September 13, 2021

CORN ISLAND ARCHAEOLOGY

PHASE I ARCHAEOLOGICAL SURVEY OF 15.7 ACRES FOR THE PLANNED FUTURE MULTIFAMILY COMMUNITY, OXMOOR WOODS PARKWAY, JEFFERSON COUNTY, KENTUCKY

PROJECT NO. PR21025 • CULTURAL RESOURCES REPOT TR21029

Submitted To:

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OSA Project No. FY21-11331

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Project No. PR21025
Cultural Resources Report No. TR21029

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September 13, 2021

ABSTRACT

Between July 2 and July 13, 2021, Corn Island Archaeology LLC conducted a Phase I archaeological investigation for a proposed multifamily apartment complex and associated infrastructure along Oxmoor Woods Parkway in Louisville, Jefferson County, Kentucky. The investigation was requested by NTS Development Corporation, LLC to comply with Binding Elements imposed on the property by Louisville Metro Planning and Design. The project area is situated in southeastern Jefferson County, near the Middle Fork of Beargrass Creek and encompasses 6.4 hectares, or 15.7 acres, of undeveloped land consisting primarily of manicured level fields, with minor areas of wooded slope, and floodplain associated with two streams. The archaeological survey was completed by a combination of ground surface inspection and the excavation of 123 shovel test probes. The survey resulted in the discovery of one newly identified archaeological site (15JF968).

Site 15JF986 is a prehistoric open habitation without mounds located on a relatively level ridge and extends to the southeast across a wooded drainage and along a narrow strip of land adjacent to Oxmoor Woods Parkway. Site 15JF986 encompasses an area of 3.22 hectares, or 7.96 acres. The site boundaries are defined by the project area of potential effect to the north, south and east. The northern portion of the site is currently used as a recreational sports field.

The site was defined by a low-density deposition of prehistoric chert artifacts (n=83) recovered from 41 positive shovel test probe excavations. The assemblage is composed of debitage, one biface fragment, and three utilized flakes. One shovel test probe encountered a dark stratum containing charcoal, but the stratum could not be confirmed as cultural. The recovered assemblage does not evidence the presence of features (e.g., presence of fire-cracked rock). In general, that portion of the site defined within the surveyed project area lacks evidence for significant undisturbed subsurface cultural deposits. Site 15JF986 is not recommended as eligible for listing in the NRHP, and no further archaeological investigations are recommended.

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ABBREVIATIONS AND ACRONYMS

A.D.	after the birth of Christ
AMSL	above mean sea level
APE	Area of Potential Effects
B.C.	before the birth of Christ
B.P.	before present
bs	below surface
ca.	circa
cm	centimeter(s)
cmbs	centimeter(s) below surface
EAC	Eastern Agricultural Complex
e.g.,	example
FCR	fire-cracked rock
FR	Federal Regulation
ft	foot (feet)
GIS	Geographic Information System
GPS	Global Positioning System
GSV	ground surface visibility
ha	hectare
JF	Jefferson County
m	meter(s)
MAD	Mean Artifact Date
MCD	Mean Ceramic Date
mi	mile(s)
mm	millimeter(s)
NHPA	National Historic Preservation Act of 1966
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
OSA	Office of State Archaeology
ppk	projectile point/knife
ROW	Right-of-way
RPA	Registered Professional Archaeologist
SHPO	State Historic Preservation Office
STP(s)	shovel test probe(s)
USDA	United States Department of Agriculture
USGS	United States Geological Survey
UTM	Universal Transverse Mercator

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INTRODUCTION

On July 2, 8, and 13, 2021, Corn Island Archaeology LLC conducted a Phase I archaeological survey for a planned future residential development in eastern Jefferson County, Kentucky (**Figure 1**). The property is located along Oxmoor Woods Parkway in Louisville, Kentucky (**Figure 2** and **Figure 3**) and was requested by NTS Development Company (NTS) prior to the construction of a multifamily residential community on the property. The project area comprises 6.35 hectares (ha), or 15.7 acres, of undeveloped land consisting of manicured level fields, wooded slope, and two streams. Specifically, the project area contains manicured level fields and wooded slope associated with one ephemeral and one second order permanent stream. The northern portion of the project area is a recreational sports field known as the Oxmoor Soccer Fields (**Figure 4**). The southern portion of the project APE is bisected by the two streams, with a relatively level area with mown grass between the two drainages (**Figure 5**).

Figure 1. Location of Jefferson County, Kentucky.

PROJECT DESCRIPTION

The archaeological survey was requested by NTS prior to construction of a multifamily residential community that will consist of 14 buildings (360 units), a clubhouse, and a pool on the property. The project entails the proposed development of two land parcels (Parcels 089M00140000 and 089P01CS0000) along Oxmoor Woods Parkway in Louisville, Kentucky. The parcels had been in agricultural use for many years and lie within and along the northeastern boundary of the historic Bullitt Estate.

Vegetation within the project area consists of manicured grass, woods, and a clearing in wild grasses. Ground surface visibility within the project APE at the time of survey was poor. Survey methods included near-surface examination of the project APE through ground surface inspection to determine the presence of aboveground indicators of historic or prehistoric land use, and shovel probing conducted on a 20-meter (m), or 65.6-foot (ft), grid pattern, per requirements of the Kentucky State Historic Preservation Office (KY SHPO). Additional shovel test probe excavations were conducted around those that were positive for artifacts. There were 123 excavations in all. The survey resulted in the discovery of one newly identified archaeological site (15JF968).

Office of State Archaeology (OSA) Geographic Information Systems (GIS) data was requested for the survey was returned on June 30, 2021. The OSA project registration number is FY21-11331.

COMPLIANCE REQUIREMENTS

Although the archaeological documentation of this project was not required to meet compliance requirements relative to 36 CFR 800 and Section 106 of the National Historic Preservation Act (NHPA) (54 U.S.C. 300101), the project complies with specifications for field investigations and

for National Register of Historic Places (NRHP) assessment as set forth in the Secretary of the Interior Standards and Guidelines for Archaeology and Historic Preservation (National Park Service 1983). Louisville Metro Planning and Design Services is the lead agency of record. According to a Binding Element emplaced relative to a 2000 Rezoning Permit, Jefferson County required an archaeological survey of the property prior to development. For this reason, a Phase I archaeological survey was required to identify and assess all archaeological resources, if any, with the project APE.

Conduct of this investigation adheres to specifications for field investigations and reporting standards for Phase I archaeological surveys as detailed in *Specifications for Conducting Fieldwork and Preparing Cultural Resource Assessment Reports* (version 2.5, updated 2017) prepared by the SHPO, seated in the Kentucky Heritage Council (KHC) in Frankfort, Kentucky (Sanders 2017).

PROJECT STATEMENT OF WORK

The archaeological investigation described herein entailed the following tasks:

- A routine background records search at the OSA in Lexington, Kentucky, to determine the level of existing documentation relevant to recorded archaeological sites and prior archaeological investigation(s), if any, at and near the site of the proposed undertaking;
- A review of archival documentation pertaining to the presence and location of potential historical archaeological resources within the project APE;
- Ground surface inspection;
- Shovel probing in areas exhibiting less than 15 degrees of slope;
- Additional shovel probing within any defined sites;
- Artifact analyses, if any were recovered;
- Completion of OSA archaeological site forms, as needed;
- Preparation of a professional technical report of findings per standards of the Secretary of the Interior and the KHC/SHPO; and
- Curation.

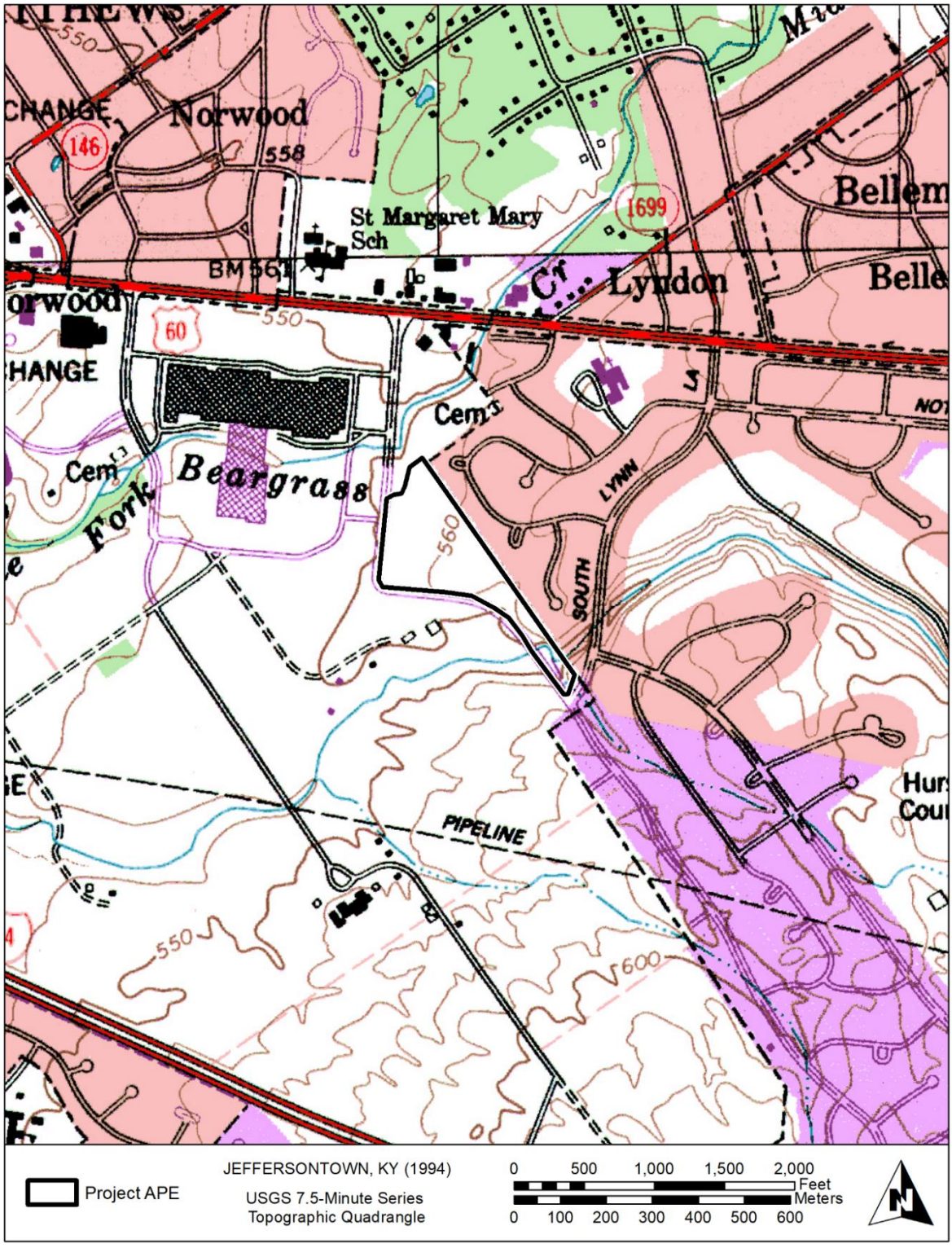

Figure 2. Project area on 1994 *Jeffersontown, KY* U.S. Geological Survey (USGS) 7.5-minute topographic map.

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Figure 3. Satellite imagery of the project area.

Figure 4. View of northern section of the project area, facing southeast.

Figure 5. View of the southern portion of the project area, facing southeast.

FINDINGS

The excavation of 123 shovel test probes within the project area resulted in the identification of one previously undocumented archaeological site (15JF986). Site 15JF986 is a prehistoric open habitation without mounds located on a relatively level ridge and extends to the southeast across a wooded drainage and along a narrow strip of land adjacent to Oxmoor Woods Parkway. Site 15JF986 encompasses and area of 3.22 ha (7.96 acres). The site boundaries are defined by the project boundaries to the north, south and east. The northern portion of the site is currently used as a recreational sports field ("Oxmoor Fields") that, at the time of the survey, was covered in manicured grass.

The site was defined by a low-density deposition of prehistoric chert artifacts (n=83) recovered from 38 positive excavations. The assemblage is composed of debitage, one biface fragment, and three utilized flakes. One excavation encountered a dark stratum containing charcoal, but the stratum could not be confirmed as cultural. The recovered assemblage does not evidence the presence of features (e.g. presence of fire-cracked rock, or FCR). In general, that portion of the site defined within the surveyed project area lacks evidence for significant undisturbed subsurface cultural deposits. Site 15JF986 is not recommended as eligible for listing in the NRHP, and no further archaeological investigations are recommended.

PROJECT SCHEDULING AND STAFFING

The field portion of the survey required 61 person-hours to complete over a period of three days. The project staff meets requirements for professional archaeologists as detailed in the Secretary of the Interior standards. William Hill (MA, RPA) served as the Principal Investigator for the project. Jonas Yates (BA) and William Hill served as crew chiefs. They were assisted in the field by Mr. Julian Schagene (MA), Joshua Thomson (BA), Dora Abel (BA), and Sara Deurell (BA). William Hill prepared the technical report of findings and conducted the prehistoric artifact analysis, with contributions by Jonas Yates (BA) and Julian Schagene (MA). The report graphics and mapping were prepared by Joshua Thomson and Timothy D. Sullivan (PhD).

CURATION

Materials recovered during the Phase I archaeological survey were processed at Corn Island's Louisville laboratory. The collection will be curated at the University of Louisville Center for Archaeology and Cultural Heritage (CACHe) unless the landowner makes a request to retain them. A total of 83 artifacts were recovered during the survey.

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ENVIRONMENTAL AND CULTURAL CONTEXTS

The study of prehistoric and historic cultures extends beyond the study of a society's actual material remains. It must also consider ways in which that society interacted with its environment. Throughout time, the natural landscape has influenced human use, and was in turn affected by that use. This interrelationship is reflected in both the natural and cultural resources of the area. Cultural resources may include standing buildings, structures, cemeteries, archaeological sites, and traditional cultural properties.

The cultural landscape approach provides a framework for understanding the entire landuse history of a property. It is the foundation for establishing a broader context for evaluating the significance of cultural resources, because the significance of any given cultural resource is not determined in isolation. Rather, it is achieved by examining the entire context of the landscape and interrelationships among its constituent components.

The cultural landscape approach attempts to identify linkages between cultural and natural resources. It is based on analysis of the spatial relationships between natural and human features on the landscape. By looking at the distribution of cultural resources and their correlation with environmental factors such as landform, vegetation, and drainage, patterns in the location of these resources can sometimes be defined. These patterns can then provide for more efficient management of cultural resources by better predicting where such resources are likely to occur.

ENVIRONMENTAL CONTEXT

The physical environment is one of many factors that influenced the cultural development of an area. An awareness of the natural setting and available resources of an area allows for informed interpretations of cultural issues such as settlement patterns and sedentism, as well as resource utilization and exploitation. The following environmental context provides data on regional physiography, geomorphology, and geology as well as soils and hydrology. Broad ecological patterns such as floral distributions and communities are also discussed. An understanding of an area's natural setting allows informed interpretations of such cultural issues as prehistoric/historic settlement patterns, resource availability and exploitation, and more. The following discussion is aimed at identifying those aspects of the natural environment that may have influenced the cultural development of the project corridor.

Physiography

Jefferson County is located in the Outer Bluegrass Physiographic province (**Figure 6**). The physiography of the landscape within and immediate to the project area is characterized by a karst topography and includes a series of sinkholes identified as cover-collapse sinkholes. These sinks extend along Whipps Mill Road to the northwest of the project area. Elevations within the project area ranged from 130 to 140 m (450 to 460 ft) above mean sea level (AMSL). The relief in the northern portion of the project area is generally flat with a gentle slope toward the Middle Fork of Beargrass Creek. The southern end of the project area is dissected by two drainages that feed Beargrass Creek.

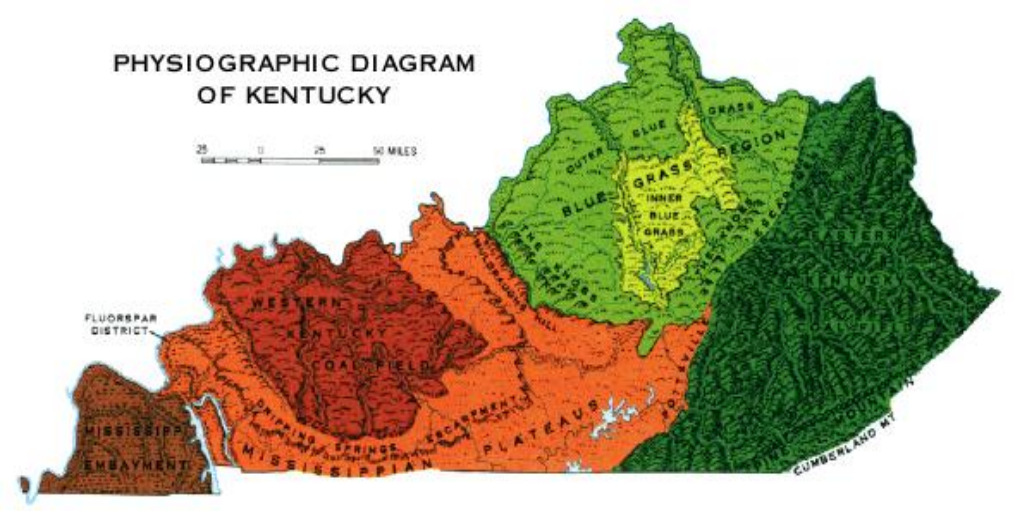

Figure 6. Physiographic regions of Kentucky (Kentucky Geological Survey 2019).

Parent Material (Geology)

The structural dome underlying the Outer Bluegrass physiographic region is known as the Cincinnati Arch. This formation exposes Ordovician, Silurian, and Devonian limestones, dolomites, and shales in the Outer Bluegrass region. While limestones typically form thick, fertile soils, shales produce thin or clayey soils. Slopes overlying Silurian shales frequently exhibit landslides due to high shrink-swell clay capacities. As documented on mapping by the Kentucky Geological Survey (KGS), parent material of soils along the hillsides and ridges of the project area are weathered from these Ordovician, Silurian, and Devonian limestones, shales, and dolomites. The project area is situated primarily on Sellersburg and Jeffersonville Limestone and Dolomite, which date from the Middle to Lower Devonian. Jeffersonville Limestone (primarily) lies immediately underneath the project area (**(Kentucky Geological Survey 2021)**. The Louisville Limestone formation is present in the creek bed of the second order stream in the southern portion of the project area (**Figure 7**).

Soils

As revisited by Buol et. al (1989), work by Dokuchaev (1898) and Jenny (1980) led to the understanding of soil as an open system influenced by the following five independent variables:

- parent material;
- time;
- relief (landform);
- climate; and
- organisms.

Soils mapped in the project area developed predominantly from loess-capped limestone bedrock of variable slope classes (**Figure 8** and **Table 1**). These are formed from fine-silty loess and clayey residuum weathered from limestone and dolomite. Soils along the floodplains of the two drainages in the area's southern portion are derived from mixed fine-silty alluvium over limestone.

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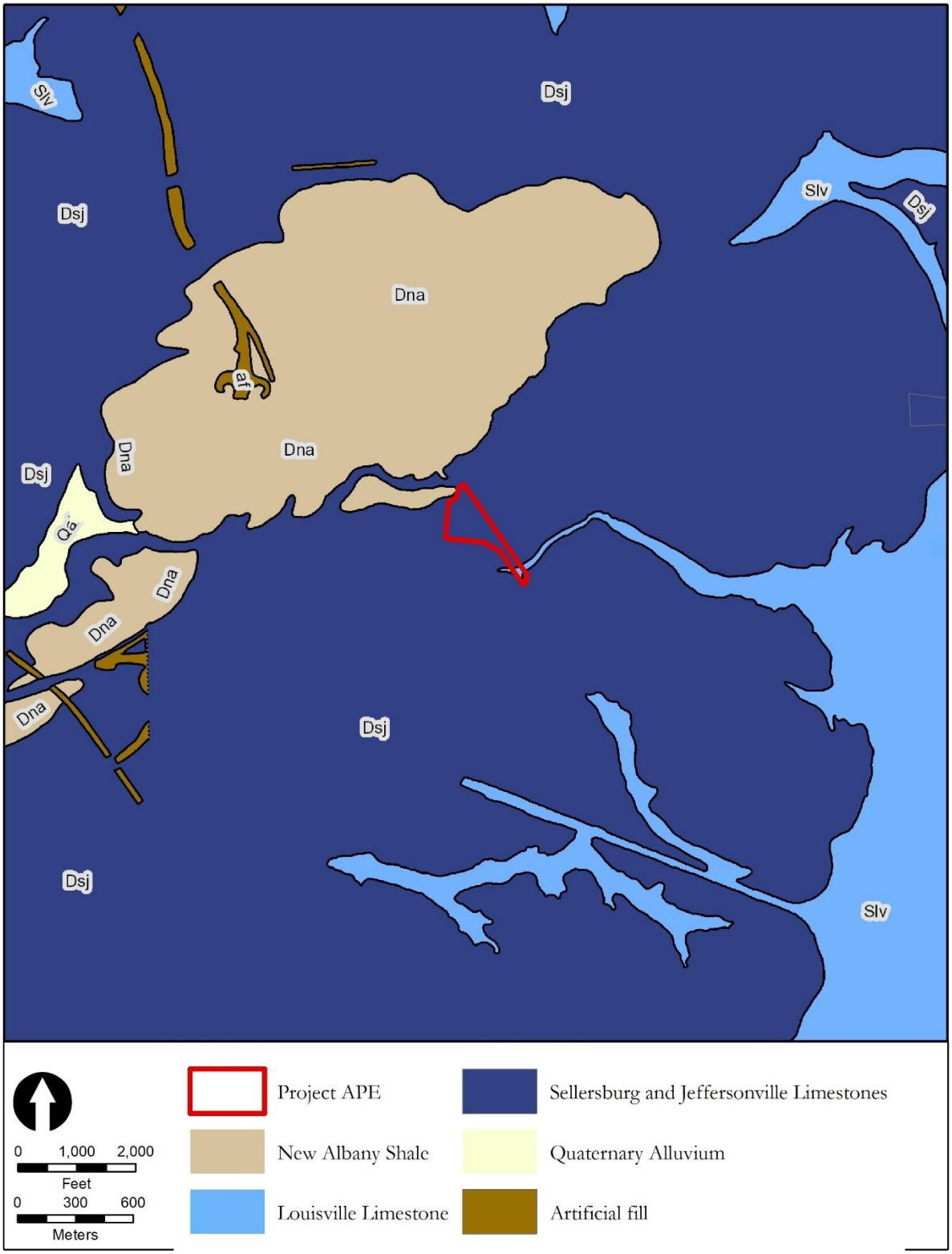

Figure 7. Bedrock geology around the project area.

Figure 8. Soils mapped within the project area (Soil Survey Staff 2021).

Table 1. Soils Mapped in the Project Area.

Parent Material	Landscape Project Area Position	Drainage Class	Soil Series and Map Symbol	Acreage and Percent of Project Area
Mixed fine-silty alluvium over limestone	Flood plains	Well drained	(Bo) Boonewood silt loam, occasionally flooded	1.4 acre, 9.1%
Thin fine-silty loess over clayey residuum weathered from limestone and dolomite.	Ridges	Well drained	(CrA) Crider silt loam, 0 to 2 percent slopes	12.1 acres, 78.6%
Fine-silty noncalcareous loess over clayey residuum	Ridges	Well drained	(CrB) Crider silt loam, 2 to 6 percent slopes	1.4 acres, 9.2%
Fine-silty noncalcareous loess over clayey residuum weathered from limestone	Hills	Well drained	(CrC) Crider silt loam, 6 to 12 percent slopes	0.1 acre, 0.7%
N/A	n/a	n/a	(Ua) Urban land	0.4 acre, 2.5%
Total				15.4 acres, 100%

Typical soil profiles for the soil series present within the project area are provided below:

Boonewood
H1 – 0 to 15.24 centimeters (cm); 0 to 6 inches: silt loam
H2 – 15.24 to 58.4 cm; 6 to 23 inches: silt loam
H3 – 58.4 to 76.2 cm; 23 to 30 inches: silt loam
R – 76.2 to 101.6 cm; 30 to 40 inches: unweathered bedrock

Crider
Ap – 0 to 23 cm; 0 to 9 inches: silt loam
Bt1 – 23 to 99 cm; 9 to 39 inches: silty clay loam
2Bt2 – 99 to 201 cm; 39 to 79 inches: silty clay

Urban land-Alfic Udarents
H1 – 0 to 61 cm; 0 to 24 inches: silt loam
H2 – 61 to 127 cm; 24 to 50 inches: silty clay loam
H3 – 127 to 178 cm; 50 to 70 inches: silty clay
R – 178 to 203.2 cm; 70 to 80 inches: unweathered bedrock

Climate

Jefferson County lies within Udic moisture regimes, defined as 90 consecutive days of moist conditions within the soil profile (Buol et al. 1989; USDA-NRCS 2009). Within recorded history, average annual precipitation for the county is 113 cm (44.41 inches); 59 percent of this falls between April and October. The greatest one-day rainfall on record (18.3 cm, or 7.22 inches) occurred in March 1997. In the summer, the average temperature is 75.9°F. The daily average temperature is 85.9°F, however, extremes can be as high as the 106°F that occurred in July 1999. In the winter, the average temperature is 34.8°F, the average daily minimum is 26.1°F, and the most extreme temperature on record is -22°F, which occurred in January 1994. The average

snowfall is 44.2 cm (17.4 inches). The greatest one-day snowfall on record is 39.4 cm (15.5 inches), which occurred in January 1997. The greatest overall depth (48.3 cm, or 19 inches) occurred in January 1978. As the greatest one-day snowfall and the greatest one-day rainfall both occurred in the early months of 1997, extensive flooding occurred in the first week of March 1997.

Climate fluctuations, however, have varied from these ranges throughout the Earth's history due to various factors (Buol et al. 1989; Fagan 1991; Riedel 2008; Zielinski et al. 1994). According to a model developed by Milankovitch, these periodic fluctuations are caused by changes in the Earth's elliptical orbit every 100,000 years, its quivering spin on its axis every 21,000 years, and its tilt on its axis every 41,000 years (Milankovitch 1998; Selby 1985:510). The pollen record shows that relatively mild temperature fluctuations have occurred since the end of the Pleistocene Epoch. After about 10,000 BP, there was a gradual warming trend that resulted in generally higher temperatures than are present today. The highest temperatures appear to have occurred around 5000 BP. This warming trend continued until the beginning of the Little Ice Age (AD 1500 to 1850), during which a significant drop in temperature occurred. After the Little Ice Age, temperatures became more moderate (Davis 1983:176; Fagan 2000; Mann 2002).

Biological Resources

The following discusses present and past plant and animal resources that are found in the region and state.

Floral Resources

During periods of glaciation, vegetation might have included pine, fir, hemlock, and spruce. As the glaciers retreated, a forest of hackberry and ironwood replaced the northern species until more temperate deciduous species returned from their separate refugia to the south and east (Delcourt 2002). As the glaciers continued to retreat farther north, average temperatures rose and the mixed hardwood forests were gradually replaced by oak-hickory forests. By 5,000 years ago, the transition was complete (Delcourt and Delcourt 1981). Oak-hickory forests would have been found in warm exposed areas, and beech-maple forests would have occurred in cool, moist shaded areas. Along streams and river valleys, northern riverine forests would have been present (Delcourt and Delcourt 1981:72).

Oak-hickory forests commonly contain a wide variety of flora. The trees that may have been present prehistorically include oak, hickory, American chestnut, dogwood, sassafras, hop hornbeam, and hackberry. Tulip trees, elm, sweetgum, shagbark hickory, and red maple also may have been present, especially in moist areas. The understory may have contained a variety of blueberries and deer berry among other plants. Herbs may have included wintergreen, wild sarsaparilla, wood-sorrel, mayapple, rue-anemone, jack-in-the-pulpit, and trout lilies (Kricher 1988:57). Stands of cottonwood, sycamore, soft maple, black willow, gum, and elm might have been present along the tributaries. On inland terraces, white oak, black oak, yellow poplar, hickory, beech, and hard maple predominate. Oak, sweetgum, tupelo, sassafras, black locust, and ash occur on drier portions of the area. The American chestnut, a common species during prehistoric times as a canopy tree, has been reduced to an understory tree by a blight introduced into North America in historic times (Kricher 1988:58). Numerous grasses and perennials such as smartweed, goosefoot, and amaranth are found in areas that are not farmed. Many of these species were present prehistorically and were utilized to various degrees for food, medicine, spiritual practices, construction material, fuel, and fiber.

According to conclusions made by Delcourt and Delcourt (1997) and Lorimer (2001), however, the present and predicted forest types may not have existed during prehistoric times due to intentional burning by Native Americans. Fire was used to clear bottomland for agriculture, to create habitat for meadow- or edge-dwelling species, and to clear the underbrush surrounding a settlement. Another activity practiced by native groups was the tending of patch resources such as river cane (*Arundinaria gigantea*) (Delcourt 2002).This native species of bamboo, as well as other grasses and sedges, would have been important to Native American groups for use as cordage, nets, baskets, and mats. It may have existed in low-lying, moist, backswamp locations.

In addition to river cane (*Arundinaria gigantea*), Delcourt (2002) suggests Native Americans may have tended stands of mast resources as well. These resources might have included hickory nuts, walnuts, butternuts, and acorns. These would have been present in the acidic mesophytic and acidic sub-xeric forests, which occur on sideslopes and bottomlands.

Ecological communities in the past, however, may have been different. In addition to effects of climate change and prehistoric modifications, numerous modifications dating to the historic period have affected communities within Jefferson County. Perhaps the most profound effects were due to logging activities. Effects include extensive sheet erosion in the uplands, excessive deposition in the valleys, and transformation of forest species from k-selected to r-selected species (the r-selected species being those that are intolerant of shade and can therefore colonize disturbed areas more quickly). Other examples of historic modifications include agriculture, in which the diversity of species in the valleys would have been replaced by monocrop plots; species extermination due to over collection; and the demise of native species due to competition with introduced species such as Japanese honeysuckle, tree-of-heaven, and burning bush.

Faunal Resources

During glacial periods of Quaternary times, the mammoth and mastodon were residents of the region. Other types of large animals that would have been available to early Paleoindian groups inhabiting the area include bison, horse, elk, deer, beaver and the now-extinct giant peccary and ground sloth (Shelford 1963; Wayne and Zumberge 1965). By approximately 8000 B.C., mixed deciduous forests had developed in the area.

Historically, mammals that thrived in the forested environment include the gray squirrel, fox squirrel, white-tailed deer, raccoon, beaver, woodchuck, striped skunk, mink, otter, fox, black bear, bobcat, and a variety of mice. Buffalo traces created corridors to and from the area's salt licks. Bird species would likely have included red-tailed hawk, ruffed grouse, great horned and eastern screech owl, pileated woodpecker, wild turkey, and blue jay, among others (Kricher 1988:12). A variety of ducks and geese also could have been present during the fall and spring migrations. Numerous species of freshwater mussels and other shellfish, such as gastropods, were present and used by the aboriginal inhabitants. Studies of various Indiana and Kentucky shell mounds have yielded remains suggesting that major fish populations used prehistorically were the drumfish (*Aplodinotus grunniens*) and catfish (*Ictalurus sp.),* which fed upon the mussel populations.

Data from Kentucky archaeological sites document a reliance on a wide range of resources. In other areas, mastodonts have been documented in association with early Paleoindian groups (10,000 to 8000 B.C.). Fish and shellfish became important during the Archaic period (8000 B.C. to A.D. 900), while white-tailed deer and wild turkey were used during numerous periods. Raccoon is often recovered from features dating to the later periods.

During the historic period, however, these resources shifted dramatically. Europeans and European Americans began to severely modify the regional ecology (Delcourt and Delcourt 1981). Fauna that are now gone from the area include wolf, elk, beaver, passenger pigeon, and others. The populations of mink, fox, and most other animals have been reduced as well due to hunting and loss of habitat.

PREHISTORIC AND HISTORIC CULTURAL CONTEXTS

The sections below review the archaeological temporal stages and cultural groups that may have been present in Jefferson County and the surrounding region beginning around 12,000 years ago. The area has been occupied from the Late Pleistocene epoch to the present and follows the same general trends as those found in other parts of the Eastern Woodlands. Researchers typically break the prehistoric occupation span of 10,000 or so years into four relatively distinct and definable periods: the Paleoindian period (ca. 12,000 to 8000 B.C.); the Archaic period (ca. 8000 to 1000 B.C.); the Woodland period (ca. 1000 B.C. to A.D. 900); and the Mississippi period (ca. A.D. 900 to 1700). The latter is followed by, or overlaps somewhat with, the Pre-Settlement Exploration or Contact subdivisions of the Historic Period, the latter marking the arrival of European explorers in the seventeenth century and initiating a dramatic shift in the region's demography.

Paleoindian Period (10,000 to 8000 B.C.)

Although the lithic material associated with Paleoindians is the earliest dated material recovered from humans in North America, it is also one of the most impressive. As with many cultural adaptations, the technology, and the Paleoindians themselves had a long history of evolution in the Old World before migrating to the New World. Artifacts found in both Old-World and New-World assemblages include fluted points, polyhedral cores, prismatic blades, and *piéces esquillès* (flakes used as wedges). Additional artifacts associated with Paleoindians include an extensive unifacial toolkit consisting of scrapers, gravers, and *limacés* (slug-shaped unifaces) (Dragoo 1973).

As the wealth of data from Paleoindian sites has accumulated, it has become apparent that groups prior to Clovis lived in North America. From Cactus Hill and Meadowcroft Rockshelter in the east to Pendejo Cave in the Southwest, dates prior to 10,000 B.C. have been documented. Additionally, the intensively dated occupation of the Monte Verde Site in Chile places humans in South America by at least 10,500 B.C. (Dillehay 1997), suggesting the initial entry of peoples into North America would have occurred around 14,000 to 15,000 years ago (Maggard and Stackelbeck 2008). With regard to the Falls of the Ohio region, however, no conclusive evidence for pre-Clovis populations has been documented so researchers follow the Paleoindian sub-periods defined by Tankersley (Tankersley 1996): the Early Paleoindian, Middle Paleoindian, and Late Paleoindian. Evidence for pre-Clovis occupations may lie within the 20,000-year-old Tazewell deposits along the Ohio River or along the Salt River drainage.

Early Paleoindian (9500-9000 B.C.)

The Early Paleoindian period is represented by magnificent Clovis spear points, polyhedral cores, and prismatic blades. Subsistence included megafauna, such as the mammoth, within prairie habitats and mastodons within forested habitats. Although there is scant archaeological evidence of Paleoindian social complexity, following arguments by Wright (2000), subsistence strategies that included procuring quantities of meat larger than one or two families could use quickly suggest higher levels of group cohesion and social complexity. Within Jefferson County, mammoth and mastodon

remains have been found in Wisconsinan gravel deposits at depths between three and eight m (Granger et al. 1976b). The earliest Paleoindian occupation may likely lie therein.

Middle Paleoindian (9000-8500 B.C.)

The Middle Paleoindian period is represented in the Southeast by Cumberland, Beaver Lake, Quad, and Suwannee projectile point/knives (ppks). During this sub-period, local raw materials were chosen more often. Perhaps related to this expanded use of material type, reduction strategies included bipolar reduction. Artifact types associated with the Middle Paleoindian include *limacés*, and scrapers and gravers exhibiting a spur or protrusion. Longworth-Gick (15JF243) is one site within Jefferson County that produced evidence of Middle Paleoindian occupation.

Late Paleoindian (8500-8000 B.C.)

The Late Paleoindian Period is represented by side-notched points such as Dalton. It is during this sub-period that the greatest change in mobility and diet occurred. During this sub-period, diet appears to have become even more varied as the climate became more temperate. Although some rockshelter sites have produced evidence of Early Paleoindian Clovis occupations, such as at Miles Rockshelter Site (15JF671) (Bader et al. 1998) and Wolfe Shelter Site (15CU21) (Lane et al. 1995), the Dalton culture is often reported to have been the first to routinely take advantage of rockshelters (Tankersley 1996; Walthall 1998).

Many items found in later prehistoric periods have not been recovered from Paleoindian contexts due to preservation. Cultural traits represented by that material culture were also assumed to be absent from the Paleoindian repertoire. Artifacts of botanical remains and bone or ivory ornamentation are some examples. Paleoindian material recovered from sites with better preservation such as rockshelters, bogs, and springs, however, changed the picture of Paleoindian cultural adaptations.

Interpretation of Paleoindian subsistence strategies have also become more complex as more data have been analyzed. Although often portrayed as relying predominantly on megafauna such as mastodonts (some evidence comes from (Loy and Dixon 1998), data from sites with optimal preservation reveals a more complex story. From the earliest sites such as Cactus Hill, the exploitation of rabbit, bear, deer, and elk was documented by blood residue analysis (National Park Service 2011). Data from Meadowcroft Rockshelter suggest possible botanical resources used by Paleoindians included hickory, walnut, and hackberry (Carr et al. 2001). As noted previously, as rockshelters were chosen as habitation sites more often during the Late Paleoindian time, data revealed that a greater variety of patch resources was exploited than previously realized, particularly non-migratory forest-dwelling species such as squirrel and turkey or edge-dwelling deer (Walthall 1998).

Archaic Period (8000 to 900 B.C.)

Over the course of the Archaic period, populations developed new cultural traits and adaptations, including the use of pottery and seed and grain crops. A more sedentary lifestyle can be interpreted from the use of heavy stone bowls and storage pits during this period. Three sub-periods have been defined for the Archaic Period: Early Archaic (8000 to 6000 B.C.), Middle Archaic (6000 to 3000 B.C.), and Late Archaic (3000 to 900 B.C.).

As of publication of the 2008 preservation plan, 927 Archaic sites had been recorded in the Salt River Management Area. Of these, around 40 percent are classified as Late Archaic, 22 percent as Middle Archaic, 20 percent as Early Archaic, and 17 percent as Archaic (Jefferies 2008).

Early Archaic (8000 to 6000 B.C.)

A number of new styles of projectile points indicate regional cultural growth during the Early Archaic. Diagnostic projectile point types include Kirk Corner-notched, Charleston Corner-notched, and LeCroy Bifurcate. Beveling along blade edges, grinding along basal edges, and serrations along margins are common. Material types might include high-quality Galconda/Harrison County chert for Charleston Corner-notched ppks or Muldraugh/Knobs chert for the Kirk Corner-notched ppks (Bader 2001).

Hunting gear included the atlatl. Although the portions made of antler and wood deteriorate too rapidly to recover from most archaeological deposits, the lithic bannerstones do not. Having had much labor and energy put into their manufacture, these items also were often items of trade or tribute. In addition, from sites such as Windover, Florida, where preservation was exceptional, Early Archaic assemblages also included bone projectile points, antler atlatl hooks, and wooden canoes (NPS 2011). The Early Archaic component at Ashworth Rockshelter (15BU236) in Bullitt County yielded bone needles as well as an antler pressure flaker (Jefferies 1990).

Middle Archaic (6000 to 3000 B.C.)

During the Middle Archaic period, the climate became warmer and drier than today. Known as the Hypsithermal, this climate change led to vast changes in ecological conditions. Most species that continued since glaciation or expanded into riskier microhabitats would have died out. Prairie ecosystems may have expanded eastward into a larger portion of Kentucky. Relic communities of glacial and Hypsithermal species, however, may have persevered within some microhabitats.

Due to this environmental change, the natural resources available to the Middle Archaic people changed, leading to a marked change in residency and subsistence from the Early Archaic. This period of restricted natural resources gave rise to more permanent settlements, one indication of which is the presence of storage pits. Parry and Kelly (1987) propose other clues in the lithic assemblage that indicate increased sedentism: less reliance on formal tools, and greater use of retouch and expedient-use tools. Middle Archaic lithic assemblages fit this model.

Subsistence patterns also changed during this period of climate change. Across the Eastern North American Woodlands, Middle Archaic populations can be identified by their extensive exploitation of shellfish. Shell mounds and shell-laden horizons, in addition to the appearance of netsinkers and fishhooks in the Middle Archaic toolkit, document this change to riverine resources. In addition, mortars and pestles document the processing of mast resources such as walnuts and hickory.

Diagnostic projectile point types of the Middle Archaic period include Kirk Stemmed, White Springs, Stanly, and Morrow Mountain. Additional items in a Middle Archaic assemblage might include woven fabrics, atlatls, bone and antler tools, awls, red ocher, marine shell, and copper. Burials of canine companions have also been documented (Lewis and Kneberg 1958).

In the region, Middle Archaic populations might have encountered expanded xeric forests and barrens in place of some of the mesophytic or sub-xeric forests. As with the Early Archaic, Middle Archaic settlements were typically located in rockshelters and on lowlands near streams. According to Fenton and Huser (Fenton and Huser 1994), Middle Archaic sites also occur in surficial deposits along ridgetops.

Late Archaic (3000 to 900 B.C.)

During this period, populations increased, maintained even more permanent settlements, and developed new technologies. In the Southeastern United States, the first evidence of pottery, a fiber-tempered ware, can be attributed to Late Archaic groups. In the Falls of the Ohio region, diagnostic ppks include McWhinney, Karnak, Merom, Bottleneck, and Ledbetter. Raw materials used for these were usually poor-quality, local materials. A variety of groundstone tools have been recovered, including three-quarter grooved axes. Bone and antler tools are well represented from Late Archaic sites, and include atlatl hooks, fishhooks, awls, pins, and antler projectile points. The recovery of steatite, copper, and marine shell at Late Archaic sites suggests stronger leadership as well as extensive trade or tribute networks. Social stratification is also suggested by more extensive mortuary practices, such as found at the KYANG Site (15JF267).

Subsistence during the Late Archaic included oily and starchy seed crops such as lambsquarters (*Chenopodium berlandieri* Moq. ssp. *jonesianum*), sunflower (*Helianthus annuus* var. *macrocarpus*), and ragweed (*Ambrosia trifida*) (Crites 1993; Gremillion 1995; Riley et al. 1990). Squash (*Cucurbita pepo* ssp *ovifera*) also became domesticated. Within Jefferson County, archaeological evidence for the diet of Late Archaic peoples has come from sites such as Lone Hill (15JF562/15JF10), Arrowhead Farm (15JF237), and Old Clarksville (12CL1). Floral resources utilized include mast resources such as black walnut, butternut, and hickory. Aquatic resources utilized include *Rangia sp*, an introduced snail species from the lower Mississippi River valley, drumfish (*Aplodinotus grunniens*), and catfish (*Ictalarus sp.*) (Janzen 1971).

Late Archaic sites include a diverse range of types, including shallow, upland, lithic scatters; hillside rockshelter/cave sites; and deep middens along the major rivers. Janzen (Janzen 1977) proposed a settlement pattern of seasonal migrations between ecosystems. Granger (1988) follows this out and proposes that groups timed their migrations to be near the Ohio River for spring fish runs, used sites such as Lone Hill, KYANG, and Minor's Lane during the summer and fall and, in southwestern Jefferson County, made forays into the Knobs to acquire fresh supplies of Muldraugh/Knobs chert. Janzen (1977) also proposes that Late Archaic subsistence strategies were scheduled in such a way as to enable the exploitation of several microenvironments, which thereby reduced the need for seasonal movement and led to increased sedentism. In addition to storage pits typical of the Middle Archaic period, Late Archaic sites include features such as rock hearths and dark middens--further evidence of the decline in mobility.

Woodland Period (900 B.C. to A.D. 900)

Trends established in the Late Archaic, such as increased social complexity and inequality, coupled with sophisticated mortuary practices, continued during the Woodland and culminated in the Adena and Hopewell cultural traditions. In some ways, the Woodland lifestyle was a continuation of earlier Later Archaic and some cultural traditions spanned the Late Archaic and Early Woodland periods. Technological innovations serve to differentiate the Woodland from the Archaic as a developmental stage. Among these is the manufacture and use of ceramics. The ungrooved celt replaced the Archaic grooved axe, and bone beamers took the place of endscrapers (Railey 1990, 1996).

The period is also noted by the appearance of social or ritual spaces aside from the domestic dwellings, including earthen enclosures and burial mounds. Upstream from the Falls of the Ohio, a complex social system labeled Adena appeared in the late Early Woodland around 500 B.C. and continued into the early Middle Woodland when it intensified into the Hopewell tradition. The Woodland period is divided into Early (1000 - 200 B.C.), Middle (200 B.C. - A.D. 500), and Late (A.D.

500 - 1000). As of publication of the 2008 preservation plan, 410 Woodland sites had been recorded within the Salt River Management Area, accounting for 14 percent of the state's Woodland period sites (Applegate 2008). The Salt River area contains the highest density of Woodland sites per acre surveyed.

Early Woodland (1000 to 200 B.C.)

Differences between Woodland sub-periods are largely distinguished by changes in ceramic styles. Early Woodland pottery is generally thick and grit-tempered and vessel exteriors are either plain or exhibit cordmarking fabric impressions. In the Falls of the Ohio region, grit-tempered cordmarked Fayette Thick is representative of Early Woodland ceramic assemblages (Mocas 1995). Early Woodland projectile points include a variety of stemmed and notched types, including Kramer, Wade, Adena, Gary, and Turkey-tail, as well as Cogswell Stemmed (Justice 1987). Early Woodland sites in the Outer Bluegrass regions are found primarily along the region's rolling ridgetops particularly near springs and other critical resources (Railey 1996:85). Domestic structures varied in shape between oval, circular, square, and rectangular. To the east in the mountain regions of the state, these groups extensively exploited rockshelters and occupied many for long periods of time.

Although the emphasis on subsistence practices during this period remained on hunting and gathering, the continued development of weedy annuals horticulture marks a divergence from the earlier period (Railey 1990:250). Plant species in the Eastern Agricultural Complex (EAC) tended for their seeds included goosefoot (*Chenopodium berlandieri* var. *jonesianum*), erect knotweed (*Polygonum erectum*), little barley (*Hordeum pusillum*), maygrass (*Phalaris caroliniana*), sumpweed (*Iva annua* var. *macrocarpa*), and sunflower (*Helianthus annuus*), and species propagated for their fruit include cucurbit (*Cucurbita sp.*). In addition, maize has been reported from a few Early Woodland sites in Ohio and West Virginia (Wymer 1992) as well as Kentucky at the Hornung Site (15JF60). The "Riverwood Phase" has been offered as a possible name to signify the Early Woodland (ca. 1200 to 300 B.C.) period in the Falls region (Janzen 1977; Applegate 2008).

Middle Woodland (B.C. 200 to A.D. 500)

The Middle Woodland period is largely marked by changes in ceramic style. While Early Woodland pottery was thick and crude, some Middle Woodland ceramics were designed for ritual or ceremonial use and exhibit thin walls and elaborate decorations (Wymer 1992:84-85). Middle Woodland ceramics include conoidal and barrel-shaped jars with flat, rounded, or pointed bottoms, and plain, cordmarked, dowel-impressed, or fabric-impressed surfaces. In the Falls of the Ohio region, grit-tempered, cordmarked Fayette Thick ceramics became less numerous and limestone-tempered Falls Plain become more prevalent (Mocas 1995). Decoration in the form of nodes, zoned incised punctuation, or incised dentate stamping have been recovered from sites of this period (Railey 1990:251, 1996:89). Projectile points typical of the period include expanded-stem points and shallow-notched points such as Snyders, Steuben, Lowe Flared Base, Chesser, and Bakers Creek (Railey 1990:252). Middle Woodland peoples continued to rely on hunting, gathering, and an intensified form of horticulture that emphasized native plant species of the EAC. Wymer (1992) found that Middle Woodland populations relied more on these seed crops than later groups. In addition, maize has been recovered and dated from Harness Mound in Ohio (Wymer 1992). These additions to the diet may have had repercussion throughout the social, political, and economic spheres.

Settlement patterns appear to have changed through time, with small, scattered settlements occurring early in the period and an increase in nucleation associated with larger base camps later in the period. Ritual spaces, including Adena tradition burial mounds and later Hopewell tradition earthen enclosures, are associated with Middle Woodland sites (Railey 1990:251-252, 1996). Large-scale mound construction is indicative of significant community effort and politically complex, ranked societies. Social stratification also is evident by burials of this period, which became increasingly more elaborate. Although Clay (Clay 1992) has argued Adena political systems were not controlled by chiefs or "Big Men," Wright's (2000) interpretation of the role of Big Men to solidify intra-group identity and inter-group détente appears to apply to the Adena. The logic of non-zero-sum games found in Wright (Wright 2000) is actually foreshadowed by Clay's conclusions of Adena manifestations in the Ohio River valley:

> ". . . *it is suggested that cooperative mortuary ritual in Adena, most importantly the construction of burial mounds, reflects just this tendency for dispersed social groups in the time period ca. 400 B.C.-1 A.D. to buffer local shortages in goods within a larger social environment becoming more densely populated and competitive. Through alliances with other groups, patterns of potential economic reciprocity were established and access to dispersed environmental resources…was assured, cemented…. Finally, the grave goods represent items of exchange, payoffs preserving symmetry in reciprocity between exchanging groups"* (Clay 1992:80).

These alliances are visible in the archaeological record by the exotic materials found on Adena and Hopewell sites. Characteristic artifacts include the following: gorgets, incised stone and clay tablets; platform pipes; barite and galena bars; copper earspools, bracelets, and beads; and bone and shell beads (Webb and Snow 1974).

The temporal division between Adena and Hopewell earthworks is not as well defined in the Bluegrass as it is farther north along the Ohio River. Researchers are increasingly treating Adena and Hopewell sites in Kentucky as a single ceremonial tradition (Railey 1996:97-101) or as an organization type (Clay 1991). Within the Falls of the Ohio region, the Middle Woodland Adena/Hopewell manifestation is identified as the Zorn Phase.

Late Woodland (A.D. 500 to 900)

The transition between the Middle and Late Woodland periods is poorly understood. The Late Woodland period is generally perceived to be a period of decline in the importance of the ritual that characterized the Middle Woodland period. Earthwork construction stopped and long-distance exchange collapsed dramatically (Railey 1996:110). Late Woodland societies apparently developed along different lines regionally, but all seem to have depended initially upon the exploitation of local wild resources and the domesticated plants of earlier times. The cultivation of maize characterizes the latter portion of the period. Unlike the nucleated villages of the Newtown Phase in Ohio (Railey 1991), Late Woodland societies in the Falls of the Ohio area were small and dispersed and located in a variety of environmental settings.

Late Woodland artifact assemblages do not differ significantly from those of the Middle Woodland, with the exception that there is a lack of ceramics decorated with Hopewellian motifs and other ceremonial or exotic objects (Railey 1990:256). Late Woodland ceramics are generally cordmarked jars with little decoration.

Projectile points initially consisted of expanded-stemmed points such as Lowe Flared Base. With the technological development of the bow and arrow, however, small triangular arrow points appeared. Odell (Odell 1988) proposed that experimentation with the new technology began much earlier—around A.D. 1—and that many of the first arrows were flakes. Seeman (Seeman 1992), on the other hand, suggests the first culture to use the bow and arrow was the Jack's Reef Horizon around A.D. 700. Whether this is reflected in data from the Falls of the Ohio remains to be seen.

Subsistence continued to rely predominantly on hunting and generalized gathering, but plants comprising the EAC continued to be important. It is during this period that maize becomes more important in the diet, as do cucurbits (squash) over most of the seed crops of the EAC. Only goosefoot and sunflower continued to be propagated (Wymer 1992). In place of the starchy seeds, Late Woodland populations included "sumac, elderberry, raspberry, honey locust, and others" in their diet (Wymer 1992:66).

Mississippi Period (A.D. 900 to A.D. 1700)

The Mississippi period between A.D. 900 and A.D. 1700 saw the development of a variety of regional cultural expressions that have been subsumed under the name Mississippian. Archaeologists typically view Mississippian societies that developed during the late prehistoric period across North America as containing characteristics typical of chiefdoms (Knight 1990; Service 1971). During this time, population levels increased, and agriculture became a means of intensifying production (Muller 1986:169). Population in villages was generally large and residence was year-round and permanent. This was made possible by full-scale agricultural practices supported by hunting and fishing. Maize, beans, and squash constituted the agricultural base, which was supplemented by hunting and gathering. The settlement system of this period included a hierarchy of habitation sites, the most striking of which were palisaded towns believed to be ceremonial centers. The ceremonial centers included large, central plazas with pyramidal, platform mounds. The political organization of the period correlated to that of a chiefdom level, and the economy supported an elite class. Burials provide evidence of social stratification or status rank in the numbers of grave goods, retainer sacrifice, and even effigy figurines of those of high status. Other individuals were interred without goods, extended in shallow stone box graves or within the floors of houses, usually below the hearth.

The Mississippian period has been divided into two subperiods: Early Mississippi (A.D. 900-1300) and Late Mississippi (A.D. 1300 to 1700). Artifacts diagnostic of the Mississippian culture include new lithic tools such as notched hoes that exhibit bright polishes from their use in maize agriculture. Artifacts diagnostic of the Mississippian culture include new lithic agricultural implements, new exotic materials, and new forms of ceramic vessels. Craft specialization was probably practiced, as shown by burial caches of tools and effigies of almost perfect duplication on preselected materials procured from specific sources. New lithic tools developed include notched hoes that exhibit bright polishes from their use in maize agriculture. The raw material chosen for these hoes was usually either Mill Creek chert from Illinois or Dover chert from Tennessee; other materials used include Kaolin or Burlington chert, shells, or deer or bison scapulas (Odell 1988:53). The principal weapon was the bow and arrows tipped with small triangular points. Ppks diagnostic of the period include Madison, Nodena, and Cahokia (Justice 1987).

Ceramics of the period are largely plain, simple, and shell-tempered, with the decorated forms representing only a fraction of the total ceramics manufactured during the period (Muller 1986:235). Decorated sherds of the Angel Phase, centered in the lower Ohio River valley, include those with red filming, negative painting, and incising, but these may occur in minor amounts (Pollack

2008b:641). Mississippian vessel forms include jars, bowls, saltpans, bottles, and plates. Exchange of goods undoubtedly occurred between groups, and exotic items are recovered from Mississippian sites, but local exchange was probably more important than regional scale exchange (Muller 1986:244). Other materials found in Mississippian assemblages include coal, fluorite, and, less frequently, copper (Muller 1986).

Subsistence practices are one of the most recognized changes occurring during this time period. It is not until the Mississippian and Fort Ancient cultures come to rely upon maize as a major staple that subsistence practices changed from hunting, gathering, and horticulture to agriculture. As mentioned previously, however, maize had been brought into the upper Ohio Valley earlier. In addition, as Yerkes (1987) emphasized, subsistence practices from previous periods continued and some technologies from the previous periods were adapted to the new practice.

There was a significant concentration of Mississippian villages at the Falls of the Ohio near Louisville, Kentucky. This includes such sites as the Newcomb Site (12CL2) in Clark County, Indiana, and the Shippingport Site (15JF702). The Eva Bandman Site (15JF668) is a Mississippian site that shows evidence of potential interaction with the Fort Ancient peoples to the north and east.

In western Kentucky, northwestern Tennessee, southern Illinois, and eastern Missouri; there was witnessed a period of regional abandonment and a concomitant decline in Mississippian culture that occurred prior to the appearance of Europeans. Stephen Williams (1980, 1983) proposed a "Vacant Quarter" hypothesis—that former powerful Mississippian centers were abandoned abruptly prior to the explorations of Europeans ca. A.D. 1450-1550. The sudden collapse of Mississippian culture in this region has been attributed to political instability, changing climatic conditions known as the Little Ice Age, and the introduction of European diseases (Cobb and Butler 2002; Lewis 1996). However, in light of a more recent investigation of radiocarbon evidence (i.e. Cobb 2013; Cobb and Butler 2002), much of the abandonment seems to have occurred ca. A.D. 1450 and appears to be less likely a result of European diseases. The newest evidence suggests that regional abandonment was likely related to climatic changes and that an out-migration of people occurred, some of whom moved to eastern Tennessee, Alabama, and Georgia (Krus and Cobb 2018).

However, the region was never completely abandoned by native peoples. The Angel Site near Evansville, Indiana, is the most easterly of the major Mississippian centers along the Ohio River valley that survived into the 17th century. Caborn-Welborn Phase sites (A.D. 1400-1700) were also present following the collapse of Angel and were centered near the confluence of the Wabash and Ohio rivers (Pollack 2004, 2008b).

Historic Native Americans

The period between A.D. 1500-1700 is a time when many native groups in eastern North America were negatively affected by direct or indirect interaction with Europeans (Lewis 1996). It has been difficult to establish links between late prehistoric groups and historically known Native American entities in the Ohio River valley (Muller 1986:264), although new ethnohistoric and archaeological research is beginning to shed light on this time (Ethridge 2006; Ethridge and Shuck-Hall 2009). To the south of Kentucky, Hernando de Soto's entrada (A.D. 1539-1542) encountered powerful Mississippian chiefdoms (Hudson 1997). De Soto's army was reliant on plundering the large stores of food present at these Mississippian chiefdoms and his route was largely dictated by the boundaries of the existing Mississippian world at that time. It now appears that his army was prevented from heading farther north towards the confluence of the Ohio and Mississippi rivers

due to the lack of chiefdoms present in that region (Ethridge 2010). This was the area of the Vacant Quarter (Cobb and Butler 2002; Williams 1980, 1983) that included the lower Ohio Valley and Western Kentucky; believed to have been abandoned sometime around A.D. 1450 (Cobb 2013; Cobb and Butler 2002) and only sparsely inhabited in the seventeenth century. No Europeans ventured into this region again until the French explorers Joliet and Marquette made their voyage down the Mississippi in 1673. At this time, the large Mississippian polities in the southeast had undergone dramatic disruptions and were in collapse. This was due in part to disease, but perhaps more so by political destabilization of the region caused by de Soto's plundering and conflicts with these societies. What is certain is that the changes that occurred were prior to the sustained presence of Europeans in this region (Ethridge 2009, 2010).

With the sustained presence of Europeans along the eastern seaboard in the seventeenth century, Native American interests became intertwined with market interests and international commerce. This was a time of large-scale cultural disruption in eastern North America that witnessed many earlier Native American groups migrating and coalescing with other groups to form new societies. This entanglement with colonial powers was associated with an increased militarization among some Native American societies that included the capturing of Indian slaves to mitigate their own population losses due to European diseases and, later, the selling of Indian slaves to Europeans along the Atlantic seaboard. One consequence of this militarization was the emergence of a short-lived period of "militaristic slaving societies" from ca. A.D. 1620-1715 during which time relentless raiding of their Indian neighbors for slaves occurred (Ethridge 2006; 2010:93).

To the northeast of Kentucky, the Iroquois Confederacy (*Haudenosaunee*), a league of five (later six) distinct nations located in present-day New York, had formed just prior to European arrival in North America. With the arrival of Europeans, the Iroquois became one of the first of these militaristic slaving societies to develop within this new colonial context and, by the mid-seventeenth century, they were entering the lower Midwest via the Ohio and Mississippi river Valleys (Ethridge 2010). Archaeologists have maintained that the eastern Ohio Valley, which includes portions of eastern Kentucky and West Virginia, was largely depopulated by this time, although there is no consensus as to whether this was a result of Iroquois depredations (Drooker 2002; Ethridge 2010; Pollack 2004:188-190).

By 1730, although thousands of Indians had been enslaved and almost all of the prior southeastern polities had disappeared or been destroyed, the survivors regrouped into new societies structured to the new geopolitical landscape that was in place (Ethridge 2009). Scholars are beginning to explore the idea that the Shawnee were one such group that formed during the turmoil, dislocation, and depopulation occurring in the Ohio River valley, becoming highly mobile mercenaries with a very fluid social structure (Ethridge 2010:96; Warren and Noe 2009). Although most of the Kentucky region was devoid of major settlements by the time of the earliest European incursions into the area, the Cherokee, Shawnee, and Iroquois Confederacy all had land or hunting claims in what became eastern and central Kentucky, while the westernmost portion of Kentucky was claimed by the Chickasaw. In addition, hunting bands of Illinois, Miami, and Delaware at times visited Kentucky.

With the Treaty of Fort Stanwix in 1768, the Iroquois Confederacy ceded its claims to hunting grounds between the Ohio and Cumberland rivers to the British government. The Shawnee ceded their claims to most of Kentucky after their defeat in the brief Lord Dunmore's War (1774). The Cherokee had land claims to the region until 1775. Richard Henderson's purchase by the Treaty of Watauga (1775) (also known as the Treaty of Sycamore Shoals) was one of several treaties that

disenfranchised the Cherokee from their lands. The treaty had two deeds that purchased land from the Cherokee under the name of the Colony of Transylvania. The first deed acquired all the land between the Kentucky and Cumberland rivers and the second deed, known as the "Great Grant," included all the territory watered by the Cumberland River and its branches. Henderson then hired Daniel Boone to establish the Wilderness Road into present-day Kentucky from Virginia. Over 20 million acres, or 81,000 km², of land were acquired by the Transylvania Company through this treaty, encompassing almost two-thirds the area of present-day Kentucky.

The Chickasaw were known to have had land claims in western Kentucky at the time of European incursions into the region. In 1817, the Kentucky legislature asked President James Monroe to purchase western Kentucky and western Tennessee from the Chickasaw. Isaac Shelby of Kentucky and Andrew Jackson of Tennessee were appointed to negotiate with the Chickasaw who, in 1818, ceded land in western Tennessee and southwestern Kentucky to the United States through the Treaty of Tuscaloosa (Service 1971:460-462).

Today, there are no federally recognized Indian nations in Kentucky, although the Southern Cherokee of Kentucky are a group whose ancestors had been removed to Indian territory on the Trail of Tears in 1838. They claim to have fled from Indian territory to Kentucky ca. 1871 in order to escape post-Civil War, Reconstruction-Era violence. Today they claim tribal lands in Henderson, Kentucky. They have been recognized and paid tribute by Governor John Young Brown on December 26, 1893, and Governor Ernie Fletcher in 2006 (The Southern Cherokee Nation of Kentucky 2012).

Euro-American Settlement

Persons of European descent first settled in Kentucky in the late eighteenth century, primarily in the gently rolling Bluegrass Region just west of the Appalachian Mountains. At this time the dissemination of land was ruled by various companies and speculators. One of these companies, headed by Colonel Richard Henderson, purchased a large tract of land between the Kentucky and Cumberland rivers from the Cherokee Nation in 1775. Present day Crittenden County lies in the western portion of this original purchase. The Henderson Company lost the rights to these lands when the Virginia Legislature decreed that only the State could purchase lands from native populations within the Royal Charter (Starling 1887:18)

Native American presence during the early historic period most often consisted of scouting parties, hunting parties, and raids. Although few historic native groups were known to have inhabited Kentucky during this period, native groups undoubtedly knew and valued resources such as salt licks and chert deposits as well as the abundant wildlife. The ever-increasing flow of non-natives into the region was an intrusion that proved impossible to stem. Raiding during the period from the 1780s to 1790s was especially active. These included skirmishes along portions of the Wilderness Road. During the Revolutionary War, British agents encouraged the harassment of settlements in Kentucky. One appalling example was the 1781 Long Run Massacre in eastern Jefferson County, which had been instigated by British trader Alexander McKee and Mohawk Joseph Brant. Many natives in this 200-person force were Huron, a tribe also from the northeastern U.S. (Genealogy 2008; Painted Stone Settlers 2013).

After the close of the Revolutionary War, however, participants and the motives behind skirmishes changed. Many of the raiding parties that scoured Kentucky after the war consisted of Shawnee and other Ohio tribes seeking retaliation for deeds committed by George Rogers Clark's campaigns into the Ohio country, including the 1782 destruction of villages at Chillicothe and

Piqua Town. Other atrocities, such as the Gnadenhutten Massacre of converted Moravian Delaware Indians by other parties in 1782, likewise led to increased friction throughout Kentucky, including Jefferson County.

Shawnee claims to the territory that became Kentucky were ceded to the Virginia colony after Lord Dunmore's War and formalized in the Treaty of Fort Stanwix in 1768 (Ohio History Central 2005). Cherokee claims to central and eastern Kentucky were ceded to the North Carolina colony in 1775 with the Treaty of Sycamore Shoals (Tennessee Historical Society 2011). Today, although no federally recognized tribe is identified within Kentucky, consultation with or notification to interested parties is necessary during many governmental procedures, particularly with reference to the National Historic Preservation Act (NHPA) and National Environmental Policy (NEPA) (King 2008).

Euro-American historic exploration of the area began during the 1770s. The Falls of the Ohio area, at present-day Louisville, was surveyed in 1773 by Thomas Bullitt. The area was re-examined the following year by John Floyd. As early as 1774, the Wet Woods area along Pond Creek was explored and mapped. This occurred largely due to its location along the Wilderness Road, one of the major thoroughfares of westward expansion. A section of the Wilderness Road known as Powell's Trace ran from Harrodsburg across Cox's Creek, crossing the Salt River near Shepherdsville. Around 1775, Thomas Denton led a surveying party into the Salt River country. By the time the American Revolution erupted, pioneer leaders, including Bullitt, James Harrod, Daniel Boone, and Michael Stoner, were establishing small settlements in the interior of Kentucky (Kramer 2001b).

Jefferson County is one of Kentucky's three original counties, having been created from a part of Virginia in May 1780 by the Virginia General Assembly. The 3,642-ha (9,000-acre) county is named after Thomas Jefferson and was one portion of the vast Virginia holdings that ran from the Chesapeake Bay to the Ohio River (Morgan and Jett 2002:1). European exploration of the area had been minimal until the mid-1700s and Louisville itself remained relatively untouched until the Fincastle Survey in 1774, in which roughly one-third of the county was surveyed (Morgan and Jett 2002). While little came of the survey immediately, by 1778 settlement had begun. Land grants spurred settlement. An early documented settlement occurred in July 1776 when Samuel Pearman of the Virginia-based Shane, Sweeney, and Company explored to the mouth of Salt River. The party claimed several thousand acres along the Ohio and Salt rivers (Kramer 2001a).

In May 1778, General George Rogers Clark traveled from Pittsburgh with 175 militiamen and numerous settlers. Clark was to launch an offensive to gain control of Canadian lands (Indiana and Illinois) while the settlers desired the surveyed land of Jefferson County (Kramer 2001a:574). Clark landed at Corn Island at the Falls of the Ohio in 1778 with a regiment of troops and several families. Shortly afterwards, Clark and his regiment left the families behind on Corn Island as they began their campaign in the Illinois country, eventually capturing the British forts of Kaskaskia, Cahokia, and Vincennes. A year later, the settlers on Corn Island moved to the Kentucky mainland and established the town of Louisville (Kramer 2001a:41-51). They named their settlement in 1779 after French King Louis XVI, who allied himself and France with the colonial cause after the outbreak of the American Revolution (Kramer 2001a:574). Two years after settling Louisville, Virginia granted the town a charter. Louisville was designated the seat of justice for the county (Yater 1992:464). Kentucky was part of Virginia until 1782 at which time it was incorporated. The population of Jefferson County concentrated around the Falls of the Ohio River and extended into tributary streams, most notably Beargrass Creek.

Exploration and settlement activity in the Salt River valley accelerated substantially after Clark's expedition, often in the face of native opposition. Squire Boone, Daniel Boone's brother, explored the vicinity on several occasions during the late 1770s. The following year, Henry Crist began saltmaking operations at Bullitt's Lick, located at the junction of Salt and Rolling Fork rivers in present Bullitt County. Discovered in 1773 by Captain Thomas Bullitt while engaged in his surveying expedition at the Falls of the Ohio, it was for a time the only place in Kentucky where pioneers could find salt.

Rivers and streams provided the easiest and earliest routes of transportation for early travelers. These, along with buffalo traces and Native American trails served as the primary arteries of travel. At those places where streams and roads intersected, villages became established. This occurred not only because of the intersection of various routes but because it was in these locations that goods and passengers were loaded and unloaded as they changed the mode of conveyance (Kramer 2001b:59).

Initial settlement of agricultural land in Jefferson County generally occurred in three stages from the late 1700s to the middle 1800s. The earliest pioneers first claimed fertile land along the Ohio River to the northeast and east for plantations and gentlemen farms. The second wave established middle-class and gentlemen farms in the hills and valleys near Floyd's Fork to the east and southeast in the early-to-mid 1800s. The third group settled on the swamps and lowlands to the south and southwest. The abundant timber from land cleared for agricultural purposes was used in the construction of frame and weatherboard houses found in the region. Available stone collected from hillside outcrops and stream beds was used for foundations and rock fences associated with farms and turnpikes (Thames 1990).

Drainage issues largely precluded large-scale development in the southwest early on as the land was not thought to be suitable. "Apparently, no Indian tribe ever called it [this area] home, although they did use it as hunting ground. And most pioneers who journeyed out that way sought land with better drainage. The valley between the Ohio River and Muldraugh Ridge, which extends from Iroquois Park to Fort Knox, was almost swampy in some places" (Bartlett 1989:116). This land was left for later settlers who hailed from Pennsylvania, Virginia, and North Carolina, as well as elsewhere in Kentucky.

As discussed in Stottman et al. (2011), the general project area once lay in proximity to local early stations established along Beargrass Creek. Colonel William Christian established A'Sturgus Station on a 809-ha (2,000-acre) tract that includes the current project area in 1774 (Stottman and Stahlgren 2012). Christian's log house lies on the northern side of Beargrass Creek and one km (0.62 mile) west of the project area.

3

BACKGROUND RESEARCH

The results of the background research are presented below. The background research consisted of a record check and a review of gray literature documenting previous cultural resources management investigations in the project vicinity, archival research, map review, and cemetery information. This background research was informative in ascertaining the potential for significant historic and prehistoric archaeological remains to be present in the vicinity of the proposed project. It was also an important step towards developing an expanded context that will prove useful for interpreting the historical significance of the project area.

MAP AND AERIAL PHOTO REVIEW

A series of historic maps were examined with the objective of providing historical perspective on the area and in identifying the location of former buildings, structures, and activities that could contain associated archaeological deposits. These are summarized in **Table 2**. Changes in landuse, the locations of roadways, churches, and schools, and names of property owners who resided in the area, were noted as well**.** It should also be noted that the maps presented below are for representative purposes only. The location of the project area and scale are approximations and are based upon the location of main thoroughfares and waterways on the historic maps. It was not always possible to exactly align these courses, either due to poor resolution or scaling of the historic maps.

Table 2. Reviewed Historical Maps.

Map	Reference
Map of Kentucky, drawn from actual observations by John Filson	Filson (1793)
A Map of the State of Kentucky: from Actual Survey; also Part of Indiana and Illinois	Luke Munsell (1818)
Map of Jefferson County, Kentucky: Showing the Names of Property Holders, Division Lines of Farms, Position of Houses, Churches, School-Houses, Roads, Water-Courses, Distances, and the Topographical Features of the County (Bergmann 1858)	G.T. Bergmann (1858)
Atlas of Jefferson and Oldham Counties, Kentucky, from new and actual surveys (Beers and Lanagan 1879)	D.G. Beers & Company, Philadelphia Beers and Lanagan (1879)
Topographic Map of the Louisville 15-minute Quadrangle	USGS (1907)
Atlas of Louisville and Jefferson County, Kentucky, compiled from actual surveys, and official records (Hunter 1913)	Louisville Title Company
Topographic map of the Jeffersontown, Kentucky 7.5-minute Quadrangle	USGS (1951, 1955, 1960, 1964, 1971, 1982, 1987, 1994)

John Filson's 1793 map of the county displayed the fledgling cities and frontier forts (stations) in Kentucky and Indiana as well as waterways, travel routes, and topographic features in a stylized

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manner (**Figure 9**). The approximate location of Sturgis Station was about one km (0.62 mile) to the west of the project area.

On the 1818 Munsell and Anderson map, the project area is shown as located between the Dry Fork and Sinking Fork branch of Beargrass Creek (**Figure 10**). A route is denoted along the course that later became Shelbyville Road. The creek that runs through the Bullitt Estate and along which the project area lies is named Dry Fork. This is the only map consulted that provided a name for this otherwise unnamed creek.

Figure 9. Section of John Filson's 1793 map of Kentucky, showing the Falls region and stations along Beargrass Creek (Filson 1784).

As shown on the 1858 Bergmann map, the project APE lies on land of William Bullitt's "Oxmore" Estate (**Figure 11**). On the 1858 map, Shelbyville Road is a toll road called the Louisville and Lexington Turnpike. The corner of Whipps Mill Road and Shelbyville Road is the location of a blacksmith shop, a tollgate, and the William Christopher stone house. The property is owned by the Bullitt Estate at present.

Although drainage features are incorrectly drawn on the 1879 Beers and Lanagan map, the map depicts no buildings or roads within the project area (**Figure 12**). The community at Whipps Mill Road and Shelbyville Road is noted as being "Howesburg" that includes a store and post office, 8 Mile House (the William Christopher stone house that stands today), blacksmith shops, a sawmill, residences, and a tollgate.

The 1913 Hunter property map shows the property as owned by Henry Bullitt (**Figure 14**). No buildings or structures are depicted within the project area on the 1907, 1951, and 1960 USGS topographic maps (**Figure 13**, **Figure 15**), and (**Figure 16**).

USGS aerial photography from 1950 and 1971 show no buildings or notable historic features within the project area **(Figure 17** and **Figure 18**)

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Figure 10. Approximation of project area on Luke Munsell's 1818 map of Kentucky.

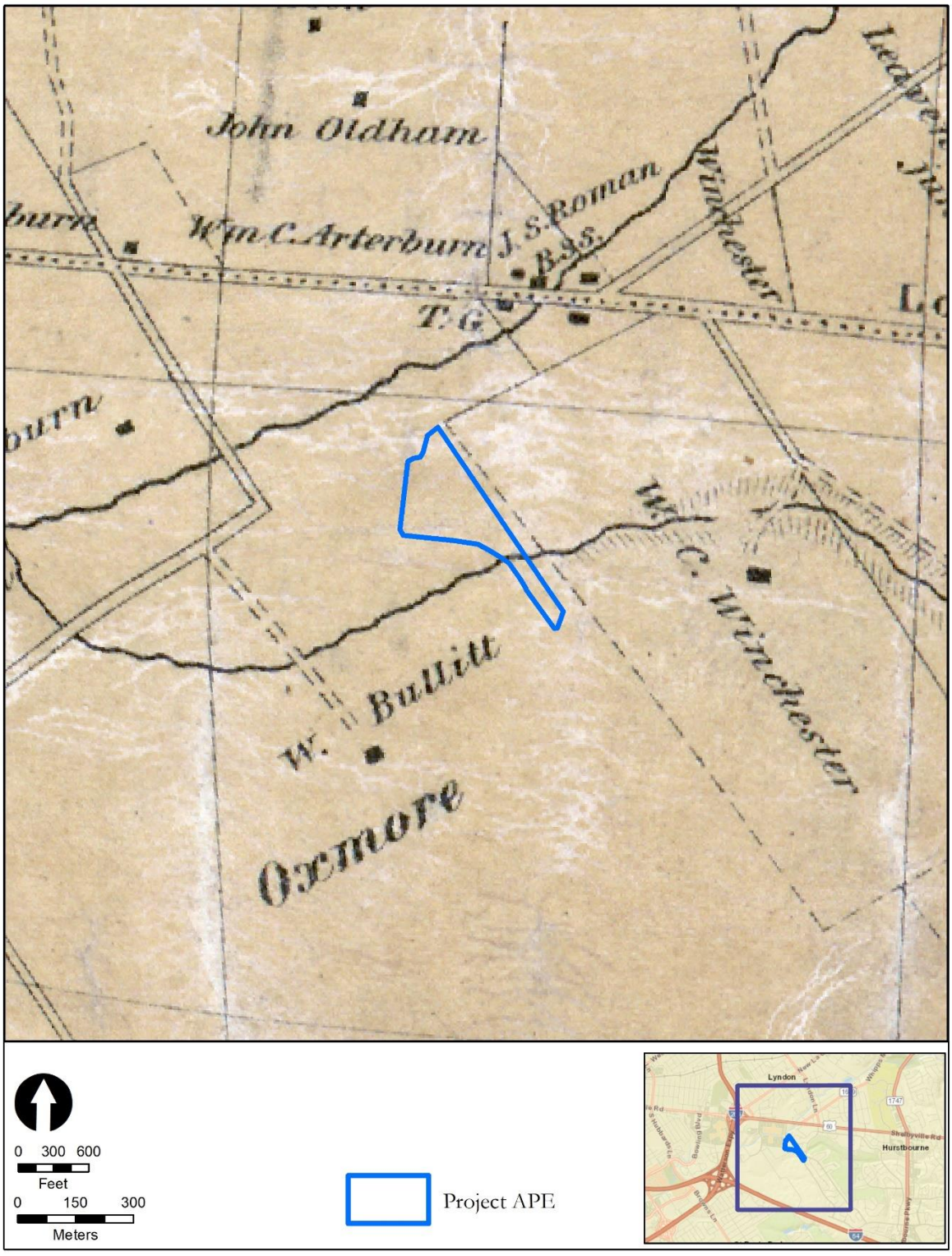

Figure 11. Project area noted on 1858 Bergmann map (Bergmann 1858).

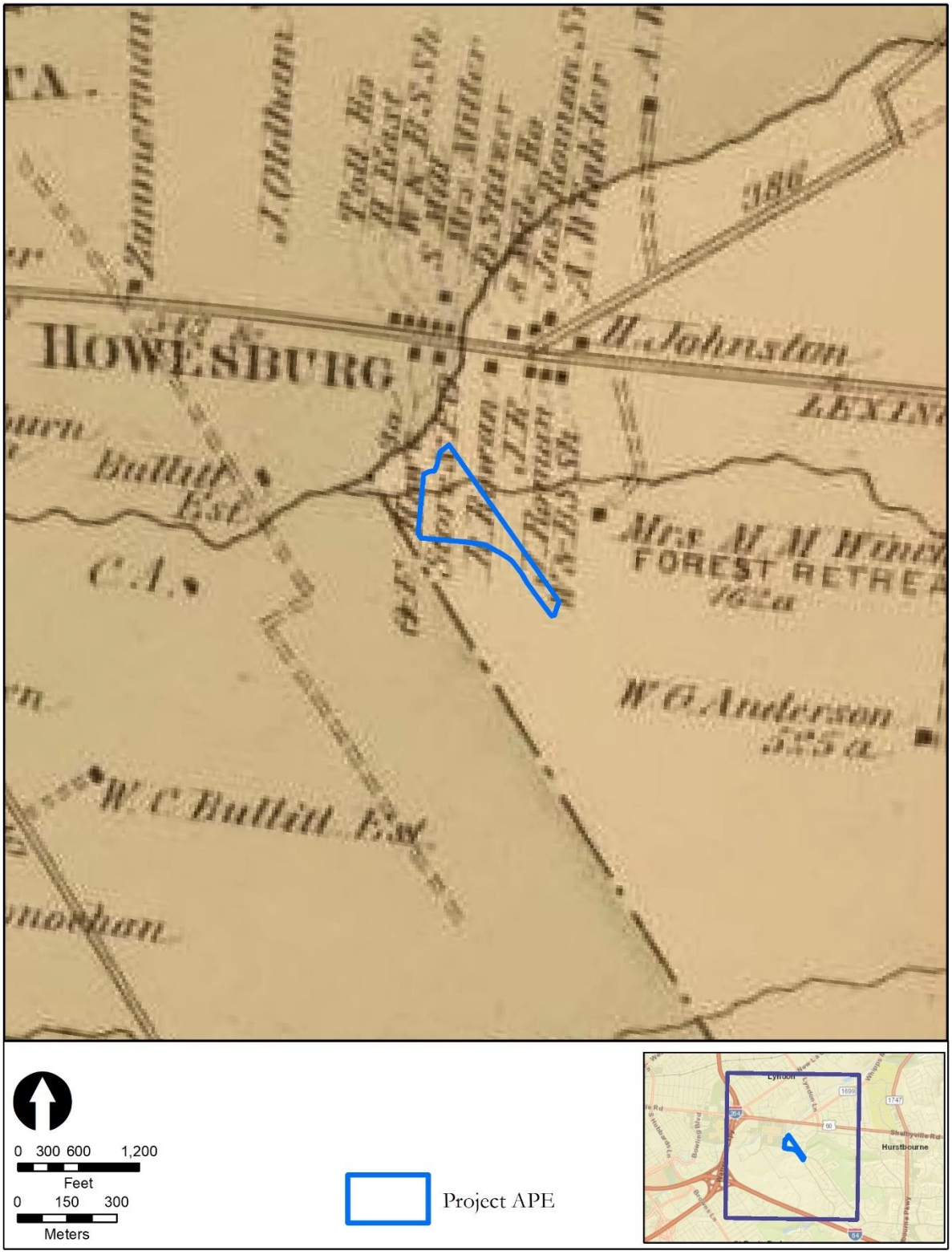

Figure 12. Project area of the 1879 map (Beers and Lanagan 1879).

Figure 13. Project area location on the 1907 Louisville USGS 15-minute quadrangles ((U. S. Geological Survey 1907).

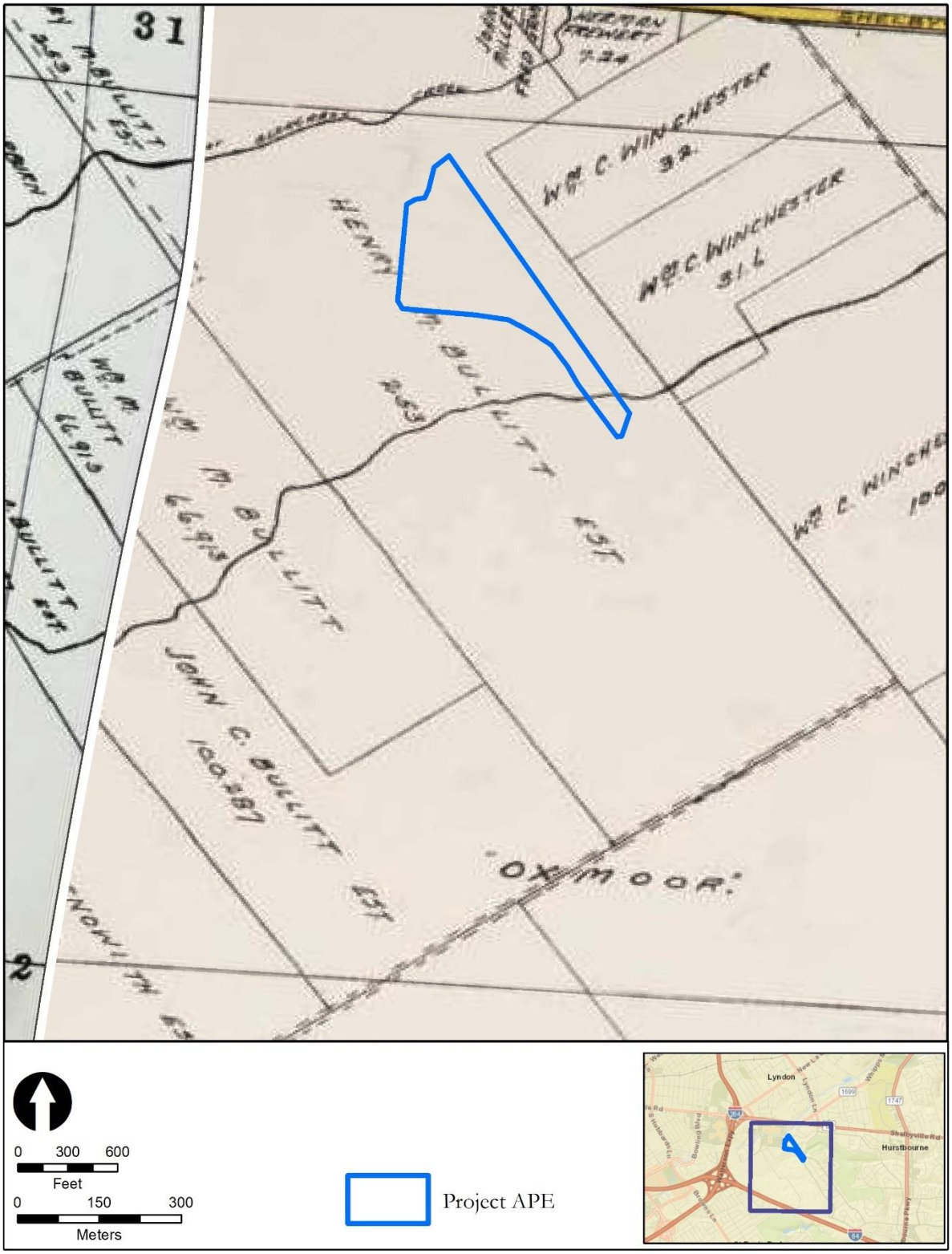

Figure 14. Project area on the 1913 Louisville Title Atlas (Hunter 1913).

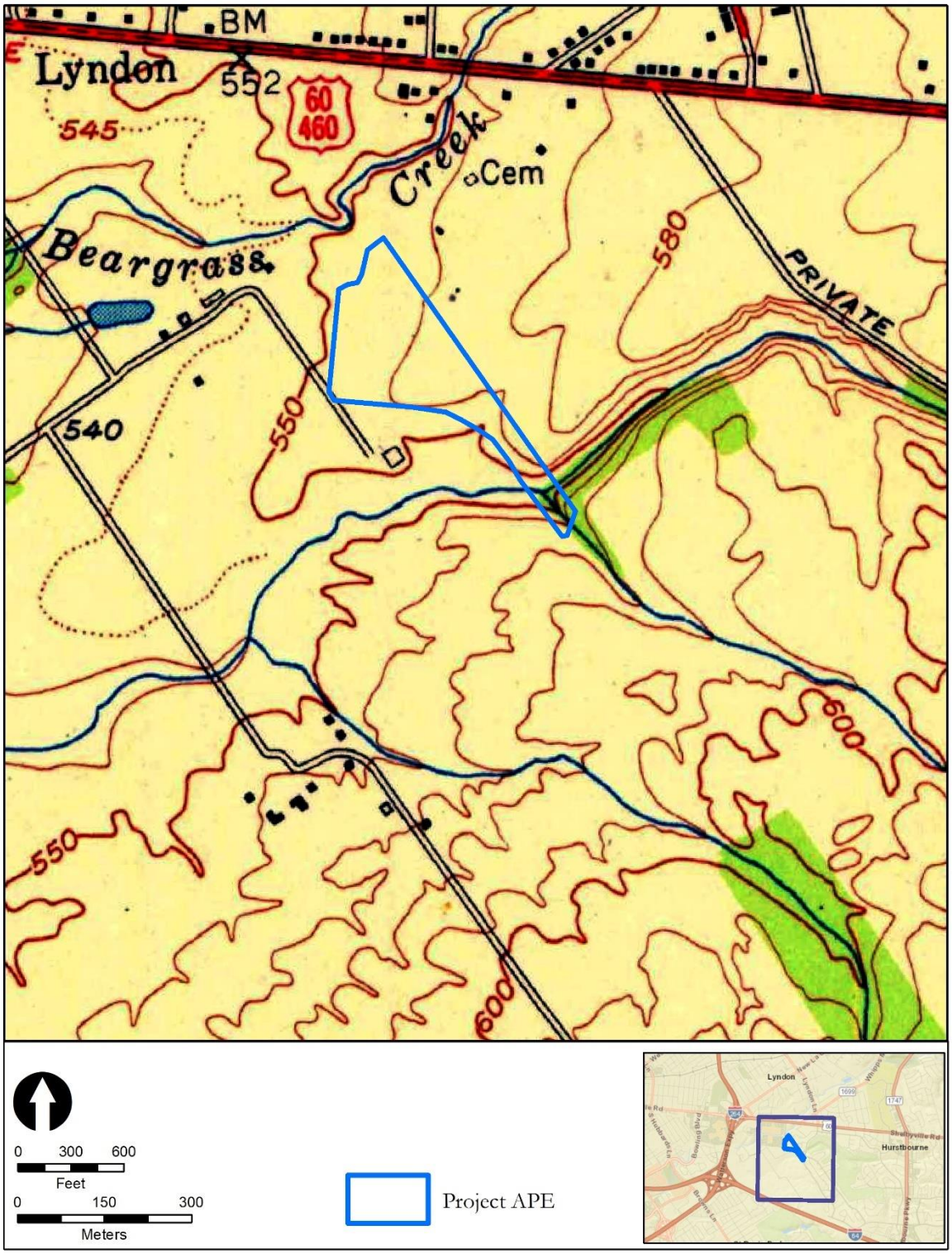

Figure 15. Project area on the 1951 *Jeffersontown, Kentucky* USGS 7.5-minute quadrangles.

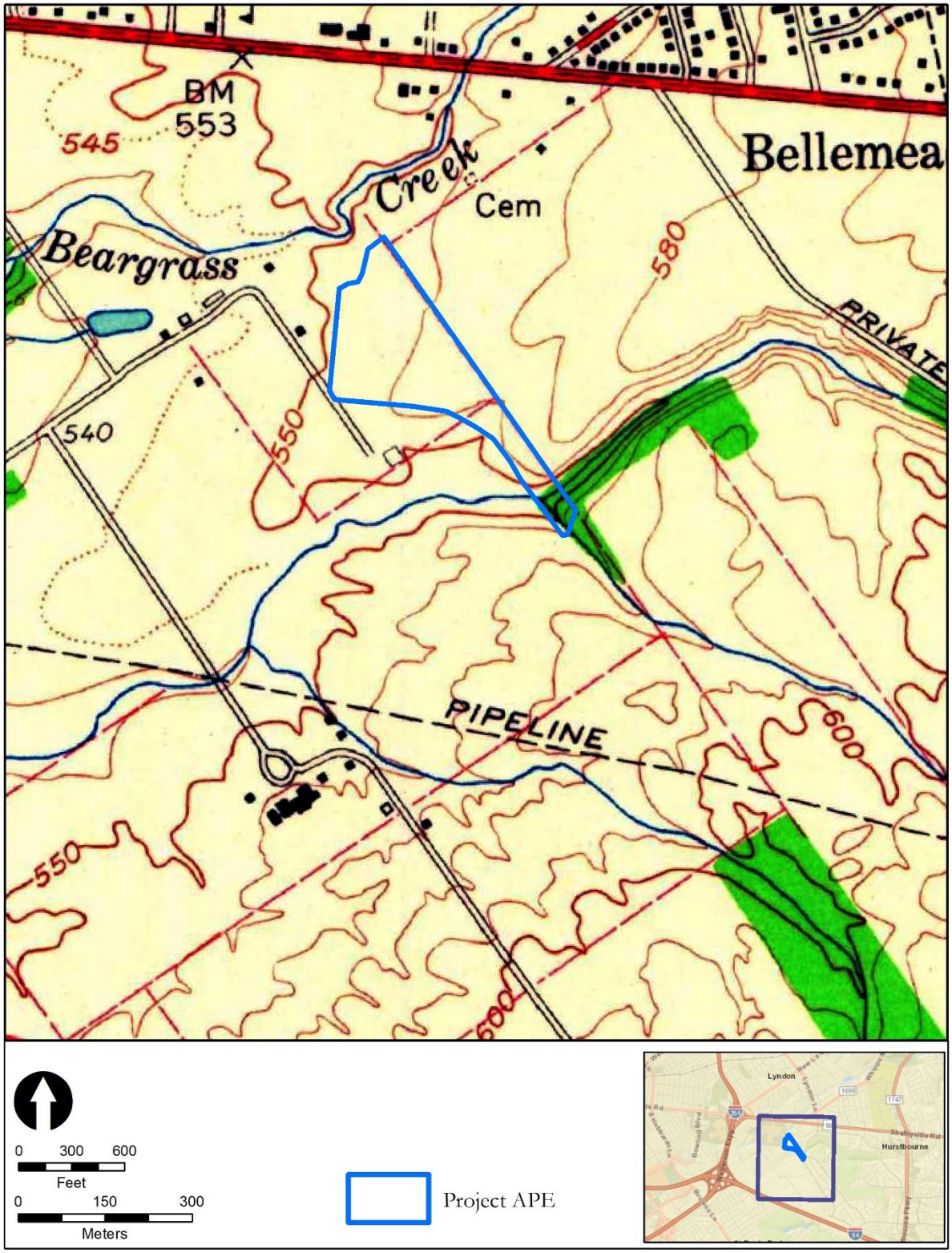

Figure 16. Project area on the 1960 *Jeffersontown, Kentucky* USGS 7.5-minute quadrangles (United States Geological Survey 1960).

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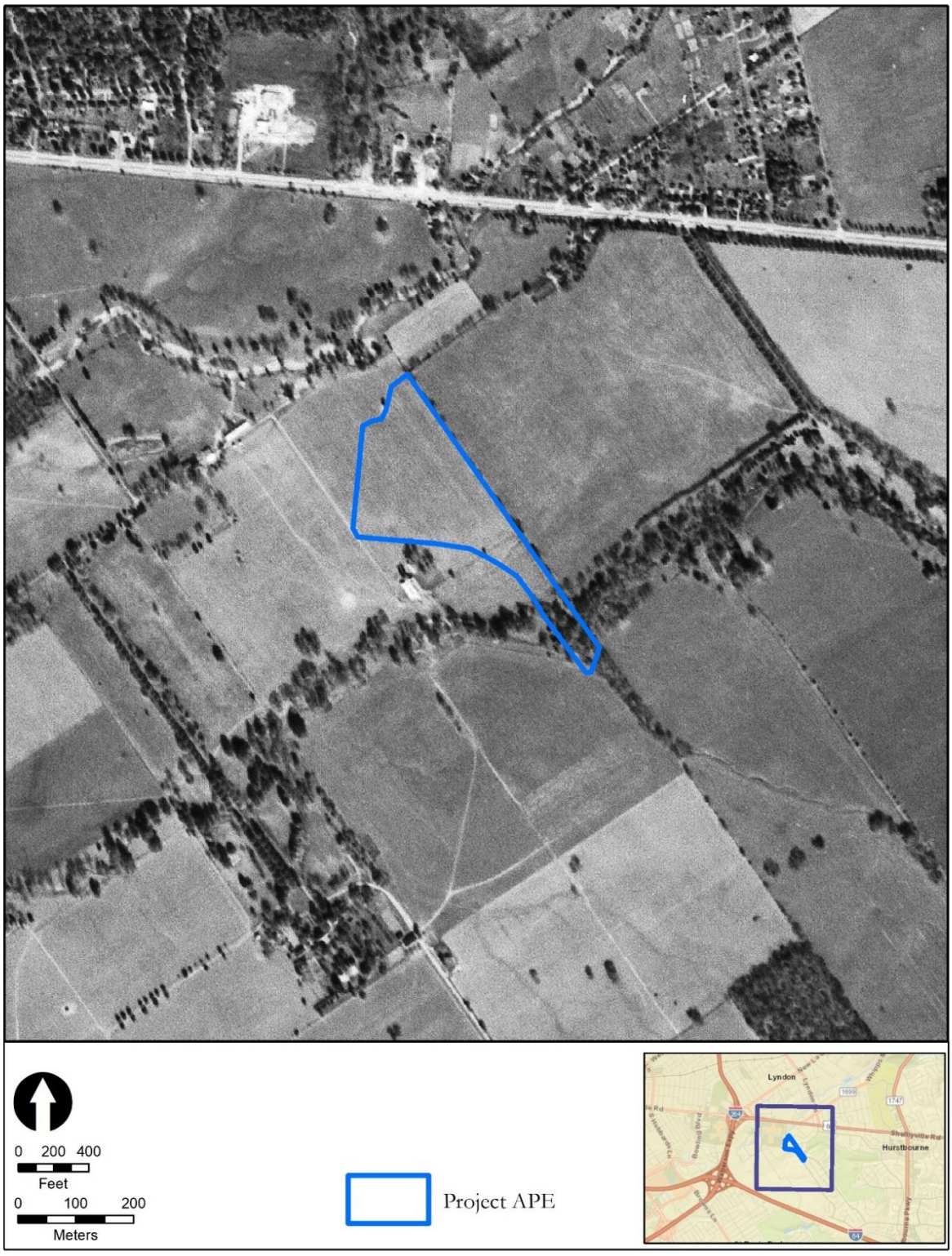

Figure 17. Project area on 1950 aerial photograph (United States Geological Survey 1950).

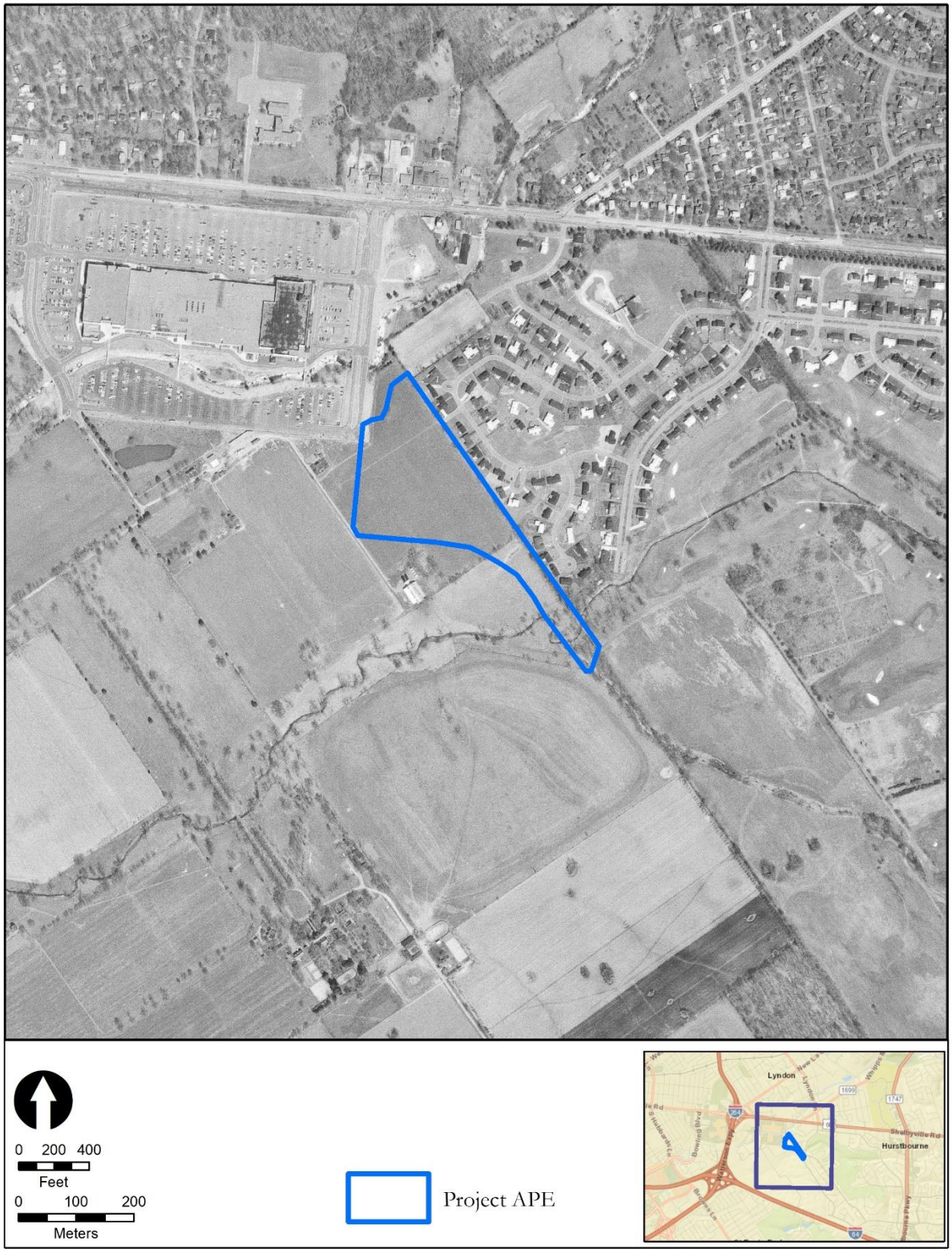

Figure 18. Project area on 1971 aerial photograph (Survey 1971).

RECORDS CHECK AND LITERATURE REVIEW

The results of a records search request were received from the Kentucky OSA on June 30, 2021. A literature review was then performed to determine the presence, density, and environmental settings of recorded archaeological sites in and near the current environmental study area, as well as archaeological surveys that have been conducted within a two-km (1.24-mile) radius.

Previous Archaeological Investigations

This section discusses some of the previous archaeological investigations within two km (1.24 miles) of the current project area as well as other projects of relevance from around the immediate region. The project lies within the Salt River Management Area and the Louisville section of the Ohio Valley Urban Centers Cultural Landscape. Management areas have been defined to classify the geographic distribution of prehistoric archaeological sites of the state, while Cultural Landscapes are used to deal with historic resources (Pollack 2008a). The Salt River Management Area, despite being one of the smallest in the state, contains nearly 3,000 archaeological sites—a total higher than all of the other management areas except the Upper Kentucky/Licking area (Pollack 2008a). Open habitations without mounds are the most common site type at 72.7 percent, followed by historic farmstead sites at 15.5 percent.

Webb and Funkhouser's 1928 edition of *Ancient Life in Kentucky* documents only four archaeological sites in Jefferson County, three of which are described as being located in downtown Louisville. The fourth is a "burial ground six miles from Louisville on the Bardstown Pike" (Webb and Funkhouser 1928). Their 1932 publication mentions nine sites within Jefferson County (Funkhouser and Webb 1932). One of these sites, 15JF7, is located one km (0.62 mile) west of the current project area. In this source, this site is described as follows:

> "A mound and village site on Oxmoor Farm near Sturgis Fort on Bear Grass Creek. This site has been known for many years as the source of artifacts and surface material. Reported by William Marshall Bullitt" (Funkhouser and Webb 1932:199).

In 1973, the University of Louisville Archaeological Survey, along with Donald Janzen, prepared an inventory of "known" archaeological sites at the Falls of the Ohio River that included Jefferson County, Kentucky, and Clark and Floyd counties of Indiana (Granger et al. 1973). Known as the "COG" report, this was prepared for the Metropolitan Council of Governments and was in part funded by the Department of Housing and Urban Development (HUD). This report provides brief summary data for recorded or otherwise known archaeological sites and prioritizes them on the basis of potential scientific significance and threat of destruction. Site visits were made during this documentation, but no excavation occurred.

As summarized in the COG inventory, 15JF7 is called the "Oxmoor Cemetery Site" as it lies near the historic cemetery (Granger et al. 1973). This source states:

> "The Oxmoor Cemetery Site is 400 feet south of the front of Oxmoor Cemetery and 600 feet southeast of the log cabin located on the site. There is no cultivation of the area, some erosion, and the vegetation consists of weeds, grass, and trees. The soil is humus (potted and groundhog), with large blocks of chert and a great deal of New Albany shale. There is a small house on the site. The Oxmoor Cemetery Site is 600 feet south of 15JF38, 600 feet east of 15JF33, and 1,950 feet southwest of 15JF7 (mound). It is located 200 feet south of Middle Fork of

> Beargrass Creek, and 800 feet southeast of the spring on the west side of the log cabin" (Granger et al. 1973:1)

This is a confusing statement, but it appears clear that the Oxmoor Cemetery Site, as described, encompassed more area than the mound itself. The "small house" on the site is likely the log cabin. Moreover, one measurement extends to a point 594 m (1,950 ft) southwest of the mound itself. The other measurements point to the mound itself as the location.

Not long after, in 1974, the University of Louisville Archaeological Survey conducted limited archaeological investigations into the Oxmoor Mound. At the time of the investigation, the mound was covered in trees and measured approximately 38 m (125 ft) northeast to southwest and 10.6 m (35 ft) northwest to southeast. The investigators encountered a 1.5-x-1.5-m (5-x-5-ft) looters' pit excavated into the northeastern end of the mound. They cleaned a profile of this hole and documented stratigraphy that suggested a relatively high degree of groundhog disturbance. No artifacts were recovered from the looters' pit. While the stratigraphy of the mound suggested it is an artificial construction, its status as a prehistoric feature remained somewhat speculative (Granger 1976b).

Previous Archaeological Surveys within 2-km Buffer

Data received from the OSA records eight archaeological surveys within a two-km (1.24-mile) radius of the project area (**Table 3** and **Figure 19**). One survey conducted by Corn Island in 2018 was not included in the OSA data but is reported here.

The largest and earliest archaeological survey was conducted prior to construction of the Watterson Expressway. In 1973, Stephen Mocas of the University of Louisville Archaeological Survey (ULAS) conducted a Phase I archaeological survey on the preferred alternate corridor for improvements to the Watterson Expressway (Interstate I-264) from Dixie Highway to Shelbyville Road, and a preliminary report was submitted (Mocas 1974). A full and revised report was prepared and submitted (Granger 1976a). This project was conducted at the request of KYTC. The project area for this survey was approximately 21.7 km (13.5 miles) long. Site records on file at the University of Louisville and non-professional site collections were reviewed for sites within 2.86 km (1.78 miles) of the project area. Numerous sites were identified and divided in the 1976 report into two groups, one located around the Bardstown Road interchange and the other around the Oxmoor area. Thirty-five sites were included in the Oxmoor group. These were all described as small loci along the Middle Fork of Beargrass Creek. Sixty-six percent of these were situated on low rises within the agricultural fields. According to Mocas (personal communication May 25, 2018), most of these can be assigned to the Late Archaic period, based on the presence of small Riverton-like projectiles. A single sherd found at site 15JF113 suggests an Early to Middle Woodland presence.

The revised report includes secondary, more intensive investigations at seven prehistoric sites and one "archaeological test locality" within the project right-of-way. Six of the sites and the "archaeological test locality" were recommended for further investigations, but no NRHP recommendations were made (Granger 1976a). Four of the sites identified in 1973 that were subjected to further testing (15JF7, 15JF38, 15JF118, and 15JF151) lie within 2 km (1.24 miles) of the current project area. Sites 15JF7 and 15JF118 lie within the project area. Site 15JF7 was recommended for excavation and portions of site 15JF118 were recommended to be stripped of the plowzone to search for features.

In 1976, the ULAS conducted a survey of 25.2 ha (62.5 acres) for the planned Interstate 64, Jefferson County, Hurstbourne Lane Interchange (Granger et al. 1976a). The survey included a surface walkover and collection, and shovel probing. One site (15JF336) was located during this survey. The site was assigned to the Late Woodland period.

In 2001 Cultural Resource Analysts, Inc. (CRA) conducted a Phase I archaeological survey of six ha (14.7 additional acres) for the proposed I-64 Hurstbourne Lane interchange. This survey recorded no sites (Hand 2001).

The University of Kentucky conducted a Phase I archaeological survey of a 2.4-ha (six-acre) parcel of land near Oxmoor Mall in 1989. The area was proposed for construction of a retirement residence development. According to OSA data, site 15JF158, an open habitation without mounds prehistoric site initially reported by an unknown identity in 1978, was recorded as being located within their survey area. No evidence of the site or other cultural resource was recorded as a result of the 1989 survey, and no further work was recommended (Henderson 1989).

Archaeological investigations were conducted at the Romara Place Site (15JF709) in 2004. The city of Lyndon requested the survey to ensure that any archaeological resources present at the site would not be inadvertently impacted by development of the property. Potentially significant archaeological deposits were documented in the northern half of the property. An historic component associated with the mid-nineteenth to late-twentieth-century occupation of the property, as well as a small prehistoric component of unknown temporal affiliation, was documented following excavation of 420 STPs and two test units. The historic component consisted of a late-twentieth-century pool and deck area, a mid-to-late-twentieth-century shed and barn, a small nineteenth-century stone building, a garage/carriage house constructed of recycled stone from other buildings on the property, and a nineteenth century brick domestic outbuilding renovated in the mid twentieth century as a residence (Stottman 2004). Historic artifacts recovered ranged in date from the early nineteenth to late twentieth century. Prehistoric artifacts consisted primarily of lithic debitage, with no diagnostic artifacts being recovered.

A Phase I archaeological survey was conducted for a proposed telecommunications tower near the Lyndon Fire Station south of New LaGrange Road and east of Lyndon Road at 520 Lynnhurst Drive in 2006. The survey area consisted of approximately 0.5 ha (0.12 acre) (Finney 2006). No archaeological resources were documented during the survey.

In 2012 the Kentucky Archaeological Survey (KAS) investigated the Christian Log House Site (15JF776), which is located along Shelbyville Road across the street from Oxmoor Toyota (Stottman and Stahlgren 2012). This was done for the Oxmoor Cemetery Corporation since the Bullitt family cemetery is located at the site. During the fieldwork, a chimney foundation was investigated. The chimney may have been associated with one of William Christian's early station buildings. Builder's trenches and yard midden appear to be associated with construction and modification of a log house and a stone outbuilding that are currently standing on the property. However, no evidence of any human graves was identified north of the Bullitt Family Cemetery wall, despite the fact that graves are known to exist outside the fenced cemetery at the southwestern corner. A remnant of prehistoric deposits was identified under the log house addition. It was recommended that these areas be protected or studied further if ground disturbing activities are planned. The yard area surrounding an existing stone springhouse was also examined. This area appears to have little archaeological potential.

Corn Island Archaeology LLC completed a Phase I archaeological survey and cemetery delineation at Oxmoor Toyota in 2014 (Wetzel 2014). The investigation was requested by Qk4,

Inc., on behalf of Oxmoor Toyota to fulfill compliance requirements prior to parking lot expansion at the property. The survey area consists of a 30.5-m (100-ft) buffer alongside a small, intermittent drainage as well as areas along the southern and eastern edges of a modern fence around a historic cemetery in the back (north) lot of the Oxmoor Toyota dealership at 8003 Shelbyville Road. The investigation consisted of shovel probing and backhoe trench excavation. Shovel probing was conducted within the 30.5-m (100-ft) buffer around the intermittent drainage while monitored backhoe stripping was conducted along the southern and eastern edges of the cemetery fence line in order to identify possible graves located outside the fence. No cultural materials or evidence of graves were observed during the investigation, and the modern fence around the cemetery appeared to provide an adequate boundary for the cemetery. The Historic Preservation Division of the Louisville Metro Government specified a nine-m (30-ft) non-disturbance buffer around the cemetery.

In 2018, Corn Island Archaeology conducted a Phase I archaeological survey of a proposed apartment complex and associated infrastructure along Oxmoor Lane in Louisville, Jefferson County, Kentucky. A surface scatter of lithic debitage was recorded as an extension of previously recorded site 15JF115. Three STPs recovered material from fill in the eastern quarter of the project area within the previously recorded boundaries of site 15JF118. The Oxmoor Mound (15JF7) is situated within the project area, but no modifications to the mound were proposed in the plans of the construction activities. The mound was revisited with a walkover and the examination of eroded areas and animal burrows for any artifacts. No artifacts were observed on or around the mound. Sites 15JF115 and 15JF118 were not considered potentially NRHP eligible and no further archaeological work was recommended.

Table 3. Previous Archaeological Surveys in OSA Data.

Year	Title	Authors and Organization	SURV ID SHPO ID
1976	An Archaeological Reconnaissance of the Preferred Alternate Proposed Improvement of the Watterson Expressway (Interstate 164) Dixie Highway to Shelbyville Road, Jefferson County, Kentucky	Granger, Joseph E. **University of Louisville**	056-017
1976	An Archaeological Reconnaissance of the Interstate 64, Jefferson County, Hurstbourne Lane Interchange	Granger, Joseph E., Philip J. DiBlasi, and Bobbie K. Braunbeck **University of Louisville**	056-034
1989	Cultural Resource Assessment of a Proposed Six Acre Retirement Development in Louisville, Jefferson County, Kentucky	Henderson, A. Gwynn **University of Kentucky**	578052 056-098
2001	An Archaeological Survey of the Proposed I-64 Hurstbourne Lane Interchange in Jefferson County, Kentucky	Hand, Robert B. **Cultural Resources Analysts, Inc.**	056-202
2004	Archaeological investigations at the Romara Place Site (15JF709), Lyndon, Jefferson County, Kentucky	Stottman, M. Jay **Kentucky Archaeological Survey**	585717 056-267
2006	Phase I Archaeological Survey of a Proposed Modification to a Telecommunications Tower at Bellemeade Site in Lyndon, Jefferson County, Kentucky	Finney, Fred **Smith Management Group**	584415 056-272
2011	An Archaeological Survey and Test Excavations at the Christian Log House (15Jf776) Site, Louisville, Jefferson County, Kentucky	Stottman, M. Jay, Lori Stahlgren, Erick J. Schlarb, and Philip B. Mink **Kentucky Archaeological Survey**	056-369
2014	Phase I Archaeological Survey and Cemetery Delineation at Oxmoor Toyota, Jefferson County, Kentucky	Wetzel, Melinda **Corn Island Archaeology**	056-419
2018	Phase I Archaeological Survey of 16.42 Acres for the Oxmoor Lane Development Jefferson County, Kentucky	Sullivan, Tim **Corn Island Archaeology**	

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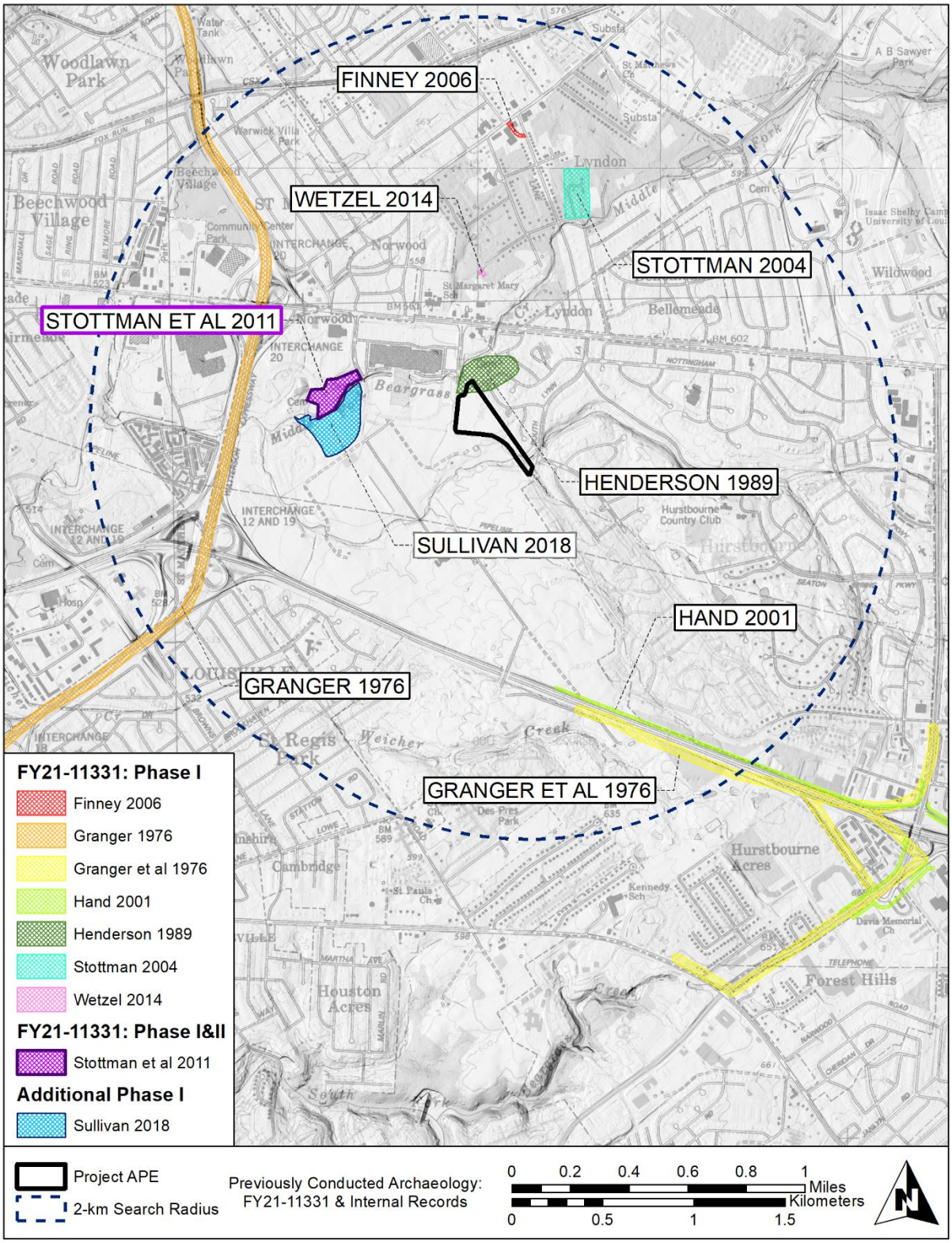

Figure 19. Previously archaeological surveys within 2-km (1.24miles) of the project area.

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Previously Identified Sites within 2-km (1.24-mile) Buffer

Data received from KY OSA records 43 previously reported archaeological sites within a 2-km (1.24-mile) radius of the project APE, none of which extend into the project area boundaries. Numerous other sites are located along the Middle Fork of Beargrass Creek, and the site boundaries are not always accurate for several reasons. First, small campsites often overlapped spatially, representing repeated long-term Native American occupations, a pattern that makes determining the boundaries of any one occupation difficult. Determining site boundaries could be further complicated by ground visibility conditions at the time of the various investigations, which likely resulted in differing interpretations of the site boundaries. Furthermore, in 1976, there was no GPS instrumentation to facilitate the recording of sites, and UTM coordinates are notoriously erroneous in surveys of this period.

The 43 sites within a two-km (1.24-mile) radius of the project area range from prehistoric sites of unknown cultural affiliation to historic farms (**Table 4)**. The distribution, components, and NRHP statuses of sites within a two-km (1.24-mile) buffer were examined further. Middens have not been identified at any of the sites identified within a two-km (1.24-mile) search area around the current project area. The average site size is 6,252 square km (2,414 sq. miles), and sites in this area are more likely to occur on 0-5-degree or 6-10-degree slopes and on Crider soil. The land along this section of Beargrass Creek is notably flat.

One previously recorded archaeological site, 15JF158, is located 30 m (98.4 ft) to the north of the project area. This site was originally reported by an unknown identity in 1978. The 1989 Henderson survey did not find any evidence of the site or other cultural resources as a result of the survey and no further work was recommended.

Table 4. Previously Recorded Sites within 2-km (1.24-mile) Buffer.

Site Number	Components	Site Type	NRHP Status per OSA Data
Within project APE			
15JF7	Woodland, indet.	Mound complex	Not recorded
15JF113	Middle Woodland, and Late Prehistoric	Open habitation without mounds	Not recorded
15JF115	N/A	Open habitation without mounds	Not recorded
15JF118	Late Archaic	Open habitation without mounds	Not recorded
Within 2-km Buffer			
15JF26	Late Prehistoric	Open habitation without mounds	Not recorded
15JF27	Late Archaic	Open habitation without mounds	Not recorded
15JF28 Brown's Lane Site	Indet. Prehistoric	Open habitation without mounds	Not recorded
15JF30 Wildwood Farm (Clay Bank) Site	Middle Archaic, Early Woodland, Middle Woodland, Late Prehistoric	Open habitation without mounds	Not recorded
15JF31 Wildwood Farm #1	Middle Archaic, Early Woodland, Middle Woodland, Late Prehistoric	Open habitation without mounds	Not recorded

Site Number	Components	Site Type	NRHP Status per OSA Data
15JF32	N/A	Open habitation without mounds	Not recorded
15JF33	N/A	Undetermined	Not recorded
15JF34	Archaic, indeterminate	Open habitation without mounds	Not recorded
15JF38	Archaic, indeterminate	Open habitation without mounds	Not recorded
15JF100	N/A	Open habitation without mounds	Not recorded
15JF112	Middle and Late Archaic, Middle Woodland, and Late Prehistoric	Open habitation without mounds	Not recorded
15JF114	N/A	Open habitation without mounds	Not recorded
15JF116	N/A	Open habitation without mounds	Not recorded
15JF117	N/A	Open habitation without mounds	Not recorded
15JF122	N/A	Open habitation without mounds	Not recorded
15JF123	N/A	Open habitation without mounds	Not recorded
15JF124	N/A	Open habitation without mounds	Not recorded
15JF125	Late Archaic, Early Woodland	Open habitation without mounds	Not recorded
15JF127	N/A	Open habitation without mounds	Not recorded
15JF128	N/A	Open habitation without mounds	Not recorded
15JF129	N/A	Open habitation without mounds	Not recorded
15JF130	N/A	Open habitation without mounds	Not recorded
15JF131	N/A	Open habitation without mounds	Not recorded
15JF132	N/A	Open habitation without mounds	Not recorded
15JF133	Early Woodland	Open habitation without mounds	Not recorded
15JF150	N/A	Open habitation without mounds	Not recorded
15JF151	N/A	Open habitation without mounds	Not recorded
15JF152	Late Prehistoric	Open habitation without mounds	Not recorded
15JF153	N/A	Open habitation without mounds	Not recorded
15JF154	N/A	Open habitation without mounds	Not recorded
15JF155	N/A	Open habitation without mounds	Not recorded

Site Number	Components	Site Type	NRHP Status per OSA Data
15JF156	N/A	Open habitation without mounds	Not recorded
15JF157	N/A	Open habitation without mounds	Not recorded
15JF158	N/A	Open habitation without mounds	Not recorded
15JF261	Late Prehistoric	Open habitation without mounds	Not recorded
15JF398	Historic Euro-American	Historic farm / residence	NRHP property
15JF647 Oxmoor Estate	Historic Euro-American	Historic farm / residence, 1801 - 1950	NRHP property
15JF663	Historic Euro-American	Historic farm / residence, 1851 - 1950	NRHP status not assessed
15JF709 Romara Place	Indet. Prehistoric, Historic Euro-American	Historic farm / residence, 1801 - 1950	NRHP status not assessed

Preservation of sites within this area is a significant factor to consider—33 of the sites have had some level of disturbance and eight have been "totally disturbed" according to OSA data. Four sites with historic period components have been identified. Two of these are NRHP properties: 15JF398 (the Eight Mile House) and 15JF647 (the Oxmoor estate). Native American sites that have multiple components and appear to be the locus of persistent occupation include 15JF30, 15JF31, and 15JF112. The OSA data indicates the Late Prehistoric period is the most commonly documented temporal component (**Table 5**).

Table 5. Summary of Components

	Archaic, indeterminate	Middle Archaic	Late Archaic	Woodland, indeterminate	Early Woodland	Middle Woodland	Late Prehistoric	Indeterminate Prehistoric
Sites	15JF34 and 15JF38	15JF30 15JF31 15JF112	15JF27 15JF112 15JF118 15JF122	15JF7	15JF30 15JF31 15JF125 15JF133	15JF30 15JF31 15JF112 15JF113	15JF26 15JF30 15JF31 15JF112 15JF113 15JF152 15JF261	15JF28 15JF709
Total	**2**	**3**	**4**	**1**	**4**	**4**	**7**	**2**

4

FIELD METHODS

This section describes project area conditions and the general field methods of a survey for the proposed multifamily community development in Jefferson County. The project area was clearly delineated on topographic quadrangles, project mapping, and aerial photographs, and was easily identified in the field. Field methods included the completion of ground surface inspection and excavation. All artifacts recovered were returned to Corn Island's laboratory in Louisville for processing and analysis.

Ground Surface Inspection and Pedestrian Survey

A visual ground surface inspection was conducted across the entire project area. Visual inspection focused on locating potential aboveground evidence of archaeological sites, such as artifact concentrations or features, including structural foundations, refuse dumps, wells and cisterns, gravestones, quarry pits, and earthen or stone mounds. Field personnel also examined the project corridor for caves, quarries, benches, rock faces, and rock overhangs that may have been utilized by prehistoric or historic groups. Areas in which ground disturbances were readily apparent were visually inspected to determine and document the nature and level of disturbance. Shovel probing was performed, as needed, to confirm the depth of the disturbance.

STP Excavation

A total of 123 shovel test probes (STPs) were excavated within the project area in areas exhibiting less than 15 percent slope. The STPs were excavated at a maximum of 20-m (65.6-ft) intervals. Each STP measured approximately 35 cm (14 inches) in diameter and was excavated to a minimum depth of 35 cm (14 inches) below surface (bs), or until a distinctly visible subsoil, water, or bedrock was exposed. The soil from each STP was screened through quarter-inch mesh hardware cloth. The wall of each STP was examined for artifacts as well as soil color and texture changes that might indicate buried cultural deposits. When the inspection was complete, the hole was filled, tamped, and the sod replaced.

A small portion of the project area along the northern boundary was previously surveyed by Henderson (1989) and was not subjected to shovel probing.

Mapping and Documentation

A Garmin GPS 66S handheld was used to record the location of excavation units and archaeological sites. The project area, including archaeological site locations, excavation units, and relevant features and anomalies, were photographed with a digital camera. A project field log documented survey conditions and strategies. Sketch maps of the site locations, artifact locations, topographic conditions, and excavation units were also made.

5
MATERIALS RECOVERED

The study of artifacts is the primary means available to archaeologists for interpreting past lifeways. Artifacts provide information on period(s) of occupation, technology, activities, and aesthetics such as art and ritualism. In association with other artifacts and features (hearths, storage pits, burials), information on the functions of artifacts may be inferred. Collectively, artifact assemblages allow comparisons with the former occupants of other sites within the locality and the region and reflect changes over time.

COLLECTION PROCESSING

The following discussion presents procedures and descriptive categories utilized to analyze artifacts recovered during the survey. Artifacts were transported to the offices of Corn Island in Louisville, Kentucky, where they were washed in tap water and air-dried. Artifacts were bagged in 2-mil polyethylene bags and then stored in archival boxes. In keeping with the project statement of work and following standard archaeological procedures, Corn Island counted, identified, and analyzed all cultural materials recovered during the project. Archaeological materials were weighed in grams (g) and selected materials were measured in millimeters (mm). Accession numbers consisted of site number over a sequential number assigned through an entire site assemblage. Upon approval of the technical report, the artifacts and relevant documentation will be curated at the University of Louisville Center for Archaeology and Cultural Heritage.

The Prehistoric (or Precontact) period encompasses the archaeology of the indigenous Native Americans. The period begins with the arrival of the first humans in the Americas and ends with European colonization. In the wake of colonialization, different ethnic groups often co-resided or coalesced to create pluralistic and hybrid communities. Therefore, assemblages recovered from Historic period sites may represent a mix of European, African, Asian, and Native-American material cultures.

Prehistoric materials were recovered from one site (15JF968). A summary of the material assemblage is described below. A more detailed description of artifacts and recorded attributes is presented in Appendix A (**Table 15**). The collection consists of 83 artifacts (**Table 6**).

Table 6. Total Recovered Materials by Site.

Artifact Type	N
Biface	1
Debitage	79
Flake Tool	3
Total	**83**

Interpretive analysis was conducted by assigning artifacts to descriptive and functional categories. Artifacts were examined to determine material type and the formal and functional attributes were assessed. In conjunction with any documented features and cultural deposits, assemblage-based interpretations regarding site chronology and function were then inferred based on results of the

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analysis. The following discussion presents procedures and typological categories utilized to analyze the artifacts, followed by results from the analysis of materials recovered.

PREHISTORIC ARTIFACT CLASSIFICATION AND ANALYTICAL METHODS

Prehistoric assemblages may consist of artifacts of lithic (i.e., stone), ceramic, organic materials, and burnt clay/earth. The analyst first identified and assigned all artifacts to descriptive/functional categories within these material categories. The ability to achieve analytical goals depends in large part on adequate and well-preserved samples. Larger samples result in more refined interpretations, while smaller samples necessitate more generalized conclusions.

Descriptive/Functional Typology for Lithic Artifacts

The goals of the following lithic analyses were as follows:

1. To determine the activities carried out at each site and to identify the site's function(s) by classifying tools into descriptive and functional categories.

2. To identify the site's temporal and cultural affiliations by assigning diagnostic artifacts to regional types.

3. To examine resource utilization patterns by identifying the raw material sources represented in the recovered assemblage.

4. To determine the organization of technology and lithic reduction sequences that occurred within each component within the site.

Lithic artifacts were divided into modified or unmodified materials within four categories: chipped-stone, groundstone, use-modified, and other lithic. Within these categories, artifacts were separated into artifact types such as bifaces, cores, debitage unifaces, or others based on formal/functional attributes. Additional morphological and technological attributes were recorded along branched sub-classifications and dimensions. Only artifact types recovered during the current investigation and reported in this publication are discussed in this section.

Chipped Stone

Chipped-stone artifacts are generally fashioned from tool stone that displays conchoidal fracture properties. Within the region, such materials are typically chert, although chipped-stone artifacts made from other types of stone are recovered. Chipped-stone tools are any lithic material that exhibit intentional modification by percussion flaking, pressure flaking, or use. These may be intentionally fashioned tools, such as projectile points, drills, and scrapers, or expediently used cutting, scraping, and perforating flake tools. Debitage, the unmodified waste flakes from the production of such tools, are included within this artifact category.

Bifaces

Bifaces are chipped-stone artifacts with two distinct sides or faces that both exhibit negative flake scars that meet along common or lateral "working" edges (Crabtree 1982:16). Bifaces can be either finished tools, unfinished and intended for future tool production, or failed and/or otherwise rejected production discards. Common bifacial tools can include projectile points, knives, adzes,

drills, axes, and generic oval or triangular forms. While biface production can cease at any time during the reduction process, it is generally assumed that the ultimate goal was a finished biface of some type. However, not all bifacial pieces were intended to be manufactured through the stages to a finished product such as a projectile point (Odell 2003:100). Although they are thick during the early stages of manufacture, in relative terms bifaces are generally thin and narrow when compared to their length and width. Bifaces that reflect later stages of production usually exhibit distinguishable proximal and distal ends.

The assigned stage designations are based on Odell (2003:100), Andrefsky (2005:187-190), Callahan (1979), and Whittaker (1994). Edge angle and width-to-thickness ratio are meant to serve as guides and are not definitive values of reduction stage assignment. The type of percussor used for flake detachments evident on the biface is also a good indication of the stage of reduction. These designations include hard hammer (e.g., hammerstone), soft hammer (e.g., antler billet), and retouch (bifaces exhibiting pressure flaking). Hard- and soft-hammer reduction may be difficult to distinguish.

Some broken bifaces are fragmented and are too small or incomplete for a stage determination to be made and are classified as indeterminate bifaces. Because of the ambiguities present, no attempt was made to define large flakes detached from cores as those that may have served as blanks for biface production.

Early-Stage Biface: Edging

Following blank procurement, this is the initial edging phase of a biface. Edging is generally accomplished through hard-hammer reduction, but soft hammers may also be used. These are bifaces on which the lateral margins of the piece have not been completely worked and may still retain traces of cortex. The specimen has not been thinned and a sinuous margin is common. The biface itself is relatively thick (width/thickness = 2.0 to 4.0) with edge angles around 50 to 80 degrees.

Middle-Stage Biface: Primary Thinning

These are bifaces that exhibit more advanced reduction. Middle-stage bifaces may be thinned using a hard or soft hammer. These bifaces represent the initial thinning phase of a biface. The outline is complete with flakes removed to at least the center of the biface. Most, if not all, of the cortex is removed. The biface itself is moderately thick (width/thickness = 3.0 to 4.0) with edge angles around 40 to 50 degrees.

Late-Stage Biface: Secondary Thinning

Late-stage bifaces have lateral margins that have been completely thinned, and the edges have been more straightened by soft-hammer percussion flaking. A haft element is often not present. Late-stage bifaces are typically thin (width/thickness = 4.0 or greater) with edge angles around 25 to 45 degrees. Preforms are late-stage bifaces.

Finished Biface: Refined Trimming and Hafting

Finished bifaces are found in multiple forms that vary by function, geographic region, and period. One distinguishing characteristic of a finished biface is that a haft element is present on the proximal end of the artifact. These artifacts are commonly classified as projectile points, drills, hafted endscrapers, and more. They represent the final stage in the biface reduction sequence.

However, finished bifaces were often re-sharpened and recycled into other tool types when their use lives as a projectile expired. Final trimming, shaping, and refinement is generally accomplished through pressure flaking using an antler tine.

Hafted scrapers exhibit a hafting area at one end and a steeply angled distal margin at the opposite end. Damage at the distal end is generally indicative of scraping tasks and usually consists of unifacial damage and rounding of the margin. It is a form resulting from subsequent reuse of ppks.

Ppks are finished bifaces presumed to have been "projected" onto a spear, dart, or arrow shaft, and used to hunt game or serve as weapons. These artifacts may also have been used as hafted knives or saws for butchering. Projectile points often have a high width-to-thickness ratio, are retouched along the blade edges, and often have well-defined hafting elements on their proximal end. These hafting elements may consist of notching, a stem, or a fluted channel. Small triangular projectile points and a few other types have no obvious notching or stems. The basal portions of fragmented projectile points were commonly reworked into hafted scrapers. Drills have also been produced from exhausted projectiles. They can often be assigned to distinctive types based on their morphology and therefore serve as chronological indicators for archaeologists.

Debitage

The term debitage, as defined here, refers to all material produced during the process of lithic reduction and the production of chipped-stone tools. Debitage consists of angular shatter and flakes. These are forms of waste debris that exhibit evidence of having been removed from a parent piece of lithic material and show no evidence of further modification or use. If flakes exhibit additional modification, they are documented as flake tools. Unlike modified tools, debitage is more often deposited at the location where it was produced, and thus provides a useful indicator of specific site activities. The analysis of debitage provides information regarding the lithic technology employed and supplements other analyses in inferring site use. Debitage is often produced in large amounts on many sites, making it amenable to some form of statistical analysis.

Flakes are pieces of raw material that have been removed by the application of force. Unlike shatter, it is assumed that force was applied in a controlled manner using either a soft hammer (such as antler, bone, or wood) or hard hammer (such as a hammerstone). Flakes have definable upper and lower (dorsal and ventral) surfaces. They possess a flat or faceted striking platform and bulb of percussion on the proximal end, although these may be absent on fragmented flakes. Distal terminations (edges) are usually classified as step (steep, angular), hinge (rounded), or feathered. Flakes that occur as a result of percussion and pressure technology have characteristic morphologies that allow interpretations of their relative occurrence – or stage of reduction – within the overall manufacturing process. Specialized flakes, such as notching flakes, also have distinctive shapes that provide useful technological information.

Angular shatter describes angular or blocky pieces of raw material that have no distinct dorsal or ventral face or other attributes of flakes such as a bulb of percussion or feathered edges. It is presumed that these artifacts result from the uncontrollable fracture of raw material during the knapping process. While shatter may occur at any stage of the knapping process, it appears to be produced more frequently during the early stages of bifacial reduction (Bradbury and Carr 1995, 2004; Morrow 1997; Sullivan and Rozen 1985). Bipolar reduction also tends to produce more angular shatter.

Debitage Analytical Attributes

The following non-metric and metric attributes were obtained and recorded when applicable: material type, size, completeness, weight, cortex presence, platform facet count, dorsal scar count, and the presence of platform lipping. All debitage was subjected to the analytical procedures as described in *Specialized Analysis: Debitage* of this section.

Size Grade

All debitage was passed through a series of seven nested standard geologic screens of varying size grades. The size grade and corresponding screen sizes employed were 1 (1/8 inch), 2 (1/4 inch), 3 (1/2 inch), 4 (3/4 inch), and 5 (1 inch). All debitage was hand-manipulated through the screens. The size grade assignment corresponds with the maximum width, not length, of the debitage.

Debitage Completeness

The completeness of flakes was recorded as one of the following:

1. *Complete* is defined as any flake that exhibits a discernible single interior surface, platform, and intact margins. Minor breakage does not exclude a flake from inclusion if maximum length and width measurements can be obtained.
2. *Platform Remnant Bearing (PRB) are* defined as any broken flake that exhibits a striking platform. These are the proximal end of the flake.
3. *Fragments* are flakes without a definable striking platform, typically the distal and medial portions of broken flakes.
4. *Blocky/Angular Fragments* are referred to as shatter under artifact type. These are flakes that have no discernible ventral or dorsal surface and cannot be oriented toward a definitive proximal or distal end.
5. *Thermal Shatter* are defined as blocky or otherwise indiscernible flake portions due to excessive heat damage.
6. *Split Flake* is truncated by a longitudinal fracture (sheared axis) but possesses a striking platform, distal termination, and part of one lateral margin.

Cortex

Cortex refers to the weathering evident on an unmodified stone cobble or blocks of tabular chert (Thomas 1989:652). Reduction stages are commonly inferred from the presence (or absence) and amount of cortex. The greater the percentage of cortex on the flake surface, the earlier in the reduction sequence the flake was removed from the core. Cortex can, however, be found on late-stage flakes and even finished tools. Similarly, primary reduction flakes can lack cortex altogether. It is, therefore, true that the presence of cortex alone is insufficient to conclusively define initial reduction. Generally, however, the presence of cortex indicates an early stage of core preparation and initial reduction. For the purposes of this analysis, the presence or absence of cortex on any surface of a flake or fragment, including the platform, was recorded.

Weight

Weight was used in this analysis as a general indicator of the mass of raw material within a provenience. Artifacts may be weighed collectively or individually, depending on the type of

analysis conducted. The material from each provenience was weighed by raw material type as a general indicator of volume of raw material used at the site.

Platform Facet Count

Platform facets are negative scars on the platform that indicate previous flake removals from an objective piece (**Figure 20**). Facets are not associated with platform preparation and must travel across the entire platform. To be recorded, the platform facets must be greater than two mm (0.08 inch) in size (after M. Magne 1985). Smaller facets are typically indicative of intentional platform preparation. On flakes with intact platforms, facet count was recorded on a four-value ordinal scale: zero facets (0), one facet (1), two facets (2), or three or more facets (3). Facet counts of less than two facets are often termed simple platforms, while platforms with two or more are termed complex (e.g. Andrefsky (2005:86).

Dorsal Scar Count

Dorsal scars are negative scars on the dorsal (exterior) face of a flake that indicate previous flake removals from an objective piece (**Figure 20**). To be recorded, the dorsal scars must be five mm (0.196 inch) or larger (after M. P. R. Magne 1985). Smaller scars are typically indicative of unintentional breakage during flake removal. Scar count was recorded on a four-value ordinal scale of 0 to 3, specifically, from fully cortical surfaces (0) to those with three or more scars (3).

Application of Load

Additional flake attributes recorded were the presence or absence of lipping. Lipping is a projection (lip) immediately distal to the striking platform on the ventral face (**Figure 20**). Lipped flakes are often associated with soft-hammer bifacial thinning (Crabtree 1972:74; Frison 1968). Large bulbs of force and a lack of lipping are believed to be more often associated with hard-hammer reduction (Cotterell and Kamminga 1987; Crabtree 1972:44). However, such attributes are statistical tendencies and not constants (Teltser 1991); lipping can be produced by soft-hammer percussion and vice versa (Callahan 1979; Shott 1994).

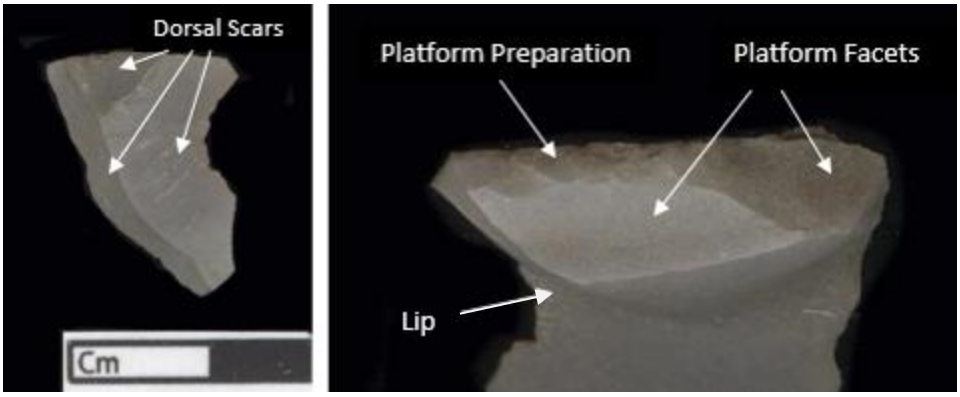

Figure 20. Bifacial thinning flake and associated attributes.

Specialized Analysis: Debitage

The goals and scope of any research design guides the appropriate methods employed. The focus of this analysis is to provide a basic inventory of flake debris represented at sites; provide

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an assessment of the technologies present including lithic procurement, production, and maintenance strategies; and evaluate any temporal or cultural variability evident in the lithic technologies present. A goal of the analysis is to discover artifacts and patterns indicative of attributes of particular site types. These are then used to define site types that may lead to well-grounded significance assessments.

Stage-Based Analysis

A stage-based method following Magne (1985) was applied to the debitage assemblage recovered during this project. This method consists of sorting debitage into a tripartite classification of early, middle, and late stage. Early-stage flakes are considered indicative of core reduction, middle-stage flakes of early tool manufacture such as shaping and edging, and late-stage flakes correspond to the final stages of tool manufacture, such as bifacial thinning. The method was developed by using discriminant functional analysis to determine which of several variables best served to separate the flakes produced from various reduction experiments into the reduction stages. Platform facet count was determined to produce the best result platform-bearing flakes, while dorsal scar count was the best determining attribute on flakes without platforms (fragments). In application, platform-bearing flakes are assigned to reduction stage by facet count, while fragments are assigned to reduction stage based on dorsal scar count (0-1 facets or scars = early stage, 2 facets or scars = middle stage, and 3 or more facets or scars = late stage). In addition, the method defines two unique flake types as indicators of distinct types of reduction: bipolar and bifacial. Bipolar flakes exhibit crushing on both dorsal and proximal ends and are classified as early stage. Flakes exhibiting lipped platforms and three or more facets are considered a specialized form of late-stage reduction and classified as bifacial thinning flakes. Flakes lacking both a dorsal surface and a platform (such as angular or blocky shatter) cannot be assigned to a stage. In addition, only flakes larger than five mm (0.20 inch) were used in Magne's analysis of the experimental data (Magne 1985:94). Flake tools are also not included in the stage analysis.

Unifaces

Unifacially modified chipped-stone tools display evidence of shape or edge modification on one aspect of the specimen, more commonly the dorsal surface. Such modification may be intentional or created by use wear. More formal unifaces are generally recognized as a flake tool, sometimes a classified type, that has a fully modified dorsal surface with scars that extend to the center removing all traces of the original dorsal surface. Less formal unifaces may be classified as flake tools with unimarginal retouch (see chipped-stone typology suggested by Andrefsky 2005).

Flake Tools

Flake tools are debitage that display modification created by intentional retouch or by use damage along the margins. Included within this classification are utilized flakes, often waste flakes picked up and used expediently, and retouched flakes, debitage that has undergone additional modification such as retouching and burination prior to use. Retouch is usually produced by pressure or percussion flaking resulting in overlapping flake removals that are invasive into the unmodified dorsal or ventral surface of the flake. During the current analysis, modification that was macroscopically visible (10x) was documented. Use damage types documented on debitage tools include macroscopic striations, scalar damage (flake scars that taper), step damage (flake scars that end abruptly), margin rounding, and half-moon scars; polish and residue were noted if macroscopically visible (Keeley 2013; Semenov 1985).

Edge angle has been used to assist in determining tool function for some types of tools. Andrefsky (2005) suggests that the optimal edge angle for scraping hides is between 75-90 degrees, while more acute angles are better suited for cutting (Andrefsky 2005:161). However, other archaeological and ethnographic research suggests that an edge angle of approximately 50-60 degrees is the optimal end angle for working hides. In an analysis of 1,448 Paleo-Indian artifact edge angles, Wilmsen (1968) found that tools fell into three modes: 26-35 degrees, 46-55 degrees, and 66-75 degrees. These edge angle modes were then interpreted as activities that each mode likely represented. These include cutting soft materials, scraping medium materials such as dry hides, and working hard materials such as bone and stone respectively (**Table 7**). Wilmen's conclusions seem to be supported by other archaeological and ethnographic research. Among the modern-day Hadiya of Ethiopia, chipped-stone scrapers made for processing and scraping cowhide have edge angles that work best over 45 degrees, but once the edge angle exceeds 60 degrees they become difficult to use (Sahle et al. 2012). Broadbent (1979), investigating the edge angles of a sample of experimentally produced and used stone tools, found that edge angles of 50-60 degrees were found to be optimal for scraping hides. Scraping hides with more acute angled tools would break too easily, while tools that had edge angles greater than 70 degrees barely functioned because they were not sharp enough to sever though the hide's tissue. Tools used to work wood with initial edge angles less than 55 degrees stabilized at 70 to 80 degrees. Broadbent further applied the experimental findings to a sample of archaeological recovered stone tools (n=553) finding that edge angles clustered into two groups: one between 55-65 that was interpreted as suitable for working soft-to-medium materials (hide and wood), and one between 70-85 degrees that was interpreted as suitable for very hard materials such as bone.

For the current project analysis, edge angle was recorded for all chipped-stone tools when appropriate to infer potential tool function. Edge angles were measured metrically with a goniometer at the center of the working edge of the tool. For unifacial tools, edge angle is measured as the angle between the ventral surface and the modified edge. For bifacial tools, the edge angle recorded is the angle created by convergence of the two edges. Edge angles were recorded with the dorsal side facing up. Edge Angle A is the end opposite the analyst, Edge Angle B is the margin on the left, Edge Angle C is the margin on the right, and Edge Angle D is the platform. Edge Angle E may also be used for the dorsal arrises.

Table 7. Edge Angle and Inferred Stone Tools Function (after Wilmsen 1968).

Edge Angle	26-35 degrees	46-55 degrees	66-75 degrees
Inferred Use	Cutting	Hide scraping / heavy cutting	Wood and bone working
Material Worked	Soft materials, meat, plants, woody plants, bark, fresh soft wood, fresh hide	Medium materials, other wood, fish, dry hide, soft stone, horn	Hard materials, bone, shell, stone

The location of modification is also important in determining the function of a flake tool (e.g., end or side scraper). Therefore, the location of modification was documented following a coordinate orientation grid developed by Odell (1977) (**Figure 21**). Flake tools are oriented on the grid with the dorsal side facing up and the distal end pointing away from the analyst.

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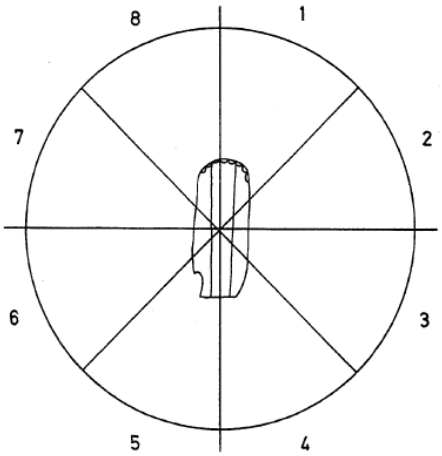

Figure 21. Location of modification (adopted from Odell 1977, Figure V-4).

Scrapers

Scrapers are typically unifaces although a biface may exhibit scraper characteristics along one margin. Scrapers exhibit a clearly modified and steeply angled distal end or lateral margin used as a bit for scraping. The working angle is generally more than 60 degrees. Edge angles around 75 to 90 degrees are best for scraping hides (Andrefsky 2005:161). Scraping edges may be located circumferentially, laterally (side scrapers), or transversely (endscrapers) to the long axis of the tool. The steeply retouched and generally sub-convex working edge(s) were formed by lamellar pressure flaking from the ventral surface or face of the flake blank. Scrapers are typically thought to have been used in animal hide working, although use-wear studies have also shown that they were often used for woodworking as well (Andrefsky 2005). Some side scrapers or end scrapers are handheld. Handheld scrapers may have been modified to facilitate hand use, such as grinding along one margin. Hafted scrapers are typically end scrapers that possess a contracted hafting area that would fit into a socketed haft element, although they are commonly fashioned from broken projectile points. Scrapers may therefore possess both unifacial and bifacial modification.

LITHIC MATERIAL IDENTIFICATION

Raw material sourcing studies can provide meaningful data in determining the geographic range of resources, patterns of resource extraction, and mobility of an area's prehistoric inhabitants. The goal of raw material identification is to examine resource utilization patterns by identifying the raw material sources and quantifying the types present in the assemblage. Changes in preferences over time may indicate significant shifts in strategies in the ways ancient prehistoric peoples obtained their raw materials and foods. These changes may signal even more resonating changes in the overall culture.

For this analysis, each lithic artifact was typically examined with a 5x-fluorescent lamp lens or under 15x-30x magnification to identify the raw material from which the artifact was made. Chert materials were identified based on their luster, color, mottling, inclusions, and fracture properties. Analytical groups were formed based on these attributes, and named varieties given to the group when known. The determination of raw material types was derived from written descriptions and by comparison with the chert type collection housed at Corn Island.

Chert Materials

Chert types and their source locations in Indiana and Kentucky have been intensively studied resulting in a rather extensive knowledge base (Bassett 1980; Bassett and Powell 1984; Cantin 2008; Cantin et al. 2005; DeRegnaucourt and Georgiady 1998; Munson et al. 1983; Munson and Munson 1984; Ray 2000). Ste. Genevieve, Jeffersonville, Harrodsburg, Laurel, Muldraugh, and Brassfield/Boyle cherts comprise the material types recovered in the chipped-stone assemblage. Based on geologic mapping, the Jeffersonville formation is present within the project area. Laurel chert-bearing formations are present approximately seven km (4.3 miles) east of the project area. Muldraugh and Harrodsburg chert-bearing formations are present approximately 23 km (14.3 miles) southwest of the project area.

Macroscopically, Boyle chert is very similar to Brassfield chert and distinguishing between the two can be difficult. Both are fine grained and contain white fossil fragments and may be multicolored. Because both cherts occur in the area and are difficult to distinguish, Boyle and Brassfield as separate material categories are conflated into a single category of “Brassfield” for this analysis. Based on geologic mapping, the nearest Boyle formation locations are approximately 33 km (20.5 miles) to the south.

St. Louis and Ste. Genevieve cherts are also similar macroscopically. These two chert types are subsumed under the classification of “Ste. Genevieve” for this analysis. The Kentucky Geologic Map Information Service indicates that St. Louis and Ste. Genevieve chert-bearing formations are present approximately 45 km (35.4 miles) and 53 km (33 miles) southwest of the project area respectively.

Brassfield Chert

In Kentucky, Brassfield chert originates in the Brassfield Dolomite in the Outer Bluegrass and Knobs region of Kentucky. The Brassfield formation also outcrops in Tennessee along the Highland rim of the Nashville Basin (Amick 1987). The chert is described as generally gray or tan with occasional blue-grey mottles. The chert is typically fossiliferous exhibiting fine flecks of white fossils. The chert is fine grained with a moderate-to-semi-vitreous luster (Amick 1987; DeRegnaucourt and Georgiady 1998:34-37). The chert occurs in tabular bedded form or as flattened nodules. In Kentucky, the chert can be very similar to Boyle chert, making distinctions between the two types difficult. Parish and Cable (2017) note that a high-quality blue/green variety occurs along the northern and eastern margins of the Highland Rim in Tennessee that resembles Ste. Genevieve and Upper St. Louis chert.

Harrodsburg Chert

Harrodsburg chert formed within the Mississippian Harrodsburg Limestone Member. The material is highly fossiliferous and may be confused with other fossiliferous types within Kentucky and Indiana. Harrodsburg chert is similar to Allens Creek, Salem, and Haney cherts making identification difficult. According to Cantin (2008), Harrodsburg may be differentiated from the two by the absence of limonite, which occurs in Haney, and by the lower percentage of crinoids and lack of transparent crystalline-quartz-replaced fossils found in Allens Creek.

Jeffersonville Chert

Jeffersonville chert, sometimes referred to as *Coffee Creek chert*, is a tabular or bedded chert found within alluvial cobbles as angular or semi-rhomboidal blocks. Jeffersonville chert is a tabular

or bedded chert found within the Jeffersonville limestone member, Muscatatuck Group, Devonian System. Eroded from its source, the chert may be found as alluvial irregular nodules in stream beds. The chert ranges from white to light gray, and commonly has many grayish-amber-colored mottles or spots. The luster is earthy to chalky and knapping quality is fair to medium. Cortex is chalky white to buff in color, but is occasionally black, brown, or green. Heat treatment produces reddish and pink hues. In addition, the chert is fossiliferous, with an assortment of visible crinoids, corals, and brachiopod fossils, leading to crystalline vugs between fossils. Even with the fossiliferous nature of the chert, it is well consolidated and ranges from fine- to medium-grained. The occasional presence of tenaculitids in Jeffersonville chert may act as an index fossil distinguishing it from Laurel chert in which none have been identified (Cantin 2006, 2008; DeRegnaucourt and Georgiady 1998).

Laurel Chert

Laurel chert occurs as nodules and in tabular form in the Laurel Limestone Member of the Salamonie Dolomite Formation, Bainbridge Group, Silurian System in southeastern Indiana. The material may be acquired from bedrock outcrops or stream gravels. The color is generally white, although it may range to a light gray. Heat treatment and weathering may result in a rusty brown, pink, or red colorations due to the oxidization of ferrous minerals. The material often exhibits thin bands of light gray, blue gray, and purple gray; and black or gray spots occur in some samples. Texture is medium-course to fine-medium, and luster ranges from dull and earthy to glossy. Fossils are common, and may include bryozoans, sponge spicules, brachiopods, and crinoids. The chert may be distinguished from Jeffersonville by an absence of tentaculitids. The knapping quality of Laurel chert is high-medium and it was utilized during all prehistoric periods (Cantin 2008; DeRegnaucourt and Georgiady 1998).

Muldraugh Chert

Muldraugh chert originates from the Mississippian limestone of the Borden Formation and is a constituent of the Muldraugh Formation of the Sander Group. However, the Muldraugh formation has been found geologically identical to the Fort Payne Formation that extends from south-central Indiana into Kentucky and Tennessee (Cantin 2008). Therefore, the Ft. Payne and Muldraugh chert types are lithologically identical but given different names depending on their point of origin. Muldraugh chert has been described as exhibiting medium-to-light pale grays, and light olive browns to dusky yellow. Uniform colors can occur, although the chert is typically mottled with shades of lighter grays, browns or olive (Cantin 2008). The most common colors are pale yellowish brown with streaks and mottling (Anslinger et al. 1994). Although a medium-coarse texture is the norm, the chert can range to a fine-textured waxy luster (Cantin 2008). When thermally altered, the chert takes on shades of deep pink to red.

St. Louis Chert

The Mississippian-aged St. Louis Limestone is the parent formation of St. Louis chert. St. Louis chert typically ranges in color from a very light blue to dark gray, and in lesser frequency brown to olive green. It occurs in both nodular and bedded forms and exhibits great textural variability. Texture ranges from moderately fine-grained to fine-grained vitreous types. In Indiana, the quality of Upper St. Louis chert is typically medium. To the south in Kentucky and southern Illinois, the chert changes to a very fine-textured, homogeneous, high-quality chert similar to Wyandotte (Cantin 2008). Upper St. Louis chert is found at numerous locations in the Shawnee Hills of Illinois (May 1984) where it is typically referred to as simply St. Louis, while In Kentucky this chert type is often referred to as Upper St. Louis (e.g. Nance 1984). St. Louis Formation limestones are

exposed along the Ohio River in Hardin County, Illinois and residual sources of this chert are plentiful in the stream beds of this area. In Kentucky, extensive exposures of Upper St. Louis are also reported. Although less is known about their location and distribution, high-quality "ball cherts" have been reported in residuum exposures in the upper tributaries of Livingston Creek in southern Crittenden County, Kentucky (Butler 1983; Gatus 1980; Hill 2014; Nance 1984).

Ste. Genevieve Chert

Ste. Genevieve chert (aka Wyandotte, Indiana Hornstone, Harrison County, Sonora, Hopkinsville, Fredonia) occurs in the Ste. Genevieve Limestone Formation. In Illinois, the range of colors varies from red to brown, gray, and blue. The red and brown nodular types are commonly banded. Ste. Genevieve chert in nodular form often has a smooth texture; the bedded type ranges from grainy to smooth and may be fossiliferous (Kreisa et al. 1997). In Logan County, located in southwestern Kentucky, the local Ste. Genevieve chert has been described as ranging from medium dark gray to medium bluish gray in color, with concentric bands commonly occurring. It is described as darker, finer grained, and lacking the mottles and flecking common in the local St. Louis chert (Bradbury 2007). KHC has described the Ste. Genevieve chert occurring in southwestern Kentucky at the Paleoindian Adams Site in Christian County as black to light gray or white and fine-grained. The chert outcrops in this location along Little River in five-to-30.4-cm (two-to-12-inch) thick bedded layers or as 2.5-to-20.3-cm (one-to-eight-inch) spherical nodules in the relatively soft Ste. Genevieve limestone (Kentucky Heritage Council 2013; Sanders and Maynard 1979). In Indiana, the chert is referred to as Wyandotte or Harrison County flint.

Indeterminate Chert

Cherts that could not be assigned to a specific chert type were placed in an indeterminate category. This designation generally indicates: (1) that the material does not fall within a recognizable type; (2) a high degree of cortex or heat alteration has obscured the diagnostic attributes; and (3) size or other morphological aspects restrict the ability to differentiate a specific chert type with any degree of confidence. Many indeterminate chert types may be cobble/pebble chert that was obtained from alluvial deposits and used at sites along the Ohio River.

PREHISTORIC ASSEMBLAGE ANALYSIS RESULTS

The Phase I survey recovered a total of 83 prehistoric materials recovered from one field site. The prehistoric assemblage is comprised entirely of chipped-stone artifacts. Materials were recovered from plowzone, and sub-plowzone contexts. The total project prehistoric assemblage includes debitage (n=79), flake tools (n=3), and one biface (n=1). Data regarding the specifics of individual prehistoric artifacts are presented in Appendix A (**Table 15**).

Chipped Stone Assemblage

The recovered chipped stone assemblage includes 79 debitage, three flake tools, and one late-stage biface fragment. The chipped-stone assemblage is comprised primarily of Ste. Genevieve chert (43.4 percent) and Jeffersonville chert (37.3 percent), with lesser amounts of Muldraugh (7.2 percent), Laurel (3.6 percent), Harrodsburg (2.4 percent), Brassfield/Boyle (1.2 percent), and indeterminate chert (4.8 percent) (**Table 8**).

Table 8. Chipped-Stone Assemblage Summary.

	Count Artifact Type			Percent Artifact Type			N	%
Material Type	Biface	Debitage	Flake Tool	Biface	Debitage	Flake Tool		
Brassfield/Boyle		1		0.0%	1.3%	0.0%	1	1.2%
Harrodsburg		2		0.0%	2.5%	0.0%	2	2.4%
Jeffersonville	1	29	1	100.0%	36.7%	33.3%	31	37.3%
Laurel		3		0.0%	3.8%	0.0%	3	3.6%
Muldraugh		5	1	0.0%	6.3%	33.3%	6	7.2%
Ste. Genevieve (Wyandotte)		35	1	0.0%	44.3%	33.3%	36	43.4%
Indeterminate chert		4		0.0%	5.1%	0.0%	4	4.8%
Total	**1**	**79**	**3**	**100.0%**	**100.0%**	**100.0%**	**83**	**100.0%**

Bifaces (*n=1*)

One biface was recovered during the archaeological investigation (**Table 9**). The biface is a distal fragment with fine pressure retouch. The biface is classified here as a late-stage biface that may have functioned as a small projectile point (**Figure 22**). Edge angles were less than 35 degrees on the specimen.

Table 9. Biface.

Site	Artifact #	Artifact Type	Subclass	Class	Material Type	Wt (g.)	N
15JF986	53	Late stage	(Blank)	0: none present	Jeffersonville	0.2	1
Total						0.2	1

Figure 22. Biface recovered from the project APE.

Debitage (*n=79*)

The total project debitage assemblage includes 79 (84.8 g) chert flakes and angular fragments (**Table 10**). Forty-four are larger than 0.635 cm (0.25 inch), and 35 are smaller than the 0.635-cm

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(0.25-inch) size grade. All items within the recovered assemblage were classified according to material type and reduction stage regardless of size grade. There is a notably higher number of recovered Ste. Genevieve debitage that is less than the 0.25-inch size grade. It is likely that more was lost through the screen in the field. This suggests that there is a higher number of pressure flakes indicative of tool maintenance for this more distant material type.

Table 10. Debitage Summary.

		Size Grade					
Artifact Type	**Material Type**	**1 (1/8")**	**2 (1/4")**	**3 (1/2")**	**4 (3/4")**	**(n/r)**	**N**
Flake	Brassfield/Boyle		1				1
	Harrodsburg	2					2
	Jeffersonville	4	10		1		15
	Laurel		2				2
	Muldraugh	1	3	1			5
	Ste. Genevieve (Wyandotte)	22	9	1			32
	Indeterminate chert	2	1				3
flake Total		31	26	2	1		60
Shatter	Jeffersonville	2	8	2	2		14
	Laurel					1	1
	Ste. Genevieve (Wyandotte)	2		1			3
	Indeterminate chert		1				1
Shatter Total		4	9	3	2	1	19
Total		**35**	**35**	**5**	**3**	**1**	**79**

Specialized Analysis: Debitage

To assess the organization of technology at site 15JF986, a stage-based analysis following Magne (1985) was conducted (

Table 11). The stage-based analysis relies on flake completeness, dorsal scars, platform facets, and platform lipping. One deviation from Magne's method here is that a few flakes smaller than the 0.635-cm (0.25-inch) size grade, despite exhibiting only one platform facet, were morphologically retouch pressure flakes and were classified as such.

The results indicate that all stages of reduction are present for the locally occurring Laurel and Jeffersonville chert, while more distant cherts such as Ste. Genevieve and Brassfield/Boyle are classified to later stages of reduction (**Table 12**). There is also a higher percentage of Jeffersonville chert blocky shatter present in the assemblage, an artifact type produced more often during initial core reduction. In contrast, no early-stage reduction flakes of Ste. Genevieve chert were recovered and 52 percent of the debitage of this chert type are classified to the later stages of tool production.

Table 11. Debitage Analysis: Frequency of Material Type Across Stage Classification.

Material Type	0: Blocky	1: Early	2: Middle	3: Late	4: Biface thinning	5: Pressure flake	N
Brassfield/Boyle					1		1
Harrodsburg			2				2
Jeffersonville	14	2	6	3	2	1	28
Laurel	1	1		1			3
Muldraugh		1	4				5
Ste. Genevieve (Wyandotte)	3		14	13	3	2	35
Indeterminate chert	1	2	1				4
Total	**19**	**6**	**27**	**17**	**6**	**3**	**78**

Table 12. Debitage Analysis: Percent Stage Classification Across Material Type.

Material Type	0: Blocky	1: Early	2: Middle	3: Late	4: Biface thinning	5: Pressure flake	Total
Brassfield/Boyle	0%	0%	0%	0%	100%	0%	100%
Harrodsburg	0%	0%	100%	0%	0%	0%	100%
Jeffersonville	50%	7%	21%	11%	7%	4%	100%
Laurel	33%	33%	0%	33%	0%	0%	100%
Muldraugh	0%	20%	80%	0%	0%	0%	100%
Ste. Genevieve (Wyandotte)	9%	0%	40%	37%	9%	6%	100%
Indeterminate chert	25%	50%	25%	0%	0%	0%	100%
Total	**24%**	**8%**	**35%**	**22%**	**8%**	**4%**	**100%**

Flake Tool (n=3)

The project chipped stone tool assemblage includes three flakes that exhibits retouch along one or two margins (**Table 13** and **Figure 23**). The edge angles are all moderately acute suggesting that they were used as a scraper or for heavy cutting. The flake tools are subclassified functionally as scrapers.

Table 13. Flake Tools.

Artifact Type	Art. #	Material Type	Subtype	Size	Edge Angle	Possible Function	Wt. (g)	N
Utilized flake	61	Jeffersonville	1: unimarginal (unifacial)	2 (1/4")	35-60°	Hide scraping / heavy cutting	1.1	1
	52	Muldraugh	1: unimarginal (unifacial)	4 (3/4")	35-60°	Hide scraping / heavy cutting	2.2	1
	59	Ste. Genevieve (Wyandotte)	1: unimarginal (unifacial)	3 (1/2")	65°	Hide scraping / heavy cutting	2.5	1
Total							**5.8**	**3**

Figure 23. Flake tools recovered from project APE.

Prehistoric Artifact Analysis Summary

A low quantity and diversity of prehistoric artifacts were recovered from one site (15JF968) identified within the project APE and no diagnostic artifacts were recovered. At a minimum, the site is represented by early- and late-stage debitage and one broken late-stage biface indicating that some chipped-stone tools were produced or maintained at the site. The most common chert type recovered was the more distant Ste. Genevieve (Wyandotte) chert that occurs in southern Indiana. Most of this material were flakes from the later stages of reduction suggesting that tool maintenance was accountable for the deposition of these flakes. A few utilized flakes may indicate the processing of flora and faunal material. The assemblage suggests that site 15JF968 was a short-term camp where retooling and discarding of broken tools may have occurred.

6
SITE DESCRIPTION AND RESULTS

This section of the report details the results of field investigations and sites identified during the Phase I investigation. During the pedestrian survey of the project area, a low mound was identified in the central portion of the soccer fields (**Figure 24** and see **Figure 28**). The mound is ramped at one side and is not apparent on any maps or aerial imagery until the 1970s. The grass surrounding the mound is a different color and forms a large ring around the mound (**Figure 25**). One STP (D7) was placed on the western ramped slope of the mound revealing a mottled disturbed fill containing a higher amount of gravel and limestone than in other STPs within the project area. The function or nature of the mound was researched, and it was learned that it was built to serve as the platform for a hole-in-one golf competition at one time.

Figure 24. Mound in the central section of the recreational sports fields.

Figure 25. Satellite imagery of the mound and differentiation in grass color encircling the mound (Google Earth 2021).

One site was identified during the current survey (15JF968). Site boundaries were identified and defined by STP excavations. The results of these surface and subsurface investigations are discussed below.

SITE 15JF986

Site 15JF986 is a prehistoric open habitation site located approximately 270 m (886 ft) southeast of the Middle Fork of Beargrass Creek in Louisville, Kentucky (**Figure 27**). The site is located on a broad ridge between the Middle Fork of Bear Grass Creek and an unnamed second order stream that confluences with Beargrass Creek approximately 1.3 km (0.8 mile) west of the site. The site has been subjected to agricultural tillage as well as land clearing, which has disturbed the site, although to what extent is not known. At the time of the survey, the site was located in a manicured lawn used as a recreational sports field, a drainage that bisects the site, and in a grassy area along a ridge south of a drainage. Ground surface visibility was poor.

15JF986

USGS Topographic Quadrangle: Jeffersontown, KY

UTM Zone and Coordinates (Center of Site): N 42337910 E 622069

Topography: Flat upland and ridge

Elevation: 169.4 m (556 ft) AMSL

Site Size: 32,245 sq m (347,082 sq ft)

Temporal Affiliation: Indeterminate prehistoric

Current Land use: Recreational sports field

Degree of Disturbance: est. 25-50% (plowing)

Ground Surface Visibility: 0%

Soil Type: Crider silt loam

Nearest Water Source: Third order tributary of Middle Fork of Beargrass Creek

Distance to Water: 80 m (262.4 ft)

NRHP Eligibility Status: Inventory Site

The site was identified by prehistoric lithic artifacts recovered from STPs excavated on the broad ridge. Site boundaries were initially defined by STPs at 20-m (65.6-ft) intervals. The site boundary is approximately 443-x-256 m (1453-x-840 ft) at its maximum dimensions, and a total of 32,245 sq m (347,082 sq ft) in area. The defined area constitutes 3.22 ha (7.96 acres).

STPs were excavated to aid in the delineation of the site boundaries and determine if intact sub-plowzone cultural deposits are present. Forty-one positive STPs and the project area boundary defined the site boundaries (**Figure 28**). The site is bounded by negative STPs to the north within the soccer field. Except for a small area that is slope associated with the third order drainage, remaining site boundary is defined by the project area boundaries. The site likely extends outside the project area to the east and west. One STP exposed a dark stratum containing charcoal, but the nature of the stratum is inconclusive. Otherwise, no indications of features or other subsurface deposits were observed in any of the excavations.

Figure 26. 15JF986 overview, facing south.

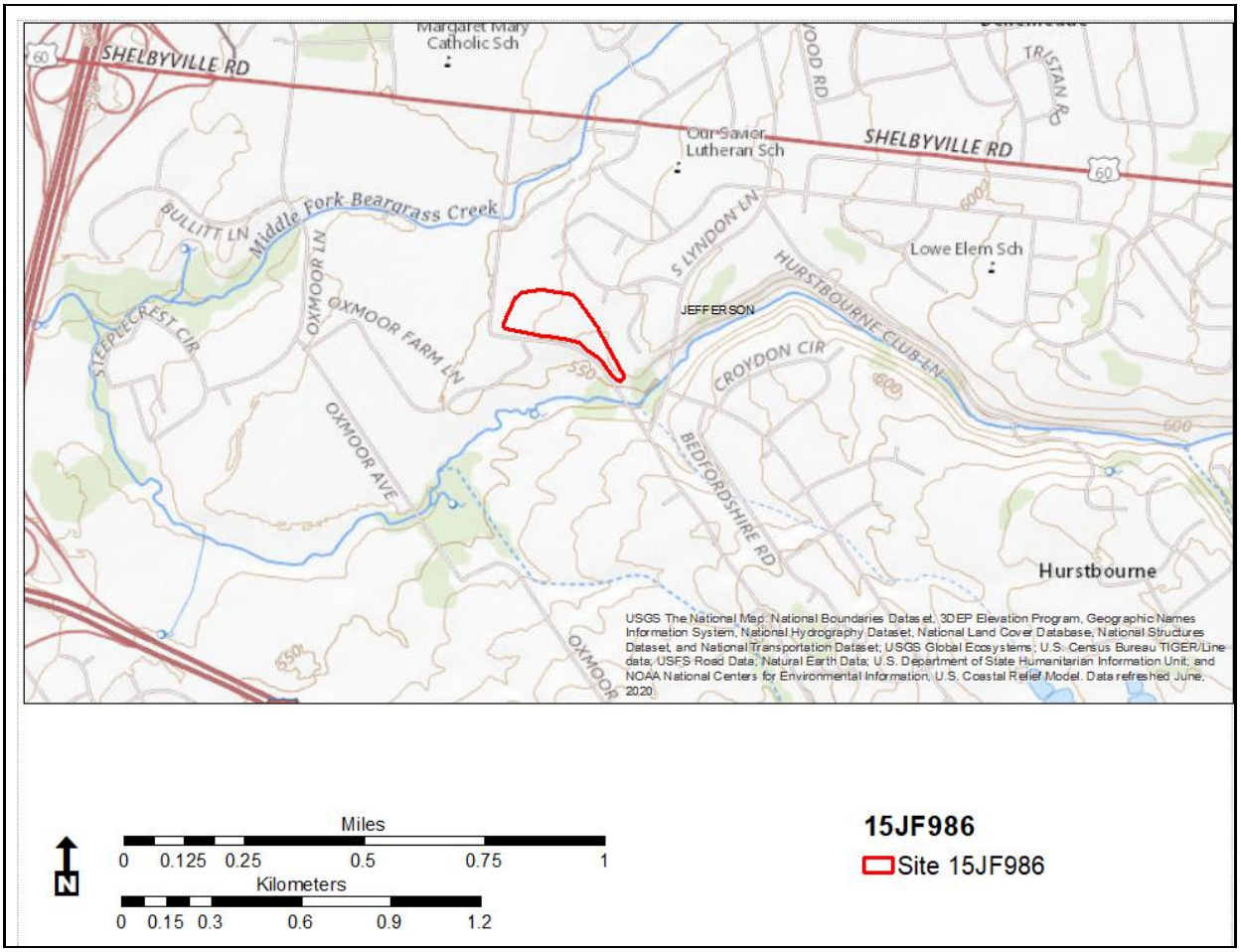

Figure 27. Location of Site 15JF986.

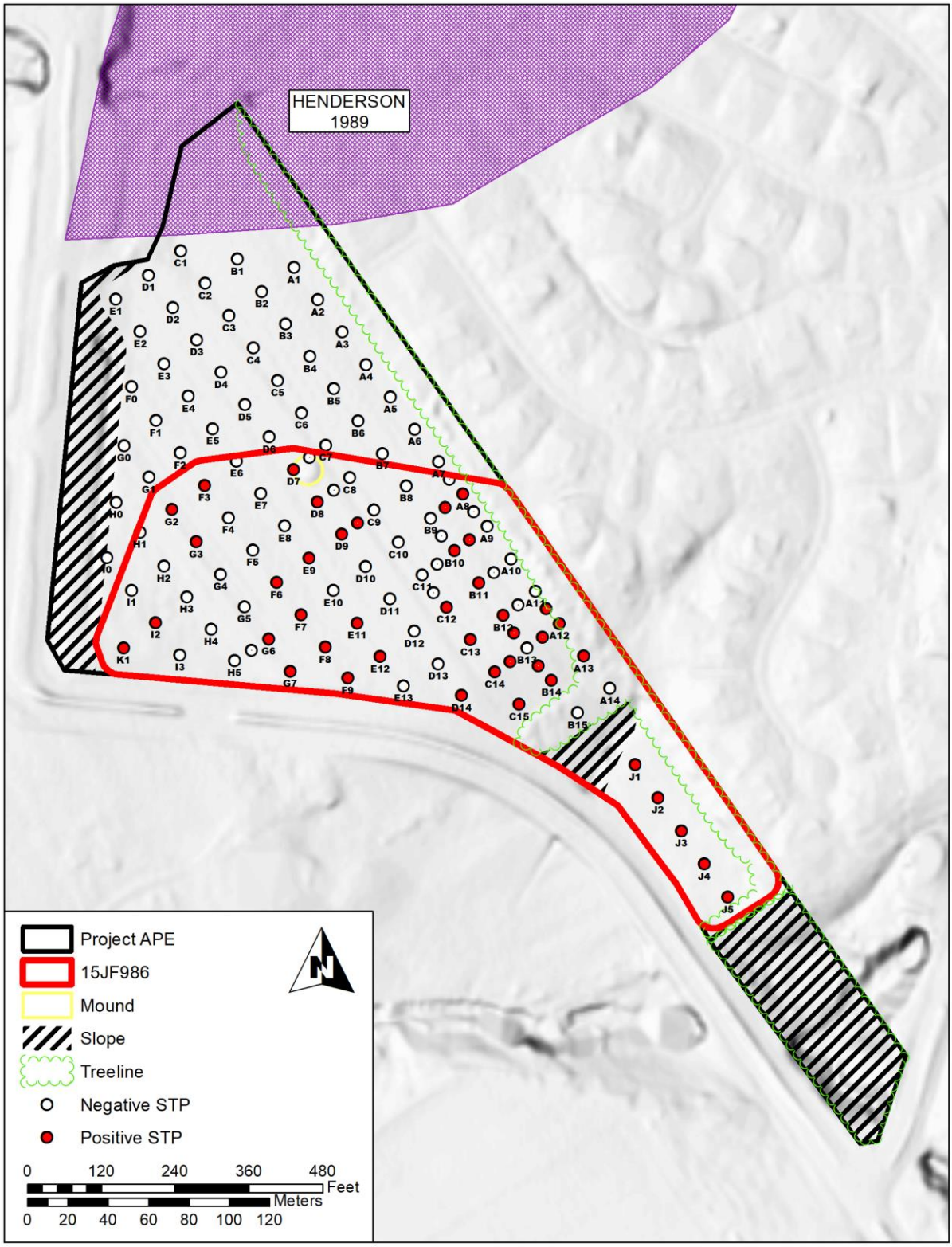

Figure 28. Site plan of 15JF968.

STP Excavations

Following the initial surface survey, 123 STPs were excavated within the project area, 41 of which were positive for cultural material. These positive STPs served to define the site boundary. In general, the STPs revealed similar profiles and were consistent with Crider series soils. With the possible exception of STP C12, no evidence indicative of distinct cultural deposits was observed below the disturbed plowzone in any of the excavations or during the surface reconnaissance

Most of the STPs within site 15JF986 consisted of just two zones, with only a few exhibiting three zones (**Figure 29** and **Figure 30**). The stratigraphy on average consisted of a dark yellowish brown (Munsell 10YR 4/4) silt loam to a depth of approximately 16 to 22 cm (6.3 to 8.7 inches) bs over a yellowish brown (Munsell 10YR 5/8) silty clay loam. The STPs which contained three zones generally had shallow Zones I and II. Zone III consisted of yellowish red (Munsell 7.5YR 4/6) silty clay loam.

Only one STP was different than the typical profile described above. STP C12 revealed four zones (**Figure 31** and **Figure 32**). Zone I consisted of a dark yellowish brown (Munsell 10YR 4/4) silt loam. Zone II consisted of a yellowish brown (Munsell 10YR 5/8) silt clay. Zone III consisted of a brown (Munsell 10YR 4/3) silt loam with fragments of charcoal and burnt clay. Zone III contained no FCR and a minor quantity of cultural material (n=2). Zone IV consisted of a mottled brown and yellowish brown (Munsell 10YR 4/3 and 10YR 5/4) silt loam.

The nature of Zone III in STP C12 is unclear, but it is not likely to be a sheet midden deposit. Surrounding radial STPs did not reveal a similar stratum. It is possible that the zone is related to a cultural feature and represents feature fill, although it is more probably a burned root cast. If Zone III is associated with a cultural feature, it is shallow and possibly truncated by plowing. The STP was not expanded to further explore the nature of the stratum.

Figure 29. Image of STP C15.

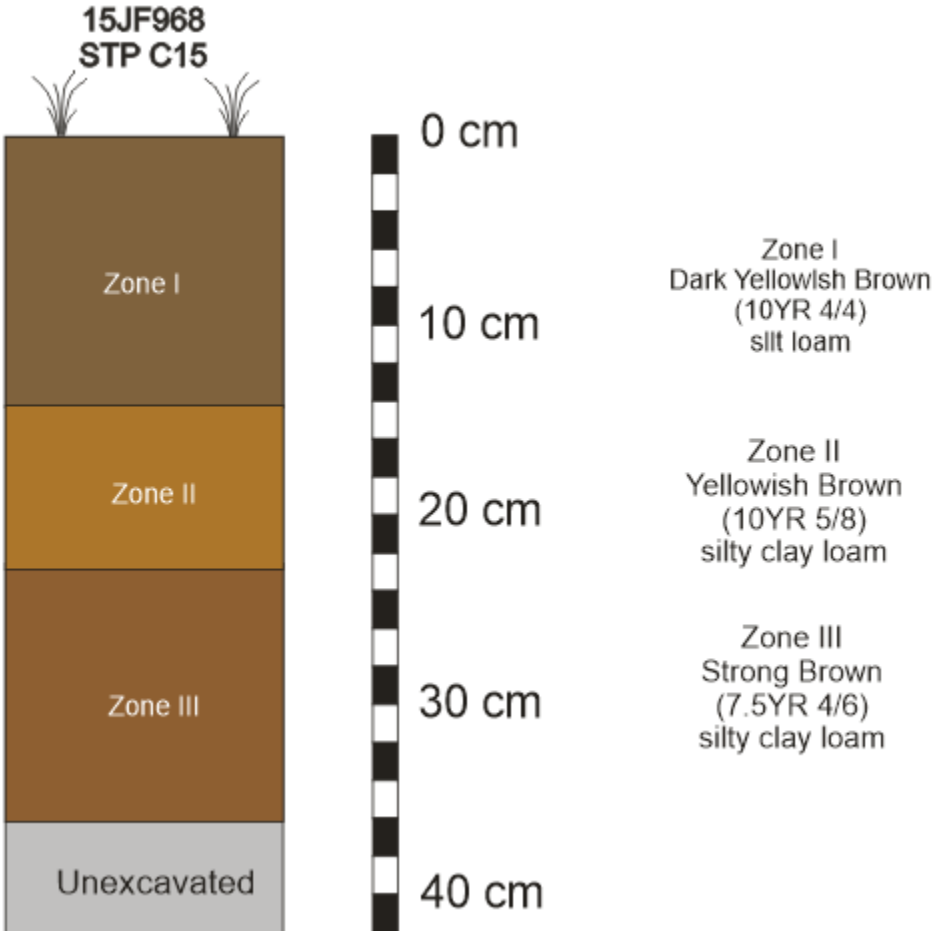

Figure 30. Stratigraphic profile of STP C15.

Figure 31. Image of STP C12.

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Figure 32. Stratigraphic profile of STP C12.

Assemblage Recovered from Site 15JF968

Eighty-three artifacts were recovered from site 15JF968 (**Table 14**). The collected artifact assemblage consists of lithic debitage, three flake tools, and one broken biface tip. No diagnostic artifacts were recovered. The chipped stone materials utilized are locally or regionally occurring, being composed of the typical suite of chert types often found in the region: Ste. Genevieve, Jeffersonville, Muldraugh, Laurel, Harrodsburg, Brassfield, and Brassfield/Boyle cherts. Results from the reduction-stage analysis indicated that the entire biface production sequence was present for locally occurring Jeffersonville, while late-stage reduction characterizes the Ste. Genevieve assemblage. The lack of FCR at the site suggests that thermal cooking or heating features, if present, were not abundant. From the surviving cultural material recovered, site 15JF968 was likely a short-term open-habitation site that appears to have been a locus for the manufacture of stone tools from local and semi-local sources, while maintenance and resharpening occurred on tools made of cherts from more distant sources.

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There is a higher concentration of artifacts along the highest point in the project area. This is along a ridge crest overlooking the first order drainage (**Figure 33**). The distribution of Jeffersonville and Ste. Genevieve are generally the same across the site with no apparent clusters based on chert type occurring within the site boundary.

Table 14. Artifacts Recovered from 15JF968.

Excavation Unit	Depth	Group	Material Type	N
STP A12	0-16 cm bs	Debitage	Jeffersonville	1
STP A12 + 10mN	20-42 cm bs	Debitage	Muldraugh	1
			Ste. Genevieve (Wyandotte)	1
STP A12 + 10mW	0-17 cm bs	Debitage	Muldraugh	3
			Ste. Genevieve (Wyandotte)	2
STP A13	0-20 cm bs	Debitage	Jeffersonville	1
STP A8	0-20 cm bs	Debitage	Jeffersonville	1
STP A8 + 10mW	22-42 cm bs	Debitage	Ste. Genevieve (Wyandotte)	1
STP B10	0-14 cm bs	Debitage	Muldraugh	1
			Ste. Genevieve (Wyandotte)	1
	14-30 cm bs	Debitage	Ste. Genevieve (Wyandotte)	1
STP B10 + 10mE	0-16 cm bs	Debitage	Harrodsburg	1
			Ste. Genevieve (Wyandotte)	2
STP B11	0-21 cm bs	Debitage	Ste. Genevieve (Wyandotte)	1
	21-45 cm bs	Debitage	Ste. Genevieve (Wyandotte)	1
STP B12	17-48 cm bs	Debitage	Ste. Genevieve (Wyandotte)	1
STP B12 + 10mS	0-22 cm bs	Debitage	Jeffersonville	1
STP B14	0-19 cm bs	Debitage	Brassfield/Boyle	1
			Jeffersonville	2
			Laurel	1
STP B14 + 10mN	0-17 cm bs	Debitage	Jeffersonville	1
STP C12	0-14 cm bs	Debitage	Jeffersonville	1
			Ste. Genevieve (Wyandotte)	1
	30-46 cm bs	Debitage	Jeffersonville	1
			Laurel	1
STP C13	0-20 cm bs	Debitage	Jeffersonville	1
			Ste. Genevieve (Wyandotte)	2
STP C14	0-15 cm bs	Debitage	Ste. Genevieve (Wyandotte)	3
			Indeterminate chert	1
	15-28 cm bs	Debitage	Ste. Genevieve (Wyandotte)	1
STP C14 + 10mE	0-17 cm bs	Debitage	Jeffersonville	2
			Ste. Genevieve (Wyandotte)	2
			Indeterminate chert	2
STP C15	12-22 cm bs	Debitage	Jeffersonville	1
STP D14	0-28 cm bs	Debitage	Jeffersonville	1

Excavation Unit	Depth	Group	Material Type	N
	28-40 cm bs	Debitage	Jeffersonville	2
STP D7	0-35 cm bs	Debitage	Jeffersonville	2
STP D9 + 10mE	0-23 cm bs	Debitage	Jeffersonville	1
STP E11	0-15 cm bs	Debitage	Ste. Genevieve (Wyandotte)	1
STP E12	34-46 cm bs	Debitage	Jeffersonville	1
STP E9	0-28 cm bs	Debitage	Ste. Genevieve (Wyandotte)	1
STP F3	0-30 cm bs	Debitage	Ste. Genevieve (Wyandotte)	2
STP F6	0-27 cm bs	Debitage	Ste. Genevieve (Wyandotte)	1
STP F7	0-20 cm bs	Debitage	Jeffersonville	2
			Ste. Genevieve (Wyandotte)	1
		Flake Tool	Muldraugh	1
STP F8	0-20 cm bs	Biface	Jeffersonville	1
		Debitage	Indeterminate chert	1
STP F9	0-25 cm bs	Debitage	Ste. Genevieve (Wyandotte)	2
STP G2	0-26 cm bs	Flake Tool	Ste. Genevieve (Wyandotte)	1
STP G3	0-29 cm bs	Debitage	Jeffersonville	1
STP G6	0-33 cm bs	Flake Tool	Jeffersonville	1
STP G7	0-25 cm bs	Debitage	Ste. Genevieve (Wyandotte)	3
STP I2	0-25 cm bs	Debitage	Ste. Genevieve (Wyandotte)	1
STP J1	0-29 cm bs	Debitage	Harrodsburg	1
			Jeffersonville	1
	29-50 cm bs	Debitage	Laurel	1
STP J2	0-20 cm bs	Debitage	Jeffersonville	1
STP J3	13-32 cm bs	Debitage	Jeffersonville	3
STP J5	0-28 cm bs	Debitage	Jeffersonville	1
			Ste. Genevieve (Wyandotte)	2
STP K1	24-34 cm bs	Debitage	Ste. Genevieve (Wyandotte)	1
Total				**83**

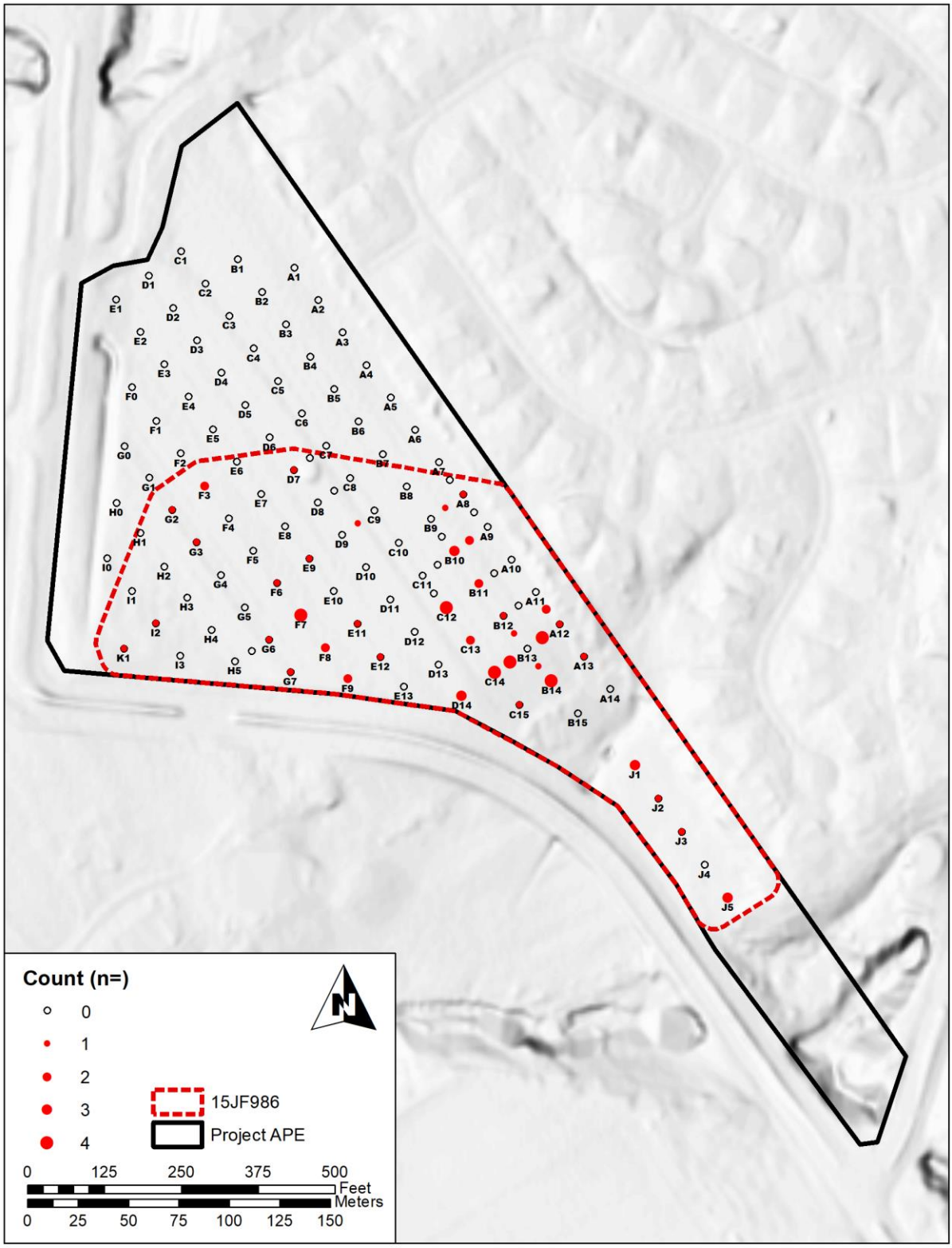

Figure 33. Overview of STP locations and artifact density within the project area on LIDAR imagery (positive radials shown but not labeled).

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Temporal Affiliation and Site Function

Site 15JF968 appears to have experienced limited prehistoric landuse. The site appears to have served in part as a production location for stone tools manufactured from locally and regionally available chert. The maintenance of stone tools made from more distant sources is represented by late-stage reduction and pressure flakes. From the available data, the prehistoric occupation at 15JF968 was likely a temporary, perhaps seasonally occupied, open habitation site or small extractive camp. However, the site is not fully defined, and this interpretation is tentative.

Management Recommendation

Site 15JF968 is an open habitation site that consisted of a light density scatter of artifacts recovered from shovel test excavations. Although 18 of the 83 artifacts were recovered from below the disturbed plowzone, STP profiles revealed little evidence of intact sub-plowzone deposits or features. The prehistoric occupation of the site was likely short term, and features, if present, would likely be shallow and ephemeral. The limited diversity of tools and the scarcity of subsurface cultural deposits or features indicate that the site has negligible research potential. Site 15JF968 is not considered NRHP eligible, and no further archaeological work is recommended.

7
CONCLUSIONS AND RECOMMENDATIONS

Between July 2 and July 13, 2021, Corn Island Archaeology LLC conducted a Phase I archaeological investigation for a proposed multifamily apartment complex and associated infrastructure along Oxmoor Woods Parkway in Louisville, Jefferson County, Kentucky. The investigation was requested by NTS Development Corporation, LLC. The project area is situated in southeastern Jefferson County, near the Middle Fork of Beargrass Creek and encompasses 6.4 ha (15.7 acres) of undeveloped land consisting primarily of manicured level fields, with minor areas of wooded slope, and floodplain associated with two streams. The archaeological survey was completed by a combination of ground surface inspection and the excavation of 123 STPs. The survey resulted in the discovery of one newly identified archaeological site (15JF968).

Site 15JF986 is a prehistoric open habitation without mounds located on a relatively level ridge and extends to the southeast across a wooded drainage and along a narrow strip of land adjacent to Oxmoor Woods Parkway. Site 15JF986 encompasses an area of 3.22 ha (7.96 acres). The site boundaries are defined by the project area to the north, south and east. The northern portion of the site is currently used as a recreational sports field.

The site was defined by a low-density deposition of prehistoric chert artifacts (n=83) recovered from 341positive STP excavations. The recovered chipped stone assemblage includes 79 debitage, three flake tools, and one late-stage biface fragment. Site 15JF968 appears to have experienced limited prehistoric land use and appears to have served in part as a production location for stone tools manufactured from locally and regionally available chert.

One STP encountered a dark stratum containing charcoal, but the stratum could not be confirmed as cultural. The recovered assemblage does not evidence the presence of features (e.g., presence of FCR). In general, that portion of the site defined within the surveyed project area lacks evidence for significant undisturbed subsurface cultural deposits. Site 15JF986 is not recommended as eligible for listing in the NRHP, and no further archaeological investigations are recommended.

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APPENDIX A. PREHISTORIC ARTIFACT INVENTORY

Table 15. Artifact Inventory (15JF986).

Art. #	Excavation Unit	Depth	Group	Artifact Type	Material Type	Cortex	Portion	Reduction Stage	N
1	STP A8	0-20 cm bs	Debitage	Shatter	Jeffersonville	4: present	4: Blocky/angular	0: Blocky	1
2	STP A8 + 10mW	22-42 cm bs	Debitage	Flake	Ste. Genevieve (Wyandotte)	0: none present	3: Fragment	3: Late	1
3	STP A12	0-16 cm bs	Debitage	Flake	Jeffersonville	0: none present	1: Complete	1: Early	1
4	STP A12 + 10mN	20-42 cm bs	Debitage	Flake	Ste. Genevieve (Wyandotte)	0: none present	3: Fragment	3: Late	1
5	STP A12 + 10mN	20-42 cm bs	Debitage	Flake	Muldraugh	0: none present	3: Fragment	2: Middle	1
6	STP A12 + 10mW	0-17 cm bs	Debitage	Flake	Ste. Genevieve (Wyandotte)	0: none present	3: Fragment	3: Late	1
7	STP A12 + 10mW	0-17 cm bs	Debitage	Flake	Muldraugh	0: none present	3: Fragment	2: Middle	2
8	STP A12 + 10mW	0-17 cm bs	Debitage	Flake	Ste. Genevieve (Wyandotte)	0: none present	2: PRB	2: Middle	1
9	STP A12 + 10mW	0-17 cm bs	Debitage	Flake	Muldraugh	0: none present	3: Fragment	2: Middle	1
10	STP A13	0-20 cm bs	Debitage	Flake	Jeffersonville	0: none present	3: Fragment	3: Late	1
11	STP B10	0-14 cm bs	Debitage	Flake	Muldraugh	0: none present	2: PRB	1: Early	1
12	STP B10	0-14 cm bs	Debitage	Flake	Ste. Genevieve (Wyandotte)	0: none present	2: PRB	3: Late	1
13	STP B10	14-30 cm bs	Debitage	Flake	Ste. Genevieve (Wyandotte)	0: none present	2: PRB	3: Late	1
14	STP B10 + 10mE	0-16 cm bs	Debitage	Shatter	Ste. Genevieve (Wyandotte)	0: none present	4: Blocky/angular	0: Blocky	2
15	STP B10 + 10mE	0-16 cm bs	Debitage	Flake	Harrodsburg	0: none present	2: PRB	2: Middle	1
16	STP B11	0-21 cm bs	Debitage	Flake	Ste. Genevieve (Wyandotte)	0: none present	3: Fragment	2: Middle	1
17	STP B11	21-45 cm bs	Debitage	Flake	Ste. Genevieve (Wyandotte)	0: none present	3: Fragment	3: Late	1
18	STP B12	17-48 cm bs	Debitage	Flake	Ste. Genevieve (Wyandotte)	0: none present	3: Fragment	2: Middle	1
19	STP B12 + 10mS	0-22 cm bs	Debitage	Flake	Jeffersonville	0: none present	3: Fragment	2: Middle	1
20	STP B14	0-19 cm bs	Debitage	Flake	Jeffersonville	0: none present	3: Fragment	2: Middle	1
21	STP B14	0-19 cm bs	Debitage	Shatter	Laurel	0: none present	4: Blocky/angular	0: Blocky	1
22	STP B14	0-19 cm bs	Debitage	Shatter	Jeffersonville	4: present	4: Blocky/angular	0: Blocky	1
23	STP B14 + 10mN	0-17 cm bs	Debitage	Shatter	Jeffersonville	0: none present	0: <1/4"	0: Blocky	1
24	STP C12	0-14 cm bs	Debitage	Shatter	Jeffersonville	4: present	4: Blocky/angular	0: Blocky	1
25	STP C12	0-14 cm bs	Debitage	Flake	Ste. Genevieve (Wyandotte)	1: Dorsal only	3: Fragment	2: Middle	1
26	STP C12	30-46 cm bs	Debitage	Flake	Jeffersonville	0: none present	1: Complete	4: Biface thinning	1

Art. #	Excavation Unit	Depth	Group	Artifact Type	Material Type	Cortex	Portion	Reduction Stage	N
27	STP C12	30-46 cm bs	Debitage	Flake	Laurel	0: none present	3: Fragment	3: Late	1
28	STP C13	0-20 cm bs	Debitage	Shatter	Jeffersonville	4: present	4: Blocky/angular	0: Blocky	1
29	STP C13	0-20 cm bs	Debitage	Flake	Ste. Genevieve (Wyandotte)	0: none present	2: PRB	pressure flake	2
30	STP C14	0-15 cm bs	Debitage	Shatter	Indeterminate chert	4: present	4: Blocky/angular	0: Blocky	1
31	STP C14	0-15 cm bs	Debitage	Flake	Ste. Genevieve (Wyandotte)	0: none present	3: Fragment	3: Late	2
32	STP C14	0-15 cm bs	Debitage	Flake	Ste. Genevieve (Wyandotte)	0: none present	3: Fragment	2: Middle	1
33	STP C14	15-28 cm bs	Debitage	Flake	Ste. Genevieve (Wyandotte)	0: none present	3: Fragment	3: Late	1
34	STP C14 + 10mE	0-17 cm bs	Debitage	Flake	Jeffersonville	0: none present	3: Fragment	3: Late	1
35	STP C14 + 10mE	0-17 cm bs	Debitage	Flake	Jeffersonville	0: none present	2: PRB	4: Biface thinning	1
36	STP C14 + 10mE	0-17 cm bs	Debitage	Flake	Ste. Genevieve (Wyandotte)	0: none present	2: PRB	4: Biface thinning	2
37	STP C14 + 10mE	0-17 cm bs	Debitage	Flake	Indeterminate chert	0: none present	3: Fragment	1: Early	2
38	STP C15	12-22 cm bs	Debitage	Flake	Jeffersonville	0: none present	3: Fragment	2: Middle	1
39	STP D7	0-35 cm bs	Debitage	Shatter	Jeffersonville	0: none present	4: Blocky/angular	0: Blocky	2
40	STP B14	0-19 cm bs	Debitage	Flake	Brassfield/Boyle	0: none present	2: PRB	4: Biface thinning	1
41	STP D14	28-40 cm bs	Debitage	Flake	Jeffersonville	unknown	2: PRB	(blank)	1
42	STP D9 + 10mE	0-23 cm bs	Debitage	Shatter	Jeffersonville	0: none present	4: Blocky/angular	0: Blocky	1
43	STP D14	0-28 cm bs	Debitage	Flake	Jeffersonville	1: Dorsal only	3: Fragment	1: Early	1
44	STP D14	28-40 cm bs	Debitage	Shatter	Jeffersonville	4: present	4: Blocky/angular	0: Blocky	1
45	STP E9	0-28 cm bs	Debitage	Flake	Ste. Genevieve (Wyandotte)	0: none present	3: Fragment	3: Late	1
46	STP E11	0-15 cm bs	Debitage	Flake	Ste. Genevieve (Wyandotte)	0: none present	3: Fragment	2: Middle	1
47	STP E12	34-46 cm bs	Debitage	Flake	Jeffersonville	0: none present	3: Fragment	2: Middle	1
48	STP F6	0-27 cm bs	Debitage	Flake	Ste. Genevieve (Wyandotte)	0: none present	3: Fragment	2: Middle	1
49	STP F7	0-20 cm bs	Debitage	Shatter	Jeffersonville	0: none present	4: Blocky/angular	0: Blocky	1
50	STP F7	0-20 cm bs	Debitage	Flake	Ste. Genevieve (Wyandotte)	0: none present	3: Fragment	2: Middle	1
51	STP F7	0-20 cm bs	Debitage	Flake	Jeffersonville	0: none present	3: Fragment	3: Late	1
52	STP F7	0-20 cm bs	Flake Tool	Utilized flake	Muldraugh	0: none present	3: Fragment	3: Late	1

Art. #	Excavation Unit	Depth	Group	Artifact Type	Material Type	Cortex	Portion	Reduction Stage	N
53	STP F8	0-20 cm bs	Biface	Late stage	Jeffersonville	0: none present	04: distal	(blank)	1
54	STP F8	0-20 cm bs	Debitage	Flake	Indeterminate chert	3: Dorsal and platform	2: PRB	2: Middle	1
55	STP F9	0-25 cm bs	Debitage	Flake	Ste. Genevieve (Wyandotte)	0: none present	2: PRB	4: Biface thinning	1
56	STP F9	0-25 cm bs	Debitage	Flake	Ste. Genevieve (Wyandotte)	0: none present	3: Fragment	2: Middle	1
57	STP F3	0-30 cm bs	Debitage	Flake	Ste. Genevieve (Wyandotte)	0: none present	3: Fragment	2: Middle	1
58	STP F3	0-30 cm bs	Debitage	Flake	Ste. Genevieve (Wyandotte)	0: none present	3: Fragment	3: Late	1
59	STP G2	0-26 cm bs	Flake Tool	Utilized flake	Ste. Genevieve (Wyandotte)	0: none present	4: Blocky/angular	0: Blocky	1
60	STP G3	0-29 cm bs	Debitage	Flake	Jeffersonville	0: none present	3: Fragment	2: Middle	1
61	STP G6	0-33 cm bs	Flake Tool	Utilized flake	Jeffersonville	0: none present	2: PRB	4: Biface thinning	1
62	STP G7	0-25 cm bs	Debitage	Flake	Ste. Genevieve (Wyandotte)	0: none present	3: Fragment	2: Middle	3
63	STP I2	0-25 cm bs	Debitage	Flake	Ste. Genevieve (Wyandotte)	0: none present	3: Fragment	3: Late	1
64	STP J1	0-29 cm bs	Debitage	Flake	Harrodsburg	0: none present	3: Fragment	2: Middle	1
65	STP J1	0-29 cm bs	Debitage	Flake	Jeffersonville	0: none present	1: Complete	Pressure flake	1
66	STP J1	29-50 cm bs	Debitage	Flake	Laurel	0: none present	3: Fragment	1: Early	1
67	STP J2	0-20 cm bs	Debitage	Flake	Jeffersonville	0: none present	3: Fragment	2: Middle	1
68	STP J3	13-32 cm bs	Debitage	Shatter	Jeffersonville	0: none present	4: Blocky/angular	0: Blocky	3
69	STP J5	0-28 cm bs	Debitage	Shatter	Ste. Genevieve (Wyandotte)	0: none present	4: Blocky/angular	0: Blocky	1
70	STP J5	0-28 cm bs	Debitage	Shatter	Jeffersonville	4: present	4: Blocky/angular	0: Blocky	1
71	STP J5	0-28 cm bs	Debitage	Flake	Ste. Genevieve (Wyandotte)	0: none present	3: Fragment	2: Middle	1
72	STP K1	24-34 cm bs	Debitage	Flake	Ste. Genevieve (Wyandotte)	0: none present	3: Fragment	3: Late	1
Total									**83**