

1. SITE I.D. NO

HAER INVENTORY

Historic American Engineering Record
Department of the Interior, Washington, D.C.

2. INDUSTRIAL CLASSIFICATION

Bridges, Trestles, and Aqueducts

7 5 9 5

3. PRIORITY

1

4. DANGER OF DEMOLITION?
(SPECIFY THREAT) YES NO UNKNOWN

ARCH: Concrete

Designation Number:

101/266 101053102200

5. DATE

1934/00

6. GOVT SOURCE OF THREAT

OWNER

ADMIN

7. OWNER/ADMIN

State Department of Transportation

8. NAME(S) OF STRUCTURE

Duckabush River Bridge

9. OWNER'S ADDRESS

Highway Administration Building
Olympia, Washington 9850410. STATE
COUNTYWA
03

COUNTY NAME

Jefferson

CITY/VICINITY

Duckabush

CONG.
DIST.

03

STATE
COUNTY

COUNTY NAME

CITY/VICINITY

CONG.
DIST.

11. SITE ADDRESS (STREET & NO)

Crossing: Duckabush River

25.1 S Jct. SR 104/101

12. EXISTING
SURVEYS NR NHL HABS HAER-I HAER NPS CL6
 CONF STATE COUNTY LOCAL OTHER

13. SPECIAL FEATURES (DESCRIBE BELOW)

 INTERIOR INTACT EXTERIOR INTACT ENVIRONS INTACT

14. UTM ZONE

EASTING

NORTHING

SIGN

SCALE

 1:24 1:62.5 OTHERQUAD
NAME

Brinnon, Washington

UTM ZONE

EASTING

NORTHING

SIGN

SCALE

 1:24 1:62.5 OTHERQUAD
NAME

15. CONDITION

70 EXCELLENT71 GOOD72 FAIR73 DETERIORATED74 RUINS75 UNEXPOSED76 ALTERED82 DESTROYED85 DEMOLISHED

16. INVENTORIED BY

Lisa Soderberg

AFFILIATION

HAER/Washington State Bridge Inventory

DATE

June 1979

17. DESCRIPTION AND BACKGROUND HISTORY, INCLUDING CONSTRUCTION DATE(S), HISTORICAL DATE(S), PHYSICAL DIMENSIONS,
MATERIALS, EXTANT EQUIPMENT, AND IMPORTANT BUILDERS, ENGINEERS, ETC.

A concrete, through tied, ribbed arch was constructed on Highway 101 over the Duckabush River in 1934 by the West Coast Construction Company. The 168 foot bridge consists of a 110 foot concrete arch and two concrete girder spans. It is 24 feet wide, curb to curb.

Unlike the flat truss or girder, the arch exerts a horizontal thrust on the skewbacks. In most arches, massive abutments and foundations are necessary to resist the horizontal thrust. However in the tied arch, the horizontal thrust is resisted by longitudinal ties which extend between the hinged springing points. In the Duckabush River Bridge, the deck slab itself, which is hung by suspenders from the pair of arch ribs, acts as a tie. Since the arch is in compression the deck slab is subject to a tensile stress. The double function of the deck slab was an economical solution, and it eliminated the need of massive abutments. Carl Condit points out in his book, American Building Art, that the concrete tied arch demonstrates how techniques commonly used in steel arch construction were adapted to the concrete

(CONT OVER)

18. ORIGINAL USE

vehicular

PRESENT USE

vehicular

ADAPTIVE USE

19. REFERENCES—HISTORICAL REFERENCES, PERSONAL CONTACTS, AND/OR OTHER

State Department of Transportation files.

Carl W. Condit, American Building Art, 2 Vols., (New York, 1960), 2:116, 126, 206

(CONT OVER)

20. URBAN AREA 50,000
POP. OR MORE? YES NO

21. HCRS REGION

NW

22. PUBLIC ACCESSIBILITY

 YES, LIMITED YES, UNLIMITED NO UNKNOWN

23. EDITOR

INDEXER

24. LOCATED IN AN HISTORIC DISTRICT?

 YES NO

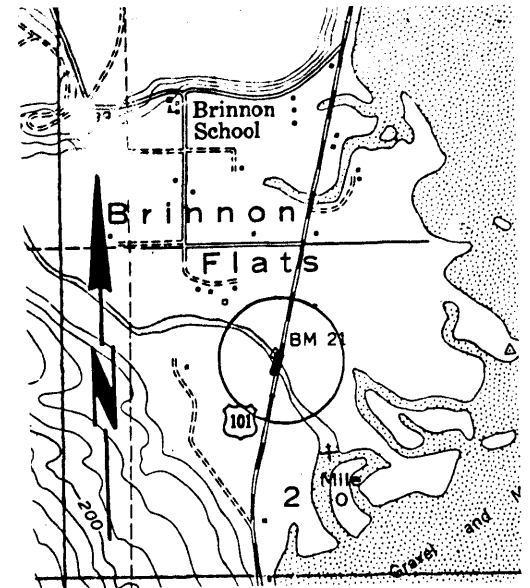
NAME

DISTRICT I.D. NO

Description (continued)

form. For example, as in steel arch construction, the two arch ribs of the Duckabush River Bridge were connected by three struts to provide lateral rigidity against traffic and wind loads.

The visual impact of this short-spanned concrete overhead arch is monumental, and demonstrates the simple organic power of the concrete form. The Duckabush River Bridge is one of five concrete tied arches within the State. It is not the longest of the five, but its rise is the greatest. Although there are examples of tied arches that were built throughout the 20's and 30's, it is a rare concrete arch form.



REFERENCES (CONTINUED)

ABSTRACT	HAER NO	LC	TECH REPORT	HIST REPORT	CONTEMP PHOTO	HIST PHOTO	CONTEMP DRWG	HIST DRWG	COLOR PLATE	PHOTOGRAM	SW	FILM