NPS Form 10-900
(Oct. 1990)

OMB No. 10024-0018

United States Department of the Interior
National Park Service

36N 37E 11,14

# National Register of Historic Places Registration Form

This form is for use in nominating or requesting determinations for individual properties and districts. See instructions in *How to Complete the National Register of Historic Places Registration Form* (National Register Bulletin 16A). Complete each item by marking "x" in the appropriate box or by entering the information requested. If an item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, architectural classification, materials, and areas of significance, enter only categories and subcategories from the instructions. Place additional entries and narrative items on continuation sheets (NPS Form 10-900a). Use a typewriter, word processor, or computer, to complete all items.

## 1. Name of Property

historic name Columbia River Bridge at Kettle Falls

other names/site number WSDOT 395/545

## 2. Location

street & number U.S. Route 395, spanning the Columbia River ☐ not for publication

city or town Kettle Falls ☒ vicinity

state Washington code WA county Ferry and Stevens code 019, 065 zip code 99141

## 3. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act, as amended, I hereby certify that this ☒ nomination ☐ request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60. In my opinion, the property ☒ meets ☐ does not meet the National Register criteria. I recommend that this property be considered significant ☐ nationally- ☒ statewide ☒ locally. (☐ See continuation sheet for additional comments.)

Mary M. Rampver 8/1/95

Signature of certifying official/Title Date

State of Federal agency and bureau

In my opinion, the property ☐ meets ☐ does not meet the National Register criteria. (☐ See continuation sheet for additional comments.)

Signature of certifying official/Title Date

State or Federal agency and bureau

## 4. National Park Service Certification

I hereby certify that the property is: Signature of the Keeper Date of Action

☐ entered in the National Register.
☐ See continuation sheet.

☐ determined eligible for the National Register
☐ See continuation sheet.

☐ determined not eligible for the National Register.

☐ removed from the National Register.

☐ other, (explain:)

Columbia River Bridge at Kettle Falls
Name of Property

Ferry/Stevens, Washington
County and State

## 5. Classification

**Ownership of Property**
(Check as many boxes as apply)

- ☐ private
- ☐ public-local
- ☒ public-State
- ☐ public-Federal

**Category of Property**
(Check only one box)

- ☐ building(s)
- ☐ district
- ☐ site
- ☒ structure
- ☐ object

**Number of Resources within Property**
(Do not include previously listed resources in the count.)

| Contributing | Noncontributing | |
|---|---|---|
| | | buildings |
| | | sites |
| 1 | | structures |
| | | objects |
| 1 | | Total |

**Name of related multiple property listing**
(Enter "N/A" if property is not part of a multiple property listing.)
"Bridges of Washington State, 1941-1950"
"Historic Bridges & Tunnels in Washington State"

**Number of contributing resources previously listed in the National Register**
0

## 6. Function or Use

**Historic Functions**
(Enter categories from instructions)
Transportation/road-related/bridge

**Current Functions**
(Enter categories from instructions)
Transportation/road-related/bridge

## 7. Description

**Architectural Classification**
(Enter categories from instructions)
Other: steel through truss

**Materials**
(Enter categories from instructions)
foundation
walls
roof
other steel
concrete

**Narrative Description**
(Describe the historic and current condition of the property on one or more continuation sheets.)

Columbia River Bridge at Kettle Falls
Name of Property

Ferry/Stevens, Washington
County and State

## 8. Statement of Significance

**Applicable National Register Criteria**
(Mark "x" in one or more boxes for the criteria qualifying the property for National Register listing.)

- [x] **A** Property is associated with events that have made a significant contribution to the broad patterns of our history.
- [ ] **B** Property is associated with the lives of persons significant in our past.
- [x] **C** Property embodies the distinctive characteristics of a type, period, or method of construction or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components lack individual distinction.
- [ ] **D** Property has yielded, or is likely to yield, information important in prehistory or history.

**Criteria Considerations**
(Mark "x" in all the boxes that apply.)

Property is:

- [ ] **A** owned by a religious institution or used for religious purposes.
- [ ] **B** removed from its original location.
- [ ] **C** a birthplace or grave.
- [ ] **D** a cemetery.
- [ ] **E** a reconstructed building, object, or structure.
- [ ] **F** a commemorative property.
- [ ] **G** less than 50 years of age or achieved significance within the past 50 years.

**Areas of Significance**
(Enter categories from instructions)

Engineering
Transportation

**Period of Significance**

1941-1945

**Significant Dates**

1941

**Significant Person**
(Complete if Criterion B is marked above)

n/a

**Cultural Affiliation**

n/a

**Architect/Builder**

Washington State, Dept. of Highways

**Narrative Statement of Significance**
(Explain the significance of the property on one or more continuation sheets.)

## 9. Major Bibliographical References

**Bibilography**
(Cite the books, articles, and other sources used in preparing this form on one or more continuation sheets.)

**Previous documentation on file (NPS):**

- [ ] preliminary determination of individual listing (36 CFR 67) has been requested
- [ ] previously listed in the National Register
- [ ] previously determined eligible by the National Register
- [ ] designated a National Historic Landmark
- [ ] recorded by Historic American Buildings Survey # _____
- [ ] recorded by Historic American Engineering Record # _____

**Primary location of additional data:**

- [ ] State Historic Preservation Office
- [x] Other State agency
- [ ] Federal agency
- [ ] Local government
- [x] University
- [ ] Other

Name of repository: Bridge Condition Unit, WSDOT, Olympia, WA; AHS, Eastern Washington University, Cheney, WA

Columbia River Bridge at Kettle Falls
Name of Property

Ferry/Stevens, Washington
County and State

## 10. Geographical Data

**Acreage of Property** less than one acre

**UTM References**
(Place additional UTM references on a continuation sheet.)

| | Zone | Easting | Northing |
|---|---|---|---|
| 1 | 11 | 417730 | 5276260 |
| 2 | | | |
| 3 | | | |
| 4 | | | |

☐ See continuation sheet

**Verbal Boundary Description** The property is a bridge, measuring 1,266 feet, spanning the Columbia River on U.S. Route 395, and connecting Ferry and Stevens counties, Washington.
(Describe the boundaries of the property on a continuation sheet.)

**Boundary Justification** The boundary of the property is the bridge itself.
(Explain why the boundaries were selected on a continuation sheet.)

## 11. Form Prepared By

name/title Robert H. Krier, J. Byron Barber, Robin Bruce, Craig Holstine

organization AHS, Eastern Washington University date 3 December 1991

street & number MS-168 Monroe Hall telephone (509)359-2284

city or town Cheney state WA zip code 99004

## Additional Documentation

Submit the following items with the completed form:

**Continuation Sheets**

**Maps**

A **USGS map** (7.5 or 15 minute series) indicating the property's location.

A **Sketch map** for historic districts and properties having large acreage or numerous resources.

**Photographs**

Representative **black and white photographs** of the property.

**Additional items**
(Check with the SHPO or FPO for any additional items)

## Property Owner

(Complete this item at the request of SHPO or FPO.)

name

street & number telephone

city or town state zip code

**7. Physical Description.**

The total length of the Columbia River Bridge at Kettle Falls (completed in 1941) is 1,266 feet 10.5 inches. The structure consists of a cantilever concrete T-beam and two concrete T-beam approach spans on the east end, one concrete T-beam and one concrete cantilever T-beam approach spans on the west end, and a riveted steel through cantilever truss main span. The total length of the concrete T-beam approach spans is 143 feet 2.5 inches on the east end and 73 feet on the west end, for a total of 216 feet 2.5 inches. The steel portion of the structure is 1,050 feet 8 inches long and consists of two anchor spans each 225 feet 4 inches long, two cantilever spans each 150 feet long, and suspended span 300 feet long. the central span is 600 feet long between main piers, making it the longest main span of any bridge built in Washington between 1941 and 1950.

The bridge has a nearly horizontal top chord and sloped bottom chords for the anchor spans and cantilever spans. This type of configuration is cost effective when compared to a straight bottom chord and sloped top chord because it reduces the height of the main piers. An unusual feature of this bridge is the use of sloping reinforced concrete struts running from the top of the first bent of the approach span to the bottom of the first pier of the steel structure to provide longitudinal stability to the top of the first bent. As this bent is approximately 90 feet high and the roadway fill is approximately 75 feet deep, the use of the sloping struts was an economical way of providing longitudinal support to the top of the bent to resist the forces induced by the fill.

**8. Statement of Significance.**

The Columbia River Bridge at Kettle Falls is eligible for inclusion in the National Register of Historic Places under Criteria A and C. Completed in 1941, the bridge connects Ferry and Stevens counties, Washington. The structure is significant in several regards. This steel truss bridge crosses one of the most historic features in the region, the Kettle Falls of the Columbia, now inundated. Waters behind Grand Coulee Dam (Lake Roosevelt) cover the falls where Native American peoples gathered to fish and trade for thousands of years. What was once a destination point is now a crossing on two of the state's major highways: State Route 20, traversing the Okanogan Highlands and the North Cascades, and U.S. Route 395, connecting southern British Columbia with Spokane and points east and south. (The same roadway serves as US 395 and SR 20 between the bridge and Colville, Washington.) In addition to its historical significance, the bridge is also important for engineering and design features. Use of sloping struts to provide longitudinal support to resist weight and pressure induced by massive fill represent the successful realization of innovative design concepts.

Construction of the Grand Coulee Dam and formation of Lake Roosevelt necessitated the building of two new bridges across the Columbia River and its tributaries. the largest of these was the bridge at Kettle Falls on Primary State Highway No. 3, now US 395. This bridge replaced an older structure which would be nearly inundated by the backwaters of the Grand Coulee Dam. The abutments of the older bridge are still clearly visible above high water. The present bridge was built at a higher clearance to allow high water runoff and navigable passage beneath. The replacement of the older bridge was a part of one of the largest projects undertaken by the federal government in this century, the Columbia Basin Project.

Construction cost for the bridge was approximately $452,000. he U.S. Bureau of Reclamation reimbursed the State of Washington for all costs associated with the bridge as part of the Grand coulee Dam–Columbia Basin Project. Integration of sloping struts (nearly horizontal top chord and sloped bottom chords for the anchor and cantilever spans) into the bridge design provided a cost-effective innovation. The design reduced the height of the main piers, thus contributing to the savings in material expenses. Lacey V. Murrow was the Director of Highways at the time the Columbia River Bridge at Kettle Falls was built. R. W. Finke was the Bridge Engineer. S. S. Mullen & Company was the contractor for the concrete approaches ad main piers, and Romano & Company was the contractor for the steel span.

The bridge both illustrates, and is representative of, the magnitude of the projects that characterized the Columbia Basin Project, one of the country's most monumental federal undertakings. The Columbia River Bridge at Kettle Falls occupies a vital and strategic crossing in the transportation network of western United States and Canada, as well as exemplifies ingenious design concepts.

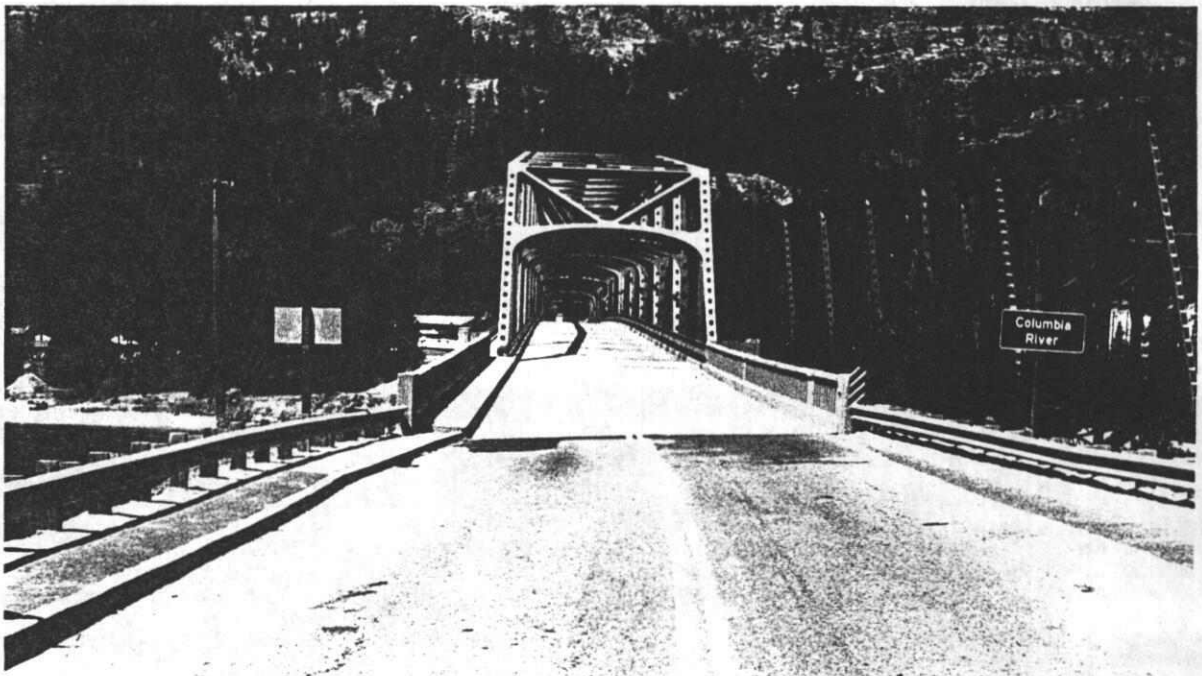
**9. Major Bibliographical References.**

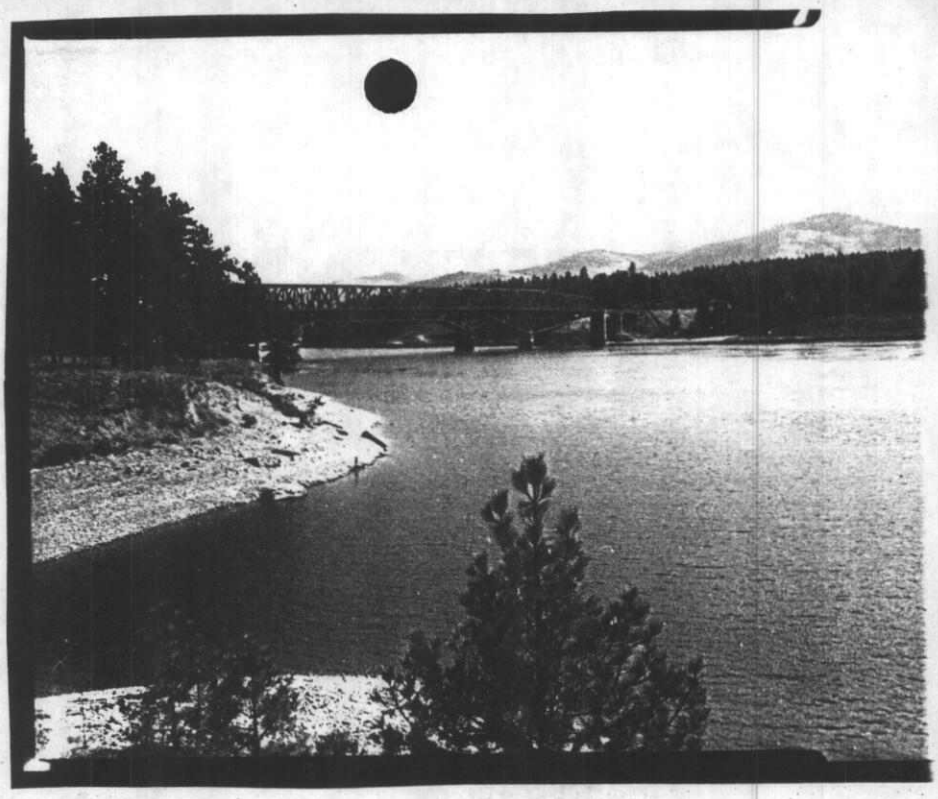
Ruby, Robert H., and John A. Brown. *Ferryboats on the Columbia River.* Seattle: Superior Publishing Company, 1974.

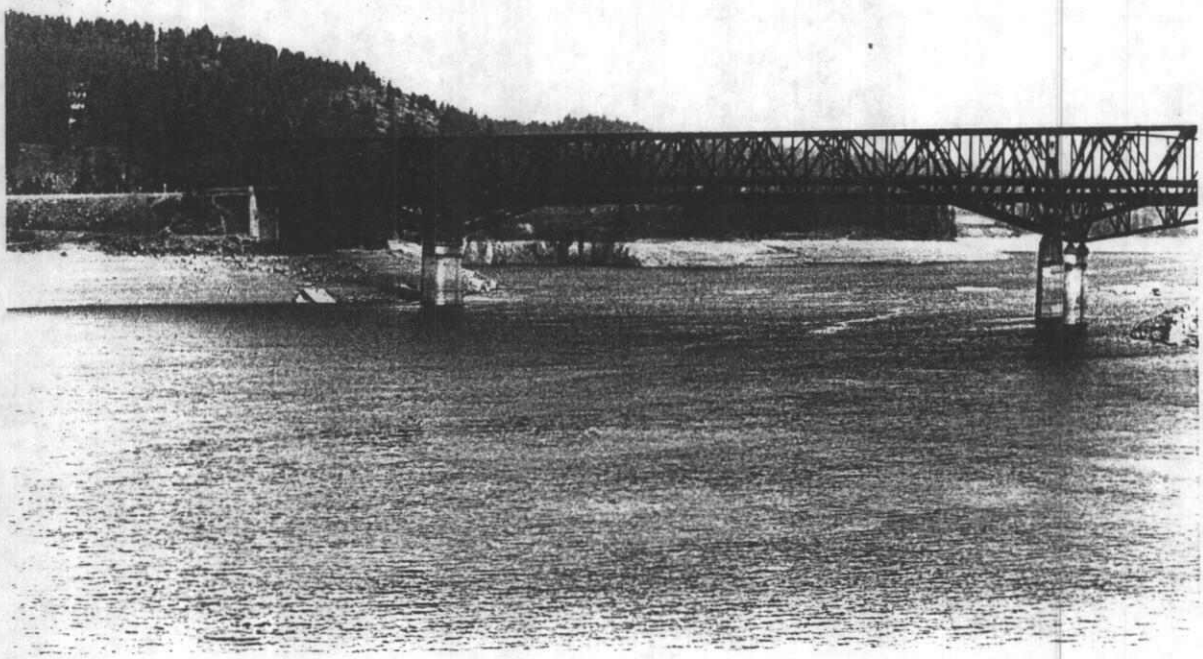
Washington State Department of Highways. *Biennial Reports*, 1946–1948, 1948–1950.

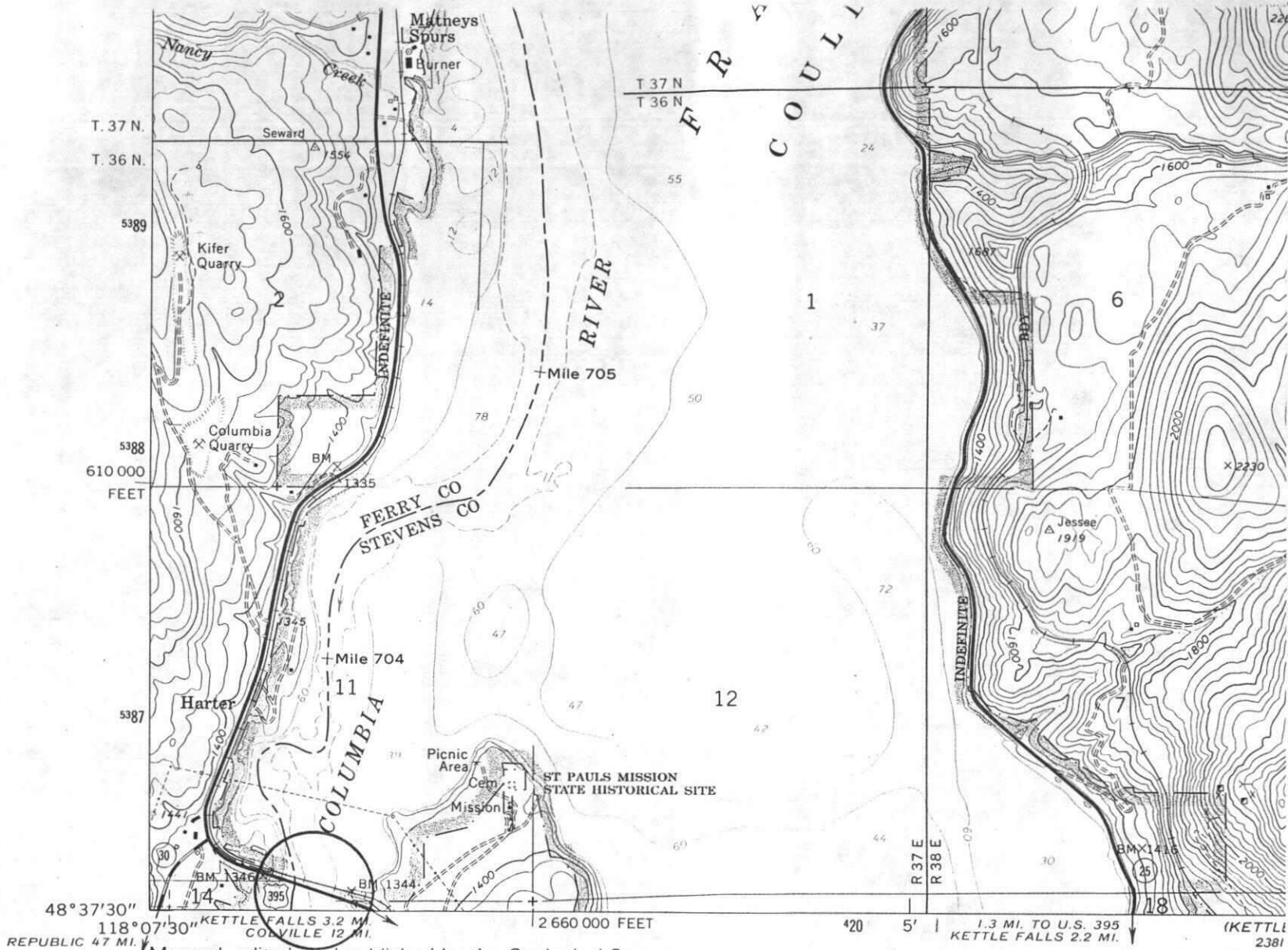
Washington State Department of Transportation (WSDOT). Columbia River Bridge at Kettle Falls plans (layout), revision dated 22 March 1940, on file in the Bridge Preservation Office, WSDOT, Olympia, Washington.

WSDOT. "Bridge Condition Card—Columbia River Bridge at Kettle Falls ," 18 February 1940, on file in the Bridge Preservation Office, WSDOT, Olympia, Washington.


Columbia
River








Mapped, edited, and published by the Geological Survey

Control by USGS, USC&GS, and U.S. Bureau of Reclamation

Topography by photogrammetric methods from aerial photographs taken 1965. Field checked 1969

Selected hydrographic data compiled from USC&GS Chart 6169 (1968). This information is not intended for navigational purposes

Polyconic projection. 1927 North American datum
10,000-foot grid based on Washington coordinate system, north zone
1000-meter Universal Transverse Mercator grid ticks, zone 11, shown in blue
To place on the predicted North American Datum 1983 move the projection lines 16 meters north and 81 meters east as shown by dashed corner ticks

GN
MN
0°48'
14 MILS
21½°
382 MILS

UTM GRID AND 1969 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

SCALE

1 ½

1000 0 1000 2000 30

1 .5

CONTOUR INTE
DOTTED LINES REPRESI
NATIONAL GEODETIC VE
DEPTH CURVES AND SOUNDINGS IN FEET-DAT

marcus quad

THIS MAP COMPLIES WITH NATIC
FOR SALE BY U. S. GEOLOGICAL SURVEY, DENVER
A FOLDER DESCRIBING TOPOGRAPHIC MAPS


Columbia
River
F.D. ROOSEVELT
LAKE

Columbia River Bridge at
Kettle Falls, view from east
August 1994
Photographer: Lawrence M. Jacobson

Columbia River Bridge at
Kettle Falls - View from southwest
August 1994
Photographer: Lawrence M. Jacobson

# Historic Property Inventory Report

## Location

Field Site No. DAHP No.

Historic Name: Columbia River Bridge at Kettle Falls

Common Name: WSDOT 395/595, Kettle Falls Bridge

Property Address: xxx U. S. Route 395/595, Spanning the Columbia River, Kettle Falls, WA

Comments:

Tax No./Parcel No.

Plat/Block/Lot

Acreage

Supplemental Map(s)

| Township/Range/EW | Section | 1/4 Sec | 1/4 1/4 Sec | County | Quadrangle |
|---|---|---|---|---|---|
| T36R37E | 11 | | | Ferry<br>Stevens | MARCUS |

Coordinate Reference

Easting: 2216745

Northing: 1209734

Projection: Washington State Plane South

Datum: HARN (feet)

## Identification

Survey Name: 1879 Kettle Falls Bridge

Date Recorded: 08/14/2012

Field Recorder: Amanda J. Bennett, M.L.A., Historical Research Ass

Owner's Name: Washington State Department of Transportation

Owner Address: 310 Maple Park Avenue SE

City: Olympia State: WA Zip: 98504

Classification: Structure

Resource Status:
National Register
Other (HABS, HAER)

Comments:

Within a District?

Contributing?

National Register: Bridges of Washington State MPS

Local District:

National Register District/Thematic Nomination Name: Columbia River Bridge at Kettle Falls

Eligibility Status: Not Determined - SHPO

Determination Date: 1/1/0001

Determination Comments:

## Description

Historic Use: Transportation - Road-Related (vehicular)

Current Use: Transportation - Road-Related (vehicular)

Plan: Rectangle

Stories: 0

Structural System: Steel

Changes to Plan:

Changes to Interior:

Changes to Original Cladding:

Changes to Windows:

Changes to Other:

Other (specify):

| Style: | Cladding: | Roof Type: | Roof Material: |
|---|---|---|---|
| Other | Metal | None | None |

| Foundation: | Form/Type: |
|---|---|
| Concrete - Poured | Bridge - Steel Cantilever Truss |

## Narrative

| Study Unit | Other |
|---|---|
| Transportation<br>Science and Engineering | |

Date of Construction: 1941 Built Date

Builder:

| | |
|---|---|
| | L. Romano Engineering Co. of Seattle, steel construction; S. S. Mullen, Inc., concrete construction |
| Engineer: | R. W. Finke, Washington Dept. of Highways, state bridge engineer |
| Architect: | |

Property appears to meet criteria for the National Register of Historic Places:Yes

Property is located in a potential historic district (National and/or local): No

Property potentially contributes to a historic district (National and/or local): No

Statement of Significance:

This bridge was one of two steel cantilever spans that the Washington Department of Highways constructed to replace structures flooded by the waters rising behind Grand Coulee Dam.1

The Columbia River Bridge at Kettle Falls is eligible for inclusion in the National Register of Historic Places under Criteria A and C. Completed in 1941, the bridge connects Ferry and Stevens counties, Washington. The structure is significant in several regards. This steel truss bridge crosses one of the most historic features in the region, the Kettle Falls of the Columbia, now inundated. Waters behind Grand Coulee Dam (Lake Roosevelt) cover the falls where Native American peoples gathered to fish and trade for thousands of years. What was once a destination point is now a crossing on two of the state's major highways: State Route 20, traversing the Okanogan Highlands and the North Cascades, and U.S. Route 395, connecting southern British Columbia with Spokane and points east and south. (The same roadway serves as US 395 and SR 20 between the bridge and Colville, Washington.) In addition to its historical significance, the bridge is also important for engineering and design features. Use of sloping struts to provide longitudinal support to resist weight and pressure induced by massive fill represent the successful realization of innovative design concepts.

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1. Robert W. Hadlow, “Columbia River Bridge at Kettle Falls (HAER No. WA-91)” Historic American Engineering Record, (Washington, D.C.: Library of Congress Prints and Photographs Division, 1993).
2. Robert H. Krier, J. Byron Barber, Robin Bruce, and Craig Holstine, Columbia River Bridge at Kettle Falls National Register of Historic Places Inventory Nomination Form, (Cheney, WA: Archeological and Historical Services, Eastern Washington University, 1991).

Description of Physical Appearance:

The Washington Department of Highways constructed the following bridge over the Columbia River at Kettle Falls. Read north to south by route (west to east by compass), the bridge consists of:
one 17' reinforced-concrete T-beam approach span

one 53' reinforced-concrete T-beam approach span

one 225' steel through-truss anchor arm

one 187'-6 steel through-truss cantilever span

one 225' steel through-truss suspended span

one 187'-6M steel through-truss cantilever span

one 225' steel through-truss anchor arm

one 59'-9 reinforced-concrete T-beam approach span

one 61' reinforced-concrete T-beam approach span

one 19'-6 reinforced-concrete T-beam approach span

total length of steel cantilever and suspended span—600'

total length of steel structure—1,050'

total length of structure—1,266'-10

Roadway width curb-to-curb measured 24'. The bridge was designed with one 3'-6M sidewalk on the west side, cantilevered outside of the truss.1
The total length of the Columbia River Bridge at Kettle Falls (completed in 1941) is 1,266 feet 10.5 inches. The structure consists of a cantilever concrete T-beam and two concrete T-beam approach spans on the east end, one concrete T-beam and one concrete cantilever T-beam approach spans on the west end, and a riveted steel through cantilever truss main span. The total length of the concrete T-beam approach spans is 143 feet 2.5 inches on the east end and 73 feet on the west end, for a total of 216 feet 2.5 inches. The steel portion of the structure is 1,050 feet 8 inches long and consists of two anchor spans each 225 feet 4 inches long, two cantilever spans each 150 feet long, and suspended span 300 feet long. the central span is 600 feet long between main piers, making it the longest main span of any bridge built in Washington between 1941 and 1950.
The bridge has a nearly horizontal top chord and sloped bottom chords for the anchor spans and cantilever spans. This type of configuration is cost effective when compared to a straight bottom chord and sloped top chord because it reduces the height of the main piers. An unusual feature of this bridge is the use of sloping reinforced concrete struts running from the top of the first bent of the approach span to the bottom of the first pier of the steel structure to provide longitudinal stability to the top of the first bent. As this bent is approximately 90 feet high and the roadway fill is approximately 75 feet deep, the use of the sloping struts was an economical way of providing longitudinal support to the top of the bent to resist the forces induced by the fill.2
1. Robert W. Hadlow, “Columbia River Bridge at Kettle Falls (HAER No. WA-91)” Historic American Engineering Record, (Washington, D.C.: Library of Congress Prints and Photographs Division, 1993).
2. Robert H. Krier, J. Byron Barber, Robin Bruce, and Craig Holstine, Columbia River Bridge at Kettle Falls National Register of Historic Places Inventory Nomination Form, (Cheney, WA: Archeological and Historical Services, Eastern Washington University, 1991).

| | |
|---|---|
| Major Bibliographic References: | Hadlow, Robert W. Columbia River Bridge at Kettle Falls (HAER No. WA-91). Historic American Engineering Record. Washington, D.C.: Library of Congress Prints and Photographs Division, 1993.<br><br>Robert H. Krier, J. Byron Barber, Robin Bruce, and Craig Holstine. Columbia River Bridge at Kettle Falls National Register of Historic Places Inventory Nomination Form, Cheney, WA: Archeological and Historical Services, Eastern Washington University, 1991. On file at the Department of Archaeology and Historic Preservation, Olympia, Washington. |

## Photos

Kettle Falls Bridge eastern approach, looking west
2012

Kettle Falls Bridge, U.S. Route 395, looking west
2012

# Historic Register Report

Historic Name: Columbia River Bridge at Kettle Falls
(WSDOT 395/545)
Address: U.S. Route 395, Spanning the Columbia River
City: Kettle Falls
County: Ferry

Download nomination form

Historic Use: Transportation
Style: None
Built: 1941
Architect: Washington State Department of Highways
Builder:

Smithsonian Number: 45FE00484
Date Listed: 3/28/1995
Listing Status: WHR/NR
Classification: STR
Resource Count: 1
Area of Significance: Engineering
Level of Significance: State

Listing Criteria: A, C

## Statement of Significance

## Photos