

LITTLE BUFFALO RIVER BRIDGE  
Arkansas Bridges 2005  
Spanning Little Buffalo River at AR 327  
Parthenon vicinity  
Newton County  
Arkansas

HAER AR-80  
AR-80

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD  
National Park Service  
U.S. Department of the Interior  
1849 C Street NW  
Washington, DC 20240-0001

# HISTORIC AMERICAN ENGINEERING RECORD

## LITTLE BUFFALO RIVER BRIDGE

HAER No. AR-80

Location: Spanning Little Buffalo River at AR 327 (formerly Buffalo Road), Parthenon vicinity, Newton County, Arkansas

UTM: 15.479510.3980524, Parthenon, Arkansas, Quad.

AHTD #: M2889

Structural Type: Reinforced concrete T-beam

Construction Date: 1939

Builder: Works Projects Administration (WPA)

Owner: State of Arkansas

Use: Vehicular bridge

Significance: Little Buffalo River Bridge is the longest reinforced concrete T-beam bridge in Arkansas and an excellent example of a Works Projects Administration-built highway bridge.

Project Information: The Arkansas Historic Bridges Recording Project is part of the Historic American Engineering Record (HAER), a long-range program that documents historically significant engineering sites and structures in the United States. HAER is administered by the Heritage Documentation Programs Division of the National Park Service, United States Department of the Interior, Richard O'Connor, Manager. The Arkansas State Highway and Transportation Department sponsored this project.

Lola Bennett, HAER Historian, 2007

## Chronology

- 1803 Louisiana Purchase doubles size of the United States
- 1818 Buffalo Fork appears on "Map of the Territorial Limits of the Quapaw Cession"
- 1819 Arkansas Territory created from part of Louisiana Purchase
- 1830s John Belah settles near this site on Buffalo River
- 1836 Arkansas becomes 25th state to join the Union
- 1838 Newton County formed
- 1844 Morse & Breese's map of Arkansas shows road and crossing near this site
- 1855 "Mt. Parthenon" appears on J.H. Colton's map of Arkansas
- 1851 Mt. Parthenon post office established
- 1889 America's first reinforced concrete bridge built at San Francisco
- 1895 Mt. Parthenon changes its name to Parthenon
- 1910s Introduction of reinforced concrete T-beam construction in the United States
- 1912 Parthenon population 100<sup>1</sup>
- 1929 U.S. stock market crash marks beginning of the Great Depression
- 1932 President Franklin D. Roosevelt proposes unemployment relief programs
- 1935 Congress passes Emergency Relief Appropriation Act; WPA created
- 1939 WPA constructs Little Buffalo River Bridge
- 1941 Newton County population 10,881
- 1943 WPA program ends
- 1995 Little Buffalo River Bridge listed in National Register of Historic Places

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<sup>1</sup> *Arkansas State Gazetteer and Business Directory* (Memphis: R.L. Polk & Co., 1912), 457.

## Description

Little Buffalo River Bridge is a 7-span reinforced concrete T-beam bridge on stone-faced piers and abutments. The bridge is 15'-0" high, 22'-0" wide and 210'-0" long, with clear spans of 30'-0" each. The concrete slab is 7" thick, with three integral 14"x28" beams, spaced at 7'-6". No plans showing the steel reinforcing have been found. The deck is paved with asphalt. There is a reinforced concrete railing on each side of the deck. The reinforcing of the 12"x12" posts is integral with the superstructure. The ashlar masonry abutments and piers have concrete footings and caps. They are 20'-0" wide, 14'-0" high, and taper in thickness from 1'-6" at the top to 6'-0" at the bottom.

## History

In the 1830s, John Belah settled near this site on the Buffalo River. A road was established along the river from Jasper to Clarksville sometime prior to 1844, when it appeared on Morse & Breese's map of Arkansas. By 1851, the small industrial hamlet was officially known as "Mt. Parthenon." No information has been found concerning a prior bridge at this location.

In 1938, Newton County sponsored WPA Project #665-63-1-169 to "*improve, construct and reconstruct county-owned roads.*" Buffalo Road, which originally followed the west bank of Buffalo River, was realigned to cross the river at this point. The Little Buffalo River Bridge was completed in 1939 by local WPA work crews.

## Builder

The Works Projects Administration (WPA) was a federal agency established under President Franklin D. Roosevelt to combat unemployment during the Great Depression. Originally called the Works Progress Administration, it employed 8,500,000 people in public works projects between 1935 and 1943. In addition to projects that employed artists, actors and writers, WPA workers built schools, courthouses, parks, roads and bridges, many of which are still in use today.

## Design

T-beam bridges—named for their cross-sectional shape—were commonly built from about 1910 to 1950. They were developed as a way to build long-span beam bridges using the least amount of concrete possible. The "beams" serve primarily to contain the tension steel and locate it a given distance below the deck. Generally, the neutral axis is located just below the deck so that the whole cross-sectional area of the deck is placed into compression, balancing the tension forces developed in the reinforcing steel. Spans are cast in place, with longitudinal steel reinforcing arranged along the bottom of the beam, where tension forces occur. Eliminating sections of un-reinforced concrete below the neutral axis minimizes the dead weight of the span. Although cheaper to build than an arch or truss, the T-beam is limited to spans of 25' to 50' and typically constructed where piers are easily established.<sup>2</sup> The Little Buffalo River Bridge is the longest of five reinforced concrete T-beam bridges identified in the Arkansas Highway and Transportation Department historic bridges database.

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<sup>2</sup> Charles H. Hoyt and William H. Burr. *Highway Bridges and Culverts* (Washington, DC: Department of Agriculture, 1911).

**Sources**

Arkansas Highway and Transportation Department. Bridge Records: Bridge No. M2889.

Howard, Donald S. *The WPA and Federal Relief Policy*. New York: Russell Sage Foundation, 1943.

Hool, George A. and W.S. Kinne. *Reinforced Concrete and Masonry Structures*. New York: McGraw Hill Book Co., Inc., 1924.

Hoyt, Charles H. and William H. Burr. *Highway Bridges and Culverts*. Washington, DC: Department of Agriculture, 1911.

Hume, John. "The Automobile Age in Arkansas." *Arkansas Highways* 23-25 (Spring 1977-Winter 1979).

Kirkham, John Edward. *Highway Bridges: Design and Cost*. New York: McGraw-Hill Book Company, Inc., 1932.

Lackey, Walter F. *History of Newton County, Arkansas*. Independence, Missouri: Zion Printing and Publishing, 1950.

Sternsher, Bernard, ed. *Hope Restored: How the New Deal Worked in Town and Country*. Chicago: Ivan R. Dee, 1999.

United States Geological Survey. *Mt. Judea, Arkansas, Quadrangle*, 1940.

Urquhart, Leonard Church and Charles Edward O'Rourke. *Design of Concrete Structures*, 4th edition. New York: McGraw-Hill Book Company, Inc., 1940.