

**APPENDIX B:**  
Environmental  
Overview



**Environmental Overview – US 150  
Corridor Study Boyle and Lincoln  
Counties**

KYTC Item No. N/A

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Prepared for:

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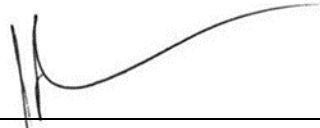


**ENVIRONMENTAL OVERVIEW – US 150 CORRIDOR STUDY BOYLE AND LINCOLN COUNTIES**


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## Abbreviations

|               |   |
|---------------|---|
| ASBESTOS      | Asbestos Notification System                        |
| AST           | Above Ground Storage Tanks                          |
| ECHO          | Enforcement & Compliance History Information        |
| EDR           | Environmental Data Resources                        |
| EDR Hist Auto | EDR Exclusive Historical Auto Stations              |
| EO            | Environmental Overview                              |
| EPA           | Environmental Protection Agency                     |
| ERNS          | Emergency Response Notification System              |
| FEMA          | Federal Emergency Management Agency                 |
| FINDS         | Facility Index System/Facility Registry System      |
| HMIRS         | Hazardous Materials Information Reporting System    |
| IPaC          | Information for Planning and Consultation           |
| KDFWR         | Kentucky Department of Fish and Wildlife Resources  |
| KDOW          | Kentucky Division of Water                          |
| KYTC          | Kentucky Transportation Cabinet                     |
| LEAD          | Environmental Lead Program Report Tracking Database |
| LWCF          | Land and Water Conservation Fund                    |
| NAAQS         | National Ambient Air Quality Standards              |
| NEPA          | National Environmental Policy Act                   |
| NFHL          | National Flood Hazard Layer                         |
| NPDES         | National Pollutant Discharge Elimination System     |
| NRCS          | National Resources Conservation Service             |
| NRHP          | National Register of Historic Places                |
| NWI           | National Wetlands Inventory                         |
| OSA           | Kentucky Office of State Archaeology                |



## ENVIRONMENTAL OVERVIEW – US 150 CORRIDOR STUDY BOYLE AND LINCOLN COUNTIES

|         |  |
|---------|--|
| OKNP    | Office of Kentucky State Nature Preserve                           |
| PADUS   | Protected Areas Database of the United States                      |
| PSTEAF  | Petroleum Storage Tank Environmental Assurance Fund                |
| RCRA    | Resource Conservation Recovery Act                                 |
| RGA HWS | Recovered Government Archive State Hazardous Waste Facilities List |
| SHWS    | State Hazardous Waste Sites  |
| SSTS    | Section 7 Tracking Systems   |
| USDA    | United States Department of Agriculture                            |
| USEPA   | United States Environmental Protection Agency                      |
| USFWS   | United States Fish and Wildlife Service                            |
| USGS    | United States Geological Survey                                    |
| UST     | Underground Storage Tanks  |



## Executive Summary

This Environmental Overview (EO) has been prepared for the US 150 Corridor Study for the Kentucky Transportation Cabinet (KYTC). The objective of this EO is to identify environmental resources of significance, potential jurisdictional features, and other environmental areas of concern that need to be considered in the development of improvement concepts. Natural and human environmental resources within the study area were identified from secondary source information including available electronic databases, data files, and published data that may be publicly available or restricted to subject matter experts. Based on this information, key environmental features within the study area include:

**Wetlands:** There are five National Wetland Inventory (NWI) features mapped within the study area. All five are classified as Fresh Water Emergent (PEM) wetlands totaling 5.29 acres.

**Threatened and Endangered Species:** According to U.S. Fish and Wildlife Service's Information for Planning and Consultation (IPaC) there are sixteen federally listed endangered species, two federally listed threatened species and one federally listed candidate. All have the potential to occur within the study area.

**Groundwater:** The EDR well report found one public water supply system, 138 state water wells occur within the study area, which are listed as 130 monitoring wells and eight domestic use wells. The state oil/gas well information database listed four wells. The Water Protection Viewer shows the entire study area falls within the Lebanon and Stanford Water Works source water protection area, in which best management practices (bmps) will be followed if disturbance in the area of surface waters occurs. Subsurface flow is assumed to flow northwest based on topography and contour lines. The Kentucky Watershed Viewer shows this part of this project falls within the Clarks Run (HUC11: 05100205190) and Hanging Fork (HUC11: 05100205180) sub-watersheds, which is within the Dix River watershed (HUC8 05100205).

**Karst:** The Karst Occurrence map found that the study area is underlain with bedrock which has moderate to low potential for karst development. The OKNP report came back stating that there were no caves within the study area and buffer zone. KSS also reported that there were no caves within the study area. Neither KSS nor OKNP recorded sinkholes within the study area.

**Farmland:** Approximately 2,371 acres or 29.7% of the soils in the study area are identified as Prime Farmland. Farmland of Statewide Importance totals 2,792 acres or 35%. Non-prime farmland totals 2,809 acres or 35.2%.

**Hazardous Materials Concerns:** The EDR report provided 240 database records within and surrounding the study area, of which 58 were KY spills.

The following features are records that were identified in the database search: one RCRA-CORRACTS record, two RCRA-TSDF records, three RCRA-SQG records, two RCRA-VSQG records, one ERNS records, three KY SHWS records, two KY SWF/LF records, one PSTEAF record, five KY SB 193 records, 27 UST records, 12 AST records, one KY INST Control record, two KY SWRCY records, one KY



HIST LF, one US HIST CDL, one US CDL, 58 KY SPILLS records, 18 RCRA Non-Gen/NLR records, one TRIS record, one RAATS record, two ICIS records, three US AIRS records, two US MINES records, 68 FINDS records, 53 ECHO records, 12 KY AIRS records, three ASBESTOS records, two Financial Assurance record, two LEAD record, one NY MANIFEST record, 36 NPDES records, one MINES MRDS record, eight EDR Hist Auto records, and two EDR HIST Cleaner records.

Additionally, the EDR report included exclusive recovered Govt. Archives which returned with two RGA HWS records, three RGA LF records and no Orphan Sites.

Potential hazardous materials concerns exist throughout the study area. For additional information on specific hazardous materials concerns in and around the surrounding study area, please reference the full EDR report (provided separately).

**Oil and Gas Wells:** There are two reported inactive oil and gas wells currently within the study area according to KGS and EDR report.

**Archaeological, Cultural and Historic Resources:** Based on the review of National Register of Historic Places (NRHP) there are no historic districts but there are five NRHP sites which are the McFerran house (S), Waveland (N), Gentry House (W), Spring Hill (Thomas Lillard House) (W) and Withers, Horace House (SW). Both the towns of Danville and Stanford are on the NRHP listing as Historic Districts. The Kentucky Office of State Archaeology (OSA) preliminary records review indicated six archaeological sites are recorded within the study area as well as one National Register property not assessed National Register status sites, and two unrecorded sites.

**Community Resources:** Community resources and sensitive noise receptors in the study area include single family residential neighborhoods and houses. Four houses of worship, and Danville Memorial Gardens are found within the project area. Wilderness Child Development Center, Stanford Elementary School, two parks, and eight public service facilities are located within the study area, including the Ephraim McDowell Fort Logan Hospital, the Bluegrass Clinic-Stanford, the USDA Farm Services Agency and the Lincoln County Extension Office. Danville Memorial Gardens is within the project study area. The Norfolk Southern Railroad runs under the northern section of the study area. Utility infrastructure in the area includes approximately six gas transmissions pipelines crossings US 150 and one AC transmission line running through and along the project area.



### 1.0 ENVIRONMENTAL OVERVIEW

Stantec Consulting Services has prepared this Environmental Overview (EO) as part of the US 150 Corridor Study for the Kentucky Transportation Cabinet (KYTC). This overview identifies known natural and human features which occur within the study area that should be considered during the development and advancement of improvement concepts and avoidance or minimization of impacts.

#### 1.1 PROJECT DESCRIPTION

The study area under review consists of 10.8- mile corridor within Boyle and Lincoln Counties, Kentucky (**Figure 1**). The objective the US 150 Corridor Study is to assess future traffic demands along the corridor, to evaluate crash history to determine the need and locations for potential crash countermeasure treatments, and to evaluate possible improvement concepts. The objective of this EO is to identify environmental resources of significance, potential jurisdictional features, and other environmental areas of concern that need to be considered in the development of improvement concepts. Natural and human environmental resources within the study area were identified from secondary source information including available electronic databases, data files, and published data that may be publicly available or restricted to subject matter experts.

#### 1.2 RECORDS REVIEW

A review of agency databases and secondary sources was conducted to document known environmental resources including, but not limited to:

- Ecological resources in Attachments 1-9:
  - IPaC threatened and endangered species list
  - Known northern long-eared bat habitat in Kentucky
  - Known Indiana bat habitat in Kentucky
  - Kentucky Department of Fish and Wildlife Resources State species list
  - Office of Kentucky Nature Preserve Natural Heritage Database report
  - Kentucky Speleological Society caves and sinkholes
  - Kentucky NAAQs Map
  - NRCS Soils Report for Boyle and Mercer Counties and Garrard and Lincoln Counties in Kentucky



# ENVIRONMENTAL OVERVIEW – US 150 CORRIDOR STUDY BOYLE AND LINCOLN COUNTIES

## Environmental Overview

- EDR DataMap Research Report
- EDR Area/Corridor Report
- Kentucky Office of State Archaeology Preliminary Records Review
- NWI and USGS Water Data Map for Kentucky
- EDR Topographic Maps
- Project Overview (**Figure 1**)
- FEMA National Flood Hazard Layer (NFHL) Data and National Wetland Inventory (NWI) wetlands (**Figures 2 & 3**)
- Farmland Classification of Soils (**Figure 4**)
- Human Environment, Cultural, and Historic (**Figures 5 & 6**)
- Water wells (**Figures 4 & 5**)
- Hazardous materials records (**Figures 4 & 5**)
- Air quality

**Table 1** below provides a summary of the features that were identified within the study area. Project location and aerial features are identified in **Figure 1**. This information provides an overview of resources of significance within the study area as well as other environmental issues of potential concern. More detailed environmental studies may be required as individual actions are further developed in accordance with the National Environmental Policy Act (NEPA).

**Table 1. Environmental Resources/Features in US 150 Corridor Traffic Operations Study Area, Boyle and Lincoln Counties, Kentucky**

| Environmental Category | Resource/Feature  | Source/Information  |
|------------------------|---|---|
| <b>USGS Streams</b>    | <p>There are three USGS named streams and numerous unnamed stream resources within the study area.</p> <p>The Kentucky Watershed Viewer shows this part of this project falls within the Clarks Run (HUC11: 05100205190) and Hanging Fork (HUC11: 05100205180) sub-watersheds, which is within the Dix River watershed (HUC8 05100205).</p> <p>Please refer to digital Attachment 5 for more information regarding KDOW data.</p> | <p>Source: KDOW Special Waters tables, KDOW 305(b) and 303(d) tables (2016), USFWS NWI, USGS National Map, KY Water Health Portal</p> |



## ENVIRONMENTAL OVERVIEW – US 150 CORRIDOR STUDY BOYLE AND LINCOLN COUNTIES

### Environmental Overview

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| <b>Other Streams</b>      | Surface streams potentially present in the study area. These would likely consist of small; headwater streams or springs and roadside drainage features not indicated on traditional mapping.   | Source: USGS maps, ESRI topo maps  |
| <b>Wetlands</b>           | There are five National Wetland Inventory (NWI) features mapped within the study area. All five are classified as Fresh Water Emergent (PEM) wetlands totaling 5.29 acres.  | Source: USFWS NWI, USGS National Map   |
| <b>Ponds</b>              | The NWI dataset indicates there are approximately 50 freshwater pond features in the study area for a total of approximately 52 acres. The composition was PUBHh. There are several manmade features with no composition listing.   | Source: USFWS NWI, USGS National Map   |
| <b>USFWS Species List</b> | <p>The United States Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) resource list indicated the following four species were of concern for the study area:</p> <ul style="list-style-type: none"> <li>• Northern long-eared bat (<i>Myotis septentrionalis</i>)-Threatened</li> <li>• Gray bat (<i>Myotis grisescens</i>)-Endangered</li> <li>• Indiana bat (<i>Myotis sodalis</i>)- Endangered</li> <li>• Clubshell (<i>Pleurobema clava</i>)-Endangered</li> <li>• Cumberland Bean (<i>Villosa trabalis</i>)- Endangered</li> <li>• Cumberland Elktoe (<i>Alasmidonta atropurpurea</i>)-Endangered</li> <li>• Cumberlandian Combshell (<i>Epioblasma brevidens</i>)-Endangered</li> <li>• Fanshell (<i>Cyprogenia stegaria</i>)-Endangered</li> <li>• Fluted Kidneyshell (<i>Ptychobranthus subtentus</i>)-Endangered</li> <li>• Littlewing Pearlymussel (<i>Pegias fabula</i>)-Endangered</li> <li>• Northern Riffleshell (<i>Epioblasma rangiana</i>)-Endangered</li> <li>• Orangefoot Pimpleback (<i>Plethobasus cooperianus</i>)-Endangered</li> <li>• Pink Mucket (<i>Lampsilis abrupta</i>)- Endangered</li> <li>• Rabbitsfoot (<i>Quadrula cylindrica cylindrica</i>)-Threatened</li> <li>• Ring Pink (<i>Obovaria retusa</i>)-Endangered</li> <li>• Rough Pigtoe (<i>Pleurobema plenum</i>)-Endangered</li> <li>• Snuffbox Mussel (<i>Epioblasma triquetra</i>)- Endangered</li> <li>• Spectaclecase (<i>Cumberlandia monodonta</i>)-Endangered</li> <li>• Monarch Butterfly (<i>Danaus plexippus</i>)- Candidate</li> </ul> <p>Please refer to Attachment 1 for more information regarding species data.</p> | Source: USFWS IPaC Trust Resource Report (2022), USFWS Kentucky Ecological Field Office (2019) |



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## Environmental Overview

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| <p><b>KDFWR Species List</b></p>    | <p>Kentucky Department of Fish and Wildlife Resources (KDFWR) lists 63 additional State Threatened, Endangered, and Special Concern Species as occurring (either recently or historically) in Boyle and Lincoln Counties with 17 species found in both counties. These include:</p> <ul style="list-style-type: none"> <li>• 15 state endangered species (10 Aves, one Actinopterygii, four Bivalvia, and one Reptilia)</li> <li>• Thirteen state threatened species (10 Aves, two Insecta, one Mammalia, three Bivalvia)</li> <li>• 16 state sensitive species (13 Aves, one Bivalvia, one Mammalia, one Amphibia, and one Reptilia,</li> <li>• One Bivalvia special concern species</li> </ul> <p>Please refer to Attachment 1 for more information regarding species data.</p>   | <p>Source: KDFWR – Species List for Warren County (2022)</p>              |
| <p><b>OKNP Species Database</b></p> | <p>The Office of Kentucky Nature Preserves (OKNP) provide one record including four (one repeated) species for which species occurrence records have been noted either in or within one mile of the study area.</p> <p>Within one mile of the study area there are one federally listed endangered species; Grass-pink (<i>Calopogon tuberosus var tuberosus</i>)</p> <p>There are also two federal species of management concern: Henslow's Sparrow (<i>Centronyx henslowii</i>), and Loggerhead Shrike (<i>Lanius ludovicianus</i>).</p> <p>The OKNP Natural Heritage Database report summarizes the existing information known to the program at the time of the request for the study area provided. These biological elements or locations in question should not be regarded as final statements nor should they be substituted for on-site surveys required for environmental assessments. Due to the sensitive nature of this data, the specific species locations have been redacted.</p> <p>Please refer to Attachment 1 for more information regarding species data.</p> | <p>Source: OKNP Natural Heritage Database response (January 27, 2022)</p> |





## ENVIRONMENTAL OVERVIEW – US 150 CORRIDOR STUDY BOYLE AND LINCOLN COUNTIES

### Environmental Overview

|                           |  |   |
|---------------------------|--|---|
| <p><b>Groundwater</b></p> | <p>The EDR well report found one public water supply system, 138 state water wells occur within the study area, which are listed as 130 monitoring wells and eight domestic use wells. The state oil/gas well information database listed two inactive wells.</p> <p>The Water Protection Viewer shows the entire study area falls within the Lebanon and Stanford Water Works source water protection area.</p> <p>Subsurface flow is assumed to flow northwest based on topography and contour lines. Please see attachment 6 for NHD map and attachment 9 for topographic maps.</p> <p>The Kentucky Watershed Viewer shows this part of this project falls within the Clarks Run (HUC11: 05100205190) and Hanging Fork (HUC11: 05100205180) sub-watersheds, which is within the Dix River watershed (HUC8 05100205).</p> <p>Please refer to Attachment 5 for more information regarding groundwater data.</p> | <p>Source: Kentucky Watershed Viewer (2022), EDR DataMap Well Search Report (2022), and Water Protection Viewer (2022), EDR Topographic Maps (2022)</p> |
| <p><b>Karst Areas</b></p> | <p>The Karst Occurrence map, Kentucky Speleological Society (KSS) found that the study area has no known cave locations or Karst Features. The closeted cave location is approximately four miles to the northeast and the heavier band of karst related locations is approximately seven miles to the north of Danville.</p> <p>Please refer to Attachment 1 for OKNP and KSS database reports.</p>   | <p>Source: Karst Occurrence in Kentucky map (Paylor and Currens 2002), KSS database response (2022) OKNP database response (2022)</p>                   |
| <p><b>Floodplain</b></p>  | <p>There are three FEMA 100-Year floodplain occurring within the study area according to NFHL data.</p>  | <p>Source: FEMA NFHL (2021)</p>   |
| <p><b>Floodway</b></p>    | <p>There are three FEMA designated floodways within the study area according to NFHL data Zone A.</p>  | <p>Source: FEMA NFHL (2021)</p>   |
| <p><b>Farmlands</b></p>   | <p>Approximately 2,371 acres or 29.7% of the soils in the study area are identified as Prime Farmland. Farmland of Statewide Importance totals 2,792 acres or 35%. Non-prime farmland totals 2,809 acres or 35.2%.</p> <p>Please refer to Attachment 4 for the full USDA NRCS Soil Survey Report.</p>  | <p>Source: NRCS Web Soil Survey Map Data (2022)</p>   |



# ENVIRONMENTAL OVERVIEW – US 150 CORRIDOR STUDY BOYLE AND LINCOLN COUNTIES

## Environmental Overview

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| <p><b>Hazardous Materials</b></p> | <p>The EDR report provided 240 database records within and surrounding the study area. Of these, database records identified 58 KY spills.</p> <p>Additionally, the following features are records that were identified in the database search:</p> <ul style="list-style-type: none"> <li>• 1 ERNS records</li> <li>• 3 SHWS record</li> <li>• 1 PSTEAF record</li> <li>• 5 KY SB 193 records</li> <li>• 27 UST records</li> <li>• 58 KY SPILLS records</li> <li>• 18 RCRA Non-Gen/NLR records</li> <li>• 2 RCRA-CORRACTS records</li> <li>• 2 RCRA-TSDF records</li> <li>• 3 RCRA-SQC records</li> <li>• 2 RCRA-VSQC records</li> <li>• 3 KY SHWS records</li> <li>• 2 KY SWF/LF records</li> <li>• 12 AST records</li> <li>• 1 RAATS records</li> <li>• 2 ICIS records</li> <li>• 1 KY INST Control record</li> <li>• 2 KY SWRCY records</li> <li>• 1 US CDL record</li> <li>• 68 FINDS records</li> <li>• 53 ECHO records</li> <li>• 3 ASBESTOS records</li> <li>• 2 Financial Assurance record</li> <li>• 2 LEAD records</li> <li>• 2 Financial Assurance records</li> <li>• 1 NY MANIFEST record</li> <li>• 36 NPDES records</li> <li>• 1 MINES MRDS records</li> <li>• 1 Tris record</li> <li>• 3 US AIRS records</li> <li>• 2 US MINES records</li> <li>• 8 EDR Hist Auto records</li> <li>• 2 EDR Hist Cleaner records</li> </ul> <p>The following are exclusive recovered Govt. Archives:</p> <ul style="list-style-type: none"> <li>• 2 RGA HWS records</li> <li>• 3 KY RGA LF records</li> </ul> <p>Potential hazardous materials concerns are found throughout the study area.</p> <p>For additional information on specific hazardous materials concerns in and around the surrounding study area, please reference the full EDR report.</p> <p>Please refer to digital Attachment 6 for more information regarding EDR data.</p> | <p>Source:<br/>Environmental Data Resources<br/>Area/Corridor Report<br/>(EDR 2022)</p> |
|-----------------------------------|---|---|



## ENVIRONMENTAL OVERVIEW – US 150 CORRIDOR STUDY BOYLE AND LINCOLN COUNTIES

### Environmental Overview

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| <b>Oil and Gas Wells</b>    | <p>There are two reported inactive oil and gas wells currently in the study area according to KGS and EDR report. Both found within the corridor.</p> <p>Please refer to digital Attachment 6 for more information regarding EDR well data.</p>  | <p>Source: EDR DataMap Well Search Report (August 31, 2022), KGS (2022)</p>                    |
| <b>Section 4(f)</b>         | <p>There is one Recreation area (Central KY Storm Dana Fields) at the very north of the project site intersections US 150 and KY 34.</p> <p>There are no Wildlife Management Areas or Federal Public Lands located within the study area.</p> <p>There are no Protected Areas Database of United States (PADUS) results within the study area.</p>   | <p>Source: KDFWR (2022), Google Earth Pro Maps, PADUS (2022)</p>                               |
| <b>Section 6(f)</b>         | <p>Based on Land and Water Conservation Fund (LWCF) records map, there are no LWCF properties present in the study area.</p>   | <p>Source: The Wilderness Society LWCF Federal and State Funding Map Data (2014)</p>           |
| <b>Air Quality</b>          | <p>The study area is not located in a Non-attainment Area for 8-hour ozone (2015 standard) or a Maintenance area for PM 2.5 (2012 standard) for transportation-related criteria pollutants for which the EPA has established National Ambient Air Quality Standards (NAAQS). There are no USEPA air emissions facilities are located within the study area.</p> <p>Please refer to digital Attachment 2 for more information regarding air quality data.</p>   | <p>Source: KYTC Air Quality Maps (2015), USEPA Green Book (2015), USEPA Envirofacts (2018)</p> |
| <b>Noise</b>                | <p>Noise sensitive land use areas are located throughout the study area (Activity Categories “B”, “C”, “D”, “E”, and “F”), including agricultural, residential neighborhoods, cemeteries, places of worship, schools, hotels, and restaurants with exterior uses.</p> <p>The towns of Danville and Stanford, approximately 2622 acres of the 7972 acres are urbanized and on the outskirts of the study area., which includes moderate density residential housing (B) (single-family home developments), cemeteries (C), and commercial buildings (D).</p> <p>The remaining approximate 5,350 acres of the study area are used primarily for agriculture (F) and residential (B).</p> | <p>Source: KYTC Noise Policy (2020)</p>  |
| <b>Cultural-Archaeology</b> | <p>The Kentucky Office of State Archaeology (OSA) preliminary records review indicated six archaeological sites are recorded within the study area as well as one National Register property nine not assessed National Register status sites, and two unrecorded sites.</p> <p>Please refer to digital Attachment 3 for more information regarding cultural-archeology data.</p>  | <p>Source: KY OSA report (2022)</p>  |



## ENVIRONMENTAL OVERVIEW – US 150 CORRIDOR STUDY BOYLE AND LINCOLN COUNTIES

### Environmental Overview

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| <p><b>Cultural- Historic</b></p> | <p>Based on the review of National Register of Historic Places (NRHP) there are no historic districts but there are five NRHP sites which are the McFerran House (S), Waveland (N), Gentry House (E), Spring Hill (Thomas Lillard House) (E) and Withers, Horace House (SE). Both the towns of Danville and Stanford are on the NRHP listing as Historic Districts.</p> <p>Please refer to digital Figures 5 &amp; 6 for more information regarding cultural-archeology data.</p> | <p>Source: National Register of Historic Places Map (2020)<br/>KHC research 2022</p> |
| <p><b>Houses of Worship</b></p>  | <p>Four houses of worship (church, mosque, synagogue, etc.) were identified in the study area from current mapping resources. New Horizon Missionary Baptist, Unity Baptist Church, Faith Church, and Grace Baptist Church of Danville.</p> <p>Please refer to Figures 5 &amp; 6 for more information regarding house of worship sites.</p>   | <p>Source: Google Earth Pro Maps, ESRI topo maps</p>                                 |
| <p><b>Schools</b></p>            | <p>One school facility was identified within the study area, North Stanford Elementary School, which is in the southern portion of the project area north of the town of Stanford. Wilderness Trace Child Development is located to the north and west of the study area.</p> <p>Please refer to Figures 5 &amp; 6 for more information regarding schools.</p>  | <p>Source: Google Earth Pro Maps, ESRI topo maps</p>                                 |
| <p><b>Cemeteries</b></p>         | <p>There is one cemetery within the project area Danville Memorial Gardens located to the southeast of the study area.</p> <p>There may be additional private, or family cemeteries present in the study area that have not been previously mapped or located.</p> <p>Please refer to Figures 5 &amp; 6 for more information regarding the cemetery.</p>  | <p>Source: KY Historical Society (2008), Google Earth Pro Maps, ESRI topo maps</p>   |



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### Environmental Overview

|   |  |   |
|---|--|---|
| <p><b>Public Services</b></p>           | <p>There are multiple public service facilities in the project study area, including:</p> <ul style="list-style-type: none"> <li>• Boyle County Fire Department</li> <li>• Danville Fire Department Station 2</li> <li>• US Postal Service</li> <li>• Lincoln County Fire Department</li> <li>• Ephraim McDowell Fort Logan Hospital</li> <li>• Bluegrass Clinic-Stanford</li> <li>• USDA Farm Services Agency</li> <li>• Lincoln County Extension Services</li> </ul> <p>According to the U.S. Department of Homeland Security Infrastructure data there is one AC overhead transmission line that is owned by Kentucky Utilities CO, Inc. that runs west to southeast within the project boundary.</p> <p>The National Pipeline Mapping System Public Viewer indicated that there are approximately six pipelines within the study area.</p> | <p>Source: U.S. Department of Homeland Security Infrastructure data (2022). Google Earth Pro Maps, National Pipeline Mapping Systems Public Viewer (2022)</p> |
| <p><b>Residences and Businesses</b></p> | <p>In the study area, approximately 25% of the area is used for residential land use, mostly single-family homes with adjoining pastures or farmland and some single-family residential developments.</p> <p>Approximately 5% of the study area in Stanford consists of commercial and industrial land use, mostly within the northern section.</p> <p>Both Residential and Commercial land usage is highest density within Danville.</p>  | <p>Source: Google Earth Pro Maps, ESRI topo maps</p>  |



## ENVIRONMENTAL OVERVIEW – US 150 CORRIDOR STUDY BOYLE AND LINCOLN COUNTIES

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## ENVIRONMENTAL OVERVIEW – US 150 CORRIDOR STUDY BOYLE AND LINCOLN COUNTIES

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Figures

# FIGURES



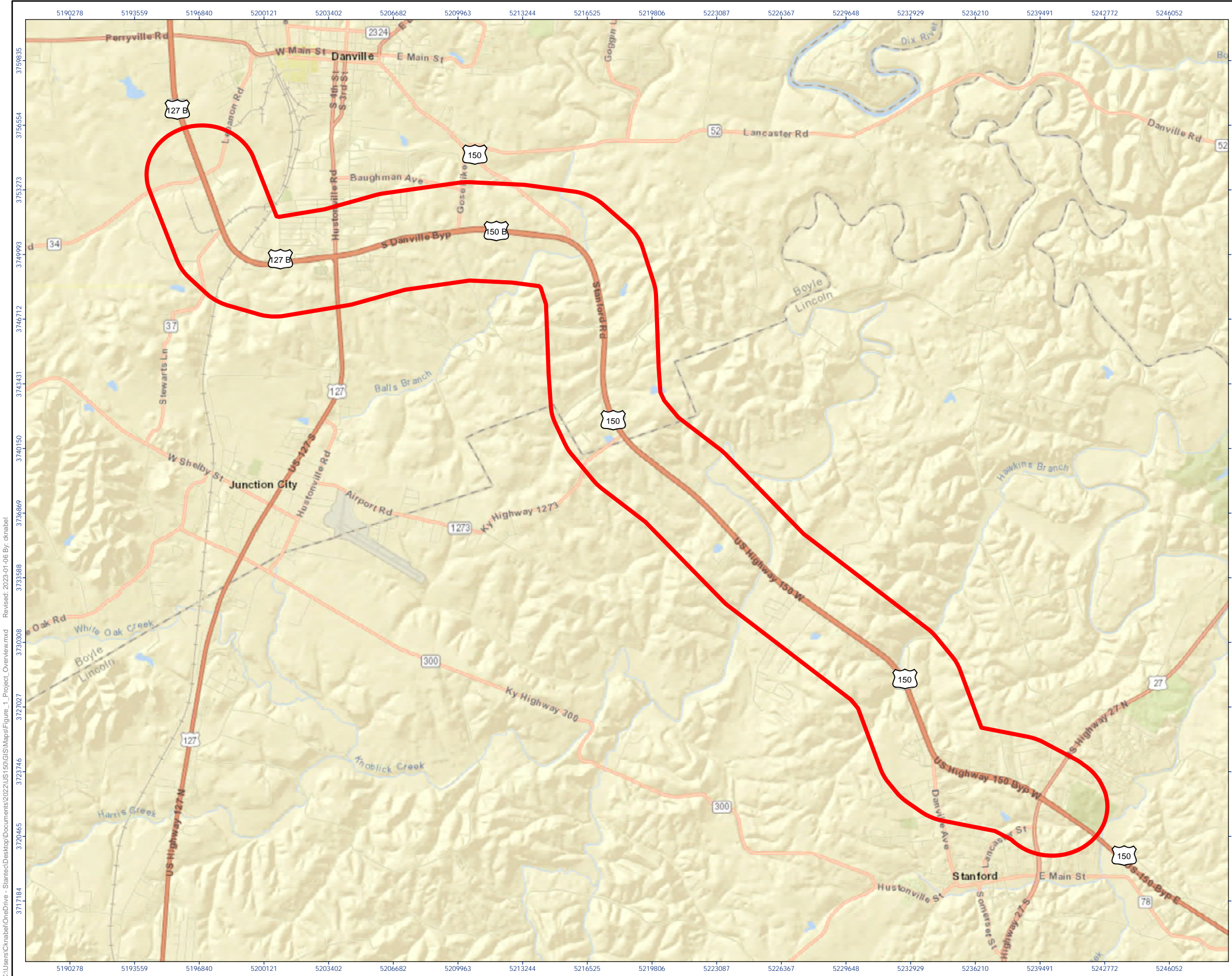


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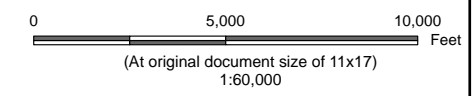
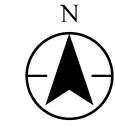
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Title  
**Project Overview**

Client/Project  
Client: KYTC  
Project: US 150  
Report: Environmental Overview

Project Location  
US HWY 150  
Lincoln and Boyle County, Kentucky

Prepared by CK on 2022-10-28  
TR by SPK on 2022-10-29  
IR Review by LC on 2022-10-30



Legend

Influence Area



Notes  
1. Coordinate System: NAD 1983 StatePlane Kentucky FIPS 1600 Feet  
2. Data Sources: KYTC, USGS National Boundaries Dataset  
3. Background: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community



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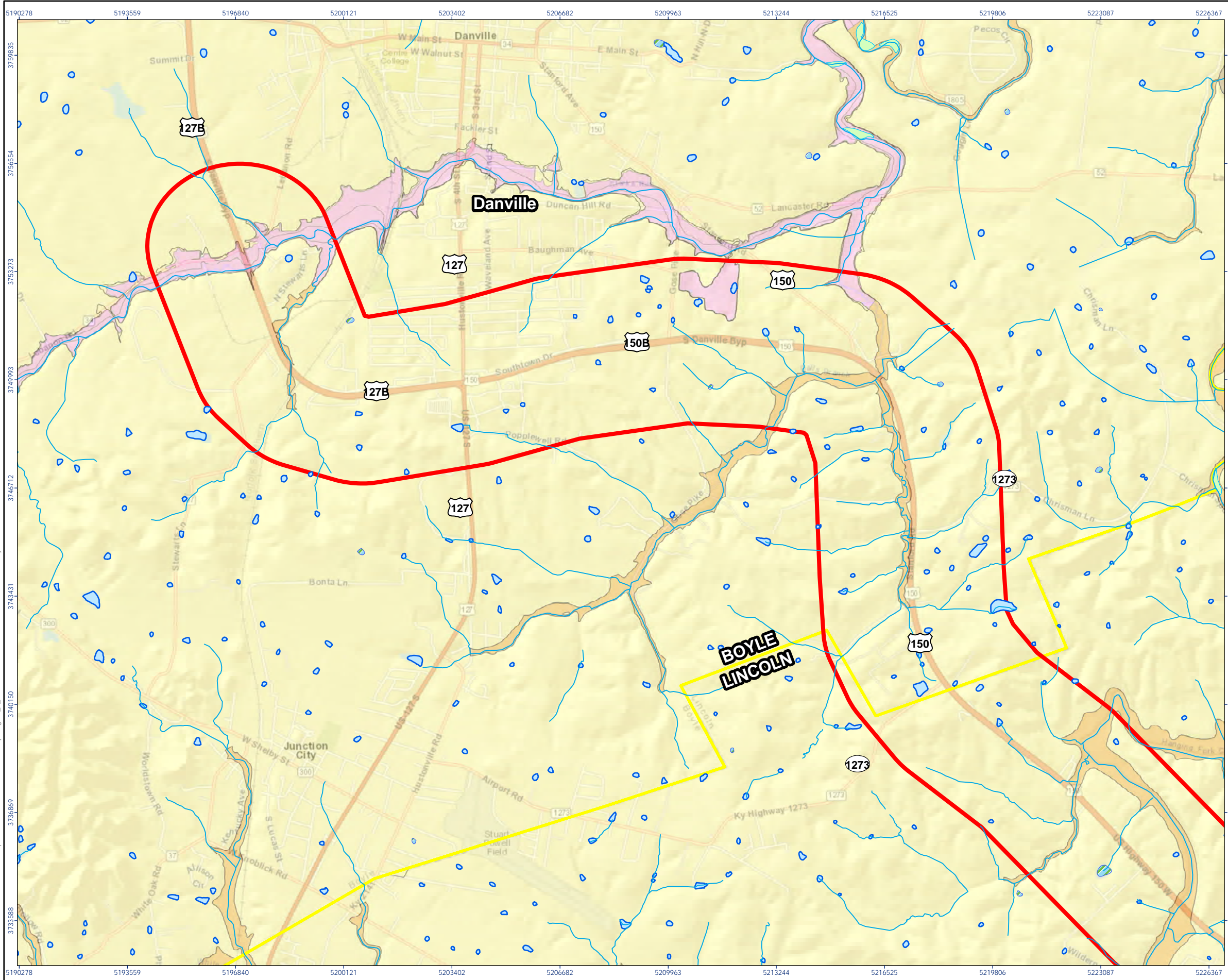
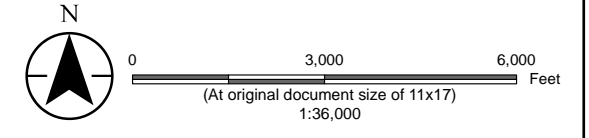


Figure No. **2**  
 Title **Water Resources**  
 Client/Project  
 Client: KYTC  
 Project: US 150 Study  
 Report: Environmental Overview  
 Project Location  
 US HWY 150  
 Lincoln and Boyle Counties, Kentucky  
 Prepared by CK on 2022-10-28  
 TR by SPK on 2022-10-29  
 IR Review by LC on 2022-10-30



- Legend**
- Influence Area
  - NHD Flowlines
  - National Wetland Index**
  - Wetland Type**
  - Freshwater Emergent Wetland
  - Freshwater Forested/Shrub Wetland
  - Freshwater Pond
  - 100-Year Floodplain**
  - Flood Hazard Zone**
  - A
  - AE
  - X



**Notes**

1. Coordinate System: NAD 1983 StatePlane Kentucky FIPS 1600 Feet
2. Data Sources: KYTC, USGS National Boundaries Dataset, FEMA NFHL, USFWS NHD
3. Background: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community



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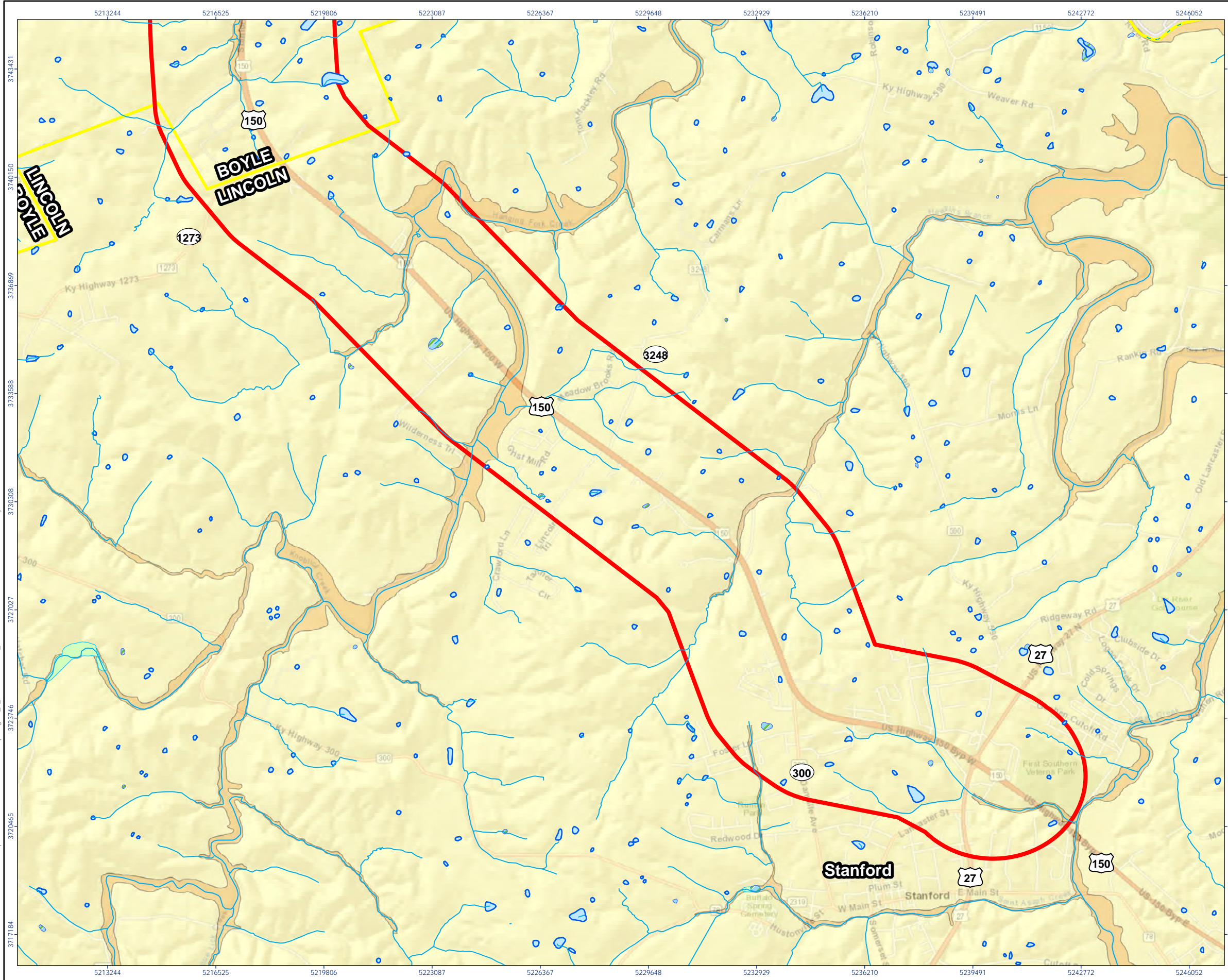


Figure No.

**3**

Title

**Water Resources**

Client/Project

Client: KYTC  
 Project: US 150 Study  
 Report: Environmental Overview

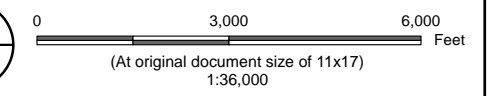
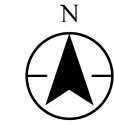
Project Location

US HWY 150  
 Lincoln and Boyle Counties, Kentucky

Prepared by CK on 2022-10-28

TR by SPK on 2022-10-29

IR Review by LC on 2022-10-30



**Legend**

Influence Area

NHD Flowlines

**National Wetland Index**

**Wetland Type**

Freshwater Emergent Wetland

Freshwater Forested/Shrub Wetland

Freshwater Pond

**100-Year Floodplain**

**Flood Hazard Zone**

A

AE

X



**Notes**

1. Coordinate System: NAD 1983 StatePlane Kentucky FIPS 1600 Feet
2. Data Sources: KYTC, USGS National Boundaries Dataset, FEMA NFHL, USFWS NHD
3. Background: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community



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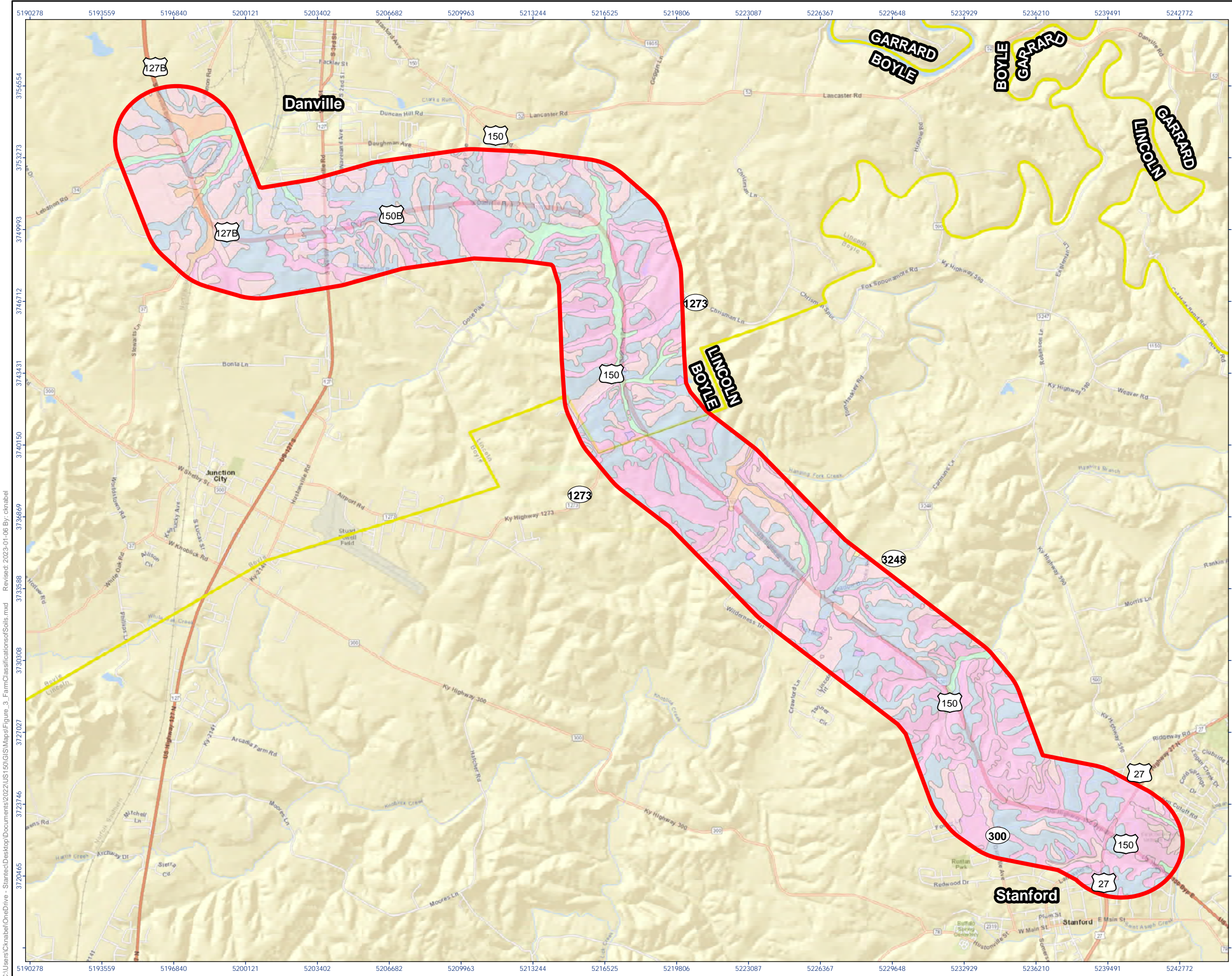


Figure No. **4**  
**Title**  
**Farmland Classifications**

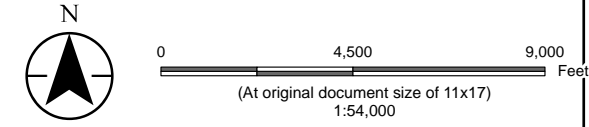
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**Client/Project**  
 Client: KYTC  
 Project: US 150 Study  
 Report: Environmental Overview

---

**Project Location**  
 US HWY 150  
 Lincoln and Boyle Counties, Kentucky

Prepared by CK on 2022-10-28  
 TR by SPK on 2022-10-29  
 IR Review by LC on 2022-10-30



- Legend**
- Influence Area
- Soil Classifications**
- Farmland Indicator**
- All areas are prime farmland
  - Farmland of statewide importance
  - Not prime farmland
  - Prime farmland if drained
  - Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
  - Prime farmland if protected from flooding or not frequently flooded during the growing season



**Notes**

1. Coordinate System: NAD 1983 StatePlane Kentucky FIPS 1600 Feet
2. Data Sources: KYTC, USGS Web Soil Survey
3. Background: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community



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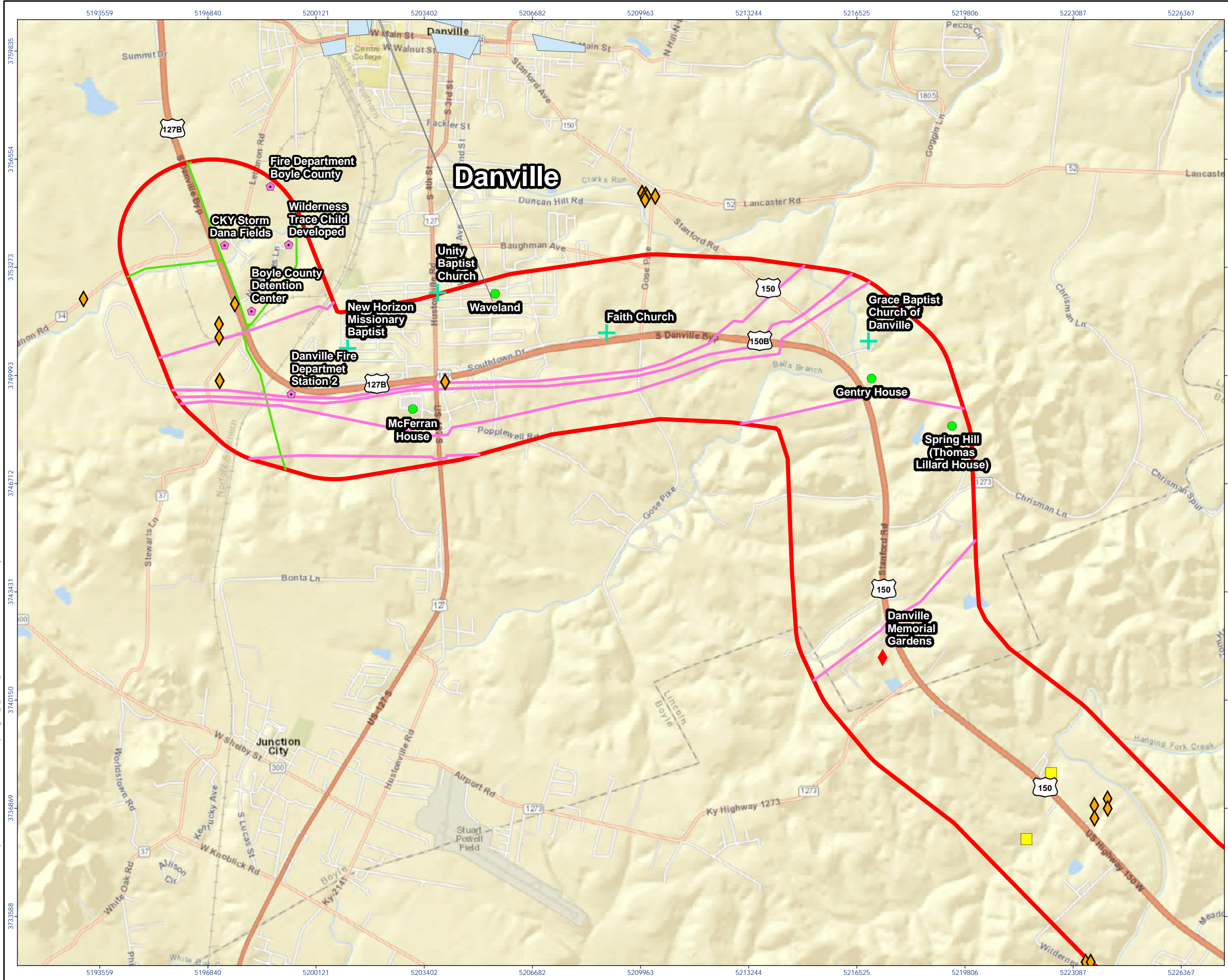
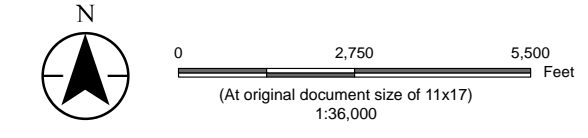


Figure No. **5**  
**Title**  
**Human Environment**

**Client/Project**  
 Client: KYTC  
 Project: US 150 Study  
 Report: Environmental Overview

**Project Location**  
 US HWY 150  
 Lincoln and Boyle Counties, Kentucky

Prepared by CK on 2022-10-28  
 TR by SPK on 2022-10-29  
 IR Review by LC on 2022-10-30



- Legend**
- Influence Area
  - ◆ Cemeteries
  - + Churches
  - NRHP Buildings
  - Oil & Gas Wells
  - ◆ Water Wells
  - ◆ Other
  - Electric Transmission Lines
  - Approximate Gas Pipeline Location



**Notes**

1. Coordinate System: NAD 1983 StatePlane Kentucky FIPS 1600 Feet
2. Data Sources: KYTC, PADUS, Google Earth, NRHP, EDR, NPMS, HIFLD
3. Background: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community



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Attachments

## **ATTACHMENTS**

- 1. Threatened and Endangered Species**
- 2. Areas of Air Quality Concern in Kentucky**
- 3. Cultural and Archaeological Historic Resources (Contains sensitive information. Not available for public use.)**
- 4. USDA Soil Resource Report**
- 5. Water Resources**
- 6. EDR Report (Provided in separate digital format due to size)**



Attachments

# ATTACHMENT 1

## Threatened and Endangered Species

- a. USFWS IPaC Trust Resource Report
- b. USFWS Map of Known Northern Long-eared Bat Habitat
- c. USFWS Map of Known Indiana Bat Habitat
- d. KDFWR State-Listed Species, Warren County
- e. OKNP Natural Heritage Database Response (For Internal Use Only. Not for Public Release.)
- f. KSS database response (For Internal Use Only. Not for Public Release.)





# IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

## Location

Boyle and Lincoln counties, Kentucky



## Local office

Kentucky Ecological Services Field Office

☎ (502) 695-0468

📄 (502) 695-1024

J C Watts Federal Building, Room 265  
330 West Broadway  
Frankfort, KY 40601-8670

NOT FOR CONSULTATION

# Endangered species

**This resource list is for informational purposes only and does not constitute an analysis of project level impacts.**

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species<sup>1</sup> and their critical habitats are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries<sup>2</sup>).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact [NOAA Fisheries](#) for [species under their jurisdiction](#).

- 
1. Species listed under the [Endangered Species Act](#) are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the [listing status page](#) for more information. IPaC only shows species that are regulated by USFWS (see FAQ).

2. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

## Mammals

| NAME  | STATUS     |
|---|------------|
| <p><b>Gray Bat</b> <i>Myotis grisescens</i></p> <p>Wherever found</p> <p>This species only needs to be considered if the following condition applies:</p> <ul style="list-style-type: none"> <li>The project area includes potential gray bat habitat.</li> </ul> <p>No critical habitat has been designated for this species.<br/> <a href="https://ecos.fws.gov/ecp/species/6329">https://ecos.fws.gov/ecp/species/6329</a></p>   | Endangered |
| <p><b>Indiana Bat</b> <i>Myotis sodalis</i></p> <p>Wherever found</p> <p>This species only needs to be considered if the following condition applies:</p> <ul style="list-style-type: none"> <li>The project area includes 'potential' habitat. All activities in this location should consider possible effects to this species.</li> </ul> <p>There is <b>final</b> critical habitat for this species. Your location does not overlap the critical habitat.<br/> <a href="https://ecos.fws.gov/ecp/species/5949">https://ecos.fws.gov/ecp/species/5949</a></p>  | Endangered |
| <p><b>Northern Long-eared Bat</b> <i>Myotis septentrionalis</i></p> <p>Wherever found</p> <p>This species only needs to be considered if the following condition applies:</p> <ul style="list-style-type: none"> <li>The specified area includes areas in which incidental take would not be prohibited under the 4(d) rule. For reporting purposes, please use the "streamlined consultation form," linked to in the "general project design guidelines" for the species.</li> </ul> <p>No critical habitat has been designated for this species.<br/> <a href="https://ecos.fws.gov/ecp/species/9045">https://ecos.fws.gov/ecp/species/9045</a></p> | Threatened |

## Clams

| NAME | STATUS |
|------|--------|
|------|--------|

|  |            |
|--|------------|
| Clubshell <i>Pleurobema clava</i>  | Endangered |
| No critical habitat has been designated for this species.<br><a href="https://ecos.fws.gov/ecp/species/3789">https://ecos.fws.gov/ecp/species/3789</a>   |            |
| Cumberland Bean (pearlymussel) <i>Villosa trabalis</i>   | Endangered |
| No critical habitat has been designated for this species.<br><a href="https://ecos.fws.gov/ecp/species/6061">https://ecos.fws.gov/ecp/species/6061</a>   |            |
| Cumberland Elktoe <i>Alasmidonta atropurpurea</i>  | Endangered |
| Wherever found<br>There is <b>final</b> critical habitat for this species. Your location does not overlap the critical habitat.<br><a href="https://ecos.fws.gov/ecp/species/1248">https://ecos.fws.gov/ecp/species/1248</a> |            |
| Cumberlandian Combshell <i>Epioblasma brevidens</i>  | Endangered |
| There is <b>final</b> critical habitat for this species. Your location does not overlap the critical habitat.<br><a href="https://ecos.fws.gov/ecp/species/3119">https://ecos.fws.gov/ecp/species/3119</a>                   |            |
| Fanshell <i>Cyprogenia stegaria</i>  | Endangered |
| Wherever found<br>No critical habitat has been designated for this species.<br><a href="https://ecos.fws.gov/ecp/species/4822">https://ecos.fws.gov/ecp/species/4822</a>   |            |
| Fluted Kidneyshell <i>Ptychobranthus subtentus</i>   | Endangered |
| Wherever found<br>There is <b>final</b> critical habitat for this species. Your location does not overlap the critical habitat.<br><a href="https://ecos.fws.gov/ecp/species/1397">https://ecos.fws.gov/ecp/species/1397</a> |            |
| Littlewing Pearlymussel <i>Pegias fabula</i>   | Endangered |
| Wherever found<br>No critical habitat has been designated for this species.<br><a href="https://ecos.fws.gov/ecp/species/2572">https://ecos.fws.gov/ecp/species/2572</a>   |            |
| Northern Riffleshell <i>Epioblasma rangiana</i>  | Endangered |
| Wherever found<br>No critical habitat has been designated for this species.<br><a href="https://ecos.fws.gov/ecp/species/527">https://ecos.fws.gov/ecp/species/527</a>   |            |



|  |            |
|--|------------|
| <p><b>Orangefoot Pimpleback (pearlymussel)</b> <i>Plethobasus cooperianus</i><br/>Wherever found<br/>No critical habitat has been designated for this species.<br/><a href="https://ecos.fws.gov/ecp/species/1132">https://ecos.fws.gov/ecp/species/1132</a></p>                                   | Endangered |
| <p><b>Pink Mucket (pearlymussel)</b> <i>Lampsilis abrupta</i><br/>Wherever found<br/>No critical habitat has been designated for this species.<br/><a href="https://ecos.fws.gov/ecp/species/7829">https://ecos.fws.gov/ecp/species/7829</a></p>   | Endangered |
| <p><b>Rabbitsfoot</b> <i>Quadrula cylindrica cylindrica</i><br/>Wherever found<br/>There is <b>final</b> critical habitat for this species. Your location does not overlap the critical habitat.<br/><a href="https://ecos.fws.gov/ecp/species/5165">https://ecos.fws.gov/ecp/species/5165</a></p> | Threatened |
| <p><b>Ring Pink (mussel)</b> <i>Obovaria retusa</i><br/>Wherever found<br/>No critical habitat has been designated for this species.<br/><a href="https://ecos.fws.gov/ecp/species/4128">https://ecos.fws.gov/ecp/species/4128</a></p>   | Endangered |
| <p><b>Rough Pigtoe</b> <i>Pleurobema plenum</i><br/>Wherever found<br/>No critical habitat has been designated for this species.<br/><a href="https://ecos.fws.gov/ecp/species/6894">https://ecos.fws.gov/ecp/species/6894</a></p>   | Endangered |
| <p><b>Snuffbox Mussel</b> <i>Epioblasma triquetra</i><br/>Wherever found<br/>No critical habitat has been designated for this species.<br/><a href="https://ecos.fws.gov/ecp/species/4135">https://ecos.fws.gov/ecp/species/4135</a></p>   | Endangered |
| <p><b>Spectaclecase (mussel)</b> <i>Cumberlandia monodonta</i><br/>Wherever found<br/>No critical habitat has been designated for this species.<br/><a href="https://ecos.fws.gov/ecp/species/7867">https://ecos.fws.gov/ecp/species/7867</a></p>  | Endangered |

## Insects

NAME

STATUS

Monarch Butterfly *Danaus plexippus*

Candidate

Wherever found

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/9743>

## Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

There are no critical habitats at this location.

## Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act<sup>1</sup> and the Bald and Golden Eagle Protection Act<sup>2</sup>.

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern <https://www.fws.gov/program/migratory-birds/species>
- Measures for avoiding and minimizing impacts to birds <https://www.fws.gov/library/collections/avoiding-and-minimizing-incident-take-migratory-birds>
- Nationwide conservation measures for birds <https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf>

The birds listed below are birds of particular concern either because they occur on the [USFWS Birds of Conservation Concern](#) (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ [below](#). This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around

your project area, visit the [E-bird data mapping tool](#) (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found [below](#).

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

| NAME   | BREEDING SEASON         |
|--|-------------------------|
| <p><b>Bald Eagle</b> <i>Haliaeetus leucocephalus</i></p> <p>This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.</p> <p><a href="https://ecos.fws.gov/ecp/species/1626">https://ecos.fws.gov/ecp/species/1626</a></p> | Breeds Sep 1 to Jul 31  |
| <p><b>Black-billed Cuckoo</b> <i>Coccyzus erythrophthalmus</i></p> <p>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p> <p><a href="https://ecos.fws.gov/ecp/species/9399">https://ecos.fws.gov/ecp/species/9399</a></p>  | Breeds May 15 to Oct 10 |
| <p><b>Bobolink</b> <i>Dolichonyx oryzivorus</i></p> <p>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p>  | Breeds May 20 to Jul 31 |
| <p><b>Cerulean Warbler</b> <i>Dendroica cerulea</i></p> <p>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p> <p><a href="https://ecos.fws.gov/ecp/species/2974">https://ecos.fws.gov/ecp/species/2974</a></p>   | Breeds Apr 23 to Jul 20 |
| <p><b>Chimney Swift</b> <i>Chaetura pelagica</i></p> <p>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p>   | Breeds Mar 15 to Aug 25 |
| <p><b>Eastern Whip-poor-will</b> <i>Antrostomus vociferus</i></p> <p>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p>  | Breeds May 1 to Aug 20  |



|  |                         |
|--|-------------------------|
| Field Sparrow <i>Spizella pusilla</i><br>This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA   | Breeds Mar 1 to Aug 15  |
| Henslow's Sparrow <i>Ammodramus henslowii</i><br>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.<br><a href="https://ecos.fws.gov/ecp/species/3941">https://ecos.fws.gov/ecp/species/3941</a> | Breeds May 1 to Aug 31  |
| Kentucky Warbler <i>Oporornis formosus</i><br>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.   | Breeds Apr 20 to Aug 20 |
| Lesser Yellowlegs <i>Tringa flavipes</i><br>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.<br><a href="https://ecos.fws.gov/ecp/species/9679">https://ecos.fws.gov/ecp/species/9679</a>      | Breeds elsewhere        |
| Prairie Warbler <i>Dendroica discolor</i><br>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.  | Breeds May 1 to Jul 31  |
| Prothonotary Warbler <i>Protonotaria citrea</i><br>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.  | Breeds Apr 1 to Jul 31  |
| Red-headed Woodpecker <i>Melanerpes erythrocephalus</i><br>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.  | Breeds May 10 to Sep 10 |
| Rusty Blackbird <i>Euphagus carolinus</i><br>This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA   | Breeds elsewhere        |
| Wood Thrush <i>Hyllocichla mustelina</i><br>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.   | Breeds May 10 to Aug 31 |

## Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

### Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is  $0.25/0.25 = 1$ ; at week 20 it is  $0.05/0.25 = 0.2$ .
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

### Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

### Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

### No Data (—)

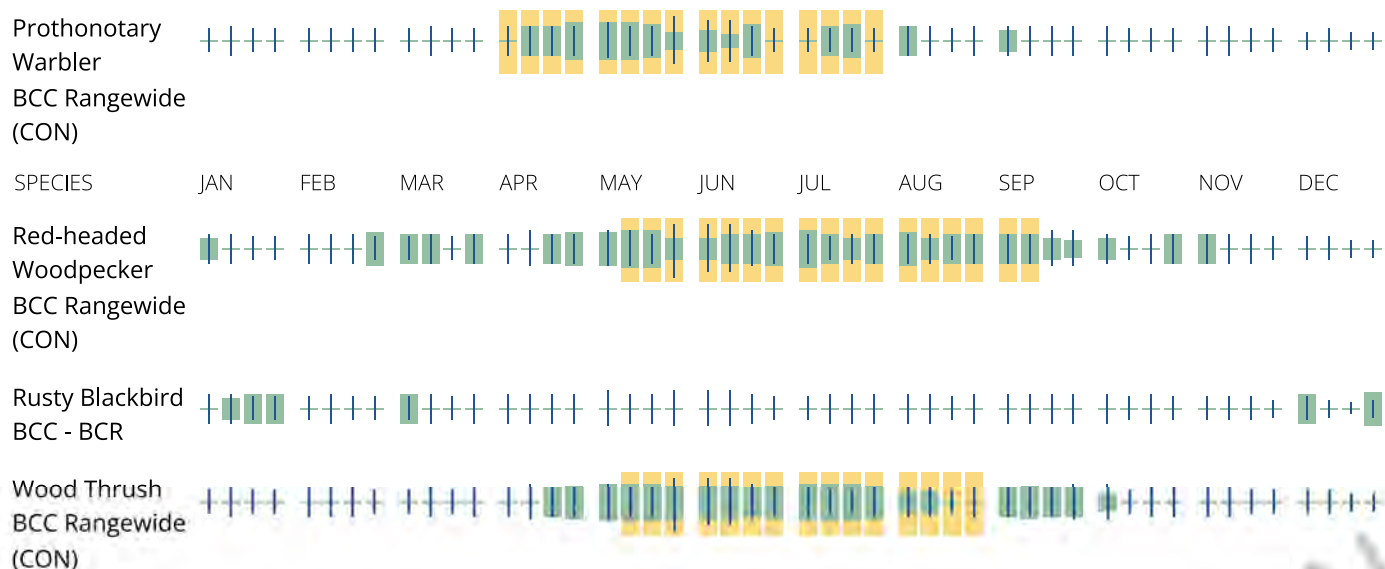
A week is marked as having no data if there were no survey events for that week.

### Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.







**Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.**

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

**What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?**

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [Rapid Avian Information Locator \(RAIL\) Tool](#).

**What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?**

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go to the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

### How do I know if a bird is breeding, wintering or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the [RAIL Tool](#) and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

### What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

### Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

### What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.



## Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

## Coastal Barrier Resources System

Projects within the [John H. Chafee Coastal Barrier Resources System](#) (CBRS) may be subject to the restrictions on federal expenditures and financial assistance and the consultation requirements of the Coastal Barrier Resources Act (CBRA) (16 U.S.C. 3501 et seq.). For more information, please contact the local [Ecological Services Field Office](#) or visit the [CBRA Consultations website](#). The CBRA website provides tools such as a flow chart to help determine whether consultation is required and a template to facilitate the consultation process.

There are no known coastal barriers at this location.

### Data limitations

The CBRS boundaries used in IPaC are representations of the controlling boundaries, which are depicted on the [official CBRS maps](#). The boundaries depicted in this layer are not to be considered authoritative for in/out determinations close to a CBRS boundary (i.e., within the "CBRS Buffer Zone" that appears as a hatched area on either side of the boundary). For projects that are very close to a CBRS boundary but do not clearly intersect a unit, you may contact the Service for an official determination by following the instructions here: <https://www.fws.gov/service/coastal-barrier-resources-system-property-documentation>

### Data exclusions

CBRS units extend seaward out to either the 20- or 30-foot bathymetric contour (depending on the location of the unit). The true seaward extent of the units is not shown in the CBRS data, therefore projects in the offshore areas of units (e.g., dredging, breakwaters, offshore wind energy or oil and gas projects) may be subject to CBRA even if they do not intersect the CBRS data. For additional information, please contact [CBRA@fws.gov](mailto:CBRA@fws.gov).

## Facilities

### National Wildlife Refuge lands

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuge lands at this location.

### Fish hatcheries

There are no fish hatcheries at this location.

### Wetlands in the National Wetlands Inventory (NWI)

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Wetland information is not available at this time

This can happen when the National Wetlands Inventory (NWI) map service is unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the [NWI map](#) to view wetlands at this location.

### **Data limitations**

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

### **Data exclusions**

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tubercid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

### **Data precautions**

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

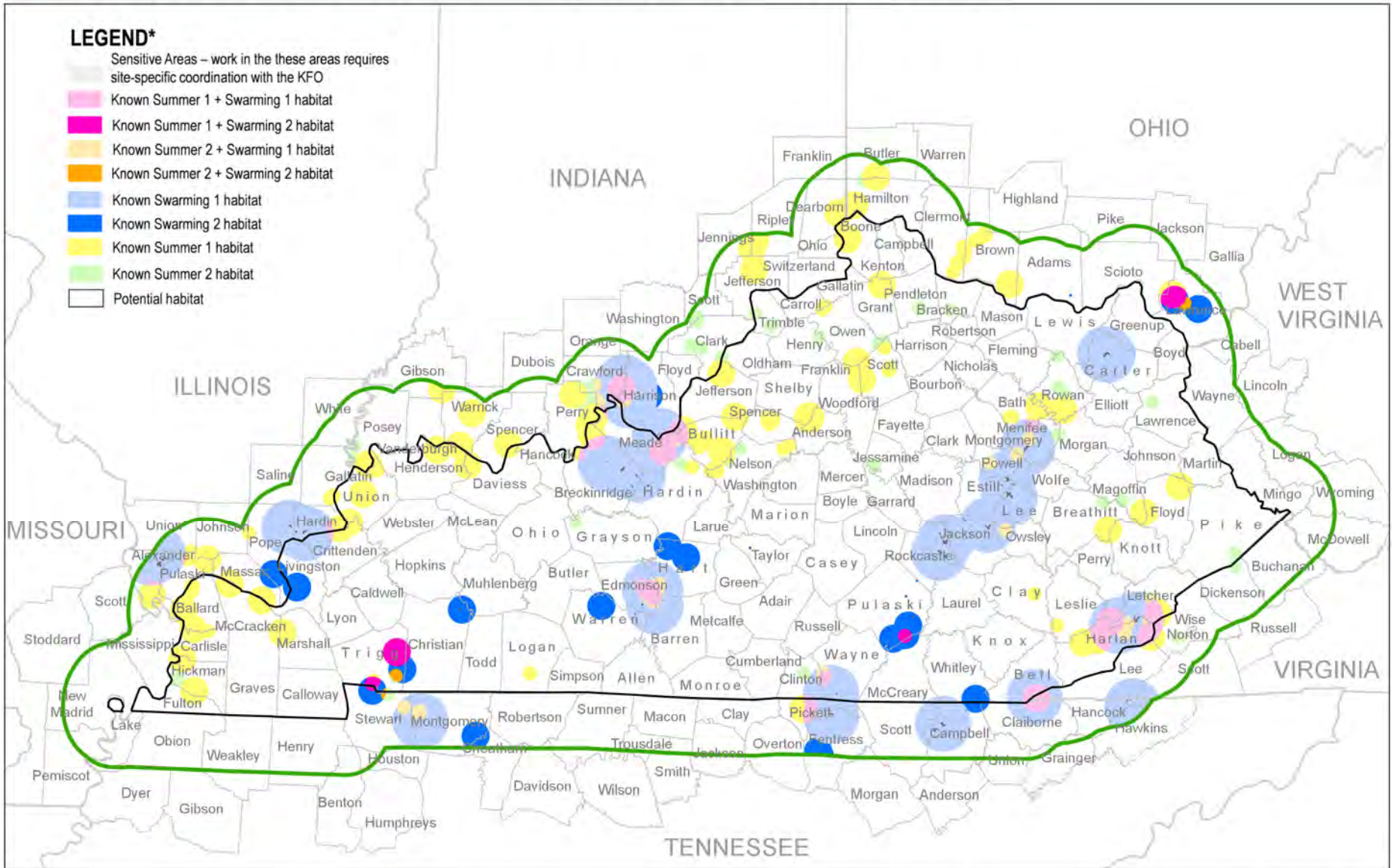






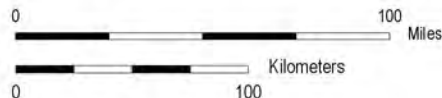


# Known Indiana bat habitat in Kentucky and within 20 miles (August 2019)



NOTE: This map is based on species occurrence information and is subject to change as new data becomes available. Please contact our office at 502-695-0468 to ensure you are working with the most current version.

\*For an explanation of terms, please see the Conservation Strategy for Forest-Dwelling Bats in the Commonwealth of Kentucky.



The USFWS makes no warranty for use of this map and cannot be held liable for actions or decisions based on map content. This map was produced as an appendix to the Conservation Strategy for Forest-Dwelling Bats in the Commonwealth of Kentucky and should only be used in the context of this Strategy.



Datum: NAD 83



# Species Information

## State Threatened, Endangered, and Special Concern Species observations for selected counties

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 counties.

Selected counties are: Boyle, Lincoln.

| Scientific Name and Life History | Common Name and Pictures | Class    | County  | US Status | KY Status | WAP | Reference |
|----------------------------------|--------------------------|----------|---------|-----------|-----------|-----|-----------|
| <i>Accipiter striatus</i>        | Sharp-shinned Hawk       | Aves     | Boyle   | N         | S         | Yes | Reference |
| <i>Accipiter striatus</i>        | Sharp-shinned Hawk       | Aves     | Lincoln | N         | S         | Yes | Reference |
| <i>Actitis macularius</i>        | Spotted Sandpiper        | Aves     | Lincoln | N         | E         | Yes | Reference |
| <i>Actitis macularius</i>        | Spotted Sandpiper        | Aves     | Boyle   | N         | E         | Yes | Reference |
| <i>Alasmidonta viridis</i>       | Slippershell Mussel      | Bivalvia | Boyle   | N         | S         | Yes | Reference |
| <i>Alasmidonta viridis</i>       | Slippershell Mussel      | Bivalvia | Lincoln | N         | S         | Yes | Reference |
| <i>Ardea alba</i>                | Great Egret              | Aves     | Lincoln | N         | T         | Yes | Reference |
| <i>Asio flammeus</i>             | Short-eared Owl          | Aves     | Boyle   | N         | E         | Yes | Reference |
| <i>Asio otus</i>                 | Long-eared Owl           | Aves     | Boyle   | N         | E         | Yes | Reference |
| <i>Cardellina canadensis</i>     | Canada Warbler           | Aves     | Boyle   | N         | S         | Yes | Reference |
| <i>Centronyx henslowii</i>       | Henslow's Sparrow        | Aves     | Boyle   | N         | S         | Yes | Reference |

|                                    |                       |                |         |   |   |     |           |
|------------------------------------|-----------------------|----------------|---------|---|---|-----|-----------|
| <i>Centronyx henslowii</i>         | Henslow's Sparrow     | Aves           | Lincoln | N | S | Yes | Reference |
| <i>Certhia americana</i>           | Brown Creeper         | Aves           | Boyle   | N | T |     | Reference |
| <i>Chondestes grammacus</i>        | Lark Sparrow          | Aves           | Boyle   | N | S |     | Reference |
| <i>Circus hudsonius</i>            | Northern Harrier      | Aves           | Boyle   | N | T | Yes | Reference |
| <i>Circus hudsonius</i>            | Northern Harrier      | Aves           | Lincoln | N | T | Yes | Reference |
| <i>Dolichonyx oryzivorus</i>       | Bobolink              | Aves           | Boyle   | N | S | Yes | Reference |
| <i>Egretta caerulea</i>            | Little Blue Heron     | Aves           | Lincoln | N | E |     | Reference |
| <i>Etheostoma nebra</i>            | Buck Darter           | Actinopterygii | Lincoln | N | E | Yes | Reference |
| <i>Falco peregrinus</i>            | Peregrine Falcon      | Aves           | Boyle   | N | E | Yes | Reference |
| <i>Fulica americana</i>            | American Coot         | Aves           | Boyle   | N | E |     | Reference |
| <i>Fulica americana</i>            | American Coot         | Aves           | Lincoln | N | E |     | Reference |
| <i>Haliaeetus leucocephalus</i>    | Bald Eagle            | Aves           | Lincoln | N | S | Yes | Reference |
| <i>Haliaeetus leucocephalus</i>    | Bald Eagle            | Aves           | Boyle   | N | S | Yes | Reference |
| <i>Junco hyemalis</i>              | Dark-eyed Junco       | Aves           | Boyle   | N | S |     | Reference |
| <i>Junco hyemalis</i>              | Dark-eyed Junco       | Aves           | Lincoln | N | S |     | Reference |
| <i>Lampsilis ovata</i>             | Pocketbook            | Bivalvia       | Lincoln | N | E | Yes | Reference |
| <i>Lanius ludovicianus</i>         | Loggerhead Shrike     | Aves           | Lincoln | N | S | Yes | Reference |
| <i>Lanius ludovicianus</i>         | Loggerhead Shrike     | Aves           | Boyle   | N | S | Yes | Reference |
| <i>Leaunio lienosus aquilonius</i> | Little Spectaclecase  | Bivalvia       | Lincoln | N | T | Yes | Reference |
| <i>Lithobates pipiens</i>          | Northern Leopard Frog | Amphibia       | Lincoln | N | S | Yes | Reference |
| <i>Lophodytes cucullatus</i>       | Hooded Merganser      | Aves           | Lincoln | N | T | Yes | Reference |

|                                  |                            |          |         |   |   |     |           |
|----------------------------------|----------------------------|----------|---------|---|---|-----|-----------|
| <i>Lophodytes cucullatus</i>     | Hooded Merganser           | Aves     | Boyle   | N | T | Yes | Reference |
| <i>Mustela nivalis</i>           | Least Weasel               | Mammalia | Boyle   | N | S | Yes | Reference |
| <i>Nyctanassa violacea</i>       | Yellow-crowned Night-heron | Aves     | Boyle   | N | T | Yes | Reference |
| <i>Nycticorax nycticorax</i>     | Black-crowned Night-heron  | Aves     | Lincoln | N | T | Yes | Reference |
| <i>Obovaria subrotunda</i>       | Round Hickorynut           | Bivalvia | Lincoln | N | T | Yes | Reference |
| <i>Pandion haliaetus</i>         | Osprey                     | Aves     | Lincoln | N | S | Yes | Reference |
| <i>Passerculus sandwichensis</i> | Savannah Sparrow           | Aves     | Lincoln | N | S | Yes | Reference |
| <i>Passerculus sandwichensis</i> | Savannah Sparrow           | Aves     | Boyle   | N | S | Yes | Reference |
| <i>Perimyotis subflavus</i>      | Eastern Pipistrelle        | Mammalia | Lincoln | N | T | Yes | Reference |
| <i>Phalacrocorax auritus</i>     | Double-crested Cormorant   | Aves     | Lincoln | N | S |     | Reference |
| <i>Phalacrocorax auritus</i>     | Double-crested Cormorant   | Aves     | Boyle   | N | S |     | Reference |
| <i>Pheucticus ludovicianus</i>   | Rose-breasted Grosbeak     | Aves     | Boyle   | N | S |     | Reference |
| <i>Pheucticus ludovicianus</i>   | Rose-breasted Grosbeak     | Aves     | Lincoln | N | S |     | Reference |
| <i>Plestiodon anthracinus</i>    | Coal Skink                 | Reptilia | Boyle   | N | E | Yes | Reference |
| <i>Podilymbus podiceps</i>       | Pied-billed Grebe          | Aves     | Boyle   | N | E | Yes | Reference |
| <i>Podilymbus podiceps</i>       | Pied-billed Grebe          | Aves     | Lincoln | N | E | Yes | Reference |
| <i>Pseudanopthalmus conditus</i> | Hidden Cave Beetle         | Insecta  | Boyle   | N | T |     | Reference |
| <i>Pseudanopthalmus puteanus</i> | Old Well Cave Beetle       | Insecta  | Boyle   | N | T |     | Reference |
| <i>Setophaga fusca</i>           | Blackburnian Warbler       | Aves     | Boyle   | N | T |     | Reference |
| <i>Simpsonaias ambigua</i>       | Salamander Mussel          | Bivalvia | Lincoln | N | T | Yes | Reference |
| <i>Sitta canadensis</i>          | Red-breasted Nuthatch      | Aves     | Boyle   | N | E |     | Reference |

|                                  |                       |          |         |   |    |     |           |
|----------------------------------|-----------------------|----------|---------|---|----|-----|-----------|
| <i>Spatula clypeata</i>          | Northern Shoveler     | Aves     | Boyle   | N | E  |     | Reference |
| <i>Spatula clypeata</i>          | Northern Shoveler     | Aves     | Lincoln | N | E  |     | Reference |
| <i>Spatula discors</i>           | Blue-winged Teal      | Aves     | Boyle   | N | T  |     | Reference |
| <i>Spatula discors</i>           | Blue-winged Teal      | Aves     | Lincoln | N | T  |     | Reference |
| <i>Toxolasma lividum</i>         | Purple Lilliput       | Bivalvia | Lincoln | N | E  | Yes | Reference |
| <i>Tyto alba</i>                 | Barn Owl              | Aves     | Lincoln | N | S  | Yes | Reference |
| <i>Tyto alba</i>                 | Barn Owl              | Aves     | Boyle   | N | S  | Yes | Reference |
| <i>Venustaconcha troostensis</i> | Cumberland Bean       | Bivalvia | Lincoln | E | E  | Yes | Reference |
| <i>Vermivora chrysoptera</i>     | Golden-winged Warbler | Aves     | Boyle   | N | E  | Yes | Reference |
| <i>Villosa taeniata</i>          | Painted Creekshell    | Bivalvia | Lincoln | N | SC |     | Reference |

63 species are listed



# Species Information

## Federal Threatened, Endangered, and Candidate Species observations for selected counties

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Linked life history provided courtesy of [NatureServe Explorer](#).

**Records may include both recent and historical observations.**

[US Status Definitions](#)   [Kentucky Status Definitions](#)

List Federal Threatened, Endangered, and Candidate Species observations in 2 selected counties.

Selected counties are: Boyle, Lincoln.

| Scientific Name and Life History | Common Name and Pictures | Class    | County  | US Status | KY Status | WAP | Reference |
|----------------------------------|--------------------------|----------|---------|-----------|-----------|-----|-----------|
| <i>Venustaconcha troostensis</i> | Cumberland Bean          | Bivalvia | Lincoln | E         | E         | Yes | Reference |

1 species are listed



ANDY BESHEAR  
GOVERNOR

REBECCA W. GOODMAN  
SECRETARY

**ENERGY AND ENVIRONMENT CABINET**  
**OFFICE OF KENTUCKY NATURE PRESERVES**

SUNNI CARR  
EXECUTIVE DIRECTOR

300 SOWER BOULEVARD  
FRANKFORT, KENTUCKY 40601  
TELEPHONE: 502-573-2886  
TELEFAX: 502-564-7484

October 10, 2022

Lucas Downs  
Stantec  
9200 Shelbyville rd  
Louisville, KY 40222

Project: US 150; 178567201  
Project ID: 23-0061  
Project Type: Standard (\*customers will be invoiced), 1 mile buffer  
(\$120 fee)  
Site Acreage: 7,970.69  
Site Lat/Lon: 37.590368 / -84.723062  
County: Boyle; Lincoln  
USGS Quad: BRYANTSVILLE; DANVILLE; JUNCTION CITY;  
STANFORD  
Watershed HUC12: Boone Creek-Dix River; Clarks Run; Logan Creek; Lower  
Hanging Fork Creek

Dear Lucas Downs,

This letter is in response to your data request for the project referenced above. 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 Office of Kentucky Nature Preserves occur within your general project area. Your project does pose a concern at this time, therefore please see the attached reports and [report key](#) for more detailed information.

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 Office of Kentucky Nature Preserves, including any portion thereof, may not be reproduced in any form or by any means without the express written authorization of the Office of Kentucky Nature Preserves." The exact location of plants, animals, and natural communities, if released by the Office of Kentucky Nature Preserves, 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 Biological Assessment Branch (300 Sower Blvd - 4th Floor, Frankfort, KY, 40601. Phone: 502-782-7828).



Project ID: 23-0061  
October 10, 2022  
Page 2

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,

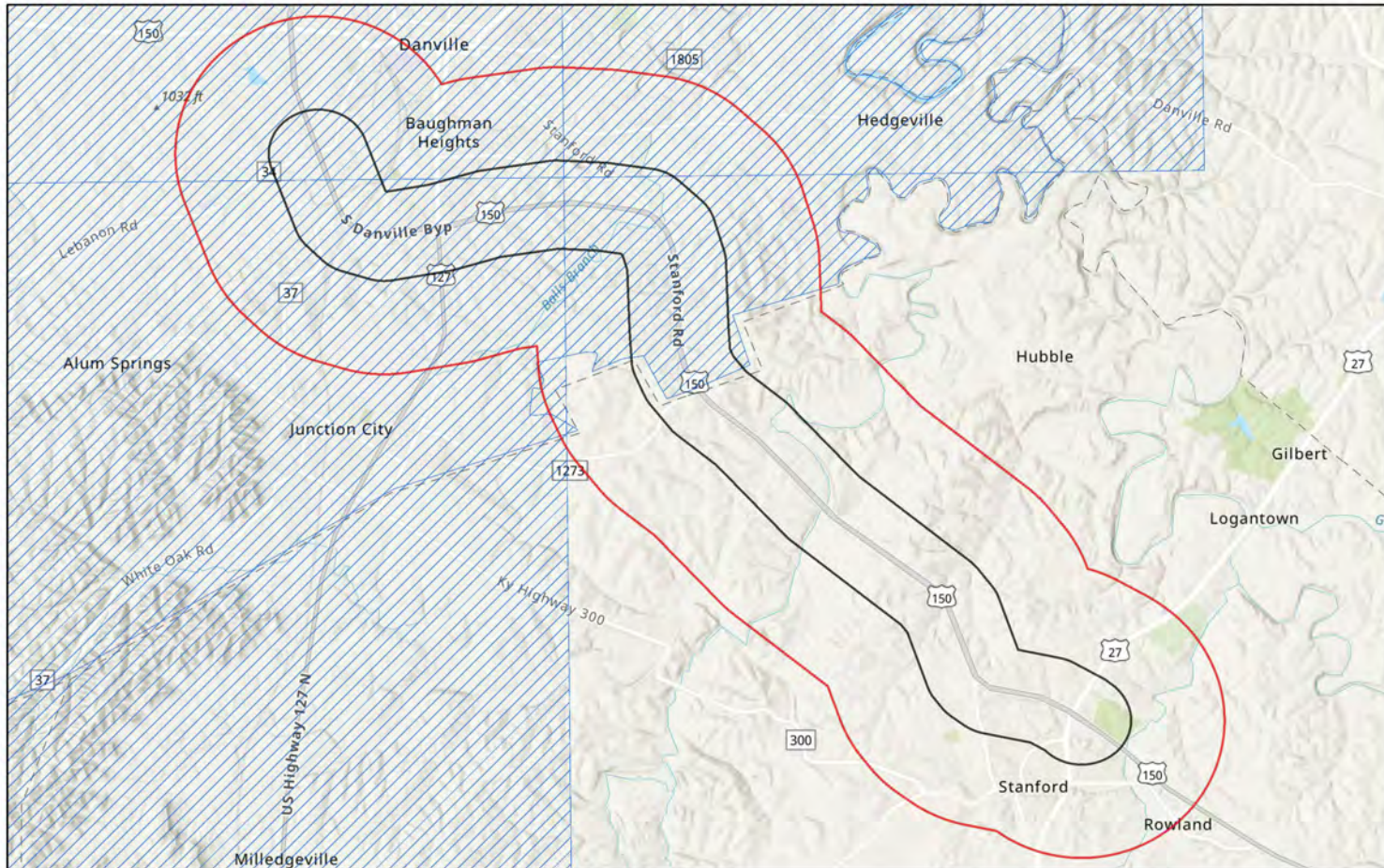
Alexis R Schoenlaub  
Geoprocessing Specialist

**Standard Occurrence Report**  
**KNP monitored species within 1 Miles of Project Area**




| EO ID | Scientific Name                           | Common Name       | GRank | SRank         | SPROT | USES A | STWG | Last Obs Date | Precision | EO Rank | Lat / Lon          | Directions   | Habitat  |
|-------|---|-------------------|-------|---------------|-------|--------|------|---------------|-----------|---------|--------------------|--|--|
| 6613  | <i>Calopogon tuberosus var. tuberosus</i> | Grass-pink        | G5T5  | S1            | E     |        |      | 1892-06-18    | M         | H       |                    | Sensitive Element - Contact OKNP at EEC.KYBAT@ky.gov |  |
| 8047  | <i>Centronyx henslowii</i>                | Henslow's Sparrow | G4    | S3B           | S     |        | Y    | 1951          | C         | U       | 37.6245 / -84.8677 | Boyle Co.  | Open fields & meadows with relatively thick/dense grass interspersed with weeds or shrubby vegetation. |
| 15929 | <i>Lanius ludovicianus</i>                | Loggerhead Shrike | G4    | S3S4B,S<br>4N | S     |        | Y    | 1989          | Q         | NR      | 37.5625 / -84.8125 | CW block of quadrangle.                              |  |
| 15943 | <i>Lanius ludovicianus</i>                | Loggerhead Shrike | G4    | S3S4B,S<br>4N | S     |        | Y    | 1989          | Q         | NR      | 37.6875 / -84.6875 | CW block of quadrangle.                              |  |

THESE DATA ARE VALID ONLY ON THE DATE ON WHICH THE REPORT WAS GENERATED.  
 THESE DATA MAY ONLY BE USED FOR THE PROJECT NAMED ABOVE.

# US 150



October 10, 2022

-  Element Occurrences
-  Project Boundary
-  Buffered Project Boundary

1:93,956  
0 0.75 1.5 3 mi  
0 1.25 2.5 5 km  
Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA.

**From:** [Knabel, Chris](#)  
**To:** [Carolyn, Lee](#)  
**Subject:** Fwd: New KSS Data Request from Chris m Knabel  
**Date:** Friday, January 6, 2023 3:55:26 PM

---

## Response from KSSs

### Chris Knabel, AOS

Environmental Scientist  
Direct: 502-619-1883  
Stantec Consulting Services Inc.  
9200 Shelbyville Road Suite 800  
Louisville KY 40222-5136

---

**From:** hkalnitz@fuse.net <hkalnitz@fuse.net>  
**Sent:** Thursday, November 3, 2022 12:32:15 PM  
**To:** Knabel, Chris <Chris.Knabel@stantec.com>  
**Cc:** 'Kentucky Speleological Survey' <admin@ksscaves.com>; christopherdmorris@gmail.com <christopherdmorris@gmail.com>; sarahmariecaver@gmail.com <sarahmariecaver@gmail.com>; vanderson33@yahoo.com <vanderson33@yahoo.com>; benjamin.tobin@uky.edu <benjamin.tobin@uky.edu>; kzachary@ksscaves.org <kzachary@ksscaves.org>; pat.kambesis@wku.edu <pat.kambesis@wku.edu>; John Cassidy <jcassidy17@yahoo.com>  
**Subject:** RE: New KSS Data Request from Chris m Knabel

Chris

A search of our database shows no known cave locations or Karst Features in your requested area.

The closest recorded cave location is approx. 4 miles to the north east. There is a heavier band of karst related locations approx. 7 miles north of your shape, north of Danville.

There is a 50\$ fee for search origination, plus 10\$ per record, for a total of 50\$. You will be invoiced by our organization Treasurer – John Cassidy.

This data is shared to aid in our organizational goals of conservation, research, and exploration of caves throughout the Commonwealth of Kentucky. Please remember that data reported by KSS is as has been reported to us, but not guaranteed to be complete or correct. There may be unknown caves, sinks or other unreported or unknown karst features. Additionally unreported or filled in cave entrances can open or subside at any time. Use caution when using this data.

Please mark supplied locations as Privileged and Confidential on all maps associated with this project.

Please note our updated guidelines on request turnaround timing:

KSS is a volunteer organization. We do try to process standard requests as fast as possible, but cannot guarantee a turnaround time. We try to process non-voted requests in less than 1 month, and will attempt to vote on more complicated requests within 2

months.  
Requestors can contact us if a quick turnaround time is specifically needed.  
Timing is greatly reduced if an ArcGIS .shp file is provided

Thank You  
Howard Kalnitz  
KSS Database Committee

---

**From:** Kentucky Speleological Survey <admin@ksscaves.com>  
**Sent:** Monday, October 31, 2022 10:13 AM  
**To:** christopherdmorris@gmail.com; sarahmariecaver@gmail.com; vanders33@yahoo.com; benjamin.tobin@uky.edu; kzachary@ksscaves.org; hkalnitz@fuse.net; pat.kambesis@wku.edu  
**Subject:** New KSS Data Request from Chris m Knabel

**Your Name** Chris m Knabel

**Address:** 848 west high st

**City:** lexington

**State:** ky

**Phone:** 15028360335

**Email Address** [chris.knabel@stantec.com](mailto:chris.knabel@stantec.com)

**Organization:** Stantec

**Data Information** We request locations of any portals or caves within the attached  
**Requested:** shapefile. If there are not any, if you could just include a rough distance of the nearest cave record that would be great.

**Intended Use of** KYTC US 150 road project

**Data/Information:**

**Qualifications:** Environmental Scientist

**Attachments:** 20221031161324\_kytc-150.zip

**Caution:** This email originated from outside of Stantec. Please take extra precaution.

**Attention:** Ce courriel provient de l'extérieur de Stantec. Veuillez prendre des précautions supplémentaires.

**Atención:** Este correo electrónico proviene de fuera de Stantec. Por favor, tome precauciones adicionales.

Attachments

# **ATTACHMENT 2**

## **Areas of Air Quality Concern in Kentucky**





# Areas of Air Quality Concern in KY

## 2015 8-hour ozone\*\*:



Nonattainment Area



Attainment/Unclassifiable Area

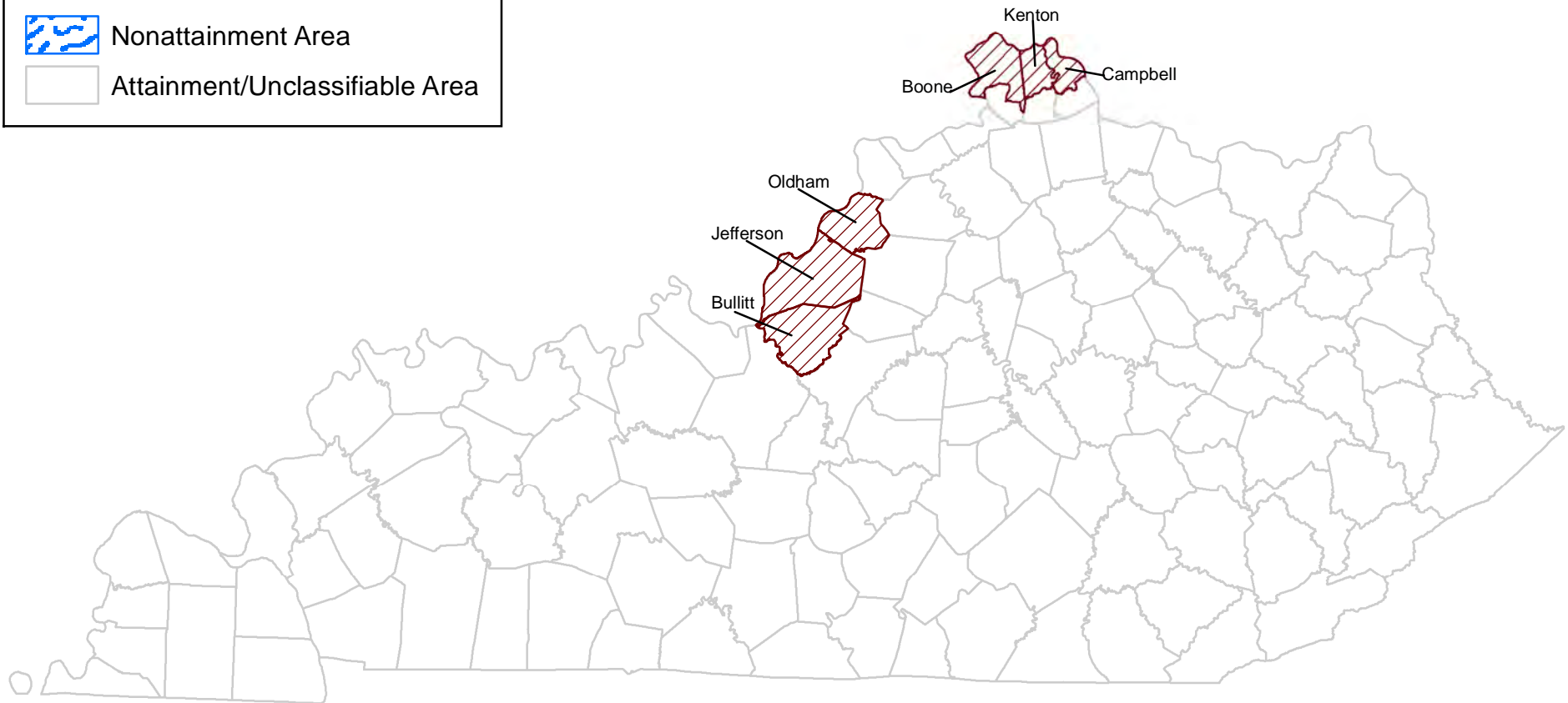
## 2012 PM2.5:



Nonattainment Area



Attainment/Unclassifiable Area



\*\*The 2015 8-hour ozone NAAQS includes the counties of Jefferson, Oldham, Bullitt, and partial counties of Boone, Kenton, and Campbell .

As of March 2019

| <b>KENTUCKY'S AIR QUALITY DESIGNATIONS FOR TRANSPORTATION CONFORMITY PURPOSES (Updated 03/15/2019)</b> |  |  |  |  |  |  |
|--|--|--|--|--|--|--|
| <b>AIRSHEDS</b>  | <b>1-Hour Ozone<br/>Vacated<br/>(1979 NAAQS)</b> | <b>8-Hour Ozone<br/>Vacated<br/>(1997 NAAQS)</b> | <b>8-Hour Ozone<br/>Implemented<br/>(2008 NAAQS)</b> | <b>8-Hour Ozone<br/>Implemented<br/>(2015 NAAQS)</b> | <b>PM2.5 Annual<br/>Vacated<br/>(1997 NAAQS)</b> | <b>PM2.5 Annual<br/>Implemented<br/>(2012 NAAQS)</b> |
| <b>Cincinnati - Hamilton (OH, KY, IN)</b>  |  |  |  |  |  |  |
| Boone Co, KY*  | Vacated  | Vacated  | Maintenance (P)                                      | Nonattainment (P)                                    | Vacated  | Attainment/Unclassifiable                            |
| Campbell Co, KY*   | Vacated  | Vacated  | Maintenance (P)                                      | Nonattainment (P)                                    | Vacated  | Attainment/Unclassifiable                            |
| Kenton Co, KY*   | Vacated  | Vacated  | Maintenance (P)                                      | Nonattainment (P)                                    | Vacated  | Attainment/Unclassifiable                            |
| <b>Louisville (KY, IN)</b>   |  |  |  |  |  |  |
| Bullitt Co, KY*  | Vacated (P)                                      | Vacated  | Attainment/Unclassifiable                            | Nonattainment  | Vacated  | Attainment/Unclassifiable                            |
| Jefferson Co, KY*  | Vacated  | Vacated  | Attainment/Unclassifiable                            | Nonattainment  | Vacated  | Attainment/Unclassifiable                            |
| Oldham Co, KY*   | Vacated (P)                                      | Vacated  | Attainment/Unclassifiable                            | Nonattainment  | Vacated  | Attainment/Unclassifiable                            |
| <b>Huntington - Ashland (WV, KY)</b>   |  |  |  |  |  |  |
| Boyd Co, KY*   | N/A  | Vacated  | Attainment/Unclassifiable                            | Attainment/Unclassifiable                            | Vacated  | Attainment/Unclassifiable                            |
| Greenup Co, KY**   | Vacated (P)                                      | N/A  | Attainment/Unclassifiable                            | Attainment/Unclassifiable                            | Vacated  | Attainment/Unclassifiable                            |
| Lawrence Co, KY**  | N/A  | N/A  | Attainment/Unclassifiable                            | Attainment/Unclassifiable                            | Vacated (P)                                      | Attainment/Unclassifiable                            |
| <b>Clarksville - Hopkinsville (TN, KY)</b>   |  |  |  |  |  |  |
| Christian Co, KY*  | N/A  | Vacated  | Attainment/Unclassifiable                            | Attainment/Unclassifiable                            | N/A  | Attainment/Unclassifiable                            |
| Muhlenberg, TN (P)   | N/A  | Vacated  | Attainment/Unclassifiable                            | Attainment/Unclassifiable                            | N/A  | Attainment/Unclassifiable                            |
| <b>Lexington</b>   |  |  |  |  |  |  |
| Fayette Co, KY*  | Vacated  | N/A  | Attainment/Unclassifiable                            | Attainment/Unclassifiable                            | N/A  | Attainment/Unclassifiable                            |
| Scott Co, KY*  | Vacated  | N/A  | Attainment/Unclassifiable                            | Attainment/Unclassifiable                            | N/A  | Attainment/Unclassifiable                            |
| <b>Owensboro</b>   |  |  |  |  |  |  |
| Daviess Co, KY*  | Vacated  | N/A  | Attainment/Unclassifiable                            | Attainment/Unclassifiable                            | N/A  | Attainment/Unclassifiable                            |
| Hancock Co, KY**   | Vacated (P)                                      | N/A  | Attainment/Unclassifiable                            | Attainment/Unclassifiable                            | N/A  | Attainment/Unclassifiable                            |
| <b>Paducah</b>   |  |  |  |  |  |  |
| Livingston Co, KY**  | Vacated (P)                                      | N/A  | Attainment/Unclassifiable                            | Attainment/Unclassifiable                            | N/A  | Attainment/Unclassifiable                            |
| Marshall Co, KY*   | Vacated  | N/A  | Attainment/Unclassifiable                            | Attainment/Unclassifiable                            | N/A  | Attainment/Unclassifiable                            |
| <b>Other</b>   |  |  |  |  |  |  |
| Edmondson, Co, KY*   | Vacated  | N/A  | Attainment/Unclassifiable                            | Attainment/Unclassifiable                            | N/A  | Attainment/Unclassifiable                            |
| National Ambient Air Quality Standards (NAAQS), Particulate Matter (PM), Partial (P)                   |  |  |  |  |  |  |
| (*) indicates entire counties eligible for CMAQ. (**) indicates partial counties eligible for CMAQ     |  |  |  |  |  |  |

Attachments

# **ATTACHMENT 3**

**Cultural and Archaeological Historic Resources**

**(Contains sensitive information. Not available for public use.)**



## **Kentucky Office of State Archaeology**

University of Kentucky, 1020A Export Street, Lexington, KY 40506  
Phone:859-257-1944 Fax:859-323-1698 email:ky-osa@lsv.uky.edu

**Confidential Information  
Not for Public Release**

### **Preliminary Records Review Coversheet**

**Date Request Processed:** 11/2/2022

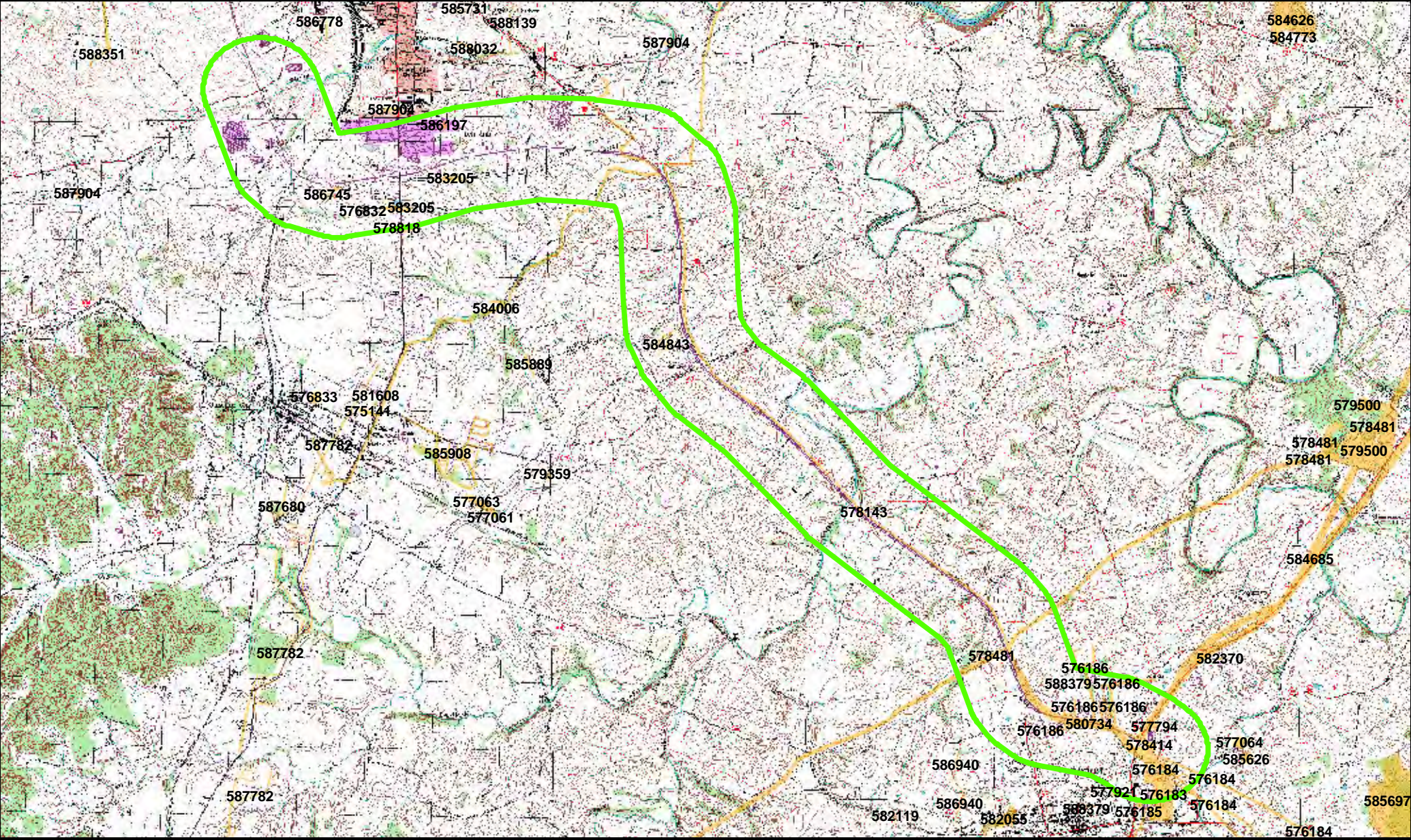
**Preliminary Review Number:** P51501




**Paid via:**  Check (Check No.: )

Credit Card (Transaction ID: 1917547478 )

*If you have any questions, please contact KyOSA at (859)257-1944 or [ky-osa@lsv.uky.edu](mailto:ky-osa@lsv.uky.edu).*





-  Project Area Submitted to OSA
-  Previous Archaeological Survey Boundaries
-  Phase 2 & 3 Archaeological Surveys

**Note: Archaeological Site Locations NOT Show**



**P51501:  
US 150 Environmental Overview**

**Kentucky Office of State Archaeology**  
 University of Kentucky, 1020A Export Street, Lexington, KY 40506  
 phone: 859-257-8207 email: ky-osa@uky.edu

**Confidential Information: Not for Public Release**



# Kentucky Office of State Archaeology

University of Kentucky, 1020a Export Street, Lexington, KY 40506

Phone: (859)257-1944 Fax: (859)323-9866 email: ky-osa@uky.edu

**Confidential Information; Not for Public Release**

## P51501: US 150 Environmental Overview

This report includes only previously recorded archaeological resources within your project area and its immediate vicinity and may not be exhaustive of all archaeological resources actually present. This information does not constitute Section 106 consultation or 'clearance' from the KHC/SHPO.

Date Request Filled: 11/02/22

| <u>Site Type</u>           | <u>National Register Status</u>                      |
|----------------------------|--|
| open habitation w/o mounds | not recorded   |
| undetermined               | National Register status not assessed                |
| undetermined               | National Register status not assessed                |
| open habitation w/o mounds | National Register property                           |
| undetermined               | National Register status not assessed                |
| undetermined               | National Register status not assessed                |
| open habitation w/o mounds | not recorded   |
| open habitation w/o mounds | National Register status not assessed                |
| undetermined               | National Register status not assessed                |
| open habitation w/o mounds | Inventory site (does not presently meet NR criteria) |
| undetermined               | National Register status not assessed                |
| earth mound                | National Register status not assessed                |
| undetermined               | National Register status not assessed                |
| workshop                   | Inventory site (does not presently meet NR criteria) |
| open habitation w/o mounds | Inventory site (does not presently meet NR criteria) |
| open habitation w/o mounds | Inventory site (does not presently meet NR criteria) |
| open habitation w/o mounds | Inventory site (does not presently meet NR criteria) |

**NOTE: 6 additional reported archaeological sites are located within the project area boundaries.**



# Kentucky Office of State Archaeology

University of Kentucky, 1020A Export Street, Lexington, KY 40506

Phone:(859)257-1944 Fax: (859)323-9866 Email: ky-osa@uky.edu

**Confidential Information; Not for Public Release**

## P51501: US 150 Environmental Overview

Site Check Performed On: 11/02/22

002-059                    587904    2015                    Jared Barrett and Sean McKeighen

Phase I Archaeological Survey for the Kentucky Portion of the Utica Marcellus Texas Pipeline Project and the Abandonment and Capacity Restoration Project - Greenup, Carter, Lewis, Rowan, Bath, Montgomery, Powell, Clark, Madison, Garrard, Boyle, Marion, T

011-013                    578143    1989                    Pamela A. Schenian

An Archeological Reconnaissance of the Proposed Lexington-Somerset AT&T Fiber Optic Cable Line in Boyle, Fayette, Garrard, Jessamine, Lincoln, and Pulaski Counties, Kentucky

011-018                    578818    1991                    Orloff G. Miller

Cultural Resources Survey of .34 Miles of a Proposed Gas Pipeline Replacement Corridor in Boyle County, Kentucky

011-032                    583205    2004                    David Breetzke

Phase I Cultural Resources Report for Tennessee Gas Pipeline Project Lines 100-3, and 100-4 Class Change Project in Boyle County, Kentucky

011-035                    584006    2006                    James H. Kompanek

An Archaeological Survey of the Proposed Danville-Junciton City Interceptor Sewer Connector Project in Boyle County, Kentucky

011-036                    584843    2007                    David Breetzke

Phase I Archaeology Report for the Wilderness Trail Cellular Tower, Boyle County, Kentucky

011-044                    586197    2010                    Ken R. Case and Richard L. Herndon

A Cultural Resource Survey of the Proposed Danville Stormwater Sub-Basin R Drainage Basin in Boyle County, Kentucky

011-046                    586745    2011                    Michael Shaw and Andrea Crider

Abbreviated Phase I Archaeology Report for the Tennessee Gas Pipeline Company, LN 100-4 Class Change Project, Boyle County, Kentucky

040-023                    584685    2006                    Anderson, Jason

An Archaeological Survey of the Proposed Reconstruction/Relocation of US 27 From KY 34 North of Lancaster to US 150 at Stanford in Garrard and Lincoln Counties, Kentucky

069-002 576183 1980    Schock, Jack M.

An Archaeological Survey of the Proposed Stanford-Lincoln County Industrial Park at Stanford, Lincoln County, Kentucky

069-003                    576184    1976                    Schock, Jack M. and Terry L. Weis

An Archaeological Survey and Evaluation of the Proposed Realignment of U.S. 150 Lincoln County, Kentucky

069-005                    576186    1977                    Weis, Terry L. and Jack M. Schock

An Archaeological Survey of a Proposed Sanitary Sewer Extension and Sewer Plant Improvements for the City of Stanford, Lincoln County, Kentucky

|  |        |      |                      |
|--|--------|------|----------------------|
| 069-016  | 577794 | 1988 | Sussenbach, Tom      |
| Cultural Resource Assessment of a Proposed Three Acre Apartment Complex, Stanford, Lincoln County, Kentucky                  |        |      |                      |
| 069-017  | 577921 | 1988 | Schock, Jack M.      |
| A Cultural Reconnaissance of Approximately 2.4 Acres for the Shea-Villa Apts., Ltd., at Stanford in Lincoln County, Kentucky |        |      |                      |
| 069-019  | 578414 | 1990 | Hughes, Myra A.      |
| A Cultural Resource Assessment Of The Proposed Oak View Apartments In The City of Stanford, Lincoln County, Kentucky         |        |      |                      |
| 069-020  | 578481 | 1990 | Price, G.R. Dennis   |
| A Cultural Resources Survey of the Proposed Tennessee Gas Company's 800-Line Loop, Lincoln County, Kentucky                  |        |      |                      |
| 069-036  | 580734 | 1998 | Richmond, Michael D. |
| An Archeological Reconnaissance Survey of the Proposed Upgrade of the Stanford Bypass (US 150) in Lincoln County, Kentucky   |        |      |                      |
| 069-080  | 588379 | 2017 | Rose G. Moore        |
| An Archaeological Survey of the Proposed City of Stanford Waterline Extensions (SAI#20160426-0398), Lincoln county, Kentucky |        |      |                      |

# Phase II & III Archaeological Project Areas

| SHPO_ID | YEAR   | AUTHORS | TITLE  |
|---------|--------|---------|--|
| 002-059 | 587904 | 2015    | Jared Barrett and Sean McKeighen   |
|         |        |         | Phase I Archaeological Survey for the Kentucky Portion of the Utica Marcellus Texas Pipeline Project and the Abandonment and Capacity Restoration Project - Greenup, Carter, Lewis, Rowan, Bath, Montgomery, Powell, Clark, Madison, Garrard, Boyle, Marion, T |
| 011-013 | 578143 | 1989    | Pamela A. Schenian   |
|         |        |         | An Archeological Reconnaissance of the Proposed Lexington-Somerset AT&T Fiber Optic Cable Line in Boyle, Fayette, Garrard, Jessamine, Lincoln, and Pulaski Counties, Kentucky  |
| 011-018 | 578818 | 1991    | Orloff G. Miller   |
|         |        |         | Cultural Resources Survey of .34 Miles of a Proposed Gas Pipeline Replacement Corridor in Boyle County, Kentucky   |
| 011-032 | 583205 | 2004    | David Breetzke   |
|         |        |         | Phase I Cultural Resources Report for Tennessee Gas Pipeline Project Lines 100-3, and 100-4 Class Change Project in Boyle County, Kentucky   |
| 011-035 | 584006 | 2006    | James H. Kompanek  |
|         |        |         | An Archaeological Survey of the Proposed Danville-Junciton City Interceptor Sewer Connector Project in Boyle County, Kentucky  |
| 011-036 | 584843 | 2007    | David Breetzke   |
|         |        |         | Phase I Archaeology Report for the Wilderness Trail Cellular Tower, Boyle County, Kentucky   |
| 011-044 | 586197 | 2010    | Ken R. Case and Richard L. Herndon   |
|         |        |         | A Cultural Resource Survey of the Proposed Danville Stormwater Sub-Basin R Drainage Basin in Boyle County, Kentucky  |
| 011-046 | 586745 | 2011    | Michael Shaw and Andrea Crider   |
|         |        |         | Abbreviated Phase I Archaeology Report for the Tennessee Gas Pipeline Company, LN 100-4 Class Change Project, Boyle County, Kentucky   |
| 040-023 | 584685 | 2006    | Anderson, Jason  |
|         |        |         | An Archaeological Survey of the Proposed Reconstruction/Relocation of US 27 From KY 34 North of Lancaster to US 150 at Stanford in Garrard and Lincoln Counties, Kentucky  |
| 069-002 | 576183 | 1980    | Schock, Jack M.  |
|         |        |         | An Archaeological Survey of the Proposed Stanford-Lincoln County Industrial Park at Stanford, Lincoln County, Kentucky   |

069-003            576184        1976    Schock, Jack M. and Terry L. Weis

An Archaeological Survey and Evaluation of the Proposed Realignment of U.S. 150 Lincoln County, Kentucky

069-005            576186        1977    Weis, Terry L. and Jack M. Schock

An Archaeological Survey of a Proposed Sanitary Sewer Extension and Sewer Plant Improvements for the City of Stanford, Lincoln County, Kentucky

069-016            577794        1988    Sussenbach, Tom

Cultural Resource Assessment of a Proposed Three Acre Apartment Complex, Stanford, Lincoln County, Kentucky

069-017            577921        1988    Schock, Jack M.

A Cultural Reconnaissance of Approximately 2.4 Acres for the Shea-Villa Apts., Ltd., at Stanford in Lincoln County, Kentucky

069-019            578414        1990    Hughes, Myra A.

A Cultural Resource Assessment Of The Proposed Oak View Apartments In The City of Stanford, Lincoln County, Kentucky

069-020            578481        1990    Price, G.R. Dennis

A Cultural Resources Survey of the Proposed Tennessee Gas Company's 800-Line Loop, Lincoln County, Kentucky

069-036            580734        1998    Richmond, Michael D.

An Archeological Reconnaissance Survey of the Proposed Upgrade of the Stanford Bypass (US 150) in Lincoln County, Kentucky

069-080            588379        2017    Rose G. Moore

An Archaeological Survey of the Proposed City of Stanford Waterline Extensions (SAI#20160426-0398), Lincoln county, Kentucky



Attachments

# **ATTACHMENT 4**

## **USDA Soil Resource Report**





United States  
Department of  
Agriculture

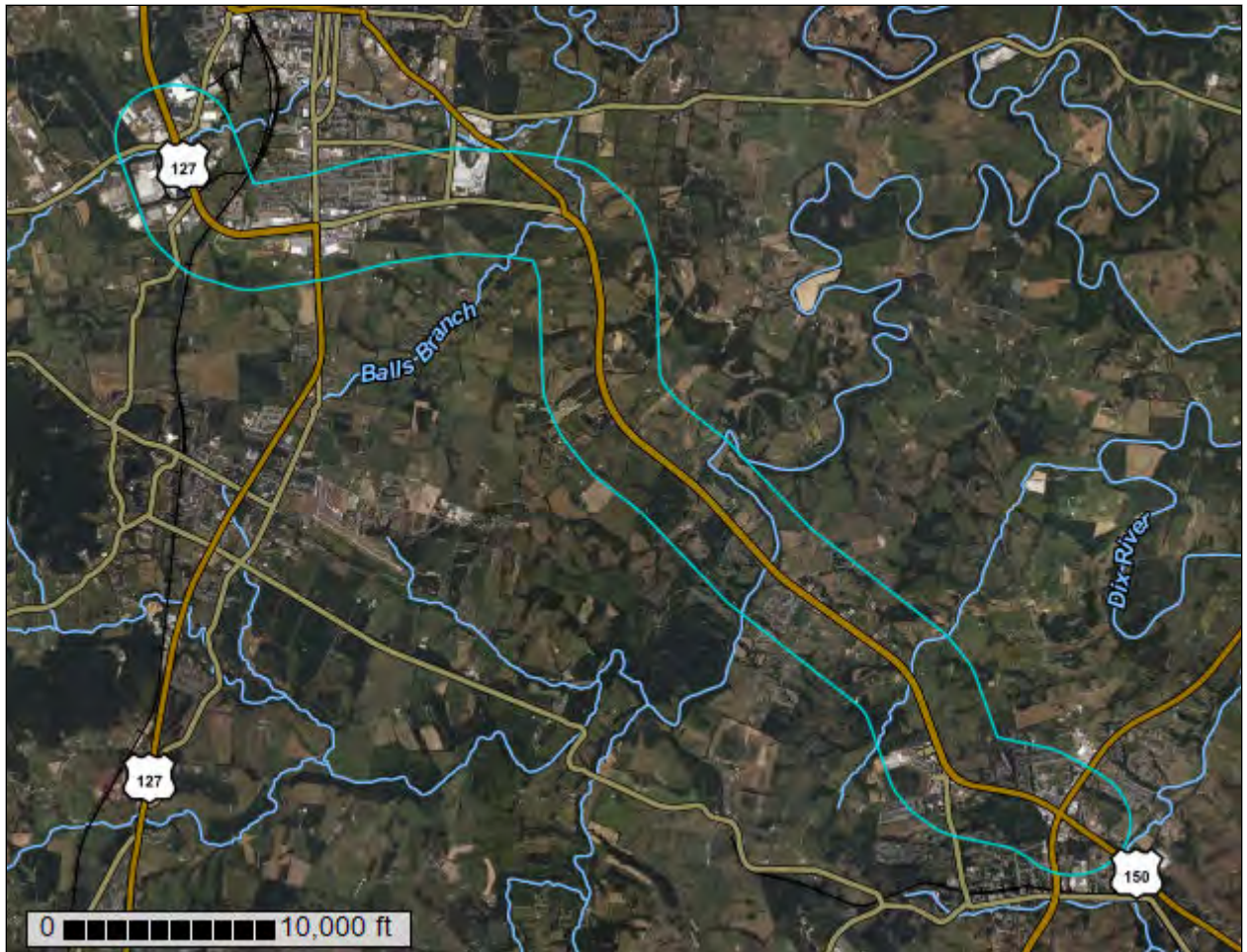
**NRCS**

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 Boyle and Mercer Counties, Kentucky, and Garrard and Lincoln Counties, Kentucky

## US-150



# Preface

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Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist ([http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2\\_053951](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951)).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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# How Soil Surveys Are Made

---

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

## Custom Soil Resource Report

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and



## Custom Soil Resource Report

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

# 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 Scale: 1:96,800 if printed on A landscape (11" x 8.5") sheet.

0 1000 2000 4000 6000 Meters

0 4500 9000 18000 27000 Feet

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84



### MAP LEGEND

**Area of Interest (AOI)**

 Area of Interest (AOI)




















**Soils**

 Soil Map Unit Polygons

 Soil Map Unit Lines


 Soil Map Unit Points

**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

**Water Features**

 Streams and Canals

**Transportation**

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

**Background**

 Aerial Photography

### MAP INFORMATION

The soil surveys that comprise your AOI were mapped at scales ranging from 1:12,000 to 1:20,000.

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

Source of Map: Natural Resources Conservation Service  
 Web Soil Survey URL:  
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

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

Soil Survey Area: Boyle and Mercer Counties, Kentucky  
 Survey Area Data: Version 18, Sep 2, 2022

Soil Survey Area: Garrard and Lincoln Counties, Kentucky  
 Survey Area Data: Version 17, Sep 2, 2022

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: May 8, 2019—Aug 11, 2019

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background



**MAP LEGEND**

**MAP INFORMATION**

imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

## Map Unit Legend

| Map Unit Symbol | Map Unit Name  | Acres in AOI | Percent of AOI |
|-----------------|--|--------------|----------------|
| CaB             | Caleast silt loam, 2 to 6 percent slopes                           | 61.3         | 0.8%           |
| CaC             | Caleast silt loam, 6 to 12 percent slopes                          | 139.7        | 1.8%           |
| Du              | Dunning silty clay loam, 0 to 2 percent slopes, frequently flooded | 87.5         | 1.1%           |
| EdD             | Eden silty clay loam, 6 to 20 percent slopes                       | 491.1        | 6.2%           |
| EeE3            | Eden flaggy silty clay, 20 to 30 percent slopes, severely eroded   | 160.1        | 2.0%           |
| EkB             | Elk silt loam, 2 to 6 percent slopes                               | 14.7         | 0.2%           |
| ErA             | Elk silt loam, 0 to 2 percent slopes, rarely flooded               | 14.1         | 0.2%           |
| ErB             | Elk silt loam, 2 to 6 percent slopes, rarely flooded               | 97.4         | 1.2%           |
| FaD             | Fairmount-Rock outcrop complex, 12 to 30 percent slopes            | 48.4         | 0.6%           |
| FaF             | Fairmount-Rock outcrop complex, 30 to 60 percent slopes            | 14.8         | 0.2%           |
| FdC             | Faywood silt loam, 6 to 12 percent slopes                          | 11.0         | 0.1%           |
| FdD             | Faywood silt loam, 12 to 20 percent slopes                         | 28.2         | 0.4%           |
| LwC3            | Lowell silty clay loam, 6 to 12 percent slopes, severely eroded    | 8.4          | 0.1%           |
| McB             | McAfee silt loam, 2 to 6 percent slopes                            | 45.0         | 0.6%           |
| McC             | McAfee silt loam, 6 to 12 percent slopes                           | 87.0         | 1.1%           |
| McD             | McAfee silt loam, 12 to 20 percent slopes                          | 1.5          | 0.0%           |
| MeD             | McAfee-Rock outcrop complex, 12 to 20 percent slopes               | 6.2          | 0.1%           |
| Ne              | Newark silt loam, 0 to 2 percent slopes, frequently flooded        | 36.3         | 0.5%           |
| NhB             | Nicholson silt loam, 2 to 6 percent slopes                         | 111.1        | 1.4%           |
| No              | Nolin silt loam, 0 to 2 percent slopes, frequently flooded         | 153.4        | 1.9%           |

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| Map Unit Symbol                       | Map Unit Name  | Acres in AOI   | Percent of AOI |
|---------------------------------------|--|----------------|----------------|
| Pt                                    | Pits, quarries   | 36.5           | 0.5%           |
| uBlmB                                 | Bluegrass-Maury silt loams, 2 to 6 percent slopes              | 414.6          | 5.2%           |
| uBwfA                                 | Boonewood silt loam, 0 to 4 percent slopes, frequently flooded | 64.3           | 0.8%           |
| uLbiB                                 | Lowell-Bluegrass silt loams, 2 to 6 percent slopes             | 213.8          | 2.7%           |
| uLfc                                  | Lowell-Faywood silt loams, 6 to 12 percent slopes              | 1,157.0        | 14.5%          |
| uLfd                                  | Lowell-Faywood silt loams, 12 to 20 percent slopes             | 161.7          | 2.0%           |
| uLsoB                                 | Lowell-Sandview silt loams, 2 to 6 percent slopes              | 298.5          | 3.7%           |
| uMlmC                                 | Maury-Bluegrass silt loams, 6 to 12 percent slopes             | 167.9          | 2.1%           |
| W                                     | Water  | 11.6           | 0.1%           |
| <b>Subtotals for Soil Survey Area</b> |  | <b>4,142.9</b> | <b>52.0%</b>   |
| <b>Totals for Area of Interest</b>    |  | <b>7,972.0</b> | <b>100.0%</b>  |

| Map Unit Symbol | Map Unit Name  | Acres in AOI | Percent of AOI |
|-----------------|--|--------------|----------------|
| AIB             | Allegheny loam, 2 to 6 percent slopes, rarely flooded                  | 123.4        | 1.5%           |
| BaB             | Beasley silt loam, 2 to 6 percent slopes                               | 16.2         | 0.2%           |
| BbC2            | Beasley silty clay loam, 6 to 12 percent slopes, eroded                | 73.8         | 0.9%           |
| CrC             | Crider silt loam, 6 to 12 percent slopes                               | 9.3          | 0.1%           |
| CuD2            | Culleoka silt loam, 12 to 25 percent slopes, eroded                    | 1.3          | 0.0%           |
| CyF2            | Cynthiana-Faywood complex, 25 to 50 percent slopes, eroded, very rocky | 199.7        | 2.5%           |
| EfF2            | Eden-Culleoka association, 25 to 50 percent slopes, eroded, stony      | 12.1         | 0.2%           |
| EkB             | Elk silt loam, 2 to 6 percent slopes                                   | 50.8         | 0.6%           |
| EkC             | Elk silt loam, 6 to 12 percent slopes                                  | 6.3          | 0.1%           |
| ErB             | Elk silt loam, 2 to 6 percent slopes, rarely flooded                   | 13.8         | 0.2%           |
| FeC2            | Faywood-Cynthiana complex, 6 to 12 percent slopes, eroded, rocky       | 222.2        | 2.8%           |
| FeD2            | Faywood-Cynthiana complex, 12 to 25 percent slopes, eroded, very rocky | 69.5         | 0.9%           |

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| Map Unit Symbol                       | Map Unit Name  | Acres in AOI   | Percent of AOI |
|---------------------------------------|--|----------------|----------------|
| FoD2                                  | Faywood-Shrouts complex, 12 to 25 percent slopes, eroded, rocky            | 307.0          | 3.9%           |
| FoF2                                  | Faywood-Shrouts complex, 25 to 60 percent slopes, eroded, rocky            | 41.8           | 0.5%           |
| Jm                                    | Johnsburg-Mullins complex  | 1.7            | 0.0%           |
| LpD2                                  | Lowell-Faywood complex, 12 to 25 percent slopes, eroded, rocky             | 357.5          | 4.5%           |
| Ne                                    | Newark silt loam, frequently flooded                                       | 34.8           | 0.4%           |
| NhB                                   | Nicholson silt loam, 2 to 6 percent slopes                                 | 8.0            | 0.1%           |
| NhC2                                  | Nicholson silt loam, 6 to 12 percent slopes, eroded                        | 0.4            | 0.0%           |
| No                                    | Nolin silt loam, 0 to 2 percent slopes, frequently flooded                 | 37.4           | 0.5%           |
| OtB                                   | Otwood silt loam, 2 to 6 percent slopes                                    | 14.3           | 0.2%           |
| OwB                                   | Otwood silt loam, 2 to 6 percent slopes, rarely flooded                    | 21.9           | 0.3%           |
| SaB                                   | Sandview silt loam, 2 to 6 percent slopes                                  | 131.2          | 1.6%           |
| SaC                                   | Sandview silt loam, 6 to 12 percent slopes                                 | 109.8          | 1.4%           |
| SeC2                                  | Shrouts silty clay loam, 6 to 12 percent slopes, eroded                    | 135.4          | 1.7%           |
| SfD3                                  | Shrouts-Cynthiana complex, 12 to 25 percent slopes, severely eroded, rocky | 78.8           | 1.0%           |
| TIB                                   | Tilsit silt loam, 2 to 6 percent slopes                                    | 53.7           | 0.7%           |
| TpC2                                  | Trappist silty clay loam, 6 to 12 percent slopes, eroded                   | 117.1          | 1.5%           |
| TrD2                                  | Trappist-Colyer complex, 12 to 25 percent slopes, eroded                   | 31.2           | 0.4%           |
| uBofA                                 | Boonesboro silt loam, 0 to 4 percent slopes, frequently flooded            | 10.7           | 0.1%           |
| uLbiB                                 | Lowell-Bluegrass silt loams, 2 to 6 percent slopes                         | 130.0          | 1.6%           |
| uLfC                                  | Lowell-Faywood silt loams, 6 to 12 percent slopes                          | 999.7          | 12.5%          |
| uLfD                                  | Lowell-Faywood silt loams, 12 to 20 percent slopes                         | 351.9          | 4.4%           |
| uLsoB                                 | Lowell-Sandview silt loams, 2 to 6 percent slopes                          | 24.1           | 0.3%           |
| W                                     | Water  | 32.6           | 0.4%           |
| <b>Subtotals for Soil Survey Area</b> |  | <b>3,829.1</b> | <b>48.0%</b>   |



## Custom Soil Resource Report

| Map Unit Symbol             | Map Unit Name | Acres in AOI | Percent of AOI |
|-----------------------------|---------------|--------------|----------------|
| Totals for Area of Interest |               | 7,972.0      | 100.0%         |

## Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

## Custom Soil Resource Report

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

## Boyle and Mercer Counties, Kentucky

### CaB—Caleast silt loam, 2 to 6 percent slopes

#### Map Unit Setting

*National map unit symbol:* lhwz  
*Elevation:* 480 to 1,360 feet  
*Mean annual precipitation:* 40 to 53 inches  
*Mean annual air temperature:* 44 to 66 degrees F  
*Frost-free period:* 175 to 208 days  
*Farmland classification:* All areas are prime farmland

#### Map Unit Composition

*Caleast and similar soils:* 85 percent  
*Minor components:* 15 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

#### Description of Caleast

##### Setting

*Landform:* Ridges  
*Landform position (two-dimensional):* Summit  
*Landform position (three-dimensional):* Interfluve  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Parent material:* Clayey residuum weathered from limestone

##### Typical profile

*H1 - 0 to 14 inches:* silt loam  
*H2 - 14 to 48 inches:* clay  
*H3 - 48 to 53 inches:* clay  
*R - 53 to 63 inches:* unweathered bedrock

##### Properties and qualities

*Slope:* 2 to 6 percent  
*Depth to restrictive feature:* 40 to 80 inches to lithic bedrock  
*Drainage class:* Well drained  
*Runoff class:* Medium  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high (0.20 to 0.60 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Available water supply, 0 to 60 inches:* High (about 9.2 inches)

##### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 2e  
*Hydrologic Soil Group:* B  
*Ecological site:* F121XY006KY - Ordovician Limestone Upland  
*Hydric soil rating:* No

#### Minor Components

##### Maury

*Percent of map unit:* 4 percent

## Custom Soil Resource Report

*Hydric soil rating:* No

### **Sandview**

*Percent of map unit:* 3 percent

*Hydric soil rating:* No

### **Mcafee**

*Percent of map unit:* 3 percent

*Hydric soil rating:* No

### **Mcgary**

*Percent of map unit:* 2 percent

*Hydric soil rating:* No

### **Chenault**

*Percent of map unit:* 2 percent

*Hydric soil rating:* No

### **Fairmount**

*Percent of map unit:* 1 percent

*Hydric soil rating:* No

## **CaC—Caleast silt loam, 6 to 12 percent slopes**

### **Map Unit Setting**

*National map unit symbol:* lhx0

*Elevation:* 480 to 1,360 feet

*Mean annual precipitation:* 40 to 53 inches

*Mean annual air temperature:* 44 to 66 degrees F

*Frost-free period:* 175 to 208 days

*Farmland classification:* Farmland of statewide importance

### **Map Unit Composition**

*Caleast and similar soils:* 85 percent

*Minor components:* 15 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

### **Description of Caleast**

#### **Setting**

*Landform:* Ridges

*Landform position (two-dimensional):* Shoulder

*Landform position (three-dimensional):* Side slope

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Parent material:* Clayey residuum weathered from limestone

#### **Typical profile**

*H1 - 0 to 14 inches:* silt loam

*H2 - 14 to 48 inches:* clay

*H3 - 48 to 53 inches:* clay

*R - 53 to 63 inches:* unweathered bedrock



## Custom Soil Resource Report

### Properties and qualities

*Slope:* 6 to 12 percent

*Depth to restrictive feature:* 40 to 80 inches to lithic bedrock

*Drainage class:* Well drained

*Runoff class:* Medium

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high (0.20 to 0.60 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Available water supply, 0 to 60 inches:* High (about 9.2 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 3e

*Hydrologic Soil Group:* B

*Ecological site:* F121XY006KY - Ordovician Limestone Upland

*Hydric soil rating:* No

### Minor Components

#### Maury

*Percent of map unit:* 4 percent

*Hydric soil rating:* No

#### Mcafee

*Percent of map unit:* 3 percent

*Hydric soil rating:* No

#### Sandview

*Percent of map unit:* 3 percent

*Hydric soil rating:* No

#### Chenault

*Percent of map unit:* 2 percent

*Hydric soil rating:* No

#### Mcgary

*Percent of map unit:* 2 percent

*Hydric soil rating:* No

#### Fairmount

*Percent of map unit:* 1 percent

*Hydric soil rating:* No

## Du—Dunning silty clay loam, 0 to 2 percent slopes, frequently flooded

### Map Unit Setting

*National map unit symbol:* 2wltb

*Elevation:* 510 to 1,040 feet

*Mean annual precipitation:* 40 to 55 inches

*Mean annual air temperature:* 41 to 68 degrees F

## Custom Soil Resource Report

*Frost-free period:* 144 to 208 days

*Farmland classification:* Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season

### Map Unit Composition

*Dunning, frequently flooded, and similar soils:* 90 percent

*Minor components:* 10 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Dunning, Frequently Flooded

#### Setting

*Landform:* Flood plains

*Landform position (three-dimensional):* Dip

*Down-slope shape:* Linear

*Across-slope shape:* Concave

*Parent material:* Clayey alluvium derived from limestone

#### Typical profile

*Ap - 0 to 9 inches:* silty clay loam

*A - 9 to 15 inches:* silty clay loam

*Bg - 15 to 48 inches:* silty clay

*Cg - 48 to 96 inches:* silty clay

#### Properties and qualities

*Slope:* 0 to 2 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Poorly drained

*Runoff class:* Very low

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.06 to 0.20 in/hr)

*Depth to water table:* About 0 to 6 inches

*Frequency of flooding:* FrequentNone

*Frequency of ponding:* None

*Available water supply, 0 to 60 inches:* Moderate (about 6.6 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 3w

*Hydrologic Soil Group:* C/D

*Ecological site:* F121XY030KY - Poorly Drained & Very Poorly Drained Floodplain

*Hydric soil rating:* Yes

### Minor Components

#### Melvin, frequently flooded

*Percent of map unit:* 5 percent

*Landform:* Flood plains

*Landform position (three-dimensional):* Dip

*Down-slope shape:* Concave

*Across-slope shape:* Linear

*Hydric soil rating:* Yes

#### Newark, frequently flooded

*Percent of map unit:* 3 percent

*Landform:* Flood plains

*Landform position (three-dimensional):* Talf

## Custom Soil Resource Report

*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Hydric soil rating:* No

### **Nolin, frequently flooded**

*Percent of map unit:* 2 percent  
*Landform:* Flood plains  
*Landform position (three-dimensional):* Rise  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Hydric soil rating:* No

## **EdD—Eden silty clay loam, 6 to 20 percent slopes**

### **Map Unit Setting**

*National map unit symbol:* 2vp38  
*Elevation:* 520 to 1,180 feet  
*Mean annual precipitation:* 37 to 54 inches  
*Mean annual air temperature:* 40 to 66 degrees F  
*Frost-free period:* 135 to 208 days  
*Farmland classification:* Not prime farmland

### **Map Unit Composition**

*Eden and similar soils:* 85 percent  
*Minor components:* 15 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### **Description of Eden**

#### **Setting**

*Landform:* Hills  
*Landform position (two-dimensional):* Backslope  
*Landform position (three-dimensional):* Side slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Linear  
*Parent material:* Clayey residuum weathered from limestone and shale and/or clayey residuum weathered from calcareous siltstone

#### **Typical profile**

*Ap - 0 to 5 inches:* silty clay loam  
*Bt - 5 to 20 inches:* silty clay  
*BC - 20 to 28 inches:* flaggy silty clay  
*Cr - 28 to 38 inches:* bedrock

#### **Properties and qualities**

*Slope:* 6 to 20 percent  
*Depth to restrictive feature:* 20 to 40 inches to paralithic bedrock  
*Drainage class:* Well drained  
*Runoff class:* High  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.02 to 0.20 in/hr)

## Custom Soil Resource Report

*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Calcium carbonate, maximum content:* 20 percent  
*Available water supply, 0 to 60 inches:* Very low (about 2.6 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 4e  
*Hydrologic Soil Group:* D  
*Ecological site:* F121XY002KY - Moderately Deep Interbedded Limestone-Shale  
Backslopes  
*Hydric soil rating:* No

### Minor Components

#### Faywood

*Percent of map unit:* 5 percent  
*Landform:* Hills  
*Landform position (two-dimensional):* Shoulder  
*Landform position (three-dimensional):* Side slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Linear  
*Hydric soil rating:* No

#### Nicholson

*Percent of map unit:* 5 percent  
*Landform:* Ridges  
*Landform position (two-dimensional):* Shoulder  
*Landform position (three-dimensional):* Side slope  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Hydric soil rating:* No

#### Lowell

*Percent of map unit:* 5 percent  
*Landform:* Hills  
*Landform position (two-dimensional):* Backslope  
*Landform position (three-dimensional):* Side slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Linear  
*Hydric soil rating:* No

## EeE3—Eden flaggy silty clay, 20 to 30 percent slopes, severely eroded

### Map Unit Setting

*National map unit symbol:* 2vp34  
*Elevation:* 430 to 1,140 feet  
*Mean annual precipitation:* 36 to 66 inches  
*Mean annual air temperature:* 40 to 68 degrees F  
*Frost-free period:* 135 to 211 days

## Custom Soil Resource Report

*Farmland classification:* Not prime farmland

### Map Unit Composition

*Eden, severely eroded, and similar soils:* 80 percent

*Minor components:* 20 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Eden, Severely Eroded

#### Setting

*Landform:* Hills

*Landform position (two-dimensional):* Summit

*Landform position (three-dimensional):* Side slope

*Down-slope shape:* Convex

*Across-slope shape:* Linear

*Parent material:* Clayey residuum weathered from calcareous siltstone and/or clayey residuum weathered from limestone and shale

#### Typical profile

*Ap - 0 to 3 inches:* flaggy silty clay

*Bt - 3 to 11 inches:* flaggy silty clay

*BC - 11 to 28 inches:* flaggy silty clay loam

*Cr - 28 to 38 inches:* bedrock

#### Properties and qualities

*Slope:* 20 to 30 percent

*Depth to restrictive feature:* 20 to 40 inches to paralithic bedrock

*Drainage class:* Well drained

*Runoff class:* Very high

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.02 to 0.20 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Calcium carbonate, maximum content:* 20 percent

*Available water supply, 0 to 60 inches:* Very low (about 2.6 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 6e

*Hydrologic Soil Group:* D

*Ecological site:* F121XY002KY - Moderately Deep Interbedded Limestone-Shale Backslopes

*Hydric soil rating:* No

### Minor Components

#### Faywood, severely eroded

*Percent of map unit:* 6 percent

*Landform:* Hills

*Landform position (two-dimensional):* Shoulder

*Landform position (three-dimensional):* Side slope

*Down-slope shape:* Convex

*Across-slope shape:* Linear

*Hydric soil rating:* No



## Custom Soil Resource Report

### **Lowell, severely eroded**

*Percent of map unit:* 6 percent  
*Landform:* Hills  
*Landform position (two-dimensional):* Summit  
*Landform position (three-dimensional):* Side slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Linear  
*Hydric soil rating:* No

### **Fairmount, severely eroded**

*Percent of map unit:* 6 percent  
*Landform:* Hills  
*Landform position (two-dimensional):* Backslope  
*Landform position (three-dimensional):* Side slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Ecological site:* F121XY001KY - Shallow Limestone Residuum Backslopes  
*Hydric soil rating:* No

### **Cynthiana, severely eroded**

*Percent of map unit:* 2 percent  
*Landform:* Hills  
*Landform position (two-dimensional):* Backslope  
*Landform position (three-dimensional):* Side slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Linear  
*Hydric soil rating:* No

## **EkB—Elk silt loam, 2 to 6 percent slopes**

### **Map Unit Setting**

*National map unit symbol:* 2zs50  
*Elevation:* 390 to 1,060 feet  
*Mean annual precipitation:* 36 to 58 inches  
*Mean annual air temperature:* 41 to 68 degrees F  
*Frost-free period:* 142 to 211 days  
*Farmland classification:* All areas are prime farmland

### **Map Unit Composition**

*Elk and similar soils:* 90 percent  
*Minor components:* 10 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### **Description of Elk**

#### **Setting**

*Landform:* Stream terraces  
*Landform position (three-dimensional):* Tread  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear

## Custom Soil Resource Report

*Parent material:* Mixed fine-silty alluvium over mixed loamy alluvium

### Typical profile

*Ap - 0 to 8 inches:* silt loam  
*BA - 8 to 14 inches:* silt loam  
*Bt - 14 to 46 inches:* silty clay loam  
*2C - 46 to 80 inches:* silty clay loam

### Properties and qualities

*Slope:* 2 to 6 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Well drained  
*Runoff class:* Low  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high  
(0.60 to 2.00 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Available water supply, 0 to 60 inches:* High (about 11.3 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 2e  
*Hydrologic Soil Group:* B  
*Ecological site:* F121XY016KY - Well Drained & Moderately Well Drained Terrace  
*Hydric soil rating:* No

### Minor Components

#### Otwood

*Percent of map unit:* 5 percent  
*Landform:* Stream terraces  
*Landform position (three-dimensional):* Tread  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Ecological site:* F121XY018KY - Moderately Well Drained Fragipan Terrace  
*Hydric soil rating:* No

#### Allegheny

*Percent of map unit:* 3 percent  
*Landform:* Stream terraces  
*Landform position (three-dimensional):* Tread  
*Down-slope shape:* Convex  
*Across-slope shape:* Linear  
*Ecological site:* F121XY016KY - Well Drained & Moderately Well Drained Terrace  
*Hydric soil rating:* No

#### Nolin, occasionally flooded

*Percent of map unit:* 2 percent  
*Landform:* Flood plains  
*Landform position (three-dimensional):* Talf  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Ecological site:* F121XY033KY - Well Drained & Moderately Well Drained  
Floodplain  
*Hydric soil rating:* No

## **ErA—Elk silt loam, 0 to 2 percent slopes, rarely flooded**

### **Map Unit Setting**

*National map unit symbol:* 2zqlh  
*Elevation:* 440 to 950 feet  
*Mean annual precipitation:* 36 to 66 inches  
*Mean annual air temperature:* 40 to 68 degrees F  
*Frost-free period:* 135 to 212 days  
*Farmland classification:* All areas are prime farmland

### **Map Unit Composition**

*Elk, rarely flooded, and similar soils:* 90 percent  
*Minor components:* 10 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### **Description of Elk, Rarely Flooded**

#### **Setting**

*Landform:* Stream terraces  
*Landform position (three-dimensional):* Tread  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Parent material:* Mixed fine-silty alluvium over mixed loamy alluvium

#### **Typical profile**

*Ap - 0 to 9 inches:* silt loam  
*BA - 9 to 15 inches:* silt loam  
*Bt - 15 to 46 inches:* silty clay loam  
*2C - 46 to 80 inches:* silty clay loam

#### **Properties and qualities**

*Slope:* 0 to 2 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Well drained  
*Runoff class:* Low  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high  
(0.60 to 2.00 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* RareNone  
*Frequency of ponding:* None  
*Maximum salinity:* Nonsaline (0.0 to 0.5 mmhos/cm)  
*Available water supply, 0 to 60 inches:* High (about 9.0 inches)

#### **Interpretive groups**

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 1  
*Hydrologic Soil Group:* B  
*Ecological site:* F121XY016KY - Well Drained & Moderately Well Drained Terrace  
*Hydric soil rating:* No

**Minor Components**

**Otwood, rarely flooded**

*Percent of map unit:* 5 percent  
*Landform:* Stream terraces  
*Landform position (three-dimensional):* Tread  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Ecological site:* F121XY018KY - Moderately Well Drained Fragipan Terrace  
*Hydric soil rating:* No

**Lawrence, rarely flooded**

*Percent of map unit:* 3 percent  
*Landform:* Stream terraces  
*Landform position (three-dimensional):* Tread  
*Down-slope shape:* Concave  
*Across-slope shape:* Linear  
*Ecological site:* F121XY017KY - SWPD Fragipan Terrace  
*Hydric soil rating:* No

**Nolin, occasionally flooded**

*Percent of map unit:* 2 percent  
*Landform:* Flood plains  
*Landform position (three-dimensional):* Talf  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Ecological site:* F121XY033KY - Well Drained & Moderately Well Drained  
Floodplain  
*Hydric soil rating:* No

**ErB—Elk silt loam, 2 to 6 percent slopes, rarely flooded**

**Map Unit Setting**

*National map unit symbol:* 2slf3  
*Elevation:* 380 to 1,110 feet  
*Mean annual precipitation:* 36 to 66 inches  
*Mean annual air temperature:* 40 to 68 degrees F  
*Frost-free period:* 135 to 218 days  
*Farmland classification:* All areas are prime farmland

**Map Unit Composition**

*Elk, rarely flooded, and similar soils:* 90 percent  
*Minor components:* 10 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Elk, Rarely Flooded**

**Setting**

*Landform:* Stream terraces  
*Landform position (three-dimensional):* Tread

## Custom Soil Resource Report

*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Parent material:* Mixed fine-silty alluvium over mixed loamy alluvium

### Typical profile

*Ap - 0 to 8 inches:* silt loam  
*BA - 8 to 15 inches:* silt loam  
*Bt - 15 to 46 inches:* silty clay loam  
*2C - 46 to 80 inches:* silty clay loam

### Properties and qualities

*Slope:* 2 to 6 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Well drained  
*Runoff class:* Low  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high  
(0.60 to 2.00 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* RareNone  
*Frequency of ponding:* None  
*Available water supply, 0 to 60 inches:* High (about 10.7 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 2e  
*Hydrologic Soil Group:* B  
*Ecological site:* F121XY016KY - Well Drained & Moderately Well Drained Terrace  
*Hydric soil rating:* No

### Minor Components

#### Otwood, rarely flooded

*Percent of map unit:* 5 percent  
*Landform:* Stream terraces  
*Landform position (three-dimensional):* Tread  
*Down-slope shape:* Convex  
*Across-slope shape:* Linear  
*Hydric soil rating:* No

#### Lawrence, rarely flooded

*Percent of map unit:* 3 percent  
*Landform:* Stream terraces  
*Landform position (three-dimensional):* Tread  
*Down-slope shape:* Concave  
*Across-slope shape:* Linear  
*Hydric soil rating:* No

#### Nolin, occasionally flooded

*Percent of map unit:* 2 percent  
*Landform:* Flood plains  
*Landform position (three-dimensional):* Talf  
*Down-slope shape:* Linear, concave  
*Across-slope shape:* Linear  
*Hydric soil rating:* No



## **FaD—Fairmount-Rock outcrop complex, 12 to 30 percent slopes**

### **Map Unit Setting**

*National map unit symbol:* lhxk  
*Elevation:* 480 to 1,360 feet  
*Mean annual precipitation:* 40 to 53 inches  
*Mean annual air temperature:* 44 to 66 degrees F  
*Frost-free period:* 175 to 208 days  
*Farmland classification:* Not prime farmland

### **Map Unit Composition**

*Fairmount and similar soils:* 65 percent  
*Rock outcrop:* 20 percent  
*Minor components:* 15 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### **Description of Fairmount**

#### **Setting**

*Landform:* Hills  
*Landform position (two-dimensional):* Backslope  
*Landform position (three-dimensional):* Side slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Parent material:* Clayey residuum weathered from limestone

#### **Typical profile**

*H1 - 0 to 6 inches:* flaggy silty clay loam  
*H2 - 6 to 14 inches:* flaggy silty clay  
*R - 14 to 24 inches:* unweathered bedrock

#### **Properties and qualities**

*Slope:* 12 to 30 percent  
*Depth to restrictive feature:* 10 to 20 inches to lithic bedrock  
*Drainage class:* Well drained  
*Runoff class:* High  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.06 to 0.60 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Available water supply, 0 to 60 inches:* Very low (about 2.1 inches)

#### **Interpretive groups**

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 6s  
*Hydrologic Soil Group:* D  
*Ecological site:* F121XY001KY - Shallow Limestone Residuum Backslopes  
*Hydric soil rating:* No

**Description of Rock Outcrop**

**Setting**

*Landform:* Hills

*Landform position (three-dimensional):* Free face

*Parent material:* Limestone

**Interpretive groups**

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 8

*Hydric soil rating:* No

**Minor Components**

**Caleast**

*Percent of map unit:* 3 percent

*Hydric soil rating:* No

**Mcafee**

*Percent of map unit:* 3 percent

*Hydric soil rating:* No

**Faywood**

*Percent of map unit:* 3 percent

*Hydric soil rating:* No

**Lowell**

*Percent of map unit:* 3 percent

*Hydric soil rating:* No

**Eden**

*Percent of map unit:* 2 percent

*Hydric soil rating:* No

**Chenault**

*Percent of map unit:* 1 percent

*Hydric soil rating:* No

**FaF—Fairmount-Rock outcrop complex, 30 to 60 percent slopes**

**Map Unit Setting**

*National map unit symbol:* 2vp3c

*Elevation:* 430 to 1,410 feet

*Mean annual precipitation:* 37 to 53 inches

*Mean annual air temperature:* 41 to 67 degrees F

*Frost-free period:* 144 to 212 days

*Farmland classification:* Not prime farmland

**Map Unit Composition**

*Fairmount and similar soils:* 60 percent

*Rock outcrop:* 25 percent

## Custom Soil Resource Report

*Minor components: 15 percent*  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Fairmount

#### Setting

*Landform: Hills*  
*Landform position (two-dimensional): Backslope*  
*Landform position (three-dimensional): Side slope*  
*Down-slope shape: Convex*  
*Across-slope shape: Convex*  
*Parent material: Clayey residuum weathered from limestone and shale*

#### Typical profile

*A - 0 to 11 inches: flaggy silty clay*  
*Bw - 11 to 17 inches: flaggy clay*  
*R - 17 to 27 inches: bedrock*

#### Properties and qualities

*Slope: 30 to 60 percent*  
*Depth to restrictive feature: 10 to 20 inches to lithic bedrock*  
*Drainage class: Well drained*  
*Runoff class: Very high*  
*Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)*  
*Depth to water table: More than 80 inches*  
*Frequency of flooding: None*  
*Frequency of ponding: None*  
*Calcium carbonate, maximum content: 5 percent*  
*Available water supply, 0 to 60 inches: Very low (about 2.3 inches)*

#### Interpretive groups

*Land capability classification (irrigated): None specified*  
*Land capability classification (nonirrigated): 7e*  
*Hydrologic Soil Group: D*  
*Ecological site: F121XY001KY - Shallow Limestone Residuum Backslopes*  
*Hydric soil rating: No*

### Description of Rock Outcrop

#### Setting

*Landform: Hills*  
*Landform position (two-dimensional): Backslope*  
*Landform position (three-dimensional): Free face*  
*Down-slope shape: Convex*  
*Across-slope shape: Convex*  
*Parent material: Limestone*

#### Interpretive groups

*Land capability classification (irrigated): None specified*  
*Land capability classification (nonirrigated): 8*  
*Hydric soil rating: No*

### Minor Components

#### Eden

*Percent of map unit: 5 percent*  
*Landform: Ridges*

## Custom Soil Resource Report

*Landform position (two-dimensional):* Shoulder  
*Landform position (three-dimensional):* Side slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Linear  
*Hydric soil rating:* No

### **Lowell**

*Percent of map unit:* 5 percent  
*Landform:* Hills  
*Landform position (two-dimensional):* Backslope  
*Landform position (three-dimensional):* Side slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Linear  
*Hydric soil rating:* No

### **Cynthiana**

*Percent of map unit:* 5 percent  
*Landform:* Hills  
*Landform position (two-dimensional):* Backslope  
*Landform position (three-dimensional):* Side slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Linear  
*Hydric soil rating:* No

## **FdC—Faywood silt loam, 6 to 12 percent slopes**

### **Map Unit Setting**

*National map unit symbol:* lhxm  
*Elevation:* 480 to 1,360 feet  
*Mean annual precipitation:* 40 to 53 inches  
*Mean annual air temperature:* 44 to 66 degrees F  
*Frost-free period:* 175 to 208 days  
*Farmland classification:* Farmland of statewide importance

### **Map Unit Composition**

*Faywood and similar soils:* 85 percent  
*Minor components:* 15 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### **Description of Faywood**

#### **Setting**

*Landform:* Ridges  
*Landform position (two-dimensional):* Shoulder  
*Landform position (three-dimensional):* Side slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Parent material:* Clayey residuum weathered from limestone and shale

## Custom Soil Resource Report

### Typical profile

*H1 - 0 to 7 inches:* silt loam  
*H2 - 7 to 31 inches:* silty clay  
*R - 31 to 41 inches:* unweathered bedrock

### Properties and qualities

*Slope:* 6 to 12 percent  
*Depth to restrictive feature:* 20 to 40 inches to lithic bedrock  
*Drainage class:* Well drained  
*Runoff class:* Medium  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.06 to 0.60 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Available water supply, 0 to 60 inches:* Low (about 5.0 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 3e  
*Hydrologic Soil Group:* C  
*Ecological site:* F121XY002KY - Moderately Deep Interbedded Limestone-Shale Backslopes  
*Hydric soil rating:* No

### Minor Components

#### Lowell

*Percent of map unit:* 5 percent  
*Hydric soil rating:* No

#### Caleast

*Percent of map unit:* 4 percent  
*Hydric soil rating:* No

#### Fairmount

*Percent of map unit:* 3 percent  
*Hydric soil rating:* No

#### Eden

*Percent of map unit:* 2 percent  
*Hydric soil rating:* No

#### Rock outcrop

*Percent of map unit:* 1 percent  
*Hydric soil rating:* No

## FdD—Faywood silt loam, 12 to 20 percent slopes

### Map Unit Setting

*National map unit symbol:* lhxn  
*Elevation:* 480 to 1,360 feet



## Custom Soil Resource Report

*Mean annual precipitation:* 40 to 53 inches  
*Mean annual air temperature:* 44 to 66 degrees F  
*Frost-free period:* 175 to 208 days  
*Farmland classification:* Not prime farmland

### Map Unit Composition

*Faywood and similar soils:* 85 percent  
*Minor components:* 15 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Faywood

#### Setting

*Landform:* Hills  
*Landform position (two-dimensional):* Backslope  
*Landform position (three-dimensional):* Side slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Parent material:* Clayey residuum weathered from limestone and shale

#### Typical profile

*H1 - 0 to 7 inches:* silt loam  
*H2 - 7 to 31 inches:* silty clay  
*R - 31 to 41 inches:* unweathered bedrock

#### Properties and qualities

*Slope:* 12 to 20 percent  
*Depth to restrictive feature:* 20 to 40 inches to lithic bedrock  
*Drainage class:* Well drained  
*Runoff class:* Medium  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.06 to 0.60 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Available water supply, 0 to 60 inches:* Low (about 5.0 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 4e  
*Hydrologic Soil Group:* C  
*Ecological site:* F121XY002KY - Moderately Deep Interbedded Limestone-Shale Backslopes  
*Hydric soil rating:* No

### Minor Components

#### Fairmount

*Percent of map unit:* 4 percent  
*Hydric soil rating:* No

#### Lowell

*Percent of map unit:* 4 percent  
*Hydric soil rating:* No

#### Caleast

*Percent of map unit:* 4 percent  
*Hydric soil rating:* No

**Eden**

*Percent of map unit: 2 percent*  
*Hydric soil rating: No*

**Rock outcrop**

*Percent of map unit: 1 percent*  
*Hydric soil rating: No*

**LwC3—Lowell silty clay loam, 6 to 12 percent slopes, severely eroded**

**Map Unit Setting**

*National map unit symbol: lh xv*  
*Elevation: 480 to 1,360 feet*  
*Mean annual precipitation: 40 to 53 inches*  
*Mean annual air temperature: 44 to 66 degrees F*  
*Frost-free period: 175 to 208 days*  
*Farmland classification: Not prime farmland*

**Map Unit Composition**

*Lowell, severely eroded, and similar soils: 85 percent*  
*Minor components: 15 percent*  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Lowell, Severely Eroded**

**Setting**

*Landform: Ridges*  
*Landform position (two-dimensional): Backslope*  
*Landform position (three-dimensional): Side slope*  
*Down-slope shape: Convex*  
*Across-slope shape: Convex*  
*Parent material: Clayey residuum weathered from limestone and shale and/or siltstone*

**Typical profile**

*H1 - 0 to 5 inches: silty clay loam*  
*H2 - 5 to 38 inches: clay*  
*H3 - 38 to 62 inches: channery silty clay*  
*R - 62 to 72 inches: unweathered bedrock*

**Properties and qualities**

*Slope: 6 to 12 percent*  
*Depth to restrictive feature: 40 to 80 inches to lithic bedrock*  
*Drainage class: Well drained*  
*Runoff class: Medium*  
*Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)*  
*Depth to water table: More than 80 inches*  
*Frequency of flooding: None*  
*Frequency of ponding: None*

## Custom Soil Resource Report

*Calcium carbonate, maximum content:* 3 percent  
*Available water supply, 0 to 60 inches:* High (about 9.6 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 4e  
*Hydrologic Soil Group:* C  
*Ecological site:* F121XY006KY - Ordovician Limestone Upland  
*Hydric soil rating:* No

### Minor Components

#### Faywood

*Percent of map unit:* 5 percent  
*Hydric soil rating:* No

#### Eden

*Percent of map unit:* 4 percent  
*Hydric soil rating:* No

#### Mod well drained soils

*Percent of map unit:* 3 percent  
*Hydric soil rating:* No

#### Fairmount

*Percent of map unit:* 2 percent  
*Hydric soil rating:* No

#### Rock outcrop

*Percent of map unit:* 1 percent  
*Hydric soil rating:* No

## McB—McAfee silt loam, 2 to 6 percent slopes

### Map Unit Setting

*National map unit symbol:* 2qmlp  
*Elevation:* 500 to 1,060 feet  
*Mean annual precipitation:* 37 to 53 inches  
*Mean annual air temperature:* 41 to 66 degrees F  
*Frost-free period:* 144 to 211 days  
*Farmland classification:* All areas are prime farmland

### Map Unit Composition

*Mcafee and similar soils:* 85 percent  
*Minor components:* 15 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Mcafee

#### Setting

*Landform:* Ridges  
*Landform position (two-dimensional):* Summit

## Custom Soil Resource Report

*Landform position (three-dimensional):* Interfluve  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Parent material:* Clayey residuum weathered from limestone

### Typical profile

*Ap - 0 to 7 inches:* silt loam  
*Bt1 - 7 to 16 inches:* silty clay loam  
*Bt2 - 16 to 26 inches:* silty clay  
*Bt3 - 26 to 32 inches:* clay  
*R - 32 to 42 inches:* bedrock

### Properties and qualities

*Slope:* 2 to 6 percent  
*Depth to restrictive feature:* 20 to 39 inches to lithic bedrock  
*Drainage class:* Well drained  
*Runoff class:* Low  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high (0.20 to 0.57 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Calcium carbonate, maximum content:* 1 percent  
*Available water supply, 0 to 60 inches:* Low (about 5.3 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 2e  
*Hydrologic Soil Group:* C  
*Ecological site:* F121XY010KY - Phosphatic Limestone Upland  
*Hydric soil rating:* No

### Minor Components

#### Maury

*Percent of map unit:* 5 percent  
*Landform:* Ridges  
*Landform position (two-dimensional):* Summit  
*Landform position (three-dimensional):* Interfluve, side slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Hydric soil rating:* No

#### Bluegrass

*Percent of map unit:* 5 percent  
*Landform:* Ridges  
*Landform position (two-dimensional):* Summit  
*Landform position (three-dimensional):* Interfluve, side slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Hydric soil rating:* No

#### Faywood

*Percent of map unit:* 2 percent  
*Landform:* Ridges  
*Landform position (two-dimensional):* Shoulder  
*Landform position (three-dimensional):* Interfluve, side slope

## Custom Soil Resource Report

*Down-slope shape:* Convex  
*Across-slope shape:* Linear  
*Hydric soil rating:* No

### **Lowell**

*Percent of map unit:* 2 percent  
*Landform:* Ridges  
*Landform position (two-dimensional):* Summit  
*Landform position (three-dimensional):* Interfluve, side slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Linear  
*Hydric soil rating:* No

### **Fairmount**

*Percent of map unit:* 1 percent  
*Landform:* Ridges  
*Landform position (two-dimensional):* Shoulder  
*Landform position (three-dimensional):* Side slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Linear  
*Hydric soil rating:* No

## **McC—McAfee silt loam, 6 to 12 percent slopes**

### **Map Unit Setting**

*National map unit symbol:* lhy0  
*Elevation:* 480 to 1,360 feet  
*Mean annual precipitation:* 40 to 53 inches  
*Mean annual air temperature:* 44 to 66 degrees F  
*Frost-free period:* 175 to 208 days  
*Farmland classification:* Farmland of statewide importance

### **Map Unit Composition**

*McAfee and similar soils:* 85 percent  
*Minor components:* 15 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### **Description of McAfee**

#### **Setting**

*Landform:* Ridges  
*Landform position (two-dimensional):* Shoulder  
*Landform position (three-dimensional):* Side slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Parent material:* Clayey residuum weathered from limestone

#### **Typical profile**

*H1 - 0 to 9 inches:* silt loam  
*H2 - 9 to 30 inches:* clay  
*R - 30 to 40 inches:* unweathered bedrock



## Custom Soil Resource Report

### Properties and qualities

*Slope:* 6 to 12 percent

*Depth to restrictive feature:* 20 to 40 inches to lithic bedrock

*Drainage class:* Well drained

*Runoff class:* Medium

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high (0.20 to 0.60 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Available water supply, 0 to 60 inches:* Low (about 5.2 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 3e

*Hydrologic Soil Group:* C

*Ecological site:* F121XY010KY - Phosphatic Limestone Upland

*Hydric soil rating:* No

### Minor Components

#### Caleast

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

#### Maury

*Percent of map unit:* 4 percent

*Hydric soil rating:* No

#### Fairmount

*Percent of map unit:* 3 percent

*Hydric soil rating:* No

#### Chenault

*Percent of map unit:* 2 percent

*Hydric soil rating:* No

#### Rock outcrop

*Percent of map unit:* 1 percent

*Hydric soil rating:* No

## McD—McAfee silt loam, 12 to 20 percent slopes

### Map Unit Setting

*National map unit symbol:* lhy1

*Elevation:* 480 to 1,360 feet

*Mean annual precipitation:* 40 to 53 inches

*Mean annual air temperature:* 44 to 66 degrees F

*Frost-free period:* 175 to 208 days

*Farmland classification:* Not prime farmland

**Map Unit Composition**

*Mcafee and similar soils: 85 percent*

*Minor components: 15 percent*

*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Mcafee**

**Setting**

*Landform: Hills*

*Landform position (two-dimensional): Backslope*

*Landform position (three-dimensional): Side slope*

*Down-slope shape: Convex*

*Across-slope shape: Convex*

*Parent material: Clayey residuum weathered from limestone*

**Typical profile**

*H1 - 0 to 9 inches: silt loam*

*H2 - 9 to 30 inches: clay*

*R - 30 to 40 inches: unweathered bedrock*

**Properties and qualities**

*Slope: 12 to 20 percent*

*Depth to restrictive feature: 20 to 40 inches to lithic bedrock*

*Drainage class: Well drained*

*Runoff class: Medium*

*Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)*

*Depth to water table: More than 80 inches*

*Frequency of flooding: None*

*Frequency of ponding: None*

*Available water supply, 0 to 60 inches: Low (about 5.2 inches)*

**Interpretive groups**

*Land capability classification (irrigated): None specified*

*Land capability classification (nonirrigated): 4e*

*Hydrologic Soil Group: C*

*Ecological site: F121XY010KY - Phosphatic Limestone Upland*

*Hydric soil rating: No*

**Minor Components**

**Caleast**

*Percent of map unit: 5 percent*

*Hydric soil rating: No*

**Mcafee, gravelly**

*Percent of map unit: 4 percent*

*Hydric soil rating: No*

**Fairmount**

*Percent of map unit: 4 percent*

*Hydric soil rating: No*

**Chenault**

*Percent of map unit: 1 percent*

*Hydric soil rating: No*

**Rock outcrop**

*Percent of map unit:* 1 percent

*Hydric soil rating:* No

**MeD—McAfee-Rock outcrop complex, 12 to 20 percent slopes**

**Map Unit Setting**

*National map unit symbol:* lhy2

*Elevation:* 480 to 1,360 feet

*Mean annual precipitation:* 40 to 53 inches

*Mean annual air temperature:* 44 to 66 degrees F

*Frost-free period:* 175 to 208 days

*Farmland classification:* Not prime farmland

**Map Unit Composition**

*McAfee and similar soils:* 60 percent

*Rock outcrop:* 20 percent

*Minor components:* 20 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of McAfee**

**Setting**

*Landform:* Hills

*Landform position (two-dimensional):* Backslope

*Landform position (three-dimensional):* Side slope

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Parent material:* Clayey residuum weathered from limestone

**Typical profile**

*H1 - 0 to 9 inches:* silt loam

*H2 - 9 to 30 inches:* clay

*R - 30 to 40 inches:* unweathered bedrock

**Properties and qualities**

*Slope:* 12 to 20 percent

*Depth to restrictive feature:* 20 to 40 inches to lithic bedrock

*Drainage class:* Well drained

*Runoff class:* Medium

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high (0.20 to 0.60 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Available water supply, 0 to 60 inches:* Low (about 5.2 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 4s

## Custom Soil Resource Report

*Hydrologic Soil Group: C*

*Ecological site: F121XY010KY - Phosphatic Limestone Upland*

*Hydric soil rating: No*

### Description of Rock Outcrop

#### Setting

*Landform: Hills*

*Landform position (three-dimensional): Free face*

*Parent material: Limestone*

#### Interpretive groups

*Land capability classification (irrigated): None specified*

*Land capability classification (nonirrigated): 8*

*Hydric soil rating: No*

### Minor Components

#### Caleast

*Percent of map unit: 8 percent*

*Hydric soil rating: No*

#### Fairmount

*Percent of map unit: 7 percent*

*Hydric soil rating: No*

#### Gravelly clayey soil

*Percent of map unit: 3 percent*

*Hydric soil rating: No*

#### Loamy soils

*Percent of map unit: 2 percent*

*Hydric soil rating: No*

## Ne—Newark silt loam, 0 to 2 percent slopes, frequently flooded

### Map Unit Setting

*National map unit symbol: 2s2cj*

*Elevation: 420 to 1,120 feet*

*Mean annual precipitation: 36 to 53 inches*

*Mean annual air temperature: 41 to 67 degrees F*

*Frost-free period: 142 to 218 days*

*Farmland classification: Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season*

### Map Unit Composition

*Newark, frequently flooded, and similar soils: 90 percent*

*Minor components: 10 percent*

*Estimates are based on observations, descriptions, and transects of the mapunit.*

## Description of Newark, Frequently Flooded

### Setting

*Landform:* Flood plains  
*Landform position (three-dimensional):* Talf  
*Down-slope shape:* Concave  
*Across-slope shape:* Linear  
*Parent material:* Mixed fine-silty alluvium

### Typical profile

*Ap - 0 to 7 inches:* silt loam  
*Bg - 7 to 66 inches:* silt loam  
*Cg - 66 to 80 inches:* silt loam

### Properties and qualities

*Slope:* 0 to 2 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Somewhat poorly drained  
*Runoff class:* Negligible  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high  
(0.60 to 2.00 in/hr)  
*Depth to water table:* About 6 to 20 inches  
*Frequency of flooding:* FrequentNone  
*Frequency of ponding:* None  
*Available water supply, 0 to 60 inches:* High (about 11.4 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 3w  
*Hydrologic Soil Group:* B/D  
*Ecological site:* F121XY031KY - Somewhat Poorly Drained Floodplain  
*Other vegetative classification:* Trees/Timber (Woody Vegetation)  
*Hydric soil rating:* No

## Minor Components

### Lindside, frequently flooded

*Percent of map unit:* 5 percent  
*Landform:* Flood plains  
*Landform position (three-dimensional):* Rise  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Other vegetative classification:* Trees/Timber (Woody Vegetation)  
*Hydric soil rating:* No

### Nolin, frequently flooded

*Percent of map unit:* 3 percent  
*Landform:* Flood plains  
*Landform position (three-dimensional):* Rise  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Other vegetative classification:* Trees/Timber (Woody Vegetation)  
*Hydric soil rating:* No

### Boonesboro, frequently flooded

*Percent of map unit:* 1 percent  
*Landform:* Flood plains



## Custom Soil Resource Report

*Landform position (three-dimensional):* Rise  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Other vegetative classification:* Trees/Timber (Woody Vegetation)  
*Hydric soil rating:* No

### **Dunning, frequently flooded**

*Percent of map unit:* 1 percent  
*Landform:* Depressions, flood plains  
*Landform position (three-dimensional):* Dip  
*Down-slope shape:* Linear  
*Across-slope shape:* Concave  
*Other vegetative classification:* Trees/Timber (Woody Vegetation)  
*Hydric soil rating:* Yes

## **NhB—Nicholson silt loam, 2 to 6 percent slopes**

### **Map Unit Setting**

*National map unit symbol:* 2s2cz  
*Elevation:* 460 to 1,140 feet  
*Mean annual precipitation:* 35 to 59 inches  
*Mean annual air temperature:* 42 to 68 degrees F  
*Frost-free period:* 135 to 218 days  
*Farmland classification:* All areas are prime farmland

### **Map Unit Composition**

*Nicholson and similar soils:* 90 percent  
*Minor components:* 10 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### **Description of Nicholson**

#### **Setting**

*Landform:* Ridges  
*Landform position (two-dimensional):* Summit  
*Landform position (three-dimensional):* Interfluve  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Parent material:* Fine-silty noncalcareous loess over clayey residuum weathered from limestone

#### **Typical profile**

*Ap - 0 to 8 inches:* silt loam  
*Bt - 8 to 28 inches:* silt loam  
*Btx - 28 to 38 inches:* silty clay loam  
*2Bt - 38 to 50 inches:* clay  
*2C - 50 to 80 inches:* clay

#### **Properties and qualities**

*Slope:* 2 to 6 percent  
*Depth to restrictive feature:* 16 to 30 inches to fragipan

## Custom Soil Resource Report

*Drainage class:* Moderately well drained  
*Runoff class:* Medium  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.06 to 0.20 in/hr)  
*Depth to water table:* About 13 to 27 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Available water supply, 0 to 60 inches:* Low (about 5.7 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 2e  
*Hydrologic Soil Group:* C  
*Ecological site:* F121XY023KY - Well Drained & Moderately Well Drained  
Fragipan Upland  
*Hydric soil rating:* No

### Minor Components

#### Lowell

*Percent of map unit:* 5 percent  
*Landform:* Ridges  
*Landform position (two-dimensional):* Summit  
*Landform position (three-dimensional):* Interfluve, side slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Linear  
*Hydric soil rating:* No

#### Lawrence

*Percent of map unit:* 5 percent  
*Landform:* Ridges  
*Landform position (two-dimensional):* Summit  
*Landform position (three-dimensional):* Interfluve  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Other vegetative classification:* Trees/Timber (Woody Vegetation)  
*Hydric soil rating:* No

## No—Nolin silt loam, 0 to 2 percent slopes, frequently flooded

### Map Unit Setting

*National map unit symbol:* 2s2cw  
*Elevation:* 380 to 1,120 feet  
*Mean annual precipitation:* 36 to 66 inches  
*Mean annual air temperature:* 41 to 68 degrees F  
*Frost-free period:* 139 to 218 days  
*Farmland classification:* Prime farmland if protected from flooding or not frequently flooded during the growing season

**Map Unit Composition**

*Nolin, frequently flooded, and similar soils: 85 percent*

*Minor components: 15 percent*

*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Nolin, Frequently Flooded**

**Setting**

*Landform: Flood plains*

*Landform position (three-dimensional): Talf*

*Down-slope shape: Linear*

*Across-slope shape: Linear*

*Parent material: Mixed fine-silty alluvium*

**Typical profile**

*Ap - 0 to 8 inches: silt loam*

*Bw - 8 to 72 inches: silt loam*

*C - 72 to 85 inches: loam*

**Properties and qualities**

*Slope: 0 to 2 percent*

*Depth to restrictive feature: More than 80 inches*

*Drainage class: Well drained*

*Runoff class: Low*

*Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high  
(0.60 to 1.98 in/hr)*

*Depth to water table: More than 80 inches*

*Frequency of flooding: FrequentNone*

*Frequency of ponding: None*

*Available water supply, 0 to 60 inches: High (about 11.0 inches)*

**Interpretive groups**

*Land capability classification (irrigated): None specified*

*Land capability classification (nonirrigated): 2w*

*Hydrologic Soil Group: B*

*Ecological site: F121XY033KY - Well Drained & Moderately Well Drained  
Floodplain*

*Hydric soil rating: No*

**Minor Components**

**Elk, rarely flooded**

*Percent of map unit: 5 percent*

*Landform: Stream terraces*

*Landform position (three-dimensional): Tread*

*Down-slope shape: Linear*

*Across-slope shape: Linear*

*Hydric soil rating: No*

**Lindside, frequently flooded**

*Percent of map unit: 4 percent*

*Landform: Flood plains*

*Landform position (three-dimensional): Talf*

*Down-slope shape: Linear*

*Across-slope shape: Linear*

*Hydric soil rating: No*

**Newark, frequently flooded**

*Percent of map unit:* 4 percent  
*Landform:* Flood plains  
*Landform position (three-dimensional):* Dip  
*Down-slope shape:* Concave  
*Across-slope shape:* Linear  
*Hydric soil rating:* No

**Boonesboro, frequently flooded**

*Percent of map unit:* 1 percent  
*Landform:* Flood plains  
*Landform position (three-dimensional):* Talf  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Hydric soil rating:* No

**Dunning, frequently flooded**

*Percent of map unit:* 1 percent  
*Landform:* Depressions, flood plains  
*Landform position (three-dimensional):* Dip  
*Down-slope shape:* Linear  
*Across-slope shape:* Concave  
*Hydric soil rating:* Yes

**Pt—Pits, quarries**

**Map Unit Setting**

*National map unit symbol:* lhy8  
*Mean annual precipitation:* 40 to 53 inches  
*Mean annual air temperature:* 44 to 66 degrees F  
*Frost-free period:* 175 to 208 days  
*Farmland classification:* Not prime farmland

**Map Unit Composition**

*Pits, quarry:* 100 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Pits, Quarry**

**Interpretive groups**

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 8  
*Hydric soil rating:* No

## **uBlmB—Bluegrass-Maury silt loams, 2 to 6 percent slopes**

### **Map Unit Setting**

*National map unit symbol:* 2zs52  
*Elevation:* 500 to 1,160 feet  
*Mean annual precipitation:* 39 to 53 inches  
*Mean annual air temperature:* 46 to 65 degrees F  
*Frost-free period:* 163 to 192 days  
*Farmland classification:* All areas are prime farmland

### **Map Unit Composition**

*Bluegrass and similar soils:* 50 percent  
*Maury and similar soils:* 40 percent  
*Minor components:* 10 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### **Description of Bluegrass**

#### **Setting**

*Landform:* Ridges  
*Landform position (two-dimensional):* Summit  
*Landform position (three-dimensional):* Interfluve, side slope  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Parent material:* Fine-silty noncalcareous loess over clayey residuum weathered from phosphatic limestone

#### **Typical profile**

*Ap - 0 to 12 inches:* silt loam  
*Bt - 12 to 35 inches:* silty clay loam  
*2Bt - 35 to 84 inches:* silty clay loam  
*2BC - 84 to 96 inches:* clay

#### **Properties and qualities**

*Slope:* 2 to 6 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Well drained  
*Runoff class:* Low  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.20 to 1.98 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Calcium carbonate, maximum content:* 2 percent  
*Available water supply, 0 to 60 inches:* High (about 11.5 inches)

#### **Interpretive groups**

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 2e  
*Hydrologic Soil Group:* B  
*Ecological site:* F121XY010KY - Phosphatic Limestone Upland

## Custom Soil Resource Report

*Hydric soil rating:* No

### Description of Maury

#### Setting

*Landform:* Ridges

*Landform position (two-dimensional):* Summit

*Landform position (three-dimensional):* Interfluve, side slope

*Down-slope shape:* Linear

*Across-slope shape:* Linear

*Parent material:* Thin fine-silty noncalcareous loess over clayey residuum weathered from phosphatic limestone

#### Typical profile

*Ap - 0 to 9 inches:* silt loam

*Bt1 - 9 to 16 inches:* silty clay loam

*2Bt2 - 16 to 53 inches:* clay

*2BC - 53 to 100 inches:* clay

#### Properties and qualities

*Slope:* 2 to 6 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Well drained

*Runoff class:* Low

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.06 to 0.60 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Available water supply, 0 to 60 inches:* High (about 9.0 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 2e

*Hydrologic Soil Group:* C

*Ecological site:* F121XY010KY - Phosphatic Limestone Upland

*Hydric soil rating:* No

### Minor Components

#### Mcafee

*Percent of map unit:* 3 percent

*Landform:* Ridges

*Landform position (two-dimensional):* Summit

*Landform position (three-dimensional):* Interfluve, side slope

*Down-slope shape:* Linear

*Across-slope shape:* Linear

*Ecological site:* F121XY002KY - Moderately Deep Interbedded Limestone-Shale Backslopes

*Hydric soil rating:* No

#### Faywood

*Percent of map unit:* 3 percent

*Landform:* Ridges

*Landform position (two-dimensional):* Shoulder

*Landform position (three-dimensional):* Interfluve, side slope

*Down-slope shape:* Convex



## Custom Soil Resource Report

*Across-slope shape:* Linear  
*Ecological site:* F121XY002KY - Moderately Deep Interbedded Limestone-Shale  
Backslopes  
*Hydric soil rating:* No

### **Lowell**

*Percent of map unit:* 2 percent  
*Landform:* Ridges  
*Landform position (two-dimensional):* Summit  
*Landform position (three-dimensional):* Interfluve, side slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Linear  
*Ecological site:* F121XY006KY - Ordovician Limestone Upland  
*Hydric soil rating:* No

### **Maury, moderately well drained**

*Percent of map unit:* 2 percent  
*Landform:* Ridges  
*Landform position (two-dimensional):* Summit  
*Landform position (three-dimensional):* Interfluve  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Hydric soil rating:* No

## **uBwfA—Boonewood silt loam, 0 to 4 percent slopes, frequently flooded**

### **Map Unit Setting**

*National map unit symbol:* 2zs4n  
*Elevation:* 380 to 1,020 feet  
*Mean annual precipitation:* 40 to 54 inches  
*Mean annual air temperature:* 40 to 66 degrees F  
*Frost-free period:* 135 to 294 days  
*Farmland classification:* Prime farmland if protected from flooding or not frequently flooded during the growing season

### **Map Unit Composition**

*Boonewood, frequently flooded, and similar soils:* 85 percent  
*Minor components:* 15 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### **Description of Boonewood, Frequently Flooded**

#### **Setting**

*Landform:* Flood plains  
*Landform position (three-dimensional):* Talf  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Parent material:* Fine-silty alluvium derived from limestone

## Custom Soil Resource Report

### Typical profile

*Ap - 0 to 6 inches:* silt loam  
*Bw - 6 to 23 inches:* silt loam  
*C - 23 to 30 inches:* silt loam  
*R - 30 to 40 inches:* bedrock

### Properties and qualities

*Slope:* 0 to 4 percent  
*Depth to restrictive feature:* 20 to 39 inches to lithic bedrock  
*Drainage class:* Moderately well drained  
*Runoff class:* Low  
*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately low (0.00 to 0.13 in/hr)  
*Depth to water table:* About 18 to 28 inches  
*Frequency of flooding:* FrequentNone  
*Frequency of ponding:* None  
*Calcium carbonate, maximum content:* 5 percent  
*Available water supply, 0 to 60 inches:* Low (about 5.8 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 2w  
*Hydrologic Soil Group:* C/D  
*Ecological site:* F121XY024KY - Colluvial Footslope  
*Hydric soil rating:* No

### Minor Components

#### Boonesboro, frequently flooded

*Percent of map unit:* 5 percent  
*Landform:* Flood plains  
*Landform position (three-dimensional):* Talf  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Ecological site:* F121XY024KY - Colluvial Footslope  
*Hydric soil rating:* No

#### Nolin, frequently flooded

*Percent of map unit:* 5 percent  
*Landform:* Flood plains  
*Landform position (three-dimensional):* Rise  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Ecological site:* F121XY033KY - Well Drained & Moderately Well Drained Floodplain  
*Hydric soil rating:* No

#### Newark, frequently flooded

*Percent of map unit:* 3 percent  
*Landform:* Flood plains  
*Landform position (three-dimensional):* Dip  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Ecological site:* F121XY031KY - Somewhat Poorly Drained Floodplain  
*Other vegetative classification:* Trees/Timber (Woody Vegetation)  
*Hydric soil rating:* No

**Woolper, rarely flooded**

*Percent of map unit:* 2 percent

*Landform:* Fans

*Landform position (two-dimensional):* Foothills

*Landform position (three-dimensional):* Base slope

*Down-slope shape:* Linear

*Across-slope shape:* Convex

*Ecological site:* F121XY016KY - Well Drained & Moderately Well Drained Terrace

*Hydric soil rating:* No

**uLbiB—Lowell-Bluegrass silt loams, 2 to 6 percent slopes**

**Map Unit Setting**

*National map unit symbol:* 2s2d5

*Elevation:* 770 to 1,070 feet

*Mean annual precipitation:* 36 to 58 inches

*Mean annual air temperature:* 41 to 66 degrees F

*Frost-free period:* 144 to 211 days

*Farmland classification:* All areas are prime farmland

**Map Unit Composition**

*Lowell and similar soils:* 70 percent

*Bluegrass and similar soils:* 25 percent

*Minor components:* 5 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Lowell**

**Setting**

*Landform:* Ridges

*Landform position (two-dimensional):* Shoulder

*Landform position (three-dimensional):* Interfluve

*Down-slope shape:* Convex

*Across-slope shape:* Linear

*Parent material:* Clayey residuum weathered from limestone and shale

**Typical profile**

*Ap - 0 to 8 inches:* silt loam

*Bt - 8 to 41 inches:* silty clay

*BC - 41 to 53 inches:* silty clay

*R - 53 to 63 inches:* bedrock

**Properties and qualities**

*Slope:* 2 to 6 percent

*Depth to restrictive feature:* 40 to 57 inches to lithic bedrock

*Drainage class:* Well drained

*Runoff class:* Low

*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately high (0.00 to 0.20 in/hr)

*Depth to water table:* More than 80 inches

## Custom Soil Resource Report

*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Calcium carbonate, maximum content:* 3 percent  
*Available water supply, 0 to 60 inches:* Moderate (about 8.0 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 2e  
*Hydrologic Soil Group:* C  
*Ecological site:* F121XY006KY - Ordovician Limestone Upland  
*Hydric soil rating:* No

### Description of Bluegrass

#### Setting

*Landform:* Ridges  
*Landform position (two-dimensional):* Summit  
*Landform position (three-dimensional):* Interfluve  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Parent material:* Thin fine-silty noncalcareous loess over clayey residuum weathered from phosphatic limestone

#### Typical profile

*Ap - 0 to 12 inches:* silt loam  
*Bt - 12 to 35 inches:* silty clay loam  
*2Bt - 35 to 84 inches:* silty clay loam  
*2BC - 84 to 96 inches:* clay

#### Properties and qualities

*Slope:* 2 to 6 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Well drained  
*Runoff class:* Low  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.20 to 1.98 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Available water supply, 0 to 60 inches:* High (about 11.6 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 2e  
*Hydrologic Soil Group:* B  
*Ecological site:* F121XY010KY - Phosphatic Limestone Upland  
*Hydric soil rating:* No

### Minor Components

#### Faywood

*Percent of map unit:* 5 percent  
*Landform:* Ridges  
*Landform position (two-dimensional):* Shoulder  
*Landform position (three-dimensional):* Interfluve  
*Down-slope shape:* Convex  
*Across-slope shape:* Linear

*Hydric soil rating:* No

## **uLfc—Lowell-Faywood silt loams, 6 to 12 percent slopes**

### **Map Unit Setting**

*National map unit symbol:* 2zs5g

*Elevation:* 450 to 1,130 feet

*Mean annual precipitation:* 36 to 66 inches

*Mean annual air temperature:* 40 to 68 degrees F

*Frost-free period:* 144 to 218 days

*Farmland classification:* Farmland of statewide importance

### **Map Unit Composition**

*Lowell and similar soils:* 70 percent

*Faywood and similar soils:* 20 percent

*Minor components:* 10 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

### **Description of Lowell**

#### **Setting**

*Landform:* Hills

*Landform position (two-dimensional):* Backslope

*Landform position (three-dimensional):* Side slope

*Down-slope shape:* Convex

*Across-slope shape:* Linear

*Parent material:* Clayey residuum weathered from limestone and shale

#### **Typical profile**

*Ap - 0 to 8 inches:* silt loam

*Bt - 8 to 41 inches:* silty clay

*B<sub>Ck</sub> - 41 to 53 inches:* silty clay

*R - 53 to 63 inches:* bedrock

#### **Properties and qualities**

*Slope:* 6 to 12 percent

*Depth to restrictive feature:* 40 to 57 inches to lithic bedrock

*Drainage class:* Well drained

*Runoff class:* Medium

*Capacity of the most limiting layer to transmit water (K<sub>sat</sub>):* Very low to moderately low (0.00 to 0.01 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Calcium carbonate, maximum content:* 3 percent

*Available water supply, 0 to 60 inches:* Low (about 5.3 inches)

#### **Interpretive groups**

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 3e

## Custom Soil Resource Report

*Hydrologic Soil Group:* C

*Ecological site:* F121XY006KY - Ordovician Limestone Upland

*Hydric soil rating:* No

### Description of Faywood

#### Setting

*Landform:* Hills

*Landform position (two-dimensional):* Shoulder

*Landform position (three-dimensional):* Side slope

*Down-slope shape:* Convex

*Across-slope shape:* Linear

*Parent material:* Clayey residuum weathered from limestone and shale

#### Typical profile

*Ap - 0 to 7 inches:* silt loam

*Bt - 7 to 29 inches:* silty clay

*R - 29 to 39 inches:* bedrock

#### Properties and qualities

*Slope:* 6 to 12 percent

*Depth to restrictive feature:* 24 to 40 inches to lithic bedrock

*Drainage class:* Well drained

*Runoff class:* High

*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately low (0.00 to 0.01 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Available water supply, 0 to 60 inches:* Low (about 3.9 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 3e

*Hydrologic Soil Group:* D

*Ecological site:* F121XY002KY - Moderately Deep Interbedded Limestone-Shale

Backslopes

*Hydric soil rating:* No

### Minor Components

#### Cynthiana

*Percent of map unit:* 5 percent

*Landform:* Hills

*Landform position (two-dimensional):* Backslope

*Landform position (three-dimensional):* Side slope

*Down-slope shape:* Convex

*Across-slope shape:* Linear

*Ecological site:* F121XY001KY - Shallow Limestone Residuum Backslopes

*Hydric soil rating:* No

#### Sandview

*Percent of map unit:* 5 percent

*Landform:* Hills

*Landform position (two-dimensional):* Backslope

*Landform position (three-dimensional):* Side slope

*Down-slope shape:* Convex



## Custom Soil Resource Report

*Across-slope shape:* Convex  
*Ecological site:* F121XY006KY - Ordovician Limestone Upland  
*Hydric soil rating:* No

### **uLfD—Lowell-Faywood silt loams, 12 to 20 percent slopes**

#### **Map Unit Setting**

*National map unit symbol:* 2s2d7  
*Elevation:* 450 to 1,080 feet  
*Mean annual precipitation:* 36 to 61 inches  
*Mean annual air temperature:* 41 to 68 degrees F  
*Frost-free period:* 142 to 212 days  
*Farmland classification:* Not prime farmland

#### **Map Unit Composition**

*Lowell and similar soils:* 70 percent  
*Faywood and similar soils:* 25 percent  
*Minor components:* 5 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

#### **Description of Lowell**

##### **Setting**

*Landform:* Hills  
*Landform position (two-dimensional):* Backslope  
*Landform position (three-dimensional):* Side slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Linear  
*Parent material:* Clayey residuum weathered from limestone and shale

##### **Typical profile**

*Ap - 0 to 8 inches:* silt loam  
*Bt - 8 to 41 inches:* silty clay  
*BC - 41 to 53 inches:* silty clay  
*R - 53 to 63 inches:* bedrock

##### **Properties and qualities**

*Slope:* 12 to 20 percent  
*Depth to restrictive feature:* 40 to 57 inches to lithic bedrock  
*Drainage class:* Well drained  
*Runoff class:* High  
*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately high (0.00 to 0.20 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Calcium carbonate, maximum content:* 3 percent  
*Available water supply, 0 to 60 inches:* Moderate (about 8.0 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 4e  
*Hydrologic Soil Group:* C  
*Ecological site:* F121XY006KY - Ordovician Limestone Upland  
*Hydric soil rating:* No

**Description of Faywood**

**Setting**

*Landform:* Hills  
*Landform position (two-dimensional):* Backslope  
*Landform position (three-dimensional):* Side slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Linear  
*Parent material:* Clayey residuum weathered from limestone and shale

**Typical profile**

*Ap - 0 to 7 inches:* silt loam  
*Bt - 7 to 29 inches:* silty clay  
*R - 29 to 39 inches:* bedrock

**Properties and qualities**

*Slope:* 12 to 20 percent  
*Depth to restrictive feature:* 20 to 39 inches to lithic bedrock  
*Drainage class:* Well drained  
*Runoff class:* High  
*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately low (0.00 to 0.14 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Available water supply, 0 to 60 inches:* Low (about 4.7 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 4e  
*Hydrologic Soil Group:* D  
*Ecological site:* F121XY002KY - Moderately Deep Interbedded Limestone-Shale Backslopes  
*Hydric soil rating:* No

**Minor Components**

**Cynthiana**

*Percent of map unit:* 5 percent  
*Landform:* Hills  
*Landform position (two-dimensional):* Backslope  
*Landform position (three-dimensional):* Side slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Linear  
*Hydric soil rating:* No

## **uLsoB—Lowell-Sandview silt loams, 2 to 6 percent slopes**

### **Map Unit Setting**

*National map unit symbol:* 2zs5f  
*Elevation:* 460 to 1,130 feet  
*Mean annual precipitation:* 36 to 66 inches  
*Mean annual air temperature:* 40 to 68 degrees F  
*Frost-free period:* 144 to 218 days  
*Farmland classification:* All areas are prime farmland

### **Map Unit Composition**

*Lowell and similar soils:* 75 percent  
*Sandview and similar soils:* 20 percent  
*Minor components:* 5 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### **Description of Lowell**

#### **Setting**

*Landform:* Ridges  
*Landform position (two-dimensional):* Shoulder  
*Landform position (three-dimensional):* Interfluve  
*Down-slope shape:* Convex  
*Across-slope shape:* Linear  
*Parent material:* Clayey residuum weathered from limestone and shale

#### **Typical profile**

*Ap - 0 to 8 inches:* silt loam  
*Bt - 8 to 41 inches:* silty clay  
*BCK - 41 to 53 inches:* silty clay  
*R - 53 to 63 inches:* bedrock

#### **Properties and qualities**

*Slope:* 2 to 6 percent  
*Depth to restrictive feature:* 40 to 57 inches to lithic bedrock  
*Drainage class:* Well drained  
*Runoff class:* Low  
*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately low (0.00 to 0.01 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Calcium carbonate, maximum content:* 3 percent  
*Available water supply, 0 to 60 inches:* Low (about 5.3 inches)

#### **Interpretive groups**

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 2e  
*Hydrologic Soil Group:* C

## Custom Soil Resource Report

*Ecological site:* F121XY006KY - Ordovician Limestone Upland  
*Hydric soil rating:* No

### Description of Sandview

#### Setting

*Landform:* Ridges  
*Landform position (two-dimensional):* Summit  
*Landform position (three-dimensional):* Interfluve  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Parent material:* Thin fine-silty noncalcareous loess over residuum weathered from limestone and shale

#### Typical profile

*Ap - 0 to 8 inches:* silt loam  
*Bt - 8 to 35 inches:* silty clay loam  
*2Bt - 35 to 76 inches:* silty clay  
*2R - 76 to 86 inches:* bedrock

#### Properties and qualities

*Slope:* 2 to 6 percent  
*Depth to restrictive feature:* 60 to 80 inches to lithic bedrock  
*Drainage class:* Well drained  
*Runoff class:* Low  
*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately high (0.00 to 0.60 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Available water supply, 0 to 60 inches:* Moderate (about 8.5 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 2e  
*Hydrologic Soil Group:* C  
*Ecological site:* F121XY006KY - Ordovician Limestone Upland  
*Hydric soil rating:* No

### Minor Components

#### Faywood

*Percent of map unit:* 5 percent  
*Landform:* Ridges  
*Landform position (two-dimensional):* Shoulder  
*Landform position (three-dimensional):* Interfluve  
*Down-slope shape:* Convex  
*Across-slope shape:* Linear  
*Ecological site:* F121XY002KY - Moderately Deep Interbedded Limestone-Shale Backslopes  
*Hydric soil rating:* No

## **uMImC—Maury-Bluegrass silt loams, 6 to 12 percent slopes**

### **Map Unit Setting**

*National map unit symbol:* 2zs53

*Elevation:* 480 to 1,180 feet

*Mean annual precipitation:* 39 to 53 inches

*Mean annual air temperature:* 46 to 65 degrees F

*Frost-free period:* 163 to 192 days

*Farmland classification:* Farmland of statewide importance

### **Map Unit Composition**

*Maury and similar soils:* 55 percent

*Bluegrass and similar soils:* 30 percent

*Minor components:* 15 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

### **Description of Maury**

#### **Setting**

*Landform:* Ridges

*Landform position (two-dimensional):* Summit

*Landform position (three-dimensional):* Interfluve, side slope

*Down-slope shape:* Linear

*Across-slope shape:* Linear

*Parent material:* Thin fine-silty noncalcareous loess over clayey residuum weathered from phosphatic limestone

#### **Typical profile**

*Ap - 0 to 9 inches:* silt loam

*Bt1 - 9 to 16 inches:* silty clay loam

*2Bt2 - 16 to 53 inches:* clay

*2BC - 53 to 100 inches:* clay

#### **Properties and qualities**

*Slope:* 6 to 12 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Well drained

*Runoff class:* Medium

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.06 to 0.60 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Available water supply, 0 to 60 inches:* Moderate (about 8.7 inches)

#### **Interpretive groups**

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 3e

*Hydrologic Soil Group:* C

## Custom Soil Resource Report

*Ecological site:* F121XY010KY - Phosphatic Limestone Upland  
*Hydric soil rating:* No

### Description of Bluegrass

#### Setting

*Landform:* Ridges  
*Landform position (two-dimensional):* Summit  
*Landform position (three-dimensional):* Interfluve, side slope  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Parent material:* Fine-silty noncalcareous loess over clayey residuum weathered from phosphatic limestone

#### Typical profile

*Ap - 0 to 10 inches:* silt loam  
*Bt - 10 to 33 inches:* silty clay loam  
*2Bt - 33 to 84 inches:* silty clay loam  
*2BC - 84 to 96 inches:* clay

#### Properties and qualities

*Slope:* 6 to 12 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Well drained  
*Runoff class:* Medium  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.20 to 1.98 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Calcium carbonate, maximum content:* 2 percent  
*Available water supply, 0 to 60 inches:* High (about 11.4 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 3e  
*Hydrologic Soil Group:* B  
*Ecological site:* F121XY010KY - Phosphatic Limestone Upland  
*Hydric soil rating:* No

### Minor Components

#### Faywood

*Percent of map unit:* 5 percent  
*Landform:* Ridges  
*Landform position (two-dimensional):* Summit  
*Landform position (three-dimensional):* Interfluve, side slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Linear  
*Ecological site:* F121XY002KY - Moderately Deep Interbedded Limestone-Shale Backslopes  
*Hydric soil rating:* No

#### Lowell

*Percent of map unit:* 5 percent  
*Landform:* Ridges  
*Landform position (two-dimensional):* Summit



## Custom Soil Resource Report

*Landform position (three-dimensional):* Interfluve, side slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Linear  
*Ecological site:* F121XY006KY - Ordovician Limestone Upland  
*Hydric soil rating:* No

### **Mcafee**

*Percent of map unit:* 5 percent  
*Landform:* Ridges  
*Landform position (two-dimensional):* Summit  
*Landform position (three-dimensional):* Interfluve, side slope  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Ecological site:* F121XY002KY - Moderately Deep Interbedded Limestone-Shale  
Backslopes  
*Hydric soil rating:* No

## **W—Water**

### **Map Unit Setting**

*National map unit symbol:* lhyh  
*Mean annual precipitation:* 40 to 53 inches  
*Mean annual air temperature:* 44 to 66 degrees F  
*Frost-free period:* 175 to 208 days  
*Farmland classification:* Not prime farmland

### **Map Unit Composition**

*Water:* 100 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

## Garrard and Lincoln Counties, Kentucky

### AIB—Allegheny loam, 2 to 6 percent slopes, rarely flooded

#### Map Unit Setting

*National map unit symbol:* lkbx  
*Elevation:* 520 to 920 feet  
*Mean annual precipitation:* 46 to 58 inches  
*Mean annual air temperature:* 45 to 66 degrees F  
*Frost-free period:* 162 to 202 days  
*Farmland classification:* All areas are prime farmland

#### Map Unit Composition

*Allegheny, rarely flooded, and similar soils:* 90 percent  
*Minor components:* 10 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

#### Description of Allegheny, Rarely Flooded

##### Setting

*Landform:* Stream terraces  
*Landform position (three-dimensional):* Tread  
*Down-slope shape:* Convex  
*Across-slope shape:* Linear  
*Parent material:* Fine-loamy alluvium derived from sandstone and siltstone

##### Typical profile

*H1 - 0 to 7 inches:* loam  
*H2 - 7 to 17 inches:* loam  
*H3 - 17 to 80 inches:* loam

##### Properties and qualities

*Slope:* 2 to 6 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Well drained  
*Runoff class:* Low  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high  
(0.60 to 2.00 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* RareNone  
*Frequency of ponding:* None  
*Available water supply, 0 to 60 inches:* Moderate (about 8.4 inches)

##### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 2e  
*Hydrologic Soil Group:* B  
*Ecological site:* F121XY016KY - Well Drained & Moderately Well Drained Terrace  
*Hydric soil rating:* No

#### Minor Components

##### Elk

*Percent of map unit:* 4 percent  
*Hydric soil rating:* No

**Nolin**

*Percent of map unit: 3 percent*  
*Hydric soil rating: No*

**Monongahela**

*Percent of map unit: 3 percent*  
*Hydric soil rating: No*

**BaB—Beasley silt loam, 2 to 6 percent slopes**

**Map Unit Setting**

*National map unit symbol: 2vtzk*  
*Elevation: 440 to 1,090 feet*  
*Mean annual precipitation: 36 to 62 inches*  
*Mean annual air temperature: 40 to 68 degrees F*  
*Frost-free period: 139 to 218 days*  
*Farmland classification: All areas are prime farmland*

**Map Unit Composition**

*Beasley and similar soils: 85 percent*  
*Minor components: 15 percent*  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Beasley**

**Setting**

*Landform: Ridges*  
*Landform position (two-dimensional): Summit*  
*Landform position (three-dimensional): Interfluve*  
*Down-slope shape: Convex*  
*Across-slope shape: Linear*  
*Parent material: Clayey residuum weathered from calcareous shale*

**Typical profile**

*Ap - 0 to 7 inches: silt loam*  
*Bt - 7 to 29 inches: silty clay*  
*C - 29 to 50 inches: silty clay*  
*Cr - 50 to 60 inches: bedrock*

**Properties and qualities**

*Slope: 2 to 6 percent*  
*Depth to restrictive feature: 40 to 54 inches to paralithic bedrock*  
*Drainage class: Well drained*  
*Runoff class: Medium*  
*Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)*  
*Depth to water table: More than 80 inches*  
*Frequency of flooding: None*  
*Frequency of ponding: None*  
*Calcium carbonate, maximum content: 21 percent*

## Custom Soil Resource Report

*Available water supply, 0 to 60 inches:* Low (about 5.8 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 2e

*Hydrologic Soil Group:* C

*Ecological site:* F121XY006KY - Ordovician Limestone Upland

*Hydric soil rating:* No

### Minor Components

#### Nicholson

*Percent of map unit:* 5 percent

*Landform:* Ridges

*Landform position (two-dimensional):* Summit

*Landform position (three-dimensional):* Interfluve

*Down-slope shape:* Linear

*Across-slope shape:* Linear

*Hydric soil rating:* No

#### Faywood

*Percent of map unit:* 5 percent

*Landform:* Ridges

*Landform position (two-dimensional):* Shoulder

*Landform position (three-dimensional):* Interfluve, side slope

*Down-slope shape:* Convex

*Across-slope shape:* Linear

*Hydric soil rating:* No

#### Shrouts

*Percent of map unit:* 5 percent

*Landform:* Ridges

*Landform position (two-dimensional):* Summit

*Landform position (three-dimensional):* Interfluve

*Down-slope shape:* Convex

*Across-slope shape:* Linear

*Hydric soil rating:* No

## BbC2—Beasley silty clay loam, 6 to 12 percent slopes, eroded

### Map Unit Setting

*National map unit symbol:* lkc0

*Elevation:* 840 to 1,110 feet

*Mean annual precipitation:* 46 to 58 inches

*Mean annual air temperature:* 45 to 66 degrees F

*Frost-free period:* 162 to 202 days

*Farmland classification:* Farmland of statewide importance

### Map Unit Composition

*Beasley and similar soils:* 85 percent

*Minor components:* 15 percent

## Custom Soil Resource Report

*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Beasley

#### Setting

*Landform:* Ridges

*Landform position (two-dimensional):* Backslope

*Landform position (three-dimensional):* Side slope

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Parent material:* Clayey residuum weathered from shale and siltstone and/or limestone

#### Typical profile

*H1 - 0 to 8 inches:* silty clay loam

*H2 - 8 to 16 inches:* silty clay

*H3 - 16 to 45 inches:* clay

*Cr - 45 to 55 inches:* weathered bedrock

#### Properties and qualities

*Slope:* 6 to 12 percent

*Depth to restrictive feature:* 40 to 60 inches to paralithic bedrock

*Drainage class:* Well drained

*Runoff class:* Medium

*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately high (0.00 to 0.20 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Calcium carbonate, maximum content:* 21 percent

*Available water supply, 0 to 60 inches:* Moderate (about 6.2 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 3e

*Hydrologic Soil Group:* C

*Ecological site:* F121XY006KY - Ordovician Limestone Upland

*Hydric soil rating:* No

### Minor Components

#### Lowell

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

#### Shrouts

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

#### Beasley, (sic surface)

*Percent of map unit:* 3 percent

*Hydric soil rating:* No

#### Garlin

*Percent of map unit:* 2 percent

*Hydric soil rating:* No

## CrC—Crider silt loam, 6 to 12 percent slopes

### Map Unit Setting

*National map unit symbol:* 2vp3t

*Elevation:* 440 to 1,140 feet

*Mean annual precipitation:* 36 to 58 inches

*Mean annual air temperature:* 43 to 68 degrees F

*Frost-free period:* 147 to 218 days

*Farmland classification:* Farmland of statewide importance

### Map Unit Composition

*Crider and similar soils:* 85 percent

*Minor components:* 15 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Crider

#### Setting

*Landform:* Hills

*Landform position (two-dimensional):* Summit, shoulder

*Landform position (three-dimensional):* Side slope

*Down-slope shape:* Convex

*Across-slope shape:* Linear

*Parent material:* Fine-silty noncalcareous loess over clayey residuum weathered from limestone

#### Typical profile

*Ap - 0 to 9 inches:* silt loam

*Bt1 - 9 to 39 inches:* silty clay loam

*2Bt2 - 39 to 79 inches:* silty clay

#### Properties and qualities

*Slope:* 6 to 12 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Well drained

*Runoff class:* Medium

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.20 to 2.00 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Available water supply, 0 to 60 inches:* High (about 9.5 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 3e

*Hydrologic Soil Group:* B

*Ecological site:* F121XY021KY - Loess Capped Upland

*Hydric soil rating:* No



**Minor Components**

**Sandview**

*Percent of map unit:* 5 percent  
*Landform:* Hills  
*Landform position (two-dimensional):* Backslope  
*Landform position (three-dimensional):* Side slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Hydric soil rating:* No

**Nicholson**

*Percent of map unit:* 5 percent  
*Landform:* Hills  
*Landform position (two-dimensional):* Shoulder  
*Landform position (three-dimensional):* Side slope  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Hydric soil rating:* No

**Nolin, ponded**

*Percent of map unit:* 3 percent  
*Landform:* Sinkholes  
*Landform position (three-dimensional):* Talf  
*Down-slope shape:* Concave  
*Across-slope shape:* Concave  
*Hydric soil rating:* No

**Beasley**

*Percent of map unit:* 2 percent  
*Landform:* Hills  
*Landform position (two-dimensional):* Backslope  
*Landform position (three-dimensional):* Side slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Linear  
*Hydric soil rating:* No

**CuD2—Culleoka silt loam, 12 to 25 percent slopes, eroded**

**Map Unit Setting**

*National map unit symbol:* lkcm  
*Elevation:* 700 to 1,040 feet  
*Mean annual precipitation:* 46 to 58 inches  
*Mean annual air temperature:* 45 to 66 degrees F  
*Frost-free period:* 162 to 202 days  
*Farmland classification:* Not prime farmland

**Map Unit Composition**

*Culleoka and similar soils:* 85 percent  
*Minor components:* 15 percent

## Custom Soil Resource Report

*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Culleoka

#### Setting

*Landform:* Hills

*Landform position (two-dimensional):* Backslope

*Landform position (three-dimensional):* Side slope

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Parent material:* Fine-loamy colluvium and/or residuum weathered from limestone, sandstone, and shale and/or siltstone

#### Typical profile

*H1 - 0 to 7 inches:* silt loam

*H2 - 7 to 32 inches:* channery silty clay loam

*H3 - 32 to 38 inches:* very channery silty clay loam

*R - 38 to 48 inches:* unweathered bedrock

#### Properties and qualities

*Slope:* 12 to 25 percent

*Depth to restrictive feature:* 20 to 40 inches to lithic bedrock

*Drainage class:* Well drained

*Runoff class:* Medium

*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately low (0.00 to 0.06 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Available water supply, 0 to 60 inches:* Low (about 5.8 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 4e

*Hydrologic Soil Group:* B

*Ecological site:* F121XY008KY - Moderately Deep Shale-Siltstone Backslope

*Hydric soil rating:* No

### Minor Components

#### Lowell

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

#### Eden

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

#### Cynthiana

*Percent of map unit:* 3 percent

*Hydric soil rating:* No

#### Culleoka, severely eroded

*Percent of map unit:* 2 percent

*Hydric soil rating:* No

**CyF2—Cynthiana-Faywood complex, 25 to 50 percent slopes, eroded,  
very rocky**

**Map Unit Setting**

*National map unit symbol:* lkcn  
*Elevation:* 780 to 1,180 feet  
*Mean annual precipitation:* 46 to 58 inches  
*Mean annual air temperature:* 45 to 66 degrees F  
*Frost-free period:* 162 to 202 days  
*Farmland classification:* Not prime farmland

**Map Unit Composition**

*Cynthiana and similar soils:* 50 percent  
*Faywood and similar soils:* 35 percent  
*Minor components:* 15 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Cynthiana**

**Setting**

*Landform:* Hills  
*Landform position (two-dimensional):* Backslope  
*Landform position (three-dimensional):* Side slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Parent material:* Clayey residuum weathered from limestone and shale

**Typical profile**

*H1 - 0 to 6 inches:* silty clay loam  
*H2 - 6 to 16 inches:* clay  
*R - 16 to 26 inches:* unweathered bedrock

**Properties and qualities**

*Slope:* 25 to 50 percent  
*Surface area covered with cobbles, stones or boulders:* 8.0 percent  
*Depth to restrictive feature:* 10 to 20 inches to lithic bedrock  
*Drainage class:* Well drained  
*Runoff class:* High  
*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately low (0.00 to 0.06 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Available water supply, 0 to 60 inches:* Very low (about 2.3 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 7s  
*Hydrologic Soil Group:* D  
*Ecological site:* F121XY001KY - Shallow Limestone Residuum Backslopes

## Custom Soil Resource Report

*Hydric soil rating:* No

### Description of Faywood

#### Setting

*Landform:* Hills

*Landform position (two-dimensional):* Backslope

*Landform position (three-dimensional):* Side slope

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Parent material:* Clayey residuum weathered from limestone and shale

#### Typical profile

*H1 - 0 to 6 inches:* silty clay loam

*H2 - 6 to 30 inches:* clay

*R - 30 to 40 inches:* unweathered bedrock

#### Properties and qualities

*Slope:* 25 to 50 percent

*Surface area covered with cobbles, stones or boulders:* 8.0 percent

*Depth to restrictive feature:* 20 to 40 inches to lithic bedrock

*Drainage class:* Well drained

*Runoff class:* High

*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately low (0.00 to 0.06 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Available water supply, 0 to 60 inches:* Low (about 4.8 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 7s

*Hydrologic Soil Group:* C

*Ecological site:* F121XY002KY - Moderately Deep Interbedded Limestone-Shale Backslopes

*Hydric soil rating:* No

### Minor Components

#### Lowell

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

#### Fairmount

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

#### Eden

*Percent of map unit:* 3 percent

*Hydric soil rating:* No

#### Rock outcrop

*Percent of map unit:* 2 percent

*Hydric soil rating:* No

**Eff2—Eden-Culleoka association, 25 to 50 percent slopes, eroded, stony**

**Map Unit Setting**

*National map unit symbol:* lkcs  
*Elevation:* 540 to 1,050 feet  
*Mean annual precipitation:* 46 to 58 inches  
*Mean annual air temperature:* 45 to 66 degrees F  
*Frost-free period:* 162 to 202 days  
*Farmland classification:* Not prime farmland

**Map Unit Composition**

*Eden and similar soils:* 45 percent  
*Culleoka and similar soils:* 40 percent  
*Minor components:* 15 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Eden**

**Setting**

*Landform:* Hills  
*Landform position (two-dimensional):* Backslope  
*Landform position (three-dimensional):* Side slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Parent material:* Clayey residuum weathered from calcareous shale and/or limestone and siltstone

**Typical profile**

*H1 - 0 to 5 inches:* flaggy silty clay loam  
*H2 - 5 to 24 inches:* flaggy clay  
*Cr - 24 to 34 inches:* weathered bedrock

**Properties and qualities**

*Slope:* 25 to 50 percent  
*Surface area covered with cobbles, stones or boulders:* 0.1 percent  
*Depth to restrictive feature:* 20 to 40 inches to paralithic bedrock  
*Drainage class:* Well drained  
*Runoff class:* High  
*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately high (0.00 to 0.20 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Calcium carbonate, maximum content:* 14 percent  
*Available water supply, 0 to 60 inches:* Very low (about 2.8 inches)

## Custom Soil Resource Report

### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 7e  
*Hydrologic Soil Group:* D  
*Ecological site:* F121XY002KY - Moderately Deep Interbedded Limestone-Shale Backslopes  
*Hydric soil rating:* No

### Description of Culleoka

#### Setting

*Landform:* Hills  
*Landform position (two-dimensional):* Backslope  
*Landform position (three-dimensional):* Side slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Parent material:* Fine-loamy colluvium and/or residuum weathered from limestone, sandstone, and shale and/or siltstone

#### Typical profile

*H1 - 0 to 4 inches:* flaggy silt loam  
*H2 - 4 to 21 inches:* channery silty clay loam  
*R - 21 to 31 inches:* unweathered bedrock

#### Properties and qualities

*Slope:* 25 to 50 percent  
*Surface area covered with cobbles, stones or boulders:* 0.1 percent  
*Depth to restrictive feature:* 20 to 40 inches to lithic bedrock  
*Drainage class:* Well drained  
*Runoff class:* Medium  
*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately low (0.00 to 0.06 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Available water supply, 0 to 60 inches:* Low (about 3.4 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 7e  
*Hydrologic Soil Group:* B  
*Ecological site:* F121XY008KY - Moderately Deep Shale-Siltstone Backslope  
*Hydric soil rating:* No

### Minor Components

#### Lowell

*Percent of map unit:* 5 percent  
*Hydric soil rating:* No

#### Faywood

*Percent of map unit:* 5 percent  
*Hydric soil rating:* No

#### Cynthiana

*Percent of map unit:* 5 percent  
*Hydric soil rating:* No

## **EKB—Elk silt loam, 2 to 6 percent slopes**

### **Map Unit Setting**

*National map unit symbol:* 2zs50  
*Elevation:* 390 to 1,060 feet  
*Mean annual precipitation:* 36 to 58 inches  
*Mean annual air temperature:* 41 to 68 degrees F  
*Frost-free period:* 142 to 211 days  
*Farmland classification:* All areas are prime farmland

### **Map Unit Composition**

*Elk and similar soils:* 90 percent  
*Minor components:* 10 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### **Description of Elk**

#### **Setting**

*Landform:* Stream terraces  
*Landform position (three-dimensional):* Tread  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Parent material:* Mixed fine-silty alluvium over mixed loamy alluvium

#### **Typical profile**

*Ap - 0 to 8 inches:* silt loam  
*BA - 8 to 14 inches:* silt loam  
*Bt - 14 to 46 inches:* silty clay loam  
*2C - 46 to 80 inches:* silty clay loam

#### **Properties and qualities**

*Slope:* 2 to 6 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Well drained  
*Runoff class:* Low  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high  
(0.60 to 2.00 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Available water supply, 0 to 60 inches:* High (about 11.3 inches)

#### **Interpretive groups**

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 2e  
*Hydrologic Soil Group:* B  
*Ecological site:* F121XY016KY - Well Drained & Moderately Well Drained Terrace  
*Hydric soil rating:* No



**Minor Components**

**Otwood**

*Percent of map unit:* 5 percent  
*Landform:* Stream terraces  
*Landform position (three-dimensional):* Tread  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Ecological site:* F121XY018KY - Moderately Well Drained Fragipan Terrace  
*Hydric soil rating:* No

**Allegheny**

*Percent of map unit:* 3 percent  
*Landform:* Stream terraces  
*Landform position (three-dimensional):* Tread  
*Down-slope shape:* Convex  
*Across-slope shape:* Linear  
*Ecological site:* F121XY016KY - Well Drained & Moderately Well Drained Terrace  
*Hydric soil rating:* No

**Nolin, occasionally flooded**

*Percent of map unit:* 2 percent  
*Landform:* Flood plains  
*Landform position (three-dimensional):* Talf  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Ecological site:* F121XY033KY - Well Drained & Moderately Well Drained  
Floodplain  
*Hydric soil rating:* No

**EkC—Elk silt loam, 6 to 12 percent slopes**

**Map Unit Setting**

*National map unit symbol:* 2zqlj  
*Elevation:* 450 to 1,060 feet  
*Mean annual precipitation:* 36 to 58 inches  
*Mean annual air temperature:* 41 to 65 degrees F  
*Frost-free period:* 142 to 211 days  
*Farmland classification:* Farmland of statewide importance

**Map Unit Composition**

*Elk and similar soils:* 90 percent  
*Minor components:* 10 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Elk**

**Setting**

*Landform:* Stream terraces  
*Landform position (three-dimensional):* Tread

## Custom Soil Resource Report

*Down-slope shape:* Linear  
*Across-slope shape:* Convex  
*Parent material:* Mixed fine-silty alluvium over mixed loamy alluvium

### Typical profile

*Ap - 0 to 8 inches:* silt loam  
*BA - 8 to 15 inches:* silt loam  
*Bt - 15 to 46 inches:* silty clay loam  
*2C - 46 to 80 inches:* silty clay loam

### Properties and qualities

*Slope:* 6 to 12 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Well drained  
*Runoff class:* Medium  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high  
(0.60 to 2.00 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Available water supply, 0 to 60 inches:* High (about 11.4 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 3e  
*Hydrologic Soil Group:* B  
*Ecological site:* F121XY016KY - Well Drained & Moderately Well Drained Terrace  
*Hydric soil rating:* No

### Minor Components

#### Otwood

*Percent of map unit:* 5 percent  
*Landform:* Stream terraces  
*Landform position (three-dimensional):* Tread  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Ecological site:* F121XY018KY - Moderately Well Drained Fragipan Terrace  
*Hydric soil rating:* No

#### Allegheny

*Percent of map unit:* 3 percent  
*Landform:* Stream terraces  
*Landform position (three-dimensional):* Tread  
*Down-slope shape:* Convex  
*Across-slope shape:* Linear  
*Ecological site:* F121XY016KY - Well Drained & Moderately Well Drained Terrace  
*Hydric soil rating:* No

#### Nolin, occasionally flooded

*Percent of map unit:* 2 percent  
*Landform:* Flood plains  
*Landform position (three-dimensional):* Talf  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Ecological site:* F121XY033KY - Well Drained & Moderately Well Drained  
Floodplain

## Custom Soil Resource Report

*Hydric soil rating:* No

### **ErB—Elk silt loam, 2 to 6 percent slopes, rarely flooded**

#### **Map Unit Setting**

*National map unit symbol:* 2slf3  
*Elevation:* 380 to 1,110 feet  
*Mean annual precipitation:* 36 to 66 inches  
*Mean annual air temperature:* 40 to 68 degrees F  
*Frost-free period:* 135 to 218 days  
*Farmland classification:* All areas are prime farmland

#### **Map Unit Composition**

*Elk, rarely flooded, and similar soils:* 90 percent  
*Minor components:* 10 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

#### **Description of Elk, Rarely Flooded**

##### **Setting**

*Landform:* Stream terraces  
*Landform position (three-dimensional):* Tread  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Parent material:* Mixed fine-silty alluvium over mixed loamy alluvium

##### **Typical profile**

*Ap - 0 to 8 inches:* silt loam  
*BA - 8 to 15 inches:* silt loam  
*Bt - 15 to 46 inches:* silty clay loam  
*2C - 46 to 80 inches:* silty clay loam

##### **Properties and qualities**

*Slope:* 2 to 6 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Well drained  
*Runoff class:* Low  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high  
(0.60 to 2.00 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* RareNone  
*Frequency of ponding:* None  
*Available water supply, 0 to 60 inches:* High (about 10.7 inches)

##### **Interpretive groups**

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 2e  
*Hydrologic Soil Group:* B  
*Ecological site:* F121XY016KY - Well Drained & Moderately Well Drained Terrace  
*Hydric soil rating:* No

**Minor Components**

**Otwood, rarely flooded**

*Percent of map unit:* 5 percent  
*Landform:* Stream terraces  
*Landform position (three-dimensional):* Tread  
*Down-slope shape:* Convex  
*Across-slope shape:* Linear  
*Hydric soil rating:* No

**Lawrence, rarely flooded**

*Percent of map unit:* 3 percent  
*Landform:* Stream terraces  
*Landform position (three-dimensional):* Tread  
*Down-slope shape:* Concave  
*Across-slope shape:* Linear  
*Hydric soil rating:* No

**Nolin, occasionally flooded**

*Percent of map unit:* 2 percent  
*Landform:* Flood plains  
*Landform position (three-dimensional):* Talf  
*Down-slope shape:* Linear, concave  
*Across-slope shape:* Linear  
*Hydric soil rating:* No

**FeC2—Faywood-Cynthiana complex, 6 to 12 percent slopes, eroded, rocky**

**Map Unit Setting**

*National map unit symbol:* lkd0  
*Elevation:* 550 to 1,130 feet  
*Mean annual precipitation:* 46 to 58 inches  
*Mean annual air temperature:* 45 to 66 degrees F  
*Frost-free period:* 162 to 202 days  
*Farmland classification:* Not prime farmland

**Map Unit Composition**

*Faywood and similar soils:* 60 percent  
*Cynthiana and similar soils:* 30 percent  
*Minor components:* 10 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Faywood**

**Setting**

*Landform:* Ridges  
*Landform position (two-dimensional):* Backslope  
*Landform position (three-dimensional):* Side slope  
*Down-slope shape:* Convex

## Custom Soil Resource Report

*Across-slope shape:* Convex

*Parent material:* Clayey residuum weathered from limestone and shale

### Typical profile

*H1 - 0 to 6 inches:* silty clay loam

*H2 - 6 to 30 inches:* clay

*R - 30 to 40 inches:* unweathered bedrock

### Properties and qualities

*Slope:* 6 to 12 percent

*Surface area covered with cobbles, stones or boulders:* 1.0 percent

*Depth to restrictive feature:* 20 to 40 inches to lithic bedrock

*Drainage class:* Well drained

*Runoff class:* High

*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately low (0.00 to 0.06 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Available water supply, 0 to 60 inches:* Low (about 4.8 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 4s

*Hydrologic Soil Group:* C

*Ecological site:* F121XY002KY - Moderately Deep Interbedded Limestone-Shale Backslopes

*Hydric soil rating:* No

## Description of Cynthiana

### Setting

*Landform:* Ridges

*Landform position (two-dimensional):* Backslope

*Landform position (three-dimensional):* Side slope

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Parent material:* Clayey residuum weathered from limestone and shale

### Typical profile

*H1 - 0 to 6 inches:* silty clay loam

*H2 - 6 to 16 inches:* clay

*R - 16 to 26 inches:* unweathered bedrock

### Properties and qualities

*Slope:* 6 to 12 percent

*Surface area covered with cobbles, stones or boulders:* 1.0 percent

*Depth to restrictive feature:* 10 to 20 inches to lithic bedrock

*Drainage class:* Well drained

*Runoff class:* High

*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately low (0.00 to 0.06 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Available water supply, 0 to 60 inches:* Very low (about 2.3 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 4s

*Hydrologic Soil Group:* D

*Ecological site:* F121XY001KY - Shallow Limestone Residuum Backslopes

*Hydric soil rating:* No

**Minor Components**

**Rock outcrop**

*Percent of map unit:* 2 percent

*Hydric soil rating:* No

**Eden**

*Percent of map unit:* 2 percent

*Hydric soil rating:* No

**Fairmount**

*Percent of map unit:* 2 percent

*Hydric soil rating:* No

**Beasley**

*Percent of map unit:* 2 percent

*Hydric soil rating:* No

**Sandview**

*Percent of map unit:* 1 percent

*Hydric soil rating:* No

**Lowell**

*Percent of map unit:* 1 percent

*Hydric soil rating:* No

**FeD2—Faywood-Cynthiana complex, 12 to 25 percent slopes, eroded, very rocky**

**Map Unit Setting**

*National map unit symbol:* lkd1

*Elevation:* 550 to 1,180 feet

*Mean annual precipitation:* 46 to 58 inches

*Mean annual air temperature:* 45 to 66 degrees F

*Frost-free period:* 162 to 202 days

*Farmland classification:* Not prime farmland

**Map Unit Composition**

*Faywood and similar soils:* 50 percent

*Cynthiana and similar soils:* 35 percent

*Minor components:* 15 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

## Description of Faywood

### Setting

*Landform:* Hills  
*Landform position (two-dimensional):* Backslope  
*Landform position (three-dimensional):* Side slope  
*Down-slope shape:* Linear  
*Across-slope shape:* Convex  
*Parent material:* Clayey residuum weathered from limestone and shale

### Typical profile

*H1 - 0 to 6 inches:* silty clay loam  
*H2 - 6 to 30 inches:* clay  
*R - 30 to 40 inches:* unweathered bedrock

### Properties and qualities

*Slope:* 12 to 25 percent  
*Surface area covered with cobbles, stones or boulders:* 8.0 percent  
*Depth to restrictive feature:* 20 to 40 inches to lithic bedrock  
*Drainage class:* Well drained  
*Runoff class:* High  
*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately low (0.00 to 0.06 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Available water supply, 0 to 60 inches:* Low (about 4.8 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 6s  
*Hydrologic Soil Group:* C  
*Ecological site:* F121XY002KY - Moderately Deep Interbedded Limestone-Shale Backslopes  
*Hydric soil rating:* No

## Description of Cynthiana

### Setting

*Landform:* Hills  
*Landform position (two-dimensional):* Backslope  
*Landform position (three-dimensional):* Side slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Parent material:* Clayey residuum weathered from limestone and shale

### Typical profile

*H1 - 0 to 6 inches:* silty clay loam  
*H2 - 6 to 16 inches:* clay  
*R - 16 to 26 inches:* unweathered bedrock

### Properties and qualities

*Slope:* 12 to 25 percent  
*Surface area covered with cobbles, stones or boulders:* 8.0 percent  
*Depth to restrictive feature:* 10 to 20 inches to lithic bedrock  
*Drainage class:* Well drained  
*Runoff class:* High



## Custom Soil Resource Report

*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately low (0.00 to 0.06 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Available water supply, 0 to 60 inches:* Very low (about 2.3 inches)

### **Interpretive groups**

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 6s

*Hydrologic Soil Group:* D

*Ecological site:* F121XY001KY - Shallow Limestone Residuum Backslopes

*Hydric soil rating:* No

### **Minor Components**

#### **Rock outcrop**

*Percent of map unit:* 8 percent

*Hydric soil rating:* No

#### **Fairmount**

*Percent of map unit:* 2 percent

*Hydric soil rating:* No

#### **Lowell**

*Percent of map unit:* 2 percent

*Hydric soil rating:* No

#### **Beasley**

*Percent of map unit:* 1 percent

*Hydric soil rating:* No

#### **Sandview**

*Percent of map unit:* 1 percent

*Hydric soil rating:* No

#### **Eden**

*Percent of map unit:* 1 percent

*Hydric soil rating:* No

## **FoD2—Faywood-Shrouts complex, 12 to 25 percent slopes, eroded, rocky**

### **Map Unit Setting**

*National map unit symbol:* lkd4

*Elevation:* 820 to 1,140 feet

*Mean annual precipitation:* 46 to 58 inches

*Mean annual air temperature:* 45 to 66 degrees F

*Frost-free period:* 162 to 202 days

*Farmland classification:* Not prime farmland

**Map Unit Composition**

*Faywood and similar soils: 45 percent*

*Shrouts and similar soils: 35 percent*

*Minor components: 20 percent*

*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Faywood**

**Setting**

*Landform: Hills*

*Landform position (two-dimensional): Backslope*

*Landform position (three-dimensional): Side slope*

*Down-slope shape: Convex*

*Across-slope shape: Convex*

*Parent material: Clayey residuum weathered from limestone and shale*

**Typical profile**

*H1 - 0 to 6 inches: silty clay loam*

*H2 - 6 to 30 inches: clay*

*R - 30 to 40 inches: unweathered bedrock*

**Properties and qualities**

*Slope: 12 to 25 percent*

*Surface area covered with cobbles, stones or boulders: 1.0 percent*

*Depth to restrictive feature: 20 to 40 inches to lithic bedrock*

*Drainage class: Well drained*

*Runoff class: High*

*Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)*

*Depth to water table: More than 80 inches*

*Frequency of flooding: None*

*Frequency of ponding: None*

*Available water supply, 0 to 60 inches: Low (about 4.8 inches)*

**Interpretive groups**

*Land capability classification (irrigated): None specified*

*Land capability classification (nonirrigated): 6s*

*Hydrologic Soil Group: C*

*Ecological site: F121XY002KY - Moderately Deep Interbedded Limestone-Shale Backslopes*

*Hydric soil rating: No*

**Description of Shrouts**

**Setting**

*Landform: Hills*

*Landform position (two-dimensional): Backslope*

*Landform position (three-dimensional): Side slope*

*Down-slope shape: Convex*

*Across-slope shape: Convex*

*Parent material: Clayey residuum weathered from calcareous shale*

**Typical profile**

*H1 - 0 to 4 inches: silty clay loam*

*H2 - 4 to 26 inches: clay*

*Cr - 26 to 36 inches: weathered bedrock*

## Custom Soil Resource Report

### Properties and qualities

*Slope:* 12 to 25 percent

*Surface area covered with cobbles, stones or boulders:* 1.0 percent

*Depth to restrictive feature:* 20 to 40 inches to paralithic bedrock

*Drainage class:* Well drained

*Runoff class:* High

*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately high (0.00 to 0.20 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Calcium carbonate, maximum content:* 38 percent

*Available water supply, 0 to 60 inches:* Low (about 4.0 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 6s

*Hydrologic Soil Group:* D

*Ecological site:* F121XY002KY - Moderately Deep Interbedded Limestone-Shale Backslopes

*Hydric soil rating:* No

### Minor Components

#### Beasley

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

#### Cynthiana

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

#### Garlin

*Percent of map unit:* 4 percent

*Hydric soil rating:* No

#### Lowell

*Percent of map unit:* 4 percent

*Hydric soil rating:* No

#### Rock outcrop

*Percent of map unit:* 2 percent

*Hydric soil rating:* No

## FoF2—Faywood-Shrouts complex, 25 to 60 percent slopes, eroded, rocky

### Map Unit Setting

*National map unit symbol:* lkd5

*Elevation:* 790 to 1,110 feet

## Custom Soil Resource Report

*Mean annual precipitation:* 46 to 58 inches  
*Mean annual air temperature:* 45 to 66 degrees F  
*Frost-free period:* 162 to 202 days  
*Farmland classification:* Not prime farmland

### Map Unit Composition

*Faywood and similar soils:* 45 percent  
*Shrouths and similar soils:* 35 percent  
*Minor components:* 20 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Faywood

#### Setting

*Landform:* Hills  
*Landform position (two-dimensional):* Backslope  
*Landform position (three-dimensional):* Side slope  
*Down-slope shape:* Concave  
*Across-slope shape:* Convex  
*Parent material:* Clayey residuum weathered from limestone and shale

#### Typical profile

*H1 - 0 to 6 inches:* silty clay loam  
*H2 - 6 to 30 inches:* clay  
*R - 30 to 40 inches:* unweathered bedrock

#### Properties and qualities

*Slope:* 25 to 60 percent  
*Surface area covered with cobbles, stones or boulders:* 1.0 percent  
*Depth to restrictive feature:* 20 to 40 inches to lithic bedrock  
*Drainage class:* Well drained  
*Runoff class:* High  
*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately low (0.00 to 0.06 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Available water supply, 0 to 60 inches:* Low (about 4.8 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 7s  
*Hydrologic Soil Group:* C  
*Ecological site:* F121XY002KY - Moderately Deep Interbedded Limestone-Shale Backslopes  
*Hydric soil rating:* No

### Description of Shrouths

#### Setting

*Landform:* Hills  
*Landform position (two-dimensional):* Backslope  
*Landform position (three-dimensional):* Side slope  
*Down-slope shape:* Concave  
*Across-slope shape:* Convex  
*Parent material:* Clayey residuum weathered from calcareous shale

## Custom Soil Resource Report

### Typical profile

*H1 - 0 to 4 inches:* silty clay loam

*H2 - 4 to 26 inches:* clay

*Cr - 26 to 36 inches:* weathered bedrock

### Properties and qualities

*Slope:* 25 to 60 percent

*Surface area covered with cobbles, stones or boulders:* 1.0 percent

*Depth to restrictive feature:* 20 to 40 inches to paralithic bedrock

*Drainage class:* Well drained

*Runoff class:* High

*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately high (0.00 to 0.20 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Calcium carbonate, maximum content:* 38 percent

*Available water supply, 0 to 60 inches:* Low (about 4.0 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 7s

*Hydrologic Soil Group:* D

*Ecological site:* F121XY002KY - Moderately Deep Interbedded Limestone-Shale Backslopes

*Hydric soil rating:* No

### Minor Components

#### Lowell

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

#### Cynthiana

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

#### Garlin

*Percent of map unit:* 4 percent

*Hydric soil rating:* No

#### Beasley

*Percent of map unit:* 4 percent

*Hydric soil rating:* No

#### Rock outcrop

*Percent of map unit:* 2 percent

*Hydric soil rating:* No

## **Jm—Johnsburg-Mullins complex**

### **Map Unit Setting**

*National map unit symbol:* lkdl  
*Elevation:* 870 to 1,130 feet  
*Mean annual precipitation:* 46 to 58 inches  
*Mean annual air temperature:* 45 to 66 degrees F  
*Frost-free period:* 162 to 202 days  
*Farmland classification:* Prime farmland if drained

### **Map Unit Composition**

*Johnsburg and similar soils:* 45 percent  
*Mullins and similar soils:* 35 percent  
*Minor components:* 20 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### **Description of Johnsburg**

#### **Setting**

*Landform:* Flats  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Parent material:* Fine-silty noncalcareous loess over residuum weathered from sandstone and siltstone and/or shale

#### **Typical profile**

*H1 - 0 to 11 inches:* silt loam  
*H2 - 11 to 24 inches:* silty clay loam  
*H3 - 24 to 48 inches:* silty clay loam  
*R - 48 to 58 inches:* unweathered bedrock

#### **Properties and qualities**

*Slope:* 0 to 4 percent  
*Depth to restrictive feature:* 24 to 36 inches to fragipan; 48 to 72 inches to lithic bedrock  
*Drainage class:* Somewhat poorly drained  
*Runoff class:* Very low  
*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately low (0.00 to 0.06 in/hr)  
*Depth to water table:* About 12 to 18 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Available water supply, 0 to 60 inches:* Low (about 5.0 inches)

#### **Interpretive groups**

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 4w  
*Hydrologic Soil Group:* C/D  
*Ecological site:* F121XY022KY - SWPD & PD Fragipan Upland

## Custom Soil Resource Report

*Hydric soil rating:* No

### Description of Mullins

#### Setting

*Landform:* Depressions

*Down-slope shape:* Concave

*Across-slope shape:* Linear

*Parent material:* Fine-silty residuum weathered from shale and siltstone

#### Typical profile

*H1 - 0 to 6 inches:* silt loam

*H2 - 6 to 18 inches:* silt loam

*H3 - 18 to 38 inches:* silt loam

*H4 - 38 to 55 inches:* silty clay loam

*R - 55 to 65 inches:* unweathered bedrock

#### Properties and qualities

*Slope:* 0 to 3 percent

*Depth to restrictive feature:* 12 to 28 inches to fragipan; 48 to 60 inches to lithic bedrock

*Drainage class:* Poorly drained

*Runoff class:* Very low

*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately low (0.00 to 0.06 in/hr)

*Depth to water table:* About 0 to 12 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Available water supply, 0 to 60 inches:* Low (about 3.8 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 4w

*Hydrologic Soil Group:* D

*Ecological site:* F121XY014KY - Poorly Drained & Very Poorly Drained Terrace Lakebed

*Hydric soil rating:* Yes

### Minor Components

#### Tilsit

*Percent of map unit:* 6 percent

*Hydric soil rating:* No

#### Jessietown

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

#### Berea

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

#### Swp drained soil < 40

*Percent of map unit:* 3 percent

*Hydric soil rating:* No

#### Soils less acid than typical

*Percent of map unit:* 1 percent

*Hydric soil rating:* No



## **LpD2—Lowell-Faywood complex, 12 to 25 percent slopes, eroded, rocky**

### **Map Unit Setting**

*National map unit symbol:* lkdw  
*Elevation:* 590 to 1,180 feet  
*Mean annual precipitation:* 46 to 58 inches  
*Mean annual air temperature:* 45 to 66 degrees F  
*Frost-free period:* 162 to 202 days  
*Farmland classification:* Not prime farmland

### **Map Unit Composition**

*Lowell and similar soils:* 55 percent  
*Faywood and similar soils:* 30 percent  
*Minor components:* 15 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### **Description of Lowell**

#### **Setting**

*Landform:* Hills  
*Landform position (two-dimensional):* Backslope  
*Landform position (three-dimensional):* Side slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Parent material:* Clayey residuum weathered from limestone and shale

#### **Typical profile**

*H1 - 0 to 6 inches:* silt loam  
*H2 - 6 to 42 inches:* clay  
*H3 - 42 to 52 inches:* clay  
*R - 52 to 62 inches:* unweathered bedrock

#### **Properties and qualities**

*Slope:* 12 to 25 percent  
*Surface area covered with cobbles, stones or boulders:* 1.0 percent  
*Depth to restrictive feature:* 40 to 60 inches to lithic bedrock  
*Drainage class:* Well drained  
*Runoff class:* Medium  
*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately low (0.00 to 0.06 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Calcium carbonate, maximum content:* 3 percent  
*Available water supply, 0 to 60 inches:* Moderate (about 8.5 inches)

#### **Interpretive groups**

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 4e

## Custom Soil Resource Report

*Hydrologic Soil Group:* B

*Ecological site:* F121XY006KY - Ordovician Limestone Upland

*Hydric soil rating:* No

### Description of Faywood

#### Setting

*Landform:* Hills

*Landform position (two-dimensional):* Backslope

*Landform position (three-dimensional):* Side slope

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Parent material:* Clayey residuum weathered from limestone and shale

#### Typical profile

*H1 - 0 to 6 inches:* silty clay loam

*H2 - 6 to 30 inches:* clay

*R - 30 to 40 inches:* unweathered bedrock

#### Properties and qualities

*Slope:* 12 to 25 percent

*Surface area covered with cobbles, stones or boulders:* 1.0 percent

*Depth to restrictive feature:* 20 to 40 inches to lithic bedrock

*Drainage class:* Well drained

*Runoff class:* High

*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately low (0.00 to 0.06 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Available water supply, 0 to 60 inches:* Low (about 4.8 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 4e

*Hydrologic Soil Group:* C

*Ecological site:* F121XY002KY - Moderately Deep Interbedded Limestone-Shale  
Backslopes

*Hydric soil rating:* No

### Minor Components

#### Lowell, (severely eroded)

*Percent of map unit:* 4 percent

*Hydric soil rating:* No

#### Faywood, severely eroded

*Percent of map unit:* 3 percent

*Hydric soil rating:* No

#### Eden

*Percent of map unit:* 3 percent

*Hydric soil rating:* No

#### Fairmount

*Percent of map unit:* 3 percent

*Hydric soil rating:* No

**Rock outcrop**

*Percent of map unit:* 2 percent  
*Hydric soil rating:* No

**Ne—Newark silt loam, frequently flooded**

**Map Unit Setting**

*National map unit symbol:* lkf2  
*Elevation:* 680 to 1,290 feet  
*Mean annual precipitation:* 46 to 58 inches  
*Mean annual air temperature:* 45 to 66 degrees F  
*Frost-free period:* 162 to 202 days  
*Farmland classification:* Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season

**Map Unit Composition**

*Newark, frequently flooded, and similar soils:* 85 percent  
*Minor components:* 15 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Newark, Frequently Flooded**

**Setting**

*Landform:* Flood plains  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Parent material:* Mixed fine-silty alluvium

**Typical profile**

*H1 - 0 to 8 inches:* silt loam  
*H2 - 8 to 16 inches:* silt loam  
*H3 - 16 to 62 inches:* silty clay loam

**Properties and qualities**

*Slope:* 0 to 2 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Somewhat poorly drained  
*Runoff class:* Low  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.60 to 2.00 in/hr)  
*Depth to water table:* About 12 to 18 inches  
*Frequency of flooding:* NoneFrequent  
*Frequency of ponding:* None  
*Available water supply, 0 to 60 inches:* High (about 11.5 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 3w  
*Hydrologic Soil Group:* B/D

## Custom Soil Resource Report

*Ecological site:* F121XY031KY - Somewhat Poorly Drained Floodplain  
*Hydric soil rating:* No

### Minor Components

#### Yosemite

*Percent of map unit:* 4 percent  
*Hydric soil rating:* No

#### Melvin, frequently flooded

*Percent of map unit:* 4 percent  
*Landform:* Flood plains  
*Down-slope shape:* Concave  
*Across-slope shape:* Linear  
*Hydric soil rating:* Yes

#### Lawrence

*Percent of map unit:* 3 percent  
*Hydric soil rating:* No

#### Skidmore

*Percent of map unit:* 2 percent  
*Hydric soil rating:* No

#### Nolin

*Percent of map unit:* 2 percent  
*Hydric soil rating:* No

## NhB—Nicholson silt loam, 2 to 6 percent slopes

### Map Unit Setting

*National map unit symbol:* 2s2cz  
*Elevation:* 460 to 1,140 feet  
*Mean annual precipitation:* 35 to 59 inches  
*Mean annual air temperature:* 42 to 68 degrees F  
*Frost-free period:* 135 to 218 days  
*Farmland classification:* All areas are prime farmland

### Map Unit Composition

*Nicholson and similar soils:* 90 percent  
*Minor components:* 10 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Nicholson

#### Setting

*Landform:* Ridges  
*Landform position (two-dimensional):* Summit  
*Landform position (three-dimensional):* Interfluve  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear

## Custom Soil Resource Report

*Parent material:* Fine-silty noncalcareous loess over clayey residuum weathered from limestone

### Typical profile

*Ap - 0 to 8 inches:* silt loam  
*Bt - 8 to 28 inches:* silt loam  
*Btx - 28 to 38 inches:* silty clay loam  
*2Bt - 38 to 50 inches:* clay  
*2C - 50 to 80 inches:* clay

### Properties and qualities

*Slope:* 2 to 6 percent  
*Depth to restrictive feature:* 16 to 30 inches to fragipan  
*Drainage class:* Moderately well drained  
*Runoff class:* Medium  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.06 to 0.20 in/hr)  
*Depth to water table:* About 13 to 27 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Available water supply, 0 to 60 inches:* Low (about 5.7 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 2e  
*Hydrologic Soil Group:* C  
*Ecological site:* F121XY023KY - Well Drained & Moderately Well Drained  
Fragipan Upland  
*Hydric soil rating:* No

### Minor Components

#### Lowell

*Percent of map unit:* 5 percent  
*Landform:* Ridges  
*Landform position (two-dimensional):* Summit  
*Landform position (three-dimensional):* Interfluve, side slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Linear  
*Hydric soil rating:* No

#### Lawrence

*Percent of map unit:* 5 percent  
*Landform:* Ridges  
*Landform position (two-dimensional):* Summit  
*Landform position (three-dimensional):* Interfluve  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Other vegetative classification:* Trees/Timber (Woody Vegetation)  
*Hydric soil rating:* No

## **NhC2—Nicholson silt loam, 6 to 12 percent slopes, eroded**

### **Map Unit Setting**

*National map unit symbol:* 2wh5k

*Elevation:* 710 to 1,120 feet

*Mean annual precipitation:* 35 to 62 inches

*Mean annual air temperature:* 42 to 68 degrees F

*Frost-free period:* 145 to 202 days

*Farmland classification:* Farmland of statewide importance

### **Map Unit Composition**

*Nicholson, eroded, and similar soils:* 90 percent

*Minor components:* 10 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

### **Description of Nicholson, Eroded**

#### **Setting**

*Landform:* Ridges

*Landform position (two-dimensional):* Shoulder

*Landform position (three-dimensional):* Side slope

*Down-slope shape:* Linear

*Across-slope shape:* Linear

*Parent material:* Fine-silty noncalcareous loess over clayey residuum weathered from limestone

#### **Typical profile**

*Ap - 0 to 6 inches:* silt loam

*Bt - 6 to 24 inches:* silt loam

*Btx - 24 to 44 inches:* silty clay loam

*2Bt - 44 to 56 inches:* silty clay

*2C - 56 to 65 inches:* silty clay

*2R - 65 to 75 inches:* bedrock

#### **Properties and qualities**

*Slope:* 6 to 12 percent

*Depth to restrictive feature:* 23 to 30 inches to fragipan; 61 to 80 inches to lithic bedrock

*Drainage class:* Moderately well drained

*Runoff class:* Medium

*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately low (0.00 to 0.02 in/hr)

*Depth to water table:* About 20 to 27 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Available water supply, 0 to 60 inches:* Low (about 5.0 inches)

#### **Interpretive groups**

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 3e

## Custom Soil Resource Report

*Hydrologic Soil Group:* C/D  
*Ecological site:* F121XY023KY - Well Drained & Moderately Well Drained  
Fragipan Upland  
*Hydric soil rating:* No

### Minor Components

#### Lowell, eroded

*Percent of map unit:* 5 percent  
*Landform:* Ridges  
*Landform position (two-dimensional):* Summit  
*Landform position (three-dimensional):* Interfluve, side slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Linear  
*Hydric soil rating:* No

#### Faywood, eroded

*Percent of map unit:* 5 percent  
*Landform:* Ridges  
*Landform position (two-dimensional):* Shoulder  
*Landform position (three-dimensional):* Interfluve, side slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Linear  
*Hydric soil rating:* No

## No—Nolin silt loam, 0 to 2 percent slopes, frequently flooded

### Map Unit Setting

*National map unit symbol:* 2s2cw  
*Elevation:* 380 to 1,120 feet  
*Mean annual precipitation:* 36 to 66 inches  
*Mean annual air temperature:* 41 to 68 degrees F  
*Frost-free period:* 139 to 218 days  
*Farmland classification:* Prime farmland if protected from flooding or not frequently flooded during the growing season

### Map Unit Composition

*Nolin, frequently flooded, and similar soils:* 85 percent  
*Minor components:* 15 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Nolin, Frequently Flooded

#### Setting

*Landform:* Flood plains  
*Landform position (three-dimensional):* Talf  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Parent material:* Mixed fine-silty alluvium



## Custom Soil Resource Report

### Typical profile

*Ap - 0 to 8 inches:* silt loam  
*Bw - 8 to 72 inches:* silt loam  
*C - 72 to 85 inches:* loam

### Properties and qualities

*Slope:* 0 to 2 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Well drained  
*Runoff class:* Low  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high  
(0.60 to 1.98 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* FrequentNone  
*Frequency of ponding:* None  
*Available water supply, 0 to 60 inches:* High (about 11.0 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 2w  
*Hydrologic Soil Group:* B  
*Ecological site:* F121XY033KY - Well Drained & Moderately Well Drained  
Floodplain  
*Hydric soil rating:* No

### Minor Components

#### Elk, rarely flooded

*Percent of map unit:* 5 percent  
*Landform:* Stream terraces  
*Landform position (three-dimensional):* Tread  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Hydric soil rating:* No

#### Lindsay, frequently flooded

*Percent of map unit:* 4 percent  
*Landform:* Flood plains  
*Landform position (three-dimensional):* Talf  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Hydric soil rating:* No

#### Newark, frequently flooded

*Percent of map unit:* 4 percent  
*Landform:* Flood plains  
*Landform position (three-dimensional):* Dip  
*Down-slope shape:* Concave  
*Across-slope shape:* Linear  
*Hydric soil rating:* No

#### Boonesboro, frequently flooded

*Percent of map unit:* 1 percent  
*Landform:* Flood plains  
*Landform position (three-dimensional):* Talf  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear

*Hydric soil rating:* No

**Dunning, frequently flooded**

*Percent of map unit:* 1 percent

*Landform:* Depressions, flood plains

*Landform position (three-dimensional):* Dip

*Down-slope shape:* Linear

*Across-slope shape:* Concave

*Hydric soil rating:* Yes

**OtB—Otwood silt loam, 2 to 6 percent slopes**

**Map Unit Setting**

*National map unit symbol:* 2wv4x

*Elevation:* 410 to 1,280 feet

*Mean annual precipitation:* 36 to 66 inches

*Mean annual air temperature:* 40 to 68 degrees F

*Frost-free period:* 135 to 212 days

*Farmland classification:* All areas are prime farmland

**Map Unit Composition**

*Otwood and similar soils:* 80 percent

*Minor components:* 20 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Otwood**

**Setting**

*Landform:* Stream terraces

*Landform position (three-dimensional):* Riser

*Down-slope shape:* Convex

*Across-slope shape:* Linear

*Parent material:* Mixed fine-silty alluvium

**Typical profile**

*Ap - 0 to 10 inches:* silt loam

*Bt - 10 to 30 inches:* silt loam

*Btx - 30 to 56 inches:* silty clay loam

*C - 56 to 80 inches:* silty clay loam

**Properties and qualities**

*Slope:* 2 to 6 percent

*Depth to restrictive feature:* 23 to 35 inches to fragipan

*Drainage class:* Moderately well drained

*Runoff class:* Low

*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately low (0.00 to 0.06 in/hr)

*Depth to water table:* About 20 to 32 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Available water supply, 0 to 60 inches:* Moderate (about 6.5 inches)

## Custom Soil Resource Report

### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 2e

*Hydrologic Soil Group:* C

*Ecological site:* F121XY018KY - Moderately Well Drained Fragipan Terrace

*Hydric soil rating:* No

### Minor Components

#### Elk

*Percent of map unit:* 6 percent

*Landform:* Stream terraces

*Landform position (three-dimensional):* Tread

*Down-slope shape:* Linear

*Across-slope shape:* Linear

*Hydric soil rating:* No

#### Lawrence

*Percent of map unit:* 5 percent

*Landform:* Stream terraces

*Landform position (three-dimensional):* Tread

*Down-slope shape:* Linear

*Across-slope shape:* Linear

*Other vegetative classification:* Trees/Timber (Woody Vegetation)

*Hydric soil rating:* No

#### Nolin, occasional

*Percent of map unit:* 5 percent

*Landform:* Flood plains

*Landform position (three-dimensional):* Rise

*Down-slope shape:* Linear

*Across-slope shape:* Linear

*Hydric soil rating:* No

#### Newark, occasional

*Percent of map unit:* 4 percent

*Landform:* Flood plains

*Landform position (three-dimensional):* Dip

*Down-slope shape:* Linear

*Across-slope shape:* Linear

*Other vegetative classification:* Trees/Timber (Woody Vegetation)

*Hydric soil rating:* No

## OwB—Otwood silt loam, 2 to 6 percent slopes, rarely flooded

### Map Unit Setting

*National map unit symbol:* 2wv4w

*Elevation:* 430 to 1,230 feet

*Mean annual precipitation:* 36 to 58 inches

*Mean annual air temperature:* 41 to 67 degrees F

## Custom Soil Resource Report

*Frost-free period:* 142 to 205 days

*Farmland classification:* All areas are prime farmland

### Map Unit Composition

*Otwood, rarely flooded, and similar soils:* 85 percent

*Minor components:* 15 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Otwood, Rarely Flooded

#### Setting

*Landform:* Stream terraces

*Landform position (three-dimensional):* Tread

*Down-slope shape:* Convex

*Across-slope shape:* Linear

*Parent material:* Mixed fine-silty alluvium

#### Typical profile

*Ap - 0 to 9 inches:* silt loam

*Bt - 9 to 30 inches:* silty clay loam

*Btx - 30 to 51 inches:* silty clay loam

*C - 51 to 80 inches:* silty clay loam

#### Properties and qualities

*Slope:* 2 to 6 percent

*Depth to restrictive feature:* 23 to 35 inches to fragipan

*Drainage class:* Moderately well drained

*Runoff class:* Low

*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately low (0.00 to 0.06 in/hr)

*Depth to water table:* About 20 to 32 inches

*Frequency of flooding:* RareNone

*Frequency of ponding:* None

*Available water supply, 0 to 60 inches:* Low (about 6.0 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 2e

*Hydrologic Soil Group:* C

*Ecological site:* F121XY018KY - Moderately Well Drained Fragipan Terrace

*Hydric soil rating:* No

### Minor Components

#### Nolin, occasionally flooded

*Percent of map unit:* 4 percent

*Landform:* Flood plains

*Landform position (three-dimensional):* Rise

*Down-slope shape:* Linear

*Across-slope shape:* Linear

*Hydric soil rating:* No

#### Elk, rarely flooded

*Percent of map unit:* 4 percent

*Landform:* Stream terraces

*Landform position (three-dimensional):* Tread

*Down-slope shape:* Linear

## Custom Soil Resource Report

*Across-slope shape:* Linear  
*Hydric soil rating:* No

### **Lawrence, rarely flooded**

*Percent of map unit:* 4 percent  
*Landform:* Stream terraces  
*Landform position (three-dimensional):* Tread  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Other vegetative classification:* Trees/Timber (Woody Vegetation)  
*Hydric soil rating:* No

### **Newark, occasionally flooded**

*Percent of map unit:* 3 percent  
*Landform:* Flood plains  
*Landform position (three-dimensional):* Dip  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Other vegetative classification:* Trees/Timber (Woody Vegetation)  
*Hydric soil rating:* No

## **SaB—Sandview silt loam, 2 to 6 percent slopes**

### **Map Unit Setting**

*National map unit symbol:* lkfd  
*Elevation:* 560 to 1,170 feet  
*Mean annual precipitation:* 46 to 58 inches  
*Mean annual air temperature:* 45 to 66 degrees F  
*Frost-free period:* 162 to 202 days  
*Farmland classification:* All areas are prime farmland

### **Map Unit Composition**

*Sandview and similar soils:* 85 percent  
*Minor components:* 15 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### **Description of Sandview**

#### **Setting**

*Landform:* Ridges  
*Landform position (two-dimensional):* Summit  
*Landform position (three-dimensional):* Interfluve  
*Down-slope shape:* Convex  
*Across-slope shape:* Linear  
*Parent material:* Fine-silty noncalcareous loess over clayey residuum weathered from limestone

#### **Typical profile**

*H1 - 0 to 10 inches:* silt loam  
*H2 - 10 to 38 inches:* silty clay loam  
*H3 - 38 to 74 inches:* silty clay

## Custom Soil Resource Report

### Properties and qualities

*Slope:* 2 to 6 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Well drained  
*Runoff class:* Medium  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.06 to 0.60 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Available water supply, 0 to 60 inches:* High (about 11.3 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 2e  
*Hydrologic Soil Group:* C  
*Ecological site:* F121XY006KY - Ordovician Limestone Upland  
*Hydric soil rating:* No

### Minor Components

#### Faywood

*Percent of map unit:* 3 percent  
*Hydric soil rating:* No

#### Beasley

*Percent of map unit:* 3 percent  
*Hydric soil rating:* No

#### Lowell

*Percent of map unit:* 3 percent  
*Hydric soil rating:* No

#### Crider

*Percent of map unit:* 3 percent  
*Hydric soil rating:* No

#### Nicholson

*Percent of map unit:* 2 percent  
*Hydric soil rating:* No

#### Sandview, (moderately eroded)

*Percent of map unit:* 1 percent  
*Hydric soil rating:* No

## SaC—Sandview silt loam, 6 to 12 percent slopes

### Map Unit Setting

*National map unit symbol:* lkff  
*Elevation:* 570 to 1,090 feet  
*Mean annual precipitation:* 46 to 58 inches  
*Mean annual air temperature:* 45 to 66 degrees F

## Custom Soil Resource Report

*Frost-free period:* 162 to 202 days

*Farmland classification:* Farmland of statewide importance

### Map Unit Composition

*Sandview and similar soils:* 85 percent

*Minor components:* 15 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Sandview

#### Setting

*Landform:* Ridges

*Landform position (two-dimensional):* Shoulder

*Landform position (three-dimensional):* Side slope

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Parent material:* Fine-silty noncalcareous loess over clayey residuum weathered from limestone

#### Typical profile

*H1 - 0 to 10 inches:* silt loam

*H2 - 10 to 38 inches:* silty clay loam

*H3 - 38 to 74 inches:* silty clay

#### Properties and qualities

*Slope:* 6 to 12 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Well drained

*Runoff class:* Medium

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.06 to 0.60 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Available water supply, 0 to 60 inches:* High (about 11.3 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 3e

*Hydrologic Soil Group:* C

*Ecological site:* F121XY006KY - Ordovician Limestone Upland

*Hydric soil rating:* No

### Minor Components

#### Lowell

*Percent of map unit:* 4 percent

*Hydric soil rating:* No

#### Beasley

*Percent of map unit:* 4 percent

*Hydric soil rating:* No

#### Crider

*Percent of map unit:* 4 percent

*Hydric soil rating:* No



**Sandview, (moderately eroded)**

*Percent of map unit: 3 percent*

*Hydric soil rating: No*

**SeC2—Shrouts silty clay loam, 6 to 12 percent slopes, eroded**

**Map Unit Setting**

*National map unit symbol: lkfj*

*Elevation: 820 to 1,150 feet*

*Mean annual precipitation: 46 to 58 inches*

*Mean annual air temperature: 45 to 66 degrees F*

*Frost-free period: 162 to 202 days*

*Farmland classification: Not prime farmland*

**Map Unit Composition**

*Shrouts and similar soils: 85 percent*

*Minor components: 15 percent*

*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Shrouts**

**Setting**

*Landform: Ridges*

*Landform position (two-dimensional): Shoulder*

*Landform position (three-dimensional): Side slope*

*Down-slope shape: Convex*

*Across-slope shape: Convex*

*Parent material: Clayey residuum weathered from calcareous shale*

**Typical profile**

*H1 - 0 to 4 inches: silty clay loam*

*H2 - 4 to 26 inches: clay*

*Cr - 26 to 36 inches: weathered bedrock*

**Properties and qualities**

*Slope: 6 to 12 percent*

*Depth to restrictive feature: 20 to 40 inches to paralithic bedrock*

*Drainage class: Well drained*

*Runoff class: High*

*Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.20 in/hr)*

*Depth to water table: More than 80 inches*

*Frequency of flooding: None*

*Frequency of ponding: None*

*Calcium carbonate, maximum content: 38 percent*

*Available water supply, 0 to 60 inches: Low (about 4.0 inches)*

**Interpretive groups**

*Land capability classification (irrigated): None specified*

*Land capability classification (nonirrigated): 4e*

## Custom Soil Resource Report

*Hydrologic Soil Group: D*

*Ecological site: F121XY002KY - Moderately Deep Interbedded Limestone-Shale  
Backslopes*

*Hydric soil rating: No*

### Minor Components

#### **Beasley**

*Percent of map unit: 3 percent*

*Hydric soil rating: No*

#### **Shrouts, (severely eroded)**

*Percent of map unit: 3 percent*

*Hydric soil rating: No*

#### **Faywood**

*Percent of map unit: 3 percent*

*Hydric soil rating: No*

#### **Garlin**

*Percent of map unit: 3 percent*

*Hydric soil rating: No*

#### **Cynthiana**

*Percent of map unit: 3 percent*

*Hydric soil rating: No*

## **SfD3—Shrouts-Cynthiana complex, 12 to 25 percent slopes, severely eroded, rocky**

### **Map Unit Setting**

*National map unit symbol: lkfk*

*Elevation: 810 to 1,130 feet*

*Mean annual precipitation: 46 to 58 inches*

*Mean annual air temperature: 45 to 66 degrees F*

*Frost-free period: 162 to 202 days*

*Farmland classification: Not prime farmland*

### **Map Unit Composition**

*Shrouts, severely eroded, and similar soils: 55 percent*

*Cynthiana, severely eroded, and similar soils: 30 percent*

*Minor components: 15 percent*

*Estimates are based on observations, descriptions, and transects of the mapunit.*

### **Description of Shrouts, Severely Eroded**

#### **Setting**

*Landform: Hills*

*Landform position (two-dimensional): Backslope*

*Landform position (three-dimensional): Side slope*

*Down-slope shape: Convex*

*Across-slope shape: Linear*

## Custom Soil Resource Report

*Parent material:* Clayey residuum weathered from calcareous shale

### Typical profile

*H1 - 0 to 4 inches:* silty clay  
*H2 - 4 to 26 inches:* clay  
*Cr - 26 to 36 inches:* weathered bedrock

### Properties and qualities

*Slope:* 12 to 25 percent  
*Surface area covered with cobbles, stones or boulders:* 1.5 percent  
*Depth to restrictive feature:* 20 to 40 inches to paralithic bedrock  
*Drainage class:* Well drained  
*Runoff class:* High  
*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately high (0.00 to 0.20 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Calcium carbonate, maximum content:* 38 percent  
*Available water supply, 0 to 60 inches:* Low (about 4.0 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 6s  
*Hydrologic Soil Group:* D  
*Ecological site:* F121XY002KY - Moderately Deep Interbedded Limestone-Shale Backslopes  
*Hydric soil rating:* No

## Description of Cynthiana, Severely Eroded

### Setting

*Landform:* Hills  
*Landform position (two-dimensional):* Backslope  
*Landform position (three-dimensional):* Side slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Linear  
*Parent material:* Clayey residuum weathered from limestone and shale

### Typical profile

*H1 - 0 to 4 inches:* silty clay loam  
*H2 - 4 to 16 inches:* clay  
*R - 16 to 26 inches:* unweathered bedrock

### Properties and qualities

*Slope:* 12 to 25 percent  
*Surface area covered with cobbles, stones or boulders:* 1.5 percent  
*Depth to restrictive feature:* 10 to 20 inches to lithic bedrock  
*Drainage class:* Well drained  
*Runoff class:* High  
*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately low (0.00 to 0.06 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Available water supply, 0 to 60 inches:* Very low (about 2.2 inches)

## Custom Soil Resource Report

### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 6s

*Hydrologic Soil Group:* D

*Ecological site:* F121XY001KY - Shallow Limestone Residuum Backslopes

*Hydric soil rating:* No

### Minor Components

#### Faywood

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

#### Garlin

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

#### Beasley

*Percent of map unit:* 3 percent

*Hydric soil rating:* No

#### Rock outcrop

*Percent of map unit:* 2 percent

*Hydric soil rating:* No

## TIB—Tilsit silt loam, 2 to 6 percent slopes

### Map Unit Setting

*National map unit symbol:* lkfp

*Elevation:* 880 to 1,180 feet

*Mean annual precipitation:* 46 to 58 inches

*Mean annual air temperature:* 45 to 66 degrees F

*Frost-free period:* 162 to 202 days

*Farmland classification:* All areas are prime farmland

### Map Unit Composition

*Tilsit and similar soils:* 90 percent

*Minor components:* 10 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Tilsit

#### Setting

*Landform:* Ridges

*Landform position (two-dimensional):* Summit

*Landform position (three-dimensional):* Interfluve

*Down-slope shape:* Convex

*Across-slope shape:* Linear

*Parent material:* Fine-silty residuum weathered from sandstone and siltstone and/or shale

## Custom Soil Resource Report

### Typical profile

*H1 - 0 to 6 inches:* silt loam  
*H2 - 6 to 20 inches:* silty clay loam  
*H3 - 20 to 36 inches:* silty clay loam  
*H4 - 36 to 42 inches:* silty clay loam  
*Cr - 42 to 46 inches:* weathered bedrock  
*R - 46 to 56 inches:* unweathered bedrock

### Properties and qualities

*Slope:* 2 to 6 percent  
*Depth to restrictive feature:* 18 to 30 inches to fragipan; 40 to 80 inches to lithic bedrock; 40 to 50 inches to paralithic bedrock  
*Drainage class:* Moderately well drained  
*Runoff class:* Low  
*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately low (0.00 to 0.06 in/hr)  
*Depth to water table:* About 18 to 29 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Available water supply, 0 to 60 inches:* Low (about 3.8 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 2e  
*Hydrologic Soil Group:* D  
*Ecological site:* F121XY023KY - Well Drained & Moderately Well Drained  
Fragipan Upland  
*Hydric soil rating:* No

### Minor Components

#### Trappist

*Percent of map unit:* 2 percent  
*Hydric soil rating:* No

#### Johnsburg

*Percent of map unit:* 2 percent  
*Hydric soil rating:* No

#### Jessietown

*Percent of map unit:* 2 percent  
*Hydric soil rating:* No

#### Greenbriar

*Percent of map unit:* 2 percent  
*Hydric soil rating:* No

#### Berea

*Percent of map unit:* 2 percent  
*Hydric soil rating:* No

## **TpC2—Trappist silty clay loam, 6 to 12 percent slopes, eroded**

### **Map Unit Setting**

*National map unit symbol:* lkfs  
*Elevation:* 880 to 1,190 feet  
*Mean annual precipitation:* 46 to 58 inches  
*Mean annual air temperature:* 45 to 66 degrees F  
*Frost-free period:* 162 to 202 days  
*Farmland classification:* Farmland of statewide importance

### **Map Unit Composition**

*Trappist and similar soils:* 85 percent  
*Minor components:* 15 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### **Description of Trappist**

#### **Setting**

*Landform:* Ridges  
*Landform position (two-dimensional):* Shoulder  
*Landform position (three-dimensional):* Side slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Parent material:* Clayey residuum weathered from shale and siltstone

#### **Typical profile**

*H1 - 0 to 7 inches:* silty clay loam  
*H2 - 7 to 26 inches:* silty clay  
*H3 - 26 to 35 inches:* very channery silty clay  
*R - 35 to 45 inches:* unweathered bedrock

#### **Properties and qualities**

*Slope:* 6 to 12 percent  
*Depth to restrictive feature:* 20 to 40 inches to lithic bedrock  
*Drainage class:* Well drained  
*Runoff class:* Medium  
*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately high (0.00 to 0.20 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Available water supply, 0 to 60 inches:* Low (about 4.6 inches)

#### **Interpretive groups**

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 3e  
*Hydrologic Soil Group:* C  
*Ecological site:* F121XY005KY - Black Shale Upland  
*Hydric soil rating:* No

**Minor Components**

**Trappist, (severely eroded)**

*Percent of map unit: 5 percent*  
*Hydric soil rating: No*

**Jessietown**

*Percent of map unit: 5 percent*  
*Hydric soil rating: No*

**Colyer**

*Percent of map unit: 3 percent*  
*Hydric soil rating: No*

**Greenbriar**

*Percent of map unit: 2 percent*  
*Hydric soil rating: No*

**TrD2—Trappist-Colyer complex, 12 to 25 percent slopes, eroded**

**Map Unit Setting**

*National map unit symbol: lkft*  
*Elevation: 850 to 1,230 feet*  
*Mean annual precipitation: 46 to 58 inches*  
*Mean annual air temperature: 45 to 66 degrees F*  
*Frost-free period: 162 to 202 days*  
*Farmland classification: Not prime farmland*

**Map Unit Composition**

*Trappist and similar soils: 50 percent*  
*Colyer and similar soils: 35 percent*  
*Minor components: 15 percent*  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Trappist**

**Setting**

*Landform: Hills*  
*Landform position (two-dimensional): Backslope*  
*Landform position (three-dimensional): Side slope*  
*Down-slope shape: Convex*  
*Across-slope shape: Linear*  
*Parent material: Clayey residuum weathered from shale and siltstone*

**Typical profile**

*H1 - 0 to 7 inches: silty clay loam*  
*H2 - 7 to 26 inches: silty clay*  
*H3 - 26 to 35 inches: very channery silty clay*  
*R - 35 to 45 inches: unweathered bedrock*

## Custom Soil Resource Report

### Properties and qualities

*Slope:* 12 to 25 percent  
*Depth to restrictive feature:* 20 to 40 inches to lithic bedrock  
*Drainage class:* Well drained  
*Runoff class:* Medium  
*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately high (0.00 to 0.20 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Available water supply, 0 to 60 inches:* Low (about 4.6 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 4e  
*Hydrologic Soil Group:* C  
*Ecological site:* F121XY005KY - Black Shale Upland  
*Hydric soil rating:* No

### Description of Colyer

#### Setting

*Landform:* Hills  
*Landform position (two-dimensional):* Backslope  
*Landform position (three-dimensional):* Side slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Linear  
*Parent material:* Clayey-skeletal residuum weathered from acid shale

#### Typical profile

*H1 - 0 to 9 inches:* silty clay loam  
*H2 - 9 to 14 inches:* very channery silty clay  
*R - 14 to 24 inches:* unweathered bedrock

### Properties and qualities

*Slope:* 12 to 25 percent  
*Depth to restrictive feature:* 8 to 20 inches to lithic bedrock  
*Drainage class:* Well drained  
*Runoff class:* High  
*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately high (0.00 to 0.20 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Available water supply, 0 to 60 inches:* Very low (about 2.0 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 6s  
*Hydrologic Soil Group:* D  
*Ecological site:* F121XY005KY - Black Shale Upland  
*Hydric soil rating:* No

### Minor Components

#### Trappist, (severely eroded)

*Percent of map unit:* 5 percent



## Custom Soil Resource Report

*Hydric soil rating:* No

### **Jessietown**

*Percent of map unit:* 4 percent

*Hydric soil rating:* No

### **Lenberg**

*Percent of map unit:* 3 percent

*Hydric soil rating:* No

### **Carpenter**

*Percent of map unit:* 3 percent

*Hydric soil rating:* No

## **uBofA—Boonesboro silt loam, 0 to 4 percent slopes, frequently flooded**

### **Map Unit Setting**

*National map unit symbol:* 2yq57

*Elevation:* 420 to 1,010 feet

*Mean annual precipitation:* 36 to 54 inches

*Mean annual air temperature:* 42 to 69 degrees F

*Frost-free period:* 162 to 218 days

*Farmland classification:* Prime farmland if protected from flooding or not frequently flooded during the growing season

### **Map Unit Composition**

*Boonesboro, frequently flooded, and similar soils:* 85 percent

*Minor components:* 15 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

### **Description of Boonesboro, Frequently Flooded**

#### **Setting**

*Landform:* Flood plains

*Landform position (three-dimensional):* Talf

*Down-slope shape:* Linear

*Across-slope shape:* Linear

*Parent material:* Fine-loamy alluvium derived from limestone

#### **Typical profile**

*Ap - 0 to 7 inches:* silt loam

*AB - 7 to 22 inches:* silt loam

*Bw - 22 to 31 inches:* very gravelly silt loam

*R - 31 to 41 inches:* bedrock

#### **Properties and qualities**

*Slope:* 0 to 4 percent

*Depth to restrictive feature:* 20 to 39 inches to lithic bedrock

*Drainage class:* Well drained

*Runoff class:* Low

## Custom Soil Resource Report

*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately low (0.00 to 0.13 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* FrequentNone

*Frequency of ponding:* None

*Calcium carbonate, maximum content:* 5 percent

*Available water supply, 0 to 60 inches:* Low (about 4.7 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 2w

*Hydrologic Soil Group:* C

*Ecological site:* F121XY024KY - Colluvial Footslope

*Hydric soil rating:* No

### Minor Components

#### Boonewood, frequently flooded

*Percent of map unit:* 5 percent

*Landform:* Flood plains

*Landform position (three-dimensional):* Talf

*Down-slope shape:* Linear

*Across-slope shape:* Linear

*Ecological site:* F121XY024KY - Colluvial Footslope

*Hydric soil rating:* No

#### Nolin, frequently flooded

*Percent of map unit:* 5 percent

*Landform:* Flood plains

*Landform position (three-dimensional):* Rise

*Down-slope shape:* Linear

*Across-slope shape:* Linear

*Ecological site:* F121XY033KY - Well Drained & Moderately Well Drained Floodplain

*Hydric soil rating:* No

#### Newark, frequently flooded

*Percent of map unit:* 3 percent

*Landform:* Flood plains

*Landform position (three-dimensional):* Dip

*Down-slope shape:* Linear

*Across-slope shape:* Linear

*Ecological site:* F121XY031KY - Somewhat Poorly Drained Floodplain

*Other vegetative classification:* Trees/Timber (Woody Vegetation)

*Hydric soil rating:* No

#### Woolper, rarely flooded

*Percent of map unit:* 2 percent

*Landform:* Fans

*Landform position (two-dimensional):* Footslope

*Landform position (three-dimensional):* Base slope

*Down-slope shape:* Linear

*Across-slope shape:* Convex

*Ecological site:* F121XY016KY - Well Drained & Moderately Well Drained Terrace

*Hydric soil rating:* No

## **uLbiB—Lowell-Bluegrass silt loams, 2 to 6 percent slopes**

### **Map Unit Setting**

*National map unit symbol:* 2s2d5  
*Elevation:* 770 to 1,070 feet  
*Mean annual precipitation:* 36 to 58 inches  
*Mean annual air temperature:* 41 to 66 degrees F  
*Frost-free period:* 144 to 211 days  
*Farmland classification:* All areas are prime farmland

### **Map Unit Composition**

*Lowell and similar soils:* 70 percent  
*Bluegrass and similar soils:* 25 percent  
*Minor components:* 5 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### **Description of Lowell**

#### **Setting**

*Landform:* Ridges  
*Landform position (two-dimensional):* Shoulder  
*Landform position (three-dimensional):* Interfluve  
*Down-slope shape:* Convex  
*Across-slope shape:* Linear  
*Parent material:* Clayey residuum weathered from limestone and shale

#### **Typical profile**

*Ap - 0 to 8 inches:* silt loam  
*Bt - 8 to 41 inches:* silty clay  
*BC - 41 to 53 inches:* silty clay  
*R - 53 to 63 inches:* bedrock

#### **Properties and qualities**

*Slope:* 2 to 6 percent  
*Depth to restrictive feature:* 40 to 57 inches to lithic bedrock  
*Drainage class:* Well drained  
*Runoff class:* Low  
*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately high (0.00 to 0.20 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Calcium carbonate, maximum content:* 3 percent  
*Available water supply, 0 to 60 inches:* Moderate (about 8.0 inches)

#### **Interpretive groups**

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 2e  
*Hydrologic Soil Group:* C  
*Ecological site:* F121XY006KY - Ordovician Limestone Upland

## Custom Soil Resource Report

*Hydric soil rating:* No

### Description of Bluegrass

#### Setting

*Landform:* Ridges

*Landform position (two-dimensional):* Summit

*Landform position (three-dimensional):* Interfluve

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Parent material:* Thin fine-silty noncalcareous loess over clayey residuum weathered from phosphatic limestone

#### Typical profile

*Ap - 0 to 12 inches:* silt loam

*Bt - 12 to 35 inches:* silty clay loam

*2Bt - 35 to 84 inches:* silty clay loam

*2BC - 84 to 96 inches:* clay

#### Properties and qualities

*Slope:* 2 to 6 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Well drained

*Runoff class:* Low

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.20 to 1.98 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Available water supply, 0 to 60 inches:* High (about 11.6 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 2e

*Hydrologic Soil Group:* B

*Ecological site:* F121XY010KY - Phosphatic Limestone Upland

*Hydric soil rating:* No

### Minor Components

#### Faywood

*Percent of map unit:* 5 percent

*Landform:* Ridges

*Landform position (two-dimensional):* Shoulder

*Landform position (three-dimensional):* Interfluve

*Down-slope shape:* Convex

*Across-slope shape:* Linear

*Hydric soil rating:* No

## **uLfc—Lowell-Faywood silt loams, 6 to 12 percent slopes**

### **Map Unit Setting**

*National map unit symbol:* 2zs5g

*Elevation:* 450 to 1,130 feet

*Mean annual precipitation:* 36 to 66 inches

*Mean annual air temperature:* 40 to 68 degrees F

*Frost-free period:* 144 to 218 days

*Farmland classification:* Farmland of statewide importance

### **Map Unit Composition**

*Lowell and similar soils:* 70 percent

*Faywood and similar soils:* 20 percent

*Minor components:* 10 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

### **Description of Lowell**

#### **Setting**

*Landform:* Hills

*Landform position (two-dimensional):* Backslope

*Landform position (three-dimensional):* Side slope

*Down-slope shape:* Convex

*Across-slope shape:* Linear

*Parent material:* Clayey residuum weathered from limestone and shale

#### **Typical profile**

*Ap - 0 to 8 inches:* silt loam

*Bt - 8 to 41 inches:* silty clay

*Bck - 41 to 53 inches:* silty clay

*R - 53 to 63 inches:* bedrock

#### **Properties and qualities**

*Slope:* 6 to 12 percent

*Depth to restrictive feature:* 40 to 57 inches to lithic bedrock

*Drainage class:* Well drained

*Runoff class:* Medium

*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately low (0.00 to 0.01 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Calcium carbonate, maximum content:* 3 percent

*Available water supply, 0 to 60 inches:* Low (about 5.3 inches)

#### **Interpretive groups**

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 3e

*Hydrologic Soil Group:* C

## Custom Soil Resource Report

*Ecological site:* F121XY006KY - Ordovician Limestone Upland  
*Hydric soil rating:* No

### Description of Faywood

#### Setting

*Landform:* Hills  
*Landform position (two-dimensional):* Shoulder  
*Landform position (three-dimensional):* Side slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Linear  
*Parent material:* Clayey residuum weathered from limestone and shale

#### Typical profile

*Ap - 0 to 7 inches:* silt loam  
*Bt - 7 to 29 inches:* silty clay  
*R - 29 to 39 inches:* bedrock

#### Properties and qualities

*Slope:* 6 to 12 percent  
*Depth to restrictive feature:* 24 to 40 inches to lithic bedrock  
*Drainage class:* Well drained  
*Runoff class:* High  
*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately low (0.00 to 0.01 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Available water supply, 0 to 60 inches:* Low (about 3.9 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 3e  
*Hydrologic Soil Group:* D  
*Ecological site:* F121XY002KY - Moderately Deep Interbedded Limestone-Shale Backslopes  
*Hydric soil rating:* No

### Minor Components

#### Sandview

*Percent of map unit:* 5 percent  
*Landform:* Hills  
*Landform position (two-dimensional):* Backslope  
*Landform position (three-dimensional):* Side slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Ecological site:* F121XY006KY - Ordovician Limestone Upland  
*Hydric soil rating:* No

#### Cynthiana

*Percent of map unit:* 5 percent  
*Landform:* Hills  
*Landform position (two-dimensional):* Backslope  
*Landform position (three-dimensional):* Side slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Linear

## Custom Soil Resource Report

*Ecological site:* F121XY001KY - Shallow Limestone Residuum Backslopes  
*Hydric soil rating:* No

### **uLfd—Lowell-Faywood silt loams, 12 to 20 percent slopes**

#### **Map Unit Setting**

*National map unit symbol:* 2s2d7  
*Elevation:* 450 to 1,080 feet  
*Mean annual precipitation:* 36 to 61 inches  
*Mean annual air temperature:* 41 to 68 degrees F  
*Frost-free period:* 142 to 212 days  
*Farmland classification:* Not prime farmland

#### **Map Unit Composition**

*Lowell and similar soils:* 70 percent  
*Faywood and similar soils:* 25 percent  
*Minor components:* 5 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

#### **Description of Lowell**

##### **Setting**

*Landform:* Hills  
*Landform position (two-dimensional):* Backslope  
*Landform position (three-dimensional):* Side slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Linear  
*Parent material:* Clayey residuum weathered from limestone and shale

##### **Typical profile**

*Ap - 0 to 8 inches:* silt loam  
*Bt - 8 to 41 inches:* silty clay  
*BC - 41 to 53 inches:* silty clay  
*R - 53 to 63 inches:* bedrock

##### **Properties and qualities**

*Slope:* 12 to 20 percent  
*Depth to restrictive feature:* 40 to 57 inches to lithic bedrock  
*Drainage class:* Well drained  
*Runoff class:* High  
*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately high (0.00 to 0.20 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Calcium carbonate, maximum content:* 3 percent  
*Available water supply, 0 to 60 inches:* Moderate (about 8.0 inches)

##### **Interpretive groups**

*Land capability classification (irrigated):* None specified

## Custom Soil Resource Report

*Land capability classification (nonirrigated): 4e*  
*Hydrologic Soil Group: C*  
*Ecological site: F121XY006KY - Ordovician Limestone Upland*  
*Hydric soil rating: No*

### Description of Faywood

#### Setting

*Landform: Hills*  
*Landform position (two-dimensional): Backslope*  
*Landform position (three-dimensional): Side slope*  
*Down-slope shape: Convex*  
*Across-slope shape: Linear*  
*Parent material: Clayey residuum weathered from limestone and shale*

#### Typical profile

*Ap - 0 to 7 inches: silt loam*  
*Bt - 7 to 29 inches: silty clay*  
*R - 29 to 39 inches: bedrock*

#### Properties and qualities

*Slope: 12 to 20 percent*  
*Depth to restrictive feature: 20 to 39 inches to lithic bedrock*  
*Drainage class: Well drained*  
*Runoff class: High*  
*Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)*  
*Depth to water table: More than 80 inches*  
*Frequency of flooding: None*  
*Frequency of ponding: None*  
*Available water supply, 0 to 60 inches: Low (about 4.7 inches)*

#### Interpretive groups

*Land capability classification (irrigated): None specified*  
*Land capability classification (nonirrigated): 4e*  
*Hydrologic Soil Group: D*  
*Ecological site: F121XY002KY - Moderately Deep Interbedded Limestone-Shale Backslopes*  
*Hydric soil rating: No*

### Minor Components

#### Cynthiana

*Percent of map unit: 5 percent*  
*Landform: Hills*  
*Landform position (two-dimensional): Backslope*  
*Landform position (three-dimensional): Side slope*  
*Down-slope shape: Convex*  
*Across-slope shape: Linear*  
*Hydric soil rating: No*



## **uLsoB—Lowell-Sandview silt loams, 2 to 6 percent slopes**

### **Map Unit Setting**

*National map unit symbol:* 2zs5f  
*Elevation:* 460 to 1,130 feet  
*Mean annual precipitation:* 36 to 66 inches  
*Mean annual air temperature:* 40 to 68 degrees F  
*Frost-free period:* 144 to 218 days  
*Farmland classification:* All areas are prime farmland

### **Map Unit Composition**

*Lowell and similar soils:* 75 percent  
*Sandview and similar soils:* 20 percent  
*Minor components:* 5 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### **Description of Lowell**

#### **Setting**

*Landform:* Ridges  
*Landform position (two-dimensional):* Shoulder  
*Landform position (three-dimensional):* Interfluve  
*Down-slope shape:* Convex  
*Across-slope shape:* Linear  
*Parent material:* Clayey residuum weathered from limestone and shale

#### **Typical profile**

*Ap - 0 to 8 inches:* silt loam  
*Bt - 8 to 41 inches:* silty clay  
*B<sub>Ck</sub> - 41 to 53 inches:* silty clay  
*R - 53 to 63 inches:* bedrock

#### **Properties and qualities**

*Slope:* 2 to 6 percent  
*Depth to restrictive feature:* 40 to 57 inches to lithic bedrock  
*Drainage class:* Well drained  
*Runoff class:* Low  
*Capacity of the most limiting layer to transmit water (K<sub>sat</sub>):* Very low to moderately low (0.00 to 0.01 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Calcium carbonate, maximum content:* 3 percent  
*Available water supply, 0 to 60 inches:* Low (about 5.3 inches)

#### **Interpretive groups**

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 2e  
*Hydrologic Soil Group:* C

## Custom Soil Resource Report

*Ecological site:* F121XY006KY - Ordovician Limestone Upland  
*Hydric soil rating:* No

### Description of Sandview

#### Setting

*Landform:* Ridges  
*Landform position (two-dimensional):* Summit  
*Landform position (three-dimensional):* Interfluve  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Parent material:* Thin fine-silty noncalcareous loess over residuum weathered from limestone and shale

#### Typical profile

*Ap - 0 to 8 inches:* silt loam  
*Bt - 8 to 35 inches:* silty clay loam  
*2Bt - 35 to 76 inches:* silty clay  
*2R - 76 to 86 inches:* bedrock

#### Properties and qualities

*Slope:* 2 to 6 percent  
*Depth to restrictive feature:* 60 to 80 inches to lithic bedrock  
*Drainage class:* Well drained  
*Runoff class:* Low  
*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately high (0.00 to 0.60 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Available water supply, 0 to 60 inches:* Moderate (about 8.5 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 2e  
*Hydrologic Soil Group:* C  
*Ecological site:* F121XY006KY - Ordovician Limestone Upland  
*Hydric soil rating:* No

### Minor Components

#### Faywood

*Percent of map unit:* 5 percent  
*Landform:* Ridges  
*Landform position (two-dimensional):* Shoulder  
*Landform position (three-dimensional):* Interfluve  
*Down-slope shape:* Convex  
*Across-slope shape:* Linear  
*Ecological site:* F121XY002KY - Moderately Deep Interbedded Limestone-Shale Backslopes  
*Hydric soil rating:* No

## **W—Water**

### **Map Unit Setting**

*National map unit symbol:* lkfv

*Mean annual precipitation:* 46 to 58 inches

*Mean annual air temperature:* 45 to 66 degrees F

*Frost-free period:* 162 to 202 days

*Farmland classification:* Not prime farmland

### **Map Unit Composition**

*Water:* 100 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

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---

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## Custom Soil Resource Report

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. [http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2\\_054242](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242)

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Attachments

# **ATTACHMENT 5**

## **Water Resources**

- a. EDR DataMap Well Search Report and Map

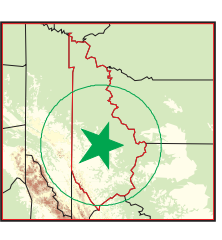
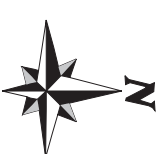




# EDR DataMap® Well Search

## US 150 EO

- Listed Water Wells
- Oil & Gas Wells
- Study Boundary
- Roads
- Major Roads
- Waterways
- Railroads
- Contour Lines
- Fault Lines
- Water
- Superfund Sites
- 100-Yr Flood Zones
- Wetlands



Danville, KY



Scale in Miles





**US 150 EO**  
Danville, KY 40422

Inquiry Number: 7132453.3w  
October 28, 2022

## EDR DataMap™ Well Search Report



6 Armstrong Road, 4th floor  
Shelton, CT 06484  
Toll Free: 800.352.0050  
[www.edrnet.com](http://www.edrnet.com)



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

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# GEOCHECK VERSION 2.1 SUMMARY

## FEDERAL DATABASE WELL INFORMATION

| MAP<br>ID _____ | WELL<br>ID _____ |
|-----------------|------------------|
|-----------------|------------------|

NO WELLS FOUND

## STATE WATER WELL INFORMATION

| MAP<br>ID _____ | WELL<br>ID _____ |
|-----------------|------------------|
| 1               | KY7000000078644  |
| 1               | KY7000000078643  |
| 1               | KY7000000073117  |
| 1               | KY7000000081007  |
| 1               | KY7000000082034  |
| 1               | KY7000000081005  |
| 1               | KY7000000081006  |
| 1               | KY7000000097823  |
| 1               | KY7000000078116  |
| 1               | KY7000000078119  |
| 1               | KY7000000079685  |
| 1               | KY7000000079684  |
| 1               | KY7000000097822  |
| 1               | KY7000000097824  |
| 1               | KY7000000097825  |
| 2               | KY7000000056897  |
| 3               | KY7000000065158  |
| 4               | KY7000000065156  |
| 4               | KY7000000065157  |
| 5               | KY7000000084959  |
| 5               | KY7000000084961  |
| 5               | KY7000000084960  |
| 6               | KY7000000065567  |
| 6               | KY7000000065569  |
| 6               | KY7000000065568  |
| 6               | KY7000000065572  |
| 6               | KY7000000065571  |
| 6               | KY7000000065570  |
| 7               | KY7000000014762  |
| 7               | KY7000000014761  |
| 7               | KY7000000004737  |
| 7               | KY7000000006753  |
| 8               | KY7000000003144  |
| 8               | KY7000000003147  |
| 9               | KY7000000103159  |
| 9               | KY7000000103974  |
| 9               | KY7000000103976  |
| 9               | KY7000000103975  |
| 9               | KY7000000103977  |
| 9               | KY7000000103978  |
| 9               | KY7000000103158  |
| 9               | KY7000000096692  |
| 9               | KY7000000103160  |
| 9               | KY7000000098669  |
| 9               | KY7000000099977  |
| 9               | KY7000000099979  |
| 9               | KY7000000093415  |

# GEOCHECK VERSION 2.1 SUMMARY

## STATE WATER WELL INFORMATION

| <u>MAP<br/>ID</u> | <u>WELL<br/>ID</u> |
|-------------------|--------------------|
| 9                 | KY7000000099980    |
| 9                 | KY7000000099978    |
| 9                 | KY7000000099981    |
| 9                 | KY7000000089431    |
| 9                 | KY7000000089435    |
| 9                 | KY7000000089430    |
| 9                 | KY7000000089432    |
| 9                 | KY7000000089434    |
| 9                 | KY7000000084296    |
| 9                 | KY7000000084295    |
| 9                 | KY7000000089429    |
| 9                 | KY7000000089436    |
| 9                 | KY7000000089440    |
| 9                 | KY7000000089441    |
| 9                 | KY7000000089439    |
| 9                 | KY7000000089437    |
| 9                 | KY7000000089438    |
| 9                 | KY7000000077226    |
| 9                 | KY7000000077228    |
| 9                 | KY7000000077227    |
| 9                 | KY7000000096693    |
| 9                 | KY7000000099982    |
| 9                 | KY7000000098670    |
| 9                 | KY7000000077196    |
| 9                 | KY7000000077195    |
| 9                 | KY7000000077224    |
| 9                 | KY7000000077223    |
| 9                 | KY7000000077225    |
| 10                | KY7000000081522    |
| 10                | KY7000000072753    |
| 10                | KY7000000072751    |
| 10                | KY7000000072752    |
| 10                | KY7000000067367    |
| 10                | KY7000000072759    |
| 10                | KY7000000067388    |
| 10                | KY7000000072762    |
| 10                | KY7000000067387    |
| 10                | KY7000000070998    |
| 10                | KY7000000092596    |
| 10                | KY7000000070997    |
| 10                | KY7000000092593    |
| 10                | KY7000000092594    |
| 10                | KY7000000092595    |
| 10                | KY7000000092584    |
| 10                | KY7000000092583    |
| 10                | KY7000000070996    |
| 10                | KY7000000102149    |
| 10                | KY7000000102150    |
| 10                | KY7000000102151    |
| 11                | KY7000000085670    |
| 11                | KY7000000085671    |
| 11                | KY7000000085673    |
| 11                | KY7000000085672    |
| 12                | KY7000000093110    |

# GEOCHECK VERSION 2.1 SUMMARY

## STATE WATER WELL INFORMATION

| <u>MAP ID</u> | <u>WELL ID</u>  |
|---------------|-----------------|
| 12            | KY7000000100756 |
| 12            | KY7000000093852 |
| 12            | KY7000000088582 |
| 12            | KY7000000088583 |
| 12            | KY7000000088584 |
| 12            | KY7000000084621 |
| 12            | KY7000000084622 |
| 12            | KY7000000087559 |
| 12            | KY7000000088586 |
| 12            | KY7000000088585 |
| 12            | KY7000000089339 |
| 12            | KY7000000089447 |
| 12            | KY7000000088587 |
| 12            | KY7000000089338 |
| 12            | KY7000000089448 |
| 12            | KY7000000093108 |
| 12            | KY7000000102952 |
| 12            | KY7000000093109 |
| 12            | KY7000000102951 |
| 12            | KY7000000097229 |
| 11            | KY7000000097580 |
| 11            | KY7000000097579 |
| 11            | KY7000000097581 |
| 11            | KY7000000006952 |
| 11            | KY7000000077215 |
| 11            | KY7000000077216 |
| 11            | KY7000000077222 |
| 11            | KY7000000077217 |
| 11            | KY7000000093059 |
| 11            | KY7000000093058 |
| 13            | KY7000000086174 |
| 11            | KY7000000089255 |
| 11            | KY7000000089254 |
| 11            | KY7000000089259 |
| 11            | KY7000000089258 |

## STATE OIL/GAS WELL INFORMATION

| <u>MAP ID</u> | <u>WELL ID</u>  |
|---------------|-----------------|
| 1             | KYOG13000106264 |
| 2             | KYOG13000012171 |
| 3             | KYOG13000100413 |
| 4             | KYOG13000100397 |

## PUBLIC WATER SUPPLY SYSTEM INFORMATION

Map ID: 11  
PWS ID: KY0692835  
PWS Name: WILLIAM WHITLEY STATE SHRINE  
LARRY CARTER  
625 WILLIAM WHITLEY RD  
STANDFORD, KY 404840000

PWS currently has or had major violation(s) or enforcement: YES

## USGS TOPOGRAPHIC MAP(S)

37084-E6 STANFORD, KY

# GEOCHECK VERSION 2.1 SUMMARY

## USGS TOPOGRAPHIC MAP(S)

37084-E7 JUNCTION CITY, KY  
 37084-F6 BRYANTSVILLE, KY  
 37084-F7 DANVILLE, KY

## AREA RADON INFORMATION

Federal Area Radon Information for Zip Code: 40422

Number of sites tested: 2

| Area                    | Average Activity | % <4 pCi/L   | % 4-20 pCi/L | % >20 pCi/L  |
|-------------------------|------------------|--------------|--------------|--------------|
| Living Area - 1st Floor | 2.300 pCi/L      | 50%          | 50%          | 0%           |
| Living Area - 2nd Floor | Not Reported     | Not Reported | Not Reported | Not Reported |
| Basement                | 2.500 pCi/L      | 100%         | 0%           | 0%           |

Federal Area Radon Information for Zip Code: 40422

Number of sites tested: 2

| Area                    | Average Activity | % <4 pCi/L   | % 4-20 pCi/L | % >20 pCi/L  |
|-------------------------|------------------|--------------|--------------|--------------|
| Living Area - 1st Floor | 2.300 pCi/L      | 50%          | 50%          | 0%           |
| Living Area - 2nd Floor | Not Reported     | Not Reported | Not Reported | Not Reported |
| Basement                | 2.500 pCi/L      | 100%         | 0%           | 0%           |

Federal Area Radon Information for Zip Code: 40422

Number of sites tested: 2

| Area                    | Average Activity | % <4 pCi/L   | % 4-20 pCi/L | % >20 pCi/L  |
|-------------------------|------------------|--------------|--------------|--------------|
| Living Area - 1st Floor | 2.300 pCi/L      | 50%          | 50%          | 0%           |
| Living Area - 2nd Floor | Not Reported     | Not Reported | Not Reported | Not Reported |
| Basement                | 2.500 pCi/L      | 100%         | 0%           | 0%           |

Federal EPA Radon Zone for BOYLE County: 1

- Note: Zone 1 indoor average level > 4 pCi/L.
- : Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
- : Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for BOYLE COUNTY, KY

Number of sites tested: 2

| Area                    | Average Activity | % <4 pCi/L   | % 4-20 pCi/L | % >20 pCi/L  |
|-------------------------|------------------|--------------|--------------|--------------|
| Living Area - 1st Floor | 2.300 pCi/L      | 50%          | 50%          | 0%           |
| Living Area - 2nd Floor | Not Reported     | Not Reported | Not Reported | Not Reported |
| Basement                | 2.500 pCi/L      | 100%         | 0%           | 0%           |

## GEOCHECK VERSION 2.1 SUMMARY

### AREA RADON INFORMATION

---

Federal EPA Radon Zone for LINCOLN County: 1

- Note: Zone 1 indoor average level > 4 pCi/L.  
: Zone 2 indoor average level  $\geq$  2 pCi/L and  $\leq$  4 pCi/L.  
: Zone 3 indoor average level < 2 pCi/L.

## GEOCHECK VERSION 2.1 STATE DATABASE WELL INFORMATION

**State Well Information:**

|                    |              |                   |                                      |
|--------------------|--------------|-------------------|--------------------------------------|
| Map ID:            | 1            | Well Type:        | Monitoring Well                      |
| AKGWA ID:          | 80035274     | Alt ID:           | MW-05                                |
| Well Status:       | Active       | Well Name:        | JC Bait & Tackle Shop                |
| PWS ID:            | Not Reported | Usage:            | Monitoring Well - Ambient Monitoring |
| Surface Elevation: | 900          | Depth to Bedrock: | 15                                   |
| Total Depth:       | 16           |                   |                                      |
| End Date:          | 24-MAR-99    |                   |                                      |

|                    |              |                   |                                      |
|--------------------|--------------|-------------------|--------------------------------------|
| Map ID:            | 1            | Well Type:        | Monitoring Well                      |
| AKGWA ID:          | 80035273     | Alt ID:           | MW-04                                |
| Well Status:       | Active       | Well Name:        | JC Bait & Tackle Shop                |
| PWS ID:            | Not Reported | Usage:            | Monitoring Well - Ambient Monitoring |
| Surface Elevation: | 900          | Depth to Bedrock: | 15                                   |
| Total Depth:       | 16           |                   |                                      |
| End Date:          | 24-MAR-99    |                   |                                      |

|                    |              |                   |                                      |
|--------------------|--------------|-------------------|--------------------------------------|
| Map ID:            | 1            | Well Type:        | Monitoring Well                      |
| AKGWA ID:          | 80027507     | Alt ID:           | MW-06                                |
| Well Status:       | Active       | Well Name:        | JC Bait & Tackle Shop                |
| PWS ID:            | Not Reported | Usage:            | Monitoring Well - Ambient Monitoring |
| Surface Elevation: | 900          | Depth to Bedrock: | 13                                   |
| Total Depth:       | 13           |                   |                                      |
| End Date:          | 14-JAN-00    |                   |                                      |

|                    |              |                   |                                      |
|--------------------|--------------|-------------------|--------------------------------------|
| Map ID:            | 1            | Well Type:        | Monitoring Well                      |
| AKGWA ID:          | 80038267     | Alt ID:           | MW-02R                               |
| Well Status:       | Active       | Well Name:        | JC Bait & Tackle Shop                |
| PWS ID:            | Not Reported | Usage:            | Monitoring Well - Ambient Monitoring |
| Surface Elevation: | 900          | Depth to Bedrock: | 0                                    |
| Total Depth:       | 12.5         |                   |                                      |
| End Date:          | 25-FEB-04    |                   |                                      |

|                    |              |                   |                                      |
|--------------------|--------------|-------------------|--------------------------------------|
| Map ID:            | 1            | Well Type:        | Monitoring Well                      |
| AKGWA ID:          | 80039659     | Alt ID:           | MW-07                                |
| Well Status:       | Active       | Well Name:        | JC Bait & Tackle Shop                |
| PWS ID:            | Not Reported | Usage:            | Monitoring Well - Ambient Monitoring |
| Surface Elevation: | 900          | Depth to Bedrock: | 12                                   |
| Total Depth:       | 12           |                   |                                      |
| End Date:          | 10-OCT-00    |                   |                                      |

|                    |              |            |                                      |
|--------------------|--------------|------------|--------------------------------------|
| Map ID:            | 1            | Well Type: | Monitoring Well                      |
| AKGWA ID:          | 80038265     | Alt ID:    | MW-04R                               |
| Well Status:       | Active       | Well Name: | JC Bait & Tackle Shop                |
| PWS ID:            | Not Reported | Usage:     | Monitoring Well - Ambient Monitoring |
| Surface Elevation: | 900          |            |                                      |





**GEOCHECK VERSION 2.1**  
**STATE DATABASE WELL INFORMATION**

|                    |              |                   |                                      |
|--------------------|--------------|-------------------|--------------------------------------|
| AKGWA ID:          | 80036513     | Well Type:        | Monitoring Well                      |
| Well Status:       | Active       | Alt ID:           | MW-01 ; 8003-4497                    |
| PWS ID:            | Not Reported | Well Name:        | JC Bait & Tackle Shop                |
| Surface Elevation: | 920          | Usage:            | Monitoring Well - Ambient Monitoring |
| Total Depth:       | 11.5         | Depth to Bedrock: | 11.5                                 |
| End Date:          | 06-APR-98    |                   |                                      |

|                    |   |                   |                       |
|--------------------|---|-------------------|-----------------------|
| Map ID:            | 1   | Well Type:        | Monitoring Well       |
| AKGWA ID:          | 80060344                                      | Alt ID:           | EW-01                 |
| Well Status:       | Active  | Well Name:        | JC Bait & Tackle Shop |
| PWS ID:            | Not Reported                                  |                   |                       |
| Surface Elevation: | 900   |                   |                       |
| Usage:             | Monitoring Well - Water Level Monitoring Only |                   |                       |
| Total Depth:       | 10  | Depth to Bedrock: | 10                    |
| End Date:          | 21-SEP-10                                     |                   |                       |

|                    |   |                   |                       |
|--------------------|---|-------------------|-----------------------|
| Map ID:            | 1   | Well Type:        | Monitoring Well       |
| AKGWA ID:          | 80060346                                      | Alt ID:           | MW-09                 |
| Well Status:       | Active  | Well Name:        | JC Bait & Tackle Shop |
| PWS ID:            | Not Reported                                  |                   |                       |
| Surface Elevation: | 890   |                   |                       |
| Usage:             | Monitoring Well - Water Level Monitoring Only |                   |                       |
| Total Depth:       | 13.36   | Depth to Bedrock: | 13.36                 |
| End Date:          | 21-SEP-10                                     |                   |                       |

|                    |   |                   |                       |
|--------------------|---|-------------------|-----------------------|
| Map ID:            | 1   | Well Type:        | Monitoring Well       |
| AKGWA ID:          | 80060348                                      | Alt ID:           | MW-10                 |
| Well Status:       | Active  | Well Name:        | JC Bait & Tackle Shop |
| PWS ID:            | Not Reported                                  |                   |                       |
| Surface Elevation: | 890   |                   |                       |
| Usage:             | Monitoring Well - Water Level Monitoring Only |                   |                       |
| Total Depth:       | 12.5  | Depth to Bedrock: | 12.5                  |
| End Date:          | 21-SEP-10                                     |                   |                       |

|                    |              |                   |                             |
|--------------------|--------------|-------------------|-----------------------------|
| Map ID:            | 2            | Well Type:        | Water Well                  |
| AKGWA ID:          | 60003532     | Alt ID:           | Not Reported                |
| Well Status:       | Not Reported | Well Name:        | Not Reported                |
| PWS ID:            | Not Reported | Usage:            | Domestic - Single Household |
| Surface Elevation: | 0            | Depth to Bedrock: | 10                          |
| Total Depth:       | 0            |                   |                             |
| End Date:          | Not Reported |                   |                             |

|                    |              |            |                                      |
|--------------------|--------------|------------|--------------------------------------|
| Map ID:            | 3            | Well Type: | Monitoring Well                      |
| AKGWA ID:          | 80012390     | Alt ID:    | MW-03; 0002-8405                     |
| Well Status:       | Plugged      | Well Name: | ATR Wire & Cable Co Inc              |
| PWS ID:            | Not Reported | Usage:     | Monitoring Well - Ambient Monitoring |
| Surface Elevation: | 950          |            |                                      |



**GEOCHECK VERSION 2.1**  
**STATE DATABASE WELL INFORMATION**

|                    |              |                   |                                      |
|--------------------|--------------|-------------------|--------------------------------------|
| AKGWA ID:          | 80012955     | Well Type:        | Monitoring Well                      |
| Well Status:       | Plugged      | Alt ID:           | MW-01                                |
| PWS ID:            | Not Reported | Well Name:        | Chevron 42487                        |
| Surface Elevation: | 1000         | Usage:            | Monitoring Well - Ambient Monitoring |
| Total Depth:       | 22.799999    | Depth to Bedrock: | 0                                    |
| End Date:          | 01-JAN-00    |                   |                                      |

|                    |              |                   |                                      |
|--------------------|--------------|-------------------|--------------------------------------|
| Map ID:            | 6            | Well Type:        | Monitoring Well                      |
| AKGWA ID:          | 80012957     | Alt ID:           | MW-04                                |
| Well Status:       | Plugged      | Well Name:        | Chevron 42487                        |
| PWS ID:            | Not Reported | Usage:            | Monitoring Well - Ambient Monitoring |
| Surface Elevation: | 1000         | Depth to Bedrock: | 0                                    |
| Total Depth:       | 22.799999    |                   |                                      |
| End Date:          | 01-JAN-00    |                   |                                      |

|                    |              |                   |                                      |
|--------------------|--------------|-------------------|--------------------------------------|
| Map ID:            | 6            | Well Type:        | Monitoring Well                      |
| AKGWA ID:          | 80012956     | Alt ID:           | MW-03                                |
| Well Status:       | Plugged      | Well Name:        | Chevron 42487                        |
| PWS ID:            | Not Reported | Usage:            | Monitoring Well - Ambient Monitoring |
| Surface Elevation: | 1000         | Depth to Bedrock: | 0                                    |
| Total Depth:       | 22.799999    |                   |                                      |
| End Date:          | 01-JAN-00    |                   |                                      |

|                    |              |                   |                                      |
|--------------------|--------------|-------------------|--------------------------------------|
| Map ID:            | 6            | Well Type:        | Monitoring Well                      |
| AKGWA ID:          | 80012960     | Alt ID:           | MW-09                                |
| Well Status:       | Plugged      | Well Name:        | Chevron 42487                        |
| PWS ID:            | Not Reported | Usage:            | Monitoring Well - Ambient Monitoring |
| Surface Elevation: | 1000         | Depth to Bedrock: | 0                                    |
| Total Depth:       | 22.799999    |                   |                                      |
| End Date:          | 01-JAN-00    |                   |                                      |

|                    |              |                   |                                      |
|--------------------|--------------|-------------------|--------------------------------------|
| Map ID:            | 6            | Well Type:        | Monitoring Well                      |
| AKGWA ID:          | 80012959     | Alt ID:           | MW-08                                |
| Well Status:       | Plugged      | Well Name:        | Chevron 42487                        |
| PWS ID:            | Not Reported | Usage:            | Monitoring Well - Ambient Monitoring |
| Surface Elevation: | 1000         | Depth to Bedrock: | 0                                    |
| Total Depth:       | 22.799999    |                   |                                      |
| End Date:          | 01-JAN-00    |                   |                                      |

|                    |              |                   |                                      |
|--------------------|--------------|-------------------|--------------------------------------|
| Map ID:            | 6            | Well Type:        | Monitoring Well                      |
| AKGWA ID:          | 80012958     | Alt ID:           | MW-05                                |
| Well Status:       | Plugged      | Well Name:        | Chevron 42487                        |
| PWS ID:            | Not Reported | Usage:            | Monitoring Well - Ambient Monitoring |
| Surface Elevation: | 1000         | Depth to Bedrock: | 0                                    |
| Total Depth:       | 22.799999    |                   |                                      |
| End Date:          | 01-JAN-00    |                   |                                      |

**GEOCHECK VERSION 2.1**  
**STATE DATABASE WELL INFORMATION**

|                    |              |                   |                           |
|--------------------|--------------|-------------------|---------------------------|
| AKGWA ID:          | 00020874     | Well Type:        | Water Well                |
| Well Status:       | Plugged      | Alt ID:           | Not Reported              |
| PWS ID:            | Not Reported | Well Name:        | Residence - George Grider |
| Surface Elevation: | 870          | Usage:            | Not Reported              |
| Total Depth:       | 80           | Depth to Bedrock: | 2                         |
| End Date:          | 27-MAR-90    |                   |                           |

|                    |              |                   |                           |
|--------------------|--------------|-------------------|---------------------------|
| Map ID:            | 7            | Well Type:        | Water Well                |
| AKGWA ID:          | 00020873     | Alt ID:           | Not Reported              |
| Well Status:       | Plugged      | Well Name:        | Residence - George Grider |
| PWS ID:            | Not Reported | Usage:            | Not Reported              |
| Surface Elevation: | 880          | Depth to Bedrock: | 2                         |
| Total Depth:       | 80           |                   |                           |
| End Date:          | 31-MAR-90    |                   |                           |

|                    |              |                   |                                  |
|--------------------|--------------|-------------------|----------------------------------|
| Map ID:            | 7            | Well Type:        | Water Well                       |
| AKGWA ID:          | 00004666     | Alt ID:           | Not Reported                     |
| Well Status:       | Active       | Well Name:        | Residence - Ruth Grider          |
| PWS ID:            | Not Reported | Usage:            | Agriculture - Livestock Watering |
| Surface Elevation: | 880          | Depth to Bedrock: | 1                                |
| Total Depth:       | 40           |                   |                                  |
| End Date:          | 28-SEP-87    |                   |                                  |

|                    |              |                   |                             |
|--------------------|--------------|-------------------|-----------------------------|
| Map ID:            | 7            | Well Type:        | Water Well                  |
| AKGWA ID:          | 00008187     | Alt ID:           | Not Reported                |
| Well Status:       | Active       | Well Name:        | Residence - George Grider   |
| PWS ID:            | Not Reported | Usage:            | Domestic - Single Household |
| Surface Elevation: | 870          | Depth to Bedrock: | 1                           |
| Total Depth:       | 60           |                   |                             |
| End Date:          | 04-APR-90    |                   |                             |

|                    |              |                   |                           |
|--------------------|--------------|-------------------|---------------------------|
| Map ID:            | 8            | Well Type:        | Water Well                |
| AKGWA ID:          | 00003103     | Alt ID:           | Not Reported              |
| Well Status:       | Inactive     | Well Name:        | Residence - Jimmy Caudill |
| PWS ID:            | Not Reported | Usage:            | Not Reported              |
| Surface Elevation: | 900          | Depth to Bedrock: | 4                         |
| Total Depth:       | 75           |                   |                           |
| End Date:          | 11-MAR-87    |                   |                           |

|                    |              |                   |                             |
|--------------------|--------------|-------------------|-----------------------------|
| Map ID:            | 8            | Well Type:        | Water Well                  |
| AKGWA ID:          | 00003106     | Alt ID:           | Not Reported                |
| Well Status:       | Plugged      | Well Name:        | Residence - Joe Julian      |
| PWS ID:            | Not Reported | Usage:            | Domestic - Single Household |
| Surface Elevation: | 960          | Depth to Bedrock: | 0                           |
| Total Depth:       | 94           |                   |                             |
| End Date:          | 18-MAR-86    |                   |                             |

**GEOCHECK VERSION 2.1**  
**STATE DATABASE WELL INFORMATION**

|                    |              |                   |                                      |
|--------------------|--------------|-------------------|--------------------------------------|
| AKGWA ID:          | 80070550     | Well Type:        | Monitoring Well                      |
| Well Status:       | Active       | Alt ID:           | MW-09R                               |
| PWS ID:            | Not Reported | Well Name:        | Fort Logan Trading Post              |
| Surface Elevation: | 897          | Usage:            | Monitoring Well - Ambient Monitoring |
| Total Depth:       | 12.3         | Depth to Bedrock: | 12.3                                 |
| End Date:          | 22-SEP-15    |                   |                                      |

|                    |              |                   |                                      |
|--------------------|--------------|-------------------|--------------------------------------|
| Map ID:            | 9            | Well Type:        | Monitoring Well                      |
| AKGWA ID:          | 80072415     | Alt ID:           | MW-21                                |
| Well Status:       | Active       | Well Name:        | Fort Logan Trading Post              |
| PWS ID:            | Not Reported | Usage:            | Monitoring Well - Ambient Monitoring |
| Surface Elevation: | 897          | Depth to Bedrock: | 10.45                                |
| Total Depth:       | 10.45        |                   |                                      |
| End Date:          | 22-SEP-16    |                   |                                      |

|                    |              |                   |                                      |
|--------------------|--------------|-------------------|--------------------------------------|
| Map ID:            | 9            | Well Type:        | Monitoring Well                      |
| AKGWA ID:          | 80072417     | Alt ID:           | MW-23                                |
| Well Status:       | Active       | Well Name:        | Fort Logan Trading Post              |
| PWS ID:            | Not Reported | Usage:            | Monitoring Well - Ambient Monitoring |
| Surface Elevation: | 897          | Depth to Bedrock: | 8.55                                 |
| Total Depth:       | 8.55         |                   |                                      |
| End Date:          | 22-SEP-16    |                   |                                      |

|                    |              |                   |                                      |
|--------------------|--------------|-------------------|--------------------------------------|
| Map ID:            | 9            | Well Type:        | Monitoring Well                      |
| AKGWA ID:          | 80072416     | Alt ID:           | MW-22                                |
| Well Status:       | Active       | Well Name:        | Fort Logan Trading Post              |
| PWS ID:            | Not Reported | Usage:            | Monitoring Well - Ambient Monitoring |
| Surface Elevation: | 898.900024   | Depth to Bedrock: | 7.85                                 |
| Total Depth:       | 7.85         |                   |                                      |
| End Date:          | 22-SEP-16    |                   |                                      |

|                    |              |                   |                                      |
|--------------------|--------------|-------------------|--------------------------------------|
| Map ID:            | 9            | Well Type:        | Monitoring Well                      |
| AKGWA ID:          | 80072418     | Alt ID:           | MW-24                                |
| Well Status:       | Active       | Well Name:        | Fort Logan Trading Post              |
| PWS ID:            | Not Reported | Usage:            | Monitoring Well - Ambient Monitoring |
| Surface Elevation: | 900          | Depth to Bedrock: | 7.15                                 |
| Total Depth:       | 7.15         |                   |                                      |
| End Date:          | 22-SEP-16    |                   |                                      |

|                    |              |                   |                                      |
|--------------------|--------------|-------------------|--------------------------------------|
| Map ID:            | 9            | Well Type:        | Monitoring Well                      |
| AKGWA ID:          | 80072419     | Alt ID:           | MW-25                                |
| Well Status:       | Active       | Well Name:        | Fort Logan Trading Post              |
| PWS ID:            | Not Reported | Usage:            | Monitoring Well - Ambient Monitoring |
| Surface Elevation: | 900          | Depth to Bedrock: | 5.35                                 |
| Total Depth:       | 5.35         |                   |                                      |
| End Date:          | 22-SEP-16    |                   |                                      |

## GEOCHECK VERSION 2.1 STATE DATABASE WELL INFORMATION

|                    |              |                   |                                      |
|--------------------|--------------|-------------------|--------------------------------------|
| AKGWA ID:          | 80070549     | Well Type:        | Monitoring Well                      |
| Well Status:       | Active       | Alt ID:           | MW-03R                               |
| PWS ID:            | Not Reported | Well Name:        | Fort Logan Trading Post              |
| Surface Elevation: | 900.200012   | Usage:            | Monitoring Well - Ambient Monitoring |
| Total Depth:       | 11.65        | Depth to Bedrock: | 11.65                                |
| End Date:          | 22-SEP-15    |                   |                                      |

|                    |              |                   |                 |
|--------------------|--------------|-------------------|-----------------|
| Map ID:            | 9            | Well Type:        | Monitoring Well |
| AKGWA ID:          | 80058919     | Alt ID:           | MW-03           |
| Well Status:       | Plugged      | Well Name:        | BP of Stanford  |
| PWS ID:            | Not Reported | Usage:            | Remediation     |
| Surface Elevation: | 910.960022   | Depth to Bedrock: | 18              |
| Total Depth:       | 18           |                   |                 |
| End Date:          | 19-MAY-11    |                   |                 |

|                    |              |                   |                                      |
|--------------------|--------------|-------------------|--------------------------------------|
| Map ID:            | 9            | Well Type:        | Monitoring Well                      |
| AKGWA ID:          | 80070551     | Alt ID:           | MW-20                                |
| Well Status:       | Active       | Well Name:        | Fort Logan Trading Post              |
| PWS ID:            | Not Reported | Usage:            | Monitoring Well - Ambient Monitoring |
| Surface Elevation: | 902.799988   | Depth to Bedrock: | 7.95                                 |
| Total Depth:       | 7.95         |                   |                                      |
| End Date:          | 22-SEP-15    |                   |                                      |

|                    |              |                   |                 |
|--------------------|--------------|-------------------|-----------------|
| Map ID:            | 9            | Well Type:        | Monitoring Well |
| AKGWA ID:          | 80061440     | Alt ID:           | MW-04           |
| Well Status:       | Plugged      | Well Name:        | BP of Stanford  |
| PWS ID:            | Not Reported | Usage:            | Remediation     |
| Surface Elevation: | 911.400024   | Depth to Bedrock: | 0               |
| Total Depth:       | 10           |                   |                 |
| End Date:          | 28-NOV-14    |                   |                 |

|                    |              |                   |                                      |
|--------------------|--------------|-------------------|--------------------------------------|
| Map ID:            | 9            | Well Type:        | Monitoring Well                      |
| AKGWA ID:          | 80063699     | Alt ID:           | MW-06                                |
| Well Status:       | Plugged      | Well Name:        | BP of Stanford                       |
| PWS ID:            | Not Reported | Usage:            | Monitoring Well - Ambient Monitoring |
| Surface Elevation: | 911.599976   | Depth to Bedrock: | 6                                    |
| Total Depth:       | 6            |                   |                                      |
| End Date:          | 24-FEB-14    |                   |                                      |

|                    |              |                   |                                      |
|--------------------|--------------|-------------------|--------------------------------------|
| Map ID:            | 9            | Well Type:        | Monitoring Well                      |
| AKGWA ID:          | 80063701     | Alt ID:           | MW-08                                |
| Well Status:       | Plugged      | Well Name:        | BP of Stanford                       |
| PWS ID:            | Not Reported | Usage:            | Monitoring Well - Ambient Monitoring |
| Surface Elevation: | 910.5        | Depth to Bedrock: | 5                                    |
| Total Depth:       | 5            |                   |                                      |
| End Date:          | 24-FEB-14    |                   |                                      |

**GEOCHECK VERSION 2.1**  
**STATE DATABASE WELL INFORMATION**

|                    |              |                   |                                      |
|--------------------|--------------|-------------------|--------------------------------------|
| AKGWA ID:          | 80054637     | Well Type:        | Monitoring Well                      |
| Well Status:       | Plugged      | Alt ID:           | MW-01                                |
| PWS ID:            | Not Reported | Well Name:        | BP of Stanford                       |
| Surface Elevation: | 905.700012   | Usage:            | Monitoring Well - Ambient Monitoring |
| Total Depth:       | 17           | Depth to Bedrock: | 17                                   |
| End Date:          | 05-NOV-09    |                   |                                      |

|                    |              |                   |                                      |
|--------------------|--------------|-------------------|--------------------------------------|
| Map ID:            | 9            | Well Type:        | Monitoring Well                      |
| AKGWA ID:          | 80063702     | Alt ID:           | MW-09                                |
| Well Status:       | Plugged      | Well Name:        | BP of Stanford                       |
| PWS ID:            | Not Reported | Usage:            | Monitoring Well - Ambient Monitoring |
| Surface Elevation: | 909.900024   | Depth to Bedrock: | 9.5                                  |
| Total Depth:       | 9.5          |                   |                                      |
| End Date:          | 25-FEB-14    |                   |                                      |

|                    |              |                   |                                      |
|--------------------|--------------|-------------------|--------------------------------------|
| Map ID:            | 9            | Well Type:        | Monitoring Well                      |
| AKGWA ID:          | 80063700     | Alt ID:           | MW-07                                |
| Well Status:       | Plugged      | Well Name:        | BP of Stanford                       |
| PWS ID:            | Not Reported | Usage:            | Monitoring Well - Ambient Monitoring |
| Surface Elevation: | 911.799988   | Depth to Bedrock: | 5                                    |
| Total Depth:       | 5            |                   |                                      |
| End Date:          | 24-JUN-13    |                   |                                      |

|                    |              |                   |                                      |
|--------------------|--------------|-------------------|--------------------------------------|
| Map ID:            | 9            | Well Type:        | Monitoring Well                      |
| AKGWA ID:          | 80063703     | Alt ID:           | MW-10                                |
| Well Status:       | Plugged      | Well Name:        | BP of Stanford                       |
| PWS ID:            | Not Reported | Usage:            | Monitoring Well - Ambient Monitoring |
| Surface Elevation: | 910.299988   | Depth to Bedrock: | 7                                    |
| Total Depth:       | 7            |                   |                                      |
| End Date:          | 25-FEB-14    |                   |                                      |

|                    |              |                   |                                      |
|--------------------|--------------|-------------------|--------------------------------------|
| Map ID:            | 9            | Well Type:        | Monitoring Well                      |
| AKGWA ID:          | 80048929     | Alt ID:           | MW-05                                |
| Well Status:       | Active       | Well Name:        | Fort Logan Trading Post              |
| PWS ID:            | Not Reported | Usage:            | Monitoring Well - Ambient Monitoring |
| Surface Elevation: | 910          | Depth to Bedrock: | 0                                    |
| Total Depth:       | 6.5          |                   |                                      |
| End Date:          | 12-JAN-04    |                   |                                      |

|                    |              |                   |                                      |
|--------------------|--------------|-------------------|--------------------------------------|
| Map ID:            | 9            | Well Type:        | Monitoring Well                      |
| AKGWA ID:          | 80048933     | Alt ID:           | MW-08                                |
| Well Status:       | Active       | Well Name:        | Fort Logan Trading Post              |
| PWS ID:            | Not Reported | Usage:            | Monitoring Well - Ambient Monitoring |
| Surface Elevation: | 910          | Depth to Bedrock: | 0                                    |
| Total Depth:       | 7.5          |                   |                                      |
| End Date:          | 12-JAN-04    |                   |                                      |

**GEOCHECK VERSION 2.1**  
**STATE DATABASE WELL INFORMATION**

|                    |              |                   |                                      |
|--------------------|--------------|-------------------|--------------------------------------|
| AKGWA ID:          | 80048928     | Well Type:        | Monitoring Well                      |
| Well Status:       | Active       | Alt ID:           | MW-04                                |
| PWS ID:            | Not Reported | Well Name:        | Fort Logan Trading Post              |
| Surface Elevation: | 910          | Usage:            | Monitoring Well - Ambient Monitoring |
| Total Depth:       | 5.5          | Depth to Bedrock: | 0                                    |
| End Date:          | 12-DEC-14    |                   |                                      |

|                    |              |                   |                                      |
|--------------------|--------------|-------------------|--------------------------------------|
| Map ID:            | 9            | Well Type:        | Monitoring Well                      |
| AKGWA ID:          | 80048930     | Alt ID:           | MW-06                                |
| Well Status:       | Active       | Well Name:        | Fort Logan Trading Post              |
| PWS ID:            | Not Reported | Usage:            | Monitoring Well - Ambient Monitoring |
| Surface Elevation: | 910          | Depth to Bedrock: | 0                                    |
| Total Depth:       | 10.4         |                   |                                      |
| End Date:          | 12-JAN-04    |                   |                                      |

|                    |              |                   |                                      |
|--------------------|--------------|-------------------|--------------------------------------|
| Map ID:            | 9            | Well Type:        | Monitoring Well                      |
| AKGWA ID:          | 80048932     | Alt ID:           | MW-07                                |
| Well Status:       | Active       | Well Name:        | Fort Logan Trading Post              |
| PWS ID:            | Not Reported | Usage:            | Monitoring Well - Ambient Monitoring |
| Surface Elevation: | 910          | Depth to Bedrock: | 0                                    |
| Total Depth:       | 12           |                   |                                      |
| End Date:          | 12-JAN-04    |                   |                                      |

|                    |              |                   |                                      |
|--------------------|--------------|-------------------|--------------------------------------|
| Map ID:            | 9            | Well Type:        | Monitoring Well                      |
| AKGWA ID:          | 80042493     | Alt ID:           | MW-02                                |
| Well Status:       | Active       | Well Name:        | Fort Logan Trading Post              |
| PWS ID:            | Not Reported | Usage:            | Monitoring Well - Ambient Monitoring |
| Surface Elevation: | 910          | Depth to Bedrock: | 8.5                                  |
| Total Depth:       | 8.5          |                   |                                      |
| End Date:          | 07-JUN-02    |                   |                                      |

|                    |              |                   |                                      |
|--------------------|--------------|-------------------|--------------------------------------|
| Map ID:            | 9            | Well Type:        | Monitoring Well                      |
| AKGWA ID:          | 80042492     | Alt ID:           | MW-01                                |
| Well Status:       | Active       | Well Name:        | Fort Logan Trading Post              |
| PWS ID:            | Not Reported | Usage:            | Monitoring Well - Ambient Monitoring |
| Surface Elevation: | 910          | Depth to Bedrock: | 8.5                                  |
| Total Depth:       | 8.5          |                   |                                      |
| End Date:          | 07-JUN-02    |                   |                                      |

|                    |              |                   |                                      |
|--------------------|--------------|-------------------|--------------------------------------|
| Map ID:            | 9            | Well Type:        | Monitoring Well                      |
| AKGWA ID:          | 80048928     | Alt ID:           | MW-04                                |
| Well Status:       | Active       | Well Name:        | Fort Logan Trading Post              |
| PWS ID:            | Not Reported | Usage:            | Monitoring Well - Ambient Monitoring |
| Surface Elevation: | 910          | Depth to Bedrock: | 0                                    |
| Total Depth:       | 5.5          |                   |                                      |
| End Date:          | 12-JAN-04    |                   |                                      |



**GEOCHECK VERSION 2.1**  
**STATE DATABASE WELL INFORMATION**

|                    |              |                   |                                      |
|--------------------|--------------|-------------------|--------------------------------------|
| AKGWA ID:          | 80048934     | Well Type:        | Monitoring Well                      |
| Well Status:       | Active       | Alt ID:           | MW-09                                |
| PWS ID:            | Not Reported | Well Name:        | Fort Logan Trading Post              |
| Surface Elevation: | 910          | Usage:            | Monitoring Well - Ambient Monitoring |
| Total Depth:       | 12.5         | Depth to Bedrock: | 0                                    |
| End Date:          | 12-JAN-04    |                   |                                      |

|                    |              |                   |                                      |
|--------------------|--------------|-------------------|--------------------------------------|
| Map ID:            | 9            | Well Type:        | Monitoring Well                      |
| AKGWA ID:          | 80048937     | Alt ID:           | MW-12                                |
| Well Status:       | Active       | Well Name:        | Fort Logan Trading Post              |
| PWS ID:            | Not Reported | Usage:            | Monitoring Well - Ambient Monitoring |
| Surface Elevation: | 910          | Depth to Bedrock: | 0                                    |
| Total Depth:       | 7.3          |                   |                                      |
| End Date:          | 12-DEC-14    |                   |                                      |

|                    |              |                   |                                      |
|--------------------|--------------|-------------------|--------------------------------------|
| Map ID:            | 9            | Well Type:        | Monitoring Well                      |
| AKGWA ID:          | 80048938     | Alt ID:           | MW-13                                |
| Well Status:       | Active       | Well Name:        | Fort Logan Trading Post              |
| PWS ID:            | Not Reported | Usage:            | Monitoring Well - Ambient Monitoring |
| Surface Elevation: | 910          | Depth to Bedrock: | 0                                    |
| Total Depth:       | 11.7         |                   |                                      |
| End Date:          | 22-JAN-04    |                   |                                      |

|                    |              |                   |                                      |
|--------------------|--------------|-------------------|--------------------------------------|
| Map ID:            | 9            | Well Type:        | Monitoring Well                      |
| AKGWA ID:          | 80048937     | Alt ID:           | MW-12                                |
| Well Status:       | Active       | Well Name:        | Fort Logan Trading Post              |
| PWS ID:            | Not Reported | Usage:            | Monitoring Well - Ambient Monitoring |
| Surface Elevation: | 910          | Depth to Bedrock: | 0                                    |
| Total Depth:       | 7.3          |                   |                                      |
| End Date:          | 12-JAN-04    |                   |                                      |

|                    |              |                   |                                      |
|--------------------|--------------|-------------------|--------------------------------------|
| Map ID:            | 9            | Well Type:        | Monitoring Well                      |
| AKGWA ID:          | 80048935     | Alt ID:           | MW-10                                |
| Well Status:       | Active       | Well Name:        | Fort Logan Trading Post              |
| PWS ID:            | Not Reported | Usage:            | Monitoring Well - Ambient Monitoring |
| Surface Elevation: | 910          | Depth to Bedrock: | 0                                    |
| Total Depth:       | 14.4         |                   |                                      |
| End Date:          | 12-JAN-04    |                   |                                      |

|                    |              |                   |                                      |
|--------------------|--------------|-------------------|--------------------------------------|
| Map ID:            | 9            | Well Type:        | Monitoring Well                      |
| AKGWA ID:          | 80048936     | Alt ID:           | MW-11                                |
| Well Status:       | Active       | Well Name:        | Fort Logan Trading Post              |
| PWS ID:            | Not Reported | Usage:            | Monitoring Well - Ambient Monitoring |
| Surface Elevation: | 910          | Depth to Bedrock: | 0                                    |
| Total Depth:       | 6.4          |                   |                                      |
| End Date:          | 12-JAN-04    |                   |                                      |

**GEOCHECK VERSION 2.1**  
**STATE DATABASE WELL INFORMATION**

|                    |                             |                   |                                      |
|--------------------|-----------------------------|-------------------|--------------------------------------|
| AKGWA ID:          | 80033230                    | Well Type:        | Monitoring Well                      |
| Well Status:       | Unsuitable For Intended Use | Alt ID:           | MW-02                                |
| PWS ID:            | Not Reported                | Well Name:        | BP of Stanford                       |
| Surface Elevation: | 920                         | Usage:            | Monitoring Well - Ambient Monitoring |
| Total Depth:       | 18.5                        | Depth to Bedrock: | 18.5                                 |
| End Date:          | 08-JUL-97                   |                   |                                      |

|                    |                             |                   |                                      |
|--------------------|-----------------------------|-------------------|--------------------------------------|
| Map ID:            | 9                           | Well Type:        | Monitoring Well                      |
| AKGWA ID:          | 80033230                    | Alt ID:           | MW-02                                |
| Well Status:       | Unsuitable For Intended Use | Well Name:        | BP of Stanford                       |
| PWS ID:            | Not Reported                | Usage:            | Monitoring Well - Ambient Monitoring |
| Surface Elevation: | 920                         | Depth to Bedrock: | 18.5                                 |
| Total Depth:       | 18.5                        |                   |                                      |
| End Date:          | 08-JUL-97                   |                   |                                      |

|                    |                             |                   |                                      |
|--------------------|-----------------------------|-------------------|--------------------------------------|
| Map ID:            | 9                           | Well Type:        | Monitoring Well                      |
| AKGWA ID:          | 80033230                    | Alt ID:           | MW-02                                |
| Well Status:       | Unsuitable For Intended Use | Well Name:        | BP of Stanford                       |
| PWS ID:            | Not Reported                | Usage:            | Monitoring Well - Ambient Monitoring |
| Surface Elevation: | 920                         | Depth to Bedrock: | 18.5                                 |
| Total Depth:       | 18.5                        |                   |                                      |
| End Date:          | 08-JUL-97                   |                   |                                      |

|                    |              |                   |                 |
|--------------------|--------------|-------------------|-----------------|
| Map ID:            | 9            | Well Type:        | Monitoring Well |
| AKGWA ID:          | 80058920     | Alt ID:           | MW-02           |
| Well Status:       | Plugged      | Well Name:        | BP of Stanford  |
| PWS ID:            | Not Reported | Usage:            | Remediation     |
| Surface Elevation: | 911.419983   | Depth to Bedrock: | 7               |
| Total Depth:       | 7            |                   |                 |
| End Date:          | 19-MAY-11    |                   |                 |

|                    |              |                   |                                      |
|--------------------|--------------|-------------------|--------------------------------------|
| Map ID:            | 9            | Well Type:        | Monitoring Well                      |
| AKGWA ID:          | 80063704     | Alt ID:           | MW-11                                |
| Well Status:       | Plugged      | Well Name:        | BP of Stanford                       |
| PWS ID:            | Not Reported | Usage:            | Monitoring Well - Ambient Monitoring |
| Surface Elevation: | 910.299988   | Depth to Bedrock: | 7                                    |
| Total Depth:       | 7            |                   |                                      |
| End Date:          | 25-FEB-14    |                   |                                      |

|                    |              |                   |                                      |
|--------------------|--------------|-------------------|--------------------------------------|
| Map ID:            | 9            | Well Type:        | Monitoring Well                      |
| AKGWA ID:          | 80061441     | Alt ID:           | MW-05                                |
| Well Status:       | Plugged      | Well Name:        | BP of Stanford                       |
| PWS ID:            | Not Reported | Usage:            | Monitoring Well - Ambient Monitoring |
| Surface Elevation: | 910.799988   | Depth to Bedrock: | 5                                    |
| Total Depth:       | 5            |                   |                                      |
| End Date:          | 20-JUN-13    |                   |                                      |

## GEOCHECK VERSION 2.1 STATE DATABASE WELL INFORMATION

|                    |              |                   |                                      |
|--------------------|--------------|-------------------|--------------------------------------|
| AKGWA ID:          | 80033201     | Well Type:        | Monitoring Well                      |
| Well Status:       | Active       | Alt ID:           | MW-03                                |
| PWS ID:            | Not Reported | Well Name:        | Fort Logan Trading Post              |
| Surface Elevation: | 920          | Usage:            | Monitoring Well - Ambient Monitoring |
| Total Depth:       | 3.3          | Depth to Bedrock: | 0                                    |
| End Date:          | 12-DEC-14    |                   |                                      |

|                    |              |                   |                                      |
|--------------------|--------------|-------------------|--------------------------------------|
| Map ID:            | 9            | Well Type:        | Monitoring Well                      |
| AKGWA ID:          | 80033201     | Alt ID:           | MW-03                                |
| Well Status:       | Active       | Well Name:        | Fort Logan Trading Post              |
| PWS ID:            | Not Reported | Usage:            | Monitoring Well - Ambient Monitoring |
| Surface Elevation: | 920          | Depth to Bedrock: | 3.3                                  |
| Total Depth:       | 3.3          |                   |                                      |
| End Date:          | 08-JUL-97    |                   |                                      |

|                    |                             |                   |                                      |
|--------------------|-----------------------------|-------------------|--------------------------------------|
| Map ID:            | 9                           | Well Type:        | Monitoring Well                      |
| AKGWA ID:          | 80033229                    | Alt ID:           | MW-09                                |
| Well Status:       | Unsuitable For Intended Use | Well Name:        | BP of Stanford                       |
| PWS ID:            | Not Reported                | Usage:            | Monitoring Well - Ambient Monitoring |
| Surface Elevation: | 920                         | Depth to Bedrock: | 8.5                                  |
| Total Depth:       | 8.5                         |                   |                                      |
| End Date:          | 24-JUN-97                   |                   |                                      |

|                    |                             |                   |                                      |
|--------------------|-----------------------------|-------------------|--------------------------------------|
| Map ID:            | 9                           | Well Type:        | Monitoring Well                      |
| AKGWA ID:          | 80033229                    | Alt ID:           | MW-09                                |
| Well Status:       | Unsuitable For Intended Use | Well Name:        | BP of Stanford                       |
| PWS ID:            | Not Reported                | Usage:            | Monitoring Well - Ambient Monitoring |
| Surface Elevation: | 920                         | Depth to Bedrock: | 8.5                                  |
| Total Depth:       | 8.5                         |                   |                                      |
| End Date:          | 24-JUN-97                   |                   |                                      |

|                    |                             |                   |                                      |
|--------------------|-----------------------------|-------------------|--------------------------------------|
| Map ID:            | 9                           | Well Type:        | Monitoring Well                      |
| AKGWA ID:          | 80033229                    | Alt ID:           | MW-09                                |
| Well Status:       | Unsuitable For Intended Use | Well Name:        | BP of Stanford                       |
| PWS ID:            | Not Reported                | Usage:            | Monitoring Well - Ambient Monitoring |
| Surface Elevation: | 920                         | Depth to Bedrock: | 8.5                                  |
| Total Depth:       | 8.5                         |                   |                                      |
| End Date:          | 24-JUN-97                   |                   |                                      |

|                    |              |                   |  |
|--------------------|--------------|-------------------|--|
| Map ID:            | 10           | Well Type:        | Monitoring Well  |
| AKGWA ID:          | 80038957     | Alt ID:           | MW-09  |
| Well Status:       | Plugged      | Well Name:        | Russells (former Dairy Mart 92, Macs 3285, C Store & More) |
| PWS ID:            | Not Reported | Usage:            | Monitoring Well - Ambient Monitoring                       |
| Surface Elevation: | 930          | Depth to Bedrock: | 3  |
| Total Depth:       | 25           |                   |  |
| End Date:          | 06-APR-00    |                   |  |

Map ID: 10

**GEOCHECK VERSION 2.1**  
**STATE DATABASE WELL INFORMATION**

|                    |  |                   |                                      |
|--------------------|--|-------------------|--------------------------------------|
| AKGWA ID:          | 80026631   | Well Type:        | Monitoring Well                      |
| Well Status:       | Plugged  | Alt ID:           | MW-03                                |
| PWS ID:            | Not Reported   |                   |                                      |
| Well Name:         | Russells (former Dairy Mart 92, Macs 3285, C Store & More) |                   |                                      |
| Surface Elevation: | 940  | Usage:            | Monitoring Well - Ambient Monitoring |
| Total Depth:       | 20   | Depth to Bedrock: | 3                                    |
| End Date:          | 30-APR-96  |                   |                                      |

|                    |  |                   |                                      |
|--------------------|--|-------------------|--------------------------------------|
| Map ID:            | 10   |                   |                                      |
| AKGWA ID:          | 80026629   | Well Type:        | Monitoring Well                      |
| Well Status:       | Active   | Alt ID:           | MW-01                                |
| PWS ID:            | Not Reported   |                   |                                      |
| Well Name:         | Russells (former Dairy Mart 92, Macs 3285, C Store & More) |                   |                                      |
| Surface Elevation: | 940  | Usage:            | Monitoring Well - Ambient Monitoring |
| Total Depth:       | 20   | Depth to Bedrock: | 5                                    |
| End Date:          | 29-APR-96  |                   |                                      |

|                    |  |                   |                                      |
|--------------------|--|-------------------|--------------------------------------|
| Map ID:            | 10   |                   |                                      |
| AKGWA ID:          | 80026630   | Well Type:        | Monitoring Well                      |
| Well Status:       | Plugged  | Alt ID:           | MW-02                                |
| PWS ID:            | Not Reported   |                   |                                      |
| Well Name:         | Russells (former Dairy Mart 92, Macs 3285, C Store & More) |                   |                                      |
| Surface Elevation: | 940  | Usage:            | Monitoring Well - Ambient Monitoring |
| Total Depth:       | 20   | Depth to Bedrock: | 5.5                                  |
| End Date:          | 30-APR-96  |                   |                                      |

|                    |  |                   |                                      |
|--------------------|--|-------------------|--------------------------------------|
| Map ID:            | 10   |                   |                                      |
| AKGWA ID:          | 80016200   | Well Type:        | Monitoring Well                      |
| Well Status:       | Plugged  | Alt ID:           | MW-04                                |
| PWS ID:            | Not Reported   |                   |                                      |
| Well Name:         | Russells (former Dairy Mart 92, Macs 3285, C Store & More) |                   |                                      |
| Surface Elevation: | 940  | Usage:            | Monitoring Well - Ambient Monitoring |
| Total Depth:       | 25.5   | Depth to Bedrock: | 3.5                                  |
| End Date:          | 21-JAN-97  |                   |                                      |

|                    |  |                   |                                      |
|--------------------|--|-------------------|--------------------------------------|
| Map ID:            | 10   |                   |                                      |
| AKGWA ID:          | 80026637   | Well Type:        | Monitoring Well                      |
| Well Status:       | Plugged  | Alt ID:           | MW-07                                |
| PWS ID:            | Not Reported   |                   |                                      |
| Well Name:         | Russells (former Dairy Mart 92, Macs 3285, C Store & More) |                   |                                      |
| Surface Elevation: | 940  | Usage:            | Monitoring Well - Ambient Monitoring |
| Total Depth:       | 25   | Depth to Bedrock: | .5                                   |
| End Date:          | 21-JAN-97  |                   |                                      |

|              |          |            |                 |
|--------------|----------|------------|-----------------|
| Map ID:      | 10       |            |                 |
| AKGWA ID:    | 80016225 | Well Type: | Monitoring Well |
| Well Status: | Plugged  | Alt ID:    | MW-06           |

**GEOCHECK VERSION 2.1**  
**STATE DATABASE WELL INFORMATION**

PWS ID: Not Reported  
 Well Name: Russells (former Dairy Mart 92, Macs 3285, C Store & More)  
 Surface Elevation: 940 Usage: Monitoring Well - Ambient Monitoring  
 Total Depth: 25 Depth to Bedrock: 3  
 End Date: 21-JAN-97

Map ID: 10  
 AKGWA ID: 80026640 Well Type: Monitoring Well  
 Well Status: Plugged Alt ID: MW-08  
 PWS ID: Not Reported  
 Well Name: Russells (former Dairy Mart 92, Macs 3285, C Store & More)  
 Surface Elevation: 940 Usage: Monitoring Well - Ambient Monitoring  
 Total Depth: 24.5 Depth to Bedrock: 4.5  
 End Date: 21-JAN-97

Map ID: 10  
 AKGWA ID: 80016224 Well Type: Monitoring Well  
 Well Status: Plugged Alt ID: MW-05  
 PWS ID: Not Reported  
 Well Name: Russells (former Dairy Mart 92, Macs 3285, C Store & More)  
 Surface Elevation: 940 Usage: Monitoring Well - Ambient Monitoring  
 Total Depth: 25 Depth to Bedrock: 5  
 End Date: 21-JAN-97

Map ID: 10  
 AKGWA ID: 80021604 Well Type: Monitoring Well  
 Well Status: Plugged Alt ID: MW-14  
 PWS ID: Not Reported  
 Well Name: Russells (former Dairy Mart 92, Macs 3285, C Store & More)  
 Surface Elevation: 940 Usage: Monitoring Well - Compliance  
 Total Depth: 25.5 Depth to Bedrock: 4  
 End Date: 01-DEC-08

Map ID: 10  
 AKGWA ID: 80053488 Well Type: Monitoring Well  
 Well Status: Plugged Alt ID: MW-18  
 PWS ID: Not Reported  
 Well Name: Russells (former Dairy Mart 92, Macs 3285, C Store & More)  
 Surface Elevation: 935.799988 Usage: Monitoring Well - Ambient Monitoring  
 Total Depth: 25 Depth to Bedrock: 3.9  
 End Date: 25-JUN-09

Map ID: 10  
 AKGWA ID: 80021603 Well Type: Monitoring Well  
 Well Status: Plugged Alt ID: MW-13  
 PWS ID: Not Reported  
 Well Name: Russells (former Dairy Mart 92, Macs 3285, C Store & More)

**GEOCHECK VERSION 2.1**  
**STATE DATABASE WELL INFORMATION**

|                    |           |                   |                              |
|--------------------|-----------|-------------------|------------------------------|
| Surface Elevation: | 940       | Usage:            | Monitoring Well - Compliance |
| Total Depth:       | 25.5      | Depth to Bedrock: | 3.6                          |
| End Date:          | 01-DEC-08 |                   |                              |

|                    |  |                   |                                      |
|--------------------|--|-------------------|--------------------------------------|
| Map ID:            | 10   | Well Type:        | Monitoring Well                      |
| AKGWA ID:          | 80053485   | Alt ID:           | MW-15                                |
| Well Status:       | Plugged  |                   |                                      |
| PWS ID:            | Not Reported   |                   |                                      |
| Well Name:         | Russells (former Dairy Mart 92, Macs 3285, C Store & More) |                   |                                      |
| Surface Elevation: | 935.200012   | Usage:            | Monitoring Well - Ambient Monitoring |
| Total Depth:       | 25   | Depth to Bedrock: | 3.8                                  |
| End Date:          | 24-JUN-09  |                   |                                      |

|                    |  |                   |                                      |
|--------------------|--|-------------------|--------------------------------------|
| Map ID:            | 10   | Well Type:        | Monitoring Well                      |
| AKGWA ID:          | 80053486   | Alt ID:           | MW-16                                |
| Well Status:       | Plugged  |                   |                                      |
| PWS ID:            | Not Reported   |                   |                                      |
| Well Name:         | Russells (former Dairy Mart 92, Macs 3285, C Store & More) |                   |                                      |
| Surface Elevation: | 934.700012   | Usage:            | Monitoring Well - Ambient Monitoring |
| Total Depth:       | 25   | Depth to Bedrock: | 3                                    |
| End Date:          | 25-JUN-09  |                   |                                      |

|                    |  |                   |                                      |
|--------------------|--|-------------------|--------------------------------------|
| Map ID:            | 10   | Well Type:        | Monitoring Well                      |
| AKGWA ID:          | 80053487   | Alt ID:           | MW-17                                |
| Well Status:       | Plugged  |                   |                                      |
| PWS ID:            | Not Reported   |                   |                                      |
| Well Name:         | Russells (former Dairy Mart 92, Macs 3285, C Store & More) |                   |                                      |
| Surface Elevation: | 934.700012   | Usage:            | Monitoring Well - Ambient Monitoring |
| Total Depth:       | 25   | Depth to Bedrock: | 4                                    |
| End Date:          | 24-JUN-09  |                   |                                      |

|                    |  |                   |                              |
|--------------------|--|-------------------|------------------------------|
| Map ID:            | 10   | Well Type:        | Monitoring Well              |
| AKGWA ID:          | 80053474   | Alt ID:           | MW-11                        |
| Well Status:       | Plugged  |                   |                              |
| PWS ID:            | Not Reported   |                   |                              |
| Well Name:         | Russells (former Dairy Mart 92, Macs 3285, C Store & More) |                   |                              |
| Surface Elevation: | 935  | Usage:            | Monitoring Well - Compliance |
| Total Depth:       | 25   | Depth to Bedrock: | 3.5                          |
| End Date:          | 30-OCT-08  |                   |                              |

|                    |  |                   |                              |
|--------------------|--|-------------------|------------------------------|
| Map ID:            | 10   | Well Type:        | Monitoring Well              |
| AKGWA ID:          | 80053473   | Alt ID:           | MW-10                        |
| Well Status:       | Plugged  |                   |                              |
| PWS ID:            | Not Reported   |                   |                              |
| Well Name:         | Russells (former Dairy Mart 92, Macs 3285, C Store & More) |                   |                              |
| Surface Elevation: | 940  | Usage:            | Monitoring Well - Compliance |
| Total Depth:       | 25   | Depth to Bedrock: | 6                            |

**GEOCHECK VERSION 2.1**  
**STATE DATABASE WELL INFORMATION**

End Date: 29-OCT-08

|                    |  |                   |                              |
|--------------------|--|-------------------|------------------------------|
| Map ID:            | 10   | Well Type:        | Monitoring Well              |
| AKGWA ID:          | 80021602   | Alt ID:           | MW-12                        |
| Well Status:       | Plugged  |                   |                              |
| PWS ID:            | Not Reported   |                   |                              |
| Well Name:         | Russells (former Dairy Mart 92, Macs 3285, C Store & More) |                   |                              |
| Surface Elevation: | 940  | Usage:            | Monitoring Well - Compliance |
| Total Depth:       | 25.5   | Depth to Bedrock: | 3.3                          |
| End Date:          | 01-DEC-08  |                   |                              |

|                    |  |                   |                                      |
|--------------------|--|-------------------|--------------------------------------|
| Map ID:            | 10   | Well Type:        | Monitoring Well                      |
| AKGWA ID:          | 80068795   | Alt ID:           | MW-19                                |
| Well Status:       | Plugged  |                   |                                      |
| PWS ID:            | Not Reported   |                   |                                      |
| Well Name:         | Russells (former Dairy Mart 92, Macs 3285, C Store & More) |                   |                                      |
| Surface Elevation: | 925.109985   | Usage:            | Monitoring Well - Ambient Monitoring |
| Total Depth:       | 10.5   | Depth to Bedrock: | 3.7                                  |
| End Date:          | 13-NOV-14  |                   |                                      |

|                    |  |                   |                                      |
|--------------------|--|-------------------|--------------------------------------|
| Map ID:            | 10   | Well Type:        | Monitoring Well                      |
| AKGWA ID:          | 80068796   | Alt ID:           | MW-20                                |
| Well Status:       | Plugged  |                   |                                      |
| PWS ID:            | Not Reported   |                   |                                      |
| Well Name:         | Russells (former Dairy Mart 92, Macs 3285, C Store & More) |                   |                                      |
| Surface Elevation: | 927.099976   | Usage:            | Monitoring Well - Ambient Monitoring |
| Total Depth:       | 10.5   | Depth to Bedrock: | 3.5                                  |
| End Date:          | 13-NOV-14  |                   |                                      |

|                    |  |                   |                                      |
|--------------------|--|-------------------|--------------------------------------|
| Map ID:            | 10   | Well Type:        | Monitoring Well                      |
| AKGWA ID:          | 80068797   | Alt ID:           | MW-21                                |
| Well Status:       | Plugged  |                   |                                      |
| PWS ID:            | Not Reported   |                   |                                      |
| Well Name:         | Russells (former Dairy Mart 92, Macs 3285, C Store & More) |                   |                                      |
| Surface Elevation: | 921  | Usage:            | Monitoring Well - Ambient Monitoring |
| Total Depth:       | 10.5   | Depth to Bedrock: | 6                                    |
| End Date:          | 13-NOV-14  |                   |                                      |

|                    |              |                   |                                      |
|--------------------|--------------|-------------------|--------------------------------------|
| Map ID:            | 11           | Well Type:        | Monitoring Well                      |
| AKGWA ID:          | 80044381     | Alt ID:           | MW-01                                |
| Well Status:       | Active       | Well Name:        | Stanford Ready Mix                   |
| PWS ID:            | Not Reported | Usage:            | Monitoring Well - Ambient Monitoring |
| Surface Elevation: | 920          | Depth to Bedrock: | 5.4                                  |
| Total Depth:       | 6.5          |                   |                                      |
| End Date:          | 11-APR-02    |                   |                                      |

**GEOCHECK VERSION 2.1**  
**STATE DATABASE WELL INFORMATION**

|                    |              |                   |                                      |
|--------------------|--------------|-------------------|--------------------------------------|
| AKGWA ID:          | 80044382     | Well Type:        | Monitoring Well                      |
| Well Status:       | Active       | Alt ID:           | MW-02                                |
| PWS ID:            | Not Reported | Well Name:        | Stanford Ready Mix                   |
| Surface Elevation: | 920          | Usage:            | Monitoring Well - Ambient Monitoring |
| Total Depth:       | 4            | Depth to Bedrock: | 3.3                                  |
| End Date:          | 11-APR-02    |                   |                                      |

|                    |              |                   |                                      |
|--------------------|--------------|-------------------|--------------------------------------|
| Map ID:            | 11           | Well Type:        | Monitoring Well                      |
| AKGWA ID:          | 80044384     | Alt ID:           | MW-04                                |
| Well Status:       | Active       | Well Name:        | Stanford Ready Mix                   |
| PWS ID:            | Not Reported | Usage:            | Monitoring Well - Ambient Monitoring |
| Surface Elevation: | 920          | Depth to Bedrock: | 7.1                                  |
| Total Depth:       | 8            |                   |                                      |
| End Date:          | 11-APR-02    |                   |                                      |

|                    |              |                   |                                      |
|--------------------|--------------|-------------------|--------------------------------------|
| Map ID:            | 11           | Well Type:        | Monitoring Well                      |
| AKGWA ID:          | 80044383     | Alt ID:           | MW-03                                |
| Well Status:       | Active       | Well Name:        | Stanford Ready Mix                   |
| PWS ID:            | Not Reported | Usage:            | Monitoring Well - Ambient Monitoring |
| Surface Elevation: | 920          | Depth to Bedrock: | 7.4                                  |
| Total Depth:       | 8.1          |                   |                                      |
| End Date:          | 11-APR-02    |                   |                                      |

|                    |              |                   |                                      |
|--------------------|--------------|-------------------|--------------------------------------|
| Map ID:            | 12           | Well Type:        | Monitoring Well                      |
| AKGWA ID:          | 80054273     | Alt ID:           | MW-18                                |
| Well Status:       | Plugged      | Well Name:        | Stanford Wildcat Chevron             |
| PWS ID:            | Not Reported | Usage:            | Monitoring Well - Ambient Monitoring |
| Surface Elevation: | 960          | Depth to Bedrock: | 14.5                                 |
| Total Depth:       | 29           |                   |                                      |
| End Date:          | 28-MAY-08    |                   |                                      |

|                    |              |                   |                                      |
|--------------------|--------------|-------------------|--------------------------------------|
| Map ID:            | 12           | Well Type:        | Monitoring Well                      |
| AKGWA ID:          | 80065792     | Alt ID:           | MW-21                                |
| Well Status:       | Plugged      | Well Name:        | Stanford Wildcat Chevron             |
| PWS ID:            | Not Reported | Usage:            | Monitoring Well - Ambient Monitoring |
| Surface Elevation: | 960          | Depth to Bedrock: | 8.2                                  |
| Total Depth:       | 8.2          |                   |                                      |
| End Date:          | 12-NOV-12    |                   |                                      |

|                    |              |                   |                                      |
|--------------------|--------------|-------------------|--------------------------------------|
| Map ID:            | 12           | Well Type:        | Monitoring Well                      |
| AKGWA ID:          | 80055192     | Alt ID:           | MW-19                                |
| Well Status:       | Plugged      | Well Name:        | Stanford Wildcat Chevron             |
| PWS ID:            | Not Reported | Usage:            | Monitoring Well - Ambient Monitoring |
| Surface Elevation: | 960          | Depth to Bedrock: | 12                                   |
| Total Depth:       | 30.5         |                   |                                      |
| End Date:          | 22-JUL-09    |                   |                                      |



**GEOCHECK VERSION 2.1**  
**STATE DATABASE WELL INFORMATION**

|                    |              |                   |                                      |
|--------------------|--------------|-------------------|--------------------------------------|
| AKGWA ID:          | 80047991     | Well Type:        | Monitoring Well                      |
| Well Status:       | Plugged      | Alt ID:           | MW-05                                |
| PWS ID:            | Not Reported | Well Name:        | Stanford Wildcat Chevron             |
| Surface Elevation: | 960          | Usage:            | Monitoring Well - Ambient Monitoring |
| Total Depth:       | 5.5          | Depth to Bedrock: | 4.5                                  |
| End Date:          | 11-JUN-03    |                   |                                      |

|                    |              |                   |                                      |
|--------------------|--------------|-------------------|--------------------------------------|
| Map ID:            | 12           | Well Type:        | Monitoring Well                      |
| AKGWA ID:          | 80047992     | Alt ID:           | MW-06                                |
| Well Status:       | Plugged      | Well Name:        | Stanford Wildcat Chevron             |
| PWS ID:            | Not Reported | Usage:            | Monitoring Well - Ambient Monitoring |
| Surface Elevation: | 960          | Depth to Bedrock: | 3                                    |
| Total Depth:       | 21           |                   |                                      |
| End Date:          | 11-JUN-03    |                   |                                      |

|                    |              |                   |                                      |
|--------------------|--------------|-------------------|--------------------------------------|
| Map ID:            | 12           | Well Type:        | Monitoring Well                      |
| AKGWA ID:          | 80047993     | Alt ID:           | MW-07                                |
| Well Status:       | Plugged      | Well Name:        | Stanford Wildcat Chevron             |
| PWS ID:            | Not Reported | Usage:            | Monitoring Well - Ambient Monitoring |
| Surface Elevation: | 960          | Depth to Bedrock: | 4.1                                  |
| Total Depth:       | 5.2          |                   |                                      |
| End Date:          | 11-JUN-03    |                   |                                      |

|                    |              |                   |                                      |
|--------------------|--------------|-------------------|--------------------------------------|
| Map ID:            | 12           | Well Type:        | Monitoring Well                      |
| AKGWA ID:          | 80042981     | Alt ID:           | MW-02                                |
| Well Status:       | Plugged      | Well Name:        | Stanford Wildcat Chevron             |
| PWS ID:            | Not Reported | Usage:            | Monitoring Well - Ambient Monitoring |
| Surface Elevation: | 960          | Depth to Bedrock: | 5                                    |
| Total Depth:       | 5.8          |                   |                                      |
| End Date:          | 14-AUG-01    |                   |                                      |

|                    |              |                   |                                      |
|--------------------|--------------|-------------------|--------------------------------------|
| Map ID:            | 12           | Well Type:        | Monitoring Well                      |
| AKGWA ID:          | 80042982     | Alt ID:           | MW-03                                |
| Well Status:       | Plugged      | Well Name:        | Stanford Wildcat Chevron             |
| PWS ID:            | Not Reported | Usage:            | Monitoring Well - Ambient Monitoring |
| Surface Elevation: | 960          | Depth to Bedrock: | 5.2                                  |
| Total Depth:       | 5.9          |                   |                                      |
| End Date:          | 14-AUG-01    |                   |                                      |

|                    |              |                   |                                      |
|--------------------|--------------|-------------------|--------------------------------------|
| Map ID:            | 12           | Well Type:        | Monitoring Well                      |
| AKGWA ID:          | 80046850     | Alt ID:           | MW-04                                |
| Well Status:       | Plugged      | Well Name:        | Stanford Wildcat Chevron             |
| PWS ID:            | Not Reported | Usage:            | Monitoring Well - Ambient Monitoring |
| Surface Elevation: | 960          | Depth to Bedrock: | 4.2                                  |
| Total Depth:       | 17.5         |                   |                                      |
| End Date:          | 28-JAN-03    |                   |                                      |

**GEOCHECK VERSION 2.1**  
**STATE DATABASE WELL INFORMATION**

|                    |              |                   |                                      |
|--------------------|--------------|-------------------|--------------------------------------|
| AKGWA ID:          | 80047995     | Well Type:        | Monitoring Well                      |
| Well Status:       | Plugged      | Alt ID:           | MW-09                                |
| PWS ID:            | Not Reported | Well Name:        | Stanford Wildcat Chevron             |
| Surface Elevation: | 960          | Usage:            | Monitoring Well - Ambient Monitoring |
| Total Depth:       | 27.5         | Depth to Bedrock: | 3.4                                  |
| End Date:          | 11-JUN-03    |                   |                                      |

|                    |              |                   |                                      |
|--------------------|--------------|-------------------|--------------------------------------|
| Map ID:            | 12           | Well Type:        | Monitoring Well                      |
| AKGWA ID:          | 80047994     | Alt ID:           | MW-08                                |
| Well Status:       | Plugged      | Well Name:        | Stanford Wildcat Chevron             |
| PWS ID:            | Not Reported | Usage:            | Monitoring Well - Ambient Monitoring |
| Surface Elevation: | 960          | Depth to Bedrock: | 4.1                                  |
| Total Depth:       | 22.5         |                   |                                      |
| End Date:          | 11-JUN-03    |                   |                                      |

|                    |              |                   |                                      |
|--------------------|--------------|-------------------|--------------------------------------|
| Map ID:            | 12           | Well Type:        | Monitoring Well                      |
| AKGWA ID:          | 80048840     | Alt ID:           | MW-13                                |
| Well Status:       | Plugged      | Well Name:        | Stanford Wildcat Chevron             |
| PWS ID:            | Not Reported | Usage:            | Monitoring Well - Ambient Monitoring |
| Surface Elevation: | 960          | Depth to Bedrock: | 0                                    |
| Total Depth:       | 30.5         |                   |                                      |
| End Date:          | 09-OCT-03    |                   |                                      |

|                    |              |                   |                                      |
|--------------------|--------------|-------------------|--------------------------------------|
| Map ID:            | 12           | Well Type:        | Monitoring Well                      |
| AKGWA ID:          | 80048945     | Alt ID:           | MW-14                                |
| Well Status:       | Plugged      | Well Name:        | Stanford Wildcat Chevron             |
| PWS ID:            | Not Reported | Usage:            | Monitoring Well - Ambient Monitoring |
| Surface Elevation: | 960          | Depth to Bedrock: | 0                                    |
| Total Depth:       | 30.5         |                   |                                      |
| End Date:          | 29-JAN-04    |                   |                                      |

|                    |              |                   |                                      |
|--------------------|--------------|-------------------|--------------------------------------|
| Map ID:            | 12           | Well Type:        | Monitoring Well                      |
| AKGWA ID:          | 80047996     | Alt ID:           | MW-10                                |
| Well Status:       | Plugged      | Well Name:        | Stanford Wildcat Chevron             |
| PWS ID:            | Not Reported | Usage:            | Monitoring Well - Ambient Monitoring |
| Surface Elevation: | 960          | Depth to Bedrock: | 5.7                                  |
| Total Depth:       | 6            |                   |                                      |
| End Date:          | 11-JUN-03    |                   |                                      |

|                    |              |                   |                                      |
|--------------------|--------------|-------------------|--------------------------------------|
| Map ID:            | 12           | Well Type:        | Monitoring Well                      |
| AKGWA ID:          | 80048839     | Alt ID:           | MW-11                                |
| Well Status:       | Plugged      | Well Name:        | Stanford Wildcat Chevron             |
| PWS ID:            | Not Reported | Usage:            | Monitoring Well - Ambient Monitoring |
| Surface Elevation: | 960          | Depth to Bedrock: | 0                                    |
| Total Depth:       | 12.5         |                   |                                      |
| End Date:          | 09-OCT-03    |                   |                                      |

**GEOCHECK VERSION 2.1  
STATE DATABASE WELL INFORMATION**

|                    |              |                   |                                      |
|--------------------|--------------|-------------------|--------------------------------------|
| AKGWA ID:          | 80048946     | Well Type:        | Monitoring Well                      |
| Well Status:       | Plugged      | Alt ID:           | MW-15                                |
| PWS ID:            | Not Reported | Well Name:        | Stanford Wildcat Chevron             |
| Surface Elevation: | 960          | Usage:            | Monitoring Well - Ambient Monitoring |
| Total Depth:       | 10.5         | Depth to Bedrock: | 0                                    |
| End Date:          | 29-JAN-04    |                   |                                      |

|                    |              |                   |                                      |
|--------------------|--------------|-------------------|--------------------------------------|
| Map ID:            | 12           | Well Type:        | Monitoring Well                      |
| AKGWA ID:          | 80054271     | Alt ID:           | MW-16                                |
| Well Status:       | Plugged      | Well Name:        | Stanford Wildcat Chevron             |
| PWS ID:            | Not Reported | Usage:            | Monitoring Well - Ambient Monitoring |
| Surface Elevation: | 950          | Depth to Bedrock: | 14                                   |
| Total Depth:       | 27.5         |                   |                                      |
| End Date:          | 28-MAY-08    |                   |                                      |

|                    |              |                   |                                      |
|--------------------|--------------|-------------------|--------------------------------------|
| Map ID:            | 12           | Well Type:        | Monitoring Well                      |
| AKGWA ID:          | 80070227     | Alt ID:           | MW-22                                |
| Well Status:       | Plugged      | Well Name:        | Stanford Wildcat Chevron             |
| PWS ID:            | Not Reported | Usage:            | Monitoring Well - Ambient Monitoring |
| Surface Elevation: | 957.700012   | Depth to Bedrock: | 15                                   |
| Total Depth:       | 30.5         |                   |                                      |
| End Date:          | 31-MAR-15    |                   |                                      |

|                    |              |                   |                                      |
|--------------------|--------------|-------------------|--------------------------------------|
| Map ID:            | 12           | Well Type:        | Monitoring Well                      |
| AKGWA ID:          | 80054272     | Alt ID:           | MW-17                                |
| Well Status:       | Plugged      | Well Name:        | Stanford Wildcat Chevron             |
| PWS ID:            | Not Reported | Usage:            | Monitoring Well - Ambient Monitoring |
| Surface Elevation: | 950          | Depth to Bedrock: | 3                                    |
| Total Depth:       | 30.5         |                   |                                      |
| End Date:          | 28-MAY-08    |                   |                                      |

|                    |              |                   |                                      |
|--------------------|--------------|-------------------|--------------------------------------|
| Map ID:            | 12           | Well Type:        | Monitoring Well                      |
| AKGWA ID:          | 80070226     | Alt ID:           | MW-23                                |
| Well Status:       | Plugged      | Well Name:        | Stanford Wildcat Chevron             |
| PWS ID:            | Not Reported | Usage:            | Monitoring Well - Ambient Monitoring |
| Surface Elevation: | 955.900024   | Depth to Bedrock: | 15                                   |
| Total Depth:       | 30.5         |                   |                                      |
| End Date:          | 31-MAR-15    |                   |                                      |

|                    |              |                   |                          |
|--------------------|--------------|-------------------|--------------------------|
| Map ID:            | 12           | Well Type:        | Monitoring Well          |
| AKGWA ID:          | 80059655     | Alt ID:           | MW-20                    |
| Well Status:       | Plugged      | Well Name:        | Stanford Wildcat Chevron |
| PWS ID:            | Not Reported | Usage:            | Remediation              |
| Surface Elevation: | 960          | Depth to Bedrock: | 4.4                      |
| Total Depth:       | 50.5         |                   |                          |
| End Date:          | 15-APR-10    |                   |                          |

**GEOCHECK VERSION 2.1**  
**STATE DATABASE WELL INFORMATION**

|                    |              |                   |                              |
|--------------------|--------------|-------------------|------------------------------|
| AKGWA ID:          | 80060036     | Well Type:        | Monitoring Well              |
| Well Status:       | Active       | Alt ID:           | MW-2                         |
| PWS ID:            | Not Reported | Well Name:        | Lincoln Co Road Dept         |
| Surface Elevation: | 940          | Usage:            | Monitoring Well - Compliance |
| Total Depth:       | 6.5          | Depth to Bedrock: | 6.5                          |
| End Date:          | 09-MAR-11    |                   |                              |

|                    |              |                   |                              |
|--------------------|--------------|-------------------|------------------------------|
| Map ID:            | 11           | Well Type:        | Monitoring Well              |
| AKGWA ID:          | 80060035     | Alt ID:           | MW-1                         |
| Well Status:       | Active       | Well Name:        | Lincoln Co Road Dept         |
| PWS ID:            | Not Reported | Usage:            | Monitoring Well - Compliance |
| Surface Elevation: | 938          | Depth to Bedrock: | 7                            |
| Total Depth:       | 7            |                   |                              |
| End Date:          | 09-MAR-11    |                   |                              |

|                    |              |                   |                              |
|--------------------|--------------|-------------------|------------------------------|
| Map ID:            | 11           | Well Type:        | Monitoring Well              |
| AKGWA ID:          | 80060037     | Alt ID:           | MW-3                         |
| Well Status:       | Active       | Well Name:        | Lincoln Co Road Dept         |
| PWS ID:            | Not Reported | Usage:            | Monitoring Well - Compliance |
| Surface Elevation: | 939          | Depth to Bedrock: | 6                            |
| Total Depth:       | 6            |                   |                              |
| End Date:          | 09-MAR-11    |                   |                              |

|                    |              |                   |                             |
|--------------------|--------------|-------------------|-----------------------------|
| Map ID:            | 11           | Well Type:        | Water Well                  |
| AKGWA ID:          | 00008613     | Alt ID:           | Not Reported                |
| Well Status:       | Active       | Well Name:        | Residence - Fred Berry      |
| PWS ID:            | Not Reported | Usage:            | Domestic - Single Household |
| Surface Elevation: | 920          | Depth to Bedrock: | 8                           |
| Total Depth:       | 31           |                   |                             |
| End Date:          | 18-JUL-88    |                   |                             |

|                    |              |                   |                                      |
|--------------------|--------------|-------------------|--------------------------------------|
| Map ID:            | 11           | Well Type:        | Monitoring Well                      |
| AKGWA ID:          | 80033221     | Alt ID:           | MW-01                                |
| Well Status:       | Plugged      | Well Name:        | Stanford Super Test                  |
| PWS ID:            | Not Reported | Usage:            | Monitoring Well - Ambient Monitoring |
| Surface Elevation: | 920          | Depth to Bedrock: | 10                                   |
| Total Depth:       | 10           |                   |                                      |
| End Date:          | 19-MAY-97    |                   |                                      |

|                    |              |                   |                                      |
|--------------------|--------------|-------------------|--------------------------------------|
| Map ID:            | 11           | Well Type:        | Monitoring Well                      |
| AKGWA ID:          | 80033222     | Alt ID:           | MW-02                                |
| Well Status:       | Plugged      | Well Name:        | Stanford Super Test                  |
| PWS ID:            | Not Reported | Usage:            | Monitoring Well - Ambient Monitoring |
| Surface Elevation: | 920          | Depth to Bedrock: | 11                                   |
| Total Depth:       | 11           |                   |                                      |
| End Date:          | 19-MAY-97    |                   |                                      |

**GEOCHECK VERSION 2.1**  
**STATE DATABASE WELL INFORMATION**

|                    |              |                   |                                      |
|--------------------|--------------|-------------------|--------------------------------------|
| AKGWA ID:          | 80033228     | Well Type:        | Monitoring Well                      |
| Well Status:       | Plugged      | Alt ID:           | MW-04                                |
| PWS ID:            | Not Reported | Well Name:        | Stanford Super Test                  |
| Surface Elevation: | 920          | Usage:            | Monitoring Well - Ambient Monitoring |
| Total Depth:       | 8            | Depth to Bedrock: | 8                                    |
| End Date:          | 08-JUL-97    |                   |                                      |

|                    |              |                   |                                      |
|--------------------|--------------|-------------------|--------------------------------------|
| Map ID:            | 11           | Well Type:        | Monitoring Well                      |
| AKGWA ID:          | 80033223     | Alt ID:           | MW-03                                |
| Well Status:       | Plugged      | Well Name:        | Stanford Super Test                  |
| PWS ID:            | Not Reported | Usage:            | Monitoring Well - Ambient Monitoring |
| Surface Elevation: | 920          | Depth to Bedrock: | 9.5                                  |
| Total Depth:       | 9.5          |                   |                                      |
| End Date:          | 19-MAY-97    |                   |                                      |

|                    |              |                   |                                      |
|--------------------|--------------|-------------------|--------------------------------------|
| Map ID:            | 11           | Well Type:        | Monitoring Well                      |
| AKGWA ID:          | 80054224     | Alt ID:           | MW-05                                |
| Well Status:       | Plugged      | Well Name:        | City of Stanford Maintenance Garage  |
| PWS ID:            | Not Reported | Usage:            | Monitoring Well - Ambient Monitoring |
| Surface Elevation: | 900          | Depth to Bedrock: | 8.75                                 |
| Total Depth:       | 5.75         |                   |                                      |
| End Date:          | 26-OCT-07    |                   |                                      |

|                    |              |                   |                                      |
|--------------------|--------------|-------------------|--------------------------------------|
| Map ID:            | 11           | Well Type:        | Monitoring Well                      |
| AKGWA ID:          | 80054223     | Alt ID:           | MW-06                                |
| Well Status:       | Plugged      | Well Name:        | City of Stanford Maintenance Garage  |
| PWS ID:            | Not Reported | Usage:            | Monitoring Well - Ambient Monitoring |
| Surface Elevation: | 900          | Depth to Bedrock: | 10                                   |
| Total Depth:       | 10           |                   |                                      |
| End Date:          | 26-OCT-07    |                   |                                      |

|                    |              |                   |                                      |
|--------------------|--------------|-------------------|--------------------------------------|
| Map ID:            | 13           | Well Type:        | Monitoring Well                      |
| AKGWA ID:          | 80044940     | Alt ID:           | MW-05                                |
| Well Status:       | Plugged      | Well Name:        | Jacks Food Mart                      |
| PWS ID:            | Not Reported | Usage:            | Monitoring Well - Ambient Monitoring |
| Surface Elevation: | 880          | Depth to Bedrock: | 7.9                                  |
| Total Depth:       | 7.9          |                   |                                      |
| End Date:          | 08-MAY-02    |                   |                                      |

|                    |              |                   |                                      |
|--------------------|--------------|-------------------|--------------------------------------|
| Map ID:            | 11           | Well Type:        | Monitoring Well                      |
| AKGWA ID:          | 80048726     | Alt ID:           | MW-02                                |
| Well Status:       | Plugged      | Well Name:        | City of Stanford Maintenance Garage  |
| PWS ID:            | Not Reported | Usage:            | Monitoring Well - Ambient Monitoring |
| Surface Elevation: | 0            | Depth to Bedrock: | 0                                    |
| Total Depth:       | 9.5          |                   |                                      |
| End Date:          | 01-OCT-03    |                   |                                      |

**GEOCHECK VERSION 2.1**  
**STATE DATABASE WELL INFORMATION**

|                    |              |                   |                                      |
|--------------------|--------------|-------------------|--------------------------------------|
| AKGWA ID:          | 80048725     | Well Type:        | Monitoring Well                      |
| Well Status:       | Plugged      | Alt ID:           | MW-01                                |
| PWS ID:            | Not Reported | Well Name:        | City of Stanford Maintenance Garage  |
| Surface Elevation: | 0            | Usage:            | Monitoring Well - Ambient Monitoring |
| Total Depth:       | 9.5          | Depth to Bedrock: | 0                                    |
| End Date:          | 01-OCT-03    |                   |                                      |

|                    |              |                   |                                      |
|--------------------|--------------|-------------------|--------------------------------------|
| Map ID:            | 11           | Well Type:        | Monitoring Well                      |
| AKGWA ID:          | 80048730     | Alt ID:           | MW-04                                |
| Well Status:       | Plugged      | Well Name:        | City of Stanford Maintenance Garage  |
| PWS ID:            | Not Reported | Usage:            | Monitoring Well - Ambient Monitoring |
| Surface Elevation: | 0            | Depth to Bedrock: | 0                                    |
| Total Depth:       | 9            |                   |                                      |
| End Date:          | 01-OCT-03    |                   |                                      |

|                    |              |                   |                                      |
|--------------------|--------------|-------------------|--------------------------------------|
| Map ID:            | 11           | Well Type:        | Monitoring Well                      |
| AKGWA ID:          | 80048729     | Alt ID:           | MW-03                                |
| Well Status:       | Plugged      | Well Name:        | City of Stanford Maintenance Garage  |
| PWS ID:            | Not Reported | Usage:            | Monitoring Well - Ambient Monitoring |
| Surface Elevation: | 0            | Depth to Bedrock: | 0                                    |
| Total Depth:       | 9            |                   |                                      |
| End Date:          | 01-OCT-03    |                   |                                      |

|                              |   |                           |              |
|------------------------------|---|---------------------------|--------------|
| Map ID:                      | 1   | KGS #:                    | 124243       |
| API #:                       | Not Reported  | Original Farm/Lease Name: | FELDMAN, F A |
| Well Elevation:              | 858   | Original Well #:          | CH-4         |
| Original Operator:           | HUMBLE OIL & REFINING CO  | Deepest Formation:        | 000          |
| Formation:                   | 000   |                           |              |
| Init Open or Potential Flow: | Not Reported  |                           |              |
| Original API Classification: | Stratigraphic test with records released to public  |                           |              |
| How Completed:               | Dry and abandoned   |                           |              |
| Bore Type:                   | Conventional vertical well bore   |                           |              |
| Completion Date:             | Not Reported  | Plug Date:                | Not Reported |
| Documentation on Plug:       | Not Reported  | Core Call #:              | C-115        |
| Cutting Call #:              | Not Reported  | Log on File:              | Not Reported |
| Permit #:                    | Not Reported  |                           |              |
| URL:                         | <a href="https://kgs.uky.edu/kygeode/services/oilgas/wellReport.asp?id=124243">https://kgs.uky.edu/kygeode/services/oilgas/wellReport.asp?id=124243</a> |                           |              |

|                              |                                 |                              |                   |
|------------------------------|---------------------------------|------------------------------|-------------------|
| Map ID:                      | 2                               | KGS #:                       | 12480             |
| API #:                       | 16137001600000                  | Original Farm/Lease Name:    | CARSON, EARL J    |
| Well Elevation:              | 894                             | Original Well #:             | 1                 |
| Original Operator:           | COOK & SON OIL CO, INC          | Deepest Formation:           | 000               |
| Formation:                   | 368KNOX                         | Original API Classification: | New Field Wildcat |
| Init Open or Potential Flow: | Not Reported                    |                              |                   |
| How Completed:               | Dry and abandoned               |                              |                   |
| Bore Type:                   | Conventional vertical well bore |                              |                   |
| Completion Date:             | 06-FEB-72                       | Plug Date:                   | 12-FEB-72         |
| Documentation on Plug:       | PA                              | Core Call #:                 | Not Reported      |
| Cutting Call #:              | 12560                           | Log on File:                 | ELOG              |
| Permit #:                    | 25531                           |                              |                   |

## GEOCHECK VERSION 2.1 STATE DATABASE WELL INFORMATION

URL: <https://kgs.uky.edu/kygeode/services/oilgas/wellReport.asp?id=12480>

|                              |   |                              |                 |
|------------------------------|---|------------------------------|-----------------|
| Map ID:                      | 3   |                              |                 |
| API #:                       | 16137001120000  | KGS #:                       | 113917          |
| Well Elevation:              | 863   | Original Farm/Lease Name:    | HARMON, CHARLES |
| Original Operator:           | RHETT, INC  | Original Well #:             | 1               |
| Formation:                   | 000   | Deepest Formation:           | 000             |
| Init Open or Potential Flow: | Not Reported  | Original API Classification: | Unclassified    |
| How Completed:               | Terminated (permit expired or cancelled)  |                              |                 |
| Bore Type:                   | Conventional vertical well bore   |                              |                 |
| Completion Date:             | Not Reported  | Plug Date:                   | Not Reported    |
| Documentation on Plug:       | Not Reported  | Core Call #:                 | Not Reported    |
| Cutting Call #:              | Not Reported  | Log on File:                 | Not Reported    |
| Permit #:                    | 87865   |                              |                 |
| URL:                         | <a href="https://kgs.uky.edu/kygeode/services/oilgas/wellReport.asp?id=113917">https://kgs.uky.edu/kygeode/services/oilgas/wellReport.asp?id=113917</a> |                              |                 |

|                              |   |                              |                   |
|------------------------------|---|------------------------------|-------------------|
| Map ID:                      | 4   |                              |                   |
| API #:                       | 16137001110000  | KGS #:                       | 113901            |
| Well Elevation:              | 861   | Original Farm/Lease Name:    | ALFORD, GLENN     |
| Original Operator:           | RHETT, INC  | Original Well #:             | 1                 |
| Formation:                   | 368KNOX   | Deepest Formation:           | 000               |
| Init Open or Potential Flow: | Not Reported  | Original API Classification: | New Field Wildcat |
| How Completed:               | Dry and abandoned   |                              |                   |
| Bore Type:                   | Conventional vertical well bore   |                              |                   |
| Completion Date:             | 29-JUN-96   | Plug Date:                   | 02-NOV-96         |
| Documentation on Plug:       | PA  | Core Call #:                 | Not Reported      |
| Cutting Call #:              | Not Reported  | Log on File:                 | Not Reported      |
| Permit #:                    | 87849   |                              |                   |
| URL:                         | <a href="https://kgs.uky.edu/kygeode/services/oilgas/wellReport.asp?id=113901">https://kgs.uky.edu/kygeode/services/oilgas/wellReport.asp?id=113901</a> |                              |                   |

# GEOCHECK VERSION 2.1

## PUBLIC WATER SUPPLY SYSTEM INFORMATION

**PWS SUMMARY:**

|                          |                              |                        |                              |
|--------------------------|------------------------------|------------------------|------------------------------|
| Map ID:                  | 11                           |                        |                              |
| Epa region:              | 04                           | State:                 | KY                           |
| Pwsid:                   | KY0692835                    | Pwsname:               | WILLIAM WHITLEY STATE SHRINE |
| Cityserved:              | Not Reported                 | Stateserved:           | KY                           |
| Ziperved:                | Not Reported                 | Fipscounty:            | 21137                        |
| Status:                  | Closed                       | Retpopsrvd:            | 25                           |
| Pwssvconn:               | 1                            | Psource longname:      | Groundwater                  |
| Pwstype:                 | NTNCWS                       | Owner:                 | State_Govt                   |
| Contact:                 | Not Reported                 | Contactorgname:        | Not Reported                 |
| Contactphone:            | 606-355-2881                 | Contactaddress1:       | LARRY CARTER                 |
| Contactaddress2:         | 625 WILLIAM WHITLEY RD       | Contactcity:           | STANDFORD                    |
| Contactstate:            | KY                           | Contactzip:            | 404840000                    |
| Pwsactivitycode:         | I                            |                        |                              |
|                          |                              |                        |                              |
| PWS ID:                  | KY0692835                    | PWS type:              | Not Reported                 |
| PWS name:                | Not Reported                 | PWS address:           | Not Reported                 |
| PWS city:                | Not Reported                 | PWS state:             | Not Reported                 |
| PWS zip:                 | Not Reported                 | PWS ID:                | KY0692835                    |
| Activity status:         | Active                       | Date system activated: | 8410                         |
| Date system deactivated: | Not Reported                 | Retail population:     | 00000025                     |
| System name:             | WILLIAM WHITLEY STATE SHRINE |                        |                              |
| System address:          | LARRY CARTER                 | System address:        | 625 WILLIAM WHITLEY RD       |
| System city:             | STANDFORD                    | System state:          | KY                           |
| System zip:              | 404840000                    |                        |                              |
|                          |                              |                        |                              |
| County FIPS:             | 069                          | City served:           | STANDFORD                    |
| Population served:       | Under 101 Persons            | Treatment:             | Treated                      |
| Latitude:                | 373151                       | Longitude:             | 0843942                      |
| Latitude:                | 372734                       | Longitude:             | 0843231                      |



# KENTUCKY GOVERNMENT WELL RECORDS SEARCHED

## PWS: Public Water Systems

Source: EPA/Office of Drinking Water

Telephone: 202-564-3750

Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

## PWS ENF: Public Water Systems Violation and Enforcement Data

Source: EPA/Office of Drinking Water

Telephone: 202-564-3750

Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

## USGS Water Wells: USGS National Water Inventory System (NWIS)

This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

## State Wetlands Data: Wetland Inventory

Source: Environmental & Public Protection Cabinet

Telephone: 502-564-6736

## Kentucky Water Well Records Database

Source: Kentucky Geological Survey

Telephone: 859-257-5500

Water Wells in Kentucky. Data from the Kentucky Ground Water Data Repository.

## Oil and Gas Well Locations

Source: Kentucky Geological Survey

Telephone: 859-257-5500

Oil and gas well locations in the state of Kentucky

## **STREET AND ADDRESS INFORMATION**

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Attachments

## **ATTACHMENT 6**

**EDR Report (Provided in separate digital format due to size)**



# ENVIRONMENTAL OVERVIEW – US 150 CORRIDOR STUDY BOYLE AND LINCOLN COUNTIES

Attachments

