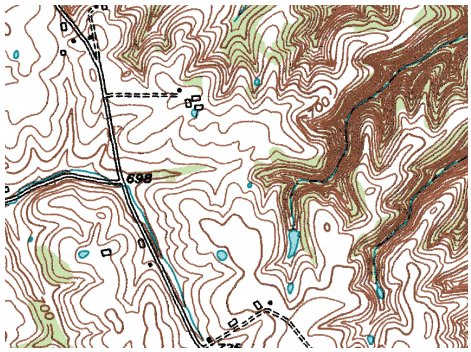
Phase I Archaeological Site Detection Survey in Support of a Proposed Bridge Replacement over Simpson Creek on KY 2885 (KYTC Item No. 5-1080)

Spencer County, Kentucky



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November 2015

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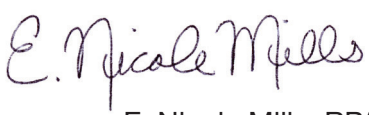

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Management Summary

A Phase I intensive archaeological survey was conducted on September 22 and 23, 2015, in support of the proposed bridge replacement project designated Kentucky Transportation Cabinet (KYTC) Item No. 5-1080. The subject bridge crosses Simpson Creek on KY 2885 (West River Road) near its junction with Netherton Lane. The Area of Potential Effect (APE) for this proposed project, as defined by project mapping supplied by Strand Associates and KYTC, encompasses approximately 4.5 acres and is located along KY 2885 on the floodplain of the Salt River/Simpson Creek. Excluding stream channels, paved areas, and drainage ditches, the Archaeological Survey Area (ASA) within the APE encompasses approximately 3.5 acres.

This archaeological survey was conducted on behalf of KYTC through a subcontract with Strand Associates, Inc. of Louisville, Kentucky. The objective of the project was to identify and document archaeological sites in accordance with Section 106 of the National Historic Preservation Act and evaluate their eligibility for inclusion on the National Register of Historic Places (NRHP). In addition, fieldwork and reporting specifications outlined by the Kentucky Heritage Council (KHC) guided this investigation (Sanders 2006).

No archaeological materials were recovered during the course of the Phase I intensive archaeological survey of the ASA, and no new or previously recorded archaeological sites were documented within the APE. Therefore, the proposed bridge replacement will not affect archaeological sites listed on or eligible for listing on the NRHP. It is recommended that no additional archaeological investigations are warranted prior to the proposed bridge replacement project designated KYTC Item No. 5-1080.

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1.0 Introduction

1.1 Project Description

A Phase I archaeological survey was conducted on September 22 and 23, 2015, in support of the proposed bridge replacement project designated Kentucky Transportation Cabinet (KYTC) Item No. 5-1080. Background research for this project was conducted at the Office of State Archaeology (OSA) and was initiated on September 21, 2015. Fieldwork was directed by L. Michael Creswell, RPA, with the assistance of Christopher C. Lankford. Ms. E. Nicole Mills is the author of this report and served as Principal Investigator for this project.

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The subject bridge crosses Simpson Creek on KY 2885 (West River Road) near its junction with Netherton Lane (Figures 1.1 and 1.2). The Area of Potential Effect (APE) for this proposed project, as defined by project mapping supplied by Strand Associates, Inc. and KYTC, encompasses approximately 4.5 acres and is located on the floodplain of the Salt River/Simpson Creek and along KY 2885. Stream channels and paved areas were excluded from this survey to create an Archaeological Survey Area (ASA) within the APE. The ASA for this survey encompasses approximately 3.5 acres. At the time of survey, the APE was vegetated in stands of hardwoods (along the banks of Simpson Creek and south of KY 2885) and agricultural fields (Figures 1.3 through 1.5).

No archaeological materials were recovered during the course of this survey and no new or previously recorded archaeological sites were documented within the APE. Therefore, the proposed bridge replacement will not affect archaeological sites listed on or eligible for listing on the NRHP. It is recommended that no additional archaeological investigations are warranted in advance of the proposed bridge replacement project designated KYTC Item No. 5-1080.

1.2 Report Organization

This report is organized into four numbered chapters and follows the KHC format guidelines for reporting when no cultural resources are identified (Sanders 2006:41). Chapter 1 provides an overview of the archaeological investigations, summarizes administrative details, and briefly mentions the findings and recommendations of this investigation. Chapter 2 presents the results of background/archival research and summarizes the results of a literature review carried out 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 recommendations.

1.3 Acknowledgments

Brockington appreciates the opportunity to support Strand Associates, Inc., the KYTC, OSA and KHC. The author would also like to thank the support staff of Brockington, through whose hard work this project was accomplished. Staff members who assisted with this project include Christy W. Pritchard (RPA), Andrew Scarr, and Alicia Sullivan.

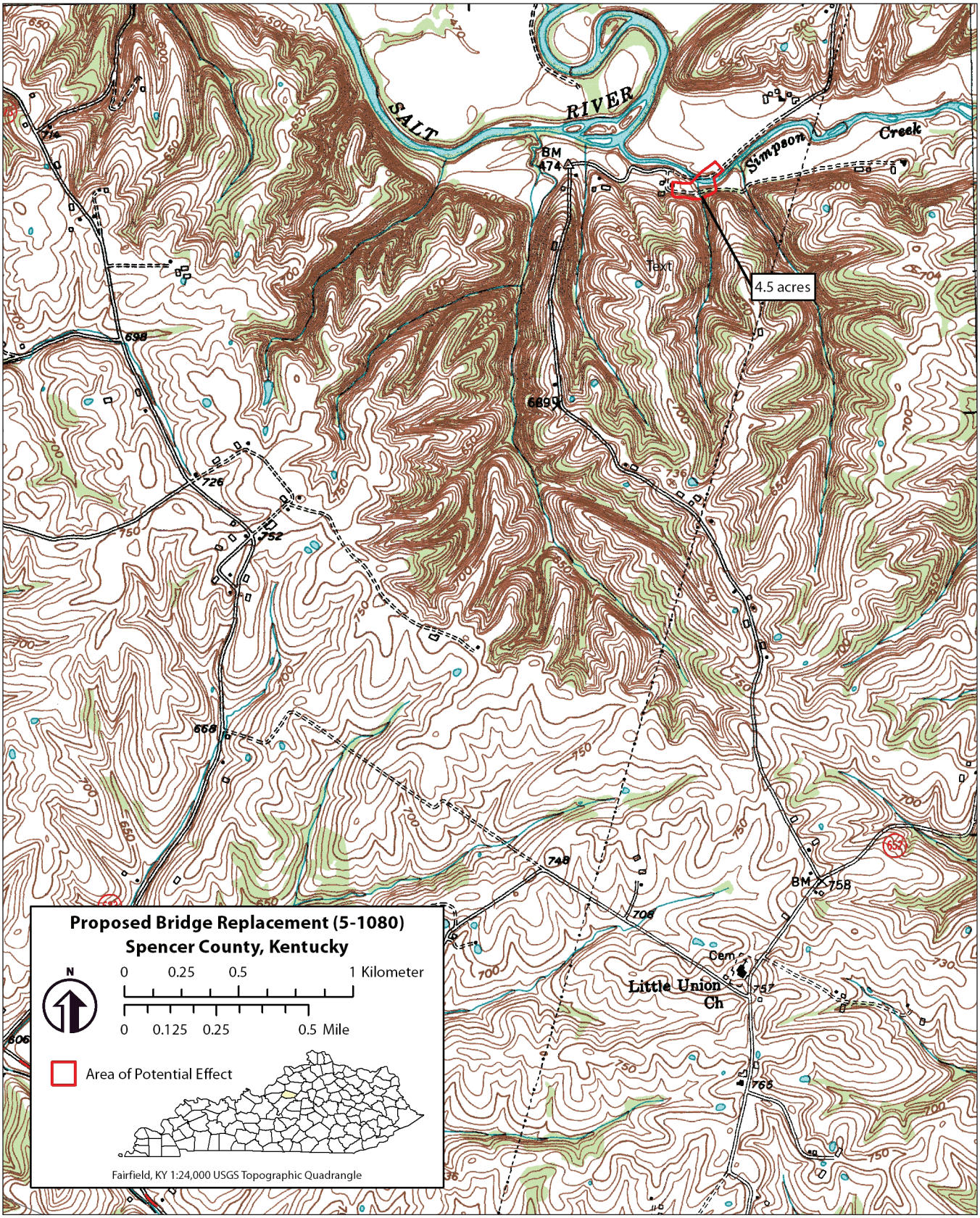

Figure 1.1 Location of proposed bridge replacement designated KYTC Item No. 5-1080, as shown on the *Fairfield*, *KY* USGS Topographic Quadrangle.

Figure 1.2 2014 NAIP aerial imagery depicting the location of proposed bridge replacement designated KYTC Item No. 5-1080.

Figure 1.3 General Overview of agricultural field within APE, east side Simpson Creek and north of KY2885, facing south.

Figure 1.4 General Overview of slope within APE, south side of Simpson Creek and south of KY2885, facing west.

Figure 1.5 General Overview of APE along Simpson Creek, north side of Simpson Creek and west of KY2885, facing west.

2.0 Background Research

Background research for this project was conducted at the OSA and initiated on September 21, 2015. Additionally, the online archives of KYTC and the USGS online Historical Topographic Map Collection were searched.

2.1 Previous Archaeological Research

Data obtained from the OSA indicates that only one previously recorded archaeological site is located within a two kilometer buffer of the subject bridge replacement APE. This site, recorded as 15SP210, was identified approximately 350 meters from the APE, as currently defined. No previous archaeological surveys have been conducted within two kilometers of the APE. It is currently unknown when site 15SP210 was documented; however, given that it was recorded in an obsolete site card format, it is likely that the site was recorded prior to the 1970s (Nancy O'Malley, Personal Communication 2015). No report is associated with this site; thus, the only information available comes from the OSA GIS data and the site card itself. Table 2.1 includes data for this site taken from the OSA GIS dataset.

Site 15SP210 is described as an "open habitation" site. The site card suggests that materials were collected from this site; however, the artifact types and quantities are not listed. Additionally, the site card notes that the collection is housed at "ULAS Labs," which presumably is a reference to the University of Louisville's archaeological laboratory. The GIS data provided by OSA lists this site as containing a Late Archaic component; however, the site card does not provide data related to cultural affiliation. To date, no NRHP eligibility recommendation has been made for this site.

Table 2.1 Archaeological site data obtained from OSA GIS data.

Site Number	15SP210
Temporal Affiliation	Late Archaic
Site Type	open habitation w/o mounds
Site Condition	not recorded
Landform/Locality	floodplain/bluff crest
Site Area (m^2)	14,000
Elevation (ft)	642
Slope (%)	11-25
Aspect	South
Drainage	Salt River
Closest Water Source	permanent stream
NRHP Eligibility	not recorded

2.2 Historic Mapping

Three historic maps illustrating the APE were identified during background research. These maps were collected from the online archives of KYTC (http://transportation.ky.gov/Planning/Pages/Historical-Maps.aspx) and the USGS online Historical Topographic Map Collection (http://geonames.usgs.gov/apex/f?p=262:1:0::NO:RP::).

The three historic maps consulted during this investigation include general highway maps and one USGS topographic quadrangle. County transportation maps from 1937 and 1955 illustrate roads in the general vicinity of the APE; however, no other man-made features (e.g. buildings) fall within the APE on these maps (Figure 2.1 and 2.2). A 1953 topographic quadrangle illustrates a cluster of three buildings along the western boundary of the APE. The easternmost of the three buildings likely represents an extant barn located along the western boundary of the APE (Figures 1.2 and 2.3). At present, it is believed that the location of this building as illustrated on the 1953 topographic quadrangle is inaccurate. The other two buildings illustrated at this location on the 1953 topographic quadrangle are no longer extant.

2.3 Additional Data Sources

Limited data pertaining to the subject bridge replacement was obtained from KYTC's Bridge Data Miner. This database indicates that the subject bridge (ID: 108B00041N) was constructed in 1970 and is currently considered "functionally obsolete." No plans pertaining to KY 2885 or the subject bridge were identified in the KYTC

online archives (http://maps.kytc.ky.gov/photolog/?config=ProjectArchives).

As stated above, the historic maps identified for the APE suggest that the alignment and bridge location for KY 2885 has been shifted south and east. This presumably occurred in 1970 when the existing bridge was constructed. No plans pertaining to KY2 885 or the subject bridge were identified in the KYTC online project archives.

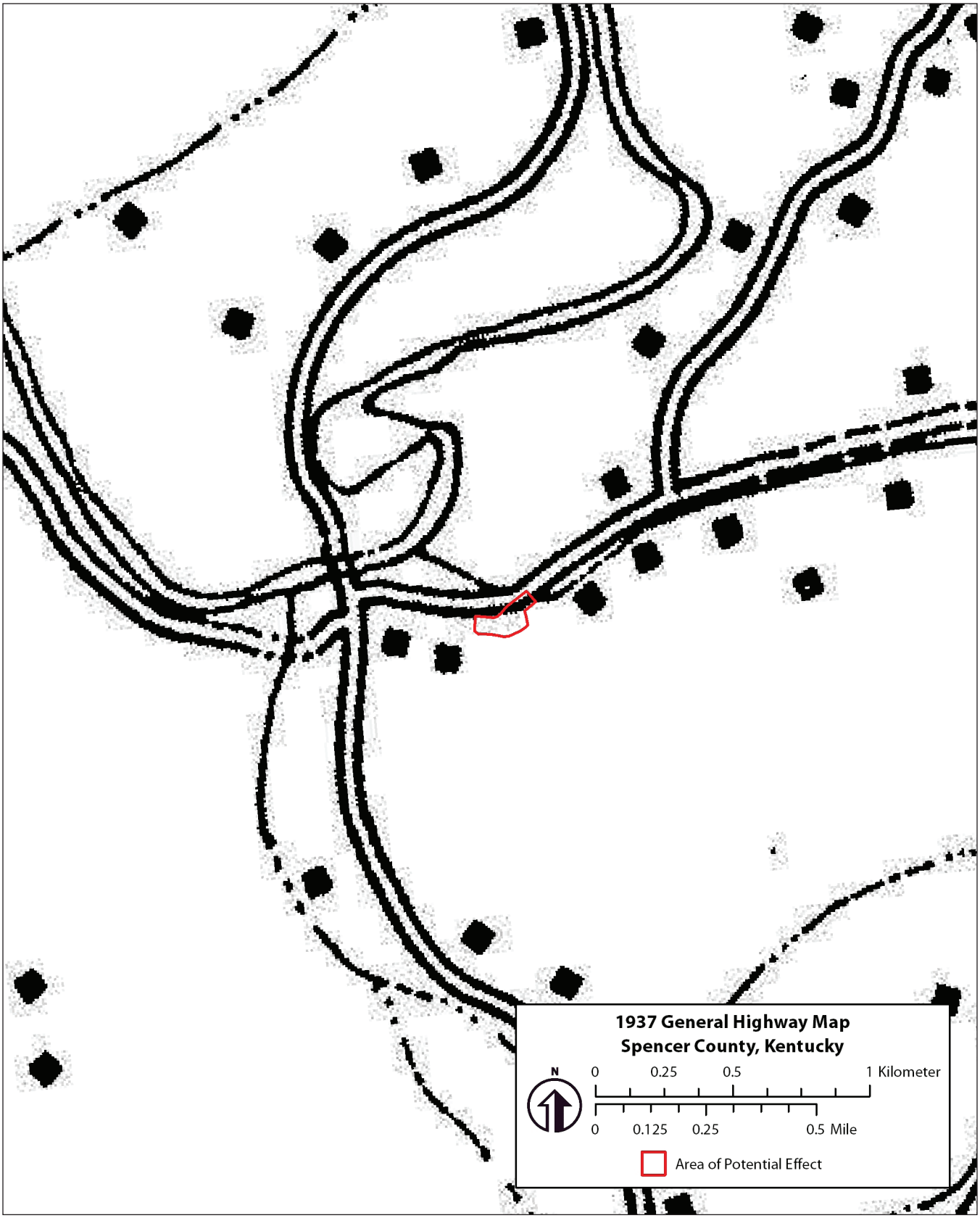

Figure 2.1 Location of proposed bridge replacement designated KYTC Item No. 5-1080, as shown on a 1937 General Highway map of Spencer County, Kentucky.

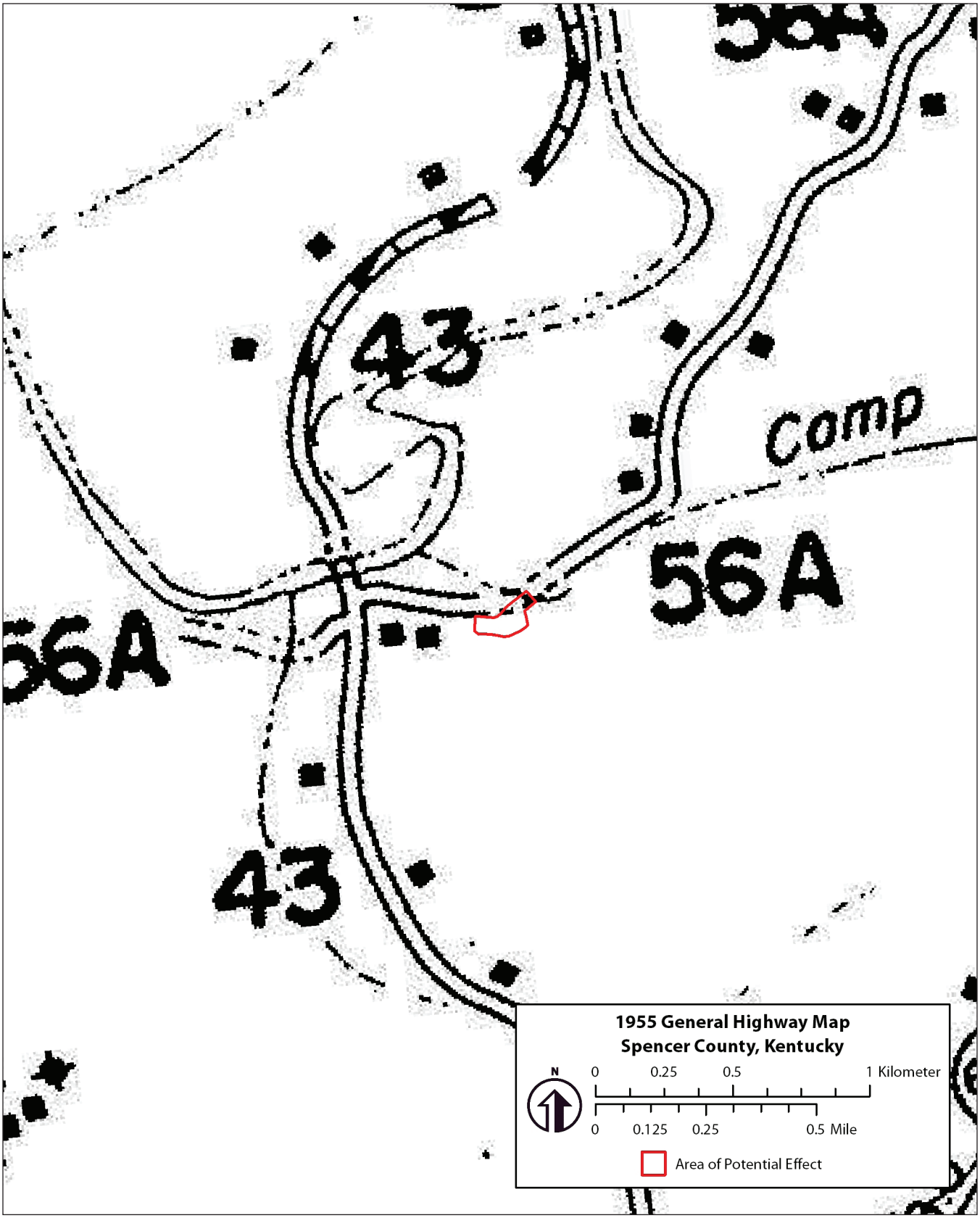

Figure 2.2 Location of proposed bridge replacement designated KYTC Item No. 5-1080, as shown on a 1955 General Highway map of Spencer County, Kentucky.

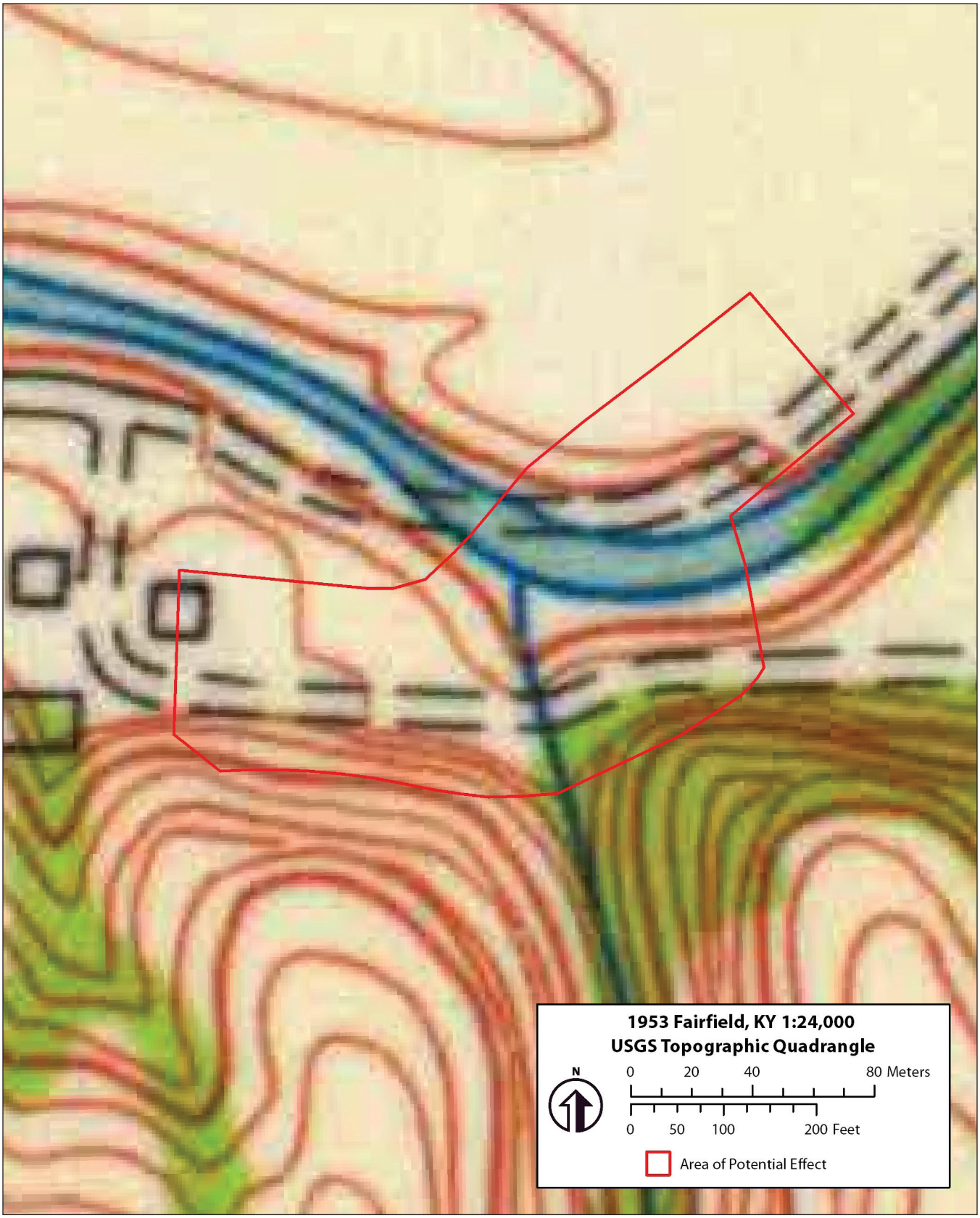

Figure 2.3 Location of proposed bridge replacement designated KYTC Item No. 5-1080, as shown on the 1953 *Fairfield*, *KY* USGS Topographic Quadrangle.

3.0 Methods of Investigation

The research design presented below is intended for use in reconnaissance level archaeological investigations. The primary purpose of such investigations is to identify any cultural resources that may be affected by the proposed activities. The results of this investigation are being coordinated with KYTC.

3.1 Pre-Field Planning

The location and boundary of the APE was provided to Brockington by Strand Associates, Inc. and KYTC as electronic maps. These maps were georeferenced, and the APE was digitized into a GIS shapefile using ArcGIS 10.3.1. The APE was then graphically represented on the appropriate USGS 7.5' quadrangle. The APE and pre-plotted shovel/auger tests were loaded onto a Trimble GeoXH GPS for use during the field investigations. Additionally, historic mapping relevant to the APE was examined (See Chapter 2); however, no historic structures or features illustrated on these maps are located within the APE.

3.2 Survey Methods

As proposed, archaeological survey methods employed during this investigation primarily involved the excavation of shovel/auger tests on a 20 meter (m) grid. In total, the APE is estimated to encompass 4.5 acres. Stream channels and paved areas were excluded from the APE to create an Archaeological Survey Area (ASA) within the APE measuring approximately 3.5 acres in size.

Portions of the APE that cross terrain with good surface visibility (i.e., plowed/cultivated fields) or are characterized by steep slopes (creek banks or slopes in excess of 15 degrees) were subjected to pedestrian survey. This entailed a walking, visual inspection of the ground surface to identify historic and prehistoric artifacts. Portions of the APE that are located on relatively flat terrain with poor surface visibility were shovel tested. This survey method requires the excavation of screened shovel tests measuring at least 35 centimeters in diameter at an interval of 20 meters. Care was taken to maintain a consistent diameter from top to bottom of each shovel test. Excavated soils were screened through ¼-inch hardware cloth. No artifacts were recovered during this investigation. A record of each shovel test loci was generated using 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).

As initially proposed, it was estimated that nearly all of the 3.5 acre ASA would require shovel testing and contain approximately 43 shovel tests. Given the alluvial setting, it was anticipated that the majority of the proposed shovel tests would require hand excavation to 50 centimeters below surface. Additionally, it was proposed that up to 15 of the 43 shovel tests would first be hand excavated to 50 centimeters below surface and then auger tested. Auger testing was not to exceed 1.5 meters below surface. The auger tests (spaced no more than 50 meters apart) were excavated on alluvial landforms in order to determine the nature and extent of Holocene alluvium and the potential for the presence of significant deeply buried archaeological sites.

3.3 GIS/Spatial Analysis

All geographic data was created, processed, and analyzed using ArcGIS 10.3.1. 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 in chapter 2, historic maps of the area were acquired from the KYTC and USGS. These maps were imported into ArcGIS 10.3.1 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/).

All shovel/auger test locations were pre-plotted using ArcGIS 10.3.1 and loaded into a handheld Trimble GeoXH GPS. During fieldwork, each excavation location was navigated to using the GPS. GIS data for this project was created, edited, and analyzed using Universal Transverse Mercator (UTM) coordinate system, North American Datum 1983 (NAD83), zone 16 North.

4.0 Findings, Conclusions and Recommendations

4.1 Phase I Intensive Survey results

An intensive field survey was conducted on September 22 and 23, 2015. The entire APE encompasses approximately 4.5 acres and is located on the floodplain of the Salt River/Simpson Creek and along KY 2885. Stream channels and paved areas were excluded from this survey to create an ASA within the APE, measuring approximately 3.5 acres in size.

Vegetation within the APE consists of stands of mixed hardwoods (along the banks of Simpson Creek and south of KY 2885) and active agricultural fields. Thus, vegetation cover within the APE generally precluded the use of visual reconnaissance methods. A total of 43 loci were initially proposed within the ASA. Additionally, 15 of the proposed 43 loci were to be first shovel tested to 50 centimeters below surface (cmbs) and then auger tested to a maximum depth of 1.5 m below surface.

The field reconnaissance resulted in the excavation of 24 loci within the ASA (Figure 4.1). Thirteen of the 24 loci were shovel tested to a maximum depth of 50 cmbs. The remaining 11 loci were first hand excavated to 50 cmbs and then auger tested. All auger tests were excavated to a maximum depth of 1.5 m below surface. An additional 19 loci within the ASA could not be excavated due to slope in excess of 15 degrees, bedrock at the ground surface, or roadway disturbances (i.e., drainage ditch). Of note, the portion of the APE location south of KY 2885 is characterized by slopes in excess of 15 degrees. This area was visually inspected for the presence of cultural features. A stacked limestone retaining wall and associated culvert was identified along the southern side of KY 2885, 40 meters west of its intersection with Netherton Lane. As the subject of this survey is archaeological in nature, this feature was noted but not documented in detail (Figure 4.2).

No archaeological materials or features were encountered during the execution of this survey. Figure 4.1 illustrates the placement of the survey grid, outlining the location of loci that were shovel tested, auger tested, or visually examined due to disturbances, presence of stream gravels, or high incidence of slope.

The APE contains two mapped soil units, Nolin silt loam (frequently flooded [map label No]) and Faywood-Fairmont-Woolper complex (30 to 60 percent slopes [map label FnF]). Figure 4.3 illustrates the distribution of these soils units within the APE. Table 4.1 presents average profile data collected from within these two soil units.

4.2 Conclusions and Recommendations

Brockington identified no archaeological resources within the APE during this investigation. As no archaeological sites were identified, the proposed bridge replacement project within the APE will have no adverse effects on archaeological resources. Additionally, Brockington recommends that additional archaeological investigations are not warranted in advance of the proposed bridge replacement project.

Table 4.1 Soil data collected during the current survey (keyed to Figure 4-2).

Shovel Test ID	J1	B2
Excavation Type	Auger test	Auger test
Mapped Unit	Nolin silt loam (No)	Faywood-Fairmont-Woolper Complex (FnF)
Stratum I	0-30 cmbs, 10YR5/3 silt clay	0-33 cmbs, 10YR5/3 silt loam
Stratum II	30-50 cmbs, 10YR4/1 silt clay	33-100 cmbs, 10YR4/4 silt clay loam
Stratum II	50-150 cmbs, 10YR3/6 silt clay	100-150 cmbs, 10YR3/4 silt clay

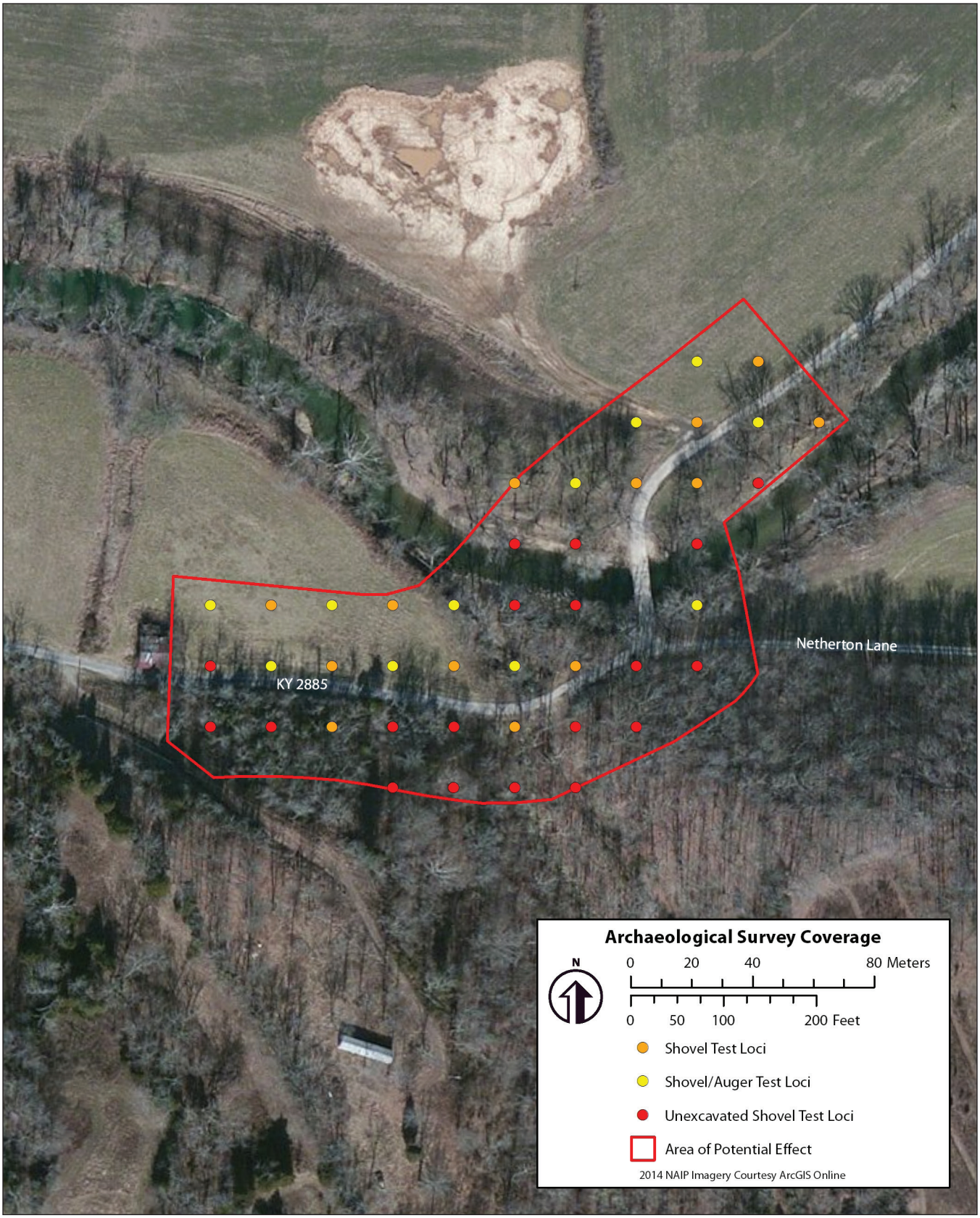

Figure 4.1 Archaeological Survey Results, Proposed Bridge Replacement Project (KYTC Item No. 5-1080) over Simpson Creek on KY2885, Spencer County (as shown on 2014 NAIP imagery courtesy ArcGIS Online).

Figure 4.2 Stacked limestone retaining wall and culvert along KY2885, 40 meters west of its intersection with Netherton Lane.

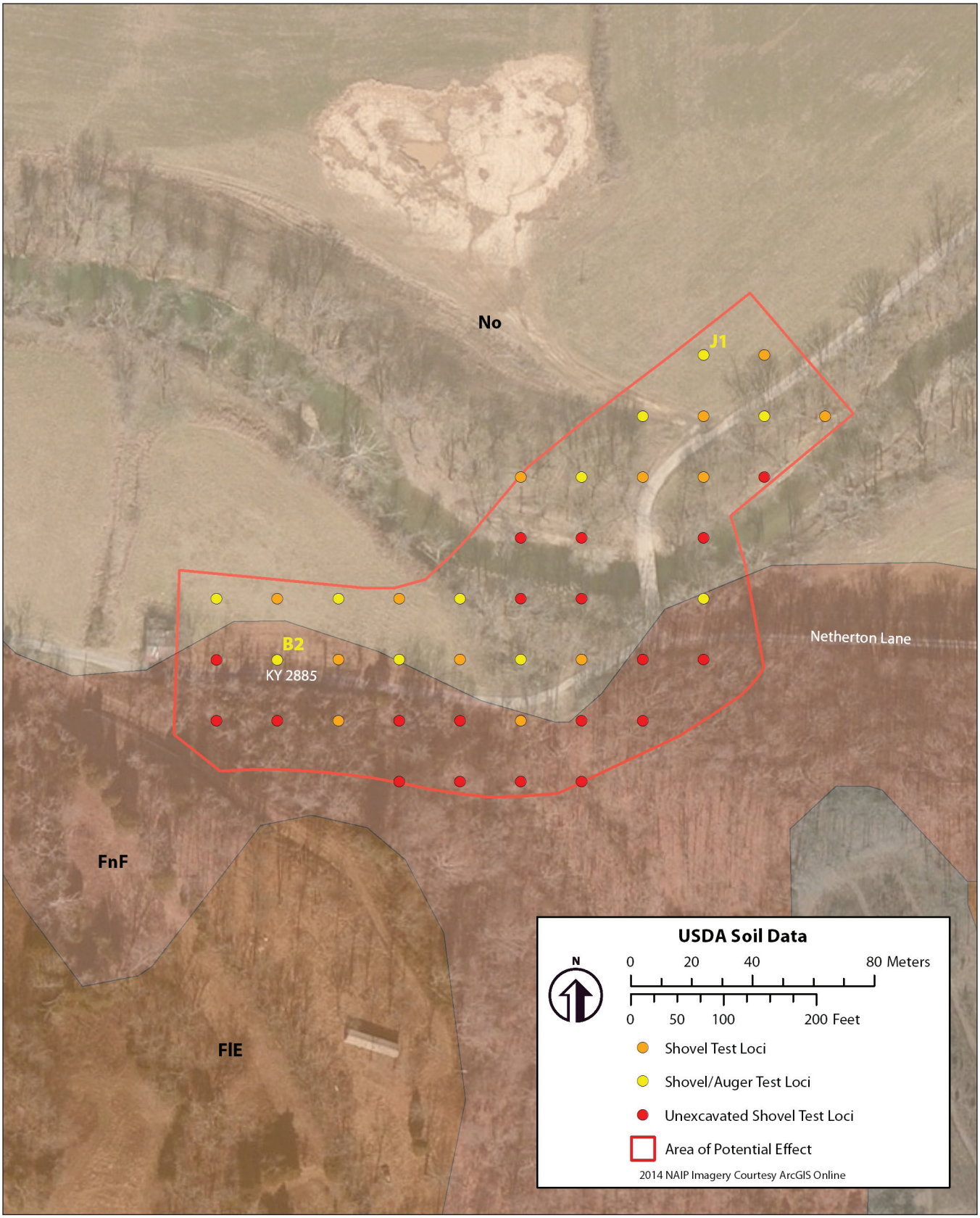

Figure 4.3 USDA Soil Data (as shown on 2014 NAIP imagery courtesy ArcGIS Online).

References Cited

Sanders, Thomas N. (editor)
2006 *Specifications for Conducting Fieldwork and Preparing Cultural Resource Assessment Reports*. Kentucky State Historic Preservation Office, Frankfort.