A Final Report Prepared for
Hensley-Schmidt, Inc. and the
City of Chattanooga

An Archaeological Survey of the Proposed
Lower Amnicola Parallel Interceptor Sewer,
Chattanooga,
Hamilton County, Tennessee

Prepared by
R. Bruce Council
Research Associate

The Jeffrey L. Brown Institute of Archaeology
The University of Tennessee at Chattanooga

1992
Abstract

In January and February, 1991, the Jeffrey L. Brown Institute of Archaeology, University of Tennessee at Chattanooga, conducted an archaeological survey of the proposed right-of-way of a sanitary sewer designated the Lower Amnicola Parallel Interceptor Sewer. Sponsored by the City of Chattanooga and coordinated by the engineering consulting firm Hensley-Schmidt Inc., the survey was designed to assess the sewer's potential impact on buried cultural resources eligible for inclusion in the National Register of Historic Places.

Due to the presence of modern fills of substantial depth throughout most of the pipeline route, the proposed systematic program of screened auger tests was replaced by a backhoe search trench testing program. Twenty-eight backhoe search trenches were excavated at 50m intervals along 1525m (5,000') of right-of-way, providing a deep, stratigraphic reconnaissance of the proposed sewer centerline. Four of the units yielded aboriginal cultural material, and three of these occurrences were of single artifacts. Only one locality indicated the presence of an archaeological site component, and it was thought to be adjacent to, rather than in, the sewer path. No additional testing was recommended.
Acknowledgements

Project personnel consisted of Nicholas Honerkamp, Principal Investigator, R. Bruce Council, Project Director, and Field Technicians Marshall Brewer, Scott Smith, and Tim Pugh. Administrative support was provided by Ms. Michaele Kennedy.

For permitting access to the respective properties under their control, we would like to thank Mr. Skip Pearce of Papa Properties Ltd., Mr. T. Lupton of the Stone Fort Land Company, Mildred Bunch, and Mr. Lee Raver of Quaker Oats. James and Jim Agnew provided the backhoe services for this project, and their enthusiastic participation is appreciated.
**Table of Contents**

Abstract................................................................. i
Acknowledgements ....................................................... ii
List of Figures .......................................................... iii
List of Tables ........................................................... iii
Introduction .................................................................... 1
An Overview of East Tennessee Prehistory ......................... 1
The Citico Site, 40HA65 .................................................... 3
Research Design and Methodology ..................................... 6
Results of Testing .......................................................... 7
Laboratory Analysis ........................................................ 19
Synthesis and Interpretation ............................................. 23
Conclusions and Recommendations .................................... 23
References Cited ............................................................ 24

**List of Figures**

- Figure 1. General plan of the proposed sewer ....................... 2
- Figure 2. Civil War photograph of the Citico Mound .............. 4
- Figure 3. Plan of test trenches in the Citico vicinity .............. 9
- Figure 4. Profile of Trench C ........................................... 11
- Figure 5. Limestone abutment on the riverbank .................... 12
- Figure 6. Profile of Trench D ........................................... 13
- Figure 7. Profile of Trench F ........................................... 14
- Figure 8. Profile of Trench K ........................................... 15
- Figure 9. Plan of test trenches, V.F.W., Bunch, and Stone Fort parcels .............................. 17
- Figure 10. Plan of test trenches, Stone Fort and Quaker Oats tracts ............................. 18
- Figure 11. Projectile points from the Trench W locality .......... 20
- Figure 12. Profile of Trench W ........................................ 21

**List of Tables**

- Table 1. Aboriginal cultural chronology ........................... 3
- Table 2. Summary of test trenches ................................. 8
- Table 3. Summary of artifacts from the Arnnicola survey ........ 22
Introduction

As part of the City of Chattanooga's continual upgrading of municipal services, a new sanitary sewer pipeline paralleling Amnicola Highway was planned. Designated the Lower Amnicola Parallel Interceptor Sewer, the new pipeline was to run a total distance of 9,400 feet (2866 meters) from the Tennessee Riverport at or about river mile 466.6 downstream to the mouth of Citico Creek at river mile 465.3. Throughout most of its proposed route, the new sewer would be in close proximity to the Tennessee River and parallel an existing 54" sanitary sewer emplaced several decades ago (see Figure 1). Because the proposed pipeline impinged on the riverbank over large portions of its route, the project came under the review of the U. S. Army Corps of Engineers, and routine environmental impact studies were required as part of the sewer planning. A review of the project by the Tennessee Historical Commission outlined potential negative impacts on archaeological resources along the proposed sewer route, with emphasis being made on the sewer's passage through the fringes of the significant but poorly-known Citico Site, 40HA65, a preeminent Mississippian-Tradition mound and village occupation near the mouth of Citico Creek.

Acting as agent for the city of Chattanooga, Hensley-Schmidt, Inc., a consulting engineering firm, contacted the Jeffrey L. Brown Institute of Archaeology and solicited a technical proposal and budget to perform an archaeological survey of the proposed route, following the guidelines provided by the Tennessee Historical Commission and the Tennessee Division of Archaeology. The Institute's research proposal and budget were accepted by the City in January, 1991, and work commenced on the project.

An Overview of East Tennessee Prehistory

Detailed summaries of the prehistory of East Tennessee have been presented elsewhere (e.g. Council 1989). Table 1 summarizes the major aboriginal cultural traditions and periods widely recognized by archaeologists. Of particular interest in the present report is the Mississippian Tradition, a period in Tennessee prehistory during which the Amerindian inhabitants of the region reached a high level of political and economic organization, leaving as physical evidence of this era compact, densely populated villages centered around earthen mounds that served as symbolic centers of communities and the culture as a whole. The economic hallmark of the Mississippian was the reliance of its peoples on agriculture; corn, beans, and squash formed the core of the diet, supplemented with wild game, fish, nuts, and berries.

Dietary dependence on a small number of cultigens had positive and negative effects on populations of that era. Agriculture provided a more or less stable food supply, and crop surpluses could be stored for future use unlike game and fish. However, over reliance on corn as a staple caused dietary deficiencies and malnutrition. The principal cultural effect of an agricultural economic base was the concentration of population - and political power - in relatively restricted areas of major river systems. Soil exhaustion caused by intensive cropping was offset by alluvial enrichment during seasonal floods. Mississippians cropped the fertile near-river flood terraces, and usually sited settlements on the higher terraces a little further away from the river course.

Mississippian society, as it has been reconstructed archaeologically and from the accounts of early explorers, was a non-egalitarian class-structured society. Political and economic power was concentrated in ruling matrilineal clans that held sway over distinct territories. A principal chief ruled a specific polity and was served by lesser chieftains controlling individual towns or subregions. Competition between polities could be intense, and warfare was endemic. By A.D. 1300, the principal Mississippian towns were fortified by palisade walls.
Figure 1. General plan of the proposed sewer.
Table 1. Aboriginal cultural chronology in East Tennessee.

<table>
<thead>
<tr>
<th>Tradition</th>
<th>Period</th>
<th>Approximate Chronology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mississippian</td>
<td>Mississippian IV [Overhill Cherokee]</td>
<td>A.D. 1600 - 1838</td>
</tr>
<tr>
<td></td>
<td>Mississippian III [Dallas and Mouse Creek]</td>
<td>A.D. 1300 - 1600</td>
</tr>
<tr>
<td></td>
<td>Mississippian II [Hiwassee Island]</td>
<td>A.D. 1000 - 1200</td>
</tr>
<tr>
<td></td>
<td>Mississippian I [Martin Farm]</td>
<td>A.D. 900 - 1000</td>
</tr>
<tr>
<td></td>
<td>Woodland III [Late Woodland]</td>
<td>A.D. 350 - 900</td>
</tr>
<tr>
<td>Woodland</td>
<td>Woodland II [Middle Woodland]</td>
<td>200 B.C. - A.D. 350</td>
</tr>
<tr>
<td></td>
<td>Woodland I [Early Woodland]</td>
<td>900 - 200 B.C.</td>
</tr>
<tr>
<td></td>
<td>Late Archaic</td>
<td>3,000 - 900 B.C.</td>
</tr>
<tr>
<td>Archaic</td>
<td>Middle Archaic</td>
<td>6,000 - 3,000 B.C.</td>
</tr>
<tr>
<td></td>
<td>Early Archaic</td>
<td>8,000 - 6,000 B.C.</td>
</tr>
<tr>
<td>PaleoIndian</td>
<td>[no period subdivisions recognized]</td>
<td>11,000 - 8,000 B.C.</td>
</tr>
</tbody>
</table>

The Citico Site, 40HA65

Few prehistoric archaeological sites in this region as important as the Citico Site have received as little meaningful archaeological research and been subjected to such thorough destruction. Although regarded as one of the most preeminent Mississippian sites in this region, this highly-visible mound and accompanying village was systematically demolished in this century as part of highway construction projects. The pattern of neglect has been truly amazing.

The Citico Mound was situated on a tract of land bounded south and west by Citico Creek, and north by the Tennessee River. Images of the mound were first recorded during the Civil War (Figure 2). Union troops occupied the mound and constructed gardens around and atop the earthen mound, which rose to a height of nearly 20 feet, and covered an area roughly 160 feet by 130 feet. M. C. Read used soldiers to excavate a tunnel into the eastern side of the mound to explore its supposed treasures, but the excavation collapsed from the concussion of artillery pieces fired in salute to Lee's surrender in April, 1865. Read made cursory observations on the internal structure of the mound, and the presence of a pre-mound structure under the earthwork is inferred from his account.

In the following decades, amateur archaeologists and curio collectors dug into and around the mound, adding undocumented finds to private and now lost collections. C. B. Moore, affiliated with the Philadelphia Academy of Natural Sciences, conducted an intensive survey of aboriginal mounds in the Tennessee River system in 1913-1915. Moore tested the site twice, late in 1914 and again in the spring of 1915, discerning the general organization of the site (Moore 1915).

A short distance above the city of Chattanooga, in view from its water-works and from Tennessee River, is a mound in a large, cultivated field, belonging, at the time of our first visit, to Mr. George W. Gardenhire, of Chattanooga, and when the place was again visited by us, to the Montague estate, represented by Mr. N. Thayer Montague, of Chattanooga. The
mound, which takes its name from nearby Citico creek, 15.5 feet in height, has been quadrangular with a flat top, but as every part of its surface has been under cultivation, the corners of the mound are now rounded, though the sides are astonishingly steep considering the plowing and subsequent wash of rain to which they must have been subjected. In basal diameter the mound is 110 feet by 145 feet; the summit-plateau in corresponding directions, 71 feet by 42 feet.

Extending ENE. and WSW. from the mound, which is near the western end, is a ridge with flat top, about 250 feet in width and 600 feet in length, and having a height, judging from holes put down from the surface to undisturbed clay, of about 4 feet. On the eastern end of this ridge is an elevation of about 3.5 feet. The ridge is artificial, or mostly so, and has grown up under prolonged occupancy.

The principal feature at the site was the earthen platform mound first described by Read. Moore began excavations at the Citico Mound, sinking an unproductive shaft down into its center. Like Read before him, Moore concluded that the mound had been erected over a house or other structure, perhaps covering burials placed below the house floor, but that the mound superstructure had been domiciliary and not funerary in nature.

The mound fronted on a plaza or open ground to the east of the structure. At the opposite end of the plaza was a smaller mound. On either side of the plaza were individual housesites comprising the mound village. The area between the large and small mounds was slightly elevated, evidently by the accumulation of domestic refuse or midden material. Pits dug into the village to the east of the mound were highly rewarding, exposing 106 burials and yielding a variety of grave goods including pottery, flint tools, and sheet copper ornaments. Moore approximated the extent of the village situated to the east of the mound: the village was 250 feet wide and nearly 600 feet long. In three of the burials Moore found European trade items, including iron celts and glass beads. Assuming that the burials were not later, intrusive interments in the Citico Site, it is likely that the village was still being occupied at the time of the DeSoto expedition in 1540.

Urban expansion doomed the mound shortly after Moore left the scene. In 1915, the City of Chattanooga surveyed the route of a new highway along the river from the
northeast sector of the core city to its booming suburbs in the western shadow of Missionary Ridge. Riverside Drive, as the new route was known, crossed one flank of the mound. Despite considerable agitation to preserve the mound intact as a scenic curiosity and scientific resource, the majority of the mound was cut down by steam-shovel and the fill used in road construction. Thought to be devoid of material, the demolished mound surrendered a staggering variety of artifacts. The remnants of the mound and village were excavated by relic collectors in the following decades.

Riverside Drive became an increasingly important commercial thoroughfare, and in 1957, the two lane highway was widened to four lanes. In this expansion, the remnants of the Crito Mound were finally levelled and much of the associated village destroyed or obscured. A team of archaeologists recovered 73 burials and accompanying grave goods during this construction episode. The great majority of the site disappeared under the highway right-of-way. Valuable topsoil south of the highway was mined out, and in its place, demolition fill and urban trash was deposited.

James Hatch (1976) made an attempt to collate the data on Citico gathered by the sundry researchers mentioned above. His analysis of mortuary patterning and comparison with other known Mississippian sites led him to conclude that the Citico Site had been one of the most important religious and economic centers during the Dallas Phase of the Mississippian Tradition, now dated to the period A.D. 1300 to 1500. In the absence of radiocarbon dates from the site, he estimated a minimal occupation span at the site of 200 years, from A.D. 1350 to A.D. 1550. Hatch also speculated that at its peak, the site was inhabited by perhaps 900 persons.

Virtually all of the work at the Citico Site had been conducted in an atmosphere of amateur artifact hunting or salvage archaeology, and the dissolution of the collections and accompanying provenience and excavation data diminished the analytical value of the information recovered to a very nominal level. No modern, systematic, carefully-controlled excavation has occurred at the site. No deep stratigraphic excavations were ever made to determine the full time span of occupation at the site, and radiocarbon dating of finds was not performed. As a consequence, any remnants of the site assume critical scientific value.

In June 1988, sewer trench construction adjacent to the Tennessee American Water Company building on the south side of Amnicola Highway disturbed a number of human burials and house floors from the Mississippian component of the Citico Site (Evans and Smith 1988). This demonstrated that despite the severity of modern impacts on the Citico Site, significant undisturbed remains were still present although these were only marginal in terms of overall size.

The renewed interest in the Citico Site, particularly in view of redevelopment plans for the river margin above the mouth of Citico Creek, spurred more survey efforts in the vicinity. The University of Tennessee obtained from the State of Tennessee title to a stretch of land extending upstream from Citico Creek a distance of 1400' or about 425m. The University announced plans to develop portions of the tract for a recreational rowing club and boat house facility.

In May 1989, Dr. Nicholas Honerkamp conducted an auger reconnaissance of this tract of land between the mouth of Citico Creek and the Sandbar Restaurant, and north of Amnicola Highway (Honerkamp, et al. 1989). At intervals of 25m, an auger excavated test bores to a maximum depth of 1.8m, and the fill was screened to retrieve artifacts. In many instances, heavy modern rubble fill was encountered at or near ground surface, preventing the completion of the tests holes. Two auger tests, however, excavated near a TVA power transmission tower, revealed the presence of an intact Woodland to Mississippian Tradition midden surviving near the shoulder of Amnicola Highway. Also documented was an historic-period feature, a high, dressed stone pier standing in the south [left] riverbank at about river mile 465.4 (see Honerkamp et al. 1989).

The researchers concluded that while much of the Citico Site had been borrowed out early in the century for brick clay, intact prehistoric midden material was still in place.
along the margins of Amnicola Highway. Moreover, soil augers were inadequate for subsurface testing in many areas due to the presence of heavy rubble fill of modern origin over much of the site.

The following year, the Institute of Archaeology conducted an archaeological survey on the downstream side of Citico Creek for the City of Chattanooga, testing the site of a new sewage pumping station and the right-of-way of a new sewer line running upstream along the Tennessee River (Honerkamp 1990). This survey also documented severe modern disturbance of the landforms adjacent to the river. Brick clay mining and occupation of the land by the Tennessee American Water Company and its antecedents resulted in substantial alterations to the pre-modern natural setting. Relying mainly on backhoe search trenches, the survey failed to encounter any prehistoric site components.

Research Design and Methodology

The proposed sewer route of the Lower Amnicola Parallel Interceptor followed closely the modern riverbank of the Tennessee River. As such, the intercepted landforms consisted almost exclusively of alluvial terraces. These terraces, formed by incision of the river channel and overbank flooding episodes depositing alluvium on the adjacent riverbanks, have aggraded through time, burying in them the remains of prehistoric human settlements and activity areas. While pedestrian or surface surveys of alluvial terraces can, in many instances, reveal some evidences of buried prehistoric habitations, the depth of many of these cultural deposits demands the use of sub-surface reconnaissance techniques that permit inspection of alluvial surfaces several meters below modern ground surface. This was the case with the Amnicola Interceptor.

The Institute proposed to use a power soil auger to drill test holes at a 25m interval throughout the proposed right of way. The auger would drill a 30cm diameter hole to an effective depth of 1.8m, and the expelled soil would be screened through a 1/2" mesh hardware cloth in order to standardize the recovery of artifacts. Depending on soil conditions, some basic stratigraphy can be observed in the walls of the core, but the technique of augering generally is useful for simple presence or absence determinations about subsurface artifact concentrations. The Institute had conducted successful auger surveys of the Tennessee River floodplain in earlier projects associated with the Tennessee Riverpark development several miles upstream from the Citico site (Council and Smith 1986; Council 1989), and at the Heritage Landing Site, 40HA212, several miles downstream (Honerkamp 1984, Council and Honerkamp 1990). In both cases, augering located buried site components that were subsequently tested using conventional hand excavation techniques.

However, previous experience in the Citico Creek portion of the proposed sewer route dictated that the Institute use, where necessary, a more intensive excavation tool to conduct the subsurface reconnaissance, in this case, a backhoe. This piece of machinery provides a cost-effective means of excavating a deep trench in order to observe soil stratigraphy to a depth limited only by the size and capabilities of the machine and the dictates of safe excavation practice. Backhoe trenches of two to four meters depth are easily and safely obtained.

Unlike auger testing, the backhoe trench rarely produces large quantities of artifacts, given that the effort to retrieve artifacts from the spoil dirt is only superficial. The principal objective of the trench is to encounter midden deposits or layers of artifacts and occupation debris in profile. In this instance, what is sought in the profile is an anthroposol, a culturally-modified soil as evidenced by the presence of artifacts (pottery, flint tools, etc.) in dark, organically-enriched soils frequently stained and flecked with charcoal and often attended with accumulations of fire-cracked rock generated by cooking activities.
In practice on the Amnicola project, the backhoe would cut a trench two to three meters wide, leaving one side of the trench with a vertical or profile face. The off-profile face was stepped in one or two stages for safety reasons and to provide a less restricted view of the profile face. Crew members monitored the cutting of the trench, actively scanning the cuts in progress should any features be encountered, and also watched the soil dirt piles for any discernible artifacts. Once the trench had been cut, the profile face was cleaned and smoothed by square-point shovel and trowel for photographic recording and mapping. As this process occurred, the stratigraphic context and associations of individual artifacts retrieved in profile were noted. Associated and unassociated artifacts were assigned field specimen catalog numbers and bagged for laboratory processing.

Black and white and color photographs were made of every profile, where circumstances [the weather] permitted. In most instances, scaled drawings were made of the profile faces to document the stratigraphy. Narrative style notes were made, discussing the presence or absence of anthroposols and artifacts, and commenting on any indicated modern alterations of the natural soil horizons.

Results of Testing

The 5000' testable length of the project was subdivided into seven tracts on the basis of property ownership. This provides a convenient means of compartmentalizing the following discussion of the survey. The affected land owners were: the University of Tennessee, the City of Chattanooga, Papa Properties Ltd., the V.F.W. (Veterans of Foreign Wars), Mildred Bunch, the Stone Fort Land Company, and Quaker Oats.

In general, undisturbed, natural stratigraphy in the floodplain consists of three basic soil layers, the upper two of which usually contain archaeological materials. The modern A horizon is the superficial topsoil, characterized as one or another variety of silt loam, a dense, fine-grained mixture of sand, clay, and organic matter. Typically dark gray or dark gray-brown in color, this soil horizon is most often associated with cultural occupations. Occasionally, A horizon soils appear deep in trench profiles, having been buried either by natural events such as rapid alluvial aggradation, or by modern filling, the latter being common in the project area. The subsoil or B horizon is a dense brown to dark brown clay frequently sandy in texture. This horizon can also contain cultural material, particularly from old archaeological periods such as the Archaic Tradition. C horizon soils are distinct, consisting of relatively bright, compact orange to orange-brown clays. The absence of debris in this soil and its compactability make it ideal for modern fill. This simplified soil stratigraphy varies considerably in reality, depending on particular geomorphological variables and the effects of cultural activity.

Along a large portion of the proposed route, the centerline of the sewer is quite close, sometimes out beyond, the modern riverbank line. To avoid destabilizing the bank, trenches were set back away from the edge of the crest. Modern vegetation, particularly trees, also dictated some latitude in the placement of test trenches. Wherever possible, the trench was cut to straddle the centerline of the sewer. Nominal data on the excavated test trenches is summarized in Table 2.

University of Tennessee Tract. Extending from the mouth of Citico Creek north and east a distance of about 1400' or 425m (see Figure 3), the University of Tennessee parcel embraces an area that was largely west and north of the Citico Mound and village. The extreme northeastern end of the parcel would have been in the immediate proximity of the Citico Mound proper. Unfortunately, early 20th century land use and the notorious road construction activities associated with Riverside Drive and Amnicola Highway have all but obliterated the pre-Columbian landscape. The most visible feature in the southwestern end of the tract is a deep borrow pit formed during the late 19th and early 20th centuries by clay mining operations associated with a brick manufactory.
Table 2. Summary of test trenches.

<table>
<thead>
<tr>
<th>Unit</th>
<th>Length</th>
<th>Max. Depth</th>
<th>Photographed</th>
<th>Mapped</th>
<th>Collections</th>
<th>Property Owner</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trench A</td>
<td>3.0m</td>
<td>1.9m</td>
<td>Yes</td>
<td>No</td>
<td>None</td>
<td>Univ. of Tenn.</td>
</tr>
<tr>
<td>Trench B</td>
<td>4.0m</td>
<td>2.2m</td>
<td>Yes</td>
<td>No</td>
<td>None</td>
<td>Univ. of Tenn.</td>
</tr>
<tr>
<td>Trench C</td>
<td>9.3m</td>
<td>3.2m</td>
<td>Yes</td>
<td>Yes</td>
<td>None</td>
<td>Univ. of Tenn.</td>
</tr>
<tr>
<td>Trench D</td>
<td>6.5m</td>
<td>2.5m</td>
<td>Yes</td>
<td>Yes</td>
<td>None</td>
<td>Univ. of Tenn.</td>
</tr>
<tr>
<td>Trench E</td>
<td>4.0m</td>
<td>3.0m</td>
<td>Yes</td>
<td>Yes</td>
<td>None</td>
<td>Univ. of Tenn.</td>
</tr>
<tr>
<td>Trench F</td>
<td>4.0m</td>
<td>3.4m</td>
<td>Yes</td>
<td>Yes</td>
<td>None</td>
<td>Univ. of Tenn.</td>
</tr>
<tr>
<td>Trench G</td>
<td>7.0m</td>
<td>2.6m</td>
<td>Yes</td>
<td>Yes</td>
<td>None</td>
<td>M. Bunch</td>
</tr>
<tr>
<td>Trench H</td>
<td>6.5m</td>
<td>2.1m</td>
<td>Yes</td>
<td>Yes</td>
<td>None</td>
<td>M. Bunch</td>
</tr>
<tr>
<td>Trench I</td>
<td>7.0m</td>
<td>2.8m</td>
<td>Yes</td>
<td>Yes</td>
<td>None</td>
<td>M. Bunch</td>
</tr>
<tr>
<td>Trench J</td>
<td>9.0m</td>
<td>2.0m</td>
<td>Yes</td>
<td>No</td>
<td>None</td>
<td>Papa Properties Ltd.</td>
</tr>
<tr>
<td>Trench K</td>
<td>5.8m</td>
<td>3.4m</td>
<td>Yes</td>
<td>Yes</td>
<td>None</td>
<td>Univ. of Tenn.</td>
</tr>
<tr>
<td>Trench L</td>
<td>4.0m</td>
<td>3.7m</td>
<td>Yes</td>
<td>Yes</td>
<td>None</td>
<td>Univ. of Tenn.</td>
</tr>
<tr>
<td>Trench M</td>
<td>5.0m</td>
<td>3.3m</td>
<td>Yes</td>
<td>No</td>
<td>None</td>
<td>Stone Fort Land Co.</td>
</tr>
<tr>
<td>Trench N</td>
<td>----</td>
<td>----</td>
<td>----</td>
<td>----</td>
<td>----</td>
<td>Stone Fort Land Co.</td>
</tr>
<tr>
<td>Trench O</td>
<td>5.0m</td>
<td>3.4m</td>
<td>Yes</td>
<td>Yes</td>
<td>None</td>
<td>Stone Fort Land Co.</td>
</tr>
<tr>
<td>Trench P</td>
<td>5.0m</td>
<td>3.2m</td>
<td>Yes</td>
<td>Yes</td>
<td>None</td>
<td>Stone Fort Land Co.</td>
</tr>
<tr>
<td>Trench Q</td>
<td>5.0m</td>
<td>3.5m</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Stone Fort Land Co.</td>
</tr>
<tr>
<td>Trench R</td>
<td>4.0m</td>
<td>3.6m</td>
<td>Yes</td>
<td>Yes</td>
<td>None</td>
<td>Quaker Oats</td>
</tr>
<tr>
<td>Trench S</td>
<td>4.5m</td>
<td>4.4m</td>
<td>Yes</td>
<td>No</td>
<td>None</td>
<td>Quaker Oats</td>
</tr>
<tr>
<td>Trench T</td>
<td>4.0m</td>
<td>5.3m</td>
<td>Yes</td>
<td>No</td>
<td>None</td>
<td>Quaker Oats</td>
</tr>
<tr>
<td>Trench U</td>
<td>3.8m</td>
<td>2.8m</td>
<td>Yes</td>
<td>Yes</td>
<td>None</td>
<td>Quaker Oats</td>
</tr>
<tr>
<td>Trench V</td>
<td>3.5m</td>
<td>2.7m</td>
<td>Yes</td>
<td>Yes</td>
<td>None</td>
<td>Quaker Oats</td>
</tr>
<tr>
<td>Trench W</td>
<td>4.0m</td>
<td>3.4m</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Quaker Oats</td>
</tr>
<tr>
<td>Trench X</td>
<td>4.5m</td>
<td>3.6m</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Quaker Oats</td>
</tr>
<tr>
<td>Trench Y</td>
<td>4.2m</td>
<td>3.2m</td>
<td>Yes</td>
<td>Yes</td>
<td>None</td>
<td>Quaker Oats</td>
</tr>
<tr>
<td>Trench Z</td>
<td>4.5m</td>
<td>3.4m</td>
<td>Yes</td>
<td>Yes</td>
<td>None</td>
<td>Quaker Oats</td>
</tr>
<tr>
<td>Trench AA</td>
<td>3.1m</td>
<td>2.0m</td>
<td>Yes</td>
<td>No</td>
<td>None</td>
<td>Quaker Oats</td>
</tr>
<tr>
<td>Trench BB</td>
<td>3.0m</td>
<td>1.5m</td>
<td>Yes</td>
<td>No</td>
<td>None</td>
<td>Quaker Oats</td>
</tr>
<tr>
<td>Trench CC</td>
<td>3.8m</td>
<td>1.7m</td>
<td>No</td>
<td>Yes</td>
<td>None</td>
<td>Quaker Oats</td>
</tr>
</tbody>
</table>
Figure 3. Plan of test trenches in the Citico vicinity.
A total of eight backhoe search trenches were excavated in or near the proposed pipeline right of way. Considerable brush clearing was required to provide access to the test areas; the vicinity had not been cleared since the 1950s, at which time the existing 54" sanitary sewer was installed.

At the mouth of Citico Creek, a trench was excavated on rising ground north of the sewer centerline. Trench J revealed at least two meters of alluvial subsoils, but no cultural horizons or buried topsoils. Modern refuse capped the profile. To the south, Trench L revealed in excess of 3m (9.9') of modern redeposited fill, the lowest layer being concentrated brick rubble associated with the clay mining/brick manufactory on the property in the early part of this century. Nearby, but unobservable due to elevated ground water levels, was a square brick curb at the southwest corner of the clay borrow pit. The exact function of the structure is unknown, but sewer plans identify the feature as a well house.

Trench A and B were situated in a narrow strip of land between the existing 54" sewer to the south and the margins of the wet borrow pit to the north. Both units had to be abandoned at a depth of about 2m at which point the trenches flooded with water. The fills to this depth were characterized as redeposited C horizon orange clays and limestone debris, doubtless excavated from deep borrow pits and dumped in this locality to bury the sewer pipe. In this area, the sanitary sewer passed over the fringes of the clay borrow pit. Apparently at the interface between undisturbed (but truncated) natural soils and the redeposited clays a hydraulic seam was present. When the backhoe breached this seam, trapped ground water rushed into the excavation.

Further up the proposed sewer corridor, Trench C sectioned the front slope of the near-river flood terrace (Figure 4). A horizon soils were truncated as part of the 54" sewer construction, and fieldstone rubble in the riverside end of the profile relates to an adjacent historic feature. To the north and west of Trench C, a limestone block abutment from the historic period was present (Figure 5). Forming an angled wall with west and north exposure, this foundation was evidently associated with a barge mooring on the river. The full extent of the wall is not known.

The Trench D profile revealed the extent of profile truncation due to modern land uses (Figure 6). In this unit, natural A and B horizon soils were absent, replaced by modern fill containing 20th century refuse. A short Trench E profile was dominated by the margins of the deep trench for the existing 54" concrete sewer pipe. Outside the trench fill, a truncated A horizon was buried beneath 1.5m of modern fill, in part back dirt from the sewer trench excavation and in part by modern refuse and fill. Trench F was situated barely 25m from the Woodland-Mississippian midden encountered by Honerkamp in 1989, yet did not reveal any stratigraphic evidence of that midden (Figure 7). The trench intercepted a gently sloping terrace front slope and a buried A horizon some m below ground surface.

City of Chattanooga Tract. Approximately 37m of proposed sewer passed through a small tract owned by the city of Chattanooga. No trenches were excavated in this area, the parcel being bracketed by Trench F on the west and Trench K on the east.

Papa Properties Ltd. Tract. Improvements on this parcel, notably the Sandbar Restaurant and its attendant outdoor deck and parking lots, and the proximity of the sewer centerline to the riverbank, prevented most of this tract from being trenched. The total length of sewer corridor was 63m. On the west side of the Sandbar Restaurant, at the margin of the parking lot, one test trench was excavated. Trench K (Figure 8) exposed a buried A horizon beneath several meters of modern fill and apparently undisturbed alluvium. The buried topsoil layer followed a sharp slope toward the river, a dramatic contour obscured by modern grading and leveling of the area for commercial use.

VFW Tract. Roughly 93m of sewer corridor passed through the river frontage of this property. Due to the the presence of improvements on this parcel, and the closeness of
Figure 4. Profile of Trench C. (A) fill; mixed, re-deposited A horizon topsoils. (B) fill; re-deposited C horizon orange clays with heavy limestone rubble. (C) fill; fine tan-brown loam. (D) fill; lens of orange clay and brick rubble. (E) pipe trench fill; re-deposited topsoils, mixed dark gray brown silt loams. (F) buried A horizon; dark gray brown silt loam. (G) transition zone, leached from buried A horizon. (H) undisturbed B horizon; brown clay.
Figure 5. Limestone abutment on the riverbank. This abutment or pier is formed of randomly coursed limestone blocks. The feature penetrates the bank for several meters, and also extends along the shoreline for at least five meters. Range pole in 50cm zones.
Figure 6. Profile of Trench D. (A) fill; mixed, redeposited C horizon orange clays with limestone rubble. (B) pipe trench fill; mixed A, B, and C horizon soils, 20th century refuse. (C) fill lens; redeposited topsoils. (D) truncated C horizon; pale orange brown clay.
Figure 7. Profile of Trench F. Two meters of modern fill cap this profile. The darker layer in the lower portion of the profile is a buried A horizon, a former ground surface buried first by a rapid alluvial or colluvial accumulation, then by the modern fill layer. Range pole in 50cm zones.
Figure 8. Profile of Trench K. (A) fill; mixed B and C horizon clays and limestone debris. (B) fill; redeposited A horizon topsoils, brick and stone rubble, demolition debris. (C) colluvium or alluvium; brown sand clay loam. (D) buried A horizon; dark gray brown silt loam. (E) undisturbed B horizon; brown clay.
the proposed sewer centerline to the modern riverbank, testing of this tract was not considered feasible.

**Mildred Bunch Tract.** About 132m of proposed pipeline passed through this tract that has been unutilized for several decades. Three backhoe search trenches were excavated in this survey parcel. Trench I, at the northwest corner of the parcel, produced one aboriginal pottery sherd from an unassociated backdirt context. The limestone-tempered cord-marked pottery is probably associated with the Late Woodland period. Adjacent to a paved parking lot, the pit profile showed some accumulation of modern redeposited fill in the upper levels. A truncated A horizon was present, with apparently undisturbed soil beneath. The other two units in this tract, Trenches G and H, displayed relatively undisturbed soil profiles, indicating that very little modern ground alteration had taken place on the riverfront portion of the property. Neither unit yielded cultural materials or anthroposols.

**Stone Fort Land Company Tract.** Developed for commercial and industrial use over 30 years ago, this tract of land has a river frontage of about 223m. An extensive paved parking lot dominates the waterfront. Five trenches were excavated on this parcel (Figure 9). An asphalt parking lot surface was present over the survey area, necessitating cutting operations prior to excavation. The first of the units, Trench M, revealed concentrated heavy demolition rubble fill beneath the pavement and subpaving foundation layers. Trench N was started but not completed; an unmarked power cable was accidentally severed in the unit, which was subsequently abandoned and backfilled. Trench O had 1.5m of fill covering a truncated profile of B horizon clays. Similarly, 1.2m of fill comprised the upper profile in Trench P, covering a truncated B horizon. Trench Q, at the northeastern corner of the tract, had 1.3m of modern fill over two layers of B horizon brown clays. Trimming the profile revealed one sherd 80cms into the upper B layer at a depth of 2.2m below the asphalt pavement. The plain sherd, tempered with sand and fine gravel, is associated with the Early Woodland or Woodland I period. This isolated find may have traveled there by bioturbation or root action.

In sum, most of the units on the Stone Fort tract revealed truncated profiles capped with deep layers of redeposited fills forming the base for the parking lot. Topsoils or A horizon silt loams were evidently graded off prior to filling with less valuable subsoil clays. Apart from the single sherd, no evidence of cultural occupations remained along the riverbank.

**Quaker Oats Tract.** The proposed pipeline follows a fenceline along the river frontage of the parcel a distance of 412m, thence turning southeast toward Curtain Pole Road a distance of 201m. The Quaker Oats parcel is typical of large industrial facilities sited on the floodplains of the Tennessee River. The core of this industrial grain processing facility has been in place for over 30 years. During the building of the expanded warehouse facility on the northwest side of the old plant in the late 1970s, considerable grading and filling operations were undertaken along the riverbank, substantially altering the original landscape. The warehouse facility on the northwestern side of the Quaker Oats complex has a finished floor elevation of 664' ASL as required by law. North and west of the warehouse, the ground is terraced more or less flat at approximately 660' ASL. Along the margin of the river and a portion of the northeast fenceline of the plant, the artificial terrace steps down abruptly to perhaps 654'.

TVA flood control plans from the 1960s, prior to expansion of the plant toward its river frontage, reveal the archaic landscape obscured by the creation of the fill berm in the late 1970s. Prominent in this old landscape was a backslope drainage slough running south and west to an egress on the river. Buried storm drains replaced this natural drainage system when the warehouse facility and artificial terrace were created. In sum, the modern topography little resembled the pre-modern terrain.

Twelve trenches were excavated in this large industrial tract, spaced evenly along the fenceline bordering the site on the northwest and northeast (see Figure 10). The trenches were designated R to CC. Most of the test trenches extended from the low
Figure 10. Plan of test trenches, Stone Fort and Quaker Oats parcels.
ground along the perimeter fenceline partially up the slope of the fill berm. Common in nearly all of the test trenches was modern, redeposited fill zones constituting the artificial terrace. The upper 1.8m of the Trench R profile was redeposited C horizon orange clays, covering a disturbed and possible somewhat truncated A horizon. Several alluvial or colluvial bands separated the A and B horizon soils, the latter appearing at a depth of 2.7m BS (below ground surface). Stratigraphy in trenches U and V were similar: truncated A horizons and B horizon clays buried under modern redeposited fills.

Units S and T displayed modern, unconsolidated fills to depths exceeding four meters. The baulks in these trenches were highly dangerous, and no personnel were permitted in the excavation. Unstable fills prevented all but cursory recording of the profiles. These two units appeared to have been sited on the margins of the now buried slough which egressed to the Tennessee River between the two units in question.

Cultural material was recovered from Trench W at the northern corner of the Quaker Oats fenceline. One projectile point/knife was recovered from spoil dirt, and another was located in the floor of the unit during excavation (Figure 11). One point appears to be a typical Woodland triangular form, the other, a shallow side-notched Archaic (?) form. Scattered fragments of charred nut hull fragments were present in a band of alluvial soil at a depth of below ground surface (at the foot of the fill berm). A number of broken, fire-reddened river pebbles and cobbles were scattered throughout this layer. There were no distinct horizontally bedded lenses of anthroposols, charcoal, or fire-cracked rock, nor any particular concentrations of cultural debris (Figure 12). This diffuse debris may have been transported alluvially or colluvially downslope from a primary deposition or site on now absent flood levee crests to the north. Alternatively, these materials were in primary deposition contexts and are from an ephemeral occupation or the margins of a larger site.

Aboriginal flint debitage was also recovered from the adjacent test, Trench X, south and east along the fenceline. This unit displayed truncation of the natural soil horizons down into B horizon soils and replacement with mixed fills.

Trench Z displayed the usual redeposited fills at ground surface, but beneath were unstable alluvial layers of silty clay and buried vegetation. In contrast, 50m to the southeast in Trench AA, sterile C horizon clays, normally many meters deep in undisturbed natural profiles, were present at the ground surface, demonstrable proof of truncation by grading operations. Likewise, Trench BB at the end of the testable corridor of the proposed sewer, revealed a marginal remnant of redeposited B horizon brown clays littered with gravel and pebbles, and resting atop undisturbed C horizon orange clays. This profile had also been truncated. Trench CC was placed between Z and AA to determine at what point the stratigraphic change occurred. The profile in this unit seemed to indicate that A horizon topsoils had been removed prior to filling operations with less valuable redeposited B and C horizon clays.

**Laboratory Analysis**

The small artifact collections made during the survey were processed at the laboratory of the Institute on the UTC campus. Recovered materials were washed, dried, and catalogued. All survey records and artifacts are curated at the Institute. Table 3 presents the list of artifacts recovered in the testing program.
Figure 11. Projectile points from the Trench W locality. The nearly complete projectile point/knife at left features wide, shallow side-notching and a slightly apiculate point; probably Late Archaic period. At right is a typical Woodland-style triangular point with broad corner notching. Photographed on a one millimeter grid.

Figure 12. Profile of Trench W. (A) redeposited, mixed, brown silty loam; landscape topsoil. (B) fill: mixed B and C horizon clays and limestone debris. (C) buried A horizon, weathered; dark gray brown silty loam. (D) undisturbed B horizon; brown clay. (E) colluvial or alluvial stream; brown to dark brown silty loam, with cultural debris. (F) undisturbed B horizon; brown clay.
Figure 12. Profile of Trench W. (A) redeposited, mixed, brown silt loams; landscape topsoils. (B) fill; mixed B and C horizon clays and limestone debris. (C) buried A horizon, truncated; dark gray brown silt loam. (D) undisturbed B horizon; brown clay. (E) colluvial or alluvial stratum; brown to dark brown silt loam, with cultural debris. (F) undisturbed B horizon; brown clay.
Table 3. Summary of artifacts from the Amnicola Interceptor survey.

<table>
<thead>
<tr>
<th>FS No.</th>
<th>Trench</th>
<th>Context</th>
<th>Description</th>
<th>Count</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I</td>
<td>Unassociated</td>
<td>sherd, limestone-tempered, cord-marked</td>
<td>1</td>
<td>3.9 g</td>
</tr>
<tr>
<td>2</td>
<td>Q</td>
<td>Unassociated</td>
<td>sherd, sand and gravel tempered, plain</td>
<td>1</td>
<td>4.3 g</td>
</tr>
<tr>
<td>3</td>
<td>W</td>
<td>Unassociated</td>
<td>nut hull fragments, charred</td>
<td>-</td>
<td>3.8 g</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>mammal bone, scapula fragment (?)</td>
<td>1</td>
<td>56.2 g</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>flint, side-notched projectile point/knife</td>
<td>1</td>
<td>7.6 g</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>mineral fragment, unidentified</td>
<td>1</td>
<td>3.7 g</td>
</tr>
<tr>
<td>4</td>
<td>W</td>
<td>Floor, 2.1m BS</td>
<td>flint, projectile point/knife</td>
<td>1</td>
<td>6.8 g</td>
</tr>
<tr>
<td>5</td>
<td>W</td>
<td>Profile, 2.6m BS</td>
<td>flint, debitage</td>
<td>1</td>
<td>0.1 g</td>
</tr>
<tr>
<td>6</td>
<td>X</td>
<td>Unassociated</td>
<td>flint, projectile point/knife (partial)</td>
<td>1</td>
<td>5.2 g</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>flint, debitage</td>
<td>4</td>
<td>6.1 g</td>
</tr>
</tbody>
</table>
Synthesis and Interpretation

Very little of the pre-Columbian landscape remains along the route of the proposed Lower Amnicola Parallel Sewer Interceptor. Following regulations for development in the floodplain of the Tennessee River, modern commercial and industrial sites are graded up to a level above the 100-year flood elevation. Typically, valuable silt loam topsoils, prized for landscaping and agricultural use, are mined out of developed tracts and less valuable B and C horizon clays are brought in or redistributed on-site to aggrade the profiles. These operations obliterate the original landscape and bury the surviving topographic remnants under carefully-shaped artificial contours. Lost in this process are archaeological sites that were integrated with the now absent native topography.

Virtually all of the University of Tennessee tract has been seriously disturbed by 20th century activities including clay mining, sewer construction, and road grading. Some portions of the riverbank are undisturbed, and there are indications that the native topography - and its archaeological remains - are buried along the margins of the Amnicola Highway. Archaeological remains under the City of Chattanooga tract are in the same condition: partially disturbed along the river and possible intact but buried along the highway. Similarly, the Papa Properties tract may have significant archaeological components near the highway, but in all likelihood, the shoreline has little or no native topography remaining under modern fill layers. The V. F. W. tract is the least known, since no test trenches were excavated on that parcel. It is likely that the shoreline profiles are predominantly modern fills dumped to stabilize the riverbank. On the Mildred Bunch tract, the only substantive modern disturbance has been the placement of the existing 54" sewer. Some marginal grading of the modern topsoil may have occurred. Soil profiles on the Stone Fort Land Company parcel have been substantially altered, first by truncation and then by filling for pavement substrata. Similarly, these processes have altered the Quaker Oats tract, erasing superficial evidences of a backslope drainage slough of some antiquity and replacing it with buried storm sewers and a landscaped berm. Topsoil borrowing and filling with non-cultural subsoils is demonstrable.

Conclusions and Recommendations

As shown in Figure 1 and subsequent detail plans in this report, the proposed Lower Amnicola Parallel Sewer Interceptor does not appear to impinge on any archaeological resources eligible for inclusion in the National Register of Historic Places. No archaeological survey will encounter 100% of the archaeological remains in a given impact area. Our conclusion is based on a systematic subsurface sample designed to discover intensive occupations leaving stratigraphic evidence of cultural activity.

Two areas of archaeological concern remain at the conclusion of the survey program. In the vicinity of the Citico Site, 40HA65, the proposed sewer interceptor route does not appear to directly impinge on any significant resources. However, previous archaeological tests dug south of Trench F have revealed an intact Woodland-Mississippian midden. Direct construction impacts will have no negative effect on these resources, but construction staging activities should be monitored to prevent secondary impacts on these sensitive areas adjacent to the Amnicola Highway right-of-way.

A second area of archaeological concern is on the Quaker Oats parcel, near the corner of the property where the proposed sewer turns from a northeasterly course to a southeasterly one. The materials recovered in this area do not, in our opinion, warrant further testing within the sewer corridor. However, should the pipeline route be adjusted to follow more closely the existing sewer running along the back of the Quaker Oats warehouse, additional testing is recommended. This large, untested area south of the now-buried drainage slough may contain significant aboriginal remains.
Council, R. Bruce  

Council, R. Bruce, and Robin L. Smith  

Evans, E. Raymond, and Gerald Smith  

Hatch, James W.  

Honerkamp, Nicholas  
1990 Archaeological Research at 40HA65, Chattanooga, Tennessee. The Jeffrey L. Brown Institute of Archaeology, University of Tennessee at Chattanooga.

Honerkamp, Nicholas, Beth Fowler, Tracy Little, and Robby Mantooth  

Moore, Clarence B.  