

INDIVIDUAL INVENTORY FORM

NHDHR INVENTORY NHA0002

Name, Location, Ownership

1. Historic name: Drake's Bridge (NHDOT North Hampton 148/132)
2. District or area: None
3. Street and number: US Route 1/Lafayette Road over Boston & Maine Railroad
4. City or town: North Hampton
5. County: Rockingham
6. Current owner: NHDOT

Function or Use

7. Current use(s): Bridge
8. Historic use(s): Bridge

Architectural Information

9. Style: N/A
10. Architect/builder: Robert J. Prowse, engineer for NHHD
11. Source: NHDOT
12. Construction date: 1935-36 (superstructure); 1900 (substructure)
13. Source: Research, Inspection
14. Alterations, with dates: N/A
15. Moved? no ☒ yes ☐ date: N/A

Exterior Features

16. Foundation: Stone Abutments
17. Cladding: N/A
18. Roof material: N/A
19. Chimney material: N/A
20. Type of roof: N/A
21. Chimney location: N/A
22. Number of stories: N/A
23. Entry location: N/A
24. Windows: N/A

Replacement? no ☐ yes ☐ date: N/A

Site Features

25. Setting: Developing mixed-use road
26. Outbuildings: N/A
27. Landscape features: N/A
28. Acreage: 0 acres



35. Photo 1

Direction: SSW

36. Date: October 2016

37. Reference (file name): NHA0002_01

29. Tax map/parcel: N/A

30. State Plane Feet (NAD83): X: 1,209,952.10 Y: 179,284.46

31. USGS quadrangle and scale: Hampton, NH-MA, 1:24000

Form prepared by

32. Name: Carol Hooper, Lynne Monroe

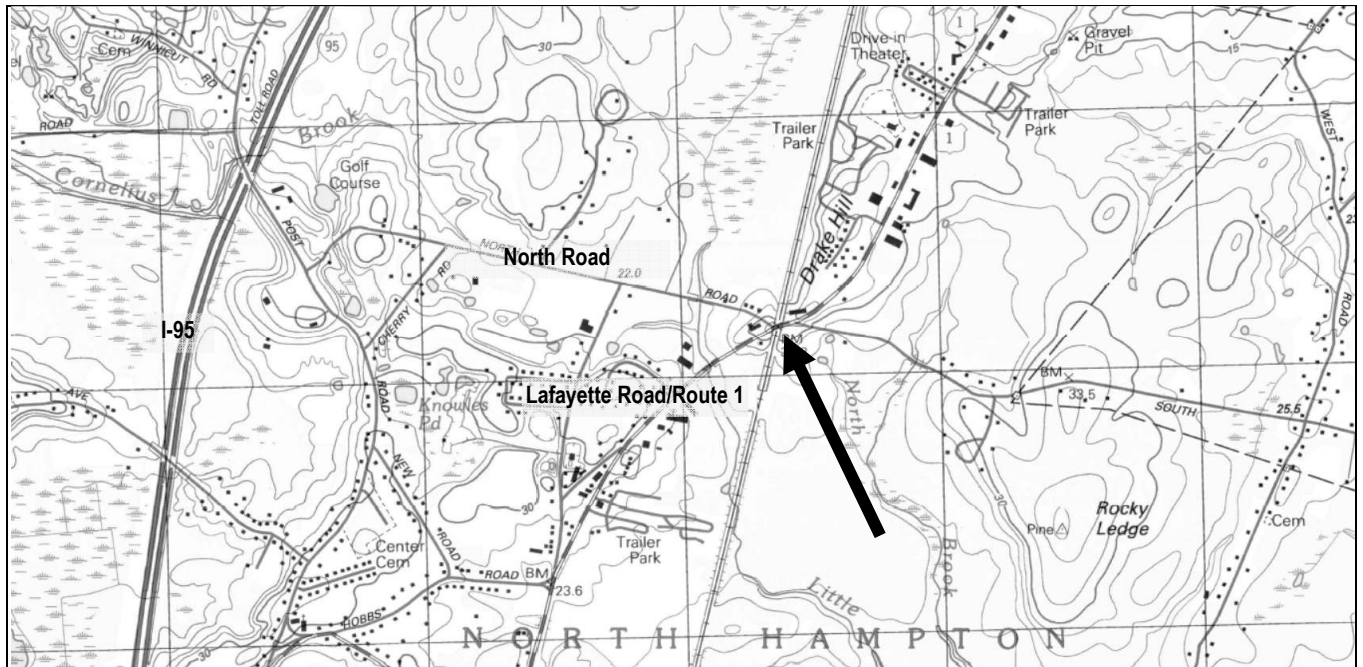
33. Organization: Preservation Company, Kensington, NH

34. Date of survey: 10/2016

INDIVIDUAL INVENTORY FORM

NHDHR INVENTORY NHA0002

39. Location Map



Location of Drake's Bridge shown on the 1992 USGS map (USGS Exeter 1992*)

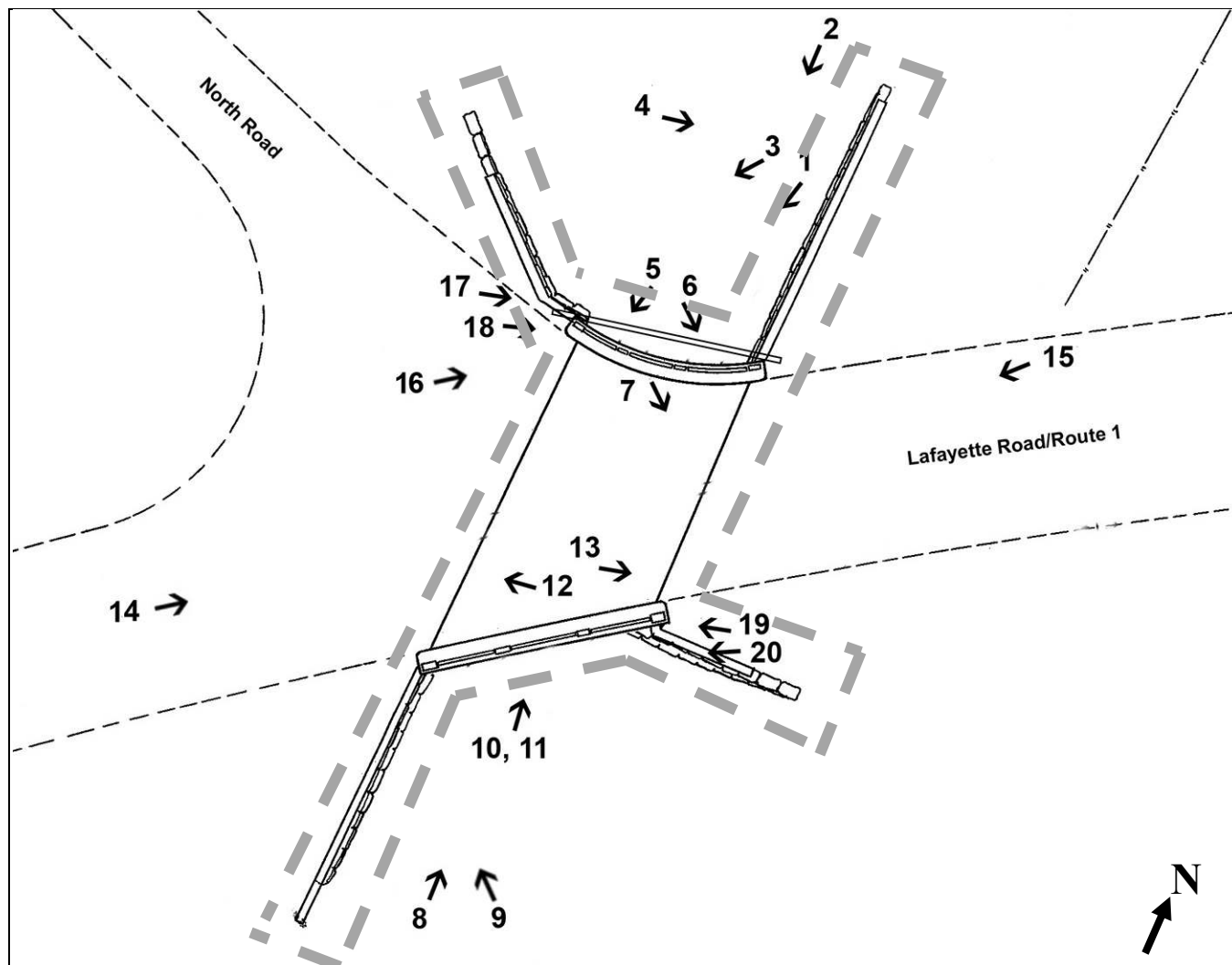
* Neither buildings nor railroad are shown on most recent 2015 USGS map



INDIVIDUAL INVENTORY FORM

NHDHR INVENTORY NHA0002

40. Property Map



Property map with photo numbers and eligible boundary (grey dotted line)

INDIVIDUAL INVENTORY FORM

NHDHR INVENTORY NHA0002

41. Historical Background and Role in the Town or City's Development

Drake's Bridge, a bridge/overpass over the former Eastern Railroad, takes Route 1 (Lafayette Road) over the railroad at the intersection of Route 1 and North Road in North Hampton. The area was historically known as "Drake Hill" for the Drake Family, which owned land on all sides of the intersection and farmed in the area from early in the 18th century. Still extant at 148 Lafayette Road are buildings and land associated with the Drake Farm just east of the railroad bridge.¹ No maps have been found showing the area before the arrival of the railroad. However it appears that before the railroad was put through ca. 1840, the two separate sections of North Road were continuous. The road would have crossed what is now the railroad bed north of Lafayette Road/Route 1 and intersected Lafayette Road near where the eastern part of the road now leaves Lafayette Road. Lafayette Road was a key historic north-south route through the seacoast area and an early stagecoach route. This portion of the road had been incorporated into Lafayette Road by the time of the construction of the first Drake's Bridge in 1840. Lafayette Road eventually evolved into U.S. Route 1, the major eastern seaboard automobile route prior to the construction of I-95.²

Arrival of the Eastern Railroad and first Drake's Bridge, 1840-1900

The first "Drake's Bridge" was constructed by the Eastern Railroad and was apparently at least largely completed by June 1840. The Eastern Railroad Company of New Hampshire was incorporated in June 1836 to connect the Eastern Railroad line of Massachusetts (which was chartered two months before its New Hampshire affiliate) with the Portland, Saco and Portsmouth Railroad (in southern Maine) (Mausolf 2002:7; Wallace 1999:12).³ The Eastern was the fifth railroad incorporated in New Hampshire, the second to be constructed in the state and, at the time of its construction, the longest line in the state (Mausolf 2002:11). The chosen route went through Seabrook, Hampton Falls, Hampton, North Hampton, Greenland, Rye and Portsmouth. Ground was broken for the Massachusetts line in July, 1836 and proceeded northward.

The actual date construction started in North Hampton is not clear. Nearly all Rockingham County deeds for the railroad land are dated 1840 or 1841, after the line was completed. According to a deed dated December 29, 1840, the Eastern purchased the land at Drake's Bridge from Abraham and Frances Drake for \$380. In addition to the 30' wide strip of land for the railroad bed, the Drakes granted a "jib" of land adjoining the railroad to the west "for the purpose of altering the public highway." This would be the land on which the rerouted North Road was built.⁴ The decision by the railroad to reroute North Road onto Lafayette Road, was no doubt a cost saving measure to avoid the necessity of having to provide two bridges in close proximity. No pictures of the 1840 bridge have been located.⁵

¹The existing farmhouse is believed to have been moved to the site ca. 1890, replacing the earlier homestead that was torn down. The property was listed on the National Register in 2016 (Mausolf 2016).

²"The great stage road" connecting the towns of Newburyport, Massachusetts, and Portsmouth, New Hampshire, dated to the "earliest settlement of the country" (Brown 1900:446). Passing through the seacoast towns of Seabrook, Hampton Falls, Hampton, North Hampton and Portsmouth, it was renamed for the Marquis de Lafayette, who passed over at least part of the route in 1825. Exactly when the piece of Lafayette Road in North Hampton became part of the route is not clear. According to Dow, Lafayette Road in North Hampton was complete to the Hampton line by circa 1826 (Dow 1894:527).

³ The Eastern Railroad of New Hampshire was largely a subsidiary of its Massachusetts progenitor, the Massachusetts Eastern Railroad. It leased the New Hampshire Eastern Railroad for ninety-nine years beginning in mid-1839 (Mausolf 2002:7).

⁴ The Drakes also granted the Eastern another jib of their land, the former burying grounds to the east of the road bed.

⁵ Town records discussed above, suggest an unusual design, a (non-covered) arched bridge without a railing. At this time railroad bridges were timber, and the only commonly used arch bridge design was the Burr arch-truss which was a type of covered bridge. (See Wallace 2001: 99 *et seq*)

INDIVIDUAL INVENTORY FORM

NHDHR INVENTORY NHA0002

This and other issues with the railroad as constructed in the town raised the ire of North Hampton residents. In June 1840, town records indicate that there was no railing on the side of Drake Bridge. In November of that year, the selectman wrote to the Eastern and among other issues asked that “on Drake’s Hill put 16 feet on the south side of your arch bridge to correspond with the Lafayette Road” [i.e., widen it by 16 feet to make it as wide as the rest of Lafayette Road] and “we require you to make [North Road] as good as you found it without turning the same.” In March 1841 the town voted to authorize the selectmen to require the Eastern to “make the crossings of our highways by said road safe and convenient within three months” specifically requiring it “to build bridges on the North Road and on the Little River Road over the railroad and widen the bridge at the top of Drake’s Hill.” Despite threats of lawyers and of going to the General Court, North Hampton apparently was stuck with the new route of North Road and a too narrow bridge at Lafayette Road.⁶

The New Hampshire portion of the railroad was completed from the Massachusetts border to the outskirts of Portsmouth in November 1840 (Mausolf 2002:8). However just two years after the Eastern was completed through to Portsmouth, the Boston & Maine (originally the Andover & Wilmington) constructed a new north-south line slightly further inland, that also connected to the Portland, Saco and Portsmouth Railroad. Despite the competition, the Eastern managed to remain solvent through the Civil War when it was making the trip from Portsmouth to Boston six times a day. Around this time, however, a number of questionable economic decisions, including the purchase of a number of smaller feeder routes, an accident and general economic conditions, resulted in the Eastern falling in debt and losing passengers to the Boston & Maine. By 1870, 80 percent of railroad traffic had gone to the B & M Railroad tracks (Lindsell 2000:101). In 1871, the Eastern declared bankruptcy and in November 1874, a non-competition agreement was reached between the Eastern and the B & M.

In 1884, the B & M Railroad leased the Eastern Railroad for fifty-four years and in 1898 the legislatures of Massachusetts, Maine and New Hampshire voted to permit the Boston & Maine to purchase the Eastern (Boston & Maine 1900:4). Thereafter, the Eastern line ceased to exist and became, instead, the Eastern Branch of the B & M Railroad (Mausolf 2002:8-9). It was one of many competitor railroads that were taken over by the Boston & Maine during this era. Through this type of growth, by 1900 the B & M at 2,285 miles had become the largest line in northern New England.

Eastern Division of the Boston & Maine, the Second Drake’s Bridge and Route 1, 1900-1934

One of the first items of business on the Boston & Maine’s new Eastern Division was to install a second track. According to a B & M publication, construction of an additional track “had long been imperatively needed for the economical and expeditious operation of the train service” (Boston & Maine 1900:4). The second track required that the entire railbed be widened 12' and necessitated the replacement of Drake’s Bridge including the abutments. In addition, on the rest of the route, stations and freight houses had to be moved, freight yards and side tracks had to be rearranged and bridges, underpasses and culverts had to be widened or rebuilt. The B & M’s Engineering Department prepared plans and specs for the new masonry, bridges, and grading required for the extensive project in the summer of 1899 and contracted the work beginning in September 1899 (Boston & Maine 1900:4).

In September 1899, the Massachusetts firm of Ellis & Buswell began “under-grade masonry work” including the building of the abutments for five bridges; this likely included those for Drake’s Bridge (Boston & Maine 1900:4). Ellis & Buswell, headquartered in Woburn, Massachusetts, operated a granite quarry (the Ross Quarry) in Kennebunkport, Maine (Perrazzo 2007). It is likely

⁶ Minutes of Town Meetings dated: June 18, 1840; November 14, 1840; January 4, 1841; March 9, 1841.

INDIVIDUAL INVENTORY FORM

NHDHR INVENTORY NHA0002

that this stone was used for Ellis & Buswell's B & M work including Drake's Bridge. According to a local paper, in mid-December of 1899 "The Boston & Maine Railroad has about 50 men and a steam shovel employed digging away the embankment for the laying of the double tracks at Drake's bridge and has as many more men at North Hampton depot" (*Exeter News-Letter* 1899: 1) Work on the bridge itself had begun by February 1900; by April of that year it was estimated that, "the difficult rebuilding of the [Drake's] Bridge will hardly be completed before the close of next month" (*Exeter News-Letter* 1900A:3; *Exeter News-Letter* 1900C:3) The "difficult rebuilding" comment likely reflects the challenging design requirements of the bridge, in particular the skew (the acute angle at which road/bridge crosses over the railroad). Later in the same month the west abutment was nearly completed and the east started. By May 25, the new Drake's Bridge was said to be "in position." No photographs or descriptions of the 1900 wood bridge have been located but it appears to have remedied the issues of the former bridge, including being narrower than Lafayette Road. The second track was in use throughout the line by late June 1900 (*Exeter News-Letter* 1900E:3).

Although the burgeoning B & M no longer had competition from other railroads, it was not long before it too felt the effects of competition, in this case in the form of automobiles and, later, trucks. Both benefited from state subsidies, the Good Roads Movement, and other road projects (Hostutler and Muzzey 1995:7-8). The B & M's peak passenger traffic came in 1901; its highest volume of freight came seventeen years later. In answer to the competition from trucks and cars, the B & M formed a bus subsidiary in 1924. In the late 1920s, the B & M replaced many other bridges on the Eastern line; however Drake's Bridge was not replaced.

Lafayette Road, with its early historic significance to the seacoast and to the early United States, also saw major changes accompanying the shift towards automobiles and trucks as it became part of the nation-wide numbered highways system as U.S. Route 1. Route 1 officially came into being in 1927 with the inauguration of the US numbered highways system. Its route in New England followed that of the earlier NE [New England]-1 that was signed as such in 1923. Some 2,390 miles long, running from Key West, Florida, to Fort Kent, Maine, it was the main through-route running along the eastern seaboard. In 1930, New Hampshire designated Route 1 as its first "through highway" meaning that all roads intersecting Route 1 would have to yield to its traffic. The section of Route 1 from Boston to Portland, Maine, was to become one of the one or two busiest highways in New England and by the late 1930s, 4,000,000 vehicles traveled over Route 1 to the Memorial Bridge annually (Manchester Union 1940:10).

New Deal-funded Construction, Building the Current Drake's Bridge, Further Decline of the B & M, 1935-present

Given that the wood Drake's Bridge dated from 1900, by the mid-1930s it likely was in poor physical condition. Luckily, in this era New Hampshire's roads and bridges were the beneficiaries of federal funds from a variety of federal New Deal programs aimed at alleviating the effects of the Depression. Chief among these were the National Industrial Recovery Act of 1933, the Hayden-Cartwright Act of 1934 (a successor to the National Recovery Act), and the Emergency Relief Appropriation Act of 1935.⁷ All of these laws provided funding to states for road and transportation projects generally as grants. New Hampshire, like other states received money under all of these statutes that was used for road, bridge and grade crossing elimination projects. To meet the needs of the New Deal programs, the NH State Highway Department grew into an organization that

⁷ The latter included programs that fell under the Works Progress Administration and included both regular road projects, and, after the flooding of 1936, construction of the very large number of flood bridges.

INDIVIDUAL INVENTORY FORM

NHDHR INVENTORY NHA0002

employed upwards of 2,000 full-time employees by the mid-1930s (Harshbarger and Wuebber 2009: 11).

Drake's Bridge, known as NRH [National Recovery Highway] 37-D was one of thirty-seven New Hampshire projects in 1935/36 funded under the National Recovery Act of 1933 and the Hayden Cartwright Act of 1934 (NH State Highway Department 1936:73). Its funding appears to have come at least in part under provisions of the laws for railroad-related grade crossings/improvements: according to a *Portsmouth Herald* article, a few months after the bridge was completed, "Three petitions for the state highway department for reconstruction of grade crossings and building of overpasses through the federal grade crossing elimination program were heard on Tuesday by the Public Service Commission. The projects involve [two crossings in Hampton and] Drake's crossing in North Hampton" (*Portsmouth Herald* 1936:7). Apparently the fact that the grades were already separated at the Drake's Bridge crossing did not affect the eligibility for use of these funds. In the case of Drake's Bridge, overall, the New Deal programs did not appear to effect the construction of Drake's Bridge but instead functioned largely as an alternative funding mechanism. Like other federally funded bridges the bridge plans came with the language, "This project to be constructed in accordance with standard specifications on file with the Bureau of Public Roads and Special Provisions attached to Proposal" (NHHD 1935 Sheet 1). However by this era likely most NHHD designs would have complied with such federal standards.

Engineer Robert John Prowse (1906-1969), who joined the Bridge Division of the New Hampshire Highway Division in 1934, was the designer of the new Drake's Bridge and is listed as the designer on all except one of the bridge plans.⁸ He was a prolific engineer who personally designed at least 180 bridges and oversaw the design, as State Bridge Engineer, of an additional 400 bridges (Harshbarger and Wuebber 2009: 35). Prowse achieved national recognition for two mid-twentieth-century bridges (the 1958 Squamscott River Bridge on Route 101 in Exeter, and the 1961-62 Ash Street Bridge over Interstate 93 in Londonderry) which "showcased the economical and aesthetic advantages of welded steel girders" (Harshbarger and Wuebber 2009:3). He rose through the ranks in the department to become, in 1969, the State Bridge Engineer. Drake's Bridge was apparently one of the first bridges for which Prowse had major design responsibility (Harshbarger and Wuebber 2009:Appendix). The plans for the bridge date from between January and September 1935. Although a relatively small bridge, Prowse's design for Drake's Bridge had to address a number of technically challenging issues, including the skew and acute angle of the intersection with North Road. In addition, as was the norm in this era, the massive existing abutments built by the railroad were kept and his design had to incorporate their use.

Little information is available about the bridge's construction which took place in 1935. The bridge was built by the Central Construction Company of Lawrence, Massachusetts. The firm was started by, and was an outgrowth of, Higgins & Collins, a Lawrence engineering and architecture firm which (according to City Directories) operated at least from the mid-1920s to the late 1930s. The principals of the firm were John J. Collins and Fred A. Higgins, both of Lawrence. Other known work of the Central Construction Company include a 1931 racetrack and access road at the Rockingham Speedway in Salem and roadwork in Milford (*Portsmouth Herald* 5/26/1931:9; 11/4/1933:8). At roughly the same time as it was working on Drake's Bridge, in 1936, the company built the 37' concrete rigid frame bridge over Boston and Maine Railroad tracks in Durham (Garvin

⁸ Information on Prowse is from a monograph completed for NHDOT which includes a portfolio of his work. (See Harshbarger and Wuebber 2009).

INDIVIDUAL INVENTORY FORM**NHDHR INVENTORY NHA0002**

1999). The firm was also one of two firms involved in the construction of the Downsville Dam in Delaware County, N.Y which opened in 1950.

The new Drake's bridge was completed early in 1936. According to January 6, 1936 article in the *Portsmouth Herald*:

Saturday [1/4/1936] afternoon at 2:30 the first passenger car went over the new cement overhead railroad bridge which has taken the place of the old wooden Drake's bridge on Lafayette Road in North Hampton. In the car were Nathaniel Stevens, state engineer who supervised the construction of the bridge for the state and J.J. Collins of the Central Construction Company which built the bridge. The temporary bridge is being razed and when this is completed the workmen will pour cement on the north embankment. It will be about two weeks before the bridge is completed.

Meanwhile the Boston & Maine continued to lose business to trucks and automobiles. It was a significant sign of the B & M's deteriorating economic condition when, in 1938, the B & M removed the hard won second track on the Eastern Division, just two years after the completion of the new Drake's Bridge. Although business for the Eastern Division did pick up during World War II due to increased passenger traffic and freight from the Portsmouth Navy Yard, overall the train could not compete with cars and trucks and in 1952 service north of Portsmouth ended. Passenger service on the line in New Hampshire ended in 1965. In 1983 the B&M was purchased by Guilford Transportation Industries, which in 2006 became Pan Am Railways. Although apparently the North Hampton part of the line was used occasionally for freight at least up to ca. 2010, the Eastern Route line between Portsmouth and Hampton is now not in use.

Reinforced Concrete T Beam Bridges in New Hampshire and Comparable Bridges to Drake's Bridge

Reinforced Concrete T Beam (CTB) bridges are monolithic structures with decks and beams poured together in place to form a single piece of concrete. The concrete is reinforced by steel rods which run the full length of the beams and reinforcing steel in the deck which runs perpendicular to those in the beams. Railings are also tied into the deck with steel.

CTB bridges began to be used nationally by around 1905 and were touted for spans over 25' as being lighter, stronger and making better use of materials than slab designs (Lichtenstein 2000:215). They were one of the common bridge types used during the between-war period, particularly for moderate length spans. During this time New Hampshire towns were completing their efforts to replace wood bridges with steel or concrete ("permanent") bridges that could accommodate the ever-increasing number and weight of automobiles and trucks and it was one design that was used for smaller bridges. In general, the rise in use of reinforced concrete bridges followed advances in both reinforcing techniques and in techniques for estimating structural strength of reinforced concrete (McCullough 2005: 206). In New Hampshire (as in neighboring Vermont), concrete T-Beam and slab bridges dominated bridge design between the mid-1920s and the mid-to-late 1930s when they were largely overtaken in popularity by steel bridges (Bridge Inventory; McCullough 2005:206, 210).

In New Hampshire, there are sixty-eight CTB Bridges listed on the NHDOT Bridge Inventory. They have construction dates ranging from 1910 to 2015, however the inventory shows that the type was particularly common in the 1920s, and 1930s when 45 (66 percent) of the bridges were constructed in New Hampshire. The design was particularly popular for the many Depression-era bridges designed by the NH Highway Department in the 1930s; five extant concrete T beam bridges in

INDIVIDUAL INVENTORY FORM**NHDHR INVENTORY NHA0002**

addition to the Drake's Bridge date to 1935 alone. Prowse was involved with the design of at least two of these other 1935 CTB bridges: Thorton 203/088 (rebuilt 1979) (NH175 over Mill Brook) and Sandwich 195/135 (NH 113A over Cold River) (NH Bridge Inventory; Harshbarger and Wuebber 2009: Portfolio).

Although still numerous, of New Hampshire's sixty-eight CTB bridges, twenty-one have been rebuilt, fifteen are redlisted and four are closed or bypassed. Not surprisingly, older CTBs are more likely to have been rebuilt or redlisted. Of the thirty CTB bridges from the 1930s, only one-third (ten) have not been rebuilt, redlisted, or closed.

So far only one other CTB (Exeter 089/045 –NH108 over Exeter River, not apparently associated with Prowse) has been found to have a similar concrete rail (see photo page 27). In addition, although likely a common bridge rail of the era, there appear, overall, to be few remaining examples of the railing on any type of bridge.⁹ Although the total number of these bridge rails that were used is unknown, between 1935 and 1939, Robert Prowse designed, or was involved with, at least four other bridges that used a similar rail design (see Harshbarger and Wuebber 2009; Portfolio: A-17, A-19, A-22, A-24). It does not appear that the location of Drake's Bridge on Route 1, influenced its decorative program (namely the bridge rail). Although the decorative rail is distinctive and more elaborate than that on many bridges of the era, the same design was also used on roads that were not on U.S. numbered routes or otherwise in prominent locations (see footnote 9 below). No other characteristic of the bridge is suggestive of a different design treatment given to the bridge because of its location. Although other bridges on Route 1 during this era may formerly have had more elaborate railings, today no other bridges on Route 1 in New Hampshire have similar decorative rails.¹⁰

Drake's Bridge does not stand out in terms of its dimensions from other CTB bridges. (The Inventory indicates that New Hampshire CTB bridges range from 17' to 178' in length although most are 50' or less.) Drake's Bridge is one of only three extant CTB bridges constructed over a railroad. (Only one of these bridges dates from the 1930s).

Although as mentioned above there are thirty CTB bridges from the 1930s, comparable bridges below were selected based on their date, designer, rail, and/or location. As mentioned above, it appears that only one other CTB bridge (Exeter 089/045) retains its original concrete rail and thus has the same level of integrity as Drake's Bridge.

⁹ To check the prevalence of this type of bridge rail, all unrebuilt bridges in the inventory dating to 1935 that were viewable on Google Street View were examined. Aside from Drake's Bridge and Exeter 089/045, only one other was identified, Webster 140/070 (Deer Meadow Road over Deer Meadow Brook), a Concrete Slab bridge. Other bridges with the rail include Westmorland 089/100 on River Road over Partridge Brook (Concrete Timber Composite 1936); Jaffrey 171/087 on U.S. Rt.2 over Contoocook River (Concrete Rigid Frame 1938; rail has slightly different design). One other bridge, Campton 144/092 (NH175 over the Beebe River) had a similar bridge rail that was removed in 2013. It was also used on Gilsum 092/121 NH 10 over Ashuelot River (SRF 1935 not extant).

¹⁰ This was based on a Google Street view examination of all the bridges. Decorative concrete end blocks between the steel pipe railings were used on the ends of the Sarah Mildred Long Bridge on the Route 1 Bypass in Portsmouth, New Hampshire and Kittery, Maine.

INDIVIDUAL INVENTORY FORM**NHDHR INVENTORY NHA0002**Comparable Reinforced Concrete T Beam Bridges in NH

Town& Bridge #	Location	Date/rebuilt	Red list	Length	Designer/notes
Andover 120/092	US 4 over Blackwater River	1933	No	63	
Barrington 075/122	US 202 over Isinglass R.	1934/84	Yes	53	
Exeter 089/045	NH108 over Exeter River	1935	No	122	Similar rail
Hampton 162/112	U.S. Rt. 1 over NHRR	1936/1994	No	49	Over railroad
NorthHampton 148/132	U.S. Rt. 1 over RR	1935-6	Yes	42	Prowse
Sandwich 195/139	NH 113A over Cold River	1935	No	61	Prowse
Shelburne 049/089	US 2 over Pea Brook	1932	Yes	28	Altered on west
Thornton 203/088	NH175 over Mill Brook	1935/1979	No	41	Prowse

42. Applicable NHDHR Historic Contexts (please list names from appendix C):

97. Engineering in New Hampshire, 1623-present.

111. Fighting the Depression in New Hampshire: The CCC, WPA, and other public works programs, 1929-1940

88. Automobile highways and culture, 1900-present.

43. Architectural Description and Comparative Evaluation

Drake's Bridge is located at milepost 49.92 on the B & M Railroad (Eastern Division) corridor. It is located at the intersection of U.S. Route 1 (Lafayette Road) and North Road. At this location North Road, which runs east/west, drops south to travel roughly 270' on Lafayette Road. The bridge is located in a mixed commercial but generally lightly developed area that includes the historic Drake Farm to the northeast, a home interior store and low scale office complex to the west (beyond the west part of North Road) and a golf center/putting green to the southeast (off of the east section of North Road).

Drake's Bridge is a single-span Reinforced Concrete Tee Beam bridge with stone abutments. It is roughly square – 42.3' wide and 42' long – and provides 22.09' of vertical and 36'-7" of horizontal clearance beneath the overpass. The structure has a 37 degree skew and is oriented on a northeast-southwest axis. Because of the configuration of the intersection with North Road, the north side of the bridge is curved while the south elevation is straight. The variable sections (width/length) and curvature of the structure add to the complication of the design and also distinguish it from others of its type.

INDIVIDUAL INVENTORY FORM**NHDHR INVENTORY NHA0002**

The concrete T beams run east/west and most are 1'-11" wide and 2'-7" deep; they are generally spaced 7'-2" apart. Six beams run the width of the overpass. Because of the additional area created by the curve on the north side of the bridge, there are additional beams on the west side of the bridge: an additional small (1'-4" x 1'-5") beam intersects mid-section a full length beam and one regular sized beam merges into the north exterior beam (See Photo 5). Each beam has two $\frac{3}{4}$ " blast plates centered over the tracks (or former tracks).

The bridge rests on the 1900 abutments. The abutments consist of eleven, 2' high courses of massive rectangular granite blocks. The rock-faced blocks (stretchers) vary in length between 4' and 8'. Occasional tiebacks (headers) are 2' square on the abutments elevations. Commercial plug and feather marks (parallel, vertical quarry marks) are visible on some of the blocks. With the construction of the current bridge, concrete was added onto top the wings; the northwest wing is concrete and was constructed with the current bridge.

The balustrade/decorative bridge rail on the north and south sides differ in that the north rail reflects the curved elevation while that on the south is straight. On both north and south sides the open reinforced concrete balustrade consists of three panels with end blocks. End blocks are 3' (long) by 1'-6" (deep) by 2'-8" (tall) each ornamented with three incised vertical strips. The rails themselves are 2'-11" high by 8" wide. Each panel consists of six rectangular balusters flanking five openings. The top of each opening is shaped like a shallow triangle or gable roof. The 1'-2" cap extends out roughly three inches on either side of the rail. The concrete extends out 2'-6" from the rail to the curb providing a narrow sidewalk. On the north side there a large pipe runs to the outside of the railing.

There have been no major alterations to the bridge. At some point the two-rail wood guardrails were replaced with standard metal guardrail and the granite curbing has also been removed. As mentioned above, the railroad tracks on the east side were removed in 1938; tracks are still extant on the west side. In 2002 the deck was replaced with a new 1' wearing course.

Drake's bridge is listed on the state redlist and is in deteriorated physical condition. According to recent inspections the deck is cracked, has potholes and its curbs are cracked and spalled with exposed rebar. The sidewalks are also cracked. Overall, the condition of the deck is rated "serious." The concrete beams have cracks and are leaking with the east exterior being spalled and delaminated with exposed rebar. Overall, the condition of the superstructure is rated "Poor." The abutments have a few cracked stones and mortar is cracked and deteriorating. Wings are cracked and leaking, with spalling and exposed rebar. Overall, the condition of the substructure is rated as "Fair." The bridge rail has also deteriorated with areas of spalling and exposed rebar; the south rail is in poor condition and jersey barriers have been placed in front of it; on one end the end block is no longer vertical and is leaning away from the bridge.

See discussion of comparative properties above.

44. National or State Register Criteria Statement of Significance

In 1987 a "Thematic Review" of Drake's Bridge determined the bridge to be eligible under Criterion C and A for the National Register. Drake's Bridge was found to be from the "Mature Flourishing Phase" of the [Concrete T Beam] type. It was considered to be of "National Historical Significance" because of its location on U.S. Route 1. The bridge was considered to be "Outstanding" because of its original open type concrete rails and the curve of the northerly side of the deck. It was considered "Unusual or Novel" because of the flared superstructure and the structural system to accommodate

INDIVIDUAL INVENTORY FORM**NHDHR INVENTORY NHA0002**

it. It received a NH Bridge survey score of 20 out of 30 (a score of 16 points or higher was required for National Register eligibility).

In 2002, the Eastern Railroad Historic District, running from Seabrook to Portsmouth (i.e., including North Hampton) was determined eligible for the National Register under Criterion A and C (areas of significance: transportation and engineering). The period of significance was “1839 to [the National Register] 50- year cut-off.” The NHDHR DOE sheet states that, “the eligible boundaries of historic railroads typically include.....all buildings, structures and objects that served the railroad during its period of historical significance and continue to maintain integrity for that time period... this rule of thumb would apply to the Eastern Railroad...” (NHDHR 2002). Following this guidance, the Drake’s Hill Bridge, as a structure which was in use by the railroad during the period of significance, would be considered a contributing resource to the historic district.

Criterion A: Drake’s Bridge, has significance under Criterion A as a contributing feature to the Eastern Railroad Historic District. As noted in the DOE sheet:

Eastern Railroad is among the most historically important railroads in the state. It is of note as the second line built in the state and provided a vital link between what was once the state’s largest city, Portsmouth, and Boston, coastal Maine and Portland. The railroad had considerable economic significance to the region both in the transport of goods to market and later, in the summer tourist trade. The system-wide significance of the line is evidenced in its continual upgrading and the installation of double tracks at the turn-of the twentieth century.

Although the superstructure of Drake’s Bridge was constructed by the New Hampshire Highway Department, rather than the Boston & Maine, the abutments remain basically unaltered from their construction in 1900 and they adequately convey the railroad’s significance in this regard. The superstructure and elements of the wings, which date from 1935/6, are compatible in terms of design, materials, and workmanship to many of the B&M overpasses which were redone in the era. Drake’s Bridge continued to function as part of the B&M system from its construction until the recent termination of the rail line.

Drake’s Bridge likely does not have individual significance under Criterion A relating to its location on Route 1 or to New Deal programs. Although Route 1 was an important state and national route, there is no indication that the design of the bridge (specifically the decorative rail) was influenced by the fact that it was located on Route 1. In terms of significance relating to the federal funding, although the project was funded by federal New Deal programs, the bridge doesn’t appear to have significance specifically relating to the broader public works program/New Deal theme. In the case of the National Recovery Act of 1933 and the Hayden Cartwright Act of 1934, the federal agency’s involvement was minimal and limited to having plans be in accordance with Bureau of Public Road standard specifications. In this regard the funding does not appear to be substantially different from general federal funding of earlier or later years. Since there already was a grade separation at this railroad crossing it has no specific significance relating to the effort to reduce at grade intersections.

Criterion B: Drake’s Bridge does not have an association with the lives of persons significant in our past under Criterion B.

INDIVIDUAL INVENTORY FORM**NHDHR INVENTORY NHA0002**

Criterion C: Drake's Bridge, has significance under Criterion C as a contributing feature to the Eastern Railroad Historic District.

In addition, as in 1987, Drake's Bridge would also have individual significance under Criterion C. Drake's Bridge retains a high level of integrity and is an example of a Concrete T Beam highway bridge with an acute skew, unusual curved northern deck and decorative reinforced concrete rail/balustrade. It is one of a diminishing number of this type bridge that have not been rebuilt and one of a very few, of its type or otherwise, that retain this type of original 1930s concrete balustrade/railing. The bridge's railing, although likely a standard design when it was constructed, is now increasingly rare. The bridge was designed by Robert J. Prowse, an engineer significant to the engineering history of bridges in New Hampshire. Prowse was a prolific designer with at least 180 bridge designs to his credit, as well as providing oversight of more than 400 bridges as State Bridge Engineer. For these reasons, Drake's Bridge possesses important engineering characteristics that make it individually eligible for the National Register under Criteria C.

45. Period of Significance

1936 (superstructure), 1900 (substructure)

46. Statement of Integrity

Drake's Bridge retains all elements of National Register integrity (location, design, setting, materials, workmanship and feeling). As discussed above, it has not been rebuilt and the minor changes, such as replacing the deck surface, are so frequently done on bridges that they could be considered maintenance. It is one of perhaps two CTB bridges that retain their original concrete railings. The physical fabric of the bridge superstructure represents almost entirely original 1935/6 materials. The bridge's physical condition has been discussed above.

47. Boundary Discussion

The boundary of this property includes the footprint of the Bridge itself – the superstructure of the bridge, abutments/wingwalls, etc., shown below with dotted grey lines. This constitutes the entire substructure built in 1900 and superstructure built in 1935-1936. The bridge is adjacent to North Hampton Map 173/Lots 80, 108. 39, 29-1, and 77. There are no other railroad related resources in the immediate vicinity of the bridge/overpass. According to the Eastern NHDHR form, the closest railroad-related resource is 0.08 miles (422.4') north of the bridge.

See map on page 3.

INDIVIDUAL INVENTORY FORM**NHDHR INVENTORY NHA0002****48. Bibliography and/or References**

Anonymous

1979-2016 "Bridge Inspection Report." On file with New Hampshire Department of Transportation.

Anonymous

1953 "State of New Hampshire Bridge List: Main Track Structures." On file with New Hampshire Department of Transportation.

Boston and Maine Railroad

1900 "The Eliminating of Grade Crossings and Double Tracking the Eastern Division in New Hampshire" Boston and Maine Messenger Vol. 1 No. 6 (October 1, 1900).

Boston and Maine Railroad

1953 State of New Hampshire Bridge List Main Track Structures. On file at NHDOT Bureau of Railroads, Concord, NH

Bradlee, Francis B. C.

1917 The Eastern Railroad: A Historical Account of Early Railroading in Eastern New England. The Essex Institute: Salem, MA.

Brown, Warren

1900 History of Hampton Falls, NH.... Manchester: John B. Clarke Company.

Bureau of Public Roads

1927 Report of a Survey of Transportation on the State Highways of New Hampshire. U.S. Department of Agriculture and the New Hampshire State Highway Department.

Cantor, George

1990 Where the Old Roads Go Driving the First Federal Highways of the Northeast. New York: Harper & Row Publishers.

Coppelman, Glenn G. and Lynne E. Monroe.

2000 Marshes to Millstones: A Cultural and Historical Tour along New Hampshire's American Independence Byway. Exeter, NH: Rockingham Planning Commission.

Cummings, O.R.

1966. Trolleys to Hampton Beach: Mass. Northeastern St. Ry. V 3 Amesbury Division. Manchester, NH: New England Electric Railway Historical Society, Inc. Collection of New Hampshire State Library.

Dow, Joseph

1894 History of the Town of Hampton, New Hampshire: From Its Settlement in 1638 to the Autumn of 1892, Volume I. Salem Press: Hampton, NH.

Exeter News-Letter

1900A "North Hampton" 2/2/1900 p.3

INDIVIDUAL INVENTORY FORM**NHDHR INVENTORY NHA0002***Exeter News- Letter*

1900B "North Hampton" 2/9/1900 p.3;

Exeter News- Letter

1900C "North Hampton" 4/20/1900 p. 3

Exeter News- Letter

1900D "North Hampton" 4/27/1900 p.3

Exeter News- Letter

1900E "North Hampton" 5/25/1900 p.3

Gage, Mary and James

2005 The Art of Splitting Stone. Amesbury MA: Powwow River Books.

Garvin, James L.

1999 Builders of Bridges in New Hampshire. Uncompleted draft provided by James L Garvin, Division of Historical Resources, Concord, NH.

Garvin, James

2004 "The Trunkline Road System." New Hampshire Highways January/February 2004. Available online at: <http://www.nhgoodroads.org/UploadedFiles/Files/TrunkLineRoad.pdf>

Harshbarger, Patrick and Ingrid Wuebber

2009 Robert John Prowse: A Monograph. TranSystems & URS Corporation.
[<https://www.nh.gov/dot/org/projectdevelopment/environment/units/program-management/documents/ProwseMonographreduced.pdf>, accessed 19 September 2016]

Stillman Moulton Hobbs

1978 The Way it was in North Hampton.

Heald, Bruce D.

2001 Images of America Boston & Maine in the Twentieth Century. Charleston, South Carolina: Arcadia Printing.

Hostutler, Elizabeth and Worthen D. Muzzy

1995 NHDHR Area Form for Boston & Maine Railroad. On file at New Hampshire Division of Historical Resources, Concord.

Kennedy, Charles J.

1957 "The Eastern Rail-road Company to 1855" Vol. 31, No. 1, 92-123. Spring, 1957 Business History Review.

Lichtenstein Consulting Engineers, Inc.

2000 Delaware's Historic Bridges. Delaware DOT.

INDIVIDUAL INVENTORY FORM

NHDHR INVENTORY NHA0002

Lindsell, Robert M.

2000 The Rail Lines of Northern New England. Branch Line Press.

Mausolf, Lisa B.

2002 "Project Area Form for Eastern Railroad." Collection of NHDHR.

Mausolf, Lisa B.

2016 National Register Nomination for Drake Farm. (NHDHR).

McCullough, Robert

2005 Crossings: A History of Vermont Bridges. Vermont Historical Society.

New Hampshire Division of Historical Resources

2002 Determination of Eligibility Form for Eastern Railroad Historic District.

[New Hampshire]State Highway Department

1936-1939 Annual Report of the State Highway Department. Concord.

[Town of] North Hampton

1840/1 Minutes of Town Meetings. Minutes dated: June 18, 1840; November 14, 1840; January 4, 1841; March 9, 1841. Minutes are located in the "ancient" town files at the North Hampton clerk's office.

Perrazzo, Peggy and George

2007 Stone Quarries and Beyond Website: <http://www.cagenweb.com/quarries/index.html>

Pillsbury, Hobart

1927 New Hampshire: Resources, Attractions, and Its People, A History Volume II. New York: The Lewis Historical Publishing Co., Inc.

Portsmouth Herald

1936 "PSC Hears Three Petitions" 2/5/1936 p.7.

Preservation Company

2003 Hampton Village Intersection Improvement Project Area Form. NHDHR files.

Preservation Company

2007 NH Historical Property Documentation for Chance Pond Road Overpass NH#526.

Rockingham County Deeds Book 302 Page 136 Abraham and Frances Drake to Eastern Railroad Deed dated December 29, 1840

Wallace, R. Stuart Ph.D. and Lisa B. Mausolf

1999 New Hampshire Railroads: Historic Context Statement, in contract with NHDOT. Unpublished.

INDIVIDUAL INVENTORY FORM**NHDHR INVENTORY NHA0002****Maps**

Adams, J.H.

1839 Plan and Profile of the Location of the Eastern rail Road in New Hampshire. Boston: T. Moores, Lithographer. Collection of the New Hampshire Historical Society

Anonymous

1918, updated through 1931 "Right-of-Way and Track Map." On file with New Hampshire Department of Transportation

Chace, J.

1857 "Map of Rockingham County." Philadelphia: Smith and Coffin. Collection of the New Hampshire Historical Society.

Chace, J.

1876 Sea coast of Rockingham County, N.H. Publisher unknown

Hurd, D. H.

1892 "North Hampton P.O." Town and County Atlas of the State of New Hampshire. Boston: D. H. Hurd & Co.

USGS

1895, 1934, 1961

"Newburyport-Exeter, NH-MA" Quadrangle. Historic USGS Maps of New England and New York, UNH Library, Government Documents Dept., online at: <http://docs.unh.edu/nhtopos.htm>.

USGS

1992 "Exeter New Hampshire-Massachusetts." United State Geological Survey.

Surveyor's Evaluation

NR listed: individual ☐
within district ☐

Integrity: yes ☒
no ☐

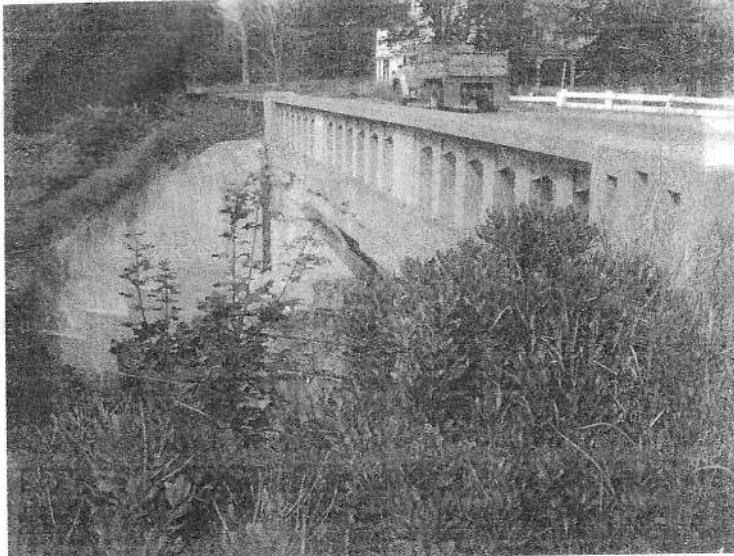
NR eligible:
individual ☒
within district ☒
not eligible ☐
more info needed ☐

NR Criteria: A ☒
B ☐
C ☒
D ☐
E ☐

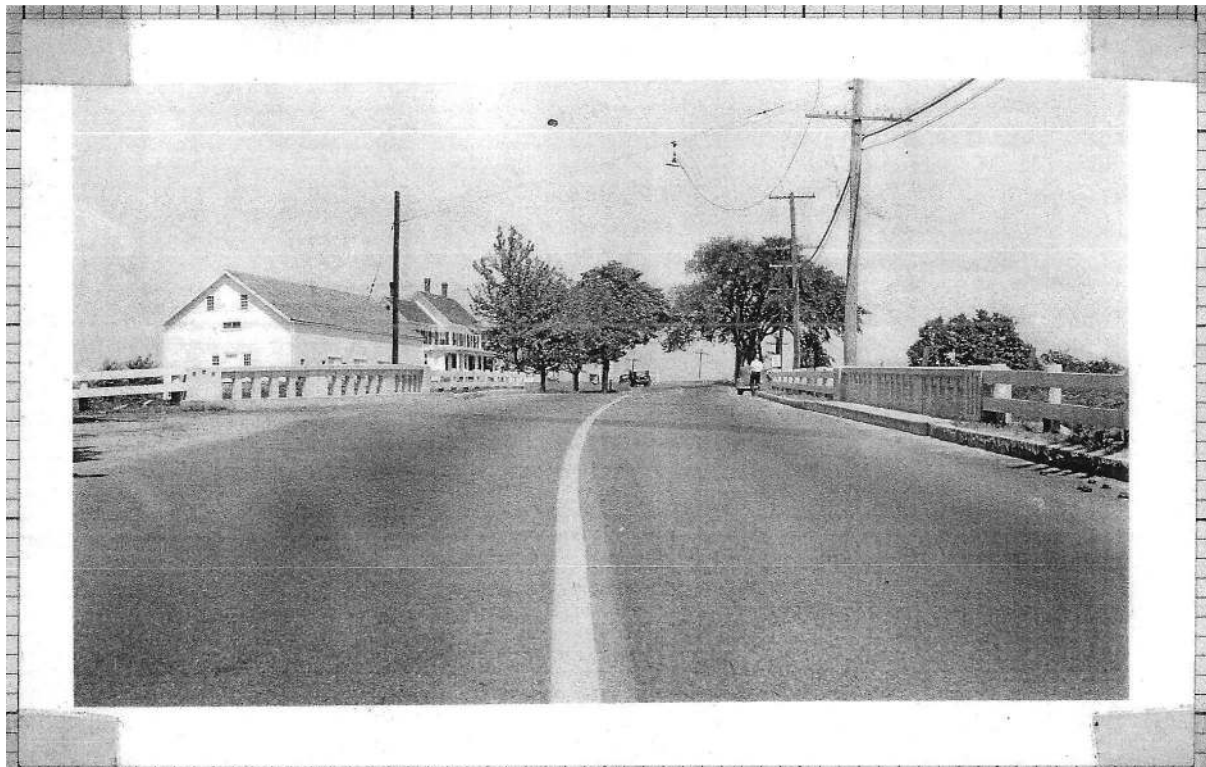
INDIVIDUAL INVENTORY FORM

NHDHR INVENTORY NHA0002

Historic Images



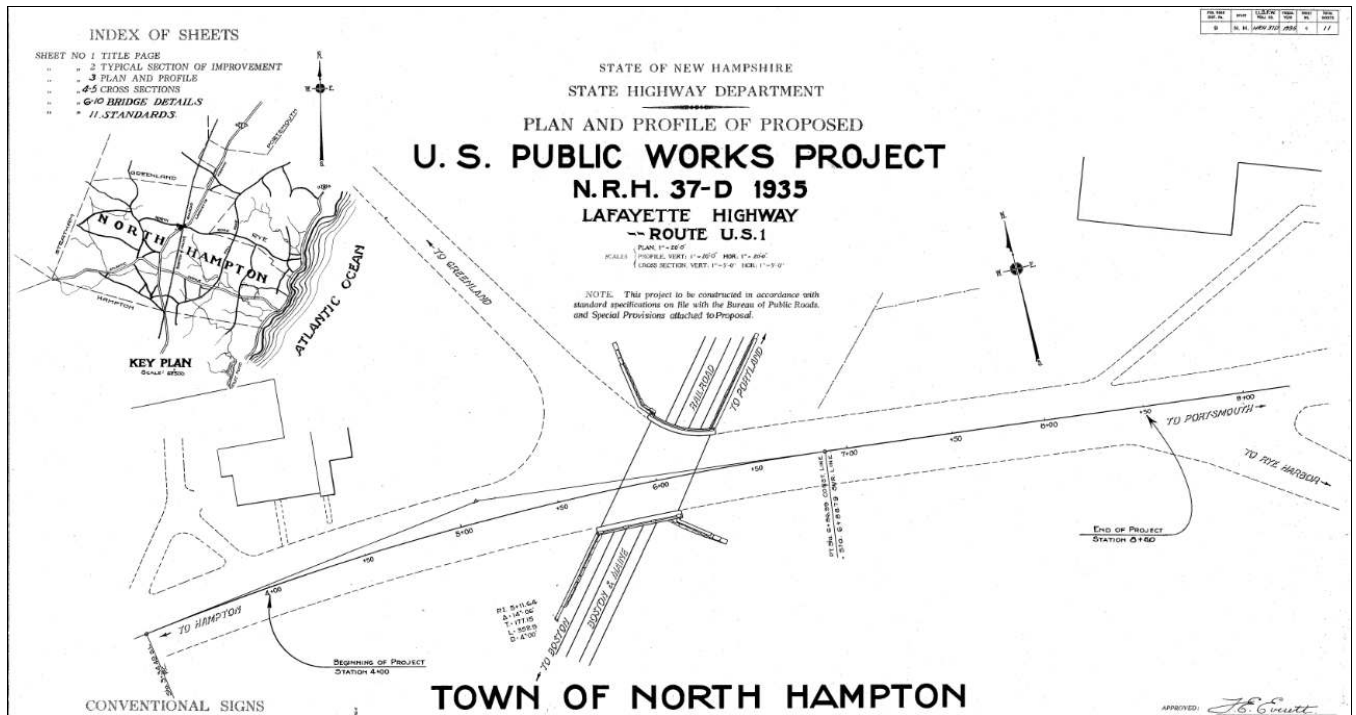
Southeast Elevation of Drake's Bridge (NHHD Bridge Card dated 7/8/1940)



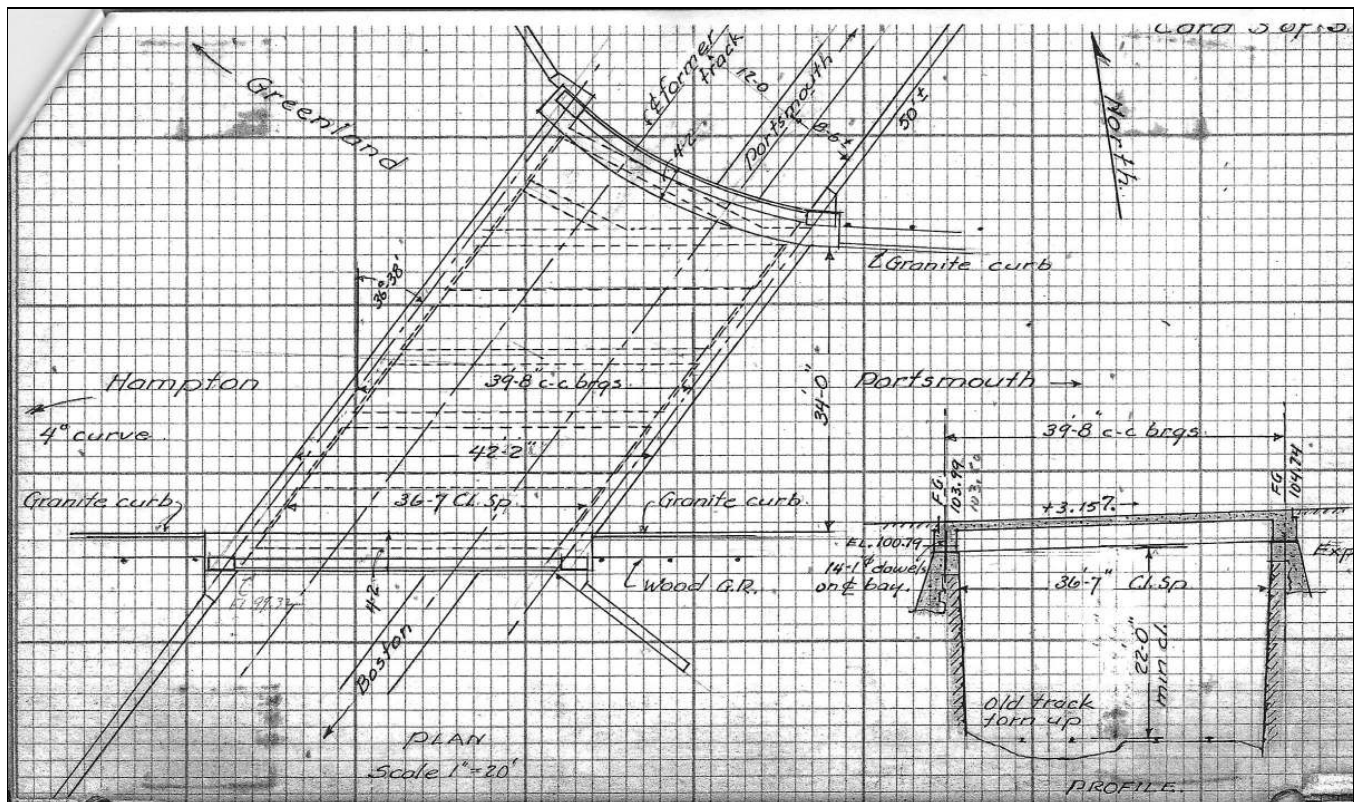
View of bridge looking east along Lafayette Road (NHHD Bridge Card dated 7/8/1940)

INDIVIDUAL INVENTORY FORM

NHDHR INVENTORY NHA0002



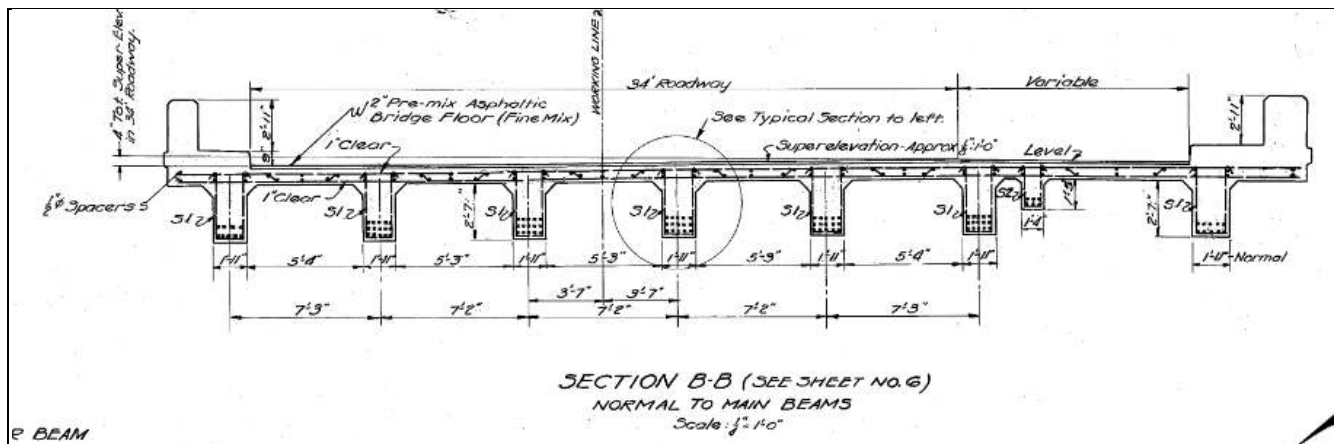
1935 NHHD cover page for plans of Drake's Overpass



NHHD Bridge Card dated 7/8/1940

INDIVIDUAL INVENTORY FORM

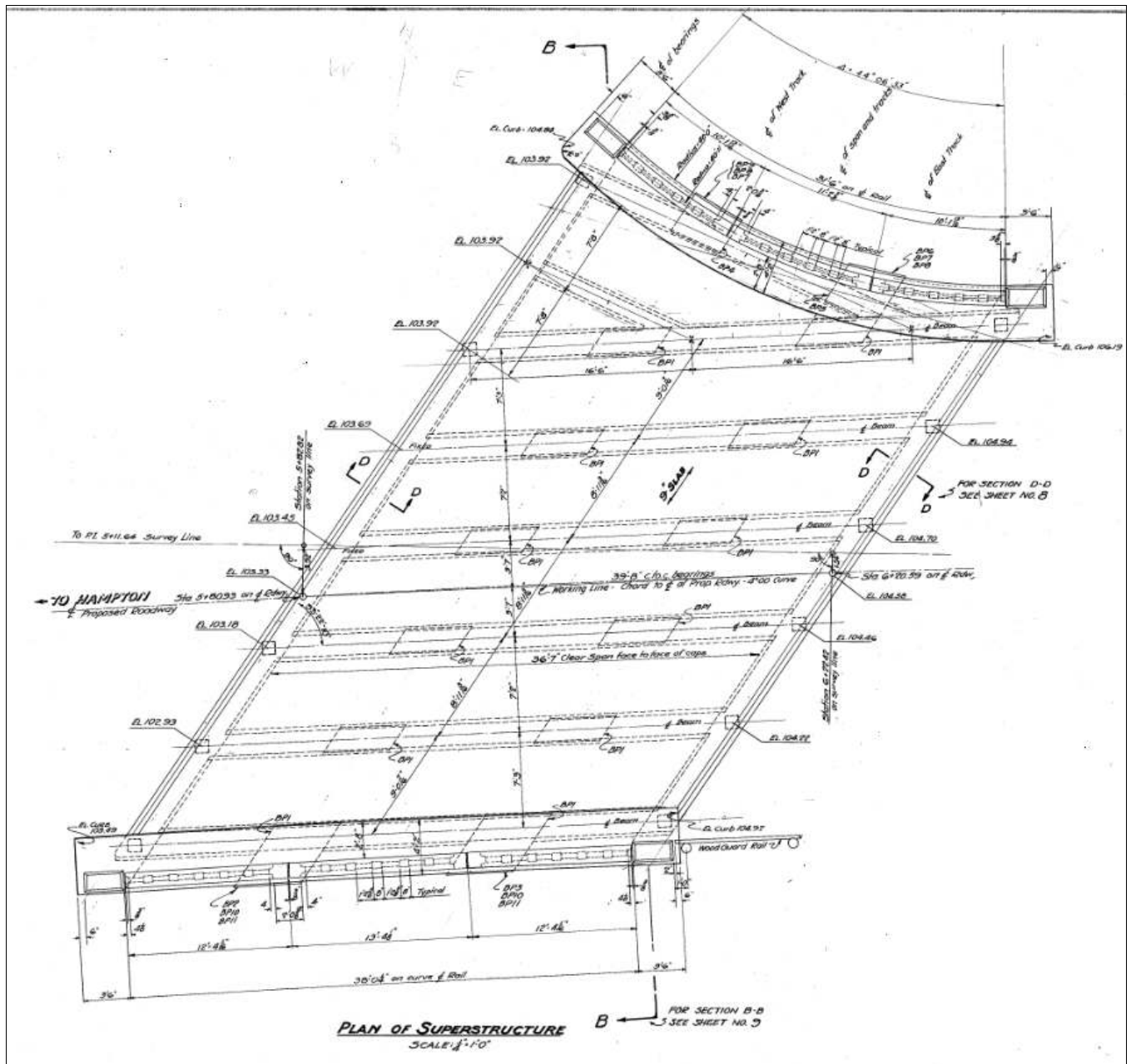
NHDHR INVENTORY NHA0002



1935 Section (Project NRH 37-D Bridge Sheet 9/11) (NHHD1935)

INDIVIDUAL INVENTORY FORM

NHDHR INVENTORY NHA0002



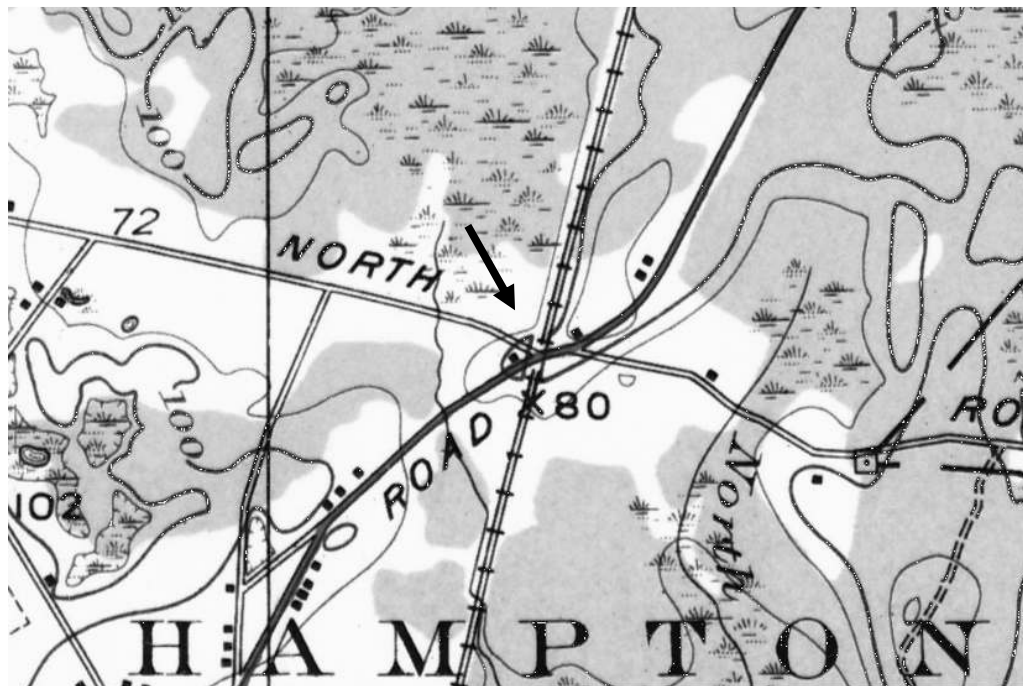
1935 Plan of Superstructure page 6/11 (NHHD)

1935 Elevation of Rail Sheet 6/11 (NHHD)

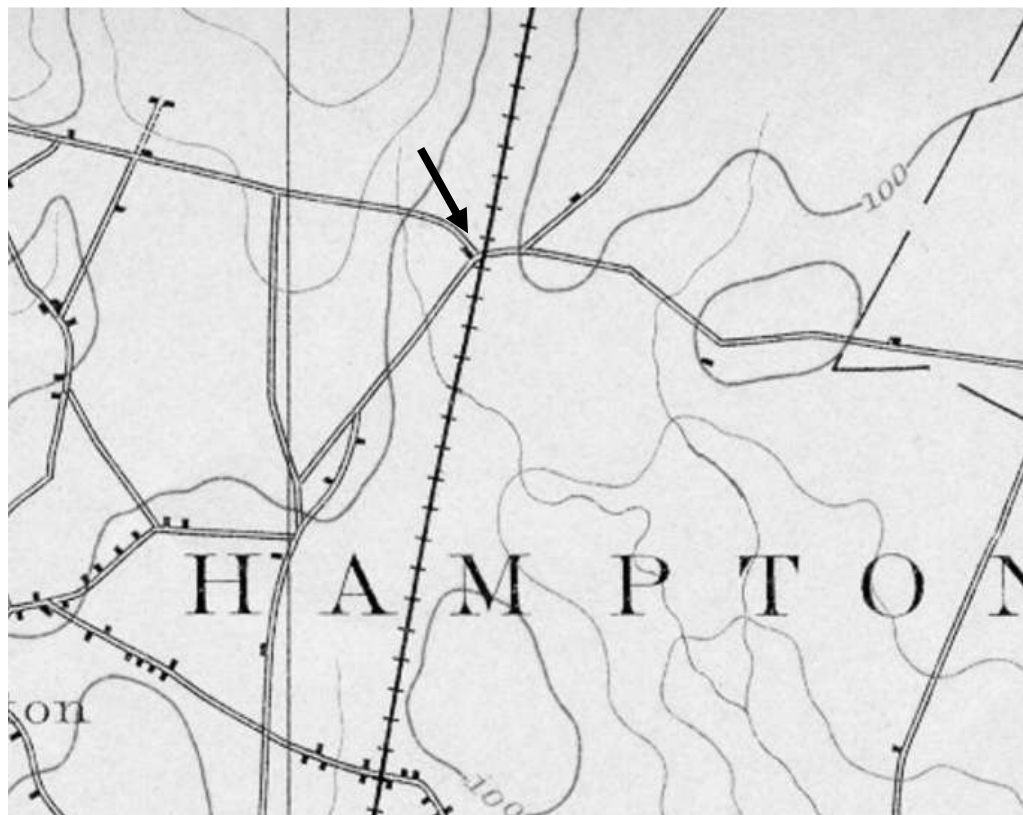
INDIVIDUAL INVENTORY FORM

NHDHR INVENTORY NHA0002

Historic Maps



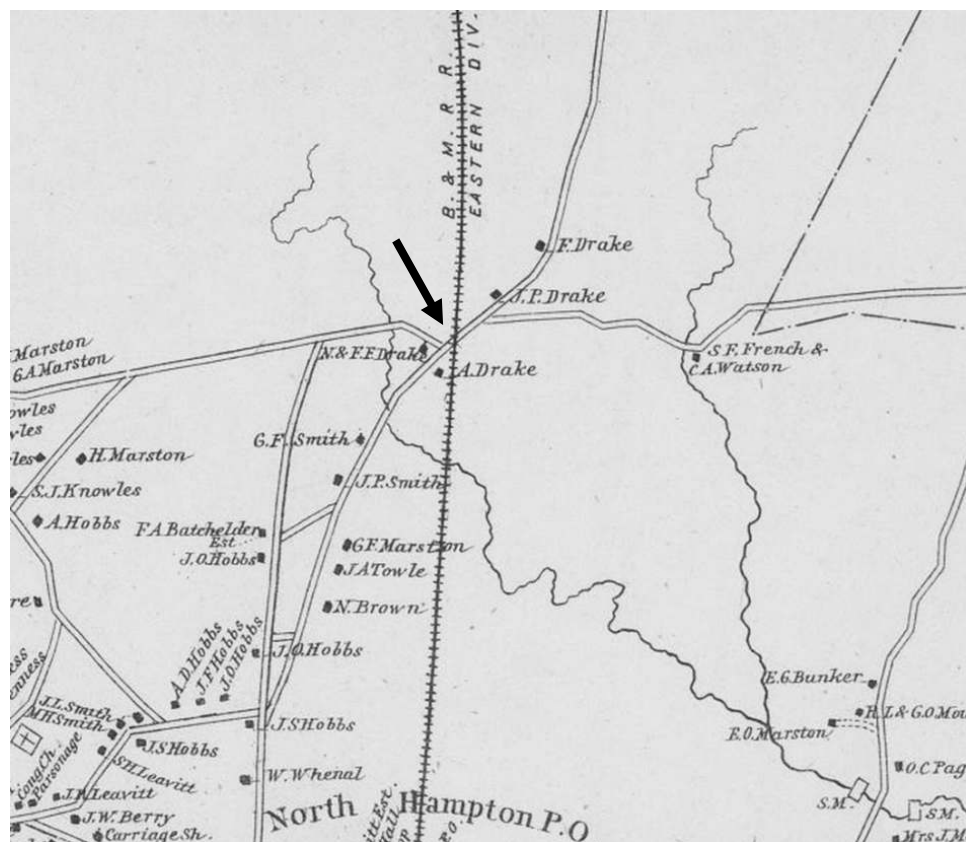
1932 USGS Exeter Quad, Arrow indicates location of bridge



1894 Newburyport-Exeter, NH-MA Quadrangle

INDIVIDUAL INVENTORY FORM

NHDHR INVENTORY NHA0002



1892 Map of North Hampton (arrow indicates location of Drake's Bridge) (D.H. Hurd & Co.)



1876 Map "Sea coast of Rockingham County N.H." (Chace)

NHDHR INVENTORY NHA0002



1857 Map of Rockingham Co., New Hampshire (Chace)

INDIVIDUAL INVENTORY FORM

NHDHR INVENTORY NHA0002

Other Images

Comparative CTB Bridges



Andover 120/092 (NHDOT 2014)



Barrington 075/122 (Note: exterior stringer apparently added 1984) (NHDOT 2006)

INDIVIDUAL INVENTORY FORM

NHDHR INVENTORY NHA0002



Exeter 089/045 (NH DOT 2010)



Hampton 162/112 (NH DOT 2003)

INDIVIDUAL INVENTORY FORM

NHDHR INVENTORY NHA0002



Sandwich 195/139 (NHDOT 1999)



Shelburne 049/089 (Note: the east side of the bridge is CTB. On the west side the concrete beams have been replaced with I-beams) (NHDOT 2013)

INDIVIDUAL INVENTORY FORM

NHDHR INVENTORY NHA0002



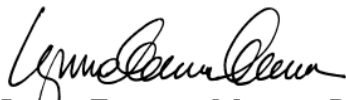
Thornton 203/088 (NHDOT 2012)

INDIVIDUAL INVENTORY FORM**NHDHR INVENTORY NHA0002****Digital Photo Log**

The photo references (file names) for this project are named NHA0002_01 through NHA0002_20 where the first 7 digits are the survey number of the individual property and the last two digits are the photo number.

Digital Photography Statement

I, the undersigned, confirm that the photos in this inventory form have not been digitally manipulated and that they conform to the standards set forth in the NHDHR Photo Policy. These photos were printed using the following: Epson SureColor P600 printer on Epson Ultra Premium Photo Paper, glossy. The digital files are housed with Preservation Company in Kensington, NH.

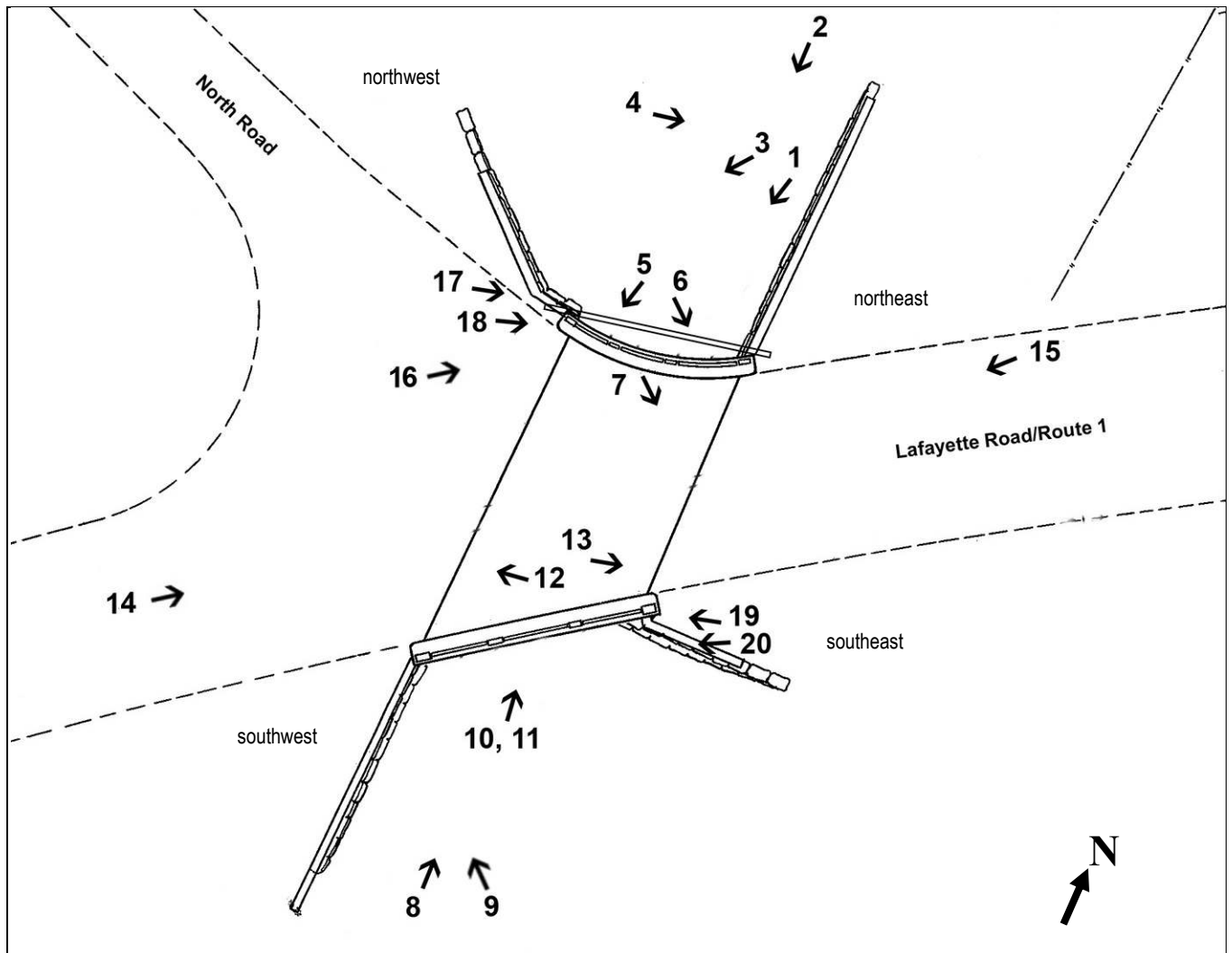


Lynne Emerson Monroe, Preservation Company

INDIVIDUAL INVENTORY FORM

NHDHR INVENTORY NHA0002

Photo Key



Key to Photos 1-20

INDIVIDUAL INVENTORY FORM

NHDHR INVENTORY NHA0002

Current Photographs

Address: Lafayette Road over Boston and Maine Railroad

Date taken: October 2016



Photo 2) Bridge and abutments from railroad bed
Reference (file name): NHA0002_02

Direction: S



Photo 3) northwest abutment
Reference (file name): NHA0002_03

Direction: SW

INDIVIDUAL INVENTORY FORM

NHDHR INVENTORY NHA0002



Photo 4) northeast abutment

Reference (file name): NHA0002_04

Direction: E

INDIVIDUAL INVENTORY FORM

NHDHR INVENTORY NHA0002



Photo 5) western substructure and concrete beams with blast plates
Reference (file name): NHA0002_05

Direction: SSW

INDIVIDUAL INVENTORY FORM

NHDHR INVENTORY NHA0002



Photo 6) eastern substructure and concrete beams with blast plates
Reference (file name): NHA0002_06

Direction: SE



Photo 7) eastern wall and bed, ties
Reference (file name): NHA0002_07

Direction: SE

INDIVIDUAL INVENTORY FORM

NHDHR INVENTORY NHA0002



Photo 8) Bridge and abutments from railroad bed, looking north
Reference (file name): NHA0002_08

Direction: N



Photo 9) southwest abutment
Reference (file name): NHA0002_09

Direction: NW

INDIVIDUAL INVENTORY FORM

NHDHR INVENTORY NHA0002



Photo 10) concrete T beams with blast plates
Reference (file name): NHA0002_010

Direction: N

INDIVIDUAL INVENTORY FORM

NHDHR INVENTORY NHA0002



Photo 11) rail bed and walls looking north
Reference (file name): NHA0002_011

Direction: N



Photo 12) detail of granite blocks with graffiti and quarry marks
Reference (file name): NHA0002_012

Direction: W

INDIVIDUAL INVENTORY FORM

NHDHR INVENTORY NHA0002



Photo 13) detail of concrete T beams and eastern wall
Reference (file name): NHA0002_013

Direction: E



Photo 14) approach looking northeast
Reference (file name): NHA0002_014

Direction: ENE

INDIVIDUAL INVENTORY FORM

NHDHR INVENTORY NHA0002



Photo 15) approach looking southwest
Reference (file name): NHA0002_015

Direction: SW



Photo 16) cast concrete railings, north side
Reference (file name): NHA0002_016

Direction: NE

INDIVIDUAL INVENTORY FORM

NHDHR INVENTORY NHA0002



Photo 17) pipe crossing, north side
Reference (file name): NHA0002_017

Direction: ENE

INDIVIDUAL INVENTORY FORM

NHDHR INVENTORY NHA0002



Photo 18) detail of northwest corner of cast concrete railing
Reference (file name): NHA0002_018

Direction: ENE

INDIVIDUAL INVENTORY FORM

NHDHR INVENTORY NHA0002



Photo 19) cast concrete railings, south side
Reference (file name): NHA0002_019

Direction: W



Photo 20) detail of cast concrete railing and deterioration, south side
Reference (file name): NHA0002_020

Direction: WSW