

COLUMBIA RIVER BRIDGE AT BRIDGEPORT
State Route 17 spanning the Columbia River
Bridgeport vicinity
Douglas County
Washington

HAER No. WA-90

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WRITTEN HISTORICAL AND DESCRIPTIVE DATA
PHOTOGRAPHS

HISTORIC AMERICAN ENGINEERING RECORD
NATIONAL PARK SERVICE
DEPARTMENT OF THE INTERIOR
P.O. BOX 37127
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Location: State Route 17, spanning the Columbia River, Bridgeport Vicinity, between Douglas and Okanogan counties, beginning at mile point 135.92, 3/4 of a mile down river from Chief Joseph Dam, Washington

UTM: 11/302150/5319780
11/301980/5319740

Quad: Bridgeport, Washington

Date of Construction: 1950

Engineer: U.S. Army Corps of Engineers, Seattle District Office

Fabricator: Unknown

Owner: U.S. Army Corps of Engineers; maintained by the Washington Department of Highway, since 1977 the Washington State Department of Transportation, Olympia, Washington.

Present Use: Vehicular and pedestrian traffic

Significance: This bridge is the only large-scale steel truss built in Washington immediately after World War II. Like the Columbia River Bridge at Grand Coulee Dam (HAER No. WA-102), it was a federal structure constructed as part of a hydroelectric dam project.

Historian: Robert W. Hadlow, Ph.D., August 1993

History of the Bridge

The Columbia River Bridge at Bridgeport became the first river crossing at that location since the last regular ferry service ended abruptly in the winter 1929 when the boat was lost in ice. Bridgeport started as a gold mining boom town in the 1880s. Soon the gold played out and the village existed until the late 1940s as an agricultural center for wheat ranchers and orchardists. It served as a small market town since it was the last possible up river stop for steamboats on the Columbia. By the early twentieth century, rail lines to nearby Brewster ended freight traffic on the river. Then, the only vessels plying the Columbia were ferries and small craft.¹

A 1927 United States Congressional report on navigable rivers found a site on the Columbia near Bridgeport as ideal for a dam. By 1931, federal engineers confirmed it as the best hydroelectric dam site on the river. In 1946, Congress appropriated several hundred million dollars to build Chief Joseph Dam. By 1949, construction began on an access road from Brewster, connecting with state primary highway 10 (later U.S. 97). This included two bridges, one over the Okanogan River, and another, a steel continuous deck truss, at Bridgeport, less than one mile down river from the dam site. Like the Columbia River Bridge at Grand Coulee Dam (HAER No. WA-102), the Bridgeport structure's first purpose was to transport heavy equipment necessary in constructing and later servicing a hydroelectric dam.²

Design and Description

The U.S. Army Corps of Engineers Seattle District designed the Columbia River Bridge at Bridgeport as a three-span continuous truss. The channel was not so great to warrant a steel cantilever, but the river's fast flow prevented placing falsework for reinforced-concrete arches. Bids were opened on 8 November 1949 for a \$1.25 million structure. Read south to north it consists of:

- two 100' steel beam spans
- one 250' steel Warren deck truss with verticals
- one 300' steel Warren deck truss with verticals
- one 250' steel Warren deck truss with verticals
- two 70' steel beam spans
- total length of continuous truss--800'
- total structural length--1,140'
- deck width curb-to-curb--26'
- two 3' sidewalks

The continuous deck truss has a horizontal top chord, but to provide maximum channel clearance while keeping pier costs down, the truss's lower chords were sloped. Silicon steel was used liberally in the trusses to provide a light structure with a higher than normal H-20 live-load rating, compared to an H-15 rating. The two 100' approach spans use five riveted steel built-up plate girders with 62" webs. Their reinforced-concrete deck slabs are anchored to the top flanges, in reality creating a composite structure. The two 70' approach spans consist of five 36" rolled wide-flange steel beams with cover plates. Again, the reinforced-concrete road deck is anchored to the top flanges, creating a composite structure. The entire bridge sits on reinforced concrete piers and bents that rest on bedrock foundations. Approach bents and end truss bents are dumb bell design. The channel piers are solid on spread footings. The bridge was completed in 1950.³

Repair and Maintenance

From 1950 to 1952, the Corps of Engineers maintained the Columbia River Bridge at Bridgeport as well as the other access road bridge over the Okanogan River. In 1952, the Corps granted a license to the Washington Department of Highways to maintain both bridges with the understanding that the U.S. government continued to retain their ownership.⁴

Inspection reports from 1952 to 1992 show the bridge in satisfactory shape with several minor deficiencies attributed to age, such as transverse cracking in the deck, cracked concrete abutments, plugged deck drains, and bent sidewalk balusters. An underwater inspection in 1992 found erosion of the north channel pier's footing due to poor construction techniques and scouring from the swift moving river. Finally, a large build-up of pigeon guano on chord members promoted rust and created an eyesore.⁵

Data Limitations

The Columbia River Bridge at Bridgeport's status as a federally owned but state-maintained structure presented research problems. Washington State Department of Transportation records for the structure were incomplete, beginning only in 1952. A perusal of archival material at the U.S. Army Corps of Engineers Seattle District Office might give additional pertinent information such as names of contractors and sub-contractors, but not much more. Chief Joseph Dam's construction and the way it changed the landscape and the local population's demography, like that for Grand Coulee Dam in the 1930s, overshadowed the importance of related bridge-building activities.

Project Information

This project is part of the Historic American Engineering Record (HAER), National Park Service. It is a long-range program to document historically significant engineering and industrial works in the United States. The Washington State Historic Bridges Recording Project was co-sponsored in 1993 by HAER, the Washington State Department of Transportation (WSDOT), and the Washington State Office of Archeology & Historic Preservation. Fieldwork, measured drawings, historical reports, and photographs were prepared under the general direction of Robert J. Kapsch, Ph.D., Chief, HABS/HAER; Eric N. DeLony, Chief and Principal Architect, HAER; and Dean Herrin, Ph.D., HAER Staff Historian.

The recording team consisted of Karl W. Stumpf, Supervisory Architect (University of Illinois at Urbana-Champaign); Robert W. Hadlow, Ph.D., Supervisory Historian (Washington State University); Vivian Chi (University of Maryland); Erin M. Doherty (Miami University), Catherine I. Kudlik (The Catholic University of America), and Wolfgang G. Mayr (U.S./International Council on Monuments and Sites/Technical University of Vienna), Architectural Technicians; Jonathan Clarke (ICOMOS/Ironbridge Institute, England) and Wm. Michael Lawrence (University of Illinois at Urbana-Champaign), Historians; and Jet Lowe (Washington, D.C.), HAER Photographer.

SELECTED BIBLIOGRAPHY

- Baily, Joe. "A Saga of the Inland Empire: A Chief . . . A River . . . A Town . . . Now a Great New Dam." *Spokane Spokesman-Review Inland Empire Magazine*, 10 June 1956, 2-3.
- Bennett, Ralph. "Men and Machines Change Bridgeport's Way of Life." *Wenatchee World*, 19 July 1950, 1, 8.
- "Bids Called for Giant Chief Joseph Dam." *Seattle Times*, 6 October 1949, 36.
- Brockman, Mrs. [W. B.] "Old Timers' Page: Early Days on the River." *Spokane Spokesman-Review Inland Empire Magazine*, 5 May 1950, 3.
- "Chief Joseph Dam Ceremony Ready." *Spokane Spokesman-Review*, 10 June 1956, 20.
- "Chief Joseph Dam Close Second to Grand Coulee." *Seattle Sunday Times Rotogravure*, 4 February 1951, 8-9.
- "Chief Joseph Dam Takes Shape on Columbia." *Seattle Sunday Times Pictorial Section*, 25 November 1951, 2-3.
- "In Dam Dedication Ceremony [Chief Cleveland Kamiakin]." *Spokane Spokesman Review*, 10 June 1956, 18.
- Mackey, Earl. "Bridgeport: 1881 to 1976." *Okanogan Quad-City Herald*, 4 July 1976, 8.
- "Major Preconstruction Contracts Schedules at Lucky Peak, Chief Joseph Dams." *Pacific Builder and Engineer* 55 (September 1949): 84.
- "Many Jobs Seen in Chief Joseph Dam Funds." *Seattle Times*, 17 October 1949.
- McCormick, Greta M. "Bridgeport--Ready to Boom with Dam: Its History Is a Colorful One." *Spokane Spokesman-Review Magazine*, 6 January 1950, 5-6.
- Meinig, D. W. *The Great Columbia Plain: A Historical Geography, 1805-1910*. Seattle: University of Washington Press, 1968.
- Robertson, Carl. "Signs of Growth Already Showing." *Spokane Spokesman Review Magazine*, 6 January 1950, 5-6.
- Ruby, Robert H., and John A. Brown. *Ferryboats on the Columbia*

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AT BRIDGEPORT
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River Including the Bridges and the Dams. Seattle: Superior Publishing Company, 1974.

Schwantes, Carlos A. *The Pacific Northwest: An Interpretive History.* Lincoln: University of Nebraska Press, 1989.

U.S. Army Corps of Engineers. Seattle District. "Chief Joseph Dam and Rufus Woods Lake." Pamphlet. 1989.

U.S. Department of the Interior. National Park Service. National Register of Historic Places Nomination Form for Columbia River Bridge at Bridgeport, Douglas and Okanogan counties, Washington." 1991.

Washington. State Department of Transportation. Bridge Preservation Section. Bridge Files.

Woods, Bob. "Chief Joseph Dam Activity Reflected in Town's Growth." *Wenatchee World*, 8 March 1950, 11.

_____. "Growing Pains are Overtaking Town on a Damsite." *Wenatchee World*, 7 March 1950, 1, 10.

ENDNOTES

¹ Robert H. Ruby and John A. Brown, *Ferryboats on the Columbia River Including the Bridges and the Dams* (Seattle: Superior Publishing Company, 1974), 134; Greta M. McCormick, "Bridgeport--Ready to Boom with Dam: Its History Is a Colorful One," *Spokane Spokesman-Review Magazine*, 6 January 1950, 5-6; Earl Mackey, "Bridgeport: 1881 to 1976," *Okanogan Quad-City Herald*, 4 July 1976, 8.

² Joe Baily, "A Saga of the Inland Empire: A Chief . . . A River . . . A Town . . . Now a Great New Dam," *Spokane Spokesman-Review Inland Empire Magazine*, 10 June 1956, 2-3.

³ Department of the Interior, National Park Service, "National Register of Historic Places Nomination Form for Columbia River Bridge at Bridgeport, Douglas and Okanogan counties, Washington," 1991; "Columbia River Bridge at Bridgeport, No. 17/401," Kardex Card File, Bridge Preservation Section, Washington State Department of Transportation, Olympia, WA [WSDOT].

⁴ "Department of the Army License, Corps of Engineers to the Washington Department of Highways, Okanogan River Bridge and Columbia River Bridge on Access Road to Chief Joseph Dam Project," 7 January 1952, in "Columbia River Bridge at Bridgeport, No. 17/401," in Correspondence Files, Bridge Preservation Section, WSDOT.

⁵ "Bridge Inspection Reports, 1952-1992," and "Underwater Inspection Report, November 1992," in "Columbia River Bridge at Bridgeport, No. 17/401," Correspondence Files, Bridge Preservation Section, WSDOT.