Appendix L

Intensive (Locational) Archaeological Survey

TECHNICAL REPORT

INTENSIVE (LOCATIONAL) ARCHAEOLOGICAL SURVEY
ABERJONA RIVER FLOOD CONTROL PROJECT
PROJECT ELEMENTS #2, #4 AND #8

Winchester, Massachusetts

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MANAGEMENT ABSTRACT

PAL completed an intensive (locational) archaeological survey in support of the Aberjona River Flood Control Project (ARFCP) in Winchester, Massachusetts. The ARFCP comprises 18.22 acres along an approximately 2.5-acre stretch of the Aberjona River, and is designed to alleviate periodic flooding of low-lying areas along the banks of the river. Three project elements were subject to archaeological survey including Project Element #2 - Waterfield Road to Bacon Street, Project Element #4 - Mt. Vernon Street Bridge, and Project Element #8 - Swanton Street Bridge. The survey included archival research, a walkover survey, and subsurface testing of the three project elements to locate and identify any potentially significant archaeological resources that may be affected by project activities.

Twenty 50-x-50-centimeter shovel test pits were excavated across the ARFCP project areas along four linear transects (A–D) and as two judgmental test pits (JTPs). The test pits were spaced at 10-meter intervals along the linear transects; JTPs were used in areas too small to accommodate transect testing.

The archaeological investigations revealed entirely filled soil profiles within all of the test pits excavated at Project Elements #2, #4, and #8. These filled soil profiles are attributable to a range of wide-scale landscape alterations dating from the mid-nineteenth through mid-twentieth centuries including the realignments of the Aberjona River and Mystic Valley Parkway (Project Element #2) during the 1940s, the channelization and infilling of the river through the center of Winchester (Project Element #4) during the late nineteenth century; and channelization and infilling to improve river flow and bury heavily polluted segments of the waterway (Project Element #8) during the 1930s. The filling episodes have effectively destroyed the integrity of any relict landscape surfaces pre-dating the mid-nineteenth century, and contain no substantive artifact or structural resources that might provide new information about the chronology, scale, or function of the landscape alterations themselves.

No pre- or post-contact cultural materials or features potentially eligible for listing in the National Register of Historic Places were identified during archaeological testing at Project Elements #2, #4, and #8. Based on the results of the survey, no further archaeological testing is recommended for Project Elements #2, #4, and #8 within the ARFCP.

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CHAPTER ONE

INTRODUCTION

AECOM, Inc. (AECOM) is assisting the Town of Winchester in the preparation of a Final Environmental Impact Report (FEIR) for the Aberjona River Flood Control Project (ARFCP) (Figure 1-1). The project, comprising 18.22 acres along an approximately 2.5-acre stretch of the Aberjona River, consists of 17 individual project elements that are designed to alleviate periodic flooding of low-lying areas along the banks of the river (Figure 1-2).

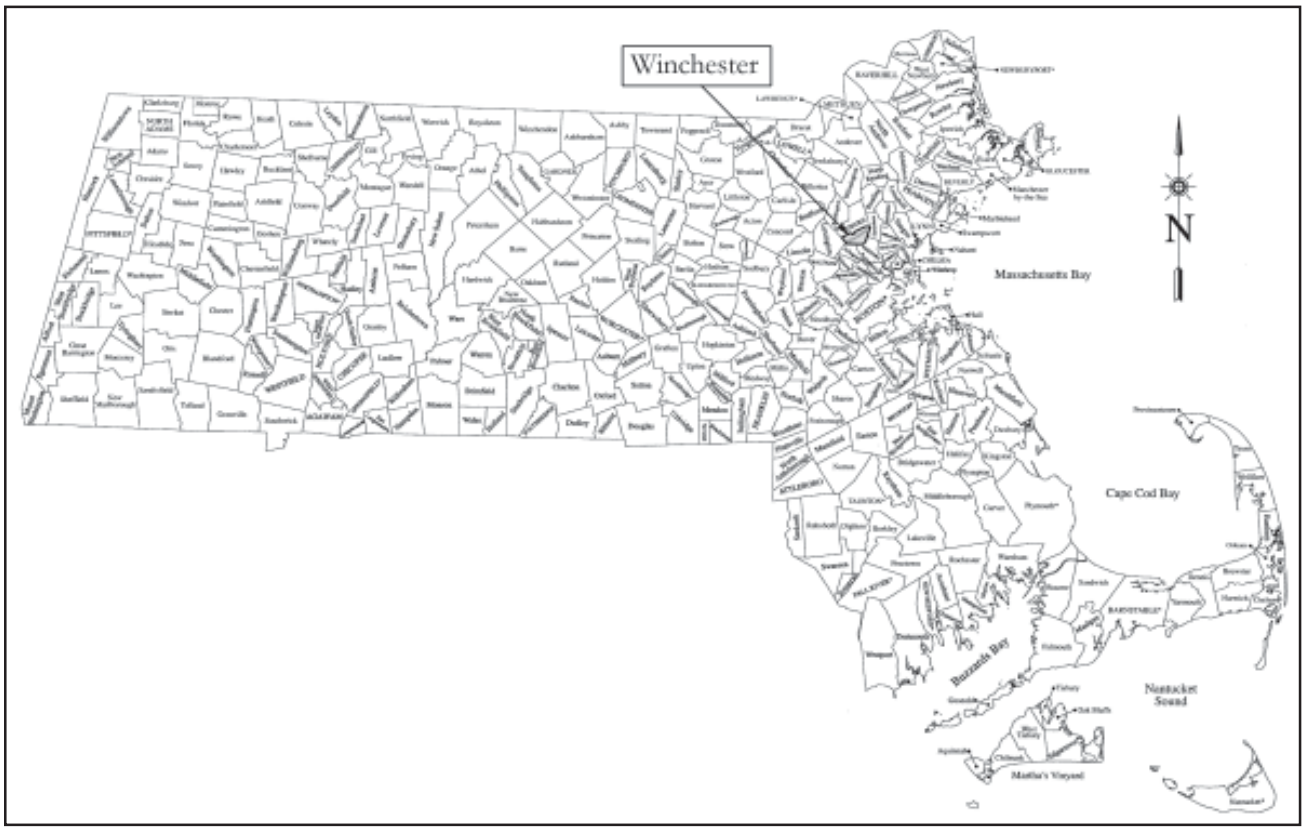


Figure 1-1. Map of Massachusetts showing the location of Winchester.

In the fall of 2005, PAL completed an archaeological reconnaissance survey at 12 of the proposed project elements including Wedgemere Train Station (CDM #1), Waterfield Road to Bacon Street (CDM #2), Mt. Vernon Street (CDM #4), Between Swanton Street and High School Playing Field (CDM #7); Swanton Street (CDM #8), Between Railroad Bridge near Muraco School and Swanton Street (CDM #9), Railroad Bridge near Muraco School (CDM #10), Between Leonard's Pond and Railroad Bridge (CDM #11), Dam Upstream of Muraco School (CDM #12), Davidson Park (CDM #14, 15), and Between

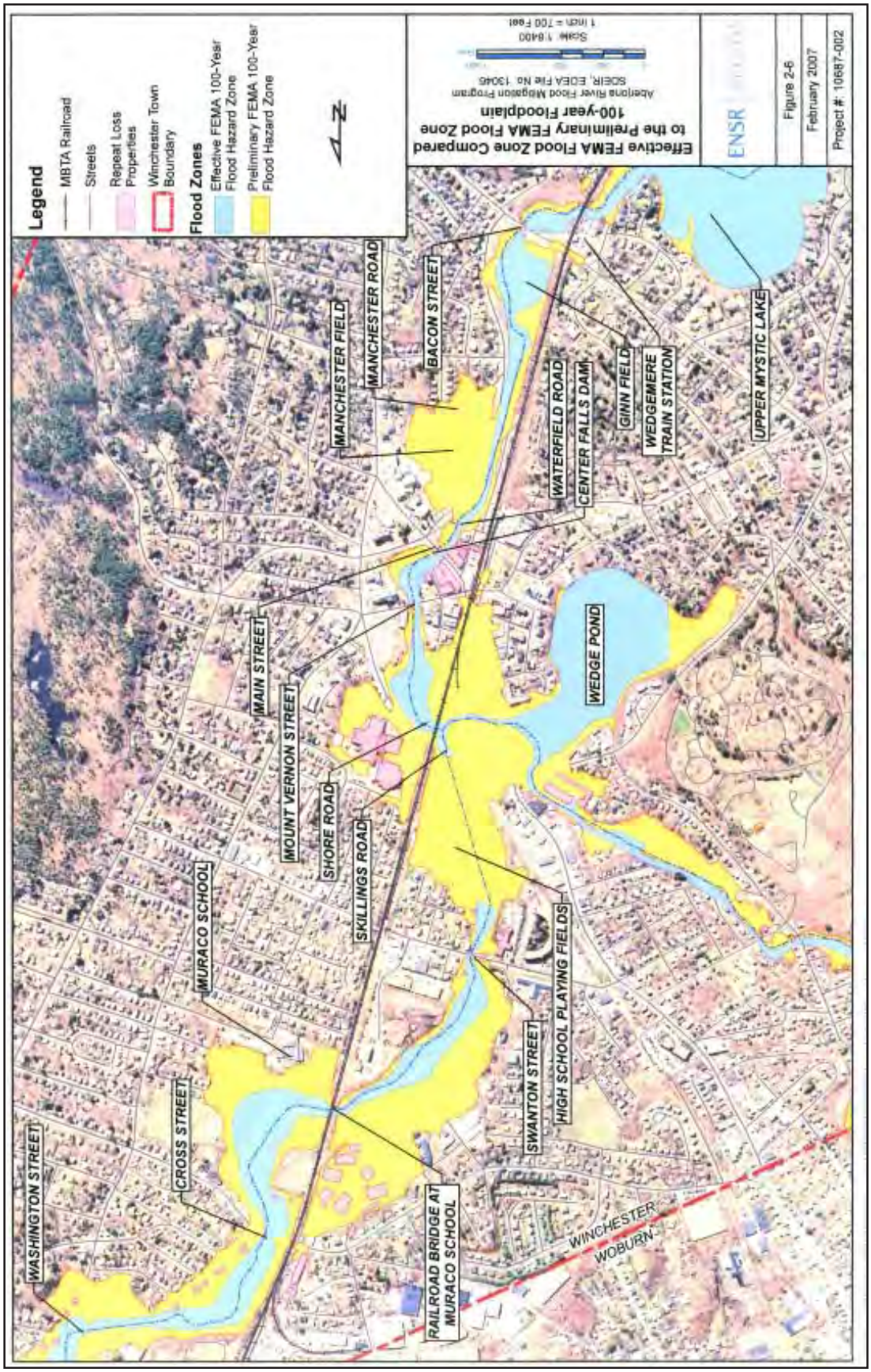


Figure 1-2. Map showing the overall location of the Aberjona River Flood Control Project with associated project elements.

Washington Street and Davidson Park (CDM #16). The findings of the survey included recommendations for intensive (locational) surveys at 10 of the 12 project elements (PAL 2007).

Since the time of the archaeological reconnaissance survey, many of the project elements recommended for archaeological survey have been dropped as part of the project planning. As illustrated by Figure 1-3, three archaeologically sensitive project elements have been retained including:

- Project Element #2 - Waterfield Road to Bacon Street
- Project Element #4 - Mt. Vernon Street Bridge
- Project Element #8 - Swanton Street Bridge

This report presents the results of the intensive (locational) survey conducted within the proposed Areas of Potential Effect (APE) at Project Elements #2, #4, and #8, and includes a review of the research contexts, the results of the fieldwork, and management recommendations regarding identified cultural deposits. The goal of the survey was to locate and identify archaeological deposits within the project areas, and make recommendations regarding the need for additional archaeological investigations, as necessary.

Scope and Authority

The ARFCP requires two permits for completion, including a Wetlands Protection Act Order of Conditions and Army Corp of Engineers Section 404 Approval. These permits required the completion of an Environmental Notification Form (ENF) and mandatory review under the Massachusetts Environmental Policy Act (MEPA) per 301 CMR.11. As part of that review, project impacts to cultural resources must be taken into consideration and are subject to review by the Massachusetts Historical Commission (MHC) in compliance with Section 106 of the National Historic Preservation Act of 1966, as amended, (36 CFR 800) and M.G.L. Chapter 9, Section 26-27C as amended by Chapter 254 of the Acts of 1988 (950 CMR 71.00) (MHC).

The intensive (locational) archaeological survey was conducted by PAL under state archaeologist's permit number 3155 issued by the MHC. The fieldwork was conducted from December 15–16, 2009, utilizing the methodology outlined in the technical proposal for the project, and in accordance with standards and guidelines set forth in the Secretary of Interior's *Standards and Guidelines for Archeology and Historic Preservation* (48 FR 44716 1983) and Massachusetts General Laws, Chapter 9, Sections 26-27C (950 CMR 71).

Project Personnel

PAL personnel involved in the project included Kristen Heitert (principal investigator), Nichole Gillis (project archaeologist), and Tyler Beebe (archaeologist). All laboratory work was supervised by Erin Kuns (laboratory supervisor).

Disposition of Project Materials

All project information (i.e., field recording forms, maps, photographs) is currently on file at PAL, 210 Lonsdale Avenue, Pawtucket, Rhode Island. PAL serves as a temporary curation facility until such time as the Commonwealth of Massachusetts designates a permanent state repository.

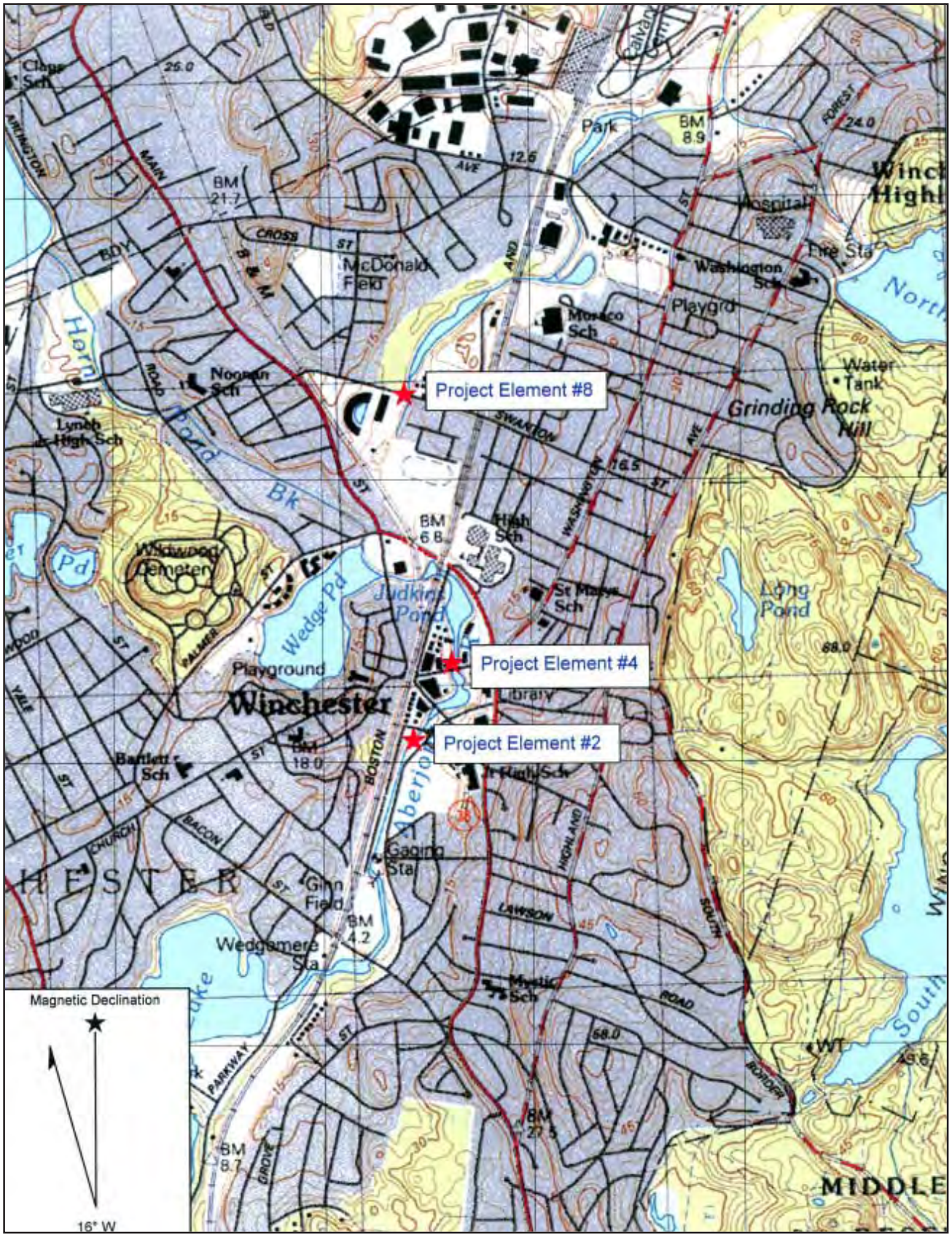


Figure 1-3. Map showing the locations of Project Elements #2, #4, and #8, Aberjona River Flood Control Project, Boston North USGS topographic quadrangle, 7.5 minute series.

CHAPTER TWO

RESEARCH DESIGN AND FIELDWORK METHODS

The goal of the intensive (locational) archaeological survey for the ARFCP was to locate and identify any significant archaeological properties within the APE that might be affected by project activities. To accomplish this objective, three research strategies were used:

- archival research, including a review of literature and maps;
- field investigations, consisting of a "walkover" visual reconnaissance survey and subsurface testing; and
- laboratory processing and analyses of recovered cultural materials.

The archival research and walkover survey provided the information needed to develop environmental and historic contexts for the project area and develop a predictive model for archaeological sensitivity. Archaeological sensitivity is defined as the likelihood for belowground cultural resources to be present and is based on various categories of information:

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

Subsurface archaeological testing was conducted in areas determined during the sensitivity assessment to have high or moderate potential for containing archaeological deposits. Cultural materials recovered during the survey were processed in the laboratory and analyzed to interpret the nature of past human activities they represent. The artifact analyses were correlated with other field survey data and the resulting information was interpreted within the environmental and historic contexts developed for the project area. The result was an assessment of potentially significant archaeological resources and their eligibility for listing in the National Register of Historic Places (National Register).

Evaluating Significance and Historic Contexts

The different phases of archaeological investigation (survey, evaluation, and data recovery) reflect preservation planning standards for the identification, evaluation, registration, and treatment of archaeological resources (National Park Service [NPS] 1983). An essential component of this planning

structure is the identification of archaeological properties that are eligible for inclusion in the National Register, the official federal list of properties that have been studied and found worthy of preservation. Archaeological properties can be a district, site, building, structure, or object, but are most often sites and districts (Little et al. 2000).

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 resulting written records (Little et al. 2000). In accordance with the NPS guidelines, the term "pre-contact" instead of "prehistoric" is used unless directly quoting materials that use the term "prehistoric." The date of contact varies across the country and in the New England region. 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 as well as 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, the term "post-contact" instead of "historical" is used when referring to archaeology unless directly quoting materials that use the term "historical."

The NPS has established four criteria for listing significant 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 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 properties can be determined eligible for listing in the National Register under all four criteria (Little et al. 2000). Significance under any of these criteria is determined by the kind of data contained in the property, the relative importance of research topics that could be addressed by the data, whether these data are unique or redundant, and 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 (this is, convey their significance) or they do not.

The National Register criteria comprise seven aspects or qualities that, in various combinations, define integrity including:

- 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 aspects. The retention of specific aspects of integrity is paramount for a property to convey its significance. Determining which of these aspects are most important to a particular property requires knowing why, where, and when the property is significant (NPS 2002).

All of the criteria enumerated above are applied in relation to the historic contexts of the resources. A historic context is defined 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).

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 properties in the absence of a comprehensive survey of a region (NPS 1983:9). 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, 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 must be discussed.

Historic contexts are developed by:

- identifying the concept, time period, and geographic limits for the context;
- collecting and assessing existing information within these limits;
- 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 research contexts have been developed to organize the data relating to the archaeological resources identified within the project area:

1. pre-contact and contact period land use and settlement patterns in the Aberjona River drainage, circa (ca.) 12,500 to 450 years before present (B.P.); and
2. post-contact period land use and settlement patterns of the Town of Winchester ca. A.D. 1650 to present.

Historic contexts, along with expected property types and locational patterns, are discussed in detail in Chapter 4. The potential research value of the known and expected archaeological resources identified within the project area is evaluated in terms of these historic contexts. This evaluation, along with management recommendations, is presented in Chapter 5.

Archival Research

The development of a historic context and a predictive model of expected property types and densities within the project area began with archival research, consisting of an examination of primary and secondary documentary sources. These sources include written and cartographic documents relating both to past and present environmental conditions as well as documented/recorded sites in the general project area. The information contained in archival sources formed the basis of the predictive models developed for the project area, and were an integral part of the archaeological survey.

Specific sources reviewed as part of the archival research for the ARFCP project area include:

State Site Files, Artifact Collection Reports, and Town Reconnaissance Surveys

The state site files at the MHC were reviewed to locate any recorded archaeological sites in or close to the project area. MHC inventories include archaeological resources listed or eligible for listing in the

National Register.

Cultural Resource Management Reports

Reports documenting cultural resource management (CRM) investigations conducted in the project vicinity were reviewed. These reports included the results of surveys conducted in advance of a sewer replacement in Winchester (Cook 1999; McCarthy 2006) and a survey for a water supply project in the towns of Winchester, Stoneham, and Medford (Doucette and Ritchie 1994).

Histories and Maps

Primary and secondary histories and historical maps and atlases were examined to assess changes in land use, to locate any documented structures, and to trace the development of transportation networks, an important variable in the location of post-contact period archaeological sites. Town, county, state, and regional histories and historical maps and atlases were consulted to locate possible sites dating to this period within and close to the project area.

Environmental Studies

Bedrock and surficial geological studies provided information about the region's physical structure and about geological resources near the project area. Soil data for the project areas was retrieved electronically from the United States Department of Agriculture (USDA) Natural Resources Conservation Service's Web Soil Survey (WSS) (USDA 2009). WSS provides access to the largest natural resource information system in the world and has soil maps and data available online for more than 95 percent of the nation's counties, including Middlesex County, Massachusetts. In addition, studies of past environmental settings of New England were consulted.

Informant Interviews

Local historical societies and commissions and other persons knowledgeable about the history of the project area were consulted during the course of the survey. Of particular importance was consultation with Ellen Knight of the Winchester Archival Center. Ms. Knight has written a detailed history of the town tailored specifically to the proposed ARFCP project elements, and also provided access to primary and secondary sources salient to the overall project goals. PAL also reviewed archival project plans on file with the Town of Winchester Engineering Department.

Walkover Survey

PAL conducted a walkover survey of the three proposed project elements currently under consideration within the ARFCP. Environmental information documented on the project maps during the walkover included the presence, types, and extent of fresh water; drainage characteristics; presence of bedrock outcrops and level terraces; and the angle of any slopes. The current physical condition of the project area is largely defined by the absence of or degree of natural or human disturbances to the landscape.

Another purpose of the walkover survey was to document surface indications of archaeological sites. While pre-contact sites in New England are most often found belowground, artifact scatters are sometimes exposed on the surface through cultural agents such as pedestrian and vehicular traffic, and natural processes such as erosion. Post-contact archaeological site types that might be visible include stone foundations, stone walls, and trash deposits. If the remains of a built resource such as a farmstead are present within a project area, it is likely that a cellar hole and associated landscape features such as stone walls, overgrown orchards and fields, and ornamental plantings may be visible on or above the ground's surface.

Archaeological Sensitivity Assessment

Information collected during the archival research and walkover survey was used to develop a predictive model of potential site types and their cultural and temporal affiliation. The development of predictive models for locating archaeological resources has become an increasingly important aspect of CRM planning.

The predictive model considers various criteria to rank the potential for the ARFCP project areas to contain archaeological sites. The criteria are proximity of recorded and documented sites, local land use history, environmental data, and existing conditions. The project areas were then stratified into zones high, moderate, and low expected archaeological sensitivity based on that information. Subsurface testing was planned for those areas assigned high and moderate sensitivity rankings and where project impacts would occur.

Subsurface Testing

Subsurface testing was conducted at those locations within the three project elements slated for project-related impacts and assessed with high and moderate archaeological. Twenty 50-x-50-centimeter (cm) shovel test pits was excavated across the ARFCP project areas along four linear transects and as two judgmental test pits (JTPs). The test pits were spaced at 10-meter (m) intervals along the linear transects; JTPs were used in areas too small to accommodate transect testing.

All test pits were excavated in arbitrary 10-cm levels to sterile subsoil. Excavated soil was hand-screened through ¼-inch hardware cloth, and all cultural materials remaining in the screen were bagged and tagged by level within each unit. The count and type of all recovered cultural material were noted. Soil profiles, including depths of soil horizons, colors, and textures, were recorded for each test pit on standard PAL test pit profile forms. All test pits were filled and the ground surface was restored to its original contour following excavation. Digital images were taken of each project area.

Laboratory Processing and Analyses

Processing

All cultural materials recovered from the ARFCP project areas were organized by site and provenience and recorded and logged in on a daily basis. Cultural materials were sorted by type and either dry brushed or cleaned with tap water depending on the material or artifact type and condition.

Cataloging and Analyses

All cultural materials were cataloged using a customized computer program designed in Microsoft Access 2000. The program is a relational database, which provides the flexibility that is needed when cataloging archaeological collections that often contain disparate cultural materials such as stone, ceramics, and/or glass. Artifacts with similar morphological attributes are grouped into lots, which allows for faster and more efficient cataloging. The artifacts are stored in 2-millimeter thick polyethylene resealable bags with acid-free tags containing provenience identification information. The artifacts are placed in acid-free boxes that are labeled and stored in PAL's curatorial facility in accordance with current NPS standards.

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. A lithic-type collection, maintained at PAL and containing materials from various source areas in New England and nearby regions such as New York and Pennsylvania, was utilized in the identification of all lithic materials. Chipping debris 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.

Non-lithic artifacts were cataloged by material (e.g., ceramic, glass, coal, synthetic) and functional (e.g., plate, bowl, bottle, building material) categories. Artifacts having known dates of manufacture such as ceramics were also identified in terms of type (e.g., redware, pearlware, whiteware) when possible. In addition, ceramic sherds and bottle glass were examined for distinguishing attributes that provide more precise date ranges of manufacture and use. These included maker's marks, decorative patterns, and embossed or raised lettering. Tentative dating of post-contact archaeological resources was performed using ceramic indices according to Hume (1969), Miller (1990, 1991), Miller and Hurry (1983), and South (1977). An analysis of the different nail and bottle types was used to refine the tentative date ranges of historic occupation generated by the ceramic assemblages.

The analyses of the cultural materials recovered during the archaeological investigations also included mapping the density and horizontal and vertical distribution of these materials within the project area.

Curation

Following laboratory processing and cataloging activities, all recovered cultural materials were placed in acid-free Hollinger boxes with box content lists and labels printed on acid-free paper. These boxes are stored at PAL in accordance with state and federal curation guidelines until such time as a permanent repository is designated.

CHAPTER THREE

ENVIRONMENTAL CONTEXT

Environmental factors play a significant role in determining the natural resources available for human exploitation. These resources in turn affect the type and density of human occupation, and influence the activities carried on in the area. This chapter presents a general environmental profile of the ARFCP project area focusing on local physical geography, soil, and hydrology, followed by more detailed environmental description of the three project elements under consideration.

Physiography

The ARFCP project area is located in the town of Winchester in eastern Middlesex County within the Seaboard Lowland physiographic zone of southern New England (Figure 3-1). Winchester is a heavily developed bedroom community of greater Boston, and the project area cuts a path through the most densely settled portions of the town. The Aberjona River maintains a fairly shallow gradient through the project area, ranging from roughly 3–7 meters above sea level, while the surrounding uplands present a considerably greater level of elevation variation, especially in proximity to the Middlesex Fells east of the project area.

Figure 3-1. Physiographic zones of New England showing the location of Winchester and the ARFCP (source: Fenneman 1938).

Surficial Geology and Soils

The primary soil series within the Project Elements 2, 4, and 8 are Udorthents with wet substratum; Urban Land; Merrimac Urban Land Complex, 0–8 percent slopes; and Deerfield loamy sand, 3–8 percent slopes (USDA 2009). The first three series, which occur within Project Elements 2 and 4, generally consist of areas that have been altered by cutting and filling and

impervious areas (Figures 3-2, 3-3). Most areas are used for highways, interchanges, and closely spaced residential housing. The Deerfield sandy loams, which occur within Project Element 8, consist of very deep, moderately well-drained soils formed in glaciofluvial deposits (Figure 3-4).

Hydrology

The project area lies along the banks of the Aberjona River, a major tributary within the Mystic River watershed. The Mystic River watershed has an area of approximately 76 square miles, encompassing 21 communities north and west of Boston. The headwaters of the system begin in Reading and form the Aberjona River, which flows into the Upper Mystic Lake in Winchester. The Mystic River then flows from the Lower Mystic Lake through Arlington, Medford, Somerville, Everett, Charlestown, Chelsea, and East Boston before emptying into the Boston Harbor. The watershed contains 44 lakes and ponds, the largest of which is Spot Pond in the Middlesex Fells, with an area of 307 acres. Home to more than half a million people, the Mystic is one of the most densely populated and urbanized watersheds in Massachusetts.

Project Area-Specific Conditions

Project Element #2 - Waterfield Road to Bacon Street

Project Element #2 comprises a long segment of the Aberjona River running parallel to the Mystic Valley Parkway to the east and the MBTA commuter rail line to the west (Figure 3-5). A substantial section of the southern portion of the project area encompasses Ginn Field and its associated parking lot. This section is ruler flat, a condition that is attributable both to mechanical grading and its position along the river floodplain. The eastern bank of the river opposite the recreational field slopes down steeply to the river from the parkway and is heavily vegetated with scrub growth and immature trees. The project area north of Ginn Field narrows considerably, with a paved walking path running north along the eastern embankment to Waterfield Road, then turning west and proceeding south along the western bank. The walking path along the eastern shore lies along a linear grassy parcel that occasionally expands toward the river to include broader, park-like areas. The northern extent of the project area abuts Waterfield Road where the path crosses the river by a small bridge, cutting through a small park to an MBTA commuter parking lot. The western side of the project area at its northern extent has been heavily disturbed by the construction of the parking lot, while the area between the parking lot and recreational field slopes steeply to the river.

Project Element #4 - Mount Vernon Street Bridge

Project Element #4 is located on Mount Vernon Street immediately west of the town hall (Figure 3-6). The project area southeast of the bridge adjacent to Town Hall is extensively landscaped, with a manicured lawn sloping to the river, paved walkways, and several mature trees lining the riverbank. The project area southwest of the bridge incorporates a small grassy segment of riverbank sloping down to the water. The northwest corner of the project impact area is almost entirely occupied by an office building and paved walkway, while the northeast corner encompasses a grassy sloped segment of river bank bordered to the east by a cement walkway and the Tedesco building.

Figure 3-2. Project area soils, Project Element #2, Waterfield Road to Bacon Street (source: USDA 2009).

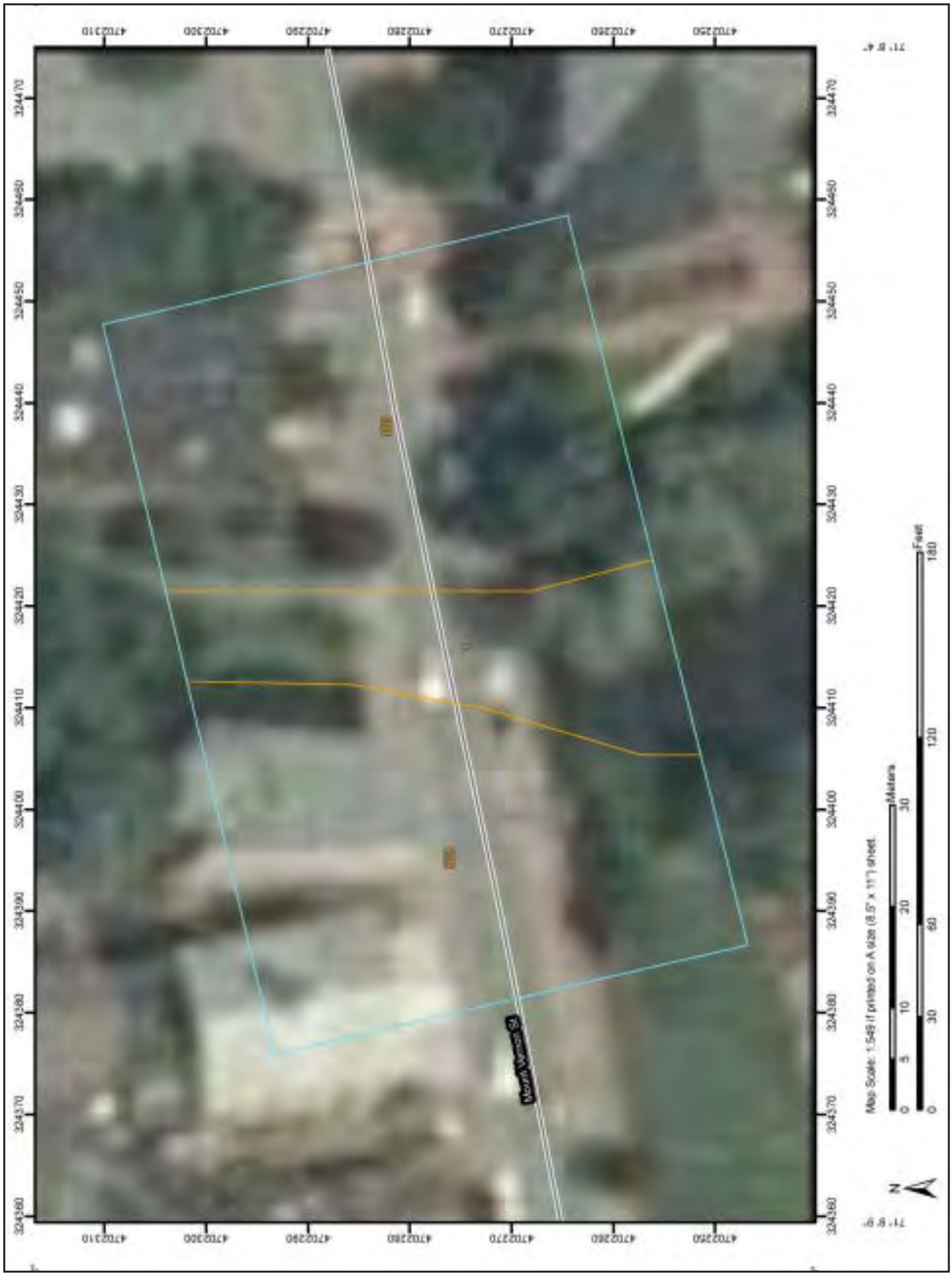


Figure 3-3. Project area soils, Project Element #2, Project Element #4, Mount Vernon Street Bridge (source: USDA 2009).

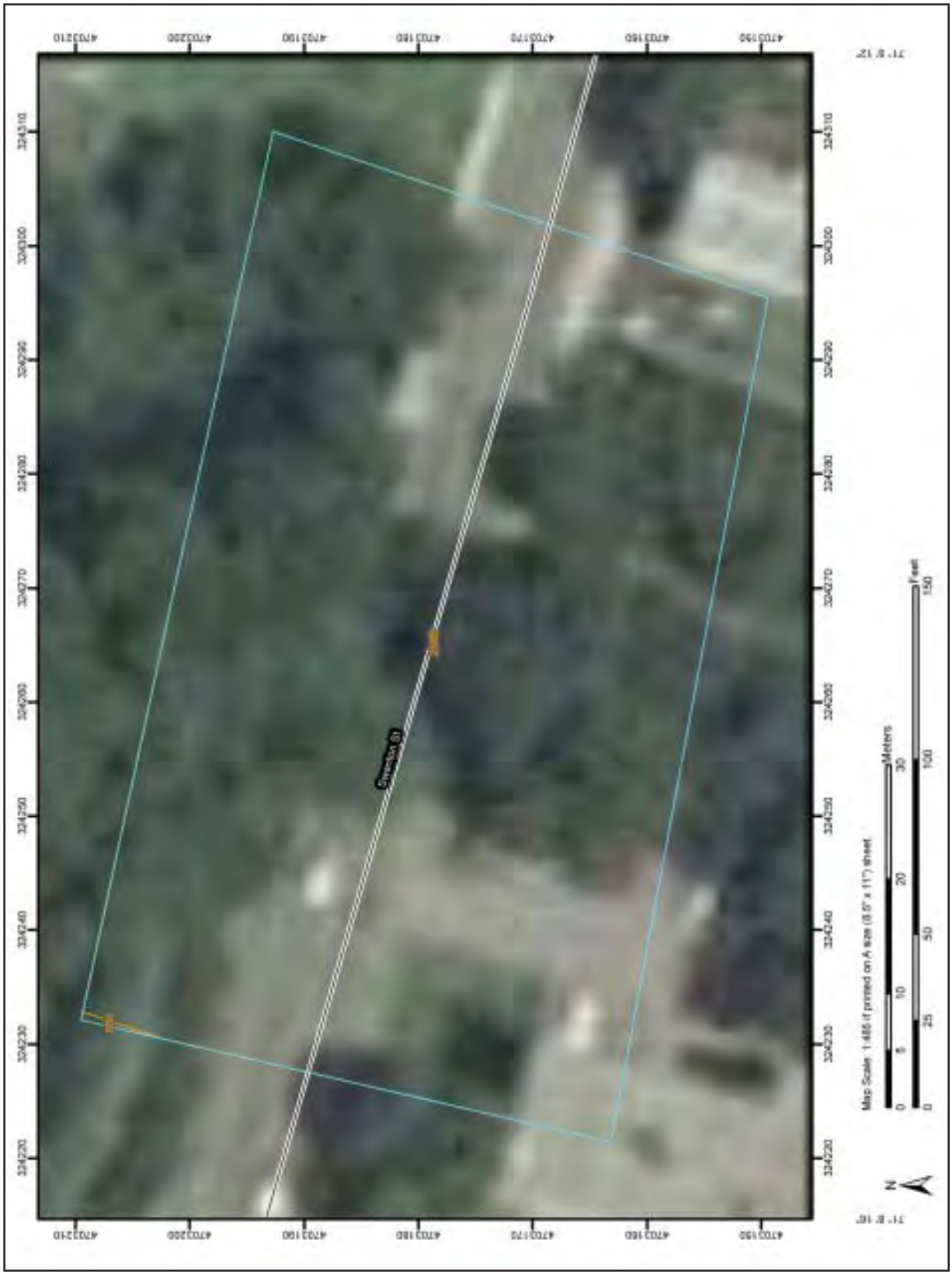


Figure 3-4. Project area soils, Project Element #8, Swanton Street Bridge (source: USDA 2009).

Figure 3-5. Aerial map showing the proposed APE for Project Element #2, Waterfield Road to Bacon Street.

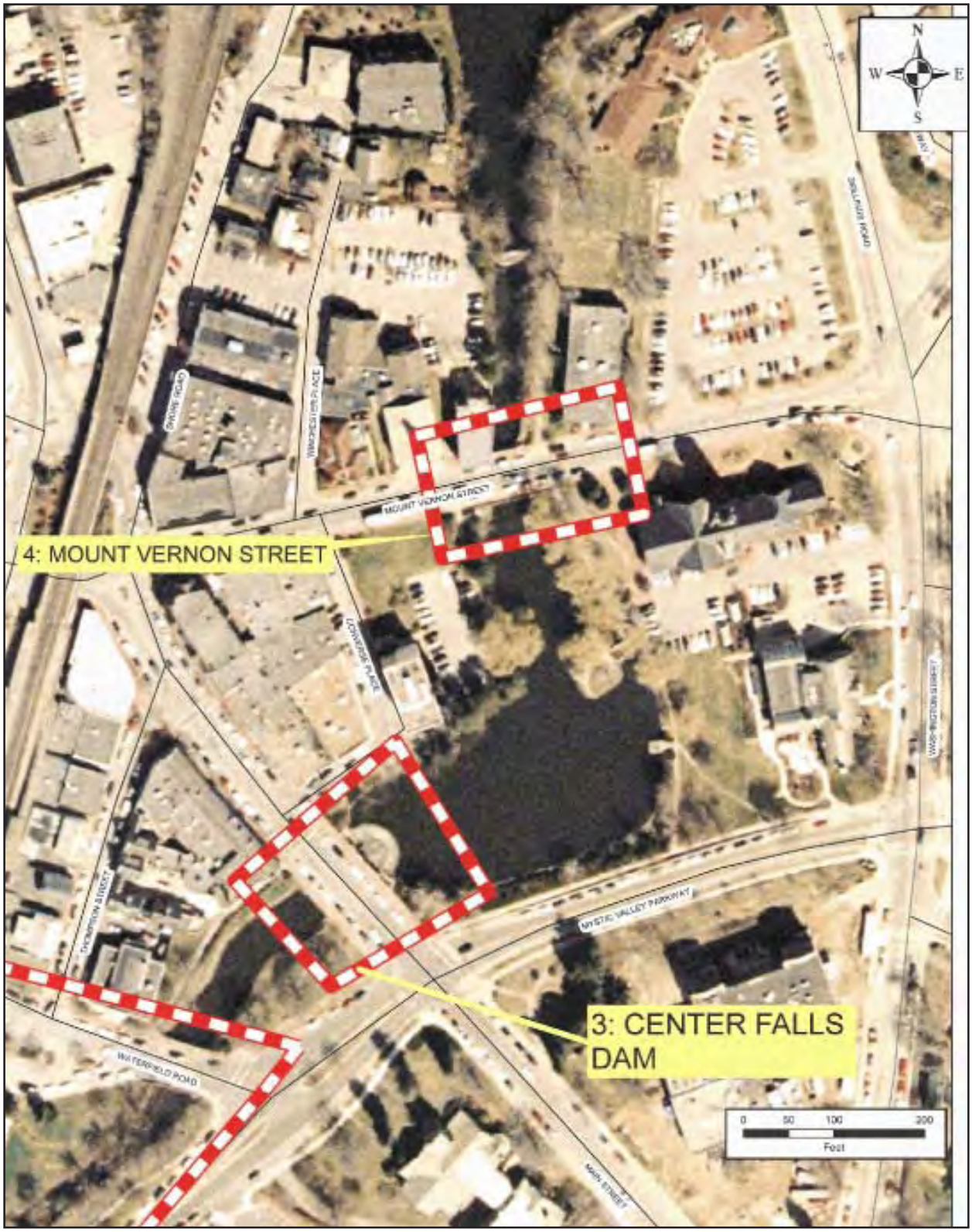


Figure 3-6. Aerial map showing the proposed APE for Project Element #4, Mount Vernon Street Bridge.

Project Element #8 - Swanton Street Bridge

Project Element #8 comprises the Swanton Street bridge, a narrow corridor of moderately disturbed woodland to the north, and similarly disturbed woodland, paved parking area, and landscaped lawn associated with a commercial office building to the south (Figure 3-7). The areas north, south, and immediately adjacent to the bridge are steeply sloped and appear disturbed from the reconstruction of the bridge in 1933 and its subsequent rehabilitation in 1996. The woodland portions of the project area west of the bridge, however, do not appear to have been heavily disturbed, although based on the scrubby, immature growth that characterizes the vegetation in the area, they may be subject to periodic seasonal flooding.

Figure 3-7. Aerial map showing the proposed APE for Project Element #8, Swanton Street Bridge.

CHAPTER FOUR

CULTURAL CONTEXT

In order to understand the history of human occupation in the ARFCP project area, it is necessary to understand the pre- and post-contact settlement and subsistence patterns of the Aberjona River drainage. This chapter provides a general regional overview of these patterns, followed by the specific histories of each project element and associated archaeological sensitivities and expected resource types. This review is by no means exhaustive, but provides the framework within which to predict and interpret archaeological resources identified within the project elements. The information for this context has been drawn from the results of professional CRM surveys, through a review of state site files at the MHC, pre-contact and post-contact period culture histories, and site-specific histories.

Pre-contact and Contact Periods

Native American settlement in southern New England spans the PaleoIndian Period (12,500–10,000 B.P. to the contact period (450–300 B.P.). Sites dating to the PaleoIndian Period and the Early Archaic Period (10,000–7500 B.P.) are rare and most often in the form of surface finds of isolated diagnostic artifacts. Little is known regarding settlement and subsistence patterns prior to 7,500 years ago. The number of known sites for the Middle Archaic Period (7500–5000 B.P.) is more numerous. Sites with Middle Archaic components are frequently found in proximity to riverine or lakeside locales. Broad-based subsistence practices appear to have been intensifying during this chronological epoch.

Late Archaic (5000–3000 B.P.) sites are better represented in the regional pre-contact database than those of the earlier periods. The frequency of sites and the diversity of their environmental settings indicate that optimal resource procurement strategies were being employed by pre-contact populations throughout the Boston Basin and southeastern Massachusetts during the Late Archaic Period. Three cultural traditions (Laurentian, Small Stemmed, and Susquehanna) have been recognized in the region. Steatite quarries were used throughout the Transitional Late Archaic into the Woodland periods. During the Late Archaic steatite was utilized in the manufacturing of long-handled cups, bowls, and ceremonial goods. Smoking pipes were also fashioned by Woodland Period groups.

The Woodland Period (3000–450 B.P.) was a time of continued dynamic development for the local indigenous peoples. The manufacture and wide-spread use of ceramic vessels is considered a chronological marker for the period. Throughout the region Woodland sites show an increasingly coastal orientation and intensive use of the shores of the rivers. Fishing was an important activity and large middens are located in proximity to fall lines, and ancient weir locations. Confluence points of streams and rivers were frequented by Woodland peoples. Horticulture was introduced in the region by about 1000 B.P. with corn, beans, and squash being the primary domesticates. Evidence for

ceremonialism through mortuary practice is apparent beginning in the Transitional Late Archaic (3600–2500 B.P.) and again in the Woodland Period.

At the time of European contact, native peoples were engaged in the same mixed horticultural and seasonal gathering and hunting rounds characteristic of the Late Woodland. Native groups intensively occupied the Mystic core area, including the lakes and ponds surrounding the Aberjona River. At least one contact period trail has been identified along the eastern bank of the river, and several fish weirs have been identified just south of the project area in the Upper and Lower Mystic Lakes. It is likely that the Aberjona was used as a primary transportation route to Boston Harbor during the contact period, as well as a prime fishing and hunting location (MHC 1982).

Post-contact Period

Winchester was first settled in the 1630s by families from Charlestown who were granted land in the northern portion of that town, originally designated Waterfield and Rockfield. Much of the land formed part of Woburn after that town was incorporated in 1642. Other Charlestown lands now part of present-day Winchester were annexed to Medford in 1753 and to West Cambridge (later Arlington) just several years before Winchester's own incorporation.

Early settlement was concentrated along Cambridge Street (the Cambridge-Woburn Road) with some scattered upland farms to the west, and along Richardson's Row (Washington Street). The power of the Aberjona River was harnessed early in the history of the town by the Converse and Richardson families who built the first mills in that location. Other areas settled before 1800 were located along the Medford-Woburn road: Symmes Corner (at the intersection of Main, Bacon and Grove Streets) and Black Horse Village. By the end of the eighteenth century, about 35 houses stood within the bounds of present-day Winchester comprising a primarily farming community of about 200 people (Figure 4-1).

The construction of the Middlesex Canal, which opened in 1803, and the Boston and Lowell Railroad, which supplanted it in 1853, worked to change the character of the village. The small mills on the Aberjona and isolated farms now had fast and cheap access to the Boston market and beyond, and these ties to the city grew stronger over time (Figure 4-2).

The early gristmills gave way to more modern factories engaged in wool carding, leather splitting and mahogany sawing, and the manufacture of piano cases, felt, watch hands, and shoes. Blacksmith and iron shops profited from the proximity of the new railroad. Near the center of town, housing for a new commercial and professional class was constructed, reflecting the popularity of Greek Revival and Italianate styles.

In 1840 the South Woburn Congregational Church provided the first house of worship within the village boundaries, and in the face of an expanding and increasingly independent laity, initiated the move to separate from Woburn in 1850. The town offices of the newly created Town of Winchester were established close to the church and railroad, and the area rapidly developed as the town's commercial, social and religious center. The town was named in honor of a wealthy patron, Colonel William P. Winchester, who donated three thousand dollars toward its municipal independence. Ironically, Winchester died suddenly within months of town incorporation, never having set foot within it.

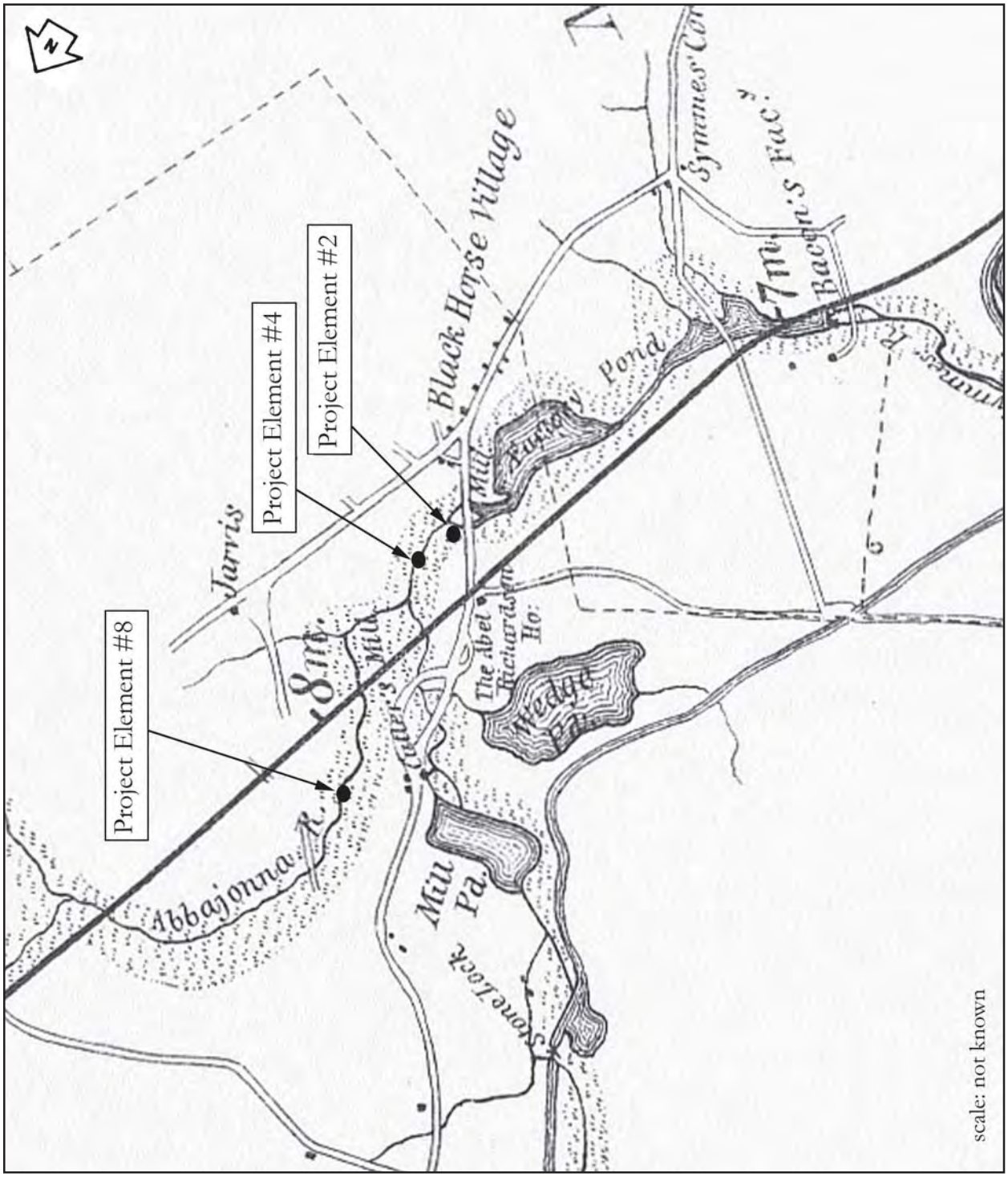


Figure 4-1. 1836 map showing the approximate locations of Project Elements #2, #4, and #8 in the section of Woburn that would later be incorporated as part of the Town of Winchester (source: Waters 1836).

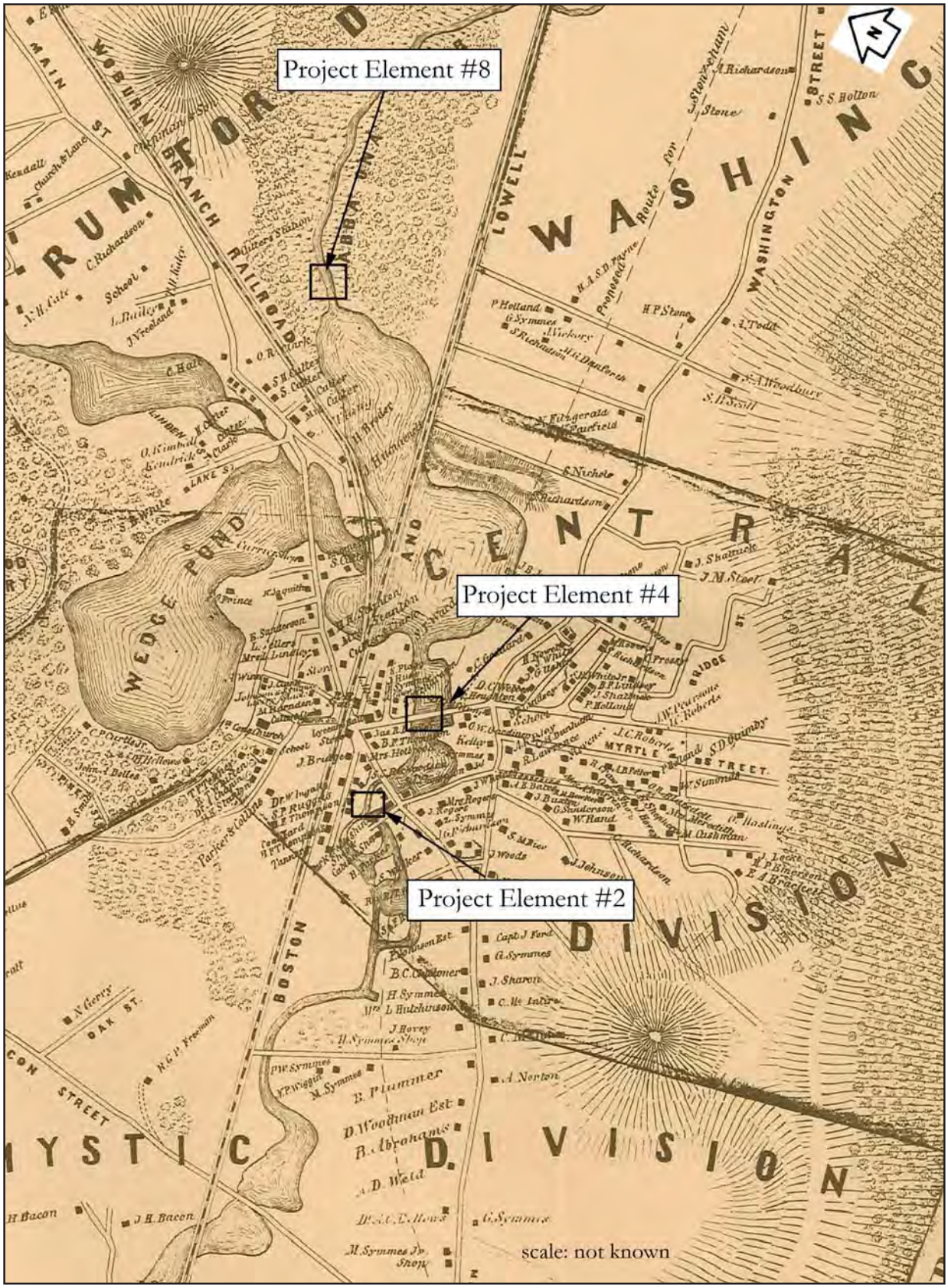


Figure 4-2. 1854 map of Winchester showing the locations of Project Elements #2, #4, and #8 (source: Walling 1854).

With the development of an industrial economic base in the town in the latter half of the nineteenth century, two distinct social groups emerged. Industrial workers coalesced into tightly woven communities settled near their factories, while wealthy Boston businessmen, who formerly had used Winchester as a summer retreat, made permanent residence in the town. These two groups battled over the economic and social trajectory of the town, with the wealthy transplanted Bostonians attempting to limit the growth of the industrial sector. By 1893, the tide had turned and a system of town parks replaced the tanneries at the town center. By 1900, Winchester's days as a mill town were over.

With the dissipation of the industrial base of the town, Winchester rapidly developed into a bedroom community of Boston. Street after street of suburban homes built in the years following the Civil War survive intact as a testament to Winchester's final evolution to a residential suburb.

Summary History of the Aberjona River in Winchester

Throughout the post-contact period history of Winchester, the Aberjona River played a vital role in the economic, social, and civic development of the town. Characterized as "soe boggy that it swallowed up much wood before it could be made passable" (Knight 2005:6), the river was dammed and channelized as early as the mid-seventeenth century to power a variety of small-scale industries including saw- and gristmills.

By the nineteenth and early twentieth centuries, the Aberjona was populated by considerably larger industrial interests such as tanneries, freight, coal, and lumber yards, watch, gelatin, and japanning factories, felt manufacturers, and laundries. These industries brought great prosperity to the town, but also required substantial reconfigurations of the river and contributed enormous amounts of pollution to the poorly drained waterway. The success of Winchester's industrial base was based, in large part, on the construction of railroads throughout the region, many of which constructed lines near or adjacent to the river, further altering its natural course. Moreover, the working class communities that provided the necessary labor force for these industries often were housed in poorly constructed, tightly packed tenement houses along the swampy, mosquito-infested margins of the Aberjona, a situation that contributed additional pollution to the river and profound sanitation and disease problems.

As a result of the 1893 City Beautiful Movement, a national initiative designed to improve quality of life and instill social harmony through improvements to civic architectural, landscape, and infrastructural systems, the Town of Winchester began to recognize the need to address the sanitation and functionality of its waterways and to preserve parkland. In the 1890s, the town, led by lawyer-resident Forrest C. Manchester, advocated for the removal of industrial concerns and a freight yard south of Waterfield Road to create the land reservation that became Manchester Field. The city of Boston owned rights to the waterways in the Mystic River valley. The Metropolitan Park Commission contributed to the improvement and creation of Manchester and Ginn fields during the construction process of the Mystic Valley Parkway (Knight 2005:16 18). Control of the Aberjona River bed was transferred to the Metropolitan Water Board in 1898.

Although the construction of the Mystic Valley Parkway beautified a portion of the landscape along the river and linked the town to Boston, sanitation and water-control problems persisted along the Aberjona River. In 1909, the Winchester Committee on Waterways commissioned Herbert J. Kellaway to complete

a study for improvements of the Aberjona River area between Swanton Street and the Mystic Lakes. Kellaway secured selection by the town with a recommendation from Frederick Law Olmsted Jr. (Khuen 1995).

Kellaway completed his *Report Upon Mystic Valley Improvement Along the Aberjona River, Winchester, Mass. From Upper Mystic Lake to Swanton Street* in 1911, which included a review of existing conditions along the town's waterways and conceptual recommendations for a connected park system. The key recommendations in the plan involve cleaning the river channel, developing the waterways for recreational use, and purchasing the land surrounding waterways to ensure scenic viewsheds and prevent future industrial development (Kellaway 1911; Khuen 1995). In an effort to eliminate pollution, Kellaway suggested the removal of existing sewer overflows, and connection of surface drains with new settling basins. In addition to cleaning the overgrowth in the river channel, he described regulating water levels by deepening waterways in some locations and while adding fill in others. Kellaway intended these changes to be coupled with the regrading and planting of the riverbanks and pond shorelines.

The town purchased the Whitney Mill property following Kellaway's 1911 recommendations and proceeded to create the Mill Pond park. A new dam and arched bridges carrying Main Street and Waterfield Road were completed between 1914 and 1915 according to Kellaway's designs. The town also completed the grading and cleaning of the riverbank between the bridges at this time. This work occurred contemporaneously with the formation of the town planning board (Khuen 1995). A third arched bridge was erected at Bacon Street in 1922 (Kellaway 1928).

Despite the completion of these projects in the 1910s and early 1920s, many of the town's waterways remained unimproved. The town continued their efforts by conducting a pollution survey in 1922 and mosquito survey in 1926 (Kellaway 1928). In response to the onset of the automobile, the town hired one of Kellaway's former Olmsted firm associates, Arthur Shurcliff, to prepare a plan for new roadways and parks in 1924 (Khuen 1995). Following the establishment of a new waterways committee in March 1927, the town employed Kellaway to expand upon his 1911 report and Shurcliff's parkway concepts. The committee specifically sought recommendations regarding "the causes and extent of pollution," the "improvement of flowage of streams and the improvement of the sanitary condition and appearance of waters and water-courses," and the "elimination of stagnant pools" (Kellaway 1928:3). Kellaway completed his *Report Upon the Improvement of Waterways in Winchester, Massachusetts and Related Matters* in January 1928.

Kellaway's 1928 plans reinforced his earlier recommendations and encompassed the full length of the Aberjona River from the Upper Mystic Lake to the Woburn town line at the north end of Washington Street. The town completed a portion of Kellaway's early-twentieth century waterway improvement plans as funds became available, but Kellaway did not oversee any construction. Completed projects included the re-channeling of the river, shoreline cleaning and grading, bridge and dam construction, the creation and reshaping of ponds, creation of recreational fields, and land acquisition. Although a large number of open spaces and ponds remain in Winchester, Kellaway's connecting parkways and many of his proposed pedestrian paths were not realized.

Despite the catastrophic economic effects of the Great Depression, several Kellaway recommendations also were realized in the early 1930s, including the construction of Davidson Park, Leonard's Pond,

Skillings Field, and a new river channel between Washington Street and Skillings Road. Since the early twentieth century, the Town of Winchester has continually maintained and improved its reserved waterway and open spaces. The parks contain contemporary plantings and walkways and the Aberjona River retains its 1930s course in most locations.

Archaeological Sensitivity and Expected Resource Types

No pre- or post-contact period sites have been identified within the project corridor to date. The archival research and walkover survey results, however, suggest that the Project Elements #2, 4, and 8 have the potential to contain a range of pre- and/or post-contact cultural resources.

Review of the MHC site files for the town of Winchester identified two pre-contact period sites and one post-contact period site within a 1-mile radius of the larger ARFCP project corridor (Figure 4-3). The Everett Site (19-MD-376) lies along the western shore Upper Mystic Lake on the grounds of the old Everett estate. The materials collected from this location in 1880 included one felsite Atlantic point, two Fox Creek points, and a hammerstone, indicating a Late Archaic occupation. The Sandy Point Site (19-MD-60) is similarly located on a gravelly neck of land jutting into the northern end of Upper Mystic Lake and comprises three separate find spots. The surface collected materials from these locations included non-diagnostic felsite and quartz chipping debris. Supplemental documentation provided by Dena Dincauze states that local tradition remembered the spot as an “Indian fishing station” into the nineteenth century, and that Late Archaic and Woodland projectile points had been recovered from the area, although the exact types of points were not specified.

The Baconville Industrial Complex Site (WNT-HA-1) lies between Mystic Valley Parkway and Grove Street near the northern inlet to Upper Mystic Lake (see Figure 4-3). The “Baconville” district comprised the factory and worker housing complex built by the Bacon family in 1824. The factory produced felt and wadding throughout its century-long history and was the first large-scale industry in Winchester. No systematic archaeological documentation or excavation has been conducted at the complex, but potential archaeological sites do exist in the former locations of the various mill buildings, which were built and rebuilt several times until the final destruction by fire and abandonment of the business in 1959.

In addition to discrete archaeological sites, a large segment of the historic Middlesex Canal (WNT-HA-3) runs through the center of Winchester roughly one-half mile west of the project corridor. The Middlesex Canal, completed in 1803, is significant as a major Federal Period (1775–1830) internal transportation improvement and an outstanding engineering accomplishment of the early nineteenth century. Operating 27.25 miles between Boston and Lowell for almost 50 years, it was the second major transportation canal to open in Massachusetts after the 1795 South Hadley Canal. Recent archaeological investigations have documented portions of the Stone Lock structure, formerly part of the canal, buried beneath Sylvester Avenue (McCarthy 2006).

Project Element #2 - Waterfield Road to Bacon Street

Project Element #2 comprises a long segment of the Aberjona River running parallel to the Mystic Valley Parkway to the east and the MBTA commuter rail line to the west. While still a part of Woburn,

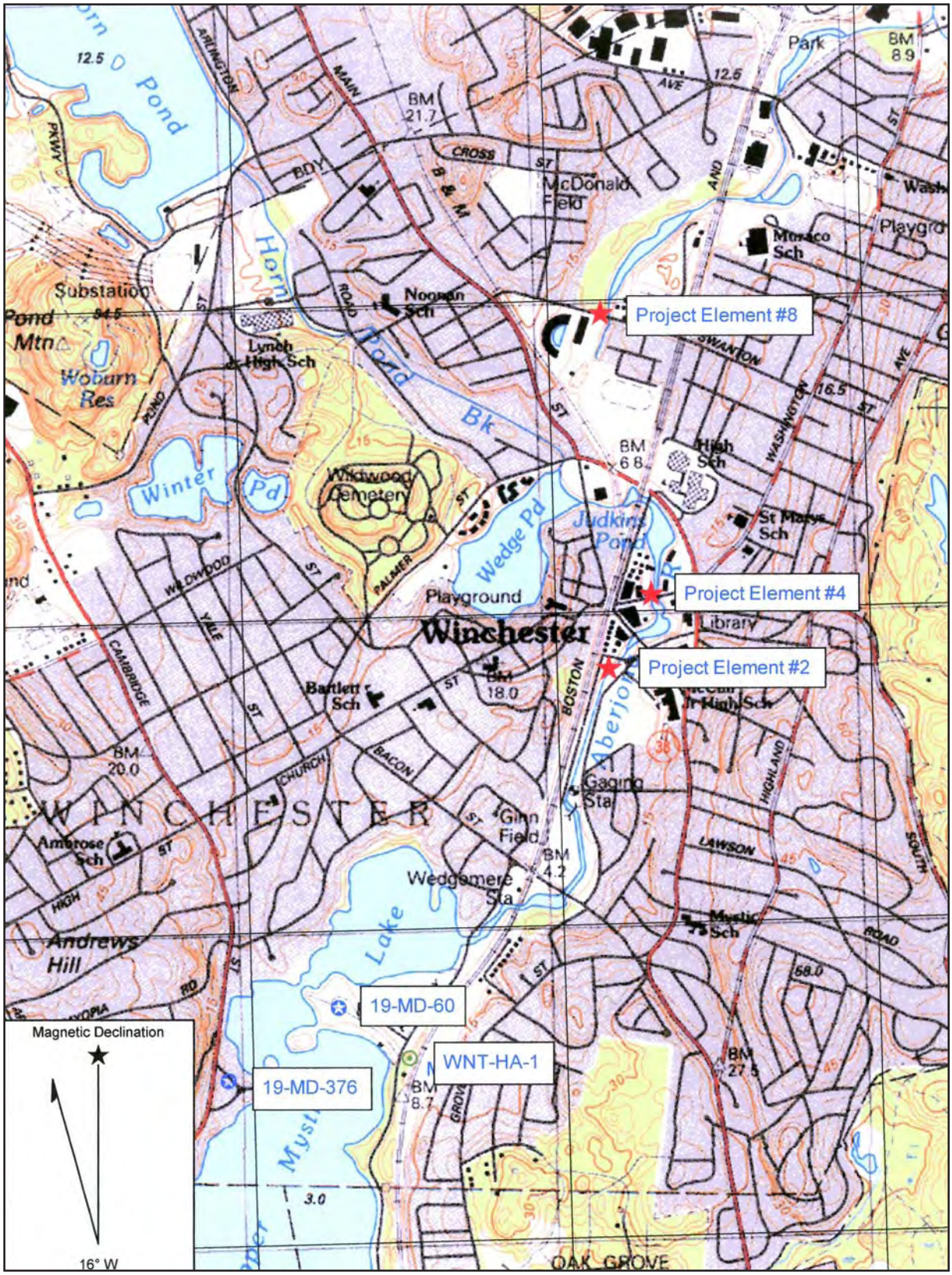


Figure 4-3. Map showing the locations of identified pre- and post-contact archaeological sites within a 1-mile radius of Elements #2, #4, and #8.

the project area formerly lay within the bounds of the Abel Richardson Farm along a swampy, winding, largely undeveloped expanse of the Aberjona (Figure 4-4).

This portion of the river channel was formerly a winding, swampy stream with islands and extra channels cut by the railroad and mill owners (see Figures 4-1 and 4-2). At the northern end of the project area near the railroad line and the original course of the river were a tannery covering about 2 acres, a coal yard, lumberyard, livery stable, and the railroad freight yard. Within a few feet of the banks of the river were nine tenement houses, accommodating about 150 people, as well as pig-pens and outhouses (Knight 2005).

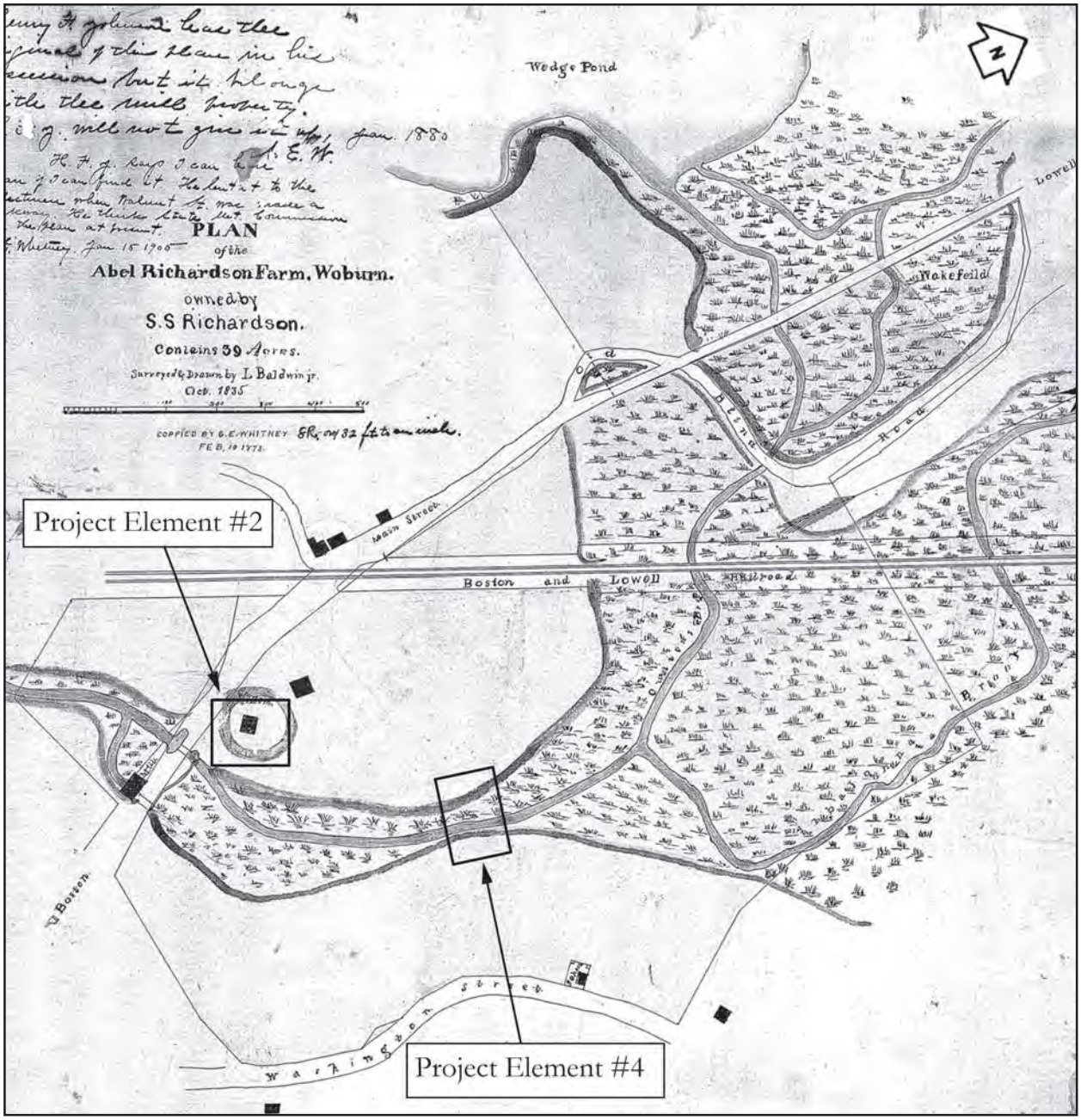


Figure 4-4. 1835 map of the Abel Richardson Farm showing the approximate locations of Project Elements #2 and #4 (source: Baldwin 1835).

By the 1890s, this area became so heavily polluted that leading civic-minded residents initiated a parks movement as a means of environmental cleanup. That movement removed the industry at the upper end of this section and created two parks, Ginn Field and Manchester Field. The upper end of this section was reshaped during the creation of Manchester Field, and again in 1946 when a new channel was dug, parallel to the railroad, and Manchester Field was moved and enlarged for the benefit of having a football field at the base of the McCall School Hill (Knight, 2005). Ginn Field remained an unimproved tract of land with a shallow pool at its south end. In 1938, the Works Progress Administration (WPA) graded the area and laid out a playground and several tennis courts (Knight 2005).

The Waterfield Road to Bacon Street project area has undergone substantial, wide-scale landscape disturbance associated with the straightening and channelization of the Aberjona River as well as the construction and subsequent realignment of the Mystic Valley Parkway. While the entire proposed project area was sensitized for archaeological resources, current project plans for Project Element #2 call for relocating the existing sidewalk along the east bank of the river from its current position to an alignment parallel and adjacent to the western edge of the Mystic Valley Parkway for a distance of approximately 900 linear feet (ft) running south from Waterfield Road. (Figure 4-5).

Given the amount of rechanneling and filling that has occurred along this portion of the river, it is difficult to pinpoint where exactly the portion of Project Element #2 subject to archaeological survey was located historically. For this reason, the boundaries of Project Element #2 as depicted on historical maps has been drawn somewhat broadly to incorporate all resources that might have existed within it over time. For example, maps dating to 1875 and 1889, suggest that Project Element #2 lies within and/or adjacent to a former freight yard, Livery and Express Office, historic roadbed, and an earlier configuration of the Aberjona River (Figures 4-6, 4-7). By 1906, all of the industrial and railroad-related structures have been removed, and the river has once more been reconfigured to accommodate the Mystic Valley Parkway and the construction of Manchester Field (Figure 4-8).

The full vertical and horizontal extent of these disturbances is unknown, so that it is possible that intact archaeological resources may survive below cut, graded, and/or filled portions of the proposed project impact area. Potential resource types may include buried structural or foundation elements associated with the former Richardson farm, tannery, freight yard, and Livery and Express Office, or a relict road surface associated with the former access to the industrial complex. Given the swampy nature of the project area before its conversion to farming and industrial use in the historic period, substantial pre-contact period deposits are unlikely.

Project Element #4 - Mount Vernon Street Bridge

The Mount Vernon Street Bridge project area has undergone several modifications during the nineteenth and early twentieth centuries. Like Project Element #2, Project Element #4 also lay within the bounds of the Abel Richardson Farm, but no structures are depicted in its approximate location (see Figure 4-4). The original bridge over the river was built in 1845 as part of general road construction in the Black Horse Village section of Woburn. With the incorporation of Winchester in 1850, the village became the town center. Residential, civic, and commercial development expanded rapidly during that period, and Mt. Vernon Street (then known as Pleasant Street) acted as a major thoroughfare through the bustling town. By 1854, the river had been extensively impounded and channelized both upstream and

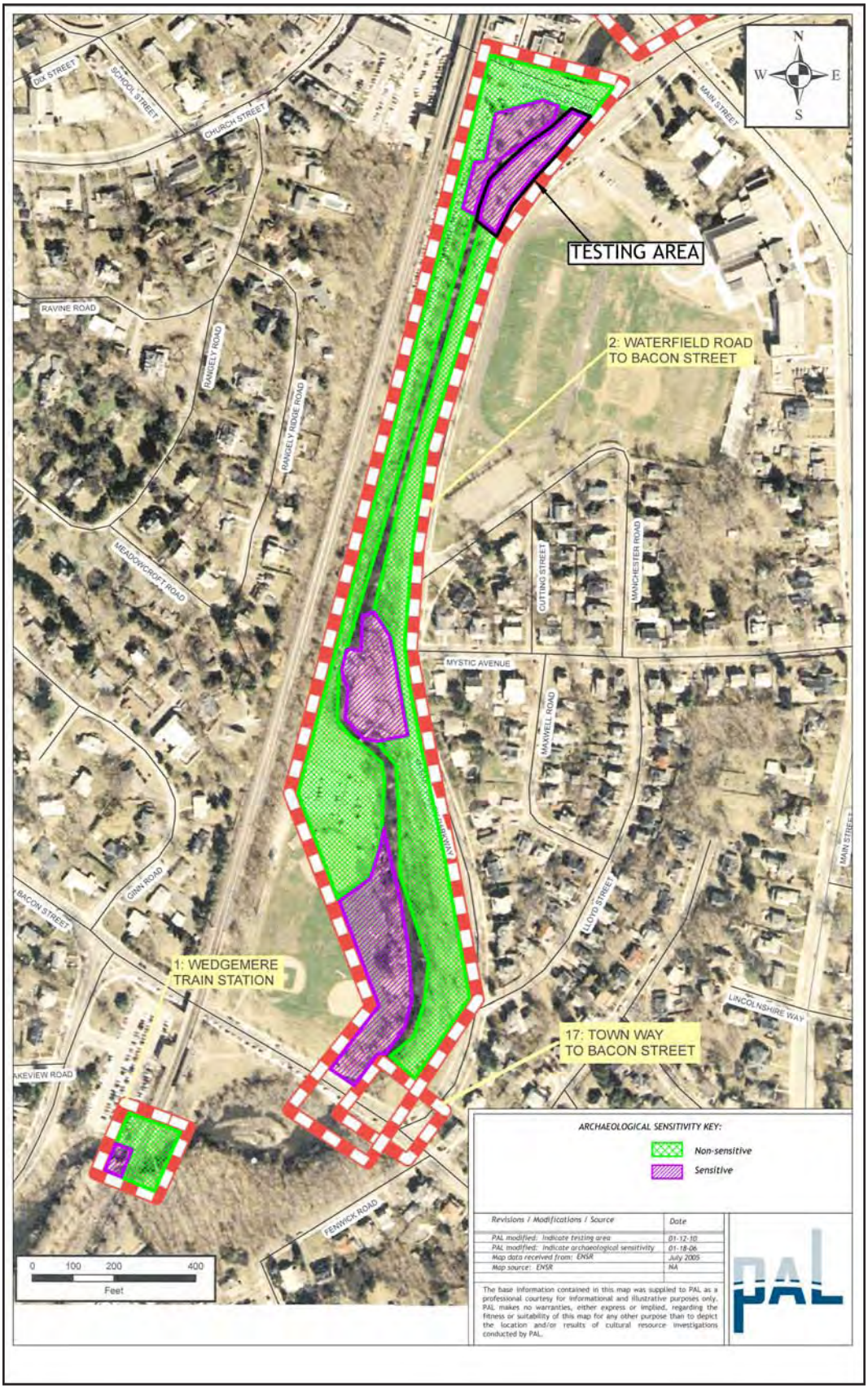


Figure 4-5. Aerial map showing the overall archaeological sensitivity of Project Element #2, Waterfield Road to Bacon Street, and the testing location within the proposed impact area.

downstream of the bridge, and its eastern and western banks were occupied by residential properties (see Figure 4-2).

The existing bridge was constructed in 1872 and subsequently repaired in 1886 after losing its upstream foundations during a heavy flood. By 1875, the project area was owned by several prominent families including the Gardners, Skillings, Winsors, and Richardsons (Figure 4-9).

The area eventually gave way to exclusively commercial and civic development when the channel north and immediately adjacent to the bridge was filled and narrowed during the last quarter of the nineteenth century with the construction of the historic "Miller" Building in 1885, which actually shares its foundation with the bridge. The construction of the town hall in 1887 along the east bank of the river also appears to have included some degree of filling and grading of the newly created riverbank in that location (Knight 2005:26 27) (Figure 4-10).

Figure 4-6. 1875 map of Winchester showing the approximate location of Project Element #2 (source: Beers 1875).

Project Element #4 consists primarily of made land associated with the channelization and impoundment of the Aberjona River and subsequent civic and commercial building episodes that followed that infilling. As such, the project area possesses low pre-contact archaeological sensitivity. The fill, however, does have the potential to contain resources associated with the use of the landscape from the last quarter of the nineteenth century forward, and may contain relict bridge foundations or stratigraphic evidence of road reconfigurations and riverbank accretions and grading that could contribute to a better understanding of the historic manipulation of the river (Figure 4-11).

Project Element #8 - Swanton Street Bridge

Project Element #8 - Swanton Street Bridge lies along a portion of the Aberjona that was altered comparatively late in the history of the river. The 1854 map of Winchester shows the approximate location of the project area straddling a swampy, undeveloped stretch of the waterway (see Figure 4-2). The 1875 map depicts a more developed landscape north of the center of town, with an increase in residences and roadways, including the construction of Swanton Street Bridge in 1874, and a large

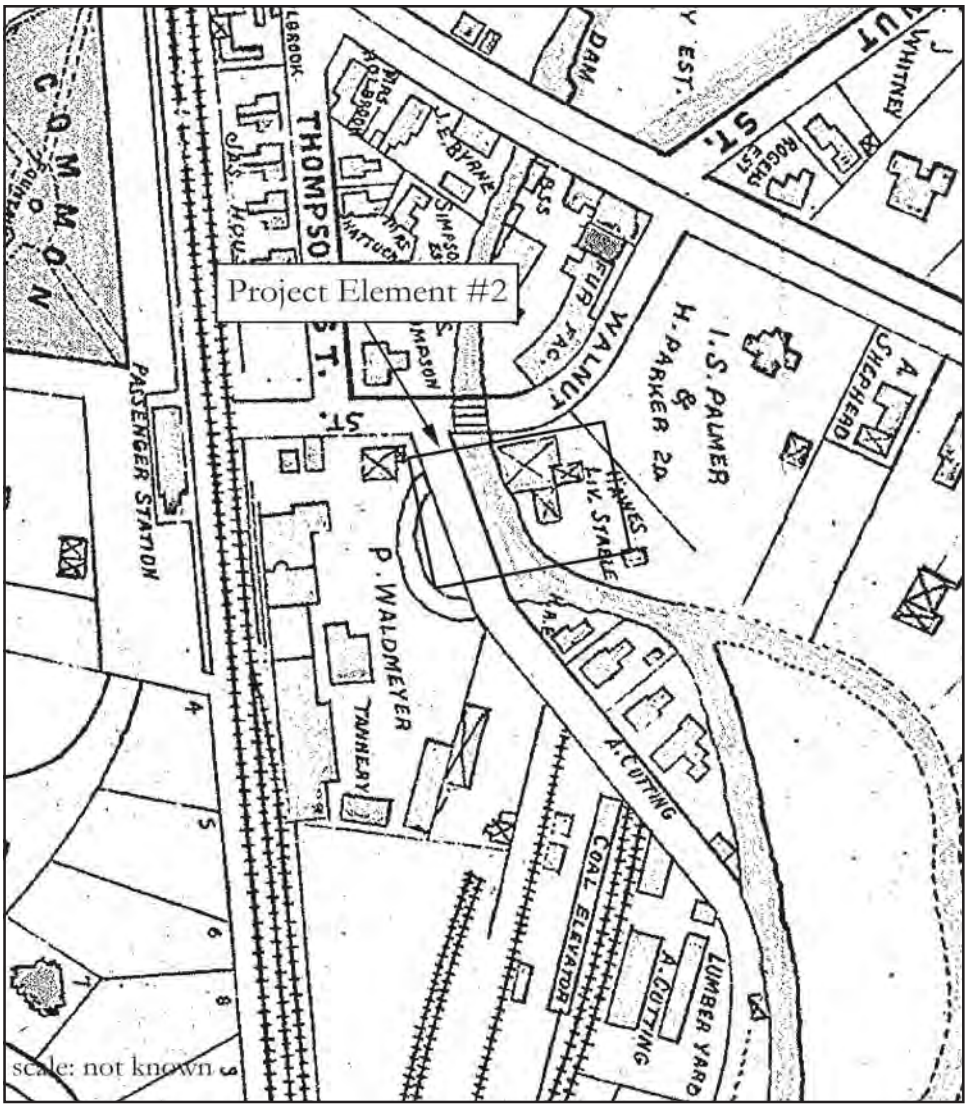


Figure 4-7. 1889 map of Winchester showing the approximate location of Project Element #2 (source: Walker 1889).

tannery located just west of the bridge (Figure 4-12). This sprawling tannery was in operation from at least 1870 to 1959, at which time the complex was destroyed by fire (Knight 2005:53)

Throughout the late nineteenth century, the land surrounding Swanton Street became increasingly industrialized and Judkins and Aberjona ponds, crosscut by the railroad and used as a dumping ground for all matter of waste, became toxic swamps (Knight 2005:29). The relocation of the Waterfield Road freight yard (ca. 1890) to a spot immediately north of the bridge on the west bank of the river did nothing to improve the polluted conditions (Figure 4-13) (Knight 2005:53). To remedy the situation, and in consideration of Kellaway's recommendations, during the 1930s the town began a program of cleaning, filling, and channelizing the river and ponds south of the Swanton Street bridge, resulting in the creation of several parks and fields. Much of the muck excavated from the ponds was used as fill to create the channel south of the bridge, although a shallow gradient and poor drainage required repeated dredging of the channel. The freight yard also was relocated in 1939.

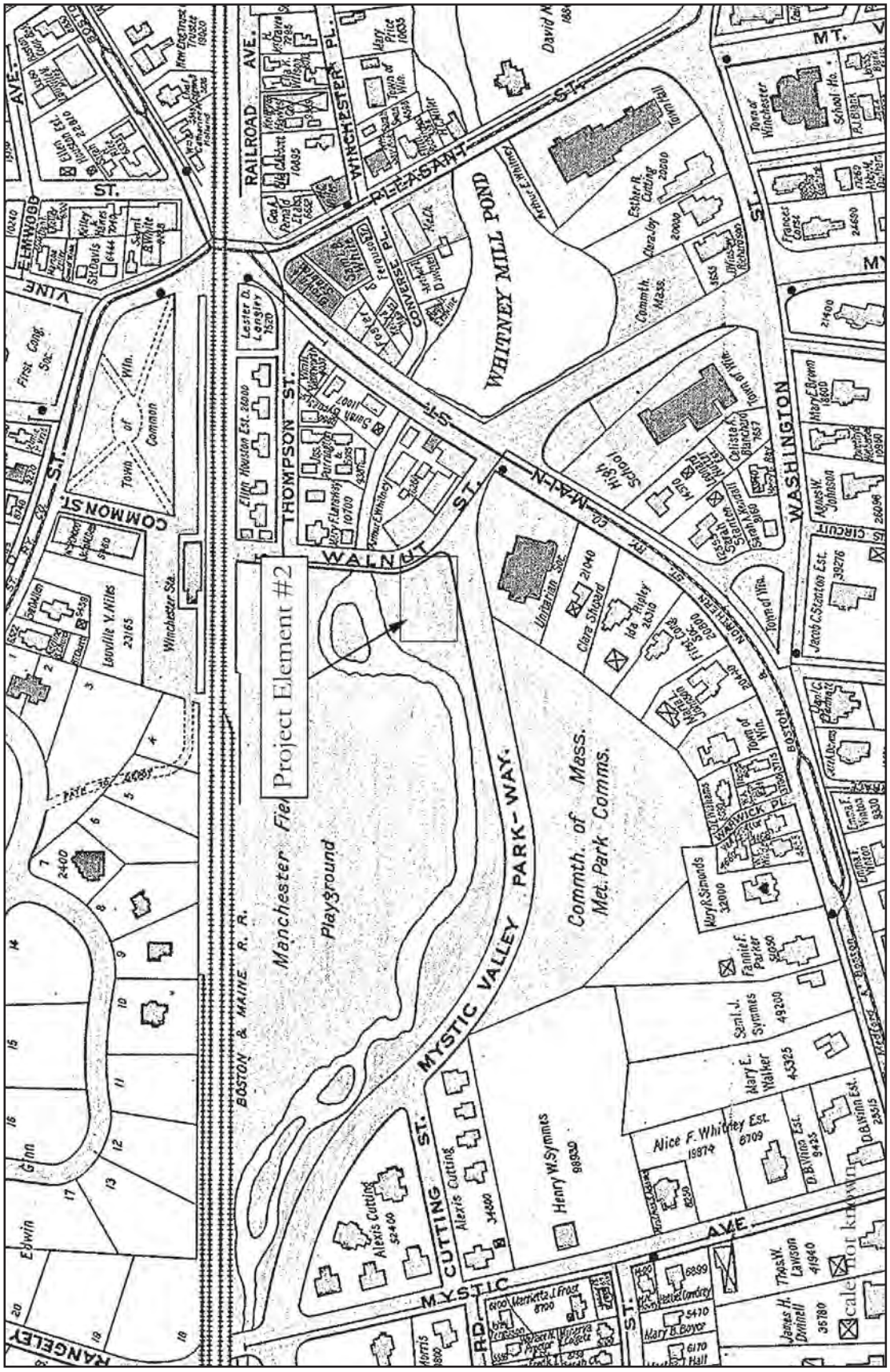


Figure 4-8. 1906 map showing the approximate location of Project Element #2 (source: Walker 1906).

Figure 4-9. 1875 map of Winchester showing the approximate location of Project Element #4 (source: Beers 1875).

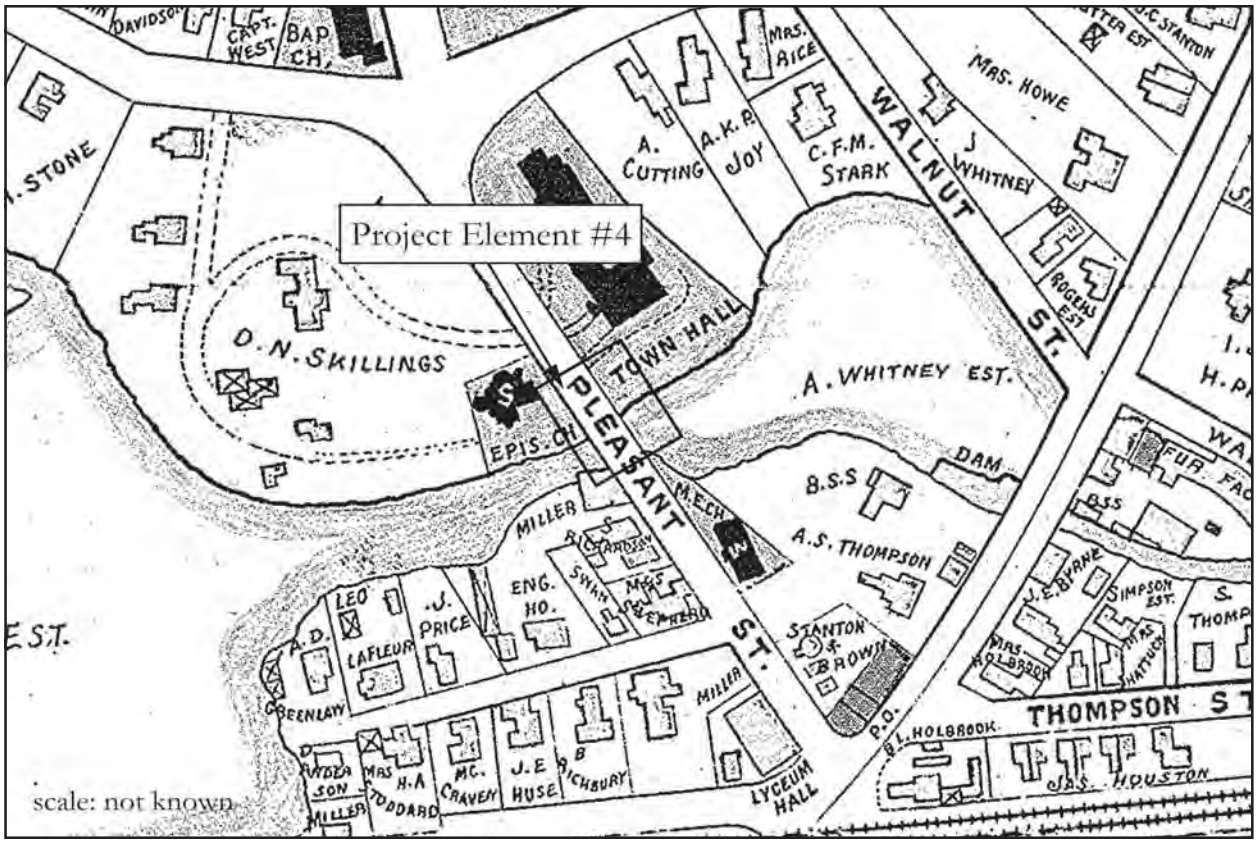


Figure 4-10. 1889 map of Winchester showing the approximate location of Project Element #4 (source: Walker 1889).

The original Swanton Street Bridge was replaced in 1933 with a steel span structure that, in turn, was rehabilitated in 1996 as cast reinforced concrete bridge overlying the original 1874 bridge foundations. While it is steeply sloped and heavily disturbed immediately adjacent to the bridge, the wooded areas bordering the river, particularly upstream of the bridge, appear less disturbed. While the swampy and filled nature of the project area soils suggests low pre-contact period archaeological sensitivity, it is possible that post-contact period archaeological resources associated with the residential and industrial use of the landscape may survive. These resources could include domestic middens or sheet refuse, and/or undocumented outbuilding foundations associated with the neighboring historic homes or former industrial and freight yard sites (Figure 4-14).

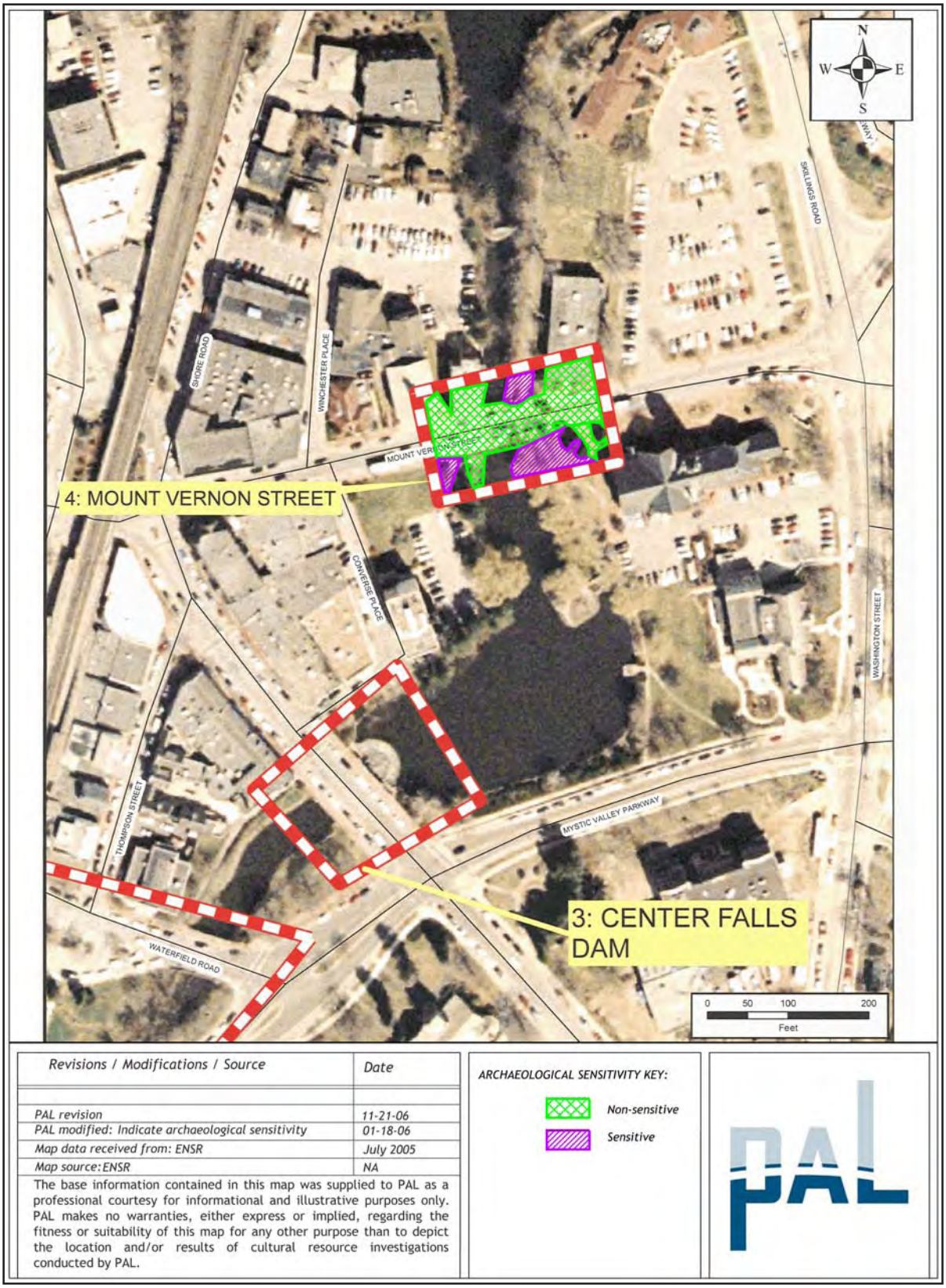


Figure 4-11. Aerial map showing the archaeological sensitivity of Project Element #4, Mount Vernon Street Bridge.

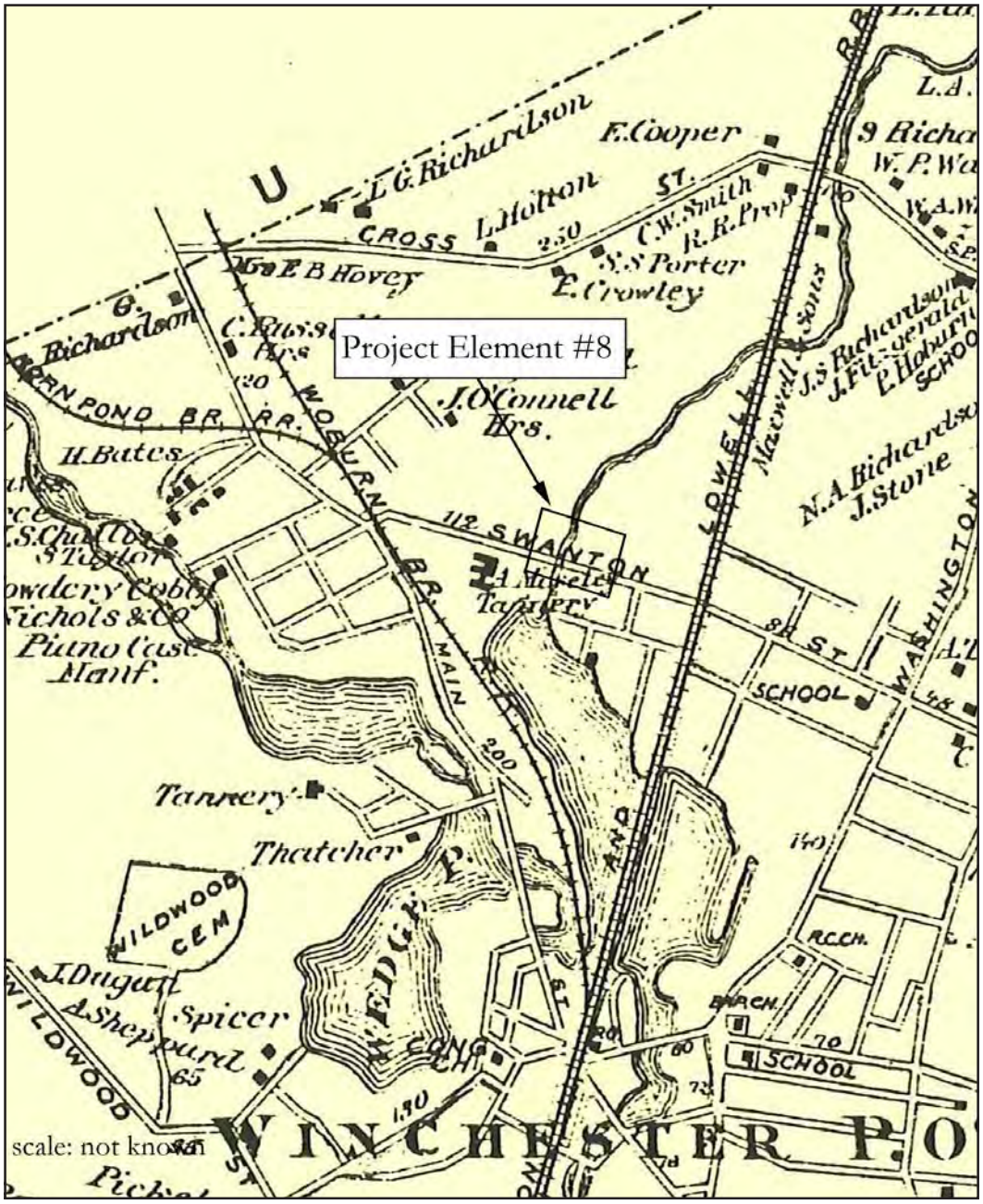


Figure 4-12. 1875 map of Winchester showing the approximate location of Project Element #8 (source: Beers 1875).

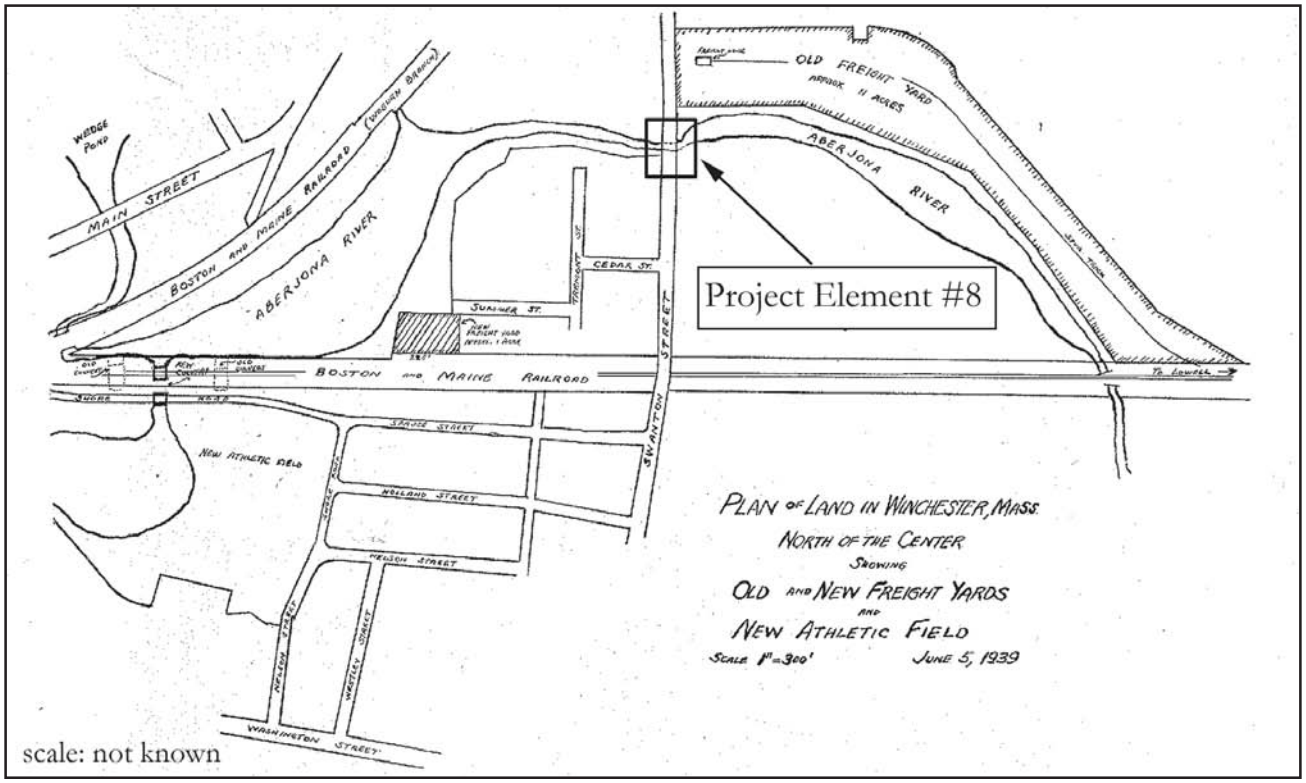
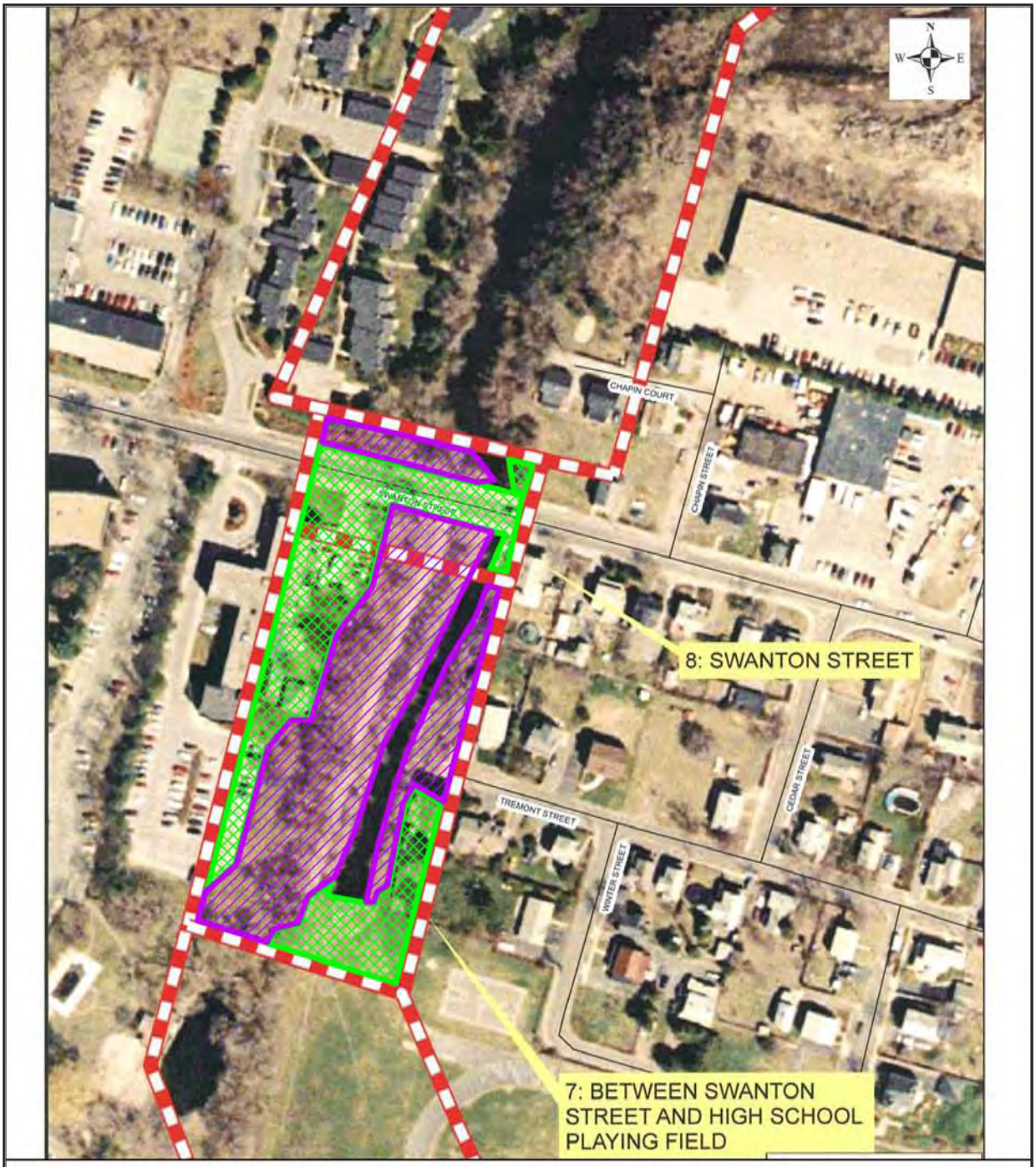


Figure 4-13. 1939 plan of the freight yard formerly located immediately north and west of the Project Element #8 - Swanton Street Bridge (source: Winchester Star 1939).



Revisions / Modifications / Source	Date
PAL revision	11-21-06
PAL modified: Indicate archaeological sensitivity	01-18-06
Map data received from: ENSR	July 2005
Map source: ENSR	NA

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ARCHAEOLOGICAL SENSITIVITY KEY:

Non-sensitive

Sensitive

Figure 4-14. Aerial map showing the archaeological sensitivity of Project Element #8, Swanton Street Bridge.

CHAPTER FIVE

RESULTS AND RECOMMENDATIONS

This chapter presents the results of the intensive (locational) survey conducted at Project Elements #2, #4, and #8 within the ARFCP, and the interpretations and management recommendations based on these findings. Following the completion of archival research, fieldwork included a walkover inspection of the project area and subsurface testing. Subsurface testing focused on those areas within the subject project elements considered to have high and moderate archaeological sensitivity (see Chapter 4). A catalog of cultural material recovered during subsurface testing is included in Appendix A.

Subsurface Testing

Twenty 50-x-50-cm test pits were excavated across the ARFCP project areas along four linear transects and as two judgmental test pits (JTPs). The test pits were spaced at 10-m intervals along the linear transects; JTPs were used in areas too small to accommodate transect testing. For ease of review, the results of the subsurface testing have been organized by project element.

Project Element #2 - Waterfield Road to Bacon Street

A total of 8 50-x-50-cm shovel test pits was excavated within the proposed APE for Project Element #2. The test pits were excavated at staggered 10-m intervals along Transect D, located in the lawn area between the Aberjona River and the Mystic Valley Parkway at its intersection with Waterfield Road (Figures 5-1, 5-2). While the entire proposed project area was sensitized for archaeological resources, the preferred alternative for the project at the time of the survey (Option 3) called for relocating the existing sidewalk along the east bank of the river from its current position to an alignment parallel and adjacent to the western edge of the Mystic Valley Parkway for a distance of approximately 900 linear ft. Of that 900 ft corridor between the river and the road, only 400 ft were assessed as sensitive for archaeological resources (see Figure 4-5), and as such only that section was subject to subsurface testing.

Transect D comprised filled soil profiles along its entire length, with fill depths extending as deeply as 90 centimeters below surface (cmbs). Typically, the uppermost fill (Fill 1) was characterized by olive-brown (2.5Y 4/3) silty fine sand extending to an average depth of 31.5 cmbs, followed by a light yellow-brown (2.5Y 6/4) very fine sand (Fill 2) to an average depth of 58 cmbs (Figure 5-3)[1]. Fill 2 was further underlain by a compact gravel and clinker layer (Fill 3). This sequence of fill layers is interpreted as a Landscape A stratum (Fill 1), likely dating to the realignment of the river and the parkway in the

[1] "Fill" designations as used in this chapter are consistent in terms of color and texture within each project element, but not across project elements. For example, "Fill 1" is used to describe the same fill type across all of the test pits in Project Element #2, but is not the same soil designated as "Fill 1" in Project Elements #4 or #8.

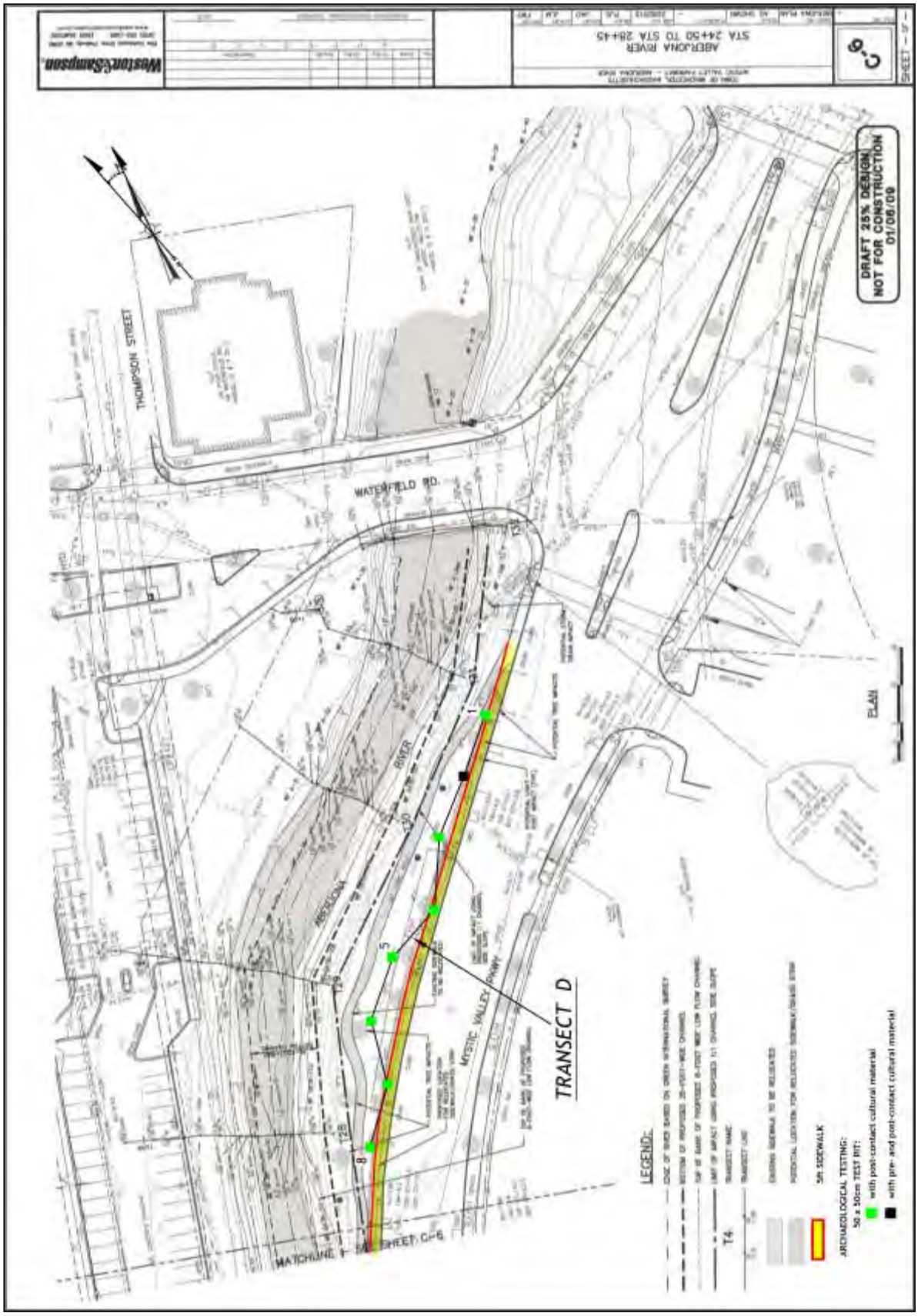

Figure 5-1. Plan showing the proposed impacts for Project Element #2, Waterfield Road to Bacon Street, and the locations of subsurface archaeological testing.

1940s, underlain by a clean sandy fill deposit (Fill 2), and a firmer bedding deposit (Fill 3) laid down to level the landscape as part of the realignment project. In several of the test pits (TD-1, TD-7, TD-8), this consistent profile was interrupted by an intrusive fill layer of light olive-brown sand (Fill 4) between Fills 2 and 3; the locations of these test pits close to the existing road suggests that this intrusive fill layer may be related to the sewer line or lamp post installations in those locations (see Figure 5-2).

Figure 5-2. Photograph showing the location of Transect D, view south, Project Element #2. Note the electrified lamp posts and sewer manhole cover visible in the center of the frame.

A total of 55 pieces of cultural material was recovered from Transect D, the majority of which (78 percent) was contained from 0 40 cmbs in the Fill 1 (Landscaped A) stratum. The assemblage was dominated by clear and amber bottle glass with a smaller admixture of window glass (n-23), followed by a much smaller collection of ceramics (n=8) including redware, whiteware, porcelain, and domestic stoneware. A small amount of brick (n=11) was found in nearly every fill stratum and all but two test pits. The remainder of the assemblage comprised small amounts of plastic found in Fill 1, two corroded nail fragments, asphalt, coal and clinker fragments scattered among Fills 1–3, a single piece of oyster shell in Fill 1, and an argillite flake recovered from Fill 1 soil in TD-2.

The only observable patterning in the assemblage recovered from Project Element #2 was the concentration of materials in the Fill 1 (Landscaped A) horizon and the comparative lack of materials in the underlying soils. The relatively "clean" nature of the fill lower deposits and the lack of any discernible temporal distinction among them corroborate the idea that the fill dates to the 1940s-era road and river realignment during which time a large amount of soil was brought in from an off-site location and laid down within a very short period of time.

Project Element #4 - Mount Vernon Street Bridge

A total of 5 50-x-50-cm shovel test pits was excavated within the proposed APE for Project Element #4 (Figure 5-4). The test pits were excavated at 10-m intervals along Transect C, located in the lawn area adjacent to Town Hall on the east bank of the river south of the bridge (Figure 5-5), as one JTP north of the bridge between the river and the Tedesco building (Figure 5-6), and as one JTP south of the bridge along the western bank of the river (Figure 5-7).

Transect C comprised filled soil profiles (Fill 1–4) to an average depth of 93 cmbs. Fill 1 was composed of a very dark brown (10YR 2/2) sandy loam underlain by a gray-brown (10YR 5/2) sandy loam (Fill 2) to an average depth of 62 cmbs (see Figure 5-3). These layers were further underlain by dark brown (10YR 3/3) sandy loam (Fill 3), light olive-brown (2.5Y 5/4) medium sand (Fill 4), and light yellow-

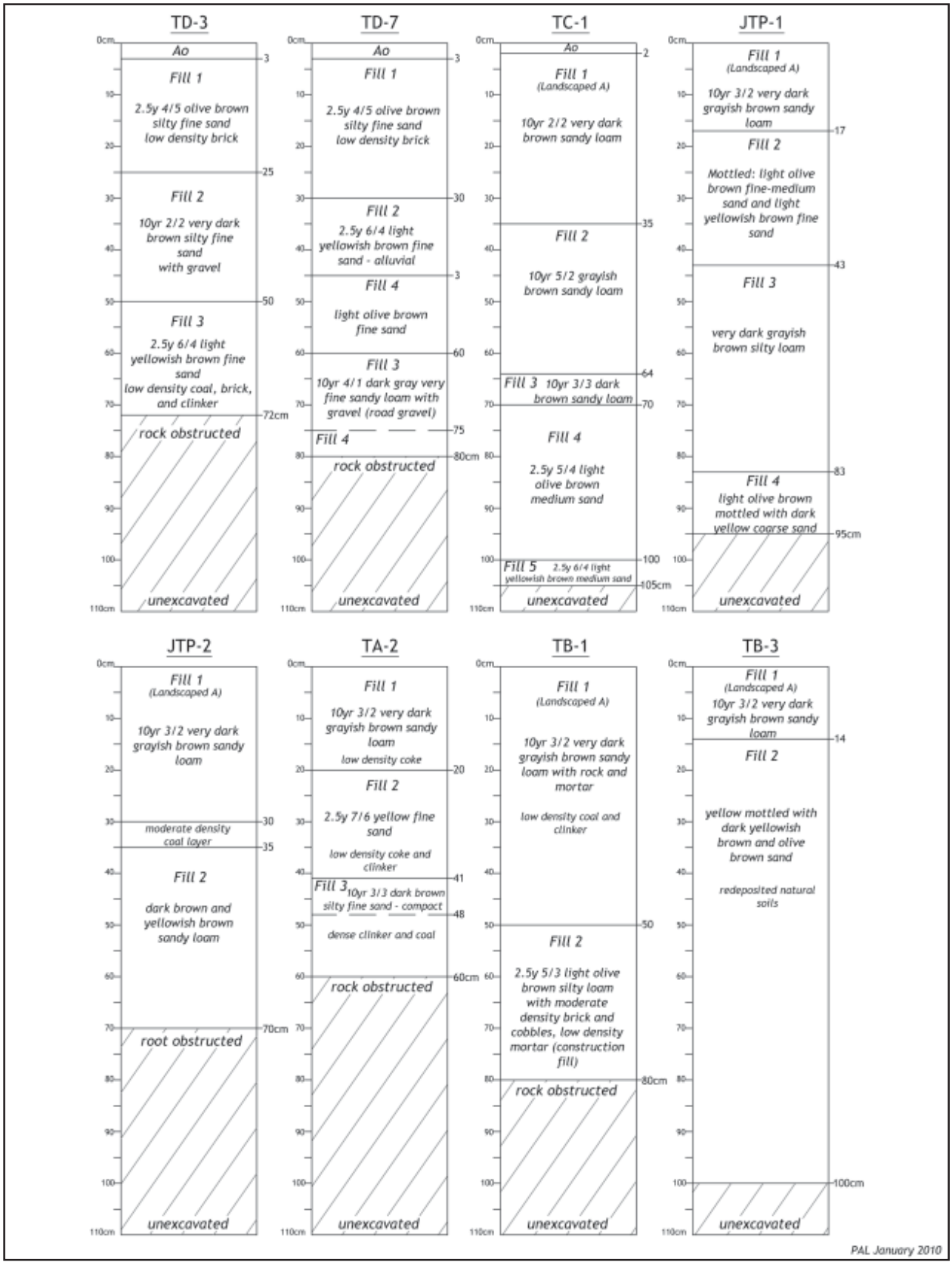

Figure 5-3. Representative test pit profiles, Project Elements #2, #4, and #8.

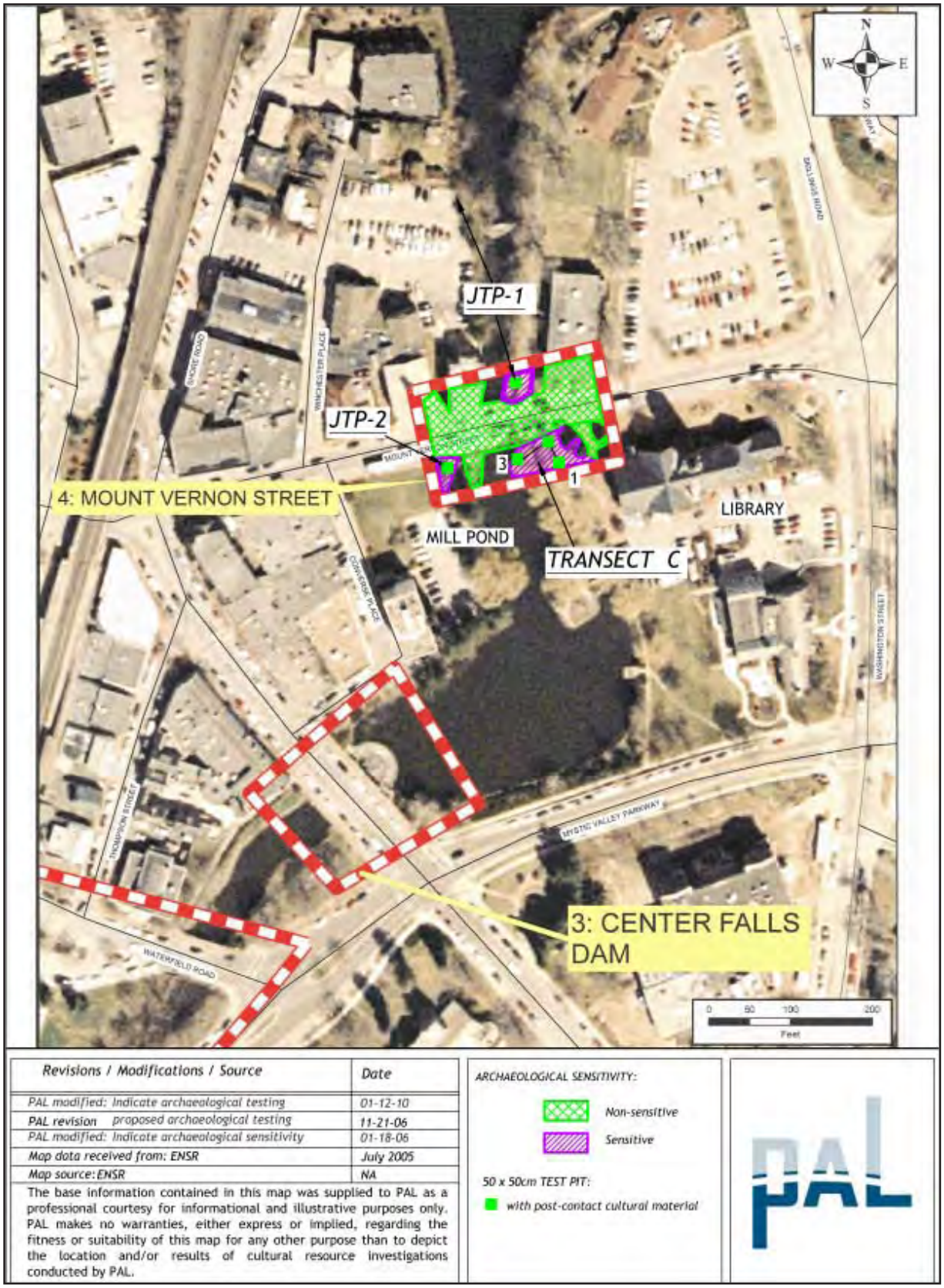

Figure 5-4. Aerial map showing the locations of subsurface archaeological testing, Project Element #4, Mount Vernon Street Bridge.

Figure 5-5. Photograph showing the location of Transect C, view northeast, Project Element #4.

Figure 5-6. Photograph showing the location of JTP-1, view southwest, Project Element #4.

brown (2.5Y 6/4) medium sand (Fill 5). Twenty-seven pieces of post-contact cultural material was recovered from Transect C. The assemblage comprised primarily hardware debris (n=10) including wire and machine-cut nails and screws; a small amount of brick (n=5); coal ash and clinkers; three whiteware sherds, one redware sherd, an olive bottle base fragment in Fill 1, and a piece of window glass.

Figure 5-7. Photograph showing the location of Transect JTP-2, view north, Project Element #4.

One observable pattern in the assemblage was the exclusive presence of building/architectural debris (n=12), including a machine-cut nail and a possible slate roofing tile fragment, in Fills 3 and 4 from 60–100 cmbs. This stands in contrast to the more diverse, albeit equally small (n=15) mix of domestic and architectural debris in the overlying fill episodes. It is possible that the lower fill layers were deposited at the same time that the Town Hall was being constructed on largely undeveloped land, and that the later fill episodes were deposited sometime time in the years after and whose contents reflect the more intensive use of the property.

JTP-1 contained a similar sequence of loamy and sandy fill layers to a depth of 95 cmbs capped by a Landscaped A stratum of very dark olive-brown sandy loam (see Figure 5-3). JTP-1 contained the most interesting, and oldest, cultural material assemblage within Project Element #4. Fills 1–3 contained nine evenly distributed artifacts including pearlware, redware, window glass, a machine-cut spike, and a piece of clear bottle glass, an assemblage that largely skews toward the first half of the nineteenth century. The filled nature of the soils, the lack of any associated structural remains, and the fact that the area was not a locus of residential development during that time makes this pattern difficult to explain. It is possible, however, that the soils in JTP-1 are part of a comparatively discrete infilling episode using fill soils borrowed from a residential context, perhaps as close as one of the neighboring properties.

JTP-2 opened with a deep Landscaped A layer underlain by a 5-cm thick stratum of coal and terminating at a tree root in mottled dark brown and yellow-brown sandy loam at a depth of 70 cmbs (see Figure 5-3). JTP-2 contained only two pieces of clear tableware glass in Fill 1 from 10–20 cmbs.

Project Element #8 - Swanton Street Bridge

A total of 7 50-x-50-cm shovel test pits was excavated within the proposed APE for Project Element #8 (Figure 5-8). Transect A, containing three test pits, was excavated south of the bridge along both sides of the sidewalk on the west bank of the river. Transect B, containing four test pits, was excavated on the west bank of the river north of the bridge (Figure 5-9).

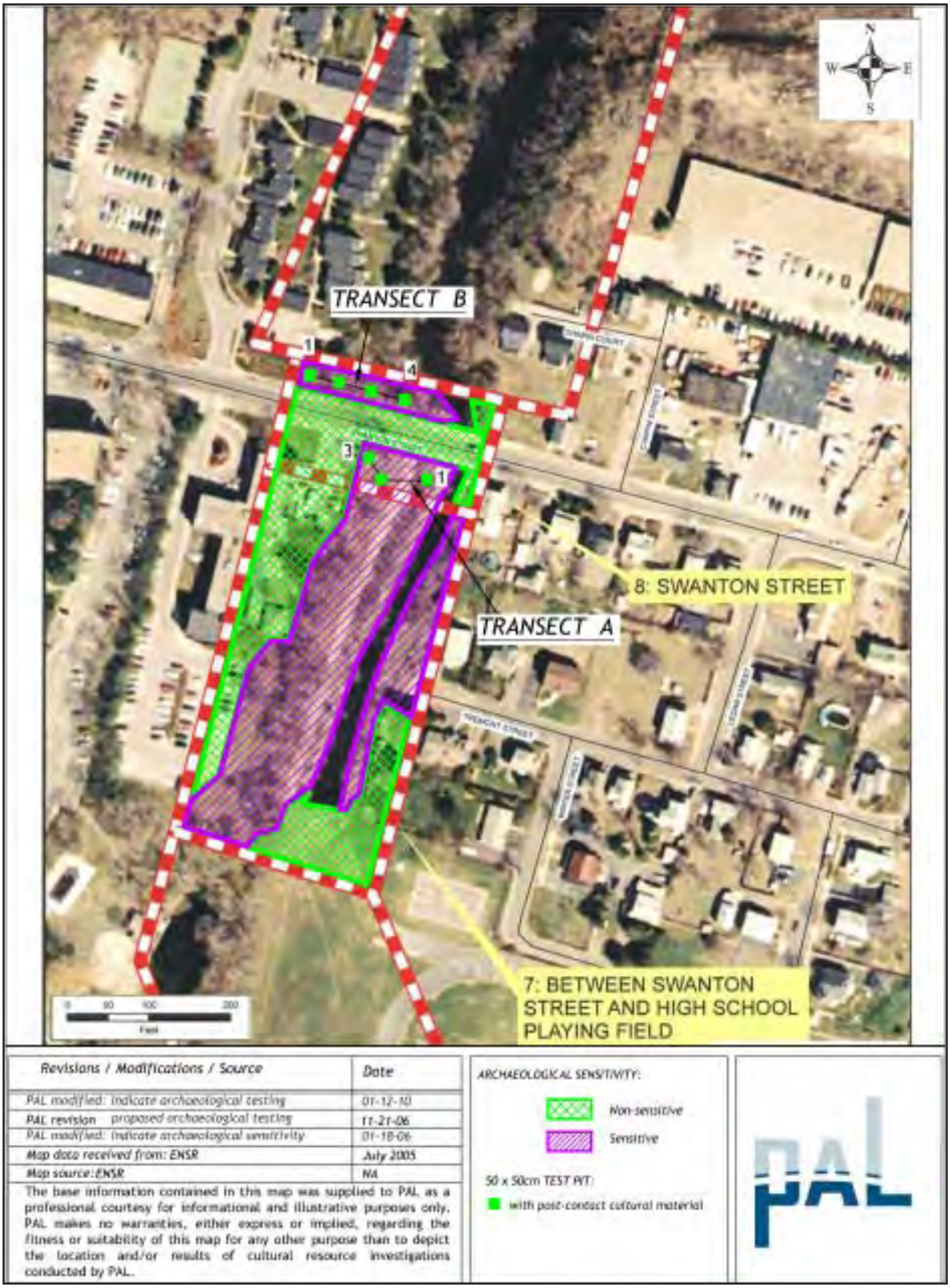

Figure 5-8. Aerial map showing the locations of subsurface archaeological testing, Project Element #8, Swanton Street Bridge.

Figure 5-9. Photograph showing the location of Transect B, view east, Project Element #8.

The soils along Transect A comprised a Landscaped A layer of very dark gray-brown (10YR 3/2) sandy loam (Fill 1) underlain by up to five fill layers silty sands that typically contained high densities of ash, coke and clinker fragments (see Figure 5-3). A total of 114 pieces of post-contact cultural material was recovered from throughout all five fill layers from 0–100 cmbs. The assemblage was dominated by bottle glass (n=68 or 60 percent), followed synthetic materials including plastic, asphalt, and what are likely asbestos shingle fragments. Only very small amounts of domestic debris were recovered including ceramics such as whiteware, creamware, and domestic stoneware (n=7), and four iron nail fragments. These soil profiles and contents are consistent with the infilling of the channel using industrial muck soils from Aberjona Pond to the south during the 1930s.

Transect B comprised similarly filled soil profiles, although the test pits contained a proportionally higher density of architectural debris (mortar, nails, brick, cobbles) than those test pits on the south side of the bridge. A total of 114 pieces of post-contact cultural material was recovered from three fill layers from 0–80 cmbs. Like Transect A, the assemblage was dominated by primarily bottle glass (n=70 or 61 percent), followed by modern synthetic materials (n=15) including Styrofoam, asphalt, and plastic, and brick (n=13). It is important to note that these synthetic materials were found mixed throughout all fill layers. In addition to these primary artifact classes, a much smaller collection of ceramics (transfer-printed whiteware, redware), mortar, coal ash, and architectural hardware (iron nails, screws) also were recovered.

While the contents of the fill deposits are fairly evenly distributed in terms of class and function, the fill itself becomes shallower moving west to east along the transect. This pattern, combined with the homogeneity of the artifact assemblage, indicates that the soils were laid down as a discrete event and graded upslope and away from the river, perhaps as a means to reduce the chance of flooding at the higher elevation. Moreover, the presence of modern synthetic materials throughout all of the fill layers indicates a relatively recent date for the infilling episode, possibly as recently as the construction of the adjacent condominium complex.

Summary and Recommendations

The archaeological investigations conducted in support of ARFCP revealed entirely filled soil profiles within all of the test pits excavated at Project Elements #2, #4, and #8. These filled soil profiles are attributable to a range of wide-scale landscape alterations dating from the mid-nineteenth through mid-twentieth centuries including the realignments of the Aberjona River and Mystic Valley Parkway (Project

Element #2), the channelization and infilling of the river through the center of Winchester (Project Element #4); and channelization and infilling to improve river flow and bury heavily polluted segments of the waterway (Project Element #8). These filling episodes have effectively destroyed the integrity of any relict landscape surfaces pre-dating the mid-nineteenth century, and contain no substantive artifact or structural resources that might provide new information about the chronology, scale, or function of the landscape alterations themselves.

No pre- or post-contact cultural materials or features potentially eligible for listing in the National Register of Historic Places were identified during archaeological testing at Project Elements #2, #4, and #8. Based on the results of the survey, no further archaeological testing is recommended for Project Elements #2, #4, and #8 within the ARFCP.

REFERENCES

Baldwin, L.
1835 *Plan of the Abel Richardson Farm owned by S.S. Richardson*. Map on file, Winchester Archival Center, Winchester, MA.

Beers, F.W.
1875 *Atlas of Middlesex County, Massachusetts*. F.W. Beers and Company, New York, NY.

Cook, Lauren J.
1999 *Intensive (Locational) Archaeological Survey of the Cummingsville Branch Replacement Sewer Project MWRA Contract No. 6092, Winchester, Massachusetts*. Report on file at MHC, Boston, MA.

Doucette, Dianna, and Duncan Ritchie
1994 *Intensive (Locational) Archaeological Survey, Winchester Water Supply Project, Winchester / Medford / Stoneham, Massachusetts*. PAL Report No. 565. Submitted to Town of Winchester, Winchester, MA, and Camp Dresser & McKee, Inc., Cambridge, MA.

Fenneman, N.E.
1938 *Physiography of the Eastern United States*. McGraw-Hill, New York, NY.

Hume, Ivor Noel
1969 *A Guide to Artifacts of Colonial America*. Alfred A. Knopf, New York, NY.

Kellaway, Herbert J.
1911 *Report Upon Mystic Valley Improvement Along the Aberjona River, Winchester, Mass. From Upper Mystic Lake to Swanton Street*. Herbert J. Kellaway, Boston, MA. On file, Engineering Department, Town of Winchester, Winchester, MA.

1928 *Report Upon Mystic Valley Improvement of Waterways in Winchester, Massachusetts and Related Matters*. Herbert J. Kellaway, Boston, MA. On file, Engineering Department, Town of Winchester, Winchester, MA.

Khuen, Julie
1995 "Herbert J. Kellaway: Linking Water, Parks and Parkways in the Olmsted Tradition," in *The Architects of Winchester, Massachusetts*, Number 2, 1995. Winchester Historical Society, Winchester, MA.

Knight, Ellen
2005 Aberjona River Historical Background. Report on file at the Winchester Town Archives, Winchester, MA.

Little, Barbara, Erika Martin Seibert, Jan Townsend, John H. Sprinkle Jr., and John Knoerl
2000 *Guidelines for Evaluating and Registering Archeological Properties*. National Register Bulletin No. 36. U.S. Department of the Interior, National Park Service, National Register, History and Education, Washington, D.C.

McCarthy, John P.
2006 *Cultural Resources Report, Cummingsville Branch Replacement Sewer: Archaeological Monitoring, MWRA Contract No. 6186, Winchester, Massachusetts*. Report on file at MHC, Boston, MA.

McManamon, Francis P.
1990 A Regional Perspective on Assessing the Significance of Historic Period Sites. *Historical Archaeology* 24(2):14–22.

Miller, George L.
1990 Classification and Economic Scaling of Nineteenth Century Ceramics. *Historical Archaeology* 14(1):1–40.

1991 A Revised Set of CC-Index Values for English Ceramics. *Historical Archaeology* 25(1):1–25.

Miller, George L., and Silas D. Hurry
1983 Ceramic Supply in an Economically Isolated Frontier Community: Portage County of the Western Ohio Reserve, 1800–1825. *Historical Archaeology* 17(2):80–92.

National Park Service
1983 Archaeology and Historic Preservation: Secretary of the Interior's Standards and Guidelines. *Federal Register* 48(190). National Park Service, Department of the Interior, Washington, D.C.

2002 *National Register Bulletin – How to Apply the National Register Criteria for Evaluation*. Retrieved from the world wide web June 2009: http://www.nps.gov/history/nr/publications/bulletins/nrb15/.

PAL
2007 *Technical Memorandum, Aberjona River Flood Mitigation Program, Winchester, Massachusetts, Archaeological Assessment*. PAL No. 1735.01. Submitted to ENSR International, Westford, MA.

South, Stanley A.
1977 *Method and Theory in Historical Archaeology.* Academic Press, New York, NY.

United States Department of Agriculture (USDA)
2009 Natural Resources Conservation Service, Web Soil Survey, Winchester, Middlesex County, Massachusetts. Retrieved October 2009 from the world wide web: http://websoilsurvey.nrcs.usda.gov/app/.

Walker, George H.
1889 *Atlas of Middlesex County, Massachusetts.* George H. Walker and Company, Boston, MA.

1906 *Atlas of Middlesex County, Massachusetts.* George H. Walker and Company, Boston, MA.

Walling, H.F.
1854 *Map of the Town of Winchester, Middlesex County, Mass*. H.F. Walling, Philadelphia, PA.

Waters, Henry C.
1836 *A Plan & Profile of the Boston & Lowell Railroad.* Pendleton's Lithography, Boston. On file, Boston Public Library, Boston, MA.

Winchester Star
1939 *A New Freight Yard*. Newspaper article on file, Winchester Archival Center, Winchester, MA.