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CONSULTANTS IN THE HISTORICAL AND SOCIAL SCIENCES



**MANAGEMENT SUMMARY OF
PRE-CONSTRUCTION ARCHAEOLOGICAL RECONNAISSANCE
PREPARED IN RESPONSE TO
CONNECTICUT SITING COUNCIL DOCKET 272
DEVELOPMENT AND MANAGEMENT PLAN FOR THE
MIDDLETOWN-NORWALK 345-kV TRANSMISSION LINE PROJECT
SEGMENT 4A
FAIRFIELD AND BRIDGEPORT, CONNECTICUT**

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June 2006

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I. INTRODUCTION

The Connecticut Light & Power Company (CL&P) proposes to upgrade electric transmission facilities from the Scoville Rock Substation in Middletown, CT to the Norwalk, CT Substation, in cooperation with The United Illuminating Company (UI) and in accordance with the Connecticut Siting Council (Council) Decision and Order for Docket 272 of April 7, 2005. CL&P has submitted a Development and Management (D&M) Plan for the Segment 4A portion of the Middletown-Norwalk Project (Project), one of thirteen such plans prepared for this Project by CL&P. Among the issues to be addressed under the Decision and Order stipulations regarding Project environmental compatibility are potential Project effects on cultural resources including architectural properties and prehistoric or historic archaeological sites. Based on findings in Raber Associates' September 2003 assessment of Project cultural resource issues (Raber and Wiegand 2003, hereinafter the Assessment), and on subsequent CL&P consultations with the State Historic Preservation Office (SHPO), cultural resource issues to be addressed in D&M Plans for the Project include:

location of any archaeological sites potentially eligible for the state or national registers of historic places, through reconnaissance survey of undisturbed areas including equipment storage, project area access, or other temporary work areas;

identification of any potential adverse visual effects on historic resources eligible for, or listed on, the state or national registers of historic places.

To be eligible, cultural resources must possess physical integrity and meet at least one of the following criteria:

- A. Association with important historic events or activities;
- B. Association with important persons;
- C. Distinctive design or physical characteristics, including representation of a significant entity whose individual components may lack distinction;
- D. Potential to provide important information about prehistory or history.

This report summarizes cultural resource investigations conducted for the Segment 4A project area by Raber Associates between January and June 2006, and documents findings which led to the following recommendations:

No other near-surface field investigations appear necessary prior to Segment 4A construction;

One project area, at proposed splice vaults 6436 and 7536, is sensitive for potential, deeply-buried early Native American resources. Identification and evaluation of such resources can only be done during construction.

A final report including all field test data will be prepared for submittal to SHPO later in 2006, after any research required during construction is completed.

II. PROJECT DESCRIPTION

Segment 4A of the Project covers the work associated with the installation of two underground 345-kV cross linked polyethelene (XLPE) transmission cable circuits and corresponding splice vaults from the proposed UI Singer Substation located in Bridgeport to the Fairfield/Westport town line at Sasco Creek, excluding major water crossings between these locations which will be addressed in a separate D&M plan. Segment 4A therefore begins approximately 250 feet east of Sasco Creek, and runs east for seven miles to the proposed Singer Substation as shown on Figure 1. As discussed below, the two major water crossings east of Sasco Creek appear to have no sensitivity for eligible cultural resources, and can be included within the present document. The underground cable system will be installed primarily within existing public road rights-of-way (ROW), but most of the splice-vaults are being sited on new easements located off existing public roads.

Transmission cable would be installed in 4-foot-wide trenches generally 5 to 7 feet deep. Size limits of the spools carrying the large underground cable will limit continuous lengths of installed cable to 1800 linear feet, and require installation of concrete splice vaults 10 feet square in section and 32 feet long at approximate intervals of 1650 feet. Splice vaults serve as the location where successive lengths of cable are connected. Each vault will house three cable splices, one splice for each phase of the circuits. Each vault corresponds to a single circuit; therefore, each splice location will have two vaults. Vault excavations will be to a minimal depth of 15 feet, providing a minimum cover of 2.5 feet, with over excavations of 2 feet on each side for workspace.

Aside from splice vaults, three short sections of underground cable or ductbank will be installed off existing public roads (Figures 1, 3, 4, and 6):

- two level, grassed traffic islands on Old Post Road in Fairfield immediately west of Jelliff Road and Interstate 95
- one level, grassed traffic island on Pequot Avenue in Fairfield immediately south of the intersection with Route 1
- through the edge of two largely vacant lots between Broad and Main streets in Bridgeport immediately west of the proposed Singer Substation, in an alignment presently occupied only by part of a 4-car 1-story cinder-block garage.

East of Sasco Creek, the major stream crossings include the Mill River in the Southport section of Fairfield, and Ash Creek at the Fairfield/Bridgeport corporate border. Both these crossings will be made on utility bridges immediately north of Route 1 (Figure 1).

III. CULTURAL RESOURCE SENSITIVITY

A. Architectural Resources

The Assessment identified no historic resources eligible for, or listed on, the state or national registers of historic places which would be subject to any adverse visual effects by Project construction. Since the Assessment was prepared, the off-road ductbank section between Broad and Main streets in Bridgeport was one of several Project design changes. This section passes through the William D. Bishop Cottage Development National Register District (Figure 6). Installation of underground ductbank will have no visual effects on district resources. Potential archaeological effects on the district are discussed below.

B. Archaeological Resources

The Assessment identified a number of Native American and Euroamerican archaeological sites in the general Project area vicinity, from all periods of prehistoric and historic settlement, but no known sites have been reported less than about 1800 feet from Project areas. Based on surface inspection, and review of data from geotechnical and prior cultural resource studies, Project sensitivity for archaeological resources eligible for the State or National registers was appraised and reconnaissance field investigations implemented accordingly.

1. Native American Resources

Environmental characteristics of known Native American sites in the general vicinity of the Project area allowed for identification of areas sensitive for undiscovered sites, based on both surface inspection and information about slope and drainage conditions. Slope, drainage and proximity to streams and wetlands are generally the indicators of Native American site sensitivity. The vast majority of sites are located in areas of less than 12-15% slopes, in well-drained soils. While some fairly large sites that may have been used as permanent, semi-permanent or seasonal sites may be located along major streams and wetlands, previous experience has shown that uplands settings with small level areas adjacent to smaller streams and wetlands often contain prehistoric sites. The smaller sites encountered in such settings would probably have been used as temporary camps, hunting camps and stations, resource acquisition sites for the obtaining of workable stone or food items, or temporary refuges. While proximity to available water in the form of streams, wetlands and ponds with their associated floral and faunal resources would usually be a good indication of potential Native American sites, the absence of nearby water should not be considered great enough to exclude some site locations, particularly in the steeper portions of the project area. As many sites in such locations are small temporary camps or hunting sites, they may have been occupied during the late fall through early spring, when the presence of snow may have eliminated the need for a stream or wetlands.

a. Near-Surface Resources

Except for areas with deeply-buried soils or other prehistoric surfaces, it was assumed that roadbed construction or other paving episodes have removed all soils sensitive for Native American resources, or severely limited the integrity of such resources by removing most sensitive strata. The same disturbance, and the relative antiquity of the roads in the proposed underground route, also suggested that no Euroamerican resources other than perhaps older utilities would be found in or below existing roadbeds. Although most areas immediately adjacent to paved roadways may be disturbed, pockets of intact soil with archaeological material may survive in such areas. Conversely, undocumented disturbance associated with generations of road and utility construction, maintenance, and improvement may have removed all archaeologically-sensitive soils within surrounding level, well-drained areas which would otherwise be considered potentially sensitive for Native American resources.

Reconnaissance investigations completed for this document addressed issues of soil integrity and location of cultural resources in unpaved project areas accessible from the surface (near-surface areas). In addition to the three off-road sections of ductbank noted in Section II, one set of splice vaults (6437 and 7537) will be located in an unpaved, grassy slope below the Fairfield Motor Inn, immediately south of State Route 130.

Traffic islands on Old Post Road immediately west of Jelliff Road and Interstate 95

This vicinity had extensive roadwork c1930-42, associated with re-alignment of Route 1, as well as earlier undocumented improvements to the earlier alignment of Route 1. The easternmost of the two traffic islands was occupied by a gas station into the 1950s, and has been traversed by concrete drains and a sewer alignment. Some of these drains appear to have carried a former stream under the island. These historic developments appear to have disturbed any near surface Native American resources, as a previous cultural resource study also concluded (U.S. Geological Survey 1951a; Historical Perspectives 1996). The westernmost traffic island, along with adjacent sections of roadway connecting Old Post Road and Route 1, have been rebuilt and re-aligned at least once, and the island is traversed by three concrete drain pipes. Prior field investigations confirmed the absence of intact near-surface soils or surfaces sensitive for Native American resources. No further reconnaissance investigations were made for the Project (Connecticut State Highway Department 1940, 1941-1942; Historical Perspectives 1996).

Neither Native American nor Euroamerican cultural resources are typically expected within marsh deposits or poorly-drained soils. In the general vicinity of these traffic islands, the Great Swamp Fight which ended the Pequot War in 1637 occurred in or adjacent to a marsh at a location which has never been determined, but which contemporary accounts suggest involved very limited activity within the swamp itself. Several Pequots may have been killed in the swamp. As discussed below, peat deposits representing a former marsh have been located below the traffic islands. A 1904 monument commemorating this event, moved several times, stands very close to proposed Project ductbank installation on the westernmost traffic island. Previous investigations and review of historical maps indicate that the nearest historical marsh or swamp which might have been the site of the 1637 battle were probably south of this or other Project areas, and that any archaeological resources associated with this event were on nearby upland areas outside Project limits (Historical Perspectives 1996). No Project effects on any remains or cultural resources associated with the Great Swamp Fight are expected. Project procedures to identify any unanticipated archaeological discoveries should be sufficient to address the remote possibility that human remains associated with the Great Swamp Fight might be intercepted by the narrow ductbank trenching.

Traffic island on Pequot Avenue immediately south of the intersection with Route 1

This section of Pequot Avenue was part of Route 1 until the drastic relocation of Route 1 c1930. Before the relocation, Route 1 ran along the south side of the present traffic island, and a local road (Spring Street) ran north of the present traffic island very close to the tracks of the New York, New Haven, and Hartford Railroad. Both roads were built at the base of a steep slope which originally consisted of well-drained, very rocky fine sandy loam soils. Spring Street ran across part of the present island, and its construction and maintenance would have removed any archaeological resources in that section of proposed Project ductbank construction. Reconstruction of Route 1 included the realignment of Spring Street, and the construction of present Route 1 along the north side of the present traffic island as a railroad overpass with a steep grade and presumed removal of any original upper soil horizons with any archaeological sensitivity. At the base of this slope, an underground duct of telephone cable was later installed in a trench about 3 feet wide (Figures 1, 4; Sanborn Map Company 1923; Connecticut State Highway Department 1931-1976; U.S. Department of Agriculture 1981). Although the slope south of the traffic island suggested all sensitive soils had been removed between the older alignment of Spring Street and the telephone cable to create the level south edge of the traffic island, reconnaissance field investigations were made to identify any sensitive soils, as discussed in Section IV.

Proposed Splice Vaults 6437 and 7537 along Route 130

This Project area probably had well-drained fine sandy loam soils prior to any historical disturbance, and had no documented development other than one possible Euroamerican dwelling somewhere in this general vicinity. Reconnaissance testing was completed to locate any archaeological resources, as discussed in Section IV (Figure 5).

Utility Bridges over Mill River and Ash Creek

Existing road crossings at both these streams include substantial amounts of fill, associated with 20th-century bridge abutments, which have narrowed the stream channels considerably (cf. Figures 1 and 2; U.S. Geological Survey 1893). Sections of proposed ductbank at these crossing in unpaved or undeveloped areas appear to pass only through this fill, and do not appear sensitive for any Native American resources.

Proposed Ductbank between Broad and Main streets in Bridgeport

Between c1880 and c1940, this proposed 200-foot-long off-road ductbank alignment was occupied by, or immediately adjacent to, three historic dwellings. The extant c1940 garage is located at the approximate site of one of these dwellings (Figure 6). Soil disturbance associated with these Euroamerican resources presumably removed virtually all strata sensitive for Native American resources, and/or left such small near-surface areas of intact soil that recovery of significant Native American resources appeared highly unlikely. No field investigations appeared necessary in this Project area.

b. Potential Deeply-Buried Resources

As noted in the Assessment, deeply-buried undisturbed surfaces may survive beneath roads in short sections built on fill over former saltwater marshes in parts of Fairfield, Bridgeport, Stratford and Milford. These marshes formed within the last approximately 2500 years in response to the post-glacial rise in sea level, and may cover glacial outwash surfaces exposed during thousands of years of earlier Native American occupation. Installation of splice boxes or very deep ductbank sections might penetrate buried marsh deposits and disturb these older surfaces. In practice, any identification of archaeological resources in such surfaces will have to be done during project construction. For this document, areas with probable deeply-buried undisturbed surfaces subject to project effects were identified from available geotechnical data and historical maps showing marsh areas (U.S. Coast Survey 1835; U.S. Geological Survey 1893; Historical Perspectives 1996; GZA GeoEnvironmental, Inc. 2006).

Two Project areas appear to have potentially-sensitive outwash surfaces beneath peat or organic silt deposits:

- At the traffic islands discussed above immediately east of Interstate 95, two borings intercepted outwash surfaces approximately 8-11 feet below the surface. Ductbank installation in these areas will reach approximately 7-8 feet below the surface, and will extend at least several feet below the expected water table. It does not appear likely that ductbank trenching will intercept any Native American resources in this area. Given the narrow ductbank trenching and the water table, it also does not appear to be prudent or cost-effective to monitor excavation against the low possibility of encountering a sensitive surface. Discovery of any archaeological resources in this environment would require de-watering, extensive expansion of trenching limits to meet safety standards, and possible use of trench boxes to allow for deployment of archaeologists 8-11 feet below the surface.

- At the northwest corner of the intersection of Route 1 and Eliot Place in Fairfield, splice vaults 6436 and 7536 will require excavation to depths of 12.5-14 feet below paved surfaces (Figures 1, 2). Outwash surfaces beneath organic silty sand and peat deposits begin about 12 feet below the surface, making it likely these splice vaults will remove surfaces with possible Native American resources. The water table in this area, which remained a marsh into at least the late 19th century, is approximately 5.3 feet below the surface (GZA GeoEnvironmental, Inc. 2006: Boring MN-F-074). Given the large size of the trenches needed for splice vault installation and the need to de-water these trenches, archaeological monitoring and reconnaissance testing as appropriate appear prudent and feasible.

B. Euroamerican Resources

Review of historical atlases, insurance maps and aerial photographs, as well as site files maintained by the Connecticut State Archaeologist, suggested limited potential for pre-20th century Euroamerican resources outside of the William D. Bishop Cottage Development National Register District. There was a mid-19th century sawmill just upstream of the proposed Mill River crossing, a short distance north of Route 1 and west of the river. The location suggests the mill was steampowered, and used the river for transport rather than power. This site appears to be west of the Project area utility crossing, in a area where project construction will be within Route 1. At the approximate site of proposed splice vaults 6437 and 7537, there was one undocumented residence which was removed by the mid-19th century. Reconnaissance tests at the latter location addressed the potential survival of this site (Chase *et al.* 1858; Beers 1867; U.S. Geological Survey 1893, 1951b).

The area encompassed by the William D. Bishop Cottage Development National Register District remained largely unsettled until 1880; there were only two residences on the block in the historic district now bounded by Atlantic, Main, and Broad streets. District resources include residential structures built largely c1880-1894. As noted above, the present largely vacant lots within which ductbank construction would occur had three residences completed c1884-1889 (O.H. Bailey 1875; Sanborn Map Company 1884,1889; Brilvitch 1979). Any archaeological resources associated with these demolished structures, or with their residents, would consist of domestic and architectural materials of well-documented vintage, likely in disturbed contexts because of the demolition episodes and the later construction of the 4-car garage. These materials would not contribute to the significance of historic district resources, or otherwise provide significant new archaeological information under National Register Criterion D. Project construction appears to have no potential adverse effects on the historic district.

IV. FIELD INVESTIGATIONS

In potentially-undisturbed sections of the traffic island along Pequot Avenue south of Route 1, three soil tests were made with a 3.5-inch-diameter bucket auger at intervals of 15-18 meters (Figure 4). These tests each revealed dark, medium, or light brown fine sandy loam topsoil 13-18 cm. deep, overlying orange-brown/medium brown medium-coarse sand, gravel, and rocks penetrated to depths of 20-25 cm. The lower stratum appears to represent glacial outwash material (C horizon) re-worked during road construction episodes, with the topsoil added as recent fill. These profiles suggest all original soils with any possible Native American resources were removed.

At the location of proposed splice vaults 6437 and 7537, three subsurface tests were hand-excavated as 50-cm.² shovel test pits, placed at intervals of no more than 15 meters (Figure 5). This testing interval has proven successful in intercepting at least some evidence of all but perhaps the very smallest of Native American or Euroamerican archaeological sites. The shovel test pits were excavated with shovels and small hand tools until culturally-sterile soil layers and/or obstructions were encountered, with all excavated material run through 0.25-inch-mesh hardware cloth to isolate artifacts. Soil profiles were recorded, and cultural material noted. Profiles were compared to reported nearby original soils (U.S. Department of Agriculture 1981). Shovel tests indicated disturbed soil fine sandy loam horizons with limited amounts of 19th- or 20th- century cultural material, probably associated with grading and landscaping for road and/or motel construction.

Tests 7537-1 through 7537-3

0 - 24/29cm.:	sod and dark brown fine sandy loam topsoil, with a few brick, nail, and glass fragments (fill or redeposited A horizon)
24/29 - 45/55 cm.:	yellow-brown fine sandy loam, pebbles, and rocks, with a few whiteware, nail, and shell fragments in Test 7537-2 (disturbed C horizon)

V. CONCLUSIONS AND RECOMMENDATIONS

There will be no adverse Project effects on near-surface archaeological resources, or on the William D. Bishop Cottage Development National Register District. No further cultural resource investigations appear necessary in areas proposed for ductbank installation or at the utility crossings of Mill River and Ash Creek, unless construction activities encounter unanticipated archaeological resources.

Construction of splice vaults 6436 and 7536 are likely to impact deeply-buried glacial outwash surfaces sensitive for Native American resources. It is recommended that archaeological monitoring of de-watered excavations be conducted to identify any such surfaces below peat or organic silt strata, and that reconnaissance archaeological testing be conducted on such surfaces in de-watered conditions with appropriate safety procedures including open-bottom trench boxes. In the event that archaeological sites are found in outwash deposits, additional investigations may be necessary prior to splice vault installation.

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1951b Bridgeport, Conn. 7.5-minute quadrangle sheet.

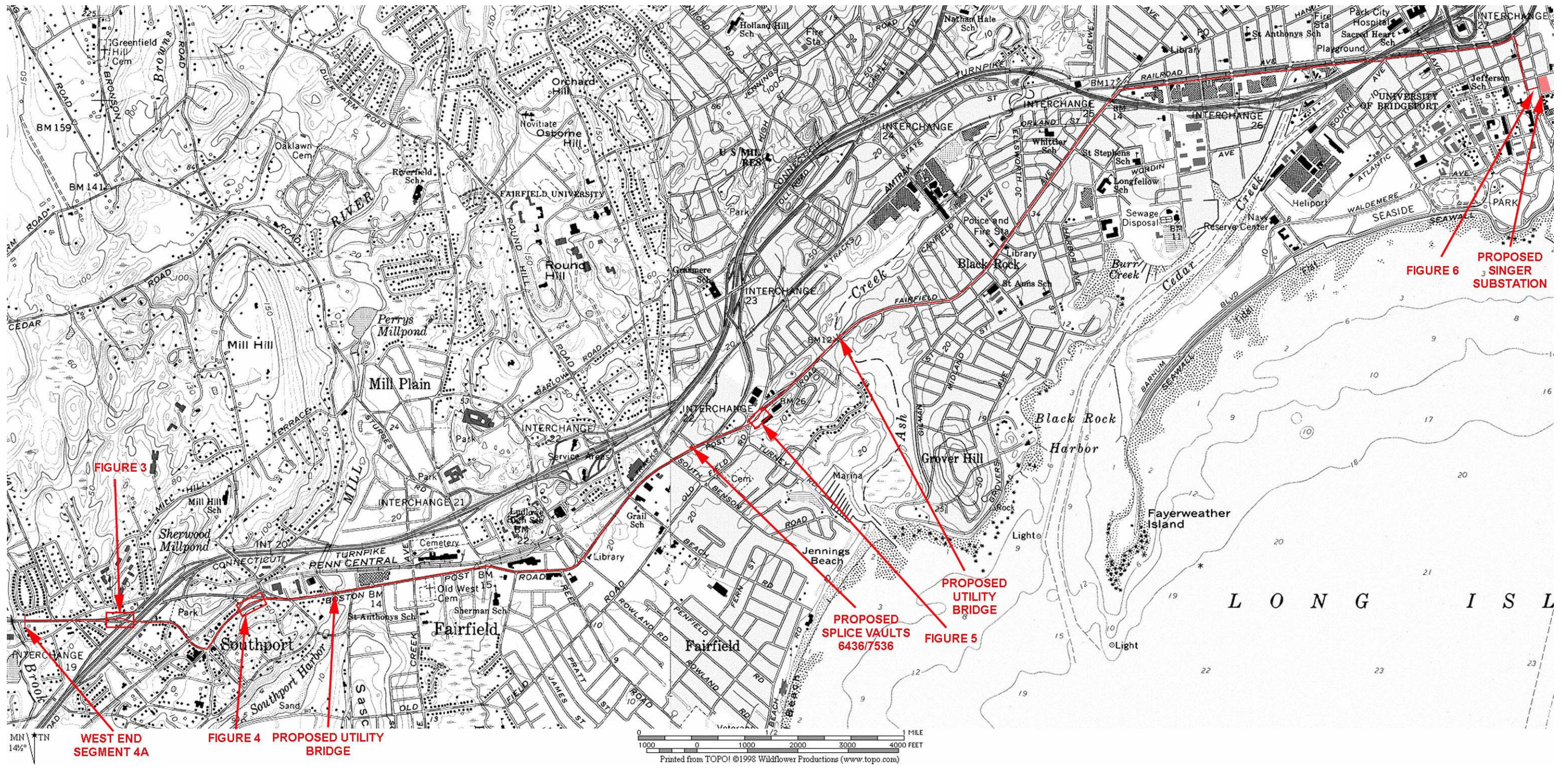


Figure 1. LOCATION OF SEGMENT 4A AND FIGURES 3-6
 base map: U.S. Geological Survey Westport and Bridgeport 7.5-minute quadrangle sheets

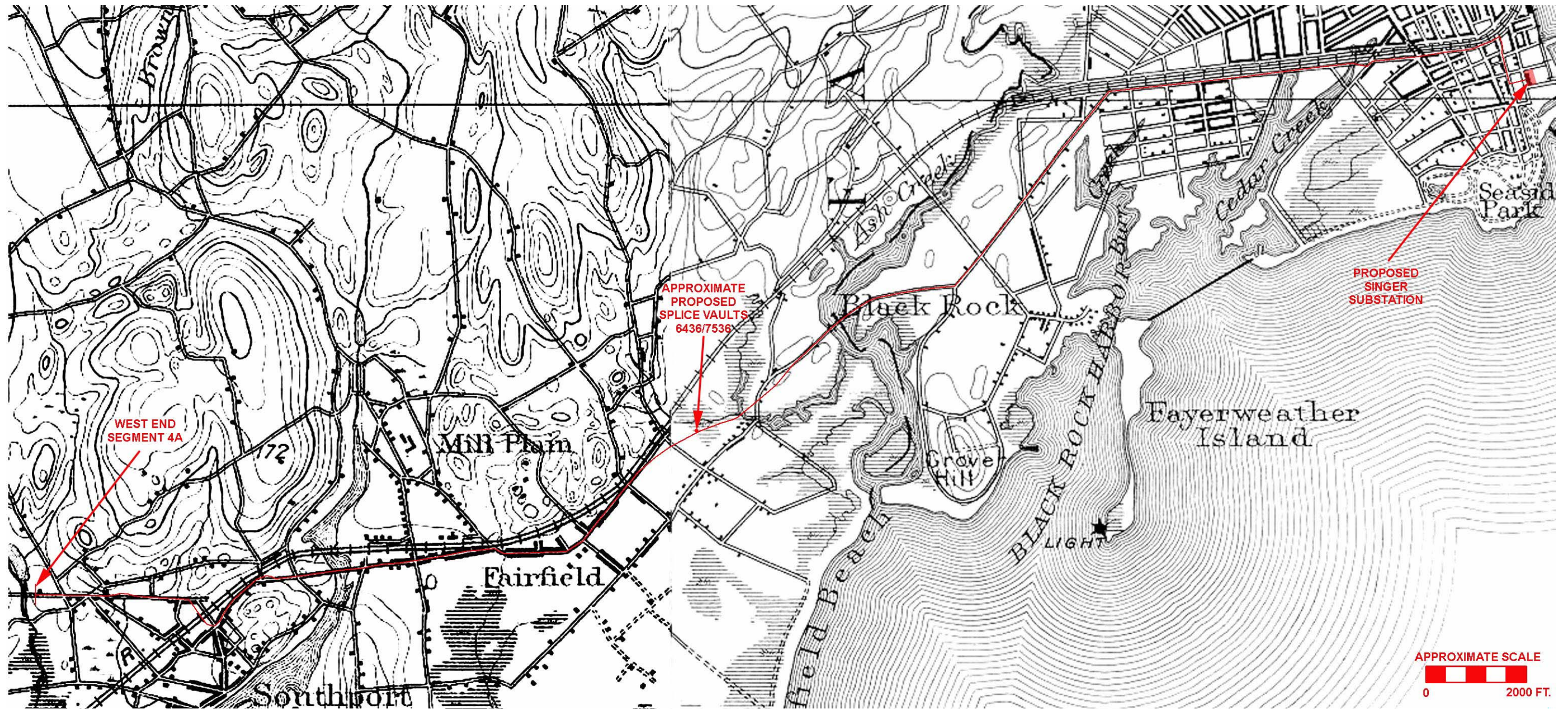


Figure 2. PROJECT AREA AND SEGMENT 4A ALIGNMENT c1890
 source: U.S. Geological Survey 1893

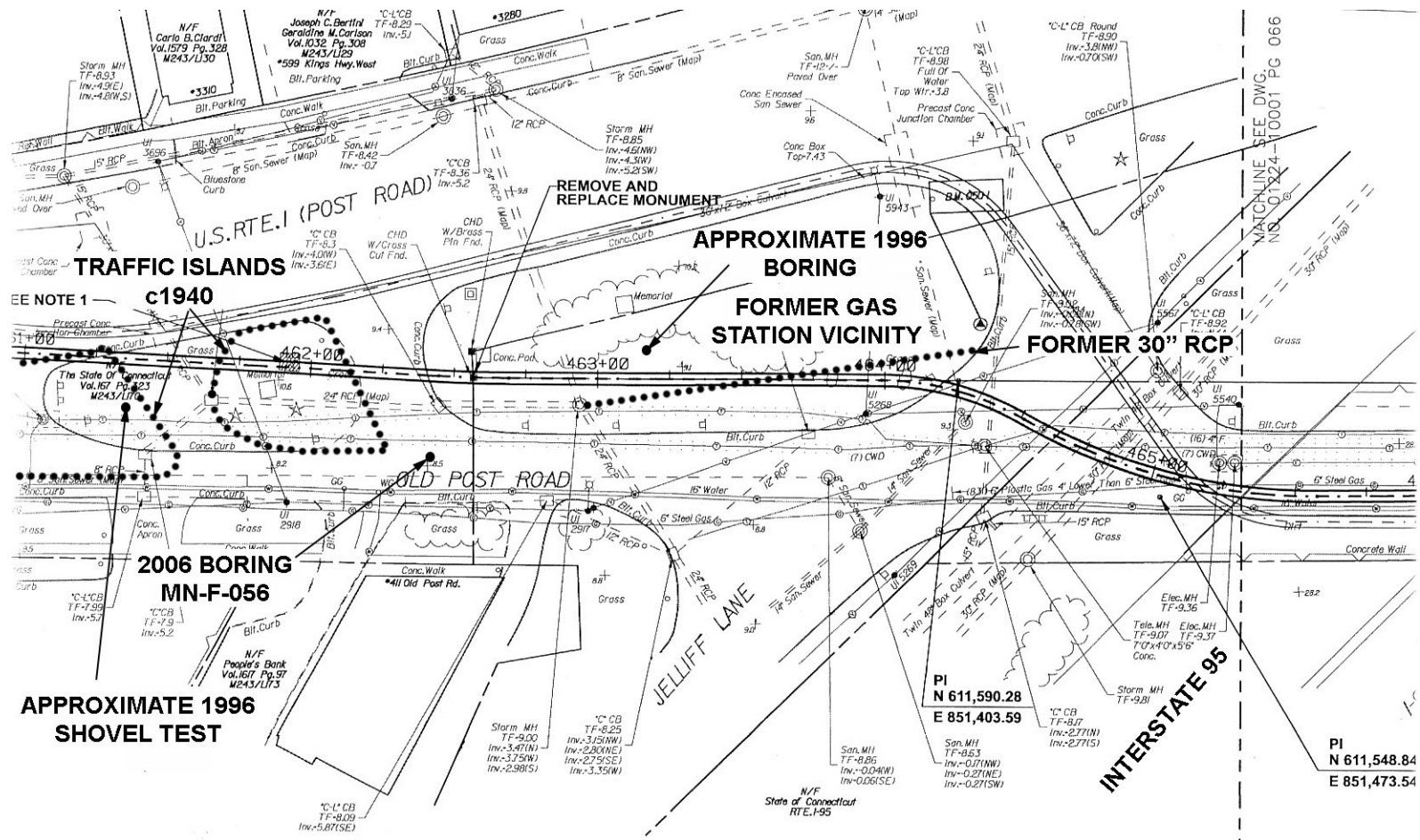


Figure 3. c1940 AND 2006 CONDITIONS AT TRAFFIC ISLANDS IMMEDIATELY WEST OF INTERSTATE 95, WITH 1996 AND 2006 TESTS
sources: Connecticut State Highway Department 1940, 1941-1942; Historical Perspectives, Inc. 1996; GZA GeoEnvironmental, Inc. 2006
scale: 1" = 60'

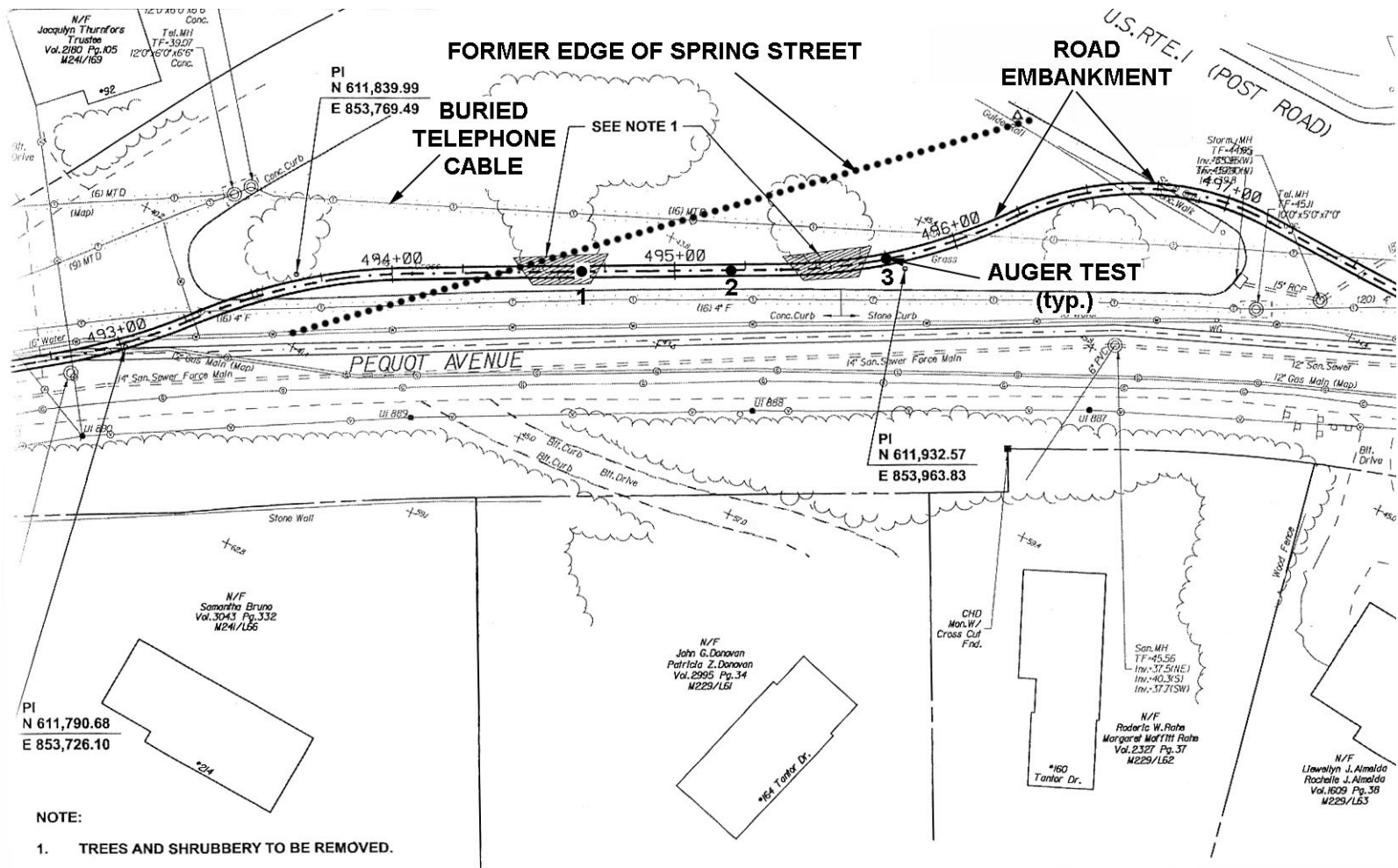


Figure 4. SOIL TESTS ON TRAFFIC ISLAND AT PEQUOT AVENUE AND ROUTE 1
scale: 1" = 60'

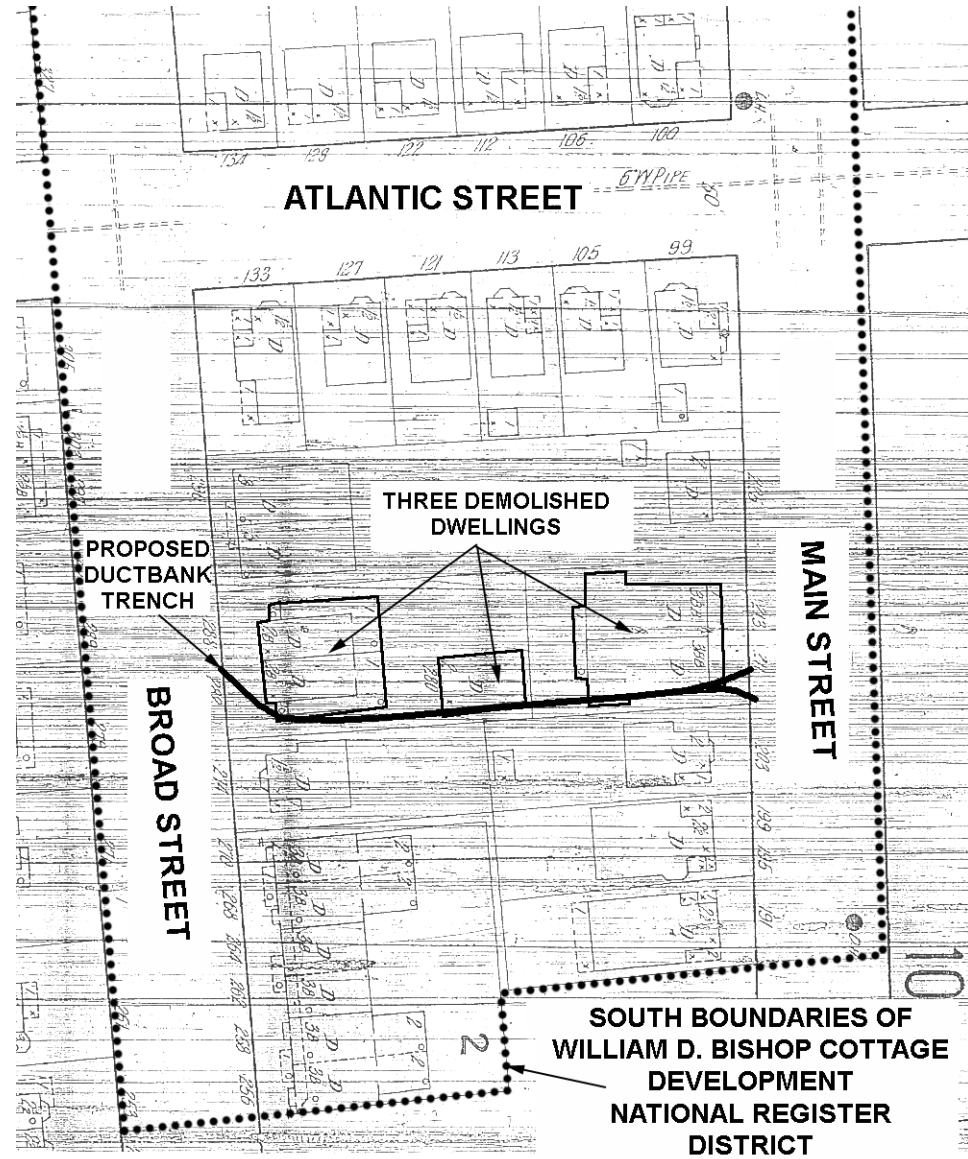
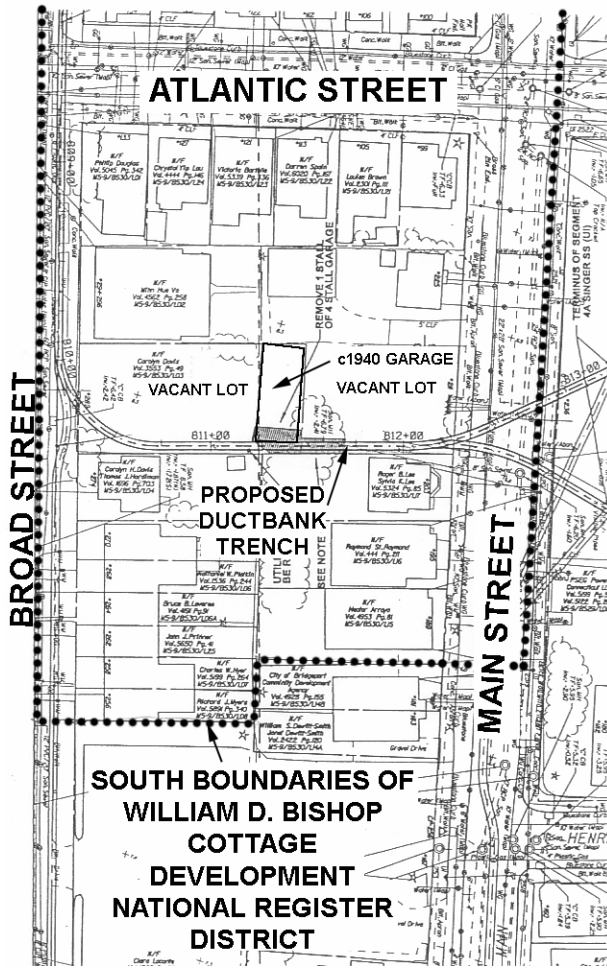


Figure 6. 2006 AND 1913 PLANS SHOWING PROPOSED DUCTBANK AND WILLIAM D. BISHOP COTTAGE DEVELOPMENT HISTORIC DISTRICT