7223 R See also PHIB 22245

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PHASE IB ARCHAEOLOGICAL INVESTIGATION OF THE ALLENTOWN LANE PORTION OF THE CHARLESTON BUS ANNEX – STORMWATER SEWER PROJECT CHARLESTON, RICHMOND COUNTY, NEW YORK

Prepared for:

AKRF, Inc.
440 park Avenue South
New York, New York

Prepared by:

Eugene J. Boesch Ph.D., R.P.A.
Principal Investigator

June 14, 2007

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MANAGEMENT SUMMARY

SHPO Project Review Number: 04PR00763

Involved State, Federal, and Local Agencies: Metropolitan Transportation Authority – New York City Transit

Phase of Survey: IB

Location Information
Location: Charleston Section
Minor Civil Division:
County: Richmond County (Borough of Staten Island)

Survey Area:
Allentown Lane Sloping Ground to the West
Length: approximately 264 meters (871 feet)
Width: approximately 8.5 meters (28 feet)

USGS 7.5 Minute Quadrangle Map: Arthur Kill, New York-New Jersey

Archaeological Survey Overview
Number and Interval of Shovel Tests 26 shovel tests at three to 7.5 meters (10 to 25 feet)

Results of Archaeological Survey
Number and name of prehistoric sites identified: None
Number and name of historic sites identified: None

Results of Architectural Survey
Number of buildings/structures/cemeteries within project area: None
Number of buildings/structures/cemeteries adjacent project area: None
Number of previously determined NR listed or eligible buildings/ structures/cemeteries/districts adjacent project area: None
Number of identified eligible buildings/structures/cemeteries/ districts adjacent project area: None

Report Author: Eugene J. Boesch, Ph.D., R.P.A. Principal Investigator

Date of Report: June 14, 2007

1.0 INTRODUCTION

In November 2006, a Phase Ia archaeological investigation (Meade and Dallal 2006) was undertaken for the Charleston Bus Annex – Stormwater Sewer project, situated along Arthur Kill Road and Allentown Lane in the Charleston section of Richmond County (Borough of Staten Island), New York (Figures 1 and 2). The Phase Ia study indicated that portions of Allentown Lane and a grassy slope located to its immediate west were sensitive for the presence of Native American archaeological sites but not sensitive for Historic period resources (Meade and Dallal 2006:VI:1-4). The report concludes that:

- although portions of Allentown Lane likely have been disturbed as a result of roadway construction and the installation of utilities associated with the "Tides" residential development, located just north of Allentown Lane, it is possible that Native American resources could be located in less disturbed areas beneath the roadway (Meade and Dallal 2006:VI:2-3).

- the slope west of Allentown Lane, overlooking the Arthur Kill, is relatively undisturbed, and could contain evidence of Native American activity.

- Historic period residences or commercial structures were not located in proximity to Allentown Lane nor did other potentially significant Historic period events occur there. Accordingly, potentially significant domestic, commercial, or other deposits are unlikely to have formed within the Allentown Lane vicinity.

The Phase Ia report also concluded that the Arthur Kill Road portion of the Charleston Bus Annex – Stormwater Sewer project is not sensitive for Native American or Historic period archaeological resources.

Based upon the results of the research conducted for the Phase Ia investigation, the 2006 report recommended that Phase Ib-level testing and monitoring occur along Allentown Lane and the grassy slope to its west.

This report presents the results of the Phase Ib sub-surface investigation of the portion of the Charleston Bus Annex – Stormwater Sewer project area that extends along Allentown Lane and the grassy slope to its west. The testing consisted of the excavation of 26 archaeological shovel tests placed: 1) beneath the paved surface of Allentown Lane or along its southern margin; and 2) along the sloping ground west of Allentown Lane. Sub-surface investigation also included monitoring the manual excavation of one project-related construction test pit.

The objective of the Phase Ib investigation is to determine whether archaeological resources, which are possibly eligible for listing on the New York State and National Registers of Historic Places, are present within the tested portions of the project area. The study has been conducted and this document prepared in accordance with the *Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation*, Federal Register, Volume 48, Number 190 and the guidelines and standards for cultural resource investigations currently adopted by the New York State Office of Parks, Recreation and Historic Preservation (OPRHP; The New York State Archaeological Council 1994, 2000; OPRHP 2005). The Phase Ib investigation was conducted according to the standards and guidelines for completing archaeological surveys as presented in the New York City Environmental Quality Review (CEQR) Act Technical Manual and currently adopted by the New York City Landmarks Preservation Commission. The Phase Ib investigation was undertaken for AKRF, Inc., New York, New York at the request of the Metropolitan Transportation Authority – New York City Transit.

A work plan describing the methodology employed to conduct the Phase Ib study was prepared by staff of AKRF, Inc. and submitted to OPRHP for its review. The work plan subsequently was approved by that agency.

1.1 Project Impacts

Allentown Lane and the slope to its west will be impacted by the installation of a new storm water sewer that will extend from Arthur Kill Road. The reported location of the sewer will be towards the centerline of

Allentown Lane. An existing water main extends approximately three quarters of the way down the centerline of the Lane from Arthur Kill Road. It is located approximately 132 centimeters (52 inches) below the contemporary road surface. The planned sewer will be installed near the existing main. Excavation for the sewer's installation will extend, in part, through the previously excavated and backfilled trench for the existing water main but likely also will impact surrounding soil layers.

West of Allentown Lane, the storm water sewer will extend down the slope and drain into the Arthur Kill.

1.2 Description of the Area of Potential Effect for the Allentown Lane Portion of the Charlestown Bus Annex – Stormwater Sewer Project

The area of potential effect (APE) for the Phase Ib archaeological testing consists of Allentown Lane and the sloping ground to its west that extends to salt marshes bordering the Arthur Kill (Figure 2 and Photographs 1-6).

Allentown Lane extends westward from Arthur Kill Road for approximately 255 meters (840 feet; Photographs 1 and 2). The road is paved with curbs along its north and south sides. A sidewalk extends down its northern side and borders its western end adjacent to the slope leading to the Arthur Kill. A buried water main extends down the center of Allentown Lane (see above) with lateral connections leading to fire hydrants along its north side. An existing sewer line extends east to west south of Allentown Lane. Construction of Allentown Lane apparently included grading for the roadbed, in places cutting substantially below the surrounding grade. The extent of the cutting of the roadbed increases as one moves west along the Lane from Arthur Kill Road. At Arthur Kill Road, Allentown Lane and the surround terrain are at roughly the same elevation (Photograph 1). The road's elevation decreases gradually relative to the surrounding terrain due to grading as one moves west along Allentown Lane with the western most approximately one third of the Lane having been substantially cut and recessed by over 1.1 meters (four feet) into the surrounding landscape (Photograph 3).

West of Allentown Lane and the bordering sidewalk is the steeply sloping ground that leads to the Arthur Kill (Photograph 4). The APE along the slope is approximately nine by nine meters (30 by 30 feet) in size. The slope decreases in elevation by approximately four meters (14 feet) from east to west over that distance. The slope extends from a recently constructed sidewalk west of Allentown Lane to a salt marsh bordering a section of mud flat along the Arthur Kill (Photograph 5). The slope, as well as a portion of the salt marsh, has been filled. Recent landscaping along the length of the slope has included the planting of small shrubs.

A residential development, referred to as the "Tides", borders Allentown Lane to the north while woodland is located to its south.

1.3 Methodology

The Phase Ib archaeological investigation of the Allentown Lane portion of the Charleston Bus Annex – Storm water Sewer project consisted of the excavation of 26 shovel tests and the monitoring of the manual excavation of one project construction related test pit. The purpose of the shovel tests and monitoring was to determine whether archaeological deposits and/or Native American artifacts are present in the areas tested.

The shovel tests typically covered approximately 0.6 to 0.75 square meters (2 - 2.5 square feet) of ground surface and were extended to depths below which naturally occurring, culturally sterile, sub-soil was encountered or to the extend achievable using the techniques employed. Each shovel test was excavated stratigraphically. Ten shovel tests (numbers 1 – 10) were located along the slope west of Allentown Lane. Sixteen shovel tests were located along Allentown Lane. The latter include 12 tests (numbers 11 – 22) located along the centerline of Allentown Lane and four tests (numbers 23 – 26) located along the grassy edge immediately south of Allentown Lane.

Excavation of the 12 shovel tests (numbers 11 – 22) along the centerline of Allentown Lane consisted of the removed of the existing paved surface and underlying bedding by mechanized equipment. Archaeological excavations proceeded from the exposed soils immediately below the pavement bedding. Sections of pavement

were not removed by mechanized equipment in the western most approximately 61 meters (200 feet). Accordingly, the last four shovel tests along the Lane (Numbers 23 – 26) were placed in unpaved areas immediately south of the road. It was assumed that the results of the excavations of those tests would reflect the stratigraphy located below the roadbed.

All soil removed from the shovel tests was screened through 1/4 inch mesh (hardware cloth) to detect the presence of artifacts. Separation of artifacts from different stratigraphic contexts was maintained to the extend possible with the procedures used.

The project construction related test pit, referred to in this report as Test Pit A, was located at a pre-determined spot along Allentown Lane (Figure 2). It was 1.5 by 1.5 meters (five by five feet) in size and extended to over 1.36 meters (four and a half feet) in depth. Its manual excavation by construction laborers was monitored by the Principal Investigator to determine whether potentially significant cultural deposits or artifacts were encountered. The construction-related objective of the excavation of the test pit was to determine the depth, location, and orientation of the existing water main extending along Allentown Lane. The stratigraphy revealed by the hand excavation was recorded (Figure 3 and Photograph 6) and the artifacts encountered either noted or collected with their stratigraphic context recorded.

Artifacts were returned to the laboratory where they were washed, tabulated, and placed in plastic bags labeled according to provenience. Appendix A to the report lists the stratigraphy encountered in each test and the artifacts recovered from each stratigraphic context. Appropriate metrics are provided for the artifacts. Shovel test and test pit locations are shown on Figure 2 with each shovel test identified by a number (1 – 26) and the test pit indicated by the letter A.

The testing strategy involved the placement of shovel tests at approximately 15-meter (25 to 50 feet) intervals along Allentown Lane and locations to its south. Along the slope west of the Lane, the shovel tests were located at approximately three to four meter intervals (10 to 13 feet). In locations were tests revealed the presence of Native American activity or Historic period deposits, the methodology required additional shovel tests to be excavated in the immediately surrounding area to further investigate those locations. This did not prove to be necessary.

The first stage of analysis consisted of laboratory processing of all artifacts recovered. Each artifact was cleaned, examined, and identified as to type, function, cultural affiliation, and period of manufacture where possible. The cleaned artifacts were placed in labeled plastic bags to indicate provenience.

The second stage of analysis consisted of analyzing the stratigraphy revealed in conjunction with the artifacts recovered in order to interpret the survey results.

Appendix B indicates the locations of the project area photographs included in this report as Photographs 1 - 6.

The fieldwork was conducted on January 26 and May 29 – 31, 2007.

2.0 RESULTS OF FIELD TESTING

2.1 Introduction

Phase Ib sub-surface investigation of the Allentown Lane portion of the Charleston Bus Annex – Stormwater Sewer project area was aimed at detecting any possibly significant archaeological deposits associated with Native American and/or Historic period utilization of portions of the property. Any Native American materials present most likely would be part of small, unrecorded campsites oriented towards the exploitation of subsistence resources associated with the Arthur Kill. Historic period resources were considered less likely to be present on the property by the previously completed Phase Ia investigation.

Twenty-six shovel tests (#'s 1 – 26) were archaeologically excavated within the project's APE along Allentown Lane, or its southern margin, and the adjoining slope to the west. The Lane and slope will be impacted by the installation of a new storm sewer. The test locations are indicated on Figure 2. Appendix A presents the stratigraphy encountered and the artifacts recovered from them. Ten of the shovel tests (numbers 1 – 10) were located along the slope west of Allentown Lane. Twelve tests (numbers 11 – 22) were located along the centerline of Allentown Lane. Four tests (numbers 23 – 26) were located along the grassy edge immediately south of Allentown Lane.

In addition to the shovel tests, one project construction related test pit (Test Pit A) was archaeologically monitored as it was manually excavated by construction workers (Figure 2). The encountered stratigraphy was recorded (see Figure 3, Photograph 6, and Appendix A).

2.2 Field Results

2.2.1 Slope West of Allentown Lane

The archaeological testing of the section of sloping ground adjoining the western end of Allentown Lane was completed on January 26, 2007. The slope is part of the rising ground that borders the Arthur Kill to its east. The tested area is approximately nine by nine meters (30 by 30 feet) in size, decreasing in elevation by approximately four meters (14 feet) from east to west over that distance. The slope extends from a recently constructed sidewalk along the west side of Allentown Lane to a small salt marsh bordering a section of mud flat along the Arthur Kill. The slope, as well as a portion of the salt marsh, has been filled. Recent landscaping along the length of the slope has included the planting of scores or small shrubs. Project impacts along the slope will result from the installation of the new storm water sewer.

Ten archaeological shovel tests (numbers 1 – 10) located at approximately three to four meter (10 to 13 feet) intervals were archaeologically excavated along the slope (Figure 2 and Appendix A). The testing did not reveal any archaeological deposits or structural remains that are possibly eligible for listing on the New York State or National Registers of Historic Places. Furthermore, Native American artifacts were not recovered from any of the shovel tests excavated.

Shovel Tests 1, 2, and 4

The archaeological testing along the upper (eastern part) and middle portions of the slope (shovel tests 1, 2, and 4) revealed the presence of two to five centimeters (0.6 to 2 inches) of relatively recently formed sod and near surface soils (Stratum I) overlying a nine to 15 centimeter (3.5 to 6 inches) thick fill deposit of rust red silty clay

(Stratum II) that likely represents redeposit sub-soil. Two pieces of clear glass from shovel test 1 were the only items of cultural material recovered from stratum I. Items of relatively recent manufacture (fragments of plastic, glass, red brick and a crown-type bottle cap) were recovered from stratum II from shovel tests 1, 2, and 4.

Beneath stratum II in shovel tests 1, 2, and 4, between 15 and 20 centimeters (6 and 8 inches) below grade, was encountered a disturbed, buried former ground surface layer of brown clayey silt with rust/red silty clay mottling (Stratum III) that was eight to 13 centimeters (3 to 5 inches) thick. No cultural material was recovered from Stratum III. Below it, at 28 centimeters (11 inches) in depth, was encountered the culturally sterile, natural sub-soil which in shovel tests 1, 2, and 4 was a rust red silty clay.

Shovel Test 3

Shovel test 3 was the northern most shovel test excavated along the upper portion of the slope (Figure 2). Recent fill deposits underlying the modern ground surface and overlying the natural sub-soil were the soil layers identified in this shovel test. Below two centimeters (0.6 inches) of sod was encountered three fill layers consisting of nine centimeters (3.5 inches) of rust-red silty clay (Stratum II); six centimeters (2 inches) of orange sand with brown sandy silt mottling (Stratum III); and 32 centimeters (12 inches) of red brown silty clay mixed with orange sand (Stratum IV). The fill deposits likely represented redeposited sub-soil, and redeposited sub-soil mixed with former ground surface soils. No cultural materials were recovered from Strata I – IV.

Below stratum IV, at 49 centimeters (19 inches) below the surface, was encountered the naturally occurring, culturally sterile sub-soil which in this test was a rust red clay with orange sand mottling (Stratum V).

Shovel Tests 5 – 7

Shovel tests 5 – 7 were excavated near the base (west portion) of the slope within the margin of the partially filled salt marsh bordering the Arthur Kill (Figure 2). Below four to six centimeters (1.5 to 2.4 inches) of relatively recently developed sod and near surface soils (Stratum I) were encountered fill layers. In shovel test 6, the fill consisted of 31 centimeters (12 inches) of rust/red silty clay (Stratum II), likely redeposited sub-soil, from which fragments of cloth and plastic tarp were recovered. In shovel tests 6 and 7, the fill consisted of 20-centimeter (8 inches) thick layers of orange sand (Stratum II) from which fragments of cloth and plastic tarp also were recovered. The cloth and plastic fragments from the fill in shovel tests 5 - 7 are part of a silt fence found buried by the fill that extends along the base of the slope. The silt fence apparently was placed in this area relatively recently, likely as part of the development of the nearby "Tides" residential development to prevent soil erosion into the salt marsh.

Underlying the fill in all three shovel tests, at 25 to 36 centimeters (10 to 14 inches) below grade, was encountered the same former ground surface deposit of dark brown clayey silt (Stratum III). It was found to be between 39 to 50 centimeters (15 to 20 inches) thick. The increased thickness of this buried surface is likely due to accumulation of soil at the base of the slope due to erosion or slope wash along it. No cultural material was recovered from Stratum III. Underlying Stratum III, at 75 to 76 centimeters (29.5 to 30 inches) below grade, in all three tests was another former surface layer consisting of 29 to 31 centimeters (11 to 12 inches) of gray black clayey silt (Stratum IV) that represents a recently buried marsh deposit. No cultural material was recovered from Stratum IV.

Underlying the marsh deposits, at 104 to 107 centimeters (41 to 42 inches) below grade, in all three shovel tests was encountered the culturally sterile sub-soil consisting of layers of orange sand (Stratum V) followed by rust/red silty clay (Stratum VI).

Shovel Tests 8-10

Shovel tests 8-10 were placed along the base of the slope within the salt marsh (Figure 2). The initial layer encountered in all three tests was a five to six centimeters (2 to 2.4 inches) thick layer of dark brown sandy silt (Stratum I), representing the contemporary ground surface. Underlying Stratum I was encountered a marsh deposit of gray black sandy silt that ranged between 39 and 40 centimeters (15 and 16 inches) in thickness. Underlying the marsh deposits, at 45 centimeters (18 inches) below grade, in all three shovel tests was encountered the culturally sterile sub-soil consisting of layers of orange sand (Stratum V) followed by rust/red silty clay (Stratum VI). No cultural material was recovered from shovel tests 8-10.

2.2.2 Allentown Lane and its Southern Margin – Shovel Tests

Archaeological testing along the Allentown Lane portion of the APE involved the excavation of 16 shovel tests and the monitoring of a manually excavated construction-related test pit (Figure 2 and Appendix A). The testing was undertaken May 29-31, 2007. Allentown Lane extends from Arthur Kill Road to the sloping ground at its west end discussed in Chapter 2.2.2. The eastern portion of the Lane is roughly at the same grade as the surrounding terrain. Grading has recessed the roadbed as it extends westward with the western third being more than four meters (14 feet) below the surrounding grade. Project related impacts would be restricted to the centerline of Allentown Road by the installation of a new storm water sewer. The proposed location for the new sewer along Allentown Lane has been partially disturbed by the installation of a water main and a near surface drainage system.

The archaeological testing did not reveal any archaeological deposits or structural remains that are possibly eligible for listing on the New York State or National Registers of Historic Places. Furthermore, Native American artifacts were not recovered from any of the shovel tests excavated or by the test pit. The testing revealed layers of fill and stratigraphic indications of disturbance associated with the installation of a water main below the centerline of Allentown Lane. The water main extends about three quarters of the way down Allentown Lane. Beyond that point, the testing revealed fill deposits overlying the natural sub-soil. Some of that fill was part of a near surface drainage system underlying Allentown Lane. In five shovel tests (Numbers 12, 15 – 17, and 19), however, a disturbed former ground surface was encountered below more recent fill layers.

Twelve tests (numbers 11 – 22) were located along the centerline of Allentown Lane. Four tests (numbers 23 – 26) were located along the grassy edge immediately south of Allentown Lane. Excavation of the 12 tests (numbers 11 - 22) along Allentown Lane's centerline consisted of the removed of the existing paved surface and underlying bedding by mechanized equipment. Archaeological excavations proceeded from the exposed soils immediately below the pavement bedding. Sections of pavement were not removed by mechanized equipment in the western most approximately 61 meters (200 feet). Accordingly, the last four shovel tests along the Lane (numbers 23 – 26) were placed in unpaved areas immediately south of the road. It was assumed that the results of the excavations of those tests would reflect the stratigraphy located below the roadbed.

Shovel Test 11

Only fill deposits were encountered below the modern roadbed in shovel test 11. The initial stratum was the modern pavement consisting of five centimeters (13 inches) of concrete (Stratum I). Beneath the pavement was encountered an 18 centimeter thick layer of gray black sandy silt (Stratum II). The deposit represents a bedding layer for the concrete road pavement. Under stratum II, at 23 centimeters (58 inches) below grade, was a three-centimeter (7.6 inches) thick fill layer of yellow sandy silt with black sandy silt mottling (Stratum III). Below

it, at 26 centimeters (10 inches) below the road surface, was encountered a third fill deposit of dark gray black sandy silt (Stratum IV) extending to 137 centimeters (54 inches) below modern grade. Stratum IV represents fill placed within the trench as backfill for the water main extending down Allentown Lane. The cast iron water main (Stratum V) was encountered in shovel test 11 at 132 centimeters (52 inches) below grade. Ground water was encountered in the test at 137 centimeters (54 inches) below grade. Other than the water pipe and concrete road pavement from Stratum I, no artifacts were recovered from shovel test 11.

Shovel Test 12

Fill deposits overlying a former ground surface and the naturally occurring were encountered below the modern roadbed for Allentown Lane in shovel test 12. The test was placed slightly to the north of the road's centerline, apparently missing the trench for the water main. The initial stratum was the modern pavement consisting of five centimeters (2 inches) of concrete (Stratum I). Beneath the pavement was encountered a 15 centimeter (38 inches) thick layer of gravel and fragmented concrete (Stratum II) that represents a bedding layer for the concrete road pavement. Under stratum II, at 20 centimeters (51 inches) below grade, was an 11centimeter (28 inches) thick layer of gray black sandy silt (Stratum III) that also is a bedding layer for the road pavement. Under stratum III, beginning at 31 centimeters (79 inches) in depth, were encountered three sequential fill layers. These were an 11 centimeter (28 inches) thick deposit of gray brown sandy silt with gravel (Stratum IV) followed by a 33 centimeter (84 inches) thick layer of gray black sandy silt (Stratum V) and a five centimeter (13 inches) thick layer of gray black sandy silt mottled with brown sandy silt (Stratum VI). Concrete fragments from stratum II and a fragment of red brick from stratum V are the only items of cultural material recovered from the fill layers.

Underlying Stratum VI, at 86 centimeters (34 inches) below grade, was a 28-centimeter (11 inches) thick layer of brown sandy silt that may represent a former ground surface, possibly a plow zone. No cultural material was recovered from Stratum VI. Below it, at 114 centimeters (45 inches) below grade was encountered the naturally occurring sub-soil which in this area is a yellow brown sand (Stratum VIII).

Shovel Test 13

Only fill deposits beneath two sequential roadbed layers were encountered in shovel test 13. The initial stratum was the modern pavement consisting of eight centimeters (3 inches) of concrete (Stratum I). Beneath the pavement was encountered a 10 centimeter (4 inches) thick layer of gravel fill (Stratum II), representing a bedding layer for the concrete road pavement. Under stratum II, at 18 centimeters (7 inches) below grade, was another sequence of concrete pavement, 12 centimeters (4.75 inches) thick, and gravel bedding, 13 centimeters (5 inches) thick (Strata III and IV). Strata III and IV represent an earlier road pavement and bedding layer over which was placed the contemporary road pavement and bedding. Underlying Stratum IV was a 25 centimeter thick fill deposit of brown sandy silt (Stratum V) beneath which was another fill deposit of light brown sandy silt (Stratum VI) that was excavated to 112 centimeters below the modern pavement. Concrete from Strata I and III and a piece of plain ironstone from stratum VI were the only artifacts recovered from shovel test 13.

Shovel Test 14

Only fill deposits were encountered below the modern roadbed in shovel test 14. The shovel test was excavated in the area subsequently covered by Test Pit A. The initial stratum was the modern pavement consisting of 17 centimeters (43 inches) of concrete (Stratum I). Beneath the pavement was encountered an eight centimeter thick layer of gray brown sand (Stratum II). The deposit represents a bedding layer for the concrete road pavement. Under stratum II, at 25 centimeters (10 inches) below grade, was a 107-centimeter (42 inches) thick

fill layer of red yellow sand with brown sand mottling (Stratum III). Stratum III represents fill within the trench for the buried water main extending down Allentown Lane. The cast iron main (Stratum IV) was encountered in the shovel test at 132 centimeters (52 inches) below grade. This is the same depth below grade it was encountered in shovel test 11. Other than the water pipe and concrete road pavement from Stratum I, no artifacts were recovered from shovel test 14.

Shovel Tests 15-17

Fill deposits underlying the modern road pavement and overlying disturbed former ground surface layers were encountered in shovel tests 15 - 17. The initial stratum in the three tests was the modern pavement consisting of eight to 17 centimeters (3 to 6.7 inches) of concrete (Stratum I). Beneath the pavement were encountered five to eight centimeter thick fill layers of brown to black gray sandy silt (Stratum II). Under stratum II, at 15 centimeters (6 inches) below grade in each of these tests, were encountered an eight to 56 centimeter (3 to 22 inches) thick layer of dark brown to brown sandy silt with brown sandy silt mottling (Stratum III) that apparently represents disturbed former ground surface layers. Fragments of coal from shovel test 16 and pieces of glass, plastic, plain whiteware, and a cigarette filter from shovel test 17 were the only artifacts recovered from the apparent disturbed former ground surface context. Underlying Stratum III in each shovel test was encountered the naturally occurring yellow brown sand sub-soil (Stratum IV).

Shovel Tests 18, 20, 21 and 22

Fill deposits underlying the modern road pavement and the natural sub-soil were encountered in shovel tests 18, 20, 21, and 22. The lower fill deposit appears to represent a drainage feature consisting of cobbles and in a silty sand and clay matrix overlying the sub-soil.

The initial stratum in the four shovel tests was the modern pavement consisting of five to eight centimeters (2 to 3 inches) of concrete (Stratum I). Beneath the pavement were encountered a six to 20 centimeter (2.4 to 8 inches) thick fill layer of gray to brown to gray brown silt to sandy silt to sandy clay (Stratum II). Other than concrete, no cultural material was recovered from Stratum II or III. Beneath stratum II, at 13 to 25 centimeters (5 to 10 inches) below grade in each test, were a 15 to 28 centimeter (6 to 11 inches) thick fill layer of dark brown to red brown sandy silt to silty sand and clay (Stratum III) that apparently represents a drainage feature for the road. Fragments of plastic were recovered from Stratum III. The owner of the "Tides" residential development to the north of Allentown Lane, confirmed that this fill deposit was intentionally placed along this section of Allentown Lane as part of his development project to facilitate drainage. Underlying Stratum III, at 38 to 41 centimeters (15 to 16 inches) below grade, was encountered the naturally occurring red brown silty sand with clay and cobbles (Stratum IV) sub-soil. Ground water was encountered in two shovel tests, numbers 18 and 20, between 110 and 117 centimeters (43 to 46 inches) below grade.

Shovel Test 19

Fill deposits underlying the modern road pavement and overlying a disturbed former ground surface layer were encountered in shovel test 19. The initial stratum in the shovel test was the modern pavement consisting of five centimeters (2 inches) of concrete (Stratum I). Beneath the pavement was encountered a 20 centimeter thick fill layer of brown sandy silt (Stratum II). Beneath stratum II, at 25 centimeters (10 inches) below grade, was a 26-centimeter (10.25 inches) thick fill layer of light brown sandy silt (Stratum III). Underlying Stratum III, at 51 centimeters (inches) below grade, was encountered the naturally occurring yellow brown sand (Stratum IV) sub-soil. Other than concrete from Stratum I and a piece of plastic from Stratum III, no cultural material was recovered from shovel test 19. Ground water was encountered at 96 centimeters (38 inches) below grade.

Shovel Tests 23 –26

Shovel tests 23 – 26 were located along the southern margin of Allentown Lane. The tests were located within the portion of Allentown Lane that is approximately four meters (14 feet) lower in elevation than the raised ground to the south. Accordingly, the initial elevation of the tests is four meters (14 feet) lower than what the natural ground surface was in the area before to road construction. Accordingly, the natural sub-soil was expected to appear relatively quickly in the tests with only the more recently formed near surface soils, and possibly some fill, expected to overly the naturally occurring sub-soil. The pavement was not removed in the vicinity of these tests (the western most approximately 61 meters/200 feet of Allentown Lane) so it was considered valid to test just south of the roadway's southern margin. It was assume that stratigraphy encountered in the four tests, especially the elevation of the naturally occurring sub-soil, would reflect conditions below the road in this area. It was felt that the four tests, in conjunction with the other tests placed along Allentown Lane, would adequately evaluate the area for the presence of archaeological resources.

The initial layer seen in shovel test 23 consisted of five centimeters (2 inches) of brown sandy silt (Stratum I), representing the contemporary ground surface. One piece of plastic was recovered from the stratum. Below it was a 28-centimeter (11 inches) thick fill layer of yellow brown sand, which represents an initial sub-soil layer. Underlying Stratum II was a second, subsequent, naturally occurring sub-soil layer of red brown clayey silt (Stratum III). No cultural material was recovered from Strata II and III.

The initial layer seen in shovel test 24 consisted of five centimeters (2 inches) of yellow brown silty sand (Stratum I), representing fill at the contemporary ground surface. Below it was a 38-centimeter (15 inches) thick layer of gray silty sand (Stratum II) representing a disturbed, recent former ground surface. Beneath it was encountered the naturally occurring red brown clayey silt sub-soil (Stratum III). No cultural material was recovered from Strata I - III.

The initial layer seen in shovel test 25 consisted of five centimeters (2 inches) of light brown silty sand (Stratum I), representing fill at the contemporary ground surface. Beneath it was encountered the naturally occurring red brown clayey silt sub-soil (Stratum II). No cultural material was recovered from shovel test 25.

The initial layer seen in shovel test 26 consisted of 18 centimeters (7 inches) of red brown silty sand (Stratum I), representing fill at the contemporary ground surface. Below it was a 25-centimeter (10 inches) thick fill layer of dark gray brown silty sand (Stratum II) represents a recent former ground surface. Beneath it was encountered the naturally occurring red brown clayey silt sub-soil. A fragment of hard shell clam and a piece of purple glass were recovered from Stratum II. No other cultural material was recovered from shovel test 26.

2.2.3 Allentown Lane and its Southern Margin – Test Pit A Monitoring

Test Pit A, a 1.5 meter by 1.5 meter (five by five feet) unit, was manually excavated by construction laborers in order to determine the location, orientation, and depth of the existing water main extending along the centerline of Allentown Lane for approximately three-quarters of its length (Figures 2 and 3 and Photograph 6). The Principal Investigator for the archaeological investigation monitored the excavation for the presence of possibly significant archaeological resources. No resources were encountered by the work. None of the soil excavated from Test Pit A was screened. The test pit was located approximately 65 meters (216 feet) west of the intersection of Arthur Kill Road and Allentown Lane (Figure 2). Shovel test 14 was located within the area covered by Test Pit A, which was manually excavated after the shovel test was completed (see above).

Fill deposits including trench backfill extending into the naturally occurring sub-soil were encountered below the modern roadbed in Test Pit A (Figure 3). The concrete pavement (Stratum I) of Allentown was initially removed by backhoe over the entire five by five foot unit. The pavement was found to be 17 centimeters (6.7 inches) thick. Beneath the pavement was a bedding layer for the road consisting of gray brown sand (Stratum II) that was nine centimeters (3.6 inches) thick. Underlying the bedding was another fill deposit of red yellow sand with brown sand mottling (Stratum III). This layer extended to a depth of 71 centimeters (28 inches) below grade in the southern half of the unit. However, in the northern half, it continued to a depth of 152 centimeters (60 inches), representing the backfill within the construction trench for the installation of the water main that extends most of the way down Allentown Lane. Within the trench, at 132 centimeters (52 inches) in depth, was encountered the eight to 10 inch diameter cast iron water main (Stratum IV; Figure 3 and Photograph 6). From the trench fill were noted pieces of plastic, glass, and a cigarette filter. Beginning at 71centimeters (28 inches) below grade in the southern half of the unit, the Stratum II fill deposit ended and the naturally occurring yellow brown sand (Stratum V) sub-soil was revealed. The trench extended into the sub-soil in the northern half of the unit, tapering as it descended. The tapering of the trench resulted in a small triangular shaped section of sub-soil being seen in the extreme northern most portion of the unit, first appearing at 99 centimeters (39 inches) below grade (see Figure 3). Other than the concrete from Stratum I (the roadbed), the artifacts recovered from Stratum III, and the water main, no other cultural material was seen in Test Unit A. Excavation of the test pit ended at 152 centimeters (60 inches) in depth. Ground water was encountered in Test Unit A at 140 centimeters below grade.

The soil layers revealed by the manual excavation of Test Pit A reflected the stratigraphy revealed in shovel test 14, which was located in the northwestern corner of the pit. It was located over the construction trench for the water main.

3.0 CONCLUSIONS AND RECOMMENDATIONS

3.1 Conclusions

Archaeological testing and monitoring along Allentown Lane and the sloping ground to its immediate west (Figures 1 and 2) did not encounter any potentially significant Native American or Historic period archaeological deposits or isolated Native American period artifacts. Based upon the results of the fieldwork and subsequent analyses, it is concluded that installation of the planned Charleston Bus Annex storm water sewer along Allentown Lane and the adjoining slope will not adversely impact any potentially significant archaeological resources.

Ten shovel tests were archaeologically excavated along the slope west of Allentown Lane as part of the Phase Ib study. The stratigraphy encountered revealed the presence of:

- relatively recently formed sod and near surface soils overlying fill below which were encountered a buried, former ground surface and the naturally occurring sub-soil in the upper and middle portions of the slope. The buried ground surface represents the pre-filling, relatively recent surface across the area. Only artifacts of relatively recent manufacture were recovered from this portion of the slope.

- relatively recently developed sod and near surface soils overlying fill, former ground surface and marsh deposits, and the naturally occurring sub-soil along the western part of the slope bordering the salt marsh. Artifacts of recent manufacture were the only items recovered from this portion of the slope.

- marsh deposits followed by the naturally occurring sub-soil at the base of the slope. No cultural material was recovered from this portion of the tested area.

As part of the field investigation for the Phase Ib study, 16 shovel tests were excavated along Allentown Lane or its southern margin, and the manual excavation of one construction related test pit was archaeologically monitored. The testing revealed layers of fill and stratigraphic indications of disturbance along most of the planned route of the new storm water sewer due to:

- construction of Allentown Lane. In particular, grading along the road's western half substantially cut into the landscape, removing soil layers down to the depth of the naturally occurring sub-soil along the road's route. Limited filling subsequently occurred and was noted immediately below the contemporary road surface, overlying the sub-soil. Some of the filling in the western portion of Allentown Lane was associated with a relatively recently installed, near surface drainage system.

- the installation of the existing water main along the centerline of Allentown Lane for approximately three quarters of its length. The water main is located at 132 centimeters (52 inches) below the modern road pavement. Stratigraphic indications for the water main's trench were noted in shovel tests 11 and 14 and Test Pit A.

In five locations (shovel tests 12, 15 – 17, and 19) along Allentown Lane, disturbed former ground surface layers were encountered below more recent fill deposits. It these locations, the shovel tests were offset enough from the orientation of the buried pipeline to miss the disturbance caused by its installation. Other than a few pieces of coal, no Historic period artifacts (or Native American period artifacts) were recovered from the former ground surface contexts.

Other than the fragments of coal, mentioned above, and single pieces of ironstone and whiteware from fill contexts, the testing and monitoring along Allentown Lane recovered only artifacts of relatively recent manufacture.

3.2 Recommendations

Based upon the results of the fieldwork and analyses, additional archaeological investigations are not recommended for the portion of the Charleston Bus Annex - Storm Water Sewer project that includes Allentown Lane and the sloping ground to its west.

4.0 REFERENCES CITED

Behle, C. and K. Bhatt

2006 Storm Drainage System Boring Location Plan Sheets B1-B5. Charleston Bus Annex Staten Island, New York. Prepared by the New York City Transit Authority and Vollmer Associates, New York, New York.

Meade, Elizabeth D. and Diane Dallal

2006 Phase 1A Archaeological Documentary Study Charleston Bus Annex – Stormwater Sewer Arthur Kill Road and Allentown Lane Charleston, Richmond County, New York. Prepared by AKRF, Inc., New York, New York. Prepared for the Metropolitan Transportation Authority-New York City Transit.

United States Geological Survey

1975 Arthur Kill, New York – New Jersey 7.5 Minute Series (Topographic). United States Department of the Interior, Geographic Survey, Washington, D.C.

FIGURES

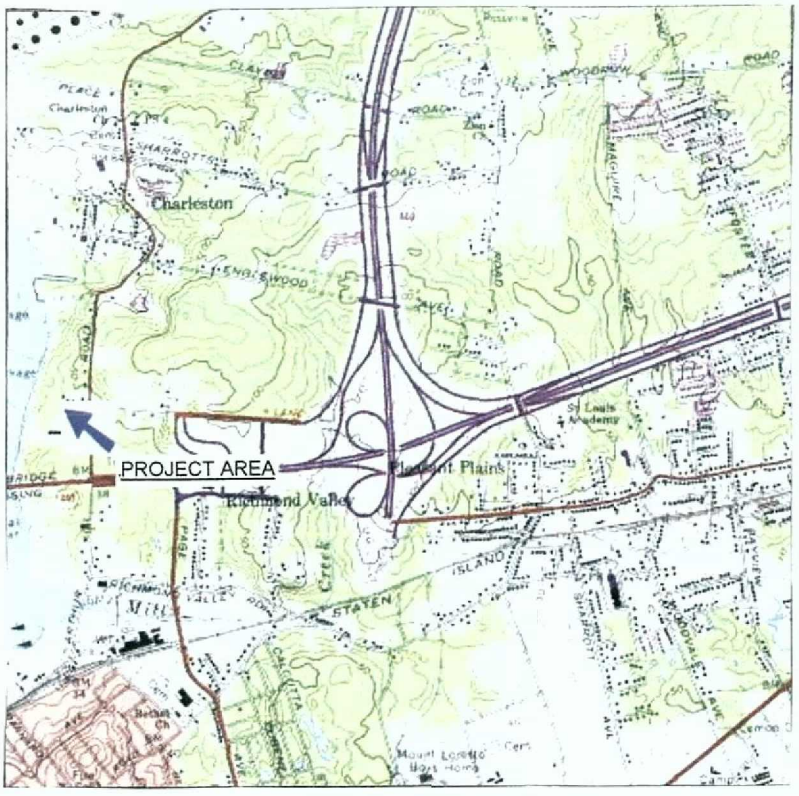
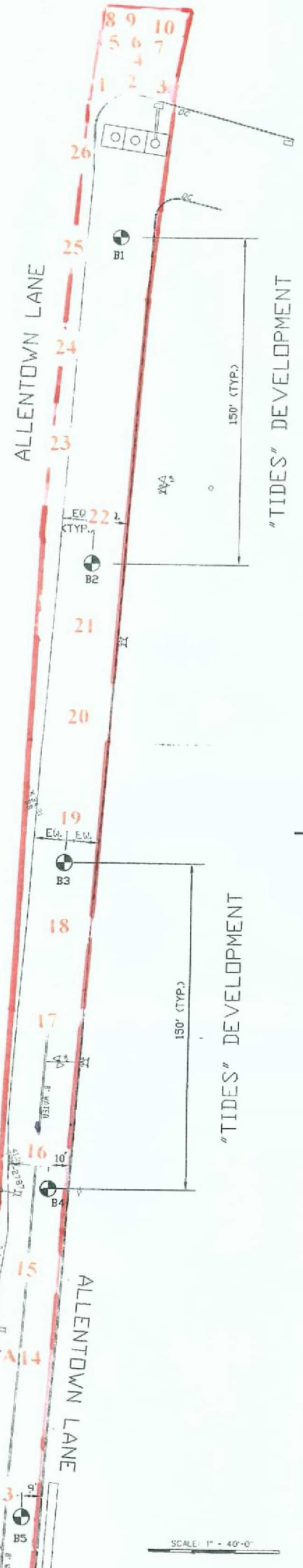


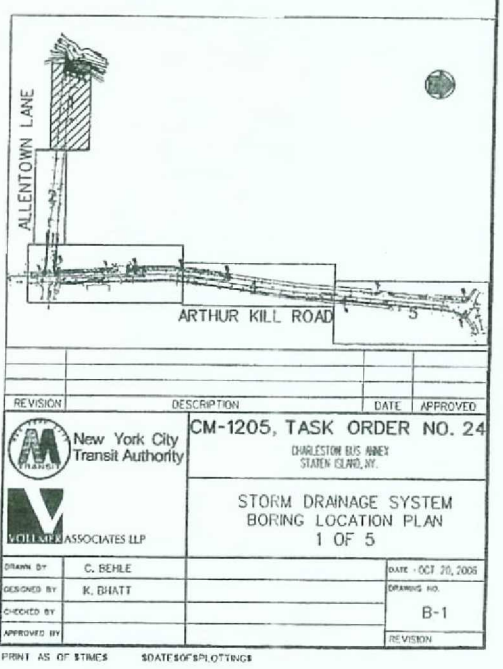
Figure 1
The Allentown Lane Portion of the Charleston Bus Annex – Stormwater Sewer Project Region
Base Map Source: United States Geological Survey 1975
Scale of Original: 1:24,000
Contour Interval: 10 feet

NOTE:
1. SOIL BORINGS B1, B6 AND B11 SHALL BE CONVERTED INTO GROUNDWATER OBSERVATION WELLS. THE DEPTH OF GROUNDWATER SHALL BE MEASURED AT THE COMPLETION OF INSTALLATION AND ONCE AGAIN AFTER 7 DAYS HAVE ELAPSED SINCE COMPLETION.



Key:

1 - 26: Shovel Test Locations
A: Test Pit A Location
: Area of Potential Effect



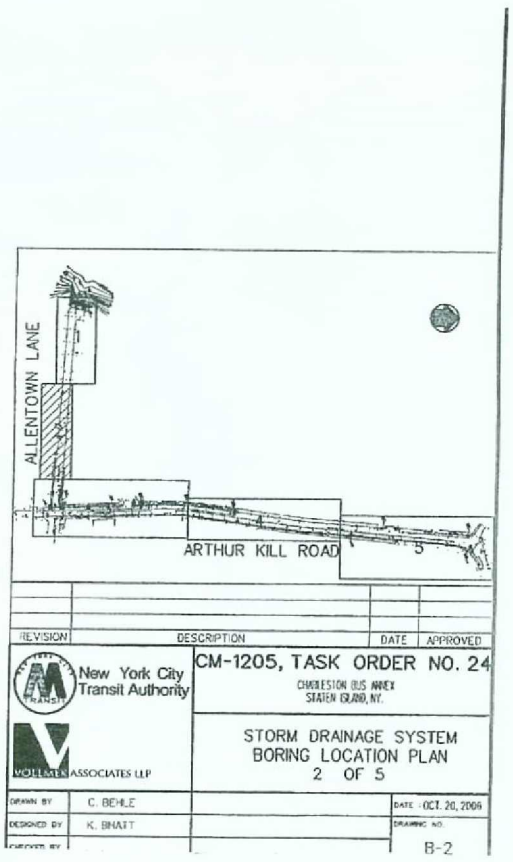


Figure 2
Area of Potential Effect for the Allentown Lane Portion of the Charleston Bus Annex – Stormwater Sewer Project Showing the Location of Archaeological Shovel Tests and Test Pit A
Base Map Source: Behle and Bhatt 2006

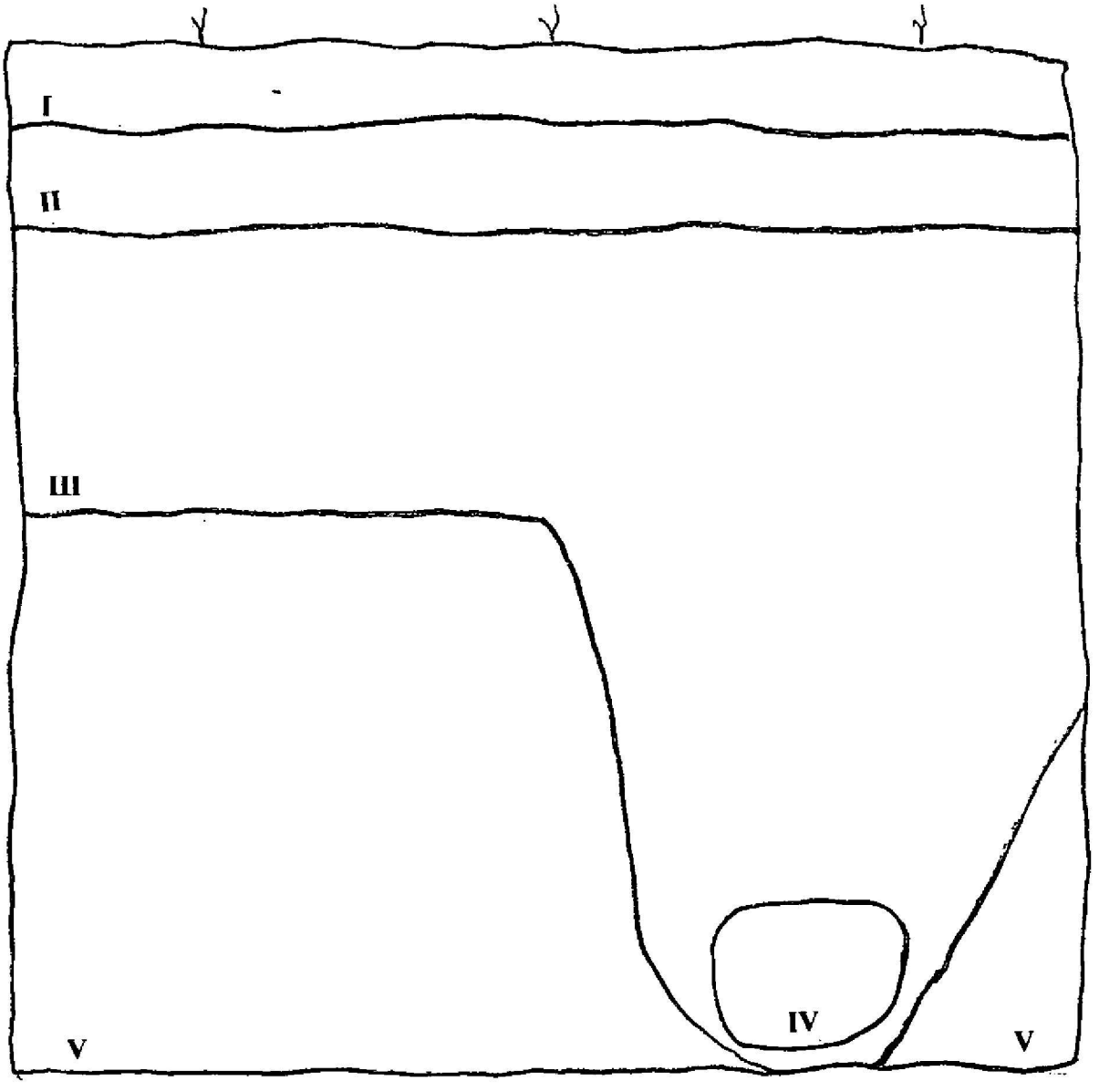
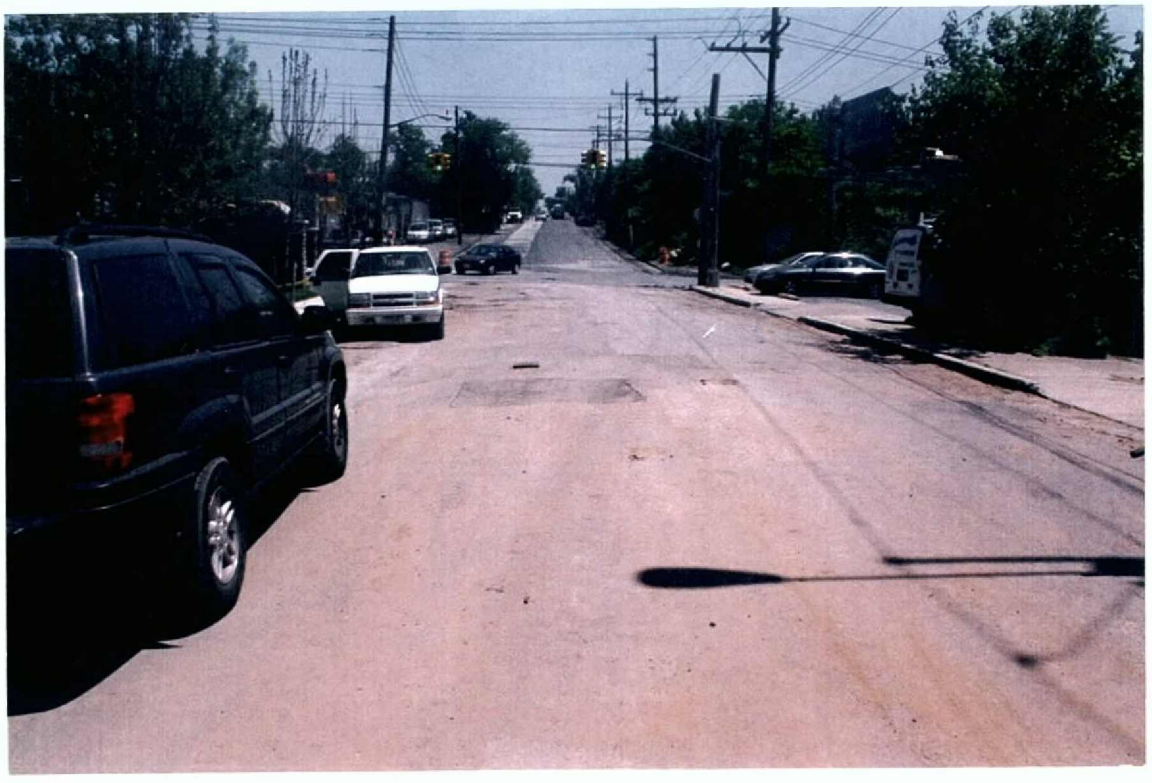


Figure 3
Test Pit A - West Wall Profile Drawing
Scale: 1 Inch on Drawing = 10 Inches of Wall Profile

KEY:

Y : Allentown Lane Surface
I : Concrete Pavement
II : Gray Brown Sand
III: Red Yellow Brown Sand with Brown Sand mottling
IV: Cast Iron Water Main in Red Yellow Brown Sand with Brown Sand mottling matrix
V: Red Yellow Sand

PHOTOGRAPHS



Photograph 1
Allentown Lane (Foreground): View is to the East Towards Arthur Kill Road

Photograph 2
Allentown Lane: View is to the West Towards the Arthur Kill

Photograph 3
View to West Along Allentown Lane Showing Extent of Grading and Height of Adjoining Ground to the South

Photograph 4
Steeply Sloping Ground West Of Allentown Lane – View is to the Southwest

Photograph 5
Salt Marsh Along Shoreline of the Arthur Kill – View is to the Northwest

Photograph 6
Test Pit A – North Wall Profile; Water Main on North Side (Right) at Base of Test Pit

APPENDICES

APPENDIX A

SHOVEL TEST AND TEST PIT STRATIGRAPHY AND ARTIFACT INVENTORY

I. SHOVEL TESTS ALONG SLOPE AT WEST END OF ALLENTOWN LANE

SHOVEL TEST 1

Str. #	Depth (cm.)	Description	Context	Cultural Materials
I	0-5	Sod	Current Ground Surface	2 pcs. clear glass
II	5-15	Rust/Red Silty Clay	Fill	3 pcs. white plastic 2 pcs. green-tinted glass 1 pcs. red brick, 17.5 g.
III	15-28	Brown Clayey Silt with Rust/Red Silty Clay mottling	Disturbed Former Ground Surface	None
IV	28-92	Rust/Red Silty Clay	Natural Sub-soil	None

SHOVEL TEST 2

Str. #	Depth (cm.)	Description	Context	Cultural Materials
I	0-5	Sod	Current Ground Surface	None
II	5-20	Rust/Red Silty Clay	Fill	1 pc. green plastic 1 pc. clear glass
III	20-28	Brown Clayey Silt with Rust/Red Silty Clay mottling	Disturbed Former Ground Surface	None
IV	28-91	Rust/Red Silty Clay	Natural Sub-soil	None

SHOVEL TEST 3

Str. #	Depth (cm.)	Description	Context	Cultural Materials
I	0-2	Sod	Current Ground Surface	None
II	2-11	Rust/Red Silty Clay	Fill	None
III	11-17	Orange Sand with Brown Sandy Silty mottling	Fill	None
IV	17-49	Red Brown Silty Clay mixed with Orange Sand	Fill	None
V	49-100	Rust/Red Silty Clay with Orange Sand mottling	Natural Sub-soil	None

SHOVEL TEST 4

Str. #	Depth (cm.)	Description	Context	Cultural Materials
I	0-5	Sod	Current Ground Surface	None
II	5-16	Rust/Red Silty Clay	Fill	2 pcs. clear glass 1 crown-type bottle cap
III	20-28	Gray Black Claycy Silt with Rust/Red Silty Clay mottling	Disturbed Former Ground Surface	None
IV	28-95	Rust/Red Silty Clay	Sub-soil	None

SHOVEL TEST 5

Str. #	Depth (cm.)	Description	Context	Cultural Materials
I	0-4	Sod	Current Ground Surface	None
II	4-36	Rust/Red Silty Clay	Fill	1 pc. cloth 1 pc. plastic tarp
III	36-75	Dark Brown Clayey Silt	Former Ground Surface	None
IV	75-105	Gray Black Clayey Silt	Former Marsh Deposit	None
V	105-125	Orange Sand	Natural Sub-soil	None
VI	125-130	Rust/Red Silty Clay	Natural Sub-soil	None

Encountered Ground Water at 111 cm.

SHOVEL TEST 6

Str. #	Depth (cm.)	Description	Context	Cultural Materials
I	0-5	Sod	Current Ground Surface	None
II	5-25	Orange Sand	Fill	2 pcs. cloth, 1 pc. plastic tarp
III	25-75	Dark Brown Claycy Silt	Former Ground Surface	None
III	75-104	Gray Black Clayey Silt	Former Marsh Deposit	None
IV	104-115	Orange Sand	Natural Sub-soil	None
IV	115-125	Rust/Red Silty Clay	Natural Sub-soil	None

SHOVEL TEST 7

Str. #	Depth (cm.)	Description	Context	Cultural Materials
I	0-6	Sod	*Current Ground Surface*	*None*
II	6-26	Orange Sand	Fill	cloth fragments 1 pc. plastic tarp
III	26-76	Dark Brown Clayey Silt	Former Ground Surface	None
IV	76-107	Gray Black Clayey Silt	Former Marsh Deposit	None
V	107-118	Orange Sand	Natural Sub-soil	None
VI	117-124	Rust/Red Silty Clay	Natural Sub-soil	None

Encountered Ground Water at 111 cm.

SHOVEL TEST 8

Str. #	Depth (cm.)	Description	Context	Cultural Materials
I	0-5	Dark Brown Sandy Silt	Current Ground Surface	None
II	5-45	Gray Black Clayey Silt	Former Ground Surface/ Marsh Deposit	None
III	45-67	Orange Sand	Natural Sub-soil	None
IV	67-85	Rust/Red Silty Clay	Natural Sub-soil	None

Encountered Ground Water at 60 cm.

SHOVEL TEST 9

Str. #	Depth (cm.)	Description	Context	Cultural Materials
I	0-6	Dark Brown Sandy Silt	Current Ground Surface	None
II	6-45	Gray Black Clayey Silt	Former Ground Surface/ Marsh Deposit	None
III	45-68	Orange Sand	Natural Sub-soil	None
IV	68-88	Rust/Red Silty Clay	Natural Sub-soil	None

Encountered Ground Water at 61 cm.

SHOVEL TEST 10

Str. #	Depth (cm.)	Description	Context	Cultural Materials
I	0-6	Dark Brown Sandy Silt	Current Ground Surface	None
II	6-45	Gray Black Clayey Silt	Former Ground Surface/ Marsh Deposit	None
III	45-68	Orange Sand	Natural Sub-soil	None
IV	68-86	Rust/Red Silty Clay	Natural Sub-soil	None

Encountered Ground Water at 61 cm.

II. SHOVEL TESTS ALONG ALLENTOWN LANE

SHOVEL TEST 11

Str. #	Depth (cm.)	Description	Context	Cultural Materials
I	0-5	Concrete	Road Surface	Concrete
II	5-23	Gray Black Sandy Silt	Fill	None
III	23-26	Yellow Sandy Silt with Black Sandy Silt mottling	Fill	None
IV	26-132	Dark Gray Black Sandy Silt	Fill	None
V	132-137	Metal Pipe in Dark Gray Sandy Silt	Water Main and trench Fill	Metal Pipe

Encountered Ground Water at 137 cm.

SHOVEL TEST 12

Str. #	Depth (cm.)	Description	Context	Cultural Materials
I	0-5	Concrete	Road Surface	Concrete
II	5-20	Gravel and Concrete	Fill	Concrete
III	20-31	Gray Black Sandy Silt	Fill	None
IV	31-48	Gray Brown Sandy Silt with Gravel	Fill	None
V	48-81	Gray Black Sandy Silt	Fill	1 pc. Red brick (wt.: 145 grams)
VI	81-86	Gray Black Sandy Silt mottled with Brown Sandy Silt	Fill	None
VII	86-114	Brown Sandy Silt	Former Ground Surface	None
VIII	114-140	Yellow Brown Sand	Natural Sub-soil	None

SHOVEL TEST 13

Str. #	Depth (cm.)	Description	Context	Cultural Materials
I	0-8	Concrete	Road Surface	Concrete
II	8-18	Gravel	Fill	None
III	18-40	Concrete	Former Road Surface	Concrete
IV	40-53	Gravel	Fill	None
V	53-78	Brown Sandy Silt	Fill	None
VI	78-112	Light Brown Sandy Silt	Fill	1 pc. plain ironstone

SHOVEL TEST 14

Str. #	Depth (cm.)	Description	Context	Cultural Materials
I	0-17	Concrete	Road Surface	Concrete
II	17-25	Gray Brown Sand	Fill	None
III	25-132	Red Yellow Sand with Brown Sand mottling	Fill	None
IV	132	Metal Pipe in Red Yellow Sand with Brown Sand mottling	Water Main and trench Fill	Metal Pipe

SHOVEL TEST 15

Str. #	Depth (cm.)	Description	Context	Cultural Materials
I	0-10	Concrete	Road Surface	Concrete
II	10-15	Brown Sandy Silt and Gravel	Fill	None
III	15-23	Dark Brown Sandy Silt with Brown Sand mottling	Former Ground Surface	None
IV	23-130	Yellow Brown Sand	Natural Sub-soil	None

SHOVEL TEST 16

Str. #	Depth (cm.)	Description	Context	Cultural Materials
I	0-8	Concrete	Road Surface	Concrete
II	8-15	Black Gray Sandy Silt	Fill	None
III	15-33	Brown Sandy Silt with Yellow Brown Sand mottling	Former Ground Surface	7 coal fragments (27.5 grams)
IV	33-113	Yellow Brown Sand	Natural Sub-soil	Coal

SHOVEL TEST 17

Str. #	Depth (cm.)	Description	Context	Cultural Materials
I	0-7	Concrete	Road Surface	Concrete
II	7-15	Black Gray Sandy Silt	Fill	None
III	15-71	Brown Sandy Silt with Yellow Brown Sand mottling	Former Ground Surface	4 clear glass fragments 1 cigarette filter 1 pc. plastic 1 pc. plain whiteware
IV	71-140	Yellow Brown Sand	Natural Sub-soil	None

Encountered Ground Water at 139 cm.

SHOVEL TEST 18

Str. #	Depth (cm.)	Description	Context	Cultural Materials
I	0-8	Concrete	Road Surface	Concrete
II	7-13	Gray Sandy Silt	Fill	None
III	13-41	Dark Brown Sandy Silt with cobbles	Fill/drainage feature	None
IV	41-115	Red Brown Silty Sand With Clay and Cobbles	Natural Sub-soil	None

Encountered Ground Water at 110 cm.

SHOVEL TEST 19

Str. #	Depth (cm.)	Description	Context	Cultural Materials
I	0-5	Concrete	Road Surface	Concrete
II	5-25	Brown Sandy Silt	Fill	None
III	25-51	Light Brown Sandy Silt	Fill	2 pcs. green plastic
IV	51-114	Yellow Brown Sand	Natural Sub-soil	None

Encountered Ground Water at 96 cm.

SHOVEL TEST 20

Str. #	Depth (cm.)	Description	Context	Cultural Materials
I	0-5	Concrete	Road Surface	Concrete
II	5-25	Gray Brown Sandy Clay with pebbles	Fill	None
III	25-41	Cobbles with Red Brown Silty Sand and Clay	Fill, drainage feature	3 pcs. clear plastic
IV	41-117	Red Brown Silty Sand with clay and cobbles	Natural Sub-soil	None

Encountered Ground Water at 117 cm.

SHOVEL TEST 21

Str. #	Depth (cm.)	Description	Context	Cultural Materials
I	0-5	Concrete	Road Surface	Concrete
II	5-20	Gray Silt	Fill	None
III	20-41	Cobbles with Red Brown Silty Sand and Clay	Fill, drainage feature	2 pcs. clear plastic
IV	41-106	Red Brown Silty Sand with clay and cobbles	Natural Sub-soil	None

SHOVEL TEST 22

Str. #	Depth (cm.)	Description	Context	Cultural Materials
I	0-5	Concrete	Road Surface	Concrete
II	5-23	Brown Sandy Silt with Pebbles and gravel	Fill	None
III	23-38	Cobbles with Red Brown Silty Sand and Clay	Fill. drainage feature	None
IV	38-104	Red Brown Silty Sand with clay and cobbles	Natural Sub-soil	None

SHOVEL TEST 23

Str. #	Depth (cm.)	Description	Context	Cultural Materials
I	0-5	Brown Sandy Silt	Modern Surface	1 pc. white plastic
II	5-33	Yellow Brown Sand	Natural Sub-soil	None
III	13-41	Red Brown Clayey Silt	Natural Sub-soil	None

SHOVEL TEST 24

Str. #	Depth (cm.)	Description	Context	Cultural Materials
I	0-5	Yellow Brown Silty Sand	Modern Surface/Fill	None
II	5-43	Gray Silty Sand	Former Ground Surface	None
III	43-88	Red Brown Clayey Silt	Natural Sub-soil	None

SHOVEL TEST 25

Str. #	Depth (cm.)	Description	Context	Cultural Materials
I	0-5	Light Brown Silty Sand	Modern Surface/Fill	None
II	5-85	Red Brown Clayey Silt	Natural Sub-soil	None

SHOVEL TEST 26

Str. #	Depth (cm.)	Description	Context	Cultural Materials
I	0-18	Red Brown Silty Sand	Modern Surface/Fill	None
II	18-43	Dark Gray Brown Silty Sand	Former Ground Surface	1 pc. hard shell clam (wt.: 16.6 grams) 1 pc. purple glass
III	43-84	Red Brown Clayey Silt	Natural Sub-soil	None

TEST PIT A

Str. #	Depth (cm.)	Description	Context	Cultural Materials
I	0-17	Concrete	Road Surface	Concrete
II	17-28	Gray Brown Sand	Fill	None
III	28-71/152	Red Yellow Sand with Brown Sand mottling	Fill including Pipe Trench	1 cigarette filter 2 pcs. green plastic 1 black plastic tarp 1 pc. plain glass
IV	132-152	Metal Pipe in Red Yellow Sand with Brown Sand mottling matrix (North Half of Test Pit)	Water Main in Pipe Trench	Metal Pipe
V	71-152	Red Yellow Sand (South Half of Test Pit)	Natural Sub-soil	None

Encountered Ground Water at 140 cm.

Appendix B
Locations of Photographs Included in this Report as Photographs 1 – 6
Base Map Source: Behle and Bhatt 2006

NOTE:
1. SOIL BORINGS B1, B6 AND B11 SHALL BE CONVERTED INTO GROUNDWATER OBSERVATION WELLS. THE DEPTH OF GROUNDWATER SHALL BE MEASURED AT THE COMPLETION OF INSTALLATION AND ONCE AGAIN AFTER 7 DAYS HAVE ELAPSED SINCE COMPLETION.

ALLENTOWN LANE

'TIDES' DEVELOPMENT

B1

B2

B3

B4

B5

B6

150' (TYP.)

EQ. EQ. (TYP.)

TP #1 - 5'(L) x 5'(W) x 5'(D)
LOCATE EXISTING UTILITIES

TP #2 - 18'(L) x 5'(W) x 5'(D)
LOCATE EXISTING UTILITIES

MATCH LINE B-B

ARTHUR KILL ROAD

VETERANS ROAD WEST

CONCRETE SIDEWALK

BRICK WALL

CONC.

8" WATER

12" GAS

18" ESVP INTERCEPTOR SEWER WITH CONCRETE CRADLE

SCALE: 1" = 40'-0"
20' 10' 0 20' 40'

REVISION	DESCRIPTION	DATE	APPROVED

New York City Transit Authority

CM-1205, TASK ORDER NO. 24
CHARLESTON BUS ANNEX
STATEN ISLAND, NY.

STORM DRAINAGE SYSTEM
BORING LOCATION PLAN
2 OF 5

DRAWN BY	C. BEHLE	DATE : OCT. 20, 2006
DESIGNED BY	K. BHATT	DRAWING NO. B-2
CHECKED BY		
APPROVED BY		REVISION

PRINT AS OF 8TIME8 8DATE8OF8PLOTTING8

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