FINAL REDACTED
TECHNICAL REPORT

NEW BEDFORD HARBOR SUPERFUND SITE
ARCHAEOLOGICAL ASSESSMENT
ACCESS ROADS AND LAYDOWN AREAS

PHASE I (INTENSIVE) ARCHAEOLOGICAL SURVEY
HARDING I AND HARDING II SITES

PHASE II SITE EXAMINATION
OSPREY, PEAR ISLAND, LACUYERS,
LAWSON, COMM, AND DOCK SITES

Acushnet and Fairhaven, Massachusetts

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MANAGEMENT ABSTRACT

The Jacobs Engineering Group (Jacobs) is contracted by the U.S. Environmental Protection Agency (EPA) to conduct remediation of contaminated soils and sediments within the marine and terrestrial portions of Operable Unit #1, Upper and Lower Harbor of the New Bedford Harbor Superfund Site (NBHSS), in Acushnet and Fairhaven, Massachusetts. CR Environmental, Inc. (CR) is assisting Jacobs with environmental site characterization and permitting for the NBHSS Project.

The Public Archaeology Laboratory (PAL) conducted subsurface investigations of previously identified sites within areas of planned or potential soil remediation: supplemental Phase I (intensive) archaeological surveys of the pre-contact Harding I and Harding II sites and Phase II site examinations of the pre-contact Osprey, Pear Island, Lacuyers, Lawson, and Comm sites and the post-contact Dock Site. The Area of Potential Effects (APE) for soil remediation activities included 25-foot (ft) confirmatory buffers (buffers) around each proposed remediation area. Additional efforts may be needed to address contaminated soils if post-remediation testing within the buffers exceeds the relevant regulatory thresholds.

No pre-contact cultural materials were recovered during the Phase I (intensive) surveys of the Harding I and Harding II sites. Sediments from which pre-contact artifacts had previously been recovered at these two sites lack contextual integrity and have poor stratigraphic integrity. PAL recommends the Harding I and Harding II sites as not eligible for listing in the National Register of Historic Places (National Register) and no additional archaeological investigations of these resources are warranted.

Phase II site examination of the Osprey Site recovered lithic debitage, a quartz biface, Atlantic and Orient Fishtail projectile points, and a quartz preform and exposed a Native American hearth feature. The Osprey Site exhibits good integrity and has the potential to contribute new information about Transitional Archaic site selection, population movements, land use, and resource exploitation within the coastal or near-coastal zone of southeastern Massachusetts. PAL recommends the Osprey Site as eligible for listing in the National Register under Criteria A and D and recommends that the proposed environmental remediation avoid impacting the site. If avoidance is not feasible, PAL recommends a Phase III archaeological data recovery program to mitigate impacts to the Osprey Site.

A total of 270 pre-contact cultural materials were recovered from the portions of the Pear Island and Lacuyers sites within the APE. The full extent of each site has not been evaluated. The archaeological deposits have the potential to contribute new information about southeastern Massachusetts lithic procurement, small site occupation and use, and estuarine and/or riverine adaptations along the Acushnet River. PAL recommends the Lacuyers site as eligible for listing in the National Register under Criteria A and D. The Pear Island Site is likely eligible for listing in the National Register, though an undefined and uncharacterized portion of the site extends outside the APE. Proposed environmental remediation is unlikely to affect the sites. PAL recommends that soil disturbance be limited to the currently proposed remediation area, exclusive of the 25-ft buffer, near both the Lacuyers and Pear Island sites. If Project plans are revised to extend further landward and impact the Lacuyers and Pear Island sites, then PAL recommends mitigating adverse impacts to the site through the development and implementation of a Phase III archaeological data recovery program.

Subsurface testing during the Phase II survey of the Lawson Site did not yield any artifacts, but 14 pre-contact cultural materials including 7 quartz and 1 quartzite flake, 1 utilized quartz flake, 2 quartz cores, 1 rhyolite Brewerton project point, 1 quartz Levanna point fragment, and 1 Genesee point were recovered from the exposed tidal flat and adjacent marsh in redeposited, reworked, and/or deflated land surfaces that lack stratigraphic integrity. The Comm Site yielded a low to moderate density of lithic debitage, a biface, a

core, and a Brewerton projectile point. Additional archaeological excavation within the portion of the Comm Site in the 25-ft buffer for the NBHSS is unlikely to provide additional information about the site. PAL recommends the Lawson Site and the portion of the Comm Site within the buffer as not eligible for listing in the National Register, and no additional archaeological investigations are warranted.

Phase II site examination of the Dock Site yielded a low density of nineteenth- and twentieth-century household and construction debris in imported fill deposits over natural marsh sediments. Visible structural landscape features consist of a stone and berm border and a stone-lined culvert and crossing. Documentary research and field investigations determined that these features are most likely the result of twentieth-century shoreline stabilization measures and property management efforts by abutting landowners. The structural landscape features and recovered post-contact materials have limited information content and complexity and low historical research value. PAL recommends the Dock Site as not eligible for listing in the National Register, and no additional archaeological investigations are warranted.

Jacobs/CR also contracted with PAL to conduct an archaeological assessment (reconnaissance survey) of proposed equipment and machinery shoreline access roads and equipment laydown areas for upcoming environmental remediation within the NBHSS Project area. The proposed environmental remediation project will raise temporary access roads above the natural surface grade; no tree stump removal is proposed along these roads. The proposed access roads and laydown areas are in areas of low, moderate, and high sensitivity for containing archaeological deposits. Temporary access roads target existing access roads or disturbed areas where possible and will be raised above the natural surface grade. No stump grubbing is proposed. Construction of Project access roads and laydown areas will not impact any known archaeological deposits, and PAL recommends that the installation of Project access roads and laydown areas proceed as planned.

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CHAPTER ONE

INTRODUCTION

This report presents the results of archaeological investigations conducted by The Public Archaeology Laboratory, Inc. (PAL) for the New Bedford Harbor Superfund Site (NBHSS) Project in Acushnet and Fairhaven, Bristol County, Massachusetts: an archaeological assessment (reconnaissance survey) of proposed access roads and associated laydown areas; supplemental Phase I (intensive) archaeological surveys of the Harding I and II sites; and Phase II site examinations of the Osprey, Pear Island, Lacuyers, Lawson, Comm, and Dock sites.

Project Description

The U.S. Environmental Protection Agency (EPA) is overseeing remedial design activities for Operable Unit #1 of the Upper and Lower Harbor of the proposed NBHSS Project. Sediments within much of New Bedford Harbor have been contaminated by high concentrations of pollutants, most notably polychlorinated biphenyls (PCBs), heavy metals, oils, and greases, which were discharged into area waters by local industries, development, and urban expansion and distributed about the harbor and Acushnet River by coastal, fluvial, and meteorological processes. The environmental remediation activities include dredging, excavation, and the disposal of contaminated sediments. Confirmatory sediment/soil sampling at the boundary of remediated areas may be used to ensure sediments exceeding the relevant regulatory thresholds have been addressed.

The NBHSS extends from the shallow northern reaches of the Acushnet River estuary south through the commercial port of New Bedford Harbor and adjacent areas of Buzzards Bay (Figure 1-1). The Upper Harbor area extends slightly north of the Wood Street Bridge south to the Coggeshall Street Bridge. The Lower Harbor extends from the Coggeshall Street Bridge south to the New Bedford Hurricane Protection Barrier.

Authority

The proposed remediation activities are being conducted in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), which requires meeting the substantive requirements for federal and state permitting. PAL's archaeological investigations meet the standards outlined in Section 106 of the National Historic Preservation Act of 1966, as amended (54 USC 306108), and its implementing regulations (36 CFR 800); Massachusetts General Laws, Chapter 9, Sections 26–27C, as amended by Chapter 254 of the Acts of 1988 (950 CMR 71); the Department of the Interior's *Standards and Guidelines for Archeology and Historic Preservation*; the provisions of CERCLA and the National Contingency Plan (40 CFR 300); and OSHA Hazardous Waste Operations and Emergency Response (HAZWOPER) regulations (29 CFR 1910.120).

The Jacobs Engineering Group (Jacobs) is contracted by the EPA through the U.S. Army Corps of Engineers (USACE) to conduct remediation of contaminated soils and sediments within the marine and terrestrial portions of the NBHSS. CR Environmental, Inc. (CR) is assisting Jacobs with environmental site characterization and permitting. CR contracted with PAL to conduct Phase I (intensive) site identification and Phase II site examination for seven pre-contact and one post-contact archaeological sites within the

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Figure 1-1.

NBHSS Project's Area of Potential Effects (APE) in Acushnet and Fairhaven (Figures 1-2 and 1-3). David S. Robinson & Associates, Inc. (DSRA) serves as Jacobs' principal archaeological consultant for the NBHSS Project and is providing additional input due to the overlap of some archaeological resources subject to marine investigations at the NBHSS. Shoreline access roads and laydown areas for equipment and machinery have recently been defined (Figure 1-4). CR and Jacobs requested that PAL conduct additional archival research and a walkover survey to assess the archaeological sensitivity of the proposed NBHSS access roads and associated laydown areas.

History of Cultural Resource Investigations

Cultural resources investigations within the NBHSS have been ongoing since about 1999 beginning with the commencement of initial pilot and "early action" studies for the Project area (Kellog and Klein 2001a,b). JMA and PAL conducted Phase I (intensive) archaeological surveys[1] of the NBHSS in 2001–2003 (Chadwick and Klein 2003; Waller and Robinson 2004a). Marine archaeological investigations for the Project were also conducted by Dolan Research, Inc. (Cox 2000). David S. Robinson & Associates, Inc. (DSRA) and Fathom Research, LLC (Fathom), working with CR, conducted supplemental marine archaeological site identification surveys of the marine and intertidal portions of the NBHSS previously investigated by JMA. These supplemental surveys were initiated after the 2009 unanticipated discovery of a submerged and buried late eighteenth-century shipwreck in the Upper Harbor section of the NBHSS (Robinson and Wright 2011, 2013, 2014; Robinson, Robinson, and Wright 2015; Robinson et al. 2010).

[1] Early site identification surveys were labeled "Stage IB surveys."

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Figure 1-3.

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Figure 1-4.

The 2001–2003 JMA and PAL surveys identified 11 archaeological sites (Beech, Comm, Dock, Frag, Hadley, Harding I, Harding II, Lacuyers, Pear Island, Osprey, and Trust sites) within the onshore and intertidal portions of the NBHSS Project APE (see Figure 1-2). The archaeological surveys also confirmed that portions of the previously reported Acushnet Slough, Lawson, and Swift pre-contact sites were within the Project study area. The Acushnet Slough, Beech, Comm, Dock, Frag, Hadley, Harding I, Harding II, Lacuyers, Lawson, Pear Island, Trust, and Swift III archaeological sites were considered potentially eligible for listing in the National Register (Chadwick and Klein 2003) and might be affected by the scope of the environmental remediation proposed in 2003.

In 2003, the Massachusetts Historical Commission (MHC) commented on the results of the Phase I survey and concurred with JMA's recommendations that the Swift III, Frag, Trust, Pear Island, Hadley, Lacuyers, Acushnet Slough, Lawson, Comm, and Beech Sites constituted potentially significant archaeological resources and that impacts to these sites should be avoided (MHC letter to U.S. Army Corps of Engineers–New England District [USACE]), April 18, 2003). If avoidance of these sites was not possible, the MHC recommended that a Phase II archaeological site examination be conducted at the sites to determine their eligibility for listing in the State and National Registers.

The MHC noted that pre-contact Native American cultural materials were collected from the Harding I and Harding II sites. Phase I site identification efforts were minimal during the JMA surveys at these sites due to the adverse field conditions and the presence of eroded or deflated soil deposits. Accordingly, the MHC requested supplemental Phase I (intensive) archaeological testing of the Harding I and Harding II sites to determine if either site contained intact and potentially significant subsurface archaeological deposits. Subsequent to JMA's 2001–2003 archaeological studies, PAL conducted a supplemental terrestrial Phase I site identification archaeological survey within Areas 03-1, 03-2, 03-3, 03-4, and 05-5 of the NBHSS (Waller and Robinson 2004a), which identified the pre-contact Osprey Site west of South Main Street in Fairhaven. PAL recommended the Osprey Site as potentially eligible for listing in the State and National Registers and that a Phase II archaeological site examination be conducted for the Osprey Site if site avoidance was not feasible (Waller and Robinson 2004a).

A supplemental terrestrial Phase II archaeological site examination in 2003 and 2005 conducted within portions of the Swift III archaeological site slated for environmental remediation yielded a range of pre-contact cultural materials dating to the Late/Transitional Archaic, Middle Woodland, and Late Woodland periods (Waller 2006; Waller and Robinson 2004b). The results of testing in the portion of the site within the APE were inconclusive regarding the National Register eligibility of the Swift III site; however, PAL recommended that the scope of the completed investigations sufficiently characterized the site area subject to disturbance and that no further excavations were warranted for the planned soil remediation (Waller 2006).

PAL Scope

The goal of the archaeological assessment (reconnaissance survey) was to assess the archaeological sensitivity for the proposed NBHSS Project shoreline remediation access roads and equipment laydown areas. The supplemental Phase I (intensive) archaeological survey was conducted to determine if the Harding I and Harding II sites contain archaeological resources potentially eligible for listing in the State and/or National Registers and to collect information about each site's boundaries, content, and integrity. The Phase II archaeological site examinations of the Osprey, Pear Island, Lacuyers, Lawson, Comm, and Dock sites were conducted to evaluate each site's eligibility for listing in the State and/or National Registers.

PAL conducted the archaeological assessment for the proposed remediation area access roads and associated laydown areas and the supplemental Phase I (intensive) archaeological surveys and Phase II site

examinations under State Archaeologist's Permit No. 3661 issued by the MHC on June 16, 2016, and under Provisional and Formal Special Use Permit No. 16-002 issued by the Massachusetts Board of Underwater Archaeological Resources (BUAR) on September 29, 2016. The Phase I and Phase II investigations were conducted for those archaeological sites within the NBHSS proposed remediation area APE, including 25-ft (7.6 m)[2] buffers. The APE is "the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character of or use of historical properties, if any such properties exist" (36 CFR 800.16[d]). The APE is defined based on the *potential* for effect and may include all areas where the ground may be disturbed, where land use (access drives, roadways, staging areas, etc.) may change, or any locations that may be indirectly affected by an undertaking. Pursuant to 36 CFR 800.4(a)(1), the federal agency (the EPA) is responsible for determining the APE in consultation with the State Historic Preservation Officer (SHPO) or, if the undertaking will affect tribal lands, the appropriate Tribal Historic Preservation Officer (THPO).

Portions of the Lawson, Dock, and Comm sites are within the horizontal and vertical limits of planned soil remediation. Archaeological deposits from the Osprey, Pear Island, Lacuyers, Harding I, and Harding II sites lie entirely or partially within the 25-ft (7.6 m) buffers that border areas requiring soil remediation. To ensure full archaeological investigation coverage within the Project APE, PAL's archaeological investigations included testing within the 25-ft (7.6 m) buffers.

Measured total PCB concentrations in sediment cores for the Swift III, Acushnet Slough, Hadley, and Beech sites fall below remediation thresholds. Therefore, no soil remediation is planned at these sites and no project effects to these resources are anticipated. Remediation will be conducted at the Frag, Trust, Lacuyers, Comm, and Dock sites and portions of the Lawson, Harding I, and Harding II sites, where contaminated soils and sediments will be removed to a depth of 1 ft (30.48 centimeters below the current surface). JMA's Stage IB archaeological investigation recovered pre-contact cultural materials at an average of 58 cmbs (1.9 ft) and 74 cmbs (2.4 ft) at the Frag and Trust sites, respectively (Chadwick and Klein 2003), placing these sites below the vertical APE boundary. No project effects to the Frag or Trust sites are anticipated.

Key PAL personnel involved in the Phase I (intensive) and Phase II archaeological investigations meet the *Secretary of the Interior's Professional Qualification Standards* (36 CFR 61, Appendix A). All tasks associated with the Phase I (intensive) and Phase II investigations were undertaken in accordance with the *Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation* 44716–44742, National Park Service [NPS] 1983) and the MHC's *Public Planning and Environmental Review: Archaeology and Historic Preservation* (1979). This report follows the guidelines established by the National Park Service in *Recovery of Scientific, Prehistoric, and Archeological Data* (36 CFR 66, Appendix A).

Personnel

Fieldwork for the Phase I (intensive) and Phase II archaeological investigations for the NBHSS Project was conducted from September 28 to December 14, 2016. PAL personnel involved in the archaeological investigations were Deborah Cox (project manager), Joseph Waller Jr. and Suzanne Cherau (principal investigators), Ora Elquist and Jennifer Banister (project archaeologists), and Eric Fahey, Alex Flick,

[2] Both imperial and metric units and measurements are used in this report. PAL assumes that readers are most familiar with the imperial system. Imperial units are frequently used in the introductory chapters of this report and are used when referring to design plans, construction plans, or historical documents or when citing reference materials. Metric units are the universal standard for archaeological survey. Metric units are used in the archaeological survey sections and chapters of this report. Imperial equivalencies to metric units are reported for their first usage only in this report.

Kristen Jeremiah, Eric Lott, Nate Orsi, and Colin Stevenson (archaeologists). All laboratory work was conducted at PAL under the direction of Heather Olson (laboratory manager).

Disposition of PAL Project Materials

Artifacts recovered during the archaeological investigations are currently stored at Jacobs' Sawyer Street Facility in New Bedford, Massachusetts, with other artifacts previously recovered during investigations for the NBHSS Project. Associated documentary materials, including field forms, maps, and photographs, are currently on file at PAL, 26 Main Street, Pawtucket, Rhode Island. Jacobs and PAL serve as temporary curation facilities until the EPA, in consultation with the USACE and the MHC, designates a permanent repository.

CHAPTER TWO

RESEARCH DESIGN AND METHODS

The goal of the archaeological assessment (reconnaissance survey) was to assess the archaeological sensitivity for the proposed NBHSS Project shoreline remediation access roads and equipment laydown areas. The supplemental Phase I (intensive) archaeological survey was conducted to determine if the Harding I and Harding II sites contain archaeological resources potentially eligible for listing in the State and/or National Registers and to collect more information about each site's boundaries, content, and integrity. The Phase II archaeological site examinations of the Osprey, Pear Island, Lacuyers, Lawson, Comm, and Dock sites were conducted to evaluate each site's eligibility for listing in the State and/or National Registers. Three research strategies were used:

- Archival research, including a review of historical literature and maps;
- Field investigations, consisting of a "walkover" assessment survey and subsurface archaeological testing; and
- Laboratory processing and analyses of recovered cultural materials.

The archival research and walkover survey provided the information necessary to develop environmental and historic contexts for the NBHSS Project and to assess the archaeological sensitivity of the proposed access roads and at the equipment laydown areas. Archaeological sensitivity is defined as the likelihood for belowground cultural resources to be present and is based on the following:

- Geographical, functional, and temporal characteristics of previously identified cultural resources in the study area and its vicinity; and
- Local and regional environmental data reviewed in conjunction with existing study area conditions documented during the walkover survey, and archival research about the study area's land use history.

Subsurface archaeological testing was conducted as part of the Phase I and Phase II archaeological investigations to identify archaeological deposits and to evaluate site integrity and other site attributes, including cultural material distributions and age. Cultural materials recovered during the archaeological investigations were processed in the field and transferred to a temporary field laboratory at the Sawyer Street Facility where they were analyzed to interpret the nature of past human activities they represent. The artifact analyses were correlated with the subsurface testing and other field survey data and the resulting information was interpreted within the environmental and historic contexts developed for the Project. The result was an assessment of potentially significant archaeological resources and evaluation of their eligibility for listing in the National Register, the official federal list of properties that have been studied and found worthy of preservation.

Significance and Historic Contexts

The different phases of archaeological investigation (reconnaissance survey, intensive [locational] survey, site examination, and data recovery) reflect preservation planning standards for the identification, evaluation, registration, and treatment of archaeological resources (NPS 1983). An essential component of

this planning structure is the identification of archaeological and traditional cultural properties that are eligible for inclusion in the National Register. Archaeological properties can be a district, site, building, structure, or object, but are most often sites and districts (Little et al. 2000). Traditional cultural properties are defined generally as ones that are eligible for inclusion in the National Register because of their association with cultural practices or beliefs of a living community that (a) are rooted in that community's history, and (b) are important in maintaining the continuing cultural identity of the community (Parker and King 1998). The results of professional surveys and consultation with Native American or other communities linked by traditional beliefs and practices are used to make recommendations about the significance and eligibility of archaeological and traditional cultural properties.

An archaeological property may be pre-contact, post-contact, or contain components from both periods. Pre-contact (or what is often termed "prehistoric") archaeology focuses on the remains of indigenous American societies as they existed before substantial contact with Europeans and the resulting written records (Little et al. 2000). In accordance with the NPS guidelines, "pre-contact" is used, unless directly quoting materials that use "prehistoric." There is no single year that marks the transition from pre-contact to post-contact.

Post-contact (or what is often termed "historical") archaeology is the archaeology of sites and structures dating from time periods since significant contact between Native Americans and Europeans. Documentary records and oral traditions can be used to better understand these properties and their inhabitants (Little et al. 2000). Again, for reasons of consistency with the NPS guidelines, "post-contact" is used when referring to archaeology of this period, unless directly quoting materials that use "historical."

The NPS has established four criteria for listing significant cultural properties in the National Register (36 CFR 60). The criteria are broadly defined to include the wide range of properties that are significant in American history, architecture, archaeology, engineering, and culture. The quality of significance may be present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association. The criteria (known by the letters A–D) allow for the listing of properties

A. That are associated with events that have made a significant contribution to the broad patterns of our history; or
B. That are associated with the lives of persons significant in our past; or
C. That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
D. That have yielded, or may be likely to yield, information important to prehistory or history.

Archaeological and traditional cultural properties can be determined eligible for listing in the National Register under all four criteria, but must meet at least one (Little et al. 2000; Parker and King 1998). Archaeological properties listed under Criterion A or Criterion B must have a demonstrated ability to convey their associations with events, persons, or patterns significant to our history. Criterion C is intended to recognize properties that are significant expressions of culture or technology (especially architecture, artistic value, landscape architecture, and engineering) (Little et al. 2000:26). Under Criterion C, an archaeological property must have remains that are well-preserved and clearly illustrate the design and construction of a building or structure (Little et al. 2000:27). For Criterion D, under which most archaeological properties are determined eligible for listing in the National Register, only the potential to yield important information is required (Little et al. 2000:22). However, it is important to consider whether the data derived from a site are unique or redundant, and how they relate to the current state of knowledge

relating to the research topic(s). A defensible argument must establish that a property "has important legitimate associations and/or information value based upon existing knowledge and interpretations that have been made, evaluated, and accepted" (McManamon 1990:15).

Another critical component in assessing the significance of a historic property is an evaluation of its integrity. Historic properties either retain integrity (i.e., convey their significance) or they do not. The National Register criteria recognize seven aspects or qualities that, in various combinations, define integrity:

- Location, the place where the historic property was constructed or the place where the historic event occurred;
- Design, the combination of elements that create the form, plan, space, structure, and style of a property;
- Setting, the physical environment of a historic property;
- Materials, the physical elements that were combined or deposited during a particular period of time and in a particular pattern or configuration to form a historic property;
- Workmanship, the physical evidence of the crafts of a particular culture or people during any given period in history or prehistory;
- Feeling, a property's expression of the aesthetic or historic sense of a particular period of time; and
- Association, the direct link between an important historic event or person and a historic property.

To retain historic integrity, a property will always possess several, and usually most, of these qualities. The retention of specific aspects of integrity is paramount for a property to convey its significance. Determining which of these aspects or qualities are most important to a particular property requires knowing why, where, and when the property is significant (NPS 2002).

The criteria are applied in relation to the historic contexts of the resources as follows:

> A historic context is a body of thematically, geographically, and temporally linked information. For an archaeological property, the historic context is the analytical framework within which the property's importance can be understood and to which an archaeological study is likely to contribute important information (Little et al. 2000).

For traditional cultural properties, a historic context is further defined as follows:

> A historic context is an organization of available information about, among other things, the cultural history of the area to be investigated, that identifies "the broad patterns of development in an area that may be represented by historic properties" (48 FR 44717). The traditions and lifeways of a planning area may represent such "broad patterns," so information about them should be used as a basis for historic context development. Based on federal standards and guidelines, groups that may ascribe traditional cultural values to an area's historic properties should be contacted and asked to assist in organizing information on the area (Parker and King 1998).

The formulation of historic contexts is a logical first step in the design of an archaeological investigation and is crucial to the evaluation of archaeological and traditional cultural properties in the absence of a

comprehensive survey of a region (NPS 1983). Historic contexts provide an organizational framework that groups information about related historic properties based on a theme, geographic limits, and chronological periods. A historic context should identify gaps in data and knowledge to help determine what significant information may be obtained from the resource. Each historic context is related to the developmental history of an area, region, or theme (e.g., agriculture, transportation, and waterpower), and identifies the significant patterns of which a particular resource may be an element. Only those contexts important to understanding and justifying the significance of the property need be discussed. Research questions developed within each context guide the assessment of significance by clearly identifying gaps in current knowledge about the past and establishing the necessary kinds and configuration of data and integrity needed to address those gaps (Little et al. 2000:29).

Historic contexts are developed by

- Identifying the concept, time period, and geographic limits for the context;
- Collecting and assessing existing information about these time periods;
- Identifying locational patterns and current conditions of the associated property types;
- Synthesizing the information in a written narrative; and
- Identifying information needs.

"Property types" are groupings of individual sites or properties based on common physical and associative characteristics. They serve to link the concepts presented in the historic contexts with properties illustrating those ideas (NPS 1983, 48 FR 44719).

The following historic contexts have been developed to organize the data relating to the archaeological resources identified within the Project area:

1. Pre-contact Native American land use and settlement in the Acushnet River drainage and southeastern Massachusetts circa (ca.) 12,500 to 450 years before present (B.P.); and
2. Post-contact land use and settlement patterns in Acushnet and Fairhaven ca. A.D. 1650 to present.

Summary of Archaeological Resources Previously Identified within the NBHSS Project

The Harding I, Harding II, Pear Island, Lacuyers, Lawson, Comm, and Dock sites were initially investigated by JMA during a Stage IB archaeological survey (intensive [locational] survey) for the NBHSS Project (Chadwick and Klein 2003). PAL identified the Osprey Site during a supplemental Stage IB archaeological survey (Waller and Robinson 2004a).

Harding I Site (19-BR-560)

The Harding I Site is within an intertidal marsh in Fairhaven, approximately 152 m (500 ft) south of the Fairhaven/Acushnet town boundary (see Figure 1-3). JMA's Stage IB archaeological testing included auger tests at 16-m (52.5 ft) intervals. Auger test B131.003 recovered three quartz flakes from truncated sands 18–72 cm (0.6-2.4 ft) beneath the marsh surface. These sands, now buried by estuarine marsh deposits, appeared to have been deflated or eroded during a period of rising sea levels before the estuary developed (Chadwick and Klein 2003:24). No closer interval grid or array testing was conducted at the Harding I Site at that time and the spatial extent of the deposits was undetermined.

Harding II Site (19-BR-561)

The Harding II Site occupies an intertidal mudflat or beach approximately 20 m (65.6 ft) southwest of the Harding I Site in Fairhaven (see Figure 1-3). JMA recovered 15 pre-contact artifacts from a 1,457-square meter (sq m) (4780 sq ft) area: seven quartz debitage (chipping debris), three cores, one argillite biface, one quartz biface, one quartz preform, one rhyolite Merrimack projectile point, and one quartz Small Stemmed projectile point. The Merrimack and Small Stemmed points are diagnostic of Middle to Late Archaic (8000–3000 B.P.) and Late Archaic (5000–3000 B.P.) occupations, respectively. The surface from which the artifacts were collected was interpreted as a slightly deflated glacial outwash deposit on the basis of observed intact tree stumps (Chadwick and Klein 2003:24). No subsurface testing (auger tests) was conducted within the intertidal beach area, and the integrity of sediments beneath the mud flat remained undetermined.

Osprey Site (19-BR-590)

The Osprey Site is a large (approximately 2,300 sq m; [7546 sq ft]) pre-contact archaeological site at the supratidal/intertidal contact margin of the Acushnet River and an old gravel mining operation west of South Main Street in Acushnet (see Figure 1-3). Phase I archaeological testing recovered pre-contact lithic chipping debris, Susquehanna Broad and Orient fishtail type projectile points, and bifacial and unifacial tool fragments from thirty-eight 50-x-50-cm (1.6-x-1.6 ft) test pits (Waller and Robinson 2004a). A suspected Native American hearth or roasting platform (Feature 1) was also exposed in a test pit (TBG-01) within the 25-ft buffer at the southernmost limits of the site (see Chapter 7). The recovery of diagnostic Susquehanna and Orient points indicates that the Osprey Site contains components dating to the Transitional Archaic Period (3600–2500 B.P.).

Pear Island Site (19-BR-557)

The Pear Island Site is a moderate-sized (607 sq m [1991.5 sq ft]) pre-contact archaeological site on a supratidal upland "island" surrounded by intertidal marsh (see Figure 1-3). Pre-contact materials recovered during Phase I archaeological testing consisted of quartz, chert, quartzite, and rhyolite debitage, one quartz core, one slate utilized flake, and bone, oyster, and turtle shell fragments from nine 50-x-50-cm test pits (Chadwick and Klein 2003:19). No diagnostic materials were recovered that would indicate the site's period of occupation.

Lacuyers Site (19-BR-555)

The Lacuyers Site is a small (approximately 162 sq m [531.5 sq ft]) pre-contact Native American archaeological site that occupies the supratidal upland/intertidal contact margin west of Lecuyer Lane[3] (see Figure 1-3). In 2000, JMA conducted the first professional archaeological investigations at the site during a pilot study for the NBHSS Project (Kellogg and Klein 2001a). One quartz biface and 24 quartz, rhyolite, and argillite debitage were recovered from A and B horizon soils at 0–52 cmbs (0-1.7 ftbs) in seven test pits. Shell was identified within B horizon soils in two test pits (Chadwick and Klein 2003). No diagnostic materials were recovered that would indicate the site's period of occupation.

Lawson Site (19-BR-378)

The Lawson Site is a very large (approximately 28,000 sq m [91,863.5 sq ft]) pre-contact site that occupies intertidal flats and supratidal uplands along the east bank of the Acushnet River in Acushnet and Fairhaven (see Figure 1-3). The site was initially reported in 1994 by avocational collector Steven Healey, who had

[3] The archaeological site and adjacent roadway use different spellings of "Lacuyers".

collected artifacts along the riverbank at the site since 1970. His reported finds include numerous Middle through Late and Transitional Archaic projectile points (Neville, Stark, Otter Creek, Merrimack, Vosburg, Brewerton, Sylvan Side-Notched, Squibnocket Triangle, Small Stemmed, Atlantic types), quartz and felsite knives, a quartzite nutting stone, a sandstone abrader, and a basalt core (MHC site files). Except for the quartz Squibnocket Triangle and the Small Stemmed points, most of the points were manufactured from felsite or argillite.

JMA conducted archaeological investigations at the site for the NBHSS Project (Chadwick and Klein 2003; Kellogg and Klein 2001a). The goal of the 2001 pilot study was to assess the stratigraphy of the Lawson Site and to determine if contextually intact sediments and cultural materials were within the intertidal zone of the Project APE (Kellogg and Klein 2001a:8). Subsurface testing consisted of 50-x-50-cm test pits ("shovel test units") excavated parallel to the shoreline during low and outgoing tides to 33–210 cmbs (1–7 ftbs) (mean = 66.8 cmbs [2.2 ft]; median = 61 cmbs [2 ftbs]); no materials were recovered. A few pre-contact artifacts (one quartz uniface and other possible culturally modified quartz items) were recovered from the surface of the tidal flat (Kellogg and Klein 2001a:9–10). No natural soil development was observed in any of the test pits along the upper shore (Transects D and F) or in the low water excavations (Transects E, G, and I). All excavated sediments were interpreted as "typical of an intertidal setting affected by wind waves … a lag from erosion of sediments and reworking by inundation," and JMA concluded that the "Lawson site may be intact only on the highest ground of the landform adjacent to the current position of the eroding shore" (Kellogg and Klein 2001a:9–10).

JMA's subsequent Phase I ("Stage IB") archaeological survey at the Lawson Site recovered pre-contact materials from the surface of the intertidal flat and from test pits on the supratidal upland (Chadwick and Klein 2003). The surface-collected materials consisted of quartz and quartzite debitage, six pieces of fire-cracked rock (FCR), two quartz unifaces, five projectile points, one rhyolite biface, and one quartz biface fragment. The diagnostic points in this surface assemblage consisted of one slate Merrimack point, one slate Atlantic blade, one quartz Wading River point, and one quartz Levanna point dating from the later Middle Archaic to the Late Woodland periods. The cultural materials from the seven test pits consisted of 10 pieces of quartz debitage and 6 FCR from undisturbed sediments. The materials collected from the surface were found "out of [archaeological and cultural] context" from a deflated landscape. Consequently, the archaeological "integrity of their provenience [is] suspect" (Chadwick and Klein 2003:22, 30).

Supplemental geophysical marine archaeological surveys between 2011 and 2015 supports JMA's conclusions. Marine archaeological surveys identified the relic paleo river channel buried beneath 1.5–3 m (5 to 10 ft) of modern sediments within the Acushnet River west of the Lawson Site (Robinson and Wright 2011, 2013). Reworked silts and clays containing shell hash, shells, and some organics overlie the coarsely textured river channel and submerged paleo floodplain at this location.

Comm Site (19-BR-554)

The Comm Site is approximately 76 m (249 ft) east of the Lawson Site and is a small (280 sq m [919 sq ft]) pre-contact archaeological site at the intertidal and supratidal contact margin of the Acushnet River and Beech Street (see Figure 1-3). Stage IB archaeological testing recovered eight quartz flakes, two phyllite flakes, and four pieces of FCR from intact soils between 5–52 cmbs (0.2-1.7 ftbs) in six test pits (Chadwick and Klein 2003). The materials were recovered from intact soils 5 and 52 cmbs. No diagnostic materials were recovered that would indicate the site's period of occupation.

Dock Site (ACU.11)

The post-contact Dock Site is approximately 46 m (151 ft) east of the Comm Site, extends approximately 76 m (249 ft) to the south, and encompasses an approximately 760-sq m (2493 sq ft) area from the supratidal

(upland) to the intertidal zone between the Acushnet River and Beech Street (see Figure 1-3). Stage IB archaeological investigations identified two stone structures or platforms and stone walls that extend across the supratidal (upland) and the intertidal zones, a series of foundations and building stone in the supratidal (upland) zone, an artificial basin with an abundance of wood fragments, and a stone bridge that crosses an unnamed drainage and associated road (Chadwick and Klein 2003). Artifacts recovered at the intertidal stone structures consist of two pieces of coal slag and three clear glass bottle fragments, one of which was embossed with "Baker/Flavoring Extracts" (indicating early twentieth-century manufacture). JMA could not determine the function(s) of these structures and features on the basis of the Stage IB fieldwork or recovered artifacts and recommended Phase II investigations including additional documentary research to evaluate their significance and eligibility for listing in the State and National Registers.

Archaeological Assessment

In August and December 2016, PAL staff conducted a walkover survey of proposed access roads and associated laydown areas with representatives of the EPA, Jacobs, and CR to look for surface indications of archaeological sites, document current environmental and topographic settings, and observe existing conditions. Variables affecting archaeological sensitivity, such as favorable environmental attributes (e.g., level, well-drained terrain, presence of freshwater and saltwater resources) and evidence of ground disturbance, were recorded with photographs, in field notebooks, and on field maps. Background research supplemented the field review assessment of the archaeological sensitivity of the proposed access roads and laydown areas.

PAL conducted archival research consisting of probate and land evidence records review for the post-contact Howard's Neck Site (ACU.1), an early settlement (seventeenth- and early eighteenth-century) burial ground as part of the archaeological assessment of proposed access roads and laydown areas, because of its proximity to a proposed NBHSS access road/laydown area beneath NSTAR's power lines south of a small tidal inlet southeast of Howard's Neck in Acushnet (see Chapter 5 discussion).

Supplemental Phase I (Intensive) Archaeological Survey of Harding I and Harding II Sites

Supplemental Phase I (intensive) archaeological surveys at the Harding I and Harding II sites were designed to identify subsurface archaeological resources associated with the debitage recovered from an auger test (Harding I) or surface-collected artifacts (Harding II). The supplemental Phase I survey fieldwork at both sites was conducted during low tide to provide sufficient access to potential site areas. Core sampling at both sites was conducted using a 75-cm-long by 40-mm (2.5 ft by 1.6 in)-diameter piston core sampler. Soils were sampled in 25-cm (10-in) increments to establish the vertical distribution of any pre-contact cultural materials and to evaluate the stratigraphic integrity of the deposits. Retrieved piston cores were placed on plastic sheeting and inspected for pre-contact cultural materials and evidence of subsurface archaeological features. Soil strata were recorded for each core sample on standardized PAL field forms and color digital photographs were taken of each site area and representative soil profiles. Core samples were taken to depths exceeding 1 m (3.3 ft) below the surface when possible. The location of all cores was recorded using a submeter GPS unit.

The supplemental survey at the Harding I Site began by re-establishing the location of Stage IB auger test B131.003 using a submeter Trimble GPS unit. Piston cores were then placed at 2-m (6.6 ft) and 4-m (13 ft) intervals in cardinal directions around JMA's auger test. At the Harding II Site, the supplemental survey began with a systematic pedestrian survey of the exposed intertidal flat along transect lines spaced 3 m apart. Piston cores were then placed at 16-m intervals along transects spaced 8 m (26 ft) apart to assess subsurface conditions.

Phase II Site Examinations of Osprey, Pear Island, Lacuyers, Lawson, Comm and Dock sites

The objective of the Phase II archaeological surveys was to evaluate the National Register eligibility of the Osprey, Pear Island, Lacuyers, Lawson, Comm and Dock sites located within the NBHSS that may be affected by environmental remediation. The Phase II site examination methodology considered the results of the previous archaeological investigations at the pre-contact Osprey, Pear Island, Lacuyers, Lawson, and Comm sites and the post-contact Dock Site. The site examinations were designed to collect information about the basic attributes (boundaries, physical integrity, distribution and complexity of deposits, and age) of the sites and to address the nature of any finds.

The Phase II fieldwork at the five pre-contact sites was guided by a set of research questions that incorporated the cultural and environmental context of the NBHSS Project area. The Phase II fieldwork at the Dock Site was guided by the archival research and was designed to help identify the possible function, age, and ownership of the stone structures and features identified at the site in 2003 and to refine the site's boundaries, if possible.

Coastal Settlement Systems and Pre-Contact Occupation of Upper New Bedford Harbor Area

Southeastern Massachusetts has a rich and varied history that began millennia before the 1620 arrival of the Pilgrims in Plymouth. Prior to 7,000 years ago, Native American peoples focused primarily on inland-based resources, hunting and collecting along the Northeast's waterways. After approximately 7,000 years ago, settlement became more concentrated within the region's major river drainages. Sometime after 3,000 years ago, concurrent with a focus on coastal and riverine settlement, large populations began to live in nucleated settlements and developed complex social ties with language, kinship, ideology, and trade linking peoples across the Northeast.

Fairhaven and most of Acushnet are located on the east side of the Acushnet River. The town of Acushnet is divided by the Acushnet River; the lower 4.4 miles of the river, which contains the NBHSS Project area, is tidally influenced. Pre-contact Native American sites in southern New England are often located in productive ecosystems that support a diversity of natural resources. Some of the richest habitats (in terms of flora, fauna, and marine life) are near the junction of land and water such as coastal or estuarine settings (Nixon 2004). Evidence of pre-contact occupation and use of southeastern Massachusetts is extensive, with sites reported along swamp margins, secondary waterways, and along the coast and estuaries. The landscape of Acushnet includes level plains and glaciated upland ridges and knolls interspersed by swamps, marshes, and other wetland depressions. Urban growth characterizes the western bank of the Acushnet River in New Bedford, while interior Acushnet and much of Fairhaven is characterized by suburban development. The character of the Acushnet River and vicinity has changed over time because of glacial, deglaciation, coastal, and cultural processes. Therefore, the contemporary environment is not necessarily analogous to pre-contact conditions.

The Laurentide ice sheet advanced to its terminal position south of the Massachusetts coastline at the height of a considerable cold period about 24,000 years ago (Balco and Schaefer 2006; Hubeny 2006). Water, which had evaporated from the world's oceans and fell as accumulating snow, sustained the massive ice sheets. With water locked up in the glaciers, sea levels were about 120 m (394 ft) lower than current levels (Boothroyd and Sirkin 2002). Exposed land extended to the Continental Shelf during the last glacial maximum (Skehan 2008). Temperatures began to ameliorate, and glacial ice started to melt rapidly about 19,000 B.P. (Balco and Schaefer 2006; Uchupi et al. 2001). As the ice receded northward, glacial meltwaters formed river channels that drained into the oceans and raised global sea levels. Rising seas transgressed over the formerly exposed coastal sand and gravel outwash plain and drowned ancient river

valleys. The rate of sea level rise was initially rapid but decreased as the glaciers shrunk in size. By 3000 B.P., the shoreline approximated its modern position and configuration.

The river networks of southeastern Massachusetts connect the coast with interior ponds and wetlands. These natural networks provided access to resources, presented trade opportunities, and allowed efficient communication throughout much of the Buzzards Bay drainage area. Lithic artifacts recovered from the Lawson Site (19-BR-370) (see Chadwick and Klein 2003; Fragola 1999; Peters 2002) indicate the NBHSS Project area was occupied as early as the Middle Archaic Period (2000–1000 B.P.). Late Archaic artifacts and occupations are documented with some regularity along the Acushnet River and are known from the Swift Site complex[4] (19-BR-212), Lawson (19-BR-378), and Osprey (19-BR-590) sites. The timing and nature of the occupations associated with periods when the lower Acushnet River was a freshwater river as opposed to a tidal estuary are presently not known.

Coastal habitation sites and shell midden deposits along New Bedford Harbor and Buzzards Bay reflect the increasing dependence on shellfish and other marine resources during the Woodland Period (3000–450 B.P.). Several sites within the NBHSS contain evidence of occupation during this period. Early and Middle Woodland occupations have been reported at the Osprey and Swift sites with Late Woodland components identified at the Lawson and Swift sites (Chadwick and Klein 2003; Thorbahn 1983; Waller and Robinson 2004a), and Acushnet Slough Shell Midden (19-BR-719) sites (Dudek 2015). Radiocarbon dating of charcoal recovered from a feature partially excavated at the Acushnet Slough Shell Midden produced an AMS radiocarbon date of 650 ± 30 B.P. (Dudek 2015). The Swift Site contained several Levanna points, decorated aboriginal ceramic sherds, and evidence of food processing activities.

MHC site files list the Washburn Farm Site (19-PL-229) in Marion as a Late Woodland village. Many archaeologists have questioned the notion of Late Woodland Period "villages" with large structures and concentrated, sedentary settlement. Only a few possible village sites have been located in southeastern New England. Questions about the presence of Native American villages in southeastern Massachusetts have guided archaeological investigations at the Swift Site complex within the NBHSS Project area since the site's discovery in the early 1980s (Thorbahn 1983). The low energy estuarine margins of the Acushnet River and the ecologically attractive environment within which the NBHSS Project area is situated were ideally suited to support long term pre-contact Native American settlement.

Research Questions

The following research question sets were developed to characterize the nature and evaluate the National Register-eligibility of the pre-contact Osprey, Pear Island, Lacuyers, Lawson, and Comm sites:

Question Set 1: What archaeological components are present within the NBHSS? Is there additional evidence for Archaic Period or Woodland Period settlement and resource use?

Question Set 2: Do the sites conform to the expected model of estuarine coastal adaptation or are they consistent with freshwater riverine (pre-drowning of the river valley) settlements? What do early occupations suggest about Native American settlement and resource exploitation along the Acushnet River prior to 5000 B.P.?

Question Set 3: What subsistence remains are present within the NBHSS and with which components are they associated? Is there a similarity of resource use through time or are there any observable differences?

[4] The originally-defined Swift Site has been sub-divided into the Swift I, II, and III loci through subsequent investigations. "Swift Site complex" refers to all three loci, collectively.

Question Set 4: Is the archaeological record consistent with short-term occupations or consistent with longer term settlement and resource use focused on the estuary?

Question Set 5: What types of cultural materials and features are present within the NBHSS? How are the recovered artifact assemblages similar and in what ways do they differ from other well-documented sites located in similar ecological settings in southeastern Massachusetts? What do the recovered lithics imply about group territory, catchment areas, site formation, or group mobility?

Archival Research of Dock Site

Archival research of the Dock Site for the Phase II site examination survey included a review of town and county histories (Ellis 1892; Gifin 1983; Howland 1907), previous cultural resource management (CRM) survey reports (Chadwick and Klein 2003; Waller and Robinson 2004a), historical town and county maps and atlases (Beers 1871; Everts and Richards 1895; Hammond 1831; Spooner et al. 1795; Walling 1855, 1858), historical aerial photographs (NETR 1961–2014), and USGS quadrangle maps (USGS 1888–1994). PAL also reviewed probate and land evidence records on file at the Bristol County South Registry of Deeds in New Bedford, and available through online genealogical sources, including Ancestry.com and FamilySearch.org, to complete chain-of-title occupations and family histories for the site. Newspaper articles and photograph collections maintained by the Special Collections Department of the New Bedford Public Library were reviewed to help establish previous land uses along the Acushnet River shoreline. PAL also contacted the New Bedford Library and the Acushnet Historical Society at the Long Plain Museum for information related to the post-contact occupations in the southeast part of Acushnet.

Fieldwork

Phase II fieldwork involved both conventional hand excavation at sites located in supratidal areas within the NBHSS APE and pedestrian survey and core sampling in intertidal areas at the Lawson Site. In addition to the background research conducted as part of all phases of investigation conducted by PAL for the NBHSS Project, additional archival research was conducted as part of the Phase II site examination of the post-contact Dock Site (ACU.11).

Phase II investigations included a combination of pedestrian survey, artifact collection, and piston core sampling using the same methods as the supplemental Phase I surveys of the Harding I and Harding II sites. Phase II surveys also included the excavation of 50-x-50-cm test pits placed on 4-m coordinate grids. Site coordinate grids, with the exception of those for the Dock Site, were established with a grid origin (N00E00) at the location of a previously excavated Phase I test pit (based on submeter GPS) and were oriented to magnetic north. Phase II testing at the Dock Site was oriented along the stone features and walls at the site. Larger 1-x-1-m (3.3-x-3.3-ft) excavation units (EUs) were placed within each site to collect more detailed information about archaeological deposits and site stratigraphy. The Phase II testing at the Osprey, Pear Island, Lacuyers, and Dock sites consisted entirely of conventional hand excavations within supratidal upland areas. Excavations at the Comm Site included both hand excavations in the supratidal upland and supratidal/intertidal contact margin and piston core sampling within the portion of the site extending into the intertidal marsh.

All test pits and EUs were excavated in arbitrary 10-cm (0.3 ft) levels to sterile subsoils. Excavated soils were screened through ¼-inch hardware cloth to recover small artifacts. At least one soil profile (including depths of soil strata, color, and texture) was recorded for each test pit and EU. Scaled profile and plan drawings were completed for all features. Excavation notes, recorded on standardized PAL forms, supplemented profile and plan drawings for each EU and feature. Digital photographs were taken of each site, identified cultural features, and EU profiles.

The archaeological investigations involved recovery of cultural materials from areas contaminated by various pollutants, most notably PCBs. Porous cultural materials, such as bone, shell, wood, seeds, and nuts, could not be decontaminated and therefore were not retained for future curation. The types and counts of these materials were recorded on PAL field forms and reburied in the archaeological test units. Post-contact materials collected from the pre-contact sites was limited to diagnostic artifacts such as embossed bottle glass and smoking pipe fragments to limit the sampling of potentially contaminated cultural materials. Non-porous artifacts were bagged and labeled with appropriate provenience information. Modern cultural materials (e.g. plastic, bottle glass shards, corroded metal, etc.) were not collected in the field. Discarded post-contact materials were recorded on PAL field forms and reburied in the archaeological test units.

Phase II investigations at the Lawson Site began with a systematic pedestrian survey of the exposed intertidal flat conducted along transect lines spaced 3 m (9.8 ft) apart. All cultural materials on the surface were flagged, mapped and collected. Subsurface testing consisted of one 50-x-50-cm test pit, 33 piston cores sampled at 8-m intervals placed along eight transects and six judgmental auger tests (JAUs) (Table 2-1).

Table 2-1. Summary of Phase II Archaeological Testing, NBHSS Project Area.

Site Name	50-x-50-cm Test Pits	1-x-1-m Excavation Units	Cores	Total Testing Units
Osprey	-	4	-	4
Pear Island	16	4	-	20
Lacuyers	-	4	-	4
Lawson	1	-	33	34
Comm	21	2	6	29
Dock	7	-	-	7
Total	**45**	**14**	**39**	**98**

Phase II investigations at the remaining five sites (Osprey, Pear Island, Lacuyers, Comm and Dock sites) began with re-establishing the location of Phase I test pits using a sub-meter GPS unit. Except for the Dock Site, a N00E00 coordinate site datum was established at the location of a Phase I test pit, and all Phase II test pits and EUs were excavated relative to a 4-m coordinate grid extended over the site area and oriented to magnetic north. Phase II testing at the Dock site was oriented along the stone features and walls at the site. Six piston cores supplemented the hand excavations at the Comm Site (see Table 2-1).

A combined total of forty-four 50-x-50-cm test pits and fourteen 1-x-1-m excavation unit (EUs) were excavated at the Osprey, Pear Island, Lacuyers, Comm and Dock sites during the Phase II investigations (see Table 2-1). The 16 test pits at the Pear Island Site and the 21 test pits at the Comm Site were excavated along a 4-m coordinate grid relative to the N00E00 site datum established at each site. The 7 test pits at the Dock site consisted of judgmentally placed test pits (JTPs). Four EUs each were excavated at the Osprey, Pear Island, and Lacuyers sites, and two EUs were excavated at the Comm Site (see Table 2-1).

Laboratory Processing and Analyses

Collected cultural materials underwent initial processing on site before being transferred to and cataloged at Jacobs' Sawyer Street facility in New Bedford. The non-porous, lithic artifacts were initially stored in 2-mil-thick polyethylene resealable bags with the provenience information recorded with indelible ink on the bag exterior. The recovered artifacts were transferred to an onsite washing facility in a contamination reduction zone for gross sediment removal. They were cleaned with synthetic toothbrushes in an Alconox detergent solution and then in fresh tap water to remove adhering soils. "Cleaned" artifacts were then placed in clean, 2-mil thick polyethylene bags along with paper tags that contain detailed provenience information.

The artifacts were then transferred in polyethylene bags labeled "contaminated with PCBs" to the Jacobs Sawyer Street facility for post-excavation cataloging and analyses.

Cataloging

Collected cultural materials were cataloged using a customized relational Microsoft Access database, which provides the flexibility needed when cataloging archaeological collections that often contain disparate cultural materials such as stone, ceramics, and/or glass. Artifacts with similar morphological attributes were grouped into lots, which allows for efficient cataloging. The artifacts were placed in 2-mil-thick polyethylene resealable bags with acid-free tags containing provenience identification information. These bags were placed in acid-free Hollinger boxes with acid-free "contaminated with PCBs" labels and temporarily stored at the Jacobs' facility.

Culturally modified lithic materials, such as stone tools and chipping debris, were identified in terms of material, size (0–1 cm, 1–3 cm, 3–5 cm, etc.), and color. Chipping debris or debitage was classified as either flakes or shatter. Pieces of debitage showing evidence of a striking platform, bulbs of percussion, or identifiable dorsal or ventral surfaces were called flakes. Debitage without these attributes, and exhibiting angular or blocky forms, were classified as shatter. Lithic debris was examined for edges that had been modified by use wear, or intentional retouch. Stone tool measurements (length, width, and thickness) were recorded, and the tools were assigned to a functional category (projectile point, scraper, etc.) if possible.

Post-contact artifacts were cataloged by material (e.g., ceramic and glass), form (e.g., bottle/jar, plate, nail, and brick), and function (e.g., kitchen, architectural, clothing, and arms). Ceramic sherds and bottle glass were examined for distinguishing attributes that provide more precise date ranges of manufacture and use, including maker's marks, decorative patterns, and embossed or raised lettering. Dating of post-contact archaeological artifacts and deposits was performed using standardized and published artifact descriptions such as Jones and Sullivan (1989), Miller (1980, 1991, 2000), Noël Hume (1969, 2001), and South (1977).

PAL's cataloging system can produce density contour maps using the Surfer® computer program. To determine artifact distribution at certain sites, density contour maps were generated for the recovered pre-contact cultural materials.

Analyses

PAL completed basic attribute analyses of recovered artifact assemblages from the completed artifact catalogs, photographs, and observations made at the field laboratory. No artifacts or other cultural materials were removed from the NBHSS Project area during PAL's investigations.

Analysis of the debitage assemblages considered lithic material type, frequency, size ranges, and presence of cortex (outer weather rind of a cobble). Size range data alone cannot reliably identify specific manufacturing techniques, such as bipolar reduction or biface thinning, as debitage size ranges are affected by several variables (e.g., individual knapping styles, material type, and mixed deposits) (Andrefsky 2007). However, when considered together with other characteristics, such as cortex, these characteristics can provide information about lithic manufacturing stages. This is because lithic cortex can indicate primary (early stage) lithic raw material reduction and because debitage size generally decreases as a knapper progresses from early stage bifacial reduction to latter stage stone tool finishing.

Curation

The Hollinger boxes containing NBHSS artifacts are temporarily stored at the Jacobs' Sawyer Street Facility in New Bedford. Associated documentation (field forms, field notes, maps, and photographs) is on

file at PAL at 26 Main Street, Pawtucket, Rhode Island. The artifacts and associated documentation will remain in temporary storage until the EPA, in consultation with the USACE and the MHC, determines the ultimate disposition of the NBHSS archaeological collections.

CHAPTER THREE

ENVIRONMENTAL CONTEXT

Environmental features were important variables influencing pre-contact Native American and post-contact Euro-American settlement, subsistence strategies, and resources exploitation throughout New England. The character of the local environment and available resources such as bedrock type, soil drainage, vegetation, and location relative to major drainage systems and coastal bodies all affected past human settlement location, type, and density, and the frequency of resettlement within any given geographic area. Knowledge of environmental conditions contributes to a clearer understanding of what natural resources were available to human groups and how the general vicinity of the NBHSS Project area appeared in the past. These data assist archaeologists in predicting the potential for an area to contain cultural resources and in interpreting any identified archaeological resources.

Physiography and Geology

The NBHSS Project area is located within the Seaboard Lowland physiographic zone, an area between the New England uplands to the west and the Coastal Plain to the east (Figure 3-1). The general topography of this region includes level plains and glaciated upland ridges and knolls that generally run north–south and are interspersed with swamps, marshes, and other wetlands. The Project area is in the towns of Acushnet and Fairhaven along the eastern bank of the Acushnet River estuary, which flows through a low valley dominated by extensive swamp and estuarine wetland complexes. Elevations rise east of the river toward Long Plain, a glacial ridge that runs for several miles. Mendall Hill in Acushnet marks the highest point in the immediate region at 140 ft above sea level.

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The Project area is between two north–south trending faults within the Milford-Dedham Zone lithotectonic subdivision of southeastern Massachusetts. Bedrock underlying the Project area consists of Proterozoic Z-aged diorite (Zdi) and porphyritic granite (Zpgr) (Zen et al. 1983). The diorite consists of a medium-grained hornblende partly metamorphosed to amphibolite and hornblende gneiss. The

Figure 3-1.

porphyritic granite consists of a gray to gray-green porphyritic biotite granite. There are no known outcrops of lithic material in the lower Acushnet River drainage that could have been exploited by Native Americans.

Preferred materials for the manufacture of chipped-stone tools in southeastern Massachusetts included quartz, quartzites, argillite, hornfels, fine-grained rhyolites, and fine-grained cryptocrystalline silicas (chert, jasper, and chalcedony). Regionally available materials included rhyolites, hornfels and argillite. Rhyolites were acquired regionally from stone outcrops in the Blue Hills volcanic complex of the Boston Basin, the Wamsutta Formation of Attleboro, or the Lynn/Mattapan volcanic complex of Northshore Massachusetts. Sources of hornfels are also known from Braintree, Massachusetts, and quartzite outcrops are known from the Westboro area of Massachusetts. Argillite was available from the Boston Basin and regionally from outcrops on Conanicut Island, Narragansett Bay, Rhode Island. Fine-grained cherts, chalcedony, and jaspers are not found in the region and came from source areas in Pennsylvania, New York, and beyond. Quartz, quartzites, and some rhyolites were commonly acquired as cobbles from glacial tills and outwash exposed along rivers or shorelines.

The surficial geology of eastern New England, including the NBHSS Project area, is largely attributable to the effects of glacial, fluvial, and coastal dynamics. During the last glacial maximum, massive ice sheets covered southern New England and began to recede approximately 19,000 years ago. The advance of the ice sheet and its subsequent retreat eroded bedrock, realigned drainages, and deposited till, boulder "erratics," and other materials along its course. The upland ridges and knolls seen today were formed from deposits of sand, rock, and gravel released from the ice. Flowing meltwaters and stationary blocks of ice created various landforms visible on the present-day land surface that include kames, eskers, terraces, moraines, and outwash plains. The network of swamps, wetlands, and ponds in the area were largely created by large melting blocks of ice left behind by the receding glacier. Meltwaters also incised channels into the sediments left behind by the receding glacier. The melting of glaciers at the end of the last ice age caused global sea level rise that over time transformed lower river valleys and coasts.

Soils

Soils are the product of chemical and physical weathering of geological material, including bedrock. Glacial ice picked up and ground bedrock that was then transported and deposited as a mixture of unweathered rock particles. These sediments were then separated and sorted by glacial meltwaters. Strong winds distributed fine eolian (windblown) particles over the southern New England landscape. Vegetation became established, chemical processes of weathering increased, and rock sediments developed into soils. Differences in regional soils are primarily attributed to the interaction of the five factors of soil formation: the parent material, climate, living organisms, relief, and time. Finely textured, well-drained soils were the preferred settings for Native American settlement.

Mapped soils within the APE appear to reflect changes to the local environment since the pre-contact occupations of the identified archaeological sites. The Harding I, Harding II, Osprey, Comm, Dock, and Lawson sites are in areas containing soils mapped as Pawcatuck and Ipswich peats. These soils occur on 0 to 2 percent slopes and are very frequently flooded and very poorly drained (USDA-NRCS 2016). The soils are associated with tidal marshes and consist of decomposed herbaceous organic material overlying sandy sediments. Soils at the Pear Island and Lacuyers sites are mapped as Pits, Udorthents complex (map unit 617). These soils consist of gravelly sands and gravelly coarse sands associated with areas of human land disturbance (USDA-NRCS 2016). Despite the mapped units of disturbed soils, intact topsoils and subsoils were observed at each of these sites.

Hydrology

The Project area lies along the eastern bank of the Acushnet River in the Buzzards Bay drainage basin. The 8.5-mile-long Acushnet River is part of the coastal zone river system, a network of rivers that flow from interior wetlands into Buzzards Bay (Figure 3-2). The Agawam, Mattapoisett, and Slocums rivers are other major waterways that flow through parallel north–south valleys to the coast. The lower 4.4 miles of the Acushnet River containing the Project area is a tidally influenced estuarine environment. Several small, unnamed tributary streams flow into the Acushnet, some of which flow from low wetland areas that surround the Project area. The Acushnet River drainage and adjacent coastal sections contain over 80 ponds and reservoirs, many of which are derived from kettle holes originally created by glacial blocks of ice.

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Figure 3-2.

The Acushnet was once a swift river with sufficient force to power mills along its length. The City of New Bedford impounded the river north of the Project area in 1866 to create a 40-acre reservoir of potable water for its residents. The damming of the river resulted in approximately 400 million gallons of stored water (Allison et al. 1994). The net effect of this ponding was a dramatic reduction in the flow of the Acushnet. A number of mills once reliant on the river's waterpower were shut down.

Post-Glacial Sea Level Rise

Rising sea levels following the retreat of the glaciers played a large role in the formation of the immediate environment of the Acushnet River. Fluctuations in the rate of post-glacial sea level rise over millennia created a dynamic coastal environment. Changes through time, such as the inundation of the coastal slope, the drowning of river valleys and the formation of estuaries, undoubtedly affected the settlement and subsistence systems of pre-contact Native Americans.

The present-day landscape of the Acushnet River estuary, New Bedford Harbor, and Buzzards Bay represent relatively young coastal features that developed during and after the Wisconsinan glacial period ca. 23,000–18,000 B.P. (Oldale 1992). The basic landscape structure of the New Bedford Harbor area was created by glacial transport of sediments, subsequent sea level rise, and erosion of sediments via wave and tidal processes; sorting and transport of sediments continue to transform the land-water margin and submarine portions of the harbor.

Between about 18,000 and 15,000 years B.P., warming temperatures caused the Buzzards Bay lobe of the Laurentide ice sheet to rapidly retreat (Oldale 1992). By 15,000 years B.P., all of southern New England was ice-free. Glacio-fluvial sediments were deposited as extensive outwash plains as the ice sheet withdrew, and large lakes were ponded against the retreating ice margin. The "Wareham Pitted Plain" is an example of such deposits, and extends into New Bedford's Upper Harbor. Its name derives from the kettle hole ponds formed by the melting of stranded blocks of ice surrounded or buried by outwash sands.

The global melting of continental ice sheets led to worldwide sea level rise, and marine transgression of sea water onto land. Until about 10,000 B.P., regional sea levels rose at a rate of approximately 50 ft per thousand years. Between about 6000 and 2000 B.P. the average rate of sea level rise had slowed to approximately 11 ft per thousand years. From 2000 B.P. to the present, the rate has averaged about 3 ft per thousand years (Howes and Goehringer 1996; Oldale 1992; Redfield and Rubin 1962). Landward marine transgression was not continuous, however, as rates of sea level rise fluctuated and the net effect of isostatic rebound (uplift of the continental landmasses following the retreat of glacial ice) relative to eustatic sea level rise became more equal over time.

Applying Howes and Goehringen's (1996) 0.011 meters/year (m/y) estimation of sea level rise following the commencement of glacial melt, Chadwick and Klein (2003) estimate that sea water began to inundate the Buzzards Bay basin about 8500 B.P., and the southern Acushnet River valley after about 4500 B.P. Tidal processes likely began to affect New Bedford's upper harbor after 3600 B.P., and the surrounding intertidal area until about 1000 B.P. Following inundation, coastal processes eroded, sorted, and redistributed Pleistocene fluvial and glacial sediments in some locations, which mark the base of the Holocene stratigraphic sequence. As the sea continued rising during the Holocene, the drowned Acushnet River valley filled with finer-grained sediments. In general, the thickest deposits of these sediments occur along the axis of the valley, and become thinner with increasing distance from the valley axis (Chadwick and Klein 2003).

Headward erosion by coastal processes was somewhat impeded in areas where shallow bedrock ridges cut transversely across the Acushnet River valley, allowing for better preservation of Pleistocene (glacial) landforms. Nevertheless, Chadwick and Klein's (2003) paleoenvironmental reconstruction indicates that post-glacial marine transgression and, after 3600 B.P., tidal processes created erosional unconformities in intertidal zones along the Acushnet River shoreline. The Harding I, Harding II, Pear Island, Lacuyers, and Lawson sites are within or are fronted by these erosional unconformities.

In summary, the upper New Bedford Harbor consists of a Pleistocene outwash plain that has been incised by the Acushnet River and associated tributaries and paleotributaries. Marine transgression and related

coastal processes (e.g., inundation, tidal fluctuations, and waves) have resulted in reworking of Pleistocene sediments in some locations and the deposition of finer-grained Holocene sediments and tidal marsh deposits atop the Pleistocene sediments. These coastal processes likely did not affect the upper New Bedford Harbor until after 3600 B.P., at which point estuarine habitat began to develop. The present-day shoreline in this area was likely a riverine or transitional habitat that graded into the estuary first established in the lower reaches of the Acushnet River between 4500 and 6000 B.P.

CHAPTER FOUR

CULTURAL CONTEXT

The following information provides an overview of the pre-contact and post-contact history of the NBHSS Project area. The pre-contact overview describes the general settlement, technological, and resource use patterns of southern New England with specific reference to the Buzzards Bay drainage and Acushnet River valley region surrounding the Project area. The post-contact overview provides a synopsis of the greater New Bedford region and towns of Acushnet and Fairhaven. This information provides a framework within which to interpret and evaluate archaeological deposits identified at the archaeological sites in the Project area and comes from a review of professional cultural resource management (CRM) investigations, a review of state site files at the MHC, pre-contact cultural histories of southeastern Massachusetts, academic reports, and professional journal articles. Table 4-1 provides a list of pre- and post-contact archaeological sites located within 0.5 mile (0.8 km) of the project area, including the seven pre-contact sites and one post-contact site that are part of the current investigation.

Pre-Contact Period (ca. 12,500–450 years Before Present[5] [B.P.])

Southern Bristol and Plymouth counties have been the focus of archaeological inquiry since the mid-nineteenth century. Historians first investigated Contact-era burials and habitation sites in and around New Bedford Harbor as intellectual curiosities and formed conclusions about the area's indigenous peoples based on the recovery of ceremonial objects (Ellis 1892; Howland 1907; Ricketson 1858). More recent professional investigations, including CRM surveys, have located many additional sites representing a wide range of site activities, temporal periods, and environmental settings.

Research to date indicates that the Buzzards Bay area was a focus of activity for Native American groups from as early as 12,000 B.P. The network of rivers, such as the Acushnet River, connected coastal areas to interior ponds and wetlands and provided access to resources, trade, and communication for indigenous groups in the region. Prior to 7,000 years ago, Native American populations appear to have focused primarily on inland-based resources along waterways, inland ponds and interior swamps and wetlands. After 7,000 years ago, settlement became more concentrated along major river drainages. Beginning about 3,000 years ago, settlements appear to be larger, with nucleated settlement increasingly focused in coastal areas.

The Pre-Contact Period is divided into temporal subperiods distinguished by changes in material culture, specific patterns of land use, and/or other indications of social organization and ideology such as mortuary/burial practices or traditions (Table 4-2).

PaleoIndian Period (ca. 12,500–10,000 B.P.)

Southern New England was populated by mobile hunter-gatherer bands collectively referred to as PaleoIndians following the retreat of glacial ice between about 21,000 and 16,000 years ago. The timing of

[5] Dates presented in the Pre-Contact Period section of this chapter refer to radiocarbon years before present (B.P.) unless stated otherwise. Radiocarbon ages can differ by as much as several centuries from calendar year ages. Archaeological convention defines the "present" as A.D. 1950.

Table 4-1. Pre-Contact and Post-Contact Sites within 0.5 Mile of the NBHSS Project Area (sites in bold were examined as part of this study).

Town	Site Number	Site Name	Site Type	Time Period	Results	National Register Recommendation
Acushnet	19-BR-211	Blue Feather	Campsite	Transitional Archaic	1 Susquehanna projectile point; 2 chipping debris	Undetermined
	19-BR-212	Swift (I–III)	Campsite	Late/Transitional Archaic; Middle Woodland; Late Woodland	Numerous projectile points; base points; projectile points; bifaces; chipping debris; ceramic; burnt rock, shell, bone; pit feature	Undetermined; Likely eligible
	19-BR-378	**Lawson**	**Workshop; Habitation Site**	**Middle Archaic; Late Archaic; Late Woodland**	**Chipping debris; FCR; unifaces; numerous projectile points; bifaces**	**Undetermined**
	19-BR-453	Burt School	Unknown	Woodland	Ceramics	Undetermined
	19-BR-466	Acushnet Slough	Unknown	Unknown		
	19-BR-553	Beech	Flake Scatter	Unknown	1 chipping debris; 3 FCR	Undetermined
	19-BR-554	**Comm**	**Flake Scatter**	**Unknown**	**10 chipping debris; 4 FCR**	**Undetermined**
	19-BR-555	**Lacuyers**	**Workshop**	**Unknown**	**1 biface; 24 chipping debris**	**Undetermined**
	19-BR-556	Hadley	Workshop	Unknown	13 chipping debris; 1 hammerstone	Undetermined
	19-BR-557	**Pear Island**	**Flake Scatter; Workshop**	**Unknown**	**17 chipping debris**	**Undetermined**
	19-BR-558	Trust	Workshop; Flake Scatter	Unknown	11 chipping debris	Undetermined
	19-BR-559	Frag	Flake Scatter	Unknown	4 chipping debris	Undetermined
	19-BR-590	**Osprey**	**Campsite**	**Late Archaic; Transitional Archaic; Early Woodland**	**Numerous projectile points; biface; uniface; shell; bone**	**Undetermined**
	19-BR-692	Belanger Street	Flake Scatter	Unknown		
	19-BR-719	Acushnet Slough Shell Midden	Shell Midden	Late Woodland	2 chipping debris; 1,300+ shell; radiocarbon date 650 ± 30 B.P.	Undetermined

Continued on next page

Town	Site Number	Site Name	Site Type	Time Period	Results	National Register Recommendation
Acushnet	ACU-01	Howard's Neck	Burial Ground	17th and 18th centuries	Burial ground documented	Undetermined
	ACU-09	Pine Lawn Sanitarium/Nye Estate	Institutional/Single Family Dwelling	18th–20th centuries	Barn foundation documented	Undetermined
	ACU-10	Shell/Trash Midden	Midden	20th century	Scatter of bottles, post-contact ceramics, and household items	Undetermined
	ACU-11	**Dock**	**Unknown**	**Unknown**	**7 stone fragments; 2 coal slag; 3 bottle glass**	**Undetermined**
	ACU-12	Foundation	Outbuilding	20th century	Small concrete foundation; Late 19th-century artifacts–modern debris	Undetermined
	ACU-14	Sawmill Dam	Sawmill	18th–20th centuries	Historical documentation; 102 pieces of 19th and 20th century domestic & architectural debris	Undetermined
Fairhaven	19-BR-260	River Avenue	Burial; Shell Midden	Unknown	Historical documentation	Undetermined
	19-BR-560	**Harding I**	**Flake Scatter**	**Unknown**	**3 chipping debris**	**Undetermined**
	19-BR-561	**Harding II**	**Workshop**	**Late Archaic**	**1 small stemmed projectile point; 1 Merrimack stemmed point; chipping debris; biface fragments;**	**Undetermined**
New Bedford	NBE-04	Soule Mill	Cotton Mill	20th century	Remnant foundations	Undetermined
	NBE-10	Acushnet Avenue Waterfront Industrial Area	Industrial Complex	19th century	Documentary	Undetermined
	NBE-13	NBHS Shipwreck	Shipwreck	18th century	Intact hull bottom of wooden sailing vessel	Undetermined

Table 4-2. Pre-Contact Native American Cultural Chronology for Southern New England.

PERIOD	*YEARS*	*SUBDIVISIONS*	*CULTURAL ASPECTS*
PaleoIndian	12,500–10,000 B.P.[1]	• Fluted • Lanceolate	Migratory game animals exploited by highly mobile bands of hunter-gatherers with a specialized lithic technology.
Early Archaic	10,000–8000 B.P.	• Bifurcate-Base	Few sites known, possibly because of problems with archaeological recognition. This period represents a transition from specialized hunting strategies to the beginnings of more generalized and adaptable hunting and gathering, due in part to changing environmental circumstances.
Middle Archaic	8000–5000 B.P.	• Neville • Stark • Merrimack	Regular harvesting of anadromous fish and various plant resources combined with generalized hunting. Major sites located at falls and rapids along river drainages. Ground-stone technology first used. Reliance on local lithic materials for a variety of bifacial and unifacial tools.
Late Archaic	5000–3000 B.P.	• Laurentian • Squibnocket • Small Stemmed	Intensive hunting and gathering in diverse environments. Evidence for shellfish exploitation. Abundant sites suggest increasing populations, and specialized adaptations to particular resource zones. Notable differences between coastal and interior assemblages.
Transitional Archaic	3600–2500 B.P.	• Small Stemmed • Atlantic • Watertown • Orient	Economy similar to earlier periods, with groups migrating into New England, or local groups developing technologies different from those used previously. Trade in soapstone important. Evidence for complex mortuary rituals frequently encountered.
Early Woodland	3000–2000 B.P.	• Meadowood • Lagoon	Scarcity of sites suggests population decline. Pottery first made. Little known of social organization/economy, although evidence for complex mortuary rituals is present. Influences from the mid-western Adena culture evident.
Middle Woodland	2000–1000 B.P.	• Fox Creek • Jack's Reef	Economy focused on coastal resources. Horticulture appeared late in period. Hunting and gathering still important. Population increased from previous low in the Early Woodland. Extensive interaction between groups throughout the Northeast and widespread distribution of non-local lithics and other materials.
Late Woodland	1000–450 B.P.	• Levanna • Madison	Horticulture established in some areas. Coastal areas seem to be preferred. Large groups sometimes lived in fortified villages and organized in complicated political alliances.
ProtoHistoric and Contact	450–300 B.P.	• Algonquian	Groups such as the Wampanoag, Narragansett, and Nipmuc settled in the area. Complex political, social, and economic organizations, and rapid change during European colonization.

the initial population of the Eastern Seaboard has been debated by archaeologists after the discovery of cultural strata and artifacts in South Carolina, Virginia, and Pennsylvania that apparently predate the PaleoIndian "Clovis Culture" or fluted point tradition (Adovasio et al. 1990; Goodyear 2005; Macphail and McAvoy 2008; Marshall 2001). The earliest unequivocal evidence for human occupation in New England is associated with the fluted point tradition, and dates to 11,120 ± 180 B.P. at the Vail Site in Maine (Gramly 1982).

Archaeologists have traditionally characterized PaleoIndian populations as mobile hunters who exploited large migratory game such as mastodon, caribou, bison, or elk (Dragoo 1976; Kelly and Todd 1988; Snow 1980; Waguespack and Surovell 2003). Data obtained from the New England-Maritimes (Meltzer and Smith 1986; Spiess et al. 1998) and the Great Lakes (Stothers 1996) regions support this specialized subsistence hypothesis. However, the scarcity of migratory or extinct megafaunal animal remains from PaleoIndian sites in the Northeast has caused some to question a specialized big-game subsistence model for southern New England PaleoIndians (Dincauze 1993; Ogden 1977). Instead, subsistence in the Northeast may have been more generalized and included exploitation of smaller game mammals, plants, fish, and birds (Dincauze and Jacobson 2001; Funk 1991; Kauffman and Dent 1982; Ritchie 1980). Jones and Forrest (2003) have suggested that the higher regional occurrence of small PaleoIndian encampments, as compared to larger base camps, may be evidence for a PaleoIndian settlement system in which small groups of mobile foragers adjusted better to resource unpredictability.

Diagnostic PaleoIndian artifacts include fluted (e.g., Gainey, Vail-Debert, and Barnes types) and, after 10,000 B.P., parallel-flaked, unfluted lanceolate-shaped projectile points (e.g. Agate Basin, and Ste. Anne-Varney types). Other stone tools associated with this period include distinctive steep-edged scrapers, gravers, spokeshaves, and drills. Southern New England PaleoIndian tool assemblages often include exotic cherts and jaspers from Maine, New York, and Pennsylvania and rhyolites from Massachusetts and New Hampshire. PaleoIndian sites and artifacts are rare in southern New England, but documented sites in eastern Massachusetts suggest that PaleoIndian settlement patterns were focused along interior postglacial wetlands, glacial lakes, and riverine settings (Byers 1959; Carty and Spiess 1992; Grimes et al. 1984; Robbins 1980; Waller and Ritchie 2003). The now inundated coastal plain and former river terraces along drowned river systems may yet contain additional evidence of early sites.

No PaleoIndian sites are recorded within or in immediate proximity to the Project area. Examples of PaleoIndian finds in the greater region include an incomplete PaleoIndian Parallel Stemmed projectile point recovered from the Cedar Dell Pond Site in North Dartmouth (Mackie et al. 1983). A site on the shoreline in Mattapoisett (19-PL-247) allegedly contained a fluted projectile point, and isolated finds of projectile points have been recovered from in Carver, Wrentham, Mansfield, Bridgewater, and elsewhere in southeastern Massachusetts (MHC site files). The Wapanucket #8 Site in Middleborough remains the only documented and partially excavated PaleoIndian occupation in the region (Robbins and Agogino 1964).

Early Archaic Period (10,000–8000 B.P.)

The Early Archaic Period coincided with the commencement of the Holocene epoch, ca. 10,000 years ago. The early Holocene was marked by warmer and drier conditions than the preceding Pleistocene epoch. Early Archaic peoples continued to generalize in their subsistence base, hunting available game and harvesting available woodland and wetland vegetation and nuts (Dumont 1981; Forrest 1999, Kuehn 1998; Meltzer and Smith 1986; Nicholas 1987). Early Archaic occupations in southern New England have traditionally been identified on the basis of bifurcate-base projectile point recoveries. Concentrations of these projectiles have been found around ponds, marshes, and wooded wetlands and at the headwaters of major rivers in southeastern Massachusetts (Taylor 1976), Connecticut (Pfeiffer 1986), and Rhode Island (Turnbaugh 1980). The association of Early Archaic sites with swamps and marshes suggests that wetland resources were particularly important during the period (Jones and Forrest 2003; Nicholas 1988).

Boston Basin (Blue Hills rhyolite and Sally Rock felsite) and Northshore Massachusetts (Lynn and Mattapan volcanics) lithic materials were commonly used for the manufacture of diagnostic bifurcate-base projectiles in the nearby Taunton River drainage. Archaeological data from Connecticut (Forrest 1999; Jones and Forrest 2003) and the Gulf of Maine in northern New England (Robinson 1992) suggest that some Early Archaic peoples used a distinct quartz lithic technology known as the Gulf of Maine Archaic Tradition to produce "microcores" and "microliths" for use in composite tools (Forrest 1999). The ubiquitous presence of quartz in regional artifact assemblages raises the possibility that some Early Archaic sites and assemblages may be difficult to differentiate from those of other periods.

The settlement system for what has been referred to as the Gulf of Maine Archaic Tradition (Robinson 1992; Jones 2012) appears to be markedly different from that of the bifurcate-base producers and included "residential" base camps with subterranean pit houses that were occupied for extended periods of time (Forrest 1999; Jones and Forrest 2003). Small, short-duration forays and sites undoubtedly supplemented the residential base camps (as with the Pequot Cedar Swamp in southeastern Connecticut) and have been interpreted as an adaptive response to predictable, readily abundant resources. The identifications of a semi-subterranean pit house associated with a LeCroy Bifurcate complex at the Weilnau Site in Ohio (Stothers 1996), two pit houses dated to 7830 ± 130 B.P. and 8110 ± 90 B.P. at the Whortleberry Site in Dracut, Massachusetts (Dudek 2005), and multiple pit houses dating to 9100–8500 B.P. at Sandy Hill in Connecticut (Forrest 1999) provide evidence of a greater degree of sedentism during the Early Archaic Period in the Northeast and Great Lakes regions. The difference between two identifiable artifact assemblages (quartz microlith composite tools and bifurcate-base projectile points) and settlement patterns suggest the presence of two distinct Early Archaic populations in southern New England landscape during the early Holocene (Forrest 1999).

Only a few Early Archaic sites have been located in southeastern New England, which may be partly due to subsequent sea level rise. Today's shoreline is several miles farther inland than it was at that time and early archaeological sites may be submerged offshore or buried under alluvium (O'Steen 1987). The highest density of Early Archaic points known in the region are bifurcate-base projectile points from the Titicut and Taylor Farm sites along the Taunton River in Bridgewater. The Peace Haven Site in Freetown contained three Early Archaic bifurcate-base projectile points (Athearn et al. 1980). Individual bifurcate-base points have been recovered from the Mother's Brook Site in Freetown, the Boats Site in Dighton (MHC site files), and the Cedar Dell Pond Site in North Dartmouth.

Middle Archaic Period (8000–5000 B.P.)

The increased frequency and visibility of Middle Archaic sites in southern New England suggest that people were firmly established in the region by 8000 B.P. Middle Archaic subsistence strategies appear to have been broader than for the previous periods, possibly due to the expansion of mast forest environments and the increasingly stable development of coastal estuaries. Middle Archaic sites are common around waterfalls, river rapids, major river drainages, wetlands, and coastal settings (Bunker 1992; Dincauze 1976; Doucette 2005; Doucette and Cross 1997; Maymon and Bolian 1992). Large base camps were established along extensive wetland systems (Doucette and Cross 1997; Jones 1999). Sites also commonly cluster around falls and rapids along major river drainages, where the harvesting of anadromous fish and various flora resources was combined with generalized hunting practices (Bunker 1992; Dincauze 1976; Doucette and Cross 1997; Maymon and Bolian 1992). Smaller logistical camps (hunting and resource collection camps) supplemented the base camps, indicating that a multisite seasonal settlement system was firmly established by this time. The increase in the complexity of seasonal rounds is conjectured on the broad range of resources available throughout the period (McBride 1984). Documented subsistence activities included hunting, foraging, fishing, shellfishing, and communal seasonal gatherings to harvest anadromous fish (Bunker 1992; Dincauze 1976; Doucette and Cross 1997; McBride 1984; Maymon and Bolian 1992).

Middle Archaic occupations in southern New England are typically recognized by Neville, Neville-variant, Stark and Merrimack style projectile points and by semilunar knives and diagnostic bifacial preforms (Dincauze 1976; Dincauze and Mulholland 1977). Ground-stone tools included net sinkers, plummets, grooved adzes, axes, gouges, whetstones, and atlatl weights (Dincauze 1976). Recovered adzes, gouges, and axes indicate heavy woodworking and possibly the use of dugout canoes. Excavations at Annasnappet Pond in Carver, Massachusetts, have also conclusively linked the emergence of atlatl weights to this period (Doucette and Cross 1997).

Regionally available lithic raw materials, such as quartzite and rhyolite, with lesser amounts of locally available materials characterize Middle Archaic sites. A correlation of regionally available lithic materials and Middle Archaic site locations led Dincauze (1976) to theorize that Native American bands or tribal territories were established within major river drainages during this period.

The location of Middle Archaic sites demonstrates a strong focus within the region's interior wetland environs. The recovery of Middle Archaic cultural materials from the perimeters of interior wetlands and the identification of a more substantial Middle Archaic settlement focus within the Annasnappet Pond Archaeological District in Carver suggest a settlement system that of large base camps supplemented by smaller, limited duration logistical (hunting or resource exploitation) camps.

The Cedar Dell Pond Site in Dartmouth contained Neville and Stark projectile points is an example of a Middle Archaic site in the region (Mackie et al. 1983:38). The Agawam River Site (M415W66), the 19-PL-562, 19-PL-277 sites, and WRHL02 in West Wareham also contained assemblages with Neville and Stark projectiles (Leveillee and Duffin 2011). Ground-stone gouges, pestles, and axes have been found at the Mendall Farm (19-PL-223) and Black Point (19-PL-232) sites in Marion. In closer proximity to the Project area, a small Middle Archaic component was identified along the Acushnet River at the multicomponent Sleeping Toad Site (19-BR-383) (Herbster and Cherau 2000). The Lawson Site (19-BR-378) identified within the NBHSS Project area and examined by PAL for this investigation reportedly contained Middle Archaic materials. Several Neville-Variant, Stark, and Merrimack points of felsite, argillite and slate have been surface collected (Chadwick and Klein 2003; MHC site files).

Late and Transitional Archaic Periods (5000–2500 B.P.)

More Late Archaic sites have been identified than sites from earlier periods. They have been recorded in a wide variety of environmental settings, with intensive and repeated utilization of swamps and wetlands. These sites are likely associated with repetitive longer-term occupations near large interior wetland basins and along regional waterways. Shellfish exploitation, first observed during the Middle Archaic Period, intensified as the rate of coastal inundation decreased and as estuaries, salt marshes, and tidal mud flats were established (Braun 1974; Lavin 1988). The high density of Late Archaic sites in a wide range of ecological settings, coupled with the large numbers of artifacts attributed to the period, suggests a large population exploiting a broad spectrum of resources (Dincauze 1975; McBride 1984). The density of Late Archaic sites and an apparent reliance on locally available lithic materials indicate the establishment of more circumscribed territories in the region by 5000 B.P. (e.g., Dincauze 1975).

There are two main archaeological traditions associated with the Late Archaic Period (ca. 5000–3000 B.P.): the Laurentian and Small Stemmed traditions. The Susquehanna Tradition, dating to ca. 3600–2500 B.P., bridges the Late Archaic and Early Woodland periods. Radiometric and stratigraphic data confirm that some Susquehanna Tradition occupations were contemporaneous with Late Archaic Small Stemmed and later Early Woodland occupations. Each tradition is associated with distinct lithic technologies, and/or ceremonial or cultural practices.

The Laurentian Tradition is the earliest cultural expression of the Late Archaic. Artifacts associated with Laurentian occupations include woodworking tools (gouges and adzes), ground slate points and knives, ulus, simple bannerstones, and broad-bladed and side-notched Vosburg, Otter Creek, and Brewerton type projectile points (Ritchie 1980:79). Lithic materials in Laurentian Tradition assemblages commonly include locally or regionally available quartzites, volcanics, and some argillites. Laurentian Tradition site distributions suggest an interior riverine and upland settlement focus associated with a hunter-gatherer subsistence economy (Dincauze 1974; Ritchie 1980).

Small Stemmed Tradition occupations in the Northeast are identified by Squibnocket Stemmed Squibnocket Triangle, Wading River, and other Small Stemmed or Narrow Stemmed projectile points (Dincauze 1975). Small Stemmed points were typically manufactured out of quartz, quartzite, and Narragansett Basin argillite in Rhode Island. Cobble quartz obtained from the glacial till, riverbeds, coastal contexts were the most common sources of raw material for Small Stemmed chipped-stone tools. The Late Archaic Small Stemmed Tradition Squibnocket Complex was first defined by William Ritchie from assemblages collected from sites on Martha's Vineyard. According to Ritchie (1969:215), the Squibnocket Complex subsistence economy was based primarily on hunting and supplemented by fishing and shellfishing. Although deer were important, the recovery of gray seal and harbor seal remains from the Hornblower II Site on Martha's Vineyard indicates that marine mammals were also hunted. The Small Stemmed settlement system consisted of large base camps along well-drained stream, pond, and interior wetland margins and small resource acquisition and processing sites that targeted specific resources (McBride 1984; Hoffman 1990; Waller and Leveillee 2002). The combined data for the region indicate that the Small Stemmed Tradition was based on an efficient quartz cobble technology (Hoffman 1985; McBride 1984), with quartz cobbles collected from glacial outwash, riverbeds, or coastal contexts.

Archaeological research in Connecticut (McBride 1984), Massachusetts (Hoffman 1990), and Rhode Island (Waller and Leveillee 2002) all demonstrate that Small Stemmed Tradition sites were concentrated along the banks of freshwater streams and ponds, especially within the region's interior wetland systems, suggesting an interior woodland focused adaptation by individuals employing a collector strategy. Small Stemmed settlement systems involved numerous short-duration "location" sites (Binford 1980) or exploitation sites, which optimized exploitation of the region's varied interior biotic and lithic resources. Larger base camps were supplemented by small location sites reflecting small task-oriented groups (McBride 1984; Waller and Leveillee 2002). The large number of Small Stemmed Tradition sites and the almost exclusive reliance on readily available lithic materials may indicate the formation of more circumscribed territories (Dincauze 1975). The beginning of storage technology within the lower Connecticut River valley suggests longer site occupations (McBride 1978). Small Stemmed lithic technology, settlement systems, and subsistence strategies may be the result of an *in situ* indigenous development that evolved out of the earlier Middle Archaic Neville/Stark/Merrimack sequence (Dincauze 1976). Although Small Stemmed Tradition projectile points are typically associated with the Late Archaic Period, radiocarbon data indicate that their use continued into the Early Woodland Period (Mahlstedt 1985; Rainey and Cox 1995; Wamsley 1984).

There are several Small Stemmed Tradition sites in the vicinity of the NBHSS Project area. The Clayton Site in New Bedford consisted primarily of quartz chipping debris and contained a partial Small Stemmed or Orient Fishtail point. Small Stemmed projectile points were found together with a quartz-dominated lithic assemblage at the Apponagansett Swamp I Site (19-BR-343) in Dartmouth (Rainey 1990). Located on a high knoll adjacent to the Acushnet River, the Sleeping Toad Site (19-BR-383) contains multiple components dating to the Late Archaic, Middle Woodland, and Late Woodland periods (Herbster and Cherau 2000). Finds specifically associated with the Late Archaic component include several quartz Small Stemmed Tradition points, quartz preforms and other quartz tools, and a quartz lithic workstation. A Late Archaic Squibnocket Triangle projectile point was recovered from the Swift III Site in Acushnet (Chadwick and Klein 2003).

The Transitional Archaic Period (ca. 3600–2500 B.P.) bridges the Late Archaic and Early Woodland periods and is recognized by Susquehanna Tradition cultural materials and sites. Extensive trade networks, increased burial ceremonialism, and stone tool technologies and lithic material preferences differed markedly from the Laurentian and Small Stemmed traditions. The Susquehanna Tradition in southern New England began with the Atlantic Phase (ca. 3600 B.P.) and terminated with the Orient Phase (ca. 2600 B.P.) coincident with the beginning of the Early Woodland Period (3000–1600 B.P.) (Dincauze 1972; Ritchie 1980).

Diagnostic materials associated with the Susquehanna Tradition include Atlantic, Wayland-Notched/Atlantic, Coburn, and Orient Fishtail broad bladed point types and steatite (soapstone) vessels. Settlement focused on coastal areas and within large river valleys with a subsistence base that targeted riverine or estuarine flora and fauna (e.g., fish, nuts, and small- to medium-sized mammals) (Pagoulatos 1988). Broad and thin Susquehanna Tradition bifaces (e.g., Atlantic, Wayland Notched/Susquehanna Broad, and Coburn point styles), were used as knives and possibly woodworking or seed extraction implements. Susquehanna Tradition chipped-stone tools were commonly manufactured out of regionally available rhyolites, argillite, and non-local cherts and jaspers. A reliance on local lithic materials such as quartz, quartzite, and argillite was apparent by the Orient Phase, coinciding with the last stage of the Transitional Archaic Period. Steatite bowl manufacture and use began approximately 3,600 years ago and peaked between 3400 and 2900 B.P., before falling into disuse by the end of the Orient Phase (Sassaman 1999). The manufacture and use of heavy steatite vessels by Susquehanna Tradition peoples indicate a trend toward increased sedentism. Susquehanna Tradition sites are best known from regional cremation cemetery complexes such as the Vincent, Watertown Arsenal, and Millbury III sites in Massachusetts (Dincauze 1968; Leveillee 2002).

The Blue Feather Site (19-BR-211) along the south bank of the Acushnet River yielded Transitional Archaic cultural materials (Simon 1980). Steatite bowl fragments were collected from Site 19-PL-252 on the shore of Mattapoissett Harbor (MHC site files). A soapstone bowl fragment and a Susquehanna Broad projectile point were recovered from the Swift III Site within the northern limits of the NBHSS Project area in Acushnet (Waller 2006). A Susquehanna point was recovered at the Spinning Wheel Site (19-BR-382) in Acushnet during a survey for the Acushnet Golf Course (Herbster and Cherau 1996). The Agawam River Site (19-PL-066) in Wareham yielded Orient Fishtail projectile points (MHC site files), as did the Osprey Site situated within the NBHSS in Acushnet (Waller and Robinson 2004a).

Early Woodland Period (3000–2000 B.P.)

Early Woodland sites are relatively scarce compared to the number of Late/Transitional Archaic sites known in the region. Some researchers attribute this scarcity to a population decline associated with any number of causal factors, including unfavorable environmental conditions and unknown epidemics (Dincauze 1974; Fiedel 2001; Lavin 1988; Mulholland 1988; Wendland and Bryson 1974). However, the paucity of sites may also be related to the misattribution of Early Woodland tools (Juli and McBride 1984). Some projectile points used during the Early Woodland Period are very similar to those dating to the Late Archaic Period, making identification of Early Woodland sites difficult in the absence of pottery or associated radiocarbon dates.

Early Woodland settlement patterns were characterized by limited use of upland areas and more intensive use of coastal and estuarine environments. Coastal habitation sites and shell midden deposits along New Bedford Harbor and Buzzards Bay reflect the increasing dependence on shellfish and other marine resources. Such occupations typically have been identified by the presence of Meadowood, Lagoon, Adena, and Rossville type projectile points. The use of steatite vessels was replaced by ceramic technology consisting of grit-tempered, cord-marked Vinette I pottery. Early Woodland artifact assemblages can

contain a high percentage of exotic lithic materials, indicating an expansion and elaboration of long-distance trade networks.

Sites with Early Woodland cultural materials known from the vicinity of NBHSS Project area include Barnaby's Cove, Mother's Brook, and Peace Haven sites in Freetown (Mahlstedt and Johnson 1982).

Middle Woodland Period (2000–1000 B.P.)

Middle Woodland Period sites are more numerous than those dating to the Early Woodland. Site distributions suggest a continued focus on coastal or riverine ecosystems for southern New England Native Americans. Evidence for larger base camps, shell middens, and occasional burials indicates increased sedentism. Small hunting camps were contrasted with larger residential habitations. Small "nodal" sites associated with the circulation of cultural materials through a formalized trade network may have been part of the regional Middle Woodland Settlement system (Hecker 1995).

Traditional models of Native American settlement and resource exploitation hold that the introduction, adoption, and intensification of horticulture substantially altered the preexisting hunting and gathering economies in the Northeast. The earliest evidence of domesticated plants in the region dates to about A.D. 1000, coincident with the end of the period (Bendremer and Dewar 1994). It has been suggested, however, that changes in settlement and subsistence strategies during the Middle/Late Woodland transition may have occurred independently of the adoption of horticulture (McBride and Dewar 1987). The degree of dependence on horticulture and its significance as a stimulus of social and economic change in the late prehistory of southern New England remains a topic for further archaeological research (Mrozowski 1993).

More recent analyses of food residues preserved on the insides of cooking pots recovered from Northeastern archaeological sites indicate that maize and other cultigens such as squash were being processed and consumed in the Finger Lakes region of New York as early as A.D. 650 (Hart et al. 2003) and perhaps earlier (Hart et al. 2007).

Temporally diagnostic Middle Woodland artifacts include Greene, Jack's Reef Pentagonal and Corner-Notched, and Fox Creek projectile points and rocker and dentate-stamped ceramics. Middle Woodland occupations in southeastern New England are commonly marked by a high occurrence of non-local chert, jasper, and Boston Basin hornfels (Luedtke 1987; Ritchie and Gould 1985). The common association between non-local lithic materials and Middle Woodland archaeological sites suggests long-distance social, trade, and exchange networks operating throughout the Northeast from Labrador to Pennsylvania (Dragoo 1976; Fitting 1978; Snow 1980). Exotic lithic materials at Middle Woodland sites in southern New England include Pennsylvania jasper, assorted New York State chert, Ramah chert (Labrador), Kineo felsite (Maine), and Lockatong argillite (northern Mid-Atlantic region) (Goodby 1988; Luedtke 1987; Mahlstedt 1985).

The Swift Site complex (19-BR-212) in Acushnet contained evidence of repeated use during the Middle and Late Woodland periods with chipping debris, calcined bone, shell fragments, and a Middle Woodland Fox Creek point from Swift I (Simon 1980; Thorbahn 1983).

Late Woodland Period (1000–450 B.P.)

Late Woodland archaeological sites are common in coastal environments, around interior freshwater ponds and wetlands, and adjacent to large tributary streams and rivers. Coastal sites contrasted with interior hunting sites, where people exploited and hunted terrestrial animal species, including deer, and gathered predictable botanical resources such as nuts and berries. Late Woodland occupations include specialized sites (e.g., shell middens, hunting and processing camps, and lithic workshops), small domestic sites, and

larger hamlets or villages. Maize horticulture had increased in importance by this period. Increasing populations and a reduction in communal mobility contributed to the development of tribal territories and increasing social complexity (Mulholland 1988). Trade networks became less important.

The Late Woodland Period is associated with an improvement in ceramic technology and production. Diagnostic artifacts include triangular Madison and Levanna type projectile points and cord-wrapped, stick-impressed, and incised ceramics. Levanna projectile points found in southeastern New England are commonly manufactured of quartz and argillite and of rhyolites from the Boston Basin.

The Red Brook (19-PL-587) and Agawam River sites in Wareham yielded ceramics and Levanna points (Dunford and Loparto 1991). The Swift Site complex has yielded Levanna projectile points, Native American clay pot sherds, and evidence of food processing activities. The Washburn Farm Site (19-PL-229) in Marion is listed in the MHC site files as a Late Woodland village. Late Woodland sites in the area reported to contain burials are 19-PL-233 in Marion and 19-PL-224 in Rochester (MHC site files). A Late Woodland feature was also identified at the Acushnet Slough Shell Midden Site (19-BR-719) that yielded a radiocarbon age of 650 ± 30 B.P. (Dudek 2015). The Woodland Period is also strongly represented at the mouth of the Acushnet River and around the local harbors based on shell midden deposits identified in eroding shorelines and by the presence of human remains.

Contact Period (450–300 B.P./A.D. 1500–1650)

Traditional Native American cultural systems were rapidly transformed as contact with European populations affected all aspects of Native American life, including their social, economic, and political, culture lifeways. The lifeways of the Contact Period Native populations are believed to have been similar to those of the Late Woodland Period, with large permanent base camps and villages (some fortified) and smaller satellite hunting and fishing camps. Large groups may have gathered together at certain times of the year for resources exploitation and social and ceremonial functions.

The Wampanoag inhabited southeastern Massachusetts (including Cape Cod and the Islands) at the time of European contact. The Cushenas were settled along the Acushnet River in the present-day area of Acushnet, Fairhaven, and New Bedford (MHC 1982). The earliest reported contact between Europeans and the indigenous people of southeastern Massachusetts occurred in 1602 as Bartholomew Gosnold sailed around Buzzards Bay to explore the coast. Gosnold explored New Bedford Harbor and is rumored to have landed at Round Hill in South Dartmouth.

Epidemic disease, competition for European trade, and hostilities between Natives and Europeans had dramatic impacts during the Contact Period and the following years of sustained colonization. Native groups increasingly struggled to maintain their autonomy as the balance of control and power in the region shifted to the European settlers. As tensions increased, Native groups responded through resistance, including retaliatory violence. For example, the settlement at Dartmouth and the outlying Acushnet and Fairhaven homesteads were among the earliest targets of King Philip's War (1675–1676). Almost every home in the region was burned, fields were plundered, and livestock were killed. Three garrison houses in Fairhaven, Apponegansett, and Palmer's Island served as refuge for the European settlers, but many English settlers and Native Americans were killed. Following King Philip's death in 1676, the region's indigenous population dropped sharply and several decades passed before the area fully recovered from the destruction.

Nineteenth-century historians reported large seventeenth-century Native American sites along the Acushnet River and around New Bedford Harbor. Ellis (1892:25) and Howland (1907:85) refer to a Native American settlement and burial ground on the east bank of the Acushnet in Fairhaven (19-BR-260) near the former site of Cooke's Garrison. Ellis apparently excavated a portion of this site in 1847, unearthing human remains

and Native American and European artifacts. Additional Native American sites have been reported along the banks and near the mouth of the Acushnet River in Acushnet (MHC site files). Local industrial development of the Acushnet/New Bedford area likely has destroyed many Contact Period sites.

Post-Contact Period (1650–Present)

An understanding of European exploration, settlement, and development in New Bedford and throughout Massachusetts provides a context in which to assess the post-contact archaeological sensitivity and potential archaeological resources in the NBHSS Project area. A cultural chronology of the Post-Contact Period in Massachusetts is presented as Table 4-3. Information in this section of the report was gathered from town histories (Ellis 1892; Gifin 1983; Howland 1907); MHC town reconnaissance reports (MHC 1981a, 1981b, 1981c); and eighteenth- and nineteenth-century maps and atlases (Beers 1871; Everts and Richards 1895; Hammond 1831; Spooner et al. 1795; Walling 1855, 1858).

Plantation Period (A.D. 1650–1675)

In 1639, Governor Bradford of the English colony at Plymouth negotiated a verbal agreement with the Cushenas to purchase land that included the "Acushente river" and the sale of the lands was officially recorded in 1652. The purchase was made on behalf of Plymouth County (of which Dartmouth was then a part) by John Cooke and Edward Winslow, who represented 36 proprietors who each had "one whole share" equal to 2,000 acres of land. In return for the approximately 115,000-acre tract of land that encompassed today's towns of Acushnet, Fairhaven, Dartmouth, and Westport, the City of New Bedford, and portions of Little Compton and Tiverton, Rhode Island, the Native Americans were given English goods consisting of cloth, clothing, axes, hoes, kettles, blankets, wampum, and currency (Howland 1907).

As with many of the early Native/Colonist land deals in New England, the purchase of the land was not immediately followed by colonial settlement. Instead, most of the first purchasers remained absentee owners and simply sold off their parcels after the Plymouth authorities began taxing the lands (Gifin 1983). Eight years after the initial purchase, only three resident families are documented in Plymouth tax records as living along the east side of the Acushnet River (now Fairhaven) (Rainey 1990). Many of these early families were Quakers who sought to escape persecution in their home communities.

A small community developed in Dartmouth, with scattered homesteads along the Acushnet River. Plymouth Colony granted the new settlement township status in 1664, and "all that tract of land commonly called and known by the name of Acushena, Ponagansett and Coaksett …" became known as Dartmouth (Howland 1907). Eventually, this land that later became known as "Old Dartmouth" was further divided. New Bedford was incorporated as a town in 1787 and as a city in 1847. Fairhaven was incorporated as a town from part of New Bedford in 1812. Acushnet, although one of the first areas of Old Dartmouth to be settled, was the last of the three to be incorporated as a town when it was annexed from part of Fairhaven in 1860.

The earliest transportation routes in the area included the water route to the diverse riverine and coastal resources of Buzzards Bay and Narragansett Bay provided by the Acushnet River and overland routes that followed established Native trails. The most prominent of these early overland routes was the east–west "Rhode Island Way or Path" between Plymouth and Newport, Rhode Island, which is reputed to have extended along Tarkiln and Plainville roads in New Bedford and crossed over the Acushnet River at a Native ford at the site of the current Main Street Bridge. The route then continued north in Acushnet

Table 4-3. Post-Contact Cultural Chronology for Bristol County, Massachusetts.

GENERAL PERIOD*	***CULTURAL ASPECTS/DIAGNOSTIC CULTURAL MATERIAL***
Contact & Plantation 1500 – 1675	Initial European exploration and contact with Native American population. Native core areas established along major river drainages (e.g., Taunton River) connected by extensive overland trail system. Increasing interaction introduced European diseases and material culture, altered native culture and society, and led to encroachment on native lands. Increasing numbers of Native Americans abandoned traditional lifestyles, many living in John Eliot's "praying towns." Extensive immigration of Puritan settlers to newly established permanent settlements beginning with coastal towns (e.g., Plymouth 1620, Taunton 1639, Rehoboth 1645, Dartmouth 1664, Swansea 1668). Agriculture, fishing, and small local industry formed basis of economy. Early ironworks erected (e.g., Raynham ca. 1656; Saugus ca. 1645). Waterways and native trails provided major transportation routes. Majolica, early tin–glaze earthenware, Rhennish, and Bellarmine stonewares predominate ceramic assemblage. Pipestems with mean bore diameter of 7–9/64ths inch. Handwrought nails only. Freeblown glass bottles, pontil scar, no mold mark.
Colonial 1675 – 1775	European settlement and expansion, curtailed by Native American conflicts (especially King Philip's War 1675–76), continued after cessation of hostilities. Bristol County was created June 2, 1685. Eight new towns were established during this period (Freetown 1683, Attleborough 1694, Norton 1711, Dighton 1712, Easton 1725, Raynham 1732, Berkley 1735, Mansfield 1775). Agriculture and raw material collection remained principal economic activity in peripheral areas. Industrial and commercial pursuits (e.g., distilling, shipbuilding, crafts, trade, etc.) focused in urban and coastal areas. Lower Taunton emerged as regional core, with local cores at Attleborough and Rehoboth. Intracoastal and international trade with other colonies, Europe, Africa, and West Indies (i.e., "triangle trade" in sugar and molasses, rum, and slaves) prospered. Massachusetts colonists, angered by British economic restrictions (e.g., Stamp Act 1770, Townshend Acts 1767), rebelled in Boston Massacre (1770), Boston Tea Party (1773), and finally started fighting at Lexington and Concord (April 1775). Imported tin–glaze earthenware, white salt–glaze, English brown, Westerwald, and scratch–blue stonewares. Imported and domestic redwares. Mean pipestem bore diameter of 4-6/64 inch. Handwrought nails only. Freeblown and molded glass bottles.
Federal 1775 – 1830	Population of Bristol County increased from 31,709 in 1790 to 52,729 in 1830. Six additional towns were established, including Westport and New Bedford (1727), Somerset (1790), Fall River (1803), Fairhaven and Seekonk (1812). Lower Taunton core expanded with local cores developed at Easton and North Attleborugh. Maritime commerce increased following Peace of Paris (1783) ending Revolutionary War, including development of trade with China. Trade and economy suffered due to Embargo Act (1807) and War of 1812. Agriculture remained basis of rural economy. Shift from agriculture to industrial based economy began with improvements of water power technology and development of new mill privileges. Villages grew around rural mills to house workers. Development of road networks with advent of turnpikes. Coastal and riverine routes remained important transportation linkages. Ship building prospered in towns on Taunton River and along coast. Creamware and pearlware predominate ceramic assemblage. Handpainted and transfer print decorated. Small bore diameter (4/64 in.) pipestems. Both handwrought and machine cut nails. Post 1810 3–piece molded bottles introduced. First tin cans (post 1819).

Continued on next page

GENERAL PERIOD*	***CULTURAL ASPECTS/DIAGNOSTIC CULTURAL MATERIAL***
Early Industrial 1830 – 1870	Introduction of railroads (e.g., Boston & Providence RR, 1835; Taunton Branch RR, 1836; Dighton & Somerset RR, 1866; Attleborough & Taunton RR, 1869) revolutionized transportation network. Small lines consolidated during period, carrying passengers and freight throughout region. Acushnet (1860) established as town. New Bedford (city in 1847), Fall River (city in 1854), and Taunton (city in 1864) developed as urban centers and regional cores. Decline in agriculture linked to emigration of farmers to newly opened western territories and to factory and mill jobs, and due to decline in market caused by arrival of western produce via railroads. Civil War (1861–1865) generated major expansion of manufactures, including textiles, metal working, machinery, and shoe and boot industry. Decline in cotton supply due to war embargoes caused many mills to close or convert to manufacture of woolen goods or worsteds. Large scale immigration (especially from Ireland and Germany) generally to work in mills. Shift from whale oil to petroleum led to decline in whaling fisheries. Pearlware, hard white earthenware, yellowware, and domestic stoneware most common. Transfer print design technique predominates. Machine cut nails predominate. 2-piece mold bottles replace 3–piece mold bottles (post 1840). Snap-case bottle bottom finish, no pontil scar (post 1857). Mason jar patented 1858. 1867 lettered panel bottles introduced. Pressed or sandwich–type glass (post 1827). Condensed milk can patented 1856. Vulcanization process patented by Goodyear (1839) resulted in increased production of rubber products.
Late Industrial 1870 – 1915	Technological developments resulted in major changes (e.g., steam power, electrification, gas lighting, etc.). Development of urban and interurban mass transportation and street railways resulted in growth of suburban communities. Arrival of large numbers of immigrants, especially from eastern and southern Europe and French Canadians. Expansion and development of large scale industrial concerns (e.g., Fall River and Taunton mills). Introduction of cranberry cultivation, first in Plymouth County (ca. 1878). Beginnings of summer and resort development in coastal areas. County population tripled between 1870 and 1910 (from 102,886 to 318,573). Hard white earthenware predominates ceramic assemblage with yellowware and domestic stoneware. Machine-made bottles most common. Semi-automatic bottling machine (post 1881); replaced by fully automatic machine made bottles (post 1903). Hutchinson stopper (post 1872/9); canning jar closure (post 1875); crown bottle cap (post 1892). 1904 double–seamed tin can introduced.
Modern 1915 – present	Decline of mill industry during Great Depression (1930s), temporarily reversed by World War II, then decline continued following war with removal of many mills to southern states. Introduction of automobile and major improvements in automobile transportation network (e.g., Interstates 95 and 195, and Route 6). Agriculture remains important in rural economy with market gardens shipping produce to urban areas. State's textile and shoe industry decline after World War II offset in part by growth of professional and service industries (e.g., banking, computer, defense-related, etc.), retail outlets, and resort areas mainly located along improved transportation corridors and coast. Gradual decline of urban core areas with suburbanization of hinterlands. Hard white earthenware, stoneware, porcelains, and melamine (post WWII). All bottles fully automatic machine-made. Purple manganese glass. Beer can introduced 1935. Pull–tab can opening introduced 1962. Plastic products (post 1900).

*Source: MHC

along the present-day routes of Main and North Main streets and south into Fairhaven along South Main Street before branching off into two conjectured trails (corresponding with today's Adams and Alden streets) at the Acushnet/Fairhaven line (Howland 1907; MHC 1981a, 1981b, 1981c).

Acushnet was among the earliest portions of Old Dartmouth to be settled by European colonists. The first of their homesteads in Acushnet were likely located near the river and along South Main, Main, and North Main streets (MHC 1981a). Population data for the area's Euro-American settlers during this period are incomplete, but indicate, as noted previously, that the majority of the area's Euro-American settlers were English Quakers who had migrated from Portsmouth, Rhode Island, and from Plymouth, Taunton, and Duxbury.

Colonial Period (1675–1775)

Events in the region played a crucial role in the onset of King Philip's War (1675–1676). Tensions between the area's Native populations and Euro-American colonists had been increasingly strained for some time when a Christian Indian named Sassaman was murdered in Lakeville in 1675. Sassaman had supposedly passed word to the English at Plymouth that Massasoit's son Philip was planning hostile actions against the settlements. Sassaman's murder was blamed on Philip and violence erupted.

As noted above, the settlement at Dartmouth and the outlying Acushnet and Fairhaven homesteads were ravaged by fighting in the earliest phases of King Philip's War. Several decades passed before the area fully recovered from the destruction. Postwar settlement in Acushnet was focused initially in the area around the head of the Acushnet River and along the Rhode Island Way. By the start of the eighteenth century, two settlement nodes had developed at the junction of Main and South Main streets and near the Long Plain cemetery. The area around Long Plain became known as a Quaker enclave, due in part to the presence of a Quaker meetinghouse built in Long Plain ca. 1729. In 1735, a second meetinghouse was built in this section of town to accommodate the growing population.

The postwar economy of the Acushnet area was closely tied to the use of the river and milling was the leading source of revenue. Mills were established by the first settlers of the area and, by the first quarter of the eighteenth century, there were at least five mills near the present-day town center of Acushnet, an area commonly known as the "Head of the River." Acushnet served as the milling center of Old Dartmouth, and settlers from all over the area would have brought their grain to the town's riverside mills. In 1738, an iron forge was built on Deep Brook north of its intersection with Middle Road. Bog iron extracted from area swamps provided the raw material for the mill's manufactures (Howland 1907).

During this period, the road network was expanded to facilitate travel between Old Dartmouth's distant villages. In Acushnet, the junction of Main and South Main streets, known as "Parting Ways," was supplemented by a road south to Fairhaven in 1724. The Post Road (today Main, North Main, and Perry streets) was also laid out in 1724 (MHC 1981a). Population data for the Colonial Period are not available by village, but the records for Dartmouth indicate that the area grew quickly. In 1675, Old Dartmouth contained approximately 30 homes; by 1765 it had 4,506 residents. By 1776, Dartmouth's population had reached 6,773 (MHC 1981a).

Federal Period (1775–1830)

The Revolutionary War had a strong effect on the populations around New Bedford Harbor. On September 5, 1778, the harbor's settlements were attacked by the British. After taking over Fort Phenix in the harbor, British troops landed at the head of the Acushnet River and marched inland. The soldiers burned homes and set loose livestock as they passed through the town in an attempt to avenge the losses suffered by British ships from the depredations of the American privateers' successful wartime campaign. The

British attack resulted in the loss of much of the area's early settlements, but their inhabitants were quick to rebuild. In 1787, in response to changes and developments throughout Old Dartmouth, the town was split into three separate towns: Westport, Dartmouth, and New Bedford, which included today's towns of Acushnet and Fairhaven. This division separated the two mainly agrarian communities from the growing maritime community of New Bedford (Figure 4-1).

Acushnet emerged as the focal point of Old Dartmouth's settlement and manufacturing during the eighteenth century, and this dominance reached a peak during the Federal Period. One of the earliest cotton mills was in place on the Acushnet River by 1799, with three more by 1818. Next to farming, these mills employed the largest number of the town's residents and produced materials that were sent all over New England (MHC 1981a).

Shipbuilding was supporting the local economy by the mid-eighteenth century. The western section of Acushnet served as the hub of this activity before New Bedford developed into a larger port city. Before the Revolutionary War, Acushnet's shipbuilding industry had grown and larger ships were being built, particularly whaling vessels. Following the Revolutionary War, the growing center of New Bedford became the focus of the whaling industry, and most regional shipbuilding operations relocated to its port.

So tied was the Acushnet area to marine shipping that when the War of 1812 prompted an embargo on exports, commerce nearly came to a halt. New Bedford Harbor was built up in preparation for English attack, especially in light of the destruction during the Revolution. The lifting of the embargo was followed by a storm in 1815 that flooded and destroyed most of the harbor, damaged crops, and put the town even deeper in debt.

One of the early hubs to develop in Acushnet was Parting Ways at the intersection of Main and South streets. This area was an extension of the already concentrated settlement just west, where the Acushnet River crossed Main Street. In addition to increased commercial and residential development in these core areas, Acushnet's once isolated farmsteads were becoming surrounded by neighboring agriculturalists (MHC 1981a). For the first 150 years of settlement, the only bridge over the Acushnet River was in place at the village center, and this spot had been the crossing for the Native trail between Middleboro and the bay (Howland 1907).

The residents of Acushnet village organized a formal petition in 1786 to separate from the town of Dartmouth. The petition stated that each of Dartmouth's three villages functioned independently, except for the town governmental offices, and that the inconvenience of traveling to meet as one body was reason enough to form separate townships. At that time, Dartmouth encompassed approximately 70,000 acres of land. The petition also mentioned that persons "living on the east side of [the] Accushnut river are subject to the inconvenience of crossing the River, which is a mile wide, and when across have four miles travel of a bad Road, or of going around over the Bridge at the Head of the River, which renders the travel of the greatest part from twelve to fourteen miles" (Howland 1907).

The petition was granted and, in 1787, Dartmouth was divided into three separate towns. The largest section retained the name of Dartmouth as well as the government buildings. The western section had been known by the Native name Acoaxet and became Westport. The eastern section included present-day New Bedford, Acushnet, and Fairhaven and was commonly known as Acushnet, with the principal settlement near the harbor called Bedford. In 1812, the eastern section was again divided into two sections, this time along the Acushnet River. Because a town by the name of Bedford already existed in Massachusetts, the newly formed town was renamed New Bedford. The land east of the Acushnet River became the town of Fairhaven and at that time still included the present-day incorporated town of Acushnet.

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Figure 4-1.

Early Industrial Period (1830–1870)

The town of Acushnet was officially incorporated in 1860 and was separate from Fairhaven. The growth and expansion of New Bedford continued to outstrip that of Acushnet and Fairhaven as its whaling industry reached its zenith in 1845. By 1857, half of the nation's whaling ships were owned by New Bedford-based interests (NPS 1966). The agricultural products from Acushnet and Fairhaven supplied the bulk of fresh goods to the growing industrial city of New Bedford. New Bedford employed the majority of the region's inhabitants ca. 1860, as it made the transition from the capital of the whaling industry to one of the country's leading textile manufacturers. Fairhaven's and Acushnet's economies were increasingly tied to that of New Bedford. The New Bedford and Taunton Railroad opened in 1840 and provided the first mechanized travel route from the Fairhaven-Acushnet area to Boston, although no railroad terminals or water ports were within the newly established Acushnet town boundaries (Figure 4-2). This factor stunted any significant commercial growth during the period and limited the local tax revenues.

The creation of a reservoir on the Acushnet River to provide water for New Bedford further limited the town's self-sufficiency. The resultant loss of power along the river led to the end of Acushnet's mill era and the closure of all three cotton mills by 1870. Wood products took up some of the slack; packing boxes, furniture, and lumber were still manufactured at area sawmills. The population in Acushnet continued to decline through the late nineteenth century. Settlement remained concentrated around the area known as Head of the River, although residential infilling did occur along existing roads. Acushnet's population was 1,387 at the time of its incorporation in 1860, but the number of residents steadily declined through the end of the period.

Late Industrial Period (1870–1915)

Acushnet's population and economy continued shrinking until 1890, at which point New Bedford's expansion northward, coupled with improvements in transportation, spread into Acushnet and initiated residential and economic growth along existing roads and in the Head of the River area (Figures 4-3 and 4-4). Concomitant with this overall growth trend, Acushnet's foreign-born population rose from just 4 percent in 1885 to 29 percent by 1915 as the workforce demands of the New Bedford textile mills brought in thousands of immigrants, many of Portuguese descent.

Modern Period (1915–Present)

At the beginning of the twentieth century, New Bedford began to expand its city limits northward, and residential settlement spread into the Acushnet town limits. This residential character has remained in Acushnet (MHC 1981a). Acushnet's population climbed slowly during the early twentieth century in response to limited commercial growth in Acushnet Center. Many of the buildings constructed during this period are still in use. In 1910, the Acushnet Process Company (now the Acushnet Company), was founded in the town and continues to be one of southeastern Massachusetts' most enduring industries. The Acushnet Company owns the Titleist brand name, under which golf balls, golf clubs, and other golf paraphernalia are marketed. Since 2011, the company has been a subsidiary of Fila Korea, Ltd. and makes golf equipment and clothing at its worldwide headquarters in Fairhaven and plant-distribution centers in North Dartmouth and New Bedford (Acushnet Company 2017). Another local industry, the former Tilcon Massachusetts Inc., originally operated as the Blue Stone Quarry Company before 1921, relying on a large deposit of blue-grey gneiss located just off Main Street. This material, commonly referred to as bluestone, is a primary source of road bed and pavement grading material for commercial, residential, and transportation projects in southeastern Massachusetts and Rhode Island. The company merged with Capaldi Construction of Rhode Island in 1999 and with P. J. Keating Company of Lunenberg, Massachusetts, in 2003. The trap rock quarry in Acushnet is still used today for the extraction of crushed stone and base materials (P. J. Keating 2017).

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Figure 4-2.

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Figure 4-3.

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Figure 4-4.

Site-Specific Land Use Histories of the Howard's Neck and Dock Sites

PAL compiled detailed land use histories for the Howard's Neck Site (as part of the archaeological assessment of proposed access roads) and for the Dock Site (as part of the Phase II archaeological site examination).

Howard's Neck Site (ACU.1)

Howard's Neck, containing the recorded Howard's Neck Site (ACU.1), an early settlement burial ground, was originally set off to Samuel Cuthbert, who settled in the area of present-day Acushnet in 1660. In 1661, the neck was conveyed to John Russell, who then passed it on to John Cook (1607–1694) in 1666, who was one of the original proprietors of Old Dartmouth and a member of one of the first families to settle in Acushnet (Howland 1907; Worth 1913).

Howard's Neck encompasses about eight acres and was formed by the confluence of Howard's Brook where it bends to the north and joins the Acushnet River. In 1668, Cook passed the eight acres to his son-in-law Arthur Hathaway (1638–1711). In his will dated November 9, 1694 (probated April 16, 1696), Cook formally bequeathed his daughter Sarah and son-in-law Arthur Hathaway all his land "in the point at or near the burying place in Dartmouth the which I bought of John Russell to them their heires and assignes for Ever."

The neck lands appear to have been included in the over 600 acres of land in southwest Acushnet assembled by Arthur Hathaway and described above as being a half mile wide north–south and nearly two miles long bordering the east side of the Acushnet River near the current Fairhaven town line. At his death, Arthur Hathaway passed on the 600-acre farm to his son Thomas Hathaway (senior), who in 1740 at his death divided his real estate among his three surviving sons: Thomas (junior) (1711–1786), Antipas (1698–1778), and Jethro (1720–1803). Thomas (senior) gave the northern third of his farm, including the eight acres of land at the neck, to Antipas, the middle section to Jethro, and the southern third to Thomas (see detailed discussion of the Dock Site, below). On August 4, 1752, Antipas sold his portion of the farm to his brother Jethro for £350. The 1752 deed from Antipas to Jethro indicates that Antipas was a glazier living in Newport, Rhode Island, at the time. The deed is also the last recorded reference of the parcel to "ye point called ye old burying point on Acushnet Village in Dartmouth" (Bristol County Registry of Deeds [BCRD] old book 57:289).

In his study of the early settlement of Acushnet, Henry B. Worth (1913:14) notes that John Cook (d. 1694) was probably buried in the burial ground at the north end of the neck at Howard's Brook, although the neck had been abandoned by 1686 in favor of a settlement center to the north closer to the head of the Acushnet River. According to Worth, the neck remained in the possession of the Hathaway family until 1854, although he does not mention that members of the Hathaway family continued to be buried on the neck after Arthur and Thomas (senior) Hathaway's generations in the early eighteenth century. The last will and testament of Jethro Hathaway, dated August 16, 1798 (probated October 4, 1803), provides for all his real estate to be divided among his third wife Mary and his three surviving children: daughter Hepsabeth and sons Stephen and Clark. There is no mention of a "burying point or place" in any of the parcel descriptions in Jethro Hathaway's will, although it looks as if the land at the neck, described at that time as the "country neck," was part of a 350-acre tract that went to Stephen Hathaway (1743–1826). At his death in 1826, Stephen Hathaway bequeathed his real estate to his six daughters, and again there is no mention of a "burying point or place" in any of the parcel descriptions in his will dated August 18, 1824 (probated February 7, 1826).

The chain-of-title for the property containing the Cook-Hathaway burial place after the death of Stephen Hathaway is unclear, but it appears to have become part of a smaller 35-acre farm property that occupied

both sides of Howard's Brook and was owned by Samuel Cory beginning in 1862 (Howland 1907; Worth 1913). On March 16, 1863, Samuel Cory and his son Samuel Cory Jr., both of Newport, Rhode Island, paid Jonathan Taber and Elisha Pope, both of Acushnet, $6,500 to acquire the 35-acre farm described as being east of the Acushnet River and west of the road leading from the head of the river to the Acushnet Road (BCRD 50:15). Taber and Pope had acquired the same property from Lettice Washburn for $4,000 on November 14, 1862 (BCRD 49:155). Lettice Washburn had in turn paid $50 to Gideon Nye and other members of the Nye family (Stephen Hathaway's daughters' relatives) on February 10, 1844, and $1,600 to George T. Russell on August 4, 1853 (BCRD 24:425) for the same property. There is no mention of an old burying place in any of these mid-nineteenth-century deeds.

The 35-acre farm remained in the Cory family until September 3, 1938, when Sarah P. Cory, widow of Arthur C. Cory, one of the two sons of Samuel Cory Jr. who had inherited the property from their father, sold it to George T. Lecuyer and his wife Yvonne (BCRD 807:416). The 1938 deed mentions the easement through the property granted to New Bedford Gas and Edison Light Company for the maintenance of its transmission lines. On July 16, 1985, the property was transferred to Janet Robichaud in accordance with the last will and testament of Yvonne Lecuyer and remains in her possession today (BCRD 1929:1124 and 9360:40).

Dock Site (ACU.11)

The Dock Site was historically situated at the far west side of the mid-nineteenth-century Laura Keene Farm, also known as "Riverside Lawn," in the southwest section of Acushnet. The 120-acre farm was originally part of a large tract of real estate assembled by Arthur Hathaway (1638–1711) in the second half of the seventeenth century through connections with his father-in-law John Cook (1607–1694), one of the original proprietors of Old Dartmouth and earliest settlers in Acushnet (Howland 1907; Worth 1913). By the early eighteenth century, the property contained over 600 acres and was a half mile wide north–south and extended nearly two miles east from the Acushnet River near the current Fairhaven town line. In his will dated February 9, 1709 (probated July 6, 1711), Arthur Hathaway passed on the 600-acre farm to his son Thomas Hathaway (1664–1748), a prominent town selectman. In 1740 Thomas (senior) conveyed parts of his real estate to his son Thomas Hathaway (junior) (1711–1786).[6] The lands transferred to Thomas (junior) contained the Thomas Hathaway farmhouse on the east side of Fairhaven Road (now South Main Street) about one-quarter mile north of the town line (Howland 1907). In his will dated May 10, 1775 (probated May 2, 1786) Thomas Hathaway (junior) divided his portion of the 600-acre farm into several parts and bequeathed the different parts to various family members. His nephew, Jonathan Kempton (1757–1823), youngest son of his sister Mary Kempton (deceased in 1756, married to Thomas Kempton), was given the portion of the farm that contained his homestead, to be received at the death or re-marriage of his wife Hepsibeth Starbuck. Thomas further indicated that Jonathan was only to receive this inheritance when he reached thirty years of age and had married and was with heirs.

Jonathan Kempton's real estate inheritance was known as "Hathaway Place" and contained about 120 acres, the southern third of the original 600-acre Hathaway farm, and described in Thomas Hathaway's will as

> all that part of my homestead with all the buildings standing thereon beginning at the river and extending easterly the full width of my homestead until it comes thirty rods easterly to Gamaliel Hathaway's northeasterly corner bound of his homestead, from thence northerly on a [illegible] line to my brother Jethro's south line of his homestead together with all that tract or parcel of land laying at the head and adjoining to the said Gamaliel Hathaway's homestead which said tract of land was laid out to my Honored Father deceased as an

[6] No probate records were identified for Thomas Hathaway (senior) in the Massachusetts Wills and Probate Records for 1635–1991 for Bristol County, available through Ancestry.com.

> addition and adjoining to his home and qualified at twelve acres and ninety rods together with all my lot of land and fatt meadow adjoining where my pasture is on the easterly side of a neck and near the narrow of said neck together with all my lot of cedar swamp called and known by the name of Hathways' cedar swamp together with the one half of my lot of cedar swamp.

Jonathan Kempton managed the "Hathaway Place" or homestead farm with his wife Lydia (née Wing) and their eight children until his death in 1823. In his will dated September 23, 1823 (probated November 7, 1823), Jonathan passed the farm and all its belongings to his wife and children. The property was described in his will as

> the lot of land with the buildings thereon … beginning at the northeast corner of my orchard by the road thence running southerly by the road until it comes to the south wall of the lane, that runs from the road to my dwelling house; thence westerly by the southerly side of said lane until it comes to the southwesterly corner of my dooryard, thence in the line of the fence that surrounds the yard of my dwellinghouse, until it comes to the first mentioned bound.

By 1836, his second son, Charles Kempton (1803–1853), had acquired the entire farm from his mother and siblings (Howland 1907). In a series of deeds from December 1836, Lydia Kempton and Charles' sisters Mary and Sarah Kempton, brother Humphrey Kempton, and sister Hannah (Kempton) Bradford and her husband William O. Branford deeded their right, title, and interests in the real estate given to them in the last will and testament of Jonathan Kempton (BCRD 7:221–223).

Charles Kempton never married, and according to local historian Franklyn Howland (1907), he "failed" and the property reverted to his mother Lydia Kempton, who outlived her son by one year. In a deed dated May 14, 1851, Lydia Kempton, widow, sold the real estate "devised to her by will of her late husband Jonathan Kempton, late of Fairhaven, deceased" to Mary Gifford of Dartmouth, wife of Joseph Gifford, for the sum of $1,200 (BCRD 21:10). On March 29, 1855, John and Mary Gifford of Fairhaven transferred the approximately 120-acre property to Nathan Breed of Lynn for $5,000 (BCRD 28:160).

Nathan Breed's daughter Mary married William Bradford (1823–1892), a renowned nineteenth-century American romanticist painter, photographer, and explorer best known for his maritime paintings. William worked for many years in a studio built by his father-in-law on the Acushnet River west of the farmhouse. He shared the studio for a time with Dutch marine artist Albert Van Beest and local artists, including Lemuel D. Eldridge (Martin 1990; *New Bedford Standard Times* 1849). The studio was reportedly a "short square building high in the walls and strongly made … so that it would not shake in the gales." It was "built on posts in the river" and "commanded a view of the port's gateway" where "Mr. Bradford could see at a glance (windows pierced all four sides of the building) Palmer's Island, Fort Phoenix, the shipyards and the whale ships departing" (*New Bedford Standard Times* 1849). The 1855 (Walling) map of Fairhaven depicts one dwelling belonging to N. Breed at the end of a short lane west of Fairhaven Road (see Figure 4-2). No structures, including the Bradford studio or other shoreline improvements, are depicted along the Acushnet River shoreline at that time.

On March 21, 1865, Nathan Breed sold the same property to Laura Keene, a stage actress from New York City, for $10,000. Keene mortgaged $6,000 of the cost to Nathan Breed with the stipulation that she had two years to pay him back or the property would revert back to him (BCRD 55:418–422). Laura Keene, born Mary Francis Moss in Winchester, England, in 1826, purchased the Acushnet property shortly after appearing in a play in New Bedford. Miss Keene, as she was popularly called, maintained the Acushnet property, which she named Riverside Lawn, as a summer residence for herself, although her mother Jane

and her two daughters, Emma E. Taylor and Clara S. Taylor,[7] established residence and spent most of their time there (Creahan 1897; Henneke 1990). The property contained the twenty-room wood-frame residence with bath and Bradford's studio on the river. Miss Keene added a winding driveway from the main road to the house, a duck pond, and bathing houses for guests on the bank of the river at a bathing beach near a small knoll covered in pine trees, which she named St. Patrick Point (*New Bedford Standard Times* 1949). During their tenure, the Keenes maintained 40 acres in active cultivation, including fruit and ornamental trees, a kitchen garden, and 40 acres in woodland and pasture where they kept a barn and small milk herd (Ayreshire, Alderney, and Jersey breeds) and other small livestock (*New Bedford Enterprise* 1873).[8]

On March 26, 1870, three years before her death, Laura Keene had transferred equal part interests in the Riverside Lawn property to her two daughters, who were unmarried women, for $1 and a life lease (BCRD 66:460). The life lease was to ensure Laura the right of free use and occupancy of the house jointly with her daughters "together with all the household furniture, fixtures, library, and pictures now contained in the house on the premises, for the term of her natural life, for a yearly rent of $10." On August 1, 1871, Laura and her daughters obtained a $4,000 mortgage on the property from Ann Jane Raymond of Boston (BCRD 69:421), presumably to help finance the launch of her monthly magazine *Fine Arts*., the sales of which Laura hoped would provide a dowry for Emma and Clara (Henneke 1990).[9] The 1871 mortgage deed makes the first reference to the property as the "Riverside Lawn" estate and farm. The next day, Laura mortgaged another $3,000 from her widowed mother Jane Keene and $1,000 from her lawyer, William D. Booth of New York City (later sold to C. Evelyn Baker of New York City) (BCRD 69:484).

The 1871 (Beers) map of Acushnet depicts two buildings on the property at the west end of a long circular driveway lane belonging to Miss Laura Keene on what is labeled Riverside Lawn between the Acushnet River and Fairhaven Road at the town boundary (see Figure 4-3). No improvements or structures, such as the studio and bathhouses, are depicted along the river shoreline at that time.

In July and August 1872, Jane Keene of New York City and Laura's daughters made a series of transactions that resulted in all the previous mortgages being repaid (BCRD 73:9–11), and on September 27, 1872, Laura Keene released all her claim to the Riverside Lawn property in Acushnet for $100 to her daughter Clara (BCRD 74:561–563). On August 15, 1873, the "Laura Keene Farm in Fairhaven" described as the "beautiful residence lately owned and occupied by Laura Keene" with a "house in good condition and ready for immediate occupancy" was advertised for auction in the local newspaper (*New Bedford Enterprise* 1873). On August 26, 1873, Clara S. Taylor recorded the transfer of the property to William Weeks of New

[7] Emma and Clara were born in Winchester, England, to "Mary Francis" and Henry Taylor. When the girls were still young, Henry Taylor abruptly left and was rumored to have committed a crime so severe that he was sentenced to a life term in the Australian penal colony. Socially outcast as a single parent, Mary Francis reinvented herself as Laura Keene with the help of her aunt, a British stage actress. After several years of apprenticing in a British theater company, Laura moved to New York City to pursue a career in the theater. After securing a steady acting contract, Miss Keene sent for her two daughters and widowed mother Jane to join her in New York and, by 1853, at 27 years of age and only two years after moving to America, she founded her own theater company in Baltimore (Creahan 1897; Hall 2011; Kenneke 1990).

[8] Laura Keene was a renowned mid-nineteenth-century United States actress, so-acknowledged by her own contemporaries, and had the lead female part of Florence Trenchard in the play *Our American Cousin* at Ford's Theatre in Washington D.C. the night that Abraham Lincoln was assassinated (Creahan 1897; Hall 2011; Henneke 1990; Howland 1907). Coincidentally, her acquisition of the Acushnet farm took place only one month before the April 24, 1865 assassination.

[9] Laura and her two daughters worked on *Fine Arts* at the Acushnet farm with help from various theatrical and artist personalities in New York and Boston, but her health began to decline and the magazine proved too expensive to produce. After only 11 months, the last issue was published in October 1872. In 1873, Laura died of consumption in Montclair, New Jersey, at the age of 47 (Hall 2011; Henneke 1990).

Bedford for $6,250 (BCRD 75:187–188), ending the eight years of ownership by the Keene family. Within the year, on March 20, 1874, William Weeks sold the property to William Gardiner of Manton, Rhode Island, for $7,000 (BCRD 76:414–415). William Gardiner moved to Acushnet and occupied the Riverside Lawn property until October 16, 1883, when he sold it to Sarah L. Adams of Bridgewater for "$1 and other valuable considerations" (BCRD 105:539–543).

From 1884 to 1886, there was a series of back and forth transactions and mortgages among Sarah Adams of Acushnet, William C. Craig of West Medford, and Mary F. Howes of Brockton (BCRD 108:10, 115:70–73). Less than two months after William C. Craig sold the property back to Sarah Adams for $7,000, on March 23, 1886, Sarah Adams mortgaged the property to Nellie H. Smith of Boston for "$1 and other valuable considerations" (BCRD 115:286). The property was then mortgaged back and forth among Sarah Adams, Nellie H. Smith, F. B. Lawson of New York City, and J. Arthur Beamais of New Bedford until finally Nellie H. Smith sold it for "one dollar and other valuable considerations" to Frederick B. Lawson of New York City on May 6, 1887 (BCRD 121:196–201). The 1895 (Everts and Richards) map of Acushnet depicts one dwelling and at least four associated structures and outbuildings on the former Laura Keene Farm (Riverside Lawn) property belonging to Dr. F. B. Lawson. These structures were at the west end of the driveway off Fairhaven Road; there were buildings or improvements depicted on the Acushnet River west of the dwelling complex (see Figure 4-4). The house and other buildings were reportedly destroyed by fire in 1897 (*New Bedford Standard Times* 1949). On March 14, 1899, Dr. Lawson, of Boston and living in Newton, mortgaged the land for $4,000 to the New Bedford Five Cents Savings Bank (BCRD 202:198–199).

On November 8, 1910, Lawson sold the vacant property to Samuel Genensky of New Bedford for "$1 and other valuable considerations" (BCRD 342:160). The 1910 deed includes plans by Genensky to subdivide the former Laura Keene Farm into more than 400 residential house lots to accommodate an anticipated influx of residents to the New Bedford-Fairhaven-Acushnet area (BCRD Plan Book 8:3–43; Figure 4-5). The proposed development would have required filling of the Acushnet River marshes, creating Lawson Road as the main axis west from South Main Street to the Acushnet River, and establishing a series of perpendicular and parallel streets on both sides of Lawson Street and Beech Street. The Dock Site would have been in the 1910 subdivision block occupied by Section 2, House Lots 50–55 (see Figure 4-5). The Town assigned assessor numbers to the proposed lots at that time, but the full subdivision was never completed, although several of the proposed subdivision streets (e.g., Lawson, Beech, County, and Union street) and a number of single-family homes, including the one currently at 33 Beech Street, just east of the Dock Site, were constructed from 1918 to 1936 (USGS 1918, 1936, 1948, 1958, and 1964).

The 11.39-acre parcel on the west side of Beech Street containing the Dock Site was designated Plat 25, Lot 319. On October 25, 1928, the Town of Acushnet took the lot from Samuel Genensky for non-payment of taxes (BCRD 675:582). In 1938, the Town declared the parcel "low value land" and included it in a public auction, but no one appeared for the bidding and the Town Treasurer purchased it for the Town of Acushnet (BCRD 802:172–174). The 1936 USGS topographic map depicts the house at 33 Beech Street and a dashed line along what appears to have been the dividing line between the river marshes and upland at that time. A small knoll is also shown to the northwest of 33 Beech Street and may correspond to the location of the 1860–1870s Laura Keene beach and bathhouses on what she called St. Patrick Point. The Dock Site appears to be located just south of the knoll along the dividing line that crossed a narrow tidally influenced creek still there today (Figure 4-6). The 1961 and 1971 aerial images depict the faint outline of possible wall structures and a culvert in this area, but no buildings (NETR 1961, 1971). The Town of Acushnet is the current owner of the undeveloped parcel, which is currently valued at $73,600.

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Figure 4-6.

CHAPTER FIVE

RESULTS OF ARCHAEOLOGICAL ASSESSMENT

CR and Jacobs provided PAL with proposed plans for equipment and machinery NBHSS shoreline access roads and laydown areas (see Figure 1-4). At their request, PAL reviewed the design plans and conducted additional archival research and a walkover of proposed access roads and six laydown areas to assess the archaeological sensitivity of these areas. PAL, assisted by CR, Jacobs, and DSRA, conducted walkovers of the proposed temporary NBHSS shoreline access roads and laydown areas on August 29 and December 6, 2016.

Archival Research

The proposed NBHSS access roads and laydown areas are located along the east side of the Acushnet River from the Wood Street Bridge to Magnolia Avenue in Fairhaven (Figure 5-1). Access roads follow service roads, transmission line rights-of-ways (ROWs), and areas of new temporary construction along the vegetated shoreline. Evidence for pre-contact Native American occupation and use of the New Bedford/Acushnet area is extensive, with numerous archaeological sites reported along swamp margins, secondary waterways, and along the area's coast and estuary margins. Archaeological site records at the MHC show the presence of 2 pre-contact sites (Frag Site [19-BR-559] and Acushnet Slough Site [19-BR-466]) and 2 post-contact sites (Howard's Neck Site [ACU.1] and Dock Site [ACU.11]) in immediate proximity to the Project APE and an additional 12 pre-contact sites and 1 post-contact site adjacent to the proposed access roads and laydown areas (Figure 5-1; Table 5-1).

Table 5-1. Archaeological Sites in or near the Proposed NBHSS Project Access Roads and Laydown Areas.

Site/Resource Number	Site/Resource Name	Type	Age
Pre-Contact			
19-BR-378	Lawson	Workshop, habitation site	Middle Archaic, Late Archaic, Late Woodland
19-BR-463	Burt School	Unreported	Woodland
19-BR-466	Acushnet Slough	Unreported	Unknown
19-BR-553	Beech	Flake scatter	Unknown
19-BR-554	Comm	Flake scatter	Unknown
19-BR-555	Lacuyers	Workshop	Unknown
19-BR-556	Hadley	Workshop	Unknown
19-BR-557	Pear Island	Workshop, flake scatter	Unknown
19-BR-558	Trust	Workshop, flake scatter	Unknown
19-BR-559	Frag	Flake scatter	Unknown
19-BR-560	Harding I	Flake scatter	Unknown
19-BR-561	Harding II	Workshop	Late Archaic
19-BR-590	Osprey	Campsite	Late/Transitional Archaic, Early Woodland
19-BR-719	Acushnet Slough shell midden	Shell midden	Late Woodland
Post-Contact			
ACU.1	Howard's Neck	Burial ground	17th and 18th centuries
ACU.11	Dock	Retaining wall/drainage feature	19th and 20th centuries
ACU.12	Foundation	Outbuilding	19th and 20th centuries

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Figure 5-1.

Lithic artifacts recovered from the Lawson Site (19-BR-370) in Acushnet indicate the NBHSS was occupied as early as the Middle Archaic Period (Chadwick and Klein 2003; Fragola 1999; Peters 2002). Late Archaic artifacts and occupations are documented with some regularity along the Acushnet River and are known from the Swift Site complex (19-BR-212), Lawson, and Osprey sites. The timing of these and earlier occupations and their relationship with the freshwater to saltwater transition of the lower Acushnet River is unknown.

Coastal habitation sites and shell middens along New Bedford Harbor and Buzzards Bay reflect the increasing dependence on shellfish and other marine resources during the Woodland Period, including the Acushnet Slough Shell Midden (19-BR-719) site within the NBHSS Project area. Early and Middle Woodland occupations are reported at the Osprey Site and Swift Site complex, and Late Woodland components have been identified at the Lawson, Swift, and Acushnet Slough Shell Midden (19-BR-719) sites. Radiocarbon dating of charcoal recovered from a feature partially excavated at the Acushnet Slough Shell Midden produced an AMS radiocarbon date of 650 ± 30 B.P. (Dudek 2015). The Swift Site complex produced Levanna points, Native American pottery, and evidence of food processing activities.

The Howard's Neck Site (ACU.1) occupies a peninsula extending into the Acushnet River at the end of Lecuyer Lane in Acushnet. The site was reputedly the location of the Old Dartmouth settlement area and burial ground granted by Plymouth Colony in the mid-seventeenth century (Worth 1913).

Walkover of Access Roads

Some sections of the proposed access roads for the NBHSS Project were subjected to previous subsurface archaeological testing by JMA (Chadwick and Klein 2003) and PAL (Fragola 1999; Waller and Robinson 2004a) (Figure 5-2). Survey teams walked the centerline of the access roads documenting the existing conditions and inspecting ground surfaces for archaeological materials and any indicators of archaeological sites. Areas of cultural or archaeological sensitivity observed during the August 2016 walkover were conveyed to the EPA, Jacobs, and CR in the field. Jacobs considered these observations and submitted revised access road alignment and laydown plans in October 2016 to further reduce Project encroachment upon archaeologically sensitive areas.

Proposed NBHSS Project access from South Main Street to the Acushnet River will follow a highly disturbed dirt road system currently in service for a sand and gravel mining operation (Figure 5-3). Temporary staging and equipment laydown is proposed south of the access road near NSTAR's transmission ROW (Figure 5-4). West of the sand and gravel operation, temporary equipment access will parallel the supratidal/salt marsh contact margin in an area populated by coastal grasses, including *Phragmites* (Figure 5-5).

Project proponents will use NSTAR's existing transmission line ROW through the Acushnet Slough archaeological site to access the shoreline between Lecuyer Lane and NSTAR's electric substation in Acushnet (Figure 5-6). An access road/laydown area is proposed beneath NSTAR's transmission lines south of a small tidal inlet southeast of Howard's Neck and the Pear Island Site (Figure 5-7). The proposed NBHSS Project access road will then run northwest from the laydown area through a forested woodland on Howard's Neck and at the recorded location of the Howard's Neck Site (ACU.1) (see Chapter 4) to the salt marsh southeast of Pear Island. Much of the access road in this area will traverse a reforested sand and gravel or borrow pit, the limits of which are clearly visible on New Bedford Harbor Light Detection and Ranging (LiDAR) shaded-relief mapping (Figure 5-8). No crude burial markers or other evidence for seventeenth-century burial were observed along this section of the access road.

Archaeological remains of much of the Old Dartmouth/Howard's Neck burial ground, if present within the Project APE, may have been lost to twentieth-century gravel mining or are located farther south and west

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Figure 5-8.

outside the Project area. Several mammal bones were observed outside the mouth of a small animal burrow at the southwest corner of the gravel pit, however; the bones had been cut and/or butchered and were not human (Figure 5-9). A large glacial erratic, which could have served as a historic or pre-contact windbreak, was also observed south of the NBHSS access road along the eastern edge of the proposed gravel cut (Figure 5-10). A short section of access road will spur off the main NSTAR transmission line ROW and traverse an area of coastal grasses and the southern limits of the Acushnet Slough Site to the Acushnet River north of NSTAR's Acushnet substation (Figure 5-11).

Jacobs will access the Acushnet River west of Beech Street via NSTAR's Acushnet substation to the north and a vehicle salvage yard to the south. NBHSS Project access to the salt marsh via the Acushnet substation will traverse an area of previous disturbance characterized by unpaved access roads, subsurface utilities, and previous construction staging (Figure 5-12). Equipment laydown is proposed immediately west of the NSTAR substation within an area of previous construction disturbance. South and west of the substation, access roads will parallel the supratidal/salt marsh interface within the Dock Site and west of Beech Street within an area of previous archaeological testing (Figure 5-13). South of Lawson Avenue, Jacobs will utilize the paved, dirt, and crushed shell salvage yard road to access the salt marsh and proposed staging area west of Porter Street (Figures 5-14 and 5-15).

The southern limits of the NBHSS will be accessed via Sycamore Street. Here, the NBHSS access road will follow a disturbed abandoned access road from Pleasant Street and Sycamore Street to a laydown area just east of a raised cut granite dock or service platform that is elevated several feet above the grade of the salt marsh (Figures 5-16 and 5-17). The presence of a nearby granite ledge exposure indicates the platform and associated access road were likely associated with Acushnet's twentieth-century granite quarrying operations. Supplemental access roads will branch off the coastal access stem north and south of the laydown area and follow the supratidal/salt marsh contact margin (Figures 5-18 and 5-19). A final laydown area is proposed within the southern limits of the upper NBHSS, west of Saint Mary Street. The proposed laydown area is on a slightly elevated rise populated by salt marsh grasses and marsh elder (Figure 5-20).

NBHSS Access Road and Laydown Area Archaeological Sensitivity Assessment

Archaeological sensitivity for the NBHSS access roads was determined from information collected during the archival research and walkover survey and considered the existing physiographic conditions of the study area, known patterns of pre-contact and post-contact land use, and the presence or absence of documented sites and favorable environmental resources. An assessment of site specific archaeological sensitivity is depicted in Figure 5-21.

Areas of low archaeological sensitivity include those that have been severely impacted by development, construction, and/or excavation or that have been subjected to previous subsurface archaeological testing with negative results. Areas of moderate archaeological sensitivity primarily include those in environmentally sensitive areas that have only been surficially impacted by construction, in areas that are perennially wet adjacent to documented archaeological deposits, or are away from known archaeological and historical resources. Areas of high sensitivity are those with the best potential for containing intact cultural deposits and include locations of previous archaeological recoveries or ecologic settings where archaeological sites have been documented and that have not been disturbed by previous land-altering activities.

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Figure 5-21.

CHAPTER SIX

RESULTS OF FIELDWORK: SUPPLEMENTAL PHASE I ARCHAEOLOGICAL SURVEY OF HARDING I AND HARDING II SITES

PAL conducted a supplemental Phase I (intensive) archaeological survey at the Harding I (19-BR-560) and Harding II (19-BR-560) sites. Both sites are along the eastern banks of the Acushnet River within and adjacent to the NBHSS 25-ft buffer bordering the proposed soil remediation areas.

Harding I Site (19-BR-560)

The Harding I Site is north of the Harding II Site in an open salt marsh area vegetated with saltmarsh cord grass (*Spartina alterniflora*) in an area of moderate to high PCB sediment contamination (Figure 6-1). PAL's supplemental Phase I (intensive) investigations were conducted in consideration of the tide schedule and began by re-establishing the location of Phase I auger test B131.003 using a submeter Trimble GPS hand unit. Eight piston cores were sampled around Phase I auger test B131.003, radiating outward in cardinal directions at 2- and 4-m intervals (Figure 6-2). Piston cores were sampled to depths of 80–114 cmbs (2.6–3.7 ftbs). Some piston cores terminated at < 100 cmbs (3.3 ftbs) because of core loss during sediment extraction and/or because of a subsurface refusal (rock, root, or other impediment) that precluded continued coring.

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Figure 6-1.

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Figure 6-2.

The piston cores showed consistent stratigraphic profiles consisting of an organic mat overlying a very dark grayish brown (10YR 3/2) silty fine to medium sand hydric topsoil and brown (10YR 4/3) fine to medium sands. The brown sands were typically underlain by a second very dark grayish brown (10YR 3/2) silty fine to medium sand organic layer, which in turn was underlain by light olive brown (2.5Y 5/3) fine to medium sand (Figure 6-3a and 6-3b). The top of the second buried organic deposit was encountered at 60–69 cmbs (1.9–2.2 ftbs) and may represent a former buried land surface over which marine sediments were deposited because eustatic sea level rise, fluvial, and estuarine processes.

No pre-contact cultural materials were observed in any of the piston core extracted sediments sampled at the Harding I Site. A few pieces of plastic were observed at 70–80 cmbs (2.3–2.6 ftbs) within the buried organic stratum in Auger-06. The presence of the plastic at this depth suggests that the overlying sediments were likely deposited at some time during the mid-to-late twentieth century. These results suggest that the quartz debitage (chipping debris) recovered by JMA at 18–72 cmbs 0.6–2.4 ftbs) at this site in 2003 may have been contained within reworked or redeposited sediments that lack stratigraphic integrity.

Harding II Site (19-BR-561)

The Harding II Site occupies an area of intertidal mudflat south of the Lawson Site (Figure 6-4). The supplemental Phase I (intensive) archaeological survey began with a systematic walkover survey of the exposed intertidal mudflat during a low tide. PAL staff conducted the walkover survey along linear transect lines spaced at a maximum interval of 3 m (10 ft). Phase I archaeological testing involved use of a piston core through to tidal flat sands to deeper than 1 m (3.28 ft) below surface unless compact sands, rock, root, or other impediments prohibited continued coring. Eleven piston cores were sampled at 16-m intervals along transects spaced 8 m apart (Figure 6-5). Piston cores extended to 35–110 cmbs (1.1–3.6 ftbs).

The piston cores showed generally consistent stratigraphic profiles that typically consisted of very dark brown (10YR 2/2) medium to coarse sands underlain by brown (10YR 4/3) fine to medium sands mottled with dark gray (10YR 3/1) fine to medium sand (see Figure 6-3c). Three piston cores (AUG-07, -08, and -11) were different from the others and consisted of very dark gray (10YR 3/1) medium to coarse sands underlain by brown (10YR 5/3) fine to medium sand mottled with very dark gray (10YR 3/1) medium sand. The mottled, brown sands were in turn underlain by a grayish brown (2.5Y 5/2) silty fine to medium sand mottled with dark brown (10YR 3/3) silty medium sand that overlay light brownish gray (2.5Y 6/2) silty fine to medium sands (see Figure 6-3d). Sediment characteristics and mottling visible in the Harding II piston cores are consistent with mud flat sediments deposited and reworked by active tidal processes.

No pre-contact cultural materials were observed in any of the piston core extracted sediments sampled at the Harding II Site, and no cultural materials were identified on the exposed tidal flat surface. The stepped appearance of the marsh/tidal flat boundary indicates the shore face is being actively eroded. Previous pre-contact artifact finds from the site were likely recovered from a deflated surface eroded by tidal processes.

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Figure 6-3.

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Figure 6-4.

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Figure 6-5.

CHAPTER SEVEN

RESULTS OF FIELDWORK: PHASE II SITE EXAMINATIONS OF OSPREY, PEAR ISLAND, LACUYERS, LAWSON, COMM, AND DOCK SITES

Phase II field investigations for the NBHSS Project were conducted at five pre-contact archaeological sites (Osprey, Pear Island, Lacuyers, Lawson, and Comm sites) and the post-contact Dock Site. Four of the five pre-contact sites are within upland contexts raised above the adjacent salt marsh. Previous Phase I investigations indicate the Pear Island and Comm sites also contain deposits that extend into the adjacent salt marsh. The pre-contact Lawson Site occupies a tidal flat and is almost entirely contained within a tidal salt marsh setting. The post-contact Dock Site is along the boundary between raised upland and salt marsh. The Lacuyers, Lawson, and portions of the Comm and Dock sites are partially contained within the horizontal and vertical limits of the NBHSS Project APE as currently defined. The Pear Island Site and the southwestern portion of the Osprey Site are within the 25-ft buffer bordering the proposed soil remediation area.

Osprey Site (19-BR-590)

The Osprey Site is located along a powerline ROW mainly vegetated with tall brush, grasses, and goldenrod. The site is on the supratidal upland adjacent to salt marsh (Figure 7-1). The Phase II site

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Figure 7-1.

examination began with a walkover. The locations of Stage IB test pits within the 25-ft buffer were re-established using a submeter Trimble GPS hand unit. Subsurface testing involved the excavation of four 1-x-1-m excavation units (EUs) designated EU-03 through EU-06 (Figure 7-2). EUs were placed at the suspected location of Native American hearth Feature 1 (EU-03) and in areas of artifact concentrations identified during the previous Stage IB archaeological survey (EU-04, EU-05, and EU-06).

EU soil profiles were consistent across the study area, typically consisting of a very dark grayish brown (10YR 3/2) silty fine sand plow zone (A_{pz}) underlain by a dark yellowish brown (10 YR 3/4) silty medium sand B_1 horizon subsoil with gravel inclusions. The B_1 horizon was typically underlain by a yellowish brown (10YR 5/4) silty medium sand B_2 horizon with gravel (Figure 7-3). A black (10YR 2/1) developing A horizon overlay the A_{pz} in EU-03 and EU-04. This soil stratum represents ongoing soil development at the top of the soil column since plowing of the land ceased.

A total of 50 pre-contact artifacts were recovered from A_{pz} and B_1 horizon soils 0–40 cmbs (0–1.3 ftbs) in all four EUs: 44 pieces of debitage, 1 biface, 1 preform, and 4 projectile points. (Table 7-1; Appendix A). Post-contact materials (sparse amounts of brick and clear bottle glass) were contained within plowed soils in EU-06; they were noted on field forms but discarded in the field.

Table 7-1. Pre-Contact Artifacts by Material Type, Osprey Site (19-BR-590), Phase II Site Examination.

Object	Material Type					Total
	Argillite	Chert	Quartz	Quartzite	Rhyolite	
Biface			1			1
Debitage	3	1	36	1	3	44
Preform			1			1
Projectile Point	1				3	4
Total	**4**	**1**	**38**	**1**	**6**	**50**

Quartz was the most common lithic debitage at the site at 82 percent of the total artifact assemblage, followed by rhyolite (7%), argillite (7%), chert (2%), and quartzite (2%) (Figure 7-4). None of the debitage was greater than 5 cm (2 in) in maximum dimension, and most pieces (89%) were 3 cm (1.2 in) or less. Only the argillite and quartz assemblages contained pieces larger than 3 cm (1.2 in) (Figure 7-5). Cortex (the outer, weathered rind of a cobble) was present on the quartz and quartzite but was absent on all argillite, chert, and rhyolite (Table 7-2). The lack of cortex, smaller size ranges, and low numbers of argillite, chert, and rhyolite debitage collectively suggest late stage manufacture and/or maintenance of argillite, chert, and rhyolite lithic tools at the site. Cortex was present on 8.33 percent of the quartz and on the single piece of quartzite (see Table 7-2). Though the quartz debitage is generally small, the presence of the cortex suggests that primary reduction of a small quartz cobble occurred, as well as later stage tool manufacture. Two distinct patterns of lithic material use were found at the Osprey Site: the maintenance or rejuvenation of tools manufactured of regionally available or non-local materials and early- to late-stage chipped-stone tool manufacture of local quartz. The sample size of the single quartzite flake is too small to interpret.

The biface and preform in the chipped-stone tool assemblage were manufactured from quartz (Figure 7-6). The biface may represent a broken tool fragment or a later stage tool blank broken during manufacture. The quartz preform is mostly complete; it is unclear if it is a projectile point preform or another type of tool blank. The four projectile points consist of an untyped rhyolite projectile point, a rhyolite Orient Fishtail point, an untyped argillite stemmed point, and a rhyolite Atlantic broad-bladed point (Figure 7-7). The

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Figure 7-2.

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Figure-7-3.

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Figure 7-5.

Table 7-2. Presence of Cortex on Debitage by Material Type, Osprey Site (19-BR-590).

Material	Without Cortex	With Cortex	Total	% With Cortex
Argillite	3	0	3	0
Chert	1	0	1	0
Quartz	33	3	36	8
Quartzite	0	1	1	100
Rhyolite	3	0	3	0
Total	**40**	**4**	**44**	**9**

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Figure 7-6.

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Figure 7-7.

Atlantic point exhibits rounding commonly resulting from use wear along one shoulder consistent with use as a knife. The untyped argillite point superficially resembles a very small Poplar Island point.

Excavation of EU-03 re-exposed Stage IB 50-x-50-cm test pit BG-1 and Feature 1, a circular hearth with maximum horizontal dimensions of 84-x-75 cm (2.6-x-2.5 ft). The feature was basin-shaped in profile, extended to 35–58 cmbs (1.1–1.9 ftbs) (Figure 7-8), and contained charcoal, burned soils, and a concentration of fire-cracked rock (FCR). No other artifacts were associated with Feature 1. Eight pieces of quartz debitage were recovered from the plow zone overlying the feature.

Quartz debitage, the most common debitage type recovered from the study area, was concentrated near EU-05, where the quartz preform and biface were recovered. Argillite and rhyolite debitage were limited to EU-04, where the rhyolite Atlantic point and the untyped argillite point were also recovered. The distribution of these lithic materials is not complex but indicates that early stage quartz tool manufacture (preform and/or biface) was spatially discrete from where argillite and rhyolite tools were retouched or maintained at the site.

Pear Island Site (19-BR-557)

The Pear Island Site occupies an elevated supratidal upland surrounded by an intertidal salt marsh within the NBHSS Project 25-ft buffer (Figure 7-9). The upland location of the site essentially becomes an island during high tide and is only accessible by foot during low tide. The site is predominantly wooded with oak and cedar trees and a moderately dense understory of brush and briar. The topography of the "island" consists of a raised level knoll along the north side that slopes downward to the south.

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Figure 7-8.

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Figure 7-9.

The Phase II site examination began with a walkover and re-establishing the location of Phase I archaeological test pits within the 25-ft buffer with a submeter Trimble GPS hand unit. An arbitrary N00E00 coordinate site datum was established at the estimated location of Stage IB JMA test pit C037.003 as indicated by a submeter GPS. Phase II subsurface testing involved the excavation of sixteen 50-x-50-cm test pits and four 1-x-1-m EUs, designated EU-11 through EU-14 (Figure 7-10). Test pits extended east of the buffer to further refine the boundaries of the pre-contact deposits, and the EUs were placed in documented artifact concentration areas within the 25-ft buffer.

Test unit soils were consistent across the study area, typically appearing as a dark brown (10YR 3/3) silty fine sand A_{pz} underlain by a dark yellowish brown (10YR 4/4) silty medium sand B_1 horizon. The B_1 horizon overlay yellowish brown (10YR 5/4) silty medium sand and gravel B_2 horizon soils, which in turn were underlain by light yellowish brown (2.5Y 6/4) silty medium coarse sand, gravel, and cobble C horizon subsoils (Figure 7-11).

A total of 147 pre-contact artifacts were recovered from A_{pz}, and B_1 and B_2 horizon soils 0–70 cmbs (0–2.3 ftbs) from six test pits and all four EUs: 145 pieces of debitage and 2 projectile points (Table 7-3: Appendix A). Small quantities of post-contact and temporally neutral cultural material were observed within the plow zone, including shell fragments (predominantly quahog), slag/clinkers, a blue bottle glass fragment, pieces of plastic, a window glass fragment, and one whiteware sherd. These materials were noted on PAL field forms and discarded in the field.

Argillite (54%), quartz (30%), and rhyolite (14%) are the most common debitage types recovered. The remaining 2 percent of the debitage consists of chert, granitic rock, and quartzite (Figure 7-12). Similar to the debitage from the Osprey Site, most (94%) are 3 cm or less in maximum dimension and 6 percent are

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Figure 7-10.

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Figure 7-11.

Table 7-3. Pre-Contact Artifacts by Material Type, Pear Island Site (19-BR-557).

Object	Material Type						Total
	Argillite	Chert	Granitic	Quartz	Quartzite	Rhyolite	
Debitage	78	2	1	43	1	20	145
Projectile Point	1					1	2
Total	**79**	**2**	**1**	**43**	**1**	**21**	**147**

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Figure 7-12.

3–5 cm. Only the argillite and quartz debitage include pieces larger than 3 cm (Figure 7-13). Two quartz flakes exhibit cobble cortex, although primary reduction of raw quartz does not appear to have been a significant site activity (Table 7-4). The small size of the debitage and general absence of cortex suggest that lithic reduction activities were largely limited to mid- to late-stage chipped-stone tool manufacture and tool maintenance.

Chipped-stone tools were limited to an untyped rhyolite projectile point and an untyped argillite point base fragment (Figure 7-14). The rhyolite point tip is rounded and has been reworked; the argillite point base is slightly eared and may be a Late Archaic Brewerton Eared projectile point.

The pre-contact cultural materials were recovered 0–70 cmbs; most were found 0–30 cmbs (0–0.9 ftbs) with a peak distribution 10–20 cmbs (0.3– 0.7 ftbs)(Figure 7-15). Artifact frequency dropped below 20 cmbs. There is no vertical separation of archaeological materials at the Pear Island Site, and the site does not appear to be stratified.

Lithic density contour maps indicate the presence of two separate areas of chipped-stone tool manufacture and/or the maintenance of projectile points. Comparatively large amounts of argillite associated with a possible lithic workstation were recovered from Phase II test pit N00E08 outside the 25-ft buffer to the east (see Figures 7-10 and 7-16). The untyped argillite point base fragment recovered from this test pit may represent a projectile point broken during manufacture at the site. Lithic debitage densities were far lower within the 25-ft buffer west of the argillite workstation and consisted mainly of quartz and rhyolite and

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Figure 7-13.

Table 7-4. Presence of Cortex on Debitage by Material Type, Pear Island Site (19-BR-557).

Material	Without Cortex	With Cortex	Total	% With Cortex
Argillite	78	0	78	0
Chert	2	0	2	0
Granitic	1	0	1	0
Quartz	41	2	43	5
Quartzite	1	0	1	0
Rhyolite	20	0	20	0
Total	**143**	**2**	**145**	**1**

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Figure 7-14.

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Figure 7-15.

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Figure 7-16.

included the untyped rhyolite point. The small amounts of rhyolite debitage may have been generated during late-stage manufacture or maintenance of the rhyolite projectile point.

Lacuyers Site (19-BR-555)

The Lacuyers Site occupies the supratidal upland/intertidal contact margin west of Lecuyer Lane and is within a strip of wooded upland west of and adjacent to an active electrical transmission line ROW. Oak, cedar, and juniper trees with an understory of low bush blueberry, briar, and other brush populate this wooded area (Figure 7-17). A low stone wall was observed near the south end of the site and consists of one to two courses of large fieldstone boulder oriented east–west and likely represents a former property or field boundary.

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Figure 7-17.

An arbitrary N00E00 coordinate site datum was established at the estimated location of JMA's Stage IB test pit C305.001 as indicated by a submeter GPS. Four 1-x-1-m EUs (EU-07 through EU-10) were excavated along a 4-m coordinate grid oriented to magnetic north. EUs were uniformly distributed within the intersection of the site limits and the 25-ft remediation buffer to better characterize the previously identified archaeological deposits (Figure 7-18).

Topsoils varied somewhat between the northern and southern limits of the site. Topsoils in EU-07 within the southern site limits consisted of a dark brown (10YR 3/3) silty fine sand intact A_1 horizon. Topsoils in EU-08 and EU-09 (excavated to the north) consisted of thicker brown (10YR 4/3) to dark yellowish brown (10YR 3/4) silty fine sand plow zone deposits. Topsoils in EU-10 between EU-07 and EU-08 were similar in color and thickness to EU-07. Interfacial irregularities with the underlying subsoils in EU-10 are consistent with agricultural plow scarring. The soil profiles and the agricultural fieldstone wall south of the

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Figure 7-18.

site suggest that the southern limits of the Lacuyers Site coincide with the former edge of a plowed agricultural field. Underlying subsoils were fairly uniform and consisted of a yellowish brown (10YR 5/6) silty medium sand B_1 horizon overlying a brownish yellow (10YR 6/6) silty medium sand B_2 horizon subsoil. The B_2 horizon was underlain by a light yellowish brown (2.5Y 6/4 to 2.5Y 6/4) medium sand C horizon with a trace of silt (Figure 7-19).

A total of 123 pre-contact artifacts (lithic debitage, FCR, and a variety of chipped-stone tools) were recovered 0–60 cmbs (0–2 ftbs) from A_{pz}, and A_1, B_1, and B_2 horizon soils (Table 7-5; Appendix A). A few pieces of plastic were observed within plowed soils; they were noted on field forms and discarded in the field.

Quartz (44%), argillite (19%), and rhyolite (19%) are the most common debitage types recovered, followed by chert (8%), quartzite (4%), and granitic rock (4%) (Figure 7-20). The remaining 2 percent of the debitage consists of felsite/rhyolite and jasper flakes. Most of the site debitage (96%) are 0–3 cm in maximum dimension and 4 percent are 3–5 cm. Only the quartz debitage includes pieces larger than 3 cm (Figure 7-21). Only two quartz flakes exhibit cortex (Table 7-6). The general absence of cortex and preponderance of small debitage are consistent with mid- to late-stage stone tool manufacture and maintenance.

Among the five pre-contact sites subjected to Phase II site examinations, the Lacuyers Site yielded the widest variety of chipped-stone tools. Projectile points and projectile point fragments are the most common tool type (Figure 7-22); a rhyolite Susquehanna broadspear point, a quartz projectile point tip, and an untyped argillite projectile point base (Figure 7-23) were recovered. The Susquehanna point exhibits edge wear and evidence of resharpening along one side of the blade, which indicates probable use as a knife. The other recovered tool types are a rhyolite uniface, a quartz core, and an argillite biface fragment (see Figure 7-23). The biface fragment from EU-07 may be the base of a stemmed projectile point or projectile point preform.

Lithic density contour maps of the principal debitage types and tool locations indicate the presence of two separate concentrations of cultural material within the 25-ft buffer that perhaps coincide with two separate activity areas and/or two temporally separate occupations. The densest concentration of materials is within the southern limits of the testing area (Figures 7-24 and 7-25). Quartz debitage was ubiquitous across the testing area, though quartz tools (a core and point tip) were found to the north in EU-09. Rhyolite, chert, and quartzite debitage were confined to the southern limits of the testing area at EU-07. Argillite debitage was distributed more widely but was still concentrated in EU-07. Lithic tools from EU-07 are the rhyolite Susquehanna point and uniface and the untyped argillite point and biface that were recovered from the same areas or in association with debitage of the same lithic material type.

Lawson Site (19-BR-378)

The Lawson Site extends northward for at least 2,000 ft (6,600 m) from the Fairhaven/Acushnet town boundary along the east bank of the Acushnet River. The Phase II site examination began with a walkover of the exposed intertidal sand and mudflat along 3-m-interval walking transects. Twelve pre-contact cultural materials were recovered from the exposed mudflat during the walkover survey and two others were collected from the surface of the marsh during subsequent coring/augering: debitage (7 quartz and 1 quartzite; 1 utilized quartz flake; 2 quartz cores; 1 rhyolite Late Archaic Brewerton projectile point and 1 Late Woodland quartz Levanna point with broken tangs; and 1 Genesee point of an unidentified igneous material (Figure 7-26: Appendix A).

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Figure 7-19.

Table 7-5. Pre-Contact Artifacts by Material Type, Lacuyers Site (19-BR-555), Phase II Site Examination.

Object	Material Type										Total
	Argillite	Chert	Felsite	Granitic	Jasper	Quartz	Quartzite	Rhyolite	Unidentified Igneous	Unidentified Metamorphic	
Biface	1										1
Debitage	21	9	1	4	1	48	4	20			108
Core						1					1
FCR				3		3			1	2	9
Projectile Point	1					1		1			3
Uniface								1			1
Total	**23**	**9**	**1**	**7**	**1**	**53**	**4**	**22**	**1**	**2**	**123**

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Figure 7-20.

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Figure 7-21.

Table 7-6. Presence of Cortex on Debitage by Material Type, Lacuyers Site (19-BR-555).

Material	Without Cortex	With Cortex	Total	% With Cortex
Argillite	21	0	21	0
Chert	9	0	9	0
Felsite	1	0	1	0
Granitic	4	0	4	0
Jasper	1	0	1	0
Quartz	46	2	48	4
Quartzite	4	0	4	0
Rhyolite	20	0	20	0
Total	**106**	**2**	**108**	**2**

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Figure 7-22.

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Figure 7-26.

A total of 39 auger tests/piston cores were used and one judgmental test pit (JTP-08) was excavated in artifact concentration areas and in the six remediation areas and associated 25-ft buffers. The six remediation areas were designated Remediation Areas A through F in the field for ease of documentation (Figure 7-27). The auger tests were arranged along linear transects at 8-m intervals or placed as judgmental auger tests (JAUs). Stratigraphic profiles at the Lawson Site varied by location, and are described separately by remediation area below.

Artifact Concentration Area North of Remediation Area A

Auger Transect H (AUG-H-01 through AUG-H-05) traversed a notable artifact concentration (north of Remediation Area A) recorded during JMA's Stage IB archaeological survey of the NBHSS (see Figure 7-27). This area consists of the open tidal flat and a low sandy rise vegetated with sparse low marsh grass (*Spartina alterniflora*) and contains an abandoned utility conduit (Figure 7-28). The artifact concentration is the densest of any documented at the site and the area where PAL recovered the Brewerton and Levanna points (Surface Finds 01 and 02) during the Phase II walkover of the Lawson Site.

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Figure 7-27a.

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Figure 7-27b.

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Figure 7-28.

Soil cores along the south end of the transect (AUG-H-01 and AUG-H-02) showed light olive brown (2.5Y 5/3) coarse sand with a trace of silt overlying light yellowish brown (2.5Y 6/4) coarse sands that in AUG-H-01 extended to 100 cmbs. The remaining auger tests showed brown (2.5Y 4/3) fine to coarse sand and gravel mottled with light olive brown (2.5Y 5/3) sand. This sand and gravel deposit was underlain by a very dark gray (10YR 3/1) organic marsh surface that overlay a dark gray (10YR 4/1) medium sandy silt with organics in auger tests AUG-H-04 and AUG-H-05. Sediments below the sand and gravel deposits in AUG-H-03 were underlain by brown (10YR 4/3) fine to medium sands and grayish brown (10YR 5/2) fine to medium sand with a trace of silt (Figure 7-29). The fine to medium sandy deposits in AUG-H-03 are texturally similar to those documented below the buried marsh strata, which suggests that overlying marsh deposits were removed at the location of AUG-H-03. No cultural materials were recovered from the soil cores.

In general, soil profiles consist of a coarse sand and gravel deposit overlying marsh deposits and subsoils. Buried marsh deposits were observed 45–90 cmbs (1.5–3 ftbs) in the auger tests. Sediments overlying the marsh zone possibly represent redeposited dredged sands or materials displaced during installation of the nearby abandoned utility conduit. The pre-contact cultural materials recovered from this section of the Lawson Site do not appear to have stratigraphic integrity because they were found on the surface of the redeposited material.

Remediation Area A

Eleven auger tests were sampled along three linear transects (Auger Transects AUG-A, B, and D) placed in open tidal flat and vegetated marsh areas within the remediation area and buffer zone designated as

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Figure 7-29.

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Figure 7-30.

Remediation Area A (see Figure 7-27 and Figure 7-30). Auger Transects AUG-A and AUG-B were situated within a tidal delta where a tidal channel drains across the open flat. Soil profiles from Auger Transect AUG-A were generally uniform consisting of a thin, very dark gray (10YR 3/1) medium to coarse sand that overlay a light yellowish brown (2.5Y 6/3) medium coarse sand to depths of up to 97 cmbs (Figure 7-31a). Auger Transect AUG-A sands were homogenous and lacked horizonation and appear to represent deflated glacial outwash sediments.

Auger tests along Transect AUG-B were similar in appearance to those along Transect AUG-A with those closest to the tidal channel varying somewhat due to tidal reworking of sediments and accumulation of organics within the channel. AUG-B-04 located closest to the channel contained black (10YR 2/1) silty medium to coarse sand and organics overlying a dark gray (2.5Y 4/1) stratum of sandy clay before encountering refusal at 36 cmbs (1.2 ftbs). AUG-B-01 located on higher ground contained a surface beach sand deposit of grayish brown (2.5Y 5/2) medium to coarse sand overlying an olive brown (2.5Y 4/3) medium to coarse sand (Figure 7-31b and 7-31c).

Auger tests along Transect AUG-D in the NBHSS salt marsh area were extremely variable. AUG-D-01 consisted of a very dark grayish brown (2.5Y 3/2) medium to coarse sand surface deposit overlying an olive brown (2.5Y 4/3) medium to coarse sand (Figure 7-31d). AUG-D-02 contained a thin deposit of black (2.5Y 2.5/1) organic peat/muck that overlay olive brown (2.5Y 4/3) medium to coarsely textured sands, which were underlain by a grayish green (GLEY 1 4/5G2) very fine sandy clay mottled with light greenish grey (GLEY 1 7/5GY) very fine sandy clay (Figure 7-31e). The homogenous sands in AUG-D-01 and AUG-D-02 likely reflect deflated basal outwash deposits. AUG-D-03 contained an olive brown (2.5Y 4/4) medium to coarse sand surface that likely represents a sandy overwash stratum possibly deposited during a significant storm event. This stratum overlays a yellowish red (5YR 4/6) deposit of coarse sand and gravel

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Figure 7-31.

that was underlain by disturbed deposits of olive brown (2.5Y 4/3) medium to coarse sand mottled with very dark gray (2.5Y 3/1) medium to coarse sand (Figure 7-31f).

No artifacts were recovered from the Lawson Site Remediation Area A auger tests. The sediment profiles in the cores indicate either the presence of eroded or deflated basal outwash or sediments that have been extensively reworked by tidal processes.

Artifact Concentration Between Remediation Areas A and B

Auger Transect E (AUG-E-01 through AUG-E-04) and 50-x-50-cm judgmental test pit JTP-08 were excavated between Remediation Areas A and B near where the Phase IB walkover and subsurface archaeological testing yielded pre-contact cultural materials (see Chadwick and Klein 2003). Transect AUG-E was on the open tidal flat (Figure 7-32), and JTP-08 was on an elevated, near-upland setting next to a 2-x-4-m rock concentration that could represent remnants of a roasting platform (Figure 7-33).

The soil profile in JTP-08 consisted of a homogenous and unhorizonated deposit of dark yellowish brown (10YR 3/4) medium to coarse sand that extended to 86 cmbs (2.8 ftbs) before terminating at the water table (Figure 7-34a). Core profiles from Transect AUG-E were uniform as a very dark gray (2.5Y 3/1) medium to coarse sand overlying light olive brown (2.5Y 5/3) medium to coarse sand to 83 cmbs (2.7 ftbs) before refusal (Figure 7-34b).

Neither JTP-08 nor Transect AUG-E contained any pre-contact cultural materials. A cobble scatter adjacent to JTP-08 did not appear to be Native American but most likely represents either cobbles that have accumulated along the intertidal/supratidal contact swash zone through coastal processes or perhaps rip-rap deposited to curtail shoreline erosion along an approximately 50-m- (164 ft) long stretch of beach. Sediments exposed within JTP-08 and the auger tests are consistent with deflated and eroded basal outwash deposits or riverine sands.

Remediation Area B

Four core auger Transect AUG-C and judgmental auger tests JAU-01 and JAU-02 were placed within Remediation Area B (see Figure 7-27). Auger Transect AUG-C was located toward the north end of Remediation Area B near where PAL recovered three artifacts from the surface of the exposed tidal flat during Phase II walkover of the area. Recovered surface finds (Surface Finds 03, 10, and 11) consist of two quartz flakes and an untyped, Vosburg-like corner-notched projectile point of an unidentified igneous material (see Figure 7-26b).

Transect AUG-C soil profiles varied. AUG-C-01 and AUG-C-02 appeared as a very dark gray (10YR 3/1) silty fine to coarse sand that overlay an olive brown (2.5Y 4/4) medium to coarse sand to 105 cmbs (3.4 ftbs) (Figure 7-34c). AUG-C-03 and AUG-C-04 were located closer to the edge of the vegetated tidal marsh and exhibited more variable profiles, though both contained surficial very dark gray (2.5Y 3/1) organics-rich medium to coarse sand peat-like deposits. Soils below the peat in AUG-C-03 consisted of very dark grayish brown (2.5Y 3/2) silty medium sand underlain by dark grayish brown (2.5Y 4/2) medium to coarse sand. In AUG-C-04, soils below the surficial peat consisted of dark olive brown (2.5Y 3/3) silty medium sand that capped a buried very dark gray (2.5Y 3/1) sand silt peat-like deposit that ws in turn underlain by a gray (5Y 5/1) medium to coarse sand to 50 cmbs (1.6 ftbs). Below this were possible A and B horizon soils consisting of a very dark grayish brown (2.5Y 3/3) silty fine to medium sand that transitioned to a dark grayish brown (2.5Y 4/2) silty fine to medium sand to 101 cmbs (3.3 ftbs) (see Figure 7-34d).

JAU-01 and JAU-02 were located south of Transect AUG-C in the vegetated salt marsh elevated above the tidal flat (see Figure 7-27; Figure 7-35). JAU-01's sediment profile consisted of a very dark gray (2.5Y 3/1)

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Figure 7-35.

organic and silty medium sand marsh surface that overlay a very dark grayish brown (2.5Y 3/2) silty medium to coarse sand. Soils underlying the sand zone consisted of an olive brown (2.5Y 4/4) coarse sand and gravel that in turn overlay a strong brown (7.5Y 4/6) coarse sand and a yellowish-brown (10YR 5/6) medium to coarse sand (see Figure 7-34e). JAU-02 contained the same two upper strata as seen in JAU-01 prior to the core's refusal at 56 cmbs (1.8 ftbs).

None of the Remediation Area B auger tests yielded cultural materials. Auger coring and sampling within the vegetated marsh area indicated marsh sediments that overlie unsorted and variable sediment strata impacted by coastal processes, erosion, and shifting tide channels. Soils from Transect AUG-C along the tidal flat are consistent with riverine sand deposits. AUG-C-04 indicated the possible presence of horizonated soils below organic marsh deposits consistent with a formerly subaerially exposed land mass. However, the presence of the nearby artifacts on the deflated tidal flat surface consisting of riverine sands that stratigraphically overlie the possible buried paleosol indicate that any such buried land surface may represent a Pleistocene-aged deposit pre-dating human occupation of the area that is unassociated with the nearby surface finds.

Remediation Area C

Four core auger Transect AUG-F and judgmental auger test JAU-03 were placed within and adjacent to Remediation Area C (see Figure 7-27. Auger Transect AUG-F was placed on the open tidal flat near where a quartz core and flake (Surface Finds 08 and 09) were recovered during the site walkover (see Figure 7-26d). Large metal sheet pilings were present along the open tidal flat at the location of the AUG-F piston cores (Figure 7-36). The augers from this transect extended up to 61 cmbs (2 ftbs) before refusal due to the coarse nature of the sediments. Transect AUG-F soil profiles were generally consistent. The uppermost

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Figure 7-36.

sediments consisted of an organic medium to coarse sand that ranged in color from dark grayish brown (2.4Y 4/2) to very dark gray (2.5Y 3/1). Underlying soils consisted of either a very dark grayish brown (2.5Y 3/2) medium to coarse sand or a dark grayish brown (2.5Y 4/2) coarse sand and gravel with organic inclusions. Below this deposit was a stratum of reddish brown (5YR 4/4) coarse sand and gravel in AUG-F-04 (Figure 7-37a). The sediments appeared disturbed, which is most likely due to the installation of large metal sheet pilings adjacent to the transect (see Figure 7-36).

JAU-03 was placed within the higher vegetated marsh and exhibited a different soil profile: a black (2.5Y 2.5/1) organics-rich peat-like deposit to 17 cmbs (0.6 ftbs) overlaying a homogenous olive brown (2.5Y 4/3) medium to coarse sand to 90 cmbs (3ftbs) before hitting refusal (see Figure 7-37b). No horizonated soils were observed in JAU-03; the soil strata were consistent with marsh development overlying eroded or deflated outwash or riverine sand deposits. No cultural materials were recovered from any of the Remediation Area C auger tests.

Remediation Area D

Judgmental auger test JAU-04 was excavated within Remediation Area D (see Figure 7-27). Surface Finds 13 and 14 (one quartz utilized flake [see Figure 7-26e] and one quartz flake broken into two pieces) were recovered from the ground surface near JAU-04. The JAU-04 piston core was placed within the raised, vegetated marsh overlooking the tidal flat to the west (Figure 7-38). The soil profile from this auger test consisted of a single thick, black (2.5Y 2.5/1) peat and silty sand stratum that extended to 142 cmbs (4.7 ftbs). The artifacts were recovered from coarse sands redeposited atop more recent peat development through high energy storm or tidal flooding and therefore lack contextual integrity.

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Figure 7-38.

Remediation Areas E and F

Five core auger Transect AUG-G and judgmental auger cores JAU-05 and JAU-06 were sampled within Remediation Areas E and F (see Figure 7-27). Five pieces of pre-contact quartz debitage (Surface Finds 04 through 07 and 12) were recovered from the tidal mudflat during the walkover survey. Auger Transect AUG-G traversed the open tidal flat within the areas of the surface finds (Figure 7-39). AUG-G soil profiles typically consisted of a dark gray (2.5Y 4/1) medium to coarse sand that overlay olive brown (2.5Y 4/3) medium to coarse sands to 66 cmbs (2.2 ftbs) before encountering refusal (Figure 7-37c). The homogenous nature of the sediments suggests they represent deflated basal outwash or riverine sands.

JAU-06 (in Remediation Area E) and JAU-05 (in Remediation Area F) were placed within the salt marsh above the tidal flat. The JAU-06 soil profile contained a black (2.5Y 2.5/1) organics-rich silty sand peat deposit to 104 cmbs (3.4 ftbs). Dark olive brown (2.5Y 3/3) medium to coarse sand, similar to that observed on the tidal flat, underlay the peat (Figure 7-37d).

JAU-05 was somewhat elevated relative to surrounding marsh areas. The JAU-05 soil profile was similar to that of JAU-06 and consisted of a black (2.5Y 2.5/1) silty sand and organic peat deposit to 16 cmbs (0.5 ftbs). Soils below the surface marsh deposit consisted of sorted sandy deposits that may represent the horizonated soils of an intact soil column. These soils consisted of a possible buried A horizon of very dark gray (2.5Y 3/1) silty medium sand that overlay possible olive brown (2.5Y 4/3) medium sand B horizon subsoils. The possible B horizon was underlain by an apparent light olive brown (2.5Y 5/4) coarse sand and pebbles C horizon (Figure 7-37e). The soils from JAU-05 may represent an intact buried land surface unaffected by tidal erosion due to its somewhat higher elevation compared to other areas along the Acushnet River marsh zone.

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Figure 7-39.

No cultural materials were recovered from any of the auger test cores within Remediation Areas E and F. The pre-contact artifacts recovered from within this section of the tidal flat mostly likely derived from a deflated surface that lacks integrity. Intact soils may be present in the salt marsh within Remediation Area F. However, no cultural materials were recovered from JAU-05 or from any of the cores sampled by JMA during previous Stage IB archaeological testing.

Comm Site (19-BR-554)

The Comm Site occupies a raised area bordering the salt marsh that is partly within an open area vegetated with grass and brush and is partly wooded (Figure 7-40). A footpath runs along the boundary between the woods and open area fronting the salt marsh. The wooded area is dominated by oak trees with a dense understory of green briar and poison ivy. A stone wall runs across the site in an east–west direction approximately 5 m north of the 25-ft buffer boundary.

The Phase II site examination began with a walkover and re-establishing the location of Phase I archaeological test pits using a submeter GPS unit. A N00E00 coordinate site datum was set up over JMA's Stage IB test pit G025.004N. Twenty-one 50-x-50-cm test pits and two 1-x-1-m EUs (EU-01 and EU-02) were excavated along the 4-m coordinate grid oriented to magnetic north (Figure 7-41). Test pits continued north of the 25-ft buffer in an attempt to identify the northern boundary of the Comm Site. Six piston cores were collected on the south side of JMA's Phase I auger tests, which yielded pre-contact materials. Piston coring attempted to refine the southern boundary of the site extending into the tidal marsh (see Figure 7-41).

Soils varied by location in the test pits and EUs. Testing units closest to the edge of the marsh typically contained a thick organic layer (A_o) overlying a very dark brown (10YR 2/2) silty organics-rich hydric

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Figure 7-40.

topsoil (A horizon) and a light olive brown (2.5Y 5/4) medium to coarse sandy silt hydric B horizon (Figure 7-42a). The tidally influenced water table was quite shallow in this area, which limited hand excavation. Soils within the higher wooded supratidal zone consisted of a very dark grayish brown (10YR 3/2) silty fine to medium sand A_{pz} underlain by a yellowish brown (10YR 5/6) silty fine to medium sand B_1 horizon. The B_1 horizon overlays a brownish yellow (10 YR 6/6) silty medium sand B_2 horizon, which was underlain by a light yellowish brown (10YR 6/4) to yellowish brown (10YR 5/8) medium to coarse sand and gravel C horizon (see Figure 7-42d). Piston core soil profiles were similar to those in test pits excavated along the marsh edge. Piston core soil profiles typically consisted of a thick peat/organic mat (A_o) underlain by a very dark grayish brown (10YR 3/2) silty fine to medium sand hydric A horizon that was underlain by a light olive brown (2.5Y 5/4) silty fine to medium sand homogenous hydric B horizon.

No cultural materials were recovered from piston cores sampled along the southern site edge/marsh zone (see Figure 7-41). A total of 59 pre-contact artifacts were recovered between 0 and 60 cmbs in A_{pz}, and B_1 and B_2 horizon soils from seven test pits and EU-02: 56 pieces of debitage, 1 quartz biface, 1 quartz core, and 1 argillite Brewerton projectile point (Table 7-7; Appendix A). Fifty-seven (97%) of the pre-contact artifacts were recovered from plow zone contexts; individual quartz flakes from the B_1 and B_2 horizons were the only subsoil finds. Post-contact artifacts (a ball clay pipestem, one glass bottle, one glass bottle neck, and two glass bottle bases) were recovered from A_{pz} soils. Quahog and oyster shell fragments and late nineteenth- and twentieth-century cultural materials such as plastic, glass fragments, brick fragments, unidentified metal fragments, cigarette butts, pieces of slag/clinker, and aluminum foil were observed in the plow zone, noted on field forms, and discarded in the field.

Quartz dominates the Phase II debitage assemblage at 93 percent, followed by argillite (5%) and rhyolite (2%) (Figure 7-43). The majority of the debitage is 3 cm or less in maximum dimension; some

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Figure 7-42.

Table 7-7. Pre-Contact Artifacts by Material Type, Comm Site (19-BR-554), Phase II Site Examination.

Object	Material Type			Total
	Argillite	Quartz	Rhyolite	
Biface		1		1
Debitage	3	52	1	56
Core		1		1
Projectile Point	1			1
Total	**4**	**54**	**1**	**59**

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Figure 7-43.

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Figure 7-44.

quartz is 3–7 cm (1.2–2.8 in) (Figure 7-44). Dorsal cortex is limited to quartz and is present on more than 10 percent of the flakes (Table 7-8). The sparse amounts of argillite and rhyolite and generally small size of these materials indicate late-stage chipped-stone tool manufacture and/or maintenance at the site. Larger sizes, the presence of a quartz core, and a comparatively high percentage of cortex in the quartz assemblage indicate primary reduction of cobble quartz and late-stage manufacture of quartz tools at the site.

Table 7-8. Presence of Cortex on Debitage by Material Type, Comm Site (19-BR-554).

Material	Without Cortex	With Cortex	Total	% With Cortex
Argillite	3	0	3	0
Quartz	46	6	52	12
Rhyolite	1	0	1	0
Total	**50**	**6**	**56**	**11**

The Comm Site quartz biface fragment may have been broken during manufacture (Figure 7-45b). The argillite Brewerton projectile point bears evidence of edge wear and notching along one edge that suggest it was used as a knife (Figure 7-45c).

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Figure 7-45.

The lithic density contour map shows that most the materials are north of the 25-ft buffer (Figure 7-46). Their distribution is non-complex. The materials largely consist of quartz debitage concentrated in the area of EU-02 and test pits excavated to the north of EU-02. A low density of argillite was also present in this area, and an isolated deposit of rhyolite debitage was identified east of the main quartz concentration. Only the quartz biface, which was most likely broken during manufacture, was recovered from within the quartz

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Figure 7-46.

debitage concentration. The other two tools (the argillite Brewerton projectile point and a quartz core) were recovered from outside the artifact concentration area to the east.

Dock Site (ACU.11)

The Dock Site extends from the supratidal upland to the intertidal zone west of the property at 33 Beach Street. The 2003 (JMA) Stage IB archaeological investigations identified two stone structures or platforms and what were identified at that time as stone walls that extended across the supratidal and intertidal zones, a series of foundation and building stone in the supratidal zone, an artificial basin with an abundance of wood fragments, a stone bridge that crosses an unnamed drainage and associated road, and a low density of coal and bottle glass artifacts. The Phase II site examination field efforts consisted of a walkover survey to identify the locations of the previously recorded structures and features; mapping and photo-documentation of the structures and features; and subsurface testing to determine the content, complexity, and boundaries of the site, if possible.

Walkover and Mapping

The Phase II fieldwork began with relocating the two stone structures or platforms (mapped and labeled as stone walls/pads in 2003 [Chadwick and Klein 2003: Figure 4-16]) and manually clearing grass and brush to map and photograph them (Figure 7-47). PAL relocated what is believes to be the 2003 stone structures or platforms on either side of a narrow east-west tributary stream of the Acushnet River at the east shoreline of the natural tidal marsh at this location. The stream at the east end of the marsh has been channelized and lined with dry-laid fieldstones (stone-lined culvert) with a narrow bridge for a north-south footpath crossing (see discussion below).

In 2003 the stone structure along the east edge of the tidal marsh on the south side of the bridge and culvert was recorded as being approximately 67 m by 23 m (222 ft by 75 ft). In this same area PAL identified one intermittently visible, 38-m (125-ft) long linear course of rough fieldstones oriented roughly north–south with a slight bend to the northeast about 10 m (33 ft) south of the stone-lined culvert (Figures 7-48 and 7-49). The short section of the wall closest (but not connecting) to the culvert stonework is about 8.5 m (28 ft) long and oriented northeast–southwest. Two short sections of stonework adjoin the south end of the north-south wall: one 6-m (19-ft) section at a right angle (east-west) and one 4.5-m (15-ft) section at another right angle (north-south). The southern limit of the stonework appears to continue as a low berm to the south for a short distance (approximately 4.5 m [15 ft]). These wall sections roughly correspond to the wall orientations depicted for the stone wall/pad structure on the south side of the bridge and culvert in 2003, but do not match in scale [the JMA wall sections for this structure are about 55 percent larger than the actual measurements].

In 2003 the stone structure along the east edge of the tidal marsh on the north side of the bridge and culvert was recorded as being approximately 33 m by 40 m (108 ft by 131 ft). In this same area PAL identified a visible low berm and vegetation change with no stonework approximately 25 m (82 ft) long north-south at the edge of the marsh (see Figure 7-65). A stone wall was reported here in 2003 (Chadwick and Klein 2003: Figure 4-16). The east-west stonework mapped in 2003 was re-identified by PAL as being the northern east-west section of the stone-lined culvert where the stream drainage joins the marsh. Similar to the southern structure, the berm and wall sections roughly correspond to the wall orientations depicted in 2003, but the scale is off by at least 60 percent in both directions.

Other site features to the east (outside) of the 25-ft buffer and recorded during the 2003 (JMA) Stage IB archaeological investigations were a stone-lined culvert and a bridge at the location of the narrow tidally-influenced stream drainage of the Acushnet River and a concrete foundation (labeled stone pile foundations

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Figure 7-49.

on the 2003 site map [Chadwick and Klein 2003: Figure 4-16]). The bridge consists of one or two stone slabs approximately 3.5 m (11.5 ft) wide over the approximately 1-m (3-ft)-wide stone-lined culvert that extends to the east toward Beech Street. The Stage IB survey described the bridge as being made of stone, but no further information was provided because of dense vegetation (Chadwick and Klein 2003:23). The western portion of the stone-lined culvert for the channelized portion of the tributary stream was depicted in 2003 between the marsh and the bridge, but the stone-lining was not described and the map scale is about 30 percent smaller than the actual measurements. PAL interprets the culvert as possibly having two modern period functions: drainage from Beech Street into the salt marsh and as an outlet for overflow at extreme high tides in the natural creek channel (Figures 7-50 and 7-51). The concrete foundation, which appears to correspond to the 2003 mapped "stone pile foundations" area on the east side of the southern stone structure (Chadwick and Klein 2003: Figure 4-16), was investigated by PAL in 2004 and designated the Foundation Site (ACU.12) (Waller and Robinson 2004a). The foundation remains are approximately 3-x-3-m (10-x-10-ft) and about 15 m (50 ft) east of the Dock Site (Figure 7-52). No Phase II testing was conducted at the stone-lined culvert, bridge, or Foundation Site, because they are east and outside the 25-ft buffer (see Figure 7-65).

The only other site feature reported in 2003 is an "artificial basin with an abundance of wood fragments" in the marsh west of the two stone structures and stone-lined culvert and bridge. The basin was described as approximately 0.68 acres in size and excavated into the glacial outwash deposits to depths exceeding 350 cm below marsh surface on the basis of auger test units (ATUs) conducted during the Stage IB survey field investigations. The 2003 profile reconstructions of the auger test units in this area revealed what the JMA report authors interpreted to be a "humanly modified landscape" below the intertidal marsh (Chadwick and Klein 2003:23). The authors based this interpretation on "geomorphic principles related to fluvial systems that hold that it is atypical to have a nearly flat-bottom basin on an interfluve of two tributaries." PAL conducted ground surface inspection of the marsh west of the stone features at this location and did not identify any visible evidence of human modification of the landscape other than several linear mosquito-control ditches dating from the modern period. A review of late nineteenth through early twenty-first-century (1888–2016) topographic maps and aerial imagery of the marsh area did not reveal any obvious indications of a basin feature or other depressions. PAL has examined the JMA profiles of the site provided in the 2003 Stage IA report, and suggest that they are not inconsistent with natural processes of tidal channel migration that could have occurred over the past several thousand years (Chadwick and Klein 2003: Figure 4-17 cross section profiles). The 2003 report does not provide any details regarding the nature of the "wood fragments" noted in the ATUs, and they could simply reflect natural vegetation preserved in the wetland environment.

Subsurface Testing

Seven judgmental test pits (JTP-01 through JTP-07) were placed along the exterior and interior of the "wall" features and within the area between the walls and the 25-ft buffer to further investigate their internal configuration and complexity. JTP-01 and JTP-02 were placed along the interior and exterior of the southern wall section at its south end. JTP-01 contained black (10YR 2/1) medium sandy silt with gravel and stone fill to 27 cmbs. Below was a second fill deposit consisting of brown (10YR 4/3) silty medium–coarse sand mottled with black (10YR 2/1) organic silt with gravel to 60 cmbs, where the test pit terminated at the water table (Figure 7-53). JTP-02 contained black (10YR 2/1) fine sandy silt with organics marsh (hydric A horizon) to 100 cmbs. Some stones were noted in the upper soil strata to 33 cmbs (1.1 ftbs). Standing water in this test pit was present at 77 cmbs (2.5 ftbs) during low tide.

JTP-03 through JTP-07 to the north along the interior side of the "wall" features contained thick grassy A_o (duff) over dark grayish brown (10YR 4/2) fine–medium sandy silt with gravel and some cobbles in a fill deposit. JTP-04 through JTP-07 terminated in this fill at 40–71 cmbs (1.3–2.3 ftbs) due to the water table

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Figure 7-53.

(see Figure 7-53). A very dark grayish brown (10YR 3/2) fine sandy silt hydric deposit underlay the fill in JTP-03 to 63 cmbs (2.1 ftbs). The second hydric deposit of grayish brown (10YR 5/2) medium sand was present to 77 cmbs, where the water table was encountered.

A total of 26 post-contact artifacts were recovered from four of the seven test pits from fill deposits at 0–40 cmbs (see Appendix A): 9 ceramic sherds (3 whiteware, 5 porcelaneous, 1 ironstone), 8 bottle/jar glass fragments, 4 window glass fragments, 3 brick fragments, and 2 unidentified ferrous metal fragments. Styrofoam was noted in the fill but not collected. No pre-contact cultural material was recovered from any of the test pits. No additional test pits or larger excavation units were excavated at the Dock Site because of the uniform nature of the stratigraphy and visible structures and the lack of buried features and artifact concentrations.

CHAPTER EIGHT

INTERPRETATIONS AND RECOMMENDATIONS

PAL conducted an archaeological assessment (reconnaissance survey) of potential access roads and equipment laydown areas for the NBHSS Project; Phase I (intensive) archaeological survey at the pre-contact Harding I and Harding II sites; and Phase II site examination archaeological surveys at the pre-contact Osprey, Pear Island, Lacuyers, Lawson, and Comm sites and the post-contact Dock Site. The interpretations of the findings and the management recommendations are summarized below and in Table 8-1.

Table 8-1. Results of Phase I Intensive Survey and Phase II Site Examination, NBHSS Project Area.

Site	Number	Survey	Integrity	Recommendation
Harding I	19-BR-560	Phase I intensive	Poor	Not National Register eligible; no additional archaeological survey.
Harding II	19-BR-561	Phase I intensive	Poor	Not National Register eligible; no additional archaeological survey.
Osprey	19-BR-590	Phase II site examination	Good	National Register eligible. Limit environmental remediation to the currently proposed remediation area to avoid site impacts.
Pear Island	19-BR-557	Phase II site examination	Good	National Register eligible. Limit environmental remediation to the currently proposed remediation area to avoid site impacts.
Lacuyers	19-BR-555	Phase II site examination	Good	National Register eligible. Limit environmental remediation to the currently proposed remediation area to avoid site impacts.
Lawson	19-BR-378	Phase II site examination	Poor	Not National Register eligible; no additional archaeological survey.
Comm	19-BR-554	Phase II site examination	Good	Not National Register eligible; no additional archaeological survey.
Dock	ACU.1.1	Phase II site examination	Good	Not National Register eligible; no additional archaeological survey.

Archaeological Assessment – NBHSS Access Roads and Laydown Areas

NBHSS access roads and laydown area are in areas of low, moderate, and high sensitivity for containing archaeological deposits potentially eligible for listing in the National Register (see Figure 5-21). Approximately 64 percent of the area within the proposed NHBSS access roads and three of the six laydown areas have low archaeological sensitivity. Such areas are unlikely to contain National Register-eligible archaeological properties, and no additional subsurface archaeological testing is recommended for these areas.

Approximately 13 percent of the total linear distance of the proposed access roads will traverse areas of moderate sensitivity for containing archaeological deposits and 23 percent are in areas of high

archaeological sensitivity. Three of the laydown areas are also in areas of high archaeological sensitivity. National Register-eligible archaeological properties may be present in areas of moderate and high archaeological sensitivity. Systematic archaeological testing will be warranted in these areas if Project access roads, laydown areas, and site preparation activities will cause ground disturbance.

Jacobs proposes to avoid ground disturbance within each of these areas by raising temporary access roads above the natural surface grade and by prohibiting tree stump removal. Six to 12 inches (15–30 cm) of 1½-inch dense graded aggregate fill and/or composite or wood construction mats will be placed atop geotextile fabric to limit any impacts to intact ground surfaces in moderate and high sensitivity areas. Where clearing is necessary, vegetation will be cut flush to the ground with the remaining root systems left to degrade naturally. Such design measures, if appropriately implemented, will minimize effects to any archaeological resources in these areas.

Construction and use of NBHSS access roads and laydown areas should have no effect on potentially National Register-eligible archaeological properties. PAL recommends that access road and laydown area installation proceed as currently planned.

Phase I (Intensive) Archaeological Investigations – Harding I and Harding II Sites

Phase I (intensive) survey of the Harding I Site (19-BR-560) did not recover any pre-contact Native American cultural materials. Close interval piston coring by PAL indicated the presence of stratified brown, very dark grayish brown, and light olive brown sands underlying a hydric A horizon to between 0 and 80 cmbs along the east bank of the Acushnet River in the vicinity of the Harding I Site. Observed sands are interpreted as estuarine sediments deposited by fluvial and/or coastal processes sometime during the twentieth century. Sediments sampled by PAL at comparable depths to those containing the pre-contact artifacts previously recovered by JMA contained plastic fragments, indicating the deposits are of recent origin or have been disturbed. Accordingly, the quartz debitage recovered by JMA in auger test B131.003 appears to represent a low density of lithic artifacts in a redeposited context. **PAL recommends the Harding I Site as not eligible for listing in the National Register, and no additional archaeological investigations are recommended.**

Phase I survey of the Harding II Site (19-BR-561) did not produce any pre-contact Native American cultural materials. Supplemental Phase I piston coring indicated the presence of very dark brown, brown, and dark gray tidal mud flat sediments along the east bank of the Acushnet River in the vicinity of the Harding II Site. Observed sediments have been deflated and likely reworked by fluvial and/or coastal processes. Previous pre-contact artifact finds by JMA were collected from the exposed tidal flat, which lacks contextual integrity. **PAL recommends the Harding II Site as not eligible for listing in the National Register and no additional archaeological investigations are recommended.**

Phase II Archaeological Site Examinations

The Phase II fieldwork at the five pre-contact sites and the evaluation of each site were guided by the research questions presented in Chapter 2. PAL assessed each research question set developed for the Pre-Contact Period archaeological resources within the NBHSS Project area based on the results of the Phase II archaeological site examinations summarized in Chapter 7. The evaluation of the Dock Site was based on site-specific archival research (Chapter 4) and the results of the Phase II archaeological site examination (Chapter 7).

Assessment of the Research Questions

Question Set 1: **What archaeological components are present within the NBHSS Project area? Is there additional evidence for Archaic Period or Woodland Period settlement and resource use?**

Phase I and Phase II site examination archaeological surveys of the NBHSS Project area demonstrated that the combined Acushnet River/New Bedford Harbor shoreline was repeatedly occupied over several millennia. Middle Archaic Neville and Stark points were reportedly collected from the exposed tidal mudflat at the Lawson Site (Chadwick and Klein 2003). Late Archaic Laurentian Tradition projectile points have been recovered from the Pear Island, Lawson, and Comm sites, and Late Archaic Small Stemmed Tradition projectiles were recovered from the Lacuyers, Lawson, and perhaps Pear Island sites. The Lacuyers, Lawson, and Osprey sites yielded Transitional Archaic Atlantic and broad-bladed points, and late Susquehanna Tradition Orient Fishtail projectile points were recovered from the Osprey Site. Woodland Period projectile points were limited to a single quartz Levanna projectile point recovered from the mudflat during the walkover of the Lawson Site, although other Middle and Late Woodland projectile points and materials have been recovered from the nearby Swift Site complex situated north of the Wood Street Bridge in Acushnet (Simon 1980; Thorbahn 1983; Waller 2006; Waller and Robinson 2004b). Phase I and Phase II archaeological surveys within the NBHSS have produced substantial evidence for Late Archaic and Transitional Archaic Period (5000–2700 B.P.) occupation and resource use along the Acushnet River relative to the earlier and later periods.

Question Set 2: Do the sites conform to the expected model of estuarine coastal adaptation or are they consistent with freshwater riverine (pre-drowning of the river valley) settlements? What do early occupations suggest about Native American settlement and resource exploitation along the Acushnet River prior to 5000 B.P.?

Prior to 7,000 years ago, Native American peoples primarily focused on inland-based resources—hunting and collecting along the Northeast's waterways with an apparent settlement focus on large marshes and swamps. Our understanding of possible coastal adaptations during the PaleoIndian through Middle Archaic periods is limited because the ancient coastal plain and any associated archaeological sites were inundated by sea water.

After about 7,000 years ago, settlement became more concentrated along major rivers where the harvesting of anadromous fish played an increasingly prominent role in subsistence patterns. This change may well have been associated with the effects of sea-level rise on coastal rivers, which would have inundated falls and other barriers to anadromous and catadromous fish species. Although seasonal aggregation during fish runs appears to have been important, Late Archaic sites are found in a broad range of settings. Paleoenvironmental and archaeological evidence indicates increased diversification of food resources, generalized exploitation of faunal and floral species, and the establishment of tribal territories. In general, Archaic Period peoples appear to have practiced a primarily hunting and gathering subsistence economy with a settlement pattern characterized by seasonal relocations within circumscribed territories (Dincauze 1975).

At some time after 3,000 years ago, concurrent with a focus on coastal and riverine settlement, large populations began to settle in concentrated hamlets and villages and complex social ties linking Algonquian peoples throughout the Northeast developed. The Woodland Period involved a transition from a more mobile way of life toward a more sedentary one and regionally was a time of dynamic development for southern New England's Native peoples. Traditionally, the Woodland Period has been interpreted as an abandonment of the Archaic Period's central-based wandering (after Beardsley et al. 1956) settlement and

subsistence pattern of hunting, gathering, and fishing that was replaced or supplemented with horticulture and included an emphasis on ceramic technology (Braun and Braun 1994; Ritchie 1980; Snow 1980). Archaeological evidence reflects a continued diversification of food resources, an increased reliance on shellfish and marine resources, refinements in pottery manufacturing, the maintenance of long-distance trade and exchange networks, and increased sedentism.

Late Archaic Laurentian and Small Stemmed Point Tradition and Transitional Archaic Susquehanna Tradition cultural materials were recovered from the Osprey, Pear Island, Lacuyers, Lawson, and Comm sites. The time of these occupations likely was at or just before the Acushnet River was inundated with salt water and when it became tidally influenced.

The recovery of Late and Transitional Archaic artifacts from various locations along the east bank of the Acushnet River indicates this section of southeastern Massachusetts was an important resource area ca. 5000–2800 B.P. Locally available quartz and regionally available argillites, rhyolites, and felsites suggest a catchment territory that extended to the Boston Basin and beyond. Anadromous fish such as alewives, bass, herring, salmon, shad, and sturgeon and lamprey eels seasonally traveled up regional waterways to spawn or were otherwise naturally present within southeastern Massachusetts' rivers. Anadromous and river fish, river and wetland flora, and small- to medium-sized fauna drawn to the river system were likely hunted. The time of the year each site was occupied and the resources targeted are not known.

Southeastern Massachusetts' dendritic system of rivers undoubtedly facilitated Late and Transitional Archaic transport and population movements, presumably using watercraft such as dugout canoes. Rivers, lakes, ponds, coastlines, and seas were important natural and cultural places that were understood and given meaning via a group's creation stories, oral traditions, and shared memories (Patton 2014:88). Thus, archaeological sites located at the contact of wet (rivers, coasts, and large water bodies) and dry (upland or terrestrial) settings may be not only physical places of past human settlement but also places of specific ancient spiritual or cultural significance. A "drainage-based" approach to the study of southeastern Massachusetts archaeological sites at "wet and dry interfaces" attempts to supplement archaeological interpretation based solely on land-based models reliant on places and things with an assessment of the cultural significance of a place by studying it within the cultural system that led to a site's creation (Patton 2014).

No artifact classes useful for addressing Native American occupation and use of wet and dry interfaces from a southern New England Algonquian Indian perspective (e.g., watercraft, woodworking, and other ground-stone tools or tools with a clear functional association with riverine, estuarine, and marine environments) were recovered from the NBHSS Project area. No organic remains of finfish, shellfish, or other aquatic species were recovered. The recovered lithic artifacts are limited to common artifacts (e.g., projectile points, bifaces, and lithic debitage) that are ubiquitous at virtually all Native American sites and not unique to wet and dry archaeological settings.

Question Set 3: What subsistence remains are present within the NBHSS and with which components are they associated? Is there a similarity of resource use through time or are there any observable differences?

Phase I and Phase II archaeological investigations within the NBHSS Project Area were limited to those small portions of the identified sites that would be or have the potential to be impacted by environmental soils remediation. Terrestrial, estuarine, and marine resources such as fish, shellfish, bones, nuts, and seeds are often recovered from archaeological sites within coastal or near coastal settings. Macrobotanical food remains, however, were not recovered from any of the investigated sites. Post-excavation processing of feature and site control soils was not conducted due to possible PCB and/or heavy metal contamination.

Therefore, classes of data necessary for answering Research Question 3 could not be collected, and questions pertaining to subsistence remains and resource use within the study area remain unanswered.

Question Set 4: Is the archaeological record consistent with short-term occupations or consistent with longer term settlement and resource use focused on the estuary?

The archaeological record of the NBHSS Project area is dominated by a series of overlapping short-duration encampments where chipped-stone tool manufacture, hunting and processing tool kit rejuvenation or replacement, limited resource processing, and/or cooking was undertaken. Lithic tools recovered from the investigated sites consist primarily of projectile points and finished or crudely made bifaces that could have served numerous functions such as cutting, slicing, and/or chopping.

A single hearth feature was exposed at the Osprey Site. Hearths are ubiquitous at short-duration Archaic and longer-term Woodland Period sites in the region. Other feature classes such as storage pits and refuse pits, commonly at larger settlements occupied for longer periods of time, were noticeably absent in the NBHSS. The overall findings—the lithic tool kits, a single pre-contact hearth feature, the low to moderate densities of artifacts from the investigated sites, and the absence of marine fish and shellfish—are more consistent with a somewhat mobile, central-based wandering settlement system than with a semi-permanent settlement system.

Question Set 5: What types of cultural materials and features are present within the NBHSS? How are the recovered artifact assemblages similar and in what ways do they differ from other well-documented sites located in similar ecological settings in southeastern Massachusetts? What do the recovered lithics imply about group territory, catchment areas, formation, or group mobility?

The pre-contact sites within the NBHSS Project area represent occupations dating to the Middle Archaic, Late Archaic, Transitional Archaic, Middle Woodland, and Late Woodland periods; no sites dating to the PaleoIndian or Early Archaic periods were identified. Elsewhere in southeastern Massachusetts, PaleoIndian and Early Archaic sites typically consist of isolated point finds in more interior areas. The lack of PaleoIndian and Early Archaic sites in the NBHSS Project area may simply reflect the general rarity of these sites. Inundation of the coastal plain sections to the south and east of the Project area and sedimentation within the drowned Acushnet River valley may have buried, submerged, or destroyed early sites in the area.

Middle Archaic deposits in the region are typically characterized as finds of diagnostic points within multicomponent sites, making it difficult to identify the specific nature of the Middle Archaic occupations. Nevertheless, Middle Archaic sites are generally more common than Early Archaic and PaleoIndian sites in the Northeast. Middle Archaic Neville points from the Lawson Site are associated with the earliest known pre-contact occupation of the NBHSS Project area. These artifacts were recovered from stratigraphic contexts that lack integrity, which limits site interpretation and characterization.

Available paleoenvironmental data suggest that the Project area would have been an interior riverine setting ca. 8000–6000 B.P. Middle Archaic occupations of the Annasnappet Pond Archaeological District in Carver, Massachusetts, attest to an intense focus on interior waterways and regional wetland basins during the period (Doucette and Cross 1997). Excavations at the Neville Site at Amoskeag Falls in New Hampshire demonstrate the seasonal exploitation of fish runs at fall lines along major rivers during the Middle Archaic Period (Dincauze 1976). Although no direct evidence of fishing was recovered from the Lawson Site, Middle Archaic Neville type projectile points may reflect Native American exploitation of anadromous fish runs along the ancient Acushnet River.

Laurentian Tradition materials recovered from the NBHSS Project area were limited to Brewerton-type projectile points from the Lawson and Comm sites. The nature of the Brewerton component of the Lawson Site is indeterminate given the site's poor integrity, but it is generally consistent with other Late Archaic Laurentian Tradition occupations in southeastern Massachusetts represented by small numbers of projectile points from larger multicomponent sites. About 5000 B.P., the Acushnet River within the NBHSS Project area was likely fresh water. The Brewerton projectile point from the Comm Site likely represents a hunting foray along the Acushnet River. Brewerton points from the Lawson and Comm sites were made of regionally available argillite and rhyolite, suggesting the Laurentian Tradition occupants of the area were more mobile and operated within a larger catchment area than their Small Stemmed Tradition counterparts.

Late Archaic Small Stemmed Tradition sites are more common in southeastern Massachusetts than those from other time periods. The Small Stemmed Tradition settlement system included a broad range of site types (small hunting sites to larger base camps) and a more complex range of cultural materials. Small Stemmed Tradition sites in the immediate area generally manifest as small campsites with cultural features associated with food processing, refuse disposal, and hearths along swamps and other marsh and wetland settings. Small Stemmed site patterning generally reflects mobile foragers operating within circumscribed territories. Small Stemmed settlements may have been concentrated along the Acushnet River with less intensive use of the upper watershed margins, although there is clear evidence for occupations within and adjacent to the NBHSS Project area. Small Stemmed Tradition artifacts recovered from the Lawson Site and Swift Site complex, and perhaps the Lacuyers Site, were manufactured of quartz and possibly argillite. Quartz is readily available in the glacial train and could have been collected in cobble form from rivers, coastal margins, and nearby glacial till deposits. Argillite is a metamorphosed sedimentary material available from both the Boston Basin and nearby Narragansett Bay. The association of Small Stemmed Tradition projectile points recovered from the NBHSS Project area with locally available (quartz) and regionally available (argillite) lithic materials indicates that the peoples inhabiting the shores of the Acushnet River ca. 4000 B.P. were firmly settled in the region and aware of and comfortable working with its lithic materials. The territory within which these people were familiar may have extended about 25 mi (40 km) to the southwest to as far as 47 mi (75 km) to the north.

Transitional Archaic Susquehanna Tradition occupations in southeastern Massachusetts are generally focused along major rivers and the coast. Environmental data indicate the development of resource-rich estuarine habitat along the section of the Acushnet River within the Project area ca. 3600 B.P. coincident with the Transitional Archaic Period. Regionally, the Transitional Archaic settlement pattern consisted of temporary camps that targeted riverine or estuarine flora and fauna (e.g., fish, nuts, and small- to medium-sized mammals) (Pagoulatos 1988). Turnbaugh (1975) proposed that anadromous fish, particularly shad, may have been important to the Susquehanna Tradition or the "Broadpoint-producing culture," causing people to travel up and down regional river systems.

Transitional Archaic occupations are well-documented within the NBHSS Project area. Atlantic projectile points dating to the early phase of the Transitional Archaic Susquehanna Tradition were recovered from the Lawson Site; a Susquehanna Broad and soapstone bowl rim sherd were recovered from the Swift III Site (Waller 2006); and Atlantic, Susquehanna, and Orient fishtail projectile points were recovered from the Osprey and Lacuyers sites. Transitional Archaic occupations commonly co-occur with Small Stemmed Tradition components within the NBHSS Project area but generally do not overlap with other chronological components. The Lacuyers and Osprey sites contained several projectile point forms, and the Osprey Site contained a hearth feature likely created during the Transitional Archaic Period. The Lacuyers and Osprey sites appear to have been temporary camps created by repeated or seasonal visits to the Acushnet River/upper New Bedford Harbor area for riverine and/or estuarine resources exploitation ca. 3600–2800 B.P.

A wider range of lithic material types (regionally and extra-regionally available argillite, rhyolites, felsites, and chert) have been documented at the Lacuyers and Osprey sites than at the other sites investigated within the NBHSS Project area. Locally available quartz and quartzite materials were recovered from the two sites. This pattern of lithic use is consistent with regional observations that include a reliance on rhyolites, quartzite, and non-local cherts at the beginning of the Transitional Archaic Period, with an increased focus on local lithic materials such as quartz and argillite by the Orient Phase. This trend likely resulted as Transitional Archaic populations became more familiar with, and eventually became entrenched in, the region. The recovered lithic materials suggest that the occupants at the two sites ranged within a geographical territory that included much of eastern Massachusetts. Chert from both sites suggests that these same people travelled to or perhaps participated in a long-distance interregional trade network that extended as far west as New York and Pennsylvania.

No Early Woodland sites are reported within the NBHSS Project area. Regionally, such sites are rare and may be more likely to be found along the margins of Buzzards Bay and the mouth of the Acushnet River/lower New Bedford Harbor. Definitive Middle Woodland finds from the NBHSS are limited to a Fox Creek projectile point from the Swift I Site on the east bank of the Acushnet River just north of the Wood Street Bride (Waller 2006).

Late Woodland sites in southeastern Massachusetts are characterized by hunting/processing camps, smaller habitation camps, burials, and villages. There are no known longer-duration Late Woodland occupations such as hamlets or villages within the NBHSS Project area, but there is some evidence for short-duration specialized occupation. Late Woodland Levanna projectile points have been previously recovered from the Lawson Site, and Levanna points, chipped-stone tools, FCR, and a small number of pottery sherds have been recovered from the Swift I, Swift II, and Swift III loci of the Swift Site. Low-density Levanna projectile point recoveries reflect short-term encampments associated with hunting, shellfishing and/or processing along the estuary (Thorbahn 1983; Waller 2006). The nature of pre-contact use and habitation of the Acushnet Slough Shell Midden Site, between the Comm and Lacuyers sites, is uncertain but appears to represent a large, multicomponent habitation focused on shellfish harvesting and processing. The shell midden, with a radiocarbon age of 650 ± 30 B.P. was exposed and partially investigated (Dudek 2015).

Late Woodland lithic materials from the NBHSS Project area consist primarily of quartz, rhyolite, quartzite, felsite, and argillite. These materials are consistent with lithic materials recovered from other Late Woodland occupations in southeastern Massachusetts. The similarity of lithic materials found at many of these sites suggest cultural connections among pre-contact Native Americans living in the area of present-day Barnstable, Plymouth, and Bristol counties and the presence of an established Native American territory pre-dating European contact. The distribution of and evidence for Late Woodland sites and resource exploitation suggest that the NBHSS Project area may have been within a large catchment territory that included short-term specialized and other satellite camps that supported more concentrated habitations such as villages or hamlets elsewhere along the Acushnet River.

Site-Specific Recommendations

Osprey Site (19-BR-590)

Documented pre-contact deposits from the Osprey Site cover an approximately 2,300-sq m area. The Phase II archaeological investigations were conducted within an approximately 200-sq m (656 sq ft) portion of the site located inside the 25-ft sampling buffer of the remediation area (Figure 8-1). Site boundaries to the north and east were defined during previous investigations by the presence of test pits absent of cultural materials. Site boundaries to the south and southwest are largely defined by the presence of the salt marsh/supratidal upland boundary. The boundary along part of the northwestern edge remains

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Figure 8-1.

indeterminate, but can reasonably be expected to be bounded by the edge of the supratidal upland with the salt marsh. Phase II archaeological testing at the Osprey Site yielded lithic debitage, a quartz biface, Atlantic and Orient Fishtail projectile points, and a quartz preform and exposed a Native American hearth feature. The integrity of the pre-contact materials is good; 96 percent were recovered from the A_{pz} and 4 percent were recovered from B_1 horizon soils. Despite plowing disturbance, a reliable degree of horizontal artifact patterning can be expected. In plow-disturbed soils, the greatest degree of artifact displacement occurs vertically with horizontal displacement occurring in the predominant direction of plowing (Lewarch and O'Brien 1981; Odell and Cowan 1987). The distribution of the pre-contact materials within the Phase II-investigated area is not particularly complex, but does indicate two spatially separate activity episodes associated with the maintenance of argillite and rhyolite tools and early-stage manufacture of quartz tools.

Collectively, the finds from the Osprey Site indicate it contains one or more seasonal camp occupations dating to the Transitional Archaic Period (ca. 3600–2500 B.P.). The cultural materials and feature at the site indicate activities associated with lithic reduction, hunting, and collection and processing of resources associated with the ancient freshwater or tidal marsh setting of the Acushnet River.

The Transitional Archaic occupations of the site likely coincide with the first millennia of estuarine development along the Acushnet River, suggesting the site may yield important new information about the response of local communities to a significant ecological transition. The Osprey Site exhibits good integrity and has the potential to contribute new information about Transitional Archaic site selection, population movements, land use, and resource exploitation within the coastal or near-coastal zone of southeastern Massachusetts.

PAL recommends the Osprey Site as eligible for listing in the National Register under Criteria A and D. The significant archaeological deposits within the APE are confined within the 25-ft buffer; PAL recommends that environmental remediation activities do not extend into the buffer to avoid impacts to the Osprey Site. If Project plans are revised to extend farther landward into the Osprey Site, then PAL recommends mitigating adverse effects to the site through the development and implementation of a Phase III archaeological data recovery program.

Pear Island Site (19-BR-557)

Documented pre-contact deposits from the Pear Island Site cover an approximately 607-sq m area. The Phase II archaeological investigations were conducted within an approximately 280-sq m portion of the site located within and east of the 25-ft sampling buffer of the remediation area (Figure 8-2). The pre-contact deposits are largely confined to level terrain along the western side of Pear Island. The island edge and/or steeply sloping terrain define the site boundaries to the west and south, and partly define the northern site margin. Stage IB test pits excavated by JMA that lack pre-contact material define the site boundaries to the north and east.

Argillite, chert, granitic rock, quartz, quartzite, and rhyolite debitage and two untyped projectile points were recovered from six test pits and four EUs at the Pear Island Site during the Phase II site examination. The untyped stemmed point recovered from the site suggests the site may date to the Late Archaic Period (ca. 5000–3000 B.P.). The integrity of the Phase II pre-contact assemblage is good. Pre-contact materials were recovered from A_{pz} (51%) and intact B horizon subsoil contexts (49%). The horizontal distribution of the materials indicates that the densest site deposits lie outside the 25-ft buffer. Site deposits are not particularly complex, but suggest the presence of two activity episodes related to stone tool manufacture and maintenance.

The Pear Island Site archaeological findings suggest one or more brief occupations during which the site's occupants made stone tools, replenished their lithic tool kits, and hunted. Phase II archaeological testing

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Figure 8-2.

was mostly contained within the portion of the site that extends into the 25-ft bufferof the remediation area, and cultural deposits within this area are primarily associated with chipped-stone tool manufacture and the maintenance of hunting tool kits. Denser and more variable cultural deposits that may include archaeological features may extend to the east, outside the APE.

The Pear Island Site archaeological deposits have the potential to contribute new information about lithic procurement and use in southeastern Massachusetts and the nature of small lithic sites and their role in pre-contact estuarine and/or riverine adaptations along the Acushnet River. The full extent of the Pear Island Site has not been evaluated.

The Pear Island Site is likely eligible for listing in the National Register under Criteria A and D, though only the margins of the site were evaluated during the Phase II survey. Phase II testing indicates archaeological deposits within the APE are limited to the 25-ft buffer that extends landward from the proposed soil remediation area. Cultural materials in the buffer appear to represent the southern and western margins of the site. The artifact densities increase near the level terrain forming the top of the Pear Island land form. Such topographic settings appear to have been specific focal points in Late Archaic through Late Woodland settlement patterns, suggesting that significant cultural deposits may be located atop the crest of Pear Island to the east of the APE. Based on the results of the Phase II survey, the proposed environmental remediation is unlikely to affect the site, which occupies a wooded upland elevated above the adjacent salt marsh. PAL recommends that environmental remediation be limited to the currently proposed remediation area, exclusive of the 25-ft buffer. If Project plans are revised to extend farther landward into the combined Pear Island Site/25-ft buffer, then PAL recommends mitigating adverse impacts to the site through the development and implementation of a Phase III archaeological data recovery program.

Lacuyers Site (19-BR-555)

PAL's Phase II site examination testing was evenly distributed throughout the approximately 162-sq m portion of the Lacuyers Site within the 25-ft buffer of the remediation area (Figure 8-3). Site boundaries to the north and east are defined by the presence of Stage IB test pits lacking pre-contact cultural material. The western boundary consists of the natural low marsh and supratidal upland border. JMA defined the boundary to the south on the basis of test pits with pre-contact material (Chadwick and Klein 2003: Figure 4-12).

Phase II archaeological testing at the Lacuyers Site (19-BR-555) produced lithic debitage, a quartz projectile point tip, Susquehanna Broad and Small Stemmed projectile points, a core, a biface, a uniface, and several pieces of FCR. The FCR suggests that fire-related features such as hearths and/or roasting platforms were used at the site and intact elements of such features may be located within the APE. The Lacuyers Site is currently interpreted as a multi-occupation campsite where stone tool manufacture, hunting, resource processing, and cooking were undertaken. The recovery of Susquehanna Broad and Small Stemmed projectile points indicates occupations dating to the Late Archaic Period (ca. 5000–3000 B.P.) and/or Transitional Archaic Period (ca. 3600–2500 B.P.).

Artifact densities varied within the study area. Pre-contact cultural materials were most numerous in EU-07, EU-08, and EU-09, and comparatively scarce in EU-10. The distributions of lithic materials within the Lacuyers Site suggests the presence of two distinct concentrations at the north and south ends of the site. This patterning could indicate separate occupations and/or activity areas. Pre-contact cultural materials were recovered from intact stratigraphic contexts useful for archaeological interpretation.

The Lacuyers Site has good integrity, contains a diverse range of lithic material types, and exhibits somewhat complex artifact patterning. As with the Osprey Site, the Lacuyers Site has the potential to yield

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Figure 8-3.

important new information concerning the response of local communities to the initial development of the Acushnet River estuary. Cultural deposits at the site also have the potential to contribute new information about Transitional Archaic Period (ca. 3600–2500 B.P.) site selection, population movements, land use, and resource exploitation within southeastern Massachusetts and along the Acushnet River/New Bedford Harbor estuary system.

PAL recommends the Lacuyers Site as eligible for listing in the National Register under Criteria A and D. Archaeological deposits are contained within the 25-ft buffer that extends landward from the currently proposed remediation area. PAL recommends that soil disturbance be limited to the currently proposed remediation area, exclusive of the 25-ft buffer. If Project plans are revised to impact the Lacuyers Site, PAL recommends mitigating adverse impacts to the site through the development and implementation of a Phase III archaeological data recovery program.

Lawson Site (19-BR-378)

The Lawson Site encompasses an approximately 28,000-sq m area of shoreline along the eastern banks of the Acushnet River (Figures 8-4a and 8-4b). PAL's Phase II site examination included systematic walkover survey of the entire site and subsurface testing within and/or adjacent to the proposed six remediation areas and associated 25-ft sampling buffer zones. The western boundary of the site is defined by the Acushnet River. Site boundaries to the north, south, and east are defined by documented finds of pre-contact materials and by Stage IB test pits and auger tests absent of pre-contact cultural material.

An intended goal of JMA's Pilot Study of the NBHSS was to assess the stratigraphy of the Lawson Site and to determine if contextually intact sediments and cultural materials were present within the intertidal zone of the Project APE (Kellogg and Klein 2001a:8). On the basis of the results of their testing, JMA interpreted excavated sediments as typical of eroded and reworked deposits (Kellogg and Klein 2001a:9) with suspect integrity (Chadwick and Klein 2003:30). JMA archaeologists suggested that the highest ground within the site had the greatest potential to contain intact archaeological deposits (Kellogg and Klein 2001a:10). Supplemental geophysical marine archaeological survey from 2011 to 2015 supports JMA's conclusions.

No artifacts were recovered during Phase II subsurface testing at the Lawson Site (19-BR-378), but 14 pre-contact Native American artifacts were recovered from the exposed tidal flat and adjacent marsh in redeposited, reworked, and/or deflated land surfaces that lack stratigraphic integrity. The integrity of the Lawson Site is generally poor. Most of the piston core soil profiles contained disturbed sediments that had been reworked, eroded, and/or deflated through tidal processes or had been disturbed by the more recent installation of submarine communications lines or metal sheet pilings. One auger test in Remediation Area F provided potential evidence of intact soils that could have supported pre-contact human occupation. No Native American artifacts were recovered from this vegetated marsh location during JMA's previous Phase I ("Stage IB") archaeological testing or PAL's Phase II archaeological investigations of the NBHSS. **PAL recommends the Lawson Site as not eligible for listing in the National Register, and no additional archaeological investigations are warranted.**

Comm Site (19-BR-554)

Previous Stage IB archaeological investigations at the Comm Site documented pre-contact deposits within an approximately 280-sq m area (Chadwick and Klein 2003). PAL's Phase II testing within the remediation zone, 25-ft buffer confirmatory sampling, and to the north of the sampling buffer of the remediation area demonstrated that archaeological deposits are contained within an approximately 570-sq m (1870 sq ft) area (Figure 8-5). Western, southern, and southeastern site boundaries are defined by sterile test pits and auger

tests. The site's northeastern boundary is defined by a steep hillslope. The site's full boundary remains undefined and archaeological deposits may extend north beyond the APE.

Phase II archaeological testing recovered a low to moderate density of lithic debitage, a biface, a core, and a Brewerton point within the 25-ft buffer. The integrity of the Comm Site deposits is good. Most of the pre-contact cultural material was recovered from plowed soils (97%); the remaining material (3%) was recovered from intact B horizon subsoils. Site deposits are not complex; they consist of a single concentration of cultural material with sparse, scattered deposits at the edges of the site. The Comm Site is a low-density lithic scatter representing a short-duration campsite where chipped-stone tool manufacture or maintenance and perhaps limited resource processing occurred. The recovery of the Brewerton point indicates an occupation dating to the Late Archaic Period (ca. 5000–3000 B.P.).

Further archaeological excavation within the portion of the Comm Site contained within the 25-ft buffer would likely result in a redundant sample of the low-density lithic scatter. The Phase II survey results suggest that such investigations are unlikely to provide substantive new information about the pre-contact use of the site. **PAL recommends the portion of the Comm Site within the NBHSS buffer as not eligible for listing in the National Register; no additional archaeological investigations are warranted.**

Dock Site (ACU.11)

Archival research and field investigations indicate that the marsh area of the Dock Site (ACU.11) was at the west (riverfront) boundary of a large (600-acre) late seventeenth- through mid-nineteenth-century farmstead that was turned into a primarily (120-acre) leisure estate and used as such in the second half of the nineteenth century until the dwellinghouse and outbuildings burned in 1897. The late seventeenth- through mid-nineteenth-century farmstead was owned and occupied by the Hathaway-Kempton families of Fairhaven (later Acushnet), where the heads of household also were town selectmen. The farm buildings were situated east of the river close to South Main Street and were converted for use as a predominantly summer estate by Laura Keene in 1865, following the occupancy of Nathan Breed (and his daughter and son-in-law William Bradford), an American maritime painter who used a studio built out onto the river during the Breed ownership from 1855 to 1865. Historical accounts also mention bathhouses added near a beach on the river by Laura Keene and used for her guests from 1865 to 1873 on the 120-acre property that she named Riverside Lawn.

The 1936 USGS topographic map depicts the likely knoll described at the Laura Keene bathhouses and beach and a north–south linear division between the uplands and marshes in and adjacent to the Dock Site (see Figure 4-6). Aerial imagery from 1961 and 1971 indicates the presence of faint linear demarcations in this same area that match closely to the locations of the visible stone and berm borders (called stone wall/pad structures in the 2003 Stage IB survey) at the Dock Site on both sides of the stone-lined culvert and bridge crossing. The documentary record indicates that the nineteenth-century studio, bathhouses, and beach would have been located to the north of the Dock Site on the wooded knoll and elevated terrace still present today (the location of the pre-contact Comm Site and the existing electrical substation). No visible remains of platforms, docks, pilings, or any other foundations for the documented nineteenth-century artist studio or bathhouses are visible along this section of shoreline or in the Dock Site area to the south, and any such evidence was likely removed by later owners and/or destroyed during early-to-mid-twentieth-century coastal storms.

The archaeological site boundaries were originally defined as encompassing an approximately 760-sq m area from the supratidal (upland) to the intertidal zone between the Acushnet River and Beech Street. The Phase II site examination identified and mapped stone border and berm landscape features that are approximately 80 m (263 ft) long north–south and 5 m (16 ft) wide east–west following the marsh line, the stone-lined culvert that is approximately 30 m (98 ft) long east–west and 1 m (3 ft) wide north–south, and

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Figure 8-4a.

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Figure 8-4b.

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Figure 8-5.

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Figure 8-6.

the 3.5-m (11.5-ft) wide bridge stones, totaling about 460 sq m (1509 sq ft) (Figure 8-6). Of this area, about 10 m (33 ft) of the stone border, 2 m (6.6 ft) of the berm border, and 20 m (66 ft) of the stone-lined culvert including the stone "bridge" crossing are outside the 25-ft sampling buffer for the NBHSS Project.

The artifacts recovered in the relatively shallow (up to 70-cm [2.3-ft] deep) fill deposits over natural marsh sediments along the east side of the stone and berm border features are contained within this loosely defined archaeological site area. The artifacts include household bottle glass and ceramics (whiteware and ironstone) with manufacturing dates that extend back to the nineteenth century, suggesting that at least part of the fill soils may have been imported from the documented nearby nineteenth-century farm-estate property. However, the stone and berm border features and stone-line culvert and stone crossing do not appear to be nineteenth-century in origin given their surficial nature and location south of the documented nineteenth-century shoreline land uses and structures on the nearby knoll and terrace. The Dock Site's marshy terrain appears more likely to have been manipulated and/or reconfigured in the twentieth century as part of shoreline stabilization measures and property management efforts by abutting landowners. Further, Pal does not interpret the soil profile of the marsh to the left of the structures as necessarily being evidence of human manipulation of the landscape related to the documented post-contact period farm-estate property. The soil profile depicted in 2003 could reasonable be the result of natural processes of tidal channel migration in this section of the Acushnet River drainage.

Although the structural landscape features identified at the Dock Site (ACU.11) are documented to have been located at the western perimeter of a late seventeenth- through late nineteenth-century farm and leisure estate property near the Acushnet-Fairhaven town line, they most likely represent twentieth-century efforts to stabilize the shoreline. The filled marsh, artifacts, stone and berm border, and stone-lined culvert and crossing associated with the Dock Site have limited information content and complexity and low historical research value. **PAL recommends the Dock Site (ACU.11) as not eligible for listing in the National Register, and no additional archaeological investigations are warranted.**

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APPENDIX A

CATALOG OF CULTURAL MATERIALS

Appendices containing sensitive information are not included in this report

APPENDIX B

CORRESPONDENCE

Appendices containing sensitive information are not included in this report

APPENDIX C

UPDATED MHC ARCHAEOLOGICAL SITE FORMS

Appendices containing sensitive information are not included in this report