PHOTOGRAPHS

AND

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

Final

HISTORIC AMERICAN ENGINEERING RECORD
Submitted to:
Oklahoma State Historic Preservation Office
Oklahoma Historical Society
Oklahoma History Center, 800 Nazih Zuhdi Dr.
Oklahoma City, Oklahoma 73105
April 2015
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PHOTOGRAPHS

HISTORIC AMERICAN ENGINEERING RECORD

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SAND CREEK CAMELBACK PONY TRUSS Nash vicinity Grant County Oklahoma JP Number 23655(04) Structure Number 27E0180N2800006 NBI Number 09391

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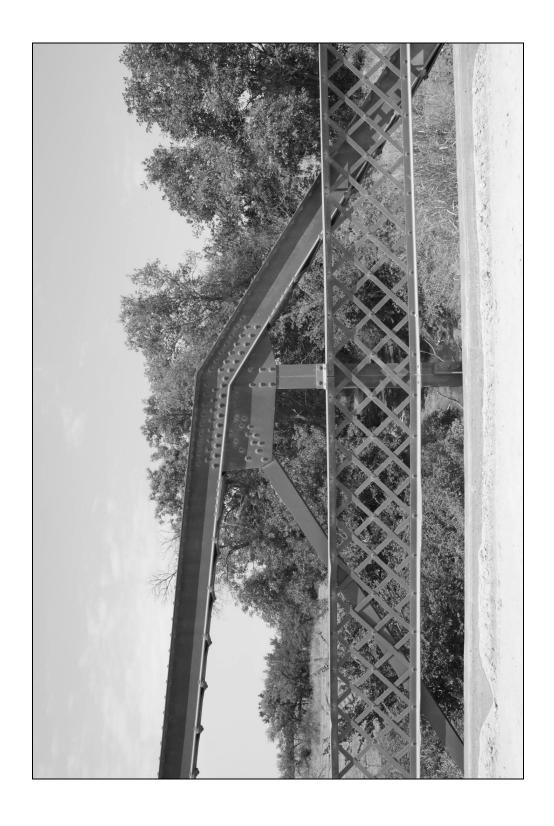
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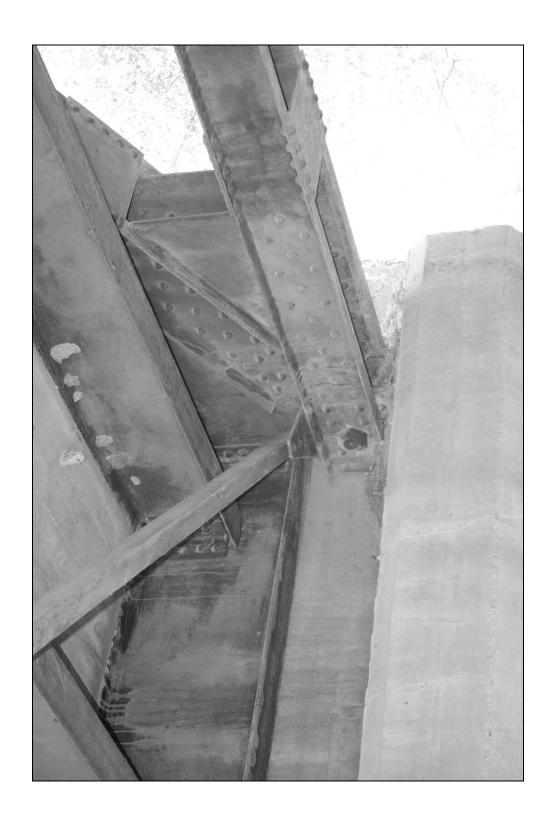


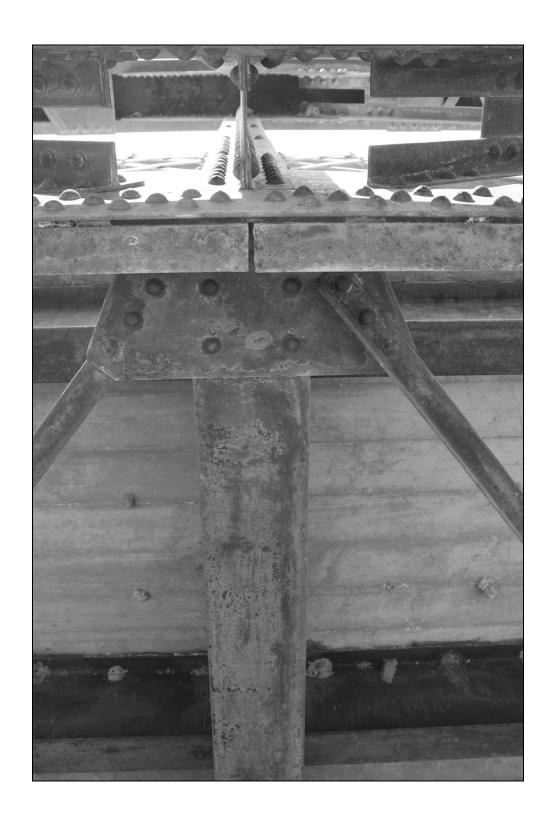














WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD

SAND CREEK CAMELBACK PONY TRUSS

Location: Spanning Sand Creek approximately 1 mile east of the community of

Hawley in southwestern Grant County. UTM: Zone 14, 588509E, 4067940N

Legal Location: T26N, R8E, on the section line between Section 1 and Section 12.

Map Reference: U.S.G.S. 7.5' series, Sand Creek, OKLA (1936)

Present Owner: City of Buffalo, Oklahoma

Oklahoma Department of Transportation (ODOT) Structure Number

27E0180N2800006

Present Use: Pedestrian and golf cart traffic

Significance: The Sand Creek Camelback Pony Truss Bridge, built in 1936, is a rare

example of a six-panel, Camelback pony truss bridge in north central Oklahoma. Most bridges of this design type have five panels per span. The bridge is also a Works Progress Administration (WPA) bridge that provided the state with improved infrastructure, while at the same time, employing out-of-work citizens during the depression. The Sand Creek Camelback Pony Truss Bridge was part of a vital farm to market route (E0180) that allowed farmers and ranchers from the community of Hawley access to supplies, and a market for selling their livestock and farm products in larger towns such as Nash, Medford, and Pond Creek.

Project Information: Historic American Engineering Record (HAER) Level II equivalent

documentation was performed in August 2012 and April thru May 2014. Kelli Gaston, Architectural Historian, conducted an on-site visit and compiled the historical information during April and May 2014. Photo documentation was conducted in August 2012 by Anna Eddings, an Architectural Historian with ODOT. Photographs for this report have been digitally reproduced following National Park Service (NPS) standards for digital images. This HAER recordation serves as

mitigation for the removal of the structure from vehicular traffic.

List of Preparers: Historian/ Kelli E. Gaston

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SAND CREEK CAMELBACK PONY TRUSS GRANT COUNTY, OKLAHOMA

(page 2)

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ODOT Cultural Resources Program

Norman, Oklahoma

PART I: HISTORICAL INFORMATION

A. Physical History:

1. Date of Construction: 1936

2. Architect/Engineer: unknown

3. Builder/Contractor/Supplier: unknown

4. Original Plans: not available

5. Alterations and Additions: The structure remains unaltered, but has been relocated

B. Historical Context

1. Introduction

In outlying rural communities across Oklahoma, bridges frequently stand as the most notable examples of expert engineering. Bridges are artifacts representative of a community's development and changes in engineering practices over time. In rural Grant County, few buildings, structures, or objects from the early twentieth century remain. For the community of Hawley, in southwestern Grant County, all that remains of this early settlement is a church, a few farmsteads, and a volunteer fire department. The bridge along E0180 over Sand Creek east of the community was a vital farm to market link allowing local farmers and ranchers to access supplies and transportation, and to sell their livestock and farm products in larger county towns like Nash, Medford, or Pond Creek. For over 70 years, the bridge over Sand Creek provided stable, flood-proof, and safe transportation across this rural tributary, a monument to federal projects in the 1930s that focused on creating jobs and improving infrastructure.

The territory that would become Grant County is situated in both the Red Bed Plains and the Great Salt Plains and features rolling, grass covered hills. The Salt Fork of the Arkansas River drains the region, with numerous tributaries flowing into this larger body of water. Historically, the land served as hunting grounds for various Native American tribes (Oklahoma Encyclopedia 2014a).

European exploration of the Sand Creek area began early in the nineteenth century. In 1811, Major George C. Sibley passed through as he traveled from Missouri to the Great Salt Plains to the west. Other early explorers included Nathan Boone, who also led an expedition to the Great Salt Plains, this time from Fort Gibson. In 1828, the area became

part of the Cherokee Outlet assigned to the Western Cherokees (Oklahoma Encyclopedia 2014a). In May 1830, the area was designated part of Indian Territory.

In the mid-1860s, increasing numbers of cattlemen and their livestock began passing through the area along what become known as the Chisholm Trail. In 1866, a trading station was established at Round Pond Creek (later known as Pond Creek) to aid these early cattle drives. Cattle ranchers quickly realized the grazing potential of the area, and Kansas ranchers soon began open grazing. In November 1879, the Pond Creek Post Office opened on a cattle ranch near what would become Medford. In 1883, the Cherokee Strip Livestock Association was formed and the grazing lands in Grant County were part of the Cherokee territory covered by the lease (Oklahoma Encyclopedia 2014a).

Railroad construction followed quickly thereafter. The Chicago, Kansas, and Nebraska Railway (which would become the Chicago, Rock Island, and Pacific) completed a line from Caldwell, Kansas, to Pond Creek in 1888. This line was acquired by the Rock Island in 1891. Later, the Gulf Railroad (which would become the Atchison, Topeka, and Santa Fe) connected several communities in Grant County with larger nearby towns. Livestock raising and the associated need for railroad transportation significantly impacted the area's development (Oklahoma Encyclopedia 2014a and 2014b).

Cattle grazing by non-Indians, and the opening of the area to the railroad, eventually increased pressure on the federal government to open additional territory for non-Indian settlement. In 1890, the western half of Indian Territory became known as Oklahoma Territory. That same year, ranchers were ordered to abandon their grazing leases in the Cherokee Outlet. The US government then purchased the land from the Cherokee. Subsequently, the area that would become Grant County was designated L County in preparation for a land run. The Cherokee Outlet opened to settlement on September 16, 1893. L County's first official post office opened at Pond Creek on September 29, 1893. In November 1894, residents of L County voted to rename the county in honor of President Ulysses S. Grant (Oklahoma Encyclopedia 2014a). Following statehood in 1907, residents voted to move the seat of county government from Pond Creek in the south to Medford in the east (Webb 1971:9-12).

Ranching continued to be an important activity in the area, but Grant County quickly became known for other industries as well. Many residents were farmers and the most common crop was wheat. Medford was home to a flour mill and several grain elevators. Livestock operations expanded to include pigs, sheep, horses, and cattle. The discovery of oil in other parts of north central Oklahoma in the early 1920s led to exploration in Grant County. The first well to be drilled in Grant County was the Swaggert Number One, drilled in April 1921. The first discovery occurred in the eastern section of the county, as part of the Blackwell Field. Oil and gas exploration and production remains an important industry today, as do farming and ranching (Oklahoma Encyclopedia 2014a).

Sand Creek runs north to south on the western edge of Grant County near the community of Hawley. Here, Sand Creek forks, with one fork crossing E0180 (also known as Greer Road) approximately 1 mile east of Hawley and the other fork crossing the same road approximately 0.5 miles farther east. John H. Hawley established this tiny community in

March 1894 (Webb 1971). Today, all that remains are a few farms, church, and a nearby volunteer fire department. The nearest town is Nash, approximately 8 miles to the southwest.

Originally known as Nashville, this community (Tanton 1982:281) was named for early settler, Clark L. Nash. Nash served as the first postmaster of the community that officially incorporated on July 2, 1907. The town's name was changed from Nashville to Nash in 1911 (Gould 1933:168). Nash flourished in the early twentieth century and the community was home to numerous stores, including several grocery stores, a bank, drug stores, lumber yards, grain elevators, and restaurants (Tanton 1982:281-282). Electricity came to the area with the opening of a power plant in 1924; with public water following in 1940. Residents of Nash numbered approximately 500 in 1926, with only 310 residents remaining in 1980. The diminishing population resulted in hardships for the local school district and the district began consolidating in the 1940s with the community of Jet roughly 7 miles away in eastern Alfalfa County. Few businesses remain in Nash today (Oklahoma Encyclopedia 2014c).

2. Development of the Grant County, Sand Creek Camelback Pony Truss Bridge

Grant County, like much of Oklahoma, is traversed by numerous streams as well as larger rivers and bodies of water. The abundance of this resource has helped bring prosperity to the state, but bridging these bodies of water has long posed a challenge to citizens, municipalities, and the state at large. The earliest attempts at bridge building were largely private, utilizing locally available materials, but such bridges were unreliable, often dangerous, and required constant maintenance. Always mindful of limited budgets, bridges constructed during this period were also generally of inferior quality. In many counties across the state, county commissioners often chose prefabricated bridges, even some suspension bridges, manufactured by companies such as the Oklahoma Bridge and Structural Steel. These bridges were relatively unstable and did not provide long-term solutions to transportation problems. Standardized bridges were often ordered from catalogs or from bridge salesmen representing national or regional companies. The mass produced trusses were transported by rail and then assembled by locals on site with a company representative overseeing the work (King 1993).

After 1910, there was increasing public and state dissatisfaction with these prefabricated county bridges that professional engineers viewed as flimsy. In 1916, the first allotment of federal aid for the purpose of building roads and bridges became available to states. Around the same time, the state of Oklahoma also created a road and bridge building program. Funds under both aid projects were awarded to communities who could provide a match. Federal and state aid greatly impacted the quality of bridges being constructed and resulted in state standards for bridge construction by the 1920s. As a result of this aid, there was tremendous bridge construction between 1924 and 1932 (King 1993). According to a September 24, 1922, article in *The Oklahoman*:

During the past year and a half, the state of Oklahoma has forged ahead of every other state in the Union, with one exception, in the construction of permanent bridges on public highways. The lone exception being the state of Texas, whose program exceeds Oklahoma's by a comparatively small margin . . . the State Highway Department sometime ago promulgated a policy of building only

bridges of the most permanent and durable type, such as steel and reinforced concrete structures. This has eliminated completely the losses sustained in years gone by through the construction of faulty wooden structures, which at their best never gave complete satisfaction, and were short lived.

Managing roads and bridges posed a significant problem for county commissioners in Rudimentary wooden bridges were frequently damaged by storms, Grant County. sometimes even washed away completely by flash flooding. An assessment in June 1936 by Grant County Commissioners and the local bridge engineer, determined that most of the bridges on Crooked and Sand Creek had been damaged with one being completely washed out 2 miles north and 1 mile east of Hawley (Grant County Journal June 8, 1936). Maintenance and building efforts by the county were limited by available funds. However, bridge building efforts in Oklahoma benefitted tremendously from funding provided by the Works Progress Administration (WPA). In 1935, the WPA was authorized to put unemployed individuals to work on projects that would be of long-term benefit to communities, while at the same time providing employment and job training Approximately 119,000 Oklahomans (mostly farmers) were for the unemployed. employed by the WPA between 1935 and 1937 on a variety of local works projects. Statewide, road building and road improvements on farm to market roads (Grant County Journal August 2, 1937) accounted for approximately 50 percent of WPA spending, with almost 70 percent of those funds allocated for labor costs (Oklahoma Encyclopedia 2014d). Projects were generally initiated at the county level. In Grant County, county commissioners petitioned the WPA with lists of proposed projects both small and large.

The July 29, 1935, edition of the Grant County Journal makes note of a project submitted to WPA officials in Enid regarding a proposed bridge survey for Grant County. The stated goal of the project was to identify "defective structures" to be replaced with "permanent construction under WPA projects." Some of these deficient bridges were slated for replacement in March of 1936. According to the March 23, 1936, edition of the Grant County Journal, seven of eleven bridges requested to be replaced with WPA funds were approved by the Enid office. One of those included the bridge approximately 1 mile east of Hawley over Sand Creek. The seven bridges were to be built at a total cost of \$15,000, with Grant County contributing \$6,000 towards this amount. Work was scheduled to commence April 5, 1936, and to be completed June 30, 1936. Three crews of men (40 men total) were assigned to complete the bridge projects. Plans were to be drawn by county engineer. Vivian Williamson. Bridge and other public works projects in Grant County were threatened with stoppage on June 19, 1936, due to a funding shortfall (Grant County Journal June 8, 1936) but an extension kept work, presumably on the Sand Creek Camelback Pony Truss Bridge and other projects, going through June 30, 1936. There are no records in either County Commissioner Proceedings or in the Grant County Journal to indicate that the Sand Creek Camelback Pony Truss Bridge was not completed on schedule by the end of June 1936.

Grant County continued to request WPA funds for additional bridges during this period, with about half of the requested projects ultimately receiving approval (*Grant County Journal* August 3, 1936). The exact expenditures on each individual bridge is unknown (the bridge numbering system found in county commissioner proceedings does not correlate with the bridge numbering system used today and there is no reference to the bridge numbers in newspaper records). Several projects came in under budget, with

commissioner proceedings showing allocated funds being put back into the general highway budget. Commissioner proceedings identify individuals paid for bridge work each month (generally very small sums ranging from \$10.00 to \$25.00), as well as suppliers who paid for materials. These suppliers included the Nebraska Bridge Supply and Lumber Company, the Oklahoma Creosoted Lumber Company, Long Bell Lumber, Rock Island Lumber, and F.J. Gentry Lumber, as well as Hackney Iron and Steel (Grant County Commissioners Record 1937). Much of the Grant County highway expenditures during this period (1936-1940) were for materials and fuel. Hackney Iron and Steel was also paid for blueprints. By March of 1938, WPA funds had assisted in the construction of 47 bridges across the county (*Grant County Journal* March 7, 1938), greatly affecting the landscape and the economic and transportation opportunities of residents.

The Sand Creek Camelback Pony Truss Bridge is a notable example of a Camelback pony truss. The Camelback pony truss is a variation of the Pratt pony truss characterized by its arched upper chord. This bridge design quickly gained popularity in Oklahoma between 1920 and 1940 due to its shape and performance. Most Camelback pony truss examples in the state are exactly five panels – this made standardization of the bridge easier and the bridge's performance was more predictable. The design and functionality of the bridge allowed engineers to use this type of bridge to span longer distances with less steel. In the early 1920s, the state highway department developed standardized bridge plans for using the Camelback pony truss to span different lengths, typically 80- to 100-foot distances. Most Camelback pony truss bridges relied on riveted connections as opposed to pinned (King 1993). No justification for the variation in the design of this bridge could be in local county commissioner proceedings, newspaper archives, or ODOT records.

PART II. STRUCTURAL/DESIGN INFORMATION

A. General Description: The Sand Creek Camelback Pony Truss Bridge originally carried two lanes of traffic along E0180 (also known as Greer Road) across Sand Creek northeast of Nash, 1 mile east of Hawley. The bridge consists of a single, steel Camelback pony truss span measuring approximately 93.5 feet with a concrete cast in place deck. The total length of the bridge is approximately 99 feet. The bridge is 18 feet wide from curb to curb. (There is some discrepancy on the exact length of the bridge, with different sources/inspection reports citing different lengths.) Local newspaper accounts date construction of the bridge to 1936.

This particular Camelback pony truss is six panels long instead of the typical camelback configuration of five panels. The bridge has riveted connections. The top, angled chord of the bridge features channel with lace and stays. The end posts are the same as the top chord. The bottom chord is also channel with lace. The verticals of the bridge are built-up I-beams. The diagonals are angle with stays. The bridge has an ornate railing with triple intersection lattice, some of which has been damaged. The bridge had concrete abutments.

¹ After World War I, pinned trusses were used less frequently, and riveted connected trusses became standard for bridge construction. Riveted connections were used until 1960, when bold connections became popular (Solomon 2007:52).

- 1. Character: The Sand Creek Camelback Pony Truss design is indicative of its rural setting, period of construction, and a WPA-era county bridge. Although the camelback truss is common, the Sand Creek Camelback Pony Truss is rare for its six (rather than five) panels.
- **2. Condition of Fabric:** The Sand Creek Camelback Pony Truss retains its character and integrity. The bridge has had no major alterations, but does have minor damage to the lattice-work metal railing and normal deterioration due to age and exposure to the elements.
- **B. Site Information:** The area immediately surrounding the Sand Creek Camelback Pony Truss is mostly undeveloped. The area is covered in vegetation. Nearby are cultivated fields. Farmsteads lie less than 0.5 miles to both the east and west; and to the west, less than a mile is a church.

PART III. CURRENT STATUS

The Sand Creek Camelback Pony Truss was found to be structurally deficient and slated for replacement by ODOT. In December 2011, the bridge was advertised on ODOT's Adopt-A-Bridge Program. In 2013, the bridge was moved near Buffalo, Harper County, Oklahoma. In early 2014, the bridge was installed over Doby Springs on the grounds of the Doby Springs Golf Course, approximately 8 miles west of Buffalo.

PART IV. SOURCES OF INFORMATION

A. Primary Sources

Grant County Commissioners Records

1937 County Commissioner Minutes. Book 6 (Nov 8). Medford, Oklahoma.

Grant County Journal [Medford, OK]

- "Grant County Project is Submitted to WPA." 29 July. Medford, OK.
- 1936 "WPA Will Build Seven Bridges in Grant County." 23 March. Medford, OK.
- 1936 "Bridges, Roads Badly Damaged by High Water." 8 June. Medford, OK.
- 1936 "WPA Work Will Not be Stopped." 15 June. Medford, OK.
- 1936 "Grant Projects for WPA Named." 3 August. Medford, OK.
- 1937 "Improvement to be Continued for Highway System." 2 August. Medford OK.
- 1938 "Commissioners Make Report of Relief Program." 7 March. Medford, OK.

ODOT, Division 4, Tulsa, Oklahoma

Files, including Bridge Inspection Report, Bridge Inventory Reports, and miscellaneous.

The Oklahoman

1922 "... During the past year and a half ..." September 24.

B. Secondary Sources

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1933 Oklahoma Place Names. University of Oklahoma Press, Norman, Oklahoma.

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- 2014c "Nash," Vertical File, Research Division, Oklahoma Historical Society, Oklahoma City. http://digital.library.okstate.edu/encyclopedia/entries/ N/NA004.html. Accessed April 21, 2014.
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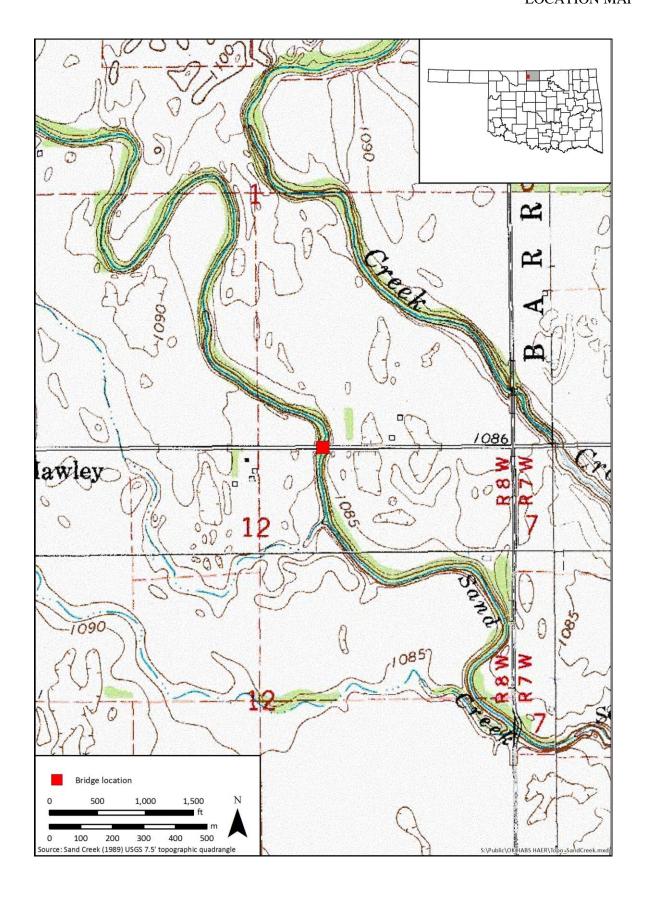
Tanton, Ralph E.

1982 Historical Tales of the Cherokee Strip and the Rhubarb Farm: Before and After the State of Oklahoma. Grant County Historical Society, Medford, Oklahoma.

Webb, Guy P.

1971 *History of Grant County, Oklahoma, 1811 to 1970.* The Grant County Historical Society. [Published in North Newton, Kansas].

LOCATION MAP (Original location)



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Kelli Gaston, Photographer, May 2014

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