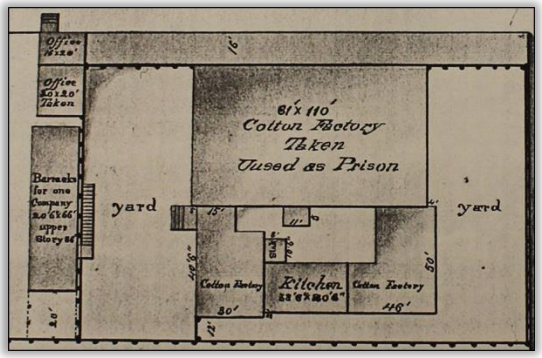

ASSESSMENT AND INTENSIVE ARCHAEOLOGICAL INVESTIGATION FOR 513–515 NORTH WASHINGTON STREET, ALEXANDRIA, VIRGINIA

Prepared for:

CAS Riegler
1010 Wisconsin Avenue NW, Suite 600
Washington, DC 20007

Prepared by:

Emily Swain, MAA
Paul P. Kreisa, PhD, RPA
Eric Griffitts, MA
Jacqueline M. McDowell, MA
Geri J. Knight-Iske, MA, RPA
Nancy L. Powell, BA

March 25, 2016; Revised November 30, 2017

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Geri Knight-Iske, MA, RPA
Nancy Powell, BA
Stantec Consulting Services Inc.

Eric Griffitts, MA
EHT Traceries, Inc.

Paul P. Kreisa, PhD, RPA
Principal Investigator

Stantec Consulting Services Inc.
6110 Frost Place
Laurel, Maryland 20707

March 25, 2016; Revised November 30, 2017

MANAGEMENT SUMMARY

This report documents the results of an intensive archaeological investigation undertaken by Stantec Consulting Services Inc. (Stantec) and EHT Traceries, Inc. (EHT Traceries) for the 513—515 North Washington Street property (also known as the Cotton Factory) in the Old Town district of Alexandria, Virginia. CAS Riegler has renovated the Cotton Factory as a residential property. The current project centers on construction of an annex building (known as the Annex), installation of a publicly accessible park, and other improvements. The intensive archaeological investigation is required by City of Alexandria Department of Planning and Zoning, and operationalizes a Scope of Work based on discussions with members of the Office of Historic Alexandria/Alexandria Archaeology. The approach taken for the intensive archaeological investigation and this report are in accord with the City of Alexandria's *Archaeological Standards* (Alexandria Archaeology 2007), the Virginia Department of Historic Resources' (2011) *Guidelines for Conducting Historic Resources Survey in Virginia*, and the standards and guidelines set forth in the Secretary of the Interior's *Standards and Guidelines for Archeological and Historic Preservation* (Federal Register 1983).

Stantec's investigations at the Cotton Factory property consisted of five tasks: an initial assessment of the property, machine-aided excavation of five trenches within the proposed Annex footprint, artifact analysis, preparation of a combined Archaeological Assessment (Phase IA) and Phase IB/II report of investigations, and curation of project materials. The initial four trenches were oriented north to south at approximately 4 m intervals across the proposed footprint, effectively sampling the entire area. Several shovel test pits (STPs) were also excavated within the trenches. Two of the four trenches exposed a cut stone and brick foundation and a brick floor. Review of historical plans identified the foundation to be the north wall of the Cotton Factory (steam) engine house. The brick floor, to the south of the foundation, is an intact floor within the engine house interior. The fifth trench was oriented east to west and uncovered the extent of the foundation wall and associated floor and engine platform within the proposed footprint. The north foundation measured 25 feet in length, or the full extent of the engine house as depicted on maps. The northeast building corner and a small segment of the east foundation was also uncovered, as was a stepped brick platform that supported a steam engine, a well for the engine wheel, and several drains. Few artifacts were recovered from either monitoring of the trench excavations or the STPs.

For the current construction of the Annex, the excavations have yielded significant information on the organization, nature, and evolution of the Cotton Factory, providing information on mid-nineteenth-century manufacturing facilities in the Mid-Atlantic region. The extent of excavations suggests there is little potential for additional features within the Annex footprint. As such, Stantec recommends no additional archaeological investigations within the building footprint.

However, the excavations also indicate that the larger property has the potential to yield significant information on the history of manufacturing in Alexandria and as such should be considered a significant archaeological resource. As noted, the site retains the potential, not at present demonstrated, to yield information on the Civil War prison, the Portner Brewery, and the Express Spark Plug factory as well. Any plans for excavations outside the footprint should

take the high potential for the presence of significant archaeological resources into consideration.

PUBLIC SUMMARY

In 2014, CAS Riegler envisioned rehabilitating a historical Alexandria building known as "the Cotton Factory" and its lot into a modern residential unit. Plans for the Cotton Factory property at 513–515 North Washington Street in the Old Town district included renovation of the standing Cotton Factory, construction of a residential building (known as the Annex), and development of a park for the neighborhood. CAS Riegler has already converted the original Cotton Factory into apartments and is now adding the Annex and the public park. Archaeological and historical investigations were required by the City of Alexandria Department of Planning and Zoning. Stantec Consulting Services Inc. (Stantec) and EHT Traceries, Inc. (EHT Traceries) provided the archaeological and historical services.

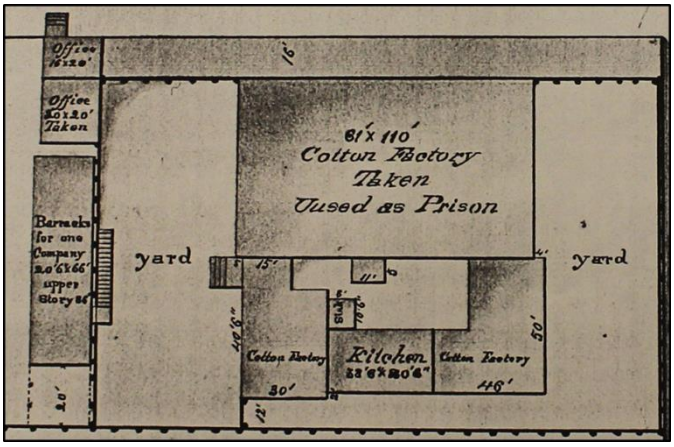
Property History

Historical research showed no evidence of buildings on the property before the Mount Vernon Cotton Factory was built in 1847. This original building held 124 looms with 3,840 spindles. Two 30-horse-powered steam engines ran the equipment. Most of the 150 workers were women who labored 11 hours a day and earned 12 to 17 dollars a month. Support buildings included a picking house, an engine house with a repair shop, an office, and a waste house.

Alexandria witnessed an economic boom in the late 1840s and early 1850s, and the Mount Vernon Cotton Factory was one of a number of new industries established in the city. But it and other cotton mills in Virginia had a hard time competing with mills in New England, some of which had been operating since the 1700s and were far more experienced and efficient. By 1852, the mill's owners were trying to sell the property. In 1858, they finally sold the mill for 35,000 dollars.

This 1853 lithograph by E. Sachse and Company shows the Mount Vernon Cotton Factory at the lower center of the image (Barrett Library Special Collections, Alexandria, Virginia)

The Cotton Factory operated until the Civil War, when the federal government occupied Alexandria and confiscated the mill buildings. The property became a military prison that housed both captured Confederate and Union soldiers convicted of disorderly conduct and desertion. At the war's end, the mill briefly served as a barracks for convalescent soldiers before being returned to its owner later in 1865. The mill sold was in 1866 by John Rosencrantz for 34,000 dollars to Abijah Thomas who intended to resume cotton manufacture. But the difficulties of the post-war economy doomed the project. Thomas was forced to sell in 1877. The buyer was a cotton manufacturer from Maryland who bought the Alexandria mill simply to prevent another competitor from restarting it. As a result, the property sat vacant until 1902, when representatives of the Portner Brewing Company finally bought it.



An 1865 rendition of the Washington Street Military Prison (Alexandria Library Local History Special Collections)

Robert Portner had emigrated from Germany and set up as a brewer. Although the Civil War had led to financial difficulties in his earlier ventures, Portner changed his focus to lager beers and found success. His company's purchase of the old Cotton Factory was a result of his increased production and need for more facilities to handle the added work and storage requirements. The old Cotton Factory became a Portner bottling plant. Again, circumstances seemed to conspire against the property. Virginia passed a prohibition law in 1916, and Portner's brewery was closed. The old Cotton Factory and other buildings were soon sold to the Express Spark Plug Factory of America. The factory supplied spark plugs to other regional companies and, like the old Cotton Factory, employed mainly women. In 1928, however, the company closed its Alexandria facility and sold the property.

The new owner spent several years deciding how best to use the property. In 1934, he petitioned the city to rezone the land as residential so he could convert the old Cotton Factory into an apartment building. The city approved the change, and renovations on the new Belle Haven Apartments began in 1935, including the addition of a portico around the entrance and dormer windows on the top floor. The building remained residential until 1981, when a company bought it and redesigned it as office space. CAS Reigler's project returns the property to residential use.

1920s photograph of the spark plug factory (Alexandria Library Local History Special Collections, William Smith Photographs)

Archaeological Finds

Stantec's investigations began with a review of previous archaeological projects near the old Cotton Factory and identifying already recorded archaeological sites. An 1888 topographical map was compared with a modern map to see if the property might have been graded or had fill added to it. The results showed no evidence of grading that could have removed archaeological deposits. Instead, the results indicated that around 2–4 feet of fill were on the property.

To see if archaeological deposits were present in the area of the Annex, five trenches were excavated with a backhoe. Four parallel trenches were excavated across the Annex's footprint. The fifth trench cut across the four trenches to open a wider area for the archaeologists to study. The first four trenches revealed a cut-stone-and-brick foundation and a brick floor, and historical plans of the building show these were part of the north wall and floor of the engine house. The engine house held the steam engines that ran the equipment. The fifth trench also

1938 photograph of the Belle Haven Apartments (Alexandria Library Local History Special Collections, Vertical File Image #470)

uncovered part of the east foundation of the engine house, a stepped-brick platform that supported a steam engine, a well for the engine wheel, and several drains. Shovels were used to excavate further into the trenches, but they revealed only a few artifacts.

Only forty artifacts were found during the archaeological investigations. These include fragments of ceramic dishes, milk bottles, and unidentified bottles (but likely not beer), nails and window glass, spark plugs, and unidentified pieces of metal. Most of these artifacts probably relate to the Cotton Factory, the Spark Plug Factory, and the Belle Haven apartments. None seem to be associated with the Civil War prison or the Portner Brewing Company. The absence of brewing-related artifacts might reflect the cleanliness needed in the bottling plant or how well the building was stripped of its brewing supplies when Portner's sold it.

A steam engine wheel, well, and platform at the Clairton Works in Allegheny County, Pennsylvania (Hoover 1968a).y

The excavations have yielded significant information on the organization, nature, and changing use of the Cotton Factory, and provide information on mid-nineteenth-century manufacturing facilities in the Mid-Atlantic region. However, the extent of excavations suggests there is little potential for additional features within the Annex footprint. As such, Stantec recommended no additional archaeological investigations within the building footprint.

The excavations also show the larger property could yield significant information on the history of manufacturing in Alexandria. As such, the Cotton Factory property is a significant archaeological and historical resource. The site retains the potential, not at present demonstrated, to yield information on the Civil War prison, the Portner Brewery, and the Express Spark Plug factory as well. Any plans for excavations outside the footprint should take the high potential for the presence of significant archaeological resources into consideration.

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1.0 INTRODUCTION

This report documents the results of a Phase IA archaeological site assessment and Phase IB/II field investigations undertaken by Stantec Consulting Services Inc. (Stantec) and EHT Traceries, Inc. (EHT Traceries), under contract to CAS Riegler, at the property located at 513–515 North Washington Street in Alexandria, Virginia (Figure 1).

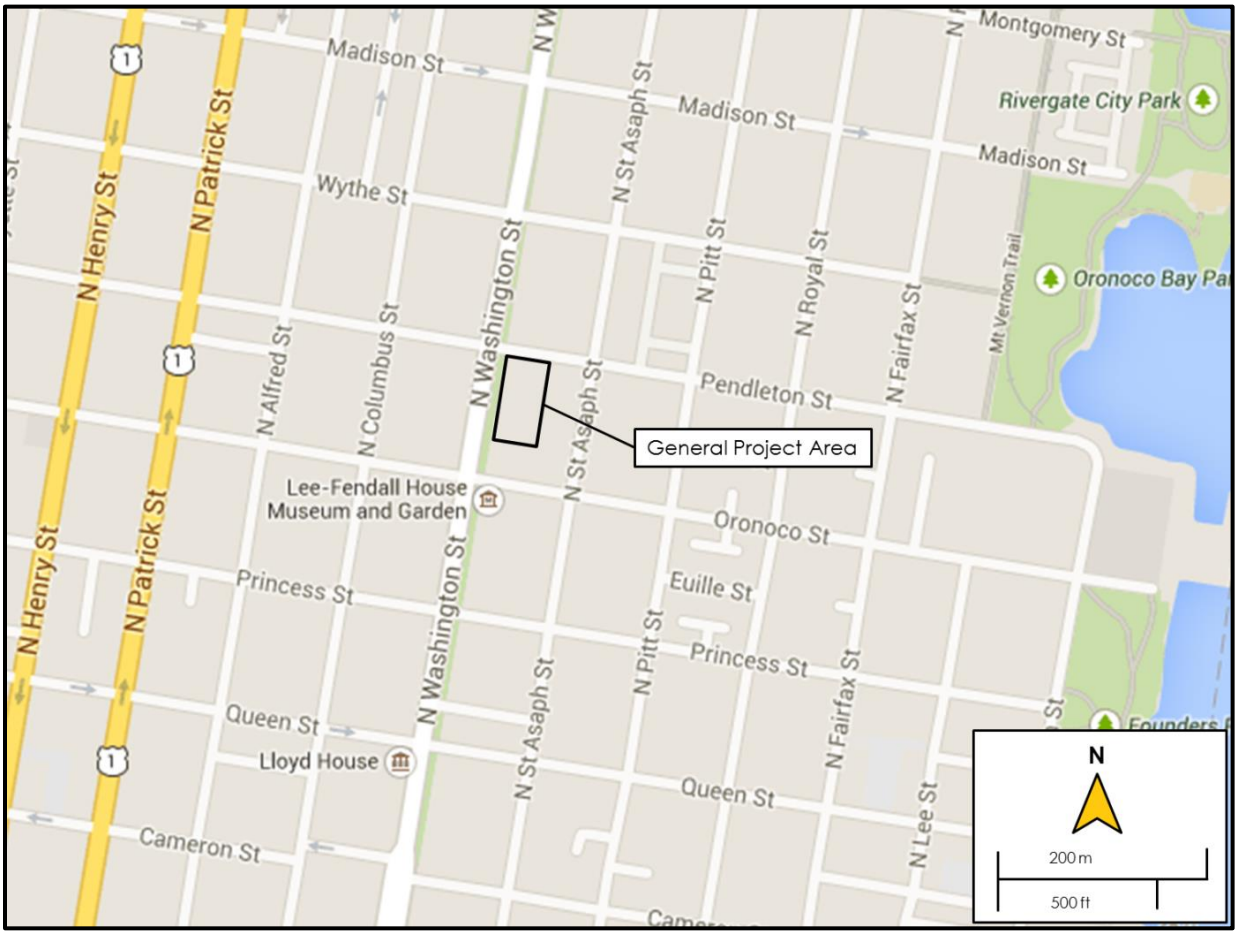

Figure 1. Location of the project area (Google 2014).

Initially, in comments provided to CAS Riegler by the City of Alexandria Department of Planning and Zoning (City Compiled Concept I [Revised Comments, DSUP #2013-0023 515 N. Washington Street, dated 19 February 2014]), a documentary study and archaeological evaluation of the proposed undertaking was requested (see page 11, Archaeology Comments 1). A Scope of Work for the Documentary Study and Archaeological Evaluation was provided by the Office of Historic Alexandria/Alexandria Archaeology (dated 23 April 2014). Following review of the report prepared for those investigations (Kreisa et al. 2015), additional archaeological investigations were required by the City of Alexandria Department of Planning and Zoning (Second Final Site Plan Review, DSUP #2013-0023 515 N. Washington Street, dated 6 November 2015). The additional investigations reported here operationalize a Scope of Work

based on discussions held with members of the Office of Historic Alexandria/Alexandria Archaeology.

The approach taken for the assessment and intensive archaeological investigation and this report are in accord with the City of Alexandria's *Archaeological Standards* (Alexandria Archaeology 2007), the Virginia Department of Historic Resources' (VDHR) *Guidelines for Conducting Historic Resources Survey in Virginia* (VDHR 2011), and the standards and guidelines set forth in the Secretary of the Interior's *Standards and Guidelines for Archeological and Historic Preservation* (Federal Register 1983).

This report fulfills Archaeology Comments 1 in "Revised Comments, DSUP #2013-0023 515 N. Washington Street" (dated 19 February 2014) and provides CAS Riegler and the Office of Historic Alexandria/Alexandria Archaeology with integrated historical and archaeological data, an assessment of the likelihood of archaeological resources, and, based on recommendations for further investigations for the 513–515 North Washington Street parcel, the results of those field investigations.

1.1 Proposed Undertaking

Previously, CAS Riegler renovated a five-story building at 513–515 North Washington Street known as the Cotton Factory. Currently present on the property are the Cotton Factory structure built in 1847 and adjacent parking lots. The structure was originally built as a commercial cotton factory and has been reused as a brewery, spark plug factory, residential apartment building, and, most recently, as commercial offices. The current project includes construction of a free-standing building (known as the Annex) and installation of a publicly accessible park and other improvements including signage, site lighting, walkways, and landscaping (Figure 2). Nine residential units are proposed for the Annex. The park will be installed along the south façade of the Cotton Factory building within an existing parking lot. Landscaping will be planted and two new walks installed. Figure 3 presents an artist's conception of the proposed project.

1.2 Project Area Description

The project area is located at 513–515 North Washington Street in Alexandria, Virginia, and includes a standing structure, known as the Cotton Factory, and associated parking lots to the east. The property is bounded on the east by residential condominiums, on the north by Pendleton Street, on the west by North Washington Street, and on the south by a residence (Figures 1 and 4). The property is located within a mixed residential-commercial area of the north portion of the Old Town Alexandria district. The Potomac River and waterfront lie approximately .25 miles to the east, and Interstate 95/495 and the Wilson Bridge are to the south.

The Office of Historic Alexandria/Alexandria Archaeology identifies the Old Town section of Alexandria as having a high potential for archaeological resources. This section of the city is the original historical core that was incorporated in 1749 and includes numerous historic resources, ranging from residential to commercial and from craft and industrial sites to port facilities. The proximity of this area to the Potomac River also suggests that there remains a potential for Native American resources. The Office of Historic Alexandria/Alexandria Archaeology suggests that as much as 72 percent of Old Town may contain archaeological resources and is of significance because the area's sites mirror the full range of development of the City of Alexandria.

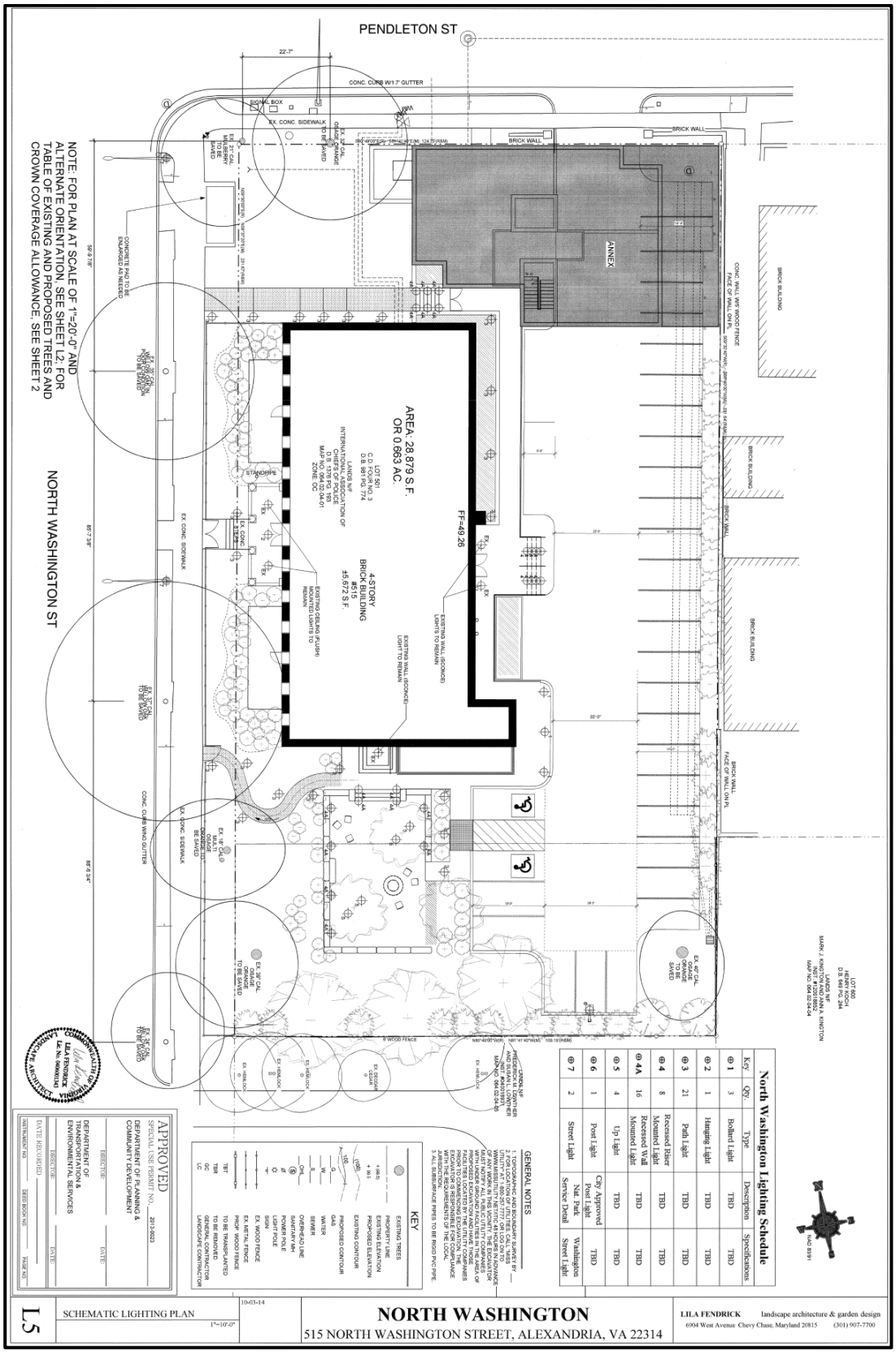

Figure 2. Proposed construction plan for 513–515 North Washington Street parcel.

Figure 3. Artist's conception of the 513–515 North Washington Street project.

1.3 General Setting

The Cotton Factory is located in the Lowland Subprovince of the Atlantic Coastal Plain Physiographic Province, an area characterized by flat, low relief along major rivers and Chesapeake Bay (Bailey 1999). In this area, the Lowland Subprovince consists of Cretaceous sediments (Figure 5) (Virginia Department of Mines, Minerals, and Energy 2014). According to the *Geologic Map of Virginia,* the project area is underlain by the Shirley Formation, characterized by interbedded gravel, sand, silt, clay, and peat (Virginia Department of Mines, Minerals, and Energy 2014). The Shirley Formation is of the Quaternary period, specifically Middle Pleistocene, and is composed of basal, gravelly sand that grades upward into a medium gray to reddish-brown fine to coarse sand, and an upper unit of light to medium gray clayey silt or clayey, silty fine-sand (Johnson and Berquist 1989).

The Cotton Factory lies within the Urban land-Grist Mill soil complex (U.S. Department of Agriculture, Natural Resources Conservation Service [USDA] 2013). According to the *Description and Interpretive Guide to Soils in Fairfax County* (Fairfax County Public Works and Environmental Services and Northern Virginia Soil and Water Conservation District 2013), this complex is found in very densely developed, low elevation areas of the Coastal Plain. The Urban land-Grist Mill soil complex consists of a mixture of impervious man-made materials that comprise Urban land soils and the development-disturbed Grist Mill soils. Grist Mill soils consist of sandy, silty, and clayey sediments of the Coastal Plain that have been mixed, graded, and compacted during development and construction; therefore, characteristics of the soil can vary depending on what materials were mixed in during construction. The Grist Mill subsoil is generally a clay loam, but can range from sandy loam to clay. The Web Soil Survey (USDA 2013) describes a typical Grist Mill

Figure 4. Alexandria 7.5-minute quadrangle showing the general project location.

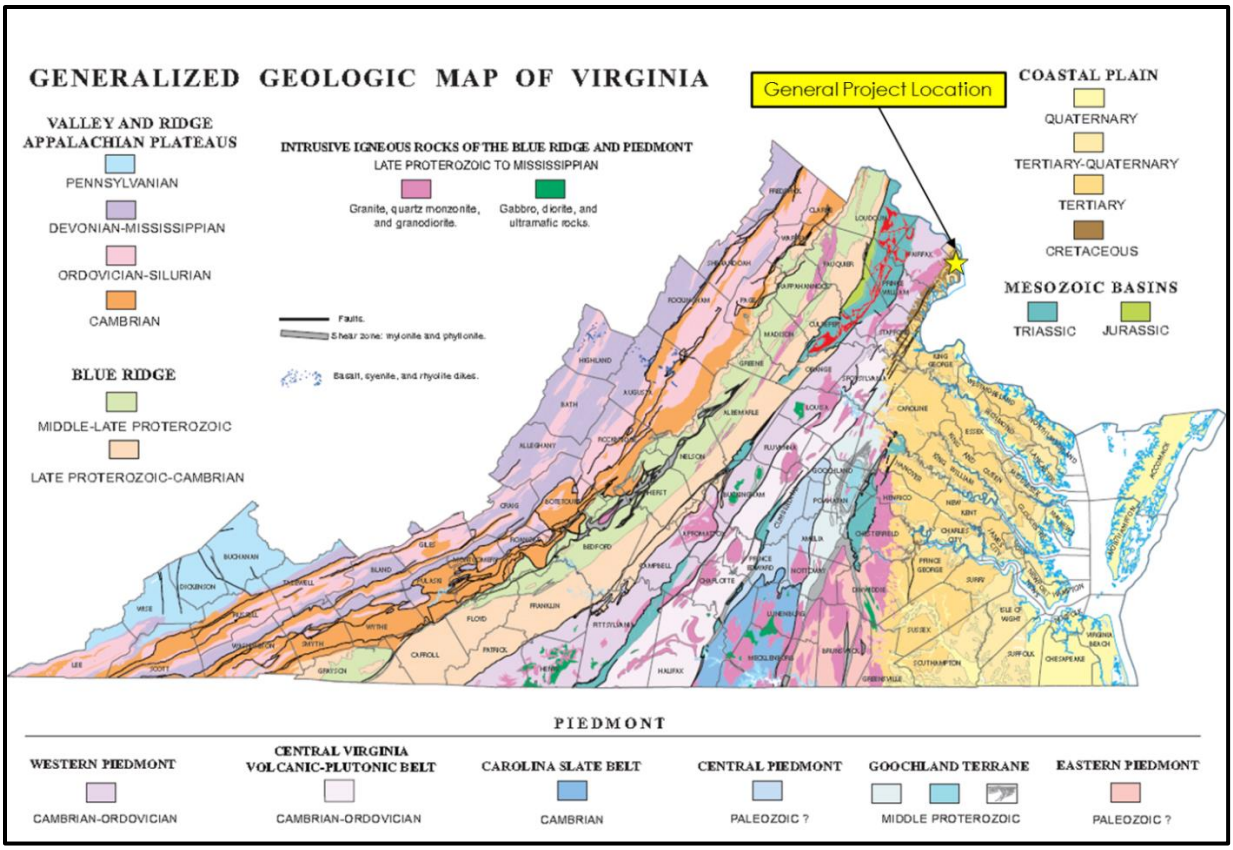

Figure 5. Virginia geologic regions (after Department of Mines, Minerals, and Energy 2014).

soil profile as sandy loam to approximately 15 cm below surface followed by sandy clay loam from 15–152 cm below surface. The soil is well-drained and depth to the water table is between approximately 24 and 79 inches (.61 and 2.0 m) (USDA 2013).

1.4 Report Organization

Following this introduction, the report is presented in seven additional sections: Project Methods, Cultural Context, Previous Archaeological Investigations, Archaeological Resource Sensitivity Assessment, Intensive Archaeological Investigation, Summary and Recommendations, and References Cited. Qualifications of Key Personnel are presented in Appendix A and the Artifact Catalog in Appendix B.

2.0 PROJECT METHODS

Research methods for the Phase IA documentary study and archaeological site assessment for the 513–515 North Washington Street parcel included archival and other background research and GIS analysis. The Phase IB/II investigations consisted of additional archival research, machine-aided excavation of five trenches (augmented with shovel test pits [STPs]) within the proposed Annex footprint, and artifact analysis. Details of these research methods are provided below.

2.1 Background and Archival Research

Background research was conducted for both the archaeological assessment/documentary research and Phase IB/II field investigations for the 513–515 North Washington Street project. Research conducted for the archaeological assessment included review of the archaeological site files and reports on archaeological investigations conducted within three to four blocks of the 513–515 North Washington Street parcel. This research was conducted online using the Virginia Department of Historic Resources (VDHR) V-CRIS database and the Office of Historic Alexandria/Alexandria Archaeology project files. The search consisted of review of existing surveys and identified archaeological sites. This determined the level of previous identification studies and the nature of archaeological sites within the general project area. Contract reports documenting the results of previous archaeological investigations conducted in the general project area were reviewed, as were the VDHR archaeological site files. The archaeological site files were reviewed to determine whether any archaeological sites in or near the property had previously been registered with VDHR.

Sources for the historic context (see Section 3.8) were acquired from Alexandria Archaeology and from the Special Collections Unit of the Alexandria Public Libraries' Barrett Branch. Primary sources consulted include historical maps, lithographs, photographs, and tax records. Newspaper articles were acquired online through ProQuest research services. Secondary sources used for the study included general histories on Alexandria and histories of the Cotton Factory and the Robert Portner Brewing Company. For the intensive archaeological investigation, additional research, focusing on tax records, was conducted in an attempt to identify potential pre-1840s occupation of the 515 North Washington Street parcel.

2.2 GIS Methods

In conjunction with the results of the soils review and land-use history, an analysis of changes in elevation and topography for the 513–515 North Washington Street parcel was conducted using GIS. The methods used in conducting this elevation change analysis can be found in Katz et al. (2012:17). The analysis compared topographic elevation between the 1884 *Topographical Map of the District of Columbia and a Portion of Virginia* with a modern base map and topographic GIS data from the City of Alexandria. Katz et al. (2012:17) indicate that prior to 1899, elevations in areas adjacent to the District of Columbia, including Alexandria, were tied to the half-tide level of the Potomac River. To account for changes in vertical data between 1899 and the present, Katz et al. (2012:17) direct that, in accordance with guidance from professional surveyors, 2.2 ft be subtracted from the historical elevations when compared with a modern

topographic map. The results are generally interpreted to have an error factor of between 3.5 feet and 5 feet (Katz et al. 2012; Katz and Patton 2014).

2.3 Field Methods

Stantec conducted the Phase IB/II field investigations by the strategic placement of five machine-excavated trenches (MTs) within the proposed Cotton Factory Annex footprint. The initial four trenches were placed along a roughly north-south axis with the south end of the Annex footprint intersecting the north façade of a structure depicted on an 1865 map of the Cotton Factory (the 46-x-50-ft structure labeled as Cotton Factory; other maps denote this structure to be an engine [steam] room). The three eastern trenches were approximately 4 feet wide and 40 feet long. Due to size constraints, the westernmost trench was 20 feet long. The trenches were spaced approximately 15 feet apart and were excavated by a backhoe with a smooth bucket. A qualified archaeologist supervised the excavations. Subsequently, a fifth trench was excavated connecting the southern portion of the initial four trenches. This allowed archaeologists to fully uncover a foundation wall and associated brick floor that was identified in two of the four initial trenches.

The backhoe was used to remove fill deposits from the five trenches. Within each trench, fill was removed to either a buried land surface, a structural feature, or, if not present, to culturally sterile subsoil. When intact structural remains were encountered, the remains were cleared, photographed, and documented on feature forms. When buried land surfaces were present, STPs were excavated to determine the nature and extent of any archaeological deposits present. The land surfaces were also examined for the presence of structural and non-structural features. If present, such archaeological resources could yield information on early efforts of industrialization in Alexandria and the life of prisoners during the Civil War, among other topics.

Stantec also hand-excavated 13 STPs in the initial four MTs. All STP excavations continued to culturally sterile sediments and at least 10 cm below the lowest level of artifact recovery. Excavated soils were screened through 1/4-inch hardware mesh to aid in the recovery of artifacts. Machine trench documentation included scale drawings of one vertical wall profile, plan drawings of the final trench excavation level, and MT summary forms. Digital photographs documented each wall profile. Cultural and natural strata were identified, drawn, and described. Colors were described using the Munsell soil color chart. If non-structural features (post molds, privies, pits, or similar) were located in the MTs, CAS Riegler would contact Alexandria Archaeology for consultation as to appropriate documentation measures. Stantec provided Alexandria Archaeology with email updates as appropriate and provided Alexandria Archaeology with the opportunity to inspect the trenches prior to backfilling.

Stantec collected spatial data on all MTs, STPs, and structural or feature remains using a Trimble GPS unit. The data were placed on an existing topographic map of the 513–515 North Washington Street parcel. GIS shape files or UTM coordinates will be submitted to Alexandria Archaeology upon request.

Based on discussions with Alexandria Archaeology, Stantec did not conduct investigations within the park area since current plans limit construction impacts within that portion of the Cotton Factory project area to a depth less than 1 ft below ground surface.

2.4 Artifact Analysis and Curation

Recovered artifacts were processed in Stantec's in-house archaeology workroom. Processing included cleaning, inventory, labeling, and preparation of artifacts. All artifacts were processed, catalogued, and placed in archivally stable containers. Following this initial processing, each artifact was described by material type and other diagnostic characteristics. Following tabulation, any temporally or functionally determinant attributes were recorded. The catalog and provenience information were entered into an Access database. The artifact classification system and definitions of specific Historic period artifact types used in this project are detailed below. No Native American artifacts were recovered from the investigations.

The recovered Historic period artifacts have been categorized in a modified version of South's (1977) system. The descriptive categories include a wide variety of artifacts, many of which are useful temporal and functional indicators. The major descriptive categories for Historic period artifacts are household ceramics, glass, metal, structural elements, and bone. These descriptive categories are then broken down into more specific categories that are discussed below.

2.4.1 Ceramics

The initial division of household ceramics is into earthenware, stoneware, and porcelain categories. Tableware vessels such as plates, cups, saucers, bowls, and serving vessels tend to be more finely made while food preparation and storage vessels such as crocks, mixing bowls, jugs, and butter churns are often made of coarser fabrics. Stoneware vessels tend to have dense paste that ranges from light to dark in color. Many of the earlier stoneware types, both imported and American-made, are salt-glazed. Ceramics dating from the eighteenth through the twentieth century have been found at archaeological sites in and around Alexandria.

Eighteenth-century earthenwares tend to have reddish to buff- or cream-colored pastes with brownish to black lead glazes and simple decoration. Some, such as Staffordshire-type slipware and tin-glazed earthenware, have lighter-colored glazes. Creamware has a hard but slightly porous paste and a cream-colored body with a yellowish to greenish cast to the glaze where it pools. Pearlware has a soft paste and an overall bluish cast to the glaze that is not necessarily limited to puddling in crevices. Porcelain artifacts have fine paste and are vitrified, translucent, and white in color. The Maryland Archaeological Conservation Laboratory (MACL) (2002) does not separate Post-Colonial period earthenwares into fabric-based types because historical potteries did not use such terms consistently in referring to their products. Many archaeologists, however, divide Post-Colonial period ceramics into whiteware and ironstone (also called white granite) based on paste and firing attributes. Whiteware tends to have soft paste while ironstone is nearly vitrified. Although not all potters used these terms consistently, the distinctions between these wares are present and provide temporal and manufacturing details that supplement the historical record. In this report, the decorative distinctions used by MACL (2002) are augmented by division into ware categories including whiteware and ironstone when possible.

Ceramics are further subdivided into type categories on the basis of decorative treatment or, in the case of stoneware, the slip applied to interior and exterior surfaces. These ware and type categories have proven to be important temporal indicators. Chronological ranges associated with each ware and decorative treatment are based on Greer (1981), MACL (2002), Miller et al. (2000), Noël Hume (1991), Price (1981), and South (1977:210–212). Table 1 includes date ranges based on the above sources for Colonial period ceramics. Date ranges for refined ceramics manufactured in the Post-Colonial period are listed in Table 2 and for unrefined ceramics in Table 3.

Table 1. Selected Colonial period ceramic types and date ranges.

	Date Range			
Ceramic Type	*MACL (2002)*	*Miller et al. (2000)*	*Noël Hume (1991)*	*South (1977)*
Earthenware				
Tin-glazed (English and Dutch)	ca. 1570s–1800	1628–1830	ca. 1560s–1800	ca. 1580s–1800
Border wares	ca. 1600–1715			
North Devon	ca. 1630s–1825	1635–1760	ca. 1680–1770s	ca. 1650–1775
Buckley-type	ca. 1650s–1810s	1720–1775	ca. 1720s–1775	ca. 1720–1775
Staffordshire-type slipware	ca. 1660s–1810s		ca. 1650–1770s	
Manganese Mottled	ca. 1670s–1780			
Agateware	ca. 1670s–1770s			
Astbury-type	ca. 1720s–1750s	1725–1750	ca. 1720s–1750	ca. 1725–1750
Jackfield-type	ca. 1740s–1810s	1740–1800	ca. 1745–1790	ca. 1740–1780
Clouded/Tortoiseshell	ca. 1749–1770s			
Green-glazed	ca. 1759–1780s			
Creamware	ca. 1762–1825	1762–1820	ca. 1750–	ca. 1750–1820
Porcelain				
Chinese	ca. 1550s–	1685–		ca. 1574–
English	1742–	1745–		ca. 1745–
Stoneware				
Rhenish (blue and gray)	ca. 1570s–1770s	1650–1750		ca. 1650–1775
English dry-bodied	ca. 1670s–1780s			
English brown	ca. 1675–1775	1671–1775	ca. 1690–1775	ca. 1690–1775
Nottingham-type	ca. 1690s–1790s	1683–1810		ca. 1700–1810
White salt-glazed	ca. 1685–1785	1715–1775	ca. 1720–1770s	ca. 1715–1795
White salt-glazed (scratch blue)		1744–1775	ca. 1740s–1770s	ca. 1744–1775

Note: MACL = Maryland Archaeological Conservation Laboratory.

Table 2. Selected Post-Colonial period refined ceramic types and date ranges.

Type	Date Range		Type	Date Range
Enameled Creamware	ca. 1775–1825		**Printed Wares**	
Blue floral painted Pearlware	ca. 1815–1830	Central Motifs	Chinese	ca. 1783–1834
Edged Wares			Chinoiserie	ca. 1783–1873
Rococo inspired rim	ca. 1775–1819		British views	ca. 1793–1868
Neoclassically inspired rim	ca. 1800–1830s		American views	ca. 1793–1862
Embossed rim	ca. 1820s–1830s		Exotic views	ca. 1793–1868
Unscalloped rim	ca. 1840s–1860s		Pastoral	ca. 1781–1859
Non-impressed rim	ca. 1860s–1890s		Classical	ca. 1793–1868
Painted Wares			Romantic	ca. 1793–1870
Blue painted China glaze	ca. 1775–1810		Gothic	ca. 1818–1890
Polychrome painted patterns	ca. 1795–1830		Central floral	ca. 1784–1869
Chrome colors	ca. 1830–1860		Sheet patterns	ca. 1795–1867
Sprig painted	ca. 1835–1870s		Aesthetic	ca. 1864–1907
Sponged Wares		Border Motifs	Continuation main theme	ca. 1784–1903
Sponge	ca. 1820s–1860s		Continuous repeating floral	ca. 1784–1856
Cut sponge	ca. 1840s–1870s		Continuous repeating geometric	ca. 1784–1864
Open sponge	ca. 1860–1935		Continuous repeating other	ca. 1784–1910
Dipped Wares			Continuous repeating linear	ca. 1820–1891
Solid / Banded	ca. 1770s–1910s		Non-continuous repeating floral	ca. 1799–1894
Variegated	ca. 1780s–1810s		Floral vignette	ca. 1802–1889
Engine turned	ca. 1770s–1890s		Scene vignette	ca. 1790–1889
Mocha	ca. 1790s–1939		Object vignette	ca. 1809–1889
Multi-chambered slip	ca. 1811–1900		**White Granite (Ironstone)**	
Fan decoration	ca. 1805–1840		Foliage	ca. 1850s–1860s
Luster Wares			Geometric and Paneled/Scalloped	ca. 1840s–1850s
Variegated	ca. 1800–1815		Harvest	ca. 1860s–1900
Overall luster	ca. 1810–1840		Classical	ca. 1860s
Splashed (Mottled)	ca. 1820s–1840sa		Ribbed	ca. 1875–1900
Painted (Stenciled)	ca. 1815–1860s		Plain and rounded	ca. 1870s–1880s

Source: MACL (2002).

Additional temporal and decorative information for ceramics can also be obtained from makers' marks when present. These marks identifying the potteries of manufacture (and sometimes the pattern name) are sometimes printed or impressed on vessel bases, and the dates associated with their uses have been determined through historical research. Standard reference sources are used to identify the marks when present (e.g., DeBolt 1994; Gibson 2011; Godden 1964, 1966, 1999; Lehner 1988; Neale 2005).

Table 3. Selected Post-Colonial period unrefined ceramic types and date ranges.

	Date Range		
Type	*Miller et al. (2002)*	*MACL (2002)*	*Greer (1981)*
Yellowware	ca. 1830–1940	1830–1940	
Redware		1600–2000	
Utilitarian Stoneware			
Salt glazed	1705–1930	Pre-20th century	ca. 1700s–1900
Salt/Albany glazed			ca. 1850–1900
Albany glazed	1805–1920	1805–1920	ca. 1820–1920
Albany/Bristol glazed		Pre-1920s	ca. 1880s–1920
Bristol glazed		20th century	ca. 1920+

2.4.2 Glass

Glass artifacts such as window glass, bottles, tablewares, and furnishings (e.g., drawer pulls, door knobs, lamps, and light bulbs) also provide temporal and functional information for Historic period archaeological sites. Bottles are especially important since techniques employed in their manufacture are datable (Lorrain 1968; McKearin and Wilson 1978). Bottle glass can be divided into two categories. These are bottles that are entirely machine made and those made with other techniques, including hand blowing. The turn of the twentieth century marks a change in glass manufacturing methods; bottles that are entirely machine made originate at that time. Table 4 provides date ranges for glass manufacturing attributes based on the work of Deiss (1981). Similar to ceramics, many bottles have makers' marks that provide additional temporal information. Bottles embossed with content information can also be more accurately dated with comparison to standard reference sources (e.g., Fike 2006; Lindsey 2016; Toulouse 1971).

2.4.3 Metal

Metal artifacts represent a wide variety of activities at Historic period sites. Nails, screws, and machinery parts are commonly recovered. Buttons and buckles from clothing are also common. Less common are furniture and building hardware and tools. Nails are useful temporal indicators at Historic period sites. Iron hand-wrought nails were used before 1800. They were made individually by blacksmiths, and the rosehead shape is most common. Iron machine-cut nails were first manufactured about 1790. The shafts of these "Type A" examples were machine made while the head was attached manually. They were manufactured until about 1830. The "Type B" machine-cut nails were made entirely by machine and were made from about 1820–1900. The economically viable mass production of steel in the 1880s led to the manufacture of wire-drawn nails, which came into use around 1890 and are still made today. By 1886, about 10 percent of the nails being produced were steel wire-drawn examples. By 1894, more than 50 percent of the nails were wire-drawn, and by 1913, 90 percent were of wire-drawn steel (Visser 2015). In general, wire-drawn nails became prevalent in the United States around 1900, and their presence on a site indicates a post-1900 occupation, just as the presence of machine-cut nails indicates a nineteenth-century occupation (Edwards and Wells 1993:58, 60).

Table 4. Glass manufacturing attributes.

Attribute	*Date Range*	*Attribute*	*Date Range*
Manufacturing technique		**Finishes continued**	
Free-blown	to mid-1830s	Improved tool	
Dip mold	to 1860	Cork	early 1870s–ca. 1915
Two-piece mold	1818–early 1870s	Baltimore loop seal	1885–ca. 1915
Pressed	1820s to present	Hutchinson	1885–ca. 1915
Blown three-piece mold	ca. 1810–1830s	Lightning	1875–ca. 1915
Three-piece, dip bottom mold	early 1830s–ca. 1905	Crown	1905–ca. 1920
Three-piece, plate bottom mold	1858–ca. 1915	Machine made	
Turn mold	1880–ca. 1905	Cork	1903–ca. 1915
Machine made	1903 to present	Crown	1903 to present
Finishes		Lightning	1903 to present
Fire polished	to mid-1850s	Pry-off	1929 to present
Applied string	to mid-1840s	Goldy cap	1897–ca. 1920
Folded	to early 1870s	Lug	1906 to present
Flanged	to early 1870s	Screw threads	1903 to present
Applied tool		**Glass composition**	
Cork	late 1820s–early 1870s	Flint or lead (clear)	1770 to present
Wax seal	1855–1880	Soda-lime (moderately clear)	1860 to present
Internal threads	1860–early 1870s	With manganese oxide (amethyst)	1880–ca. 1918
Blob	early 1870s–ca. 1880	With selenium (yellow)	1915 to present
Hutchinson	1879–early 1890s	**Embossing and labeling**	
Lightning	1875–early 1890s	English block style lettering	to present
Crown	1892–1910	Screen-painted labeling	mid-1930s to present
Ground rim with screw threads	1858–ca. 1915	Embossed "Federal Law Prohibits..."	1933–1964
		Figured flasks	1840–early 1870s

Source: Deiss (1981:92–96).

2.4.4 Bone

Bone items represent the remains of subsistence activities, utilitarian objects such as combs and buttons, and incidental occurrences of animals attracted to human occupation sites (e.g., rodents). The methods of analysis vary, depending in which of these categories the elements fall.

2.4.5 Structural

Structural elements include such items as brick, concrete blocks, foundation stones, ceramic tile, and mortar. They suggest the former presence of structures and can provide details on construction techniques and materials.

2.4.6 Analytical System

It is clear from this description that each category contains a wide variety of artifact types and functions. In this form, however, it is difficult to make meaningful interpretations regarding site function from the artifact assemblage. To do so, the classificatory system developed by South (1977) has been employed. Modifications have been made to include artifact assemblages typical of nineteenth- and twentieth-century sites in the Mid-Atlantic region. In this classification system, Historic period artifacts are organized into artifact groups. South (1977) has defined nine such groups: Kitchen, Architecture, Activities, Arms, Personal, Clothing, Furniture, Tobacco Pipe, and Bone. Materials then are divided into Artifact classes within these groups and further subdivided into Material, Ware, and Type categories such as those described above. We have adapted this system to include nineteenth- and twentieth-century artifact assemblages.

The *Kitchen* group includes artifacts typically associated with food preparation and consumption. Within this group, South (1977) has defined eight Artifact classes: Ceramics, Case Bottle, Tumbler, Glassware, Tableware, and Kitchenware. To incorporate nineteenth- and twentieth-century materials into South's system, we have added the Canning Jar class to the Kitchen group. Also, subsistence-related faunal remains have been included in the Kitchen group while soda and alcoholic beverage bottles are placed in the Activities group.

The *Architecture* group includes artifacts associated with the construction and subsequent demolition of buildings rather than activities performed in and around them. South (1977) defines five Artifact classes for this group: Window Glass, Nails, Spikes, Construction Hardware, and Door Lock Parts, to which has been added Construction Materials. Construction Materials include such items as bricks, foundation stones, concrete blocks, roofing slate, and composition shingles (or rolled roofing) used in the building of structures.

The *Activities* group contains a wide range of artifact classes relating to a variety of activities that are not included in other artifact groups. South (1977) has defined 12 such artifact classes: Construction Tools, Farm Tools, Toys, Fishing Gear, Stub-Stemmed Pipes, Colono–Indian Pottery, Storage Items, Ethnobotanical, Stable and Barn, Miscellaneous Hardware, Other, and Military Objects. Flower pots and wine, liquor, and soda bottles have been added to this group.

The *Arms* group includes artifacts that are either integral parts of firearms or used in their manufacture. South (1977) defines three Artifact classes for this group: Musket Ball, Shot, and Sprue; Gunflints and Gunspalls; and Gun Parts and Bullet Molds. Later forms of ammunition have been added to this group.

The *Personal* group includes those artifacts likely belonging to individuals that were, as the term suggests, for personal use. South (1977) identifies three artifact classes for this group: Coins, Keys, and Personal Items. We have added pharmaceutical bottles, chamber pots, and the Tobacco Pipe group to this group.

The *Clothing* group includes artifacts related to the manufacture and use of clothing. South (1977) defines eight Artifact classes for this group: Buckles, Thimbles, Buttons, Scissors, Straight Pins, Hook and Eye Fasteners, Bale Seals, and Glass Beads. Other clothing elements that survive in the archaeological record, especially on younger sites, are also included here (e.g., shoe soles, fabrics).

The *Furniture* group includes artifacts used in the manufacture of furniture. South (1977) has defined only one Artifact class, Furniture Hardware, for this group. Lamp glass, door knobs, drawer pulls, and decorative objects such as vases, candle holders, and the like have been added to this group.

2.4.7 Curation

The artifacts will be temporally stored in the climate controlled and secure Stantec archaeology work room. All artifact bags and artifacts of requisite size will be labeled, and the resultant artifact data will be entered into a database artifact cataloging system. The collections will be deposited with CAS Riegler for final curation in accordance with City of Alexandria permit conditions.

3.0 CULTURAL CONTEXT

This section presents a general outline of precontact Native American cultural development in the Mid-Atlantic region in general, and more specifically within northern Virginia. It is followed by a discussion of the Historic period context and land-use of the project area. Both contexts provide an interpretive framework for defining the types of Native American and Historic period archaeological resources that could be present within the 513–515 North Washington Street project area.

3.1 Native American Context

The Native American context is based on specific studies that form the sequence of regional Native American history that is presented below. Precontact Native American chronology in Virginia is traditionally divided into three broad periods defined by environmental conditions and cultural manifestations of material culture, settlement systems, and social institutions. These broad periods are commonly known as Paleoindian, Archaic, and Woodland. Most archaeologists divide the Archaic and Woodland periods into Early, Middle, and Late components (Figure 6).

3.1.1 Paleoindian Period (12,000 – 9000 BC)

The Paleoindian period reflects a pattern of cultural adaptation based on environmental conditions that marked the shift from the Late Pleistocene to the Early Holocene epoch (Figure 6). During this period of glacial retreat, the climate was probably three to eight degrees colder than at present, and vegetation initially consisted of spruce, pine, fir, and alder (Brush 1986:149; LeeDecker and Holt 1991:72). By the end of this period, vegetation patterns comprised a mosaic of microhabitats, with mixed deciduous gallery forests near rivers, mixed coniferous forests and grasslands in foothill and valley floor settings, and coniferous forests on high ridges (Custer 1984; Kavanagh 1982).

Dent (1995:132–133) suggests that three distinct environmental zones can be identified within the Chesapeake Bay region during the Paleoindian period. The first zone consists of areas along the ancestral Susquehanna River and its tributaries, including those along the modern Potomac and Anacostia Rivers. This zone is seen as providing ample resources to early inhabitants. The second zone, the Inner Coastal Plain, lies to the west where resources were more diffuse. The third zone is the area where the Inner Coastal Plain transitions to the Piedmont region. Ecotonal diversity would have provided increased potential for subsistence resources while the area also contained ample lithic resources. Dent (1995:133–134) also suggests that the area of the Chesapeake Bay region south of the James River in Virginia differed significantly from those areas to the north. The area south of the James River contained more temperate plant species and had larger wetland areas, indicating this area had a more diverse ecosystem than did areas to the north.

Traditional characterizations often suggest that Paleoindian settlements consisted of small hunting camps associated with sources of high-quality lithic raw materials. Gardner (1983, 1989) identifies six different functional categories for Paleoindian sites in the nearby Shenandoah Valley: lithic quarries, reduction stations, quarry-related base camps, base-camp maintenance stations, hunting stations, and isolated point find spots. Custer (1984) suggests

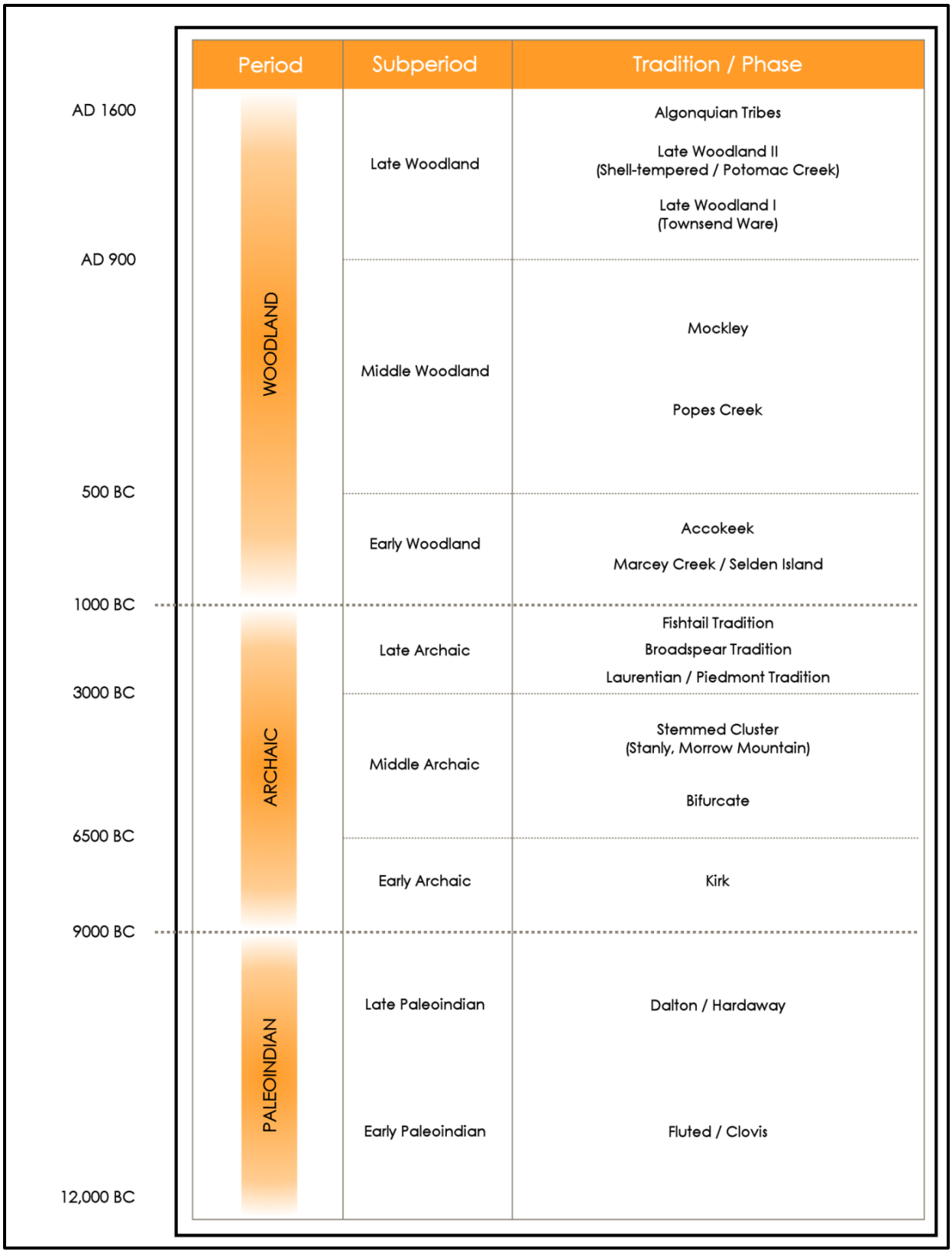

Figure 6. Regional precontact Native American chronology of the northern Virginia area.

that these site types may be applicable to the wider Mid-Atlantic region as a whole. Acquisition of high-quality lithics served as a focal point for this system with hunting as its subsistence base, which focused on large game such as moose, elk, and deer (Kavanagh 1982). In contrast, the Shawnee-Minisink site provides evidence that other foodstuffs were exploited as well. The remains of fish, edible seeds, and plants were found in Paleoindian deposits at that site (McNett 1985). Dent (1995:128) notes that virtually no evidence for subsistence practices in the Chesapeake Bay region has been found, although he postulates they were not based on hunting megafauna (Dent 1995:106).

More recently, Dent (1995) has reviewed Paleoindian sites and settlement patterns in the Chesapeake Bay region. At that time, attributes of 25 known Paleoindian sites were reviewed as were the characteristics of hundreds of isolated (off-site) finds reported in the Chesapeake Bay region. Most of the sites are surface manifestations, with relatively few intact, buried Paleoindian deposits having been located in the region (Dent 1995:122–124). Most sites and isolated finds have been identified south of the James River, while a more moderate number has been found north of the Potomac River. Interestingly, the fewest sites and isolates have been found between the James and Potomac Rivers (Dent 1995:120–121).

In contrast to the highly diverse site type model proposed by Gardner and accepted by Custer as discussed above, Dent (1995:137–138) suggests that only two site types can be defined for the Chesapeake Bay region. Larger residential bases, often with multiple, distinct artifact loci, are situated along the ancestral Susquehanna River and its tributaries and along the western margin of the Inner Coastal Plain. These sites tend to be located in areas where a higher diversity of resources would have been available to site inhabitants. The second site type is the "location." Locations are smaller sites often located in less productive zones at which few or specific tasks were being undertaken. While many locations in the Chesapeake Bay region are situated near wetlands, the most extreme example of these sites is the isolated find. Dent (1995:138) suggests that this settlement system indicates a high degree of mobility in Paleoindian culture that perhaps was based on seasonal availability of resources and weather patterns. There is some indication that site locations were selected to maximize solar warming while minimizing exposure to prevailing winter winds (Dent 1995:124). Dent (1995) further suggests that sites deviating from this pattern may indicate occupation in warm-season months.

In the archaeological record, early Paleoindian sites are usually characterized by the presence of large, fluted, lanceolate-shaped projectile points such as Clovis, while later Paleoindian components are identified with projectile point types such as Dalton and Hardaway (Dent 1995:124; Justice 1987). Clovis points have been found throughout North America, from the West Coast to the East Coast, and as far north as Nova Scotia. Most archaeologists suggest that preferred lithic materials for these projectile points were high-quality cryptocrystalline stones such as jasper and chert. Once again, Dent (1995) has questioned the applicability of these generalizations to the Chesapeake Bay region. In reviewing raw material types used at Paleoindian residential bases in the region, Dent (1995:124–127) notes that lower-quality material comprises 25 percent to as much as 75 percent of these assemblages. Quartz, quartzite, silicified wood, slate, and jasper tend to dominate these assemblages. In contrast, high-quality cryptocrystalline materials dominate the location assemblages and are an especially dominant raw material for isolated finds. Paleoindian tool kits in the Chesapeake Bay region include such items as fluted bifaces, end and side scrapers, generalized bifaces, spokeshaves, gravers, awls,

drills, denticulates, wedges, and cores (Dent 1995:124–127). Sites with high diversities of tools such as these are most often associated with residential camps. Dent (1995:127) also notes that utilized flakes are numerous at residential camps.

Paleoindian materials are rare along the Anacostia and Potomac Rivers. In 1988, Turner (1989:80) indicated that fewer than five Paleoindian projectile points per county have been found in the Virginia counties that border the Potomac River. The continuing Virginia Paleoindian fluted point survey documented eight additional points in Fairfax County, six in Loudoun County, and one in Prince William County, between 1988 and 2011 (PIDBA 2011). The Smithsonian Institution collections, many obtained in the late nineteenth century when the area was more agricultural, include three Paleoindian projectile points from along the Anacostia River (Humphrey and Chambers 1985:8). Also of note, a Clovis point was found near the Aquasco district in south-central Prince George's County in Maryland (Gibb 2006). One reason for the paucity of Paleoindian projectile points and sites along these rivers may be the rise in water levels, in part due to the melting of the glaciers and the subsequent inundation of low-lying areas. While site burial has long been recognized in floodplain and terrace contexts, more recently site burial in upland formations has been demonstrated to have occurred as well (Wagner 2012).

3.1.2 Early Archaic Period (9000 – 6500 BC)

The Pre-Boreal/Boreal climatic episode, dating from 8500–6700 BC, for the most part corresponds to the Early Archaic period (Figure 6). Glacial recession continued and deciduous forests expanded, possibly leading to a greater proliferation of game species during this period. This climatic period, and the cultural period as well, in many ways marks a transition from late Pleistocene to Holocene patterns. Summer temperatures became warmer while the winters continued to be wetter than at present. This resulted in an expansion of coniferous and deciduous trees at the expense of grasslands. Forest distribution consisted of pine and hemlock on slopes, mixed coniferous-deciduous forests in valley floors, and hydrophytic gallery forests along rivers (Carbone 1976; Kavanagh 1982:9). Kavanagh (1982:9) suggests that while little faunal evidence is available for this period, the environment most likely supported bear, deer, elk, and a variety of small game that were adapted to a northern climate. Evidence for this view comes from the Cactus Hill site (44SX202) faunal assemblage, which contains species that are still common in the region today (Whyte 1995). After 7000 BC, the spread of deciduous woodlands into upland areas, which had previously been predominantly spruce, hemlock, and pine forests, opened new habitats to be exploited by both animals and humans (Custer 1990).

Some researchers have emphasized that the Early Archaic period in the Mid-Atlantic region evidences continuity in lifeways from the Paleoindian period, with the exception of changes in projectile point styles (Dent 1995). However, Dent (1995:167) notes that our understanding of the Early Archaic period in the Chesapeake region is still dependent on information from sites outside of this area. With that said, the most distinctive cultural characteristic of the Early Archaic period was the appearance of notched projectile points, most notably the corner-notched types such as the Kirk varieties along with the Palmer, Charleston, and Amos types (Dent 1995:168; Justice 1987). Other point types associated with the initial portion of the Early Archaic period include Hardaway, Kessel, Taylor, and Big Sandy, all side-notched types, although the Palmer Side-Notched type may be more common in the District (Dent 1995:168;

Fiedel et al. 2008:9; Justice 1987). These notched projectile points are more characteristic of the initial portion of the Early Archaic period, typically dating between about 10,000 and 8,500 years ago (Dent 1995:157, 168). Dent (1995:157) suggests that the stone-tool assemblages associated with the notched projectile points have similarities with the earlier Paleoindian assemblages, including an emphasis on the use of a core-flake manufacturing process and especially scraper styles (Dent 1995:169–170). Distinctive bifurcate base projectile points, including such types as LeCroy, St. Albans, and Kanawha, are more characteristic of the later portion of the period between approximately 9,000 and 7,250 years ago, with some types persisting into the Middle Archaic period (Dent 1995:156–157, 168). Unfortunately, few radiocarbon dates are available for Early Archaic period sites in the Chesapeake region. The stone tools associated with these projectile points are less formal, more expedient, and appear to evidence use of a bipolar reduction strategy (Dent 1995:157, 170). Utilized flakes also appear to be more common.

The use of high-quality lithic materials continued until the later portion of this period when quartz and quartzite began to be more frequently used. Archaeological investigations in the Patuxent River drainage show that the majority of recovered Kirk points are made of rhyolite. This indicates that people either traveled long distances to obtain preferred lithic raw materials or that long-range trade networks had been established by this time (Steponaitis 1980:68). However, Dent (1995:170) suggests that the choice of lithic material changed during this period. Assemblages associated with the notched projectile points, generally during the initial portion of the Early Archaic period, tend to be made from nonlocal materials. The later bifurcate base projectile point assemblages more commonly are made from local materials. Dent (1995:170) suggests that this change may be related to an increasingly restricted social landscape that limited group mobility. Lastly, the first ground-stone tools are associated with the Early Archaic period, including flaked and ground axes, celts, abraders, and adzes (Dent 1995:170).

Early Archaic settlement systems and site locations appear to reflect a dichotomy in landscape use between ecologically diverse floodplains and less ecologically diverse areas, such as uplands. Dent (1995:171) characterizes the distribution of Early Archaic period sites in the Chesapeake region as consisting of small sites widely distributed across the landscape. In a wider perspective, settlement appears to include larger residential camps that are located in ecologically diverse floodplain settings and smaller, short-term occupation camps in less ecologically diverse areas (Dent 1995:165). This bifurcation between floodplain and upland settings continues through the Middle Archaic period and may indicate the initial reliance on aquatic resources. If so, this appears to signal an increasing shift toward a generalized use of many available food resources. Dent (1995:172) also views the widespread distribution of Early Archaic period sites in the Chesapeake region as an effort to both feed and integrate peoples through the minimization of risk by information and resource sharing. In the Southeast, subsistence strategies included the collection of a number of mast species, seeds, and fruits, and hunting of amphibians, reptiles, and mammals as well as fish (Dent 1995:165–166). This pattern is mirrored to some extent in the Chesapeake region (Dent 1995:172–173). Some researchers suggest that the expansion of projectile point styles may be associated with the diversification of the Early Archaic period subsistence base.

Dent (1995:163, 170) notes that Early Archaic sites are generally multicomponent, suggesting that in some instances this is due to frequent reoccupation. One aspect of the changing

environment, increasingly predictable seasonal patterns, may have promoted repeated visits to locations through greater resource predictability (Dent 1995:195). Hearths are more frequent in number and more formal than the earlier Paleoindian hearths. They include more formal prepared hearths as well as less formal unprepared hearths, with prepared hearths more common in association with bifurcate point strata. Dent (1995:163, 198) suggests that this change may reflect a shift in lifeways and cooking techniques in the Early Archaic period. The less formal hearths are often clusters of fire-cracked rock measuring less than 1 m in diameter and most likely represent dumps of boiling stones (Dent 1970:171).

Several archaeological sites in the neighboring District of Columbia have yielded Early Archaic projectile points, although intact deposits dating to this period have not been found. McNett (1972:33) and Barse (2002) both identify Kirk Corner Notched projectile points at the Potomac Avenue site (51NW22) and Fletcher's Boathouse site (51NW13), respectively. Both sites are located on floodplain formations of the Potomac River. Fiedel et al. (2008:9) also suggest that some of the projectile points illustrated by Holmes (1897) date to the Early Archaic period.

3.1.3 Middle Archaic Period (6500 – 3000 BC)

The beginning of the Middle Archaic period coincides with the Atlantic climatic episode, a warm, humid period associated with a gradual rise in sea level that led to the development of inland swamps (Barse and Beauregard 1994:9) (Figure 6). It was a time marked by increased summer droughts, sea level rise, grassland expansion into the Eastern Woodlands, and the appearance of new plant species (Carbone 1976:106; Hantman 1990:138). By 5000 BC, a cooling trend had begun. Gardner (1982) suggests that the climatic changes resulted in a zonally patterned floral and faunal species distribution across the region, leading to an increased emphasis on seasonal availability of resources. Unfortunately, Dent (1995:173) suggests that the Middle Archaic period is one of the least understood periods of precontact Native American history in the Chesapeake region.

Common tool types in Paleoindian and Early Archaic lithic assemblages, including unifacial tools and formal end scrapers, decreased in number during the Middle Archaic period (Dent 1995:175; Egloff and McAvoy 1990:64). Modified flakes increased in number, and projectile points and generalized bifaces, many of which appear to be multifunctional tools, became the dominant chipped-stone tool types (Dent 1995:175). The bifurcate tradition of projectile points, including the LeCroy, St. Albans, and Kanawha types, continued at this time, and ground-stone tools (axes, adzes, mauls, grinding stones, and nutting stones) also became widely utilized as subsistence and settlement patterns changed (Dent 1995:176). Middle Archaic ground-stone tools were completely pecked or ground, in contrast to those associated with the Early Archaic period (Dent 1995:176). The other significant marker of the Middle Archaic period is the stemmed projectile point style (Dent 1995:157). Stemmed projectile points dating to this period include the Stanly Stemmed/Neville, Morrow Mountain I and II, Guilford, and Piscataway types (Justice 1987). In general, these stemmed types date to the initial portion of this period, between about 8,000 and 6,000 years ago (Dent 1995:175). The Piscataway type is found late in this time period, and at its earliest, dates to the transition from the Middle Archaic to the Late Archaic period (Kavanagh 1982:50). Side-notched projectile points dating to the later portion of the Middle Archaic period, from 6,000–5,000 years ago, include the Halifax, Otter Creek, and Brewerton types (Dent 1995:175; Justice 1987). Dent (1995:175) notes that Middle Archaic

points are less numerous in the northern part of the Chesapeake region. The use of high-quality lithic material for tools was not as common in this period as it was in the preceding periods, with the trend toward using local materials, first noted for the later portion of the Early Archaic period, continuing into this period (Dent 1995:176; Fiedel et al. 2008:10).

While many have characterized the Middle Archaic settlement system as something of an enigma, the riverine base camps/upland short-term camps noted for the Early Archaic period seem to have continued, although the system generally consisted of numerous small sites scattered across the landscape in the Chesapeake region (Dent 1995:165, 177). Middle Archaic sites in Maryland tend to be clustered along tributaries of rivers and not in the estuarine sections of drainages (Steponaitis 1980). Settlements consisted of small base camps located in or near inland swamps that were convenient to seasonally available subsistence resources, as well as smaller temporary upland hunting camps. Researchers have noted that few components dating to the Paleoindian and Early Archaic periods are present at Middle Archaic sites. Gardner (1989:34) suggests that the immediate local ecology of the Paleoindian and Early Archaic sites became increasingly less suited to the needs of Native American groups as climate and vegetation changed during the Middle Archaic period.

Outside of the Chesapeake region, Middle Archaic sites have yielded evidence of prepared floors and post molds, some of the earliest direct evidence for the existence and nature of structures (Dent 1995:164). Formal cemeteries are also known. In the Chesapeake region, sites appear to represent a series of reoccupations. Formal hearths became more common in this period, and researchers have identified discrete activity areas at such sites (Dent 1995:176). Such activities often included tool manufacture or maintenance and subsistence and processing activities. Turning to subsistence, the greater variety of plant resources allowed for an increase in general foraging as a supplement to hunting, continuing a trend first detected at Early Archaic sites (Dent 1995:177; Kavanagh 1982:50). Dent (1995:177) suggests that this Middle Archaic subsistence strategy represents a diffuse adaptation. However, Smith (1986) suggests that populations became increasingly focused on the exploitation of specific resources such as mollusks or oysters.

A few sites in the District of Columbia have yielded diagnostic projectile points dating to the Middle Archaic period, but similar to the Early Archaic period, intact deposits are rare. McNett (1972:33) identifies several projectile points dating to this period from 51NW22, including a LeCroy Bifurcate Base point and an unidentified serrated point found at the site by a local collector. Inashima (1985) reports several projectile points from 51NW80 as dating to the Early Archaic and Late Archaic periods, although Fiedel et al. (2008:24) suggest that these points are better classified as Middle Archaic types. All of these sites are located along the Potomac River in northwest Washington, DC. Louis Berger & Associates (1986) identify Brewerton and Halifax points from the Howard Road site (51SE34) along the Anacostia River as dating to the Middle Archaic period, although other researchers would identify the point types as Late Archaic. Fiedel et al. (2008:11) also suggest that the bifurcate base points illustrated by Holmes (1897) date to this period and that other illustrated points are examples of the Morrow Mountain and Guilford types.

3.1.4 Late Archaic Period (3000 – 1000 BC)

Dent (1995) views the Late Archaic period as a time when the region's occupants were adapting to a number of environmental changes (Figure 6). The environment in the Late Archaic period included a warmer and drier climate, a continued rise in sea level, the expansion of oak-hickory forests onto valley floors and hillsides, and the reappearance of grasslands (Carbone 1976:189). As well, the distribution of faunal species characteristic of the early Historic period was established at this time. For the Chesapeake Bay region, perhaps the most important change was the establishment of the estuary system, which resembled the modern system only near the end of the Late Archaic period (Dent 1995:199).

Dent (1995:160) suggests that the Late Archaic period can be divided into two time-based segments that may reflect the adaptation of groups to changes in the Chesapeake region environment. The earlier segment is characterized by a predominance of narrow-blade stemmed projectile points such as Bare Island, Lackawaxen, Clagett, Holmes, and Piscataway, along with a few side-notched types more characteristic of the Middle Archaic period such as Brewerton, Halifax, and possibly Otter Creek (Dent 1995:178–180). Dent (1995:180) suggests that these narrow-blade types date to the period of approximately 3000–1500 BC. Beginning at 2200 BC, and thus overlapping with the last half of the narrow-blade tradition, is the broad-blade tradition, which continued to approximately 1000 BC (Dent 1995:181). Some researchers have designated this time period as the Terminal Archaic (e.g., Fiedel et al. 2008:11; Kavanagh 1982). Characteristic of this tradition are types such as Savannah River, Susquehanna, Crispin, and Perkiomen, with derivatives such as Orient Fishtail and Dry Brook also present (Dent 1995:180). Dincauze (1976) suggests that the narrow-blade tradition evolved in situ from local Middle Archaic populations while the broad-blade tradition is a result of diffusion from the Southeast. Dent (1995:201–202) appears to support this interpretation as well.

Turning to the remainder of the material culture assemblage associated with Late Archaic sites, Dent (1995:161–162, 181) notes broad similarities between the artifact assemblages of the two projectile-point traditions. Chipped-stone tools were made using both bipolar and bifacial reduction techniques, and projectile points were most likely multipurpose tools. The reliance on multipurpose tools appears to have reduced the diversity of Late Archaic tool types. Specific tool types include generalized bifaces, expedient flake scrapers, drills, perforators, and utilized flakes (Dent 1995:182). Drills and scrapers were often made from exhausted projectile points. Besides the formal chipped-stone tools, production of expedient tools made from flakes and crude cores appears to have increased (Klein and Klatka 1991:98). Lithic material varies by location, although an emphasis on local materials characterizes both traditions, and some preference for quartzite appears to be associated with the broad-blade tradition (Dent 1995:182). Throughout this period, quartz and quartzite were the most frequently used lithics, although rhyolite and argillite were occasionally used in stone-tool manufacture. However, large quarries, often centering on quartzite acquisition (such as the Piney Branch quarries located in the District of Columbia), appear to be associated with the broad-blade tradition (Dent 1995:203; Fiedel et al. 2008). Nonlocal materials, when present, appear to have been procured from "down-the-line" trading networks (Dent 1995:182). The use of ground-stone tools also increased in the Late Archaic period and especially with the broad-blade tradition, perhaps reflecting an increase in woodworking activities (Dent 1995:182). Ground-stone tools include adzes, celts, gouges, axes, manos, metates, mortars, net weights, and atlatl weights (Dent 1995:182). Steatite or soapstone

bowls were also produced in the Late Archaic period in the Chesapeake region, once again more so with the broad-blade tradition (Dent 1995:161, 182–183).

Aside from projectile point styles, Dent (1995) stresses that the greatest differences between the two traditions is in terms of settlement and site structure. Settlement patterns associated with the narrow-blade tradition consist of a large number of relatively small sites that are equally divided between riverine and upland locations, with wetlands, forests, diverse habitats near streams, and riparian floodplain plant communities offering predictable resources (Dent 1995:185, 197). Because of this, the Inner Coastal Plain was more heavily occupied than the Outer Coastal Plain (Dent 1985:197). Such a strategy also effectively enhanced contact between groups and helped mitigate risk through information and resource sharing (Dent 1995:197). Sites that appear to be larger are most often the result of a palimpsest of frequent occupations by small groups, with the frequency of reoccupation associated with resource predictability (Dent 1995:199). Subsistence appears to have been based on forest mast, deer, and turkey (Dent 1995:187). Seasonal hunting and foraging continued, but exploitation of riverine resources rapidly became an important part of the subsistence base. Several settlement trends are associated with these changes, including an intensified occupation of the uplands, the initial establishment of large semi-sedentary base camps along rivers and streams, and an overall increase in the number of sites dating to this period. Internally, narrow-blade tradition sites evidence a limited range of features, including discrete activity areas and scatters of fire-cracked rock (Dent 1995:184).

The broad-blade tradition reflects an adaptation to the increased availability of estuarine environments in the Chesapeake region, an adaptation referred to as an intensification effort and characterized as an appropriation of nature (Dent 1995:188, 200). Dent (1995:205) characterizes this adaptational change as a shift to a logistically organized collector strategy. Dent (1995:201) suggests that, like the broad-blade projectile points themselves, the adaptation for intensification, which allowed populations to take advantage of the stabilized, ecologically productive coastal areas, was imported into the Chesapeake region. Reflecting this change is a shift in site location that emphasized proximity to linear river valleys, enabling a population increase in part by a focus on estuarine subsistence resources (Dent 1995:186, 201). Both site size and total number of sites increased, with sites as large as 2 ha present while smaller sites average 450 square meters (Dent 1995:186). Dent (1995:186) characterizes this settlement system as representing an annual cycle of fusion and fission with settlements including multiband base camps, band camps, and microband foray sites. In contrast, Steponaitis (1986:285) views the settlement pattern of the Patuxent River area as unchanged throughout the entire Late Archaic period. Features associated with the sites also became more diverse. Formal hearths and platform hearths, perhaps having a fish-processing function, are increasingly common. Shell accumulations, pits, and burial pits have also been reported. Definite evidence for structures, though, is lacking (Dent 1995:185). As may be surmised from the shift in settlement toward estuarine environments, greater evidence for fish and shellfish use is associated with the broad-blade tradition (Dent 1995:187). Mast use appears to have been seasonally determined, as perhaps were aspects of hunting (Dent 1995:187).

3.1.5 Early Woodland Period (1000 – 500 BC)

The Early Woodland period, roughly dated between 1000 BC and 300 BC, generally coincides with the Sub-Boreal climatic episode, an episode that approximates modern conditions although attenuated cycles of climatic change have been identified (Carbone 1976) (Figure 6). Johnson and Peebles (1983) and Brush (1986) indicate that by this time period, forest composition was essentially similar to that of the modern period although differences in the frequency of species may have been present. Similarly, Eshelman and Grady (1986) suggest that a modern array of faunal species was present in the region at this time.

Culturally, ceramic manufacture and increased sedentism traditionally mark the beginning of the Early Woodland period. The earliest ceramic types found along the Coastal Plain of Maryland are the steatite-tempered Marcey Creek and Selden Island wares, which are associated with fishtail-type points, including Orient and Dry Creek. Some researchers have characterized these ceramic types as "experimental" wares (e.g., Dent 1995:225; Wise 1975), and they can be described as trough- or bowl-shaped vessels with flat bottoms molded from slabs of clay (Dent 1995:225). Egloff (1991) suggests the early ware types, such as Marcey Creek and Selden Island, are derived from Southeast pottery traditions. The Marcey Creek and Selden Island wares were replaced by the sand- or crushed-quartz-tempered Accokeek wares. These ceramics are associated with Calvert and Rossville point types (Wesler et al. 1981:183). Accokeek ware is the earliest example of this pottery technology on the Western Shore. By about 900 BC, coil production techniques began to be used, with globular vessels having cord- or net-impressed exterior surfaces being fashioned (Dent 1995:227). Aside from projectile points, much of the Early Woodland lithic assemblage is similar to that of the preceding Late Archaic period (Dent 1995:228).

Researchers have suggested that the Early Woodland settlement pattern reflects an intensification of the logistical-collector strategy adopted in the broad-blade tradition of the Late Archaic period (Dent 1995:230). Part of this intensification appears to have included increased sedentism, with larger sites being occupied for longer periods of time (Dent 1995:230; Mouer 1991). Smaller resource-extraction sites serviced these larger sites (Dent 1995:230; Gardner 1982). The larger sites were riverine-based and often located at the junction of freshwater and brackish streams in interior regions. Smaller camps were established seasonally in areas with high potential for the exploitation of numerous and differing resources. Gardner (1982:60) has proposed that the settlement-subsistence system of this period included a series of base camps where populations aggregated to exploit seasonal resources. Groups occupying the base camps harvested anadromous fish in the spring and early summer and exploited estuarine resources in the fall and early winter. Features identified at the large base camps reflect the increased sedentism. It is during the Early Woodland period that the earliest evidence for food storage is found. Small food-storage pits are common, as are formal hearths with dense deposits of fire-cracked rock (Dent 1995:230). Other characteristics of the large base camps indicative of increased sedentism include dense midden deposits, including shell middens. However, few remains of structures have been identified (Dent 1995:230).

3.1.6 Middle Woodland Period (500 BC – AD 900)

Dent (1995:235) suggests that the Middle Woodland was a period of technological homogenization in that projectile point type variability decreased in the Chesapeake region. In contrast, a diversification of ceramic vessel sizes, forms, and styles of surface decoration, including net-, cord-, and fabric-impressed, characterizes the Middle Woodland period (Dent 1995:221). The major ceramic type in the region was the shell-tempered Mockley type (characteristic of the Mockley phase), which evolved from the sand-tempered Popes Creek type (Barse and Beauregard 1994:14; Dent 1995:221, 235) (Figure 6). Popes Creek ceramics typically date from about 2,500–1,800 years ago and are thick-walled and sand-tempered with net-impressed exteriors (Dent 1995:235–236). Projectile points associated with Popes Creek ceramics include Calvert and Rossville types as well as unnamed stemmed types (Dent 1995:236). Mockley ceramics date from 1,800-1,100 years ago and are shell-tempered with cord- and net-impressed exteriors (Dent 1995:236). Projectile point types associated with the Mockley ceramics are Fox Creek and Selby Bay (Dent 1995:237). The presence of non-local rhyolite, argillite, and jasper lithics at a few sites suggests that localized exchange networks might have operated between the Coastal Plain and areas in both western Maryland and at the New Jersey fall line (Barse and Beauregard 1994:15; Dent 1995:222, 237). There is some suggestion that rhyolite was traded into the region in the forms of blanks and preforms (Dent 1995:237; Stewart 1992:21). However, much of the stone-tool assemblage associated with the Middle Woodland period is similar to that of the preceding Early Woodland period, although bone tools are more common (Dent 1995:239).

Middle Woodland settlement continued the generalized pattern of seasonal aggregation and dispersal that perhaps began as early as the Middle Archaic period. In general, base-camp settlements located at freshwater/brackish water junctions, a common location for Early Woodland period camps, appear to have been abandoned in favor of broad floodplain sites where maximal resource exploitation of tidal and non-tidal aquatic resources was possible (Davis et al. 1997; Dent 1995:222). Dent (1995:241) discusses the Popes Creek site, which appears to represent a fall and winter major settlement. The group would disperse in spring to take advantage of anadromous fish runs and to collect shellfish and hunt in the summer. Potter (1993) suggests that in the later portion of this period, smaller groups would seasonally congregate and disperse, whereas by the end of the period, larger, village-sized groups would seasonally congregate. Custer (1989) presents a similar model for the northern portion of the Chesapeake region. However, he identifies mortuary and exchange centers as additional elements of this system. These sites tend to be located in ecologically unproductive areas but are well-situated along potential lines of trade. Such sites are seen as indicators of increased regional interactions and the coalescence of distinct territories (Dent 1995:242).

As the previous paragraph implies, Middle Woodland sites exhibit an extensive range in size, in one part of the Chesapeake region from .1 ha to 5 ha, that appears to be correlated with site function (Dent 1995:240). Features associated with Middle Woodland sites include dense midden rings, shell middens, subterranean storage pits, storage pits reused as trash receptacles, hearths, roasting pits, and concentrations of fire-cracked rock (Dent 1995:240). However, structural remains are not well-represented in the archaeological record. Available evidence suggests that houses had prepared floors, interior pits, and a pole-supported structure. Many of the subsistence trends noted for the Early Woodland period continued into the Middle

Woodland period, especially the large-scale exploitation of oysters and other shellfish (Dent 1995:242). Deer, turkey, small mammals, and other bird species were important as well. Nuts and seeds were collected, with the increase in the representation of seeds such as amaranth and chenopod at sites suggesting that these species were intensively promoted and harvested (Dent 1995:243). Analyses of human remains indicate an increase in carbohydrate consumption when compared with earlier populations, possibly reflecting the increased consumption of amaranth, chenopod, and wild rice (Dent 1995:243). Dent (1995:243) suggests that the Middle Woodland subsistence strategy can be characterized as a mix of hunting, foraging, and agriculture.

Changes in social systems, such as mortuary rituals are represented in the region by the Ramp3 site in the District of Columbia (Knepper et al. 2006). An intact Middle Woodland oval pit feature located at that site contained a cremation burial and a large number of grave goods. Radiocarbon assays securely date the feature to the Middle Woodland period. The remains appeared to be of a female aged 40 years, and the grave goods included an elaborate incised antler comb, antler discs, perforated shark teeth, ground-stone pendants, a wooden bead, and a phallic effigy. Knepper et al. (2006) suggest that the artifacts and burial have similarities with those of the Kipp Island phase of New York and Ontario. The artifacts found with the Ramp3 burial are interpreted to indicate external influences on Middle Woodland populations in the Coastal Plain region, although whether these influences were due to diffusion or population movement is not known. Knepper et al. (2006) favor a movement of Proto-Algonquian speakers from the north into the Middle Atlantic region in the Middle Woodland period.

3.1.7 Late Woodland Period (AD 900 – 1600)

The single most important, and common, element across much of eastern North America in the Late Woodland period was the adoption of agriculturally based subsistence systems (Anderson and Mainfort 2002). In the Mid-Atlantic region, the establishment of a system of stable agriculture in the Late Woodland period led to the development of sedentary floodplain village communities, some of which were fortified by palisades (Turner 1992). Kavanagh (1983) notes four major changes that occurred during the Late Woodland period in the Monocacy River valley: the appearance of large, permanent or semipermanent villages made possible by the cultivation of maize, beans, and squash; the presence of ceramics at numerous sites, including open camps and habitations; an intensification of riverine orientation through time; and a shift towards the use of local lithic resources, implying a breakdown in procurement networks. Hunting, gathering, and fishing were still practiced but to a lesser extent than before.

The fabric-impressed Townsend series and cord-marked Potomac Creek series are the predominant Coastal Plain ceramics of the period (Figure 6). Townsend series ceramics have the same distribution as that of the Middle Woodland Mockley ware, and Dent (1995:244) notes that some archaeologists view Townsend as a derivative of the earlier Mockley ware. Ceramic decoration and embellishment appear to be important and increasing at this time. Townsend ware has been divided into four distinct types that appear to evidence both temporal and geographic variation, with some types continuing into the Contact period. Potomac Creek ceramics became abundant after AD 1300 in the western shore of Maryland (Dent 1995:245). Potomac Creek ceramics are believed to have been made by Piscataway groups. Dent (1995:245) also emphasizes that while the Late Woodland ceramic types have been shown to have a core area of use, their area of distribution is often larger. This dispersal is attributed to extensive

interaction between regional groups. Triangular projectile points possessing a variety of names are almost exclusively associated with the Late Woodland period (Dent 1995:245). The stone-tool assemblage largely consists of local materials with tools made from small expedient cores and flakes (Dent 1995:247). The tools include a variety of scrapers, perforators, choppers, and hoes, along with ground-stone items such as axes, mauls, mortars, pestles, grinding stones, and abraders (Dent 1995:248). Bone and antler points were also fashioned, as were other bone tools and ornaments. Clay tobacco pipes and copper beads and pendants are also attributed to the Late Woodland period (Dent 1995:249).

Late Woodland site patterns appear to consist of varying-sized larger sites surrounded by smaller sites, with the size and complexity of the larger sites increasing after about AD 1300 (Dent 1995:250). This site pattern may reflect a larger permanent village that was associated with smaller, resource extraction hamlets. Village location may have been influenced by proximity to agriculturally suitable soils (Potter 1993). And as across much of eastern North America, Late Woodland groups in the Chesapeake region were becoming increasingly sedentary, with sites described as nucleated or dispersed villages and small hamlets (Dent 1995:249–250). Refuse and shell middens can be substantial at Late Woodland sites, and ditches, trenches, and palisades were constructed at some sites. While some subterranean storage facilities are found on Late Woodland sites, Dent (1995:249) suggests that the period witnessed a shift toward the use of above-ground storage facilities such as warehouses and granaries. Domestic structures appear variable and include longhouses, semi-subterranean pit houses, and smaller, oval house structures (Dent 1995:249). Some of the variability might be explained by site function. One last site type is the ossuary. Ossuaries are places of secondary interment of large numbers of individuals and are often associated with nearby village sites (Dent 1995:255).

In some respects, the Late Woodland subsistence pattern was similar to that of earlier periods. Faunal resources included deer, smaller mammals, ducks, turkey, and other birds, oysters and other shellfish, turtle, and a variety of fish, especially anadromous species (Dent 1995:251). Nuts, starchy and oily seeds, such as amaranth and chenopod, and tubers were also important. But the archaeological remains also indicate that fundamental changes to subsistence and diet occurred in this period. Eight-rowed flint variety maize was grown as early as AD 825 in the region and evidence for the growing of squash and beans has also been found (Dent 1995:254). Potter (1993) suggests that the emphasis on tropical cultigens intensified after AD 1300.

After AD 1500, there was an increase in social and political activity among native tribes in Maryland and Virginia, and some researchers suggest that an alliance of coastal plain Algonquian groups had formed prior to European contact (Potter 1993:151) (Figure 6). Dent (1995:267) identifies the date of about AD 1500 as marking the appearance of ranked societies known as chiefdoms in the Chesapeake region. There has been considerable debate among researchers as to the nature of Late Woodland social organization in this region prior to AD 1500. For instance, Turner (1992) characterizes the socio-political organization of groups settled on the Coastal Plain as ranked, while Hantman and Klein (1992) indicate that, at least for the Piedmont region, archaeologists have interpreted Late Woodland societies as ranging from egalitarian, to temporary hierarchies, to chiefdoms. As noted here, with the transition to the Contact period, many of these issues are resolved.

3.2 Euroamerican History of the Project Area

The Historic period context is based on a review of the Euroamerican, generally post-1830s, land-use of the Cotton Factory parcel that is presented below. The Cotton Factory parcel Historic period chronology is divided into broad periods based on specific land uses identified in the historical record, as discussed below.

3.2.1 Cotton Factory

Prior to the construction of the Cotton Factory, the lot located at the corner of North Washington and Pendleton Streets was vacant. Tax records dated between ca. 1820 and the early 1840s show no occupation of the Cotton Factory parcel in that period (Barrett Library Special Collections: City of Alexandria Land and Personal Property Tax Records, 1820–1845). This suggests that the Cotton Factory was the first occupation of the parcel. In 1846, William Fowle, Anthony Cazenove, Hugh Smith, Henry Daingerfield, William Gregory, John Withers, Robert Jamieson, John C. Vowell, William Stabler, and Robert Miller entered into a venture to construct Alexandria's first cotton mill devoted to textile products (Miller 1986a:1). These businessmen formed the Mount Vernon Manufacturing Company, which was incorporated on 11 March 1847, with Henry Daingerfield serving as chairman (Miller 1997:7). On 19 April 1847, the new corporation purchased 1 acre of real estate on North Washington between Oronoco and Pendleton Streets from Betsy C. Mason, the executrix of Thomason F. Mason, deceased (Alexandria Recorder of Deeds: Book H3, page 314). This property became the site on which these men built the Mount Vernon Cotton Factory, with construction commencing a month later in May 1847 (Figures 7 and 8). *The Alexandria Gazette* reported that Messrs. Stanton and Frances completed the masonry work, and the carpentry was completed by Messrs. Davis, McKnight, and Price. The foundry owned by T. W. and R. C. Smith manufactured all of the iron used in the building. The factory obtained its working machinery from S. P. Heath's factory in Laurel, Maryland (Miller 1997:7). When completed, the four-story brick factory measured 110-x-50 ft and contained 124 looms with 3,840 spindles powered by two 30-horse-powered steam engines. The factory employed 150 workers who labored 11 hours a day. Most of the workers were women, who earned 12 to 17 dollars a month (Miller 1986a:1).

In the 1850s, the Mount Vernon Cotton Factory consisted of the four-story factory building, a 40-x-50-ft picking house, engine house with repair shop, a brick office, and a brick fire-proof waste house (Alexandria Gazette [AG], 13 December 1855). Historical maps from the nineteenth century note the picking house, which contained a spreading room, was attached to the east side of the mill by a one-story hyphen (Figure 9). The engine house and boiler room, which contained a 76-ft smokestack, were located in a separate wing also extending from the east elevation of the building farther north of the picking house (Sanborn Map Company 1885). Civil War-era maps note the office as being a 20-x-20-ft building located approximately 40 feet south of the Cotton Factory (Figure 10). Maps from this era also note the presence of a 24-x-15.5-ft commissary store located in the southeast corner of the property (Cotton Factory Prison 1865).

The Mount Vernon Cotton Factory was one of many industries that sprung up in Alexandria by 1850. Prior decades of stagnant growth gave way to a period of economic prosperity. This prosperity contributed to the growth of Alexandria between 1850 and 1860, with the population increasing from 8,795 to 12,652. Transportation advances spurred much of the economic growth at mid-century. Steam-powered boats left the wharves along the Potomac River for Norfolk,

Figure 7. "View of Alexandria VA." 1853 Lithograph by E. Sachse & Co. Courtesy of Alexandria Library of Local History Special Collections. Image displays rear factory wings that were later demolished for the building's transition to a bottling house.

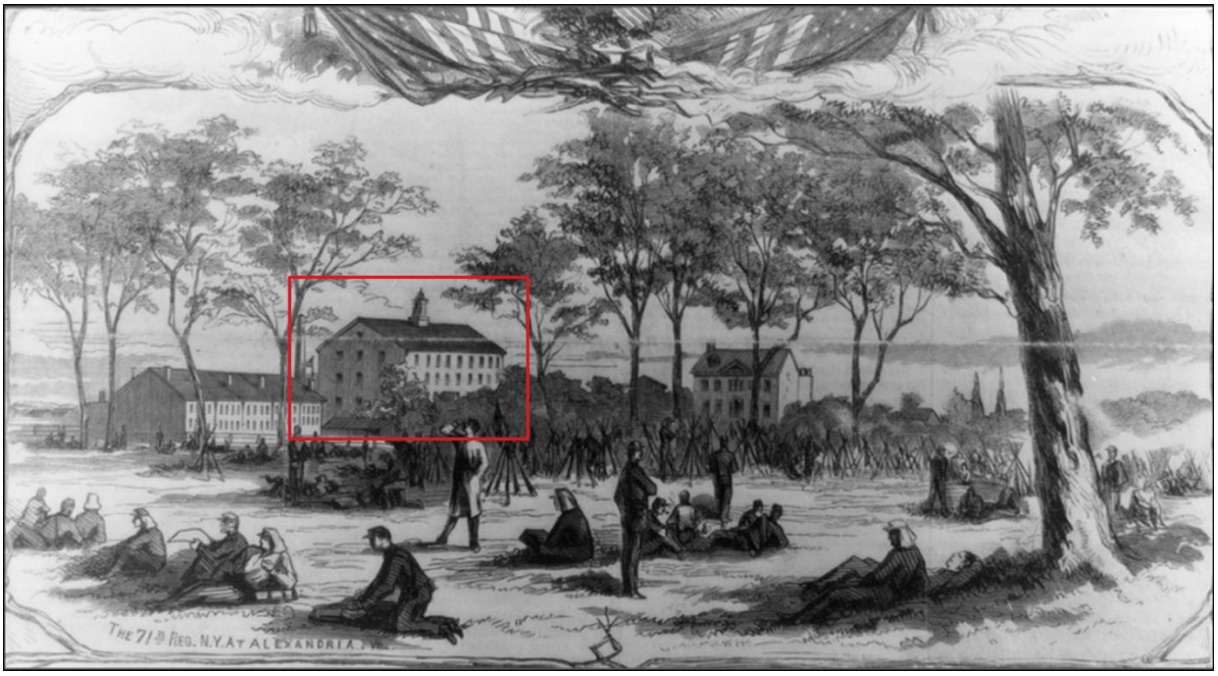

Figure 8. "The 71th REG. N.Y. At Alexandria, VA." Image dated 1861. Cotton Factory (outlined in red) in background. Courtesy of Alexandria Library Local History Special Collections, Vertical File Image #822.

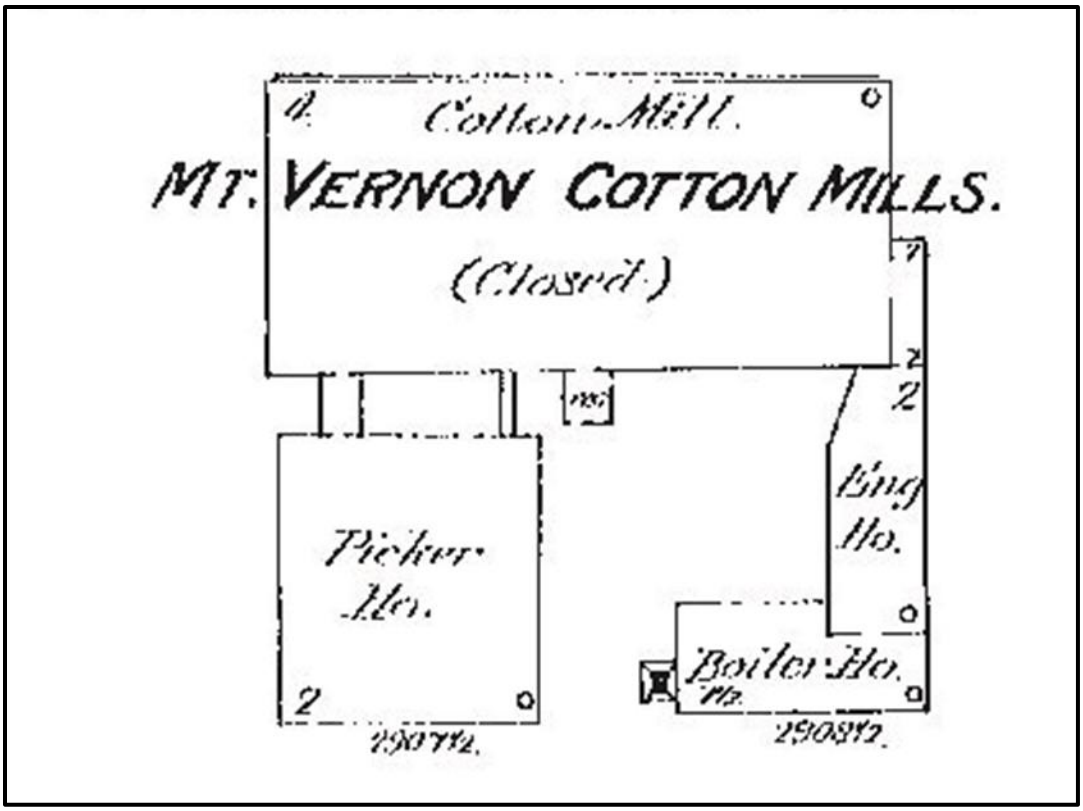

Figure 9. 1885 Sanborn map showing the Mount Vernon Cotton Mill.

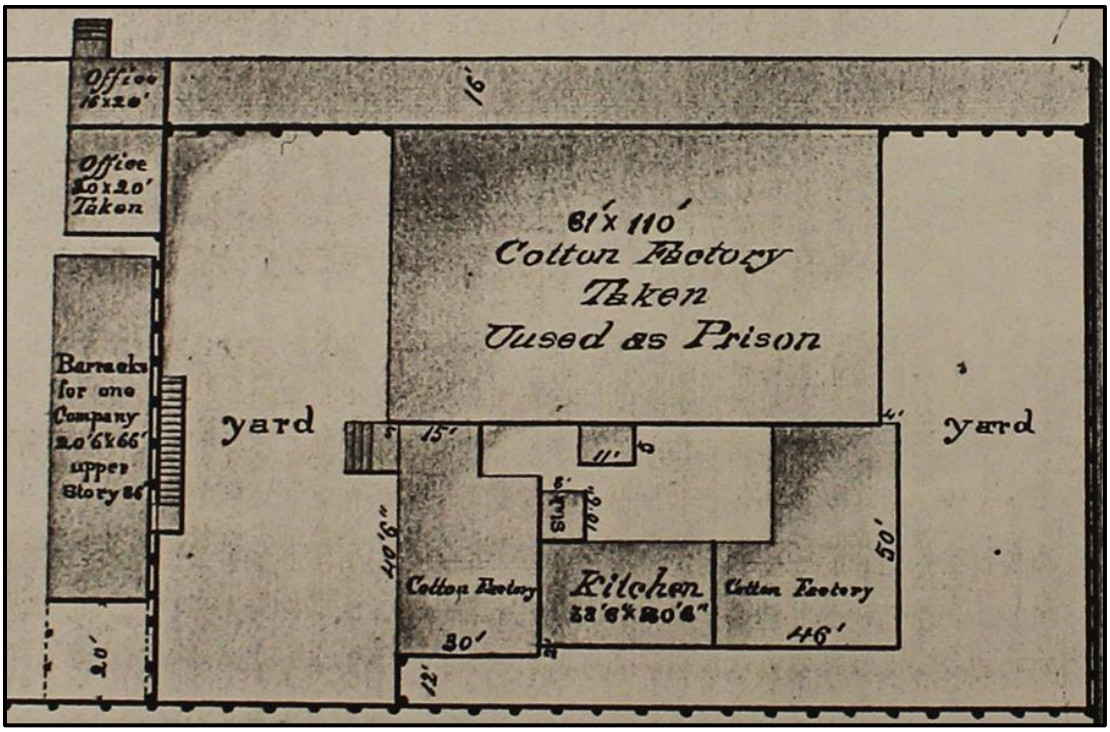

Figure 10. 1865 Washington Street Military Prison. Courtesy of Alexandria Local History Special Collections.

New York, and Baltimore. The Orange and Alexandria Railroad, chartered in 1850 and completed in 1854, provided rail service from Alexandria to Gordonsville and linked with the Manassas Gap Railroad, the Virginia and Tennessee Railroad, and the South Side Railroad (Miller 1997:7). Both the steamship services and the railroad attracted manufacturing opportunities. Local industries included Thomas Smith's factory on Wolfe Street that produced steam engines, the C. C. Smoot tannery on Wilkes Street, and a large furniture factory located at Prince Street owned by James Green (Miller 1986a:1). One of the largest industries was the Smith and Perkins Locomotive Works, which provided railroad engines for the Manassas Gap, Baltimore and Ohio, and Hudson Valley Railroads. In 1852, the Alexandria Steam Flour Company built its six-story pioneer mill along the Alexandria waterfront (Miller 1997:7).

The Mount Vernon Cotton Factory was not the only cotton-based manufacturer in Alexandria in the nineteenth century. Two other known mills produced cotton products. The older of these two mills was Roach's Mill, which occupied the seat of an earlier mill known as Chubb's Mill in the eighteenth century, situated at the confluence of Long Branch and Four Mile Run. Descriptions of Roach's Mill during the Civil War note it as being an old cotton mill with significant deterioration. During the war, portions of the 12th New York Regiment encamped near the mill site in 1861 (Mullen and Johnson 2010:2). A letter from a member of the regiment posted in the *New York Times* stated, "Several companies were quartered in the old cotton mill, a building about to fall (New York Times [NYT], 9 June 1861)." Because of its appearance in 1861, it is likely that Roach's Mill was in operation long before the construction of the Mount Vernon Cotton Factory. James Fitzpatrick, a former superintendent of the Mount Vernon Cotton Factory, eventually started his own cotton mill. Newspaper advertisements indicate the mill to have been located at the William H. Muir Building near the Alexandria Canal, although further research was unable to determine a precise location for this structure. Known as the Fairview Cotton Works, the mill began operation in 1856, producing cotton yarns, carpet chain, sail twine, cordage, and wrapping twine. A mattress-manufacturing department was also housed in the facility since part of the factory produced mattresses for furniture dealers in Washington, DC (Miller 1997:8).

Few cotton-manufacturing factories in Virginia were highly successful in the antebellum era. The same transportation improvements that helped spawn industry in the mid-nineteenth century worked against the cotton manufacturing industry in Virginia. More efficient transportation allowed for greater competition from mills in New England. These mills were far more efficient and more firmly established in the cotton-manufacturing industry than the newly established factories in Alexandria and elsewhere in Virginia, which were run by people with limited expertise or experience in the industry. An 1850 industry report identified a total of 20 cotton manufacturing factories in Virginia. The report noted that most of the mills had not operated to full capacity and many had not yielded much profit to stockholders and owners (Miller 1997:8). The cotton industry in Alexandria likewise struggled. Roach's Mill likely shut down operation completely by the Civil War. Four years after opening, the Mount Vernon Cotton Factory board of directors reported that the company had not prospered to the extent anticipated and actively sought to lease the operation to another entrepreneur in 1852 (Miller 1986a:2).

Difficulties other than profitability plagued the Mount Vernon Cotton Factory. On 21 July 1854, the factory's night watchman, Michael Kiggin, was murdered. Eyewitnesses noted they heard an argument between two men at three o'clock in the morning, with one of the men running from

the scene. Police only interviewed a single suspect, William Arrington. Authorities never charged Arrington for the murder, which went unsolved. Three months after Kiggin's murder, a fire broke out at the cotton factory on 27 October 1854. The fire was started when a factory worker accidentally ignited a bundle of cotton when passing under a gas lamp. The fire quickly spread to other bales, some of which were passing through the carding machines. Several workers and the factory superintendent extinguished the flames before any significant damage occurred. What damage did occur was quickly repaired (Miller 1986a:2–4).

In 1855, the directors decided to put the mill up for sale for $90,000. The asking price proved to be over inflated, as on 13 December 1855, a group of six investors (three of whom were original investors), consisting of Lewis McKenzie, John Withers, Robert Jamieson, James Green, Henry Dangerfield, and William Gregory, purchased the property for $26,000. It is likely financial difficulties continued to plague the Mount Vernon Cotton Factory, as in 1858 Gregory, on behalf of all the investors, sold the property to John Rosencrantz of Philadelphia for $35,000 (Miller 1986a:2).

3.2.2 Civil War Prison

The factory continued to operate under the ownership of Rosencrantz until the Civil War. A month after Virginia seceded from the Union, federal troops crossed the Potomac River to occupy Alexandria and quell any secessionist activities. Many residents, including many workers employed at the Mount Vernon Cotton Factory, fled Alexandria as Union troops occupied the town. The Union army seized many private homes and public buildings for its needs as an occupying army. The Mount Vernon Cotton Mill was one of the properties seized and was converted into a prison to house captured Confederate soldiers (Miller 1986a:5).

As part of its conversion into a prison, the Union military whitewashed the building and erected a perimeter fence around the property. The structure, which became known as the Washington Street Military Prison, was one of five buildings used in Alexandria as military prisons during the Civil War. The other sites included the city slave pen at 1315 Duke Street, Odd Fellows Hall, a boarding school at 218 Columbus Street, the Prince Street Prison at the intersection of Prince and Fairfax Streets, and the old Alexandria Jail at 403 North St. Asaph Street. These facilities incarcerated not only Confederate prisoners of war, but also Union deserters and soldiers convicted of disorderly conduct (Kilian 2003).

Plans dating from March 1865 show the layout of the Washington Street Military Prison (Figure 10). The perimeter fence around the factory created prison yards on both the north and south sides of the factory building. The northern yard extended all the way to Pendleton Street. The southern yard ended just north of the 20-x-20-ft brick office once part of the cotton factory. Further to the east and also located outside the prison walls was a 26-x-15.5-ft commissary store, which was also probably part of the old cotton factory. The Union army constructed a barracks building to quarter a company of soldiers on site. The 20-x-66-ft barracks was located only a few feet east of the office building (Cotton Factory Prison 1865).

The Washington Street Military Prison became the largest military prison in Alexandria during the Civil War. The prison primarily served as a temporary facility to house prisoners being transported to other prisoner of war facilities located further north. At its height of operations in

October 1864, the Washington Street Military Prison held more than 1,400 prisoners, which far exceeded its planned capacity (Miller 1986a:5). The overcrowded conditions resulted in a large part to the breakdown of prisoner of war policies between both sides near the end of the war. General Ulysses S. Grant employed a common practice of furloughing captured prisoners on the condition that they swore never to take up arms again against the U.S. government. Encountering prisoners furloughed from the Vicksburg Campaign fighting for the Army of Northern Virginia at Petersburg encouraged the United States military to no longer grant such furloughs. The Confederate government's refusal to exchange African-American soldiers taken captive in engagements also eventually resulted in a refusal of the willingness of both sides to negotiate prisoner exchanges, which had been commonly employed in the early parts of the war.

Overcrowding at the prison resulted in poor sanitary conditions. Prison supervisor Captain R. D. Pettit noted in his own memoirs (Miller 1986b: Papers of Capt. R.D. Pettit) that:

> Wards No. 1, 2, 3, & 4 are not clean and the privies attached are very filthy, the men are allowed to shit upon the floors and cook coffee by the gas jets. I find many of the wooden bars gone from the windows and other damage done, for which there can be no good reason, the yards and premises generally are filthy, the men having been allowed to urinate in the commons and against the building.

Escape attempts also frequently occurred at the Washington Street Military Prison at the height of its occupancy. One such attempt occurred on the night of 10 November 1864, but was foiled by an informant operating on the inside of the prison. According to the informant, prisoners incarcerated in the fourth floor of the old cotton factory gained access to the attic story where most of the old cotton machinery was stored. The prisoners planned to set fire to the machinery to draw attention away from an escape attempt, which consisted of lowering themselves from a fourth floor window by means of belting secured under a sink in their prison quarters. While the escape attempt on 10 November was foiled, other escape attempts proved successful. Between August and October 1864, prison officials reported 18 Confederate prisoners as having escaped (Miller 1986a:5).

Management at the Washington Street Military Prison fell under the authority of Captain Rufus D. Pettit, the superintendent of all Union prisons in Alexandria. Eyewitness accounts from subordinates, such as Captain Dewitt James who served as the commandant of the Washington Street Military Prison, noted Pettit's cruelty toward the prison population. Pettit reportedly held prisoners bound for hours during periods of extreme heat or cold and even shot his revolver at inmates who dared look out their windows (Kilian 2003). Pettit was a Mexican War veteran who served in the Army of the Potomac during the early years of the war, before resigning his commission after the Battle of Chancellorsville in May 1863 owing to medical reasons. In March 1864, Pettit rejoined the Union Army, serving as commander of Company F of the 12th Regiment of the U.S. Veteran Reserve Corps, a branch for veterans determined unfit for active service. On 20 July 1864, Pettit was appointed Superintendent and Inspector of Union Military Prisons in Alexandria. Pettit assumed his responsibilities with perhaps too much zeal. Ironically, most of his aggression was directed at Union and not Confederate prisoners. Pettit pursued a personal course of exposing deserters from the Union army. Towards this end, he forced confessions through the use of torture. Captain James noted one incident where Pettit used physical violence to coerce a confession from an elderly man confined at the Washington Street Military Prison accused of desertion. A similar incident occurred at the Prince Street Prison.

Sergeant Michael Murray testified that Pettit had an accused deserter, Caleb Smith, bound and raised off his feet up to 12 hours before the prisoner finally confessed. Not only Murray and James, but other eyewitnesses testified to Pettit's cruelty in court martial proceedings in November 1865, following the formal filing of charges citing his cruel treatment of prisoners. A court martial tribunal convicted Pettit and dishonorably discharged him from service in the United States Army (Lowry 2014).

3.2.3 Post-Civil War Period

By May 1865, the Army converted the prison into a barracks for convalescents and Union stragglers and, shortly thereafter, the army relinquished its control over the old cotton factory. On 26 January 1866, the property was sold to Abijah Thomas of Smyth County, Virginia, for $34,000. Thomas, a manufacturer of cotton and wool goods, decided to revive the operation of the old Mount Vernon Cotton Factory. The war had left the facility in poor condition and in need of major repairs. To raise capital, Thomas made various financial arrangements by entering into several deeds of trust. He borrowed $30,000 from C. Turnbill Baxter and Company and $5,000 from G. K. Witmer, and he secured several small loans from the First National Bank of Alexandria (Miller 1986a:6).

As in much of the South, Alexandria faced economic troubles following the Civil War. The withdrawal of Union troops left area businesses with a decline in customer base. Nearly all of the Confederate sympathizers who had the financial means to flee Alexandria had done so early in the war, before or shortly after Union occupation. What remained were poor white citizens and African-American contraband that fled to Union lines in the war and settled in Alexandria, tripling the antebellum African-American population. The federal and city government opened soup kitchens in the winter months to feed the indigent (Dennée 2002:43).

The post-war climate left little opportunity for establishing a successful business in Alexandria. The situation proved to be a major disruption for the cotton industry. Not only was cotton raised within war-torn regions, but the entire industry was in transition as the labor force moved from a slave-based system to free labor. The war also shattered the transportation network provided by the railroad. These problems provided added costs and limited the availability of raw materials to cotton-manufacturing industries in the North. These issues no doubt plagued the revitalization efforts for the Cotton Factory in Alexandria. The nature and number of the various business arrangements made by Thomas also doomed the project. Both Turnbull and Company and the First National Bank of Alexandria threatened to foreclose on the property to seize assets following Thomas's failure in bringing the mill into production. After Turnbull was awarded the rights to dispose of all assets of the property, the First National Bank sued Turnbull and Company in 1873 in an effort to restore some of its losses. In 1875, the Circuit Court of the Eastern District of Virginia ruled in favor of the National Bank of Alexandria that Turnbull and Company was not entitled to claim the first mortgage held by them because most of that had been paid by Thomas. On 24 July 1877, Robert H. Garrett of Baltimore, Maryland, purchased the property for $33,000. Garrett owned other cotton works in Maryland and purchased the property containing the old Mount Vernon Cotton Factory for the sole purpose of preventing any other investors from reviving the mill to compete against his factories (Miller 1986a:6–7).

For the next 20 years, the property remained vacant. The Garrett family continued to own the property at this time, but failed to redevelop it for productive means. The *Washington Post* noted that maintaining the property cost the Garrett's one-half million dollars in sum over the years and deprived the city of a prime manufacturing facility that could produce revenue and revive the northwest section of the town. The property changed little from its Civil War appearance as it remained vacant. Although the prison walls were removed after the war, other buildings added to the property during the war remained in the 1880s. Sanborn maps from 1885 depict the property showing three detached secondary buildings. Among these was a warehouse that closely resembles the footprint of the officer's quarters (Sanborn Map Company 1885) (Figure 11). A one-story office building was located adjacent to the warehouse and a waste house was located as a separate detached building behind or east of the warehouse. The warehouse is not shown on a later series of the maps produced in 1891, but the office and waste house remained on the site at this time (Sanborn Map Company 1891) (Figure 12).

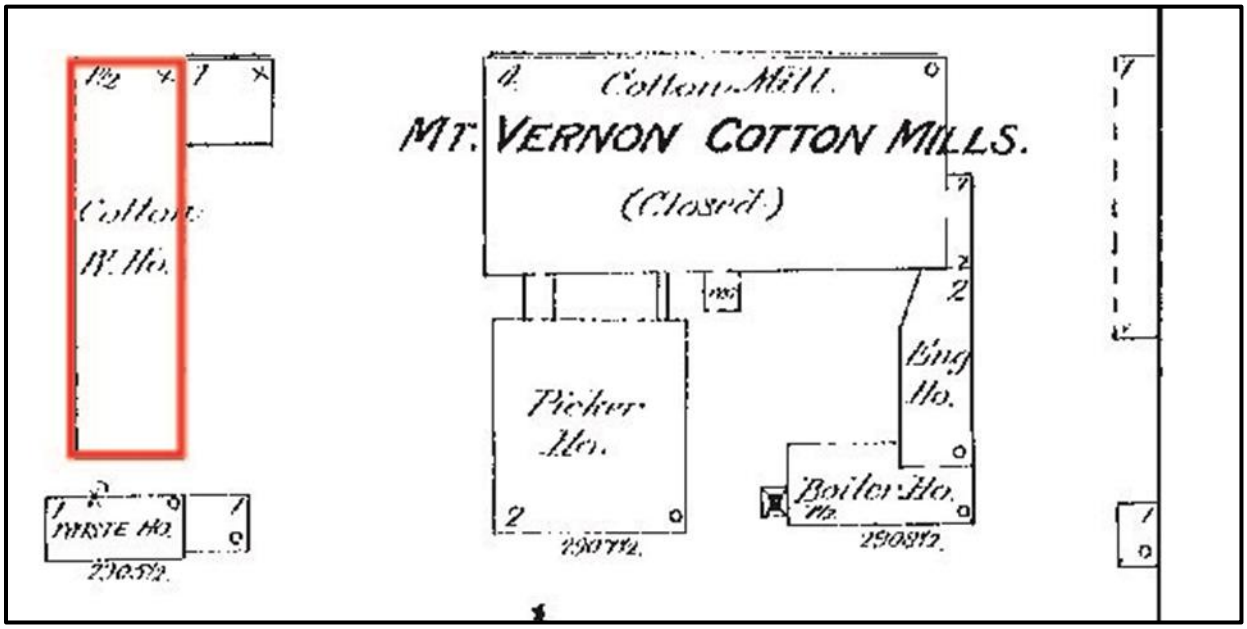

Figure 11. 1885 Sanborn map showing layout of buildings on Cotton Mill property. The old officer's quarters are outlined in red.

Initial efforts to redevelop the site after 1890 failed. In 1890, a Washington-based manufacturing company investigated the potential to lease the facility for a bicycle factory, but the company never followed through on its plans (Washington Post [WP], 1 October 1890). On 24 February 1900, the heirs of John Garrett conveyed the property to Henry C. Chipman of Baltimore for $12,000. A suit brought against Chipman by Charles Nitze in 1902 resulted in the sale of the property at public auction. Around this same time, the American Cigar Company took an interest in the property for its manufacturing purposes. The company operated 30 facilities and wished to expand to Alexandria. City representatives encouraged and were willing to work with the American Cigar Company, as a new factory established in Alexandria would likely result in 1,000 new jobs. Representatives of the cigar company inspected the old Mount Vernon Cotton

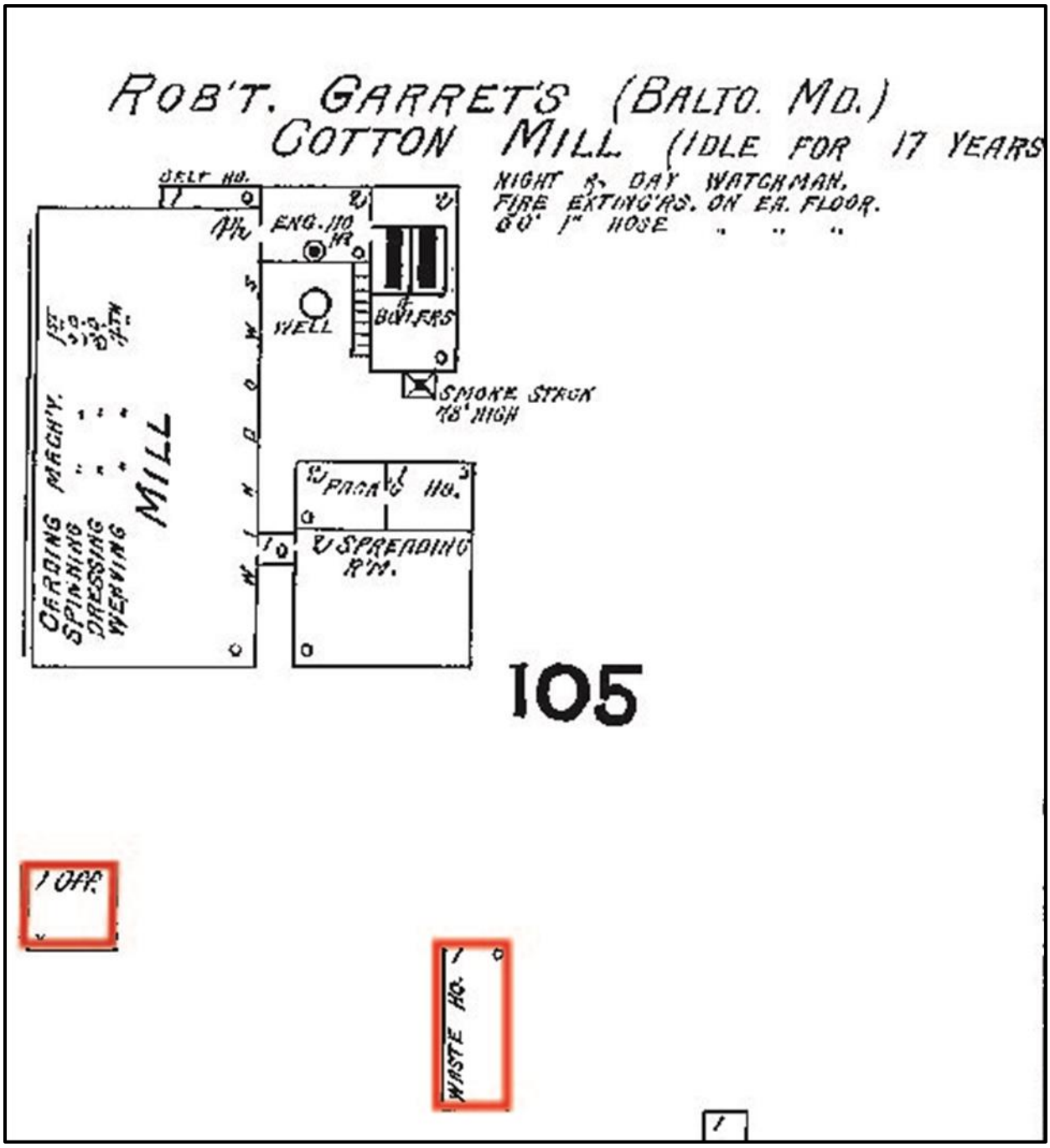

Figure 12. 1891 Sanborn map showing layout of buildings on Cotton Mill property. The office and waste house are outlined in red.

Factory building and were impressed with its potential. Corporate leadership for the company, however, indicated they would only establish a factory in Alexandria if the City would provide a rent-free facility for 2 years with an option on the building for the next 5 years at a cost not to exceed the purchase or building price (WP, 23 October 1902). Inspection of the building revealed that certain improvements would be needed to convert the property to use. When

capital needs for renovation turned out to exceed what the American Cigar Company could afford, the company lost interest in the property (WP, 22 November 1902).

3.2.4 Portners Brewery

On 24 December 1902, Harry and John Aitcheson purchased the Cotton Factory property for $14,400. The Aitchesons acted as agents for the Robert Portner Corporation, which, on 15 January 1903, assumed ownership of the property through a decree of the Circuit Court (Miller 1986a:7). The old Mount Vernon Cotton Factory was finally put back into use as a bottling house for the Portner Brewing Company.

Robert Portner, a German industrialist, established the Portner Brewing Company in Alexandria in 1861 at the northeast corner of King and Fayette Streets. The establishment of the Portner Brewing Company occurred at a time when the City of Alexandria was experiencing a renaissance for its brewing industries. The presence of Union troops in and around Alexandria provided an unprecedented demand for alcoholic beverages, despite the fact that temperate local legislatures had prohibited the sale of alcohol within the city limits. The new Portner Brewing Company competed against two existing Alexandria breweries. Henry S. Martin established a small brewery at the corner of Commerce and Fayette Streets in 1856. Two years later, Alexander Strause and John Klein established a brick-vaulted brewery known as Shooter's Hill Brewery, located in the West End along Duke Street. All three breweries flourished during the Civil War. Between September 1862 and October 1865, the three breweries together produced nearly 9,000 barrels of lager beer and ale (Dennée 2002:3–5).

Brewing was not a new industry in Alexandria, which since the late eighteenth century had at least one, and sometimes multiple, breweries in operation. Alexandria, however, never became a recognized leader in the production of malt beverages. The state of Virginia and the entire South in general lagged behind the industrial capabilities of the Northeast and Midwest. Cultural biases also proved to be a factor. The South's proclivity for religious piousness made the region more sympathetic to temperance (Dennée 2002:1). Reviewers for Alexandria Archaeology also believe that the widespread availability of distilled spirits and the warm climate also mitigated against the widespread consumption of malt beverages in the region, at least compared to other parts of the nation.

All of the established breweries suffered a reversal of fortune as demand for beer fell dramatically following the Civil War, resulting in declining production levels at all of the city's breweries. By the end of the War, the Portner Brewing Company was deeply in debt. In the face of financial difficulties, Robert Portner's partners decided to sell their interest in the brewing company back to him, making Portner sole proprietor. As a proprietorship under sole ownership, the company was renamed the Robert Portner Brewing Company. Shortly after reconstituting itself, Robert Portner's Brewing Company experienced a reversal of fortune largely due to the sale of lager beer. Lager beer had become popular during the Civil War, and Portner decided to take advantage of its burgeoning popularity by brewing lager beer when many of his competitors were still just producing ales. His business soon doubled, and the company was even selling to other brewers (Dennée 2002:51–53). This reversal of financial fortune allowed Portner to pay off his creditors and have enough left over for capital investment. Portner purchased a new site on the north side of the 600 block of North St. Asaph Street on

which he built a new modern brewery in 1868–1869 (Dennée 2002:5). This brewery was located in the block bounded by North Washington, Pendleton, Wythe and North St. Asaph Streets. The investment in a new brewery provided to be a wise business decision. By the 1870s, its value more than tripled that of the old site on King Street (Dennée 2002:59). In its first year, the brewery produced only 1,000 barrels of beer, but by 1882, it was producing nearly 40,000 barrels annually at a rate of 250 barrels daily. The entire operation employed 35 to 40 men (Miller 1986a:8).

Portner's success in the late nineteenth century also was largely due to expanding his market base and modernizing his production facilities. Rail transport and opening new branches in distant markets provided the means for this. In 1880, Portner bought two refrigerated railroad cars for use on the Virginia Midland Railroad, which traveled distances of more than 600 miles and distributed his products throughout the Commonwealth of Virginia. Around this same time, the company established new branches at Lynchburg, Virginia; Charlotte and Wilmington, North Carolina; and Augusta, Georgia. Modernization of his production facilities resulted in investing in air conditioning, ice-making, and pasteurization equipment that increased both the production and quality of his product in the late nineteenth century (Dennée 2002:112).

Portner's aggressive expansion was not limited to new markets, but also concentrated on improving and consolidating main production facilities in Alexandria. In the 1880s and 1890s, Portner acquired the entire block on which his main plant was located, bounded by Washington, St. Asaph, Pendleton, and Wythe Streets. He had also acquired much of the southern half of the block northeast of the intersection of St. Asaph and Wythe, and most of the block bounded by St. Asaph, Pitt, Wythe, and Pendleton Streets. In 1882, Portner built a bottling house on part of his property located at the southeast intersection of St. Asaph and Wythe Streets. Ten year later in 1892, the company rebuilt the bottling house after a fire destroyed most of the facility a year earlier (Dennée 2002:134–138).

The bottling house outgrew its production capacity within ten years of being reconstructed. The nearby vacant Mount Vernon Cotton Factory became an ideal location for a new bottling plant. The factory, which remained vacant throughout most of the period following the Civil War, was large enough to provide added capacity to bottling operations once converted into a bottling plant. The four-story, 50-x-110-ft factory provided adequate room for operations involving cleaning, filling, capping, and labeling and was expected to have the capacity to operate at 20,000,000 bottles a year. Significant renovations were required to convert the Cotton Factory into a bottling plant. Portner hired architect Clement A. Didden and builder L. Morgan Davis to make the renovations, which resulted in the replacement of most of the old plank flooring with concrete and added a boiler room/packing house and an elevator tower to the southeast corner of the building (Dennée 2002:230). The old boiler room and picking house were demolished and a new wood-frame, one-story receiving shed was added to the north side of the building (Sanborn Map Company 1907) (Figures 13 and 14). The grounds were also landscaped, with a decorative iron fence installed around the property (Dennée 2002:147). The new bottling house opened for operation in 1903 (Figure 15). The increase in the company's work force at its Alexandria operations from 109 men in 1907 to 200 men in 1914 resulted from the increased bottling operations at the retrofitted old cotton factory bottling works (Dennée 2002:230).

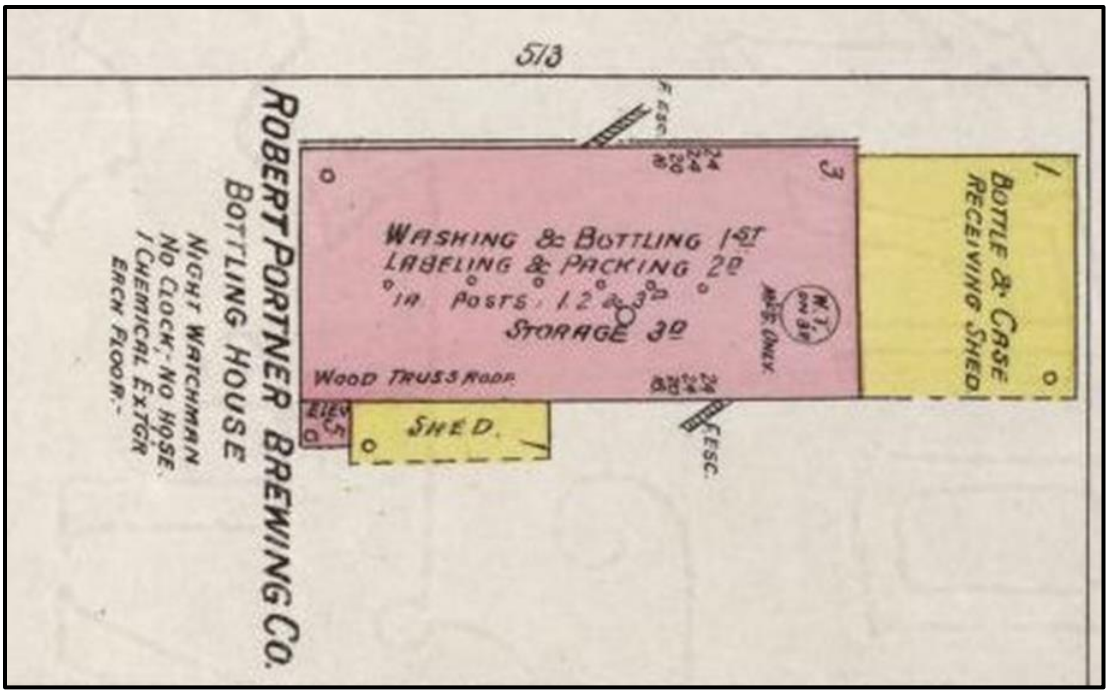

Figure 13. Bottling House for the Robert Portner Brewing Company (Sanborn Map Company 1907).

Figure 14. Factory building with wood-frame receiving shed, looking southeast. Image dated 1920s. Courtesy of Alexandria Library Local History Special Collections, William Smith Photographs.

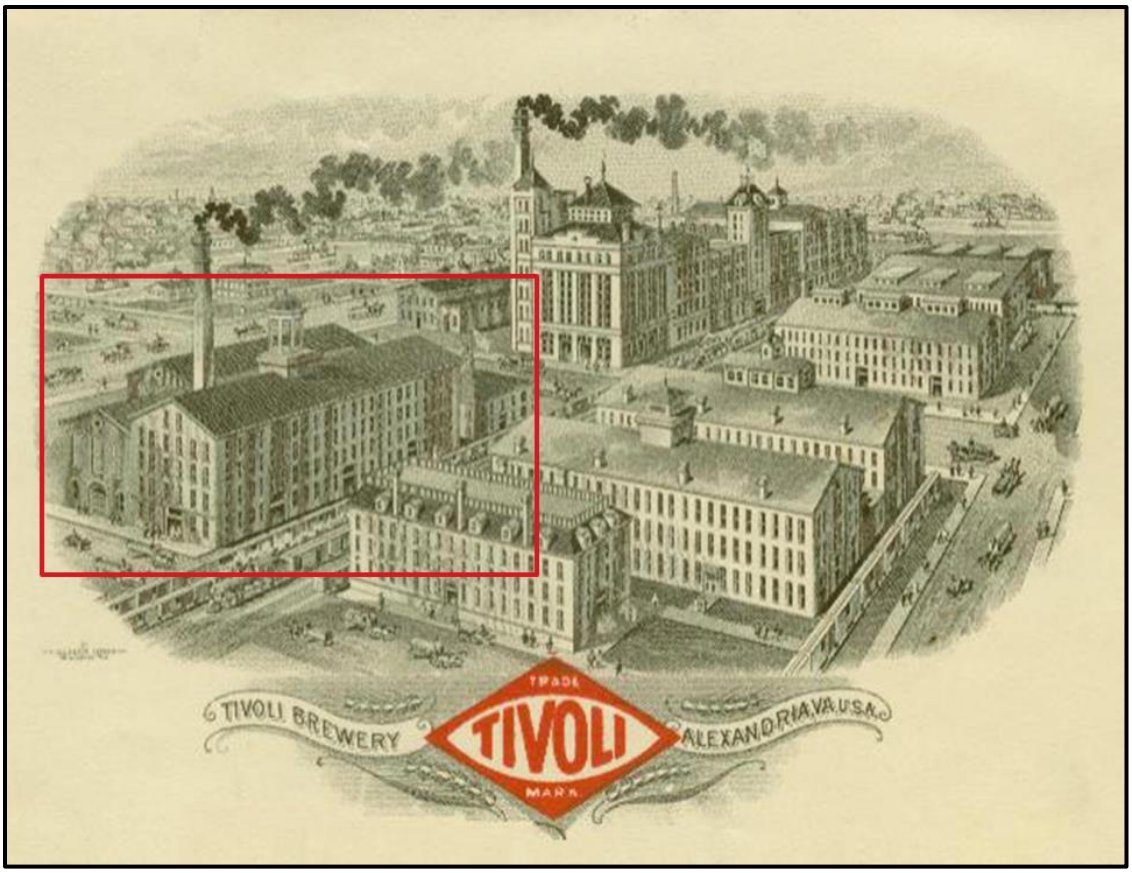

Figure 15. Post-1902 Robert Portner Brewing Company Advertisement. Courtesy of Historic Alexandria: An Illustrated History. The artist inaccurately depicts 515 N Washington as a mirror-image of itself and places the building further north than where it was located in proximity to the larger brewing complex.

In the first decade of the twentieth century, Portner's brewing empire had become one of the largest on the East Coast. His main brewery in Alexandria produced more than 8,000 barrels a year, and he had other production facilities in Virginia, North Carolina, and Georgia adding to production figures. Difficulties loomed, however, that would affect the company's operations. Labor unrest mounted in the early years of the new century. Fueled by demands for better pay and shorter hours, employees at the Alexandria plant unionized and threatened to strike. When management did not yield to these demands, a strike finally occurred in May 1910, resulting in the company shutting down operations in Alexandria. Not wanting operations discontinued for longer than one day, management yielded to labor demands by agreeing to an increase in wages of one dollar a week and a shortening of the working day to eight hours (WP, 4 May 1910). Management's desire to rid itself of the "Union" problem led them to seek out and hire non-unionized workers and to fire or lay off unionized men. The policy led to another walk-out of 50 union workers in January 1915 (Dennée 2002:249).

Equally threatening were temperance movements in the South, that eventually led to prohibition. In 1907, Georgia enacted prohibition, and North Carolina and Mississippi followed two years later in 1908. As a consequence, the Robert Portner Brewing Company shut down operations in those states. Robert Portner's sons, who took over operations after their father's

death in 1912, responded to the challenges faced by prohibition by establishing new product lines in non-alcoholic beverages, which included sodas and seltzer water (Dennée 2002:230–231). Unfortunately, this would prove to little avail in the face of ever greater loss of operations due to the expansion of prohibition. The death knell came when Virginia adopted prohibition in 1916, resulting in the closing of the brewery (Miller 1986a:10).

3.2.5 Express Spark Plug

With the closing of the brewery, the Portner Brewing Company sold many of its assets, including the bottling factory at 515 North Washington Street, to the Express Spark Plug Factory of America (Miller 1986a:11). The Express Spark Plug Factory of America (Figures 16 and 17) was a local company established as a corporation in the Commonwealth of Virginia in 1913. When incorporated, the company held a maximum capital stock of $200,000. The corporation contained three officers: C. H. Duffey of Laurel, Maryland, served as the company's president; Leo Loughran of Washington, DC, served as vice president; and John Keane of Washington, DC, served as the company's secretary (WP, 5 February 1913).

The Express Spark Plug Company was one of many spark plug manufacturers in the United States in the 1920s. Other companies in the early twentieth century included the Champion Spark Plug Company of Flint, Michigan; the Sharp Spark Plug Company in Cleveland, Ohio; the

Figure 16. Spark Plug Factory view looking northeast. Image dated 1920s. Courtesy of Alexandria Local History Special Collections, Vertical File image #827. Note the height of Washington Street in comparison to façade.

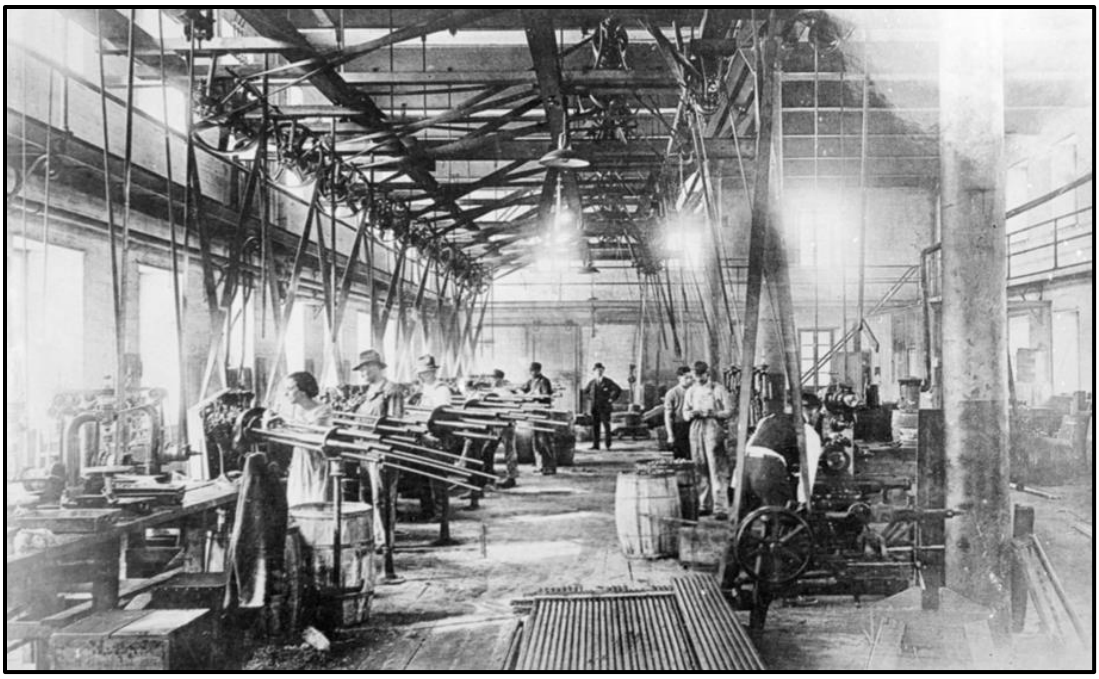

Figure 17. Interior operations of the Spark Plug Factory. Image dated 1920s. Courtesy of Alexandria Local History Special Collections, Vertical File Image #826.

Mulkey Spark Plug Company in Atchison, Kansas; the Porter Spark Plug Company of Chicago, Illinois; Universal Manufacturing & Sales Company of Chicago, Illinois; the King Bee Park Plug Company in St. Louis, Missouri; the Robert Bosch Magneto Company in New York; and the Frenchtown Porcelain Company in Trenton, New Jersey (Spark Plug Site 2009). The growing use of gasoline-powered combustible engines and the rising popularity of automobiles created an industry need for spark plugs. German inventor Robert Bosch adapted the first ignition devise using spark plugs to a vehicle engine in 1897. A year later, Nikola Tesla obtained the first U.S. patent for spark plugs in 1898 (Carhistory4U 2014). The Champion Spark Plug company, founded in 1908, became the largest producers of spark plugs in the United States and was a major supplier to General Motors.

Alexandria contained industries in the early twentieth century that needed spark plugs. Gasoline engines were being produced in Alexandria as early as 1915 (Hill Directory Company, Inc. 1915:11). By 1924, the city's manufacturers included automobile makers who produced trucks. The Berliner Aircraft Company established a manufacturing plant on Duke Street in 1927 (Alexandria Trades Council and Business District Guide 1929:51; Hill Directory Company, Inc. 1924:11). The Express Spark Plug Company's Alexandria factory largely employed women, whose smaller hands proved useful for the intricate assembly of spark plugs (Combs et al. 2012:63).

It is unknown to what extent the Express Spark Plug Company profited from local industries or whether its market base was more regional or national. Regardless, the company shut down manufacturing in 1928, once again leaving the old cotton factory vacant.

3.2.6 Belle Haven Apartments

John Loughran of Washington, DC, purchased the property in 1928 from the Express Spark Plug Company. Over the next few years, he investigated ways to economically redevelop the property. Alexandria lacked a burgeoning industrial base to continue to use the property for heavy industry. Businesses were focused on serving local agrarian, construction, and service-related industries. Manufacturers in the city produced aprons, cigars, coffee, doors, fertilizer, leather clothing, lumber, terra cotta tile, and concrete building blocks. The only heavy industry in town at this time was the naval torpedo works and the Berliner Aircraft Company. Without a large industrial need, Loughran decided to redevelop the property for residential use. Doing this required rezoning the property. In 1934, Loughran petitioned the city council for rezoning from industrial to residential use and introduced plans to renovate the old factory into a 29-unit apartment building. Loughran expected renovations to cost between 50,000 and 75,000 dollars (WP, 25 October 1934). The city approved the zoning change and Loughran's plans. Renovations to the building began in 1935. Exterior changes focused on making the property more residential in character. A classically inspired portico was constructed around the building's main entrance (Figures 18 and 19). Dormers were also added to the roof line, making the attic space more livable. Renovations also redesigned the interior space to accommodate apartment units. Architect A. B. Lowstuter provided the designs for what became known as the Belle Haven Apartments. The building served as an apartment building until Stevens, Davis, Miller, & Mosher Building Group acquired the property in 1981 and redesigned the building for office use (EHT Traceries 2013:4).

Figure 18. Belle Haven Apartments. Image dated 1938. Courtesy of Alexandria Local History Special Collections, Vertical File Image #470. Image shows building in transition as shutters are sporadically installed. Note the height of Washington Street in comparison to façade. This photograph was taken after construction of the Mount Vernon Memorial Highway.

Figure 19. Belle Haven Apartments view looking northeast. Date unknown. Courtesy of Alexandria Local History Special Collections, William Smith Photographs, image #825. Note the height of Washington Street in comparison to façade, this photograph was taken after construction of the Mount Vernon Memorial Highway.

4.0 PREVIOUS ARCHAEOLOGICAL INVESTIGATIONS

A review of archaeological surveys at Alexandria Archaeology and VDHR V-CRIS online database system indicates that a number of archaeological investigations have been undertaken within a ca. 4-block radius of the project area, with 26 archaeological sites recorded in the same area.

4.1 Previous Investigations near the Project Area

One of the earliest modern excavations near the project area dates to 1974, prior to restoration work at Gadsby's Tavern (44AX0002) located on North Royal Street (Foss 1974). The work centered on locating and excavating any wells in the basement, removing fill from a 1792 ice well, excavating and recording any features in part of the courtyard, and recovering artifacts for interpretive and exhibition purposes. No well was identified in the basement, and the ice well investigations were terminated when the feature was determined to be within unstable sands. In the courtyard, the remains of four structures were identified, two of brick and two of post construction. Based on documentary research, the archaeologists suggested that the post structures represented the remains of a kitchen and coach house dating to the late eighteenth century. One of the brick structures might have related to the original tavern, and the other was likely associated with improvements made in 1802. Artifacts recovered from the excavations dated from the mid-eighteenth century through the twentieth century.

Exploratory investigations, including partial excavation of four wells, were conducted at the Carlyle House (44AX0003) on North Fairfax Street between 1972 and 1976 prior to renovation work (Tolson 1980). The house originally was built in 1752 by John Carlyle, and members of the family lived there until 1827. The house was later converted to a hotel and also used as a Union hospital during the Civil War. The archaeological excavations revealed that many of the original floor and ground surfaces had been altered in the nineteenth century, limiting the recovery of artifacts from the earlier period. Most of the materials recovered dated to the nineteenth century, although a few Native American ceramic sherds were also noted.

Between 1979 and 1987, John Milner Associates and Alexandria Archaeology performed several investigations at Christ Church (44AX0088) associated with renovations and additions at the Parish House (Creveling 1987; Creveling and Cressey 1986; DeRossi 1985; John Milner Associates 1978, 1979). Test excavations revealed evidence of a number of eighteenth-century burials in the churchyard, including gravestones and heavily decayed human remains. Recent work at the church includes three monitoring projects associated with construction projects. The first project entailed monitoring of the reconstruction of the fence wall along North Washington Street and identified 12 graves and a brick footing (Ward and McCarthy 2000). The second project was monitoring of a wall replacement along North Columbus Street, which revealed 33 graves (Clem 2002). Finally, monitoring of the installation of a handicap ramp identified at least five grave shafts and two other potentially burial-related features (LeeDecker 2008). No human remains were identified within the grave features in these projects.

Alexandria Archaeology and Doell & Doell conducted limited excavations at the Lloyd House at 220 North Washington Street (Doell & Doell 1990) as part of an effort to document the property's history, existing condition, and archaeological resources. Built ca. 1796–1797

(probably by John Wise), a number of owners occupied the house before John Lloyd purchased the property in 1833. It remained in the Lloyd family until 1918. For the archaeological investigations, 10 trenches were excavated, which appear to have identified a planting bed, a stone path, and a bricked area within the backyard. In 2001, a historic structure report was prepared for the property prior to its conversion into administrative offices for the Office of Historic Alexandria (Dennée 2001).

From 1998 to 2000, Parsons Engineering Science conducted Phase I and Phase II investigations at the Robert Portner Brewery site (44AX0196) at 600 North Washington Street, which included historical research on the brewery (Dennée 2002; Parsons Engineering Science 2002). Robert Portner had arrived in Alexandria during the Civil War and established his first brewery in partnership with others, hoping to profit from wartime provisioning. Following the war, Portner went into business for himself, and construction of the new main brewery building on North St. Asaph Street began in 1868. Prohibition ultimately signaled the demise of the company, and the various buildings were either razed or sold in the 1930s. After World War II, the property was leveled for construction of a Woodward & Lothrop department store. The initial Phase I investigations revealed 15 architectural features, including the beer vault, walls, and two wells or privies. The Phase II excavations revealed an additional 41 features, which included the 1868 and 1894 brew houses and the north beer vault. Few artifacts, however, were recovered, which likely reflected sale and removal of the equipment prior to the buildings' demolition as well as the level of cleanliness needed in the brewing process to prevent contamination of the beer.

Archival research was conducted in the Wales Alley behind 104 South Union Street in 2000 (Hurst 2000). The research indicated that the property was under water until 1782, when the Virginia assembly authorized filling along Union Street. A pier and dock were constructed in the area by 1789, and an advertisement of the property's sale in 1801 indicated that three warehouses, a sail loft, and a wharf, pier, and dock were present. The dock and associated facilities continued in operation into at least the 1830s. An 1850 map, however, shows the area had been filled in, and an 1877 map shows two structures in this location. Late nineteenth-century fire-insurance maps show a two-story brick building with slate roof, and other documents indicate the building and warehouse were used for storing junk and rags. The building was vacant by 1921 and demolished by 1958.

Investigations were conducted in the 1990s and early 2000s at 44AX0096, the Sugar House site, by Alexandria Archaeology and Karell Archeological Services (Barr et al. 1994; Koski-Karell 2002). Originally recorded in 1987, 44AX0096 represents the remains of a sugar factory and associated dwelling built by John Leypold and Andrew Brunner that operated from ca. 1804–1828 and a ca. 1841 house (extant) built by Hugh C. Smith, who purchased the property after the factory was abandoned (Koski-Karell 2002:7). The initial excavations by Alexandria Archaeology revealed earthenware sugar molds and syrup jars used at the factory and brick foundations (Barr et al. 1994). Additional investigations were conducted in 2001–2002 prior to construction of an addition to 111 North Alfred Street, which would impact the site. Seven excavation trenches revealed artifacts below a fill layer that were consistent with those recovered earlier (sugar molds and syrup jars) as well as refined ceramics such as nineteenth-century whiteware and porcelain. Additional structural remains also were identified.

In 2006, Thunderbird Archeology conducted Phase I, Phase II, and Phase III investigations on the King Street property located between King and Dechantel Streets (Mullen et al. 2009). The initial Phase I and Phase II investigations revealed 32 features associated with nineteenth-century use of the property. The deposits were designated as 44AX0202. Documentary research indicated the property was originally owned by Francis Peyton in the late eighteenth and early nineteenth centuries and could have been associated with the adjacent Virginia House Tavern. A later owner, Edward Home, was a slave dealer who built a frame dwelling and slave jail on the property in 1850. Home owned the property for less than a year. For most of the nineteenth century, at least through the mid-1880s according to Mullen et al. (2009), a butcher, Henry Bontz, owned the property. The site was recommended as eligible for the National Register of Historic Places (NRHP), and Phase III investigations were conducted. Features investigated during this phase included a cobble walkway or drain, postholes, two wooden box conduits or drains, two bored log pipes, a barrel pit, a buried barrel, other possible barrel privies, and a refuse pit. The investigations suggest the slave jail might not retain an archaeological signature, with most features reflecting the various nineteenth- and twentieth-century tenants, most of whom were of impoverished or low economic standing.

In 2010, The Louis Berger Group conducted investigations at the Lee-Fendall House (44AX0048) prior to restoration of the garden (Shellenhamer and Bedell 2011). Earlier investigations in 1976 and 1986 were limited to privy excavations (Myers 1976; Norville and Cressey 1995) and a soil-probe survey of the yard (Shephard 2008). Originally built in 1785 by Phillip Richard Fendall, the garden, which was the focus of the 2011 investigations, had been constructed by Louis Cazenove, who carried out extensive renovations on the house from 1850–1852 during his ownership of the property (Shellenhamer and Bedell 2011). The Berger investigations revealed intact landscape features and archaeological deposits dating from the late eighteenth through mid-nineteenth centuries. Intact, buried ground surfaces associated with both the initial Fendall and Lee occupations from 1785–1843 and the later Cazenove occupation from 1850–1870 also were identified. The archaeological features suggest that Cazenove incorporated elements of the mid-nineteenth-century "Beautiful" school of garden design.

From 2009–2012, Thunderbird Archeology conducted monitoring investigations and trench excavations in the area bounded by Montgomery, Alfred, Madison, and Columbus Streets prior to demolition of a public housing development and redevelopment activities (Mullen 2012; Sipe 2010; Sipe and Snyder 2010; Thunderbird Archeology 2013). The archaeological remains of three early twentieth-century row houses along North Columbus Street and a privy were recorded as 44AX0212. Documentary research indicated that residential development of the area reached its peak from about 1902–1921. The community was partially integrated from the mid-nineteenth century into the early twentieth century and consisted mainly of working class residents. The yard deposits were extensively disturbed, and no significant structural features were identified. The site was recommended as not eligible for listing in the NRHP.

In 2011 and 2013, Thunderbird Archeology conducted documentary and archaeological monitoring investigations for the Old Town North property at the intersection of North St. Asaph and Madison Streets (Mullen 2011; Mullen and Rose 2013). The documentary research indicated the property was mainly residential in the early and mid-nineteenth century, but commercial development began by the early twentieth century, with businesses such as the

Portner Brewing Company moving into the neighborhood. Other commercial interests included a laundry, a dye factory, and a beverage warehouse. The area maintained an element of residential occupation through the twentieth century as well. During the archaeological monitoring project, a well and bottle dump were identified in association with the location of a demolished residence at 741 North St. Asaph Street. The archaeological remains supported an occupation range from the early to mid-twentieth century as demonstrated by historical records. The well contained construction debris likely associated with a former residence on the property prior to the ca. 1960 construction of a warehouse on the property. The residence had been constructed around 1918, based on its first appearance in city directories, and was abandoned or demolished after 1938, the last appearance of this address in directories. The city directories indicate the occupants were African-American families holding service-oriented jobs.

4.2 Previously Recorded Archaeological Sites near the Project Area

Twenty-six archaeological sites have been recorded within a ca. 4-block radius of the project area (Table 5). Many of these were identified during limited archival and archaeological investigations conducted in the 1970s and 1980s for various grant or city projects. The recorded sites include nine single dwellings, five multiple dwellings, two temporary camps, one tavern/inn, one factory (cotton), one jail/police station, two cemeteries, one distillery, one well, and one unspecified site type for which the site form indicates use as a sugar factory. The multi-type sites include a property with a factory and later single dwelling, and one with both undetermined Historic and Woodland period components.

Site 44AX0045 represents the archaeological component of the property located at 513–515 North Washington Street. Recorded in 1981, the site form describes the property as a cotton factory built in 1847. The property was used as a prison during the Civil War and as part of the Robert Portner Brewery from 1902–1918. At the time of the original reconnaissance survey, the property was an apartment complex that was to be converted to condominiums. The archaeological site's condition was recorded as unknown.

4.3 Summary

The previous archaeological investigations and number of recorded sites indicate the high potential for archaeological deposits and features in the Old Town District of Alexandria, especially for Historic period resources from the eighteenth through twentieth century. While only one previously recorded site has a Native American component, other archaeological resources from this period could exist in the project area.

Table 5. Previously recorded archaeological sites within ca. 4 blocks of 513–515 North Washington Street.

Site No.	Site Name	Site Type	Period	Comments
44AX0002	Gadsby Tavern	Tavern/Inn	18th–19th century	
44AX0003	Carlyle House	Single dwelling	18–20th century	
44AX0034	—	Single dwelling	20th century	
44AX0043	—	Single dwelling	19th century	
44AX0045	—	Factory	19th century	Cotton factory; Civil War prison
44AX0047	—	Single dwelling	1825–1849	Brick archway
44AX0048	Lee-Fendell House	Multiple dwelling	—	Privy
44AX0060	—	Single dwelling	19th–20 century	
44AX0066	—	—	Woodland, 19th—20th century	
44AX0072	—	Single dwelling	19th–20th century	
44AX0077	—	Single dwelling	—	Built in 1795
44AX0079	—	Multiple dwelling	1850–1899	
44AX0088	—	Cemetery	1760s–1809	
44AX0096	—	Single dwelling; Factory	18th–20th century	Dwelling by 1847
44AX0101	—	Jail; Police station	19th–20th century	
44AX0109	—	Multiple dwelling	18th century	
44AX0132	—	Cemetery	1725–1774	Quaker
44AX0170	—	—	—	19th-century sugar refinery
44AX0196	Robert Portner Brewery	Distillery	1875–1899	
44AX0202		Single dwelling	18th–19th century	Possible other uses
44AX0208-0001	French Infantry Campsite No. 16	Temporary camp	1775–1799	not verified archaeologically
44AX0208-0002	Campsite No. 8 of Lauzun's Legion	Temporary camp	1775–1799	not verified archaeologically
44AX0212		Multiple dwelling	ca. 1850–1940s	
44AX0213	—	Single dwelling	19th century	Foundations; remnant soil surface
44AX0214	—	Multiple dwelling	19th–20th century	Foundations
44AX0218	—	Well	1900–1949	

5.0 ARCHAEOLOGICAL RESOURCE SENSITIVITY ASSESSMENT

The archaeological resource sensitivity assessment of the 513–515 North Washington Street parcel was based on the following sources of information:

- The land-use history of the parcel, including historical map research
- Elevation change analysis
- Soil survey data
- Results of nearby archaeological investigations and characteristics of nearby archaeological sites

The land use history of the 513–515 North Washington Street parcel was presented in Section 3.2, while soils data were summarized in Section 1.3. Section 4 presented an overview of several archaeological investigations that have been conducted in the vicinity of the project area and the characteristics of numerous nearby archaeological sites. This section presents the results of the GIS-aided elevation change analysis and, using information derived from all four sources, provides an assessment of the potential for, and likely nature of, archaeological resources within the 513–515 North Washington Street parcel.

5.1 Elevation Change Analysis

An elevation change (cut and fill) analysis was conducted for the entire property. The elevation change analysis used GIS to identify changes in elevation between historical maps and the modern topography. For 513–515 North Washington Street, the 1884 *Topographical Map of the District of Columbia and a Portion of Virginia* was compared with a modern base map and topographic GIS data from the City of Alexandria. The 1884 map was used because of its accuracy; no earlier maps of the City of Alexandria or its environs provide the same level of accuracy as does the 1884 map. The results are generally interpreted to have an error factor of between 3.5 feet and 5 feet (see Katz et al. 2012; Katz and Patton 2014).

The elevation change results are presented for the 513–515 North Washington Street parcel in Figure 20. Elevation change is an important factor to consider when assessing probability and potential archaeological resources. Decreases in elevation generally indicate that an area has been cut and that archaeological resources have most likely been destroyed. Increases in elevation may indicate an area has been filled, thereby potentially protecting any resources present. Depth of fill is also considered with regards to identifying appropriate field techniques. Generally, standard STPs are effective up to 3 feet (ca. 1 m) below surface. If fill is greater than 3 feet, mechanized equipment may be a more effective investigative tool.

The analysis suggests that the western part of the city block has seen little change (shades of yellow) while the eastern portion of the city block was filled in (shades of red). The eastern portion of the city block contains no more than approximately 6 ft of fill. The western portion of the city block has approximately 2 feet of fill over top of the original soils. No significant cutting has occurred within the block. The 513–515 North Washington Street parcel mirrors the general trends present within the entire block. Fill depths within the 513–515 North Washington Street parcel range from approximately 2 feet to nearly 6 feet. While these results do not specifically indicate

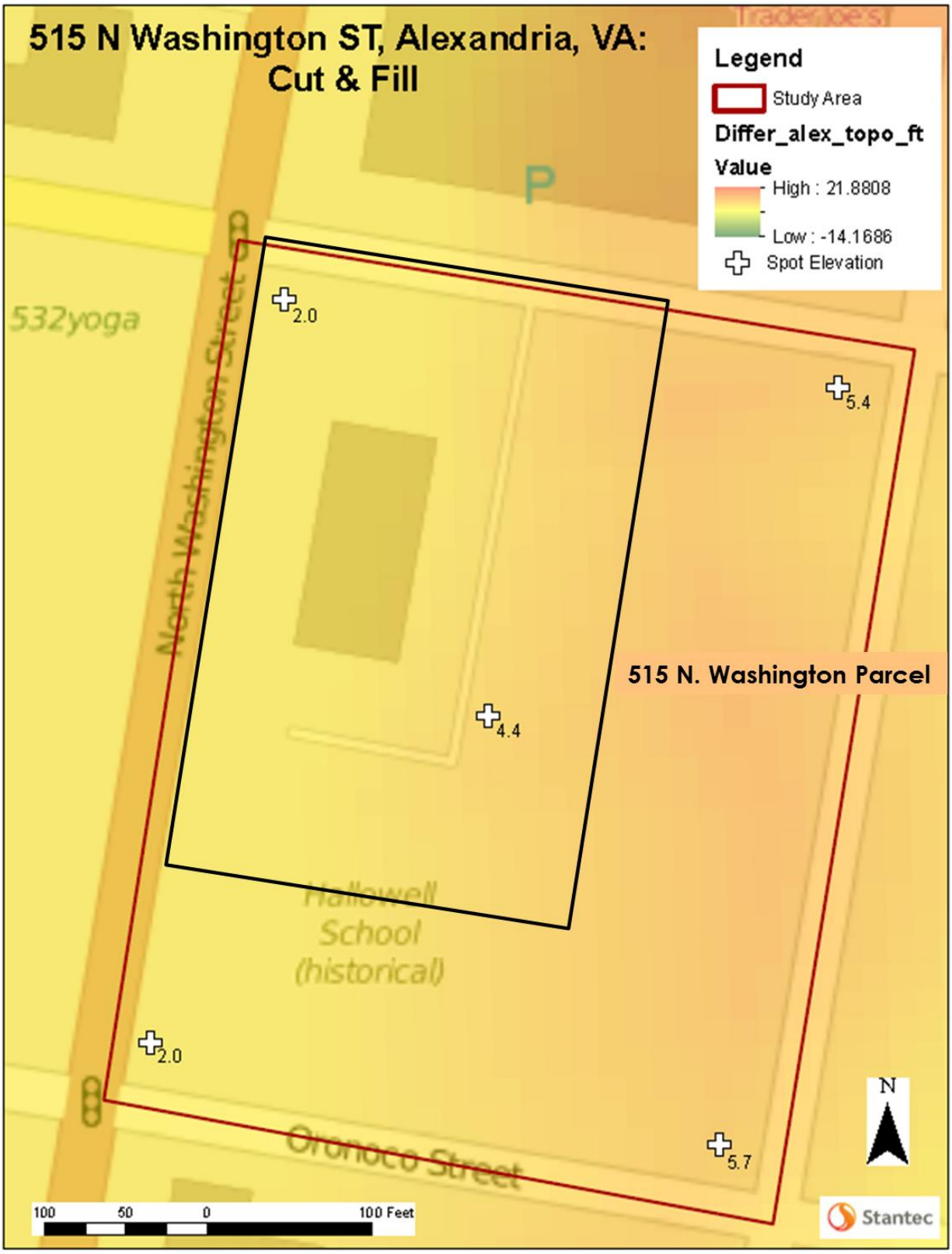

Figure 20. Results of the 513–515 North Washington Street elevation change analysis.

the presence of intact soils or archaeological deposits below fill, they do suggest that fill could be capping such deposits within the project area.

5.2 Archaeological Resource Potential

Four attributes are available for the assessment of archaeological resource potential within the 513–515 North Washington Street parcel—most importantly the land-use history presented in Section 3.2—but also elevation change, the results of nearby archaeological investigations, and finally, an estimate of prior impacts, in this instance, mainly associated with the installation of underground stormwater and electrical systems. Table 6 presents a summary of the implications of these attributes for the presence, nature, and integrity of archaeological resources within the 513–515 North Washington Street parcel.

Table 6. 513–515 North Washington Street archaeological site potential assessment attributes.

Attribute	*Site Probability Implications*	*Reasoning*
Land-Use History	High	Detached Cotton Factory/Civil War-era structures along south parcel boundary; attached wings to east of main structure; brewery receiving shed along north façade of structure
Elevation Change	High	2–4.5 feet of fill potentially covers mid-19th-century land surfaces
Nearby Investigations	High	Demonstrated presence of 19th-century features and artifact deposits
Subsurface Impacts	Moderate to High	Existing underground stormwater and electrical systems predominantly along eastern property boundary

Perhaps the most important aspect of the archaeological site potential is the prior land-use history of the 513–515 North Washington Street parcel. Research suggests that the parcel was unoccupied prior to the construction of the Cotton Factory in 1847, although there is always a potential for earlier, undocumented occupations of the parcel. Aside from the factory building built in 1847, smaller rear wings consisting of a picker house, a boiler house, and an engine house, were present. To the south of (and detached from) the main factory was an office building that fronted Washington Street, a warehouse, and possibly a waste house. During the Civil War, when the Cotton Factory was used as a prison, these structures were described as a kitchen and two unidentified annexes to the rear (east) of the building and the detached office building, a commissary, and barracks to the south. The barracks (former warehouse), housed one company of soldiers. A wood-frame receiving shed was then erected along the north façade of the main structure in the first decade of the twentieth century by the Portner Brewing Company.

The location of the now-absent rear wings is the current parking lot immediately east of the Cotton Factory building while the area of the receiving shed is located on a maintained lawn between the north façade of the standing structure and Pendleton Street. The locations of the detached warehouse, office, and waste house—used as a detached barracks, a commissary, and two offices during the Civil War—is the current parking lot to the south of the Cotton Factory.

The commissary building (waste house) may be located either in the southeast corner of the 513–515 North Washington Street parcel or in the parcel immediately to the south.

The elevation change analysis suggests a cap of fill overlies the ca. 1880s land surface of the parcel. Given an error factor of 3.5–5 feet, the GIS analysis could indicate that:

- The 1880s land surface lies directly beneath the parking lot pavement.
- Slight cutting has occurred, especially in the western half of the parcel.
- Fill between 7 feet and 10 feet could cover the 1880s land surface across the entire parcel.

Field confirmation of this analysis would be needed to determine whether an intact ca. 1880s land surface is present within the project area, although the presence of some amount of fill is likely.

Nearby archaeological investigations also provide some level of information as to subsurface integrity and potential resources within the 513–515 North Washington Street parcel. The archaeological site file search indicated that 26 archaeological sites have been defined within a ca. 4-block radius of 513–515 North Washington Street. These sites include areas defined solely on archival research, standing structures at which no prior archaeological investigations have been conducted (such as the Cotton Factory site [44AX0045]), sites at which minimal reconnaissance investigations have been conducted, and sites at which intensive investigations, often including machine-aided excavations, have occurred. In general, at sites where minimal or more intensive field investigations have been undertaken, artifacts and often features have been located. This suggests that large portions of the Old Town district retain subsurface integrity and archaeological resources. In fact, the Office of Historic Alexandria/Alexandria Archaeology suggests that as much as 72 percent of Old Town may contain archaeological resources. Similar levels of subsurface integrity and resources could be present at 513–515 North Washington Street.

Finally, while areas may have the potential for the presence of archaeological resources, subsurface impacts could destroy any such deposits. Two sources of subsurface impact might be most damaging to urban archaeological resources: demolition/rebuilding and installation of utilities. The historical maps consulted for this project suggest that, at some time in the twentieth century, the Cotton Factory rear wings to the east of the building and the detached structures to the south were demolished. However, those same maps indicate that no structures were subsequently constructed over the former building footprints. While demolition may have impacted deposits associated with the Cotton Factory and these now-demolished structures, no subsequent construction-related impacts have occurred. Subsurface utilities, on the other hand, have caused subsurface impacts to the 513–515 North Washington Street parcel. The Existing Conditions plan identifies stormwater pipes along the east property boundary, an underground electrical line in the north half of the east parking lot, and a sewer line along Washington Street. While utilities have no doubt impacted the subsurface integrity of the 513–515 North Washington Street parcel, such impacts appear to be rather limited in comparison to the entire area within the parcel.

In sum, the 513–515 North Washington Street parcel has a high potential for archaeological resources, most likely associated with the initial Cotton Factory, its Civil War-era use as a prison, and later uses such as a brewery. Such resources could include structure foundations, privies, and deposits of artifacts associated with each use of this property. Fill and the existing parking lot cap may have preserved such resources, as has been demonstrated in other portions of the Old Town district. Finally, while demolition and the installation of utilities have no doubt impacted archaeological resources within the parcel, such impacts appear to be limited in extent. Once again, similar impacts have occurred at other lots within Old Town and archaeological investigations have demonstrated the continued existence of resources.

Dr. Garrett Fesler of Alexandria Archaeology concurred with the findings of the Phase IA archaeological assessment of the Cotton Factory property. Consultation between CAS Reigler and Alexandria Archaeology identified the area of the proposed residential Annex as an area where field investigations should be focused. The results of those field investigations are documented in Section 6.

6.0 INTENSIVE ARCHAEOLOGICAL INVESTIGATION

In consultation with Alexandria Archaeology, Stantec prepared work plans and permit applications that resulted in a phased approach to the archaeological field investigation of the Cotton Factory project proposed Annex Limit of Disturbance (LOD) and a portion of archaeological site 45AX0045 (Kreisa 2015a, 2015b). This approach was based on the initial background and historical research and elevation change analysis of the parcel presented in Sections 3.8 and 5.1. Stantec archaeologists conducted the Phase IB/II STP and MT investigation to determine whether any archaeological resources were present within the proposed Annex LOD and if so, whether those resources were historically significant.

Guided by the work plans, Stantec archaeologists implemented the monitoring of five machine-excavated trenches within the proposed Annex LOD. Within the five trenches, 13 STPs were hand-excavated and several structural features were uncovered and documented (Figure 21). In all, approximately 151.4 m² within the proposed Annex LOD were exposed by machine-excavated trenches, resulting in the identification of the north and east foundations of the Cotton Factory engine house, a brick platform and wheel well for a steam engine, and the recovery of 40 artifacts. These investigations were guided by the research design detailed in Section 6.1.

6.1 Research Design

Given the presence of an asphalt surface over most of the proposed Annex location, Stantec conducted a preliminary desktop assessment of the potential for the presence of archaeological deposits within the larger project LOD and the proposed Annex LOD. The assessment included a review of background research and elevation change analysis. While background research suggests a high potential for archaeological resources within the vicinity of the project area in general, the urban nature of the project location may have resulted in impacts to any resources present by utilities installation, building demolition, or other construction-related activities.

The Stantec elevation change analysis suggested that elevation had increased between approximately 2 feet and 3 feet between 1884 and 2015, well within a typical range of error (±5 feet) for this type of model. But if correct, the model suggested that any fill present should consist of a relatively thin deposit or alternatively, if cut, that the area could continue to retain a potential for the presence of intact structural remains). Background research also suggested that it is common within the Old Town district to locate intact archaeological deposits in yards, parking lots, and even below building foundations. Based on these results it was concluded that:

- There was a potential for the presence of intact, buried ground surfaces;
- If present, the buried ground surfaces could retain deposits of artifacts dating to the Cotton Factory, the Civil War prison, the brewery, or the spark plug factory;
- Structural components of the attached Cotton Factory buildings could remain, as could structural components of buildings used by the Civil War prison;
- Undocumented structures, such as privies and wells, could be present.

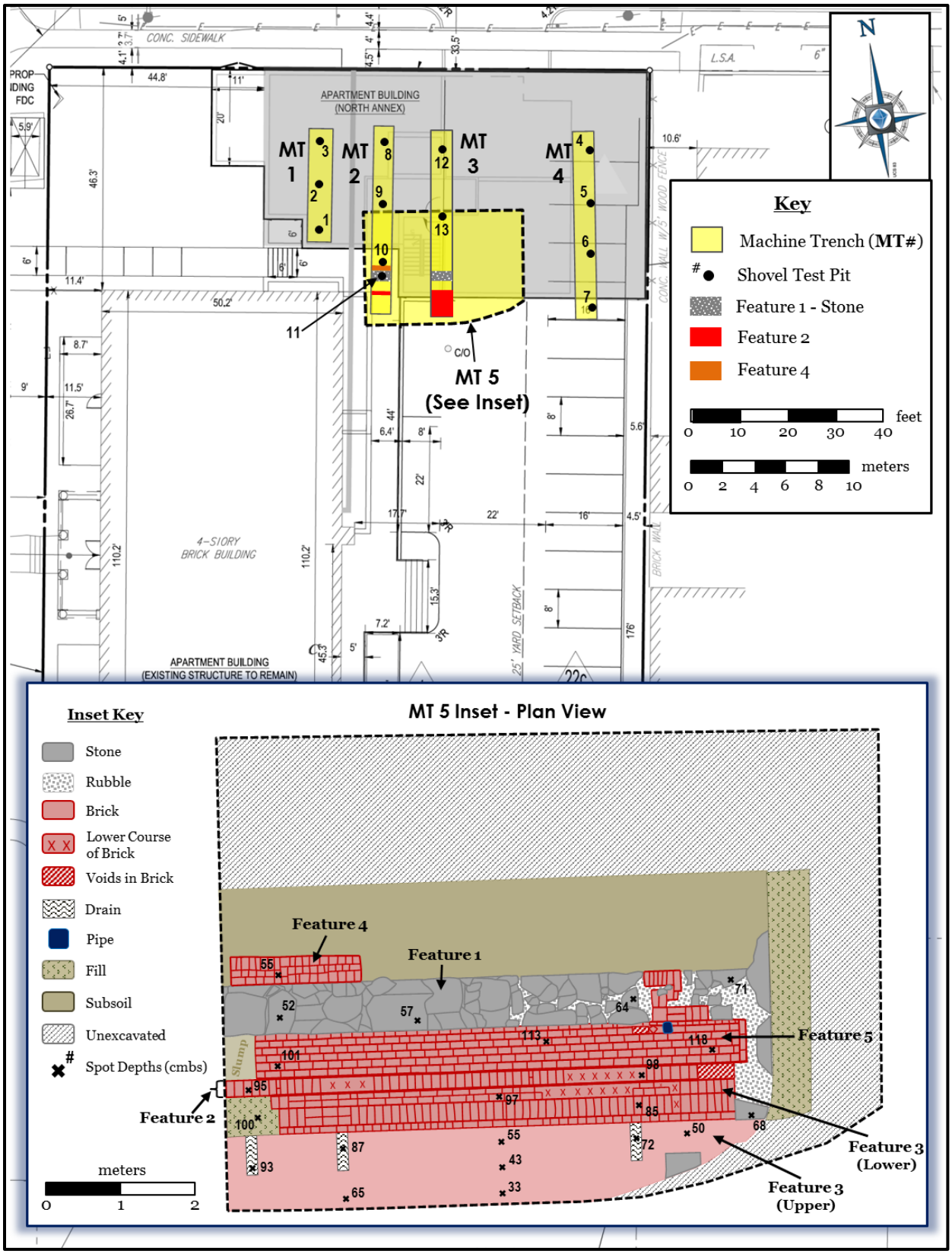

Figure 21. Location of machine trenches, shovel test pits, and features at 44AX0045.

Additional investigations would determine whether the proposed Annex footprint contained buried living surfaces and any associated artifact deposits, document any structural remains present in the proposed Annex footprint, and by extension, determine the potential for the presence of significant archaeological resources across the entire Cotton Factory property. The results of the field investigations implemented to determine whether archaeological resources were present in the proposed Annex footprint, their nature and significance if present, are discussed in the remainder of this section.

6.2 Results of Machine Trench and Shovel Test Pit Excavations

The excavation of 5 MTs and 13 STPs resulted in the documentation of intact foundations for the north and east walls of the Cotton Factory engine house and an intact brick platform and wheel well for the Cotton Factory steam engine (Figure 21). The field investigations also resulted in the recovery of 40 artifacts from both STPs and monitoring of the MT excavations. These results are discussed below.

Machine Trench 1. MT 1 was located in the grassy area to the west of the Cotton Factory parking lot (Figure 21). It measured 7.29 m in length by 1.54 m in width. Three STPs were excavated within MT 1, and four strata were identified (Figure 22). Stratum I was sod over very dark brown (10YR2/2) loamy sand and extended from 0–18 cm below surface. Stratum II was comprised of yellowish brown (10YR5/8) clay fill mixed with brick and modern debris. It ranged from 18–41 cm below surface. Stratum III consisted of degraded asphalt mixed with brick and ranged from 41–57 cm below surface. These last two strata are demolition fill although the degraded asphalt and brick could represent an exterior path or pad adjacent to the engine house. Stratum IV was brown (10YR4/3) sand that extended from 57 cm to the base of excavation at 62 cm below surface. This stratum is interpreted to represent sterile B-horizon soils. No features were identified in MT 1.

Additionally, three STPs were excavated within MT 1. Two STPs confirmed the nature and presence of B-horizon soils below the Stratum III degenerating asphalt layer. Three strata, including Stratum IV, were uncovered at the south end of MT 1. Stratum IV (B horizon soils) extended an additional 35 cm below the base of the MT. Stratum V was dark brown (10YR3/3) sand mottled with brownish yellow (10YR6/8) with a thickness of 28 cm. This stratum is somewhat similar to the A horizon (sandy loam) described for the Grist Mill soil series. It was over yellowish brown (10YR5/4) sandy clay B horizon soils that extended an additional 11 cm to the base of excavation.

The excavation of the three STPs as well as general trench monitoring yielded 24 artifacts. All three of the STPs excavated in MT 1 yielded artifacts, totaling 14, while an additional 10 artifacts were recovered from monitoring of the trench excavation. The 10 artifacts recovered during monitoring of MT 1 include items assigned to the Architecture group (two machine-cut nails and one slate roofing tile), Kitchen group (one banded whiteware sherd and two milk bottle finishes), Activities group (two spark plugs), and unidentified artifacts (one crown finish, brown, and one dark green neck). Of the 14 artifacts from STPs, 7 were recovered from the landscape fill stratum (Stratum I) and 5 from a subsequent fill stratum (Stratum II). The remaining two artifacts are from the brown sand stratum, which is interpreted to be B-horizon deposits. Few recovered artifacts can be placed into a larger artifact group. These include five pieces of bottle

Figure 22. MT 1, east profile.

glass (one amethyst, three dark green, and one clear), one of which is embossed, four pieces of metal, and one piece of stoneware, possibly from a ginger beer bottle. Three pieces of window glass can be assigned to the Architecture group while one green-shell edged bowl rim is assigned to the Kitchen group (Figure 23, a).

The 10 items found during trench monitoring may have been present in any of the MT 1 strata. Four of the items are bottle fragments. One is a light green crown cap finish, likely from a soda bottle, while two conjoinable finishes are from the same milk bottle (Figure 23, b). Lastly, one dark green bottle body was also recovered. Other items found during monitoring include two machine-cut nail fragments, one banded whiteware rim (vessel form unidentified) (Figure 23, c), and two ceramic (porcelain) spark plugs (Figure 23, d-e). The spark plugs are stamped "Express Oil Special" and "775". Porcelain spark plugs were introduced in 1915. As discussed in Section 3.8, the Express Spark Plug Company of America operated a spark plug factory at the Cotton Factory parcel between ca. 1916 and 1928.

Machine Trench 2. MT 2 was a 12.19-x-1.33-m trench located south of MT 1 near the western edge of the parking lot (Figure 21). Four STPs were excavated in MT 2. Two strata and three strata were identified in MT 2 on the north and south sides of a stone foundation wall, respectively (Figure 24). Stratum I for the entire MT was comprised of 11 cm of asphalt over bedding gravel and ranged from 0–27 cm (north) and 31 cm (south) below surface. Stratum II north of the foundation consisted of brownish yellow (10YR6/6) silty clay and extended from 27 cm to the base of excavation at 57 cm below surface. It has been interpreted as a B horizon.

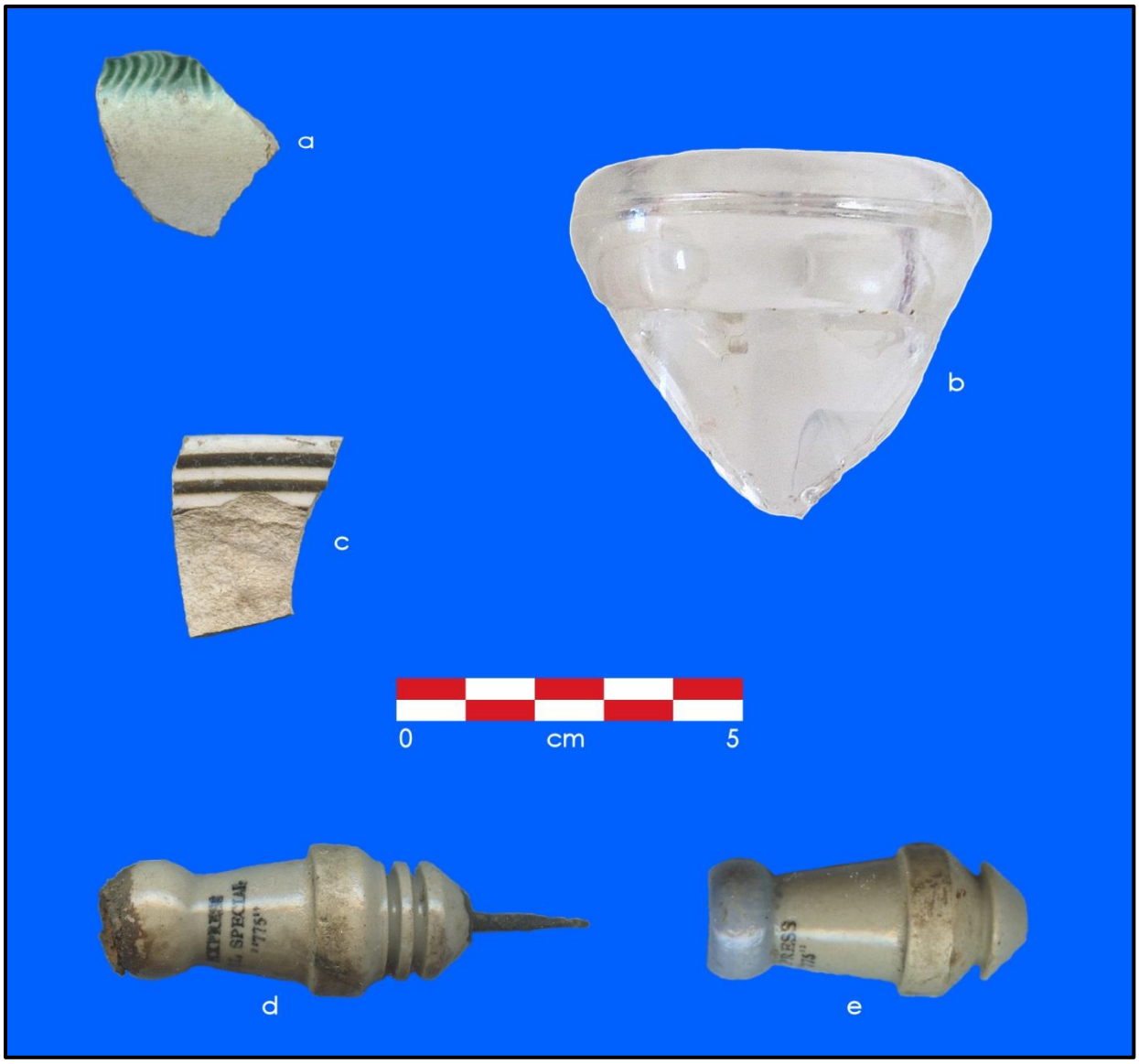

Figure 23. Selected artifacts from 44AX0045: a, green shell-edged bowl rim; b, milk bottle finish; c, banded whiteware rim; d-e, Express porcelain spark plugs.

Stratum II south of the foundation was brownish yellow (10YR6/8) silty clay mottled with black (10YR2/1) gravelly sand. It ranged from 31–41 cm below surface. Stratum III consisted of brick and mortar demolition debris and extended from 41 cm to the base of excavation at 57 cm below surface. Two features were identified in MT 2, a stone foundation (Feature 1) and a brick wall (Feature 2).

Four STPs were excavated in MT 2. One STP was placed near Feature 1 within Stratum III. It confirmed that the stratum extended a minimum of an additional 20 cm. The other three STPs were placed north of Feature 1 and confirmed the presence of B-horizon soils below the base of excavation of the MT. No artifacts were recovered from the MT 2 STPs or from monitoring of trench excavations.

Figure 24. MT 2, north half, west profile.

Machine Trench 3. MT 3 was a 12.14-x-1.34-m trench located south of MT 2 within the parking lot (Figure 21). Two STPs were excavated in MT 3. MT 3 exhibited three segments each with distinct stratigraphy: a North Segment from the northern extent to 5.3 m (Figure 25, top); a Middle Segment from 5.3 m to 8.41 m (Figure 25, bottom); and a South Segment from 8.41 m to the end of the trench at 12.14 m.

The initial stratum for the entire trench consisted of 11 cm of asphalt over bedding gravel and extended from 0–32 cm below surface except in the northern 5.3 m, where Stratum I extended only to 22 cm below surface. For the North Segment, Stratum II was comprised of dark yellowish brown (10YR4/6) sandy clay loam from 0–1.41 m south and brick demolition debris to 5.3 m south. It ranged from 22–43 cm below surface. Stratum III was brownish yellow (10YR6/6) clay and extended from 43 cm to the base of excavation at 47 cm below surface, and is interpreted to be B-horizon soils. For the Middle Segment, Stratum II was brownish yellow (10YR6/6) sand with black (10YR2/1) ash that ranged from 33 cm to the base of excavation at 42 cm below surface. For the South Segment, Stratum II consisted of black (10YR2/1) sandy loam that extended from 32–38 cm below surface. Stratum III was comprised of brick and mortar demolition debris which ranged from 38 cm to the base of excavation at 92 cm below

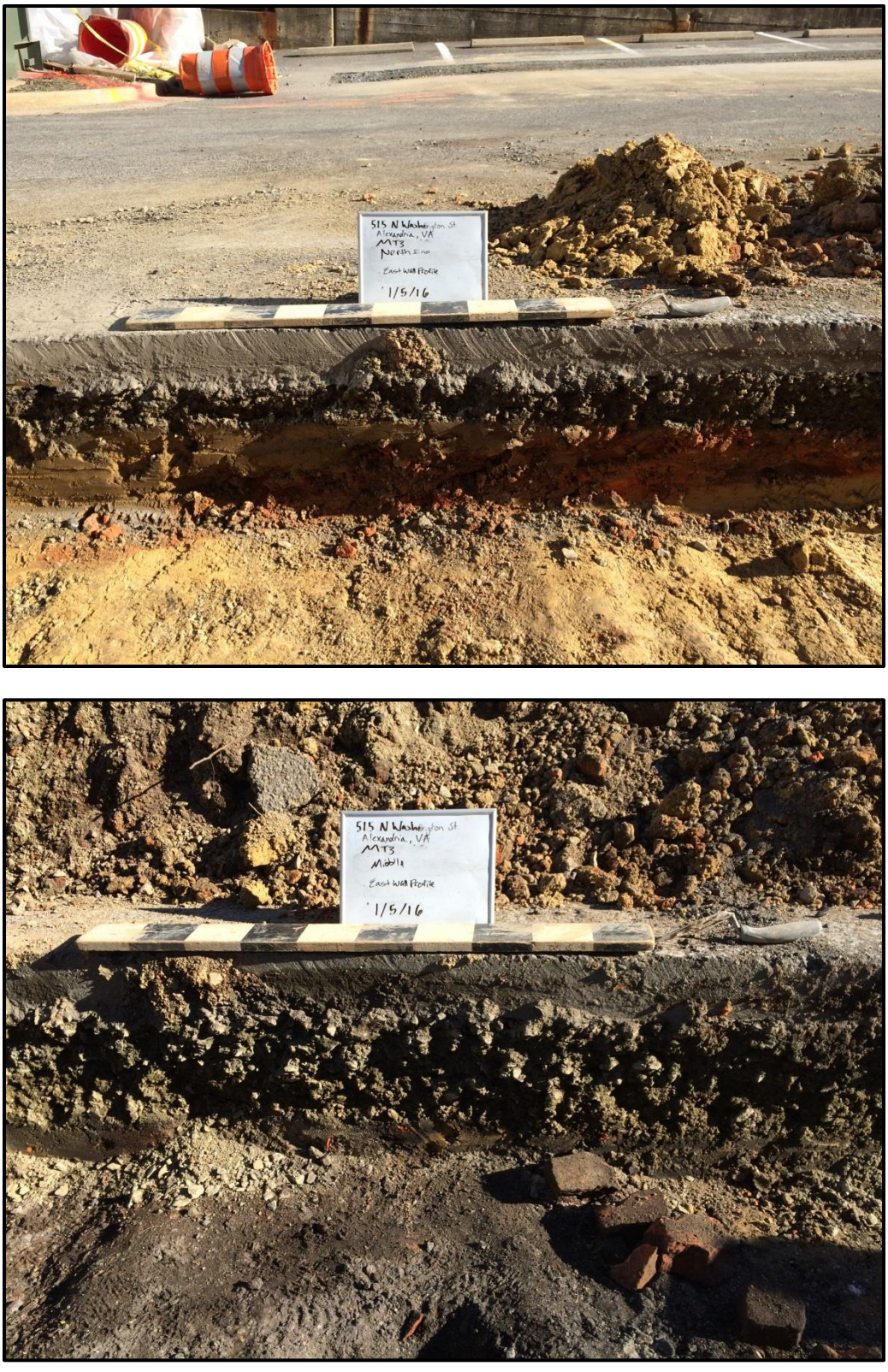

Figure 25. MT 3, east profile: north segment (top) and middle segment (bottom).

surface. Two features were identified in MT 3 within the South Segment, a continuation of the Feature 1 stone foundation from MT 2 and a brick floor with step (Feature 3).

Two STPs were excavated in MT 3. One STP was excavated in the southern segment and confirmed that Stratum III, the brick and mortar demolition debris, extended a minimum of 75 cm below the base of Stratum II. The other STP confirmed the presence of B-horizon soils at and below the base of excavation in the northern segment of MT 3. No artifacts were recovered from either STP or from monitoring of trench excavations.

Machine Trench 4. MT 4 was placed near the southern edge of the parking lot and was 12.14 m long by approximately 1.2 m wide (Figure 21). Four STPs were excavated in MT 4, and two strata were identified (Figure 26). Stratum I consisted of 12 cm of asphalt over gravel bedding and extended from 0–26 cm below surface. Stratum II was brownish yellow (10YR6/8) clay mottled with light gray (10YR7/2) except for the northernmost 2 m, which consisted of yellowish brown (10YR5/6) clay. Stratum II ranged from 26 cm to the base of excavation at 67 cm below surface and is interpreted to be B-horizon soils. A large storm sewer pipe was at the base of excavation and took up the majority of the trench base. No features were identified in MT 4.

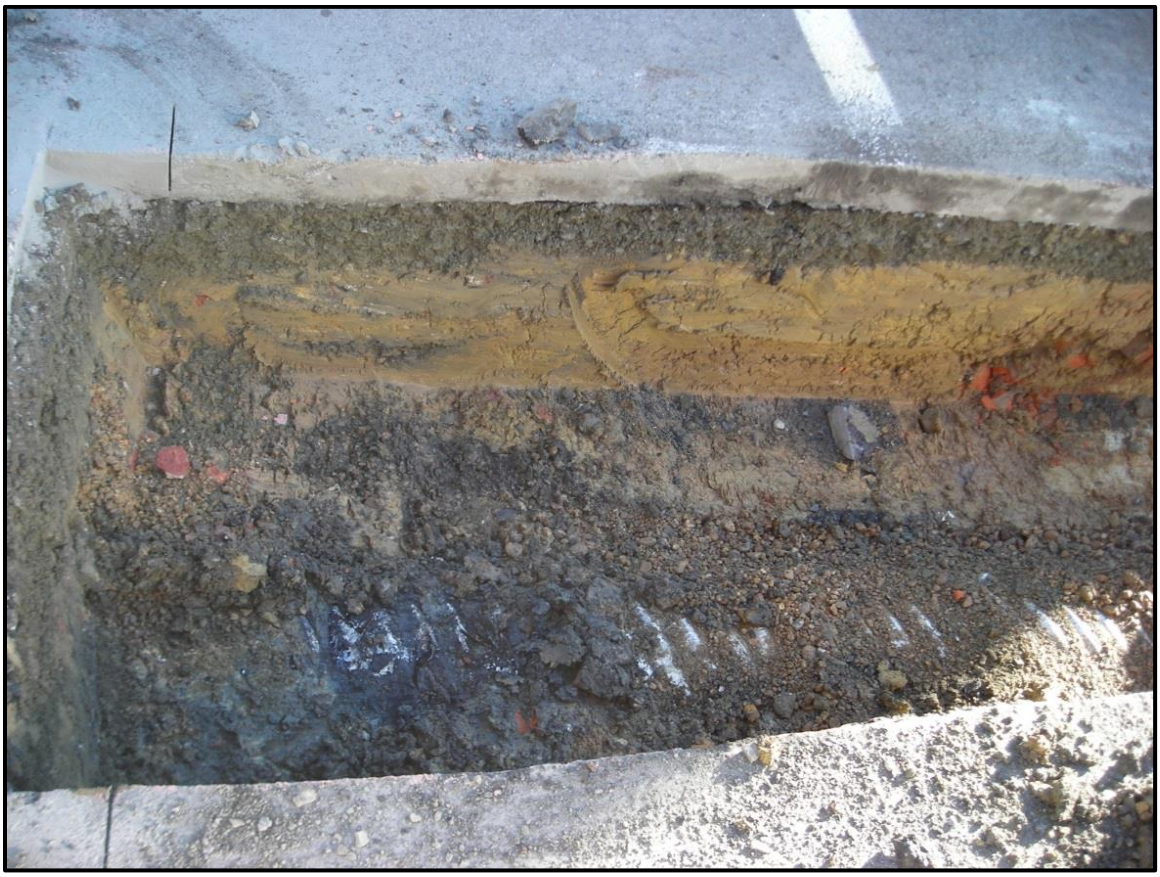

Figure 26. MT 4, east profile (note storm sewer pipe at base of trench).

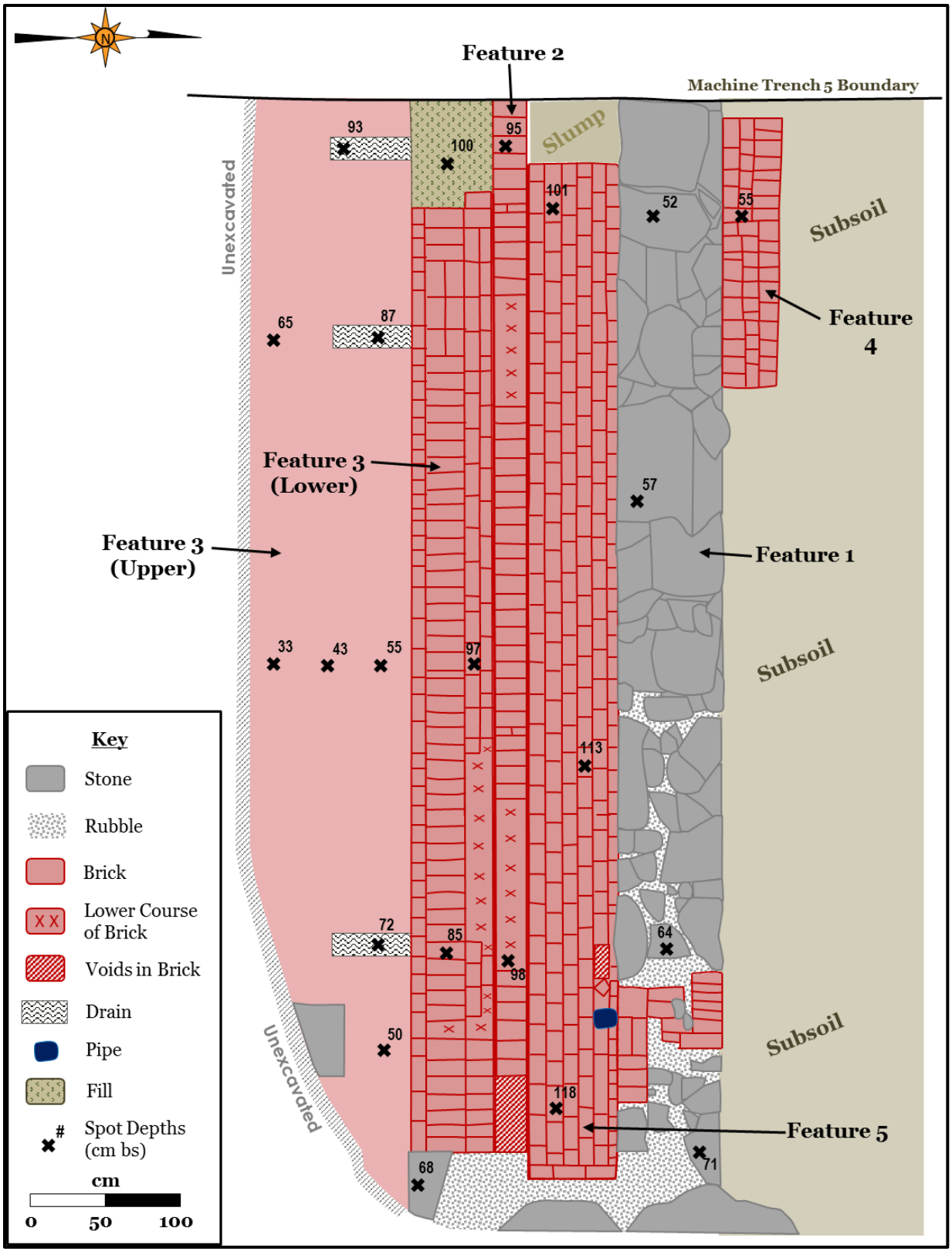

Figure 27. Plan view of MT 5 features.

Figure 28. MT 5, south half, south profile.

Four hand-auger tests were excavated along the eastern edge in MT 4. One was excavated in the north end of the MT. It consisted of an additional 44-cm Stratum II, dark yellowish brown (10YR4/4) clay with brick, over a stratum of dark brown (10YR3/3) sandy clay to 100 cm below the base of MT 3. The other three auger tests were excavated south of the initial 2 m of the trench and confirmed the presence of B-horizon soils at and below the base of excavation in MT 4. No artifacts were recovered from either STP or from monitoring of trench excavations.

Machine Trench 5. MT 5 was subsequently excavated to further define the features present in MTs 2 and 3 (Figures 21 and 27). It was 10.4-x-8.95 m and exhibited different strata to either side of the stone foundation wall (Figure 28). The initial stratum for the entire MT consisted of 13 cm of asphalt over gravel bedding and extended from 0–35 cm below surface. North of the stone foundation, Stratum II was yellowish brown (10YR5/6) silty clay. It extended from 35 cm to the base of excavation at 117 cm below surface and has been interpreted as a B horizon. South of the stone foundation, Stratum II was comprised of demolition debris and patches of black (10YR2/1) sandy clay mottled with yellowish brown (10YR5/6). This stratum extended from 35 cm to a minimum of 40 cm and a maximum of 65 cm below surface. Stratum III consisted of a brick floor with step (Feature 3) and extended from 40–100 cm below surface. Stratum IV was comprised of a brick wall (Feature 2) and the base of the Feature 3 step. It ranged from 100 cm to the base of excavation at 129 cm below surface. Six features were identified in MT 5: a stone

foundation (Feature 1), a brick wall (Feature 2), a brick floor with step (Feature 3), a brick wall north of the stone foundation (Feature 4), a brick floor (Feature 5), and a brick wall beneath part of the stone foundation (Feature 6).

No STPs were excavated in MT 5, but 16 artifacts were collected during monitoring. The 16 artifacts were collected from the demolition rubble between 35 cm and 73 cm below ground surface south of the foundation within MT 5. Not surprisingly these include eight pieces of slate roofing tile and two pieces of window glass assigned to the Architecture group. Two other items are pieces of unidentified ferrous metal, one of which could be a nail and the other a possible tool or machine-part fragment. Finally, four pieces of container, likely bottle, glass were also collected (two clear and two light green).

6.3 Feature Summary

Six features were identified in MTs 2, 3, and 5 during the field investigations of the proposed Annex footprint (Figure 27). All six features are structural remains of the Cotton Factory engine house, a building attached to the northeast corner of the Cotton Factory. The engine house, in concert with the boiler house located adjacent to and east of the engine house, provided power to run the factory looms. A description of the features is presented below. The feature descriptions are followed by a discussion of the chronology of construction of the Cotton Factory engine room.

Feature 1. First identified at 33 cm below surface in MT 2 and subsequently located in MT 3 and MT 5, Feature 1 is a 750-x-71-cm north wall stone foundation and a 230-x-50-cm east wall stone foundation with a single course of intact brick (Figures 27 and 29). A maximum thickness of 80 cm is intact and consists of irregular courses of rough-cut schist held together by sand mortar (Figure 30). Both the interior and exterior façades are smooth cut. With the exception of the southern edge of the north wall, the majority of Feature 1 rests on B-horizon soils. The southern edge of the north wall rests on a segment of brick wall (Feature 6) constructed after Feature 1. An approximately .5-m-wide utility trench for a metal drainage pipe disturbed the foundation starting at 2.3 m west of the eastern edge of MT 5. A segment of stone foundation was removed for the trench and subsequently filled with a combination of brick and small foundation stones. Another utility trench with two metal pipes runs directly along the eastern wall of Feature 1 and partially disturbed the foundation.

Feature 2. Feature 2 is a 730-x-26-cm brick wall for a steam engine flywheel located approximately 62 cm south of Feature 1 and paralleling the foundation (Figures 27 and 31). It was initially identified at 73 cm below surface in MT 2 and subsequently located in MT 3 and MT 5. The feature consists of an 8.5-inch wall with eight intact courses of brick (Figure 32). The top course of brick is a header row while the underlying courses are stretcher rows. The top course of brick and the north façade of the wall show evidence of a parge coat for waterproofing purposes. Feature 2 is directly adjacent to Feature 3 with a layer of mortar of varying thickness between. It is associated with Features 5 and 6, additional elements of the steam engine wheel well.

Feature 3. Feature 3 is a 730-x-170-cm brick floor with below-grade steps possibly for the steam engine gear flywheel (Figures 27 and 31). It was identified at 42 cm below surface in MT 3 and

Figure 29. MT 5, Feature 1, facing west.

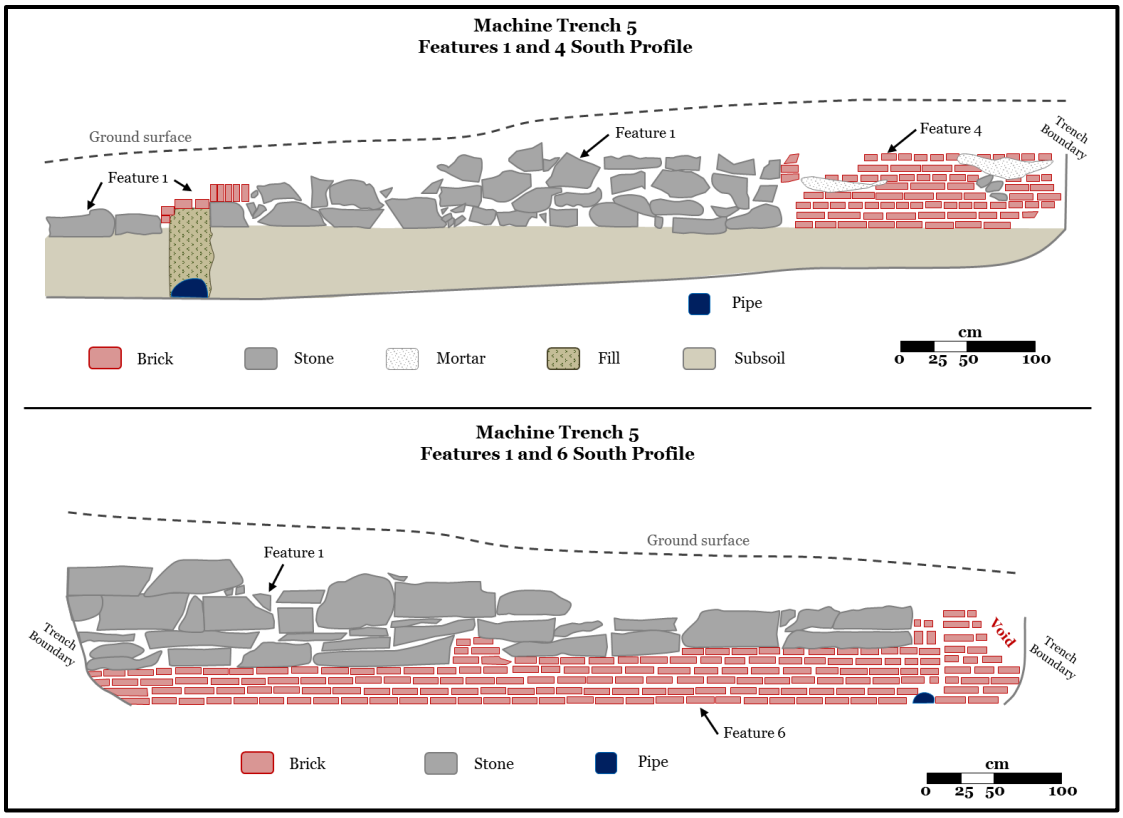

Figure 30. Features 1, 4, and 6 profiles.

Figure 31. MT 5, Features 2 and 3, facing southwest.

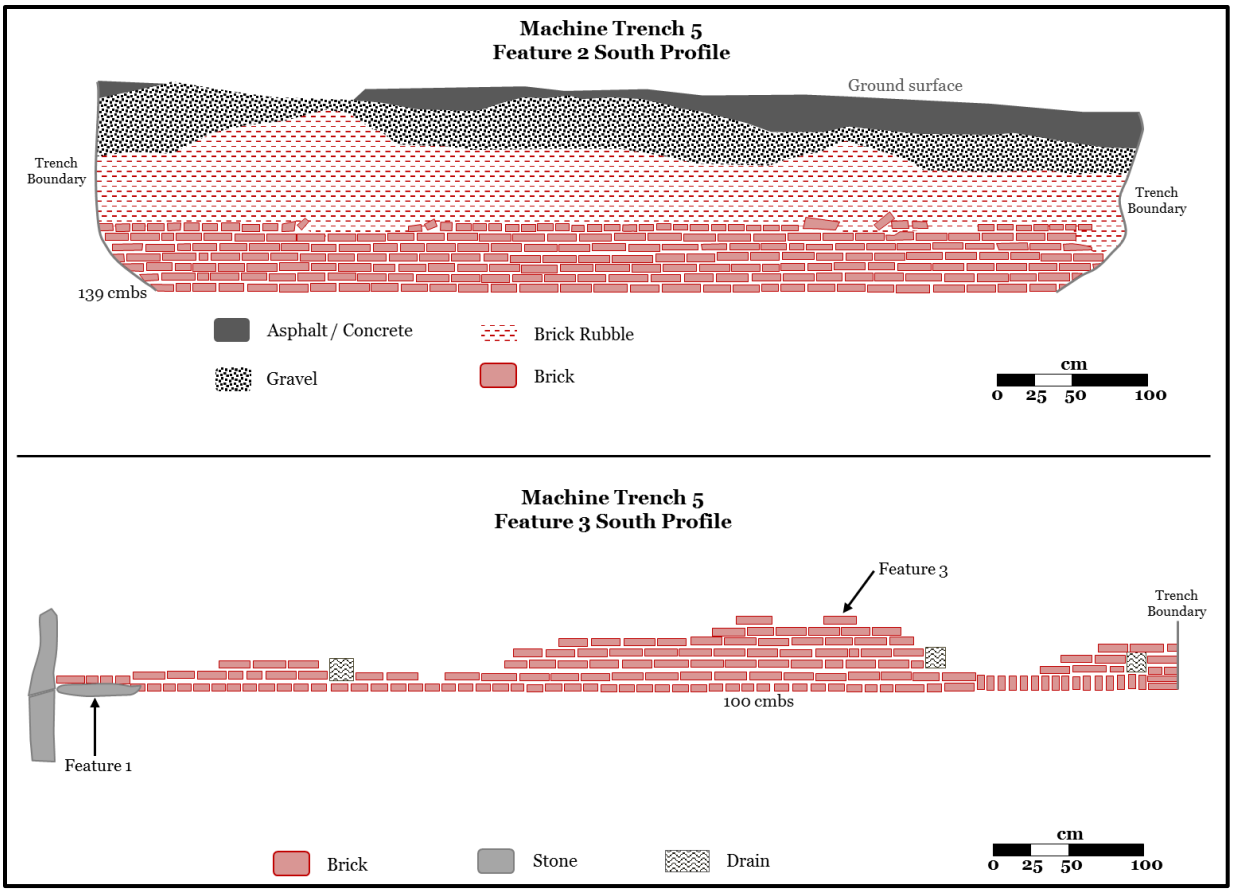

Figure 32. Features 2 and 3 profiles.

subsequently identified at 33 cm below surface in MT 5. Feature 3 is directly adjacent to Feature 2, a brick wall for the engine wheel well, and separated from it by a layer of mortar of varying thickness. The original floor surface is nine courses above the step and appears to be solid brick to the level of the below-grade step (Figure 32). The 55-cm wide step is nearly level with Feature 2 and consists of a minimum of two courses of brick, the top course of which continues beneath the upper floor bricks. The western edge of the step was disturbed, possibly by modern utilities. Three 15-x-15-cm brick drain features, two near the west end and one near the east end of the feature, were identified just above the step and extend 52 cm horizontally beneath the floor.

Feature 4. Feature 4 is a brick wall directly adjacent to the north façade of the Feature 1 stone foundation (Figures 27 and 33). The wall was identified at 30 cm below surface and is 200 cm long by 37 cm wide. It consists of eight intact cement-mortared courses arranged in no formal pattern and extends to 85 cm below surface (Figure 30). The wall is potentially related to structural integrity issues and may have been used to support exterior shoring.

Feature 5. Feature 5 is a 730-x-62-cm dry-laid brick floor for a steam engine flywheel (Figures 27 and 34). It was initially identified at 112 cm below surface in MT 5. The floor consists of a single course of brick over an equally thick (7-cm) layer of sand mortar. The mortar was laid on B-horizon soils and was allowed to dry before the brick was placed on top, providing a

Figure 33. MT 5, Feature 4, facing southwest.

waterproof base for the floor. Though no evidence survived archaeologically, the surface of the floor was likely parged as a further waterproofing method. A metal drainage pipe partially disturbs the feature approximately 2.7 m west of the eastern edge of MT 5. The trench for the pipe further disturbs Features 1 and 6. Feature 5 is associated with Features 2 and 6, additional parts of the steam engine wheel well.

Feature 6. Feature 6 is a 730-cm long brick wall for a steam engine flywheel identified at 110 cm below surface (Figures 27 and 35). The exact width of the wall is unknown at this time as it is located beneath the southern/interior edge of Feature 1, the stone foundation wall. It was built from the base up and consists of at least five courses of brick and maximally eight courses where more were needed to fill in gaps beneath the stone foundation (Figure 30). All bricks within the wall are complete with the exception of several partial bricks within the uppermost courses that were used to fill the interface with the stone wall. Feature 6 is associated with Features 2 and 5, additional parts of the steam engine wheel well.

6.4 Feature Chronology

The Cotton Factory brick engine room with stone foundation was constructed between 1847 and 1853, when it appears on a Sachse and Company lithograph titled "View of Alexandria VA" (Figure 36). Figure 37 depicts a twentieth century-engine house that includes several of the features found in MT 5, including the wheel well, engine platform, and drains. At 44AX0045, a

Figure 34. MT 5, Feature 5 excavation in progress, facing east.

Figure 35. MT 5, Feature 6, facing north.

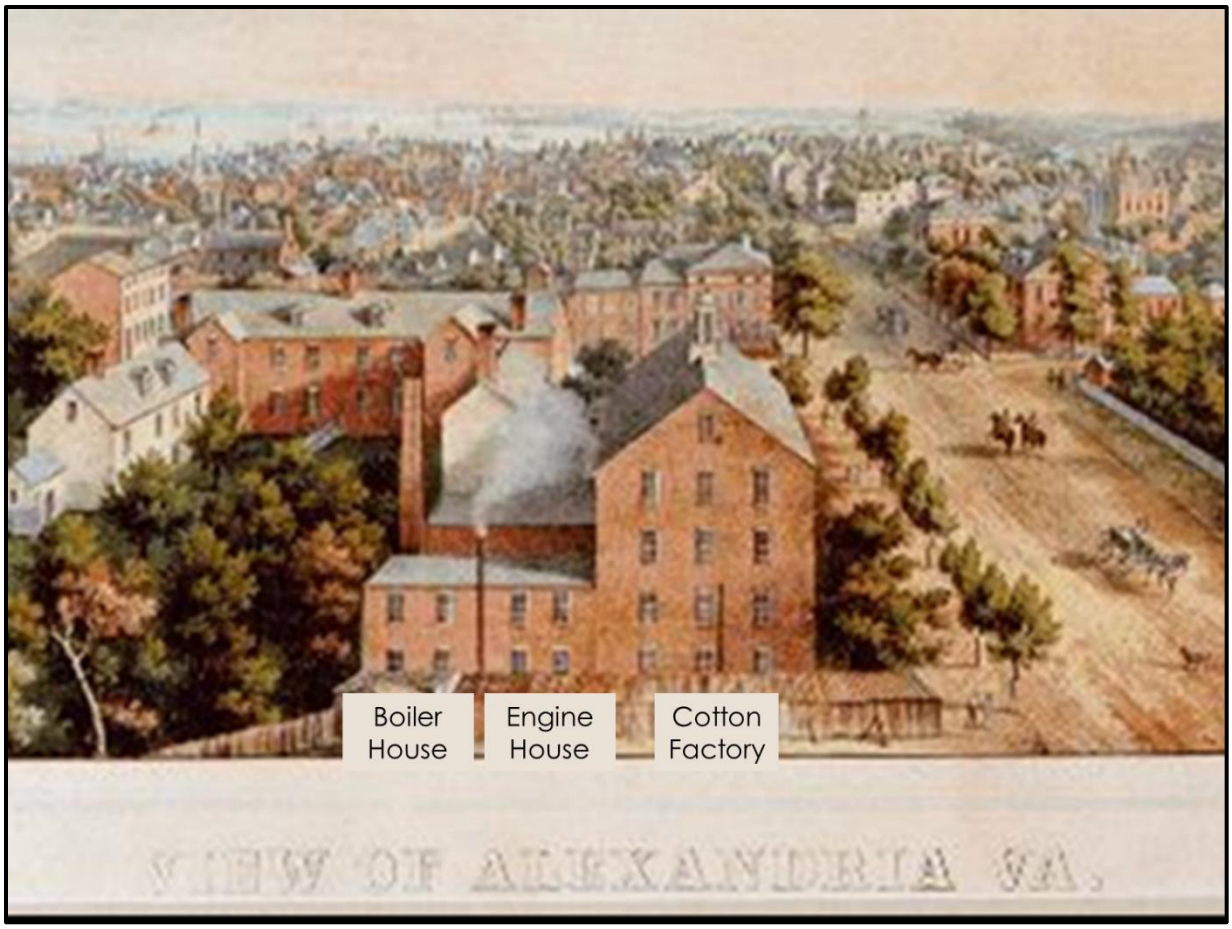

Figure 36. 1853 Sachse bird's eye view depicting relationship between the Cotton Factory, Engine House, and Boiler House (Alexandria Library of Local History Special Collections).

brick floor with a 2-ft below-grade brick step, possibly for the steam engine flywheel, was constructed at the same time as the structure or likely shortly after as similar bricks and mortar were used for the floor and the structural walls. The floor itself is over 66 cm thick with nine courses of brick. This would have been needed to support the steam engine, which would have weighed several tons. The step would have been necessary to support parts of the engine, such as flywheels, cranks, and connecting rods, which were built to be housed below floor level.

At some point after the engine room structure was built, a brick-lined trench was added adjacent to and below the level of the brick step. The interface between the two contains a layer of mortar that varies in thickness from approximately 2 cm to less than 1 cm to ensure that the trench was parallel to the foundation. Additionally, the north wall of the trench was inserted under the existing stone foundation, and partial brick fragments were used to bridge the gap between the brick wall and the overlying stone wall. The trench had a parged coating on both the side walls and the top of the south wall, and there was likely parging over the brick floor. The exact purpose of the trench is unknown, but it may have been used to house the flywheel for the steam engine and to catch any condensation created by the steam (see Figure 34). An intrusive metal drain pipe was added sometime after the trench was constructed. This drain pipe disturbed the

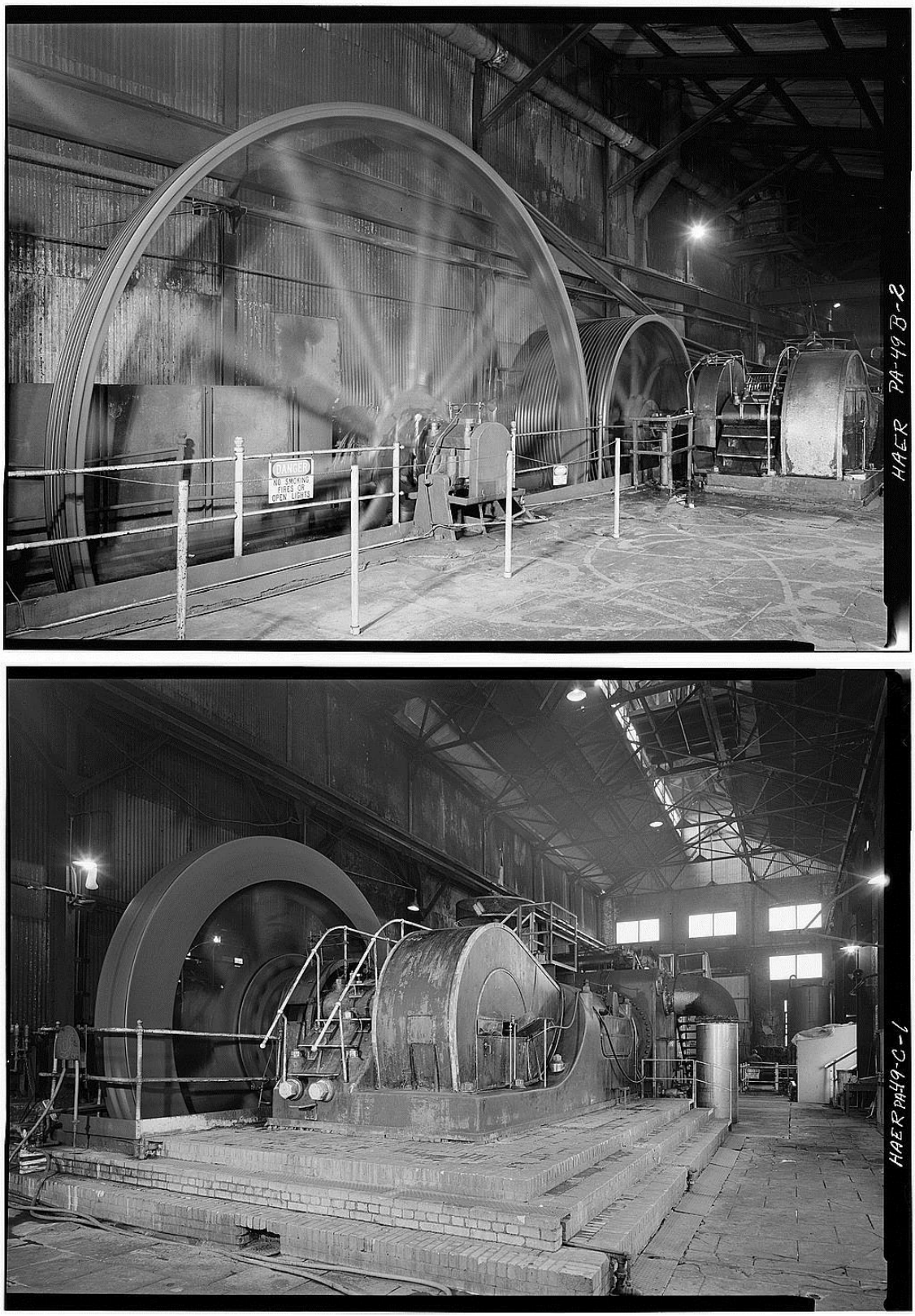

Figure 37. Clairton Works steam engines: top, 14-inch wheel in wheel well; bottom, 22-inch wheel and engine platform (Hoover et al. 1968a, 1968b).

floor of the trench as well as the foundation wall, where foundation stones were removed and replaced with a crudely cobbled together plug of brick and stone (see Figure 33).

The final modification made to the north end of the engine room structure was the addition of a 14-inch wall segment with cement mortar along the northern façade. This wall segment is only 2 m long and was built with no recognizable bond pattern. It is also the only structural component erected using cement mortar; all other structural elements use sand mortar that has partially degraded due to the moisture in the soil. It extends below the base of the stone foundation into the B horizon and may have been used to stabilize the structure or provide a platform for an unknown structural element. The engine room continued in existence through the nineteenth century, being demolished in the first quarter of the twentieth century.

6.5 Overview of Field Investigations

Excavations exposed evidence of the engine room (or engine house in several historical maps) for the Cotton Factory east of the mill structure. A two-story brick structure built on a stone foundation, the engine house housed two 30-horse-powered stationary steam engines when it opened in 1847. These engines were used to power machinery on all floors of the mill, including carding machines, spinning frames, warping machines, and weaving looms. Belts connected the machinery to large flywheels, the part of the engine that controlled the rate of rotation and ensured its uniformity. Flywheels were large, and the crank and piston machinery was located near the center of the wheel. In order to accommodate all parts of the engine without needing an overly large structure, the flywheel extended partially below floor level in a parged brick trench. The depth below floor level was dictated by whether the crank and piston machinery was placed directly on a brick floor or on an elevated brick platform, as was found during excavation at 513–515 North Washington Street. The engine released steam during the power generation process and pipes were used to direct it out of the building. Steam that escaped the pipes formed condensation, which drained into the flywheel trench and was directed out by a drainage pipe. Excavations uncovered evidence that the drainage pipe was introduced later or potentially replaced an existing pipe. Additional modifications include a short brick wall placed directly against the stone foundation which may have been used to stabilize the structure.

7.0 SUMMARY AND RECOMMENDATIONS

CAS Riegler has renovated the Cotton Factory at 513–515 North Washington Street as a residential property. Stantec and EHT Traceries provided archival and archaeological services for this effort. The next step in this project centers on the renovation of the construction of an building known as the Annex, and the installation of a publicly accessible park and other improvements including signage, site lighting, walkways, and landscaping. The documentary and archaeological assessment and archaeological field investigations documented in this report are required by the City of Alexandria Department of Planning and Zoning (City Compiled Concept I [Revised Comments, DSUP #2013-0023 515 N. Washington Street, dated 19 February 2014]), and operationalizes a Scope of Work for the Documentary Study and Archaeological Evaluation that was provided by the Office of Historic Alexandria/Alexandria Archaeology (dated 23 April 2014) and plans for intensive archaeological field investigations (Kreisa 2015a, b). The approach taken for the assessment, field investigations, and this report are in accord with the City of Alexandria's *Archaeological Standards* (Alexandria Archaeology 2007), the VDHR's *Guidelines for Conducting Historic Resources Survey in Virginia* (VDHR 2011), and the Secretary of the Interior's *Standards and Guidelines for Archeological and Historic Preservation* (Federal Register 1983).

7.1 Results and Interpretations

Current plans indicate that most construction activities will occur in two areas within the 513–515 North Washington Street property. One area, along Pendleton Street, is planned for the construction of the Annex. The second area, south of the existing Cotton Factory structure, will be impacted by installation of the publicly accessible park. More constrained impacts, such as landscaping, lighting, and signage, will occur more widely across the parcel. The Cotton Factory parcel land use dates from the mid-nineteenth century. The Cotton Factory itself was constructed in 1847 and had multiple uses through time—as a cotton factory, a Civil War prison, a brewery, a spark plug factory, a residence, and an office building. Historical maps associated with the Civil War use of the property as a prison suggest that the remains of two annexes, a kitchen, two offices, a commissary, and a barracks, may be present within the project area. Previously, these structures had been used as a picker house, boiler house, engine room, office, warehouse, and waste house. The Cotton Factory has been registered with VDHR as archaeological site 44AX0045.

The 513–515 North Washington Street parcel has a high potential for archaeological resources, most likely associated with the initial Cotton Factory, its Civil War-era use as a prison, and later uses such as part of the Robert Portner Brewery. Such resources could include structure foundations, privies, and deposits of artifacts associated with each use. Fill and the existing parking lot cap and may have preserved such resources, as has been demonstrated in other portions of the Old Town district. Finally, while demolition and the installation of utilities have no doubt impacted archaeological resources within the parcel, such impacts appear to be limited in extent. Once again, similar impacts have occurred at other lots within Old Town and archaeological investigations have demonstrated the continued existence of resources.

An overlay of the proposed redevelopment of the Cotton Factory parcel with the Civil War-era map of the property indicates that the most intensive disturbances may avoid the Cotton Factory

annexes to the east of the building and the barracks and offices to the south (Figure 21). However, removal of the asphalt parking lot for the construction of the proposed Annex is likely to impact archaeological resources.

Both the more intensive disturbances, such as the Annex as well as the more minor impacts, such as landscaping associated with the park, could encounter unmapped resources such as privies, cisterns, wells, or deposits of archaeological artifacts associated with the factory or its use as a Civil War prison. In addition, the proposed Annex could impact the Cotton Factory engine house or the later Portner Brewing Company addition that was located along the north façade of the Cotton Factory building. As such, an archaeological investigation of the proposed Annex footprint was recommended.

The intensive field investigations undertaken at site 44AX0045 focused on the footprint of the proposed Annex in the north portion of the parking lot located to the east of the Cotton Factory. Initially, four machine trenches were excavated in a north-south orientation across the footprint. Each trench was spaced at approximately 4-m intervals. The easternmost trench was disturbed by a storm sewer pipe while the westernmost was devoid of intact land surfaces. However, a cut-stone foundation and stepped floor was uncovered below demolition deposits in the southern portions of the middle two machine trenches. Historical maps dating to the mid-nineteenth century suggest that the foundation and floor were associated with the Cotton Factory engine house, a structure that housed a steam engine to run the factory looms. Subsequently, an east/west-oriented block uncovered the full extent of the foundation wall and stepped floor within the Annex footprint (Figure 38). The north foundation measured approximately 25 feet in length, or the full extent of the engine house as depicted on period maps. The northeast building corner and a small segment of the east foundation wall were also uncovered. Also uncovered were a stepped-brick platform that supported a steam engine, a well for the engine wheel, and several drains. Few artifacts were recovered from either monitoring of the trench excavations or the hand excavation of STPs within the trenches.

The primary goal of the field investigations was to determine whether the Annex footprint, and by extension the Cotton Factory parcel, had the potential to retain significant archaeological deposits. The machine and hand excavations provided information on this issue. Structural remains are present within the Annex, and it is highly likely that at least substantial remains, such as the Boiler House (although likely impacted to some extent by a storm sewer pipe), kitchen, well, and picker house, all located immediately east and adjacent to the Cotton Factory, are present below the parking lot, covered and protected by demolition rubble. It is also possible that the remains of several outlying structures, including a waste house, office, and warehouse (used as a barracks during the Civil War), are present. At least outside of this complex of buildings (that is, to the north of the north foundation of the Engine Room), no intact buried land surfaces are present. It appears that this area was cut as part of the demolition of the Cotton Factory auxiliary buildings. The same condition may be present to the south, but at present this is not known. Even if the entire area had been cut during demolition, it remains possible that substantial features, such as privies, could also be present. As such, site 44AX0045 retains substantial subsurface integrity.

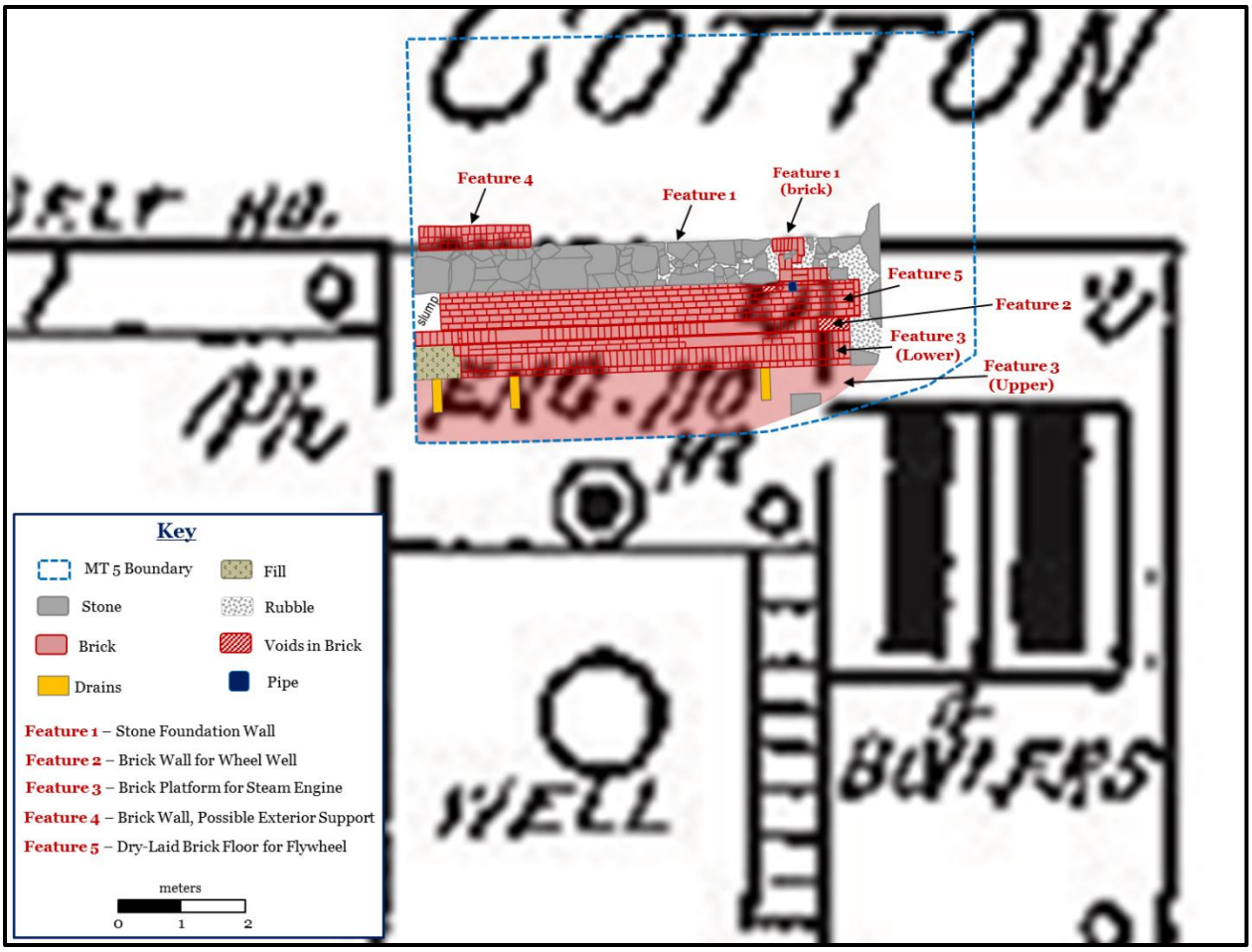

Figure 38. The remains of the Cotton Factory engine house overlaid onto 1891 Sanborn map.

7.2 Recommendations

Site 44AX0045 has, as discussed in several sections, the potential to retain deposits associated with the Cotton Factory, the Civil War prison, the Portner Brewery, the Express Spark Plug factory, and the subsequent residential and office occupations. The current investigations identified intact deposits associated with only one of those occupations, the initial Cotton Factory. Artifacts (mainly from demolition deposits) date to that initial period of occupation as well as several subsequent periods, including the spark plug factory, residential, and commercial periods. Not present (or not recognized as such) are artifacts associated with the Civil War prison or the Portner Brewery.

For the current undertaking (the construction of the Annex), the excavations within the Annex footprint have yielded significant information on the organization, nature, and evolution of the Cotton Factory, providing information on mid-nineteenth-century manufacturing facilities in the Mid-Atlantic region. The extent of excavations suggests that there is little potential for additional features within the Annex footprint. As such, Stantec recommends no additional archaeological investigations within the building footprint.

However, the excavations also indicate that the larger property has the potential to yield significant information on the history of manufacturing in Alexandria and as such should be considered a significant archaeological resource. As noted, the site retains the potential, not at present demonstrated, to yield information on the Civil War prison, the Portner Brewery, and the Express Spark Plug factory as well. Any plans for excavations outside the footprint should take into consideration the high potential for the presence of significant archaeological resources.

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APPENDIX A:

QUALIFICATIONS OF KEY PERSONNEL

EMILY L. SWAIN, MAA. Archaeologist
MAA, Applied Anthropology, University of Maryland, 2010
BS, Anthropology/Archaeology, Mercyhurst University, 2007

Ms. Swain joined Stantec in 2015 and has 10 years of archaeological experience in Maryland, Pennsylvania, Texas, Virginia, and Washington, D.C. She has performed and supervised fieldwork, artifact analysis, archival research, and report production for all phases of archaeological investigation. She also has experience in NEPA and Section 106 compliance.

PAUL P. KREISA, PhD, RPA. Senior Archaeologist, Principal Investigator
PhD, Anthropology, University of Illinois at Urbana-Champaign, 1990
MA, Anthropology, Northern Illinois University, 1984
BA, Anthropology, University of Wisconsin, Oshkosh, 1981
Register of Professional Archaeologists (RPA)

Dr. Kreisa is a Senior Archaeologist and Principal Investigator for Stantec (formerly Greenhorne & O'Mara). Since joining the company in 2005, he has directed the investigations of several Colonial and Antebellum plantation sites; conducted numerous survey and evaluation projects for public and private sector clients in Maryland, Pennsylvania, Virginia, West Virginia, and Washington, DC; and created a Postbellum archaeological context for Prince George's County, Maryland, and an archaeological resources management plan for the redevelopment of St. Elizabeths Hospital in Washington, DC. With more than 30 years' experience at all levels of archaeological consulting, Dr. Kreisa has directed numerous Phase I survey, Phase II evaluation, and Phase III mitigation investigations at Historic and precontact Native American sites in the Mid-Atlantic, Mid-South, Southeast, Midwest, and Great Plains. Clients have included DoD facilities, US Army Corps of Engineers districts, GSA, NPS, state transportation agencies, local governments, and private developers. He has experience in completing Section 106 and NEPA documentation and complying with state and local regulations. Dr. Kreisa was previously a member of the Wisconsin SHPO staff and president of the Council for Maryland Archeology, the organization of professional archaeologists in Maryland, from 2011–2012.

JACQUELINE M. MCDOWELL, MA. Background and Archival Research
MA, Anthropology, Northern Illinois University, 1986
BS, Anthropology, Northern Illinois University, 1984

Ms. McDowell joined Stantec (formerly Greenhorne & O'Mara) as a planner in 2009. Since 2005, she has conducted research for cultural resources projects in Maryland, Pennsylvania, Virginia, West Virginia, and Washington, DC. She has nearly 20 years' experience in conducting archival research with primary and secondary sources and incorporating the research into historic contexts and background research sections for reports. Ms. McDowell also has nearly 30 years of field and research experience in all phases of archaeological research and reporting in the Mid-Atlantic and Midwest, including both precontact Native American and Historic period sites. She has authored numerous reports for clients including DoD and GSA as well as state agencies and private developers for Section 106, NEPA, and state-level historic preservation legislation.

GERI J. KNIGHT-ISKE, MA, RPA. Archaeologist
MA, Anthropology, Monmouth University, 2015
BA, Anthropology, University of Nebraska at Lincoln, 2009

Mrs. Knight-Iske joined Stantec (formerly Greenhorne & O'Mara) in 2011 and has five years of archaeological experience in New Jersey, Maryland, Virginia, West Virginia, and Washington, DC, and four years of archaeological experience in Nebraska. She has performed and supervised fieldwork, artifact analysis, archival research, report production, and GIS map making for reports. Mrs. Knight-Iske also has experience in NEPA and Section 106 compliance.

NANCY L. POWELL, BA. Field Crew Chief, Laboratory Director
BA, Anthropology, Millersville University, 2006

Ms. Powell joined Stantec (formerly Greenhorne & O'Mara) in 2006 and has ten years of archaeological experience in Maryland, Pennsylvania, Virginia, West Virginia, and Washington, DC. She has performed and supervised fieldwork, artifact analysis, archival research, and report production for all phases of archaeological investigation. Ms. Powell directs the archaeology workroom at Stantec's office in Laurel, Maryland. She also has experience in NEPA compliance, preparing documents such as Categorical Exclusion reports, Environmental Assessments, and Environmental Impact Statements.

ERIC GRIFFITTS, MA. Architectural Historian (EHT Traceries, Inc.)
MA, History (specialization in Historic Preservation), Oklahoma State University, 2012.

Mr. Griffitts is an architectural historian and project manager for EHT Traceries, Inc., with 20 years' experience conducting a wide variety of cultural resources investigations, including the research and documentation of historic properties, historic preservation planning studies, NHPA Section 106 and Section 110 compliance, and determination of eligibility reports. Mr. Griffitts has been a contributing author on Phase 1A archaeological reports conducted within the District of Columbia, and he meets professional qualifications prescribed by the Secretary of the Interior in 36 CFR 61 (Appendix A).

APPENDIX B:

ARTIFACT CATALOG

MT	STP	Depth (cm)	Horizon	N	Comments
1	1	0-35		1	Bottle glass, amethyst-colored, embossed
1	1	35-63		1	Bottle glass, dark green body
1	1	35-63		1	Bottle glass, clear-colored, embossed
1	2	0-7		1	Bottle glass, dark green body
1	2	0-7		1	Green shell edge bowl rim, ironstone, possible neo-classical rim pattern
1	2	0-7		1	Stoneware body, possible ginger beer bottle
1	2	7-		3	Metal, unidentified. 1 flat, ferrous; 1 ferrous, possible nail/fastener; 1 flat, copper alloy
1	2	7-		2	Window glass
1	3	0-7		1	Window glass
1	3	0-7		1	Bottle glass, dark green body
1	3	0-7		1	Metal, unidentified ferrous metal rod
1	General Collection	Undetermined	NA	1	Roofing tile, slate
1	General Collection	Undetermined		1	Bottle finish, crown cap, light green, machine-made soda bottle
1	General Collection	Undetermined		1	Bottle neck, dark green
1	General Collection	Undetermined		2	Nail, machine-cut
1	General Collection	Undetermined		2	Bottle finish, milk, clear, machine-made
1	General Collection	Undetermined		2	Spark plugs, ceramic and metal, stamped “Express Oil Special” “775”
1	General Collection	Undetermined		1	Whiteware rim, banded, unidentified vessel
5	General Collection	35-73		8	Roofing tile, slate
5	General Collection	35-73		2	Window glass
5	General Collection	35-73		4	Container glass, body; 2 clear, 2 light green
5	General Collection	35-73		2	Unidentified metal, ferrous