HAER INVENTORY

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

1. SITE I.D. NO

2. INDUSTRIAL CLASSIFICATION: Bridges, Trestles, and Aqueducts — 7595

3. PRIORITY: 1

4. DANGER OF DEMOLITION? (SPECIFY THREAT) ☐ YES ☐ NO ☐ UNKNOWN — Life expectancy: 1999

5. DATE: 1924/00

6. GOVT SOURCE OF THREAT: OWNER ADMIN

ARCH: Concrete

Designation Number: 101/404 10105
31993 101/404 1010531970

7. OWNER/ADMIN: State Department of Transportation

8. NAME(S) OF STRUCTURE
North Hamma Hamma River
South Hamma Hamma River

9. OWNER'S ADDRESS
Highway Administration Building
Olympia, Washington 98504

10. STATE COUNTY: WA 045 — COUNTY NAME: Mason — CITY/VICINITY: Eldon — CONG. DIST.: 03

STATE COUNTY — COUNTY NAME — CITY/VICINITY — CONG. DIST.

11. SITE ADDRESS (STREET & NO.)
5.1 South Jefferson Co./5.3 South of Jefferson Co.

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.
N. UTM ZONE 10 — EASTING 496800 — NORTHING 5264920 — SIGN — SCALE ☐ 1:24 ☒ 1:62.5 ☐ OTHER — QUAD NAME: The Brothers, Washington
S. UTM ZONE 10 — EASTING 496900 — NORTHING 5264570 — SIGN — SCALE ☐ 1:24 ☐ 1:62.5 ☐ OTHER — QUAD NAME:

15. CONDITION: 70 ☐ EXCELLENT 71 ☐ GOOD 72 ☐ FAIR 73 ☐ DETERIORATED 74 ☐ RUINS 75 ☐ UNEXPOSED 76 ☐ ALTERED 82 ☐ DESTROYED 85 ☐ 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.

Two identical single-spanned concrete tied arches were constructed by the Colonial Building Company in 1924 over the North Hamma Hamma and the South Hamma Hamma River. Spaced a few hundred feet apart, their arched forms frame a pathway of trees creating the momentary illusion of a serene, sheltered boulevard along Highway 101 on the Olympic Peninsula.

Each bridge is 154 feet long, and consists of a 150 foot three hinged arch with a rise of 30 feet. 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 Hamma Hamma River Bridges, 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

(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

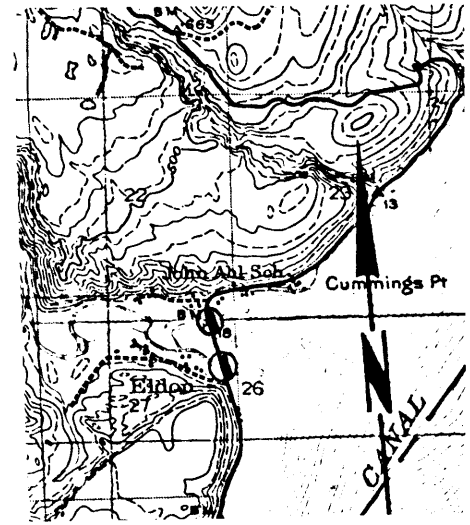
77
78

FHR-8-260 1/79

Description (continued)

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 form. For example, as in steel arch construction, the two arch ribs were connected by struts to provide lateral rigidity against traffic and wind loads. Originally, six reinforced concrete struts connected the Hamma Hamma River arches above the roadway. However, two struts were removed from each bridge to increase the vertical clearance of the two spans.

The North and South Hamma Hamma River Bridges are two of five concrete tied arches within the State. Of the five bridges, their arch spans are the longest. 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

GP O 937 842