

APPENDIX D.

ENVIRONMENTAL OVERVIEW REPORT

ENVIRONMENTAL OVERVIEW DATA

for

**JACKSON COUNTY
US 421**

**FROM KY 89 AT MCKEE TO IMPROVED
SECTION AT BIGHILL MOUNTAIN
ITEM NUMBER 11-113.00**

Prepared For

**KENTUCKY TRANSPORTATION CABINET
DIVISION OF PLANNING**

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TABLE OF CONTENTS

Introduction	1
General Characteristics of the Project and Project Area	1
Project Description and Purpose	1
Project Area Physiological and Soils Characteristics	2
Project Area Water Resources	3
Project Area Land Use	3
Project Area Climate	4
Social and Economic Context of the Project Area	4
1. <u>Population</u>	4
2. <u>Ethnic Characteristics</u>	4
3. <u>Housing Resources</u>	4
4. <u>Labor Force</u>	5
5. <u>Per Capita Personal Income</u>	5
6. <u>Agriculture</u>	5
Environmental Overview Considerations	6
Land Use	6
Air Quality Considerations	7
Highway Noise Considerations	7
Water Quality and Aquatic Ecosystems	8
Wild and Scenic Rivers and Monitored Habitats	8
Wetlands	9
Floodplains	9
Flora and Fauna	9
Threatened or Endangered Species	10
Cultural Historic Resources Evaluation	12
1. <u>Historic Sites and Districts</u>	12
2. <u>Archaeological Sites and Districts</u>	12
UST/Hazmat Considerations	20
Summary of Environmental Overview Data	21

List of Tables

Table 1: Kentucky State Nature Preserves Commission (KSNPC) species that could occur within the US 421 project area. Jackson Co., KY.	11
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List of Figures

Figure 1: Hill Top Market at Morrill (Photo)	13
Figure 2: Three Gable Three-Bay House at Morrill (Photo)	13
Figure 3: Garage at the Intersection of Cave Spring Road with US 421 (Photo)....	14
Figure 4: Log House at Clover Bottom (Photo)	15

List of Figures (cont.)

Figure 5:	Clover Bottom Church (Photo)	15
Figure 6:	Tudor Style House at Sandgap (Photo)	16
Figure 7:	Frosty-Ette at Sandgap (Photo)	16
Figure 8:	Able Gabbard House (1852) (Photo)	17
Figure 9:	Three Bay Saddle Bag House Just East of Sandgap (Photo).....	18
Figure 10:	Log Ancillary Structure Across from Dry Branch (Photo).....	18
Figure 11:	Gable End Bungalow (Photo)	19
Figure 12:	Log Corn Crib (Photo).....	19
Exhibit 1	Project Vicinity Map	
Exhibit 2	National Wetland Inventory Maps	
Exhibit 3	Flood Insurance Rate Map	
Exhibit 4	1861 Project Area Map	
Exhibit 5	Potential Historic Site Locations Map	
Appendix A	Early Coordination Responses	
Appendix B	UST/Hazmat Data	

Environmental Overview Data
for
Jackson County: US 421: KY 89 at McKee to Bighill Improved Section

INTRODUCTION

This report presents a general overview of the social, economic, and environmental (SEE) framework of the proposed project area for the improvement of US 421 from KY 89 at the north city limits of McKee extending north to the previously improved section of US 421 near Bighill (see Exhibit 1). It outlines key SEE issues, which may represent constraints upon project location within the study corridor, including potential Section 106, Section 4(f), and ecological elements. Also, preliminary evaluations of community impact, environmental justice, and other socioeconomic factors, have been conducted to determine the need for avoidance considerations. The information presented is based on readily available public records and archival research supplemented with field reconnaissance and windshield surveys.

GENERAL CHARACTERISTICS OF THE PROJECT AND PROJECT AREA

Project Description and Purpose:

The existing US 421 corridor, between the northern McKee city limits (KY 89) and the point on US 421 where the proposed improvements would intercept the previously reconstructed section at Bighill Mountain, is a narrow, two lane roadway through rolling to steep terrain. The distance is approximately 15 miles. Due to less than optimal roadway geometry, driving speeds generally range from 35 to 45 mph. The route section is posted for 55 mph. The proposed project would involve the reconstruction of this 15 mile section of US 421. The reconstruction would begin at and include the KY 89 intersection with US 421 at McKee. From this point they would continue north-northwest within the same general transportation corridor for a distance of approximately 15 miles where they would transition in with the previously improved section of US 421 near the community of Bighill. The US 421 study corridor between these points is approximately 1,000 feet on either side of the existing road throughout the 15 mile length (see Exhibit 1).

There are several objectives which define the purpose for this project. Principally, the project would be expected to provide improved regional access along a reconstructed US 421 or a new route within the US 421 transportation corridor. The project would yield safer, more efficient driving conditions on US 421 between the cities of McKee and Berea. The project would also be expected to improve and enhance access from Jackson County to jobs, medical centers, services, shopping, and schools including Berea College, Eastern Kentucky University in Richmond, and the University of Kentucky in Lexington, to the north. Local industries and commerce within the area and along the route would also be expected to benefit and route improvements would provide necessary conditions for opening up this low-income area to greater economic development potential. Access to bodies of government, social services, and emergency response would also be enhanced by

roadway improvements. The project could bring to the local communities in the project area the potential for changes that may be important to the future quality of life of area residents, through improvements in vehicular access, fewer accidents, reduced driving time, convenience, travel expectations, better emergency response time, and economic growth possibilities.

Project Area Physiological and Soil Characteristics:

Jackson County is situated at the junction of two physiographic regions, the eastern Pennyroyal and the Eastern Coal Fields (Hayes, 1989). The county is a well dissected upland landscape, consisting mostly of long and narrow ridgetops, valleys, and steep hillsides. The county is dissected by Station Camp Creek and Rock Lick Creek, which drain the northern part of the county. Most of the county can be described as hilly to mountainous with flat land areas found primarily in major stream valleys. The bedrock of Jackson County is sedimentary and consists primarily of interbedded sandstone, shale, siltstone, and limestone. Most of the soils formed in colluvial or alluvial material weathered mainly from the sandstone, siltstone, or shales. The majority of the project corridor is underlain by rocks of the Mississippian-age of the Lee and Breathitt Formations. In places, sandstone bluffs and ledge-like rock outcrops are common, including the project area. Soils commonly associated with the Lee and Breathitt Formations are Shelocta, Rayne, Gilpin, Lily, and Sequoia. Project area soils consist of the Shelocta-Gilpin association in the southern half, and the Shelocta-Bledsoe-Gilpin association in the northern half. Shelocta-Gilpin soils are deep and moderately deep, well drained, steep to gently sloping soils that have a loamy subsoil. Shelocta-Bledsoe-Gilpin soils are also deep and moderately deep, well drained, steep to sloping with a loamy subsoil (Hayes, 1989). All project area soils are classified as moderate to slight for erosion hazard.

Although the major coal seams of the eastern Kentucky coal fields are to the east and south of the county, in the past, coal has been a profitable resource for the area. Coal, however, is currently not a major contributor to the local economy. Coal beds are generally thin and discontinuous making mines small and scattered. Factors such as depletion of deposits, development of larger more easily mined deposits in other areas, and increased competition have contributed to a decline in the mineral industry. No active coal mines are known within the proposed project area. Other natural resources in the county include timber and limestone. Limestone quarries provide crushed limestone for construction stone and for agricultural uses. These quarries are in the Newman Limestone and one active quarry is located within the proposed project area quarrying on both sides of US 421 north of the community of Sandgap.

Project Area Water Resources:

The principal streams in the study area are: South Fork Station Camp Creek, Clover Bottom, and Birch Lick Creek. South Fork Station Camp Creek and Clover Bottom cross US 421 in the northern portion of the corridor and Birch Lick Creek parallels US 421 in the southern third of the project. All of the project area streams are with the Rockcastle River basin. These streams can be generally characterized as upland, having moderate to high gradients, well developed riffles and pools, and rock substrates (Burr and Warren 1986).

According to Kentucky Division of Water (KDOW), Groundwater Branch, there are no wellhead protection areas in the project study area. KDOW indicated there appeared to be three (3) domestic wells and four (4) monitoring wells within the study corridor. Public water is provided to approximately 16,600 residents in Jackson County (Environmental Protection Agency 2003). Most of the homes located within the project are connected to city water provided by the Jackson County Water Association.

Project Area Land Use:

Jackson County has 221,811 acres of land area. Approximately 85% of Jackson County is forested, about 25% (56,079 acres) of which is federally owned in the Daniel Boone National Forest. About 15% of the county's land is classified as agricultural and 3% as developed or open space. Farming is limited to the narrow valleys adjacent to streams and much of the area farming is a part-time operation. Most of the project area between KY 89 and Bighill Mountain is wooded with long and narrow ridgetops, small valleys, and steep hillsides. Single family residences, commercial businesses, and institutional uses are located all along the corridor, many in very close proximity to the existing highway. Within the project study corridor (1000' either side of the existing route) are approximately 260 homes, 43 businesses, including 5 gas station/convenience marts, 7 churches, and 3 cemeteries. Small communities along the route include Morrill at the northern project terminus, Sandgap at midway of the project, and Waneta south of Sandgap. McKee, the Jackson County Seat and largest community (pop. 874), is at the project's southern terminus. Agriculture in the county is limited to narrow valleys with the predominant agriculture cash crops being tobacco, hay, and corn. Along US 421 between study corridor project termini, land use is comprised of wooded slopes and riparian areas interspersed with single family homes and scattered commercial and institutional sites, including convenience/gas marts, auto repair and parts shops, restaurants, a quarry company, and hair salons. At the community of Sandgap, there is a Post Office, a volunteer fire department, and an elementary school, all within the study corridor. Other than the limestone quarry, there are no industrial enterprises located within the project area, although the Northern Jackson County Industrial Park is located off US 421 just to the north of McKee. No industrial employers have, as yet, elected to utilize this site.

The majority of the development in the study corridor currently is single family residential and related outbuildings. There are two trailer courts in the corridor but no apartment complexes or multi-family buildings in the study corridor. Most of the dwellings are fronting on US 421 and located on flatter terrain. There are no large concentrations of houses such as residential subdivisions found in the corridor. Jackson County has no formal land use plan or zoning ordinances. No official existing or future land use plans incorporating the project corridor currently exist.

Project Area Climate:

In Jackson County, the climate is temperate. Summers are hot in the valleys and slightly cooler on the hills with moderately cold winters. Precipitation averages 50 inches annually with 50%

falling between April and September. The average winter temperature is 38° F and the average summer temperature is 74° F. The average length of the growing season 9 out of 10 years is 145 days with a daily minimum temperature of 55° F during the growing season.

Social and Economic Context of the Project Area:

1. Population:

Jackson County's population was 11,955 in 1990 and had increased to 13,495 in the 2000 census. According to the Kentucky State Data Center, Urban Studies Institute, Jackson County is expected to continue modest growth reaching a population of 16,917 by 2020, and 18,337 by 2030. Project specific demographic data released to the Census Tracts will need to be acquired in future project phases to enable accurate comparisons of growth statistics and potential impacts among project alternatives.

2. Ethnic Characteristics:

According to the Bureau of Census 2000 data, 0.83% of Jackson County's population are minorities. In the project corridor, no concentrations of minority, ethnic, or cultural groups were observed during windshield surveys; however, Census Tract information on persons listed as white, as black, and as other (Asian, Korean, and Vietnamese), will need to be acquired in future project phases to confirm project area population composition and subsequent potential impacts. Detailed, site specific data will be required in order to fully address any potential environmental justice issues with respect to minority and low income groups.

3. Housing Resources:

Data compiled from the 2000 Census shows that Jackson County had 6,065 year round housing units, of which 5,307 (87.5%) were occupied. From the remaining balance of 758 vacant units, 66 were for sale or for rent. Of the inhabited units, 4,253 were owner occupied and had a median value of \$48,000.00. The 1,054 other inhabited units were renter occupied with a median rent of \$309.00 per month. Jackson County averages 2.52 persons per household (U.S. Bureau of the Census).

Within the project corridor, according to multiple listing service data, homes generally have a market value in the range of \$10,000 to \$89,000. A more specific examination of potentially impacted residences will need to be conducted in subsequent phases when greater project detail is available, to gauge the extent of potential housing impacts for comparison among the viable alternates.

4. Labor Force:

The Jackson County labor market area had an estimated supply of 1,873 persons available for work in 2001. The labor market area includes Madison, Estill, Lee, Owsley, Clay, Laurel,

Rockcastle, and Jackson Counties. The labor market area currently (July 2003) employs 88,143 people. The 2002 unemployment rate for Jackson County was 5.6%. The labor market area unemployment rate was 5.9%, while Kentucky's rate was 5.6%, and the U.S. unemployment rate for the same period was 5.8%. Approximately 60.4% of workers living in Jackson County also work in Jackson County, 39.6% of employees in Jackson County commute out of the county daily (U.S. Bureau of Labor Statistics). With the inclusion of individuals becoming 18 years of age and entering the job market between 2003 - 2007, to the labor market area available labor sources of people currently not employed but actively seeking work, people not in the labor force but who would work if jobs were available, and part-time workers seeking full-time employment, the area available labor supply swells to 42,242 indicating a plentiful labor supply for the market area.

5. Per Capita Personal Income:

Per capita personal income in Jackson County increased 19.4% from \$12,198 in 1996 to \$14,562 in 2001. The state had an increase of only 26.4% over the same time period; however, the per capita personal income state average of \$24,085 is some \$10,316 more than the project area. Trends indicate that the area is catching up with statewide averages but additional growth in per capita income is desirable. Within the project study area, several potential low income neighborhoods were observed; however, Census Tract data will need to be examined to determine the number and location of households by recorded income ranges. Once sufficient project design details are available, any affected families below the poverty level will need to be identified in order to assess potential project impacts relevant to environmental justice factors and community impact determinants.

6. Agriculture:

Jackson County's total agricultural cash receipts decreased 47.6% between 1998 and 2001 from \$12,339,000 to \$8,361,000. Less than 1% of the civilian labor force in Jackson County are employed in the agriculture sector. Agriculture is not the main land use component in the county. No commercial farms or agricultural businesses are located in the proposed project study area. Additional details, including Farmland Protection Policy Act (FPPA) coordination, will be required in subsequent environmental studies which will more closely assess any potential agricultural impacts of the project alternatives.

ENVIRONMENTAL OVERVIEW CONSIDERATIONS

Land Use:

Jackson County has 221,811 acres of land area. McKee, the largest city and county seat in Jackson County, is located just to the south of the southern US 421 terminus of the study corridor for this proposed project. The rolling to mountainous terrain does not lend itself to easy development over most of the corridor and most building sites require extensive site grading and manipulation of the topography. For this reason, development has occurred along and close to existing roads and in minor floodplains where more level ground exists. The study area land use is comprised of single-family homes, mobile homes and home sites, scattered commercial units, small streams, small crossroads communities, and forested riparian corridors and mountain slopes. Study area development includes approximately 260 homes, 43 small businesses, and 7 churches.

Land use in the project corridor is not expected to change dramatically from current uses and trends. Due to the terrain in the corridor and the built-out nature of much of the adjacent area, the project is not expected to induce significant new housing or commercial development nor result in unanticipated additional pressure on public services. Current land use applications and trends are expected to continue for the future. Additionally, the project would not be expected to interfere with any zoning or development plans which might be proposed in Jackson County, since local officials (County Judge-Executive, Chamber of Commerce) (personal communication 2003) have indicated support for the improvement of US 421.

Farmland is not an abundant resource in the project study area. The agricultural use is a mixture of pasture, and subsistence gardens. Some individual garden plots and tobacco base in the corridor may be negatively effected, depending on the alternative selected. The farmland conversion required by any alternatives proposed would not represent a serious net loss of farmland along the project corridor or for the region as a whole. Efforts should be made in subsequent project phases to further define the effects of alternatives on individual agricultural pursuits and reduce land conversion impacts by design modifications wherever practical. Coordination with the Natural Resources Conservation Service and development of FPPA farmland impact assessment evaluations will also be required.

Air Quality Considerations:

The U.S. Environmental Protection Agency (EPA) has established criteria for ambient levels of common transportation related air pollutants including ozone, carbon monoxide (CO), oxides of nitrogen (Nox) and total suspended particulates (TSP). The Kentucky Natural Resources and Environmental Protection Cabinet (KNREPC) has adopted these same air quality standards. These National Ambient Air Quality Standards (NAAQS) have been promulgated to represent the maximum allowable air pollutant levels and characterize conditions that pose no significant threat to human health and welfare.

Pursuant to the 1990 Clean Air Act Amendments, the project area has been designated an attainment area for all transportation-related pollutants (CO, HC, NOx, and TSP). This project is in an area that does not require transportation control measures. Therefore, the Amended Final Conformity Guidelines issued by the U.S. Environmental Protection Agency and the U.S. Department of Transportation will not apply for this project. With respect to the latest conforming State Transportation Improvement Program (STIP), the proposed project is located on page 106 of the STIP, Fiscal Years 2003-2008, approved in September of 2002. Mobile source air pollution is not a problem in the project area and the existing ambient air environment is well within National Ambient Air Quality Standards (NAAQS).

Based on project corridor "windshield" surveys and inspections, no air quality sensitive land uses or susceptible sites were observed. With the location of the corridor being in an attainment area and traffic volumes predicted for the design year (2020) expected to be low, it is anticipated that concentrations of carbon monoxide will remain below both the one-hour standard (35ppm) and the eight-hour standard (9ppm) regardless of the alternative alignment used. In accordance with KYTC/DEA Position Paper 006-2000, a microscale analysis following the guidance specified in *Air Quality Guidance for Project Level Analysis*, revised October 2000, will be required for this project. Project level emission inventories need not be developed because the project originates from a conforming STIP.

Finally, construction period air quality impacts will need to be evaluated to expose the potential short-term effects of site preparation, demolition, open burning, materials storage and construction actions to determine if any appropriate mitigation commitments are to be incorporated into the project plans.

Highway Noise Considerations:

Highway noise levels, at this time, are not expected to be a major concern on this project. Most receptors are isolated single structures, and several of the potential receptors (residences) may be acquired for project construction. In addition, with the concentrations of impacted noise receptors throughout the project area being located so close to the existing roadway and requiring numerous access points, noise mitigation by sound barriers would not be practical due to frequent openings for property access and cost-benefit considerations as outlined within the context of KYTC's Noise Abatement Policy. Given the rural nature of the project area, the vehicle mix, low traffic volumes, uncontrolled access, and the general absence of significant concentrations of sensitive receptors, highway noise impacts are not expected to influence project feasibility or location decisions. However, a project specific noise impact analysis will be required in upcoming project phases to verify noise impact conditions using the procedure for conducting field monitoring based on FHWA requirements and the KYTC Noise Abatement Policy.

Water Quality and Aquatic Ecosystem Factors:

The primary tributaries within the project corridor that contribute to the Kentucky River watershed are South Fork Station Camp Creek, Birch Lick Creek, and Clover Bottom Creek. From its beginning to river mile 26.2, South Fork Station Camp Creek is considered to be a Class 3 Wildlife Resource and a Class 1 Fish Resource (Kentucky Division of Water and the National Parks Service 1992).

The KSNPC indicated the Horse Lick Creek watershed could be impacted by this project. This watershed supports diverse aquatic fauna including several globally significant organisms. According to the KSNPC, conservation groups have targeted the Horse Lick Creek watershed for protection of the high quality aquatic habitat. Aquatic species and habitats in the area are sensitive to increased turbidity, sediment, and other adverse influences on water quality.

The need for any channel changes will be determined by the alternative chosen and where it is located relative to the stream. At the very least, culverts or bridges will be needed to cross the area streams, which may cause adverse affects to the streams. An increase in nonpoint source discharges to the streams may occur with the construction of this project.

There are two (2) geologic formations within Jackson County that determine the availability of groundwater within the project area. The Lee formation yields little to no water and is throughout most of the project corridor (Kilburn *et al* 1962). The Mississippian Rocks yields adequate amounts of water and is found along some project streams (Kilburn *et al* 1962). More than three-fourths of the wells drilled in the valley bottoms are adequate for a minimum domestic supply (Kilburn *et al* 1962).

The water quality varies throughout the project area. Along Rock Lick Branch and Gravel Lick Branch the water is hard or very hard and may contain salt or hydrogen sulfide, especially at depths greater than 100 ft (Kilburn *et al* 1962).

Wild and Scenic Rivers and Monitored Habitats:

According to the KDOW, there are no wild or scenic rivers or Outstanding Water Resources within the project area. Although the project does not directly cross any Exceptional Waters (EW), tributaries of EWs will be crossed during construction. These tributaries, Clover Bottom Creek and Indian Creek, could potentially impact downstream EWs. Clover Bottom Creek is a tributary of Horse Lick Creek, an EW. Indian Creek is a tributary of Middle Fork Rockcastle River, an EW. The federally endangered freshwater mussels, *Villosa trabalis* and *Pegias fibula*, have been collected in both of these EWs.

The KSNPC indicated the project is in the vicinity of one or more large forest blocks. The KSNPC is now monitoring large forest blocks, defined as 900 or more acres of contiguous forest in areas west of the Cumberland Plateau and 4500 or more contiguous acres in areas east of the Cumberland Plateau.

There are no other exemplary natural communities, natural areas, recreational areas or wildlife and waterfowl refuges within the project area. Also, there are no outdoor recreational land and water areas or facilities established from grants-in-aid from the Land and Water Conservation Fund Act (LWCF).

Wetlands:

The National Wetland Inventory (NWI) maps for the Bighill, Johnetta, and Sandgap quadrangles were reviewed to determine the presence of wetlands in the corridor and are indicated on Exhibit 2. Five (5) wetlands were identified from the maps. Riverine wetlands (R2UBH) are found along the South Fork Station Camp Creek, Clover Bottom Creek, and Birch Lick Creek. R2UBH means riverine, lower perennial, unconsolidated bottom, and permanently flooded wetlands. A riverine wetland (R4SBF) is located along Elisha Branch near McKee. R4SBF means riverine, intermittent, streambed, and semi-permanently flooded wetland. A palustrine emergent wetland (PEM1A) is located along Birch Lick Creek close to McKee. PEM1A means palustrine emergent, persistent, and temporarily flooded wetland.

Direct impacts for this project could be more than the area threshold determined by the U.S. Army Corps of Engineers (ACOE). If mitigation is necessary, coordination with the ACOE will be required. The ACOE may require a Nationwide Permit #14 under Section 404 of the Clean Water Act, which requires notifying the ACOE and mitigation for any non-tidal waters impact of 0.1 ac. Impacts greater than 0.1 ac will require an Individual Permit. A 401 Water Quality Certification permit may be required from the KDOW. There are several ponds located within the corridor.

Floodplains:

According to the Flood Insurance Rate Map (FIRM), Clover Bottom Creek, Birch Lick Creek, and Elisha Branch within the corridor have Zone A Special Flood Hazard Areas. Refer to Exhibit 3 for the location of these floodplains. Construction within these zones or floodplains may require coordination with the ACOE and could result in the stipulation that construction activities within the floodplains not increase the flood elevation by one (1) foot.

Flora and Fauna:

The project corridor is an area that has been disturbed by human activities for centuries. Most of the land use is residential, but also includes forests, agricultural and open areas. The residential areas are primarily single-family dwellings usually with manicured lawns of native and non-native species. The forests are second growth deciduous species and are located on steep hillsides undeveloped due to inaccessibility and economics. The agricultural areas vary in size and uses. The open areas are abandoned fields or house sites with vegetation in the early successional stages. According to Kentucky Division of Forestry, there are no big trees champions listed for Jackson County and no state forests. Further fieldwork will be necessary to determine the existence of any sensitive plant species or communities.

Wildlife species that would be expected in the corridor are species capable of co-existing with humans. Wildlife habitats have been modified or destroyed as a result of the development activities along existing US 421. There are no areas within the corridor that are pristine or considered critical habitats for threatened or endangered species. It is highly unlikely the project would have sensitive species. Fieldwork will be necessary to identify the wildlife species present in the corridor, if they are threatened or endangered, and the quality of the habitats that exist.

Construction of the project will initially eliminate all flora and fauna in the project's path. Because this area has already been impacted by previous road construction activities and other development projects, the environmental changes as a result of the proposed project may not be detrimental. The elimination of forested areas could limit habitats utilized by small mammals and game animals found within the corridor. Fragmentation of large tracts of forest could result in decreases in wildlife populations that require large areas of forest to survive.

The majority of the proposed project area occurs along existing US 421. Most of the floral and faunal species potentially impacted by this project are species that previously experienced impacts during the construction of the original roadway. Because the corridor has been impacted by development, preserving areas of greatest species diversity should be considered. Mature forested areas should be avoided since they contain the greatest amount of biodiversity and biomass. Abandoned fields also contain a large amount of diversity because of the transitional nature of these habitats. Keeping the area of impact as close to the original footprint of the existing road should be considered.

Threatened and Endangered Species:

According to the U.S. Fish and Wildlife Service (USFWS) there are three (3) federally listed species that may occur within the proposed project area. They are: running buffalo clover (*Trifolium stoloniferum*), Indiana bat (*Myotis sodalis*), and the Virginia big-eared bat (*Corynorhinus townsendii virginianus*).

Correspondence with the U. S. Forest Service (USFS) concerning the land managed by the Daniel Boone National Forest indicated there were as many as six (6) significant bat hibernacula caves within five (5) miles of the project's route. These caves are used by the Indiana bat (*Myotis sodalis*), Virginia big-eared bat (*Plecotus townsendii virginianus*), and/or the Rafinesque's big-eared bat (*Corynorhinus rafinesquei*). The Indiana and the Virginia big-eared bats are federally endangered species. The Rafinesque's big-eared bat is on the Regional Forester's sensitive species list.

Mist netting of the project will be necessary to determine if the above mentioned species occur within the project area. It is highly unlikely these species would occur within the project area due to habitat modifications as a result of development of the area.

Information from the Kentucky State Nature Preserves Commission (KSNPC) indicated there were ten (10) species of plants and animals monitored by KSNPC that could occur within the project corridor. See Table 1 for the list of KSNPC monitored species.

Table 1. KSNPC species that could occur within the US 421 project area, Jackson County, KY..		
	SPECIES	STATUS
Indiana bat	Endangered	Big
<i>Myotis sodalis</i>	Endangered	Big
Johnetta		
Rafinesque's big-eared bat	Special Concern	Big
<i>Corynorhinus rafinesquii</i>	Special Concern	Big
Johnetta		
Virginia big-eared bat		
<i>Corynorhinus townsendii virginianus</i>	Endangered	Endangered
Johnetta		
Loesel's twayblade		
<i>Liparis loeselii</i>	Threatened	Big
Canby's mountain-lover		
<i>Paxistima canbyi</i>	Threatened	Big
Tennessee clubshell		
<i>Pleurobema oviforme</i>	Endangered	NA
Johnetta		
Sandgap		
Cumberland bean		
<i>Villosa trabalis</i>	Endangered	Endangered
Johnetta		
Sandgap		
Northern coal skink		
<i>Eumeces anthracinus anthracinus</i>	Threatened	Big
Big		
American black bear		
<i>Ursus americanus</i>	Special Concern	Big
Big		
wood lily		
<i>Lilium philadelphicum</i>	Threatened	NA
Sandgap		

Cultural Historic Resources Evaluation:

1. Historic Sites and Districts:

Historic site data were acquired from the Kentucky Heritage Council Historic Resource Inventory Records. Research and archival documentation was conducted at the Kentucky Historical Society and at the Kentucky Department for Library and Archives. These data were supplemented by a windshield survey of the 1000 foot-wide survey corridor. The Kentucky Heritage Council files record no standing structures within or near the proposed project. Exhibit 4 illustrates the landowners and industries located along the US 421 corridor in 1861.

A study conducted by Karen Hudson entitled *Jackson County, Kentucky: an Architectural History of an Appalachian Community* published in 1996 by the Jackson County Development Associations and the Kentucky Heritage Council suggests that there may have been other log and other 19th-20th century structures recorded on the Big Hill, Johnetta and the Sandgap Quadrangles (USGS 1952; 1953a 1953b). It could not be concluded that the structures located along the current US 421 route were recorded as Kentucky Historic Resource Structures in the published resource, although, they may have been recorded as inventory structures (unfortunately, there are no extant forms).

The dwellings observed in a windshield survey are recorded as Group 1 through 7 and are illustrated in Figures 1 through 12 following. Their location in the corridor is illustrated in Exhibit 5. This sample indicates that there is an extant sample of 19th and early 20th century dwellings or ancillary structures in the project corridor that need to be assessed for eligibility for listing in the National Register of Historic Places. A preliminary count of structures located on the quadrangles that date to the minimum age of 50 years, suggests the presence of 210 potential dwellings that need assessment.

2. Archaeological Sites and Districts:

Archaeological site data were acquired from the Kentucky Office of State Archaeology. Additional documentation was conducted at the Kentucky Historical Society and at the Kentucky Department for Library and Archives. The Kentucky Office of State Archaeology records listed two sites within 100 ft of the proposed project. Site 15Ma211 was recorded by a Kentucky Transportation Cabinet assessment of the reconstruction of Big Hill Road (James L. Hixon and Kurt Fiegel, 1995, *A Phase I Archaeological Reconnaissance of the Proposed US 421 Realignment Preferred Alternative 2, Big Hill, Madison County, Kentucky Item Number 7-162.00*. This site was assessed as not being eligible for listing in the National Register and was obliterated by the reconstruction of US 421. The other site that is within the 2000 ft corridor is 15Ja99, a rock quarry site dating to the at least the 20th century. No data is available from the Forest Service survey report that would provide an additional assessment.

GROUP 1. HISTORIC STRUCTURES

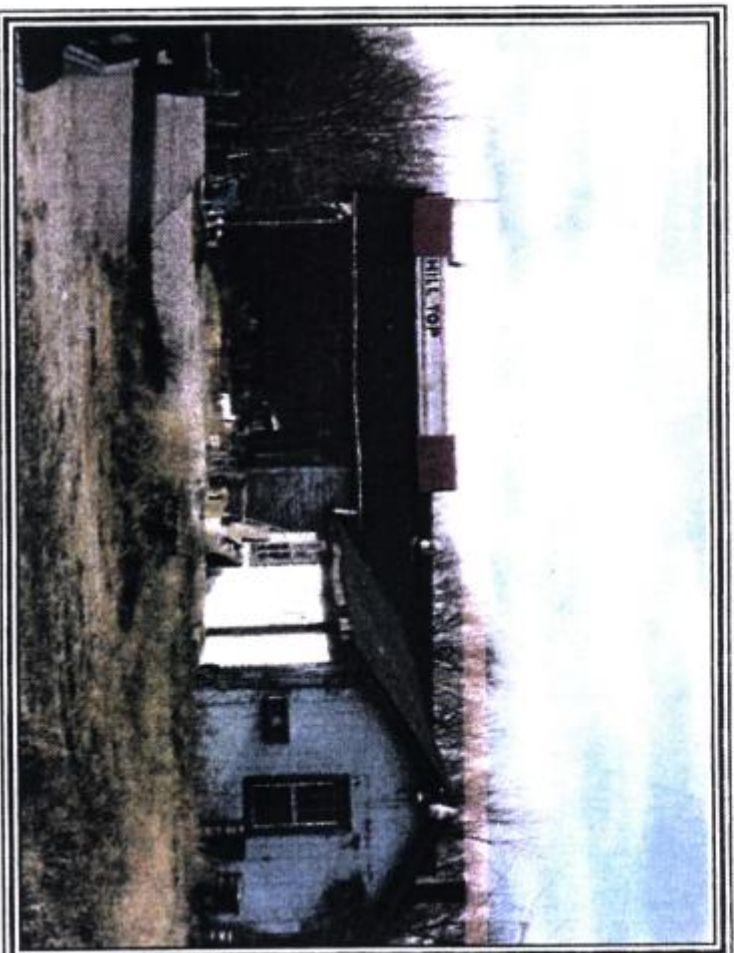


Figure 1. Hill Top Market at Morrill

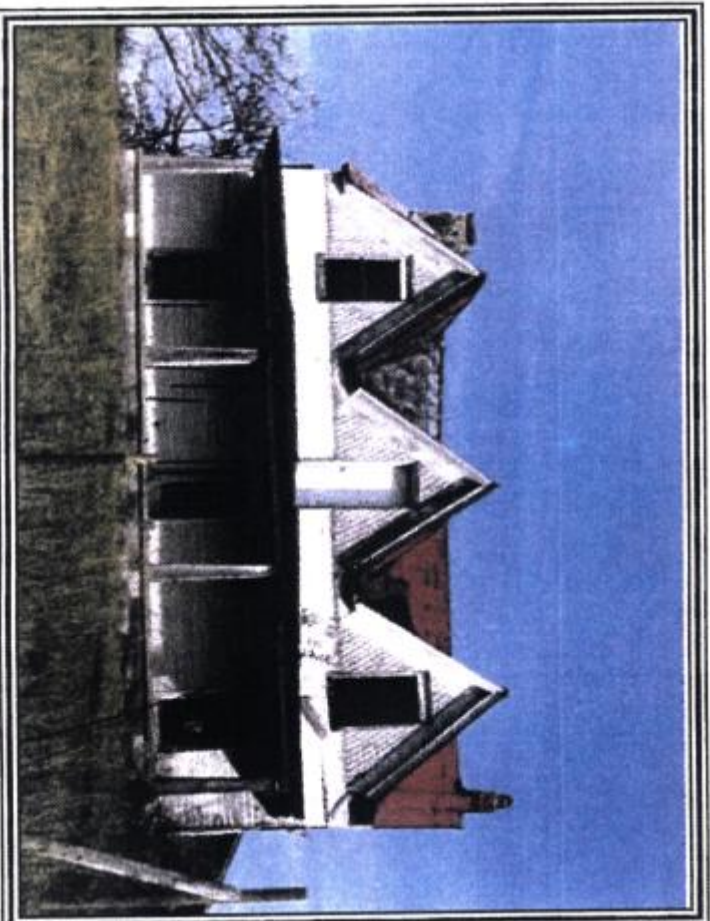


Figure 2. Three Gable Three-Bay House at Morrill

GROUP 2. CAVE SPRING ROAD INTERSECTION.

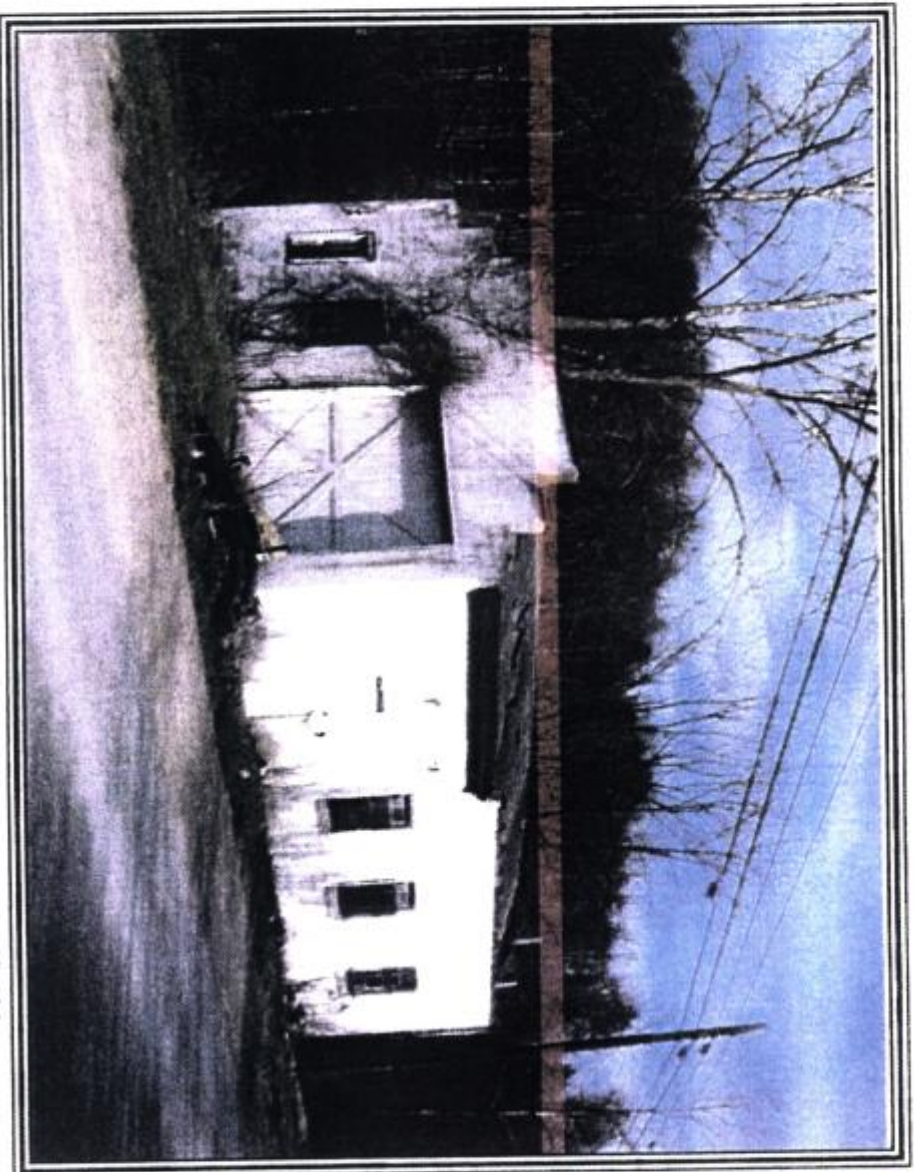


Figure 3. Garage at the Intersection of Cave Spring Road with US 421.

GROUP 3. CLOVER BOTTOM CHURCH AREA.

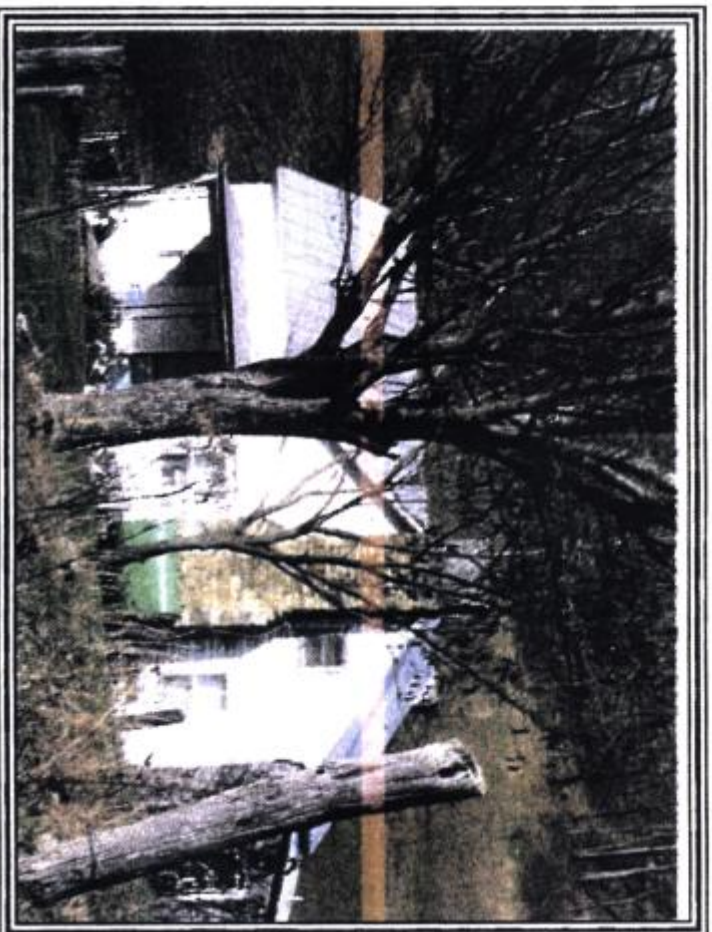


Figure 4. Log House at Clover Bottom.

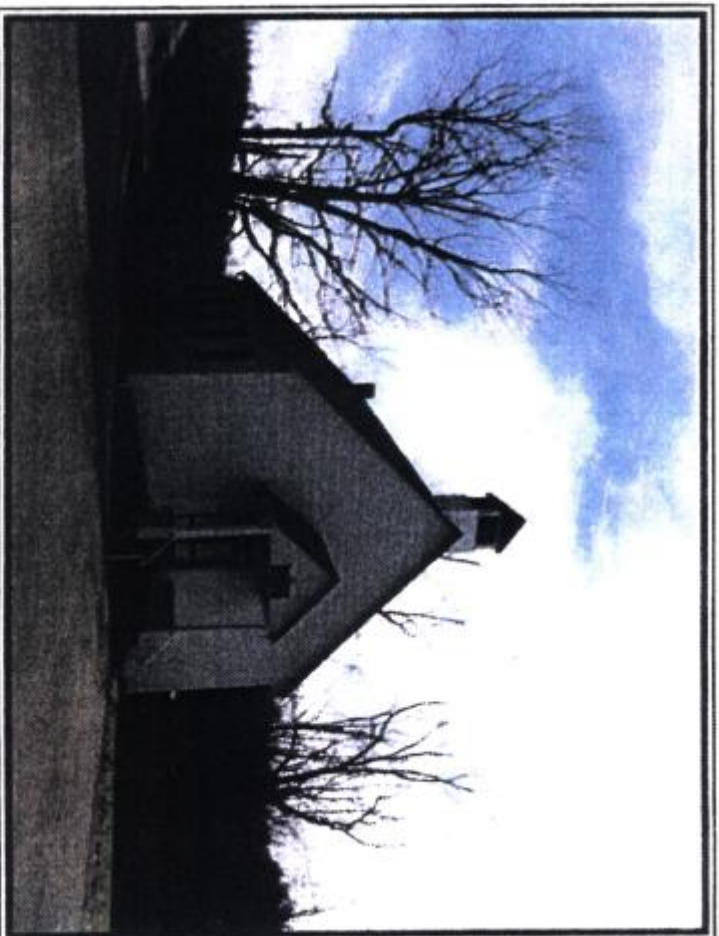


Figure 5. Clover Bottom Church.

GROUP 4. SANDGAP.



Figure 6. Tudor Style House at Sandgap .

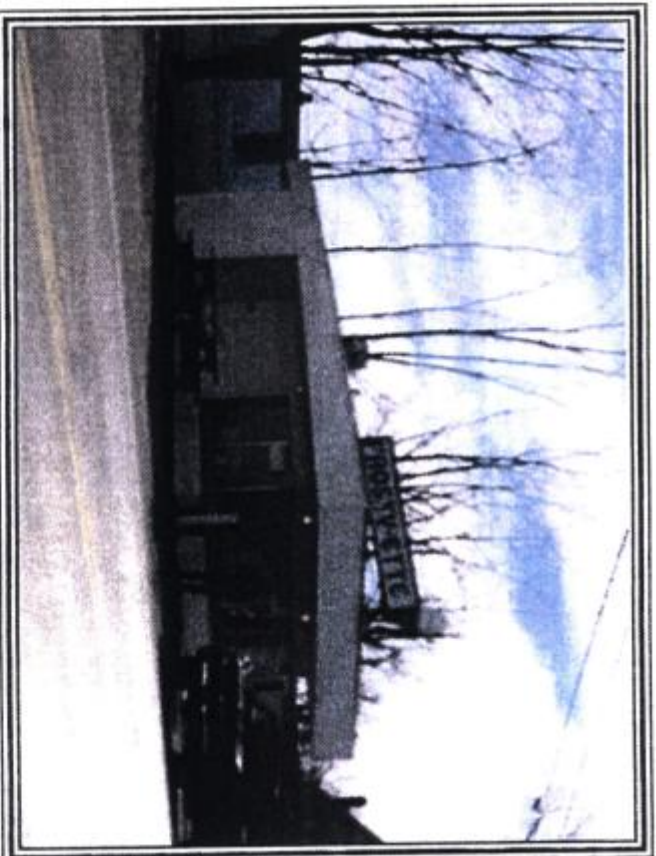


Figure 7. Frosty-Ette at Sandgap .

GROUP 5. ABLE GABBARD HOUSE.

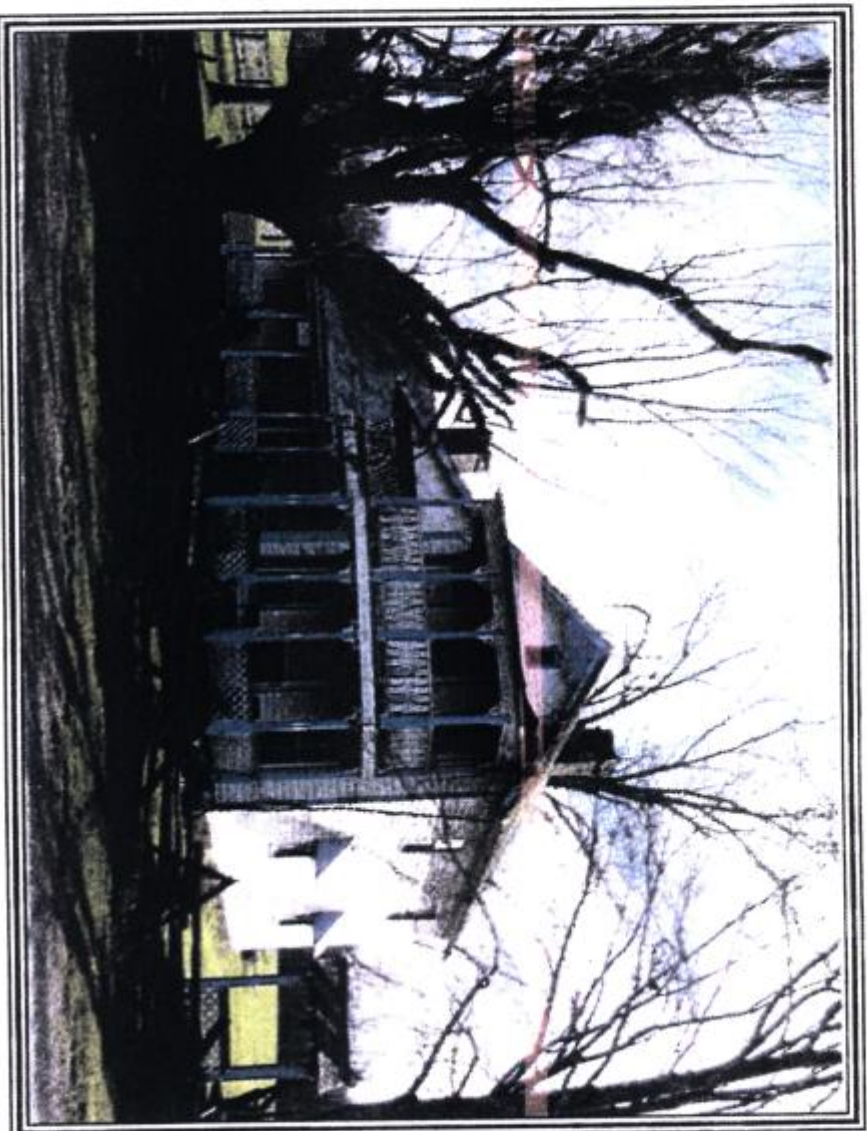


Figure 8. Able Gabbard House (1852).

GROUP 6. SCHOOL NO.1 VICINITY.

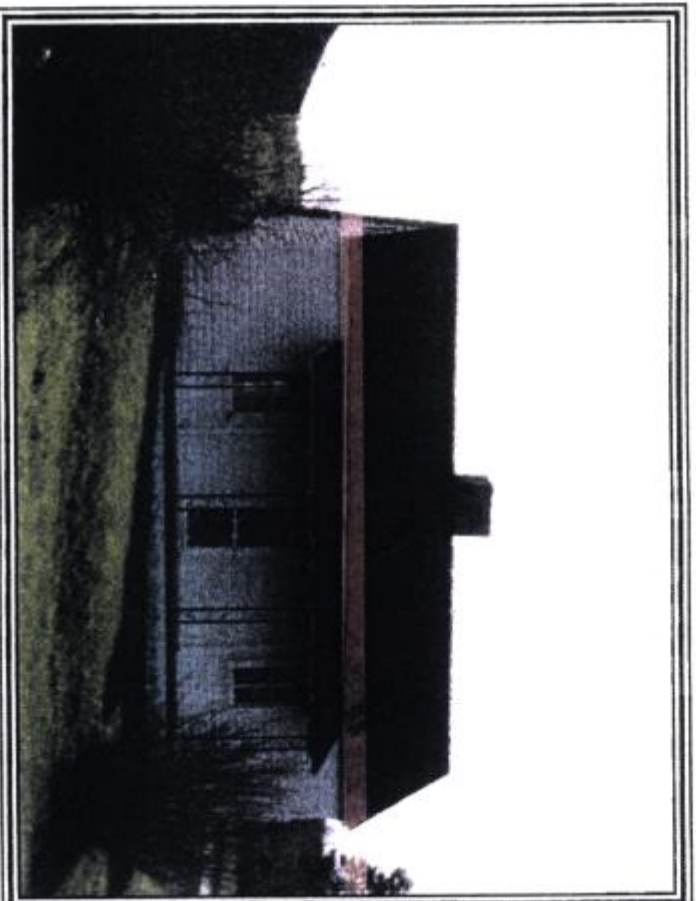


Figure 9. Three Bay Saddle Bag Log House Just East of Sandgap .



Figure 10. Log Ancillary Structure Across from Dry Branch.

GROUP 7. BETWEEN WANETA AND BIRCH LICK.

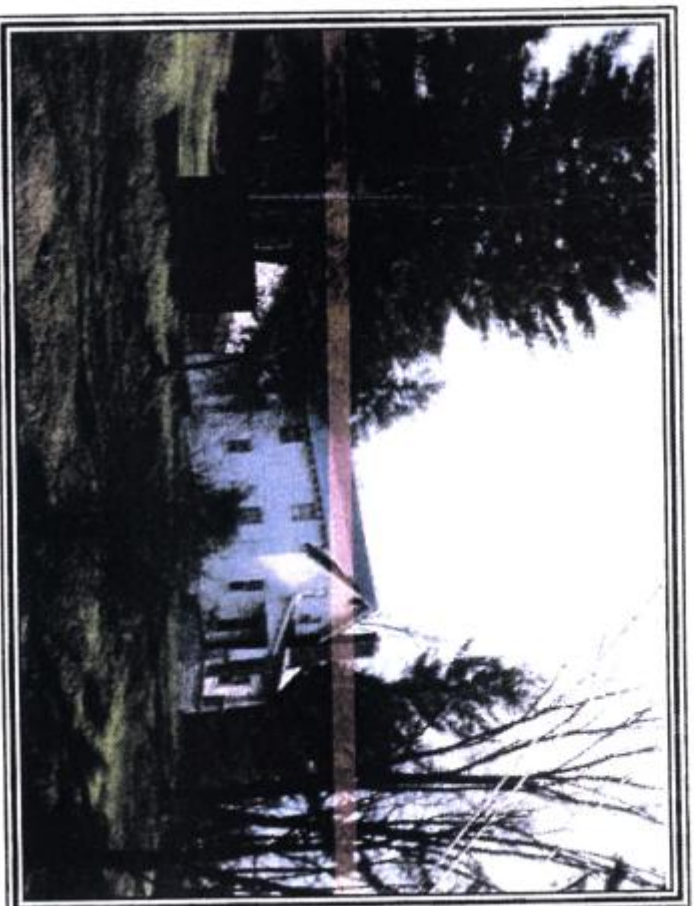


Figure 11. Gable End Bungalow.

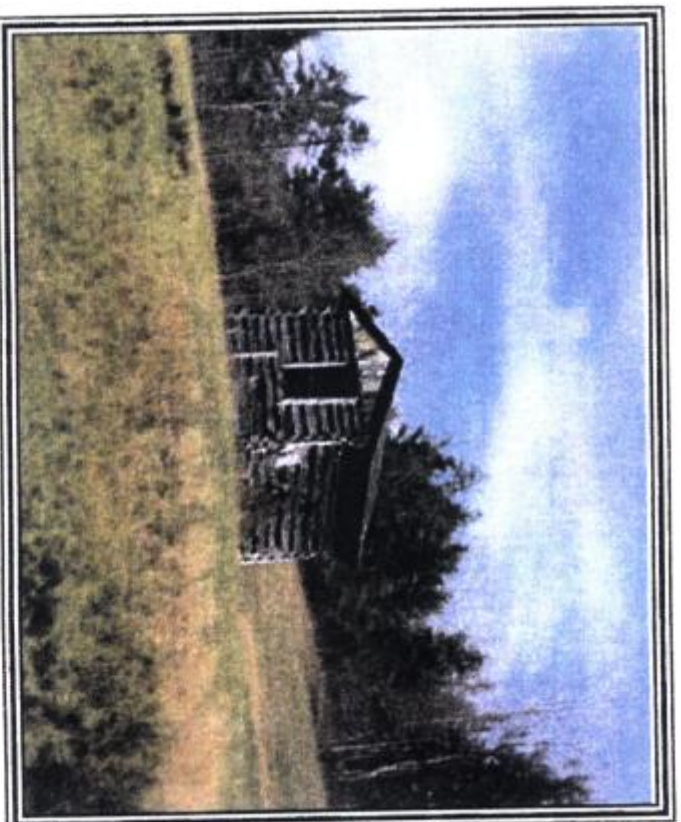


Figure 12. Log Corn Crib.

Exhibit 4 illustrates the landowners and industries located along the US 421 corridor in 1861. It would be expected that it is possible to locate a site associated with each one of the place names appearing on the map. The knowledge of these sites, in addition to the 210 pre-1950 dwellings, suggest a large number of historic sites. The results of the survey by the Transportation Cabinet in combination with those surveys conducted by the United States Forest Service suggest that the ridgetops are the prime locations for being able to identify prehistoric usage of the landscape. However, surveys conducted for industrial parks and housing suggest there is no usage of the landscape with steep slopes. The proposed 2000 ft wide corridor (with US 421 as the center line) intersects primarily stream bottoms. These areas appear to have received disparate study or survey as illustrated by the recorded previously surveyed archaeological areas (see Exhibit 5). This factor suggests that there would be more prehistoric sites identified, given the longevity of the transportation route (US 421) to southeastern Kentucky. This information indicates that there is the potential to identify some 50 prehistoric archaeological site/isolated finds in this 15 mile project. Even this does not account for the additional 210 dwellings illustrated on maps dating to 1952-1953. Thus, there needs to be a determination by all regulating agencies as to what constitutes an archaeological site that must be evaluated for listing in the National Register of Historic Places.

UST/Hazmat Considerations:

A government records search, in addition to preliminary screening/windshield survey of the project area, was performed to locate any current or formerly listed Underground Storage Tank (UST) sites as well as all mappable hazardous waste/hazardous material generator, disposal, and/or transport, sites (see Appendix B). No National Priority List (NPL), i.e. Superfund, sites are listed as occurring in the project area.

Records and field research revealed eight (8) UST or former UST sites of potential environmental concern within or near the project corridor. Five (5) of the eight sites are active retail gasoline stations, regulated and currently in compliance with prevailing regulations. These five sites should not pose serious problems for the project since they have spill prevention and release detection devices. The other three sites are former retail gas stations which have likely had their USTs removed but this could not be verified. These three sites should be investigated further if they would be impacted by the proposed project.

The five active retail gasoline businesses include, from south to north: Marathon Station 0.4 miles north of McKee at the US 421 - KY 89 junction with an estimated two USTs; Gas and Grocery at Morris Lane in Sandgap with four USTs; Sandgap One Stop in Sandgap with four USTs; Fill-Ups Gas and Grocery 13.7 miles north of McKee with four USTs; and Cligo Station at T. Stanford road north of Sandgap with five USTs. These sites are registered, have spill prevention and leak detection measures in place, and are in regulatory compliance. They should not pose a hazardous materials problem for the project, but should be investigated further in future project phases if they would be affected.

The three former UST sites include two former Ashland Stations, one at the junction of US 421 and KY 3446, and the other in the community of Sandgap, and the Hill Top Gas and Grocery at the northern project terminus at Mortill. It could not be determined if USTs are still present at these closed facilities and further investigations should be conducted if they would be affected by the proposed project.

Other sites of concern, if they would be affected by the proposed project, include six (6) auto repair and auto salvage businesses. These businesses are adjacent to the existing road at disbursed locations along the route. If any of these businesses would be affected or property acquired for the proposed project, they should be examined for evidence of petroleum contamination.

Residential heating requirements throughout the area are met through the use of electricity, propane, and heating oil. Several propane tanks and a few heating oil tanks were observed throughout the project corridor. The removal of propane and heating oil tanks should be accommodated routinely during the right-of-way acquisition phase.

An Environmental Site Assessment of the project area conducted in accordance with ASTM Practice E 1527 and KYTC Guidance, should be accomplished during future "NEPA" phases of the project to formally confirm UST/HZM findings. Based on currently available information, there are fourteen (14) sites that may require additional considerations in future project phases because they could potentially impact decisions on the designated corridor.

Summary of Environmental Overview Data:

Current land use trends in the corridor are not expected to change as a result of project construction. Residential, small business, and institutional uses would be expected to continue to dominate the study area.

Air quality would not be adversely affected and highway noise is not expected to influence project feasibility or alternative location designations.

Aquatic and terrestrial ecosystems could experience adverse impacts from construction activities associated with stream channelization, culvert and bridge structures, and nonpoint source discharges. Best management practices (BMPs) and erosion and sediment control plans should be employed to prevent adverse impacts to sensitive resources. Potential wetland areas exist within the project study area. Additional investigations should be conducted to confirm the presence of jurisdictional wetlands and establish practicable avoidance measures as necessary. Potential floodplain impacts should be addressed in accordance with current KYTC standard procedures.

Tracts of the Daniel Boone National Forest (DBNF) are located adjacent to US 421 within the project corridor. Any acquisition of land from within DBNF boundaries would require prior approval of the U.S. Forest Service (USFS). An important element of the Forest is the Sheltoewe

Trace National Recreational Trail. The Trail crosses existing US 421 south of Waneta and north of McKee (see Exhibit 5). Project related impacts to the Trail may constitute a Section 4(f) use. This possibility should be thoroughly investigated in future project phases.

The U.S. Fish and Wildlife Service (USFWS) listed three (3) threatened and endangered species as possibly occurring in the project area. Additional site specific investigations and preparation of Biological Assessments will be necessary during the Preliminary Engineering and Environmental (PE/E) phase of the project.

It has been determined that more than 200 structures within the project study area meet the 50 years of age or older criteria requiring evaluation for historic significance. This evaluation and determination of historic significance should be conducted as soon as possible in subsequent project phases. The presence of structures or sites that prove to be eligible for listing on the National Register of Historic Places, could materially affect project location decisions. Initial project area research also indicates that there is a strong potential for prehistoric and historic archaeological sites to be present within the study area. Therefore, project specific archaeological investigations should be conducted during the PE/E phase in accordance with current KYTC procedures.

Three (3) former underground storage tank (UST) sites and six (6) businesses which utilize hazardous materials in their normal operations, have been designated for investigation as sites of potential environmental concern. If any of these sites would be affected by the proposed project, they should be evaluated for petroleum and toxic substances contamination.

EXHIBITS

- 1. Project Vicinity Map**
- 2. National Wetlands Inventory Map**
- 3. Flood Insurance Rate Map**
- 4. 1861 Project Area Map**
- 5. Potential Historic Site Locations Map**

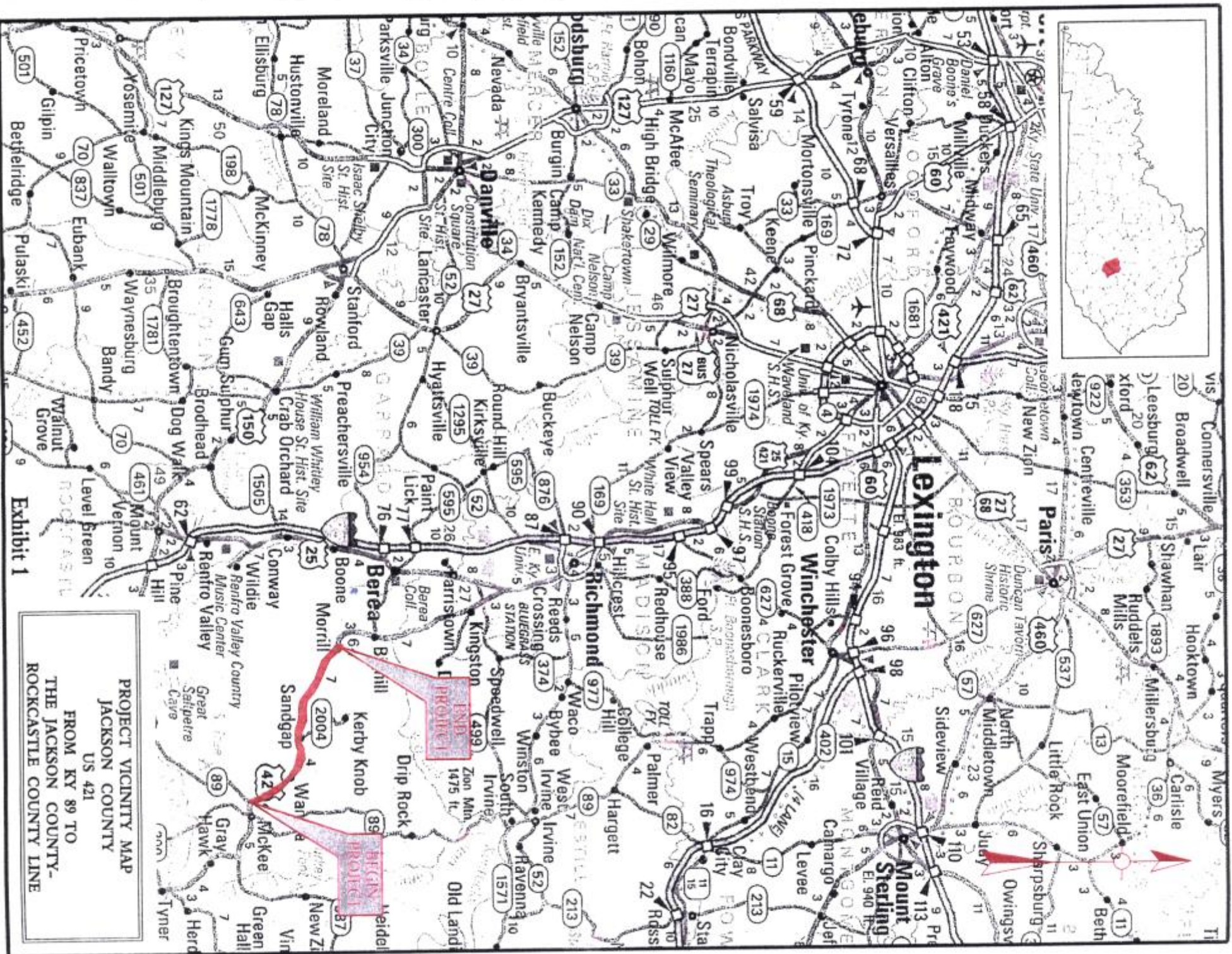


Exhibit 1

PROJECT VICINITY MAP
JACKSON COUNTY

US 421

FROM KY 89 TO

THE JACKSON COUNTY-

ROCKCASTLE COUNTY LINE

Scale: 1" = Approx. 8 miles



HESTER NE
MOND

SCALE 1:24000

SPECIAL NOTE
This document was prepared primarily by stereoscopic analysis of high altitude aerial photographs. Wetlands were

SYMBOLS

NOTES TO THE USER
Subsystems, Classes, Subclasses, and Wetlands were developed specifically for the National Wetlands Inventory mapping.

EXHIBIT 2
National Wetlands Inventory Map
Jackson County
US 421
From KY 89 to the Jackson County Line
Scale: 1" = 2000'

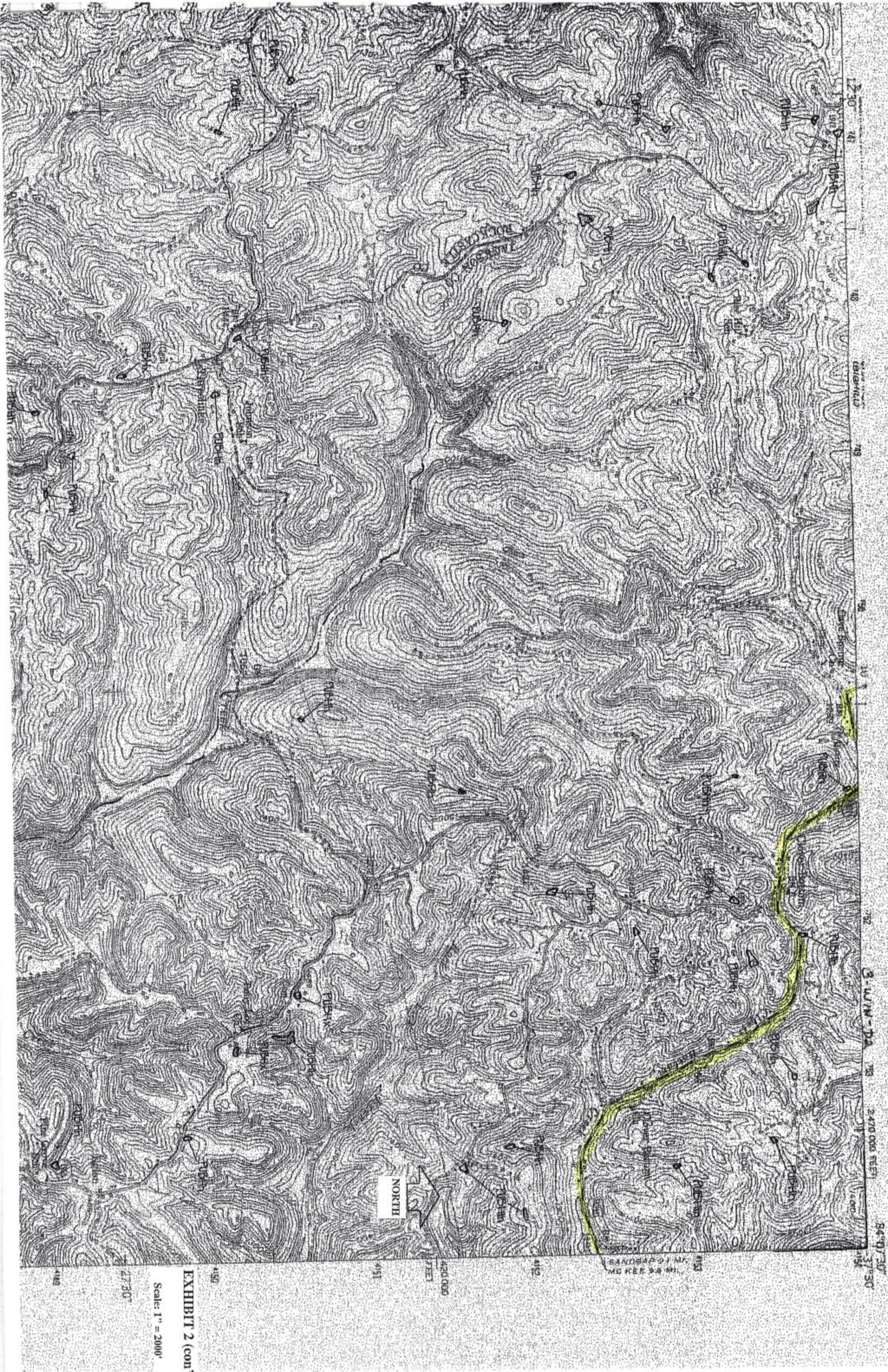


EXHIBIT 2 (con)
Scale: 1" = 2000'

UNITED STATES DEPARTMENT OF THE INTERIOR

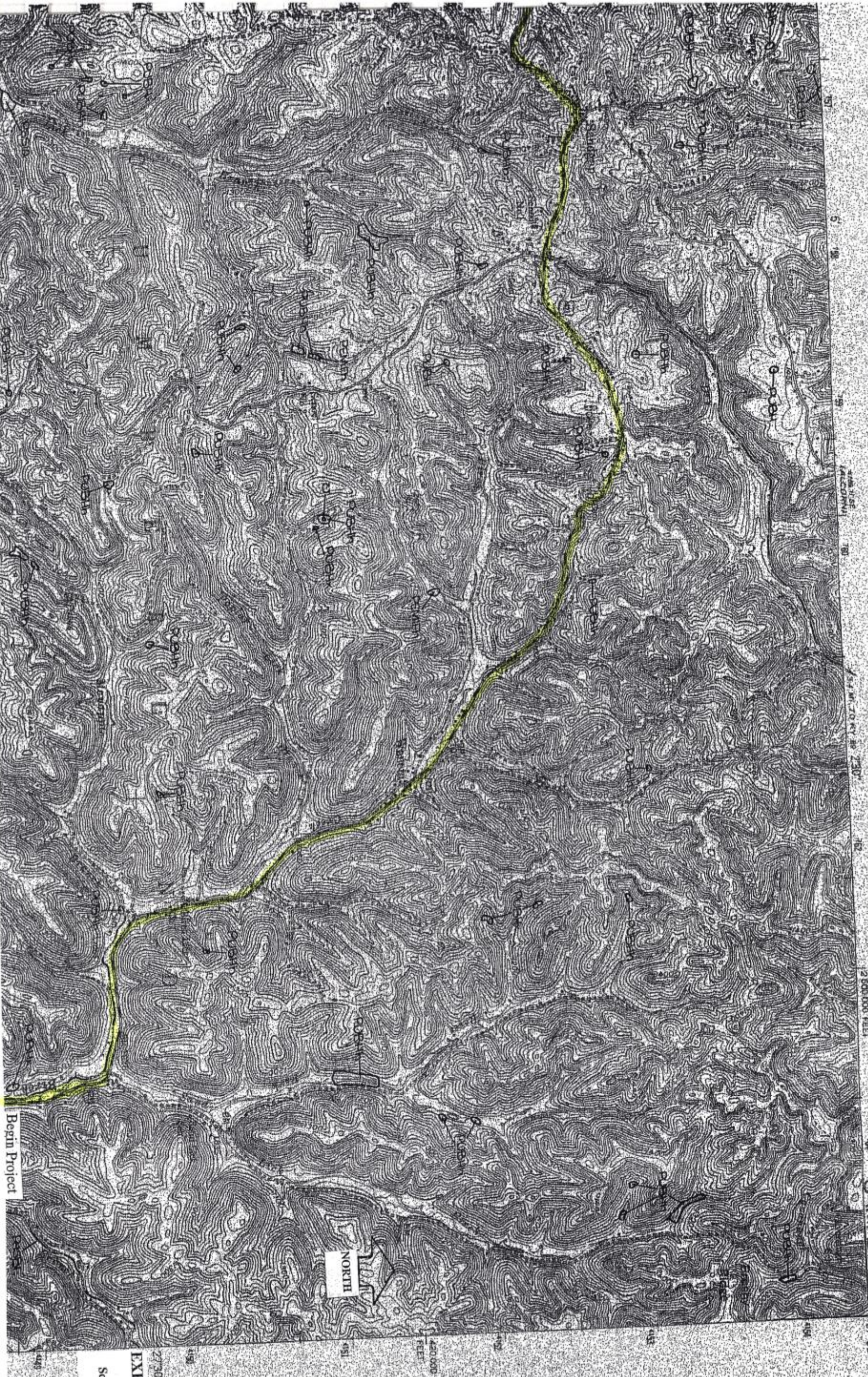


EXHIBIT 2 (con't)

Scale: 1" = 2000'

KEY TO SYMBOLS



NOTE: Flood Insurance Rate Maps are prepared by the Federal Insurance Administration, U.S. Department of Housing and Urban Development, and are subject to change without notice. Flood Insurance Rate Maps are not to be used for any purpose other than flood insurance rating.

EXHIBIT 3

Flood Insurance Rate Map

Jackson County

US 421

From KY 89 to the Jackson County
Rockcastle County Line

Scale: 1" = Approx. 3000'

FLOOD HAZARD INSURANCE MAP

JACKSON COUNTY
KENTUCKY
UNINCORPORATED AREAS

DATE: 3-1-88
THIS MAP SHOWS FLOOD HAZARD INFORMATION

EFFECTIVE DATE:

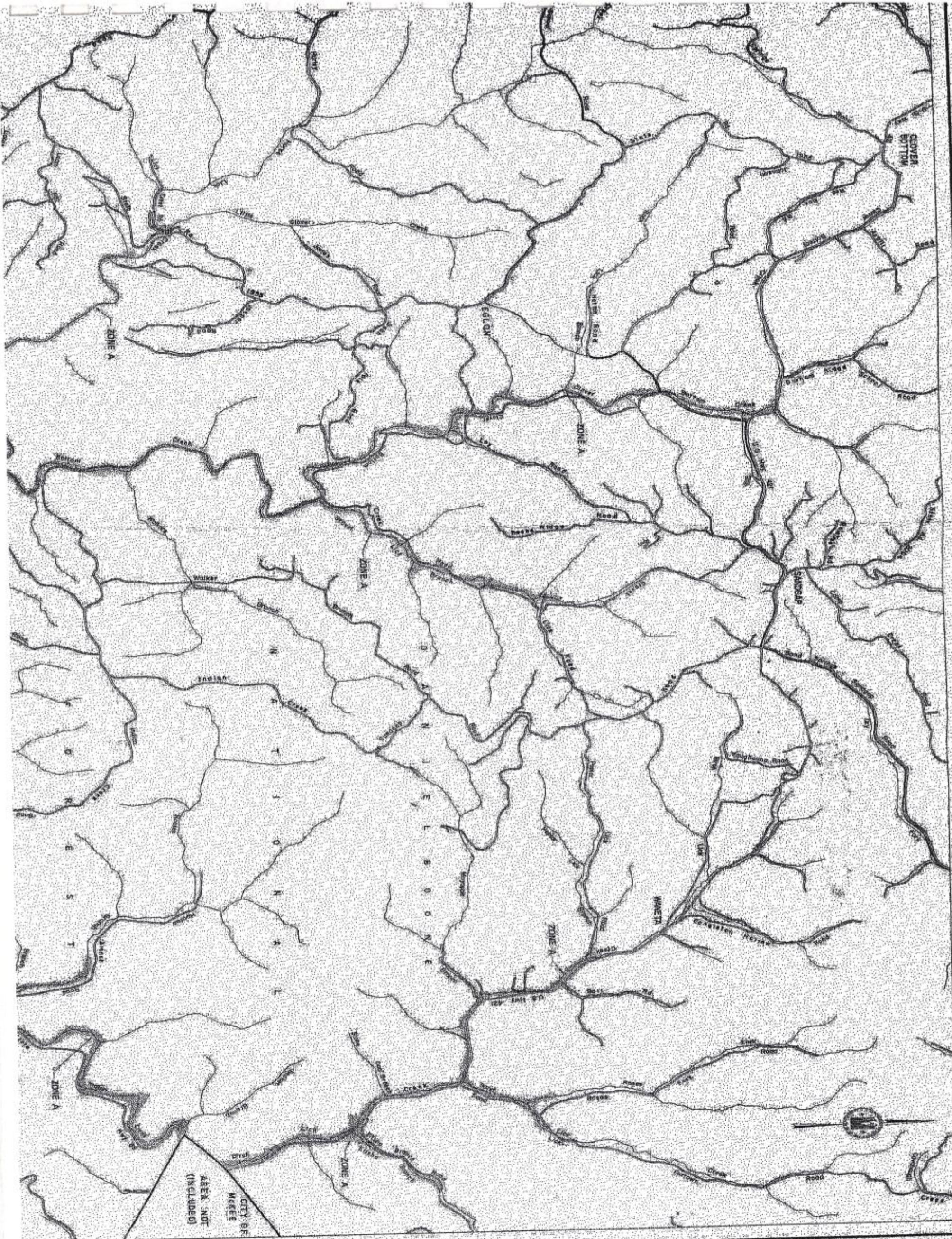
03-01-88

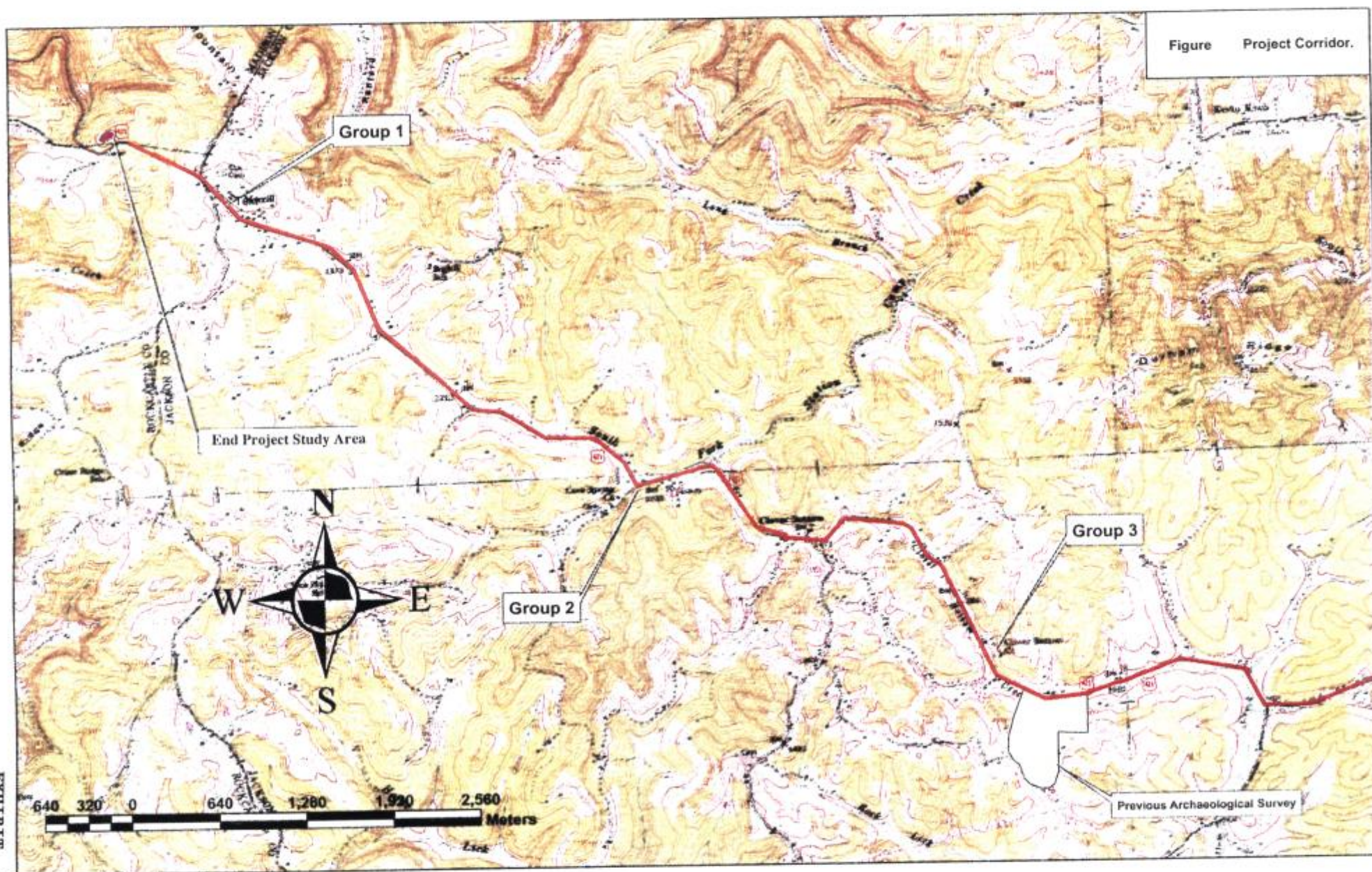
COMMUNITY PANEL NUMBER

21016 0003 A



U.S. DEPARTMENT OF HOUSING
AND URBAN DEVELOPMENT
FLOOD INSURANCE ADMINISTRATION





POTENTIAL HISTORIC SITE LOCATIONS

Jackson County: US 421
From KY 89 to the Jackson - Rockcastle
County Line

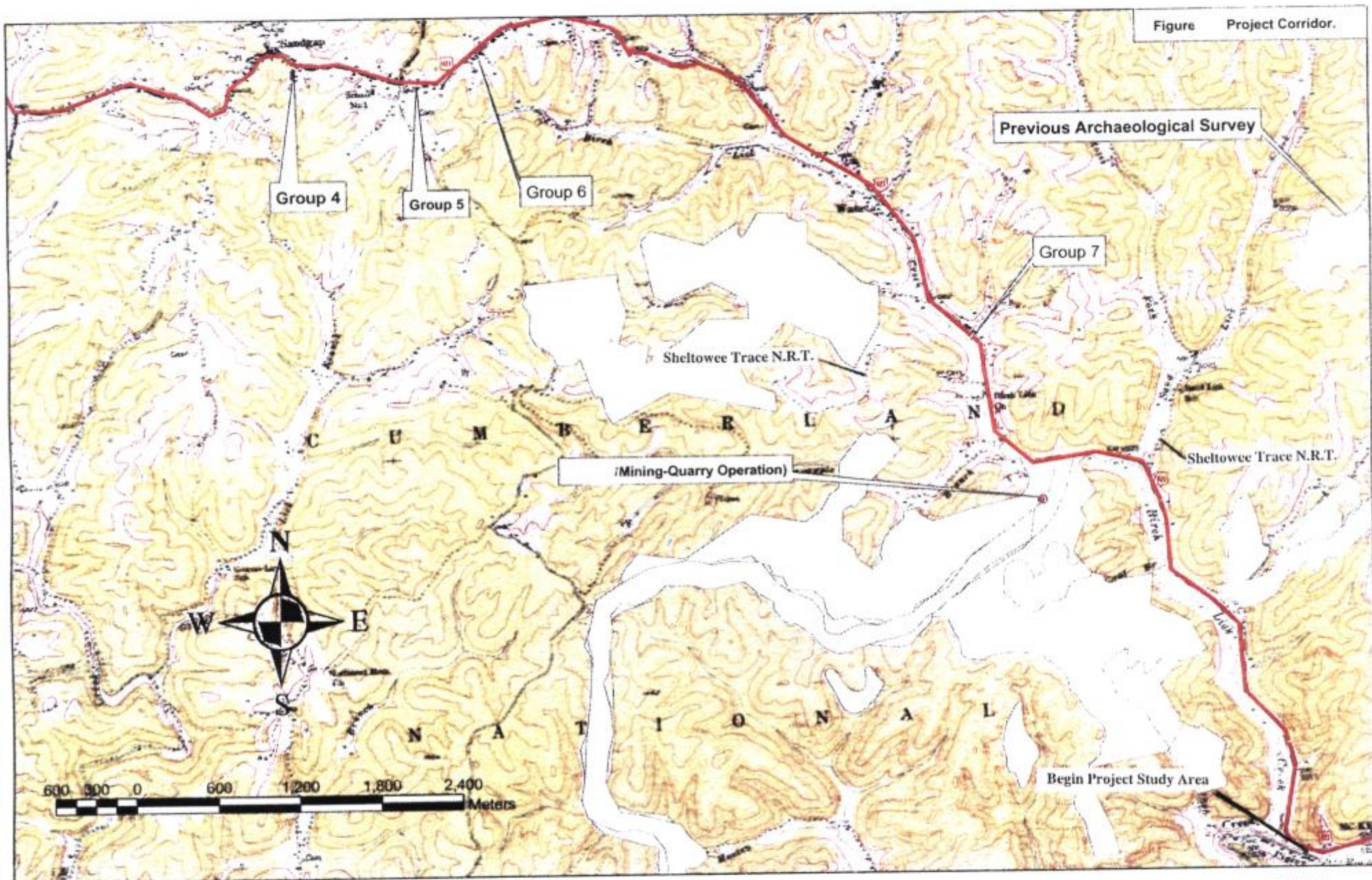


Figure Project Corridor.

POTENTIAL HISTORIC SITE LOCATIONS
and
SHELTOWEE TRACE N.R.T. LOCATION

Jackson County: US 421
From KY 89 to the Jackson - Rockcastle
County Line

EXHIBIT 5 (cont.)