Appendix B – Geotechnical Overview

178552015 – Paducah Megapark Connector

Environmental Overview, Revised/Expanded Study Area Concern Issues
October 9, 2013

RESOURCE	INITIAL REVIEW (May 2013)	EXPANDED AREA (October 2013) Desktop Review Only
Aquatic Resources	8 streams, 11 NWI; potential wetlands, including forested wetlands along Massac Creek	Additional 8 streams (5 USGS intermittent, 1 USGS perennial); Additional 10 NWI wetlands, including forested wetlands along Massac Creek and West Fork Massac Creek
Floodplains	100-Year Floodplains cover 1/3 of study area along Massac Creek and unnamed tributaries	100-year floodplains cover central 1/3 along Massac Creek and West Fork Massac Creek
Groundwater Resources	21 water wells; sensitivity to contamination moderate to moderately high	Additional 12 water wells (11 domestic use)
Threatened and Endangered Species and Habitats	Indiana bat (E-federal) reported within 1 mile; Southeastern bat (Concern-federal) and Evening bat (Concern-state) reported within 10 miles; potential habitat present Massac Creek riparian corridor	No additional records, same concerns present
Section 4(f) and Section 106	Prehistoric archaeological resources-moderate potential; Historic farm/residence archaeological-high potential	See CRAI additional info; Potentially 2 cemeteries, 1 church
Potential HazMat sites	3-historical auto station records, 4-UST's, 3-HMIRSS records	Additional 2 UST sites (Pughs Midway Inc, 6801 Cairo Rd; Tristate Construction Company, 5120 Old Cairo Rd) and 1 historical auto station record (McNeil Tire, 5620 Cairo Rd)
Noise	Single family residences, campground	No additional issues
Infrastructure	Several active rail lines; 8-inch natural gas line along Meredith Road	Rail lines; Multiple power transmission lines

Potential Forested Wetlands; Floodplain

Potential Forested Wetlands; Floodplain

INITIAL STUDY AREA

EXPANDED STUDY AREA

BOBO E

RUDY WOODS RD

MAYFIELD METROPOLIS N RD

MITCHELL RD

MAJORS RD

JOHNSON RD

MEREDITH RD

CARR RD

SHAFFER RD

FUGATE LN

PRIVATE

ORCHARDVIEW DR

COMMERCE DR

GAYLE LN

MAXON RD

PADUCAH

Massac Creek

West Fork Massac Creek

Mud Branch

1420

2411

358

1565

305

998

24

24

0 1,000 2,000 Feet

N

REVISED-October 2013

Legend

- Study Area
- Sensitive Areas
- Megasite Boundary
- City Boundary

Water Wells

- DOMESTIC
- MONITORING
- OTHER

- Streams (NHD)
- NWI Wetland
- 100-Year Floodplain

Note: "Sensitive Areas" defined as a general location having a concentration of resources where impacts may contribute to additional permitting, mitigation or avoidance measures.

ATTACHMENT A2

Environmental Footprint
NATURAL ENVIRONMENT

ENVIRONMENTAL OVERVIEW

Ohio River Megapark Connector
KYTC Item No. 1-8702.00
McCracken County, Kentucky

Note: "Sensitive Areas" defined as a general location having a concentration of resources where impacts may contribute to additional permitting, mitigation or avoidance measures.

Palestine Cemetery

0 1,000 2,000 Feet

N

REVISED-October 2013

Legend

- Study Area
- Sensitive Areas
- Megasite Boundary
- Cultural Historic Coded Properties (CRAI, 2013)
- Noise Sensitive Area
- UST Record
- HMIRS Record
- Hist Auto Station Record
- City Boundary

ATTACHMENT A3

Environmental Footprint
HUMAN ENVIRONMENT

ENVIRONMENTAL OVERVIEW

Ohio River Megapark Connector
KYTC Item No. 1-8702.00
McCracken County, Kentucky

Note: "Sensitive areas" defined as a general location having a concentration of resources where impacts may contribute to additional permitting, mitigation or avoidance measures.

INITIAL STUDY AREA

EXPANDED STUDY AREA

0 1,000 2,000 Feet

N

REVISED-October 2013

Legend

- Study Area
- Sensitive Areas
- Megasite Boundary
- Streams (NHD)

Water Wells

- DOMESTIC
- MONITORING
- OTHER

- Cultural Historic Coded Properties (CRAI, 2013)
- Noise Sensitive Area
- HMIRS Record
- Hist Auto Station Record
- UST Record
- NWI Wetland
- 100-Year Floodplain
- City Boundary

ATTACHMENT A4

Environmental Footprint
Sensitive Areas on USGS Base

ENVIRONMENTAL OVERVIEW

Ohio River Megapark Connector
KYTC Item No. 1-8702.00
McCracken County, Kentucky

Contract Publication Series 13-130

A RECORDS REVIEW FOR A NEW CONNECTOR ROUTE BETWEEN KY 305 AND THE PROPOSED OHIO RIVER MEGAPARK IN MCCRACKEN COUNTY, KENTUCKY (ITEM NO. 1-8702.00)

Prepared by:

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Cultural Resource Analysts, Inc.
151 Walton Avenue
Lexington, KY 40508
CRA Project No.: K13S008

August 27, 2013

Project Description

In April and August 2013, Cultural Resource Analysts, Inc. (CRA), conducted a records review for a new connector route between KY 305 and the proposed Ohio River Megapark in McCracken County, Kentucky. The review was conducted at the request of Jesse Binau of Stantec Consulting Services, Inc., on behalf of the Kentucky Transportation Cabinet (KYTC). The proposed connector route begins northwest of Paducah, Kentucky, near the I-24 interchange with KY 305 and runs in a west–northwest direction before terminating near Mayfield Metropolis Road. The project area is located on a level terrace of the Ohio River and on portions of the surrounding low-lying hills to the south and west. It contains areas of open farmland and forest, roads, railroads, overhead utilities, numerous residences and a few farmsteads, at least two churches and one school, and at least two cemeteries. The study area measures approximately 4.8 km (3.0 mi) in length and 2.2 km (1.4 mi) in width, totaling 1,155 ha (2,855 acres).

Guidelines

This records review was conducted in accordance with *Archeology and Historic Preservation: Secretary of the Interior's Standards and Guidelines*. In addition, guidelines offered in the following documents were followed: *Guidelines for Local Surveys: A Basis for Preservation Planning: National Register Bulletin #24; Kentucky Historic Resources Survey Manual*; and *Specifications for Conducting Fieldwork and Preparing Cultural Resource Assessment Reports*.

Records Review

A search of records maintained by the National Register of Historic Places (NRHP) (available online at: http://nrhp.focus.nps.gov/natreghome.do?searchtype=natreghome), the Office of State Archaeology (OSA), and the Kentucky Heritage Council (KHC) was conducted to: 1) determine if the project area had been previously surveyed for archaeological or cultural historic resources; 2) identify any previously recorded archaeological or cultural historic sites that were situated within the project area; 3) provide information concerning what archaeological and cultural historic resources could be expected within the project area; and 4) provide a context for any archaeological or cultural historic resources recovered within the project area. The NRHP records indicated that no archaeological sites listed on the NRHP were situated within the study area. One cultural historic site in the study area, a bridge, was found eligible for NRHP listing. The bridge was documented prior to its demolition and replacement.

Archaeological Results

OSA geographic information system (GIS) data requested by CRA on April 3 and August 12, 2013, was returned on April 8 and August 15, 2013, and was researched by Heather Barras on April 9 and August 22, 2013. The work at OSA consisted of a review of professional survey reports and records of archaeological sites for the proposed study area. The review of professional survey reports and archaeological site data provided basic information on the types of archaeological resources that are likely to occur within the proposed project area. The study area included in the records review is depicted most recently on the Paducah West, Kentucky-Illinois, topographic quadrangle (United States Geological Survey [USGS] 1982). OSA records revealed that six previous professional archaeological surveys had been conducted within the study area, and one archaeological site was identified in this area. The surveys and site locations are depicted in Figure 1, and their results are discussed below.

In 1980, Wapora, Inc., conducted an archaeological survey of approximately 58.1 km (36.1 mi) of navigation areas along the lower Ohio River in Illinois and Kentucky, which included areas along Massac Creek within the study area (Watson 1981). The survey was done at the request of the United States Army Corps of Engineers (USACE), Louisville District. A total of 53 previously unrecorded archaeological sites were identified. Only 1 of these (Site 15McN11) in McCracken County was given a site number, and this is located outside the study area. Site 15McN11 is a multicomponent Late Woodland/Mississippian and Historic farm/residence. The site's NRHP eligibility is undetermined.

In 1996, Murray State University conducted an archaeological survey of 348 ha (860 acres) in McCracken County, Kentucky (Versluis 1996). The work was conducted at the request of Florence and Hutchinson, Inc., on behalf of the Greater Paducah Economic Development Council and consisted of a pedestrian and shovel test pit (STP) survey for a proposed grain processing plant adjacent to the Ohio River. Eleven archaeological sites (15McN14–15McN15 and 15McN105–15McN113), one isolated find (IF), and five non-site localities (NSLs) were identified during this survey. Sites 15McN14–15McN15 and Sites 15McN108–15McN113 were all prehistoric open habitation sites with components ranging from Archaic through to Late Prehistoric in date. Sites 15McN105–15McN108 were twentieth-century historic farm/residences. None of these sites were located within the current study area.

NRHP evaluations were recommended for Sites 15McN15, 15McN108, and 15McN113 if they could not be avoided by the proposed construction activities. The remaining sites (15McN14, 15McN105–15McN107, and 15McN109–15McN112) were recommended not eligible for inclusion in the NRHP, and no further work was recommended.

Cultural Horizons, Inc., conducted a pedestrian and STP survey of approximately .8 ha (1.9 acres) at the request of Haydon Brothers Contracting, Inc., on behalf of the KYTC (Stallings and Ross-Stallings 1999). Survey of the proposed borrow pit location did not reveal the presence of any previously unidentified archaeological sites or related cultural material, and no further work was recommended.

Between September 4 and 6, 1999, Archaeological Services personnel conducted an archaeological survey of a proposed industrial park in western McCracken County, Kentucky (Carstens 1999). At the request of Florence and Hutcheson, Inc., 81 ha (200 acres) were investigated with pedestrian survey supplemented with shovel testing. No archaeological sites were identified during the survey, and no further work was recommended.

In 2004, Gray & Pape, Inc., conducted an archaeological survey of the proposed 27 ha (67-acre) Terry Klope Wetlands Reserve at the request of the United States Department of Agriculture (Cowan 2004). Field investigations included pedestrian survey and screened shovel testing, neither of which produced evidence of previously unrecorded sites. No further work was recommended.

Heath, KY 1978
USGS 7.5 minute series digital topographic quadrangle. Map R07, Governor's Office for Technology, Office of Geographic Information.

Paducah West, KY-IL 1982
USGS 7.5 minute series digital topographic quadrangle. Map R08, Governor's Office for Technology, Office of Geographic Information.

Project Area

15McN153

LEGEND
- Archaeological Site
- Project Area Boundary
- Carstens 1999
- Cowan 2004
- Martin 2008
- Stallings & Ross-Stallings 1999
- Versluis 1996
- Watson 1981

QUADRANGLE LOCATION

0 1000 2000 feet
0 300 600 meters

K13S008 (26AUG2013) RC

Figure 1. Topographic map showing previous archaeological surveys and the site within the study area.

Between October 15 and 19, 2007, CRA personnel conducted an archaeological survey of the proposed Riverport West industrial site in McCracken County, Kentucky (Martin 2008). The survey was conducted at the request of Geotech Engineering and Testing, Inc., on behalf of the Greater Paducah Economic Development Council and the Paducah Riverport Authority. The project area encompassed approximately 202 ha (500 acres). Approximately 12 ha (30 acres) had not been previously surveyed and were investigated with surface investigation, STPs, and backhoe trenches supplemented with hand-excavated units. Four previously documented sites (15McN14, 15McN15, 15McN108, and 15McN113 [discussed above]), four previously undocumented sites (15McN135–15McN138), and one field site not assigned a state site number (FS 4) were identified during the survey. Of the previously undocumented sites, Sites 15McN135 and 15McN136 were twentieth-century historic residences, Site 15McN137 was a low density prehistoric and historic artifact scatter, Site 15McN138 was a prehistoric open habitation site, and FS 4 was a lithic scatter located in deep deposits near Sites 15McN15 and 15McN138. None of these are located in the current study area.

Sites 15McN108, 15McN113, and 15McN135–15McN137 were recommended not eligible for inclusion in the NRHP, and no further work was recommended. However, NRHP evaluations were recommended for Sites 15McN14, 15McN15, and FS 4. Deep testing was also recommended for Sites 15McN15 and 15McN138 (Martin 2008).

The one site in the study area, 15McN153, did not have an associated report on file in OSA records. The site form indicated it was a multicomponent site recorded by R. Vincent Whitlatch of Environment and Archaeology, LLC, Florence, Kentucky, in April of 2012 (Stoll and Crider 2012). The historic component dated from 1851 to 1950 and lacked a diversity of artifact groups and features. The prehistoric open habitation without mounds component had an indeterminate cultural/temporal affiliation and contained a potential for thermal features. The site's NRHP status was not assessed.

Cultural Historic Results

KHC GIS data requested by CRA on April 3 and August 13, 2013, was returned on April 4 and August 14, 2013, and researched by Kathy Martinolich on April 11 and August 16, 2013. The KHC project registration numbers are FY13_1441 and FY14_1532. The work at KHC consisted of a review of professional survey reports and records of cultural historic sites located within and adjacent to the study area.

The records review identified eight previously recorded cultural historic sites and one previously completed cultural historic survey within or adjacent to the study area (Figure 2). The eight previously recorded sites consist of MCN 86–MCN 93, and the NRHP status for all of the sites was listed as undetermined. MCN 86–MCN 91 are residences located along Mayfield Metropolis Road (KY 1565) and Ogden Landing Road (KY 358). MCN 92 is a frame barn located on Ogden Landing Road. MCN 86–MCN 92 were surveyed and recommended not eligible for inclusion in the NRHP by Dean Doerrfeld of CRA in 2003 as part of the cultural historic survey for the proposed replacement of the KY 1565 bridge over the West Fork of Massac Creek near Paducah, McCracken County, Kentucky (Item No. 1-1008.00), the only previously completed cultural historic survey located within the study area (Doerrfeld 2002). MCN 93, a Pratt Pony Truss bridge carrying KY 1565 over the West Fork of Massac Creek, was also surveyed in this report and was found eligible for NRHP listing under Criterion A for its association with the “Good Roads Movement” that swept Kentucky in the opening decades of the twentieth century and under Criterion C as an excellent example of a Pratt Pony Truss bridge. The bridge was also surveyed in 2004 by Rebecca Turner of KYTC, prior to the bridge’s demolition and replacement (Turner 2004).

The records review also indicated that there are 22 “coded properties” within the study area, but KHC does not maintain any records regarding such properties, so there is no additional information available regarding their potential significance.

Heath, KY 1978
USGS 7.5 minute series digital topographic quadrangle. Map R07, Governor's Office for Technology, Office of Geographic Information.

Paducah West, KY-IL 1982
USGS 7.5 minute series digital topographic quadrangle. Map R08, Governor's Office for Technology, Office of Geographic Information.

Project Area

MCN91
MCN89
MCN90
MCN92
MCN88
MCN87
MCN86
MCN93

CULTURAL HISTORIC LEGEND
- Coded Properties
- Previously Surveyed
- Previously Surveyed, Demolished, & Replaced

QUADRANGLE LOCATION

0 1000 2000 feet
0 300 600 meters

K13S008 (26AUG2013) RC

Figure 2. Topographic map showing the locations of cultural historic coded properties, previously surveyed sites, and the previously surveyed and demolished/replaced site within the study area.

Map Review

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

1926 Paducah, Kentucky-Illinois, 15-minute series topographic quadrangle (United States Geological Survey [USGS]);

1928 La Center, Kentucky-Illinois, 15-minute series topographic quadrangle (USGS);

1929 Paducah, Kentucky-Illinois, 15-minute series topographic quadrangle (USGS);

1932 La Center, Kentucky-Illinois, 15-minute series topographic quadrangle (USGS);

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

1940 Paducah, Kentucky-Illinois, 15-minute series topographic quadrangle (USGS);

1950 General Highway Map of McCracken County, Kentucky (Kentucky State Highway Department [KSHD]);

1952 Paducah West, Kentucky-Illinois, 7.5-minute series topographic quadrangle (USGS);

1954 Heath, Kentucky, 7.5-minute series topographic quadrangle (USGS);

1956 General Highway Map of McCracken County, Kentucky (KDOH).

The reviewed historic maps indicated that a large number of map structure locations older than 50 years are located within the study area. Fifty-eight of these appear first on the 1926 Paducah and 1928 La Center maps (USGS 1926, 1928) (Figures 3a and 3b). They include the Palestine Church, the Olivet Church, and a schoolhouse. Twenty-seven of these structures appear again on the subsequent 1929 and 1940 Paducah maps (USGS 1926 and 1940), both of which are reproductions of the earlier 1926 map. One appears again on the reproduced 1932 La Center map (USGS 192).

The later 1952 Paducah West map (Figure 4a) indicates that most, but not all, of the structures depicted on the earlier 1926, 1929, and 1940 USGS maps were still present. Furthermore, the period between 1940 and 1952 also saw the construction of numerous new buildings within the study area. In the more rural locations, these included several buildings depicted as hollow squares, likely representing barns, sheds, or garages. However, the area of greatest overall development during this period (circa 1940–1954) appears to have been along the southern edge of the study area on both sides of KY 305/KY 358, although this area was already fairly well developed by 1926. In addition, the adjoining Heath map dating to 1954 (Figure 4b) indicates that several residences and outbuildings were constructed at the west end of the study area between 1932 and 1954 along KY 305/385 and KY 1565. Only one of these structures was depicted on the earlier 1928 and 1932 La Center maps. The 1954 map also depicts the Palestine Cemetery and an unnamed cemetery.

Summary and Conclusions

The OSA records review indicated that one archaeological site (15McN153) had been documented within the study area. This multicomponent site contained a historic component dating from the mid-nineteenth to the mid-twentieth century that lacked a diversity of artifact groups and features. The prehistoric open habitation without mounds component had an indeterminate cultural/temporal affiliation; however, it contained the potential for thermal features. As such, the site likely would be required to undergo further investigation to determine its eligibility for the NRHP. These records also indicated that several sites with prehistoric components (e.g., Sites 15McN11, 15McN14–15McN15, 15McN108–15McN113, and 15McN137–15McN138) and historic components (e.g., Sites 15McN105–15McN108 and 15McN135–15McN136) have been identified nearby. Furthermore, a few of these sites (e.g., Sites 15McN14, 15McN15, 15McN108, 15McN113, and FS 4) have been recommended for NRHP evaluations, and others (e.g., 15McN15 and 15McN138) have been recommended for deep testing.

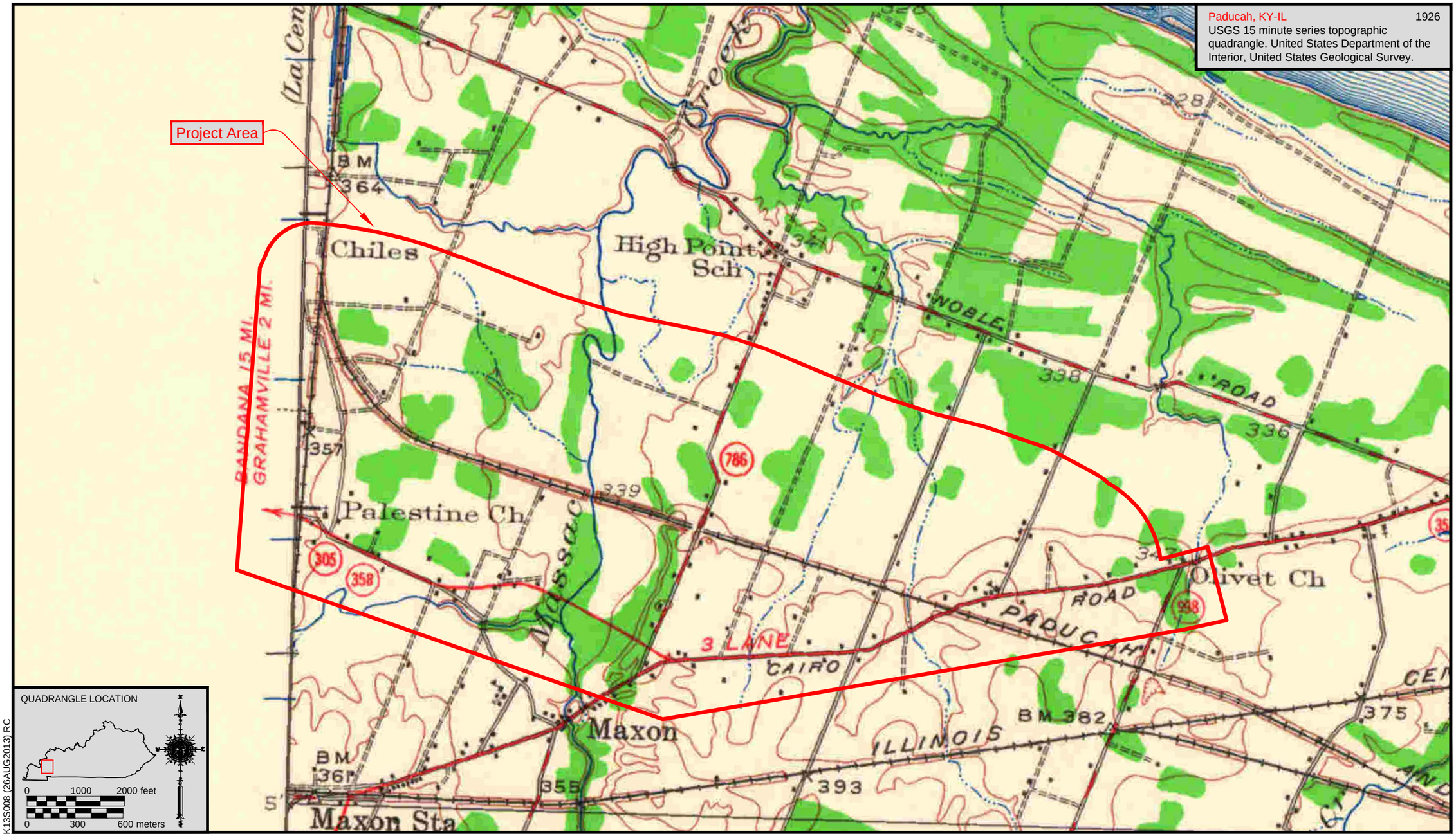

Figure 3a. Portion of the 1926 Paducah, Kentucky-Illinois, 15-minute series topographic quadrangle map.

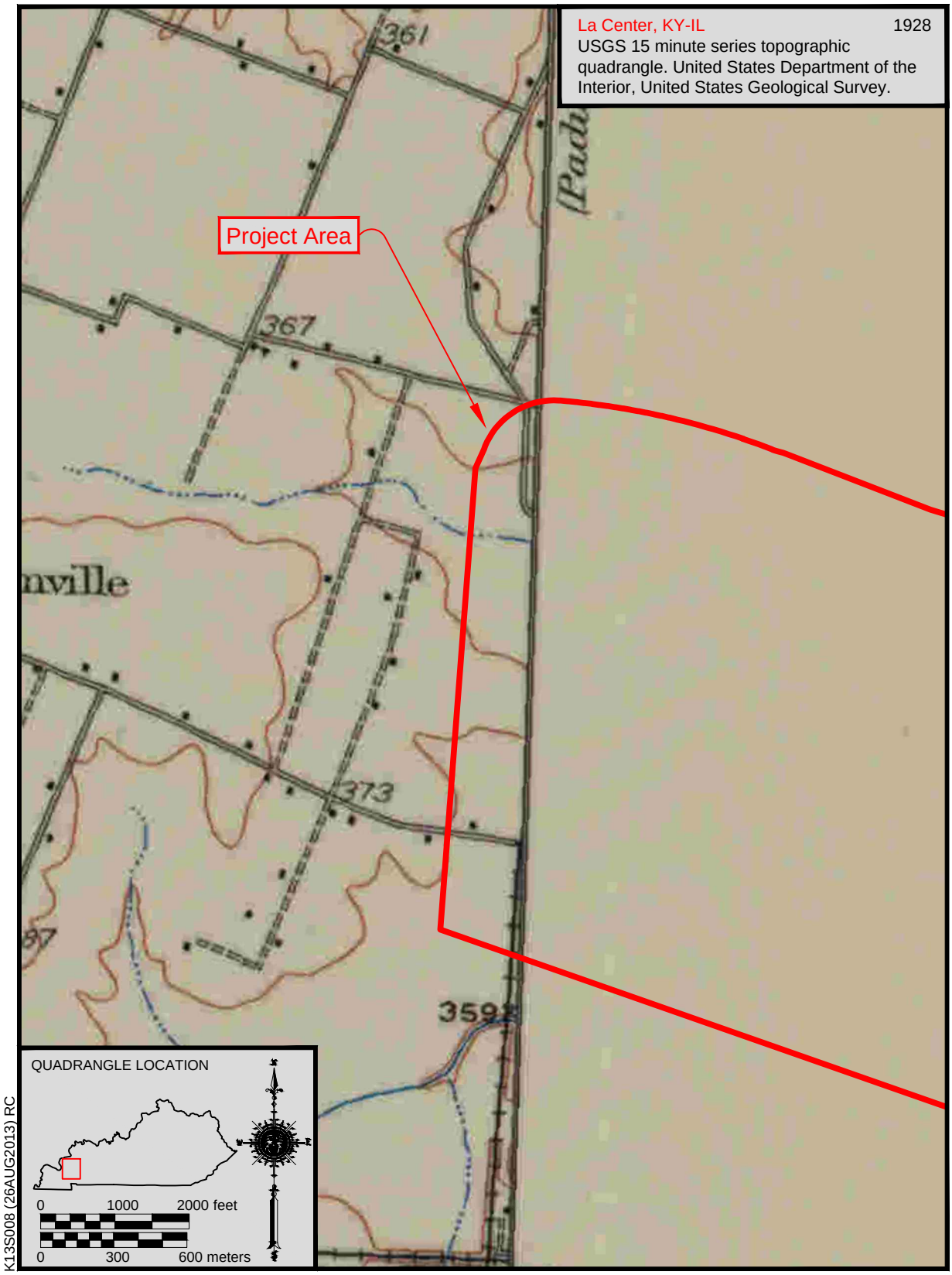

Figure 3b. Portion of the 1928 La Center, Kentucky-Illinois, 15-minute series topographic quadrangle map.

Project Area

Paducah West KY-IL 1952
USGS 7.5 minute series topographic quadrangle. United States Department of the Interior, United States Geological Survey.

88°45'
37°07'30"
390 000 FEET (ILL.)
42'30"
GRAHAMVILLE 3.8 MI.
2.1 MI. TO KY. 305
STATE OF KENTUCKY
AGRICULTURAL AND INDUSTRIAL DEVELOPMENT
(METROPOLIS)
NORMAL POOL 290
Mud Branch
Chiles
High Point
Massac
Palestine Ch
Long Hole Creek
Maxon
West Paducah
West Fork
Historical Marker
Gravel Pit
West Paducah Sch
Ogden Landing
Cem.
Hatchery (Private)
Oliver Ch
Cecil
White Oak Ch
Gravel Pit
ABANDONED
Stanley Cem
PADUCAH AND ILLINOIS CENTRAL
ILLINOIS
160 000 FEET (ILL.)
ROSSINGTON 5.8 MI.
GRAHAMVILLE 1.8 MI.

QUADRANGLE LOCATION
0 1000 2000 feet
0 300 600 meters

K13S008 (26AUG2013) RC

Figure 4a. Portion of the 1952 Paducah West, Kentucky-Illinois, 7.5-minute series topographic quadrangle map.

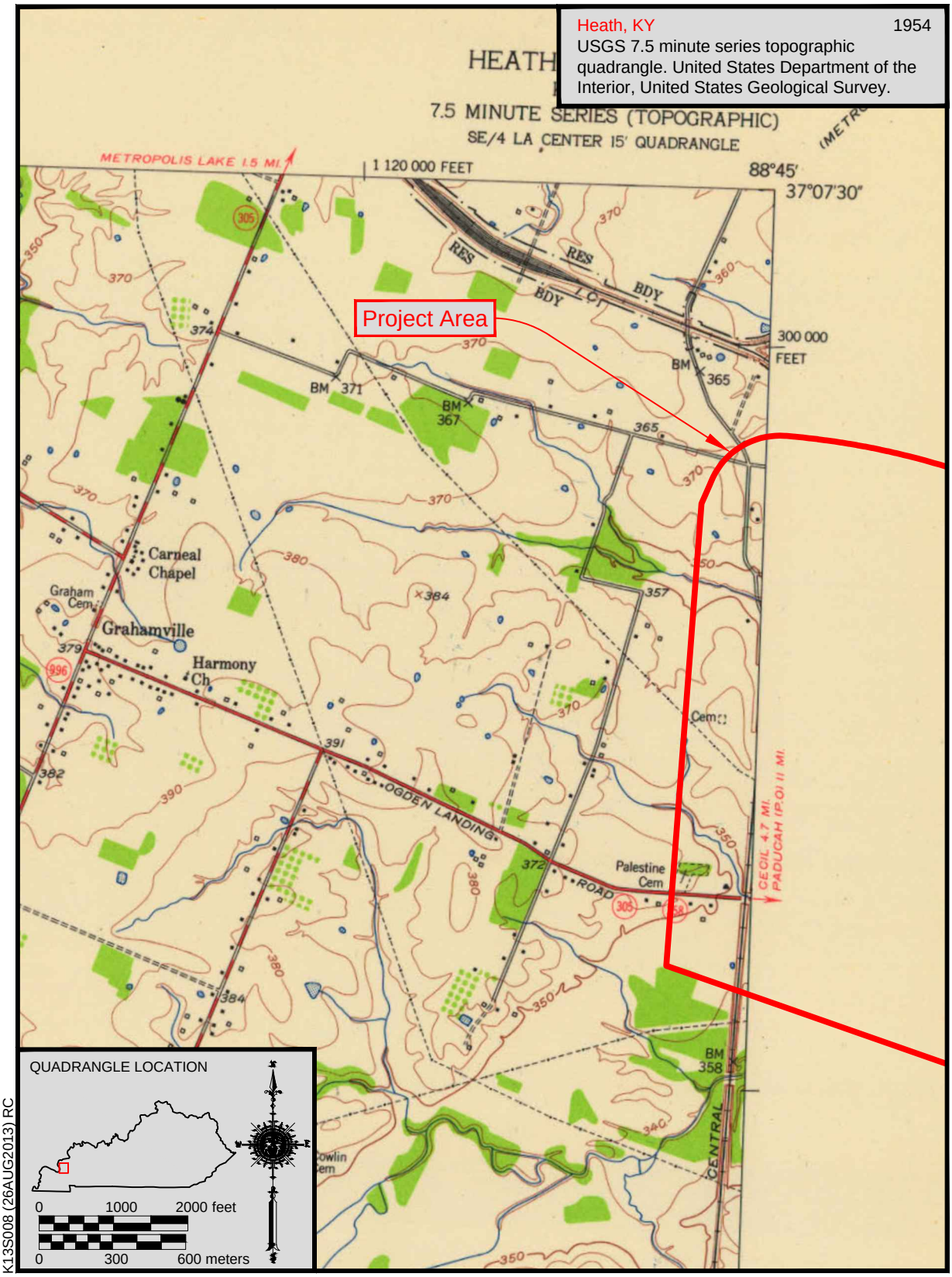

Figure 4b. Portion of the 1954 Heath, Kentucky, 7.5-minute series topographic quadrangle map.

CRA therefore considers there to be a moderate potential for encountering prehistoric archaeological resources, including deeply buried deposits, within the study area.

The KHC records review indicated that eight previously recorded cultural historic sites and one previously completed cultural historic survey had been documented within or adjacent to the study area. Seven (MCN 86–92) were surveyed and recommended not eligible for inclusion in the NRHP. MCN 93, a Pratt Pony Truss bridge carrying KY 1565 over the West Fork of Massac Creek, was found eligible for NRHP listing. It was documented prior to its demolition and replacement. The presence of 22 "coded properties" and the historic map review identification of a large number of structures over 50 years in age indicate that there is a high potential for previously unidentified cultural historic and archaeological sites in the study area, as well as churches, a school, and cemeteries. The historic map data further indicates that several residences constructed prior to 1926 were abandoned or demolished by 1952. The locations of these former residences would be expected to contain historic archaeological deposits dating to the early twentieth century and perhaps earlier. CRA therefore considers there to be a high potential for encountering historic farm/residence archaeological sites within the study area.

Based on the above information, CRA recommends that archaeological and cultural historic baseline surveys be conducted to identify any archaeological and cultural historic resources that may be affected by the proposed project. Due to the alluvial nature of the study area, the archaeological survey should include some form of deep testing, such as bucket augering or limited backhoe trenches.

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1929 Paducah, Kentucky-Illinois, 15-minute series topographic quadrangle. United States Geological Survey, Washington, D. C.

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1940 Paducah, Kentucky-Illinois, 15-minute series topographic quadrangle. United States Geological Survey, Washington, D. C.

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ENVIRONMENTAL OVERVIEW

OHIO RIVER MEGAPARK CONNECTOR STUDY
MCCRACKEN COUNTY, KENTUCKY
KYTC ITEM #1-8702.00

MAY 2013

ENVIRONMENTAL OVERVIEW

Ohio River Megapark Connector
McCracken County, Kentucky
KYTC Item #1-8702.00

Prepared for:
Kentucky Transportation Cabinet
Department of Highways, District 1
5501 Kentucky Dam Road
Paducah, KY 42003

Prepared by:
Stantec Consulting Services Inc.

May 2013

Executive Summary

This Environmental Overview has been completed for the Ohio River Megapark Connector Study in McCracken County, Kentucky (Item #1-8702.00). The Megapark is a planned industrial development located on the Ohio River west of Paducah. The purpose of this environmental overview is to identify environmental resources and potential issues of concern within the study area of the proposed access road. This environmental footprint will be used in the development of the proposed transportation project to determine the optimal corridor for providing improved roadway access to the Ohio River Megapark from KY 305 while avoiding and minimizing impacts. The study area assessed for this report is located on the west side of Paducah between I-24 and the planned Ohio River Megapark, and encompasses approximately 1,240 acres.

Natural environment resources of potential concern within the study area were identified from secondary sources, as well as field observation. Based on this information, the most sensitive environmental features within the study area occur along Massac Creek, including potential foraging and roosting habitats for the Indiana bat (a federal endangered species), 100-year floodplains and potential forested wetlands. Sensitive natural environment features identified within the study area include:

- Aquatic resources: Eight streams and eleven National Wetland Inventory (NWI) wetlands are mapped within the study area. Several potential wetlands, including potential forested wetlands, were observed in the riparian corridor along Massac Creek. In addition, over 90% of the study area is underlain with hydric soils or soils with hydric inclusions, indicating there is the potential for additional wetlands to occur.

- Floodplains: Federal Emergency Management Agency (FEMA) 100-year floodplains cover approximately one-third of the study area. They are present along Massac Creek through the western half of the study area and along unnamed tributaries in the eastern portion of the study area.

- Groundwater resources: Twenty-one water wells are registered in the study area, four of which are registered for domestic use and one for agricultural use. The sensitivity of the underlying groundwater to contamination is moderate to moderately high.

- Threatened and endangered species and habitats: One federal endangered species, Indiana bat (*Indiana myotis*), has been reported to occur within one mile of the study area. Potential Indiana bat foraging and roosting habitats were identified in the study area, particularly along the Massac Creek riparian corridor. Two additional federal and state listed bat species, the Southeastern bat (*Myotis austroriparius,* federal species of management concern), and the Evening bat (*Nycticeius humeralis,* state-listed special concern species) are known to occur within ten miles of the study area. Potential habitat

is present for an additional ten state-listed species, primarily associated with Massac Creek.

Human environment resources of potential concern identified within the study area include:

- Section 4(f) and Section 106 cultural resources: There is a moderate potential for encountering prehistoric archaeological resources and a high potential for historic farm/residence archaeological sites within the study area.

- Potential hazardous materials concern sites: Three historical auto station records, four Underground Storage Tank (UST) records, and three Hazardous Materials Incident Report System Sites (HMIRSS) records are mapped as occurring within the study area.

- Noise: Noise sensitive land uses include single family residences and a campground.

- Infrastructure Facilities: Several active rail lines are located at the western boundary of the study and an 8-inch natural gas line exists along Meredith Road.

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REFERENCES

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Cultural Resources Records Review Report

ATTACHMENT D
Photograph Index Map and Study Area Representative Photographs

1.0 PROJECT DESCRIPTION AND ENVIRONMENTAL SETTING

1.1 PROJECT DESCRIPTION, HISTORY AND STATUS

The Ohio River Megapark Connector Project in McCracken County, Kentucky (Item #1-8702.00) will develop and evaluate alternatives for a new access road with appropriate highway level of service that will provide a connection between KY 305 near I-24 and the proposed Ohio River Megapark site (also known as the Triple Rail Megasite).

The project is located adjacent to the northwest edge of Paducah, Kentucky in McCracken County, with the Ohio River approximately 1.6 miles to the north (**Attachment A1**). The study area assessed for this report includes the area west of I-24, north of KY 305, south of the Ohio River, and east of the Ohio River Megapark. The total area under consideration extends approximately 3.7 miles in length (east to west) and 0.7 mile wide (north to south) for a total size of approximately 1,240 acres.

This Environmental Overview identifies environmental resources and potential issues of concern within the study area. The overview will serve as the environmental footprint for the development of project alternatives and the avoidance and minimization of potential impacts. Information for this overview was obtained from a review of secondary source environmental data and resource agency coordination. Information obtained from secondary source materials was mapped on the Environmental Footprint base map provided in **Attachments A2** and **A3** and a USGS Topographic base map provided in **Attachment A4**.

In addition to the secondary source review, environmental resources were identified and verified through a field reconnaissance conducted May 2013. The resources that were identified included those that related to both the natural and human environment. Natural environmental resources are presented in Section II and include: streams; floodplains; wetlands and ponds; water supplies; threatened, endangered and special concern species and habitat; woodland and terrestrial areas; and potential Section 4(f) resources, including public parks, recreation areas, wildlife and waterfowl refuges, and historic sites (**Attachment A2**). Human environment resources are presented in Section III, and include social and economic resources; historic and archaeological resources; hazardous materials issues; agricultural areas; active or abandoned mining areas; railroads and utility infrastructure; and air and noise quality concerns (**Attachment A3**).

1.2 LAND COVER

Land cover in the project area was determined through a review of aerial photographs and the 2005 Kentucky Land Cover Dataset (KDGI, 2007a; **Attachment B1**), as well as field reconnaissance. Low density and high density development covers approximately 10% of the study area immediately west of the I-24 interchange. In addition, areas of low density residential development occur along Meredith Road and KY 2411. Agriculture is the dominant

land cover in the study area with approximately 60% of the area in cultivated crops. Approximately 20% of the study area is forested and forested wetlands. Open water, developed open space, emergent herbaceous wetlands and other natural areas account for approximately 10% of the study area.

1.3 PHYSIOGRAPHY AND TOPOGRAPHY

The study area is located in the Gulf Coastal Plain Physiographic Region (KGS, 2001; Newell, 2001; **Attachment B2**). The central portion of the study area is within the Wabash-Ohio Bottomlands ecoregion of the Interior River Valleys and Hills subarea, and the eastern and western edges are within the Loess Plains ecoregion of the Mississippi Valley Loess Plains subarea (Woods et al, 2002; **Attachment B3**). These regions are described generally as being unglaciated with nearly level floodplains, undulating terraces, and low ridges. Wetlands, ponds, abandoned channels, and oxbow lakes occur throughout this ecoregion. Natural and channelized streams with low gradients and silt or sand substrates meander through the terrain. Seasonally high water tables are typical and seasonal flooding occurs.

Based on a review of the United States Geologic Survey (USGS) topographic maps (USGS, 1978 and 1982; **Attachment B4**), the study area and vicinity has a gently rolling topography, ranging from 370 feet above Mean Sea Level (MSL) in the west and southeast ends, and sloping towards the north and center to around 320 feet MSL along Massac Creek.

1.4 GEOLOGY AND SOILS

The study area is located in the Gulf Coastal Plain Physiographic Region in far-western Kentucky, also known as the Mississippi Embayment or the Jackson Purchase. In general, surficial geology consists of alluvium, lacustrine deposits, and glacial outwash valley-train deposits of Quaternary age. This region is underlain by semi-consolidated cretaceous-age and younger sand, silt, gravel, and clay deposits (Woods et al, 2002; KGS, 2001; **Attachment B5**).

There are no karst areas mapped in McCracken County as the area is not underlain with limestone bedrock.

Soils in the study area consist primarily of silt loams with small portions of urban land and disturbed soils, and narrow paths of gravelly loams and silty clays. Approximately 90 percent of the study area includes hydric soils, roughly equally divided in area between all hydric (Cape silty clay, Ginat silt loam and Okay silt loam) and soils with hydric inclusions (eleven additional soils; USDA, 2013a and 2013b; **Attachment B6**).

1.5 DRAINAGE

The study area is part of the Kentucky Division of Water's Four Rivers Basin, which includes all of the Lower Cumberland and Lower Tennessee Rivers with tributaries in the Jackson Purchase that drain to the Ohio and Mississippi Rivers. The study area is located within the Black Branch-Massac Creek watershed (HUC-12) of the Massac Creek drainage area (HUC-10), within the

Lower Ohio River accounting unit of the Lower Ohio River basin as shown in **Table 1** (USGS, 2004; **Attachment B7**).

Table 1. Watersheds in the Study Area

Basin	Accounting Unit (HUC-6)	Catalog Unit (HUC-8)	Drainage (HUC-10)	Watershed (HUC-12)	Drainage Area (mi^2)
05 Lower Ohio	051402 Lower Ohio	05140206 Lower Ohio	0514020603 Massac Creek	051402060304 Black Branch-Massac Creek	11.4

Local surface drainage is generally to the north following Massac Creek and its tributaries to the Ohio River. The largest surface water in the study area is the Massac Creek which flows through the western portion of the study area in a northerly direction towards the Ohio River. An additional seven (7) unnamed tributaries to Massac Creek are mapped as intermittent streams within the study area.

2.0 NATURAL ENVIRONMENT

Natural environment resources located within the study area include: surface streams; floodplains; wetlands; ponds; groundwater; threatened, endangered and special concern species and habitat; and woodland and terrestrial areas. Information concerning each resource was obtained from publicly available secondary sources, such as maps and Geographic Information Systems (GIS) files, with limited on-site survey and verification. Natural resources present in the study area are shown on the map provided as **Attachment A2.**

2.1 SURFACE STREAMS

Eight (8) streams are mapped in the study area (**Attachment B7)**. The largest of these is Massac Creek, which traverses the western portion of the study area, flowing south to north towards the Ohio River. Unnamed tributaries of Massac Creek are located in the eastern portion of the study area, flowing in a north/northwesterly direction toward Massac Creek and the Ohio River.

No streams in the study area are listed in the 2010 Kentucky Division of Water (KDOW) 305(b) and 303(d) integrated water quality report as impaired waters (KDOW, 2010a and 2010b). Massac Creek at approximately 0.3 miles upstream of the study area is listed as Partially Supporting for Aquatic Life. Information from the Kentucky Division of Water indicates there are no Special Use Waters (cold water aquatic habitat, exceptional water, reference reach water, and outstanding state resource water) within the study area (KDOW, 2008).

A comprehensive stream survey and impact assessment, including evaluation of avoidance and minimization measures, will be required as part of the project development. Unavoidable

impacts to streams will require coordination with the U.S. Army Corps of Engineers (USACE) and KDOW to determine Section 404/401 permitting and mitigation requirements.

2.2 FLOODPLAINS

Based on review of Flood Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRMs), 100-Year floodplains occur in most of the study area (FEMA, 2011; KDGI, 1998; **Attachment B8)**. Floodplains are associated with Massac Creek and its tributaries and represent influence from the Ohio River floodplain as well. No floodways are located within the study area.

Coordination for transportation projects in mapped 100-year floodplain areas will be required with the McCracken County Floodplain Administrator and the Kentucky Division of Water (KYDOW), Surface Water Permits Branch, Floodplain Management Section to determine limitations on construction activities in these areas, as well as local and state permit requirements.

2.3 WETLANDS

A review of National Wetlands Inventory (NWI) data indicates that eleven (11) NWI-mapped wetlands are located throughout the study area (USFWS, 2013c; **Attachment B9**). The majority of the NWI mapped features (7) are identified as ponds, typically small farm ponds and storm water retention ponds readily observable in the landscape. Three larger features are mapped as forested wetlands along Massac Creek and unnamed tributaries to the east. The main channel of Massac Creek is mapped as a riverine wetland at the northern boundary of the study area.

NWI maps are developed using aerial photo interpretation from high-altitude aerial photography to detect areas with apparent soil saturation or inundation. Large wetlands systems are usually obvious while smaller wetlands are more difficult to detect. NWI maps provide useful background information to identify areas with potential wetlands, though actual field conditions may differ.

Several potential wetland locations were identified on aerial photography and were observed during field reconnaissance of the study area. These include potential emergent wetland features scattered throughout the study area and forested wetland features within the riparian corridor of Massac Creek. As 90% of the study area includes hydric soils, there is the high likelihood for additional unmapped wetlands to be present. These areas are indicated on **Attachment B9** with representative photographs in **Attachment D**.

Comprehensive wetland surveys and impact assessments, including evaluation of avoidance and minimization measures, will need to be conducted for the evaluation of the transportation alternatives. Unavoidable wetland impacts will require coordination with the United States Army Corps of Engineers (USACE) and Kentucky Division of Water (KDOW) to determine Section 404/401 permitting and mitigation requirements.

2.4 PONDS

Ponds within the study area were mapped as part of the NWI mapping discussed above. The seven ponds mentioned are predominantly diked or excavated ponds and are primarily located in the eastern portion of the study area. Recently constructed ponds (less than 10 years) are not included in the NWI maps and are most likely to be present in locations which have experienced new home or commercial development since that time. Ponds observed within the study area included agricultural use farm ponds, residential recreational ponds and storm water retention ponds adjacent to commercial development and the interstate.

2.5 GROUNDWATER RESOURCES AND PUBLIC WATER SUPPLIES

2.5.1 Groundwater Resources

Groundwater, spring, and water well information from the Kentucky Geologic Survey (KGS) and KDOW was reviewed for McCracken County. In general, groundwater resources in McCracken County are obtained from unconsolidated sedimentary rocks of Mississippian age and from unconsolidated sediments of Cretaceous, Tertiary, and Quaternary ages. The oldest geologic formation exposed on the surface in McCracken County is the Tuscaloosa Formation of Cretaceous age. Younger sediments including sand, silt, gravel, and clay deposits remain unconsolidated and soft. The coarser sediments are prolific aquifers for industrial, municipal, and domestic water-supply wells. Most groundwater used for domestic supply comes from relatively shallow wells (less than 150 feet in depth) in fractured bedrock or unconsolidated materials. Although little effort has been made in the past to determine the groundwater resource potential as it relates to high-yield wells, recent analysis indicated that three out of four resulting wells produced more water than 90% of all recorded wells in the area, and have enough water to supply from 50 to 250 homes per well. Water from most of the formations is commonly low in dissolved solids and soft to moderately hard. In McCracken County, iron and hydrogen sulfide are the main naturally occurring constituents sometimes encountered in groundwater which affect its use for drinking water (Carey and Stickney, 2004; Lambert, 1967, **Attachment B10**).

The coarser sediments which characterize the aquifers of McCracken County result in high-yield wells. However, these aquifers are sensitive to contamination, especially at shallow depth. In general, aquifers in the project area are mapped as having moderate to moderately high sensitivity to groundwater pollution potential (Ray et al, 1994; **Attachment B11**).

Review of Kentucky Geologic Survey data (KGS, 2013b) indicate there are 21 water wells registered in the study area (**Attachment B12**). Of these, 15 (71%) are monitoring wells clustered around the commercial facilities at the southeast corner, four (19%) are domestic use wells and one is an agriculture well for livestock watering. No springs are mapped within the study area. Based on available groundwater and bedrock geology data, the presence of springs is not considered to be common or widespread throughout the study area.

2.5.2 Public Water Supplies

Water supply is provided to the western portion of the study area (Bobo Road and westward) by the West McCracken County Water District. From KY 2411 to the east, water is provided by the Paducah Water District. The study area is not within a Source Water Assessment and Protection (SWAP) area.

2.6 THREATENED & ENDANGERED SPECIES

Information concerning federal and state endangered, threatened and special concern species and unique habitats in the project vicinity was obtained from the United States Fish and Wildlife Service (USFWS, 2013b), the USFWS Ecological Services Kentucky Field Office (USFWS, 2008), the Kentucky Department of Fish and Wildlife Resources (KDFWR, 2013), and the Kentucky State Nature Preserves Commission (KSNPC, 2013).

The USFWS Ecological Services Kentucky Field Office lists 11 federal endangered, threatened and candidate species known or with the potential to occur in McCracken County, as of the last publication date of 2008 (USFWS, 2008; **Attachment B13**). All but two of these listed species are mussel species. A more recent (May 10, 2013) USFWS threatened and endangered species listing for McCracken County has removed the rough pigtoe mussel from the species list, providing a total of 10 species listed for the project area (USFWS, 2013b; **Attachment B13**).

The KDFWR lists 18 state-listed species observations within the extent of the Heath and Paducah West USGS quadrangle maps that cover the study area, including eight (8) state-endangered, three (3) state-threatened and seven (7) state-special concern species (**Attachment B14**). Five of the listed species are also on the USFWS species lists (all mussel species) and one species is a candidate for the federal endangered list (also a mussel species).

Based on data received directly from Kentucky State Nature Preserves Commission (KSNPC), there are 70 records-of-occurrence of state and/or federal listed species in or within 5 miles of the study area (**Attachment B15**). The KSNPC response covered a review area significantly larger than the current study area. This response identified state and federal listed mussel, bird, and mammal species, as well as aquatic elements. Due to the sensitive nature of listed species information, location information for these records is not included in this report. The KSNPC response included recommendations to avoid impacts to several of the species that could occur within the study area. These recommendations are included in the discussion for the specific species which follow (KSNPC, 2013).

2.6.1 Federal-Listed Species

Eleven (11) federal-listed species have the potential to occur within the study area based on review of database information, including ten federal-endangered and one federal candidate species, identified in **Table 2**.

Table 2. Federal Threatened, Endangered, and Candidate Species for McCracken County, Kentucky

Common Name	Scientific Name	US Status	KY Status
Birds			
Interior Least Tern	*Sternula antillarum*	Endangered	Not Listed
Mammals			
Indiana Bat	*Myotis sodalis*	Endangered	Not Listed
Mussels			
Fat Pocketbook	*Potamilus capax*	Endangered	Endangered
Orangefoot Pimpleback	*Plethobasus cooperianus*	Endangered	Endangered
Pink Mucket	*Lampsilis abrupta*	Endangered	Endangered
Ring Pink	*Obovaria retusa*	Endangered	Endangered
Sheepnose	*Plethobasus cyphyus*	Endangered (formerly Candidate)	Endangered
Clubshell	*Pleurobema clava*	Endangered	Not Listed
Rough Pigtoe[1]	*Pleurobema plenum*	Endangered	Not Listed
Fanshell	*Cyprogenia stegaria*	Endangered	Not Listed
Spectaclecase	*Cumberlandia monodonta*	Candidate	Not Listed

Sources: USFWS, 2008 and 2013.
[1]Rough Pigtoe was not listed by USFWS through IPaC on-line review (2013), but was listed on the species by county list provided directly by the Kentucky Ecological Services Field Office (2008).

One of the listed species has potential habitat within the study area observed during field reconnaisance, specifically Indiana bat. None of the mussel species are expected to be present in Massac Creek or any other stream within the study area due to habitat requirements.

Birds

- **Interior Least Tern (***Sternula antillarum),* known to occur in McCracken County. The interior least tern favors sandbars in large rivers for nesting. This tern occurs in or near the major river systems of Midwestern United States. In Kentucky, the interior least tern nests along the lower Ohio River during the summer. They nest directly on the sand on the numerous islands along the Ohio River. Kentucky State Nature Preserves Commission (KSNPC) records indicate that this species has occurred within five miles of the study area on islands along the Ohio River (KSNPC, 2013). This tern is unlikely to occur within the study area.

Mammals

- **Indiana Bat** *(Myotis sodalis)*, known to occur in McCracken County. In summer, the Indiana bat's foraging habitat includes upland forests, bottomland forests, and riparian corridors. Suitable roost and winter sites include: cavities of dead and live trees in upland and riparian forests, wooded fencerows, old mine portals, rockhouses, clifflines, auger holes, and abandoned mines (KSNPC, 2013). KSNPC records show an occurrence of the Indiana bat within five miles of the study area (KSNPC, 2013). In addition, potential Indiana bat habitat was identified during the field reconnaissance (see Photo 22 in the photo log provided in **Attachment D**).

  In order to avoid impacts to bats, bottomland forests and riparian corridors, particularly near caves, should not be disturbed. KSNPC recommends that a thorough survey be conducted for the Indiana bat to identify if suitable habitat will be disturbed by the proposed project. The survey should include a search for potential roost and winter sites, and a mistnetting census at numerous points within the proposed corridor, particularly in preferred summer habitat (KSNPC, 2013).

  Review of information provided in the *Revised Indiana Bat Mitigation Guidance* for the Commonwealth of Kentucky (USFWS, 2011) indicates that the eastern end of the study area occurs within an area designated as a "Known maternity summer" and "Sensitive Area" for Indiana bat habitat (**Attachment 16**), consistent with the KSNPC record-of-occurrence. Work in this area requires coordination with the USFWS under the guidance document.

Mussels

- **Fat Pocketbook** *(Potamilus capax*), having potential to occur in McCracken County. The fat pocketbook prefers sand, mud, and fine gravel bottoms of large rivers. Today this mussel species is found only in the lower Wabash and Ohio Rivers, and the lower Cumberland River (USFWS, 2013a). The KSNPC records indicate that the fat pocketbook mussel has occurred within five miles of the study area on sand bars and shorelines of the Ohio River (KSNPC, 2013). This species is not likely to occur within the study area.

- **Orangefoot Pimpleback** *(Plethobasus cooperianus),* having potential to occur in McCracken County. The orangefoot pimpleback is found in medium to large rivers with sand and gravel substrates. Although it has typically been reported in deep waters with steady currents, it has also been found in shallower shoals and riffles. This species is believed to only occur in the lower Ohio River in Illinois, the middle reaches of the Cumberland River, and the lower reaches of the Tennessee River in northern Alabama and western Tennessee. Though considered rare, this species has been regularly documented in the Ohio River in the vicinity of Metropolis, Illinois (USFWS, 2013a). The KSNPC records indicate occurrences of the orangefoot pimpleback within five miles of

the study area in the Ohio River (KSNPC, 2013). This species is not likely to occur within the study area.

- **Pink Mucket** *(Lampsilis abrupta)*, having potential to occur in McCracken County. This species typically inhabits medium to large rivers with strong currrents. However, it has been able to survive and reproduce in areas of impounded reaches with river/lake conditions with standing water. This mussel is found in mud and sand and in shallow riffles and shoals swept free of silt in major rivers and tributaries, as well as pockets between rocky ledges in high velocity areas. Individuals have been found at depths up to one meter in swiftly moving currents and in much deeper waters with slower currents. This species occurs in the Ohio River (USFWS, 2013a; KSNPC, 2013). This species is not likely to occur within the study area.

- **Ring Pink** *(Obovaria retusa),* having potential to occur in McCracken County. This species inhabits relatively shallow waters (2 feet deep) with gravel and sandy substrates (USFWS). The KSNPC records indicate an occurrence of this species in the Ohio River. Recent data from the USFWS indicate that this mussel only occurs in the Tennessee and Green Rivers in Kentucky (USFWS). This species is not likely to occur within the study area.

- **Sheepnose** (*Plethobasus cyphyus),* having to occur in McCracken County. This species lives in larger rivers and streams; it is typically found in shallow areas with moderate to swift currents flowing over coarse sand and gravel (USFWS). The KSNPC records indicate occurrences of the sheepnose in the Ohio River (KSNPC). This species is not likely to occur within the study area.

- **Clubshell** *(Pleurobema clava),* having potential to occur in McCracken County. This species is typically found in clean, loose sand and gravel in medium to small rivers and streams where it buries itself in the bottom substrate to depths of up to four inches (USFWS). There were no occurrences of the clubshell within five miles of the study area reported by the KSNPC (KSNPC) and this species is not likely to occur within the study area.

- **Rough Pigtoe** *(Pleurobema plenum)*, having potential to occur in McCracken County. This species is found in medium to large rivers with sand, gravel, and cobble substrates. In addition, this species has been reported to occur in flats and muddy sand in shallow waters (USFWS). There were no occurrences of this species within five miles of the study area listed in KSNPC's records (KSNPC). This species is not likely to occur within the study area.

- **Fanshell** *(Cyprogenia stegaria),* having potential to occur in McCracken County. This species occurs in medium to large rivers. It has been reported primarily from relatively deep water in gravelly substrate with a moderate current. It is believed that reproducing populations are only present in three rivers: the Clinch River, the Green River, and the

Licking River. Non-reproducing populations may still exist in the Salt River (tributaries to the Ohio River). There were no occurrences of this species within five miles of the study area listed in KSNPC's records (KSNPC). Due to the reduced range of this species, this species is not likely to occur within the study area.

- **Spectaclecase *(Cumberlandia monodonta),*** having potential to occur in McCracken County. Spectaclecase mussels are found in large rivers where they live in areas sheltered from the main force of the river current, such as beneath rock slabs, between boulders, and under tree roots. The Spectaclecase has been found in streams of the Ohio River basin. However, there were no occurrences of this species within five miles of the study area listed in KSNPC's records (KSNPC). This species is not likely to occur within the study area.

2.6.2 State-Listed Species

State-listed species having the potential to occur in the study area were identified through records of the Kentucky State Nature Preserves Commission (KSNPC, 2013) and the Kentucky Department of Fish and Wildlife (KDFWR) Quad List State Threatened, and Special Concern Species (KDFWR, 2013). Twenty-five species were identified that could potentially occur within the study area based on historic recorded occurrences, including seven aquatic organisms, two bats, one amphibian, one butterfly, two vascular plants and 12 birds.

Based on habitats present within the study area as identified through aerial photography review and field reconnaissance, potential quality habitat may occur for twelve (12) of the twenty-five state-listed species. These habitats include Massac Creek and its associated riparian corridor and bottomland woodlands (potential habitat for five fish, one amphibian, one plant, two birds and two bat species) and the partly open agricultural areas around rural residential and farming sites (potential habitat for barn owl with several recorded occurrences in the area.) These species are identified below by an asterisk*.

Aquatic Organisms

Seven aquatic organisms have a record-of-occurrence within five miles of the study area, specifically:

- **Shrimp Crayfish** *(Orconectes lancifer)*, a state endangered crustacean species.
- **Cypress Minnow*** *(Hybognathus hayi),* a state endangered fish species.
- **Inland Silverside** *(Menidia beryllina),* a state threatened fish species.
- **Redspotted Sunfish*** *(Lepomis miniatus),* a state threatened fish species.
- **Taillight Shiner*** *(Notropis maculatus)*, a state threatened fish species.
- **Chain Pickerel*** *(Esox niger),* a state species of special concern.
- **Black Buffalo*** *(Ictiobus niger)*, a state species of special concern.

Aquatic species and habitat in the area may be sensitive to increased turbidity, sediment, and other adverse influences on water quality. KSNPC recommends that a written erosion plan be developed that includes stringent erosion control methods, i.e., straw bales, silt fences and erosion mats, immediate seeding and mulching of disturbed areas, which are placed in a staggered manner to provide several stages of control. All erosion control measures should be monitored periodically to ensure that they are functioning as planned. In addition, impacted streams should be thoroughly surveyed prior to any in-stream disturbance (KSNPC, 2013).

Two mussel species are included on the KDFWR list of state-listed species for the Paducah West and Heath quads but are not included above because they occur only in the Ohio River and are not likely to occur in the study area.

Mammals

- **Southeastern Myotis*** *(Myotis austroriparius),* a state endangered mammal species and a federal listed species of management concern. There have been several occurrences of this bat species within a ten-mile radius of the proposed project area. Summer foraging habitats include upland forests, bottomland forests, and riparian corridors. Suitable roost and winter sites include sandstone and limestone caves, rockhouses, clifflines, auger holes, and abandoned mines.

  KSNPC recommends that a thorough survey for this species be conducted by a qualified biologist if suitable habitat will be disturbed. The survey should include a search for potential roost and winter sites, and a mistnetting census at numerous points within the proposed corridor, particularly in preferred summer habitat. In order to avoid impacts to bats, bottomland forests and riparian corridors should not be disturbed.

- **Evening Bat*** *(Nycticeius humeralis)*, a state species of special concern. The evening bat occurs within ten miles of the project area (KSNPC, 2013). This bat roosts in trees and houses. Summer habitats include bottomland forests, swamps, and riparian corridors.

  In order to avoid impacts to bats, KSNPC recommends that a survey be conducted to include a search for potential roost and winter sites, and a mistnetting census at numerous points within the proposed corridor, particularly in preferred summer habitat (KSNPC, 2013).

Other Species

- **Northern Crawfish Frog*** *(Rana areolata circulosa),* a state species of special concern.
- **Northern Hairstreak** *(Satyrium favonius ontario),* a state butterfly species of special concern.
- **Cream Wild Indigo** *(Baptisia bracteata var. glabrescens)***,** a state plant species of special concern.
- **Hair Grass*** *(Muhlenbergia glabrifloris),* a state plant species of special concern.
- **Bachman's Sparrow** *(Aimophila aestivalis),* a state endangered bird species.

- **Sharp-shinned Hawk** *(Accipiter striatus),* a state endangered bird species.
- **Fish Crow** *(Corvus ossifragus),* a state bird species of special concern.
- **Mississippi Kite*** *(Ictinia mississippiensis),* a state bird species of special concern.
- **Hooded Merganser** *(Lophodytes cucullatus)*, a state threatened bird species.
- **Osprey** *(Pandion haliaetus),* a state bird of special concern.
- **Bank Swallow*** *(Riparia riparia),* a state bird species of special concern.
- **Barn Owl*** *(Tyto alba),* a state bird species of special concern.
- **Bell's Vireo** *(Vireo bellii),* a state bird species of special concern and a federal listed species of management concern.
- **Bald Eagle** *(Haliaeetus leucocephalus),* a state threatened bird species. .
- **Bobolink** *(Dolichonyx oryzivorus),* a state special concern species.
- **Dark-eyed Junco** *(Junco hyemalis),* a state special concern species.

2.7 WOODLAND HABITATS

Woodland habitats comprise approximately 25 percent of the study area (see discussion in Section 1.2 and **Attachment B1**). Woodlands occur on stream terraces and drainage feature corridors. Large, continuous tracts of woodland stretch across the landscape from north to south along the Massac Creek Corridor in the western portion of the study and along the tributaries to the Massac Creek in the eastern portion of the study area. Woodland habitats in the study area and vicinity are not considered to be significant natural (tourism, hunting, camping) or economic (forestry products) resources.

Woodland habitat in the study area was observed during field reconnaissance activities. Bottomland woods are found throughout the study area along the Massac Creek and its tributaries. Typical tree species in the bottomland woods include sycamore, box elder, maple, and ash. Typical upland woodland habitat is predominantly an oak-hickory mix.

McCracken County is located within the Big Rivers Forest Priority Area as identified in the Kentucky Statewide Assessment of Forest Resources (Third Rock Consultants, LLC, 2010). In addition, the study area is located within the Big Rivers Corridor Forest Legacy Area (FLA) which was identified as a subset within the larger priority area and is defined as an ecologically significant area where forestlands have a likely or imminent threat of being converted to non-forested areas. These areas are part of a larger conservation effort by multiple state, federal, and private agencies and/or have a large concentration of existing protected lands that would either be directly or indirectly enhanced by the protection of additional forestlands. The Big Rivers Corridor FLA was selected due to several reasons including:

- The area has numerous threatened and endangered species including Indiana bat, interior least tern, and copperbelly watersnake. Indiana bat habitat within the study area is shown on **Attachment B16**;

- the area contains the best remaining bottomland hardwood complexes in Kentucky; and

- agricultural land use is the primary threat to these forestlands.

There are no specific federal, Commonwealth of Kentucky, or local laws which regulate the clearance of woodland habitats in McCracken County. However, the forest resource assessment report does recommend that actions be taken to reduce or minimize forest fragmentation caused by roadway projects, such as expanding existing right-of-ways instead of creating new roadway alignments.

2.8 PUBLIC PARKS – SECTION 4(F) AND SECTION 6(F) FACILITIES

Based on review of secondary source information and available aerial mapping, no parks (Section 4(f) resources) are located in the study area (KDGI, 2007b; KYTC, 2013a; USGS, 1978 and 1982). In addition, no state or federal managed areas, parks, forests or preserves (Section 4(f) resources) occur within the study area. No facilities in the study area were identified as having received Land and Water Conservation Fund (LWCF) grants (Section 6(f) resources; NPS, 2013). No public use parks, forests, preserves, or recreational use areas were observed during field reconnaissance of the study area.

3.0 HUMAN ENVIRONMENT

Through review of secondary source information and field reconnaissance, the following social and economic resources were identified in the study area:

3.1 SOCIAL AND ECONOMIC RESOURCES

Cemeteries – Based on a review of USGS topographic maps and field survey, there are no cemeteries located within the proposed study area.

Churches/Houses of Worship – Based on a review of the USGS topographic map (Heath and Paducah West Quadrangles) and field reconnaissance, there are no churches located within the proposed study area.

Fire Departments and Emergency Services – There are no fire departments or emergency operations centers located within the study area. The study area is within the Concord Fire District. Fire and emergency services are provided by both the West McCracken VFD2, located at Ogden Landing Road and Metropolis Lake Road in close proximity to the western portion of the study area, and Concord VFD2, located at Maxon Road and Cairo Road, in close proximity to the eastern portion of the study area. (McCracken County Fiscal Court, 2013.)

Hospitals – No hospitals are mapped in the study area or were observed during the field reconnaissance.

Law Enforcement – No law enforcement facilities are mapped within the study area or were observed during the field reconnaissance.

Schools, Institutions and Learning Centers – No schools, institutions or learning centers are mapped within the study area or were observed during the field reconnaissance.

Industrial Parks – The Ohio River Megapark, also known as the Ohio River Triple Rail Megasite, is located in the western portion of the study area. The industrial park, which is owned by the Paducah Economic Development Agency, extends from the Ohio River on the north to the Paducah and Illinois Railway on the south and Massac Creek on the east. The park totals 1,319.3 acres, which includes approximately 392 acres outside the study area to the west of the BNSF rail line. The proposed new access road will connect this park with KY 305.

Federal Facilities – No federal facilities or federal government owned lands are mapped in the study area or were observed during the field reconnaissance.

Golf Courses – No golf courses are mapped in the study area or were observed during the field reconnaissance.

3.2 ARCHAEOLOGICAL AND CULTURAL HISTORIC RESOURCES – SECTION 106 AND SECTION 4(F) RESOURCES

Information concerning archaeological and cultural historic resources in the vicinity of the project study area was provided by Cultural Resource Analysts, Inc. (CRA, 2013). CRA conducted a records review of the study area in accordance with *Archeology and Historic Preservation: Secretary of the Interior's Standards and Guidelines.* A records search of the National Register of Historic Places (NRHP) database, as well as records maintained by the Office of State Archaeology (OSA), and the Kentucky Heritage Council (KHC) was conducted to: 1) determine if the project area has been previously surveyed for archaeological or cultural historic resources; 2) identify any previously recorded archaeological or cultural historic sites that are situated within the study area; 3) provide information concerning archaeological and cultural historic resources that can be expected within the project area; and 4) provide a context for any archaeological or cultural historic resources recovered within the project area. The NRHP records indicate that no archaeological or cultural historic sites listed on the NRHP are situated within the study area.

3.2.1 Archaeological Resources

The OSA geographic information system (GIS) database was searched for archaeological survey reports and records of archaeological sites for the proposed study area. The OSA records review indicates that no prehistoric archaeological sites are documented within the study area. However, these records also indicate that several sites with prehistoric components have been identified nearby. Furthermore, a few of these sites have been recommended for NRHP evaluations and others have been recommended for deep testing. Therefore, CRA considers there to be a moderate potential for encountering prehistoric archaeological resources including deeply buried deposits within the study area.

3.2.2 Cultural Historic Resources

The KHC records were searched and a review of professional survey reports and records of cultural historic sites located within and adjacent to the study area was conducted. The records review identified no previously recorded cultural historic sites and no previously completed cultural historic surveys within or adjacent to the study area. The records review indicated that there are seven "coded properties" within the study area; however, KHC does not maintain any records regarding these properties, so there is no additional information available regarding their potential significance.

In addition to the file searches, historic mapping was reviewed to identify any historic structures that were located within the study area. Based on the historic map review, several residences within the study area were identified that were constructed prior to 1926 and were abandoned or demolished by 1952. The locations of these former residences would be expected to contain historic archaeological deposits dating to the early twentieth century and perhaps earlier. Therefore, CRA considers the study area to have a high potential for historic farm/residence archaeological sites.

Based on the findings from the archaeological and cultural resources screening, it is recommended that archaeological and cultural historic baseline surveys be conducted to identify any archaeological and cultural historic resources that may be affected by the proposed project. Due to the alluvial nature of the study area, the archaeological survey should include some form of deep testing, such as bucket augering or limited backhoe trenches. The complete report detailing the database review for the proposed project is provided in **Attachment C**.

3.3 HAZARDOUS MATERIALS CONCERNS

Properties with hazardous material concerns were identified through review of readily available state and federal database records. Federal and state regulatory database records research was provided in part by Environmental Data Resources, Inc. (EDR, 2013)(**Attachment B17**) , in addition to a review of the Kentucky Statewide Underground (UST) Database Report (KDWM, 2013), Kentucky Solid Waste Facilities GIS information (KDWM, 2012), and USEPA Envirofacts Data Warehouse information (2013a).

Potential hazardous materials concern records obtained via the EDR database search report (EDR, 2013) were reviewed and mapped within a three mile radius of the center of the project study area. The following hazardous materials concerns were identified:

- One Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS), No Further Remedial Action Planned (CERC-NFRAP) site: Vaughn Property, 7910 Mayfield Metropolis Road, at the west end of the study area. Further examination of the record data, however, indicated that the site was not mapped correctly in the EDR report; the site was remapped to 87910 Mayfield-Metropolis Road and found to be outside the three mile radius of the project site. This was confirmed

through field reconnaissance of the site that was observed to be an active agricultural area with rural residential and farm structures.

- Seven Underground Storage Tank (UST) records, with two located in the study area at the I-24 and KY 305 interchange: Cheers Food & Fuel 136, 5425 Old Cairo Road; and Pilot Travel Center 358, 5353 Cairo Road.

- Three Historical Auto Station records, all located at the I-24 and KY 305 interchange. These records were associated with three separate addresses; MaxFuel Express 34, 5100 Cairo Rd; A&K Truck Repair, 5108 Cairo Rd; and A&K Truck Repair, 5110 Cairo Rd.

- Three Hazardous Materials Incident Report System Sites (HMIRSS) records associated with one property: R&L Carriers, 5301 Cairo Road.

- One Manufactured Gas Plant Site (MGP), located in Metropolis, IL.

- Three State Hazardous Waste Sites (SHWS) records, all located well outside the study area.

3.3.1 Underground Storage Tanks

Underground Storage Tanks (USTs) within and in the vicinity of the study area were identified through a review of the Kentucky Department of Environmental Protection's UST database. Based on this review, seven UST sites were identified within or in close proximity of the study area. Two of these sites are businesses located in the study area along Cairo Road (KY305) just west of the I-24 interchange, verified as the Pilot Travel Center and the Cheers Food & Fuel 135 service stations.

Three historical auto station records were identified in the study area, which indicate the possible presence of USTs that were installed and/or abandoned prior to effective record keeping by state regulating authority. These sites are all located on Cairo Road, just west of the I-24 interchange. Four additional historical auto station records were identified within the three mile radius of the project center. None of these three sites were positively identified during field reconnaissance of the study area.

A Phase I Environmental Site Assessment for USTs will need to be conducted if the proposed access road project should impact any of these properties.

3.3.2 USEPA and State Regulated Sites

The occurrence of USEPA regulated sites and incident reports in the vicinity of the study area was determined through review of the USEPA Envirofacts Data Warehouse (USEPA, 2013a) and the EDR (2013) regulatory database search of the following databases:

USEPA NPL (National Priority List-Active and Delisted); CERCLIS (Comprehensive Environmental Response Compensation and Liability Information System – Superfund); NFRAP (CERCLIS Archived Sites); RCRA (Resource Conservation and Recovery Act: Generators, Corrective Action, Treatment Storage and Disposal Facilities); Brownfields; ACRES (Assessment, Cleanup and Redevelopment Exchange System); AIRS/AFS (Aerometric Information Retrieval System/AIRS Facility Subsystem); Biennial Reporting; PCS (Permit Compliance System); and TRI (Toxics Release Inventory).

STATE SHWS (State level Superfund); SWL (Permitted Operating Landfills); LUST (Senate Bill 193 and PSTEAF); Brownfields, and CDL (Clandestine Drug Labs).

Based on a review of USEPA databases, the following USEPA and State regulated facilities are either within the study area or within the three mile radius of the study area's center. See **Attachment B17** for an excerpt of the EDR report which lists all identified facilities beyond those presented below:

RCRA (Resource Conservation and Recovery Act) Hazardous Materials Generators; Corrective Actions, Treatment Storage or Disposal Facilities (TSD): There are no Federal RCRA generators or TSD facilities within the study area or the three-mile data search radius.

SHWS: The State Hazardous Waste Sites records are the states' equivalent to CERCLIS. These sites may or may not already be listed on the federal CERCLIS list. Priority sites planned for cleanup using state funds (state equivalent of Superfund) are identified along with sites where cleanup will be paid for by potentially responsible parties. The Department of Environmental Protection's Uncontrolled Site Branch List includes two SHWS sites:

- Beasley's Used Parts, 4711 Cairo Road, West Paducah, Kentucky. This site, which is located approximately ¾ mile outside the study area on Cairo Road (KY305), has been closed since 2009. It had petroleum contaminated soil which was remediated.

- McCracken County Landfill, Coleman Road, Paducah, Kentucky. This site, which is located approximately one mile outside the study area, was closed in 2008. It is listed as a CERC-NFRPA site, which is an archived site that has been removed from the inventory of the CERCLIS sites because the assessment at the site has been completed and the EPA has determined that no further steps will be taken to list this site on the National Priorities List (NPL). This site includes seven USTs that have been removed.

AIRS (Aerometric Information Retrieval System): There are two AIRS sites within two miles of the study area. These sites have federally registered permits to discharge pollutants to the air.

3.3.3 Oil and Gas Wells

Based on a review of the Kentucky Geologic Survey data, there are no oil and gas wells within the study area (KGS, 2013a and 2013c). The nearest producing well is approximately 7 miles northwest of the study area.

3.3.4 Landfills

Review of information from Kentucky Environmental and Public Protection Cabinet, Division of Waste Management (KDWM), Solid Waste Branch indicated that there are no active solid waste facilities in the study area. (KDWM, 2013a). The EDR report indicated that the McCracken County Landfill is located approximately one mile outside of the study area on Coleman Road, southwest of the interchange of I-24 and KY 305. This facility has two landfill areas: one is closed and is a CERCLIS-NRRAP archived site. The other facility is still operating and is listed as a Convenience Center-Solid Waste-Registered Permit By Rules (SW-RPBR) site.

3.4 AGRICULTURE

Review of 2007 Agricultural Census data from the United States Department of Agriculture (USDA, 2007a) indicates that McCracken County is ranked 61th out of Kentucky's 120 counties in agricultural production value, with crop production accounting for 71% of the total value of agricultural products and livestock, poultry and their products accounting for 29%. The leading crops are soybeans and corn based on the number of acres in agricultural production.

Soil information for the study area (USDA, 2013a and 2013b) indicates that prime farmland soils cover approximately 39 percent of the study area. An additional 37 percent of the study area includes soils that are considered prime farmland soils if they are drained or protected from flooding during the growing season, and approximately 6.5 percent is covered by soils of statewide importance (**Attachment B18**). Most of these soils are currently in agricultural land uses.

Aerial photography review (USDA, 2013a) and field reconnaissance indicated that agricultural lands are dispersed throughout the study area and comprise approximately half of the study area land use.

Impacts to existing farmlands or farmland soils will require coordination with the local Natural Resources Conservation Service (NRCS) office to complete a Farmland Conversion Impact Rating Form to evaluate the potential impacts to the agricultural economy and prime farmland soils.

3.5 MINING

The presence of mines or quarries in the study area was investigated through review of information from the Kentucky Geological Survey Information Service (KGS, 2013a), Kentucky

Mine Mapping Information System (KMMI, 2013) and review of USGS mapping and aerial photography.

Based on a review of secondary source information and field reconnaissance of the study area, there are no active or inactive mines located in the study area. In addition, there are no mined out areas mapped within McCracken County and the county is not covered by any of the Division of Abandoned Mine Lands' three field offices.

3.6 AIR QUALITY AND NOISE

3.6.1 Air Quality

Review of available USEPA Green Book data (USEPA, 2012) indicated that McCracken County and the surrounding areas are in attainment for all National Ambient Air Quality Standards (NAAQS) for criteria pollutants which include: lead (Pb), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), carbon monoxide (CO), 8-hour ozone (O_3), particulate matter ($PM_{2.5}$, PM_{10}), and Mobile Source Air Toxics (MSATs). Based on the KYTC's guidance document for preparing NEPA Documentation for Air Quality, the air quality requirements that will be required as part of the NEPA documentation are summarized below for each of the criteria pollutants (FHWA and KYTC).

Carbon Monoxide (CO): It is unlikely that the proposed project will meet the criteria requiring a CO project-level analysis (having a signalized intersection with a projected open to traffic year average daily traffic (ADT) greater than 80,000 vehicles per day, or be controversial). Therefore, based on the Kentucky CO Screening Criteria(1), this project would not require a CO project level analysis and would not produce a projected violation of the CO standards (35 parts per million over a 1-hour period or 9 parts per million over an 8-hour period).

Lead (Pb): Lead has not been a mobile source concern since Tetraethyl Lead was banned as a fuel additive. All areas in Kentucky are in attainment for lead (Pb). Therefore, this is not a concern for the proposed project.

Nitrogen Dioxide (NO_2): All areas in Kentucky are in attainment for Nitrogen Dioxide (NO_2). Therefore, no further air quality analysis is required for this criteria pollutant.

Sulfur Dioxide (SO_2): SO_2 is primarily an industrial source concern and not a mobile source concern. All areas in Kentucky are in attainment for Sulfur Dioxide (SO_2); therefore, no further air quality analysis is required for this criteria pollutant.

8-Hour Ozone (O_3): This project is located in an Ozone attainment area; therefore, this pollutant is not a concern.

Particulate Matter ($PM_{2.5}$): This project is located in a $PM_{2.5}$ attainment area; therefore, this pollutant is not a project-level concern. Therefore, the conformity procedures of 23 CFR 770 do not apply to this project.

Particulate Matter (PM_{10}): All areas in Kentucky are in attainment for PM_{10}. Therefore, the conformity procedures of 23 CFR 770 do not apply to this project.

Mobile Source Air Toxics (MSATs): Projects that facilitate new development may generate additional MSAT emissions from new trips, truck deliveries, and parked vehicles (due to evaporative emissions). The proposed project includes the development of a new access road and two intersections, one with KY 305 and one with the Ohio River Triple Rail Megasite.

Based on FHWA Interim Guidance on Air Toxic Analysis this project is considered to have low potential for MSAT effects because it does not meet the criteria for exempt projects or projects with higher potential MSAT effect (FHWA and KYTC, 2008). A qualitative assessment of MSAT impacts is appropriate for this project.

3.6.2 Noise

In accordance with the Kentucky Transportation Cabinet's (KYTC) Noise Analysis and Abatement Policy, which implements the FHWA Noise Standard, the identification of noise sensitive sites or areas is done early in the planning phase of highway projects in order to assess specific traffic noise impacts and abatement measures at locations that may experience increased traffic noise levels as a result of the proposed project (KYTC, 2011). **Table 3** defines and describes various noise activity categories and their presence in the study area.

Based on a review of land use, topographic mapping and field reconnaissance, several noise-sensitive receptors were identified within the study area. Residential areas (Activity Category B) are primarily located along Cairo Road (SR 305) in the southeast section of the study area though there are a few residences scattered throughout the study area along local roads. The Fern Lake Campground (Activity Category C) is also located on Cairo Road in the southeastern section of the study area. The Baymont Inn (Activity Category E) is located on the south side of KY 305 and to the west of the I-24 interchange but does not include an exterior use, such as a pool.

In areas where sensitive noise receptors are located, potential project-related noise impacts will be evaluated as part of the National Environmental Policy Act (NEPA) documentation. Noise mitigation measures will be considered, if warranted.

Table 3. Noise Activity Categories

Activity Category	Description of Activity Category (Land Use)	Present in Study Area
A	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue its intended purpose.	**No**
B*	Residential	**Yes**
C*	Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails, and trail crossings.	**Yes**
D	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios.	**No**
E*	Hotels, motels, offices, restaurants/bars, and other developed lands, properties or activities not included in A-D or F.	**No**

Source: KYTC, *Noise Analysis and Abatement Policy,* Frankfort, Kentucky, effective date July 13, 2011,
* Includes undeveloped lands permitted for this activity category.

3.7 SOCIOECONOMIC DATA AND ENVIRONMENTAL JUSTICE

3.7.1 Socioeconomic Data

Socioeconomic data for the study area are being provided by the Purchase Area Development District (PADD) for inclusion in the project Scoping Study.

3.7.2 Environmental Justice

Basic population data for the study area and vicinity were obtained from U.S. Census 2010 data and American Community Survey 5-year Estimates data for Census Tracts 314 and 315 in McCracken County and are presented in **Table 4** below.

Table 4. Poverty and Minority Population Data

	Study Area		McCracken County	Kentucky
	Census Tract 314	Census Tract 315		
Total Population	5,898	7,024	65,565	4,339,367
Below Poverty	561 (9.5%)	812 (11.6%)	9,572 (14.6%)	785,425 (18.1%)
Minority	470 (8.0%)	293 (4.2%)	9,803 (14.9%)	529,830 (12.2%)

Source: US Census, American Community Survey 5-year Estimates, 2007-2011, US Census 2010.

The study area includes portions of Census Tracts 314 and 315, which have a total population of 12,922 (US Census, 2010). The poverty rates for Census Tracts 314 and 315 are 9.5% and 11.6%, respectively, which are below the poverty rates for McCracken County (14.6%) and the Commonwealth of Kentucky (18.1%). The percentages of minority residents in Census Tracts 314 and 315 are 8.0% and 4.2%, respectively, which are lower than the percentages of minority residents for McCracken County (14.9%) and Kentucky (12.2%) (US Census, 2011). These data are consistent with the environmental justice mapping provided by the USEPA's website (USEPA, 2013b), that indicates that the percentage of minority residents in the study area is between 0 and 20% and the percentage of residents below the poverty level is between 10 and 20% (see **Attachment B19**).

The proposed project must be in compliance with Title IV of the Civil Rights Act of 1964 and Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, 1994. Based on the EJ data presented, there are no EJ concerns in the study area.

3.8 ADDITIONAL ITEMS OF CONCERN

3.8.1 Railroad Lines

Several active rail lines border the study area. Canadian National Railway (CN) (formerly Illinois Central) and the Burlington Northern Santa Fe Railway Company (BNSF) rail line are located along the western boundary and Paducah and Louisville Transportation Inc. (PAL) is along the southern boundary of the study area. A small rail service yard is located at the northwest corner of the study area adjacent to Mayfield Metropolis North Road.

3.8.2 Utility Infrastructure

One utility located within the study area:

- An 8-inch natural gas line owned by Atmos Energy Corporation located along Meredith Road.

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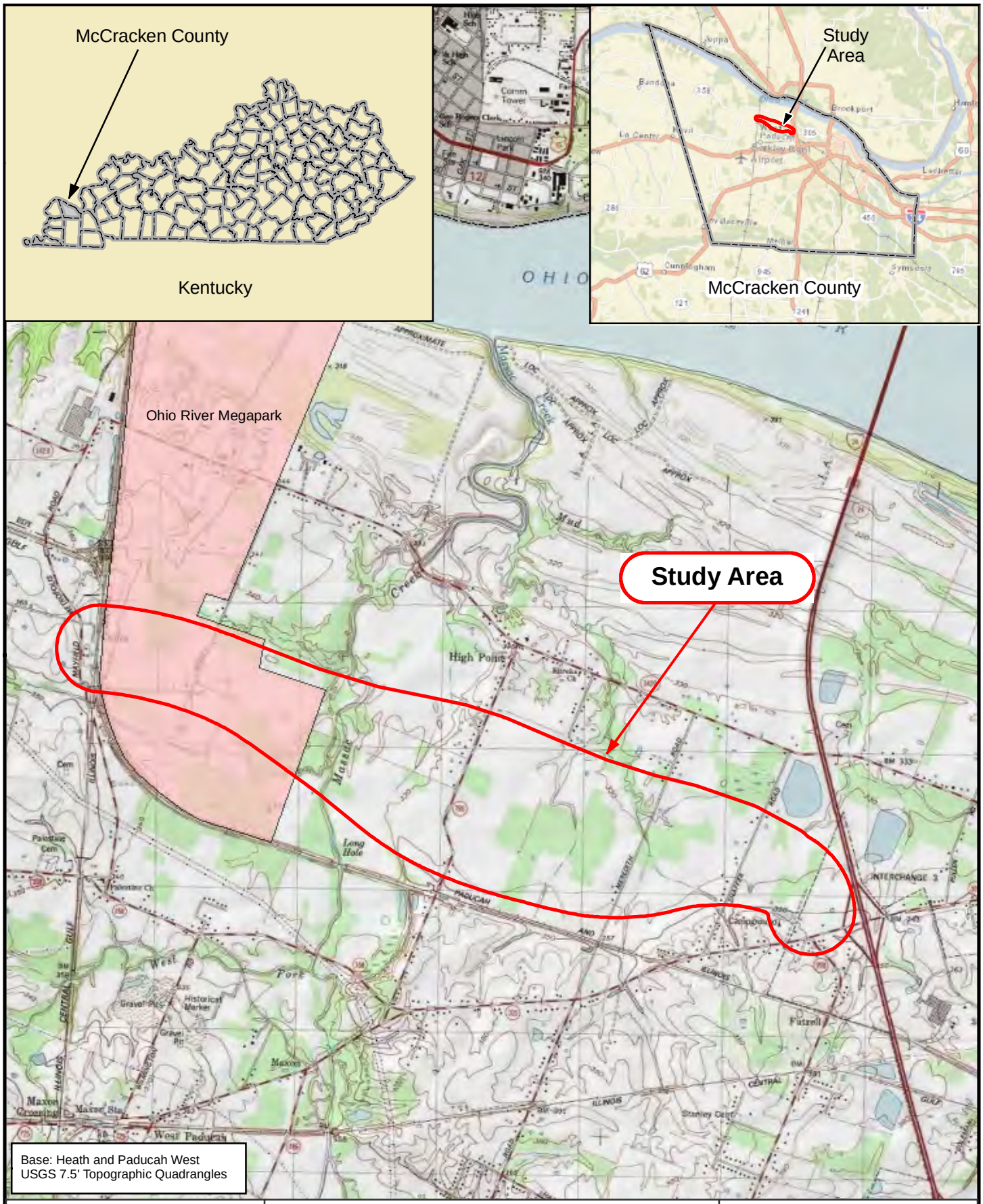
ATTACHMENT A

A1. Project Location Map
A2. Environmental Footprint, Natural Environment
A3. Environmental Footprint, Human Environment
A4. Environmental Footprint on USGS Base



May 2013

N

0 1,500 3,000 Feet

Environmental Overview

Ohio River MegaPark Connector
KYTC Item No. 1-8702.00
McCracken County, KY

Attachment A1

Project Location Map

Potential Forested Wetlands; Floodplain

Potential Forested Wetlands; Floodplain

Potential Forested Wetlands; Floodplain

BOBO E

RUDY WOODS RD

MAYFIELD METROPOLIS N RD

MITCHELL RD

MAJORS RD

Massac Creek

West

1420

2411

358

1565

305

JOHNSON RD

Mud Branch

24

SHAFFER RD

FUGATE LN

MEREDITH RD

CARR RD

PRIVATE

ORCHARDVIEW DR

GAYLE LN

MAXON RD

0 1,000 2,000 Feet

N

May 2013

Legend

- Study Area
- Sensitive Areas
- Megasite Boundary
- City Boundary

Water Wells

- DOMESTIC
- MONITORING
- OTHER

- Streams (NHD)
- NWI Wetland
- 100-Year Floodplain

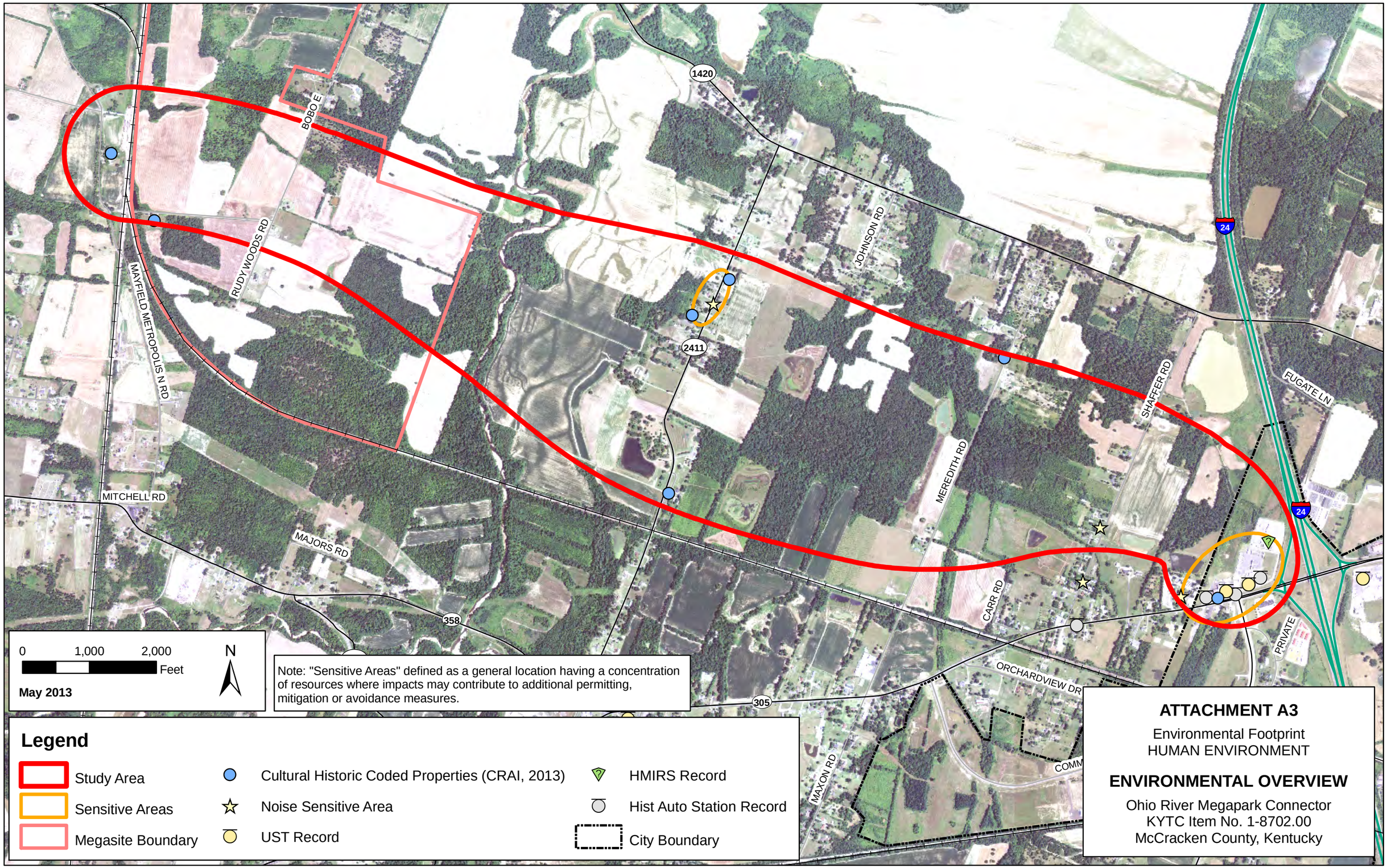
Note: "Sensitive Areas" defined as a general location having a concentration of resources where impacts may contribute to additional permitting, mitigation or avoidance measures.

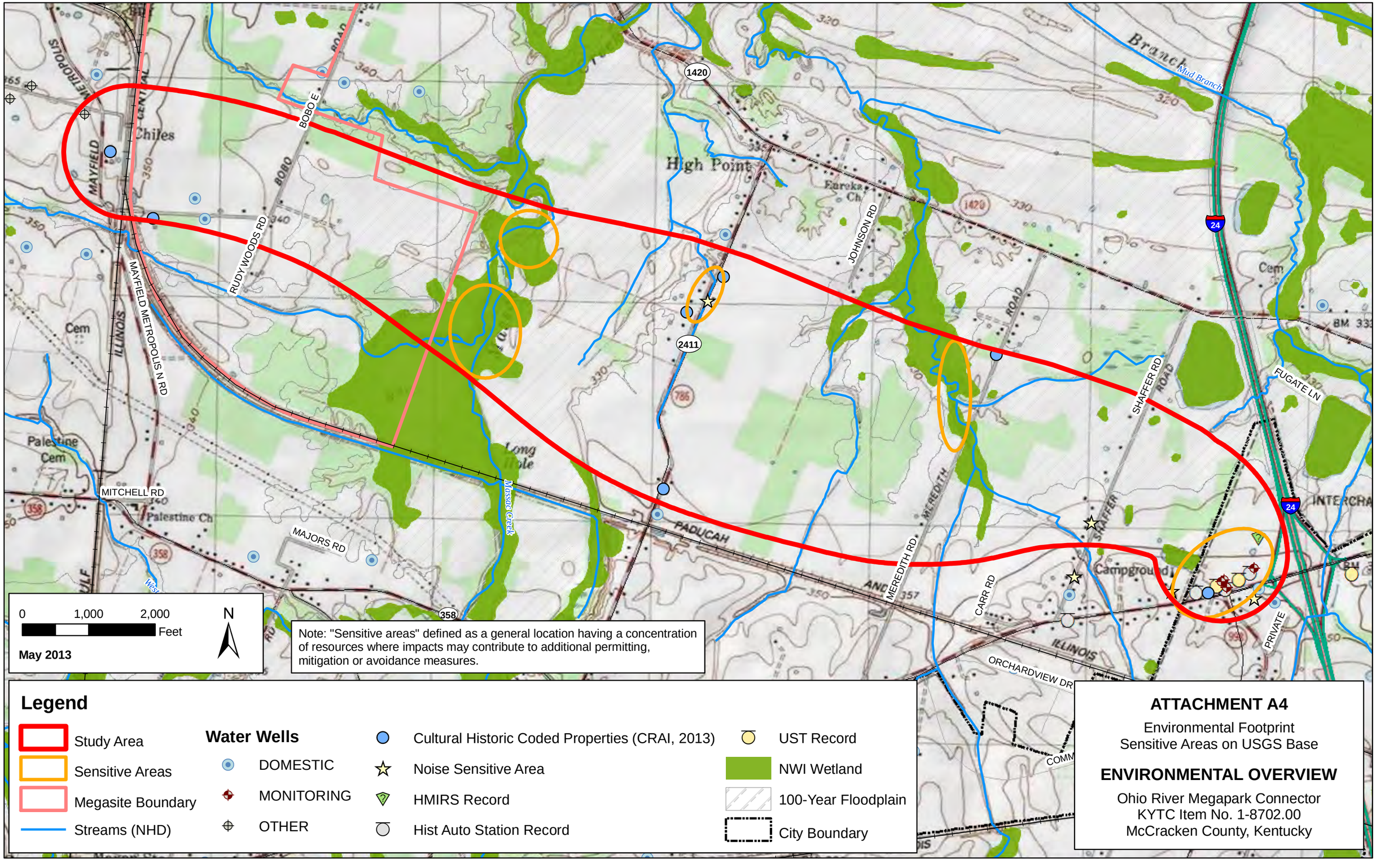
ATTACHMENT A2

Environmental Footprint
NATURAL ENVIRONMENT

ENVIRONMENTAL OVERVIEW

Ohio River Megapark Connector
KYTC Item No. 1-8702.00
McCracken County, Kentucky

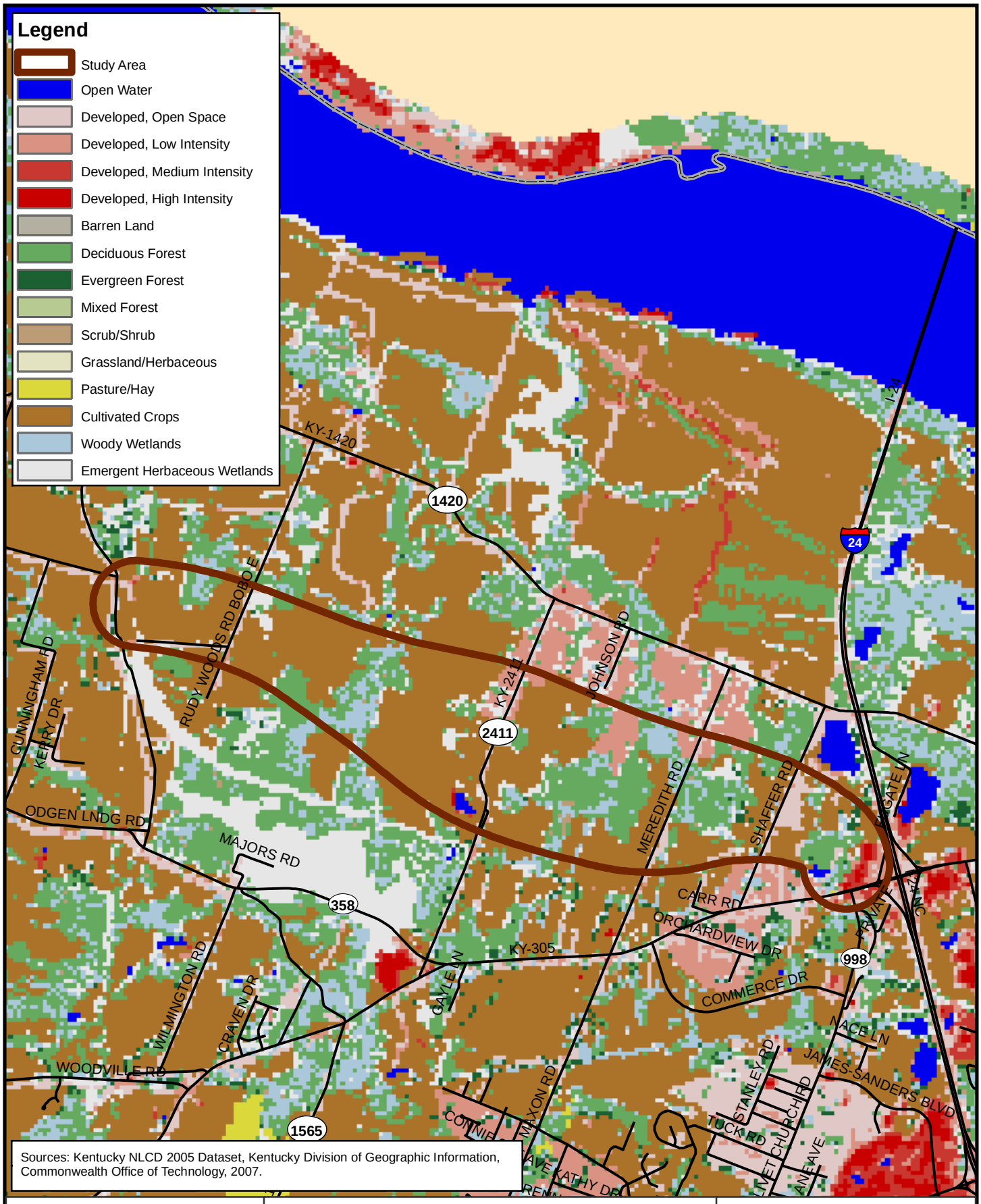

1420
BOBO E
RUDY WOODS RD
MAYFIELD METROPOLIS N RD
JOHNSON RD
24
2411
SHAFFER RD
FUGATE LN
MEREDITH RD
MITCHELL RD
MAJORS RD
358
CARR RD
PRIVATE
ORCHARDVIEW DR
305
MAXON RD
0
1,000
2,000
Feet
N
May 2013
Note: "Sensitive Areas" defined as a general location having a concentration of resources where impacts may contribute to additional permitting, mitigation or avoidance measures.
Legend
Study Area
Sensitive Areas
Megasite Boundary
Cultural Historic Coded Properties (CRAI, 2013)
Noise Sensitive Area
UST Record
HMIRS Record
Hist Auto Station Record
City Boundary
ATTACHMENT A3
Environmental Footprint
HUMAN ENVIRONMENT
ENVIRONMENTAL OVERVIEW
Ohio River Megapark Connector
KYTC Item No. 1-8702.00
McCracken County, Kentucky


1420
BOBO E
BOBO
RUDY WOODS RD
MAYFIELD
MAYFIELD METROPOLIS N RD
ILLINOIS
Chiles
High Point
Eureka Ch
JOHNSON RD
Mud Branch
Branch
24
Cem
SHAFFER RD
ROAD
FUGATE LN
2411
786
Palestine Cem
Palestine Ch
MITCHELL RD
MAJORS RD
Massac Creek
PADUCAH
MEREDITH RD
CARR RD
ILLINOIS
ORCHARDVIEW DR
PRIVATE
Campground
INTERCHA
358
357
350
330
320
340
0 1,000 2,000 Feet
N
May 2013
Note: "Sensitive areas" defined as a general location having a concentration of resources where impacts may contribute to additional permitting, mitigation or avoidance measures.
Legend
Study Area
Sensitive Areas
Megasite Boundary
Streams (NHD)
Water Wells
DOMESTIC
MONITORING
OTHER
Cultural Historic Coded Properties (CRAI, 2013)
Noise Sensitive Area
HMIRS Record
Hist Auto Station Record
UST Record
NWI Wetland
100-Year Floodplain
City Boundary
ATTACHMENT A4
Environmental Footprint
Sensitive Areas on USGS Base
ENVIRONMENTAL OVERVIEW
Ohio River Megapark Connector
KYTC Item No. 1-8702.00
McCracken County, Kentucky

ATTACHMENT B

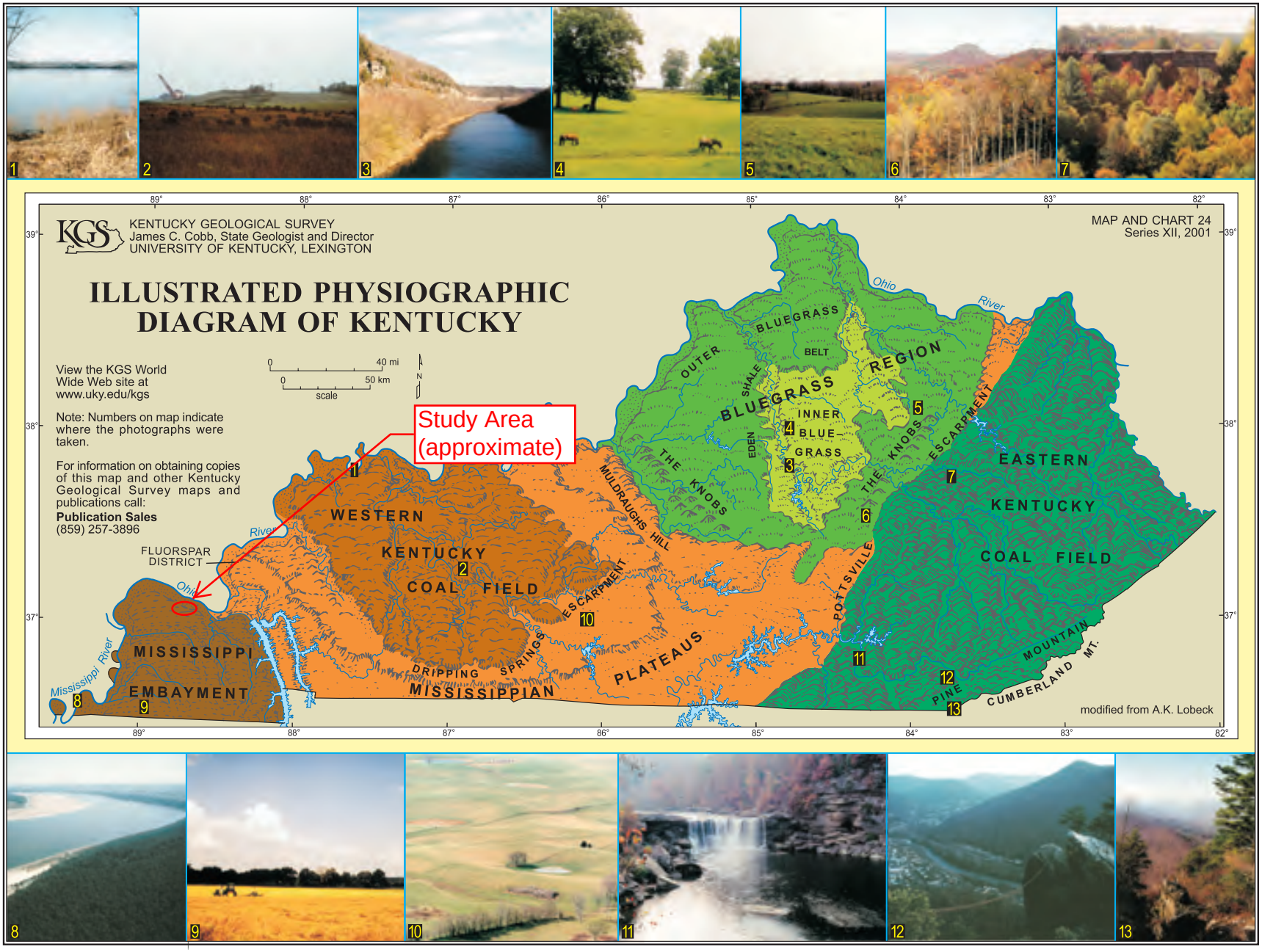
Supplemental Information

B1. Land Cover (2005 Land Cover Dataset)
B2. Physiographic Regions of Kentucky
B3. Ecoregions of Kentucky
B4. Topographic Map
B5. McCracken County Geology Map
B6. Hydric Soils
B7. Watersheds and Mapped Streams
B8. 100-year Floodplains
B9. NWI-Mapped Wetlands
B10. Ground Water Resources
B11. Groundwater Sensitivity Regions of Kentucky
B12. Well Locations
B13. USFWS Endangered Species Lists for McCracken County, Kentucky
B14. KDFWR Quad List of State Threatened, Endangered and Special Concern Species Observations in Heath and Paducah West quads
B15. KSNPC Response
B16. Known Indiana Bat Habitat in Project Vicinity
B17. Env*ironmental Data Resources,* The EDR Radius Atlas™ with GeoCheck® Report (excerpt)
B18. NRCS Custom Soil Survey Report for Ballard and McCracken Counties
B19. Environmental Justice Maps


Legend
Study Area
Open Water
Developed, Open Space
Developed, Low Intensity
Developed, Medium Intensity
Developed, High Intensity
Barren Land
Deciduous Forest
Evergreen Forest
Mixed Forest
Scrub/Shrub
Grassland/Herbaceous
Pasture/Hay
Cultivated Crops
Woody Wetlands
Emergent Herbaceous Wetlands
KY-1420
1420
I-24
24
RUDY WOODS RD
BOBO LN
GUNNINGHAM RD
KERRY DR
ODGEN LNDG RD
MAJORS RD
358
KY-2411
2411
JOHNSON RD
MEREDITH RD
SHAFFER RD
EDGATE LN
CARR RD
ORCHARDVIEW DR
KY-305
998
COMMERCE DR
NACE LN
JAMES-SANDERS BLVD
STANLEY RD
TUCK RD
WILMINGTON RD
CRAVEN DR
GAYLE LN
WOODVILLE RD
1565
MAXON RD
KATHY DR
Sources: Kentucky NLCD 2005 Dataset, Kentucky Division of Geographic Information, Commonwealth Office of Technology, 2007.
May 2013
N
Miles
0
0.25
0.5
Ohio River MegaPark Connector
KYTC Item No. 1-8702.00
McCracken County, KY
Attachment B1
Land Cover

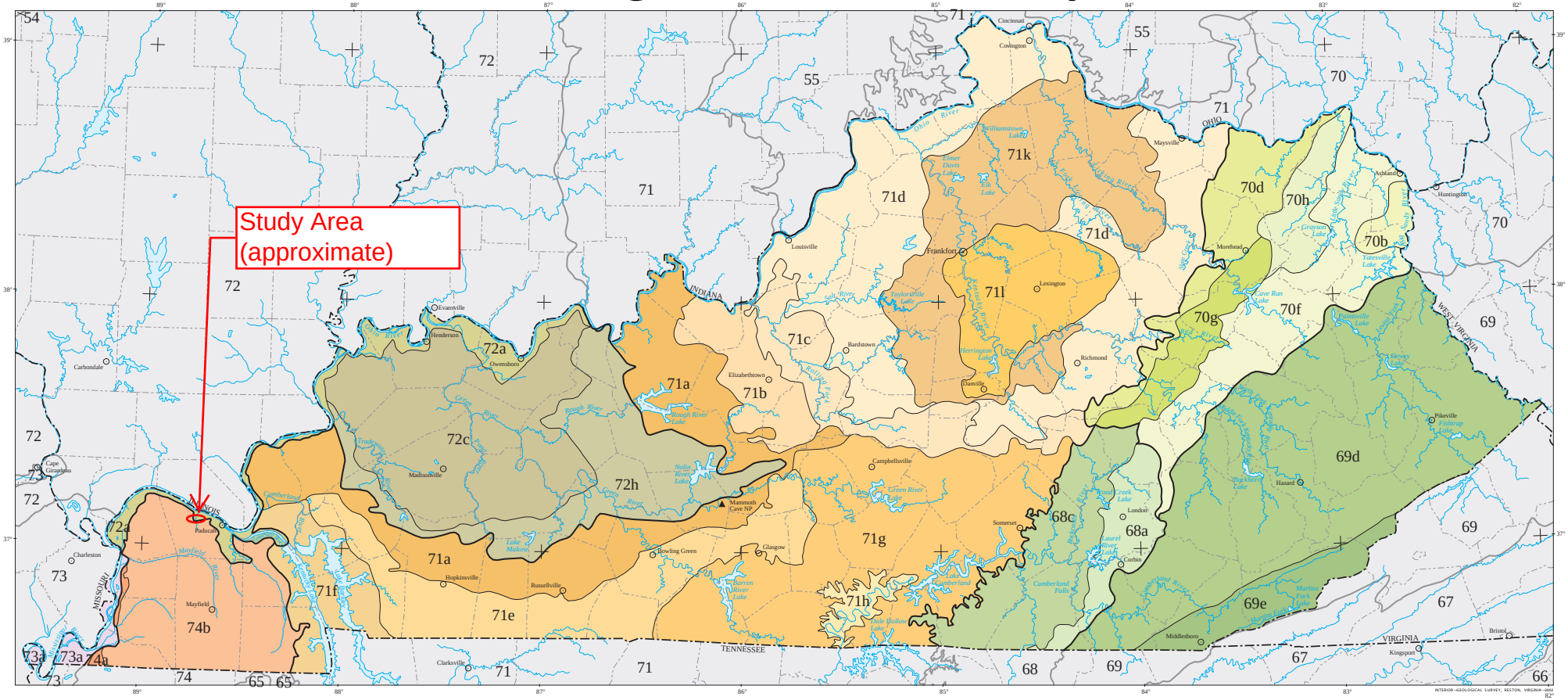
Attachment B2

Physiographic Regions of Kentucky



Attachment B3

Ecoregions of Kentucky



PRINCIPAL AUTHORS: Alan J. Woods (Dynamac Corporation), James M. Omernik (USEPA), William H. Martin (Division of Natural Areas, Eastern Kentucky University), Greg J. Pond (KDEP, Division of Water, Water Quality Branch), William M. Andrews (Kentucky Geological Survey), Sam M. Call (KDEP, Division of Water, Water Quality Branch), Jeffrey A. Comstock (Indus Corporation), and David D. Taylor (USFS).

COLLABORATORS AND CONTRIBUTORS: Terry Anderson (KDEP, Division of Water, Water Quality Branch), John Brumley (KDEP, Division of Water, Water Quality Branch), Julian Campbell (The Nature Conservancy), Thomas R. Loveland (USGS), Jim Harrison (USEPA), and Mike Mills (KDEP, Division of Water, Water Quality Branch).

REVIEWERS: Mike Barbour (Tetra Tech), William S. Bryant (Professor, Department of Biology, Thomas More College), H.R. DeSelm (Emeritus Professor, Department of Botany, University of Tennessee, Knoxville), and Clara Leuthart (Chair and Associate Professor, Department of Geosciences, University of Louisville).

CITING THIS POSTER: Woods, A.J., Omernik, J.M., Martin, W.H., Pond, G.J., Andrews, W.M., Call, S.M, Comstock, J.A., and Taylor, D.D., 2002, Ecoregions of Kentucky (color poster with map, descriptive text, summary tables, and photographs): Reston, VA., U.S. Geological Survey (map scale 1:1,000,000).

This project was partially supported by funds from the USEPA's Office of Research and Development through USEPA Region IV's Regional Ecological Assessment Program (REAP) via contract 68-D-01-0005 to Dynamac Corporation.

Level III ecoregion
Level IV ecoregion
County boundary
State boundary
International boundary

68 Southwestern Appalachians
- 68a Cumberland Plateau
- 68c Plateau Escarpment

69 Central Appalachians
- 69d Dissected Appalachian Plateau
- 69e Cumberland Mountain Thrust Block

70 Western Allegheny Plateau
- 70b Monongahela Transition Zone
- 70d Knobs–Lower Scioto Dissected Plateau
- 70f Ohio/Kentucky Carboniferous Plateau
- 70g Northern Forested Plateau Escarpment
- 70h Carter Hills

71 Interior Plateau
- 71a Crawford–Mammoth Cave Uplands
- 71b Mitchell Plain
- 71c Knobs–Norman Upland
- 71d Outer Bluegrass
- 71e Western Pennyroyal Karst Plain
- 71f Western Highland Rim
- 71g Eastern Highland Rim
- 71h Outer Nashville Basin
- 71k Hills of the Bluegrass
- 71l Inner Bluegrass

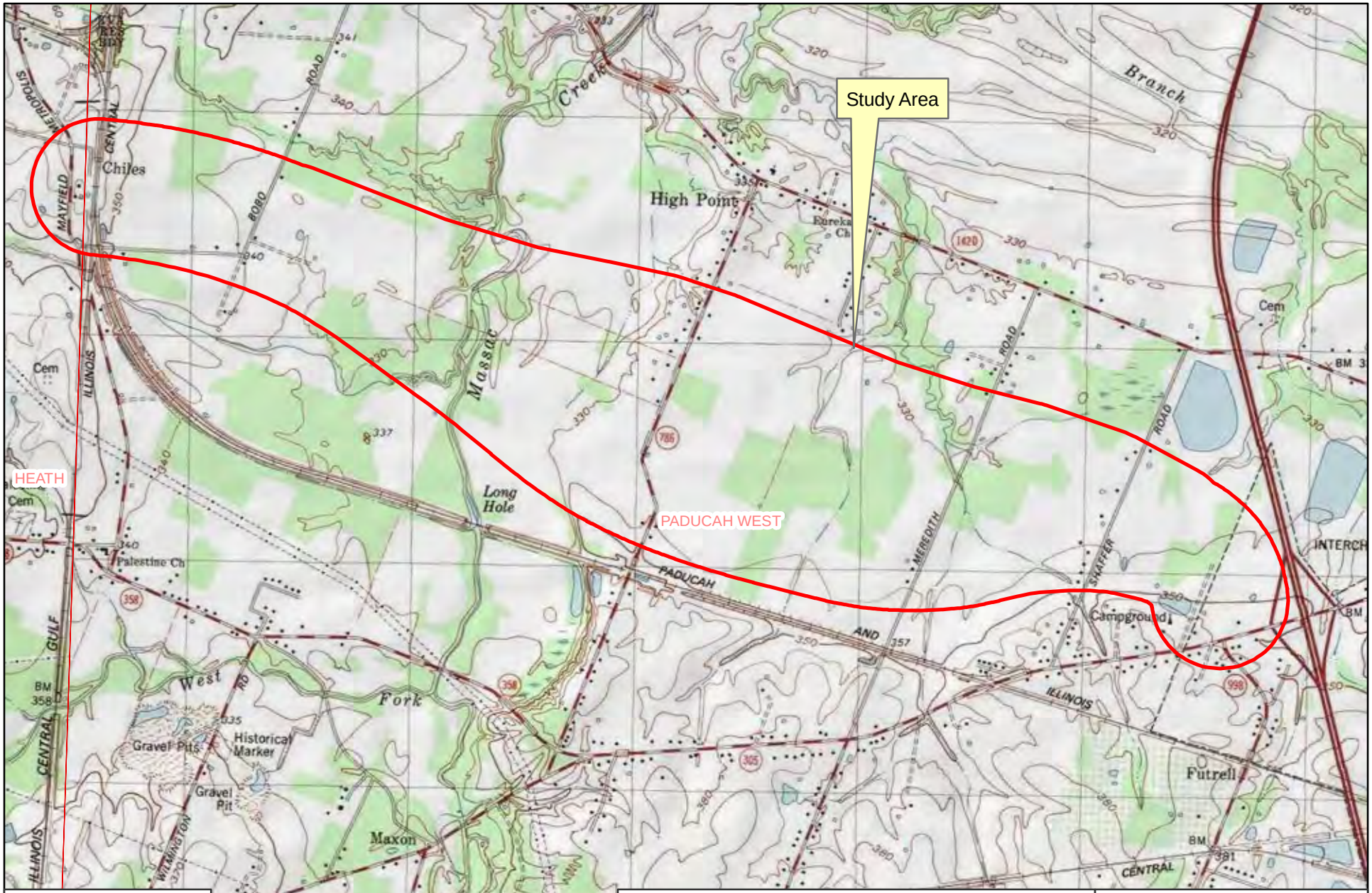
72 Interior River Valleys and Hills
- 72a Wabash–Ohio Bottomlands
- 72c Green River–Southern Wabash Lowlands
- 72h Caseyville Hills

73 Mississippi Alluvial Plain
- 73a Holocene Meander Belts

74 Mississippi Valley Loess Plains
- 74a Bluff Hills
- 74b Loess Plains

15 10 5 0 30 60 mi
30 20 10 0 60 120 km

Albers Equal Area Projection
Standard parrallels 37° N and 39° N



May 2013

1:24,000

N

Source: USGS 7.5' Topographic Quadrangles
Heath (1978) and Paducah West (1982)

Ohio River MegaPark Connector

KYTC Item No. 1-8702.00
McCracken County, KY

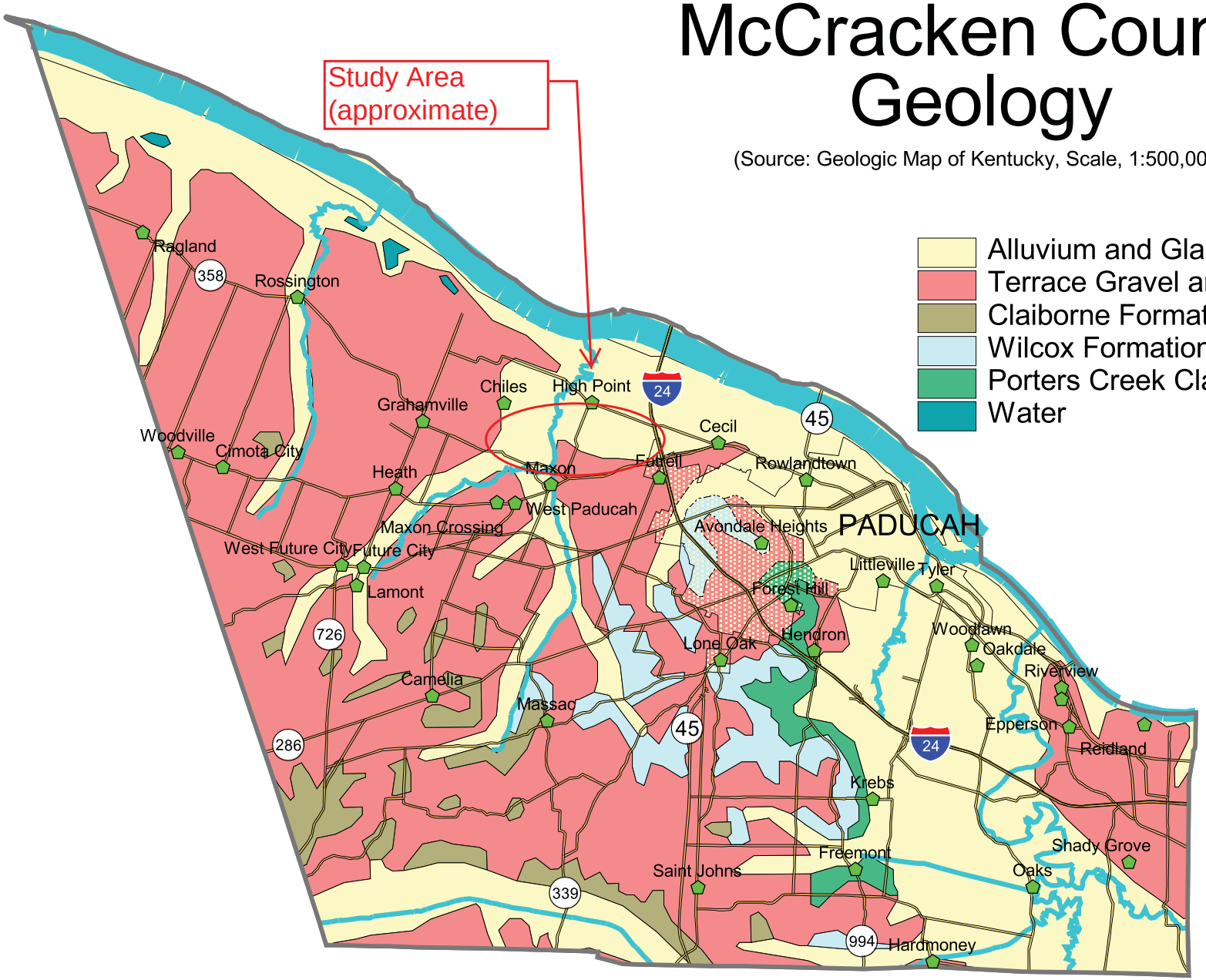
Attachment B4

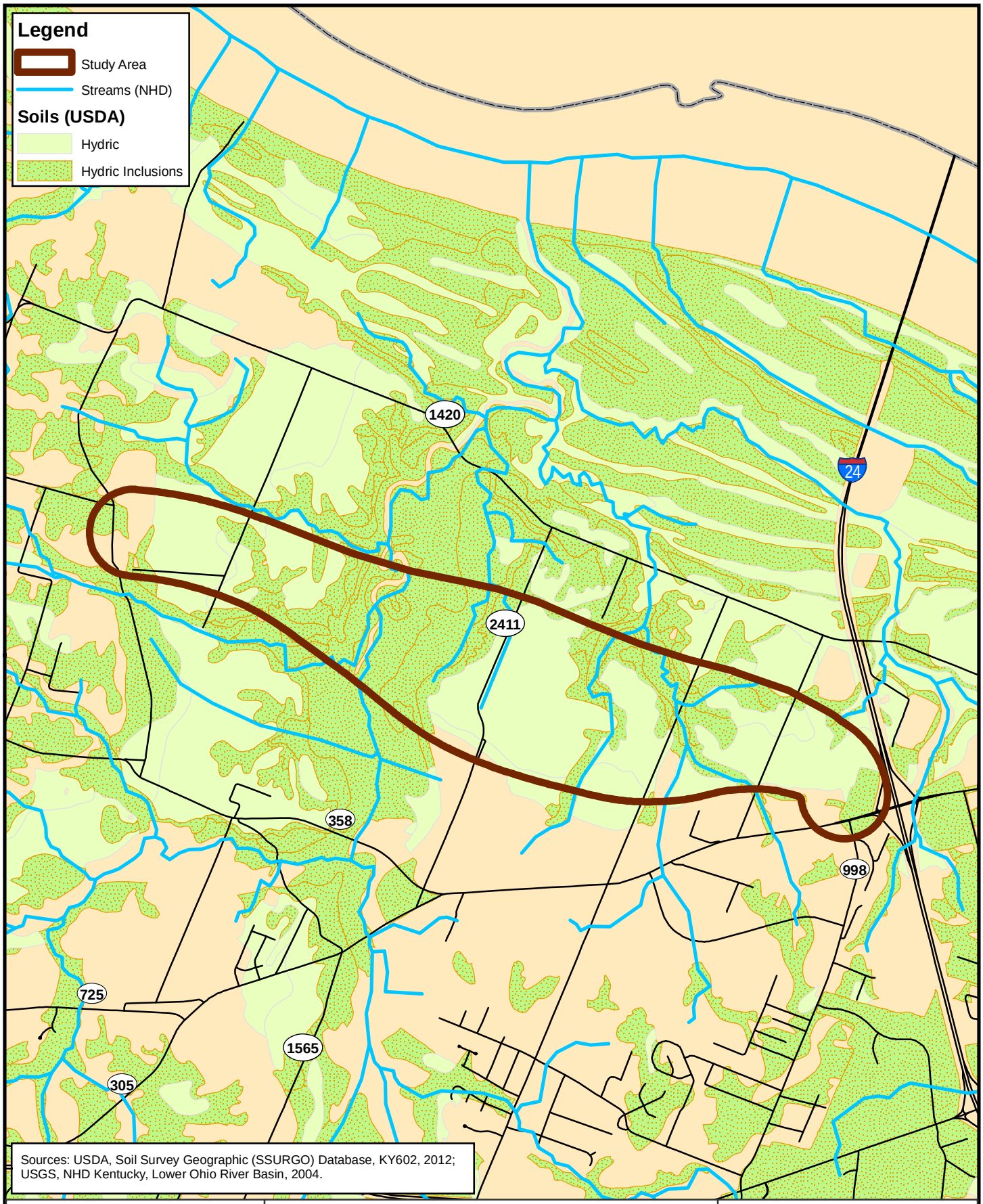
Topography

Attachment B5

McCracken County Geology

(Source: Geologic Map of Kentucky, Scale, 1:500,000)





May 2013

Miles
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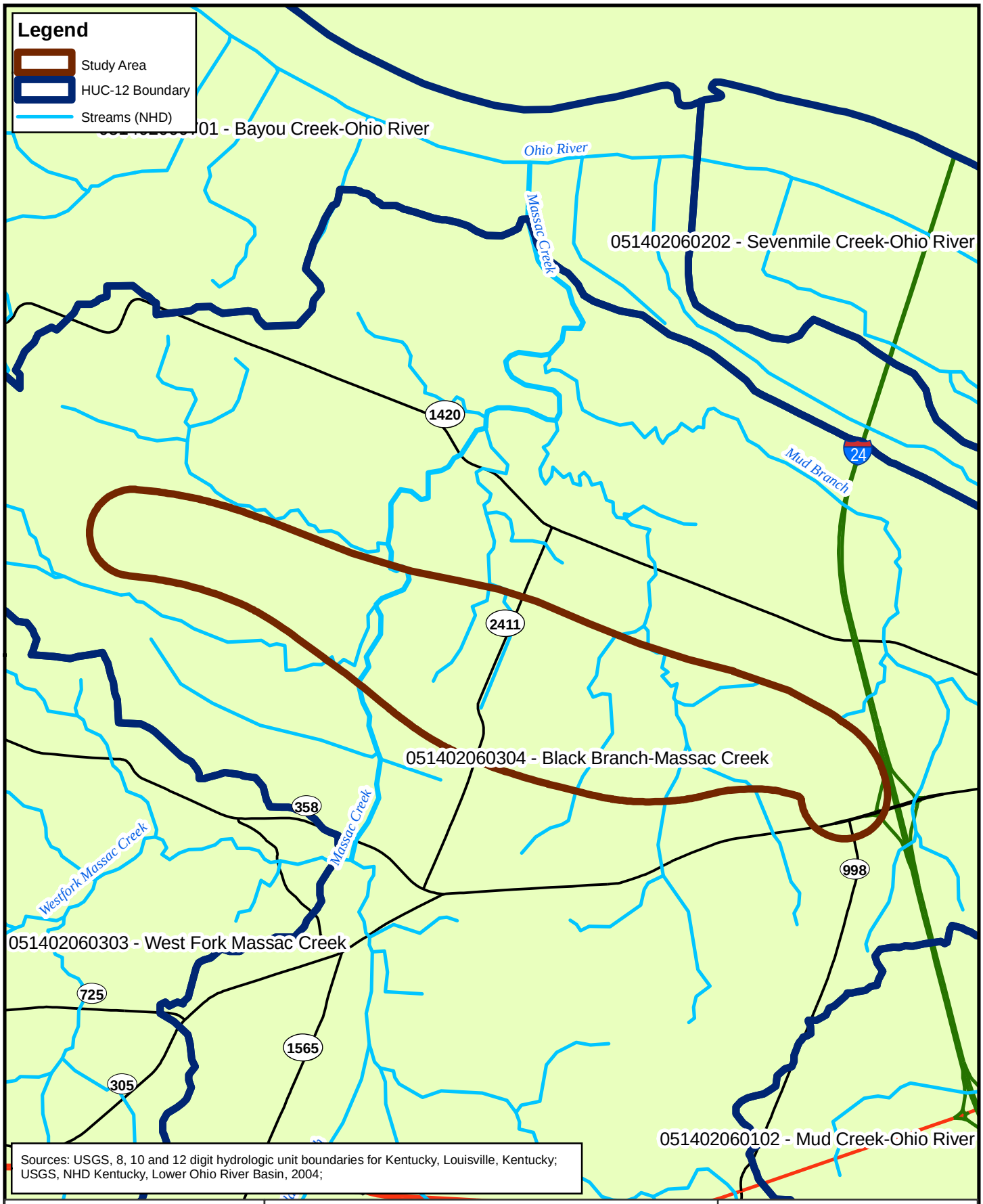
Ohio River MegaPark Connector

KYTC Item No. 1-8702.00
McCracken County, KY

Attachment B6

Hydric Soils



May 2013

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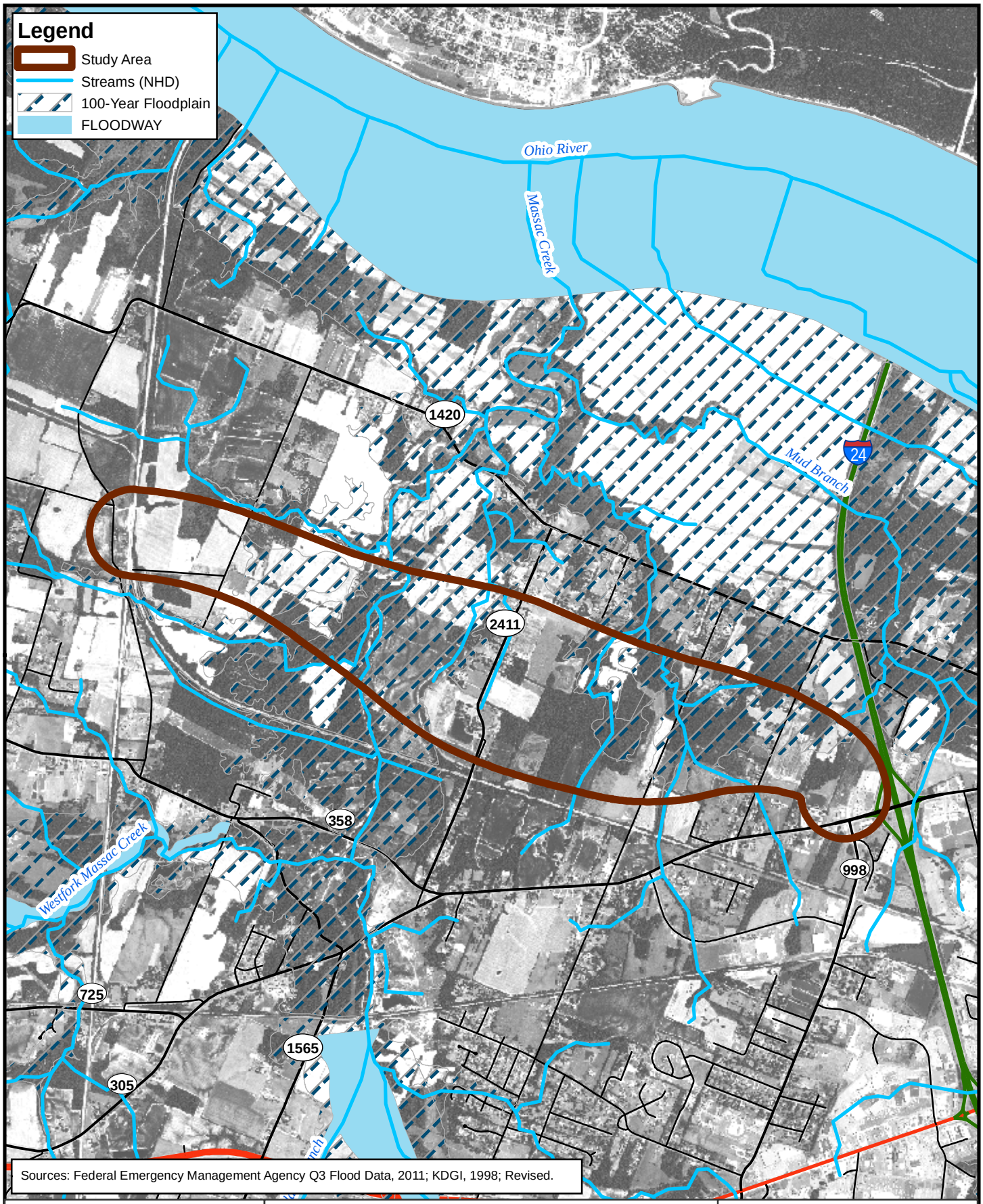
Ohio River MegaPark Connector

KYTC Item No. 1-8702.00
McCracken County, KY

Attachment B7
Watersheds and Mapped Streams



Sources: Federal Emergency Management Agency Q3 Flood Data, 2011; KDGI, 1998; Revised.

May 2013

Miles
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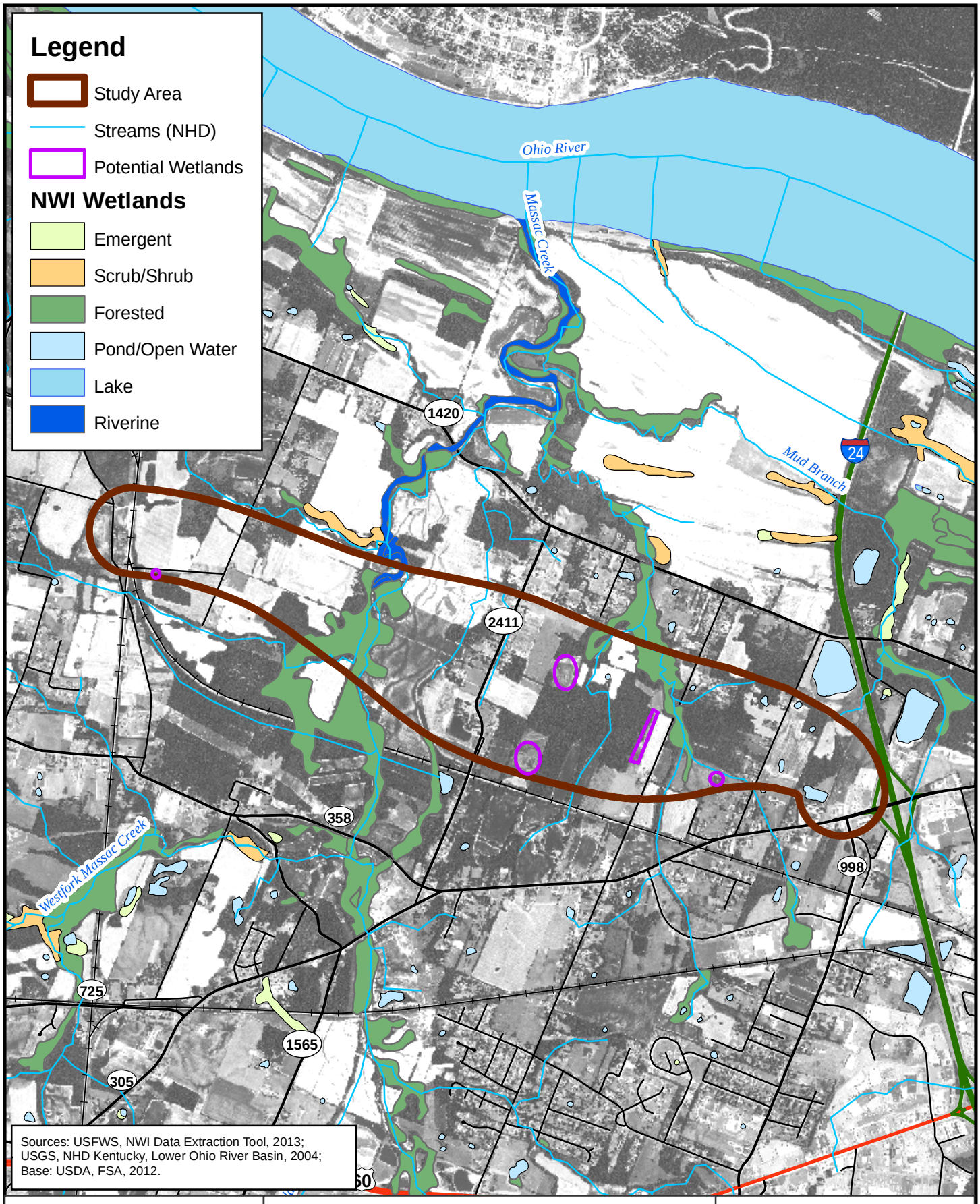
Ohio River MegaPark Connector

KYTC Item No. 1-8702.00
McCracken County, KY

Attachment B8

100-Year Floodplains



May 2013

Miles
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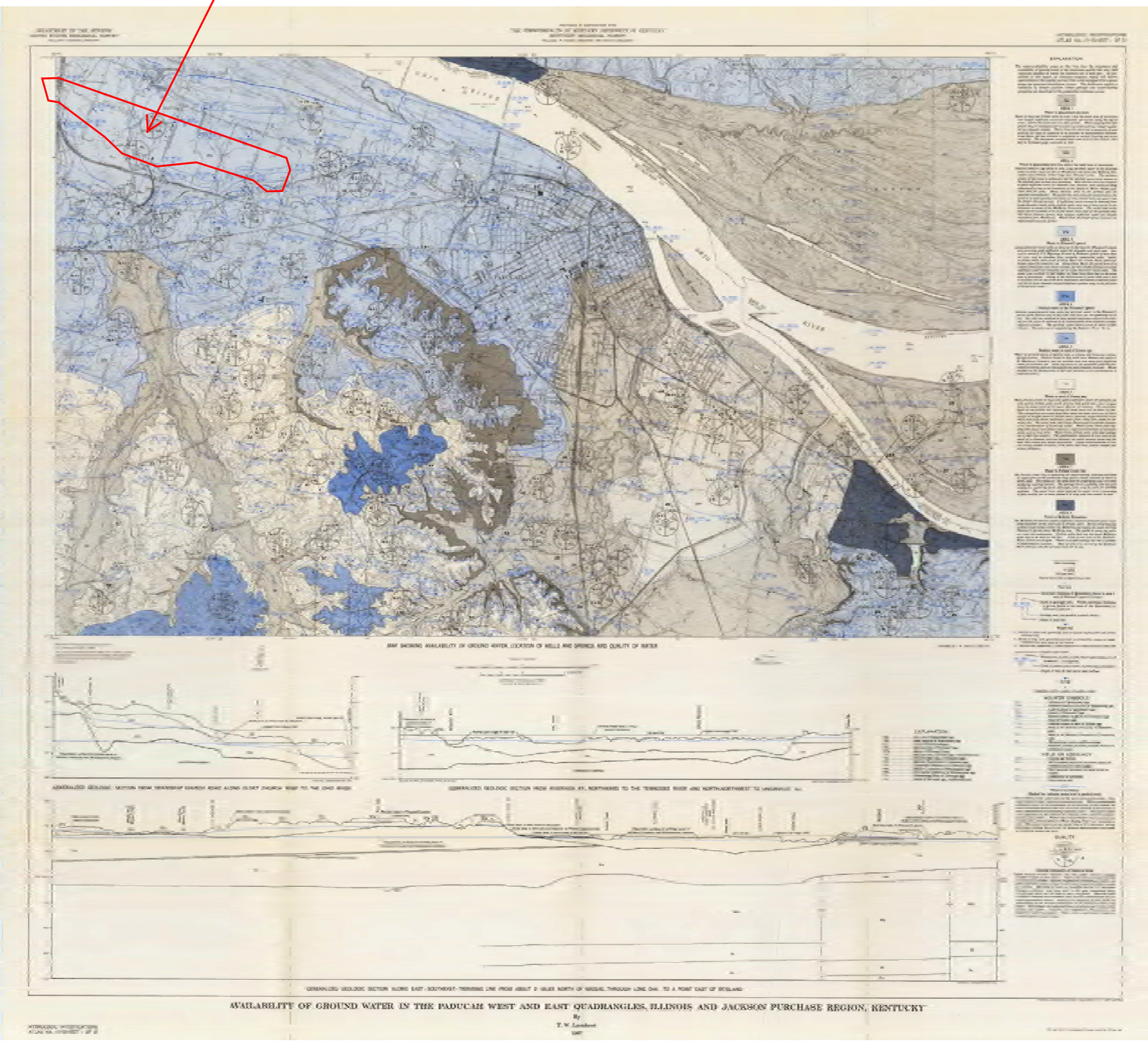
Ohio River MegaPark Connector

KYTC Item No. 1-8702.00
McCracken County, KY

Attachment B9

NWI-Mapped Wetlands

Attachment B10



NOTE: Reduced from original size. See original document (Lambert, 1967) for details.

Attachment B11

Groundwater Sensitivity Regions of Kentucky

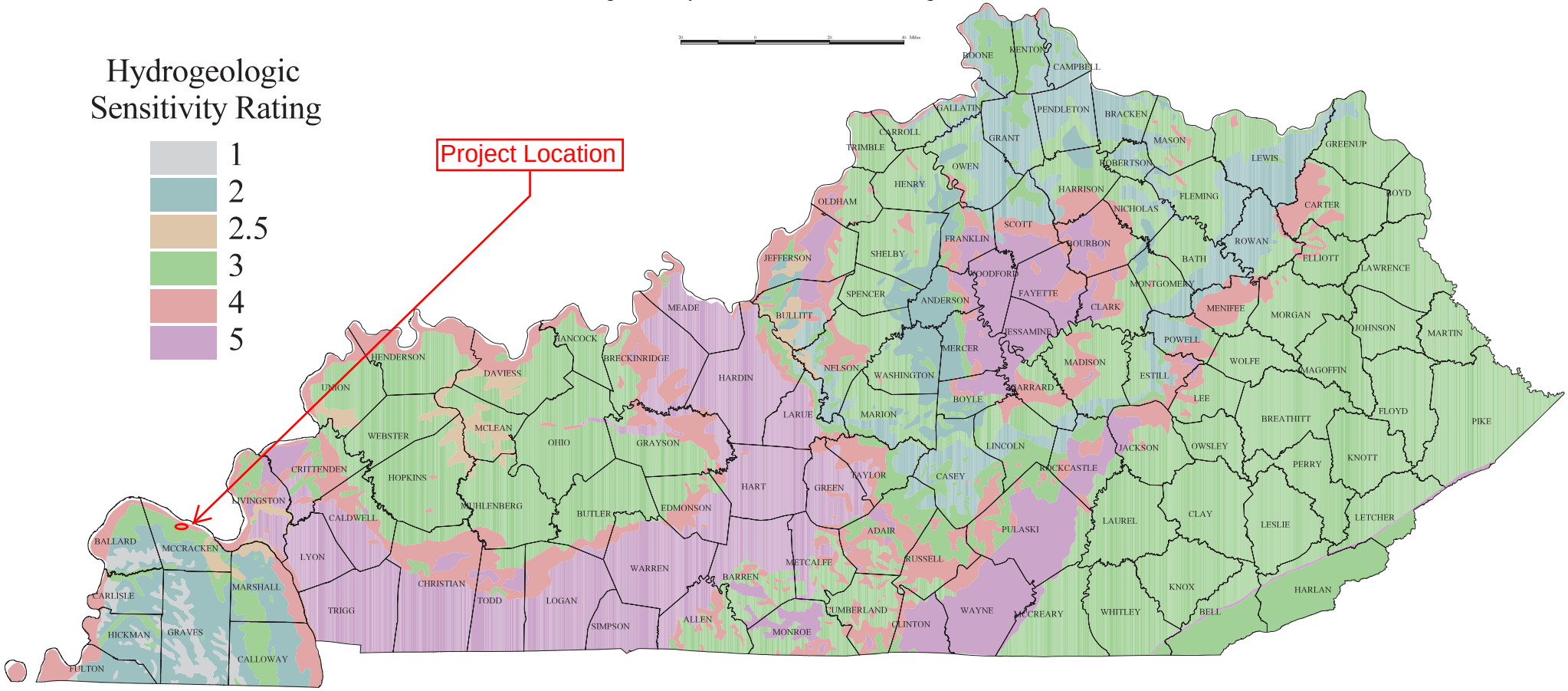
by

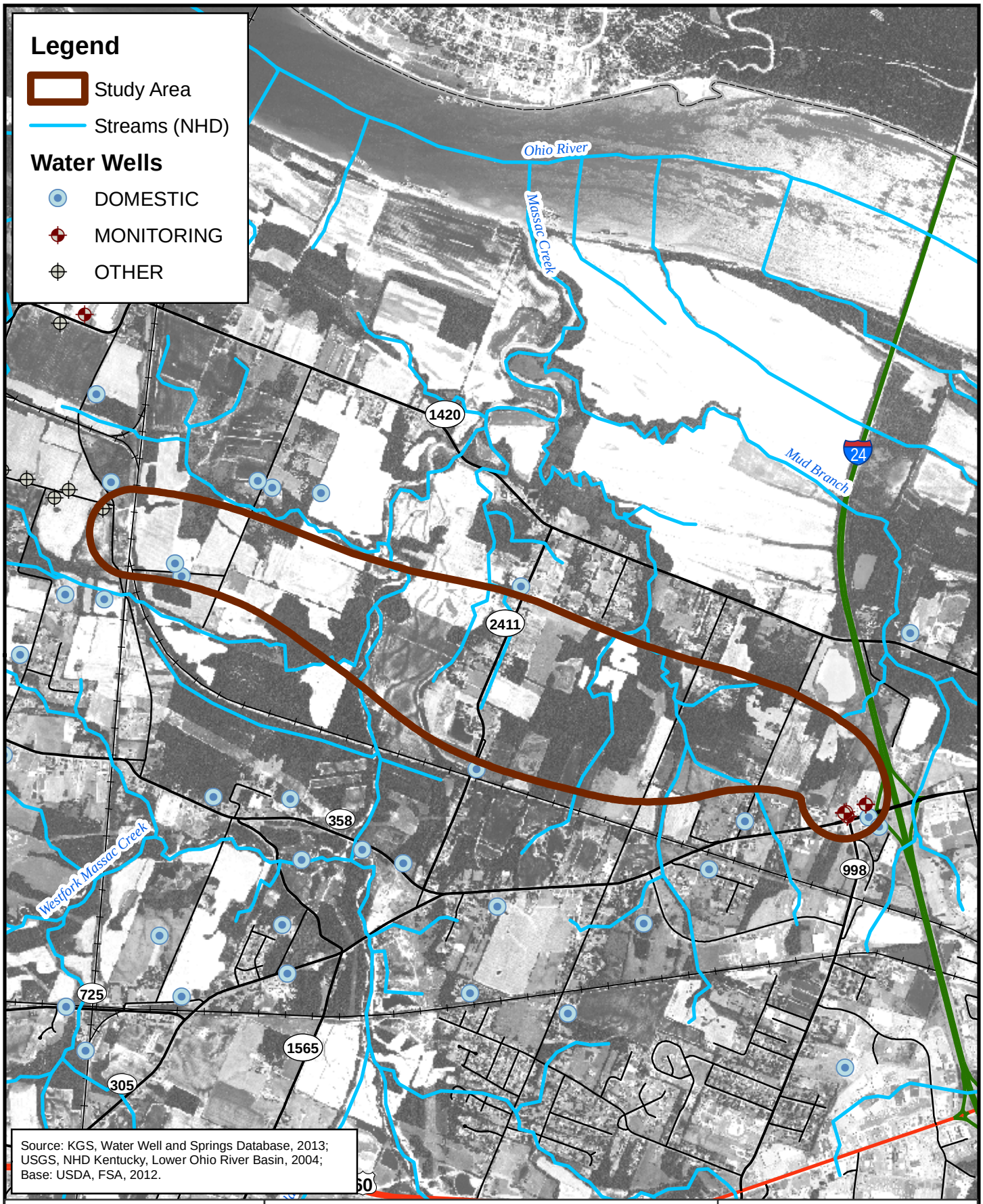
Kentucky Department for Environmental Protection
Division of Water
Groundwater Branch

1994

Interpreted by

Joseph A. Ray - James S. Webb - Phillip W. O'dell





May 2013

N

Miles
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Ohio River MegaPark Connector

KYTC Item No. 1-8702.00
McCracken County, KY

Attachment B12

Groundwater Resources
Well Locations

U.S. Fish & Wildlife Service
Kentucky Ecological Services Field Office

U.S. Fish & Wildlife Service
330 West Broadway, Rm 265
Frankfort, KY 40601
Phone: 502-695-0468
Fax: 502-695-1024

Endangered, Threatened, & Candidate Species in _____McCRACKEN_____ County, KY

Group	Species	Common name	Legal* Status	Known** Potential	Special Comments
Mammals	*Myotis sodalis*	Indiana bat	E	K	
Mussels	*Potamilus capax*	fat pocketbook	E	K	
	Plethobasus cooperianus	orangefoot pimpleback	E	K	
	Lampsilis abrupta	pink mucket	E	K	
	Obovaria retusa	ring pink	E	K	
	Plethobasus cyphyus	sheepnose	C	P	
	Pleurobema clava	clubshell	E	P	
	Pleurobema plenum	rough pigtoe	E	P	
	Cyprogenia stegaria	fanshell	E	P	
	Cumberlandia monodonta	spectaclecase	C	P	
Birds	*Sterna antillarum*	interior least tern	E	P	

NOTES:

* Key to notations: E = Endangered, T = Threatened, C = Candidate, CH = Critical Habitat

**Key to notations: K = Known occurrence record within the county, P = Potential for the species to occur within the county based upon historic range, proximity to known occurrence records, biological, and physiographic characteristics.

Attachment B13-2

U.S. Fish & Wildlife Service

IPaC - Information, Planning, and Conservation System

Environmental Conservation Online System

Search

IPaC Home Page | Initial Project Scoping | Project Builder | FAQs

Step 1
Location

Step 2
Activities

Step 3
Trust resources list

Step 4
Conservation measures

Natural Resources of Concern

Back | Continue...

Save or Print the Preliminary Species list

Request an Official Species list

An online Endangered Species Act species list IS available on this page for your project area, represented by the office(s) listed below.

The Endangered Species Act species list below is for planning purposes only -- it is not an official species list.

To request an official species list, click the Request an Official Species list link to the right and follow the instructions.

KENTUCKY ECOLOGICAL SERVICES FIELD OFFICE

3761 GEORGETOWN ROAD

FRANKFORT, KY 40601

(502) 695-0468

http://www.fws.gov/frankfort/

Project Counties:
McCracken, KY

Project type: Transportation

Endangered Species Act Species List (USFWS Endangered Species Program).

There are a total of 10 threatened, endangered, or candidate species, and/or designated critical habitat on your species list. Species on this list are the species that may be affected by your project and could include species that exist in another geographic area. For example, certain fishes may appear on the species list because a project could cause downstream effects on the species. Please contact the designated FWS office if you have questions.

Species that may be affected by your project:

Birds	Status	Species Profile	Contact
Least tern (*Sterna antillarum*) Population: interior pop.	Endangered	species info	Kentucky Ecological Services Field Office
Clams			
clubshell (*Pleurobema clava*) Population: Entire Range; Except where listed as Experimental Populations	Endangered	species info	Kentucky Ecological Services Field Office
fanshell (*Cyprogenia stegaria*)	Endangered	species info	Kentucky Ecological Services Field Office
Fat pocketbook (*Potamilus capax*) Population: Entire	Endangered	species info	Kentucky Ecological Services Field Office

Orangefoot pimpleback (*Plethobasus cooperianus*)	Endangered	species info	Kentucky Ecological Services Field Office
Pink mucket (*Lampsilis abrupta*) Population: Entire	Endangered	species info	Kentucky Ecological Services Field Office
ring pink (*Obovaria retusa*)	Endangered	species info	Kentucky Ecological Services Field Office
Sheepnose Mussel (*Plethobasus cyphyus*)	Endangered	species info	Kentucky Ecological Services Field Office
Spectaclecase (mussel) (*Cumberlandia monodonta*)	Endangered	species info	Kentucky Ecological Services Field Office
Mammals			
Indiana bat (*Myotis sodalis*) Population: Entire	Endangered	species info	Kentucky Ecological Services Field Office

Don't see a species you expect to see?

FWS National Wildlife Refuges (USFWS National Wildlife Refuges Program).

There are 1 National Wildlife Refuges in your refuge list

Clarks River National Wildlife Refuge POST OFFICE BOX 89 BENTON, KY42025 (270) 527-5770	refuge profile

FWS Migratory Birds (USFWS Migratory Bird Program).

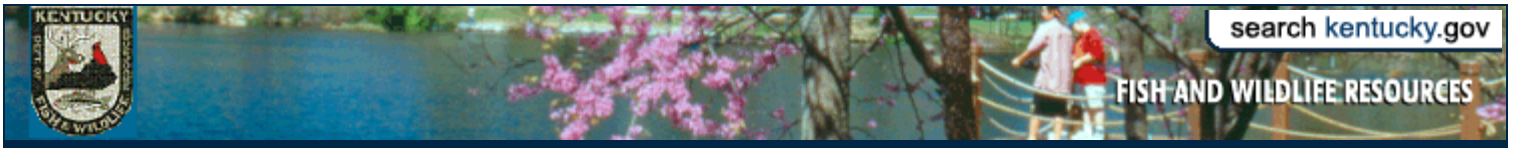
Most species of birds, including eagles and other raptors, are protected under the Migratory Bird Treaty Act (16 U.S.C. 703). Bald eagles and golden eagles receive additional protection under the Bald and Golden Eagle Protection Act (16 U.S.C. 668). The Service's Birds of Conservation Concern (2008) report identifies species, subspecies, and populations of all migratory nongame birds that, without additional conservation actions, are likely to become listed under the Endangered Species Act as amended (16 U.S.C 1531 et seq.).

NWI Wetlands (USFWS National Wetlands Inventory).

The U.S. Fish and Wildlife Service is the principal Federal agency that provides information on the extent and status of wetlands in the U.S., via the National Wetlands Inventory Program (NWI). In addition to impacts to wetlands within your immediate project area, wetlands outside of your project area may need to be considered in any evaluation of project impacts, due to the hydrologic nature of wetlands (for example, project activities may affect local hydrology within, and outside of, your immediate project area). It may be helpful to refer to the USFWS National Wetland Inventory website. The designated FWS office can also assist you. Impacts to wetlands and other aquatic habitats from your project may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal Statutes. Project Proponents should discuss the relationship of these requirements to their project with the Regulatory Program of the appropriate U.S. Army Corps of Engineers District.

Back Continue...

Attachment B14-1



Species Information

State Threatened, Endangered, and Special Concern Species observations for selected quads

Linked life history provided courtesy of NatureServe Explorer.

Records may include both recent and historical observations.

US Status Definitions Kentucky Status Definitions

List State Threatened, Endangered, and Special Concern Species observations in 2 selected quads.
Selected quads are: Heath, Paducah West.

Scientific Name and Life History	Common Name and Pictures	Class	Quad	US Status	KY Status	WAP	Reference
Peucaea aestivalis	Bachman's Sparrow	Aves	Paducah West	N	E	Yes	Reference
Haliaeetus leucocephalus	Bald Eagle	Aves	Paducah West	N	T	Yes	Reference
Tyto alba	Barn Owl	Aves	Paducah West	N	S	Yes	Reference
Ictiobus niger	Black Buffalo	Actinopterygii	Paducah West	N	S	Yes	Reference
Dolichonyx oryzivorus	Bobolink	Aves	Heath	N	S	Yes	Reference
Junco hyemalis	Dark-eyed Junco	Aves	Paducah West	N	S		Reference
Nycticeius humeralis	Evening Bat	Mammalia	Paducah West	N	S	Yes	Reference
Potamilus capax	Fat Pocketbook	Bivalvia	Paducah West	LE	E	Yes	Reference
Rana areolata circulosa	Northern Crawfish Frog	Amphibia	Heath	N	S	Yes	Reference
Rana areolata circulosa	Northern Crawfish Frog	Amphibia	Paducah West	N	S	Yes	Reference
Satyrium favonius ontario	Northern Hairstreak	Insecta	Paducah West	N	S		Reference
Plethobasus cooperianus	Orangefoot Pimpleback	Bivalvia	Paducah West	LE	E	Yes	Reference
Lampsilis abrupta	Pink Mucket	Bivalvia	Paducah West	LE	E	Yes	Reference
Lampsilis ovata	Pocketbook	Bivalvia	Paducah West	N	E	Yes	Reference
Quadrula cylindrica cylindrica	Rabbitsfoot	Bivalvia	Paducah West	PT	T	Yes	Reference
Lepomis miniatus	Redspotted Sunfish	Actinopterygii	Heath	N	T	Yes	Reference
			Paducah				

Obovaria retusa	Ring Pink	Bivalvia	West	LE	E	Yes	Reference
Plethobasus cyphyus	Sheepnose	Bivalvia	Paducah West	E	E	Yes	Reference
Myotis austroriparius	Southeastern Myotis	Mammalia	Heath	N	E	Yes	Reference

19 species are listed.

Attachment B15-1

Steven L. Beshear
Governor

Leonard K. Peters
Secretary
Energy and Environment Cabinet

Donald S. Dott, Jr.
Director

Commonwealth of Kentucky
Kentucky State Nature Preserves Commission
801 Schenkel Lane
Frankfort, Kentucky 40601-1403
502-573-2886 Voice
502-573-2355 Fax

May 17, 2013

Bill Leopold
Stantec Consulting Services, Inc.
1848 Summit Road
Cincinnati, OH 45237

Data Request 13-066

Dear Mr. Leopold:

This letter is in response to your data request of April 19, 2013 for the Paducah Megapark Connector Project (McCracken County) project. We have reviewed our Natural Heritage Program Database to determine if any of the endangered, threatened, or special concern plants and animals or exemplary natural communities monitored by the Kentucky State Nature Preserves Commission occur near the project area on the Paducah West and Heath USGS Quadrangles, as shown on the map provided. Please see the attached reports for more information, which reflect analysis of the project area with three buffers applied:

1-mile for all records – 4 records
5-mile for aquatic records – 50 records
5-mile for federally listed species – 20 records
10-mile for mammals and birds – 25 records

Nycticeius humeralis (Evening Bat, KSNPC special concern) occurs within ten miles of the project area. Summer habitats include bottomland forests, swamps, and riparian corridors. In order to avoid impacts to bats, a thorough survey should be conducted. The survey should include a search for potential roost and winter sites, and a mistnetting census at numerous points within the proposed corridor, particularly in preferred summer habitat.

Myotis austroriparius (Southeastern myotis, federal species of management concern, KSNPC endangered) and *Myotis sodalis* (Indiana myotis, federally listed endangered, KSNPC endangered) are known to occur within ten miles of the project area. A thorough survey for these species should be conducted by a qualified biologist if suitable habitat will be disturbed. The survey should include a search for potential roost and winter sites, and a mistnetting census at numerous points within the proposed corridor, particularly in preferred summer habitat. Summer foraging habitats include

upland forests, bottomland forests and riparian corridors. Suitable roost and winter sites include sandstone and limestone caves, rockhouses, clifflines, auger holes, and abandoned mines. In order to avoid impacts to bats, bottomland forests and riparian corridors, particularly near caves, should not be disturbed.

There are many rare aquatic organisms recorded within five miles of the project area (see Monitored Aquatic Elements report for a complete list). Aquatic species and habitats in the area may be sensitive to increased turbidity, sediment, and other adverse influences on water quality. A written erosion control plan should be developed that includes stringent erosion control methods (i.e., straw bales, silt fences and erosion mats, immediate seeding and mulching of disturbed areas), which are placed in a staggered manner to provide several stages of control. All erosion control measures should be monitored periodically to ensure that they are functioning as planned. Our data are not sufficient to guarantee absence of endangered, threatened or sensitive species from the sites of proposed construction disturbance. We recommend that impacted streams be thoroughly surveyed by a qualified biologist prior to any in-stream disturbance.

I would like to take this opportunity to remind you of the terms of the data request license, which you agreed upon in order to submit your request. The license agreement states "Data and data products received from the Kentucky State Nature Preserves Commission, including any portion thereof, may not be reproduced in any form or by any means without the express written authorization of the Kentucky State Nature Preserves Commission." The exact location of plants, animals, and natural communities, if released by the Kentucky State Nature Preserves Commission, may not be released in any document or correspondence. These products are provided on a temporary basis for the express project (described above) of the requester, and may not be redistributed, resold or copied without the written permission of the Kentucky State Nature Preserves Commission's Data Manager (801 Schenkel Lane, Frankfort, KY, 40601. Phone: (502) 573-2886).

Please note that the quantity and quality of data collected by the Kentucky Natural Heritage Program are dependent on the research and observations of many individuals and organizations. In most cases, this information is not the result of comprehensive or site-specific field surveys; many natural areas in Kentucky have never been thoroughly surveyed, and new plants and animals are still being discovered. For these reasons, the Kentucky Natural Heritage Program cannot provide a definitive statement on the presence, absence, or condition of biological elements in any part of Kentucky. Heritage reports summarize the existing information known to the Kentucky Natural Heritage Program at the time of the request regarding the biological elements or locations in question. They should never be regarded as final statements on the elements or areas being considered, nor should they be substituted for on-site surveys required for environmental assessments. We would greatly appreciate receiving any pertinent information obtained as a result of on-site surveys.

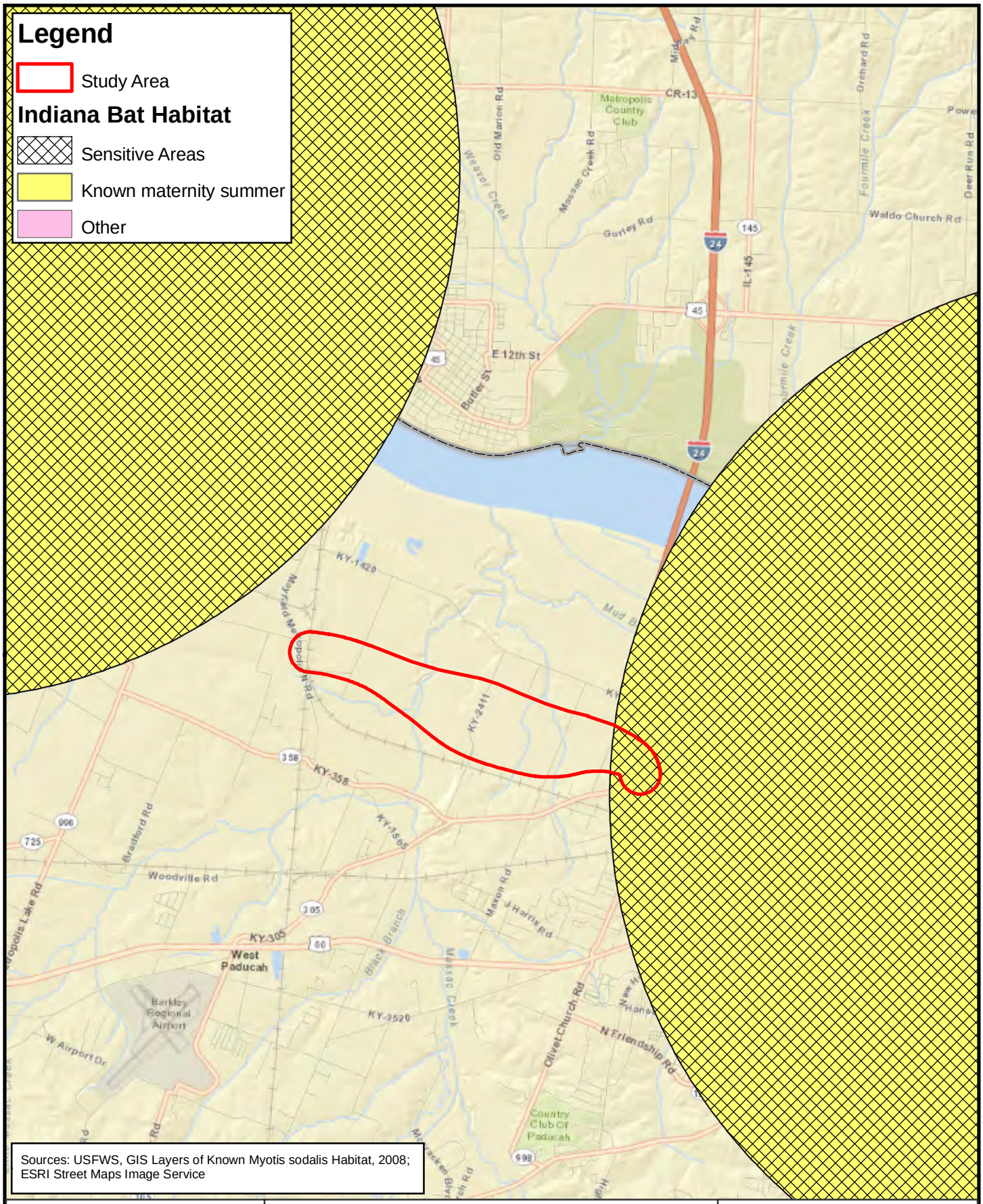
If you have any questions or if I can be of further assistance, please do not hesitate to contact me.

Sincerely,

Sara Hines
Data Manager

SLD/SGH

Enclosures: Data Report and Interpretation Key


Legend
Study Area
Indiana Bat Habitat
Sensitive Areas
Known maternity summer
Other
Sources: USFWS, GIS Layers of Known Myotis sodalis Habitat, 2008; ESRI Street Maps Image Service
CR-13
Metropolis Country Club
Old Marion Rd
Massac Creek Rd
Weasel Creek
Gurley Rd
Waldo Church Rd
Orchard Rd
Fourmile Creek
Deer Run Rd
IL-145
E 12th St
Butler St
KY-1420
KY-2411
KY-358
KY-1565
KY-305
KY-3520
Woodville Rd
Bradford Rd
Metropolis Lake Rd
Mason Rd
J Harris Rd
Black Branch
Massac Creek
West Paducah
Barkley Regional Airport
W Airport Dr
Oliver Church Rd
N Friendship Rd
Country Club Of Paducah
May 2013
Miles
0
0.5
1
N
Ohio River MegaPark Connector
KYTC Item No. 1-8702.00
McCracken County, KY
Attachment B16
Known Indiana Bat Habitat in Project Vicinity

Attachment B17

Paducah Connector
KY 786
West Paducah, KY 42086

Inquiry Number: 3585074.1s
April 23, 2013

The EDR Radius Map™ Report with GeoCheck®

(Excerpt)

EDR® Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
Toll Free: 800.352.0050
www.edrnet.com

TABLE OF CONTENTS

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-05) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

KY 786
WEST PADUCAH, KY 42086

COORDINATES

Latitude (North):	37.1052000 - 37° 6' 18.72''
Longitude (West):	88.7210000 - 88° 43' 15.60''
Universal Tranverse Mercator:	Zone 16
UTM X (Meters):	347073.3
UTM Y (Meters):	4107725.0
Elevation:	332 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	37088-A6 PADUCAH WEST, KY IL
Most Recent Revision:	1982

AERIAL PHOTOGRAPHY IN THIS REPORT

Photo Year:	2012
Source:	USDA

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL---------- National Priority List

EXECUTIVE SUMMARY

Proposed NPL ..... Proposed National Priority List Sites
NPL LIENS ..... Federal Superfund Liens

Federal Delisted NPL site list

Delisted NPL ..... National Priority List Deletions

Federal CERCLIS list

CERCLIS ..... Comprehensive Environmental Response, Compensation, and Liability Information System
FEDERAL FACILITY ..... Federal Facility Site Information listing

Federal RCRA CORRACTS facilities list

CORRACTS ..... Corrective Action Report

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF ..... RCRA - Treatment, Storage and Disposal

Federal RCRA generators list

RCRA-LQG ..... RCRA - Large Quantity Generators
RCRA-SQG ..... RCRA - Small Quantity Generators
RCRA-CESQG ..... RCRA - Conditionally Exempt Small Quantity Generator

Federal institutional controls / engineering controls registries

US ENG CONTROLS ..... Engineering Controls Sites List
US INST CONTROL ..... Sites with Institutional Controls
LUCIS ..... Land Use Control Information System

Federal ERNS list

ERNS ..... Emergency Response Notification System

State and tribal landfill and/or solid waste disposal site lists

SWF/LF ..... Solid Waste Facilities List

State and tribal leaking storage tank lists

SB193 ..... SB193 Branch Site Inventory List
PSTEAF ..... Facility Ranking List
INDIAN LUST ..... Leaking Underground Storage Tanks on Indian Land

State and tribal registered storage tank lists

INDIAN UST ..... Underground Storage Tanks on Indian Land
FEMA UST ..... Underground Storage Tank Listing

State and tribal institutional control / engineering control registries

ENG CONTROLS ..... Engineering Controls Site Listing
INST CONTROL ..... State Superfund Database

EXECUTIVE SUMMARY

State and tribal voluntary cleanup sites

VCP ---------- Voluntary Cleanup Program Sites
INDIAN VCP ---------- Voluntary Cleanup Priority Listing

State and tribal Brownfields sites

BROWNFIELDS ---------- Kentucky Brownfield Inventory

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS ---------- A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

DEBRIS REGION 9 ---------- Torres Martinez Reservation Illegal Dump Site Locations
ODI ---------- Open Dump Inventory
HIST LF ---------- Historical Landfills
SWRCY ---------- Recycling Facilities
INDIAN ODI ---------- Report on the Status of Open Dumps on Indian Lands

Local Lists of Hazardous waste / Contaminated Sites

US CDL ---------- Clandestine Drug Labs
CDL ---------- Clandestine Drub Lab Location Listing
US HIST CDL ---------- National Clandestine Laboratory Register

Local Land Records

LIENS 2 ---------- CERCLA Lien Information

Records of Emergency Release Reports

SPILLS ---------- State spills

Other Ascertainable Records

RCRA NonGen / NLR ---------- RCRA - Non Generators
DOT OPS ---------- Incident and Accident Data
DOD ---------- Department of Defense Sites
FUDS ---------- Formerly Used Defense Sites
CONSENT ---------- Superfund (CERCLA) Consent Decrees
ROD ---------- Records Of Decision
UMTRA ---------- Uranium Mill Tailings Sites
US MINES ---------- Mines Master Index File
TRIS ---------- Toxic Chemical Release Inventory System
TSCA ---------- Toxic Substances Control Act
FTTS ---------- FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
HIST FTTS ---------- FIFRA/TSCA Tracking System Administrative Case Listing
SSTS ---------- Section 7 Tracking Systems

ICIS ---- Integrated Compliance Information System
PADS ---- PCB Activity Database System
MLTS ---- Material Licensing Tracking System
RADINFO ---- Radiation Information Database
RAATS ---- RCRA Administrative Action Tracking System
RMP ---- Risk Management Plans
DRYCLEANERS ---- Drycleaner Listing
LEAD ---- Environmental Lead Program Report Tracking Database
INDIAN RESERV ---- Indian Reservations
SCRD DRYCLEANERS ---- State Coalition for Remediation of Drycleaners Listing
COAL ASH ---- Coal Ash Disposal Sites
COAL ASH EPA ---- Coal Combustion Residues Surface Impoundments List
COAL ASH DOE ---- Steam-Electric Plant Operation Data
PCB TRANSFORMER ---- PCB Transformer Registration Database
US FIN ASSUR ---- Financial Assurance Information
2020 COR ACTION ---- 2020 Corrective Action Program List
US AIRS ---- Aerometric Information Retrieval System Facility Subsystem
PRP ---- Potentially Responsible Parties
EPA WATCH LIST ---- EPA WATCH LIST

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR US Hist Cleaners ---- EDR Exclusive Historic Dry Cleaners

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.
Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

STANDARD ENVIRONMENTAL RECORDS

Federal CERCLIS NFRAP site List

CERC-NFRAP: Archived sites are sites that have been removed and archived from the inventory of CERCLIS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list this site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

A review of the CERC-NFRAP list, as provided by EDR, and dated 02/05/2013 has revealed that there is

1 CERC-NFRAP site within approximately 2.5 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
VAUGHN PROPERTY	7910 MAYFIELD-METROPOLI	WNW 1 - 2 (1.771 mi.)	E18	26

State- and tribal - equivalent CERCLIS

SHWS: The State Hazardous Waste Sites records are the states' equivalent to CERCLIS. These sites may or may not already be listed on the federal CERCLIS list. Priority sites planned for cleanup using state funds (state equivalent of Superfund) are identified along with sites where cleanup will be paid for by potentially responsible parties. The data come from the Department of Environmental Protection's Uncontrolled Site Branch List.

A review of the SHWS list, as provided by EDR, and dated 01/02/2013 has revealed that there are 3 SHWS sites within approximately 3 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
BEASLEYS USED PARTS Facility Status: Closed	4711 CAIRO RD	ESE >2 (2.256 mi.)	31	38
MCCRACKEN CO LANDFILL Facility Status: Closed	***COLEMAN RD***	***ESE >2 (2.732 mi.)***	***32***	***39***

Lower Elevation	Address	Direction / Distance	Map ID	Page
VAUGHN PROPERTY Facility Status: Closed Facility Status: Active	NONE	WNW 1 - 2 (1.771 mi.)	E19	27

State and tribal registered storage tank lists

UST: The Underground Storage Tank database contains registered USTs. USTs are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA). The data come from the Department of Environmental Protection's Owner/Facility Report of All Tanks Regardless of Status list.

A review of the UST list, as provided by EDR, and dated 10/01/2012 has revealed that there are 7 UST sites within approximately 2.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
PUGHS MIDWAY INC	6801 CAIRO RD	S 1/2 - 1 (0.974 mi.)	2	7
CHEERS FOOD & FUEL 136	***5425 OLD CAIRO RD***	***ESE 1 - 2 (1.641 mi.)***	***A6***	***13***
PILOT TRAVEL CENTER 358	***5353 CAIRO RD***	***ESE 1 - 2 (1.645 mi.)***	***A8***	***19***
POCKETS 117	5104 CAIRO ROAD	ESE 1 - 2 (1.794 mi.)	F23	29
MAXFUEL EXPRESS 34	***5100 CAIRO RD***	***ESE 1 - 2 (1.796 mi.)***	***F26***	***32***
EXIT 3 TRAVEL PLAZA 133	5120 OLD CAIRO RD	ESE >2 (2.168 mi.)	29	36

Lower Elevation	Address	Direction / Distance	Map ID	Page
CABLEC CORPORATION	NOBLE & CARNEAL RD	NW >2 (2.193 mi.)	30	37

EXECUTIVE SUMMARY

ADDITIONAL ENVIRONMENTAL RECORDS

Records of Emergency Release Reports

HMIRS: The Hazardous Materials Incident Report System contains hazardous material spill incidents reported to the Department of Transportation. The source of this database is the U.S. EPA.

A review of the HMIRS list, as provided by EDR, and dated 12/31/2012 has revealed that there are 3 HMIRS sites within approximately 2 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
5301 CAIRO ROAD	5301 CAIRO ROAD	ESE 1 - 2 (1.676 mi.)	A10	23
5301 CAIRO ROAD	5301 CAIRO ROAD	ESE 1 - 2 (1.676 mi.)	A11	23
5301 CAIRO ROAD	5301 CAIRO ROAD	ESE 1 - 2 (1.676 mi.)	A12	24

Other Ascertainable Records

FINDS: The Facility Index System contains both facility information and "pointers" to other sources of information that contain more detail. These include: RCRIS; Permit Compliance System (PCS); Aerometric Information Retrieval System (AIRS); FATES (FIFRA [Federal Insecticide Fungicide Rodenticide Act] and TSCA Enforcement System, FTTS [FIFRA/TSCA Tracking System]; CERCLIS; DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes); Federal Underground Injection Control (FURS); Federal Reporting Data System (FRDS); Surface Impoundments (SIA); TSCA Chemicals in Commerce Information System (CICS); PADS; RCRA-J (medical waste transporters/disposers); TRIS; and TSCA. The source of this database is the U.S. EPA/NTIS.

A review of the FINDS list, as provided by EDR, and dated 10/23/2011 has revealed that there are 4 FINDS sites within approximately 2 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
DUKE VANNERSON PROPERTY	6321 CAIRO RD	SSE 1 - 2 (1.024 mi.)	3	12
PILOT TRAVEL CENTERS LLC #358	***5353 CAIRO RD***	***ESE 1 - 2 (1.645 mi.)***	***A7***	***18***
SECURE ENERGY PADUCAH GASIFICA	7350 NOBLE RD	NW 1 - 2 (1.672 mi.)	B9	23
WILMINGTON CHILES ESTATE SUBD	CRAVEN DR / CAIRO RD	SW 1 - 2 (1.751 mi.)	D17	26

NPDES: A listing of permitted wastewater facilities.

A review of the NPDES list, as provided by EDR, and dated 02/12/2013 has revealed that there are 4 NPDES sites within approximately 2 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
PILOT TRAVEL CENTERS LLC #358	***5353 CAIRO RD***	***ESE 1 - 2 (1.645 mi.)***	***A7***	***18***
WILMINGTON CHILES ESTATE SUBD	CRAVEN DR / CAIRO RD	SW 1 - 2 (1.751 mi.)	D16	25
KENTUCKY LAKE OIL	5104 AND 5112 CAIRO ROA	ESE 1 - 2 (1.794 mi.)	F24	31
COCA COLA ENTERPRISES BOTTLING	5401 COMMERCE DR	SE 1 - 2 (1.909 mi.)	G28	35

AIRS: A listing of permitted Airs facilities.

A review of the AIRS list, as provided by EDR, and dated 12/03/2012 has revealed that there are 2 AIRS sites within approximately 2 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
INFINITI PLASTIC TECH	5400 COMMERCE DR	SE 1 - 2 (1.909 mi.)	G27	34
Lower Elevation	**Address**	**Direction / Distance**	**Map ID**	**Page**
FOUR RIVERS TERMINAL LLC PROPE	7365 NOBLE RD	NW 1 - 2 (1.685 mi.)	B13	24

Financial Assurance: A listing of financial assurance information.

A review of the Financial Assurance list, as provided by EDR, and dated 11/26/2012 has revealed that there are 5 Financial Assurance sites within approximately 2 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
SHIRLEY'S KOUNTRY KORNER	6170 NOBLE ROAD	N 1/2 - 1 (0.855 mi.)	1	7
CHEERS FOOD & FUEL 136	***5425 OLD CAIRO RD***	***ESE 1 - 2 (1.641 mi.)***	***A6***	***13***
PILOT TRAVEL CENTER 358	***5353 CAIRO RD***	***ESE 1 - 2 (1.645 mi.)***	***A8***	***19***
EXIT 3 TRAVEL CENTER	5116 CAIRO ROAD	ESE 1 - 2 (1.788 mi.)	F20	28
MAXFUEL EXPRESS 34	***5100 CAIRO RD***	***ESE 1 - 2 (1.796 mi.)***	***F26***	***32***

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP: The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

A review of the EDR MGP list, as provided by EDR, has revealed that there is 1 EDR MGP site within approximately 3 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
METROPOLIS WATER WRKS AND ELEC	CATHERINE STREET	NNW >2 (2.857 mi.)	33	47

EDR US Hist Auto Stat: EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station,

service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

A review of the EDR US Hist Auto Stat list, as provided by EDR, has revealed that there are 7 EDR US Hist Auto Stat sites within approximately 2.25 miles of the target property.

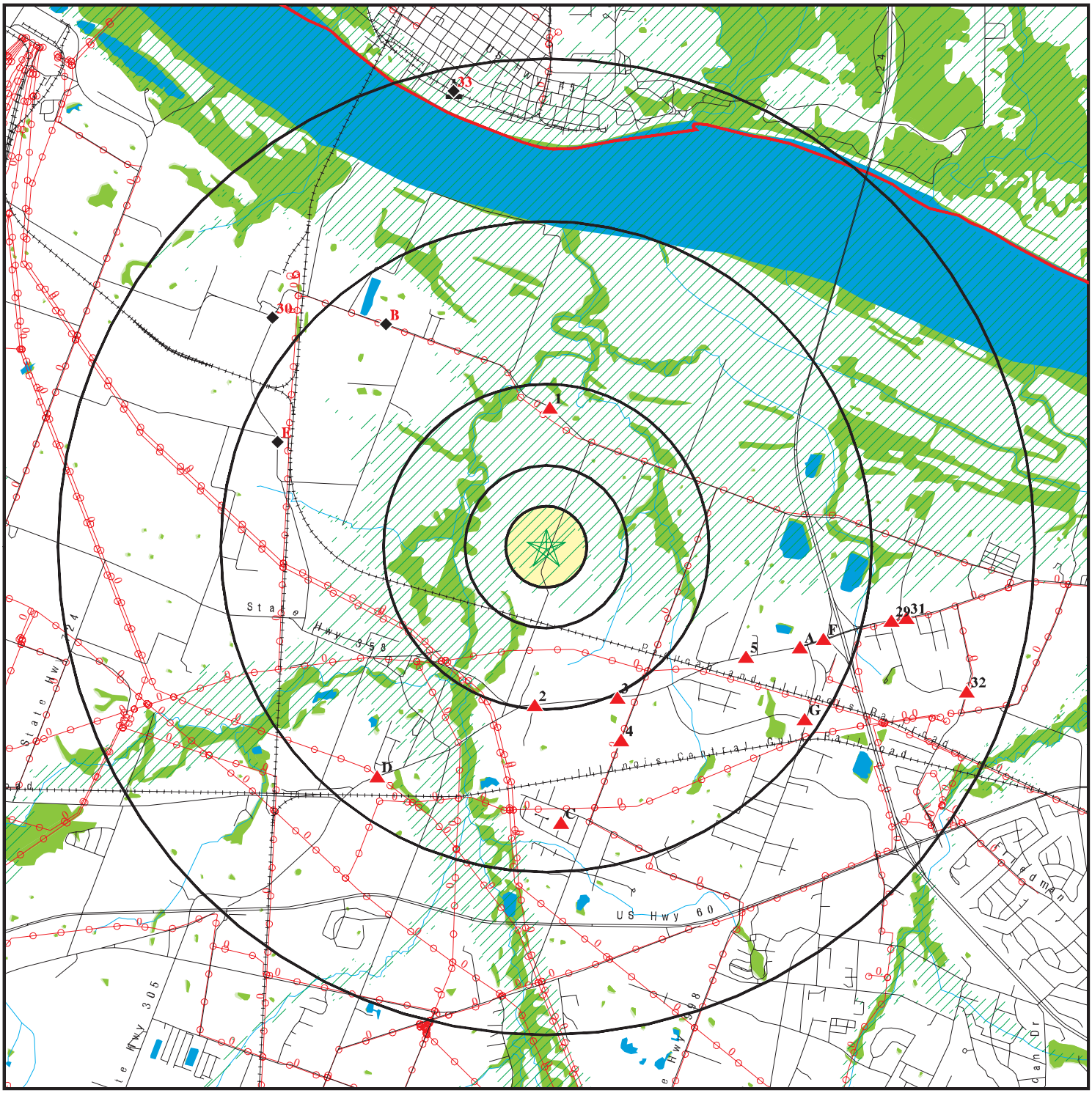
Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
Not reported	3920 MAXON RD	SSE 1 - 2 (1.274 mi.)	4	12
Not reported	5620 CAIRO RD	ESE 1 - 2 (1.400 mi.)	5	13
Not reported	3555 JENN ANN AVE	S 1 - 2 (1.698 mi.)	C14	25
Not reported	3550 JENN ANN AVE	S 1 - 2 (1.705 mi.)	C15	25
Not reported	5110 CAIRO RD	ESE 1 - 2 (1.791 mi.)	F21	28
Not reported	5108 CAIRO RD	ESE 1 - 2 (1.792 mi.)	F22	28
Not reported	5100 CAIRO RD	ESE 1 - 2 (1.796 mi.)	F25	32

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped. Count: 33 records.

Site Name	Database(s)
	SPILLS,FINANCIAL ASSURANCE
SOUTHERN FS, INC - METROPOLIS NH3	RMP
TENNESSEE VALLEY AUTHORITY SHAWNEE	HIST LF
NATIONAL WEATHER SERVICE OFFICE	FTTS,HIST FTTS
TVA SHAWNEE FOSSIL PLANT	FTTS,HIST FTTS
WESTERN KY WMA GUN CLUB	HWS
ALLIED CORPORATION METROPOLIS	CERCLIS-NFRAP
MET SOUTH INC	AIRS
MINE RECOVERY SERVICES INC	AIRS
KOTTER READY MIX	NPDES,AIRS
IDOT	RCRA-NLR
IDOT BRG 064-0003	FINDS,RCRA-NLR
BRANDEIS MACHINERY & SUPPLY CORP.	FINDS,RCRA-NLR
TEPPCO METROPOLIS STATION	FINDS,RCRA-CESQG
METROPOLIS AIRPORT	NPDES
THE GOLF CLUB	NPDES
COMMUNITY CHRISTIAN ACADEMY	NPDES
CONCORD ESTATES SUBD	NPDES
BROOKMEADE APTS	NPDES
PADUCAH REGIONAL SPORTS PLEX L	NPDES
TRACTOR SUPPLY CO	NPDES
TRACY HENDERSON PROPERTY	NPDES
TWB ENTERPRISES INC	NPDES
ASHLAND SMOKE CENTER	FINANCIAL ASSURANCE 1
C & L FOOD MART	FINANCIAL ASSURANCE 1
CUTMART #04	FINANCIAL ASSURANCE 1
PETRO AT THE MALL	FINANCIAL ASSURANCE 1
MINIT MART #024	FINANCIAL ASSURANCE 1
PADUCAH TIRE SERVICE	FINANCIAL ASSURANCE 1
COLE'S GULF SERVICE	FINANCIAL ASSURANCE 1
W. E. POWERS	FINANCIAL ASSURANCE 1
CUT MART OF KY	FINANCIAL ASSURANCE 1
HEATH HIGH SCHOOL	FINANCIAL ASSURANCE 1

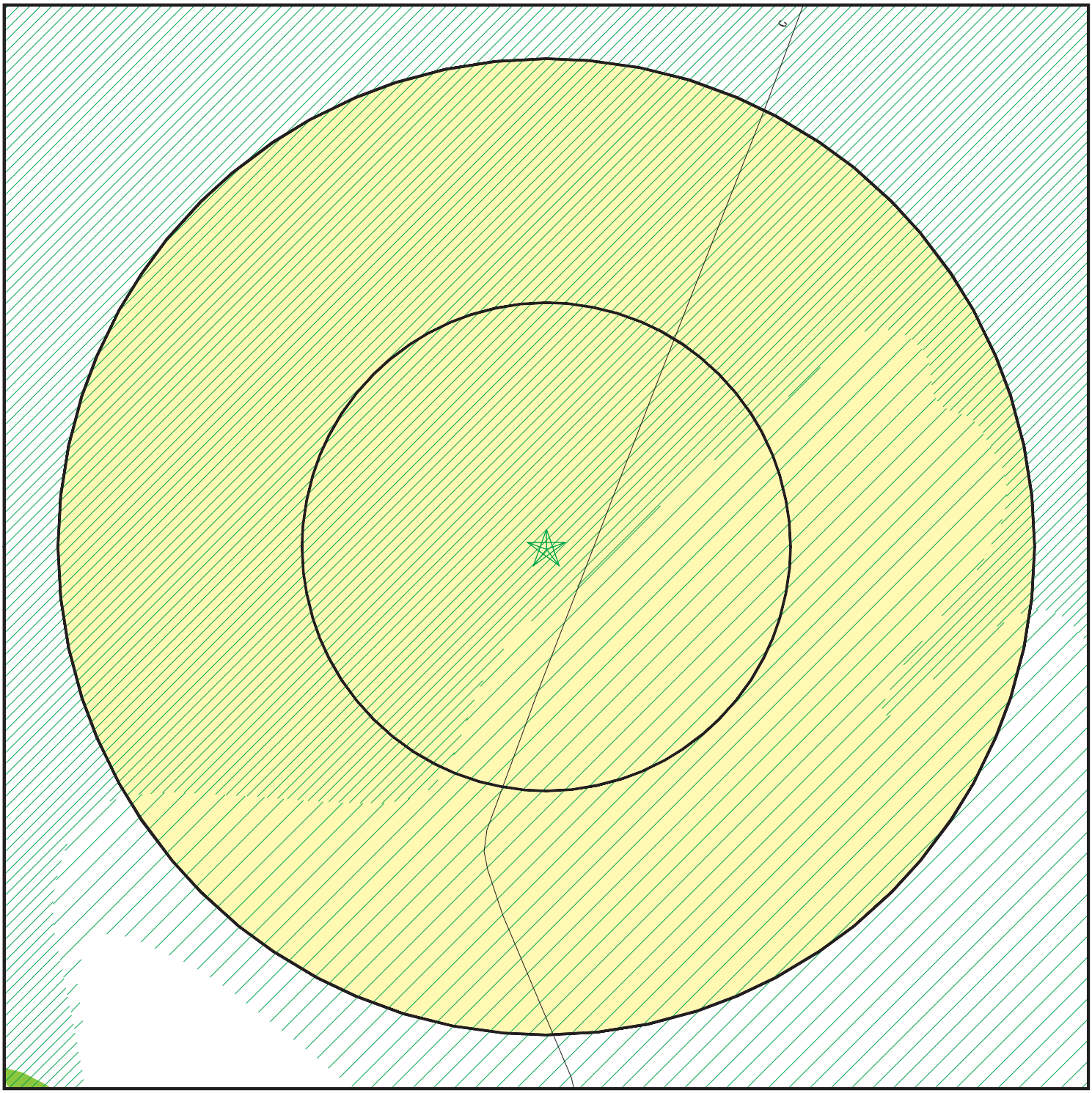
OVERVIEW MAP - 3585074.1s



This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Paducah Connector ADDRESS: KY 786 West Paducah KY 42086 LAT/LONG: 37.1052 / 88.721	CLIENT: Stantec CONTACT: Bill Leopold INQUIRY #: 3585074.1s DATE: April 23, 2013 3:16 pm

DETAIL MAP - 3585074.1s



- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- Sensitive Receptors
- National Priority List Sites
- Dept. Defense Sites

0 1/16 1/8 1/4 Miles

- Indian Reservations BIA
- Oil & Gas pipelines from USGS
- 100-year flood zone
- 500-year flood zone
- National Wetland Inventory
- State Wetlands

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Paducah Connector	CLIENT: Stantec
ADDRESS: KY 786	CONTACT: Bill Leopold
West Paducah KY 42086	INQUIRY #: 3585074.1s
LAT/LONG: 37.1052 / 88.721	DATE: April 23, 2013 3:17 pm

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
Federal NPL site list								
NPL	3.000		0	0	0	0	0	0
Proposed NPL	3.000		0	0	0	0	0	0
NPL LIENS	2.000		0	0	0	0	0	0
Federal Delisted NPL site list								
Delisted NPL	3.000		0	0	0	0	0	0
Federal CERCLIS list								
CERCLIS	2.500		0	0	0	0	0	0
FEDERAL FACILITY	2.500		0	0	0	0	0	0
Federal CERCLIS NFRAP site List								
CERC-NFRAP	2.500		0	0	0	0	1	1
Federal RCRA CORRACTS facilities list								
CORRACTS	3.000		0	0	0	0	0	0
Federal RCRA non-CORRACTS TSD facilities list								
RCRA-TSDF	2.500		0	0	0	0	0	0
Federal RCRA generators list								
RCRA-LQG	2.250		0	0	0	0	0	0
RCRA-SQG	2.250		0	0	0	0	0	0
RCRA-CESQG	2.250		0	0	0	0	0	0
Federal institutional controls / engineering controls registries								
US ENG CONTROLS	2.500		0	0	0	0	0	0
US INST CONTROL	2.500		0	0	0	0	0	0
LUCIS	2.500		0	0	0	0	0	0
Federal ERNS list								
ERNS	2.000		0	0	0	0	0	0
State- and tribal - equivalent CERCLIS								
SHWS	3.000		0	0	0	0	3	3
State and tribal landfill and/or solid waste disposal site lists								
SWF/LF	2.500		0	0	0	0	0	0
State and tribal leaking storage tank lists								
SB193	2.500		0	0	0	0	0	0
PSTEAF	2.500		0	0	0	0	0	0
INDIAN LUST	2.500		0	0	0	0	0	0
State and tribal registered storage tank lists								
UST	2.250		0	0	0	1	6	7

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
INDIAN UST	2.250		0	0	0	0	0	0
FEMA UST	2.250		0	0	0	0	0	0
State and tribal institutional control / engineering control registries								
ENG CONTROLS	2.500		0	0	0	0	0	0
INST CONTROL	2.500		0	0	0	0	0	0
State and tribal voluntary cleanup sites								
VCP	2.500		0	0	0	0	0	0
INDIAN VCP	2.500		0	0	0	0	0	0
State and tribal Brownfields sites								
BROWNFIELDS	2.500		0	0	0	0	0	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS	2.500		0	0	0	0	0	0
Local Lists of Landfill / Solid Waste Disposal Sites								
DEBRIS REGION 9	2.500		0	0	0	0	0	0
ODI	2.500		0	0	0	0	0	0
HIST LF	2.500		0	0	0	0	0	0
SWRCY	2.500		0	0	0	0	0	0
INDIAN ODI	2.500		0	0	0	0	0	0
Local Lists of Hazardous waste / Contaminated Sites								
US CDL	2.000		0	0	0	0	0	0
CDL	2.000		0	0	0	0	0	0
US HIST CDL	2.000		0	0	0	0	0	0
Local Land Records								
LIENS 2	2.000		0	0	0	0	0	0
Records of Emergency Release Reports								
HMIRS	2.000		0	0	0	0	3	3
SPILLS	2.000		0	0	0	0	0	0
Other Ascertainable Records								
RCRA NonGen / NLR	2.250		0	0	0	0	0	0
DOT OPS	2.000		0	0	0	0	0	0
DOD	3.000		0	0	0	0	0	0
FUDS	3.000		0	0	0	0	0	0
CONSENT	3.000		0	0	0	0	0	0
ROD	3.000		0	0	0	0	0	0
UMTRA	2.500		0	0	0	0	0	0
US MINES	2.250		0	0	0	0	0	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
TRIS	2.000		0	0	0	0	0	0
TSCA	2.000		0	0	0	0	0	0
FTTS	2.000		0	0	0	0	0	0
HIST FTTS	2.000		0	0	0	0	0	0
SSTS	2.000		0	0	0	0	0	0
ICIS	2.000		0	0	0	0	0	0
PADS	2.000		0	0	0	0	0	0
MLTS	2.000		0	0	0	0	0	0
RADINFO	2.000		0	0	0	0	0	0
FINDS	2.000		0	0	0	0	4	4
RAATS	2.000		0	0	0	0	0	0
RMP	2.000		0	0	0	0	0	0
DRYCLEANERS	2.250		0	0	0	0	0	0
NPDES	2.000		0	0	0	0	4	4
AIRS	2.000		0	0	0	0	2	2
LEAD	2.000		0	0	0	0	0	0
INDIAN RESERV	3.000		0	0	0	0	0	0
SCRD DRYCLEANERS	2.500		0	0	0	0	0	0
Financial Assurance	2.000		0	0	0	1	4	5
COAL ASH	2.500		0	0	0	0	0	0
COAL ASH EPA	2.500		0	0	0	0	0	0
COAL ASH DOE	2.000		0	0	0	0	0	0
PCB TRANSFORMER	2.000		0	0	0	0	0	0
US FIN ASSUR	2.000		0	0	0	0	0	0
2020 COR ACTION	2.250		0	0	0	0	0	0
US AIRS	2.000		0	0	0	0	0	0
PRP	2.000		0	0	0	0	0	0
EPA WATCH LIST	2.000		0	0	0	0	0	0
EDR HIGH RISK HISTORICAL RECORDS								
EDR Exclusive Records								
EDR MGP	3.000		0	0	0	0	1	1
EDR US Hist Auto Stat	2.250		0	0	0	0	7	7
EDR US Hist Cleaners	2.250		0	0	0	0	0	0

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

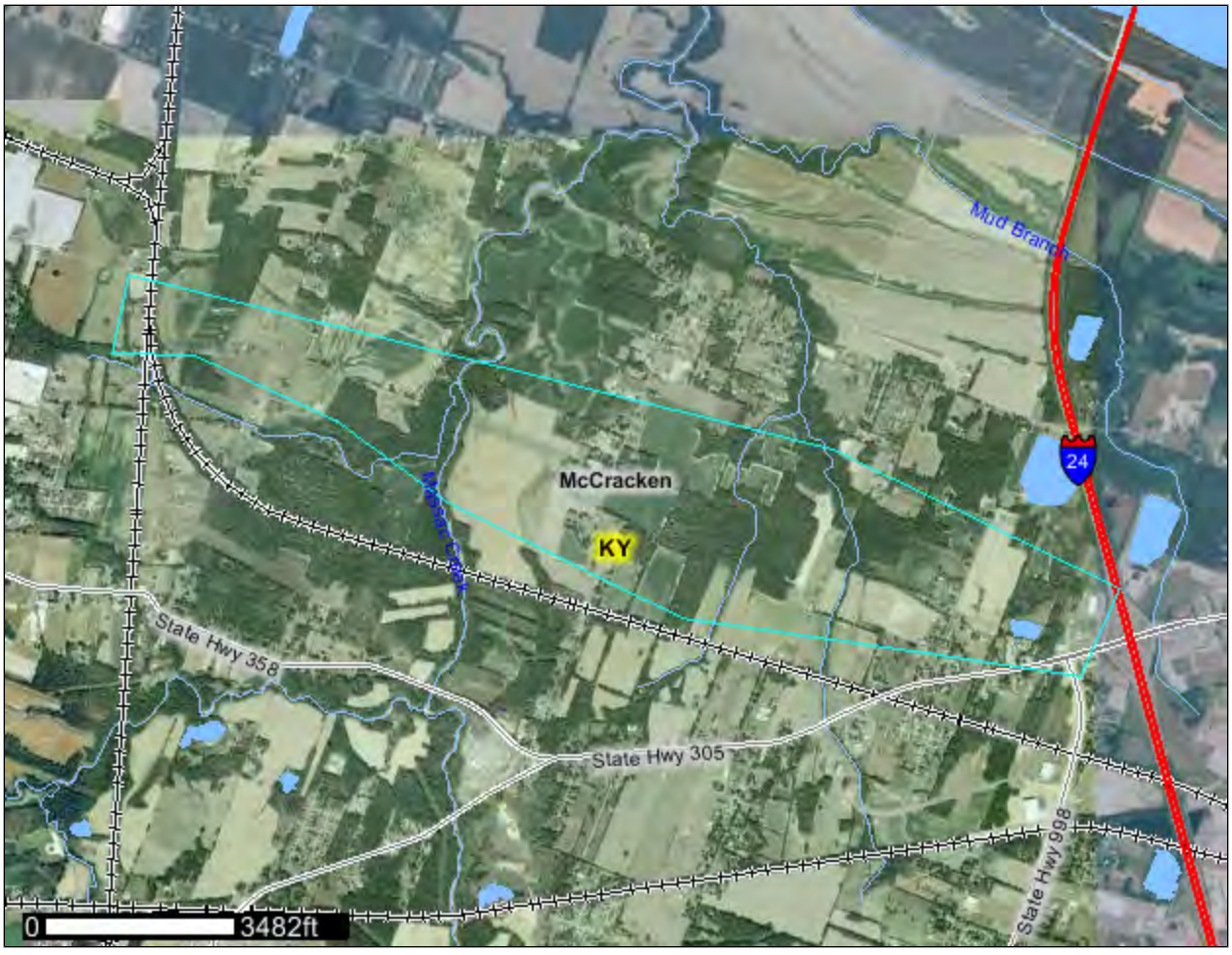
Sites may be listed in more than one database

United States Department of Agriculture

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Ballard and McCracken Counties, Kentucky

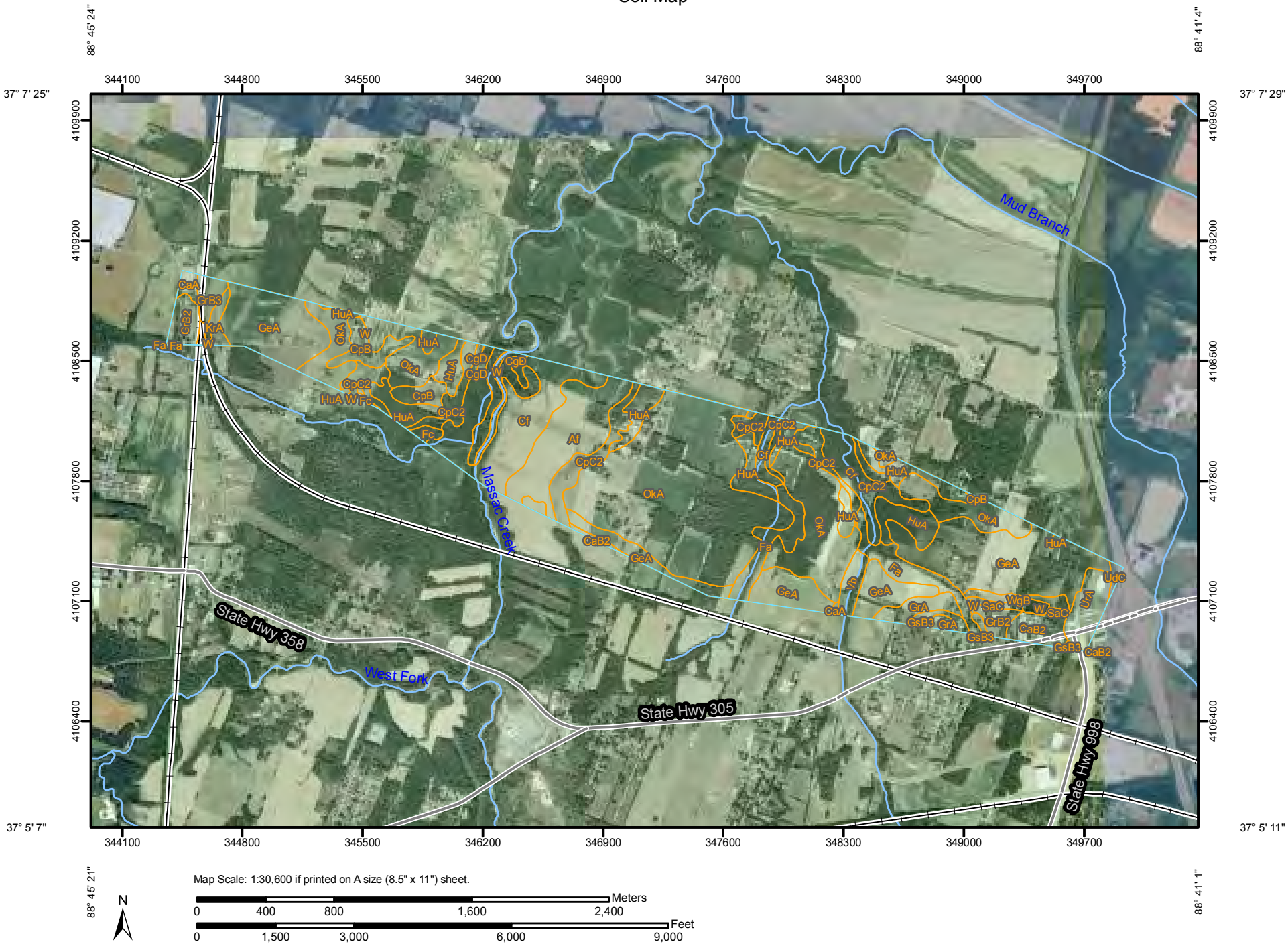


April 24, 2013

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Units

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other

Special Line Features
- Gully
- Short Steep Slope
- Other

Political Features
- Cities

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

MAP INFORMATION

Map Scale: 1:30,600 if printed on A size (8.5" × 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:12,000.

Please rely on the bar scale on each map sheet for accurate map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: UTM Zone 16N NAD83

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Ballard and McCracken Counties, Kentucky
Survey Area Data: Version 7, Sep 12, 2012

Date(s) aerial images were photographed: 10/3/2004; 6/13/2007; 6/12/2007

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Ballard and McCracken Counties, Kentucky (KY602)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
Af	Arkabutla silt loam, 0 to 2 percent slopes, frequently flooded	56.3	5.3%
CaA	Calloway silt loam, 0 to 2 percent slopes	4.7	0.4%
CaB2	Calloway silt loam, 2 to 4 percent slopes, eroded	15.4	1.4%
Cf	Cascilla silt loam, 0 to 2 percent slopes, frequently flooded	112.5	10.6%
CgD	Cascilla-Colp-Wheeling complex, 2 to 25 percent slopes, occasionally flooded	18.9	1.8%
CpB	Colp silt loam, 2 to 6 percent slopes, rarely flooded	22.6	2.1%
CpC2	Colp silt loam, 6 to 12 percent slopes, eroded, rarely flooded	61.1	5.8%
Fa	Falaya-Collins complex, 0 to 2 percent slopes, occasionally flooded	40.1	3.8%
Fc	Falaya-Collins complex, 0 to 2 percent slopes, frequently flooded	3.5	0.3%
GeA	Ginat silt loam, 0 to 2 percent slopes, rarely flooded	196.0	18.5%
GrA	Grenada silt loam, 0 to 2 percent slopes	14.0	1.3%
GrB2	Grenada silt loam, 2 to 6 percent slopes, eroded	17.8	1.7%
GrB3	Grenada silt loam, 4 to 6 percent slopes, severely eroded	7.8	0.7%
GsB3	Grenada-Purchase complex, 4 to 6 percent slopes, severely eroded	7.2	0.7%
HuA	Hurst silt loam, 0 to 2 percent slopes, rarely flooded	83.4	7.9%
KrA	Kurk silt loam, 0 to 2 percent slopes	6.9	0.7%
OkA	Okaw silt loam, 0 to 2 percent slopes, rarely flooded	340.0	32.0%
SaC	Saffell gravelly sandy loam, 2 to 10 percent slopes	4.9	0.5%
UdC	Udorthents-Urban land complex, 0 to 25 percent slopes	1.9	0.2%
UrA	Urban land-Udorthents complex, 0 to 4 percent slopes	19.5	1.8%
Vb	Vicksburg silt loam, 0 to 2 percent slopes, occasionally flooded	9.4	0.9%
W	Water	10.2	1.0%
WgB	Wheeling silt loam, 2 to 6 percent slopes	6.9	0.7%
Totals for Area of Interest		**1,061.1**	**100.0%**

Prime and other Important Farmlands

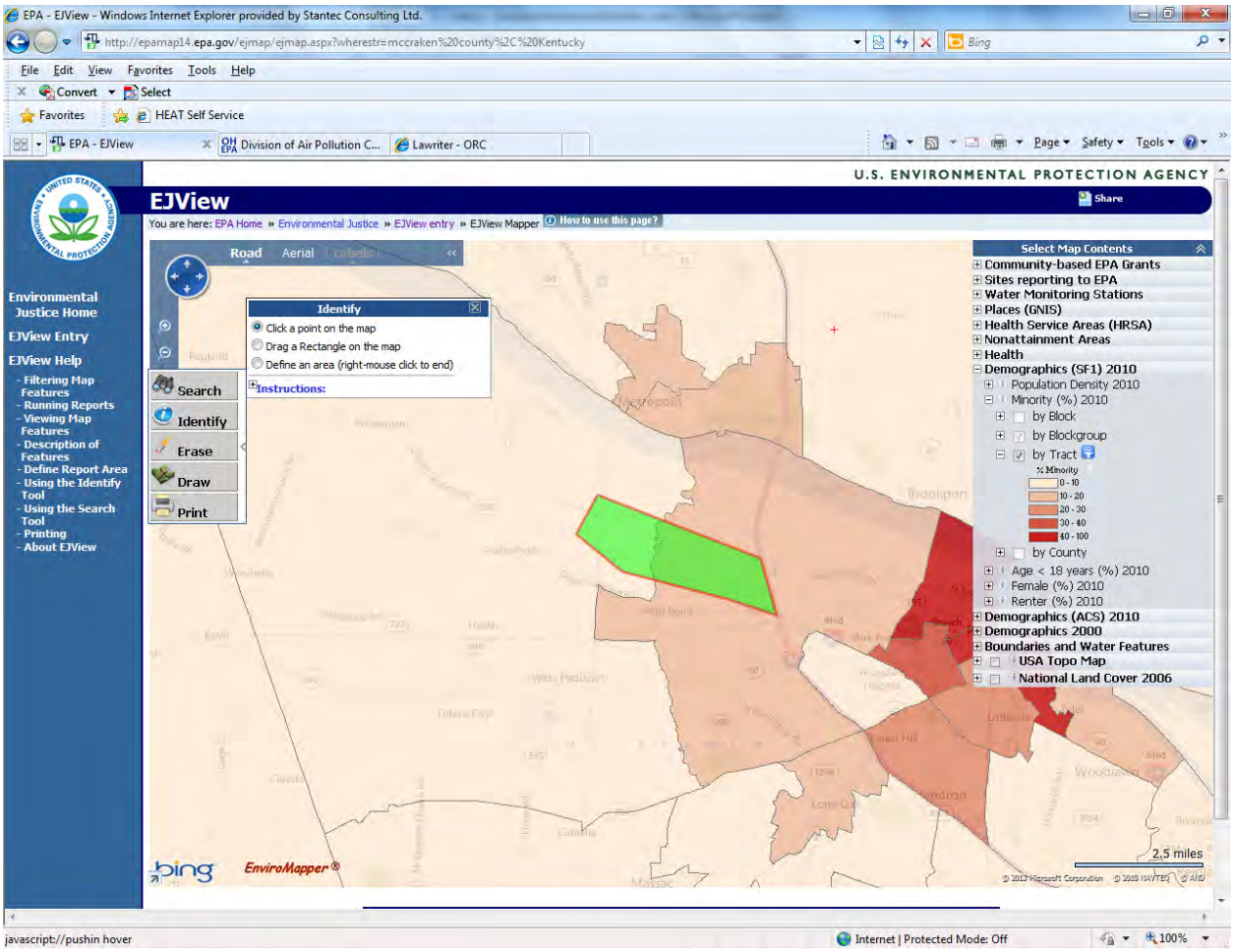
Ballard and McCracken Counties, Kentucky

Map symbol	Map unit name	Farmland classification
CaB2	Calloway silt loam, 2 to 4 percent slopes, eroded	All areas are prime farmland
Cc	Cascilla silt loam, 0 to 2 percent slopes, occasionally flooded	All areas are prime farmland
ChA	Center silt loam, 0 to 2 percent slopes	All areas are prime farmland
ChB	Center silt loam, 2 to 5 percent slopes	All areas are prime farmland
CkA	Chavies fine sandy loam, 0 to 3 percent slopes, rarely flooded	All areas are prime farmland
CmA	Chavies fine sandy loam, 0 to 3 percent slopes, occasionally flooded	All areas are prime farmland
Co	Collins-luka complex, 0 to 4 percent slopes, rarely flooded	All areas are prime farmland
CpB	Colp silt loam, 2 to 6 percent slopes, rarely flooded	All areas are prime farmland
FeB	Feliciana silt loam, 2 to 6 percent slopes	All areas are prime farmland
GrA	Grenada silt loam, 0 to 2 percent slopes	All areas are prime farmland
GrB2	Grenada silt loam, 2 to 6 percent slopes, eroded	All areas are prime farmland
LoB2	Loring silt loam, 2 to 6 percent slopes, eroded	All areas are prime farmland
UkA	Uniontown silt loam, 0 to 2 percent slopes, protected	All areas are prime farmland
UmA	Uniontown silt loam, 0 to 2 percent slopes, rarely flooded	All areas are prime farmland
UnA	Uniontown silt loam, 0 to 2 percent slopes, occasionally flooded	All areas are prime farmland
Vb	Vicksburg silt loam, 0 to 2 percent slopes, occasionally flooded	All areas are prime farmland
WgA	Wheeling silt loam, 0 to 2 percent slopes	All areas are prime farmland
WgB	Wheeling silt loam, 2 to 6 percent slopes	All areas are prime farmland
WhA	Wheeling silt loam, 0 to 2 percent slopes, rarely flooded	All areas are prime farmland
WkA	Wheeling silt loam, 0 to 2 percent slopes, occasionally flooded	All areas are prime farmland
CpC2	Colp silt loam, 6 to 12 percent slopes, eroded, rarely flooded	Farmland of statewide importance
FeC2	Feliciana silt loam, 6 to 12 percent slopes, eroded	Farmland of statewide importance
FeC3	Feliciana silt loam, 6 to 12 percent slopes, severely eroded	Farmland of statewide importance
GrB3	Grenada silt loam, 4 to 6 percent slopes, severely eroded	Farmland of statewide importance
GsB3	Grenada-Purchase complex, 4 to 6 percent slopes, severely eroded	Farmland of statewide importance
LoC2	Loring silt loam, 6 to 12 percent slopes, eroded	Farmland of statewide importance
WgC2	Wheeling silt loam, 6 to 12 percent slopes, eroded	Farmland of statewide importance
WnC2	Wheeling silt loam, 6 to 12 percent slopes, eroded, frequently flooded	Farmland of statewide importance
Ab	Arkabutla silt loam, 0 to 2 percent slopes, occasionally flooded	Prime farmland if drained
CaA	Calloway silt loam, 0 to 2 percent slopes	Prime farmland if drained
Fa	Falaya-Collins complex, 0 to 2 percent slopes, occasionally flooded	Prime farmland if drained
GaA	Ginat silt loam, 0 to 2 percent slopes, protected	Prime farmland if drained
GeA	Ginat silt loam, 0 to 2 percent slopes, rarely flooded	Prime farmland if drained
GmA	Ginat silt loam, 0 to 2 percent slopes, occasionally flooded	Prime farmland if drained
HaA	Henshaw silt loam, 0 to 2 percent slopes, protected	Prime farmland if drained
HeA	Henshaw silt loam, 0 to 2 percent slopes, rarely flooded	Prime farmland if drained
HfA	Henshaw silt loam, 0 to 2 percent slopes, occasionally flooded	Prime farmland if drained
HrA	Hurst silt loam, 0 to 2 percent slopes, protected	Prime farmland if drained
HuA	Hurst silt loam, 0 to 2 percent slopes, rarely flooded	Prime farmland if drained
KrA	Kurk silt loam, 0 to 2 percent slopes	Prime farmland if drained
KuA	Kurk silt loam, 0 to 2 percent slopes, rarely flooded	Prime farmland if drained
NaA	Natalbany silt loam, 0 to 2 percent slopes	Prime farmland if drained
NbA	Natalbany silt loam, 0 to 2 percent slopes, rarely flooded	Prime farmland if drained
OcA	Okaw silt loam, 0 to 2 percent slopes	Prime farmland if drained
OhA	Okaw silt loam, 0 to 2 percent slopes, protected	Prime farmland if drained
OkA	Okaw silt loam, 0 to 2 percent slopes, rarely flooded	Prime farmland if drained
RtA	Routon silt loam, 0 to 2 percent slopes	Prime farmland if drained
RuA	Routon silt loam, 0 to 2 percent slopes, rarely flooded	Prime farmland if drained
Wa	Waverly silt loam, 0 to 2 percent slopes, occasionally flooded	Prime farmland if drained

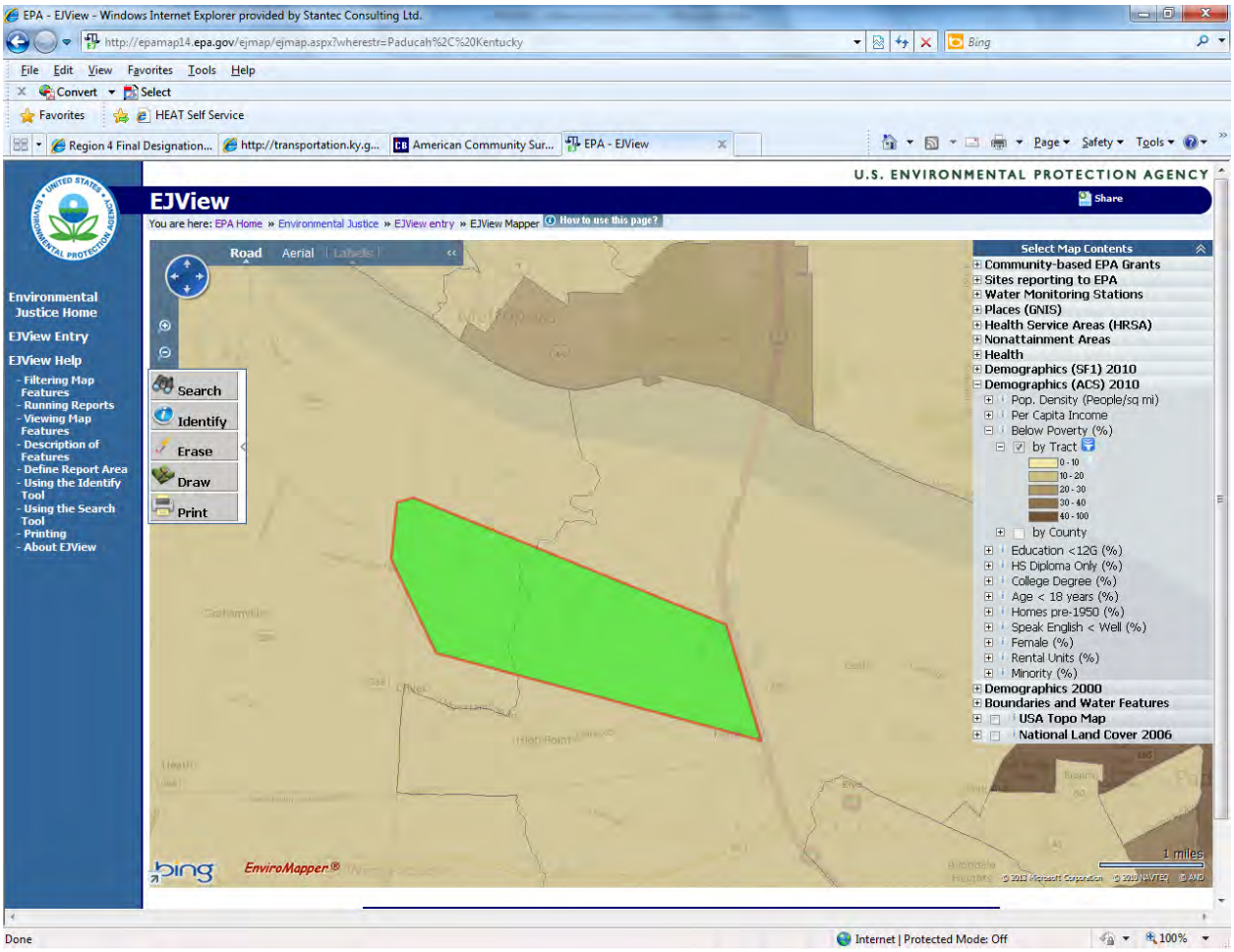
Prime and other Important Farmlands

Ballard and McCracken Counties, Kentucky

Map symbol	Map unit name	Farmland classification
Af	Arkabutla silt loam, 0 to 2 percent slopes, frequently flooded	Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
Cb	Cape silty clay, 0 to 2 percent slopes, frequently flooded	Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
Cs	Commerce silt loam, 0 to 2 percent slopes, frequently flooded	Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
Fc	Falaya-Collins complex, 0 to 2 percent slopes, frequently flooded	Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
GnA	Ginat silt loam, 0 to 2 percent slopes, frequently flooded	Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
HhA	Henshaw silt loam, 0 to 2 percent slopes, frequently flooded	Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
Ka	Karnak silty clay, 0 to 2 percent slopes, frequently flooded	Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
Me	Melvin silty clay loam, 0 to 2 percent slopes, frequently flooded	Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
Mo	Mhoon silty clay loam, 0 to 2 percent slopes, frequently flooded	Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
Ne	Newark-Lindside complex, 0 to 2 percent slopes, frequently flooded	Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
Op	Openlake silty clay loam, 0 to 2 percent slopes, frequently flooded	Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
Rm	Rosebloom silt loam, 0 to 2 percent slopes, occasionally flooded	Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
Ro	Rosebloom silt loam, 0 to 2 percent slopes, frequently flooded	Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
We	Waverly silt loam, 0 to 2 percent slopes, frequently flooded	Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
Bf	Bardwell silt loam, 0 to 2 percent slopes, frequently flooded	Prime farmland if protected from flooding or not frequently flooded during the growing season
Cf	Cascilla silt loam, 0 to 2 percent slopes, frequently flooded	Prime farmland if protected from flooding or not frequently flooded during the growing season
CnA	Chavies fine sandy loam, 0 to 3 percent slopes, frequently flooded	Prime farmland if protected from flooding or not frequently flooded during the growing season
Hm	Huntington-Combs complex, 0 to 2 percent slopes, frequently flooded	Prime farmland if protected from flooding or not frequently flooded during the growing season
Hn	Huntington and Nolin silty clay loams, 0 to 2 percent slopes, frequently flooded	Prime farmland if protected from flooding or not frequently flooded during the growing season
UoA	Uniontown silt loam, 0 to 2 percent slopes, frequently flooded	Prime farmland if protected from flooding or not frequently flooded during the growing season
WnA	Wheeling silt loam, 0 to 2 percent slopes, frequently flooded	Prime farmland if protected from flooding or not frequently flooded during the growing season
WnB	Wheeling silt loam, 2 to 6 percent slopes, frequently flooded	Prime farmland if protected from flooding or not frequently flooded during the growing season



EJ View
Percent Minority By Census Tract,
Study Area of Ohio River Megapark Connector



EJ View
Percent Population Below Poverty
Study Area of Ohio River Megapark Connector

ATTACHMENT C

Cultural Resources Records Review

A Records Review for a New Connector Route Between KY 305 and the Proposed Ohio River Megapark in McCracken County, Kentucky (Item No. 1-8702.00)

Contract Publication Series 13-130

A RECORDS REVIEW FOR A NEW CONNECTOR ROUTE BETWEEN KY 305 AND THE PROPOSED OHIO RIVER MEGAPARK IN MCCRACKEN COUNTY, KENTUCKY (ITEM NO. 1-8702.00)

Prepared by:

Gavin R. Davies
Cultural Resource Analysts, Inc.
151 Walton Avenue
Lexington, KY 40508
CRA Project No.: K13S008

April 17, 2013

Project Description

In April 2013, Cultural Resource Analysts, Inc. (CRA), conducted a records review for a new connector route between KY 305 and the proposed Ohio River Megapark in McCracken County, Kentucky. The review was conducted at the request of Jesse Binau of Stantec Consulting Services, Inc., on behalf of the Kentucky Transportation Cabinet (KYTC). The proposed connector route begins northwest of Paducah, Kentucky, near the I-24 interchange with KY 305 and runs in a west–northwest direction before terminating near Mayfield Metropolis Road. The project is located entirely on a level terrace of the Ohio River and contains areas of open farmland and forest. The study area measures approximately 4.8 km (3.0 mi) in length and between 600 and 800 m (1,968 and 2,624 ft) in width, totaling 501.41 ha (1,239.00 acres).

Guidelines

This records review was conducted in accordance with *Archeology and Historic Preservation: Secretary of the Interior's Standards and Guidelines*. In addition, guidelines offered in the following documents were followed: *Guidelines for Local Surveys: A Basis for Preservation Planning: National Register Bulletin #24; Kentucky Historic Resources Survey Manual*; and *Specifications for Conducting Fieldwork and Preparing Cultural Resource Assessment Reports*.

Records Review

A search of records maintained by the National Register of Historic Places (NRHP) (available online at: http://nrhp.focus.nps.gov/natreghome.do?searchtype=natreghome), the Office of State Archaeology (OSA), and the Kentucky Heritage Council (KHC) was conducted to: 1) determine if the project area had been previously surveyed for archaeological or cultural historic resources; 2) identify any previously recorded archaeological or cultural historic sites that were situated within the project area; 3) provide information concerning what archaeological and cultural historic resources could be expected within the project area; and 4) provide a context for any archaeological or cultural historic resources recovered within the project area. The NRHP records indicated that no archaeological or cultural historic sites listed on the NRHP were situated within the study area.

Archaeological Results

OSA geographic information system (GIS) data requested by CRA on April 3, 2013, was returned on April 8, 2013, and was researched by Heather Barras on April 9, 2013. The work at OSA consisted of a review of professional survey reports and records of archaeological sites for the proposed study area. The

review of professional survey reports and archaeological site data provided basic information on the types of archaeological resources that are likely to occur within the proposed project area. The study area included in the records review is depicted most recently on the Paducah West, Kentucky-Illinois, topographic quadrangle (United States Geological Survey [USGS] 1982). OSA records revealed that five previous professional archaeological surveys had been conducted within the study area, but no archaeological sites have been identified in this area. The survey locations are depicted in Figure 1, and their results are discussed below.

In 1980, Wapora, Inc., conducted an archaeological survey of approximately 58.1 km (36.1 mi) of navigation areas along the lower Ohio River in Illinois and Kentucky, which included areas along Massac Creek within the study area (Watson 1981). The survey was done at the request of the United States Army Corps of Engineers (USACE), Louisville District. A total of 53 previously unrecorded archaeological sites were identified. Only 1 of these (Site 15McN11) in McCracken County was given a site number, and this is located outside the study area. Site 15McN11 is a multicomponent Late Woodland/Mississippian and Historic farm/residence. The site's NRHP eligibility is undetermined.

In 1996, Murray State University conducted an archaeological survey of 348 ha (860 acres) in McCracken County, Kentucky (Versluis 1996). The work was conducted at the request of Florence and Hutchinson, Inc., on behalf of the Greater Paducah Economic Development Council and consisted of a pedestrian and shovel test pit (STP) survey for a proposed grain processing plant adjacent to the Ohio River. Eleven archaeological sites (15McN14–15McN15 and 15McN105–15McN113), one isolated find (IF), and five non-site localities (NSLs) were identified during this survey. Sites 15McN14–15McN15 and Sites 15McN108–15McN113 were all prehistoric open habitation sites with components ranging from Archaic through to Late Prehistoric in date. Sites 15McN105–15McN108 were twentieth-century historic farm/residences. None of these sites were located within the current study area.

NRHP evaluations were recommended for Sites 15McN15, 15McN108, and 15McN113 if they could not be avoided by the proposed construction activities. The remaining sites (15McN14, 15McN105–15McN107, and 15McN109–15McN112) were recommended not eligible for inclusion in the NRHP, and no further work was recommended.

Cultural Horizons, Inc., conducted a pedestrian and STP survey of approximately .8 ha (1.9 acres) at the request of Haydon Brothers Contracting, Inc., on behalf of the KYTC (Stallings and Ross-Stallings 1999). Survey of the proposed borrow pit location did not reveal the presence of any previously unidentified archaeological sites or related cultural material, and no further work was recommended.

In 2004, Gray & Pape, Inc., conducted an archaeological survey of the proposed 27 ha (67-acre) Terry Klope Wetlands Reserve at the request of the United States Department of Agriculture (Cowan 2004). Field investigations included pedestrian survey and screened shovel testing, neither of which produced evidence of previously unrecorded sites. No further work was recommended.

Between October 15 and 19, 2007, CRA personnel conducted an archaeological survey of the proposed Riverport West industrial site in McCracken County, Kentucky (Martin 2008). The survey was conducted at the request of Geotech Engineering and Testing, Inc., on behalf of the Greater Paducah Economic Development Council and the Paducah Riverport Authority. The project area encompassed approximately 202 ha (500 acres). Approximately 12 ha (30 acres) had not been previously surveyed and were investigated with surface investigation, STPs, and backhoe trenches supplemented with hand-excavated units. Four previously documented sites (15McN14, 15McN15, 15McN108, and 15McN113 [discussed above]), four previously undocumented sites (15McN135–15McN138), and one field site not assigned a state site number (FS 4) were identified during the survey. Of the previously undocumented sites, Sites 15McN135 and 15McN136 were twentieth-century historic residences, Site 15McN137 was a low density prehistoric and historic artifact scatter, Site 15McN138 was a prehistoric open habitation site, and FS 4 was a lithic scatter located in deep deposits near Sites 15McN15 and 15McN138. None of these are located in the current study area.

Heath, KY 1978
USGS 7.5 minute series digital topographic quadrangle. Map R07, Governor's Office for Technology, Office of Geographic Information.

Paducah West, KY-IL 1982
USGS 7.5 minute series digital topographic quadrangle. Map R08, Governor's Office for Technology, Office of Geographic Information.

Project Area

LEGEND
- Project Area Boundary
- Cowan 2004
- Martin 2008
- Stallings & Ross-Stallings 1999
- Versluis 1996
- Watson 1981

QUADRANGLE LOCATION

0 1000 2000 feet
0 300 600 meters

K13S008 (16APRIL2013) RC

Figure 1. Topographic map showing previous archaeological surveys within the study area.

Sites 15McN108, 15McN113, and 15McN135–15McN137 were recommended not eligible for inclusion in the NRHP, and no further work was recommended. However, NRHP evaluations were recommended for Sites 15McN14, 15McN15, and FS 4. Deep testing was also recommended for Sites 15McN15 and 15McN138 (Martin 2008).

Cultural Historic Results

KHC GIS data requested by CRA on April 3, 2013, was returned on April 4, 2013, and researched by Kathy Martinolich on April 11, 2013. The KHC project registration number is FY13_1441. The work at KHC consisted of a review of professional survey reports and records of cultural historic sites located within and adjacent to the study area. The records review identified no previously recorded cultural historic sites and no previously completed cultural historic surveys within or adjacent to the study area. The records review did indicate that there are seven "coded properties" within the study area, but KHC does not maintain any records regarding such properties, so there is no additional information available regarding their potential significance (Figure 2).

Map Review

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

1926 Paducah, Kentucky-Illinois, 15-minute series topographic quadrangle (United States Geological Survey [USGS]);

1928 La Center, Kentucky-Illinois, 15-minute series topographic quadrangle (USGS);

1929 Paducah, Kentucky-Illinois, 15-minute series topographic quadrangle (USGS);

1932 La Center, Kentucky-Illinois, 15-minute series topographic quadrangle (USGS);

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

1940 Paducah, Kentucky-Illinois, 15-minute series topographic quadrangle (USGS);

1950 General Highway Map of McCracken County, Kentucky (Kentucky State Highway Department [KSHD]);

1952 Paducah West, Kentucky-Illinois, 7.5-minute series topographic quadrangle (USGS);

1954 Heath, Kentucky, 7.5-minute series topographic quadrangle (USGS);

1956 General Highway Map of McCracken County, Kentucky (KDOH).

The reviewed historic maps indicated that at least 49 map structure locations (MSs) older than 50 years are located within the study area (Table 1). Twenty-seven of these appear first on the 1926 Paducah map (USGS 1926) (Figure 3). These same 27 structures appear again on the subsequent 1929 and 1940 Paducah maps (USGS 1926 and 1940), both of which are reproductions of the earlier 1926 map.

The later 1952 Paducah West map (Figure 4a) indicates that several structures depicted on the earlier 1926, 1929, and 1940 USGS maps had collapsed or been demolished by this time. However, the period between 1940 and 1952 also saw the construction of numerous new buildings within the study area. In the more rural locations, these included several buildings depicted as hollow squares, likely representing barns, sheds, or garages. However, the area of greatest overall development during this period (circa 1940–1954) appears to have been at the east end of the study area on the south side of KY 305, where 11 new buildings (10 residences and 1 barn/outbuilding) were constructed. In addition, the adjoining Heath map dating to 1954 (Figure 4b) indicates that two residences were constructed at the west end of the study area between 1932 and 1954. No structures were depicted on the earlier 1932 La Center map.

Heath, KY 1978
USGS 7.5 minute series digital topographic quadrangle. Map R07, Governor's Office for Technology, Office of Geographic Information.

Paducah West, KY-IL 1982
USGS 7.5 minute series digital topographic quadrangle. Map R08, Governor's Office for Technology, Office of Geographic Information.

Project Area

Chiles
High Point
Eureka Ch
Mud Creek
Mud Branch
Massac Creek
Long Hole
Palestine Cem
Palestine Ch
Cem
BM 333
INTERCHANGE 3
Campground
BM 350
White Oak Ch
BM 343
BM 373
Substation
Futrell
BM 381
White Oak Cem
BM 372
Stanley Cem
BM 391
BM 358
West Fork
Gravel Pits
Historical Marker
Gravel Pit
Maxon
Maxon Crossing
Maxon Sta
BM 360
West Paducah
BM 355
Maxon Ch

CULTURAL HISTORIC LEGEND
Coded Properties

QUADRANGLE LOCATION

0 1000 2000 feet
0 300 600 meters

K13S008 (16APRIL2013) RC

Figure 2. Topographic map showing the locations of coded properties within the study area.

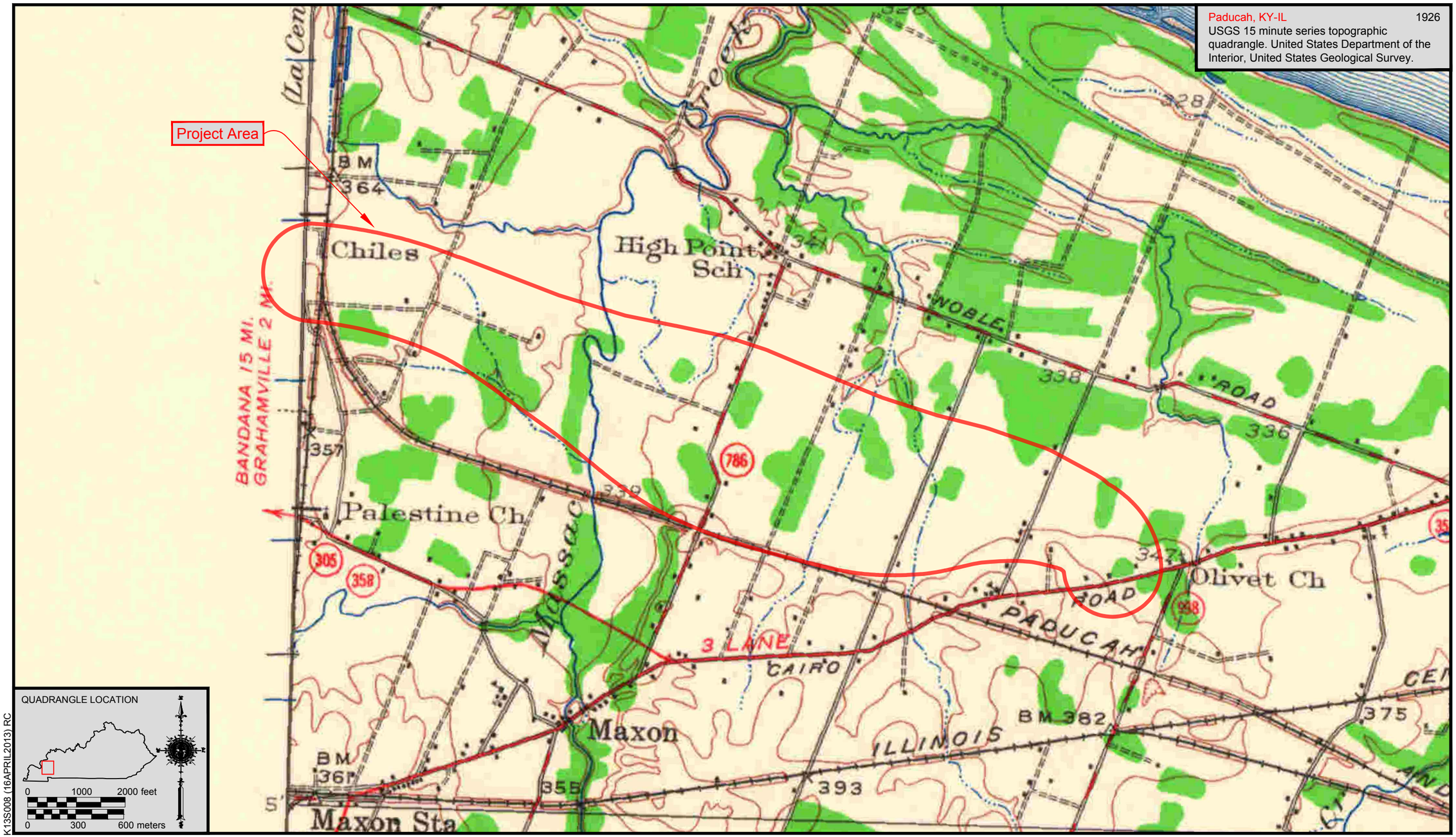


Figure 3. Portion of the 1926 Paducah, Kentucky-Illinois, 15-minute series topographic quadrangle map.

Paducah West KY-IL 1952
USGS 7.5 minute series topographic quadrangle. United States Department of the Interior, United States Geological Survey.

Project Area

QUADRANGLE LOCATION

0 1000 2000 feet
0 300 600 meters

K13S008 (16APRIL2013) RC

Figure 4a. Portion of the 1952 Paducah West, Kentucky-Illinois, 7.5-minute series topographic quadrangle map.

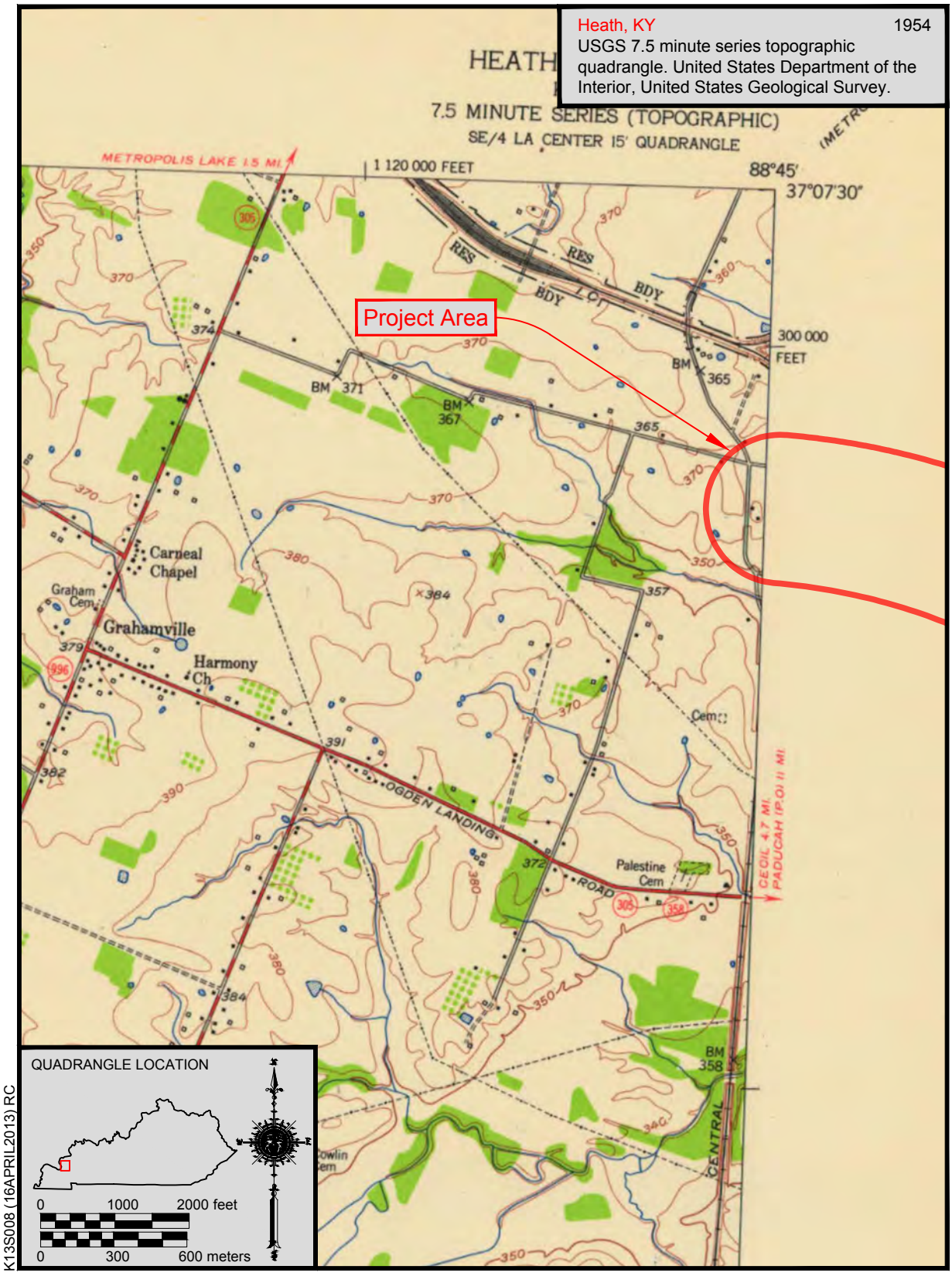


Figure 4b. Portion of the 1954 Heath, Kentucky, 7.5-minute series topographic quadrangle map.

Table 1. List of Structures on Historic Maps.

MS	Map	Comment
1	1926 (USGS); 1940 USGS; 1952 (USGS)	
2	1926 (USGS); 1940 USGS	
3	1926 (USGS); 1940 USGS	
4	1926 (USGS); 1940 USGS; 1952 (USGS)	Group of 3 structures by 1952
5	1926 (USGS); 1940 USGS; 1952 (USGS)	Group of 3 structures by 1952
6	1926 (USGS); 1940 USGS; 1952 (USGS)	Group of 2 structures by 1952
7	1926 (USGS); 1940 USGS	
8	1926 (USGS); 1940 USGS; 1952 (USGS)	Group of 2 structures by 1952
9	1926 (USGS); 1940 USGS	
10	1926 (USGS); 1940 USGS; 1952 (USGS)	Appears just outside project area on 1952 map
11	1926 (USGS); 1940 USGS	
12	1926 (USGS); 1940 USGS	
13	1926 (USGS); 1940 USGS;1952 (USGS)	Group of 2 structures by 1952
14	1926 (USGS); 1940 USGS	
15	1926 (USGS); 1940 USGS; 1952 (USGS)	
16	1926 (USGS); 1940 USGS; 1952 (USGS)	Group of 2 structures by 1952
17	1926 (USGS); 1940 USGS; 1952 (USGS)	Appears vacant on 1952 map
18	1926 (USGS); 1940 USGS; 1952 (USGS)	
19	1926 (USGS); 1940 USGS; 1952 (USGS)	
20	1926 (USGS); 1940 USGS	Appears just outside project area
21	1926 (USGS); 1940 USGS; 1952 (USGS)	Appears outside project area on 1952 map
22	1926 (USGS); 1940 USGS; 1952 (USGS)	Group of 2 structures by 1952
23	1926 (USGS); 1940 USGS; 1952 (USGS)	Includes 3 structures on 1952 map
24	1926 (USGS); 1940 USGS; 1952 (USGS)	
25	1926 (USGS); 1940 USGS; 1952 (USGS)	
26	1926 (USGS); 1940 USGS; 1952 (USGS)	Includes 3 structures on 1952 map
27	1926 (USGS); 1940 USGS; 1952 (USGS)	
28-47	1952 (USGS)	All are depicted as residences except map structures 34,35 and 39 which are either outbuildings or vacant residences.
48-49	1954 (USGS)	

Summary and Conclusions

The OSA records review indicated that that no prehistoric archaeological sites had been documented within the study area. However, these records also indicated that several sites with prehistoric components have been identified nearby (e.g., Sites 15McN11, 15McN14–15McN15, 15McN108–15McN113, and 15McN137–15McN138). Furthermore, a few of these sites (e.g., Sites 15McN14, 15McN15, 15McN108, and 15McN113) have been recommended for NRHP evaluations, and others (e.g., 15McN15, 15McN138, and FS 4) have been recommended for deep testing. CRA therefore considers there to be a moderate potential for encountering prehistoric archaeological resources, including deeply buried deposits, within the study area.

The KHC records review indicated that no previously recorded cultural historic sites had been documented within the study area but that the area had also never been subject to a cultural historic survey. The presence of seven “coded properties” and the historic map review identification of at least 49 structures over 50 years in age indicate that there is a high potential for previously unidentified cultural historic sites in the study area. The historic map data further indicates that several residences constructed prior to 1926 were abandoned or demolished by 1952. The locations of these former residences would be expected to contain historic archaeological deposits dating to the early twentieth century and perhaps earlier. CRA therefore considers there to be a high potential for encountering historic farm/residence archaeological sites within the study area.

Based on the above information, CRA recommends that archaeological and cultural historic baseline surveys be conducted to identify any archaeological and cultural historic resources that may be affected by the proposed project. Due to the alluvial nature of the study area, the archaeological survey should include some form of deep testing, such as bucket augering or limited backhoe trenches.

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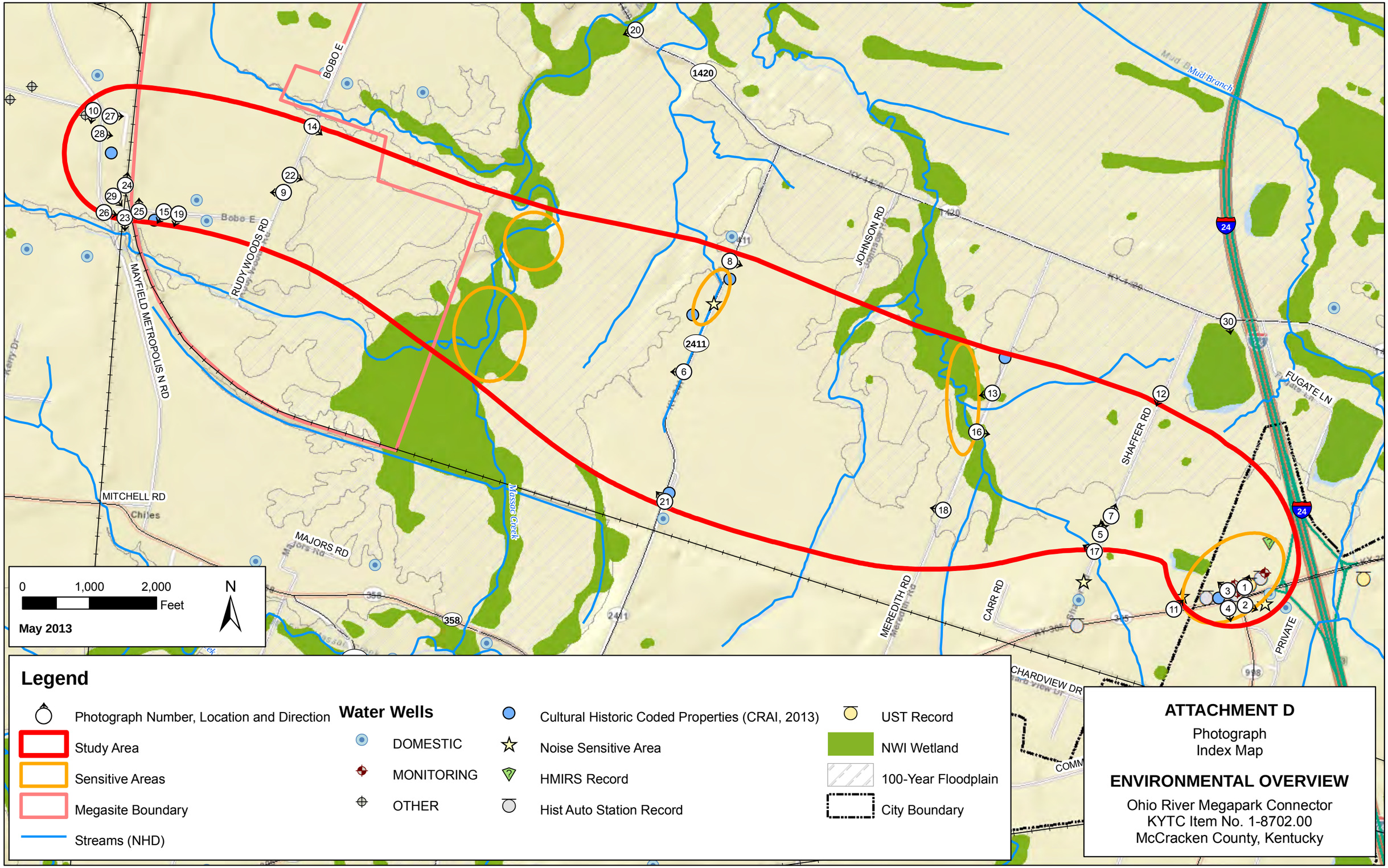
ATTACHMENT D

Photograph Index Map and Study Area Representative Photographs



Legend

- Photograph Number, Location and Direction
- Study Area
- Sensitive Areas
- Megasite Boundary
- Streams (NHD)

Water Wells

- DOMESTIC
- MONITORING
- OTHER

- Cultural Historic Coded Properties (CRAI, 2013)
- Noise Sensitive Area
- HMIRS Record
- Hist Auto Station Record

- UST Record
- NWI Wetland
- 100-Year Floodplain
- City Boundary

ATTACHMENT D

Photograph
Index Map

ENVIRONMENTAL OVERVIEW

Ohio River Megapark Connector
KYTC Item No. 1-8702.00
McCracken County, Kentucky

Photo 25: Pond observed adjacent to railroad tracks near west project terminus, looking north.

Photo 26: At-grade rail crossing at Bobo Road with approximately 10-foot elevation change, looking east.

Photo 27: Railroad maintenance yard near Palestine Road at west terminus, looking east.

Photo 28: Canadian Northern (CN) train on railroad tracks at west end of study area, looking east.

Photo 29: Dual trains on railroad tracks near Bobo Road, looking southeast.

Photo 30: Billboards and commercial land uses off I-24, looking south.