

STILLWATER ROAD BRIDGE

Spans Woonasquatucket River on Stillwater Road
Smithfield
Providence County
Rhode Island

HAER No. RI-25

HAER
RI
4-PROV,
194-

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD

Northeast Area Office
National Park Service
U.S. Custom House
200 Chestnut Street
Philadelphia, PA 19106

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Location: Spanning the Woonasquatucket River on Stillwater Road, approximately one quarter mile east of State Highway 104-Farnum Pike, Town of Smithfield, Providence County, Rhode Island.

UTM: 19.292080.4640290

Quad: Georgiaville, Rhode Island, 1:24,000

Date of Construction: July 1886

Present Owner: Rhode Island Department of Transportation - Public Works Division
Two Capitol Hill
Providence, RI 02903

Present Use: Vehicular bridge, closed to traffic.

Significance: The Stillwater Road Bridge No. 949 is an excellent example of a nineteenth century lenticular wrought-iron truss bridge. The lenticular truss was a patented design built exclusively by the Berlin Iron Bridge Company of East Berlin, Connecticut. Of the more than half dozen Berlin Iron Bridge Company bridges erected in Rhode Island only two are extant. This is the only surviving lenticular highway truss; the other lenticular truss bridge is the Interlaken Mill Bridge (c.1885) in the Town of Coventry. The Stillwater Road Bridge exhibits such early characteristics as patented truss configuration, pinned connections and light and narrow proportions. Original intact features include the trusses and floor system. The bridge was determined eligible for listing on the National Register of Historic Places on January 10, 1989.

Project

Information: In 1978 the Rhode Island Department of Transportation in cooperation with the Federal Highway Administration initiated a study of the replacement of the Stillwater Road Bridge. At that time, the bridge was listed as a contributing element of the Georgiaville Historic District (DOE on 12/13/79) and therefore fell under the Section 106 review process. The Georgiaville Historic District was formally listed on 10/3/85. Subsequent to the approval of the Section 106/4(F) Evaluation and Memorandum of Agreement for the bridge's replacement (1984), the bridge was determined to be individually eligible for listing on the National Register of Historic Places. Therefore, this documentation was undertaken in November 1989 as an additional mitigative measure prior to the replacement of the bridge.

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THE CROSSING

The Stillwater Road Bridge stands in the former textile mill village of Georgiaville in the Town of Smithfield. It spans the Woonasquatucket River, a major stream that empties into the Providence River at Providence, eight miles southeast of this point. Colonial era settlement in the area initially occurred on both sides of the Woonasquatucket River along what is now Whipple Avenue, several hundred yards downstream where a bridge crossing was established. At that location, John Farnum and his sons, Joseph and Noah had by 1770 erected several residences and an iron forge. With the advent of the Industrial Revolution in the early nineteenth century, major streams such as the Woonasquatucket were utilized to furnish hydraulic power for textile mills. In 1813, the newly organized Georgia Manufacturing Company acquired the land between present day Whipple Avenue and Stillwater Road and laid out a textile factory complex and employee residences. In time the village came to be called Georgiaville. By 1859 Stillwater Road had been extended across the river, thereby providing a second bridged river crossing which serviced the north end of the mill village. This crossing was known as "Brayton's Crossing" and was named after T. Brayton, who resided near the east end of the bridge. During the latter part of the nineteenth century, the Smithfield Town Council records make frequent references to periodic repairs carried out by the town's overseer of roads at the wooden bridge at Brayton's Crossing on the Stillwater Road.

A spring freshet in February 1886 caused extensive damage to many of the wooden bridges throughout the state including the Stillwater Road Bridge. At this time, the Smithfield Town Council decided to replace the wooden structure on Stillwater Road with a more permanent one of wrought iron. Accordingly, bids were solicited and two received. At a Town Council meeting held on May 11, 1886, the decision was made to award the contract to the low bidder, the Berlin Iron Bridge Company of East Berlin, Connecticut for \$919.00. On June 26, 1886, the Town Council awarded a contract to construct stone abutments for the new bridge to a local builder, Almy Mathewson for \$775.00. The bridge and abutments of granite were completed by July 31, 1886 according to the Town Council records. The town of Smithfield owned and maintained the bridge until 1977, when ownership was transferred to the State of Rhode Island - Department of Transportation. Alterations to the bridge have included the addition of pipe railing and chain-link fencing (1970), and application of asphalt pavement onto the plank deck.

THE BRIDGE

The Stillwater Road Bridge is a single span, lenticular pony truss of wrought iron. It is 50 feet long, 22 feet wide and has a clearance of eight feet above the Woonasquatucket River. The bridge consists of three panels, has pin-connected trusses with non-parallel top and bottom chords forming a concave, lenticular outline. Both chords bear on short end posts, which have special cast junctions. The top chord and end posts are box girders, with latticed undersides, formed from plates and angles. The lower chord is a

double chain of eye-bars threaded at the ends and secured with large nuts to the end-post castings. Uprights are tapered I-section lattice girders. At each corner a lattice-girder stiffener runs between the bottom of the end post and the first panel point. The middle panel is braced with diagonally crossed tension rods. Heavy plate-girder floor beams are suspended from the lower joints with large U-bolts or "hairpins". The floor beams taper sharply toward the ends. The bridge has tie-rod crossbracing, wood stringers and a plank deck. The superstructure is supported by the original stone abutments.

The lenticular truss design had been used in France in 1840 and in Germany in 1857. In the United States, William O. Douglas received a patent for a lenticular truss on April 6, 1878. This design was employed exclusively by the Berlin Iron Bridge Company of East Berlin, Connecticut. Though primarily active in New York and New England, the company built hundreds of bridges nation-wide, with the lenticular truss being their most commonly used design. The lenticular design appears to have been very competitive and widely used. The company and its predecessor, the Corrugated Metal Company, claimed to have build over ninety percent of all iron highway bridges in the Northeast in the ten years after the patent was granted. Evidently, the Town of Smithfield was pleased with the new Stillwater Road Bridge, for the following year a second Berlin Company bridge was erected in Smithfield. Like many other medium-sized companies, the Berlin Iron Bridge Company was absorbed by the American Bridge Company in 1900. Approximately five percent of the Company's bridges survive today.

B I B L I O G R A P H Y

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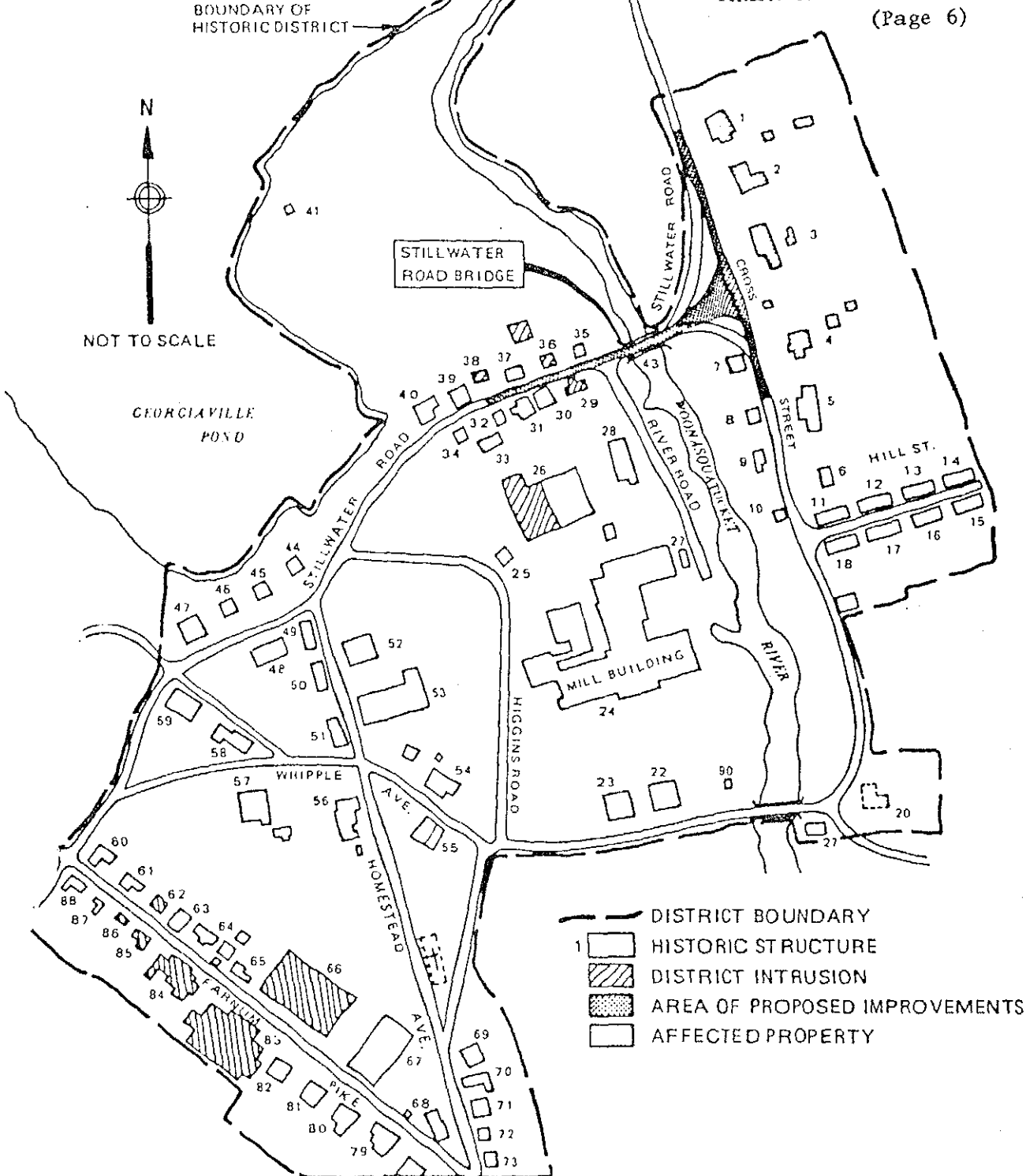
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SITE PLAN

STILLWATER ROAD BRIDGE
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SOURCE: NATIONAL REGISTER OF HISTORIC PLACES
 INVENTORY-NOMINATION FORM
 GEORGIAVILLE HISTORIC DISTRICT