

AN ARCHAEOLOGICAL SURVEY OF THE PROPOSED BRIDGE  
REPLACEMENT ON FISHTRAP ROAD (KY 1441)  
OVER RACCOON CREEK AT COON CREEK (CR 1371)  
IN PIKE COUNTY, KENTUCKY  
(ITEM NO. 12-1115.00)



by  
*Russell S. Quick, Ph.D., RPA*

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*Prepared for*



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*Prepared by*



Kentucky | West Virginia | Ohio  
Wyoming | Illinois | Indiana | Louisiana | Tennessee  
Utah | Virginia | Colorado



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# ABSTRACT

On August 28, 2014, Cultural Resource Analysts, Inc., personnel completed an archaeological survey of the proposed bridge replacement on Fishtrap Road (KY 1441) over Raccoon Creek at Coon Creek (CR 1371) in Pike County, Kentucky (Item No. 12-1115.00). The survey was conducted at the request of David Waldner on behalf of the Kentucky Transportation Cabinet. The project area began 204 m (670 ft) north of the intersection of Fishtrap Road (KY 1441) with Coon Creek (CR 1371) and ended approximately 107 m (350 ft) south of the same intersection, a total distance of 305 m (1,000 ft) or .31 km (.19 mi). The project area consisted of approximately .74 ha (1.83 acres) or 7,446 sq m (80,148 sq ft). The purpose of the project is to improve safety and traffic operation by replacing the bridge over Raccoon Creek and modifying the intersection of KY 1441 with CR 1371.

Field methods consisted of pedestrian survey and screened shovel testing. The entire project area was surveyed. Land within the project area primarily consisted of commercial and residential properties. Concurrent with the field research, a records review was conducted at OSA. The review indicated that one archaeological investigation but no sites had been documented within the project area. No archaeological sites were recorded as a result of this survey. No archaeological sites listed in, or eligible for listing in, the National Register of Historic Places will be affected by the proposed construction activities. Therefore, archaeological clearance is recommended.



# TABLE OF CONTENTS

ABSTRACT .....	i
LIST OF FIGURES .....	iii
LIST OF TABLES.....	iii
I. INTRODUCTION .....	1
II. ENVIRONMENTAL SETTING.....	5
III. RESULTS OF THE FILE AND RECORDS SEARCH AND SURVEY PREDICTIONS.....	16
IV. METHODS.....	21
V. RESULTS AND CONCLUSIONS .....	21
REFERENCES CITED.....	21

## LIST OF FIGURES

Figure 1. Map of Kentucky showing the location of Pike County. ....	1
Figure 2. Location of project area on topographic quadrangle.....	2
Figure 3. Project area plan map. The disturbed area was previously surveyed by Thomas et al. (1996). ....	3
Figure 4. The Eastern Kentucky Coal Field region. ....	5
Figure 5. Rivers that drain the Eastern Kentucky Coal Field region.....	6
Figure 6. Overview of northeastern residential portion of project area, looking north. ....	12
Figure 7. Overview of western portion of project area, looking south. ....	12
Figure 8. Overview of southeastern residential portion of project area, looking northeast.....	13
Figure 9. Disturbed soils in western project area, looking north. ....	13
Figure 10. Overview of eastern residential portion of project area, looking southeast.....	14
Figure 11. Overview of Raccoon Creek within the project area, looking northwest. ....	14
Figure 12. Overview of CSX Railroad adjacent to the project area, looking northeast. ....	15
Figure 13. The 1915 Williamson, West Virginia-Kentucky, 15-minute series topographic quadrangle showing MS 1. ....	19
Figure 14. The 1954 Meta, Kentucky, 7.5-minute series topographic quadrangle showing MS 1-4. ....	20

## LIST OF TABLES

Table 1. Summary of Selected Information for Previously Recorded Sites in Pike County. Data Obtained from OSA and May Contain Coding Errors. ....	17
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# I. INTRODUCTION

On August 28, 2014, Cultural Resource Analysts, Inc. (CRA), personnel completed an archaeological survey of the proposed bridge replacement on Fishtrap Road (KY 1441) over Raccoon Creek at Coon Creek (CR 1371) in Pike County, Kentucky (Item No. 12-1115.00) (Figures 1, 2, and 3). The survey was conducted at the request of David Waldner on behalf of the Kentucky Transportation Cabinet (KYTC). The project area was approximately .74 ha (1.83 acres) or 7,446 sq m (80,148 sq ft) in size. The fieldwork was completed by Russell S. Quick and Robbie Grenda in 16 person hours. The field methods consisted of pedestrian survey supplemented with systematic screened shovel testing. Office of State Archaeology (OSA) Geographic Information Systems (GIS) data requested by CRA on August 21, 2014, was returned on September 2, 2014. The results were researched by Heather Barras of CRA at the OSA on September 8, 2014. The OSA project registration number is FY15\_8205.

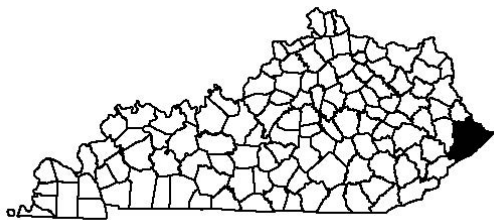


Figure 1. Map of Kentucky showing the location of Pike County.

## Project Description

The project consisted of an archaeological survey for the reconstruction of the bridge over Raccoon Creek at the intersection of Fishtrap Road (KY 1441) with Coon Creek (CR 1371) near the community of Raccoon in Pike County, Kentucky (see Figures 2 and 3). The project area began 204 m (670 ft) north of the intersection of Fishtrap Road (KY 1441) with Coon Creek (CR 1371) and ended approximately 107 m (350 ft) south of the same intersection, a total distance of 305 m

(1,000 ft) or .31 km (.19 mi). The purpose of the project is to improve safety and traffic operation by replacing the bridge over Raccoon Creek and modifying the intersection of KY 1441 with CR 1371. By utilizing the transportation planning and preliminary engineering procedures developed by the KYTC, the project has been advanced to the phase I design and environmental process.

Land within the project area consisted primarily of commercial and residential properties. Disturbance within the project area was associated with coal mining, the reconstruction of U.S. 119, and residential occupation of the area. Most of the residential yards had been landscaped. Some had concrete or asphalt parking areas or were covered in layers of crushed stone. Portions of the project area were within the drainage of Raccoon Creek and CSX Transportation, Inc. (CSX), railroad property.

## Purpose of Study

The study was conducted to comply with Section 106 of the National Historic Preservation Act. This transportation project is federally funded and is therefore considered an undertaking subject to 106 review. The purpose of this assessment was to locate, describe, evaluate, and make appropriate recommendations for the future treatment of any historic properties or sites that may be affected by the project. For the purposes of this assessment, a site was defined as “any location where human behavior has resulted in the deposition of artifacts, or other evidence of purposive behavior at least 50 years of age” (Sanders 2006:2). Cultural deposits less than 50 years of age were not considered sites in accordance with “Archeology and Historic Preservation: Secretary of the Interior’s Standards and Guidelines” (National Park Service 1983).

A description of the project area, the field methods used, and the results of this investigation follow. The investigation is intended to conform to the *Specifications for Conducting Fieldwork and Preparing Cultural Resource Assessment Reports* (Sanders 2006).



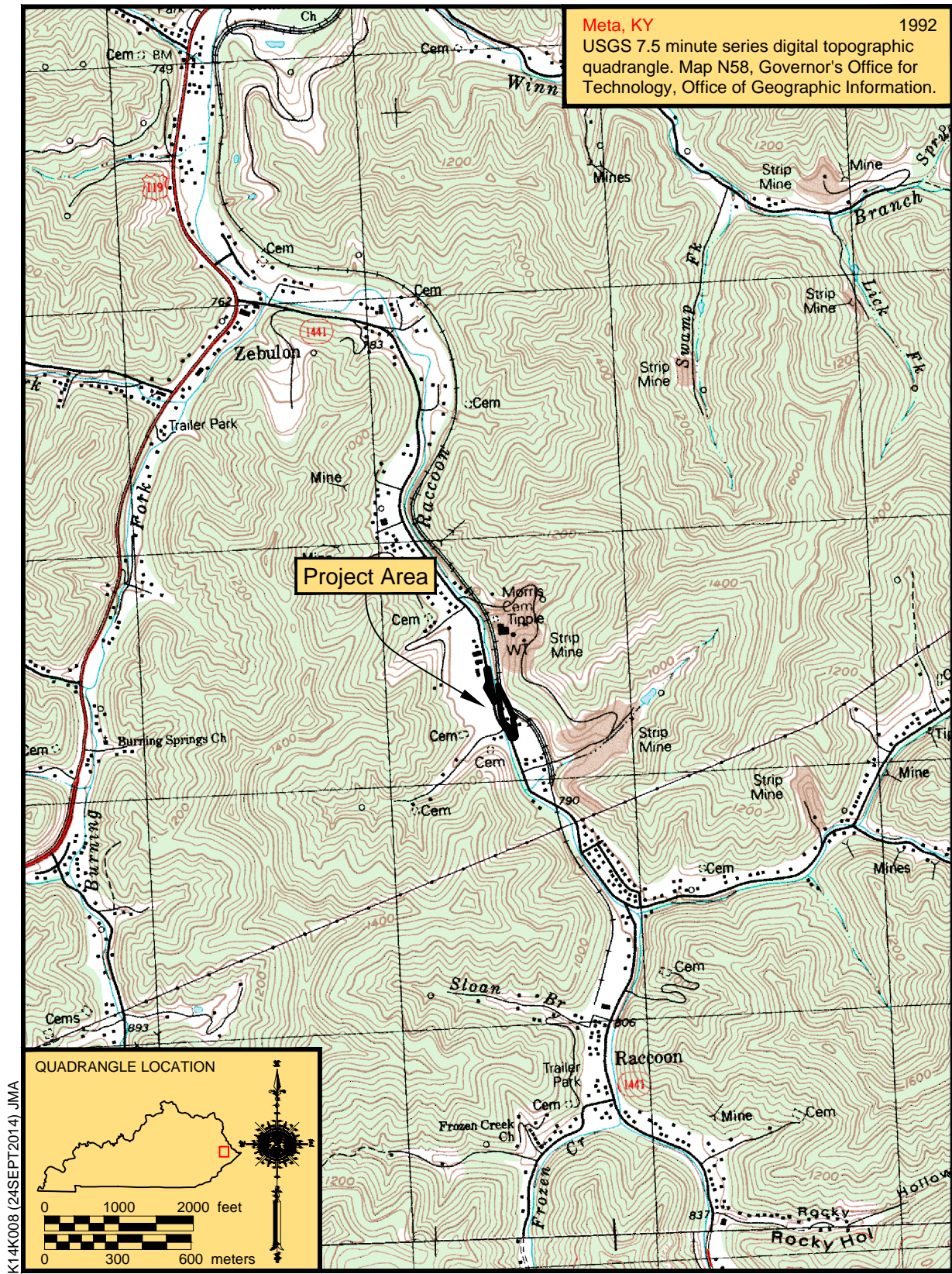


Figure 2. Location of project area on topographic quadrangle.



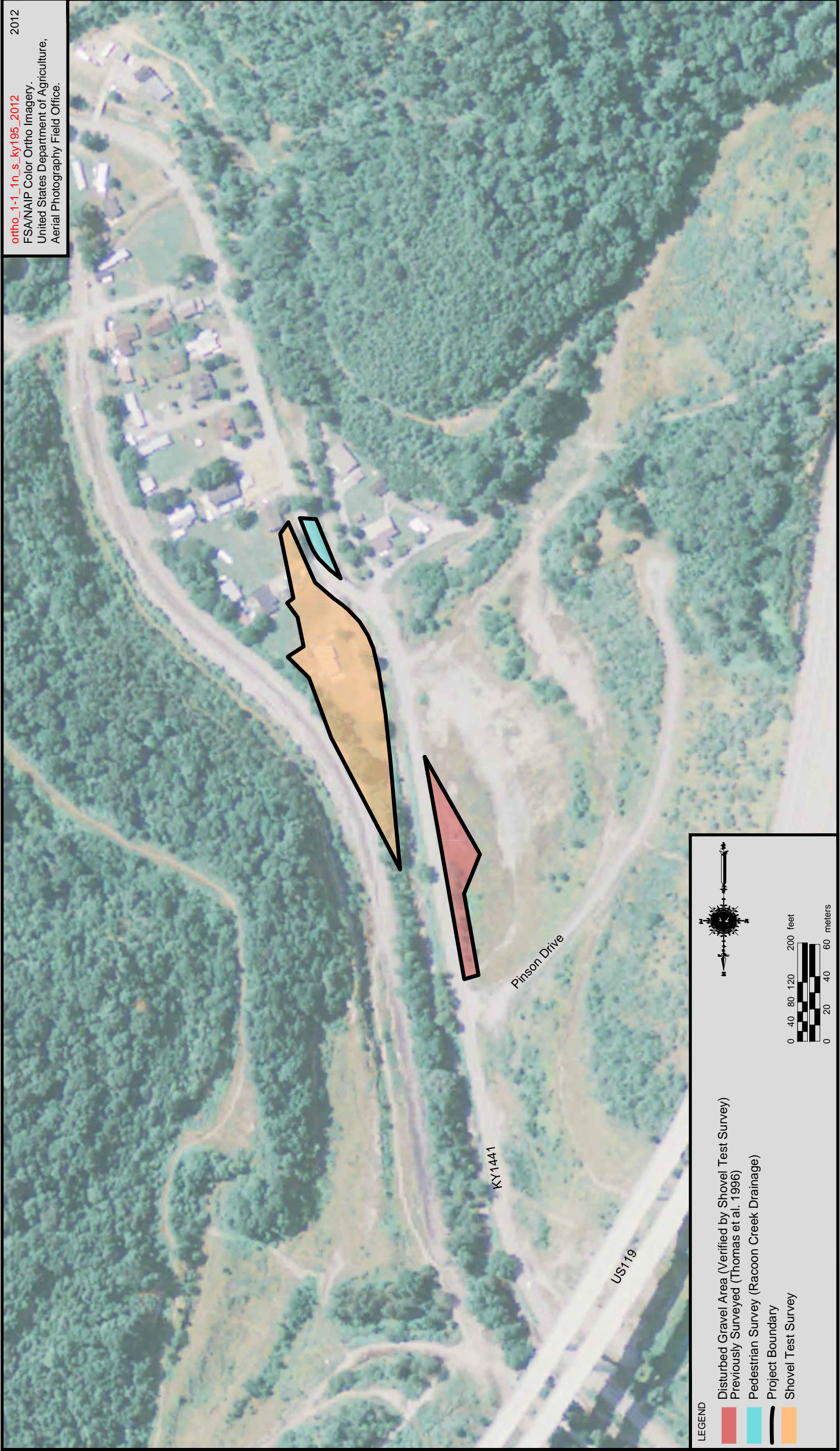


Figure 3. Project area plan map. The disturbed area was previously surveyed by Thomas et al. (1996).





## Summary of Findings

Concurrent with the field research, a records review was conducted at OSA. The review indicated that one archaeological investigation but no sites had been documented within the project area. No archaeological sites were recorded during this survey. No archaeological sites listed in, or eligible for listing in, the National Register of Historic Places (NRHP) will be affected by the proposed construction, and archaeological clearance is recommended.

## II. ENVIRONMENTAL SETTING

This section of the report provides a description of the modern and prehistoric environment and considers those aspects of the environment that may have influenced the settlement choices of past peoples. Attributes of the physical environment also often guide the methods used to discover archaeological sites. Topography, bedrock geology, vegetation, hydrology, soils, lithic resources, and climate for the project area are discussed below.

The Eastern Kentucky Coal Field region (Figure 4) is a rugged and maturely dissected area that is underlain by sandstone, shale, and coal (Bladen 1973:23, 31; Pollack 2008:16–18). There are 35 counties situated either entirely or partially within this region: Bell, Boyd, Breathitt, Carter, Clay, Elliot, Estill, Floyd, Greenup, Harlan, Jackson, Johnson, Knott, Knox, Laurel, Lawrence, Lee, Leslie, Letcher, Lewis, McCreary, Magoffin, Martin, Menifee, Morgan, Owsley, Perry, Pike, Powell, Pulaski, Rockcastle, Rowan, Wayne, Whitley, and Wolfe Counties (Bladen 1973:23). Lewis and Rowan Counties in northeastern Kentucky encompass a portion of the Knobs, a wedge of the Mississippian Plateaus, and a portion of the Eastern Kentucky Coal Field. Rockcastle County is situated partially within the Knobs subregion, partially within the Mississippian Plateaus, and partially within the Eastern Kentucky Coal Field region. Pulaski and Wayne Counties are situated partially within the Mississippian Plateaus and partially within the Eastern Kentucky Coal Field regions. Finally, Estill and Powell Counties overlap portions of the Knobs and the Eastern Kentucky Coal Field as well.

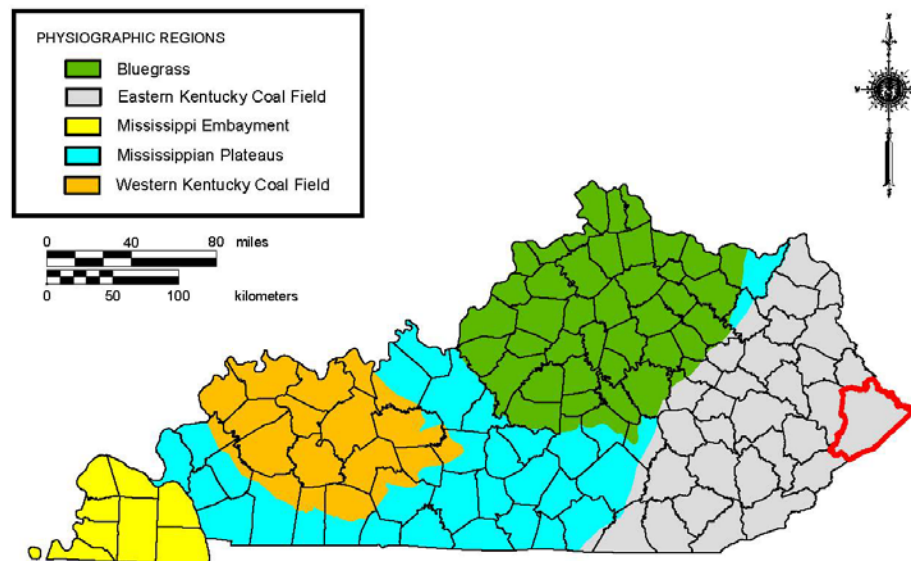


Figure 4. The Eastern Kentucky Coal Field region.

This region holds the highest elevations in Kentucky, culminating with Black Mountain in Harlan County, which has an estimated elevation of over 1,250 m (4,100 ft) above mean sea level (AMSL) (Bladen 1973:23; Schwendeman 1979:27). The region is bordered to the west and north by the Pottsville Escarpment and to the east and south by the state lines of West Virginia and Virginia, respectively. Ridge crests and valley bottoms are typically very narrow, and the majority of the terrain is steeply sloped.

The Big Sandy, Cumberland, Kentucky, Licking, Little Sandy, and Ohio Rivers and their tributaries, along with Tygarts Creek, drain the Eastern Kentucky Coal Field region (Figure 5). Locally, the major river valleys are very wide, and most of the human habitation is on the floodplains and low terraces (Newell 2001). High terraces are remnants of earlier valley bottoms.

The Eastern Kentucky Coal Field is located in the Mixed Mesophytic Forest region, which is described as the most

complex and oldest association of the Deciduous Forest Formation (Braun 2001:39). Mixed mesophytic refers to a climax association in which dominance is shared by a number of species, and the dominant trees are beech, tuliptree, basswood, sugar maple, chestnut, sweet buckeye, red oak, white oak, and hemlock (Braun 2001:40). Historically, ridgetops contained various pines (black, white, and yellow) and chestnut, and slopes were typically covered in hemlock and rhododendron (Davis 1924:19). Originally, the valleys were heavily forested with oak, hickory, walnut, yellow poplar, and beech, but by the early 1920s, the forest had been almost entirely removed (Davis 1924:25). In the modern Eastern Kentucky Coal Field region, north and east slopes are dominated by white basswood, while beech and oaks are dominant on south and west slopes. Modern ravines are often dominated by hemlock and rhododendron, but magnolia is also generally abundant. The uppermost slopes and ridges contain oak-chestnut and oak-hickory communities (Braun 2001:91–92).

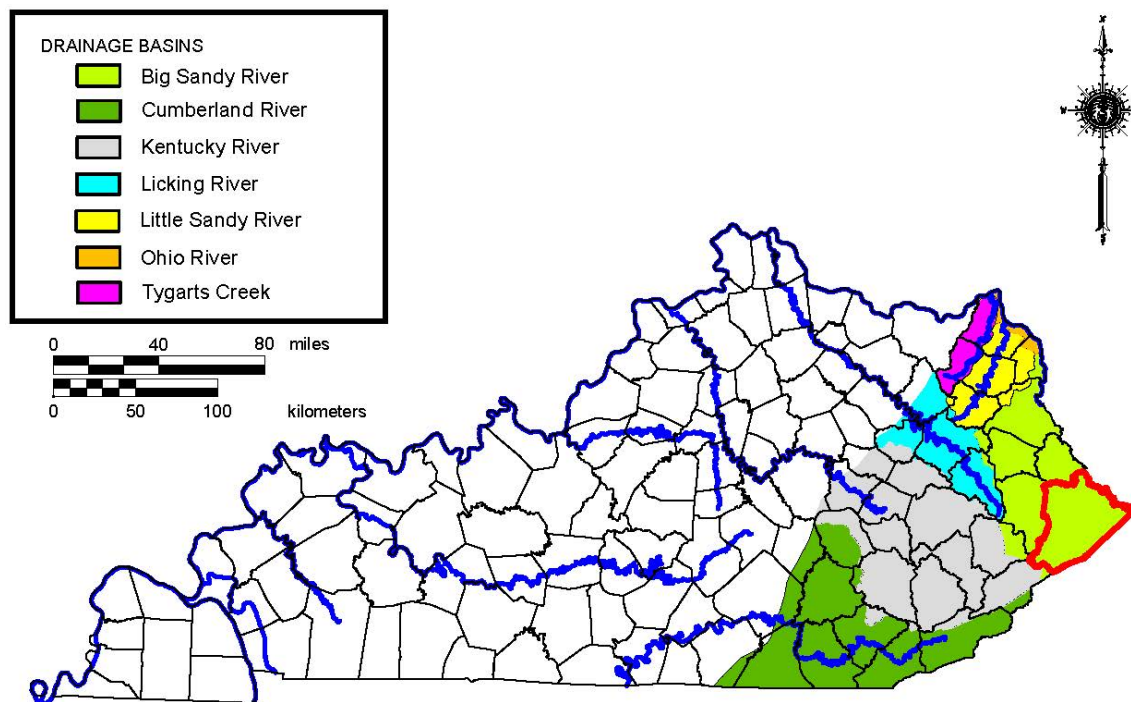


Figure 5. Rivers that drain the Eastern Kentucky Coal Field region.

## Soils of the Eastern Kentucky Coal Field

The Eastern Kentucky Coal Field region is predominantly mapped as the Ultisols order of soils. Ultisols formed in completely weathered colluvium or residuum of the underlying bedrock, which in eastern Kentucky is predominantly shale, siltstone, and sandstone, and they occurred on Late Pleistocene or older surfaces. They are found on nearly level to very steep landforms. These soils display a light-colored or thin or low organic-carbon content, grayish-colored surface horizon and a clay-enriched subsoil. They are relatively infertile due to being strongly leached. Ultisols are typically red to yellow in color, resulting from the accumulation of iron and aluminum oxides. They're not characterized by any specific soil temperature, and they exhibit all but aridic soil moisture regimes (Soil Survey Staff 1999:721–726). Ultisols may contain buried and intact archaeological deposits as a result of colluvium, depending upon the landform on which they formed (e.g., footslope vs. bench), but most cultural deposits contained in these soils will be on or near the surface.

The region is predominantly mapped as the Udults suborder of soils, which are the more or less freely-drained and humus-poor Ultisols found in areas with well-distributed rainfall and that form in humid climates. Udults are thought to have developed under forest vegetation, but some developed under a savanna associated with, or influenced by, human activity. Many are cultivated with the addition of nutrient amendments or by allowing a fallow period following very few years of use. Udults can exhibit a compacted zone, or fragipan, in or below the clay-enriched subsoil (Soil Survey Staff 1999).

Portions of the Eastern Kentucky Coal Field that are predominantly mapped as Inceptisols occur to a lesser extent. Inceptisols developed in silty, acid alluvium during the Late Pleistocene or Holocene time periods on nearly level to steep surfaces. Inceptisols may contain deeply buried and intact

archaeological deposits, depending upon the landform on which they formed (e.g., sideslope vs. alluvial terrace). Inceptisols exhibit a thick, dark-colored surface horizon rich in organic matter and a weakly developed subsurface horizon with evidence of weathering and sometimes of gleying (Soil Survey Staff 1999:489–493).

When Inceptisols are the predominantly mapped soil order, they are typically mapped as the Udepts suborder of soils, which are mainly the more or less freely-drained Inceptisols in areas with well-distributed to excessive rainfall. In the areas where rainfall was excessive, the soils formed in older deposits. Most of the soils are thought to have developed under forest vegetation, but some supported shrubs or grasses. Most of the soils have either a thinner or thicker but leached surface horizon and a weakly developed subsoil or B-horizon. Some also have a sulfuric acid-enhanced horizon, which commonly occurs as a result of artificial drainage, surface mining, or other earthmoving activities. Some also exhibit a cemented zone subsurface, such as a duripan, and some have a compacted zone, such as a fragipan (Soil Survey Staff 1999).

There are also smaller areas predominantly mapped as Entisols in the region. Entisols are sandy soils that formed very recently in unconsolidated parent material and have not been in place long enough for pedogenic processes to form distinctive horizons aside from an A-horizon. They are located on steep, actively eroding slopes or on floodplains or glacial outwash plains that frequently receive new deposits of alluvium. They do not have a compacted zone, such as a fragipan, and do not have accumulated clays or aluminum or iron oxides, but they may be sodium enriched (Soil Survey Staff 1999:389–391). Because of their young age, Entisols rarely contain buried and intact prehistoric archaeological deposits.

Several suborders dominate the Entisol order. They include the Aquents, Orthents, and Psamments suborders. Aquents are found along margins of lakes or along streams where

the water table is at or near the surface for much of the year. Many Aquents have bluish or grayish colors and redoximorphic features caused by alternating periods of reduction and oxidation of iron and manganese compounds in the soil. Most Aquents support vegetation that tolerates permanent or periodic wetness. Orthents are located on recent erosional surfaces that are the result of geologic erosional processes or are caused by mining, cultivation, or other factors. The upper horizons have been either truncated or completely removed. Some are in areas of recent loamy or fine eolian deposits, in areas of glacial deposits, or in areas of debris from recent landslides and mudflows. Orthents occur in any climate and under any vegetation. Finally, Psammments are very sandy soils formed in poorly graded (well sorted) sands on shifting or stabilized sand dunes, in cover sands, in sandy parent materials that were sorted in an earlier geologic cycle, or in material weathered from sandstone or granitic bedrock. They are generally found on outwash plains, lake plains, natural levees, or beaches, and they generally exhibit a wide range of vegetation (Soil Survey Staff 1999).

## Lithic Resources

Chert resources in the Eastern Kentucky Coal Field region are somewhat localized, and many portions of the region are devoid of chert resources. Chert is more common along the western border of the region. The vast majority of the area is underlain by Pennsylvanian-age sandstone, shale, and siltstone deposits (United States Geological Survey [USGS] 2011). Breathitt chert primarily outcrops in the central portion of the region in the area of Breathitt County. Breathitt chert can also be found in portions of Knott, Magoffin, Owsley, and Perry Counties. Minor sources also occur in Bell, Leslie, and Harlan Counties. Brush Creek chert can be found in the northeastern portion of the region in Boyd, Carter, and Lawrence Counties. Mississippian-age Newman limestone, containing Newman chert, is found in outcrops along the northwestern and southeastern edges of the region. Ste. Genevieve and St. Louis

cherts of the same age are found along the western edge of the region, predominantly in Clinton, Estill, Menifee, Powell, and Wayne Counties. Mississippian-age Fort Payne, Monteagle, and Bangor cherts are found in sandstone or limestone outcrops, mostly in the southern counties. Finally, there are several Ordovician and Cambrian Formations along the Kentucky-Virginia-Tennessee border in Harlan and Bell Counties that contain chert. The Ordovician Formations are noted as containing olive-black to black chert, referred to as Poteet or Chickamauga chert. Lower Ordovician and upper Cambrian Formations contain Knox chert. Although often of small size, the chert is a high quality material.

## Prehistoric and Historic Climate

Climatic conditions during the period of human occupation in the region (Late Pleistocene and Holocene ages) can be described as a series of transitions in temperature, rainfall, and seasonal patterns that created a wide range of ecological variation, altering the survival strategies of human populations (Anderson 2001; Niquette and Donham 1985:6–8; Shane et al. 2001). The landscape during the Pleistocene was quite different from that of today. Much of the mid-continent consisted of periglacial tundra dominated by boreal conifer and jack-pine forests. Eastern North America was populated by a variety of faunal species, including megafaunal taxa such as mastodon, mammoth, saber-toothed tiger, and Pleistocene horse, as well as by modern taxa such as white-tailed deer, raccoon, and rabbit.

The Wisconsinan glacial maximum occurred approximately 21,400 years B.P. (Anderson 2001; Delcourt and Delcourt 1987). By 15,000 B.P., following the Wisconsinan glacial maximum, a general warming trend and concomitant glacial retreat had set in (Anderson 2001; Shane 1994). Towards the end of the Pleistocene and after 14,000 B.P., the boreal forest gave way to a mixed conifer/northern hardwoods forest complex. In the Early Holocene and by 10,000 B.P.,

southern Indiana was probably on the northern fringes of expanding deciduous forests (Delcourt and Delcourt 1987:92–98). Pollen records from the Gallipolis Lock and Dam on the Ohio River near Putnam County, West Virginia, reveal that all the important arboreal taxa of mixed mesophytic forest had arrived in the region by 9000–8500 B.P. (Fredlund 1989:23). Similarly, Reidhead (1984:421) indicates that the generalized hardwood forests were well established in southeastern Indiana and southwest Ohio by circa 8200 B.P.

Prior to approximately 13,450 B.P., climatic conditions were harsh but capable of supporting human populations (Adovasio et al. 1998; McAvoy and McAvoy 1997). Populations were probably small, scattered, and not reproductively viable (Anderson 2001). The Inter-Allerød Cold Period, circa 13,450–12,900 B.P., brought about the dispersal of Native Americans across the continent. This period was followed by the rapid onset of a cooling event known as the Younger Dryas (circa 12,900–11,650 B.P.) during which megafauna species became extinct, vegetation changed dramatically, and temperature fluctuated markedly. It was also a period of noticeable settlement shift that marked the appearance of a variety of subregional cultures across eastern North America (Anderson 2001).

In a recent review, Meeks and Anderson (2012:111) described the Pleistocene/Holocene transition as “a period of tremendous environmental dynamism coincident with the Younger Dryas event.” The Younger Dryas (circa 12,900 to 11,600 cal. B.P.) represents one of the largest abrupt climate changes that has occurred within the past 100,000 years. The onset of the Younger Dryas appears to have been a relatively rapid event that may have been driven by a freshwater influx into the North Atlantic as a result of catastrophic outbursts of glacial lakes. “The net effect of these outbursts of freshwater was a reduction in sea surface salinity, which altered the thermohaline conveyor belt; effectively slowing ocean circulation of warmer water (heat) to the north and bringing cold conditions” (Meeks and

Anderson 2012:111; though see Meltzer and Bar-Yosef 2012:251–252 for a critique of this view). This resulted in significantly lower temperatures during this time. The Younger Dryas ended approximately 1,300 years later over a several decade period. The onset of the Younger Dryas coincides with the end of Clovis and the advent of more geographically circumscribed cultural traditions.

Pollen records for the Younger Dryas indicate that vegetation shifts were sometimes abrupt and characterized by oscillations. These shifts were not uniform over the entire southeast and indicate that a variety of factors were at play. At Jackson Pond in Kentucky (Wilkins et al. 1991), for example, several pronounced reciprocal oscillations occurred in a large number of spruce and oak. According to Meeks and Anderson, “these oscillations reflect shifts between boreal/deciduous forest ecotones associated with cool/wet and cool/dry conditions, respectively” (2012:113).

Meeks and Anderson (2012:126–130) define five population events for the Paleoindian–Early Holocene transition. Population Event 1 (circa 15,000–13,800 cal. B.P.) is a pre-Clovis occupation that exhibits a slow rise in population. This event may represent the initial colonization of the southeast region and may represent the basis of later Clovis occupation or a failed migration (Meeks and Anderson 2012:129). Population Event 2 represents an apparent 600 year gap between Events 1 and 3. Population Event 3 (circa 13,200–12,800 cal. B.P.) occurred just prior to, and extended into, the Younger Dryas event. This event represents the “first unequivocal evidence for widespread human occupation across the southeastern United States” (Meeks and Anderson 2012:129). Event 3 coincided with the Clovis occupation in the region. A marked decline in the population is posited for Population Event 4 (12,800–11,900 cal. B.P.). This equates with the early to middle Younger Dryas and relates to a post-Clovis occupation of the region. Meeks and Anderson (2012:129) see a fragmentation of the regional Clovis culture at this time along with “the development of geographically circumscribed subregional,

cultural traditions in the southeastern United States.” A marked increase in population density is posited between 11,900 and 11,200 cal. B.P. This coincides with the late portion of the Younger Dryas and the early portion of the Holocene. Population Event 5 is represented by this time frame. Early Side Notched and Dalton are seen during this time.

During the Early Holocene, rapid increases in boreal plant species occurred on the Allegheny Plateau in response to the retreat of the Laurentide ice sheet from the continental United States (Maxwell and Davis 1972:517–519; Whitehead 1973:624). At lower elevations, deciduous species were returning after having migrated to southern Mississippi Valley refugia during the Wisconsin advances (Delcourt and Delcourt 1981:147). The climate during the Early Holocene was still considerably cooler than the modern climate, and based on species extant at that time in upper altitude zones of the Allegheny Plateau, conditions would have been similar to the Canadian boreal forest region of today (Maxwell and Davis 1972:515–516). Conditions at lower elevations were less severe and favored the transition from boreal to mixed mesophytic species. At Cheek Bend Cave in the Nashville Basin, an assemblage of small animals from the Late Pleistocene confirms the environmental changes that took place during the Pleistocene to Holocene transition and the resulting extinction of Pleistocene megafauna and establishment of modern fauna in this area (Klippel and Parmalee 1982).

Traditionally, Middle Holocene (circa 8000–5000 B.P., also referred to as the Hypsithermal) climate conditions were thought to be consistently dryer and warmer than the present (Delcourt 1979:271; Klippel and Parmalee 1982; Wright 1968). The influx of westerly winds contributed to periods of severe moisture stress in the Prairie Peninsula and to an eastward advance of prairie vegetation (Wright 1968). More recent research (Anderson 2001; Shane et al. 2001:32–33) suggests that the Middle Holocene was marked by considerable local climatic variability. Paleoclimatic data

indicate that the period was marked by more pronounced seasonality characterized by warmer summers and cooler winters.

The earliest distinguishable Late Holocene climatic episode began circa 5000 B.P. and ended around 2800 B.P. This Sub-Boreal episode is associated with the establishment of essentially modern deciduous forest communities in the southern highlands and increased precipitation across most of the mid-continental United States (Delcourt 1979:271; Maxwell and Davis 1972:517–519; Shane et al. 2001; Warren and O'Brien 1982:73). Changes in local and extra-local forests after approximately 4800 B.P. may also have been the result of anthropogenic influences. Fredlund (1989:23) reports that the Gallipolis pollen record showed increasing local disturbance of the vegetation from circa 4800 B.P. to the present, a disturbance that may have been associated with the development and expansion of horticultural activity. Based on a study of pollen and wood charcoal from the Cliff Palace Pond in Jackson County, Kentucky, Delcourt and Delcourt (1997:35–36) recorded the replacement of a red cedar-dominated forest with a forest dominated by fire-tolerant taxa (oaks and chestnuts) around 3000 B.P. The change is associated with increased local wildfires (both natural and culturally augmented) and coincided with increases in cultural utilization of upland (mountain) forests.

Beginning around 2800 B.P., generally warm conditions, probably similar to those of the twentieth century, prevailed during the Sub-Atlantic and Post-Sub-Atlantic climatic episodes, with the exception of the Neo-Boreal sub-episode, or Little Ice Age (circa 700–100 B.P.), which was coldest from circa 400 until its end. Despite the prevailing trend, brief temperature and moisture variations occurred during this period. Some of these fluctuations have been associated with adaptive shifts in Midwestern prehistoric subsistence and settlement systems (Baerreis et al. 1976; Griffin 1961; Struvever and Vickery 1973; Warren and O'Brien 1982).



Studies of historic weather patterns and tree-ring data by Fritts et al. (1979) indicate that twentieth-century climatological averages were “unusually mild” when compared to seventeenth- to nineteenth-century trends (the time period used for comparison represents the coldest period of the Neo-Boreal [400–100 B.P.], or the Little Ice Age) (Fritts et al. 1979:18). The study suggested that winters were generally colder, weather anomalies were more common, and unusually severe winters were more frequent between A.D. 1602 and A.D. 1900 than after A.D. 1900. The effects of the Neo-Boreal sub-episode, which ended during the mid- to late nineteenth century, have not been studied in detail for this region. It appears that the area experienced smaller temperature decreases during the late Neo-Boreal than did the upper Midwest and northern Plains (Fritts et al. 1979), so it follows that related changes in extant vegetation would be more difficult to detect.

## Modern Climate

The modern climate of Kentucky is moderate in character and temperature, and precipitation levels fluctuate widely. The prevailing winds are westerly, and most storms cross the state in a west to east pattern. Low pressure storms that originate in the Gulf of Mexico and move in a northeasterly direction across Kentucky contribute the majority of the precipitation received by the state. Warm, moist, tropical air masses from the Gulf predominate during the summer months and contribute to the high humidity levels experienced throughout the state. As storms move through the state, occasional hot and cold periods of short duration may be experienced. During the spring and fall, storm systems tend to be less severe and less frequent, resulting in less radical extremes in temperature and rainfall (Anderson 1975).

## Description of the Project Area

The project area is located .8 km (.5 mi) north of the community of Raccoon, along Raccoon Creek (see Figures 2 and 3). The project area began 204 m north of the intersection of Fishtrap Road (KY 1441) with Coon Creek (CR 1371) and ended approximately 107 m south of the same

intersection, a total distance of 305 m (.31 km). The project area is approximately .74 ha (1.83 acres) in size. Elevations in the project area range from 235 m AMSL along Raccoon Creek to around 245 m AMSL within the CSX railroad property. Levisa Fork and its tributaries drain the project area.

Land within the project area consisted primarily of commercial and residential properties (Figures 6–8). Disturbance within the project area was associated with coal mining, the reconstruction of U.S. 119 (Figure 9), and residential occupation of the area. Most of the residential yards had been landscaped or covered with fill (Figure 10). Some properties had concrete or asphalt parking areas or were covered in layers of crushed stone. Portions of the project area were within the drainage of Raccoon Creek (Figure 11) or were within CSX railroad property (Figure 12). Vegetation within the project area consisted primarily of residential lawns, secondary growth, and weeds.

Two soil series (Rowdy silt loam and Udorthents) and a soil complex (the Hayter-Potomac-Stokly complex) have been defined in the project area. Soils are classified by the amount of time it has taken them to form and the landscape position in which they are found (Birkeland 1984; Soil Survey Staff 1999). This information can provide a relative age of the soils and can express the potential for buried archaeological deposits within them (Stafford 2004). The soil order and group classifications for each soil series are used to assist with determining this potential.

The Hayter soil series is an Alfisol, which is found on landforms that formed during the late Pleistocene or earlier (Soil Survey Staff 1999:163–165). Archaeological deposits would only be found on or very near the ground surface on landforms mapped as Alfisols. The Hayter soils, along with the Potomac and Stokly soils, are primarily located along Coon Creek Road, which lies perpendicular to the west edge of the project area. As a result, only a small portion of the survey area was mapped with the soils in the Hayter-Potomac-Stokly complex.



Figure 6. Overview of northeastern residential portion of project area, looking north.



Figure 7. Overview of western portion of project area, looking south.





Figure 8. Overview of southeastern residential portion of project area, looking northeast.



Figure 9. Disturbed soils in western project area, looking north.





Figure 10. Overview of eastern residential portion of project area, looking southeast.



Figure 11. Overview of Raccoon Creek within the project area, looking northwest.





Figure 12. Overview of CSX Railroad adjacent to the project area, looking northeast.

The Rowdy soil series is classified as an Inceptisol, which are found on landforms that formed during the late Pleistocene or Holocene time periods (Soil Survey Staff 1999:489–493). These may have deeply buried and intact archaeological deposits, depending upon the landform on which they formed (e.g., sideslope vs. alluvial terrace). Unfortunately, the Rowdy series soils are primarily located on the west side of Raccoon Creek. This area appears to have been used as a staging or borrow area during the reconstruction of U.S. 119. The area was leveled and is currently covered with a thick layer of gravel (see Figure 9).

The Stokly, Potomac, and Udorthents soils in the project area are classified as Entisols, which formed very recently in unconsolidated parent material, such as sandy or recent water-deposited sediments or disturbed soil and rock material associated with coal mining. These soils have not been in place long enough for

pedogenic processes to form distinctive horizons except an A horizon (Soil Survey Staff 1999:389–391). Because of their recent age, Entisols rarely have buried and intact prehistoric archaeological deposits. The majority of the soils in the project area (i.e., on the east bank of Raccoon Creek) were classified as Udorthents.

Soils found in shovel probes on floodplains in the project area generally conformed to the description of loamy Udorthents. These probes generally revealed a thin brown (10YR4/3) silt loam Ap horizon to a depth of 5 cm (2 in) over a 5–10 cm (2–4 in) layer of sand deposited by overbank flooding. Beneath the sand was a mottled yellowish brown (10YR 5/6) silty clay with gravel and coal inclusions to a depth of approximately 35 cm (13 in) below ground surface (bgs). All of the soils in the project area appeared disturbed by a variety of anthropogenic activities and natural processes.

### III. RESULTS OF THE FILE AND RECORDS SEARCH AND SURVEY PREDICTIONS

#### Previous Research in Pike County

Prior to initiating fieldwork, a search of records maintained by the NRHP (available online at: <http://nrhp.focus.nps.gov/natreghome.do?searchtype=natreghome>) and the OSA (FY15\_8205) was conducted to: 1) determine if the project area had been previously surveyed for archaeological resources; 2) identify any previously recorded archaeological sites that were situated within the project area; 3) provide information concerning what archaeological resources could be expected within the project area; and 4) provide a context for any archaeological resources recovered within the project area. A search of the NRHP records indicated that no archaeological sites listed on the NRHP were situated within the current project area or within a 2 km radius of the project area. The OSA file search was conducted between August 21 and September 2, 2014. The work at OSA consisted of a review of professional survey reports and records of archaeological sites for an area encompassing a 2 km radius of the project footprint. To further characterize the archaeological resources in the general area, the OSA archaeological site database for the county was reviewed and synthesized. The review of professional survey reports and archaeological site data in the county provided basic information on the types of archaeological resources that were likely to occur within the project area and the landforms that were most likely to contain these resources. The results are discussed below.

OSA records revealed that five previous professional archaeological surveys have been

conducted within a 2 km radius of the project area. One archaeological site has been recorded in this area also. The records search revealed the site in the file search area (15Pi329) is a prehistoric open habitation without mounds. The 2 km radius included areas within the Meta quadrangle.

#### Previous Archaeological Investigations

During June, July, and August of 1973, Western Kentucky University personnel conducted an archaeological survey for the proposed relocation of U.S. 119 in Pike County, Kentucky (Schock et al. 1976). At the request of the KYTC, the project area was investigated with informant interviews and pedestrian survey. The project area measured approximately 40.4 km (25.1 mi) in length with a 61 m (200 ft) right-of-way width. Nine archaeological sites were documented during the survey, one of which is located in the 2 km radius, but not within the boundaries of the current project area (15Pi329).

Site 15Pi329 was an open habitation without mounds with diagnostic artifacts dating to the Middle Woodland, Late Woodland, and Late Archaic periods. The site was not going to be affected by the proposed project and, therefore, no further work was recommended (Schock et al. 1976).

Between October 29 and November 22, 1996, Cultural Horizons, Inc., personnel conducted an archaeological survey of the proposed realignment of KY 119, approaches to existing roads, and potential hollow-fill areas in Pike County, Kentucky (Thomas et al. 1996). The survey was conducted at the request of Palmer Engineering and consisted of approximately 12.0 km (7.5 mi) in length with a width varying from approximately 85 m (279 ft) to 1,000 m (3,281 ft). The project area was investigated with a pedestrian survey supplemented with shovel testing. One twentieth-century cemetery was identified within the project boundaries, but no state site number was assigned. Project clearance was recommended. Portions of the 1996 survey overlapped the western portion of the current

project area. This area was resurveyed during the current project.

On June 7, 2005, CRA personnel conducted an archaeological survey for a proposed coal mine operation along Ramey Fork in Pike County, Kentucky (Hand 2005). The survey was conducted at the request of Keith Spears of Summit Engineering, Inc., on behalf of C & N Mining, LLC. (Permit Application Number 898-4208). The project area consisted of 3.67 ha (9.08 acres) and was investigated with an intensive pedestrian survey supplemented with screened shovel testing. No archaeological sites were identified, and project clearance was recommended.

On March 29, 2012, Apogee Environmental & Archaeological, Inc., personnel completed an archaeological survey of 4.7 ha (11.6 acres) of proposed surface mining along Winns Branch in Pike County, Kentucky (Winterhoff 2012). The survey was conducted at the request of Alpine Engineering on behalf of Landmark Mining, Inc. (Permit Application Number 898-4362). The project was investigated with an intensive pedestrian survey supplemented with screened shovel testing. No archaeological sites were identified, and project clearance was recommended.

Between July 9 and July 11, 2013, Apogee Environmental & Archaeological, Inc., personnel conducted an archaeological survey for a proposed surface mining project along Winns Branch in Pike County, Kentucky (Winterhoff 2013). At the request of Landmark Mining, Inc., (Permit Application Number 898-0856 NW) 232.88 ha (575.46 acres) were investigated with an intensive pedestrian survey supplemented with screened shovel testing. No archaeological sites were documented during the survey, and no further work was recommended.

## Archaeological Site Data

The OSA records show that prior to this survey, 253 archaeological sites had been recorded in Pike County (Table 1). The majority of these sites were recorded as historic farm/residence sites (n = 116; 45.85 percent) and open habitation sites without mounds (n =

83; 32.81 percent). Cemeteries (n = 20; 7.91 percent) were the third most common type followed by rockshelters (n = 14; 5.53 percent). The remaining site types were classified as undetermined (n = 6; 2.37 percent), industrial sites (n = 4; 1.58 percent), earth mounds (n = 2; .79 percent), isolated burials (n = 2; .79 percent), stone mounds (n = 2; .79 percent), open habitation sites with mounds (n = 1; .4 percent), other special activity areas (n = 1; .4 percent), and other/unspecified (n = 2; .79 percent).

Table 1. Summary of Selected Information for Previously Recorded Sites in Pike County. Data Obtained from OSA and May Contain Coding Errors.

Site Type:	N	%
Cemetery	20	7.91
Earth Mound	2	0.79
Historic Farm/Residence	116	45.85
Industrial	4	1.58
Isolated Burials	2	0.79
Open Habitation with Mounds	1	0.4
Open Habitation without Mounds	83	32.81
Other	2	0.79
Other Special Activity Area	1	0.4
Rockshelter	14	5.53
Stone Mound	2	0.79
Undetermined	6	2.37
<b>Total</b>	<b>253</b>	<b>100</b>
Time Periods Represented	N	%
Paleoindian	2	0.73
Archaic	13	4.73
Woodland	26	9.45
Late Prehistoric	21	7.64
Indeterminate Prehistoric	47	17.09
Historic	161	58.55
Unspecified	5	1.82
<b>Total</b>	<b>275*</b>	<b>100</b>
Landform	N	%
Dissected Uplands	41	16.21
Floodplain	86	33.99
Hillside	31	12.25
Other	41	16.21
Terrace	41	16.21
Undissected Uplands	1	0.4
Unspecified	12	4.74
<b>Total</b>	<b>253</b>	<b>100</b>

\* One site may represent more than one time period.

The landform locations of sites in Pike County were also examined to determine the likelihood of encountering sites on similar landforms within the project area. The majority of sites in Pike County are located on floodplains (n = 86; 33.99 percent) followed by other (n = 41; 16.21 percent), dissected uplands (n = 41; 16.21 percent), terraces (n = 41; 16.21 percent), and hillsides (n = 31; 12.25 percent).



The current project area is located on a floodplain. Most of the sites situated on floodplains in Pike County are open habitation sites without mounds (n = 56; 65.12 percent) followed by historic farm/residences (n = 25; 29.07 percent), other (n = 2; 2.33 percent), isolated burials (n = 1; 1.16 percent), stone mounds (n = 1; 1.16 percent), and undetermined (n = 1; 1.16 percent).

## Map Data

In addition to the file search, a review of available maps at the private collection at CRA was initiated to help identify any historic structures that may have been located within the project area. The following maps were reviewed:

1891 Warfield, West Virginia-Kentucky, 30-minute series topographic quadrangle (USGS);

1915 Williamson, West Virginia-Kentucky, 15-minute series topographic quadrangle (USGS);

1918 Williamson, West Virginia-Kentucky, 15-minute series topographic quadrangle (USGS);

1937 General Highway Map of Pike County, Kentucky (Kentucky Department of Highways [KDOH]);

1952 General Highway Map of Pike County, Kentucky (Kentucky State Highway Department [KSHD]); and

1954 Meta, Kentucky, 7.5-minute series topographic quadrangle (USGS).

The maps provided useful information about the presence of former structures and alerted the crew to the possible existence of historic deposits within the general area. Four historic map structures (MS) were located within, or directly adjacent to, the project area on the reviewed maps. No structures were depicted on the 1891 Warfield, West Virginia-Kentucky, 30-minute series topographic quadrangle (USGS 1891). MS 1 was initially depicted on the 1915 Williamson, West Virginia-Kentucky, 15-minute series topographic quadrangle (Figure 13). MS 1 is also depicted on the 1918 version of this quadrangle. Along with MS 1, MS 2 was first depicted on the 1937 General Highway Map of Pike County (KDOH 1937); however, MS 2

may only have been located adjacent to the project area rather than in it. The small scale of the early highway maps makes it impossible to be sure of their precise locations. In addition to MS 1 and 2, two other structures, MS 3 and MS 4 were depicted on the 1952 General Highway Map of Pike County (KSHD 1952). The same problem of scale applies to the 1952 highway map. The structures appear to be adjacent to, rather than within, the project area; however, aerial photographs from 1951 and 1952 clearly indicate that two structures (probably MS 1 and MS 3) existed inside the project area east of Raccoon Creek (USGS 1951, 1952). On the aerial photographs and the 1952 highway map, MS 1 appears to be a barn associated with a residence (MS 3). MS 1 and MS 3 are the only structures on the 1954 Meta, Kentucky, 7.5-minute series topographic quadrangle (Figure 14) (USGS 1954). Both were depicted as residences.

None of the structures depicted on the historic maps is extant. A structure stood in the location of MS 1 until at least August of 2009, when it was still visible on Google Street View. Based on its design, that structure was probably not MS 1, but a residence that was built after the construction of the CSX railroad. The locations of structures within the project area were investigated with screened shovel tests. Only modern materials (e.g., beer bottle glass, asphalt, and concrete kibbles) were encountered.

## Survey Predictions

Considering the known distribution of sites in the county, the available information on site types recorded, and the nature of the present project area, certain predictions were possible regarding the kinds of sites that might be encountered within the project area. Prehistoric open habitations and historic farm/residences were the primary site types expected to be encountered within the project area. Historic cemeteries were also considered a possibility.

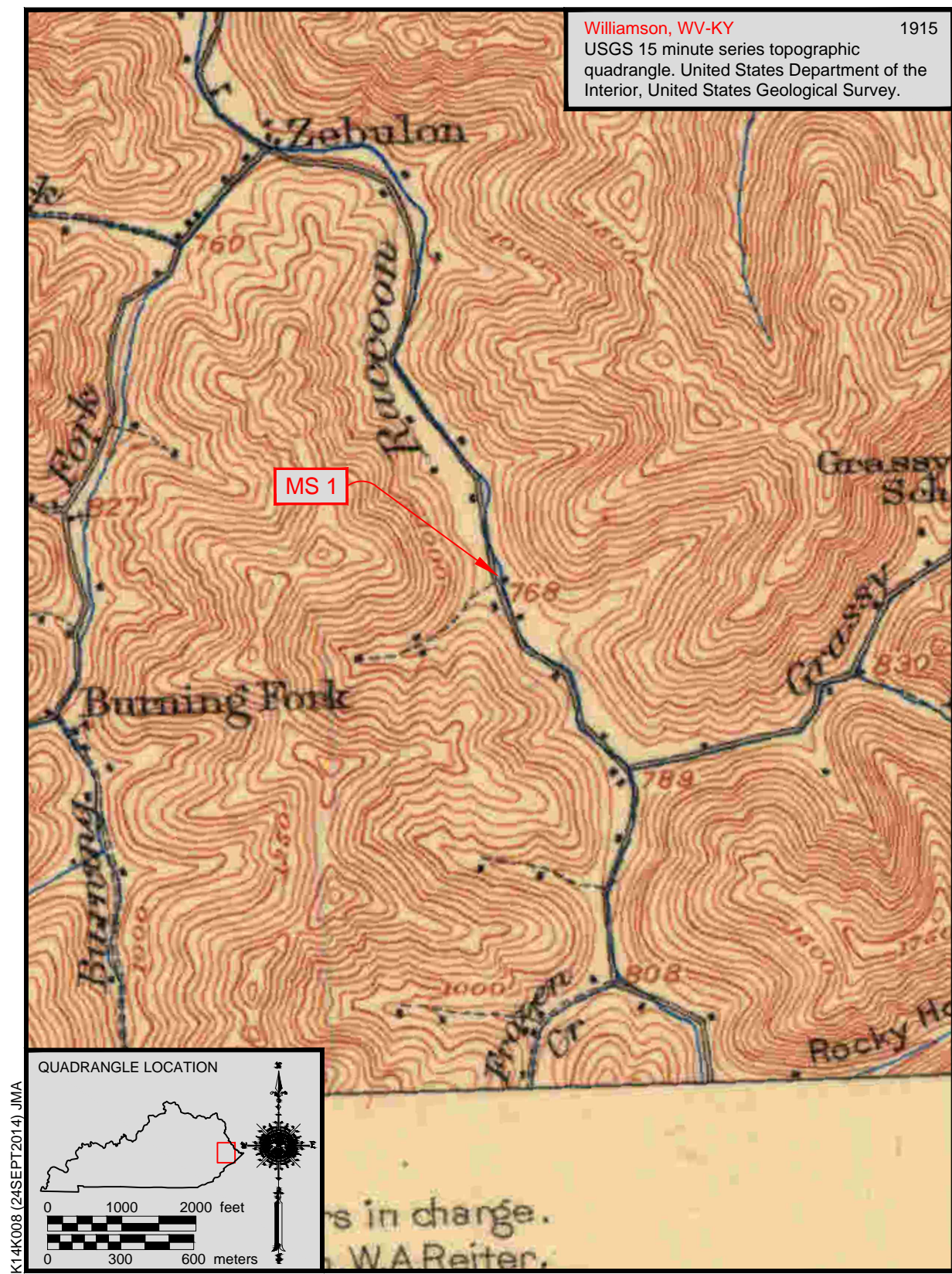


Figure 13. The 1915 Williamson, West Virginia-Kentucky, 15-minute series topographic quadrangle showing MS 1.



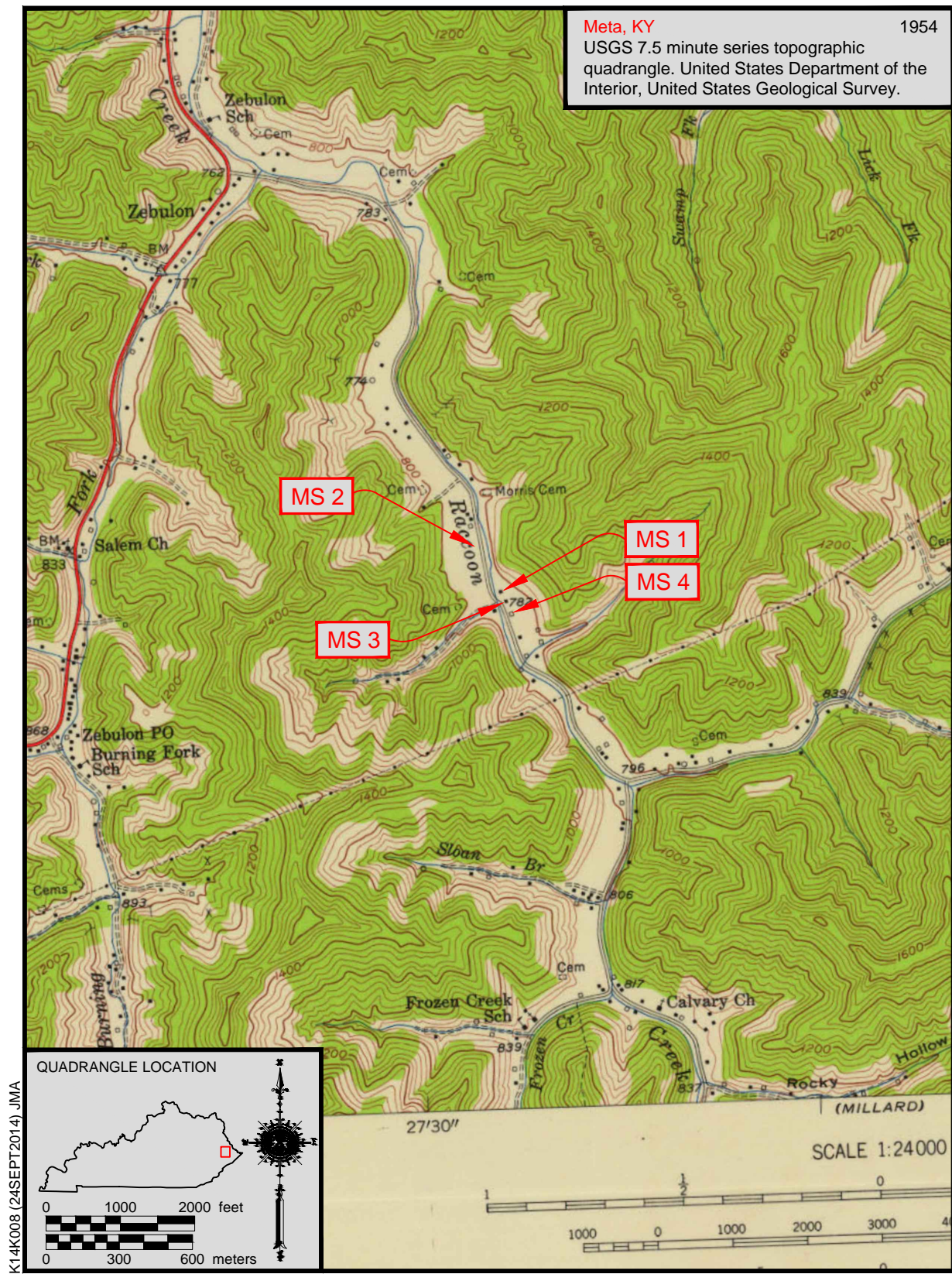


Figure 14. The 1954 Meta, Kentucky, 7.5-minute series topographic quadrangle showing MS 1-4.

## IV. METHODS

Prior to conducting the survey, electronic mapping provided by the KYTC was entered into a hand held global positioning system (GPS) with 1–3 m horizontal accuracy. The GPS was used as a guide for conducting the fieldwork. The entire survey was conducted on private lands. Prior to conducting the survey, a call was placed to Kentucky 811, which determined that there were no subsurface utilities to mark within the project area. The entire project area was subjected to intensive pedestrian survey supplemented with screened shovel testing (see Figure 3). Dirt roads and all exposed areas were walked and visually examined for indications of cultural material and features. None were found. Bucket augering was not conducted due to a lack of appropriate soil types, the level of soil disturbance, and the shallow depth to bedrock.

### Shovel Testing

Shovel testing is often used to identify sites during survey. There has been much discussion in recent years about the reliability and usefulness of shovel testing as a site discovery method (e.g., Kintigh 1988; Krakker et al. 1983; Lightfoot 1986, 1989; Nance and Ball 1986; Shott 1985, 1989). Problems and biases aside, shovel testing still appears to be the “most efficient discovery technique now available for detecting buried cultural remains on a regional scale” (Lightfoot 1989:413).

In all cases, shovel tests measured not less than 35 cm in diameter and extended well into subsoil. Shovel tests were excavated in levels. The Ap horizon (top soil) was removed as one level. After the plow zone was removed, 10 cm arbitrary levels were excavated. All fill removed from the tests was screened through .64 cm (.25 inch) mesh hardware cloth, and the sidewalls and bottoms were examined for cultural material and features. Only modern (e.g., beer bottle glass, asphalt, and concrete kibble) and un-datable items (e.g., coal fragments) were found in shovel tests.

## V. RESULTS AND CONCLUSIONS

Note that a principal investigator or field archaeologist cannot grant clearance to a project. Although the decision to grant or withhold clearance is based, at least in part, on the recommendations made by the field investigator, clearance may be obtained only through an administrative decision made by the lead federal agency in consultation with the State Historic Preservation Office (the Kentucky Heritage Council [KHC]).

The records search revealed no previously recorded archaeological sites or historic properties within the project area, and no archaeological sites or historic properties were identified as a result of this investigation. Because no sites listed in, or eligible for, the NRHP will be affected by the proposed construction, cultural resource clearance is recommended.

If any previously unrecorded archaeological materials are encountered during construction activities, the KHC should be notified immediately at (502) 564-6662. Furthermore, if human skeletal material is discovered, construction activities should cease and the KHC, the local coroner, and the local law enforcement agency must be notified, as described in KRS 72.020.

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