



STATE OF CONNECTICUT

DEPARTMENT OF TRANSPORTATION

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Determination of Effect on Historic Properties

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Project:	State No.:	148-212
	Project Title:	Rehabilitation of Bridge #03225 North Turnpike Road (Rt. 150) Over Wooding’s Pond Brook
	Town:	Wallingford

Determination of Effect:	<u>Conditional</u> No Adverse Effect to Historic Properties
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Project Description

Using federal and state funds, the Connecticut Department of Transportation (CTDOT) proposes to rehabilitate Bridge #03225, which carries North Turnpike Road (Rt. 150) over Wooding’s Pond Brook in Wallingford. Bridge #03225 consists of an approximately 60’-long brownstone masonry arch culvert built ca. 1860, this extended westward roughly 26’ through the addition of a concrete pipe when the roadway above was widened in 1929. The statewide bridge database maintained by CTDOT identifies the bridge as being not eligible for listing on the National Register of Historic Places (NRHP), however, a letter from the Connecticut State Historic Preservation Office (SHPO) dated February 6, 2006, indicates that the bridge has in fact been determined eligible for listing.

Recent inspections show that Bridge #03225 is in poor condition (Rating 4), this due to the deteriorated state of the arch and a failing wingwall on the south side of the culvert’s outlet. The proposed project seeks to rehabilitate the structure, as well as widen the roadway above to meet geometric standards for the current traffic volume. Construction will be complete in stages. Two-way traffic will be maintained throughout construction. Work is anticipated to begin in the spring of 2021 and be completed by the fall of 2021. As the outlet portion of the stone arch and wingwalls are located outside of the State’s Right-of-Way (ROW), a partial permanent acquisition will be required to complete the project.

As the project funding is provided by both the Federal Highway Administration (FHWA), the project falls under the purview of Section 106 of the National Historic Preservation Act.¹

¹ Programmatic Agreement among the Federal Highway Administration, the Connecticut Department of Transportation, the Connecticut State Historic Preservation Officer, and the Advisory Council on Historic Preservation Regarding Implementation of Minor Transportation Projects, signed May 4, 2018. Accessible online at: www.ct.gov/culturalresources

Technical Review of Project

Bridge #03225 consists of an 86'-long, brownstone masonry arch and concrete culvert that carries North Turnpike Road (Rt. 150) over Wooding's Pond Brook in Wallingford (Images 1-15). The original approximately 60'-long brownstone structure was constructed ca. 1860, and it was modified as part of a state roadway widening project completed in 1929 that extended the bridge to the west over a 6'-diameter concrete pipe. The original east (downstream) endwall of Bridge #03225 is constructed of mortared ashlar brownstone blocks and has a 6'-wide by 7.5'-tall arched opening flanked by mortared ashlar brownstone wing walls (Images 3-5). The west (upstream) endwall consists of mortared uncut brownstone reinforced with cast-in-place concrete end and wing walls, these all thought to have been constructed in 1929 (Images 8-10).

The endwalls of Bridge #03225 support 23' of introduced fill with steep, rip rap-covered slopes (Images 3, 5, 6, 8, & 11). The roadway surface above consists of three lanes of vehicular traffic, these flanked by steel guide rails (Images 14-15). Drainage pipes are present on both sides of the bridge, one located in the upper section of the north wingwall on the west side of the bridge, and another outflowing on the slope above the south wingwall on the east side of the structure (Images 3, 5, 8, & 11).

As noted, recent inspections show that Bridge #03225 is in poor condition (Rating 4), this due to the deteriorated state of the arch and a failing wingwall on the south side of the east (outlet) endwall. State Project #148-212 seeks to rehabilitate the structure, as well as widen the roadway above to meet geometric standards for the current traffic volume. Rehabilitation work will include repointing and/or re-grouting the mortar joints and loose stones of the stone arch and concrete pipe, and reconstructing the wingwall on the south side of the east endwall. The widened roadway will be achieved by providing retaining walls for support while also allowing for installation of stable slopes over the stone arch and eliminating ongoing erosion. Roadway level improvements will include the installation of open rails along the sides of the bridge and guide rail flanking the approaches. As the east endwall falls on private property, a partial acquisition will be required to rehabilitate and maintain the structure. Temporary construction easements will likely also be required to complete the project.

Area of Potential Effect (APE)

Bridge #03225 is located in a section of northwest Wallingford that remained lightly developed until the middle of the 20th century. A dam located approximately 200' west of the bridge is identified as powering a sawmill on an 1856 map of Wallingford, and a combined saw and grist mill on an 1868 map of the area. North Turnpike Road (Route 150) is identified as crossing Wooding's Pond Brook on both maps and Bridge #03225 is thought to have been constructed around this period, likely ca. 1860. Both North Turnpike Road and the bridge were improved as part of a state-funded roadway project in 1929, and by 1950 the mill was gone. During the 1950s and 1960s, extensive suburban residential development reshaped the surrounding area. Today, this section of Wallingford remains primarily residential, however, commercial uses dot the highway to the north and south.

The project's Area of Potential Effect (APE) is centered on Bridge #03225 and includes approximately 150' of approach roadway north and south of the project area and a 50' buffer up and downstream of the bridge. As such, the APE measures approximately 356' long by

136' wide. This APE encompasses the area that will foreseeably be required to prepare the project area, access the bridge, and complete the project. As the Town of Wallingford does not make their Assessor's records available online, the following outline of abutting properties was completed based upon the best information available to the reviewer.

There are six (6) properties or resources within the APE.

Bridge #03225

This is a 6'-wide, by 7.5'-tall, by approximately 60'-long brownstone masonry arch culvert built ca. 1860 that was then altered through the addition of a 6'-diameter, roughly 26'-long concrete pipe when the roadway above was widened in 1929. The bridge carries approximately 23' of overburden with steep slopes and supports three vehicular traffic lanes with a total roadway width of approximately 34.5' curb to curb. The outlet (east) side of the structure appears to retain its original details, which include the ashlar brownstone masonry arch, and mixed rough- and un-cut brownstone masonry barrel and wingwalls (Images 3-5). The south wingwall is heavily deteriorated as a drainage outfall pours directly over the feature (Image 5). The inlet (west) side of the bridge is thought to have been constructed when the roadway was widened in 1929 and consists of a mix of mortared brownstone masonry and cast-in-place concrete sections (Image 8-10).

The proposed project calls for rehabilitation of deteriorated bridge features, reconstruction of the failing southeast wingwall, and widening of the roadway above. Provided that proper preservation standards are followed during the execution of this work, the proposed project should not adversely affect this historic resource.

90 North Turnpike Road

This property is located at the northeast corner of the intersection of North Turnpike Road (Rt. 150) and Knollwood Drive approximately 150' south of Bridge #03225. The parcel measures approximately 1.0 acres and it is developed with a two-and-a-half-story multi-family residence likely erected ca. 1900.

It is assumed that the portions of this parcel flanking the roadway will be temporarily impacted by construction, however, the effects to the property will be negligible as the entirety of the bridge itself falls within the roadway ROW and no permanent acquisitions are anticipated.

100 North Turnpike Road

This property is located on the east side of North Turnpike Road (Rt. 150) just south of its intersection with Parker Farms Road. The property measures approximately 3.2 acres and it is developed with four two-story condominiums erected ca. 1980. Wooding's Pond Brook flows across the northwest corner of the parcel and the eastern endwall of Bridge #03225 is located on the property.

A permanent partial acquisition and temporary construction easement on this property will be required to rehabilitate and maintain the eastern endwall of the bridge. This being said, the overall effects to the parcel will be negligible as the acquisition will be minimal and there are no historic properties located on it.

119 North Turnpike Road

This property is located at the northwest corner of the intersection of North Turnpike (Rt. 150) and Parker Farms Roads. The property measures approximately 0.3 acres and it is developed with a gas station and convenience store, both built ca. 1990.

It is assumed that the portions of this parcel flanking the roadway will be temporarily impacted by construction, however, the effects to the property will be negligible as the entirety of the bridge itself falls within the roadway ROW and no permanent acquisitions are anticipated.

120 North Turnpike Road

This property is located on the east side of North Turnpike Road (Rt. 150) opposite its intersection with Parker Farms Road. The east endwall of Bridge #03225 is located just south of the parcel's southwest corner on the neighboring property (100 North Turnpike Road). The property measures approximately 20.0 acres and signs identify it as town-owned open space. Wooding's Pond Brook flows west to east across the center of the parcel and except for a 2,700 sqft area used to store crushed stone and other maintenance materials, the entire property is wooded.

It is assumed that the portions of this parcel flanking the roadway and in proximity to the bridge will be temporarily impacted by construction, however, the effects to the property will be negligible as the entirety of the bridge itself falls within the roadway ROW and no permanent acquisitions are anticipated.

6 Parker Farms Road

This property is located at the southwest corner of the intersection of North Turnpike (Rt. 150) and Parker Farms Roads and the western endwall of the bridge abuts the east side of the parcel. The property measures approximately 2.25 acres and it is developed with a two-story condominium erected ca. 1980. It also appears to be the site of the aforementioned stone masonry dam and mill site, these located upstream (southwest) of the bridge along Wooding's Pond Brook, which flows southwest to northeast across the parcel.

It is assumed that the portions of this parcel flanking the bridge and roadway will be temporarily impacted by construction, however, the effects to the property will be negligible as the entirety of the bridge itself falls within the roadway ROW and no permanent acquisitions are anticipated.

As noted, Bridge #03225 has been determined to be eligible for listing on the NRHP, however, none of the five properties within the APE exhibit design characteristics or associations with events or people that would make them eligible for listing on the NRHP.

Archaeological Conditions Within or Abutting the APE

According to state-maintained soil modeling maps, the majority of the project area is located on soils classified as Rippowam Fine Sandy Loam (0-3% slopes), these predicted to possess a "high" likelihood of bearing archaeological resources. The soils to the north consist of Penwood-Urban Land Complex (0-8% slopes) and Penwood Loamy Sand (3-8% slopes), both identified as having an "unknown" likelihood of bearing archaeological resources, while the

soils to the south consist of Urban Land (0-45% slopes) and Udorthents-Urban Land Complex (0-35% slopes), both predicted to possess a “poor” likelihood of bearing archaeological resources. This being said, the project area consists of soils heavily disturbed or infilled during the construction of the bridge, roadway, and neighboring drainage and utility infrastructure. LiDAR imagery (Image 21) shows that the roadway crosses the bridge on extensive amounts of artificial fill and it should be noted that, except for the reconstruction of the southeast wingwall, which currently stands on private property, all subsurface work will take place within the current roadway ROW. This being said, the wingwall is also surrounded by soils heavily disturbed during the construction of the bridge and is also abutted by steep slopes unlikely to retain archaeological resources (Images 3, 5, & 6).

Given the aforementioned conditions, OEP Qualified Staff has determined that there is minimal foreseeable potential to impact intact archaeological resources within the project area and no further study is recommended.

Conclusion and Determination

Qualified cultural resources staff from OEP conducted background research and reviewed the project scope. While OEP staff determined that there is minimal foreseeable potential to impact intact archaeological resources within the project area, a review of records maintained by OEP indicates that SHPO determined Bridge #03225 to be eligible for listing in the NRHP as part of a previous project review completed in February 2006. As such, OEP recommends the following conditions:

- All masonry repointing and reconstruction work should conform to the Secretary of the Interior’s Standards for Historic Preservation as outlined in Preservation Brief #2, “Repointing Mortar Joints in Historic Masonry Buildings.”
- Methods and materials used in construction should match the existing as closely as possible. I.e. the brownstone used in reconstructing the southeast wingwall should consist of ashlar brownstone block with a rough finish and of a similar size and color to the existing, and the mortar should be compatible with the relatively soft brownstone (type O or less) and match the color and profile (flat-tooled) of the existing.
- Appropriate specifications should be identified and incorporated in consultation with OEP staff.

If these conditions can be met, OEP recommends that the proposed project will result in No Adverse Effects to Historic Properties.



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Image 1: Google Earth aerial image of the approximate location of Bridge #03225 (in red) and the project area (in yellow).



Image 2: Roadway level of Bridge #03225 looking north along North Turnpike Road (Rt. 150). Facing northeast.



Image 3: East (downstream) endwall of Bridge #03225. Note the drainage outflow pipe discharging above the bridge's southeast wing wall. Facing southwest.



Image 4: Detail of brownstone arch opening in east (downstream) endwall of Bridge #03225. Note the concrete repairs at the base of the arch. Facing southwest.



Image 5: Detail of brownstone wing wall flanking the south side of the east (downstream) endwall of Bridge #03225. Note the installation of plywood and rip rapp in an attempt to stabilize the wall below the outflow pipe. Facing south.



Image 6: Looking east from the roadway level of Bridge #03225 along Wooding's Pond Brook. Note the steep slopes flanking the brook, outflow pipe at right, and rip rapp along the slope above the endwall. Facing east.



Image 7: Looking north towards Bridge #03225 from the driveway leading to 100 North Turnpike Road. Note the catch basin in the foreground discharges via the outflow pipe above the east endwall. Facing north.



Image 8: West (upstream) endwall of Bridge #03225. Note the concrete repairs framing the original arch and the drainage outflow pipe discharging above the bridge's northwest wing wall. Facing northeast.



Image 9: Detail of brownstone opening in west (upstream) endwall of Bridge #03225. Note the concrete lining within the culvert and concrete repairs throughout. Facing east.



Image 10: Detail of concrete lining within the west side of Bridge #03225. Note the brownstone arch interior is just visible at the eastern end of the culvert. Facing east.



Image 11: Looking west from the roadway level of Bridge #03225. Note the steep, rocky slopes of the brook and outflow pipe discharging through the top of the concrete endwall. Facing west.



Image 12: Looking west from Bridge #03225 along Wooding's Pond Brook. Note the steep, rocky slopes of the brook and washed out basin. The remnants of the masonry dam are just visible at center rearground. Facing west.



Image 13: Remnants of the stone masonry dam located roughly 200' west of Bridge #03225. Facing northwest.



Image 14: Looking north from Bridge #03225 along North Turnpike Road (Rt. 150). Facing north.



Image 15: Looking south from Bridge #03225 along North Turnpike Road (Rt. 150). Facing south.



Image 16: Detail of an 1869 map of Windsor depicting the project site and vicinity. Approximate project area is identified in red.



Image 17: 1934 aerial photograph of project site and vicinity. Note the former location of the mill to the west. Approximate project area is identified in red.



Image 18: 1951 aerial photograph of project site and vicinity. Approximate project area is identified in red.



Image 19: 1965 aerial photograph of project site and vicinity. Approximate project area is identified in red.



Image 20: 1990 aerial photograph of project site and vicinity. Approximate project area is identified in red.

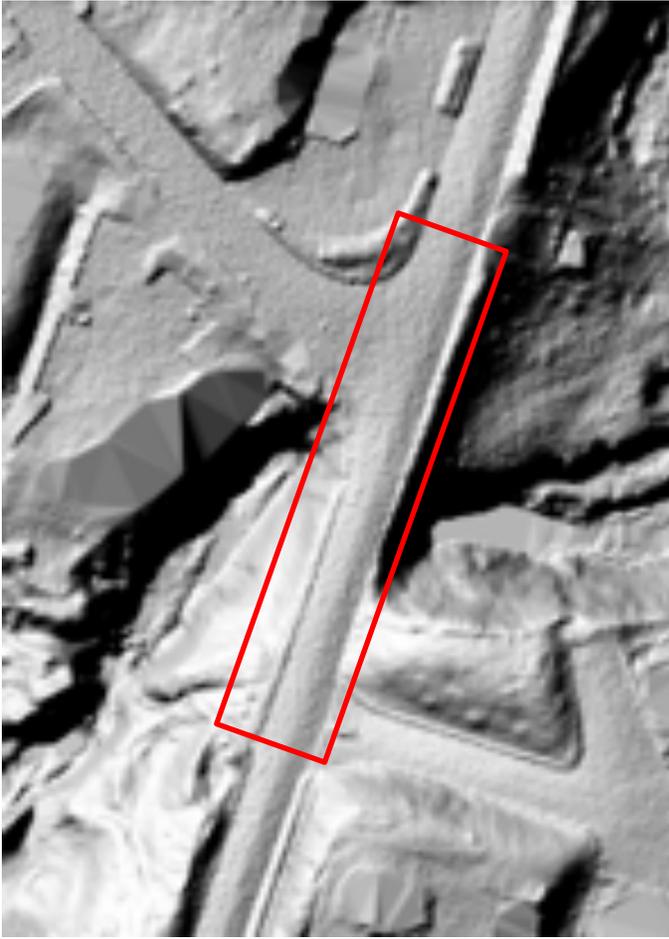
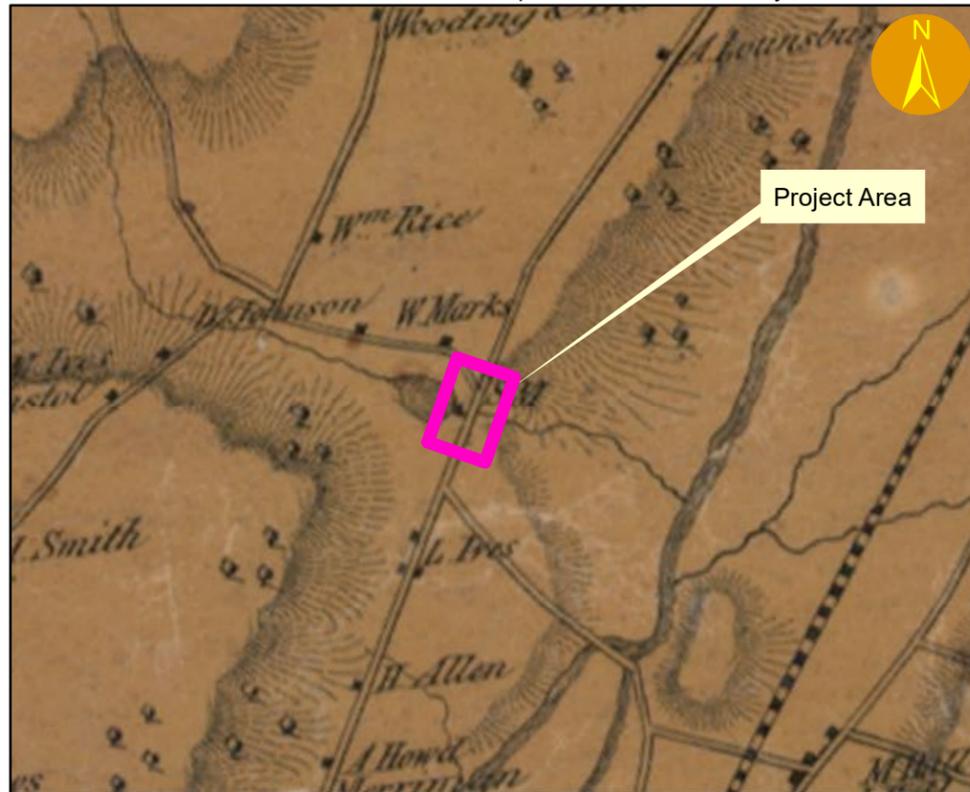


Image 21: LiDAR image of project site and vicinity. Approximate project area is identified in red.

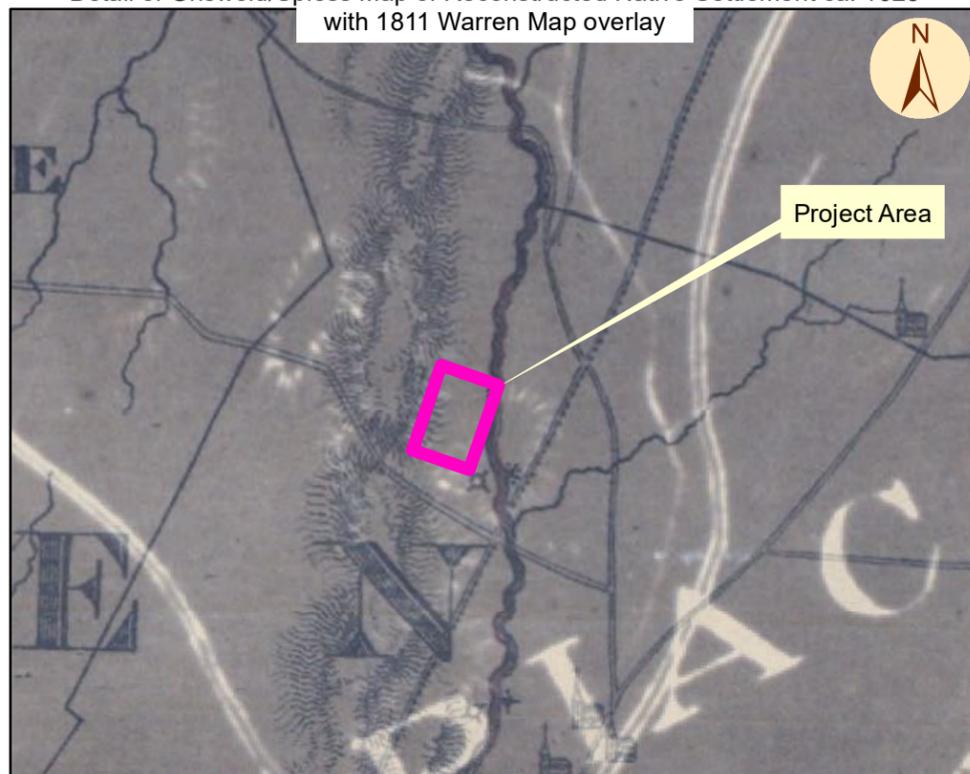
Detail of 2018 Aerial Photography



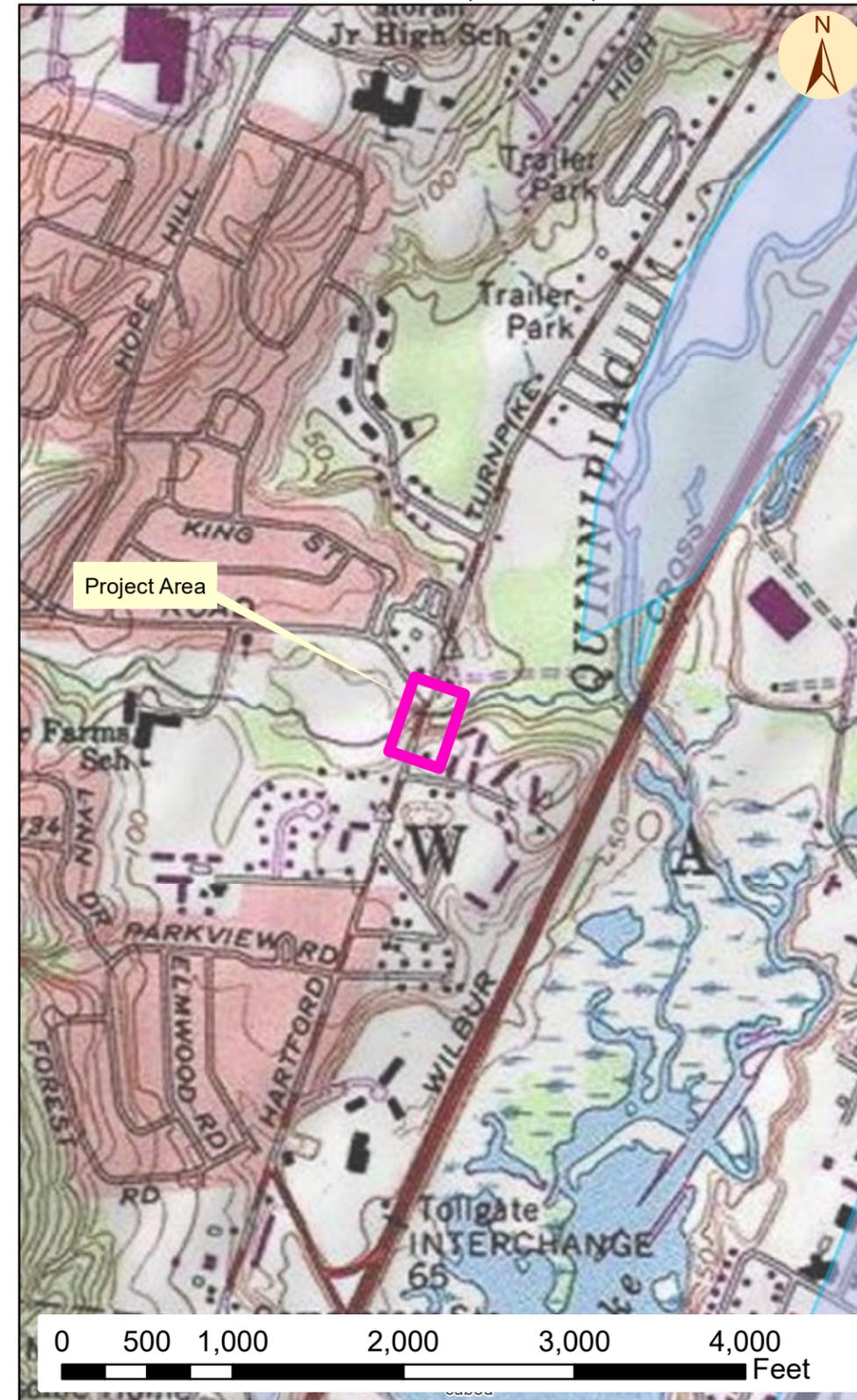
Detail of 1852 Whiteford Map of New Haven County



Detail of Griswold/Spiess Map of Reconstructed Native Settlement ca. 1625 with 1811 Warren Map overlay



Detail of USGS Topo Quad Map

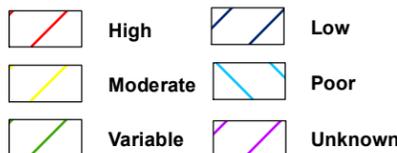


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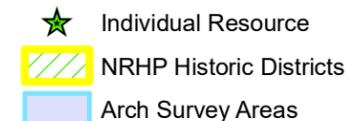
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State Project No. 148-212
F.I.D.#: TBD
Rehabilitation of Bridge #03225
Rt. 150 (N Turnpike Rd.)
over Wooding's Pond Brook
Wallingford

**Predicted Archaeological
Soil Sensitivity**



**National Register
and
Archaeological Resources**



**Approximate Location
of Archaeological Site**



March 4, 2020