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Grossman and Associates, Inc.

Archaeological Specialists

October 17, 1994

To: Mr. Buckley Yung
Planning Department
NYC Housing Authority

From: Dr. Joel W. Grossman
Grossman & Associates inc.

Re: End of Field Letter for the Archaeological Documentation and Mitigation of the Pre-Civil War Stone Cistern and Associated Drain Complex within Lots 58 and 59, Block 378, PSA 4 Project, New York, New York (CEQR 94HPD302M)

Scope and Purpose of the Compliance Process:

This End of Field Letter documents the completion of the fieldwork portion of the NYC Landmarks Preservation Commission (LPC) mandate for the mitigation of adverse impacts to the pre-Civil War stone cistern complex and associated features within Lots 58 and 59, Block 378 on the Lower East Side of Manhattan. This preliminary report addresses the completion of fieldwork as one element of the compliance for the archaeological documentation and mitigation process. Assuming proper laboratory processing, conservation and curation of the resultant collection, this investigation will have met both the CEQR and Federal compliance standards for the mitigation of adverse impacts to a potential National Register eligible cultural resource affected by a Federally funded or licensed development program.

All archaeological data recovery tasks were completed as of September 16, 1994, the N.Y.C Housing Authority (NYCHA) formally authorized the additional field and laboratory effort for the documentation and analysis of the Pre-Civil War Cistern and associated cultural materials as of Wednesday October 5, 1994. This letter report documents the completion of field activities and the results of initial laboratory processing and suggests a reconstruction of the structural elements and stratigraphic sequence of this significant, and otherwise undocumented early 19th century historic stone cistern and associated cut stone and brick inlet and outlet drain complex. This complex was found buried and preserved beneath a 2 - 3 foot cap of modern demolition debris in association with some 25,000

350

pre-1864 Civil War era artifacts in the rear yard portion of what was once Lot 58 of Block 378 (within and beneath the remains of a 16 ft. by 25 ft. rectangular stone structure). In addition, the investigation also resulted in the excavation and documentation of one late 19th - early 20th century privy features in Lot 59, and a mid to late 19th century pit feature.

Background to the Staged Compliance Process: Identification, Evaluation, and Mitigation

The discovery and documentation of the Pre-Civil War cistern complex represented the final stage of a multi phased compliance effort mandated under CEQR and Federal Section 106 compliance regulations of the National Historic Preservation Act which was conducted as an incremental, three stage, site identification, evaluation and documentation, and mitigation process. Based on the findings on an initial Stage 1A documentary sensitivity study by Rubinson (1993), which identified the potential for survival of undisturbed 19th century historic features in the rear yard portions of six lots within the PSA 4 project area, the Landmarks Preservation Commission mandated the need for subsequent Stage 1B presence or absence subsurface archaeological tests within the project parcel. Subsequent to the initial document based study, all phases of the mandated field investigation were undertaken by the staff of Grossman and Associates. Although the basic artifact inventory and analysis tasks are still underway, the excavation resulted in the recovery of some 25,000 Civil War era (pre 1865) historic artifacts which are providing critical chronological information on the time frame, or dates of construction, use, and abandonment of the early cistern complex.

The initially mandated Stage 1B presence and /or absence field tests were conducted over a seven day period between July 26 and Aug. 3, 1994, and involved a basic machine assisted subsurface investigation of the rear yard areas of six lots to establish the potential presence or absence of surviving 19th Century remains below a 2 - 3 foot cap of recent 20th century demolition debris. The Stage 1B End of Field Report, dated Aug. 5 and accepted by LPC as of Aug. 8, documented the survival of undisturbed an historic stone building foundation, structural remains, and associated cultural deposits and features in only two of the six lots (Lot 58 and a small section of adjacent Lot 59) which warranted further investigation and documentation. The recovery of an 1823 Dutch coin in the matrix of the foundation wall indicated that, as well as not having been recorded in the archival or cartographic record, the Lot 58 building foundation appeared to be considerably earlier in construction date than the Stage 1A sensitivity study had documented for the initial historic building construction at the rear portion of Lot 58 of ca., which had been projected, based on surviving City records, as dating to post-1879 (Rubinson 1993).

Following the preparation of a detailed Data Recovery Plan, and a two day mobilization effort, the LPC approved mitigation plan focused on the excavation and

documentation of the otherwise unrecorded early stone building at the rear portions of Lots 58 and 59. The mitigation plan was undertaken and completed in eight days of fieldwork between Aug. 31 and Sept. 9, 1994. This concentrated data recovery effort documented the structural details and stratigraphic context of mid and late 19th century features in the rear of Lot 59, and the otherwise undocumented interior surface and deposits of a ca. 16 by 25 foot dry laid stone building foundation in the rear of Lot 58.

Finally, following the completion of the initially mandated data recovery tasks (excavated with alternating checkerboard grid pattern of 12, 5 by 5 foot stratigraphic control units) down to and through the original interior floor of the building, a final deep probe revealed the unexpected discovery of a well preserved and finely crafted 8 foot wide by ca. 5 ft. deep dry laid stone cobble cistern beginning below the level of the foundation wall, 3.5 ft. below modern grade, which was found associated with two buried and well preserved cut stone and brick inlet and outlet drains connected to it. The buried stone cistern feature was excavated and recorded as an additional level of effort (Change Order 3) beyond the initially mandated and authorized scope of archaeological investigations for Lots 58 and 59.

In terms of the standards and criteria for evaluating the historic and archaeological significance of this discovery, the Pre-Civil War Cistern Complex and its associated finds had unambiguous stratigraphic and cultural "integrity", and clearly demonstrated the potential for adding significant information to the undocumented history of the Lower East Side of Manhattan. As such, given the quality of the artifactual preservation, and the historic and technological significance of the water control cistern complex documented in association with the unmixed sample of historic artifacts which filled the cistern, these artifactual and structural finds clearly meet the criteria (research potential, integrity, and local significance) for eligibility for nomination to the State and National Registers of Historic Places. Based on these criteria, the subsequent archaeological mitigation was initiated in accordance with the appropriate NYC Landmarks Preservation Commission and Department of Interior Procedures (36 CFR 800) for the proper documentation, stabilization, and interpretation of significant archaeological resources. Consequently, notwithstanding current efforts by the NYC Housing Authority to avoid any future construction related impacts to the now reburied structure, the completed archaeological data recovery program, in tandem with the ongoing laboratory processing, stabilization, curation and analysis of the archaeological collection, has resulted in the mitigation of potential adverse impacts to the information potential and structural integrity of the pre Civil War cistern complex, and as such, constitutes grounds for a "No Effect" determination by the involved review agencies.

Field Procedures and Recordation:

The excavation and documentation of the cistern complex was conducted within a tightly controlled grid-based network of 5 by 5 foot. horizontal excavation units. All discrete

naturally stratified surface layers, pit features, and fill deposits were excavated and computer recorded as natural stratigraphic units of deposition and association which guaranteed the recovery and documentation of proper chronological units of cultural association and contemporaneity.

All excavation materials were either dry or water screened on site. In addition, a select sample of waterlogged feature fill from the base of the cistern was subjected to flotation recovery procedures to screen for the presence of often minute faunal and floral materials. This micro-recovery process floats and separates small, and often charred, animal and plant remains to the surface of a water filled container within which the heavier soil drops to the bottom. Although it is commonly applied in the investigation of prehistoric sites, but less so for more recent, but generally equally unknown historic period sites, this process resulted in the recovery of large quantities of Civil War era domesticated and wild animal remains, fish bones and scales, as well as charred and preserved plant, and seed remains, all of which would have passed through the large spring steel, 1/4 inch metal mesh, oscillating field screens.

In addition to documenting the relative stratigraphic sequence and time frame for construction, use, and abandonment of the cistern complex, all excavation levels, features and structural elements were precisely recorded in absolute grid location and elevation (XYZ coordinates) to a resolution of 0.01 inch utilizing our computer transit system. All computer transit recorded provenience measurements were then transferred to desktop mapping software and translated into NYC coordinate and elevation data, as depicted on the most recent "as built" Housing Authority project plans.

In tandem with this high resolution computer transit based recordation, all excavated features and structural elements were also photo-documented in 35mm and medium format color slide and print film, with each formal photographic record scaled with vertical and horizontal rules and identified with computer compatible excavation context and feature numbers on "menu boards". As a final step in the recordation process, once completely exposed and cleaned, the portable protective rain and sun shelters were removed as of September 16th, and the entire complex was photogrammetrically recorded with a wide angle, flat field, Rolleimetric medium format metric camera which provided an encapsulated film based record of the excavated cistern complex from a range of 3D, or XYZ perspectives. An enlarged set of four 11 by 14 inch prints of Rolleimetric records of the finished excavation was delivered to the NYC Housing Authority together with an initial archaeological site map on Friday, Sept 23, 1994.

Finally, as part of this final data recovery effort, the total of ca. 30,000 artifacts (ca. 5,000 from the 5 by 5 foot excavated units and 25,000 from the cistern) are undergoing computerized processing and inventory, basic stabilization, conservation, and initial

identification aimed at establishing the material range, time frame, function, and origins of the excavated artifacts.

Backfilling and Structural Stabilization:

At the request of the Housing Authority, once completely recorded and excavated, the cistern complex was chemically and physically stabilized and backfilled in two stages to provide optimum chemical and physical protection for the Cistern complex. Immediately before reburial, several handfuls of modern coins were spread over the excavated surfaces to serve as time markers to delimit the extent and depth of the 1994 excavation. An initial bedding of eight cubic yards of chemically neutral "red" clay was ordered and manually spread over the exposed cistern and drain elements of protect them from impacts from the subsequent redeposition of heavy rubble fill. Finally, with the assistance of staff and equipment of the Housing Authority, the entire excavation area was backfilled to the level of modern grade as of Tuesday, September 27.

The Pre-Civil War Cistern: Stratigraphic Context, Structure, and Chronology

This pre-Croton Reservoir water control cistern structure was found to be totally intact and undisturbed by the subsequent ca. 150 plus years of later 19th and 20th century building and demolition activities at the site. No mixed late 19th or 20th century materials were encountered in association with it, and no later building activities had intruded into, or disturbed, the feature in any way.

In addition to its structural and stratigraphic integrity, the buried stone cistern was found to contain in excess of circa 25,000 historic artifacts which dated from the 1840's through 1860's which represent what may be the richest and earliest yet identified find of Pre-Civil War and Civil War era historic artifacts from the Lower East Side of Manhattan. The well preserved Civil War era historic artifacts included bottles with corks (some with the liquid contents still in place), decorated, and generally reconstructable ceramic vessels, wooden and metal children's toys, buttons and clothing fasteners, a large sample of datable pre-1865 coins and tokens, a large collection of decorated stone, ceramic, and glass marbles, and a broad range of preserved organic materials including food remains (bone, shell, nuts, and seeds), as well as intact artifacts of wood, leather, and textiles.

Initial Stratigraphic and Chronological Indicators:

Once the ca. 2.5 to 3 ft thick surface cap of 20th century demolition debris (elevation 7.7) was cut away with heavy machinery (a backhoe with a 34 inch flat blade welded to the bucket to facilitate thin horizontal scraping), the excavation team documented the presence of a clear and undisturbed 18 inch thick stratigraphic sequence of historic, mid to late 19th century, construction, occupation, and post destruction deposits and structural remains extending in depth between two and three and a half feet below modern grade (from 5.5

down to 4 ft above Manhattan datum). The initially discovered rectangular stone foundation wall (which enclosed, but appears to have post-dated the cistern found within it), first appeared at the base of the modern demolition rubble, at two to three feet below grade, and extended in depth ca. 18-24 inches from the top to bottom courses. While most of the wall had been cut down after its abandonment to elevation 5.5, or some two feet below modern grade, one surviving segment near the northeast corner of Lot 59 was undisturbed, and demonstrated an original height of some 2.5 feet from the top of the stone foundation wall to its base, which suggested that at least the upper portions of the stone foundation wall had been built to extend above the original historic surface grade. The base of the historic fill deposits within the building was archaeologically demarcated by the presence of buried planks, presumably from the time of demolition. The beginning, or uppermost course, of the buried historic cistern found within the stone foundation wall was first identified at elevation 4.5 ft. (three to four feet below modern grade) and extended in depth down to elevation -1 feet at the bottom of the historic cistern, giving it a total depth of 5.5 feet from the upper rim of dry laid stone to the base which was sealed and made water tight with two layers of silty/sandy material at the base of the cistern.

The buried cistern was found associated with what appear to be two contemporary and functionally interrelated drains, both constructed of mortared brick siding and finely cut unmortared stone slabs, as well as a third, and apparently later ceramic pipe drain which appears to post-date the feature use as a cistern. The smaller of the two drains, which had an interior width of 4 inches and a height 0.65 ft., was constructed with three courses of mortared brick on the sides and with unmortared, and finely cut and joined slabs of slate at its base and top. This small inlet drain (Feature 801) was finished at its northern end with a ca. two foot long rectangular carved stone channel, or gutter piece, which extended over the rim, and into the body, of the stone cistern basin. In addition to pottery and glass, the interior fill of the inlet drain contained a finely cut (bone or celluloid?) handle, possibly from a pen or writing device, and an 18k gold plated copper alloy wedding band. When measured with the computer transit system to a resolution of 0.01 ft., the small inlet drain indicated a slope of approximately 0.35 ft per 10 feet, or ca. 3.5 % from south to north with a downward slope towards the cistern.

The number and diversity of artifacts from the small inlet drain contrasted with a much smaller sample from the fill of the larger outlet drain (Feature 803.02). While of similar construction to the smaller inlet drain, the larger outlet drain was also built with sides of mortared brick and a top and bottom of unmortared, finely cut and joined rectangular slate slabs. Constructed of three courses of brick, it also measured 0.65 feet in height, but with a width of 0.8 ft, twice that of the inlet drain. Based on computer transit elevation readings along the interior of the drain, this larger drain sloped to the south, downward and away

from the cistern and towards the rear of the former 19th century buildings facing Eighth St. with an average gradient of 5%, or 0.05 ft. per 10 feet.

Of equal importance, the drains were found preserved and undisturbed together with their builder's trenches. These builder's trenches were important because they serve to document the initial dates of construction for the pipes and drains based on the dates of the most recent artifacts found within them. While the initial laboratory processing is ongoing, the preliminary evaluations of (predominantly) coins recovered from both within the drains and from the builder's trenches within which they were found, suggest a tentative chronological framework for dating the time of construction, duration of use, and abandonment, for both the stone cistern and the contemporary drain features found associated and structurally integrated with it.

The fill of the builder's trench (Feature 806) for the installation of the smaller inlet drain contained historic artifacts including datable pottery and a single, heavily worn coin. The coin, when electrolytically cleaned and photographed with axial lighting to enhance relief of the heavily worn surface, proved to be a "Washington and Independence" one cent piece which could be stylistically dated to 1783. Although suggestive, this early, Revolutionary War era coin appears to considerably predate the actual date of construction of both the small drain and cistern complex with which it was associated.

Instead, a more reliable age estimate was provided not by the early coin, but by decorated and diagnostic ceramic sherds from the builder's trench fill which were more recent in initial manufacture date (1840's), and therefore provide a more accurate time frame for fixing the initial construction date of the drain and cistern complex.

Specifically, the builder's trench of the small drain contained several small fragments of transfer printed ceramics decorated with both blue and black designs. These techniques are fairly well controlled in the history of American and imported ceramics, and first made their appearance during the 1830's and 1840's, depending on the color of pigments used. The blue transfer printed sherds were initially introduced or manufactured after the 1830's. However, the initial date of introduction for the sherds decorated with the distinctive black transfer designs are more recent, and were not introduced until the decade of the 1840's, and appear to represent the most recent artifact category from the fill of the small drain builder's trench. As such, this most recent datable artifact indicates strongly that the small drain was built, or laid into it's builder's trench sometime after 1840. This ceramic date in turn therefore suggests that the initial construction date for both the drain and the cistern, to which it was connected, post-date 1840.

While the small quantity of diagnostic artifacts from the contents of the larger outlet drain were difficult to date, it was found connected to a large rectangular brick and cut stone "box" structure (Feature 803.01) built into the side of the cobble stone cistern wall which

established that it was contemporary with the cisterns' date of construction. This brick overflow box contained both a wide assortment of artifacts in general, and one datable coin, a "Liberty Head with Braided Hair" U.S. one cent stamped with a mint date of 1849. Although, as part of the fill, this dated coin does little to fix the date of construction of the cistern, or that of the brick "overflow" box, the early date of this coin does suggest that the Cistern complex was very likely in use at least 10 to 15 years before the Civil War.

The date, or age range, for the abandonment and filling of the cistern was more easy to fix based on the large number of temporally consistent artifacts recovered from the fill within the main body of the dry laid stone cistern. In addition to the thousands of diagnostic ceramic and glass artifacts that are still being processed, the excavation of the cistern fill resulted in the recovery of 21 historic coins and tokens, which after being electrolytically cleaned, provided a datable sample of fifteen coins all with mid-19th century dates. The most recent, or latest identifiable coins, dated to no later than 1864. Nine dated to between 1860 and 1863, and the earliest coin, a "Liberty with Braided Hair", dated to 1847. One poorly preserved coin dated to the decade of 1850 (probably 1850-57). Of four tokens recovered, one represented a "Capped Liberty Head" with the inscription "Liberty and no Slavery", and a date of 1863. The second datable token, a "Capped Liberty Head", dated to 1863, with the inscription "Army-Navy" on the opposite side.

Based on this large assortment of recovered and datable coins and tokens from the builder's trench, conduit, and cistern fill components of the cistern complex, the case can be made that the cistern does indeed predate the Civil War by at least a decade, and that it was in active use from at least the late 1840's. Based on the identifiable coin dates made available through electrolytic cleaning, the cistern appears to have been constructed considerably earlier, some 30 to 40 years before the time frame for the initial presence of any buildings had been projected for the rear of Lot 58 based on the surviving evidence from the available documentary records as recorded in the initial Stage 1A sensitivity study (Bromley - 1879, in Robinson 1993). The recovery of coins which all predated 1865 from the cistern fill, strongly indicates that it stayed in use until this era, and that it was filled in sometime after 1864, or towards the end of the Civil War. The detailed and ongoing analysis of the large assortment of diagnostic datable glass and pottery will provide a range of independent chronological evidence to refine and better isolate the dates of initial construction, use, and abandonment and filling of the cistern complex.

The discovery of this early water control structure is not, in retrospect, inconsistent with the archivally based early 19th century land use history of the Lower East side of Manhattan. The former 18th century coastal and tidal meadowlands which bordered the Stuyvesant estate was initially landfilled in the first quarter of the century, raised to within two to three feet of modern grade by 1833, "officially confirmed" as being open for development as of

1834, and reported to have been connected to the Croton Reservoir system through in-street water pipes as of 1852 (Moehring 1981:48; in Robinson 1993).

However, the surviving documentary record appears to be both spotty and inconsistent, in terms of when the early residents of the block actually had potable water from outside sources, regardless of the presence of street mains. To begin with, the installation of City water pipes into the streets may have, and in this case appears to have had, little to do with the date of actual hook ups to private residences in the area. Based on the archaeologically established date for the post 1864 abandonment and filling of the cistern, actual hookups of potable piped water appears to have not taken place for some twelve years after the water lines were installed in local streets in this area of the city.

In addition, while one group of records, those of the City Council, recorded the installation of sewer lines in adjacent streets as of 1844, the official records of the Bureau of Sewers did not report the installation of sewer lines in 9th Street until 1891, some forty seven years later. Later scholars have proposed that sewer lines were available sometime between 1848 and 1865 based on surviving City Council records (Moehring 1981:48). However, because sewer lines and flush toilets both require piped potable water supplies, the archaeologically dated filling in of the stone Cistern after 1864, strongly suggests that the documents, in this case, are less than reliable and that sewers and water lines were not actually functioning in Lot 58 until after the end of the Civil War, after 1865.

Post Abandonment Use of the Cistern (The Ceramic Drain Pipe [Feature 804]).

In addition to the two structurally integrated brick and cut stone inlet and outlet drains found associated and contemporary with the Cistern construction and use, the excavation also exposed the presence of a third drain system of glazed ceramic pipe that appears to have post-dated its use as a cistern or water storage system. A ca. 13 foot long section of ceramic drain pipes was exposed in a north - south alignment with it's outlet laid without direct connection some two feet to the east of the outer stone wall of the cistern. The "outlet" end of the ceramic pipe drain was bounded by a curved line of unmortared bricks leading toward the cistern, but was not connected to, or structurally integrated with the cistern itself. Although the technology of making glazed and fitted terracotta pipes appeared in England as of 1845 (Gwilt 1867), their use in this New York site appears to post date this time frame, and, in fact, based on the documented stratigraphic record recorded in the excavation, appears to have post- dated the post 1864 date for the filling of the cistern and its abandonment as a water storage system.

Although the analysis of the artifacts found associated with the multi-element ceramic drain is still under way, the stratigraphic relationship of the pipe drain to the cistern and the stone building wall both suggest that it was built after the cistern was filled, and after the stone wall surrounding it was constructed. Despite the fact that the matrix of the stone

building foundation wall which surrounded the cistern contained an early 1823 Dutch coin, the building appears to have postdated the construction of the Cistern. This suggested chronological relationship is based on the fact that the base, or footing, of the stone building foundation was documented to have cut through and destroyed the upper courses of the smaller brick and stone inlet drain. In contrast, the later ceramic pipe drain was built by cutting or tunneling under the stone wall, which indicates that it postdated both the wall's construction and that of the deeper cistern. The contrast in workmanship and technology between the ceramic pipe, and the two brick and cut stone cistern drains, the lack of physical association and structural integration, and the stratigraphic evidence, together, suggest that the ceramic pipe drain both post dated the abandonment of the cistern as a water control system, and was installed sometime after the subsequent stone building had been constructed.

The Lot 59 Features:

Although the artifacts recovered from them are still being processed as of this interim report, two additional drain and privy features were excavated and recorded in the rear of Lot 59. The larger of the two features, a rectangular brick and cement privy or water closet with an iron and lead inlet drain (Feature 901), matched the mapped location and construction of a post-1901 community water closet recorded in the lot plans. This large rectangular feature also contained only later 19th and early 20th century artifacts which included molded "safety" or "refrigerator" glass and modern mason jars, suggesting that it was abandoned during the first quarter of the 20th century.

To the west of this recent feature, was an earlier and deeper artifact filled pit feature (Feature 903) which was in turn found buried and capped by a later and heavily disturbed stone and brick privy feature (Feature 902), into which a ceramic drain (Feature 900) was connected, apparently as a later addition, on top of an earlier brick and stone slab drain leading into the same feature complex. The associated fill of the lower pit feature (Feature 903) contained earlier mid-19th century ceramics and glass. The nature and age range of these features will be refined as the associated artifacts become available for analysis after laboratory processing.

Historical and Regional Significance:

The quality of the historic artifacts and their refined state of preservation, once chemically stabilized and conserved in our laboratory, has provided both an otherwise unavailable and previously undocumented "time capsule" of early New York life, as well as a rich graphic and photographic record which can readily be adopted to provide an educationally appealing museum exhibition and display materials.

This large, finely made dry laid stone cistern complex from the pre Croton Reservoir era is also of significance to the broader technical history of potable water supply in

Manhattan prior to the installation of municipal water lines. The lack of mortar in the cistern itself and the precision engineering of the cut stone and brick drains represent otherwise undocumented examples of sophisticated pre Civil War water supply building technology.

The construction of 17th and 18th century cisterns has been well documented archaeologically as a result of numerous excavations into Colonial and Revolutionary War era deposits in Lower Manhattan. The technology of late 19th - early 20th century cisterns and privies is likewise well known from the surviving official City archival and documentary records as key elements in the evolving health history and regulations of Manhattan. However, this pre Civil War cistern complex represents a category of historic water supply technology, that in contrast to examples from earlier and later periods, was significantly less well undocumented in both the historic archival and archaeological record.

Respectfully yours,

Joel W. Grossman, PhD.
Principal Investigator.

Preliminary Location Plan of
Pre-Civil War Cistern Complex
Feature 800 Lot 58
PSA #4 Project
Grossman & Associates 9/29/94

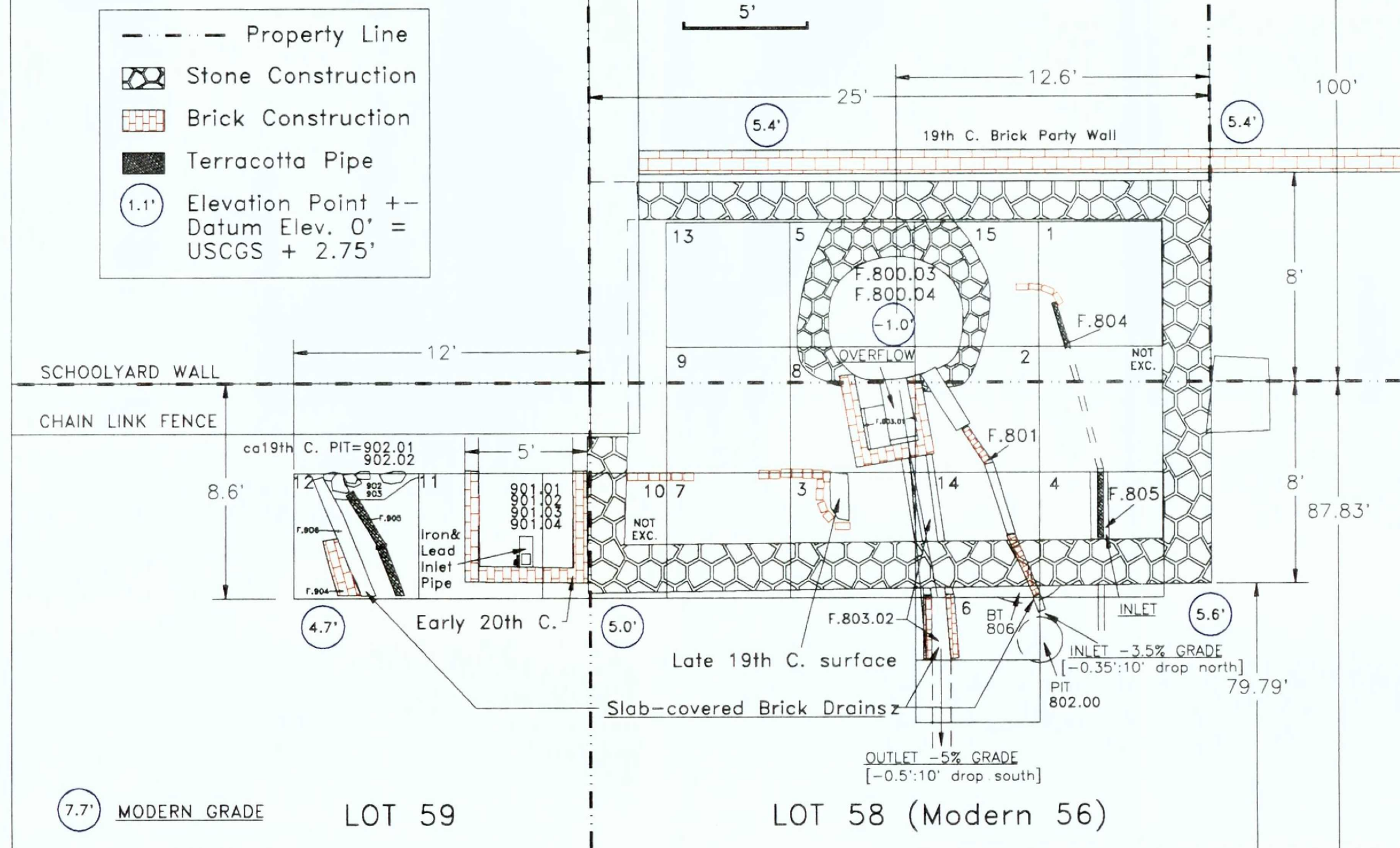




Figure 1. Panoramic view of archaeological excavation, looking West across Lot 58 and Lot 59, showing heat and rain shelters over exposed area within PSA 4.



Figure 2. Close up of archaeological excavation, showing initial grid based exposure of buried Civil War Era stone wall and cistern complex.



Figure 3. Staff shown recording XYZ coordinates of historic features with the Grossman & Associates' computer transit EDM system, to a resolution of 1/1000th ft.



Figure 4. Excavation team shown water screening the water logged cistern fill (Context 800).

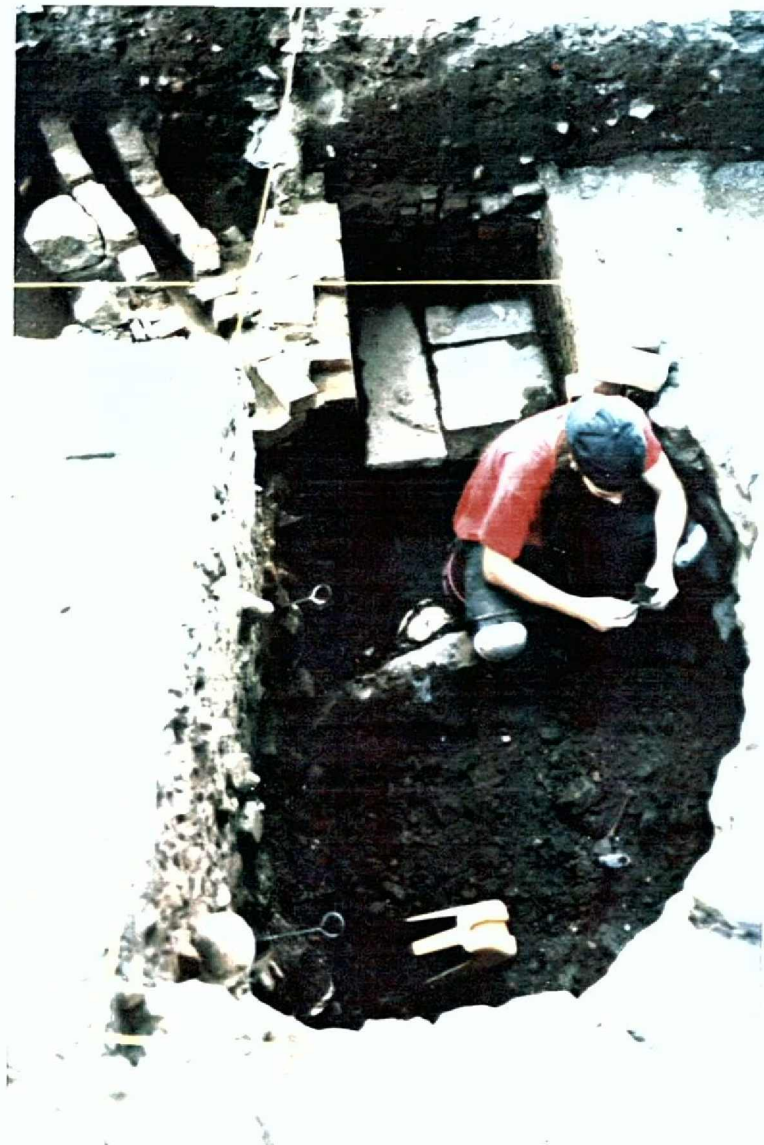


Figure 5. Excavation in progress of Pre-Civil War cistern complex (Feature 800). Note the exposure of small brick and cut stone drain inlet to the left (Feature 801), and the larger overflow outlet drain to the center (Feature 803.01).

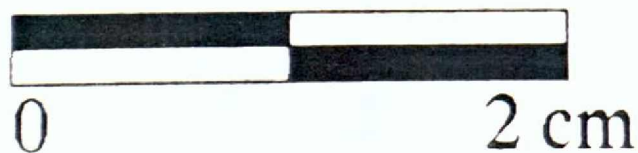


Figure 6. Close up macro photo of 1849 one cent "Liberty Head with braided hair", recovered from fill of cistern outlet drain (Feature 803.01, Lot 58), suggesting that it was in use at least 12 years before the Civil War.

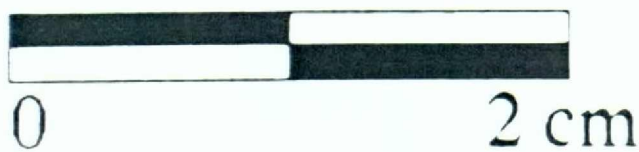


Figure 7. Close up macro photo of 1851 one cent "Liberty Head with braided hair", recovered from fill of historic privy (Feature 902.01) found in rear of Lot 59.



Photogrammetric record of Pre-Civil War Cistern Complex (Feature 800), PSA 4 Project, Lot 58.
Photo by: J W Grossman. September 16, 1994

Grossman and Associates, Inc.

PSA 4: Preliminary Crosstab of Coins and Tokens by Mint Date

FEATURES

Date/TPQ	Cistern Inlet Builder's Trench (Feat. 806)	Wall Matrix (n/a)	Pre-Civil War Cistern Fill (Feat. 800.04)	Cistern Drain Outlet (Feat. 803.01)	Lot 59 Pit Feature Fill (Feat. 902.01)	Post Cistern Pit (Feat. 802)	Total
1916						1	1
1900							0
1880							0
1864			3				3
1863?			1				1
1863			4				4
1861?			1				1
1860			2				2
186_?			1				1
1859			1				1
1851					1		1
185_?			1				1
1849				1			1
1847			1				1
1823		1					1
1800							0
1783	1						0
No Date			2				2
Illegible			4				4
Grand Total	1	1	21	1	1	1	25

