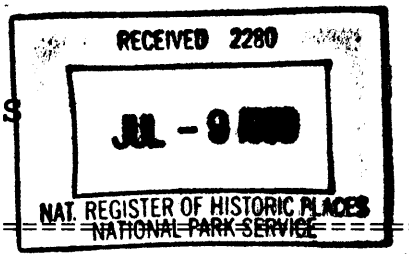
NPS Form 10-900
(Rev. 8-86)

OMB No. 1024-0018

United States Department of the Interior
National Park Service



923

NATIONAL REGISTER OF HISTORIC PLACES
REGISTRATION FORM

1. Name of Property

historic name: **TOWN BRIDGE**

other name/site number: Bridge No. 5222

2. Location

street & number: Town Bridge Road over Farmington River

not for publication: N/A

city/town: Canton vicinity: N/A

state: CT county: Hartford code: 003 zip code: 06019

3. Classification

Ownership of Property: public-local

Category of Property: structure

Number of Resources within Property:

Contributing	Noncontributing	
_____	_____	buildings
_____	_____	sites
1	_____	structures
_____	_____	objects
1	0	Total

Number of contributing resources previously listed in the National Register: 0

Name of related multiple property listing: N/A

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4. State/Federal Agency Certification

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As the designated authority under the National Historic Preservation Act of 1966, as amended, I hereby certify that this X 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 X meets ____ does not meet the National Register Criteria. ____ See cont. sheet.

06/30/99

Signature of certifying official Date

John W. Shannahan, Director, Connecticut Historical Commission

State or Federal agency and bureau

In my opinion, the property ____ meets ____ does not meet the National Register criteria. ___ See continuation sheet.

Signature of commenting or other official Date

State or Federal agency and bureau

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5. National Park Service Certification

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I, hereby certify that this property is:

√ entered in the National Register Elson H. Beall 8.5.99
___ 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): _____

Signature of Keeper Date of Action

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6. Function or Use

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Historic: TRANSPORTATION Sub: road-related

Current: TRANSPORTATION Sub: road-related

7. Description

Architectural Classification:

Other: Parker through truss

Other Description: N/A

Materials: foundation _____ roof _____
walls _____ other METAL: iron
_____ STONE

Describe present and historic physical appearance. X See continuation sheet.

8. Statement of Significance

Certifying official has considered the significance of this property in relation to other properties: state.

Applicable National Register Criteria: A,C

Criteria Considerations (Exceptions) : N/A

Areas of Significance: ENGINEERING
INDUSTRY

Period(s) of Significance: 1877-1900

Significant Dates: 1895

Significant Person(s): N/A

Cultural Affiliation: N/A

Architect/Builder: Berlin Iron Bridge Company (fabricator)

State significance of property, and justify criteria, criteria considerations, and areas and periods of significance noted above.
X See continuation sheet.

9. Major Bibliographical References

_X_ See continuation sheet.

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 # _____

Primary Location of Additional Data:

X State historic preservation office — Connecticut Historical Commission
X Other state agency — 59 South Prospect Street
_ Federal agency — Hartford, Connecticut 06106
_ Local government
_ University — Connecticut Dept. of Transportation
_ Other -- Specify Repository: _____ — Newington, Connecticut 06111

10. Geographical Data

Acreage of Property: less than one acre

UTM References:	Zone	Easting	Northing		Zone	Easting	Northing
A	18	672030	4632140	B	__	_____	_____
C	__	_____	_____	D	__	_____	_____

___ See continuation sheet.

Verbal Boundary Description: ___ See continuation sheet.
The nominated property includes the bridge, abutments, and roadway.

Boundary Justification: ___ See continuation sheet.
The boundary includes only the components of the bridge itself.

11. Form Prepared By

Name/Title: Bruce Clouette and Hoang Tinh, reviewed by John Herzan, Conn. Hist. Commission
Organization: Historic Resource Consultants Date: April 30, 1998

Street & Number: 55 Van Dyke Avenue Telephone: 860-547-0268

City or Town: Hartford State: CT Zip: 06106

Summary

The Town Bridge is significant as a representative example of late 19th-century bridge engineering (Criterion C) and as a product of the Berlin Iron Bridge Company, a major manufacturing concern and Connecticut's only large 19th-century bridge fabricator (Criterion A). Although the Berlin Iron Bridge Company probably built more than a thousand bridges throughout the Northeast, relatively few have survived to the present; the Town Bridge is one of only 19 highway bridges remaining in the company's home state of Connecticut and the only one that departs from its patented lenticular truss pattern.

The Town Bridge represents a transitional stage in the evolution of American metal-truss engineering. Unlike the Berlin Iron Bridge Company's earlier bridges, most of which are of lenticular form, the Town Bridge uses a variant on the Pratt truss, a simple design in which compression vertical members and tension diagonals transmit load to the abutments. Along with the Warren truss, the Pratt truss (and variants) came to dominate bridge engineering by 1900, replacing the numerous idiosyncratic truss patterns that characterized the earlier period of American bridge design. The Town Bridge is also transitional in that it includes both pinned and riveted connections. Pin-connected bridges were characteristic of the 1880s and early 1890s, but within a few years, riveted connections became the overwhelmingly common choice of bridge engineers.

Engineering Significance

The Parker truss, a Pratt truss in which the upper chord is curved, making the bridge thicker in the middle than the ends, was a refinement of the simple Pratt truss that was introduced in the 1860s by Boston-based engineer Charles W. Parker. By giving the bridge depth where it was most needed, the Parker truss provided a great savings in material and weight over truss designs with straight top chords. However, fabricating the angles in the top chord was more difficult and fewer members were of the same length, so net cost savings could only be realized in the case of long bridges. By the 1890s, the Parker pattern was standard for metal-truss bridges of more than 150 feet in length, even for fabricators that had made their mark with more unusual designs, such as the Berlin Iron Bridge Company.

This bridge's 19th-century origin is apparent in the large amount of Victorian-style decorative material still in place. Although not

complete, the decorative details in this bridge--urns, cresting, and ornamental railing--are characteristic of the aesthetic taste of the period. They were intended to supplement, rather than distract from, the considerable aesthetic impact of the bridge itself; to Victorians, iron bridges were light and graceful compared with their wooden predecessors and were viewed as signs of progress.

Another interesting feature of the bridge is its combination of pinned and riveted connections. Although the controversy between pinned and riveted construction was hotly debated at the time, and often revolved around questions of safety, rigidity, and economics, this bridge makes it apparent that the choice was also in part simply one of convenience in design: the bridge used pinned connections where it was necessary to secure eyebar tension members and gusset-plate connections where straight-edged, rectangular components were to be joined. The bridge thus represents a transitional stage, soon to disappear as more easily riveted diagonal members superseded the use of eyebars. Also, the small size of the gusset plates, useful only for making a minimal connection between members, is archaic: 20th-century trusses used increasingly larger gusset plates to make a more secure connection and provide stiffening for the joint.

Although the bridge has undergone some modification, its rehabilitation has had only a modest effect on its historical character, either visually or substantively, and almost all original material is still in place and distinguishable from the additions.

The Berlin Iron Bridge Company

Unlike most American bridge firms, which were closely tied to iron and steel makers, Connecticut's leading manufacturer of bridges had its roots in the tinware industry. Roys and Wilcox, an East Berlin maker of tinners' tools and other metal-forming machines, set up a company in 1868 to market sheet-iron products made with its rolling machines. The Corrugated Metal Company, as it was first called, produced roofing material and metal-clad firedoors and shutters. The company soon became involved in structural iron work when it began to provide roof trusses as well as the exterior material. The company was not particularly successful until a new investor in 1877, S. C. Wilcox, realized that the plant had the capacity to manufacture highway bridges. The following year, the Corrugated Metal Company purchased rights to William Douglas's patented "parabolic" truss and produced the first of the lenticular bridges that would soon dot the landscape of

the Northeast. Douglas, educated at West Point, joined the company as treasurer and executive manager and continued to refine his design; he was awarded a second patent in 1885, by which time the company had changed its name to the Berlin Iron Bridge Company.

The late 19th century was a good time to be in the bridge business. As the industry developed, the price of iron trusses steadily dropped until they were competitive with wooden spans, especially when their superior durability and resistance to flood waters was figured in (wooden bridges had an average lifetime of about 25 years). The only other alternative, for shorter spans only, was building in stone, which remained very expensive. Throughout America, local highway officials opted to replace their wooden bridges with iron, and firms such as the Berlin Iron Bridge Company were happy to oblige.

At its height, the Berlin Iron Bridge Company was probably the largest structural fabricator in New England. Some 400 workers were employed at its East Berlin plant (no longer extant), along with another large group of workers in the field during the construction season. There is no definitive count of the company's bridges, though at least 600 are known to have been completed during its first ten years and perhaps an equal number in the 1890s. Most were in the Northeast, though even today Berlin trusses survive as far away as Texas. A few multiple-span bridges were of tremendous size, but most were smaller and a single span in length, with through-trusses such as the Town Bridge for lengths over 100 feet and pony trusses for shorter spans.

Although the lenticular design accounted for the bulk of the Berlin Iron Bridge Company's output, from the start the firm produced other types of trusses as well in order to meet the needs of their customers. In 1882, the Corrugated Metal Company, as it was then known, built a pin-connected Pratt truss, the Chapel Street West River Bridge (demolished in 1991), to the specifications of the New Haven city engineer. In the 1890s, several bridges of standard truss designs were fabricated for the New Haven Railroad as part of the upgrade of the New Haven to New York main line. By that time, it is believed that the company had virtually ceased building its patented model in favor of more conventional designs. Today, the Town Bridge and a railroad bridge in South Norwalk are the only known remaining Berlin non-

lenticular trusses.[1] The company also furnished structural iron for buildings and specialized industrial structures such as dock cranes.

The Berlin Iron Bridge Company was absorbed in 1900 by the American Bridge Company, a largely successful attempt by J. P. Morgan to monopolize the country's structural fabricating industry. A competing firm was started almost immediately, however, by former Berlin Iron Bridge employees, and it quickly regained much of its predecessor's influence in the New England bridge market; it remains in business today under the name Berlin Steel.

Of the hundreds of bridges known to have been built in Connecticut by the Berlin Iron Bridge Company, it is believed that the only survivors are 19 highway truss bridges and two railroad bridges, and two of the former are scheduled for imminent replacement. The Town Bridge is thus one of a dwindling number of heritage resources left to illustrate this important chapter in Connecticut industrial history.

Historical Background

The bridge was built by the Town of Canton at a cost of about $8,500, including its original wooden-plank deck. The Farmington River's breadth and its swift-flowing waters made it a significant obstacle in the best of times and a serious danger in times of flood. In the 1880s and 1890s, Canton undertook to replace a number of its wooden bridges with more substantial iron structures, thereby allowing local farmers to market their produce reliably and also assuring transportation of goods and workers to the town's largest industrial center, the nearby village of Collinsville, home of the Collins Ax Company. The Town Bridge represented a substantial project at the time it was built, and it was used by the Berlin Iron Bridge Company in its promotional materials. The bridge is one of the largest 19th-century town-highway trusses remaining in the state.

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[1]At least three other non-lenticular Berlin trusses in Connecticut are known to have been demolished since 1981. See Roth, ***Connecticut: an Inventory of Historic Engineering and Industrial Sites***.

Berlin Bridges and Buildings, 1 (January, 1899), p.156.

Canton, Town of. ***Annual Report***, 1895, pp. 5, 7, 16.

Clouette, Bruce and Matthew Roth. ***Connecticut's Historic Highway Bridges***. Wethersfield, Conn.: Connecticut Department of Transportation, 1991.

Connecticut Department of Transportation. Historic Bridge Inventory. 1991.

Darnell, Victor. "Lenticular Bridges from East Berlin, Connecticut," ***Industrial Archeology*** 5 (1979): 19-32.

Roth, Matthew. ***Connecticut: An Inventory of Historic Engineering and Industrial Sites***. Washington: Society for Industrial Archeology, 1981.

"The Plant of the Berlin Iron Bridge Company," ***Engineering News*** 26 (October 3, 1891): 87-91.

NATIONAL REGISTER OF HISTORIC PLACES
CONTINUATION SHEET

Photographs **Town Bridge (Bridge No. 5222)** **Photos-1**
Canton, Hartford County, CT

All photographs:

1. Town Bridge (Bridge No. 5222)
2. Canton, Hartford County, CT
3. Historic Resource Consultants Photograph
4. April, 1998
5. Negative filed with Connecticut Historical Commission
   Hartford, CT

Captions:

South end of bridge, camera facing north
Photograph 1 of 14

North end of bridge, camera facing south
Photograph 2 of 14

East elevation, camera facing northwest
Photograph 3 of 14

West elevation, camera facing southeast
Photograph 4 of 14

Underside of bridge from north end, camera facing south
Photograph 5 of 14

Detail of stone abutment, north end, camera facing northwest
Photograph 6 of 14

Detail of portal joint, north end, camera facing northwest
Photograph 7 of 14

Typical upper joint, west side, camera facing northwest
Photograph 8 of 14

Typical lower joint, west side, camera facing southeast
Photograph 9 of 14

Riveted joint on mid-height longitudinal stiffener, west side, camera facing northwest
Photograph 10 of 14

Detail of bridge pivot bearing, northeast corner, camera facing southwest
Photograph 11 of 14

Detail of ornamental urn and cresting, south end, camera facing north
Photograph 12 of 14

Detail of builder's plaque, north end, camera facing southwest
Photograph 13 of 14

Detail of railing, west side, camera facing northwest
Photograph 14 of 14