



1292

United States Department of the Interior
National Park Service

NATIONAL REGISTER OF HISTORIC PLACES REGISTRATION FORM

1. Name of Property

historic name: Dearborn River High Bridge

other name/site number: 24LC130

2. Location

street & number: Fifteen Miles Southwest of Augusta on Bean Lake Road

not for publication: n/a
vicinity: X

city/town: Augusta

state: Montana

code: MT

county: Lewis & Clark

code: 049

zip code: 59410

3. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act of 1986, 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 statewide locally.

Mark Saunders
Signature of certifying official/Title

10/29/2003
Date

Montana State Historic Preservation Office
State or Federal agency or bureau

(See continuation sheet for additional comments.)

In my opinion, the property meets does not meet the National Register criteria.

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
 see continuation sheet
- removed from the National Register
 see continuation sheet
- other (explain): _____

John E. Ball
Signature of the Keeper

12/18/03
Date of Action

5. Classification

Ownership of Property:	Public - Local	Number of Resources within Property	
		Contributing	Noncontributing
Category of Property:	Structure	<u>0</u>	<u>0</u> building(s)
Number of contributing resources previously listed in the National Register:	n/a	<u>0</u>	<u>0</u> sites
		<u>1</u>	<u>0</u> structures
		<u>0</u>	<u>0</u> objects
Name of related multiple property listing:	n/a	<u>1</u>	<u>0</u> TOTAL

6. Function or Use

Historic Functions:

TRANSPORTATION/Road-related - Bridge

Current Functions:

TRANSPORTATION/Road-related - Bridge

7. Description

Architectural Classification:

OTHER: Pratt half-deck truss

Materials:

foundation: STONE/STEEL/CONCRETE

walls: n/a

roof: n/a

other: STEEL

Narrative Description

The Dearborn River High Bridge crosses the North Fork of the Dearborn River in a canyon about fifteen miles southwest of Augusta (the closest community) on Bean Lake Road. The bridge is located about ten miles north of Montana Highway 200 on the Stearns – Augusta Road. The bridge crosses the river in a relatively narrow section of the Dearborn Canyon that extends easterly from where the river leaves the Lewis and Clark Range of the Rocky Mountains.

Geologically, the canyon is composed of sedimentary rocks of the Upper Belt-Missoula and Piegan Groups. Rocks consist of argillites, impure quartz, limestone and dolomites formed during the Late Precambrian 570 to 900 million years ago. The canyon is approximately 90-feet deep where the bridge crosses the river. The rolling grassland terrain north of the bridge consists of glacial outwash from the Pinedale Ice Sheet about 15,000 years ago. Bean Lake is located about two miles northwest of the bridge.

Bean Lake Road approaches the North Fork of the Dearborn River from a northwesterly angle through a natural declivity in the canyon. The bridge itself is located above a river ford once a component of an aboriginal trail used by the original inhabitants of the region (and rumored to be part of the “Old North Trail”). The walls of the canyon on the north rise about 200-feet above the road, while on the south side of the river, the road was cut into the canyon walls. The structure is called the “high” bridge because it crosses the Dearborn River between canyon walls about forty-two feet above the river bed. Because the river bottom through the canyon is about 150-feet in width and relatively level, Native Americans likely followed the river out of the canyon rather than made their way up the nearly vertical walls of the canyon on the south.

Vegetation within the immediate area of the bridge consists of conifers (spruce and fir trees) and deciduous trees (cottonwoods and aspens). Bluegrasses, snowberry, sedges, reed grass, and other intermountain vegetation is located within the immediate vicinity of the bridge.

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The Dearborn River High Bridge is a four-span pin-connected, half-deck Pratt truss structure. The bridge consists of one main span and three steel stringer approach spans. The main span is 160-feet in length and sixteen feet wide. It is composed of eight panels each 20-feet in length. The trusses are twenty-six feet deep. The superstructure of the main span is comprised as follows: the lower lateral cords are forged steel eyebars and the mid lateral cords consist of four angle sections riveted with batten plates connected to the verticals at the floor beam connections with gusset plates. The upper lateral chords are continuous steel plates riveted atop two channel sections with lacing bars riveted along the bottom flanges. The vertical members are laced channel sections and the diagonals are either eyebars or eyebars with turnbuckles. The sway braces are laced angle sections and turnbuckle-style cross-braces. Lateral bracing is provided by turnbuckle-style cross-braces between the struts and between the floor beams. There are nine steel I-beam floor beams each fifteen inches deep. The floor beams support eleven lines of three-and-one-half inch by twelve inch timber stringers. The timber deck is flanked by crash resistant aluminum guardrails installed during rehabilitation of the bridge in the summer of 2003. The bridge has two lines of timber running boards.

The single riveted plate girder approach span on the south is thirty feet long and sixteen feet wide. The stringers are horizontal and composed of six lines of three-and-one-half inch by twelve inch timber beams each sixteen feet in length. Like the main spans, the deck is timber and flanked by crash resistant aluminum guardrails. There are two skewed riveted plate girder approach spans on the north. Each is thirty feet in length and sixteen feet wide. Each approach span is comprised of six horizontal lines of three-and-one-half inch by twelve inch timber beams each sixteen feet in length.

The substructure of the bridge is composed of two encased concrete steel tubular piers on the south and two steel-encased concrete tubular piers on the north. The piers are four feet in diameter and composed of Portland cement encased by steel caissons riveted at the seams. At the south end, the superstructure is connected to the piers by cast steel roller bearings. The superstructure is anchored to the north piers by steel pins. The bent between the two north approach spans consists of a new concrete footing installed in the summer of 2003. The abutment backwalls are rubblestone on the north. The north end of the north approach span on the south rests on a shelf cut into the rock of the canyon wall.

Integrity

During the Summer of 2003, the Montana Department of Transportation (MDOT) rehabilitated the bridge to ensure that it could remain in use. Changes were limited to the installation of crash resistant aluminum guardrails and reconstruction of the concrete bent between the north approach spans to replace the deteriorated concrete. During the mid-1980s, the MDOT replaced the deteriorated original timber stringers. Despite these relatively minor changes, the integrity has been retained. That integrity extends to the approach roads through the rocky defile of the canyon and the hand-lain rubblestone walls of the south abutment. Both from the deck and below the structure, the bridge appears as it did in 1897. Integrity of location is intact as is feeling and setting. The bridge is still located in a rural area of northern Lewis and Clark County and still carries traffic between the community of Augusta and Interstate 15 (then U.S. Highway 91) as it did during the historic period. The setting of the site has not changed as the narrow canyon crossing, the Dearborn River and the surrounding area still functions as an agricultural region. Indeed, this rare example of a pin-connected, half-deck, Pratt truss bridge retains all its essential elements of design, workmanship and materials. It appears and functions as it did in 1897, as a remote crossing of the North Fork of the Dearborn River in northern Lewis and Clark County.

8. Statement of Significance

Applicable National Register Criteria: A, C

Areas of Significance: ENGINEERING; TRANSPORTATION

Criteria Considerations (Exceptions): n/a

Period(s) of Significance: 1897 – 1936

Significant Person(s): n/a

Significant Dates: 1897

Cultural Affiliation: n/a

Architect/Builder: King Bridge Company/Cleveland, Ohio

Narrative Statement of Significance

The Dearborn River High Bridge is a rare example of a pin-connected half-deck Pratt truss bridge. The half-deck configuration of this bridge is unusual in that the floor beams are attached to the vertical members near their mid-points rather than at their top or bottom as in the deck and through configurations, respectively. The half-deck was a rarely built design and the Dearborn River Bridge may be the only remaining example of this type in the United States. The bridge is eligible for the National Register of Historic Places under Criterion A because of its association with the first great period of modern bridge-building in Montana and with the bridge construction company phase of the development of the state's transportation system from 1887 to 1915. It is also associated with the agricultural development of the upper Dearborn River as it facilitated the movement of livestock and agricultural goods between the area and the Montana Central Railroad station at Wolf Creek thirty miles to the south.

The bridge is eligible for the National Register under Criterion C because it is a rare type of bridge that was not constructed in great numbers in the United States before World War One. Although it is unclear from the historic record why this particular design was chosen (the designs submitted by the other eight bridge construction companies for this project have not survived), deck truss bridges were generally used for canyon crossings over relatively shallow rivers. The site conditions at this location merited the construction of what was likely the first vehicular deck truss (or half-deck truss) bridge in Montana. An inquiry of the King Bridge Company website and of the Texas Department of Transportation (where the other three remaining examples of this type of bridge were rumored to be located) failed to reveal any specific information about the Dearborn River High Bridge or of half-deck truss bridges. Indeed, the Texas Department of Transportation confirmed that there were no bridges of that style left in Texas.¹ This bridge may, indeed, be the last remaining example of its type in the United States.

Historical Information

The bridge site has been called Pend d'Oreille Crossing since at least 1859 when railroad surveyor P. M. Engel camped with a band of Pend d'Oreille Indians near there during a December blizzard. The crossing is reached along the river bottom on the south side of the Dearborn River on the west side of the bridge, crossing the river immediately below the bridge location and the proceeding along the north side of the river east of the bridge; the route of the trail and the ford is still plainly visible. Although the crossing was used by the Pend d'Oreille and Salish to access buffalo country, it is located well within the Blackfeet Indians' traditional territory. The southern Blackfeet clan wintered and hunted buffalo in this area and also collected plants here during the late spring and summer months. The crossing was part of a traditional travel corridor, providing one of the few natural routes around the Chinese Wall, an inaccessible stretch of cliffs, in what is now called the Bob Marshall Wilderness. The river bottom in the canyon at the crossing provided shelter to the Blackfeet as well as materials important to the maintenance of Native American bands.²

¹ Texas Department of Transportation, telephone interview with Jon Axline, September 2001.

² Terry Tatsey, Blackfeet Community College, interview with Jon Axline, August 12, 2003.

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On July 18, 1805, the Lewis and Clark Expedition passed by the mouth of a "considerable river" on their journey up the Missouri River. Lewis christened it the Dearborn in honor of U.S. Secretary of War Henry Dearborn. On the return trip back to St. Louis the following year, Lewis took a shorter, alternate route that largely followed an aboriginal trail through the Rocky Mountains to the Great Plains. After crossing over Lewis and Clark Pass, he struck the Dearborn in the general area of the Dearborn River High Bridge on July 8, 1806. Lewis did not, at first, recognize it as the same river they had passed the previous July. He named it the "Tarrant" river and described it as

[T]his stream comes [from] the S.W. out of the mountains which are 5 Ms. to our left. The bed of the river is about 100 yds. wide tho' the water occupys [sic] only about 30 yds. [It] appears to spread over its bottoms at certain seasons of the year and runs a near torrent [sic] tearing up the trees by the roots which stand in its bottom [hence the name we have given it]."

The river, however, was deep inside the territory claimed by the Blackfeet Indians. Consequently, other than a few foolhardy trappers and traders, the Dearborn River country remained largely unexplored by non-Indians until well into the 19th century.³

The Fort Laramie Treaty of 1851 established the boundaries of Blackfeet territory on the northern Great Plains. Although the treaty defined the area where the U.S. recognized Blackfeet influence, it did not prevent the tribes west of the Rocky Mountains from utilizing the upper Dearborn River country for bison hunts. In 1853, the U.S. Congress directed Washington territorial governor Isaac Stevens to survey the northern Great Plains and Rockies for the route of a planned transcontinental railroad. In order to placate the tribes and facilitate the survey, Stevens developed treaties between the affected tribes and the U.S. Government. He successfully concluded a treaty with the Blackfeet at the confluence of the Judith and Missouri rivers in October 1855. The treaty established the boundaries of the Blackfeet Reservation north of the Dearborn River. The area south of the river, however, remained a sort of No Man's Land that was open to all the tribes and, especially, non-Indian mineral exploration and transportation development. The Blackfeet, however, continued to dominate the region and, in the process, discouraged non-Indian exploitation of the area.⁴

Thus, it was not until 1859 that there was any large-scale non-Indian exploration of the Dearborn River drainage. In November, 1859 U.S. Army topographer P. M. Engel passed through the region in search of a practicable route for a planned military road between Fort Walla Walla, Washington and Fort Benton on the upper Missouri River. The wagon road was a result of Stevens' railroad survey that was promoted by Lieutenant John Mullan. When completed, it would speed the movement of supplies and troops between the Pacific Northwest and the steamboat port on the upper Missouri. Moreover, it would also help the military control the Blackfeet as the planned road would pass through the reservation established in 1855. Caught in a snowstorm, Engel was able to establish a rude alignment for the road. He, too, provided a description of the Dearborn River Valley as "richly timbered, but cut up by a great many sloughs and ditches, which run in every direction. The river is a shallow stream of from 50 to 60 feet in width, with a gravelly bottom and swift current." High winds forced Engel and his companions to seek shelter with a large Pend d'Oreille camp on the river.⁵

Mullan himself did not, apparently, explore the Dearborn Valley until the following year while building the road to Fort Benton. In July, 1860, he and his construction crew "left both the mountains and their spurs behind . . . and emerged upon the broad swelling prairies of the upper Missouri." He described the Dearborn River as

[Rising] in the main chain of the Rocky Mountains and for 6 or 7 miles winds through a deep sandstone gorge, when its hills gradually recede, giving place to prairie bottoms covered with cottonwood. Its stream is 200 feet broad and fordable, except during the freshet, at which period it is subject to rises that flood its banks and sweep everything before it.

3 Gary E. Moulton, ed., *The Journals of the Lewis & Clark Expedition*, 4 (Lincoln: University of Nebraska Press, 1987), 398-399; Moulton, *Ibid* 8, 96-97, 103; Newton Carl Abbott, *Montana in the Making*, (Billings: Gazette Printing, 1964), 72, 76; Merrill G. Burlingame, *The Montana Frontier*, (Helena: State Publishing, 1942), 5, 6.
4 Michael Malone, Richard Roeder and William Lang, *Montana: A History of Two Centuries*, rev. ed., (Seattle: University of Washington, 1991), 116, 117; Burlingame, *Montana Frontier*, 33, 36, 107.
5 John Mullan, *Report on the Construction of a Military Road from Fort Walla-Walla to Fort Benton*, (Washington DC: Government Printing Office, 1863), 145; Burlingame, *Montana Frontier*, 129, 130-131.

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Despite his disregard of the valley in his 1863 report to Congress, by 1865 Mullan's opinion about the region had apparently changed. Instead of a wild river passing through an empty prairie, the region now promised would-be farmers an unlimited natural bounty that was ideally situated midway between the mines at Last Chance Gulch and Fort Benton. Indeed, it was composed of rich soil, good supplies of timber and rock for building, abundant game and was sheltered by high rock walls that blocked the "cold bleak winds [that] sweep across the plains...." The Mullan Road passed about nineteen miles southeast of the future site of the High Bridge; after the discovery of gold at Alder Gulch in 1863 and Last Chance Gulch in 1864, the road became one of the most heavily traveled freight and emigrant routes in newly created Montana Territory. Nonetheless, continued depredations by the Blackfeet discouraged settlement of the area until after the construction of Fort Shaw on the Sun River in 1867.⁶

Jealously protected by the Blackfeet, Euro-American development of the upper Dearborn River valley began in the wake of the massacre on the Marias River by the U.S. Army under the command of Major Eugene Baker in January 1870. The Baker Massacre was followed by a reduction in the size of the Blackfeet Reservation to a line north of the Sun and Missouri rivers in 1871. Prior to this, non-Indian presence in the region was small, limited to a few trappers and traders and traffic on the Benton Road. With the removal of the Blackfeet, however, huge tracts of what had once been prime Bison grazing territory were opened up to Euro-American ranchers. Deer Lodge rancher Conrad Kohrs drove the first cattle herd into the upper Dearborn in 1869. Other ranchers, including David Auchard, the Clemons Boys, Warren Gillette, and Stephen Mosher, followed him in the mid-1870s. Through pre-emption, desert and timber homestead entries, they were able to amass huge tracts of land over which to run their cattle. They were also aided by the Northern Pacific Railroad, which had been granted alternating sections of land as part of their seventeen million acre land grant through Montana in 1864. Although isolated from the mining camps, these ranchers found lucrative markets for their cattle and sheep in Helena, Fort Benton and Virginia City. They also raised large horse herds for sale to the freighting and stage companies that crowded the Benton Road to the south. From 1883 to 1887, twelve men and women had filed for 160 acre homestead claims in Township 18 North, Range 6 West encompassing the future site of the Dearborn River High Bridge. Those same people also ranged their livestock on Northern Pacific land, eventually purchasing it from the railroad beginning in 1895.⁷

The completion of the Montana Central Railroad along the Missouri River in 1887 caused a boom in the settlement of the upper Dearborn River. Previously the domain of a few ranchers, the population of the region increased as would-be farmers claimed 160-acre homesteads under the 1862 Homestead Act. Indeed, the population more than doubled in T18N, R6W from 1887 to 1897. Of those, approximately forty-six percent obtained the patent to the homesteads. They, in turn, also bought Northern Pacific Railway land in the odd-numbered sections. Some of the older residents of the area, like David Auchard, resented the newcomers and fenced off large portions of their property.

To serve the growing population, small ranch communities were established around post offices. The Clemons post office, for example, was established in 1898 about two miles northwest of the bridge site. Another, in Hogan, opened in a ranch house in 1887 and remained in existence until 1919. The preeminent community in the region was Augusta. Established as a trade center for area ranches in 1883, the community experienced steady growth through the nineteenth century as the population of the region grew. Augusta was important as a trading center for the local ranchers and farmers and was strategically located at the junction of two major roads between Helena and Great Falls. Although Augusta lost the fight for a railroad branch line to Gilman in 1912, it continued to thrive, eventually obtaining a much sought-after railroad spur in December 1922. Today, Augusta is still the trading center for the upper Dearborn River Valley. Beginning in 1897 with the construction of the Dearborn River High Bridge, Augusta also became the focus of significant bridge construction activities that continued until 1901.⁸

⁶ Mullan, *Report on the Construction of a Military Road*, 26; John Mullan, *Miners' and Travelers' Guide*, (Fairfield, Washington: Ye Galleon Press, 1991), 56; Hamilton, *History of Montana: From Wilderness to Statehood* (Portland, Oregon: Binfords & Mort, 1957), 319; William Turrentine Jackson, "Wells Fargo Stagecoaching in Montana: Into A New Territory." *Montana The Magazine of Western History*, 29:1 (Winter, 1979), 51.

⁷ Malone et al., *Montana*, 120-121, 150, 173; Burlingame, *The Montana Frontier*, 43, 224-225; Dearborn Homemakers, *Dearborn Country: A History of the Dearborn, Wolf Creek, and Craig Areas*. (Wolf Creek: Dearborn Homemakers, 1976), 55-56; Augusta Heritage Committee, *In the Shadows of the Rockies: A History of the Augusta Area*, (Fairfield: Fairfield Times, 1978), 142; Roberta Carkeek Cheney, *Names on the Face of Montana: The Story of Montana's Place Names*, (Missoula: Mountain Press, 1990), 55; Montana Land Tract Books.

⁸ Montana Land Tract Books; U.S. Census Records, 1880, 1900; *Helena Independent*, July 16, 1897; Dearborn Homemakers, *Dearborn Country*, 56, 190; Cheney, *Names on the Face of Montana*, 55, 138; Don Spritzer, *Roadside History of Montana*, (Missoula: Mountain Press, 1999), 263-264; Jeffrey L. Cunniff, "A Tale of Two

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As the population of the upper Dearborn Valley grew in the 1890s, so too did the need for an improved transportation system to allow easier access to Augusta, Gilman and Wolf Creek. The 1872 General Land Office map showed no roads or bridges in the vicinity of the Dearborn River High Bridge. The scattered ranches that were sprinkled across the region before 1887 did not require an extensive road system as cattle were typically driven to either Great Falls (after 1884) or Helena. By the early 1890s, however, the increasing number of people in the region demanded more and better roads. Evidence suggests that local residents utilized the old Indian trail known as the Pend d'Oreille Trail, crossing the river at the ancient ford. In 1896, the Lewis & Clark County Commissioners officially established a road between Augusta and Bean Lake that was later extended to include the old Pend d'Oreille Crossing. After the establishment of the county road (which wasn't embraced by all the residents in the district), the commissioners began to make plans to construct a bridge at the crossing. In late October 1896, the county contracted with Hugh and Thomas Kirkendall to grade "3,700 linear feet of county road ... on both sides of the North Fork of the Dearborn River approaching [the] bridge site near the Pend d'Oreille Crossing." The Kirkendalls won the contract with a low bid of \$3,181. The work was completed shortly before construction began on the bridge.⁹

On December 11, 1896, the county commissioners instructed County Clerk Charles W. Clark to advertise for the construction of a 250-foot "deck" bridge at the Pend d'Oreille Crossing of the North Fork of the Dearborn River about two miles southeast of the Clemons post office. Bids for the bridge were due at the Lewis & Clark County Courthouse on January 13, 1897. On the morning of January 14th, the commissioners reviewed the plans and specifications for the bridge. That afternoon, they opened the eight bids received for its construction. Proposals ranged from a high of \$10,435 offered by the Milwaukee Bridge & Iron Works company, to a low of \$9,989 proposed by the King Bridge Company of Cleveland, Ohio. Commission Chairman Elizur Beach rejected all the bids submitted for the construction of the bridge because they were too high.¹⁰

The Commission met again the following day, January 15, 1897, with representatives of the bridge construction companies to reconsider the bids received for the bridge. The eight firms recalculated the bids and again submitted them to the county commissioners for consideration. The commissioners had, apparently, liked the design submitted by the King Bridge Company the previous day for the bridge. The commissioners felt that the amended bid of \$9,150 was still too high. They were, however, able to negotiate a lower price with the King Company agent, M.A. Adams. Consequently, the commissioners awarded the bridge contract to the King Bridge Company for an amended bid of \$9,000 on January 16th.¹¹

The county commissioners accepted the King Bridge Company's bond on February 1, 1897. Civil Engineer George K. Reeder approved the plans and specifications for the bridge on February 19, 1897. A native of Iowa, Reeder arrived in Helena in 1883 and went to work as a Chief Clerk and Draftsman for the Surveyor General's Office. In 1888, he opened an engineering firm with Charles Helmick. Reeder dissolved the partnership in 1894 and went into business for himself. Shortly after the completion of the High Bridge, he closed the firm in Helena and became a partner in the W. C. Gillette Company ranch headquartered near Craig. On March 10, 1897, the commissioners paid civil engineer Albert S. Hovey \$24.90 for copies of the plans and specifications for the bridge. Sometime between March 10 and 15, 1897, the steel for the bridge was shipped to Wolf Creek, Montana over the Montana Central Railroad and then hauled by wagon to the construction site about thirty miles northwest of the railroad station. The King Company requested and received payment of \$4,500 on March 15th.¹²

In early June 1897, however, Northern Pacific Railroad Chief Land Examiner Tom Cooney notified the county commissioners that the newly designated county road (that included the bridge) had caused damages to a landowner, Stephen W. Mosher. One of the earliest settlers in the Dearborn Country, Mosher filed on a 160 acre homestead in Section 18, T18N, R6W in 1887. Over the next 15 years he

Towns: Gilman and Augusta," *Montana The Magazine of Western History*, 26:2 (Spring, 1976), 52-53.

⁹ General Land Office Map, 1872; Montana Land Tract Books; Dearborn Homemakers, *Dearborn Country*, 20-21, 190; Augusta Heritage Committee, *In the Shadow of the Rockies*, 83; Commissioners Journal 6, 20, 22, 101-102, 154; *Helena Weekly Herald*, April 22, 1897; *Progressive Men of the State of Montana*, (Chicago: A. W. Bowen, 1902), 253-254; A. D. Raleigh, *Twentieth Century Souvenir: Lewis and Clarke County*. (Helena: The Author, c. 1901), 18.

¹⁰ Commissioners Journal 6, 177-178, 236, 237; *Helena Independent*, December 12, 1896.

¹¹ Commissioners Journal 6, 238, 239; *Helena Independent*, January 17, 1897.

¹² Commissioners Journal 6, 243, 260, 274, 275; Plans, Dearborn River Bridge, Lewis & Clarke County, Montana, February, 1897; Dearborn Homemakers, *Dearborn Country*, 279; R. L. Polk, 1883-1898; *Helena Independent*, January 17, 1897.

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added to his land holdings through preemption claims, and desert and timber entries. He also built up his sheep empire in the area through the purchase of land. It is unclear what the damages entailed other than it might have involved the vindictiveness of the property's previous owner David Auchard, who was, according to the historic record, less than pleased by the number of farmers moving into the area. It is probable that the commissioners did not consult with Auchard or Mosher about the establishment of the road before it was designated a county facility. Because there are no other references to the issue in the county commissioner records, it was likely settled amicably by the parties involved.¹³

Construction of the Dearborn River High Bridge was largely completed by the time the King Bridge Company submitted its final bill for \$4,500 on July 1, 1897, two weeks after the June 15th deadline specified by the county in the contract. Consulting engineer Reeder and County Surveyor John W. Wade refused to accept the structure on the county's behalf because of two deficiencies in the bridge: the ends of the deck planks had not been sawed off to a uniform length and the steel pier caissons had not been completely filled with concrete as stipulated in the plans and specifications for the bridge. By July 17, 1897, the problems had been remedied and the county accepted the bridge from the King Bridge Company.¹⁴

The Dearborn River High Bridge has historically served the farmers and ranchers along the front range of the Rocky Mountains in northern Lewis & Clark County. The bridge provided access to the Great Northern Railroad spur at Augusta and the Montana Central line at Wolf Creek. From about 1897 to the early 1930s, it functioned as one of two vehicular routes between Helena and Great Falls. Today, most of the traffic over it is from area residents and recreationists utilizing the North Fork of the Dearborn River.

The Dearborn River High Bridge is located on the old road between Helena and Great Falls. Secondary Highways 434 and 435 were originally designated a "Federal Aid Primary" route shortly after the creation of the Montana Highway Commission in 1913. By 1922, however, Lewis and Clark County, with the guidance of the Highway Commission, established a shorter route to Great Falls (old U.S. Highway 91). The road between Wolf Creek and Augusta then served as a major route to Choteau and points north. The old road again reverted to county jurisdiction with the completion of U.S. Highway 287 in the mid 1930s. From the 1860s to 1936 the old road provided an important transportation corridor between the farms and ranches north of Helena and Great Falls. The Dearborn River High Bridge was an important component of that road. For these reasons, the bridge is eligible for listing in the National Register of Historic Places under Criterion A.

The King Bridge Company

Formed by self-taught bridge engineer Zenas King in Cleveland, Ohio in 1858, the King Bridge Company was one of the most prolific bridge builders in the United States by the end of the 19th century. Like many of his contemporaries in the early 19th century, King was a trained carpenter who later put his expertise to practical use as a bridge builder. Zenas went to work as a salesman for Cincinnati bridge builder Thomas Moseley in 1857 before establishing his own company, the King Iron Bridge & Manufacturing Company, in Cleveland the following year. King specialized in the construction of iron bowstring arch bridges, for which he obtained a patent in 1861. A shrewd businessman, he also hired sales agents all over the eastern United States, including Iowa, Missouri and Texas to sell the company's products. After the completion of the first transcontinental railroad in 1869, he tried to break into the bridge-building business west of the Mississippi River. To that end, he established fabrication factories in Kansas and a field office in Des Moines by the mid-1870s. By 1882, King claimed to have constructed 5,000 bridges – mostly in the New England and Mid-Atlantic states.¹⁵

By the 1880s, competition between the bridge construction companies was intense throughout the United States as the railroads and local governments sought to improve their infrastructures. Like their counterparts in the railroad and steel industries, the bridge companies were compelled to form pool arrangements whereby certain firms would, in a sense, monopolize the industry in specific

¹³ In July 1897, Auchard fenced off portions of the Fort Steele and Silverman roads in the area. Both roads crossed his land and had been in use for more than 20 years. An article appearing in the *Helena Independent* indicated that Auchard fenced off the roads to prevent his neighbors, most of whom were farmers, from using the road. There was no follow-up article in the newspaper so it is not known the outcome of the dispute. Commissioners Journal 6, 294; Dearborn Homemakers, *Dearborn Country*, 190; Augusta Heritage Committee, *In the Shadows of the Rockies*, 73, 323; *Progressive Men*, 1742; Montana Land Tract Books; *Helena Independent*, July 16, 1897.

¹⁴ *Helena Independent*, January 17, 1897; Commissioners Journal 6, 336, 337.

¹⁵ Allan King Sloan, "Discovering Zenas King." Paper presented at the annual meeting of the Society for Industrial Archeology, Savannah, Georgia, June, 1999.

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areas in the states. The pool participants would contribute thirteen percent of their profits on a specific project into the pool "which would then distribute the accumulated sums to the participants based on the size of the company." Although never entirely legal, this was a method companies used in a highly competitive market to ensure work and maximize profits. Although the county governments often also conspired with the bridge companies, they did not always receive a good bridge in the bargain. In at least two instances, bridges constructed by the King Iron Bridge & Manufacturing Company suffered catastrophic failures. It is not clear in what regions this occurred, but Zenas King and six other companies formed a successful bridge pool in 1883. Bridge pooling was certainly a common practice in Montana beginning in the 1890s. Still, there is no evidence that the King company was a participant in the practice in the state. Other companies active at that time, such as William S. Hewett of Minneapolis, the Billings-based Security Bridge Company and O.E. Peppard of Missoula, were inarguably involved in bridge pooling during this period.¹⁶

Just prior to his death in October 1892, Zenas finally broke into the Montana bridge market with the construction of two bridges in Madison County. Both were pin-connected Pratt through trusses. One (24BE1564) crossed the Beaverhead River at Twin Bridges and other Blaine Springs Creek (24MA780) south of Ennis. With Zenas's death, his son, James, took over control of the firm and renamed it the King Bridge Company. Under James's leadership, the company finally became a prolific bridge builder in the western United States. Evidence suggests that while the company frequently bid on county bridge projects, it was not often successful because of the state's pre-existing bridge pool agreements.

The company was, however, successful in Lewis & Clark County, obtaining the contract to build the Dearborn River High Bridge (24LC130) in 1897 and the Elk Creek, Smith Creek, and Flat Creek bridges in the northern part of the county in 1901. The company also constructed bridges across the Jefferson River in Madison County in 1897, the Madison River (24MA779) in 1898 and the Musselshell River in 1900 (24GV145). There are, undoubtedly, more King-built bridges in Montana that have not, as yet, been identified. But as the pooling agreements solidified after the turn-of-the-twentieth century, the King Bridge Company was increasingly edged out of the Montana market in favor of the Minnesota and Montana based companies. The Minnesota companies had direct access to the state over the Northern Pacific and Great Northern railroads. They also had active field offices in the state, while the King Bridge Company did not. There also appears to have been a definite swing in favor of the Montana-based firms, specifically the Security Bridge Company and O. E. Peppard. Although these firms were able to construct relatively modest steel truss bridges, the major river crossings were beyond their abilities and the counties relied more on firms based in the Midwest. The King Bridge Company, unfortunately, did not build any "Bragging Bridges" in Montana other than the Dearborn River High Bridge.¹⁷

With the inclusion of markets in the western United States, the King Bridge Company increased its bridge shop output from 18,000 to 30,000 tons per year between 1894 and 1903. It was the largest bridge company based in Ohio and was, nationally, second only to the Pennsylvania-based American Bridge Company. During the first decade of the 20th century, the federal government aggressively sought to break up the bridge pools through enforcement of the 1890 Sherman Anti-Trust Act. Because the pool agreements, however, were not formal pacts, but were more "gentlemen" agreements, the government had a difficult time eliminating something that was advantageous to industry and to the county governments. Consequently, other means were sought to break the power of the pools. The Good Roads movement and the U.S. Department of Agriculture tried to remedy the situation by promoting modern, scientifically engineered bridges and the creation of state highway departments to oversee road and bridge construction in the states. Standardized and efficient bridges that would best serve the public good were an important part of the Progressive reform movement of the early 20th century. Through legislation beginning in 1903 and culminated in the Federal Aid Road Act of 1916, the federal government sought to end the "good old boy" system by giving the state and federal governments control of road and bridge construction.

The availability of federal funds through the 1913 Post Office Appropriation Act probably induced the state legislature to create the Montana Highway Commission in March 1913. The Commission created a state bridge department in 1915, whose primary responsibility was to develop standardized bridge designs and oversee the bidding and construction process in the counties. This

¹⁶ Sloan, *Ibid*, 1999; Jon Axline, *Monuments Above the Water: Montana's Historic Highway Bridges, 1860 - 1956*. (Helena: Montana Department of Transportation, 1993), 8, 10; Fredric L. Quivik, *Historic Bridges in Montana*, (Washington DC: National Park Service, 1982), 33, 38-39, 41, 43.

¹⁷ The Beaverhead River Bridge was relocated to a site just east of the community of Glen in 1947. It provided a crossing of the Big Hole River until 2000 when it was demolished by the Montana Department of Transportation after an unsuccessful attempt to find a new owner for the structure. Sloan, "Discovering Zenas King," 1999; Axline, *Monuments Above the Water*, 8, 10.

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development spelled the doom of the bridge construction companies in Montana. Instead of highly individualized structures built, essentially, by non-professional engineers, the state's infrastructure was increasingly dominated by standardized riveted Warren through or pony truss bridges. The loss of previously lucrative markets is likely what caused the King Bridge Company to branch out into the construction of prefabricated steel building frames rather than concentrating only on bridges. By 1923, declining revenues caused the King Bridge Company to go out of business.¹⁸

Engineering Significance

Few bridges in Montana have drawn as much attention and interest as the Dearborn River High Bridge. Located in a spectacular canyon approximately 18 miles south of August on Montana Secondary 434, the bridge may be the only surviving example of this design in the United States. For this reason, it is eligible for listing in the National Register under Criterion C. The bridge consists of four spans, including the 160 foot half deck truss. It is 16 feet wide and has plank deck supported by timber stringers and steel I beam floor beams. The main span rests on concrete piers encased by steel - common to bridges built in Montana before 1915.

Called a half-deck truss, the bridge is a standard Pratt truss but with the deck attached midway on the superstructure rather than to the top or bottom cords as is common to truss bridges. Developed in the mid 1840s, the Pratt truss provided a low maintenance, durable and easily prefabricated bridge that could accommodate the expanding railroad and highway systems in the United States. One of first scientifically designed truss-types, engineers modified the design until it was the standard all steel truss bridge on both railroads and highways by 1890. The majority of steel highway bridges constructed in the United States during the first years of the 20th century were Pratt trusses. Part of the appeal of the truss was the pin-connections. Instead of rivets, pins held together many of Montana's early bridges. This simplified construction process and allowed the easy prefabrication of bridge components by the eastern factories. Pin-connections were standard to truss bridges until about 1909.

Even considering the large number of Pratt truss bridges built and still remaining in Montana, the Dearborn River High Bridge design is unusual. The bridge spans a river chasm, which made the use of a through truss difficult. By the 1920s, the Montana Department of Transportation commonly used deck truss bridges to span similar obstacles (modern deck truss bridges are located on Orange Street in Missoula, Montana and at Gardiner, Montana). The Dearborn River Bridge is, essentially, an early form of the deck truss. The type of bridge was ideal for use on this kind of crossing because it could carry relatively light loads across deep crossings.

Conclusion

Clearly, the Dearborn River High Bridge is eligible for listing in the National Register of Historic Places under Criteria A and C. The bridge is eligible for the National Register of Historic Places under Criterion A because of its association with the first great period of modern bridge-building in Montana and with the bridge construction company phase of the development of the state's transportation system from 1887 to 1915. It is also associated with the agricultural development of the upper Dearborn River as it facilitated the movement of livestock and agricultural goods between the area and the Montana Central Railroad station at Wolf Creek thirty miles to the south. It survives as an excellent example of a rare bridge type and serves as a reminder of the early days of transportation in Montana.

¹⁸ Sloan, "Discovering Zenas King," 1999; Axline, *Monuments Above the Water*, 8, 10, 12-15; Federal Highway Administration, *America's Highways, 1776-1976* (Washington DC: U.S. Department of Transportation, 1976), 80-81; M. J. Steere, *History of the Montana State Highway Department, 1913 - 1942* (Helena: State Highway Commission, 1943), 9-11; Quivik, *Historic Bridges*, 43-44; George R. Metlen, *Report of the Montana State Highway Commission, 1915 - 1916*, (Helena: Montana Highway Commission, 1916), 4-8.

Dearborn River High Bridge
Name of Property

Lewis & Clark County, Montana
County and State

9. Major Bibliographic References

See continuation sheet

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 -- Specify Repository:

10. Geographical Data

Acreage of Property: less than one

UTM References: Zone Easting Northing (NAD 27)
12 394851 5237138

Legal Location (Township, Range & Section(s)): NE $\frac{1}{4}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$ of Section 29, T18N, R6W

Verbal Boundary Description

The boundary for the Dearborn River High Bridge is a rectangle 400 x 20 feet. The rectangle encompasses the bridge and its approaches on both sides of the North Fork of the Dearborn River for a distance of 120 feet off each end of the bridge. The boundary is centered on the bridge.

Boundary Justification

Boundaries for the Dearborn River High Bridge are drawn to encompass the four spans of the bridge, its immediate approaches and that portion of the North Fork of the Dearborn 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
street & number: 2701 Prospect Avenue
city or town: Helena state: MT
date: January 2002, updated October 2003
telephone: 406-444-6258
zip code: 59620-1001

Property Owner

name/title: Lewis & Clark County
street & number: City County Building, 319 North Park
city or town: Helena state: MT zip code: 59604

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