



Historic Bridge Foundation Facebook Archives

Focus Bridges: Clifton Whipple Truss Bridge

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The Clifton Whipple Truss Bridge crosses the North Bosque River in Bosque County, Texas, which is northwest of Waco. The bridge's main span is a Whipple through truss built in 1884 by the Wrought Iron Bridge Company of Canton, Ohio. This span is flanked at each end by a single rivet-connected Warren pony truss span. There are additionally a number of stringer approach spans at each end of the bridge. The approach spans, including the pony truss spans, are not the original approach spans. The Warren pony truss spans are a standard Texas design composed of rolled steel beams. The eastern pony truss approach was built in 1912 and the western pony truss approach was built in 1918. Presumably, the stringer spans were replaced at these same times as well. There is strong site evidence that the approach span bents were rebuilt using, in part, pieces salvaged from an unknown truss bridge. Although there is no record of changes to the 1884 Whipple truss, added steel on the portal bracing and struts suggests the span was widened slightly. The stone piers had concrete added to them to hold the widened truss span as well. In 1941, Highway 6 (today Farm-To-Market Road 219) was constructed nearby with a new bridge, which rerouted the majority of traffic using the Clifton Whipple Truss Bridge

The builder of the Whipple truss span, the Wrought Iron Bridge Company, was the most prolific 19th Century builder of metal truss highway bridges.

This bridge is one of only a few surviving examples in the entire state of Texas of a Whipple truss bridge. A Whipple truss is also known as a Double-Intersection Pratt truss. A standard Pratt truss is a truss where diagonal members angle toward the center and bottom of the bridge. In a Pratt truss, diagonal members are in tension and vertical members are in compression. Pratt trusses are one of the two most common truss configurations (Warren being the other). The Pratt truss was typically used for short to medium spans. For longer spans, the Double-Intersection Pratt was often preferred. With the Double-Intersection Pratt or Whipple truss, vertical members and floorbeams occur twice as frequently throughout the truss, and diagonal members pass through one vertical member before reaching the bottom chord. In other words, the diagonal member passes through (intersects), two truss panels. A panel refers to the space between two floorbeams, which on a Pratt truss, coincides with the placement

of vertical members. The common name, Whipple truss, refers to the man who invented this truss configuration, Squire Whipple. A pioneer in metal bridge design, Squire Whipple was also known for his patented bowstring arch/truss bridges, which were the first all-metal bridge design that enjoyed popularity in the United States.

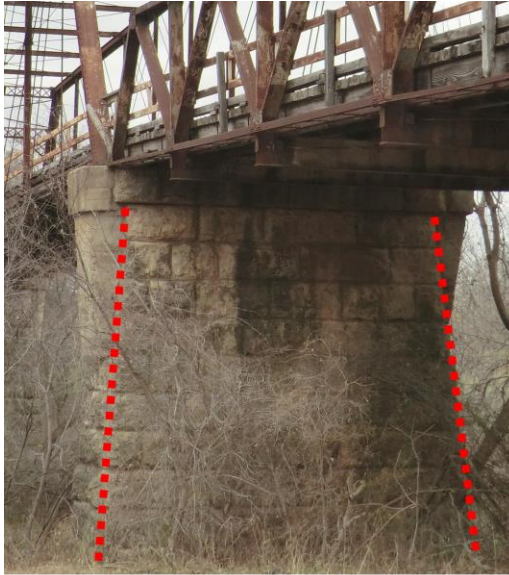
The future of the Clifton Whipple Truss Bridge is uncertain, with a Section 106 Review ongoing. Although the Section 106 Review is a new development in this bridge's history, interest in preserving this bridge is not a recent development. The May 5, 1977, issue of the Clifton Record included an article stating that a petition of 178 names requested that the bridge be preserved. The petition described the bridge as a "historic monument" and also noted that the bridge offered a good view of the river and nearby dam, and also noted that the bridge was used by many local residents to avoid crossing a set of railroad tracks.

One of the exciting aspects of historic bridges is to discover their history, not by researching old paper documents, but by visiting the bridge itself and using clues on the bridge itself to tell the history of the bridge. The Clifton Whipple Truss Bridge does a particularly good job of describing its history without any former archival research required. Explore the photos to learn about these on-site clues.

A state interpretive plaque located next to the bridge notes that the bridge is a Recorded Texas Historic Landmark (RTHL) and contains the following text:

Built in 1884 by the Wrought Iron Bridge Company of Canton, Ohio, at a cost of \$6,465, this bridge spans 150 feet across the North Bosque River. This type of bridge, called a Whipple truss, was named for its designer. One of the few remaining Whipple truss bridges in the state, it opened up travel routes from the south and west to the north and east. Withstanding many floods, the bridge provided an important transportation connection for Bosque County residents from 1884 to 1941 when traffic was routed west of the Bosque River to the newly constructed Highway 6.

(Photos On Next Page)



Clifton 3 – This photo shows the piers for the Whipple truss. Assuming the stone piers are original, it stands to reason that if the truss were widened, the piers would also need to be widened. These photos show that this is indeed what has happened. The area between the dotted lines defines where the stones on the pier are located, and they form the shape of a typical stone pier. Outside of these lines note that there is concrete, which was added at the top outside of these lines to widen the pier to support a wider bridge. Original piers would not be expected angle outward at the top. As such, the truss bearing sits beyond edge of stone portion of pier, indicating that the piers were designed for a bridge narrower than what we see today.



Clifton 4 – These photos show details of the approach span bents. These bents may be salvaged top chord or end post from another old truss bridge. The bent columns are composed of built-up beams with back-to-back channels and v-lacing on one side and cover plate on the other. It is very unusual for a bent to have cover plate on one side and lacing on the other side. However, this design was common on truss bridge top chords and end posts. The bent columns are braced with welded beams that are not riveted which is an inconsistency compared to the columns. It is therefore likely that when the pony truss spans were installed, salvaged steel was used for the columns. The bracing may have been new steel, or heavily altered salvaged steel. Considering that the bents appear to have at least in part been used from salvaged steel, this suggests that that the steel used to widen the Whipple truss was also salvaged from an old bridge.