Contract Publication Series 14-284

AN ARCHAEOLOGICAL SURVEY OF THE PROPOSED KY 122 CURVE REVISION AND ASSOCIATED EXCESS FILL MATERIAL AREA NEAR MCDOWELL IN FLOYD COUNTY, KENTUCKY (ITEM NO. 12-8100.00)

by
Richard L. Herndon, RPA

Prepared for

KENTUCKY TRANSPORTATION CABINET

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July 17, 2014

Lead Agency: Federal Highway Administration
Kentucky Transportation Cabinet Item Number 12-8100.00
Statewide Contract No. PON2 1200003583, Agreement 201277, Letter Agreement No. 43-DBD
OSA Project Registration No.: FY14_8124

ABSTRACT

On June 10, 2014, Cultural Resource Analysts, Inc., personnel conducted an archaeological survey for the proposed KY 122 curve revision and associated excess fill material area near McDowell, Floyd County, Kentucky. The survey was conducted at the request of David Waldner of the Kentucky Transportation Cabinet (Item No. 12-8100.00). The project area totaled approximately 5.0 ha (12.5 acres), all of which were surveyed. Prior to initiating fieldwork, a search of records maintained by the National Register of Historic Places and the Office of State Archaeology was conducted. The search revealed that the project area had not been previously surveyed and did not contain any previously recorded archaeological sites (FY14_8124).

The field investigation consisted of an intensive survey of the portions of the project located outside the existing right-of-way. The vast majority of the area was heavily wooded, steep slopes. These areas were pedestrian surveyed in order to identify rockshelters or possibly small family cemeteries that might be located along narrow benches. Portions of the project area that were clearly disturbed were walked over and occasionally shovel tested to confirm the disturbance when applicable. The survey resulted in the discovery of a small mine portal dating to the mid-1950s with no associated infrastructure. The Office of State Archaeology does not furnish site numbers for coal mine portals unless associated infrastructure is present. No archaeological sites were recorded as a result of this survey. No archaeological sites listed in, or eligible for, the National Register of Historic Places will be affected by the proposed construction activities; therefore, archaeological clearance is recommended.

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I. INTRODUCTION

On June 10, 2014, Cultural Resource Analysts, Inc. (CRA), personnel conducted an archaeological survey for the proposed KY 122 curve revision and associated excess fill material area near McDowell, Floyd County, Kentucky (Figure 1). The survey was conducted at the request of David Waldner of the Kentucky Transportation Cabinet (KYTC) (Item No. 12-8100.00). The project area totaled approximately 5.0 ha (12.5 acres). The fieldwork was completed by Richard L. Herndon and Chad Landers in 10 work hours and included a pedestrian survey supplemented with screened shovel testing.

Prior to initiating fieldwork, a search of records maintained by the National Register of Historic Places (NRHP) and the Office of State Archaeology (OSA) was conducted. Geographic Information Systems (GIS) data requested by CRA from the OSA on June 5, 2014, was returned on June 10, 2014. The results were researched by Heather Barras of CRA at the OSA on June 11, 2014. The OSA project registration number is FY14_8124. The search revealed that the project area had not been previously surveyed and did not contain any previously recorded archaeological sites.

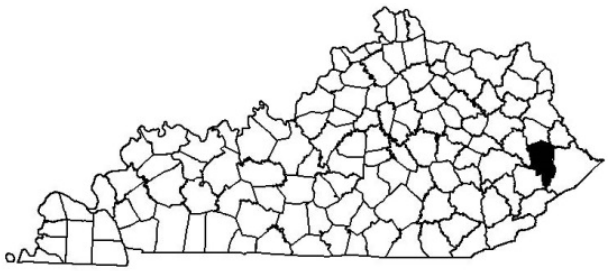

Figure 1. Map of Kentucky showing the location of Floyd County.

Project Description

The project area encompassed approximately 5.0 ha (12.5 acres) that included two geographically separate areas near McDowell in Floyd County (Figure 2). The main area of proposed construction was centered on and adjacent to the intersection of KY 122 and KY 680 (Figure 3). The planned curve revision to this section of the road is designed to alleviate existing traffic problems. While both sides of KY 122 will be affected by the proposed construction, the primary disturbance will be south and west of that road along very steep wooded terrain. Portions of this slope will be removed to improve sight distance and provide turning lanes for KY 680. One residence and a business were present within the project area in and around the intersection.

The other portion of the project area is a proposed excess fill material zone located roughly 1 km (.6 mi) northeast of the curve revision along KY 122 (Figure 4). The fill zone will accommodate the excess material from the blasting of the steep slope previously mentioned. The fill area is located in a heavily wooded, narrow, but steep hollow that has an unnamed interment stream coursing through it. The stream enters Frasure Creek to the south. An old logging road paralleled the length of the stream. Also in the hollow was an old coal mine portal lacking associated infrastructure and dating to the mid-1950s.

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).

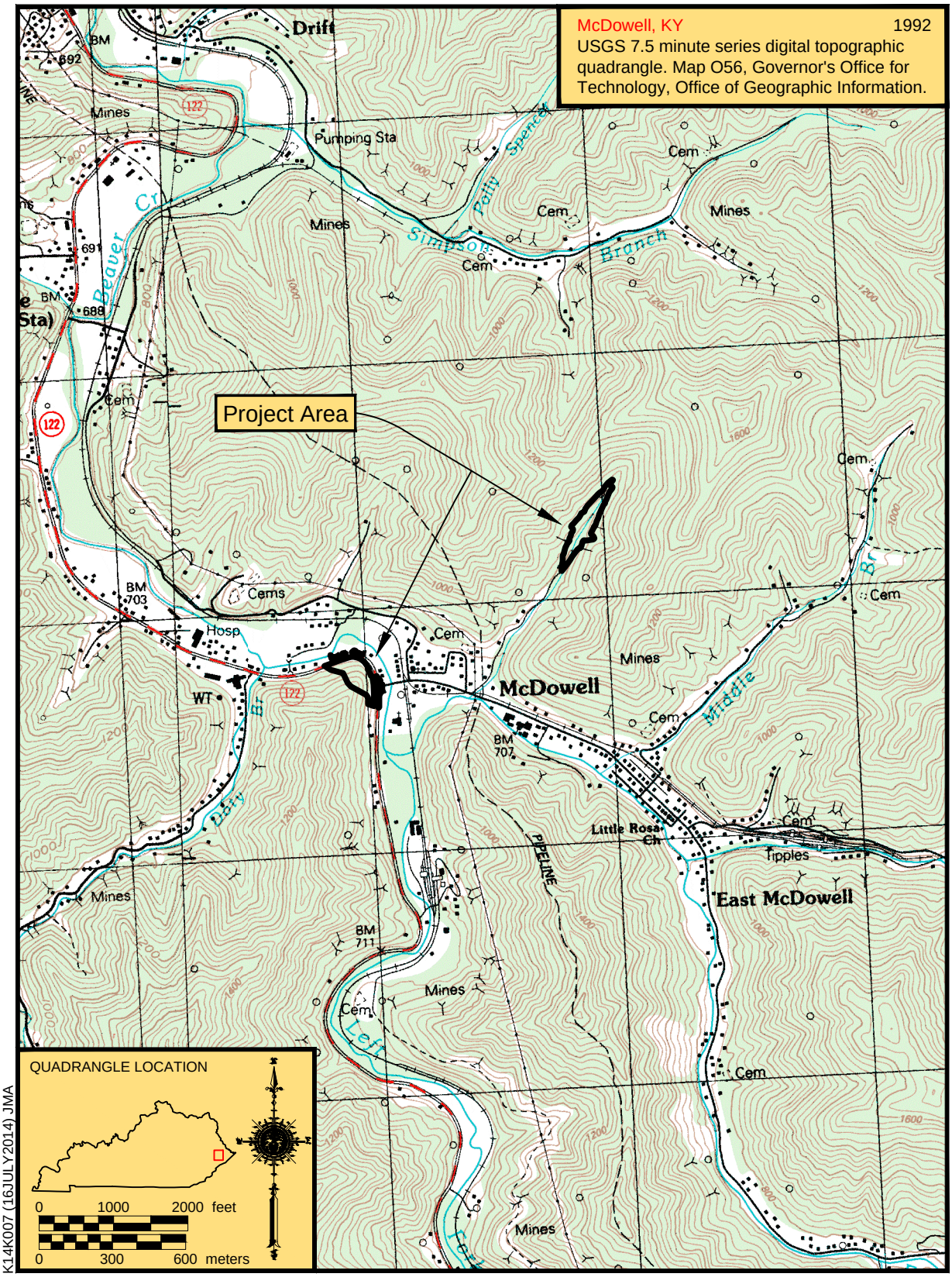

Figure 2. Location of project area on topographic quadrangle.

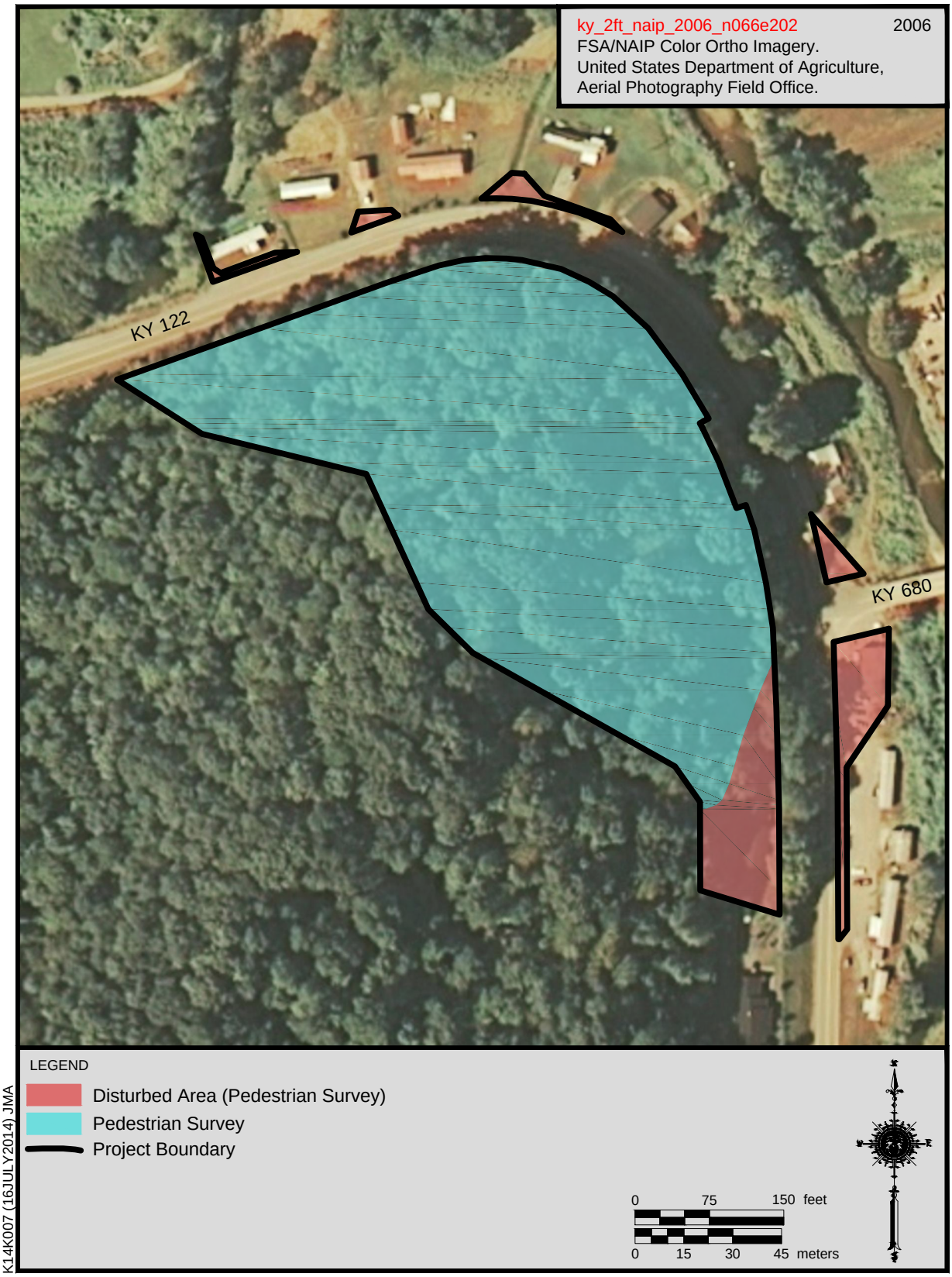

Figure 3. Project area along KY 122.

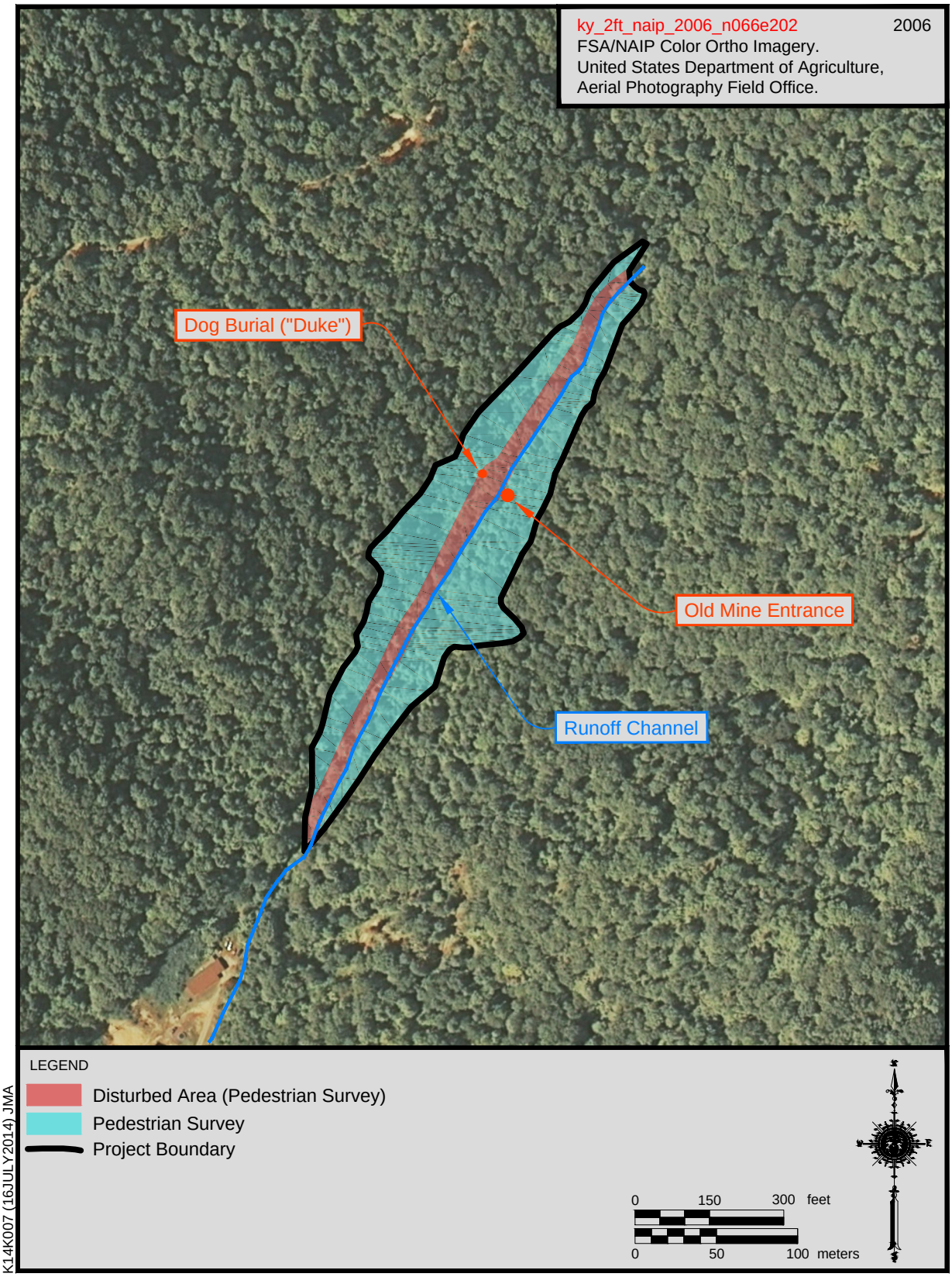

Figure 4. Project area for excess fill zone.

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).

Summary of Findings

Prior to conducting the field research, a records review was conducted at the OSA. The review indicated that no archaeological sites or investigations had been documented within the project area. No archaeological sites were recorded during this survey, although one small coal mine portal was observed on the east side of the hollow in the excess fill area. Since no associated infrastructure was present with the portal, the OSA will not give it a site number. 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 5) 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

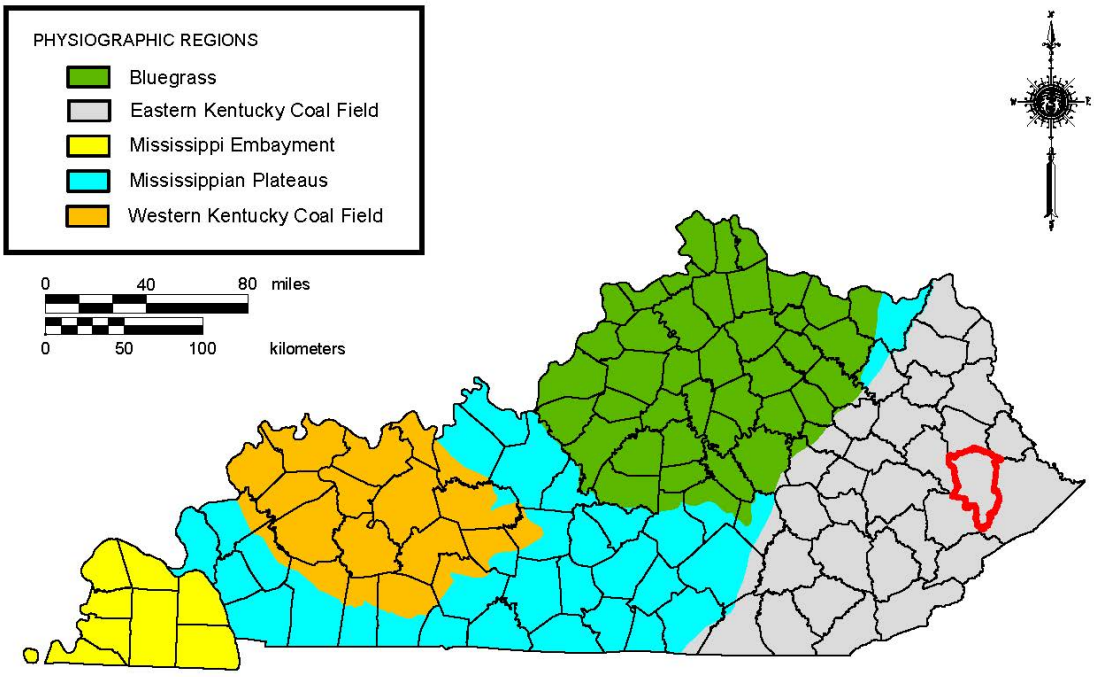

Figure 5. The Eastern Kentucky Coal Field region.

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.

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 6). 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

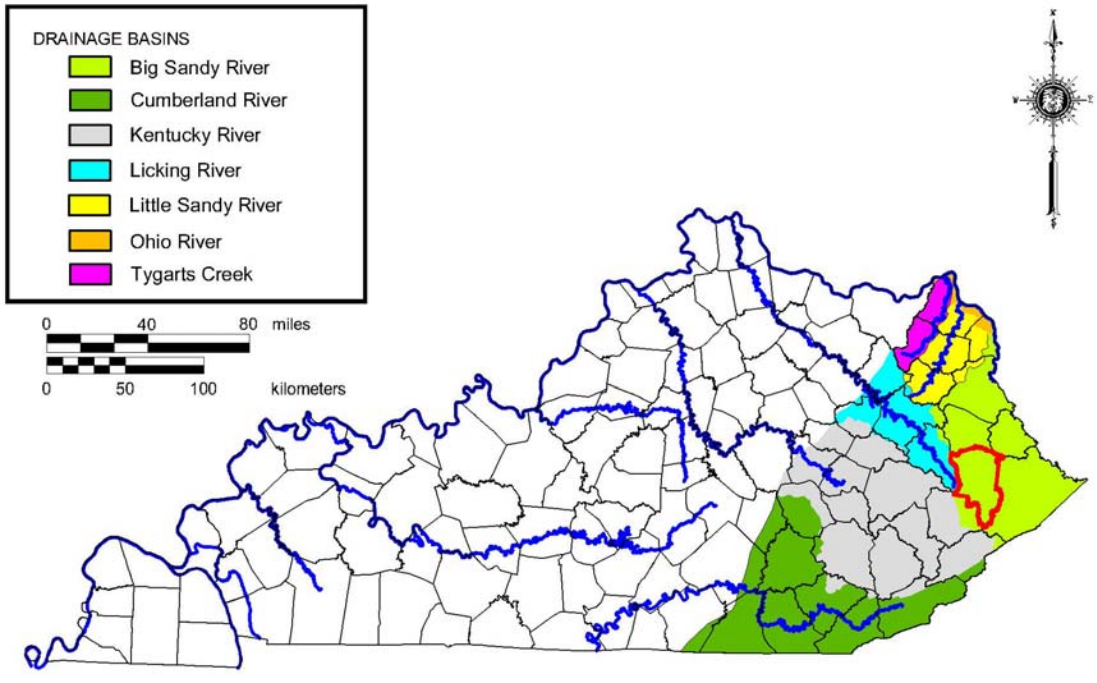

Figure 6. Rivers that drain the Eastern Kentucky Coal Field region.

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).

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, Psamments 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 Wisconsinan 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; Struever 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

This project involves several different components that have a combined area of approximately 5.0 ha (12.5 acres). The primary objective is a curve reduction along KY 122 that will involve a large hillside cut on the south and west sides of that road (Figure 7). This steep sloped area is heavily wooded. On the north side of the road, three minor bump-outs are proposed. All three of these bump-outs are located in heavily graveled or paved parking lots associated with nearby dwellings. At the intersection of KY 122 and KY 680, the existing intersection will be widened slightly on both the north and south sides and turn lanes added. Both of these areas are heavily disturbed by terra-forming activities. On the south side, the disturbance is represented by a gas station/automobile repair shop and paved parking areas (Figure 8). On the north side, the disturbance is related to a gravel road that ran between the dwellings that lined the north side of KY 122 and the existing channel of Frasure Creek. Another disturbance was noted on the west side of KY 122 at the southern end of the project area. Here a modern house, driveway, and garden were present (Figure 9).

Lastly, an excess fill area approximately 1 km (.6 mi) northeast of the KY 122 and KY 680 intersection is proposed for the disposal of debris left over from the hillside removal. This oblong-shaped area is located in a narrow hollow that has an unnamed intermittent stream coursing through it. To the south, this stream drains into Beaver Creek. Running parallel to the intermittent stream on the west side was an old logging road (Figure 10). Prominent on either side of the hollow were heavily wooded steep hill-slopes (Figure 11). Bedrock was exposed in a few places about halfway up these slopes.

Located within the excess fill material area was an old coal mine portal that was first shown on a historic topographic map from the mid-1950s (USGS). The entrance was small, measuring approximately 1.5 m (5.0 ft) in height and 4.5 m (15.0 ft) in width (Figure 12). The depth was approximately 3 m (10.0 ft). The entire floor area inside of the portal consisted of a very deep hole of considerable depth with water coursing through it. No associated infrastructure could be identified with the portal. Coal seams were visible running along and into the portal. Lastly, a dog burial was present (Figure 13) with a marker stating “Duke, September 1994.”

Figure 7. The section of KY 122 slated for curve revision, showing the steep terrain to the west and the heavily wooded slope, facing north.

Figure 8. Disturbance on the south side of intersection, facing south.

Figure 9. Overview of modern house and driveway along KY 122, facing south.

Figure 10. Old logging road in excess fill zone, facing north.

Figure 11. Overview of vegetation and steep terrain in excess fill zone, facing south.

Figure 12. Coal mine portal located on east side of hollow, facing east.

Figure 13. Dog burial in excess fill zone dated 1994, facing north.

Three soil complexes are defined in the project area. They consist of Hazleton-Fedscreek-Marrowbone, the Sharondale-Hazleton-Kimper complex, and the Udorthents-Urban complex. The soil series are classified by the amount of time it has taken them to form and the landscape position they are found on (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.

Marrowbone series soils (Typic Dystrudepts) are moderately deep, well drained soils on sideslopes, nose slopes, and ridgetop crests. These soils formed in loamy residuum or colluvium weathered from interbedded sandstone and siltstone. A typical profile of Marrowbone soil consists of a very shallow Oi horizon of undecomposed leaf litter followed by a brown (10YR 4/3) fine sandy loam A horizon containing 10 percent sandstone fragments. Marrowbone subsoils consist of a series of three brown (7.5YR 4/4) to strong brown (7.5YR 5/6) Bw horizons from 13 cm (5 in) to 58 cm (23 in) bgs over a yellowish brown (10YR 5/6) channery loam to a depth of 71 cm (28 in) followed by an R horizon of olive (5Y 5/3) sandstone (Soil Survey Staff 2012).

Hazleton series soils (Typic Dystrudepts) are deep and very deep, well-drained soils formed in residuum on uplands. Colors and textures for the Hazelton series soils are dark reddish brown forest litter to dark gray and dark reddish brown sandy loam to reddish yellow and strong brown very channery loam. A typical Hazleton series profile consists of a 5 cm (2 inch) dark reddish brown (5YR 2/2) Oe horizon of decayed forest litter over a sandy loam E horizon to a depth of 10 cm (4 in). Subsoils under these horizons include a dark reddish brown (5YR 3/3) sandy loam Bhs horizon to a depth of 15 cm (6 in), a yellowish red (5YR 4/6) channery sandy loam Bs horizon to a depth of 20 cm (8 in), and three increasingly channery sandy loam Bw horizons to a depth of 86 cm (34 in) (Soil Survey Staff 2012).

Fedscreek series soils (Typic Dystrudepts) are deep and very deep, well-drained channery loam soils formed in the loamy weathered colluvium of sandstone, siltstone, and shale. These soils are typically found on hill slopes, mountainsides, benches, footslopes, and drainages with slopes ranging between 8 and 90 percent. (Soil Survey Staff 2012). A typical profile consists of a thin O horizon of undecomposed leaf litter over a brown (10YR 4/3) channery loam A horizon to a depth of 10 cm (4 in) bgs. Beneath the A horizon lies a yellowish brown (10YR 5/4) channery silt loam BA horizon to a depth of 20 cm (8 in) bgs over four increasingly stony yellowish brown (10YR 5/6) to strong brown (7.5YR 5/6) channery loam Bw horizons to a total depth of 122 cm (48 in). Beneath the Bw horizons lie two brown (7.5YR 5/4) very channery loam C horizons over an interbedded sandstone and siltstone R horizon to a total depth of 165 cm (65 in) (Soil Survey Staff 2012).

Sharondale series soils (Typic Hapludolls) consist of very deep, well-drained channery fine sandy loam soils formed in the loamy colluvium of weathered sandstone, siltstone, and shale. These soils are typically found on north- and east-facing mountain slopes ranging between 15 and 100 percent. A typical profile consists of an Oi horizon of decomposed leaves over a very dark gray (10YR 3/1) channery fine sandy loam A horizon to a depth of 33 cm (13 in) bgs. Beneath the A horizon lies a dark brown (10YR 3/3) channery loam AB horizon to a depth of 46 cm (18 in) bgs. A series of three increasingly stony dark yellowish brown (10YR 4/4) to yellowish brown (10YR 5/4) Bw horizons lies beneath the AB horizon to a total depth of 155 cm (61 in) bgs. The Bw horizons are followed by a yellowish brown (10YR 5/4) very flaggy loam BC horizon, a yellowish brown (10YR 5/4) very flaggy loam C horizon, and a fractured brown sandstone R horizon to a total depth of 213 cm (84 in) (Soil Survey Staff 2012).

Kimper series soils (Typic Dystrudepts) are deep and very deep, well-drained, moderately permeable soils most commonly located on north- or east-facing mountainside slopes. Slopes are between 5 and 75 percent. These soils formed in loamy colluvium or material weathered from sandstone, siltstone, and shale. A typical sediment profile consists of very dark grayish brown (10YR 3/2) and brown (10YR 5/3) gravelly silty clay loam to a depth of 5.1 cm (2.0 in) underlain by a dark olive gray (10YR 4/4) and yellowish brown (10YR 5/4) gravelly silt loam to a depth of 17.8 cm (7.0 in). The underlying subsoil is a yellowish brown (10YR 5/4) mottled with brown (10YR 4/3) gravelly silty clay loam (Soil Survey Staff 2012).

The Udorthents-Urban soils are highly disturbed, generally consisting of soil material that has been transported from long distances through human activities such as in-filling and cut areas. These soils are prevalent in urban areas and areas that have been developed.

The Marrowbone, Hazelton, Fedscreek, and Kimper soil series are classified as Inceptisols, 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).

The Sharondale soil series are classified as Mollisols, which are found on landforms that formed during the Late Pleistocene to Holocene or even earlier (Soil Survey Staff 1999:555–557). They have the potential to contain deeply buried and intact archaeological deposits on level floodplain or terrace landforms.

Occasional shovel tests were excavated in areas to confirm disturbances (generally confined to the Udorthents-Urban soils). Other than these disturbed areas (e.g., gravel parking lots), no level ground was present in the project area that would have required shovel testing or that might have contained deeply buried and intact archaeological deposits.

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

Previous Research in Floyd 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 (FY14_8124) 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 (1.2 mi) radius of the project area. The OSA file search was conducted between June 5 and 11, 2014. The work at the 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.

The OSA records revealed that seven previous professional archaeological surveys have been conducted within a 2 km radius of the project area. Five archaeological sites have been recorded in this area also. The records search revealed that three of the five sites in the file search area (15Fd77, 15Fd95, and 15Fd99) are historic farm/residences. One site (15Fd96) is a historic school/church. The last site (15Fd103) is a historic coal mine. The 2 km radius included areas within the McDowell quadrangle (USGS).

Previous Archaeological Investigations

Heather Barras

In March of 1995, South Winter Research, Inc., personnel completed an archaeological survey for the proposed mountaintop removal along the Floyd and Knott county line (Fiegel 1995). The survey was conducted at the request of Robert Ray and Associates, Inc., on behalf of Locust Grove, Inc. (Permit Application Number 836-0257). A total of 102.8 ha (254.0 acres) were investigated by pedestrian survey supplemented with screened shovel testing. Five prehistoric archaeological sites (15Fd69–15Fd73) were documented during the survey. None of the sites were located within the 2 km radius of the current project.

During July 1997, the University of Kentucky (UK) completed an archaeological survey of a proposed coal mine in Floyd County, Kentucky (Davis 1997). The survey was conducted at the request of Robert Ray and Associates, Inc., on behalf of Costain Coal, Inc. The survey area encompassed approximately 227.0 ha (560.8 acres). The field methods included pedestrian survey supplemented by shovel testing. As a result of the survey, one historic farm/residence site (15Fd77) was identified within the current project area along Upper Wolfpen Branch. There were also several modern standing structures situated within the vicinity of Site 15Fd77. The site was recommended not eligible for inclusion on the NRHP, and no further work was needed. The State Historic Preservation Office (SHPO) concurred with the recommendations.

From November 18 to December 3, 2002, CRA personnel conducted an archaeological survey for the proposed new route between the

towns of Minnie and Harold (Section 1) in Floyd County, Kentucky (Item Number 12-301.10) (Herndon and Kerr 2003). The survey was conducted at the request of Lisa Townes of H.A. Spalding, Inc., on behalf of the KYTC. The field methods consisted of pedestrian survey supplemented by screened shovel testing and bucket augering. The project area measured approximately 6.9 km (4.3 mi) in length, with the width of the proposed highway corridor ranging from 40 m (131 ft) to as much as 275 m (902 ft), averaging approximately 150 m (492 ft).

The survey resulted in the discovery of seven previously unrecorded archaeological sites, 15Fd95–15Fd101. Of these, three sites (15Fd95, 15Fd96, and 15Fd99) were situated within a 2 km radius of the current project area.

Site 15Fd95 consisted of a residential area with one standing structure, a brick lined chimney foundation, and several piles of construction debris. Shovel tests east of the standing structure showed that small pockets of undisturbed soils were present, but they were generally located between other nearby shovel tests with disturbed deposits. Site 15Fd96 was a part-time school and church. Although the structure stood at the time of the survey in its nearly original condition, much of the surrounding area was largely deflated and therefore held little potential for subsurface deposits. Due to the disturbed nature of Sites 15Fd95 and 15Fd96, they were recommended as ineligible for NRHP inclusion, and no further work was needed.

Site 15Fd99 was a late-nineteenth- to early-twentieth-century historic farm/residence. The site had been impacted by pipeline and driveway construction, stream erosion, and modern trash dumping. Additionally, no intact subsurface deposits were encountered during the investigation of this site. Because of these conditions, Site 15Fd99 was recommended not eligible for the NRHP.

Bucket augering along the Beaver Creek floodplain was undertaken in order to determine the potential for deeply buried cultural deposits within the project area. A series of bucket augers was placed at 30–40 m (98–131 ft) intervals across the floodplain along the center line. These excavations revealed approximately 2.4 m (7.9 ft) of fine-grained sediment (overbank alluvium). Although no cultural material deposits or artifacts were encountered from the bucket auger tests, similar depositional environments in this region of Kentucky have been documented to contain significant deeply buried intact archaeological deposits. It was recommended that the portion of the floodplain to be impacted by the new route be systematically investigated to determine if archaeological sites were present.

Between January 19 and 23, 2004, CRA personnel conducted subsurface investigations along Section 1 of the proposed new route between the towns of Minnie and Harold, Floyd County, Kentucky (Martin 2004). The investigation was conducted at the request of the KYTC (Item Number 12-301.10). The fieldwork was conducted within the earlier surveyed proposed right-of-way (ROW) of the project, near the town of Minnie along the floodplain of Beaver Creek in Floyd County, Kentucky.

The methods of this investigation were designed to determine the presence or absence of buried archaeological resources. In order to do this, all deep, undisturbed alluvial soils within the project area were sampled. As per stipulations administered by the KYTC Division of Environmental Analysis (DEA), the fieldwork was to have consisted primarily of a series of backhoe trenches spaced at an approximately equal distance along the project centerline, with no more than 15 trenches excavated. However, due to high water table and difficulty in accessing portions of the project area, only eight trenches were excavated and 18 auger probes had to be supplemented for trenches in some areas. The DEA also stipulated that a maximum of 2 sq m (eight .5-x-.5 m units) be excavated adjacent to trenches to better identify the presence of archaeological material in the deposits. However, given that fewer trenches were placed, the equivalent of only 1 sq m (four .5-x-.5 m units) of excavation units was dug.

As a result of the investigation, the ROW had an undetermined potential for intact and buried prehistoric archaeological remains.

Although it was unlikely that historic or prehistoric deposits would be found intact in the historic alluvium, the potential for the presence of an older soil unit beneath the historic alluvium was not adequately tested across the floodplain. Based on these results, buried prehistoric archaeological deposits were more likely to be found at higher elevations on the floodplain. Because of a high water table, however, this potential was minimally explored during the investigation and would remain a hypothesis to be tested further. Ultimately, although modern debris was identified in trench profiles and unit levels, no artifacts or intact archaeological features were found during the investigation.

On July 1, 2004, the Department for Natural Resources, Division of Abandoned Mine Lands, completed an archaeological survey for a proposed coal mine in Floyd County, Kentucky (Moore 2004). The survey was conducted at the request of the Division of Abandoned Mine Lands. The project area totaled approximately .8 ha (2.1 acres). The field methods included pedestrian survey supplemented by screened shovel testing and historic documentation. As a result of the investigation, one historic coal mine site (15Fd103) was identified. The site was recommended not eligible for inclusion on the NRHP, and no further work was recommended.

On April 25, 2005, CRA personnel completed an archaeological survey of a proposed coal mine operation along Simpson Branch in Floyd County, Kentucky (Hand 2005). The survey was conducted at the request of Robin Scudder of Alchemy Engineering Associates, Inc., on behalf of Lightsource Mining Company (Permit Application Number 836-0316). The proposed permit consisted of approximately 18.7 ha (46.3 acres) of surface disturbance, all of which was surveyed. The fieldwork included an intensive pedestrian survey supplemented by screened shovel testing. No archaeological sites were discovered, and no further work was recommended.

Between February 14 and 17, 2011, CRA personnel conducted an archaeological survey of a proposed coal mine operation along Upper Wolfpen Branch in south-central Floyd County, Kentucky (Arnold 2011). The survey was conducted at the request of Gene Campbell of Laurel Mountain Resources, LLC. A project area of 215.2 ha (531.8 acres) was investigated by an intensive pedestrian survey supplemented by screened shovel testing. One previously unrecorded archaeological site (15Fd144), a historic cemetery, was identified during the survey. One previously recorded archaeological site (15Fd77) was documented within the project area but could not be relocated due to extensive mining disturbance. A 30 m (100 ft) buffer was recommended to be placed around the cemetery.

Archaeological Site Data

According to available data, 105 archaeological sites have been recorded in Floyd County (Table 1). The site data indicate that the majority of archaeological sites recorded in Floyd County consist of prehistoric open habitations without mounds (n = 46; 43.81 percent) followed by historic farm/residences (n = 18; 17.14 percent), cemeteries (n = 13; 12.38 percent), and rockshelters (n = 8; 7.62 percent). Other site types in Floyd County include earth mounds (n = 1; 0.95 percent), industrial (n = 1; 0.95 percent), military (n = 1; 0.95 percent), mound complex (n = 1; 0.95 percent), open habitations with mounds (n = 4; 3.81 percent), other (n = 5; 4.76 percent), other special activity area (n = 1; 0.95 percent), stone mounds (n = 3; 2.86 percent), and undetermined (n = 3; 2.86 percent).

The landform locations of sites in Floyd County were examined to determine the likelihood of encountering sites on similar landforms within the project area. The majority of sites in Floyd County are located on floodplains (n = 33; 31.43 percent), dissected uplands (n = 20; 19.05 percent), hillsides (n = 19; 18.10 percent), and terraces (n = 18; 17.14 percent). The most predominant sites situated on floodplains are open habitations without mounds (n = 27; 81.82 percent) followed by historic farm/residences (n = 2; 6.06 percent). Most of the sites situated on dissected uplands are open habitations without mounds (n = 6; 30 percent), cemeteries (n = 4; 20 percent), and rockshelters (n = 4; 20 percent). The most common sites associated with hillsides are cemeteries (n = 8;

42.11 percent), rockshelters (n = 3; 15.79 percent), historic farm/residences (n = 2; 10.53 percent), and stone mounds (n = 2; 10.53 percent). The majority of archaeological sites located on terraces are historic farm/residences (n = 10; 55.56 percent), open habitations without mounds (n = 4; 22.22 percent), and open habitations with mounds (n = 2; 11.11 percent).

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

Site Type:	N	%
Cemetery	13	12.38
Earth Mound	1	0.95
Historic Farm/Residence	18	17.14
Industrial	1	0.95
Military	1	0.95
Mound Complex	1	0.95
Open Habitation With Mounds	4	3.81
Open Habitation Without Mounds	46	43.81
Other	5	4.76
Other Special Activity Area	1	0.95
Rockshelter	8	7.62
Stone Mound	3	2.86
Undetermined	3	2.86
Total	105	100
Time Periods Represented:	**N**	**%**
Paleoindian	1	0.88
Archaic	14	12.39
Woodland	10	8.85
Late Prehistoric	10	8.85
Indeterminate Prehistoric	30	26.55
Historic	42	37.17
Unspecified	6	5.31
Total	113*	100
* One site may represent more than one time period.		
Landform:	**N**	**%**
Dissected Uplands	20	19.05
Floodplain	33	31.43
Hillside	19	18.1
Other	3	2.86
Terrace	18	17.14
Undissected Uplands	2	1.9
Unspecified	10	9.52
Total	105	100

The current project area consisted primarily of a dissected upland ridge spur and hillside topographic settings.

Map Data

In addition to the file search, a review of available maps in 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:

1892 Whitesburg, Kentucky-Virginia, 30-minute series topographic quadrangle (USGS);

1916 Pikeville, Kentucky, 15-minute series topographic quadrangle (USGS);

1937 Highway and Transportation Map of Floyd County, Kentucky (Kentucky Department of Highways [KDOH]);

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

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

The 1892 and 1916 maps do not show any buildings located in the project area. The 1937 highway map also does not appear to depict any buildings in the project area, but given the coarseness of the scale it is difficult to be certain. The same for the 1952 highway map. The 1954 topographic map, however, indicates that a structure is present in or immediately adjacent to the project area on both the north (MS 1) and south (MS 2) sides of the KY 122 and KY 680 intersection (Figure 14). No archaeological evidence of MS 1 was noted in the project area. This area has been heavily disturbed by a gravel parking lot and gravel road. MS 2 is in the location of an existing gas station (see previous discussion with photograph).

Also, in the excess fill material area, two or three coal mine openings are depicted on the 1954 topographic map in or immediately adjacent to the project boundary. The northernmost of those portals was identified during this project but not given a site number by the OSA.

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 habitation sites without mounds and historic residences were considered possibilities. Given the steep gradients, however, the possibility of encountering rockshelters was considered high as well.

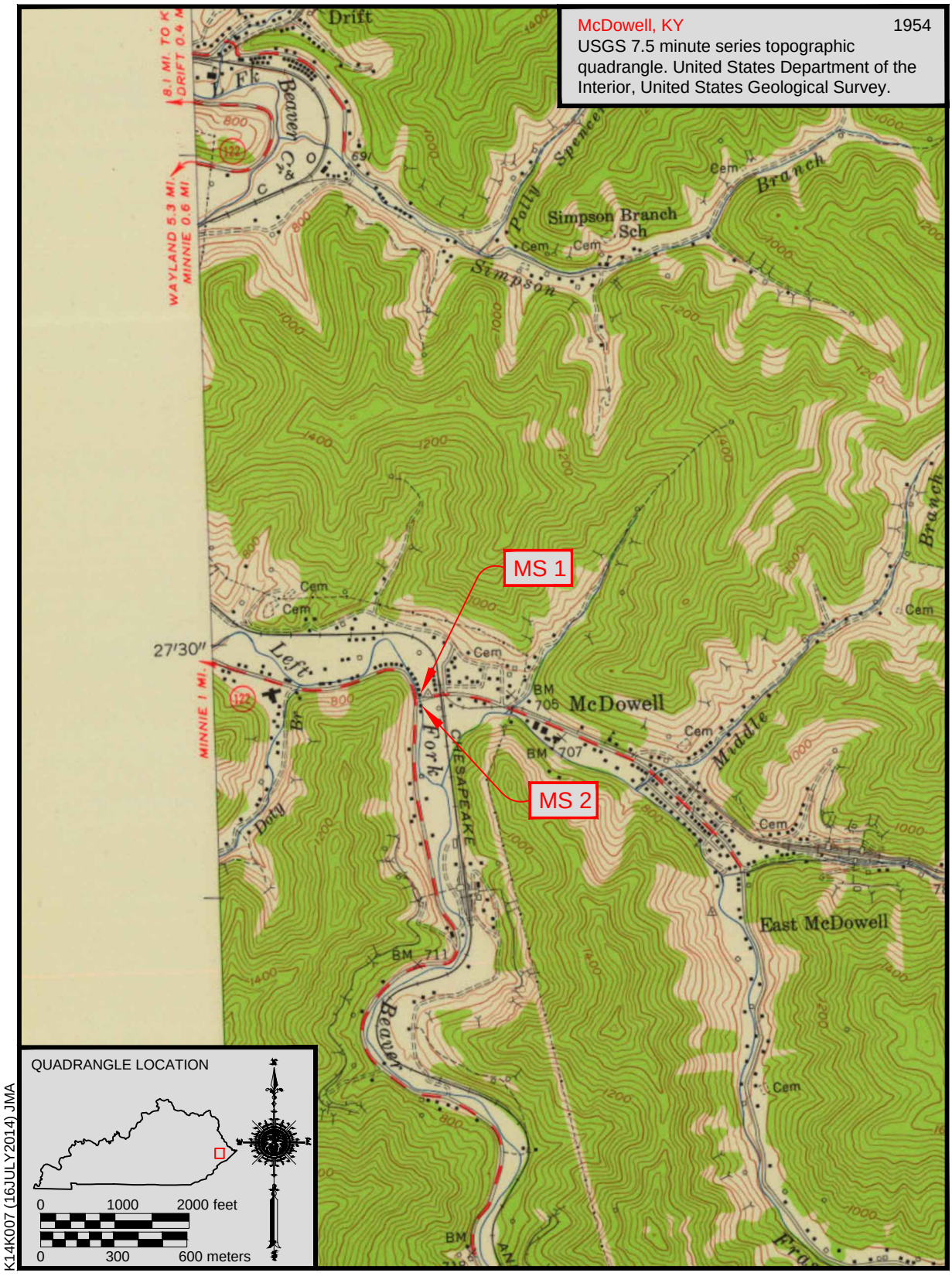

Figure 14. Map structures depicted on the 1954 historic map.

IV. METHODS

This section describes the methods used during the survey. Mapping was supplied by KYTC and uploaded to a GPS for field use. All landowners were contacted before fieldwork and permission granted.

The current project area consisted of approximately 12.5 ha of proposed surface disturbance. All portions of the project area subjected to intensive pedestrian survey were surveyed by walking parallel transects along natural contours that were spaced at 20 m intervals in a series of transects. Steep sideslopes were inspected for natural benches and rockshelters. Dirt roads and all exposed areas were walked and visually examined for indications of cultural material and features. Given the steep terrain, shovel testing was generally not needed, except in a few cases to confirm ground disturbance.

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 SHPO (the Kentucky Heritage Council).

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. The survey resulted in the discovery of a small mine portal with no associated infrastructure dating to the mid-1950s. The OSA does not furnish site numbers for coal mine portals unless associated infrastructure is present. 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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