ARCHEOLOGICAL OVERVIEW AND ASSESSMENT
BUNKER HILL MONUMENT

Charlestown, Massachusetts

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TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

ABSTRACT

PAL completed an Archaeological Overview and Assessment (AOA) of the Bunker Hill Monument located in Charlestown, Massachusetts. The project methodology included primary- and secondary-source archival research; a walkover survey of the park; pre- and post-contact cultural context development; the summary and critical evaluation of previous archeological surveys, geotechnical studies, and artifact assemblages; and the development of recommendations for future research and National Register eligibility determinations for known sites. The AOA encompassed the review of the documentation and associated artifact collections for the eight archeological surveys projects that have been conducted on the monument property from 1980–2006, and resulted in the identification of a total 18 archeological properties. Of those properties, six (6) were recommended as potentially eligible for listing in the National Register including the remains of the redoubt trench feature associated with the Battle of Bunker Hill Period of Significance (1775); and the obelisk foundation and associated structural elements and the remains of the Holmes hoisting apparatus, all of which are associated with the Commemorative Period of Significance (1825–1902). In consideration of the actual and potential contributions of archeological research to a more substantive understanding of the history of the Battle of Bunker Hill and the Bunker Hill commemorative period, the AOA recommended that any future amendments to the existing National Register documentation for the Bunker Hill National Monument include post-contact period archeology as an area of significance for the property under Criterion D.

Using the inferred and observed landscape history of the site in combination with the archeological data, the AOA also provides an archeological sensitivity map of the property for resources dating to both the Battle of Bunker Hill and Commemorative periods of significance. The AOA suggests that the development of more reliable geo-prospecting techniques likely will provide the most cost effective and least destructive method of archeological research at the site In the meantime, targeted trench and unit excavations conducted in advance of proposed construction projects are recommended are recommended as the best strategy for exposing additional resources at the site and providing better definition of the known resources, including the redoubt feature. The AOA concludes with recommendations regarding public education opportunities using the archeological data collected from the property to date.

EXECUTIVE SUMMARY

The Archaeological Overview and Assessment (AOA) of the Bunker Hill Monument encompassed the review of the documentation and associated artifact collections for the eight archeological surveys projects that have been conducted on the monument property from 1980–2006,and resulted in the identification of a total 18 archeological properties. Of those properties, six (6) were recommended as potentially eligible for listing in the National Register including the remains of the redoubt trench feature associated with the Battle of Bunker Hill Period of Significance (1775); and the obelisk foundation and associated structural elements and the remains of the Holmes hoisting apparatus, all of which are associated with the Commemorative Period of Significance (1825–1902). In consideration of the actual and potential contributions of archeological research to a more substantive understanding of the history of the Battle of Bunker Hill and the Bunker Hill commemorative period, the AOA recommended that any future amendments to the existing National Register documentation for the Bunker Hill National Monument include post-contact period archeology as an area of significance for the property under Criterion D. The AOA also provides an archeological sensitivity map of the property for resources dating to both the Battle of Bunker Hill and Commemorative periods of significance; recommends more reliable geo-prospecting techniques as the most cost effective and least destructive method of archeological research at the site; and concludes with suggestions for public education opportunities using the archeological data collected from the property to date.

ACKNOWLEDGEMENTS

The completion of the Archeological Overview and Assessment for the Bunker Hill Monument required the review of archeological and archival materials produced over a period of nearly 30 years and, just as importantly, the first-hand knowledge and insight of the individuals involved in that work. PAL would first like to thank Dr. Steven Pendery, Senior Archeologist, Northeast Region Archeology Program (NRAP), for his help with this project. Based on his deep institutional knowledge of the park, Dr. Pendery was able to provide critical historical, structural, and landscape information about the monument property and its known and potential cultural resources.

PAL also would like to thank Phil Hunt, Boston National Historical Park, and Gail Frace, NRAP Archeologist and Cataloging Inspector, for providing access to the Bunker Hill collections and reports on file at the Charlestown Navy Yard in Boston and at the Northeast Cultural Resources Center (CRC) in Lowell. Thanks also to Victoria Andrilenas, Northeast Museum Services Center Librarian, who provided access to and assistance with archived data, including archaeological and collections reports on filed at their library at the Charlestown Navy Yard. Finally, PAL would like to thank Kenneth L. Kvamme for generously providing a digital archive of all of the raw geophysical data collected during his survey work at the Bunker Hill Monument property between 1996 and 1998.

CHAPTER ONE

INTRODUCTION

This report presents the results of an Archaeological Overview and Assessment (AOA) of the Bunker Hill Monument located in Charlestown, Massachusetts (Figure 1-1). The site, which is incorporated within the larger management unit of the Boston National Historical Park (Boston NHP), comprises roughly 4 acres and contains a 221-foot granite obelisk and adjacent exhibit lodge marking the location of the first major battle of the American Revolution (Figure 1-2). The National Park Service (NPS) will use the results of the AOA to help identify and manage known and potential archaeological sites within the Bunker Hill National Monument.

Site Summary

Bunker Hill (actually Breed's Hill) was the location of the first conventional battle of the American Revolution, fought on June 17, 1775 between British regulars and marines and American colonial militia companies under the command of Major General Joseph Warren and Colonel William Prescott. In the early hours of June 17, the American forces constructed an earthwork fortification on the summit of Breed's Hill rather than on top of

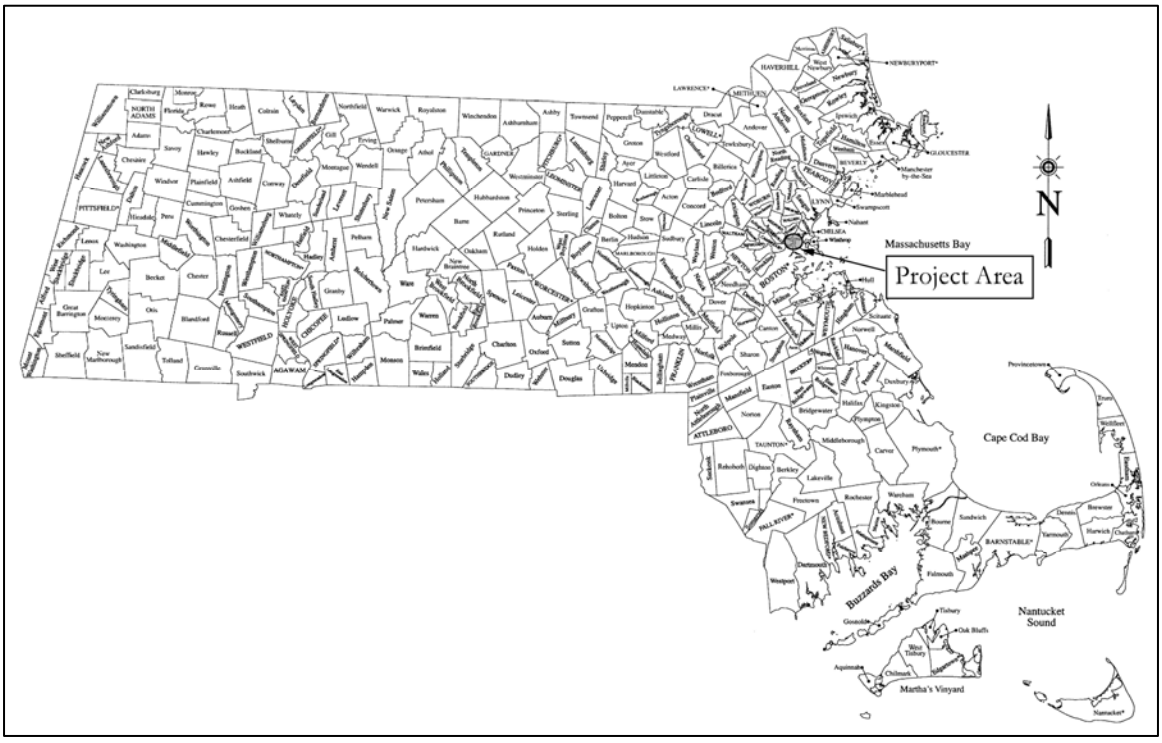

Figure 1-1. Map of Massachusetts showing the location of the Bunker Hill Monument.

Figure 1-2. Location of the Bunker Hill Monument on the Boston South 7.5 minute USGS topographical quadrangle.

Bunker Hill as originally intended, based on a field decision by Colonel Richard Gridley. The redoubt was successfully assaulted by the British Army at a considerable cost (British casualties numbered 1,054 men and the colonists lost 140). Both British and American dead were buried on the hill. The British demolished the American redoubt and built their own encampments and fortifications. These in turn were abandoned and destroyed upon the lifting of the siege of Boston under Commander-in-Chief George Washington on March 17, 1776.

The battleground was first commemorated by the construction of a monument to General Joseph Warren by King Solomon's Lodge shortly after 1783. By 1825, the Bunker Hill Monument Society was able to purchase 15 acres on the slope of Breed's Hill and to lay the cornerstone for the obelisk. Originally hoping to preserve the battlefield, the Bunker Hill Monument Association decided to sell off 10 of the 15 acres in 1839 to help defray the expense of building the granite monument, preserving only 3.8 acres of the site's original topography. The property was transferred to the Metropolitan District Commission (MDC) in 1919 and then to the NPS in 1974. The property is a National Historic Landmark, is listed on the National Register of Historic Places (National Register), and is included in the Monument Square Historic District of the City of Boston.

Scope and Authority

The timely identification, evaluation, and nomination of sites to the National Register of Historic Places is required of National Park units under the National Historic Preservation Act of 1966 (as amended) (NHPA), Section 110a(2) and Standard 2. In compliance with this requirement, the NPS requires the periodic completion of an AOA as a planning document that describes and assesses the known and potential archaeological resources of an NPS unit.

The goals of the Bunker Hill Monument AOA project are: to identify the general and specific levels of preservation of colonial and federal period sites previously identified within the park; assess the potential for the survival of additional archeological resources within the park; prioritize locations for additional remote sensing and subsurface testing; and make recommendations as to whether a full determination of eligibility of known sites for listing on the National Register should be made at a future time.

Project Methodology

PAL's approach to completing the Bunker Hill Monument AOA was to collect and analyze existing cultural resources data. The technical methodology focused on five principal and inter-related tasks: 1) consultation; 2) archival research; 3) pre- and post-contact cultural context development; 4) critical evaluation of previous archeological surveys, geotechnical studies, and artifact assemblages; and 5) the development of recommendations for future research and National Register eligibility determinations for known sites. Each task is described in detail below.

Consultation

Consultation with NPS was an important part of the project and occurred on a regular basis throughout the course of the survey. Dr. Steven R. Pendery (Northeast Region Archaeology Program [NRAP] senior archaeologist and contracting officer's technical representative) served as the primary NPS contact for the research project. Dr. Pendery also provided access to and assistance with the archaeological project files and reviewed the progress of cultural resource contexts and research themes. Victoria Andrilenas, NPS Northeast Museum Services Center Librarian, and Phil Hunt, Boston NHP Museum Specialist, provided access to and assistance with archived data, including archaeological and collections reports filed in their libraries at the Charlestown Navy Yard. Gail Frace, Archeologist and Cataloging Inspector with NRAP, provided access to all Bunker Hill collections and reports on file at the Northeast Cultural Resources Center (CRC) in Lowell.

Archival Research

The development of research contexts and a predictive model of expected archaeological resources within the Bunker Hill National Monument began with archival research consisting of an examination of primary and secondary documentary sources. This research included the review of environmental, archeological, and cultural publications, manuscripts, reports, notes, maps, databases, and photographs. The archival research also was used to provide an accurate inventory of all known archaeological resources, compile the necessary data for evaluating the relative success and contributions of previous investigations, and assess the landscape history and integrity of the site in support of an informed archeological sensitivity assessment of the monument property and its constituent sites.

Specific sources reviewed as part of the archival research for the Bunker Hill Monument AOA project included:

State Site Files, ASMIS Database, and Town Reconnaissance Surveys

The state site files maintained at the MHC were reviewed to collect information about previously identified archaeological sites within and in proximity to the Bunker Hill Monument. These files contain information about the location, temporal affiliation and other data on sites recorded by academic and avocational archaeologists, NPS staff, and cultural resource management (CRM) professionals. The MHC files also contain listings of National Register-eligible or listed properties. The files were reviewed for any updated information about archaeological sites or standing structures within or near the Bunker Hill Monument and for the Bunker Hill Monument itself.

Site entries for the Bunker Hill Monument as recorded in the Archeological Sites Management Information System (ASMIS) database also were reviewed to provide a comprehensive listing of and information about the archeological resources identified at the park. ASMIS is the "Park Service's database for the basic registration and

management of park prehistoric and historic archaeological resources" and includes "data on site locations, description, significance, condition, threats to, and management requirements for known park archaeological sites" (http://www.cr.nps.gov/mwac/aim_pages/asmis1.htm).

Finally, the town reconnaissance report for Charlestown was reviewed to provide general historical information about the development of the city in general and the location of Bunker's (Breed's) Hill in particular (MHC 1980).

Archaeological Reports and Articles

Information about archaeological sites located within and in the vicinity of the Bunker Hill Monument was collected from published and unpublished reports prepared for the NPS. These reports encompass 25 years of study relating to the landscape, military, and architectural history of Bunker Hill. In addition, the results of a geophysical survey conducted at the site and published in the professional journal *American Antiquity* also was reviewed.

Cultural Landscape Reports, Historic Structure Reports, and Planning Documents

A substantial body of historiography surrounds the Battle of Bunker Hill. Much of this secondary source material has been summarized in various NPS research documents including the cultural landscape and historic structure reports for the monument (Brouillette and Coffin-Brown 2000; Evans et al. 1982), and forms the basis for the post-contact period context developed in Chapter 3. Several documents on file at the Charlestown Navy Yard also were consulted directly over the course of this project as a means to cross-check and supplement the material provided by the NPS research and to substantiate conclusions and recommendations as provided in this AOA. This material included construction documents and plans for proposed alterations to the monument grounds and NPS master planning documents for the Boston National Historical Park, generally, and the Bunker Hill Monument, specifically.

Secondary Histories and Maps

Histories and maps documenting the Battle of Bunker Hill and the subsequent nineteenth- and twentieth-century alterations to the site, many of which were cited throughout the NPS report texts, also were consulted directly. Most critical among these sources was Richard Frothingham's *History of the Siege of Boston and of the Battles of Lexington, Concord, and Bunker Hill* (1903) and maps produced by John Montresor (1775a, b) and Thomas Page (1775a, b).

Pre- and Post-Contact Cultural Context Development

This project task involved drafting pre-contact and ethnographic occupation of the park (Chapter 2) and a post-contact period summary (Chapter 3) for the AOA report. The content of Chapter 2 was built on pre-contact cultural contexts that have been developed by archeologists working in the greater Boston area in combination with a review of paleoenvironmental landscape studies and state site files containing information about previously identified pre-contact period sites.

Chapter 3 provides an overview of colonial land use patterns as well as the specific events of the Battle of Bunker Hill on June 17, 1775, with relevant historical maps used to illustrate the text. The impact of development and park construction on the battlefield also will be assessed with the post-monument construction and events summarized chronologically and illustrated, as appropriate, with historical maps and photographs.

Research and Evaluation of Previous Studies and Collections

Chapter 4 consists of a systematic review of the collections associated with all previously completed archaeological projects at the Bunker Hill Monument including excavation reports and memos, project summaries, specialized analyses, artifact assemblages and catalogs, photographs and drawings, field notes, and survey data. The purpose of this task was multi-fold: 1) to summarize the methods and results of the various archeological projects conducted at the monument; 2) to assess the general accuracy of the cultural material identifications of the various artifact assemblages collected from the monument grounds; 3) to evaluate the accuracy of the conclusions and recommendations provided in the archeological reports in light of the recovered cultural materials and/or known history of the monument; and 4) to develop a map showing the locations of all previous survey work at the monument and develop a sensitivity assessment based on the results of that work.

The summaries of the previous archaeological studies begin by considering each project's individual goals and/or research designs, methodologies, and end results. This review is followed by a critical evaluation of the success of the various projects relative to their stated research goals including a consideration of the values and shortcomings of field methods and techniques employed toward those ends. The evaluation also considers the contributions of the projects toward the clarification and understanding of the history of the monument, as well as positing additional research questions and themes that might be addressed through the available cultural resources data.

The evaluation of the collections considers the quality and thoroughness of documentation, as well as the volume, condition, and value of existing material culture assemblages. One goal of the collections research was to include information about the current location(s) of the Bunker Hill cultural materials into the archeological report so that future researchers and educators can utilize the full range of the available data about the park's resources. Another component of the collections research task involved the selection of 12 artifacts that are believed to best reflect the 1775 battle and park history

for the potential purpose of public exhibit. Photographs of the artifacts along with provenience information and recommended conservation measures (as needed) are provided in Appendix I.

As part of the sensitivity assessment, the probability for the preservation of burials within park boundaries dating to the June 17 battle will be evaluated. The hypothesized location of the 1775 redoubt and battlefield in relation to the existing commemorative structures at the site also will be critically evaluated with the sensitivity map reflecting the conclusions of that evaluation.

Recommendations for Future Research

The final chapter of the report, Chapter 5, provides a recommendation as to whether the existing National Register (NR) listing for the Bunker Hill Monument should be amended to include specific archeological resources identified during previous investigations at the site. The recommendation is based on general and specific levels of preservation of the colonial and federal period resources identified during those investigations, and whether the scope and breadth of those investigations provide sufficient information with which to make determinations of eligibility. In consideration of these factors, recommendations also are provided for remote sensing and additional subsurface testing prioritized by location.

Project Personnel

Kristen Heitert (project manager/principal investigator) served as the lead PAL personnel for the project.

Disposition of Project Materials

All project documentation (final reports, electronic files, maps, photographs) will be permanently curated at the Boston National Historical Park.

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CHAPTER TWO

PRE-CONTACT AND ETHNOGRAPHIC CONTEXT

A regional understanding of long-term human settlement and subsistence practices is critical to understanding those same issues within a given project area. The following chapter provides an overview of the pre-contact period and ethnographic, or Native American, history of the greater Boston area generally, and the Charlestown area specifically. 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 culture histories, and site-specific histories.

This chapter spans roughly 14,000 years, beginning with PaleoIndian period and ending with the contact period. The contact period in New England generally date from AD 1500–1650, and encompasses a time predating most permanent Euro-American settlement of the region. It was during this time when Native and non-Native groups most dynamically interacted with one another through trade, exploration of the coastal region, and sometimes conflict. It should be noted that the advent of permanent European colonization did not signal the "end" of Native American history. The impacts of introduced epidemic diseases, warfare, and displacement, however, did have a profoundly negative effect on Native American communities that effectively marginalized their political, social, and economic presence throughout most of the region.

Given that the periods of significance for the Bunker Hill Monument dates to the 1775 battle of the same name, and to the Commemorative Monumentation Era (1825-1902) the pre-contact and ethnographic narrative will be elaborated only so far as to provide a summary context for any Native American materials that may survive within intact portions of the monument landscape. A general pre-contact period Native American cultural chronology for southern New England is provided in Table 2-1 and a select listing of identified pre-contact sites within the Boston metropolitan area, including sites from the Charles, Mystic, and Neponset basins, is provided in Table 2-2.

Pre-Contact Period

The earliest evidence for human occupation of New England dates from the **PaleoIndian Period (12,500–10,000 B.P)**. The retreat of the Laurentide ice sheet and the Wisconsin glacier approximately 14,000 years ago resulted in the moderation of climatic conditions. The emerging tundra-like environmental conditions supported small, highly mobile bands of PaleoIndian hunters. These bands covered large territories to exploit post-Pleistocene resources such as megafauna, including mastodon, bison, elk, and caribou, medium and small game, marine resources, and seasonally available flora (Dragoo 1976; Snow 1980). Diagnostic artifacts for the PaleoIndian Period include Clovis fluted and Eden-like projectile points.

Table 2-1. Pre-Contact Native American Cultural Chronology for Southern New England.

Period	*Years*	*Identified Temporal Subdivisions*[1]	*Cultural Aspects*
PaleoIndian	12,500–10,000 B.P.[2] (10,500–8000 B.C.)	• Eastern Clovis • Plano	Exploitation of migratory game animals by highly mobile bands of hunter-gatherers with a specialized lithic technology.
Early Archaic	10,000–7500 B.P. (8000–5500 B.C.)	• Bifurcate-Base Point Assemblages	Few sites are 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	7500–5000 B.P. (5500–3000 B.C.)	• Neville • Stark • Merrimack • Otter Creek • Vosburg	Regular harvesting of anadramous fish and various plant resources is combined with generalized hunting. Major sites are located at falls and rapids along river drainages. Ground-stone technology first utilized. There is a reliance on local lithic materials for a variety of bifacial and unifacial tools.
Late Archaic	5000–3000 B.P. (3000–1000 B.C.)	• Brewerton • Squibnocket • Small Stemmed Point Assemblage	Intensive hunting and gathering were the rule in diverse environments. Evidence for regularized shellfish exploitation is first seen during this period. Abundant sites suggest increasing populations, with specialized adaptations to particular resource zones. Notable differences between coastal and interior assemblages are seen.
Transitional	3600–2500 B.P. (1600–500 B.C.)	• Atlantic • Watertown • Orient • Coburn	Same economy as the earlier periods, but there may have been groups migrating into New England, or local groups developing technologies strikingly different from those previously used. Trade in soapstone became important. Evidence for complex mortuary rituals is frequently encountered.
Early Woodland	3000–1600 B.P. (1000 B.C.–A.D. 300)	• Meadowood • Lagoon	A scarcity of sites suggests population decline. Pottery was first made. Little is known of social organization or economy, although evidence for complex mortuary rituals is present. Influences from the midwestern Adena culture are seen in some areas.
Middle Woodland	1650–1000 B.P. (A.D. 300–950)	• Fox Creek • Jack's Reef	Economy focused on coastal resources. Horticulture may have appeared late in the period. Hunting and gathering were still important. Population may have increased from the previous low in the Early Woodland. Extensive interaction between groups throughout the Northeast is seen in the widespread distribution of exotic lithics and other materials.
Late Woodland	1000–450 B.P. (A.D. 950–1500)	• Levanna	Horticulture was established in some areas. Coastal areas seem to be preferred. Large groups sometimes lived in fortified villages, and may have been organized in complicated political alliances. Some groups may still have relied solely on hunting and gathering.
ProtoHistoric and Contact	450–300 B.P. (A.D. 1500–1650)	• Algonquian	Groups such as the Wampanoag, Narragansett, and Nipmuck were settled in the area. Political, social, and economic organizations were relatively complex, and underwent rapid change during European colonization.

[1] Termed Phases or Complexes

2 Before Present

Table 2–2. Identified Pre-Contact Native American Sites within the Boston Metropolitan Area.

General Period	Site Name	Town	Eco–Zone	Site Size	Site Type	Cultural Material/Diagnostics
PaleoIndian 12,500–10,000 B.P. (10,500–8000 B.C.)	Neponset /Wamsutta	Canton	riverine	moderate	base camp	Fluted projectile points, bifaces, sidescrapers, endscrapers, gravers, retouched flakes.
	Saugus Quarry	Saugus	upland	small	quarry/lithic source area	Fluted point, point preforms.
	Goat Acre	Arlington	pond/riverine	find spot in large multi component site	small camp ?	Eden–like projectile point.
Early Archaic 10,000–7500 B.P. (8000–5500 B.C.)	Goat Acre	Arlington	pond/riverine	find spot in large multi component site	small camp ?	bifurcate base projectile point
	Ponkapoag Pond	Canton	pond	find spot in large multi component site	small camp ?	bifurcate base projectile point.
	Long Island	Boston	harbor island	find spot	small camp ?	bifurcate base projectile point.
	East Watertown	Watertown	riverine	find spot in large multi component site	small camp ?	bifurcate base projectile point.
Middle Archaic 7500–5000 B.P. (5500–3000 B.C.)	Arlington Plain	Arlington	pond/riverine	large	base camp	Neville, Stark projectile points.
	Ponkapoag Pond	Canton	pond	large	base camp	Neville, Stark projectile points, semi–lunar knives.
	Green Hill	Canton	upland, near riverine wetlands	large	base camp	Neville, Stark projectile points, semi–lunar knives, lithic workshop features.
	Watertown Arsenal	Watertown	riverine	unknown	unknown	Neville, Stark projectile points.
	Gill Farm	Randolph	riverine wetlands	moderate	base camp	Neville, Stark projectile points, point preforms lithic workshop features.
Late Archaic 5000–3000 B.P. (3000–1000 B.C.)	Goat Acre	Arlington	pond/riverine	large	base camp	Projectile points diagnostic of primary Late Archaic traditions (Laurentian,Small Stem Point, Susquehanna), wide range of other chipped stone tools, ground stone woodworking tools.

General Period	Site Name	Town	Eco–Zone	Site Size	Site Type	Cultural Material/Diagnostics
	Ponkapoag Pond	Canton	pond	large	base camp	Brewerton Eared,small stemmed, Susquehanna tradition projectile points, wide range of other chipped stone tools, ground stone woodworking tools.
	Green Hill	Canton	upland, near riverine wetlands	large	base camp	Brewerton Eared, Squibnocket Triangle, small stemmed projectile points, wide range of other chipped stone tools, ground stone woodworking tools.
	Boylston Street Fishweir	Boston	estuarine/tidal flat	large	fish weir/trap	wood stakes cut to make weir.
	Peddock's Island	Boston Harbor	harbor island	small ?	inhumation burial	individual burial under Woodland shell midden, C–14 date of 4135±225 B.P.
	Calf Island	Boston Harbor	harbor island	moderate	seasonal camp for fishing, bird, seal hunting ?	small stemmed, Atlantic projectile points.
	Watertown Arsenal	Watertown	riverine/estuarine	unknown	cemetery	Susquehanna tradition cremation burial features with assemblages of chipped and ground stone tools, human bone.
Terminal Archaic 3000– 2500 B.P. (1000 – 600 B.C.)	Goat Acre	Arlington	pond/riverine	large ?	base camp	Orient Fishtail projectile points,steatite vessel sherds.
	Cassidy Farm	Watertown	estuarine/riverine	large	base camp	Coburn, Orient Fishtail projectile points, drills, steatite vessel sherds.
	Perkins School	Newton	estuarine/riverine	small ?	temporary camp	Orient Fishtail projectile points, steatite vessel sherds.
Early Woodland 2500–1600 B.P. (600 B.C.– 300 A.D.)	Water Street	Charlestown	estuarine	small	temporary camp	Small stemmed, Rossville–like projectile points, ceramic sherds.
	Town Dock	Charlestown	estuarine	small	temporary	triangular end scraper, lithic workshop feature.
	Clap's Landing	Newton	estuarine/ riverine	large ?	seasonal base camp	untyped side notched projectile points, ceramic sherds.
Middle Woodland 1650–1000 B.P. (300–950 A.D.)	Goat Acre	Arlington	pond/riverine	large	base camp	Jack's Reef Corner Notched, Fox Creek projectile points; ceramic sherds.

General Period	Site Name	Town	Eco–Zone	Site Size	Site Type	Cultural Material/Diagnostics
	Water Street	Charlestown	estuarine	moderate size	temporary camp(?)	Ceramic sherds, C–14 date of 1810+50B.P.
	Boylston Street rockshelter	Newton	upland	small	temporary camp	Ceramic sherds.
	Massachusett Hill	Milton	upland	unknown	quarry/lithic source area	Hornfels quarry blanks, preforms.
	Peddock's Island	Boston	harbor island	large	shellfish processing/ midden	Ceramic sherds.
Late Woodland 1000–450 B.P. (950–1500 A.D.)	Goat Acre	Arlington	pond/riverine	large	base camp	Levanna projectile points.
	Lemon Brook	Newton	estuarine/riverine	unknown	seasonal fishing camp	Levanna projectile points.
	Glen Avenue rockshelter	Newton	upland	small	temporary camp	Ceramic sherds.
	Calf Island	Boston	harbor island	small	seasonal camp for fishing, bird, seal hunting	Levanna projectile points, ceramic sherds.
Protohistoric/Contact 450–300 B.P. (1500–1650 A.D.)	Winnesimmett	Chelsea	estuary	unknown	base camp, cemetery	copper,brass projectile points,shell beads, ceramic smoking pipes.
	Nanepashemet Fort	Medford	upland hills	unknown	palisaded settlement	unknown.
	Moswetusset Hummock	Quincy	estuarine	unknown	base camp	burials ?, copper, brass artifacts.
	Mishawum	Charlestown	estuary	unknown	base camp, cemetery	burials.

Sources:MHC Site Files; Dincauze 1974,1975

The PaleoIndian Period is generally underrepresented in southern New England, and to date there are no recorded PaleoIndian sites in the City of Boston. A few isolated diagnostic PaleoIndian materials or finds within multicomponent sites consisting primarily of Eden-like projectile points sites have been identified north and west of the city. These sites include Ossini's Gargen in Wakefield, Goat Acre in Arlington, and the Watertown Arsenal in Watertown. The lack of excavated PaleoIndian sites in the Boston area is likely due to changes in sea level over the last ten millennia that submerged many of these sites.

The **Early Archaic Period (10,000–7500 B.P.)** is characterized by the gradual development of a warmer and drier climate, referred to as the Hypsithermal Period. This environment was dominated by a mixed pine-hardwood forest and would have made seasonally available food resources more predictable and abundant, allowing pre-contact populations to exploit a wide range of territories. Megafauna populations were replaced by smaller game such as deer and bear. The lithic technology of the Early Archaic reflects a more diversified subsistence strategy, including beaked unifacial edge tools, cores, flakes, hammerstones, milling slabs, and notched pebble sinkers, indicating an increased utilization of plant and fish resources (Robinson 1992). Corner-notched, stemmed, and bifurcate-based points serve as the diagnostic artifact class for the period. Characteristic of both assemblage types is the predominance of expedient tools made from local lithic sources. Settlement strategies during this period remain somewhat speculative, but the limited available evidence indicates that a complex multi-site settlement system had been established by this period (Johnson 1993; Ritchie 1984).

Few Early Archaic sites have been identified in the Boston basin, but sites have been reported along the Charles, Mystic, and Neponset river drainages (Dincauze 1974). Isolated find spots of diagnostic bifurcate-based points have been recovered from Goat Acre in Arlington, the Watertown Arsenal in Watertown, Ossini's Garden, and the Water Street Cluster in Wakefield, two locations in Cambridge, and Deer Island. Many sites dating to this and the PaleoIndian Period may be buried under alluvium or slope wash, or may be situated in isolated and eroded upland locales (O'Steen 1987).

The distribution and somewhat higher density of **Middle Archaic Period (7500–5000 B.P.)** sites indicates that a multisite seasonal settlement system was firmly established by this time. Climatic and biotic changes continued and deciduous forests of oak, beech, sugar maple, elm, ash, hemlock, and white pine began to emerge. By this time, the present seasonal migratory patterns of many bird and fish species had become established (Dincauze 1974) and important coastal estuaries had developed (Barber 1979).

Sites from this period appear to cluster around falls and rapids along major river drainages where anadromous fish and plant harvesting was combined with generalized hunting practices (Bunker 1992; Dincauze 1976; Doucette and Cross 1997; Maymon and Bolian 1992). Diagnostic projectile points for the period include Neville, Neville-variant, and Stark stemmed points (Dincauze and Mulholland 1977; MHC 1985; Ritchie 1979). Ground-stone technology introduced a variety of tool types into the lithic assemblage including net sinkers, plummets, adzes, gouges, grooved adzes, and atlatl weights

(Dincauze 1976). A preference for locally available lithic raw materials for a variety of bifacial and unifacial stone tools is also evident at many sites. Middle Archaic Period sites are more common throughout the greater Boston area than those dating to the Early Archaic. Sites from numerous towns include Spy Pond and Goat Acre in Arlington, the Watertown Arsenal in Watertown, the Old Perkins Estate in Wakefield, the Arnold Arboretum in Jamaica Plain, and the Red Fox Site in West Roxbury. A large site, probably established to exploit anadromous fish runs, has been identified at Magazine Beach in Cambridge in a location that would have lain at the head of the tide of the Charles River during that time.

The **Late Archaic Period (5000–3000 B.P.)** was marked by a climatic shift to drier and slightly warmer conditions with a significant decrease in precipitation. During this period, oak, pine, and beech reached their full extent, and wetlands became more abundant along river margins. Wetland and estuarine areas appear to have been used extensively based on site distribution. The increase in density of sites and artifacts from this period in southern New England coincides with this climatic warming (Funk 1972). The archeological evidence demonstrates an increased use of shellfish and nuts, and the construction of fishweirs such as the Boylston Street Fishweir in Boston. Perhaps in response to an increasingly resource-rich natural environment, Late Archaic populations expanded and diversified.

The Late Archaic Period comprises three major cultural traditions: Laurentian; Small Stemmed; and Susquehanna. The Laurentian tradition is the earliest phase of Late Archaic activity and is marked by the presence of Vosburg (Middle/Late), Otter Creek (Middle/Late), Brewerton (Middle/Late), and Broad Eared projectile point types. These points are manufactured primarily from locally available materials such as quartzites and rhyolites. Site distributions from the Laurentian tradition appear to be oriented to the central uplands region, suggestive of a primarily interior, riverine adaptation (Dincauze 1974; Ritchie 1971). The Small Stemmed tradition is marked by the Small Stemmed and Small Triangular (Squibnocket) point types often associated with a quartz cobble technological industry (McBride 1984).During this period, native populations exploited a wide range of ecozones including coastal and riverine settings as well as upland areas. The Susquehanna tradition has been most widely associated with mortuary/ceremonial sites in the coastal zone of New England (Dincauze 1968). Artifacts associated with this tradition consist of Atlantic, Wayland Notched, Snook Kill, and Susquehanna Broad projectile points and several varieties of bifacial blades. Susquehanna tradition materials were manufactured from a variety of lithics including local quartzite, eastern volcanic, and exotic chert.

The diversity of site locations and site types during the Late Archaic Period is documented by sites located at estuaries (shell heaps, fishweirs, fishing camps), in the uplands (camps and workshops in the Blue Hills), and by large base camps and ceremonial burials at the Watertown Arsenal. Several felsite quarry and workshop sites have also been identified in the Blue Hills as well as the Hornfels-Braintree Slate quarries in Milton. Some of these quarries contained Late Archaic materials. Late Archaic sites

in the greater Boston area include Goat Acre and Spy Pond in Arlington, the Spring Site in Medford, and several sites in Wakefield.

As the name suggests, the **Transitional Archaic Period (3600–2500 B.P.)** marks the transitional period between the Archaic and Woodland periods, and represents a time of changing cultural dynamics. An extensive trade network, increased burial ceremonialism, and the development of technologies strikingly different from those of the Late Archaic characterize this period. Susquehanna tradition sites mark this period and are best known from cremation cemetery complexes (Dincauze 1968; Leveillee 1998).

The Orient Phase of the Transitional Archaic Period is regionally represented at quarry sites and rockshelters. The quarrying of steatite (soapstone) and the manufacture of steatite vessels is an important technological development associated with this tradition. Carved steatite vessels, prominent in this period, reflect increased sedentism, because of the low transportability of these items. Susquehanna tradition artifacts were commonly manufactured from a variety of lithic materials including quartzites, eastern volcanics, and non-local cherts. Projectile points and tools of the Susquehanna are found commonly on multicomponent sites and are often in association with Small Stemmed tradition materials (although not in mortuary settings).

Notable Transitional Archaic sites in the greater Boston area include the Spring Brook Site in the Arnold Arboretum (Pendery and Griswold 1993), and the Water Street Site located during the archeological investigations of the northern Central Artery in Charlestown (Pendery et al. 1982).

The **Early Woodland Period (3000–1600 B.P.)** is generally underrepresented in the regional archeological record of southern New England, although whether this is the result of a decreased population or a problem with archeological recognition is subject of debate (Dincauze 1974; Fiedel 2000; Lavin 1988; Mulholland 1988; Snow 1981; Wendland and Bryson 1974). Coastal resources are believed to have become an important part of subsistence collecting activities and diets, as evidenced by the high frequency of known Woodland Period coastal sites in New England (Cox 1983; Cox et al. 1983; Kerber 1984; Thorbahn and Cox 1988). This is also believed to be a time of widespread long-distance exchange of raw materials, finished products, and information (MHC 1985). The Early Woodland Period is marked by the clear emergence of fired ceramic vessels as a replacement for the soapstone vessels that had been used during the Late Archaic. Diagnostic materials include stemmed and side-notched Adena, Lagoon, Rossville, and Meadowood projectile points. Artifact assemblages for this period comprise a high percentage of “exotic” lithic materials and speak to an expansion and elaboration of long-distance trade networks.

The **Middle Woodland Period (1650–1000 B.P.)** encompassed a time of increasing population and extensive long-distance social and economic interaction. The period is marked by the introduction of horticulture into the traditional hunting and gathering subsistence practices of human populations in the Northeast. Horticulture led to changes in subsistence, population growth, organization of labor, and social stratification (Snow

1980). One of the archeological implications of the introduction of horticulture is a settlement pattern comprising large base camps in riverine and coastal settings and the identification of large storage pit features within those camps. That combination of factors suggests ever-increasing sedentism both precipitated by and in support of crop maintenance requiring storage capacity for bulky foods.

Several studies have shown that late Middle Woodland components are marked by a high percentage of exotic lithics. Diagnostic Fox Creek and Jack's Reef projectile points are found in association with Pennsylvania jasper, Ramah chert, Kineo felsite, and Lockatong argillite (Goodby 1988; Luedtke 1988; Mahlstedt 1985). This assemblage of exotic raw materials suggest that Middle Woodland populations inhabiting southern New England took part in an extensive network of social and economic contacts that extended from Pennsylvania northward to Labrador. Pottery also becomes increasingly stylistically diverse, including grit-tempered coil built vessels with stamped, incised, and dentate decoration of varying quality.

The **Late Woodland Period (1000–450 B.P.)** is marked by an increase in ceramic production through improvements in technology. Some populations may still have relied solely on hunting and gathering while others turned to horticulture. Coastal areas and large semipermanent village settlements adjacent to arable lands, particularly along broad floodplains seemed to have been preferred. Farming, however, did not preclude the continuance of seasonal rounds, so small task-specific camps are still common during this period. Larger groups sometimes lived in fortified villages, indicating the presence of complicated political alliances (Mulholland 1988). Daignostic Late Woodland Period artifacts include triangular Levanna points, cord-wrapped stick-impressed and incised collared ceramic vessels, and increasing amounts of local lithic materials (MHC 1985). This reliance on locally available lithic materials suggests the formation of ancestral tribal territories that were noted as the resident Native American tribes at the time of European contact.

Late Woodland sites in Massachusetts include shell middens, habitations, and burials in coastal and riverine locations, and quarry and workshop sites in the uplands. Boston Harbor is an area known to contain a high density of Late Woodland occupations (Dincauze 1973). Late Woodland artifacts have been recovered from Arlington, Watertown, Medford, Wakefield, Cambridge, Quincy, Chelsea, Milton, Newton and surrounding towns. In Boston proper, a Levanna-like point was recovered from Boston Common near the Park Street Station (Pendery 1988).

Contact Period (450–300 B.P./A.D. 1500–1620)

The traditional cultural systems of Native Americans were rapidly transformed during the contact period. Contact with European populations slowly but completely disrupted Native American lifeways including their social, economic, and political culture.

The lifeways of the Native populations in this period are believed to have been similar to those of the Late Woodland Period. There were a number of large permanent base camps

and villages, some fortified, as well as smaller satellite hunting and fishing camps. Large groups may have gathered together at certain times of the year to share and exchange resources as well as for social and ceremonial functions.

Early ethnohistorical documents and modern ethnohistorical sources attest to the extensive trade network in place during this period (Bragdon 1999; Brasser 1978:83; Snow 1980:56; Winthrop 1996:224). Fur trade was an important economic factor for Europeans and Natives alike, and in return for furs the Indians received clothing, food items, metal, and beads. Interaction between native people and Europeans is recorded in notes and writings of several early explorers and settlers including John Winthrop, William Bradford, Thomas Morton, Samuel Champlain, and Samuel and John Smith. European trade goods were circulating to Native New England cultures especially during the early seventeenth century. Although pre-contact period trade routes may not have continued in use throughout the terminal Late Woodland (McBride and Dewar 1987), they were clearly serving as conduits for the distribution of European goods, especially marine shell beads, or "wampum," by the early seventeenth century.

Disease and warfare decimated populations and dispersed survivors throughout the region. A major epidemic occurred from 1616–1617 that drastically reduced the native populations. Smallpox and measles in particular, had a drastic effect on the Massachusett Indians. In the early 1630s, smallpox almost annihilated the Native American population around Boston Bay, although many in the interior survived to help form the villages of "Praying Indians" that existed for many years at Natick, Nonantum, Punkapog, Hassanamesitt, and Magunco to the south and west of Boston (Cook 1976). The declining number of Massachusett Indians was suggested by Gookin (1972), who said that "there are not of this people left at this day above 300 men, besides women and children."

King Philip's War (1675–1676) resulted in the military defeat and dispersal of native groups in southern New England, particularly the Pokanoket and Narragansett, as well as the virtual destruction of those groups who had allied themselves with the Europeans including the christianized Nipmuck "Praying Indians." Similar conflicts in northern New England continued well into the eighteenth century, with similar results.

Two contact period core areas have been identified in the greater Boston area: the Mystic core area to the north and the Neponset core area to the south (MHC 1982), with the Charles River serving as a likely boundary between the two. A number of secondary contact period trails are believed to have existed along Washington and Boylston streets, and there was a fording place on the Charles River at Watertown Square (MHC 1982). There were also transportation corridors in the Back Bay area near Dudley, Roxbury, and Tremont streets, and Huntington Avenue.

To date, the only recorded contact period sites in the City of Boston are those associated with burials. One such burial at Union Market Station included projectile points made of copper. A second site in the Savin Hill area contained burials and associated grave goods including glass beads, metal projectile points, and pieces of fiber-woven material. Several unverified contact sites, primarily noted in historical documents, also exist in the area and include a palisaded fort at Brookline Village and a site at Bunker Hill Community College on the north bank of the Charles River near Cambridge Street.

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CHAPTER THREE

POST-CONTACT PERIOD CONTEXT

Because the focus of this archeological overview and assessment is the history and landscape of Breed's Hill and the Battle of Bunker Hill, the following chapter has been organized to provide only a summary history of the city of Charlestown sufficient to provide context for the more detailed discussion of the colonial through modern land use of the monument property. This information was drawn largely from the Historic Structure Report (Evans et al. 1982) and Cultural Landscape Report (Brouillette and Brown 2000) prepared for the property, as well as primary planning and construction documents found on file at the Charlestown Navy Yard in Boston and the NPS Cultural Resource Center in Lowell. The discussion about the conflicting accounts of the original redoubt configuration and the presence of burials on the hill has been drawn largely from the historical contexts and conclusions provided in Pendery and Griswold's 1996 archeological report.

The landscape changes to Breed's Hill date largely from 1794 to the present and are attributable to commemorative efforts associated with the Battle of Bunker Hill. It is important to note that the property alterations and improvements as discussed in this chapter are not comprehensive in scope, but rather address those changes that have had the most potential for impacting subsurface archeological resources associated with the period of significance for the site.

History of Charlestown

Following the settlement of Plymouth in 1620 during the **Plantation Period (A.D. 1620–1675)**, Thomas Walford established a small settlement in 1625 at Charlestown, or "Cherton" as it was known at the time (Figure 3-1). Walford eventually was pushed out of the area with the arrival of 100 Puritans of the Massachusetts Bay Company. This group, formerly of Salem and under the leadership of Francis Higginson, set about laying a proper "town", with each member allotted a two-acre parcel to plant upon and the establishment of a town common. The southernmost of the four drumlins on the peninsula, Town Hill, was chosen as the center of the settlement and the "Great House" was erected adjacent to it.

In July 1629, King Charles of England formally chartered the settlement, and the new town was officially renamed Charlestown in his honor. The following year, John Winthrop, the designated governor of the Massachusetts Bay Company and Puritan luminary, selected Charlestown as the seat of government for the fledgling community

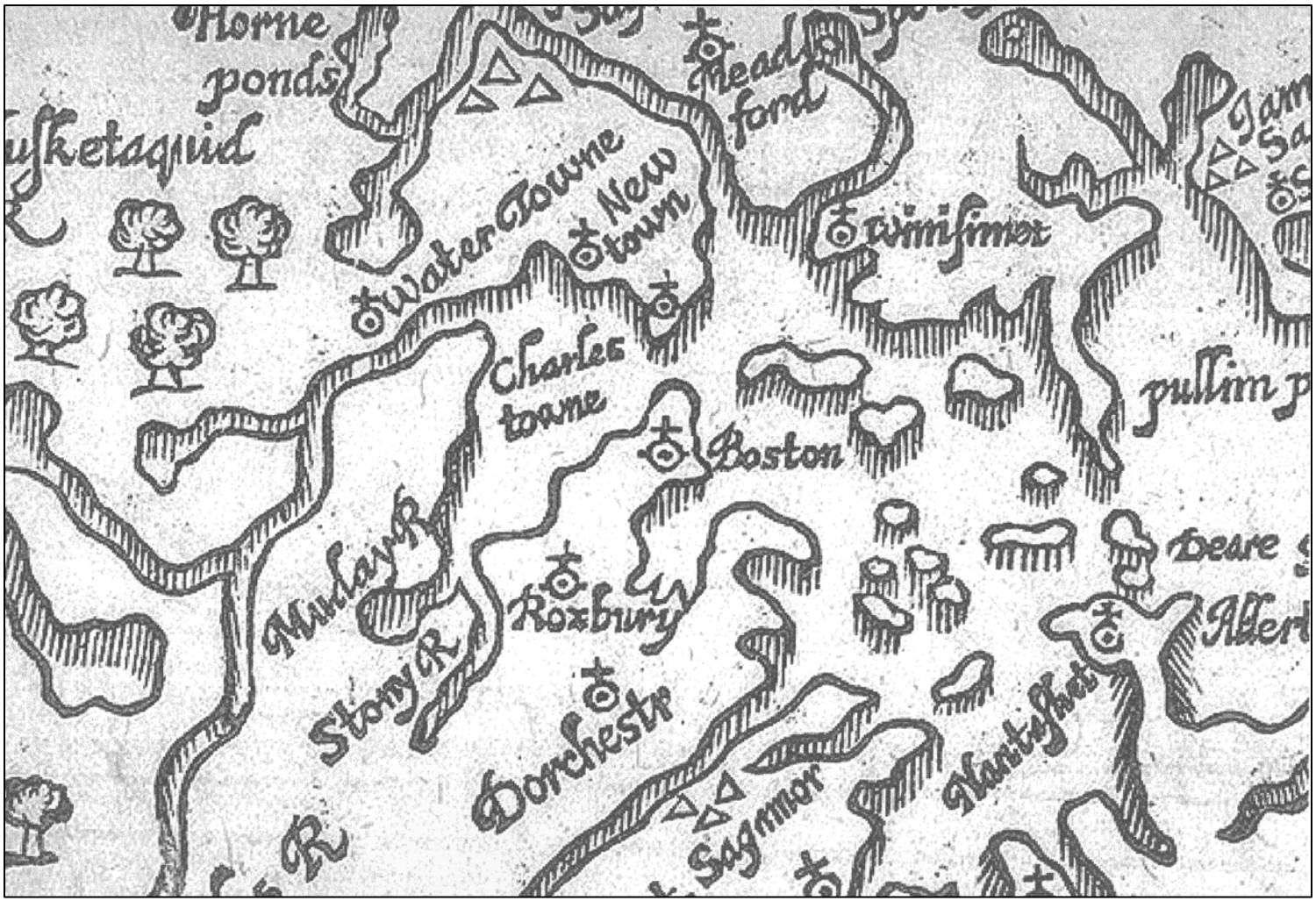

Figure 3-1. 1639 map showing the location of Charlestown (source: Wood 1639).

and took up residency at the Great House along with several other patentees. Within several months of settlement, however, sickness, scarce food, and an inadequate supply of fresh water pushed many of the colonists out of Charlestown to the Shawmut peninsula, subsequently renamed Boston.

After the departure of Governor Winthrop and his contingent to Boston, those colonists remaining at Charlestown reorganized themselves through the establishment of a board of selectmen in 1634. George Bunker, one of the wealthiest proprietors, signed the document and approved one of the earliest orders for the town establishing a great "Cornfield" on the east side of Town Hill that comprised all of the land between Country Road (later Main Street) and the Mystic River as well as Bunker's, Breed's, and Moulton's hills. Several military improvements also were made during that period, including the construction of a fort at the top of Town Hill, a gun battery at Sconce Point, and a training field at the base of Breed's Hill at what is the current site of Winthrop Square.

Between 1630 and 1635 the population in and around Boston rose to several hundred people. Boston's physical location, while not well suited for agrarian-based economy, did possess a harbor deep enough for large vessels to anchor near the peninsula and shallow enough along the coastline to construct wharves and piers (Rutman 1965). Boston became the center and distribution center for the colony's mercantile trade. By the 1670s, Boston's maritime trade extended to the British Isles, continental Europe, and the West Indies (MHC 1982).

The settlements around Boston, including Charlestown, also continued to grow. These communities were initially devoted to agrarian pursuits while the harbor islands were used for wood and pastureland. Important transportation routes, ferry services, were established from Charlestown to Boston in 1631 and to Malden in 1640. By the 1640s commercial businesses and trades connected with maritime trading were established in Charlestown, including coopers, ropemakers, and anchor smiths. Shipbuilding also began and the first drydock in the country was built in the 1670s (MHC 1980).

Charlestown's maritime and commercial productivity expanded during the **Colonial Period (A.D. 1675–1775)**. Shipping and shipping trades continued and industries including distilling, sugar refining, tanning, and leather processes developed. The town's importance as a port fueled economic growth, which led to the construction of new civic buildings including a new meetinghouse in 1719 and a courthouse in 1734. Charlestown also developed as an important center of craft production, especially in redware pottery. Locally available deposits of blue glacial clay along the Mystic River provided ample raw material to support and extensive number of potteries. Charlestown dominated the industry in New England and provided "Charlestown ware" for most of the region (MHC 1980; Pendery et al. 1982; Pendery et al. 1984).

Increasing constraints imposed by England to support overseas wars led to colonial tension and revolts including the Stamp Act Riots in 1765, the Boston Massacre in 1770, and the Boston Tea Party in 1773. In response, England imposed the Boston Port Bill in

1774 shutting down Boston Harbor to traffic and trade until the damages and duties from the Boston Tea Party were repaid. This crippled Boston and Charlestown's economy. Tensions accelerated when British troops seized the colony's arsenal at Charlestown and marched to Lexington and Concord to capture those town's armament stockpiles. The American Revolution began as a result of small but deadly skirmishes that erupted between hastily organized colonial forces and British troops as a result of these actions. In recognition of its strategic military importance, the British seized Charlestown early in the conflict and occupied the peninsula until their unceremonious departure in 1776.

The American Revolution finally ended in September 1783 when Britain signed the Treaty of Paris, a document that, among other things, recognized the 13 American colonies as free and sovereign states and established the boundaries between the newly formed United States and British North America. Following independence and throughout the **Federal Period (A.D. 1775–1830)**, Charlestown grew rapidly. By 1785 the town's population was 550 and by 1790 that number had nearly doubled. The population continued to expand and by 1814 there were 5,000 inhabitants and by 1830, approximately 8,000 (Figures 3-2, 3-3) (MHC 1980). This rapid expansion was spurred, in part, by the United States' position of neutrality during the wars between Britain and France in the late eighteenth century; the economy stalled slightly during the Jefferson embargo of 1807–1809 and the War of 1812, but recovered quickly.

Economic revival was fueled by increased commerce, industrial growth, improvements in transportation, and civic projects. Increased trade redeveloped Charlestown's maritime and commercial industries. Brick manufacturing, an outgrowth of the town's booming redware industry, was the largest industry of the period. Other industries included tanning, soap and candle making, and rum distilling. Maritime-related enterprises included rope and anchor manufacture. At the same time shipbuilding became increasingly important both to make up for the loss of British transport carriers and to provide military vessels to protect the new republic's coastal and maritime trade routes (MHC 1980).

Newly developed transportation routes further expanded the town's commercial and industrial growth. Ferry services were replaced by bridges connecting Charlestown to Boston in 1786, to Malden in 1787, and to Chelsea in 1802. Charlestown Neck, now Sullivan Square was the terminus of the Middlesex Canal, which opened in 1805. The canal connected Charlestown to the interior where agricultural products and timber for shipbuilding was directly transported to the town (MHC 1980). Two major civic facilities, the State Prison and the Navy Yard, also were established during this period. Other smaller civic institutions including the First Congregational Church, the Town Hall, an almshouse, and five schoolhouses were constructed during this period (MHC 1980).

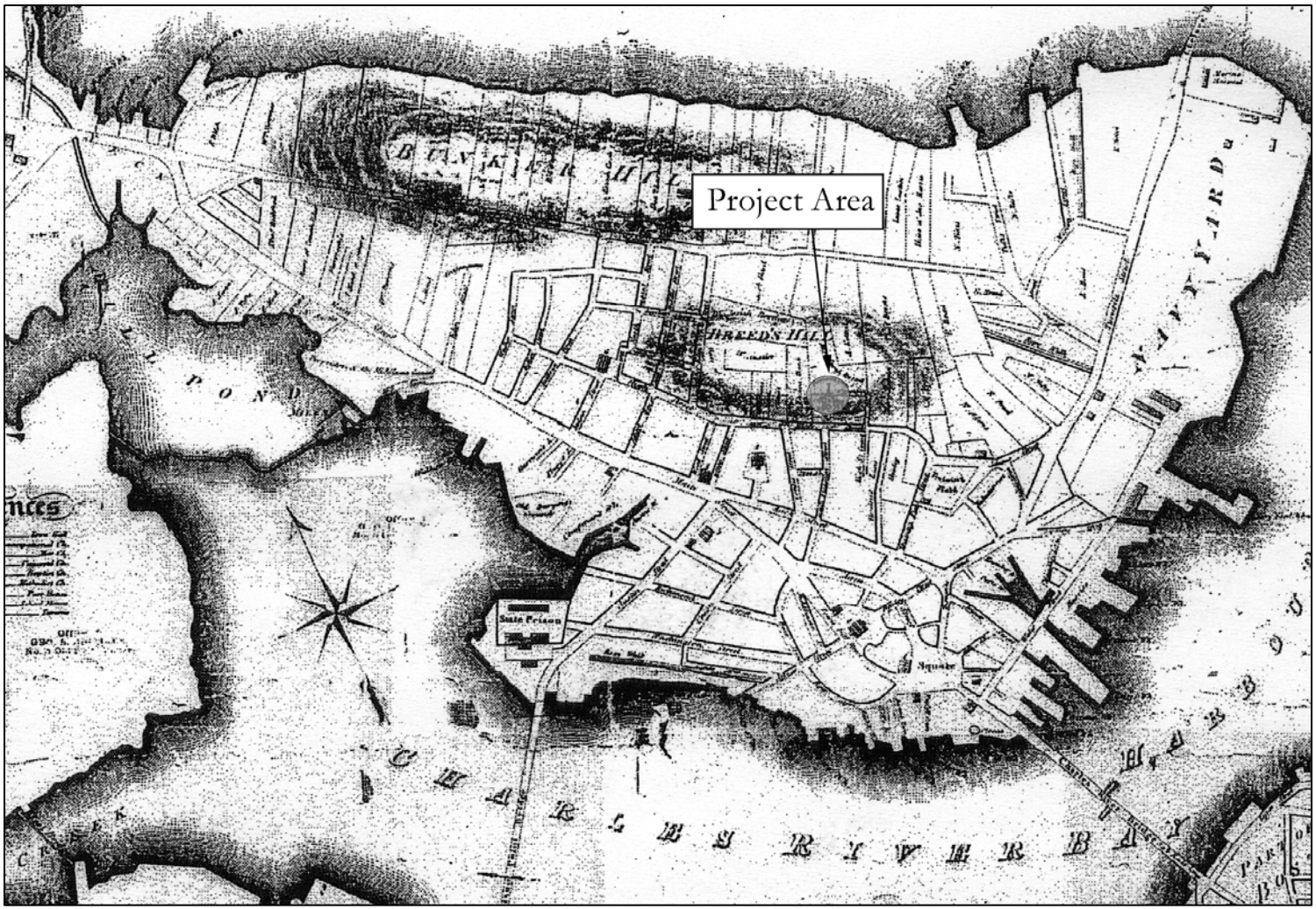

Figure 3-2. 1818 plan of Charlestown showing the approximate location of the Bunker Hill Monument (source: Tufts 1818).

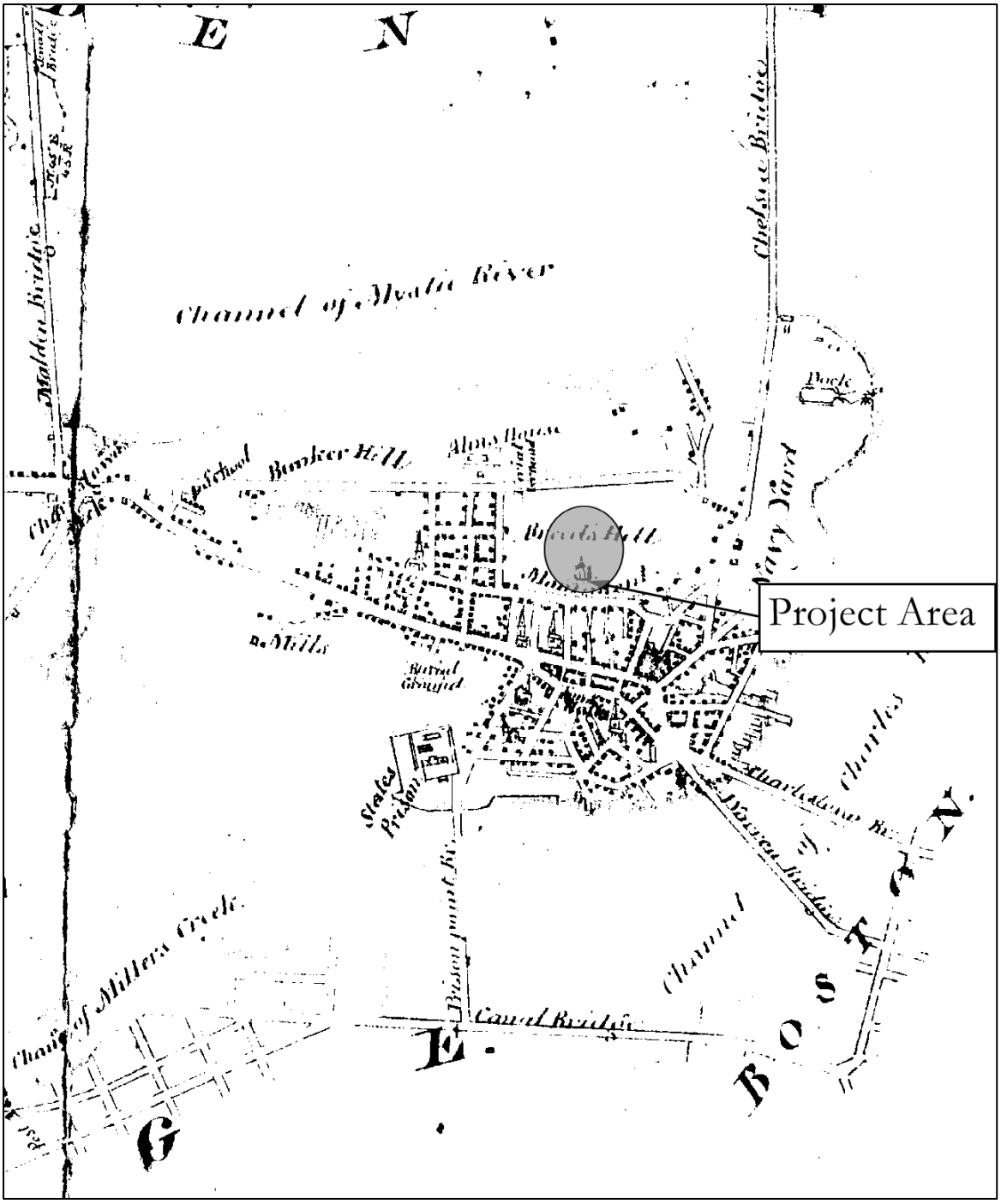

Figure 3-3. 1830 plan of Charlestown showing the approximate location of the Bunker Hill Monument (source: Hales 1830).

The mid-nineteenth century ushered in the **Early Industrial Period (A.D. 1830–1870)** and accelerated population growth in Charlestown. By 1870, the population numbered 28,323 people, with 22 percent of that number foreign born and 75 percent of those foreign born from Ireland. Those arriving in Charlestown congregated in the working class neighborhoods on the waterfront, and provided a pool of cheap labor for the city and the region. Population growth led to increased urban density and new row and multifamily tenement housing spread across Charlestown (Figure 3-4) (MHC 1980).

An increase in the number of railroads had a profound effect in facilitating the movement of materials, goods, and people in and out of the town. Between the early 1830s and the 1850s, seven railroad companies laid tracks with Charlestown as the terminus. The first was the Boston and Lowell in 1835 followed by the Charlestown branch of the Fitchburg Railroad in 1836, the Boston and Maine in 1844, and the Eastern Railroad in 1845. Early street railroads operated from Boston to City Square by 1860 with connections in Charlestown to Somerville and Malden. Railroad-related structures such as freight houses, depots, machine shops, car shops, blacksmith shops, and boiler houses sprung up (MHC 1980).

Brick production declined sharply during this period, but was replaced by hugely successful lead and sugar factories. Processing industries such as tanning, soap and candle making, and rum distilling remained relatively stable. Despite the proliferation of various trades and industries in Charlestown during the Early Industrial period, its main economic continued to lay in its status as a major port city. Maritime and maritime-related industries flourished, and the naval yard was one of the most active complexes on the coast.

Charlestown's identity was becoming increasingly entwined with that of Boston's. A true metropolitan area was emerging with Boston as its core surrounded by Charlestown, Dorchester, Roxbury, and Cambridge. A common harbor and easy access provided by transportation improvements linked these towns together, and Charlestown was officially annexed by the city of Boston in 1874.

Charlestown's population fluctuated during the **Late Industrial Period (A.D. 1870–1915)**, reaching its peak in 1910 with 41,444 residents. This growth was facilitated by the installation of the elevated rapid transit line from Sullivan Square to Boston in 1901 that attracted large numbers of working class residents. By the turn-of-the-century, Charlestown's population was 90 percent Irish and settlement patterns continued to trend toward high urban density row houses and tenement developments (Figure 3-5) (MHC 1980).

During this period, Boston was the financial, industrial, and trade center of all of New England. The city's industrial focus shifted from its harbor to the adjacent communities of Charlestown, Somerville, and Cambridge (MHC 1981). The principal exports of the Charles River waterfront became livestock, provisions, and grain, while the Mystic River waterfront became a timber export center and the receiving point of the city's coal

Figure 3-4. 1856 map of Boston showing the location of the Bunker Hill Monument (source: Colton 1856).

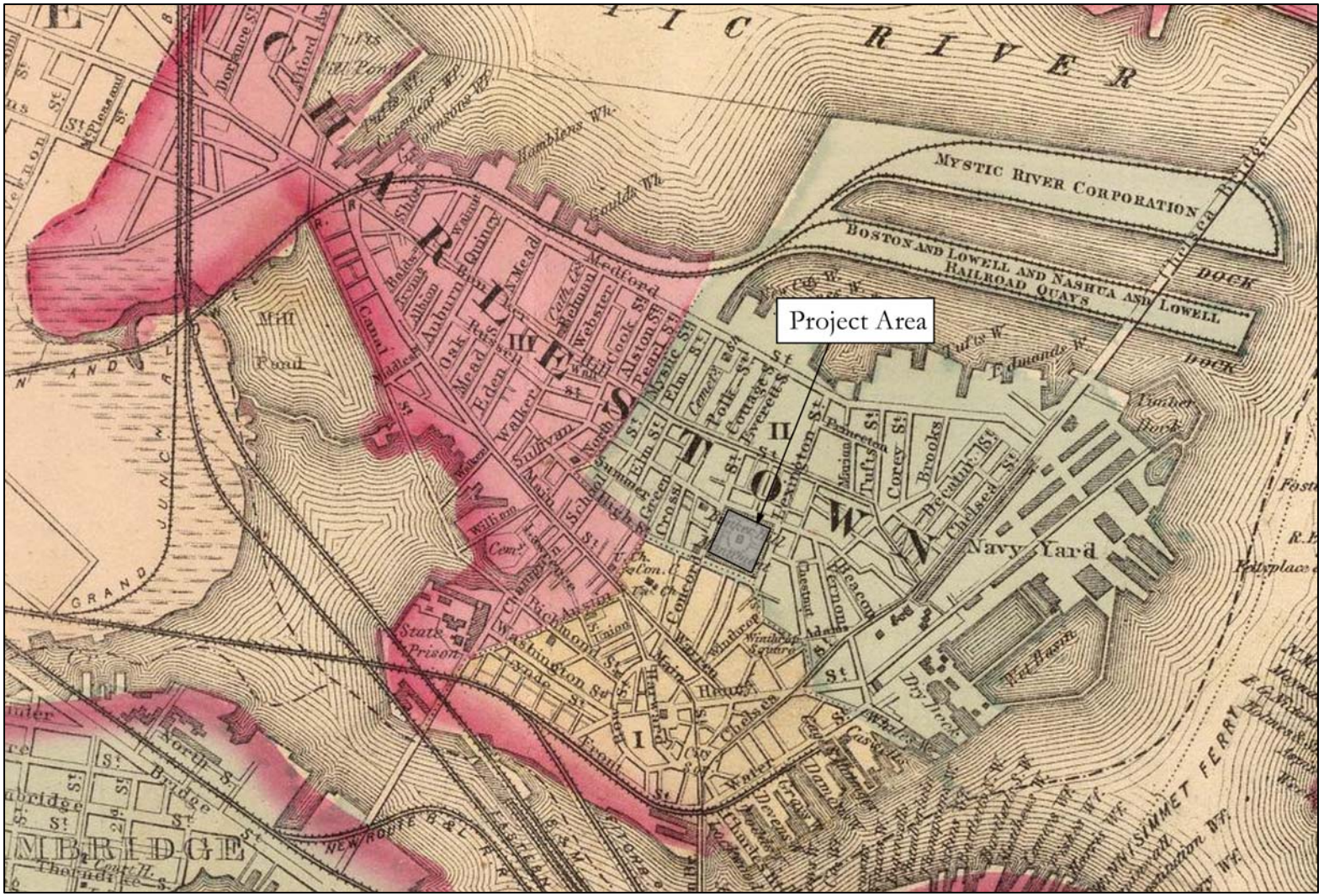

Figure 3-5. 1871 map of Boston showing the location of the Bunker Hill Monument (source: Walling 1871).

supply. In Charlestown, the Hoosac Tunnel opened in 1875 connecting the Fitchburg Railroad with the western trunk roads, becoming the port's major freight carrier. The Charlestown Gas Company was the largest manufacturer in the city in the early part of this period. The navy yard also expanded during this period, nearly doubling the number of buildings (MHC 1980).

The **Modern Period (A.D. 1915–Present)** marks the first noticeable decline in Boston's steady growth in population and prosperity. The reduction of immigration, the focused commercial nature of the central core of the city, and the residential expansion of fringe areas all contributed to the loss of population in the city center. Charlestown's population also declined throughout this period. By 1935, the population was 29,610, close to what it was 62 years earlier when the city was annexed. The effect of the automobile was dramatic as the shift went from railways and trolleys to paved roads, and new highway routes were constructed.

Several new manufacturing plants opened in the early part of this period including the Hood Dairy Plant, Revere Sugar refinery, and Schrafft's modern confectionery plant. The naval yard experienced fluctuating growth and decline during this period between war and peacetime. During World War II, the naval yard employed 47,000 workers, but closed in 1974. Thirty acres of the naval yard became part of the Boston National Historical Park.

Bunker Hill Land Use History

Throughout the seventeenth and eighteenth centuries, Charlestown's population was centered at the southeastern edge of the peninsula at Town Hill overlooking the Charles River and the growing city of Boston. Maps pre-dating the Revolution show a main road running west along the southern base of Breed's Hill to Charlestown neck and connecting to the smaller interior villages and their fertile farmlands (Figure 3-6). The road is shown flanked by a number of farmhouses and backed to the north by the fields and pastures of Breed's Hill (Brouillette and Brown 2000). With the exception of a training field at the southeast base of hill at what is the current site of Winthrop Square, the landform was largely undeveloped and used primarily for pasturage and tillage.

By the third quarter of the eighteenth century, nearly all of Charlestown, including Breed's Hill, had been cleared of trees, allowing for unobstructed views of the Shawmut Peninsula and the Charles River to the south, and the Mystic River and Noddles Island to the north. This open landscape of rolling farmland with harbor and river views would prove of enormous strategic and tactical value to British and American forces alike during the impending siege of Boston and, as a result, was transformed at least temporarily from bucolic farmland and seaport to a battle-scarred war zone.

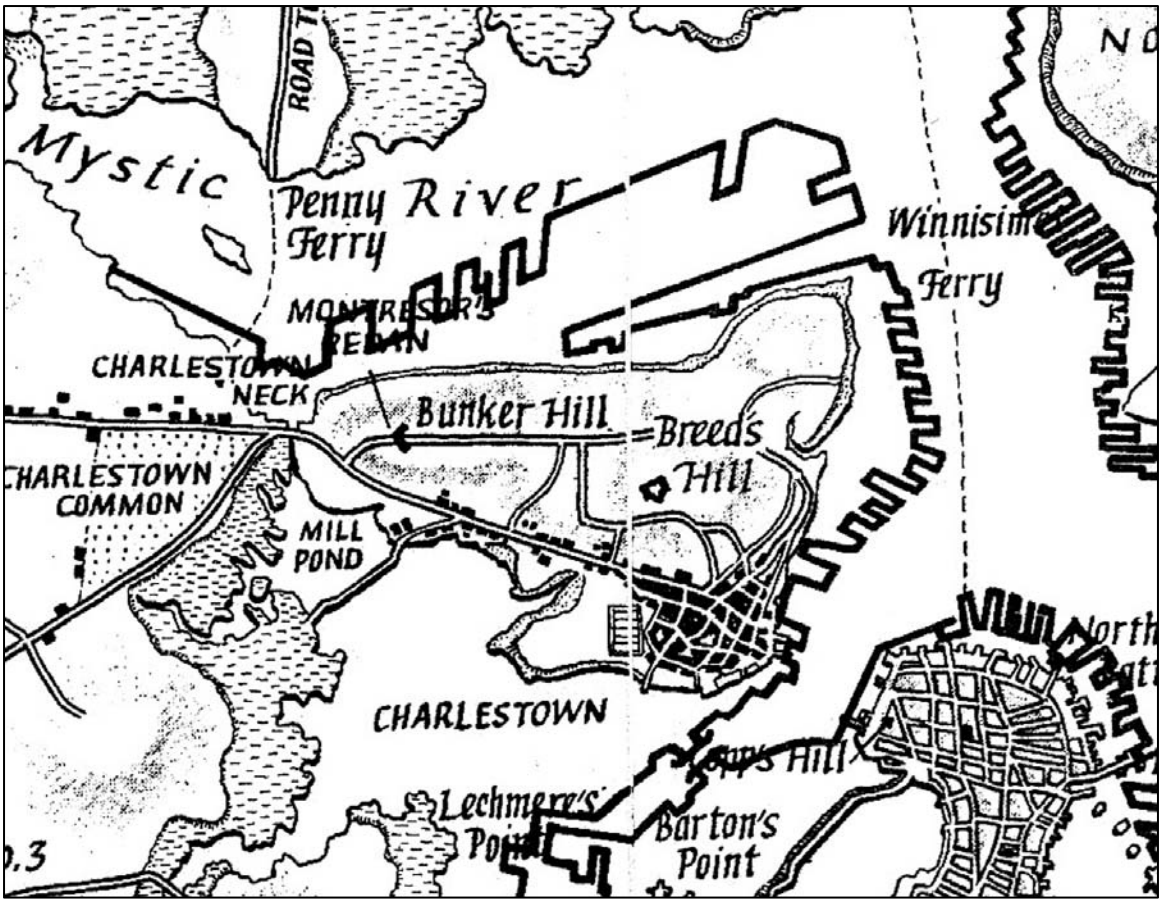

Figure 3-6. Pre-Revolutionary War map of Charlestown showing the layout of the town and its various streets and buildings (source: Ketchum 1974:42-43).

The Battle of Bunker Hill

The city of Boston and its surrounding towns were the locations of the first battles of the American Revolution. While these engagements, including the Battle of Bunker Hill, may not have been the largest or most tactically important, they did serve to galvanize colonial forces against British rule and figure prominently in both historical and modern rhetoric concerning the causes and effects of the war.

Tensions between British authorities and colonial subjects in America grew steadily throughout the eighteenth century. Thriving port cities such as Boston chafed at what they perceived to be unfair tax and regulatory conditions imposed by the British crown in the absence of colonial representation in the Westminster Parliament. Many of the laws imposed by the British Parliament, including the Stamp Act of 1765 and the Townshend Acts of 1767, were particularly irksome as they struck directly at the vital commercial and private interests of the colonies. The Boston Tea Party of December 16, 1772, in which over £10,000 worth of tea was dumped into Boston Harbor by Boston longshoremen thinly disguised as Narragansett Indians, was a direct outgrowth of the "taxation without representation" conflict.

As a result of this destructive protest, the British government imposed a series of punitive measures referred to by the colonists as the "Intolerable Acts". One of these acts, the British Port Bill of June 1, 1774, proved especially devastating to the economy of Charlestown as it effectively shut down the town port until all of the damages from the Boston Tea Party were repaid (Brouillette and Brown 2000:7). Adding insult to injury, General Thomas Gage, the newly appointed governor of the Massachusetts Colony, seized the arsenal at Charlestown in September in a proactive effort to thwart future colonial resistance. Gage's provocative actions had exactly the opposite of the desired effect, resulting in a massive influx of local militiamen to Charlestown.

The British response to the escalating political one-upmanship was to send a large force to Lexington and Concord. Unfortunately for the British, the surprise element of the maneuver was spoiled by Paul Revere, whose famous April 19, 1775 ride across Boston provided ample warning of the impending invasion. Fighting soon broke out with the British troops eventually beating a hasty retreat across Charlestown Neck and fortifying themselves on the westernmost promontory of Bunker Hill. Not long after, the British abandoned Bunker Hill and retreated further into Boston. What was clear to both the retreating British forces as well as the entrenched American forces was that control of the hills surrounding Boston, especially those of Charlestown, would be the key to military victory

On June 16 1775, Colonial troops mobilized and marched in darkness to Charlestown under Colonel William Prescott. The original strategy was to occupy the British-built fortifications on Bunker Hill. After much discussion and debate among the Patriot leaders, including Prescott, General Israel Putnam, and engineer Richard Gridley, a different strategy was chosen. Rather than take possession of Bunker Hill, the generals decided to build fortifications on Breed's Hill to the east. At 62 feet (ft), Breed's Hill

was considerably lower in elevation than the 100-ft Bunker Hill, but it was more visible to the British troops stationed in Boston and, it was believed, more likely to provoke an immediate military response. It was this impromptu field decision that has resulted in the conflict being passed down through American history as the Battle of Bunker Hill rather than the accurate attribution of Breed's Hill.

The fortification, or redoubt, was built in a single night and comprised an earthen berm strengthened and stabilized by wood and mud with a trench around it (Figures 3-7, 3-8). Additional forces built rail fences and three arrow-shaped fleches down the northeast slope of Breed's Hill to prevent the redoubt from being surrounded. After seeing the newly built fortification on Breed's Hill, General Thomas Gage ordered British artillery on Copp's Hill in Boston and from the warships in the harbor to fire upon Charlestown. General Howe was to lead the assault on the redoubt with nearly 3,000 troops. British artillery shells were unable to reach the fortification but did set fire to the wooden structures of Charlestown and destroyed nearly 400 buildings (MHC 1980; NPS 2004; Pendery et al. 1982, Pendery et al. 1984).

After repelling two British advances, the colonial militia ran out of ammunition and General Prescott, after making every attempt to hold the American forces together, made the decision to abandon the hill and retreat across Charlestown Neck into Cambridge. The British took possession of both Breed's and Bunker Hills but suffered nearly twice the number of casualties as the Americans. The loss of nearly one-seventh of their entire army made it impossible for the British to continue with the large-scale offensive operations planned for New England in 1775, prompting the British officer Henry Clinton to comment that it was "a dear bought victory, another such as would have ruined us" (Brouillette and Brown 2000:8).

Following the American retreat, the British buried the approximately 100 American and British dead on site. A first-hand account of that event indicates that before the American retreat several bodies had been interred in a trench at a depth of roughly 2 feet, although the accuracy of the account is open to debate (Pendery and Griswold 1996:3). The British maintained control of the Charlestown hills until March 17, 1776 when all British troops and Loyalists unceremoniously evacuated Boston (Brouillette and Brown 2000; McCullough 2005:100–105; Pendery 1982, 1984). During that time, they strengthened the fortifications on both Breed's and Bunker hills, although it seems that the lion's share of the effort was expended on Bunker Hill because of its strategic location.

After the British retreated from Boston, the former Charlestown evacuees made little effort to rebuild their destroyed homes. Dr. Warren, a first-hand observer of the town immediately following the British withdrawal, reported on March 21 that "This day I visit(ed) Charlestown, and a most melancholy scene it is. Scarcely the vestiges of those

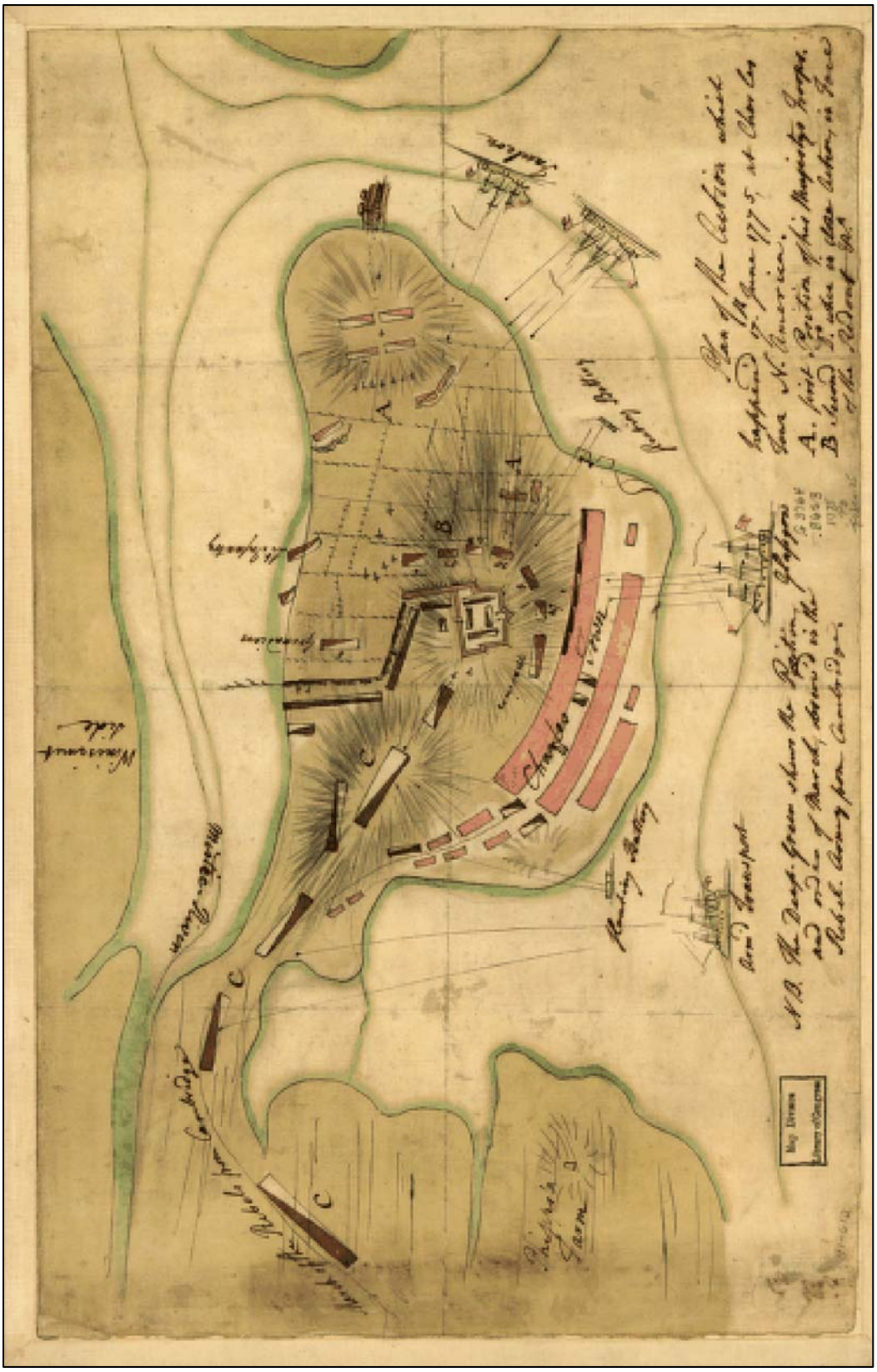

Figure 3-7. 1775 plan of action at Charlestown, June 17, 1775, showing the rebel redoubt on Breed's Hill (source: Page 1775a).

Figure 3-8. 1775 plan of action at Bunker Hill, June 17, 1775 (source: Page 1775b).

beautiful buildings remain to distinguish them from the mean cottages" (Frothingham 1903:330). American families did come to the battle site to reclaim their war dead and bring the remains home for a proper burial (Steven Pendery, personal communication 2007). After eight months in shallow graves, the condition of the bodies was likely quite unpleasant, and the thoroughness of the removal is open to speculation. The potential for the survival of additional internments on the hill in light of subsequent landscape alterations and data collected from archeological excavations will be discussed in detail in Chapter 4.

It was not until the passage of several legislative acts in 1781 and 1790 that Charlestown's reconstruction gained any momentum as those areas destroyed by fire during the war were reopened for building. New streets, lanes, and squares were laid out and pre-existing streets were straightened. New streets enclosed the area around Breed's Hill and the acreage was divided into 15 estates (see Figure 3-2). Most of the hill was returned to pasturage used for hay, grazing, gardens, and orchards. Very little evidence of the fortifications remained visible.

Early Commemorative Efforts and the Bunker Hill Monument Association, 1794–1846

The Battle of Bunker Hill was first commemorated after the war in 1794 when King Solomon's Lodge placed a monument on Breed's Hill. The monument was an 18-ft high wooden Tuscan column topped by gilt urn and erected on a brick pedestal measuring 8-ft square and 8-ft high. Placed at the spot where it was believed that Dr. Joseph Warren, Major General and Commanding Officer of the American troops, was shot and killed during the battle, the accompanying text read "In Memory of General Joseph Warren, and his Associates, Who were slain on this memorable spot, June 17, 1775" (Evans et al. 1982) (Figure 3-9). Additional commemorative efforts were fueled by the approaching fiftieth anniversary of the battle that began America's quest for independence and a movement to define the young country's identity. Constructing the monument led to technological innovations that would have Boston leading the country into the era of railroads and steam engines, and advances in quarrying, infrastructural masonry, and hoisting apparatus (Brouillette and Brown 2000; Pendery and Griswold 1996).

The Bunker Hill Monument Association was established in 1823 to oversee the purchase and preservation of the battlefield and the planning and construction of a new monument. The Association was made up of prominent members including Gilbert Stuart, Loammi Baldwin, and Daniel Webster, who served as the first president of the association. The Bunker Hill Monument Association spent the next few years gaining support, raising funds, and in 1825 was able to purchase 15 acres on the slope of Breed's Hill with the help of generous donations from the more prominent members of the community (Brouillette and Brown 2000; Pendery and Griswold 1996).

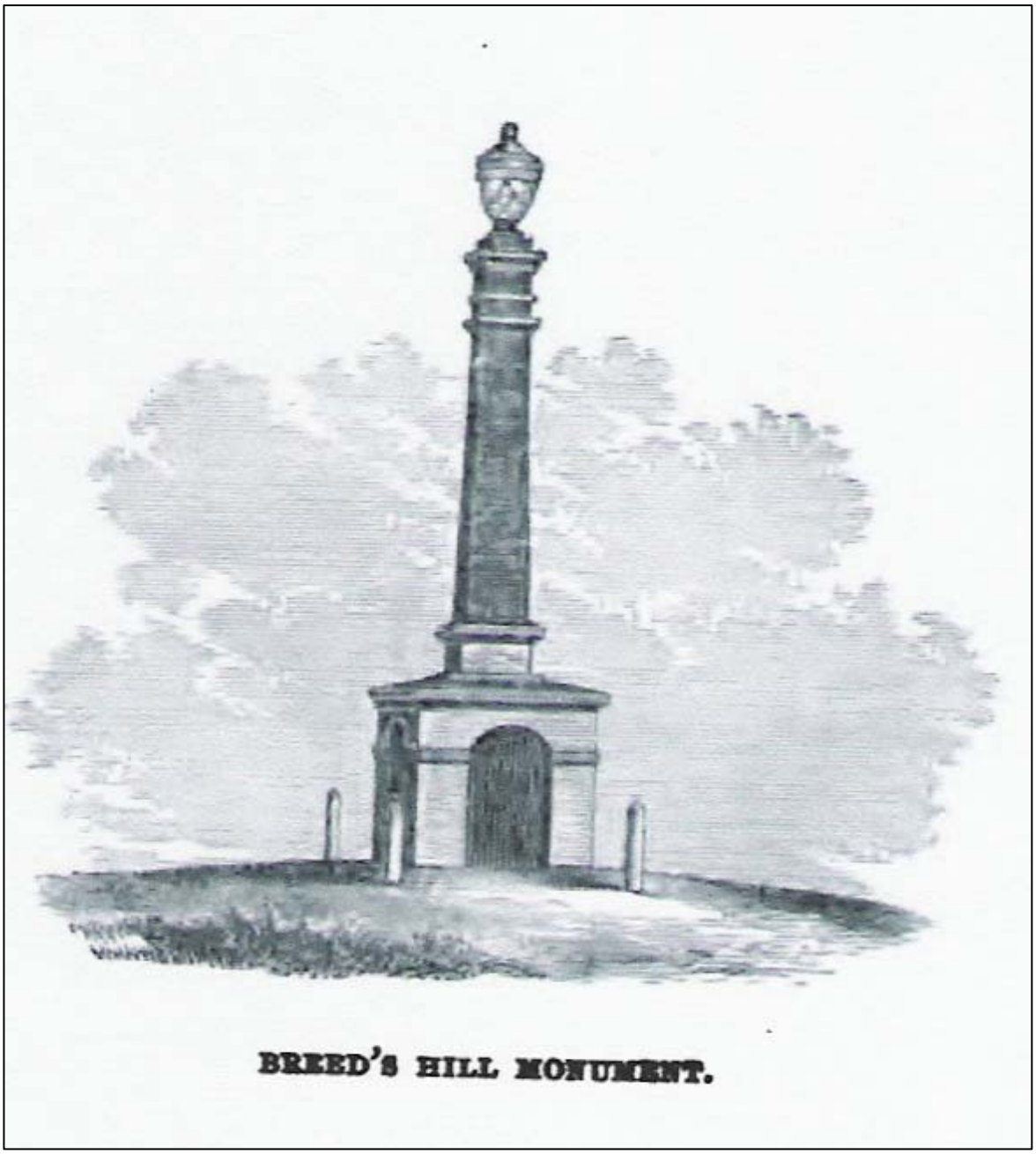

Figure 3-9. Drawing of the original Battle of Bunker Hill commemorative monument erected in 1794 by King Solomon's Lodge (source: Frothingham 1903:359).

After the purchase of the battlefield, the Association next began planning the design of the monument. A design competition was held and the design by Loammi Baldwin, a member of the committee and an engineer, was chosen. Baldwin recommended the monument be in the form of an obelisk. Baldwin resigned his post shortly after his design was chosen and Boston architect Solomon Willard took over the supervision of the project. Willard worked on plans for the monument, which would stay in the form of an obelisk, and laid out the landscape. Willard remained the chief architect and superintendent of construction until the completion of the monument (Brouillette and Brown 2000; Pendery and Griswold 1996).

The cornerstone of the monument was laid during the fiftieth anniversary celebration of the Battle of Bunker Hill on June 17, 1825. Shortly after, the final specifications for the monument were complete. The obelisk would have a base of 30 feet square, would rise 220 feet from the ground, and be positioned on what was believed to be the center of the American redoubt with the sides of the monument parallel with the redoubt, although later research and archeological investigation would show that the monument actually was placed at the southeast corner of the redoubt (see Chapter 4). The obelisk would be constructed out of granite, and Willard chose a quarry in Quincy that was subsequently purchased by the Association. The choice of granite would eventually lead to its widespread use as a building material all over the country. Transporting the large granite blocks from Quincy to Charlestown would also lead to the construction of the country's earliest railway. While this was considered a major technological advance, the railway actually slowed construction of the monument, damaged the blocks during transfer, and disastrously depleted the funds of the Association. Teams of horses transported the heavy blocks once the railway was abandoned in 1828 (Brouillette and Brown 2000; Pendery and Griswold 1996).

By 1829, construction of the monument was suspended for lack of funds. To raise additional money, the Association mortgaged approximately 11 acres of the battlefield, leaving just under 4 acres intact for the monument site (Evans et al. 1982:68). The grounds around the monument site were extensively cut and graded to accommodate 115 building lots and for the construction of Lexington, Concord, Chestnut, and Laurel streets that would define the sides of Monument Square. As part of this grading, the ground east and west of Monument Square was cut down between eight and twelve feet from its original grade with the resulting fill used to raise the grade on the north side of the square (Evans et al. 1982:77). This extensive earthmoving likely destroyed a significant portion of the archaeological integrity and resources associated with the battlefield (Brouillette and Brown 2000).

Fundraising efforts and large donations allowed construction to resume by 1841. That same year, the steam engine and an improved derrick apparatus would replace horse teams to hoist the blocks and the completion of the obelisk was greatly accelerated. The monument was officially completed on July 23, 1842 when the capstone was set. Improvements to the remaining grounds surrounding the monument occurred between 1842 and 1847 and consisted of grading, seeding, planting trees and hedges, laying granite and brick sidewalks around the square, placement of eight entrances with granite

steps leading to the monument, and installing iron fences (Brouillette and Brown 2000:20; Pendery and Griswold 1996) (Figure 3-10). Two walkways also were installed around the monument, including one near the base of the slope just inside the perimeter fence and one near the top of the slope. While the grading around the monument is believed to have destroyed most of the remaining earthworks associated with the battle, historian Richard Frothingham noted in 1847 "a small mound in the northeast corner that is supposed to be the remains of the breastwork" (Brouillette and Brown 2000:20).

Association Period Landscape Improvements and Alterations, 1846–1919

The Bunker Hill Monument Association continued to solicit donations and began collecting visitor fees to support maintenance of the monument. Between 1846 and 1919, the period during which the Association managed the site, many additions and rehabilitations were made to the property. In the spring of 1867, a 140-ft flagpole was erected about 60-ft distant from the northeast corner of the monument, but was subsequently removed in 1874. The first major addition to the monument occurred in 1857 with the construction of a wooden Greek Revival structure designed to house a monumental statue in honor of General Joseph Warren. The one-story building, measuring 28 ½-ft square and 20-ft high, was located directly in front of, or north of, the obelisk and remained there until 1919 when it was replaced by the "Granite Lodge" (Figure 3-11).

In 1870, four lampposts were erected at the four corners of the monument and connected to the gaslights on the neighboring streets, a new iron fence was installed to replace the original 1843 fence, and the eroding walkways around the monument were paved with stone and asphalt. A drainage system also was installed around the monument to redirect excess water to gutters at street level; it is possible that this new gutter system replaced an older stone-paved gutter that may have lined the outer edge of the walkways at the top of the slope system formerly installed at the top of the slope (Brouillette and Brown 2000:26). In order to protect the "green sward of the banks" of the hill, the four staircases located at the corners of the square were removed, leaving only the four centrally located granite staircases as the main points of access to the site (Brouillette and Brown 2000:28; Evans et al. 1982:96).

Improvements and additions continued through the late nineteenth century financed primarily through visitors' fees and donations. In 1876, an iron fence spike purportedly marking the spot where General Joseph Warren was felled during the battle was installed, and in 1881 a bronze statue of Colonel William Prescott was erected roughly 60 ft from the south side of the obelisk on a granite platform measuring roughly 5-x-5 ft. The following year, the committee moved to have the existing walkways repaved, and in 1887 iron rails were installed on each side of the entrance steps (Evans et al. 1982: 104–106). In 1889, a wire fence was erected to "protect the parks", although from what threat the

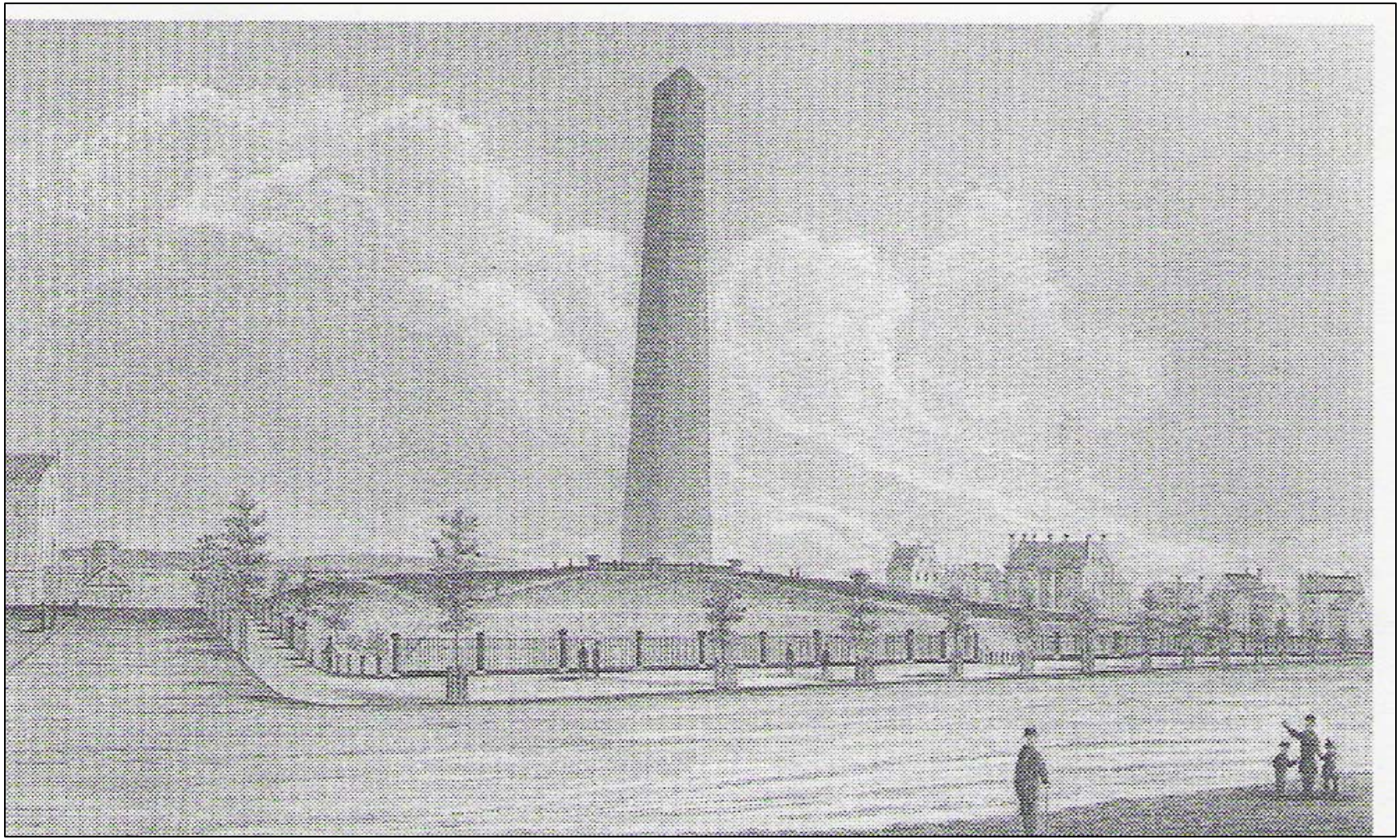

Figure 3-10. View of Bunker Hill Monument, ca. 1849, showing completed landscape improvements including fencing, perimeter trees, sidewalks, corner and side entrances, steps, and walkways (source: Brouillette and Brown 2000:22).

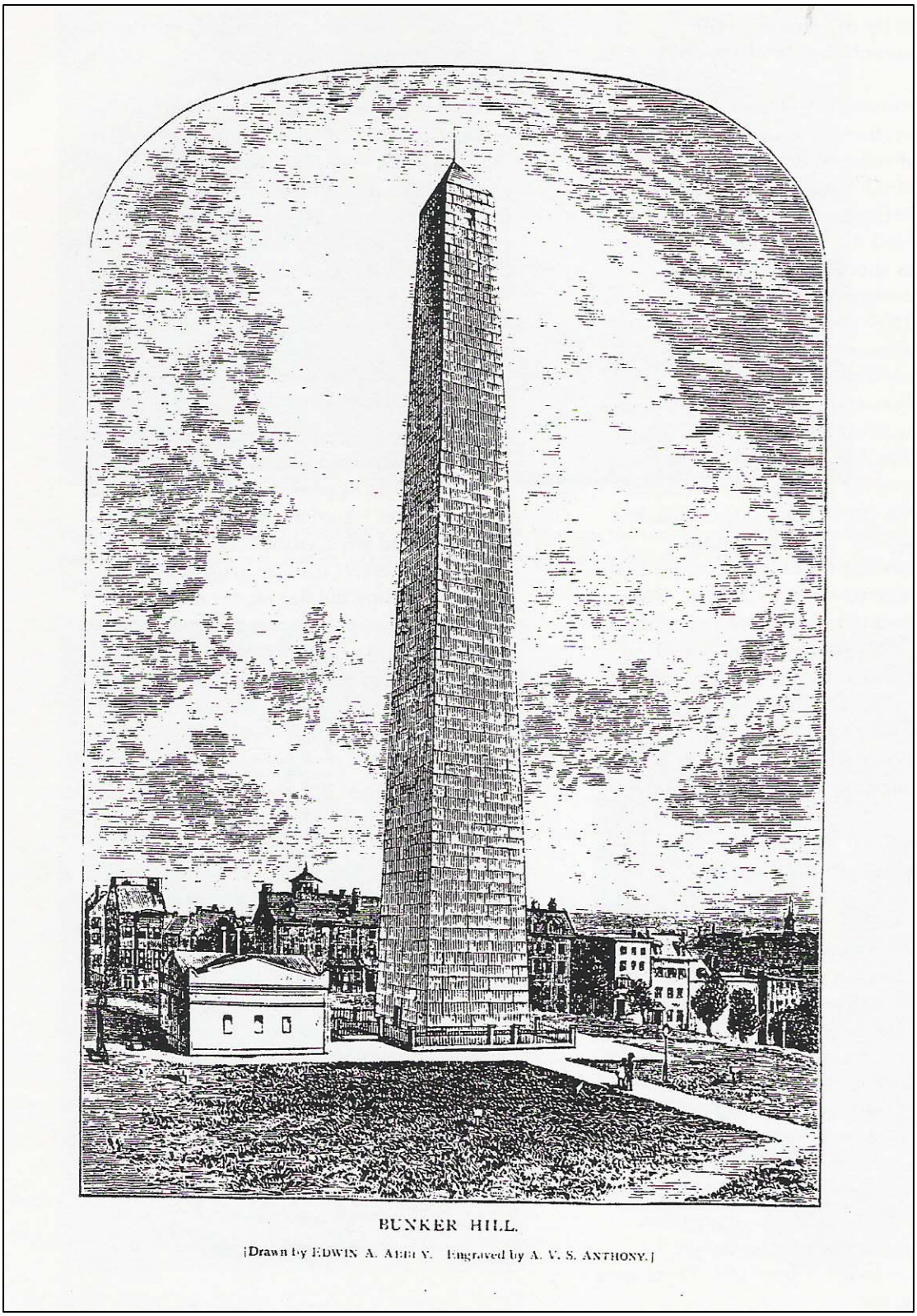

Figure 3-11. Drawing of the Bunker Hill Monument, view south, showing the addition of the temporary lodge, ca. 1865 (source: Evans et al. 1982:304).

park was being protected is unclear. While no clear plans illustrating this feature have been identified, later descriptions and historic postcards suggest that the fence was installed on the outer edge of the upper walkway surrounding the obelisk (Brouillette and Brown 2000:30). The walkways were again repaved in 1895.

The last improvement made to the monument property by the Association was the construction of the Granite Lodge. Plans to build a permanent exhibit space had been in the works since 1843, but it was not until the collection of what were believed to be sufficient funds in 1901 that construction got underway. The Classical Revival building replaced the "temporary" wooden structure that had stood on the site since 1857 and, at least initially, contained the statue of General Warren as well as portraits of the former presidents of the Association. The portraits were removed from the building in 1907 at the request of the then president who commented that "Visitors to the monument are more interested to see busts or portraits or some token of those who took part in the battle than photographs or engravings or former presidents of the Association" (Evans et al. 1982:111).

While the lodge proved a positive improvement to the site, especially insofar as visitor comfort was concerned, its cost, like so many of the costs associated with the monument, far exceeded available funding. By the early 1900s, declining visitation meant that admission fees were no longer sufficient to cover the annual expenses of maintaining the monument site. By 1919, the Association could no longer manage the property, having operated at a deficit for nearly a decade, and deeded the site to the state under the Metropolitan Park Commission of Boston, later renamed the Metropolitan District Commission (MDC) (Brouillette and Brown 2000).

MDC Stewardship of and Landscape Alterations to the Bunker Hill Monument, 1919–1976

The MDC set out a plan for site improvements and contracted the Olmsted Brothers firm to create a site plan. One of the major identified problems with the site was the steep slope of the hill itself that was prey to erosion and "rough use from children and dogs" (Brouillette and Brown 2000:41). Olmsted completed a grading study of the site in 1919 and based on his recommendations, the MDC proposed an experimental solution of regrading the south slope of the hill and reconfiguring the walkway to a position closer to the monument. This project finally was implemented during the 1930s so that by 1947 all four sides of the hill were regraded, the steps rebuilt, and walkway relocated to the new upper terrace (Figure 3-12).

The long-term preservation and rehabilitation objectives that characterized MDC ownership of the monument property in the first half of the twentieth century faltered rather dramatically beginning in the 1950s as the commission focused on developing its 1956 Master Plan and acquiring new recreational facilities and open space (Brouillette

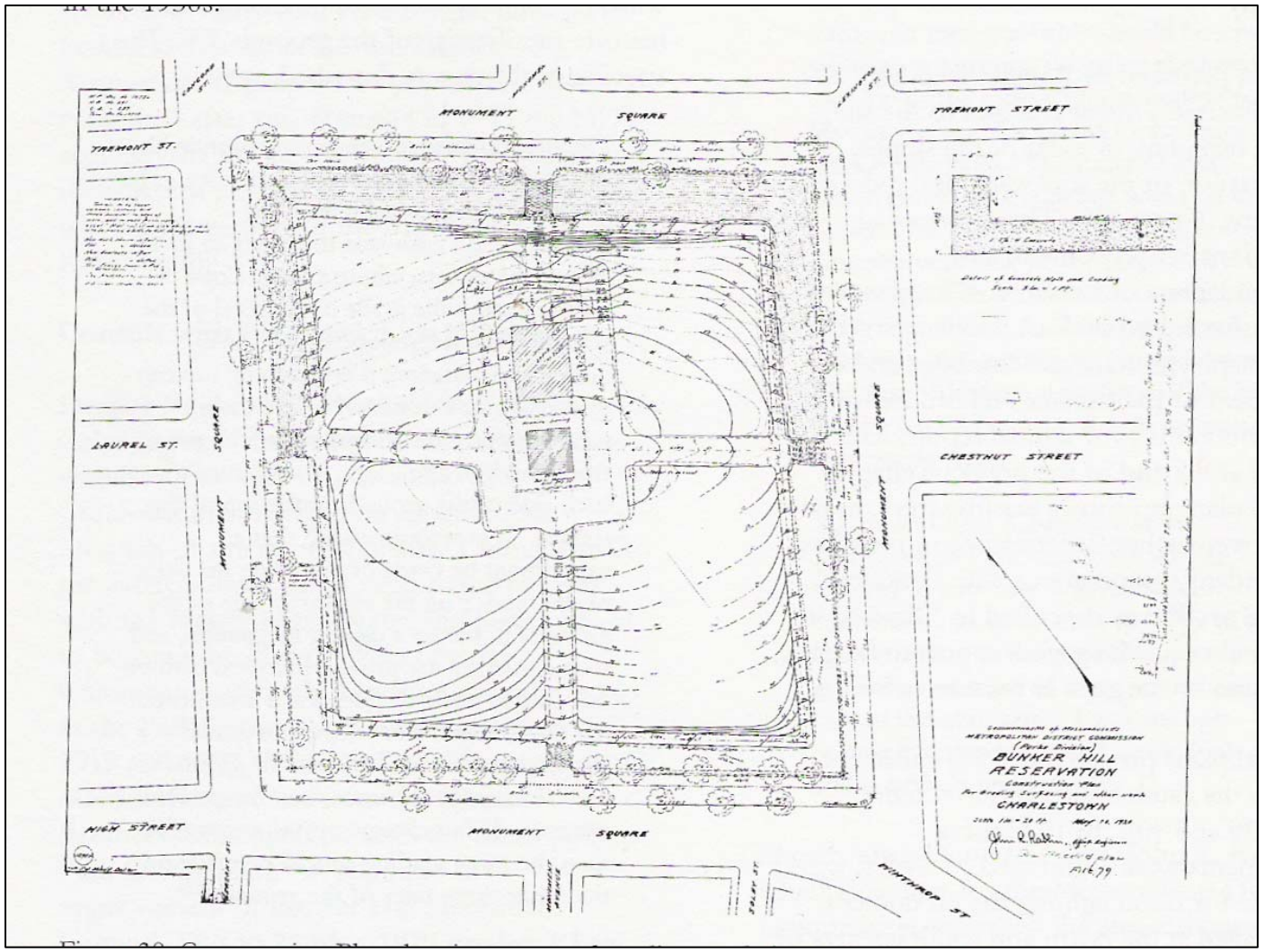

Figure 3-12. Construction plan dated May 20, 1920, showing the proposed regrading around the Bunker Hill Monument – the work eventually was completed by 1947 (source: Brouillette and Brown 2000:42).

and Brown 2000:52). During that period, the monument fell into what the Boston National Historic Sites Commission described as "deplorable condition," the grounds were "overused" as a play area, and the maintenance and protection of the property overall was deemed "inadequate" (Brouillette and Brown 2000:52).

In response to these criticisms, the MDC completed a series of restoration projects to the monument including cleaning exterior of the obelisk, placing new steel hand railings, and repairing portions of the cast-iron picket fence. These repairs, however, did not address larger concerns about ongoing erosion along the monument staircases, large holes in the lawn, and degrading concrete work.

Despite its poor physical condition, the Bunker Hill Monument was designated a National Historic Landmark in January 1961. By May of that same year, The MDC obtained funding to initiate some of the recommended grounds repairs including regrading, reseeding, sidewalk repair, concrete drainage gutters along the staircases, and lighting improvements. In 1966, the New England Sales and Manufacturing Corporation was hired to install additional decorative and security lighting around the monument grounds, a project that included the installation of subsurface cables, conduits, and control centers.

In 1968, the MDC began negotiations with the federal government for the transfer of the monument property to the NPS. After several years of discussion, the transfer was approved for completion by March 1, 1975 to allow for repairs and improvements to the property in advance of Bunker Hill Day and the upcoming Bicentennial Season. While documentation of the completed repairs is somewhat sketchy, some of the tasks completed before 1974 included the repair of deteriorated sidewalks, resetting and regrouting of granite steps, and sign replacement. This work still did not address some of the more serious issues with the maintenance and appearance of the monument grounds, not the least of which was the fact that MDC personnel consistently drove vehicles up and down the slopes of the hill creating large tire ruts and soil compaction.

A steady stream of criticism and complaints concerning the MDC's stewardship of the monument, as well as an honest commitment on the part of MDC to transferring the park to the NPS in good condition, led to a flurry of major restoration work funded collaboratively by the MDC, the U.S. Army Corps of Engineers, and the U.S. Historic Preservation Grants Program (Brouillette and Brown 2000:57). The first significant improvement occurred in 1974 with the replacement of the concrete walks and curbs, and the installation of two ramps to improve handicapped accessibility to the site. Additional work included tree plantings added to the upper slopes and upper walkways.

National Park Service Period, 1976–Present

The title for the Bunker Hill Monument was officially transferred to the NPS in November 1976, and was linked to the other sites in the Boston National Historical Park by the 2.5 mile Freedom Trail in 1977 (Brouillette and Brown 2000:63). Shortly thereafter, the NPS initiated a Historic Structure Report (HSR) that surveyed the existing

conditions of the grounds and monument and made recommendations for improvements to the property (Evans et al. 1982). Site improvements and restoration were implemented from 1979–1981 and included repointing the obelisk and granite steps, installing a new drainage system at the base of the obelisk, and installing new granite bollards at the four entrance gates. Improvements were also made to the concrete plaza, access ramp, granite curbs, and iron fencing at this time. Steep slopes, poor soil drainage, heavy use, and erosion resulted in poor turf condition and an irrigation system was installed in 1997 to improve the grounds. An archaeological survey was conducted prior to the installation of the system, and the first physical remnants of the colonial earthworks were documented (Pendery and Griswold 1996); the results of this survey are discussed in detail in Chapter 4.

More recent landscape improvements designed to enhance the appearance and accessibility of the monument site were completed in 2005 and 2006 (Figure 3-13). The first round of improvements, referred to as the Bunker Hill Rehabilitation Package 106, NPS LIC project, included the realignment of an existing access ramp, landscaping, and the installation of new light fixtures and associated wiring around the obelisk, and included archeological excavation in advance of the proposed construction (Bonner and Cherau 2005). The second project involved machine trenching in advance of utility and drainage improvements along the perimeter of Monument Square, at the top of the hill near the base of the monument, and along the sides of the staircase leading up to the monument from High Street. This work included archeological monitoring by NPS personnel during construction (Pendery 2006). The results of the archeological work conducted for both projects are discussed in detail in Chapter 4.

Descriptions of the Fortification on Breed's Hill

Despite the historical importance of the Battle of Bunker Hill, there appears to be very little historical consensus regarding the shape, size, or ultimate fate of the fortification built by the rebel forces or the subsequent British improvements to the redoubt. The contradictions, paradoxically, are most pronounced in the period before 1849 during which time there are several competing and conflicting claims by first-hand observers of the battle and its aftermath.

Much of the early confusion dating to or immediately after the battle derives from the American field decision to change the location of the battle from Bunker to Breed's Hill. Lieutenant Sir Thomas Hyde Page, long considered to have produced the most accurate plan of the battle site, betrays some of this confusion in his drawings of the fortifications. Figure 3-8 depicts the Charlestown fortifications in 1775 overlaid on a ground plan surveyed by Captain Montresor. The map clearly shows "Warren's Redoubt" with its associated breastworks and lines as occupied by "Rebel Forces," but mistakes the correct locations of Breed's and Bunker hills.

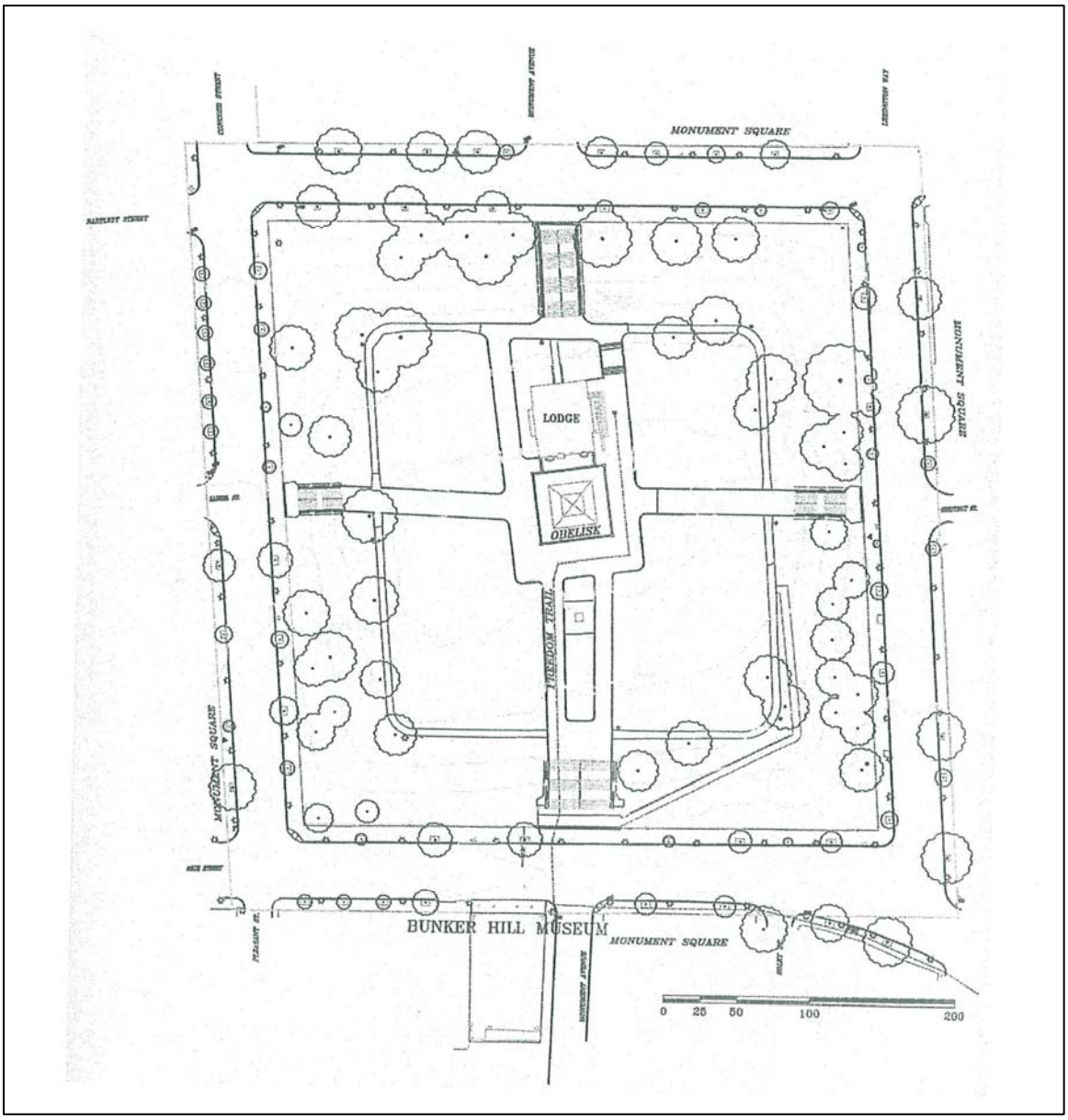

Figure 3-13. Plan of existing conditions, ca. 2000, Bunker Hill Monument (source: Brouillette and Brown 2000:78).

On his map, Page also shows the redoubt as a compounded rectangle with a triangular projection off its south side and a salley port or ramp off of its north side connecting to a line of defensive fences down to the Mystic River. The Pelham map, recorded in August 1775 with the permission of the British Town Major James Urquardt, however, shows more of a crown-shaped construct with a second, square structure located to its west (Figure 3-14). Like Page's map, this drawing also has its share of problems, the most obvious being that the descriptive text next to the redoubt labels it as having been stormed June 17, *1777*. The map also was drawn five months after the battle, during which time any number of modifications or changes may have been made by the British to the original American redoubt. While the square structure west of the redoubt may be a second, replacement, British fortification, Dr. Warren, in his review of the battle site after the retreat of the British offers another explanation when he describes "a dungeon and block-house upon Breed's Hill, enclosed in a redoubt of earth, with trenches and pickets" (Frothingham 1903:331).

A final, and particularly confusing, drawing of the American fortification, originally published in *The Gentleman's Magazine* and reproduced by Frothingham, shows the American redoubt as highly irregular in plan and bordered on each side by a "Strong Wooden Fence" (Figure 3-15). The original source material for this drawing is unclear, but what it problematic, aside from its odd shape, is its size. Based on the scale on the map, the fortification would have measured 158 yards (474 ft), or 28 yards, long, much larger than any contemporaneous or historical estimates of the structure, variously cited as anywhere from 60–70 ft in extent to 7–8 rods square (Pendery and Griswold 1996:2).

Equally contradictory are the accounts of the demolition date for the redoubt. Montresor's map of December 3, 1775 "shewing the three posts that His Majesty's troops have kept and fortified with buildings therein for guard rooms," depicts a fortification on "Rebel Hill" dissimilar in size and shape from the American fortification depicted on his earlier map of Charlestown as "the works thrown up by His Majesty's troops, and also those by the rebels, during the campaign" (Figures 3-16, 3-17). This discrepancy would suggest that the original rebel fortification was gone by December 1775 and replaced by British works. This idea gains some credence in the observations of a Mr. J. Finch, who visited the site in 1824 and commented that,

> *At Breed's Hill . . . the redoubt thrown up by the Americans is nearly effaced; scarcely the slightest trace of it remains; but the intrenchment (sic), which extended from the redoubt to the marsh, is still marked by a slight elevation of the ground. The redoubt thrown up by the British on the summit of the hill may be easily distinguished (Pendery and Griswold 1996:4).*

Frothingham himself, however, casts some doubt on this scenario when he points out that General Wilkinson, in his memoirs recording his tour of the battle site after the British evacuation, speaks of "resting on the parapet" where the patriots fought and "examin(ing) the redoubt, the intrenchment, the landing and approaches of the enemy, and every point of attack and defense" (Frothingham 1903:332). Whether Wilkinson is mistaking the replacement British fortifications for the original American redoubt is uncertain.

Figure 3-14. Map of the fortifications at Charlestown showing the rebel redoubt on Breed's Hill (source: Pelham 1777).

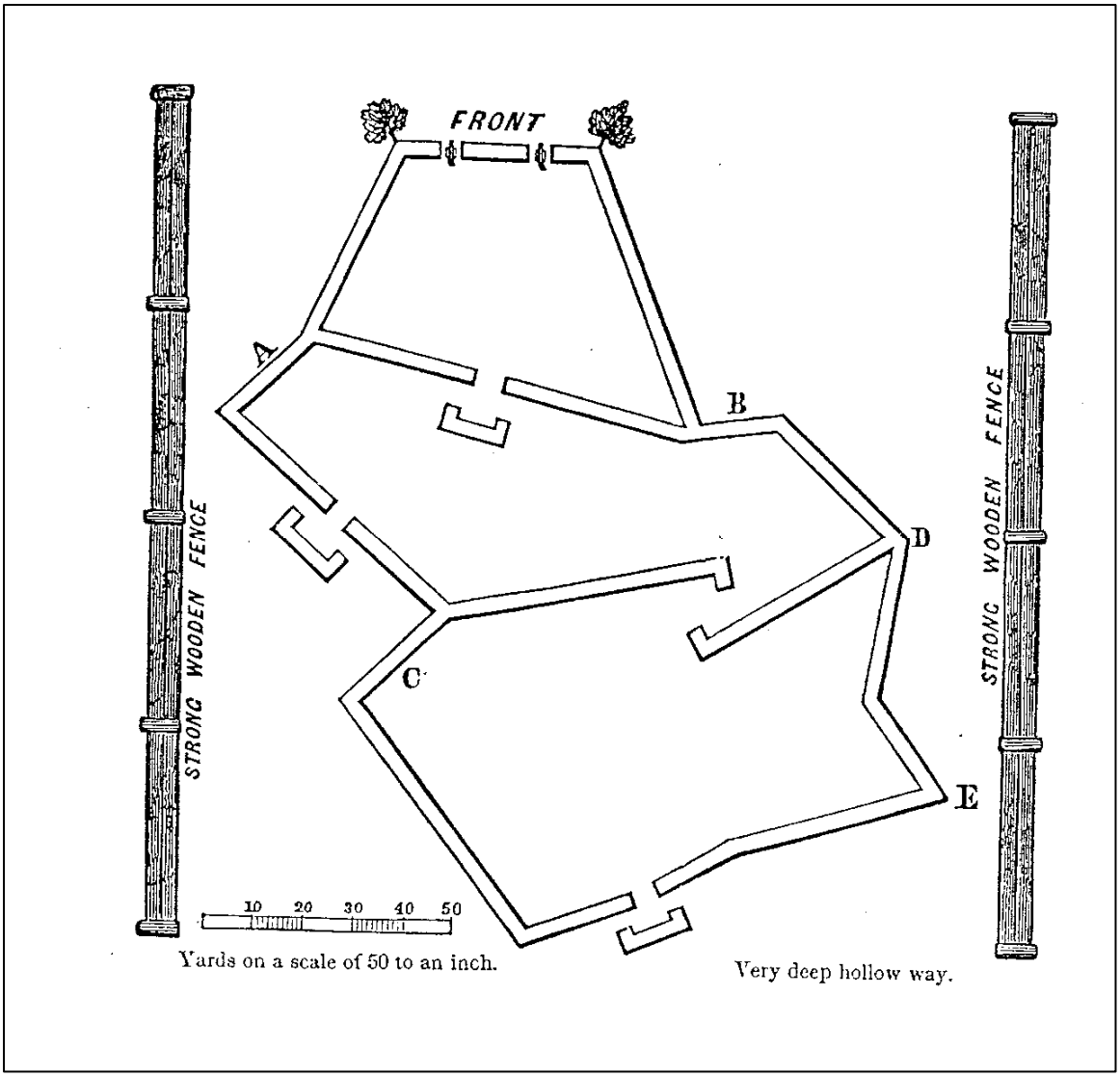

Figure 3-15. Nineteenth-century conjectural plan of the rebel redoubt on Breed's Hill (source: Frothingham 1903:198).

Figure 3-16. 1775 map showing the locations of the British and American fortifications on Breed's and Bunker hills (source: Montresor 1775a).

Figure 3-17. Map dated December 3, 1775 showing the locations of the British fortifications on Breed's and Bunker hills (source: Montresor 1775b).

What is certain is that all major structural evidence of both the British and American fortifications associated with the Battle of Bunker Hill were gone by 1800, having been marked by a simple memorial column erected by the Mason's King Solomon's Lodge (see above). Frothingham does comment, however, that a small mound at the northeast corner of Monument Square was reportedly the remains of the original breastworks, although given the amount of landscape work that had been completed on the hill throughout the nineteenth century, this claim is somewhat suspicious (Frothingham 1903:332).

CHAPTER FOUR

EVALUATION OF PREVIOUS ARCHAEOLOGICAL WORK AND COLLECTIONS

The Bunker Hill National Monument occupies a fairly small physical footprint of 4 acres, but has been the subject of a fair number of archeological investigations over the past 25 years. These surveys have comprised both standard archeological methods such as shovel test pitting, unit excavation, and construction monitoring, as well as more ambitious and experimental approaches including ground-penetrating radar (GPR) survey.

Eight archeological projects were conducted on the property from 1979–2005. The majority of this work was performed in compliance with Section 106 of the NHPA and was completed either by NPS staff or CRM consultants under the direction of the NPS. The two exceptions to the compulsory testing work include both geophysical surveys that, as non-invasive survey techniques, were undertaken strictly as research exercises under discretionary NPS funding.

The following chapter describes the results of all archeological and geophysical work conducted at the monument to date and a review of all associated collections. Included in this review are technical memoranda and CRM reports, articles published in peer-reviewed academic journals, and summary documents intended for professional and general audiences. The material is presented chronologically both as an organizational tool and as a means to illustrate the evolving, archeologically derived understanding of the monument landscape and history.[1] Figure 4-1 provides a base map of the park illustrating the locations of all subsurface investigations conducted at the site to date with the exception of the Hager-Richter geo-physical survey which, for reasons of clarity, is presented as a separate figure. Because of the number and complexity of the archeological projects conducted at Bunker Hill, Figure 4-1 is provided both within the text and as a larger Back Pocket figure for greater resolution.

Archeological Monitoring, Bunker Hill Monument Stabilization, 1980, Thomas Mahlstedt, November 1980[2]

Project Objectives and Fieldwork Summary

In 1980, Thomas Mahlstedt conducted the first professional archeological work at the Bunker Hill Monument consisting of the archeological monitoring of rehabilitative work to the monument and surrounding hillside. The rehabilitation involved extensive ground disturbance including the excavation of the base of the obelisk for re-pointing and

[1] The Kvamme geophysical survey results are placed in consideration of the date when the fieldwork was conducted (1996–1998) rather than when the results were published (2003).

[2] An identical version of this report also is listed as *Archeological Monitoring, Bunker Hill Monument Rehabilitation, Pkg. 106* (Mahlstedt 1980a), and is summarized in *Archeological Resource Study: Historical Archeology at Bunker Hill Monument, Boston National Historical Park, Massachusetts*. Cultural Resources Management Study 5 (Mahlstedt 1981).

installation of drainage pipes, trenching for downslope drainage pipes and catch basins, and the replacement of sidewalks, curbstones, and stairs. As stated in his report, the objective of the monitoring was three-fold: 1) to provide an archeological record and evaluation of the grade, alignment, and fabric of sections of historic sidewalks and paths; 2) provide an archeological record and details of the method of construction, drainage, and alterations to the obelisk foundation and perimeter fence; and 3) provide and archeological record and evaluation of other undocumented cultural resources that might be exposed during the rehabilitation of the Bunker Hill Monument (Mahlstedt 1980b:1).

Given the scope of the rehabilitation project and, as Mahlstedt notes, some of the largely unrelated archeological considerations introduced by that scope, the report is divided into several sections that correspond to the specific construction phases of the project (Phase I–III). These sections, in turn, are further subdivided into discussions of individual features and interpretations (Mahlstedt 1980b:1). The archeological monitoring methodology was rooted in a philosophy of *in situ* preservation of identified archeological deposits and/or features where and when possible. When not possible, the resource was photographed, mapped, labeled, and removed. Detailed (although unscaled) field drawings were produced over the course of the project as well as a substantial photodocumentary record. By the very nature of the field methods, artifacts were recovered selectively and bagged and labeled with their approximate provenience.

The Phase I portion of the project involved extensive excavations around the base of the obelisk in order to re-point the structure and install drainage pipes (see Figure 4-1). Ten known and previously undocumented structural features were identified during the monitoring. The first three include a granite paver platform at the base of the monument; a set of four coursed rubble granite perimeter walls surrounding the entire monument to a depth of 12 ft below grade, and four uncoursed rubble diagonal walls extending at 45 degree angles from the four corners of the obelisk and terminating at the corners of the perimeter walls (Figure 4-2). Mahlstedt considers these features as a single functional unit dating to the final construction phase of the monument beginning in 1841. The platform was called for as part of the original construction details for the monument but was always envisioned as the final step in the process. Mahlstedt notes that the variety of materials employed in the construction of the platform likely derives from the fact there were no working specifications for its construction and also as a cost-saving device (Mahlstedt 1980b:17).

The fourth structural feature, the obelisk foundation, extended approximately 12 ft below grade and comprised roughly hewn granite blocks joined with mortar and varying amounts of rubble infill. The somewhat sloppy appearance of the foundation below grade contradicts Loammi Baldwin's original edict to construct the base using dressed and hammered stone with no rubble work, and better reflects practical construction and design changes made by the actual architect and field supervisor, Simon Willard. Furthermore, the re-pointing of the base in 1882 as inferred from the use of rubble mortar

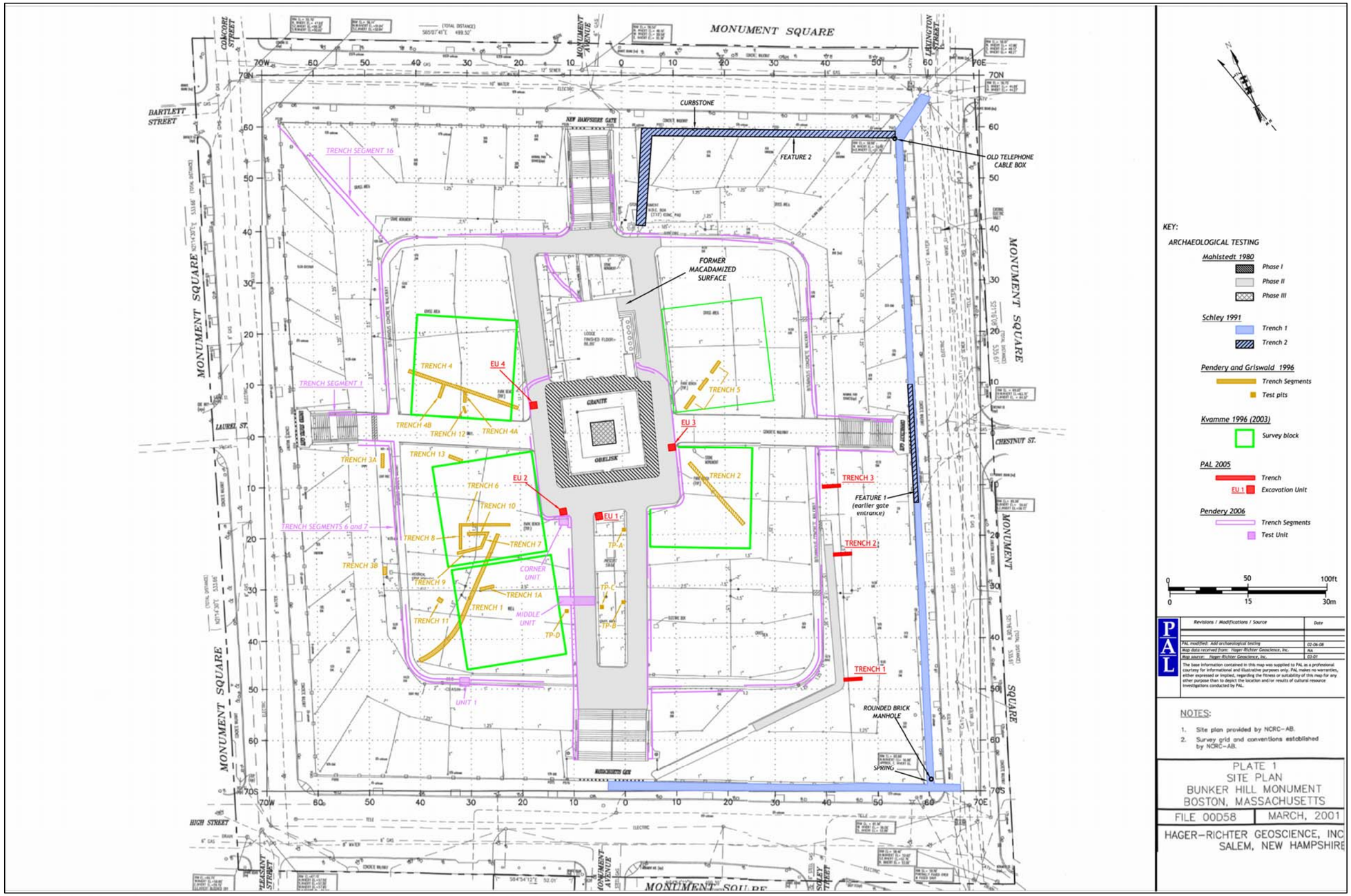

Figure 4-1. Map of the Bunker Hill Monument showing the locations of all subsurface archeological testing conducted at the site to date.

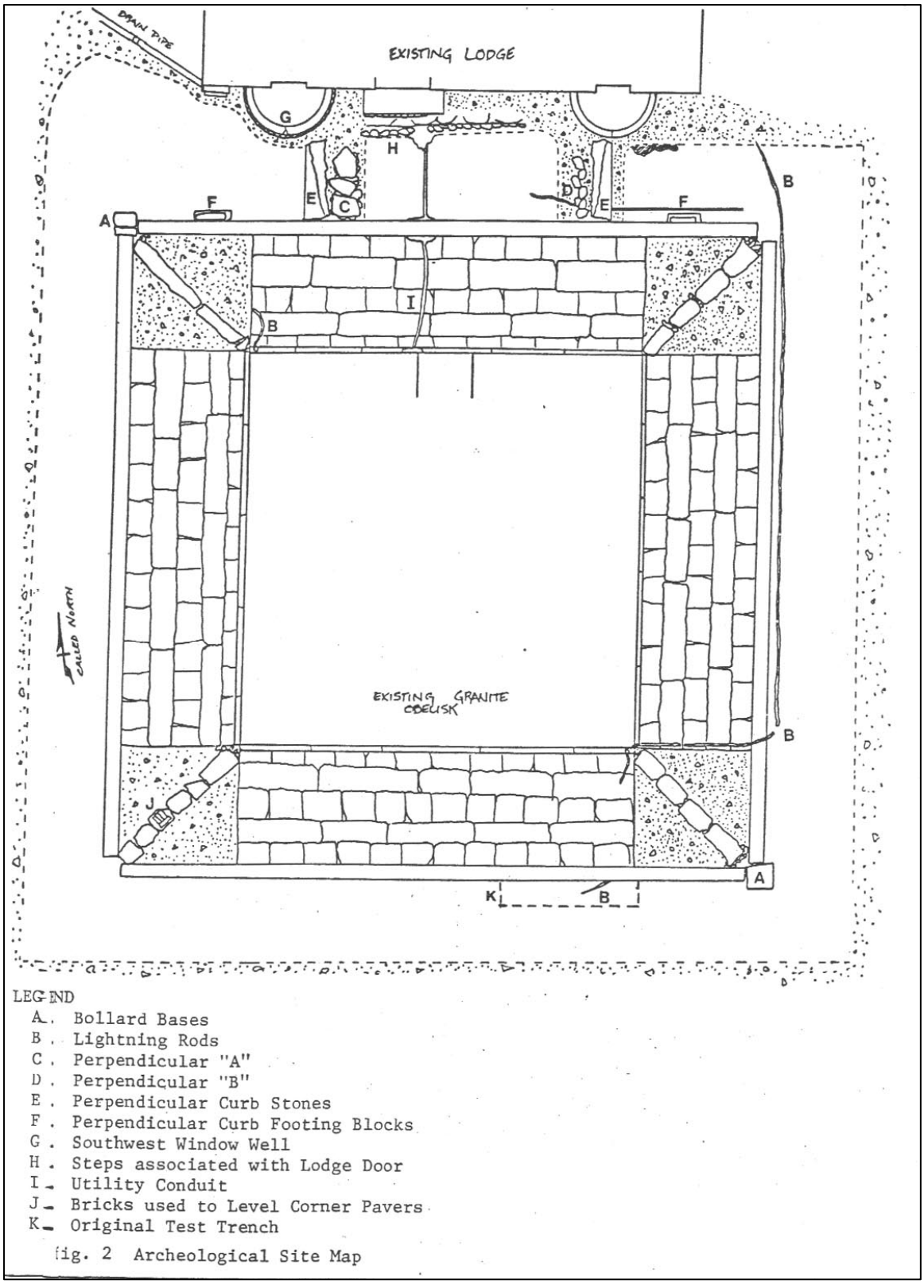

Figure 4-2. Map showing the locations of features identified during archeological monitoring for the Bunker Hill Stabilization project (Mahlstedt 1980).

rather than the original lime mortar documented in 1843, also suggests a previously undocumented infilling episode between the obelisk base and the perimeter walls dating to that period and corroborated by the recovery of later nineteenth-century artifacts from the fill that could not otherwise be explained (Mahlstedt 1980b:22).

Two small rubble stone walls running perpendicularly from the north wall of the monument toward the lodge were identified as the fifth structural feature at the base of the obelisk and designated perpendicular wall "A" and "B" (see Figure 4-2). The function of these walls could not be determined. The sixth structural feature included perpendicular fence curb stones and footing blocks lying along the north wall of the obelisk. Review of archival photographs indicates that the materials are remnants of a wrought iron fence that separated the obelisk from the original wooden lodge structure (ca. 1857) that was subsequently modified to accommodate the distance between the obelisk and the larger, permanent Granite Lodge, ca. 1902. Rubble steps associated with the southern lodge door were identified as the seventh structural feature. Part of these steps were destroyed in 1975 when the Army Corps of Engineers relocated an underground electrical conduit in that location, but an archival print of the monument dating to 1857 suggests that it is only a remnant of the original entrance.

A window well at the southwest corner of the monument dating to the MDC stewardship period was identified as the eighth structural feature and segments of nineteenth-century lightning rods were identified at the northwest and southeast corners of the obelisk (see Figure 4-2). Finally, four large granite bollards used as the corner posts for the original wrought iron fencing surrounding the obelisk platform were identified at the corners of the perimeter walls. Two of these blocks were solidly anchored on quarried granite block platforms, while the other two blocks were seated on fill with no visible means of additional support. Mahlstedt surmises that this building discrepancy is the result of a construction oversight (Mahlstedt 1980b:30). The blocks were removed during the monitoring project because of their instability.

Only 42 artifacts were recovered during the Phase I portion of the monitoring program, most of which were found between the first and second courses of the foundation. The assemblage comprises primarily nineteenth-century materials including bottle glass, tobacco pipe fragments, and later nineteenth-century ceramics with a smaller admixture of twentieth-century materials including a light bulb end and small plastic disk. Mahlstedt notes that had the artifact recovery program been more systematic, a sizable and potentially meaningful assemblage might have been recovered reflective of the day-to-day activities of the nineteenth-century laborers at the site. A seventeenth-century latten seal top spoon handle also was recovered and is the only artifact Mahlstedt cites as having intrinsic value and recommends for curation (Mahlstedt 1980b:31).

Phase II of the project included the removal and replacement of several sidewalk sections at the north and south ends of the site requiring the removal of 6-8 inches of soil beneath them and replacement of steps adjacent to the northeast corner of the lodge. The removal of the sidewalks revealed 5–7 inches of a cinder, gravel, and sand bedding material. In those locations where the stripping extended deeper than the proposed 8 inch limit, a

light, brown, fine sandy till was encountered. No potentially significant cultural material deposits or features were identified. During the staircase removal, a layer of macadam was identified in the sidewall of the excavation trench of indeterminate age and origin. Macadam did not come into general use as a surface material until after World War I, but there is no documentary evidence indicating the use of macadam at the site at any point during its landscape history. Based on this information, Mahlstedt suggests that the macadam deposit provides evidence of an undocumented paving episode along the northeast side of the lodge dating to the MDC stewardship period that was disturbed by subsequent landscaping activities (Mahlstedt 1980b:35). Only three pieces of cultural material were collected during this phase of work including a complete ball clay tobacco pipe bowl, a bovine rib fragment, and a 2-ft diameter 4-spoked wheel. Given the lack of clear stratigraphic control, Mahlstedt makes no comment concerning the potential significance of the materials.

The Phase III component of the project did not involve any excavation but was associated with the de-watering and cleaning of the newel basement. Wet screening of the mud and silt in the basement yielded a sample of 262 artifacts including: architectural hardware (nails, screens, bolts, hooks); jewelry; marbles; drinking and hurricane glass fragments; dark green bottle glass; window glass; pearlware; porcelain; tobacco pipe fragments; coins ranging in date from 1800–1978; a piece of Spanish silver; wood, plastic, metal and shell buttons; peach pits and peanut shells; dog bones; slate pencils; a wood or shell comb fragment, and a nearly complete late-twentieth-century camera. Mahlstedt comments that the newel basement niche effectively acted as a well, slowly filling over time with water and miscellaneous debris dating from the earliest construction phase of the monument through to the twentieth century. This observation is corroborated by the seemingly random assemblage that was recovered and the broad date range encompassed by the assemblage (Mahlstedt 1980b:43–44).

The single most significant feature identified in the newel basement, however, were two large waterlogged timbers associated with the Holmes hoisting apparatus, or derrick, that was employed during the construction of the monument. After providing a brief history of the use of the apparatus at the site during the 1825–1828 and 1834–1835 building campaigns, Mahlstedt goes on to describe that the surviving timbers were quickly mapped and photographed *in situ*, resubmerged to retard deterioration, and then removed from the newel for conservation. The identification of the base of the hoisting apparatus, while not technically archeological in nature, is a significant contribution to a better understanding of the technological and engineering aspects of the construction of the monument. In addition to the derrick base, a small iron pin was located in the center of the newel floor and identified as the original datum point used during the construction of the monument.

Evaluation of Project Objectives and Results

Mahlstedt is very straightforward in the introduction to his report that his monitoring program does not conform to any traditional models of archeological investigation. The use of heavy machinery, the lack of artifact recovery control, and the speed at which the

work was required to be performed resulted in a level of data loss that would likely be less extreme using more standard excavation techniques (Mahlstedt 1980:2). Having said that, Mahlstedt's report is extremely well researched and written given the time constraints imposed by the project, and is copiously illustrated with plans, profiles, and photographs.

Mahlstedt largely fulfilled the project objectives as stated in the introduction of the report including the archeological documentation of building and grade changes to the site and the identification of previously undocumented building campaigns associated with the construction period and later MDC stewardship periods of the monument. This data, as well as the unexpected discovery of the base of Holmes hoisting apparatus in the newel, are particularly important to supplementing existing documentary information about the secondary period of significance associated with construction of the monument from 1825–1843.

There are, however, four substantive critiques of the report. First, the report would benefit from a succinct management summary detailing the major findings of the fieldwork and providing general conclusions about the nature of the identified archeological resources and their significance to the history of the site. Second, the report lacks an overall site plan clearly illustrating the location and extent of all of the construction impacts to the site as a single figure. While Figure 64 of the report does provide a detailed drawing of the features identified during the Phase I portion of the project, (see Figure 4-2), the locations of the work for Phases II and III are provided as a separate figures. The combination of all subsurface impacts onto a single map would aid the reader's understanding of where subsurface trenching and identified features were located relative to one another throughout all phases of work. Third, Mahlstedt notes monitoring of a handicap access ramp improvement and depicts it at the southeast corner of the site on his site plan for Phase II of the project, but makes no mention of the results of that monitoring.

Finally, Mahlstedt's comment that the latten spoon "represents the only single item which contains intrinsic value and should treated and curated accordingly" (Mahlstedt 1980b:31) is problematical given the larger goals and results of the project. The latten spoon was recovered from a filled, largely unprovenienced context that effectively precludes its interpretive significance, regardless of its age or relative rarity. The remainder of the materials recovered from the site, while collected from similarly poorly controlled contexts, can be more confidently associated with specific building episodes of the monument. For that reason, they have the potential, at least in theory, to address the "personal and behavioral idiosyncrasies of the nineteenth-century laborers involved with the construction of the monument" that Mahlstedt himself cites as a potentially important research consideration (Mahlstedt 1980b:31). This interpretive context is particularly salient as the findings of the report are devoted to the documentation of the monument construction as identified archeologically, and the justifiable importance Mahlstedt attributes to the preserved derrick base in the newel basement.

Status of Collections

The materials collected by Mahlstedt during the monitoring program are accessioned under four numbers, BOSTB-00027–30, with the first three numbers correlated to the three phases of work conducted at the site and the final number assigned to collected soil samples (Towle 1985). It appears, however, that Mahlstedt's comment that the latten spoon was the only artifact worthy of curation was acted upon at some point as it was the only existing artifact from the project. The item was examined at the offices of the Boston National Historical Park on November 27, 2007. The location of the collected and curated soil samples and associated documentation is unknown.

Archeological Monitoring of a Utility Trench: Bunker Hill Monument, Boston National Historical Park, Boston, Massachusetts, Thomas Schley, 1991

Project Objectives and Fieldwork Summary

As part of a new cable installation project, Metro Boston Contracting Company excavated two trenches under the existing sidewalk that lies along the south and east sides of Monument Square around the base of the Monument as well as inside the fence on the Monument grounds (see Figure 4-1). The construction work was monitored by CRC archeological technician Thomas Schley between March 26 and April 22, 1991 to ensure that no significant archeological deposits were disturbed during the machine excavation.

The first leg of Trench 1 was dug immediately outside of the 1870s cast-iron fence and ran from the southeast corner of the square to the northeast corner of the square (see Figure 4-1). The excavation opened with a deep hole measuring roughly 9-ft deep dug for the installation of a terminal box at the southeast corner of the property. The hole contained several feet of large rubble fill and a rounded brick manhole extending the entire depth of the excavation, both of which indicated previous and significant soil disturbance in that location. At 6 feet below surface, an area of continuous water seepage was encountered and, based on the lack of associated pipes, was tentatively interpreted as a natural spring. A dark stain was identified immediately below the area of water seepage and similarly interpreted as an accumulation of organic material associated with the hypothesized spring. Two soil samples were taken from the stain for pollen analysis, but the final results of that analysis has not been completed to date.

Following the excavation of the terminal box hole, the remainder of the sidewalk was broken up and removed and a 3.10-ft deep trench was excavated for the installation of the cable conduit. The trench was excavated entirely through fill containing oyster shell, brick, and rock rubble. A second feature comprising approximately 90 linear ft of large, roughly dressed, unmortared granite blocks was identified at the entrance to the Connecticut gate (see Figure 4-1). Designated Feature 1, the long axes of the blocks, which measured an average of 24-x-30-x-16 inches, were oriented perpendicular to the street and capped with a 12-inch layer of sand and shell reaching up to the level of the existing sidewalk. The location and depth of the feature suggests that it was part of an

earlier entrance gate to the park; the blocks were subsequently removed to accommodate the cable conduit.

A badly degraded, creosote-soaked wooden telephone box was identified at about 20 inches below surface at the northeast termination point of Trench 1. These types of boxes were used as late as the 1970s to protect underground telephone wires.

Two trenches also were excavated off of Trench 1 at 45 degree angles from the northeast and southeast corners of the Square into the center of the street. The author noted what appeared to be a "natural deposit" of sand and gravel in the middle of the street in both auxiliary trenches that was bounded on both sides by fill containing brick, rock, sand, and shell.

The second leg of Trench 1 was excavated from the southeast corner of the Square to the center point of the Massachusetts Gate (see Figure 4-1). This trench was excavated through what are generically described as fill deposits.

Trench 2 was excavated from the northeast corner of the Square to within 20 ft of the New Hampshire Gate at which point it makes a 90 degree and runs parallel to the staircase toward the obelisk, terminating at an existing MDC utility manhole (see Figure 4-1). This trench was excavated by hand to a depth of 18–20 inches and a width of approximately 2 ft. At the northeast corner of the square at approximately 11 inches below grade a rough-dressed stone slab resting on three courses of brick was identified and designated Feature 2. The level of excavation around the feature was insufficient to draw any conclusions concerning its function.

In general, Trench 2 comprised loamy brown fill of varying depths overlying intact glacial subsoils. The fill is believed to date to landscaping efforts dating from as early as 1839 and throughout the nineteenth century, but did not contain any potentially significant cultural deposits. The observed slope of the fill deposits at the top of the hill, however, did suggest that the area had been artificially truncated at some point during the nineteenth century, although an approximate date for that event is not provided. No evidence of the eighteenth-century military fortifications was identified in Trench 2.

Based on his observations, Schley concluded that most of the trenches excavated for the telephone cables were dug through fill or in areas otherwise previously disturbed by road construction. No evidence of soil change associated with the Revolutionary War earthworks was noted.

Evaluation of Project Objectives and Results

Schley essentially produced a trip report for the archeological monitoring he conducted as part of the cable installation project and, as such, the document is rather brief (seven pages). This brevity, unfortunately, has resulted in the omission of several important contextual statements and illustrative figures that would serve to validate his observations and recommendations.

The first and most significant problem with the report is the lack of any plan or profile drawings, detailed soil or artifact descriptions, or more comprehensive photodocumentation of the project. This absence of field documentation makes it very difficult to assess the merit of Schley's arguments and conclusions. His non-descriptive use of the term "fill" throughout the text provides a case in point. One of the challenges of historical site interpretation is the distinction between "potentially significant" or "significant" fill deposits versus those assessed as not significant by virtue of temporal or contextual factors. So, for example, the contents of the trench backfilled during the construction of the Bunker Hill redoubt can be described as "fill," but the significance of that fill differs substantively from backfilled trench deposits associated with the installation of an early-twentieth-century sewer pipe. Schley's lack of descriptions for the observed "fill" soils, the lack of any descriptive catalog of the observed or collected artifacts from those deposits, and the absence of a general historical landscape chronology makes it difficult to evaluate the date or context of the fill and, by extension, the potential significance of those deposits.

Similarly, the identification of "natural soil" in the middle of the street is suspect given the context, especially when considered in light of the amount of documented cutting, filling, and re-grading that occurred in that location throughout the nineteenth century. The assertion, however, cannot be critically evaluated for lack of field drawings or photos in the report or any summary discussion of the landscape history of the project.

Another example of an instance where photographs and more detailed plan and profile drawings would have been very valuable is in the identification of the "rounded brick manhole" at the southeast corner of the Square. Schley's description of the feature and its proximity to what he interprets as a natural spring suggests that it may be a cistern. Abandoned cisterns are commonly encountered in urban environments and often were used in residential contexts to correct drainage problems or as reservoirs for use by city fire departments before the installation of public water systems. Recent excavations in Springfield, Massachusetts identified two cisterns in a nineteenth-century urban houselot (Heitert and Cox 2001). Like the brick feature in Trench 1, the Springfield cisterns originally had been outfitted with domed brick roofs and also were located near natural springs. Without the benefit of more field documentation, however, it is impossible to compare the Bunker Hill brick manhole with the Springfield cistern, or draw any conclusions about its date or function. From a strict field documentation perspective, the rounded brick manhole should also have been assigned a feature number.

Finally, a more general problem with the inferred objective and subsequent conclusion of the report is that it only addresses the Battle of Bunker Hill period of significance, but makes no mention of the secondary period of significance associated with construction of the monument from 1825–1843. It is possible that Feature 1, interpreted as an earlier entrance to the park but removed during construction, as well as the possible cistern feature may be associated with that second period of significance and may have had the potential to provide new insights into engineering designs and landscape changes made during the construction of the obelisk. The lack of consideration of the 1825–1843

monument building landscape period, combined with the lack of detailed field documentation in the report, however, make that impossible to determine.

Status of Collections

Based on a review of the available collections information on file at the CRC, the 1991 monitoring project was assigned accession number BOSTB-00080 and is composed exclusively of the associated documentation from the project; no artifacts were collected or curated as a result of the fieldwork (communication, Gail Frace, Archeologist, CRC). Inquires and inspections at both the Boston National Historical Park and CRC, however, failed to identify the physical location of the collection. Consequently, the thoroughness of the field documentation and the quality of its curation cannot be assessed at this time.

***Trip Report on the Archeological Test Excavations Conducted on July 9-11, 1996 at the Bunker Hill Monument Site,* William A. Griswold, July 26, 1996.**

***Interim Report and Management Summary, Archeological Testing at Bunker Hill Monument, Boston National Historical Park, Charlestown, Massachusetts,* Steven R. Pendery, Ph.D. and William A. Griswold, Ph.D., 1996**

Project and Fieldwork Summary

Between October and November 1996, Steven R. Pendery, William Griswold, and Frederica Dimmock, archeologists with the CRC, conducted archeological testing at the summit of the Bunker Hill Monument in advance of the proposed installation of an irrigation system. The objectives of the excavations as defined in the introduction of the report "was to evaluate the archeological resources within the project area" (Pendery and Griswold 1996:1).

The excavation of five 50-x-50-cm shovel test pits in the southwest quadrant of the site in July 1996 identified what was conjectured to be the remains of the ditch and ditch scarp in T1-5 and T1-6 at a depth of approximately 46 cmbs (see Figure 4-1). This ditch and scarp feature, labeled Stratum 4, was tentatively interpreted as the remains of the former Battle of Bunker Hill redoubt erected on the site on June 17, 1775, a conclusion based on the similarity of the observed fill deposits to ditch fill deposits conclusively identified at Dorchester Heights and to the generally eighteenth-century profile of the Stratum 4 artifact assemblage. The scope of the initial Bunker Hill survey, however, was insufficient to correctly locate the fort on the landscape. Based on the results of the excavation, additional archeological excavations were recommended to properly assess and mitigate project impacts to the potentially significant feature.

Testing was resumed at the monument in September 2006. The subsurface testing included 16 machine- and hand-excavated trenches (Trenches 1–13), and four 50-x-50-cm shovel test pits (see Figure 4-1). Based on the results of the July excavations, it was determined that the top 30 cm of soil across the site, designated "park deposits" was not

archeologically significant so that, with the exception of Trench 2, this stratum was stripped by backhoe. Smaller excavation units were then hand excavated within the trenches to maintain stratigraphic control and better identify potential battlefield-related cultural features and/or artifacts.

Trench 1 was excavated in the southwest quadrant of the site to expose a complete profile connecting the previously excavated Test Pits 4, 5, and 6. Beneath the park deposits, a large irregular ditch excavated into subsoil was encountered (Figure 4-3). The bottom of the ditch appeared fairly level, while the angle of the ditch scarp measured 45 degrees. Designated Feature 1, the ditch fill comprised brown loam and redeposited subsoil and contained artifacts dating to the third quarter of the eighteenth century including dark green bottle glass, English combed slipware, and white salt-glazed stoneware. No counter scarp could be identified. Trench 1A was excavated south of Trench 1 in an effort to locate the edge of Feature 1. The feature, however, appeared to have been truncated by a brick and mortar deposit overlying a stone and cobble surface believed to be the remains of a diagonal walkway removed in the 1870s.

Trench 2, a 20-m long backhoe trench excavated across the southeast quadrant of the park, revealed a twentieth-century rectangular pit, designated Feature 2, to a depth of 1 meter below surface. The feature contained a cigarette filter and machine-made bolts and likely is associated with a utility installation in that location. Immediately beneath the park deposits, a soil stratum consisting of a gravelly loam was identified and designated Stratum 3A. This stratum was subsequently uncovered in many locations across the site overlying intact subsoil or Feature 1, and generally contained a collection of late-eighteenth- and early-nineteenth-century artifacts. An spent musket ball was recovered from redeposited soils at 50–55 centimeters below surface (cmbs), but no battle-related strata or features were encountered.

Trenches 3A and 3B, measuring 1.5-x-2 m apiece, were excavated on the downhill side of the northwest slope of the hill. Both units contained a homogenous loam fill deposit overlaying intact subsoil. No fortification features were encountered.

Trench 4, a 20-m long backhoe trench excavated across the northeast quadrant of the park, revealed the survival of a portion of Feature 1 at approximately the midpoint of the trench in Unit 14. A musket ball was recovered from a systematically sampled portion of the fill. Trenches 4A, 4B, and 12 were excavated south of Trench 4 in an attempt to better define the boundaries and orientation of Feature 1. Trenches 4A and 4B appeared to delineate the east and west limits of the ditch respectively while Trench 12 came down solidly in the middle of the ditch fill. The materials collected from the ditch soils included a fairly consistent late-eighteenth-century assemblage including a predominance of redware followed by smaller amounts of white salt-glazed stoneware, brown stoneware, dark green bottle glass, ball clay pipe fragments, brick, and nails.

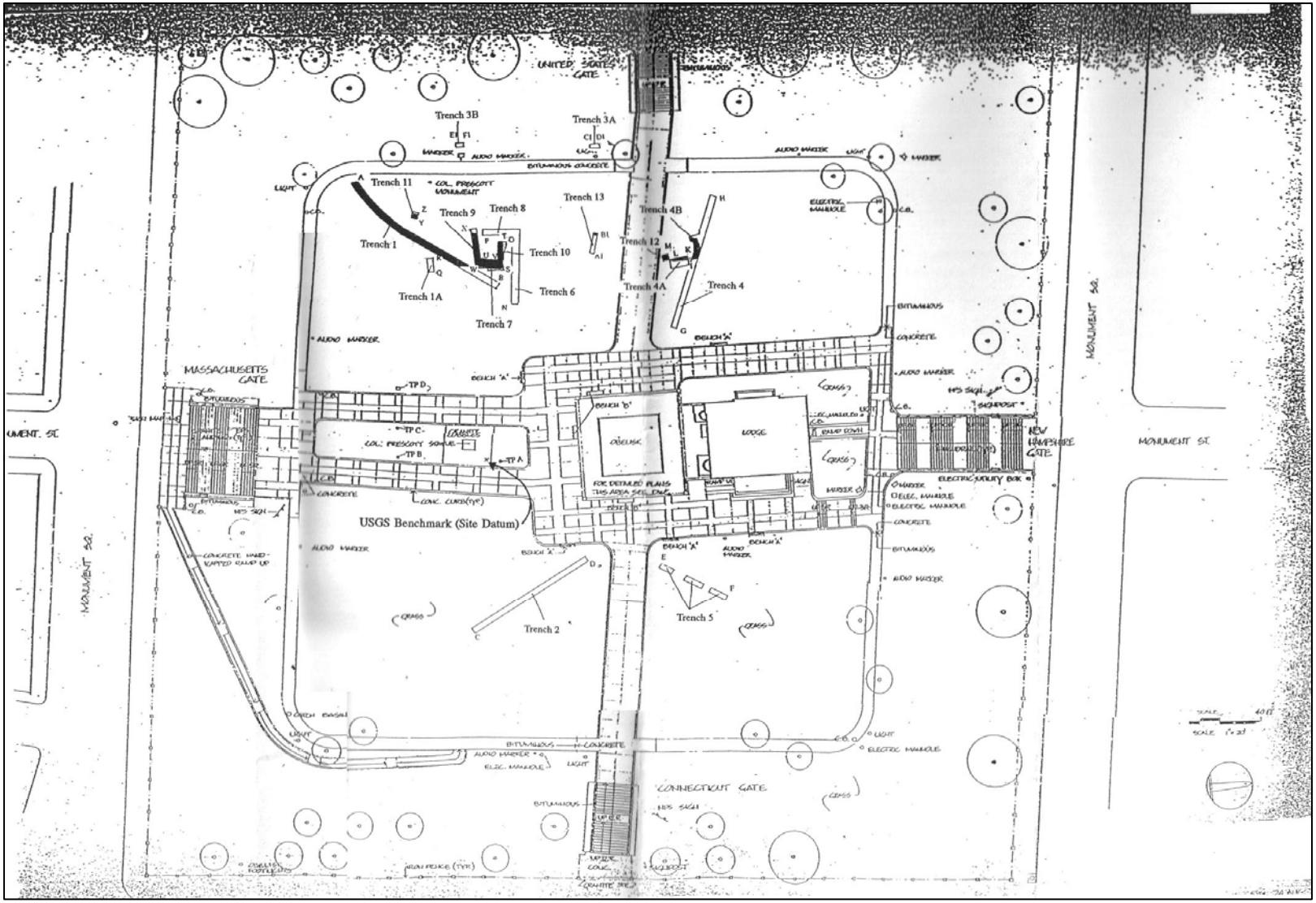

Figure 4-3. Map showing the location of the 1996 archeological testing at Bunker Hill showing the locations of Feature 1, the ditch and scarp feature associated with the Battle of Bunker Hill (Pendery and Griswold 1996).

Trench 5, excavated as three discontinuous units in the northeast park quadrant, revealed soil disturbances associated with twentieth-century utility installations overlying graded subsoil deposits. Several pieces of earlier ceramics (white salt-glazed and brown stoneware, tin-enameled ware, redware, tobacco pipe fragments) were recovered in Stratum 3A, but no evidence of the fortifications was identified. Trench 6, a 10.5-m long backhoe trench excavated across the southwest quadrant of the park, revealed a similar soil profile to Trench 5 but without Stratum 3A. Trench 8, excavated south from the western end of Trench 6, revealed the same profile as Trench 6 and no evidence of the Bunker Hill fortifications.

The excavation of Trench 7 south of Trench 6 revealed the eastern edge of Feature 1 and resulted in the recovery of a fragmented eighteenth-century tombstone. Trenches 9 and 10, excavated to the west off of the northern and southern ends of Trench 7, identified the west and north edges of Feature 1, respectively. The trench fill was not excavated in these units and, with the exception of two redware sherds and a piece of green bottle glass in Trench 9, no additional artifacts were collected.

Finally, Trenches 11 and 13 were excavated west and north of Trench 1 in the southwest quadrant of the site and revealed soil profiles roughly similar to that identified in Trench 1, including portions of Feature 1. While the location of Feature 1 in Trench 11 occurred within the expected corridor of the ditch, its location in Trench 13 was slightly farther to the west than expected. No cultural materials are recorded as having been collected from either trench.

Test pits A, B, C, and D were excavated in the area surrounding the Prescott statue in the grassy avenue between the obelisk and the Massachusetts Gate as the area was to be impacted by construction activities exceeding 30 cm in depth. No evidence of any battlefield-related features or cultural deposits were identified in any of the test pits.

Based on the results of the excavations, the report identifies Feature 1, the ditch and scarp feature, as a potentially significant cultural resource associated in some capacity with the Battle of Bunker Hill. The feature was identified only in the north- and southwest quadrants of the park at lower elevations along the hillside, and appears to have been truncated at several points along its length by later nineteenth- and twentieth-century landscape alterations associated with the construction of the monument.

While the association of the feature with the Battle of Bunker Hill seems fairly secure based on the solidly eighteenth-century profile of the recovered artifact assemblage (including musket balls), its exact function is unknown. As a consequence of this ambiguity, the authors present three hypotheses to explain Feature 1. The first hypothesis is that the ditch and scarp feature is the remains of the original patriot redoubt designed by Richard Gridley and constructed from June 16–17, 1775. The size and shape of the feature, however, is not entirely consistent with the historical descriptions of the structure, although it should be noted that those descriptions in and of themselves are in many cases highly contradictory (see Chapter 3). Nonetheless, the contradiction suggests that the interpretation may be incorrect or, in the alternative, that the surviving remnants

are highly significant in that they provide solid archeological documentation of what the redoubt actually looked like.

The second hypothesis is that Feature 1 is the remains of the British defenses built on the hill following the retreat of the American forces. The ditch deposits may be segments of the subsequent fortification or undocumented entrenchments. One major implication of this theory is that nineteenth-century descriptions of the battle site may have in fact been describing the remains of the British rather than American defenses, and that the existing lodge and monument are actually positioned over those British structures.

Finally, the third hypothesis posits that the trenches are portions of burial pits excavated for the fallen British and American soldiers immediately following the battle and subsequently exhumed following the British withdrawal from Boston. The authors concede that this is the weakest of the theories in that no material evidence, either in the form military uniform paraphernalia or remnant human remains, were recovered from any of the excavation units.

Whatever its function, the report concludes that Feature 1 is a potentially significant archeological resource and potentially eligible for listing in the National Register of Historic Places for its association with a key event in American history. Additional research at the site, however, would be required to make a conclusive eligibility statement. Pendery and Griswold suggest survey techniques such as soil coring and geo-prospecting as potential, largely non-invasive methods for determining the exact nature and function of the resource.

The report concludes with recommendations for the both the short- and long-term management of the identified archeological deposits. As for the short-term repercussions of the irrigation project, the authors indicate that mitigation measures, both in the form of project redesign and archeological monitoring were performed to ensure that impacts to the identified potentially significant resources were avoided, and impacts to potentially sensitive portions of the project area were minimized (Pendery and Griswold 1996:14). They also state that subsurface impacts to the site measuring less than 20-cm deep will not require archeological attention and that any work from 20–30 cm below ground surface be archeologically monitored. Ground disturbance greater than 30 cm is discouraged; if however, such disturbance is required, archeological testing will be required for the higher, archeologically sensitive portions of the park, and archeological monitoring will be required for the lower, less sensitive areas of the park (Pendery and Griswold 1996:iv).

In terms of long-term management considerations, the authors recommend additional archeological investigation of the property for two reasons. In the first instance, new data about the construction and location of the rebel redoubt would be of national and perhaps international significance in light of the importance of the Battle of Bunker Hill in military and world history. In the second instance, additional work would provide the opportunity to better delineate and interpret the identified archeological resources and provide a sound basis for their preservation.

Evaluation of Project Objectives and Results

The results of this project provide perhaps the best evidence for the limited survival of potentially significant cultural resources associated with the Battle of Bunker Hill. The authors fulfill the project objectives as stated in the *Introduction* of the report, and provide a well-thought rationale for the field methodology based on the results of previous archeological research and the conditions encountered in the field during the survey. The report is amply illustrated with plan and profile drawings of the test units, providing detailed views of the ditch and scarp feature to supplement the general site map. The recommendations for additional work at the site using less invasive survey techniques such as soil probes and geo-prospecting reflect a sensitivity to the importance of the site as well as a strong preservation ethic. These recommendations subsequently were implemented through two geophysical surveys of the monument property that, in an interesting reversal, emphasized the need for ground-truthing through targeted archeological excavation (see below).

While the physical description of the identified soil strata across the site was well-documented in both the narrative and illustrative elements of the text, a table summarizing this information along with functional/temporal interpretations of the strata would not only provide a convenient reference for the reader but also clarify the nature and dates of the observed fill deposits, especially as they relate to Feature 1. A single comprehensive statement concerning the configuration, visibility, and contents of Feature 1 also would add considerably to the content of the report. This would allow the authors to provide a more detailed discussion concerning how, and possibly why, the identified components of the feature differed from expectations (especially in the case of the Trench 13), and provide additional substance to the hypotheses outlined in Chapter 3. It would also potentially provide indirect commentary about the nature and extent of subsequent landscape alterations to the site as inferred from disturbed portions of the ditch feature. This information, in turn, might contribute to a better understanding of the second period of significance for the site dating to the construction of the monument.

One confusing element of the report concerns the recommendations for additional work. In the management abstract, the authors provide testing and monitoring recommendations in advance of the proposed work at the site, while the concluding remarks in Chapter 4 suggest that the recommendations already were implemented. Further, the long-term management recommendations section in Chapter 4 does not provide an explicit statement concerning the overall archeological sensitivity of the park for the survival of resources dating to the Battle of Bunker Hill or any suggestions for the preservation and protection of the those resources short of additional archeological investigations. The report would benefit from a clarification of both of these issues.

A final observation regarding the results of the survey involves the potential orientation of the ditch scarp. In their report, the authors identify the ditch remains (Feature 1) in Trenches 1, 4, 4A, 4B, 7, 9, 10, 11, 12, and 13 in the northwest and southwest quadrants of the site. While not explicitly discussed in the *Interpretations* chapter, the orientation of the ditch scarp as illustrated in the site plan suggests that the feature, rather than

encircling the obelisk, actually may curve out and away from the monument (see Figure 4-3). This possible configuration would mean that the majority of the ditch would have extended to the west of the current monument and, more importantly, would have been destroyed with the excavation of the western slope for use as fill, ca. 1839.

That orientation also would suggest that the function of the feature may be more closely aligned with the authors' Hypothesis 2, namely that Feature 1 is the remains of the British defenses built on the hill following the retreat of the American forces. This hypothesis garners some amount of support in light of George Ellis' 1875 observation that, "When a square was cut around the monument grounds for house lots…the remains of the works raised by the British after the battle, ***lying west of the monument***, which had previously been plain to the eye, all disappeared" (Brouillette and Brown 2000:18, emphasis added).

Status of Collections

The artifact assemblage for both phases of archeological survey conducted as part of the irrigation installation project at Bunker Hill were examined at the offices of the Boston National Historical Park on November 27, 2007. The assemblage was assigned a single accession number of BOSTB-00090 and comprised four large Hollinger boxes containing both the artifacts and associated documentation.

The archeological materials and associated documentation were cataloged by the NPS to NRAP standards and were well organized and curated. The identifications of key diagnostic artifacts recovered from Feature 1 were spot checked and found to be accurate.

Geophysical Surveys as Landscape Archeology, *American Antiquity*, Volume 68, Number 3, Kenneth L. Kvamme, 2003

Project Objectives and Fieldwork Summary

The summit of the Bunker Hill National Monument was geophysically surveyed on three separate occasions between 1996 and 1998 by Kenneth L. Kvamme, at that time a faculty member in the Department of Archaeology, Boston University. The first phase of work was conducted on November 23, and consisted of a limited ground-penetrating radar (GPR) survey in a 20-x-25-m area located west of the monument. A second limited electrical resistance survey of a single block measuring 20-x-20 m was performed on November 7, 1997. The final phase of work was conducted on May 2, 1998 and included four additional blocks of resistance survey and three blocks of magnetic gradiometry survey (Kvamme 2008). The stated goal of the project as defined in the 1996 NPS scope of work was "to shed further light on the earthen redoubt designed by Colonel Richard Gridley on June 17, 1775 . . . on the location of possible burial pits deriving from the historic battle, and on subsequent British fortifications" using non-invasive geo-prospecting techniques (NPS n.d.).

The five survey blocks, each measuring 20-x-20 m, were oriented roughly parallel to the monument in all four quadrants surrounding the obelisk (see Figure 4-1). The primary

finding of the GPR survey was the delineation of a robust linear feature that Kvamme associated as part of the Revolutionary War-era ditch feature identified in the preceding Pendery and Griswold excavations (1996). A second less robust linear feature aligned at a slightly different angle inside the first also was identified (Kvamme 2003:450) (Figure 4-4). Subsequent resistivity testing across unpaved portions of the site identified a range of additional "anomalies" variously interpreted as modern pipe trenches, former nineteenth- and twentieth-century walkways, and smaller British and American constructions dating to the war, landscape alterations post-dating the war, and construction activities associated with the obelisk (Kvamme 2003:451).

Evaluation of Project Objectives and Results

Kvamme provides compelling as well as cautionary data to support his idea that the ditch feature identified during the GPR survey is the remains of either the original American or later British fortifications erected on Breed's Hill from 1775–1776. As the author states in the article,

> Which anomalies represent the American redoubt? It cannot be said with certainty, but the broad high-resistivity features corresponding to the large ditch revealed by the GPR and excavations to the west, and similar anomalies to the east and south are tantalizing. They enclose a region within which the monument to the Patriots is placed and are close to the markers the purportedly indicate "corners" of the redoubt. The complexity of the site simply means that the geophysical results cannot provide unambiguous answers (Kvamme 2003:451).

Kvamme's commentary is interesting in light of the results of the 1996 Pendery and Griswold survey as discussed above. If the ditch scarp feature identified during the archeological survey does in fact curve away from the monument to the west, then it cannot be the same feature identified by Kvamme as encircling the monument. Furthermore, if the archeologically-identified ditch scarp feature is more properly associated with the British fortifications that were built on the hill following the retreat of the Americans (an idea substantiated by at least one nineteenth-century observer - see above), then the Kvamme feature represents something else entirely. That "something else" may be the rebel redoubt, but it also may be a later, undocumented landscape feature/disturbance.

In addition to identifying what may be the remains of the redoubt, the survey was equally valuable in identifying portions of the site that have been heavily compromised by landscape alterations post-dating both periods of significance for the monument. This information is critical for developing more accurate sensitivity assessments for the monument property, and provides a means to design more targeted subsurface excavation strategies in the future.

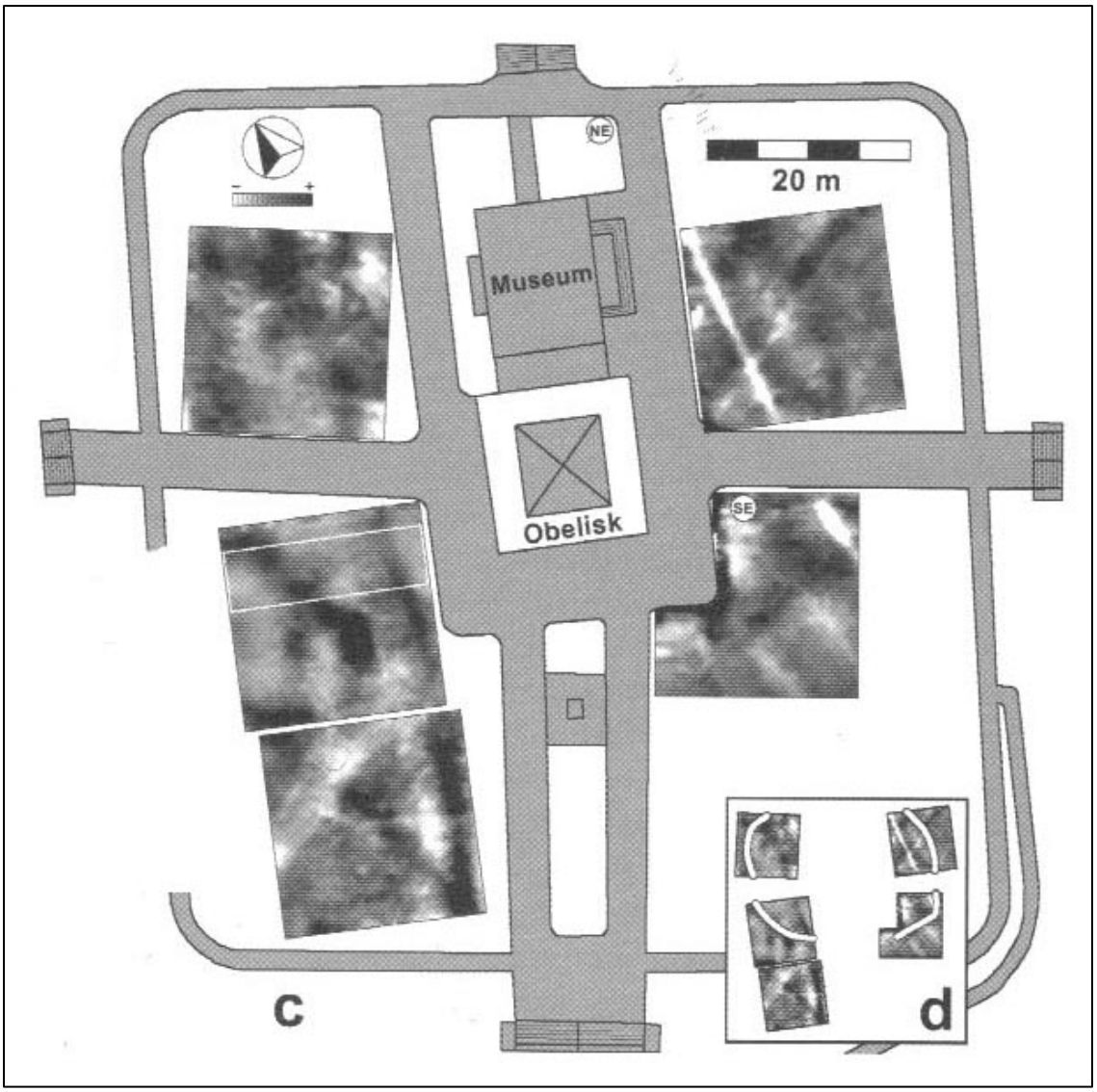

Figure 4-4. Map illustrating the results of the geophysical survey conducted in 1996 at the Bunker Hill Monument with a detail showing the conjectured configuration of the Bunker Hill redoubt (Kvamme 2003).

Status of Collections

No archeological materials were collected during the geophysical survey. The results of the survey work were published in the July 2003 issue of *American Antiquity*, Volume 68, Number 3. Original field documentation for the project is in the possession of Dr. Kenneth Kvamme, currently a member of the faculty of the Anthropology department at the University of Arkansas, Fayetteville (UAF).

In lieu of the original field documentation, Dr. Kvamme provided PAL and the NPS with a digital archive of all of the geophysical data collected from the Bunker Hill site between 1996 and 1998. The archive exists on an archival-quality CD and offers the data in unprocessed and processed states in multiple formats. The archive includes graphics files used to generate project imagery such as maps showing the geophysical data in approximately correct spatial positions; electronic scans of the primary paper records of the GPR profiles; the raw magnetic gradiometry and electrical resistance data as downloaded from the instruments and readable using ASCII-XYZ and Geoplot, Surfer, IDRISI, or ArcGIS software programs. The NPS copy of the archive is currently housed at the NRAP offices in Lowell and should be cataloged to NRAP standards as part of the larger Bunker Hill collection.

Geophysical Survey, Bunker Hill Monument, Boston National Historical Park, Boston, Massachusetts, Hager-Richter Geoscience, Inc., 2001

Project Objectives and Fieldwork Summary

In October and November 2000, Hager-Richter Geoscience, Inc. conducted a geophysical survey at the Bunker Mill Monument. The geo-prospecting included electromagnetic induction terrain conductivity (EM31), electromagnetic induction metal detection (EM61, commonly referred to as a metal detector survey), and GPR. The stated goal of the project as defined in the NPS scope of work was to identify key areas for future archeological investigation and to detect specific resources expected to occur on the site including entrenchments, buried foundations, human burials, and large buried objects, especially metal (NPS 2000).

The base survey grid for the project was staked at 10-m intervals across the entirety of the grassy portions of the hill at a roughly east-west orientation with the EM31, EM61, and GPR survey transects spaced at 1.5 m, 2 m, and 1.5 m intervals, respectively. As outlined in the methods section of the report, the EM31 and EM61 survey techniques are both used to detect metal objects in the ground, but neither can specifically identify the nature of the metal objects. GPR survey, on the other hand, works by transmitting electromagnetic signals underground and then detects, amplifies, and displays the received reflections to create a radar record of the subsurface. The nature and function of the recorded items, however, is still subject to post-processing data interpretation (e.g. subjective human interpretation).

Numerous areas of high conductivity were noted across the site using both the EM31 and EM61 survey techniques, with most of those high conductivity areas occurring in proximity to the walkways and concrete plaza at the top of the hill and along the perimeter at the base of the hill. Other strong signatures were noted in the northeast and southeast quadrants of the hill using the EM31 survey method, and as random but numerous small loci of conductivity as identified across all four quadrants using the EM61 technique. The authors conclude that the large, cohesive areas of high conductivity mapped with the EM31 technique are likely the result of modern utility installations such as modern lighting systems, irrigation/sprinkler systems, and metal fencing, while the more scattershot pattern of elevated conductivity as mapped using the EM61 technique is a product of shallowly buried metal objects of recent origin.

The GPR survey results proved similarly equivocal. Like the EM31 and EM61 surveys, the GPR data detected a wide range of landscaping and modern utility disturbances, particularly in the eastern quadrants of the site. Both the east and west quadrants, however, exhibited areas of flat GPR signatures indicative of compacted soil at both the top and base of the hill. The southwest quadrant also displayed a truncated but linear disturbed area that corresponds generally to the location of the possible ditch feature identified in the Kvamme survey.

The report provides a series of plates illustrating the locations of the identified areas of increased conductivity and strong GPR signals as expressed in plan view across the property. This data is presented as the interpretation of the geo-prospecting results rather than as raw field data. The final plate (Plate 8) serves as a sensitivity map for the project area by removing the "noise" of modern utility installations and landscaping efforts to present only those signatures that the authors interpret as worthy of future subsurface investigation (Figure 4-5). While not making any definitive statements regarding the location of the former rebel redoubt or subsequent British fortifications, the authors do specifically recommend future excavations in areas of disturbed ground and areas with flat reflectors as the most likely locations to contain potentially significant archeological resources associated with the Revolutionary War-era occupation of the site.

Evaluation of Project Objectives and Results

The Hager-Richter geophysical survey met the goals of the project as stated in the scope of work by carefully describing and delineating the cultural features identified through geo-prospecting and providing recommendations for future subsurface excavations based on that data. The report is valuable in its identification of those areas that have the highest potential for yielding potentially significant archeological remains associated with the monument's primary period of significance, the Battle of Bunker Hill.

Paradoxically, one of the major contributions of the Hager-Richter work lies in its lack of complementarity with Kvamme's survey. Unlike the earlier survey in which the presumed signature of the former redoubt trench appears as a dark ring feature in all four quadrants, the trench remains were, for the most part, not detected during the Hager-

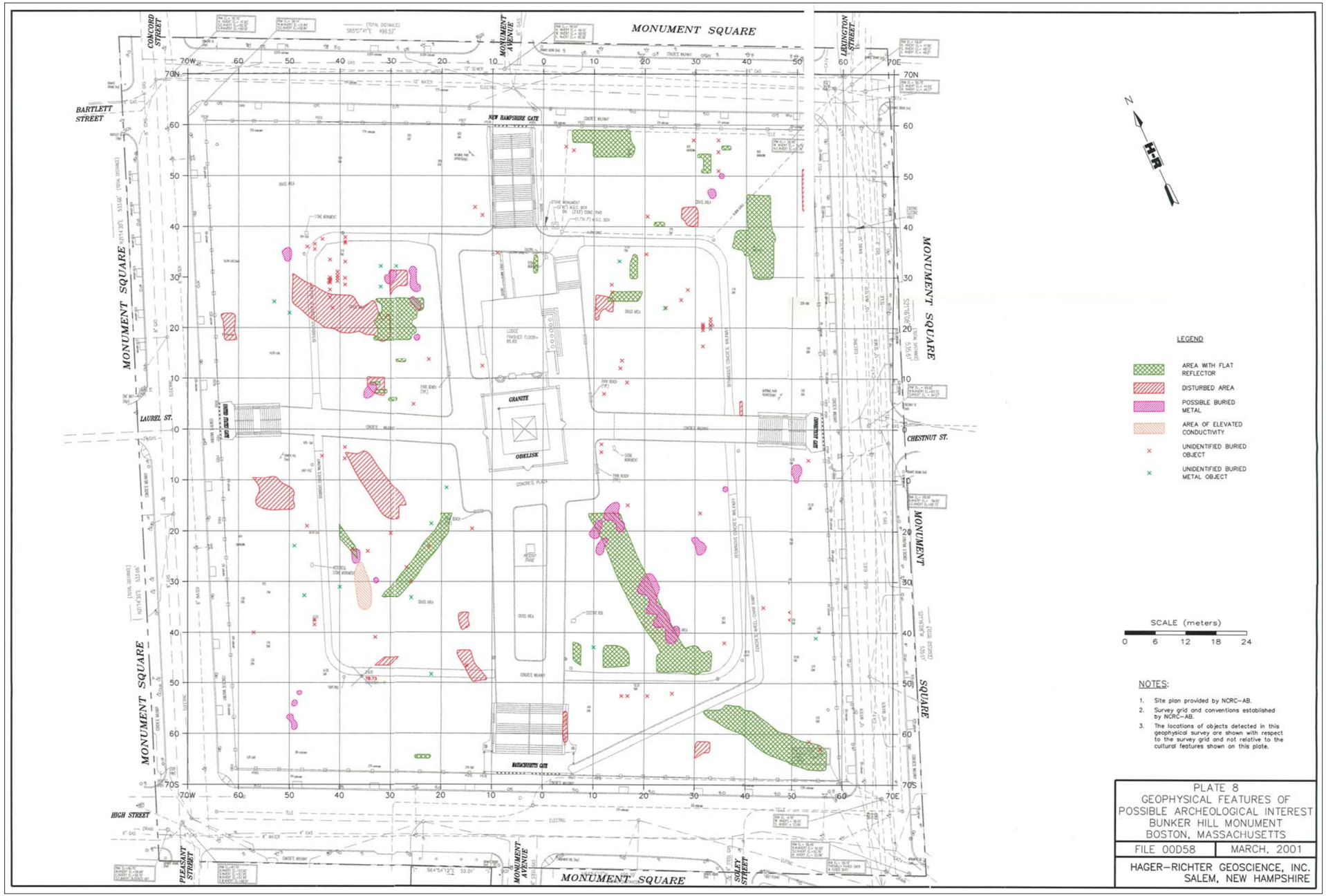

Figure 4-5. Map showing geophysical features of possible archeological interest as identified during 2001 GPR survey at the Bunker Hill Monument (Hager-Richter 2001).

Richter survey. The one exception was the identification of a disturbed area in the southwest quadrant of the park similar in location and orientation to that identified as the southwest corner of the redoubt on Kvamme's map (see Figures 4-4, 4-5). The reasons for the disparity are unclear. Seasonal variations in ground conditions may provide one possible explanation, as might differing "reads" of the data.

On the other hand, the Hager-Richter results do provide some complementary data to the 1996 archeological excavations. The "flat" signature in the southwest quadrant corresponds roughly with the linear ditch scarp (Feature 1) identified in Trench 1. Similarly, the small disturbed area in the south-central portion of the northwest quadrant corresponds well with Trenches 4A, 4B, and 12, all of which contained evidence of Feature 1 (see Figures 4-3, 4-5). This very general correspondence as well as the highly fragmented nature of the subsurface anomalies detected during the GPR survey, however, make hard and fast associations with the archeological data very problematic.

Two drawbacks of the survey report that may be noted are the somewhat overly technical language employed to describe the results of the survey, and the lack of a map providing a raw data view of the project area in plan. In the first instance, the lack of a more conversational narrative concerning the methods and outcome of the survey results in jargon that in some cases confuses rather than clarifies the field methodology. In the second instance, the lack of raw data presentation leaves the reader to rely exclusively on the interpretations of the report authors rather than providing the opportunity to draw one's own conclusions.

The Hager-Richter survey report, like the Kvamme geophysical survey that preceded it, is circumspect in its evaluation of the potential and limits of geophysical survey methods, stating that

> ***Objects of archeological significance do not have distinctive characteristics that allow them to be distinguished from objects of no archeological significance on the basis of geophysical signatures alone*** *. . . the identifications and determination of archeological significance depends on experience and* ***requires*** *confirmation by way of ground truth for most objects. The ground truth can be in the form of as-built plans and/or personal observations of the results of excavation (Hager-Richter 2001:3)*

Status of Collections

No archeological materials were collected during the geophysical survey. One complete data set for all geophysical work in hardcopy and digital format as well as the final report for the project is located at the NRAP offices in Lowell.

Archeological Intensive Testing Program, Bunker Hill Rehabilitation Package 106, Boston National Historical Park, Boston, Massachusetts, **Jennifer L. Bonner and Suzanne G. Cherau, 2005**

Project Objectives and Fieldwork Summary

In September 2004, the Public Archaeology Laboratory, Inc. (PAL) conducted an intensive (locational) archeological survey at the Bunker Hill Monument as part of the Bunker Hill Rehabilitation Package 106 project. The work, completed under the authority of Section 106 of the National Historic Preservation Act of 1966, as amended (36 CFR 800), was conducted in advance of several proposed improvements to the monument grounds including the realignment of the existing access ramp, landscaping, new lighting fixtures and associated wiring. The research objectives included evaluating the level of archeological preservation in the Area of Potential Effect; determining the presence or absence of undisturbed soil profiles that may contain evidence of the battle and/or British occupation of Breeds Hill; and determining the potential research value and significance of identified resources within the project area.

Subsurface testing for the project included: one 1-x-1-m EU in the grassy area east of Prescott's Statue (EU 1); three 1-x-1-m EUs under the concrete plaza to the north, west and south of the obelisk (EUs 2–4); and three trenches south of the existing access ramp (TR 1–3) on a steep slope (see Figure 4-1). TR 1 was placed to intercept an anomaly present on the Apparent Conductivity Map of the 2001 geophysical survey of monument conducted by Hager-Richter Geoscience, Inc. (see above). The Harris Matrix system was used to record the relationships among stratigraphic contexts and to correlate and associate these contexts across the project area. Following the determination of stratigraphic superposition, correlation, and association, a diagram was generated that represented the relationship of the individual stratigraphic contexts to each other.

The subsurface testing documented a substantial level of late-nineteenth- and twentieth-century soil disturbance over the majority of the project area. These fill deposits and associated cultural materials can be confidently associated with the installation and implementation of a wide range of nineteenth- and twentieth-century improvements to the property (e.g., irrigation, drainage, grading, landscaping, plaza, and walkway).

The four EUs located around the obelisk contained several fill episodes ranging in depth from 20–60 cm overlaying natural B_2 and C-soil horizons. The landscape A deposit (Context #1) contained a mixed assemblage of nineteenth- to late-twentieth-century artifacts. The fill deposits (Context #2–5, 10, 13, 14, and 15) all contained mixed artifact assemblages dating from the nineteenth to late twentieth centuries containing a broad range of domestic and architectural materials such as redware, creamware, whiteware, stoneware, machine-cut and wire nails, plastic combs and bags, window and bottle glass, plaster, mortar, and brick. No intact soil surfaces relating to the colonial redoubt, British fortifications, and construction of the obelisk or lodge were encountered. Based on the recovery from mixed contexts of several coins dating from 1920–1973, the identified fill episodes can be confidently attributed to the various improvement projects made to the site throughout that period (see Chapter 3).

The excavation of the three trenches revealed extensive grading and disturbance from modern infrastructural improvements, namely the installation of modern PVC drainage

and irrigation along the south slope of the monument site. B_2 and C-horizon subsoils were encountered immediately beneath a landscaped A-horizon (Context #1), which contained a mixed assemblage of eighteenth- to late-twentieth-century artifacts. TR 2 contained two additional fill deposits likely associated with the irrigation pipes in the trench.

Seven (7) pieces of chipping debris, representing the by-products of stone tool manufacture during the pre-contact period, were recovered from the landscaped A (Context #1) fill deposits in EU 1 (near the obelisk) and TR 2 (on the south slope). These artifacts were found within a mixed post-contact period artifact assemblage dating from the eighteenth to late twentieth centuries. They do not represent an intact pre-contact period occupation of the site. Most, if not all of the fill soils were likely imported to the site, from undocumented source locations, meaning the lithic debitage cannot be provenienced to "Breeds Hill" with any degree of certainty.

No significant archeological deposits were identified within the project construction impact areas subjected to subsurface testing. The historic significance of the site and slight potential for human burials, however, resulted in a recommendation for archeological monitoring of the work areas during the construction phase of the project. This recommendation was implemented by NPS staff in June 2006 (see below).

Evaluation of Project Objectives and Results

PAL was successful in completing the project objectives as specified in the scope of work by documenting a substantial degree of soil disturbance within the project impact areas that effectively precluded the survival of intact archeological deposits dating to the Battle of Bunker Hill or any subsequent battlefield commemorative construction. Given the limited nature of the testing and the inferred archeological sensitivity of the site, however, PAL did exercise caution in recommending archeological monitoring of the project impact areas during the construction phase of the project to ensure that no undocumented, intact soils would be disturbed.

On a more general level, the results of the project are important in that they document, albeit through a highly selective sampling strategy, the substantial degree of late twentieth-century soil disturbance immediately surrounding the base of the monument and at the southeast corner of the base of the hill. The level of this disturbance makes it unlikely, although not impossible, that intact soils dating to either period of significance for the monument survive in those locations.

Status of Collections

A total of 2,491 pieces of pre- and post-contact period cultural material was collected during the intensive survey and cataloged at the PAL laboratory according to the NRAP guidelines and using the Automated National Cataloging System+ (ANCS+), Version 6.31. The associated documentation for the project, including the field maps and field forms, color slides, and final reports, were similarly processed. The collection is

assigned accession number BOSTB-00095. All of the materials, including the final report copies and ANCS+ catalog records, were delivered by PAL to the Boston National Historical Park offices at the Charlestown Navy Yard on May 16, 2005.

***Bunker Hill Concrete Repair and Electrical Trenching Archeological Monitoring Project,* Steven R. Pendery, 2006**

Project Objectives and Fieldwork Summary

In June 2006, Steven R. Pendery, Senior Archeologist with NRAP, conducted archeological monitoring at the Bunker Hill Monument during construction work associated with concrete repair and the installation of new lighting. This monitoring program was conducted over four days between June 2 and June 20. Based on review of the available field data on file at the NRAP offices in Lowell, the trench excavations occurred along the entire perimeter of the base of Monument Square (Trench Segments 1–10); along the east and west sides of the staircase and concrete walkway leading up from the Massachusetts Gate (Trench Segments 12, 13); along the east and west sides of the New Hampshire Gate staircase (Trench Segments 18, 19); along the north and south sides of the Connecticut Gate staircase (Trench Segment 15); along the perimeter of the concrete plaza surrounding the obelisk (Trench Segment 14); at two locations east and north of the Granite Lodge within the concrete plaza (Trench Segments 11 and 17, respectively); and at a 45 degree projection from the northeast corner of the base of the square (Trench Segment 16).

The monitoring program resulted in a series of seven profile drawings taken from the south and east sides of the monument; no profile drawings from the north or west sides could be located (see Figure 4-1). The stratigraphic units identified in the soil profiles are labeled with Harris Matrix context numbers, although the use of those numbers is sporadic and there is no master table providing either a physical or functional/descriptive inventory of the soils.

All of the soil profiles opened with a consistent 30-centimeter (cm) thick "loam/topsoil" horizon that, using the previous 2005 excavations as a guide, may be interpreted as a recent landscape topsoil stratum associated with late twentieth-century improvements to the property. Underlying the landscaped A horizon, a number of fill deposits and intact subsoil strata are recorded. The "middle unit," for example, located along the west side of the Massachusetts Gate walkway, provides a straightforward soil profile of topsoil followed by an intact, probably B_2, subsoil to a termination depth of roughly 85 cmbs. A small pocket of clay and "dark soil" containing brick fragments, one piece of creamware or whiteware, and one piece of redware is noted at the northwest corner of the unit and tentatively interpreted as a "paving"(?) hole, but the reasons for this conclusion are not specifically stated.

Trench Segment 16, located on the northeast slope of the hill, provides a slightly more complicated stratigraphic picture. This area also is characterized by a modern landscaped A horizon, but is underlain by what is identified as a roughly 45-cm deep "landscape fill"

(Context 27). This fill, in turn, rests on top of what is tentatively identified as a truncated 45-cm wide "rubble walking surface" lying on top of intact subsoil. Based on the monument landscape history, the deep landscape fill identified at the northwest corner of hill in Trench Segment 16 may be associated with the filling and grading activities that occurred at the site in 1829 as part of the sale of the monument grounds for residential development (see Chapter 3). This conclusion, however, is speculative, as there is no record of any cultural material collected or observed from the fill that might provide its deposit date.

The profile drawing for Trench Segments 6/7 provides the most complicated stratigraphic profile. This trench profile, located at what is identified as the base of a monument commemorating the original monument erected in 1794 by King Solomon's Lodge, opened with a 30-cm thick loam/topsoil layer followed by a deep bowl-shaped soil deposit labeled Context 26. This context, mottled with subsoil, contained brick and stone rubble, pockets of black soil, and pockets of the "landscape fill" identified in Trench Segment 16.

Evaluation of Project Objectives and Results

In the absence of any explicit statement regarding the objective of the work, it is assumed that the archeological monitoring was performed in response to the 2005 PAL report recommendations (Bonner and Cherau 2005:59 – see above). It is further assumed that the focus on the south and west sides of the monument during the monitoring program was an effort to expand upon and complement PAL's 2005 archeological work that focused primarily on the east side of the hill's summit.

In this respect, the monitoring program was successful in documenting similar levels of soil disturbance to the site that preclude the survival of intact archeological deposits dating to the Battle of Bunker Hill period of significance. By the same token, if the interpretation of the "landscape fill" in Trench Segment 16 is properly associated with the filling efforts on the north side of the hill in 1829, then the project also was successful in identifying intact landscape evidence dating to the site's second period of significance, the construction of the monument from 1825–1842. More detailed field documentation, however, would be required to substantiate these statements.

The lack of a report makes it difficult to assess the contribution of the 2006 archeological monitoring program. The interpretations and conclusions offered above are based on the available field documentation correlated with the known and inferred landscape history of the site, and should be considered highly tentative.

Status of Collections

Four small bags of artifacts were collected during the 2006 monitoring project, and are currently at the NRAP lab in Lowell, as are the field notes for the project. Both the field notes and the artifacts for the project should be cataloged and curated to NRAP standards.

CHAPTER 5

RECOMMENDATIONS

The Role of Archeology and the Bunker Hill National Monument

The Bunker Hill Monument was designated a National Historic Landmark in 1961 and subsequently was listed on the National Register in 1966. At the time of its listing on the National Register, the site's period of significance was identified as 1700–1899 with specific significance dates: 1775, the year of the battle of Bunker Hill; and 1825–1842, the years during which the obelisk was planned and erected in commemoration of that battle. The period from 1842–1899 was included in recognition of the efforts of the Bunker Hill Monument Association to shape the grounds into an environment reflective of the significance of the memorialized battle (Brouillette and Brown 2000:xii). In 1996, as part of the NPS List of Classified Structures, the commemorative period was extended to 1902 to include the construction of the granite lodge. The cultural landscape report for the property has recommended that the period of significance be further extended to 1947 in recognition of the MDC stewardship and their efforts toward the full realization of the monument landscape (Brouillette and Brown 2000:xii), but that recommendation has not been implemented as of the production of this AOA.

As to the monument's first and primary period of significance, the Battle of Bunker Hill, the 1996 subsurface testing program conducted by Pendery and Griswold and the two geophysical surveys that followed were successful in identifying the possible remains of a trench feature associated with the Revolutionary War-era fortifications that were erected on Breed's Hill in 1775. As discussed in Chapter 5, the three projects when viewed as a group provide equivocal, and in some instances contradictory, results regarding the exact location, orientation, and affiliation (i.e., American or British) of the trench feature. Of the three, the Pendery and Griswold excavations provide the most compelling evidence for the survival of the trench, but even that work is constrained in its overall conclusions by the limited excavation strategy employed at the site.

It is the discrepancies among the three data sets, however, that underscore the value of the surveys as a group. When taken as a whole, they provide multiple lines of evidence with which to critically assess the historical and archeological ambiguities surrounding the redoubt. This synthetic approach is not only valuable, but necessary in the absence of the kind of single large-scale horizontal and vertical exposure of the feature that would be necessary to conclusively determine its overall configuration, function, and integrity.

As to the property's second period of significance from 1825–1902, Thomas Mahlstedt's monitoring work provides substantive archeological data regarding building and grade changes to the site and the identification of previously undocumented building campaigns associated with the construction period. This data, as well as the unexpected discovery of the base of Holmes hoisting apparatus in the newel, are particularly important to

supplementing and expanding existing documentary information about the construction of the obelisk. On a larger level, the hoisting apparatus provides tangible evidence not only of the technology used in the construction of a historically significant monument, but may also be considered a significant example of an innovative nineteenth-century engineering mechanism in and of itself. Finally, Mahlstedt's identification of a previously undocumented macadam walkway associated with the MDC stewardship of the property may be considered to contribute substantive archeological data to the proposed extension of the commemorative period of significance to include the MDC ownership period from 1919–1947 (Brouillette and Brown 2000:xii).

None of the remaining archeological projects (PAL 2005; Pendery 2006; Schley 1991) resulted in the identification of individual, potentially significant archeological deposits attributable to either period of significance for the site. Schley did identify a rounded brick manhole feature and a rough-dressed stone slab resting on three courses of brick in the course of his monitoring, but the lack of adequate field documentation makes it impossible to assess the dates, functions, or potential significance of the resources.

All three projects, however, do catalog a series of major and minor disturbances to the monument landscape and, as such, provide important information regarding the overall archeological sensitivity of the property. A comparison of the results of PAL's 2005 survey with Pendery's 2006 archeological monitoring program, for example, suggests that the areas immediately surrounding the base of the obelisk and along the perimeter walkway are so disturbed as to preclude the survival of any archeological deposits associated with the Battle of Bunker Hill. By way of contrast, the Pendery and PAL survey results also serve to highlight the comparative lack of disturbance in the grassy southwest and northwest quadrants of the site as demonstrated by the identification of a Revolutionary War-era ditch feature in those locations (Pendery and Griswold 1996).

A review of all of the archeological work conducted at the site to date provides information with which to develop an archeological sensitivity map for both the Battle of Bunker Hill and Commemorative periods of significance (Figure 5-1). Given the inferred and observed landscape history of the site and following from the 1996 Pendery and Griswold recommendations, subsurface impacts to the site measuring less than 20 centimeters below ground surface (cbgs) will not impact any potentially significant archeological deposits and, as such, do not require any advance archeological investigations. In the event that ground disturbance is proposed from 20–30 cbgs, that work should be archeologically monitored especially for evidence of the surface of the redoubt trench feature. Ground disturbance in excess of 30 cbgs is discouraged but, in the event that such disturbance cannot be avoided, archeological testing should be conducted in the higher sensitivity portions of the park including the four quadrants at the top of the hill, and archeological monitoring should be conducted in less sensitive areas of the park extending down the hillsides.

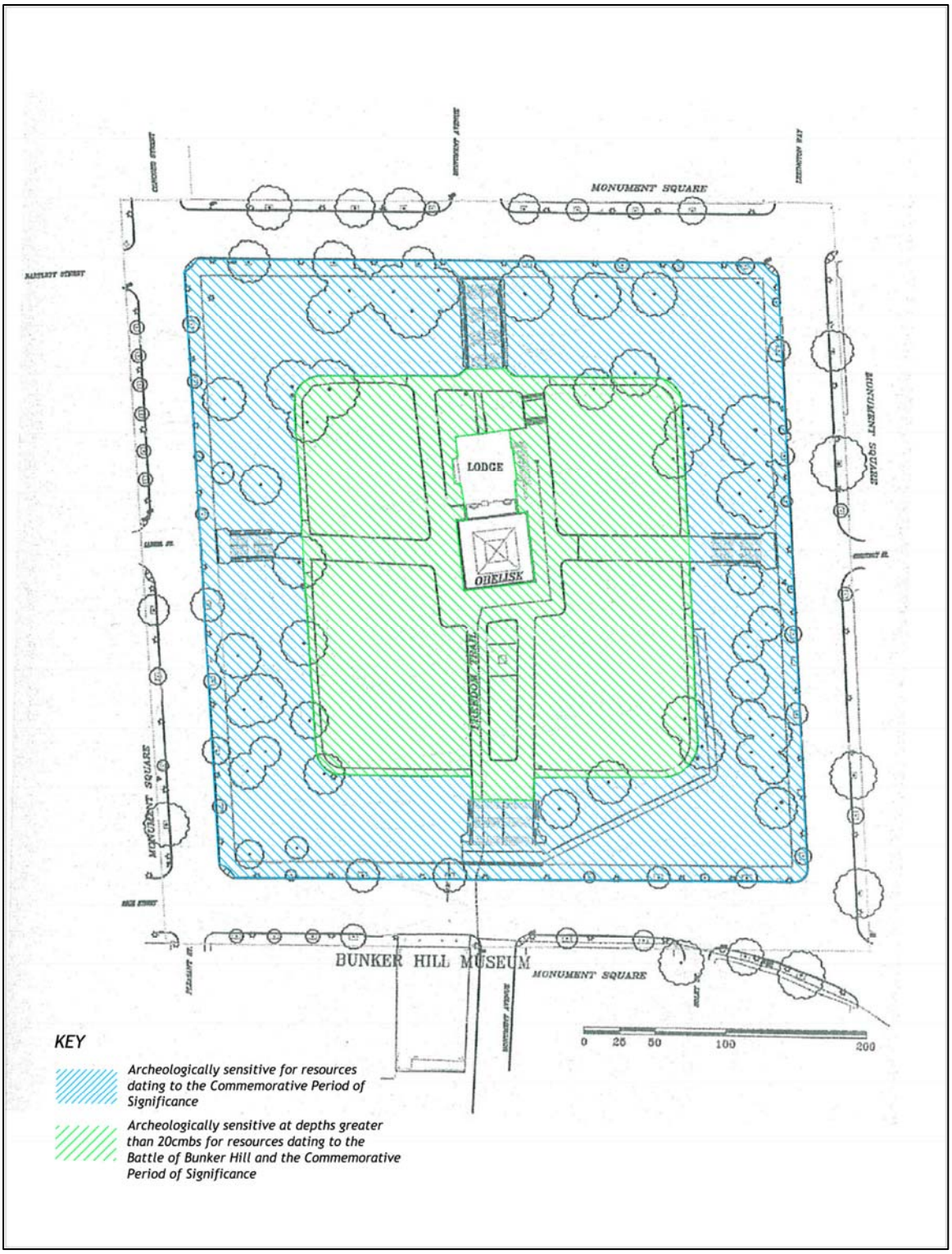

Figure 5-1. Archeological sensitivity map, Bunker Hill Monument.

It should be noted that the machine excavations around the obelisk that occurred in 1980 would seem to preclude any archeological sensitivity in that location (see Figure 4-1). The maximum depths of those excavations, however, are not clearly documented and, as such, deeply buried archeological deposits associated specifically with the construction of the obelisk may survive. Mahlstedt notes that during his monitoring work, hand excavation replaced machine excavation between the first and second courses of the monument foundation for lack of maneuverability and that "if the entire foundation had been excavated by hand there might exist a sizeable and potentially meaningful artifact assemblage . . . reflective of a variety of personal and behavioral idiosyncracies of the nineteenth-century laborers involved in the monument construction" (Mahlstedt 1980:31).

In consideration of the actual and potential contributions of archeological research to a more substantive understanding of the history of the Battle of Bunker Hill and the Bunker Hill commemorative period, it is recommended that any future amendments to the existing National Register documentation for the Bunker Hill National Monument include post-contact period archeology as an area of significance for the property under Criterion D.

National Register Eligibility of Identified Archeological Resources

As detailed in Chapter 4 and discussed above, the number, types, and quality of archeological data identified at the Bunker Hill National Monument is sufficient to recommend post-contact period archeology as an area of significance for the property under Criterion D. The resources themselves, however, also may be considered individually as National Register-eligible archeological properties.

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.

Archeological 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 recognize 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).

Table 5-1 summarizes the archeological resources identified at the Bunker Hill Monument property to date; the period of significance to which each resource would most logically contribute; the physical integrity of each resource; the integrity of each resource as evaluated using National Register criteria; the research value of each source; and recommendations regarding the National Register eligibility of each resource based on a synthetic evaluation of the preceding categories. Given the landscape history of the property, it is unsurprising that resources dating to the Commemorative period of significance comprise the bulk of the archeological inventory or that, moreover, those resources span a broad range of interpretive value.

Despite the pre-eminent significance of the Battle of Bunker Hill to the property, only one archeological resource dating to that period, the remains of the redoubt ditch feature, has been identified to date. The survival of this one feature, however, has the potential to contribute substantive information with which to clarify outstanding questions regarding the size, shape, and affiliation of the fortifications. The level of integrity for the ditch is currently unknown, but given the importance of the Battle of Bunker Hill to American history, the National Register status of the site based on that event, and the unique nature of the resource, any surviving remnant of the feature should be considered potentially significant.

Recommendations for Future Research

The Bunker Hill Monument site poses a unique challenge insofar as additional archeological investigations are concerned. The Revolutionary War-era redoubt trench is a large-scale landscape feature that under normal circumstances would be most effectively delineated through machine-assisted soil stripping over large portions of the site. Given the unique historical significance of the monument landscape, however, this approach is likely neither prudent nor practical. Despite this limitation, the existing and potential archeological data has the potential to clarify ambiguities surrounding the Battle of Bunker Hill that are not otherwise resolvable using the conflicting historical documentation about the site.

The development of more reliable geo-prospecting techniques likely will provide the most cost effective and least destructive means of conclusively identifying the size, shape, orientation, and integrity of the redoubt trench feature. In the meantime, targeted trench and unit excavations conducted in advance of proposed construction projects continues to be the best strategy for exposing additional elements of the trench and, secondarily, for identifying previously undocumented obelisk construction episodes. For this work to be of maximum value, the Harris matrix soil recording system should be employed so that soil contexts can be correlated temporally and spatially in the likely event that the various archeological projects are separated by a span of several years.

The realized and potential value of archeology to the interpretation of the monument property also may add an important public education component to the site. The results of the GPR surveys combined and/or overlaid with the results of the Pendery and Griswold excavations, for example, could provide a meaningful visual representation of

Table 5-1. National Register Recommendations for Identified Archeological Resources at the Bunker Hill Monument.

Identified Resource	Source	Potential Contributing Resource to:	Physical Integrity	National Register Integrity Evaluation	Research Value	National Register Recommendation
Granite paver platform at the base of the monument	Mahlstedt 1980	Commemorative Period of Significance (1825–1902)	Fair	Maintains integrity of location and association	Considered as a single functional unit, the features date to the final construction phase of the monument beginning in 1841 and contribute substantive information about the structural development of the monument unavailable through documentary sources. The platform, in particular, was built without the benefit of construction specifications and, as such, provides insights into the nature of improvised construction practices at the site.	Potentially Eligible
Set of four coursed rubble granite perimeter walls						
Set of four uncoursed rubble diagonal walls terminating at the corners of the perimeter walls						
Obelisk foundation	Mahlstedt 1980	Commemorative Period of Significance (1825–1902)	Good	Maintains integrity of location, design, setting, materials, and association	The mixed rubble work foundation below grade contradicts construction specifications requiring that it be built using dressed and hammered stone, and provides tangible evidence of practical construction and design changes made in the field. The re-pointing of the base in 1882 as inferred from the use of rubble mortar rather than the original lime mortar documented in 1843, also suggests a previously undocumented infilling episode between the obelisk base and the perimeter walls. Provides information about the construction of the monument unavailable through documentary sources.	Potentially Eligible
Two small rubble stone walls running perpendicularly from the north wall of the monument toward the lodge (Walls A and B)	Mahlstedt 1980	Commemorative Period of Significance (1825–1902)	Fair	Integrity unknown	The function, and therefore the research value, of the walls could not be determined.	Unknown
Rubble steps associated with the southern lodge door	Mahlstedt 1980	Commemorative Period of Significance (1825–1902)	Poor	Maintains integrity of location and association	Part of these steps were destroyed in 1975 when the Army Corps of Engineers relocated an underground electrical conduit in that location, but an archival print of the monument dating to 1857 suggests that it is only a remnant of the original entrance. Provides corroborative rather than new information regarding the construction history of the monument.	Ineligible

*Feature designations are consecutive within individual projects rather than consecutive across all projects

Table 5-1. National Register Recommendations for Identified Archeological Resources at the Bunker Hill Monument.

Identified Resource	Source	Potential Contributing Resource to:	Physical Integrity	National Register Integrity Evaluation	Research Value	National Register Recommendation
Perpendicular fence curb stones and footing blocks lying along the north wall of the obelisk.	Mahlstedt 1980	Commemorative Period of Significance (1825–1902)	Fair	Maintains integrity of location and association	Review of archival photographs indicates that the materials are remnants of a wrought iron fence that separated the obelisk from the original wooden lodge structure (ca. 1857) that was subsequently modified to accommodate the distance between the obelisk and the larger, permanent Granite Lodge, ca. 1902. Provides corroborative rather than new information regarding the construction history of the monument.	Ineligible
Window well at the southwest corner of the monument	Mahlstedt 1980	Commemorative Period of Significance (1825–1902)	Good	Maintains integrity of location and association	Provides corroborative rather than new information regarding the construction history of the monument.	Ineligible
Four large granite bollards used as the corner posts for the original wrought iron fencing	Mahlstedt 1980	Commemorative Period of Significance (1825–1902)	Destroyed	No integrity	Removed during the monitoring project because of their instability.	Ineligible
Segments of nineteenth-century lightning rods located at the northwest and southeast corners of the obelisk	Mahlstedt 1980	Commemorative Period of Significance (1825–1902)	Fair–Poor	Maintains integrity of location and association	Provides corroborative rather than new information regarding the construction history of the monument.	Ineligible
Macadam paving episode	Mahlstedt 1980	Does not contribute under either period as currently defined; potentially contributing to the Commemorative Period of Significance if the period is extended to include the MDC stewardship period.	Poor	Maintains integrity of location and association	There is no evidence indicating the use of macadam at the site at any point during its landscape history, so the identification of the deposit provides information about an MDC-era paving episode unavailable through documentary sources. The integrity of the deposit, however, was compromised by subsequent construction episodes and the deposit, in and of itself, does not provide substantive new information about the history of the site.	Ineligible

*Feature designations are consecutive within individual projects rather than consecutive across all projects

Table 5-1. National Register Recommendations for Identified Archeological Resources at the Bunker Hill Monument.

Identified Resource	Source	Potential Contributing Resource to:	Physical Integrity	National Register Integrity Evaluation	Research Value	National Register Recommendation
Timbers associated with the base of the Holmes hoisting apparatus	Mahlstedt 1980	Commemorative Period of Significance (1825–1902)	Fair	Maintains integrity of location and association	Used during the 1825–1828 and 1834–1835 building campaigns, the surviving timbers are a significant physical manifestation of the innovative technological and engineering aspects of the construction of the monument.	Potentially Eligible
Rounded brick manhole located at the southeast corner of the square	Schley 1991	Unknown	Fair	Unknown	Level of documentation insufficient to determine the function or age of the feature	Unknown
90 linear feet of large, roughly-dressed, unmortared granite blocks at the entrance to the Connecticut gate – designated Feature 1*	Schley 1991	Commemorative Period of Significance (1825–1902)	Destroyed	No integrity	Interpreted as part of an earlier entrance gate to the park, the blocks were removed during the construction project.	Ineligible
Wooden telephone box	Schley 1991	Does not contribute under either period as currently defined	Fair	N/A	Used as late as the 1970s to protect underground telephone wires; possesses no intrinsic or substantive research value to the site.	Ineligible
Rough-dressed stone slab resting on three courses of brick located at the northeast corner of the square - designated Feature 2	Schley 1991	Unknown	Unknown	Unknown	Level of excavation and documentation insufficient to determine the function or age of the feature.	Unknown
Large irregular ditch in the northwest and southwest quadrants of the site - designated Feature 1	Pendery and Griswold 1996	Battle of Bunker Hill Period of Significance	Unknown	Maintains integrity of location and association	Identified as the remains of Revolutionary War-era fortifications constructed on the hill in 1775, it is unclear if the feature is associated with British or American forces. Nonetheless, its survival has the potential to contributive substantive information with which to clarify outstanding questions regarding the size, shape, and affiliation of the fortifications. The level of integrity for the ditch is currently unknown, but given the importance of the Battle of Bunker Hill to American history, the National Register status of the site based on that event, and the unique nature of the resource, any surviving remnant of the feature should be considered potentially significant.	Potentially Eligible

*Feature designations are consecutive within individual projects rather than consecutive across all projects

Table 5-1. National Register Recommendations for Identified Archeological Resources at the Bunker Hill Monument.

Identified Resource	Source	Potential Contributing Resource to:	Physical Integrity	National Register Integrity Evaluation	Research Value	National Register Recommendation
Twentieth-century rectangular pit - designated Feature 2	Pendery and Griswold 1996	N/A	N/A	N/A	The feature contained a cigarette filter and machine-made bolts and likely is associated with a utility installation in that location - possesses no intrinsic or substantive research value to the site.	Ineligible

*Feature designations are consecutive within individual projects rather than consecutive across all projects

the uncertainties surrounding the location of the Bunker Hill redoubt. Similarly, photographs taken during Mahlstedt's archeological monitoring program might be used to "deconstruct" the construction of the obelisk, providing evidence of creative or cost-saving field engineering techniques either not available through existing records or not visible on the current landscape.

Another aspect of this public education component should include the display of select artifacts recovered during archeological excavations conducted at the monument. While not necessarily interpretively significant to the site, many of the artifacts are important in that they provide tangible and evocative reminders of both the military and commemorative aspects of the site's history. Appendix I provides a list of artifacts recommended for public display. With the exception of the latten spoon and Holmes hoisting apparatus, the selected artifacts are associated with the Pendery and Griswold excavations and were collected from Feature 1, the redoubt ditch feature, and Stratum 3A, an eighteenth-century context that may be a relict topsoil dating roughly to the period of the battle. The items provide a sample of cultural material that may be directly associated with the Battle of Bunker Hill itself, such as musket balls, as well as more mundane materials such as bottles and ceramics that highlight the domestic trappings of day-to-day life in the second half of the eighteenth century. As for the nineteenth-century Commemorative period of significance, the remains of the Holmes hoisting apparatus, while not strictly archeological in recovery, are significant as the only surviving element of an innovative technology critical to the construction of the obelisk.

The newly-opened Bunker Hill Museum at 43 Monument Square would provide an appropriate venue for the display of the archeologically derived materials and provide necessary historical context so that the public may read and interpret the archeological data independently.

Summary

The assessment of the known and potential archeological resources within Bunker Hill National Monument must be an ongoing process. The current project was most useful for compiling information relating to archeological sites and sensitivity that can grow with the needs of the Park. In order for the AOA to be effective for the future management of archeological resources, new and updated information must be added. This information includes the recordation of new archeological sites identified through excavation or accidental discovery and the collection of additional information from Park employees, local residents and historians. By viewing the AOA report as a resource to be utilized and improved upon, the NPS can continue to successfully identify, manage and interpret the archeological sites and resources within the Bunker Hill National Monument.

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APPENDIX I

ARTIFACTS RECOMMENDED FOR PUBLIC EXHIBIT

Collection	Accession #	Catalog #	Context	Description
Mahlstedt 1980	BOSTB-00029	_	Recovered from fill between the first and second course of the obelisk foundation	17th-century latten seal top spoon handle
Mahlstedt 1980	BOSTB-00027	_	Newel basement	Remains of the Holmes hoisting apparatus
Pendery and Griswold 1996	BOSTB-00090	433	Trench 1, Unit 6, Feature 1 – redoubt ditch	Ball clay tobacco pipe stem fragment
Pendery and Griswold 1996	BOSTB-00090	424	Trench 1, Unit 6, Feature 1 – redoubt ditch	Black molded glass bead
Pendery and Griswold 1996	BOSTB-00090	507	Trench 2, Unit 2, Stratum 3A	Westerwald stoneware sherd with cobalt and manganese decoration
Pendery and Griswold 1996	BOSTB-00090	508	Trench 2, Unit 2, Stratum 3A	Ball clay tobacco pipe stem fragment with molded geometric design
Pendery and Griswold 1996	BOSTB-00090	592	Trench 2, Unit 10, Stratum 3A	Lead musket ball – flattened by impact
Pendery and Griswold 1996	BOSTB-00090	631	Trench 4, Level 4, Feature 1 – redoubt ditch	Lead musket ball
Pendery and Griswold 1996	BOSTB-00090	676	Trench 7, Feature 1 – redoubt ditch, upper ditch fill	Free-blown dark olive green bottle lip and string rim
Pendery and Griswold 1996	BOSTB-00090	652	Trench 4, backhoe cleaning	English yellow slipware sherd
Pendery and Griswold 1996	BOSTB-00090	830	Trench 7, Feature 1	Slate gravestone fragment
Pendery and Griswold 1996	BOSTB-00090	831	Trench 7, backfill	Slate gravestone fragment – mends with #830