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Phase I Archaeological Survey of Parcel ED-3
and
Historic Assessment of the Happy Valley Worker Camp
Roane County, Tennessee

NEW SOUTH ASSOCIATES

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Ms. Patricia Hart
Office of Assistant Manager for Nuclear Fuel Supply
U. S. Department of Energy
Oak Ridge Operations Office
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Oak Ridge, Tennessee 37831

Dear Ms. Hart:

DE-AC05-98OR22700 – Phase I Archaeological Survey of Parcel ED-3 and Historic Assessment of the Happy Valley Worker Camp, Roane County, Tennessee, prepared by New South Associates, August 2009

The Bechtel Jacobs Company LLC (BJC) is pleased to transmit twelve (12) copies of the final report for the cultural resources survey performed at Parcel ED-3. This version of the report incorporates DOE comments. The survey was conducted in two parts. The first part occurred in 2008 and examined approximately 110 acres; the second part of the survey occurred in May 2009 and examined approximately 72 acres. Parcel ED-3 was the location of a portion of Happy Valley, a temporary worker housing area occupied from 1943 – 1947 during construction of the K-25 Oak Ridge Gaseous Diffusion Plant. The purpose of the study was to identify any archaeological remains associated with the Happy Valley Worker Camp and any additional sites on the property and to assess these sites for National Register eligibility. Survey results will be used in preparation of an Environmental Assessment under the National Environmental Policy Act (NEPA).

Archaeological remains of the Happy Valley Worker Camp were located throughout the parcel, but no additional sites were located. The site is recommended for inclusion in the National Register of Historic Places under Criterion A due to its strong association with the Manhattan Project.

If you would like additional hard copies, please let me know and they will be prepared for you. Please send copies of correspondence pertaining to this document to me at ETPP, Building K-1580, Room 313, Mail Stop 7169.

If you have any questions regarding this material, please do not hesitate to contact me at (865) 241-5194.

Sincerely,

Mary F. Blevins
Regulatory Affairs Manager
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MFB:ldd

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Phase I Archaeological Survey of Parcel ED-3 and Historic Assessment of the Happy Valley Worker Camp

Roane County, Tennessee

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August 17, 2009 • Final Report
New South Associates Technical Report 1755

ABSTRACT

Parcel ED-3 was the location of a portion of "Happy Valley," a temporary worker housing area occupied from 1943 to 1947 during the construction of the K-25 Oak Ridge Gaseous Diffusion Plant. The project was carried out under subcontract for the Department of Energy. The survey report will be used in the preparation of an Environmental Assessment under the National Environmental Policy Act (NEPA). New South Associates conducted a Phase I Archaeological Survey of Parcel ED-3 at the U.S. Department of Energy's Oak Ridge Reservation in Roane County, Tennessee. The survey was conducted in two parts. The first survey was carried out in 2008 and covered an area measuring approximately 110 acres. The second survey took place in 2009 and focused on 72 acres west of the first survey area. The objective of the surveys was to identify any archaeological remains associated with Happy Valley and any additional sites on the property and to assess these sites for National Register eligibility.

New South Associates also conducted a historic assessment to gather information on Happy Valley. This historic assessment was used in conjunction with the archaeological survey to evaluate the significance of the Happy Valley site.

Archaeological remains of Happy Valley were located throughout the parcel, but no additional sites were located. The official state site number for Happy Valley is 40RE577. During the two surveys a total of 13 artifact concentrations, 14 isolated finds, and 75 structural features were located. Due to the Happy Valley's strong association with the Manhattan Project, the site is recommended eligible for the National Register of Historic Places under Criterion A.

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I. INTRODUCTION

New South Associates conducted a Phase I Archaeological Survey of Parcel ED-3 at the U.S. Department of Energy's Oak Ridge Reservation in Roane County, Tennessee. The project was carried out under subcontract for the Department of Energy. The survey report will be used in the preparation of an Environmental Assessment under the National Environmental Policy Act (NEPA). This survey was conducted in two parts. The first part took place in 2008 and examined approximately 110 acres consisting of three acres northeast of the Blair Road and SR 58 intersection and 107 acres south of SR 58 and west of SR 327. The second part of the survey occurred in 2009 and examined approximately 72 acres south of SR 58 and directly west of the 2008 survey area (Figure 1).

Parcel ED-3 was the location of a portion of "Happy Valley," a temporary worker housing area occupied from 1943 to 1947 during the construction of the K-25 Oak Ridge Gaseous Diffusion Plant (Figure 2). The K-25 plant, located on the southwestern end of the Oak Ridge reservation, used gaseous diffusion, an isotope separation method, to separate uranium-235 from uranium-238 for use in the atomic bomb program. The town population ranged from 9,000 to almost 15,000. It not only contained hutments, barracks, and trailers, but also a school, commercial center, theater, and recreation halls (Hewlett and Anderson, Jr. 1990). Although Happy Valley only existed for a very short time, it was a vital part of the Manhattan Project and the nation's quest to develop an atomic bomb during World War II. Oak Ridge and Hanford were production centers for the project and both had workers' camps that were cloaked in secrecy at the time. Due to the intense secrecy of the Manhattan Project, very little is known about the day-to-day lives of those living at the construction camps. The remains of Happy Valley can provide us with insight into the lives of the town's inhabitants, who lived and worked under very unique circumstances.

The current project was conducted in order to assess whether any archaeological legacies exist from Happy Valley or other occupations of this location and if these could be considered eligible for nomination to the National Register of Historic Places (NRHP). Both historical research and the archaeological survey results were used to evaluate if the Happy Valley site is eligible for the NRHP and if there are other archaeological sites on Parcel ED-3.

The present investigation involved background research that focused on the project vicinity and included a review of previous archaeological studies to determine whether the project area and surrounding land contained previously recorded archaeological sites. The archaeological survey involved systematic shovel testing in undisturbed areas and surface examination in areas with surface visibility. Archeological remains of Happy Valley were located during the surveys of Parcel ED-3. Seventy-five features, including building foundations, fire hydrants, and water stations, were located. Additionally, 13 small artifact concentrations and 13 isolated artifacts were encountered within the parcel. The artifact concentrations, isolated artifacts, and all but one of the features appear to be associated with the Happy Valley occupation of the parcel.

Source: USGS 7.5' Quadrangles, Elverton and Bethel Valley, Tennessee

Figure 1.
Location of Parcel ED-3 Survey Areas

Source: Department of Energy.

Figure 2.
Project Area Projected Over General Layout of K-25 Construction Camp Area (1944)

The Principal Investigator for the project was Mary Beth Reed. Diana Valk acted as project archaeologist and co-authored this report. Elizabeth Farkas, Scott Morris, Leslie Nash, and Jay Stevens assisted with the fieldwork. Scott Morris conducted the artifact analysis. David Price conducted the historical research on Happy Valley and co-authored this report. Jennifer Matternes contributed to Chapter 3 of this report. Diana Valk prepared the graphics for this report. Chapter 1 contains this introduction to the project. Chapter 2 discusses the environment of the survey area. Chapter 3 contains information about the prehistoric and historic cultural development of East Tennessee. Previously recorded sites located near the project area are also discussed in Chapter 3. The Happy Valley historic assessment is contained in Chapter 4. Chapter 5 discusses the methods utilized during the archaeological survey. The features and artifacts located during the survey are discussed in Chapter 6. The final chapter provides the conclusions and recommendations. The artifact catalog, a brief resume of the Principal Investigator, and the site form for the Happy Valley site (40RE577) are included as appendices to this report.

II. ENVIRONMENTAL CONTEXT

The project area falls within the Ridge and Valley physiographic province, which is characterized by alternating long narrow ridges and valleys. Differential erosion is the most important factor in the shaping of the landscape. Tough, resistant rocks, such as sandstone and siltstone, form the ridges and more easily eroded rocks, such as shales and limestones, form the valleys. Over time erosion has formed valleys and ridges that run in a southwest-northeast direction. Most rivers and drainages flow along the valleys when they enter this province (Fenneman 1938).

The varying elevations in the Ridge and Valley province result in a variety of environmental conditions. The lower valley areas can have hot, humid summers, whereas the ridges will have cooler summer temperatures. The environmental conditions make this province home to a wide variety of species. The original forests in the area would have been made up of oaks and chestnuts (Braun 1950). The project area has been highly altered from its original state through farming and the more recent construction of the Happy Valley workers' camp. The current vegetation is predominantly small hardwoods and pines with dense low growing privet in highly disturbed areas.

The project area lies in a valley just north of the Pine Ridge. Elevation in the project area ranges from approximately 238 meters above sea level along the northern edge to 262 meters above sea level on the southern edge. Low hills cut across the valley with small, intermittent drainages located between them. A small creek runs along the northern edge of the project area paralleling the Oak Ridge Turnpike and a small pond is located just south of the Oak Ridge Turnpike, across from the East Tennessee Technology Center. An area developed to serve as a visitor's overlook is located in the northwestern corner of the survey area (Figure 3).

The most recent soil survey of Roane County lists the current project area as unsurveyed because access to the property was denied (Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture 2008). A previous archaeological survey in the area by DuVall & Associates references an older soil survey published by Swann in 1942 (DuVall and Spice 2005). The soils in the area are described as silt loams, cherty silt loams, or clay loams and most of the soils examined are considered severely eroded. The soils encountered during the current survey are consistent with the soils discussed in the DuVall & Associates report.

Figure 3.
Views of Project Area

A. Creek Along Northern Edge of Parcel, View Northeast

B. East End of Parcel, View South

C. Sewer Remains in North Central Area of Parcel, View South

III. PREVIOUSLY IDENTIFIED RESOURCES AND CULTURAL CONTEXT

The following section discusses the previous research conducted in the vicinity of the project area. The prehistoric and historic development of the Roane County area follows this overview.

PREVIOUSLY IDENTIFIED RESOURCES

The Tennessee State Site Files were consulted in order to obtain information on previously recorded sites located near the project area. Site File data show that eight previously recorded sites have been recorded within a half-mile radius of the project area (Figure 4).

40RE126

Site 40RE126 is a prehistoric lithic scatter located on the right bank of Poplar Creek, approximately 450 meters west of the southwestern edge of Parcel ED-3. The site is inundated by Watts Bar Lake at full pool elevation, but is exposed if the water falls below that level. George Fielder recorded the site during the Archaeological Survey of Oak Ridge Reservation (Fielder 1974). Over 200 artifacts were collected from the ground surface. These artifacts were predominately projectile points, chipped stone tools, and ground stone tools. Paleoindian, Early and Late Archaic, Middle and Late Woodland, and Mississippian components were present. No further work on the site was recommended.

40RE136

Site 40RE136 is a historic structure foundation located west of Blair Road, approximately 300 meters north of the northeastern portion of Parcel ED-3. The University of Tennessee discovered the site in 1974 during an archaeological survey of the Oak Ridge Reservation. The site consists of the foundation of a log barn dating from the mid-nineteenth century. At the time of the survey, it was recommended that further work be conducted on the site (Fielder 1974).

40RE219

Site 40RE219 is a historic slave cemetery located east of the Oak Ridge Turnpike, approximately 480 meters southwest of the southwestern edge of Parcel ED-3. The cemetery was recorded during an archaeological reconnaissance in 1995 (Jacobs Environmental Restoration Team 1995). The cemetery was described as measuring approximately 41 meters by 40 meters. It contained 90 graves oriented in an east-west direction. Half the graves were marked with fieldstones and the remaining burials were unmarked. No further work was recommended on the site, but it was advised that an adequate buffer be observed if any construction was to take place near the cemetery.

Source: USGS 7.5' Quadrangles, Elverton and Bethel Valley, Tennessee

Figure 4.
Previously Recorded Sites

In 2000, after an extensive survey, the cemetery boundary was expanded to include additional grave sites. The new boundary was designated with a wrought iron fence and a granite monument was placed in the southwest corner giving the history of slavery in the area. A larger black marble monument was placed west of the cemetery dedicated to slaves that worked and died in the area. The cemetery is now referred to as the Wheat Community African Burial Ground.

40RE222

Site 40RE222 is the historic Gallaher Cemetery located in the uplands of the bend of the Clinch River between the Clinch River and Poplar Creek. The site is approximately 900 meters west of the southwestern edge of Parcel ED-3. The cemetery was recorded during an archaeological reconnaissance in 1995 (Jacobs Environmental Restoration Team 1995). It contained a walled area of burials measuring 23 meters by 23 meters and a fenced area of graves measuring 17 meters by 20 meters. There are 38 marked burials in the cemetery. The burials are from the Gallaher, Browder, and Burdette families and date between 1853 and 1978. It was recommended that an adequate buffer be observed if any construction was to take place near the cemetery.

40RE223

Site 40RE223 is the historic Welcker Cemetery recorded during an archaeological reconnaissance in 1995 (Jacobs Environmental Restoration Team 1995). It is located in the uplands of the bend of the Clinch River between the Clinch River and Poplar Creek, approximately 900 meters west of the southwestern edge of Parcel ED-3. The cemetery was located in a 9 by 9 meter fenced area about ten meters south of 40RE222. At least seven burials were located within the fenced area. The burials were oriented east-west. The oldest burial belonged to Elizabeth Welcker and was dated December 24, 1840. It was recommended that an adequate buffer be observed if any construction was to take place near the cemetery.

40RE224

Site 40RE224 is the site of the historic Wheat Community and is located just northeast of the project area, north of the Oak Ridge Turnpike. The community was occupied from the mid-nineteenth century until 1942 when the federal government purchased the area. The site measures 1,390 meters by 805 meters and includes several historic structures and a cemetery. Members of the Jacobs Environmental Restoration Team surveyed the site area for the Oak Ridge K-25 site in 1994. Many of the structures in the site were disturbed from logging activity in the area, but some intact wells and cisterns remained. Further work was recommended because of the potential for recovering historic materials from the Wheat community (Jacobs Environmental Restoration Team 1995).

40RE232

Site 40RE232 is the location of a fire house and waste burn area that served the K-25 area in the mid-late 1940s. The site is located in a grass and tree covered area between the northbound and southbound SR 95 – Bear Creek Road connectors, approximately 790 meters southwest of the southwestern edge of Parcel ED-3. The site was investigated during the archaeological survey of modifications to SR 58/95 (Pace 1995). In 1944 an existing farmhouse that stood in the area was converted to a fire hall and was used in that capacity until 1951. Additionally waste oil and

various waste solvents were burned in an unlined pit on the site until 1951. A pedestrian survey was conducted in the area, but no building remains were located. Due to the possibility of hazardous waste existing in the area, shovel testing was not carried out. No NRHP recommendations have been made concerning this site.

40RE233

Site 40RE233 is the location of the southern extremity of the historic J.A. Jones Construction Camp. The site is located on a series of ridgelines southeast of SR 95 and north of Bear Creek Road, approximately 750 meters from the southwestern corner of Parcel ED-3. A portion of the site was first assessed during the archaeological survey of modifications to SR 58/95 (Pace 1995). A total of eight small building foundations were located within the site. These foundations were small and contained plumbing fixtures indicating that the buildings were used as washhouses and not as habitations. In addition to the foundations, the survey crew also located several surface artifact scatters containing household refuse including cans and condiment bottles. Nine shovel tests were excavated along the ridge tops within the proposed right-of-way and all were negative. The site area measured approximately 380 meters north-south by 80 meters east-west. It was recommended potentially eligible because of its association with the development of the Manhattan Project's Oak Ridge operations. Through examination of the 1947 Carbide and Carbon Chemicals Corporation Map of the area New South Associates inferred that 40RE233 is the remains of the construction camp that housed African Americans.

PREHISTORIC OVERVIEW

PALEOINDIAN PERIOD

The earliest prehistoric occupation of Tennessee is the Paleoindian period, generally dated as 10,000 - 8000 B.C. The period is marked by the presence of fluted projectile points. The earliest and most recognized of these points are the Clovis and the Folsom types named for a mammoth kill sites and a bison kill site respectively. According to Chapman (1985:34), the Cumberland fluted type projectile point is an eastern variant of the Folsom type, and is found in Tennessee.

Paleoindian peoples probably practiced a hunting and gathering subsistence pattern relying on the collection of wild plant foods and small game as well as the hunting of Pleistocene megafauna such as mammoth, mastodon, and bison. According to Mason (1962), settlement strategies were focused on base camps situated in ridge top barrens close to bottomland swamps and prairies. Excavations by Breitburg and Broster (1995) have discovered the remains of a partially butchered mastodon eroding out of a ravine in Williamson County. Artifacts collected include a bone projectile point imbedded in the remains, as well as numerous associated tools and resharpening flakes.

ARCHAIC PERIOD

The Archaic period is dated from 8000-900 B.C. and is generally divided into three sub-periods: the Early, Middle, and Late Archaic. The Early Archaic appears to be a modification of the preceding Paleoindian period with a shift to the hunting of more modern large game and a social organization of egalitarian bands that hunted and gathered seasonally available resources within limited geographic areas (Griffin 1952). Notched and stemmed triangular projectile points, some

with serrated edges, characterize the Early Archaic. These points include Kirk corner notched, LeCroy bifurcated stem, Kanawha stemmed, and St. Albans side notched (Chapman 1985; Bass 1977).

The Middle Archaic period saw the introduction of notched river cobble net sinkers, as well as Kirk and Morrow Mountain stemmed and Sykes-White Springs projectile points. At this time, slate and quartz began to be used for tool manufacture in addition to chert. Atlatl weights were first found in association with Kirk Stemmed projectile points (Chapman 1985).

The Late Archaic saw the beginning of deliberate fostering of plant food resources, as well as the origins of ceramics. Cultigens varied, but among the most common are squash and gourds (Chapman 1985). At Bacon Bend, a Late Archaic site, squash and maygrass were identified as domesticated plants while hickory nuts, walnuts, and acorns were also utilized, though not cultivated (Chapman 1981). Late Archaic sites are marked by rock lined fire pits and diagnostic artifacts such as Appalachian stemmed, Savannah River, and Iddins type projectile points. Fishing, in some locations, may also have been an important food resource in this period. At the Iddins Site, a large number of notched stone cobbles have been identified as net sinkers associated with fishing, although their exact function has been debated (Chapman 1985, 1981).

WOODLAND PERIOD

The change from the Archaic period to the Woodland is marked by the increased appearance of ceramics, the beginnings of agriculture, and the construction of burial mounds. Like the Archaic, the Woodland is divided into Early, Middle, and Late sub-periods. The Early Woodland, dating from 900 B.C. to A.D. 200, is marked by quartz tempered and fabric or cord impressed ceramics. Projectile point preferences shifted from stemmed points to triangular unstemmed points (Chapman 1985). These points include Motley, Otarre, Swannanoa Stemmed, and Plot Short Stemmed (Bass 1977).

The Middle Woodland, A.D. 200-600, is characterized by projectile points including Camp Creek, Greenville, Bradley Spike, Nolichucky, and Pigeon Side Notched, as well as Pigeon, Connestee, Swift Creek, and limestone tempered ceramics (Bass 1977). Some contact with Hopwellian groups in the Midwest is noted at the Icehouse Bottom site where artifacts such as Ohio chert blades and Hopwellian pottery sherds were recovered during excavations. Evidence for the beginnings of corn agriculture was also located at the Icehouse Bottom site. However, it appears the economy still relied predominantly on wild plants and animals. The excavation of postholes suggests that at least semi-permanent structures were utilized (Chapman 1985:71-72).

The Late Woodland, A.D. 600-900, is not well documented and Bass (1977) stated that there are no Late Woodland phases identified in the Appalachian Summit area. However, in the lower Little Tennessee River Valley, it appears that burial mounds began to occur in the Middle to Late Woodland times. These mounds were apparently constructed to inter the remains of important individuals. Artifacts were often included with the human remains. Mounds in the valley tend to measure 6-15 meters in diameter and stand 1.2-2.4 meters high (Chapman 1985).

MISSISSIPPIAN PERIOD

The Mississippian period, A.D. 900-1600, is identified by earthen platform mounds arranged around central plazas, increased stable populations, heightened warfare, increased ceremonialism, a dependence on corn agriculture, and new ceramic styles (Chapman 1985).

The hallmarks of Mississippian culture emerged in the Early Mississippian period, A.D. 900-1200. Maize agriculture, shell tempered pottery, and simple chiefdoms were becoming prevalent. In the Tennessee Valley, maize was adopted more gradually than in other areas. The Tennessee Valley possessed some of the earliest dates for maize presence in the Southeast, but full-scale maize agriculture did not grab hold of the area until the end of the Early Mississippian (Bense 1994).

During the Middle Mississippian period, A.D. 1200-1400, complex chiefdoms formed and the Southeastern Ceremonial Complex spread throughout many areas of the Southeast. Artifacts in the Middle Mississippian were similar to the early period. Shell tempering became more prevalent and is used as a marker for many middle Mississippian artifact assemblages (Bense 1994).

The Late Mississippian period, A.D. 1400-1600, is marked by its increase in political turmoil and population relocations (Bense 1994). In the Tennessee River Valley, the Dallas Culture is identified. The Citico, Toqua, and Bussel Island were dominant Dallas Culture villages in the valley (Chapman 1985). Excavations at the Toqua site recovered a massive amount of data including 100,000 lithic artifacts, 500,000 ceramic artifacts, 200,000 bones, and 60,000 shell fragments (Polhemus 1987). Toqua was revealed to have a complex social organization and distinctive material culture. Within the village, there were two earthen mounds, one larger and more centrally located than the other. Between the mounds was a pebble-surfaced plaza and lining the plaza were individual wattle and daub homes (Chapman 1985).

Ceramics identified at the site include a variety of forms and decorations. Shell, grit, limestone, quartz, and sand tempered ceramics were noted in shapes such as beakers, wide mouthed bottles, long necked bottles, simple bowls, compound bowls, effigy bottles, and hooded bottles. Decorations include cord and fabric impressing, check stamping, complicated stamping, red filming, and painting (Polhemus 1987). Personal adornment artifacts were also identified and included shell ear pins, shell and bone beads, carved gorgets of marine conch shell, bone hair pins, and rattles made of turtle shell (Chapman 1985).

HISTORIC CHEROKEE

The Historic Cherokee occupation has been extensively studied. A number of large scale excavations at Cherokee sites such as Tomotley, Mialoquo, and Chota-Tanasee have been conducted. These excavations, together with ethnographic-historic accounts of the groups, give a picture of Cherokee village life in the eighteenth century after contact with western influences.

In these sites, Cherokee village life was focused on the plaza, the townhouse, and the summer pavilion. The townhouse has been described in ethnographic accounts as a large wooden earth-covered structure capable of holding 500 people where public affairs were conducted. The summer pavilion was an open-roofed less substantial structure. The plaza was lined with domestic structures that were of four types, although the most common has been called a winter house

(Chapman 1985). Two townhouses were identified at Chota-Tanasee, including an earlier smaller structure with four roof supports and a later, larger townhouse supported by eight posts. Both structures contained a central hearth and bench furniture (Schroedl et al. 1986).

Ceramic types associated with historic Cherokee occupations include Qualla simple stamped, Overhill check stamped, Overhill plain, Overhill complicated stamped, and Overhill cob roughened (Chapman 1985). At both Tomotley, and Mialoquo, ceramics were identified from both the Cherokee period and the preceding Mississippian period. Lithics were also identified as being of Mississippian period types, although at Tomotly, Archaic period lithics were noted (Baden 1983; Russ and Chapman 1983).

HISTORIC OVERVIEW

In the late eighteenth century, the valley between the Great Smoky and Cumberland Mountains was occupied by settlers thinking themselves under the jurisdiction of Virginia, but too far from its populated centers to expect regulation and protection. For their own governance, the settlers met and formed an association to rule their settlement. This 1772 agreement was known as the "Articles of the Watauga Association." When the correct latitude of the area was made known, it showed that the Watauga Association settlements lay within the borders of North Carolina. In 1776, the residents petitioned the North Carolina assembly to come under that government's protection (Williams 1924).

Once the Revolutionary War began, delegates met in Halifax in 1776 to draw up a constitution for the independent state of North Carolina. This constitution included the state's claim on the territory that would become Tennessee. The Cherokee living in the area who decided to support England were advised by Indian Agent John Stuart to work with Loyalists or directly with British troops. The Cherokee called for peace when Revolutionary forces overcame them. In 1777, Cherokee leaders met with representatives of Virginia and North Carolina, ceding large tracts of former Cherokee territory to both states (Corlew 1981).

Following the cessation of fighting in 1781 and the official end of the war with the Treaty of Paris in 1783, the national government asked the states with western territories to cede them to the United States. North Carolina initially complied but later repealed the cession in 1784. During the same period, the residents of Washington, Green, and Sullivan counties felt it would be in their best interests to form a separate state, which they called Franklin. Franklin was short lived and came to an end some time after 1786. North Carolina ratified the federal Constitution in 1789 and again ceded future Tennessee lands to the United States. Congress then created from these lands the Territory of the United States South of the River Ohio in 1790. The cession provided that all land claimed under North Carolina law was still valid and also stated that one or more states would eventually be made from the Territory. The Territory was governed under the Northwest Ordinance of 1787, with the exception that slavery was to be allowed. The Northwest Ordinance held that statehood could be achieved when a free population of 60,000 was reached or if it was shown to be in the general interest of the central government. William Blount, the governor of the territory, called the territorial legislature into special session in 1795 to discuss the proposition of statehood. After some debate and political opposition from Congress, Tennessee became the 16th state in 1796 (Corlew 1981).

Roane County, one of Tennessee's counties, lies at the juncture of the Tennessee, Clinch, and Emory rivers. White settlers gained control of the area through three treaties with the Cherokees. In 1801, the county was officially established and named after Archibald Roane, the second governor of Tennessee. Kingston was selected as the county seat and in 1807 became the capital of Tennessee for a day. The Tellico Treaty of 1805 required that Kingston would become the state capital in exchange for thousands of acres of Indian land. Kingston was made capital, but only for a few hours on September 21, 1807. The capital was then returned to Knoxville (Hall and Parker 2002).

Location and railroads made Eastern Tennessee a desirable target for both Union and Confederate armies during the Civil War (Cotham 2002). It was during the war that the commercial potential of local mineral deposits in the Roane County area was realized. Union Colonel John Wilder organized the Roane Iron Company and in 1868 established the town of Rockwood (Hall and Parker 2002). Recovery from the Civil War was initially slow in many areas of Tennessee, but slowly, the population grew and cities like Knoxville became important both regionally and nationally.

Growth slowed again by the 1930s, but work and interest were brought to the area with the establishment of the Great Smokey Mountains National Park and the Tennessee Valley Authority (TVA). The TVA located its headquarters in Knoxville. It brought tremendous benefits to the economically depressed area, but it also had removed approximately 72,000 people from their land. Further growth of the area took place during World War II with the construction of the facilities in Oak Ridge. By 1945, Oak Ridge was employing approximately 80,000 workers (Wheeler 2002). Chapter IV will discuss Oak Ridge and Happy Valley in more depth.

IV. HAPPY VALLEY HISTORICAL ASSESSMENT

INTRODUCTION

Happy Valley was a temporary housing settlement for the 15,000 construction workers who built the K-25 gaseous diffusion plant between 1943-1946 at the Clinton Engineer Works (CEW), renamed Oak Ridge in 1948. The settlement was one of several "trailer camps" that were constructed to meet the massive demand for housing in East Tennessee's "secret city." Happy Valley was located on the south side of the Oak Ridge Turnpike on the western end of the Oak Ridge reservation, just south of the K-25 plant. It consisted of a mixture of several different housing types that were common in Oak Ridge, including crude plywood "hutments," military-style barracks, dormitories, trailers, and so-called "Victory Homes" for families. Located on the western outskirts of the CEW reservation and far from the atomic village of Oak Ridge to the east, Happy Valley developed its own identity and community institutions including schools, recreation, and shopping. Like the area's other labor camps, Happy Valley was a temporary settlement to provide a minimum standard of shelter and services to the citizens who facilitated Oak Ridge's primary mission: the creation of an atomic bomb.

The Happy Valley site is significant for its association with the CEW and the Manhattan Project during World War II, one of the most significant scientific and engineering feats of the twentieth century. The Manhattan Project took atomic energy from theory to practice in two and a half years, and helped end the war. The significance of Oak Ridge is recognized in the National Register of Historic Places, with the Historic Resources of Oak Ridge, Multiple Property Submission, which includes properties located throughout the reservation. The historic village of Oak Ridge is also listed as a National Register Historic District under the areas of Community Planning and Development, Architecture, and Military History. To date, no historic property documentations of Oak Ridge have included any archaeological or historic resources associated with temporary construction camps such as Happy Valley, nor have any scholarly studies concentrated specifically on the Oak Ridge construction camps.

THE MANHATTAN PROJECT

The events that lead to the creation of Oak Ridge began with the early U.S response to reports that German scientists were experimenting with uranium and nuclear fission to create extremely powerful bombs with unprecedented explosive force. In 1939, émigré physicists Albert Einstein and Leo Szilard drafted a letter that detailed this threat to president Franklin D. Roosevelt and urged him to support scientific research to create an atomic bomb before the Germans. After initially disregarding the scientists' warnings, Roosevelt created a committee of American and British nuclear scientists to study uranium, fission, and the feasibility of developing a nuclear weapon. Despite the vast theoretical and practical problems involved in harnessing nuclear energy into an atomic bomb, Roosevelt's administration determined by 1942 that it was possible to develop such a weapon and immediately began a full-scale research and development program (Gosling 1999: vii; Johnson and Jackson 1981: xvii – xix).

The urgency of the U.S. atomic program was elevated after the Japanese bombing of Pearl Harbor in 1941 and America's official entry into World War II. The Manhattan Engineer District (MED) was subsequently created within the U.S. Army Corps of Engineers to develop multiple research facilities. The MED was later turned over to the Army. Also known as the Manhattan Project, the research team headed by Colonel Leslie R. Groves was charged with the Herculean task to design, build, operate, and develop whatever facilities were needed to build an atomic bomb. This remarkable challenge was made more so by the fact that the Manhattan Project not only had to wrestle with previously unknown nuclear theory, but it also had to do so as quickly as possible in complete secrecy (Gosling 1999:19).

One of the Manhattan Project's largest challenges was its quest to find a suitably fissionable element that existed in enough quantity to power a large bomb. Promising initial research pointed to the uranium isotope U-235, but it was a rare metal that was difficult to separate from its ore and the more predominant U-238. The other avenue of research suggested converting uranium U-238 into a new and equally fissionable element known as plutonium. The problems with isotope separation led project scientists to conclude that their work required multiple research centers all working on the theoretical and design challenges simultaneously (Johnson and Jackson 1981: xvii).

The Manhattan Project initially considered four techniques for uranium isotope separation. The first technique was the electromagnetic method, which used a magnetic field to separate U-235 from U-238 atomic particles and then collect them in different receivers. The second method was gaseous diffusion, which converted uranium from its natural solid state into a gas and then forced it through a porous barrier to separate U-235 from U-238. The third and fourth techniques were the centrifuge process and thermal diffusion, but they were discontinued due to cost, complexity, and other mitigating factors (Jones 1985: 9-11; Johnson and Jackson 1981: xx).

In 1942, the Manhattan Project selected three isolated top-secret research and development sites. The site in East Tennessee was "code named" Site X and located on 59,000 acres of rural agricultural land in the ridges west of Knoxville. Officially known by the unassuming name Clinton Engineer Works (named after the nearby town of Clinton), and later Oak Ridge, Site X primarily hosted research in the gaseous diffusion and electromagnetic separation techniques. The historic significance of Oak Ridge is well documented for "ultimately, material produced in Tennessee became the base for the world's first use of atomic energy as a military weapon – the August 6, 1945 strike on the city of Hiroshima" (Johnson and Jackson 1981: xx). Another location was Site W at Hanford, Washington, which became the primary source of plutonium that was used in the "Fat Man" bomb dropped on the Japanese city of Nagasaki in 1945. The third was an ultra-modern physics laboratory in Los Alamos, New Mexico, which concentrated on the actual design of bombs that would carry explosive payloads from the other two Manhattan Project locations (Johnson and Jackson 1981: xix).

CLINTON ENGINEER WORKS (OAK RIDGE)

Army representatives arrived in East Tennessee in the summer of 1942 to examine prospective locations for a U-235 production plant. After three days of investigations, the Oak Ridge location was deemed the most suitable thanks to several characteristics: it was in an isolated inland location that prevented an enemy air attack; the Clinch River provided an abundance of water for cooling, processing, construction, and operating requirements; the TVA could provide a large amount of

continuous electricity; and the site had adequate rail and road transportation. The site's topography, too, was perfect as its river and ridges created natural barriers that provided security and separated individual plant sites in case of explosion. At the same time, the ridges of the site were gentle enough for large-scale construction and were underlain with solid bedrock for foundations (Jones 1985: 68-69).

Though the Manhattan Project representatives preferred to see the location as raw wilderness ready for the taking, in 1942, the 59,000-acre area was actually home to about 4,000 people. Most of them were farming families who lived in the vicinity of several small crossroads villages such as Wheat, Scarboro, Elza, and Robertsville. Many of these people lived and worked on land that had been in their families since their emigration from eastern states in the nineteenth century. Though the soil was in many places poor, eroded, and marginally suited for agriculture, it was nonetheless their home. The Federal government had a history of disrupting the lives of people in this part of the state, most notably during the Civil War and in the 1930s with the TVA's dam-building projects that displaced thousands of people. The distrust and ill-will of the local people toward the government was further cemented when land acquisition began in the fall of 1942 and eviction and government buy-out notices began appearing at people's homes. By late 1943, the eviction process was complete and the planning and construction process was cleared to begin (Johnson and Jackson 1981:39-43; Johnson 1998a: 699-700).

At the end of World War II, Oak Ridge was the fifth largest town in Tennessee with a population of 61,000, with another 14,000 residing in four trailer camps throughout the reservation. According to one account, the entire reservation consumed one-seventh of all electric power produced in the nation at that time (Gosling 1999:20; Jones 1985:439).

The scientists, engineers, laborers, and support crew were employed in three production facilities, each located in separate valleys away from Oak Ridge (Figure 5). The Y-12 electromagnetic plant was closest to the town, located one ridge to the south. X-10 was located in a valley further to the south and west of Y-12. It contained the Graphite Reactor, "the world's first powerful nuclear reactor, which transformed uranium-238 into plutonium-239" (Johnson 1998b:1088). Listed as a National Historic Landmark in 1966, X-10 is the oldest nuclear reactor in the world. The gaseous diffusion plant K-25, and its adjunct construction workers' trailer camp known as Happy Valley, was eleven miles away at the far western end of the reservation near the Clinch River. This end of the reservation was also home to the S-50 Liquid Thermal Diffusion Process that operated from March 1944 through September 1945 (Jones 1985).

PRODUCTION FACILITIES AND HOUSING AT CEW, 1943-1945

As soon as the area's families were moved out in late 1942, the Manhattan Project began construction of the top-secret East Tennessee production facility. The site was given the inconspicuous name Clinton Engineer Works to ward off outside attention, and after World War II, the area was renamed Oak Ridge. Construction of the reservation involved a complex set of tasks to provide transportation, communications, utilities, and a general plan to guide the location of production plants and an adjacent town for personnel (Jones 1985, 434). Army officials decided that the best location for the village of Oak Ridge was the northeast corner of the reservation on the south side of Black Oak Ridge, where Highway 61 and rail lines were located and topography suited development (Gosling 1999:19-20).

Figure 5.
Clinton Engineer Works Map Depicting Layout of Oak Ridge Complex

The Army favored expediency as the guiding principle of village development and hoped to provide minimum standards of comfort and livability for its population of atomic workers. The reservation's need for ever-increasing numbers of workers were immediately confronted with the realities of wartime shortages on construction materials, ensuring that the quality and supply of housing and other community needs never met demand. Moreover, the military mission of Oak Ridge was always of paramount importance to the reservation's planners. This made it unlikely that the village would provide more than basic comforts and services (Jones 1985:432).

Original town plans called for small family homes such as the original "cemestoes" (bonded cement and asbestos) found in Oak Ridge, but as worker numbers exploded planners quickly added a number of temporary housing types, including prefabricated plywood flat top houses and "Victory Homes," dormitories, barracks, trailers, and hutments. Pre-existing farmhouses left over from the reservation's original inhabitants were also used whenever possible, but they often lacked electricity and running water. These temporary housing types, always in demand despite their limited livability, sprang up along the outskirts of Oak Ridge and later became the model for the quick and temporary housing used in the reservation's trailer camps such as Happy Valley.

The first phase of Oak Ridge village construction took place between 1942-1943. Originally planned by the firm of Stone and Webster, which also provided blueprints for the adjacent Y-12 electromagnetic plant, the town site work was shifted to the well-known architectural firm Skidmore, Owings and Merrill of Chicago. Initial plans for a village of 5,000 workers quickly grew to 13,000, forcing planners to adapt. According to historian Vincent C. Jones, material shortages demanded the use of prefabricated materials such as "fiber or gypsum board instead of wood for walls and cement blocks instead of poured concrete for foundations. Building designs emphasized standardization and simplicity of construction" (Jones 1985:436). The result during the first phase of village construction was approximately 3,000 homes, fourteen dormitories and three apartment buildings, in addition to almost 1,000 plywood hutments and an equal number of trailers (Johnson and Jackson 1981:25).

The second major construction phase between 1944-1945 added thousands more flat-top prefabricated homes, dorms, and barracks. Jones added, "when experience demonstrated that trailers and prefabricated hutments, both in reasonably good supply, would suffice as homes for most plant workers, town designers substituted them in later expansions" (Jones 1985:436). Indeed, hutments and trailers were used extensively in later expansions as the Oak Ridge population quickly ballooned from an estimated 13,000 in 1942 to 42,000 in 1944. By 1945, the population of the reservation grew to a high of 66,000 outstripping all previous estimates and mandating continued construction of housing (Jones 1985:439).

In addition to the more permanent housing needs of its production plant workers, the Manhattan Project made other provisions for its temporary force of construction workers. Jones wrote, "as the construction workers would have only a temporary connection with the project, the Army initially planned for them to live off the atomic reservation and to commute to their jobs. But both District officials and construction contractors recognized early that the local economy, already strained with an influx of workers for other nearby war plants, would not be able to absorb the new wave of Manhattan workers" (Jones 1985:440). Added to this were the awful condition of local roads and distance to towns where housing was available, which forced the Army to develop other housing options for its construction workers. The answer to this problem was written into the building contracts, which stipulated that contractors must furnish temporary housing for their workers in on-site construction camps such as Happy Valley.

THE K-25 GASEOUS DIFFUSION PLANT AND HAPPY VALLEY

The K-25 plant was authorized in late 1942 and construction began in June of 1943 (Figure 6). K-25 was composed of 54 four-story buildings arranged in a U-shape that enclosed two million square feet, and was powered by an enormous steam electric plant adjacent to the Clinch River. The plant was originally intended to produce fully enriched U-235 but engineering difficulty with a functioning gas barrier forced the Manhattan Project to downgrade it in late summer 1943. Instead of a fully enriched product, K-25 would provide fifty percent enriched uranium as feed material for the Y-12 plant (Gosling 1999:25-26).

From the beginning, the plant's operating company, Union Carbide, feared that it would not be able to provide timely housing for plant construction workers and operating staff. Three factors sparked this fear. K-25 had a later startup construction date than Y-12 and X-10, which added demand for housing to the ongoing shortages already experienced in other parts of Oak Ridge. Second, the plant was located farther from employment centers in Knoxville and Clinton, which made it even less likely that workers could commute from off reservation. Finally, the K-25 workforce exploded from an October 1943 estimate of 500 to 6,000 six months later. Union Carbide insisted that Oak Ridge administrators move forward with the construction of K-25 worker housing or face the unacceptable threat of high staff turnover and project instability (Johnson and Jackson 1981: 79).

Union Carbide finally got what it asked for, and the result was Happy Valley, a temporary community that ultimately housed 15,000 people in a variety of hutments, dorms, barracks, trailers and Victory Homes. Located about 11 miles from the main village of Oak Ridge, Happy Valley incorporated a variety of community services including a school, town hall, theater, bowling alley, recreation halls, mess halls, an ice house, bakery, store, and service station. Built as a temporary wartime community, Happy Valley was torn down after 1946.

Despite its ephemeral nature, the history of Happy Valley reflects the social and labor history of the people who built the uranium and plutonium production facilities of Oak Ridge. The site also sheds light on military planning of temporary communities during the war. The residents of Happy Valley, in what can only be described as barely livable temporary quarters, played an essential and often overlooked role in America's historic race for the bomb.

HOUSING AT HAPPY VALLEY

The first housing at Happy Valley was a group of 450 hutments erected in early June 1943 for the construction of the K-25 powerhouse. The hutments and entire Happy Valley site were planned and erected by the J.A. Jones Construction Company, Union Carbide's primary contractor on the site. The original 16x16-foot plywood hutments housed five men each (Prince 2003:2). More housing soon followed as construction commenced on the actual K-25 gaseous diffusion plant. The Jones Company produced plans for utilities throughout the camp and the drawings also showed locations and footprints for various housing types and community buildings. Housing included eight military-style barracks that housed men and women in separate wings, four dormitories that housed over 1,200 people, more hutments for a total of 2,500 men, as well as 900 trailers and 100 "Victory Homes" for families.

Figure 6.
K-25 Plant Construction Photographs

A. The K-25 Plant Steel Frame Under Construction by Residents of Happy Valley (Source: Jones 1985)

B. The K-25 Plant Under Construction (Source: Jones 1985)

As was the case in much of Oak Ridge, living conditions at Happy Valley were cramped and presented daily challenges to its occupants. By the fall of 1943, housing space across the reservation was in such short supply that former single-occupancy dorm rooms were stacked with two to four individuals. Privacy further eroded as the Roane-Anderson Company, the company that administered all civil and housing matters in the Oak Ridge reservation, tightened housing eligibility restrictions and enforced regulations against gambling, liquor possession, cooking indoors, and visitation in rooms by members of the opposite sex. Women's dorms were especially subject to the paternalistic eye of Roane-Anderson administrators (Johnson and Jackson 1981:82-83).

Residents of the military-style barracks had even less privacy than those in dorms. According to historians of Oak Ridge, Charles W. Johnson and Charles O. Jackson, the barracks "were Spartan in appearance, minimally furnished, and made no provision even for semi-privacy; theft of residents' personal property was epidemic. Those forced to reside in the barracks did so reluctantly and had little positive to say about them" (Johnson and Jackson 1981:87).

Where dorms and barracks typically housed single men and women, about 1,000 Happy Valley families lived in the area's trailers and Victory Homes. Brought in to provide cheap and fast housing, the trailers were difficult and sometimes dangerous places to live. "The trailers had no running water and sinks drained into buckets which had to be emptied, not always promptly, by a Roane-Anderson crew. An oil stove provided the sole heat and cooking facilities. Boards beneath the stoves soon became soaked with fuel oil and had a wicked propensity to catch fire, turning a trailer to ashes before the fire department could arrive" (Johnson and Jackson 1981:85).

Despite their name, the Victory Homes and prefabricated "flat tops" were little better than the trailers. In other parts of the reservation, Victory Homes (also called Victory Cottages) were very poor quality plywood duplexes with roll roofing that held two one-family units. The units featured a single bedroom and a combination kitchen-living room. At Happy Valley, however, historic utility maps show that the homes had the same square footprints as the hutments, indicating that they were single-family versions of the type. All Oak Ridge housing was designed to have a brief life span, and the Victory Homes were not expected to last over three years. Johnson and Jackson described them as "the least desirable of the family units" (Johnson and Jackson 1981:28).

At the absolute bottom of the housing hierarchy were the hutments, which were often reserved for the least skilled and most transient of construction and service workers (Figure 7). Almost all African-American workers in Oak Ridge lived in segregated hutment communities and were largely prevented from visiting their white counterparts. Each hutment held four to six beds, a pot-bellied stove in the middle as the single source of heat, and footlockers for personal belongings. The windows had no glass, only wood shutters to keep out elements and pests. J.A. Jones Company incorporated a sewer system in its plans for the camp, but only those housed in the barracks, dorms, and Victory Homes had indoor plumbing. The hutments and trailers, which housed the majority of residents, were organized into groups of about 20 around common toilets and lavatories. Water for cooking and washing had to be brought into these shelters with buckets and then taken back out again. Aerial photographs of Happy Valley taken around 1944 show that, in addition to austere housing conditions, environmental factors likely added additional discomfort to residents (Figures 8, 9, and 10). As was the case throughout the reservation, the camp's network of dirt roads was dusty in the summer and muddy in the winter. Mud, in particular, was a constant problem in all of Oak Ridge, as building contractors had conducted large-scale grading that destroyed ground cover and caused serious erosion. Many reservation roads and sidewalks remained unpaved for the duration of the war, and everyone from lowly construction worker to

Figure 7.
Happy Valley Hutments and Trailers

A. Hutment Exterior

Source: Department of Energy

Source: Department of Energy

B. Group of Hutments

C. Trailers

Source: Department of Energy

Figure 8.
Aerial View of Happy Valley Facing Northeast,
Showing Locations of Different Housing Types

Source: Department of Energy

Figure 9.
Aerial View of the K-25 Gaseous Diffusion Plant Facing Northwest
Showing Happy Valley Community Buildings and Housing

Source: Department of Energy

Figure 10.
Aerial View of the K-25 Area Facing North.
At Right is Happy Valley, at Left is the S-50 Plant

Source: Department of Energy

high-level engineer constantly battled with mud caked on their shoes and trousers. Standard etiquette at Oak Ridge dictated that people remove or change their shoes before entering a house or community event (Johnson and Jackson 1981:17).

Photographs also reveal that the extensive grading and site preparation at Happy Valley removed all vestiges of the area's natural surroundings, including trees and shrubs. The J.A. Jones Company, in its apparent effort to create a blank slate for the construction of its trailer camp, removed all the trees that might have provided shade in the summer and windbreaks in the winter. Though its ironic name suggested otherwise, Happy Valley was in many ways a bleak environment in which to live and work.

RECREATION

In an effort to alleviate the harsh living conditions and control the ways in which Happy Valley residents spent their free time, the J.A. Jones Company provided a minimum number of recreational opportunities. According to historians of Oak Ridge, by 1943, the Army recognized that it had to provide avenues of recreation to residents. This was in reaction to the understanding that "violations of the law, such as drunkenness, disorderly conduct, gambling, and illicit sexual activity, are often expressions of misused leisure time" (Johnson and Jackson 1981:121). The result was a massive effort to build theaters, recreation halls, bowling alleys, tennis courts, a swimming pool, ballparks, taverns, and a library. Other activities included sports leagues, a music society, concerts, and talent shows.

As a construction camp for temporary workers, Happy Valley featured the Coney Island arcade, a bowling alley, and a movie theater. It did not, however, have any outdoor amenities such as ballparks, tennis courts, or swimming pools, which were presumably reserved for the permanent staff in Oak Ridge.

MEMORIES OF HAPPY VALLEY

Despite the challenges of Happy Valley's living arrangements, at least one former resident recalled her days living and working there with fondness. In the book, *These Are Our Voices: The Story of Oak Ridge, 1942-1970*, Helen C. Jernigan described her experience as an eighteen-year-old college student who worked a summer job at Happy Valley and later in the K-25 plant. She first worked in what was called the "Coney Island" building, an amusement center with a bowling alley and arcade. Jernigan's story is perhaps the only published record of a resident's experience in Happy Valley and sheds additional light on what it was like to live there.

Jernigan remembered that Happy Valley was busy with "anthills of visible human activity and huge, ever-moving construction machinery. It was hot, dusty, and noisy. Loudspeakers attached to power poles blared music all day. Sugar Blues, Josephine and some Sinatra and Crosby numbers were favorites. There was no night: bright streetlights and spotlights illuminated the area as people worked shifts around the clock" (Overholt 1987:95). Playing the latest popular music hits of the day was perhaps a manifestation of plant managers' effort to soften the rough conditions of living in a 24-hour construction camp and provide a minimum standard of normalcy.

In addition to the noise and activity, secrecy was one of the operating hallmarks of Oak Ridge, and Jernigan's story reveals how it shaped her time in Happy Valley. After her freshman year of college at Tennessee Wesleyan, Jernigan met a group of old high school friends whom convinced her to follow them for summer jobs "in Clinton, where there's some kind of war plant." Jernigan knew in a vague sense that she was contributing to the war effort, but precisely how was never known to her: "At the summer's end, I returned to school – a different world indeed. Only then did I learn that I had been in Oak Ridge, for we didn't know that name, and our mailing address had been a post office box in Knoxville" (Overholt 1987:97-98). Manhattan Project planners went to great lengths to maintain secrecy among their employees, and in Jernigan's case, they succeeded.

Jernigan also provides details on dorm and trailer life in Happy Valley. After reporting for work, she was assigned a room in one of the H-shaped barracks in the camp, where men and women were in separate wings. Jernigan remembers her short stint in dorm life with fewer problems than were reported elsewhere in the reservation, "there were no locks on the doors but during the time I lived there I never heard of any thefts or violence in the building." As for life in the trailers, however, Jernigan conceded that it was difficult. For families with several people crowded into a single trailer, "beds were available for everyone only because some people worked night shifts. 'We had to put up the beds in the daytime so there was room to be,'" recalled a friend of hers. "Toilets were in a central building; at night human waste was collected in 'slopjars' for transferring in the morning. There were no telephones, except at a central location, and the names of people receiving phone calls were 'blasted out' over the loudspeakers" (Overholt 1987:96-97).

Recreation in Happy Valley was centered on the Coney Island building, where Jernigan "kept the books, did the payroll, received and paid for supplies, and hired and supervised the pinboys at the [bowling] alleys." In addition to the bowling alley, the building contained an amusement arcade with air rifles, darts, basketballs, baseballs, and other games. With round-the-clock construction in Happy Valley, Coney Island did not close until two o'clock a.m., after which Jernigan and her friends found other activities to amuse themselves (Overholt 1987:97).

Jernigan's story reveals that people adapted to the hardships of living in a construction camp and tried to maintain at least some comfort and normalcy. She and others like her knew their time in Happy Valley was temporary and contributed to the war effort, which was worth the dust, noise, and close quarters. Only after the war did they learn they had played a part in an essential component of America's race for the bomb and the end of World War II.

CONCLUSION

Happy Valley was an essential link in the chain of construction camps that built the Manhattan Project production plants in Oak Ridge. From the camp's beginning in summer 1943 through its closing in 1946, Happy Valley was home to some 15,000 construction workers and their families, over a quarter of Oak Ridge's total population. The community represented the Army's efforts to provide a minimum standard of living and services in order to support its primary atomic mission. To date there are no scholarly studies or historic resource documentations of Happy Valley or any of the other seven construction camps that built the atomic production plants of Oak Ridge. Happy Valley is now overgrown and all that remains of the camp are its underground utility system and scattered building foundations.

V. METHODS

The current project involved the Phase I Archaeological Survey of the approximately 181 acres that comprise Parcel ED-3. This chapter presents the methods used during the survey.

ARCHAEOLOGICAL SURVEY

Fieldwork for the project consisted of phase I survey to identify unrecorded archaeological resources. As per the Scope of Work, field methodologies followed those set forth in the guidelines of the Tennessee Historical Commission/Tennessee Division of Archaeology (THC/TDOA). As the location of a known resource, the project area was treated as a high probability area and surveyed at a 30-meter interval. Areas excluded from shovel testing or detailed examination exhibited poor drainage, excessive slopes, marked utility lines, or substantial disturbance. Shovel tests measured 30 centimeters in diameter and were excavated by hand to depths of at least 80 centimeters or until impenetrable substrate, known sterile subsoil, or the water table was encountered. Shovel tests received unique field designations. Excavated soils were screened through 1/4-inch mesh hardware cloth for systematic artifact recovery and artifacts were bagged separately by unique provenience. Soils encountered in shovel tests were described using standard terminology for color and texture and shovel test locations were plotted on project maps that also show the locations of roads, water sources, disturbed areas, and other pertinent information. All members of the crew maintained notes on the course of the fieldwork.

Artifacts recovered could be associated with the remains of Happy Valley or a previous occupation of the land. Artifact concentrations that could be associated with Happy Valley were referred to as loci within the Happy Valley site. When archaeological materials were found within a shovel test, additional shovel tests were excavated to determine site or loci boundaries, as well as assessing the site or loci integrity and the types and quantities of artifacts present. This process involved close interval (10-meter) shovel testing in cardinal directions from the initial positive find spot until two consecutive negative shovel tests were completed in each direction. Although two negative tests were generally used to tentatively demarcate the boundaries of a loci, features such as streams, natural contours, or disturbance were also be used to delineate loci boundaries. Once the boundaries of a site or loci were determined, the area was photographed and mapped. When historic structural remains were located during the survey, the remains were mapped and photographed. All loci, isolated find, and structure locations were recorded with a GPS.

An isolated find is defined as any locus where single artifacts up to a cluster of four (4) prehistoric or historic artifacts within an area of 60 x 60 meters are present. These artifacts would include both surface and subsurface material. Areas around potential isolated finds would be carefully examined to assure that other artifacts were not present. Five or more artifacts within a 60 x 60 meter area would be considered a site. If a site was located, it would be photographed, mapped, and logged with a GPS.

LABORATORY METHODS

At the completion of fieldwork, all artifacts, notes, maps, and photographs were taken to New South's Stone Mountain Laboratory for processing. The focus of the analysis was to determine the occupation span, likely function, and degree of artifact preservation at each recorded site or loci. Historic artifacts were identified and assigned dates through comparison with published artifact descriptions (e.g., Miller et al. 1991). Likely site functions were evaluated in terms of the density and types of artifacts present, the physiographic characteristics of the site, the site size, and the presence and nature of any identified archaeological features.

NATIONAL REGISTER OF HISTORIC PLACES (NRHP) EVALUATION

Archaeological sites are evaluated based on criteria for NRHP eligibility specified in the Department of Interior Regulations 36 CFR Part 60: National Register of Historic Places. Cultural resources are National Register eligible if they meet one or more of the following Criteria for Evaluation:

- A) are associated with events that made a significant contribution to the broad pattern of history;
- B) are associated with the lives of persons significant in the past;
- C) embody the distinctive characteristics of a type, period, or method of construction, or represent the work of a master, possess high artistic values, or represent a significant and distinguishable entity whose components may lack individual distinction; or,
- D) have yielded, or may be likely to yield, information important in prehistory or history.

In addition to meeting one or more of the criteria, a property must be able to convey its significance by possessing integrity of location, design, setting, materials, workmanship, feeling, and association.

Criteria A, B, and C are usually applied to architectural resources. Archaeological sites are generally evaluated relative to Criterion D. The National Park Service (NPS 1995:21) defines two requirements for archaeological sites to be eligible under Criterion D: the site must have, or have had, information to contribute to our understanding of human history or prehistory, and the information must be considered important. Furthermore, the site must have "been used as a source of data and contains more, as yet unretrieved, data" (National Park Service [NPS] 1995:46).

Four points must be addressed in order to evaluate the NRHP eligibility of the site:

Degree of Integrity. Does the site contain intact remains, allowing for component (cultural and functional) separation and analysis, or is it highly mixed and disturbed?

Degree of Preservation. Does the site contain preserved cultural deposits, features, floral materials, faunal remains, or human skeletal remains suited to in depth research and or absolute dating?

Uniqueness. Is the information contained in the site redundant to that available from other, similar sites, or do such remains provide a unique or insightful perspective on research concerns or regional importance?

Relevance to Current and Future Research. In consideration of current research themes and directions, could the excavation of the site fulfill basic research needs? Would preservation of the site provide valuable data for future studies? While this aspect is partially the sum of aspects listed above, it also recognizes that a site may be able to contribute to ongoing research regardless of its integrity, preservation, or uniqueness.

VI. ARCHAEOLOGICAL SURVEY RESULTS

New South Associates conducted the Phase I Archaeological Survey of 182 acres of Parcel ED-3 in two stages. Between January 7 and 15, 2008, a survey of 110 acres of the parcel was conducted. A survey of the remaining 72 acres was carried out between May 20 and 28, 2009. During the surveys, archaeological remains of Happy Valley were located, but no additional sites were encountered. All site remains were located south of SR58. The official state site number for the Happy Valley site is 40RE577 (Figure 11). Remains of Happy Valley existed as artifact concentrations, isolated finds, structural features, and old roadways. Many of the old roads were identified using historic J.A. Jones construction maps and could, therefore, help identify features located during the survey.

The current project area included a large portion of the Happy Valley construction camp, but there were some parts of the town that fell outside of the study area. These areas are largely unsurveyed and are located west of the current study area. They include an African-American hutment area and living quarters for single white women. A portion of the African-American construction camp was surveyed in 1995 and assigned the site number 40RE233 (Pace 1995). That survey is discussed further in Chapter III. Results of the current survey of the 182 acres of Parcel ED-3 are presented below.

ARTIFACT CONCENTRATIONS

Glass and building materials made up the majority of the artifacts collected. Artifacts were generally located on the surface or 0-20 centimeters below the surface (cmbs). Modern bottles and debris were frequently found on the ground surface throughout the parcel. Thirteen artifact concentrations (loci) were located within Parcel ED-3 (Figures 12-19). Many of the loci contained intact bottles with markings dating the bottles to the 1940s. A list of the loci can be found in Table 1. A detailed discussion of each of the 13 loci follows the table.

Figure 11.
Map of 40RE577 Showing Loci and Isolates

Figure 12.
Large Structural Features, Loci, and Isolated Finds
Plotted on J.A. Jones Construction Map (1 of 8)

Source: J.A. Jones Construction Camp - K-25 Area, Sanitary Water Map (1944)

Figure 13.
Large Structural Features, Loci, and Isolated Finds
Plotted on J.A. Jones Construction Map (2 of 8)

Source: J.A. Jones Construction Camp - K-25 Area, Sanitary Water Map (1944)

Figure 14.
Large Structural Features, Loci, and Isolated Finds
Plotted on J.A. Jones Construction Map (3 of 8)

Source: J.A. Jones Construction Camp - K-25 Area, Sanitary Water Map (1944)

Figure 15.
Large Structural Features, Loci, and Isolated Finds
Plotted on J.A. Jones Construction Map (4 of 8)

Source: J.A. Jones Construction Camp - K-25 Area, Sanitary Water Map (1944)

Figure 16.
Large Structural Features, Loci, and Isolated Finds
Plotted on J.A. Jones Construction Map (5 of 8)

Source: J.A. Jones Construction Camp - K-25 Area, Sanitary Water Map (1944)

Figure 17.
Large Structural Features, Loci, and Isolated Finds
Plotted on J.A. Jones Construction Map (6 of 8)

Source: J.A. Jones Construction Camp - K-25 Area, Sanitary Water Map (1944)

Figure 18.
Large Structural Features, Loci, and Isolated Finds
Plotted on J.A. Jones Construction Map (7 of 8)

Source: J.A. Jones Construction Camp - K-25 Area, Sanitary Water Map (1944)

Figure 19.
Large Structural Features, Loci, and Isolated Finds
Plotted on J.A. Jones Construction Map (8 of 8)

Source: J.A. Jones Construction Camp - K-25 Area, Sanitary Water Map (1944)

Table 1. Loci Identified in Parcel ED-3

Locus Number	Dimensions in meters (feet)	Composition	Location
1	20 x 10	Nail, tile	10 – 15 cmbs
2	40 x 10	Glass, Metal Fragments	Surface, 0 – 10 cmbs
3	30 x 10	Metal Hardware, Nail, Glass	Surface, 15 – 20 cmbs
4	30 x 10	Brick Fragments, Whiteware, Bottles	Surface, 0 – 25 cmbs
5	10 x 10	Bottle Dump	Surface, 0 – 25 cmbs
6	50 x 30	Glass, Metal, Housewares. Area Disturbed	Surface
7	25 x 10	10 – 20 bottles/jars	Surface
8	20 x 15	10 – 20 bottles/jars	Surface
9	75 x 50	~100 bottles/jars, a shoe, ~5 cans	Surface, 0 – 10 cmbs
10	20 x 10	Remains of cars, ~10 bottles	Surface
11	60 x 15	30 – 10 bottles/ jars, electrical outlet, can	Surface
12	15 x 15	Toilet fragments, 20 – 30 bottles/jars	Surface
13	40 x 40	Glass fragments, whiteware sherd, ~5 glass bottles/jars, coal	Surface, 0 – 20 cmbs

LOCUS 1

Locus 1 was located in the northwestern area of Parcel ED-3 approximately 35 meters south of the Oak Ridge Turnpike. The locus was encountered when a fragment of undiagnostic clear glass was located within a shovel test. Ten shovel tests were excavated in order to determine the locus boundaries. In addition to the initial positive shovel test, one other positive shovel test was located. The second positive shovel test contained a fragment of asbestos siding. Both artifacts were located 10-15 cmbs. Shovel tests consisted of approximately 0-15 centimeters of gravelly dark brown (10YR 3/3) silty clay loam atop dark reddish brown (5YR 3/3) compact clay. The locus measured 20 meters east-west by 10 meters north-south (Figure 20).

The area surrounding the locus was very disturbed and the vegetation consisted of small hardwoods, pines, and briars. The artifacts located provide little information on the origin of the locus. Based on the proximity of the locus to a dirt road that is believed to be the former 37th Avenue South, it appears that Locus 1 could mark the location of Mess Hall H-37 (Figure 14).

LOCUS 2

Locus 2 was located in the center of Parcel ED-3 approximately 30 meters south of the main gravel road that bisects the parcel. The locus was first noted when a clear machine-made bottle was located on the surface. Several glass fragments were also found within a shovel test. Twenty-one shovel tests were excavated in order to determine the locus boundaries. In addition to the initial positive shovel test, one other positive shovel test was located. The second positive shovel test contained amber and clear glass fragments and a corroded metal toilet paper holder.

Figure 20.
Locus 1 Map and Photograph

All buried artifacts were located 0-10 cmbs. Shovel tests contained approximately 0-20 centimeters of dark brown (7.5YR 3/3) silty clay loam atop mottled strong brown (7.5YR 4/6) and olive yellow (10YR 6/6) clay. The locus measures 40 meters north-south by 10 meters east-west (Figure 21).

The surrounding vegetation consisted of hardwoods and pines. An overgrown dirt road ran through the locus area in a northeast-southwest direction. The artifacts were a mixture of lavatory and household items. Based on the proximity of the locus to the main gravel road (32nd Street) and the overgrown dirt road within the site, it appears that Locus 2 was refuse from trailers and lavatories located between the former 33rd and 34th Streets near 47th Avenue South (Figure 18).

LOCUS 3

Locus 3 was located in the southeastern area of Parcel ED-3. The locus was identified when a metal hinge was identified on the ground surface. Ten shovel tests were excavated in order to determine the locus boundaries. In addition to the initial positive shovel test, one other positive shovel test was excavated. The second positive shovel test contained clear glass fragments and a wire nail. All buried artifacts were located 15-20 cmbs. A thick layer of gravel was located at the site of several shovel tests in the area. Shovel test profiles consisted of approximately 0-15 centimeters of dark brown (7.5YR 3/3) silty clay loam atop gravelly olive yellow (10YR 6/6) clay. The locus measured 30 meters east-west by 10 meters north-south (Figure 22).

The area surrounding the locus contained hardwoods and pines. A disturbed area overgrown by privet was located northeast of Locus 3. An overgrown dirt road ran through the site in a northeast-southwest direction. A second overgrown dirt road running in the same direction was located just south of the locus.

The artifacts consisted of household items. Based on the proximity of the locus to the two overgrown gravel roads and a large lavatory feature (Feature 26) it appears that Locus 3 is refuse from trailers located along the former 35th Street, south of Lavatory H-44 (Figure 19).

LOCUS 4

Locus 4 was situated in the southeastern area of Parcel ED-3, 50 meters south of Locus 3. The locus was first noted when whiteware and brick fragments were found within a shovel test. Ten shovel tests were excavated in order to determine the locus boundaries. An additional positive shovel test was identified. The second positive shovel test produced amber bottle glass fragments from the surface and asbestos siding from within the test. All buried artifacts were located 0-25 cmbs. Shovel test profiles consisted of approximately 0-25 centimeters of brown (7.5YR 4/3) silty clay loam atop strong brown (7.5YR 5/6) clay. The locus measures 30 meters north-south by 10 meters east-west (Figure 23).

The surrounding vegetation consisted of hardwoods and pines. The locus area sloped up to the south and an overgrown dirt road ran through the site in a northeast-southwest direction. The artifacts located consist of building materials and household items. Based on the proximity of the locus to the overgrown gravel road and a large lavatory feature (Feature 26), it appears that Locus 4 is refuse from trailers and "victory homes" located along the former 36th Street near 48th Avenue South (Figure 19).

Figure 21.
Locus 2 Map and Photograph

Figure 22.
Locus 3 Map and Photograph

Figure 23.
Locus 4 Map and Photograph

LOCUS 5

Locus 5 was in the central part of Parcel ED-3 south of Locus 2. The locus was identified when bottles were spotted on the ground surface. A shovel test in this location produced nails, a stoneware fragment, and a corroded metal fragment. In total, nine shovel tests were excavated in order to determine the locus boundaries. No other positive shovel tests were encountered. All buried artifacts were located 0-25 cmbs. Soil profiles consisted of approximately 0-35 centimeters of brown (7.5YR 4/3) silty clay loam atop strong brown (7.5YR 5/6) clay. The locus measures ten meters in diameter (Figure 24).

The immediate area surrounding the locus appeared disturbed and was covered in privet. The locus was situated on a landform that sloped down to the north and east. An overgrown dirt road was found north of the site and ran in a northeast-southwest direction. The artifacts consisted of building materials and household items. Feature 25, a water station, was just southwest of the locus. Based on the proximity of the locus to the overgrown gravel road and Feature 25 it appears that Locus 5 is refuse from trailers located between the former 34th and 35th Streets near 47th Avenue South (Figure 18).

LOCUS 6

Locus 6 was positioned in the central part of Parcel ED-3 ten meters south of the main gravel road that bisects the parcel. The locus was first noted when historic artifacts were seen scattered on the ground surface. Artifacts included asbestos siding, an ornamental candy dish fragment, and green machine made bottle glass. The area was uneven and disturbed and modern artifacts could be seen on the surface. Shovel tests excavated in the area produced no artifacts. Strong brown (7.5YR 5/6) clay was visible on the surface in some areas and a short grassy groundcover covered most other areas.

The locus measured 50 meters north-south and 30 meters east-west (Figure 25). A forested slope bordered the locus to the east and a low, hydric area sat west of the site. The main gravel road that bisects the parcel ran along the northern edge of the locus. A modern sewer could be seen 20 meters west of the locus. Construction of this sewer and other utility lines in the area could have resulted in the disturbance visible throughout the area. The artifact assemblage included building materials and household items. Feature 45 (a historic sewer) was situated within the locus, Feature 16 (a water station) was approximately 30 meters east of the locus, and Feature 26 (a hydrant) was 15 meters south of the locus. Based on the proximity of the locus to the gravel road, the surrounding features, and an overgrown road to the west, it appears that Locus 6 was refuse from trailers near the former 32nd Street and 44th Avenue South (Figure 17).

LOCUS 7

Locus 7 was near the south central edge of the parcel approximately 130 meters south of the main gravel road that bisects the parcel. The locus was first encountered when bottles were noted on the ground surface. The immediate area was uneven and covered in push piles. Shovel tests excavated in the area produced no artifacts and the soil profiles consisted of 0 – 20 centimeters of dark brown (10YR 3/3) silty loam over strong brown (7.5YR 4/6) clay loam.

Figure 24.
Locus 5 Map and Photograph

Figure 25.
Locus 6 Map and Photograph

No subsurface artifacts were found and the locus measured approximately 25 meters east-west by ten meters north-south (Figure 26). The land south of the locus sloped up towards a ridge and an old roadbed ran along the northern edge of the artifact scatter. Approximately 10 – 20 bottles and jars were visible on the ground surface. A representative bottle from the locus was collected and its markings indicated that it was manufactured between 1940 and 1954. J.A. Jones Construction Company maps of the area indicate that the road north of the locus was most likely 25th Street near 39th Avenue South. A group of 20 hutments stood in this area and those living there might have discarded these bottles (Figure 16).

LOCUS 8

Locus 8 was approximately 85 meters southwest of Locus 7. As with Locus 7, Locus 8 was a surface scatter of bottles and jars. The locus was situated on a slope just south of an old gravel road. Shovel tests placed in the area were negative. Soil profiles revealed in shovel tests were 0-10 centimeters of dark brown (10YR 3/3) silty loam, 11-20 centimeters of yellowish brown (10YR 4/4) silty loam, and a subsoil of strong brown (7.5YR 4/6) clay loam.

Locus 8 measured approximately 20 meters east-west by 15 meters north-south and consisted of 10 - 20 bottles and jars (Figure 27). The representative artifact collected was a clear, machine-made bottle with the Knox Glass Company trademark, dating the bottle to mid-Twentieth Century. The locus was approximately ten meters south of an overgrown gravel road. J.A. Jones Construction Company maps of the area indicate that the road was most likely 25th Street near 37th Avenue South. The construction maps also indicate that 20 hutments once stood in the area. The locus might be the remains of an unofficial household refuse dump for some of the hutments (Figure 16).

LOCUS 9

Locus 9 was situated in a wooded area approximately 160 meters southwest of Locus 8. A small scatter of bottles and jars visible on the surface was the first indication of the locus, but a subsequent shovel test in the area contained a small clear bottle glass fragment 0-10 cmbs. Six delineation shovel tests were excavated around the shovel test in areas that were not sloped or disturbed. These tests were negative and revealed a soil profile of 0-5 centimeters of dark brown (10YR 3/3) loam, 6-20 centimeters of yellowish brown (10YR 4/4) silty loam, and a subsoil of strong brown (7.5YR 4/6) clay loam.

Surface artifacts and topography were used to determine the extent of the scatter. The locus measured 75 meters east-west by 50 meters north-south and was composed of approximately 100 artifacts (Figure 28). Artifacts included mostly amber and clear machine made bottles, but unlike other loci in the area other household items were also represented in the assemblage. These items included a shoe, a lightbulb, several rusted cans, a Noxzema jar, and a Chesebrough Mfg. Company jar which would have most likely contained Vaseline. The locus sat on a small terrace bounded by slopes to the northeast and south and a small north-south running drainage cut across the western edge of the locus. The drainage contained a large number of bottles and jars.

Figure 26.
Locus 7 Map and Photograph

Figure 27.
Locus 8 Map and Photograph

Figure 28.
Locus 9 Map and Photograph

A hydrant (Feature 62) was positioned within the locus. Based on J.A. Jones construction maps this locus appeared to be in an undeveloped area south of the neighborhoods around 36th Avenue South and 35th Avenue South. The locus might be the remains of an unofficial dump for those living in the hutments to the north (Figure 13).

LOCUS 10

Locus 10 was in a wooded area 50 meters north of the main gravel road that cuts across the parcel. Two historic car frames and a small surface artifact scatter marked the locus. The area immediately surrounding the locus was disturbed, sloped or hydric, so no shovel tests were excavated.

The locus boundaries were determined based on surface artifacts and landscape features. Artifacts were visible over an area measuring approximately 20 meters east-west by 10 meters north-south (Figure 29). The locus was situated on a small terrace between a creek and an upward slope. A large pile of broken asphalt was on the slope above the locus. It is not known whether this asphalt originated from Happy Valley, so it was not included in the locus boundary. The artifact assemblage consisted of the two historic cars and several clear glass bottles. The cars were stripped of many of their parts and only the frames remained. One car was too badly damaged to be identified, but the body style of the second car indicated it was late 1930s - early 1940s Ford or Chevrolet four-door sedan. As with other loci in the parcel, the bottles at this locus were all machine made, clear bottle glass with markings dating to the mid-twentieth century. Examination of the J.A. Jones Construction maps indicates that Locus 10 is west of 36th Avenue South near 23rd Street South (Figure 13). The map shows that nothing was built in this area and so it could have been used as a dump for the hutment neighborhoods to the north and east.

LOCUS 11

Locus 11 was 60 meters north of the intersection between the parcel entrance road that runs east of the pond and the main gravel road that cuts across the parcel. The first indication of the locus was bottles scattered on the ground surface. The surrounding area was sloped and disturbed. One shovel test was excavated, but no subsurface artifacts were uncovered. The soil profile revealed within the shovel test was 0-10 centimeters of brown (10YR 4/3) silty loam over a strong brown (7.5YR 4/6) clay loam.

Based on the presence of surface artifacts the locus measured 60 meters northwest-southeast by 15 meters northeast-southwest (Figure 30). Approximately 30-40 artifacts including bottles, jars, and cans were noted and a porcelain electrical outlet was collected from the scatter. The bottles that made up the bulk of the artifact assemblage were predominantly amber machine made bottles with the Obear-Nester Glass Company trademark indicating that the bottles were manufactured between

Figure 29.
Locus 10 Map and Photograph

Locus 10, View Northwest

Key

--- Locus Boundary /
Extent of Surface Scatter

○ Negative Shovel Test

— Contour Line

0 20 m

0 65.7 ft

Figure 30.
Locus 11 Map and Photograph

1915 and 1980. The locus was situated on a hillside and a narrow overgrown road could be seen running along its western edge. Examination of the J.A. Jones Construction maps does not show a road in the vicinity of Locus 11, but it does indicate that a sewerline corridor in the area. The map illustrates several hutment neighborhoods to the east and north of Locus 11, but no buildings are pictured in the exact location of the artifact scatter. It is possible that this area was used as an informal dumping ground for the surrounding neighborhoods (Figure 12).

LOCUS 12

Locus 12 is located 70 meters south of the Oak Ridge Turnpike and 100 meters east of the pond. The locus was situated on a steep slope and consisted of bottles and toilet fragments. The immediate area was sloped, but shovel tests excavated nearby revealed 0-10 centimeters of brown (10YR 4/3) silty loam over a strong brown (7.5YR 4/6) clay loam. Artifacts were not located subsurface.

Based on the presence of surface artifacts the locus measured 15 meters by 15 meters (Figure 31). Approximately 20 – 30 bottles and jars were visible in the area. The bottles were consistent with other bottles found within the parcel and their markings indicated they were manufactured between 1940 and 1954. Several large toilet fragments stamped 1943 were also located. J.A. Jones Construction maps place Locus 12 south of 33rd Avenue South in an area where 60 hutments in groups of three stood (Figure 12). Lavatories were located south of the area. The presence of the toilet fragments in the artifact assemblage implies that this refuse might have been left over from demolition of the hutments and lavatories that stood upslope.

LOCUS 13

Locus 13 was 150 meters south of the Oak Ridge Turnpike and 120 meters east of a pond. It was situated approximately 70 meters north of Locus 11 and 70 meters south of Locus 12. The locus was first noted when a clear bottle glass fragment was located within a shovel test. Within 60 meters two additional regular interval shovel tests were also positive. These shovel tests produced two clear glass fragments and a whiteware sherd. Surface inspection of the area resulted in the discovery of jars and bottles. Sloping conditions, the presence of nearby features, and heavy disturbance from demolition limited the excavation of delineation shovel tests. Excavated shovel tests revealed soil profiles of 0-10 centimeters of brown (10YR 4/3) loam, 11-20 centimeters of dark yellowish brown (10YR 4/4) silty loam, and a subsoil of strong brown (7.5YR 4/6) clay loam. In shovel tests adjacent to the lavatory foundations coal and coal clinkers were located 0-20 cmbs.

Based on surface inspection, excavation of shovel tests, and topography the locus measured 40 meters by 40 meters (Figure 32). The artifacts collected from the shovel tests were undiagnostic, but consistent with the Happy Valley occupation. The locus was situated on a hilltop with slopes to the west and north and an overgrown gravel road to the east. The remains of two lavatories (Features 64 and 66) and a sewer (Feature 65) stood in the immediate area. The J.A. Jones Maps place Locus 13 in a hutment neighborhood just west of 35th Avenue South and north of 21st Street South (Figure 12). This locus is probably the remains of household activities in this area.

Figure 31.
Locus 12 Map and Photograph

Figure 32.
Locus 13 Map and Photograph

ISOLATED FINDS

Thirteen isolated artifacts were located during the survey (Figures 12-19). Some isolated finds could not be definitely dated but appear to be consistent with the artifacts from the Happy Valley occupation. Most artifacts were located on the surface but some were buried. A list of the isolated finds can be found in the Table 2.

Table 2. Isolated Finds in Parcel ED-3

Isolated Find Number	Artifact Type
1	Bottle
2	Wire Nail
3	Spark Plug
4	Nail
5	Clear Machine Made Bottle Glass, Lummi Glass Co. trademark, date range: 1940-55
6	Clear Machine Made Bottle Glass, Lummi Glass Co. trademark, date range: 1940-55
7	Alkaline Glazed Stoneware
8	Tin Can, Modern Crimped Top, Stove Pipe Component (not collected)
9	Clear Bottle Glass Fragments (3)
10	Clear Machine Made Bottle, Clear Bottle Glass Fragment, Amber Bottle Glass Fragment
11	Clear Bottle Glass Fragments (2)
12	Powerline Pole (not collected)
13	Electric Street Lamp (not collected)

FEATURES

In addition to the loci and isolated finds, 75 features were located during the survey. Lavatories, hydrants, sewer structures, and water stations were the most common feature types. Recreation building foundations, a bridge, an icehouse foundation, a flood control wall, barrack foundations, and pipes were also located (Figures 12-19). All but one of the features (Feature 53) appeared to be associated with Happy Valley.

Feature 53 is a low stonewall located on the north side of a creek that parallels the Oak Ridge Turnpike. It is unclear whether the wall predates Happy Valley or not. A list of the features located and any associated artifacts collected can be found in Table 3. Many features fell into the same category and are discussed below as feature types. Isolated features that are not of a general type are discussed individually.

Table 3. Features Located in Parcel ED-3

Feature Number	Possible Feature Type	Dimensions in meters (feet)	J.A. Jones Structure Number	Associated Artifacts
1	Possible Lavatory	11 x 9 (36.1 x 9)	H-22	None
2	Hydrant Base			None
3	Hydrant			None
4	Possible Lavatory		H-9	None
5	Recreation Hall	Raised structure 5 x 4.5 (16.4 x 14.8) / Entire structure dimensions unknown	H-38	None
6	Sewer Structure			None
7	Unearthed Sewer Structure			None
8	Sewer Structure			None
9	Pipe/Electrical Wire			None
10	Recreation Area: Living Room No. 2	17 x 9 (55.8 x 29.5)	Living Room No. 2	None
11	Hydrant			None
12	Recreation Area: Coney Island	42 x 27 (137.8 x 88.6)	S-2	None
13	Bridge Remains	10 (32.8) wide		None
14	Open Sewer			None
15	Sewer Structure			None
16	Water Station	2.6 x 1.2 (8.5 x 3.9)		Pepsi Bottle Fragment
17	Structure Remains, Manhole, and Hydrant	Unknown		None
18	Sewer Structure			None
19	Recreation Area: Possible Theater	18.5 x 25+ (60.7 x 82)	S-17	None
20	Water Station	2.1 x 1.5 (6.9 x 4.9)		Bottle
21	Hydrant			None
22	Water Station	2.1 x 1.5 (6.9 x 4.9)		Jug Rim
23	Water Station	2.1 x 1.5 (6.9 x 4.9)		Drinking Glass
24	Hydrant			None
25	Water Station	2.1 x 1.5 (6.9 x 4.9)		None

Table 3. Features Located in Parcel ED-3

Feature Number	Possible Feature Type	Dimensions in meters (feet)	J.A. Jones Structure Number	Associated Artifacts
26	Possible Lavatory	9 x 22+ (29.5 x 72.2+)	H-44	Toilet Fragment
27	Water Station			None
28	Concrete Pad – Possible Lavatory	Unknown	H-46 (?)	None
29	Sewer Structure			None
30	Possible Ice House	5.4 x 5.4 (17.7 x 17.7)	S-1	None
31	Sewer Structure			None
32	Sewer Structure			None
33	Water Station	2.1 x 1.5 (6.9 x 4.9)		None
34	Water Station	2.5 x 1.5 (8.2 x 4.9)		None
35	Sewer Structure			None
36	Water Station	2.5 x 1.5 (8.2 x 4.9)		None
37	Water Station			None
38	Water Station/Sewer Structure	2.1 x 1.5 (6.9 x 4.9)		Large Toilet Fragments (not collected), Jar Base
39	Sewer Structure			None
40	Water Station	2.1 x 1.5 (6.9 x 4.9)		None
41	Sewer Structure			None
42	Water Station	2.1 x 1.5 (6.9 x 4.9)		None
43	Recreation Area: Theater	21+ x 20+ (68.9+ x 65.7+)	S-17	None
44	Sewer Structures			None
45	Sewer Structures			None
46	Hydrant			None
47	Hydrant			None
48	Possible Barracks Rubble		S-57	None
49	Portion of Barracks	17 x 10 (55.8 x 32.8)	S-5	None
50	Sewer Structure			None
51	Hydrant			None

Table 3. Features Located in Parcel ED-3

Feature Number	Possible Feature Type	Dimensions in meters (feet)	J.A. Jones Structure Number	Associated Artifacts
52	Hydrant			None
53	Stone Wall	30 x 0.6 (98.4 x 2)		None
54	Possible Flood Control Wall	40 (131.2) long		None
55	Possible Lavatory	9 x 11 (29.5 x 36.1)	H-8	Large Toilet Fragments (not collected)
56	Sewer Structure			None
57	Sewer Structure			None
58	Hydrant			None
59	Lavatory	9 x 11 (29.5 x 36.1)	H-12	None
60	Hydrant			None
61	Rubble – Possible Lavatory		Possibly H-18	None
62	Hydrant			None
63	Lavatory	9 x 11 (29.5 x 36.1)	H-30	None
64	Lavatory	9 x 11 (29.5 x 36.1)	H-29	None
65	Sewer Feature			None
66	Lavatory	9 x 11 (29.5 x 36.1)	H-28	None
67	Sewer Feature			None
68	Lavatory	9 x 11 (29.5 x 36.1)	H-26	None
69	Lavatory	9 x 11 (29.5 x 36.1)	H-25	None
70	Lavatory	9 x 11 (29.5 x 36.1)	H-24	None
71	Lavatory	9 x 11 (29.5 x 36.1)	H-23	None
72	Sewer Feature			None
73	Lavatory	9 x 11 (29.5 x 36.1)	H-11	None
74	Sewer Feature			None
75	Rubble – Possible Lavatory		Possibly H-21	None

SEWER FEATURES

The most common features located in Parcel ED-3 were sewer features. These features consisted of manholes and drainpipes. They were found throughout the parcel and sometimes in conjunction with fire hydrants (Figure 33). Twenty-two of these features were located. Manholes were constructed of brick and cement and measured approximately 1.1 meters (3.6 feet) in diameter with an interior hole of .62 meters (2 feet). Metal climbing rungs could be seen within manholes that were missing their covers. Demolition exposed Feature 7 allowing the normally buried structure to be viewed from the outside (Figure 34). Features 6 and 44 contain horizontal drain structures. These features were not constructed of brick and instead utilized metal or formed concrete blocks and terra cotta pipes (Figure 34).

LAVATORIES

Sixteen possible lavatory foundations were located during the survey. Although many of Happy Valley's structures were ephemeral, it appears that lavatories were built of more permanent materials because they were tied into the sewer lines. Most of the lavatories identified appeared to have the same general layout (Figure 35). These features measured roughly 9x11 meters (29.5x36.1 feet). Features 26, 28, 61, and 75 had all been demolished and accurate measurements of their dimensions were impossible. Due to their locations and the presence of plumbing features they are considered probable lavatories.

All the intact lavatory features possessed a low wall marking the outline of the structure. The walls were composed of formed concrete containing rounded cobble aggregate. Interior walls branched off of the outside wall creating small rooms and partitions within the structure. Walls were generally 10 centimeters (3.9 inches) thick unless they included pipes, in which case they were 20 centimeters (7.9 inches) thick. Metal pipes were found protruding vertically from the floor and some interior walls and drains could be seen in the floors of some lavatories. Examination of a Clinton Engineer Works plan for K-25 hutment lavatories shows the intended layout for the washhouses (Figure 36). Coal powered hot water heaters produced hot water for the showers and this explains why coal and clinkers were found adjacent to Features 64 and 66. Toilet fragments were located in or near Features 26 and 55. Using GPS points and landmarks, the lavatory features noted in the field were identified on the J. A. Jones Sanitary Water maps.

WATER STATIONS

The third most common feature type located in the parcel was the water station (Figure 37). These features usually consisted of a concrete pad with a short raised wall located along one long edge. A post hydrant was erected along the wall edge and a drainpipe was located below the faucet. The concrete pad measured approximately 2x1.5 meters (6.6x4.9 feet) and the corners were notched indicating that the structure might have originally had a roof or walls. Thirteen water stations were located. In two cases, standing post hydrants without concrete pads were located, but these were exceptions (Features 27 and 37). The water stations were regularly distributed throughout the eastern portion of the parcel where the trailers were located. They appear to correspond to the washhouses pictured on the J. A. Jones Sanitary Water maps. Water stations were not present in the west-central portion of the parcel where hutment neighborhoods were located. Features 16, 20, 22, and 23 all had associated artifacts that included an amber bottle glass fragment dating from 1940 – 1954 and a clear glass molded tumbler.

Figure 33.
Sewer Feature 8

A. Feature 8, View East

B. Feature 8, View From Above

Figure 34.
Sewer Features 6 and 7

A. Feature 7, View North

B. Feature 6, View North

Figure 35.
Lavatory Feature 55 Map and Photograph

Figure 36.
Ford, Bacon, and Davis Hutment Lavatory Plans

Source: Department of Energy

Figure 37.
Water Station

B. Feature 40, View North

Post hydrants located in concrete pads and alone were all marked with the company name "Murdock." Murdock, Inc. has been manufacturing drinking fountains and hydrants since the middle of the eighteenth century. The post hydrants located at Happy Valley are similar to the M75 models that Murdock, Inc. still manufactures today (Murdock-Super Secur 2005).

FIRE HYDRANTS

Thirteen fire hydrants were located during the survey of Parcel ED-3 (Figure 38). Two were incomplete (Features 2 and 51), but most were intact. Two different styles of fire hydrants were observed. The first fire hydrant style was manufactured by the R.D. Wood Company based in Philadelphia, Pennsylvania. The Wood hydrants appear to be "special" models and are frequently seen in United States World War II era military installations (FireHydrant.org 1995-2001). There is no obvious functional difference between the two styles of hydrants.

The M&H Valve & Fitting Company of Anniston, Alabama manufactured the second style of fire hydrant seen on the parcel. The style seen in Happy Valley is the M&H 5 1/4" Model 29. M&H originated in New York City where they produced plumbing materials such as valves and brass cocks. The company relocated to Alabama in the 1920s and it was around that time that they started to produce fire hydrants (FireHydrant.org 1996-2003).

FEATURE 5 – RECREATION HALL, H-38

Feature 5 is a building foundation located on the northwest margin of the parcel approximately 10 meters from a utility line corridor that parallels the Oak Ridge Turnpike (Figure 39). The land surrounding the feature is low lying and contains hardwoods. A steep slope up is located just west of the feature. Feature 1, lavatory H-22, is located to the southeast.

The feature consists of a 5x4.5-meter (16.4x14.8 feet) formed concrete foundation. A doorway is located on the north side of the feature and a small landing is located to its south side. A concrete floor was encountered in shovel tests 10 meters (32.8 feet) south and 15 meters (49.2 feet) southeast of Feature 5. The feature was not delineated any further. Based on the feature's placement in the parcel and proximity to Feature 1, it is likely that Feature 5 represents Recreation Hall, H-38. The standing structure associated with Feature 5 could have been an interior room for the building and the concrete encountered in shovel tests could have been the floor for the main recreation room.

FEATURE 9 – UTILITY PIPE

Feature 9 is a pipe located 30 meters (98.4 feet) south of Feature 10 (Living Room No. 2) east of 42nd Avenue South (Figure 40). A second overgrown road running roughly east-west is located directly south of the feature. Pine trees grow in the surrounding land.

Figure 38.
Hydrant Features 3 and 47

A. Feature 3, an R.D. Wood Hydrant, View West

B. Feature 47, an M&H Hydrant, View North

Figure 39.
Feature 5 Map and Photograph

Figure 40.
Features 9 and 10, Map and Photographs

The feature consists of a short cement structure approximately 1.5 meters (4.9 feet) in diameter. Two meters south of the structure a terra cotta pipe roughly ten centimeters (3.9 inches) in diameter protrudes from the ground. A small metal pipe threaded on the end is located within the terra cotta pipe. Due to its proximity to Feature 10, it is probable that Feature 9 was associated with it. The J. A. Jones Sanitary Water maps show water lines running south from Feature 10. It is possible that Feature 9 represents these water lines or other utility lines.

FEATURE 10 – LIVING ROOM NO. 2

Feature 10 is a structure foundation located in a stand of pine trees east of the former 42nd Avenue South and roughly 10 meters (32.8 feet) south of the main gravel road that bisects Parcel ED-3 (Figure 40). Feature 9 is located approximately 30 meters (98.4 feet) south of Feature 10. The feature was initially noted when cinder blocks were spotted on the surface just northwest of a shovel test.

The feature consists of a concrete block foundation that measures approximately 17x9 meters (55.8x29.5 feet). A small landing for an exterior stairway is located on the north side of the feature. Concrete block stairs leading down towards 42nd Avenue South are located on the west side of the feature. A small pipe is located in the floor of the structure near the east wall. Based on the feature's location and proximity to roads and other features, Feature 10 is probably the foundation for Living Room No. 2, one of the recreation areas in the town. This feature is very close to the barracks and was perhaps used as a recreation facility for those living there.

FEATURE 12 – CONEY ISLAND, S-2

Feature 12 is a concrete floor located just north of the main gravel road that bisects the parcel. A small creek that parallels the Oak Ridge Turnpike is located approximately ten meters north of Feature 12. Grass and low growing shrubs cover the feature, but hardwoods surround it. The feature's concrete floor was encountered while attempting to excavate a shovel test. The feature consists of a concrete platform measuring approximately 42x27 meters (137.8x88.6 feet), oriented in a northwest – southeast direction (Figure 41). The platform is split into two levels. A small one-meter square platform protrudes from the north corner of the feature. Based on its orientation and size, this feature corresponds with the Coney Island Recreation Hall, S-2.

FEATURE 13 – BRIDGE REMAINS

Feature 13 is the remains of an old bridge situated in the north central area of the parcel across the creek that runs along the parcel edge parallel to the Oak Ridge Turnpike (Figure 42). The area surrounding the feature is forested with hardwoods and an overgrown dirt road is located just south of the feature, leading up to it.

The feature consists of bridge pilings and deck remains. It is not intact and has either decayed over time or was partially taken down when Happy Valley was vacated. Within the creek stood three large, round, vertical wooden pilings that cover approximately 10 meters (32.8 feet). A large gap between two of the pilings indicates that a piling is missing. The remnants of wooden planks rest horizontally on two of the pilings parallel to the bridge alignment. Yellow and black striped barriers are located north of the creek in the overgrown dirt roadway leading up to the feature.

Figure 41.
Feature 12 Map and Photograph

Figure 42.
Feature 13, View West

The feature is located northeast of Feature 12, Coney Island. Based on its proximity to Feature 12 it appears that this bridge might have been located along the former 43rd Avenue South. The J.A. Jones construction maps do not indicate that the creek or a bridge existed, though.

FEATURES 19 AND 43 – THEATER, S-17

Features 19 and 43 are the remains of a large structure located approximately 90 meters (295.3 feet) south of the Oak Ridge Turnpike in an area overrun by privet. Although 30 meters (98.4 feet) separate the features, they appear to be part of the same large structure. Feature 19 is the eastern portion of the structure and is located approximately 20 meters (65.7 feet) west of 47th Avenue South, the entrance road to the parcel. Feature 43 is the western portion of the structure and is located approximately 20 meters (65.7 feet) north of the main gravel road that bisects the parcel.

Feature 19 is the eastern portion and Feature 43 is the western portion of a structure that is oriented in a northeast – southwest direction (Figures 43 and 44). The building appears to be 18.5 meters (60.7 feet) wide. The length of the structure is at least 55 meters (180.4 feet). Two small angular rooms are located in the easternmost corners of the building (Figure 43). A small doorway separates the two rooms. A concrete block wall protrudes east from the southernmost room (Figure 43). The western portion of the structure has several interior rooms with pipes in them (Figure 44). A large opening with a sloped walkway is located near the northwestern corner of the building (Figure 44). The placement and size of the structure indicate that these features mark the site of the Happy Valley Theater, S-17.

FEATURE 30 – POSSIBLE ICE HOUSE, S-1

Feature 30 is a small structure foundation located in the southeastern portion of Parcel ED-3, west of the haul road. The area surrounding the feature is very disturbed and the ground is covered with grass and vinca.

Feature 30 is approximately 5.4 meters (17.7 feet) on each side (Figure 45). The walls are approximately 20 centimeters (7.9 inches) thick. The building foundation is tall and extends above ground approximately 60 centimeters (2 feet). A one-meter (3.3 foot) gap was detected in the southwestern corner, but due to the heavy undergrowth and tree fall debris, it is difficult to see if stairs exist in this area or not. The shape of the structure and location of the feature are similar to that of the Ice House pictured on the J. A. Jones construction maps (Figure 19).

FEATURES 48 AND 49 – BARRACKS, S-57 AND S-5

Features 48 and 49 are barracks ruins located just west of an old dirt road that was 42nd Avenue South (Figure 46). Feature 48 is located south of an overgrown dirt road that appears to have been 23rd Street South. Feature 49 is 10 meters (32.8 feet) south of the main gravel road that bisects the parcel. Pine and hardwoods surround both features.

Figure 43.
Feature 19 Map and Photographs

Figure 44.
Feature 43 Map and Photograph

Figure 45.
Feature 30 Map and Photograph

Figure 46.
Feature 49 Map and Photograph

Feature 48 consists of large concrete blocks and metal water pipes. The feature has been heavily disturbed, but based on its location and the size of the rubble it appears to be the remains of the S-57 Barracks. Feature 49 is more intact. The structure measures 17x10 meters (55.8x32.8 feet) and is oriented in a northeast-southwest direction. Stairways are located on either side of the structure. Remnants exist of several interior walls that contain protruding metal pipes and rebar. Based on the location and orientation, this feature can be associated with the S-5 barracks. The plumbing in the structure indicates that those living in the barracks had indoor water and/or lavatory facilities.

FEATURE 53 – STONEWALL

Feature 53 is a stone wall located in the northwest area, north of the creek that runs parallel to the Oak Ridge Turnpike (Figure 47). The feature is 30 meters (98.4 feet) east of Feature 54.

Feature 53 measures roughly 60 centimeters (2 feet) high and 30 meters (98.4 feet) long. The wall appears to be constructed of local limestone, though some concrete blocks were located on top of the wall. No artifacts were located around the wall that would indicate its age. This feature exhibits a very different construction method than other features on the parcel. It is possible that the wall was constructed by those who lived in the area prior to the construction of Happy Valley, but no artifacts have been found to indicate that the wall is older than the Happy Valley occupation.

FEATURE 54 – POSSIBLE FLOOD CONTROL STRUCTURE

Feature 54 is a flood control feature located in the northwestern area of the Parcel ED-3 next to the creek that runs along the northern boundary of the parcel (Figure 47). The feature appears where the creek turns north towards the turnpike. Hardwoods and low underbrush surround the feature and 30 meters (98.4 feet) west is Feature 53, a stone wall.

It measures approximately 40 meters (131.2 feet) long and is constructed of 2x1-meter (6.6x3.3 foot) panels that appear to be made of cement. To the south is a steep upward slope and to the west is a low, wet area. There is no indication of the creek or this flood control feature on the J. A. Jones construction maps, but the construction method seems consistent with the Happy Valley time period. There is an area on the Jones map north of the main gravel road and south of Dormitory S-11 that is devoid of structures or buildings. It is possible that this area is the steeply sloped hillside south of the creek and Feature 54 would be located in this area (Figure 15).

Figure 47.
Features 53 and 54

A. Feature 53, View North-Northwest

B. Feature 54, View Northwest

VII. RECOMMENDATIONS AND CONCLUSIONS

New South Associates conducted a Phase I Archaeological Survey of Parcel ED-3 at for the Department of Energy at the Oak Ridge Reservation in Roane County, Tennessee. Archaeological remains of Happy Valley were located throughout the parcel, but were concentrated in the eastern and central portions of the project area. No additional sites were located. Vestiges of Happy Valley included small artifact concentrations and numerous features, such as roads, building foundations, hydrants, and sewage structures.

Although Happy Valley only existed for a very short time in the 1940s, it was a vital part of the Manhattan Project. Happy Valley was specifically used to house construction workers for the K-25 gaseous diffusion plant. Due to its association with an important time in history, its rarity, and its strong research potential, the portion of the Happy Valley site located within Parcel ED-3 (40RE577) is recommended eligible for the National Register of Historic Places under Criterion A for its association with significant events in American history. Although the area was sampled extensively during the Phase I Archeological Survey, the quantity of archaeological data collected during the survey is not sufficient to determine eligibility to the NRHP under Criterion D.

If Parcel ED-3 is to be developed, we recommend conducting further historical research prior to development in order to gain as much information as possible from the portion of the site included in the current study area. Historic construction maps could be analyzed in depth to answer questions regarding spatial patterning between different housing types and associated facilities such as utilities, recreation areas, and lavatories. Additionally, it would be beneficial to focus on who the Happy Valley residents were and where they came from. There is much documentation concerning the layout and buildings within Happy Valley, but there is a noticeable absence of information on the town's inhabitants within current literature. This information could be collected through oral interviews with former residents of the town. Historic research coupled with archaeological data could answer questions regarding the types of consumer and personal goods the Happy Valley residents used and whether these goods were supplied from a consistent source or not. The J.A. Jones construction maps and the features located during the survey indicate that the facilities and housing were standardized. Further research could indicate how and to what extent the residents personalized their living quarters.

Due to the intense secrecy of the Manhattan Project, very little is known about the day-to-day lives of those living at the construction camps. Further research on Happy Valley can provide information on its inhabitants, who lived and worked under circumstances that few have ever experienced.

REFERENCES CITED

Baden, W.W.

- 1983 *Tomotley An Eighteenth Century Cherokee Village*. University of Tennessee Department of Anthropology Report of Investigations No. 35. Tennessee Valley Authority Publications in Anthropology No. 36.

Bass, Q.R.

- 1977 *Prehistoric Settlement and Subsistence Patterns in the Great Smoky Mountains*. MS on File, National Park Service Southeast Archaeological Center, Tallahassee.

Bense, Judith A.

- 1994 *Archaeology of the Southeastern United States: Paleoindian to World War I*. Academic Press, San Diego, California.

Breitburg, E. and J.B. Broster

- 1995 A Hunt for Big Game: Does Coats-Heins Confirm Human/Mastodon Contact? *Tennessee Conservationist*. Vol. 61, No. 4, pp. 18-26.

Braun, E. Lucy

- 1950 *Deciduous Forests of Eastern North America*. The Blakiston Company, Philadelphia.

Chapman, J.

- 1981 *The Bacon Bend and Iddins Sites The Late Archaic Period in the Lower Little Tennessee River Valley*. University of Tennessee, Department of Anthropology Report of Investigations, No. 31, Tennessee Valley Authority Publications in Anthropology, No. 25.
- 1985 *Tellico Archaeology 12,000 Years of Native American History*. Report of Investigations No. 43 Department of Anthropology, University of Tennessee, Knoxville. Occasional Paper No. 5 Frank H. McClung Museum, University of Tennessee, Knoxville. Publications in Anthropology No. 41, Tennessee Valley Authority.

Corlew, R.E.

- 1981 *Tennessee A Short History*. University of Tennessee Press, Knoxville.

Cotham, Steve

- 2002 Knox County. *The Tennessee Encyclopedia of History and Culture*. Electronic Document, <http://tennesseeencyclopedia.net/imagegallery.php?EntryID=KO16> Accessed [January 31, 2008]

DuVall, Glyn D. and Matthew Spice

- 2005 *A Cultural Resources Survey of the Proposed ETPP Haul Road Between Portal 5 and State Route 58, East Tennessee Technology Park, Roane County, Tennessee*. DuVall & Associates, Franklin, Tennessee.

Fenneman, Nevin M.

- 1938 *Physiography of the Eastern United States*. McGraw Hill, New York.

Fielder, Jr., George F.

- 1974 *Archaeological Survey with Emphasis on Prehistoric Sites of the Oak Ridge Reservation, Oak Ridge, Tennessee*. The University of Tennessee, Knoxville.

FireHydrant.org

- 1995-2001 R.D.Wood, Co. Electronic Document:
<http://www.firehydrant.org/pictures/rdwm04.html> Accessed [January 31, 2008]

- 1996-2003 M&H Valve. Electronic Document:
<http://www.firehydrant.org/pictures/mh01.html> Accessed [January 31, 2008]

Gosling, F.G.

- 1999 *The Manhattan Project: Making the Atomic Bomb*. United States Department of Energy, Washington, D.C.

Griffin, J.B.

- 1952 *Archaeology of the Eastern United States*. University of Chicago Press.

Hall, Jere and Rachel Parker

- 2002 Roane County. *The Tennessee Encyclopedia of History and Culture*. Electronic Document, <http://tennesseeencyclopedia.net/imagegallery.php?EntryID=R038> Accessed [January 30, 2008]

Hewlett, Richard G. and Oscar E. Anderson, Jr.

- 1990 *The New World: A History of the United States Atomic Energy Commission, Volume I 1939 – 1946*. Reprinted. University of California Press, Berkeley. Originally published 1962, University Park: Pennsylvania State University Press.

Jacobs Environmental Restoration Team

- 1995 *Archaeological Reconnaissance K-25 Site, Oak Ridge Reservation, Oak Ridge, Tennessee*. Department of Energy, Jacobs Environmental Restoration Team, Oak Ridge.

Johnson, Charles W. and Charles O. Jackson

- 1981 *City Behind A Fence: Oak Ridge, Tennessee, 1942-1946*. University of Tennessee Press, Knoxville.

Johnson, Leland R.

- 1998a Oak Ridge in *The Tennessee Encyclopedia of History and Culture*, edited by Carroll Van West. Tennessee Historical Society, Nashville.
- 1998b X-10 in *The Tennessee Encyclopedia of History and Culture*, edited by Carroll Van West. Tennessee Historical Society, Nashville.

Jones, Vincent C.

- 1985 *Manhattan: The Army and the Atomic Bomb*. United States Army in World War II, Special Studies. Washington, D.C.

Mason, R.J.

- 1962 The Paleo-Indian Tradition in Eastern North America. *Current Anthropology* 3:227-283.

Miller, G.L, O.R. Jones, L.A. Ross, and T. Majewski

- 1991 *Approaches to Material Culture, Research for Historical Archaeologists: A Reader from Historic Archaeology*. The Society for Historical Archaeology California, Pennsylvania.

Murdock-Super Secur

- 2005 History of Murdock, Inc. Electronic Document: <http://www.murdock-supersecur.com/company/history-of-murdock-inc./> Accessed [January 31, 2008]

National Park Service

- 1995 *How to Apply the National Register Criteria for Evaluation*. National Park Service, Washington, D.C.

Overholt, James, ed.

- 1987 *These Are Our Voices: The Story of Oak Ridge, 1942-1970*. Children's Museum of Oak Ridge, Oak Ridge.

Pace, Robert A.

- 1995 *Archaeological Survey of Proposed State Route 58/95 Modifications, Roane County, Tennessee*. DuVall and Associates, Inc, Franklin, Tennessee.

Polhemus, R.R.

- 1987 *The Toqua Site, A Late Mississippian Dallas Phase Town*. University of Tennessee Department of Anthropology Report of Investigations No. 41. Tennessee Valley Authority Publications in Anthropology No. 36.

Prince, R.P.

- 2003 *The Happy Valley Settlement of the K-25 Plant: Dates of Initial Construction, Occupancy, and Removal of Buildings*. EMEF Inactive Records Center and Bechtel Jacobs Company, Oak Ridge.

Russ, K.C. and J. Chapman

- 1983 *Archaeological Investigations at the 18th Century Overhill Cherokee Town of Mialoquo*. University of Tennessee Department of Anthropology Report of Investigations No. 37. Tennessee Valley Authority Publications in Anthropology No. 36.

Schroedl, G.F., J.F. Bates, A.E. Bogan, E. Breitburg, L. LaValley, R.D. Newman, W.D. Roberts, K.C. Russ, and A.B. Shea

- 1986 *Overhill Cherokee Archaeology at Chota-Tanasee*. University of Tennessee Department of Anthropology Report of Investigations No. 38. Tennessee Valley Authority Publications in Anthropology No. 42.

Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture

Web Soil Survey. Available online at <http://websoilsurvey.nrcs.usda.gov/> Accessed [February 7, 2008]

Wheeler, W. Bruce

- 2002 Tennessee Valley Authority. *The Tennessee Encyclopedia of History and Culture*. Electronic Document, <http://tennesseeencyclopedia.net/imagegallery.php?EntryID=TO72> Accessed [January 31, 2008]

Williams, S.C.

- 1924 *History of the Lost State of Franklin*. The Overmountain Press, Johnson City, Tennessee

APPENDIX A: SPECIMEN CATALOG

Specimen Catalog

County: Roane

State: Tennessee

Project: Happy Valley (Parcel Ed 3) Survey (2008/ 2009)

State Site #	Prov Bag #	Catalog #	Excavation Unit	Vertical Location	Count /Weight	Artifact Description	Field Date
40RE577	1	40RE577-1-1	Locus 1, Transect 7, STP 7	Level 10-15cm	1 (3.8g)	Bottle Glass, Clear	1/7/08
40RE00-IF2	2	40RE00-IF2-2-1	IF 2, Transect 1, STP 1	Level 0-15cm	1 (4.6g)	Nail, Unidentified Wire	1/7/08
40RE577	4	40RE577-4-1	Locus 1, Transect 7, STP 7+5M E	Level 0-12cm	1 (3.2g)	Asbestos Siding	1/8/08
40RE00-IF4	5	40RE00-IF4-5-1	IF4, Transect 20, STP 10	Level 0-10cm	1 (482.7g)	'Bottle Glass, With "Federal Law Prohibits Reuse..."', Anchor-Hocking trademark, 1938-present (Toulouse, 1971)	1/8/08
40RE00-IF4	5	40RE00-IF4-5-2	IF4, Transect 20, STP 10	Level 0-10cm	1 (6.9g)	Nail, Unidentified, Unmeasured Stone, Non-Cultural, unidentified, possibly from gravel road., (Discarded)	1/8/08
40RE577	6	40RE577-6-1	Transect 16, STP 5	Level 5-20cm	5 (74.5g)		1/8/08
40RE577	7	40RE577-7-1	Locus 2, Transect 27, STP 3	Level surface	1 (136.6g)	Bottle Glass, Machine Made, Clear, poss. Armstrong Cork Co. trademark, date range 1938-69. (Toulouse, 1971)	1/9/08
40RE577	8	40RE577-8-1	Locus 2, Transect 27, STP 4	Level 0-10cm	1 (0.4g)	Bottle Glass, Amber	1/9/08
40RE577	8	40RE577-8-2	Locus 2, Transect 27, STP 4	Level 0-10cm	1 (0.4g)	Bottle Glass, Clear	1/9/08
40RE577	8	40RE577-8-3	Locus 2, Transect 27, STP 4	Level 0-10cm	1 (0.2g)	Bottle Glass, Machine Made, Clear	1/9/08
40RE577	8	40RE577-8-4	Locus 2, Transect 27, STP 4	Level 0-10cm	1 (81.6g)	Metal Object, Unidentified, toilet paper holder	1/9/08
40RE577	8	40RE577-8-5	Locus 2, Transect 27, STP 4	Level 0-10cm	1 (0.9g)	Plastic Item, Miscellaneous, possibly decorative fixture	1/9/08
40RE577	9	40RE577-9-1	Locus 2, Transect 27, STP 3	Level 5-10cm	3 (1.4g)	Bottle Glass, Clear	1/9/08
40RE577	9	40RE577-9-2	Locus 2, Transect 27, STP 3	Level 5-10cm	6 (44.9g)	Bottle Glass, Machine Made, Amber	1/9/08
40RE577	10	40RE577-10-1	Locus 5, Transect 30, STP 4	Level surface	1 (260.4g)	Bottle Glass, Machine Made, Amber, Owens-Illinois 'Duraglass' trademark. date range: 1940-54. (Toulouse, 1971)	1/9/08
40RE577	10	40RE577-10-2	Locus 5, Transect 30, STP 4	Level surface	1 (426g)	Bottle Glass, Machine Made, Clear, Cartel Vidriera Monterrey (Mexico) trademark (Toulouse, 1971)	1/9/08
40RE577	10	40RE577-10-3	Locus 5, Transect 30, STP 4	Level surface	1 (223.3g)	Bottle Glass, Machine Made, Green	1/9/08
40RE577	10	40RE577-10-4	Locus 5, Transect 30, STP 4	Level surface	1 (188.8g)	Canning Jar Glass, Mason Screw Cap, Chattanooga Bottle and Glass Co. trademark, date range: 1927-present. (Toulouse, 1971).	1/9/08
40RE577	10	40RE577-10-5	Locus 5, Transect 30, STP 4	Level surface	1 (200.8g)	Canning Jar Glass, Mason Screw Cap	1/9/08

Specimen Catalog

County: Roane

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State Site #	Prov Bag #	Catalog #	Excavation Unit	Vertical Location	Count /Weight	Artifact Description	Field Date
40RE577	11	40RE577-11-1	Locus 5, Transect 30, STP 4	Level 0-35cm	4 (5.9g)	Iron/ Steel, Unidentified/ Corroded	1/9/08
40RE577	11	40RE577-11-2	Locus 5, Transect 30, STP 4	Level 0-35cm	1 (6.6g)	Nail, Unidentified, Unmeasured	1/9/08
40RE577	11	40RE577-11-3	Locus 5, Transect 30, STP 4	Level 0-35cm	1 (34.5g)	Stoneware, Alkaline Glazed	1/9/08
40RE00-IF7	12	40RE00-IF7-12-1	IF 7, Transect 30, STP 6	Level 0-20cm	1 (55.6g)	Stoneware, Alkaline Glazed	1/9/08
40RE577	13	40RE577-13-1	Transect 29, Feature 38	Level surface	1 (160.4g)	Bottle Glass, Machine Made, Aqua	1/11/08
40RE577	14	40RE577-14-1	Locus 3, Transect 36, STP 10	Level surface	1 (299.1g)	Iron/ Steel, Unidentified/ Corroded	1/9/08
40RE577	15	40RE577-15-1	Locus 4, Transect 36, STP 12	Level 10-20cm	5 (3.4g)	Asphalt Roofing	1/9/08
40RE577	15	40RE577-15-2	Locus 4, Transect 36, STP 12	Level 10-20cm	2 (1.2g)	Bottle Glass, Machine Made, Clear	1/9/08
40RE577	15	40RE577-15-3	Locus 4, Transect 36, STP 12	Level 10-20cm	2 (23.2g)	Brick, Unidentified	1/9/08
40RE577	15	40RE577-15-4	Locus 4, Transect 36, STP 12	Level 10-20cm	1 (1.2g)	Coal	1/9/08
40RE577	15	40RE577-15-5	Locus 4, Transect 36, STP 12	Level 10-20cm	1 (153.6g)	Concrete	1/9/08
40RE577	15	40RE577-15-6	Locus 4, Transect 36, STP 12	Level 10-20cm	1 (1g)	Glass, Unmeasured Flat	1/9/08
40RE577	15	40RE577-15-7	Locus 4, Transect 36, STP 12	Level 10-20cm	1 (3.6g)	Whiteware, Plain	1/9/08
40RE577	16	40RE577-16-1	IF 3, Transect 27, STP 1	Level surface	1 (45.4g)	Spark Plug	1/11/08
40RE577	17	40RE577-17-1	Locus 3, Transect 36, STP 10 +20M W	Level 15-20cm	1 (12.6g)	Bottle Glass, Machine Made, Clear	1/11/08
40RE577	17	40RE577-17-2	Locus 3, Transect 36, STP 10 +20M W	Level 15-20cm	1 (22.2g)	Nail, Unidentified Wire	1/11/08
40RE577	18	40RE577-18-1	Locus 2, Transect 27, STP 4+20M E	Level surface	1 (94.4g)	Bottle Glass, Machine Made, Amber, 'Lysol' brand disinfectant	1/11/08
40RE577	19	40RE577-19-1	IF 5, Transect 37, STP 6	Level surface	1 (434.7g)	Bottle Glass, Machine Made, Clear, Owens-Illinois/Duraglass trademark, date range: 1940-54.	1/11/08
40RE577	20	40RE577-20-1	Locus 4, Transect 36, STP 12+20M S	Level 0-25cm	2 (44.9g)	Asbestos Siding	1/11/08
40RE577	21	40RE577-21-1	Locus 4, Transect 36, STP 12+20M S	Level surface	2 (537.1g)	Bottle Glass, Machine Made, Amber, Owen's-Illinois/Duraglass trademark, date range:1940-54 (Toulouse, 1971).	1/11/08
40RE577	21	40RE577-21-2	Locus 4, Transect 36, STP 12+20M S	Level surface	1 (523.5g)	Sewer Tile/ Pipe Fragment, Ceramic	1/11/08
40RE577	22	40RE577-22-1	Transect 26, STP 2, Feature 23	Level surface	1 (194.7g)	Tableware Glass, Molded Tumbler, Hazel Atlas trademark, date range: 1920-64. (Toulouse, 1971)	1/11/08
40RE577	23	40RE577-23-1	Transect 35, STP 7, Feature 26	Level surface	1 (218.5g)	Bathroom Fixture, Ceramic	1/11/08
40RE577	24	40RE577-24-1	IF 6, Transect 6, STP 2 +10ME	Level surface	1 (464.6g)	Bottle Glass, Machine Made, Clear, Lummis Glass Co. trademark, date range: 1940-55 (Toulouse, 1971)	1/11/08

Specimen Catalog

County: Roane

State: Tennessee

Project: Happy Valley (Parcel Ed 3) Survey (2008/ 2009)

State Site #	Prov Bag #	Catalog #	Excavation Unit	Vertical Location	Count /Weight	Artifact Description	Field Date
40RE577	25	40RE577-25-1	Transect 26, Feature 20	Level surface	1 (339.1g)	Bottle Glass, Machine Made, Amber, Owen's-Illinois 'Duraglass' trademark. date range: 1940-54. (Toulouse, 1971)	1/11/08
40RE577	26	40RE577-26-1	Feature 22	Level surface	1 (180.6g)	Bottle Glass, Machine Made, Clear, screw top, with handle	1/11/08
40RE577	27	40RE577-27-1	Feature 16	Level surface	1 (9.5g)	Bottle Glass, Pepsi-Cola	1/11/08
40RE577	28	40RE577-28-1	Locus 6, Transect 21	Level surface	1 (26.2g)	Asbestos Siding	1/15/08
40RE577	28	40RE577-28-2	Locus 6, Transect 21	Level surface	28 (255g)	Bottle Glass, Machine Made, Green, Owen's-Illinois trademark. date range: 1929-54. (Toulouse, 1971).	1/15/08
40RE577	28	40RE577-28-3	Locus 6, Transect 21	Level surface	1 (50.9g)	Canning Seal, Milk Glass, with attached metal lid	1/15/08
40RE577	28	40RE577-28-4	Locus 6, Transect 21	Level surface	1 (150.1g)	Decorative/ Ornamental Item, amethyst-color candy dish	1/15/08
40RE577	28	40RE577-28-5	Locus 6, Transect 21	Level surface	1 (97.4g)	Inkwell, Glass, Anchor-Hocking trademark. date range: 1938-present. (Toulouse, 1971).	1/15/08
40RE577	29	40RE577-29-1	Locus 7, Transect 3, STP 1	Level surface	1 (225.5g)	Bottle Glass, Machine Made, Clear, 'Owen's-Illinois Duraglas' trademark	5/21/09
40RE577	30	40RE577-30-1	Locus 8, Transect 7, STP 5	Level surface	1 (357.3g)	Bottle Glass, Machine Made, Clear, Knox Glass Co. trademark. (Toulouse 1971)	5/21/09
40RE577	31	40RE577-31-1	Locus 9, N500 E500 Transect 12, STP 6	Level 0-10	1 (0.8g)	Bottle Glass, Clear	5/22/09
40RE577	32	40RE577-32-1	Locus 9, N500 E510 Transect 12, STP 6	Level surface	3 (51.6g)	Shoe Parts, Leather	5/22/09
40RE577	33	40RE577-33-1	Locus 9 Transect 12, STP 6	Level surface	1 (0.6g)	Bottle Glass, Clear	5/22/09
40RE577	33	40RE577-33-2	Locus 9 Transect 12, STP 6	Level surface	1 (81.9g)	Bottle Glass, Pharmaceutical, Clear, 'Owen's Illinois Duraglas' trademark (Toulouse 1971)	5/22/09
40RE577	33	40RE577-33-3	Locus 9 Transect 12, STP 6	Level surface	1 (49.1g)	Bottle Glass, Pharmaceutical, Cobalt, 'Noxzema' brand start date 1914	5/22/09
40RE577	33	40RE577-33-4	Locus 9 Transect 12, STP 6	Level surface	1 (30.5g)	(http://www.noxzema.com)	5/22/09
40RE00-IF 11	34	40RE00-IF 11-34-1	Locus 9, N500 E500 Transect 13, STP 9	Level unknown	2 (7.5g)	Light Bulb, Machine Made	5/22/09
40RE00-IF 11	34	1	STP 9	Level unknown	2 (7.5g)	Bottle Glass, Clear	5/22/09

Specimen Catalog

County: Roane

State: Tennessee

Project: Happy Valley (Parcel Ed 3) Survey (2008/ 2009)

State Site #	Prov Bag #	Catalog #	Excavation Unit	Vertical Location	Count /Weight	Artifact Description	Field Date
40RE577	35	40RE577-35-1	Locus 9, N470 E500 Transect 12, STP 7	Level surface	1 (315.5g)	Bottle Glass, Machine Made, Amber, Obear-Nester Glass Co. trademark (Toulouse, 1971)	5/22/09
40RE00-IF10	36	40RE00-IF10-36-1	N500 E500 Transect 9, STP 5	Level 0-20	1 (0.8g)	Bottle Glass, Amber	5/21/09
40RE00-IF10	36	40RE00-IF10-36-2	N500 E500 Transect 9, STP 5	Level 0-20	1 (0.6g)	Bottle Glass, Clear	5/21/09
40RE00-IF10	37	40RE00-IF10-37-1	N500 E500 Transect 9, STP 5	Level surface	1 (31.8g)	Bottle Glass, Machine Made, Clear	5/21/09
40RE00-IF9	38	40RE00-IF9-38-1	N500 E500 Transect 5, STP 1	Level 0-35	3 (23.7g)	Bottle Glass, Clear	5/21/09
40RE00-IF8	39	40RE00-IF8-39-1	Transect 15, STP 4	Level surface	1 (15.7g)	Tin Can, Modern Crimped Top Ceramic Industrial Item, Miscellaneous, Porcelain Electrical Outlet	5/21/09
40RE577	40	40RE577-40-1	Locus 11 Transect 18, STP 7	Level surface	1 (498.9g)		5/26/09
40RE577	41	40RE577-41-1	Locus 13, N530 E470 Transect 18, STP 4	Level 0-20	1 (0.9g)	Bottle Glass, Clear	5/26/09
40RE577	41	40RE577-41-2	Locus 13, N530 E470 Transect 18, STP 4	Level 0-20	1 (0.7g)	Whiteware, Plain	5/26/09
40RE577	42	40RE577-42-1	Locus 13, N500 E500 Transect 17, STP 7	Level unknown		1 Bottle Glass, Clear	5/26/09
40RE577	43	40RE577-43-1	Locus 13, N530 E500 Transect 17, STP 6	Level 0-10		1 Bottle Glass, Clear	5/26/09
40RE577	43	40RE577-43-2	Locus 13, N530 E500 Transect 17, STP 6	Level 0-10	1 (28.6g)	Charcoal	5/26/09
40RE577	43	40RE577-43-3	Locus 13, N530 E500 Transect 17, STP 6	Level 0-10	1 (21g)	Slag	5/26/09

APPENDIX B: RESUME OF PRINCIPAL INVESTIGATOR

NEW SOUTH ASSOCIATES

PROVIDING PERSPECTIVES ON THE PAST

A WOMAN-OWNED SMALL BUSINESS

MARY BETH REED PRESIDENT

EDUCATION:

M.A., American Civilization, University of Pennsylvania, 1983

B.A., Anthropology, University of Arizona, 1976

YEARS OF EXPERIENCE: 25

SUMMARY OF EXPERIENCE:

Ms. Reed serves New South as President and Director of the History Department. Ms. Reed also served as Principal Investigator/Project Manager for History projects. She has more than 25 years professional experience in the Southeast, Southwest, and Mid-Atlantic. Ms. Reed has directed research in Arkansas, Alabama, Florida, Louisiana, South Carolina, North Carolina, Georgia, Illinois, Utah, New Jersey, Pennsylvania, Tennessee, Virginia, Maryland, and Washington, D.C. She has worked for various private and governmental clients, including the U.S. Army Corps of Engineers (USACE) Mobile, Wilmington, Savannah, Mobile, and Fort Worth districts; the National Park Service; the USDA Forest Service; Departments of Transportation; utilities; and various state agencies. Ms. Reed has considerable federal experience throughout the southeastern U.S. and in the Republic of Panama. She has directed work for several U.S. Army Corps of Engineers projects, has served as Principal Investigator for the Savannah River Site History Project for the Department of Energy, and continues to work with Cold War preservation planning for the Savannah River Site. Ms. Reed's areas of specialization include: management of historic preservation projects; land use history; local history/community studies; architectural, agricultural, and industrial history; urban architecture/history; Cold War history; history of technology; history of granite quarrying and National Register nominations and survey.

KEY SUPERVISORY EXPERIENCE:

2005	Principal Investigator, HABS Camp Pinchot, Okaloosa County, Florida. Recordation of early twentieth-century residential compound associated with the USFS.
1997-Present	Principal Investigator, Savannah River Site, Aiken, South Carolina. This work includes the development of a Programmatic Agreement for the treatment of Cold War historic properties and the development of a Management Plan.

SELECTED REPORTS AND PUBLICATIONS:

2005	Reed, Mary Beth and Mark Swanson. <i>300/M Area: Fuel and Target Fabrication, Savannah River Site, South Carolina</i> . Submitted to the Department of Energy.
2004	Reed, Mary Beth, Steve N. Gaither, Mark T. Swanson, and William R. Henry. <i>Savannah River Site Cold War Context and Resource Study</i> . Submitted to the Department of Energy.
2002	Mary Beth Reed, Mark Swanson, Steve Gaither, J. W. Joseph and William R. Henry. <i>Savannah River Site at Fifty</i> . Washington, DC: Government Printing Office.

ADDITIONAL PUBLICATIONS AND PRESENTATIONS:

Author or co-author of one-hundred thirty-one (131) cultural resource management reports, one (1) cultural resource management plan, five (5) historic preservation plans, three (3) histories/popular histories, fifteen (15) historic properties/historic architecture documentations, four (4) research designs, (1) professional publication, and six (6) presented papers and symposia.

MEMBERSHIPS AND REGISTRATIONS:

Member, South Carolina Historical Society
Member, National Council on Public History
Member of the De Kalb County Historical Society

Member, Georgia Historical Society
Member, Vernacular Georgia

APPENDIX C: 40RE577 SITE FORM

ARCHAEOLOGICAL SITE SURVEY RECORD

Tennessee Department of Environment and Conservation

Division of Archaeology

Cole Building #3

1216 Foster Avenue

Nashville, Tennessee 37243

Phone (615) 741-1588 Fax (615) 741-7329

2009 update: 40RE577

Date Assigned: 2/7/2008

Submittal of an archaeological site survey record constitutes a request for a state number on a new site, or revises information on a previously recorded site. Send by mail to the above address, or as an attached email document to Suzanne.Hoyal@state.tn.us. A copy of the completed record will be returned to the reporter.

Our office does not define a site by an arbitrary number of artifacts or other specific criteria. Request a preliminary review if site status is uncertain or if additional guidance is needed.

The site record can be filled in with pencil or electronically. Double click on check box to access options. If the format is not compatible with your system, please request an alternative method of submittal.

Site name or field number: field # ED 3 (Happy Valley worker camp)

Cultural Affiliation:

☐ 0001 Undetermined Prehistoric

☐ 0002 Paleoindian

☐ 0003 Transitional Paleo

☐ 0004 Archaic

☐ 0005 Early Archaic

☐ 0006 Middle Archaic

☐ 0007 Late Archaic

☐ 0008 Gulf Formational

☐ 0009 Early Gulf Formational

☐ 0010 Middle Gulf Formational

☐ 0011 Late Gulf Formational

☐ 0012 Woodland

☐ 0013 Early Woodland

☐ 0014 Middle Woodland

☐ 0015 Late Woodland

☐ 0016 Mississippian

☐ 0017 Early Mississippian

☐ 0018 Middle Mississippian

☐ 0019 Late Mississippian

☐ 0020 Protohistoric

☐ 0021 Contact Period Indian

☐ 0022 Historic Indian

☒ 0023 Historic Non-Indian

☐ 0024 Pleistocene Fauna

This block is for Division use only

Site Type: Historic - military long term encampment - Manhattan Project Era site

County: Reane

Physiographic Div.: Valley and Ridge

Drainage: 19C

Elevation: 780 - 840 ft. AMSL

USGS 7.5' quad: Elverton, Tenn., 130 NW; 1968 photorevised 1990; 20 ft. contour intervals and Bethel Valley, Tenn., 130 NE; 1968; 20 ft. contour intervals

see reporter's maps for scale and expanded site boundary

Site 40RE577 – 2009 update and boundary expansion

Date Range (historic sites only):		
☐ 02 Pre-1770	☐ 05 1861-1865	☒ 08 1933-present
☐ 03 1770-1819	☐ 06 1866-1900	
☐ 04 1820-1860	☐ 07 1901-1932	
Human Remains:		
☒ 00 Unknown	☐ 02 Isolated Intact Burial(s)	☐ 04 Absent (historic sites only)
☐ 01 Scattered Surface Remains	☐ 03 Cemetery	☐ 05 Unknown, but likely
Ownership:		
☐ 02 Private Individual/Corporation	☐ 04 State of Tennessee	
☐ 03 Local Government	☒ 05 Federal-TVA, COE, etc.	
Site Size (Long and short axis, in meters): 1700 m x 380 m +		
Basis for Size Estimate:		
☐ 01 Taped	☐ 03 Guessed	☒ 05 Estimated from map
☐ 02 Paced	☐ 04 Transit/alidade	
Boundary:		
☒ Partial (explain in site description)		☐ Inclusive
Land Use/Ground Cover:		
☐ 01 Grassland/Pasture	☐ 05 Improved Forest/Orchard	☐ 09 Roadway
☐ 02 Cultivation	☐ 06 Intermittent Flooding	☐ 10 Open and Eroded
☒ 03 Secondary Growth	☐ 07 Inundated/Shoreline	☐ 99 Other (explain in site description)
☒ 04 Unimproved Forest	☐ 08 Urban	
Condition/Percent Disturbed:		
☐ 01 Undisturbed [excellent]	☒ 04 51-75% [fair]	☐ 07 Percent Unknown
☐ 02 <25% [very good]	☐ 05 76-99% [poor]	
☐ 03 26-50% [good]	☐ 06 Destroyed	
Level of Investigation:		
☐ 01 No Collection	☐ 04 Surface Collection + Test Units	☐ 06 Excavation Program
☐ 02 Surface Collection (grab bag)	☐ 05 Extensive Testing Program (Phase II)	☐ 07 Total Excavation
☒ 03 Surface Collection (intensive, may include shovel tests)		
Reporter Type:		
☒ 01 Private Consulting Firm	☐ 04 Amateur Society Member	☐ 07 Student (volunteered rpt.)
☐ 02 Agency or Non-educ. Inst.	☐ 05 Landowner	☐ 08 Professional (volunt'd rpt.)
☐ 03 Educational Institution	☐ 06 Private Individual	
Last Day of Investigation: Month May Day 28 Year 2009 ☐ New Site ☒ Previously Recorded		

In addition to the check box pages, please include:

- USGS 7.5' topographic map with site boundary and scale (place multiple sites on a single map when possible)
- Descriptive page(s) with the following:
 - field number and/or site name on each page
 - landowner, tenant, or easement holder
 - verbal directions to the site (if appropriate or helpful in rural areas)
 - landform, setting, distance and direction to water
 - surface conditions, level of survey, and explanation for limitations in determining site boundary
 - nature and extent of past and anticipated disturbance
 - cultural affiliation, site type, features, table and summary of observed/collected artifacts, and site map, if available
 - for prehistoric sites cultural affiliation must be supported by presence of temporally sensitive artifact(s)
 - for historic sites a pre-1933 occupation date should be established using features, maps, deeds, informants, etc. (the presence of a scatter with artifacts such as ceramics or bottles that **might have been** manufactured before 1933 is generally inadequate for recording a site **unless also supported by other evidence**)
 - relationship, if any, to nearby sites
 - associated history, persons, buildings
 - photo media and quantity; temporary and permanent repositories for artifacts and documentation
 - location of any additional information such as reports, maps, local informants, etc.
 - title, author, and date of the report in which the site is or will be reported
 - reporter name, affiliation, address, phone, fax, email, and date of submittal

Do not put headings followed by empty space for items that are not applicable. Electronic narrative should be sent as a Word document; maps as JPEG or PDF. Electronic submittals will be edited to reduce space.

40RE577 – 2009 update and boundary expansion

(2009)

Field number: Site ED3

Landowner: Department of Energy

Directions: The site surveyed is located along the south side of SR 58 between SR 327 and Perimeter Road in Oak Ridge, Roane Co., Tennessee.

Landform and distance/direction to water: The site surveyed is located on low undulating hills that are just north of Pine Ridge. A small, unnamed creek runs along the north side of the site parallel with the Oak Ridge Turnpike (SR 58). A small, unnamed pond is also located on the northern edge of the site southwest of the creek. Poplar creek is approximately 500 meters west of the western edge of the site.

Survey purpose, methods, and limitations in determining site boundary: A portion of the Happy Valley worker camp stood in the area of the survey between 1943 and 1947. In 2008 a Phase I level survey was carried out to see if any remains of Happy Valley were intact in a 111-acre portion of Parcel ED-3. Remains of Happy Valley were located. The current survey focuses on a 70-acre parcel of land directly west of the 2008 survey area. The area was surveyed to see if it contained remains of Happy Valley or other sites. More remains of Happy Valley were located and the location of these ruins expands the southwestern boundary of the site. There was little ground surface visibility at the time of investigation. The presence and absence of building and sewer remains helped determine the boundaries of the site. Additionally, surface collection and shovel tests at regular 30-meter intervals determined site content, depth, and limits within the 70-acre parcel.

Past and anticipated disturbance: Much of the site was demolished in 1947. Some utility lines have been set up within the parcel since the demolition. Development of the parcel is possible in the future.

Cultural affiliation, site type, date range, features, artifact summary: Happy Valley was a worker camp that was established in 1943 to assist in the construction of the K-25 facility in Oak Ridge. The town was demolished in 1947 when the workers were no longer needed. The town is a historic, Manhattan Project Era site. Structure foundations and sewer system remains from Happy Valley were found throughout most of the parcel. During the current survey seven small artifact concentrations, six isolated artifacts, and 20 features (lavatory foundations, manholes, and fire hydrants.) were located within the 70-acre parcel. Most features were located in the northeastern portion of the parcel, but some isolated artifacts and sewer features were located in the western portion of the parcel. See attached artifact table and site plan.

Location of additional information: J.A. Jones Construction Maps (1944) are located at the DOE. New South possess copies of some of the construction maps.

Photo media/quantity; repositories: 63 Digital. Temporary repository – New South Associates., Permanent repository - DOE

Report: "Phase I Archaeological Survey of Parcel ED-3 and Historic Assessment of the Happy Valley Worker Camp, Roane County, Tennessee", 6/30/09, by Diana Valk, David Price, and Jennifer Matternes. Prepared by New South Associates for SAIC.

Site reporter: Diana Valk, New South Associates, 6150 East Ponce de Leon Ave, Stone Mountain, Georgia 30083, 770-498-1455 x129, Fax: 770-465-1456, 6/26/2009.

Specimen Catalog - 40RE577

County: Roane

State: Tennessee

Project: Parcel Ed 3 Extension (2009)

State Site #	Field Bag #	Excavation Unit	Horizontal Location	Vertical Location	Count/ Weight	Artifact Description	Field Date
40RE577	1	Transect 3, STP 1	Locus 7	Surface	1 (225.5g)	Bottle Glass, Machine Made, Clear, 'Owen's-Illinois Duraglas' trademark	5/21/2009
40RE577	2	Transect 7, STP 5	Locus 8	Surface	1 (357.3g)	Bottle Glass, Machine Made, Clear, Knox Glass Co. trademark. (Toulouse 1971)	5/21/2009
40RE577	3	Transect 12, STP 6	Locus 9, N500 E500	0-10cmbs	1 (0.8g)	Bottle Glass, Clear	5/22/2009
40RE577	4	Transect 12, STP 6	Locus 9, N500 E510	Surface	3 (51.6g)	Shoe Parts, Leather	5/22/2009
40RE577	5	Transect 12, STP 6	Locus 9	Surface	1 (0.6g)	Bottle Glass, Clear	5/22/2009
40RE577	5	Transect 12, STP 6	Locus 9	Surface	1 (81.9g)	Bottle Glass, Pharmaceutical, Clear, 'Owen's Illinois Duraglas' trademark (Toulouse 1971)	5/22/2009
40RE577	5	Transect 12, STP 6	Locus 9	Surface	1 (49.1g)	Bottle Glass, Pharmaceutical, Cobalt, 'Noxzema' brand start date 1914 (http://www.noxzema.com)	5/22/2009
40RE577	5	Transect 12, STP 6	Locus 9	Surface	1 (30.5g)	Light Bulb, Machine Made	5/22/2009
40RE577-IF11	6	Transect 13, STP 9	N500 E500		2 (7.5g)	Bottle Glass, Clear	5/22/2009
40RE577	7	Transect 12, STP 7	Locus 9, N470 E500	Surface	1 (315.5g)	Bottle Glass, Machine Made, Amber, Obear-Nester Glass Co. trademark (Toulouse, 1971)	5/22/2009
40RE00-IF10	8	Transect 9, STP 5	N500 E500	0-20cmbs	1 (0.8g)	Bottle Glass, Amber	5/21/2009
40RE00-IF10	8	Transect 9, STP 5	N500 E500	0-20cmbs	1 (0.6g)	Bottle Glass, Clear	5/21/2009
40RE00-IF10	9	Transect 9, STP 5	N500 E500	Surface	1 (31.8g)	Bottle Glass, Machine Made, Clear	5/21/2009
40RE00-IF9	10	Transect 5, STP 1	N500 E500	0-35cmbs	3 (23.7g)	Bottle Glass, Clear	5/21/2009
40RE00-IF8	11	Transect 15, STP 4		Surface	1 (15.7g)	Tin Can, Modern Crimped Top	5/21/2009
40RE577	12	Transect 18, STP 7	Locus 11	Surface	1 (498.9g)	Ceramic Industrial Item, Miscellaneous, Porcelain Electrical Outlet	5/26/2009

Specimen Catalog - 40RE577

County: Roane

State: Tennessee

Project: Parcel Ed 3 Extension (2009)

State Site #	Field Bag #	Excavation Unit	Horizontal Location	Vertical Location	Count/Weight	Artifact Description	Field Date
40RE577	13	Transect 18, STP 4	Locus 13, N530 E470	0-20cmbs	1 (0.9g)	Bottle Glass, Clear	5/26/2009
40RE577	13	Transect 18, STP 4	Locus 13, N530 E470	0-20cmbs	1 (0.7g)	Whiteware, Plain	5/26/2009
40RE577	14	Transect 17, STP 7	Locus 13, N500 E500			1 Bottle Glass, Clear	5/26/2009
40RE577	15	Transect 17, STP 6	Locus 13, N530 E500	0-10cmbs		1 Bottle Glass, Clear	5/26/2009
40RE577	15	Transect 17, STP 6	Locus 13, N530 E500	0-10cmbs	1 (28.6g)	Charcoal	5/26/2009
40RE577	15	Transect 17, STP 6	Locus 13, N530 E500	0-10cmbs	1 (21g)	Slag	5/26/2009

Figure 2.
Surveyed Areas Projected Over General Layout of K-25 Construction Camp Area (1944)

Site 40RE577**(2008)****Field number:** Site ED3**Landowner:** Department of Energy

Directions: The portion of the site surveyed is located along the south side of SR 58 between SR 327 and the entrance to the East Tennessee Technology Park to the east Oak Ridge, Roane Co., Tennessee.

Landform and distance/direction to water: The portion of the site surveyed is located on low undulating hills that are just north of a ridge. A small, unnamed creek runs along the north side of the parcel parallel with the Oak Ridge Turnpike (SR 58).

Survey purpose, methods, and limitations in determining site boundary: A portion of the Happy Valley worker camp stood in the parcel between 1943 and 1947. The Phase I level survey was carried out to see if any remains of Happy Valley were intact and if any other archaeological sites existed in the parcel. The site is in a wooded parcel. There was little ground surface visibility at the time of investigation. Surface collection and shovel tests at regular 30 meter intervals determined cultural material content, depth, and limits within the 108 acre parcel. Happy Valley extended outside of the limits of the west side of the current parcel, so a complete site boundary could not be determined.

Past and anticipated disturbance: Much of the site was demolished in 1947. Some utility lines have been set up within the parcel since the demolition. Development of the parcel is possible in the future.

Cultural affiliation, site type, date range, features, artifact summary: Happy Valley was a worker camp that was established in 1943 to assist in the construction of the K-25 facility in Oak Ridge. The town was demolished in 1947 when the workers were no longer needed. The town is a historic, Manhattan Project Era site. Structure foundations and sewer system remains from Happy Valley were found throughout most of the parcel. Six small artifact concentrations and 55 features (concrete floors, building foundations, manholes, fire hydrants, etc.) were located throughout the parcel to the west of a north-south running haul road. See attached artifact table and site plan.

Location of additional information: J.A. Jones Construction Maps (1944) are located at the DOE. New South possesses copies of some of the construction maps.

Photo media/quantity; repositories: 154 Digital. Temporary repository – New South Associates., Permanent repository - DOE

Report: "Phase I Archaeological Survey of Parcel ED-3 and Historic Assessment of the Happy Valley Worker Camp, Roane County, Tennessee", 2/8/08, by Diana Valk, David Price, and Jennifer Matternes. Prepared by New South Associates for SAIC.

Site reporter: Diana Valk, New South Associates, 6150 East Ponce de Leon Ave, Stone Mountain, Georgia 30083, 770-498-4155 x 129, Fax: 770-465-1456, 2/8/08.

40RE577

Field Site #	Field Bag #	Prov Bag #	Excavation Unit	Vertical Location	Field Date	Count/Weight	Hist Name	Hist Notes	Hist Diag Notes
ED3	1	1	Zone LOCUS 1, Transect 7, STP 7	Level 10-11	1/7/08	1 (3.8g)	Bottle Glass, Clear Nail, Unidentified Wire		
ED3	2	2	Zone IF 2, Transect 1, STP 1	Level 0-15	1/7/08	1 (4.6g)			
ED3	4	4	Zone LOCUS 1, Transect 7, STP 7+5M E	Level 0-12	1/8/08	1 (3.2g)	Asbestos Siding 'Bottle Glass, With "Federal Law Prohibits Reuse..." Nail, Unidentified, Unmeasured		Anchor-Hocking trademark, 1938-present (Toulouse, 1971)
ED3	5	5	Zone IF 4, Transect 20, STP 10	Level 0-10	1/8/08	1 (482.7g)			
ED3	5	5	Zone IF 4, Transect 20, STP 10	Level 0-10	1/8/08	1 (6.9g)			
ED3	6	6	Transect 16, STP 5	Level 5-20	1/8/08	5 (74.5g)	Stone, Non-Cultural	unidentified, possibly from gravel road.	
ED3	7	7	Zone LOCUS 2, Transect 27, STP 3	Level surfa	1/9/08	1 (136.6g)	Bottle Glass, Machine Made, Clear		poss. Armstrong Cork Co. trademark, date range 1938-69. (Toulouse, 1971)
ED3	8	8	Zone LOCUS 2, Transect 27, STP 4	Level 0-10	1/9/08	1 (0.4g)	Bottle Glass, Amber		
ED3	8	8	Zone LOCUS 2, Transect 27, STP 4	Level 0-10	1/9/08	1 (0.4g)	Bottle Glass, Clear		
ED3	8	8	Zone LOCUS 2, Transect 27, STP 4	Level 0-10	1/9/08	1 (0.2g)	Bottle Glass, Machine Made, Clear		
ED3	8	8	Zone LOCUS 2, Transect 27, STP 4	Level 0-10	1/9/08	1 (81.6g)	Metal Object, Unidentified	toilet paper holder possibly decorative fixture	
ED3	8	8	Zone LOCUS 2, Transect 27, STP 4	Level 0-10	1/9/08	1 (0.9g)	Plastic Item, Miscellaneous		
ED3	9	9	Zone LOCUS 2, Transect 27, STP 3	Level 5-10	1/9/08	3 (1.4g)	Bottle Glass, Clear		
ED3	9	9	Zone LOCUS 2, Transect 27, STP 3	Level 5-10	1/9/08	6 (44.9g)	Bottle Glass, Machine Made, Amber		

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ED3	10	Zone LOCUS 5, Transect 30, 10 STP 4	Level surfa	1/9/08 1 (260.4g)	Bottle Glass, Machine Made, Amber	Owens-Illinois 'Duraglass' trademark. date range: 1940-54. (Toulouse, 1971)
ED3	10	Zone LOCUS 5, Transect 30, 10 STP 4	Level surfa	1/9/08 1 (426g)	Bottle Glass, Machine Made, Clear	Cartel Vidriera Monterrey (Mexico) trademark (Toulouse, 1971)
ED3	10	Zone LOCUS 5, Transect 30, 10 STP 4	Level surfa	1/9/08 1 (223.3g)	Bottle Glass, Machine Made, Green	
ED3	10	Zone LOCUS 5, Transect 30, 10 STP 4	Level surfa	1/9/08 1 (188.8g)	Canning Jar Glass, Mason Screw Cap	Chattanooga Bottle and Glass Co. trademark, date range: 1927-present. (Toulouse, 1971).
ED3	10	Zone LOCUS 5, Transect 30, 10 STP 4	Level surfa	1/9/08 1 (200.8g)	Canning Jar Glass, Mason Screw Cap	
ED3	11	Zone LOCUS 5, Transect 30, 11 STP 4	Level 0-35	1/9/08 4 (5.9g)	Iron/ Steel, Unidentified/ Corroded	
ED3	11	Zone LOCUS 5, Transect 30, 11 STP 4	Level 0-35	1/9/08 1 (6.6g)	Nail, Unidentified, Unmeasured	
ED3	11	Zone LOCUS 5, Transect 30, 11 STP 4	Level 0-35	1/9/08 1 (34.5g)	Stoneware, Alkaline Glazed	
ED3	12	Zone IF 7, Transect 30, STP 12 6	Level 0-20	1/9/08 1 (55.6g)	Stoneware, Alkaline Glazed	
ED3	13	13 Transect 29, Feature 38	Level surfa	1/11/08 1 (160.4g)	Bottle Glass, Machine Made, Aqua	
ED3	14	Zone LOCUS 3, Transect 36, 14 STP 10	Level surfa	1/9/08 1 (299.1g)	Iron/ Steel, Unidentified/ Corroded	

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ED3	15	Zone LOCUS 4, Transect 36, 15 STP 12	Level 10-21	1/9/08 5 (3.4g)	Asphalt Roofing Bottle Glass, Machine Made, Clear Brick, Unidentified	
ED3	15	Zone LOCUS 4, Transect 36, 15 STP 12	Level 10-21	1/9/08 2 (1.2g)		
ED3	15	Zone LOCUS 4, Transect 36, 15 STP 12	Level 10-21	1/9/08 2 (23.2g)		
ED3	15	Zone LOCUS 4, Transect 36, 15 STP 12	Level 10-21	1/9/08 1 (1.2g)	Coal	
ED3	15	Zone LOCUS 4, Transect 36, 15 STP 12	Level 10-21	1/9/08 1 (153.6g)	Concrete Glass, Unmeasured Flat Whiteware, Plain	
ED3	15	Zone LOCUS 4, Transect 36, 15 STP 12	Level 10-21	1/9/08 1 (1g)		
ED3	15	Zone LOCUS 4, Transect 36, 15 STP 12	Level 10-21	1/9/08 1 (3.6g)		
ED3	16	Zone IF 3, Transect 27, STP 16 1	Level surfa	1/11/08 1 (45.4g)	Spark Plug Bottle Glass, Machine Made, Clear Nail, Unidentified Wire	
ED3	17	Zone LOCUS 3, Transect 36, 17 STP 10 +20M W	Level 15-21	1/11/08 1 (12.6g)		
ED3	17	Zone LOCUS 3, Transect 36, 17 STP 10 +20M W	Level 15-21	1/11/08 1 (22.2g)		
ED3	18	Zone LOCUS 2, Transect 27, 18 STP 4+20M E	Level surfa	1/11/08 1 (94.4g)	Bottle Glass, Machine Made, Amber	'Lysol' brand disinfectant
ED3	19	Zone IF 5, Transect 37, STP 19 6	Level surfa	1/11/08 1 (434.7g)	Bottle Glass, Machine Made, Clear	Owens- Illinois/Duraglass trademark, date range: 1940-54.
ED3	20	Zone LOCUS 4, Transect 36, 20 STP 12+20M S	Level 0-25	1/11/08 2 (44.9g)	Asbestos Siding	
ED3	21	Zone LOCUS 4, Transect 36, 21 STP 12+20M S	Level surfa	1/11/08 2 (537.1g)	Bottle Glass, Machine Made, Amber	Owen's- Illinois/Duraglass trademark, date range:1940-54 (Toulouse, 1971).
ED3	21	Zone LOCUS 4, Transect 36, 21 STP 12+20M S	Level surfa	1/11/08 1 (523.5g)	Sewer Tile/ Pipe Fragment, Ceramic	

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ED3	22	Transect 26, STP 2, Feature 22 23	Level surfa	1/11/08 1 (194.7g)	Tableware Glass, Molded Tumbler		Hazel Atlas trademark, date range: 1920-64. (Toulouse, 1971)
ED3	23	Transect 35, STP 7, Feature 23 26	Level surfa	1/11/08 1 (218.5g)	Bathroom Fixture, Ceramic		
ED3	24	Zone IF 6, Transect 6, STP 24 2 +10ME	Level surfa	1/11/08 1 (464.6g)	Bottle Glass, Machine Made, Clear		Lummis Glass Co. trademark, date range: 1940-55 (Toulouse, 1971)
ED3	25	25 Transect 26, Feature 20	Level surfa	1/11/08 1 (339.1g)	Bottle Glass, Machine Made, Amber		Owen's-Illinois 'Duraglass' trademark. date range: 1940-54. (Toulouse, 1971)
ED3	26	26 Feature 22	Level surfa	1/11/08 1 (180.6g)	Bottle Glass, Machine Made, Clear	screw top, with handle	
ED3	27	27 Feature 16	Level surfa	1/11/08 1 (9.5g)	Bottle Glass, Pepsi-Cola		
ED3	28	28 Zone LOCUS 6, Transect 21	Level surfa	1/15/08 1 (26.2g)	Asbestos Siding		
ED3	28	28 Zone LOCUS 6, Transect 21	Level surfa	1/15/08 28 (255g)	Bottle Glass, Machine Made, Green		Owen's-Illinois trademark. date range: 1929-54. (Toulouse, 1971).
ED3	28	28 Zone LOCUS 6, Transect 21	Level surfa	1/15/08 1 (50.9g)	Canning Seal, Milk Glass	with attached metal lid	
ED3	28	28 Zone LOCUS 6, Transect 21	Level surfa	1/15/08 1 (150.1g)	Decorative/ Ornamental Item	amethyst-color candy dish	
ED3	28	28 Zone LOCUS 6, Transect 21	Level surfa	1/15/08 1 (97.4g)	Inkwell, Glass		Anchor-Hocking trademark. date range: 1938-present. (Toulouse, 1971).

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