

REPORT ON THE 1997 ARCHEOLOGICAL INVESTIGATIONS AT  
ULYSSES S. GRANT NATIONAL HISTORIC SITE,  
ST. LOUIS, MISSOURI

BY  
KARIN M. ROBERTS AND JAMES E. PRICE

Midwest Archeological Center  
Technical Report No. 120



NATIONAL PARK SERVICE  
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United States Department of the Interior  
National Park Service  
Midwest Archeological Center  
Lincoln, Nebraska  
2009

This report has been reviewed against the criteria contained in 43CFR Part 7, Subpart A, Section 7.18 (a) (i) and, upon recommendation of the Midwest Regional Office and the Midwest Archeological Center, has been classified as

*Available*

Making the report available meets the criteria of 43CFR Part 7, Subpart A, Section 7.18 (a) (i).



## FORWARD

Although artifact analysis was completed and a major portion of the following text was drafted in 1998, this report on the 1997 investigations at Ulysses S. Grant National Historical Site (ULSG) was not finalized until 2008. A number of other archeological projects at the park have been undertaken and published since the 1997 fieldwork was completed. In the interest of time and simplicity, no attempt has been made here to incorporate the findings of those later projects in this text.

The authors wish to express their extreme gratitude to the following individuals who made this project and the resulting report possible. Jill York O'Bright, Superintendent of Ulysses S. Grant National Historic Site in 1997, and other staff members at the park provided valuable advice and assistance throughout the fieldwork phase of the project. The fieldcrew, including Renata Coleman, Chris Brown, Jennifer Marlar, John Swigart, and Judy Harpole, as well as numerous volunteers, worked tirelessly and without complaint in the hot, humid St. Louis summer. At the Midwest Archeological Center (MWAC), Mark Lynott and Jeff Richner provided important guidance and assistance during the analysis stage of the project; Bruce Jones, Dawn Bringelson, and Jay Sturdevant read and commented on earlier drafts of this text; and Ralph Hartley and Jan Dial-Jones provided encouragement and time to bring this project to completion. Finally, thanks to Allan Weber and the report production staff at the Midwest Archeological Center for turning text, figures and tables into a final, finished product.



## INTRODUCTION

From June 30 through July 25, 1997, subsurface archeological investigations were conducted at four areas of Ulysses S. Grant National Historic Site, historically known as White Haven, in St. Louis, Missouri (Figure 1). Ground-disturbing activities were planned as part of the restoration and maintenance of the historic property and such investigations were necessary to mitigate any adverse impacts to significant buried archeological deposits within the project area.

This project, the fifth archeological research expedition carried out on the site since 1990 (Noble 1997; Price and Hastings 1998), was conducted under a cooperative agreement between the National Park Service and the University of Missouri-Columbia. Dr. James E. Price of the University of Missouri-Columbia served as principal investigator, and research strategy for the project was established by Dr. Price and Dr. Mark Lynott of the Midwest Archeological Center (MWAC). Karin Roberts and Renata Coleman of the Midwest Archeological Center served as crew chiefs, while field technicians on the project included Chris Brown, Jennifer Marlar, and John Swigart of the Midwest Archeological Center and Judy Harpole of the University of Missouri-Columbia. All work on the site was coordinated with Jill York O'Bright, Superintendent of Ulysses S. Grant National Historic Site.

Artifacts and related archival materials from the 1997 project are stored and cataloged under ULSG accession number 9 (MWAC accession number 720).

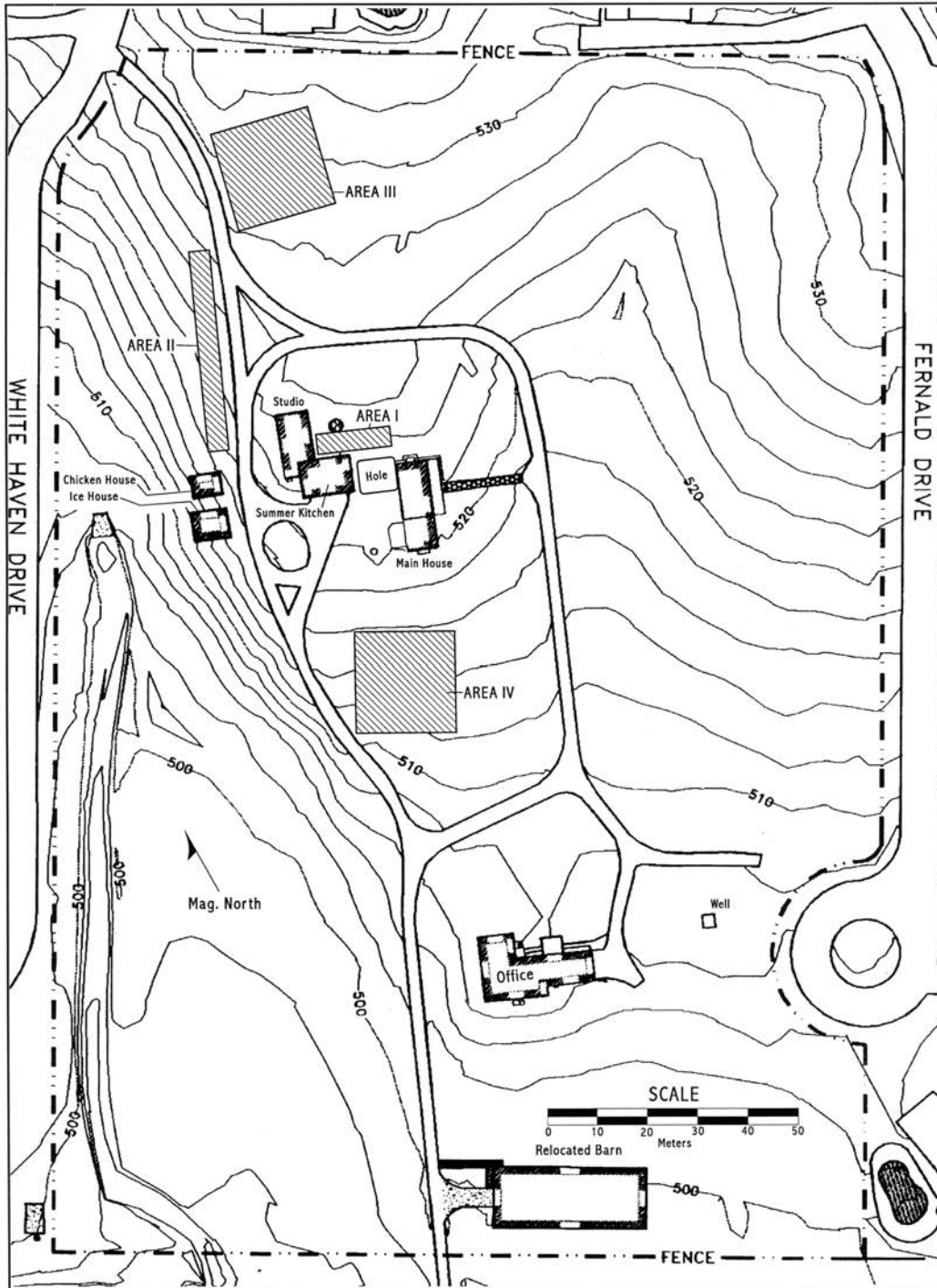


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# CHAPTER 1

## A BRIEF HISTORY OF WHITE HAVEN

Located in the central portion of eastern Missouri, White Haven has been occupied almost continuously for the last two centuries. Hugh Graham, one of the Euro-American first settlers in the St. Louis area with an Anglo name, obtained the rural property on Gravois Creek in 1796 under a Spanish land grant. After a few years of farming the area, Graham sold the property to the prominent fur trader James Mackay in 1799. Mackay and his wife Isabella Long purchased the Gravois Creek farm under Spanish rule, and continued to own it through the transfer to back to French rule in 1800 and then to the United States in 1803. Sometime around 1808, the Gravois Creek farm was transferred to Isabella Long's brother William Lindsay Long and his wife Elizabeth Sappington from James Mackay and his father-in-law John Long. Sometime between 1812 and 1814, William Lindsay Long built the timbered frame house on the Gravois Creek farm that would become White Haven (Little 1993:21).

The Longs owned the farm on the Gravois and its large clapboard-sided house until 1818 when they sold their property to Theodore Hunt and Anne Lucas. The Hunts lived on the property for a short period of time when financial difficulties forced them to sell the farm. By 1820, the area around the Gravois was being cleared, cultivated and settled.

Frederick Dent, the future father-in-law of Ulysses S. Grant, purchased the Gravois farm, including the large main house, in 1821, naming the farm White Haven. Although the Dents originally used White Haven as a summerhouse, it became the family's permanent residence in 1827 (Little 1993; Price and Hastings 1998).

Frederick Dent's daughter Julia grew up at White Haven and it was here that she first met her future husband, Ulysses S. Grant, her brother Frederick's roommate at the United States Military Academy at West Point. After their 1848 marriage, Ulysses and Julia Grant used White Haven as a retreat from Ulysses' life as an Army officer and visited Julia's family often. After Grant's resignation from the Army in 1854, the family moved to White Haven. During this time Grant farmed a portion of the plantation and built his own house, Hardscrabble, on the property. Following the death of Julia's mother shortly thereafter, Ulysses and Julia moved into the main house with her father. Unfortunately, Grant's farming venture failed and he and Dent were forced to sell Hardscrabble in 1858. During his years as a Civil War general and later during his presidency, Grant continued to show an interest in White Haven, purchasing additional tracts of land and visiting the farm whenever possible. As a result of Grant's longstanding interest in White Haven, the plantation eventually covered over one-thousand acres. The Dent/Grant family continued ownership of White Haven until 1885, although the farm was leased to a succession of tenants in their later years of ownership (Noble 1997).

The Grant family was forced to deed the property to William H. Vanderbilt in 1885 due to a poor financial investment. Vanderbilt sold White Haven to Luther Conn in 1888, who, in 1903, sold a large portion of the property to August A. Busch. Conn sold

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the area of the property that contained the main house to a local developer. Between 1905 and 1906, the property changed hands four times. The Wenzlick family purchased the main house and surrounding acreage in 1913. The Wenzlicks lived at White Haven until 1986 when the process of transfer to the National Park Service began and Ulysses S. Grant National Historic Site was established (Little 1993:277-279).

## CHAPTER 2

### FIELD METHODS EMPLOYED

Subsurface archeological investigations carried out on Ulysses S. Grant National Historic Site were systematically structured to generate as much data as possible given the budget, personnel, and time constraints for the project. Archeological investigation provenience units consisted of 1 x 2 meter (m) units excavated either in natural levels or arbitrary 10 centimeter (cm) levels, shoveltests, and 25 cm x 4 m segments of slit trenches in four areas of the site (Table 1). Features were identified and excavated separately. All soil removed during excavations was screened through quarter-inch wire mesh. Both black and white photographs as well as color photographs and slides were taken of all excavation units. Standard gridsheets and data capture forms were also completed on each excavation unit. All recovered cultural materials were containerized by provenience unit, and a field catalog was maintained throughout the project listing all finds. A daily field log was maintained by the principal investigator, which outlined each day's activities.

For the purposes of this report, artifacts uncovered during the course of the 1997 excavations were assigned to one of six functional categories: household; personal; recreation; construction; fuel; and prehistoric. Household items generally consist of ceramic and glass sherds, personal items include clothing-related artifacts and jewelry, and recreational items include ammunition and musical instrument fragments. Brick and nails are representative of the construction category, fuel-related materials consist of coal or clinker fragments, and artifacts of prehistoric origin include lithic flakes and a chipped stone projectile point. A variety of non-cultural materials were also collected in the field and were assigned to a seventh category.

Table 1. Table showing the four excavation areas and the excavation units (numbers and locations) at 23SL765.

Area	Unit	Depth	Location
<b>Excavation units (1m-x-2m) in Area 97-I</b>			
Area 97-I	97-001	0-50 cmbs	n/a
Area 97-I	97-002	0-50 cmbs	n/a
Area 97-I	97-004	0-38 cmbs	n/a
Area 97-I	97-005	0-50 cmbs	n/a
Area 97-I	97-006	0-40 cmbs	n/a
Area 97-I	97-007	0-50 cmbs	n/a
Area 97-I	97-008	0-50 cmbs	n/a
<b>Excavation units (1m-x-2m) in Area 97-II</b>			
Area 97-II	97-009	0-30 cmbs	510N/507E
Area 97-II	97-010	0-40 cmbs	515N/507E
Area 97-II	97-011	0-30 cmbs	511N/509E

Table 1. Continued.

Area	Unit	Depth	Location
<b>Shovel test units in Area 97-II</b>			
Area 97-II	97-020	0-c. 20 cmbs	510N/506E
Area 97-II	97-021	0-c. 20 cmbs	510N/508E
Area 97-II	97-022	0-c. 20 cmbs	510N/510E
Area 97-II	97-023	0-c. 20 cmbs	515N/506E
Area 97-II	97-024	0-c. 20 cmbs	515N/508E
Area 97-II	97-025	0-c. 20 cmbs	515N/510E
Area 97-II	97-026	0-c. 20 cmbs	520N/506E
Area 97-II	97-027	0-c. 20 cmbs	520N/508E
Area 97-II	97-028	0-c. 20 cmbs	520N/510E
Area 97-II	97-029	0-c. 20 cmbs	525N/506E
Area 97-II	97-030	0-c. 20 cmbs	525N/508E
Area 97-II	97-031	0-c. 20 cmbs	525N/510E
Area 97-II	97-032	0-c. 20 cmbs	530N/506E
Area 97-II	97-033	0-c. 20 cmbs	530N/508E
Area 97-II	97-034	0-c. 20 cmbs	530N/510E
Area 97-II	97-035	0-c. 20 cmbs	535N/506E
Area 97-II	97-036	0-c. 20 cmbs	535N/508E
Area 97-II	97-037	0-c. 20 cmbs	535N/510E
Area 97-II	97-038	0-c. 20 cmbs	540N/506E
Area 97-II	97-039	0-c. 20 cmbs	540N/508E
Area 97-II	97-040	0-c. 20 cmbs	540N/510E
Area 97-II	97-041	0-c. 20 cmbs	545N/506E
Area 97-II	97-042	0-c. 20 cmbs	545N/508E
Area 97-II	97-043	0-c. 20 cmbs	545N/510E
Area 97-II	97-044	0-c. 20 cmbs	550N/506E
Area 97-II	97-045	0-c. 20 cmbs	550N/508E
Area 97-II	97-046	0-c. 20 cmbs	550N/510E
<b>Excavation trenches in 20-meter block on Area 97-III</b>			
Area 97-III	97-047	0-8 cmbs	0-0.3N/0-4E
Area 97-III	97-048	0-6 cmbs	0-0.3N/4-8E
Area 97-III	97-049	0-6 cmbs	0-0.3N/8-12E
Area 97-III	97-050	0-7 cmbs	0-0.3N/16-20E
Area 97-III	97-051	0-sterile	4-4.3N/0-4E
Area 97-III	97-052	0-sterile	4-4.3N/4-8E
Area 97-III	97-053	0-sterile	4-4.3N/8-12E
Area 97-III	97-054	0-sterile	4-4.3N/12-16E

Table 1. Continued.

Area	Unit	Depth	Location
Area 97-III	97-055	0-sterile	8-8.3N/0-4E
Area 97-III	97-056	0-sterile	8-8.3N/4-8E
Area 97-III	97-057	0-sterile	8-8.3N/8-12E
Area 97-III	97-058	0-sterile	8-8.3N/12-16E
Area 97-III	97-059	0-sterile	8-8.3N/16-20E
Area 97-III	97-060	0-sterile (c. 10 cmbs)	16-16.3N/0-4E
Area 97-III	97-061	0-sterile (c. 10 cmbs)	16-16.3N/4-8E
Area 97-III	97-062	0-sterile (c. 10 cmbs)	16-16.3N/8-12E
Area 97-III	97-063	0-sterile (c. 10 cmbs)	16-16.3N/12-16E
Area 97-III	97-064	0-sterile (c. 10 cmbs)	16-16.3N/16-20E
Area 97-III	97-065	0-sterile (c. 10 cmbs)	12-12.3N/0-4E
Area 97-III	97-066	0-sterile (c. 10 cmbs)	12-12.3N/4-8E
Area 97-III	97-067	0-11 cmbs	12-12.3N/8-12E
Area 97-III	97-068	0-13 cmbs	12-12.3N/12-16E
Area 97-III	97-069	0-10 cmbs	12-12.3N/16-20E
Area 97-III	97-070	0-sterile (c. 10 cmbs)	0-4N/0-0.3E
Area 97-III	97-071	0-sterile (c. 10 cmbs)	4-8N/0-0.3E
Area 97-III	97-072	0-sterile (c. 10 cmbs)	8-12N/0-0.3E
Area 97-III	97-073	0-sterile (c. 10 cmbs)	16-20N/0-0.3E
Area 97-III	97-074	0-sterile (c. 10 cmbs)	16-20N/12-12.3E
Area 97-III	97-075	0-sterile (c. 10 cmbs)	20-20.3N/0-4E
Area 97-III	97-076	0-sterile (c. 10 cmbs)	20-20.3N/4-8E
Area 97-III	97-077	0-sterile (c. 10 cmbs)	20-20.3N/8-12E
Area 97-III	97-078	0-sterile (c. 10 cmbs)	12-16N/0-0.3E
Area 97-III	97-079	0-sterile (c. 10 cmbs)	20-20.3N/12-16E
Area 97-III	97-080	0-sterile (c. 10 cmbs)	20-20.3N/12-16E
Area 97-III	97-081	0-10 cmbs	0-4N/4-4.3E
Area 97-III	97-082	0-10 cmbs	4-8N/4-4.3E
Area 97-III	97-083	0-10 cmbs	8-12N/4-4.3E
Area 97-III	97-084	0-sterile	12-16N/12-12.3E
Area 97-III	97-085	0-sterile	2.75-4N/12-12.3E
Area 97-III	97-086	0-sterile	4-8N/12-12.3E
Area 97-III	97-087	0-sterile	8-12N/12-12.3E
Area 97-III	97-088	0-sterile	0-4N/8-8.3E
Area 97-III	97-089	0-sterile	4-8N/8-8.3E
Area 97-III	97-090	0-sterile	8-12N/8-8.3E
Area 97-III	97-091	0-sterile	12-16N/8-8.3E

Table 1. Continued.

Area	Unit	Depth	Location
Area 97-III	97-092	0-sterile	16-20N/8-8.3E
Area 97-III	97-093	0-sterile	12-16N/4-4.3E
Area 97-III	97-094	0-sterile (c. 10 cmbs)	16-20N/4-4.3E
Area 97-III	97-095	0-sterile (c. 10 cmbs)	0-4N/16-16.3E
Area 97-III	97-096	0-sterile (c. 10 cmbs)	5-8N/16-16.3E
Area 97-III	97-097	0-sterile (c. 10 cmbs)	8-12N/16-16.3E
Area 97-III	97-098	0-sterile (c. 10 cmbs)	12-16N/16-16.3E
Area 97-III	97-099	0-sterile (c. 10 cmbs)	16-20N/16-16.3E
Area 97-III	97-100	0-sterile (c. 10 cmbs)	0-4N/20-20.3
Area 97-III	97-101	0-sterile (c. 10 cmbs)	4-8N/20-20.3E
Area 97-III	97-102	0-sterile (c. 10 cmbs)	8-12N/20-20.3E
Area 97-III	97-103	0-12 cmbs	12-16N/20-20.3E
Area 97-III	97-104	0-8 cmbs	16-20N/20-20.3E
<b>Roadway excavation units of Area 97-IV</b>			
Area 97-IV	97-012	surface-top of gravel	0-4N/0-4E
Area 97-IV	97-013	surface –bottom of cultural layer	4-5.6N/0-4E
Area 97-IV	97-014	surface-bottom of cultural layer	4.2-5.2N/0-2W
Area 97-IV	97-015	surface-top of cultural layer	3.4-4.4N/4-6E
Area 97-IV	97-016	Feature 97-2, 9-55 cmbs	12N/0E
Area 97-IV	97-016	surface-bottom of cultural layer	12-14N/0-2E
Area 97-IV	97-017	surface-bottom of cultural layer	9.2N/1W
Area 97-IV	97-018	surface-bottom of cultural layer	10.2N/1W
Area 97-IV	97-019	surface-bottom of cultural layer	7.7-8N/0-4E
Area 97-IV	97-105	0-top of gravel (c. 8 cmbs)	15.7-16N.0-4E
Area 97-IV	97-114	0-top of gravel	11.7-12N/0-4E
Area 97-IV	97-116	0-top of gravel	19.7-20N/0-4E
Area 97-IV	97-123	0-top of cultural layer	0-4N/4-4.3E
Area 97-IV	97-128	0-12 cmbs	8-12N/0-0.3E
Area 97-IV	97-129	0-top of cultural layer	13.7-14N/0-4E
Area 97-IV	97-133	0-top of cultural layer	3.7-4N/0-4E
Area 97-IV	97-135	0-top of gravel	-0.3-0N/0-4E
Area 97-IV	97-137	0-top of gravel	0-4N/0-0.3E
Area 97-IV	97-138	0-10 cmbs	6-6.3N/0-4E
<b>Excavation units in 20-meter block outside the roadway area of Area 97-IV</b>			
Area 97-IV	97-106	0 -13 cmbs	15.7-16N/4-8E
Area 97-IV	97-107	0-10 cmbs	15.7-16N/8-12E
Area 97-IV	97-108	0-5 cmbs	15.7-16N/12-16E
Area 97-IV	97-109	0-top of cultural layer (c. 10 cmbs)	15.7-16N/16-20E

Table 1. Concluded.

<b>Area</b>	<b>Unit</b>	<b>Depth</b>	<b>Location</b>
Area 97-IV	97-110	0-top of cultural layer	7.7-8N/4-8E
Area 97-IV	97-111	0-top of cultural layer	7.7-8N/8-12E
Area 97-IV	97-112	0-top of cultural layer	7.7-8N/12-16E
Area 97-IV	97-113	0-top of cultural layer	7.7-8N/16-20E
Area 97-IV	97-115	0-top of gravel	11.7-12N/4-8E
Area 97-IV	97-117	0-top of cultural layer	19.7-20N/4-8E
Area 97-IV	97-118	0-top of cultural layer (c. 6 cmbs)	19.7-20N/12-16E
Area 97-IV	97-119	0-top of cultural layer (c. 8 cmbs)	19.7-20N/16-20E
Area 97-IV	97-120	0-top of cultural layer	3.7-4N/12-16E
Area 97-IV	97-121	0-top of cultural layer	3.7-4N/16-20E
Area 97-IV	97-122	0-top of cultural layer	3.7-4N/8-12E
Area 97-IV	97-124	0-10 cmbs	19.7-20N/8-12E
Area 97-IV	97-125	0-7 cmbs	11.7-12N/8-12E
Area 97-IV	97-126	0-7 cmbs	11.7-12N/12-16E
Area 97-IV	97-127	0-7 cmbs	11.7-12N/16-20E
Area 97-IV	97-130	0-top of cultural layer	-0.3-0N/8-12E
Area 97-IV	97-131	0-top of cultural layer	-0.3-0N/12-16E
Area 97-IV	97-132	0-top of cultural layer	-0.3-0N/16-20E
Area 97-IV	97-134	0-top of cultural layer	3.7-4N/4-8E
Area 97-IV	97-136	0-top of gravel	-0.3-0N/4-8E
<b>Surface collection throughout site</b>			
All areas	97-000	surface collection	entire site

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## CHAPTER 3

### AREA 97-I: BEHIND THE SUMMER KITCHEN

In the area north of the summer kitchen and northeast of the main structure, 15.9 square meters (m<sup>2</sup>) were excavated (Figures 1, 2). Portions of this area, including some subsurface deposits, have been previously disturbed by the removal of shrubs and plants northeast of the main house and by construction activities. The excavated 15.9 m<sup>2</sup> consisted of seven 1 x 2 m excavation units and one 1 x 1.9 m excavation unit, all excavated to sterile soil. Excavation Unit 97-001 was excavated in a light midden area southeast of the remains of a brick cooling fountain (Figure 2). The soil in this unit had been slightly disturbed by the recent installation of a buried power cable, as well as by some old subsurface electrical cables that provided power to electric pumps associated with the cooling fountain. Excavation Unit 97-002 was also placed in the light midden area, but in undisturbed deposits. Excavation Unit 97-003 (Figure 2) contained relatively little cultural material but exposed a gray soil that produced a peculiar odor when first exposed. The smell was rather acrid, and likely resulted from soapy laundry water soaking into the ground in that area over a long period of time.

Excavation Unit 97-004, two meters south of 97-003 (Figure 2), also encountered the same foul-smelling soil to a depth of approximately 40 cm below ground surface. This excavation produced very few artifacts. Another excavation unit, 97-006, was established to tie together units 97-002 and 97-003 (Figure 2). The southern corner of 97-006 also encountered the foul-smelling soil and established its limit on that side. Excavation Unit 97-005 was excavated one meter southeast of the southeastern wall of the studio addition to the stone summer kitchen structure (Figure 2), where excavation encountered a rather dense refuse disposal area and generated abundant artifacts from the first half of the nineteenth century. It was slightly disturbed by four copper pipes that were conduits for water to and from the brick cooling fountain.

Excavation Unit 97-007 was excavated one meter from the northeastern wall of the summer kitchen structure (Figure 2), and abutted the unit previously excavated by Noble (1997) under the window in that structure. It contained an abundance of artifacts dating to the first half of the nineteenth century which were embedded in a very dark organic soil of the midden that had been first tested by Noble (1997) and then by Price in 1995 (Price and Hastings 1998). In the northwest corner of this unit, a feature consisting of jumbled limestone fragments was encountered and recorded (Figure 3). The southeastern quarter of this unit was badly disturbed by a brown clay drain tile which was installed sometime *circa* 1930.

Excavation Unit 97-008 (Figure 2) was excavated to the east of 97-007, and the disturbance from the same drain tile was found to continue across the southeastern portion of this unit. Both excavation Units 97-007 and 97-008 were found to contain dark midden deposits containing abundant artifacts. Artifacts excavated in Area 97-I were distributed in a logical manner vertically, with older diagnostic objects present in the lower levels and more recent objects found nearer the surface. In general, this shows

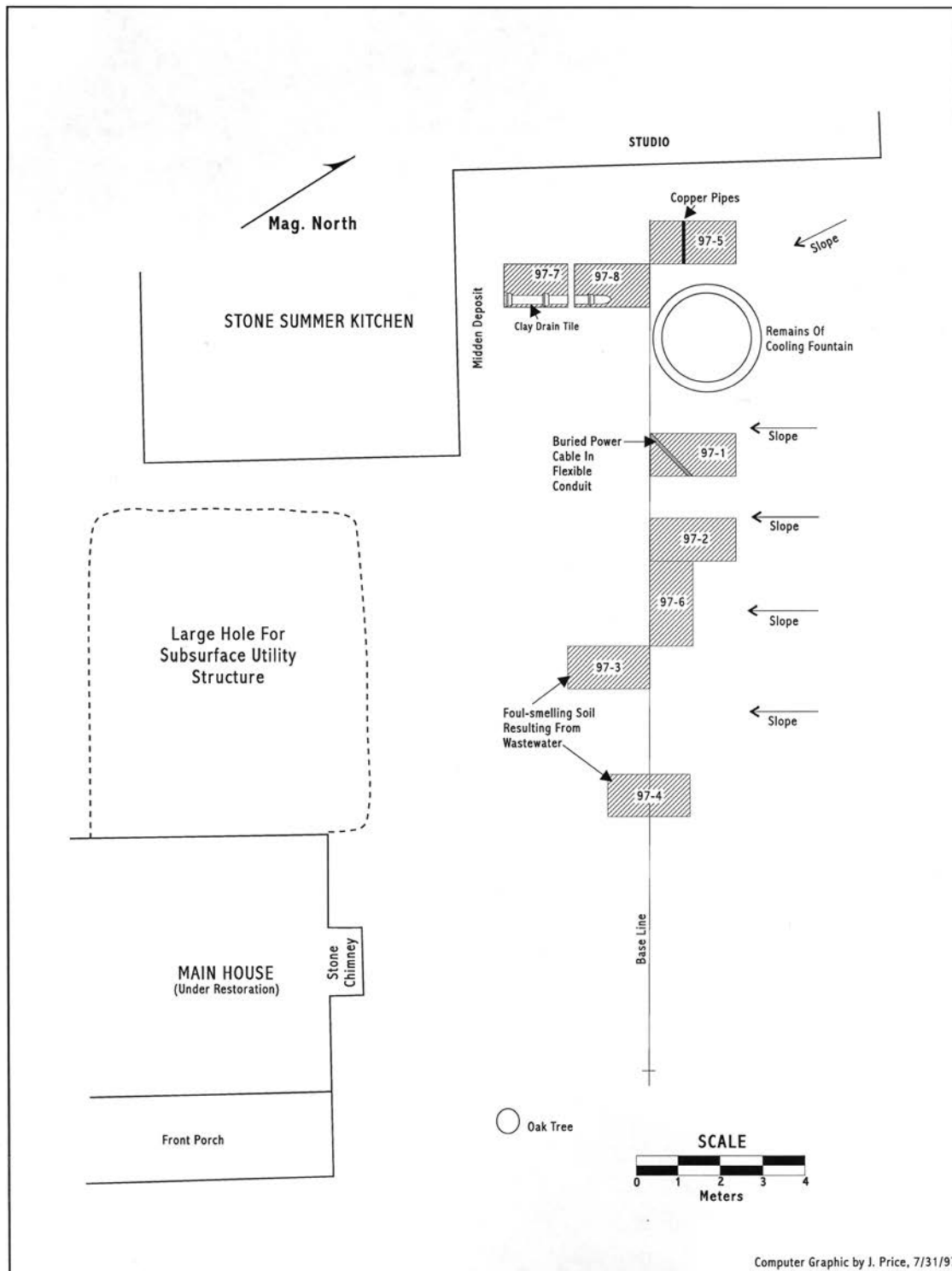


Figure 2. Area 97-1 illustrating locations of excavation units.

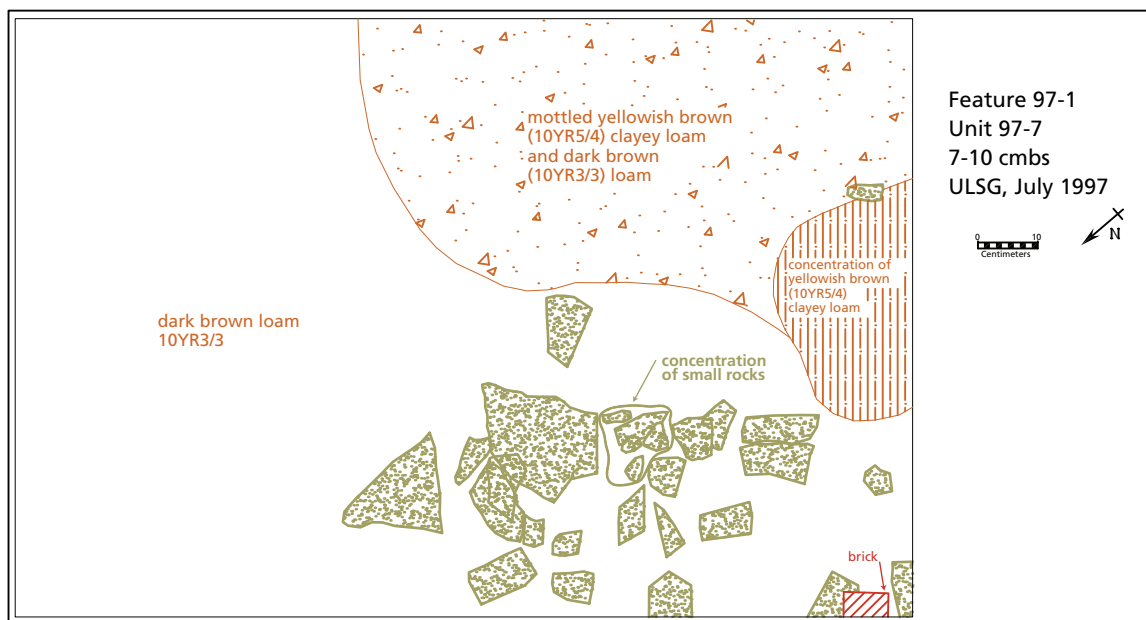


Figure 3. Feature 97-1 in Area 97-I.

little ground disturbance in this area of the site, other than the drain, since the time of deposition (Figure 4).

## HOUSEHOLD

### Ceramics

Household ceramics from Area 97-I of the Ulysses S. Grant National Historic Site excavations include a variety of wares and decorative treatments (Table 2).

### *Whiteware*

White earthenware sherds, including whiteware and pearlware, are the most numerous ceramic type in the assemblage ( $n=1204$ ) and exhibit numerous decorative treatments. Pearlware is a porous, off-white earthenware fired with a cobalt-infused glaze, giving the ware a blue appearance, while whiteware is a more refined white earthenware (IMACS 473:3). However, in this report, the whiteware and pearlware sherds are collectively designated whiteware.

Whiteware sherds recovered during the 1997 project are decorated with transfer printing, annular designs, sponge decoration, hand painting, mold decoration, and edge decoration (Table 3). The excavation units in Area 97-I yielded 27 edge-decorated sherds. Usually, edge-decorated vessels have a molded design around the rim with either blue or green paint over the molded decoration (Price 1979:17). Of the 27 sherds, eleven are from shell-edge-decorated whiteware vessels. Nine of the 27 whiteware sherds are painted blue with a molded shell-edge decoration and one is green with a molded shell-edge decoration (Figure 5; ULSG 6077). Green shell-edge decorated whiteware generally went out of production by the 1840s (Miller and Hunter 1990:116). The last

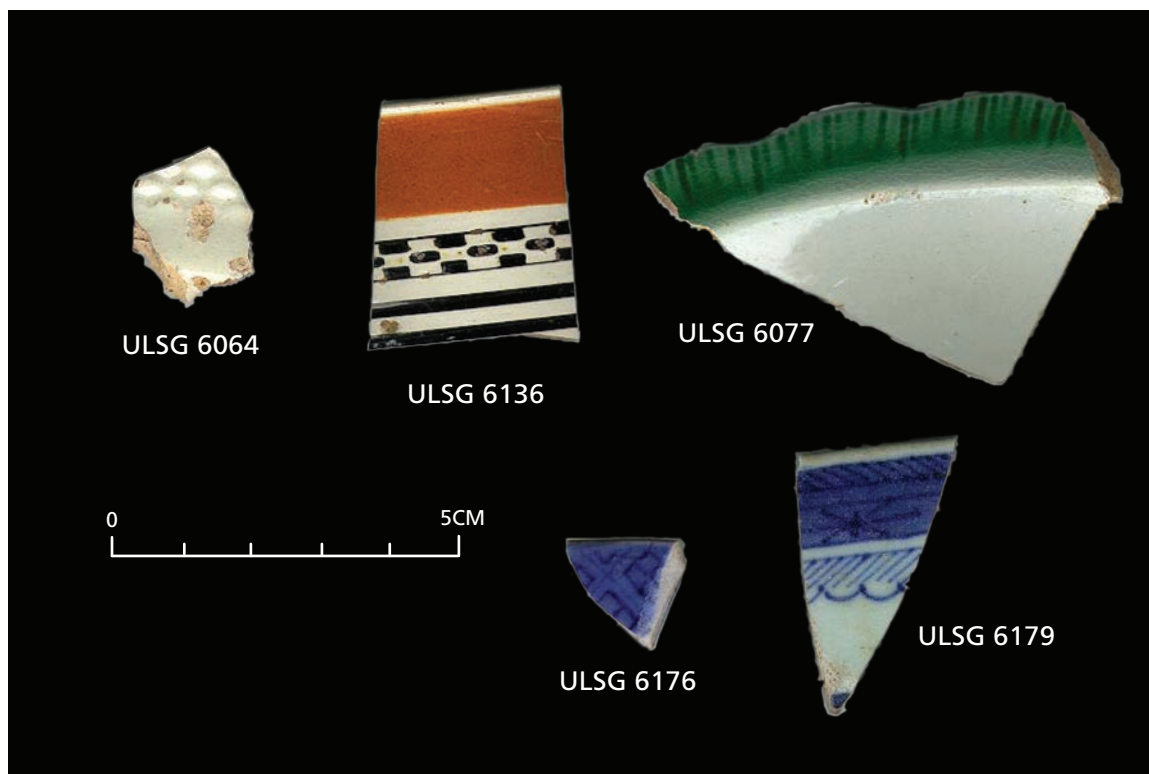


Table 2. Household ceramic types by unit and level, Area 97-I.

Unit	Level	porcelain	redware	stoneware	whiteware (includes pearlware)	yellowware	Total
<b>97-001</b>	L1	1	1	-	21	1	24
	L2	9	5	7	96	15	132
	L3	12	2	8	114	6	142
	L4	4	1	5	35	4	49
	L5	2	-	1	12	3	18
<b>97-002</b>	L1	1	-	-	-	-	1
	L2	2	-	6	23	-	31
	L3	6	2	22	54	1	85
	L4	3	10	2	56	2	73
	L5	1	1	-	6	-	8
<b>97-004</b>	L1	1	3	-	-	1	5
<b>97-005</b>	L1	-	2	-	22	3	27
	L2	8	2	-	101	9	120
	L3	5	-	1	55	1	62
	L4	-	-	1	9	-	10
<b>97-006</b>	L1	-	-	1	7	-	8
	L2	3	-	2	56	2	63
	L3	1	-	1	38	-	40
	L4	-	2	1	7	-	10
<b>97-007</b>	L1	2	93	7	41	2	145
	L2	4	18	3	22	2	49
	L3	9	52	12	74	6	153
	L4	12	3	8	107	3	133
	L5	2	5	1	60	1	69
<b>97-008</b>	L1	2	9	-	16	-	27
	L2	7	24	7	47	5	90
	L3	11	13	4	77	9	114
	L4	2	-	-	34	3	39
	L5	-	3	1	14	-	18
<b>Total</b>		110	251	101	1204	79	1745

Table 3. Whiteware decoration, Area 97-I.

Unit	Level	annular	edge decorated	hand painted	mold decorated	sponge decorated	transfer print	no decoration	Total
<b>97-001</b>	L1	1	1	-	-	-	2	17	21
	L2	-	1	2	-	-	18	75	96
	L3	-	1	15	1	-	21	76	114
	L4	-	-	6	-	-	4	25	35
	L5	-	-	1	-	-	2	9	12
<b>97-002</b>	L2	1	-	-	-	-	3	19	23
	L3	1	-	-	-	-	14	39	54
	L4	1	-	4	-	-	15	36	56
	L5	-	-	-	-	-	4	2	6
<b>97-005</b>	L1	1	-	1	1	-	5	14	22
	L2	11	-	2	2	1	17	68	101
	L3	2	-	-	1	-	12	40	55
	L4	-	-	-	-	-	5	4	9
<b>97-006</b>	L1	-	1	-	-	-	4	2	7
	L2	-	-	1	1	-	19	35	56
	L3	-	-	-	1	-	14	23	38
	L4	1	-	-	-	-	-	6	7
<b>97-007</b>	L1	1	-	-	-	-	6	34	41
	L2	2	2	1	-	-	3	14	22
	L3	2	2	5	1	-	11	53	74
	L4	3	2	2	-	-	40	60	107
	L5	1	8	2	4	1	18	26	60
<b>97-008</b>	L1	-	1	1	-	-	1	13	16
	L2	3	-	-	1	-	9	34	47
	L3	2	8	2	1	-	15	49	77
	L4	1	-	-	-	1	8	24	34
	L5	-	-	-	-	-	5	9	14
<b>Total</b>		34	27	45	14	3	275	806	1204



**Figure 5.** Edge-decorated and annular-decorated whiteware sherds, and Chinese Export Porcelain sherds, Area 97-I.

ULSG 6064	Edge-decorated whiteware with molded fish scale pattern (dates from early 1820s-early 1840s)	Area 97-1, Unit 97-007, Level 3
ULSG 6077	Green edge-decorated whiteware with molded shell-edge (dates to pre-1840)	Area 97-I, Surface
ULSG 6136	Annularware, engine turned with inlaid slip	Area 97-I, Unit 97-007, Level 5
ULSG 6176	Handpainted Chinese Export Porcelain with "Nanking Border" (peak import years during period from 1785-1835)	Area 97-I, Unit 97-002, Level 3
ULSG 6179	Handpainted Chinese Export Porcelain with "Canton Border" (peak import years during period from 1785-1835)	Area 97-I, Unit 97-005, Level 2

sherd of shell-edge decorated whiteware is painted but not molded, and is most likely more recent than the molded sherds. Four edge-decorated sherds exhibit a fish scale pattern (Figure 5: ULSG 6064). Fish scale edge-decorated whiteware generally dates from the early 1820s to the early 1840s (Miller and Hunter 1990:116). Eleven blue edge-decorated sherds and one green edge-decorated sherd are very fragmentary and their pattern could not be determined.

Three whiteware sherds have an undetermined blue sponge decoration. Sponge-decorated whiteware was popular from 1798 until 1865, and consists of a mottled design

applied with a brush or sponge (IMACS 473:14). Sponge decoration is most commonly brightly colored and is applied in various patterns.

An annular design decorates 34 whiteware sherds. Annular, or banded, designs are usually applied with a brush to the exterior and/or rim of a vessel on a rotating wheel, and are usually found on bowls and mugs (IMACS 473:15). A variety of annular ware decorative treatments are present in the 97-I assemblage, including both bright and earthen banding, marbled designs, swirling designs, engine-turned inlaid slip, and rouletted patterning. Of the 34 sherds with annular designs, 19 exhibit banded decoration and most likely represent two or more vessels. Nine sherds are of the bright banded variety and have decoration in red, light blue and white, while the other ten sherds have earthen banded decoration in shades of brown, olive, and black. Ten sherds are decorated with a marbled design and probably represent at least three separate vessels. One of these ten may be a cat's eye design in brown, light blue, and pale orange. Three sherds have a swirling pattern in brown, white and olive, while one sherd has been engine-turned to apply an inlaid slip design, and is most likely a mug fragment (Sussman 1997:33-37). This unusual sherd has a black and white checkerboard pattern with an orange painted body (Figure 5; ULSG 6136). The last annular-decorated sherd features a green-painted incised (rouletted) design.

Forty-five whiteware sherds are decorated in hand-painted patterns. The blue Chinese house motif was among the earliest hand-painted design to appear, and was later followed by various floral and geometric designs (Noel Hume 1970:129 in Price 1979:20). The majority of the hand-painted sherds from Area 97-I (n=34) are painted with a broadline design, and eight of the 34 are floral designs done in a bright palette of red, blue, black, and green. One of these broadline floral design sherds is the burned base of a teacup with an impressed maker's mark, a small flower, on the base. Seventeen broadline-painted sherds are painted in blue, possibly in a fish design, while nine broadline sherds are of an unrecognized blue design. Five hand-painted sherds are done in a fineline floral pattern. Four of these may be from the same vessel, and have a bright palette of black, green, and red, while the fifth is painted in orange or yellow. Six sherds are decorated with a simple blue band around the rim. Five of these may be from the same vessel as some of the other broadline-decorated blue hand-painted sherds. The sixth sherd painted with a blue band has some molded decoration as well.

Transfer printed sherds were by far the most common type of whiteware decoration excavated from Area 97-I, and number 275. Transfer print designs were applied by pressing a piece of paper inked from a copper plate design onto the surface of the ware (IMACS 473:14). The transfer print sherds from Area 97-I are decorated in many colors including black, dark blue, light blue, medium blue, purple, red, green, pink/red, brown, dark brown, and pink. According to Hughes and Hughes (1968:150-151 in Price 1979:19), dark blue, or "old blue", was the primary transfer print color used before the 1830s, but sepia and black were also used. By the late 1820s, additional colors were added for use in transfer print wares including purple, red, brown, green, and light and medium blues. Multi-color transfer printing was first used during the 1840s (Godden 1963:115 in Price 1979:19).

While most of the sherds in the collection are too small to discern the larger pattern represented on them, a few patterns are identifiable. Four sherds of the dark blue “Palestine” pattern were recovered (Figure 6: ULSG 7404). This pattern, manufactured by Ralph Stevenson *circa* 1810-1832, consists of an Asian scene framed by willow trees and small star-shaped flowers (Williams and Weber 1986:116-117).

The “Pennsylvania” pattern is represented by at least one sherd and probably two, both with a medium blue design. Knight, Elkin, and Co. manufactured the Pennsylvania pattern sometime between 1826 and 1846 (Williams 1978:368). One of these sherds has a partial maker’s mark and reads “...lvani...” The text style and placement of letters correspond to the Pennsylvania maker’s mark. However, the initials “KE & Co” should be present beneath the pattern name Pennsylvania if the sherd had included the entire maker’s mark (Godden 1964:Plate Four).

One of the most fascinating whiteware sherds from Area 97-I is a green transfer printed finial from a sugar bowl lid. The finial mends with a lid that was recovered during the 1995 excavations in the winter kitchen in the basement of the main house. The pattern represented on the finial and lid is named “Ruins” and was manufactured by William Adams & Co., which conducted business from 1800 until 1864 (Williams 1978:398). The lid was found in association with a variety of other artifacts, and determined to be a “white magic” bundle placed under the floor boards by a former slave as a “conjurer’s cache” or “diviner’s bundle” (Price and Hastings 1998:18-20). It is unclear as to how the two fragments of the lid came to be deposited in separate areas of the site.

Two sherds of the medium blue “Cologne” pattern were excavated from Area 97-I (Figure 6: ULSG 7403). This pattern usually has a peacock feather design at the rim of vessel. This pattern was produced sometime between 1832 and 1835 by Ralph Stevenson and Son, and also by Wood and Challinor sometime during their period of business from 1834 to 1843 (Williams 1978:235).

Five medium blue transfer printed whiteware sherds in varieties of the “Willow” pattern were found in Area 97-I. None of these sherds are from the same vessel or bear the same version of the Willow pattern, but all show elements of the familiar motif. The Willow pattern was among the first transfer print designs, and was developed by the English in an attempt to imitate the Chinese Export Porcelains from China in the late eighteenth and early nineteenth centuries. The Willow pattern was popular by the first decade of the nineteenth century, and a more standardized pattern developed at that time (Coysh and Henrywood 1982:402).

Excavations in the eight test units of Area 97-I also revealed two medium blue transfer print sherds that are most likely in the “Italian Flower Garden” pattern. One of these has been burned. John and William Ridgway produced this pattern sometime during the operation of their business between 1814 and 1830 (Williams 1978:302). A mold was used to create embossed flowers at the edge of the plate or vessel, and the Italian Flower Garden transfer print pattern was applied between the embossed flowers and over the body of the plate/vessel.

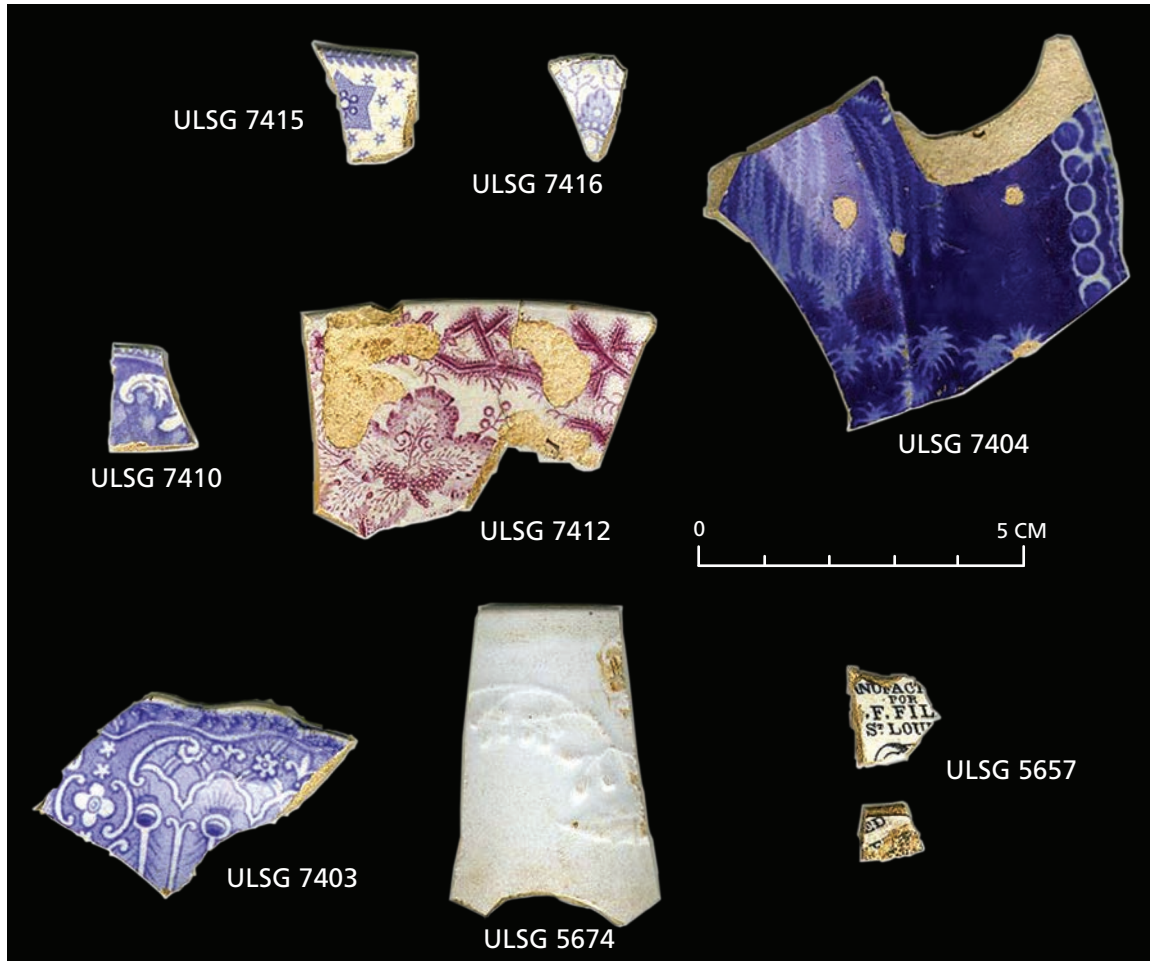


Figure 6. Transfer-printed and mold decorated whiteware sherds, Areas 97-I and 97-IV.

ULSG 7403	Transfer-printed whiteware in blue "Cologne" pattern (produced 1832-1835 by Stevenson and Son, or 1834-1843 by Wood and Challinor)	Area 97-I, Unit 97-007, Level 4
ULSG 7410	Transfer-printed whiteware in blue "Corsica" pattern (manufactured c. 1828-1843 by Wood and Challinor)	Area 97-I, Unit 97-013, Stratum 3
ULSG 7412	Transfer-printed whiteware in mulberry "Coral Border" pattern (manufactured 1828-1859 by Thomas Dimmock)	Area 97-IV, Feature 97-2
ULSG 7415	Transfer-printed whiteware in blue "Colombian Star" pattern (manufactured 1840 by John Ridgway)	Area 97-IV, Unit 97-018, Stratum 3
ULSG 5674	Mold-decorated whiteware in "Forget-Me-Not" pattern (second half of Nineteenth century)	Area 97-I, Unit 97-008, Level 3
ULSG 5657	Whiteware with "Giles F. Filley" mark (manufactured for St. Louis importer Filley 1841-1844)	Area 97-IV, Unit 97-017, Stratum 3
ULSG 7404	Transfer-printed whiteware in dark blue "Palestine" pattern (manufactured c. 1810-1832 by Ralph Stevenson)	Area 97-I, Unit 97-007, Level 4

One medium blue transfer printed sherd may represent the “Castle” pattern produced by Baker, Bevans & Irwin sometime during 1813-1838 and also by Spode (Williams and Weber 1986:149). Another medium blue transfer printed sherd is similar to the “Arctic Scenery Series” in design although not in subject matter (Coysh and Henrywood 1989:16-17). Nine dark blue transfer printed sherds may represent the “Foliage Border Series” (Coysh and Henrywood 1989:107, 214).

A variety of unidentified geometric patterns are present in red, medium blue, black, and dark blue. Various unidentified floral patterns appear in black, dark blue, medium blue, purple, light blue, brown, red, dark brown, and pink/red. Sherds exhibiting unidentified elements of scenic patterns are in medium blue, pink/red, black, and pink. The excavation units in Area 97-I also yielded five sherds decorated with unidentified flow blue patterns.

Two transfer print maker’s marks are present in the assemblage. The first of these marks consists only of the text “...ED...” Since this mark is so fragmentary, it is difficult to identify, but judging by the text style, it may be a portion of a mark identical to one unearthed at the park in 1991 (Noble 1997:23). The maker’s mark excavated in 1991 reads “[M]AN[UFACTUR]ED FOR G.F. FILLEY [S]t. LOUIS”. Giles F. Filley imported English ceramics manufactured for his pottery business from 1841 until 1844, and operated his own pottery works in St. Louis from 1844 until 1849 (Noble 1997:23). The second maker’s mark sherd consists of a lion or griffin head. The remainder of the mark is missing.

Twelve whiteware sherds are mold-decorated with many different patterns. One sherd is similar to Boote’s “1851 Round Shape”, which was first made during the mid-nineteenth century (Wetherbee 1980:56). One other sherd has a scalloped pattern, while another is from a vessel with a fluted body. Three sherds exhibit an unidentified floral pattern, while the pattern on two other sherds is undeterminable. Two mold-decorated whiteware sherds have been identified as “Forget-Me-Not” (Wetherbee 1985:105), which was manufactured by Henry Alcock, E. & C. Challinor, and the Taylor Brothers during the second half of the nineteenth century (Figure 6: ULSG 5674).

Probably the most interesting molded whiteware sherds are two large fragments of a paneled soup bowl. The intact bowl would have been similar in appearance to “Sydenham” patterned vessels, first made popular with T. & R. Boote’s “1851 Octagon Shape” pattern in the mid-nineteenth century (Wetherbee 1985:49). The two bowl fragments refit, with the break running directly through a diamond registry mark on the base, underneath which is the name “MADDOCK”. The registry mark is impressed and has been covered with a colorless glaze that has filled in the impressed marks and made them difficult to read. The diamond mark is unreadable except for a “9” on the right hand side of the diamond.

This type of mark was used between 1842 and 1867, and the “9” signifies the day of the month upon which the vessel was manufactured. John Maddock produced earthenwares at his Burslem, Staffordshire Pottery from 1842 until 1855 when the business became Maddock and Sons, Ltd. (Godden 1964:405-406). If the remainder of the mark on the bowl was legible, it would be possible to know exactly what day the

design was registered. As it is, however, the maker's name and the registry mark taken together indicate a manufacturing date between 1842 and 1855.

### *Porcelain*

Of the 110 porcelain sherds recovered from Area 97-I, nearly a quarter, 25 sherds, are blue-and-white Chinese Export Porcelain. This blue-and-white hard-paste porcelain has a blue-white body with blue hand-painted decoration, and was usually fairly thick-bodied, although some variations were more finely potted. It is not known if any of the finely potted white porcelain sherds from the 1997 excavations at the park are of Chinese manufacture. The range of Chinese Export Porcelain also includes very finely made, expensive dinner services, called enameled ware, which bore hand-painted armorial crests and various scenes in a variety of colors. These were usually made-to-order for Americans and Europeans (IMACS 473:2).

Although Chinese porcelains had been imported into America beginning in the seventeenth century, the most active years of the China trade were from 1785 until 1835. Chinese Export Porcelain saw its greatest popularity following the War of 1812 until around 1819 (Mudge 1981:91), but began to be replaced by English porcelain and whiteware after 1810 in the United States, and by 1841 had been almost completely replaced (Mudge 1981:149).

Of the 25 blue-and-white Chinese Export Porcelain sherds, 14 are decorated in the "Canton" border style (Figure 5: ULSG 6179), characteristic of wares made in the Canton area workshops of China. The "Nanking" border style, used in the Nanking workshops on wares that are usually more finely potted than the Canton wares, is represented by one sherd (Figure 5: ULSG 6176). One sherd may be decorated in the "FitzHugh" pattern while another is painted with a sun burst/chrysanthemum design. Six sherds have unrecognized blue-painted designs on them, and two sherds have no decoration.

The blue-and-white Chinese porcelain was among the least expensive of Chinese porcelains, but was most expensive during 1817-1819 (Mudge 1981:99). An 1820 letter quoted in Mudge (1981:146) states that "...even the poorest families could boast at least a limited proportion of China Ware..." This leads one to believe that the presence of Chinese Export Porcelain, at least the more utilitarian blue-and-white wares, may not necessarily be a status indicator. It may, however, indicate that accessibility to Chinese Export Porcelain depended upon geographic location. One would expect to find a greater occurrence of Chinese Export Porcelain nearer major ports that sent ships to China than in other areas, especially when one takes into account the fact that Chinese Export Porcelain was fragile and was often broken in transit.

Although there may be no connection, it is interesting to note the number of Chinese Export Porcelain sherds excavated at White Haven and the fact that Frederick and Ellen Dent, when they moved to St. Louis from Pittsburgh, "...took with them all of their household possessions, including china and furniture" (Little 1993:35). Ellen Dent's father, John Wrenshall, was a Methodist minister in Pittsburgh and also ran a

commercial trading house specializing in Asian goods (Little 1993:35). Some of these Asian goods may have included Chinese Export Porcelain that eventually made its way to White Haven.

The remaining 85 porcelain sherds in the Area 97-I collection are thin, have a very fine white paste, and are decorated with hand-painted decoration, molded patterns, both painting and molding, or have no decoration. Hand-painted designs decorate twelve porcelain sherds and are of various designs. The paint on some of the sherds has worn away, but the outline of the design is still evident. Five teacup sherds have a thin gold line around the rim of the vessel. One hand-painted sherd is painted with a gold floral pattern, one sherd is painted with a green floral pattern, one sherd has a faintly visible floral pattern, one sherd is painted with a gold zigzag line and dots, and three sherds have a design of lines and a floral pattern in an unknown color. Two sherds are molded with a leaf and branch design. Two sherds are hand-painted and molded. One of the two is a teacup sherd and is molded with a leaf and branch design with a painted gold line near the rim. The other sherd is from a paneled teacup with a gold line painted on either side of the rim. Sixty-nine white-paste porcelain sherds have no decoration.

### *Stoneware*

One of the forms of utilitarian ware represented in Area 97-I is stoneware. The 101 stoneware sherds from Area 97-I reflect four different glazes. Often a separate glaze was used on the interior and exterior of vessels; therefore, for purposes of this discussion, stoneware sherds will be classified according to exterior glaze only.

A flat brown Albany slip glazes the exterior of 19 sherds. Ten of these fragments are from a bowl or pot with fluted sides and a wide, salt-glazed rim. Fifty sherds have a metallic brown glaze. A salt glazed exterior is present on 23 sherds. Five sherds are covered in a creamy white/yellow Bristol slip. One of the latter sherds is a fragment of a vessel lid. Two sherds are glazed with a yellow glaze on the exterior and with a Bristol slip on the interior, and both are most likely fragments of an ink bottle. Finally, one sherd has no exterior glaze and another has an unknown glaze on the exterior because of surface deterioration.

### *Yellowware*

Yellowware, a utilitarian ceramic ware, was first imported to the United States from England during the second half of the 1820s. In America, particularly in Ohio, Pennsylvania, New Jersey, Vermont, and Maryland, large quantities of yellowware were being produced by the 1840s and 1850s, and the industry reached its peak in the 1860s and 1870s (Leibowitz 1985:9). Area 97-I yielded 79 yellowware sherds. Of the 79, 64 are covered with a clear glaze, while two are covered with Albany slip. Two sherds have no glaze, while eleven sherds are decorated with an annular pattern in an earthen-banded design. Ten of the latter may be from the same vessel. Annular-decorated yellowware, displaying one or more colored bands, became popular during the 1840s with “mocha” (also called dendritic) designs following in the late 1850s or 1860s (Leibowitz 1985:10).

### *Redware*

The 251 redware sherds excavated from Area 97-I were primarily concentrated in Units 97-007 and 97-008, and exhibit four different surface treatments. Albany slip, a flat brown glaze, decorates 31 sherds, while a colorless glaze covers 56 sherds. An opaque metallic brown glaze decorates 50 fragments, and 114 sherds have no glaze. Two sherds decorated with the metallic brown glaze are fragments of a lid for a small pot.

### Glass

Household glass is represented by 740 curved glass sherds (Table 4). Of these, 26 bear evidence of melting. Household-related glass sherds include fragments of lamp chimneys, bottles (food, alcohol, medicine, and ink), and tableware. Only two glass fragments have been identified as lamp chimney glass, both of which are colorless. One of these is from the base of a lamp chimney, the other is from the top of a crimped chimney.

### *Bottles*

The majority of curved glass fragments are bottle glass sherds. Bottles of aqua, green, light green, olive, brown, amber, or no color are represented by 671 sherds. Of these, 19 have been identified as fragments of food bottles. Two aqua sherds are from a gothic or cathedral style pickle bottle with an arch design (Switzer 1974:51-55), and these characteristically date to the 1840s and 1850s (Ketchum 1975:144). Four aqua sherds and one light green glass sherd have vertical ribbing characteristic of ketchup or sauce bottles (Switzer 1974:47-48). One of the aqua ribbed sherds is a bottle base and exhibits a post bottom mold, most likely from a two-piece mold. In general, post bottom molds date from *circa* 1850 to the present (Jones and Sullivan 1985:45). The last food bottle fragment is one aqua sherd exhibiting part of a rolled rim, possibly from a jelly bottle with a flared mouth (Switzer 1974:65-66).

Alcohol bottles are represented by 165 sherds. Of this number, 26 are from mold-blown whiskey flasks. Three green sherds (and possibly two other green sherds and an aqua sherd) represent one or more scroll flasks. Although most of the makers of scroll flasks are unknown, scroll flasks were popular from around 1830 until at least the 1850s (McKearin and Wilson 1978:423). One or more Pike's Peak flasks, of the Old Rye variety, are represented by seven light blue sherds. These mold-blown flasks depict a man with a walking stick and a bundle on a stick carried over his shoulder, heading for the gold fields of the Pike's Peak region of Colorado. Pike's Peak flasks were made from 1859 until about 1875 by a variety of manufacturers (Innes 1976:214).

Two sherds probably represent American Eagle flasks (McKearin and McKearin 1948:537). One of these is a dark blue-green basal sherd with a pontil mark, and was probably manufactured in the Monongahela and Early Pittsburgh District (McKearin and McKearin 1948:537). The other sherd is dark aqua and has a rough pontil mark with molded diagonal ribbing at the base of the flask. According to McKearin and McKearin (1948:548-549), this particular American Eagle flask is designated Type GII-6.

Table 4. Household-related curved glass showing glass color and probable vessel contents, Area 97-I.

Contents	Color	97-001	97-002	97-004	97-005	97-006	97-007	97-008	Total
bitters?	amber	-	-	-	-	-	2	1	3
	brown	-	-	-	-	1	-	-	1
	dk olive green	-	1	-	-	-	-	-	1
food	aqua	2	-	-	-	1	13	1	17
food, sauce	aqua	-	-	-	1	-	-	-	1
	lt green	-	1	-	-	-	-	-	1
ink	aqua	1	-	-	-	-	-	-	1
liquor	aqua	1	-	-	-	-	2	3	6
	brown	3	7	-	3	-	2	2	17
	dk aqua	-	-	-	-	-	1	1	2
	dk olive	-	3	-	-	-	20	4	27
	green	1	1	-	7	1	1	-	11
	lt olive	-	-	-	-	-	-	4	4
	olive	8	8	-	9	5	42	8	80
liquor (flask)	lt blue	-	-	-	-	-	11	-	11
	dk blue-green	-	-	-	-	1	-	-	1
	lt green	-	-	-	-	-	1	-	1
liquor?	dk brown	-	-	-	-	-	1	-	1
	dk green	-	-	-	-	-	-	1	1
	honey brown	-	-	-	-	-	3	-	3
medicine	aqua	2	-	-	-	4	2	1	9
	clear	2	-	-	1	-	1	2	6
medicine?	brown	-	-	-	-	-	1	-	1
unknown	aqua	24	20	-	17	16	75	25	177
	brown	1	-	-	-	-	2	1	4
	clear	41	16	1	31	33	134	50	306
	clear, frosted	-	3	-	2	-	1	-	6
	clear, solarized	-	2	-	1	6	1	2	12
	green	1	1	-	-	-	-	-	2
	lt blue	-	-	-	-	-	1	-	1
	lt green	-	1	-	-	-	5	-	6
	olive	14	-	-	-	1	1	-	16
	white, milk	-	-	-	-	-	2	2	4
<b>Total</b>		101	64	1	72	69	325	108	740

Pontil marks are formed on the bases of bottles by an iron rod that holds the hot glass bottle while the lip or finish is formed or applied. A rough pontil mark usually indicates manufacture before about 1860 (Kendrick 1971:26).

One aqua sherd depicts the base of an urn and most likely comes from a Cornucopia flask of Type GIII-4 (McKearin and McKearin 1948:549), while three aqua, two green, one light green, and four light blue sherds represent unidentified flask types.

Alcohol bottles other than flasks are represented by 139 sherds in shades of aqua, brown, dark aqua, dark brown, dark green, dark olive, green, honey brown, light olive, and olive (Table 4). One aqua bottle sherd has a blob finish, while one brown bottle base with a kick-up and a brown champagne finish, as well as 15 body sherds, may represent one or more brown alcohol bottles, probably wine. One dark aqua bottle finish has a sheared lip and a cylindrical neck while another sherd is from the base of a dark olive green bottle. A green bottle finish with a rounded lip and a tooled, laid-on-ring is represented by one sherd. The bases of two olive-colored alcohol bottles with kick ups are represented by two sherds.

Twenty-one bottle sherds represent medicinal bottles. Five sherds are most likely from three or more bitters bottles. A flat dark olive green sherd is probably from a square-sided bitters bottle, while one amber-colored sherd is embossed with "...HMA..." and may represent a fragment of a Legal Tender Bitters bottle manufactured by Lehman & Co. (Hunt 1995).

Medicinal bottles other than bitters bottles are represented by 16 sherds. Of the six colorless medical bottle glass sherds, three are bottle finishes. One is a straight finish with a folded-in lip, the second is a prescription finish, and the third has a flared lip. Excavations also yielded one sherd of a brown medicinal bottle with a flared lip. The nine remaining medicinal bottle sherds are of aqua glass. One aqua prescription finish with a flat top was recovered. Three aqua sherds are embossed with lettering, although the contents of the bottles could not be determined from the fragmentary text. An additional three aqua fragments, embossed with "...NNELL.../...T/LOU...", represent a bottle of Donnell's Rheumatic Liniment Specialties manufactured in St. Louis during the period from 1872 until 1910 (Fike 1987:134).

One aqua-colored sherd excavated from Area 97-I is most likely from an ink bottle. This sherd is the base of a bottle and has a ground pontil mark.

Eleven solarized bottle glass sherds are present in the assemblage from Area 97-I. Solarized glass is colorless glass that has turned amethyst from exposure to the sun, and dates from the 1880s to *circa* 1914 (Kendrick 1971:54-55).

Of the 671 bottle glass fragments from Area 97-I, three sherds from bottles of unknown contents have identifiable manufacturing characteristics. One aqua bottle finish was manufactured with the lip of the finish folded to the outside. A colorless bottle base has an open pontil mark while a colorless bottle finish exhibits a chamfered lip that ends with flaring below the lip. Many sherds from bottles of both known and unknown

contents show evidence of mold seams remaining after the bottle was formed. Mold seams from molds made of two, three, or more pieces usually indicate a manufacturing date prior to the 1880s (Kendrick 1971:33).

### *Tableware*

For the purposes of this report, tableware encompasses both pressed and cut glass pieces used at the table. Pressed glassware was first manufactured of leaded glass in the 1820s as an attempt to imitate cut glass. Although there is some debate over where it was first made, there is agreement that the first designs produced were intricate “lacy” patterns. These lacy pieces were manufactured at factories in France, England and the United States, and often consisted of geometric patterns, floral designs, pictorials, and stippling. The production of lacy pieces began to come to an end during the 1850s, but a few patterns lingered until the 1870s (Innes 1976:296). Lacy pieces included bowls, plates, compotes, salts, sugars, and a variety of other decorative items. More functional tableware items like tumblers, while popular in lacy patterns in France and Europe, were made in a limited number of simple patterns in the United States. It was not until after 1864 that American pressed glass manufacturers began to produce a greater number of patterns in response to the increased demand for table sets (Innes 1976:299)

Twenty-two colorless glass sherds excavated from Area 97-I represent tumbler fragments. Pressed glass tumblers were made in the United States beginning in the 1840s, and by 1860 their use was widespread (Innes 1976:301-302). Fourteen sherds are from tumblers in a paneled “Flute” pattern, four of which are frosted glass. The Flute pattern was common between 1840 and 1860 (Innes 1976:302). One sherd is of the “Huber” pattern, also a paneled design, while another is from a tumbler with a plain round exterior (Innes 1976:301). The Huber pattern developed from the Flute pattern and was one of the most popular patterns in 1860 (Innes 1976:305). Huber remained popular until the end of the nineteenth century (Innes 1976:302). Six tumbler sherds are of unidentified patterns, although one of the sherds shows a portion of a ray design.

Eleven colorless sherds are from pressed glass pieces other than tumblers. A bowl with a lacy design and a scalloped rim is represented by one sherd. Eight other sherds have recognizable design elements although the pattern name and the vessel type are unknown. These include one sherd with a floral design, one in a lacy pattern, one with a plaid design, two with vertical lines, one with a sunburst design, and one with feathers or leaves. In addition, one sherd may be a pressed claw foot from a footed vessel.

Excavations uncovered only one sherd that may represent a cut glass vessel. This colorless glass sherd is decorated with a design incorporating parallel lines.

### *Metal*

Fourteen metal fragments have been identified as household-related items. Seven, and possibly eight, ferrous metal can fragments are present in the metal assemblage. In addition, a removable ferrous can lid was uncovered during the excavations. The most interesting household-related metal artifact excavated in the area is a non-ferrous,

possibly pewter, object. This is most likely the flattened tip of a spoon bowl. One other interesting artifact is a probable ferrous metal bottle opener.

### Organic

A bone utensil handle was recovered from Area 97-I that is decorated with incised cross-hatching. One hole is present on the surface of the handle, most likely for attaching the metal portion of the utensil. In addition to the bone handle, Area 97-I yielded 202 bone or tooth fragments, indicating the use of animal meat in the Dent/Grant household. Five butchered bone fragments were excavated from the area, one of which is burned. Thirty additional burned bone fragments were unearthed in the area. Also, 111 unmodified bone fragments and 55 animal tooth fragments were discovered.

## PERSONAL

### Ceramics

Area 97-I yielded eleven personal ceramic artifacts (Table 5), eight of which are related to clothing. All of these are porcelain buttons. Three are white, 4-hole, 5/8-inch buttons, most likely from a shirtwaist, while three others are white, 4-hole, 7/16-inch buttons and may represent underwear fasteners. Two unusual porcelain buttons are present in the artifact assemblage. One of these is brown-glazed porcelain and conical-shaped with a metal loop shank. The other is light blue and white porcelain and shaped like a half sphere. This button probably also had a metal loop shank when new. Two artifacts are sherds from a porcelain doll. One is the base of a doll's head, while the other is an unidentified portion. The final ceramic artifact from the area is one white clay pipe stem fragment. This sherd has a possible "C" on the stem.

### Glass

Excavations in Area 97-I exposed seven personal-related glass artifacts including two glass beads. The first of these is a cornerless black cube bead that has been crudely faceted, while the second is also black but is a wound seed bead. Four mirrored glass sherds are also present in the assemblage. All four of these are aqua flat glass with the metallic material adhered to the glass surface.

One sherd of aqua-colored bottle glass excavated from Area 97-I may reflect an item of personal interest. This sherd is embossed with "...UMBIA/...RING" and represents a mold-blown Balm of Columbia for Restoring Hair bottle (Wilson and Wilson 1971:21). This product was manufactured by J. Oldridge of Philadelphia from 1823 until 1851, and possibly after 1851 as well.

### Metal

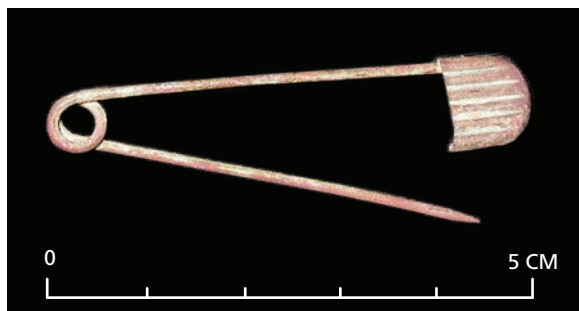
Six metal artifacts uncovered in Area 97-I are related to personal clothing. Two of these are non-ferrous buttons, most likely brass. The first of these is a 4-hole button, measuring 7/16 inch in diameter and engraved with "M & F/WATERBURY" on the reverse. Various button companies operated in Waterbury, Connecticut throughout the

Table 5. Personal and Recreation Items, Area 97-I.

Category	Object	Material	Identifier	Manufacturer	97-001	97-002	97-006	97-007	97-008	Total	
personal	button	porcelain	4-hole, 5/8" diam, round	"M & F/WATERBURY"	2	-	-	-	-	2	
	button	porcelain	4-hole, 5/8" diam, round		-	-	1	-	-	-	1
	button	porcelain	4-hole, 7/16" diam, round		2	-	1	-	-	-	3
	button	bone	4-hole, 11/16" diam, round, w/score marks		1	-	-	-	-	-	1
	button	bone	5-hole?, 5/8" diam, round		-	1	-	-	-	-	1
	button	shell	4-hole?, 1/2" diam, round		3	-	-	-	-	-	3
	button	non-ferrous, brass	4-hole, 7/16" diam, round, holes sunken in face		-	-	-	-	-	1	1
	button front	non-ferrous, brass	1/2" diam, embossed design		-	-	-	-	1	-	1
	button, boot	porcelain	conical-shaped w/ metal loop shank, brown		-	-	-	-	1	-	1
	button, boot?	porcelain	half sphere, metal loop shank?, lt blue		-	-	-	-	1	-	1
	buckle	ferrous	1-1/8" x 1"		-	-	-	-	-	1	1
	buckle, suspender	non-ferrous, brass	2" x 5/8"		-	-	-	-	1	-	1
	diaper pin	non-ferrous, brass?	crimped closure, 2" x 3/8"		2	-	-	-	-	-	2
	bead	glass	cornerless cube w/faceted sides, 7/16" square, black		-	-	-	-	1	-	1
	bead	glass	round seed bead, 1/16" height, 3/32" diam, black		-	-	-	-	1	-	1
bottle	glass	Balm of Columbia for Restoring Hair, fragment	-	-	-	-	1	-	1		
pipe	clay	stem fragment, possible "C" on stem	-	-	1	-	-	-	1		

Table 5. Concluded.

Category	Object	Material	Identifier	Manufacturer	97-001	97-002	97-006	97-007	97-008	Total
	crucifix (probably from a rosary)	non-ferrous, pewter?	2-5/8" x 1-1/2", hole at top, Christ on front, reverse: "...C....+S.../VINCEI"? w/heart at base		-	1	-	-	-	1
	doll	porcelain	base of head below neck		-	-	-	1	-	1
	doll?	porcelain			-	-	-	1	-	1
personal?	eye piece? w/ threaded base	non-ferrous, brass?	abt. 3/4" in diameter		-	-	-	1	-	1
	ring, thin	non-ferrous, brass?	7/16" diameter		-	-	-	-	1	1
	1887 U.S. penny	non-ferrous, copper	edge has been serrated, hole punched in center		-	-	-	-	1	1
recreation	clay pigeon	clay	black		-	-	-	1	-	1
	shotgun shell	non-ferrous, brass	"ELEY BROS/NO. 12/..."	Eley Bros, England	1	-	-	-	-	1
	shotgun shell	non-ferrous, brass	1901 No.16 New Rival	Winchester	-	1	-	-	-	1
<b>Total</b>					11	3	3	11	4	32



**Figure 7.** Diaper pin (ULSG 6706), Area 97-I, Unit 97-001, Level 3.

nineteenth century and continue until the present day (Luscomb 1967:220). The second artifact is the front of a two piece button and measures 1/2 inch in diameter. This button front is covered with an unidentified embossed design.

Excavations also uncovered two buckles, the first of which is composed of ferrous metal and measures 1 1/8 x 1 inches. The second is non-ferrous, probably brass, and is most likely a suspender buckle. It

measures 2 x 5/8 inches. The last two clothing artifacts from Area 97-I are diaper pins, both recovered from Unit 97-001 (Figure 7: ULSG 6706). These are identical, measure 2 x 3/8 inches, and have a crimped closure. This style of diaper pin was made after 1869 (James Price 1997:personal communication).

One non-ferrous, possibly brass, undecorated ring was excavated from the area. This ring measures 7/16 inch in diameter.

The most interesting metal personal artifact recovered from the Area 97-I excavations is a crucifix (Figure 8: ULSG 7378) made of a poor quality non-ferrous metal plated with silver or nickel and measuring 2 5/8 x 1 1/2 inches. The front of the crucifix depicts the Christ figure, while the reverse is embossed with the text "...C...+S.../VINCEI" across the arms of the cross. The remainder of the text is very difficult to read because of extensive corrosion. A heart is embossed at the base of the cross on the reverse side, and a hole has been punched at the top of the crucifix, suggesting that it may have been part of a Rosary.



**Figure 8.** Crucifix (ULSG 7378), Area 97-I, Unit 97-002, Level 3.

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Attempts to research the text or heart symbol on the crucifix have not produced any further information about the artifact. The presence of the crucifix suggests occupation of the site by Roman Catholics; however, it is unknown if any Roman Catholics ever lived at White Haven. Mrs. Ellen Wrenshall Dent, U. S. Grant's mother-in-law, was the daughter of a Methodist minister, while Mr. Frederick Dent, her husband, was a founder of the Episcopal Church in the area (Little 1993:35-36). Ulysses S. Grant was the son of a devout Methodist, and his wife Julia Dent Grant was most likely a follower of either the Methodist or Episcopal Church (Little 1993:50).

There may have been Roman Catholics among the tenants and caretakers living at White Haven during Grant's ownership of the Gravois Farm. Another possibility is that one of the former owners prior to Dent was a Roman Catholic. Anne Lucas Hunt, the wife of Theodore Hunt, who sold the farm to the Dents, was the daughter of a prosperous Frenchman. It seems likely that she may have been a Roman Catholic. In addition, a Jesuit mission, Riviere des Peres mission, was founded at the mouth of the Riviere au Gravois (Gravois Creek) about 4.5 miles east of White Haven in 1699 (Little 1993:10). According to Little, "it is quite possible that a fur-trader or farmer-habitant had settled the land in one of the six decades between the founding of the mission and the founding of St. Louis" in 1763 (Little 1993:10).

### Organic

Clothing buttons of both bone and shell were excavated from Area 97-I. Excavations yielded one complete 4-hole bone button measuring 11/16 inch in diameter, which may be from a man's suspenders. A second bone button fragment was also uncovered in this area that measured 5/8 inch in diameter before its breakage. This was possibly a 5-hole button from a large man's shirt. Three shell button fragments were found in the area, possibly from one 4-hole button measuring 1/2 inch in diameter. These are most likely from a shirt or dress.

## RECREATION

### Ceramics

One sherd of a black clay pigeon was recovered from Area 97-I. This is probably a fairly recent deposit at the site.

### Metal

The excavations yielded one coin, an 1887 Indian Head penny that has been modified. The edge of the coin has been serrated, and the coin has been hole-punched in the center (Figure 9; ULSG 7428). If the coin had two holes punched in the center the coin could be identified as a "whizzer", a child's toy. Strings were threaded through the holes and twisted. These were then pulled, creating a whizzing sound. This coin, however, only has one hole punched through the center, and may represent a whizzer that was never completed. Alternately, it may be part of a pattern wheel used to score fabric, leather, wood, or pie crust.

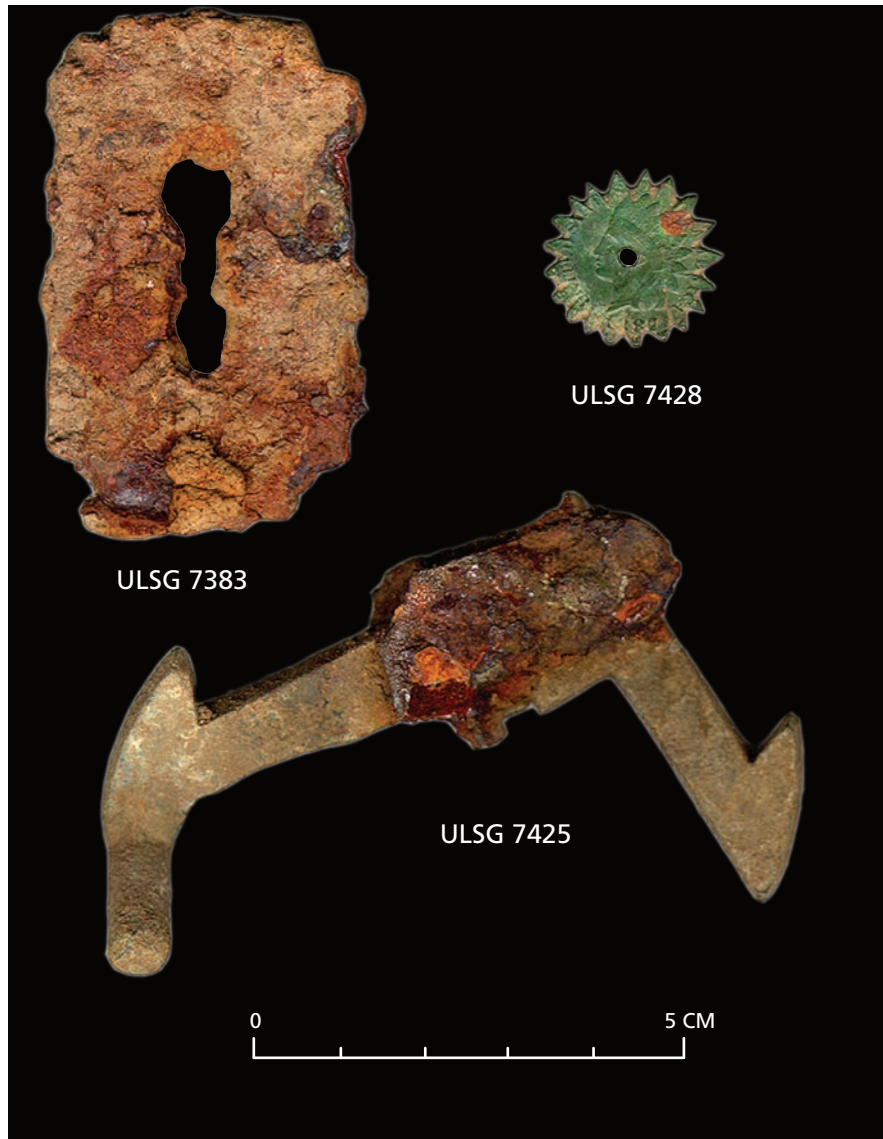


Figure 9. Metal artifacts, Areas 97-I and 97-IV.

ULSG 7425	Blind or Shutter Fastener (appears in 1865 Russell and Erwin catalogue as one of "Merriman's Blind Fastenings")	Area 97-IV, Unit 97-016, Stratum 2
ULSG 7383	Escutcheon identical to one on door on second floor of main house	Area 97-I, Unit 97-006, Level 2
ULSG 7428	1887 Indian Head Penny with serrated edge and hole in center	Area 97-I, Unit 97-008, Level 1

An unusual metal artifact found in the area is the brass eye piece from a telescope or looking glass. This brass ring measures 3/4 inch in diameter and has a threaded base.

Two shotgun shells were excavated from Area 97-I. The first non-ferrous shell is engraved with the text "ELEY BROS/NO. 12/..." and was manufactured by Eley Bros., England (Barnes 1980:311), although the date of manufacture cannot be determined. The second is a 1901 No. 16 New Rival brass shotgun shell, which was manufactured by Winchester beginning in 1901 (Steward 1969:84).

## CONSTRUCTION

### Glass

Area 97-I yielded 1025 flat glass sherds. These are primarily aqua-colored glass; however, 14 sherds are colorless. While flat glass was found in all five levels excavated from the units, Level 3 (20-30 cm below surface) contained 44 percent of all the flat glass recovered from the area.

### Metal

Area 97-I produced 880 nails and nail fragments. Of these, only 17 are wire nails, with the vast remainder cut nails or cut nail fragments. Like the flat glass, a large portion of the cut nails (323 nails or 37 percent of the total) were recovered from Level 3 of the units in the area (Table 6). A variety of nail sizes are represented in the assemblage, although 4d nails are the most numerous (Table 7). Six cut nails are nailed through metal sheeting. One 5d cut nail has an L-shaped head, and such brads were used in finishing work during the nineteenth century (Edwards and Wells 1993:66).

In addition to nails, a large number of other metallic construction-related materials were unearthed from Area 97-I. These include three screws, ferrous sheet metal fragments, ferrous strip fragments, nine tacks, ferrous wire, a ferrous hook, and two ferrous metal bar fragments (Table 8). Also excavated from this area was one 7od cut nail or spike.

Two artifacts recovered in Area 97-I most likely date to White Haven's original construction. A ferrous metal escutcheon, excavated from Unit 97-006, is identical to one recovered from a door on the second floor of the house during restoration activities (Al O'Bright 1997 personal communication) (Figure 9: ULSG 7383). The second artifact that may date to the period of original construction is a rack pulley consisting of a crank with an embossed knob (Russell and Erwin 1980:79) (Figure 10: ULSG 7424). Although this hardware does not match any existing hardware on the house, this pulley may have been hardware for former window shades on the main house.

One ferrous metal key, possibly from a door lock, was found in Excavation Unit 97-008.

Other construction-related materials recovered from Area 97-I include brick fragments, mortar, concrete, modified limestone, plaster, paint, and manufactured

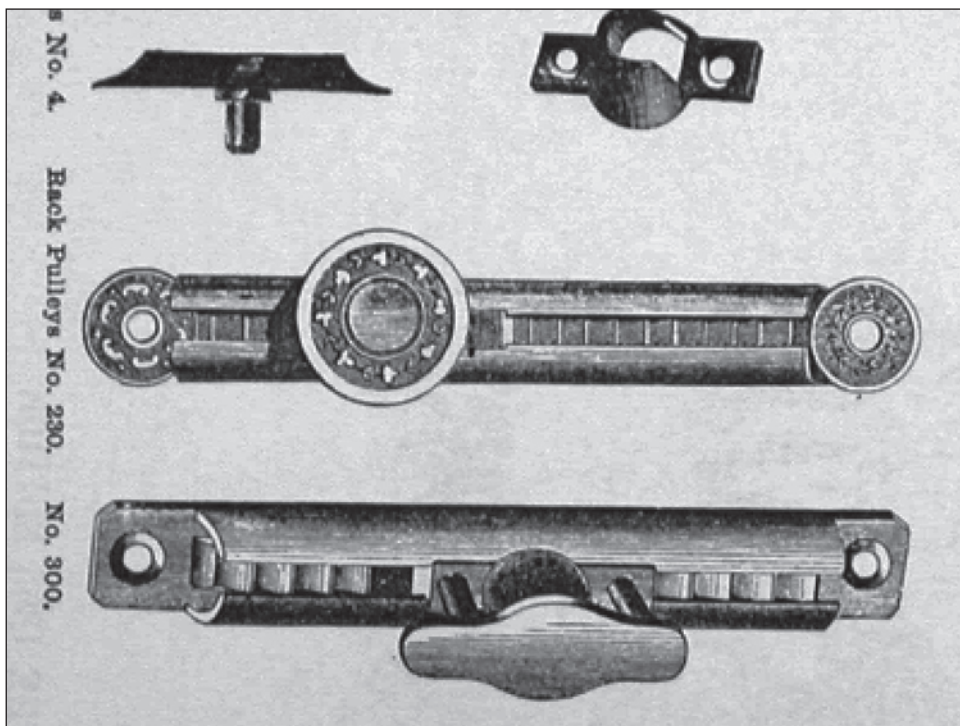


Figure 10. Rack Pulley (ULSG 7424), Area 97-I, Unit 97-007, Level 1, with similar product shown in the 1865 *Illustrated Catalogue of American Hardware of the Russell and Erwin Manufacturing Company*.

asphalt roofing (Table 9). Thin slate fragments were found in four excavation units and may represent slate roofing tiles.

Sixteen fragments of translucent, orange, plastic pipe were recovered from units 97-007 and 97-008. These are likely related to more recent construction projects at the site.

### FUEL

Both charcoal and coal or coal clinkers were found throughout Area 97-I. Charcoal is represented in the assemblage by 17 fragments, while coal and coal clinkers are represented by 40 fragments.

### PREHISTORIC

Prehistorically modified stone is represented by 21 artifacts excavated from Area 97-I. That number includes 18 lithic flakes, originating from prehistoric tool manufacture or maintenance activity. Of the 18 flakes, twelve are of white, grey, or caramel-colored chert. Four of these chert flakes have pottidding and a waxy surface, most likely evidence of heat-treating. The remaining six flakes are of a grey silicified limestone. Unit 97-007 yielded a small core of grey/white chert, and Unit 97-001 produced a water-worn, heat-treated, irregularly shaped biface of caramel-colored chert. One fragment of burned mudstone uncovered in the area may or may not have been culturally produced.

### NON-CULTURAL

A possibility exists that some of the bone attributed to household refuse may not be associated with human occupation of the site. Since the excavated bone has not been identified, the types of animals represented in the assemblage are unknown.

### AREA SUMMARY

Excavation of Area 97-I resulted in the discovery of the laundry water disposal area and demonstrated that the dark midden is restricted within an area from the northeastern wall of the summer kitchen northeastward approximately four meters. The summer kitchen was built on a gentle slope, and sufficient refuse was thrown behind it to elevate the ground surface almost 60 centimeters, creating the relatively flat surface evident there today.

Table 6. Nail summary by level (Units 97-001 through 97-008), Area 97-I.

<b>Level</b>	<b>Object</b>	<b>Sum</b>	<b>% of total cut nails</b>	<b>% of total wire nails</b>
L1	nail, cut	169	20%	
L2	nail, cut	252	29%	
L3	nail, cut	323	37%	
L4	nail, cut	86	10%	
L5	nail, cut	33	4%	
L1	nail, wire	4		23%
L2	nail, wire	10		59%
L3	nail, wire	1		18%*
L3	nail, wire?	1		
L3	rod, poss nail	1		
<b>Total</b>		<b>880</b>	<b>100%</b>	<b>100%</b>

\*includes "nail, wire?" and "rod, poss nail"

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Table 7. Nail size and count in Area 97-I (Units 97-001 through 97-008).

Object	Size	Total
nail, cut	2d	2
	2d, through sheet metal	4
	3d	42
	3d, through sheet metal	2
	4d	62
	5d	29
	5d, l-shaped head	1
	6d	29
	7d	16
	8d	46
	9d	38
	10d	38
	12d	5
	16d	1
	20d	1
fragment	547	
nail, wire	3d	5
	4d	2
	6d	2
	8d	3
	9d	2
	10d	1
nail, wire?	9d	1
rod, possible nail	fragment, about 6" length	1
screw, undetermined type	2d	1
	8d	1
screw, Phillips	6d	1

Table 8. Construction-related material artifacts by unit and level, Area 97-I.

Unit	Level	bar, ferrous	circular disk, lead	escutcheon, ferrous	hook, ferrous	key, ferrous	nail, cut	nail, wire	nail, wire?	plate, ferrous	ring, ferrous	rod, ferrous	rod, poss nail	s-hook, ferrous	screw	screw, phillips	sheet metal, ferrous	spike, cut	spike?	narrow strip metal, ferrous	tack, cut?	tack, wire	tack, wire?	triangular sheet metal, copper?	unknown	washer, ferrous	window shutter	fastener/crank? w/ embossed knob	wire, ferrous	Total
97-001	L1	-	-	-	-	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6
	L2	1	-	-	-	-	74	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	76
	L3	-	1	-	-	-	48	1	-	-	-	-	-	-	-	-	-	-	-	7	-	-	-	-	-	-	-	-	-	57
	L4	-	-	-	-	-	9	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	10
	L5	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8
97-002	L1	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
	L2	-	-	-	-	-	28	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	28
	L3	-	-	-	-	-	38	-	-	-	-	1	-	-	-	-	-	14	-	-	-	-	-	-	-	-	-	-	-	53
	L4	-	-	-	-	-	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7
	L5	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
97-005	L1	-	-	-	-	-	32	1	-	-	-	-	-	1	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	35
	L2	-	-	-	-	-	15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	-	-	-	-	17
	L3	-	-	-	-	-	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	21
97-006	L1	-	-	-	-	-	18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18
	L2	-	1	-	-	-	45	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	48
	L3	-	-	-	-	-	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10
	L4	-	-	-	-	-	2	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3
97-007	L1	-	-	-	-	-	101	2	-	-	-	-	-	-	-	-	1	-	-	1	-	4	-	-	7	2	-	-	-	118
	L2	1	-	-	-	-	34	1	-	-	1	-	-	-	-	-	-	-	5	-	-	-	-	-	-	-	-	-	-	42
	L3	-	-	-	1	-	142	-	-	1	-	-	-	-	-	-	13	-	-	11	-	-	1	3	-	-	-	-	-	173
	L4	-	-	-	-	-	51	-	-	-	-	-	-	-	1	-	-	-	-	1	-	-	-	1	-	-	-	-	-	54
	L5	-	-	-	-	-	14	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	15
97-008	L1	-	-	-	-	-	11	1	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-	1	-	-	-	-	-	16
	L2	-	-	-	-	-	56	7	-	-	1	-	-	-	1	-	-	-	-	-	-	-	-	1	1	-	-	-	-	68
	L3	-	-	-	-	-	1	65	-	1	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	68

Table 8. Concluded.

Unit	Level	Total
-	L4	21
-	L5	10
<b>Total</b>		<b>985</b>
bar, ferrous		2
circular disk, lead		1
escutcheon, ferrous		1
hook, ferrous		1
key, ferrous		1
nail, cut		863
nail, wire		15
nail, wire?		1
plate, ferrous		1
ring, ferrous		2
rod, ferrous		1
rod, poss nail		1
s-hook, ferrous		1
screw		2
screw, phillips		1
sheet metal, ferrous		30
spike, cut		1
spike?		1
narrow strip metal, ferrous		31
tack, cut?		1
tack, wire		7
tack, wire?		1
triangular sheet metal, copper?		1
unknown		14
washer, ferrous		1
window shutter		2
fastener/crank? w/ embossed knob		1
wire, ferrous		1

Table 9. Construction materials by excavation unit and level (metal construction-related artifacts listed in Table 8), Area 97-I.

Unit	Level	Asphalt	Brick	Concrete	Flat Glass	Gravel	Limestone	Manufactured Roofing	Mortar	Paint	Plaster	Plastic, orange, translucent	Slate (possible roofing)
<b>97-001</b>	L1	No	Yes	Yes	Yes	No	Yes	Yes	Yes	No	No	No	Yes
	L2	No	Yes	Yes	Yes	No	No	No	Yes	No	No	No	No
	L3	No	Yes	Yes	Yes	No	No	No	Yes	No	No	No	Yes
	L4	No	Yes	No	Yes	No	No	No	Yes	Yes	No	No	No
	L5	No	No	No	Yes	No	No	No	No	No	No	No	No
<b>97-002</b>	L1	No	Yes	Yes	No	No	Yes	No	No	No	No	No	No
	L2	No	Yes	Yes	Yes	No	No	No	Yes	Yes	Yes	No	No
	L3	No	No	No	Yes	No	No	No	No	No	No	No	No
	L4	No	Yes	No	Yes	No	No	No	No	No	No	No	No
	L5	No	No	Yes	Yes	No	No	No	No	No	No	No	No
<b>97-005</b>	L1	No	Yes	Yes	Yes	No	Yes	Yes	No	No	No	No	No
	L2	No	No	No	Yes	No	No	No	No	No	No	No	No
	L3	No	No	No	Yes	No	No	No	No	No	No	No	No
	L5	No	Yes	No	No	No	No	No	No	No	No	No	No
<b>97-006</b>	L1	No	Yes	Yes	Yes	No	Yes	No	No	No	No	No	No
	L2	No	Yes	No	Yes	No	No	No	No	No	Yes	No	No
	L3	No	Yes	Yes	Yes	No	No	No	No	No	Yes	No	No
	L4	No	Yes	No	Yes	No	No	No	No	No	No	No	No
<b>97-007</b>	L1	No	Yes	No	Yes	No	No	Yes	No	No	No	Yes	No
	L2	No	Yes	No	Yes	No	No	No	No	Yes	No	No	Yes
	L3	No	Yes	No	Yes	No	Yes	No	No	No	Yes	No	Yes
	L4	No	No	No	Yes	No	No	No	Yes	No	No	No	Yes
	L5	No	No	No	Yes	No	No	No	No	No	No	No	No
<b>97-008</b>	L1	No	Yes	No	Yes	No	No	Yes	Yes	Yes	No	Yes	No
	L2	No	Yes	No	Yes	No	No	Yes	No	Yes	No	Yes	No
	L3	No	No	Yes	Yes	No	No	No	No	No	Yes	Yes	No
	L4	No	No	No	Yes	No	No	No	No	No	No	No	No
	L5	No	No	No	Yes	No	No	No	No	No	No	No	No

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## CHAPTER 4

### AREA 97-II: THE RIDGE SLOPE NORTHEAST OF THE CHICKEN HOUSE

Installation of buried power cables is planned for the area on the slope paralleling the driveway northeast of the chicken house (Figure 11). A series of shoveltests was excavated in order to sample the area and search for subsurface features and concentrations of artifacts. The tests were placed at two-meter intervals on a northwest-southeast axis and five-meter intervals on a northeast-southwest axis. Each shoveltest measured approximately 30 x 30 cm and 20 cm in depth. Soil from each shoveltest was screened through 1/4-inch mesh to recover artifacts. Artifacts recovered from each shoveltest were containerized by shoveltest coordinates and labeled with all provenience information. When all twenty-seven shoveltests were excavated, the numbers and kinds of artifacts from each were noted (Table 10).

It was quite evident that the entire test area except the southwestern end was rather devoid of cultural materials. In the southwestern six shoveltests, an abundance of artifacts indicated the presence of a rather shallow sheet midden. In order to assess the nature and content of this midden, three 1 x 2 m excavation units (Figure 11) were excavated to sterile subsoil. These units produced ceramics, container and window glass, square-cut nails, and fragments of animal bones as well as some miscellaneous artifacts such as a fragment of a cut crystal lamp prism (Table 11). The deposits in the area of the three excavation units did not exceed 25 cm in depth.

#### HOUSEHOLD

##### Ceramics

A good deal of the ceramic artifacts uncovered from Area 97-II have been assigned to the household category. The majority of household ceramic artifacts in Area 97-II were excavated from the three 2 x 1 m units and the shoveltests at the southwest end of the area.

##### Whiteware

The three 2 x 1 m units contained 139 whiteware sherds (including both whiteware and pearlware), while the shoveltest units contained a total of 30 sherds. Of these 169 whiteware sherds, 103 are undecorated.

Two of the whiteware sherds are edge-decorated. The first, from one of the 2 x 1 m units, is molded, possibly in the "dot and plume" pattern (Price 1979:17). This blue edge-decorated sherd is from a scallop-edged plate. The second edge-decorated sherd comes from one of the shoveltest units near the 2 x 1 m units. This sherd is the backside of a blue edge-decorated, scallop-edged plate.

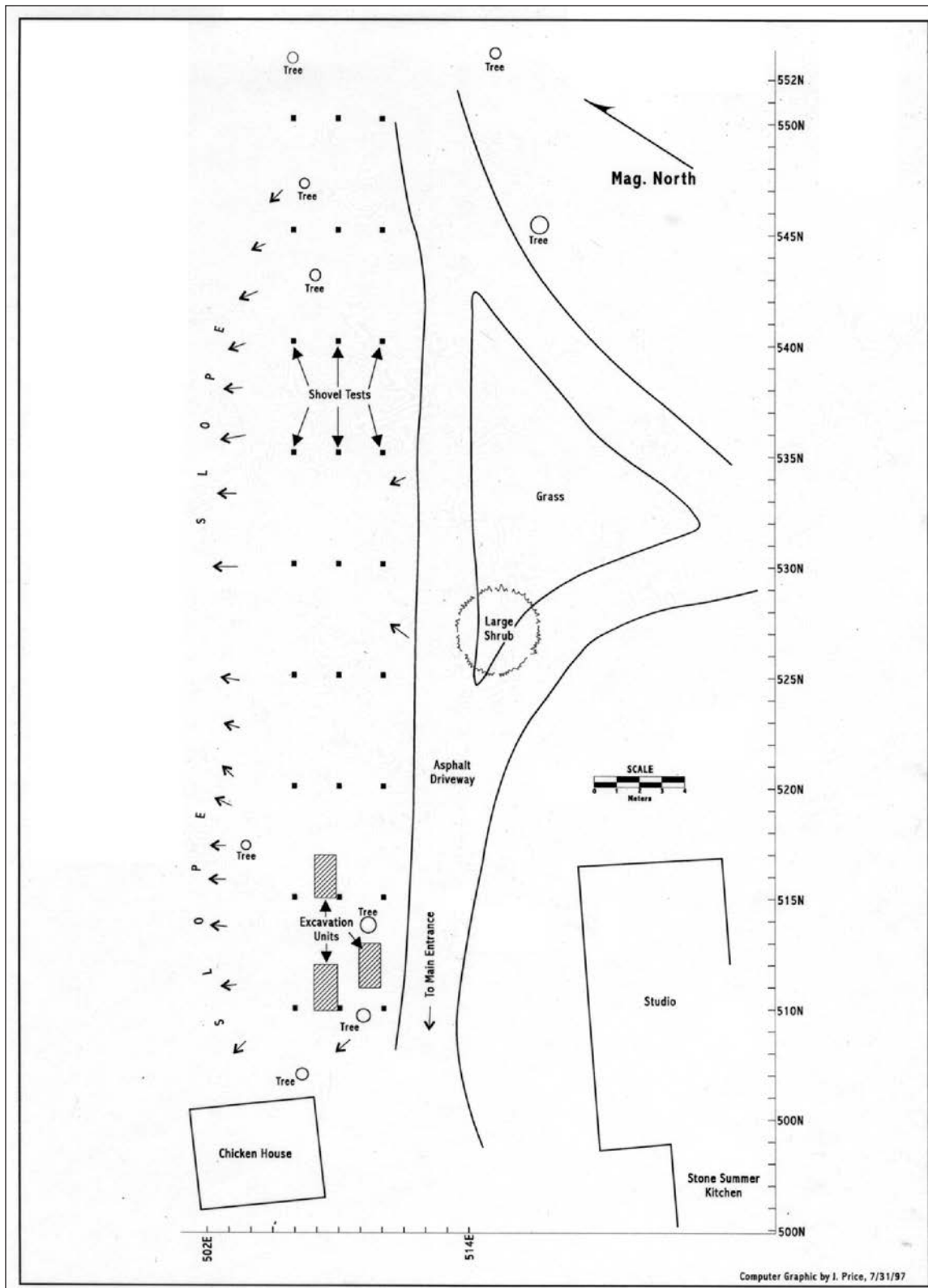


Figure 11. Area 97-II illustrating locations of shovel tests and excavation units.

Table 10. Shovel test results in Area 97-II (excludes 1x2 units 97-9, 97-10, and 97-11).

Description	Shovel Tests in Area 97-2																Total	
	97-020	97-021	97-022	97-023	97-024	97-025	97-026	97-027	97-028	97-030	97-031	97-034	97-037	97-038	97-040	97-044		97-045
<b>Ceramic</b>																		
Porcelain, molded	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1
Porcelain, no decoration	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1
Stoneware, no decoration	-	-	1	-	-	-	-	-	-	-	-	-	-	1	-	-	-	2
Whiteware, annular	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1
Whiteware, edge decorated	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Whiteware, transfer print	5	-	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	7
Whiteware, no decoration	-	-	3	4	2	3	3	-	5	-	-	1	-	-	-	-	-	21
Yellowware, no decoration	-	1	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	2
<b>Glass</b>																		
Curved, clear	-	-	-	2	1	-	1	3	7	1	-	-	-	-	-	1	-	16
Curved, clear, solarized	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1
Curved, green	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1
Curved, olive	-	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	2
Curved, pink	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1
Flat, aqua	1	1	-	-	3	2	1	1	1	-	-	-	-	-	-	-	-	11
Flat, clear	1	-	-	-	-	-	-	-	1	-	-	-	-	-	-	2	-	4

Table 10. Concluded.

Description	Shovel Tests in Area 97-2																	Total
	97-020	97-021	97-022	97-023	97-024	97-025	97-026	97-027	97-028	97-030	97-031	97-034	97-037	97-038	97-040	97-044	97-045	
<b>Metal</b>																		
Ferrous, nail, cut	-	1	-	2	5	1	3	2	-	-	-	-	-	-	-	-	-	14
Ferrous, nail, wire	-	-	-	-	1	-	-	2	-	-	-	-	-	-	-	-	-	3
Ferrous, unknown	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	1
Non-ferrous, button	1	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	2
<b>Organic</b>																		
Bone, unknown	-	-	-	-	-	-	2	3	-	-	-	-	-	-	-	-	-	5
Bone, bird	-	-	-	-	-	19	-	-	-	-	-	-	-	-	-	-	-	19
Coal/clinker	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1
Tooth	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1
<b>Inorganic</b>																		
Limestone	-	-	1	-	-	-	2	-	1	-	1	-	-	-	1	-	-	6
Limestone, fossiliferous	-	-	2	-	-	8	-	-	-	-	-	-	-	-	-	-	-	10
<b>Construction</b>																		
Brick	No	Yes	Yes	Yes	No	Yes	No	No	No	No	No	Yes	No	No	No	No	No	No
Limestone	No	No	No	No	No	No	No	No	No	No	Yes	No	No	No	Yes	No	No	No
Plaster	No	No	Yes	No	No	Yes	No	No	No	No	No	No	No	No	No	No	No	No
Asphalt	No	No	No	No	No	Yes	No	No	No	No	No	No	No	No	No	No	No	No
<b>Total</b>	8	4	8	9	15	34	14	13	17	1	1	1	1	1	2	4	1	134

Excavations in Area 97-II yielded six annularware sherds. These include two bright-banded sherds, one earthen-banded sherd with possible cabling, one bright-colored marbled sherd, one earthen-colored marbled sherd, and one green and white rouletted sherd with a rilled pattern.

Five hand-painted sherds were excavated from the units in Area 97-II. Floral designs decorate two sherds, one a broadline design and one a fineline design (Price 1979:20-21). Two of the sherds exhibit a banded pattern, one a cup/bowl fragment that uses a bright palette and the other a sherd from a vessel using an earthen palette. The fifth sherd is decorated with a painted blue line.

The units in Area 97-II produced 47 transfer print sherds. Forty of these were excavated from the three 2 x 1 m units, while seven came from shoveltest units, but all of the transfer print sherds were recovered from the southwest end of Area 97-II. Most of the transfer print patterns represented are too fragmentary to be identifiable; however, two patterns were identified from the 2 x 1 m units. The light blue "Columbian Star" pattern is represented by two sherds (Snyder 1995:79) and the black "Tuscan Rose" pattern by two sherds (Williams and Weber 1986:53). Columbian Star dates to October 28, 1840 and was manufactured by John Ridgway to commemorate the presidential campaign of William Henry Harrison. Tuscan Rose was most likely manufactured sometime between *circa* 1818 and 1834 by James and Ralph Clews, although John and William Ridgway also used the pattern.

One medium blue "Cologne" pattern sherd was excavated from a shoveltest unit. The Cologne pattern was manufactured by Ralph Stevenson and Son until 1835, then by Wood and Challinor from 1834 until 1843 (Williams 1978:235). One other identifiable transfer print sherd, possibly a representative of the "French Series", was excavated from the shoveltest units. The French Series was produced in 1824 (Coysh and Henrywood 1982:390). The 41 other transfer print sherds, representing unidentifiable patterns, cover a range of transfer print colors including light blue, medium blue, red, black, brown, purple, black with blue overpaint, and dark blue or "old blue." These fragmentary patterns depict a variety of floral and geometric patterns. A number of vessel forms are represented among the sherds including plates, a scallop-edged plate or saucer, a possible pitcher, and a pitcher handle fragment.

Three sherds of mold-decorated whiteware (also known as white ironstone) were uncovered in the excavations in Area 97-II. One of these sherds may represent a fragment of a "St. Louis Shape" vessel (Wetherbee 1980:61).

### Porcelain

All of the porcelain recovered from Area 97-II was concentrated in the southwest end of the area. Excavators discovered one Chinese Export Porcelain sherd during the work there, and 20 white porcelain sherds were also uncovered. Six of the latter represent fragments of a white paneled porcelain teacup, one sherd is molded with a circular pattern, and two sherds exhibit a lavender and white floral applied pattern.

Table 11. Excavated 1-x-2 meter units in Area 97-II (excludes shovel test units).

Unit	Level	porcelain	redware	stoneware	pearlware (incl whiteware)	yellowware	bolt	CO2 cartridge	nail, cut	rivet, clothing	tack, wire?	unknown	wire	bone (incl. teeth)	bone button	charcoal/coal/ clinker	plastic	shell	curved glass	flat glass	brick	mortar	concrete	limestone	manufactured roofing	asphalt	Total
<b>97-009</b>	L1	1	-	1	2	-	-	-	-	-	-	-	-	-	-	1	-	-	2	1	No	No	No	No	No	No	8
	L2	-	2	2	13	1	-	-	2	-	-	-	-	-	-	2	-	-	9	7	Yes	No	No	Yes	No	38	
	L3	1	2	-	16	1	-	-	16	1	-	3	-	7	-	2	-	-	20	6	Yes	Yes	No	No	No	75	
<b>97-010</b>	L1	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	No	No	No	No	No	4	
	L2	5	2	2	20	1	1	-	5	-	-	-	-	2	1	-	-	-	6	8	No	No	No	No	No	53	
	L3	7	1	8	45	1	1	-	19	-	-	-	-	22	-	-	-	-	23	20	No	No	No	Yes	No	147	
	L4	5	-	1	23	3	-	-	3	-	1	-	-	10	-	-	-	1	6	8	Yes	No	No	No	No	61	
<b>97-011</b>	L1	-	-	-	-	-	-	1	2	-	-	-	-	-	-	-	-	-	1	-	Yes	No	No	No	No	4	
	L2	1	-	-	8	-	1	-	15	-	-	-	1	-	-	-	1	1	64	5	Yes	No	Yes	No	Yes	97	
	L3	-	2	2	10	1	-	-	6	-	-	-	-	1	-	3	1	-	35	6	No	Yes	Yes	No	Yes	67	
<b>Total</b>		20	9	16	139	8	3	1	68	1	1	3	1	42	1	8	2	2	168	61						554	

## Stoneware

One unglazed stoneware fragment came from a shoveltest unit in the northeast end of Area 97-II, and excavators uncovered another 17 stoneware sherds from the southwest portion of the area. Of the 17 sherds, twelve have salt-glazed exteriors, two have exteriors covered with Albany slip, and two have no exterior glaze. One of the sherds with a salt-glaze exterior has Bristol slip on the interior, suggesting a possible ink bottle fragment, while the final stoneware sherd is a fragment of an impressed maker's mark on a Bristol slip-covered vessel. The words of the mark are arranged in a circular pattern with "1" above and "...CITY" below. The latter part may be part of the word "CAPACITY" with the "1" a liquid measurement of some increment. Alternately, the maker's mark may denote the name of the manufacturing site for the vessel.

## Yellowware

Ten undecorated yellowware fragments were discovered in Area 97-II, all of which exhibit a colorless glaze on their exterior.

## Redware

The three 2 x 1 m units at the southwest end of Area 97-II yielded nine redware fragments. Two of these sherds were glazed with Albany slip, three were covered with a colorless glaze, and four showed no evidence of glaze.

## Glass

### *Lamp glass*

Excavations in Area 97-II yielded two glass fragments that may represent lamp fragments. The first is colorless with a thin lining of pink opaque glass, and may be a fragment of a lamp shade. The other fragment is a solarized glass lamp prism with a metal hook through a hole in one end. This faceted prism fragment was probably originally rectangular, and the prism dates between the 1880s and *circa* 1915 (Kendrick 1971:54-55).

### *Bottles*

Excavations in Area 97-II uncovered 58 possible food bottle fragments. Four of these represent a wide mouth jar with a continuous thread opening manufactured with an automatic bottle machine. This method of manufacture dates these sherds to after *circa* 1903 (Kendrick 1971:74). All the sherds representing food bottles are manufactured of colorless glass.

Twenty-four glass bottle fragments represent alcoholic beverage vessels. With one exception, these sherds are green or olive in color. The exception is a colorless, mold-blown, brandy bottle finish. This bottle was finished with a lipping tool. Lipping tools were used to finish bottles from *circa* 1850 until *circa* 1870 (Newman 1970:73). One of the green bottle glass fragments most likely represents the base of a mold-blown wine

bottle. This fragment is the kick up portion of the bottle and exhibits a rough pontil on the base which generally dates from 1810 until 1870 (Newman 1970:73). A melted, dark olive-colored bottle fragment shows that the sherd has been exposed to heat at some point in the past.

Area 97-II yielded one colorless glass fragment from a medicinal bottle. This mold-blown bottle has a prescription finish and has been finished with a lipping tool, dating it to between about 1850 and *circa* 1870 (Newman 1970:73).

Excavations on the southwest end of Area 97-II uncovered one colorless glass sherd that may represent a chemical bottle. The mold-blown bottle has been melted at some time prior and is embossed with the maker or product name. Very little of the wording is legible but includes “WUL.../...CKRU...” A search of the available literature for this combination of letters among nineteenth and twentieth century products has yielded no results.

Two solarized, colorless glass bottle fragments were discovered in the 2 x 1 m units at the southwest end of the area. Like the lamp prism, these date between the 1880s and *circa* 1915.

### *Tableware*

Two tumbler fragments were excavated from the southwest end of Area 97-II. One of these colorless glass fragments is possibly mold-blown with a ground base and is representative of a “Plain Pattern”, having a rounded exterior. The other fragment of colorless glass comes from a pressed tumbler in the Flute Pattern, or a paneled design. Both types of tumblers were manufactured from about 1860 to the present (Innes 1976:301-302).

One colorless fragment exhibiting an etched “Greek Key” design was also discovered during excavations in Area 97-II. Etched designs on tableware seem to have been most popular during the 1870s and 1880s (Innes 1976:371-380).

### Organic

Excavations in Area 97-II yielded 67 bones that may be household refuse, and include three teeth, 19 bird bones (possibly chicken), two burned bones, and one butchered bone. Two shell fragments were also discovered in the area.

## PERSONAL

### Ceramics

Excavations in Area 97-II revealed one white porcelain sherd of a teacup from a child’s tea set.

## Glass

One sherd of translucent pink glass was excavated from a shoveltest unit at the extreme northeast end of the area, which may be a perfume bottle fragment. A cobalt blue glass fragment found in one of the 2 x 1 m units may represent a cosmetic/cold cream bottle and is most likely from a bottle made with an automatic bottle machine.

## Metal

Excavations in Area 97-II revealed three metal clothing-related artifacts. Two buttons, made of brass, were uncovered in units at the southwest end of the area. The first of these is 3/4 inch in diameter with a loop shank on the reverse. "IMPERIAL/STANDARD" is stamped on the back side of the button, which is most likely of British manufacture *circa* 1830 (Tice 1997:373-374). The second is also a loop shank button, although the shank is missing, and is stamped or engraved with "Viel's" on the front. The reverse shows two small stars and some illegible text. It measures 1/2 inch in diameter. The third metal clothing-related artifact is a copper clothing rivet measuring 3/8 inch in diameter and stamped with the words "PAT'D" and "...21 1886."

## Organic

One bone button was uncovered from the 2 x 1 m units. The round, 4-hole button measures 9/16 inch in diameter and score marks used as guides for drilling the holes are still visible on its surface.

## CONSTRUCTION

### Construction Materials

Various construction-related materials were scattered throughout Area 97-II, although they were mainly concentrated at the southwest end. These include brick fragments, mortar residue, concrete remains, limestone foundation slab fragments, interior plaster, manufactured roofing, and asphalt. While most of the construction debris seems to be evenly distributed over the area, the plaster is concentrated near the road at the southwest end, while the roofing material only appears in the 2 x 1 m units at the southwest end.

## Glass

Excavations in Area 97-II yielded 76 flat glass sherds. Of these, 71 are of aqua-colored glass and five are colorless.

## Metal

Excavation units in Area 97-II, primarily those on the southwest end, produced 85 nails or nail fragments. Of that number, 65 were cut nails in sizes ranging from 3d to 20d (measuring 1 1/4 inches to 4 inches). Cut nails of this type were used extensively from the late 1830s until they began to be replaced by wire nails in the late 1880s (Nelson

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1968:7). Excavators also recovered 17 nail fragments, most likely cut nails. Three wire nails or wire nail fragments were uncovered in the area, all from shoveltest units.

In addition to nails, a variety of other construction-related material were excavated from Area 97-II. Three bolts, including one with a nut and washer, a CO<sup>2</sup> cartridge measuring 3 1/4 inches in length, and a wire roofing tack were discovered in the 2 x 1 m units. A fragment of cast iron was also discovered.

### Organic

Two black, opaque plastic fragments, possibly related to construction activities, were excavated from the southwest end of Area 97-II.

## FUEL

### Organic

Excavations revealed nine fragments of coal/clinkers and charcoal.

## PREHISTORIC

Two flakes, one of agate and the other of a water-worn coarse white chert, were found in Area 97-II.

## NON-CULTURAL

Area 97-II yielded numerous naturally-occurring limestone fragments with fossil inclusions.

## AREA SUMMARY

Evidence from Area II suggests that general household refuse was deposited there beginning in the 1830s through the early twentieth century.

## CHAPTER 5

### AREA 97-III: PLANNED MAINTENANCE BUILDING AREA NEAR NORTH GATE

Construction of a new maintenance building to serve Ulysses S. Grant National Historic Site is planned for a level area east of the driveway near the back gate into Grantwood Village (Figure 1). In order to systematically sample the area, it was subjected to slit trenching which consisted of excavating narrow trenches (25 cm wide) on a grid at 4 m intervals over a 20 m-square block (Figure 12). Placement of the 20-m square corresponded with the area where the new building will be constructed. Slit trenches were excavated every 4 m on both axes, creating a complete grid except where trees and shrubs prevented excavation. All 58 units were excavated to sterile soil, an average of 10 cm below the surface, and were the width of a standard shovel. All soil removed from each 4 m segment of slit trench was screened, and artifacts recovered were containerized by each 4 m provenience unit (Table 12).

#### HOUSEHOLD

##### Ceramics

The 58 excavation units produced a total of 17 ceramic sherds scattered throughout Area 97-III. All of these ceramic sherds, like most of those over the entire site, are in small pieces, making identification of vessels very difficult.

##### *Whiteware*

Twelve of the 17 sherds are varieties of whiteware (either whiteware or pearlware) and five of these exhibit transfer print designs in blue, black, and purple. The other seven sherds show no decoration. One sherd, printed in blue, has been identified as a variation of the “Willow” Pattern, but the others remain unidentified (Coysh and Henrywood 1982:402).

##### *Porcelain*

Two porcelain sherds were present in the area. One of these is a plain white sherd, while the other is a fragment of Chinese Export Porcelain. This latter sherd is decorated with the Canton Border.

##### *Stoneware and Redware*

One salt-glazed stoneware fragment and one molded stoneware fragment were also uncovered in the trenches. The molded fragment is decorated with a raised urn design surrounded by a blue-green glaze and may represent a garden planting pot or some other decorative vessel for use in the home or garden. One unglazed redware fragment was also exposed in the excavations.

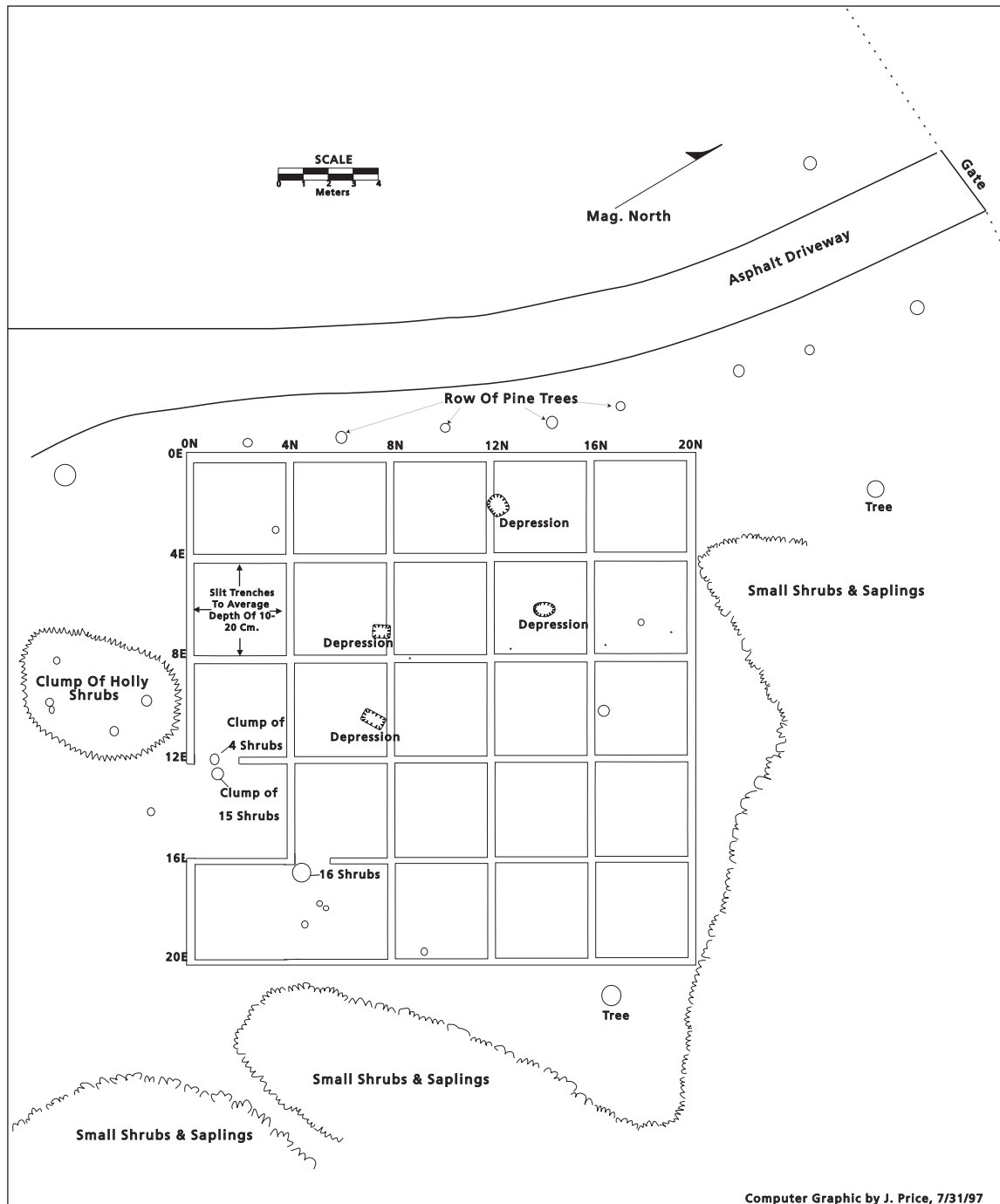


Figure 12, Area 97-III illustrating locations of silt trenches.





Table 12. Concluded.

Slit Trench Excavations in Area 97-3		
Description		Total
Limestone	97-047	0
Plaster	97-048	1
Plastic	97-049	7
	97-050	16
	97-051	1
	97-052	1
	97-055	1
	97-056	2
	97-058	0
	97-059	1
	97-061	10
	97-062	1
	97-063	1
	97-064	4
	97-065	2
	97-066	4
	97-067	4
	97-068	0
	97-069	4
	97-070	11
	97-071	4
	97-072	2
	97-073	7
	97-075	9
	97-076	2
	97-077	2
	97-080	1
	97-081	4
	97-083	6
	97-084	1
	97-089	2
	97-090	2
	97-091	2
	97-096	0
	97-097	2
	97-099	1
	97-100	1
	97-101	2
	97-103	12
	97-104	3
	Total	136

## Glass

Nineteen curved glass fragments were collected from Area 97-III.

### *Bottles*

Of the 19 glass fragments found in Area 97-III, 16 are from glass bottles of various types. Five aqua-colored glass fragments most likely represent food or medicine bottles. Most of these are small and preclude further analysis; however, one of these fragments shows evidence of post-manufacture heating. Another fragment is from a mold-blown bottle and exhibits a mold seam.

Six colorless bottle glass fragments are also present. One of these was manufactured by an automatic bottle machine and exhibits a circular depression on the base. Another fragment is of colorless solarized glass and is the cylindrical neck from a mold-blown bottle with a mold seam. Four olive and one dark green bottle glass fragment represent alcohol bottles. One of the olive fragments is the mold-blown base of a wine bottle. It has a kick-up, and the glass is worn on the basal surface where the bottle would have rested on a flat surface. Two of the olive fragments show evidence of heating.

### *Tableware*

Three fragments of glass vessels used at the table were excavated in Area 97-III. One of these fragments is from a colorless glass tumbler. This is a pressed glass fragment and most likely exhibits a Flute pattern. The second colorless glass fragment found in this area is also pressed glass and is probably a goblet fragment. This fragment is of the "Cincinnati" pattern, which dates from the 1860s to the 1890s (Innes 1976:308-309). The final fragment of tableware is of colorless, frosted glass and the vessel type from which this fragment came is unknown.

## Metal

Only two metal artifacts related to household use were excavated from Area 97-III. These are two fragments of relatively modern aluminum foil.

## Organic

One butchered bone fragment was excavated from Area 97-III.

## PERSONAL

### Glass

Only one glass artifact that could be considered "personal" in nature was found in Area 97-III. Workers uncovered one white, pressed glass button in the slit trench excavations. The round, 4-hole button is of a fluted design and is 3/8 inch in diameter.

## RECREATION

## Metal

An aluminum rose bush tag was excavated from Area 97-III. This oval tag reads "All America Rose Selection" and is a recent artifact.

One .22 caliber short rimfire cartridge case with a "U" headstamp was uncovered during excavations. The .22 short case was manufactured beginning in 1857 and is still produced today (Barnes 1980:289).

## Organic

Five fragments of pink/white/black plastic probably represent fragments of a doll. One of the fragments appears to show one of the doll's eyes.

## CONSTRUCTION

## Construction Materials

Workers uncovered a variety of construction materials during the course of excavation in Area 97-III. Nine of the slit trenches contained brick fragments, four contained mortar remains, three held concrete fragments, two yielded plaster fragments, and eleven produced limestone fragments that may be related to building construction.

## Glass

The slit trenches in this area contained 24 aqua flat glass fragments and eight colorless flat glass fragments.

## Metal

The 20-meter excavation block yielded ten nails or nail fragments. One cut nail (5d) and three cut nail fragments were present, as well as three wire nails (two 6d and one 16d nail) and three wire nail fragments. Other metal construction material from the area includes a square nut, an 1 1/2 inch bolt or spike, and a 50d eye bolt (Philbin and Ettinger 1987:112).

## Organic

Two modern plastic fragments related to construction activities were uncovered in the units of Area 97-III. One of these is an opaque white fragment, possibly part of a PVC pipe. The other plastic artifact is a thin, colorless, translucent fragment painted white.

### FUEL

Area 97-III yielded 15 coal or clinker fragments. In addition, three charcoal fragments were excavated from the units.

### PREHISTORIC

One pink/white chert flake, possibly Burlington Chert, with a worked edge was recovered from the excavated trenches. One other possible chert flake was also found in the testing.

### NON-CULTURAL

#### Stone

Sixteen limestone fragments were excavated from the area, many of which contain fossils. It is unknown if these fragments are related to limestone structure foundations at the site. In addition, three small pebbles of an unknown stone were present.

### OTHER/UNKNOWN

#### Metal

Five unknown ferrous metal artifacts were excavated from Area 97-III, all of which are too corroded to determine their original form.

### AREA SUMMARY

Excavation of Area 97-III produced very few artifacts, which were not concentrated in any particular part of the 20-meter block. While some of the discovered artifacts date to the Grant period, many others are of recent age. No subsurface features were detected as a result of the slit trenching. It is evident from the excavations in this area that no subsurface features or significant concentrations of cultural materials will be disturbed by construction of a maintenance building in this area.

## CHAPTER 6

### AREA 97-IV: THE WESTERN SLOPE AND ROADWAY

In 1995, the principal investigator and his research team discovered a gravel roadbed on the slope southwest of the Main House. In 1997, a major effort was expended in excavating a portion of the roadbed to further define its route up the hill to the summer kitchen and back of the Main House in an area designated Area 97-IV (Figure 1). A 20 x 20 m area was defined on the ground through the use of a transit and assigned coordinates, and slit trenches were excavated at 4 m intervals on a northwest-southeast axis (Figure 13) in order to locate the roadbed and any other features in that area. The northwest ends of these trenches transected the roadbed, which was indicated by abundant creek gravel, linear depressions, and limestone rubble.

Once the roadbed was delineated with slit trenches, an area five meters in length was selected for excavation (Figure 13). The selected area was at the base of the slope and away from a recent water abatement trench that had badly disturbed portions of the road higher up the slope. The road occurs in a visible swale, indicating that prior to creating the gravel road, occupants of the site had a roadway on the slope which caused erosion and creation of the swale.

Soil covering the gravel road surface was carefully removed in an area approximately 4 x 5 m. Small tools and paintbrushes were employed in picking soil from off the gravel and leaving it otherwise undisturbed. When this was completed, it was evident that the roadway had ditches on either side, evidenced by narrow, shallow swales. On the west, a strategy was developed to cut a series of trenches across the road, each exposing a single stratum in a stairstep fashion (Figure 14). Artifacts associated with each stratum were containerized in separate provenience units, and each step was recorded to create a cross-section of the road. A linear cross-section, from upslope to downslope, was also recorded (Figure 15).

Five strata were defined above, in, and under the roadbed. From top to bottom, Stratum 1, the ground surface and soil immediately underlying it consists of clay that was deposited in the swale in 1996 by park maintenance personnel. Underlying it, Stratum 2 consists of soil which accumulated after the roadway was abandoned. This soil contained very few artifacts and was apparently deposited by water from higher up the slope.

At the base of Stratum 2, a gravel layer, Stratum 3, was exposed which varied in thickness from 10 to 25 cm and represents the principal roadbed. Gravel from the road was scattered into the ditches on either side of it. As part of this road episode stratum, the road ditch on the southeastern side of the roadbed contained charcoal, ash, and soil from slopewash. Also part of this stratum is the linear deposit of limestone rubble which apparently was placed beside the northwestern side of the road to control erosion. To the northwest of the limestone rubble, this stratum contained over 10 cm of slopewash soil. Soil immediately under the gravel stratum apparently represents an earlier roadbed in which little or no gravel had been incorporated. This is Stratum 4, which thickens toward the northwestern side of the excavation where slopewash soil had been deposited

during this episode. Underlying this stratum is Stratum 5, the residual sterile subsoil into which the road swale eroded.

A three-dimensional model of the road cross-section is provided in Figure 16. Excavation of the cross-section trenches revealed that when the last road was first constructed, a relatively deep ditch had been excavated along its southeastern margin. This ditch contains bits of wood charcoal and ashes, indicating that yard debris had been burned in it prior to it having been filled by eroded soil and gravel. Gravel also became scattered outside the ditch on the southeastern side of the road for a distance of at least 50 cm (Figure 14). Photographs of the road excavation are provided in Figures 17 and 18.

Up the slope from the point where the roadbed was cross-sectioned, slit trenches were widened with 1 x 2 m excavation units to expose portions of the roadbed. In that area it was found that the road apparently forked, with a smaller branch heading off in the direction of the ice house and chicken house. In order to fully tie the current excavations with those of 1995, Excavation Unit 95-52 was exposed and mapped in as part of the road excavations (Figure 14). In that area, it was discovered that the road had either been constructed on top of a household refuse midden or that midden had been deposited along the northwestern side of the road, possibly filling in a ditch. Also, a more recent circular pit that penetrated to sterile soil was exposed in the area (Feature 97-2) (Figure 19). Subsequent to road construction, a rather large quantity of wall plaster had been deposited along the northwestern side of the road, apparently filling in a shallow depression that remained from a road ditch.

Excavations conducted to expose the road proved to be very significant in that the presence of the road was previously unknown until its discovery in 1995. Excavations in 1997 revealed that the road is a rather monumental subsurface feature on the site and dates to 1875, the target period of restoration. Subsequent to discovery of the road, research staff at Ulysses S. Grant National Historic Site reexamined a period engraving of the Main House and outbuildings published October 16, 1875 in Frank Leslie's Illustrated Newspaper and determined that the road as well as its fork to the ice house and chicken house are depicted in that period illustration, a portion of which is reproduced herein as Figure 20. An enlargement of the engraving depicting the area southwest of the Main House and illustrating the forks of the road and the approximate area where excavations were conducted is presented in Figure 21.

#### AREA OUTSIDE THE BOUNDARIES OF THE ROADWAY (20-METER BLOCK)

Few artifacts were excavated from the 24 slit trench excavations outside the roadway area in Area 97-IV (Table 13\*). The slit trenches were excavated to a depth of about 15 cm below surface, and the majority of the artifacts from these trenches are ceramic and glass sherds.

**\*All tables for Area 97- IV follow chapter text.**

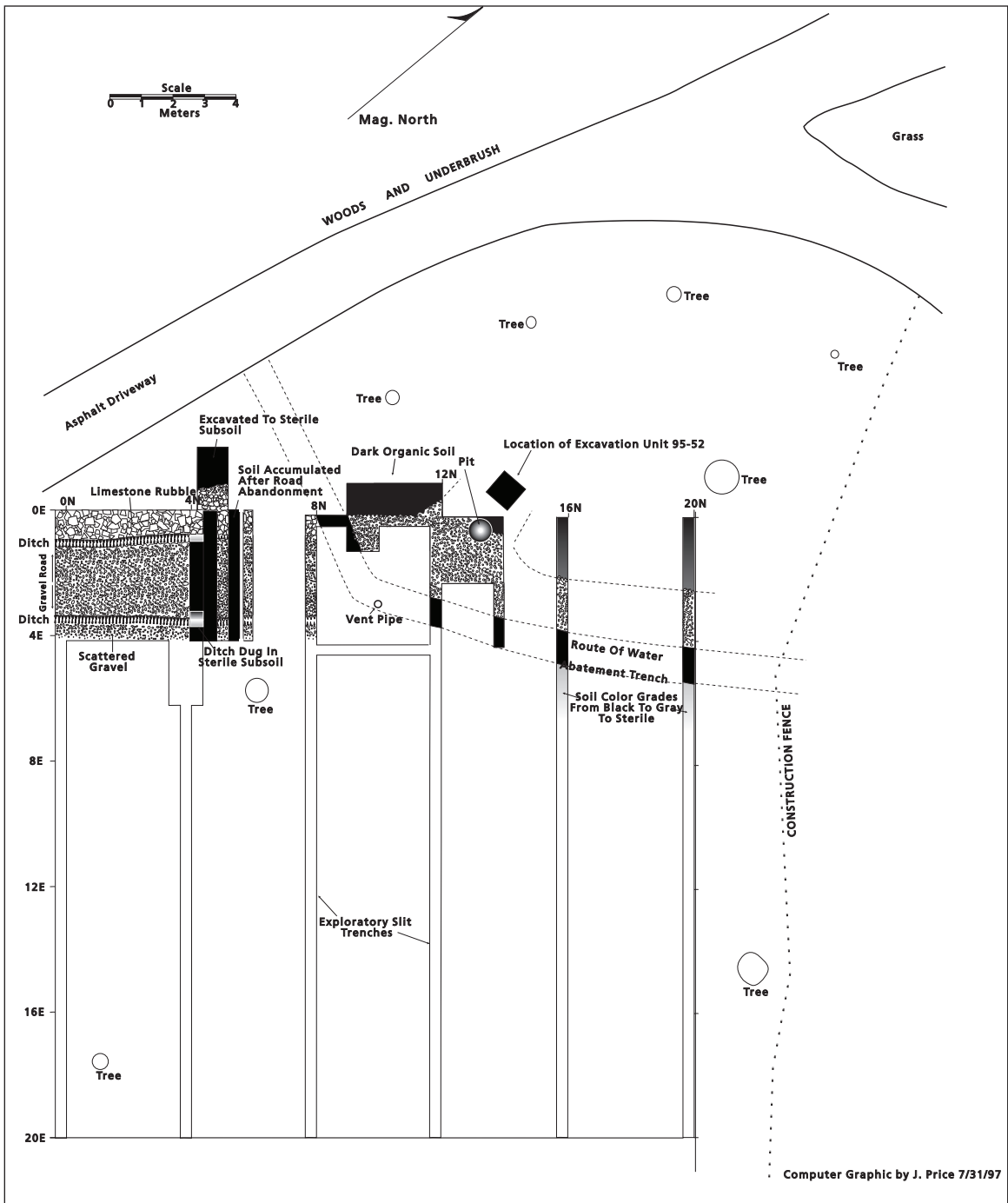


Figure 13. Area 97-IV illustrating locations of slit trenches and excavation units.

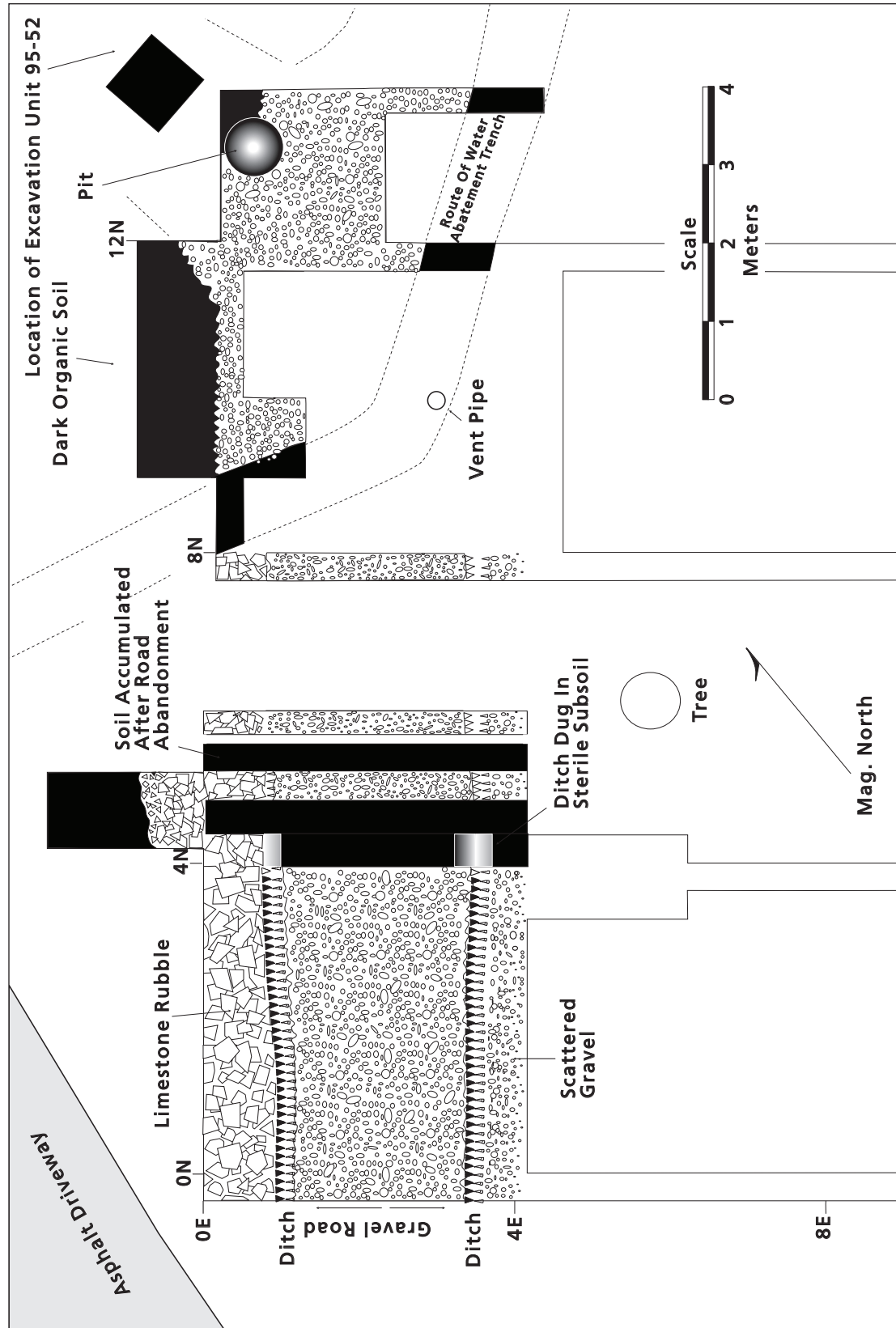


Figure 14. Horizontal plan of road excavations in Area 97-IV.

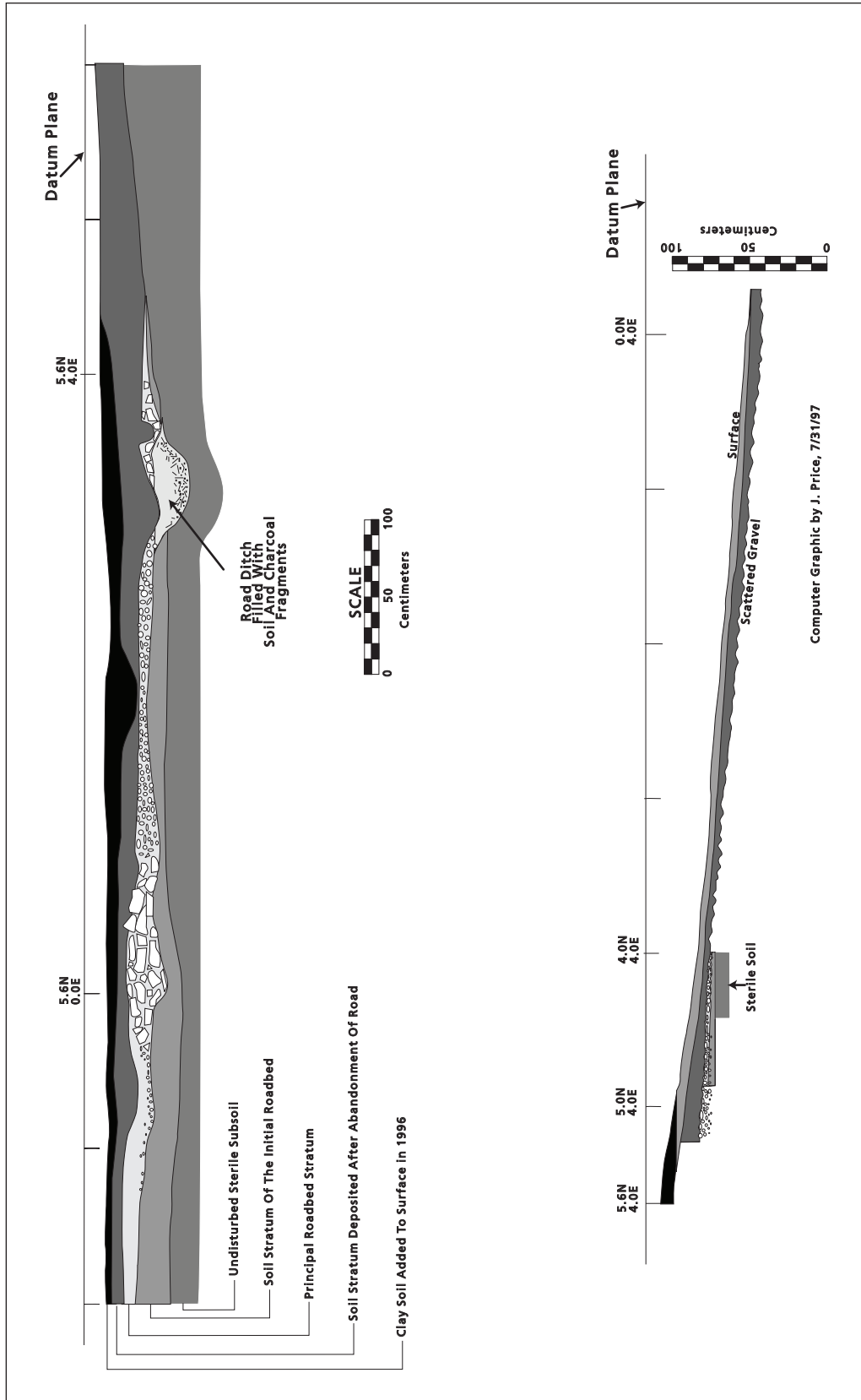


Figure 15. Cross-sections of road in Area 97-IV.





Figure 17. Photograph of roadbed excavation in Area 97-IV illustrating strata.

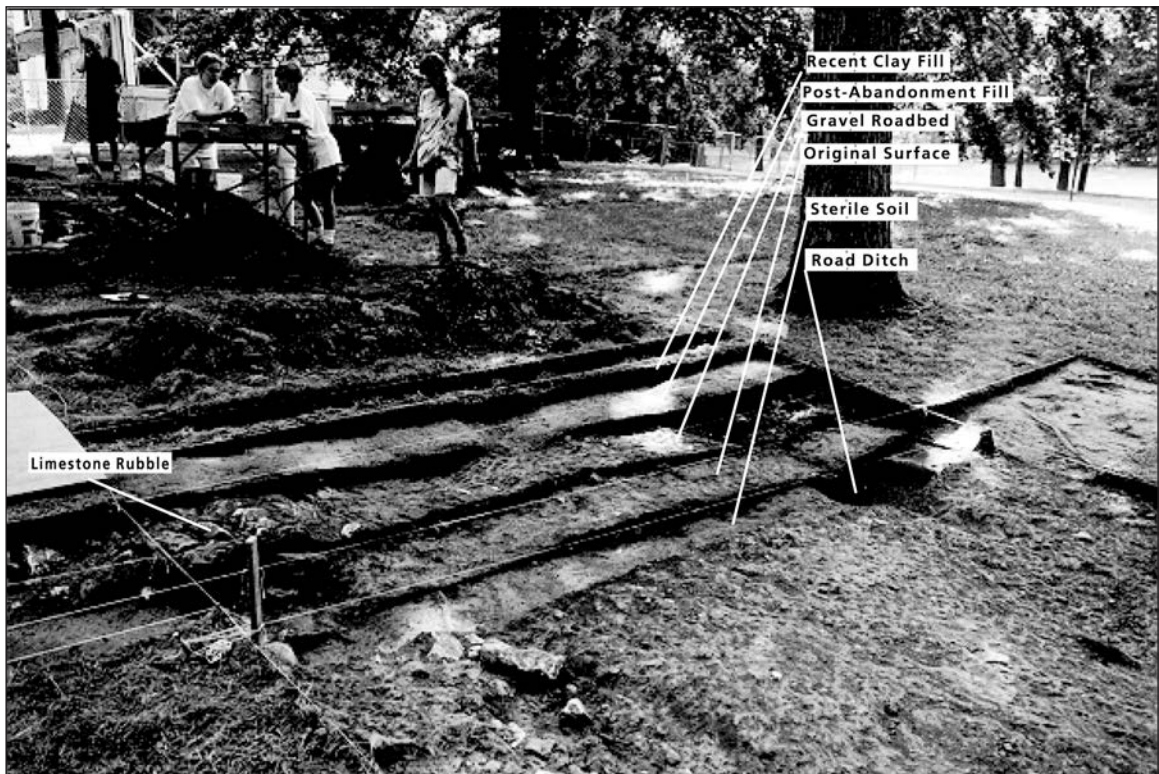


Figure 18. Photograph of roadbed excavation in Area 97-IV looking east illustrating strata.

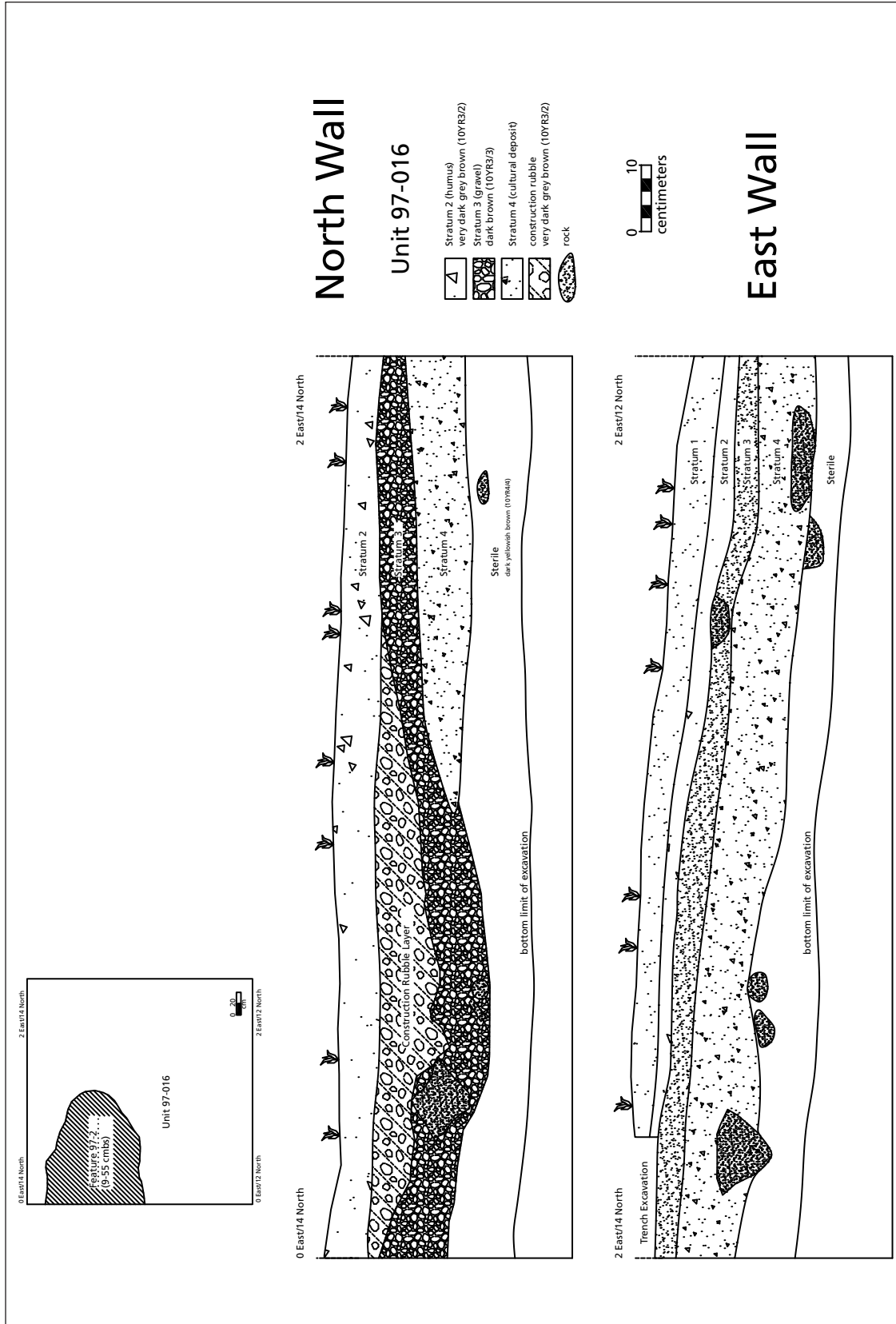
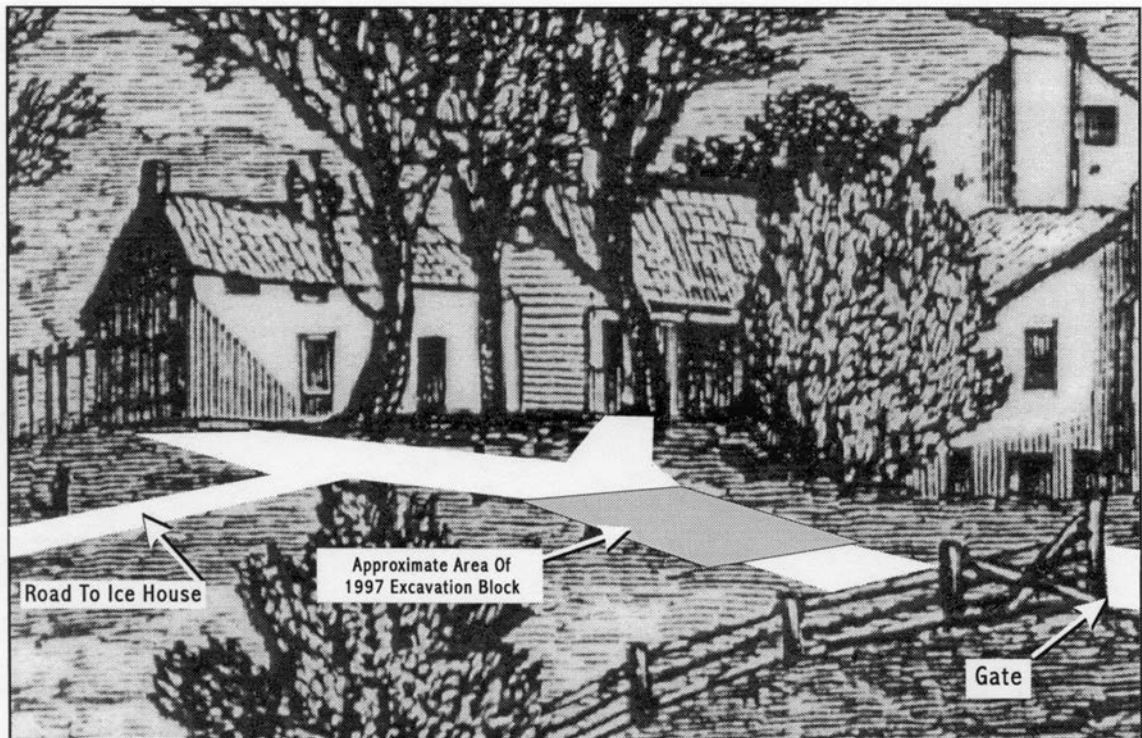


Figure 19. Feature 97-2 in Area 97-IV.



**Figure 20.** Portion of engraving from Frank Leslie's Illustrated Newspaper of 1875 illustrating road leading to back of Main House.



**Figure 21.** Enlarged portion of the above engraving illustrating forks in road and approximate area where road was excavated in 1997.

Household

*Ceramics*

Household-related ceramics are represented by 63 sherds, which include whiteware, porcelain, redware, and stoneware.

*Whiteware*

Whiteware sherds account for 44 of the 63 household-related ceramic sherds. The majority of these are undecorated, but 17 exhibit decoration of some form. Two sherds, one with blue decoration and one with green, are possibly representative of edge-decorated vessels, although they are too fragmentary to be certain. Annular decoration is represented by two additional sherds. One of the latter is a bright-banded design, while the other is a brightly-colored marbled pattern. One hand-painted sherd is decorated with a broadline, floral design done in an earthen palette. None of the twelve transfer print sherds are identifiable patterns; however, floral patterns are visible on two of the sherds. One of the transfer print sherds is a flow blue sherd, although the pattern is not discernable. One impressed maker's mark is evident on one of the whiteware sherds, but unfortunately is illegible.

*Porcelain*

Six porcelain sherds were excavated from the slit trenches of Area 97-IV. Three of these are decorated in a hand-painted design, two with a floral pattern and one in a geometric design.

*Stoneware*

Only one undecorated stoneware fragment was recovered from the slit trench in this area.

*Redware*

Excavations produced twelve redware fragments in the area. Like the stoneware, none of these utilitarian sherds show any decoration. Most of these sherds were concentrated in three slit trenches nearest the main house.

*Glass*

Household-related glass is represented by 31 sherds from the slit trenches in Area 97-IV.

*Bottles*

Curved bottle glass is represented by 30 fragments, eight of which are colored dark olive, brown, or olive and are most likely from liquor bottles. One aqua fragment

and one solarized colorless fragment exhibit mold seams and are from mold-blown bottles. Two bottle sherds show signs of melting. Six aqua sherds, nine colorless sherds, and three solarized colorless sherds represent bottles of unknown contents or manufacturing techniques.

#### *Bottle Stopper*

Excavations yielded one colorless bottle stopper from the area with rough mold seams on either side and an uneven, rippled top.

Although other areas of the site yielded fairly large numbers of tableware sherds, the slit trenches in Area 97-IV did not produce any such artifacts.

#### *Metal*

Three ferrous metal sheet fragments are most likely household can fragments.

#### *Organic*

Four bone fragments were excavated from the slit trenches of Area 97-IV. Three of these four fragments show butchering evidence. In addition, the trenches yielded three tooth fragments, two crab shell fragments, and two nut shell fragments.

#### *Personal*

#### *Glass*

One white pressed-glass button was uncovered in the area outside the driveway of Area 97-IV. This round, 2-hole button measures 9/16 inch in diameter and has a rounded edge.

#### *Recreation*

#### *Ceramics*

Eight black ceramic clay pigeon fragments were uncovered from trenches in the northeast corner of the 20 m block. These sherds are most likely of a fairly recent origin.

#### *Construction*

#### *Construction Materials*

A variety of construction materials were discovered in the slit trenches of Area 97-IV, including brick, mortar, concrete, modified limestone, plaster, paint, and manufactured roofing material. The highest concentration of construction materials was found either in trenches near the roadway area, or in the trench farthest south and farthest from the main house (Unit 97-132).

## ULYSSES S. GRANT

### *Glass*

The slit trenches in Area 97-IV produced 25 aqua flat glass sherds and two clear glass sherds.

### *Metal*

Fourteen cut nails or cut nail fragments and two wire nails were recovered from the slit trench area. Among the cut nails, three are 3d, one is a 5d, and two are 8d. One of the 8d nails has a hand-wrought, multi-faceted head (Edwards and Wells 1993:36). Eight cut nail fragments are also present, while two wire nails include one 16d and one 20d.

In addition to nails, one round wire fragment was excavated from the area. This fragment measures 1/16 inch in diameter.

### *Organic*

Four wood fragments, one of which has been burned, were uncovered during the slit trench excavations and these may be related to construction activities at the site. Also, two plastic artifacts were excavated, a wire end cap and an unidentified fragment.

### Fuel

### *Organic*

Excavations uncovered eleven coal or clinker fragments in the trenches. These were most likely used for fuel purposes.

### Prehistoric

### *Stone*

One red/colorless obsidian debitage flake from prehistoric stone tool manufacture is present in the assemblage. One small brown-colored chert stone may also have a prehistoric origin.

### Other

Excavations revealed 13 limestone fragments, ten of which contain fossil material. These are most likely naturally occurring and not related to the Grant occupation of the site.

## ROADWAY AREA

Excavation units in the driveway area included eight units excavated in multiple levels and ten units (eight of which are trenches) excavated to a depth of 10 to 15 cm below surface. Like many artifacts in the other areas of the site, those in Area 97-IV have been

broken into very small fragments, making precise identification of patterns, designs and vessels difficult. However, while there is little obvious stratigraphy in other areas of the site, the strata of the roadway area of Area 97-IV are well defined.

## Household

### *Ceramics*

The roadway area of Area 97-IV produced 1249 household ceramic sherds. These include 898 whiteware/pearlware sherds, 170 porcelain sherds, 27 redware fragments, 84 stoneware fragments, and 70 yellowware sherds (Table 14). It is interesting to note the distribution of ceramic types among the various strata of the roadway area. While whiteware, porcelain, and stoneware sherds are concentrated in Stratum 3, the gravel roadway layer, yellowware sherds are concentrated in Stratum 4 below the gravel and redware sherds in Stratum 2 above the gravel.

### *Whiteware*

Of the 898 whiteware fragments, only six have an edge-decorated design (Table 15). Three of these sherds have a molded shell-edge design painted over in blue. All three sherds are most likely from plates, although only one sherd can definitely be identified as belonging to a scallop-edged plate. Two edge-decorated sherds have a green shell-edge design. Both are from scallop-edged plates, although one has a painted design while the other is molded and painted. The final edge-decorated sherd is a molded twisted rope design with blue overpaint.

Four whiteware sherds are decorated with a sponge decoration. Three are in blue, while one is in blue and brown. According to Price (1979:19), this type of decoration was introduced in the late 1820s or 1830, and retained popularity until about 1850 or 1860.

Seventy-eight whiteware sherds exhibit annular decoration of some form. Ten of these have an earthen banded decoration, 33 have a bright-banded design, and five show a marbled pattern. Twenty-nine sherds of a carinated bowl decorated in the annular “mocha” pattern were excavated from the roadway gravel layer (Stratum 3) of 97-017 (Sussman 1997:62-63) (Figure 22: ULSG 7422). One sherd of the same bowl was excavated from the adjoining unit, 97-018, from the level below the gravel. These sherds refit to comprise about 90 percent of the bowl. The mocha design is in brown, light blue, white and yellow, and was created by brushing or dropping an acidic solution onto the wet surface of the ceramic vessel. This solution often contained tobacco, coffee, or hops and stale urine, turpentine, or vinegar (Sussman 1997:26).

Fifteen whiteware sherds are decorated with a hand-painted design. Three sherds are decorated in a fineline floral pattern painted with a bright palette, and three are decorated in a broadline floral pattern painted with a bright palette. Four sherds are decorated in a blue broadline floral pattern and at least one of these sherds belongs to a teacup. Five sherds have banded designs with four in blue and one in a bright palette of light blue and pink/red.



**Figure 22.** Whiteware carinated bowl with annular “mocha” decoration (ULSG 7422), Area 97-IV, Unit 97-017, Stratum 3.

The assemblage of artifacts from the roadway area of Area 97-IV includes 219 transfer print-decorated whiteware sherds decorated in black, dark blue, medium blue, light blue, brown, green, purple, mulberry, and red. Of the 219, 16 are decorated in identifiable patterns. Three sherds of the dark blue Palestine pattern were excavated from Stratum 3, the gravel roadway level, of Units 97-016 and 97-017. Again, Palestine was manufactured by Ralph Stevenson *circa* 1810-1832 (Williams and Weber 1986:116-117). Units 97-016 and 97-018 yielded four sherds representing the light blue Columbian Star pattern (Figure 6: ULSG 7415). Two of these sherds came from Stratum 3 while the other two were excavated from Stratum 4, the level containing the earlier roadbed. As mentioned previously, Columbian Star dates to October 28, 1840 and was manufactured by John Ridgway (Snyder 1995:79). One sherd of the light blue Sirius pattern was excavated from Stratum 3 of Unit 97-018 (Figure 6: ULSG 7416). James and Thomas Edwards manufactured the Sirius pattern from 1839-1841 (Williams 1978:265).

Stratum 3 of Unit 97-013 yielded one medium blue sherd of the Corsica pattern (Figure 6: ULSG 7410), which was produced by Wood and Challinor from *circa* 1828 until 1843 (Snyder 1997:170). One sherd exhibiting the medium blue Tuscan Rose pattern was excavated from Stratum 2, the post-roadway slopewash, of Unit 97-013. James and Ralph Clews produced Tuscan Rose from *circa* 1818 until 1834 (Williams and Weber 1986:53). Feature 97-2 in Unit 97-016 yielded four whiteware sherds decorated with a mulberry transfer print pattern named “Coral Border” (Figure 6: ULSG 7412), manufactured by Thomas Dimmock from 1828-1859 (Williams 1978:619).

Two transfer print patterns have been tentatively identified. One light blue sherd from Stratum 2 of 97-017 may represent the pattern “Dunkeld” of the United Kingdom Series, produced by RA Kidston and Company (Coysh and Henrywood 1982:119).

The other sherd, excavated from Stratum 4 of Unit 97-018, is most likely from a plate decorated in Italian Flower Garden in medium blue. This pattern, manufactured by J. and W. Ridgway from 1814 until 1830, is transfer-printed over a molded pattern on the ceramic body (Williams 1978:302).

Seventeen sherds from transfer printed maker's marks are represented in the assemblage from the roadway area of Area 97-IV. Six of these sherds are temporally diagnostic. Two black-printed sherds, excavated from Stratum 3 of Unit 97-017, represent two maker's marks from vessels manufactured for Giles F. Filley, a St. Louis importer of English ceramics from 1841-1844 (Figure 6: ULSG 5657). Fragments of identical maker's marks were excavated from the site in 1991 (Noble 1997:23) and from Area 97-I during the 1997 excavations.

One sherd, printed with "...AND..." inside a blue banner, is probably from a vessel manufactured by Ridgway and Morley, who used a maker's mark with an identical component. According to Godden (1964:536), their Patent Ironstone China was produced *circa* 1842-1844. This sherd was excavated from Stratum 3, the gravel roadway, in Unit 97-016.

Three datable black-printed sherds with portions of maker's marks were excavated from Stratum 4 of Units 97-016 and 97-017. All bear Royal Arms marks with the shield divided into quadrants instead of the presence of an inner oval shield, dating them to post-1837 (Kovel and Kovel 1986:267). Six additional black-printed sherds show portions of various Royal Arms marks, but none of these may be dated with any certainty. These six sherds are probably all from plates.

Four whiteware sherds have both transfer print decoration and molded decoration. One medium blue sherd with an unidentified molded floral pattern was excavated from Feature 97-2 in Unit 97-016. Three hollowware sherds decorated with a medium blue floral and molded leaf pattern were excavated from Stratum 3 of Unit 97-017 and Stratum 4 of Unit 97-018.

Mold-decorated whiteware sherds recovered from the roadway area are represented by 15 sherds. Five of these have been identified as hollowware, although all are of different patterns, and were excavated from Strata 3 and 4 of Units 97-016, 97-017, and 97-018. None of these five patterns is identifiable, but one is a paneled design and another a scroll pattern. Another four mold-decorated sherds are most likely from panel design plates. Two represent an octagonal-shaped paneled plate, one a round-shaped paneled plate, and one a paneled plate of an unknown design. All four sherds were found in Stratum 4 of Unit 97-016. One cup sherd from Stratum 3 of Unit 97-018 is decorated with a wheat or other grain pattern. Five mold-decorated sherds, from undetermined vessel types and of unidentifiable patterns, are from Strata 3 and 4 of Unit 97-016.

Seven whiteware sherds bear four impressed maker's marks, only one of which is datable. A diamond registry mark is present on one sherd, mostly illegible, but an "8" is evident at the base of the mark. According to Kovel and Kovel (1986:238-239), this mark was produced between 1842 and 1867. All seven sherds were excavated from Stratum 4 of Unit 97-016.

*Porcelain*

The roadway area units in Area 97-IV yielded 170 porcelain household-related sherds. Of these 170 porcelain sherds, 46 percent were excavated from Stratum 3, 31 percent from Stratum 4, 20 percent from Stratum 2, and 3 percent from Stratum 1. Included in the 170 sherds are those decorated with hand painting, applique, and molding, as well as Chinese Export Porcelain sherds.

Chinese Export Porcelain is represented in the roadway area by 47 sherds. Although distributed throughout Strata 1-4, 70 percent of the Chinese Export Porcelain sherds are concentrated in Stratum 3, the gravel layer of the roadway. These sherds appeared in Units 97-013, 97-014, 97-016 (including Feature 97-2), 97-017, 97-018, and 97-019. Of the 47 sherds, 18 are decorated in the hand-painted, blue Canton Border pattern. One sherd is decorated with a garland-like painted design near the edge of the vessel. Probably the most interesting among the Chinese Export Porcelain sherds is one with a red-painted design. This may be part of a vessel painted in the "Imari" style. Of these sherds, nine have been identified as plate/bowl fragments, one as a lid fragment, three as bowl fragments, and three as a cup handle.

Only ten porcelain sherds show evidence of hand-painted decoration. These sherds come from Units 97-014, 97-016, 97-017, and 97-018, but seven of the ten are from Unit 97-016. Half of these are from Stratum 3 while the other half are from Stratum 4 below the gravel roadway level. This hand-painted decoration is primarily of various floral designs, although three sherds are decorated with a gold line at the rim. Most of the paint has worn off the hand-painted sherds with floral designs and the color is unknown. Two of the ten sherds are from a plate, while one is part of a teacup.

Three mold-decorated porcelain sherds are present in the assemblage. One of these, molded in a floral pattern, was excavated from Feature 97-2 in Unit 97-016, while the other two, both paneled designs, came from Trenches 97-116 and 97-128. Two sherds are decorated with an applique floral pattern. One sherd from Stratum 4 of Unit 97-016 has a light blue design, and another sherd from Stratum 2 of Unit 97-012 has a lavender design. One possible decal-decorated sherd with a floral/fruit pattern was excavated from Stratum 3 of Unit 97-013.

*Stoneware*

The roadway excavation units in Area 97-IV yielded 84 household-related stoneware sherds. Nine different exterior glaze treatments are present on the stoneware sherds.

Four are glazed with a brown Albany slip, three sherds are glazed with a metallic brown glaze, three have a colorless exterior glaze, and two sherds have a colorless metallic glaze. Forty-nine stoneware sherds, or 58 percent of all household-related stoneware sherds, have with a salt glaze on the vessel exterior. One of the salt-glazed sherds has an undetermined white glazed design over the salt glaze. Nine stoneware sherds are covered with a creamy white Bristol slip. Two of these, from Stratum 4 of Unit

97-013, are from a ginger beer bottle. One other sherd is unusual in that it has a cobalt blue exterior glaze. Two sherds are glazed with a yellow glaze on the exterior and with a Bristol slip on the interior, and are most likely fragments of an ink bottle. Ten stoneware sherds have no exterior glaze and another sherd is so deteriorated that neither the exterior or interior glaze can be determined.

Like the porcelain sherds, the greatest percentage (52 percent) of stoneware sherds were excavated from Stratum 3, the gravel roadway. Stratum 4, the earlier gravel-free roadway, contained 34 percent of the total stoneware sherds. Strata 1 and 2 contained four percent and ten percent of the total stoneware sherds respectively.

### *Yellowware*

Excavations in the roadway area yielded 70 household-related yellowware sherds. A large number of these (48 sherds or 64 percent of the total) were excavated from Stratum 4 of Unit 97-016. Of the total number of yellowware sherds, 69 percent came from Stratum 4 in units throughout the roadway area, and these numbers indicate that most of the yellowware sherds were deposited before the gravel roadway (Stratum 3) was put in place. A variety of exterior glaze treatments are present on the 70 yellowware sherds. A colorless glaze covers the exterior of 32 sherds, and four of those are decorated with a brown slip over the colorless glaze. A brown Albany slip covers 19 sherds, one sherd is salt-glazed, three have no glaze, and 15 sherds have a Rockingham glaze.

### *Redware*

Only 27 redware sherds were excavated from the roadway area. Of these 27, various exterior glaze treatments are represented. One sherd has a metallic brown glaze, two have a salt glaze, three are covered with a colorless glaze, two have a mottled brown/green glaze, and six have no glaze. Of these 27 sherds, 52 percent were excavated from Stratum 2, the post roadway slopewash, and 33 percent came from Stratum 4 below the gravel roadway layer.

### *Glass*

#### *Bottles*

Excavation units in the roadway area of Area 97-IV yielded 892 household bottle glass sherds in a variety of colors (Table 16). These sherds were spread throughout the strata present in the units, although over half of the sherds were found in Stratum 3 of Unit 97-017 and in Stratum 4 of Units 97-016 and 97-018.

#### *Food*

Of the 892 household bottle sherds, 181 are probably from food-related bottles. Of this number, 153 are from one bottle with a round base measuring 4 3/8 inches in diameter. This aqua colored bottle was blown in a 3-piece mold and has a rough pontil mark on the base. All 153 sherds were recovered from Stratum 3, the gravel roadway

layer, of Unit 97-017 and were found with the annular mocha-decorated whiteware bowl discussed above. This bottle was likely made sometime between 1809, when the 3-piece mold came into use, and 1860, generally considered the cutoff date for rough pontil marks (Kendrick 1971:26, 33).

Also found in the same unit and stratum are four sherds of a colorless glass bottle finish with a wide mouth and a sheared, blow-over lip. A sheared lip is generally an indicator that the bottle dates pre-1840 (Kendrick 1971:44). Three additional sherds from Stratum 3 of Unit 97-017 represent two other bottle finishes. One is an aqua tooled finish with the lip of the bottle folded to the outside and reheated. The other two sherds are from a colorless glass bottle with a wide mouth and a straight finish. Six sherds are of colorless, solarized glass dating from the 1880s until *circa* 1915. Two of these are from a jar in Trench 97-133, one sherd from Stratum 2 of Unit 97-013 is melted and probably the finish of a wide mouthed bottle, and three sherds from Stratum 4 of Unit 97-018 are from the base of a round bottle.

### *Alcohol*

Of the 269 sherds representing alcohol-related bottles, 263 represent wine or beer bottle fragments, two are flask fragments, and four are other alcohol bottle fragments. From the number of bases and finishes present in the excavations of the roadway area of Area 97-IV, at least six alcohol-related bottles are present in the artifact assemblage. Seven sherds are fragments of beer or wine bottle bases, and two of these, one from Stratum 4 of Unit 97-018 and one from Stratum 2 of Unit 97-017, refit to form a maker's mark that reads "L G Co/21". This is from a round beer bottle blown in a snap case mold *circa* 1880 (Toulouse 1971:323-324). Two dark olive-colored wine bottle bases were found in Stratum 4 of Unit 97-016, both mold-blown with kick ups. One of these is melted while the other has a three-pronged pontil mark and probably dates from the 1850s until 1900 (Kendrick 1971:29).

One green wine bottle base with a kick up was excavated from Stratum 2 of Unit 97-012, while two fragments of wine bottle bases, one dark olive and the other olive, were uncovered from Strata 3 and 4 of Unit 97-016 respectively. Three alcohol bottle finishes were excavated from Stratum 3 in Units 97-013, 97-016, and 97-017, all with a laid-on-ring finish and dating from *circa* 1840-1860s (Kendrick 1971:44). One aqua-colored brandy bottle finish with an applied lip was excavated from Stratum 3 of Unit 97-018, and has fragments of metallic paper on the lip and the neck below the finish. Two glass sherds represent whiskey flasks. One of these is a brown neck fragment with an unidentified raised vertical line decoration, while the other is an aqua sherd from an American Eagle Flask of Type GII-22 or GII-25 (McKearin and McKearin 1948:484,540-541). This latter sherd depicts an oval frame with an elongated star decoration, and dates between *circa* 1840 and 1860.

### *Chemical*

Only two glass sherds likely derive from chemical bottles. One of these, from Stratum 2 of Unit 97-014, is a colorless round melted bottle base with a rough pontil

mark. The second sherd, of colorless, frosted glass, was excavated from Stratum 4 of Unit 97-016.

### *Medicine*

Twenty-five glass sherds are most likely from at least nine medicine bottles, judging by the number of bottle bases and finishes. Two aqua glass bottle bases, one from Stratum 2 of Unit 97-016 and the other from Stratum 3 of Unit 97-013, have “improved” pontil marks on them. These diagnostic pontil marks have a metallic residue as a result of the manufacturing process, and were produced from the late 1840s until *circa* 1860 (Kendrick 1971:28-29). Four prescription bottle finishes, one a wide prescription finish with a flanged lip and two with flat tops, and two patent bottle finishes with flat tops, were recovered from the roadway area. In addition, three other bottle finishes, including one with a flared lip and two with the lip folded to the inside, were excavated from the roadway units. Of the prescription finishes, one colorless mold-blown finish found in Stratum 4 of Unit 97-016 shows mold seams up to the lip and was finished with a lipping tool. According to Kendrick (1971:43-44), this finish dates to the period between 1860 and 1880. One prescription finish with a flat top from Stratum 3 of Unit 97-013 is of solarized colorless glass and dates from the 1880s until *circa* 1915. One aqua body sherd of a mold-blown, round bottle from Stratum 4 of Unit 97-016 is embossed with the text “...&.../...SUR...” A search of bottle literature for this combination of characters yielded no results. Embossed lettering was common on bottles from *circa* 1869 until *circa* 1900 (Kendrick 1971:65).

### *Ink*

One colorless glass sherd is from an octagonal ink bottle with a sloped shoulder. This sherd exhibits a mold seam and was recovered from Stratum 4 of Unit 97-016.

### *Tableware*

Excavations in the roadway area of Area 97-IV produced 41 colorless glass sherds, representing pressed glass tumbler fragments. These were concentrated primarily in Stratum 3 of Units 97-016, 97-017, and 97-018. Flute pattern tumblers, manufactured beginning in the 1840s, are represented by 30 sherds in both six-paneled and eight-paneled designs (Innes 1976:301). Seven sherds are from a six-paneled tumbler and were found with the annular mocha-decorated whiteware bowl in Stratum 3 of Unit 97-017. Five sherds are from tumblers with plain rounded exteriors, while six sherds are from tumblers of an unknown pattern. From the number of bases present and the presence of one frosted rim sherd, at least six tumblers are present in the assemblage from the roadway. Eight tumbler basal sherds have ground bases.

Seven colorless glass sherds from a variety of pressed glass tableware vessels other than tumblers were found in the roadway excavations. Three of these sherds may represent goblets of the Cincinnati pattern, which date from *circa* 1860s-*circa* 1890s, although one sherd is melted (Innes 1976:308-309). One frosted colorless glass sherd may be a fragment of a sugar bowl lid. Two colorless glass sherds, one solarized, are of

unknown patterns. One of the most interesting tableware sherds is a colorless pressed glass ball and clawed foot. This is most likely the foot of a candy or similar dish, and resembles the Fern pattern which was manufactured after 1876 (Innes 1976:398-400).

Four colorless sherds are most likely tableware fragments, although they are too fragmentary to identify as either pressed or blown glass. One of these sherds is frosted with a circular pattern, while another is of solarized glass. A third colorless sherd is decorated with a series of horizontal lines that may be cut into the glass vessel. Three of the four colorless sherds are from Stratum 3 of Unit 97-016 while the fourth is from Stratum 2 of Unit 97-012.

Three curved glass fragments are from vessels of an unidentified type. Both of these sherds, from Stratum 2 of Unit 97-016, are melted and fused with limestone fragments.

### *Metal*

The 142 ferrous sheet metal fragments uncovered in this area most likely represent household cans. Of these, 42 are from Stratum 3 of Unit 97-016, 58 are from Stratum 4 of Unit 97-016, and 42 fragments are from Stratum 3 of Unit 97-018. Although most of the fragments are very small, three can fragments can be identified further. One fragment, from Stratum 4 of Unit 97-016, is from a ferrous hole-in-cap or hole-in-top can with a lapped seam which originally measured about 3 1/4 inches in height. Hole-in-cap and hole-in-top cans date from between 1819, the beginning of commercial canning in the United States, and 1894, when sanitary cans were first manufactured (IMACS 471:1-4). Two other ferrous metal fragments are from a can with a lead-soldered, lapped seam. This can, from Stratum 3 of Unit 97-018, measures 4 3/4 inches in height.

Excavations in this area yielded a variety of other metal artifacts that may be related to household activities. These include a ferrous metal band with a rivet from Stratum 4 of Unit 97-013 and a flattened non-ferrous one-inch diameter cap from Stratum 3 of Unit 97-016. Stratum 4 of Unit 97-016 revealed a ferrous metal hook, fourteen cast iron fragments, seven fragments of a non-ferrous cap with an embossed floral design, and a non-ferrous thimble-shaped cap with a hole in the top and a stippled design. Stratum 3 of Unit 97-018 yielded a flattened copper or brass collar from the top of a can that measures about 1 1/2 inches in diameter.

One of the most interesting household metal artifacts is a ferrous furniture caster from Stratum 2 of Unit 97-017 (Philbin and Ettlinger 1987:129). The wheel measures 1 1/2 inches in diameter.

### *Organic*

Two utensil handles were excavated from the roadway units of Area 97-IV. One of these, found in Stratum 3 of Unit 97-016, is most likely of bone, although possibly of ivory. The handle is polished, has beveled edges, and is drilled with one hole, probably

for attaching the metal portion of the utensil. The second handle is from Stratum 3 of Unit 97-018, and is carved of bone. This handle is drilled with three holes.

In addition to the utensil handles, bone, shell and tooth fragments were excavated from the roadway area. A total of 606.5 grams (gm) of unmodified bone, 8.5 gm of burned bone, 273 gm of bone with evidence of butchering, 142 gm of shell, and 95 gm of teeth was uncovered in this area. Of the bone, 40 percent of the total weight was excavated from Stratum 3 and another 40 percent came from Stratum 4. Among the shell fragments, 23 percent of the total weight came from Stratum 3 while 69 percent was in Stratum 4. A large percentage of the teeth, 90 percent of the total weight, was excavated from Stratum 3, while only seven percent were found in Stratum 4.

### Personal

Personal artifacts excavated from Area 97-IV, including clothing items, a pipe fragment, and glass beads, are listed in Table 17.

### *Ceramics*

Three ceramic artifacts have been identified as personal items. One porcelain sherd, excavated from Stratum 3 of Unit 97-013, is undecorated but is probably from a doll. One porcelain, 4-hole button measuring 9/16 inch in diameter was excavated from Feature 97-2 in Unit 97-016. In addition to the two porcelain artifacts, one sherd of a white clay pipe was discovered in the roadway excavations. This molded bowl sherd has a fluted design.

### *Glass*

Four glass sherds may be from perfume or other decorative bottles. Two of these sherds, one from Stratum 2 of Unit 97-014 and the other from Stratum 3 of Unit 97-016, are of light blue, opaque glass. One translucent yellow glass sherd, from Stratum 3 of Unit 97-016, may be a fragment of a stopper from a perfume bottle. The final sherd is a bottle finish of colorless glass. This finish has a laid-on ring with facets cut in a diamond pattern, and was excavated from Stratum 4 of Unit 97-016. One unusual glass sherd from Stratum 4 of Unit 97-016 may be related to personal use, although the original vessel type is unknown. This sherd has two layers of light blue glass with a thin layer of tan/brown glass or paint between them.

The most interesting personal use glass sherds from this area are two glass bead fragments, one from Stratum 3 of Unit 97-013 and the other from Stratum 4 of Unit 97-017 (Figure 23: ULSG 7426 and 7427). These two artifacts are from wound cylinder beads, and are of layered glass (van der Sleen n.d.:22-37). They both measure 5/16 inch in diameter with green translucent glass on the interior, red opaque glass over the green core, and a thin colorless glass layer on the exterior. Manufactured in Venice, Italy *circa* 1600 to 1830, these have been identified as “green heart” trade beads and were used for trade in Africa and North America (James Price 1997 personal communication; Green Heart 2008).

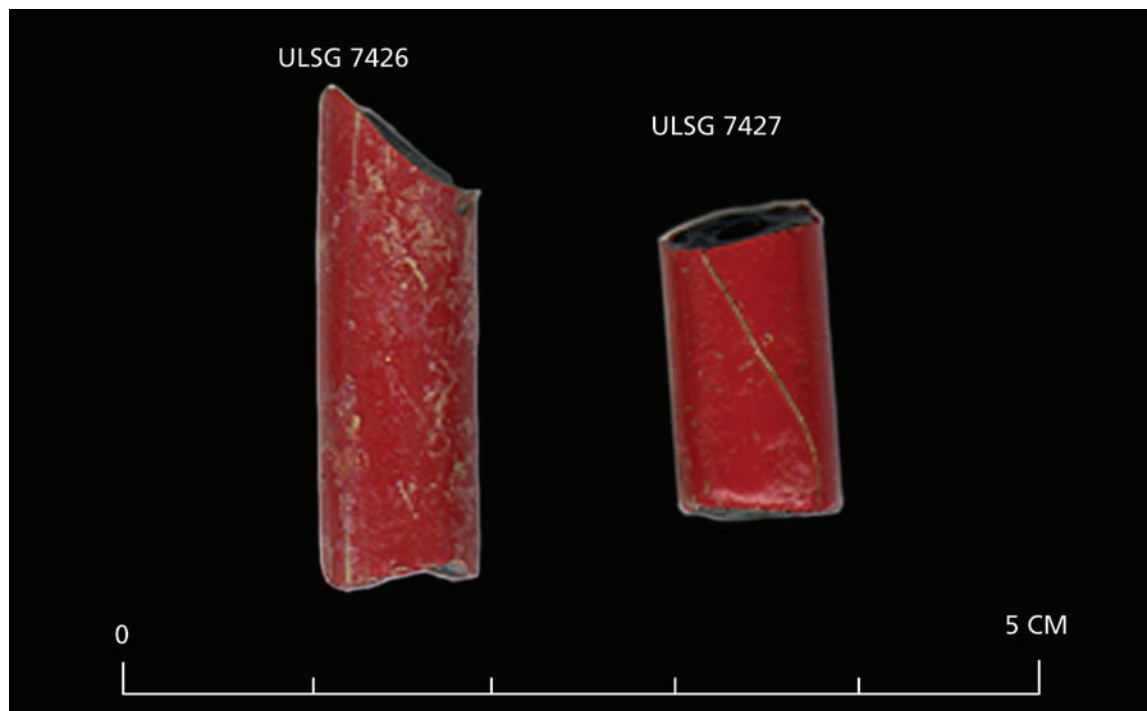


Figure 23. "Green Heart" trade beads (ULSG 7426, 7427), Area 97-IV.

ULSG 7426 and 7427	"Green Heart" trade beads (manufactured c.1600-1830 and traded in Africa and North America)	Area 97-IV, Unit 97-013, Stratum 3 and Area 97-IV, Unit 97-017, Stratum 4
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### Mirror

Four mirror sherds composed of aqua flat glass are present in the assemblage and were excavated from Stratum 4 of Unit 97-016.

### Metal

Excavations in the roadway units yielded ten metal personal artifacts. Half of these are non-ferrous loop shank buttons, most likely brass. One of these is embossed with a floral/star design, but the others have no decoration. Four of the five buttons were excavated from Unit 97-017, one from Stratum 2, one from Stratum 3, and two from Stratum 4. The fifth button, with the embossed design, came from Stratum 1 of Unit 97-019.

Four buckles were also uncovered in the area, three of which these are from Unit 97-016 and are ferrous metal. One, measuring 2 1/4 x 1 1/4 inches, is from Stratum 3 while the other two, measuring 1 x 1 inch and 1 5/8 x 1 1/8 inches are from Stratum 4. The fourth buckle is probably brass and was found in Stratum 4 of Unit 97-017. This latter artifact has two prongs and measures 1 1/16 x 3/4 inches. The final metal personal artifact is a small (1 x 3/8 inch), triangular ornament, probably made from either lead or pewter. It is malleable and appears to have been hammered into shape. It may be part of an earring or

some other decorative item worn by a woman living at White Haven. Another possibility is that it is related to earlier Native American occupation of the site, as it appears similar to triangular trade ornaments excavated at the Little Osage Site (23SA3) in Missouri (Chapman 1959:15-32).

## Recreation

### *Metal*

Eight metal items have been identified in the recreation category. These include three cartridge cases, one 1/4-inch lead shot, a non-ferrous wheel that is probably from a toy, a ferrous jaw harp fragment, a non-ferrous harmonica fragment, and an aluminum rose bush tag. Two of the cartridge cases, one a .38 caliber Smith & Wesson centerfire case and the other a .30 caliber long rimfire case, were excavated from Stratum 2 of Unit 97-013 (Barnes 1980:177, 292). The third cartridge case, a 1901 No. 12 New Rival shotgun shell, came from Stratum 2 of Unit 97-012 (Steward 1969:84). The lead shot was excavated from Stratum 2 of Unit 97-017. Both musical instrument fragments came from Unit 97-016, although the harmonica was found in Stratum 3 and the jaw harp was recovered from Stratum 4. The toy wheel measures 1 inch in diameter and was excavated from Stratum 4 of Unit 97-016. The aluminum rose bush tag is of recent origin, and concurs with the artifact's presence near the surface in Stratum 1 of Unit 97-016.

## Construction

### *Construction Materials*

Construction materials excavated from the roadway area of Area 97-IV include brick, concrete, limestone, plaster, slate, gravel, and asphalt (Table 18). Brick is the most prevalent construction material, and is distributed throughout Strata 1 through 4 in scattered roadway units. Fragments of plaster, slate, and limestone were also present throughout the units and distributed among the various strata. While the slate fragments have been classified here as construction materials, they may alternatively be fragments of writing slate. Gravel consisting of chert and limestone pebbles was found in Stratum 3 of all the roadway units.

### *Glass*

The number of flat glass sherds from the roadway area totals 253. The majority of these are of aqua glass, although 14 sherds are of colorless glass. Of these latter, twelve are from Stratum 2, while two were found in Stratum 4. Strata 3 (with 34 percent) and 4 (with 35 percent) contained the largest total number of flat glass sherds in the roadway area.

### *Metal*

Excavations in the roadway units of Area 97-IV yielded 720 cut nails and cut nail fragments (Table 19). No wire nails were found in this area. Four penny nails are the

most numerous (37 total), followed by 8d nails (n=31). In addition to 175 complete nails in sizes 2d, 3d, 4d, 5d, 6d, 7d, 8d, 9d, 10d, 16d, and 20d, 545 nail fragments were also found in the area. Two of the nail fragments have possible L-shaped heads, and likely represent brads used in finishing work during the nineteenth century (Edwards and Wells 1993:66). Stratum 3 yielded the largest percentage of the cut nails with 42 percent. Stratum 4 followed close behind with 37 percent of the total number of nails.

In addition to the numerous nails and nail fragments excavated from the area, a variety of other ferrous and non-ferrous metal construction-related artifacts were found in the roadway units. Fifty construction-related metal artifacts that are not nails were excavated from this area. Unlike the nails and nail fragments that were concentrated in Strata 3 and 4, these artifacts are concentrated in Strata 2 (with 38 percent of the total non-nail artifacts) and 4 (with 36 percent). These artifacts range from ferrous wire to a brass blind fastener (Table 20). Artifacts that can be discussed in more detail include a shovel-shaped key or screw, a slide bolt, a door or window brace, and a blind fastener. The ferrous shovel-shaped key, from Stratum 4 of Unit 97-016, is three inches in length and has an "S" on the shovel-shaped end. This is probably not a key, but more likely a shutter screw (Russell and Erwin 1980:89). The ferrous slide bolt or tower bolt, measuring 4 1/8 inches in length was excavated from Stratum 2 of Unit 97-016 (Russell and Erwin 1980:97). Stratum 4 of Unit 97-016 yielded one fragment of a ferrous door or window brace measuring 5 3/4 inches in length (Philbin and Ettlenger 1987:119).

One of the most interesting construction-related artifacts from the roadway area is a blind or shutter fastener (Figure 9: ULSG 7425). This fastener, or catch, consists of two brass arms hinged with a ferrous pin and was uncovered in Stratum 2 of Unit 97-016. This fastener appears identical to one in Russell and Erwin's 1865 catalogue, and is described there as one of "Merriman's Blind Fastenings" (Russell and Erwin 1980:148). Although this hardware does not match any existing hardware on the house, this shutter/blind fastener may have been hardware for the original shutters that were replaced by previous owners of White Haven.

### *Organic*

Three plastic fragments from the roadway area are most likely construction-related artifacts. These include one opaque white fragment from Stratum 2 of Unit 97-012 and one opaque black fragment from Stratum 3 of Unit 97-016. An opaque black fragment with a threaded interior may represent a portion of a tool handle, and was excavated from Stratum 2 of Unit 97-015.

### Transportation

Only one artifact excavated from the roadway area may be related to transportation at the site. This is a possible battery post, and came from Trench 97-133 (Stratum 1).

## Fuel

### *Organic*

Excavations in the roadway units of Area 97-IV produced 56 coal/clinker fragments. In addition, three charcoal fragments were also discovered in the units. The coal/clinker fragments were excavated throughout the roadway area in Strata 2-4, but the charcoal fragments were excavated only from Stratum 4 of Unit 97-017.

## Prehistoric

Prehistorically modified stone accounts for 27 artifacts excavated from the roadway area of Area 97-IV (Table 21). Included in the 27 artifacts are 23 flakes, two shatter fragments, one projectile point preform, and one projectile point fragment. Of the 27 artifacts, 26 are of chert in pink, white, grey, red, yellow, or purple. One flake is of a fine-grained pink quartzite. Ten of the flakes show evidence of heat treating and the quartzite flake has a worked edge. The projectile point, manufactured of a pink and white chert, also shows evidence of heat treating and is missing its tip. This point was excavated from Stratum 2 of Unit 97-013. One projectile point preform manufactured of white chert was recovered from Stratum 3 of Unit 97-013. The artifacts are primarily concentrated in Strata 2 and 3, with 15 artifacts (55 percent) in Stratum 2 and eight in Stratum 3. Those artifacts in Strata 1 and 2 may have washed onto the road surface from upslope. The presence of 30 percent of the artifacts in the gravel roadway stratum (Stratum 3) suggests that some of the prehistoric artifacts in this area may have been originally deposited elsewhere and transported with the gravel.

## Non-cultural

Naturally-occurring fragments of limestone containing fossils were found throughout the roadway area. These fragments were found in Strata 1 through 4.

## AREA SUMMARY

Of the four areas excavated during the summer of 1997, the roadway area of Area 97-IV is the only one that has clear stratigraphy. By determining the age of the artifacts within each of the strata, the age of the roadway, the gravel layer, and the age of road abandonment may also be determined (Figure 24). There are, however, some complications that arise in attempting to determine a date for when the gravel surface was laid down on the roadway. Since the gravel is fairly uniform pea-sized gravel, it was most likely brought in from another source rather than from on-site. The large number of artifacts in the gravel layer (Stratum 3) may have been deposited in the gravel prior to its placement on the roadway. In addition, many of the artifacts may have been deposited on the surface of the gravel roadbed and worked down into the gravel due to foot, horse, wagon, and buggy traffic over time. We do know that the roadway was present for the 1875 engraving; however, the engraving is not sufficiently detailed to show that the gravel surface was in place at that time.



TABLES

Table 13. Artifacts excavated from Area 97-IV, excluding those from the gravel roadway area.																		
Description	97-106	97-107	97-108	97-109	97-110	97-111	97-115	97-117	97-118	97-119	97-124	97-125	97-126	97-130	97-131	97-132	97-136	Total
<b>Ceramic</b>																		
clay pigeon	-	1	-	4	-	-	-	-	1	1	1	-	-	-	-	-	-	8
porcelain	-	1	-	-	-	-	-	-	1	1	2	-	-	-	-	1	-	6
redware	-	-	-	-	-	-	-	-	6	2	3	-	-	-	-	1	-	12
stoneware	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1
whiteware	2	5	3	2	1	-	-	2	7	6	3	6	-	1	-	3	3	44
<b>Glass</b>																		
curved bottle glass	1	1	-	-	-	1	4	1	5	8	4	1	-	1	-	1	2	30
button	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
bottle stopper	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1
flat glass	1	-	2	1	1	-	3	2	9	4	2	-	1	-	-	-	1	27
<b>Metal</b>																		
nail, cut	-	-	-	-	-	-	3	-	1	1	2	2	-	-	-	-	5	14
nail, wire	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	2
possible can	-	-	-	-	-	-	-	-	2	1	-	-	-	-	-	-	-	3
wire, bent	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
<b>Organic</b>																		
bone	-	-	-	-	-	-	4	-	-	1	-	1	-	1	-	-	-	7
coal/clinker	-	1	-	1	-	-	5	1	1	-	-	-	-	-	-	-	2	11
nutshell	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	2
crab shell	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	2
wood	-	-	-	1	-	-	-	-	1	-	2	-	-	-	-	-	-	4
plastic	-	-	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	2
<b>Inorganic</b>																		
flake, red obsidian	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1
brown chert	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	1
limestone	-	-	-	-	4	-	-	4	-	-	1	1	-	-	2	1	-	13
<b>Construction</b>																		
Brick	No	No	No	No	No	No	No	No	No	No	Yes	No	No	No	No	Yes	No	No
Mortar	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	Yes	No	No
Concrete	No	No	No	No	No	No	No	Yes	No	No	No	No	No	No	No	Yes	No	No

Table 13. Concluded.

	97-106	97-107	97-108	97-109	97-110	97-111	97-115	97-117	97-118	97-119	97-124	97-125	97-126	97-130	97-131	97-132	97-136	Total
Limestone	No	No	No	No	No	No	No	No	No	Yes	No	No	No	No	Yes	Yes	No	
Plaster	No	No	No	No	Yes	No	Yes	Yes	No	No	No	No	No	Yes	No	No	No	
Paint	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	Yes	
Manufactured Roofing	No	No	No	No	No	No	No	No	No	No	Yes	No	No	No	No	No	No	
<b>Total</b>	<b>4</b>	<b>10</b>	<b>7</b>	<b>10</b>	<b>8</b>	<b>3</b>	<b>19</b>	<b>10</b>	<b>35</b>	<b>27</b>	<b>21</b>	<b>12</b>	<b>1</b>	<b>3</b>	<b>2</b>	<b>8</b>	<b>13</b>	<b>193</b>

Table 14. Household ceramics in gravel roadway area, Area 97-IV.

Unit	Level	porcelain	redware	stoneware	whiteware (includes pearlware)	yellowware	Total
97-012	L1	14	5	-	17	-	36
97-013	L2	4	-	1	6	1	12
	L3	11	1	12	35	4	63
	L4	3	-	9	13	1	26
97-014	L2	3	1	-	13	1	18
	L3	10	-	4	26	2	42
	L4	4	-	-	5	1	10
97-015	L1	1	1	-	3	-	5
97-016	Feature 97-2	5	1	4	43	1	54
	L1	1	-	1	3	-	5
	L2	1	-	-	5	2	8
	L3	24	2	14	89	9	138
	L4	42	8	11	234	45	340
97-017	L2	4	5	1	63	-	73
	L3	9	-	7	104	-	120
	L4	-	-	4	31	-	35
97-018	L1	-	-	-	7	-	7
	L2	24	1	7	115	-	147
	L3	4	1	5	49	1	60
97-019	L1	2	-	2	6	1	11
97-114	trench	1	-	-	2	-	3
97-116	trench	1	-	-	2	-	3
97-128	trench	1	-	-	4	1	6
97-129	trench	-	-	-	1	-	1
97-133	trench	-	1	1	8	-	10
97-135	trench	-	-	-	4	-	4
97-137	trench	-	-	1	8	-	9
97-138	trench	1	-	-	2	-	3
<b>Total</b>		<b>170</b>	<b>27</b>	<b>84</b>	<b>898</b>	<b>70</b>	<b>1249</b>

Table 15. Decoration of household whiteware sherds, Area 97-IV.

Unit	Level	annular	edge decorated	hand painted	mold decorated	sponge decorated	transfer print	no decoration	Total
97-012	L1	-	-	1	-	-	-	16	17
97-013	L2	-	-	-	-	-	3	3	6
	L3	2	-	-	-	-	7	26	35
	L4	-	-	-	-	-	3	10	13
97-014	L2	2	-	-	-	-	1	10	13
	L3	2	-	-	-	-	5	19	26
	L4	-	-	1	-	-	4	-	5
97-015	L1	-	-	-	-	-	-	3	3
97-016	Feature 97-2	1	-	-	-	-	17	25	43
	L1	-	1	-	-	-	-	2	3
	L2	-	-	1	-	-	2	2	5
	L3	3	-	2	1	-	26	57	89
	L4	17	1	6	17	1	46	146	234
97-017	L2	3	-	-	-	-	17	43	63
	L3	34	1	3	2	3	22	39	104
	L4	2	-	-	-	-	8	21	31
97-018	L1	-	-	-	-	-	2	5	7
	L2	3	1	1	2	-	30	78	115
	L3	5	1	-	-	-	22	21	49
97-019	L1	-	-	-	-	-	-	6	6
97-114	trench	-	-	-	-	-	-	2	2
97-116	trench	-	-	-	-	-	-	2	2
97-128	trench	-	1	-	-	-	-	3	4
97-129	trench	-	-	-	-	-	-	1	1
97-133	trench	-	-	-	-	-	3	5	8
97-135	trench	-	-	-	-	-	-	4	4
97-137	trench	4	-	-	-	-	-	4	8
97-138	trench	-	-	-	-	-	1	1	2
<b>Total</b>		<b>78</b>	<b>6</b>	<b>15</b>	<b>22</b>	<b>4</b>	<b>219</b>	<b>554</b>	<b>898</b>

Table 16. Household-related curved glass showing type of household glassware, glass color, and probable vessel contents for bottles in roadway excavation of Area 97-IV.

Contents	Color															Total
		97-012	97-013	97-014	97-015	97-016	97-017	97-018	97-019	97-114	97-116	97-128	97-133	97-135	97-137	
<b>Bottles</b>																
bitters?	aqua	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1
chemical?	clear	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1
	clear, frosted	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1
food, jar	clear, solarized	-	-	-	-	-	-	-	-	-	-	2	-	-	-	2
food	clear	-	-	-	-	-	97	-	-	-	-	-	-	-	-	97
food?	aqua	1	1	-	-	5	63	3	-	-	-	-	-	-	-	73
	blue	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1
	clear	-	-	-	-	1	2	-	-	-	-	-	-	-	-	3
	clear, solarized	-	1	-	-	-	-	3	-	-	-	-	-	-	-	4
	lt blue	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1
ink	clear	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1
liquor	aqua	-	-	-	-	-	1	1	-	-	-	-	-	-	-	2
	brown	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1
	dk olive	6	11	6	4	104	26	22	3	1	-	2	1	1	1	188
	green	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1
	olive	-	1	-	-	1	2	-	-	-	-	-	-	-	-	4
liquor (flask)	aqua	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1
	brown	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1
liquor?	aqua	-	-	-	-	-	-	2	-	-	-	-	-	-	-	2
	brown	-	-	-	-	5	1	1	-	-	-	-	-	-	-	7
	dk green	1	-	-	-	6	-	-	-	-	-	-	-	-	-	7
	green	-	-	-	-	5	8	-	-	-	-	-	-	-	-	13
	olive	3	3	1	-	25	3	4	2	-	-	-	-	-	1	42
medicine	aqua	-	-	1	-	-	-	1	-	-	-	-	-	-	-	2
	clear	-	1	-	-	2	-	-	-	-	-	-	-	-	-	3
	clear, solarized	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1
	cobalt	3	-	-	-	-	-	-	-	-	-	-	-	-	-	3
medicine?	aqua	-	1	-	-	4	2	2	-	-	-	-	-	-	-	9
	clear	-	-	-	-	6	1	-	-	-	-	-	-	-	-	7
unknown	aqua	7	15	5	-	40	39	74	-	-	-	1	-	-	1	183
	brown	3	-	-	-	-	-	-	-	-	-	-	-	-	-	3
	clear	8	7	3	-	55	66	60	-	-	2	1	4	1	1	209
	clear, frosted	-	1	-	-	1	-	-	-	-	-	-	-	-	-	2
	clear, solarized	4	1	1	-	1	-	-	-	-	-	-	-	-	-	7
	olive	-	7	-	-	1	-	-	-	-	-	-	-	-	-	8
	yellow	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1
<b>Other household glassware</b>																
mirror	aqua	-	-	-	-	4	-	-	-	-	-	-	-	-	-	4

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Table 16. Concluded.

Contents	Color	97-012	97-013	97-014	97-015	97-016	97-017	97-018	97-019	97-114	97-116	97-128	97-133	97-135	97-137	97-138	Total
tumbler	clear	-	2	1	-	12	20	5	-	-	-	-	-	-	-	-	40
	clear, frosted	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1
unk. tableware	clear	1	-	-	-	2	1	-	-	-	-	1	-	-	-	-	5
	clear, frosted	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1
	clear, solarized	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1
Total		38	53	19	4	291	333	178	5	1	2	3	8	2	4	3	944

Table 17. Personal and Recreation items of roadway units, Area 97-IV.

Category	Object	Material	Identifier	Manufacturer	97-012	97-013	97-014	97-016	97-017	97-018	97-019	97-135	97-138	Total
personal	button	porcelain	4-hole, 9/16" diam, round, white		-	-	-	1	-	-	-	-	-	1
	button	bone	4-hole, 1" diam, round, turn mark in center		-	-	-	-	-	-	-	-	1	1
	button	bone	4-hole, 11/16" diam, round		-	-	-	-	-	1	-	-	-	1
	button	bone	4-hole, 5/8" diam, round, turn mark in center		-	-	-	1	-	-	-	-	-	1
	button, face only	non-ferrous	7/16" diam		-	-	-	-	1	-	-	-	-	1
	button, face only	non-ferrous	fragment		-	-	-	-	1	-	-	-	-	1
	button, loop shank missing	non-ferrous	3/8", rounded face		-	-	-	-	1	-	-	-	-	1
	button, iron loop shank (part. missing)	non-ferrous, brass	1/2" diameter, smooth face		-	-	-	-	1	-	-	-	-	1
	button, loop shank missing	non-ferrous, brass	7/16" diam, embossed floral/star design		-	-	-	-	-	-	1	-	-	1
	button, w/2 prongs	non-ferrous, brass	1-1/16" x 3/4", garter belt buckle?		-	-	-	-	1	-	-	-	-	1
	buckle	ferrous	1" x 1", garter or other delicate material?		-	-	-	1	-	-	-	-	-	1
	buckle	ferrous	1-5/8" x 1-1/8"		-	-	-	1	-	-	-	-	-	1
	buckle	ferrous	2-1/4" x 1-1/4"		-	-	-	1	-	-	-	-	-	1
	bead	glass	layered glass (green int., red, colorless), 5/16" diam		-	1	-	-	1	-	-	-	-	2
	comb	bone	7/8" width		-	-	-	-	-	3	-	-	-	3
	bottle? perfume?	glass	lt blue, opaque		-	-	1	1	-	-	-	-	-	2

Table 17. Concluded.

Category	Object	Material	Identifier	Manufacturer	97-012	97-013	97-014	97-016	97-017	97-018	97-019	97-135	97-138	Total
	bottle? perfume?	glass	laid on ring w/ cut facets (diamond pattern), colorless		-	-	-	1	-	-	-	-	-	1
	ornament, triangular	non-ferrous, lead or pewter	possibly made in stone mold	poss Native American	-	-	-	-	-	-	-	1	-	1
	pipe	clay	fluted at base of bowl & perhaps bowl itself, white		-	-	1	-	-	-	-	-	-	1
personal?	doll? clothing?	porcelain leather	white 1" x 1-5/8", white w/ impressed lines on edges		-	1	-	-	-	-	-	-	-	1
	unknown perfume?	glass	knob? yellow		-	-	-	1	-	-	-	-	-	1
	unknown	glass	tan/brown paint btwn (& on interior surface) 2 layers of glass, lt blue		-	-	-	1	-	-	-	-	-	1
recreation	jaw harp harmonica fragment cartridge case, centerfire cartridge case, rimfire shotgun shell shot	ferrous non-ferrous, brass non-ferrous non-ferrous	frag .38 Smith & Wesson .30 long?	"U.M.C." "U"	-	-	-	1	-	-	-	-	-	1
	tag from rose bush, modern	non-ferrous, brass non-ferrous, lead non-ferrous, aluminum	1901 No.12 New Rival 1/4" diameter frag, oval tag	Winchester illegible	1	-	-	-	-	-	-	-	-	1
recreation?	wheel w/ iron insert (toy?)	non-ferrous, copper?	1" diameter		-	-	-	1	-	-	-	-	-	1
<b>Total</b>					<b>1</b>	<b>4</b>	<b>2</b>	<b>13</b>	<b>7</b>	<b>5</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>35</b>

Table 18. Construction materials of roadway units by unit and level (metal construction-related artifacts listed in Table 20), Area 97-IV.

Unit	Level	Asphalt	Brick	Concrete	Flat Glass	Gravel	Limestone	Manufactured Roofing	Mortar	Paint	Plaster	Plastic	Slate (possible roofing)
97-012	L1	No	Yes	No	Yes	No	No	No	No	No	No	Yes	No
97-013	L2	No	No	No	Yes	No	No	No	No	No	No	No	No
	L3	No	Yes	No	Yes	No	No	No	No	No	No	No	No
	L4	No	Yes	No	Yes	No	No	No	No	No	No	No	No
97-014	L2	Yes	No	No	Yes	No	No	No	No	No	Yes	No	No
	L4	No	Yes	No	Yes	No	No	No	No	No	No	No	No
97-015	L1	No	No	No	Yes	No	No	No	No	No	No	Yes	No
97-016	Feature 97-2	No	No	No	Yes	No	No	No	No	No	No	No	No
	L1	No	Yes	No	Yes	No	No	No	No	No	No	No	Yes
	L2	No	Yes	No	Yes	No	No	No	No	No	Yes	No	No
	L3	No	No	No	Yes	No	No	No	No	No	No	Yes	No
	L4	No	Yes	Yes	Yes	No	No	No	No	No	No	Yes	Yes
97-017	L2	No	Yes	No	Yes	No	No	No	No	No	No	No	No
	L3	No	Yes	No	Yes	Yes	Yes	No	No	No	Yes	No	No
	L4	No	Yes	No	Yes	Yes	No	No	No	No	No	No	No
97-018	L1	No	No	No	Yes	No	No	No	No	No	No	No	Yes
	L2	No	No	No	Yes	Yes	No	No	No	No	No	No	Yes
	L3	No	No	No	Yes	No	Yes	No	No	No	Yes	No	Yes
97-019	L1	No	Yes	No	Yes	No	Yes	No	No	No	Yes	No	No
97-105	trench	No	No	No	No	No	No	No	Yes	No	No	No	No
97-114	trench	No	Yes	No	Yes	No	No	No	No	No	Yes	No	No
97-116	trench	No	No	Yes	No	No	No	No	No	No	No	No	No
97-129	trench	No	No	No	No	No	Yes	No	No	No	Yes	No	No
97-133	trench	No	No	No	Yes	No	Yes	No	No	No	No	No	Yes
97-137	trench	No	Yes	No	Yes	No	No	No	No	No	No	No	No
97-138	trench	No	No	No	Yes	No	No	No	No	No	No	No	No

**Table 19.** Cut nail summary by stratum and by size, roadway units of Area 97-IV. (No wire nails were excavated from the roadway units of Area 97-IV.)

<b>Strata</b>	<b>Size</b>	<b>Total</b>
<b>1 (1996 fill)</b>	6d	1
	7d	1
	8d	1
Total Strata 1 Cut Nails		3
<b>2 (post-roadway slopewash)</b>	2d	4
	3d	7
	4d	11
	5d	5
	6d	4
	7d	2
	8d	6
	9d	2
	10d	5
	16d	2
Total Strata 2 Cut Nails		48
<b>3 (gravel roadway)</b>	3d	9
	4d	13
	5d	9
	6d	6
	7d	5
	8d	12
	9d	9
	10d	1
20d	1	
Total Strata 3 Cut Nails		65
<b>4 (earlier roadbed w/ no gravel)</b>	3d	5
	4d	13
	5d	5
	6d	7
	6d, possible roofing nail	1
	7d	8
	8d	12
	9d	4
10d	4	
Total Strata 4 Cut Nails		59
Total Cut Nails		175

Table 20. Metal construction-related artifacts, roadway units of Area 97-IV.

Unit	Level	bar	bolt	bolt, cut	brace, door or window	calliper	chain link	fastener, thin sheet metal	copper strip w/nail holes	hinge, strap	hook	hook, eye	nail, cut	nail, cut?	nail, unidentified type	pipe, cast iron	plate, ferrous	ring	screw	sheet metal, copper	sheet metal, ferrous	shovel-shaped key	shutter or blind	fastener, brass	slide bolt, door	strip, ferrous	strip w/3d nail through end, ferrous	tool?, ferrous	unknown, ferrous	washer, ferrous	wire, copper	wire, ferrous	Total	
97-012	L1	-	-	-	-	-	1	-	-	-	-	-	5	-	19	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1	28	
97-013	L2	-	-	-	-	-	-	-	-	-	-	-	14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14	
	L3	-	-	-	-	-	-	-	-	-	-	-	63	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	64	
	L4	-	-	-	-	-	-	-	-	-	-	-	9	15	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	28	
97-014	L2	-	-	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	
	L4	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	
97-016	Feature 97-2	-	-	-	-	-	-	-	-	-	-	-	32	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	32
	L1	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	
	L2	-	-	-	-	-	-	2	-	-	-	-	31	-	-	-	-	-	-	-	-	1	1	3	2	-	-	-	-	-	-	-	-	40
	L3	1	1	-	-	-	-	-	2	-	-	-	93	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	97	
	L4	-	4	1	-	-	-	-	-	1	-	193	-	-	-	-	-	-	-	-	-	1	-	4	-	-	-	1	1	1	1	1	207	
97-017	L1	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	
	L2	1	-	-	-	-	-	-	-	-	-	30	-	-	-	-	-	2	-	-	-	-	-	-	-	-	1	-	-	-	2	-	36	
	L3	-	-	-	-	-	-	-	-	-	-	85	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	86	
	L4	-	-	-	-	-	-	-	-	-	-	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	
97-018	L1	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	
	L2	-	-	-	-	-	-	-	-	-	-	60	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	62	
	L3	-	-	-	-	-	-	-	-	-	1	21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	22	
97-019	L1	-	-	-	-	-	-	-	-	-	-	2	5	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	9	
97-128	trench	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	
97-129	trench	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	
97-138	trench	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	
<b>Total</b>		<b>2</b>	<b>1</b>	<b>4</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>2</b>	<b>1</b>	<b>2</b>	<b>1</b>	<b>1</b>	<b>681</b>	<b>20</b>	<b>19</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>3</b>	<b>1</b>	<b>2</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>7</b>	<b>2</b>	<b>1</b>	<b>1</b>	<b>2</b>	<b>1</b>	<b>7</b>	<b>770</b>		

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Table 21. Prehistoric stone artifacts, roadway units of Area 97-IV.				
Unit	Level	Material Type	Identification	Total
<b>97-012</b>	L1	chert, purple/red	flake, heat treated	2
	L1	chert, white	flake, possible heat treated	1
	L1	chert, white/grey	flake	2
	L1	quartzite, pink, fine grained	flake, worked edge	1
<b>97-013</b>	L2	chert, caramel/white	flake	5
	L2	chert, grey	flake	1
	L2	chert, waxy, pink/white	projectile point, tip broken, heat treated	1
	L3	chert, white	possible projectile point preform	1
<b>97-016</b>	L2	chert, pink	flake, possible heat treated	1
	L3	chert, grey, fossiliferous	shatter	1
	L3	chert, red/white/pink	flake, heat treated, water worn	1
	L3	chert, white	flake, water worn	1
	L3	chert, yellow	flake	1
	L4	chert, white	flake	1
	L4	chert, red/yellow, coarse	flake, heat treated	1
<b>97-017</b>	L2	chert, grey	flake	1
	L3	chert, waxy, white	flake, heat treated	1
	L3	chert, white/yellow	shatter	1
<b>97-018</b>	L2	chert, pink/white	flake, heat treated	1
	L3	chert, waxy, pink	flake, heat treated	1
<b>97-138</b>	trench	chert, waxy, grey	flake, possible heat treated	1
<b>Total</b>				<b>27</b>

## CHAPTER 7

### 1997 EXCAVATION SUMMARY

Archeological investigations conducted at Ulysses S. Grant National Historic Site, 23SL765, during July, 1997, proved quite productive in answering questions concerning four areas of the site. Continued excavations in Area 97-I, behind the stone summer kitchen, helped to better define the extent and content of the dark organic midden first tested by Noble (1997) and later by Price. Investigations in Area 97-I also exposed an area of foul-smelling soil which apparently resulted from the disposal of laundry wastewater. Excavations in Area 97-I sufficiently mitigated adverse impacts resulting from planned installation of utility lines in the area.

Investigations in Area 97-II, the slope northeast of the chicken house, revealed that most of the area to be impacted by the installation of buried utility lines is relatively devoid of cultural materials. A concentration of cultural materials in a sheet midden northeast of the chicken house was defined and tested with three 1 x 2 m excavation units to generate data on its extent and content. These excavations sufficiently mitigated adverse impacts that might result from installation of utility lines in the area.

Area 97-III, near the back gate to the park, was subjected to intensive slit trenching to identify any subsurface features or concentrations of cultural materials that might be present. After extensive slit trenching, the area failed to yield any evidence of subsurface features and indicated that there is a paucity of cultural debris in that area. Construction of a planned maintenance building in the area will have no adverse impacts on any significant cultural resources.

Area 97-IV, the slope southwest of the Main House, proved to be the most productive in revealing new and significant data concerning period occupation of the site. The area was subjected to slit trenching, revealing the presence of a buried gravel roadbed which was further exposed through expanded excavations. The roadbed was a feature in use during the time that Grant occupied the site, and is therefore pertinent to interpretation of his life there. Excavations revealed that the roadbed had a ditch on either side, and a linear pile of limestone rubble that apparently was placed along the road to control erosion. Expanded excavations higher up the slope revealed that the road forked toward the ice house and chicken house. The road is evident on an engraving published in 1875, and is therefore a significant feature that is mostly intact. It is recommended that the route of the roadbed be avoided by any ground-disturbing activities, and that future archeological investigations be conducted to define its entire route across the property.

Finally, it is recommended that prior to any future construction-related subsurface disturbance in the park, archeological investigations be performed in the areas to determine if significant subsurface cultural deposits or features lie buried there. Research conducted in the summer of 1997 resulted in a better understanding of activity areas at the site, and through time and subsequent archeological investigations,

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a more complete map may be made of the site indicating various activity areas defined by subsurface deposits and features.

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