

TECHNICAL REPORT
PRELIMINARY CULTURAL RESOURCES REVIEW
ELECTRIC BOAT PROPOSED SOUTH YARD FACILITY EXPANSION
GROTON, CONNECTICUT

Prepared for

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By

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I. INTRODUCTION AND SCOPE OF WORK

A. Introduction

Electric Boat (EB) designs, builds, repairs, and maintains submarines for the United States Navy. The existing EB facility located along the Thames River in Groton, Connecticut consists of multiple berthing areas, associated piers and docking infrastructure, and terrestrial office and production buildings. As part of a proposed Facilities Master Plan (FMP), EB intends to implement large scale modifications to the existing in-water and terrestrial infrastructure to accommodate changes in production that are expected to accommodate the construction of the COLUMBIA class submarine, the replacement for the OHIO class submarine, which the United States Navy has designated as its top priority program. These FMP modifications are expected to begin in 2019 and extend through 2026.

EB's current shipbuilding plan reflects an increase in vessel procurement by the Navy. Shipbuilding includes continued construction of VIRGINIA class submarines, as well as construction of the new COLUMBIA class submarines. These ongoing and anticipated shipbuilding activities require EB to make significant upgrades and investments over the next several years (Figure 1). This work will include waterside development including stabilization and/or bulkhead installation along the Thames River shoreline, construction of an assembly building and pier infrastructure that extends over the Thames River, installation of drilled shafts to support over-water building and pier infrastructure, placement of a dry dock moored at the shoreline, and sediment dredging to allow for the dry dock submersion basin and berthing for support and transport vessels (Figure 2). On the landward side of the South Yard work will include the creation of an access road and new building construction. A number of onshore structures, including a pier and a several buildings will also be demolished to accommodate the new construction (Figure 3). The Area of Potential Effect (APE) for the project includes the South Yard area of the Electric Boat campus, as well a portion of the Thames River adjacent to the onshore facility (Figure 4).

Because the project involves state and federal permitting, it must comply with the National Environmental Protection Act, and Section 106 of the National Historic Preservation Act of 1966, as amended, which requires undertakings to consider their effects on cultural resources listed in or eligible for listing in the National Register of Historic Places (NRHP). It must also comply with the Connecticut Environmental Protection Act, in which NRHP-listed or eligible resources must also be considered in an environmental evaluation. Under contract to Fuss and O'Neill, Inc., Archaeological and Historical Services, Inc. (AHS) conducted a preliminary cultural resources assessment of the APE. The purpose of the assessment was to gather and present data regarding identified (known) cultural/historic resources situated within the APE, assess the cultural resources sensitivity of the APE, and make recommendations as to whether or not additional cultural resource investigations are warranted. The survey was a "desktop" assessment, which included the collection and analysis of available data regarding previously recorded cultural resources in the vicinity of the APE. Cultural resources include historic (above-ground) buildings, structures and landscapes, and archaeological (below-ground and underwater) sites.

B. Scope of Work

The survey included review of recorded archaeological sites in the files of the Connecticut State Historic Preservation Office (SHPO) and Office of State Archaeology (OSA),

review of National Oceanic and Atmospheric Administration (NOAA) on-line Automated Wreck and Obstruction Information System (AWOIS) for underwater cultural resources, and review of NRHP-listed districts and structures. It also included review of historic-period and aerial maps, and Natural Resource Conservation Service (NRCS) soil maps, topographic maps, and modern aerial photographs in order to assess the presence/absence of disturbed areas (which have little or no archaeological sensitivity) and soil types and environmental features known to often be associated with pre-colonial Native American and historic-period archaeological sites. The results of the survey are presented below.

II. RESULTS OF THE CULTURAL RESOURCES ASSESSMENT

The APE is in Groton, on the east bank of the Thames River across from Fort Trumbull and south of Fort Griswold. The topography in this area is low, ranging from approximately zero to 50 feet above sea level, and the area is heavily developed (Figure 1). The terrestrial portion of the APE is largely paved, with numerous buildings and there is a pier in the northern part of the APE that extends into the Thames River. Project plans call for the removal of many of these structures (see Figure 3). Based on the NRCS Web Soil Survey, the soils in the project area are a combination of Udorthents, Urban Land, and Canton and Charlton soils (Figure 5). Urban Land and Udorthents soils are found in areas of residential and/or industrial development. These soil types are generally associated with pervasive disturbance, as well as cutting and filling. Areas with these soils are generally characterized as having low archaeological sensitivity because any archaeological sites in these soils have likely been destroyed by disturbance. The NRCS soil survey map (Figure 5) shows the South Yard area as primarily natural Canton and Charlton soils; however, review of aerial photographs (see discussion below) indicates that this area is primarily man-made land, constructed by filling in inundated areas, and the soils here are mischaracterized and are disturbed.

A. Brief History of the APE

Shipbuilding has been a major industry in Groton since the first quarter of the 18th century. During the Revolutionary War, a 36-gun frigate was built in Groton at the order of the Continental Congress and privateers were fitted out there in 1812 to run the British blockade. The Eastern Shipbuilding Company established a plant in Groton in 1900, and constructed the Minnesota and Dakota, the two largest merchant ships of the day. The company closed in the early 1900s. Electric Boat now occupies its former plant location (Burgess 1909; Federal Writers Project 1938).

Electric Boat was established in 1899. The company was organized by Isaac Rice to build a new 54-foot submersible vessel. The vessel, designed by John Philip Holland, was called the Holland VI after its inventor. It was considered the first practical submarine design, and in 1900 it was purchased and commissioned by the U.S. Navy. The vessel was renamed the USS Holland, and the success of the submarine created a demand for new submersible designs. The New London Ship and Engine Company, located in Groton, was a subsidiary of Electric Boat that manufactured diesel engines for the pre-World War I F-class submarines. Electric Boat and its subsidiaries had large contracts to manufacture submarines in WWI. There was a dearth of contracts between 1918 and 1933, but production ramped up with the looming threat of World War II. In 1952 Electric Boat was reorganized as General Dynamics Corporation but the company maintained the name “Electric Boat” for its submarine manufacturing section. Electric Boat built the USS Nautilus, the first nuclear submarine, which launched in 1954. The company also produced the first ballistic missile submarine, the USS George Washington, in 1959. Production at the Groton facility continues today (Weir 2000; General Dynamics 2018).

B. Site Files Research

AHS reviewed the files of documented archaeological sites at CTSHPO and OSA to determine if there are recorded sites in the APE vicinity and to assess the potential for archaeological resources in the APE. There are 14 documented archaeological sites within a mile of the APE (Figure 6), but none of the recorded sites are located in or adjacent to the APE.

Eleven of the documented sites are on the west bank of the Thames in New London (95-1, 95-10, 95-11, 95-12, 95-13, 95-14, 95-15, 95-17, 95-18, 95-19 and 95-20). These sites, which all date to the 18th through 20th centuries, reflect the economic importance of local maritime industries from the 18th century and the increasingly dominant role of rail transportation in the 19th and 20th centuries. The sites include archaeological deposits related to the U.S. Customs House (95-14), wharf remains (95-11, 95-12, 95-17, 95-18, and 95-19), the New London Engine House (95-20), and the Central Vermont Railroad Pier (95-1), as well as domestic artifact scatters (95-13 and 95-15), and the buried steel hulls of ships that were used as fill for landmaking (95-10).

Three sites are documented within a mile of the APE on the east side of the Thames in Groton. Site 59-20, which is located north of the project area is the National Register-listed Fort Griswold Site. The property is a state park and it includes stone foundation remains related to the Revolutionary War-era fortifications, bricks from the reconstruction of the fort in 1812, and archaeological deposits dating to the 18th and 19th centuries. Based on the record of mapped sites, Site 59-39 is also located on the grounds of Fort Trumbull, but there is no site form, and no information about the site type is available. Finally, Site 59-45 is a pre-colonial Native American findspot. A single quartzite biface was recovered during an archaeological survey here conducted prior to the construction of Navy family housing.

Review of the CTSHPO and OSA files indicates that there are no underwater archaeological sites recorded in the project area vicinity.

C. Review of NOAA AWOIS Database

Review of the NOAA on-line AWOIS database indicates that there are no significant underwater cultural resources in the project area vicinity (Figure 7). There are three underwater obstructions and two large rocks documented in the Thames River near the project area. One obstruction, consisting of three concrete deadman anchors, is in the proposed APE. The AWOIS indicates that the deadmen are visible at high water. There are also two submerged sewer pipes, at a depth of about six meters, on the western edge of the Thames navigation channel just west of the APE. Northwest of the APE, just west of the navigation channel, there is an unidentified submerged obstruction at a depth of four meters. The two rocks are located west of the navigation channel.

D. Review of Historic Maps and Aerial Photographs

Historically, the area where Electric Boat is now located was largely undeveloped until the mid-19th century (Figures 8-10). The 1781 map, drawn to depict troop movements in Revolutionary War battles at Forts Griswold and Trumbull, shows no development in the APE. In 1838 (Figure 9), a single structure is depicted in the APE vicinity. By the second half of the 19th century (Figure 10) rail development was spreading across the region and a railroad line had been constructed in the APE. In May 1852 the New London and Stonington Railroad was chartered to connect the recently constructed New Haven and New London Railroad to Stonington, the western terminus of the New York, Providence, and Boston Railroad. The line west from Stonington to Groton opened in 1858, and a car ferry, located just north of the project area, carried the trains across the Thames to the line in New London (Figure 11). In 1864, after restructuring, the New Haven and New London Railroad was reorganized as the Shore Line Railroad. In 1889, a bridge was constructed north of the project area, permitting trains to cross the Thames without the ferry (Figure 12). Many spur lines were constructed to connect the Shore

Line Railroad to various factories or warehouses. The path of a spur line, which looks to be in the same location of the original line that led to the ferry, is still extant on the Electric Boat property (Figure 1).

Aerial photographs showing the project area are available from 1934 through the 1990s. The 1934 Fairchild Series aerial photograph shows significant development in the APE vicinity, including the railroad tracks leading to the east bank of the Thames (Figure 13). The photograph also shows that the shoreline configuration was different than it is today, particularly in what is now the South Yard. By 1951 (Figure 14) the EB property was more heavily developed and some landmaking had been carried out in the northern part of the APE. The 1965 aerial photograph (Figure 15) shows a similar bank configuration, but by 1970 (Figure 17) the outline of the South Yard area looks much as it does today (see Figure 1). This suggests a landmaking event in the APE in the late 1960s. Based on the aerial photographs, most of the South Yard portion of the project area did not exist before 1965.

E. Review of Historic Structures

Figure 3 shows the structures in the South Yard that are slated for removal as part of the proposed undertaking. Data compiled by General Dynamics indicates that the structures numbered 68 and 166 were built after 1975. Structure 134 was constructed ca. 1971, 232 was built in about 1969, and 273 was built around 1973. No data is available for structures 261, 275, and 424 (Diane Mas, Fuss and O'Neill, Inc., email communication, January 24, 2018). This information substantiates data gathered from historic aerial photographs. As discussed in the previous section, most of the South Yard portion of the project area did not exist before 1965. Comparison of the 1970 and 1985-86 aerials (Figures 16 and 17) indicates that the South Yard structures slated for removal appear to have been built after 1970. The pier that will be removed also does not appear on the 1965 or 1970 aerials. Therefore, these structures are not National Register-eligible.

III. SUMMARY AND RECOMMENDATIONS

Review of historic maps and aerial photographs indicates that the APE saw heavy industrial development in 20th century. Additionally, much of the proposed impact area is located on land that was artificially created by filling and landmaking in the second half of the 20th century. The structures slated for removal, including a pier and several buildings, were all constructed on that man-made land in the late 20th century. As such, there is little to no potential for intact archaeological deposits or historically significant structures to be present within the APE. Review of CTSHPO files and the NOAA AWOIS also indicates that there are no significant underwater cultural resources in the project area. The history of land use in the APE indicates that the project area has low sensitivity for cultural resources and the proposed project is unlikely to impact significant archaeological resources or stranding structures. No additional cultural/historical resource investigations are recommended because they are very unlikely to identify significant archaeological or historical resources.

IV. REFERENCES

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APPENDIX I

Figures

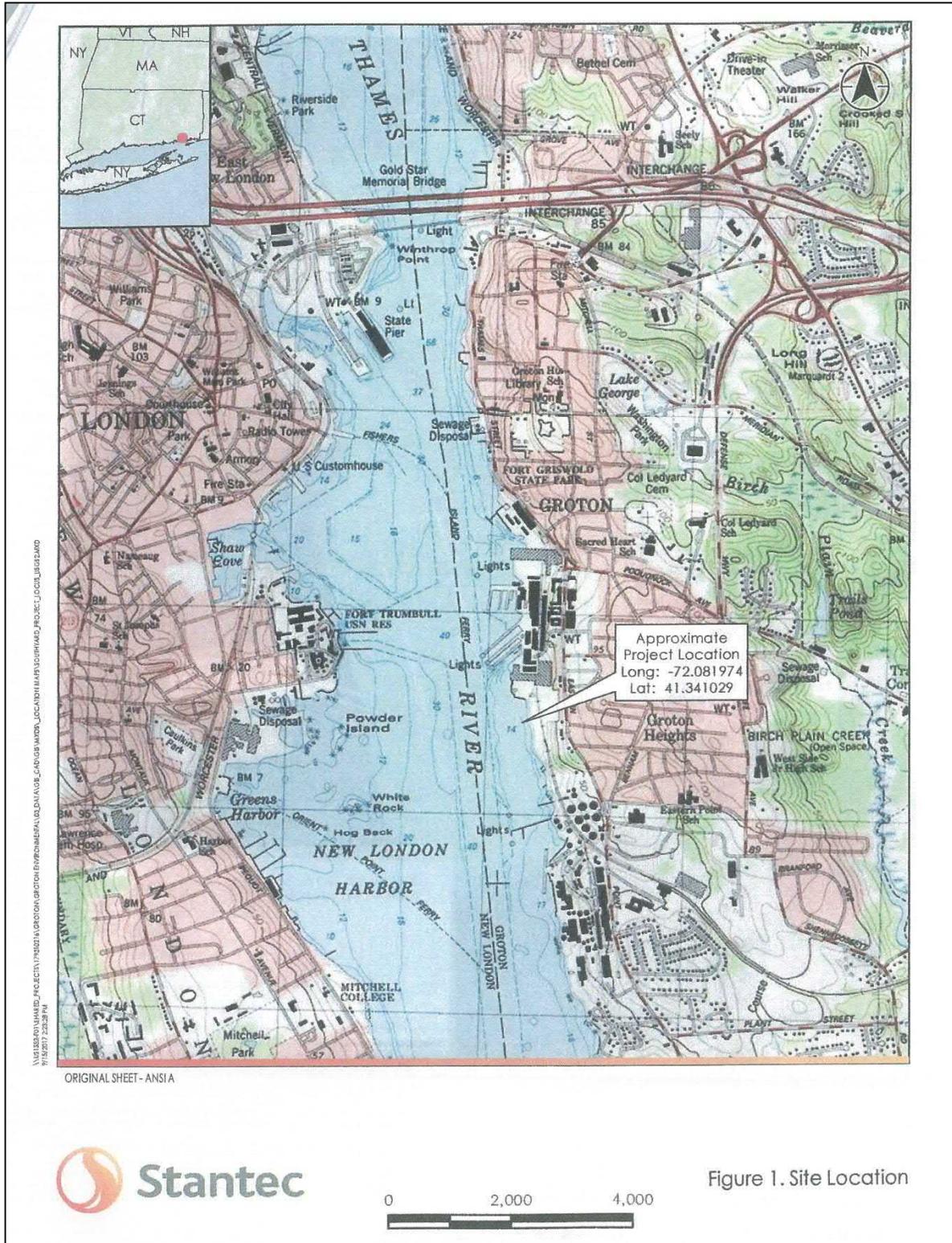


Figure 1: Project area location.

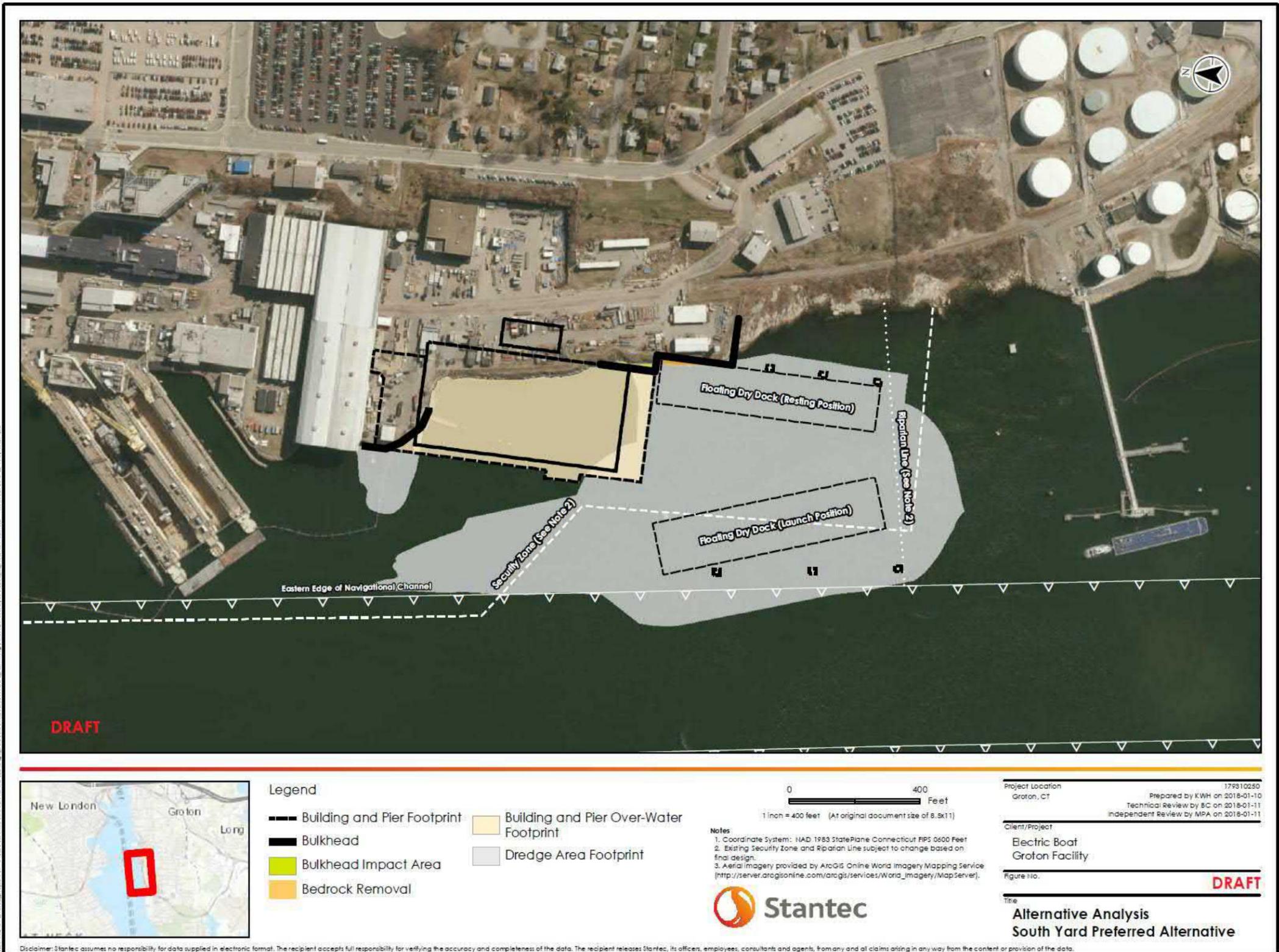
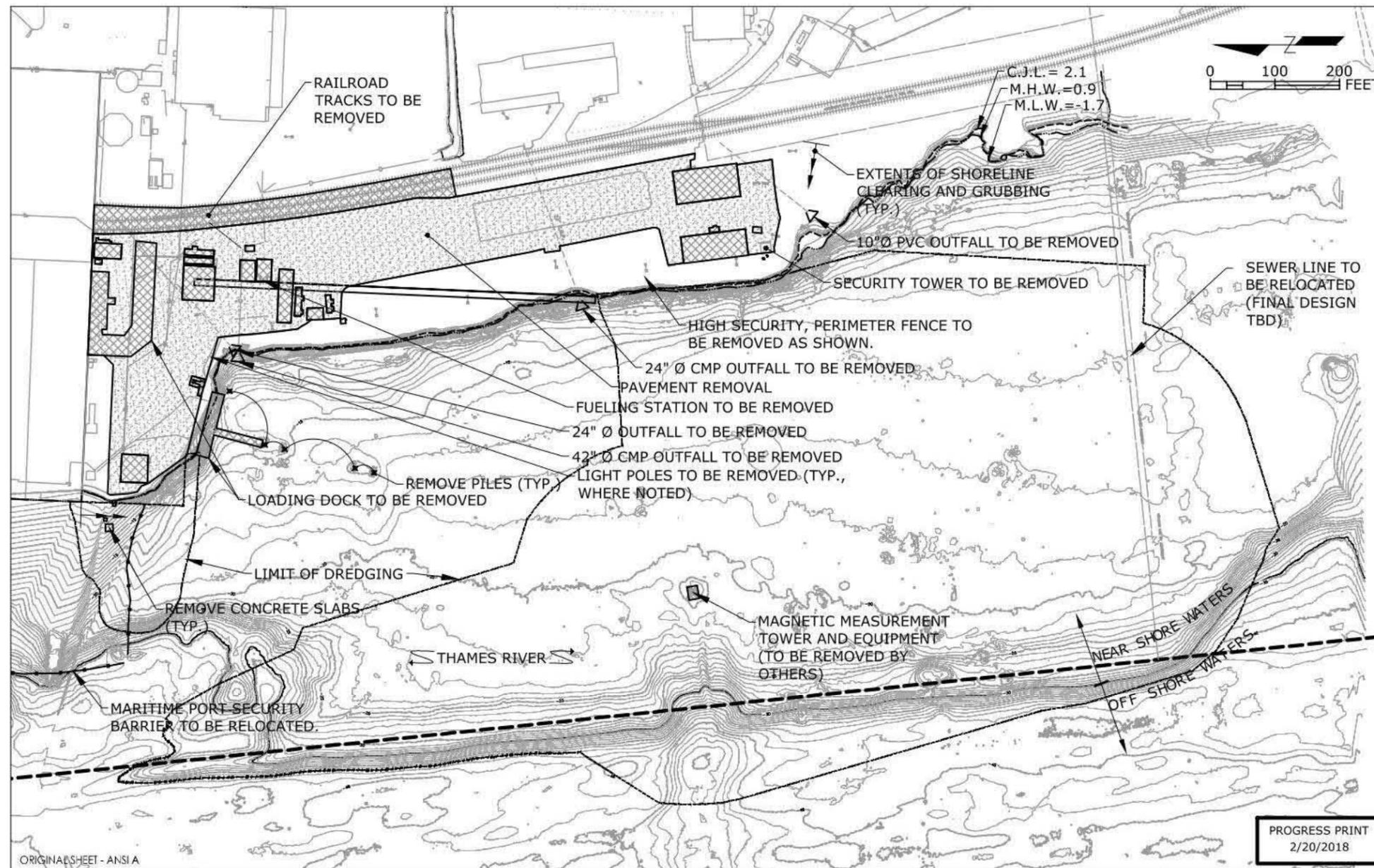


Figure 2: Project Plans.



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Figure No.
 C-103

Title
 DEMOLITION PLAN

Figure 3: Map of the project area, showing structures slated for removal.

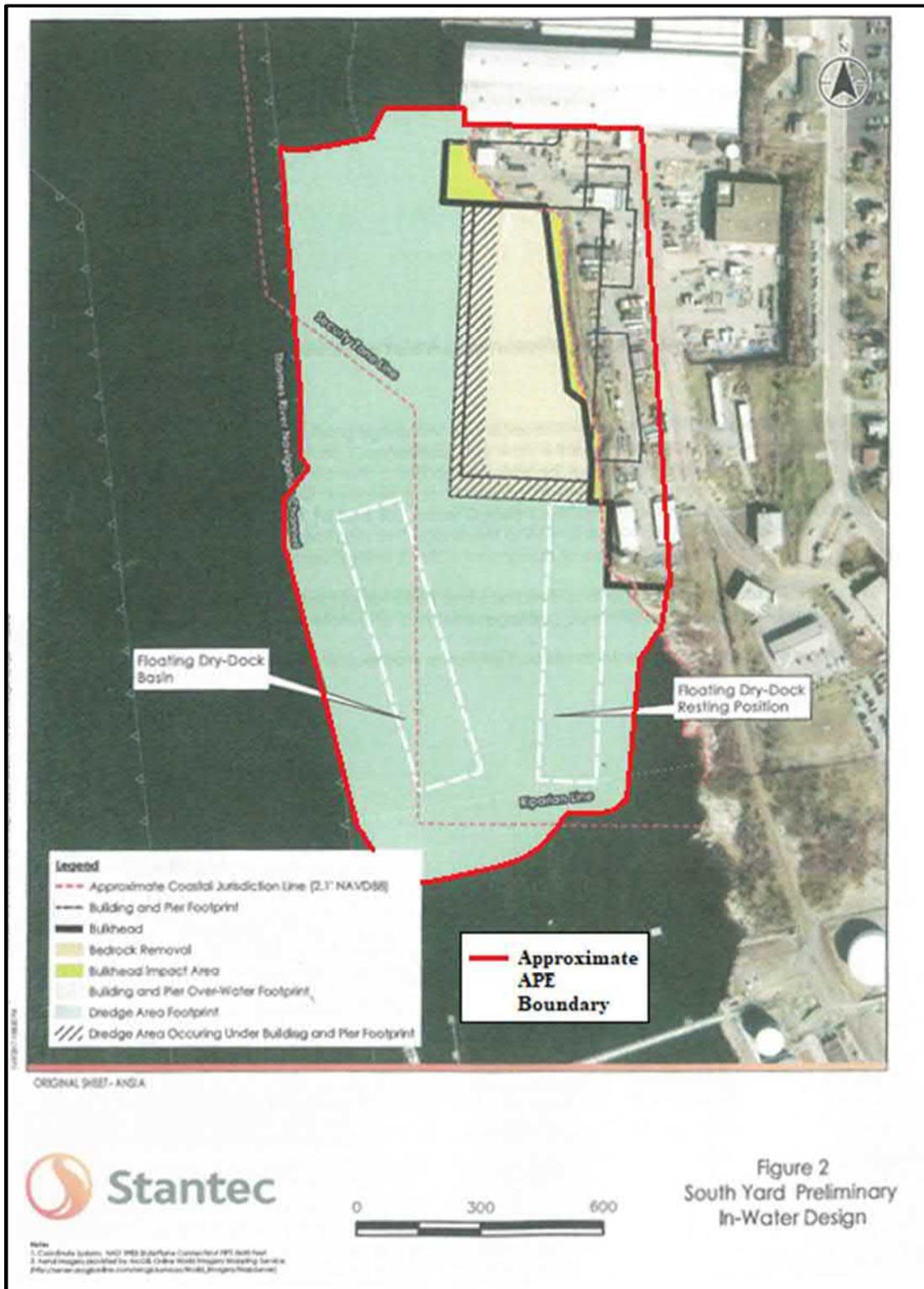


Figure 4: Area of Potential Effect.



Figure 5: NRCS Web Soil Survey map, showing mapped soils in the APE vicinity.

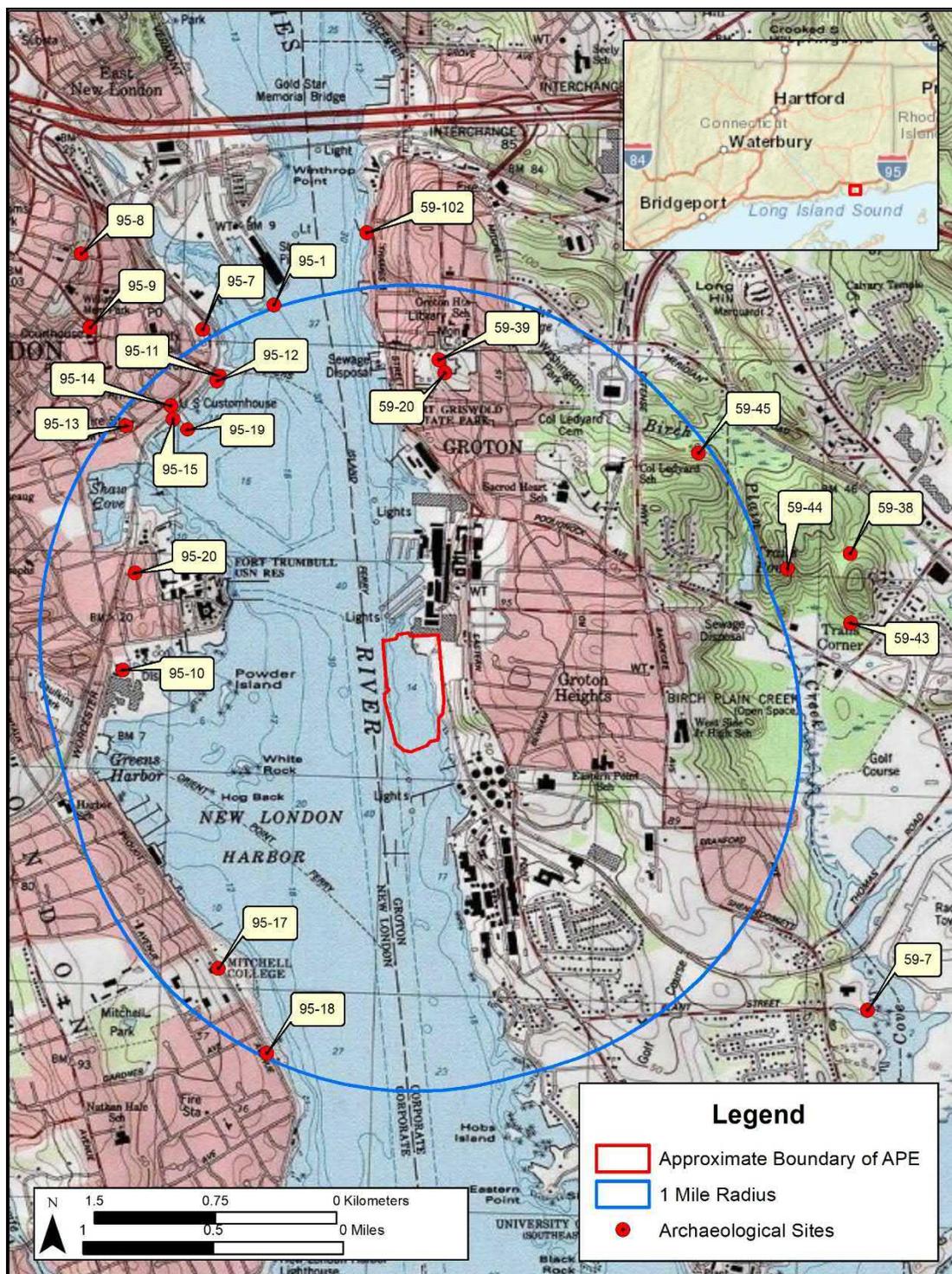


Figure 6: USGS topographic map showing the approximate APE and documented archaeological sites within one mile.

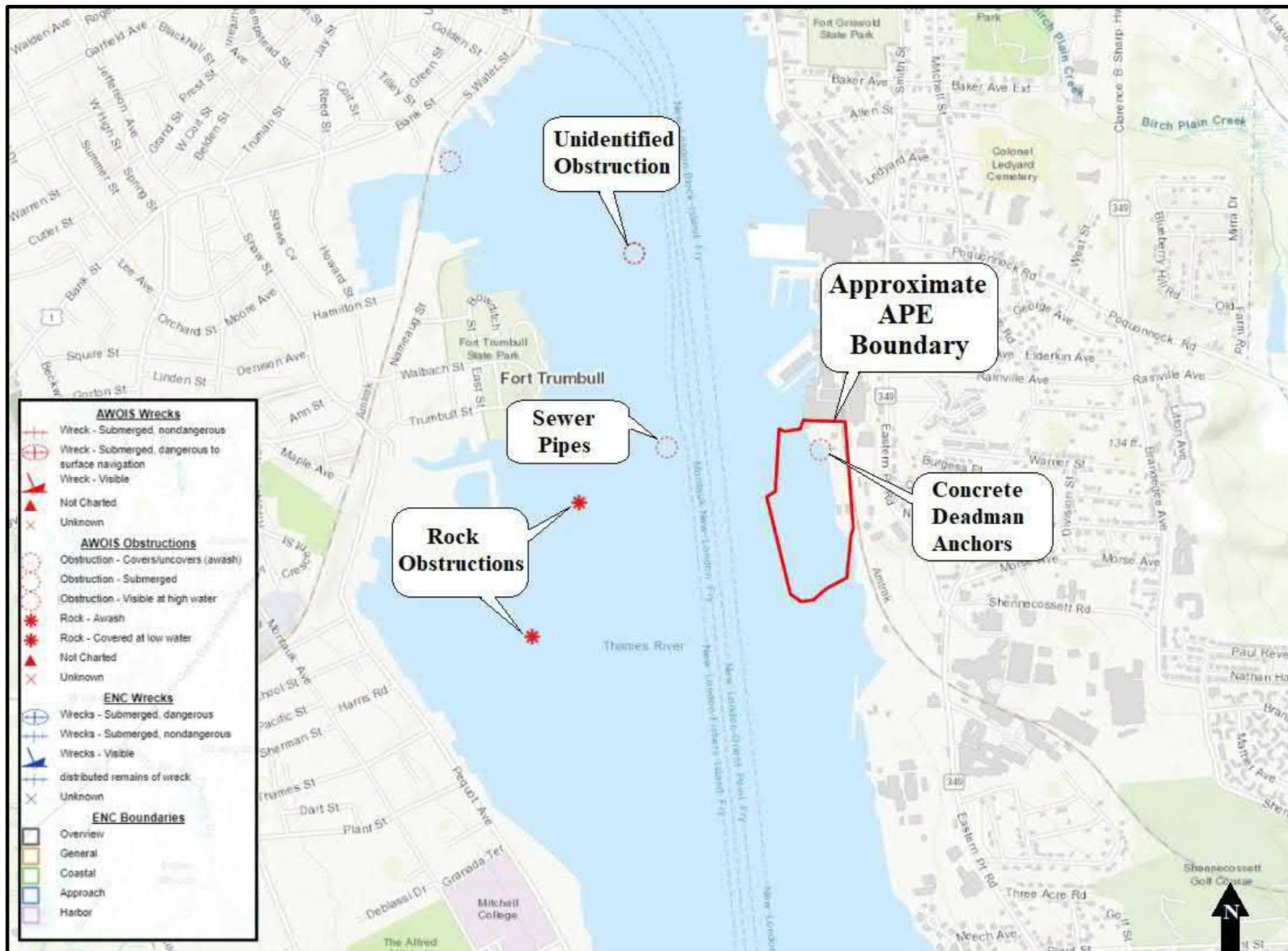


Figure 7: NOAA AWOIS map, showing documented obstructions in the APE vicinity.

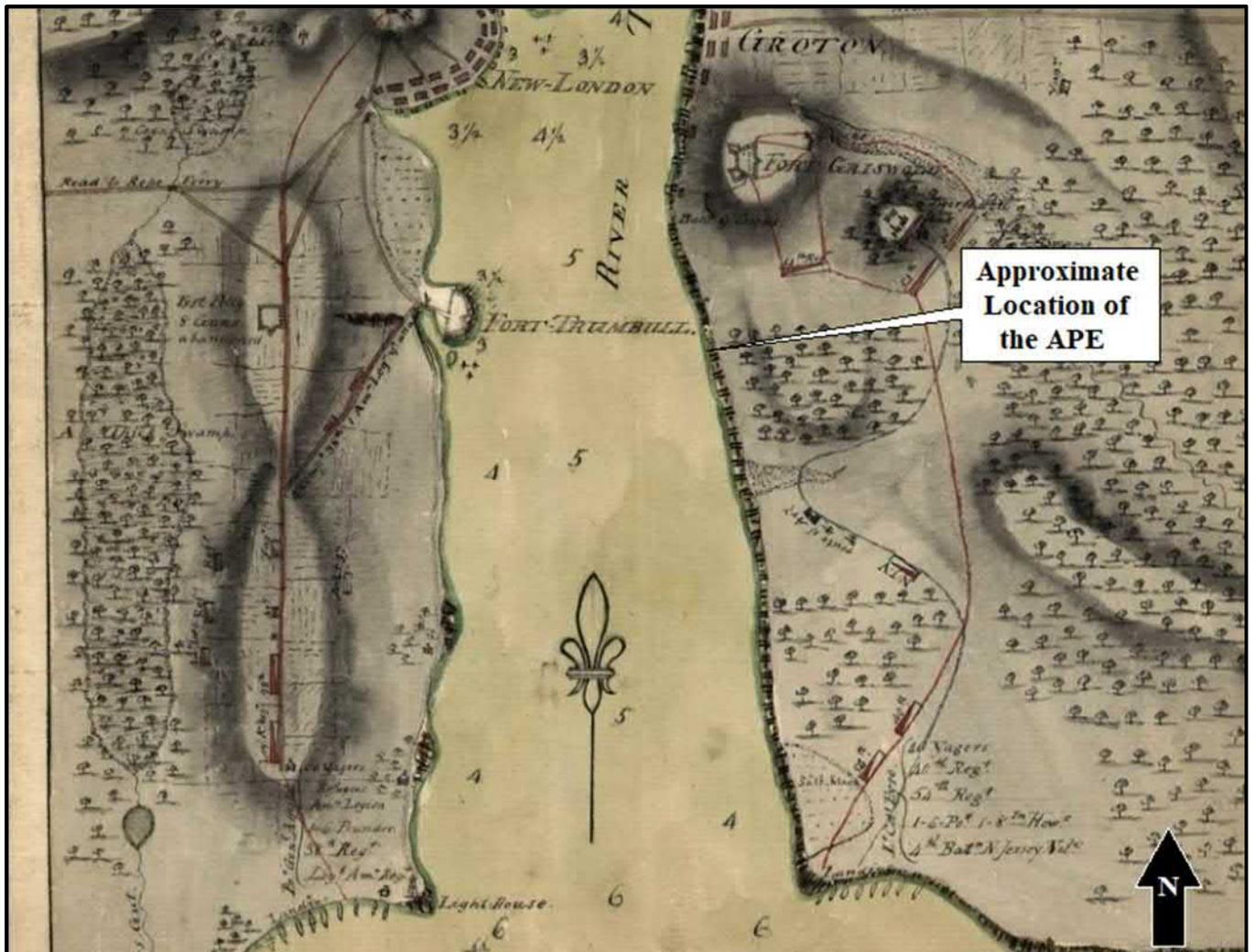


Figure 8: Detail, 1781 map of New London and Groton (Lyman 1781), showing the approximate APE location.

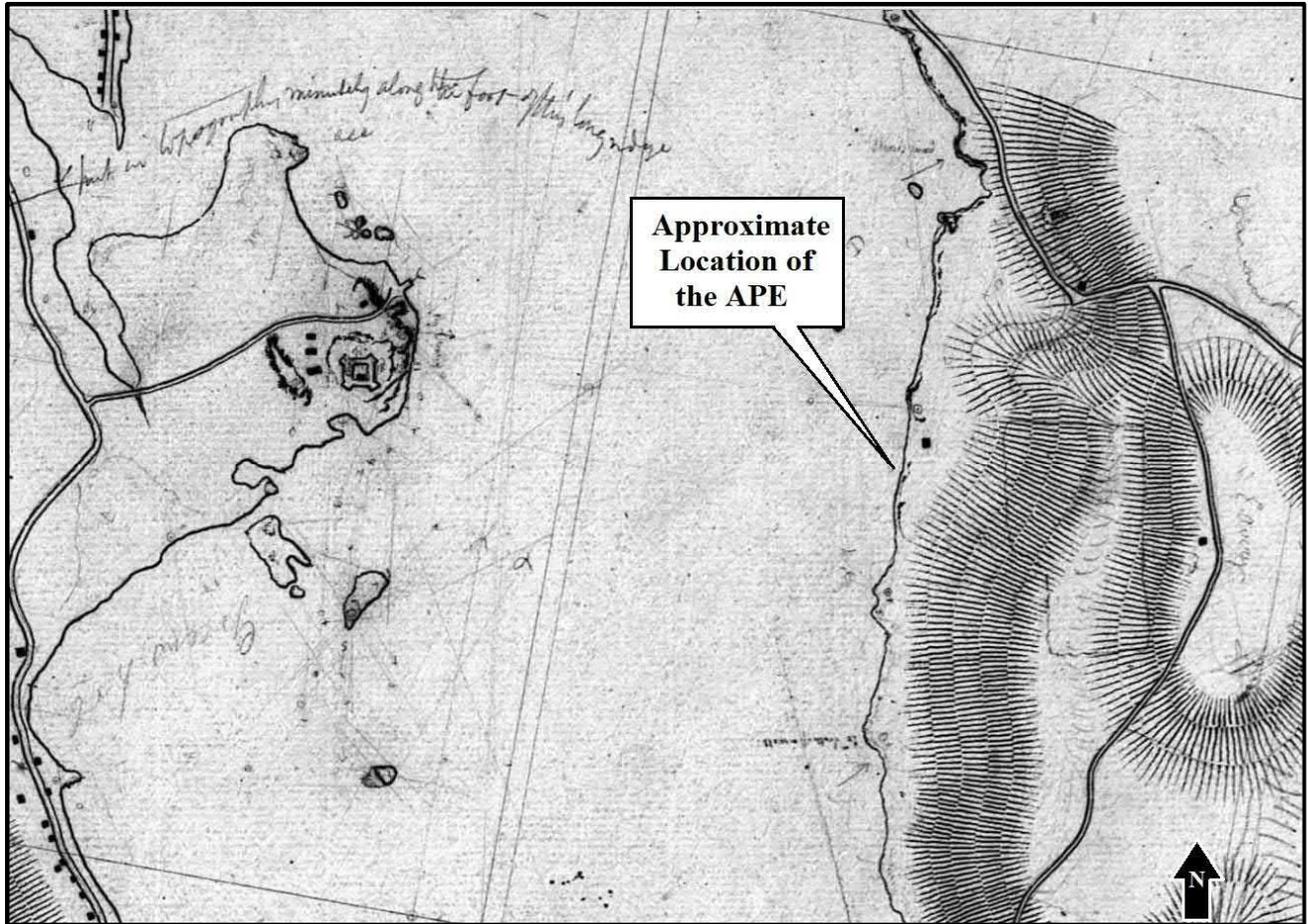


Figure 9: Detail, 1838 U.S. Coast Survey map, showing the approximate location of the APE.

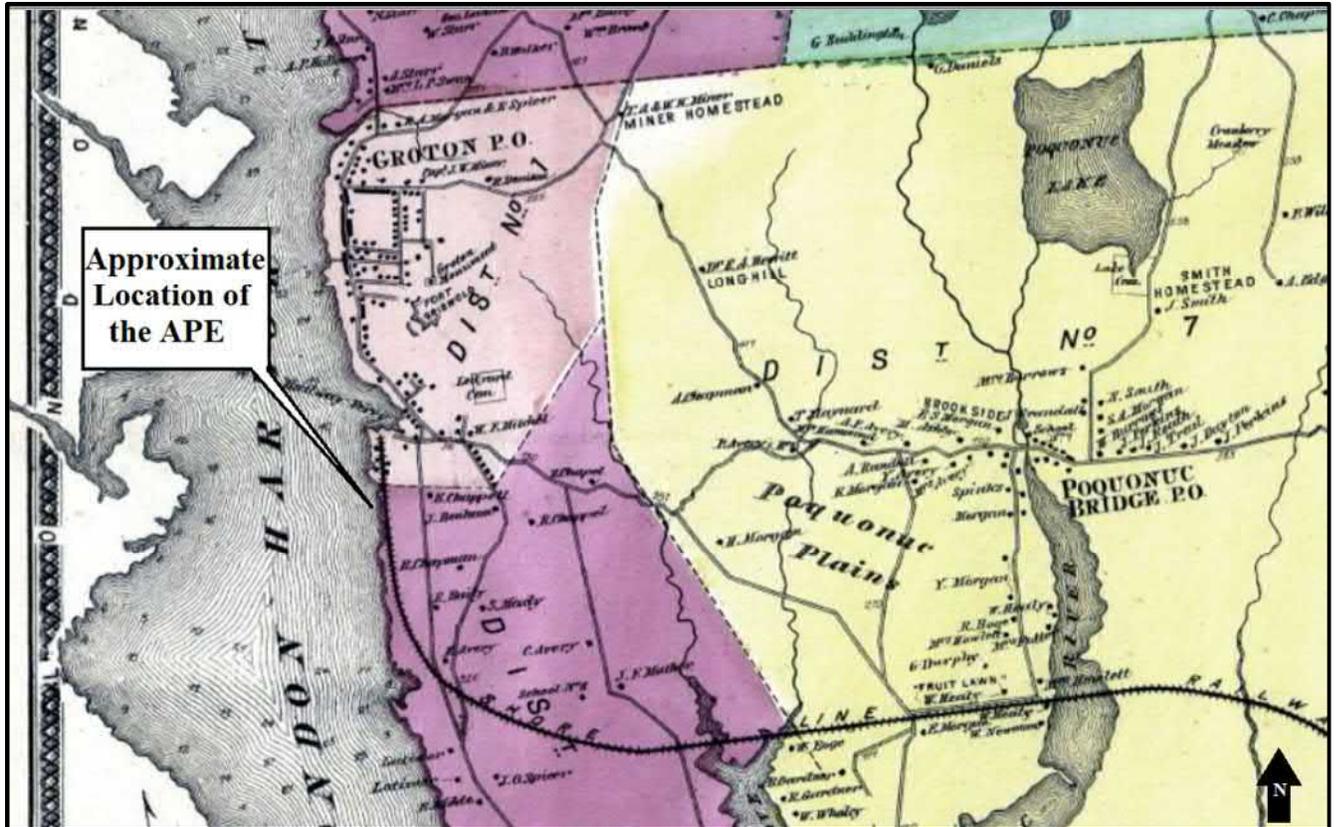


Figure 10: Detail, 1868 Beers map of New London County, showing the approximate location of the APE.

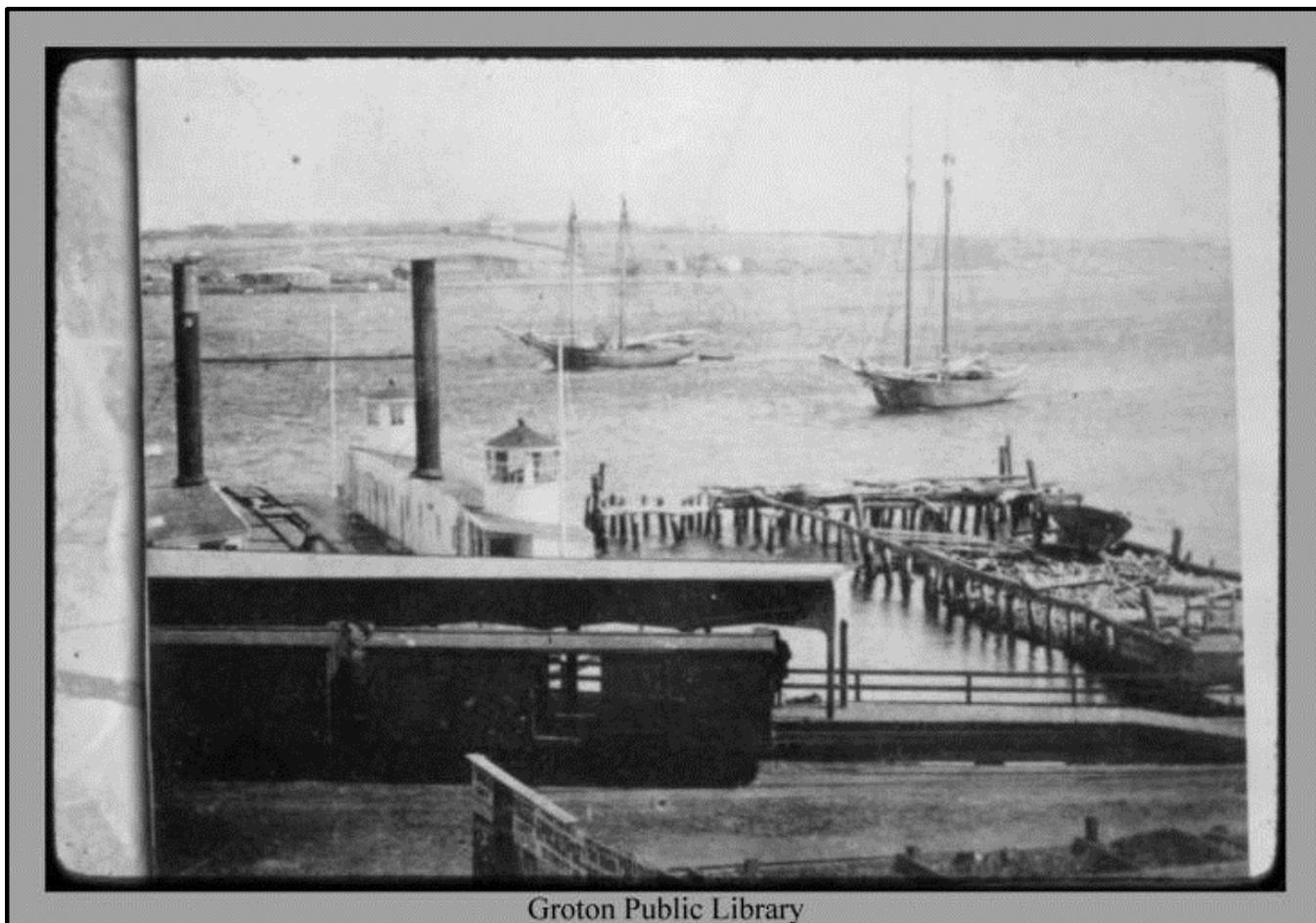


Figure 11: Photograph, showing the railroad ferry across Thames River before 1889, on file at the Groton Public Library.

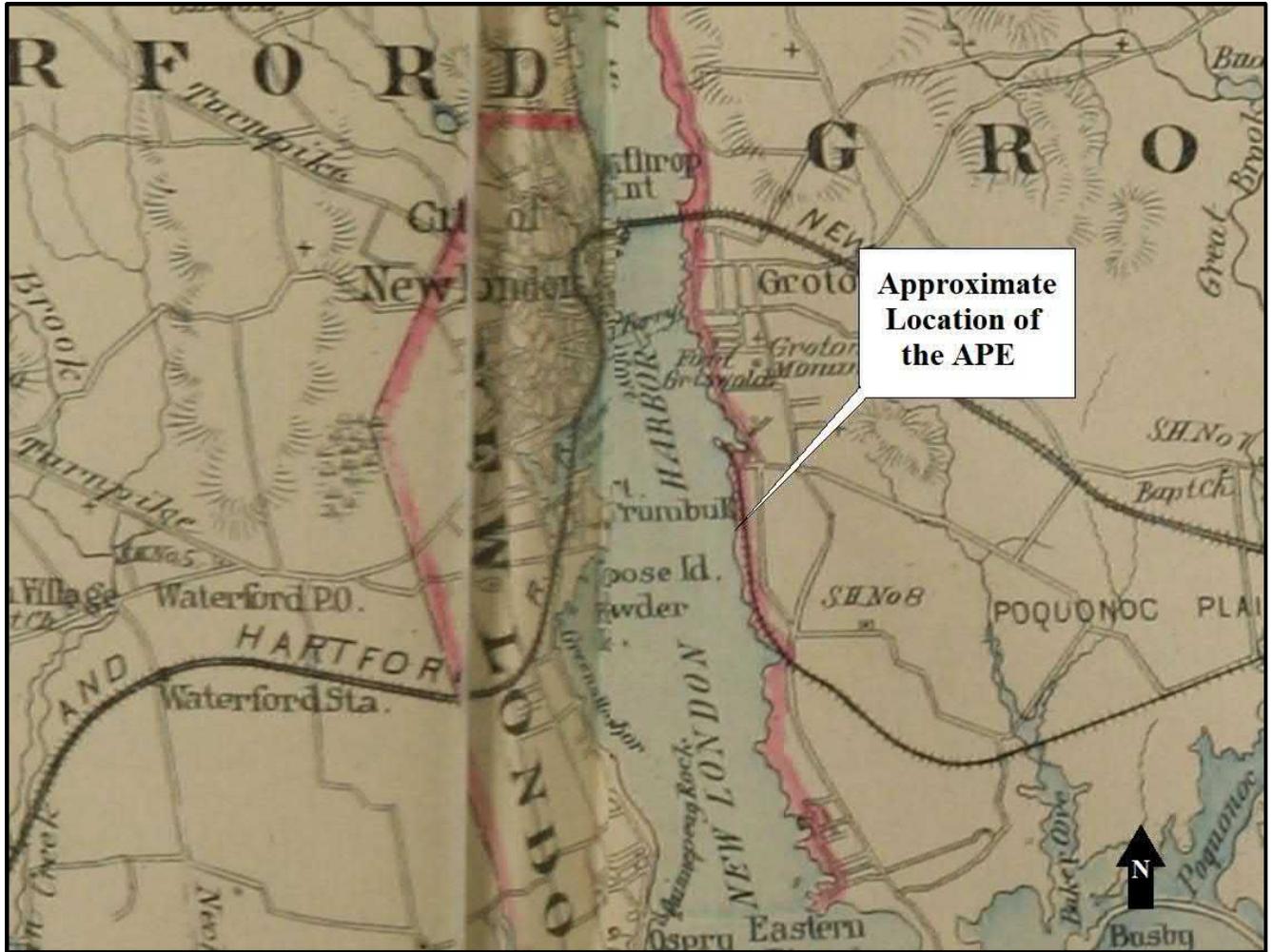


Figure 12: Detail, 1893 Hurd map of New London County, showing the approximate location of the APE and ca. 1889 railroad bridge north of the project area.

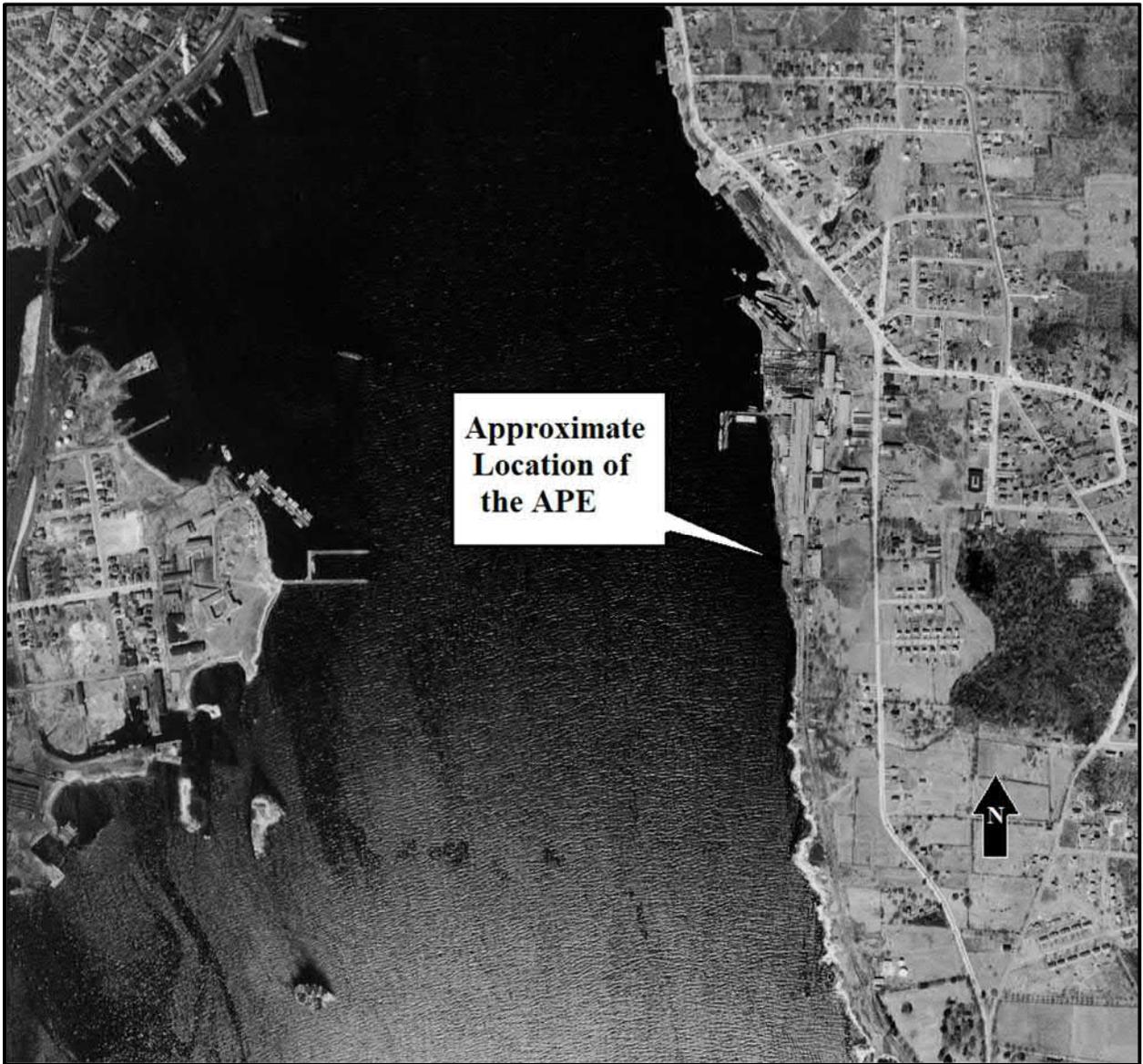


Figure 13: Detail, 1934 Fairchild Series aerial photograph, showing the APE vicinity.

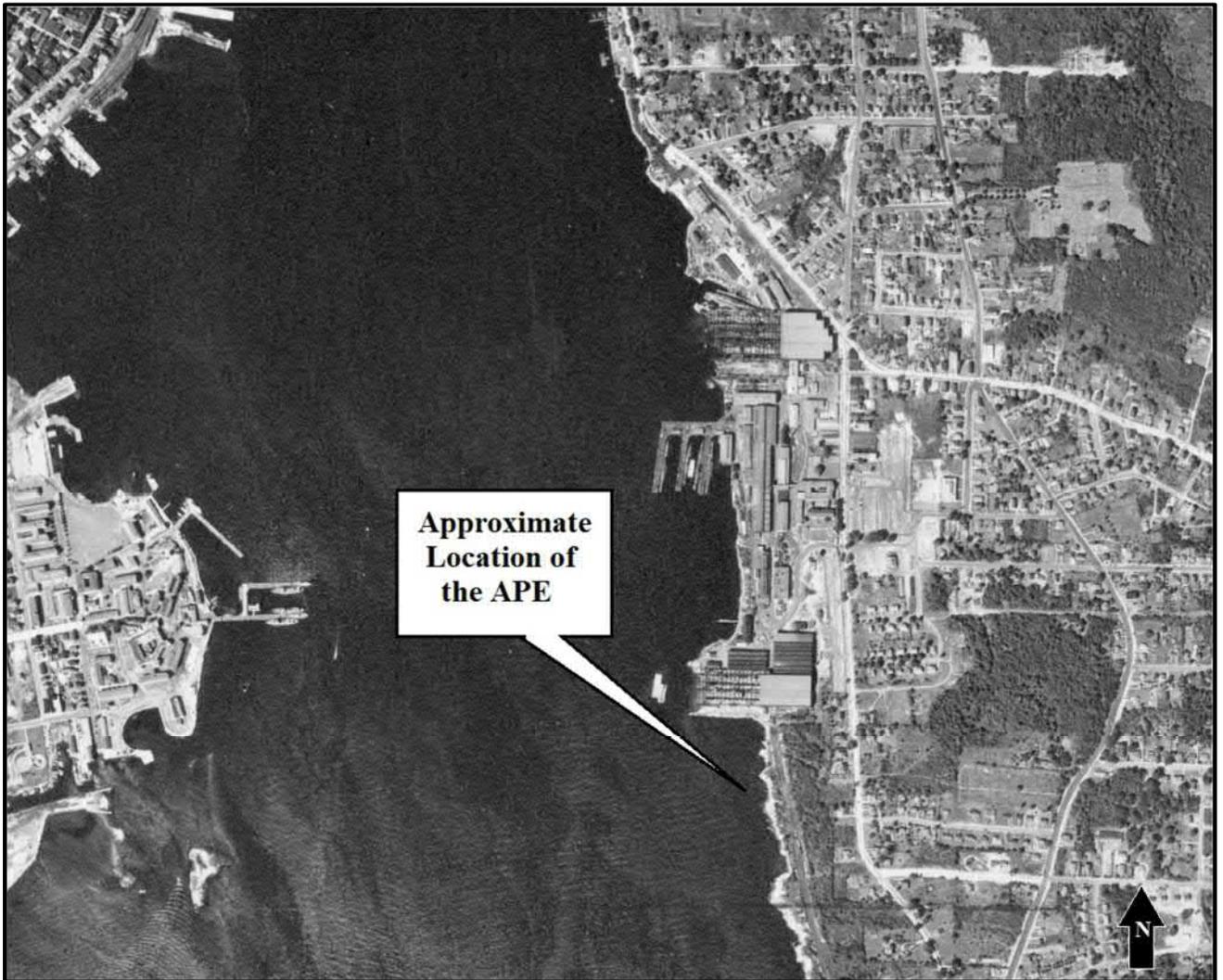


Figure 14: Detail, 1951 aerial photograph, showing the APE vicinity.

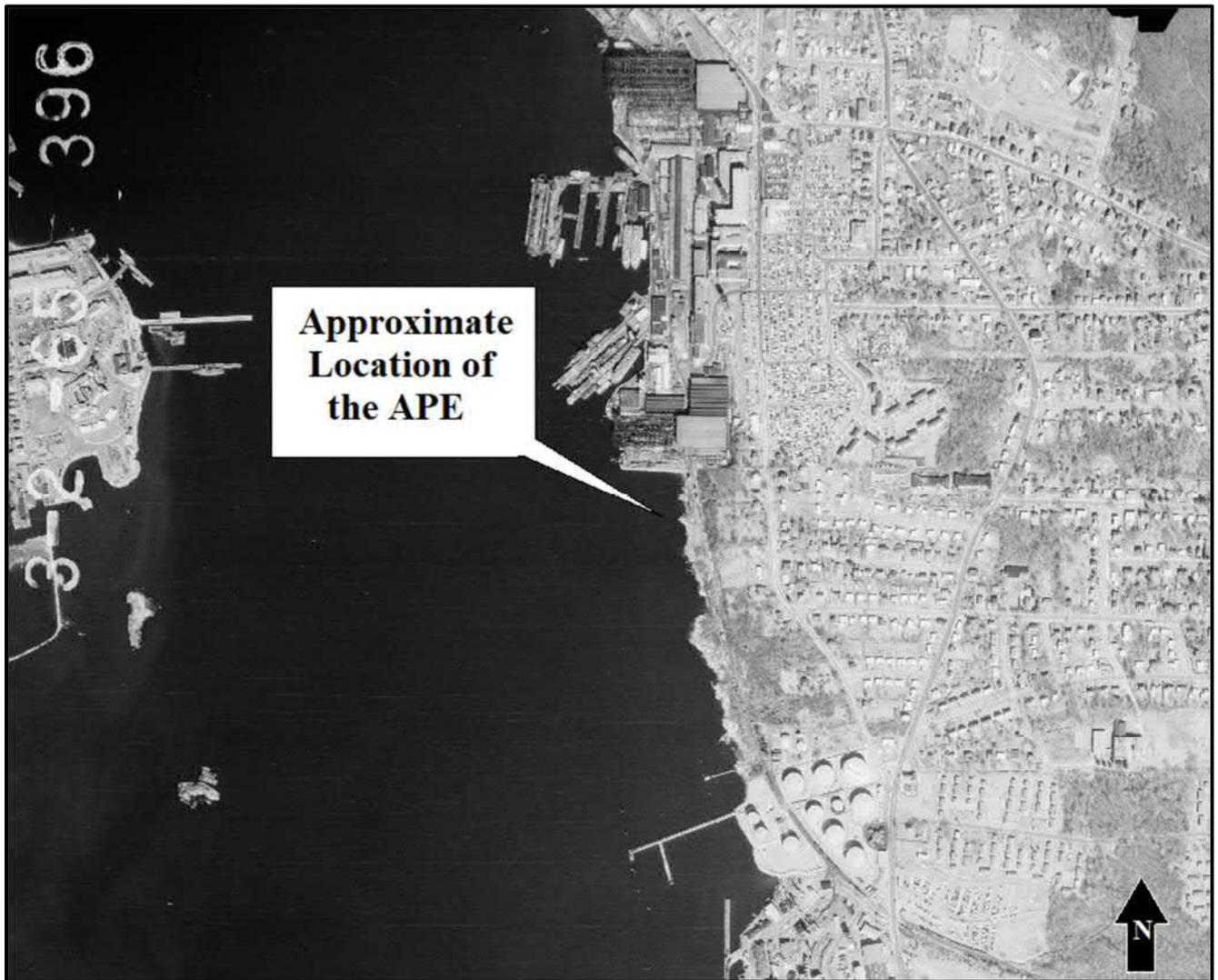


Figure 15: Detail, 1965 aerial photograph, showing the APE vicinity.

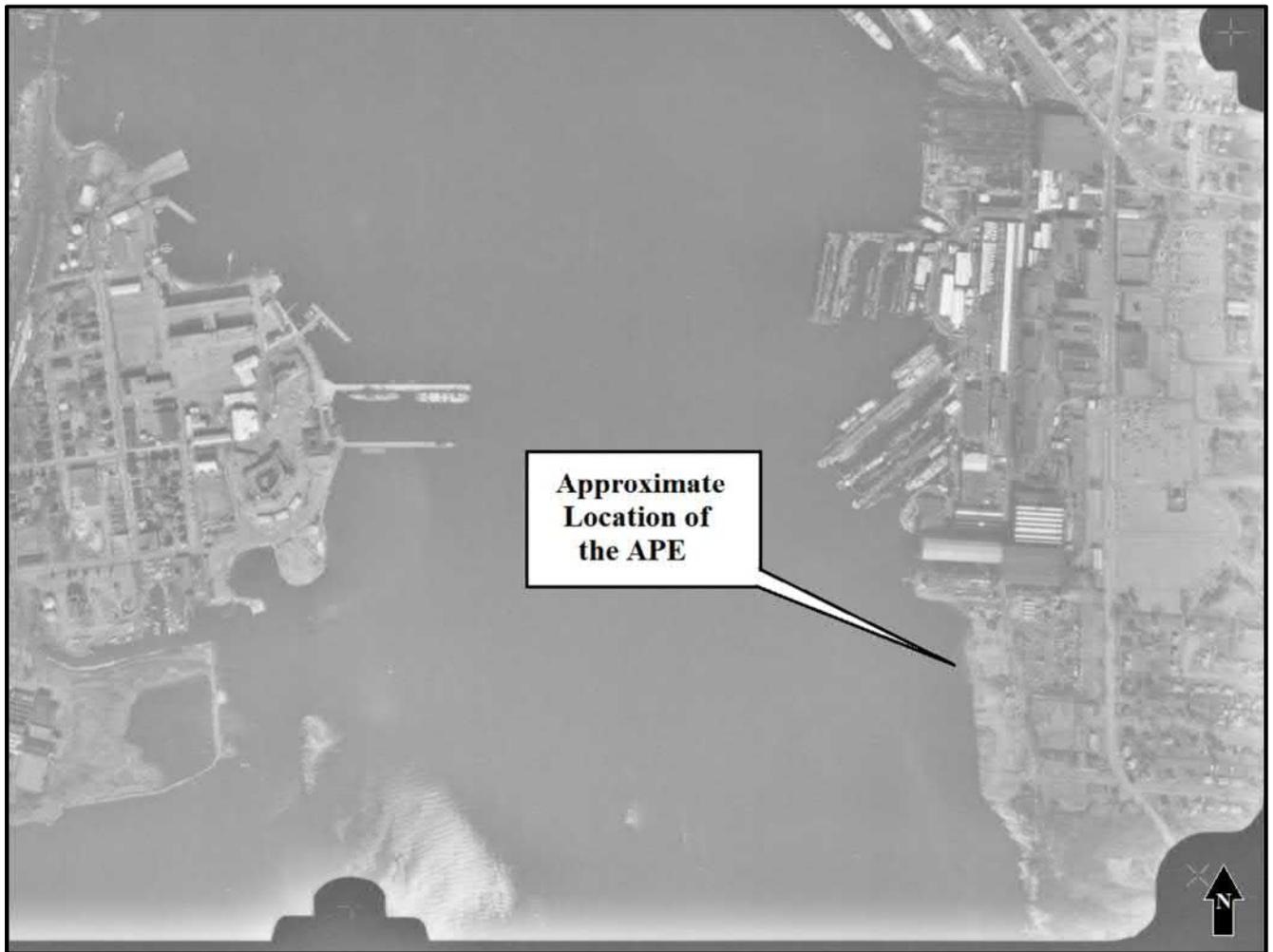


Figure 16: Detail, 1970 aerial photograph, showing the APE vicinity.



Figure 17: Detail, 1985-86 aerial photograph, showing the APE vicinity.