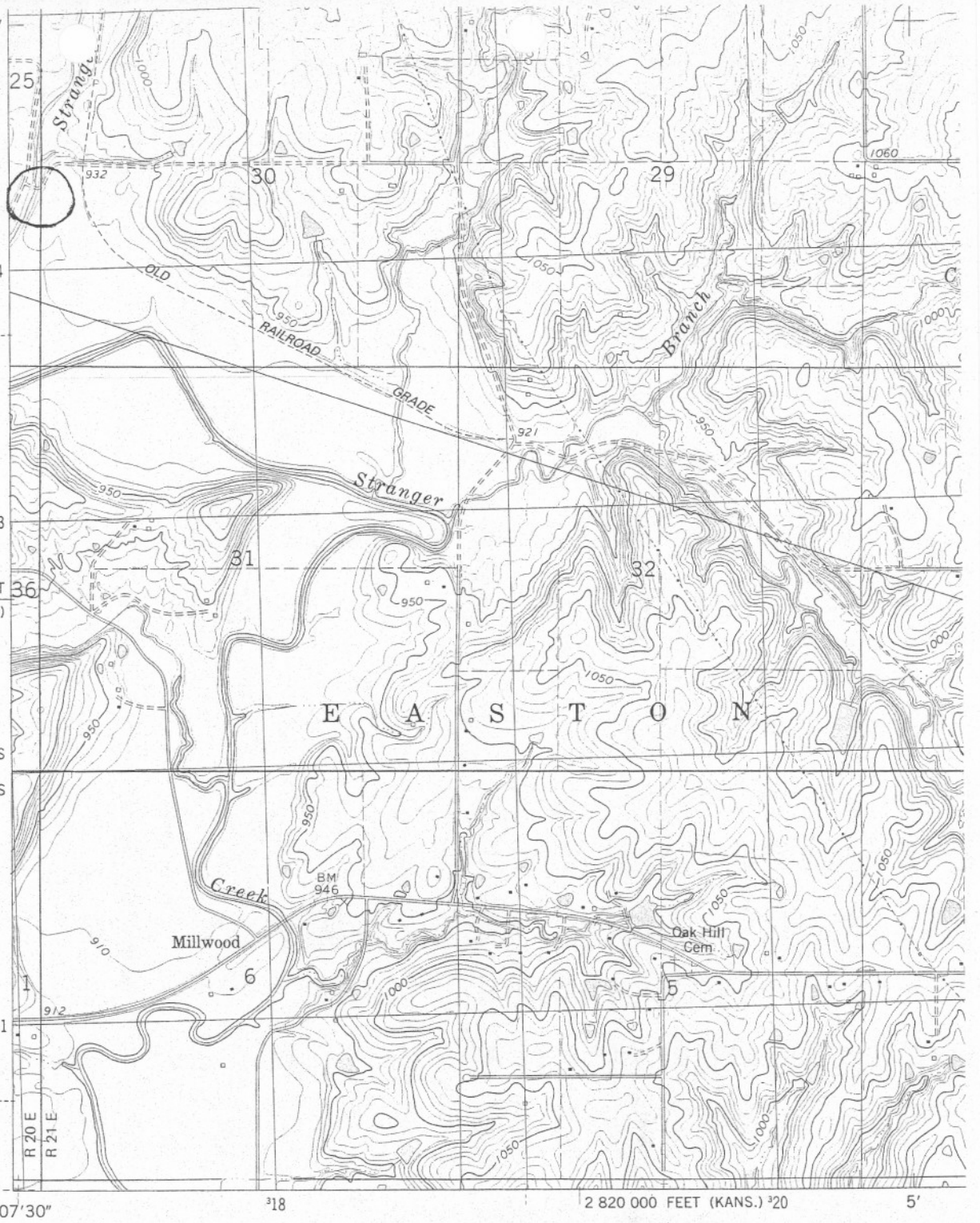
Photographer: Kerry Davis
Date of Photographs: February 2002
Location of Original Negative: Kansas State Historical Society, Topeka, Kansas

Photograph Number	Camera View
1.	View N, bridge truss
2.	View NW, bridge truss and deck
3.	View W, bridge truss and historical marker
4.	View NE, bridge truss, southeast abutment and pier
5.	View E, northwest bearing detail
6.	View NW, northwest approach span



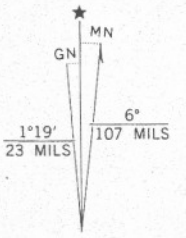
BEZILEY BRIDGE
LEAVENWORTH CO.,
KANSAS

UTM REFERENCE:
15/317160/4364320



(EASTON SW)
6962 I SW

Mapped, edited, and published by the Geological Survey
Control by USGS and NOS/NOAA
Topography by photogrammetric methods from aerial photographs taken 1982. Field checked 1983. Map edited 1984
Supersedes map dated 1979
Projection: Kansas coordinate system, north zone (Lambert conformal conic)
10,000-foot grid ticks based on Kansas coordinate system, north zone and Missouri coordinate system, west zone
1000-meter Universal Transverse Mercator grid, zone 15
1927 North American Datum
To place on the predicted North American Datum 1983, move the projection lines 4 meters north and 21 meters east as shown by dashed corner ticks
There may be private inholdings within the boundaries of the National or State reservations shown on this map
Fine red dashed lines indicate selected fence and field lines where generally visible on aerial photographs. This information is unchecked



UTM GRID AND 1984 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET