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AKRF
2007



**Phase 1A Archaeological Documentary Study
New York University Cogeneration Facility Upgrade & Expansion**

**Block 535, Lots 36
251 Mercer Street
New York, New York**
SEGRA-M

Prepared for:
New York University

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July, 2007

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A. PROJECT OVERVIEW

AKRF, Inc. has been contracted by New York University (NYU) to assess the impacts to archaeological resources associated with the proposed upgrading and expansion of NYU's cogeneration plant located at 251 Mercer Street and 40 West 4th Street in Manhattan. The existing 8,350-kiloWatt (kW) cogeneration facility serves 12 buildings on the NYU campus. The proposed upgrade and expansion would increase available power to 13,400 kW and would connect the electrical distribution system to an additional 22 buildings on the NYU campus. The proposed expansion would be located below grade in an underground vault, adjacent to the existing facility along the east side of NYU's Warren Weaver Hall on Mercer Street between West 3rd and West 4th Streets. The upgraded plant would include two 5,500 kW gas turbines with heat recovery steam generators, the refurbishment of two dual fuel boilers, and the installation of the associated electrical distribution to 22 buildings. (The existing seven 850 kW diesel generators will be removed or used as backup power only.) In addition, existing high-temperature hot water lines would be replaced as part of the project. The cogeneration facility currently operates under an existing New York State Department of Environmental Conservation (DEC) Title V operating permit (Permit No. 2620500246). The proposed upgrade and expansion would allow NYU to provide more extensive service and reliable power to its campus.

The potential impacts of the overall project, including the electrical distribution system, were considered in an environmental assessment form (EAF) (AKRF: April 2007). Proposed improvements to the distribution system beyond the landscaped area on Mercer Street were determined to have no effect upon archaeological resources since all improvements would take place in locations previously disturbed by the installation of existing utilities. The current Phase 1A archaeological study is concerned solely with the potential impacts of the improvements to the cogeneration facility, which will involve excavation to a depth of roughly 41 feet below current grade.

The area of potential effect (APE) of the proposed work consists of the landscaped area (including portions of the sidewalks) along Mercer Street immediately east of NYU's Warren Weaver Hall (251 Mercer Street) between West 3rd and 4th Streets (see Figure 1). The APE is bounded on the west by Warren Weaver Hall; on the north by a line roughly 7 feet south of the W. 4th Street curb line; on the east by a line roughly 2 feet west of the Mercer Street curb line; and on the south at a line roughly four feet north of the curb line. Horizontally, the APE covers an area that is roughly 50 feet wide (from east to west) and 219 feet long (from north to south).

The proposed construction of the underground cogeneration facility vault beneath the sidewalk along the east side of Warren Weaver Hall would occur in an area previously disturbed by the construction of Warren Weaver Hall in the early 1960s and by the basements of buildings that occupied the site in the late nineteenth and early twentieth centuries. Only a portion of the site, between the depths of 10 and 25 feet, has the potential to contain intact archaeological resources. Although these soils may also have been disturbed, an archaeological monitoring program is

recommended to ensure that no adverse impacts occur to any archaeological resources that may exist below ground during the proposed excavation between these depths.

B. RESEARCH GOALS AND METHODOLOGY

The goal of this Phase 1A survey is to determine the potential for significant archaeological resources to be present and intact within the proposed action's archaeological APE. This assessment involved the collection of published and unpublished documentary resources, consultation with city and state agencies, communication with NYU facilities and construction management staff, and communication with staff from R.G. Vanderweil Engineers, LLP, the engineering firm retained by NYU to assist with this project. Documentary information such as maps, directories, relevant research reports, and census data was collected from the following repositories: the Humanities and Social Sciences Branch of the New York Public Library (including the local history and maps division), the Landmarks Preservation Commission (LPC), the New York Department of Buildings, the New York City Municipal Archives, and the New York City Department of Environmental Protection Bureau of Water and Sewers. Vanderweil Engineers, LLP provided plans of the proposed action and existing utilities in the project area.

File searches were conducted at LPC, the New York State Office of Parks, Recreation, and Historic Preservation (OPRHP), and the New York State Museum (NYSM) to determine if prehistoric or historic sites have been recorded in the project area vicinity and to gather information on other surveys that have been conducted in the area.

This assessment also involved a number of site visits during which observations were made and documented through photography of site conditions and evidence of utilities and other subsurface features.

Collected information was analyzed in order to assess the likelihood of archaeological resources being present in the APE and to formulate recommendations.

A. GEOLOGY

The island of Manhattan is located within a geographic bedrock region known as the Manhattan Prong of the New England (Upland) Physiographic Province. This region is composed of heavily metamorphic and sedimentary rocks (including quartzite, dolomitic marble, marble, schist, and gneiss) that date to the Cambrian and Ordovician ages. These hard rocks, which are oriented northeast-southwest, are interspersed with softer Inwood marble (New York State Office for Technology [NYSOFT] 2004). The bedrock slopes downward from north to south and is approximately 60 feet below ground surface in the vicinity of the project area.

There are a number of deposits which overlay the bedrock region, but nearly all of Manhattan is covered by anywhere from 3 to 164 feet of glacial till. These deposits were left behind by massive glaciers of up to 1,000 feet thick that retreated from the area towards the end of the Pleistocene. There were four major glaciations that affected Manhattan until roughly 12,000 years ago when the Wisconsin period—the last glacial period—came to an end. The glacial movements also brought about the creation of hundreds of sand hills, or kames, some of which were nearly one hundred feet tall. These hills were contrasted by many small streams, rivers, and lakes which were fed by the glacial runoff. As temperatures increased and this runoff ceased, the small water courses evolved into swamps and marshlands.

B. TOPOGRAPHY AND HYDROLOGY

Based on examination of Viele's 1865 *Sanitary and Topographic Atlas of the City of New York*, the project site appears to have originally been relatively level meadowland and was situated among a number of small rises or hills. The closest water source was Minetta Brook, which generally ran from north to south and was located three or four blocks to the west, through what is now the western side of Washington Square Park. Today the project site is level and has an elevation of roughly 34 feet above sea level.

C. SOILS

The project area is currently paved except for a limited number of small strips of exposed soil where trees have been planted. Two soil borings were made by NYU on the proposed site of the Warren Weaver Hall vault facility in April 2006. These borings indicate that the likely interface between soils classified as 'fill' (containing brick fragments, concrete fragments, sand, and silt) and sandy subsoil is located between 17 and perhaps over 27 feet below grade (NYU, 2006, see Appendix D). Sands and gravels were recovered to a depth of between 50 and 60 feet below ground surface, at which point the drillers encountered hard Manhattan Schist bedrock.

D. CURRENT CONDITIONS

The landscaped area to the east of NYU's Warren Weaver Hall is level and measures approximately 230 feet from north to south and 52 feet from west to east, including sidewalks (see Figures 3 and 4). Most of the area is paved with concrete. Along the eastern edge of Warren Weaver Hall, along the west edge of the APE, there is a slightly raised area paved in bluestone, with a row of concrete benches. This feature is roughly 15 feet wide (from east to west) and extends the length of Warren Weaver Hall (from north to south). The rest of the landscaped area is at sidewalk level. It is dominated by two large north-south oriented rows of plantings containing mature trees and bushes. The plantings are enclosed in wrought iron fences. A row of street trees lines the eastern edge of the sidewalk along Mercer Street. A series of metal grates are visible roughly mid-way along the center aisle of the landscaped area. A fire hydrant is situated on the sidewalk at the southwest corner of Mercer and W. 4th Streets.

The area surrounding present-day Washington Square Park was originally a lowland swampy area traversed by Minetta Brook. During the first half of the 17th century, much of the area was part of Wooter Van Twiller's one hundred-acre bowery. By the mid-17th century, a large portion of this was owned by Anthony Portuguese, a free black man indentured to the Dutch West India Company. The area remained largely unimproved farm tracts during much of the 18th century. The APE was part of the Herring Farm, located north of Amity Road (a former road running at a slight diagonal south of and roughly parallel to West 3rd Street) and south of the former Greenwich Lane. The area south of Amity Road (immediately south of the APE) was part of the Bayard Farm.

A Potter's Field functioned in the vicinity of what is now Washington Square Park from 1797 until 1825, as discussed in the previous section. A Scotch Presbyterian Cemetery was located near the northeastern corner of the Potter's Field. Cartographic evidence suggests that its boundary, using modern landmarks, would have run roughly from the northeastern edge of Washington Square Park on the west, to a point approximately half way between University Place and Greene Street on the east, just north of Waverly Place on the north, and approximately to Washington Place on the south.

Another burial ground, the Baptist Church Cemetery is depicted on an 1817 map located on the block between modern West 4th Street, West 3rd Street, Greene Street, and Wooster Street. The Baptist Church and an accompanying unidentified open lot are shown in the same location on an 1857 Perris Map. By 1881, New York City atlases show that the former location of the Baptist church was occupied by a large commercial stable.

Much of the area surrounding Washington Square that had consisted of large farm tracts was developed with residential townhouse blocks during the first four decades of the 19th century. As noted, the neighborhood was a fashionable residential district in the 1830s to the 1850s, particularly the streets surrounding Washington Square Park. The latter was converted from a Potter's Field to a Military Parade Ground in 1826; then redesigned to assume the aspect of a public park ca. 1849. Residential development in the area during this period was typified by single-family, three- and four-story brick townhouses. Houses that fronted on or neighbored Washington Square Park carried the greatest prestige, while those along nearby streets, such as West 3rd Street (Amity Street) were somewhat less expensive.

The presence of NYU in the area also began in this period. After its establishment as the University of the City of New York in 1831, its first large-scale structure, The University Building, was constructed on Washington Square East in 1833.

An 1824 Hooker map shows the block then bounded by West 4th, West 3rd, Greene, and Mercer Streets (the eastern portion of which contains the APE), as being developed, though individual buildings are not depicted. The map also shows that Greene Street had not yet been constructed between West 3rd and West 4th Streets. By 1832, Greene Street had been established in the area, as illustrated on an 1832 Burr atlas. The property appears on the 1836 Colton map as being on the property of a public building or church, the yard of which spanned the north side of Amity

Street (West 3rd Street), between Mercer and Greene Streets. However, it is likely that the Colton map is incorrectly depicting the Amity Baptist Church on the project block, rather than one block to the west, where the church had been established in 1834 (Dunlap 2004). The church appears in its correct location on the 1852 Dripps map, which depicts a large structure covering a lot twice the width of those surrounding it. The rear of the building is depicted on that map as having an irregular shape and a small open yard was located in the rear of the building.

As indicated on an 1852 Dripps map, the subject block was almost entirely developed with three- and four-story brick or stone rowhouses by the early 1850s. An exception was the Fifteenth Precinct Police Station, located on Mercer Street between West 3rd and West 4th Streets, established in the 1850s. The 1842 *Map of the Croton Water Pipes with the Stop Cocks* shows that the subject block was connected to the municipal water supply by that year (Endicott, 1842).

By the last two decades of the 19th century, Washington Square South and the area immediately south and east of Washington Square became chiefly industrial and commercial blocks. Earlier rowhouses were replaced by five- to ten-story light manufacturing buildings (discussed in detail in Chapter IV). Other portions of the study area retained their residential character. During the first decades of the 20th century, a number of new university buildings were constructed and existing buildings were adapted for university use, as NYU reemphasized its Washington Square campus.

A. PREVIOUSLY IDENTIFIED ARCHAEOLOGICAL RESOURCES

A number of archaeological studies on file at the New York City Landmarks Preservation Commission identified archaeologically sensitive areas near projected locations of in-ground disturbance for the NYU Cogeneration Plant Expansion Project (Geismar, 2005; Geismar, 2004; JMA, 2003). The following text is based largely on those studies.

The Washington Square reports indicate that the area surrounding what is now Washington Square Park was originally a lowland swampy area. Although no known Native American villages were located in the immediate vicinity, the terrain might have been appropriate for Native American use as a hunting ground or campsite. Due to significant ground disturbance in later periods, however, the Washington Square report concludes that the survival of pre-Contact period or Contact period archaeological deposits is unlikely.

Of primary concern in both of the Washington Square Park reports is the fact that roughly the eastern two-thirds of the park functioned as a Potter's Field from 1797 until 1825. The reports indicate that the western boundary of the Potter's Field was located at the Minetta Waters, a brook that ran diagonally through the park from just west of current Fifth Avenue on the north to just east of current MacDougal Street on the south. The eastern boundary of the Potter's Field is less clearly defined due in part to the fact that several church cemeteries were located within or closely neighboring the Potter's Field. One such cemetery was located near the northeast corner of what is now the park, and was associated with the Scotch Presbyterian Church. This burial ground was established during the second half of the eighteenth century. It was originally bounded by Greenwich Lane (a former road that ran at a diagonal just north of current Washington Square North [a.k.a. Waverly Place]) on the north and Margaret Street (a former planned road running parallel and immediately west of current Washington Square East [a.k.a. Wooster Street]). The size of the burial ground was decreased when Wooster Street was created in 1827. Another cemetery that closely neighbored the Potter's Field was the Baptist Cemetery, which appears to have been bounded by Wooster Street and West 4th Street, adjacent to the southeast corner of what is now the park.

As noted in the Washington Square reports, it is clear that at least some of the burials associated with the Potter's Field and neighboring church cemeteries remain underground in the Washington Square vicinity, rather than having been exhumed and moved at a later date. During the construction of the Washington Square Arch in 1890, excavators discovered human remains and remnants of coffins at approximately ten feet below ground surface. Furthermore, in 1965, Con Edison workers excavating in the street at Washington Square East just south of Waverly Place, encountered a large vault chamber holding the remains of twenty-five individuals; the top of the vault was located roughly ten to twelve feet below ground surface. This burial is thought to have been associated with the Scotch Presbyterian Church cemetery discussed earlier.

The third relevant study presents the results of archaeological testing, excavation, and laboratory analysis in conjunction with the excavation of three lots located along the north side of West 3rd Street between Sullivan Street and Thompson Street prior to the construction of an addition to the law school building. The analysis is useful for two reasons: the Sullivan Street project area overlaps with the location of the utility connections proposed as part of the NYU Cogeneration Plant Expansion project; and the area likely shares many physical and historical characteristics with the proposed site of the Warren Weaver Hall vault expansion, located four blocks east. Documentary analysis showed that during the mid-19th century the lots at 81-85 West 3rd Street were occupied by single-family townhouses belonging to upper middle class families.

Archaeological testing and excavation in the 81-85 West 3rd Street project area revealed a number of features. Test borings indicated that the backyards of the former house lots had been raised several times over the course of the 19th century, and mid-19th century ground surfaces were present between seven and 17 feet below grade. Multiple shaft features, including cisterns, wells, and privies, were uncovered during the excavation; these were located between approximately three and seven feet below street grade. Shaft features were located at the rear of the lots, and privies were located within ten feet of the rear property boundary. Privies, which were often closed after about 1850 due to the advent of Croton water in the area, were generally used as trash receptacles after their original use ceased. Thus, high concentrations of artifactual material were found in former shaft features.

B. SITE HISTORY

The historic ownership and occupation of each of the structures that were once present on the project site was established through cartographic research, analysis of census data and directories, and other sources of information. In the 1950s, immediately before NYU's consolidation and demolition of the individual properties that comprised the project site, there were essentially six street addresses in the APE: three on West 4th Street (20, 18, and 16); one on Mercer Street (251); and two on West 3rd Street (13 and 15). However, these street addresses were not consistent over the roughly 150 year period of time for which data was collected. The following discussion has been organized by the circa 1950s street addresses listed above, proceeding from west to east along West 4th Street, south along Mercer Street, and then from east to west along West 3rd Street. The discussion references historic maps, as well as census data (Appendix A), historic directory listings (Appendix B), and property conveyance records (Appendix C).

20 WEST 4TH STREET (18-20 WEST 4TH STREET)

An 1852 Dripps map (Figure 4) shows a building with an undeveloped yard in the location of 20 West 4th Street. The 1857 Perris atlas (Figure 5), the first to depict detailed structures in this section of Manhattan, depicts a brick or stone dwelling with an uncoped slate or metal roof within the lot then known as 322 Fourth Street. The building has an undeveloped backyard measuring roughly 25 feet by 25 feet. The exact date of the building's construction is unknown, although it is likely that the lot had been occupied by the late 1820s.

A historic directory dating to 1829 indicates that a man named William S. Hill resided on Fourth Street near its intersection with Mercer (Appendix B). Another directory published ten years later recorded Hill, who worked in the coal industry, as living at 322 Fourth Street. Census records from 1830 show that Hill lived in the city's Ninth Ward, where the project area was situated at the time, in a household that contained eight other individuals. However, conveyance

records do not indicate that Hill owned the property (Appendix C). Nor do they suggest that any of the owners, many of whom also owned adjacent or nearby lots, lived on-site for most of the early 19th century, although census records show that several of them resided in the same city ward (Appendix A).

By 1852, directories indicate that Adam Emmet, a tailor, occupied 322 Fourth Street, although it is unclear if his association with the property was residential or commercial or both. Edmund H. Weyman, a clothing salesman or manufacturer who maintained a business in Lower Manhattan, also resided there. Weyman had purchased the property from Phillip and Mary Pistor in 1845 and retained it until 1859, when he and his wife sold the land to Margareta Whittingham. Whittingham's husband, William, was recorded as living on the property in a directory dating to 1867. There are no indications that the Whittinghams continued to reside on the property thereafter, although they owned the lot until 1889.

In 1869, directories show that a widow named Margaret Alles was living at 20 West 4th Street. Census records from 1870 indicate that she was a 58 year-old native of France who maintained a business of importing shoes. The census also shows that the family of Christophe Burden, a French book manufacturer, an Irish servant, a French wine importer, and a French milliner also lived on the property.

The 1880 census records Mary McGown, a 76-year-old Irishwoman in residence, listed as "keeping house." Also inhabiting the building was Sarah A. Devere, a 31-year old Irish laundress, and her four-year-old son. Catherine Geer, also an Irish laundress, and Charles Geer, a butcher from Frankfurt, were also occupying the building.

Historic maps show that between 1879 and 1891 (Figures 7 and 8), the structure at 20 W. 4th Street was demolished, the lot was consolidated with the abutting lot to the east, and a larger structure occupied the entire width of the consolidated property, and extended further south than its predecessor, leaving a backyard roughly 50 feet by 10 feet. The new building had an address at 18-20 W. 4th Street.

Property records show that in 1889, the Whittingham heirs sold 20 W. 4th Street to Frank A. Seitz; who conveyed it to Moses Foltz a year later. Foltz also owned the property at 18 W. 4th Street, and may have redeveloped the consolidated lots at this time. There is no evidence that Foltz resided in the building. Although no census records are available for this period, directories list a number of commercial enterprises located in the building in 1890. Among these was the James Baker & Sons glass business. James and Robert Baker are listed in association with this. Robert Baker's home address was a few blocks away. Sigmund Saneski, ran a business in bonnets from the address, while he too resided elsewhere. Similarly, Joseph Schleiter, who lived on First Avenue, sold furs from 20 W. 4th Street. Franz Afield, who had a business in flowers, is also listed at the address, however, it is not clear if he resided there or not.

In 1902, property records show that the building (18-20 W. 4th Street) was owned by Belden heirs. Sanborn maps from 1895, 1904, 1921, and 1951 (Figures 9-12) show the same building, indicating that the structure was a light manufacturing building, six stories tall, with a basement. The depth of the building's basement is not known, and was not found on file at the New York City Department of Buildings. The building was most likely demolished ca. 1958, just prior to being redeveloped by NYU.

18 WEST 4TH STREET (18-20 WEST 4TH STREET)

The 1857 Perris atlas depicts a brick or stone dwelling with a small wood-frame rear addition within the lot then known as 324 Fourth Street. The building has an undeveloped backyard measuring roughly 35 feet by 25 feet. The exact date of the building's construction is unknown, although it is likely that the lot had been occupied by the late 1820s. Property deeds show that the lot was conveyed from Philetus and Susan Woodruff to Thomas Lawrence in 1834. A year later, it was sold to John Woodhead. The Woodheads would own the property until 1859. Historic directories indicate that John Woodhead was an importer: in 1839, his business address is listed as 73 Maiden Lane in lower Manhattan, and his home address is listed as 308 Fourth Street, the address of the subject property at that time. The address of the property changed to 324 Fourth Street by 1852. Historic directories of that year list the subject property as Woodhead's home address, while his work address was on John Street. John Woodhead is listed in 1840 census records, residing in Ward 9 (the ward in which the lot was then located). Although this census does not list street addresses, based on the city directory information, it is likely that Woodhead was residing at the subject property at this time. The 1850 census lists Woodhead as a 55-year-old merchant, born in New York, residing with his 50-year-old wife, Mary, and two sons: 22-year-old John, and 19-year-old Thomas, who worked as a clerk. Two Irishwomen, Mary Brennan and Mary Newland, probably domestic servants, also occupied the household. Property records show that the property passed into the hands of the younger John Woodhead and his wife, Ann Catherine, in the mid-1850s. In 1859, John and Ann Catherine Woodhead sold the property to Alexander T. Stewart.

No evidence has been found to indicate that Alexander Stewart inhabited the property. Census and directory records do indicate that Edward Shelf (also spelled Self) and his family occupied the building in 1867 and 1870. The 1870 census lists Shelf as a manufacturer of syrups, born in England in 1812. Residing with him were his English wife, Ann, and two female Irish servants. Shelf is listed in the 1867 and 1869 city directories as a manufacturer of bitters, with a home address at 18 W. 4th Street, and a business address at 25 Harrison Street. One N. G. Fairman is also listed with a home address at 18 W. 4th Street in the 1869 city directory. Fairman, a clothing dealer, lists his business address as 80 Bowery.

The 1880 census shows a Bavarian family in residence at 18 W. 4th Street. Fifty-nine-year-old Marks Sands, and two of his children, manufactured artificial flowers. A thirty-three year-old son, also named Marks Sands, is listed as an artist.

In 1887, the Stewart heirs conveyed the property to Ambrose C. Kingsland. Kingsland (1804-1878), a wealthy sperm oil merchant, served as mayor of New York City from 1850-1853. Among other accomplishments, Kingsland is famous for spearheading the construction of what is now Central Park. Kingsland's primary residence for much of his life was at 114 Fifth Avenue. Later he purchased property on Hunter Island, in what is now the Bronx's Pelham Bay Park; and in Tarrytown-Sleepy Hollow in Westchester County. Kingsland owned the W. 4th Street property between 1887 and 1890. No evidence has been found to indicate that Kingsland occupied the property; however, census records are not available for this period.

In 1890, Moses Foltz purchased the property. As noted in the section discussing the lot history of 20 W. 4th Street, the structures at 18 and 20 W. 4th Street were demolished between 1881 and 1891, the lot was consolidated with the abutting lot to the east, and a larger structure occupied the entire width of the consolidated property, and extended further south than its predecessor, leaving a backyard roughly 50 feet by 10 feet. The new building had an address at 18-20 W. 4th Street. A 1904 Sanborn map shows the same building, indicating that the structure was six

stories tall, with a basement. Because the two properties both came under the ownership of Moses Foltz in 1890, it is likely that Foltz was involved in the construction of the new building on the consolidated lots. The respective ownership of the 18 and 20 W. 4th Street, however, reverted to separate parties between 1890 and 1902, even though the addresses were united in a single structure during this period. Between 1890 and 1891, 18 W. 4th Street passed from Foltz to David Newbury, who conveyed it to Albert Wagner a few months later. Later in 1891, Wagner sold the property to Samuel Hirsch, who sold the property to the Beldens. The Beldens would acquire 20 W. 4th Street in 1902.

The 1890 city directory lists multiple businesses with addresses at 18 W. 4th Street, suggesting that the new larger building on the consolidated lot was constructed primarily as a commercial or light industrial structure rather than a residence. Businesses listed at the address at this time include Willard Fracker & Co. (publisher); Charles Barnes (publisher); Stein & Freund (trimmings); Abraham and Jacob Stein (feathers); Sara Salomon (furs); and Charles Lass (tailor). Where home addresses are listed for these individuals, none record 18 W. 4th Street as a home address.

In 1902, property records show that the building (18-20 W. 4th Street) was owned by Belden heirs. As discussed above, Sanborn maps from 1895, 1904, 1921, and 1951 show the same building, indicating that the structure was a light manufacturing building, six stories tall, with a basement. The depth of the building's basement is not known, and was not found on file at the New York City Department of Buildings. The building was most likely demolished ca. 1958, just prior to being redeveloped by NYU.

16 WEST 4TH STREET

The 1857 Perris atlas depicts a brick or stone dwelling with a small wood-frame rear addition within the lot then known as 326 Fourth Street, located on the southwest corner of Fourth and Mercer Streets. The building has an undeveloped backyard measuring roughly 35 feet by 25 feet. The exact date of the building's construction is unknown, although it is likely that the lot had been occupied by the late 1820s. Property records show that the lot was owned by David S. and Susan Jones by 1828. In 1834 and 1835, the property briefly passed into the hands of Philetus H. and Susan Woodruff, and Thomas and Margaret Lawrence. Each of these parties also briefly owned the neighboring parcel, 18 W. 4th Street (aka 324 Fourth Street), at roughly the same period. Between 1835 and 1836, the lot was owned by Sheldon and Polly Smith.

In 1836, John Knox purchased the property. John Knox is listed on the 1839 city directory as inhabiting 310 W. 4th Street, which was the address of the subject property at that time. Knox's profession is listed as "MD," presumably meaning medical doctor. In the 1852 directory, Knox is listed as a Collegiate Dutch Reformed Church minister. His "work or primary" address is listed as the subject property (which had changed to 326 Fourth Street by that time), and no home address is listed. The 1850 census confirms that Knox and his family did reside on the subject property at that time. The census records that Rev. John Knox was 60 years old at the time and was born in Pennsylvania. He lived with his wife, Euphemia, and seven children between the ages of 28 and 12. The eldest of these, named Jehuel, is listed as a merchant; a 20-year-old son, William, is listed as a 'clerk;' and a 14-year-old daughter, Catherine, is listed as a student. The household also contained two young Irishwomen, probably domestic servants. In addition to listing John Knox, the 1852 city directory also lists one Samuel Knox with a residence at 326 Fourth Street. Samuel, which may be the same individual as the census's Jehuel, is listed as a dry goods merchant, with two business addresses in lower Manhattan.

In 1859, the executors of John Knox's estate sold the property to Andrew Campbell. Campbell appears on the 1860 census; although this census does not list street addresses, Campbell is listed in the 15th Ward (in which the subject property was situated at that time). According to the census, Campbell was a 37-year-old clerk from Scotland living with his Scottish wife, Margaret, and three small children, all born in New York. Living in the same building were Alex McKenzie, a plumber, and Alice McKenzie, both from Scotland.

Based on historic maps, it appears that at some point between 1857 and 1867, an addition was constructed on the rear of the building, covering the entirety of what was formerly the back yard. It appears this construction may have coincided with the change in use of the property from a residential building to a purely commercial/industrial one. In 1867, the city directory lists George A. Mott as running a carriage business from 16 W. 4th Street (Mott resided elsewhere). Several businesses are listed at the address in 1869, including James Jones (brass); J. H. Jones & Co. (faucets); and Charles Harrison (brass).

The 1870 census lists the 16 W. 4th Street as "unoccupied." The 1880 census does not list the property at all. The 1890 city directory list similar businesses operating from the site as those that operated there in 1869. These included Charles Harrison (plumbers' materials); Robert C. Harrison (supplies); and William P. Trown (plumbers' materials). Property records indicate that in 1900, the firm of Doscher and Minderman was involved in the lease of the property to one Charles Wilton. In 1904, Anna Jane McKenzie, widow of Alexander McKenzie (likely the same individual who lived in the Campbell household and who had apparently attained an interest in the property), sold the parcel to Alfred M. Ogle.

Sanborn maps from 1895, 1904, 1921, and 1951 show the building on the site with apparently no major physical alterations throughout that period. The Sanborn maps indicate that the structure was a light manufacturing building, four stories in height, with a basement and an elevator. The depth of the building's basement is not known, and was not found on file at the New York City Department of Buildings. The building was most likely demolished ca. 1958, just prior to being redeveloped by NYU.

251 MERCER STREET (A.K.A. 253-5 MERCER STREET)

As shown on the 1857 Perris atlas, this property, located on the west side of Mercer Street between West 4th Street (aka Fourth Street) and W. 3rd Street (aka Amity Street) was then two lots, with addresses at 221 and 223 Mercer Street. Both are depicted as brick or stone structures. 223 Mercer is shown as a dwelling with a slate or metal coped roof and an undeveloped back yard roughly 60 by 25 feet in dimension. 221 Mercer Street is labeled as "Police Station, 15th District." The police station has an undeveloped back yard roughly 35 feet by 25 feet in dimension.

Property records show that 223 Mercer Street was sold by Philetus and Susan Woodruff to Margaret and Cornelius Lent in 1841. An 1851 city directory lists 223 Mercer as the 'work or primary' address of one Mary Hereford, widow of Egbert Hereford. In 1857, Margaret and Cornelia [sic] Lent sold the property to the City of New York. Listed in residence at 223 Mercer Street on the 1870 census were James, Matthew, and Edward Heatherton, all New York-born plumbers and gas-fitters, as well as a woman, a small child, and, an Irish servant.

221 Mercer Street was conveyed from Philetus and Susan Woodruff to William and Delia Day in 1834. George H. Swords owned the property from 1840 to 1850, when it was sold to the City of New York. The 1852 city directory lists three individuals in residence at 221 Mercer Street:

Joshua Coit, a lawyer with an office at 11 Wall Street; and William D. Fraser, listed as a U.S. Engineer, with an office at 74 Broadway; and John Van Buren, a lawyer with an office at 39 Wall Street. An 1857 *New York Times* article notes: "The Fifteenth Ward Station-house, at No. 221 Mercer-street, was formerly a private dwelling, and was long occupied by JOHN VAN BUREN, "Prince John," of whom it can consequently be said 'that he has often passed a night in the Fifteenth Ward Station-house'"(NYT 1857: 6). The John Van Buren referred to is most likely the son of President Martin Van Buren, who lived from 1810-1866, and was a prominent lawyer, as well as serving as New York State Attorney General.

As evidenced by the newspaper article, the former residence at 221 Mercer Street was converted for use as a police station by 1857. The article describes that "the rear part of the basement is divided into ten cells, there being five on each side of a wide passage" (NYT 1857: 6). According to subsequent newspaper articles, the building neighboring the police station house, 223 Mercer Street, was acquired, and the "two tenement houses" were joined to create a new police station, opened on August 22, 1860 (NYT 1939: 16).

The 1867 city directory lists 221 Mercer Street as the 15th Precinct Police Station House. The census for 1870 lists four young police officers apparently in residence at the 221 Mercer Street police station: William McDermott, 28, Thomas Molden, 33, and Thomas Flanner, 30, all born in Ireland; as well as Thomas McGown, 26, born in New York. The 1867 Dripps map confirms that each of the original tenement buildings were still standing at this time.

A new station house, occupying both lots, was probably constructed in the early 1870s. The 1879 Bromley map shows a single structure occupying the unified lot, labeled as the 15th Precinct Police Station. A single rectangular-plan building is shown, with a rear yard, roughly 25 feet deep and 43 feet wide, and a rear structure, roughly 30 feet deep and 43 feet wide is located at the rear of the lots. A later (1904) map identifies this rear structure as containing cells, presumably for short-term imprisonment.

A lithograph on file at the New York Public Library illustrates the police station. The lithograph is undated, identified as "before 1899," and depicts the 15th Police Precinct Station House as a dignified masonry building designed in the Renaissance Revival Style. The structure is four stories in height with a basement, suggested by areaways flanking the central entry stair. The five-bay façade contains recessed round-arch windows, and is surmounted by a projecting bracketed cornice.

The police station was renovated in 1938, modernizing the "rickety red brick structure" to have stucco or "white stone" facing, enlarged windows, new plumbing, electrical, and steam fixtures, and new staircases (NYT 1939:16; NYT 1938: 186). It was noted at the rededication ceremony that the station house had handled many important cases, including the Triangle Shirtwaist Factory fire, which caused the death of 146 garment workers in 1911 (NYT 1939:16). Despite the investment, the building was demolished in 1958, both because the building was considered antiquated, and because expanding New York University intended to acquire the parcel.

Records on file at the Department of Buildings indicate that at the time of a 1928 alteration to the station house, the structure possessed a basement (extending 7 feet 10 inches below ground surface) and a cellar beneath it (extending an additional 6 feet); total depth of the building's substructure was roughly 14 feet below ground surface.

11 WEST 3RD STREET

An historic map published by William Hooker suggests that the property later known as 11 West 3rd Street (also as 11 Amity Street), located at the northwest corner of modern Mercer and West 3rd Streets, had been developed by 1824. The property appears on the 1836 Colton map as being on the property of a public building or church, the yard of which spanned the north side of Amity Street (West 3rd Street), between Mercer and Greene Streets. However, it is likely that the Colton map is incorrectly depicting the Amity Baptist Church on the project block, rather than one block to the west, where the church had been established in 1834 (Dunlap 2004). The church appears in its correct location on the 1852 Dripps map.

The 1852 Dripps map depicts two structures on the lot later known as 11 West 3rd Street: one fronts on Amity Street, while the other is located at the northern (rear) end of the lot, apparently fronting on Mercer Street. The map shows a small open yard area separating the two structures. The rear structure apparently served as a separate dwelling with an address on Mercer Street. However, because it appears to have shared a lot with 11 West 3rd Street, the two addresses are being discussed in the same section.

The 1857 Perris Atlas indicates that the structure on the corner of West 3rd Street (a.k.a. Amity Street), depicted as 11 Amity Street, was a brick or stone dwelling, constructed with a slate or metal coped roof and a store underneath. A rear addition is shown on the building, covering the open yard area and abutting the smaller dwelling at the northern end of the lot. As depicted by Perris, the latter structure was of similar construction, but it did not contain a store and was used as a dwelling only. The Perris atlas does not associate an individual street number with this building (although the structure is believed to have been known as 219 Mercer at that time).

No documentary evidence could be recovered to indicate who lived at 219 Mercer Street prior to the late 1860s. In 1867, Peter Beudry, a cabinet maker, and Henry Pihet, a clerk, were both listed as residents of 219 Mercer Street in a historic directory, as was James M. Heatherton, a plumber, in 1869. The 1869 directory also notes that John Manion, a mason, ran a business there and lived elsewhere. Heatherton appears in the 1870 census, which shows that he lived at 219 Mercer Street with his wife, infant son, two brothers (whom he employed), and an Irish domestic servant. Heatherton's plumbing company was hired by the House of Representatives in 1874 to improve the plumbing at a United States courthouse and post office in Manhattan (Committees of the House of Representatives 1876).

According to historic directories, the house at 11 Amity Street was inhabited in 1852 by David P. Holton, a physician who was listed at that address in an 1839 directory, and Catherine Potter, a widow. Conveyance records show that the lot had a variety of owners in the early 19th century, although none of them appear to have lived on the property. In 1853, the property was sold to Lazielle DuBurreau, who retained it until 1853. At that time, the property was transferred to Jacob Fink who sold it to James S. Bearn's two years later. None of these men appear to have lived on-site.

In 1863, John Redmond O'Hara, then living at 11 Amity Street, paid £2 to support the construction of the O'Connell Monument in Dublin, Ireland. Four years later, historic directory entries show that Lucien Dubernet, a photographer and picture-frame maker, and Henry W. Schultz, a grocer, were either living at 11 Amity Street or running their businesses from that location. Schultz is listed at that address once again two years later, as is Dubernet, although his home address in Williamsbridge is provided, suggesting that his relationship with the property was commercial in nature.

The 1870 census indicates that most of the inhabitants of the property were German immigrants or first-generation German-Americans. Of the ten residents, two were grocers, two were clerks, and another was a fire department engineer. By 1880, the number of inhabitants at 11 West 3rd Street had more than doubled. A variety of boarders lived with families in three individual households. Again, most residents were German immigrants or German-Americans, although there were also individuals from Scotland, Hungary, and France living on the property. In one household, the Speth family, headed by Bernard, a grocer, lived with four grocery clerks, presumably Bernard's employees. In another, the Kerne family lived with a domestic servant. And in the final home, the Matthewson family, headed by Charles, a policy dealer, lived with six boarders who were employed as an artificial flower designer, a general agent and commissioner, a bottler of beer, a bottle wagon driver, and two cooks' helpers.

By the 1880 census, the small dwelling at the rear of the lot was known as 251 Mercer Street, rather than 219 Mercer Street. The census indicates that an Italian hat block manufacturer, Antonio (Anthony) Funai, lived on the property with his wife and seven children. Funai also appears at that address in the 1890 directory. In addition, the structure was depicted as a small, 3-story masonry dwelling with a basement in a late-19th century lithograph.

A Sanborn map dating to 1895 describes 11 West 3rd Street as a 5-story, first-class warehouse with an elevator. This map suggests that the eastern side of the building was now known as 247-251 Mercer Street. Census records for this property dating to 1890 were not available, however historic directories from that year indicate that several individuals lived or worked at 11 West 3rd Street. Victor Deich, for whom no profession was listed, Charles Swanson, a shoemaker, and Louis Tissot, a cutter, were all listed in the 1890 directory as living on the property. Herman Gerdes, a liquor store owner, was listed at the address as well, although it is not clear if he lived at 11 West 3rd Street or maintained a store there. Conveyance records show that Gerdes leased the property from Bearn in 1911, but it is unclear if this was for commercial or domestic space.

Sanborn maps from the early to mid-20th century suggest that the building was used for industrial purposes during that time. A 1904 Sanborn map indicates that the building was 5 stories tall and had been constructed atop a basement. That map depicts the buildings as connecting to the building to the west, a feature which is not seen on subsequent maps, and indicates that it was used as a store and a factory for light manufacturing by a carpenter. No changes to the property are visible on Sanborn maps until the construction of Warren Weaver Hall on the site in the mid-20th century.

13-15 WEST 3RD STREET

An historic map published by William Hooker in 1824 suggests that the property later known as 15 West 3rd Street had been developed by that time. The location appears on the 1836 Colton map as being on the property of a public building or church, the yard of which spanned the north side of Amity Street (West 3rd Street), between Mercer and Greene Streets. However, it is likely that the Colton map is incorrectly depicting the Amity Baptist Church on the project block, rather than one block to the west, where the church had been established in 1834 (Dunlap 2004). The church appears in its correct location on the 1852 Dripps map.

On the location of 15 West 3rd Street, the 1852 Dripps map depicts a large structure covering a lot twice the width of those surrounding it. Because this was a double lot, according to the street numbering system that was in place presumably before the lot was developed, the eastern half was numbered 13 West 3rd Street, while the western half was number 15 West 3rd Street. The address 13 West 3rd Street was used inconsistently throughout the 19th century to describe this

lot. In addition, an 1891 Bromley atlas incorrectly identifies the lot at the northwest corner of Mercer and West Third Streets, described above as number 11 West 3rd Street, as number 13 West 3rd Street.

On the 1852 Dripps map, the rear of the building is depicted as having an irregular shape and a small open yard was located in the rear of the building. The 1857 Perris atlas depicts it more clearly. That map shows it to have been a brick or stone dwelling with a slate or metal coped roof. On the western side of the building, an L-shaped brick or stone addition extended into the rear yard. On the eastern side of the building, a wooden addition was present. The two additions are not depicted as connecting with each other, only with the main dwelling.

For much of the mid-19th century, the property was used as a boarding house. It is for this reason that few individuals are listed at that property in historic directories. In 1852, Sarah B. Cadle, a widow, was recorded in a directory at 15 Amity Street. It is possible that she ran the boarding house to support herself after her husband's death. However, she was not the first woman to run the boarding house. Her predecessor appears to have been "Mrs. Lentner" (also spelled Leutner). Mrs. Lentner was the manager of the boarding house in the 1843, when the famous Colonel John Trumbull died. Before making 15 Amity Street his home while in New York, (his main residence was in New Haven, Connecticut), Trumbull had been an aid to General George Washington during the Revolutionary War (Kimball¹ 1891). More importantly, however, while he lived at 15 Amity Street, he "executed his splendid paintings which now adorn the rotunda in the capitol at Washington [DC]" ("A Citizen of Ohio" 1844: 51).

Trumbull was not the most famous resident of 15 Amity Street, however. For several months in early 1845, Edgar Allen Poe also resided at the boarding house, several blocks down the street from 85 Amity Street, where he would later live (Edgar Allen Poe Society of Baltimore 1998). It was in a second-floor apartment in the four-story, "Georgian-type" house at 15 Amity Street, however, where Poe completed "the final revisions of *The Raven* before going to press" (Allen 1934: 499).

After the mid-19th century, the house continued to be used as a boarding house where a variety of individuals lived for varying periods of time. One colorful resident, a man named Purfil, was stabbed twice with a broken bottle in a bar fight at the Saint Nicholas Hotel in 1860 (*New York Times* [NYT] 7/27/1860). Another resident, a medical student, had left behind a suitcase filled with human skulls and other miscellaneous bones as a security for an unpaid bill, must to the dismay of the boarding house manager when she discovered the suitcase's contents four years later (NYT 6/19/1861).

Census records from 1870 show that at least 34 individuals lived at 15 Amity Street at that time. Most were Irish immigrants and their New York-born children, although many others were originally from England and Scotland. Of the occupations listed, nearly all were working class jobs: shoemaker, coachman, servant, gasfitter, and importer. In addition, many of the individuals do not appear to have lived with other family members with the same surname. A greater number of families and a smaller number of individuals (24 people in five separate households), lived in the building by 1880, according to the census of that year.

Advertisements for "passé-partouts, picture frames, metal, gilt, velvet stands, and gilt easels of every style" being sold from 13 and 15 Amity Street appeared in *The Publishers' and Stationers'*

¹ Kimball was the author of a *New York Times* article about Trumbull, and he had also lived at the boarding house at 15 Amity Street.

Weekly Trade Circular in 1872. A frame manufacturer named Felix Dubconet was recorded as living at 15 Amity Street in the 1880 census, but it is unclear if he had any association with the picture frame maker who worked at 11 Amity Street, Lucien Dubernet (possibly spelling variations of the same surname).

The residents in 1880 were more ethnically diverse, with most originating in Germany and others from Ireland, France, Switzerland, New York, and Indiana. The professions of the 1880 residents were also more skilled: restaurant owner, picture frame manufacturer¹, decorator, artificial flower manufacturer, ornamenteer, and tailor. Individuals who worked as servants and stable men also resided at 15 Amity Street. The 1880 census also lists two individuals at 13 Amity Street: Eugene Fromocq, a French tailor and dressmaker, and his wife, Justine.

In 1890, an historic directory notes that Albert Reich, who worked with feathers, used 15 West 3rd Street as a business address; he lived elsewhere. Max Weiner, who was also in the feather industry, was listed in the same directory at 13 West 3rd Street (he also lived elsewhere). According to historic deeds, Weiner purchased or leased the property in 1892, although it may have been for commercial purposes only.

Unlike earlier historic maps, the 1895 Sanborn map suggests that the western and eastern halves (what the map shows as 15 and 13 West 3rd Street, respectively) were divided by an "interior brick wall [that was] omitted on one or more floors." That map also shows that the main structure was 4 stories tall, while the brick addition in the rear was 2 stories, and the wooden addition one story and may have contained a steam boiler and corrugated iron. A Sanborn map from 1904 indicates that the 4-story structure featured a basement and a storm cellar and was used as a store and factory for light manufacturing. Furthermore, it shows that the rear addition on the western side of the building, depicted on the 1895 Sanborn map as having 2 stories, contained one story with a basement. It is unclear if this addition was re-built or if the basement had been included as a story in the earlier map. To the north of this addition, another one-story addition had been erected, covering the western half of the rear yard to the northern lot line. As mentioned previously, this map also indicates that double batten doors connected this structure to the one immediately to the east (at 11 West 3rd Street) on the 4th floor. This is not depicted on any other maps.

At some point between the publication of the 1909-1915 Bromley atlas and the 1921 Sanborn map, the lot was redeveloped and the old structure demolished and replaced. Two separate, one-story buildings were erected at 13 and 15 West 3rd Street: a larger L-shaped building to the east, and a smaller rectangular-plan building on the west. The map notes that both were used as stores and that the structure at 13 West 3rd Street, which was larger and covered the entire former rear yard area of the lot, had a basement. The lot was redeveloped once again before 1930, when Bromley's Manhattan Land Book was published. The lot was by that time completely occupied by a single structure which a Sanborn map dating to 1951 depicts as having one-story and no basement, used for waste paper manufacturing.

C. KNOWN RECENT GROUND DISTURBANCE IN STUDY AREA

The archaeological APE currently consists of a landscaped area and sidewalks which, prior to development of the site by NYU in the early 1960s, was primarily occupied by domestic, institutional, commercial, and industrial properties (discussed in detail in the site history section

above). A small portion of the APE is currently, and was historically, occupied by sidewalks: roughly 7 feet of current (and former) sidewalk area is included along the northern edge of the APE; and roughly 5 feet of current (and former) sidewalk area is included along the southern edge of the APE. While some of the current sidewalk along the eastern edge of the APE is also included in the APE, this location is believed to overlap with little or none of the pre-1960s sidewalk area, because Mercer Street was widened by roughly 10 feet in the early 1960s (NYT 1957: 21, and Slum Clearance Plan: 1949).

LATE 19TH AND EARLY 20TH BUILDING CONSTRUCTION

As discussed in detail in the Site History section (Chapter IV), a review of historic Sanborn maps indicates that the block bounded by West 3rd, West 4th, Greene, and Mercer Streets was occupied almost entirely by light and medium manufacturing buildings from the late 19th century through much of the first half of the 20th century. Within the APE, the following buildings were located:

- 18-20 West 4th Street: A light manufacturing building, constructed ca. 1890, was located immediately west of the lot on the southwest corner of Mercer Street and West 4th Street. This structure was double-width and had six stories and a basement. There was an elevator on the northeast portion of the lot. The depth of the building's basement is not known, and was not found on file at the New York City Department of Buildings. The building was most likely demolished ca. 1958, just prior to being redeveloped by NYU.
- 16 West 4th Street: A light manufacturing building occupied the entire lot on the southwest corner of Mercer Street and West 4th Street. This structure was four stories tall; and had an upright boiler in the basement. It also had an elevator on the southeast portion of the lot. The depth of the building's basement is not known, and was not found on file at the New York City Department of Buildings. The building was most likely demolished ca. 1958, just prior to being redeveloped by NYU.
- 251 Mercer Street: A police station located on Mercer Street mid-way between West 3rd and West 4th Streets (see Figure 12). The police station was a four-story structure with a basement extending to a depth of 13 feet 10 inches (as indicated by records on file at the Department of Buildings). A cell block occupying the rear of the police station lot was located outside of the APE.
- 11 West 3rd Street: A five-story light manufacturing building with a basement occupied the entirety of the lot on the northwest corner of West 3rd Street and Mercer Street throughout the first half of the 20th century. A Sanborn map dating to 1895 describes 11 West 3rd Street as a 5-story, first-class warehouse with an elevator. The depth of the building's basement is not known, and was not found on file at the New York City Department of Buildings. No changes to the property are visible on 20th century Sanborn maps until the construction of Warren Weaver Hall on the site in the mid-20th century.
- 13-15 West 3rd Street: At some point between the publication of the 1909 and 1921, the lot was redeveloped with two separate single-story buildings with addresses at 13 and 15 West 3rd Street. 13 West 3rd Street, to the east, was a larger L-shaped building, with a basement of unknown depth. 15 West 3rd Street, to the west, was a smaller rectangular-plan building without a basement. The lot was redeveloped once again before 1930 with a single structure that occupied the entire lot. A 1951 Sanborn map depicts this building as being one story with no basement, used for waste paper manufacturing.

With the exception of the small area developed as 15 West 3rd Street in the early 20th century, it appears that the entire APE was covered by structures with basements during the 20th century. The depths of the basement of the police station at 251 Mercer Street was roughly 14 feet in 1928. However, the depths of the basements of all of the other buildings that stood in the APE during the first half of the 20th century, are not known. Although basement depths would have varied, the average depth of a basement associated with a commercial or manufacturing structure would likely have ranged from seven to ten feet.

EXISTING UTILITIES

Utilities, including electric, sewer, water, and gas lines run through or immediately adjacent to the APE. Extensive relocation of utilities occurred during the 1940s- 1960s, when major redevelopment was occurring in the area (Slum Clearance Plan, 1949).

Current plans showing existing utilities (see Appendix D), indicate that utility installation has caused significant ground disturbance within the APE. Multiple existing duct banks run east-west through the center of the APE, while another runs north-south along a line running parallel to and roughly 12-20 feet west of the eastern edge of the APE. Multiple existing electrical vaults are located roughly in the center of the APE. Two existing gas lines run north-south along the east side of the APE. Additional gas lines are located in the northern portion of the APE.

It is therefore likely that the majority of the APE has been disturbed to depths of between 5 and 10 feet for the installation of utilities.

CONSTRUCTION OF WARREN WEAVER HALL

Warren Weaver Hall, built between 1962 and 1965, is supported by a 4-foot-thick structural mat that covers most of the footprint of the building, and is located at a depth of 33 feet below ground surface. The mat runs parallel to Mercer Street approximately 52 feet west of the curb line on the west side of Mercer Street.

The extent of ground disturbance that would have occurred during excavation and shoring for Warren Weaver Hall could depend on the construction method used at the time. The foundation of Warren Weaver Hall was probably constructed using one of two methods: a soldier pile shoring technique; or a slope wall excavation.

If a soldier pile shoring technique was used shoring would have been driven below the bottom of the Warren Weaver hall building foundation mat (33 feet below grade) and footing locations, and would have extended at least 8 feet east of the building foundation wall that runs parallel to Mercer Street, and 52 feet west of the curb line. This 8-foot wide, roughly 220-foot-long area along the eastern edge of Warren Weaver Hall would have been completely excavated to construct the building foundation mat.

According to Michael Thornton, an engineer and expert in construction methods who is familiar with construction on the NYU campus, a slope wall excavation method is more likely to have been used. This was the less costly method and would have allowed for easy removal of earth, enabling trucks and loaders to drive up the slope onto Mercer Street. If this method was indeed employed, all of the soil would have been removed from the Mercer Street sidewalk to the edge of the foundation mat (33 feet below grade; and 52 feet west of the Mercer Street curb line) at a maximum slope of 45 degrees from east to west between West 4th and West 3rd Streets.

A substantial portion of the project area would have been disturbed during construction of Warren Weaver Hall, no matter which construction method was used. The disturbed area would

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extend to at least 33 feet below grade and roughly 8 feet east of the building foundation wall that runs parallel to Mercer Street (52 feet west of the curb line). If the slope wall construction method was used in building Warren Weaver Hall, an additional portion of the subject area (described above) would also have been disturbed. However, the use of this method in the construction of the building can not be established with absolute certainty.

A. CONCLUSIONS

The proposed project would involve the construction of a new vault, approximately 38 feet wide and 208 feet long along the east side of Warren Weaver Hall. The top of the vault would be located at a depth of approximately 6 feet below existing grade; and the bottom of the vault would be at a depth of roughly 41 feet below existing grade.

It is highly likely that substantial portions of the project area for the Warren Weaver Hall cogeneration facility vault construction were previously disturbed. There is a possibility, however, that portions of the project area have not been disturbed and possess the potential for the existence of archaeological resources. If archaeological resources have survived, they would most likely be associated with the residential and institutional occupancy of the block in the early and mid-19th century. These potential archaeological resources would most likely consist of the remains of shaft features, such as wells, cisterns, or privies.

Typically, wells or cisterns were located reasonably close to a house for use in washing or cooking, while privies were often situated further away from the house for sanitary and privacy purposes (Wheeler 2000). Therefore, it can be expected that historic lots that formerly contained houses are most often associated with cisterns and wells while it is more likely that privies would be in the rear yard, at a distance from the dwelling. Portions of these shaft features are often encountered on residential lots because they are located at great depths and are often undisturbed by subsequent construction. Cisterns and privies have been identified at depths of 10 to 15 feet below grade (Cantwell and Wall 2001). Wells would have been excavated to the depth of the water table and have been documented to extend over 25 feet below ground surface during an excavation on nearby Sullivan Street (Salwen and Yamin 1990 in HPI 2007).

As discussed in Chapter III, the subject block was connected to the municipal water supply by 1842 (Endicott 1842). While privies and wells may have been abandoned as early as 1842, archaeological and documentary evidence has shown that in many cases in Manhattan, wells, privies, and cisterns continued to be used long after municipal utilities were available (HPI 2007: 34). Therefore, it cannot be determined with certainty what time during the mid- to late 19th century shaft features would have gone out of use within the APE.

Due to the combined impacts of the construction of Warren Weaver Hall in the early 1960s, utility installation, and late 19th and early 20th century basement excavations, it is very likely that the entirety of the project site was previously disturbed up to a depth of approximately 10 feet. In some areas, such as the location of the former police station on Mercer Street, the depth of disturbance due to basement construction was 14 feet below grade. Furthermore, an area extending roughly eight feet east of the current foundation wall of Warren Weaver Hall from a few feet south of the curb-line of West 4th Street to a few feet north of the curb-line of West 3rd Street, was disturbed to a depth of at least 33 feet below grade during the construction of that building. Although it is also very likely that some or all of the remaining portion of the project

site has also been disturbed, there remains a possibility that archaeological deposits, possibly associated with early to mid-19th century residential and institutional use of the location, still survive below ground.

The portion of the project site that is sensitive for archaeological resources is defined as being between 10 and approximately 25 feet below grade throughout the APE, with the exception of the 8-foot-wide area running along the eastern edge of the Warren Weaver Hall foundation wall.

Potential archaeological resources would most likely be domestic shaft feature remains associated with all or any of the historic lots discussed in the Site History section (Chapter IV) of this report, with the exception of the former domestic property with an address at 20 West 4th Street (in the northwestern corner of the APE). No archaeological resources associated with this address are expected to survive, since the portion of this former property that is located in the APE falls within the 8-foot wide, roughly 210-foot long portion of the APE that would have been disturbed to depths of at least 33 feet during the construction of Warren Weaver Hall.

B. RECOMMENDATIONS

Archaeological monitoring during construction by a professional archaeologist is recommended to determine the presence or absence of archaeological resources in that portion of the APE that has been determined to possess sensitivity for such resources. As stated above, the area of archaeological sensitivity begins at a depth of about 10 feet below ground surface and extends across the entire APE except for an 8-foot-wide area running along the eastern edge of Warren Weaver Hall, which has been disturbed to a depth of over 30 feet. If resources are present in the APE, they may extend to a depth of over 25 feet below ground surface. If natural soils are encountered in a particular area and no archaeological resources are present, monitoring would no longer be required in that area. If archaeological resources are encountered, additional archaeological testing may be required to determine their significance. *

References

References

"A Citizen of Ohio"

1844 *Mysteries of Washington City*. Washington DC: G.A. Sage.

Allen, Hervey

1934 *Israfel: The Life and Times of Edgar Allen Poe*. Accessed online from Google Books, at:
<http://books.google.com/books?id=AOldAAAAIAAJ&q=israfel&dq=israfel&pgis=1>

Bromley, G. W. and Co.

1879 *Atlas of the Entire City of New York*.

1891 *Atlas of the City of New York: Borough of Manhattan*.

Burr, David H.

1832 *Map of the City and County of New York*.

Cantwell, Anne-Marie and Diana diZerega Wall

2001 *Unearthing Gotham*. New Haven: Yale University Press.

Colton, J. H.

1836 *Topographical Map of the City and County of New York*.

Committees of the House of Representatives

1876 Index to the Committees of the House of Representatives for the First Session of the
44th Congress. Washington, D.C.: Government Printing Office.

Dripps, Matthew

1852 *City of New York Extending North to Fiftieth Street*.

1867 *Plan of New York City from the Battery to Spuyten Duyvil Creek*.

Endicott

1842 *Map of the Croton Water Pipes with Stop Cocks*. (New York Historical Society)

East River Waterfront Access Project – Catherine Slip Phase 1A Archaeological Documentary Study

Geismar, Joan

- 4/2004 *The Reconstruction of the Washington Square Arch and Adjacent Site Work: Washington Square Park, Borough of Manhattan: Archaeological Dry Well Monitoring.* (prepared for NYCDPR).
- 8/2005 *Washington Square Park: Phase 1A Archaeological Assessment, prepared for the New York City Department of Parks and Recreation.* (prepared for NYCDPR).

Historical Perspectives, Inc. (HPI)

- 2007 *Phase 1A Archaeological Documentary Study: Lower Manhattan Development Corporation, Fulton Street Redevelopment Project, DeLury Square, Manhattan, New York.*

Hooker, William

- 1824 *Hooker's New Pocket Plan of the City of New York.*

John Milner Associates

- 11/2003 *After Sullivan Street: Archaeological Investigations at 81-85 West Third Street: New York University Law School Expansion* (prepared for NYU).

Cantwell, Anne-Marie and Diana diZerega Wall

- 2001 *Unearthing Gotham.* New Haven: Yale University Press.

Dunlap, David W.

- 2004 *From Abyssinian to Zion: A Guide to Manhattan's Houses of Worship.* New York: Columbia University Press.

Edgar Allen Poe Society of Baltimore

- 1998 "Where Poe Lived."
Accessed online at: <http://www.eapoe.org/places/phindx.htm>

Kimball, Richard

- 12/27/1891 "Tales told By Trumbull." *New York Times*, p. 11.

The New York City Directory

- 1851-1852 New York: Doggett and Rode.

New York State Office for Technology

- 2004 *Draft Generic Environmental Impact Statement (DGEIS) New York Statewide Wireless Network (SWN).* Prepared by Deorsetz Stinziano Gilberti Heintz and Smith, P.C., Spectra Environmental Group, Inc., and CASmith, LLC., New York.

New York Times

- 2/6/1857 "The Bond-Street Murder." p. 2-6
- 11/20/1938 "Renovate Police Station." p. 186
- 7/20/1939 "Mercer Street Police Return to Station." p. 16
- 7/15/1957 Charles Grutzner "6-Block Project to Rise in Village." p. 51.
- 8/21/1958 "Police Dropping Eighth Precinct." p. 20.
- 10/24/1958 "Demolition Starts on Precinct House." p. 18

Perris, William

- 1857 *Maps of the City of New York.*

Sanborn Map Company

- 1895 Insurance maps of the City of New York
- 1904 Insurance maps of the City of New York
- 1921 Insurance maps of the City of New York
- 1951 Insurance maps of the City of New York

Slum Clearance Plan under Title I of the Housing Act of 1949

- (undated) *Washington Square Southeast*

Tauber, Gilbert

- 2005-2006 "A Guide to Former Street Names in Manhattan." <http://www.oldstreets.com/>

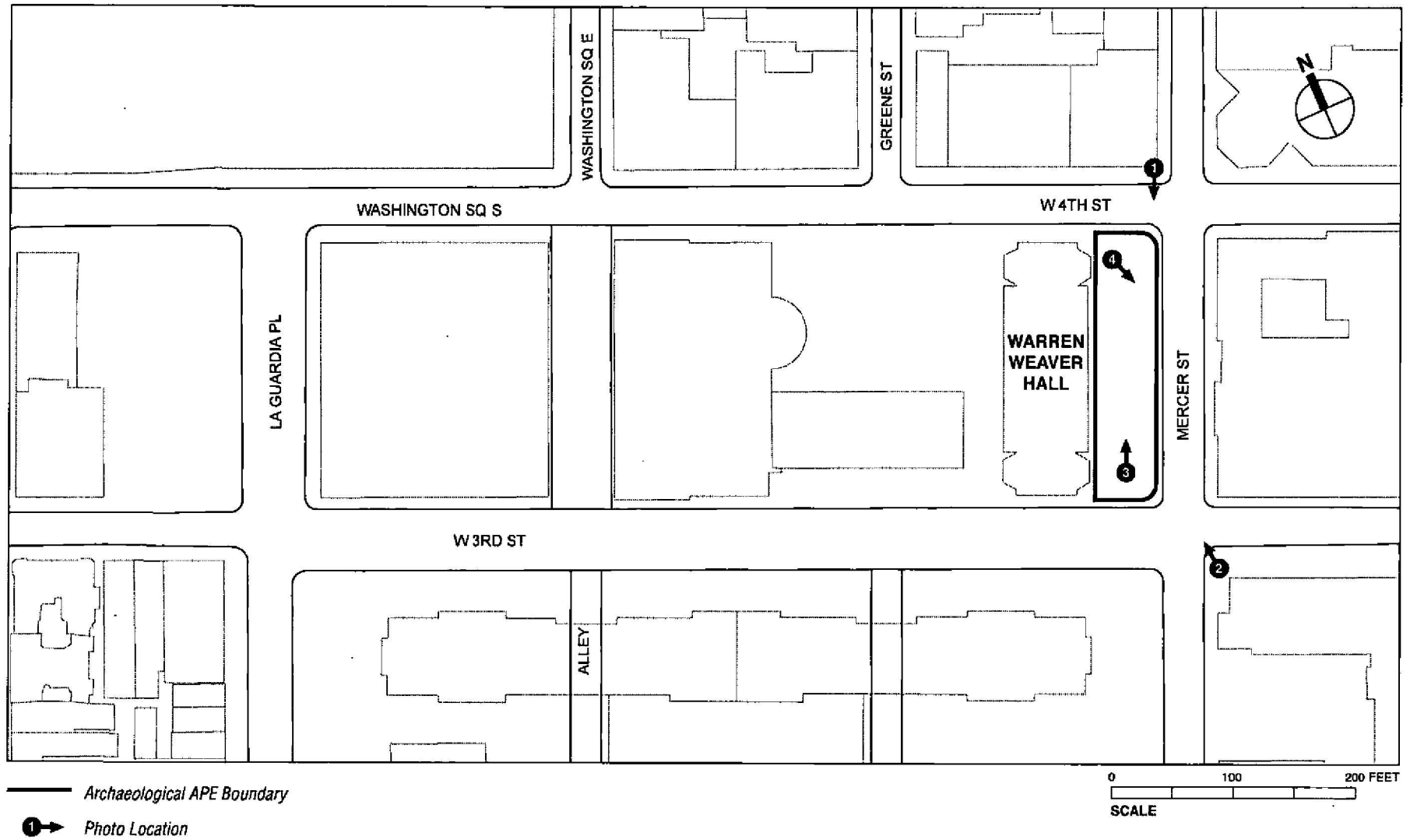
Wilson, H.

- 1867 *Trow's New York City Directory.* New York: John F. Trow. Accessed through <http://www.historicmapworks.com>.

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Figures

7.11.07





Looking south from the northwest corner of Mercer and West 4th Streets towards Mercer Plaza (the project site) and Warren Weaver Hall.

1



Looking northwest from the southeast corner of Mercer and West 3rd Streets towards Mercer Plaza (the project site) and Warren Weaver Hall.

2



A view of the center aisle of Mercer Plaza, looking north from the south end of the plaza.

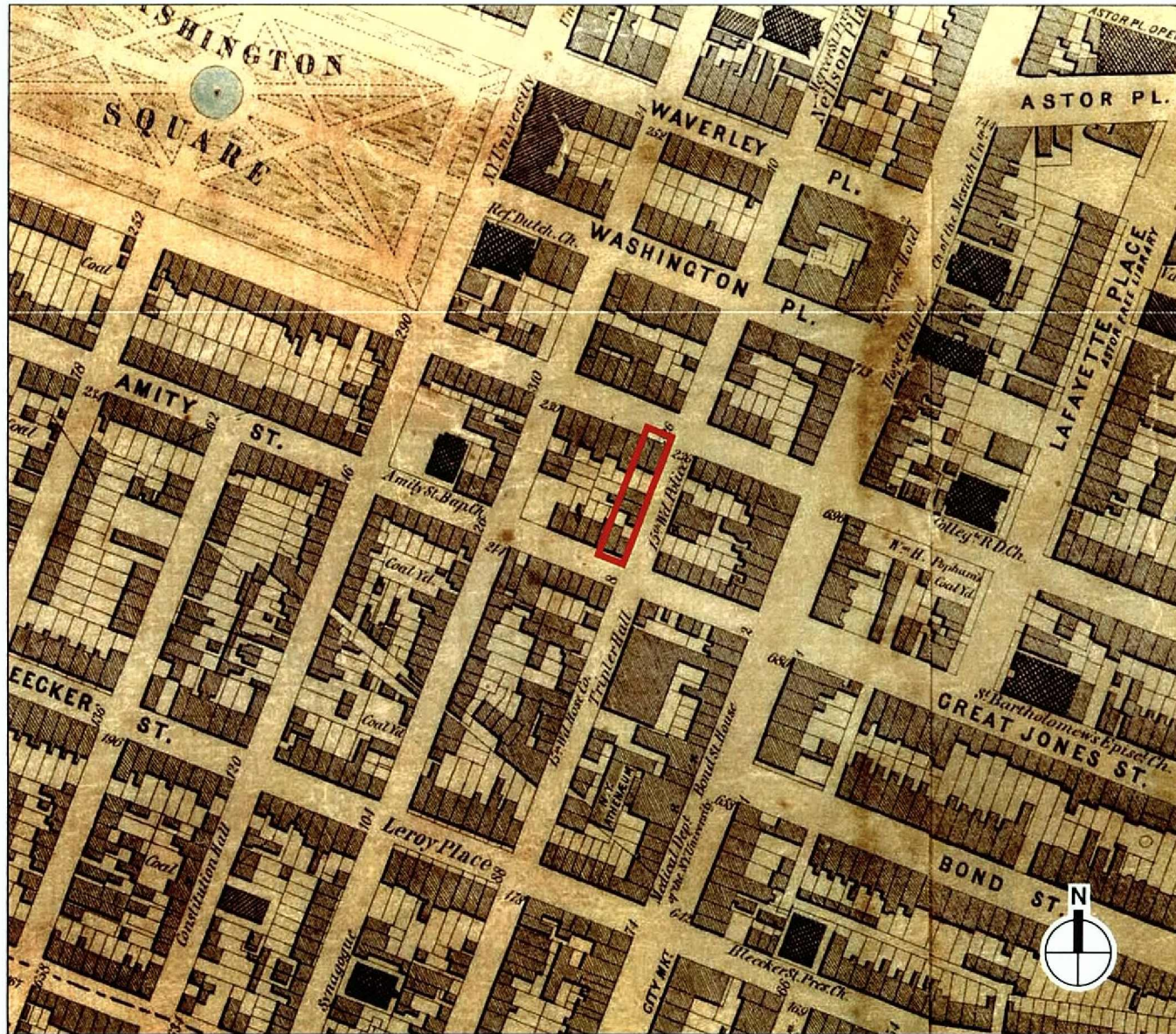
3



Looking southeast from the north end of the Mercer Plaza towards the center aisle of the plaza and the eastern row of plantings.

4

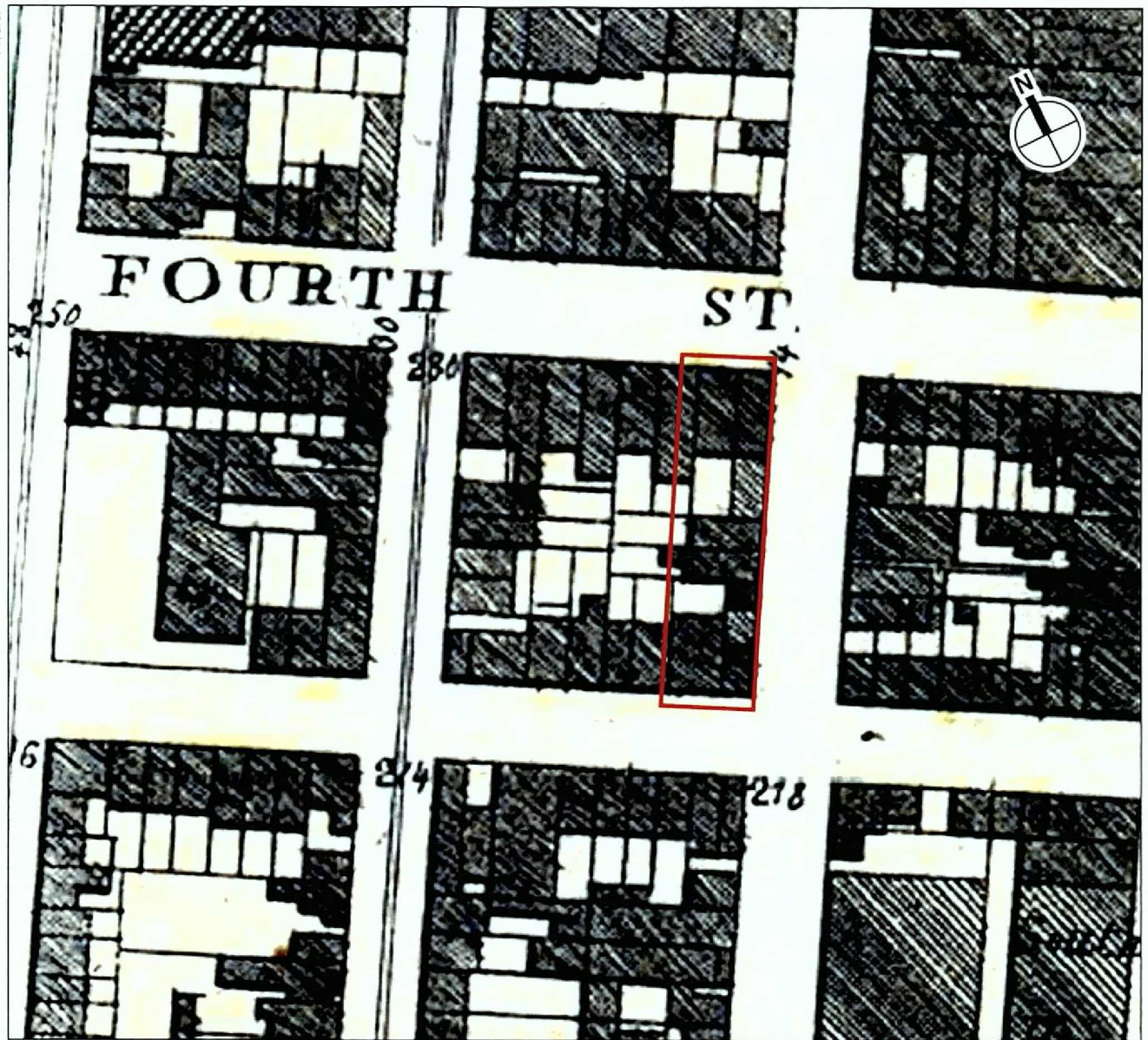
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— Archaeological APE Boundary

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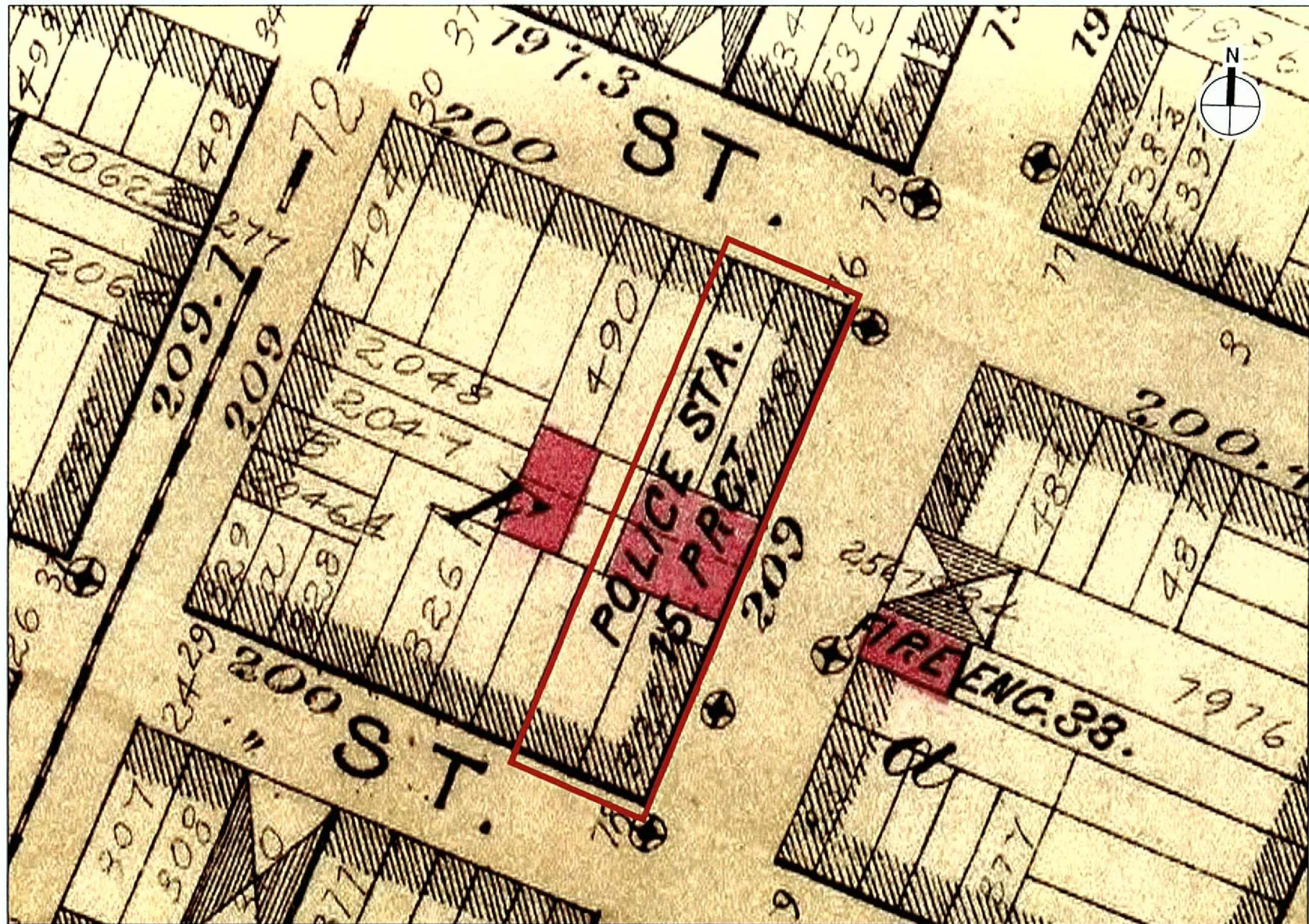
53



— Archaeological APE Boundary

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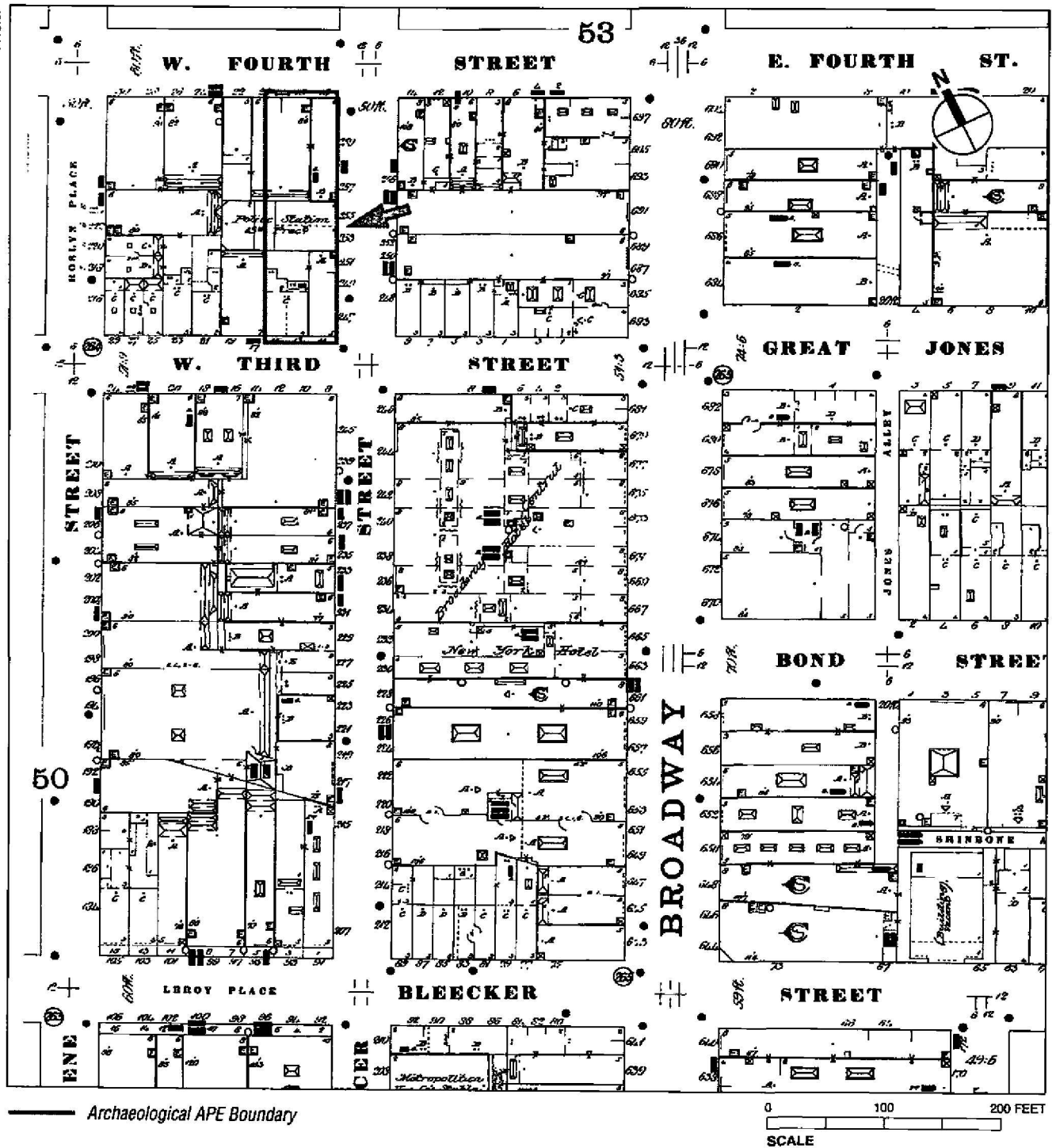
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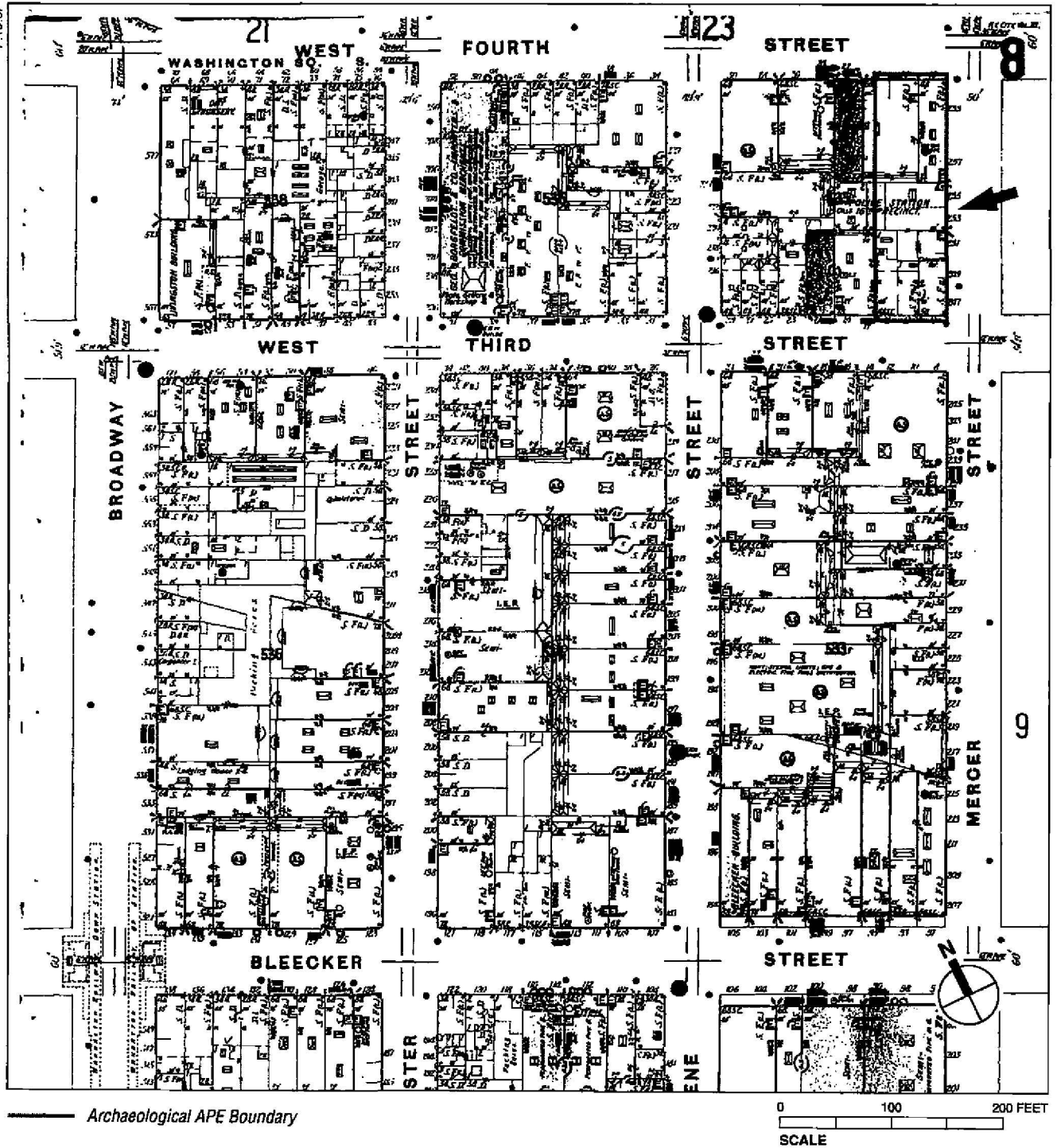
— Archaeological APE Boundary

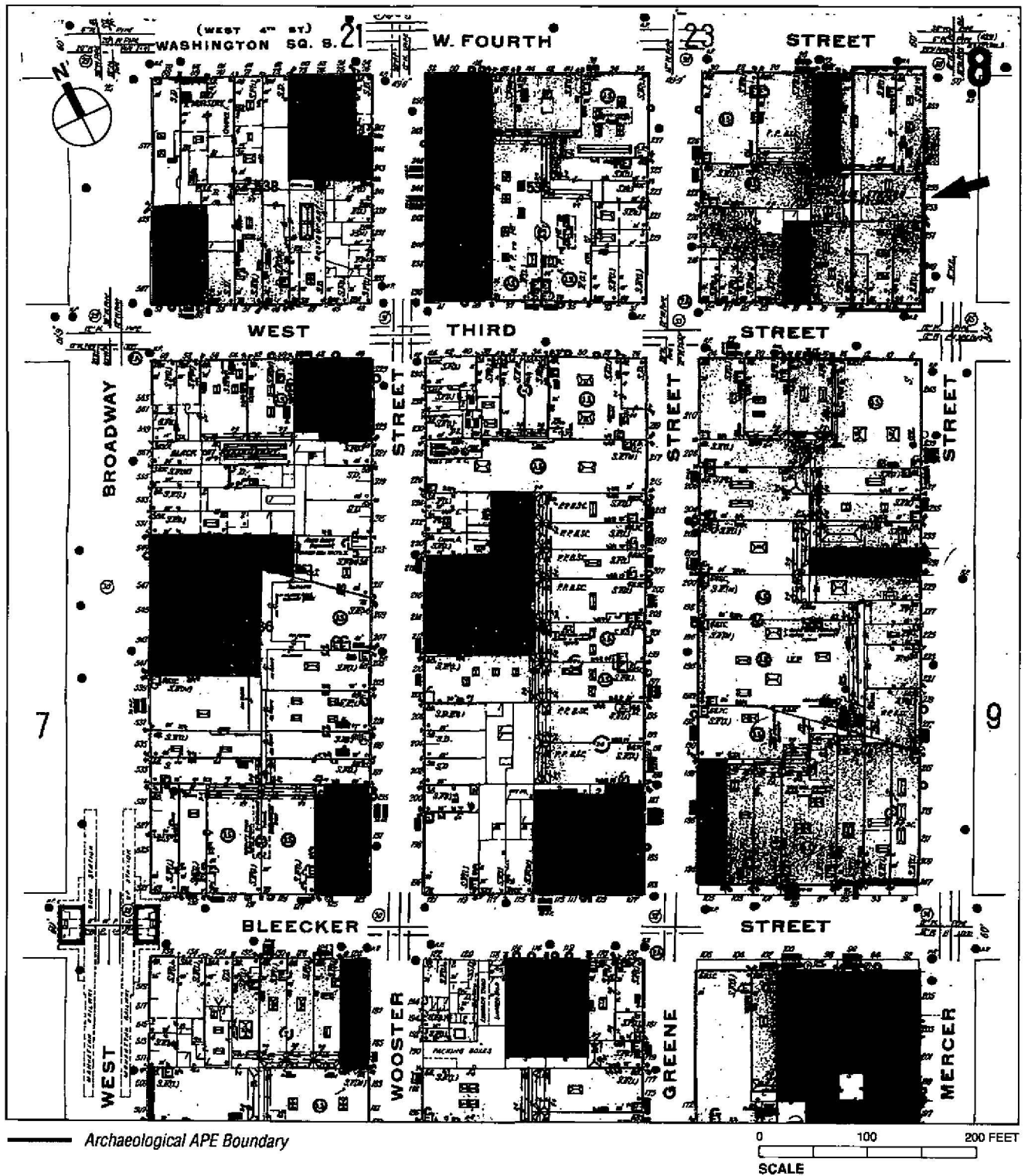
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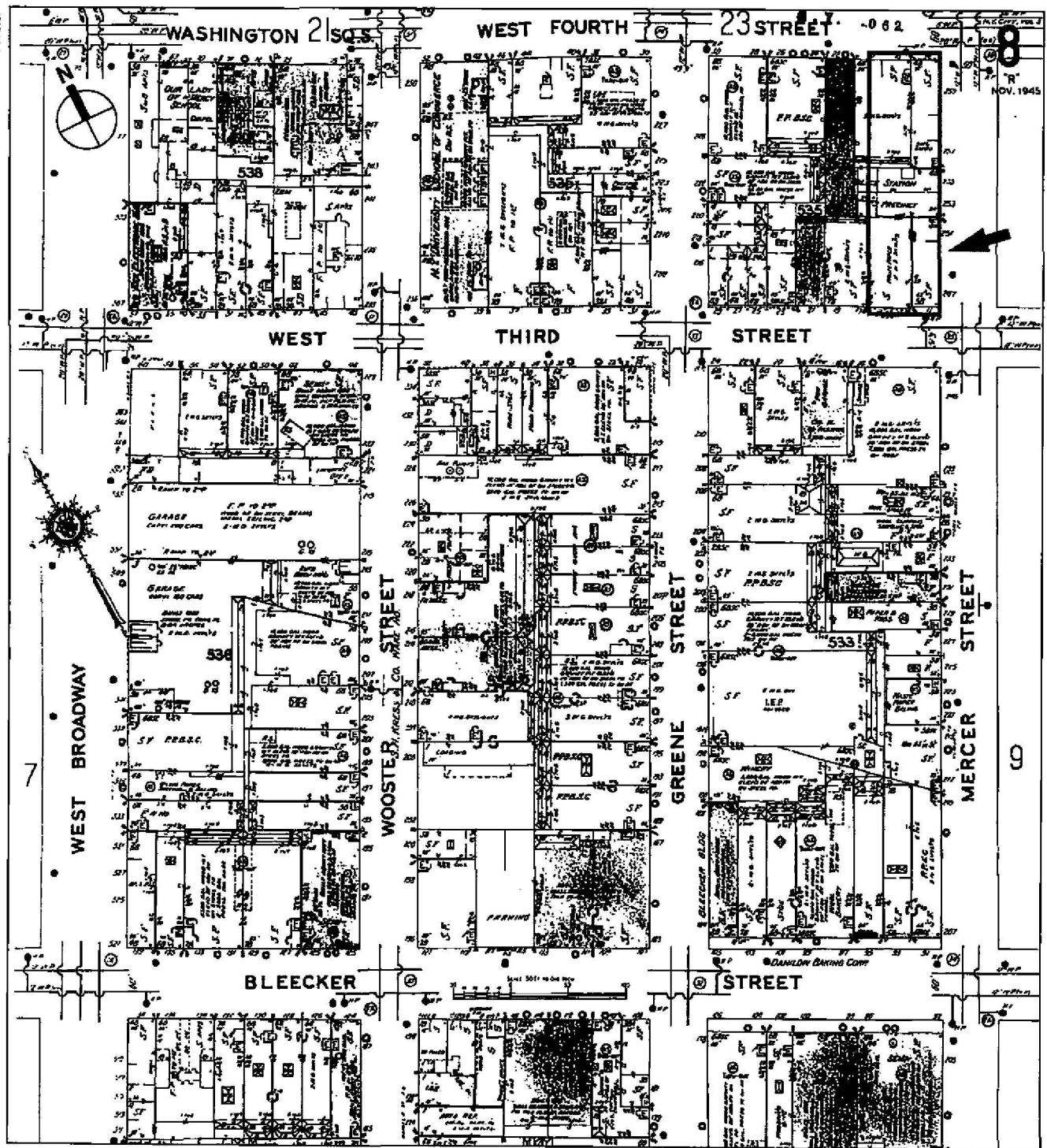


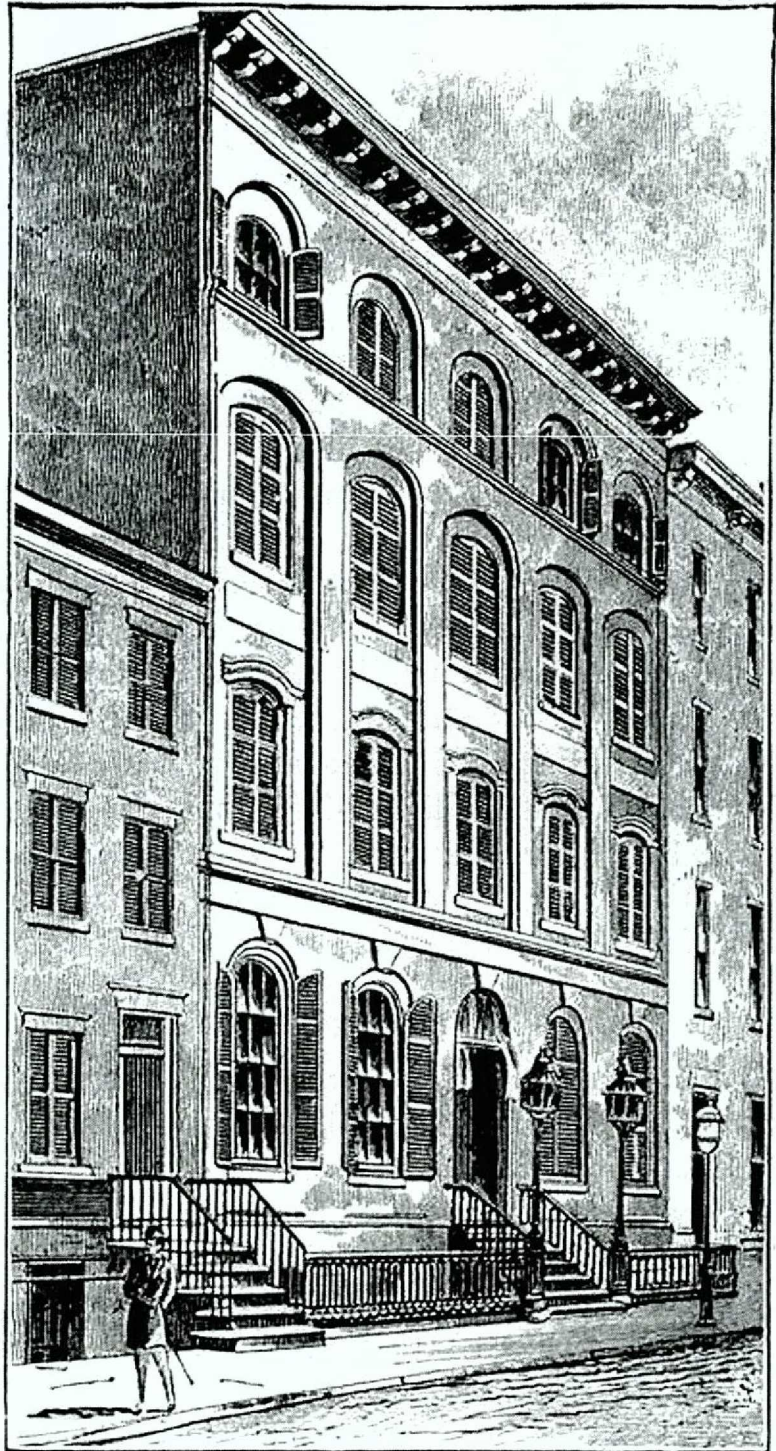
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Fifteenth Precinct Station House, 251 Mercer Street.
 N.Y. PUBLIC LIBRARY
 PICTURE COLLECTION

A pre-1899 lithograph showing the 15th Precinct Police Station House, formerly located within the project site along Mercer Street between W. 3rd and W. 4th Streets. (Undated)
 Source: New York Public Library

15th Precinct Police Station House
 Figure 13

Appendix A

Appendix A:**Summary of Census Research**

Year	Location	Name	Age	Occupation	Place Of Origin
1810	Ward 8	Leonard Bleecker	2 FWM 0<10 2 FWM 16<25 1 FWM 45+ 1 FWF 16<25 2 FWF 26<44 3 FWF 45+	<i>not listed</i>	<i>not listed</i>
	Ward 8	Henry Jackson	1 FWM 0<10 1 FWM 45+ 2 FWF 0<10 1 FWF 26<44	<i>not listed</i>	<i>not listed</i>
1830	Ward 9	Patrick Lamb	1 FWM 20<30 1 FWF 0<5 1 FWF 5<10 1 FWF 30<40	<i>not listed</i>	<i>not listed</i>
	Ward 9	William Hill	1 FWM 15<21 FWM 30<40 1 FWF 5<10 2 FWF 15<20 4 FWF 20<30	<i>not listed</i>	<i>not listed</i>
	Ward 9	Abraham Taylor	1 FWM 5<10 2 FWM 15<20 1 FWM 20<30 1 FWM 40<50 1 FWF 5<10 1 FWF 15<20 1 FWF 20<30 1 FWF 40<50	<i>not listed</i>	<i>not listed</i>
1830	Ward 9	Henry Ennis	2 FWM 10<15 1 FWM 15<20 1 FWM 40<50 1 FWF 40<50 1 FWF 50<60	<i>not listed</i>	<i>not listed</i>
1840	Ward 9	William Tucker	1 FWM 0<5 1 FWM 20<30 1 FWF 5<10 1 FWF 20<30	<i>not listed</i>	<i>not listed</i>
	Ward 15*	Fred. W. Steinbrenner	2 FWM 0<5 1 FWM 10<15 1 FWM 50<60 1 FWF 0<5 2 FWF 5<10 1 FWF 10<15 3 FWF 20<30 2 FWF 30<40	<i>not listed</i>	<i>not listed</i>
	Ward 15*	John Woodhead	1 FWM 0<5 1 FWM 10<15 1 FWM 50<60 1 FWF 15<20 1 FWMF 30<40 1 FWF 40<50	<i>not listed</i>	<i>not listed</i>

NYU Cogeneration Plant—Upgrade and Expansion

Year	Location	Name	Age	Occupation	Place Of Origin
1840 (continued)	Ward 15*	John Knox, D.D.	1 FWM 0<5 1 FWM 5<10 3 FWM 10<15 3 FWM 15<20 1 FWM 40<50 1 FWM 50<60 3 FWF 0<5 1 FWF 15<20 5 FWF 20<30 1 FWF 30<40 1 FWF 40<50	<i>not listed</i>	<i>not listed</i>
	Ward 15	Philetus Woodruff	1 FWM 40<50 1 FWF 15<20 1 FWF 40<50 1 FWF 70<80	<i>not listed</i>	<i>not listed</i>
	Ward 15*	Thomas McKie	3 FWM 0<5 1 FWM 5<10 1 FWM 10<15 1 FWM 40<50 1 FWF 0<5 1 FWF 5<10 1 FWF 15<20 1 FWF 20<30 1 FWF 30<40	<i>not listed</i>	<i>not listed</i>
	Ward 15*	P.H. Woodruff	1 FWM 40<50 1 FWF 15<20 1 FWF 40<50	<i>not listed</i>	<i>not listed</i>
1850	Ward 9 (Possibly 322 or 306 Fourth Street)	Samuel Bloise Hannah Bloise Eugene Bloise Alice Bloise Rose Alston Margaret Kiernan Bridget Kiernan	50 30 5 2 26 26 25	Physician	N.Y. N.Y. N.Y. N.Y. Ireland Ireland Ireland
	Ward 9 (Possibly 324 or 308 Fourth Street)	John Woodhead Mary Woodhead John Woodhead Thomas Woodhead Mary Brennan Mary Newland	55 50 22 19 20 30	Merchant Clerk	N.Y. N.Y. N.Y. N.Y. Ireland Ireland
	Ward 9 (Possibly 326 or 310 Fourth Street)	Rev. John Knox Euphemia Knox Jehuel Knox Sarah Knox Caroline Knox Isaac Knox William Knox Catherine Knox Mary Knox Ann Sheridan Fanny Stuart	60 56 28 23 24 22 20 14 12 20 24	Pros. Clergyman Merchant Clark Student	Penn. N.Y. N.Y. N.Y. N.Y. N.Y. N.Y. N.Y. N.Y. Ireland Ireland
	Ward 15, District 2	Alex T. Stewart Cornelia Stewart William Lynch William Smith Mary Pratt Matha Turner Rebecca Turner	62 60 36 49 54 32 30	Dry Goods Steward Coachman	Ireland N.Y. Ireland " Scotland Ireland "

Appendix A: Summary of Census Research

Year	Location	Name	Age	Occupation	Place Of Origin
1850 (continued)	Ward 15, Eastern Half	George Swords	35		N.Y.
		Mary Swords	25		"
		Henry Swords	8		"
		Hellen (sic) Swords	5		"
		Elizabeth Swords	2		"
		Mary Swords	1		"
		Margaret Phalan	30		"
		Mary Mahan	31		Ireland
		Catherine Duggan	23		"
		Ellen Brady	26		"
1860	Ward 15, District 1	Andrew Campbell	27	Clerk	Scotland
		Margaret Campbell	30		"
		Alex. McKenzie	40	Plumber	"
		Alice McKenzie	25		"
		Alex Campbell	5		"
		Willie Campbell	3		N.Y.
		Andrew Campbell	1		"
		Bridget Bradley	20	Servant	"
1870 (2nd enumeration)	11 Amity Street (in original document, street number "13" was overwritten with "11")	Georg (sic) Shaw	34	Engineer, Fire Department	N.Y.
		Jenny Shaw	32		Conn.
		Jenny Shaw	13		N.Y.
		Diedrich Hannen	24	Grocer	Germanie (sic)
		Claus Dohler	20	Clerk	Germanie (sic)
		William Lohman	19	Clerk	Germanie (sic)
		John Theobald	27	Grocer	Germanie (sic)
		Lina Theobald	23		Germanie (sic)
		Katy Theobald	3		N.Y.
		John Theobald	1		N.Y.
	15 Amity Street	Mary Mulley	36		Ireland
		Margreth Mulley	23		N.Y.
		Edward Mulley	21		N.Y.
		Mary Mulley	17		N.Y.
		Elise Mulley	13		Penn.
		Mamie Mulley	6		N.Y.
		Louis Tucker	34	Shoemaker	Ireland
		Louise Tucker	1		N.Y.
		Ellen Reiley	6		N.Y.
		Thomas Hogan	30	Coachman	Ireland
		[Norina] Hogan	20		Ireland
		Daniel Broderick	24		Ireland
		Nancy McDonald	50	Servant	Ireland
		Katy Donahue	12		Ireland
		Emaline Barr	38		England
		Mary Barr	18		Scotland
		Lillie Barr	16		Scotland
		Alice Barr	10		N.Y.
		Charlotte Smith	28		N.Y.
		Josephine Walton	20		N.Y.
		A. Lindsay	46	Gasfitter	Scotland
		Isabella Lindsay	36		Scotland
		Thomas W. Lindsay	6 mo		N.Y.
		John McGown	35		Ireland
		Mary McGown	36		N.Y.
		John Hinford	45		England
		Alice Hinford	40		England
		James Hinford	14		England
		Thomas Clark	38	Coachman	Ireland
		Annie Clark	39		Ireland
		Willie Clark	13		N.Y.
		Annie Clark	10		N.Y.
		Thomas Clark	8		N.Y.
		Frederic Pohl	24	Importer	Bavaria
	16 W. 4th Street	UNOCCUPIED	UNOCCUPIED	UNOCCUPIED	UNOCCUPIED

NYU Cogeneration Plant—Upgrade and Expansion

Year	Location	Name	Age	Occupation	Place Of Origin
1870 (2nd Enumeration, continued)	18 W. 4th Street	Edward Shelf	58	MF of Syrups	England
		Ann Shelf	40		England
		Katy Ryan	25	Servant	Ireland
		Ellen Ryan	22	Servant	Ireland
	20 W. 4th Street	Margareth Alles	58	Importer of Shoes [illegible] Book MF	France
		Christoph Burden	42		France
		[Karoline] Burden	58		France
		Charles Burden	36		France
		Adeline Burden	36		France
		Laura Burden	8 mos	Servant Importer of Wine Milliner	N.Y.
		Mary Harry	29		Ireland
		Paul Marcus	39		France
		Caroline Daddonlions	50		France
	221 Mercer Street	William McDermott	28	Police Officer	Ireland
		Thomas Molden	33	Police Officer	Ireland
		Thomas Flanner	30	Police Officer	Ireland
		Thomas McGown	26	Police Officer	N.Y.
	219 Mercer Street	James Heatherton	30	Plumber and Gas Fitter	N.Y.
		Mary Heatherton	19		N.Y.
		James Heatherton	1		N.Y.
		Matthew Heatherton	28	Plumber and Gas Fitter	N.Y.
		Edward Heatherton	26	Plumber and Gas Fitter	N.Y.
		Bridget McLaughlin	20	Servant	Ireland
1880	11 W. 3rd Street	Bernard Speth	32	Grocery	Hanover
		Margaret Speth	28	Keeping House	WY
		Bernard Speth	2		N.Y.
		Otto Speth	6 mos.		"
		Charles Krauss	19	Clerk Grocery	Brennan
		Christian Pullman	16	"	Utnburg
		Hermann Browsar	16	"	Germany
		Samuel A. Meldrum	62	"	Conn.
		William Keme	33	Restaurant	Wurtenburg
		Minnie Kerne	33	Keeping House	Frankfort
		Willie Kerne	8	At School	N.Y.
		Emile Kerne	16 mos.		"
		Alvin Kerne	8 mos.		"
		Gertrude Ofau	17	Servant	"
		Charles Matthewson	54	Policy Dealer	N.Y.
		Mary F. Matthewson	52	Keeping House	"
		Flora McDonald	40	Artificial Flower Designer	Scotland
		Andrew Montellion	45	General Agent Commissioner	France
		Charles Minister	20	Helps Cooks	Germany
		Joseph Matze	30	Cooks Helper	Hungary
		Thomas Wiley	59	Bottler Beer	N.Y.
		George Ram	37	Drives Bottle Wagon	Germany
	13 W. 3rd Street	Eugene Fromocq	35	Tallor and Dressmaker	France
		Justine Fromocq	40	Keeping House	France
	15 W. 3rd Street	Cistrin Vonluhn	40	Restaurant	Hanover
		Augusta Vonluhn	39	Keeping House	Bavaria
		Anna Halerline	38	Servant	Switzerland
		Caroline Letz	15	Servant	N.Y.
		Felix Dubconet	51	Man. Picture Frames	France
		Pierre Salamon	57	Decorator	France
		Mary Salamon	41	Keeping House	"
		Ruby Osborn	18	Artificial Flowers	Indiana
		Annette Osborn	16	At Home	"
		Adrian Salamon	18	Ornamenter	"
		Jeannette Salamon	6		N.Y.

Appendix A: Summary of Census Research

Year	Location	Name	Age	Occupation	Place Of Origin
1880 (continued)	15 W. 3rd Street (continued)	Thomas Riley	38	Stable Man	Ireland
		Margaret Riley	33	Keeping House	"
		MaryAnne Riley	10	At School	N.Y.
		John Riley	4	"	"
		Margaret Riley	10 mos.	"	"
		John Hough	22	Stable Man	Ireland
		Michael Hallenbrandt	44	Tailor	Bavaria
		Minnie Hallenbrandt	38	Keeping House	"
		Lizzie Hallenbrandt	13	At School	N.Y.
		Anna Hallenbrandt	11	At School	"
		Fred. Hallenbrandt	9	At School	"
		Minnie Hallenbrandt	7	At School	"
		Josephine Hallenbrandt	1	"	"
	18 W. 4th Street	Marks Sands	59	Artificial Flowers	Bavaria
		Marks Sands	33	Artist	Bavaria
		Sigmund Sands	26	Artificial Flowers	Bavaria
		Sarah Sands	21	Artificial Flowers	Bavaria
	18 W. 4th Street (continued)	Bertha Rothriquec	24	At School	Bavaria
		Ella Rothriquec	7		N.Y.
		Paul Rothriquec	1	Music Professor	"
		Joseph Gerber	34		Bavaria
		Adele Gerber	30	Keeping House	"
		Rudolph Gerber	2	Servant	N.Y.
		Adele Isnir	26		[illegible]
		Anna Meyer	34	Servant	Germany
		Christina Meyer	25	Servant	Switzerland
		Francis Rothriquec	34	Segar Maker	Cuba
		Meyer Deutzman	35	Segar Maker	Germany
		George Hill	36	Chalk Manufacturer	Scotland
		Margaret Hill	34	Segar Maker	U.S.
	20 W. 4th Street	Mary McGown	76	Keeping House	Ireland
		Sarah A. Devere	31	Laundry	Ireland
		Mark Devere	4	Laundry	N.Y.
		Catharine Geer	30		Ireland
		Charles Geer	14	Butcher	Frankfurt
	251 Mercer Street	Antonio C. Funai	48	Hat block MF	Italy
		Catherine Funai	32	Keeping House	Italy
		Eugene Funai	14	At School	N.Y.
		Alfred Funai	11	At School	N.Y.
		Ida Funai	9	At School	N.Y.
		Nellie Funai	7		N.Y.
		Clements Funai	5		N.Y.
		Esther Funai	3		N.Y.
		Francis Funai	9 mos.		N.Y.

Notes:

- * Designates adjacent entries, suggesting possible neighboring families.
- Rows designate individual households; the 1870 census did not differentiate between households within the same building.
- The 1870 census is the first to provide exact addresses. Therefore, entries in the above table which pre-date 1870 may represent individuals who did not reside within the project area lots, although they lived in the same city ward.
- Words enclosed in brackets - [] - reflected the transcription of obscure handwriting and may not be accurate.

Sources:

Census ledgers accessed at www.ancestry.com.

*

Appendix B

Appendix B:

Historic Directories

Year	Name	Occupation	Work or Primary Address	Home Address
1829	Francis Hare	Clerk	Amity c. Mercer	
1829	Henry Ennis	Shoemaker	Mercer c. Fourth	
1829	Patrick Lamb	Oil Store	Mercer c. Amity	
1829	Isaac Noble	Carpenter	Fourth c. Mercer	
1829	Eleanor Pointdexter	Widow of Carter B.	Fourth c. Mercer	
1829	Luke Stansbie		Fourth n. Mercer	
1829	Abraham Taylor	Professor of Music	Fourth n. Mercer	
1829	Evan Worden	Painter	Fourth n. Mercer	
1829	Ebenezer Redfield	Grocer	Mercer c. Fourth	
1839	David P. Holton	Physician	11 Amity	
1852	David P. Holton	Physician	11 Amity	
1852	Catherine Potter	Widow of John W.	11 Amity	
1867	Lucien Dubernet	Frames	11 Amity	
1867	Henry W. Schultz	Grocer	11 Amity	
1869	Lucien Dubernet	Photographs	11 Amity	Williamsbridge
1869	Henry W. Schultz	Grocer	11 Amity	
1890	Victor Deich			11 W. 3rd
1890	Herman Gerdes	Liquors	11 W. 3rd	
1890	Charles Swanson	Shoemaker		11 W. 3rd
1890	Louis Tissot	Cutter		11 W. 3rd
1867	Peter Beudry	Cabinetmkr		219 Mercer
1867	Henry Pihet	Clerk		219 Mercer
1869	James M. Heatherton	Plumber	219 Mercer	
1869	John Manion	Mason	219 Mercer	245 E. 30th
1890	Anthony C. Funai	Blocks	251 Mercer	
1852	Sarah B. Cadle	Widow of Thomas	15 Amity	
1890	Albert Reich	Feathers	15 W. 3rd	141 W. 126th
1890	Max Weiner	Feathers	13 W. 3rd	231 W. 48th
1867	Samuel L. Griswold	Physician	14 W. 4th	
1869	Jas. R. Griswold	Clerk		14 W. 4th
1869	Samuel L. Griswold	Physician		14 W. 4th
1839	John Knox	MD		310 Fourth
1852	John Knox	Collegiate Dutch Reformed Church Minister	326 Fourth	
1852	Samuel Knox	Dry Goods	58 Cedar and 28 Pine	326 Fourth

NYU Cogeneration Plant—Upgrade and Expansion

Year	Name	Occupation	Work or Primary Address	Home Address
1867	George A. Mott	Carriages	16 W. 4th	195 W. 20th
1869	James Jones	Brass	16 W. 4th	
1869	J.H. Jones & Co	Faucets	16 W. 4th	
1869	Charles Harrison	Brass	16 W. 4th	219 E. 39th
1890	Charles Harrison	Plumbers matls.	16 W. 4th	223 E. 39th
1890	Charles Harrison & Co.	Plumbers matls.	16 W. 4th	
1890	Robert C. Harrison	Supplies	16 W. 4th	208 W. 104th
1890	William P. Trown	Plumbers matls.	16 W. 4th	Orange, NJ
1839	John Woodhead		73 Maiden Lane	308 Fourth
1852	John Woodhead	Importer	55 John	324 Fourth
1867	Edward G. Self	Bitters	25 Harrison	18 W. 4th
1869	N.G. Fairman	Clothing	80 Bowery	18 W. 4th
1869	Edward G. Self	Bitters	25 Harrison	18 W. 4th
1890	Charles E. Barnes	Publisher	18 W. 4th	128 1/2 Noble, Brooklyn
1890	Willard Fracker	Publisher	18 W. 4th	24 W. 60th
1890	Willard Fracker & Co.	Publisher	18 W. 4th	
1890	Lewis W. Freund	Trimmings	18 W. 4th	
1890	Charles Lass	Tailor	18 W. 4th	
1890	Sara Salomon	Furs	18 W. 4th	632 Fifth
1890	Stein & freund	Trimmings	18 W. 4th	
1890	Abraham Stein	Feathers	18 W. 4th	5 Mitchell Place
1890	Jacob A. Stein	Feathers	18 W. 4th	5 Mitchell Place
1890	Meyer A. Stein	Trimmings	18 W. 4th	5 Mitchell Place
1829	William S. Hill		Fourth n. Mercer	
1839	William S. Hill	Coal	20 Barrow	322 Fourth
1852	Adam Emmett	Tailor	322 Fourth	
1852	Edmund H. Weyman	Clothing	25 Maiden Lane	322 Fourth
1867	William Wittingham	sec.	78 B'way	20 W. 4th
1869	Margaret Alles	wid. Ellis		20 W. 4th
1890	Franz Afield	Flowers	20 W. 4th	
1890	James Baker	Glass	20 W. 4th	
1890	James Baker & Sons	Glass	20 W. 4th	
1890	Robert Baker	Glass	20 W. 4th	13 St. Mark's Place
1890	Sigmund J. Saneski	Bonnets	20 W. 4th	187 Third
1890	Joseph Schleiter	Furs	20 W. 4th	1288 First Av
1852	Joshua Coit	Lawyer	11 Wall	221 Mercer
1852	William D. Fraser	U.S. Eng.	74 Broadway	221 Mercer
1852	Mary Hereford	Widow of Egbert	223 Mercer	
1852	Mary E. Jones		221 Mercer	
1852	John Van Buren	Lawyer	39 Wall	221 Mercer
1867	15th Precinct	Police Station House	221 Mercer	
1867	Peter Beudry	Cabinetmkr		219 Mercer
1867	Henry Pihet	Clerk		219 Mercer

Appendix B: Historic Directories

Year	Name	Occupation	Work or Primary Address	Home Address
1869	James M. Heatherton	Plumber	219 Mercer	
1869	John Manion	Mason	219 Mercer	245 E. 30th
1890	Anthony C. Funai	Blocks	251 Mercer	
Sources: Directories accessed at www.ancestry.com and www.historicmapworks.com				

*

Appendix C

Appendix C:

Deeds: Block 535, Historic Lots 29 through 35

Address	Date	Grantor	Grantee	Liber	Page	Remarks	Historic Lot #
20 W. 4th Street	1/18/1827	Alexander H. Warner	John Manson	215	11		21, 22, 23, 29
20 W. 4th Street	2/13/1832	William and Elizabeth Butler	James Williams	280	640		28-33 incl.
20 W. 4th Street	3/4/1833	David S. Jones	Thomas Lawrence	292	586		24-31 incl.
20 W. 4th Street	3/22/1833	Mary Haltrick	Joseph Hurlbut	295	178		Not Lotted
20 W. 4th Street	10/3/1833	James and Dorothy Williams	Philetus H. Woodruff	299	633		28-33, incl.
20 W. 4th Street	6/14/1834	Thomas and Margaret Lawrence	Thomas McKie	316	21		Not Lotted
20 W. 4th Street	6/14/1834	Thomas and Margaret Lawrence	Christian Zabriskie	316	35		29
20 W. 4th Street	6/14/1834	Philetus H. and Susan Woodruff	Christian Zabriskie	316	37		29
20 W. 4th Street	12/29/1836	Christian and Jane Zabriskie	Frederick and William Steinbrenner	366	451		29
20 W. 4th Street	10/11/1839	David S. Jones	Thomas Lawrence	399	518		24-31 incl.
20 W. 4th Street	8/16/1841	Frederick and Annette C. Steinbrenner	Phillip F. Pistor	418	280		29
20 W. 4th Street	2/19/1845	Phillip F. and Mary M.F. Pistor	Edmund H. Weyman	456	274		29
20 W. 4th Street	4/6/1859	Edmund H. and Martha M. Weyman	Margaretta Whittingham	774	559		29
20 W. 4th Street	10/24/1889	Charles T. and Ida E. Whittingham, Heirs of Margaretta and William Whittingham	Frank A. Seitz	2265	188		29
20 W. 4th Street	2/1/1890	Frank A. and Barbara Seitz	Moses Foltz	2294	102		29
20 W. 4th Street	6/17/1902	Laura J. and George R. Gibson	Charles A. Belden, indiv and trustee of George F. Belden, Sarah M. Belden, Mary E Emilio, Louise A. Iddings, and George F. Belden	98	271		29, 30
18 W. 4th Street	6/14/1834	Philetus H. and Susan Woodruff	Thomas Lawrence	316	28		30
18 W. 4th Street	4/25/1835	Thomas and Margaret L. Lawrence	John Woodhead	327	523		30
18 W. 4th Street	5/23/1855	John Woodhead	John M. Hall	688	198		30
18 W. 4th Street	5/23/1855	John M. and Georgianna Hall	Ann Catherine Woodhead	688	200		30
18 W. 4th Street	4/2/1859	Ann C. and John Woodhead	Alexander T. Stewart	778	228		30
18 W. 4th Street	2/10/1887	Exrs of Cornelia M. Stewart	Ambrose C. Kingsland	2026	195		30

NYU Cogeneration Plant—Upgrade and Expansion

Address	Date	Grantor	Grantee	Liber	Page	Remarks	Historic Lot #
18 W. 4th Street	9/18/1889	Trustees for Broadway Surface Railroad Company: William Bird, Thomas H. McLean, John H. Peutz, John H. Selmus, James A. Richmond, John M. Scribner, Osborn E. Bright	Daniel Lamont	2253	146		Not Lotted
18 W. 4th Street	2/27/1890	Ambrose C. and Catherine A. Kingsland	Moses Foltz	2292	311		30
18 W. 4th Street	4/15/1890	Moses and Henrietta Foltz	David L. Newburg	2309	233		29, 30
18 W. 4th Street	7/8/1890	David L. Newbury	Albert Wagner	2334	364		29, 30
18 W. 4th Street	4/18/1891	Albert Wagner	Morris and Julius Schattman, composing firm of Schattman Brothers	4	145		29, 30
18 W. 4th Street	7/7/1891	Albert and Katie F. Wagner	Samuel Hirsch	6	274		29, 30
18 W. 4th Street	8/14/1894	Samuel and Eugenie Hirsch	Charles A. Belden, indiv and trustee of George F. Belden, Sarah M. Belden, Mary E Emilio, Louise A. Iddings, and George F. Belden	27	497		29, 30
16 W. 4th Street	1/26/1828	David S. and Susan Jones	Charles McCully	229	105		31
16 W. 4th Street	9/13/1828	Charles and Jane E. McCully	David S. Jones	240	538		31
16 W. 4th Street	6/14/1834	Philetus H. and Susan Woodruff	Richard I. Wells	316	30		31
16 W. 4th Street	6/16/1834	Thomas and Margaret L. Lawrence	Richard I. Wells	312	506		31
16 W. 4th Street	4/28/1835	Richard J. and Ana Maria Wells	Sheldon Smith	328	457		31
16 W. 4th Street	1/29/1836	Sheldon and Polly Smith	John Knox	349	214		31
16 W. 4th Street	2/17/1859	Exr of John Knox	Andrew Campbell	776	137		31
16 W. 4th Street	6/7/1900	John Doscher and Herman Minderman, composing the firm of Doscher and Minderman	Charles Wilton	78	427	Lease	31
16 W. 4th Street	4/5/1904	Anna Jane McKenzie, widow of Alexander	Alfred M. Ogle	123	41		31
16 W. 4th Street	5/28/1909	Margaret H. Jones	William Simpson	191	330		31
16 W. 4th Street	5/28/1909	Charlotte Bushnell Ogle, wife of Alfred M. Ogle	William Simpson	191	331	Rel. of Dower	31

Appendix C: Deeds: Block 535, Historic Lots 29 through 35

Address	Date	Grantor	Grantee	Liber	Page	Remarks	Historic Lot #
16 W. 4th Street	5/28/1909	William J. Bolger (ref), Alexander McKenzie Jones, Plaintiff against Alice J. Jones, et al defendants	William Simpson	191	328		31
16 W. 4th Street	5/29/1914	William Simpson	Samuel Krugman	230	406	Lease	31
251 Mercer Street (north)	1/8/1841	Philetus H. and Susan Woodruff	Margaret and Cornelius Lent	413	154		32
251 Mercer Street (north)	5/4/1842	Richard S. and Amy Williams	Elias H. Herrick	425	362		Not Lotted
251 Mercer Street (north)	2/23/1847	Exrs of Nathan Rogers	Daniel O'Connor	485	546		32-37 incl.
251 Mercer Street (north)	2/23/1847	Caroline M. Rogers, widow of Nathan	Daniel O'Connor	485	547	Rel. of Dower	32-37 incl.
251 Mercer Street (north)	10/17/1850	Clarmont Livingston, Levinus and Mary Clarkson, and Peter Gilsey	Party Wall Agreement	554	350		Not Lotted
251 Mercer Street (north)	11/9/1857	Margaret and Cornelia Lent	Mayor, Alderman, and Commonality of the City of New York	741	642		32
251 Mercer Street (north)	11/9/1857	George W., Leonard, Edward, and Eliza Bleecker, Heirs of Leonard Bleecker	Margaret and Cornelia Lent	741	647	Quit Claim, see L 177, cp. 287	32
251 Mercer Street (south)	12/15/1834	Philetus H. and Susan Woodruff	William and Delia Day	323	22		33
251 Mercer Street (south)	5/3/1836	William and Delia Day	Thomas McKie	356	52		33
251 Mercer Street (south)	11/4/1840	Thomas and Eliza McKie	George H. Swords	410	159		33
251 Mercer Street (south)	11/5/1850	George H. and Mary S. Swords	Mayor, Alderman, and Commonality of the City of New York	587	217		33
251 Mercer Street (south)	1/3/1879	Ambrose C. Kingsland, Trustee for May Helena Tompkins and George I. Kingsland	Mary Helena and William Wright Tompkins	1465	403	Revocation of Trust and Release	Not Lotted
251 Mercer Street (south)	4/21/1867	William H. Everts, Christin N. Bover, Charles H. Glover, Ira H. Tuthill, and Horace F. Ruggles	Francis Tillon	1867	308	Rel. of Lien	Not Lotted
11 W. 3rd Street	2/20/1827	Thomas R. and Mary Merrein	Jonathan Southwick	214	381		34
11 W. 3rd Street	2/12/1828	Jonathan and Lucretia Southwick	Eli Corey	231	232		34
11 W. 3rd Street	12/3/1828	Eli and Julianna Corey	Jacob Brantingham	245	132		34
11 W. 3rd Street	12/5/1828	Jonathan Southwick	Jacob Brantingham	245	134		34
11 W. 3rd Street	12/13/1828	Eli and Julianna Corey	Jacob Brantingham	245	196		34
11 W. 3rd Street	4/1/1829	Jacob and Rachel Brantingham	Mary Ellen Elmes	249	109		34
11 W. 3rd Street	3/29/1831	Lazell and Mary Ellen Elmes	Warren DeLancey	271	401		34

NYU Cogeneration Plant—Upgrade and Expansion

Address	Date	Grantor	Grantee	Liber	Page	Remarks	Historic Lot #
11 W. 3rd Street	7/2/1831	Henry M. and Lettice Van Solingen	Mayor, Alderman, and Commonality of the City of New York	272	577		Not Lotted
11 W. 3rd Street	7/2/1831	Henry M. Van Solingen	Mayor, Alderman, and Commonality of the City of New York	272	581		Not Lotted
11 W. 3rd Street	11/22/1831	Neary Walton	Simon A. Reid	279	79		Not Lotted
11 W. 3rd Street	5/30/1832	Ruggles Hubbard (Sherriff), William Miller, Jr. (interest of)	Norris L. Martin	287	56		34-42 incl.
11 W. 3rd Street	9/5/1832	Joseph and Mary Crawford Hurlbut	Mary Hattrick	288	277		Not Lotted
11 W. 3rd Street	11/17/1832	Norris L. Martin	Mary Miller	278	242		34-42 incl.
11 W. 3rd Street	4/29/1836	Warren and Sarah Rebecca Delancey	Lazielle Du Burreau	352	474		34
11 W. 3rd Street	5/3/1853	Lazielle and Melanie Du Burreau	Jacob Fink	635	436		34
11 W. 3rd Street	10/19/1855	Jacob and Anna Frink	James S. Bearn	698	19		34
11 W. 3rd Street	10/19/1855	John Ouser (Sherriff), Jacob Fink (interest of)	James S. Bearn	698	20		34
11 W. 3rd Street	8/3/1911	James S. Bearn	Herman Gerdes	207	370	Lease	34
11 W. 3rd Street	8/1/1914	James Stearkling-Bearn Smith, Elle L. Darlington, Meargueritte Walter (formerly Darlington), will of James S. Bearn (dec'd) and Charles G. Darlington	Joseph H. Bearn	232	408		8, 34
15 W. 3rd Street	1797-1802	NO INSTRUMENTS OF RECORD					
15 W. 3rd Street	7/7/1803	Abraham, Elizabeth, Nicholas, and Anna Herring, John and Elizabeth DePeyster, John and Mary Haring, Samuel and Annalie Kip, Gardiner and Sarah Jones, and Margaret Roosevelt	Comelia Jones	64	283		Not Lotted
15 W. 3rd Street	7/7/1803	Samuel and Comelia Jones	Samuel, Jr., Elbert H., David S., and Margaret Jones	64	286		Not Lotted
15 W. 3rd Street	7/8/1803	Samuel, Jr., Elbert H., David S., and Margaret Jones	Leonard Bleecker	64	288		Not Lotted
15 W. 3rd Street	7/26/1803	Samuel, Jr., Elbert H., David S., and Margaret Jones	Henry M. Van Solingen	64	407		Not Lotted
15 W. 3rd Street	10/8/1804	Henry Moore and Lettice Van Solingen	Leonard Bleecker	68	112		Not Lotted
15 W. 3rd Street	4/19/1805	Samuel, Jr., Elbert H., David S., and Margaret Jones	Maltby Geltson	69	364		Not Lotted
15 W. 3rd Street	4/25/1805	Maltby Geltson	David S. Jones	69	399		Not Lotted

Appendix C: Deeds: Block 535, Historic Lots 29 through 35

Address	Date	Grantor	Grantee	Liber	Page	Remarks	Historic Lot #
15 W. 3rd Street	1806-1809	NO INSTRUMENTS OF RECORD					Not Lotted
15 W. 3rd Street	1/15/1810	Henry Moore and Lettice Van Solingen	William G., Sr., William G., Jr., and John D. Miller	85	282		34-42, incl.
15 W. 3rd Street	1/15/1810	Leonard and Joanna Bleecker	William G., Sr., William G., Jr., and John D. Miller	85	285		Not Lotted
15 W. 3rd Street	1/30/1810	Henry and Catherine Jackson	Robert C. Smith	85	370		Not Lotted
15 W. 3rd Street	1811-1814	NO INSTRUMENTS OF RECORD					Not Lotted
15 W. 3rd Street	10/6/1815	Charlotte Sanxay or Selby	John R. Wheaton	111	241		Not Lotted
15 W. 3rd Street	3/3/1818	Margaret Jones, widow of Thomas	David S. Jones	126	196		Not Lotted
15 W. 3rd Street	5/6/1818	Samuel Jones, Jr.	Margaret Jones	126	522		Not Lotted
15 W. 3rd Street	10/16/1818	Samuel and Catherine S. Jones	David S. Jones	131	479		Not Lotted
15 W. 3rd Street	11/4/1818	Maltby Geltson	Elbert H. Jones	129	470		Not Lotted
15 W. 3rd Street	11/21/1818	Elbert H. Jones	Samuel Jones, Jr.	132	55		Not Lotted
15 W. 3rd Street	12/24/1821	John G. Miller, heir of William and Eliza Miller	Mary Martin	155	342		20, 31, 34, 35
15 W. 3rd Street	1/29/1823	Henry Moore and Lettice Van Solingen	Elizabeth Duryee	163	453		Not Lotted
15 W. 3rd Street	7/11/1825	Phillip and Catherine Hone	Alfred S. Pell	195	455		Not Lotted
15 W. 3rd Street	2/14/1827	John D., Eliza, William G, Jr., and Eliza Miller	William G. Miller	213	474		34-42, incl.
15 W. 3rd Street	2/14/1827	John D., Eliza, William G, Jr., and Eliza Miller	William G. Miller	213	457		34-42, incl.
15 W. 3rd Street	2/20/1827	Thomas R. and Mary Merain	Charles Trinder	214	374		35, 37
15 W. 3rd Street	10/14/1829	Charles and Margaret Trinder	William Frazer	254	631		35, 37
15 W. 3rd Street	5/8/1833	William and Betsey Frazee	Thomas Salter	296	389		35, 37
15 W. 3rd Street	5/27/1835	Thomas and Susan H. Salter	Peter McCarty	332	546		35, 37
15 W. 3rd Street	10/10/1835	Peter and Eliza Ann McCarty	Richard I Wells and Philetus H. Woodruff	341	416		35
15 W. 3rd Street	2/24/1837	Richard I. and Ana Maria Wells	Philetus H. Woodruff	372	308		35
15 W. 3rd Street	8/31/1839	Philetus H. and Susan Woodruff	William Tucker	398	469		35
15 W. 3rd Street	11/5/1839	Edward G. and Maria Miller, Chandler and Anna M. White, Edward J. and Sarah Midgeley, and Maria Smith	William Tucker	399	583		35
15 W. 3rd Street	2/28/1867	William and Margaret Tucker	Alixé Doubet	986	665		35
15 W. 3rd Street	6/29/1869	Louis and Hannah L. Schlessinger	Henry Schiff	1096	680		35

NYU Cogeneration Plant—Upgrade and Expansion

Address	Date	Grantor	Grantee	Liber	Page	Remarks	Historic Lot #
15 W. 3rd Street	11/15/1875	Henry Shiff	Arthur, Eugene, and Theodore Shiff, Cora Gaultier, Gustave Shiff, and M. D'Espaigne	1346	292		35
15 W. 3rd Street	9/4/1876	Gustave Shiff	Eugene Shiff	1398	77		35
15 W. 3rd Street	2/26/1884	Gustave Shiff, Exr. And trus. Of Frederick D. Tappan (trustee)	Arthur, Theodore, Henry, and Eugene Shiff, Mary D'Espaigne, and George Leon Gaultier	1785	241		35
15 W. 3rd Street	12/31/1892	Arthur Shiff (exr of) Henry Schiff, Marie Pesparque, trustees of George Gaultier, Henry, Eugene, and Theodore Shiff	Max Wiener	15	261		35
15 W. 3rd Street	12/7/1910	Fredericka D'Espaigne, heirs of Arthur Shiff	Adrian Jr., Columbus O'Donnell, and Ernest Iselin	202	208		35
15 W. 3rd Street	7/31/1911	Eugene Shiff (Exr of), Marie, Charles, Henri, and Fredericka D'Espaigne, Lucie M. Franklin, Mary Cora-Eugenie, Florence A., Theodore H., Harriet S., Lillian Welch, Lillian Oliver, and Eva Madeleine Shiff, Theresa A. Clairin, Emily O. Dunn, George Leon Gaultier, Marguerite D'Espaigne Pratt, widow of Gustave C.W. Shiff, heirs of Arthur Shiff	Helvetia Realty Co.	207	336		35
Sources: Grantor/Grantee indices on file at the office of the Manhattan City Register.							

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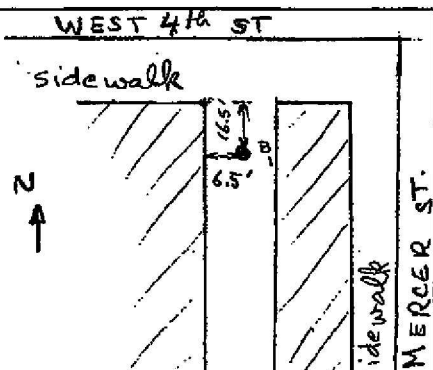
Appendix D

LOG OF BORING

B-1(OW) SHEET 1 OF 4

PROJECT NYU-Cogen PLANT			PROJECT NO. 5713801		
LOCATION 251 Mercer St.			ELEVATION AND DATUM 35.4 ±		
DRILLING AGENCY CRAIG TEST BORING			DATE STARTED 4/17/06		DATE FINISHED 4/18/06
DRILLING EQUIPMENT CME 75			COMPLETION DEPTH 65.5 ft		ROCK DEPTH 60.5 ft
SIZE AND TYPE OF BIT 3 7/8" TRICONE ROLLER BIT			NO. SAMPLES	DIST. 13	UNDIST. —
CASING 4" ID- STEEL			WATER LEVEL	FIRST	COMPL. 24 HR. 34.5 ft
CASING HAMMER	WEIGHT	DROP 30"	FOREMAN CEASAR		
SAMPLER 2" OD- STEEL			INSPECTOR BACHIR BRIMO		
SAMPLER HAMMER	WEIGHT 140 lbs	DROP 30"			

Material Symbol	NYC-BC	SAMPLE DESCRIPTION	DEPTH SCALE	SAMPLES				REMARKS (DRILLING FLUID, DEPTH OF CASING, CASING BLOWS, FLUID LOSS, ETC.)
				NO. LOG.	TYPE	RECOVER. FT.	PENETR. RESIST. BLU. IN.	
		6" SIDEWALK CONCRETE.						WEST 4th ST
			1					sidewalk
			2					
			3					
		Brown (f-m) SAND, tr. gravel, tr. silt (FILL)	4					
			5	S1	BY HAND	N/A	N/A	
			6					sidewalk
		Brown reddish (f-m) SAND, tr. gravel, tr. silt (FILL)	7	S2	SS	3	7	WEST 3rd ST
			8					4/17/06
		Brown reddish (f-m) SAND, tr. gravel, tr. silt (FILL)	9	S3	SS	2	2	- HAND AUGER until 6 ft depth
			10					- SS: 6-8 ft (1 hour)
		Brown reddish (f-m) SAND tr. gravel, tr. ash (FILL)	11	S4	SS	3	3	SS: 8-10 ft
			12					SS: 10-12 ft
			13					
			14					



JOB NO. 5713801

DATE 4/17/06

LOG OF BORING NO. B-1 (ow)

SHEET 2 OF 4

Material Symbol	SAMPLE DESCRIPTION	DEPTH SCALE	SAMPLES				REMARKS (DRILLING FLUID, DEPTH OF CASING, CASING BLOWS, FLUID LOSS, ETC.)
			NO. LOC.	TYPE	REC'D. FT.	PENETR. RESIST BLW IN.	
FILL 11-65	Brown (f-m) SAND, some gravel bricks, fr. silt. (FILL)	15				2	SS: 15-17 ft
		16	SS	SS	8"	3 5	
		17				5	
FILL 11-65	Brown red (f-m) SAND & GRAVEL fr. of silt, concrete fragments. (FILL)	18					drill to 20 ft 4" casing to 15 ft.
		19					
		20					
FILL 11-65	coarse GRAVEL, fr. sand, silt (FILL)	21	SS	SS	6"	9 13 15	SS: 20-25 ft 4" casing to 20 ft
		22					
		23					
FILL 11-65	NO Recovery	24					SS: 25-27 ft
		25					
		26	SS	SS	3"	3 4 1 3	
FILL 11-65	NO Recovery	27					drill to 30 ft
		28					
		29					
FILL 11-65	NO Recovery	30					SS: 30-32 ft
		31	SS	SS	0"	4 3 4 8	
		32					

JOB NO. 5713801

DATE 4/17/06

LOG OF BORING NO. B-1(ow)

SHEET 3 OF 4

MATERIAL SYMBOL	NMC BC	SAMPLE DESCRIPTION	DEPTH SCALE	SAMPLES				REMARKS (DRILLING FLUID, DEPTH OF CASING, CASING BLOWS, FLUID LOSS, ETC.)
				NO. LOC.	TYPE	RECON. FT.	PENETR. RESIST. BLU. IN.	
FILL	11-65	?	33					
	7-65	?	34					
	7-65	Brown red disp (f-m) SAND, tr. gravel, silt (SP)	35				3	SS: 35-37
SAND	7-65		36	SS	SS	2"	2	
	7-65		37				3	drill to 40 ft.
	7-65		38					
SAND	7-65	Brown (f-m) SAND, tr. gravel, silt (SP)	40				1	SS: 40-42 ft
	7-65		41	SS	SS	1"	5	
	7-65		42				5	drill to 45 ft
SAND	7-65		43					
	7-65	Brown (f-m) SAND, tr. gravel, silt (SP)	45				6	SS: 45-47 ft
	7-65		46	SS	SS	1"	4	
SAND	7-65		47				4	drill to 50
	7-65		48					
	7-65		49					
SAND	7-65		50					
	7-65							

JOB NO. 5713801

DATE 4/17/06

LOG OF BORING NO. B-1 (OW)

SHEET 4 OF 4

National Symbol	N.E.C.	SAMPLE DESCRIPTION	DEPTH SCALE	SAMPLES				REMARKS (DRILLING FLUID, DEPTH OF CASING, CASING BLOWS, FLUID LOSS, ETC.)
				NO. LOG.	TYPE	RECON. FT.	REINSTR. RESIST. BLDG. IN.	
SAND	7-65	Brown (m.e) SAND, tr. gravel, silt (SP)	51	512	SS	7"	5 5 1 8	SS: 50-52 ft
			52					drill to 55 ft
			53					
			54					
	7-65	Brown (m.e) SAND, tr. gravel, silt (SP)	55					SS: 55-57 ft
			56	813	SS	12"	2 2 3 4	drill to 60 ft
			57					
			58					
			59					
			60					SS: 60-62 ft
Rock	4-65	decomposed shist Rock 2.15		514	SS	3"	100%	drill to 60.5 ft
<<< ROCK >>>	2-65	Dark gray Manhattan Mica shist Rock (coarse grained)	4	RUN #1 NX		REC. = 46/60 = 78% RAD = 40/60 = 67%		started coring @ 60.5 ft RUN #1: 60.5 - 65.5 ft
			5					
			5					
			4					
			3					
		E.O.B.	66					E.O.B @ 3.0 PM
		DEPTH DATE	67					A well was installed in this boring.
		34.5 ft 4/19/06	68					Screen: 30-40 ft
		35.5 ft 4/23/06						
		35.0 ft 4/24/06						

PROJECT NYU-Cogen PLANT				PROJECT NO. 5743801			
LOCATION 251 MERCER ST. Manhattan				ELEVATION AND DATUM 35.4 ±			
DRILLING AGENCY Craig Test Borings				DATE STARTED 4/18/06		DATE FINISHED 4/19/06	
DRILLING EQUIPMENT CME-75				COMPLETION DEPTH 63 ft		ROCK DEPTH 58 ft	
SIZE AND TYPE OF BIT 3 7/8" TRICONE ROLLER BIT				NO. SAMPLES		DIST. 13	
CASING 4" ID- STEEL				WATER LEVEL FIRST		COMPL. 24 HR.	
CASING HAMMER AUTO WEIGHT 140 lbs DROP 30"				FOREMAN CEASAR			
SAMPLER 2" OD- SPLIT SPOON				INSPECTOR BACHIR BRIMO			
SAMPLER HAMMER AUTO WEIGHT 140 lbs DROP 30"							

Material Symbol	NYC BC	SAMPLE DESCRIPTION	DEPTH SCALE	SAMPLES				REMARKS (DRILLING FLUID, DEPTH OF CASING, CASING BLOWS, FLUID LOSS, ETC.)
				NO. LOC.	TYPE	RECOV. FT.	PENETR. RESIST. BLB IN.	
FILL	11-65	6" SIDEWALK CONCRETE	1					<p>AN</p> <p>WEST 4th ST</p> <p>sidewalk</p> <p>sidewalk</p> <p>WEST 3rd ST</p> <p>4/18/06</p> <p>STARTED @ 11:30 AM after moving the rig.</p> <p>- Drilled through 6" of concrete slab</p> <p>- HAND AUGERED THE TOP SIX FEET.</p> <p>SI: 2-4 ft</p> <p>SS: 6-8 ft</p> <p>SC: 8-10 ft</p> <p>S: 10-12 ft</p> <p>4" casing to 10 ft</p>
		Brown (f-m) SAND, some gravel, tr. bricks, silt (FILL)	2					
			3	SI				
			4					
			5					
			6					
			7	SI	SS	5"	3	
			8				5	
			9	SI	SS	2"	4	
			10				3	
			11	SI	SS	8"	2	
			12				1	
			13					
			14					

LOG OF BORING

B-3(OW) SHEET 1 OF 4

PROJECT NYU-COGEN PLANT				PROJECT NO. 5713801			
LOCATION 251 MERCER ST., Manhattan, NY				ELEVATION AND DATUM 34.8 F			
DRILLING AGENCY CRAIG TEST BORING INC.				DATE STARTED 4/19/06		DATE FINISHED 4/19/06	
DRILLING EQUIPMENT CME-75				COMPLETION DEPTH 57.5 ft		ROCK DEPTH 52.5 ft	
SIZE AND TYPE OF BIT 3 7/8" TRICONE ROLLER BIT				NO. SAMPLES		DIST. 12 UNDIST. - CORE 5 ft	
CASING 4" ID- STEEL				WATER LEVEL FIRST -		COMPL. - 24 HR -	
CASING HAMMER AUTO		WEIGHT 140 lbs		DROP 30"		FOREMAN CEASAR	
SAMPLER 2" OD- SPLIT SPOON				INSPECTOR BACHIR BRIMO.			
SAMPLER HAMMER AUTO		WEIGHT 140 lbs		DROP 30"			

National Symbol NYC-BE	SAMPLE DESCRIPTION	DEPTH SCALE	SAMPLES				REMARKS (DRILLING FLUID, DEPTH OF CASING, CASING BLOWS, FLUID LOSS, ETC.)
			NO. LOC.	TYPE	REC'D. FT.	PENETR. RESIST BLU IN.	
	6" SIDEWALK CONCRETE						<p>WEST 4th ST. SIDEWALK MERCER ST SIDEWALK WEST 3rd ST</p>
FILL 11-65	Brown (f-m) SAND, some gravel, bricks. (FILL)	1-4	51				
	Brown (m-c) SAND, some gravel, bricks, ash, mica (FILL)	5-6	52	SS	12"	3	
	Brown (m-c) SAND, some gravel, bricks, tr. silt, mica (FILL)	7-8	53	SS	15"	3	
	Brown (f-m) SAND, tr. fine gravel, bricks (FILL)	9-11	54	SS	10"	6	
FILL 11-65		12					<p>4/19/06</p> <p>- Hand auger the Top 6 inches. (1. Hour)</p> <p>- one sample from 2-4 ft</p> <p>SS: 6-8 ft</p> <p>SS: 8-10 ft</p> <p>SS: 10-12 ft</p> <p>drill to 15 ft</p>

JOB NO. 57:1 3801

DATE 4/19/06

LOG OF BORING NO. B-3 (OW)

SHEET 2 OF 4

MATERIAL SYMBOL	MPC - BC	SAMPLE DESCRIPTION	DEPTH SCALE	SAMPLES				REMARKS (DRILLING FLUID, DEPTH OF CASING, CASING BLOWS, FLUID LOSS, ETC.)
				NO. LOC.	TYPE	RECOVER, FT.	PENETR. RESIST. BL/6 IN.	
FILL	11-65	rock fragments, some sand, tr. silt (FILL)	15					SS: 15-17 ft 4" casing to 15 ft drill to 20 ft
			16	55	SS	2"	100 3 1/2"	
			17					
			18					
SAND	7-65	Brown (f-c) SAND, tr. f. gravel (SW)	19					SS: 20-22 ft drill to 22 ft
			20				8	
			21	56	SS	10"	9	
			22				11	
SAND	7-65	Brown (m-c) SAND, tr. fine gravel (SP)	23					SS: 25-27 ft drill to 30 ft
			24					
			25				10	
			26	57	SS	12"	9	
SAND	7-65	Brown (m-c) SAND, tr. f. gravel (SP)	27				12	SS: 35-37 ft
			28				9	
			29					
			30				5	
			31	58	SS	20"	6	
			32				6	

JOB NO. 5713801

DATE 4/19/06

LOG OF BORING NO. 8-3 (OW)

SHEET 3 OF 4

Material Symbol NYC-80	SAMPLE DESCRIPTION	DEPTH SCALE	SAMPLES				REMARKS (DRILLING FLUID, DEPTH OF CASING, CASING BLOWS, FLUID LOSS, ETC.)
			NO. LOC.	TYPE	RECOV. FT.	PENETR. RESIST BLA IN.	
SAND (SS)	Brown (f-m) SAND, tr. silt (SP)	33					
		34					
		35				4	SS: 35-37 ft
		36	59	SS	10"	4	
SAND (SS)	Brown (f-m) SAND, tr. silt (SP)	37				4	
		38					
		39					
		40				5	SS: 40-42 ft
SAND (SS)	Brown (m-c) SAND, tr. fine gravel (SP)	41	510	SS	11"	5	
		42				4	
		43				5	drill to 45 ft
		44					
SAND (SS)	Brown (m-c) SAND, tr. fine gravel (SP)	45				5	SS: 45-47 ft
		46	511	SS	15"	5	
		47				4	
		48					
		49					
		50					

JOB NO. 571.3801

LOG OF BORING NO. B-3 (OW)

DATE 4/19/06

SHEET 4 OF 4

Material Symbol	SAMPLE DESCRIPTION	DEPTH SCALE	SAMPLES				REMARKS (DRILLING FLUID, DEPTH OF CASING, CASING BLOWS, FLUID LOSS, ETC.)
			NO. LOG.	TYPE	REC'D. FT.	PENETR. RESIST. BLU. IN.	
SAND	Brown (m-c) SAND, to fine gravel (SP)	51	512	SS	15"	6	55.50 - 52 ft
		52			6		
<<< ROCK >>>	gray to dark gray Manhattan schist Rock (coarse grained)	53	RUN #1	NX	REC. 60/60 = 100%	RQD = 60/60 = 100%	drill to 55 ft Hard drilling @ 52.5 ft casing RUN #1: 52.5' - 57.5'
		54					
		55					
		56					
		57					
E.O.B.		58					E.O.B. @ 3.15 pm A well was installed in this boring with the screen from depth 30-40'
Depth		59					
Date		60					
36.0 ft		61					
36.0 ft		62					
36.5 ft		63					
		64					
		65					

JOB NO. 5713801

DATE 4/18/06

LOG OF BORING NO. B-2

SHEET 2 OF 4

National Symbol NYC-Bc	SAMPLE DESCRIPTION	DEPTH SCALE	SAMPLES				REMARKS (DRILLING FLUID, DEPTH OF CASING, CASING BLOWS, FLUID LOSS, ETC.)
			NO. LOC.	TYPE	REC'D. FL.	PENETR. RESIST BLU. IN.	
FILL	11-65	15				4	SS: 15-17 ft
		16	5	SS	3"	4	
		17				3	drill to 20 ft
		18				6	
FILL	11-65	19					
	NO RECOVERY	20					SS: 20-22 ft
		21	56	SS	0"	5	
		22				4	drill to 25 ft
		23				5	
		24				5	
	? — EL 12	25				5	SS: 25-27 ft
SAND	7-65	26	57	SS	8"	5	
		27				6	drill to 30 ft
		28				5	
		29					
		30					SS: 30-32 ft
SAND	7-65	31	58	SS	16"	9	
		32				5	drill to 35 ft

JOB NO. 5713801

DATE 4/18/06

LOG OF BORING NO. B-2

SHEET 3 OF 4

Material Symbol	NYC BC	SAMPLE DESCRIPTION	DEPTH SCALE	SAMPLES				REMARKS (DRILLING FLUID, DEPTH OF CASING, CASING BLOWS, FLUID LOSS, ETC.)
				NO. LOC.	TYPE	RECON. FT.	PENETR. RESIST BLU IN.	
SAND (SP)	T-65	Brown (f-m) SAND, tr. fine gravel (SP)	33					
			34					
			35				3	SS: 35-37 ft
			36	9	SS	16"	3	
			37				3	drill to 40 ft
SAND (SP)	T-65	Brown (f-m) SAND, tr. silt (SP)	38					
			39					
			40				3	SS: 40-42 ft
			41	10	SS	18"	3	
			42				7	drill to 45 ft
SAND (SP)	T-65	Brown (f-m) SAND, tr. silt, f. gravel (SP)	43					
			44					
			45				3	SS: 45-47 ft
			46	11	SS	16"	4	
			47				6	drill to 50 ft
			48					
			49					
			50					

JOB NO. 5713801

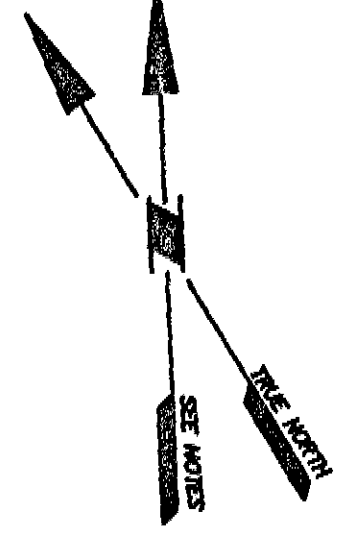
DATE 4/18/06

LOG OF BORING NO. B-2


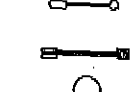
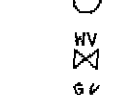

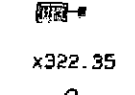
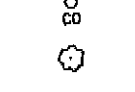
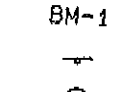

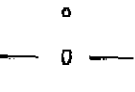
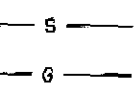
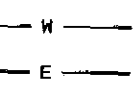
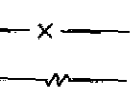
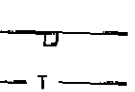
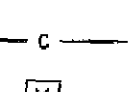















SHEET 4 OF 4

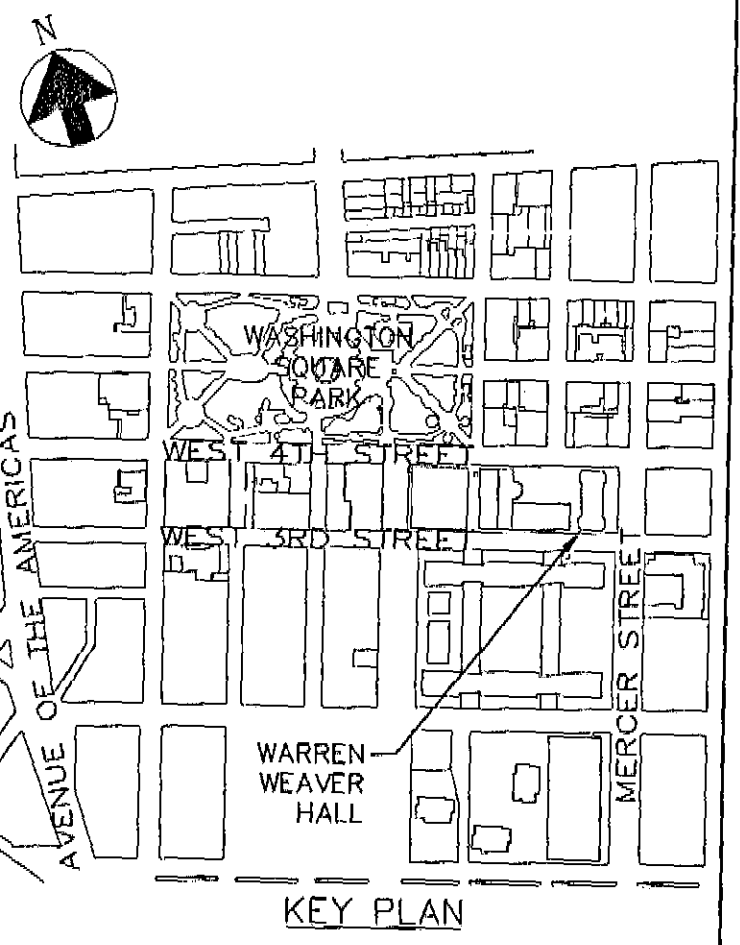
Material Symbol	SAMPLE DESCRIPTION	DEPTH SCALE	SAMPLES				REMARKS (DRILLING FLUID, DEPTH OF CASING, CASING BLOWS, FLUID LOSS, ETC.)
			NO. LOC.	TYPE	REC'D. FT.	PENETR. RESIST BLU. IN.	
SAND 7-65	Brown (m.c) SAND, tr. fine gravel (SP)	51	S12	SS	17"	4	SS: 50-52 ft
		52				4	drill to 55 ft
		53				5	
		54				3	
		55					
SAND 7-65	Brown (m.c) SAND, tr. fine gravel (SP)	56	S13	SS	16"	1	SS: 55-57 ft
		57				5	drill to 60 ft
		58				6	
		59					
		60					hard drilling @ 58.0'
ROCK 1-65	Grey to dark grey Manhattan Schist Rock (coarse grained)	61	RUN #1 NX	REC. = 60/60 = 100% REQD = 60/60 = 100%			RUN #1: 58-63 ft
		62					
		63					
	E.O.B.	63					E.O.B. @ 9:15 AM THE HOLE WAS BACK- FILLED WITH CUTTINGS AND CONCRETE

Appendix E



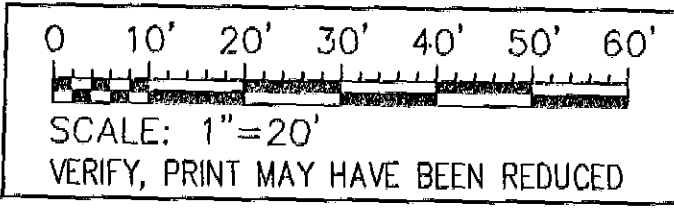
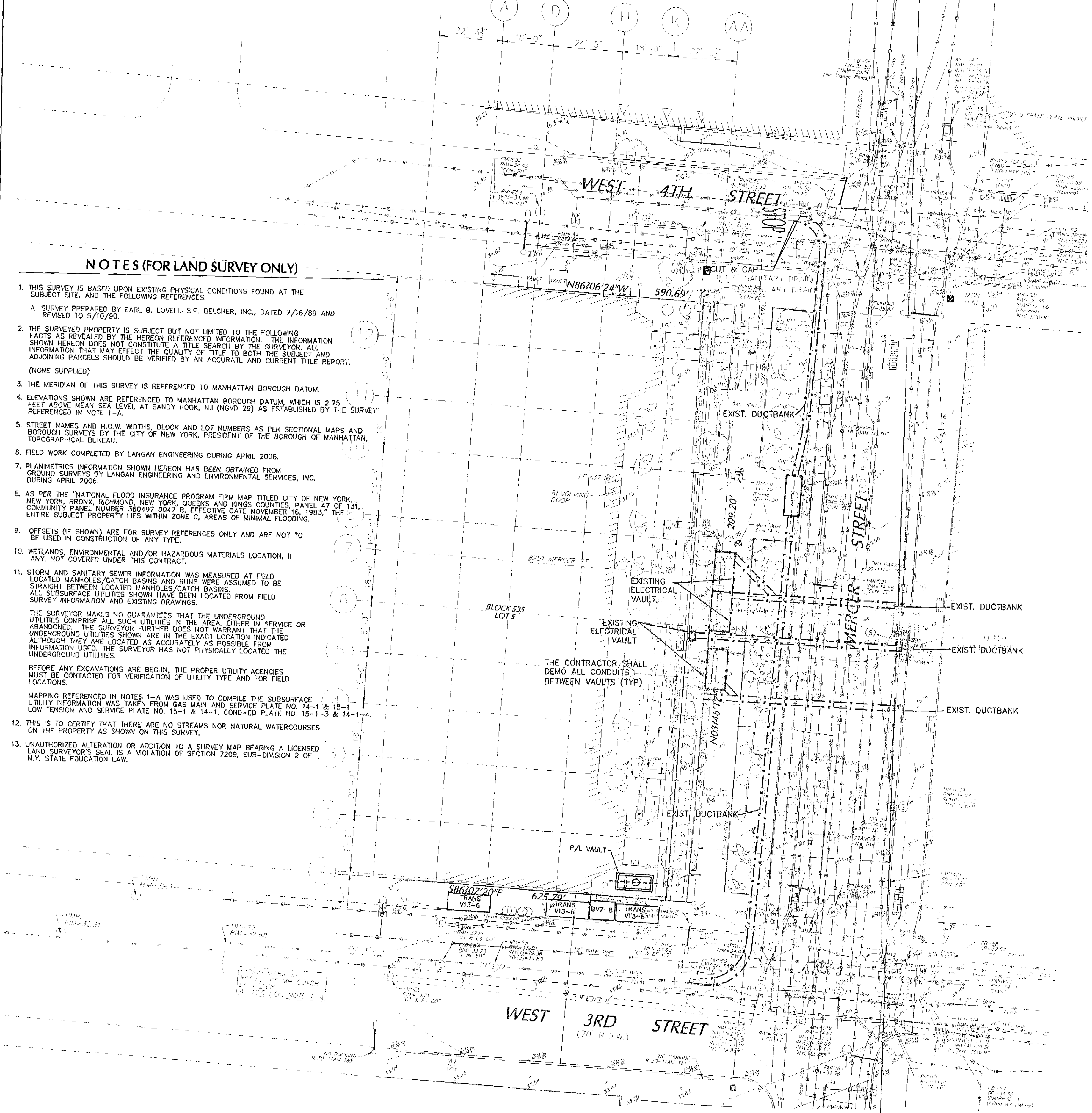
LEGEND:

-  HYDRANT
-  STREET LIGHT
-  SIGNAL POLE
-  MANHOLE
-  WATER VALVE
-  GAS VALVE
-  CATCH BASIN
-  AREA LIGHT
-  SPOT ELEVATION
-  CLEAN OUT
-  TREE
-  BENCH MARK
-  SIGN POLE
-  MONITORING WELL
-  BOLLARD
-  STORM DRAIN
-  SANITARY
-  GAS
-  WATER
-  ELECTRIC
-  FENCE (TYPE AS NOTED)
-  OVERHEAD WIRE
-  GUARD RAIL (TYPE AS NOTED)
-  TELEPHONE
-  COMMUNICATIONS/CATV
-  REFERENCE UTILITY LINE (TYPE AS NOTED)
-  TREE LINE
-  UTILITY DEMO
-  MANHOLE WITH SHUT OFF VALVE



NOTES (FOR LAND SURVEY ONLY)

- THIS SURVEY IS BASED UPON EXISTING PHYSICAL CONDITIONS FOUND AT THE SUBJECT SITE, AND THE FOLLOWING REFERENCES:
A. SURVEY PREPARED BY EARL B. LOVELL-S.P. BELCHER, INC., DATED 7/16/89 AND REVISED TO 5/10/90.
- THE SURVEYED PROPERTY IS SUBJECT BUT NOT LIMITED TO THE FOLLOWING FACTS AS REVEALED BY THE HEREON REFERENCED INFORMATION. THE INFORMATION SHOWN HEREON DOES NOT CONSTITUTE A TITLE SEARCH BY THE SURVEYOR. ALL INFORMATION THAT MAY EFFECT THE QUALITY OF TITLE TO BOTH THE SUBJECT AND ADJOINING PARCELS SHOULD BE VERIFIED BY AN ACCURATE AND CURRENT TITLE REPORT. (NONE SUPPLIED)
- THE MERIDIAN OF THIS SURVEY IS REFERENCED TO MANHATTAN BOROUGH DATUM.
- ELEVATIONS SHOWN ARE REFERENCED TO MANHATTAN BOROUGH DATUM, WHICH IS 2.75 FEET ABOVE MEAN SEA LEVEL AT SANDY HOOK, NJ (NGVD 29) AS ESTABLISHED BY THE SURVEY REFERENCED IN NOTE 1-A.
- STREET NAMES AND R.O.W. WIDTHS, BLOCK AND LOT NUMBERS AS PER SECTIONAL MAPS AND BOROUGH SURVEYS BY THE CITY OF NEW YORK, PRESIDENT OF THE BOROUGH OF MANHATTAN, TOPOGRAPHICAL BUREAU.
- FIELD WORK COMPLETED BY LANGAN ENGINEERING DURING APRIL 2006.
- PLANIMETRICS INFORMATION SHOWN HEREON HAS BEEN OBTAINED FROM GROUND SURVEYS BY LANGAN ENGINEERING AND ENVIRONMENTAL SERVICES, INC. DURING APRIL 2006.
- AS PER THE "NATIONAL FLOOD INSURANCE PROGRAM FIRM MAP TITLED CITY OF NEW YORK, NEW YORK, BRONX, RICHMOND, NEW YORK, QUEENS AND KINGS COUNTIES, PANEL 47 OF 131, COMMUNITY PANEL NUMBER 360497 0047 B, EFFECTIVE DATE NOVEMBER 16, 1983, THE ENTIRE SUBJECT PROPERTY LIES WITHIN ZONE C, AREAS OF MINIMAL FLOODING.
- OFFSETS (IF SHOWN) ARE FOR SURVEY REFERENCES ONLY AND ARE NOT TO BE USED IN CONSTRUCTION OF ANY TYPE.
- WETLANDS, ENVIRONMENTAL AND/OR HAZARDOUS MATERIALS LOCATION, IF ANY, NOT COVERED UNDER THIS CONTRACT.
- STORM AND SANITARY SEWER INFORMATION WAS MEASURED AT FIELD LOCATED MANHOLES/CATCH BASINS AND RUNS WERE ASSUMED TO BE STRAIGHT BETWEEN LOCATED MANHOLES/CATCH BASINS. ALL SUBSURFACE UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS.
THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION USED. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.
BEFORE ANY EXCAVATIONS ARE BEGUN, THE PROPER UTILITY AGENCIES MUST BE CONTACTED FOR VERIFICATION OF UTILITY TYPE AND FOR FIELD LOCATIONS.
MAPPING REFERENCED IN NOTES 1-A WAS USED TO COMPILE THE SUBSURFACE UTILITY INFORMATION WAS TAKEN FROM GAS MAIN AND SERVICE PLATE NO. 14-1 & 15-1, LOW TENSION AND SERVICE PLATE NO. 15-1 & 14-1, COND-ED PLATE NO. 15-1 & 14-1.
- THIS IS TO CERTIFY THAT THERE ARE NO STREAMS NOR NATURAL WATERCOURSES ON THE PROPERTY AS SHOWN ON THIS SURVEY.
- UNAUTHORIZED ALTERATION OR ADDITION TO A SURVEY MAP BEARING A LICENSED LAND SURVEYOR'S SEAL IS A VIOLATION OF SECTION 7209, SUB-DIVISION 2 OF N.Y. STATE EDUCATION LAW.



B	05/25/07	ISSUED FOR BID
A	05/18/07	FUEL OIL TANK & UTILITIES RELOCATION COORDINATION PACKAGE
REV.	DATE	DESCRIPTION

R.G. Vanderweil Engineers, LLP
274 Summer Street - Boston, MA 02210
(617) 423-7423

RGV Job No. 23455.00	Sheet	of
Drawn by:	PRL	
Checked by:	TC	
Date of Original:	05/18/07	
Scale:	N.T.S.	

Project

NYU
COGENERATION
EXPANSION PROJECT

Title

ELECTRICAL
UTILITY RELOCATION
PLAN-DEMO

C-501