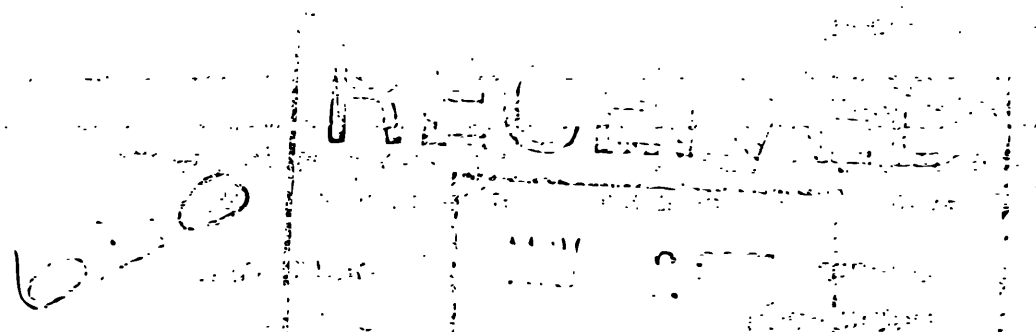


United States Department of the Interior
National Park Service

National Register of Historic Places
Registration Form

10/5010



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 Piermont Bridge

other names/site number NH State Bridge No. 032/103

2. Location

street & number NH Rte. 25 over Connecticut River at Vt State Line N/A not for publication

city or town Piermont N/A vicinity

state New Hampshire code NH county Grafton code 009 zip code 03779

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.)

Nancy C. Dutton 4/26/01
Signature of certifying official/Title Date

New Hampshire
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 commenting official/Title Date

State or Federal agency and bureau

4. National Park Service Certification

I hereby certify that the property is:

- 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:)

Edson A. Beall 6/6/01
Signature of the Keeper Date of Action

Piermont Bridge
Name of Property

Grafton, New Hampshire
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	
0	0	buildings
0	0	sites
1	0	structures
0	0	objects
1	0	Total

Name of related multiple property listing
(Enter "N/A" if property is not part of a multiple property listing.)

N/A

Number of contributing resources previously listed in the National Register

0

6. Function or Use

Historic Functions
(Enter categories from instructions)

Transportation related (Vehicular)

Current Functions
(Enter categories from instructions)

Transportation related (Vehicular)

7. Description

Architectural Classification
(Enter categories from instructions)

Other: Steel Pennsylvania through Truss

Materials
(Enter categories from instructions)

foundation West Abutment Stone; East Concrete walls N/A

roof N/A

other Steel: Structural

Narrative Description

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

Piermont Bridge
Name of Property

Grafton New Hampshire
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.)

- 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.
- 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.

Narrative Statement of Significance

(Explain the significance of the property on one or more continuation sheets.)

9. Major Bibliographical References

Bibliography

(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 # _____

Areas of Significance

(Enter categories from instructions)

Engineering

Period of Significance

1928

Significant Dates

1928

Significant Person

(Complete if Criterion B is marked above)

N/A

Cultural Affiliation

N/A

Architect/Builder

New Hampshire Highway Department

Boston Bridge Works

Primary location of additional data:

- State Historic Preservation Office
- Other State agency
- Federal agency
- Local government
- University
- Other

Name of repository:

NH Dept. of Transportation

Piermont Bridge
Name of Property

Grafton, New Hampshire
County and State

10. Geographical Data

Acreage of Property Less than one

UTM References

(Place additional UTM references on a continuation sheet.)

1

1	8
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7	3	1	5	9	5
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4	8	7	3	2	6	0
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Zone

Easting

Northing

2

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3

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Zone

Easting

Northing

4

--	--

--	--	--	--	--	--

--	--	--	--	--	--	--	--

See continuation sheet

Verbal Boundary Description

(Describe the boundaries of the property on a continuation sheet.)

Boundary Justification

(Explain why the boundaries were selected on a continuation sheet.)

11. Form Prepared By

name/title James L. Garvin *
William J. Thrane, Graduate Student, Historic Preservation

organization NH Division of Historical Resources *
The University of Vermont date January 2001

street & number PO Box 2043 *
442 Main Street telephone 603-271-6436 *
802-656-9773

city or town Concord *
Burlington state New Hampshire * zip code 03302-2043 *
Vermont 05405

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 See continuation sheet

street & number _____ telephone _____

city or town _____ state _____ zip code _____

Paperwork Reduction Act Statement: This information is being collected for applications to the National Register of Historic Places to nominate properties for listing or determine eligibility for listing, to list properties, and to amend existing listings. Response to this request is required to obtain a benefit in accordance with the National Historic Preservation Act, as amended (16 U.S.C. 470 et seq.).

Estimated Burden Statement: Public reporting burden for this form is estimated to average 18.1 hours per response including time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding this burden estimate or any aspect of this form to the Chief, Administrative Services Division, National Park Service, P.O. Box 37127, Washington, DC 20013-7127; and the Office of Management and Budget, Paperwork Reductions Projects (1024-0018), Washington, DC 20503.

United States Department of the Interior
National Park Service

**NATIONAL REGISTER OF HISTORIC PLACES
CONTINUATION SHEET**

Section 3 Page 2

Piermont Bridge, Grafton County, NH

3. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act of 1966, 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.)

Emily E. Wadhams

4/13/01

Signature of certifying official

Date

VERMONT

State or Federal agency bureau

United States Department of the Interior
National Park Service

NATIONAL REGISTER OF HISTORIC PLACES
Continuation Sheet

Section 7 Page 1 Piermont Bridge, Grafton County, NH

Description

Constructed in 1928, the 352' Piermont Bridge is located on New Hampshire State Route 25 approximately one and one-half miles west of the Town of Piermont at the New Hampshire and Vermont border. On its way to the bridge the road passes through some of the rolling countryside and farms in the Upper Connecticut River Valley. As one approaches the bridge, the view changes from pastoral to silvered structural steel. The bridge spans the Connecticut River bordered by cultivated intervals where "river farms have fields of river bottom land with nary a stone, made wholly from sediment."¹

By type, the Piermont Bridge is classified as a Pennsylvania steel through truss bridge. A truss bridge is one whose framework is composed of members forming a triangle or system of triangles that support both the weight of the bridge (dead load) and the traffic (live loads).²

The Piermont Bridge is designated as New Hampshire State Bridge Number 032/103 and is located at lat. 40°-58.7 N and 72°-06.7 W. It was manufactured and built by the Boston Bridge Works, Inc., in 1928. It contains two vehicular lanes and bears no load limitations. Construction is riveted with some recent heavy bolt replacements.³

There are sixteen panels in each of the trusses on the single span Piermont Bridge. The clear span is 352' long with an overall length of 354'-10". The roadway width is 20'-7" from curb to curb, and the width of the bridge is 24'-4" from center-to-center of the trusses. The portal clearance (overhead) is 14'-7". Approximately 25' below the deck, the Connecticut River flows southward and eventually into Long Island Sound.

The top chord is a box girder formed of plates and angles with latticed underside, 190' long x 24". The bottom chord consists of two built-up channels with stay plates top and bottom approximately 4" apart. Hip verticals and diagonals (except counters) are I-

¹ Louise S. Horton, Elizabeth Underhill, and Eleanor Deal, *Piermont, New Hampshire, 1764-1947* (Bradford, Vermont: Green Mountain Press, n.d.).

² John W. Snyder, *Preserving Historic Bridges*, Preservation Information, National Trust for Historic Preservation, (1995): 27.

³ Sverdrup and Parcel and Associates, *New Hampshire Historic Bridge Inventory, Piermont Bridge No. 032/103* (1982).

United States Department of the Interior
National Park Service

NATIONAL REGISTER OF HISTORIC PLACES
Continuation Sheet

Section 7 Page 2 Piermont Bridge. Grafton County, NH

section set with webs of plates approximately 4' apart. Counter diagonals are paired angles joined by stay plates. Main verticals and upper sub-verticals consist of a box girder with two latticed sides. The horizontal stiffener is a box girder with two sides latticed and two sides of spaced plates. The top bracing members are lattice-girder struts and lattice channel-section cross bracing. The portal bracing consists of three triangular-truss panels that are extended downward as deep knee braces, all of latticed channeled sections.⁴ The deck is a concrete filled steel grid that replaced the timber deck in 1940. Three years later the grid was filled with concrete for a space of 11'-5" wide along the center line⁵ to prevent horses from becoming frightened when they were able to look down into the river through the open grids.

A 5' wide metal grid sidewalk with a 43" high guardrail with 4" diameter galvanized top and bottom rails and 1" diameter tubular members was added in 1993. The west abutment is constructed of granite block from nearby Fairlee Mountain in Vermont. The east abutment is constructed of concrete from a 1908 design by John Storrs.

The next renovation took place in 1993 when the sixty-five year old structure was showing signs of deterioration. The New Hampshire Department of Transportation (NHDOT) determined that the bridge's capacity had been reduced as a result of corrosion and collision damage and the bridge was posted with an eight ton limit. Rehabilitation plans were designed to restore the original capacity of H-15.

The old deck stringers, floor beams, and railings were removed and replaced with new materials. The decking is a concrete filled steel grid and a sidewalk was added on the north side allowing the installation of utilities beneath its structure on the side of the bridge. In addition, misaligned substandard guardrails were replaced, west abutment joints were re-pointed, and strip expansion joints installed. Substandard bridge rail was replaced with a new system capable of sustaining loads specified by the latest edition of the American Association of State Highway and Transportation Officials Standard Specifications for Highway Bridges.

⁴ A.G. Lichtenstein and Associates, Vermont State Bridge Survey (1985).

⁵ HABS/HAER Inventory, Historic American Buildings/Historic American Engineering Record, National Park Service, United States Department of Interior, Washington, DC, n.d.

United States Department of the Interior
National Park Service

NATIONAL REGISTER OF HISTORIC PLACES
Continuation Sheet

Section 7 Page 3 Piermont Bridge. Grafton County, NH

The rehabilitation work proceeded in a reasonable period of time, but the painting encountered delays in meeting lead abatement regulations. As a result, the bridge was closed nearly four years creating inconvenience to the citizens of Piermont and Bradford.⁶

A builder's plate located on either end of the structure indicates:

BUILT BY THE
BOSTON BRIDGE
WORKS, INC.
1928

⁶ Alexander Medlicott, Jr., President Historical Society, Piermont, New Hampshire, telephone conversation with nomination preparer, 26 August 2000.

United States Department of the Interior
National Park Service

NATIONAL REGISTER OF HISTORIC PLACES
CONTINUATION SHEET

Section 8 Page 1

Piermont Bridge, Grafton County, NH

Significance:

The Piermont Bridge is eligible for the National Register of Historic Places under Criterion C for engineering. It is an excellent and well-preserved representative of the Pennsylvania through truss bridge. The truss system is functioning and the bridge retains integrity of location, design, setting, workmanship, materials, feeling, and association for the year 1928 when it was erected.

Engineering Significance:

The Piermont Bridge is one of three Pennsylvania truss bridges in New Hampshire, and is the longest of two single-span Pennsylvania truss bridges in the state. All three bridges span the Connecticut River. The other two bridges cross the river between Hinsdale, New Hampshire, and Brattleboro, Vermont, and between Charlestown, New Hampshire, and Springfield, Vermont.

The Pennsylvania truss was developed by engineers of the Pennsylvania Railroad in the 1890s as a truss type that was well adapted to especially long spans and to the heavy loading that characterizes railroad bridges.¹ The Pennsylvania truss (sometimes classified as one of several forms of "Petit" truss) is a variation of the Parker truss, which itself is a variation of the Pratt truss. The Pratt truss and its variations emerged during the late nineteenth century as the favored designs for metal truss bridges.

The Pratt truss and its descendants are characterized by vertical truss members, or posts, that define the panels of the trusses and act in compression. Extending diagonally across each panel is a tie, or tension member, which connects the upper chord of the truss to the lower, inclining toward the center of the truss. Patented in 1844 by Thomas W. and Caleb Pratt, this truss was sometimes employed in wood-and-iron covered bridge trusses, utilizing wooden posts and iron ties.²

The Pratt truss proved especially well adapted to all-metal bridge trusses, and before the introduction of structural steel in the late 1800s was often employed with cast iron posts and wrought iron ties. The introduction of Bessemer steel in the United States in the

¹ Mansfield Merriman and Henry S. Jacoby, *A Text-Book on Roofs and Bridges. Part I. Stresses in Simple Trusses*, sixth ed. (New York: John Wiley and Sons, 1908), 221-224.

² Robert Fletcher and J. P. Snow, "History of the Development of Wooden Bridges" (1932), reprinted in American Society of Civil Engineers, *American Wooden Bridges* (New York: American Society of Civil Engineers, 1976), 62-63.

United States Department of the Interior
National Park Service

**NATIONAL REGISTER OF HISTORIC PLACES
CONTINUATION SHEET**

Section 8 Page 2

Piermont Bridge, Grafton County, NH

Engineering significance continued :

1890s strengthened the favored status of the Pratt truss, which proved adaptable both to pin-connected and riveted spans for both railroad and highway work. The straightforward connections of the chords, posts and ties at each panel point made the Pratt truss easily susceptible to structural analysis by either the graphic or the mathematical methods that had been developed by 1850. Structural analysis permitted the stresses in each member to be calculated easily and accurately under various conditions of loading, and the introduction of high-strength steel permitted these stresses to be accommodated by light members. Short-span Pratt highway bridges of the late 1800s and early 1900s, designed for modest horse-drawn loads, are often exceedingly delicate in appearance.

The original form of the Pratt truss has horizontal upper and lower chords, with the upper chords in compression and the lower chords in tension. As bridge spans and weight limits increased during the late 1800s, the compressive stresses in the upper chords of Pratt trusses increased markedly toward the centers of the spans. These compressive stresses can be rendered more equal in both the chords and the web members by designing the upper chords on a curve that approximates that of a parabola, with the heights of the truss panels increasing toward to center of the span.³

The variation of the Pratt truss with a curved upper chord is called a Parker truss. Parker trusses became increasingly popular in railroad design after 1890, and began to appear in highway bridges as automobiles and motor trucks became factors in bridge design during the first decade of the twentieth century. Most moderate- to long-span highway bridges built in New Hampshire during the 1920s and 1930s adopted the Parker truss design.

As Parker trusses were employed in ever-longer spans, the length of their panels (the subdivisions of the truss where chords, posts, and ties intersect) became excessive. It became desirable to place floor beams between panel points along the lower chords, and to secure upper lateral bracing at similar points along the upper chords. In order to accomplish this without introducing bending stresses in the upper or lower chords, it became necessary to subdivide the panels by short members, called sub-struts (compression members) and sub-ties (tension members). These members support the upper and lower chords at points where intermediate floor beams or lateral bracing members intersect the chords.

³ Mansfield Merriman and Henry S. Jacoby, *A Text-Book on Roofs and Bridges. Part I. Stresses in Simple Trusses*, sixth ed. (New York: John Wiley and Sons, 1908), 208-224; *ibid.*, *Part III. Bridge Design*, fourth ed. (New York: John Wiley and Sons, 1902), 310;

United States Department of the Interior
National Park Service

NATIONAL REGISTER OF HISTORIC PLACES
CONTINUATION SHEET

Section 8 Page 3

Piermont Bridge, Grafton County, NH

Engineering significance continued :

Variations of the Pratt truss with subdivided panels are often referred to as “Petit” trusses. Petit trusses may have straight, parallel chords, in which case they are also called “Baltimore” trusses. They may have curved upper chords, like the Piermont Bridge, in which case they are also referred to as “Pennsylvania” trusses.

The final evolution of the Pratt truss into the Pennsylvania truss combined several features that are desirable in a long-span bridge. First, as in the original Pratt truss, the principal stresses in each structural member remain axial. Second, as in the Parker truss, the stresses along various segments of the upper chord are kept relatively equal through the curved configuration of the chord. Third, the provision of extra panel points between the principal posts of the truss permits the attachment of floor beams and upper lateral bracing at relatively short intervals; in the Piermont-Bradford Bridge, these intervals are twenty-two feet. Fourth, the Pennsylvania truss proved to be an economical design, as measured by the cost per pound of the bridge.⁴ These features assured the widespread adoption of the Pennsylvania truss for spans exceeding 250 feet.

In such bridges, the extreme height of the vertical posts toward the center of the bridge (as much as fifty-two feet in the case of the Piermont Bridge) requires the insertion of horizontal stiffening members at alternate double-panels. These members play no part in the structural analysis of the span, but merely serve to prevent flexure or buckling of the principal compression members of the truss without requiring these members to be made excessively heavy.⁵

By the early twentieth century, most long single-span truss bridges in the United States had adopted the Pennsylvania truss design. Of the nineteen American highway bridges that had spans in excess of 400 feet in 1904, seventeen utilized Pennsylvania trusses; one was a Parker truss, and one was a Baltimore truss.⁶

The Piermont Bridge is the longest-span Pennsylvania truss bridge in New Hampshire, having a pin-to-pin span of 352'-0.” The only other single-span Pennsylvania truss bridge,

⁴ Mansfield Merriman and Henry S. Jacoby, *A Text-Book on Roofs and Bridges. Part I. Stresses in Simple Trusses*, sixth ed. (New York: John Wiley and Sons, 1908), 237-238.

⁵ *Ibid.*, 223.

⁶ *Ibid.*, 226-227.

United States Department of the Interior
National Park Service

NATIONAL REGISTER OF HISTORIC PLACES
CONTINUATION SHEET

Section 8 Page 4

Piermont Bridge, Grafton County, NH

Engineering significance continued :

the Hinsdale-Brattleboro Bridge, was designed by consulting engineer John W. Storrs in 1920. Its span from pin to pin is 330'-0." The third bridge to employ the Pennsylvania truss is the Cheshire Toll Bridge between West Claremont, New Hampshire, and Springfield, Vermont. Built in 1930 to carry both highway and rail traffic, the Cheshire Toll Bridge has three spans of slightly differing lengths, reflecting the unequal placement of the earlier bridge piers on which the trusses rest. The longest of its three spans measures 169'-2" from pin to pin.

The Piermont Bridge was built as a direct result of severe floods that affected Vermont and northwestern New Hampshire in November, 1927. Technologically, the bridge is a reflection of the New Hampshire Highway Department's reaction to the devastating losses caused by these floods, and is an excellent example of long-span truss bridge design and construction in the 1920s. The Piermont Bridge is the longest single truss span built by the New Hampshire Highway Department as a result of the 1927 floods.

The floods of November 3 and 4, 1927, exceeded all previous flood records in northwestern New Hampshire. The Connecticut River rose thirty feet at Hanover, New Hampshire. Damage to roads and bridges in New Hampshire was estimated at \$2.5 million. Damage in Vermont, where the eastern slopes of the Green Mountains received especially heavy rainfall, was far greater than in New Hampshire.⁷

Many of the short-span bridges washed out by the floods of 1927 were replaced by concrete bridges and culverts, and by plate girder spans measuring up to a hundred feet in length.⁸ Longer crossings were spanned by steel truss bridges of various designs. Among those constructed in direct response to flood damage were the following: a 120-foot Pratt through truss (Apthorp Bridge) over the Ammonoosuc River in Littleton; a 136-foot Pratt through truss at Bridge Street in Littleton; a 153-foot Pratt through truss at Twin Mountain in Carroll; a 136-foot Pratt through truss (Pierce Bridge) at Bethlehem Junction; a 136-foot Pratt through truss at Gorham; a 120-foot Pratt through truss at Jefferson; a 139-foot Pratt through

⁷ "November Flood Damage to Highway System Greatest in History of State," *New Hampshire Highways* 5 (November 1927); "Some Characteristics of Northern New England's 1927 Flood," *New Hampshire Highways* 5 (December 1927).

⁸ *New Hampshire Highways* 6 (August and September 1928).

United States Department of the Interior
National Park Service

NATIONAL REGISTER OF HISTORIC PLACES
CONTINUATION SHEET

Section 8 Page 5

Piermont Bridge, Grafton County, NH

Engineering significance continued :

truss at Lead Mine in Shelburne; a 120-foot through Warren truss at Bath; a 108-foot through Warren truss on Wing Road in Bethlehem; a 120-foot through Warren truss at Bethlehem Hollow; and a 108-foot through Warren truss at Wentworth.⁹

The 352-foot Piermont Bridge was the longest flood emergency bridge constructed after 1927, and the only Pennsylvania truss span. But several Parker truss bridges, having similar curved upper chords but without subdivided panels, were built on some of the longer crossings. Among these were a 240-foot Parker through truss over the Pemigewasset River in Bristol; a 220-foot Parker through truss at Chiswick Avenue or Beacon Street in Littleton; and a 220-foot Parker truss over the Connecticut River between West Stewartstown, New Hampshire, and Canaan, Vermont.

It is significant that the Littleton Parker truss (220/056) and the Stewartstown bridge (028/146) used the same shop details. Both bridges were designed to span 220'-0" between pins. Like several of the shorter Warren and Pratt truss spans listed above and sharing the same span lengths, these Parker truss spans were built using standardized plans to avoid needless custom designing of bridges under emergency conditions. Most of the new Parker truss spans incorporated standard specifications issued by the federal Bureau of Public Roads. The same specifications are referred to on the cover sheet of the plans for the Piermont Bridge, and also governed its construction. Like comparable bridges built in Vermont, the high or "through" truss bridges built in New Hampshire after the floods of 1927 differed from older spans primarily in employing an increased number of rolled steel sections in their construction, with fewer built-up members.¹⁰

An article by engineer John W. Childs in *New Hampshire Highways* magazine in 1929 summed up the standards to which major bridges of this period were designed. All bridges were designed to carry a fifteen-ton truck in each line of traffic. The drawings for the superstructure of the Piermont Bridge cite this specification. Because trunk line highways were being plowed in the winter by this time, major bridges were designed with roadway widths of at least twenty-four feet. This gave two ten-foot traffic lanes and two two-foot

⁹ Ibid.

¹⁰ Historic Resource Consultants, Hartford, Conn., "Vermont Historic Bridge Survey, Final Report and Preservation Plan" (draft, 1985), pp. II:21-24.

United States Department of the Interior
National Park Service

NATIONAL REGISTER OF HISTORIC PLACES
CONTINUATION SHEET

Section 8 Page 6

Piermont Bridge, Grafton County, NH

Engineering significance continued :

margins for drainage and for plowed snow. In keeping with this specification, the Piermont Bridge measures 24'-4" between truss centerlines.¹¹

The Piermont Bridge is primarily significant in engineering for its status as the longest Pennsylvania truss span in New Hampshire and for its excellent representation of the mature Pennsylvania truss as used during the 1920s. The eastern abutment of the bridge, however, is also significant for its early use of concrete. The Piermont-Bradford Bridge was built on the site of a nineteenth-century wooden covered bridge of Town lattice design, supported at its center by a stone pier. As originally built, this bridge had two granite abutments. In 1908, however, the New Hampshire consulting engineer John W. Storrs (who until 1905 had served as state highway engineer for Coos, Carroll, and Grafton Counties) was employed to replace the eastern (New Hampshire) abutment. In 1904, Storrs had employed concrete for bridge abutments beneath a short-span steel truss bridge in the White Mountains. An article of the time stated that "this is probably the first concrete masonry used in highway work in New Hampshire."¹² Storrs' use of concrete for the eastern abutment of the Piermont-Bradford Bridge four years later must therefore be among the earliest surviving examples of concrete work on the New Hampshire highway system.

Design of the new steel bridge in 1928 called for the eastern abutment to carry half the weight of the new structure without the aid of a central pier in the river. Moreover, the eastern abutment was chosen to receive the expansion shoe of the bridge, requiring the bolstering of the 1908 concrete abutment. This was accomplished by excavating behind Storrs' abutment and placing a new concrete structure in that area, doweled to the 1908 abutment with steel rods. This design preserved the old concrete abutment while buttressing it for the increased loads imposed by the new steel span.

¹¹ John W. Childs, "State Highway Bridge Program 1929," *New Hampshire Highways* 7 (December 1929): 4.

¹² Editorial Notes, *Granite Monthly* 37 (August-September, 1904), 89-91; John W. Storrs, "State Highway Work in the White Mountains," *Granite Monthly* 37 (October-December, 1904): 96-100.

United States Department of the Interior
National Park Service

NATIONAL REGISTER OF HISTORIC PLACES
CONTINUATION SHEET

Section 8 Page 7

Piermont Bridge, Grafton County, NH

Historical Background

The Piermont Bridge is also an important link culturally, socially, and economically between the towns of Piermont, New Hampshire and Bradford, Vermont. This relationship dates to 1826-27 when the first span was built. This was a trestle type bridge with ends on wooden abutments¹³ constructed by a group called the Proprietors of Piermont who received a charter in 1825 to build a bridge somewhere between one mile north of Wait's River and one and one-half miles south of Wait's River¹⁴. Fifty years later, a freshet caused a rise in the river to about one foot above the bridge's deck, lifted it, and carried it down stream where it ran aground, intact, in a site called Robies Meadow. The link between the towns had been severed.

A new covered bridge, four feet higher than its predecessor¹⁵ was then built. Both of these structures were built using private funds to be recovered by charging crossing tolls. The tolls ended in 1900 when the towns of Piermont and Bradford jointly purchased the bridge. Piermont's share was \$4,400.00 and Bradford paid 1,100.00. This disparate share was sanctioned when on January 8, 1934 the United States Supreme Court ruled that New Hampshire was the principal owner of the Connecticut River along its border and also the bridges thereon. The New Hampshire-Vermont state boundary was designated as the mean low water mark in Vermont. To help offset the operational costs, New Hampshire realizes a benefit from the revenue paid by the hydroelectric plants located on the river.

Despite the elevated construction of the covered bridge, it yielded to the force of the 1927 flood. That flood was the result of two violent storms, one coming up the East Coast from the south meeting one from the west. This caused a phenomenal rise in the water that carried nearly everything with it. Once again the towns had to be reunited and this led to the construction of the present steel truss bridge. The memory of the covered bridge remains in that the new bridge used the piers from it during the erection. The stones from these piers were knocked down and are still visible under the water.

¹³Katherine Blaisdell, *Over the Bridge and Through the Years, Book One*, Bradford: Journal Opinion, 1971.

¹⁴Harold Haskins, *A History of Bradford*, Littleton: Courier Printing Co., n.d.

¹⁵ *ibid.*

United States Department of the Interior
National Park Service

NATIONAL REGISTER OF HISTORIC PLACES
Continuation Sheet

Section 9 **Page** 1 Piermont Bridge, Grafton County, NH

Major Bibliographical References

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United States Department of the Interior
National Park Service

NATIONAL REGISTER OF HISTORIC PLACES
Continuation Sheet

Section 9 **Page** 2 Piermont Bridge, Grafton County, NH

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United States Department of the Interior
National Park Service

NATIONAL REGISTER OF HISTORIC PLACES
Continuation Sheet

Section 10 **Page** 1 Piermont Bridge, Grafton County, NH

Verbal Boundary Description:

The nominated property is limited to the bridge and its abutments (see attached sketch map). The bridge carries New Hampshire route 25 across the Connecticut River from the town of Piermont, New Hampshire to Bradford, Vermont. It is 354' 10" in length and 30' wide.

Boundary Justification:

This boundary includes all the property historically associated with this bridge.

United States Department of the Interior
National Park Service

NATIONAL REGISTER OF HISTORIC PLACES
Continuation Sheet

Section 11 **Page 1** **Piermont Bridge, Grafton County NH**

Property Owner

The bridge is owned by the states of New Hampshire (89%) and Vermont (11%).

Addresses are:

State of Vermont
Agency of Transportation
National Life Building
Drawer 33
Montpelier, Vermont 05600-5001
Structures Division Phone: (802) 828 2621

State of New Hampshire

Department of Transportation
John O. Morton Building
1 Hazen Drive, PO Box 483
Concord, New Hampshire 03302-0483
NHDOT phone: (603) 271-3734
Bureau of Bridge Design: (603) 271 2731.

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

**NATIONAL REGISTER OF HISTORIC PLACES
Continuation Sheet**

Accompanying Documentation

Piermont Bridge, Grafton, New Hampshire

Photographs number 1, 2 & 3 taken by William Thrane, nomination preparer, September 1, 2000. Negatives for these are filed with the New Hampshire Division of Historical Resources. The road in all photographs is New Hampshire State Route 25.

Photographs number 4 & 5 are reproduced from Journal Opinion newspaper, Bradford, Vermont, August 4, 1993. Negatives are on file with that organization.

Photo No. 1: Boston Bridge Works plaque from New Hampshire side facing west.

Photo No. 2: three quarter angle from the Vermont side-facing southeast.

Photo No. 3: West portal and New Hampshire state line sign from Vermont facing east.

Photograph No. 4 taken as follows:

Left side: facing west, under construction.

Right side, top: from Vermont side, facing southeast.

Right side, bottom: from New Hampshire side facing west.

Photograph No. 5 taken as follows:

Top: Covered Bridge predecessor from Vermont side facing southeast.

Bottom: under construction, from New Hampshire side facing west.

NPS Form 10-900-a
OMB No. 1024-0018
(8-86)

United States Department of the Interior
National Park Service

NATIONAL REGISTER OF HISTORIC PLACES
Continuation Sheet

Accompanying Documentation

Piermont Bridge, Grafton County, NH

