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: Chapman Creek Pratt Truss Bridge (preferred): 21-HT-02; 08583.00436.6  

2. Location  
On Quail Road, 1.7 miles south of the intersection with Route 18; 1.0 mile west and 2.5 miles north of the town of Chapman.  

city or town Chapman  
county Dickinson  
state code KS  
county code 041  
zip code 67431  

township T2N R3W  
section 20  

3. State/Federal Agency Certification  
As the designated authority under the National Historic Preservation Act of 1966, as amended, I hereby certify that this 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 meets does not meet the National Register criteria. I recommend that this property be considered significant nationally X statewide _ locally. ( See continuation sheet for additional comments.)

Richard D. Preece  
Signature of certifying official  
4/6/03  

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  

KANSAS STATE HISTORICAL SOCIETY  
State or Federal agency and bureau  

4. National Park Service Certification  

I, hereby, certify that this property is:  
X entered in the National Register.  
See continuation sheet  
X determined eligible for the National Register.  
See continuation sheet  
X determined not eligible for the National Register.  
X removed from the National Register.  
_ other, (explain:)

Signature of Keeper  

Date of Action
Property Name: Chapman Creek Pratt Truss Bridge
County and State: Dickinson, Kansas

5. Classification

<table>
<thead>
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<th>Ownership of Property</th>
<th>Category of Property</th>
<th>No. of Resources within Property</th>
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<tr>
<td>___ private</td>
<td>___ building(s)</td>
<td>___ contributing ___ noncontributing</td>
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<tr>
<td>X public-local</td>
<td>___ district</td>
<td>___ buildings ___ sites</td>
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<tr>
<td>___ public-State</td>
<td>___ site</td>
<td>___ structures ___ sites</td>
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<tr>
<td>___ public-Federal</td>
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<td>___ objects ___ structures</td>
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<tr>
<td>___ object</td>
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<td>1 ___ 0 Total</td>
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Name of related multiple property listing:
(Enter "N/A" if property is not part of a multiple property listing.):

Metal Truss Bridges in Kansas

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, wood
Walls
Roof
Other: Metal: Iron, steel

Narrative Description
(Describe the historic and current condition of the property on one or more continuation sheets.)
USDI/NPS NRHP Registration Form

Property Name: Chapman Creek Pratt Truss Bridge

County and State: Dickinson, Kansas

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.

___ 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.)

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<td>1965</td>
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<tr>
<td>TRANSPORTATION</td>
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Cultural Affiliation
N/A

Significant Person
N/A

Architect/Builder
Canton Bridge Company (Canton, Ohio)

Narrative Description (Describe the historic and current condition of the property on one or more continuation sheets.)
USDI/NPS NRHP Registration Form

Property Name: Chapman Creek Pratt Truss Bridge

County and State: Dickinson, Kansas

9. Major Bibliographical References

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

- preliminary determination of individual listing
- 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

Primary location of additional data:

- State Historic Preservation Office
- Other State agency
- Federal agency
- Local government
- University
- Other

Specify repository:

Record #

10. Geographical Data

Acreage of property: ___ acres

UTM References

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<tr>
<td>4</td>
<td>/ / / /</td>
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</table>

See continuation sheet

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

11. Form Prepared By

Name/title: Kerry Davis, Architectural Historian & Elizabeth Rosin, Partner

Organization: Historic Preservation Services

Street & number: 323 West Eighth Street, Suite 112

City or town: Kansas City

State: Missouri

Zip code: 64105

Telephone: (816) 221-5133

Date: August 5, 2002

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 Dickinson

Street & number: 109 East 1st Street, Courthouse, P.O. Box 248

City or town: Abilene

State: KS

Zip code: 67410

Telephone: 785-263-3093
United States Department of the Interior
National Park Service

NATIONAL REGISTER OF HISTORIC PLACES
CONTINUATION SHEET

Section Number 7  Page 1

Chapman Creek Pratt Truss Bridge
Dickinson County, Kansas

DESCRIPTION
LOCATION AND SETTING
The Chapman Creek Pratt Truss Bridge is located 2.5 miles north and 1.0 mile west of the town of Chapman in the Flint Hills region of east-central Kansas, on the north-south line between the SE ¼ of Section 13, Township 12S, Range 3E and the SW ¼ of Section 18, Township 12S, Range 4E. The region is defined by rolling prairie hills interrupted by deep, tree-lined creek valleys and rocky bluffs. The Chapman Creek Pratt Truss Bridge carries Quail Road across Chapman Creek, a narrow, meandering tributary of the Smoky Hill River. The dirt roadway, flanked by cultivated fields, aligns directly with the Chapman Creek Pratt Truss Bridge.

TRUSS TYPE
The Chapman Creek Pratt Truss Bridge consists of a single span, pin-connected through truss that measures 80 feet in length and a flat girdler approach span at each end. The north approach span measures 36 feet in length and the south approach span measures 20 feet in length. The deck is 16 feet wide. Timber abutments retain the approach embankments and concrete-filled sheet metal columns form the piers that support the truss bearings.

The inclined end posts rise from the bearings and meet the horizontal top chords to form a trapezoidal shape. The top chords and inclined end posts are composed of two channels, a cover plate, and lacing bars; the bottom chords consist of paired, flat eye bars.

The web members consist of vertical posts that form five equivalent panels and diagonal ties that intersect within the central panel. Angle stock and lacing bars compose the vertical posts. Flat eye bars and tension rods compose the diagonal ties.

A system of intersecting angle stock forms the portal and upper sway struts that connect the top chords at each vertical post, leaving a vehicular clearance of 14 feet. Upper lateral bracing rods intersect diagonally between the top chords and sway struts.

The timber deck is 16 feet wide and rises 23 feet above the creek bed on steel I-beam stringers. Floor beams located at the base of each vertical web member are connected by lower lateral bracing rods.

The historic lattice guardrails are intact along the length of the bridge. Letters in relief read “JONES & LAUGHLINS” on several structural components.

INTEGRITY
The Chapman Creek Pratt Truss Bridge is an excellent example of this bridge type, historically the most popular in Kansas. It retains a high degree of integrity, with no apparent alterations to the original design or materials. 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.

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

Diagram 4

PORTAL BRACING
INCLINED END POST
HIP VERTICAL
STRAIGHTERS
FLOOR BEAM
END FLOOR BEAM
TOP LATERAL BRACING
UPPER
SHAY BRACING
UPPER
STUT
HEX CONCAVE BRACING
LOWER
NER CONCAVE BRACING
LOWER CHORD
BUMP BRACING
BUMP CHORD
BOTTOM LATERAL BRACING
BUMP CHORD
LOWER CHORD
FLOOR BEAM
DIAGRAM 4

Diagram 5

PORTAL BRACING
INCLINED END POST
HIP VERTICAL
LANTICE BRACING (RACING BARS)
PIN
UPPER CHORD
EYE BARS
PINNED CONNECTION
RIVETED CONNECTION

Typical Truss Numbering System

Node U3
Member L3 U3

Seat
Backwall

Footing
Node L3
Bearing
Pedestal

ABUTMENT 1
SPAN 1
PIER
SPAN 2
ABUTMENT 2

Cover Plate
BUILT--UP SECTIONS
Lacing Bars

ROLLED SECTIONS
"I" BEAM CHANNEL ANGLE STRUCTURAL TEE
STATEMENT OF SIGNIFICANCE
The Chapman Creek Pratt 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 Pratt truss bridge type. Built in 1905,\(^1\) the Chapman Creek Pratt Truss Bridge represents a common bridge solution applied to a relatively long span. Its pin-connected structure, timber deck and abutments, coupled with concrete-filled sheet metal piers illustrate the technological transitions that took place during the period of significance. As no historic name identifies this bridge, the preferred name “Chapman Creek Pratt 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.\(^2\) 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 a degree that it virtually replaced wrought iron for bridge construction by 1910.\(^3\)

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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\(^1\) Kansas Department of Transportation records.
\(^2\) Jochims, E.
\(^3\) Jochims, 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. The pin-connected construction of the Chapman Creek Pratt Truss Bridge illustrates the standardization of this technique. 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.

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 concrete-filled sheet metal piers found on this bridge illustrates the transition in construction technology that occurred during the period of significance.

The Chapman Creek Pratt Truss 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. 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.

In Kansas, Pratt truss bridges were constructed well into the twentieth century, suggesting the appeal of the design’s strength and economical construction costs. In 1998, approximately 800 Pratt truss bridges, including the Cottonwood River Pratt Truss Bridge, existed throughout the state of Kansas.

STRUCTURE HISTORY
First settled in 1855, the area surrounding the Chapman Creek Pratt Truss Bridge remained sparsely populated until the construction of the Kansas Pacific Railroad along the north bank of the Solomon River in 1866. In response to increased settlement along Chapman Creek, the nearby town of Chapman was platted in 1871. The rural community supported substantial commercial development and, in 1883, the town featured four general merchandise stores, a drug store, a hardware store, a lumberyard, a hotel, a gristmill, an elevator, and a livery stable. Into the 1930s, Chapman, with a population of 819, remained a trading center for the predominantly

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4 Ibid, F.
6 Ibid, 8.
7 Jochims, p2.
8 Nimz, 6.
stock-raising rural community. Typical of small towns throughout Kansas, it served as a trading and shipping point for the surrounding agricultural area. As a result, the fords and bridges that provided farmers in the area with access to local markets were critical to the survival of the regional economy.

According to Kansas Department of Transportation records, the Canton Bridge Company of Canton, Ohio, a prolific out-of-state bridge builder in Kansas, built the Chapman Creek Pratt Truss Bridge in 1905. Markings on the structural members indicate that the Canton Bridge Company purchased the stock metal from Jones & Laughlin Steel Corporation of Pittsburgh, Pennsylvania. No further construction history has presently been located.

The Canton Bridge Company of Canton, Ohio advertised in *Engineering Record* as early as 1876 and was incorporated in 1891. The executives in 1891 included W. E. Sherlock, President; V. H. Hammond, Vice President; and C. E. Timkler, Chief Engineer. The Massillon Steel Joist Company of Massillon, Ohio purchased the company in 1925 and the two companies were merged into Macomber Steel Company in 1927.

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10 *WPA Guide to 1930s Kansas.* (Lawrence: University of Kansas Press, 1984), 353.
11 Inquiry into the Dickinson County Road and Bridge records, Kansas Department of Transportation records, Kansas State Historical Society archives, Dickinson County Historical Society, and *Western Contractor* revealed no further construction history specific to the Chapman Creek Pratt Truss Bridge.
12 Jochims, *West Sappa Creek Lattice Bridge.*
13 Ibid. It is likely that V. H. Hammond is a relation of D. Hammond of Wrought Iron Bridge Company in Canton, Ohio.
BIBLIOGRAPHY


*Historic Bridge Inventory*. Kansas Department of Transportation, 16 June 1982.


GEOGRAPHICAL DATA

Verbal Boundary Description:
Located on the line between the SE ¼ of Section 13, Township 12S, Range 3E and the SW ¼ of Section 18, Township 12S, Range 4E, the Chapman Creek Pratt Truss Bridge encompasses an area measuring approximately 138 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

<table>
<thead>
<tr>
<th>Photograph Number</th>
<th>Camera View</th>
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<td>1.</td>
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<tr>
<td>2.</td>
<td>View NE, bridge truss and roadway</td>
</tr>
<tr>
<td>3.</td>
<td>View SW, bridge understructure, south piers, and abutment</td>
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<td>View NW, bridge understructure</td>
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<td>View NW, north bearing detail</td>
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<td>View W, marker mark detail</td>
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<tr>
<td>7.</td>
<td>View N, portal and upper node detail</td>
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<tr>
<td>8.</td>
<td>View NW, north approach span</td>
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![Diagram with directions and numbers corresponding to the listed photographs.](image-url)