

**United States Department of the Interior
National Park Service**

For NPS use only

**National Register of Historic Places
Inventory—Nomination Form**

received AUG 9 1983

date entered

SEP 22 1983

See instructions in *How to Complete National Register Forms*
Type all entries—complete applicable sections

1. Name

historic DURGIN BRIDGE

and/or common DURGIN BRIDGE

2. Location

street & number Durgin Bridge Road, n/a not for publication

city, town Sandwich n/a vicinity of

state N.H. code 33 county Carroll code 003

3. Classification

Category	Ownership	Status	Present Use	
<input type="checkbox"/> district	<input checked="" type="checkbox"/> public	<input checked="" type="checkbox"/> occupied	<input type="checkbox"/> agriculture	<input type="checkbox"/> museum
<input type="checkbox"/> building(s)	<input type="checkbox"/> private	<input type="checkbox"/> unoccupied	<input type="checkbox"/> commercial	<input type="checkbox"/> park
<input checked="" type="checkbox"/> structure	<input type="checkbox"/> both	<input type="checkbox"/> work in progress	<input type="checkbox"/> educational	<input type="checkbox"/> private residence
<input type="checkbox"/> site	Public Acquisition	Accessible	<input type="checkbox"/> entertainment	<input type="checkbox"/> religious
<input type="checkbox"/> object	<input type="checkbox"/> in process	<input type="checkbox"/> yes: restricted	<input type="checkbox"/> government	<input type="checkbox"/> scientific
	<input type="checkbox"/> being considered	<input checked="" type="checkbox"/> yes: unrestricted	<input type="checkbox"/> industrial	<input checked="" type="checkbox"/> transportation
	<input checked="" type="checkbox"/> N/A	<input type="checkbox"/> no	<input type="checkbox"/> military	<input type="checkbox"/> other:

4. Owner of Property

name Town of Sandwich

street & number Town Hall - Maple Street

city, town Center Sandwich n/a vicinity of state New Hampshire 03227

5. Location of Legal Description

courthouse, registry of deeds, etc. Not available. (See Continuation Sheet #1.)

street & number

city, town state

6. Representation in Existing Surveys

title NH Hist. Bridge Inventory
Sandwich -- Bridge # 226/119 has this property been determined eligible? yes no

date August 1982 federal state county local

depository for survey records NH Dept. of Public Works & Highways (Hazen Drive)

city, town Concord state New Hampshire 03301

7. Description

Condition		Check one	Check one
<input type="checkbox"/> excellent	<input type="checkbox"/> deteriorated	<input type="checkbox"/> unaltered	<input checked="" type="checkbox"/> original site
<input checked="" type="checkbox"/> good	<input type="checkbox"/> ruins	<input checked="" type="checkbox"/> altered	<input type="checkbox"/> n/a
<input type="checkbox"/> fair	<input type="checkbox"/> unexposed		date <u>n/a</u>

Describe the present and original (if known) physical appearance

Durgin Bridge is a wooden covered bridge spanning the Cold River in the Town of Sandwich. It connects Fellows Hill Road and Foss Flats Road on the south side of the river with Durgin Bridge Road, Cleveland Hill Road, and the now abandoned River Road on the north side of the river. The bridge, which sits on concrete faced stone abutments, is supported by two Paddleford trusses, supplemented by a pair of laminated arches. It has walls of vertical boarding, overhanging portals, and a metal sheathed gable roof. Durgin Bridge has an overall length of 110 feet and an outside width of 19 feet. The roadway itself, within the bridge is 96 feet long and 16 feet wide (narrowed to 14 feet by the added arches).

The Paddleford truss is a panel truss, a modification of the Long truss. In the long truss, the horizontal upper and lower chords are separated by widely spaced vertical posts. Between the posts are two diagonal timbers jointed into the posts--a brace (slanting towards the midpoint of the bridge) and a counterbrace (slanting towards the end of the bridge). (Each such section of the truss between two vertical posts is a panel.) In the Paddleford truss, the counterbrace is extended into the next panels, overlapping the posts, to further stiffen the truss by, in effect, superimposing the panels. The trusses of the Durgin Bridge are twelve panel Paddleford trusses with the counterbraces overlapping the posts at both ends and jointing into the upper and lower chords. The counterbraces were deleted from the end panels of the trusses. The vertical posts are extended through the upper chord to support the simple roof trusses. (The roof trusses are also supported by braces from the inner faces of the posts to the horizontal tie beams of the roof trusses.) The upper chords are extended at each end to support the overhanging portals. Counterbraces support these extensions of the upper chords. Short vertical timbers are suspended from the ends of each upper chord, so that braces could be added from the short timbers to the roof trusses of the gable ends. Resting on the lower chords of the two trusses are the transverse floor beams which support the heavy longitudinal planks of the bridge floor.

The arches were added in 1966 to supplement the trusses. The two arches, placed on the insides of the trusses, are each composed of twenty laminated planks. They spring from concrete pads on the faces of the abutments and rise, through the bridge floor, reaching almost to the upper chord at their peaks. Eight transverse beams are suspended from the arches, seven from tie rods, one at the northern end from metal plates. The transverse beams support a pair of longitudinal joists which, in turn, support the older transverse floor beams. But the arch supported joists are actually placed a half inch below the floor beams. Only when the floor is deflected that half inch, do the arches begin to bear any of the weight of traffic. So, the trusses and arches are really independent, with the trusses carrying the deadweight of the bridge, and the arches only coming into play when heavy vehicles cross the bridge.

The sides of the bridge are sheathed in vertical boarding, with thin battens on the inside of the bridge, not on the outside as is often the case. Each side is broken by two short but long rectangular openings which help to light the bridge interior. (As the eaves are open, light also filters in under them.) The gable ends have horizontal boarding with close verges and plain trim. In each gable is a wooden sign with the bridge's name and the incorrect date of "1828", and a metal sign stating the bridge's legal load limit. The roof trusses, each composed of a tiebeam, two rafters and two struts, extend over the sides of the bridge beyond the posts which support them. Between the tiebeams are diagonal horizontal timbers which further stiffen the roof structure. The trusses support purlins which, in turn, support a roof of corrugated metal.

8. Significance

Period	Areas of Significance—Check and justify below			
<input type="checkbox"/> prehistoric	<input type="checkbox"/> archeology-prehistoric	<input type="checkbox"/> community planning	<input type="checkbox"/> landscape architecture	<input type="checkbox"/> religion
<input type="checkbox"/> 1400-1499	<input type="checkbox"/> archeology-historic	<input type="checkbox"/> conservation	<input type="checkbox"/> law	<input type="checkbox"/> science
<input type="checkbox"/> 1500-1599	<input type="checkbox"/> agriculture	<input type="checkbox"/> economics	<input type="checkbox"/> literature	<input type="checkbox"/> sculpture
<input type="checkbox"/> 1600-1699	<input type="checkbox"/> architecture	<input type="checkbox"/> education	<input type="checkbox"/> military	<input type="checkbox"/> social/
<input type="checkbox"/> 1700-1799	<input type="checkbox"/> art	<input checked="" type="checkbox"/> engineering	<input type="checkbox"/> music	<input type="checkbox"/> humanitarian
<input checked="" type="checkbox"/> 1800-1899	<input type="checkbox"/> commerce	<input type="checkbox"/> exploration/settlement	<input type="checkbox"/> philosophy	<input type="checkbox"/> theater
<input type="checkbox"/> 1900-	<input type="checkbox"/> communications	<input type="checkbox"/> industry	<input type="checkbox"/> politics/government	<input checked="" type="checkbox"/> transportation
		<input type="checkbox"/> invention		<input type="checkbox"/> other (specify)

Specific dates 1869 **Builder/Architect** Jacob Berry

Statement of Significance (in one paragraph)

Durgin Bridge is significant as a well preserved example of the covered highway bridges of the 19th century, and as one of the few surviving Paddleford truss bridges in the country.

Transportation: The Cold River, which flows southeast from the White Mountains, cuts off the northeastern corner of Sandwich from the rest of the township. Historically, there have only been two important river crossings serving this isolated corner--the bridge at Whiteface village, and the bridge near James Durgin's Mill which has come to be known by the miller's name. Durgin Bridge replaced a ford located a quarter of a mile upstream. It is not known when the first bridge was erected on the site, but a bridge is recorded as standing there in 1820. To the summer tourist, the Cold River may seem a placid stream. But like many White Mountain rivers with steep mountain watersheds, it can be turned into a raging torrent by a heavy rainstorm. Floods destroyed three previous bridges at the site in 1844, 1855 and 1869. After the flood of 1869, the Town hired Jacob Berry of Conway to erect a new bridge. (Unfortunately, since the Town Records are lost, it is not clear whether the contractor was Jacob E. Berry (1802-1870) or his son, Jacob H. Berry (1827-1892), both of whom built covered bridges. It is even possible that the two men worked on the bridge together.) Berry eliminated the central pier that had been used by all the previous bridges, and raised the new bridge high enough to escape floods with a ten foot rise of water. His bridge has withstood every flood since, and has escaped the demolition or destruction by fire that has been the fate of so many other covered bridges. (Today, there are only fifty covered highway bridges in New Hampshire, although well over two hundred are known to have been built in the state.)

The Town of Sandwich has carefully maintained Durgin Bridge over the years, making only a few changes. The stone sbutments have been faced with concrete, and the corrugated metal roof probably replaces an earlier shingled roof. The most important change was the addition in 1966 and 1967 of the two laminated arches, by noted covered bridge builder and restorer, Milton S. Graton, to enable the bridge to carry heavy vehicles, particularly fire and highway department trucks. These changes have not significantly altered the bridge, either structurally or visually. Today, Durgin Bridge is a well preserved example of the covered wooden highway bridge, which was such an integral part of the 19th century American transportation system. The bridge has provided a continuous transportation link for this portion of town since 1869.

Engineering: The Paddleford truss was developed by the New Hampshire bridge builder, Peter Paddleford (1785-1859). Paddleford had built several bridges using the panel truss patented by army engineer Col. Stephen H. Long in 1830. He modified the Long truss by extending the counterbraces, thus superimposing the panels and stiffening the truss. Paddleford never patented or promoted his truss. But its use spread, as other bridge builders in northern New England learned of it. One such convert was Jacob E. Berry, who assisted Paddleford in building a bridge in Conway. (Paddleford built at least four bridges in the Conway-Fryeburg area.) The Berrys used the Paddleford truss in the three surviving bridges that they are known to have built, the Swift River Bridge in Conway, the Whittier Bridge in Ossipee, and the Durgin Bridge in Sandwich. The Paddleford truss

-continued

9. Major Bibliographical References

(See Continuation Sheet #3.)

10. Geographical Data

Acreege of nominated property .05

Quadrangle name Mt. Chocorua, NH

Quadrangle scale 1:62500

UTM References

A

1	9	3	0	9	9	5	0	4	8	5	8	3	7	5
Zone		Easting				Northing								

B

Zone		Easting				Northing								

C

Zone		Easting				Northing								

D

Zone		Easting				Northing								

E

Zone		Easting				Northing								

F

Zone		Easting				Northing								

G

Zone		Easting				Northing								

H

Zone		Easting				Northing								

Verbal boundary description and justification: The nominated property consists only of Durgin Bridge and its abutments. The bridge is located in the east central portion of the Town of Sandwich. It spans the Cold River at the intersections of Durgin Bridge Road, Cleveland Hill Road, Fellows Hill Road, Foss Flat Road, and the now abandoned River Road.

List all states and counties for properties overlapping state or county boundaries

state n/a code county code

state n/a code county code

11. Form Prepared By

name/title David L. Ruell

organization Lakes Region Planning Commission date March 30, 1983

street & number Main Street telephone 279-8171

city or town Meredith state New Hampshire 03253

12. State Historic Preservation Officer Certification

The evaluated significance of this property within the state is:

national state local

As the designated State Historic Preservation Officer for the National Historic Preservation Act of 1966 (Public Law 89-665), I hereby nominate this property for inclusion in the National Register and certify that it has been evaluated according to the criteria and procedures set forth by the National Park Service.

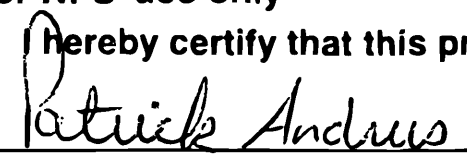
State Historic Preservation Officer signature 

Commissioner, Dept. of Resources & Economic Development

title NH State Historic Preservation Officer date JUL 25 1983

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I hereby certify that this property is included in the National Register

 date 9/22/83
for Keeper of the National Register

Attest: _____ date _____

Chief of Registration

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Continuation sheet #1 - DESCRIPTION

LOCATION OF LEGAL

Item number 5

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The layout of Durgin Bridge as a public highway would have been recorded in the Town Records. Unfortunately, these records burned in a 1934 fire. Since the nominated property consists only of the bridge and its abutments, a legal description of the property, i.e., the highway right-of-way, is not needed for a description of the property.

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Continuation sheet #2 - SIGNIFICANCE

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never became as popular as any of the patented trusses, and its use was limited to a relatively small region. Many have since disappeared, including all of the bridges contributed to Peter Paddleford himself. Today, there are only twenty-one remaining Paddleford truss bridges--five in northwestern Maine, thirteen in northern New Hampshire, and three in northeastern Vermont. These few survivors, including the Durgin Bridge, are important reminders of a significant episode in American engineering history, which should be recognized and carefully preserved. In the town of Sandwich, Durgin Bridge is the only covered bridge which still exists and continues in service.

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MAJOR BIBLIOGRAPHICAL

Continuation sheet #3 - REFERENCES

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Richard Sanders Allen, COVERED BRIDGES OF THE NORTHEAST, (Brattleboro, VT, 1957).

Milton S. Graton, THE LAST OF THE COVERED BRIDGE BUILDERS, (Ashland, N.H., 1978).

Barbara S. Hoag, "The Year That Was, July 1, 1966 - June 30, 1967", FORTY-EIGHTH ANNUAL EXCURSION OF THE SANDWICH HISTORICAL SOCIETY (Sandwich, N.H., 1967).

Thedia Cox Kenyon, NEW HAMPSHIRE'S COVERED BRIDGES, (Sanbornville, N.H., 1957).

George B. Pease, "Sandwich Covered Bridges", THIRTY-FOURTH ANNUAL EXCURSION OF THE SANDWICH HISTORICAL SOCIETY (Sandwich, N.H., 1953).

"The Seven Mile Round", SEVENTH ANNUAL EXCURSION OF THE SANDWICH HISTORICAL SOCIETY (Sandwich, N.H., 1926).

W. Edward White, COVERED BRIDGES OF NEW HAMPSHIRE, (Plymouth, N.H., 1942).

Correspondence - Audrey Berry, Tamworth, N.H.

Correspondence - Alvah Carver, Conway Historical Society, Conway, N.H.

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Continuation sheet #4 - SKETCH MAP

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Durgin Bridge Sandwich, N.H.

