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REPORT ON
ARCHAEOLOGICAL MONITORING
OF BORINGS IN
THE GOVERNORS ISLAND HISTORIC DISTRICT
NEW YORK, NEW YORK
TRC Project Number 159877-0170-0000



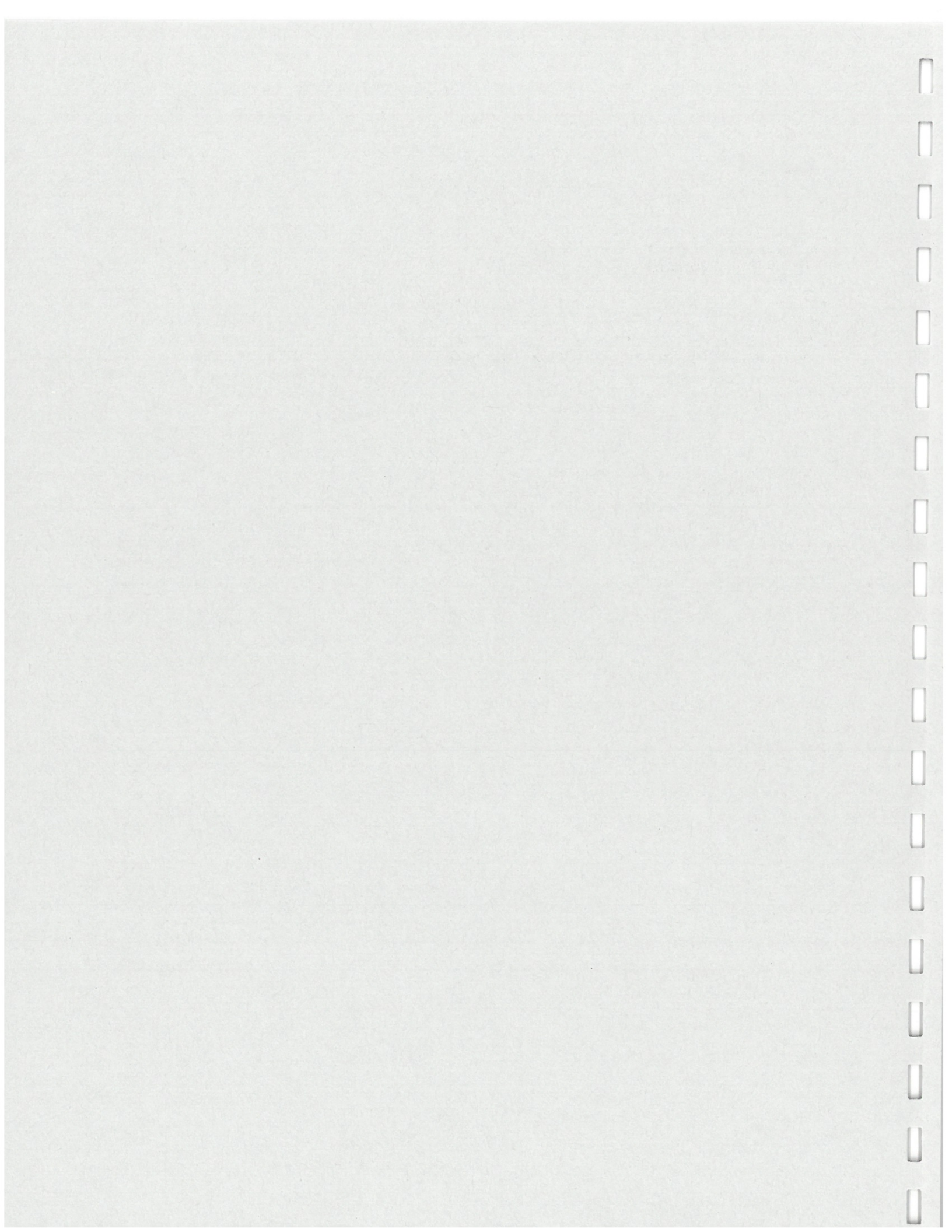
Work in progress at SB-1, facing southwest (January 25, 2011).

Prepared for: TRC Environmental Corporation
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February 17, 2011

1397



EXECUTIVE SUMMARY

This is a report on the archaeological examination of soil characterization geoprobe borings within the Governors Island Historic District, New York, New York. Ten borings were examined on-site.

The borings locations were previously evaluated for their archaeological potential. All ten locations contained Native American and/or historic period archaeological potential. Potential resources included remains of 19th-century buildings, landfill-retaining structures, evidence of the original shoreline, a cemetery and Native American archaeological resources. No Native American archaeological material was recovered, nor was any evidence of the 19th-century buildings. However there was indication of the original shoreline and/or ground surface in several locations and possible landfill-retaining structures in one location.

No potentially significant archaeological resources were present and no further archaeological fieldwork was recommended for this project. However, should plans change requiring additional excavation, a recommendation to evaluate the archaeological potential of those locations was made. It was also recommended the locations examined for this project be recorded in the TGI Governors Island GIS database.

This report is being prepared to comply with environmental review requirements and meets the standards of both the New York State Office of Parks, Recreation and Historic Preservation (SHPO) and the New York City Landmarks Preservation Commission (LPC). The work was conducted for TRC Environmental Corporation by Linda Stone, RPA.

SHPO MANAGEMENT SUMMARY FORM

SHPO Project Review Number (if available): 10PR06038

Involved State and Federal Agencies (DEC, CORPS, FHWA, etc): Trust for Governors Island

Phase of Survey: 1B

Location Information

Location: Governors Island Historic District, New York City – various locations

Minor Civil Division: n/a

County: New York

Survey Area (Metric & English) - Boring examination

Length: n/a

Width: 2 inch (5 cm) diameter

Depth: (when appropriate): 15 or 20 feet (457 - 610 cm)

Number of Acres Surveyed: n/a

Number of Square Meters & Feet Excavated (Phase II, Phase III only): n/a

Percentage of the Site Excavated (Phase II, Phase III only): n/a

USGS 7.5 Minute Quadrangle Map: Jersey City, NJ - NY

Archaeological Survey Overview

Number & Interval of Shovel Tests: n/a

Number & Size of Units: n/a

Width of Plowed Strips: n/a

Surface Survey Transect Interval: n/a

Results of Archaeological Survey

Number & name of prehistoric sites identified: none

Number & name of historic sites identified: none

Number & name of sites recommended for Phase II/Avoidance: none

Results of Architectural Survey

Number of buildings/structures/cemeteries within project area: n/a

Number of buildings/structures/cemeteries adjacent to project area: n/a

Number of previously determined NR listed or eligible buildings/structures/cemeteries/districts: n/a

Number of identified eligible buildings/structures/cemeteries/districts: n/a

Report Author(s): Linda Stone, RPA

Date of Report: February 17, 2011

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INTRODUCTION

The Trust for Governors Island (TGI) needed to place soil characterization geoprobe borings at various places throughout Governors Island, New York, New York. Fourteen of these are within the Governors Island National Historic District and the New York City Governors Island Landmark district (see Appendix A: Figure 1). Research showed that ten of those locations (SB-1 - SB-9 and SB-11) have archaeological potential for the preservation of historic period and/or Native American resources (see Figure 1 for locations and Appendix A: Table 1 for listing of potential resource by boring location).

TGI, the New York State Historic Preservation Office (SHPO) and the New York City Landmarks Preservation Commission (LPC) had previously indicated archaeological boring inspection would be appropriate for this project. Appendix A contains the approved archaeological work plan for the sensitive locations.

This report presents the findings of the archaeological work conducted for the borings. The work has been done in accordance with the guidelines of both the New York State Office of Parks Recreation and Historic Preservation and the New York City Landmarks Preservation Commission. This report was prepared by Linda Stone, RPA for TRC Environmental Corporation. The archaeological fieldwork described in this report was conducted by Ms. Stone on January 24 and 25, 2011. The author would like to acknowledge the assistance of Jennifer Miranda, Angela Oldenburg and Wes Lindemuth, of TRC Environmental Corporation and Claire Kelly of TGI for facilitating the archaeological component of this project.

SITE HISTORY AND ARCHAEOLOGICAL POTENTIAL

There are three documented Native American sites on Governors Island and Native American cultural material has been found on the Island in many other redeposited contexts (PAL 1996: 11; PAL 1997: 63-64; Stone 2006: 4-5,10 & 2008: 7; UMass 2003: 110-111). Three of the geoprobe borings are within or adjacent to areas mapped in the Phase 1A report as sensitive for the preservation of Native American cultural remains (SB-8, 9 and 11) (PAL 1996: Fig 4-1).

Three historic maps were consulted to evaluate the relationship of the borings to the original Governors Island shoreline and determine if any structures once existed in their vicinity; the 1813 Mangin map, the 1867 Barnard map and the 1879 First U.S. Army Engineers map (see Appendix A - Figures 2 - 4). These maps show that structural remains of historic buildings could be present in seven of the boring locations (SB-1, 3, 4, 5, 6, 7 and 11). Of the remaining three locations, two are in the area mapped as sensitive for Native American resources (SB-8 and 9) and one of the those (SB-8) was the location of a former cemetery. The other remaining boring is located along the former original shoreline of Governors Island and therefore is sensitive for the preservation of early landfill and/or landfill-retaining structures (SB-2).

Previous archaeological testing was completed nearby some of the boring locations, however most of that testing did not penetrate to the depths of the soil characterization geoprobe borings. The exceptions are previous soil borings done within 100 feet (30.5 m) of SB-1 and SB-3. At SB-1, natural deposits, possibly representing the original shore, were encountered between 13.2 - 15 feet (402 - 457 cm) below ground surface (Stone 2011: 3-4). It was hypothesized that deposit would be present closer to the ground surface at SB-1 because of its location. Non-artifact bearing deposits were encountered at the boring near SB-3 at approximately 4 feet (122 cm) below ground surface, similar to what was anticipated for SB-3 (Stone 2010: 2).

The archaeological work discussed in the following sections was conducted to determine the presence or absence of archaeological evidence related to any of the features or deposits presented here and in Appendix A: Table 1, should they be present.

METHODOLOGY AND RESULTS

This section describes the excavations for the borings, along with the findings. The drilling rig used for the borings was fitted with a 2 inch (5 cm) diameter, 5-foot (152 cm) long sampler. Samples were taken continuously for 15 feet (457 cm) for all but SB-6 which was sampled to 20 feet (610 cm). A second sample from 0 - 5 feet was also taken from many of the locations (SB-1, 2, 5, 9 and 11). The samples were all measured and recorded by the archaeologist at the same time as the engineer. The engineer would then probe the samples as needed to conduct their work. Once that was completed, the archaeologist could poke through the deposits with a trowel to look for cultural material and record data on stratigraphy, prior to samples being jarred by the engineer. The stratigraphy within the borings was recorded on forms which have since been transcribed into table format and attached here as Appendix B. In the following discussion, depths below ground surface within recovered samples are estimated based on percentage of the sample recovered. For example, if 3 feet of sample was recovered in the 5-foot long sampler then 3/5 or 60% is used as the factor to determine the depth of a strata within that sample.

Although artifacts were observed in many samples, they were non-diagnostic materials such as coal and brick fragments. Artifacts were recovered from only one context (SB- 4, Sample 2, Stratum 1). These were washed and rinsed in tap water and left to air dry before labeling and rebagging in clean 4-mil perforated zip-lock bags. Recovered artifacts were individually labeled with the abbreviation "GI" for "Governors Island" and the context number (SB-4.2.1, the boring number with decimal subdivisions representing sample number and then stratum within the sample). The zip bag was also labeled with the same information as well as the excavation date. The artifacts are listed Appendix C. Governors Island is the current repository for all artifacts recovered during the conduct of work described in this report. Artifacts will be transferred there from the archaeological consultant upon notification of acceptance of this report by the review agencies.

SB-1

SB-1 was located in the middle of Carder Road behind Castle Williams (see Figure 2). Two samples were taken from the upper 5 feet (152 cm) of SB-1. Sand and crushed schist were found in both beneath cultural bearing strata at approximately 4 feet (123 cm) below ground surface. Schist containing strata continued to approximately 8.3 feet (253 cm) when the deposit was a wet coarse sand with pebbles. The driller noted that she felt many voids while drilling. The most likely explanation is that the schist represents rip-rap or stone rubble placed to protect the earlier exposed shoreline. Because it wouldn't have been laid in traditional building courses, there would be voids such as those the driller described. No evidence related to the construction of Castle Williams was encountered.

SB-2

SB-2 was located just off Carder Road in the grassy area north of Building #111 (see Figure 3). Two samples were also taken from the upper 5 feet (152 cm) here. Both contained cultural material throughout the entire sample. Non-artifact bearing deposits were not encountered until Sample 3, at approximately 11.2 feet (341 cm) below ground surface. At this point there was wet sandy silt, indicating the water table had been reached. No evidence of the original shoreline, per se, was encountered, although it is assumed to be near the level of the non-artifact bearing strata. No evidence of landfill-retaining structures was encountered.

SB-3

SB-3 was located off Carder Road in the parking area north of Building #109 (see Figure 4). Cultural material was found throughout the first sample, to 5 feet (152 cm). That was overlying silts containing sand and clay. Sample 2, at approximately 6.7 feet (204 cm), became moist as Stratum 2. Wetter soil was encountered in Sample 3. No evidence of a structure that stood in the area in 1879 was found.

SB-4

SB-4 was located in the grassy area near the seawall, east of Building #140 (see Figure 5). Here cultural material was found to approximately 6.8 feet (207 cm) below ground surface where two glass sherds were recovered. This boring produced the only temporally diagnostic artifacts from this project; two possibly mending sherds of curved aqua-colored glass. They appear to be part of a machine-made bottle base, including part of the heel. However, the sherds are quite small (the largest dimension of the larger sherd measures only 1 inch (2.54 cm) across) and therefore a narrow possible manufacture date range cannot be obtained. In general, machine-made aqua bottles were made in large quantities from the late-19th century through the early 1930s, although they continued to be produced for soda bottles much later (Jones and Sullivan 1989: 39; Society for Historical Archaeology 2011).

Dark yellowish brown silty sand, indicative of the typical Governors Island culturally sterile subsoil, was encountered at approximately 8.6 feet (262 cm) below ground surface in SB-4. It was moist at this level and the underlying deposits became even wetter, indicative of the water table. The driller noted wood in the tip at the end of sampling, at 15 feet (457 cm). Based on the proximity of the boring to the seawall, it is possible the wood is related to an earlier landfill-retaining structure. However it is also possible the wood was merely part of the fill.

SB-5

SB-5 was located near the Brooklyn Battery Tunnel ventilation building, between Building #s 130 and 134, just north of Carder Road (see Figure 6). Two samples were taken from the upper 5 feet (152 cm) of SB-5. One contained cultural material throughout, while the other only in the middle two of four strata. In fact, cultural material was also found in Samples 2 and 3 to an approximate depth of 10.6 feet (323 cm), a wet coarse sand deposit. That was overlying more wet sand as well as silt with some clay at the base of the boring. No archaeological evidence of historic structures identified in Appendix A was encountered.

SB-6

SB-6 was located west of Barry Road at the driveway for Building #3 (see Figure 7). It was the only boring excavated in four strata. No cultural material was encountered in any of the SB-6 samples, although a shell fragment was documented in Sample 1, Stratum 2. Sample 3 contained two strata that were entirely rock or rock fragments. One was red in color and the other white. Crushed rock was also encountered deeper, in Sample 4, Stratum 2 at approximately 18.7 feet (570 cm) below ground surface. That deposit was directly above the wet sandy silt representing the level of the water table. It is possible the rock was related to filling in that area, however, it cannot be certain. No evidence of the smith house depicted in the 1813 map was found.

SB-7

SB-7 was located in a grassy island southeast of Barry Road, north of Building #12 and across the street from Building #9 (see Figure 8). Cultural material was documented to an approximate depth of 2.9 feet (88 cm) below ground surface. The deposit containing the artifacts (asphalt and brick fragments) was directly above brown sand that became moister with depth. No features or material encountered can be specifically related to the former hospital or smith shops that once stood in that area.

SB-8

SB-8 was located west of Evans Road at the edge of the Parade Ground and across the street from Building #18 (see Figure 9). No cultural material was found in SB-8. A deposit containing fine roots was found at the bottom of Sample 1. A rock separated that deposit from strong brown colored sand, containing some rock fragments, that extended to the base of the boring. No evidence of the former cemetery was encountered, nor was any archaeological material related to the historic use of the Parade Ground or the pre-historic use of the Island.

SB-9

SB-9 was also located in the Parade Ground, however more toward its center (see Figure 9). As with SB-8, no cultural material was observed in the soil drilled from this location and deposits containing rocks and rock fragments were also documented. Two samples were taken from the upper 5 feet (152 cm). The upper stratum of both was topsoil. The second stratum of Sample 1 was dark yellowish brown sand. A rock was encountered in Sample 2 at approximately 6.5 feet (198 cm) below ground surface. The soil beneath that generally contained a silty component with clay and decaying rock near the bottom of the boring. No evidence of the former garden, historic use of the Parade Ground nor of Native American occupation/use was found.

SB-11

SB-11 was located in Hay Road adjacent to Building #407 (see Figure 10). Two Sample 1's were also taken from this boring. Dark yellowish brown coarse sand was documented at the bottom of both samples. This stratum also contained shell and coal. The deposit continued into Sample 2 where brick was also present. Sample 3 contained dark brown silty sand with crushed rock over dark yellowish brown wet silty sand. At approximately 13.5 feet (412 cm) down, black gravelly sand that contained coal and shell was found. It was directly above brown silt that was described as a natural deposit. The black sand likely represents remains of the original shore. No evidence of a former wash house as mapped in 1813 was found in SB-11.

CONCLUSIONS AND RECOMMENDATIONS

Archaeological work was conducted at the locations of ten soil characterization geoprobe borings on Governors Island. Evidence was sought relating to the original shoreline of Governors Island, including landfill-retaining structures, as well as Native American deposits and evidence of structures that were present in the 19th century.

No archaeological evidence of the 19th-century buildings nor Native American use or occupation was encountered. Original shoreline was found in SB-1 in the form of possible rip rap. At SB-4, wood that was possibly part of a landfill-retaining structure was documented. An early ground surface was found in SB-11 buried approximately 13.5 feet (412 cm) below ground surface. Non-artifact bearing strata at the depth of the water table in locations near the original Governors Island shoreline are possible indications of earlier ground surfaces. These were found buried approximately 11.2 feet (341 cm) below ground surface in SB-2 and 10.6 feet (323 cm) in SB-5.

No potentially significant archaeological resources were present and no further archaeological fieldwork is recommended for this project. However, should plans change requiring additional soil removal, those locations should be evaluated for their archaeological potential. It is also recommended the locations examined for this project be recorded in the TGI Governors Island GIS database.

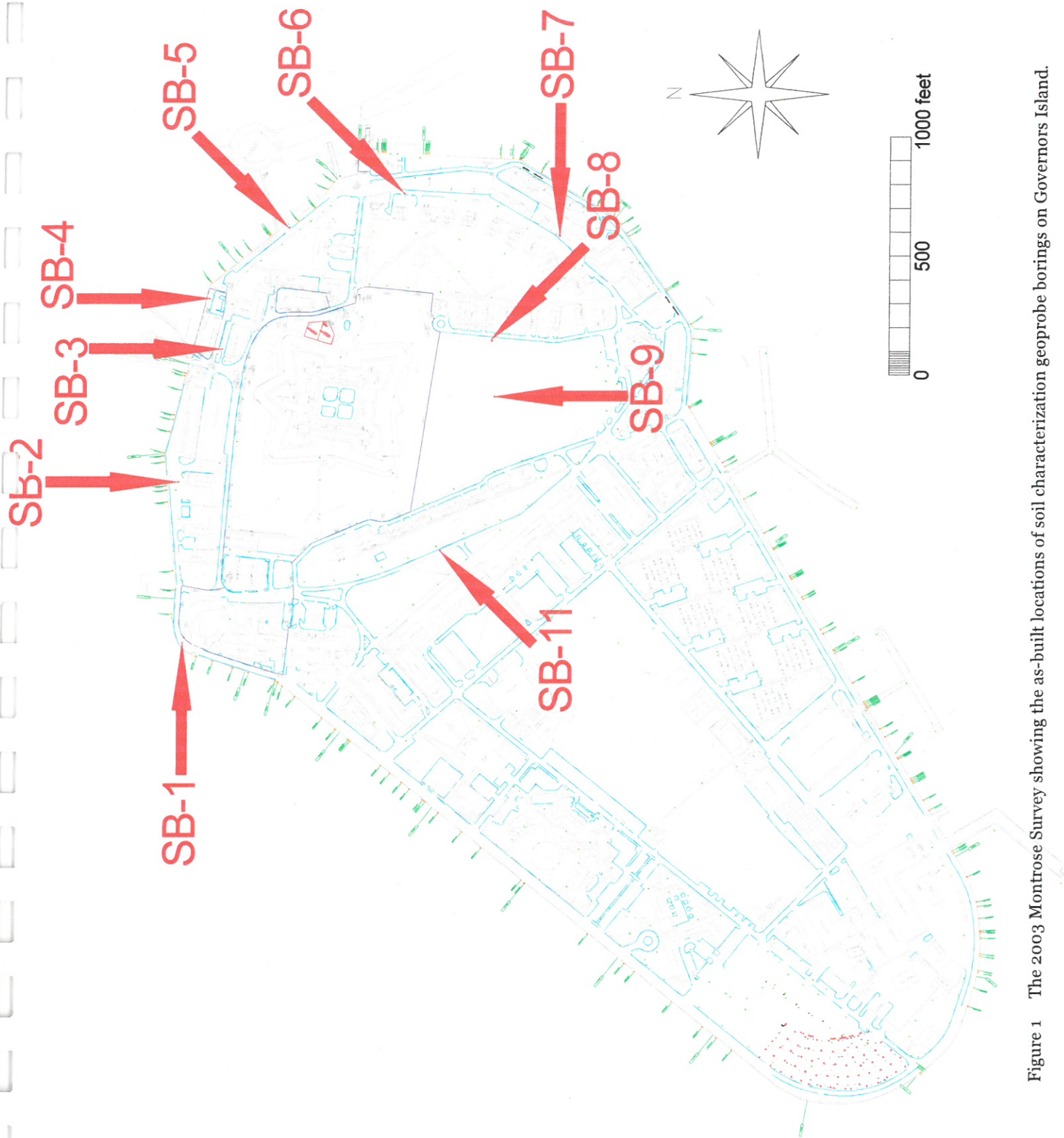


Figure 1 The 2003 Montrose Survey showing the as-built locations of soil characterization geoprobe borings on Governors Island.

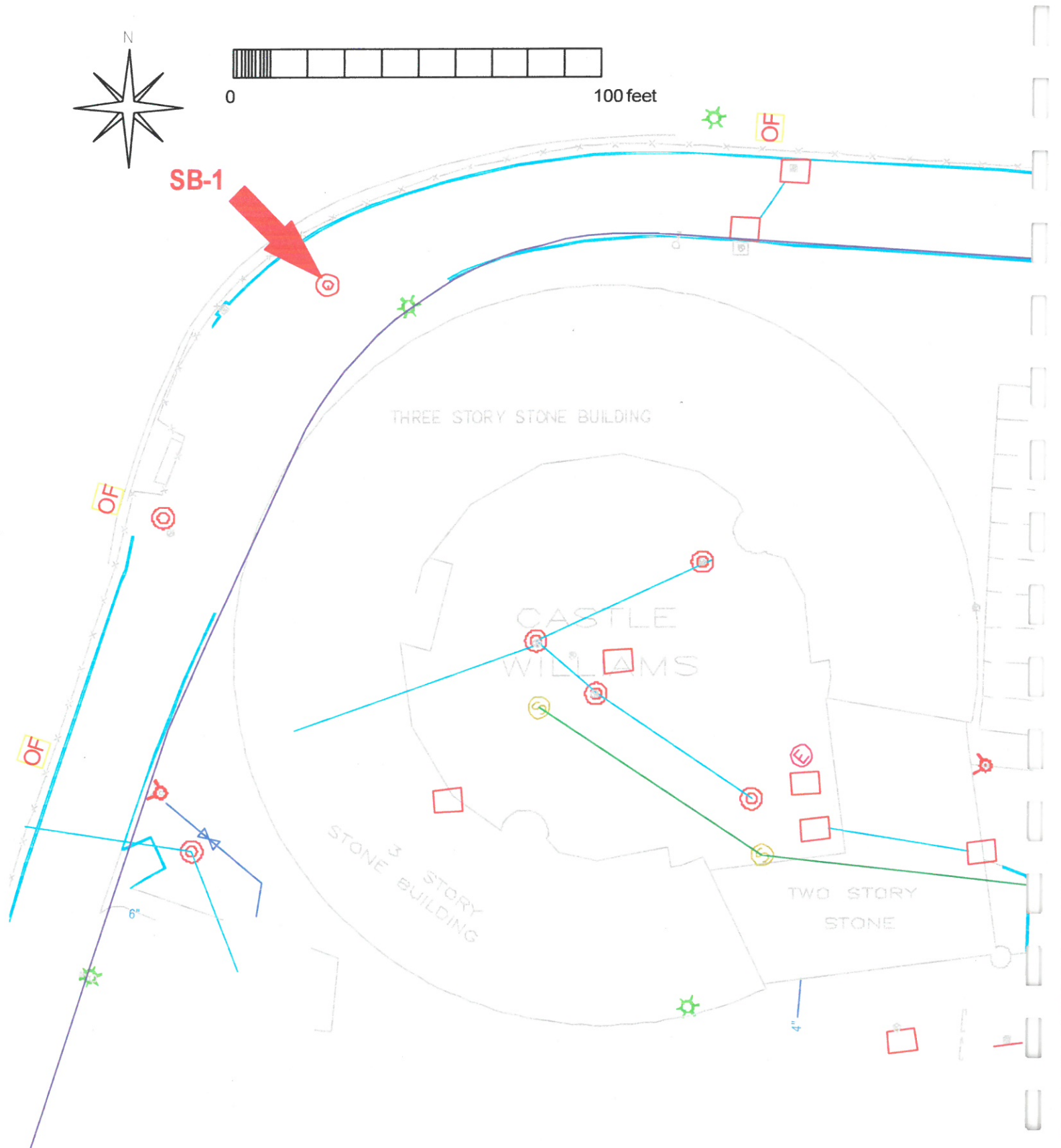


Figure 2 Part of the 2003 Montrose Survey showing the location of boring SB-1.

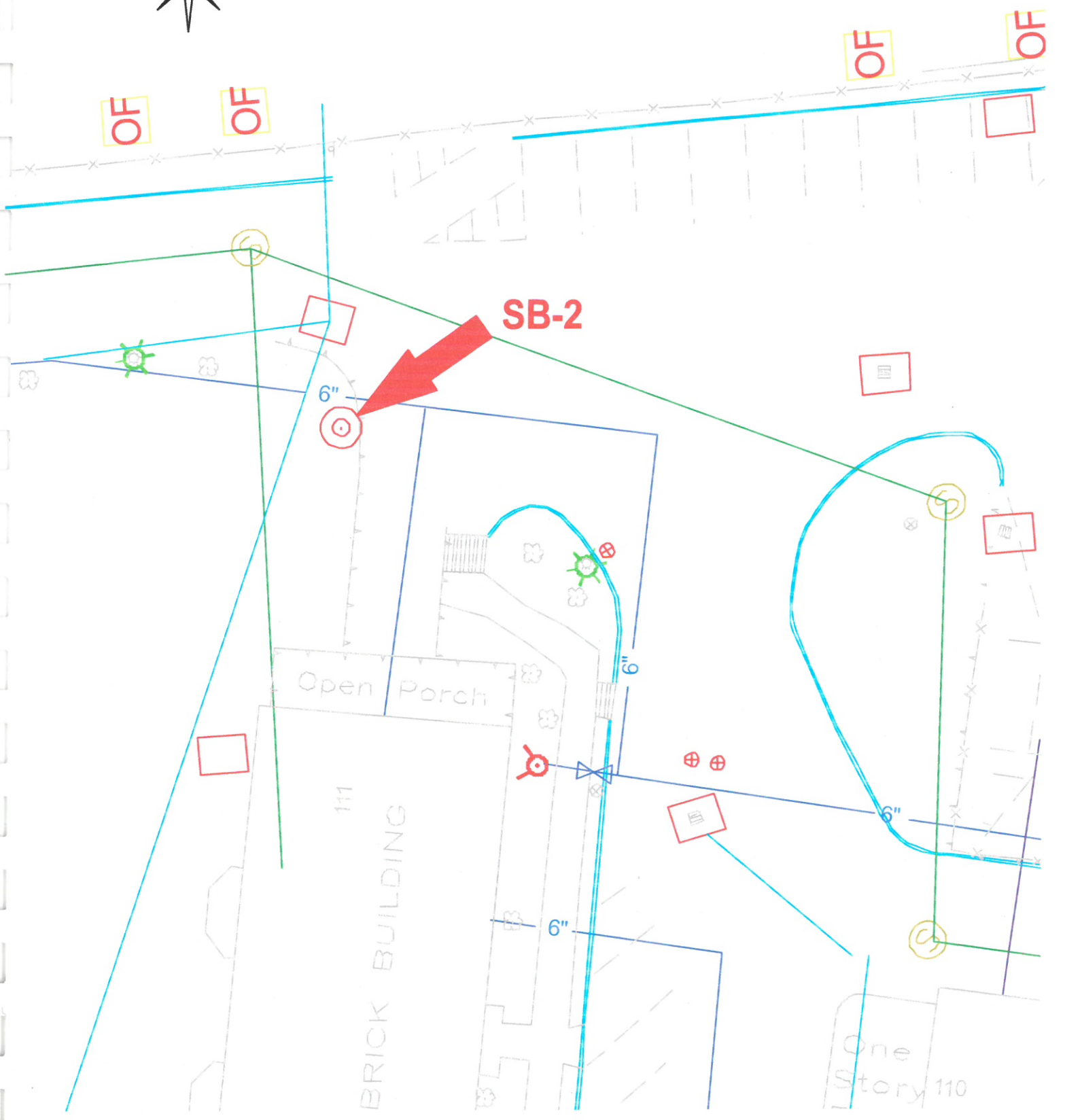


Figure 3

Part of the 2003 Montrose Survey showing the location of Boring SB-2.

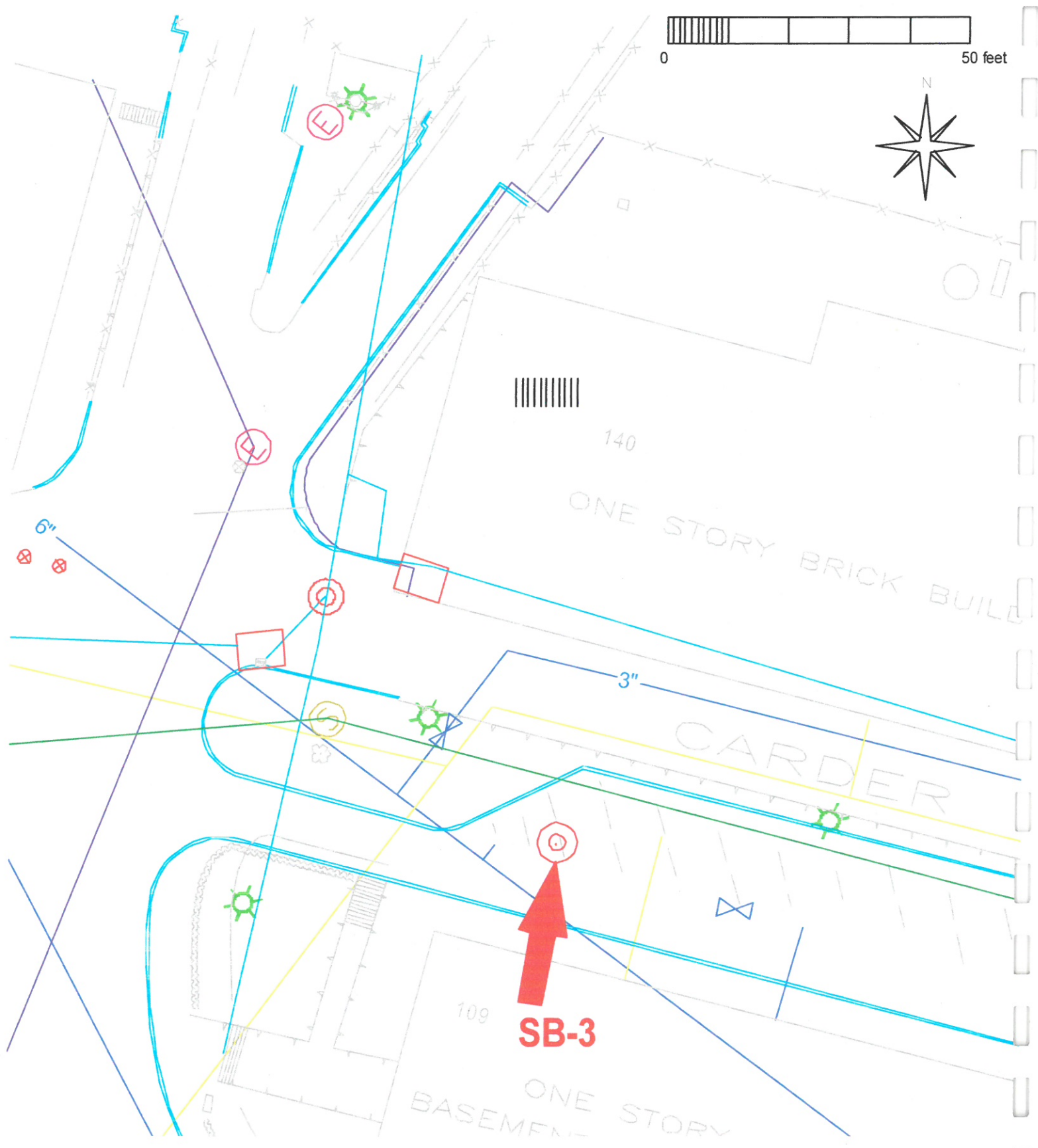


Figure 4 Part of the 2003 Montrose Survey showing the location of Boring SB-3.

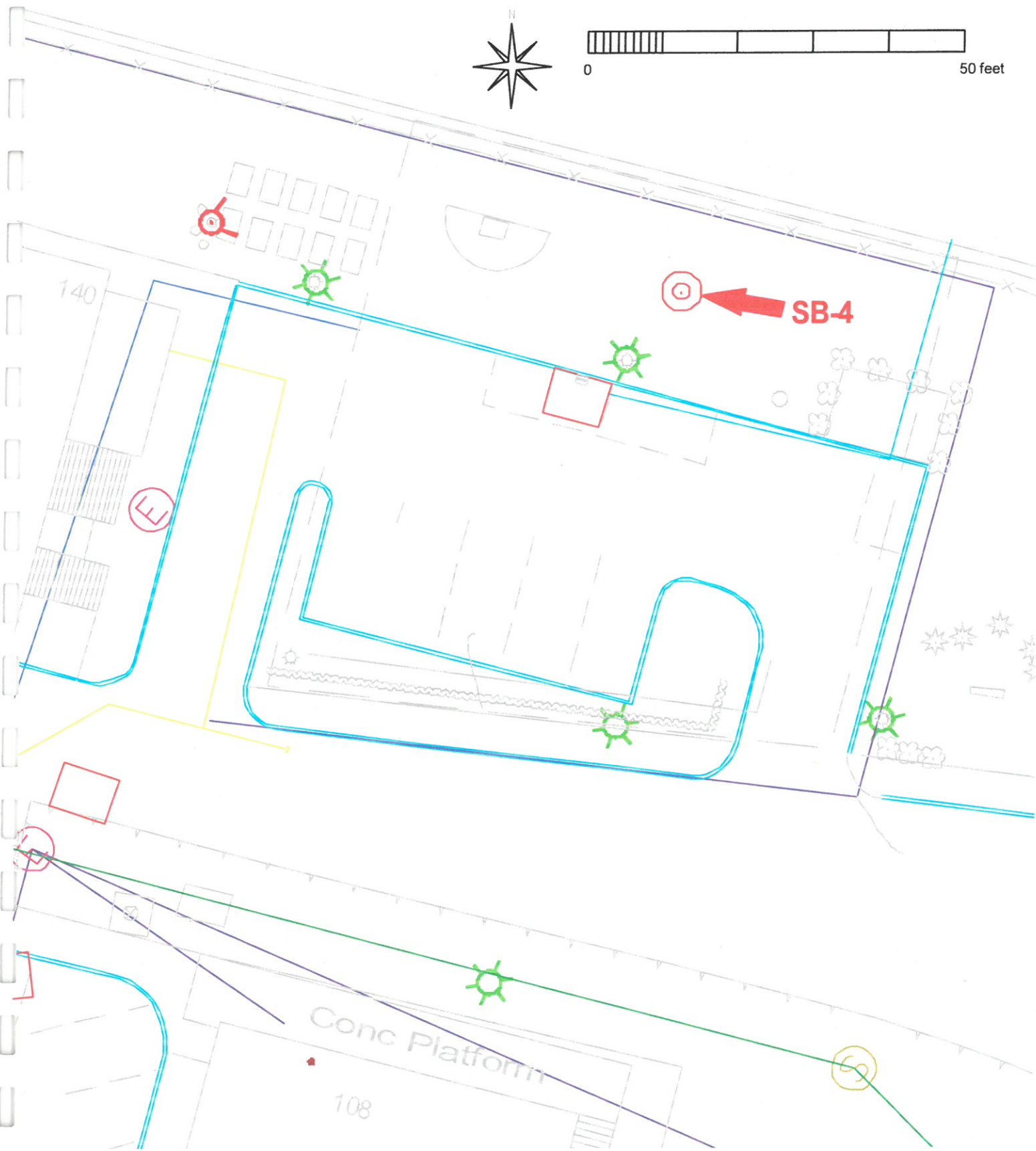


Figure 5 Part of the 2003 Montrose Survey showing the location of Boring SB-4.

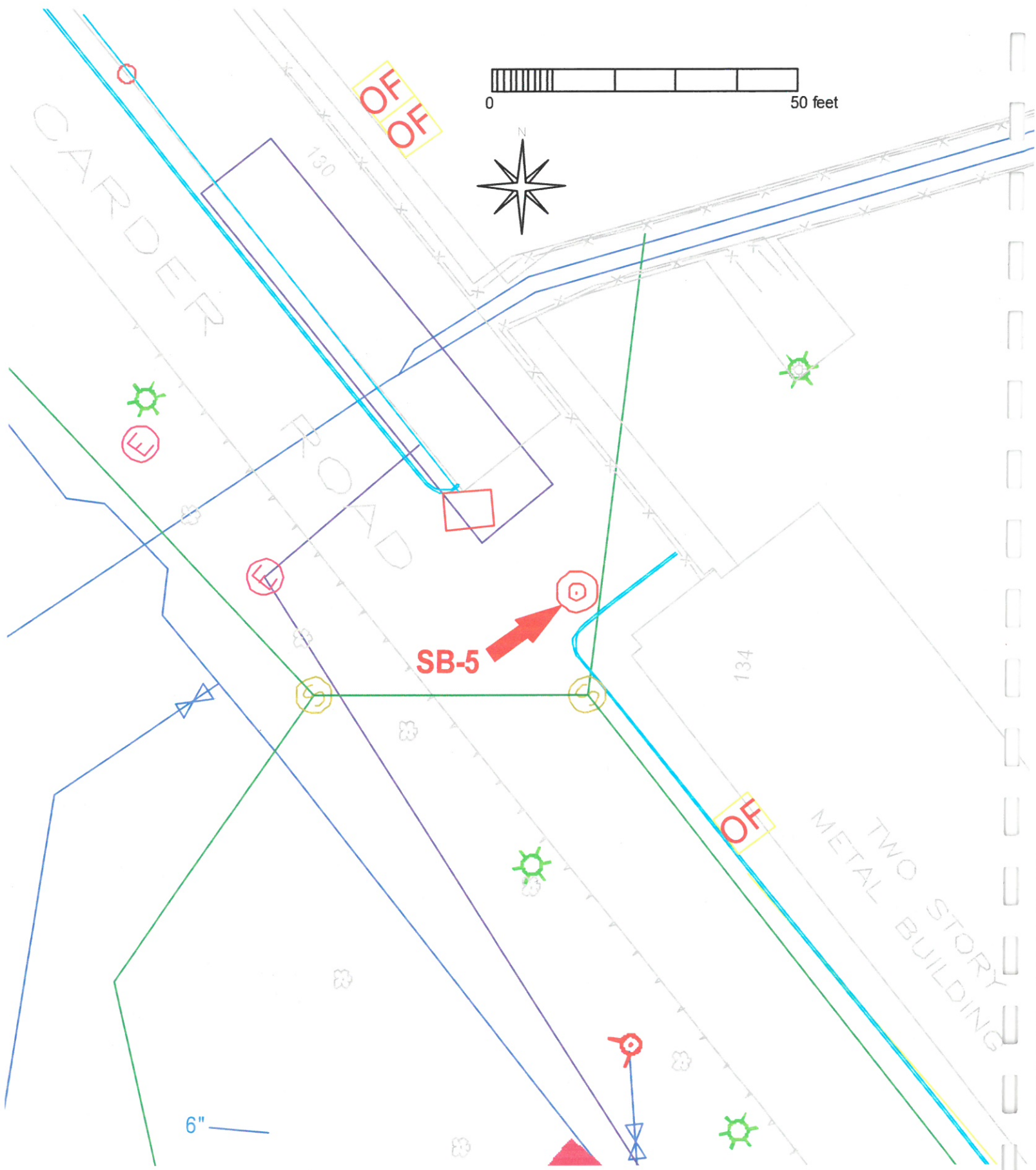


Figure 6

Part of the 2003 Montrose Survey showing the location of Boring SB-5.

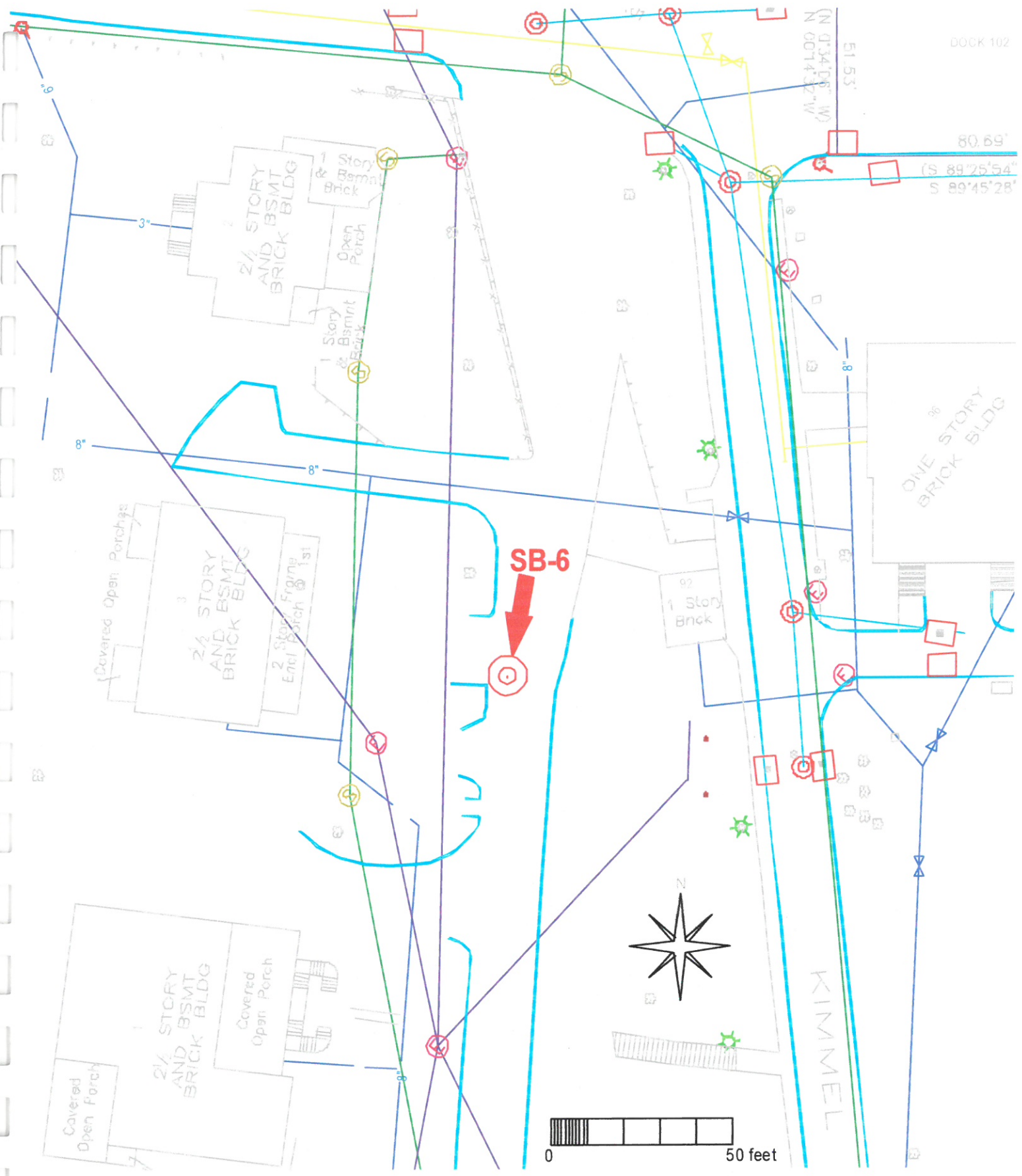


Figure 7

Part of the 2003 Montrose Survey showing the location of Boring SB-6.

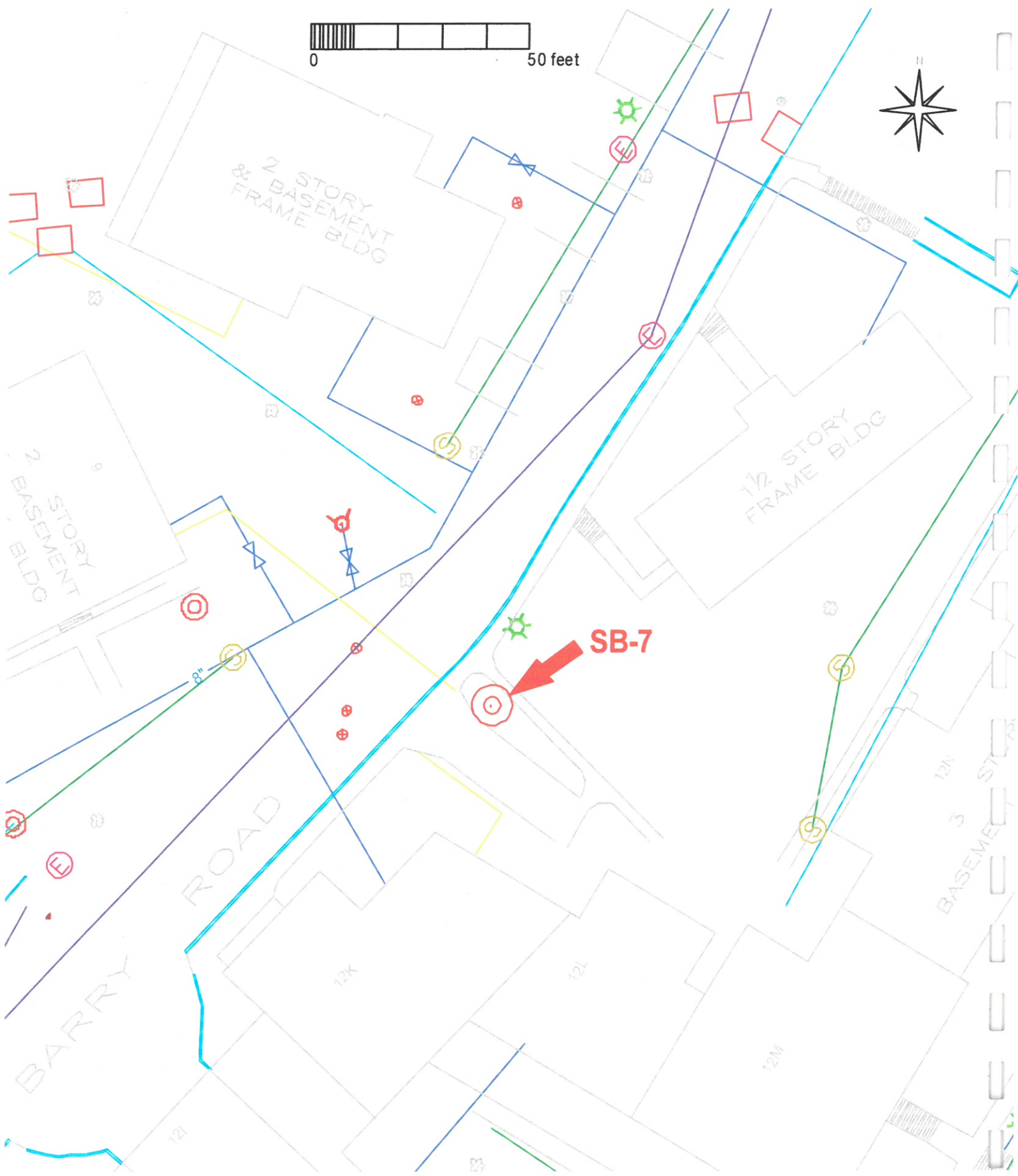


Figure 8 Part of the 2003 Montrose Survey showing the location of Boring SB-7.

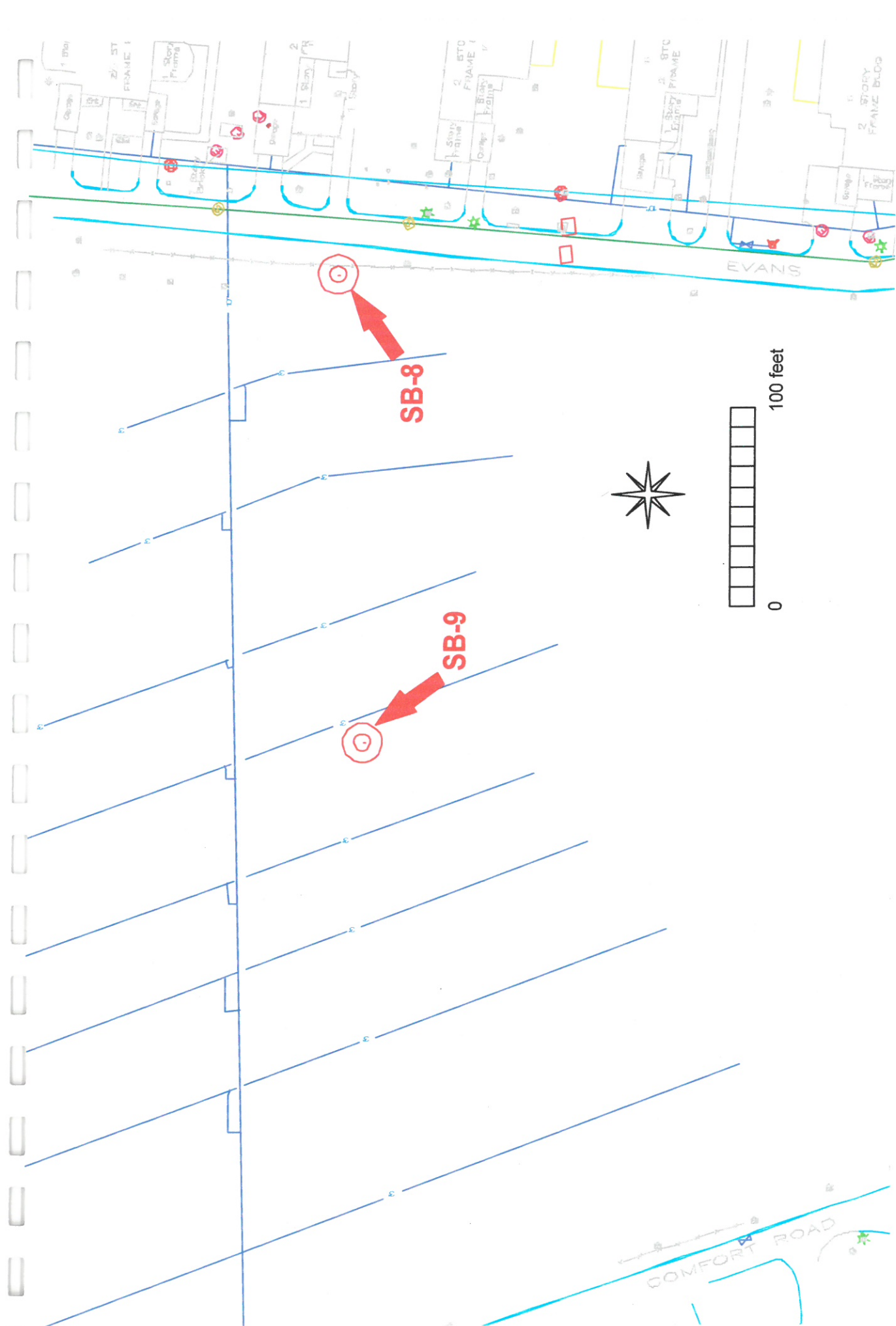


Figure 9 Part of the 2003 Montrose Survey showing the location of Borings SB-8 and 9.

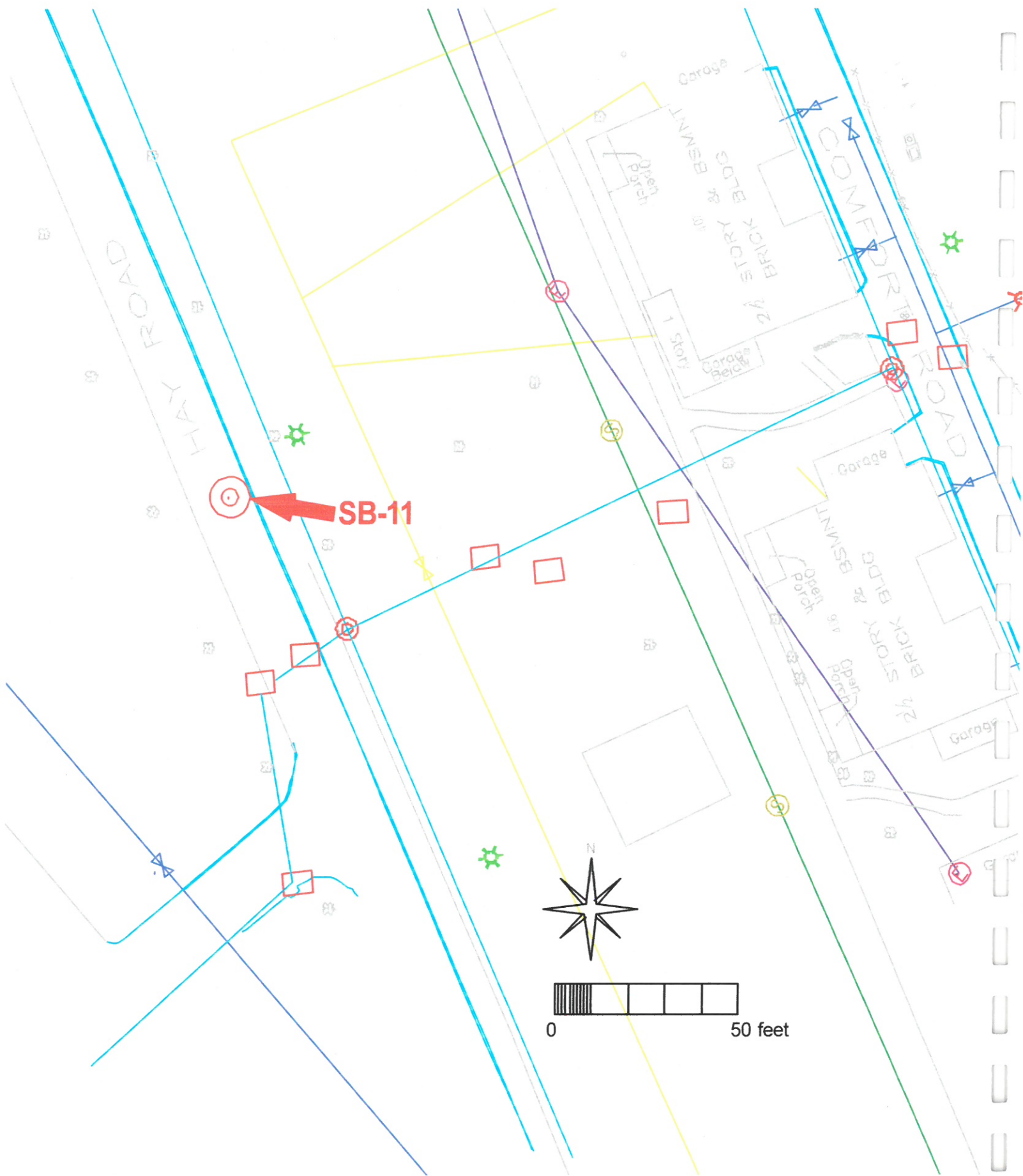


Figure 10 Part of the 2003 Montrose Survey showing the location of Boring SB-11.

BIBLIOGRAPHY

Jones, Olive and Catherine Sullivan

- 1989 *The Parks Canada Glass Glossary for the description of containers, tableware, flat glass, and closures.* With contributions by George L. Miller, E. Ann Smith, Jane E. Harris and Kevin Lunn. Revised edition. Studies in Archaeology, Architecture and History; National Historic Parks and Sites, Canadian Parks Service, Environment Canada. Ottawa: Minister of the Environment.

Public Archaeology Laboratory, Inc.

- 1996 Phase 1A Archaeological Assessment of the Governors Island National Historic Landmark District, Governors Island, New York. Submitted to ABB Environmental Services, Inc. Revised August 1996. PAL Report No. 751.
- 1997 Technical Report. Phase 1B Archaeological Survey of the Governors Island National Historic Landmark District, Governors Island, New York. Submitted to HRP Assoc., Inc. and USCT/CEU Providence. Revised October 16, 1997. PAL, Inc. Report No. 851.

Society for Historical Archaeology

- 2010 <http://www.sha.org/bottle/machinemadedating.htm#Question%208>
Page date January 8, 2011. Accessed February 11, 2011.

Stone, Linda

- 2006 Report on pre-Construction Archaeological Testing and Construction Monitoring for New Sewers in and Around Buildings 107, 108, 125 and 135 on Governors Island, New York, New York. Prepared for Bedford Construction Corp. August 7, 2006.
- 2008 Report on Archaeological Testing and monitoring for Sigh Post Hole Excavations on Governors Island, New York, New York. Prepared for Turner Construction Corporation. August 6, 2008.
- 2010 Letter Report: Archaeological inspection of borings in the on Governors Island Historic District. To Hart Crowser, Inc. November 10, 2010.
- 2011 Report on Archaeological Monitoring of Borings and Test Pits in the Governors Island Historic District, New York, New York. Prepared for Langan Engineering and Environmental Services. February 7, 2011.

University Of Massachusetts, Archaeological Services

- 2003 Archaeological Overview an Assessment of Governors Island national Monument New York, New York. Presented to: William Griswold, National Park Service. UM-410.

APPENDIX A
WORK PLAN

ARCHAEOLOGICAL RESEARCH AND WORK PLAN FOR
SOIL CHARACTERIZATION GEOPROBE BORINGS
ON GOVERNORS ISLAND
NEW YORK, NEW YORK

January 7, 2011

The Trust for Governors Island (TGI) plans to do a number of soil characterization geoprobe borings on Governors Island, New York, New York. Fourteen of these will be within the Governors Island National Historic District and the New York City Governors Island Landmark district (see Figure 1). They are numbered SB-1 through SB-13 and SB-17. The archaeological work described here is subject to the regulations of and the review by the New York State Office of Parks, Recreation and Historic Preservation (SHPO) and the New York City Landmarks Preservation Commission (LPC).

The borings will extend to the deeper of: (i) the water table, (ii) assumed maximum depth of development (estimated to range from five to 13 feet below grade surface), (iii) two feet beyond the depth of observed contamination, or (iv) refusal. It is expected that borings will be advanced to a maximum depth of 15 feet below ground surface. The borings will be advanced with "direct-push" equipment fitted with a 2 inch diameter, 4 or 5 foot long sampler. Either two or three discrete soil samples will be selected by the engineer for laboratory analysis from each hole; one will be from the 0-2 foot depth interval, another based on contaminants or from just above the water table and the third based on findings of a significant amount of contamination as determined by the engineer.

To determine the archaeological potential of the boring locations, a comparison of them to the original Governors Island shoreline, as depicted on several historic maps, has been completed, as has a review of previous archaeological work in the areas of the borings. The first step involves the use of three historic maps; the 1813 Mangin map, the 1867 Barnard map and the 1879 First Army Engineers Map. Discrepancies between the relationship of the planned borings to the original shoreline on the various historic maps is not uncommon. Factors including the natural changes to the then unprotected shoreline and the accuracy of the maps themselves should be considered. However, the use of historic map overlays can be informative and as a group these maps are a powerful tool in determining past use.

The 1813 Mangin map (see Figure 2) clearly depicts several of the borings outside of the original Island footprint (SB-10, 13 and 17). A couple of the others are at the low water line or between the high and low water lines (SB-2 and 12). Yet others are depicted at the high water line (SB-1, 4, 6, 7 and 11). SB-6 is also at the smith house and SB-11 is shown in the area of a wash house. Other 1813 features in proximity to borings include a storehouse at SB-5, a cemetery at SB-8, a garden at SB-9. SB-3 was located just inland, not far from Fort Jay.

The 1867 Barnard map (see Figure 3) also depicts some of the borings outside of the original Island footprint; the same as shown on the 1813 map (SB-10, 13 and 17), but also SB-12. SB-11 is at the low water line in 1867 and there is no sign of the former wash house. SB-2 is depicted between high and low water in 1867, as it was in 1813. Features in proximity to borings in 1867 include the stables at SB-4, the hospital yard at SB-7 and the parade ground at SB-8 and SB-9. SB-5 and SB-6 no longer have structures at their locations by 1867. However, SB-5 is shown near a carpenters shop and a guard house. The area around Castle Williams appears to have been built out slightly by 1867 in the area of SB-1. The area around SB-3 continued to show no development.

The 1879 First Army Engineers Map (see Figure 4) is yet another point of comparison. Borings outside of the original Island footprint include those shown in 1867 (SB-10, 12, 13 and 14), but also SB-2 and SB-11 are shown beyond the Island footprint in 1879. Unlabeled structures are depicted on the 1879 map near SB-3 and SB-4. SB-8 and SB-9 continue to be in the parade ground, although houses were since built near SB-8. SB-5, the former location of 1813 storehouse, is at a workshop in 1879. SB-7, formerly in the hospital yard, is now at a blacksmith and tinsmith shop. SB-6 continues to be near, but not at, several buildings in 1879. SB-1, is in the same relative position to Castle Williams as was seen in 1967.

Based on the combination of historic map overlays, it is suggested that four boring locations be eliminated from further archaeological consideration because they were either historically outside of the original Island footprint or at the low water line; SB-10, 12, 13 and 17.

Previous archaeological reports have also been consulted to determine if the potential exists for the preservation of archaeological remains in the locations of the remaining ten borings that are within the original Governors Island footprint. Phase 1A research indicates the areas of SB-8 and SB-9 have the potential for the preservation of Native American archaeological resources (PAL 1996: Fig. 4-1).

Phase 1B archaeological testing was conducted by PAL, Inc. in 1997 in the vicinity of SB-7, 8, 9 and 11. Testing near SB-7 revealed a low to moderate density of domestic and structural debris in mixed fill that also contained a Native American period artifact, buried up to approximately 2 feet below ground surface. However, part of one of the outbuildings associated with the Post Hospital nearby was also identified (PAL 1997:59). Testing near SB-8 and SB-9 included arrays of shovel test pits. These tests contained disturbed deposits which included Native American artifacts mixed with both military related material and modern debris at depths up to 2.3 feet below ground surface. However a concentration of brick and stone demolition rubble was identified near SB-9 (PAL 1997: 67-68). Testing near SB-11 revealed the presence of cultural material to a depth of 3.3 feet below ground surface (PAL 1997: 73).

Linda Stone, RPA conducted archaeological work in the vicinity of SB-1, 2, 3, 4, 5 and 6. Recent work in the vicinity of SB-1 included monitoring of a soil boring to the south of SB-1, but at a similar distance from the seawall (Stone 2011). Although over 100 feet away, it is likely that similar fill deposits could be encountered in SB-1, based on the proximity to Castle Williams and the changing shoreline. Natural deposits were encountered between 13.2 and 15 feet below ground surface and cultural material documented to a depth of up to 8 feet deep. However, because SB-1 is closer to Castle Williams it is likely these artifact bearing strata would be nearer to the surface. SB-3 is also in proximity to a recently monitored boring, being just across the Soissons Dock entry ramp. Here, non-artifact bearing deposits were encountered at only 4 feet below ground surface (Stone 2010b).

SB-2 is planned for a location near where a sinkhole was repaired along the seawall in 2006. The 6-foot deep excavation revealed a relatively modern fill deposit (Stone 2007c: 4). However, since SB-2 will be located approximately 15 feet inland, shallower and earlier fill is expected. Monitoring of the excavations for repair of another sinkhole was conducted in the vicinity of SB-4, also along the seawall. Clean fill was found in this location (related to prior utility work) and therefore of no bearing to the current work (Stone 2010a). SB-4 is also near prior archaeological testing done in advance of a temporary light pole. That excavation was conducted to a depth of 6 feet below ground surface. The

upper 1.4 feet contained late- 19th through early- to mid-20th century material and the base of the excavation contained material deposited as early as 1780 (Stone 2007a: 5).

SB-5 is planned for a location in Carder Road on the opposite side of Building #134 from near where archaeological work was conducted for a sewer connection to the Brooklyn Battery Tunnel. The deepest part of those excavations extended to 5.7 feet below ground surface. A lens of broken asphalt, part of an earlier road surface, was found buried up to 1.6 feet below ground surface. The soil beneath that had been redeposited, potentially as early as 1762 (Stone 2007d: 5). Similar late-18th century fill was also documented in excavations completed in advance of a tree planting near SB-6. However, more interesting was a dense oyster shell deposit buried up to 2 feet below ground surface, possibly indicative of the original shore at that time (Stone 2007b: 3-4).

Archaeological examination of the soil removed as part of the soil characterization geoprobe boring work is recommended for SB-1 through 9 and SB-11. Table 1 summarizes the potential findings based on the historic maps and other documentation. The borings will be continuously sampled and the nature of the characterization testing will require the archaeologist to use nitrile gloves to handle the samples and screening for artifact recovery will not be possible. However, soil color and texture will be recorded and measured by depth and the samples thoroughly examined for the presence or absence of cultural material. Photographs taken as may be appropriate.

Should potentially significant intact archaeological deposits be encountered, such as parts of any of the features listed in Table 1, then the TGI, SHPO and LPC will have to be consulted and either a plan to recover archaeological data will have to be developed or other mitigation measures developed. In such a case, the work may have to be temporarily stopped while the decision on how to proceed is developed.

Should any artifacts be recovered during this work, standard methods of artifact processing, labeling, identification, evaluation and documentation will be done on the recovered materials. It is expected items such as coal, cinder and brick fragments will be recorded but not retained. Upon completion of the field work, artifact processing and analysis, a report will be prepared detailing the findings.

TABLE 1: COMPILATION OF ARCHAEOLOGICAL RESEARCH

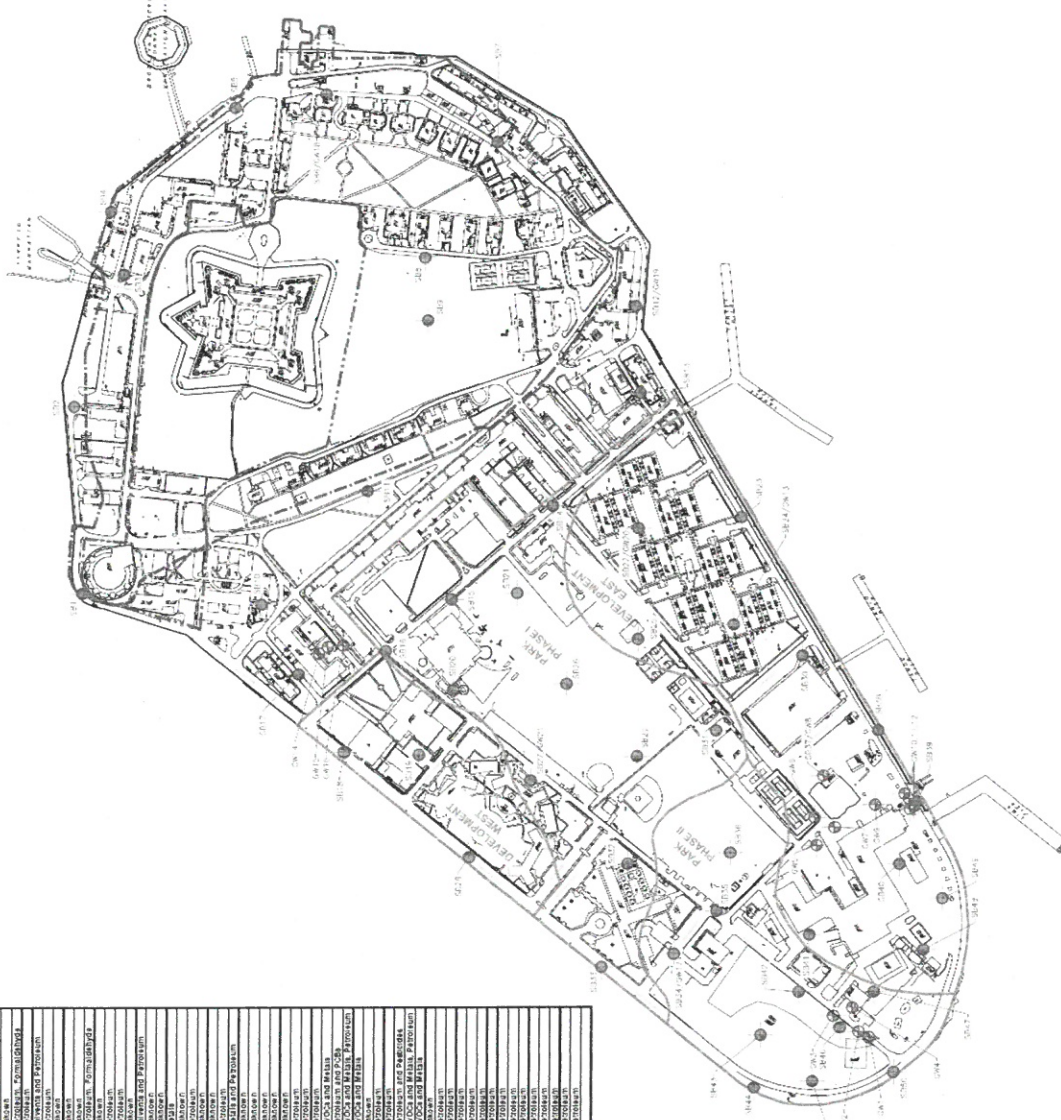
BORING	1813	1867	1879	NO WORK	POSSIBLE RESOURCES
SB-1	at high water	above high water	above high water		historic fill, landfill-retaining structure; Castle Williams construction debris; original shore
SB-2	between high and low water	between high and low water	outside Island		historic fill; landfill-retaining structure; original shore
SB-3	above high water	above high water	at unknown building		late-19th century structure
SB-4	at high water	at ordinance stables	at unknown building		ordinance stable; unknown late-19th century structure
SB-5	at storehouse	near guard house and carpenter shop	at workshop		storehouse; guard house; carpenter shop; workshop
SB-6	at smith house	above high water	above high water		smith house; original shore
SB-7	at high water	in hospital yard	at black and tinsmith shop		hospital related features; blacksmith/tinsmith shop
SB-8	near cemetery	at parade ground	edge of parade ground		cemetery; parade ground; Native American
SB-9	at garden	at parade ground	in parade ground		parade ground; garden; Native American
SB-10	outside Island	outside Island	outside Island	✓	n/a
SB-11	at wash house	at low water	outside Island		wash house; original shore
SB-12	at low water	outside Island	outside Island	✓	n/a
SB-13	outside Island	outside Island	outside Island	✓	n/a
SB-17	outside Island	outside Island	outside Island	✓	n/a

BIBLIOGRAPHY

Public Archaeology Laboratory, Inc.

- 1996 Phase 1A Archaeological Assessment of the Governors Island National Historic Landmark District, Governors Island, New York. Prepared for U.S. Coast Guard. Submitted to ABB Environmental Services, Inc. June 1996 (revised August 1996). PAL, Inc. Report No. 751.
- 1997 Technical Report. Phase 1B Archaeological Survey of the Governors Island National Historic Landmark District, Governors Island, New York. Submitted to HRP Assoc., Inc. and USCT/CEU Providence. Revised October 16, 1997. PAL, Inc. Report No. 851.
- Stone, Linda
- 2007a Report on Archaeological Testing and Monitoring of Seven Locations of Planned Electrical Poles for a Waterfall Art Installation on Governors Island, New York New York. Prepared for NYC Waterfalls, LLC. July 3, 2007.
- 2007b Report on Archaeological Testing and Monitoring for Eight Tree Replacements on Governors Island, New York, New York. Prepared for Almstead Tree & Shrub Care Company. July 30, 2007.
- 2007c Report on Archaeological Monitoring for Seawall Repairs on Governors Island, New York. Prepared for Bedford Construction Corporation. August 21, 2007.
- 2007d Final Report on Archaeological Teting and Monitoring for Brooklyn Battery Tunnel Sewer Connection to Governors Island, New York, New York. Prepared for PB Americas, Inc. November 8, 2007.
- 2008 Report on Archaeological Testing and Monitoring for Sign Post Hole Excavations on Governors Island, New York, New York. Prepared for Turner Construction Corporation. August 6, 2008.
- 2010a Letter Report: Archaeological monitoring of two sinkhole repairs on Governors Island. Prepared for The Trust for Governors Island. August 5, 2010.
- 2010b Letter report: Archaeological inspection of borings in the on Governors Island Historic District. Prepared for Hart Crowser, Inc. November 10, 2010.
- 2011 Report on Archaeological Monitoring of Borings and Test Pits in the Governors Island Historic District, New York, New York. In Progress for Langan Engineering and Environmental Services.

BORING	NORTHING	EASTING	REMARKS	MONITORING/TEMPERATURE/CONTAMINANTS
187	11782.41	37833.48	INSTALLATION	TEMPERATURE
188	11782.41	37833.48	INSTALLATION	TEMPERATURE
189	11782.41	37833.48	INSTALLATION	TEMPERATURE
190	11782.41	37833.48	INSTALLATION	TEMPERATURE
191	11782.41	37833.48	INSTALLATION	TEMPERATURE
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250	11782.41	37833.48	INSTALLATION	TEMPERATURE



LEGEND: GOVERNS ISLAND SCALE: 1" = 500'

GOVERNORS ISLAND NATIONAL MONUMENT BOUNDARY

HISTORIC SHORELINE

PROPOSED REDEVELOPMENT PLAN BOUNDARY

LOCATION OF EXISTING MONITORING WELLS AND IDENTIFICATION NUMBER

APPROXIMATE LOCATION OF PROPOSED SOIL BORING AND IDENTIFICATION NUMBER

INDICATES THE LOCATION OF PROPOSED TEMPORARY WELL ORGANIZATION SAMPLE AND IDENTIFICATION NUMBER

- NOTES:
- GOVERNORS ISLAND NATIONAL MONUMENT BOUNDARY BASED ON MAPS OBTAINED FROM THE POST FOR GOVERNORS ISLAND AND WRETC.
 - HISTORIC SHORELINE BASED ON DRAWING TITLED "MAP OF GOVERNORS ISLAND 1949" FROM FIRST U.S. ARMY ENGINEERS SURVEYED BY LT. E. C. GRIFFIN.
 - DRAWING BASED ON SURVEY PERFORMED BY MERCATOR LAND SURVEYING, L.L.C. DATED 08-27-06.

DRAFT

NEW YORK CITY ECONOMIC DEVELOPMENT CORPORATION
 SITE CHARACTERIZATION INVESTIGATION
 NEW YORK, NEW YORK

CTRC
 CONSULTING ENGINEERS

PROJECT NO. 10072-12-01-01
 DRAWING NO. 10072-12-01-01-01
 DATE: 08/27/06

FIGURE 6

PROPOSED SAMPLE LOCATION PLAN

Figure 1 Planned borings on Governors Island.

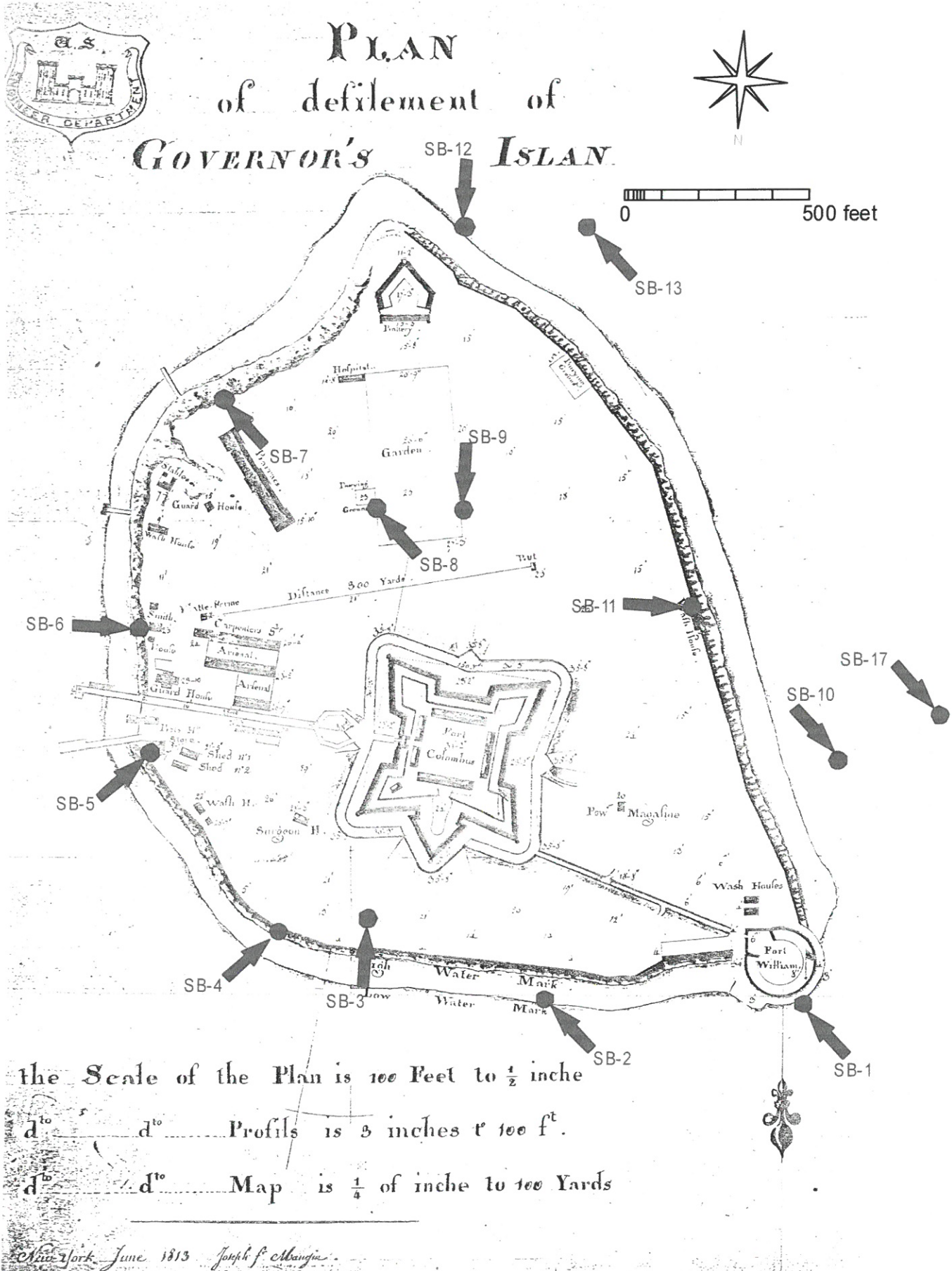


Figure 2

The 1813 Mangin Map with an overlay of the location of planned borings on Governors Island.

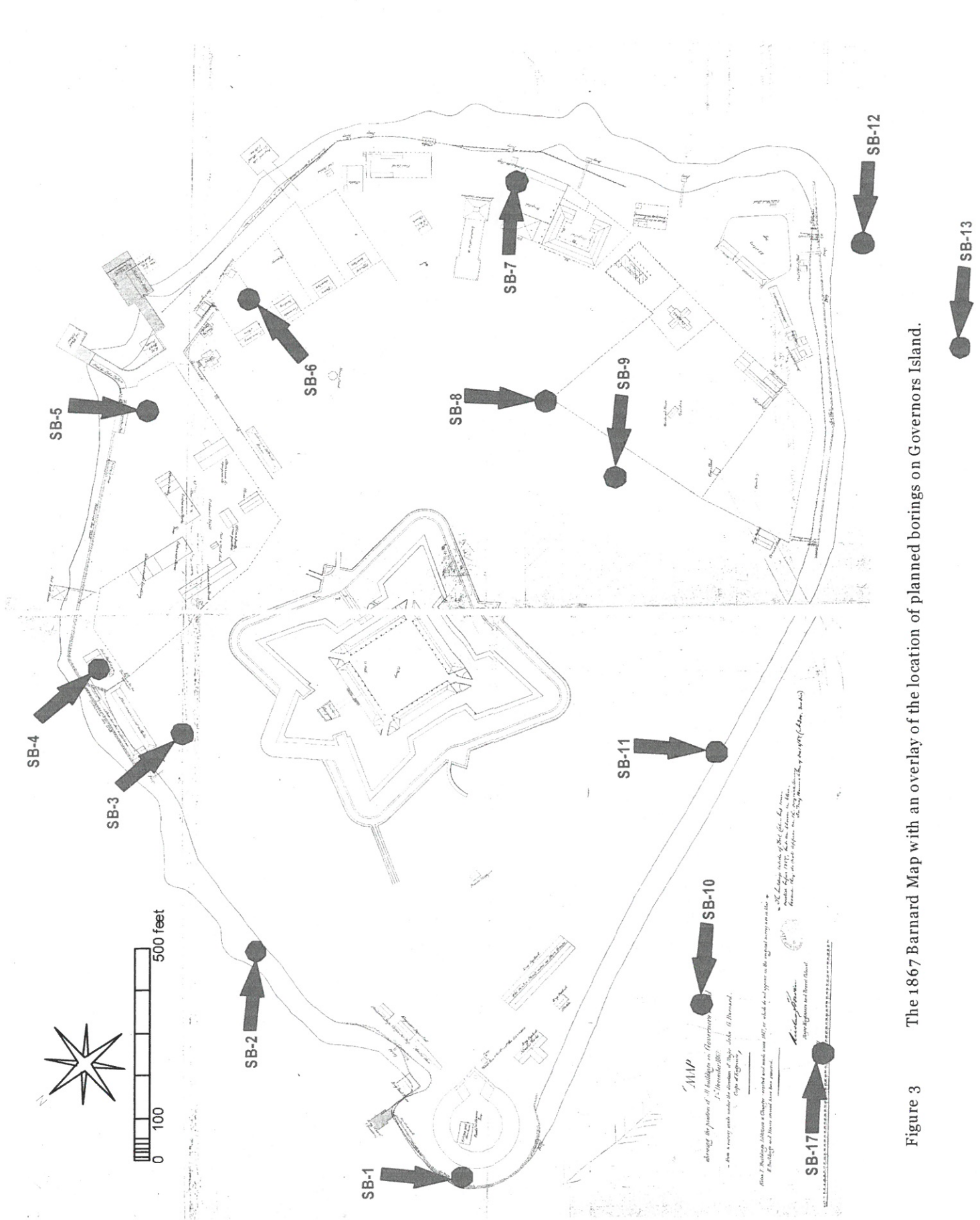


Figure 3 The 1867 Barnard Map with an overlay of the location of planned borings on Governors Island.

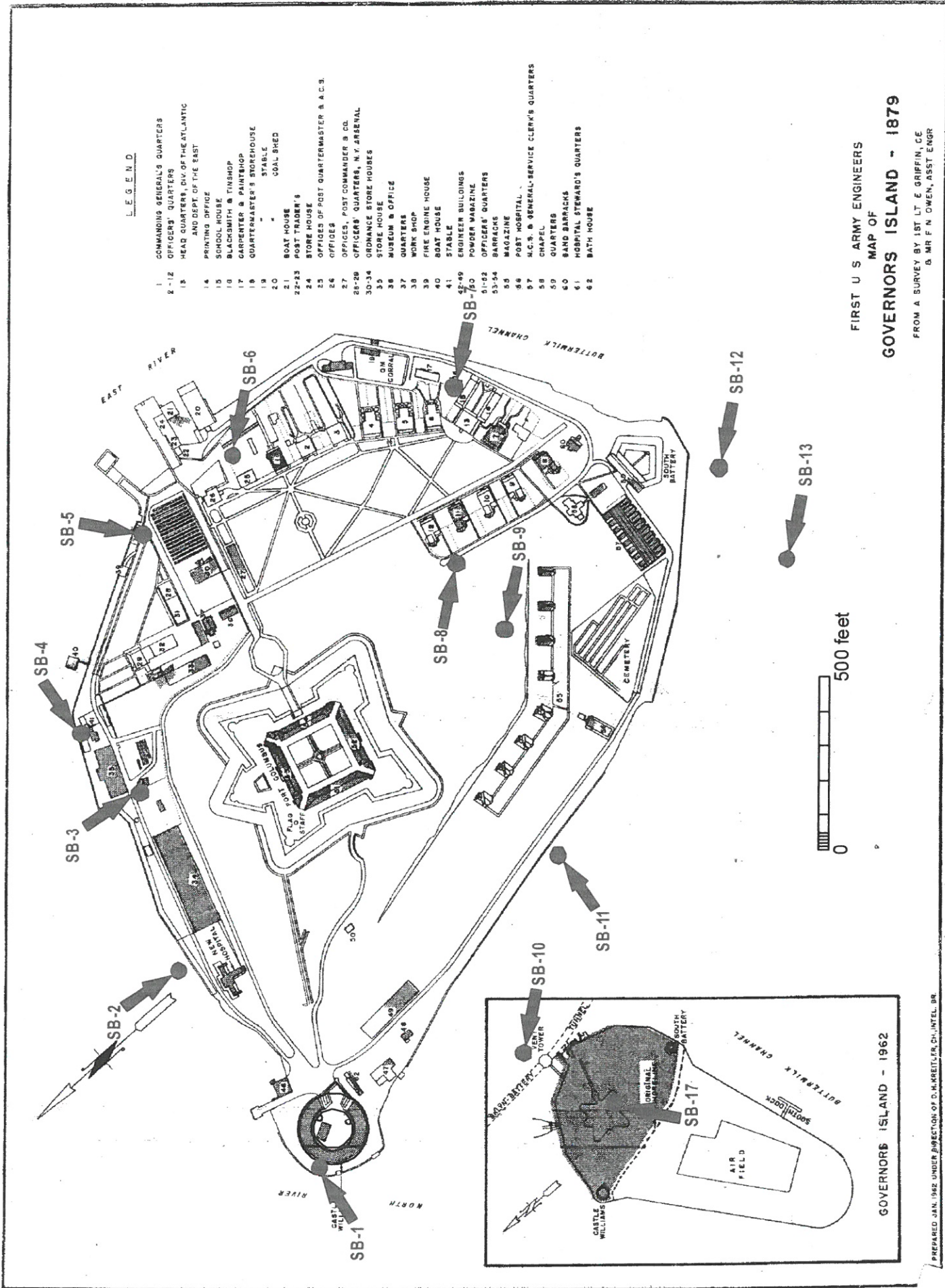


Figure 4 The 1879 Map of Governors Island with an overlay of the location of planned borings.

APPENDIX B
BORING STRATIGRAPHY

BORING EXCAVATION AND ARTIFACT DATA

STRATA

BORING #	SAMPLE	DEPTH RECOVERY (feet)	(when present)	MUNSELL COLOR	DESCRIPTION	ARTIFACTS	COMMENTS
SB-1	1	0-5	3.0	0-1.1	concrete	concrete	driller reported asphalt and 1.5 inches of concrete above
		1.1-1.5	10YR3/3	dark brown	sand	coal	
		1.5-2.4	10YR5/4	yellowish brown	coarse sand with stone	coal	
		2.4-2.7			brick	brick	
		2.7-3.0	10YR6/4	light yellowish brown	sand with crushed schist	---	
	1	0-5	1.4	0-0.1	concrete	concrete	driller reported more concrete above
		0.1-1.2	10YR4/6	dark yellowish brown	coarse sand with pebbles	brick	
		1.2-1.4			crushed schist	---	
		0-0.7	10YR4/3	brown	coarse sand	brick	
		0.7-1.2			crushed schist	---	
	3	10-15	5.0	1.2-1.8	7.5YR4/3	brown	
		0-2.5	10YR4/4	dark yellowish brown	wet coarse sand with pebbles coal		
		2.5-5.0	5YR4/6	yellowish red	clayey silt	---	driller reported many voids in boring
		0-0.8	7.5YR3/2	dark brown	dry silty sand	---	
		0.8-2.0	7.5YR4/4	brown	dry compacted silty sand	---	some pebbles
SB-2	1	0-5	3.2	2.0-2.8	10YR4/4	dark yellowish brown	some pebbles
		0-2.0	10YR3/2	very dark grayish brown	sand	cinder, coal, brick	some rock
		2.0-2.5	7.5YR4/4	brown	dry compacted silty sand	coal	some pebbles
		2.5-3.2	10YR3/2	very dark grayish brown	clayey silt	---	some pebbles
		0-0.4	10YR4/2	dark grayish brown	clayey silt	brick, coal	
	2	5-10	1.3	0.4-0.8	10YR4/4	dark yellowish brown	some pebbles
		0.4-0.8	10YR4/4	dark yellowish brown	sand	crumbled mortar	
		0.8-1.0			brick	brick	
		1.0-1.3	10YR3/2	very dark grayish brown	sand	coal	some rock
		0-0.6	10YR3/2	very dark grayish brown	wet sand	brick	
SB-3	3	10-15	2.6	0.6-2.6	5YR4/4	reddish brown	some rock
		0-1.3	10YR3/2	very dark grayish brown	wet sandy silt	---	
		0-1.3	10YR3/2	very dark grayish brown	wet sand	---	some rock
		1.3-2.3	5YR4/4	dark reddish brown	stoney silty sand	cinder, coal, concrete	
		0-1.4	7.5YR4/4	brown	sandy silty	coal	some rock
SB-4	2	5-10	4.2	1.4-4.2	5YR3/4	dark reddish brown	some sand at interface
		0-1.4	7.5YR4/4	brown	moist clayey silt	---	
		1.4-4.2	5YR3/4	dark reddish brown	wet silty sand with some clay	---	
		5.0	5YR3/3	dark reddish brown	dry sandy silt	coal	
		0-2.0	10YR4/2	dark grayish brown	dry sandy silt	coal	
	1	0-5	3.5	2.0-3.5	10YR3/2	very dark grayish brown	brick, cinder, coal, shell
		0-1.0	10YR3/2	very dark grayish brown	dry sandy silt fill	brick, cinder, coal, glass	
		1.0-2.0	10YR5/4	yellowish brown	coarse sand	---	rock at 2.0 feet
		2.0-2.8	10YR4/4	dark yellowish brown	moist silty sand	---	
		0-1.4	10YR3/2	very dark grayish brown	wet sandy silt	---	
	2	5-10	2.8	1.4-2.3	10YR4/4	dark yellowish brown	some rock
		1.4-2.3	10YR4/4	dark yellowish brown	wet silty sand	---	
		2.3-3.7	5YR4/4	reddish brown	wet sandy silt	---	wood in tip

BORING EXCAVATION AND ARTIFACT DATA

STRATA

BORING #	SAMPLE	DEPTH (feet)	RECOVERY (feet)	(when present)	MUNSELL	COLOR	DESCRIPTION	ARTIFACTS	COMMENTS
SB-5	1	0-5	3.0	0-0.9	10YR4/2	dark grayish brown	coarse sand	---	asphalt and concrete above level sampled
				0.9-1.4	10YR4/3	brown	coarse sand	brick	
				1.4-2.2	10YR4/2	dark grayish brown	silty sand	coal	some rock
				2.2-3.0	10YR4/6	dark yellowish brown	moist fine sand	---	
				0-1.2	10YR4/3	brown	dry silty sand	coal	
				1.2-2.1	7.5YR4/4	brown	sandy silt	coal	
SB-6	2	5-10	3.3	0-0.5	10YR4/4	dark yellowish brown	ashy silty sand	coal	
				0.5-2.3	10YR4/4	dark yellowish brown	silty sand	---	
				2.3-3.3	10YR3/4	dark yellowish brown	wet sandy silt	brick	becomes clayey near bottom
				0-0.5	10YR4/6	dark yellowish brown	wet coarse sand	coal	
				0.5-1.6	10YR4/4	dark yellowish brown	wet coarse sand	---	
				1.6-2.1	2.5YR3/3	dark reddish brown	gravelly silty sand	---	
SB-6	3	10-15	4.2	2.1-4.2	5YR4/4	reddish brown	wet sandy silt with clay	---	
				0-0.1			concrete	---	driller reported 1 foot of concrete above sample
				0.1-0.5	10YR3/4	dark yellowish brown	silty sand fill	shell	
				0.5-1.4	10YR4/4	dark yellowish brown	fine sand	---	
				1.4-2.8	10YR4/6	dark yellowish brown	fine sand	---	
				0-1.3	10YR4/3	brown	moist silty sand	---	
				1.3-4.0	10YR4/4	dark yellowish brown	sand	---	
				0-2.6	10YR4/6	dark yellowish brown	sand	---	
				2.6-3.1	7.5YR4/4	brown	sand	---	
				3.1-3.3			rock	---	red color rock
				3.3-3.6	10YR3/1	very dark gray	silty sand	---	
				3.6-4.4			rock	---	white color rock
SB-7	4	15-20	2.3	0-1.2	10YR4/3	brown	sand	---	
				1.2-1.7	10YR3/2	very dark grayish brown	sand	---	crushed rock at base
				1.7-2.3	7.5YR3/4	dark brown	wet sandy silt with clay	---	
				0-0.9	10YR3/1	very dark gray	sandy silt	---	
				0.9-1.5	10YR4/4	dark yellowish brown	mottled silty sand	asphalt, brick	
				1.5-2.6	7.5YR4/6	brown	sand	---	
SB-8	2	5-10	1.1		7.5YR4/6	brown	sand	---	
	3	10-15	1.9		10YR4/6	dark yellowish brown	wet sand	---	
	1	0-5	2.3	0-0.5	10YR3/1	very dark gray	grass and silty loam	---	
				0.5-1.4	10YR4/3	brown	silty sand	---	
				1.4-2.3	10YR3/3	dark brown	sandy silt	---	contains fine roots and rock at bottom
				0-0.6			rock	---	white color rock
SB-8	2	5-10	3.4	0.6-3.4	7.5YR4/6	strong brown	sand	---	
	3	10-15	3.5		7.5YR4/6	strong brown	sand	---	some rock

BORING EXCAVATION AND ARTIFACT DATA

STRATA

BORING #	SAMPLE	DEPTH RECOVERY (feet)	(when present)	MUNSELL COLOR	DESCRIPTION	ARTIFACTS	COMMENTS
SB-9	1	0-5	2.7	10YR3/2 very dark grayish brown	silty sand	---	some sod and grass at top
			2.0-2.7	10YR4/4 dark yellowish brown	sand	---	
	1	0-7	5.0	10YR3/2 very dark grayish brown	topsoil	---	
			0.9-5.0	10YR4/4 dark yellowish brown	sand	---	
	2	5-10	4.1	10YR4/4 dark yellowish brown	sand	---	rock at 1.2 feet
			3.0-4.1	10YR4/4 dark yellowish brown	silty sand	---	
			0-0.4	10YR4/3 dark yellowish brown	sand	---	
	3	10-15	1.6	10YR4/2 dark grayish brown	wet silty sand with clay	---	driller reported low recovery due to rock in tip
			0.4-1.4	10YR4/2 dark grayish brown	sand with decaying rock	---	
SB-11			1.4-1.6	10YR4/4 dark yellowish brown	concrete	---	
	1	0-5	1.9	0-0.7	coarse sand	shell	
			0.7-1.9	10YR4/4 dark yellowish brown	silt with schist	---	gravel on top
			0-0.3	10YR4/6 dark yellowish brown	brick	brick	
	1	0-5	2.0	0.3-0.4	coarse sand	coal, shell	
			0.4-2.0	10YR4/4 dark yellowish brown	coarse sand	brick, shell	
			0-0.9	10YR4/4 dark yellowish brown	rock and concrete	---	driller reported this was fill from above
	2	5-10	2.0	0.9-1.3	coarse sand	---	
			1.3-2.0	7.5YR4/4 brown	coarse sand	---	
			0-0.8	7.5YR4/4 brown	coarse sand	---	
	3	10-15	3.0	0.8-1.3	10YR3/3 dark brown	---	
			1.3-2.1	10YR4/6 dark yellowish brown	silty sand with crushed rock	---	red color rock
			2.1-2.8	10YR2/1 black	wet silty sand	---	
			2.8-3.0	7.5YR4/3 brown	gravelly sand	coal, shell	
					silt	---	natural deposit, not screened

APPENDIX C
ARTIFACT INVENTORY

Governors Island - Soil Characterization Geoprobe Borings Artifact Inventory

Context	Material	Identity	Form	Color	Count	Description	DateRange
---------	----------	----------	------	-------	-------	-------------	-----------

SB-4.2.1	Glass		curved	aqua	2	likely part of a machine-made bottle base	late 19 th C. - early 1930s
----------	-------	--	--------	------	---	---	--

 Total Artifact Recovered = 2

