

United States Department of the Interior
National Park Service

NATIONAL REGISTER OF HISTORIC PLACES
CONTINUATION SHEET

Section _____ Page _____

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SUPPLEMENTARY LISTING RECORD

NRIS Reference Number: 09001188


Date Listed: 1/4/2010

Big Horn River Bridge
Property Name

Treasure MT
County State

Montana's Historic Steel Truss Bridges MPS
Multiple Name

This property is listed in the National Register of Historic Places in accordance with the attached nomination documentation subject to the following exceptions, exclusions, or amendments, notwithstanding the National Park Service certification included in the nomination documentation.


Signature of the Keeper

1/4/2010
Date of Action

Amended Items in Nomination:

Classification:

The *Number of Contributing Properties Previously Listed* should read: 0
[This refers only to resources within the nominated boundaries of this property not to other bridge locations associated with the MPS context.]

These clarifications were confirmed with the MT SHPO office.

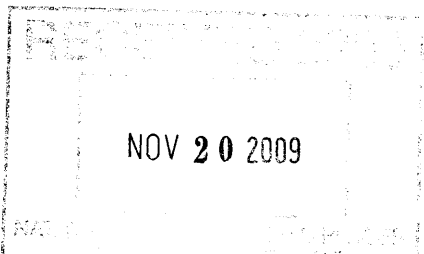
DISTRIBUTION:

- National Register property file
- Nominating Authority (without nomination attachment)

United States Department of the Interior
National Park Service

National Register of Historic Places Registration Form

1188



NOV 20 2009

This form is for use in nominating or requesting determinations for individual properties and districts. See instructions in National Register Bulletin, *How to Complete the National Register of Historic Places Registration Form*. If any item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, architectural classification, materials, and areas of significance, enter only categories and subcategories from the instructions. Place additional certification comments, entries, and narrative items on continuation sheets (NPS Form 10-900a).

1. Name of Property

Historic name Big Horn River Bridge
Other names/site number 24TE120/24YL1603, MDT No. L56104002+05001

2. Location

street & number Milepost 2 on State Route 104 (old US Highway 10) not for publication
city of town 4 miles east of Custer vicinity
State Montana code MT county Yellowstone code 103/111 zip code 59024

3. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act, as amended,
I hereby certify that this x 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 x meets does not meet the National Register Criteria. I recommend that this property be considered significant at the following level(s) of significance:
 national statewide x local
Signature of certifying official Mark F. [Signature] Date 11/12/2009
Title STATE HISTORIC PRESERVATION OFFICER State or Federal agency and bureau MONTANA SHPO

In my opinion, the property meets does not meet the National Register criteria.
Signature of commenting official _____ Date _____
Title _____ State or Federal agency and bureau _____

4. National Park Service Certification

I, hereby, certify that this property is:
 entered in the National Register
 determined eligible for the National Register
 determined not eligible for the National Register
 removed from the National Register
 other (explain:)
Signature of the Keeper [Signature] Date of Action 1/4/2010

Montana's Historic Steel Truss Bridges MPS

5. Classification

Ownership of Property
(Check as many boxes as apply)

Category of Property
(Check only one box)

Number of Resources within Property
(Do not include previously listed resources in the count.)

<input type="checkbox"/>	private
<input type="checkbox"/>	public - Local
<input checked="" type="checkbox"/>	public - State
<input type="checkbox"/>	public - Federal
<input type="checkbox"/>	private

<input type="checkbox"/>	building(s)
<input type="checkbox"/>	district
<input type="checkbox"/>	site
<input checked="" type="checkbox"/>	structure
<input type="checkbox"/>	building(s)
<input type="checkbox"/>	object

Contributing	Noncontributing	
		buildings
		sites
1		structures
		Objects
		buildings
1	0	Total

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

Number of contributing resources previously listed in the National Register

Montana's Historic Steel Truss Bridges

9

6. Function or Use

Historic Functions
(Enter categories from instructions)

TRANSPORTATION/Road-related (vehicular) =
Bridge

Current Functions
(Enter categories from instructions)

TRANSPORTATION/Road-related (vehicular) =
Bridge

7. Description

Architectural Classification
(Enter categories from instructions)

OTHER: Pennsylvania through truss

Materials
(Enter categories from instructions)

foundation: Concrete
walls:
roof:
other: Steel, Concrete

Montana's Historic Steel Truss Bridges MPS

Narrative Description

(Describe the historic and current physical appearance of the property. Explain contributing and noncontributing resources if necessary. Begin with a **summary paragraph** that briefly describes the general characteristics of the property, such as its location, setting, size, and significant features.)

Summary Paragraph

The Big Horn River Bridge consists of one contributing structure: a riveted Pennsylvania through truss structure that was constructed over a two year period between 1931 and 1933. The bridge consists of 2-spans resting on reinforced concrete abutments and piers. It is 624 feet in length and 21 feet wide. There are two reinforced concrete T-beam approach spans. The bridge crosses the Big Horn River on old US Highway 10 (now an Interstate 94 frontage road) about four miles east of the community of Custer near the river's confluence with the Yellowstone River. The bridge retains integrity of workmanship and feeling and the setting has not significantly changed since the structure's construction during the Great Depression. It is one of only a few Pennsylvania through truss bridges designed and built by the Montana Highway Department during the 1930s.

Narrative Description

The Bighorn River Bridge is located in the lower Big Horn Valley of south central Montana. The bridge crosses the Bighorn River about four miles east of the community of Custer on the border of Yellowstone and Treasure counties. The bridge crosses the river about one mile south of where the Bighorn River empties into the Yellowstone River. The surrounding area consists of Flaxville gravels laid down during the Pliocene. The bedrock is of late Cretaceous sandstone and shales that have been deformed by the Lake Basin Fault Zone. Although the bridge is located on the northern Great Plains, the Big Horn and Pryor Mountains ranges are visible to the south and southwest. The bridge was bypassed by Interstate 94 and old US Highway 10 was redesignated a frontage road. The area surrounding the bridge is utilized for farming and ranching.¹

The Bighorn River Bridge is a two-span riveted Pennsylvania through truss structure with two reinforced concrete T-beam approach spans. The bridge is 624 feet in length with two 275-foot truss spans consisting of twelve panels each. The approach spans are 23 feet (west) and 51 feet (east) in length. The bridge is 21 feet wide with a roadway width of 20 feet. The trusses are 48 feet deep and the portal entries have a clearance of 13 feet. The substructure consists of three reinforced concrete columnar-type piers connected by concrete web walls. The bridge ends rest on reinforced concrete abutments.

The bottom chords of the truss spans are laced channel sections with batten plates, while the top chords are continuous steel plates riveted to the top flanges of two laced channel sections with batten plates. The verticals and some of the diagonals are steel I-beams, while the remaining diagonals are laced channel sections with batten plates. The portal and top lateral braces are laced angle sections. The sway braces are angle sections and the mid and top struts are laced angle sections. The concrete slab deck is supported by five steel I-beam floor beams per span and five lines of steel I-beam stringers. Additional support is provided by angle section bottom lateral braces. The deck is flanked by raised concrete curbs and decorative lattice-type guardrails that are original to the structure.

The approach spans are reinforced concrete T-beams each with three lines of concrete girders. The overhanging concrete decks are flanked by steel lattice-type guardrails anchored at the ends by flared concrete endposts with decorative bush-hammered recessed panels.

Integrity

Other than routine maintenance, there have been no substantial changes to the Big Horn River Bridge since its construction in the early 1930s. The bridge is the standard riveted steel Pennsylvania through truss design developed by Montana Highway Department bridge engineers in the late 1920s. This particular design was adapted and utilized for particularly wide river crossings, like the Big Horn, Powder, and Missouri rivers. All of the structural components and features common to the design are present on the bridge and are unchanged. The bridge retains its distinctive truss configuration, simple angle section guardrails, and the timber deck. Other than the construction of Interstate 15 in 1973, the setting of the bridge site has not significantly changed. The surrounding area is still used for agricultural purposes and the Big Hole River is still defined by cottonwoods and other riverine shrubs. The Big Horn River Bridge retains all its

¹ David Alt and Donald W. Hyndman, *Roadside Geology of Montana*, (Missoula: Mountain Press Publishing, 1991), 343, 377-379.

essential elements of design, workmanship, and materials. It appears and functions as it did in 1933 as an important crossing of the Big Horn River in south central Montana.

Montana's Historic Steel Truss Bridges MPS**Statement of Significance Summary Paragraph** (provide a summary paragraph that includes level of significance and applicable criteria)

The Bighorn River Bridge is eligible for listing in the National Register of Historic Places under Criteria A and C. The bridge is eligible under Criterion A because of its association with the development and improvement of Montana's highway infrastructure just prior to the beginning of Franklin Roosevelt's Administration in 1933. The bridge is also representative of pre-FDR construction programs with the historical record indicating that the contractor, Edward J. Dunnigan Inc. of St. Paul, Minnesota underbid a project that it was not prepared to build. During the economic calamity, many contractors, like Dunnigan, underbid projects just to get work, regardless if they had the capability or equipment to build the project. The bridge is also eligible for the National Register under Criterion C as an excellent and representative example of a riveted Pennsylvania through truss, a type not common on Montana's roadways. Pennsylvania trusses were utilized by the Montana Highway Department for wide river crossings, such as the Missouri, Powder, and Bighorn rivers. The distinctive high profile and narrow width of the structure is intact and unchanged. All of the structural components are intact and function in their historic capacities. The setting of the bridge is also largely intact and the bridge, while it no longer serves in an interstate capacity, is still an important component on a local farm-to-market road.

Narrative Statement of Significance (provide at least **one** paragraph for each area of significance)

The Bighorn River Bridge is significant on a number of levels. The State Highway Commission let the contract to construct the bridge in 1931 at the beginning of the Great Depression. It was one of the last major bridge construction projects let by the commission before Herbert Hoover's Emergency Recovery projects were funded in August 1932. Because of the effects of the economic calamity, a company lacking the capability of building the structure underbid and was awarded the contract. The project was plagued by problems resulting from the contractor's inability to build the complicated structure. Eventually the contractor defaulted on the contract, the only instance of that happening during the 1930s when many contractors underbid projects to get work. The bridge is located on old US Highway 10, the most important east-west route through Montana. The bridge, therefore, is significant to the development of Montana's highway system during the 1930s when the state's roadways evolved from among the nation's worst infrastructure to one of the country's most modern.

The Bighorn River Bridge is also eligible for the National Register of Historic Places under Criterion C because it is a stunning and intact example of the type of standardized Pennsylvania through truss of the type built by the Montana Highway Department from 1930 until 1935. Before the highway department began utilizing continuous span bridges at wide river crossings, it designed Pennsylvania trusses to function in that capacity. The design, however, encompassed a high profile, making the bridges visible for great distances on the eastern Montana plains. No structural modifications have occurred to this bridge since its construction, and vehicular collisions have not significantly damaged any important structural components. The bridge retains its historic appearance and configuration with all of its original structural components and features intact along with its association with US Highway 10. There have been no significant changes to the setting of the site even with the presence of nearby Interstate 94. The bridge, moreover, still functions as an important crossing on what is now a recreational access route and farm-to-market road.

Engineering Significance

At the beginning of the 1930s, the Montana Highway Department began utilizing Pennsylvania through trusses at significant river crossings in the state. The first, and biggest, was the Wolf Point Bridge (24RV438) in northeastern Montana, followed by this bridge and the Culbertson Bridge (now demolished). Pennsylvania through trusses were also utilized on the Powder River and Bighorn River in south central Montana. The distinctive high profile and narrow widths of the bridges distinguished them from the wider and squatter Warren trusses that dominated the state's highways from 1915 to 1929 and from 1933 to 1946. The Bighorn River Bridge was constructed to replace an older bridge that could no longer efficiently carry traffic across the Bighorn River on the state's primary east-west route, US Highway 10. The bridge retains all of its original structural components, features, and historic appearance. It is one of only three state-built Pennsylvania through truss bridges remaining in Montana.

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.

Areas of Significance

(Enter categories from instructions)

Engineering

Transportation

Period of Significance

1931-1959

Significant Dates

1931, 1933

Criteria Considerations

(Mark "x" in all the boxes that apply)

Property is:

- A owned by a religious institution or used for religious purposes.
- B removed from its original location.
- C a birthplace or grave.
- D a cemetery.
- E a reconstructed building, object, or structure.
- F a commemorative property.
- G less than 50 years old or achieving significance within the past 50 years.

Significant Person

(Complete only if Criterion B is marked above)

Cultural Affiliation

Architect/Builder

Montana Highway Department

Edward J. Dunnigan, Inc.

Period of Significance (justification)

The Period of Significance for this historic property encompasses the time in which the construction project was let to contract in 1931 and when it functioned as a primary component of US Highway 10 in eastern Montana.

Criteria Consideratons (explanation, if necessary)

Montana's Historic Steel Truss Bridges MPS

Developmental history/additional historic context information (if appropriate)

Designer John Morrison checked the plans in June of 1931. Within a month, on July 22, the Montana State Highway Commission awarded the Edward J. Dunnigan Company of St. Paul, Minnesota a \$120,211 contract to build a steel truss bridge across the Bighorn River along with six treated timber bridges on US Highway 10 about four miles east of Custer. The company, however, appears to have severely under-bid the project to get the contract. Within a few months, it became clear to Chief Engineer Ralph Rader and Bridge Engineer Ben Ornburn that Dunnigan was not capable of building the 4-span Pennsylvania through truss bridge. Even though Dunnigan promised to take "steps which [would] probably result in more satisfactory progress in the future", it never did catch up; the company didn't pay its bills, and the highway commission declared Dunnigan in default of the contract in February 1932. Montana Highway Department workers completed construction of the bridge in late 1933. Interstate 94 bypassed the bridge and this segment of US 10 in 1979.²

² Bridge Plans No. 843: Bridge Over Big Horn River (FAP No. 160-D, Unit 2), Yellowstone and Treasure Counties, on file at Montana Department of Transportation, Helena, Montana; Montana State Highway Commission Meeting Minutes, Book 5, 19 (July 22, 1931), 71 (December 2, 1931), 97-98 (February 26, 1932); Jon Axline, *Conveniences Sorely Needed: Montana's Historic Highway Bridges, 1860-1956*, (Helena: Montana Historical Society, 2005), 94.

9. Major Bibliographical References

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

Alt, David and Donald W. Hyndman. *Roadside Geology of Montana*. (Missoula: Mountain Press Publishing, 1991).

Axline, Jon. *Conveniences Sorely Needed: Montana's Historic Highway Bridges, 1860-1956*. (Helena: Montana Historical Society, 2005).

Bridge Inspection File No. L56104002+05001. Montana Department of Transportation, Helena.

State Highway Commission Meeting Minutes. Book 5. Montana Department of Transportation, Helena, Montana.

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:

- State Historic Preservation Office
 - Other State agency
 - Federal agency
 - Local government
 - University
 - Other
- Name of repository: Montana Department of Transportation

Historic Resources Survey Number (if assigned): _____

10. Geographical Data

Acreage of Property 2
(do not include previously listed resource acreage)

UTM References

(Place additional UTM references on a continuation sheet)

1	13	309497 (NAD 27)	5113131 (NAD 27)	3	_____	_____	_____
	Zone	Easting	Northing		Zone	Easting	Northing
2	_____	_____	_____	4	_____	_____	_____
	Zone	Easting	Northing		Zone	Easting	Northing

Verbal Boundary Description (describe the boundaries of the property)

The boundary for the Big Horn River Bridge measures 624 x 25 feet. The boundary encompasses the bridge and its approaches on both sides of the Big Horn River for a distance of 120 feet off each end of the bridge. The boundary is centered on the bridge.

Boundary Justification (explain why the boundaries were selected)

Boundaries for the Big Horn River Bridge are drawn to encompass the bridge spans, its immediate approaches and that portion of the Big Horn River spanned by the bridge. The width is increased beyond the measurements of the structure to include the piers and abutments.

11. Form Prepared By

name/title Jon Axline/Historian

organization Montana Department of Transportation date May 13, 2009

street & number 2701 Prospect Avenue telephone (406) 444-6258

city or town Helena state MT zip code 59620-1001

e-mail jaxline@mt.gov

Montana's Historic Steel Truss Bridges MPS

Additional Documentation

Submit the following items with the completed form:

- **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. Key all photographs to this map.
- **Continuation Sheets**
- **Additional items:** (Check with the SHPO or FPO for any additional items)

Photographs:

Submit clear and descriptive black and white photographs. The size of each image must be 1600x1200 pixels at 300 ppi (pixels per inch) or larger. Key all photographs to the sketch map.

Name: Big Horn River Bridge (24TE120/24YL1603LC131)
County and State: Treasure and Yellowstone counties, Montana
Photographer: Kristi Hager
Date of Photograph: February 2005
Location of original negative: Montana Department of Transportation. Helena, Montana.
Description and view of camera: Big Horn River Bridge. North profile and west portal. View to the southeast.
Photograph: 0001

Paperwork Reduction Act Statement: This information is being collected for applications to the National Register of Historic Places to nominate properties for listing or determine eligibility for listing, to list properties, and to amend existing listings. Response to this request is required to obtain a benefit in accordance with the National Historic Preservation Act, as amended (16 U.S.C.460 et seq.).

Estimated Burden Statement: Public reporting burden for this form is estimated to average 18 hours per response including time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding this burden estimate or any aspect of this form to the Chief, Administrative Services Division, National Park Service, PO Box 37127, Washington, DC 20013-7127; and the Office of Management and Budget, Paperwork Reductions Project (1024-0018), Washington, DC 20503.

United States Department of the Interior
National Park Service

National Register of Historic Places Continuation Sheet

Name of Property Big Horn River Bridge

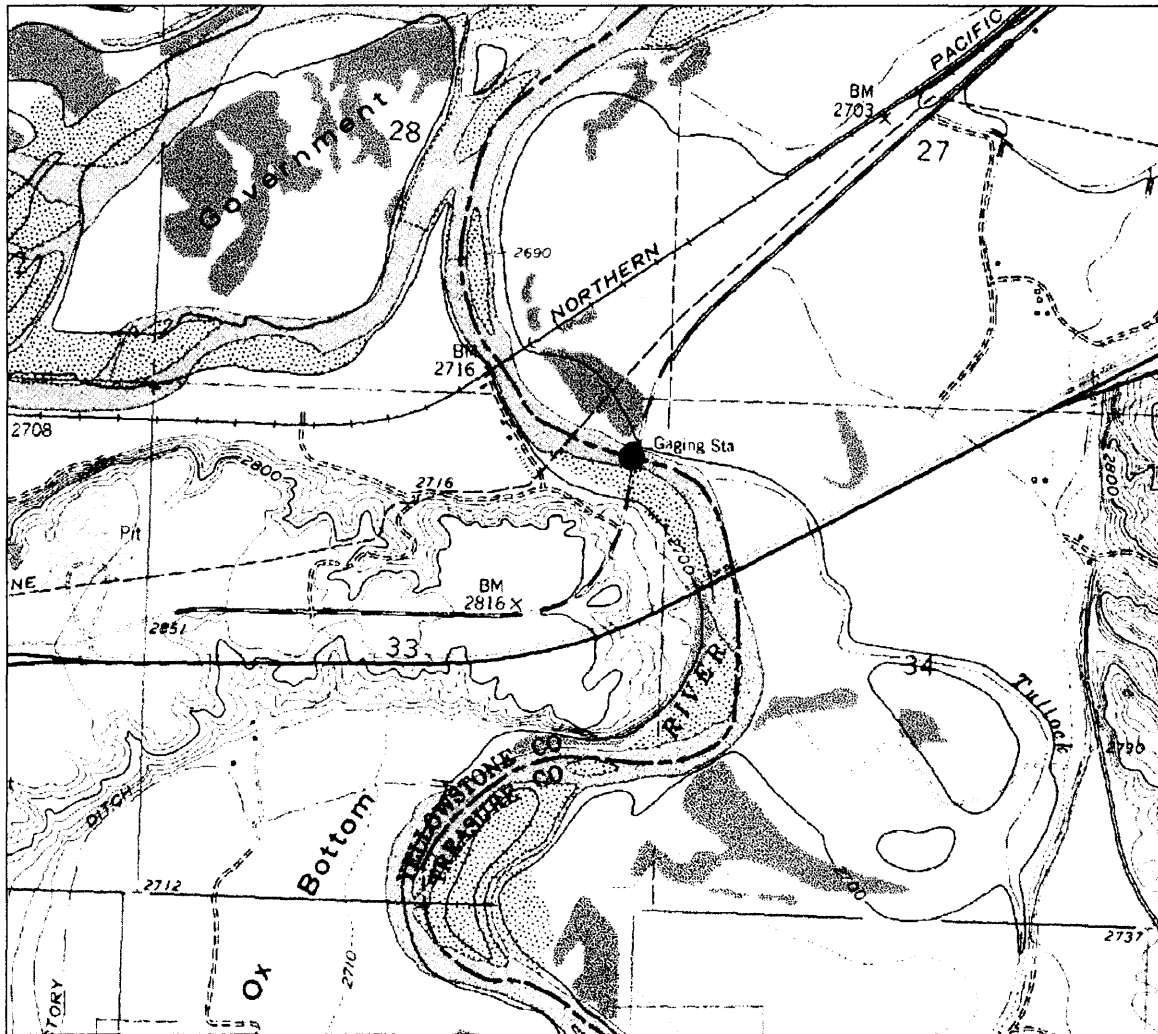
County and State Treasure and Yellowstone Counties, MT

Name of multiple property listing (if applicable)
Montana's Historic Steel Truss Bridges

Section number 10

Page 1

Topographic map



Location of Big Horn River Bridge (T5N R34E S33, Bighorn 7.5' quadrangle map, 1980)

United States Department of the Interior
National Park Service

National Register of Historic Places Continuation Sheet

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Photographs _____

Page 1 _____



Photograph 0001. Big Horn River Bridge. North profile and west portal. View to the southeast.