

Walker Bridge

HAER No. CA-184

(Klamath River Bridge No. 2C-80)

Spanning the Klamath River and connecting Highway 96 and Walker Road

Klamath National Forest

Siskiyou County

California

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PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

Historic American Engineering Record
National Park Service
Department of the Interior
San Francisco, California

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HISTORIC AMERICAN ENGINEERING RECORD

WALKER BRIDGE
Klamath River Bridge No. 2C-80

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Location: Walker Bridge connects Highway 96 and Walker Road spanning the Klamath River just West of the community of Klamath River, in Klamath National Forest, Siskiyou County, California.

USGS Condrey Mtn. Quadrangle, 15'
UTM Coordinates Zone 10:
North end-N4,631,640 E511,320
South end-N4,631,640 E511,290

Date of Construction: 1893, Folsom CA; Moved to Klamath River in 1931; deck modified in 1931; modifications to deck and approaches in 1954; deck modifications in 1974.

Engineer: San Francisco Bridge Company

Builder: San Francisco Bridge Company; dismantler and re-erector: Gutleben Brothers.

Present Owner: County of Siskiyou

Present Occupant: County of Siskiyou

Significance: The Walker Bridge is a 330' steel Pennsylvania Petit truss, built in 1893 in Folsom, Sacramento County, California and moved to this site by the California Division of Highways (predecessor to Caltrans) in 1931. The bridge was determined eligible for listing in the National Register under Criteria C (as a very rare and distinguished example of a particular bridge type) and A (for its role as a transportation link at the Klamath River crossing). The appropriate period of significance for the bridge extends from 1893 (when it was built) to 1931 (when it began serving at the current location).

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Description:

The Walker Bridge is a 330' steel Pennsylvania Petit truss bridge. As noted, the structure was originally erected in Folsom in 1893, at a location several hundred miles southeast of the current site. The bridge was disassembled and re-erected at this site in 1931. The truss itself -- the metal shell for the bridge -- includes a very high percentage of its original materials. Maintenance records indicate that incidental pieces of the bridge were replaced at the time of the 1931 relocation, including the bearings at the abutments. No doubt some "pins" (large connecting bolts) were replaced at the same time on an as-needed basis. The bulk of the truss, however, is original, including the top and bottom chords, compression members, and subtruss, which comprise the essence of the Pennsylvania Petit design. The integrity of the structure is very good for the truss itself, the principal basis for National Register eligibility, but poor in terms of integrity of location and setting because the bridge has been moved. At the Walker site, the crossing is wider than its original site at Folsom, requiring higher abutments and piers due to flooding dangers. As constructed at the Walker site in 1931, the truss span rests on piers, with timber stringer approach spans at either side. The bridge includes a 20' approach on the north side and five spans of approximately 20' each on the south. The truss span was stripped of its floor system in Folsom; the 1931 contract called for the construction of a new timber deck. The bridge has undergone major modifications since its erection at the Klamath River site in 1931, all such modifications relating to its deck and approaches. The approaches and deck were completely rebuilt in 1954. At that time, the timber deck (a 1931 feature) was demolished and rebuilt to a single-lane capacity. The single-lane configuration resulted in an awkward appearance in which the 12' wide deck is only about two-thirds as wide as the metal truss, designed to accommodate an 18' deck. At the same time, the timber approach spans to the south were demolished and replaced with a raised berm. Integrity for the bridge as a whole is fair, balancing the good integrity for the truss and poor integrity for other elements of the structure.

Historical Context:

The Walker Bridge was built in 1893 by Sacramento County to carry traffic across the American River near downtown Folsom on what is now Greenback Lane. The bridge was fabricated by the San Francisco Bridge Company, a pioneering metal truss fabricator in 19th century California. It is a very rare example of the work of this important early bridge manufacturer. The steel bridge was essentially bypassed in 1917 when the county built a concrete arch bridge 100' downstream from it. The concrete arch, locally known as the "Rainbow Bridge," still stands and it too has been determined eligible for listing in the National Register. Although bypassed, the steel bridge remained on its original abutments until 1931.

The Division of Highways needed the bridge to serve as a temporary state highway structure pending reconstruction of Highway 96. Until the early 1930s, the forerunner of Highway 96 (the "Pacific Highway") crossed the Klamath River near the Walker Bridge crossing site, continuing west (downstream) on the south side of the river. The highway bridge at that crossing was a single-lane suspension bridge, installed by the county. That bridge was posted at five tons and was beginning to fail by 1931. The state needed to replace it but was reluctant to spend a great deal on a bridge that would soon be bypassed. As stated by Division of Highways bridge engineer, James Gallagher, "It was therefore imperative that a new bridge be built and at the same time desirable to invest as little money as possible in the new structure since it would only serve State Highway traffic till such time as the new highway is completed."

The state Bridge Department, headquartered in Sacramento, learned of the steel bridge in nearby Folsom, which happened to be about the length needed in the Klamath River crossing at Walker Road. The department inspected the bridge, found it serviceable, and let a contract for it to be dismantled and shipped to Siskiyou County. The contract was let to the Gutleben Brothers. The contractor built a timber truss scaffolding on timber bents which allowed it to disconnect the bridge from its abutments and dismantle it piece-by-piece. At its Folsom site, the bridge included no approaches, i.e., the single truss span rested directly upon the abutments, with no intermediate piers or shorter approach spans. At the Walker site, however, the crossing was wider and required higher abutments and piers due to flooding dangers, requiring that the truss span rest on piers, with timber stringer approach spans at either side. As constructed in 1931, the bridge included a 20' approach on the north side and five spans of approximately 20' each on the south. In addition, the truss span had been stripped of its floor system in Folsom; the 1931 contract called for the construction of a new timber deck.

The bridge has undergone major modifications since its erection at the Klamath River site in 1931, all such modifications relating to its deck and approaches. The approaches and deck were completely rebuilt in 1954. At that time, the timber deck (a 1931 feature) was demolished and rebuilt to a single-lane capacity. The single-lane configuration resulted in an awkward appearance in which the 12' wide deck is only about two-thirds as wide as the metal truss, designed to accommodate an 18' deck. At the same time, the timber approach spans to the south were demolished and replaced with a raised berm. Shortly after that work was accomplished, the bridge was relinquished from state ownership to Siskiyou County. Additional deck work was accomplished in 1974 to lighten the dead load.

The Walker Bridge is located in an isolated part of Siskiyou County, very near the Oregon border. It is immediately adjacent to Highway 96, several miles west of the small community of Klamath River. At the north bank, the bridge nearly abuts Highway 96 with only a short roadway separating the two. On the south bank of the river, Walker Bridge Road passes through a large alfalfa field, one of the few arable fields anywhere along the Klamath.

As discussed, the 330' Walker Bridge truss span is the primary reason the bridge was determined eligible for listing in the National Register of Historic Places. The truss is a Pennsylvania Petit through truss. All-metal truss bridge design developed quickly in the late 19th century, with bridge engineers and manufacturers devising more and more varieties of truss systems to handle different circumstances. All-metal trusses initially were adapted from the two most popular wooden truss forms, the Pratt and Warren trusses. The Pennsylvania Petit is a Pratt derivative.

The Pratt truss, first developed in 1844, was the most common all-metal truss type, used in thousands of crossings which required individual spans of 150' or less. It included a horizontal top chord, vertical compression members and small diagonals. Many other well-known truss designs, developed to handle longer spans, were essentially variations on the Pratt. The Parker truss, for example, was simply a Pratt truss with a polygonal top chord. Parker trusses were built in great numbers in California and elsewhere.

The Pennsylvania Petit design was in turn a variation on the Parker truss. Like the Parker, it had a polygonal top chord. It was different from the Parker, however, in that it included a series of sub-struts and sub-ties. The Pennsylvania Petit truss was specifically designed for longer crossings, spans which were too great for the basic Pratt or even the more versatile Parker design. A similar truss type is the Baltimore Petit, which is nearly identical to the Pennsylvania Petit except that the top chord is straight and parallel to the bottom chord.

The Pennsylvania Petit was never built in great numbers and is now a very rare bridge type in California and elsewhere in the United States. In the mid-1980s (when field work was conducted for the Caltrans Historic Bridge Inventory), there were six Pennsylvania Petit truss bridges still standing in the state, including the Walker Bridge. Of these, the Walker Bridge had the distinction of being the oldest as well as the largest.

Sources: Gallagher, James. "Romance in the Life of a Bridge," *California Highways and Public Works*, March, 1932.

Mikesell, Stephen D. *Historic Highway Bridges of California*.

Structures Maintenance records for Bridge 2C-80, Post-1974, Caltrans Division of Structures, Sacramento.

Structures Maintenance files for Bridge 2C-80, September 10, 1952 memorandum by F.W. Panhorst, Caltrans Division of Structures, Sacramento.

Project Information: Siskiyou County proposes to replace the Walker Bridge. The new bridge will be a reinforced concrete box girder structure, built parallel to the old bridge, approximately 25' to the east (upstream from it). The new bridge will be 26' wide and approximately 373' long and will be a three-span structure. The Walker Bridge will remain in place until the new bridge has been completed. When the new bridge has been completed, the Walker Bridge truss will be disassembled. The members of the truss will be carefully match-marked, cleaned, and repaired as necessary. Following the repair work, the bridge will be re-erected in the City of Folsom, at or near the abutments at which the bridge was originally erected in 1893. In Folsom, the Walker Bridge truss (it will likely be re-named) will serve pedestrian and bicycle traffic, to relieve the burden on the nearby Rainbow Bridge and create a safer environment for pedestrians and bicyclists in a popular recreational area.