

AN ARCHAEOLOGICAL ASSESSMENT

of

CUL-DE-SAC (THE FARM)

(SE 93 & SE 133)



PHASE 2

ST. EUSTATIUS, CARIBISCH NEDERLAND

JUNE – AUGUST, 2011

SECAR/LEIDEN UNIVERSITY, FACULTY OF ARCHAEOLOGY

R. GRANT GILMORE III, M.L. P. HOOGLAND AND CORINNE L. HOFMAN

Client:

NusStar Energy, LP—Statia Terminals
Mike McDonald, Director



Tumble Down Dick Bay
P.O. Box 70
St. Eustatius, Dutch Caribbean
mike.mcdonald@nustarenergy.com
599 318 2300



Figure 1 Aerial view of the NuStar Energy oil terminal, 2011 (images provided by NuStar Energy)

Contractor

St. Eustatius Center for Archaeological Research
Rosemary Lane
St. Eustatius, Caribisch Nederland
info@secar.org
599 318 0066



Sub-Contractor

Faculty of Archaeology
Leiden University
Reuvenplaats 3, 2311 BE Leiden
The Netherlands
archeologie@arch.leidenuniv.nl



Universiteit Leiden

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PRE-COLUMBIAN SURVEY AND TEST TRENCHES

MENNO L.P. HOOGLAND AND CORINNE L. HOFMAN

INTRODUCTION

From 20 June to 12 August 2011 a team of the St. Eustatius Centre for Archaeological Research (SECAR) and the Faculty of Archaeology, Leiden University under the direction of Dr. Grant Gilmore III, Dr. Menno Hoogland and Prof. Corinne Hofman carried out Phase 2 of the archaeological assessment of the Cul-de-Sac area on St. Eustatius, commonly known as The Farm. The project was initiated by NuStar Energy in concordance with the European Union Valetta Treaty (or Malta Convention), prior to the expansion of the NuStar Energy oil terminal including the construction of a new jetty. The field team consisted of staff members and students from Leiden University and SECAR volunteers.

The main objective of Phase 2 performed by Leiden University was to assess the presence/absence of pre-Columbian archaeological sites in the Cul-de-Sac- area (Figure 1), lying between the well known sites of Golden Rock (SE 6) and Godet/Smoke Alley (SE 203). Phase 2 builds upon the earlier Phase 1 of this assessment by SECAR (Stelten 2011) which was carried out during the months of February through April 2011 and which entailed a first pedestrian assessment of the Cul-de-Sac area with non-invasive techniques. Fifteen possible archaeological sites were identified. All sites date to the Colonial period.

Phase 2 consisted of the mechanical excavation of a number of trenches with an excavator provided by NuStar Energy in the most vulnerable areas of the Cul-de-Sac region in order to assess the subsurface presence/absence of pre-Columbian sites or artifact scatters. In total 21 test trenches were excavated.

In addition, in the area of the proposed new jetty, two test pits of 1 m² were excavated in order to assess this area, which is known to contain a high number of pre-Columbian and Colonial period sites such as the leper colony burial ground (SE 127), the prehistoric sites of Godet (SE 6) and Smoke Alley (SE 203), the 17th-18th century slave burials and colonial ruins, and underwater sites. Major prehistoric and historic sites are known to be located directly adjacent to the proposed jetty area, primarily on government-owned land south of the access track to the proposed new jetty.



Figure 3 Aerial view of the Cul-de-Sac area (photo NuStar Energy)

Furthermore, as a part of Phase 2 of the archaeological project, an assessment of the known pre-Columbian sites in the direct vicinity of the Cul-de-Sac area and others on the island was carried out, foremost to get a better understanding of their current state of preservation and the effects of erosion and slope wash processes. This survey relied on information gathered through the archaeological reports by Prof. J.P.B. De Josselin de Jong in 1923 (De Josselin de Jong 1947), and by Dr. Jay Haviser in 1981 and 1982 (Haviser 1985). The coastal site of Godet was investigated in 1975 by Dr. Alfredo Figueredo but the results were never published. Large scale excavations were undertaken in the 1980s and 1990s by Dr. Aad Versteeg of Leiden University at the Saladoid period site of Golden Rock (Versteeg 1990, 1991; Versteeg and Schinkel 1992), the post-Saladoid sites of Godet and Smoke Alley (Versteeg et al. 1993) and later at the Archaic Age site of Corre Corre Bay 2. The number of known pre-Columbian sites totals 14 of which the majority were visited during Haviser's survey. The locations of these sites are shown in Figure 2 (Haviser 1985). Because of their small size and limited material culture assemblages, Haviser interpreted the majority of these sites as specialized satellite sites around the major villages of pre-Columbian Golden Rock and Godet. Known sites were relocated on the basis of Haviser's (1985) written instructions,

combined with GPS coordinates from SECAR's AutoCAD map of the archaeological sites on St. Eustatius.

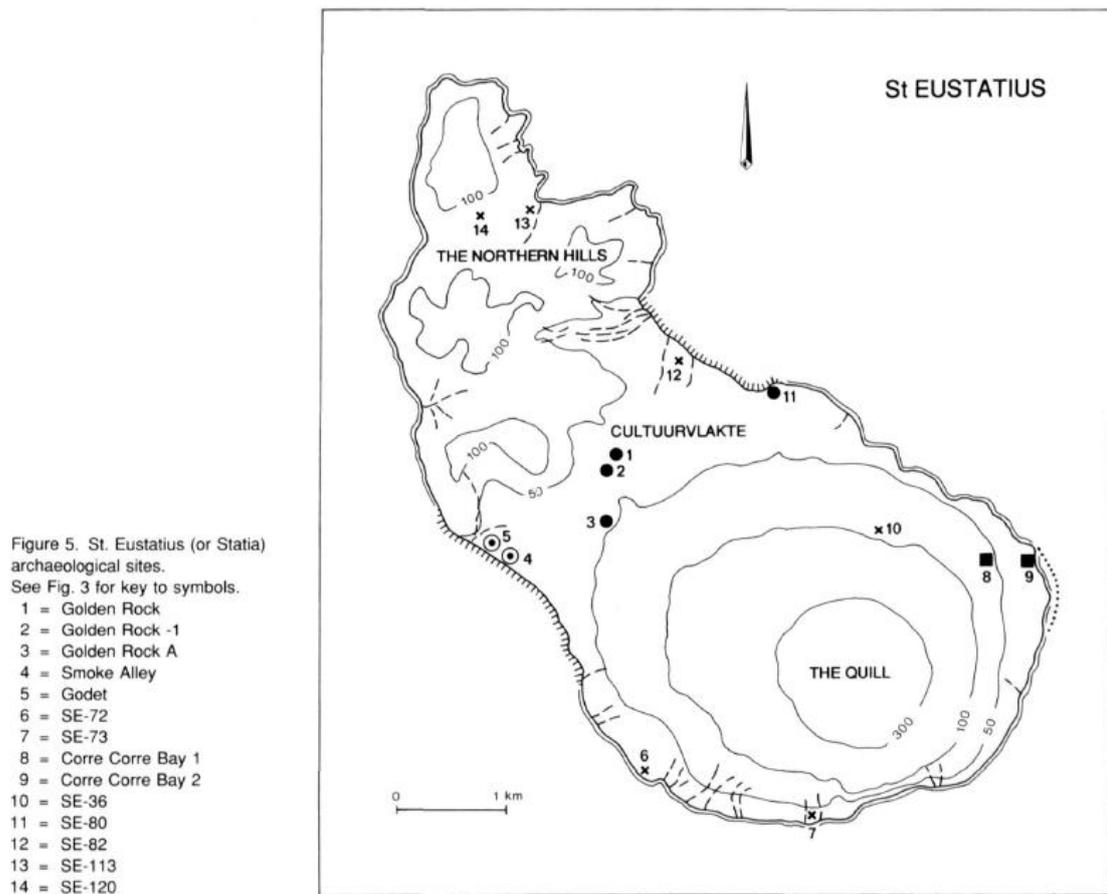


Figure 4 The known pre-Columbian sites on St. Eustatius (Versteeg et al. 1993 after Haviser 1985).

ARCHAEOLOGICAL ASSESSMENT OF THE CUL-DE-SAC (SE-93) AREA (THE FARM) – SURVEY FOR PRE-COLUMBIAN SITES AND TEST TRENCHES

The focus area of Phase 2 of the archaeological assessment was the valley south of the Cul-de-Sac ridge, situated between Pilot Hill and Signal Hill. It extends between the Godet beach, the FDR airport, and the ridge and the colonial sites associated with Benner's plantation. The area of study covers around 7 hectares. Previous investigations of the area uncovered little to no pre-Columbian materials (De Josselin de Jong 1947; Haviser 1985), and historical sites were restricted to the area surrounding the Benner's plantation and the Schotsenhoek plantation (Stelten 2011), neither of which are located within the area of the current NuStar Energy development plans. Previous investigations of the area were performed using non-invasive techniques and led Versteeg and colleagues to conclude that "the surface information

is only a poor reflection of the sub-surface situation” (Versteeg *et al.* 1993, 158). Sub-surface investigations of the terrain were deemed necessary to assess the archaeological value of the terrain.

The geology of the Cul-de-Sac terrain consists of a higher eroded ridge that was marked as a possible location for pre-Columbian habitation. It is wedged between a shallow depression to the east and a deep depression to the west which are both filled with slope wash. The deeper depression was determined to be too eroded for prospective sub-surface archaeology, while the shallow depression was included in the trenches. The slope of Signal hill is positioned east of the shallow depression, and was partly included in the focus area. The shallow depression was previously used as a scrap metal dump, and the entire terrain is partly overgrown with vegetation consisting of coralita (*Antigonon leptopus*), acacia or locally Casha (*Acacia macracantha* and *Vachellia farnesiana*), manchineel (*Hippomane mancinella*), and numerous other bush and tree species. Aerial images dating back twenty years show the area to be covered mostly with grass (**Figure 5**). It was therefore decided that bushes and shrubs could be safely removed without causing significant structural floral environmental damage. Larger



Figure 5 1989 Aerial photograph illustration low scrub vegetation prior to Coralita invasion.

trees were avoided when clearing the vegetation and during excavation of the trenches. The scrap metal on the terrain is in the process of being removed, and was cast aside by the backhoe when obstructing trench excavations. The soil was previously analysed for contamination caused by the scrap by NuStar Energy geochemists. The results were negative.

METHODOLOGY

Test trenches were set out in the terrain of the Cul-de-Sac area. Trenches of three meters wide were placed parallel to each other at 20 m intervals. Their length depended on the archaeological expectations, the elevation of the terrain and the accessibility of the location by backhoe. Roads were avoided, as were erosion gullies, large trees, and large piles of scrap. Trenches were placed by standard GPS, providing accuracy to one meter (**Figure 9**). A local grid was set out within the national grid system with the aid of a Total Station (SOKIA SET 620). All measurements taken for the Phase 2 assessment were exported into AutoCAD. The grid was set out using the St. Eustatius grid benchmarks DP18 and DP3 with coordinates received from the St. Maarten surveying department, in this way ensuring that all measurements can be correlated with the official grid system of St. Eustatius. From these points a main point was set out (HMP1) on the Signal Hill slope, which was given its appropriate longitude and latitude coordinates. From the main point, using DP18 as backsight, 8 local points (LMP1-8) were placed in the area of site, from which all excavated units and survey areas were measured, with HMP1 as backsight and one of the other LMPs as control point. The only two exceptions to this are LMP8 from which no other LMP can be used as control point and LMP9, which uses LMP8 as backsight, and also has no control LMP. Thereafter DP18, DP3, HMP1 and the LMPs were measured using the local NuStar Energy coordinate system and the excavation map was transformed to this system.

In addition to test trenches, eight 1 x 1 m² test units were excavated on targeted areas across the Benner's Plantation complex. These units were shot in with the Total Station. The test units were excavated using trowels and shovels. All soil was screened through 6mm mesh. All artifacts recovered were washed, dried, and catalogued.

A single 50cm wide trench was excavated through the center of a bottle/refuse dump that was placed on top of the Benner's Well sometime in the 1980s. This trench was excavated using picks and shovels. The purpose of this effort was to try and locate the well in order to provide an accurate location for the well head.

Finally, the Benner's Cemetery (SE 133) was analysed using a GSSI SIR-3000 Ground Penetrating Radar. Linear transects were run at 50cm intervals to ensure the greatest confidence in findings on this site. More detailed methods are provided in the GPR section of this report.

Figure 6 Cul-de-Sac area with overview of the trenches



All trenches were dug with an excavator (Figure 4). Trench depths were determined by the geology of the terrain and NuStar Energy safety procedures, which do not allow for the trench dug deeper than four feet without structural stabilization of the profiles. Soil was removed in layers of 20 cm in order to get a hold on possible archaeological features throughout the different horizontal layers. Features were documented in plan view, subsequently cross-sectioned, drawn and photographed. Trench profiles were photographed, drawn and soil samples were taken. Finds were assigned a find number according to their archaeological context and position. All finds were cleaned, weighed and counted in the lab and entered into a Microsoft Access database.

One m² test pits were excavated at those locations where archaeological sites had previously been reported (Stelten 2011), and at the location of the proposed new jetty. These test pits were excavated by hand in arbitrary layers of 10 cm and following the natural stratigraphic soil levels.



Figure 7 Two examples of trenches in the Cul-de-Sac area

RESULTS

A total of twenty one trenches were excavated, covering 9% (6,712 m²) of the total focus area (7 hectares). Trench excavation started in the part of the terrain north of the main dirt road. Trenches were oriented east-southeast to west-northwest at 20 m intervals (**Figure 8**).

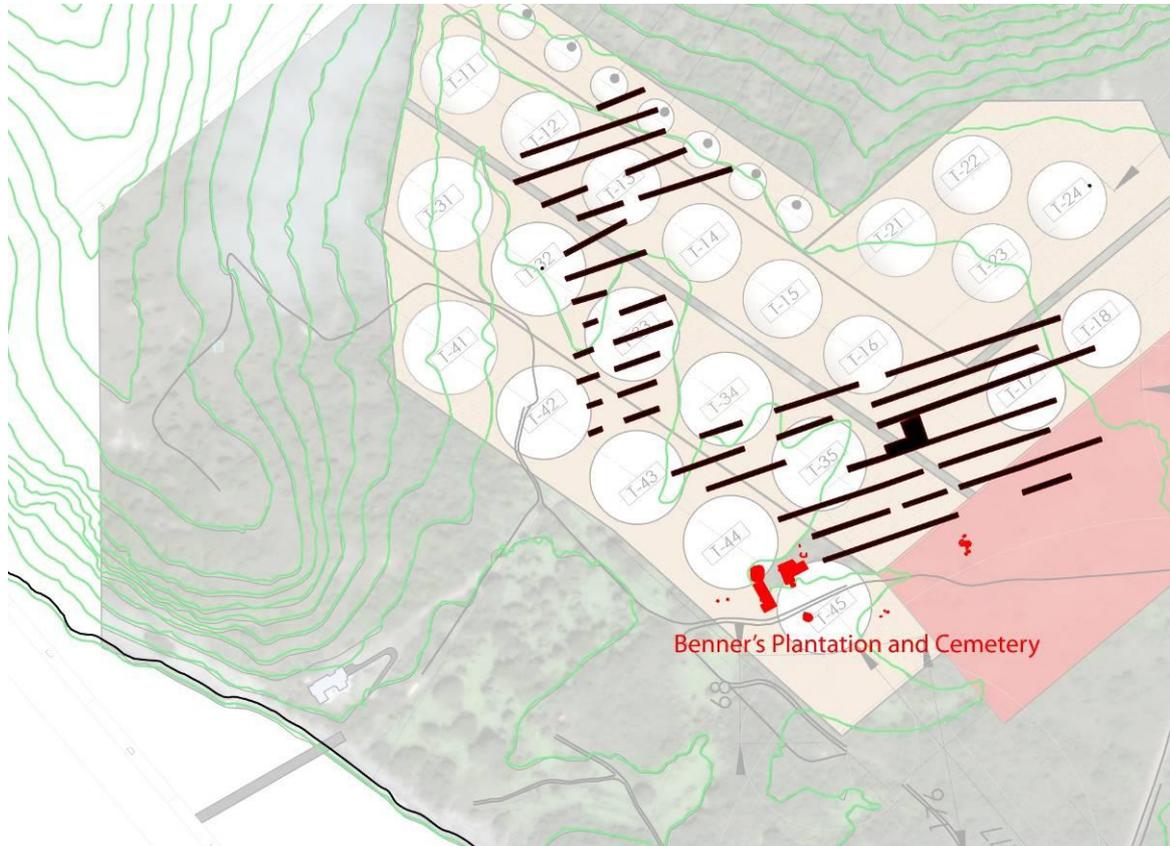


Figure 8 Overview of the 21 trenches in the area planned for development (as of April 2011)

Test trenches 1 to 13 did not yield any archaeological features (either pre-Columbian or Colonial). Features that were recorded all revealed to be caused by bioturbation or other natural processes (e.g. **Figure 10**).

A 1 m² test pit (14) was placed at the location of a supposed slave quarter site (Stelten 2011), situated in the deeper depression just west of Trenches 5 and 6. It was dug to a depth of 70 cm, well into a sterile soil layer. No indications of any pre-Columbian or Colonial human occupancy were found. Thus, no evidence was found of the possible slave village thought to be in the vicinity of test pit 14 (Stelten 2011).

Trenches 15 to 17 were dug in the terrain south of the main dirt road, which is less elevated and appears to be less disturbed/eroded than the area to the north. No pre-Columbian or Colonial features or artifacts were found in these trenches.



Figure 9 . Cross-section of a natural feature in trench 2.

boundaries between various plots of land. A number of shallow features appear to be the lowest sections of postholes, however no clear patterns were visible in terms of round or rectangular structures. Isolated postholes like these are again often associated with agricultural practices in demarcating land plots or as simple structures to fence of livestock. It is likely that the largest ditch represents an earlier boundary marker, which was used prior to the construction of the stone wall. Other indications for the longstanding agricultural use of this area are two large pits (Figure 8) containing the remains of a juvenile bovine (*Bos taurus*) and an equid (*Equus spp.*) in anatomical position. The latter indicates that these remains were not deposited after butchering of the animals. Considering the size of the pits and effort necessary for their excavation, it is more likely that the animals were disposed of because of infectious disease. Livestock was farmed in this area from approximately 1820 onward, indicating that these pits certainly date to the late Colonial period.

Trenches 18 to 21, which are positioned closest to Benner’s plantation, revealed soil features dating to the Colonial period, as indicated by a small number of diagnostic glass and pottery sherds, all of which were used from the 17th to 19th century. The most prominent features include a number of demarcation ditches (Figure 7 and Appendix 1), which would have been used as boundary markers between different agricultural plots within a plantation. The largest of these is positioned parallel to the stone wall delineating Benner’s plantation. A section of this boundary ditch was excavated completely to assess the age of construction/fill (**Figure 11**).

At various locations along the ditches post holes were identified, again most likely indicating the



Figure 10 Boundary Ditch (F08) in trench 18 (left) and pit with juvenile *Bos* sp. (F01) in trench 18 (right).



Figure 11 Excavated boundary ditch.



Figure 12 Test Unit at current site of proposed jetty.

Two additional 1 m² units were dug in the access track to the planned new jetty. They revealed both pre-Columbian, Colonial and modern materials, in the 40 cm of disturbed topsoil. This suggests that the track has previously been leveled (bulldozed), mixing cultural remains from various periods. The soil on both sides of the track appears to have remained intact. A survey of this area also revealed both pre-Columbian and Colonial surface scatter (**Figure 13**).

COLONIAL SITES TEST UNITS

Two small .5 m² test pits were excavated among possible burial sites at Stelten's site number 4. The testing indicated that the stones in this area were not burial markers.

Three randomly selected 1 m² test pits (TU#1, TU #2, and TU #3) were excavated in the slave village area at Benner's Plantation site. Their locations were placed on the newly established island GIS using a Leica Total Station survey instrument. The slave village is indicated on a 1781 Map as being located west of the industrial complex on what is now an elevated ridge. Shallow plowzone layers (approximately 10-15 cm) in this location indicate that perhaps some of this area has been cleared or bulldozed in the past. Features were identified in the subsoil here possibly indicating earth-fast construction for the slave quarters. Typical 18th-century artifacts were recovered from these units and will be discussed in the following Material Culture Remains section of this report.

One 1 m² test pit (TU #4) was strategically placed adjacent to the exterior west wall of the industrial complex which included the sugar train. Its location was also established on the St. Eustatius GIS using a total station. This location was selected to determine the depth of

stratigraphy in this area as well as to gauge the quantity of artifacts associated with this industrial structure.

The stratigraphy here was substantially deeper than in the slave village area. The soil layers included a sandy volcanic ash layer approximately 40 cm in depth. Beneath this layer was a pure ash layer likely the result of removing ash from the flue less than a meter away. The final layer consisted of a very hard packed volcanic ash layer that seems to form the core of many areas of elevated topography across the area.

A single 1 m² test pit (TU# 5) was strategically placed adjacent to the interior northern wall of the distillery room of the industrial complex. This location was selected to determine the depth of stratigraphy in this area as well as to gauge the quantity of artifacts associated with this industrial room. Natural soil was found approximately 60-70 cm below current grade. Two layers were identified in this Test Unit. A shallow topsoil/destruction layer included a larger percentage of stone and mortar rubble associated with the deterioration of this structure over time. The deeper fill layer had less organic matter and also included a significant quantity of destruction rubble. Near the bottom of this layer, several intact *Ijselstein* bricks (Dutch Yellow Bricks) were also recovered. The bricks still had mortar attached to them indicating that they were used in this area. On some bricks only one face had evidence for mortar indicating that the floor surface in this room may have been paved with brick bonded with the mortar instead of being dry laid. Typical 18th Century artifacts were recovered from these units and will be discussed in the following Material Culture Remains section of this report. The floor elevation in the distillery room was substantially lower than the adjacent sugar curing room—a normal practice on Caribbean plantations.

A single 1 m² test pit (TU# 6) was strategically placed within the western interior wall of the “Big House” foundation complex. This location was selected to determine the depth of stratigraphy in this area as well as to gauge the quantity of artifacts associated with this domestic structure. Natural soil was found approximately 40 cm below current grade. Thus, the interior of the Benner’s Plantation Big House Foundation was not an open cellar like that found at neighboring Schotsenhoek Plantation (SE 92). No features were identified within this test unit.

Two 1 m² test pits were strategically placed at the east and west ends of an area identified by Stelten as a possible slave burial area. These units were excavated in an effort to determine whether stone piles found in the area were indeed burial markers. The western most test unit

(TU #7) was excavated after documenting and then removing possible stone markers. Although the fill deposits were significant no features indicating a burial shaft were identified. The researchers excavated to a 70 cm depth where natural sterile soil was reached. Even this soil was excavated another 30 cm to be certain there was no burial related feature present. Test Unit #7 contained significant quantities of domestic artifacts as well as building materials but no burial. The western most test unit (TU #8) was excavated just to the west of a large gumbo limbo tree (*Bursera simaruba*). Stones “marking” the site were documented and set to the side. In excavating this test unit, substantial quantities of domestic artifacts were recovered. At approximately 40 cm depth a darker feature fill was encountered with very few artifacts. It was subsequently determined that this was likely what archaeologists call a tree stain. Of interest was the recovery of disarticulated cow foot bones likely cast away during the butchery process.

There are two burials marked with European style markers in this area in addition to a very large tamarind tree (*Tamarindus indica*). The burial marker design corresponds with known 17th century burials and is similar to those found at both Schotsenhoek Plantation and a single burial at the Leper Colony burial ground that predated that cemetery by many years. Thus, the area is a known burial ground and warrants significant caution if any development were to occur in this area.

Two 1 m² test pits were also excavated over possible burials in Stelten’s area 10. It was quickly determined that these stone piles were quite recently made by Oil Terminal personnel as insulating foam was found at the center of one of these piles. Eighteenth century artifacts were found amongst these stones but these are likely accidental finds.

TEST TRENCH ON BENNER’S WELL

The 50cm trench excavated through the center of the Benner’s well revealed a range of artifacts from the 17th to mid-20th centuries. Soil was primarily ash and sandy loam. The trench was excavated to the surface of surrounding topography. No well head was identified with this trench.

BENNER’S CEMETERY

Benner’s Cemetery was assigned a new site number (SE 133) during the course of this investigation. As it may be possible that this cemetery will be impacted by future development by NuStar Energy, special attention was given to this location. The burial ground was mapped in detail (**Appendix 3**). The majority of burials date to the first half of

the eighteenth century and include persons of some significance to Statia's and St. Maarten's history. A former governor of St. Maarten Mr. Johannes Salomons Gibbes is buried here as well as the grandfather of the commander of Fort Oranje when the so-called First Salute was authorised in 1776.

The cemetery was investigated using a GSSI SIR-3000 ground penetrating radar (GPR) by Professor Andrew Bobyarchick from the Department of Geological Sciences at the University of North Carolina at Chapel Hill. His findings report follows here.

SE133 GROUND PENETRATING RADAR SUMMARY

OVERVIEW

This is a summary of the results of a GPR (Ground Penetrating Radar) survey conducted by SECAR in partnership with the University of North Carolina, Chapel Hill in July 2011. The summary is accompanied by a series of depth sections (converted from two-way travel time sections). The depth sections are horizontal slices through a model of the SE133 3-D volume. That 3-D volume is interpolated from a series of parallel vertical GPR profiles. Model M1 is minimally processed. Model M2 was processed to remove horizontal banding that typically appears in GPR sections as a result of electronic noise.

METHOD

The survey used a GSSI SIR-3000 GPR system attached to a 400 MHz antenna, and supported on a three-wheeled cart. Raw data is a collection of parallel profiles spaced 0.5 m apart. A grid reference was set up to correspond to a previous set of coordinate points established by SECAR. GPR profiles were along the Y-axis of this grid system starting at an X coordinate of 0.5 m and continuing to an X coordinate of 10.5 m. (No profile was done at X=0.0 because of a metal fence in that position.) The Y length of each profile was 27 m.

GPR data were processed with RADAN v. 6.6 software from GSSI. Raw data in each profile consisted of two-way travel times for reflected radar pulses. This survey was done in time mode, which means radar returns were continuously collected during each profile run. In processing, horizontal distances were obtained from meter marks placed in the records during the survey. Depths are established from two-way travel times by choosing a value for relative permittivity (dielectric constant) of 8, an approximation for these field conditions.

A 3-D model is created within RADAN by interpolation between Y profiles. Consequently, sub-surface depictions are most accurate in vertical profiles on 0.5 m multiples, and least accurate in X profiles derived from the 3-D model.

Most of the depth slices are integrations of slices through the 3-D model that are 0.2 m thick. Each slice is a map of GPR characteristics in a horizontal plane at a given depth. The color palette used in creation of the GPR maps shows positive reflection amplitudes in red, negative amplitudes in blue, and zero amplitudes in white. GPR introduces pulsed wavelets into the subsurface, so each discrete “reflector” actually comprises a positive-zero-negative signature. Reflective objects – either discrete objects or layers – produce anomalies within the background of the total GPR survey. In the case of single objects, the reflection shape is often a broad hyperbola in vertical sections. Layers, such as geological boundaries or archaeological surfaces, appear in vertical GPR sections as a series of bands. The bands may be smoothly planar and horizontal, or they may be tilted or undulating.

GPR depth sections intersect reflections from discrete and planar objects. Those intersections create patterns depicted in the depth maps. The shapes and extents of those patterns are used to infer subsurface structure. Typically and with the color palette used in this report, focus is on red parts of the maps as possible objects of interest. Note that every red patch on the maps is not necessarily an “object”. On rough ground, bounces of the antenna create false anomalies. The maps are also integrations of objects of natural and human origin. Soil and geological layers may show up in the GPR profiles, as will larger rocks in the soil horizon. Some parts of the survey area were not accessible because of debris. There are three of these areas (see the grid map), and they show in the GPR maps as broad areas with little detail. That is the result of RADAN attempting to interpolate values across areas of no data.

INTERPRETATION

Interpreting GPR data is a combination of reading the radargrams, post-survey processing, and using field observations (“ground truthing”). SE133 is a very complicated site. On the surface, there are intact, disrupted, and probably obscured burial artifacts. A map of those artifacts has been correlated with the GPR maps to rule in which features of the radar information were caused by such sources. In this survey, objects from just beneath the ground surface to about 2 m were detectable. Depth maps below about 1.6 m, however, are deceptively intense. Default settings for the field survey apply a fairly strong gain to signals at depth, and that gain was not removed from data in this report. RADAN interpolation to create

the 3-D models introduces a false linear grain in the depth maps. Here, that grain is parallel to the X-axis. Reducing this artifact would require much closer X spacing for the field survey, or de-stripping in post-processing beyond the scope of RADAN.

There are several undulating sub-horizontal reflections throughout the site. Where these reflections intersect a depth map, patchy, elongate anomalies result. Some of these reflections could be soil or bedrock features, but others could well be buried slabs or slab-like stones. There are also several rectilinear anomalies, some of which correspond to map-able surface or near-surface artifacts. Some anomalies appear within a limited depth range. These should be noted as possible burials.

SE133 contains a large number of potential archaeological targets embedded in a variety of earth materials. The following figures reproduce results from various depths. The final figure in this section (**Figure 18**) correlates some of the depth data to a detailed surface cemetery map.

Resolving these targets into ground truth will higher resolution GPR re-surveys, geological mapping, soil profiles, and trench/pit investigations.

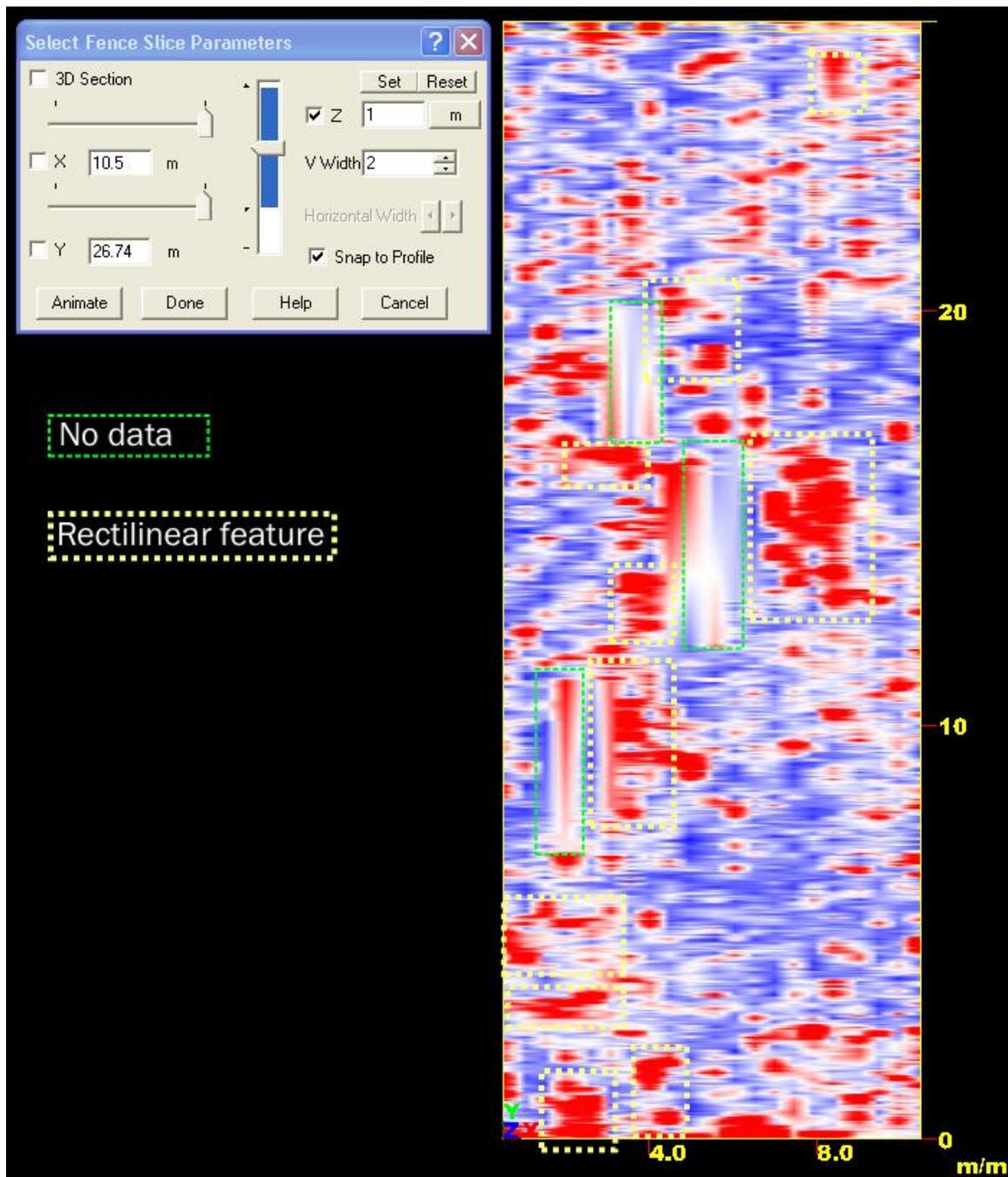


Figure 13 Depth map (time slice) at $Z = 1$ m. Integrated slice thickness is 2 m, so this image shows anomalies from ground surface to depth of 2 m. Inaccessible areas marked as “No data”. Notable, larger rectilinear features so marked. Note that some smaller rectangular reflections may be the tops of larger, more coherent rectangular features at depth.

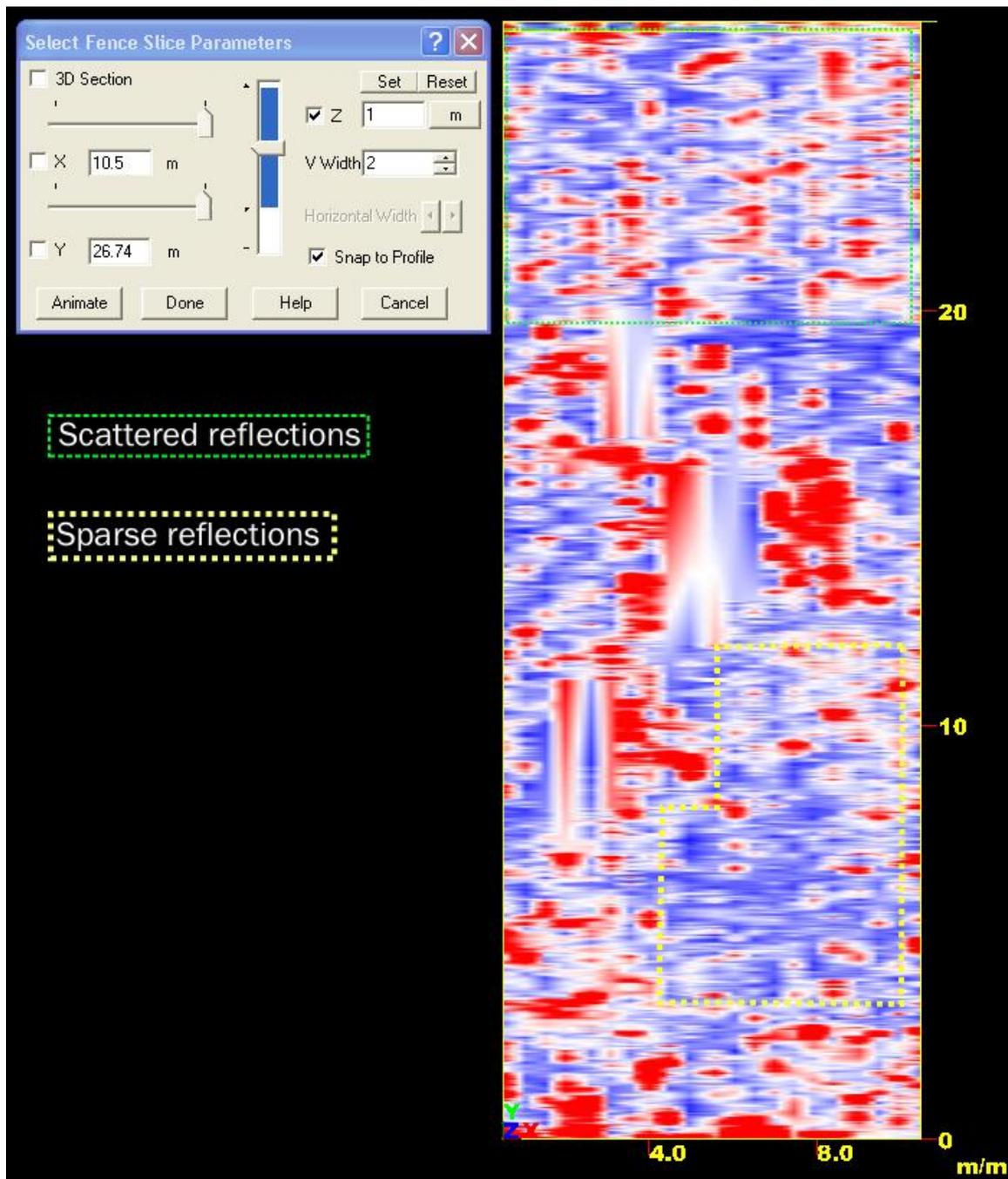


Figure 14 Same map as Figure A. One section of the site is characterized by sparse reflections (for this depth interval), whereas another is characterized by many, scattered small or spot anomalies.

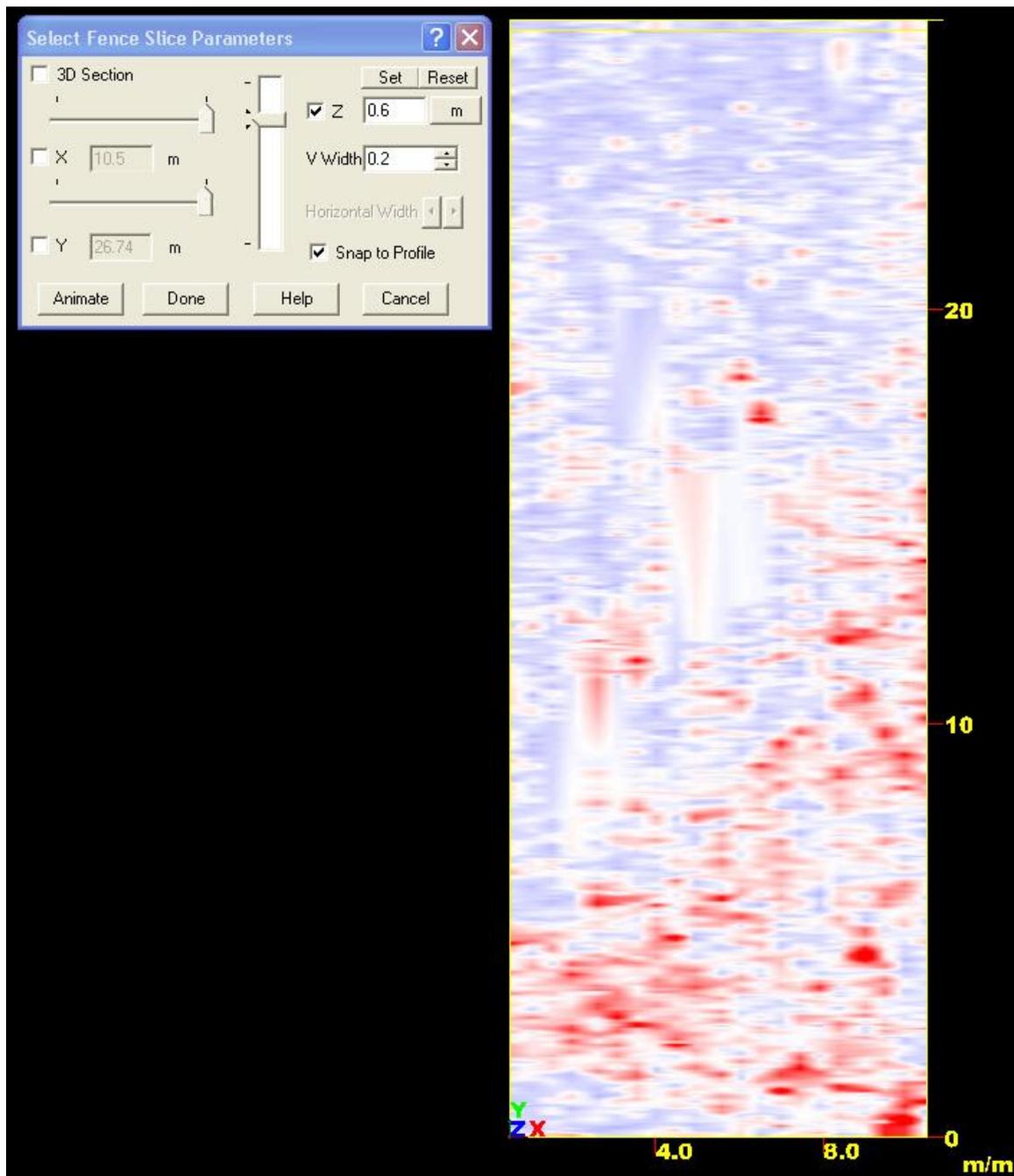


Figure 15 Model M2, depth map at $Z = 0.6$ m and section thickness 0.2 m. Note strong difference between few reflections above $Y = 15$ m and numerous reflections below $Y = 15$ m. This pattern is visible between $Z = 0.2$ and 0.6 m, but is not obvious above or below that interval. This could reflect either a preponderance of discrete reflectors of archaeological origin within that interval, or it could also be features of the native (or disturbed) soil profile.

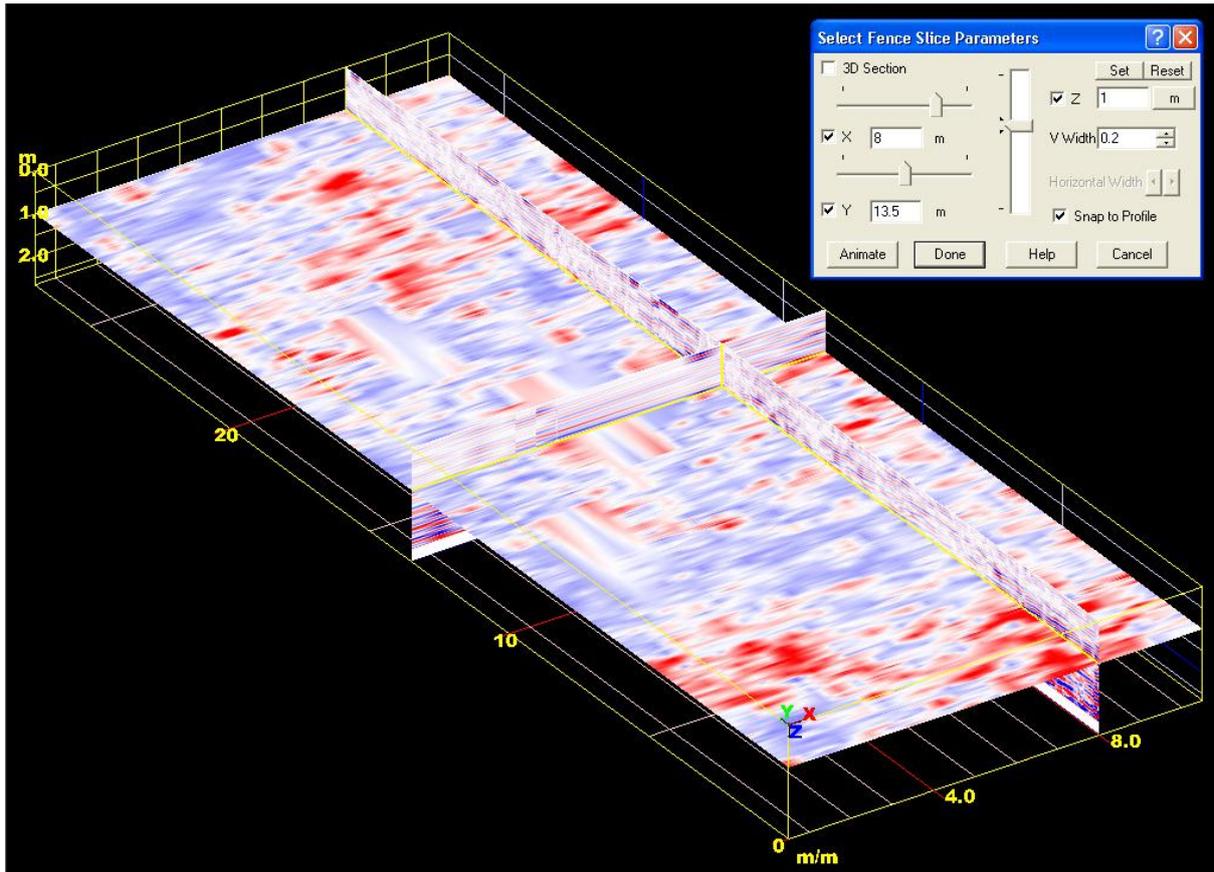


Figure 16 Model M2, fence diagram with $Z = 1$ m. Vertical X and Y profiles are included here. Note detail in the Y parallel profile compared to X profile. Compare to Figure A. In Figure D above $Y = 20$ m, it is possible that some of the smaller anomalies coalesce into a larger rectangular one not seen in Figure A. Similar relationship at $0 > X > 4$ m and $2 > Y > 5$ m.

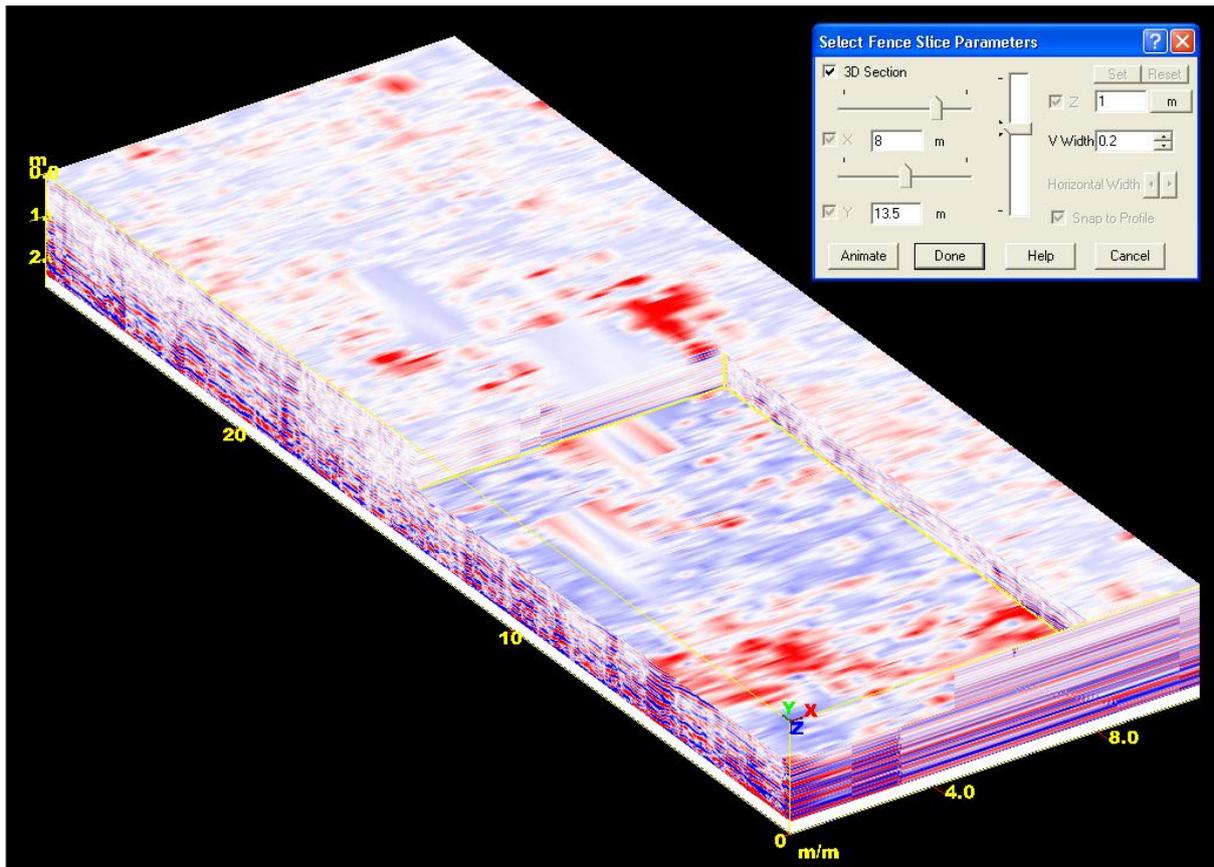


Figure 17 Model M2, 3-D block diagram. Y profiles demonstrate that undulatory or discontinuous sub-horizontal planar reflectors create rectilinear anomalies in Z maps.

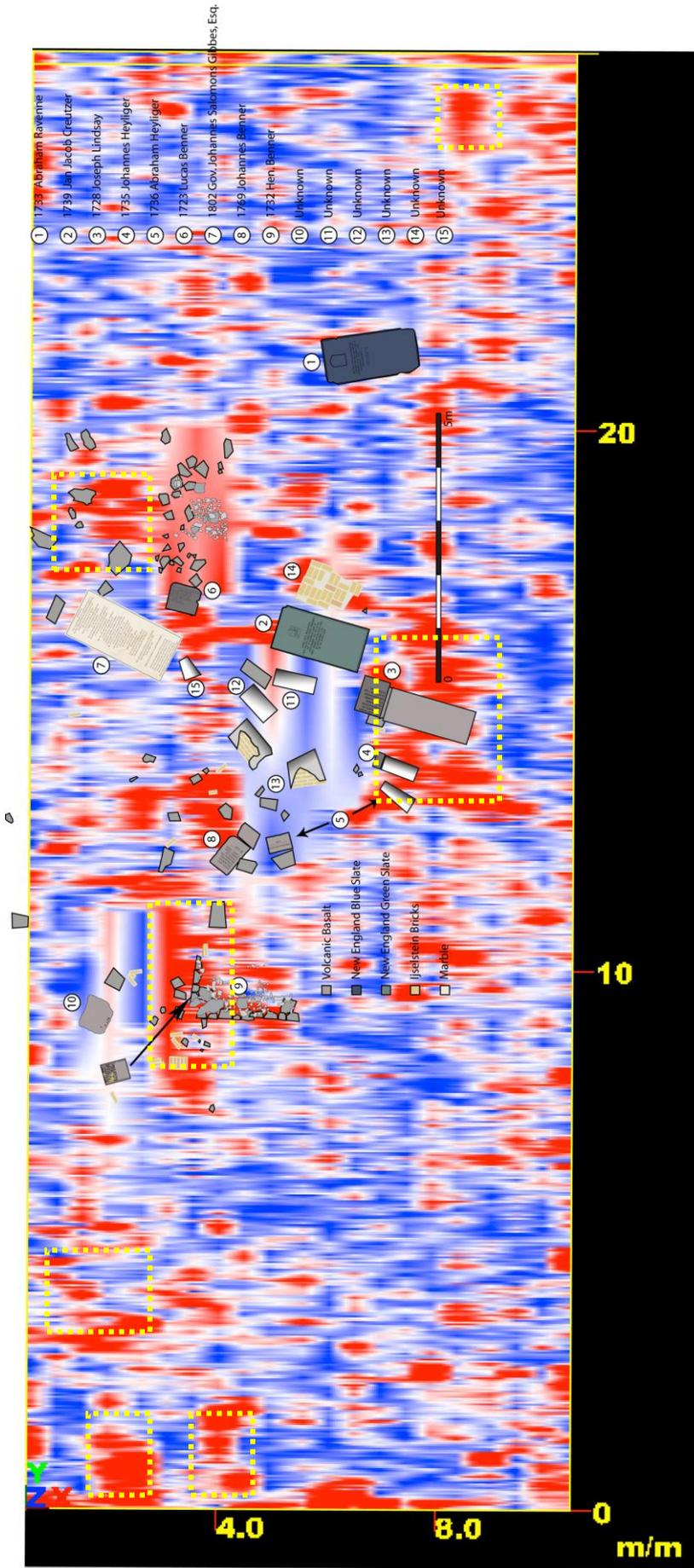


Figure 18 Model M2, with SE 133 detailed map. Note correspondence between rectilinear features from Figure 13 and known burials. Also note that there are features to the south that do not have corresponding burial markers.

MATERIAL CULTURE REMAINS

TRENCHES

The 21 trenches have given very little indication for the presence of significant material culture remains in this part of the Cul-de-Sac terrain. Material finds in the Cul-de-Sac area consist of sporadic and scattered shells, colonial pottery and roof tiles on the surface north of the dirt road, increasing somewhat in the trenches south of the dirt road closer to Benner's plantation (e.g. Figure 10).



Figure 19 Archaeological artifacts from the Cul de Sac area; upper left are Colonial ceramics including tin-glazed earthenware along the top and blue transferprint pearlware; at upper right stone artifacts. Lower left *Lobatus (Strombus) gigas*; lower right juvenile cow bone *in situ* in trench 18, feature 01.

Recovered remains include *Lobatus (Strombus) gigas*, and numerous Colonial plain ware ceramic sherds, and a smaller number of decorated Colonial sherds. In addition, a few modified stone artifacts were found. No finds indicative of pre-Columbian activity were encountered in this area.

Only the Boundary Ditch feature exposed during the trenching investigation contained artifacts. These artifacts included hand-blown case bottle glass, brown salt-glazed stoneware and a single kaolin clay tobacco pipe stem. The tobacco pipe stem bore diameter corresponds with those normally found in association with a mid-eighteenth century occupation period.

TEST UNITS

Test Unit #1 resulted in one Context (CXT 1). Eleven artifacts were recovered from this unit. Creamware was found, but no Pearlware ceramics. For St. Eustatius this is indicative of a pre-1780s occupation. The TPQ for this unit is (1762-1810 based on this find. One westerwald stoneware sherd was also found.

Test Unit #2 resulted in one Context (CXT 2). Twenty-two artifacts were recovered from this unit. Blue floral transfer-print pearlware was recovered from this unit indicating an occupation sometime between 1783 and 1830. Other artifacts recovered back up this interpretation. A sherd of micaceous low-fired Afro-Caribbeanware ceramic was found that is likely part of a sugar mold. One sherd of Chinese underglaze blue porcelain was also found.

A single Context (CXT 3) was identified in Test Unit #3. Thirty-eight artifacts were recovered from this unit. Blue floral transfer-print pearlware was recovered from this unit indicating an occupation sometime between 1783 and 1830. Other artifacts recovered back up this interpretation. One sherd of Chinese underglaze blue porcelain was also found.

Eight artifacts were recovered from the first Context (CXT 4) in Test Unit #4 adjacent to the sugar train. Blue Willow Pattern transfer-print pearlware was recovered from this unit indicating an occupation sometime between 1795 and 1830. Other artifacts recovered back up this interpretation. A sherd of micaceous low-fired Afro-Caribbeanware ceramic was found that is likely part of a sugar mold. One sherd of Chinese underglaze blue porcelain was also found. A hand-blown Pb crystal wine glass stem shard was also recovered in CXT 4.

The second context in Test Unit #4, CXT 5, contained forty artifacts in total. This was an ash deposit resulting from clearing out the nearby flue holes. Nails, some mammal bone and some unrefined earthenwares that are likely Dutch were recovered from this Test Unit.

Two contexts were identified in Test Unit #5 inside the distillery room. Context #6 contained no artifacts other than destruction rubble. Context # 7 contained seventy-two artifacts. A

single sherd of refined whiteware ceramic indicates that the distillery went out of use sometime after 1805. Other recovered refined earthenwares include creamware, pearlware (annular, transfer-print, and polychrome). Two disc shaped pearlware gambling counters were also found.

Test Unit #6 resulted in three Contexts (CXT 8, 11 and 12) inside the Big House foundation. Eleven artifacts were recovered from CXT 8. Blue shell edged pearlware was recovered from this unit indicating an occupation sometime between 1780 and 1815. Other artifacts recovered back up this interpretation. A sherd of micaceous low-fired Afro-Caribbeanware ceramic was found that is likely part of a sugar mold. A single Deltoied Rock Shell (*Thaias deltoidea*) was recovered. This species is a “last resort” source of protein and is thus reflective of a challenging economic period for the plantation occupants likely in the 19th century. Context 11 contained forty-seven artifacts. Of note are a sherd of North Midlands Slipware (1660-1745) and a sherd of European (English?) bone china (1794-present). Some items including a small Cu clothing hook clearly slipped through the floorboards while the building was still occupied. Context 12 contained fifteen artifacts. Of note are a sherd of North Midlands Slipware (1660-1745) and a hand-blown perfume bottle shard.

Two Contexts (CXT 9, 13) were identified in Test Unit #7 in the burial ground identified as “#5 east” in Stelten’s 2011 report. Thirty-five artifacts were recovered from Context 9. No pearlware was recovered from this unit indicating an occupation sometime before the 1780s. French Faience tin-glazed earthenware was also found. A pimpkin or *koekenpot* foot was found and may relate to the nearby seventeenth century plantation complex about 20 meters to the southwest. One hundred twenty artifacts were recovered in Context 13. Of note are a sherd of North Midlands Slipware (1660-1745) and a hand-blown perfume bottle shard. This deeper context contained a higher percentage of tin-glazed earthenware and no pearlware indicating an pre-1780s occupation period which correlates well with the identification of the probable 17th century plantation site to the southwest.

Two-hundred and eight artifacts were recovered from two contexts (CXT 10 and 14) in Text Unit #8 located in the burial ground identified as “#5 west” in Stelten 2011. Creamware, pearlware, coral fragments and hand-blown wine bottle glass make up the largest proportion of this number. The earliest datable ceramic sherd is metropolitan coarse earthenware dating to the 1630-1660 period. Annular pearlware dating to after 1795 was the latest. Of particular interest are cow foot bone fragments. Context 14 was a probable natural feature that

contained only two artifacts (wine bottle glass and a bone fragment). The artifacts may be the result of bioturbation.

A Test Unit was begun at the far eastern end of the Benner's Plantation complex. However it was not completed due to the presence of manchineel tree roots. Regardless, thirty-two artifacts were recovered from this unit. Of note are one sherd of beach worn white-saltglazed stoneware. The majority of ceramics include Creamware and pearlware corresponding with an occupation during the last half of the eighteenth century. Context number 15 was assigned to this unit.

The final context of note is Number 16 which was assigned to the fill in the excavated portion of the Boundary Ditch. Ten shards of hand-blown case bottle glass were recovered along with one kaolin clay pipestem and one brown saltglazed stoneware sherd—twelve artifacts in all. The artifacts indicated the ditch was abandoned sometime after 1750. All artifacts are listed in **Appendix2**

ARCHITECTURAL ASSESSMENT

The Benner's Plantation layout on the historic landscape is typical for St. Eustatius which is *atypical* for the Caribbean (Gilmore 2004, 2006). On almost every plantation in the Caribbean the plantation owner's house or Big House is located in a position where the occupants can directly observe the daily life of occupants of the slave village. On Benner's, as elsewhere on St. Eustatius, the view of the village is blocked by the Industrial Complex. The Benner's Plantation Complex is a compound defined by a drylaid stone wall (**Figure 20**).

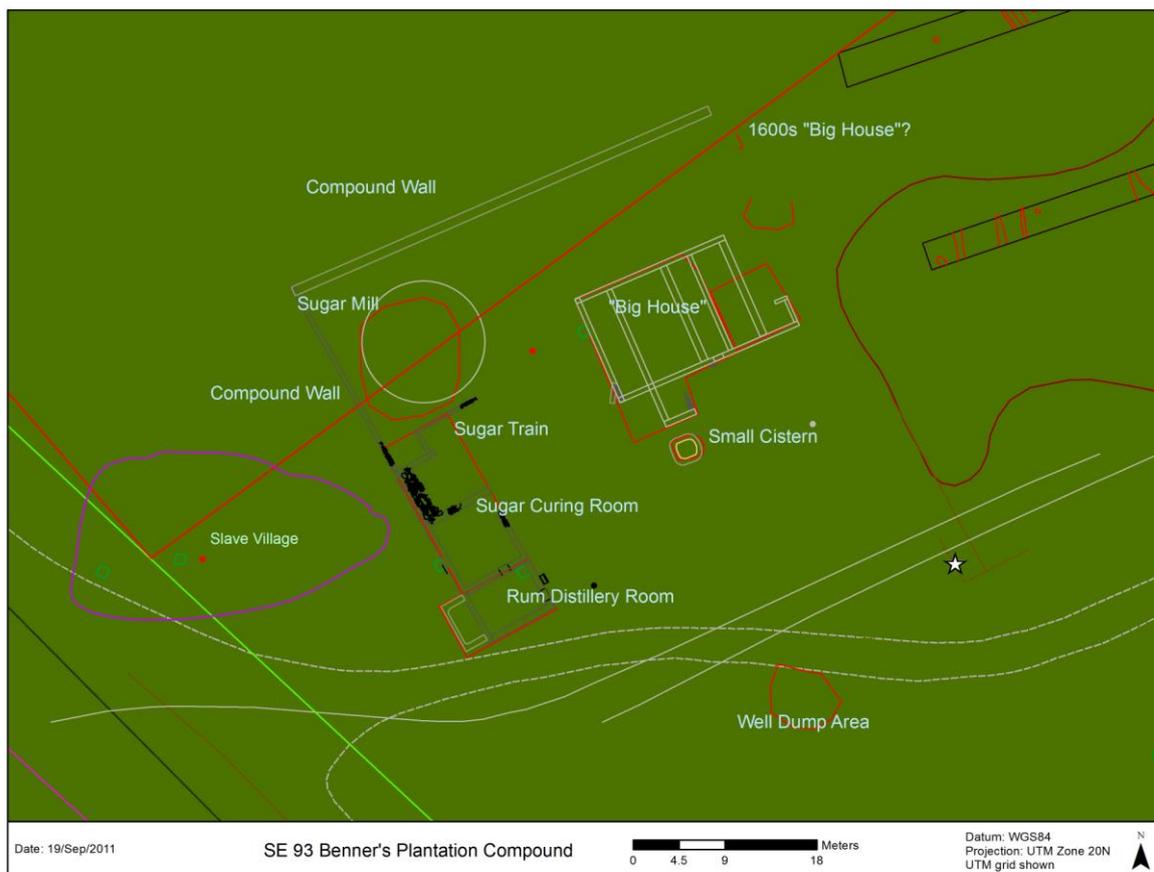


Figure 20 Overview of Benner's Plantation Compound

The Slave Village

The slave village was likely composed of several post-in-ground structures and features indicating this were identified in the test units excavated there. On the P.F. Martin 1781 map, the village is composed of eight structures. Another slave homes are located to the southeast of the plantation complex adjacent to the old road entrance. Domestic artifacts recovered from Test Unit #7 may also relate to this occupation area.

The Industrial Complex

The Industrial Complex is composed of two primary structures (Detailed drawing in **Appendix 3**). First, the animal mill (indicated on Figure 20) was located to the north of the sugar processing facility and upon the highest ground in the area. Animals such as oxen or donkeys were used to drive the mill to crush cane which then flowed to the nearby sugar boiling complex. The first of three rooms running roughly north to south at the Benner's Plantation Industrial Complex was the sugar boiling room containing a series of four sugar boiling kettles or coppers. Flue holes can be found below each kettle site as well as a larger flue hole associated with the chimney stack at the north end of this room. The room was likely accessed from the east. After boiling, the sugar syrup was quickly transferred to conical sugar molds with nipples at the base. These were placed inside sugar trip jars which were then placed on shelves in the next room in the Benner's Industrial Complex—the sugar curing room. Here molasses dripped from the nipples into the jars below. The end product was a sugar cone of brown or demerara sugar. The waste products from this process were then utilized in the third room of this complex—the rum distillery. Here a relatively small still was used to process these remains into another salable commodity. Rum and sugar could then be brought to the port for export. At the western end of this room is a vat that could be mistaken for a cistern that was used to cool down the coiled copper pipe or worm where alcohol condensed. From the end of this pipe would drip the distilled rum.

The Big House

Benner's Plantation Big House layout is typical of a wide reaching rebuild across the island that was likely the result of the massive hurricane in October 1780 (Detailed drawing in **Appendix 3**). Much island architecture was destroyed during this storm. At neighboring Schotsenhoek Plantation, it appears that the 17th century primary dwelling was raised to make space for an entirely new structure. At Benner's currently visible foundations indicate that a new building was built separately from the old home. The remains of this older stone built structure are those found furthest to the west in the plantation compound. The new plantation house foundation likely reused stones from this building as was the case at Schotsenhoek. In contrast to Schotsenhoek, the house foundation does not appear to contain a useable cellar space and is instead a simple series of low stone walls that supported floor joists above the ground level.

The home appears to have faced west—directly towards the sugar industrial area and represents a transition in the viewscape or the resident's perception of what was important at

that time. The view was no longer towards town, but to the Caribbean and Oranje Bay beyond—a place where wealth was generated for the owners. Beyond Benner's also to the west is the Godet Plantation. Here it appears that the original plantation Big House survives—likely dating to the early settlement period in the 1600s. Thus, the three plantations found in the immediate vicinity of Cul-de-Sac we can find the complete story of Statia's plantation economy through its architectural manifestations.

Likely 1600s plantation Complex

This site is located south of the main access road and south of the boundary wall cutting across the property west to east. As indicated by Stelten, these structures are represented on the 1742 and the 1775 Ottens maps. The cistern is bounded on the north by a dry-laid stone wall. To the east of the cistern are the ephemeral remains of another structure. (See **Figure 22**)

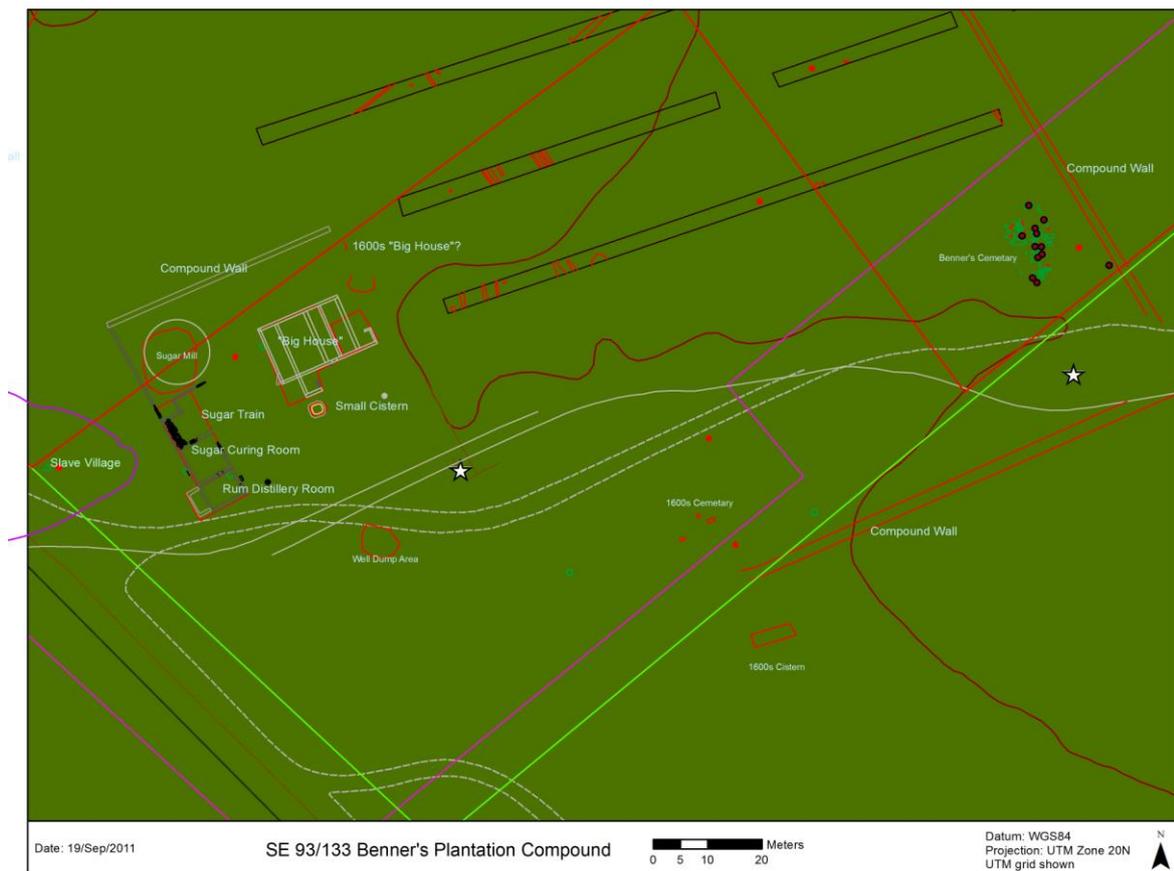


Figure 21 Overall view of colonial sites, note probable 1600s cistern and cemetery.

RE-ASSESSMENT OF KNOWN PRE-COLUMBIAN SITES IN THE VICINITY OF CUL-DE-SAC AND CONTEMPORANEOUS SITES ON THE ISLAND IN GENERAL

In the following section the findings from the pre-Columbian survey and investigated sites on the island are presented. The assessment of the pre-Columbian sites on the island was undertaken, foremost because the Cul-de-Sac area is located in the so-called ‘Cultuurvlakte’ between major pre-Columbian sites as Golden Rock, Godet and Smoke Alley. The three sites all belong to the Ceramic Age (AD 400-1200). Golden Rock has been mostly been lost through the construction of the new airport runway. Large scale excavations by Dr. Add Versteeg of Leiden University in the 1980s prior to this construction enabled documentation of this unique site and serves as a model for the current approach for endangered sites in Caribbean archaeology. Versteeg also carried out excavations at Godet and Smoke Alley, however, these were of a much smaller scale, because they were not under immediate threat at that point in time (Versteeg 1990, 1991; Versteeg and Schinkel 1992). A reassessment of the Godet and Smoke Alley was deemed crucial because of their location next to the Cul-de-Sac area and the proposed location of the new jetty, and also to assess their current state of preservation. A further assessment of other pre-Columbian sites on the island was considered necessary to evaluate local differences in erosion processes (natural and human) throughout the island and compare them to the situation at Godet and Smoke Alley. In total seven sites were relocated; these belong to all periods of the pre-Columbian era (1000 BC – AD 1200).

The assessed sites are discussed in according to the SE numbering system used by SECAR. For all sites the original information from previous investigations is summarised, followed by the site’s location with GPS coordinates. Furthermore, the topography is discussed, and finally a summary of the investigation strategy per site and the results are provided.

SURVEY METHODOLOGY

STAGE 1: LOCATION

Re-locate documented sites and identify previously unknown sites

STAGE 2: ASSESSMENT

Assess the condition and current preservation of the sites with regards to natural and human environmental impacts

STAGE 3 (WHERE POSSIBLE): APPROACH

Comparison with previous research is used to identify changes and alterations to the site setting over time

Decide upon approach to take with regards to immediate threats to the sites

Documentation of the spread of material culture

Full excavation

Partial excavation of areas of immediate threats

Retrieval of material culture remains from slope wash or erosion gullies

Defining areas at risk in the near future

GODET (SE-06)

The site is located on a black sand and boulder beach and is easily accessible by road through NuStar Energy terrain to the beach just south of the site, or by passing through the Smoke Alley Bar to the beach just north of the site. The two sites consist of a lengthy coastal profile in which ceramic midden material is embedded, and which is split by a large gut. GPS points were taken at both ends of the material concentration, and are provided in Table 1. The surface of the cliff is overgrown with grass, acacia, manchineel and other vegetation, and the site is not visible from that angle.¹

X-coordinates	Y-coordinates	Remarks
1933424.1998	500700.8039	EUX 04 – northern end
1933492.8489	500599.8866	EUX 04 – southern end
1933425.9206	500695.2597	EUX 04 – Profile 1

¹ Versteeg and colleagues (1993) already noted the site to be barely visible from the surface, an observation which is repeated by this team.

1933433.8488	500688.2997	EUX 04 – Profile 2
1933436.4300	500680.9861	EUX 04 – Profile 3

Table 1. GPS coordinates on the Godet area.

Previous excavations at the site were undertaken by Versteeg (Versteeg et al. 1993). Versteeg excavated a 3 m deep trench at Godet and documented several stratigraphic layers. The site of Godet was interpreted by Havisser as mainly a late Saladoid site, but Versteeg and colleagues (1993) have identified it to be a post-Saladoid site with a minor Saladoid component.



Figure 22 Severely eroding profile along the shoreline of Godet.



Figure 23 Recorded profiles along the eroded shoreline at Godet.

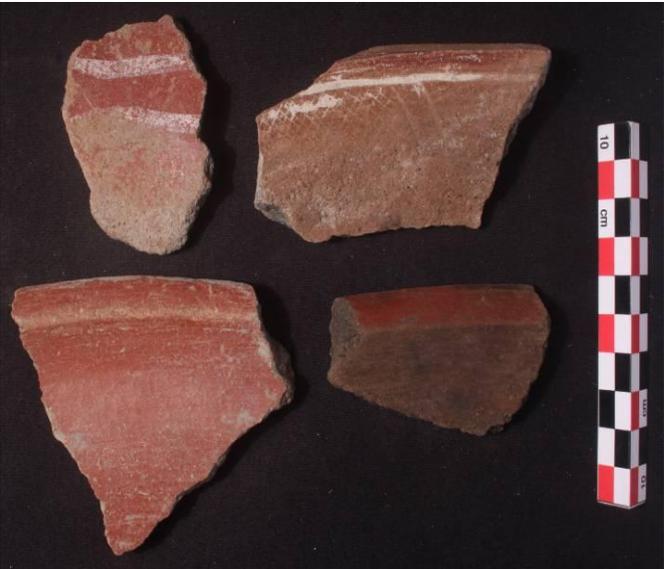


Figure 24 Saladoid and early post-Saladoid ceramics recovered from the eroding profile at Smoke Alley (AD 400-1000)

The site was reassessed for erosion and pot sherds which were protruding from the profile in the midden area were collected. The eroding wall profile was documented at three locations along the seashore (Figures 11 and 12). GPS coordinates of these profiles are also provided in

Table 1. Recovered finds consist of rim sherds from vessels and griddles (e.g. **Figure 25**), shell, St. Martin greenstone celts, and lithics.

CORRE CORRE BAY 1 (SE-121)

This site was initially discovered by Haviser (1985). It was described as an a-ceramic site located approximately 200 m west of Corre Corre Bay 2, located in the thick vegetation on the mountain slope. Finds consisted mainly of shells, chert, stones, and other materials, the chert matching colour and density with the chert found at Corre Corre Bay 2. The site is approximately 20 m in diameter. The site is exposed due to recently formed gullies and slope washes.

The area has been surveyed on three different occasions, but the exact location of the site proved unattainable. The area is overgrown with impassable thorny woodland and only a single road/drainage bedding allows for passage. A single artifact was found in a less dense portion north of this road. It is a *Lobatus (Strombus) gigas* lip, which appears to have been modified into a celt (GPS coordinates are X: 1933191.8493, Y: 505409.9715).

CORRE CORRE BAY 2 (SE 29)

The site was first discovered by Haviser (1985), who described it as a strictly lithic site of about 35 m in diameter, located about 250 m north of the Corre Corre Battery and directly above a colonial well situated in a large gut. The GPS coordinates are listed in **Table 2**.

The site can be found by driving through English Quarter and taking the road leading to Corre Corre Bay and the Botanical Gardens, until the car track with a yellow sign saying Corre Corre Bay appears on the left. The site is located north of the second large gut, which is the one with a colonial well and cisterns in it. GPS coordinates were taken of the centre and of the estimated boundaries of the site, and are provided in **Table 2**.

X-coordinate	Y-coordinate	Remarks
1933163.8822	505627.3243	SE 29 point
1933166.8902	505614.2297	SE 29 point
1933176.1097	505615.5837	SE 29 point
1933184.7792	505627.9083	SE 29 point

1933175.5006	505635.4015	SE 29 point
1933123.8266	505688.9118	Colonial well, July 2011
		Colonial well, SECAR coordinates
1933682.5063	505344.8383	SE 29 SECAR coordinates

Table 2. GPS coordinates on and near the Corre Corre Bay 2 site.

Vegetation currently consists of grazed grass, and there are several large (1 m in diameter) and numerous smaller boulders on the surface. The site overlooks the middle part of the coral reef, and the beach can be accessed both to the north and to the south of the site, but not directly from it. A trail leads west from the site, up the mountain. Finds were most visible in the un-vegetated spots adjacent to the large boulders. These finds consisted of Long Island flint in black and brown colour variations, and of *Lobatus (Strombus) gigas* shell fragments. Some flint appeared to be burnt. No excavations were undertaken at the site.

CORRE CORRE BAY 3 (SE-202)

This previously unrecorded site is located near Corre Corre Bay 2, and is passed when travelling to the latter site. Its exact dimensions are unknown, but it proved to be rather restricted in size. It consists of a midden area which is cut by a path. GPS coordinates were taken and are provided in Table 3.

X-coordinate	Y-coordinate	Remarks
1932799.9632	505603.2428	EUX 02 point
1932827.2535	505608.8975	EUX 02 point
1932834.6261	505598.6326	EUX 02 point
1932828.7243	505593.3848	EUX 02 point
1932818.2160	505599.1090	EUX 02 point
1932811.5768	505594.1563	EUX 02 point
1932809.7356	505603.4170	EUX 02 point
1932800.5837	505624.7121	EUX 02 point

1932800.6454	505625.5378	EUX 02 point
1932805.7998	505595.4555	EUX 02 point
1932787.3011	505599.3534	EUX 02 point
1932770.6425	505590.2748	EUX 02 point
1932734.6239	505581.6733	EUX 02 point
1932806.9692	505601.2944	Test pit 1
1932820.6152	505607.1889	Test pit 2
1932834.8753	505610.7828	Test pit 3

Table 3. GPS coordinates on the Corre Corre Bay 3 site.

Inland of the path, which allows for easy access to the sea, there is a dense covering with impassable bushes. The coastal side is partially covered by shrubbery, and partially by boulders. It overlooks the southernmost end of the coral reef. Surface finds consisted of ceramics, shell fragments, coral and a possible shell celt (*Lobatus gigas*).



Figure 26 Survey of the Corre Corre 3 site and example of 1 m² test pit.



Figure 25 Testpit at the Corre Corre Bay 3 site (left) and ceramic material recovered from test pit.

Three 1 m² test pits were dug on this site, two at the expected periphery and one in the middle, where surface find density was high (Figures 14 and 15). Their GPS coordinates are provided in Table 4. The test pits were dug to a depth of 40 to 60 cm, but finds were recovered up to a maximum depth of 25-30 cm. These consisted of ceramics, coral, crab claws and shell. Most sherds were plain, but two Saladoid rim fragments from the same vessel were uncovered which provided a relative date for the site. One of the test pits and some of the recovered ceramics are shown in **Figure 27**.

The majority of the artifacts include shell, most of which belong to *Cittarium pica*. A large number of shells were complete or almost intact, and most specimens are large. Samples for ¹⁴C dating were collected from each 10 cm arbitrary layer.

SMITH GUT (SE-82)

This site was initially discovered by Haviser (1985), who recorded it as an a-ceramic site with the majority of artifacts being *Cittarium pica*, used for food consumption. In addition, some shell tools were present. As yet there are no indications for a Ceramic Age occupation at the site, however, the absence of ceramics at the site and the nature of assemblage composition suggests that we are dealing with an Archaic Age campsite.

The site is easily accessible by car. It is located to the north-end of the airfield runway. The site is currently located on a narrow piece of land, overlooking Schildpad Baai, and wedged between eroding coastal cliffs and an expanding dump site. The preserved area is 15 meters in width and 40 meters in length parallel to the coastline, and surface finds are most abundant on the eroding coastal edge. The inland part is covered by grass and acacia-shrubs. There is a large gut to the north, across the dump area. A local measuring grid was established, the GPS coordinates of which are provided in Table 4.

X-coordinates	Y-coordinates	Remarks
1935111.7127	502584.8909	EUX 03 point
1935097.3937	502596.5698	EUX 03 point

1935090.2037	502604.3555	EUX 03 point
1935103.0454	502575.3380	EUX 03 point
1935093.2769	502605.5936	LMP 6320,5520
1935118.9024	502575.1590	LMP 6320,5560

Table 4. GPS coordinates on the Smith Gut site.

During this survey immediate threats to the site were identified. The site is eroded due to rainwater drainage through the gut and will probably soon be completely destroyed due to the increasing erosion (**Figure 28** and **29**). It was therefore deemed necessary to further investigate the site.



Figure 27 Clearly visible erosion processes at the Smith's Gut site.



Figure 28 Surface erosion at the Smith's Gut site.

Six 1 m² test pits were set out in the most heavily eroded parts as well as in the less eroded areas in order to understand the geology of the terrain (**Figure 30**), the density of the still intact archaeological layers and the extent of erosion damage. The test pits were excavated using 10 cm arbitrary layers and the soil was screened through 4 and 10 mm meshes. All finds were assigned a find number by layer and processed in the lab. Four of the test pits were dug to a depth of 1.40 m. The erosion has exposed a geological build-up of about 5 m in height across the entire site bordering the dump area. The exposed profile was recorded.



Figure 29 Test pit profile at the Smith's Gut site (left) and recording test pit (right).

Finds consisted mainly of *Cittarium pica* shells, with flint being present in low quantities. Surface finds added *Lobatus (Strombus) gigas*, some coral and two basaltic stones. The latter were identified as a core for flaking technology and an end-product (De Loecker pers. comm. 2011). Some of the coral and stone artifacts are depicted in **Figure 31**.



Figure 30 Coral and stone artifacts found at Smith's Gut.

Most of the archaeological materials were found on the eroded surface of the site, suggesting that the vast majority of the material has already been washed into the sea. The basaltic stone flakes combined with the lack of pottery confirm an Archaic Age occupation of the site.

UNNAMED COASTAL CLIFF (SE-80)

This site was described by Haviser (1985). It consisted of an eroding midden of about 25 m in diameter, containing shell and Saladoid ceramics. Haviser described a nearby colonial well which was also seen during the current survey.

The site is located on a cliff south of the colonial well, in a grazed field. The site can be reached by driving to Zeelandia on the south side of the airstrip, continuing east through the fields until a deep gut is encountered, which must be crossed by foot. From there on the site can be found by walking towards the sea where the colonial well is located in the gut's eastern end. The site is in the field 30 m south of this well. GPS coordinates are provided in Table 5.

X-coordinates	Y-coordinates
1934940.7136	503332.7859
1934946.2481	503351.0085
1934935.9239	503358.6181
1934941.4463	503303.2389

Table 5. GPS coordinates on the site SE-80.

Finds in this area consisted of flint and pot sherds of small size. No diagnostic material was encountered. Finds were recovered from un-vegetated patches, similar to the sites of Corre Corre Bay 1 and Corre Corre Bay 3. As only sparse finds were encountered, it is assumed that prolonged erosion and wash-outs have largely destroyed the site since it was originally documented by Haviser.

DISCUSSION

In total 21 trenches, covering 6,712 m² of terrain, were excavated in the Cul-de-Sac area; none yielded evidence of pre-Columbian occupancy of the area. The trenches yielded a very small number of Colonial remains, with the southernmost four trenches, 18 to 21 (closest to Benner's plantation), yielding slightly more remains than trenches 1 to 17. The results of Phase 2 investigations clearly show that the excavated area of the Cul-de-Sac terrain, comprising 5-10% of the total area, was used during the Colonial period, predominantly for agricultural activities. This part of the terrain has shown no evidence of domestic use in the Colonial period, with no indications of house structures, a slave village or a slave cemetery. As yet, a portion of the Cul-de-Sac terrain has not been tested for archaeological remains, as this part of the terrain is currently used for the storage of waste material and scrap metals. As such, our knowledge of the possible pre-Columbian and/or Colonial use of this part of Cul-de-Sac is insufficient to evaluate its archaeological significance.

Most pre-Columbian remains on St. Eustatius and in the Caribbean in general comprise very shallow deposits (often no more than 0.50 m under the surface), which means that they are extremely vulnerable to natural and human impact.

The fact that a number of previously documented pre-Columbian sites on the island could not be relocated suggests that they have been destroyed by erosion processes. Most archaeological finds that were retrieved from these sites were recovered from the surface, rather than from the underlying soil deposits. This indicates that processes of natural soil deposition have been disturbed and cultural deposit layers have been lost, both due to the lack of protection from new layers of deposition and due to severe erosion processes taking place. The site of Godet currently comprises the only prehistoric cultural deposit on the island which still stands to yield significant information on the pre-Columbian occupation of the island. These sites are, however, under immediate threat from the aforementioned erosion processes, and the impact of future developments (construction and use of the new jetty) in the direct vicinity of these sites remains unclear at this point in time.

Test excavations among the Benner's Plantation compound indicate a long occupation period for the site--likely from initial settlement into the 20th century. Colonial stratigraphy is shallow in some areas and fairly deep in others. The cemetery area to the south of the plantation compound has provided some evidence for burials other than those that are indicated with European style markers. The precise location of Benner's Well could not be

mapped as the top of the well is like buried well below grade and/or beneath another area of the mound of refuse dumped on top of the well during the 1970s.

The ground penetrating radar survey indicates that there may be more burials at the plantation burial ground (SE 133) than are represented by those visible on the site. Most targets found by the ground penetrating radar do correspond with known targets on the surface.

RECOMMENDATIONS

Based on the assessment of the Cul-de-Sac area and the proposed jetty location (as of late August 2011), as well as the re-assessment of a number of known pre-Columbian sites in the vicinity of the planned NuStar Energy activities, the following recommendations were formed:

1. Due to the fact that only approx. 10% of the Cul-de-Sac terrain has been excavated for archaeological remains, it is recommended that a watching brief (using a trained archaeologist) is appointed to SECAR to follow construction during the entire period of work at Cul-de-Sac by NuStar Energy.
2. If the watching brief discovers any significant archaeological remains (pre-Columbian or Colonial) during construction, a re-evaluation is necessary regarding the required strategy for excavation and documentation of those remains.
3. The construction of the new jetty should be subject to in-depth assessment of impact on archaeological sites in the direct vicinity, located on the adjacent government owned land known as the leper colony burial ground, the Godet prehistoric site, the 17th-18th century slave burials and colonial ruins, underwater sites. Major prehistoric and historic sites are known to be located directly alongside the proposed jetty area. The access track to the proposed jetty area already appears to have been bulldozed. The recent assessment of the sites adjacent to this track has indicated severe damage and erosion has already taken place, large parts of cultural deposits and burial areas have already been or are under immediate threat. The effects on the presence of the new jetty on the sea currents and the effects of marine traffic on wave action may impact the coastal erosion rate and speed up the destruction of these archaeological sites. Short term rescue excavation of these areas is therefore recommended and extensive survey to determine the precise extent of these sites is necessary into the proposed jetty area.

4. The Benner's Cemetery (SE 133) contains less than 20 burials, however, many are historical significant not just for who is buried there but the burial traditions that were used in this plantation setting. They reflect a design pattern that is unique to the Caribbean region as an amalgamation of traditions drawn from across the Atlantic World. As such any impacts to the Benner's Cemetery with future development should be mitigated through complete recovery of the remains and a rebuilding of the burial ground somewhere else on the property—with public access.
5. The second burial ground warrants extreme caution and if threatened by development an in-depth investigation. It appears that this burial ground will not be impacted under current Dutch Aviation Authority regulations as it falls within the bounds of the 150 meter safety zone.
6. As the probable 17th Century plantation complex is even further within the Aviation Safety Zone, it would appear that there is no immediate developmental threat to this archaeological site.
7. The future plans and development of NuStar Energy's oil terminal should continuously safeguard and incorporate archaeological environmental concerns, the Cultural Heritage of Statia being one of the richest of the Caribbean for all periods of history.

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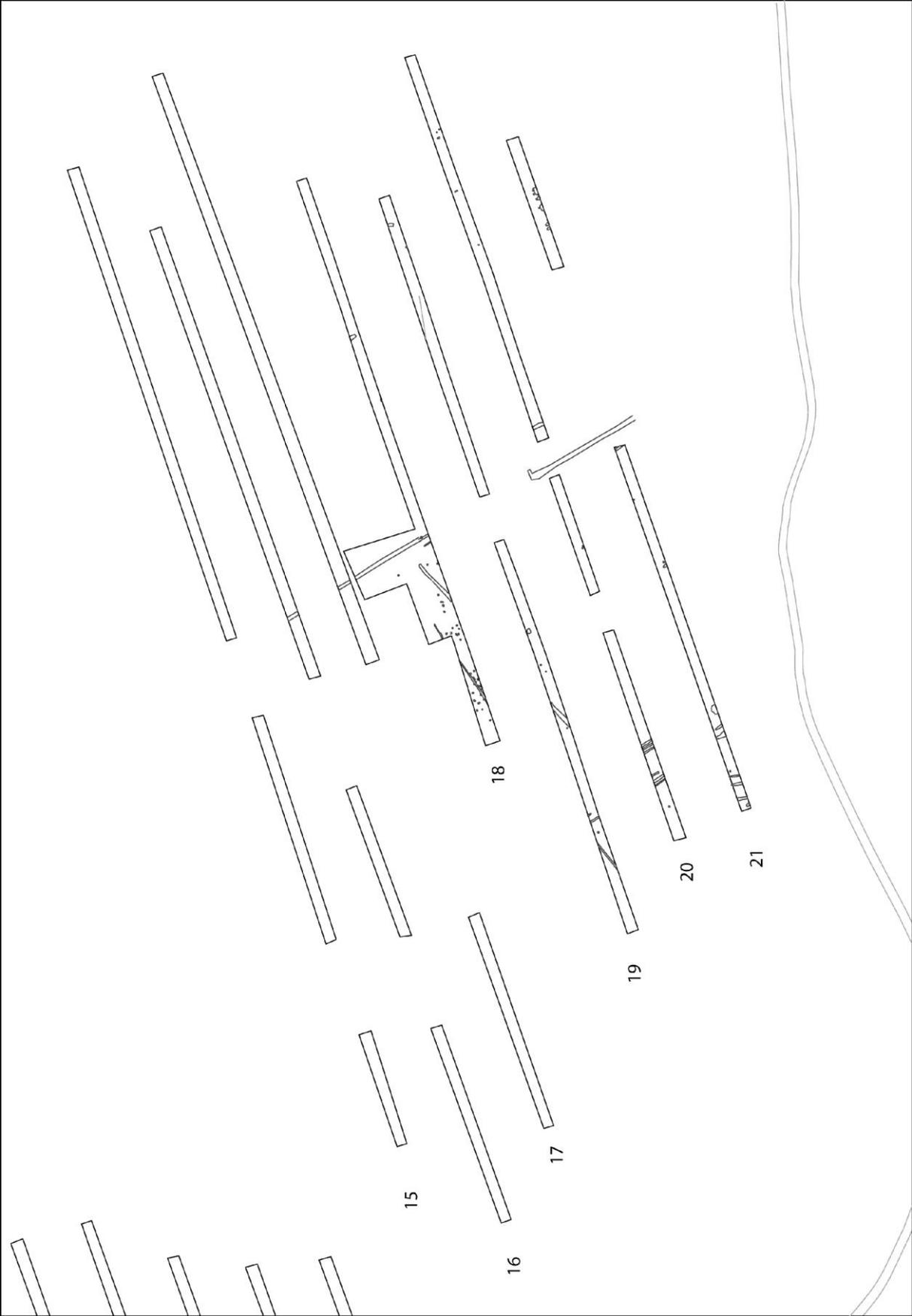
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APPENDIX 1—TRENCH PLAN MAP



APPENDIX 2—TEST UNIT ARTIFACTS

SE 93 1	Fill 1	TU #1	Slave Village								
1	Ceramic	Earthenware	Refined	Creamware		Body					1762-1820
1	Ceramic	Earthenware	Unrefined	Terracotta		Body		Roof Tile			
1	Ceramic	Earthenware	Unrefined	Yellow and Pink Body	Ijsselstein	Dutch Dutch	Body				
1	Ceramic	Stoneware	Westerwald			Body		Holloware	Jug		
2	Glass	Handblown	Bottle	Wine		Body					
2	Glass	Handblown	Case Bottle			Body					1500-1810
1	Metal	Fe Alloy	Cut	Nail				Complete			
1	Metal	Fe Alloy	Wrought	Nail				Complete			
1	Organic	Calcium	Coral								
		Carbonate									
11											
SE 93 2	Surface	TU#2	Slave Village								
2	Ceramic	Earthenware	Unrefined	Afro Caribbean	Micaceous	Body		Sugar Mold ?			1632-??
1	Ceramic	Earthenware	Refined	Creamware		Body		Tableware	Plate		1762-1820
1	Ceramic	Earthenware	Refined	Pearlware	Blue Painted	Body					1780-1815
3	Ceramic	Earthenware	Refined	Pearlware	Blue Feather Edge	Body					
					Blue Floral						1783-1830
					Transfer						
					Print on both						
					Sides						
1	Ceramic	Earthenware	Refined	Pearlware		Body					1779-1830
1	Ceramic	Earthenware	Refined	Tin-Glazed		Body					post-1600
2	Ceramic	Earthenware	Unrefined	Afro-Caribbeanware		Body					1632-??
3	Ceramic	Earthenware	Unrefined	Pb Glazed Interior	Brown	Body					1632-??
1	Ceramic	Porcelain	Chinese	Blue underglaze		Body		Holloware	Teacup		1700-1800
3	Ceramic	Stoneware	Saltglazed	Gray Body	Reddish Brown	Body					
					Interior						
3	Glass	Handblown	Wine			Mix		Bottle			1500-1810
1	Metal	Fe Alloy	Wrought	Nail				Complete Fastening			
22											
SE 93 3	Fill 1	TU#3	Slave Village								
1	Ceramic	Earthenware	Refined	Pearlware	Blue Transfer Print	Body		Tableware	Plate		1783-1830
1	Ceramic	Earthenware	Unrefined	Pink Body	Heavily Tempered	Pb Dutch	Body	Storage			1632-??
						Glaze					
						d					
1	Ceramic	Porcelain	Chinese	Blue Hand Painted Underglaze		Body		Teaware	Tea cup		1700-1800
1	Ceramic	Stoneware	Gray Body	Saltglazed		Shoulder					
24	Glass	Handblown	Case bottle			Body					1500-1810
3	Glass	Handblown	Wine			Body					1500-1810
2	Glass	Handblown	Wine			Finish					1500-1810
1	Metal	Fe Alloy	Nail	Wrought		Head					
1	Organic	Carbon	Charcoal								
2	Organic	Shell	Limpet			Body					
1	Stone	Marble	Percussion Flake	Large							
38											
SE 93 4	Fill 1	TU#4	Sugar Train Exterior								
1	Ceramic	Earthenware	Refined	Creamware		Body					1762-1820
1	Ceramic	Earthenware	Refined	Pearlware	Blue Transfer Print Outside	Willow Pattern	Rim	Tableware	Plate or Servicing Dish		1795-1830
1	Ceramic	Earthenware	Refined	Pearlware		Body					1779-1830
1	Ceramic	Earthenware	Unrefined	Pink Body	Leadglazed	Body		Storage			1632-??
1	Ceramic	Porcelain	Chinese								1700-1800
1	Glass	Handblown	Lead Crystal			Stem		Wineglass	Bowl		1500-1810
1	Glass	Handblown	Wine			Neck		Winebottle			1500-1810
1	Metal	Fe Alloy	Scrap			Body		Use unknown			
8											
SE 93 5	Ash Fill	TU#4	Sugar Train Exterior								
1	Ceramic	Earthenware	Unrefined	Red Body		Fr		Brick			1632-??
1	Ceramic	Earthenware	Unrefined	Red Body		Fr		Roof Tile			1632-??
1	Glass	Handblown	Case bottle			Body					1500-1810
1	Glass	Handblown	Wine			Body					1500-1810
8	Metal	Fe Alloy	Nail	Cut		Body					
11	Metal	Fe Alloy	Nail	Wrought		Body					
1	Organic	Bone	Cow			Body		Food			
1	Organic	Bone	Sheep/Goat			Body		Food			
13	Organic	Carbon	Charcoal			Fr					
1	Organic	Shell	Top Shell	<i>Lischkeia sp.</i>		Body		Food			
1	Stone	Basalt	Gray					Pecking stone			
40											
SE 93 7	Fill 2	TU#5	Distillery Interior								
3	Ceramic	Earthenware	Refined	Pearlware	Annular	Mix					1795-1840
1	Ceramic	Earthenware	Refined	Pearlware	Blue Transfer print	Floral	Rim	Holloware	Large Bowl		1783-1830

2	Ceramic	Earthenware Refined	Pearlware	Discs		Complete Counter		1783-1830	
2	Ceramic	Earthenware Refined	Pearlware	Hand Painted Polychrome Floral		Body		1795-1830	
4	Ceramic	Earthenware Refined	Pearlware	Blue Transferprint		Body		1783-1830	
3	Ceramic	Earthenware Refined	Pearlware			Body		1779-1830	
1	Ceramic	Earthenware Refined	Pearlware			Base	Holloware	Mug bottom 1779-1830	
3	Ceramic	Earthenware Refined	Tin-Glazed	Faience		Mix		1775-1780	
3	Ceramic	Earthenware Refined	Whiteware			Mix		1805-present	
10	Ceramic	Earthenware Unrefined	Pb Glazed	Dutch?		Mix	Large Bowl	1632-??	
1	Ceramic	Earthenware Unrefined	Terracotta			Fragment	Roof tile		
2	Ceramic	Porcelain Chinese				Body		1700-1800	
1	Ceramic	Stoneware Gray	Salt Glazed			Body			
1	Ceramic	Stoneware Tan Body	Salt Glazed	Reddish Brown Interior		Body			
1	Ceramic	Stoneware Tan Body	Salt Glazed			Body			
2	Glass	Handblown Case Bottle				Body		1500-1810	
3	Glass	Handblown Wine				Body		1500-1810	
16	Metal	Fe Alloy Wrought	Nails			Mix	Various shapes		
3	Organic	Calcium Carbonate Coral							
10	Organic	Shell Magpie Shell	Citcarium pica					Intact	
72									
SE 93 8 Fill 1 TU#6 Big House Interior									
1	Ceramic	Earthenware Refined	Creamware			Base	Tableware	1762-1820	
1	Ceramic	Earthenware Refined	Pearlware	Blue Shell Edged		Rim	Tableware	Plate or Serving Dish 1780-1815	
1	Ceramic	Earthenware Refined	Pearlware			Body	Holloware	Bowl or Serving Dish 1779-1830	
1	Ceramic	Earthenware Refined	Tin-Glazed			Body	Tableware	post-1600	
1	Glass	Handblown Case bottle				Body	Bottle	1500-1810	
2	Glass	Handblown Wine				Body	Wine	1500-1810	
1	Metal	Fe Alloy Nail	Wrought			Body			
2	Organic	Shell Deltroid Rock Shell	<i>Thaias Deltoidea</i>						
1	Organic	Shell							
11									
SE 93 9 Fill1 TU#7 Burial Area Testing (East)									
3	Ceramic	Earthenware Refined	Creamware			Body	Mix	1762-1820	
1	Ceramic	Earthenware Refined	Stoneware	Westerwald		Body	Bottle	1700-1775	
1	Ceramic	Earthenware Refined	Tin-Glazed	Faience		Body		1775-1780	
2	Ceramic	Earthenware Refined	Tin-Glazed			Body	Holloware	Bowl post-1600	
1	Ceramic	Earthenware Unrefined	Afro Caribbean			Body	Cooking Pot	Yabba 1632-??	
2	Ceramic	Earthenware Unrefined	Leadglazed	Dutch?		Mix	Storage	1632-??	
1	Ceramic	Earthenware Unrefined	Pimpkin			Foot		1632-??	
1	Ceramic	Earthenware Unrefined	Terra Cotta			Body	Roof Tile	Fr	
4	Glass	Handblown Wine				Mix	Bottle	1500-1810	
1	Metal	Fe Alloy Strap	Perforated Body			Body			
1	Metal	Fe Alloy Wrought	Nail	Broad Head	Length: 60 mm	Complete			
6	Metal	Fe Alloy Wrought	Nail			Body	Intact		
1	Organic	Bone Tooth	Incisor	Lower Left		Body			
10	Organic	Calcium Carbonate Coral				Body			
35									
SE 93 10 Fill 1 TU #8 Burial Area Testing (West)									
16	Ceramic	Earthenware Refined	Creamware				Mix	1762-1820	
2	Ceramic	Earthenware Refined	Kaolin Clay	Pipe	Bowl	Dutch Bowl	Tobacco	1750-1800	
3	Ceramic	Earthenware Refined	Kaolin Clay	stem		Dutch Bowl?	Tobacco	1750-1800	
2	Ceramic	Earthenware Refined	Pearlware	Annular		Body		1795-1840	
4	Ceramic	Earthenware Refined	Pearlware	Blue Shell Edged		Rim	Tableware	Plate 1780-1815	
14	Ceramic	Earthenware Refined	Pearlware				Mixed Fragments	1779-1830	
3	Ceramic	Earthenware Refined	Tin-Glazed	Faience		Body	Mixed	1775-1780	
1	Ceramic	Earthenware Refined	Tin-Glazed	Polychrom		Body		post-1600	
1	Ceramic	Earthenware Refined	Tin-Glazed	Sponge Decoration	Purple	Body	Holloware	Bowl 1708-1786	
5	Ceramic	Earthenware Refined	Tin-Glazed	Tin Glazed		Body	Mixed	post-1600	
8	Ceramic	Earthenware Unrefined	Afro Caribbean	Mixed		Mixed		1632-??	
4	Ceramic	Earthenware Unrefined	Afro Caribbean			Mixed	Mix	1632-??	
1	Ceramic	Earthenware Unrefined	Black Pb Glazed			Foot	Pimpkin	1632-??	
8	Ceramic	Earthenware Unrefined	gray	heavily worn in places	15.4 mm in depth	Fragment	Floor tiles	1632-??	
1	Ceramic	Earthenware Unrefined	Pb Glazed	Black		Body		1632-??	
2	Ceramic	Earthenware Unrefined	Pb Glazed	Dutch?		Mixed	Storage	1632-??	
6	Ceramic	Earthenware Unrefined	Pink Body	Terracotta		Body	Roof Tile	1632-??	

1	Ceramic	Earthenware Unrefined	Red Body	Pb Glazed	Saintonge	Body	1632-??
2	Ceramic	Earthenware Unrefined	Metropolitan	Combed White on Orange		Body	1630-1660
1	Ceramic	Porcelain	Chinese			Body	1700-1800
4	Ceramic	Stoneware	Saltglazed	Mix		Mixed Fragments	
9	Glass	Handblown	Case Bottle	Glass		Mixed Fragments	1500-1810
6	Glass	Handblown	Lead Crystal			Mixed Fragments	1500-1810
24	Glass	Handblown	Wine Bottle	Glass		Mixed Fragments	1500-1810
1	Glass	Handblown	Wound	Red	Levin VIII a*	8.5 mm Complete Bead	1500-1810
2	Metal	Cu Alloy	Button	Cast	Silver plated?	eye missing	Fragment
2	Metal	Cu Alloy	Button	Stamped	Four holes		Intact
1	Metal	Cu Alloy	Clothes Hook				Complete Clothing
1	Metal	Cu Alloy	Furniture Tack				Complete
1	Metal	Cu Alloy	Perforated disc with cotter pin through hole	24.5 mm in diameter			Body
6	Metal	Fe Alloy	Cut				Fragments
3	Metal	Fe Alloy	Wrought	Nails			Intact
6	Metal	Fe Alloy	Wrought	Spike	71.6 mm to 50.5 mm		Mix
3	Organic	Bone	Homo sapiens				Foot bones
6	Organic	Bone	Mix				Mix
1	Organic	Bone	Small Mammal	<i>Felis domesticus</i>	upper right mandible minus teeth		Fragment
1	Organic	Bone	Tooth	<i>Sus scrofa</i>	Lower left incisor		Intact
1	Organic	Calcium Carbonate	Coral	Brain			
10	Organic	Calcium Carbonate	Coral	Star			
10	Organic	Calcium Carbonate	Coral				Rim
1	Organic	Shell	Bi Valve Clam	<i>Lucina muricata</i>			Half
1	Organic	Shell	Bi Valve Clam	Moss Shell			Half
1	Organic	Shell	Coneshell	Heavily Eroded			Complete
3	Organic	Shell	Deltoid	<i>Thais deltoidea</i>	32.3 mm to 29.7 mm		Intact
7	Organic	Shell	Limpet	<i>Diadore spp.</i>			Complete
1	Organic	Shell	Magpie Shell	<i>Cittarium pica</i>	23.9 mm		Intact
3	Organic	Shell	Magpie Shell	<i>Cittarium pica</i>			Fragments
1	Organic	Shell	Mother of pearl	Button	Dots and four holes		Complete Clothing
1	Organic	Shell	Wide Mouth Rock Shell	<i>Purpura patula</i>	30.8mm in length		Body
1	Stone	Pebble	Basalt				Complete Hammer Stone
3	Stone	Pebble	Basalt				Complete Counter
20							
6							
SE 93 11 Fill 2 TU#6 Big House Interior							
8	Stone	Pebble					Complete Counter
1	Ceramic	Earthenware Unrefined	North Midlands Slipware	Staffordshire Dot		Rim	1660-1745
1	Bone	Fish				Jaw	Pallette ND
1	Ceramic	Earthenware Refined	Creamware	Annular		Rim	1770-1825
2	Ceramic	Earthenware Refined	Creamware			Body	1762-1820
2	Ceramic	Earthenware Refined	Kaolin Clay	Pipe	Bowl Dutch ?	Body	Tobacco 1750-1800
4	Ceramic	Earthenware Refined	Kaolin Clay	Pipe	Stem Dutch ?	Body	Tobacco 1762-1820
1	Ceramic	Earthenware Refined	Pearlware	Blue Shell Edged		Rim	Tableware Plate 1780-1815
4	Ceramic	Earthenware Refined	Tin-Glazed			Body	post-1600
1	Ceramic	Earthenware Unrefined	Blackglazed	Gray Body		Body	1632-??
1	Ceramic	Earthenware Unrefined	Tile	Gray		Fragment	
1	Ceramic	Porcelain	European	Bone China		Rim	Saucer ? 1794-present
3	Ceramic	Porcelain	Chinese			Fragment	1700-1800
1	Glass	Handblown	Clear	Lantern		Fragment	1500-1810
1	Glass	Handblown	Clear	Tumbler		Rim	1500-1810
3	Glass	Handblown	Mix			Fragment	1500-1810
2	Glass	Handblown	Wine			Body	1500-1810
1	Metal	Cu Alloy	Clothing Hook				Complete Clothing
1	Metal	Cu Alloy	Scrap				Fragment
1	Metal	Fe Alloy	Wrought	Nail			Body
1	Organic	Bone	Fish				Body
5	Organic	Shell	Mix				
1	Stone	Flint	Caramel				Flake
47							
SE 93 12 Fill 3 TU#6 Big House Interior							
1	Ceramic	Earthenware Refined	Kaolin Clay	Pipe		Dutch Bowl ?	Tobacco 1750-1800
1	Ceramic	Earthenware Refined	Kaolin Clay	Pipe		Dutch Stem ?	Tobacco 1750-1800
1	Ceramic	Earthenware Unrefined	North Midlands Slipware			Body	Tableware 1660-1745

2	Ceramic	Earthenware Refined	Tin-Glazed			Body	Tableware		post-1600
1	Ceramic	Earthenware Unrefined	Afro Caribbean			Body			1632-??
1	Ceramic	Porcelain	Chinese			Body	Tableware	Teacu	1700-1800
1	Glass	Handblown	Lantern			Body	Lantern		1500-1810
1	Glass	Handblown	Perfume Bottle			Body			1500-1810
1	Glass	Handblown	Wine			Body			1500-1810
2	Metal	Fe Alloy	Wrought	Barrel Hoop	32 mm				Fragment
2	Metal	Fe Alloy	Wrought	Nail		Body	Fragment		
1	Stone	Pebble	Smooth	14.7 mm		Body	Counter		

15

SE 93 13 Fill 2 TU #7 Burial Area (East)

1	Ceramic	Earthenware Refined	Creamware						1762-1820
2	Ceramic	Earthenware Refined	Kaolin Clay	Pipe	Burne d	Dutch Bowl	Tobacco		1750-1800
8	Ceramic	Earthenware Refined	Kaolin Clay	Pipe		Dutch Stem	Tobacco		1750-1800
5	Ceramic	Earthenware Refined	Kaolin Clay	Pipe		Dutch Bowl	Tobacco		1750-1800
2	Ceramic	Earthenware Refined	Tin-Glazed	Faience		Body			1775-1780
12	Ceramic	Earthenware Refined	Tin-Glazed	Mix		Mix	Mix		post-1600
4	Ceramic	Earthenware Refined	Tin-Glazed	Polychrome	2 are maijolica	Mix	Mix		post-1600
5	Ceramic	Earthenware Unrefined	Afro-Caribbean			Body			1632-??
2	Ceramic	Earthenware Unrefined	Pb Glazed	Black	Red body	Fragment			1632-??
1	Ceramic	Earthenware Unrefined	Pb Glazed	Pink/Brown	Body	Fragment			1632-??
1	Ceramic	Earthenware Unrefined	North Midlands Slipware	Gray Glaze	Inside	Body			1660-1745
1	Ceramic	Earthenware Unrefined	Terracotta			Fragment	Roof Tile		
3	Ceramic	Porcelain	Bone China	Hand Enameled		Fragment			
1	Ceramic	Porcelain	Chinese	Blue underglaze		Fragment			1700-1800
1	Ceramic	Porcelain	Chinese	Blue underglaze		Rim	Holloware	Bowl?	1700-1800
1	Ceramic	Stoneware	Gray Body	Brown Salt Glaze	Outside	Body			
1	Ceramic	Stoneware	White Salt Glazed	Barley Pattern		Fragment	Plate?		
2	Glass	Handblown	Clear	Perfume?		Body	Perfume Bottle	Plate	1500-1810
1	Glass	Handblown	Clear	Wine?		Bowl	Wineglass?		1500-1810
1	Glass	Handblown	Flat	Window?	2 mm	Fragment			1500-1810
1	Glass	Handblown	Green	Case Bottle		Body	Bottle		1500-1810
3	Glass	Handblown	Green			Body	Wine		1500-1810
7	Glass	Handblown	Wine			Fragment			1500-1810
1	Glass	Handblown	Wound	Green	Levin Wib* op. dark palm green (123-27)	Complete	Decorative		1500-1810
1	Metal	Cu Alloy	Decorative Shoe Clasp			Clasp	Clothing	Shoe	
1	Metal	Cu Alloy	Stamped	One Eye	14.9 mm dia	Flower in center	Complete	Clothing	
3	Metal	Fe Alloy	Cut			Complete	Nails		
1	Metal	Fe Alloy	Wrought	165 mm		Complete	Spike?		
25	Metal	Fe Alloy	Wrought			Mix	Nails		
1	Organic	Bone	Burned			Body			
1	Organic	Bone	Tooth	Sus scrofa	1st Molar	Molar	Chewing		
15	Organic	Bones				Mix			
3	Organic	Calcium Carbonate	Coral						
2	Stone	Flint	Caramel	Flakes		Flakes	Musket Flint?		

12

0

SE 93 14 Feature TU#8 Burial Area (West)

1	Glass	Handblown	Wine			Neck			1500-1810
1	Organic	Bone				Fragment			

2

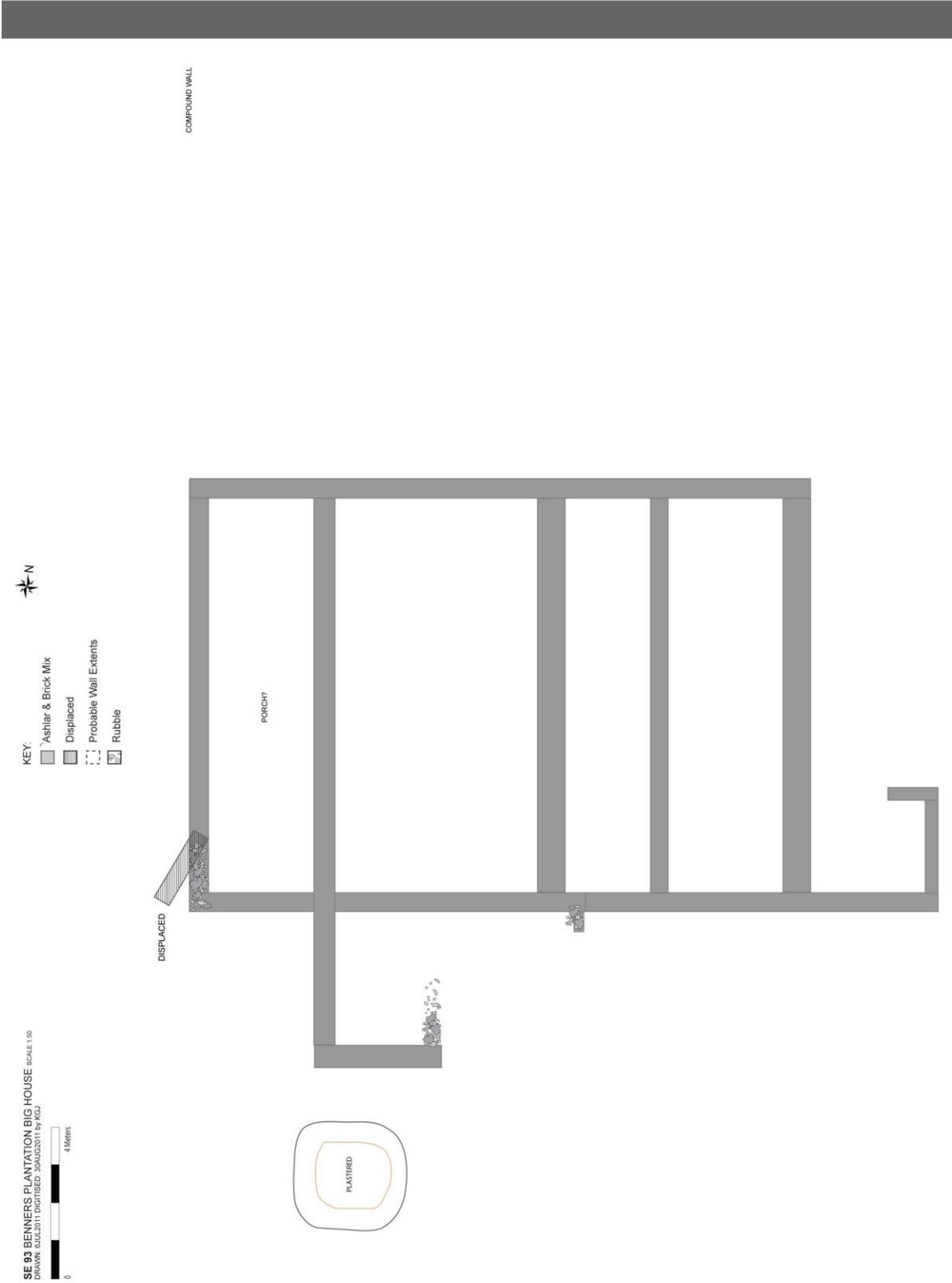
SE 93 15 Fill 1 TU (Incomplete)

4	Ceramic	Earthenware Refined	Creamware						1762-1820
6	Ceramic	Earthenware Refined	Creamware	No decoration		Body	Tableware	Plates	1762-1820
3	Ceramic	Earthenware Refined	Pearlware	Annular	black & blue bands	Mix	Mix		1795-1840
2	Ceramic	Earthenware Refined	Pearlware	Blue Sponge Decoration		Body	Holloware	Bowl	1845-1930
2	Ceramic	Earthenware Refined	Pearlware	Blue Transferprint	Floral and Geometric	Fragment	Tableware	Plate	1783-1830
1	Ceramic	Earthenware Refined	Pearlware	Blue Transfer Print	Willow Pattern	Body	Tableware	Plate	1795-1830
1	Ceramic	Earthenware Refined	Tin-Glazed			Body	Holloware		post-1600
1	Ceramic	Earthenware Unrefined	Afro-Caribbeanware	Red Body		Spout	Jug	"Monk ey"	1632-??
1	Ceramic	Earthenware Unrefined	Dutch?			Body	Holloware		1632-??
3	Ceramic	Earthenware Unrefined	Red clay			Body	Roof tile		1632-??
3	Ceramic	Porcelain	Chinese	Blue underglaze		Fragment	Mix		1700-1800
1	Ceramic	Stoneware	Frechen or Fulham			Body	Jug?		
1	Ceramic	Stoneware	White Saltglazed			Body	Tableware		

1	Glass	Handblown	Wine					Frag	Neck?		1500-1810
1	Metal	Fe Alloy	Wrought		Nail						
1	Stone	Flint	Gray					Fragment	Weapon	Flintlock gun flint	
32											
SE 93 16 Fill			Boundary Ditch								
1	Ceramic	Earthenware	Refined	Kaolin Clay	Pipe	Stem	Dutch ?		Tobacco		mid-1700s
1	Ceramic	Stoneware	Brown					Body			1700-1850
10	Glass	Handblown	Bottle					Mix			1500-1810
12											
SE 93 17 Fill			Well								
1	Ceramic	Earthenware	Refined	Cauliflower Ware ?				Base			
1	Ceramic	Earthenware	Refined	Tin-Glazed	Aqua Exterior			Body	Tableware	Teapo	1687-1703
2	Ceramic	Earthenware	Refined	Creamware	Blue Stripe			Rim	Tableware	Plate	1810-1833
1	Ceramic	Earthenware	Refined	Creamware				Rim	Storage	Chamber Pot	1762-1820
1	Ceramic	Earthenware	Refined	Kaolin Clay	Pipe		Dutch Stem ?		Tobacco		1750-1800
1	Ceramic	Earthenware	Refined	Pearlware	Blue Shell Edge			Rim	Tableware	Plate	1780-1815
1	Ceramic	Earthenware	Refined	Pearlware	Blue Sponge Decoration	Burned		Rim	Tableware	Plate	1845-1930
1	Ceramic	Earthenware	Refined	Pearlware	Blue Stripe			Rim	Holloware	Drug Pot	1770-1825
1	Ceramic	Earthenware	Refined	Pearlware	Burned			Base	Holloware	Bowl	1779-1830
3	Ceramic	Earthenware	Refined	Pearlware	Burned			Mix	Holloware		1779-1830
4	Ceramic	Earthenware	Refined	Pearlware	Decalomania	Polychrome		Mix	Mix		1890-present
1	Ceramic	Earthenware	Refined	Pearlware	Green Shell Edged			Rim	Tableware	Plate	1800-1835
1	Ceramic	Earthenware	Refined	Pearlware	Hand Painted Floral	Polychrome		Body	Holloware	Bowl	1795-1830
5	Ceramic	Earthenware	Refined	Pearlware	Transfer Print	Blue/Green/Red		Mix	Tableware	Plate	1783-1830
1	Ceramic	Earthenware	Refined	Tin-Glazed	Blue Stripe			Body			post-1600
1	Ceramic	Earthenware	Refined	Whiteware	Bird			Handle?	Holloware	Terine ?	1805-present
1	Ceramic	Earthenware	Refined	Whiteware	Burned	"Shell Gold Edge" Leaf		Rim	Tableware	Saucer	1870-present
1	Ceramic	Earthenware	Refined	Whiteware	Burned	Polychrome Floral		Base	Tableware	Plate	1805-present
1	Ceramic	Earthenware	Refined	Whiteware	Burned			Base	Tableware	Plate	1805-present
1	Ceramic	Earthenware	Refined	Whiteware	Decalomania	Floral		Body	Tableware	Plate	1890-present
1	Ceramic	Earthenware	Refined	Whiteware	Floral			Handle	Holloware	Teacup	1805-present
1	Ceramic	Earthenware	Refined	Whiteware	Maker's Mark	"Warrant... Royal ... " Ovate Symbol Above		Body	Tableware	Plate	????
1	Ceramic	Earthenware	Refined	Whiteware	Polychrome	Starburst		Base	Holloware	Bowl	1805-present
1	Ceramic	Earthenware	Refined	Whiteware	Queen's Pattern?			Lid	Holloware	Terrine	1805-present
10	Ceramic	Earthenware	Refined	Whiteware				Mix			1805-present
1	Ceramic	Earthenware	Refined	Whiteware				Rim	Holloware	Teapot	1805-present
1	Ceramic	Earthenware	Unrefined	Afro-Caribbean	Red Burnish	Slip Outside		Body			1632-??
1	Ceramic	Earthenware	Unrefined	Afro-Caribbean				Body			1632-??
4	Ceramic	Earthenware	Unrefined	Afro-Caribbean				Base	Coal Pot		1632-??
2	Ceramic	Earthenware	Unrefined	Pb Glazed				Mix	Storage		1632-??
1	Ceramic	Earthenware	Unrefined					Rim	Holloware	Bowl	
1	Ceramic	Porcelain	Bone China	Aqua	"Grape" pattern on surface			Body	Holloware	Candy Jar	
7	Ceramic	Porcelain	Bone China	Toilet Bowl				Body			
3	Ceramic	Porcelain	Bone China	Transfer Print	Hand Enameled			Body	Tableware	Plate	
1	Ceramic	Porcelain	Bone China					Body	Tableware	Teacup	
9	Ceramic	Porcelain	Chinese	Undecorated				Body	Tableware	Plate	1700-1800
3	Ceramic	Porcelain	Chinese	Underglazed Decoration				Mix	Tableware		1700-1800
1	Ceramic	Stoneware	Black Basalt	Overglazed				Body	Tableware	Teapot	1750-1850
2	Ceramic	Stoneware	Blue and White					Body	Bathroom Tile		
1	Ceramic	Stoneware	Buff Body	Brown Salt Glaze Outside	Gray Salt Glaze Inside			Shoulder	Jug		
2	Ceramic	Stoneware	Buff Body	Brown Salt Glaze Outside	Gray Salt Glaze Inside			Rim	Storage		
1	Ceramic	Stoneware	Gray Body	Brown Salt Glaze Outside				base	Storage	Jug	
1	Ceramic	Stoneware	Ironstone	Black Glazed				Rim	Tableware	Teapot	
1	Ceramic	Stoneware	Ironstone	Greenish Brown Glazed				Base	Holloware	Bowl	
1	Ceramic	Stoneware	Ironstone	Pink Underglazed				Rim	???		
2	Ceramic	Stoneware	Ironstone	Sienna and Yellow				Base	Holloware	Coffee Mug	
1	Ceramic	Stoneware	Ironstone	Teal Exterior Glazed	White Base			Body	Tableware	Plate	
3	Ceramic	Stoneware	Ironstone					Mix	Tableware		
1	Ceramic	Stoneware	Westerwald					Body	Holloware	Bottle	
1	Ceramic	Stoneware						Body	Decorative Tile		
1	Glass	Milk Glass	White	Square				Corner	Ashtray		

1	Glass	Milk Glass				Base	Holloware	
1	Metal	Cu Alloy	Salt Shaker	Screw On Lid		Complete		
1	Mix	Battery Core	D-Cell			Part		
1	Plastic	Bakelite	Multi Coloured ?	Burned ?		Rim	Ashtray	
1	Plastic	Bakelite	White	Floral Motif	Two Holes	Complete	Button	
1	Plastic	Faux Ivory	Looks like a Nando Chicken Logo			Top	?	
2	Stone	Asbestos				Fragment	Rooftile	
19	Glass	Mix of Glass Bottles				s		
12								
4								
SE 93 18	Topsoil	Surface	Domestic Site	Stelten #18				
6	Ceramic	Earthenware	Refined	Creamware		Body		1762-1820
2	Ceramic	Earthenware	Refined	Pearlware		Body	Tableware	Plates 1779-1830
3	Ceramic	Earthenware	Refined	Tin-Glazed		Body		post-1600
2	Ceramic	Earthenware	Unrefined	Pb Glazed	Dutch?	Body		1632-??
1	Ceramic	Earthenware	Unrefined			Body		
1	Ceramic	Porcelain	Canton	Brown Overglazed		Body	Holloware	Bowl 1700-1800
1	Ceramic	Stoneware	Westerwald	Saltglazed		Body		
16								

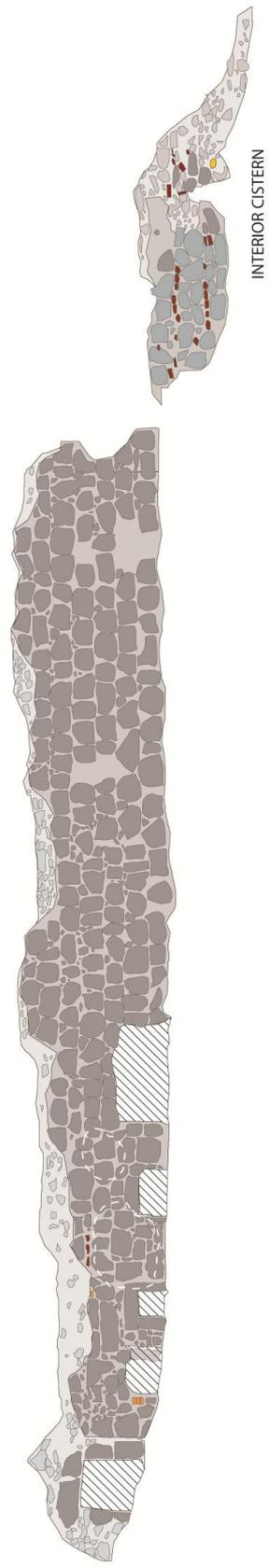
APPENDIX 3—DETAILED DRAWINGS



SE 93 BENNERS PLANTATION profile of west exterior face INDUSTRIAL COMPLEX SCALE 1:50
 DRAWN: 4/08/2011 DIGITIZED: 30/06/2011 by CLARKE



- Face Stone Wall
- Exposed Ashlar Fill
- Visible Repair of Face Stones
- ▨ Flue Hole



INTERIOR CISTERN

- ① 1733 Abraham Ravenne
- ② 1739 Jan Jacob Creutzer
- ③ 1728 Joseph Lindsay
- ④ 1735 Johannes Heyliger
- ⑤ 1736 Abraham Heyliger
- ⑥ 1723 Lucas Benner
- ⑦ 1802 Gov. Johannes Salomons Gibbes, Esq.
- ⑧ 1769 Johannes Benner
- ⑨ 1732 Hen. Benner
- ⑩ Unknown
- ⑪ Unknown
- ⑫ Unknown
- ⑬ Unknown
- ⑭ Unknown
- ⑮ Unknown

