

Intensive Archaeological (Phase I) Survey in Support of Proposed Improvements to KY 1357 (St. John's Road) from KY 3005 to US 31W Bypass (KYTC Item No. 4-8801.00)

Hardin County, Kentucky



OSA Report Registration No. FY17-9007

December 2016

Intensive Archaeological (Phase I) Survey in Support of Proposed Improvements to KY 1357 (St. John's Road) from KY 3005 to US 31W Bypass (KYTC Item No. 4-8801.00)

Hardin County, Kentucky

OSA Report Registration No. FY17-9007

December 2016

Prepared for:

CDM Smith
2525 Harrodsburg Rd
Suite 200
Lexington, KY 40504
859-254-5759

Lead Agency:

Federal Highway Administration
1200 New Jersey Ave., SE
Washington, DC 20590

Prepared by:



E. Nicole Mills
Principal Investigator
Brockington and Associates, Inc.
109B W Poplar Street
Elizabethtown, Kentucky 42701

Brockington and Associates, Inc.

Atlanta • Charleston • Elizabethtown • Jackson • Nashville • Savannah

Abstract

In October 2016, CDM Smith, Inc. of Lexington, Kentucky (CDM) contracted Brockington and Associates, Inc. (Brockington) of Elizabethtown, Kentucky, to conduct an intensive archaeological (Phase I) survey in support of proposed improvements along an approximate 1.7-mile (2.73-kilometer) stretch of KY 1357 (St. John's Road) in Hardin County, Kentucky (the Project, KYTC Item No.: 4-8801.00). CDM supported this investigation through the submission of a GIS and report registration request to the Office of State Archaeology (OSA). Additionally, CDM also conducted on-site background research at the OSA, and supplied all necessary archival data to Brockington for inclusion in this report. Fieldwork for this Project was conducted in November 2016. The Federal Highway Administration (FHWA) is funding this investigation, serves as the lead agency and, as part of Section 106 of the National Historic Preservation Act (NHPA) of 1966 (as amended through 2000) review compliance process, the Kentucky Transportation Cabinet (KYTC) and Kentucky Heritage Council (KHC) serve as consulting parties.

The Area of Potential Effects (APE) for cultural resources, as defined for this Phase I investigation, encompasses approximately 23 acres of land along a 1.7-mile (2.73-kilometer [km]) stretch of KY 1357, between the US 31W Bypass and KY 3005 (Ring Road). The extent of the APE was defined through review of Project data supplied to Brockington by CDM, in the form of Computer-aided design and drafting (CADD) files illustrating the proposed Project limits of disturbance. Subsurface testing (i.e., shovel testing) and pedestrian field reconnaissance composed the principal archaeological survey methods employed during this Phase I investigation. Fieldwork was conducted on November 28 and 30, 2016.

Within the Project APE, a total of 287 Survey Loci (SL) were inspected during the course of this investigation. Of these, shovel tests were excavated at 104 of the 287 SL. The remaining 183 SL were surface inspected due to the presence of buried utilities, location within ditches, paved surfaces, construction fill, or on the slopes of road cuts. As a result of the archaeological field reconnaissance implemented within the Project APE, no archaeo-

logical materials/deposits were encountered, and no new or previously recorded archaeological sites were documented within the APE. The overall level of disturbance encountered during the field survey suggests that if archaeological deposits were once located within the Project APE, they have likely been impacted to a level that precludes their identification/documentation. Past disturbances documented within the APE primarily include road construction (contouring, filling, and grading), residential building construction, and utility construction (sewer, water, gas, and electric). Therefore, the proposed improvements to KY 1357 will not affect any archaeological sites listed on, or eligible for listing on, the National Register of Historic Places (NRHP). It is therefore recommended that no additional archaeological investigations are warranted prior to construction of the proposed Project (KYTC Item No. 4-8801.00).

Table of Contents

Abstract.....	ii
List of Figures.....	iv
List of Tables	vi
1.0 Introduction and Methods.....	1
1.1 Project Description.....	1
1.2 Project Area of Potential Effects.....	1
1.3 Report Organization	1
1.4 Acknowledgements.....	4
2.0 Background Research.....	5
2.1 Previous Archaeological Surveys - contributions by Howard J. Beverly (CDM).....	5
2.2 Previously Recorded Sites - Contributions by Howard J. Beverly (CDM).....	11
3.0 Methods of Investigation.....	16
3.1 Pre-Field Planning	16
3.2 Archaeological Field Methods.....	16
3.3 GIS Data Mapping.....	20
4.0 Survey Results, Conclusions, and Recommendations	21
4.1 Survey Results.....	21
4.2 Conclusions and Recommendations	30
References Cited.....	31

List of Figures

Figure 1.1 Location of APE, as illustrated on the 1993 <i>Cecilia, KY</i> USGS 1:24,000 Topographic Quadrangle.	2
Figure 1.2 Location of APE, as illustrated on 2014 NAIP aerial imagery (courtesy ArcGIS Online).	3
Figure 2.1 Previous archaeological investigations located within two km of the Project APE, as illustrated on the 1993 <i>Cecilia, KY</i> USGS 1:24,000 topographic quadrangle.	7
Figure 3.1 Current APE, as illustrated on the 1937 <i>Hardin County, Kentucky Highway and Transportation Map</i> (Kentucky Department of Highways).	17
Figure 3.2 Current APE, as illustrated on the 1948 <i>Cecilia, KY</i> 1:24,000 Topographic Quadrangle (USGS).	18
Figure 3.3 Current APE, as illustrated on 1966 aerial imagery of Elizabethtown, Kentucky (USGS).	19
Figure 4.1 Schematic survey coverage of the eastern portion of the APE, as illustrated on the 1993 <i>Cecilia, KY</i> USGS 1:24,000 Topographic Quadrangle.	22
Figure 4.2 Schematic survey coverage of the western portion of the APE, as illustrated on the 1993 <i>Cecilia, KY</i> USGS 1:24,000 Topographic Quadrangle.	23
Figure 4.3 Representative photograph locations within the Project APE, as illustrated on 2014 NAIP aerial imagery (courtesy ArcGIS Online).	24
Figure 4.4 View of eastern end of the Project APE from photograph location 1, facing southwest along KY 1357 (from Transect 1, Shovel Test 2).	25
Figure 4.5 View of eastern end of the Project APE from photograph location 2, facing northeast along KY 1357 (from Transect B, Shovel Test 18).	25
Figure 4.6 View of eastern end of the Project APE from photograph location 3, facing southwest along KY 1357 (from Transect A, Shovel Test 33).	26
Figure 4.7 View of central portion of the Project APE from photograph location 4, facing northeast along KY 1357 (from Transect B, Shovel Test 59).	26
Figure 4.8 View of central portion of the Project APE from photograph location 5, facing northeast along KY 1357 (from Transect B, Shovel Test 81).	27
Figure 4.9 View of western end of the Project APE from photograph location 6, facing east along KY 1357 (from Transect B, Shovel Test 102).	27

List of Figures (continued)

Figure 4.10 View of western end of the Project APE from photograph location 7, facing east along KY 1357 (from Transect A, Shovel Test 125).....	28
Figure 4.11 Representative shovel test profile within eastern portion of Project APE (Transect B, Shovel Test 22).	28
Figure 4.12 Representative shovel test profile located east of Billy Creek (Transect B, Shovel Test 65 +20 meters north).....	29
Figure 4.13 Representative shovel test profile located west of Billy Creek (Transect B, Shovel Test 73).	29
Figure 4.14 Representative shovel test profile within eastern portion of APE (Transect A, Shovel Test 116).	30

List of Tables

Table 2.1 Previous archaeological investigations located within two km of the Project APE.	6
Table 2.2 Previously recorded archaeological sites located within two km of the Project APE.	12

1.0 Introduction and Methods

1.1 Project Description

In October 2016, CDM Smith, Inc. of Lexington, Kentucky (CDM) contracted Brockington and Associates, Inc. (Brockington) of Elizabethtown, Kentucky to conduct an intensive archaeological (Phase I) survey in support of proposed improvements along an approximate 1.7-mile (2.73-kilometer [km]) stretch of KY 1357 (St. John's Road) in Hardin County, Kentucky (the Project; KYTC Item No.: 4-8801.00). CDM supported this investigation through the submission of a GIS and report registration request to the Office of State Archaeology (OSA). Additionally, CDM conducted on-site background research at the OSA and supplied all necessary archival data to Brockington for inclusion in this report. Fieldwork for this Project was conducted in November 2016. The Federal Highway Administration (FHWA) is funding this investigation, serves as the lead agency and, as part of Section 106 of the National Historic Preservation Act (NHPA) of 1966 (as amended through 2000) review compliance process, the Kentucky Transportation Cabinet (KYTC) and Kentucky Heritage Council (KHC) serve as consulting parties.

The archaeological investigation described herein was conducted in compliance with both state and federal guidelines; including Section 106 of the NHPA of 1966 (as amended through 2000), the Advisory Council on Historic Preservation's implementing regulations (36 CFR Part 800), Secretary of the Interior's *Standards and Guidelines for Archaeology and Historic Preservation* (1983), and archaeological survey and reporting guidelines set forth by the Kentucky Heritage Council (Sanders 2006). Key project personnel, namely E. Nicole Mills, RPA (Principal Investigator and Field Director), meets or exceeds the qualifications described in the Secretary of the Interior's "Professional Qualifications Standards" (48 FR 44738-9).

As a result of the archaeological field reconnaissance implemented within the APE, no archaeological materials/deposits were encountered, and no new or previously recorded archaeological sites were documented within the APE. The overall level of disturbance encountered during the field survey suggests that if archaeological deposits were

once located within the Project APE, they have likely been impacted to a level that precludes their identification/documentation. Past disturbances documented within the APE primarily include road construction (contouring, filling, and grading), residential building construction, and utility construction (sewer, water, gas, and electric). Therefore, the proposed improvements to KY 1357 will not affect any archaeological sites listed on, or eligible for listing on, the NRHP. It is therefore recommended that no additional archaeological investigations are warranted prior to construction of the proposed Project (KYTC Item No. 4-8801.00).

1.2 Project Area of Potential Effects

The Area of Potential Effects (APE) for cultural resources, as defined for this Phase I investigation, encompasses approximately 23 acres of land along a 1.7-mile (2.73-km) stretch of KY 1357, between the US 31W Bypass and KY 3005 (Ring Road) (Figures 1.1 and 1.2). The extent of the APE was defined through review of Project data supplied to Brockington by CDM, in the form of Computer-aided design and drafting (CADD) files illustrating the proposed Project limits of disturbance. Subsurface testing (i.e., shovel testing) and pedestrian field reconnaissance composed the principal archaeological survey methods employed during this Phase I investigation. Fieldwork was conducted on November 28 and 30, 2016.

1.3 Report Organization

This report is organized into four numbered chapters, and follows both the KHC format guidelines for reporting when no cultural resources are identified (Sanders 2006:41). Chapter 1 provides an overview of the archaeological investigations and summarizes administrative details. Chapter 2 presents the results of background/archival research and summarizes the results of a literature review conducted by CDM at the OSA. Chapter 3 provides a detailed description of the field methods employed during this survey. The final chapter, Chapter 4, includes a discussion of the survey results and Project recommendations.



Figure 1.1 Location of APE, as illustrated on the 1993 Cecilia, KY USGS 1:24,000 Topographic Quadrangle.

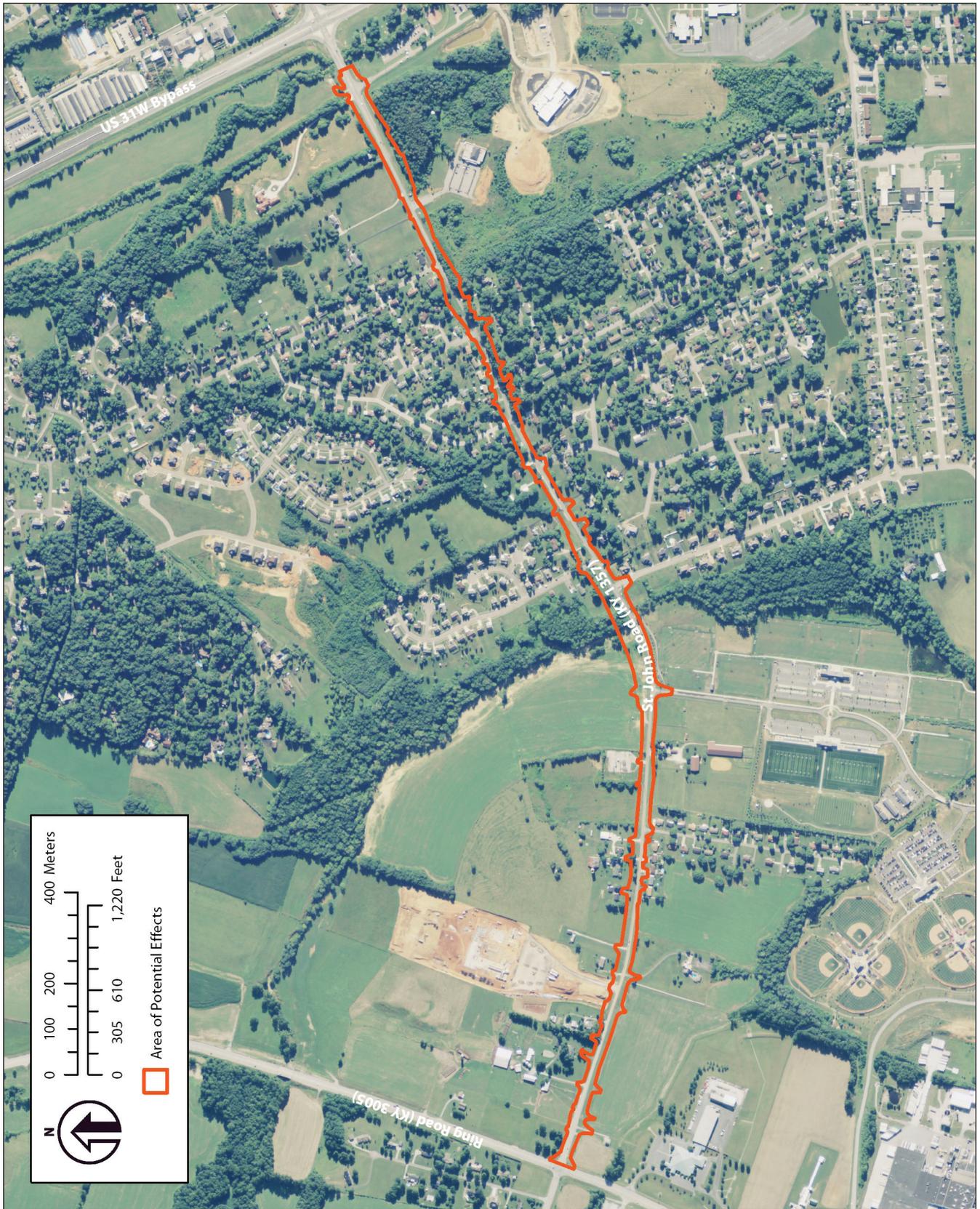


Figure 1.2 Location of APE, as illustrated on 2014 NAIP aerial imagery (courtesy ArcGIS Online).

1.4 Acknowledgements

Brockington appreciates the opportunity to support CDM and the KYTC. Additionally, thanks are extended to the OSA and KHC. The author would also like to thank the cultural resources staff of Brockington, through whose hard work this project was accomplished. Staff members who assisted with this project include Alicia Sullivan, Michael Walsh, Inna Moore, Paula Mullin, and Andrew Scarr.

2.0 Background Research

CDM supported this investigation through the submission of a GIS and report registration request to OSA. Additionally, CDM conducted on-site background research at the OSA, and supplied all necessary archival research data for inclusion in this report. Following the receipt of this background data, a review of all previously recorded archaeological sites and investigations within two km of the Project APE was conducted by Brockington. This review revealed that 20 archaeological investigations and 22 previously recorded archaeological sites lie within the two-km buffer of the Project APE. Of the 20 previous archaeological investigations, portions of three extend within the boundaries of the Project APE. No previously recorded archaeological sites are, however, located within the Project APE. These sites and surveys are discussed in detail below.

2.1 Previous Archaeological Surveys - contributions by Howard J. Beverly (CDM)

A summary of recorded archaeological investigations within the APE and the surrounding two-km buffer (in the form of GIS data) was requested from the OSA, and was received on November 1, 2016. The GIS data provided by OSA identified a total of 20 previously recorded investigations within a two-km buffer of the Project APE (Table 2.1 and Figure 2.1). The physical site files at the OSA were consulted on November 3, 2016; of note, the survey report filed as SHPO ID 047-002 was not present in the site files on the day of the research visit and thus could not be referenced (Brooks 1979). In addition, while reviewing previously recorded site forms, it was revealed that one additional previous survey, which was not included in the OSA GIS data, was conducted within the two km buffer of the current investigation (Schock and Foster 1975). Thus 19 previous archaeological investigations reported by Schock and Foster (1975), Fenwick (1976), Schock (1977 and 2009), Pollack (1981), Hand (1987), Stallings and Ross-Stallings (1992 and 1996), Nohalty and French (2001), King (2003), Prybylski (2007), Versluis (2008, 2010, and 2011), Pritchard (2010 and 2011), Carbo (2012), Mills (2014), and Creswell

(2015) are described below. Of these investigations, three overlap portions of the APE for the current investigation (Shock 1977; Stallings and Ross-Stallings 1992; and Pritchard 2011).

Archaeologists from Western Kentucky University began a Phase I survey in December of 1974 and completed it in November and December of 1975 after the final property access permissions were obtained (Schock and Foster 1975). The 4.8-mile-long by 200-foot-wide survey corridor traced a proposed APE for the realignment of US 62 between Elizabethtown and Cecilia in Hardin County, Kentucky. The corridor largely paralleled the existing US 62 on its south side and crossed flat to gently rolling pasture. Elevation within the APE ranged between 680 and 780 feet above mean sea level (amsl). The APE crossed two regional significant drainages, Rhudes Creek and Billy Creek, and near its southern end were some karst sinks. Four archaeological sites were newly recorded as a result of this survey: 15HD376, 15HD377, 15HD396, and 15HD397, of which only 15HD396 and 15HD397 were located within two km of the current survey. Sites 15HD376 and 15HD377 were both described as unassigned prehistoric lithic scatters without mounds that were not eligible for nomination to the NRHP. Sites 15HD396 and 15HD397, both described in more detail in the following section, were described as a Middle Woodland ephemeral camp without mounds and an Archaic-Mississippian site with intact soils and a potential for buried deposits. Of these two sites, only 15HD397 was recommended for further investigation (Schock and Foster 1975).

A Phase I archaeological survey of 1,496 acres was conducted by Ohio Valley Archaeological Research Associates for the proposed development of various industrial facilities and an airport (Fenwick 1976). This survey, requested by T. M. Regan, Inc. in support of the proposed Lincoln Trail Industrial Park Site, occurred on September 6 through 8, 1976. The entire project area was described as gently rolling farmland, 60-70 percent of which was planted in crops. Five percent was noted as overgrown with high grass and trees and the rest was described as grassy pasture. Ground surface visibility was poor, even in the crop fields. The crop fields were surface

Table 2.1 Previous archaeological investigations located within two km of the Project APE.

SHPO ID	Year	Authors	Title
unknown	1975	Schock, Jack M. and Gary S. Foster	An Archaeological Survey of the Proposed Realignment of US 62, Hardin County, Kentucky
047-002	1979	Brooks, Robert L.	An Archaeological Survey of the Proposed Elizabethtown Wastewater Treatment Plant Facilities, Hardin County, Kentucky
047-004	1976	Fenwick, Jason M.	An Archaeological Survey of the Proposed Lincoln Trail Industrial Park Site in Hardin County, Kentucky
047-009	1977	Schock, Jack M.	Archaeological Testing of Site 15Hd48 at the Proposed Elizabethtown-Hardin County Airport in Hardin County, Kentucky
047-014	1981	Pollack, David	A Cultural Resource Assessment of the Proposed Cardinal Creek Substation, Hardin County, Kentucky
047-023	1987	Hand, Robert B.	An Archaeological Assessment of the Proposed Hidden Hills Apartments, Ltd. Hardin County, Kentucky
047-039	1992	Stallings, Richard and Nancy Ross-Stallings	A Phase I Cultural Resource Survey of a 40 Acre Office and Storage Facility Located near Elizabethtown, Hardin County, Kentucky
047-070	1996	Stallings, Richard and Nancy Ross-Stallings	Phase II Archaeological Investigation of Site 15HD478 Located Near Elizabethtown, Hardin County, Kentucky
047-114	2001	Nohalty, Tom and Michael W. French	Phase I Archaeological Survey of Approximately 1.5 Acres for the Elizabethtown Substation, East Kentucky Power Cooperative
047-125	2003	King, Brian C.	Archaeological Survey of the Elizabethtown to Radcliff Connector (E2RC) in Hardin County, Kentucky
047-152	2007	Prybylski, Matthew	Phase I Archaeological Survey for the Proposed Flint Ink 69 kv Substation, Access Road, and Transmission Line, Hardin County, Kentucky
047-164	2009	Schock, Jack	An Archaeological Survey of One Proposed Water Tank Site, One Pump Station and Approximately Four Miles of Water Lines in Hardin County, Kentucky
047-200	2010	Pritchard, Christy	A Phase I Archaeological Survey for the Proposed Elizabethtown Sewer Line Improvements Within the Elizabethtown Sports Park Complex, Hardin County, Kentucky
047-201	2010	Versluis, Vincent	A Phase I Archaeological Survey of Approximately 26 Acres for Proposed Improvements at the Addington Field Airport in Elizabethtown, Hardin County, Kentucky
047-215	2010	Christy W. Pritchard	A Phase I Archaeological Survey for the Proposed Elizabethtown Sewer Line Improvements within the Elizabethtown Sports Park Complex, Hardin County, Kentucky
047-217	2011	Vincent A. Versluis	A Phase I Archaeological Survey of Approximately 22 Acres for Proposed Improvements at the Addington Field Airport in Elizabethtown, Hardin County, Kentucky
047-218	2011	Christy W. Pritchard	A Phase I Archaeological Survey for the Proposed Elizabethtown Sewer Line Improvements Along Billy Creek and Freeman Lake, Hardin County, Kentucky
047-229	2012	Andrew Carbo; Christy W. Pritchard	Phase I Archaeological Survey of the Proposed Realignment for the Elizabethtown Sewer Line along Billy Creek, Hardin County, Kentucky
047-247	2014	E. Nicole Mills	Phase I Archaeological Site Detection Survey in Support of Proposed Sewer and Wastewater Infrastructure Improvements
047-248	2008	Vince A. Versluis	A Phase I Archaeological Survey of the Approximately 40 Acres for Proposed Improvements at the Addington Field Airport in Elizabethtown, Hardin County, Kentucky
047-251	2015	L. Michael Creswell	Phase I Archaeological Site Detection Survey in Support of the Cardinal Preserve/Banam Shaw South Trail Project

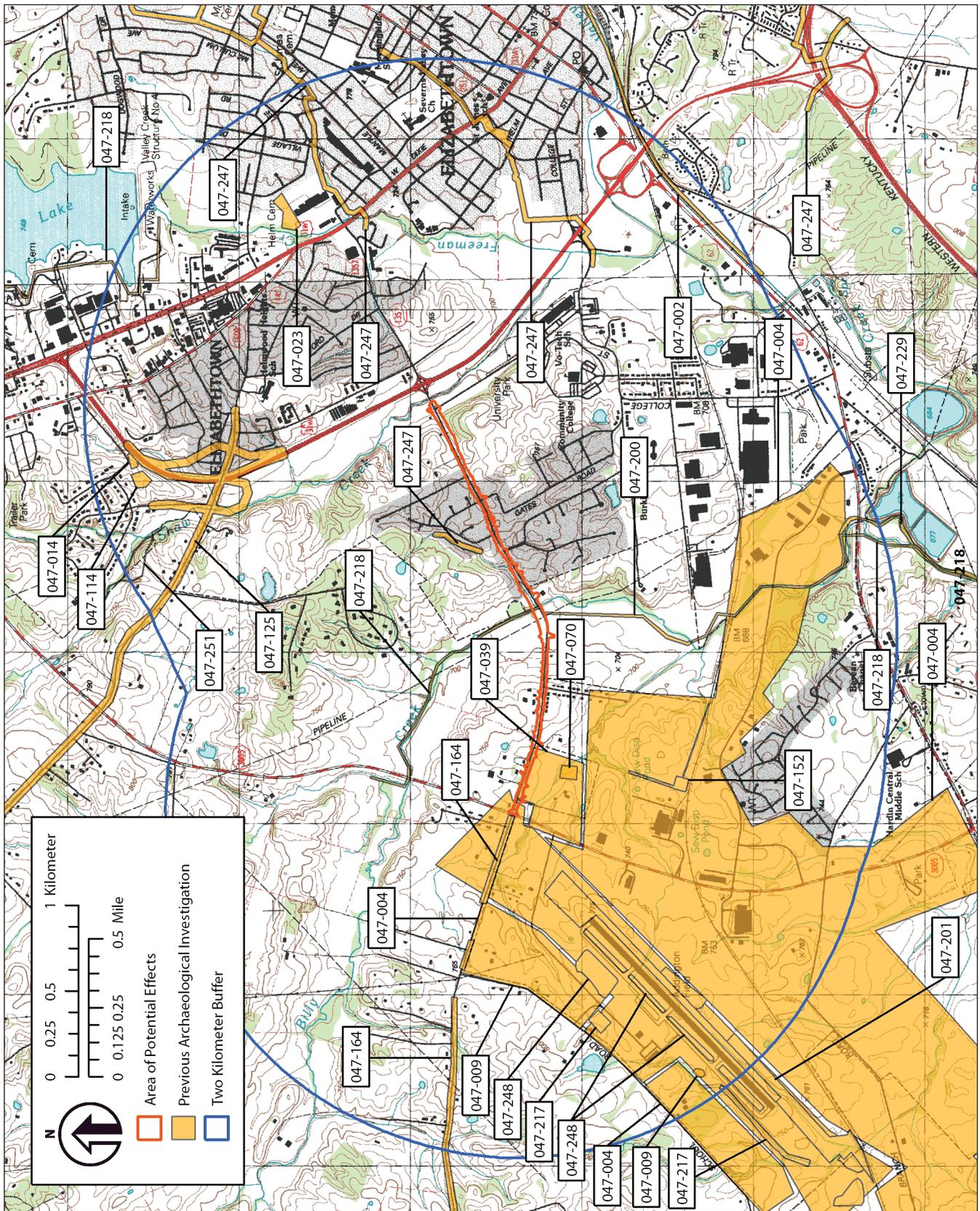


Figure 2.1 Previous archaeological investigations located within two km of the Project APE, as illustrated on the 1993 Cecilia, KY USGS 1:24,000 topographic quadrangle.

inspected along transects spaced 25 to 30 feet apart, while the remainder of the APE was opportunistically surface inspected in road cuts, cow paths, et cetera. This survey resulted in the documentation of seven archaeological sites: 15HD48, 15HD49, 15HD50, 15HD51, 15HD52, 15HD53, and 15HD54. Each of these seven sites were described as prehistoric lithic scatters, and all were recommended for further work in order to make a determination of eligibility for the NRHP (Fenwick 1976). Four of these sites, 15HD48, 15HD52, 15HD53, and 15HD54, are located within two km of the current survey area and are discussed in detail below.

Site 15HD48, was re-visited on April 28, 1977, during a Phase II investigation conducted by Arrow Enterprises of Bowling Green, Kentucky (Schock 1977). This site is located within two km of the Project APE and is thus described in more detail in the following section. The Phase II work resulted in a recommendation of no further work, and concluded the site was not eligible for nomination to the NRHP. In addition to the Phase II work, some of the knolls surrounding the site were re-surveyed, resulting in the recording of four "Spot Finds" (SF), which were not given official trinomials. SF 1 consisted of two utilized flakes, and four waste flakes. SF 2 consisted of one utilized flake. SF 3 consisted of four waste flakes. SF 4 consisted of one Hardin projectile point (an Archaic form) and one waste flake. None of these finds merited further work (Schock 1977). As described in GIS data provided by OSA, a portion of the far western end of the Project APE was surveyed during this investigation (see Figure 2.1).

Archaeologist Dave Pollack of the University of Kentucky's Cultural Resource Assessment Program conducted a Phase I survey in 1981 at the request of East Kentucky Power (Pollack 1981). The survey, which occurred on August 17, covered 5.2-hectare of pasture in support of the proposed Cardinal Creek Substation (an expansion of an existing substation). The APE was situated on the eastern end of an upland ridge and its hillside at 760 to 790 feet amsl. The area was shovel probed at 5- to 1- meter (m) intervals along transects spaced 10 m apart. The topsoil was described as a plowzone 15 to 20 centimeters (cm) deep. The survey area was described as being surrounded by soil disturbance related to the construction of the previous substation. There were

no cultural resources identified and no further work was recommended (Pollack 1981).

In 1987, a Phase I survey of one acre in support of the proposed Hidden Hills Apartments, LTD. development was conducted by Cultural Resource Analysts, Inc. (CRAI). The project area was bounded on two sides by previous development and was itself disturbed by modern bulldozing and filling activities on approximately two-thirds of its area. To the north was a wooded hill where Site 15HD45 had previously been recorded. The survey methods employed consisted of shovel probes at 15-m intervals, pedestrian survey, and sifting through bulldozer backdirt. No cultural resources were identified and no further work was recommended (Hand 1987).

A Phase I survey of 40 acres was conducted by Cultural Horizons, Inc. (CRI) in support of a proposed office and storage facility development (Stallings and Ross-Stallings 1992). The work was conducted at the request of East Kentucky Power Cooperative, Inc. The APE was surrounded on three sides by modern development. South of the APE was a low ridge where 15HD52 had been previously recorded (see Fenwick 1976). The majority of the project area was covered in pasture grass, and seven acres was covered in corn stubble. The pasture was shovel probed at 20-m intervals while the corn field was walked in transects 20 m apart. The survey resulted in the documentation of one archaeological site (15HD478) and three archaeological isolated finds (IFs 1-3). The location of Site 15HD478 was recorded within two km of the Project APE, and as such is discussed in more detail in the following section. This site was considered to have potential research value and more work was recommended. The remainder of the project area was cleared for cultural resources and no further work recommended beyond the 15HD478 site area (Stallings and Ross-Stallings 1992). As described in GIS data provided by OSA, a portion of the far western end of the Project APE was surveyed during this investigation (see Figure 2.1).

Archaeologists from Cultural Horizons, Inc. returned to Site 15HD478 in 1996, at the request of Nolin RECC, to conduct Phase II investigations and make a determination of NRHP eligibility. Intact and rather deep soils were documented in the eastern half of the site area (through shovel probe profiles) during

the initial Phase I survey of the site. The western half of the site had suffered erosion and did not contain intact soil or deposits. The client agreed to preserve the eastern half of the site and develop the western half as a pole yard. This Phase II investigation is described in more detail (under the discussion of Site 15HD478) in the following section. No further work was recommended at the conclusion of this Phase II investigation since the significant portion of the site was to be avoided by the proposed project (Stallings and Ross-Stallings 1996).

A Phase I 1.5 acres archaeological survey was conducted by AMEC Earth and Environmental, Inc. archaeologists for the proposed construction of an Easy Kentucky Power Cooperative Substation (Nohalty and French 2001). The work occurred on October 29, 2001. The project area was situated on a hilltop and shovel probes were excavated at 20-m intervals across the area. A plowzone was evident in soil profiles but no cultural resources, neither artifacts nor sub-plowzone deposits or features, were encountered. No further work was recommended in advance of the proposed project (Nohalty and French 2001).

CRAI conducted a Phase I survey between July 28 and August 20, 2003, at the request of QK4 and the KYTC, of three alternate routes for the proposed Elizabethtown to Radcliff Connector in Hardin County, Kentucky (King 2003). In total, 264.65 acres (653.98 hectares) were surveyed. The corridor measured 11 km (seven miles) by 50- to 150-m-wide. Access was denied to 13.46 acres (5.44 hectares) of the survey area. The setting was described as a karst upland between 700 and 800 feet amsl. At the time of the survey, the land was primarily agricultural; with pasture, soybean, corn fields, and some small areas of commercial and residential development. Twenty-m interval pedestrian survey and shovel probing were employed across the entire project APE. Additionally, in the areas of high ground surface visibility in the crop areas, a “dog leash” surface collection strategy was employed at five-m intervals. These methods resulted in four prehistoric isolated finds and eight prehistoric archaeological sites being newly recorded: 15HD631 through 15HD638. None of these sites are located within two km of the Project APE. Site 15HD634 was considered potentially eligible for NRHP nomination and further work

was recommended for the site area. The remainder of the project area did not necessitate further work (King 2003).

In January of 2007, a Phase I survey of 5.48 acres (2.2 hectares) located one mile southwest of Elizabethtown was conducted in support of the construction of a proposed substation, access road, and transmission line (Prybylski 2007). This survey was conducted at the request of East Kentucky Power Cooperative, Inc. The area for the proposed substation measured 1.47 acres (0.6 hectare); the area for the proposed access road measured one acre (0.4 hectare); and the proposed transmission line corridor measured 100 feet wide and 1,519 feet long (3.03 acres or 1.2 hectares). At the time of survey, vegetation within the survey area consisted of high grasses and secondary growth trees. Disturbance within the project area included one area near a railroad and one area of exposed subsoil that was described as eroded. Part of the APE crossed a creek and some sideslopes. The elevation of the project area was 740 feet amsl. The entire area was subjected to a pedestrian survey and systematic shovel probing at 20-m intervals. In total, 39 shovel probes were excavated. There were no cultural resources identified and no further work was recommended (Prybylski 2007).

On April 7 and 8, 2008 a Phase I survey of 40 acres was conducted by Great Rivers Archaeological Services (Versluis 2008). The work preceded proposed improvements to the Addington Field Airport. The project area was set partially in a cornfield, and partially in the greenspaces between existing runways and taxiways. Pedestrian survey and systematic shovel probing identified numerous areas of disturbance. There were no cultural resources identified within the project area and no further work was recommended (Versluis 2008).

In February of 2009, a Phase I survey of a 65-by-100-foot area for a proposed water tank, and 3,650-foot-long water line corridor for a proposed water line was conducted by Arrow Enterprises, Inc. at the request of KENVIRONS, Inc. (Schock 2009). The project area was predominantly located in previously cultivated fields and offered some exposed subsoil at the surface in eroded areas. Pedestrian survey and shovel probing at 20-m intervals were employed as the primary survey methods. There were no cultural resources identified within the

project area and no further work was recommended (Schock 2009).

Brockington performed a Phase I survey in support of sewer line improvements in March of 2010 (Pritchard 2010). This survey encompasses a 917-by-30-m wide corridor located within the Elizabethtown Sports Park and was undertaken on behalf of the City of Elizabethtown. As described in GIS data provided by OSA, the corridor surveyed during this investigation crosses into the central portion of the Project APE (see Figure 2.1). The entire project corridor was surveyed using a single transect of shovel tests spaced at a 20-m interval. No new or previously recorded archaeological sites were encountered during this survey and no further work was recommended in advance of the proposed project (Pritchard 2010).

A Phase I archaeological survey of 26 acres was conducted by Great Rivers Archaeological Services, at the request of ENTRAN (Versluis 2010). This survey was conducted in support of improvements at the Addington Field Airport. The work occurred on December 12 through 15, 2010. The entire project area was subjected to systematic shovel probing supported by pedestrian survey. A large portion of the survey area had been disturbed by previous airport construction and drainage re-routing. At the time of the survey, the project area included woods, harvested cornfield, and grass pasture. As a result of this survey, two archaeological sites were newly recorded: 15HD823 and 15HD824. Site 15HD823 is located within two km of the Project APE and is discussed in more detail in the following section. Neither of these sites were recommended eligible for nomination to the NRHP and no further work was recommended (Versluis 2010).

Brockington again performed a Phase I survey in support of sewer line improvements between March and August of 2010 (Pritchard 2011). This survey encompasses a 7.4-km-long-by-30-m wide corridor and was undertaken on behalf of the City of Elizabethtown. The project corridor was divided into three segments which together totaled 7.4 km in length and included the survey of eight associated “laydown” areas. As described in GIS data provided by OSA, the corridor surveyed during this investigation crosses through the central portion of the Project APE (see Figure 2.1). The proposed sewer

line corridor was surveyed using a single transect of shovel tests spaced 20 m apart. The “laydown” areas were surveyed using a 20-m grid. Shovel testing efforts were supplemented with visual reconnaissance methods throughout the entire project area. Four previously undocumented sites were recorded during this survey and include 15HD851, 15HD852, 15HD853, and 15HD854. Additionally, one previously documented site was also encountered during this survey, Site 15HD33. All sites documented during this survey were recorded as temporally unassigned prehistoric lithic scatters. Additionally, three historic whiteware sherds were recovered from 15HD854. None of these sites are located within the Project APE and all were recommended not eligible for listing on the NRHP (Pritchard 2011).

Archaeologists with Great Rivers Archaeological Services conducted a Phase I survey in 2011 off 22 acres at the request of ENTRAN (Versluis 2011). This survey, which occurred on February 2 and 3, utilized pedestrian survey and systematic shovel probing to survey prior to proposed improvements to the Addington Field Airport. At the time of the survey, the land was being used for cornfields and as a wooded strip along a tributary of Valley Creek. The cornfields offered 25 percent ground surface visibility. A single site (15HD865) was documented during this survey; however, it does not lie within two km of the Project APE. Five positive shovel probes delineated the site area and it was described as a non-diagnostic prehistoric lithic scatter void of intact deposits or subsurface features. No further work was recommended for this site or for the remainder of the project area (Versluis 2011).

In 2012, a Phase I survey in support of sewer line realignments was conducted by Brockington, at the request of HDR/Quest (Carbo 2012). The survey corridor measured 1,189 m- (3,901 feet) long-by-30-m (100 feet) wide. Shovel probing and pedestrian survey methods were employed along the single transect that followed an artificial levee between Billy Creek and Elizabethtown’s sewer retention ponds, through secondary and tertiary woods, wetland scrub, and pasture. The survey resulted in the documentation of one archaeological site, 15HD910. This site’s location is recorded within two km of the Project APE and is described in more detail in the following section. Site 15HD910 was recorded as

an inventory site not eligible for nomination to the NRHP, and no further work was recommended for the entire project area (Carbo 2012).

Between May and July of 2013, Brockington conducted a Phase I survey within Elizabethtown in support of water and wastewater utility improvements (Mills 2014). This survey was conducted on behalf of the City of Elizabethtown and encompassed 15.31 km of proposed utility alignment corridors and 4.5 acres of proposed detention pond. The proposed utility corridors measured no more than 30-m wide and were surveyed using a single transect of shovel tests spaced 20 m apart. The proposed detention pond areas were surveyed using a 20-m grid. Shovel testing efforts were supplemented with visual reconnaissance methods throughout the entire project area. Ten previously undocumented archaeological sites and four isolated finds were recorded during this survey (15HD994 through 15HD1003). Eight of the 10 archaeological sites are located within the two km buffer of the APE (15HD995, 15HD996, and 15HD998 through 15HD1003) and are discussed in the following section. With the exception of 15HD997, all of the newly recorded sites were described as late nineteenth to early twentieth century historic residences. Site 15HD997 was described as a temporally unassigned prehistoric lithic scatter. Two of the 10 sites (15HD995 and 15HD1001) were recommended potentially eligible for the NRHP. The remaining sites were recommended not eligible for the NRHP.

Finally, in July of 2015 Brockington conducted a Phase I survey in Elizabethtown in support of the construction of new recreation trails (Creswell 2015). This survey was conducted on behalf of the City of Elizabethtown and encompasses a survey corridor measuring 1,140-m-long-by-10-m wide. The survey corridor lies along the southern bank of Shaw Creek and (and its tributaries) and traverses the adjacent floodplain and ridgetops. Shovel probing and pedestrian survey methods were employed along the single transect and a total of 57 shovel tests were excavated. There were no cultural resources identified within the project area and no further work was recommended (Creswell 2015).

2.2 Previously Recorded Sites - Contributions by Howard J. Beverly (CDM)

A summary of inventoried archaeological sites within the two-km buffer of the Project APE was requested from the OSA, and received on November 1, 2016. A total of 22 sites have previously been recorded within a two-km buffer of the Project APE (Table 2.2). The physical site files at the OSA were consulted on November 3, 2016. The 22 sites; recorded as 15HD45, 15HD48, 15HD52, 15HD53, 15HD54, 15HD55, 15HD56, 15HD57, 15HD58, 15HD396, 15HD397, 15HD478, 15HD823, 15HD910, 15HD995, 15HD996, 15HD998, 15HD999, 15HD1000, 15HD1001, 15HD1002, and 15HD1003, are described below. The most proximal archaeological sites to the Project APE (within 500 m) include sites 15HD52, 15HD55, and 15HD478.

Sites 15HD45, 15HD55, 15HD56, 15HD57, and 15HD58 were recorded by Dick Boisvert with the KHC in February of 1977. Site 15HD45 was reported using information and collections provided by John Galvin collected from the property of Thomas B. Taylor in Elizabethtown, Hardin County, Kentucky. The materials (unlisted) were diagnostic of Mississippian, Archaic, and Woodland cultural associations and were recovered from a creek bank context (Kentucky Archaeological Site Survey Form [KASSF] 15HD45).

Sites 15HD48, 15HD52, 15HD53, and 15HD54 were identified during a Phase I survey conducted in 1976 for a proposed industrial park site (Fenwick 1976). Site 15HD48 was an open site on the slope of a low hill that overlooked a seasonal tributary of Valley Creek. This site was described as a surface collection delineated a 50-by-35-m site area which produced a non-diagnostic artifact assemblage. The assemblage included 31 pieces of debitage, one biface fragment, and two unifacial tools. Because there was no subsurface testing of the site area and due to the presence of intact, deeper soil in the eastern half of the site, further work was recommended, specifically four one-by-one-m units (KASSF 15HD48; Fenwick 1976). On April 28, 1977 Jack Schock of Arrow Enterprises revisited the site in order to conduct Phase II investigations there (Schock 1977). First, an intensive surface inspection was employed and one blade, three side scraper

Table 2.2 Previously recorded archaeological sites located within two km of the Project APE.

Trinomial	Component	Historic Date Range	Site Type	NRHP Recommendation
15Hd45	Archaic, Woodland, Mississippian	n/a	open habitation w/o mounds	Inventory site (does not presently meet NR criteria)
15Hd48	unassigned prehistoric	n/a	open habitation w/o mounds	Inventory site (does not presently meet NR criteria)
15Hd52	unassigned prehistoric	n/a	open habitation w/o mounds	Inventory site (does not presently meet NR criteria)
15Hd53	unassigned prehistoric	n/a	open habitation w/o mounds	Inventory site (does not presently meet NR criteria)
15Hd54	unassigned prehistoric	n/a	open habitation w/o mounds	Inventory site (does not presently meet NR criteria)
15Hd55	unassigned prehistoric	n/a	open habitation w/o mounds	Inventory site (does not presently meet NR criteria)
15Hd56	unassigned prehistoric	n/a	open habitation w/o mounds	Inventory site (does not presently meet NR criteria)
15Hd57	Woodland, Mississippian (possibly Adena)	n/a	open habitation w/o mounds	Inventory site (does not presently meet NR criteria)
15Hd58	unassigned	n/a	open habitation w/o mounds	Inventory site (does not presently meet NR criteria)
15Hd396	Middle Woodland	n/a	open habitation w/o mounds	Potentially Eligible
15Hd397	Archaic, Woodland, Mississippian, Historic Euro-American	1750-1800	historic farm / residence, possible fort	Potentially Eligible
15Hd478	Archaic	n/a	open habitation w/o mounds	National Register status not assessed
15Hd823	Historic Euro-American	1901 - 1950	historic farm / residence	Considered eligible but not nominated by SHPO
15Hd910	Indet. Prehistoric	n/a	open habitation w/o mounds	Inventory site (does not presently meet NR criteria)
15Hd995	Historic Euro-American	1901 - 1950	historic farm / residence	Potentially Eligible
15Hd996	Historic Euro-American	1851 - 1950	historic farm / residence	Inventory site (does not presently meet NR criteria)
15Hd998	Historic Euro-American	1851 - 1950	historic farm / residence	Inventory site (does not presently meet NR criteria)
15Hd999	Historic Euro-American	1851 - 1950	historic farm / residence	Inventory site (does not presently meet NR criteria)
15Hd1000	Historic Euro-American	1901 - 1950	historic farm / residence	Inventory site (does not presently meet NR criteria)
15Hd1001	Historic Euro-American	1901 - 1950	historic farm / residence	Potentially Eligible
15Hd1002	Historic Euro-American	1901 - 1950	historic farm / residence	Inventory site (does not presently meet NR criteria)
15Hd1003	Historic Euro-American	1901 - 1950	historic farm / residence	Inventory site (does not presently meet NR criteria)

fragments, 11 utilized flakes, and 15 waste flakes were collected. The surface artifact density at this site was used to establish the location of test units. Next, four five-foot square test units were laid out and excavated to the base of plow zone. From the

0.65 to 0.8 foot deep plowzone, one blade fragment, one blade, one unifacial scraper, four utilized flakes, 12 waste flakes, and two spokeshave scrapers were collected. No diagnostic artifacts were recovered and no sub-plowzone features were encountered.

The site was not recommended for nomination to the NRHP and no further work was recommended at Site 15HD48 (Schock 1977).

Site 15HD52 was described as an open, unassigned prehistoric site on a low rise just 150 feet from a tributary of Billy Creek. This site was identified through the surface inspection of a low ground surface visibility area and its dimensions were not confirmed. The only artifact recovered from this site was a non-diagnostic, large, rectangular biface. No further work was recommended for Site 15HD52 (KASSF 15HD52; Fenwick 1976).

Site 15HD53 was described as an open, unassigned prehistoric site on a low rise 200 feet from a tributary of Valley Creek. This site was identified through the surface inspection of a low ground surface visibility area, and the dimensions of the resource were not confirmed. The only artifact recovered from the site was a biface fragment. No further work was recommended for Site 15HD53 (KASSF 15HD53; Fenwick 1976).

Site 15HD54 is an open, unassigned prehistoric site on a low rise 20 feet from Billy Creek. The 20-by-20-m site area was identified through surface inspection of a low ground surface visibility area. The artifact assemblage collected from this site consists of three flakes. No further testing was recommended (KASSF 15HD54; Fenwick 1976).

Sites 15HD55, 15HD56, 15HD57, and 15HD58 were all recorded by Dick Boisvert with the KHC in February of 1977. All were reported in conjunction with information and/or collections from John Galvin. Site 15HD55 was identified on a terrace location on the property of Goldie A. Wise in Elizabethtown. The site was described as a prehistoric site of unknown cultural or temporal association (KASSF 15HD55).

Site 15HD56 was identified on the property of the Elizabethtown Board of Education and described as a prehistoric site of unknown cultural or temporal association (KASSF 15HD56).

Site 15HD57 was identified on the property of T.J. Patterson and yielded "chipped stone" and ground stone tools that were described as being associated with Woodland, Mississippian, and possibly Adena cultural traditions (KASSF 15HD57).

Site 15HD58 was identified on the property of J. Wise and described as a prehistoric site of unknown

cultural or temporal association (KASSF 15HD58). No further information related to the site's dimensions or the collected artifact assemblage was recorded.

Site 15HD396 was described as an open camp without mounds identified as a surface scatter in four separate, modern house-garden plots. This site was documented by Western Kentucky University during a Phase I survey in 1975 (Schock and Foster 1975). This site was located outside of the proposed Right-of-Way and survey area, thus its boundaries were not fully documented. The site was situated at 680 feet amsl, 0.23 mile from the confluence of Billy and Valley Creeks. The artifact assemblage included 20 waste flakes, 18 utilized flakes, one projectile point/knife base fragment, two bifacial scrapers, one unifacial side scraper, and a flint-tempered prehistoric ceramic body sherd. The ceramic sherd indicates a Middle Woodland component and it was recommended eligible for NRHP nomination pending further work (KASSF 15HD396; Schock and Foster 1975).

Site 15HD397 was described as a multicomponent site from which diagnostic artifacts from the Archaic and Mississippian traditions were collected. Additionally, the site contains a historic component dating to the late eighteenth century. Situated at 680 feet amsl and east of Billy Creek, the site was first identified in a large house-garden plot during a Western Kentucky University Phase I survey in 1975 (Schock and Foster 1975). The collected artifact assemblage consisted of one Mississippian triangular projectile point/knife, five projectile point/knife bases, three projectile point/knife fragments, four distal blade fragments, eight blade mid-section fragments, one blade base fragment, one complete blade, six bifacial scrapers, one bifacial endscraper, six bifacial sidescrapers, 16 unifacial scrapers, five unifacial end scrapers, 10 unifacial sidescrapers, 174 utilized flakes, 200 waste flakes, 15 cores, 17 chunks, one button fragment, four stoneware fragments, 19 recent historic ceramic fragments, one telephone pole insulator fragment, one brick fragment, one mirror fragment, one glass marble, one earthenware fragment, one creamware fragment, and six pearlware fragments. Because the site location is in the (suspected) general vicinity of Van Meter's Fort and Grist Mill, it was believed that the earlier historic component could be associated with the Van Meter

farmstead/fort. Further work was recommended in order to determine the full site extent beyond the garden plot and in order to determine NRHP eligibility through subsurface testing (KASSF 15HD397; Schock and Foster 1975).

Site 15HD478 was identified during a 1992 Phase I survey that preceded Phase II of the site in 1996. At the time of the Phase I survey, the site was described as pastureland situated on the end of a low ridge at 720 feet amsl and located 300 feet from the juncture of two streams. A total of 38 shovel probes were excavated within and around the site and the horizontal extent was defined by 19 positive probes. Shovel probe profiles revealed a 50-cm-deep plow-zone in the eastern half of the 40-by-75-m site. The artifacts produced during the Phase I excavation included one Late to Early Archaic Turkey tail projectile point base, 28 flakes, three pieces of shatter, one utilized flake, one core, and two preforms. The chert types recovered from this site were identified as predominantly St. Genevieve. The Phase II survey involved four stages, which began with a controlled surface inspection of transects spaced two m apart. During this initial stage, 60 artifacts were piece-plotted and collected; however, no concentrations were discerned. Second, 38 shovel probes were excavated across the site in order to determine the northern and eastern site boundaries. Shovel probes produced between one to five artifacts each. Third, four one-meter square test units were excavated. The fourth stage involved the mechanical stripping of four trenches. Excavations produced a non-diagnostic artifact assemblage of 61 pieces of shatter, 230 flakes, two cores, five bifaces, 10 unifaces, one piece of FCR, and 423 pieces of charcoal. Four features were encountered; including two post molds, a shallow basin-shaped pit, and one bell-shaped anomaly. It was concluded that given the high percentage of expedient tools and the low percentage of tools/features, this site represented an ephemeral encampment within which intensive lithic tool production occurred. A date of 900 BC (terminal Archaic) was obtained from the testing of charcoal samples. An arrangement was made with the client to preserve the eastern half of the site while using the western, eroded, half as a pole yard. Therefore, no further work was recommended. The site was not determined to be NRHP eligible (KASSF 15HD478; Stallings and Ross-Stallings 1992, 1996).

Site 15HD823, described as a late nineteenth- to early twentieth-century farmstead site, was recorded during a 2010 Phase I survey by Great Rivers Archaeological Services (Versluis 2010). The 60-by-50-m site was recorded on a ridge top at 760 feet amsl and located above a tributary of Valley Creek. The northern extent of the site had been destroyed by previous construction associated with the Addington Field Airport in Elizabethtown, Hardin County, Kentucky. At the time of the survey, the site area was within a harvested corn field which exhibited approximately 10 percent ground surface visibility. The site area was shovel probed at 10-m intervals and the artifact assemblage produced included whiteware, redware, porcelain, stoneware, container glass, unidentified glass, unidentified iron, and brick. One bottle base had a maker's mark with a production date range of 1911-1929. Albany-slip glazed stoneware was another diagnostic supporting the assigned site date range. No intact deposits were documented and thus no further work was recommended (KASSF 15HD823; Versluis 2010).

Site 15HD910 was described as an unassigned prehistoric lithic scatter located in a wooded terrace at 210 feet amsl. Some erosion was noted; however, the site area was described as containing mostly intact soils. This site was identified through shovel probing and produced 27 flake fragments, four flakes, and one utilized flake. There were no intact subsurface features or deposits evident in any of the shovel probe profiles and this site was recommended *not eligible* for nomination to the NRHP. No further work was recommended (KASSF 15HD910; Carbo 2012).

Sites 15HD995, 15HD996, 15HD998, 15HD999, 15HD1000, 15HD1001, 15HD1002, and 15HD1003 were recorded by Brockington during a Phase I survey (Mills 2014). All of these sites were described as late nineteenth- to mid-twentieth-century historic residences within a historic neighborhood west of downtown Elizabethtown. With the exception of 15HD995 and 15HD1001, all of these sites represent materially-sparse domestic deposits lacking intact features or deposits (KASSF 15HD996, 15HD998, 15HD999, 15HD1000, 15HD1002, and 15HD1003). These sites were recommended *not eligible* for listing on the NRHP. Sites 15HD995 and 15HD1001 were also described as materially sparse; however, these sites were described as having a po-

tential to contain intact subsurface features and were thus recommended potentially eligible for listing on the NRHP (KASSF 15HD995 and 15HD1001). Evidence of subsurface features was recorded at Site 15HD995, one of which may represent a well or privy. A single subsurface feature, a filled in well, was recorded within Site 15HD1001. Additionally, historic mapping for this site (circa 1922) indicated that there were at least four former buildings located within the survey area. Although no surficial/buried evidence of these buildings was encountered, it was determined that this site had the potential of containing intact subsurface deposits.

3.0 Methods of Investigation

The archaeological methods employed during this investigation, as presented below, were intended for use in reconnaissance level archaeological surveys. The primary goals of this investigation are: (1) to evaluate the Project APE relative to its research potential and NRHP eligibility of archaeological sites (if any) located within; and, (2) to recommend management options (as needed). The results of this investigation are being coordinated with the KYTC and KHC.

3.1 Pre-Field Planning

Prior to fieldwork, Brockington drafted notification letters and mailed them (via USPS Certified Mail) to all landowners whose properties fall within the APE. Fieldwork was initiated after receiving delivery confirmation of all letters. The location and boundary of the APE was provided to Brockington by CDM in digital format (CADD files). This data was georeferenced and the Project area boundaries were overlaid on the appropriate USGS 7.5 minute quadrangle and modern aerial imagery. Additionally, historic mapping relevant to the Project area was acquired from KYTC and the USGS. Historic maps referenced during this investigation include:

- 1937 *Hardin County, Kentucky Highway and Transportation Map* (Kentucky Department of Highways)
- 1948 *Cecilia, Kentucky* 1:24,000 Topographic Quadrangle (USGS)
- 1966 Aerial Imagery, Elizabethtown, Kentucky (USGS)

As a result of this review, it was noted that no buildings have been illustrated within the Project APE on the maps listed above (Figures 3.1 through 3.3). Furthermore, the 1948 *Cecilia, KY* quadrangle suggests that the curve in St. John Road (KY 1357) near the center of the APE was once located further south (beyond the APE) of its present location (Figure 3.2). Finally, the 1966 aerial of the APE indicates that both 31W Bypass and Ring Road (KY 3005) were constructed at some point in the modern era, after the acquisition of the 1966 imagery.

In advance of fieldwork, a total of 287 Survey Loci (SL) were plotted along two main transects within the APE. These transects were aligned parallel to the proposed centerline of KY 1357, between 10 and 15 m to the north and south of the centerline (as defined by CADD data for this project). For areas in which the APE boundary extended 20 or more meters from these transects, additional SL were plotted along supplementary transects. For navigation purposes, GPS data representing the pre-plotted SL was loaded into a Trimble Geo-XH GPS Unit and corresponding field maps were created.

3.2 Archaeological Field Methods

Archaeological survey methods employed during this investigation primarily involved the surface inspection and/or excavation of pre-plotted SL along the two main transects. These transects were aligned parallel to the proposed centerline of KY 1357, between 10 and 15 m to the north and south. Areas in which the APE boundary extended 20 or more meters from these transects, additional SL were plotted along supplementary transects. SL were spaced at a 20-m interval along their respective transect.

The entire APE was subjected to surface reconnaissance efforts, which entailed a walking, visual inspection of the ground surface to identify historic and prehistoric artifacts, supplemented with hand-excavated shovel tests. No archaeological materials or features were identified on the surface within the limits of the APE during visual reconnaissance efforts. However, numerous buried utilities were encountered along the existing margins of KY 1357. These utilities included sanitary sewer, water, gas, electric, and telecommunication. Additionally, several areas along KY 1357 were noted as containing fill, or had been contoured during previous road contraction/improvement activities. SL located within stream channels, paved areas, road cuts, and areas containing buried marked utilities were not subjected to subsurface testing during this investigation. When possible, pre-plotted SL were offset in order to avoid previous disturbance (as noted above).

SL located on relatively flat terrain with poor surface visibility were subjected to subsurface

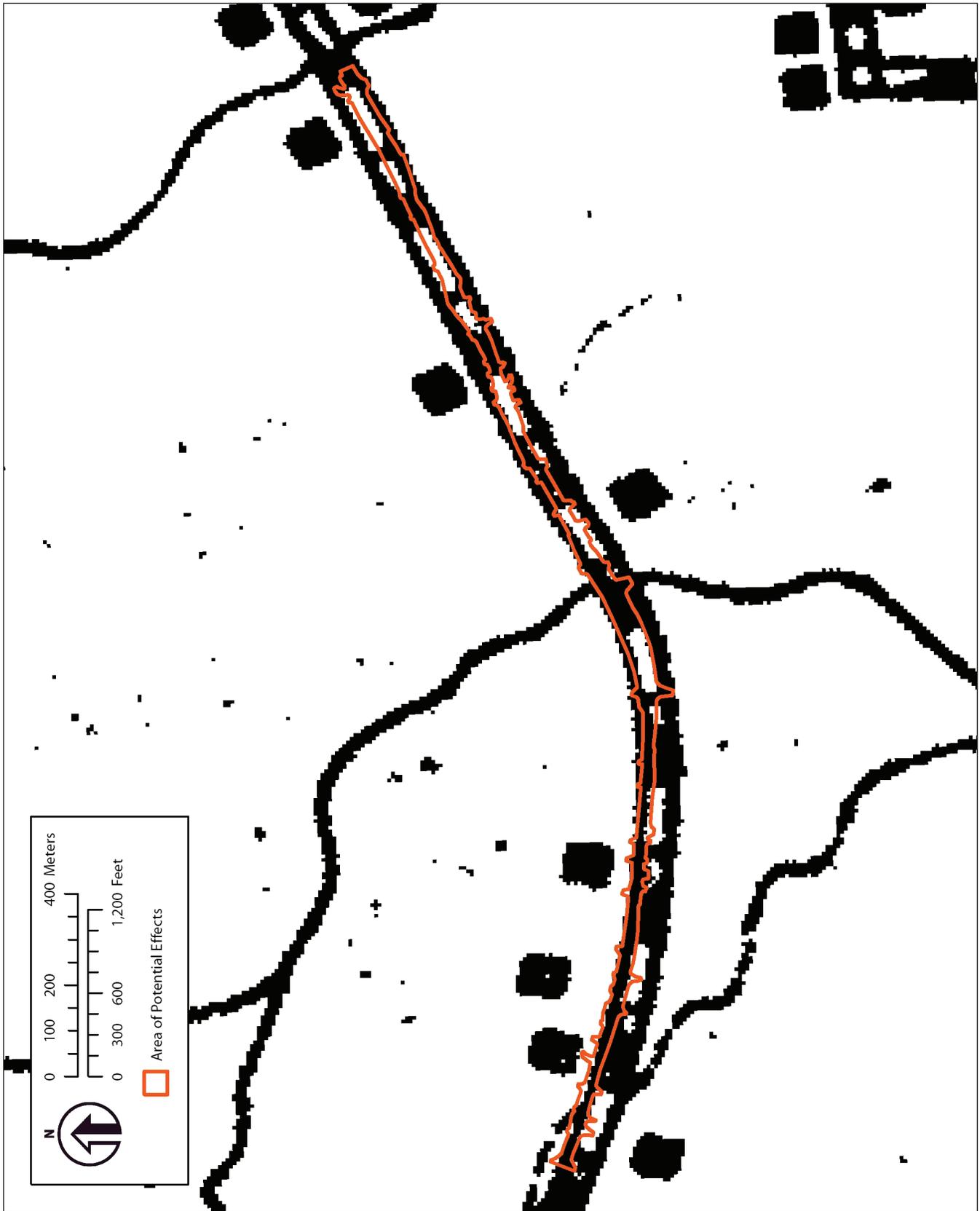


Figure 3.1 Current APE, as illustrated on the 1937 Hardin County, Kentucky Highway and Transportation Map (Kentucky Department of Highways).

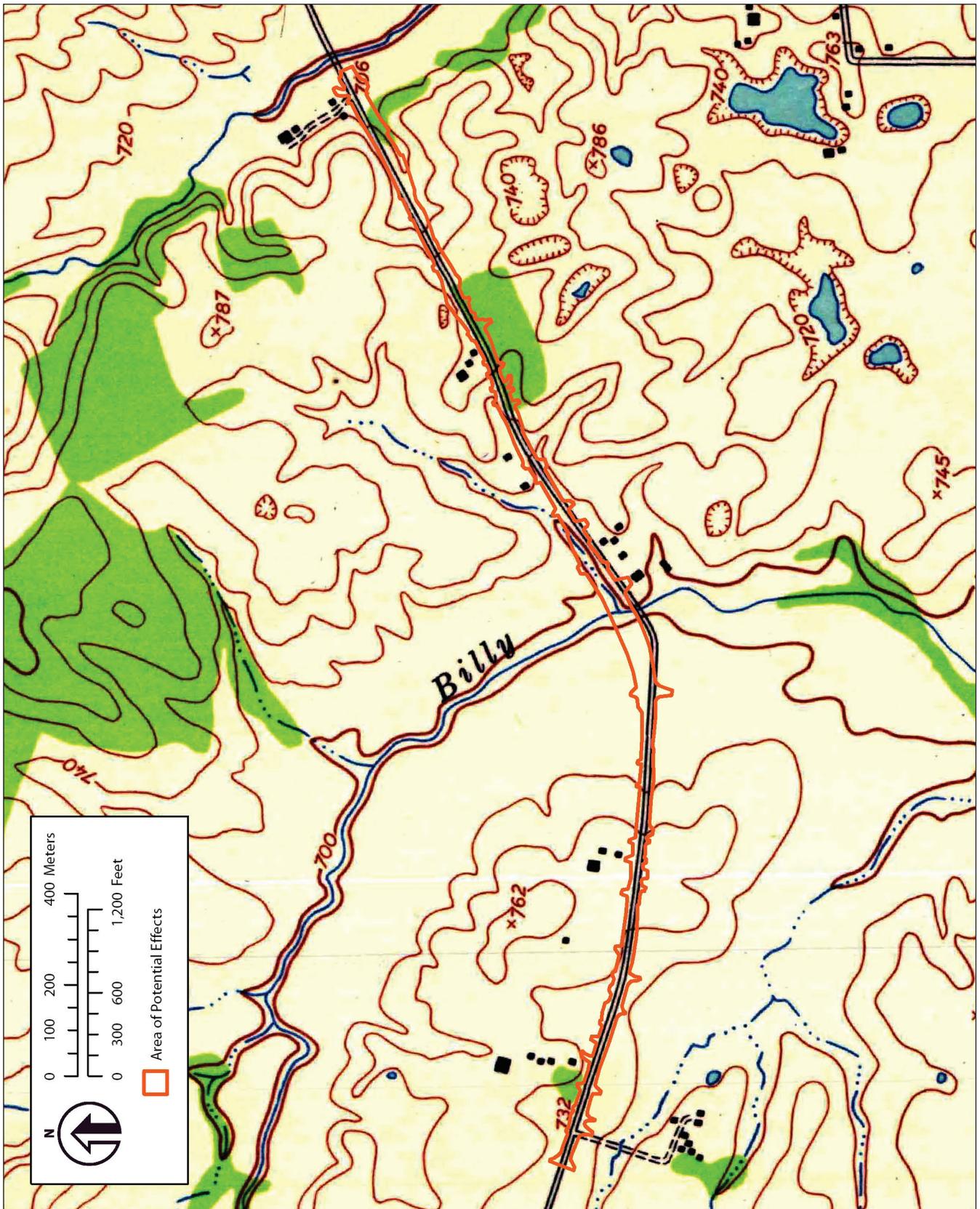


Figure 3.2 Current APE, as illustrated on the 1948 Cecilia, KY 1:24,000 Topographic Quadrangle (USGS).

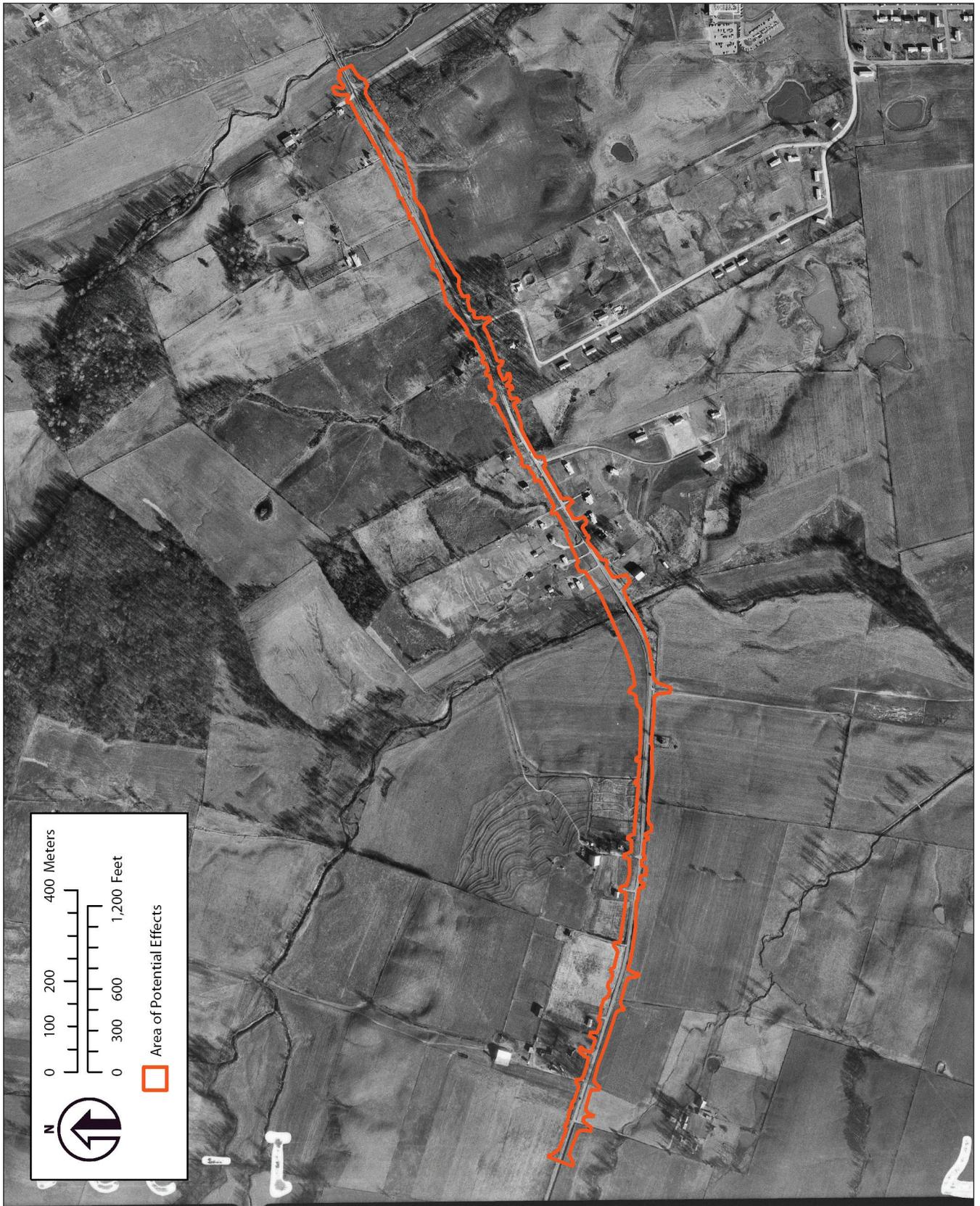


Figure 3.3 Current APE, as illustrated on 1966 aerial imagery of Elizabethtown, Kentucky (USGS).

investigations. This survey method required the excavation of screened shovel tests, measuring at least 35 cm in diameter at an interval of no more than 20 m. Excavated soils were screened through one-quarter-inch hardware cloth. No artifacts were recovered from any excavated shovel test during this investigation. A record of each shovel test loci was generated using standardized shovel test forms, that include information on content (i.e., presence/absence of artifacts) and context (e.g., soil color and texture descriptions, depth of definable soil levels). Photographs were also collected along the length of the Project APE, in order to document previous disturbance and general conditions (vegetation and surface visibility). A representative sample of photographs is presented in Chapter 4.

Within the APE, a total of 287 SL were inspected during this course of this investigation. Of these, shovel tests were excavated at 104 of the 287 SL. The remaining 183 SL were surface inspected due to the presence of buried utilities, location within ditches, paved surfaces, construction fill, or on the slopes of road cuts. No archaeological materials were encountered during the excavation or surface inspection of the Project APE.

(UTM) coordinate system, North American Datum 1983 (NAD83), zone 16 North.

3.3 GIS Data Mapping

All geographic data was created, processed, and analyzed using ArcGIS 10.4.1. Aerial imagery was primarily acquired through ESRI's GIS Servers online (<http://services.arcgisonline.com>), specifically World Imagery, ESRI Imagery World 2D, and USA Topo Maps. As discussed above, historic maps depicting the general area were acquired from KYTC and USGS. These maps were imported into ArcGIS 10.4.1 and georeferenced. Additional natural and cultural data (e.g., elevation, soil, geology, and roads) was acquired from the Kentucky Geography Network (<http://kygeonet.ky.gov/>) and the USDA Geospatial Data Gateway (<https://gdg.sc.egov.usda.gov/>).

SL were pre-plotted using ArcGIS 10.4.1 and loaded into a handheld Trimble GeoXH GPS. During fieldwork, SL were navigated to using the GPS. This data was also used to create field maps that assisted the crew with navigation during fieldwork. All GIS data for this project was created, edited, and analyzed using Universal Transverse Mercator

4.0 Survey Results, Conclusions, and Recommendations

4.1 Survey Results

Brockington conducted the archaeological field reconnaissance on November 28 and 30, 2016, through application of the methodologies described in Chapter 3 (above) on the approximately 23 acres of land along a 1.7 mile (2.73-km) stretch of KY 1357 which represents the Project APE (see Figures 1.1 and 1.2). A total of 287 SL were inspected during this course of this investigation within the APE. Of these, shovel tests were excavated at 104 of the 287 SL (Figures 4.1 and 4.2). The remaining 183 SL were surface inspected only due to the presence of buried utilities or their location within ditches, paved surfaces, construction fill, or on the slopes of road cuts. No archaeological materials were encountered during the excavation or surface inspection of the SL.

In general, the Project APE displayed a high degree of disturbance, particularly along sections of the road adjacent to residential developments (Figures 4.3 through 4.10). Additionally, areas immediately adjacent to the shoulders of KY 1357 have been contoured to decrease the overall grade of the road. Portions of the Project APE situated on either side of the road (within five to eight meters on average) contained buried water, sewer, and gas utilities. In general, subsoil (or gravelly, mixed soils) were encountered across the ground surface, both in the majority of shovel tests and during visual inspection of the APE. A typical soil profile consisted of 0-10 cm of B horizon of yellowish brown (10YR5/4) to dark yellowish brown (10YR4/6) silty clay (Figures 4.1 and 4.11).

Two areas subjected to subsurface testing during this investigation were found to be relatively undisturbed, when compared to the overall level of disturbance encountered throughout the Project APE. These areas are located to either side of Billy Creek (correspondent with the “central” portion of Project APE) and at the western extent of the APE (to the south of KY 1357). These areas were generally devoid of buried utilities, and located beyond the observed extent of past road construction disturbance.

Shovel tests excavated to the east of Billy Creek typically exhibited a deflated soil profile, consisting of approximately 10 cm of brown (10YR 5/3) silt loam A horizon underlain by a yellowish brown

(10YR 5/8) silt clay B horizon (subsoil) (see Figures 4.1 and 4.12). Shovel tests excavated west of Billy Creek (within an agricultural field) exhibited a slightly deeper profile, consisting of 22 cm of brown (10YR4/3) silty clay loam Ap (plowzone) soil horizon, underlain by a light yellowish brown (10YR 6/4) clay B horizon (subsoil) (Figures 4.2 and 4.13). Finally, shovel tests excavated near the western end of the APE (south of KY 1357) exhibited a profile of between 10 to 15 cm of pale brown (10YR 6/3) silt clay loam A horizon, underlain by a yellowish brown (10YR 5/8) silty clay B horizon (subsoil) (Figures 4.2 and 4.14). None of these shovel tests contained any archaeological materials, or displayed evidence for archaeological deposits.

All of the soil profiles described above have been disturbed in some manner. Specifically, the soil profiles documented east of Billy Creek appear to have been disturbed by residential development to the north and possibly by bridge construction activities to the south and west (Figure 4.12). Soil profiles encountered immediately west of Billy Creek represent some of the least-disturbed profiles documented during this investigation; however, agricultural activities have resulted in a mixed plowzone immediately underlain by subsoil (Figure 4.13). Finally, soil profiles documented in the western portion of the APE (south of KY 1357) appear to have been partially disturbed (likely grading and contouring activities) by road and utility (overhead electric lines) construction activities (Figures 4.10 and 4.14).

During this investigation, no archaeological materials/deposits were encountered, and no new or previously recorded archaeological sites were documented within the APE. The overall level of disturbance observed suggests that any archaeological deposits which could have once occurred within the Project APE have likely been negatively impacted or destroyed, leaving no material evidence for either historic period or prehistoric activity within the APE.



Figure 4.1 Schematic survey coverage of the eastern portion of the APE, as illustrated on the 1993 Cecilia, KY USGS 1:24,000 Topographic Quadrangle.

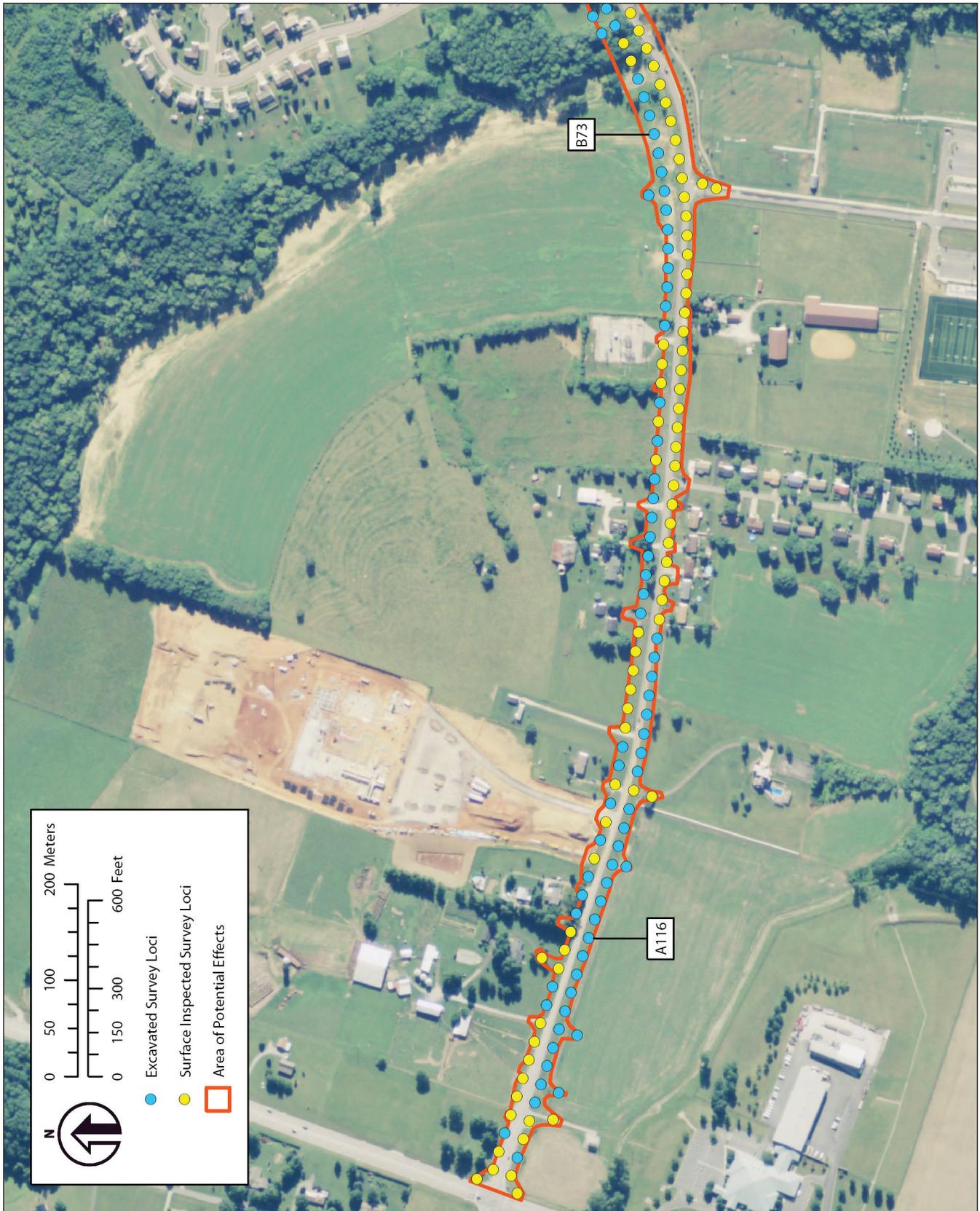


Figure 4.2 Schematic survey coverage of the western portion of the APE, as illustrated on the 1993 Cecilia, KY USGS 1:24,000 Topographic Quadrangle.



Figure 4.3 Representative photograph locations within the Project APE, as illustrated on 2014 NAIP aerial imagery (courtesy ArcGIS Online).



Figure 4.4 View of eastern end of the Project APE from photograph location 1, facing southwest along KY 1357 (from Transect 1, Shovel Test 2).



Figure 4.5 View of eastern end of the Project APE from photograph location 2, facing northeast along KY 1357 (from Transect B, Shovel Test 18).



Figure 4.6 View of eastern end of the Project APE from photograph location 3, facing southwest along KY 1357 (from Transect A, Shovel Test 33).



Figure 4.7 View of central portion of the Project APE from photograph location 4, facing northeast along KY 1357 (from Transect B, Shovel Test 59).



Figure 4.8 View of central portion of the Project APE from photograph location 5, facing northeast along KY 1357 (from Transect B, Shovel Test 81).



Figure 4.9 View of western end of the Project APE from photograph location 6, facing east along KY 1357 (from Transect B, Shovel Test 102).



Figure 4.10 View of western end of the Project APE from photograph location 7, facing east along KY 1357 (from Transect A, Shovel Test 125).

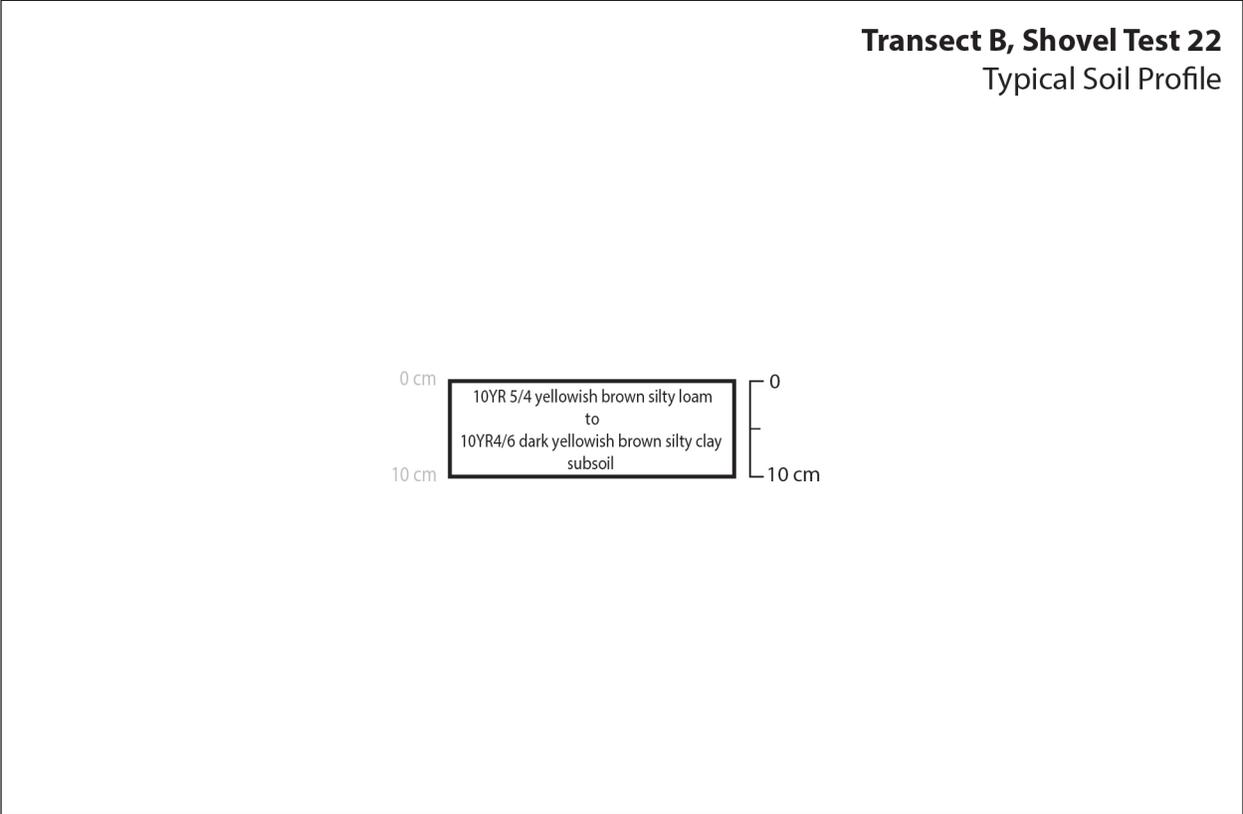


Figure 4.11 Representative shovel test profile within eastern portion of Project APE (Transect B, Shovel Test 22).

Transect B, Shovel Test 65 + 20 Meters North
Typical Soil Profile

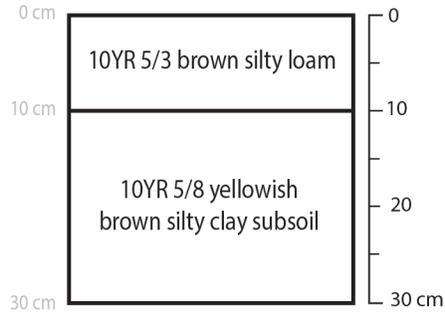


Figure 4.12 Representative shovel test profile located east of Billy Creek (Transect B, Shovel Test 65 +20 meters north).

Transect B, Shovel Test 73
Typical Soil Profile

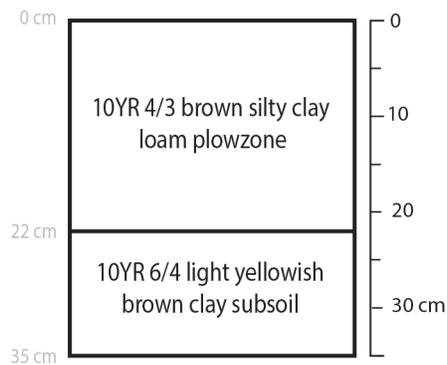


Figure 4.13 Representative shovel test profile located west of Billy Creek (Transect B, Shovel Test 73).

Transect A, Shovel Test 116
Typical Soil Profile

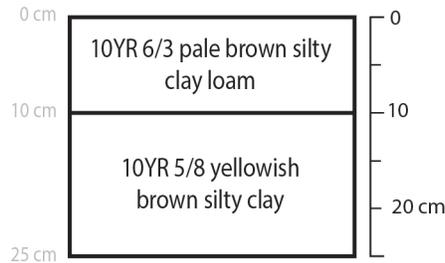


Figure 4.14 Representative shovel test profile within eastern portion of APE (Transect A, Shovel Test 116).

4.2 Conclusions and Recommendations

In October and November 2016, Brockington and CDM conducted the intensive archaeological investigations for the proposed improvements to KY 1375 in Hardin County, Kentucky (KYTC Item No.: 4-8801.00). These investigations involved archival research at the OSA (undertaken by CDM in November 2016), followed by the intensive archaeological field reconnaissance of the approximately 23-acre Project APE, located along approximately 1.7 miles (2.73 km) of KY 1375 between US 31W and KY 3005 (Ring Road). The archival research indicated that no previously-inventoried archaeological resources have been identified within the Project APE, although three prior CRM-related archaeological surveys have been conducted within portions of the APE.

An intensive archaeological field reconnaissance was conducted by Brockington in November 2016, through application of the KHC methodologies across the Project APE. The field survey examined 287 SL at the KHC-recommended 20-m testing interval, 104 excavated as shovel tests and

183 visually inspected for cultural resources due to obvious modern disturbance (including marked underground utilities, paved surfaces, man-made ditches adjacent to the existing road alignments, or observed presence of construction fill). During this investigation, no archaeological materials/deposits were encountered, and no new or previously recorded archaeological sites were documented within the Project APE. The overall level of disturbance encountered within the Project APE suggests that any pre-modern archaeological deposits which could have been present within the APE were likely destroyed by extensive modern utility and road construction activities. Therefore, the proposed improvements to KY 1357 will not affect archaeological sites listed on or eligible for listing on the NRHP, and no additional archaeological investigations appear warranted prior to the construction of the proposed project (designated KYTC Item No. 4-8801.00).

References Cited

Carbo, Andrew

2012 *Phase I Archaeological Survey of the Proposed Realignment for the Elizabethtown Sewer Line Along Billy Creek in Hardin County, Kentucky*. Brockington and Associates, Inc., Elizabethtown, Kentucky.

Creswell, L. Michael

2015 *Phase I Archaeological Site Detection Survey in Support of the Cardinal Preserve/Banam Shaw South Trail Project*. Brockington and Associates, Inc., Elizabethtown, Kentucky.

Fenwick, Jason M.

1976 *Archaeological Survey of the Proposed Lincoln Trail Industrial Park Site in Hardin County, Kentucky*. Ohio Valley Archaeological Research Associates. Lexington, Kentucky.

Hand, Robert B.

1987 *An Archaeological Assessment of the Proposed Hidden Hills Apartments, LTD., Hardin County, Kentucky*. Cultural Resource Analysts, Inc. Lexington, Kentucky.

King, Brian C., with contributions by Michael Richmond and Heather Burge

2003 *Archaeological Survey of the Elizabethtown to Radcliff Connector (E2RC) in Hardin County, Kentucky*. Cultural Resource Analysts, Inc. Lexington, Kentucky.

Mills, E. Nicole

2014 *Phase I Archaeological Site Detection Survey in Support of Proposed Sewer and Wastewater Infrastructure Improvements*. Brockington and Associates, Inc., Elizabethtown, Kentucky.

Nohalty, Tom and Michael W. French

2001 *Phase I Archaeological Survey of Approximately 1.5 acres for the Elizabethtown Substation, East Kentucky Power Cooperative, Hardin County, Kentucky*. AMEC Earth and Environmental, Inc. Louisville, Kentucky.

Pollack, David

1981 *A Cultural Resource Assessment of the Proposed Cardinal Creek Substation, Hardin County, Kentucky*. University of Kentucky Department of Anthropology's Cultural Resource Assessment Program (CRAP). Lexington, Kentucky.

Pritchard, Christy

2010 *A Phase I Archaeological Survey for the Proposed Elizabethtown Sewer Line Improvements Within the Elizabethtown Sports Park Complex, Hardin County, Kentucky*.

2011 *A Phase I Archaeological Survey for the Proposed Elizabethtown Sewer Line Improvements Along Billy Creek and Freeman Lake, Hardin County, Kentucky*.

Prybylski, Matthew

2007 *Phase I Archaeological Survey for the Proposed Flint Ink 69kv Substation, Access Road, and Transmission Line, Hardin County, Kentucky*. AMEC Earth and Environmental, Inc. Louisville, Kentucky.

Sanders, Thomas N. (editor)

2001 *Specifications for Conducting Fieldwork and Preparing Cultural Resource Assessment Reports.* Kentucky State Historic Preservation Office, Frankfort.

Schock, Jack M.

1977 *Archaeological testing of Site 15HD48 at the proposed Elizabethtown-Hardin County Airport in Hardin County, Kentucky.* Arrow Enterprises. Bowling Green, Kentucky.

2009 *An Archaeological Survey of One Proposed Water Tank Site, One Pump Station and Approximately Four Miles of Water Lines in Hardin County, Kentucky.* Arrow Enterprises. Bowling Green, Kentucky.

Schock, Jack M. and Gary S. Foster

1975 *An Archaeological Survey of the Proposed Realignment of US 62, Hardin County, Kentucky.* Western Kentucky University. Bowling Green, Kentucky.

Stallings, Richard and Nancy Ross-Stallings

1992 *A Phase I Cultural Resource Survey of a 40 acre Office and Storage Facility Located Near Elizabethtown, Hardin County, Kentucky.* Cultural Horizons, Inc. Harrodsburg, Kentucky.

1996 *Phase II Archaeological Investigation of Site 15HD478 Located Near Elizabethtown, Hardin County, Kentucky.* Cultural Horizons, Inc. Harrodsburg, Kentucky.

Versluis, Vincent

2008 *A Phase I Archaeological Survey of Approximately 40 Acres for Proposed Improvements at the Addington Field Airport in Elizabethtown, Hardin County, Kentucky.* Great Rivers Archaeological Services. Burlington, Kentucky.

2010 *A Phase I Archaeological Survey of Approximately 26 Acres for Proposed Improvements at the Addington Field Airport in Elizabethtown, Hardin County, Kentucky.* Great Rivers Archaeological Services. Burlington, Kentucky.

2011 *A Phase I Archaeological Survey of Approximately 22 Acres for Proposed Improvements at the Addington Field Airport in Elizabethtown, Hardin County, Kentucky.* Great River Archaeological Services. Burlington, Kentucky.