SOUTH HAMPTON TOWNSHIP HISTORIC CEMETERIES: DOCUMENTATION, CONDITIONS AND PRELIMINARY PRESERVATION MANAGEMENT PLAN

I. Introduction

The town of Southampton, on Long Island, NY, was first settled in 1640 as an English community and contains several of the earliest burial grounds in America. In 2004, a survey by Zachary Studenroth, an architectural preservation consultant to the town, documented forty-eight (48) historic cemetery sites within the town boundaries during Phase I of this project. Of these sites, the Town has management and maintenance responsibility for ten (10), and would like to plan, encourage and partially fund the preservation of all local historic cemeteries through Town, village, non-profit organization or other supported activities.

Southampton contracted the University of Pennsylvania, Architectural Conservation Laboratory and Research Center through Zachary Studenroth in Phase II to develop a documentation and condition survey methodology and a full featured database application tied to the Town GIS. With these tools, a full cultural resource and condition survey of three of the Town owned sites was conducted and all information was entered into the database, allowing the existing conditions to be quantified and mapped. The initial results of the 3-site survey (Phase II) and recommended treatments were presented in a fall 2004 workshop held at North End Burial Ground, and reports of all data from the surveys of over 700 historic markers were delivered in May 2005. Phase III was contracted in 2005 to survey and map the remaining 7 Town-managed sites. The project also included demonstration treatments of selected emergency condition markers identified from the Phase II survey results, and another on-site workshop held during August 2005 at the East Quogue Cemetery. A final slide presentation will be made at the Town's convenience at an indoor public location to accommodate a wider community audience.

This document summarizes the methodology used throughout the project and reports summary results. Included with the submittal under separate attachment is a CD which includes digital copies of this report, the original Phase I site survey, all cemetery plot survey reports from the 10 Town owned sites surveyed in Phase II and III, the database, plot and site images, and the modified survey forms and illustrated manual. Also included are 2 large binders of the printed

database reports for all cemetery plots, with each cemetery plot data and image contained in a condensed 1-page report. Each binder also includes a full survey form, the 25 page illustrated survey manual with all terms and definitions, and for each site section, a site listing, an image report, and locator maps showing the aerial photographs with all monuments located and numbered, with accompanying maps to locate plots and to illustrate materials and conditions.

A total of 1,178 individual plots and 17 group plots were surveyed in the 10 Town owned sites. There is a great diversity of landscape, typology and conditions distributed among the Town owned cemeteries, as is illustrated throughout this summary report and the accompanying data reports. In addition to the information to inform a Preservation Management Plan, the documentation of these 10 sites is an important historical record. It is recommended that the remaining 38 non-Town owned cemeteries should also be documented. The survey forms, illustrated manual and the database were all developed with future volunteer users in mind as described in Appendix H. On-going use of these project materials should include training for any of the village or community and non-profit groups that would like to accept the responsibility to survey the remaining historic cemeteries.

In the 10 Town owned sites, over 73% of the primary markers surveyed are marble, with biogrowth, erosion, fragmentation, broken and fallen markers being the most serious conditions. Sandstone in various colors is next in prevalence. While only 12.4%, these markers are generally from the late 17th and 18th century, and represent rare early American carving of the highest integrity. The very serious condition of delamination of the carved face from the back layers of the sandstone place some of these valuable markers at highest risk and they need the care of experienced conservators. The early slate markers (5.3%) are also examples of distinctive early carving and though many are partially buried due to their great age, most are in remarkable condition with only biogrowth and mower damage being the key problems. The later granite markers (8.6%) are very durable. Some of these complex markers have exposed foundations and open joints, but beyond some biogrowth and encroaching vegetation, the granite marker conditions are quite good. A problem restricted to the group plots is the poor or failed condition of the metal enclosures. Throughout the sites, mower damage is often obvious. Additionally, there are cleaning and landscape issues at each site that should be addressed.

Project Description

Historic cemeteries, and particularly the historic cemeteries in the Town of Southampton, are outdoor museums that provide a valuable resource for study of a region's history, art, industry, culture and demographics. Like any collection of fine art, furniture, objects or buildings, the issues involved to ensure the value and preservation of such collections are similar:

- Inventory the collection for value and integrity
- Survey each item for its condition
- Determine any repair (conservation) needs
- Set up a maintenance program that preserves the objects without adding wear or damage through excessive abrasive cleaning

Cultural resource documentation and recording are the foundation for any conservation program.[1] It generally includes past and present information on type, style, materials, design, conditions and use and is gathered to educate and inform the analyses, diagnoses, and treatments required to ensure the long-term viability of any historic resource. It also serves as the basis for all future educational and public outreach projects. Documentation provides the baseline of qualitative and quantitative information that is essential to assess a site, prioritize the necessary work, and develop long-term site maintenance, management and communication. Throughout this report, the term "survey" is meant to encompass these principles.[2] The work of this multi-phase project will provide the data and recommendations to inform a long-term, sustainable preservation management plan for these valuable outdoor museums that present so vividly the history and people of Southampton, NY.

A Phase I survey had been completed (Studenroth, 2004-2005) that located and documented all of the cemeteries within the Town of Southampton. These cemeteries range from very small sites with only a few markers remaining to show what was once a burial ground, to very large sites that have remained in continuous use. (See Appendix A) For the Phase II project, three

[1] See AIC. "Code of Ethics of the American Institute for Conservation of Historic & Artistic Works" and "Guidelines for the Practice of the American Institute for Conservation of Historic & Artistic Works" online at http://aic.stanford.edu/pubs/ethics.html or as published in AIC. Directory*: The American Institute for Conservation of Historic & Artistic Works*. Washington DC: AIC, 2003.

[2] The term "survey" used herein is specifically *not* meant to describe the activities commonly performed by licensed surveyors to determine property boundaries to millimeter accuracy.

Town owned sites were chosen that presented different marker types, styles, age, materials, landscape issues and conditions. The sites chosen were Old Southampton Burying Ground (1682-1897), North End Burial Ground (1705-1958) and Old Noyac/Edwards Burial Ground (1768-1876). During Phase III, the remaining seven Town owned sites of East Quogue Cemetery, Pleasure Woods Cemetery, Hubbard Cemetery, Squires (aka Fournier) Burying Ground, the Rev. Paul Cuffee Gravesite, North Sea Burial Ground and Westhampton Churchyard were surveyed.

During the summer and early fall of 2004, a model condition survey form and illustrated manual were developed using the information gathered in these first three sites. This model condition survey form is intended to be used in later phases and through local volunteer efforts to survey and assess conditions of all of the Southampton historic cemeteries, both Town and non-Town owned. The key sections of any survey of historic cemeteries should allow the collection of these important categories of information: Identification, Environment, Description (of the monument or other features), Materials, Conditions, Repairs and Alterations and a place for General Comments and Inscription notes, if legible. The model condition survey was organized to maximize the collection of information for these categories. After the completion of the Phase III surveys, the form(s) and illustrated manual were slightly revised to facilitate the survey and data entry process and to define the fields more clearly for non-conservator trained future surveyors. (Appendix B)

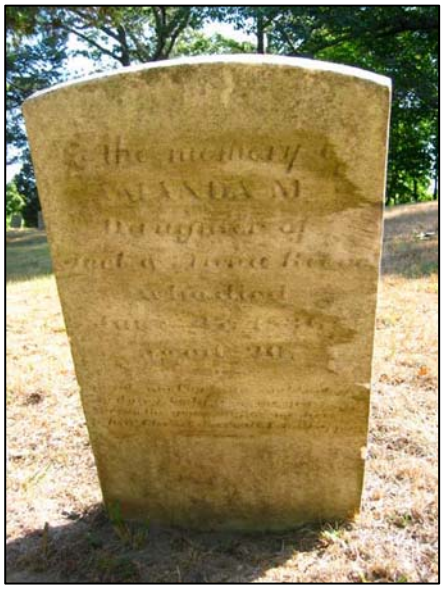
Before the physical survey, each site was mapped using a combination of physical measurements marked onto high resolution 2001 aerial photographs with embedded geographical information from the State of NY. A 2004 series of aerial photographs was also available, but resolution was not as fine as the 2001 aerials.[3] This digital technique

[3] Aerials were downloaded from the Suffolk County section of the NYS Geographic Information System Clearing House at http://www.nysgis.state.ny.us/gateway/mg/nysdop_download.cfm. The digital orthophotography files used were dated 2001, in the New York State Plane, NAD 83, Survey Feet projection, with a resolution of .5 feet, natural color film. The 2004 dated files were also referenced, and they were the same projection, with a resolution of 1 foot, natural color film.

allows the rapid mapping of cemetery plots on sites without extensive tree cover. In the case of North End, South End, Old Noyac and Squires, 85-90% of the plots were visible through the aerial photographs. With the remaining heavily tree-covered sites, only a few major sections could be clearly mapped from the aerials, but this still helped spatially position the markers and landscape features on the cemetery maps to known coordinates.

The geographically rectified aerial photographs were used to develop a project GIS (Geographic Information System) in ESRI ArcView 9.0. This includes a basemap of Southampton and major roads, with new layers of cemetery sites, trees/plantings, group or family plots and individual cemetery plots to document each of the ten burial grounds. (See Appendix D, E, F) It was not the intent, or project need, that the sites be mapped with millimeter accuracy and the maps submitted with this report are so noted. The maps are meant to provide general locations to future users, and to enable the mapping of materials and conditions for preservation planning.

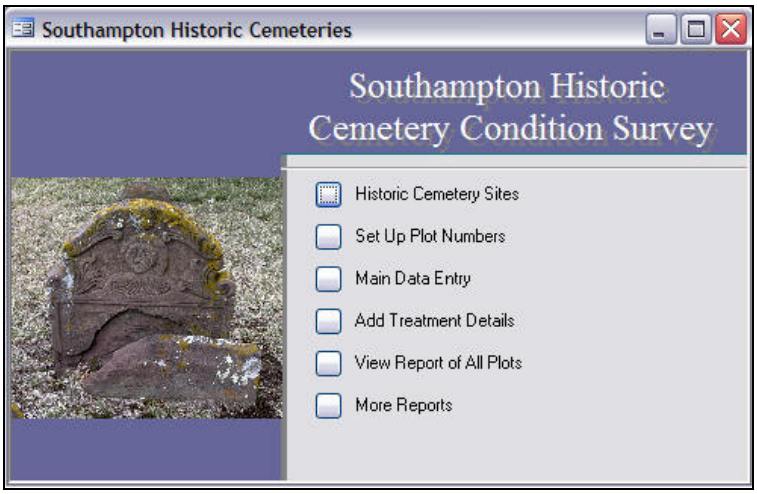
Each cemetery plot was then individually surveyed to answer all questions on the condition survey form. During the survey, the main features were measured with soft tapes, and inscriptions were brushed with natural bristle brushes and a spray of clean water, if necessary, to document the often badly eroded inscriptions. The heavy biogrowth found throughout all the sites made reading of the inscriptions difficult, and the soft water brushing was a non-permanent 'treatment' to aid in the documentation. The brushed look seen in some of the survey photographs will soon revert to a natural biogrowth covered condition.



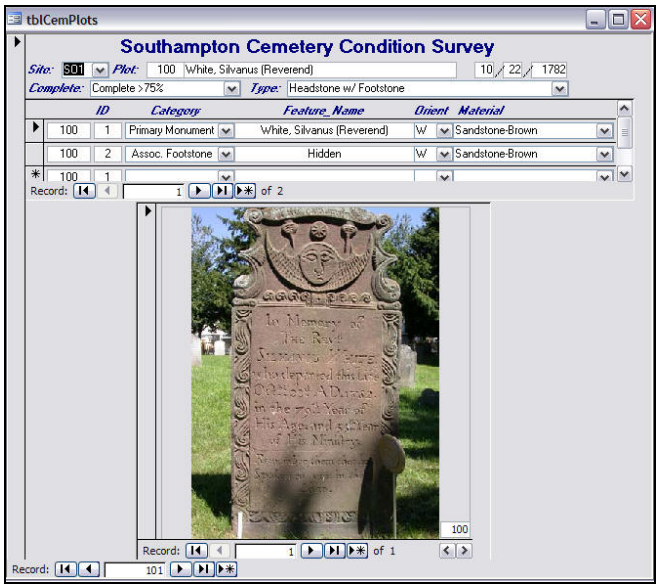
The data gathered was later entered into a database that was designed to capture all descriptive, material and conditions information for both the plot and individual features (primary monument, associated footstone, fragment, etc.) in the cemetery plot. The database is linked to the GIS maps through the layer of the site and cemetery plots allowing specialized 'smart' maps to be developed to show any condition or other information collected. Such maps include

the map of materials, map of headstone dates, map of worst conditions, map of 'at risk' monuments, etc. (See Appendix F)

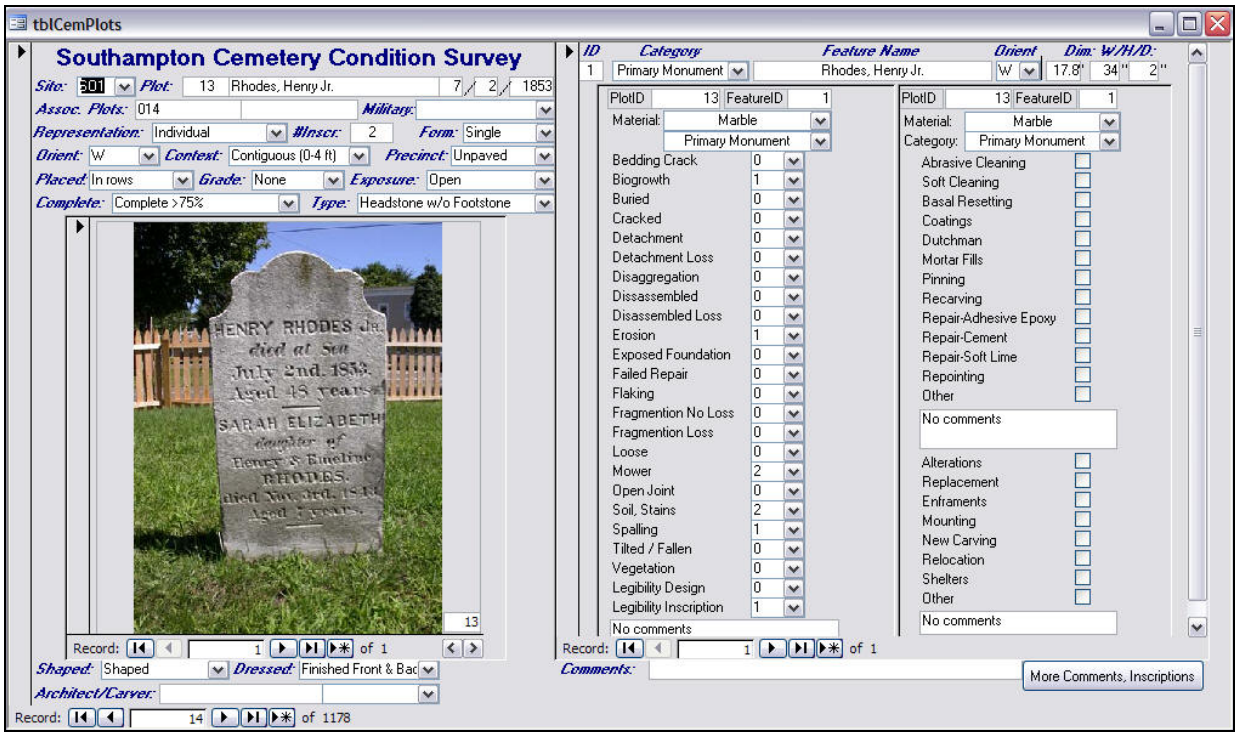
Specialized forms with reference photographs were programmed in the database for data entry and marker lists and reports with the reference photographs were prepared for the printing of archival documents. Two 3-inch binders containing the individual 1-page reports and various maps for all of the cemetery plots were prepared for the Town of Southampton. The inventory listing of all cemetery plots by number and name has been attached to this report. (Appendix C) A CD containing the database, GIS, all reports from all phases in pdf form, and all maps complete the full project documentation.



Opening Menu of the Southampton Historic Cemetery Database



Main Form to Set Up Plot Numbers with Related Features



Form for Data Entry in the Southampton Historic Cemetery Database

It should be noted that improvements to the survey forms, illustrated manual, database and GIS were continually made throughout the work on both phases and the reports and database file submitted differs from the Phase II submittal. After each site was surveyed, new issues became apparent or definitions specific to the Southampton marker types and conditions were written. Several conditions were eliminated or combined for better survey understanding and any past data collected, including the information from Phase I was combined into the final database. With an analysis of the data from the 10 sites, all issues of missing or incomplete data were addressed; several field checks were made to understand anomalies in the data or to better understand the conditions, and any missing or poorly shot images were re-photographed. The final data, forms, images, layers and files are represented in this 2006 submittal.

II. Assessment of Historical Significance

The geographical diversity of the ten Town owned cemeteries and burial grounds represents historic settlement patterns spanning over three centuries, since Southampton's founding in 1640. The individuals interred include not only distinguished Town founders but also common citizens, servants and immigrants, as well as men, women and children of all ages, races and cultural backgrounds. The grave markers themselves range from elaborate obelisks to simple

unmarked stones, finely carved slate and brownstone, as well as marble, granite and cast zinc. These markers represent early schools of stone carving, trends in funerary art, and attitudes toward burial practices and the religious beliefs of the deceased. No other individual class of historic or cultural resources within the Town of Southampton exceeds the broad significance of these ten Town owned cemeteries.

The oldest of the sites – the Old Southampton and North End Burial Grounds – are associated with the original 17th century settlement period, and as such contain the earliest surviving grave markers within the group. Located within the present day Village of Southampton, these sites preserve significant examples of slate and brownstone carvings depicting the evolution of early gravestone imagery and artistry. Notable examples include rare 17th century heraldic stones of the Howell family and finely-carved slate markers representing the New Jersey, New York and New England schools of stone-cutting. The Old Southampton Burial Ground, having filled up sufficiently to warrant the opening of the North End Burial Ground in the early 18th century, is devoid of many of its early markers that were likely fashioned of wood. Despite this "open" space, its boundaries are intact from the original period and it remains a sacred site in its entirety.

Five of the cemeteries are associated with smaller hamlets in the Town and reflect the typical dispersion patterns of late 17th and early 18th century settlements. The Fournier Cemetery in Hampton Bays, Old Noyac near Sag Harbor, East Quogue Cemetery and Westhampton Churchyard in those villages, and the North Sea Burial Ground north of Southampton Village all served the residents of these widely scattered farming and seafaring communities. The quantity, stone type and age of the grave markers at these sites provide invaluable information about early Town settlers. While each site is unique and possesses distinctive characteristics due to its geography and other factors, they collectively illustrate common 18th and 19th century customs and burial practices such as westward-facing grave markers, perimeter fences and iron railings, and plantings that include cedar trees and other indigenous flora.

The remaining three Town owned sites – each smaller than the others – are equally significant. Two were originally family plots that contain grave markers bearing for the most part a primary surname. These are both located in Flanders (Pleasure Woods and Hubbard Cemeteries) and preserve an important burial practice that has been substantially eradicated through modern day

land subdivision and residential home construction. The remaining site – the "Indian Preacher" Gravesite – is of particular historical importance because of its association with the 19th century Native American population of eastern Long Island. Now an isolated memorial to this noted local missionary, the marker is associated with a larger cemetery believed to have once occupied the site.

The ten Town owned cemeteries and burial grounds are a diverse group of cultural resources representing the unique history of the Town of Southampton.

III. Survey Results and Condition Assessment

Based on the documented and diverse results from these ten Town owned sites, the historic and artistic 'value' of the Southampton historic cemeteries is very high. However, the condition results are mixed. Some of the early stones are in remarkable condition, while later materials and construction/design issues have not held up as well. There are also many markers that have been relocated or are completely missing due to past efforts to "clean up the old cemeteries". The results that these past well-intentioned efforts occurred are obvious, but not documented as to timing and reasons, and could have started in the early 1800s with the removal of many wooden and stone markers from Old Southampton Burying Ground (South End). The advent of the lawn mower culture has also led to rearrangement of cemeteries, most obvious at the North End Burial Ground where virtually all of the footstones have been relocated. In the data that follows, the summed numbers and averages are based on the currently existing markers.

Headstone with Footstone in original position (left), Footstone relocated (right)

Surveyed Markers – Death Dates

HCemNo	Historic Cemetery Site	First Date	Last Date
EQ2	East Quogue Cemetery	1812	1957
FL1	Pleasure Woods Cemetery	1822	1868
FL3	Hubbard Cemetery	1819	1886
HB1	Squires [a/k/a Fournier] Burying Ground	1802	1901
HB3	Rev. Paul Cuffee Gravesite	1812	1812
NO2	Edwards Cemetery/Noyac Burying Ground	1798	1876
NS1	North Sea Burial Ground	1686	2000
QU1	Westhampton Churchyard	1810	1979
SO1	North End Graveyard	1705	1958
SO2	Old Southampton Burying Ground	1655	1897

Of the currently existing monuments, 93.4% were surveyed as complete (over 75%), even if in poor condition, 5.1% were incomplete (less than 75%) and only 1.5% were broken at grade.[4] Overall, the markers still have good integrity with the legibility of design still rated as good. Poor legibility of design is generally not a reversible condition. Only in Old Southampton are a significant number of markers too worn to have good design legibility. The legibility of inscriptions was in much worse condition due to erosion, fallen conditions and biogrowth. Erosion cannot be reversed, however cleaning and monument conservation or other attention could improve many of the markers' inscription legibility.

Percent of Features Rated 3 or 4 for Legibility
3 = Very Evident, Poor Condition, 4 = Significant or Total Deterioration

HCemNo	Historic Cemetery Site	Leg of Design	Leg of Inscription
EQ2	East Quogue Cemetery	8.4%	33.7%
FL1	Pleasure Woods Cemetery	7.1%	50.0%
FL3	Hubbard Cemetery	7.4%	22.2%
HB1	Squires [a/k/a Fournier] Burying Ground	0.0%	70.0%
HB3	Rev. Paul Cuffee Gravesite	0.0%	0.0%
NO2	Edwards Cemetery/Noyac Burying Ground	16.7%	47.2%
NS1	North Sea Burial Ground	4.1%	36.9%
QU1	Westhampton Churchyard	0.0%	41.7%
SO1	North End Graveyard	20.2%	58.8%
SO2	Old Southampton Burying Ground	47.1%	52.9%

In Old Southampton and North End, there can be seen many fine examples of the unique early American art form of marker carving from Connecticut, Long Island and New Jersey. The

[4] Complete: Greater than 75% of the monument still exists, even if broken (fragmented – no loss).
Incomplete: Less than 75% of the monument exists or is still visible and can be partially recorded.
Total Loss: The monument is broken at grade and is not on the monument plot to be recorded.

lettering on the markers ranges from very primitive block letters to fine script. There are examples of death heads, from the early grim sculls to the later, much softer death head. Examples of English coats of arms are on some of the pre-Revolutionary War markers. A progression of cherub styles is evident, as are the later willow and urn designs. This study did not attempt to classify carving style and design; however a quick review of the marker image inventories provides considerable evidence and material for further study.[5]

Primitive lettering on Sandstone

Death head in Slate

Highly carved Sandstone

Willow & Urn on Marble

[5] For more on Long Island Gravestones, see Stone, Gaynell. "Spatial and Material Aspects of Culture: Ethnicity and Ideology in Long Island Gravestones, 1670-1820". State University of New York at Stony Brook, 1987. Also see Welch, Richard F. *The Gravestones of Early Long Island 1680-1810*, Friends for Long Island Heritage, 1983.

On visits to more of the 48 historic cemeteries in Southampton, it is evident that there is a diversity of mortuary monument type in Southampton cemeteries from the traditional headstones with original placement of footstone, to classical sculptural forms. However, the predominant marker type found in the Town owned sites was a headstone facing west without a footstone (46.7%) followed by the headstone/footstone combination (25.9%). As mentioned above, at North End, most of the footstones have been relocated from their original setting which would have been about 7 feet behind the headstone with the footstone lettering facing east. There, in all but a few cases, footstones have been relocated to be stacked directly up against the rear of the headstone and many have had their carved face turned to the west, now hidden against the back side of the headstone. However, at the other cemetery sites, most of the existing footstones are still in their original locations.

Summary of Marker Type, All Sites

Marker Type	Type	Percent
Headstone w/o Footstone	550	46.7%
Headstone w/ Footstone	305	25.9%
Headstone in Base	148	12.6%
Headstone in Base w/ Footstone	53	4.5%
Rectangular/Square Block	36	3.1%
Only Footstone Remains	26	2.2%
Ped w/ Obelisk	11	0.9%
Ped w/ Addl Form	11	0.9%
Other	11	0.9%
Block on Base	10	0.8%
Fragments Only	9	0.8%
Obelisk/Other on Base	8	0.7%
	1178	100.0%

Virtually all monuments are shaped (99.6%) and almost 87% are finished on both front and back sides. There are a few (13) rare double form markers, but most of the markers are single-form, even though they may have several individuals named in the inscription. The early headstones are simple upright slabs buried deep into the ground. Later headstones sometimes have a base, and some of the bases and collars surveyed are more recent additions and alterations of concrete.

Double Form Markers: East Quogue #2082, North Sea #3020

Later additions: Concrete bases to #3074 in North Sea, #2042 in East Quogue

Headstones in Base: Fallen and at Risk, SO1 #307, EQ1 #2140

In the mid 1800s, a style of marble headstone in base became common where the headstone was embedded into a heavy marble base and placed on the ground, sometimes without any or only a very small part of the base below ground. Over time, and through vandalism, these markers can be tipped over. In this position, there is great risk that the more fragile headstone will break off at the base or at a higher weak point in the primary marker fully compromising the inscription area.

Another design fault of marble headstones in bases placed in the mid 1800s is that instead of keying a large portion of marble into the ground or into a base, only a 1.5-2" lip of marble is held in the base. There are examples of broken markers shown as disassembled and/or fragmented because of this design flaw, particularly at East Quogue and North Sea.

Headstone in Base – Faulty Design, EQ1 #2113, #2021

Most of the markers memorialize an individual (88%), but it is often the case that family members are located in the same area. The markers are generally contiguous, or less than 4 feet apart. They are placed in rows and the ground has a normal slope. Most are in the open, although a few are subject to encroaching vegetation, located under trees or subject to both encroaching vegetation and tree cover. The inscriptions on the markers are almost all facing west and the footstones still in their original orientation have the inscription facing east.

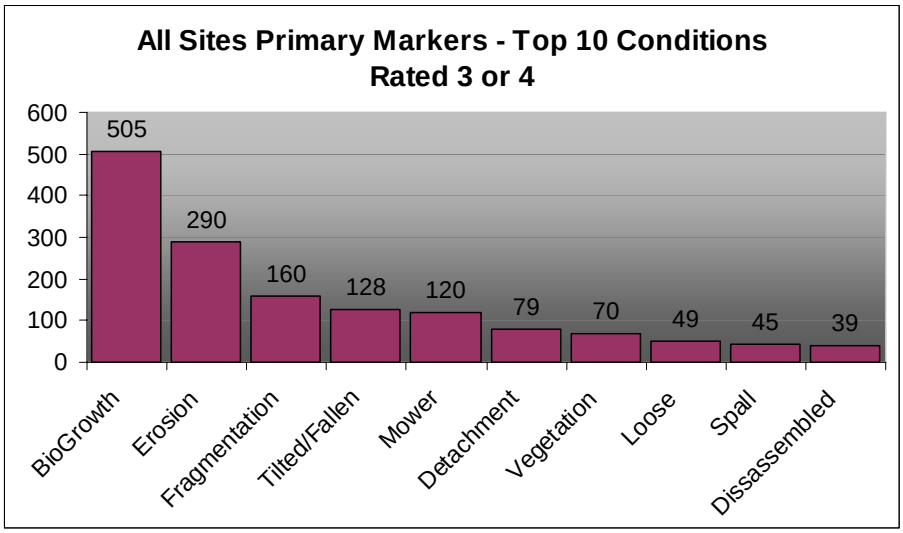
In the earliest sites of the North End Burial Ground and the Old Southampton Burying Ground, there are no specifically marked out family plots, although family members may be buried in

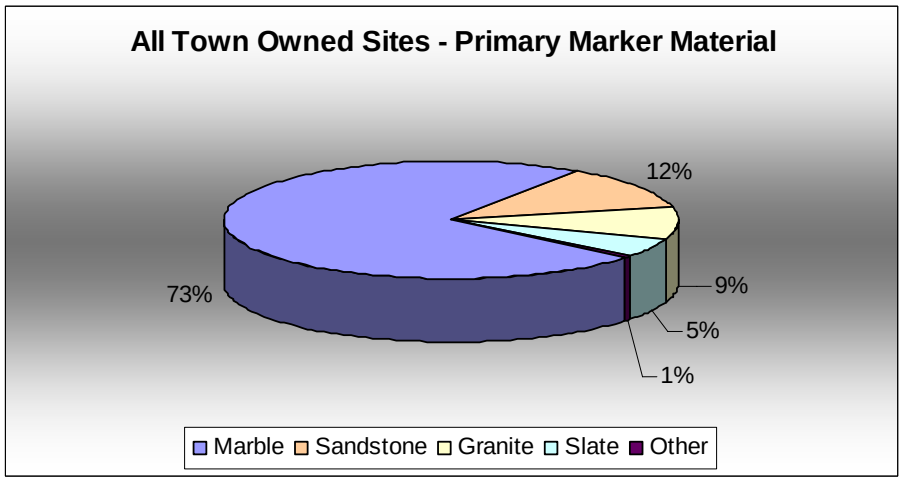
close proximity. Family plots marked out with enclosures became more common in the mid-1800s forward and there are several good examples at North Sea and East Quogue. There are serious condition problems with most of the metalwork that makes up the enclosures.

The Rose Family and Cooper Family Plots at North Sea

Contained in the North End Burial Ground and the Old Southampton Burying Ground inventory, there is a very nice collection of early slate and sandstone (brownstone) markers from the 1700s and into the early 1800s and there are also a few sandstone markers found at Old Noyac and North Sea. The slate varies from green to gray to purple. The brownstones are from different regions with different properties, such as a hard red brownstone from Connecticut and the less dense brownstone from NJ. The markers from later in the 19th and early 20th century are predominately marble, and the most recent markers are granite in gray, pink and black. A summary of the most prevalent conditions of all primary markers follows. However, most condition issues vary depending on material as can be seen in the charts that follow.[6]

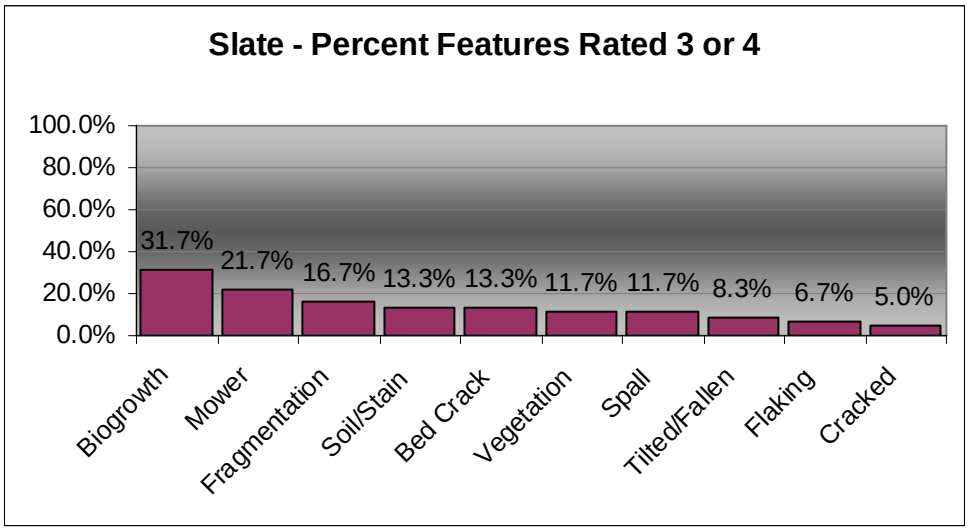
[6] For all conditions ratings discussed herein, the definitions from the Illustrated Manual are as follows: 0 – Not evident or not applicable, 1 – Slightly Evident, Good Condition: Stable structural condition. Decorative features and finishes largely intact. Not at risk, 2 – Evident, Moderate Condition: Stable structural condition. Significant, or terminally progressive loss of inscription and/or decorative features, 3 – Very Evident, Poor Condition: Significant threat of structural failure and/or the total loss of inscription and/or decorative features, 4 - Significant Evidence or Total Deterioration: Catastrophic structural failure/loss.


All Sites Primary Markers - Top 10 Conditions
Rated 3 or 4
600
500
400
300
200
100
0
505
290
160
128
120
79
70
49
45
39
BioGrowth
Erosion
Fragmentation
Tilted/Fallen
Mower
Detachment
Vegetation
Loose
Spall
Dissassembled


All Town Owned Sites - Primary Marker Material
12%
9%
5%
1%
73%
Marble
Sandstone
Granite
Slate
Other

Slate – Most are in remarkably good condition. Carvings and inscriptions are sharp and very legible. The most prevalent condition noted is "buried", where many are buried below where the bottom of the inscription or any carver signatures would be, but most "buried" are not rated as a 3 or 4. The most disturbing conditions are recent mower abrasion damage and bad staining along the fence line at the North End Burial Ground from an irresponsible application of clear-coat finish sprayed onto the new fence without any regard to the stones beyond. To remove these stains will take considerable time and skill by a stone conservator.

Slate markers: SO2, #726 with mower abrasion and at SO1, #156 is partially buried and badly stained by recent fence 'clear-coat' spraying.

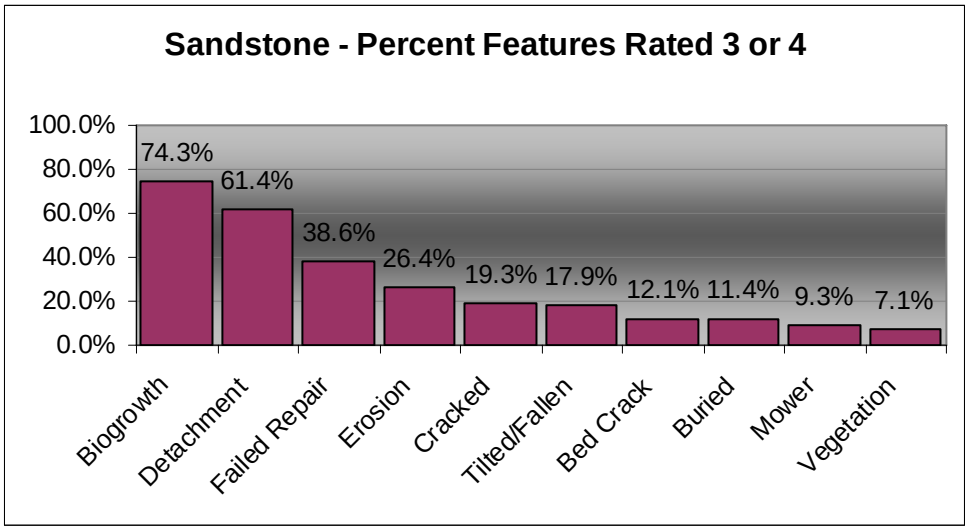


Sandstone (Brownstone) – This stone presents the most serious conditions. Sandstone is a sedimentary material, formed by layers of sand deposited and held under pressure over millions of years. Depending upon how well the layers fused, and how densely packed are the sand crystals, different stone properties result. Sandstone markers are often placed into the ground with the bedding layers perpendicular to the ground. Depending on the quality of the stone and on local conditions, water can cause the beds to delaminate and crack. A condition develops commonly called "blind delamination" where the carved face invisibly separates from the rest of the stone.[7] This is a very critical condition as these markers can loose their face from any impact, be it accidental or through rubbing or mowing. The markers noted with blind delamination are often examples of the earliest and most valuable marker art and these markers are at great risk. These should be the top priority for conservation funding. During the Community Workshop, conservator techniques to preserve these stones were shown and during the Phase III treatments, eight of the most serious at-risk markers were grouted and filled. (See Section V Treatments and the Treatment Reports in Appendix G)

Blind delamination in Sandstone. Gone (left), Going (middle), Will go if hit (right)

[7] **Detachment**: Separation, such as in the bedding layers of sandstone, cleavage in slate, or in the complete separation "blind delamination" of an intact carved face surface from the monument mass. Lightly rap the surface with knuckles to test for a hollow sound. (very serious and always a 4) **Detachment-Loss**: When a detached surface has begun to break up and pieces have been lost, even if carved pieces have been saved as fragments. Small pieces lost in sections (=1) progressing to the complete loss of the surface (=4).

The most obvious condition rated 3 or 4 is biogrowth and many are heavily encrusted with lichen. Erosion due to the age of these markers is expected and there are many that have become partially buried.



Examples of carving styles found on Sandstones at North End Burying Ground. The far right is believed to be carved by the well-known carver, John Zuricher. For more information on the carving styles found in Long Island cemeteries, see Richard F. Welch, The Gravestones of Early Long Island, 1983.

Marble – The marble markers are generally pretty well eroded at all sites, but there is no active sugaring or disaggregation taking place. The erosion seems to be stable. Most of the marble is heavily covered in mold and many also show considerable lichen growth. Many are also tilted or fallen and there are many fragmentation breaks occurring because of falls, vandalism and other environmental and man-made impacts.[8]. Over time, the thin marble markers have become vulnerable from wetting and drying. The North End Burial Ground was vandalized in early April 2004 and many of the marble markers were easily broken at the base and there are signs that vandalism may also have occurred in the past at both North Sea and East Quogue.

Recent vandalism (April 2004) at North End left a swatch of destruction. The older markers were buried deep in the ground and broke just above ground level. Those embedded in bases broke just above the base. To the right, heavy biogrowth on a marble marker under tree cover at East Quogue.

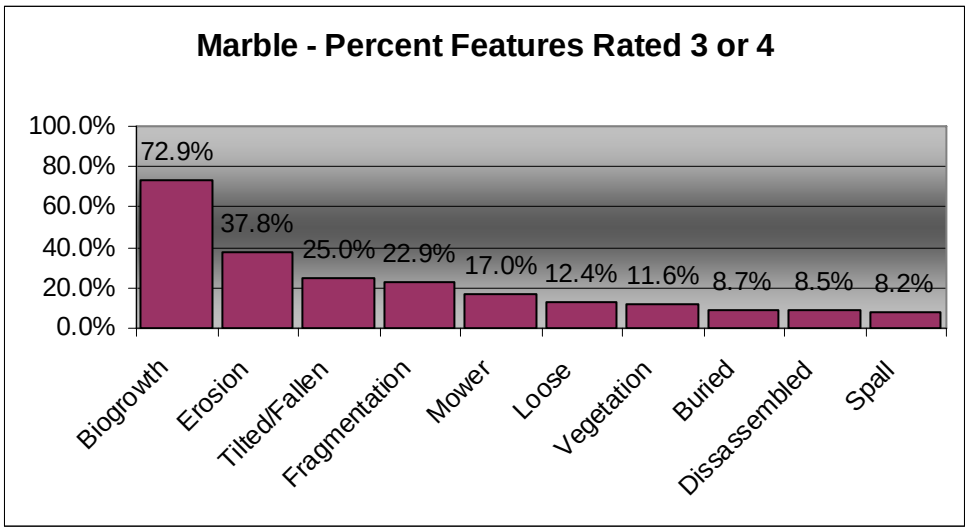
Cleaning techniques and some reburying will solve most of the mold, lichen and tilted/fallen problems. These are techniques that can be implemented by a combination of the Town maintenance crews and trained volunteers. To pin and conserve the many fragmented marble markers will take a conservator's supervision of a trained crew and

[8] **Fragmentation-No Loss**: The original fabric has through-surface breaks, but all pieces are still in place or on the ground still in the monument plot. **Fragmentation-Loss**: Absence of original fabric based on total original extent.

will be an expensive undertaking. Of 828 primary marble markers surveyed, 115 showed some some fragmentation with no loss and 79 showed fragmentation with loss. Some of these markers had both conditions, so these numbers are not additive, but there are at least 135 markers rated as a 3 or 4 for one of the fragmentation conditions and represent marble markers needing attention.

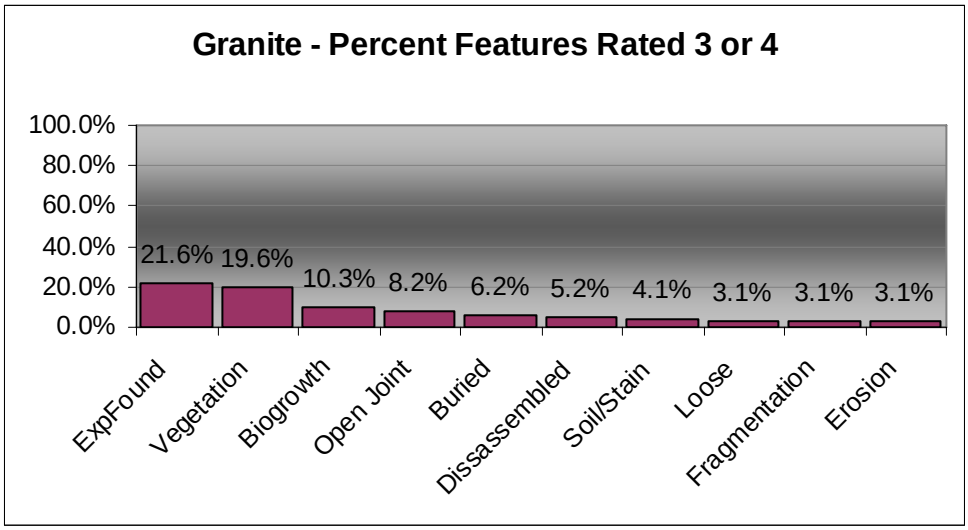
Mold, highly eroded, tilted (left), Recent vandalism breaks (right)

Throughout the survey results were examples of previous repairs and basal resetting where the marble was embedded into incompatible bases or where repairs were made with unsuitable materials. Thin marble markers, brittle with age, should not have been encased in concrete bases and collars and over time, the incompatibility of the materials has created open joints and break points for the marble.



Granite – Granite is a very tough material and is now the major monument stone found in modern cemeteries. The granite markers at these sites have no major condition issues to report.

As seen in the chart, the few conditions that could be rated as a 3 or 4 are a low percent of the total granite inventory and are non-threatening to the granite material. In many cases, the exposed foundation was actually the design intent. Biogrowth can be easily cleaned from granite. The encroaching vegetation is unsightly, but usually also not threatening to granite markers.



NS1, #3068 with biogrowth. NS1, #3101 with exposed foundation

For all materials, there have been past attempts to repair broken monuments. Some of the repairs were done well, and some are very damaging and unsightly. Heavy cement repairs were made in some cases, and the cement was smeared across the monument face, obliterating the inscription. A good number of epoxy repairs can be seen where the epoxy material has broken down and the repair has failed. It does not appear that any of the past repaired breaks were made with pinning techniques to provide the structural strength needed to survive long-term outdoor exposure to man and elements. An example of marble ceramic pinning was made during the Community Workshop to demonstrate the technique. Very fine gauge ceramic insert pins can also be used to re-attach carved face details in a blind delamination sandstone repair.

Rev. Paul Cuffee Gravesite: A good repair, At North End, example of cement repair and a failed repair. Below, demonstration of marble pinning during the October 2004 Community Workshop.

Overall Site Conditions and Integrity

Mower Abrasion: Conditions that were very prevalent across all materials particularly at the Phase II three sites surveyed were "mower abrasion" and "spalling" which was generally due to aggressive maintenance and mowing. At North End, 41% of the features were rated 2 or higher for Mower Damage and at Noyac 46% of the features were so rated. Several markers show unsightly black marks at the lower edges where the mover tires have scuffed that close to the marker or at the top of the marker where plastic has become embedded in the face from scratches made by the grass collection bins. Colored weed 'whacker' plastic string material was also found on markers. Several markers that now are in a face-down position have obvious tire marks where the mowers have driven over the fragile stone material. And several of the sandstone, once valuable, highly carved works of art are now reduced to irreparable fragments due to being hit or impacted by aggressive actions.

Different examples of mower abrasion

Landscape Integrity: The integrity of the landscapes varies between sites. Hubbard and Pleasure Woods have so much marker damage and so many markers have been moved, that without the fence enclosure, the sites would not be obvious. The Rev. Paul Cuffee Gravesite in the only remaining marker of what is believed to have been a larger cemetery.

Broken markers and fence at Hubbard Cemetery. Digital ortho photographs of Pleasure Woods.

Both the Old Southampton Burying Ground and Old Noyac/Edwards Burial Ground are presumed to have had many monuments removed, and that may be the case of Westhampton Churchyard as well. New cemeteries were built and these older ones became inactive historically because they were filled to the perimeters, and the open space now evident at these sites is misleading. There are recent Old Noyac neighbor memories, related to the surveyors during the summer of 2004, of Town maintenance contractors removing old fragments. Local historians have not been able to find records of when the Old Southampton Burying Ground was 'cleaned up' and condensed to the small areas of very old and valuable markers. The section in the far west corner appears to have been rearranged into a Herrick family plot, probably by relocating monuments from other places within the burial ground. The remainder of the intact monuments appear to be in their original locations, some with footstones also in the original locations. The immense lawn that now surrounds the few remaining monuments (52 plots) was probably once covered with many markers that have now been lost, and wooden markers for the earliest graves that have long since decayed. (See spatial maps in Appendix F)

The integrity of the landscape at Squires Burying Ground, East Quogue and North Sea remains very high, and North End is also high with the exception noted below. At Squires, the only element to mar the integrity is the plastic fence surrounding the property which should be

replaced. The artistic gate leading into the site is not original, or indicative of the time period of the site. However, as an artistic piece presumably designed/donated by a resident, it could be noted as such, and still contribute to the site.

Right to left, top to bottom: Landscape, Fence and Gate at Squires Cemetery, Boundary path maintained at East Quogue, Row of markers against old growth lilac bushes at East Quogue, Hilly landscape of North Sea.

The hilly landscape at North Sea, with markers and family plots arranged to accommodate the terrain, has a very high integrity. The long narrow boundary at East Quogue, partially enclosed by old growth cedars and lilacs, with headstone/footstone markers and family plots still in place in neat rows, also reads with high integrity. The clear space along the west boundary maintains the original circulation plan of the historic site.

At North End, the gentle downward slope to the west with markers placed in irregular, but relatively even, rows is original. Most of the rows remain intact and the cemetery reads without many empty spaces. However, the massive relocation and false placement of the footstones is disturbing. A majority of the footstones have been relocated directly behind the headstone, often turned so that the inscribed face is hidden. Also of concern was that during the 2-year project, surveyors watched the replacement of the North End fence and were surprised that such an important landscape element in a historic district was replaced without a local Landmarks Commission review. The white picket fence with a very interesting front entrance treatment was replaced with a stained wood picket fence with the entrance detail removed. The front entrance treatment is presumed to have had some historical relevance, at least to the early 20th century use of the site.

Summer and Winter views at North End Burying Ground

The conditions of landscape elements at all sites except for Old Southampton Burying Ground need attention, although it is evident that some good tree removal decisions have been made at sites like East Quogue and Westhampton Churchyard. At many of the sites, the cedars, once planted to memorialize the dead, have grown too large and now crowd out nearby markers, and there are also large deciduous trees and different types of shrubbery that have become a

problem. There are multiple cases of a yucca type plant that must have been a popular local planting for gravesites at one time. These have grown very large and are disrupting marker foundations and in most cases, should be removed.

Top to bottom, left to right: Dead Limbs at Squires threaten markers, Large cedars compromise the Cooper Family Plot at North Sea, Overgrown shrub at Westhampton encroaches marker, Yucca plant at East Quogue and North End impacts foundations.

There are different grasses and ground covers at each site. Tall grasses and lack of mowing do not hurt the markers, so none of the high grass conditions have been rated as a poor condition. However, residents and visitors to the site see such conditions as a sign of neglect. A landscape architect knowledgeable about historic materials and cultural landscape preservation should be consulted. A different mix of lower grasses, moss, clover or other ground covers could meet the demands of viewers, while reducing the damaging impact of aggressive mowing and weed-whackers.

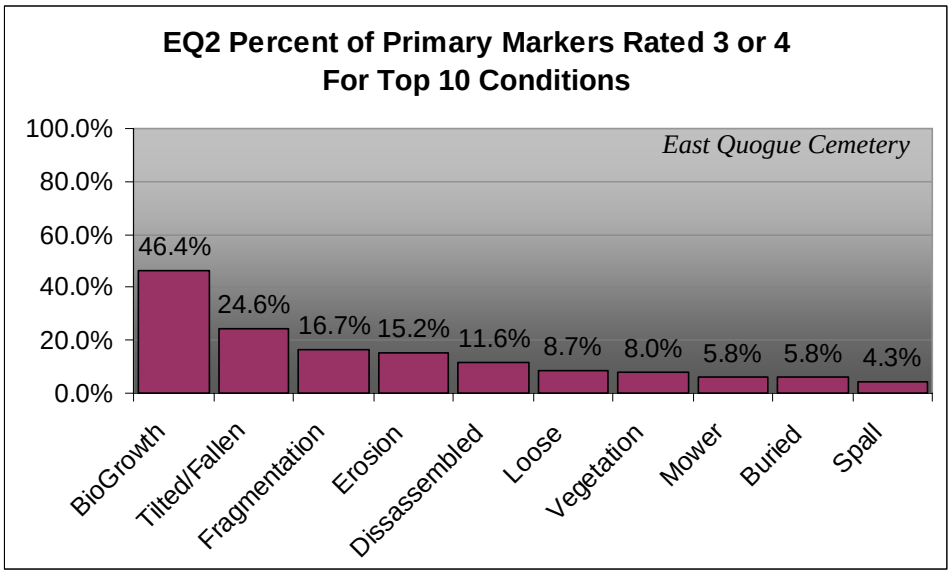
IV. Site Summaries

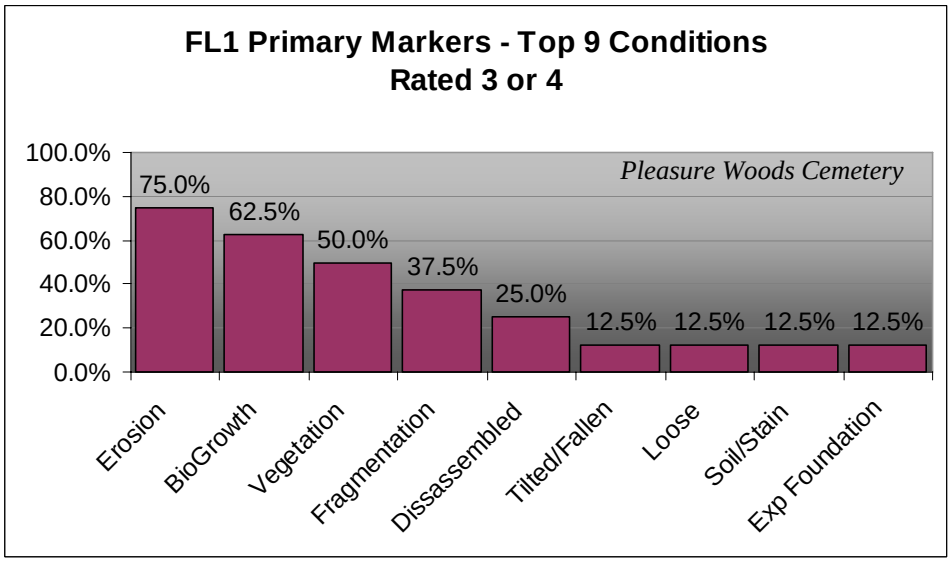
Material of the Primary Markers at All Town Owned Sites

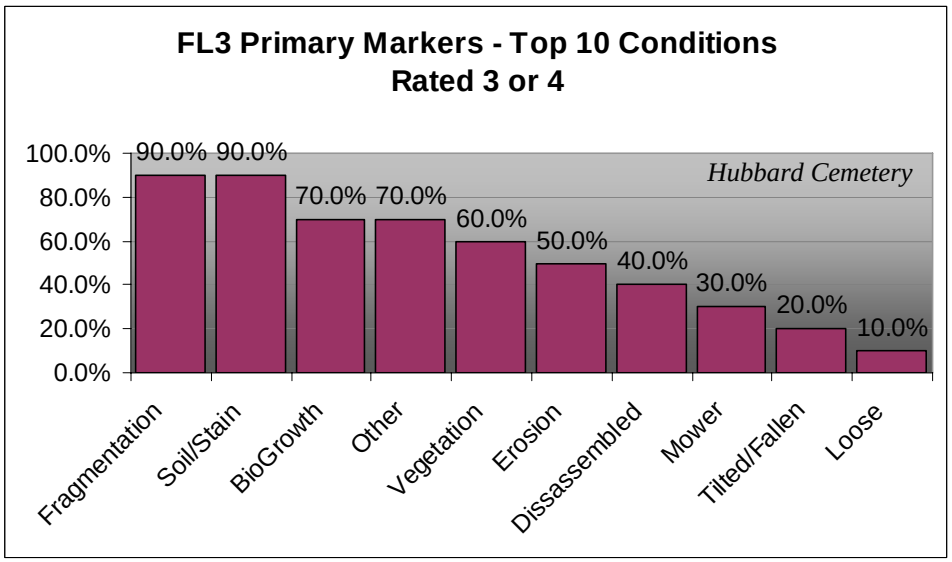
ID	Name	Marble	Sand stone	Granite	Slate	Other	Total
EQ2	East Quogue Cemetery	107		29		2	138
FL1	Pleasure Woods Cemetery	8	0	0	0	0	8
FL3	Hubbard Cemetery	9	0	1	0	0	10
HB1	Squires Burying Ground	45	0	0	0	0	45
HB3	Rev. Paul Cuffee Gravesite	1	0	0	0	0	1
NO2	Edwards Cemetery/Noyac Burying Ground	40	4	0	2	0	46
NS1	North Sea Burial Ground	107	6	25	0	0	138
QU1	Westhampton Churchyard	20		18	0	0	38
SO1	North End Graveyard	483	101	22	47	2	655
SO2	Old Southampton Burying Ground	8	29	2	11	2	52
		828	140	97	60	6	1131
		73.2%	12.4%	8.6%	5.3%	0.5%	

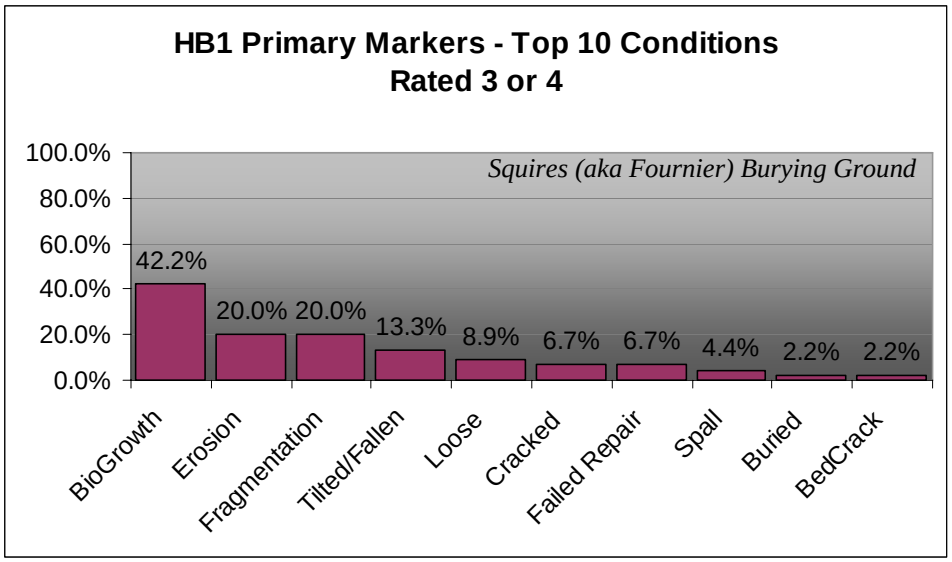
The conditions at each site differ based on the site, materials and age. In Appendix F, the maps show materials and several key conditions. To compare the issues to be addressed at each site, the common axis graphs below chart the percent of primary markers at each site (except the single marker at Rev. Paul Cuffee Gravesite) that were rated a 3 or 4. For reference, the distribution of each major material is shown above. The material "Other" contains a few different materials, such as zinc, cast stone (concrete), bronze and argillite.

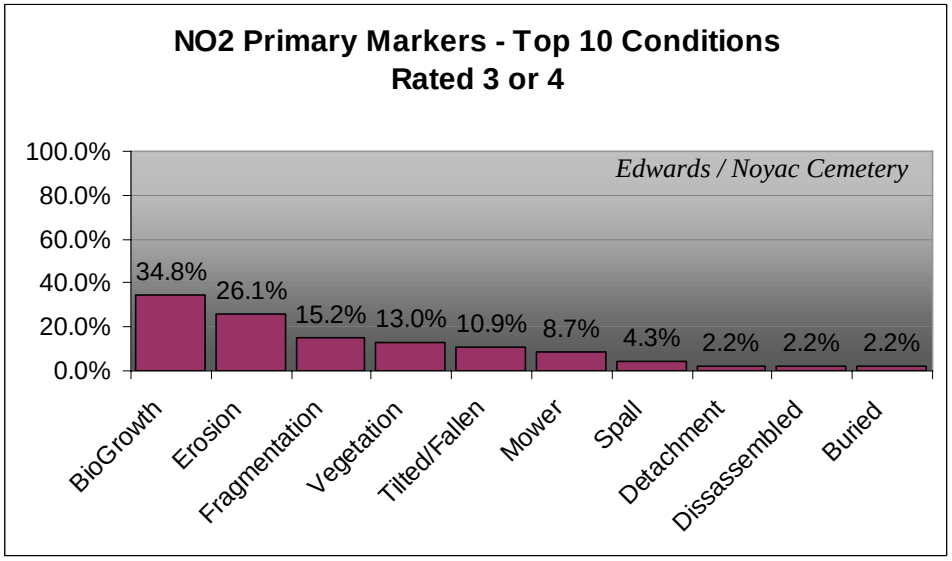
Both at East Quogue, #2066 is an example of cast stone, #2098 is a fine example of the white zinc Pediment styles that were offered through specialized monument companies beginning in the late 1800s.

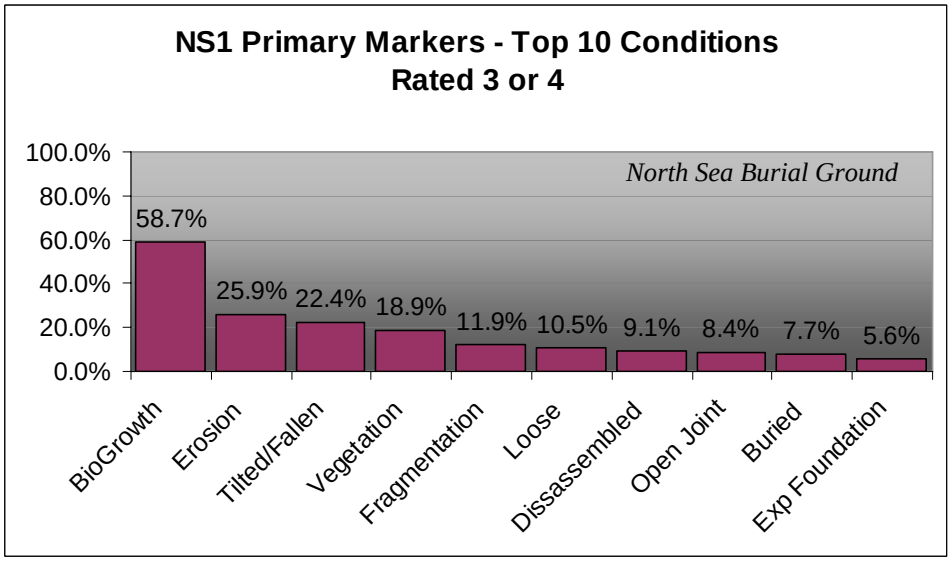

EQ2 Percent of Primary Markers Rated 3 or 4
For Top 10 Conditions
East Quogue Cemetery
100.0%
80.0%
60.0%
40.0%
20.0%
0.0%
46.4%
24.6%
16.7%
15.2%
11.6%
8.7%
8.0%
5.8%
5.8%
4.3%
BioGrowth
Tilted/Fallen
Fragmentation
Erosion
Dissassembled
Loose
Vegetation
Mower
Buried
Spall

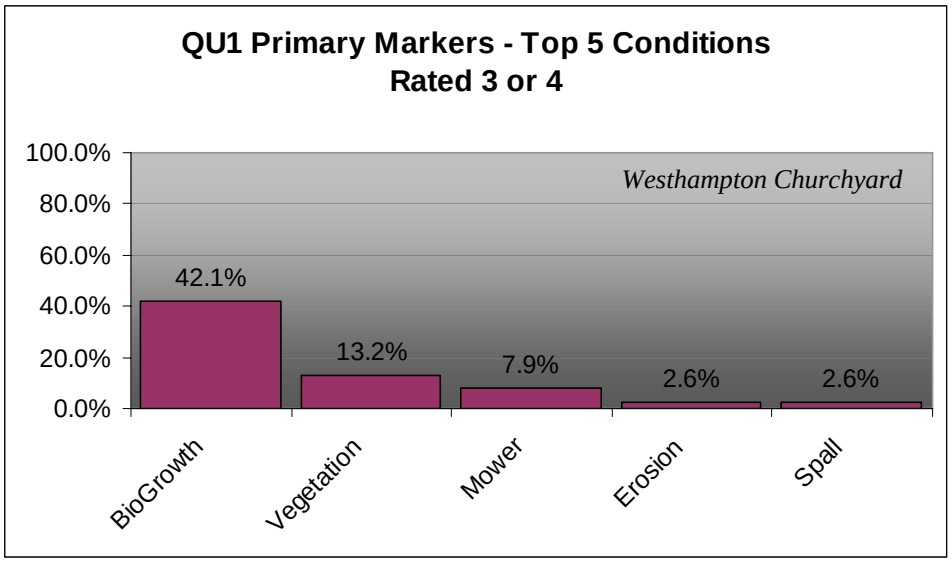

FL1 Primary Markers - Top 9 Conditions
Rated 3 or 4
Pleasure Woods Cemetery
100.0%
80.0%
60.0%
40.0%
20.0%
0.0%
75.0%
62.5%
50.0%
37.5%
25.0%
12.5%
12.5%
12.5%
12.5%
Erosion
BioGrowth
Vegetation
Fragmentation
Dissassembled
Tilted/Fallen
Loose
Soil/Stain
Exp Foundation

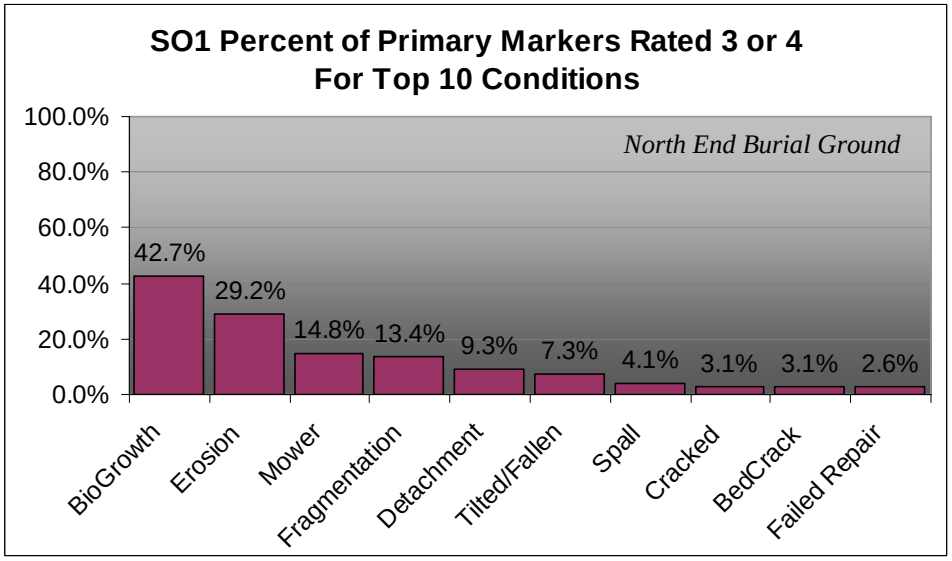

FL3 Primary Markers - Top 10 Conditions
Rated 3 or 4
Hubbard Cemetery
100.0%
80.0%
60.0%
40.0%
20.0%
0.0%
90.0%
90.0%
70.0%
70.0%
60.0%
50.0%
40.0%
30.0%
20.0%
10.0%
Fragmentation
Soil/Stain
BioGrowth
Other
Vegetation
Erosion
Dissassembled
Mower
Tilted/Fallen
Loose

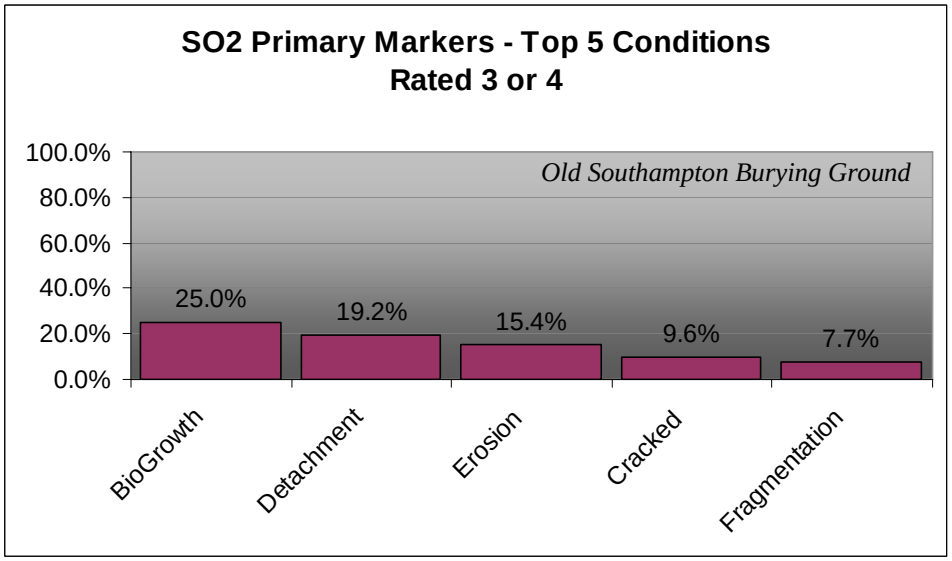

HB1 Primary Markers - Top 10 Conditions
Rated 3 or 4
Squires (aka Fournier) Burying Ground
100.0%
80.0%
60.0%
40.0%
20.0%
0.0%
42.2%
20.0%
20.0%
13.3%
8.9%
6.7%
6.7%
4.4%
2.2%
2.2%
BioGrowth
Erosion
Fragmentation
Tilted/Fallen
Loose
Cracked
Failed Repair
Spall
Buried
BedCrack


NO2 Primary Markers - Top 10 Conditions
Rated 3 or 4
Edwards / Noyac Cemetery
100.0%
80.0%
60.0%
40.0%
20.0%
0.0%
34.8%
26.1%
15.2%
13.0%
10.9%
8.7%
4.3%
2.2%
2.2%
2.2%
BioGrowth
Erosion
Fragmentation
Vegetation
Tilted/Fallen
Mower
Spall
Detachment
Dissassembled
Buried


NS1 Primary Markers - Top 10 Conditions
Rated 3 or 4
North Sea Burial Ground
100.0%
80.0%
60.0%
40.0%
20.0%
0.0%
58.7%
25.9%
22.4%
18.9%
11.9%
10.5%
9.1%
8.4%
7.7%
5.6%
BioGrowth
Erosion
Tilted/Fallen
Vegetation
Fragmentation
Loose
Dissassembled
Open Joint
Buried
Exp Foundation


QU1 Primary Markers - Top 5 Conditions
Rated 3 or 4
Westhampton Churchyard
100.0%
80.0%
60.0%
40.0%
20.0%
0.0%
42.1%
13.2%
7.9%
2.6%
2.6%
BioGrowth
Vegetation
Mower
Erosion
Spall


SO1 Percent of Primary Markers Rated 3 or 4
For Top 10 Conditions
North End Burial Ground
100.0%
80.0%
60.0%
40.0%
20.0%
0.0%
42.7%
29.2%
14.8%
13.4%
9.3%
7.3%
4.1%
3.1%
3.1%
2.6%
BioGrowth
Erosion
Mower
Fragmentation
Detachment
Tilted/Fallen
Spall
Cracked
BedCrack
Failed Repair


SO2 Primary Markers - Top 5 Conditions
Rated 3 or 4
Old Southampton Burying Ground
100.0%
80.0%
60.0%
40.0%
20.0%
0.0%
25.0%
19.2%
15.4%
9.6%
7.7%
BioGrowth
Detachment
Erosion
Cracked
Fragmentation

V. Treatments

During Phase II, a public workshop was held to demonstrate cleaning and conservation treatments, as well as to discuss the project and survey methodology. Full details of the markers cleaned and pinned are available in the database and in Appendix G. Since the conditions at the Town owned sites are heavily impacted by the presence of biogrowth, and there are many marble markers that will need to be pinned, these demonstrations addressed the most common issues in the Town owned sites. A reburial of a conserved marble marker with proper replacement of the associated footstone was also an important demonstration.

The most gentle, and first recommended, cleaning solution is plain water with a soft to medium natural bristle or nylon brush, starting from bottom up to loosen the bio-growth and remove any superficial soiling. Much of the lichen can be removed in this manner once softened with water. Soft wooden sticks can be used where the stone is strong enough. As many of the aged markers are delicate and brittle, only very gentle brushing/scraping actions can be used. To remove the mold from marble, a successful treatment involved cleaning first with water and detergent using a nylon brush. A poultice containing a 5% solution of calcium hypochlorite was then applied with a dwell time of 1 hour before rinsing with water. The brownstones were cleaned with a dilute ammonia solution after softening and partial remove of lichen with water. A dilute ammonia solution poultice can also be used overnight aggressive lichen growths.

North End Workshop: #031 marble marker before and after cleaning, #119 slate being cleaned.

In other demonstrations an ammonia poultice and the commercial product D2 were used as can be seen in some of the treatment reports.

Preparing #130, applying a poultice, the pinned marker, then the reburied marker and footstone.

The survey of North End Burial Ground alerted the project managers to the fact that there were very rare, very fragile brownstone markers with severe delamination, defined as detachment in the survey. It was agreed that during Phase III, demonstration treatments would focus primarily on these at-risk markers. In this way, methodology could be developed for future conservators, and the emergency condition markers would be stabilized.

A majority of the Phase III field work time was spent on the treatment and repair of emergency condition markers based on the Phase II survey results. Frank Matero spent the first week of the session to carefully supervise and train the interns and another (unpaid) graduate intern assisted. Additional cleaning of markers that had been partially treated in the Fall 2004 Public Workshop was also completed.

Marker priority was assessed based on visual examination on site and a querying of the Phase II database for the condition of severe detachment or detachment with loss (rated as a 4.) The query identified over 40 sandstone markers, many of which had additional poor conditions often associated with detachment, such as detachment loss, bedding cracks, and cracking.[9] Eight markers were chosen for emergency stabilization. It should be noted that the ferruginous

[9] **Bedding Cracks:** The obvious separation of bedding layers seen in the edges and ends of a cut stone. **Cracked**: Linear discontinuities or fractures of variable length, depth or orientation.

brown sandstone markers prevalent on site are most susceptible to detachment, especially bond detachment, due to the face-bedded orientation of the markers.

Example of the Query Data

Plot	Material	Detach	Detach Loss	Bed Crack	Cracked
50	Sandstone-Brown	4	0	1	0
55	Sandstone-Brown	4	0	0	3
62	Sandstone-Brown	4	0	0	2
91	Sandstone-Brown	4	0	0	0
92	Sandstone-Brown	4	0	4	3
95	Sandstone-Brown	4	0	3	0
99	Sandstone-Brown	4	0	2	0
107	Sandstone-Brown	4	0	0	2

Descriptions of the treatments for each of the chosen markers are detailed in the Treatment reports in Appendix G.

Time Estimates

Cleaning: Cleaning is a labor intensive process that requires several steps. Gentle softening and cleaning occurs first with water. At this point and before any other treatments are applied, it is necessary to wet the stone and remove large lichens with a wooden tool. Then if the water cannot remove the soiling, a dilute detergent can be tried. More aggressive cleaning steps include spray applying a dilute calcium hypochlorite or ammonia solution and further brushing and wooden stick removal of lichen. After any detergent, calcium hypochlorite or ammonia is used on a stone, it must be fully rinsed and all chemicals flushed from the stone. Throughout these steps, the treatments require sensitivity, as it is possible to find areas of fragile stone during cleaning. Cleaning takes five to six hours on larger stones and approximately three to four hours on smaller stones, all dependent on the amount of lichen present and the condition of the stone. Cleaning can also require multiple days with overnight poultices applied in-between each treatment.

Cleaning could be handled by volunteers with proper supervision and training from a conservator.

Grouting: Preparation of the stone, packing and injection can take from 4 to 8 hours depending on the severity of delamination. It is also sometimes necessary to go back to the stone after 24 hours to assess the success of the grout and make subsequent injections.

Grouting should only be done by a trained conservator.

Mortar Filling: Fills were time intensive. On many stones it is an all day process and usually averages six to eight hours. The damage to the stone is more an indicator of time needed than is the size of the stone.

Mortar filling should only be done by a trained conservator.

Pinning: Before pinning, all marker pieces need to be cleaned and surfaces prepared. Fragile or brittle marker surfaces often require consolidation before any structural treatments can take place. To prepare the stone for pinning takes at least one day.

The pinning process takes another day of careful drilling, pin insertion and epoxy fills on a stable work table with custom supports often required depending on the type of break to be pinned. After another day for a full set to occur, the joint often needs to be filled/patched with a pigmented mortar.

Pinning should only be done by a trained conservator.

Reburial: This task is labor intensive, requires strength of multiple people and took anywhere from two to three hours depending on the size of the stone. A monument company with proper equipment would be recommended to assist in this task.

Reburial could be handled by the Town maintenance crew or contracted out to a monument company.

Landscape Repair: A historic landscape architect should be contracted to assess the results of this survey and advice on the larger issues that need to be addressed.

Town maintenance crews can do much of the work required.

VI. Summary Recommendations

Irrespective of the importance of the individuals buried in the early cemeteries of Southampton, the sites are very significant as cultural landscapes and the collection of markers includes many examples of rare early American art. The most threatening, emergency condition is the blind delamination seen in many of the early brownstones at North End, Old Southampton Burying Ground, Edwards Cemetery/Noyac Burying Ground and North Sea Burial Ground. This condition should be addressed quickly as a single physical impact could destroy any one of these works of art. While this condition does not impact a great number of markers, or every site, it is the most serious. Of the 33 brownstone headstones rated most at risk, 8 have already been stabilized by this project and several of the remaining stones might have lost too much of the carved face to conserve, so there are about 25 more needing work. There are also very highly carved and unique footstones and other features with this problem.

A recent, and also quite serious problem, is the aggressive and careless mower scratches, spalls, scrapes, plastic abrasion marks, and actual loosening of many of the markers in the ground do to impact. The bright white scratches on the marble are evidence that much of this damage is recent. This is a training issue, costs no outside capital, and is something that can be addressed within the maintenance group and in instructions given to contractors. Sensitivity training should make the comparison of this resource to the home or the interior of a museum. In such environments, a heavy vacuum cleaner would be used on the empty floors or public corridors, but soft cloths and great care would be used to dust the collection. Maintenance workers need to understand that the reason to care for this site ***is to protect the collection***, not to create a perfectly mowed lawn. That instruction should also have be given to all contractors working in and around the cemeteries, so that there is no a repeat of the problem at North End where the fence builders took no notice of the value of the collection they were fencing, as they used a spray gun to treat the new fence with a clear coat finish.

At most of the sites, fragmentation with and without loss is a major problem. It is estimated that over 135 marble markers are broken in some manner. Those that are fragmented without loss should be addressed as a priority, as the marker pieces are still intact. The large number and the break severity on this class of problem will be an expensive treatment category and one that

will need careful planning. It may be advisable to put some of the fragments into storage so that they don't get further damaged or misplaced before conservation.

Broken Rows at East Quogue (left) and North Sea (right)

The landscape needs are next most pressing, as many of the large trees threaten the markers and damage caused by falling tree limbs or large roots can be seen in several of the sites.

The most prevalent problem at all sites is biogrowth and the erosion of the marble markers. However, while very prevalent, it is not considered that serious. For the biogrowth problems, community volunteers could undertake a cleaning program if properly trained, which might provide a good community awareness building or youth activity opportunity. The erosion condition cannot be reversed and does not appear to be active. Over time, more erosion will continue. There may be selected cases where a particularly valuable marker (associated person, event or special carving) should be given additional assistance to withstand time. Consolidation is a treatment that can be considered in these cases. However, it is not recommended that all marble markers in the inventory be consolidated.

Another threatening, but not (yet) serious problem is that fact that many of the heavy base marble markers have been tipped over. Those without any damage should be put back into position by the Town maintenance crews. It is recommended that a monument company be consulted for additional ideas to place these monuments more deeply and securely into the ground. If these fallen markers are left in the tipped over position, they may soon become

fragmented. Throughout the sites there are 154 cases of leaning or tilted primary monuments.[10] To completely unearth and rebury this many markers is not advisable unless there are other serious conditions. Of these tilted markers, there are 20 that are loose, and these should be inspected more closely.

In the future, we would recommend the relocation of the footstones at North End Burying Ground to their traditional location. This will make it difficult to mow there with large mowers, but these mowers have no place at such a fragile site with its dense collection of valuable cultural resources. Many sites have also had good results with clover plantings around the markers or short "heirloom" grasses that do not require mowing and impart a 19th century appearance. The advice of a landscape architect knowledgeable about local and historic plantings should be considered before any major plantings are considered. This professional would also be the best to advise the Town on better lighting, fencing and other night time security methods to protect public outdoor space containing valuable resources.

To reach the Town of Southampton's goal to have an actionable Preservation Management Plan, a cross functional group of professionals should review the information, summary results and conclusions from the three phases, all of which can be found within this submittal and within the Phase I report and later summaries to the Town by Zach Studenroth. Key functions or stakeholders to be included in this discussion and development of the full Preservation Management Plan and associated funding plan would be at a minimum:

- Town government officials
- Representative from Town Landmarks Commission and their consultant
- Landscape Architect with cultural landscape preservation experience
- Town maintenance organization
- Affected Town communities or boroughs that might take management of a site
- Interested historical or community organizations that might organize resources

Once priorities, timing and funding have been decided, a division of tasks for Town maintenance, community clean-up volunteer efforts and contracted work should be developed.

[10] **Tilted/Fallen:** 1=up to 15%, 2= 16-25%, 3= over 25% tilted, 4= fallen. Tilting may be in the front to back or side to side direction.

When this structure is in place, conservators, monument companies, landscape companies and others can be contracted as needed.

Community Awareness

With all projects conducted by the Architectural Conservation Laboratory and Research Center, it is our objective to provide learning experiences for both our graduate students and for the community. Workshops in October 2004 and August 2005 were conducted for Southampton with training on survey terms and process, illustrations of the most prevalent conditions, and demonstrations of cleaning, grouting and pinning of damaged monuments. The October 2004 workshop was video taped and can continue to serve as a training and advocacy vehicle for Southampton. A final slide presentation planned for later this summer will provide education to a wider audience for residents and visitors interested in their community, its history, and these unique cultural resources. It is hoped that some of the material developed through this research survey will find its way into programs for local school children. Many communities have found that cemetery sites provide valuable teaching opportunities for local history, social change, art and science. Involving children early in positive and meaningful cemetery projects is the best way to circumvent any later temptations to vandalize.

Southampton Historic Cemetery Database and GIS

This multi-phase project successfully developed and piloted a comprehensive survey form and training manual that can be used to survey the remaining 38 sites in Southampton. The database structure to contain and report the data was designed for users to review data or to add more sites and features. It is hoped that this information will become part of the local historical record and become an active research and planning tool. The project methodology included the development of a GIS with specific cemetery layers for mapping and visual display of the site conditions and resources. This GIS may not be directly useable by residents, except through the maps that have been provided. However, should the Town wish to go further with the GIS mapping, their GIS professionals will have the base maps and files to continue the work. Hopefully in time, some of this information will go onto the Town web site where it will reach a broader audience.

Appendix:

A. Phase I Forms for all Surveyed Sites

B. Survey Form(s) and Illustrated Manual

C. Inventory List of Markers, Example Marker Survey Reports

D. Township Map of Phase I Survey Sites

E. Township Map of 10 Town Owned Sites

F. Treatment Reports

G. Database and GIS Documentation

   a. Documentation

   b. How to Survey Remaining Sites

   c. User Instructions for Data Entry

H. Site Reports and Maps

I. Cemetery Plot Reports (See Additional Binders)

Appendix A

Phase I Form for All 48 Sites

The following report contains the list of all sites and the Town owned sites with information on their existence on past surveys. Following the lists are the summary sheets for each cemetery site surveyed during Phase I. There are additional pages of maps and photographs on file with the Town from the Phase I submittal.

Appendix B

Survey Form(s) and Illustrated Manual

Southampton Historic Cemetery Plot and Marker Survey

- Illustrated Survey Manual
- Cemetery Plot and Marker Feature Survey
- Complex Group and Family Plot survey
- Fragment and Removal Survey

Appendix C

Survey Reports: List of Markers, Example Reports

Southampton Owned Sites – Marker Inventories from Condition Survey

Example: Cemetery Plot 1-pg Report for each Site

Complex Group and Family Plot Survey Report

Appendix D

Township Map of Phase I Survey Sites

Appendix E

Township Map of 10 Town Owned Sites

Appendix F

Treatments

Attached are treatment reports for each of the markers treated during the October 2004 workshop and during the Phase III field work. For the Phase III field work, the formulations below were commonly used and are not repeated for each report.

Treatment Formulations

All stones were grouted with a formula developed by the University of Pennsylvania's Architectural Conservation Laboratory (ACL). A dry mix was prepared, consisting of

1 part fine silica sand (sieved through 300 micron sieve): 1 part 3M Zeelan ceramic microspheres: 2 part St. Astier NHL 3.5. (All parts by volume) Grout was prepared by mixing a 10%El Rey solution with the dry grout mix; 4 pts. dry grout mix : 3 pts El Rey solution.

The dry mortar mix used for the masonry fills was also prepared in the ACL. The dry mortar mix consisted of 1 part binder: 3 parts Georges Kempf brown bar sand (sieved through #30 screens). The binder mix was 1 part Grey Portland cement: 3 parts Type S hydrated lime.

The mortar mix was pigmented with the following formula (by weight):

32 parts dry mortar mix: 2 parts burnt umber: 0.2 parts. Van Dyck brown: 0.1 parts brownstone. All pigments were manufactured by Rainbow Masonry pigments. Italian burnt umber was substituted for the Rainbow burnt umber in some of the mixes. Samples were made to ensure that the dried mortar appeared similar with both burnt umber products.

Appendix G

GIS and Database Documentation

Documentation

The Southampton Historic Cemetery Database was developed in MS Access 2003, in the MS Access 2000 file format for easier compatibility. All data from the cover sheets of the Phase I survey, the survey form information from Phase II and III and all key images are contained within the database and the database folder. The image references are relative, so if the database directory is copied intact, all images will be viewable in the database forms and reports. These images are low resolution, and another directory is included in the submittal with higher resolution images taken throughout the project.

All GIS work was developed in ArcView 9.0. The project relies on shapefiles and layers created from the shapefiles. The database information was linked through joins. It was hoped that the project would develop the Southampton Historic Cemetery GIS capable of being used as a layer in the Town GIS. The Town GIS was specified to be projected in NY State Plane Long Island NAD 27. The shapefile transferred to the project was un-projected and used only to create the first maps showing the 48 surveyed cemeteries and 10 Town owned. However, the project GIS took great advantage of the digital New York State orthophotography which was all projected in NY State Plane Long Island NAD 83. The project submitted has not been re-projected, as too many errors occurred when this was attempted and the aerials would have lost their meaning.

For most preservation GIS projects, the database work is not done in a relational geodatabase created within ArcView. The need is usually for one-time project analyses and to create maps for presentation and discussion. That is the case with this project, which relies on a digitized shapefile of plots in all cemeteries joined to the key tables of information in the MS Access database mentioned above. All related tables were joined into the digitized plots and a shapefile called PlotData was created. The mapping of dates, type, materials and conditions is based on this information and layers (as opposed to new shapefiles) were created to show relevant issues. The database information was joined statically to the shapefile of plot polygons. All related tables were joined into one, and a shapefile called PlotData was created. From this, all analysis

took place and the resulting maps were created. This serves as a useful presentation and analysis tool of the existing data, which might be the only data that will ever go into this particular GIS. However, this is not the best solution if more cemetery plot maps are planned to be added to the database and GIS. If that becomes the case, the MonPlots shapefile should be edited to add the new plots, then rejoined as above to the relevant tables, or the key database information should be pulled into the GIS as a full geodatabase.

A final note is repeated here on the accuracy of the digitization. It was not the intent of the project to 'survey' marker and landscape features to fine accuracy, as would a land surveyor. (see page 3). The purpose of the digitization was to establish each marker on a map so that data could be attached. Using the aerial photographs and field measurements and estimations, the features were located as closely as possible to the 'real' location. Using the ArcView software, the plots were then digitized.

How to Survey Remaining Sites

The Town GIS department should provide a GIS boundary map and one with the NYS 2001 .5 ft. natural color aerial photograph of the site. This will help the volunteers map out the site. The Town should also provide the group with a block of plot numbers to use. At this point, plot numbers used have been as follows: For North End (0-670), South End (700's), Old Noyac (800's) Rev. Cuffee, Hubbard and Pleasure Woods (900's), Squires (1200's), Westhampton Churchyard (1300's), East Quogue (2000-2200) and North Sea (3000-3200).

Walk through the site and number the plots in a consistent manner. It is helpful to use small craft sticks or plant ID markers to mark each plot temporarily during the survey. Generally, all primary markers should have their own CemPlotID. If there is a loose primary marker leaning on another, give it a separate CemPlot ID. Multiple small footstone markers can be included in one plot with the primary monument marked as the CemPlotID. However, if there are larger burial block markers, each should be counted as a separate plot and the group should then be surveyed as a Group Plot. Family Groups can include multiple plots and these should be indicated on the map with a dashed line surrounding the plots to be included. See *Southampton Historic Cemetery Plot and Marker survey – Illustrated Survey Manual* for full instructions.

Copy the 4-page survey for all of the markers and the 1-page survey for the family plots. Organize the volunteers for the survey. Each volunteer should be provided with the illustrated survey manual and the necessary survey forms. Before the training sessions, volunteers should read the manual and during the training, the complete survey should be explained. The group should physically train in a cemetery and should look for examples of all of the different conditions. Most of the definitions in the *Illustrated Survey Manual* are very explicit and should be followed carefully. Accuracy and consistency are critical in a survey with so many cultural resources and so many surveyors. Make sure that every surveyor understands the definitions and can distinguish between the different materials, conditions and severity of conditions.

For the physical survey, each volunteer needs a clipboard with the marked up map and copies of the survey form, a few pencils, a soft tape measure, soft natural bristle brushes cut short and a spray bottle of water. The group should also have a few plastic trowels, hand or larger portable mirrors, a 200 ft or more tape measure, a digital camera and extra survey forms, pencils, plot markers and water.

Volunteers will develop their own procedures for filing out the survey form, but the flow on the form is a logical progression. Gather the site weather conditions data for the day and use the same ratings for all volunteers unless the weather changes dramatically during the day.

The instructions in the survey manual are generally sufficient, but there are a few areas where surveyors should be particularly careful. If the marker appears to be in fragile condition, or capable of falling over, work very carefully. Always use the most gentle touch, tapping or brushing motions on a stone until you are certain that more aggressive actions will not destroy any original material. If a marker has been buried, it is allowable to unearth a small amount of dirt in front of the inscription with the plastic trowels, but don't do anything to loosen the stone. If a marker has fallen onto its face, and it is strong enough (and not too heavy) to lift, lift the stone to take a reading, but then gently let it fall back into place until a professional can repair or rebury it. If there are loose fragments that obviously belong together, they can be placed together, but make no movements unless there is certainty. It is important not to create new 'history' by making movements of stones without full knowledge that they belong together.

The most difficult part of the survey often is to get a good reading of the inscription. Try the brushes to clear the inscription. It is also helpful to spray the inscription and lightly brush it again as small particles of dirt may move into the inscription providing more contrast. If the marker is in the shade, use the hand mirrors to capture some light and angle it down and across the inscription. This is called 'raking light' and it will be most obvious to the group when they view the whole site at certain parts of the day, and suddenly markers that were previously "illegible" can be read. In the summer in Southampton, our survey group found that the best time to read inscriptions, and also to photograph, was between 11:30 am and 1:30 pm on sunny days (plus or minus 30 minutes as the season changed).

One 2-person team should be tasked with the digital photography. Each plot should be photographed during a clear sunny day at the time when the light rakes across the marker and the inscription is most visible. As mentioned above, this time will become obvious to the group after spending some time in the site. Depending upon the planned use of the images, medium or high resolution setting should be used on the camera, and all images should be shot in color. Generally it will be sufficient to have the camera in the automatic mode. Photographs should be taken in order and documented on a photo log. Each primary marker should be shot so that the marker fills about 70% of the frame. If there are significant details, or a remarkable footstone, these photographs should also be taken right after the Primary marker shot.

If a digital camera is not available, the film processing company should be asked to prepare a CD of the images. Load all the images from the camera or the CD into a computer and rename the images. This is a step that should be done within a day of taking the photographs so that the markers can all be identified and so that any missing or poor photographs can be re-shot while the group is still on-site surveying. During the Phase II and III project field trips, there were different numbering schemes used, but the following is suggested. Name the photographs first with the site number, then the plot ID, the number of the shot of that plot, photographer's initials, and a year. Example for the 4th shot of a plot at North Sea: NS1_3002_4_jp_2006. If you want to add another comment to the shot, add it after the year. Having your images named consistently will allow easy sorting and will make it easier to add them to the database later.

Another team of 2 or 3 should take measurements at the site, noting all major trees, encroaching bushes and shrubs, stumps, and other landscape features. (For this project, we have

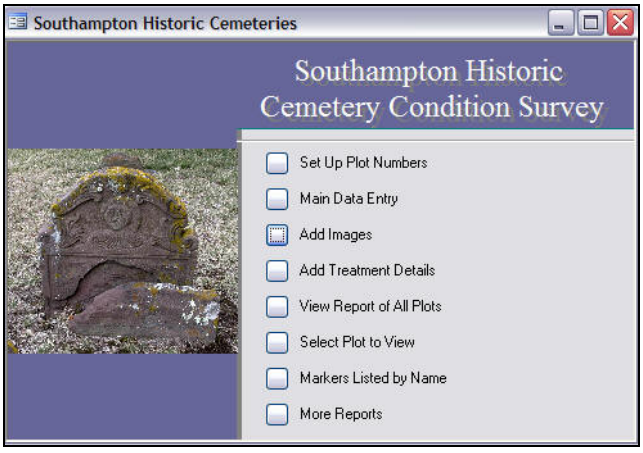
used the categories of: deciduous, cedar, evergreen, bush, brush, yucca, gate, stump to mark out remarkable landscape features, and the fence was captured as the site boundary and through photographs.) This team should assess any landscape issues at the site level, and photographs should be taken and commentary collected to summarize the site.

The surveyed cemetery map may never be fully digitized like the ones included in the Phase II and III surveys, so it is important that a neat copy be made of the full site, with the plots and major landscape features marked. This will help the future digitizer and will also be good documentation for the site. A binder(s) should be used to collect all finished surveys with the map. Use any image processing software program to create reports of all of the images, labeled and sorted by plot number (use thumbnails if many, or 4 to 6 images per page if only a few). The binder of all surveys, maps and images should be archived at the Town or a local community resource, such as a library or historical society.

User Manual for Viewing and Data Entry

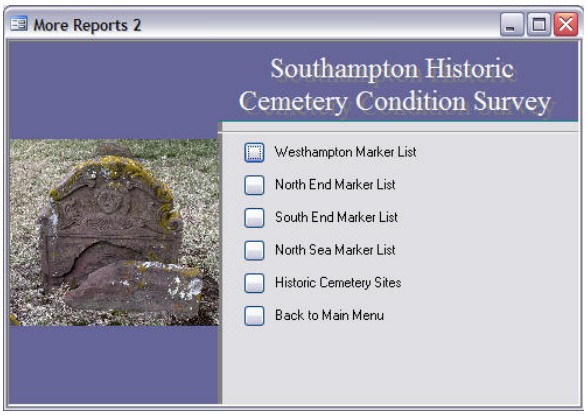
Install the database: The database is on the CD in a directory that also includes all images used in the forms and reports. Copy the whole directory onto a PC. For viewing, the file may be left in the "Read Only" status. However, if data will be changed, the Read Only box should be unchecked when viewing the Properties of the file. The file name of the database is SHHC_06_2006.mdb.

Viewing Data: Open the application: Double click on the filename or open MS Access and browse to the file. The main menu appears on the screen upon startup.



The first four buttons lead to data entry forms. To view information:

- View Report of All Plots: 1-page report of all summary identification, environment and condition data. Includes an image of the marker.
- Select Plot to View: Allows the user to enter a specific plot number to view 1-pg report
- Markers Listed by Name: Lists all markers in the 10 Town owned sites, sorted by last name. List view, no image.
- More Reports: Moves to a 2nd and 3rd page of reports
- Marker Lists for each site.
- Historic Cemetery Sites: 48 historic sites surveyed in Phase I. This is on the 3rd menu.



Using the Database for Data Entry

To use the database for data entry, check to make sure that the file has not been write-protected. (see above) If a new cemetery is being entered, the plots and key features should be set up first. Using the paper surveys organized in order of plot number. Open up "Set Up Plot Numbers" from the main menu to find a simple data entry form to enter plot numbers and features (primary marker, footstones, bases, etc.). Setting up this data before working on the more detailed form to enter conditions will make data entry much faster.

The form opens up in the Edit mode, and shows all the markers in the database. To add a new plot, click on the **Add Record Star** to open a new page for data. The form will be empty and

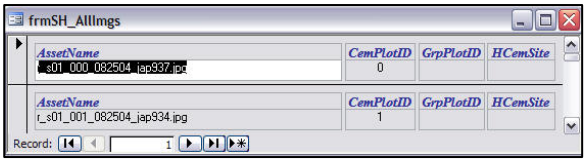
there will be no image. The main fields that should be filled in are the Plot ID number, and the features in the plot. As each one is added, they tie to the plot number entered on the top of the form. Tab through the fields and enter the data requested. To add more features, use the Add Record Star under the list of features or just start typing in the next line of the features list. Once you start typing in the new row, by changing the ID or choosing a category, a new record is created. Be careful about adding empty records of features. Each time data is entered into a field, and the cursor (or focus) moves away from that field, the data is saved.

Fill in the information available, then at the bottom, click on the Add Record Star to add another plot and its data.

Adding Images: Unless the images have been added to the image table, they won't show in this form. The addition of the images to the database as early as possible is a very good way to proofread data as entered and to keep data entry errors to a minimum. Once added, the images will show up on this form, on the Main Data Entry form and on the 1-page Plot report.

To have the images show up properly in the various forms and reports requires attention to detail. If one letter of an image name is mistyped, the image will not show. Also, to work well on a PC, the images need to be reduced in resolution and size so that they do not slow down the application.

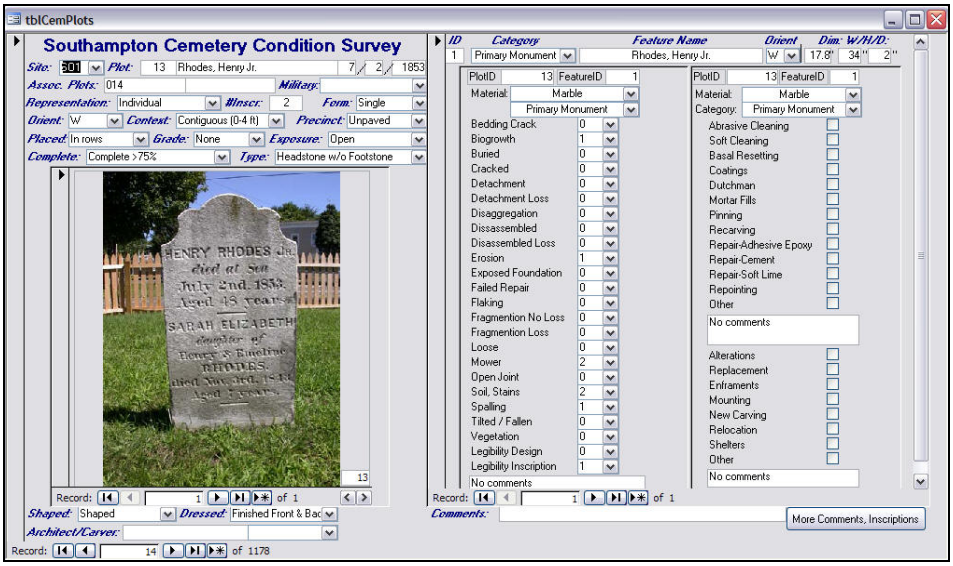
Place all the images taken in a separate directory. (Save the original photographs on a CD or in a another directory) Using an image processing program like Adobe Photoshop®, Photoshop® Elements or Microsoft Digital Image Suite®, rotate and make any necessary corrections to the images. Make each photo 3 inches in height, 150 resolution and then save them as a lower mid file size (ie. 5) and add an "r" to the front of the file or a "_150" to the end to show that the file has been reduced. (ie. r_SO1_368_1_jp.jpg or SO1_368_1_jp_150.jpg. Each of these programs offer a batch processing function that can be used to make these changes to hundreds of photographs in a relatively short period of time. Once you are certain that the files have been successfully reduced and renamed, they can be moved into the directory that holds the database and images that will probably still be named SHImgDB.



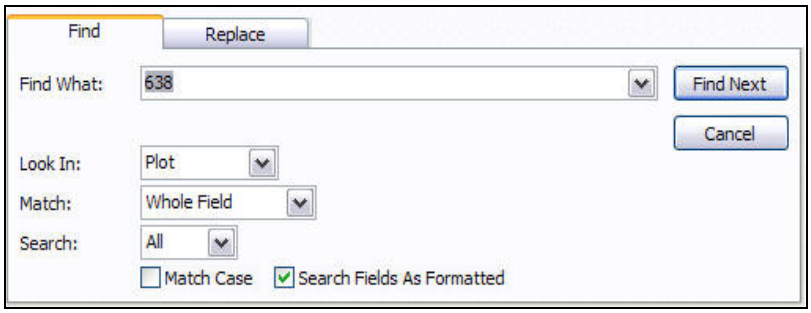
In the database, Click on the menu item "Add Images". Open up the directory in Windows that

contains all the images. Carefully copy each filename of the images into the field AssetName. One way to do this is to size and arrange the database and the Windows directory windows so that they each take up half the screen. Work between the two windows as you copy each filename. In the Windows directory, click once on the filename, then after a short pause, click again and highlight the entire filename including the extension. Press Ctrl-C on the keyboard (this copies the filename), click Add Data and click into the next empty AssetName field. Press Ctrl-V on the keyboard to paste the name into the field. Continue through these steps for each image. After all the image filenames have been copied into the database, use the slider on the right to go back to the first one you added. The CemPlotID will be in the filename, so adding IDs goes quickly. It is not necessary to add the GrpPlotID unless the image is of a family or group plot and it will be shown on the Group Plot Report. The HCemSite is also not necessary and is only used in special cases. Assuming all the images were named and added correctly, the next time the "Set Up Plot Numbers" form opens, there will be images with the plot numbers. When new plots are added, the image will not show until the plot number is saved.

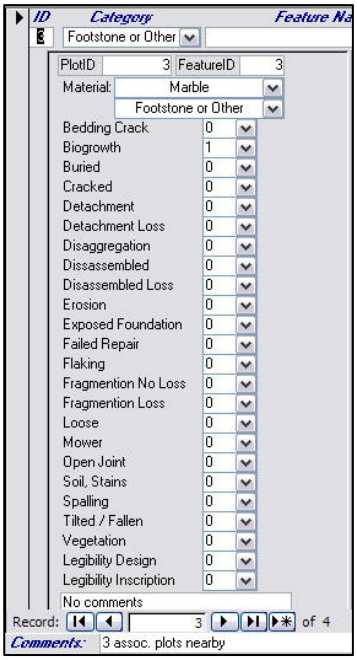
Main Data Entry: It is best to have added the images before the main data entry process occurs. The majority of time taken in a project such as this is in the cleaning of data. Having the image to look at while entering data greatly reduces errors. Open up the Main Data Entry form. Since the plots and the related features have been added, as well as the image, it will be easy to transfer the data from the paper survey form into the database.

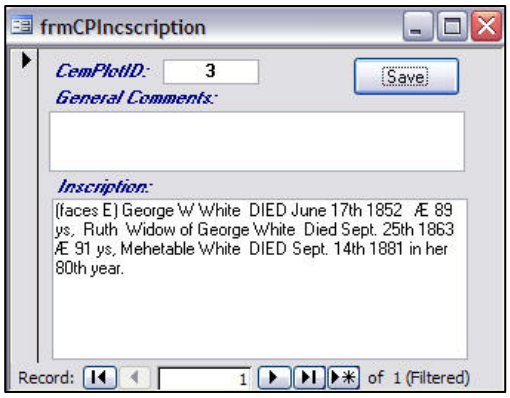


To find the first plot for data entry, click in the Plot number, then in the menu bar, click on the little binoculars that allows you to search. If the search tool is not on the menu bar, it can be found under Edit>Find, or by pressing Ctrl/F on the keyboard.



Type in the first plot number and the form will jump to that page. Start entering data. The form generally follows the flow of the paper survey form. Use the mouse to move to each field, or tab through the fields in order on the left side. After data has been entered, move to the left tables. If there are multiple features there will be a strip of conditions to be rated for each feature. After each is completed, move to the next one be clicking on the arrows below. After the conditions have been entered, use the cursor to move to the area to document any repairs or alterations. There will be a similar set of strips for each feature as seen to the right for the conditions.





Additional information from the inscription, or general comments on the plot, are entered in a pop-up form. Click on the button called "More Comments, Inscriptions and enter any relevant data captured during the survey. When finished, click on the Save button. It is not necessary to close the form.

Once data for each feature has been added, recheck the data for the plot, taking special care that the names and dates are correct. This data becomes an important historical record and future researchers will rely on its accuracy.

Appendix H

Site Reports and Maps

For each Site:

- Aerial map of Site and Context
- Site map by Date
- Distribution by Type
- Distribution by Material
- Map of Key Conditions
- Material and Condition Charts