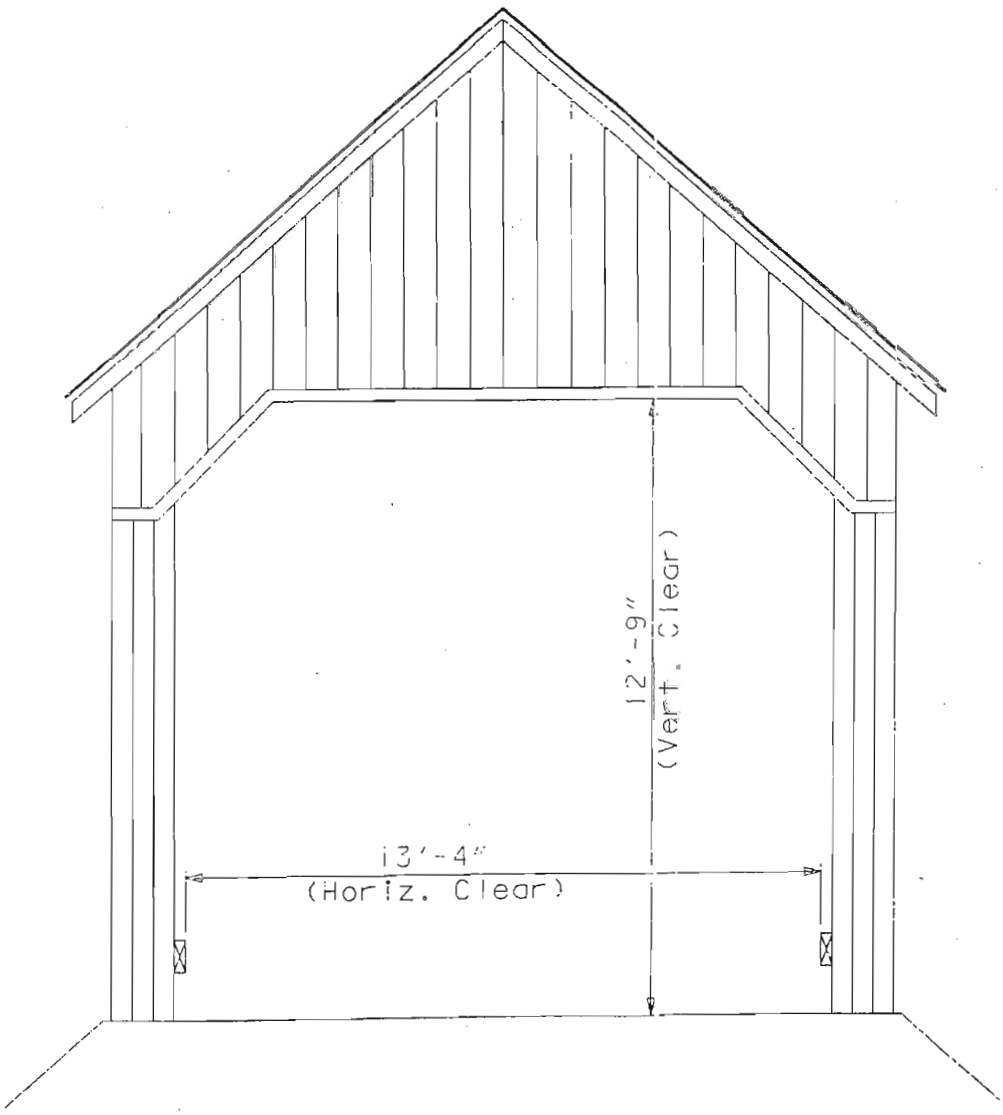
APPENDIX A

NATIONAL REGISTER OF HISTORIC PLACES INVENTORY - NOMINATION FORM

BRIDGE NAME	BRIDGE NUMBER	TOWN HIGHWAY	FEATURE CROSSED	DATE
WARREN	6	FAS 188	MAD RIVER	10-8-93



END VIEW

1/4" = 1'-0"

FIGURE 6

VERMONT AGENCY OF TRANSPORTATION
COVERED BRIDGE STUDY

BRIDGE NO. 6 (WARREN)
FAS 188 OVER MAD RIVER

END VIEW AND CROSS SECTION

TOWN WARREN COUNTY: WASHINGTON

McFARLAND-JOHNSON, INC.
BINGHAMTON, NY

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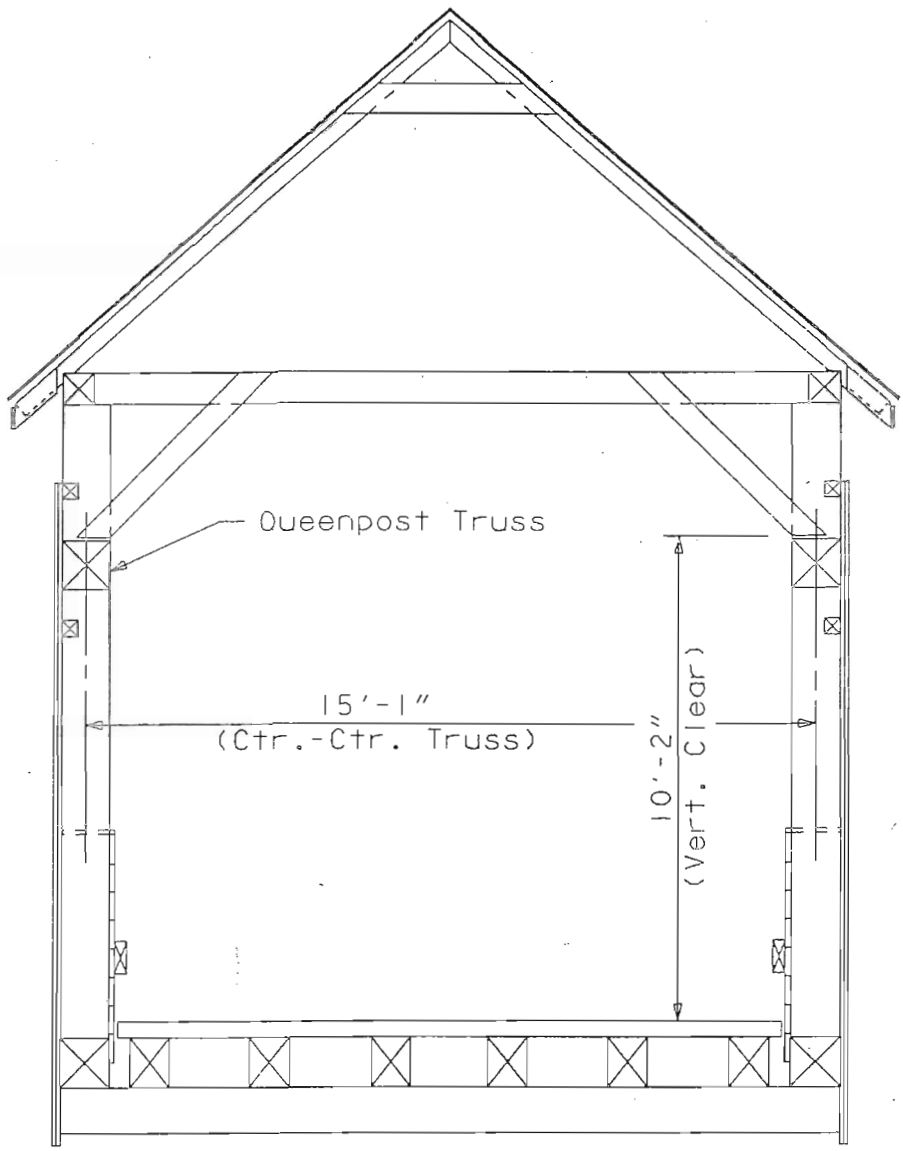

CROSS SECTION

1/4" = 1'-0"

FIGURE 6

VERMONT AGENCY OF TRANSPORTATION
COVERED BRIDGE STUDY

BRIDGE NO. 6 (WARREN)
FAS 188 OVER MAD RIVER

END VIEW AND CROSS SECTION

TOWN WARREN COUNTY: WASHINGTON

McFARLAND-JOHNSON, INC.
BINGHAMTON, NY

PLOT SCALE: 4:1

REVISED: WJG 12-1-94

Form 10-300 (Rev. 6-72)

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

NATIONAL REGISTER OF HISTORIC PLACES INVENTORY – NOMINATION FORM

(Type all entries - complete applicable sections)

STATE:	Vermont
COUNTY:	Washington
FOR NPS USE ONLY	
ENTRY DATE	

1. NAME

COMMON: Warren Covered Bridge

AND/OR HISTORIC:

2. LOCATION

STREET AND NUMBER: Town road across Mad River at Warren village

CITY OR TOWN: Warren

CONGRESSIONAL DISTRICT: Vt. District Rep. Richard Mallary

STATE: Vermont — CODE: 50

COUNTY: Washington — CODE: 23

3. CLASSIFICATION

CATEGORY (Check One)	OWNERSHIP		STATUS	ACCESSIBLE TO THE PUBLIC
☐ District ☐ Building ☐ Site ☒ Structure ☐ Object	☒ Public ☐ Private ☐ Both	Public Acquisition: ☐ In Process ☐ Being Considered	☒ Occupied ☐ Unoccupied ☐ Preservation work in progress	Yes: ☐ Restricted ☒ Unrestricted ☐ No

PRESENT USE (Check One or More as Appropriate)

☒ Agricultural	☐ Government	☐ Park	☒ Transportation	☐ Comments
☒ Commercial	☐ Industrial	☐ Private Residence	☐ Other (Specify)	
☒ Educational	☐ Military	☐ Religious		
☒ Entertainment	☐ Museum	☐ Scientific		

4. OWNER OF PROPERTY

OWNER'S NAME: Town of Warren

STREET AND NUMBER: (no street number)

CITY OR TOWN: Warren — STATE: Vermont — CODE: 50

5. LOCATION OF LEGAL DESCRIPTION

COURTHOUSE, REGISTRY OF DEEDS, ETC: Office of Town Clerk

STREET AND NUMBER: (no street number)

CITY OR TOWN: Warren — STATE: Vermont — CODE: 50

6. REPRESENTATION IN EXISTING SURVEYS

TITLE OF SURVEY: Vermont Historic Sites and Structures Survey

DATE OF SURVEY: 1973 ☐ Federal ☒ State ☐ County ☐ Local

DEPOSITORY FOR SURVEY RECORDS: Vermont Division of Historic Sites

STREET AND NUMBER: Pavilion Building

CITY OR TOWN: Montpelier — STATE: Vermont — CODE: 50

FOR NPS USE ONLY: STATE: Vermont; COUNTY: Washington; ENTRY NUMBER; DATE

CONDITION	(Check One) ☐ Excellent ☒ Good ☐ Fair ☐ Deteriorated ☐ Ruins ☐ Unexposed		
	(Check One) ☒ Altered ☐ Unaltered	(Check One) ☐ Moved ☒ Original Site	

DESCRIBE THE PRESENT AND ORIGINAL (If known) PHYSICAL APPEARANCE

The Warren covered bridge consists of a single span supported by two flanking timber queenpost trusses. The structure lacks upper lateral bracing. It has not been reinforced by any of the devices added to many other covered bridges in Vermont. The abutments, however, have been either faced or rebuilt with concrete.

The Warren bridge is 58.5 feet long at floor level. The upper west ends of the side walls flare outward to meet the west gable end which overhangs the floor four feet at the portal; the east portal is vertical. The bridge is 16.5 feet wide and has a 14-foot roadway. The wood floor, which consists of planks laid on edge and perpendicular to the trusses, begins 2.5 feet inside the west portal and eight feet inside the east portal; the approaches are paved.

On the exterior, the heavy timbers pegged together to form the trusses (and side walls) of the bridge are sheathed with unpainted flush boards hung vertically. Similar siding protects the ends of the trusses immediately inside the portals (except at the northwest corner). The exterior siding stops short of the eaves to leave strip openings along the tops of the walls. There is one large rectangular window in the center of each wall.

The gable ends are also sheathed with unpainted flush boards hung vertically. The portal openings are rectangular except for diagonal upper corners. The medium-pitch gable roof is covered with wood shingles.

SEE INSTRUCTIONS

SIGNIFICANCE

PERIOD (Check One or More as Appropriate)

- [ ] Pre-Columbian
- [ ] 16th Century
- [ ] 18th Century
- [ ] 20th Century
- [ ] 15th Century
- [ ] 17th Century
- [x] 19th Century

SPECIFIC DATE(S) (If Applicable and Known) 1879-80

AREAS OF SIGNIFICANCE (Check One or More as Appropriate)

- [ ] Aboriginal
- [ ] Prehistoric
- [ ] Historic
- [ ] Agriculture
- [x] Architecture
- [ ] Art
- [ ] Commerce
- [ ] Communications
- [ ] Conservation
- [ ] Education
- [x] Engineering
- [ ] Industry
- [ ] Invention
- [ ] Landscape Architecture
- [ ] Literature
- [ ] Military
- [ ] Music
- [ ] Political
- [ ] Religion/Philosophy
- [ ] Science
- [ ] Sculpture
- [ ] Social/Humanitarian
- [ ] Theater
- [x] Transportation
- [ ] Urban Planning
- [ ] Other (Specify)

STATEMENT OF SIGNIFICANCE

The covered bridge at Warren village is the only covered wood bridge to survive in the town of Warren. The bridge has a unique asymmetrical design: the east portal is vertical while at the west portal the upper side walls project differentially to meet an overhanging gable end. Built by Walter Bagley in 1879-80, the bridge will remain unaltered in the future unless, according to the stipulation of a town ordinance, two-thirds of the legal voters approve any proposed change.

The covered bridges of Vermont are among its most cherished and symbolic historic resources. About one hundred bridges still stand in the state, the greatest concentration by area of covered bridges in the country.[1] Many of these bridges are integral parts of unique architectural environments whose physical setting and cultural context have been little altered until recently. Now, however, pervasive highway expansion, intensive commercial development, and physical neglect are changing drastically the historic environment and threatening the covered bridges. The Vermont Division of Historic Sites, therefore, wishes to extend the recognition and protection of the National Register to the majority of the surviving covered bridges, including the Warren covered bridge.

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1. R. S. Allen, Covered Bridges of the Northeast, The Stephen Greene Press, Brattleboro, Vt., 1957, p. 50.

SEE INSTRUCTIONS

APPENDIX D

VERMONT COVERED BRIDGE SURVEY, 1992

INSTRUCTIONS:

- Please complete the questionnaire to the best of your ability.
- Please write in a legible manner; printing is preferable.
- Skip those areas which do not apply, or about which you have no knowledge/information.
- Please complete one questionnaire per bridge.
- All questions should be directed to, and questionnaire(s) returned to:

Phillip C. Pierce, P.E., Project Manager
EMJ/McFarland-Johnson Engineers, Inc.
171 Front Street, P.O. Box 1980
Binghamton, New York 13902-1980
(607) 723-9421 [phone]
(607) 723-4979 [fax]

Name(s) of Bridge: Warren

Town: Warren

County: _____

Feature Crossed: Mad River.
(River/Stream Name)

Feature Carried: Main Str.
(Route Name/Number)

Total Length of Bridge: _____ Total Number of Spans: 1

Date Built: _____

Bridge Designer/Engineer: _____

Bridge Builder/Contractor: _____

Bridge Company: _____

Integrity of Bridge:
- ☐ Original (unaltered) condition . . original site
- ☐ Minor alterations
- ☐ Significant alterations

Dates and descriptions of known alterations:
20's abutment West side
90 East Abutment. $40000 ± State & Town
70 Timber Deck

Location of Bridge:

- ☐ Original location
- ☐ New location (moved)

If the bridge has been moved, what was its date of relocation and original location?_____

Integrity of site:

- ☐ Original site conditions
- ☐ Minor alterations
- ☐ Significant alterations

Are there any cultural resources associated with the bridge (i.e., Village, Grist Mill)? If so, please list:

Mill downstream - gone

How much has been spent on maintenance over the last 40 years (1952 to 1992)? $_____

How much has been spent on repairs over the last 40 years (1952 to 1992)? $_____

How much has been spent on maintenance over the last 10 years (1982 to 1992)? $_____

How much has been spent on repairs over the last 10 years (1982 to 1992)? $_____

Do you have an annual repairs budget for this specific bridge? ☐ Yes ☒ No

If yes, how much? $_____

Historic Society 15-16 yrs ago $80K roof, sides,

Flooding History at the Bridge:

- ☐ Often (Annually)
- ☐ Rarely
- ☒ Never only abutments

Maximum Flood Height above bridge roadway surface? –

Dates of Floods? –

Please list locations of sources of documentary information materials:

Please list local historical societies, that are interested/active concerning this bridge:

Name of Organization/Association: Warren Historic Society

Contact Person: Kit Hartshorn / Gerry Duel /

Address: Warren,

Telephone Number: ( )

Name of Organization/Association _____
Contact Person _____
Address _____
_____
Telephone Number ( ) _____

Name of Organization/Association _____
Contact Person _____
Address _____
_____
Telephone Number ( ) _____

This questionnaire was completed by: _____

Title: _____

Address: _____
_____
_____

Telephone: ( ) _____

CONCLUDING COMMENTS:

_____
_____
_____
_____

DUA1:[J9246010.WP]002-MASTER.PCP/cjb
09/04/92

APPENDIX E

COVERED BRIDGE STUDY TEAM

Primary Consultant:	McFarland-Johnson, Inc.
Subconsultant:	B&B Engineered Timber Dr. Robert (Ben) Brungraber, Owner *Timber Materials Specialist*
Subcontractor:	Restoration and Traditional Building Jan Lewandoski, Owner *Covered Bridge Reconstruction Specialist*
Subcontractor:	Bridge Software Development International, Ltd. Dann Hall, Principal *Refined Computer Analysis of Brown Bridge*

APPENDIX F

Glossary of Technical Terms and Bridge Truss Frame Configurations

APPENDIX F

GLOSSARY OF TECHNICAL TERMS

(Reference, in part: Covered Bridges of the Northeast by Richard Sanders Allen, 1985.)

ABUTMENT - The shore foundation upon which a bridge rests, usually built of stone but sometimes of bedrock, or concrete.

ARCH - A structural curved timber, or arrangement of timbers, to support a bridge, usually used in covered bridges together with a truss. Most commonly used with a multiple kingpost truss. Thus, a supplemental or auxiliary arch is one which assists a truss; a true arch bridge is entirely dependent upon the arch for support.

BEARING BLOCKS - Timber components used to shim between two components (e.g. blocking pieces between a bolster beam and truss chord).

BED(DING) TIMBERS - Timber components typically located between the top of abutment/pier and the underside of the truss bottom chord. Intended to serve as sacrificial components to be easily replaced when deteriorated from rot; thereby protecting truss components from similar deterioration.

BOLSTER BEAMS - Longitudinal timber components beneath the truss bottom chord that project past the face of the abutment. Intended to provide additional support of the truss. Most commonly used beneath Town Lattice trusses.

BRACE - A diagonal timber in a truss which slants toward the mid-point of the bridge.

CAMBER - A slight convexity, upward bowing or "hump" of the chords, built in to allow the bridge to be level after it settles.

CHORD - The top (upper chord) or bottom (lower chord) member or members of a bridge truss; may be a single piece or series of long joined pieces. Town Lattice trusses typically contain two levels of top and bottom chords; hence, there may be upper and lower top chords and upper and lower bottom chords.

COMPRESSION MEMBER - A timber or other truss member which is subjected to squeeze. Often a diagonal member such as a brace of counterbrace. Also a top chord.

COUNTER-BRACE - A diagonal timber in a truss which slants away from the mid-point of the bridge (opposite from brace).

DISTRIBUTION BEAMS - Longitudinal timber components aligned below, and supported by, the floor beams of the structure. Intended to force participation of several floorbeams in supporting axle loads of vehicles. Rarely effective.

FACE OF ABUTMENT - The side of the abutment toward the center of the stream.

FLOOR BEAM (OR FLOOR JOIST) - Transverse beam between bottom chords of trusses on which longitudinal joists (or "stringers") or decking are laid.

GOOD CONDITION - Indicator of physical configuration and material properties similar to that at time of original construction. Having no significant defects, such as: cracks, crushing, buckles, rot, insect attack, or impact damage.

JOIST (OR STRINGER) - Timbers laid longitudinally on the floor beams of a bridge and over which the floor planking is laid.

KNEE BRACES - Transverse timber components connecting the upper portion of the truss with the transverse tie beams, usually positioned at a 45 degree angle.

LAMINATED ARCH - A series of planks bolted together to form an arc; constructed in such a manner that the boards are staggered to give extra strength.

LATERAL BRACING - An arrangement of timbers between the two top chords or between the two bottom chords of bridge trusses to keep the trusses spaced apart correctly and to insure their strength. The arrangement may be very simple, or complex.

LONGITUDINAL - Direction parallel to the bridge.

PIER - An intermediate foundation between abutments, built in the stream bed, for additional support for the bridge. May be made of stone, concrete, wood, etc.

PORTAL - General term for the entrance or exit of a covered bridge; also used to refer to the boarded section of either end under the roof.

POST - Upright or vertical timber in a bridge truss; *center post* is the vertical timber in the center of a truss; *end post* is the vertical timber at either end of the truss.

RAFTER - One of a series of relatively narrow beams joined with its opposite number to form an inverted V to support the roof boards of a bridge.

ROT - Deterioration of timber material evidenced by soft spots/areas as a result of poor ventilation and/or excessive moisture.

RUNNING PLANKS - Longitudinal timber planks on the top of the deck intended to provide an easily replaceable wearing surface. Also tends to guide vehicles along the center of the bridge and causes traffic to reduce travel speeds.

SAG - Opposite of camber; permanent downward deflection of trusses at middle of span.

SISTER - Additional Town Lattice web member inserted adjacent to a damaged or deteriorated existing web member that provides additional strength to the truss without replacing the existing member.

SKEWED BRIDGE - A bridge built diagonally across a stream.

SPAN - The length of a bridge between abutments or piers. *Clear span* is the distance across the bridge, measuring from the face of one abutment to the face of the other. The length usually given is for the *truss span*, i.e., the length between one end post of the truss and the other, regardless of how far the truss may overreach the actual abutment. Bridges of more than one span are called multi-span bridges.

SPLICE - A method of joining timbers, especially end-to-end, by means of a scarf or other joint, sometimes with keys or wedges inserted to give additional strength and stability to the joint. A *splice-clamp* is a metal or wooden clamp designed to hold two spliced timbers together.

TENSION MEMBER - Any timber or rod of a truss which is subjected to pull or stretch.

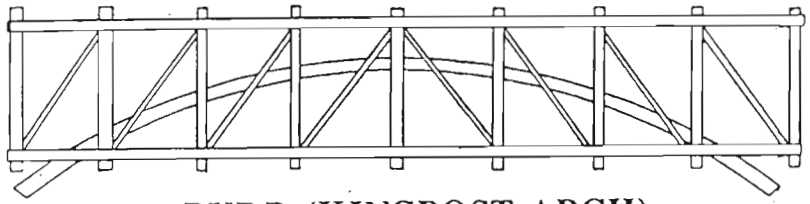
TIE BEAM - Transverse timber component connecting tops of top chords. A part of the upper lateral bracing system.

TRANSVERSE - Direction at right angle to bridge (i.e. 90° to bridge), opposite of longitudinal.

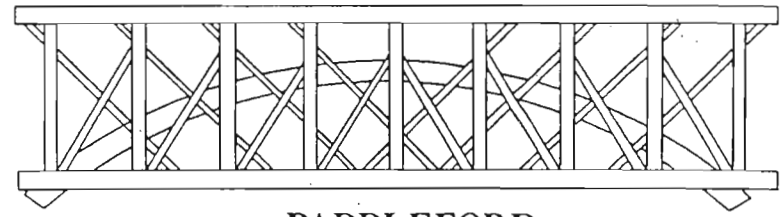
TREENAILS (TRUNNELS) - Wooden pins which are driven into holes of slightly smaller diameter to pin members of lattice trusses together. (Pronounced "trunnels").

TRUSS - An arrangement of members, such as timbers, rods, etc., in a rigid form so united that they support each other plus whatever weight is put upon the whole. Covered bridge trusses, including arch trusses, employ a triangle or a series of combined triangles, since this is the form which cannot be forced out of shape by external pressure. Truss is also used to refer to just one side of a bridge.

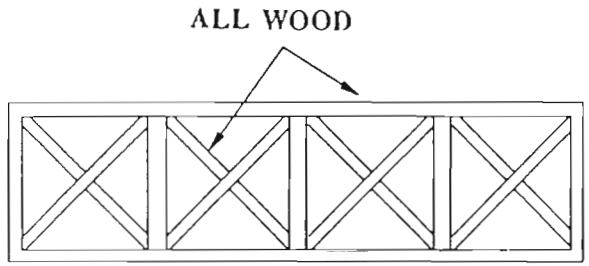
BRIDGE TRUSS FRAMES



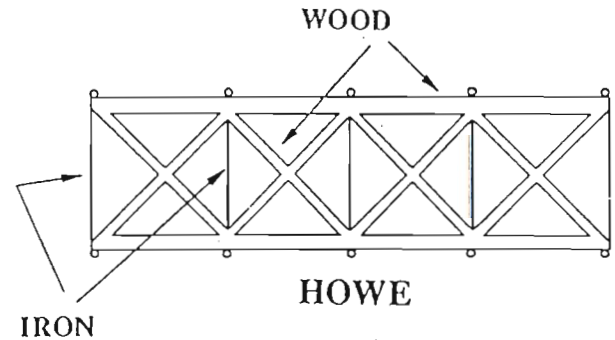
BURR (KINGPOST ARCH)



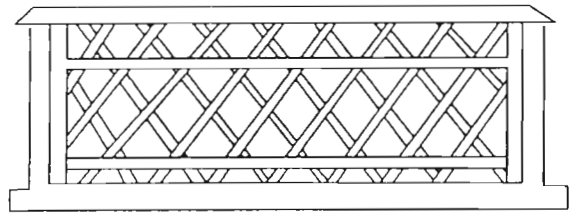
PADDLEFORD



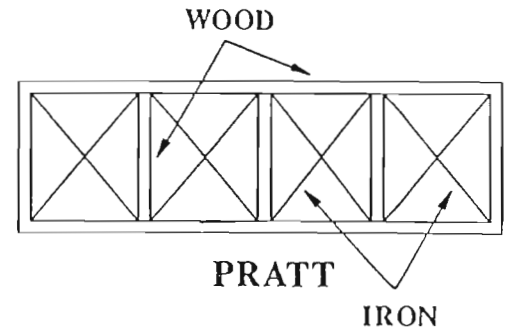
LONG



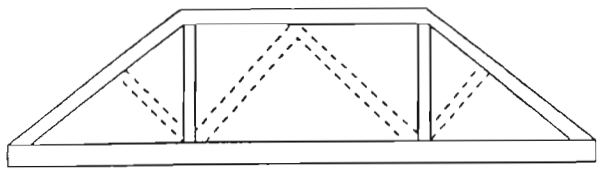
HOWE



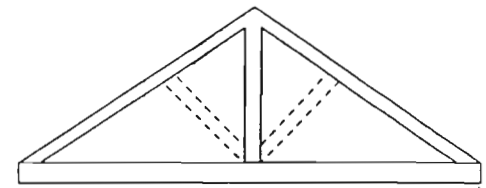
TOWN LATTICE



PRATT



QUEENPOST



KINGPOST

Reference: New Hampshire Covered Bridges, NHDOT, 1994

APPENDIX G

General Recommendations for Maintenance and Repairs of Covered Bridges

APPENDIX G

GENERAL RECOMMENDATIONS FOR MAINTENANCE AND REPAIRS OF COVERED BRIDGES

RECOMMENDATIONS FOR FUTURE MAINTENANCE

Regular maintenance and proper repairs can help preserve these unusual structures for an indefinite period of time. The following discussion highlights good maintenance measures.

- Maintaining a waterproof roof and side boarding system is an extremely important measure that can prolong the life of these bridges.

- The buildup of dirt and debris, tracked onto the bridge from vehicles or introduced by poor roadway drainage, should be regularly removed to help prevent opportunities for decay to develop. The material would ideally be removed with air pressure. Use of water jets to remove the dirt is effective; however, it introduces moisture into areas of the bridge that are hard to dry and would otherwise have stayed dry.

- The trusses should be raised above direct contact with the foundation units, via timber bedding timbers or bearing blocks. The inevitable deterioration of those components can be addressed with much less expensive replacements whenever necessary.

- The bridge structure should be elevated above the approach roadway so that road drainage does not flow onto the floor system. If elevating the structure is neither possible nor practical, then significant and effective drainage collection systems should be installed on the uphill end of the bridge to minimize the amount of drainage entering the bridge.

- All timber components should be kept in like new condition and the structure should be "tight". A structure that is loose enough to distort, will undergo an accelerated rate of deterioration. The diagonal compression members of Multiple Kingpost structures are occasionally so loose as to be subject to handshifting by a person. Knee bracing and top lateral bracing in the roof area is often damaged by oversized vehicles, and should be repaired as it is discovered.

RECOMMENDATIONS FOR FUTURE REPAIR PRACTICES

A number of examples of poor quality past repairs are evident in existing covered bridges. The following discussion highlights some of the common problems and the more appropriate repair measures.

- Town Lattice trusses derive much of their exceptional strength from long chord components. The shorter the components become, the more the structure is dependent on the trunnels for load transfer among the individual components. Although failure of trunnels is uncommon (or at least not readily observable nor often noted by repairers), short chord components lead to excessive deformations of the trunnels and/or holes, so

- Town Lattice trusses derive much of their exceptional strength from long chord components. The shorter the components become, the more the structure is dependent on the trunnels for load transfer among the individual components. Although failure of trunnels is uncommon (or at least not readily observable nor often noted by repairers), short chord components lead to excessive deformations of the trunnels and/or holes, so that the "gaps" between chord members enlarge. It is good practice for rehabilitation of such structures to require replacement components to be as long as possible.

- Town Lattice diagonals often exhibit cracking along the axis of the member, beginning at the end of the member, and passing through trunnel holes. In many instances, bottoms of lattice members may also be damaged from ice and/or flooding impact forces. In such cases, lattice members have been "spliced" in the past by cutting the member off above the upper lower chord. A replacement bottom end has been joined to the existing upper portion by the use of steel bolts (with or without steel "shear plates"). In many instances, the splice is made with a pair of bolts (often only 3/4 inches in diameter) in either end of each timber component. Not only is the bolted connection weaker than a corresponding connection with trunnels, but the end distance of the bolt is often substantially less than required by Code.

- Several Queenpost trusses have been rehabilitated through installation of steel "heel plates" at the end post to bottom chord joint. In most examples, the bolting patterns do not appear to conform to timber design specifications. There are other, more subtle problems with these added steel plates.

  Moisture condenses on these large steel plates and can cause decay in the concealed wood surface behind. The larger plates can be inducing large perpendicular to the grain load components in the bolts, through eccentricities in the forces being transferred. Unless the steel plates are drilled in place (a difficult procedure) it is very tough to get the holes in the wood aligned with those in the steel. The "hole oblonging" this causes when installing the bolts can seriously compromise the capacity of the designed joint, as well as allow an unexpected amount of deflection in the "repaired" structure.

  Use of these plates seems to be inspired in efforts to avoid authentic restoration techniques or extensive timber chord replacement. Skilled timber craftsmen are often able to restore the capacity of these critical joints without resorting to the use of bolts, and usually produce a stronger connection.

- Distribution beams have been added to the underside of the floorbeams on many covered bridges. The longitudinal members were intended to force participation of several floorbeams in the support of axle weights of vehicles. Specific installations may include one or two lines of members hung beneath the floorbeams by steel U-bolts. In practice, the members are usually ineffective due to several reasons. The relative stiffness of the distribution beam is usually much less than the floorbeam, and hence cannot perform its intended function. The connections are usually sufficiently loose so that the floorbeam beneath the axle deflects without fully engaging the distribution member.

BIBLIOGRAPHICAL REFERENCES

Richard Sanders, Covered Bridges of the Northeast, The Stephen Greene Press, Brattleboro, Vt., 1957.

GEOGRAPHICAL DATA

LATITUDE AND LONGITUDE COORDINATES DEFINING A RECTANGLE LOCATING THE PROPERTY						OR	LATITUDE AND LONGITUDE COORDINATES DEFINING THE CENTER POINT OF A PROPERTY OF LESS THAN TEN ACRES					
CORNER	LATITUDE			LONGITUDE			LATITUDE			LONGITUDE		
	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
NW	°	'	"	°	'	"	44°	06'	40"	72°	51'	26"
NE	°	'	"	°	'	"						
SE	°	'	"	°	'	"						
SW	°	'	"	°	'	"						

APPROXIMATE ACREAGE OF NOMINATED PROPERTY: one acre

LIST ALL STATES AND COUNTIES FOR PROPERTIES OVERLAPPING STATE OR COUNTY BOUNDARIES

STATE	CODE	COUNTY	CODE
STATE	CODE	COUNTY:	CODE
STATE	CODE	COUNTY:	CODE
STATE	CODE	COUNTY:	CODE

FORM PREPARED BY

NAME AND TITLE: Hugh H. Henry, Historic Sites Researcher

ORGANIZATION: Vermont Division of Historic Sites — DATE: 2/27/74

STREET AND NUMBER: Pavilion Building

CITY OR TOWN: Montpelier — STATE: Vermont — CODE: 50

STATE LIAISON OFFICER CERTIFICATION

As the designated State Liaison 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. The recommended level of significance of this nomination is:

National ☐ State ☒ Local ☐

NAME: William B. Finney

TITLE: Director of Historic Sites
State Historic Preservation Officer

DATE: 3/19/74

NATIONAL REGISTER VERIFICATION

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

Director, Office of Archeology and Historic Preservation

Date

ATTEST:

Keeper of The National Register

Date

SEE INSTRUCTIONS

APPENDIX B

VAOT Bridge Inspection Report and Inventory

VERMONT BRIDGE INSPECTION REPORT

ROUTE NO. FAS188 BR. NO. 6 DIST. 6 DATE 7-16-92
TOWN Warren FEATURE CROSSED Mad River
BRIDGE TYPE Single Span Queen Post Covered Bridge INSPECTOR Arlan W. Elwood

ITEM 58, DECK	* CRITICAL AREAS
1. WEARING SURFACE none	
2. STRUCTURAL CONDITION wear in travel areas of nail laminated untreated timber deck	7
3. CURBS none	
4. SIDEWALKS N/A	
5. RAILING none except wood plank nailed to interior siding	5
6. DRAINS none	
7. JOINT LEAKAGE at abut's	5
8. EXPANSION DEVICE None	
INSPECTORS CONDITION RATING	7

ITEM 59, SUPERSTRUCTURE	
1. BEARING DEVICES supported on end wood floorbeams	6
2. GIRDERS/BEAMS	
3. COVER PLATES	
4. TRUSSES, PORTALS, BRACING, ETC. splits, knots & checks in visible portions	5
5. FLOOR BEAMS Large split in one member of eastern interior FB	5
6. STRINGERS rot in bottom of northernmost interior stringer	5
7. PAINT N/A	
8. RUST visible portions of connection bolts quite rusty	5
9. RIVETS, BOLTS, WELDS	
10. COLLISION DAMAGE minor scaping at 2 knee braces	6
11. ALIGNMENT OF MEMBERS minor sweep in south truss	6
12. VIBRATIONS, DEF. UNDER LOAD minor vibration under load	6
13. FCM YES___ NO___ COMMENT:	
INSPECTORS CONDITION RATING	5

ITEM 60, SUBSTRUCTURE	
1. ABUTMENT - STEM East abut good - west abut has horz. cracking & heavy scaling (esp. near bot)	5
A. BACKWALLS good	8
B. BRIDGE SEATS good	8
C. WINGS good at east abut, heavy spalling & cracking at west abut	5
D. FOOTINGS	
E. PILES	
F. EROSION scour at both abutments but no undermining	5
G. SETTLEMENT	
2. PIERS - CAPS N/A	
A. COLUMNS	
B. FOOTINGS	
C. SCOUR	
D. SETTLEMENT	
E. PILES	
INSPECTORS CONDITION RATING	5

FAS 188 Br. 6 Warren 7/16/92

This structure is a single span ~~clean~~ Queen post covered bridge. The decking on this structure is a nail laminated untreated timber. There is bituminous concrete pavement in both approaches to the structure. Bituminous concrete pavement in the west approach is in poor condition. There is potholing and raveling at the shoulders. Bituminous concrete pavement in the east approach has areas of longitudinal and transverse cracking. Approach railing at the east approach is standard steel beam on light steel posts without offset blocks. The timber deck is in fair condition. There is some minor gouging at various locations and some tire tread wear through the traffic portions of this deck. There are concrete backwalls at each end of the structure. These backwalls are in good condition. The roof is covered with cedar shingles. There are random holes in these shingles that should be repaired. The upper portion of the truss lateral bracing and knee bracing members that are visible are in fair condition. There is some splitting but no apparent rot. The lower portions of the trusses ~~at~~ off the top of the bottom chord is not visible due to the boarding. The alignment of the members in the structure remains good with no apparent sweeps or sagging. The floor system consists of longitudinal stringers spanning between floor beams at the abut. and floor beams at the third points of the span. Visible portions of the bottom chord have horizontal splitting but no apparent rot. The floor beams have areas of splitting and checking but no apparent rot. The interior floor beams are made up of three beams bolted together, one of these beams on the eastern interior floor beam has a split for 3/4 of its length. The visible portions of the bolted connections are quite rusty. The northern most stringer spanning between the two middle floor beams has areas of checking and apparent rot in the bottom of it. However, this condition appears only in the bottom of this stringer. The remaining stringers have areas of splitting and no apparent rot. The east abut. and wingwalls are new since the last inspection and are in good condition. The west abut. is a concrete facing on a laid up stone. The south wingwall has areas of heavy spalling as does the abut. end of the north wingwall. The abut. itself has horizontal cracking and heavy scaling particularly down near the flow line. There is also cracking with leakage in the north wingwall. There is some scour along each abut. but no undermining at this time. There is a gravel bar upstream of the structure. There is stone fill along the west bank upstream of the structure. There is an old log crib retaining wall on the east side of the channel downstream of the structure. Overall the channel is in good condition. This structure is not posted for a weight limit but is limited to car traffic only with signs saying "No Trucks or Buses".

onsys717.awe Elwood

Run Date 02/16/94 | Vermont Agency of Transportation | Rte. No. FAS 0188
Rev. By | BIS, Print Items for Revision | Bridge No. 00006
Rec. No. 1556 | State Structures 20 Feet And Over | Town WARREN
Rt. Log 00006 | 000058' Bridge | District 6
Cross Ref.

1.	State Code	501
2.	District	6
3.	County Code	023
4.	Place Code	76525
5.	Inventory Route	141000030
6.	Name of Feature Crossed	MAD RIVER
7.	Facility Carried by	TR 03 FAS 188
8.	Bridge Code Number	200188000612172
9.	Location	0.5 MI E JCT. VT.100 S
10.	Inv. Route, Min. Vertical Clearance	1110
11.	Milepoint	003970
16.	Latitude	44067
17.	Longitude	072514
19.	Distance to Alternate Facility, Miles	01
20.	Toll	3
21.	Maintenance Responsibility	03
22.	Owner	03
26.	Functional Classification Code	07
27.	Year Structure was Built	1879
106.	Year Reconstructed	0000
208.	Last Project Number	COV. BR.
209.	Project Name	
28.	Lanes On/Under Structure	0100
29.	ADT On Structure	000250
30.	Year Of ADT	91
242.	Source of ADT	2
31.	Design Live Load	0
32.	Approach Width (Incl. Shoulder), Feet	021
33.	Bridge Median	0
34.	Skew Angle, Degrees	00
35.	Structure Flared	0
36.	Traffic Safety Features	0000
37.	Historical Significance	1
38.	Navigation Control?	0
39.	Nav. Vertical Clearance, Feet	000
40.	Nav. Horizontal Clearance, Feet	0000
41.	Structure Open, Posted or Closed to Traffic	P
42.	Type of Service	15
43.	Type of Structure, Main Spans	710
44.	Type of Structure, Approach Spans	000
45.	Number of Main Spans	001
46.	Number of Approach Spans	0000
47.	Total Horizontal Clearance, Feet	139
48.	Maximum Span Length, Feet	0047

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49.	Overall Length of Structure, Feet	000058	
50A.	Left Sidewalk Width	000	
50B.	Right Sidewalk Width	000	
51.	Roadway Width (Curb to Curb), Feet	0139	
52.	Deck Width (Out to Out), Feet	0139	
53.	Vertical Clearance Over, Feet	1110	
54.	Vertical Clearance Under, Feet	N0000	
55.	Underclearance, Lateral-Right	N999	
56.	Underclearance, Lateral-Left	000	
58.	Rating of Deck	7	
59.	Rating of Superstructure	5	
60.	Rating of Substructure	5	
61.	Rating of Channel	6	
62.	Rating of Culvert and Retaining Walls	N	
67.	Structural Condition	2	
68.	Deck Geometry	2	
69.	Vertical and Horizontal Underclearances	N	
70.	Bridge Posting	4	
71.	Waterway Adequacy	5	
72.	Approach Alignment	6	
211.	Rating of Paint	N	
212.	Year Structure Last Painted		
75.	Type of Work	311	
76.	Length of Structure Improvement	000103	
90.	Date Inspected, mm/yy	07/92	
91.	Designated Inspection Frequency	24	
92.	Critical Feature Inspection	N Y48N	
93.	Critical Feature Inspection Date	0791	
94.	Bridge Improvement Cost	000509	
95.	Roadway Improvement Cost	000050	
96.	Total Project Cost	000641	
97.	Year of Improvement Cost Estimate	91	
98.	Border Bridge		
99.	Border Bridge Structure No.		
100.	Defense Highway Designation	0	
101.	Parallel Structure Designation	N	
102.	Direction of Traffic	3	
103.	Temporary Structure Designation		
104.	Highway System	0	
107.	Deck Structure Type	8	
108.	Wearing Surface/Protective System	709	
109.	Average Daily Truck Traffic	06	← Trucks not allowed
110.	Designated National Network	0	
111.	Pier or Abutment Protection		
112.	NBIS Bridge Length	Y	
113.	Scour Critical Bridges	6	
114.	Future ADT	000350	
115.	Year of Future ADT	12	
116.	Minimum Navigation Vertical Clearance	000	
200.	State System Code	05	