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Prepared for:

Skanska USA
Building, Inc.

**Preliminary Results
Phase IB Archaeological Testing
Test Areas 2, 3, 4, 5, 6 and 7
Brooklyn Bridge Park Project**

Brooklyn, New York

Prepared by:

URS

Burlington, New Jersey

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Phase IB Archaeological Testing
Test Areas 2, 3, 4, 5, 6 and 7
Brooklyn Bridge Park Project**

Brooklyn, New York

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Introduction and Project Description

URS Corporation (URS) conducted Phase IB archaeological testing on a portion of the Brooklyn Bridge Park site located in the city of New York, borough of Brooklyn (Kings County), along Furman Street. The entire project entails the development of a 70-acre park along a 1.3-mile section of the East River Waterfront, between Atlantic Avenue and Jay Street (Figure 1.1). The Phase IA archaeological assessment Historical Perspectives, Inc., and Raber Associates (2005) conducted for the project revealed that the project area had the potential to contain buried archaeological resources related to the eighteenth- and nineteenth-century development of the Brooklyn waterfront. These resources included warehouse building foundations, a flourmill, a Revolutionary period ship and wooden cribbing, as well as bulkheads and piers associated with landfilling activities. The report recommended a combination of archaeological testing and monitoring in order to determine the presence or absence, type, and extent of the resources.

An archaeological testing protocol was developed, based on the planned construction activities, to identify any archaeological resources; define the area limits of these resources and cultural affiliations of the components represented; determine the density and distribution of intact archaeological deposits within the each of the test areas; and identify the types of retrievable archaeological remains (AKRF, Inc. 2007). According to the protocol, the expected archaeological resources to be encountered fall into two general categories: those located above the water table (0–5 feet) and those extending below the water table. Logistically, those resources above the water table would be tested in advance of construction, while those below would be monitored during construction, where the construction contractor, Skanska USA Building, Inc., would implement water removal and/or shoring.

URS conducted field investigations between February 25 and March 26, 2008. This report focuses on the testing of six of the nine identified test areas, as outlined in the testing protocol. The six tested areas are located beneath the Brooklyn Heights promenade and the Brooklyn Queens Expressway. The area is bounded by Atlantic Avenue to the south, Old Fulton Street to the north, Furman Street to the east, and the East River to the west (Figure 1.2). Testing consisted of mechanical excavation, with manual excavation as warranted, and documentation of the uncovered cultural resources and stratigraphy in Areas 2, 3, 4, 5, 6, and 7. A brief summary of each area is presented in Chapter 4, followed by conclusions and recommendations in Chapter 5.

All work was conducted in accordance the National Historic Preservation Act of 1966, as amended, and the Advisory Council on Historic Preservation's "Protection of Historic and Cultural Properties" (36 CFR 800). This study was conducted pursuant to the Standards for Cultural Resources Investigations and the Curation of Archaeological Collections in New York State (NYAC 1994), as well as the State Historic Preservation Office Phase I Archaeological Report Format Requirements prepared by the Office of Parks, Recreation, and Historic Preservation (OPRHP 2005), and pursuant to guidelines established by the New York City Landmarks Preservation Commission (LPC) established for Phase IB archaeological work in New York City, dated April 12, 2002. The Principal Investigator for the project was Alyssa Loorya, RPA. Eileen Krall and Daniel Eichinger assisted Ms. Loorya in the field. Edward Morin served as Principal Archaeologist and reviewed the content of the report. Scott Hood assisted with the graphics, and Paul Elwork edited the text for style and consistency.

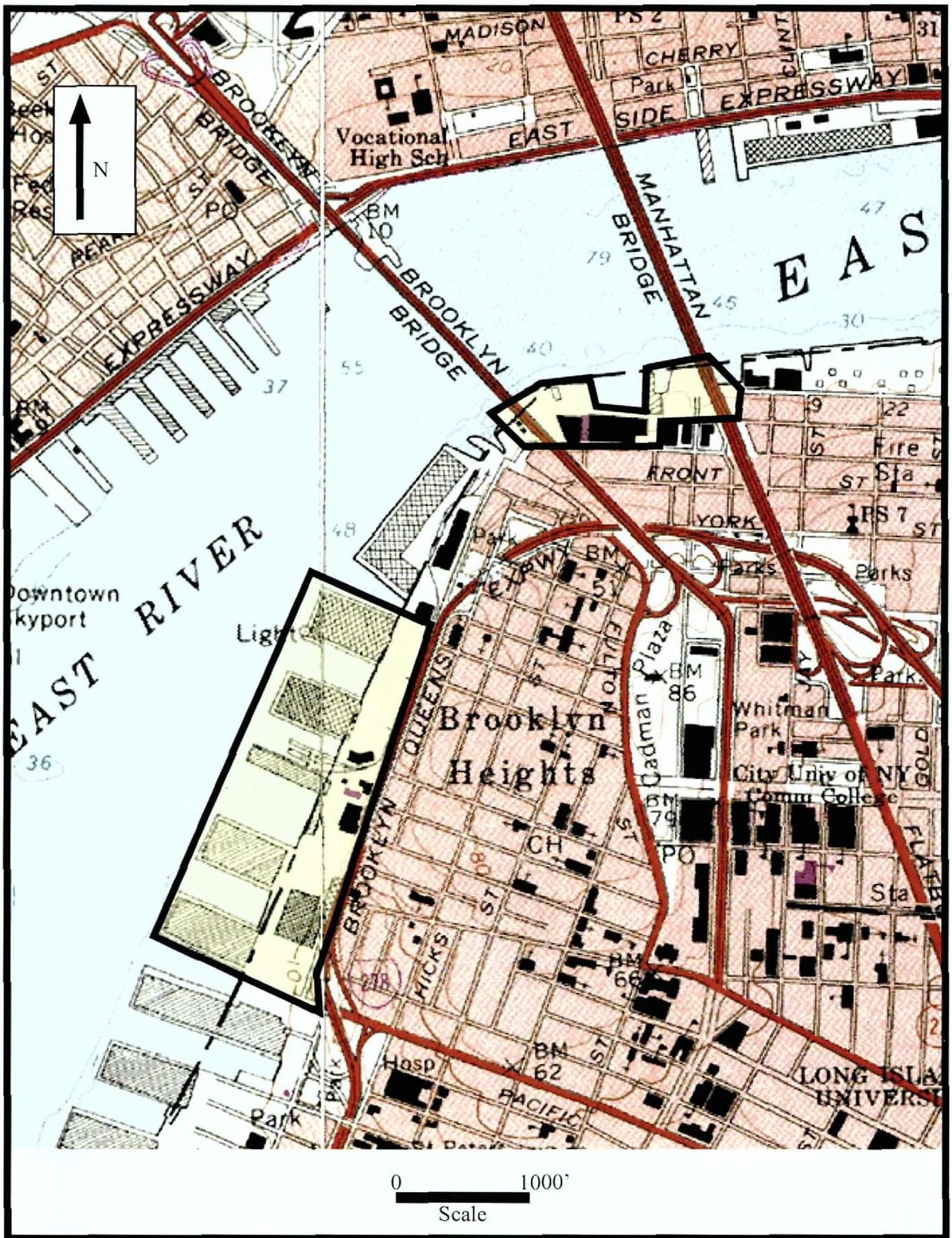


Figure 1.1 Project location (Source: Maptech 1998).

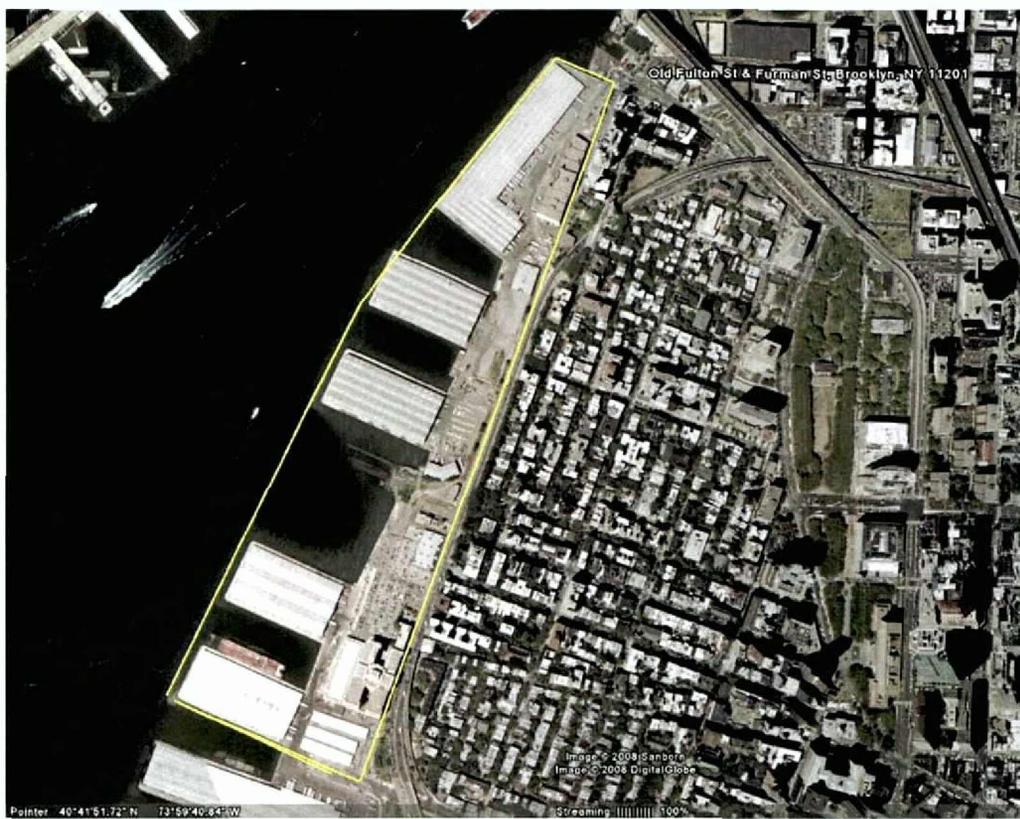


Figure 1.2 Portion of Brooklyn Bridge Park Project undergoing archaeological testing.

Environmental Context

PHYSIOGRAPHY AND GEOLOGY

The project area falls within the Atlantic Coastal Plain physiographic province. Coastal plain sediments in New York City consist of unconsolidated deposits of Late Cretaceous age, eroded from the higher New England Upland to the west and deposited in low-lying coastal areas. In Brooklyn and Queens, these materials sit on top of the eroded crystalline rock surface. Deposits from the Pleistocene, the ice age that began around 1.6 million years ago, blanketed most of New York City. These unconsolidated materials were left behind after several advances and retreats of the ice sheets in the northern hemisphere. Glacial deposits are commonly divided into two types: till and outwash. Glacial till refers to those materials deposited directly by the flowing ice. Till characteristically exhibits a wide range in particle size, from clay to boulder. Till deposits lack stratification and can be as much as several hundred feet deep. These deposits are shallower in areas where the ice has done more scraping of the bedrock, commonly with harder, more resistant types of rock. Glacial outwash is deposited by glacial meltwater. A narrower range of particle size generally characterizes outwash deposits and stratification is common (New York Soil Survey Staff 2005).

Glaciation within the project area has provided most of the surficial materials and shaped the landscape. Glaciation leaves behind two types of till deposits. The first are terminal moraine deposits, which are basically elongated ridges and strings of hills that form along the edges of the glacier and are left in its wake. The second are ground moraine deposits, which are till deposits left beneath the glacier's path (Rogers et al. 1986).

The southernmost extent of the ice sheet that crossed New York City deposited two terminal moraines, which form the spines of the two eastern forks of Long Island. The southernmost and older of the two is called the Ronkonkoma Moraine. The northernmost, which overrides the Ronkonkoma in north central Long Island, is the Harbor Hill moraine. This deposit extends across Queens and Brooklyn and over onto Staten Island at Fort Wadsworth. Material in these terminal moraines ranges from unsorted till to local deposits of roughly stratified and sorted sand and gravel. South of the terminal moraine on Long Island and Staten Island, streams of glacial meltwater flowed south, creating a gently sloping outwash plain of stratified and sorted gravel, sand, and silt (New York Soil Survey Staff 2005). The specific underlying geology of the project area consists of Cenozoic/Quaternary aged deposits that consist of unsorted till from terminal moraines, gravel, mud, and sand. These deposits are from both glacial (moraines) and post-glacial sources, such as meltwater (New York State Department of Transportation 1989).

Approximately 11,000 years ago, the climate warmed and the Holocene, or post-glacial, epoch began. The ice sheet retreated to its current location, and the sea level rose to its current elevation. Erosional forces have since modified the outwash plain to create the present-day shoreline. Wave action and human-construction projects created barrier islands, and offshore winds have piled up sand into dunes. Organic materials and tide-carried sediments have accumulated to form tidal marshes (New York Soil Survey Staff 2005).

UNDERLYING SOILS

Project area soils fall within the Pavement and Buildings, Wet Substratum-LaGuardia-Ebbets Complex (0–8% slopes). This complex is characterized by level to gently sloping urbanized areas, which are filled with a mixture of natural soils and construction debris that covers former swamps, tidal marsh, or other water sources. Impervious buildings and pavement that cap a mixture of anthropogenic soils of varying coarseness cover 50–80% of these areas (New York Soil Survey Staff 2005).

HYDROLOGY AND ELEVATIONS

Drainage for the project area is provided by the East River, which is also the western border of the project area. The East River flows southward and enters the Upper New York Bay approximately 2.3 miles from the project area. Elevations within the project area vary from 0–10 feet above mean sea level (amsl).

CURRENT SETTING

The project area consisted of asphalt and concrete parking lots associated with the non-operative piers along the East River (Photographs 2.1 and 2.2).



Photograph 2.1 Project area existing conditions, looking northeast.



Photograph 2.2 Project area existing conditions, looking west.

Methodology

Based on the approved Phase IA archaeological assessment (Historical Perspectives, Inc., and Raber Associates 2005), testing protocols were developed, coordinated, approved, and submitted in the *Archaeological Testing Protocol: Brooklyn Bridge Park, Brooklyn, Kings County, New York* (AKRF 2007), testing would only be conducted in those areas where construction may impact above water table archaeological resources (0–5 feet below ground surface). These resources consist of the upper portions of pre- and post-1840s landfilling devices, the nineteenth-century South Ferry Complex, warehouse remains, a flourmill, and the Arbuckle Brothers Sugar Refinery Building. The protocol indicated that resources located below the water table would be investigated in the course of monitoring during construction.

The first task consisted of marking out the locations of the proposed test trenches within each of the test areas. The asphalt, concrete, and/or cement surface was then saw cut to facilitate its removal. A backhoe was utilized to remove the asphalt, concrete, and/or cement surfaces, as well as any modern overburden or disturbed fill deposits that may be present. Following this task, the equivalent of 26 test trenches was excavated. Each trench averaged 25 feet in length and 4 feet in width, and was excavated to a maximum depth of 5 feet below ground surface.

The table below details the number of trenches (and the equivalent square footage) excavated in each test area.

Trenches and Equivalent Square Footage Excavated by Test Area

Test Areas	Trenches Per Test Area (or equivalent)	Square Footage Tested Per Area
2	2	130.8
3	2	80
4	2	390
5	2	310
6	2	600
7	4	720

All trench material consisted of deposits of recent origin or that had been subjected to extensive disruption. Therefore, no fill was screened, although diagnostic artifacts were retained on a selective basis.

Soil removed from the trenches was stored at a safe distance from the edge of each trench.^{*} If a trench was left open overnight, orange construction fencing was erected around its perimeter at least 10 feet from the edge of the trench. In addition, a temporary erosion-control system (hay bales) was placed around all backdirt piles left standing for more than eight hours. Upon completion of the excavation of each test trench, scale drawings and digital Imagegraphs were produced of representative wall profiles and any encountered archaeological features (foundations, culverts, structural elements, etc.). The locations of all trenches were documented via a Trimble Geo XT handheld GPS unit. Following the complete documentation of each trench and its contents, the removed soil was replaced in 1-to-2-foot increments and firmly tamped with a mechanical plate tamper. Clean fill was utilized to bring the former trenches up to grade and tamped flat.

All recovered artifacts were bagged according to provenience (trench number and stratum). Upon arrival at the URS facility in Burlington, New Jersey, artifact processing was initiated. Technicians processed the artifacts using standard archaeological techniques: artifacts were washed either using soft-bristle brushes and a mild, non-ionic detergent or a Branson 5510 ultrasonic cleanser. Following cleaning, the artifacts were air-dried on racks and then marked according to New York State Museum guidelines.

After the cleaning and marking of the artifacts, a basic level of analysis was utilized to identify the following characteristics of artifacts: form (e.g., nail); general functional group (e.g., architectural); material composition (e.g., metal – iron); manufacturing technique (e.g., cut, hand-headed); date of manufacture (e.g., 1790–1830); makers'

^{*} OSHA trenching guidelines were strictly followed in order to ensure the safety of the archaeological team. At no time did archaeological personnel enter a trench unless safety guidelines were in place.

marks, if present; and number of artifacts with these characteristics in the context. Information pertaining to ware type and decoration is noted for ceramic artifacts, as this is necessary for accurate dating. Analysts entered this data directly into an *Access* database. Each line of data received its own entry number. This entry number was placed on the plastic (4-millimeter-thick polyethylene) bags with zipper-locking closures that will house the artifacts; each entry was bagged separately in order to facilitate retrieval of artifacts for exhibit or study if applicable. An additional field flags objects suitable for exhibition. A backup file was automatically created and stored at the close of each working day.

Results of Field Investigations

Six of the proposed nine archaeologically sensitive areas have been tested in this phase of the project (Figures 4.1, 4.2, and 4.3). Test Areas 1, 8, and 9 are not currently accessible for archaeological testing. Test Area 1 will be tested in the fall of 2008, while the remaining two areas will be tested when they become accessible. The results of testing in these areas will be provided once fieldwork and analysis are completed.

TEST AREA 2

Located at Pier 5, a total of 130.8 square feet of the recommended 100–200 square feet were tested (see Figure 4.1). Several fill deposit layers were uncovered to a depth of 4.8 feet (Appendix A). A late-nineteenth-to-early-twentieth-century rubble laden stratum was uncovered at approximately 2.4 feet below surface and extending to the final excavation depth of 4.8 feet. Beneath this fill, a stratum of clean sand was exposed but not fully excavated. A concrete form, likely a utility conduit, divided the test trench (Photograph 4.1). The form was exposed at less than 2 feet below surface and extended past the final excavation depth.

According to the Phase IA document, this area was occupied by mid-to-late-nineteenth-century warehouse structures (Historical Perspectives, Inc., and Raber Associates 2005). No evidence of these structures was observed in the trench. No artifacts were recovered, though twentieth-century floor tile was observed at depths past 3 feet within the fill.

A second trench could not be excavated; a large portion of the area was inaccessible because of its use as a parking area for the Trade Facilities Building. The trench will be excavated when testing occurs in Area 1, located at Pier 6, this fall. This additional trench is warranted to further determine the extent of disturbance in this area and because it is adjacent to the area of the reported sunken Revolutionary War ship that will be investigated as part of the archaeological monitoring during construction.

TEST AREA 3

Located at Building 56, the area accessible for testing was constrained due to abatement work and continued use of the building (see Figure 4.1). The majority of the test area lay directly in line with the sole access point to the building. As a result, only 80 square feet were tested to a depth of 5.5 feet. The test area exhibited evidence of disturbance containing concrete intrusions and rubble fill. The varying strata were composed mostly of sand. Due to the number of disturbances, the sandy soils, and inclement weather, the trench walls were unstable and collapsed before profiling was completed (Photograph 4.2). There was no evidence of the nineteenth-century warehouse structures cited in the Phase IA.

TEST AREA 4

Located at Pier 3, a total of 390 square feet in two test trenches was excavated in Test Area 4 (see Figure 4.2). Trench 4.1 revealed two parallel foundation walls located 1.3 feet below surface and approximately 14 feet apart. Composed of cut schist stone, they extended to 4 feet below surface, resting on a concrete sill that extended past the 5.5 feet depth of the test trench. At the floor of the trench, a dense black creosote surface was uncovered (Photograph 4.3). This area was likely an interior warehouse floor. No artifacts or discrete deposits were encountered in this trench.

Trench 4.2 contained a 2-foot-thick layer of brick, concrete, and mortar fill beneath two layers of asphalt. At 3.3 feet, a brick surface was exposed traversing the 28-foot length of the trench and spanning the 5-foot width. The bricks were laid in a subway bond pattern (Photograph 4.4).

A 5-x-10-foot extension to the northern half of the trench was excavated to locate the edge of the surface. The path was not much wider than the 5 feet already exposed. The bricks extended 0.4 feet and were set in a 0.75-foot-thick layer of concrete cement. No diagnostic artifacts other than the building construction materials were recovered from this test area. Beginning at 2.4 feet below surface of the extension, the strata consisted of a rubble-laden sandy fill (Photograph 4.5). Excavation continued to a final depth of 4.8 feet. Based on the construction materials, a late-nineteenth-to-early-twentieth-century date was determined (Appendix B).

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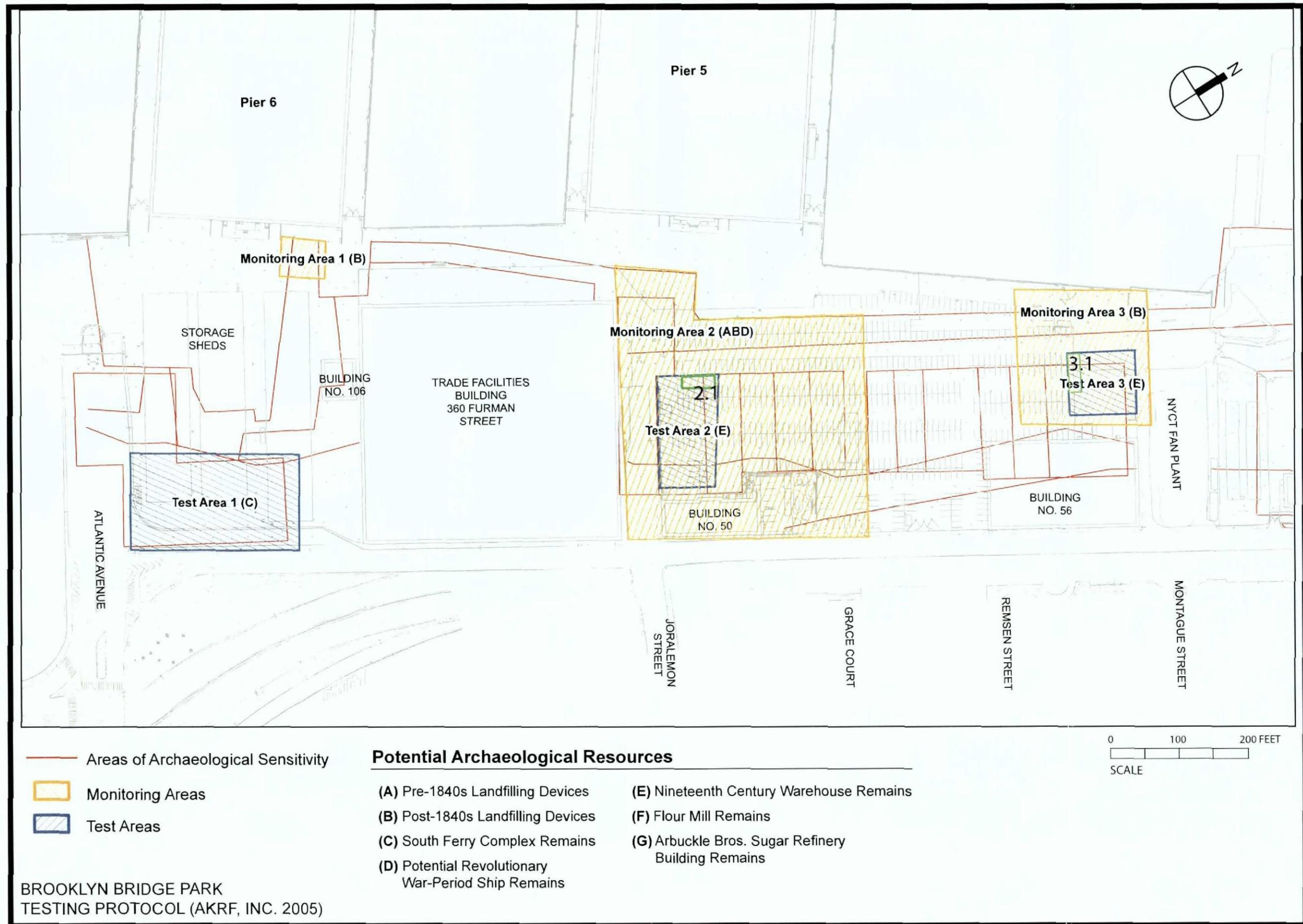


Figure 4.1 Test trench locations, Test Areas 2 and 3.

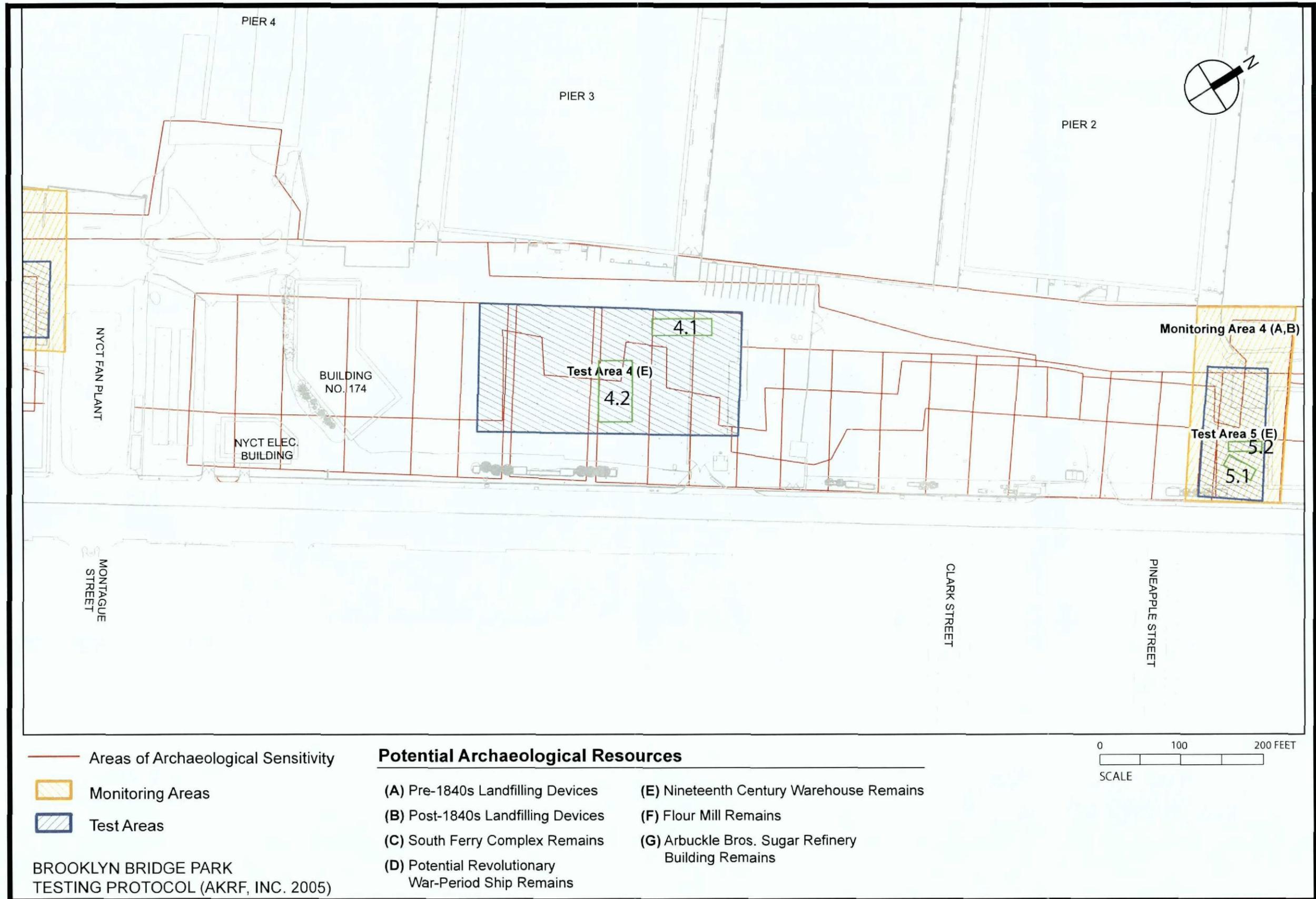


Figure 4.2 Test trench locations, Test Areas 4 and 5.

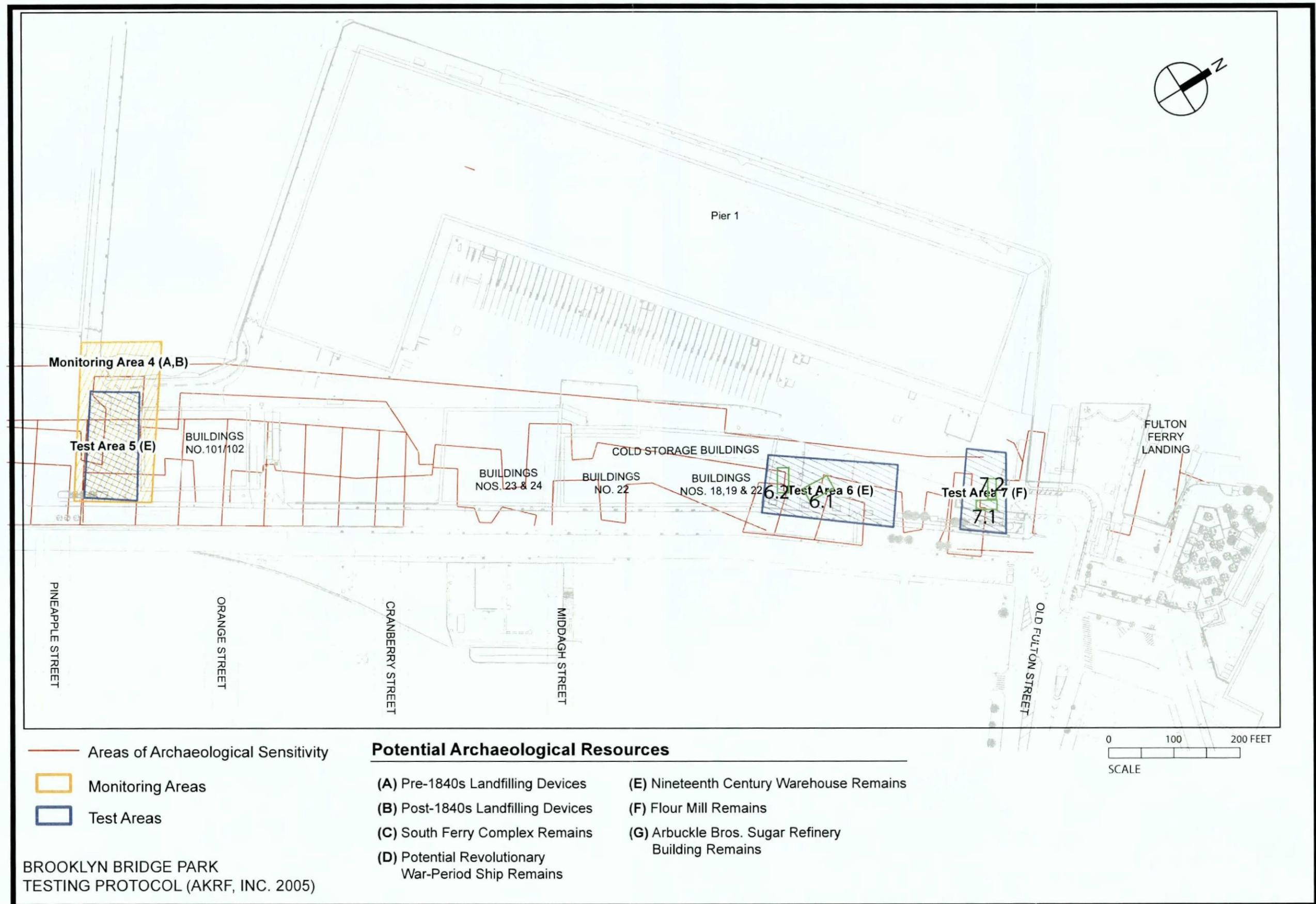


Figure 4.3 Test trench locations, Test Areas 6 and 7.



Photograph 4.1 Concrete slab in Trench 2.1, looking east.



Photograph 4.2 Trench 3.1, looking north.



Photograph 4.3 Trench 4.1 with creosote deposit over concrete floor and foundation wall, looking east.



Photograph 4.4 Trench 4.2 with brick floor, looking east.



Photograph 4.5 Trench 4.2, south wall.

According to the Phase IA report, this area once housed several mid-to-late-nineteenth-century warehouses. Two remnants of these warehouses were uncovered, but did not yield any information other than building material and form. Both examples were typical of the period.

TEST AREA 5

Located at Pier 2, immediately west of Furman Street trailer, 310 square feet of the 100–200 square feet recommended were tested (see Figure 4.2). Several features were uncovered in this area.

Trench 5.1 contained a brick foundation wall at 1.2 feet below surface. The 1.5-foot-wide foundation rested atop a mortar-faced spread footer that began almost 3 feet below surface and extended to the final excavation depth. Approximately 14–15 feet northeast of the foundation, a tiered brick footing (or pier) was uncovered at 2.4 feet below surface (Photograph 4.6). No concentrated artifact deposits were uncovered. The few isolated artifacts observed, including bottle glass and pottery sherds, had a late-nineteenth-century manufacture date.

Trench 5.2 uncovered the continuation of the brick foundation wall found in Trench 5.1 (Photograph 4.7). This segment of the wall did not have a mortar-faced spread footer, as it did in Trench 5.1, but revealed the brick to be resting upon cut stone wider than the brick wall. Having a foundation wall set atop a spread footer or wider base would have been a fairly common building technique to help distribute the weight of the building in a shoreline area. The cut stone is similar to the stone foundation found in Test Area 4, Trench 4.1.

A second brick wall was uncovered approximately 11 feet west of the first wall (Photograph 4.8). This second wall was adjacent to a substantial cement surface located to the west of the wall at 1 foot below surface. The area between the two brick walls contained a 1.5-foot-thick ash layer followed by a creosote floor surface (Figure 4.4; see Appendix A).

According to the Phase IA report, Harbeck's Stave Yard occupied this area. In 1855, Harbeck's consisted of one brick building, while the remainder of the area was open. By the last quarter of the nineteenth century, Harbeck's consisted of five warehouses.

While it is likely that additional elements of the Harbeck's complex may be uncovered during the project, it is less likely that any pertinent information may be recovered from this area. There were no artifact concentrations and the construction techniques were typical of local nineteenth-century warehouses.

TEST AREA 6

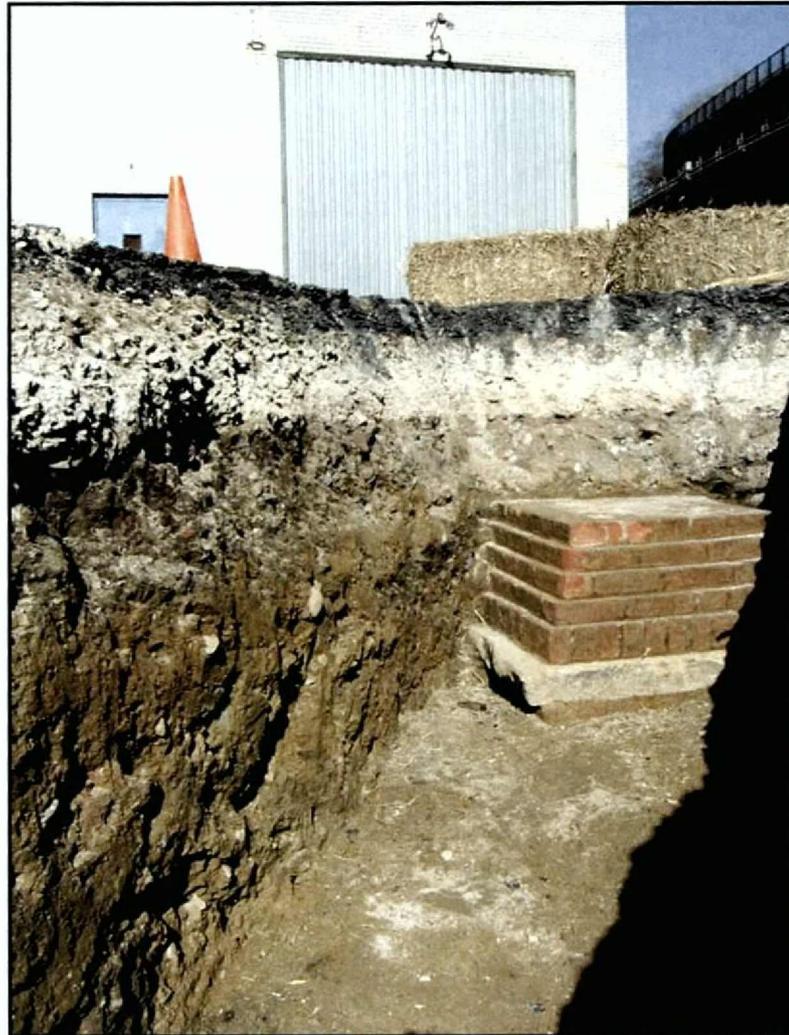
This area is located immediately north of Buildings 18–22 and west of Furman Street. Two test trenches were excavated, testing approximately 600 square feet (see Figure 4.3).

Trench 6.1 measured 13 x 26 feet and was located in the area that had been used as a parking lot and for storage of several antique vehicles by local area residents. The surface layer was particularly dense and composed of 4–6 inches of asphalt atop an 18-inch-thick concrete slab. Beneath this, several stratigraphic layers were exposed, including a distinct ash layer (Figure 4.5; see Appendix A).

At either end of the north-south oriented trench, stone foundation walls were uncovered at 2 feet below surface (Photographs 4.9 and 4.10). Both walls were of identical construction, cut schist stone with a plain sand mortar. Though no artifacts were recovered, the mortar suggests an early-nineteenth-century date, based on similar construction seen elsewhere within New York City and the experience of Skanska architect Andrew Schroder. The area between the two walls was filled with rubble and appears to represent the interior of a structure filled post-demolition.

Trench 6.2 was located south of Trench 6.1 and north of Building 18. Situated on an east-west axis, it measured approximately 9 x 28 feet. The surface layers were similar to those exposed in Trench 6.1 (Photograph 4.11).

At approximately 2 feet below surface, a 2-foot-thick stone foundation wall was uncovered along the north and west walls of the trench, forming the corner of a foundation. This foundation was identical in construction to the walls in Trench 6.1, composed of cut stone (schist) with a plain sand mortar. Several areas of the foundation had been patched with a more modern concrete aggregate.



Photograph 4.6 Trench 5.1, looking north.



Photograph 4.7 Trench 5.2, looking north.



Photograph 4.8 Trench 5.2, east wall.

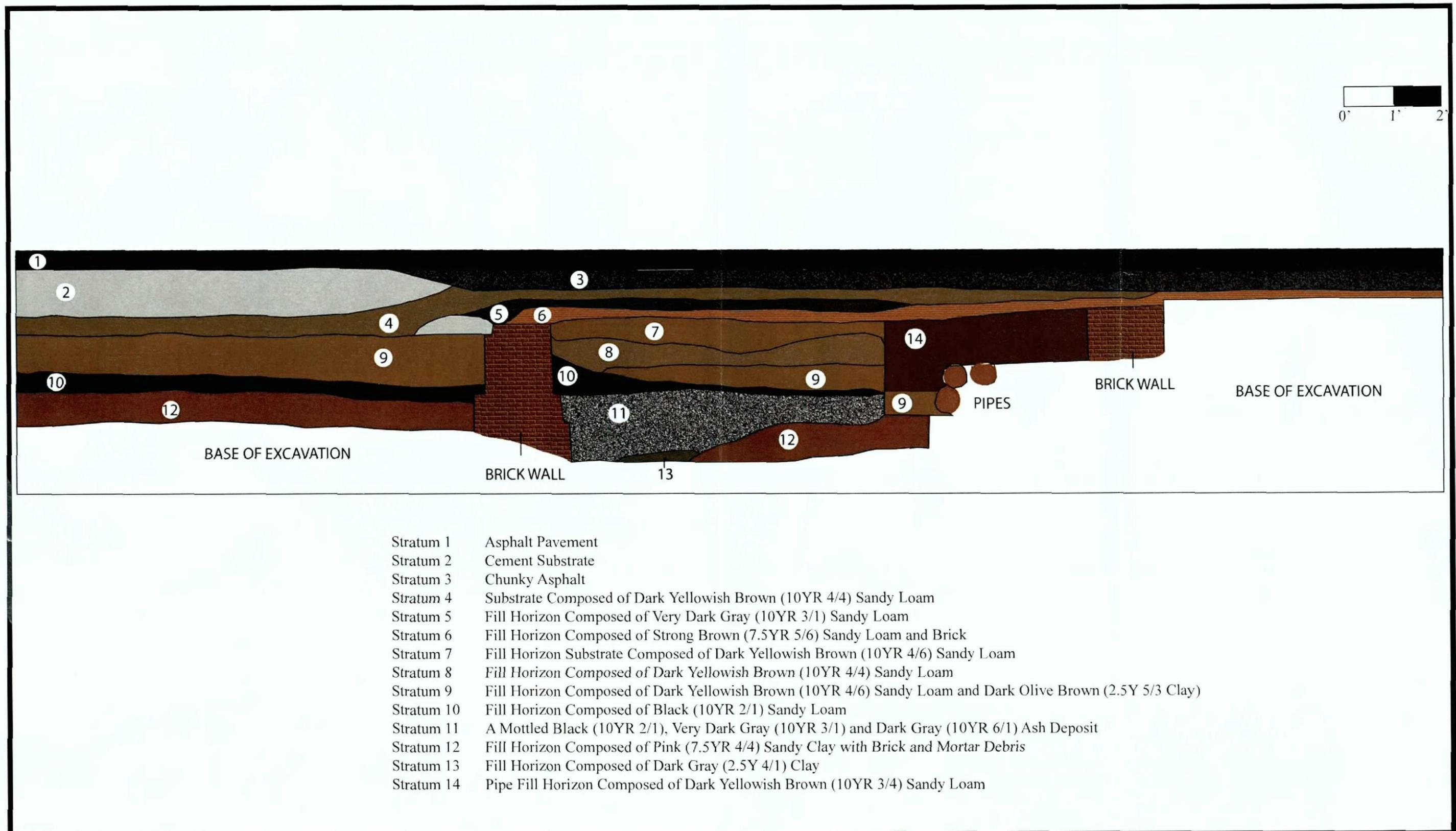
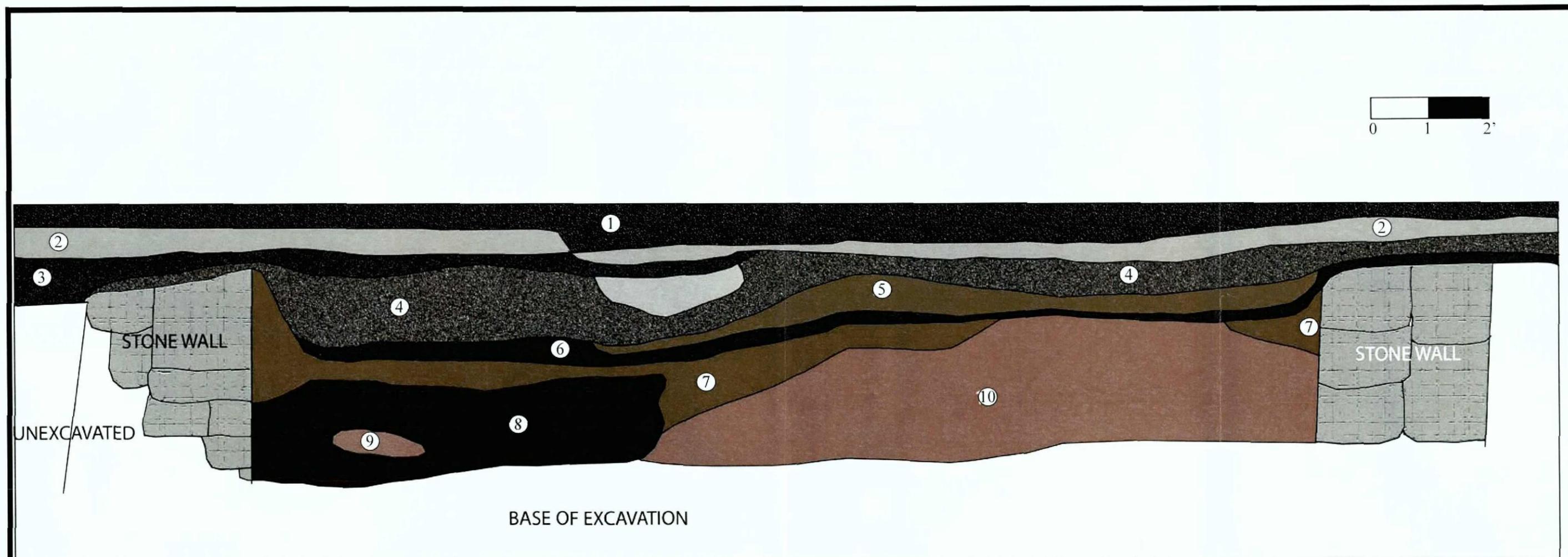


Figure 4.4 Trench 5.2 south wall profile.



- | | |
|------------|---|
| Stratum 1 | Asphalt Pavement |
| Stratum 2 | Concrete Slab |
| Stratum 3 | Old Asphalt and Gravel with Black (10YR 2/1) Sand |
| Stratum 4 | Fill Horizon Composed of Light Gray (10YR 7/1), Black (10YR 2/1) and Very Dark Gray (10YR 3/1) Ash, Concrete and Gravel |
| Stratum 5 | Fill Horizon Composed of Brown (10YR 4/3) and Very Dark Grayish Brown (10YR 3/2) Sandy Loam |
| Stratum 6 | Fill Horizon Composed of Very Dark Gray (10YR 3/1) Sandy Loam |
| Stratum 7 | Fill Horizon Composed of Dark Yellowish Brown (10YR 4/4) and Yellowish Brown (10YR 5/4) Fine Sandy Loam |
| Stratum 8 | Fill Horizon Composed of Dark Brown (10YR 3/3) Sandy Loam and Brick Rubble |
| Stratum 9 | Possible Dredge Horizon Composed of Light Olive Brown (2.5Y 5/3) and Dark Olive Brown (2.5y 3/3) Clay |
| Stratum 10 | Fill Horizon Composed of Reddish Brown (5YR 5/3) Sand with Brick and Mortar |

Figure 4.5 Trench 6.1 east wall profile.



Photograph 4.9 First schist foundation wall uncovered in Trench 6.1, looking south.



Photograph 4.10 Second schist foundation wall uncovered in Trench 6.1, looking north.



Photograph 4.11 Trench 6.1, east wall exhibiting multiple paving and debris deposition episodes.

Along the northern wall, two 1.3-x-1.1-foot rectangular openings were built into the wall (Photograph 4.12). Along the western wall, a similar opening had been filled in with uncut stone (Photograph 4.13). The purpose of these openings has yet to be determined.

The area within the foundation had been filled with rubble, including bricks (Photograph 4.14), some of which were stamped "washburn." The Washburn Brothers Company operated out of Glasco, New York, from 1890 to 1938 (Gurcke 1987: 313). However, this brick does not appear to be original to the structure. The bricks were all "clean" brick containing no evidence of mortar. Additionally the stone foundation had a plain sand mortar, common to the early nineteenth century, a period that clearly pre-dates the bricks. The brick appears to be a deposit in association with other rubble deposited some time during the structures demolition. Excavation continued to a depth of 5 feet, except for a segment at the eastern end of the north wall. This area was excavated to test for the depth of the foundation. At 8 feet, the foundation was still present; it appeared to continue farther, but excavation was halted because the water table was reached and water inundated the excavated area.

The foundation remains encountered in the two trenches represent two distinct buildings on different orientations, something not suggested in the earliest maps or the Phase IA report. The foundations are of identical composition—stone with a plain sand mortar—and substantial in their construction. The composition is suggestive of an early-nineteenth-century date. Whether or not the walls are remnant of DeForest storage (as discussed below) and the relationship between the two structures is unclear at this time, based on this limited Phase IB testing.

According to the Phase IA report (Historical Perspectives, Inc., and Raber Associates 2005), this area housed nineteenth-century warehouse structures as early as 1855. The 1855 Perris map indicated that the DeForest storage buildings in this location were constructed of brick. The Phase IA report further states that the warehouses were not significantly altered over time and were demolished by the mid-twentieth century. It also mentions an earlier structure that may have been present prior to the warehouse, but no further information is available.

TEST AREA 7

Located east of Pier 1, this area contained two test trenches, testing approximately 720 square feet (see Figure 4.3). This area showed some evidence of disturbance, but retained a significant degree of archaeological integrity.

Test Trench 7.1 measured 44 x 11 feet and was oriented on a north-south axis. Three distinct areas were exposed. Excavations uncovered a brick foundation at the northern end of the trench at less than 2 feet below surface (Photographs 4.15 and 4.16). The brick and mortar suggest a mid-nineteenth-century date. The bricks were unmarked, except for two marked "Brooklyn Fireworks Company Brick No. 2." Portions of the wall appear to have been damaged and rebuilt and/or extended. The foundation was located on the east side of the trench. Along the west wall, a second brick foundation was evident.

At the mid-section of the trench, a modern intrusion was encountered. This intrusion was clearly evident in the profile as a square cut into the primary stratigraphy (Figure 4.6, Stratum 7). The area of the intrusion was 10 feet wide and consisted of sand; it extended to a depth of 4 feet, where two concrete slabs were uncovered. These slabs appear to be the top surface of modern utility conduits.

The southern half of the trench did not contain any foundation remains. However, at approximately 4.5 feet below surface, a dark layer that contained wet decaying wood was exposed. Excavations continued into this layer, extending approximately 1.5 feet for a total depth of 6 feet in this section of the test trench. Several artifacts were recovered from this layer, including large iron spikes and nineteenth-century bottles (see Appendix B).

Except for the area of the intrusion, artifacts were found throughout the trench (see Appendix B). In addition to the materials mentioned above, ceramic sherds, porcelain insulators, and late-nineteenth-to-early-twentieth-century bottles were recovered (Photograph 4.17). Among the bottles were a Minck Brothers bottle and a Mission Soda bottle. Mission Soda, a California-based company, began production in the 1930s; Minck Brothers was a Brooklyn-based bottler of mineral water from the last quarter of the nineteenth century until the late 1930s.

Test Trench 7.2 measured 40 x 6 feet and was excavated on an east-west axis just west of the northern end of unit 7.1. The placement of Trench 7.2 was chosen to pick up the possible continuation of the wall exposed in Trench 7.1.



Photograph 4.12 Trench 6.2, north foundation wall.



Photograph 4.13 Trench 6.2, northwest foundation wall corner.



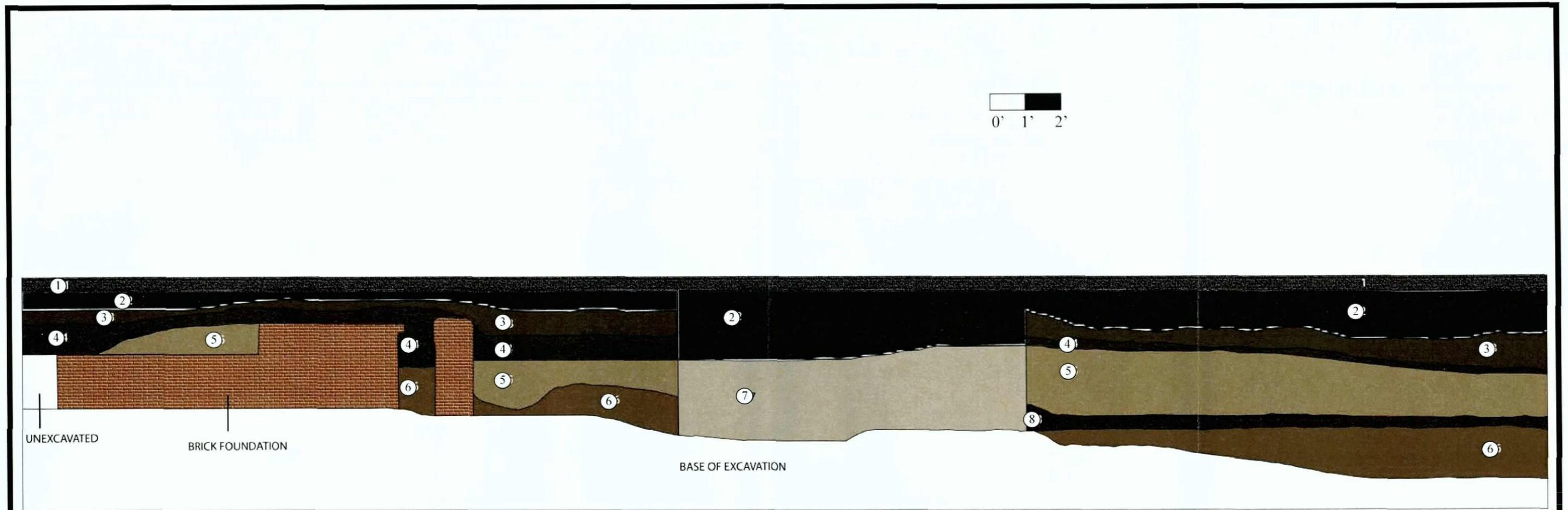
Photograph 4.14 Trench 6.2, northwest corner showing brick rubble fill, looking north.



Photograph 4.15 Trench 7.1, remnants of the flourmill, looking north.



Photograph 4.16 Trench 7.1, remnants of the flourmill, looking northeast.



- | | |
|-----------|--|
| Stratum 1 | Asphalt Pavement |
| Stratum 2 | Chunky Asphalt |
| Stratum 3 | Substrate |
| Stratum 4 | A Mottled Very Dark Gray (10YR 3/1), Dark Grayish Brown (10YR 4/2) and Light Gray (10YR 7/1) Ash Deposit |
| Stratum 5 | Fill Horizon Composed of Yellowish Brown (10YR 5/4-5/6) Sandy Loam with Brick and Mortar |
| Stratum 6 | Fill Horizon Composed of Dark Yellowish Brown (10YR 4/4) Sandy Loam with Brick and Mortar |
| Stratum 7 | Fill Horizon Composed of Light Brownish Gray (10Yr 6/2) Sand |
| Stratum 8 | A Very Dark Brown (10 YR 2/2) and Light Gray (10YR 7/1) Ash and Gravel Deposit |

Figure 4.6 Trench 7 east wall profile.



Photograph 4.17 Minck Brothers mineral water bottle, circa 1875 to late 1930s.

Excavation of Trench 7.2 exposed a brick wall at the eastern end of the trench. This area contained a dense layer of sand and brick rubble. The bricks appear to be similar to those used in the construction of the foundation wall. At the western side of this wall, at approximately 3.5 feet below surface, excavation revealed the extension of a level brick surface that extended west throughout the length of the trench.

Upon breaching this brick surface, a conduit was revealed. The brick surface formed the top of the conduit that begins at the brick foundation wall and slopes downward (on the interior) toward the East River. The sides of the conduit were also constructed of brick, its height approximately 2.5 feet. The northern wall was punctuated by small holes observed at 2-foot intervals. As excavation continued, the water table was breached at 6 feet below surface. This portion of the excavation coincided with the onset of high tide on the river. At this point, water poured from the holes along the northern wall into the conduit. The result appears to have kept the water at high tide from rising above a certain level as it rose against the brick foundation (Figure 4.7 and Photograph 4.18).

Trench 7.2 was extended west to meet with Trench 7.1, exposing the remainder of the brick wall in Trench 7.2 and an area between this wall and the wall in Trench 7.1. The western side of the foundation wall first exposed in Trench 7.1 had a stepped brick extension built into its northwest outer corner. The functional purpose of this is not clear, but it may have served as a support pier (Photograph 4.19). Artifacts from this area included late-nineteenth-century ceramic shards, porcelain insulators, and bottle glass.

According to the Phase IA report (Historical Perspectives, Inc., and Raber Associates 2005), this area housed a flourmill as early as 1850. The report states that the Jewell Milling Company managed the mill throughout its operation. Two fires occurred at the mill, in 1861 and 1864. After both incidents, *the mill was rebuilt and expanded* (Historical Perspectives, Inc., and Raber Associates 2005). Potential evidence of these fires was apparent during the excavation in the form of an ash layer. The complex is said to have contained a large milling building, smoke stacks, conveyors, and a wharf. The mill ceased operation in 1910 and was demolished by 1915 (Historical Perspectives, Inc., and Raber Associates 2005). The artifacts recovered from this area support this time frame.

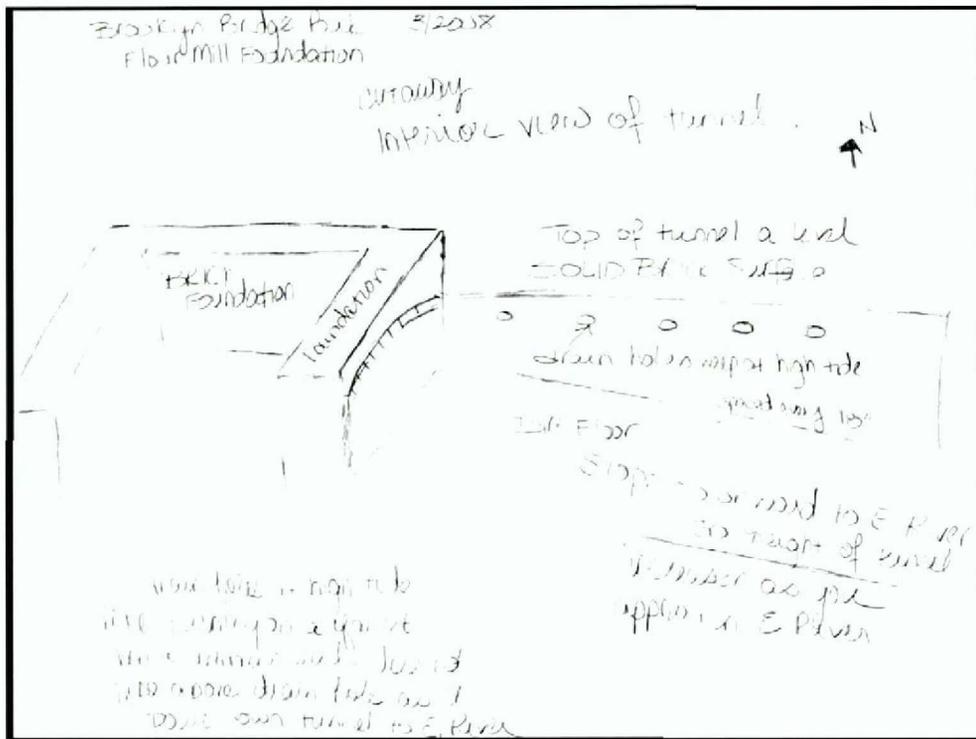


Figure 4.7 Sketch of exposed brick foundations and brick conduit.



Photograph 4.18 Trench 7.2, brick conduit, looking east.



Photograph 4.19 Trench 7.2, possible brick support pier, looking east.

Conclusions and Recommendations

The goal of the Phase IB investigation was to determine the presence or absence of cultural resource remains within the first 5 feet of the test areas as outlined in the testing protocol designed by AKRF and approved by the NY SHPO and the New York City Landmarks Preservation Commission and make recommendations regarding additional testing if warranted. The scope of work presented research objectives for the Phase IB testing, including the potential of identifying nineteenth-century landfill methods and materials, warehouse structures, and the possibility of a Revolutionary-era sailing ship.

The majority of the test areas discussed above reflects several episodes of disturbance due to demolition and utility work that occurred throughout the nineteenth and twentieth centuries. Test Areas 2 and 3 revealed the greatest degree of disturbance and contained no evidence of historic surfaces or materials. Test Areas 4 and 5 both contained remnants of late-nineteenth-to-early-twentieth-century occupation in the form of structural remains. The structural elements were documented and no artifact deposits either associated with these elements or with previous or subsequent historic occupation were present. Based on the information recovered, no further testing is needed in Test Areas 2, 3, 4 and 5.

It can be expected to find structural remains similar to those documented within Test Areas 4 and 5, within 2 feet of the existing surface throughout the site. Doing so would not be unexpected or unanticipated as it appears the structural elements that are no longer extant were leveled and the larger area then graded for the more recent construction. However, subsequent planned construction activities within these areas extending to a depth of 5 feet below the surface may still encounter unanticipated cultural resources (i.e., shaft features, artifact deposits, etc.). If such resources are encountered, then excavation will be halted to allow for recovery and documentation of the uncovered resource. Upon completion of the documentation, work will resume. This procedure is outlined in the *Archaeological Testing Protocol* (AKRF 2007).

Of the areas tested to date, Test Areas 6 and 7 have retained the highest degree of archaeological integrity and potential at the Brooklyn Bridge Park site. Test Area 6, historically the area of DeForest storage, revealed foundation remains that do not correspond with the results of the background research or any of the historic maps within the Phase IA report. Building material, architectural features, and the depth below surface provide indications that this locale is more substantial and possibly contains resources dating earlier than the nineteenth-century warehouse structures in the area. The two foundation remains are on differing orientations within several feet of one another. The schist stones, mortared with a dry sand mortar common to the turn of the nineteenth century, are of a different form, size, and construction to the other structural remains found on site to date. Located immediately west of Furman Street, they are more common to Manhattan construction of the late eighteenth to early nineteenth centuries.

The foundation remains in Test Area 7, most likely associated with the flourmill complex, are the most substantial identified within the project area to date. These remains also appear to retain the highest degree of archaeological integrity, revealing significant foundation remains, artifacts, what appears to have been an intact surface, and a heretofore previously unseen intact piece of nineteenth-century infrastructure in New York City archaeology. Artifacts came from several areas within the excavation of Test Area 7 and at different levels, including the ash layer in both test trenches, as well as the layer beneath the decayed wood pieces at 6 feet below surface in 7.1.

Based on the Phase IB testing in Test Areas 6 and 7, URS recommends that Phase II excavation occur within these test areas. The two areas contain cultural resource remains that are potentially significant. Testing would consist of additional backhoe trenching supplemented by manual excavation as necessary in the area of these resources. In Test Area 6, a larger area would be stripped and the space between the two foundations would be exposed to determine the relationship between the two foundation walls, their extent, function, and potential recovery of artifact surfaces. In Test Area 7, a section north of the previously uncovered conduit would be exposed to determine if there is additional infrastructure associated with this conduit. The question arises if drainage—as seems apparent based upon recent observation—was the original purpose of this conduit. Exposing a wider area alongside the conduit would allow for better observation of the weep holes and the construction of the conduit. If the original and sole

purpose of this conduit is drainage, it is an infrastructural form that has not yet been documented within New York City.

Further excavation will provide necessary information that will help lead to a better identification, description, and determination of significance of these cultural resources. If the resources appear to meet eligibility criteria, the LPC and OPRHP will be notified and invited to an on-site meeting to discuss whether the resources have been sufficiently documented methods of mitigating unavoidable impacts.

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Appendix A
Soils Stratigraphy

APPENDIX A: STRATIGRAPHY

Test Area 2

Test Trench 2.1

Stratum I	Pavement	
Stratum II	substrate	2.5Y 5/3 sandy loam
Stratum III	CH mottled	10YR 4/4 & 4/6 sand, loam
Stratum IV	CH sand	10YR 5/6 - 5/8 sand
Stratum V	CH brick layer	10YR 3/4 sandy loam
Stratum VI	CH black	10YR 2/1 crushed asphalt
Stratum VII	CH sand	7.5YR 4/4 sandy loam
Stratum VIII	CH brick	7.5YR 4/6; sandy loam
Stratum IX	CH sand	10 YR 4/4 - 4/6 sand
Stratum X	CH gley	5Y 4/1, clay

Test Area 4

Test Trench 4.1

Stratum I	asphalt	10YR 2/1
Stratum II	fill	10YR 4/3 Fe
Stratum III	Fill	10YR 5/6 brick, ash & shell lens
Stratum IV	fill	7.5YR 4/4 mortar and brick lens
Stratum V	fill	7.5YR 4/6 pebble, cobble, Fe
Stratum VI	fill	2.5Y 4/1 sandy, pebble
	Associated fill around utility pipe	10YR 4/3, 10YR 3/1

Test Trench 4.2

Stratum I	asphalt	10YR 2/1 parking lot
Stratum II	substrate	10YR 6/2 coarse sand; sandy fill layer,
Stratum III	Asphalt	10YR 3/1 asphalt/Gravel
Stratum IV	Fill	10YR 5/4 sandy loam; brick, mortar, cement, large cobble fill

Test Area 5

Test Trench 5.1

Stratum I	Asphalt	
Stratum II	Substrate	
Stratum III	CH fill	5YR 5/2 sandy loam with brick and rubble demolition fill
Stratum IV	CH fill	10YR 6/2 clean fill with pebbles and small cobbles
Stratum V	CH fill	10YR 4/3, 5/3, 2/2; demolition fill
Stratum VI	CH fill	10YR 4/3; mottled with Fe staining, sand with pockets of clay
Stratum VII	Darker substrate	
Stratum VIII	Old asphalt	
Stratum IX	CH fill	5YR 4/4 with brick and mortar
Stratum X	CH fill	7.5YR 4/3; coarse loamy sand
Stratum XI	CH fill	10YR 5/6; coarse sand, alluvial pockets of clay
Stratum XII	CH fill	10YR 4/6; sandy loam, pockets of clay
Stratum XIII	Ash	with mortar and brick
Stratum XIV	CH fill	7.5YR 6/3, 4/6, 3/4, sand

Test Trench 5.2

Stratum I	Asphalt	(parking lot)
Stratum II	Cement substrate	
Stratum III	Chunky asphalt	
Stratum IV	CH substrate	10YR 4/4 sandy loam
Stratum V	CH black lens	10YR 3/1 sandy loam
Stratum VI	CH brick lens	7.5YR 5/6, sandy loam
Stratum VII	CH substrate	10YR 4/6, sandy loam
Stratum VIII	CH sand	10YR 4/4, sandy loam
Stratum IX	CH Sand w/clay	10YR 4/6 sandy loam, 2.5Y 5/3 clay
Stratum X	CH black lens	10YR 2/1
Stratum XI	Ash	10YR 2/1, 3/1 and 6/1
Stratum XII	CH Brick and Mortar debris	7.5YR 4/4 sandy clay
Stratum XIII	CH dredge/glee	2.5Y 4/1 clay
Stratum XIV	Associated pipe fill	10YR 3/4 sandy loam

Test Area 6**Trench 6.1**

Stratum I	Asphalt	
Stratum II	Concrete	
Stratum III	Old Asphalt & Gravel	10YR 2/1 sand, gravel
Stratum IV	Ash, Gravel & Concrete	10YR 7/1, 2/1, 3/1 concrete, gravel
Stratum V	CH Reddish Brown	10YR 4/3, 3/2 sandy loam
Stratum VI	CH black lens	10YR 3/1 sandy loam
Stratum VII	CH Reddish Brown	10YR 4/4 & 5/4 fine sandy loam
Stratum VIII	CH Dark Brown fill	10YR 3/3 sandy loam and brick fill
Stratum IX	CH Clay (possible Dredge)	2.5Y 5/3 & 3/3 clay
Stratum X	CH Sand mortar & brick	5YR 5/3 sand mortar

Test Trench 6.2

Stratum I	Asphalt/Pavement	
Stratum II	Old Asphalt	10YR 2/1 – 3/1 asphalt/gravel
Stratum III	CH Brick/Mortar Fill	10YR 4/4 – 4/6
Stratum IV	Stone wall	
Stratum V	CH Dark Brown brick debris	10YR 3/3 sandy loam
Stratum VI	CH Brick with sand mortar	7.5 YR 6/2 – 6/3 sand mortar

Test Area 7**Test Trench 7.1**

Stratum I	Pavement	
Stratum II	chunky asphalt	10YR 2/1 -- 3/1
Stratum III	substrate	10YR 3/2
Stratum IV	Ash	10YR 3/1, 4/2, 7/1
Stratum V	CH brick and mortar	10YR 5/4 - 5/6
Stratum VI	CH brick and mortar	10YR 4/4
Stratum VII	CH sand	10YR 6/2
Stratum VIII	CH ash/gravel	10YR 2/2 and 7/1

Test Trench 7.2

Stratum I	Pavement	
Stratum II	chunky asphalt	10YR 2/1 - 2/2, gravel
Stratum III	substrate	10YR 5/3 gravel, sandy loam
Stratum IV	old black asphalt	10YR 2/1 - 3/2, gravel
Stratum V	brick and sand mortar fill	7.5YR 4/4, sandy loam
Stratum VI	old asphalt loam	10YR 2/1, gravel, sandy loam
Stratum VII	sand fill for drainage pipe	10YR 6/1 sand
Stratum VIII	chunky asphalt	10YR 2/1 - 2/2, gravel, sandy loam
Stratum IX	ash layer	10 YR 2/2, 7/1, 5/3 ash
Stratum X	concrete	
Stratum XI	brick floor	

Appendix B
Artifact Catalog

FS #	Provenience	Count	H/P	Class	Material	Object	Typology	Surface/Decoration	Element	Comments	Begin Date	End Date
1	Trench 4.1 Back Dirt Pile	1	Historic	Bone	Mammal	Bone Fragment			Fragment	Multiple saw marks (butchery errors) on large bone section. Likely a bovine pelvis.		
1	Trench 4.1 Back Dirt Pile	1	Historic	Shell	Clam	Shell			Fragment	Quahog/hard shell clam		
1	Trench 4.1 Back Dirt Pile	1	Historic	Ceramic	Refined Earthenware	Sherd	Yellowware	Unknown	Body		1827	1940
1	Trench 4.1 Back Dirt Pile	1	Historic	Ceramic	Refined Earthenware	Plate	Whiteware	Shell Edge	Rim	Interior spalled	1800	1850
1	Trench 4.1 Back Dirt Pile	1	Historic	Ceramic	Refined Earthenware	Plate	White Granite	Unknown	Rim	Plain rim. Probably undecorated	1840	1930
1	Trench 4.1 Back Dirt Pile	1	Historic	Ceramic	Refined Earthenware	Sherd	White Granite	Unknown	Base	Medium to large sized vessel.	1840	1930
1	Trench 4.1 Back Dirt Pile	1	Historic	Ceramic	Refined Earthenware	Sherd	White Granite	Unknown	Body		1840	1930
1	Trench 4.1 Back Dirt Pile	2	Historic	Ceramic	Refined Earthenware	Sherd	Whiteware	Unknown	Body	CC ware. Probably tableware. Heavy wear apparent.	1810	1900
1	Trench 4.1 Back Dirt Pile	1	Historic	Ceramic	Refined Earthenware	Plate	Whiteware	Printed	Rim	Light blue. Rim sherd.	1830	1880
1	Trench 4.1 Back Dirt Pile	1	Historic	Ceramic	Stoneware	Hollowware	Gray/Buf Bodied	Miscellaneous Brown Slip	Body	Reddish/brown thick body; medium brown glaze both surfaces.		
1	Trench 4.1 Back Dirt Pile	1	Historic	Ceramic	Clay	Pipe	White Ball Clay	Unknown	stem			
2	Trench 7.1A N. end of flower mill on top of brick	1	Historic	Ceramic	Porcelain	Insulator	Hard Paste Porcelain	Molded Pattern	Complete	Dust-pressed bar-shaped insulator w/rounded ends and unidentified mark on surface, diamond w/ illegible initials in center. Two holes on either end, presumably for nails or screws and threaded depressions on unglazed back side of insulator.	1878	2008
2	Trench 7.1A N. end of flower mill on top of brick	1	Historic	Glass	Glass	Bottle	Unidentified		Base	Likely mold or mouth blown.		
2	Trench 7.1A N. end of flower mill on top of brick	1	Historic	Composite	Cement	Building Material			Fragment	Flat on either end as though it came from between two bricks or cut stone.		
2	Trench 7.1A N. end of flower mill on top of brick	1	Historic	Metal	Iron	Bolt/Nut			Complete	Large nut, threaded on interior		
2	Trench 7.1A N. end of flower mill on top of brick	1	Historic	Metal	Iron	Spike			Fragment	Round, point end of spike		
3	Trench 7.1B	1	Historic	Glass	Glass	Bottle	Mold Blown	Embossed	Complete	Complete. "Minck Brothers: since 1866 making beer and soda" Embsd front w/ 'M/MINCK BROS & CO/ 45T053BEAVER ST/BROOKLYN. E. D.' On back: elaborate design incorporating an M and B w/ a 'Co' w/ a single 'M' towards the top. Blob top, lightning stopper.	1879	1910

FS #	Provenience	Count	H/P	Class	Material	Object	Typology	Surface/Decoration	Element	Comments	Begin Date	End Date
4	Trench 7.1C	2	Historic	Glass	Glass	Bottle	Machine Made	Printed	Body/ Base	Deteriorating painted black and white label. Embossed on base 'MISSION DRY CORP/ 14, 1 (in a circle) 55/ 4/ g-854/CONTENTS/12 OZS'. On front: '...led by quality.../...MIS.../...REG/...RAG ...ALLY GOOD/...ER LICENSE OF MISSION DRY CORPOR...'. Dates:Bill Lockhart website.	1935	1956
4	Trench 7.1C	1	Historic	Ceramic	Refined Earthenware	Hollowware	White Granite	Unknown	handle	Handle from a large hollowware, possibly an ewer or chamber pot.	1840	1930
5	Trench 7.1D	1	Historic	Shell	Oyster	Shell			Fragment			
5	Trench 7.1D	1	Historic	Bone	Mammal	Bone Fragment			Fragment	Long section of a bovine tibia with single sawn end and rust staining.		
5	Trench 7.1D	1	Historic	Ceramic	Stoneware	Pipe	Salt Glazed	Undecorated	Body	Large drainage pipe	1820	2008
5	Trench 7.1D	1	Historic	Glass	Glass	Bottle	Mold Blown	Fluted	Complete	Complete. Frn'H.L. Plant/146 Pearl St/Brookly'. Back:'TRADE MARK' w/ an elaborate logo incorporating a P & B. 'P' at top. Base: 'P' inside star. Crown finish w/ fluted base w/ mold seams down sides, disappearing twrds top. See H.L. Plant 1914 obit NY Times.	1892	1920
5	Trench 7.1D	1	Historic	Glass	Glass	Bottle	Machine Made	Embossed	Body/ Base	Embossed front: 'FRED W. WITTE/96-102/L.QUEER ST/BROOKLYN,NY'. On Back: elaborate logo w/ a W & F; at bottom "REGISTERED". Mold lines extend down sides to base & around bottom. End date from 1906 Court News in Brklyn Dly Stnd Union paper.	1899	1906
5	Trench 7.1D	1	Historic	Glass	Glass	Bottle	Machine Made	Reeded	Body/ Base	Ribs/reeds running length of bottle with a square section left blank, presumably for a paper label. 'H' embossed on base. Non-lead glass.	1899	2008
5	Trench 7.1D	1	Historic	Glass	Glass	Bottle	Mold Blown	Unknown	Rim	milk bottle, non lead	1886	1960
5	Trench 7.1D	1	Historic	Glass	Glass	Bottle	Unidentified	Embossed	Body	Body sherd. Embossed on side: 'PLANT B.../...P (or) R (or) B E (or) F' non lead. Possibly from another H.L. Plant bottle.		
5	Trench 7.1D	1	Historic	Glass	Glass	Bottle	Unidentified	Embossed	Body	Body sherd. Unidentified embossed design with 'MAR...' non lead		
5	Trench 7.1D	1	Historic	Glass	Glass	Bottle	Machine Made	Embossed	Body	Base from an oval bottle. Embossed on side: "...PINT...". Other side: "...230/4 1". Non-lead glass.	1899	2008

FS #	Provenience	Count	H/P	Class	Material	Object	Typology	Surface/ Decoration	Element	Comments	Begin Date	End Date
5	Trench 7.1D	1	Historic	Glass	Glass	Bottle	Unidentified	Reeded	Body	Very similar to entry 6 this context, likely machine made. Ribs/reeds running down sides.		
5	Trench 7.1D	1	Historic	Glass	Glass	Bottle	Unidentified	Unknown	Body	Non-lead glass. Square bottle.		
5	Trench 7.1D	1	Historic	Glass	Glass	Bottle	Mold Blown	Unknown	Neck	Finish: externally threaded, tooled finish. Likely a condiment bottle. Non-lead	1890	1920
5	Trench 7.1D	1	Historic	Glass	Glass	Bottle	Unidentified	Unknown	Body	Large vessel		
5	Trench 7.1D	1	Historic	Glass	Glass	Bottle	Machine Made	Undecorated	Complete	Complete. 3 3/4 inches high. Flared lip, short neck, straight sides, machine mark on base.	1893	1950
5	Trench 7.1D	1	Historic	Glass	Glass	Bottle	Machine Made	Undecorated	Complete	Complete 2 3/4 inches high. Exterior threaded closure. Stippled base. Probably medicine bottle. Embossed on base: '81-08/6 40 2.' with an emblem consisting of an H with an anchor through it.	1893	2008
5	Trench 7.1D	1	Historic	Metal	Iron	Sheet Metal			Fragment	Section of flat sheet metal with one corner intact. Possible traces of enamel but overall very rusted.		
5	Trench 7.1D	1	Historic	Metal	Copper Alloy	Screw			Complete	Copper alloy screw attached to a small copper alloy bracket.		
5	Trench 7.1D	1	Historic	Metal	Copper Alloy	Pipe			Fragment	section of copper pipe with a square hole		
5	Trench 7.1D	1	Historic	Metal	Iron	Rod			Fragment	cast iron rod		
5	Trench 7.1D	1	Historic	Ceramic	Porcelain	Insulator	Hard Paste Porcelain		Fragment	Rectangular dust-pressed insulator with arched long sides. "knock out" and "1008" impressed on front. Fragments of attached copper alloy and unidentified material still present.	1878	2008
5	Trench 7.1D	3	Historic	Ceramic	Porcelain	Insulator	Hard Paste Porcelain		Fragment	Pieces of at least 2 rectangular dust-pressed insulators. 'B.&D.PAT/AUG 13.95/NO.1 1/2' impressed on front. Two holes on either side, center back portion threaded.	1895	1940
5	Trench 7.1D	2	Historic	Ceramic	Porcelain	Insulator	Hard Paste Porcelain		Fragment	Spool shaped insulators with no markings.	1878	2008
5	Trench 7.1D	1	Historic	Ceramic	Porcelain	Unidentified	Hard Paste Porcelain	Unknown	Body	Large sherd, possibly from a sanitary (kitchen or bathroom) fixture		
5	Trench 7.1D	1	Historic	Ceramic	Refined Earthenware	Hollowware	White Granite	Unknown	Base	Large vessel with a tall u-shaped foot ring.	1840	1930
5	Trench 7.1D	1	Historic	Ceramic	Refined Earthenware	Hollowware	White Granite	Molded Pattern	handle	Rust stained handle, probably from a pitcher or ewer.	1840	1930