

4720 Q John  
2003 Milner Assoc

JMA

**DRAFT**

**PROTOCOL FOR ARCHEOLOGICAL AND FORENSIC  
ANTHROPOLOGICAL INVESTIGATIONS AT THE SITE OF THE  
VAN ALST FAMILY CEMETERY  
LONG ISLAND CITY (QUEENS COUNTY), NEW YORK**

00DCP055Q- LIC Rezoning

B264 LI

Prepared for

**Outlet City, Inc.**  
42-16 West Street  
Long Island City, New York 11101

By

**John Milner Associates, Inc.**  
One Croton Point Avenue, Suite B  
Croton-on-Hudson, New York 10520

November 2003

610

**DRAFT**

**PROTOCOL FOR ARCHEOLOGICAL AND FORENSIC  
ANTHROPOLOGICAL INVESTIGATIONS AT THE SITE OF THE  
VAN ALST FAMILY CEMETERY  
LONG ISLAND CITY (QUEENS COUNTY), NEW YORK**

---

Prepared for

**Outlet City, Inc.**  
42-16 West Street  
Long Island City, New York 11101

By

**John Milner Associates, Inc.**  
One Croton Point Avenue, Suite B  
Croton-on-Hudson, New York 10520

November 2003

# TABLE OF CONTENTS

## List of Figures

<b>1.0</b>	<b>INTRODUCTION.....</b>	<b>1</b>
1.1	BACKGROUND.....	1
1.2	PRESENT CONDITIONS .....	2
1.3	APPLICABLE LAW AND GUIDANCE.....	2
<b>2.0</b>	<b>FIELD INVESTIGATION .....</b>	<b>4</b>
2.1	PRE-DEMOLITION APPROACH .....	4
2.2	POST-DEMOLITION APPROACH .....	5
2.3	GROUND PENETRATING RADAR (GPR) .....	6
<b>3.0</b>	<b>DESCENDANT IDENTIFICATION AND INVOLVEMENT .....</b>	<b>8</b>
<b>4.0</b>	<b>POST-DISCOVERY PROCEDURES.....</b>	<b>10</b>
4.1	NOTIFICATIONS .....	10
4.2	IDENTIFICATION AND EXCAVATION OF INTACT AND PARTIAL GRAVES AND INTERMENTS .....	10
4.3	IN-FIELD ANALYSIS .....	10
4.3.1	INVENTORY.....	11
4.3.2	DEMOGRAPHIC DATA.....	11
4.3.3	EPIDEMIOLOGICAL DATA .....	12
4.3.4	ANTHROPOMETRY (OSTEOMETRY) .....	12
4.3.5	PERSONAL CHARACTERISTICS .....	13
4.3.6	INCOMPLETE AND DISARTICULATED REMAINS .....	13
<b>5.0</b>	<b>DISPOSITION OF RECOVERED REMAINS .....</b>	<b>14</b>
<b>6.0</b>	<b>REPORTING.....</b>	<b>15</b>
6.1	PROGRESS REPORTING .....	15
6.2	FINAL PROJECT REPORT.....	15
<b>7.0</b>	<b>PERSONNEL QUALIFICATIONS .....</b>	<b>16</b>
7.1	PROJECT ARCHEOLOGIST .....	16
7.2	FORENSIC ANTHROPOLOGIST .....	16
<b>8.0</b>	<b>REFERENCES CITED .....</b>	<b>17</b>

## Figures

## LIST OF FIGURES

- Figure 1. General vicinity of the Van Alst Family cemetery. Scale, 1:24,000.
- Figure 2. Beers (1873) Atlas map showing the location of the Van Alst Family cemetery (no scale).
- Figure 3. The limits of the Van Alst Family cemetery as shown on an 1873 atlas map, superimposed on a plan showing the configuration of existing streets and structures in the surrounding area (adapted from AKRF 1996).



## 1.0 INTRODUCTION

### 1.1 BACKGROUND

In connection with a proposed rezoning action in downtown Long Island City (Queens County), New York) (Figure 1), the New York City Department of City Planning (DCP) was required to prepare a Draft Environmental Impact Statement (DEIS) to satisfy the requirements of the City Environmental Quality Review (CEQR) process. As part of the DEIS process, Historical Perspectives, Inc. (HPI) prepared a preliminary archeological assessment of the area affected by the proposed rezoning (HPI 2000). That assessment notes that the "Van Alst Burying Ground" was described by Seyfried (1984) as being located on the west side of Barn Street [now West Street] at the Long Island Railroad property line. An 1873 atlas (Beers 1973) (Figure 2) clearly marks the cemetery and shows it extending into Barn Street. An 1870 survey (HPI 2001:Figure 2) also shows the outline of the cemetery in the same location as that shown on the 1873 atlas map, but does not label it as such.

A subsequent Phase 1A archeological survey (HPI 2001) developed cultural and topographic chronologies for Lot 26, Block 264 where the cemetery was presumed to have been located. A 1903 map shows that the West Disinfecting Company (WDC) had erected a complex of structures on the western portion of the lot adjacent to Orchard Street, but the eastern portion where the cemetery was located is shown as vacant. A long, narrow, concrete/stucco structure appears for the first time within the boundaries of the cemetery on a 1913 atlas map (Hyde 1913).

On February 23, 1925, the *Daily Star* newspaper carried an article under the headline "May Halt Digging at Old Cemetery Site in Long Island City: Harry Van Alst Says Ancestors Were Buried in Barn Street." The digging referred to was presumably associated with the construction of a new building for the West Disinfecting Company. (The extant five story structure appears for the first time on a 1928 atlas map). The newspaper account indicates that Mr. Van Alst, a Queens attorney, received an anonymous telephone call informing him that "excavators had dug up bones and pieces of caskets and that presumably the bones were those of his ancestors. . . Mr. Van Alst had always understood that the remains of the bodies interred in the former cemetery had been removed some time ago and transferred to Cypress Hills Cemetery. . ." (Daily Star 1925, cited in HPI 2001:5). Cypress Hills Cemetery records indicate that "unknown bones of the Van Alst family" were buried on March 16, 1925, in a plot purchased by Harry Van Alst.

The Phase 1A archeological survey concluded that "the subsurface disturbance record suggests that there is still the possibility that undisturbed burials exist within the potential development site, on Block 264 and along West Street and beneath the railroad siding [that served the West Disinfecting Company and runs along the south side of the building] and right-of-way" (HPI 2001:13). HPI was unable to discover the number of original interments in the cemetery, any confirmation of any removals prior to 1925, or a record of how many individuals were re-interred in 1925.

Present plans for Lot 26 call for the demolition of the former WDC building and as yet undefined future development on the site. HPI recommended archeological testing of the former cemetery location if it could not be avoided by future development activities and that prior to such testing a protocol be developed to define levels of testing, procedures for handling skeletal material, and research issues to be addressed. This document, subject to review by the New York City Landmarks Commission (LPC), is intended to serve as that protocol.

## 1.2 PRESENT CONDITIONS

HPI reviewed available topographic mapping and boring log data from the 1990s but was unable to reach any definitive conclusions about current subsurface conditions within the limits of the former cemetery or the extent of filling and/or other changes resulting from historic development of the site. HPI did conclude that the basement of the extant structure may extend only three feet below the pre-development surface. HPI was also able to determine that the area occupied by the rail siding on the southern side of the existing structure may be 1.7 feet above the grade that existed in 1875. The extent of disturbance associated with construction of the rail siding, below this presumed 1.7-foot fill layer, is unknown.

A Voluntary Cleanup Site Assessment Report (AKRF 1996) prepared for Blocks 263 and 264 concluded that there is a miscellaneous fill from 5 to 14 feet thick over the entire site. The fill is described as "containing some silt and gravel, with occasional brick, cinders, concrete, cobbles, and wood" (1996:1). However, this may not reflect actual conditions within the limits of the former cemetery.

JMA personnel visited the site on January 21, 2001. The rail siding along the south side of the building is still extant although it has clearly not been used for some time. West Street is paved and evidence of in-street utilities was observed. The basement level of the former WDC building was also examined. Although building plans and survey data were not available for review, inspection of the basement area suggests that the south side of the basement floor may be at or close to original grade. It was possible to determine this by observing the height of the bottom of railroad siding access doors above the basement floor and comparing that with their height above ground surface on the exterior of the building. It was apparent that the depth of excavation for the basement was progressively deeper as one moves from south to north within the basement. The floor of the north side of the basement is well below the outside grade.

Figure 3 shows the outline of the cemetery as shown on the 1873 atlas map superimposed upon a plot of current site conditions. The majority of the cemetery appears to have been located in the area now occupied by the former WDC building and the railroad siding. Considerably smaller portions are located under what is now West Street, the portion of an extant 2-story building at the foot of West Street, and the Long Island Railroad property south of the railroad siding.

## 1.3 APPLICABLE LAW AND GUIDANCE

The Division of Cemeteries and the New York State Cemetery Board regulate only cemeteries that are incorporated under the Not-for-Profit Corporation Law. Religious, municipal, and private or family cemeteries (like the Van Alst cemetery) do not fall under the jurisdiction of the Division of Cemeteries.

On April 12, 2002, the LPC issued the *Guidelines for Archaeological Work in New York City* (the *LPC Guidelines*). Section 7.6 of the *LPC Guidelines* deals with unexpected human remains. It states that when such remains are found the New York City Police Department and the Medical Examiner's Office must be contacted immediately, and that those agencies will determine the appropriate action. It also states that if the human remains are found on a project that has been reviewed by the LPC the LPC must be notified. It is unclear whether or not any human remains found at the Van Alst cemetery site can be considered "unexpected." LPC staff was contacted to discuss this matter (A. Sutphin, personal communication). It was determined that it would not be

necessary to contact either the police or the Medical Examiner if human remains are found at the site.

No provisions of the New York State Public Health Law have been identified that would appear to apply to the Van Alst cemetery. Section 4218 of Title II of the Public Health Law deals with opening graves, but only deals with situations where this is done "from malice or wantonness." No relevant sections of the New York City Health Code were identified.

## 2.0 FIELD INVESTIGATION

Several alternative approaches to determining if human remains are extant within Lot 26. These may be generally divided into those that involve pre-demolition archeological investigation and those that involve post-demolition investigation.

### 2.1 PRE-DEMOLITION APPROACH

Four distinct areas can be identified within the former limits of the Van Alst cemetery. The first is the area under the WDC building. The second is the strip of land immediately adjacent to the south side of the WDC building containing the railroad siding and a portion of the Long Island Railroad's property. The third is the former right-of-way of demapped West (formerly Barn) Street. The last is the small area under the extant 2-story building at the foot of West Street.

Archaeological excavation within the basement of the extant WDC building is not recommended. Evidence of two soil borings was noted by JMA personnel during their site visit. To facilitate the collection of boring samples circular holes approximately 6-8 inches in diameter had been cut through the concrete basement floor. These indicated that the basement floor is between 6 and 10 inches thick. Hand excavation through the basement floor would be extremely labor intensive and it would not permit opening of large areas. It would be possible to bring a small piece of excavation equipment (e.g. a Bobcat) into the basement via an existing freight elevator. However, such equipment is not designed for excavation through thick layers of concrete. A large piece of excavation equipment such as a backhoe could be used if a way could be found to get it into the basement. However, use of any motorized equipment in the enclosed space could present air quality concerns. For all of these reasons pre-demolition excavation within the WDC building is not recommended.

A backhoe could be used to excavate within the limits of West Street and along the former rail siding at the south side of the WDC building. Excavation in the latter area would be impeded by the narrowness of the area and the presence of rails. The rails would have to be removed before any excavation could be safely undertaken in this area. In addition, the proximity of the existing WDC building to any excavation could present safety issues if deep excavation becomes necessary. The narrowness of the area would preclude the effective excavation of stepped trenches and necessitate the use of shoring that would significantly impede archeological interpretations of stratigraphy.

The 1870 and 1873 maps of the project area show the limits of the Van Alst cemetery extending into the area now covered by the extreme southwest portion of West Street. The degree of disturbance associated with underground utility construction in this area is unknown, but subsurface disturbance in this area is likely to be less extensive than under the footprint of the WDC building. It would be possible to carry out pre-demolition archeological investigations in this area. However, given that investigation of other portions of the former cemetery site would be more effectively carried out post-demolition, it would certainly be more efficient to conduct all archeological investigations as part of a single operation. It should also be noted that because of the expected pronounced variability of subsurface conditions from one area of the former cemetery to another, conditions and findings in one area (West Street, for example) would not be a reliable indicator of what might be found in other areas (under the WDC building or under the rail siding). Finally, the small size of this area (estimated at approximately 500 square feet) would not seem to warrant a separate approach.

## 2.2 POST-DEMOLITION APPROACH

Given the difficulties involved in undertaking archeological investigations of the former cemetery site prior to demolition of the WDC building and the adjacent 2-story structure, post-demolition investigation is considered a viable alternative. The post-demolition approach will require that all demolition debris be removed from the site prior to the start of investigations. Debris will be removed down to the surface of West Street, the current ground surface along the rail siding, and to the basement floors within the footprint of the WDC building and the adjacent 2-story structure at the foot of West Street. This will be followed by the removal of the paved surface of West Street and the basement floors to expose the underlying ground surfaces. Care will be taken to minimize disturbance of the area immediately below the pavement and the concrete floor. Equipment and methods of removal employed in this activity will be selected with this requirement in mind.

Following the removal of basement floor from the WDC building and the paving from West Street, the underlying ground surface will be inspected by archeologists walking parallel transects, spaced no more than two meters apart, across the site. The purpose of the inspection is to determine if grave shaft outlines are visible. If grave shafts are identified the procedures described in Section 4.2 will be followed.

The depth of disturbance in various portions of the former cemetery site is believed to vary considerably from one area to the next. In addition, there is some indication from the available limited boring log data that some areas of the site may be covered with extensive fill deposits. For these reasons the first step in the post-demolition investigation will be the excavation of a series of small backhoe test trenches to collect information about subsurface stratigraphy (except in those areas where grave shaft outlines are apparent) and the depth to the local water table. The number, location and size of these trenches will be determined in the field. However, at least one trench will be excavated in each of the three distinct areas (West Street, rail siding, WDC basement) within the limits of the former cemetery. Excavated spoil from these trenches will be inspected by project archeologists to determine if disarticulated human remains are present. Any remains found will be treated in accordance with the procedures described in Section 4.3, below.

The type of heavy equipment employed during subsequent phases of the investigation will depend upon the depth and nature of any fill identified in the test trenches. If no fill (a possibility under the basement floor of the WDC building) or only limited amounts of fill are identified, and soil conditions permit, a Grade-all or road grader will be employed to remove the fill and then progressively strip the exposed ground surface. As the Grade-all or grader works the exposed ground surfaces will be inspected to determine if grave shafts can be identified or if disarticulated bone is present. Any disarticulated remains found will be treated in accordance with the procedures described in Section 4.3, below. All excavation will be under the supervision of a Project Archeologist that possesses the qualifications described in Section 6.1 and has been pre-approved by the LPC.

In the event that use of a Grade-all or grader is not feasible, a backhoe or excavator will be used to excavate a series of trenches across the site. Both the depth of fill deposits and the height of the water table will dictate the depth of excavation. Excavation will halt if water is encountered. The size and placement of trenches will be determined in the field. Each trench or trench section will be given a unique identifier and its location mapped.

Excavation spoil will be examined for the presence of disarticulated remains. Trench profiles will be examined for the presence of disarticulated remains and evidence of the possible presence of burials or other features. If no evidence of human remains is identified in a trench or trench section it may be refilled to facilitate excavation in nearby areas.

If intact or partial burials are encountered work will cease until a forensic anthropologist is present on-site. (The forensic anthropologist will be an individual possessing the qualifications described in Section 6.2). Sufficient area will be excavated around and above the area of concern to create a suitable work area and the procedures described in Section 4.2 will be followed.

The total area excavated will total not less than 50% of the total area believed to be within the limits of the former cemetery site, except that in no event (unless human remains are identified) will the time window available for the investigation exceed 30 calendar days. If human remains are encountered the Project Archeologist will provide the project sponsor with an estimate of additional time that may be required to complete fieldwork.

The need to deviate from or modify any of the excavation protocol described above will be determined by the Project Archeologist. In the event that any deviations or modifications are deemed necessary the Project Archeologist will immediately notify the LPC describing why the deviation or modification is deemed necessary.

### **2.3 GROUND PENETRATING RADAR (GPR)**

GPR could be used as an adjunct investigative technique in either pre- or post-demolition contexts. GPR has been used successfully to identify burials and grave shafts. GPR would not, however, be useful in locating disarticulated human remains that are no longer associated with a grave or other burial feature. The existing basement of the WDC building has a generally open floor plan that would permit the operation of GPR equipment in a pre-demolition context. However, several other factors militate against the successful use of GPR at the site.

GPR is designed to identify the contrasts in physical properties between soil layers, rock types, and man-made materials. The selected GPR method must be appropriate to the property contrasts that exist within the given study area or site. Even when an appropriate method is used, the degree of the properties contrast must be sufficient to allow for their discrimination. Required depth of investigation and desired resolution also require consideration. Different methods give different penetrations and provide substantially different subsurface detail. As a broad generalization the greater the penetration depth required, the less the detail of the information obtained. The available information about the site suggests that the depth of penetration required on Lot 26 will be highly variable. Urban areas provide particular challenges for GPR because interference from neighboring structures, buried utilities, and traffic can degrade the quality of the data produced.

The properties of the subsurface materials at the site are unknown. As a result, it is unlikely that the significance and depth of anomalies identified during the survey could be determined without excavation. In addition, if subsurface deposits are of clay or fine silt (as is suggested by the available boring log data for Lot 26), the attenuation of the electromagnetic (EM) signal would make the survey incompatible with the objectives. Also, because GPR utilizes the transmission of EM waves into the ground, any unanticipated electromagnetic interference within the project area (for example, the steel structure of the building and the possible presence of reinforcing mesh or rebar in the concrete floor of the WDC building) may render this survey invalid.

Finally, GPR is not a substitute for excavation. Under ideal conditions GPR and excavation are complementary, with excavations confirming or refuting the results of a GPR survey. Use of GPR at Lot 26 is not recommended for the following reasons:

- Use of GPR would not eliminate the need for subsequent archeological investigation to ground-truth the GPR findings;
- GPR would not be able to identify the presence of disarticulated remains that are not associated with a grave or other feature;
- Available information about subsurface materials in the study area suggests that they would impede optimum effectiveness of GPR;
- Attenuation of the GPR signal can be expected because of the presence of underground utilities and large quantities of metal in and around the study area.



### 3.0 DESCENDANT IDENTIFICATION AND INVOLVEMENT

Cemeteries represent a special category of archeological site in that they embody emotional and religious aspects that other types of sites normally do not. The descendants of individuals buried in historical cemeteries are often overlooked when planning the disinterment and relocation of their relatives and ancestors. These individuals need to be included as much as is practical in the various stages of work associated with the excavation of a cemetery. Archeologists need to be sensitive and responsive to the religious and spiritual values these family members hold (Roberts and McCarthy 1995).

The Van Alst Cemetery presents special challenges. There is some indication that the interments may not be limited to Van Alsts. HPI (2000) cite Seyfried (1984) as stating, in reference to the Van Alst cemetery, that "In 1887 six stones of Van Alst's, Hunters and Parsells could still be read." In addition, HPI notes that the 1924 Van Alst family genealogy typescript noted marriages to members of the Bragaw and Paynter families (2001:10). All of these families trace their roots back to the original colonial settlers of the area.

A preliminary check of standard references indicates that the Parsells and Hunters were related by blood and/or marriage to the Van Alsts. Riker (1852:383) states that Johannes Van Alst (d. 1749) had a daughter Leah who married a John Parsell. Munsell (1882:265) states that a Richard B. Hunter "had located on an adjoining section of the Van Alst farm lands, which he had purchased from his father-in-law, Henry Van Alst.

The last known Van Alst who can be presumed to have had a direct connection with the cemetery is a man described as a Queens attorney named Harry Van Alst (HPI 2001). Harry Van Alst was anonymously notified in 1925 when during construction of the West Disinfecting Company building on the site of the cemetery bones and caskets were discovered. HPI (2001) unsuccessfully attempted to locate additional Van Alst descendants who may be alive. They reviewed land conveyances, cemetery records, death certificates, church records, family genealogies, transcriptions from a Van Alst family bible, and 1930's oral histories. HPI was able to confirm that Cypress Hills Cemetery (CHC) records show that "unknown bones of Van Alst family" were buried in a plot purchased by Harry Van Alst in 1925 (CHC file card for Grave No. 14720, cited in HPI [2001:6]).

Because the Van Alsts were a very large extended family one cannot assume that any individual bearing that family name would be related to any of the interments from the Van Alst family cemetery. A logical starting point is to attempt to locate a relative of Harry Van Alst. An internet check of telephone directories for the New York metropolitan area identified a number of Van Alsts, but none in Queens. Without directly contacting these individuals it is impossible to determine if any of these individuals is related to the Harry Van Alst who arranged for the 1925 reinterments.

A check of the Social Security Death Index identified 16 Van Alsts. Only one of these, Florence Van Alst of Rego Park, Queens (b. 13 Jun 1917, d. Dec 1986), had a last reported residence in the New York Metropolitan area. It is possible that Florence Van Alst is a relative of Harry.

Several potential lines of inquiry should be pursued before abandoning attempts to identify a Van Alst descendant:



- The Queens County Bar Association and the New York Office of Court Administration will be contacted. Either or both of these organizations may have information that could be used to identify an approximate date of death for Harry Van Alst or to locate a descendant. If an approximate date of death for Harry Van Alst can be established, newspaper obituaries should be checked to determine if a Harry Van Alst obituary identifies family survivors.
- Cypress Hills Cemetery will be contacted to determine if they have records of anyone maintaining the graves containing the 1925 re-interments.
- Attempts may be made to locate relatives of Florence Van Alst. Her Social Security number is known and this should facilitate a search of death certificates and cemetery interments.
- Public notices will be placed in the *New York Times*, *New York Daily News*, *New York Post*, *Newsday*, and local Queens newspapers requesting Van Alst descendants to contact the project sponsor.

If these avenues of investigation are unsuccessful, and given the extent of prior research conducted by HPI, it will be presumed that no living descendants of any remaining interments at the Van Alst family cemetery exist or can be located. Treatment of any recovered remains will be dealt with accordingly, as described in Sections 4.0, below.

In the event that a living descendant(s) is identified, a copy of this protocol will be provided to that descendant(s). Representatives of the project sponsor, including the Project Archeologist, will meet with members of the Van Alst family if they desire. Family members will be requested to comment on, and identify requested changes to, this protocol. The request will specify a time frame (60 days is recommended) within which a reply should be made.

## **4.0 POST-DISCOVERY PROCEDURES**

### **4.1 NOTIFICATIONS**

The LPC has indicated that in situations such as the Van Alst cemetery, the New York City Police Department and the Medical Examiner do not need to be notified if human remains are encountered. If descendants of the Van Alsts are identified prior to, during or after fieldwork, they will be immediately advised of the status of the project, provided with a copy of this protocol and requested to provide comments. The reasonable desires of any Van Alst descendant regarding the treatment and/or disposition of human remains from the site will take precedence over this protocol.

The LPC-designated representative will be advised immediately if human remains are encountered and will be provided with progress reports in accordance with the procedures described in Section 6.1.

### **4.2 IDENTIFICATION AND EXCAVATION OF INTACT AND PARTIAL GRAVES AND INTERMENTS**

The following excavation methods are proposed to ensure that any artifacts that may be recovered can be associated with particular remains and that any artifacts recovered from the graves can be re-associated with their original location (their provenience) in the grave. It has been assumed that any identified descendants will have no objections to the procedures described below.

If grave shaft outlines are identified at any time during field investigations they will be mapped. Each grave will be assigned a number and each specific location within the shaft, whether it is a number of artifacts from the fill or a single artifact associated with an individual burial, will be given a context number that identifies its provenience or location in the grave. The soil from the grave shaft will be excavated and screened through 0.25-inch hardware cloth to recover artifacts that may be present in the shaft fill. When the level of the coffin is reached, the field crew will carefully expose the coffin lid, if present and preserved, and draw and photograph it in place. Each artifact, such as coffin nails or coffin hardware, will be mapped and given its own context number. Elevations of the artifacts and the lid will be recorded as well. All artifacts recovered from the graves will be placed in archivally-stable containers labeled with the appropriate provenience information.

The soil from inside the coffin and around the skeleton will be given another context number and screened. The skeleton and associated artifacts will be drawn and photographed in place. Photography will include color slides, black-and-white print film, and digital formats. After photography, the in-field analysis described below will begin.

All fieldwork involving the excavation of intact and partial burials will be under the supervision of a forensic anthropologist.

### **4.3 IN-FIELD ANALYSIS**

Since the wishes of the descendent community are unknown at this time, it is assumed that analysis will be restricted to examination of the skeletons in the field before removal. The primary goal in collecting osteological and dental data from archeological contexts is to generate

information that parallels data collected from other historic skeletal samples for comparative studies. This is accomplished by following standard bioarcheological procedures for collecting and recording morphological and metric data. Data from complete and fragmentary remains will be recorded following the recommendations and guidelines provided in Skeletal Database Committee Recommendations (Paleopathology Association 1991), *Standards for Data Collection from Human Skeletal Remains* (Buikstra and Ubelaker 1994), *Data Collection Procedures for Forensic Skeletal Material* (Moore-Jansen et al. 1994), *Dental Anthropology* (Hillson 1996), among others.

All burials will be assessed for their potential to yield human biological information. This assessment will be made by the project's Physical Anthropologist and will include an in-field identification of baseline data including age, sex, biological ancestry and other personal characteristics for all interred individuals, to the extent possible. Detailed analysis of all skeletal and dental remains will take place in the field. No destructive analytical procedures will be applied to these remains. This analysis will focus on five general areas: Inventory, Demographic Data, Epidemiological Data, Anthropometrics, and Personal Characteristics.

#### 4.3.1 INVENTORY

The examination of each set of remains will begin with an inventory of the recovered bones and bone fragments. The purpose of this inventory is two-fold. First, it will document what materials were removed and are available for subsequent reinterment. Second, an inventory will identify the number of individuals present in each grave, as well as their skeletal elements and their condition. These data will be used to calculate the prevalence of different kinds of responses to health stresses and, particularly among fragmentary remains, clarify why observations on certain data were not made (for example, a particular bone could be missing or too deteriorated, making a particular observation impossible).

#### 4.3.2 DEMOGRAPHIC DATA

To the extent possible, a demographic profile will be established for the cemetery sample, based on the age, sex and biological ancestry of each individual. Given that less-than-complete remains likely will be encountered, a battery of age, sex, and ancestral-sensitive metric and morphological features will be observed. Demographic assignments will be based on the greatest overlapping agreement between these observations.

Age-at-death ranges will be estimated for each adult individual using a variety of macroscopic methods including skeletal and dental maturation, suture development, auricular and symphyseal morphology, spinal osteophytosis and general joint deterioration. Among immature individuals, age-at-death will be based on dental development and eruption, diaphyseal length and growth, and epiphyseal union.

For the purposes of this project, individuals will be divided by age into adults and subadults. Subadults are defined as individuals who did not attain the age of 16 prior to death. While some indicators may be observable, sex and biological ancestry of adolescents below the age of 16 years cannot be accurately determined. If subadults are recovered, the age at death will be the only demographic features assessed.

Age-at-death will be reported twice for each individual. First, a standard age range, reflecting the greatest overlap between individual age observations, will be provided. Adult and most subadult ages will be rounded to the nearest year, while individuals under the age of five years will be

expressed by a range including year and month. As a means of enabling reconstruction of demographic survivorship data, age-at-death will then be reported in five-year increments. Individuals under the age of five will be reported in one-year increments.

The sex of each adult individual will be determined using a combination of morphological and metric techniques. Pelvic and cranial morphology, skeletal robusticity, and dental features are primary components of the sex estimation battery. Sex will not be assessed for subadults.

Biological ancestry can be identified by a number of evolutionary adaptations to ancestral home environments. Metric and non-metric data will be gathered following standard forensic anthropological references and individuals defined as Euro-American, African-American, Native American or Asian. Minimally, these data will be used to correct stature and other determinations based on the proper population ranges.

#### *4.3.3 EPIDEMIOLOGICAL DATA*

Living bone responds to environmental stress agents by morphological modifications referred to as health responses. Health responses include traumatic, degenerative, mechanical, biochemical, and disease-based reactions. An examination of these responses reveals important information on an individual's disease load and quality of life.

In this analysis, an epidemiological screening will be applied to assess the assemblage's health. Each health response will be subjected to a gross examination. Any observed response will be described following the terminology suggested by Buikstra and Ubelaker (1994) and the Paleopathology Association (1991). Health responses will be recorded by location (proximal, medial, or distal section) on each long bone shaft (diaphysis), extent of involvement (widespread or localized), and degree of response and remodeling of the physical form of the bone. Responses are graded as mild, moderate, or severe and listed as either remodeled or unremodeled. A differential disease diagnosis will be made where possible to identify the stress agent responsible for these health responses.

If the remains are sufficiently well preserved, the prevalence of each type of health response will be determined for each individual and then analyzed for the group. Prevalences will be based on the number of affected limb portions relative to unaffected portions in the assemblage. Prevalence odds ratios will be calculated for epidemiological comparisons following Matternes (2000).

#### *4.3.4 ANTHROPOMETRY (OSTEOMETRY)*

Anthropometry is the technique of quantitatively expressing the form of the body. Osteometry is the subdivision of anthropometry that specifically addresses measurement of the skeleton and skull. Osteometry is used in forensic anthropology and bioarcheology to help identify the age, sex, and biological ancestry of undocumented human skeletal remains. More general applications of these data include documentation of secular trends in nutrition and health status among both historic and prehistoric human populations.

Measurement of intact and fragmentary skeletal remains will be accomplished following the methods outlined by the University of Tennessee Forensic Data Bank (Moore-Jansen et al. 1994) and Martin (1928). Beyond its use to explore this particular human assemblage, the resulting data will be submitted to the University of Tennessee Forensic Data Bank, where it will be available for future forensic and bioarcheological investigations, if agreeable to the descendent community.

#### 4.3.5 *PERSONAL CHARACTERISTICS*

The personal characteristics of each individual will be recorded, where possible. These include stature, non-metric morphological variation, non-pathological evidence of violence, medical intervention, and biomechanical stress (including enthesophytes and sesimoid bone formation), dental attrition, and evidence of intentional socio-cultural modification. When reflected against the other data collected, it is sometimes possible to identify personal characteristics and behaviors of the individual. These data will be assessed with the historical data and if feasible personal identification will be suggested.

#### 4.3.6 *INCOMPLETE AND DISARTICULATED REMAINS*

Many of the techniques used to analyze human remains can be applied to individual bones recovered from disturbed contexts. Should only partial remains be found, the analysis phase will consist of the same general methods described above, but tailored to the specific bones recovered. The minimum number of individuals represented by the remains will be determined, followed by determinations of sex, and age at death. Personal characteristics and documentation of lesions and anomalies will also be recorded. Dental analyses will likewise follow the methods described above. While the accuracy of determinations from partial remains will be limited, partial remains can provide still meaningful information regarding the burial population.

## 5.0 DISPOSITION OF RECOVERED REMAINS

If Van Alst descendants have been identified reburial will take place in accordance with their wishes. In the event that Van Alst descendants have not been identified, remains will be reburied at an authorized facility. The following procedures will be determined in consultation with all concerned parties:

- procedures for removal from the ground;
- procedures for packaging for temporary storage (respectful curation), and type of temporary container for the burials;
- procedure for the treatment of artifacts buried with individuals, including personal belongings, offerings, and shroud- or clothing-related items;
- procedures for treatment of coffin-related items, including nails, handles, plaques, and wood;
- procedures for temporarily storing human remains and associated objects;
- procedures for transferring remains and associated objects to the designated place of re-interment;
- procedures for reburial, including location, type of containers and vaults, service, and grave markers.

## 6.0 REPORTING

This reporting described here will be in addition to any reporting requested by the project sponsors.

### 6.1 PROGRESS REPORTING

The Project Archeologist will immediately notify the LPC by telephone when the first evidence of the presence of human remains on the project site is identified. In addition, the Project Archeologist will make a verbal progress report on a weekly basis to an LPC-designated representative. The contents of the progress report will be determined in consultation with the LPC. The LPC-designated representative will also be notified when fieldwork has been completed. The Project Archeologist will make a recommendation at that time as to whether or not archeological monitoring of construction in the project area should be undertaken. The final decision as to whether or not monitoring is necessary will be made by the LPC.

### 6.2 FINAL PROJECT REPORT

A final report will be prepared when both fieldwork and any subsequently required laboratory analyses have been completed. The report will:

- review and summarize the research design and outline the report;
- *provide a historical context for the cemetery;*
- describe the methods used in the various stages of the investigation; and
- present the results of the field investigations and archeological and osteological analyses.

These sections will be supplemented with a catalog of all recovered artifacts and osteological material, site maps, photographs, and other relevant illustrations.

## **7.0 PERSONNEL QUALIFICATIONS**

The names and qualifications of the individuals selected by the project sponsors to serve in the capacity of Project Archeologist (Principal Investigator) and Forensic Anthropologist, or in any other supervisory capacity will be submitted to the LPC at least 10 calendar days prior to the initiation of any archeological fieldwork. (*Building demolition and removal of demolition debris down to pre-demolition grade is not considered to be part of archeological fieldwork*). The final selection of the Project Archeologist and Forensic Anthropologist is subject to the approval of the LPC.

### **7.1 PROJECT ARCHEOLOGIST**

The Project Archeologist will be a Registered Professional Archeologist (RPA).

### **7.2 FORENSIC ANTHROPOLOGIST**

The *LPC Guidelines* do not contain specific qualification requirements for forensic anthropologists, except that this "individual must be able to demonstrate significant research experience with human remains" (LPC 2002:31).



---

## 8.0 REFERENCES CITED

- Allee, King, Rosen & Fleming, Inc. (AKRF)  
1996 Outlet City Property, Long Island City, New York, Voluntary Cleanup Site Assessment Report. Prepared for NYS Department of Environmental Conservation.
- Beers, F.W.  
1873 *Atlas of Long Island, New York*. Beers, Comstock & Clive, New York.
- Buikstra, Jane E. and Douglas H. Ubelaker (eds.)  
1994 *Standards for Data Collection from Human Skeletal Remains*. Research Series No. 44. Arkansas Archaeological Survey, Fayetteville.
- Hillson, Simon  
1996 *Dental Anthropology*. Cambridge University Press, Cambridge.
- Historical Perspectives, Inc. (HPI)  
2000 Long Island City Rezoning, Preliminary Archaeological Assessment. Prepared for Allee, King, Rosen & Fleming, Inc., New York.
- 2001 Phase 1A Archaeological Survey, Van Alst Cemetery, Block 264, Lot 26, Long Island City. Prepared for Allee, King, Rosen & Fleming, Inc., New York.
- Hyde, E. Belcher  
1913 *Atlas of the City of New York, Volume 2*. E. Belcher Hyde, New York.
- Matternes, Hugh B.  
2000 Social and Biological Structures in the Mound C Cemetery, Wickliffe Mound Group (15BA4). Unpublished Ph.D. Dissertation, Department of Anthropology, University of Tennessee – Knoxville.
- Martin, Rudolph  
1928 *Lehrbuch der Anthropologie*. Gustav-Fisher Verlag, Stuttgart.
- Moore-Jansen, Peer H., Stephen D. Ousley, and Richard L. Jantz  
1994 *Data Collection Procedures for Forensic Skeletal Material* Third Edition. Department of Anthropology, University of Tennessee – Knoxville.
- Munsell, W.W.  
1882 *History of Queens County, New York*. W.W. Munsell & Co., New York.
- Paleopathology Association  
1991 *Skeletal Database Committee Recommendations*. Paleopathology Association, Detroit.
- Riker, James  
1852 *The Annals of Newtown in Queens County*. D. Fanshaw, New York.
- Seyfried, Vincent  
1984 *Three Hundred Years of Long Island City, 1630-1930*. Queens Community Series/Edgian.

## FIGURES





Figure 1. General vicinity of the Van Alst Family cemetery. Scale, 1:24,000.



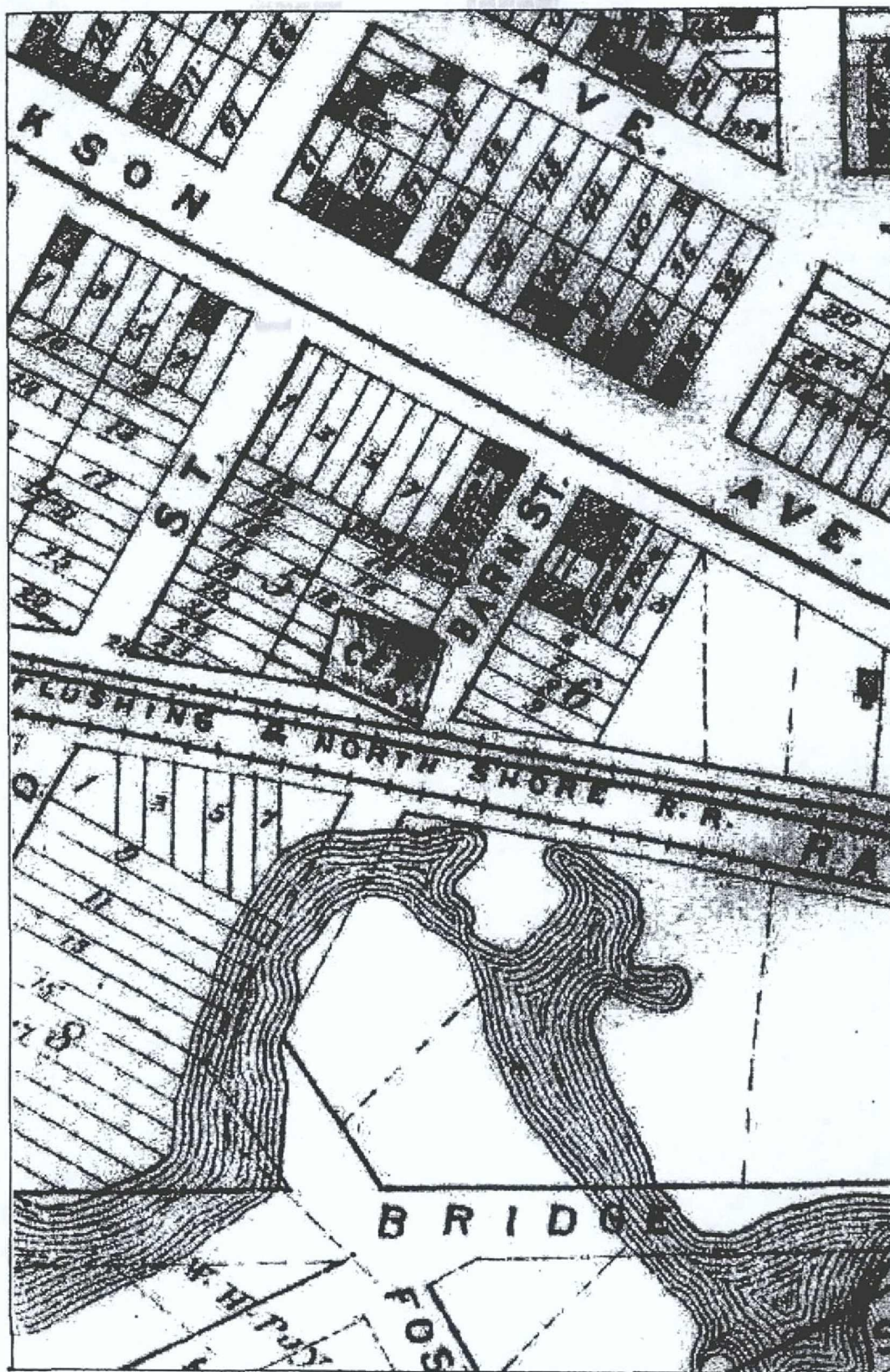


Figure 2. Beers (1873) Atlas map showing the location of the Van Alst Family cemetery (no scale).



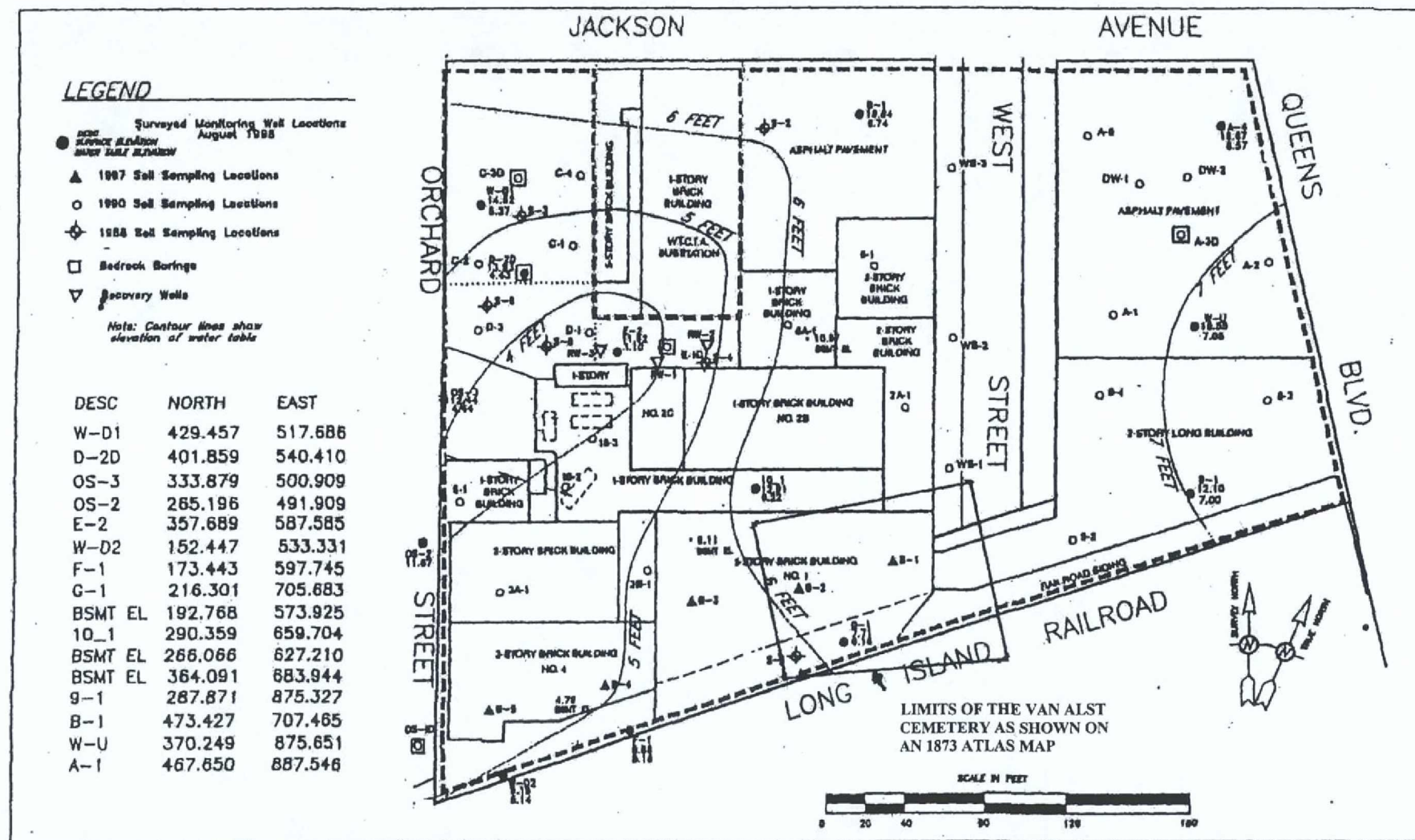


Figure 3. The limits of the Van Alst Family cemetery as shown on an 1873 atlas map, superimposed on a plan showing the configuration of existing streets and structures in the surrounding area (adapted from AKRF 1996).