

# Phase I Environmental Site Assessment

Caldwell Solar Site • Fredonia,  
Kentucky

June 4, 2020



## **Phase I Environmental Assessment (ESA) Report**

Caldwell Solar Site  
Fredonia, Kentucky

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## Commonly Used Acronyms

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AAI	All Appropriate Inquiry
ABCA	Analysis of Brownfield Cleanup Alternatives
ACM	Asbestos Containing Material
AST	Aboveground Storage Tank
ASTM	American Society for Testing & Materials
BFA	Brownfield Agreement
BLS	Below Land Surface
Cardno	Cardno Inc.
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERCLIS	Comprehensive Environmental Response, Compensation and Liability Information System
CREC	Controlled Recognized Environmental Condition
EP	Environmental Professional
ERNS	Emergency Response Notification System
EPA	Environmental Protection Agency
ESA	Environmental Site Assessment
ESI	Expanded Site Inspection
FOIA	Freedom of Information Act
FIRM	Flood Insurance Rate Map
Historical	Historical Recognized Environmental Condition
IC	Institutional Controls
LBP	Lead-Based Paint
LUST	Leaking Underground Storage Tank
MSL	Mean Sea Level
NFRAP	No Further Remedial Action Plan
NPL	National Priority List
PA/SI	Preliminary Assessment/Site Inspection
PAH	Polynuclear Aromatic Hydrocarbon
PCB	Polychlorinated Biphenyl
PPB	Parts per Billion
PPM	Parts Per Million
PRG	Preliminary Remediation Goal
RACM	Regulated Asbestos Containing Material
RBC	Risk Based Concentrations
RBSL	Risk Based Screening Level
RCRA	Resource Conservation and Recovery Act
RCRA CORRACT	RCRA Information Systems
RCRA GEN	RCRA System Generators
RCRA TSD	RCRA Treatment, Storage, and Disposal Facilities
REC	Recognized Environmental Condition
ROD	Record of Decision
SHWS	State Hazardous Waste Site
SWL	Solid Waste Facilities List
TAL	Target Analyte List
TMS	Tax Map Serial

USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
UST	Underground Storage Tank

# 1 Executive Summary

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At the request of **Geronimo Energy®**, **Cardno Inc. (Cardno)** has conducted a Phase I Environmental Site Assessment (ESA) of approximately 1,500 acres of farmland known as the Caldwell Solar Site (Site). The Site is located in western Caldwell County in Kentucky.

This Phase I ESA was performed in accordance with American Society for Testing & Materials (ASTM) Practice E-1527-13 "Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process" developed by ASTM Subcommittee E50.02 for Commercial Real Estate Transactions. ASTM E-1527-13 also meets the All Appropriate Inquiries (AAI) standards set forth by the United States Environmental Protection Agency (USEPA) in 40 CFR Part 312. Any exceptions to, or deletions from, this practice are described in Sections 2.4 and 9.0 of this report.

The objective of this Phase I ESA was to identify Recognized Environmental Conditions (RECs) as defined in ASTM Practice E-1527-13 with regard to the subject property and to evaluate potential future liability associated with past or current practices on the subject property.

This Phase I ESA included the following types of investigation:

- > A records review of all pertinent regulatory agency databases and applicable local records;
  - A **Environmental Risk Information Services (ERIS)** environmental database search report;
  - ERIS Aerial photographs from 1952, 1967, 1983, 1998, 2006, 2008, 2010, 2014 and 2018;
  - ERIS Historical Sanborn® Fire Insurance maps were not available for the Site; and
  - ERIS Historical topographical maps dated 1908, 1910, 1928, 1931, 1936, 1954, 1955, 1967 and 2016;
- > A review of site background and other available information for the subject property to evaluate present and past land use; and
- > Reconnaissance to inspect the Site for evidence of RECs conducted by Mr. George Robertson of Cardno on April 13-14, 2020.

Cardno has performed this Phase I ESA in conformance with the scope and limitations of ASTM Practice E 1527-13. Any exceptions to, or deletions from, this practice are described in *Sections 2.4* and *9.0* of this report.

This assessment has revealed no evidence of RECs in connection with the Site.

The following non-ASTM concern was identified for the Site:

- > An abandoned car inside a dilapidated wooden barn located at Bugg Farms, north of the gravel extension of Fredonia Quarry Road on the west side of the Site.

Conclusions and opinions presented in this assessment are based solely on the information derived from the study sources and references cited in this document and are to the limitations of the sources and methods employed. Except as specified herein, this Phase I ESA report is for the exclusive use of the Client, its officers, directors, employees, and authorized representatives.

# 2 Introduction

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Cardno conducted a Phase I Environmental Site Assessment (ESA) of land tracts totaling approximately 1,500 acres known as the Caldwell Solar Site (Site). The Site is located in western Caldwell County, Kentucky and is largely comprised of farmland.

## 2.1 Purpose

The purpose of this Phase I ESA is to identify to the extent possible any RECs, Controlled RECs, or Historical RECs on the property.

*Recognized Environmental Condition (REC) - The presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to any release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment. De minimis conditions are not recognized environmental conditions.*

*Controlled Recognized Environmental Condition (CREC) – A recognized environmental condition resulting from a past release of hazardous substances or petroleum products that has been addressed to the satisfaction of the applicable regulatory authority (for example, as evidenced by the issuance of a no further action letter or equivalent, or meeting risk-based criteria established by regulatory authority), with hazardous substances or petroleum products allowed to remain in place subject to the implementation of required controls (for example, property use restrictions, activity and use limitations, institutional controls, or engineering controls).*

*Historical Recognized Environmental Condition (HREC) – A past release of any hazardous substances or petroleum products that has occurred in connection with the property and has been addressed to the satisfaction of the applicable regulatory authority or meeting unrestricted use criteria established by a regulatory authority, without subjecting the property to any required controls (for example, property use restrictions, activity and use limitations, institutional controls, or engineering controls).*

This assessment is completed with respect to the scope of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and petroleum products. As such, this practice is intended to permit a user to satisfy one of the requirements to qualify for the innocent landowner defense to CERCLA liability; that is, the practices that constitute 'all appropriate inquiry into the previous ownership and uses of the property consistent with good commercial or customary practice' as defined in 42 USC§9601(35(B)).

## 2.2 Detailed Scope of Services

The Phase I ESA is a general characterization of possible RECs present on a property. This ESA was completed in accordance with ASTM E-1527-13 "Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process." ASTM E-1527-13 meets the standard set forth by the USEPA in the AAI Rule. The services provided are detailed below:

- > Review of federal and state lists of environmentally regulated sites to determine if the subject property or nearby properties are listed as having a present or past environmental problem, are under investigation, or are regulated by state or federal environmental regulatory agencies;
- > Review of site background information, including aerial photographs, title records, and interviews with persons familiar with the subject property to evaluate present and past land uses;
- > Physical inspection and photographic documentation of the subject property and adjacent properties to identify obvious indications of present or past activities that have or could have environmentally impacted the subject property; and
- > Development of a report documenting Cardno's findings.

## 2.3 Significant Assumptions

No significant assumptions were made prior to the initiation of this Phase I ESA.

## 2.4 Limitations and Exceptions

The findings of this assessment are based on the following inherent limitations and/or exceptions:

- > The representations contained herein are based on the available data and on the contracted scope of the work. Cardno and the Environmental Professional (E.P.) make no representations or conclusions on information beyond the scope of this assessment;
- > Cardno derived the data in this report primarily through visual inspections, examination of records in the public domain, and interviews with informed individuals about the subject property. The passage of time, manifestation of latent conditions, or the occurrence of future events may require further study at the subject property, analysis of the data, and revaluation of the findings, observations, and conclusions in the report;
- > The data reported and the findings, observations, and conclusions expressed in this report are limited by the scope of work prescribed by ASTM E-1527-13;
- > No warranty or guarantee, whether expressed or implied, is made with respect to the data or the reported findings, observations, and conclusions, which are based solely upon site conditions in existence at the time of the investigation;
- > Cardno presents professional opinions and findings of a scientific and technical nature. The report shall not be construed to offer legal opinion or legal representations as to the requirements of, nor compliance with, environmental laws, rules, regulations, or policies of federal, state, or local governmental agencies. Any use of the Phase I ESA report constitutes acceptance of the limits of Cardno's liability. Cardno's liability extends only to its client and not to any other parties who may obtain the Phase I ESA Report;
- > The conclusions presented in this report are professional opinions based on data described in this report. They are intended only for the purpose, site location, and the project indicated. This report is not a definitive study of contamination at the subject property and should not be interpreted as such. An evaluation of the subsurface soil and groundwater conditions was not performed as part of this investigation. No sampling or chemical analyses of structural material or other media was completed as part of this study unless explicitly stated; and
- > This report is based, in part, on unverified information supplied to Cardno by third party sources. While efforts have been made to substantiate this third party information, Cardno cannot guarantee its completeness or accuracy.

## **2.5 Special Terms and Conditions**

Cardno performed this assessment for the users as part of their environmental due diligence on the Site.

## **2.6 User Reliance**

This report, including supporting field data and notes (collectively referred to hereinafter as "information"), was prepared or collected by Cardno for the benefit of the user, Geronimo Energy. The report is not intended for use by any other party.

# **3 Site Description**

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## **3.1 Site Location and Description**

The Site consists of approximately 1,500 acres of largely farmland known as the Caldwell Solar Site and is located southeast of Fredonia in western Caldwell County, Kentucky. A Site Location Map, consisting of the relevant portions of the United States Geological Survey (USGS) topographic maps, Crider and Fredonia Quadrangles, Kentucky is included as *Figure 1*. The aerial layout of the Site and surrounding properties is depicted on *Figure 2*.

### 3.2 Site and Vicinity General Characteristics

The Site is located southeast of Fredonia in western Caldwell County, Kentucky. The surrounding area is primarily farm and forested land.

The Site is located southeast of Fredonia in western Caldwell County, Kentucky. The Site and surrounding area is primarily farm and forested land. According to Caldwell County administration, there are no zoning restrictions for the County.

Caldwell County was formed in 1809 from Livingston County. During the late 1800s, Princeton (located approximately six miles east of the Site) became a junction for the Illinois Central and Louisville & Nashville railroads. The Illinois Central railroad track currently passes along the northern border of the Site. The County experienced an agricultural boom in the 1900s and its economy remains largely based in agriculture. Caldwell County's population appears to be slightly decreasing and according to the University of Louisville, Urban Studies Center Population Research Unit, it is projected to decrease an additional 9% by 2050.

### 3.3 Current Use of the Site

The Site is currently used for farming with some undeveloped forest land. Site photos of the current condition are included in *Appendix D*.

### 3.4 Descriptions of Structures, Roads, Other Improvements on the Site

Most of the Site is currently developed as cropland and grazing land. Structures in use at the Site include a metal equipment shed and equipment lay down area located on the east side of the Site, south of Crider Spur Road. Abandoned structures remaining at the Site include a small pump house, a concrete feed trough and driveway, and a barn on the southeast side of the Site, northwest of Skinframe Creek Road; a barn and silo, an equipment shed and a small house on the east side of the Site, south of Crider Spur Road; and a barn at Bugg Farms on the west side of the Site, north of Fredonia Quarry Road.

The eastern side of the Site is accessed via generally northeast-southwest trending Skinframe Creek and Pleasant Valley Roads. Marion Road is located along the northeast side of the Site. Crider Spur Road and Adamson Road branch respective to the east and west off of Pleasant Valley Road on the north side of the Site. County Road 1364 branches to the southwest off of Adamson Road, west of the center of the Site. Fredonia Quarry Road provides access to the western side of the Site.

### 3.5 Current Uses of the Adjoining Properties

North	Agricultural, some commercial, forest and residential, and surface mining (northwest)
South	Agricultural and some forest
East	Agricultural, forest and some residential
West	Agricultural, residential, some commercial and surface mining (northwest)

**Lafarge North America Inc. (Lafarge)** mines high calcium limestone from the Ste. Genevieve Formation at the Fredonia Quarry located on the northwest side of the Site, at 297 Fredonia Quarry Road. The limestone is used for aggregate and agricultural lime. Aggregates are an engineered granular material consisting of crushed stone gravel and sand of varying mineralogy.

**C&C AG Enterprises, LLC (AGenterprises)** is located across Marion Road from the northeast corner of the Site. AGenterprises is an agricultural retail and construction business specializing in the design, sale, and construction of grain drying, handling, and storage facilities in central and west Kentucky and Tennessee. AGenterprises was started in 2006 and is a branch of C&C Farms, a 4th generation farm that has been part of the Kentucky area for over 100 years. The complex appears to include large agricultural silos, a barn, stables, equipment sheds, warehouse/stores, and a rectangular-shaped pond.

## 4 User Provided Information

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### 4.1 Title Records

The user did not provide Cardno with current title records and Cardno did not review a chain-of-title in conjunction with this assessment.

### 4.2 Environmental Liens or Activity and Use Limitations

A liens search was not conducted as part of this assessment. Cardno did not identify any environmental liens or use restrictions (other than zoning) for the Site.

### 4.3 Specialized Knowledge

The user has no specialized knowledge about the Site.

### 4.4 Commonly Known or Easily Ascertainable Information

The Site was used for agricultural cropland and grazing land.

### 4.5 Valuation Reduction for Environmental Issues

No opinion or knowledge was provided regarding environmental issues causing a reduction in property value.

### 4.6 Owner, Property Manager, and Occupant Information

The user did not provide Cardno with current ownership records and Cardno did not review property records at the Caldwell County Courthouse.

### 4.7 Reason for Performing Phase I ESA

This Phase I ESA was performed for the users as part of environmental due diligence at the Site in preparation for property development.

### 4.8 AAI User Questionnaire

Due to its size, a knowledgeable person for the Site was not located and an AAI User Questionnaire was not completed. A copy of the blank questionnaire is included in *Appendix A*.

### 4.9 Other

No other User provided information was utilized for this assessment.

## 5 Records Review

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### 5.1 Standard Environmental Record Sources

Records were obtained and reviewed to help identify RECs in connection with the Site. Federal and state regulatory databases were reviewed to further identify any known sources of contamination on or within designated research radii of the subject property. The federal records searched during this assessment included sites which handle or dispose of hazardous materials and sites which otherwise have been identified to have air, soil, or groundwater contamination. The state records reviewed included hazardous waste sites, landfills, and sites with registered or leaking underground storage tanks (USTs).

Cardno contracted with ERIS to perform the regulatory review (*Appendix B*). The results are discussed below and the regulatory databases reviewed and corresponding research distances are summarized in the report in *Appendix B*. Review of the federal and state databases was conducted according to ASTM E-1527-13 and AAI standards for Phase I ESAs. Figures illustrating the locations of the sites identified during the database search (relative to the site and depicting the appropriate designated research radii corresponding to each database) are also included in *Appendix B*.

Federal and state reporting lists are summarized in the following table. Listings requiring further discussion are described below.

<b>Federal Reporting Lists</b>	<b>Listings Reported</b>
National Priority List (NPL)	0
National Priority List Delisted (NPL Delisted)	0
Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS) - SEMS	0
SEMS LIEN	0
Facility Registration System (FRS) – Formerly FINDS List	0
RCRA Corrective Action Facilities (RCRAC)	0
RCRA Treatment, Storage, and Disposal Facilities (TSD)	0
RCRA Conditionally Exempt Small Quantity Generator (CESQG)	0
RCRA Generator (GEN)	0
Polyfluorinated alkyl substance (PFAS) NPL	0
PFAS Toxic Release Inventory (TRI)	0
Toxic Release Inventory System (TRIS)	0
Toxic Substances Control Act (TSCA)	0
Hist. TSCA	0
Federal Fungicide and Toxic Substances (FTTS)	0
Potentially Responsible Party (PRP)	0
FED DRYCLEANERS	0
Delisted FED DRY	0
Formerly Used Defense Sites (FUDS)	0
Material Licensing Tracking Systems (MLTS)	0
Mines	0
ALT FUELS	0
Section Seven Tracking System (SSTS)	0
Polychlorinated Biphenyl (PCB)	0
Hist. MLTS	0
Hazardous Materials Information Resource System (HMIRS)	0
Federal Brownfields	0
Emergency Response Notification System (ERNS)	0



Integrated Compliance Information System (ICIS)	0
Superfund Enterprise Management System (SEMS) Archive	0
Federal Engineering and Institutional Controls (IC/EC)	0
<b>State/Local/Tribal Reporting Lists</b>	<b>Listings Reported</b>
State/Tribal Hazardous Waste Sites (SHWS)	0
State Spills	1
State/Tribal (SWF/LF)	0
Leaking Underground Storage Tank (LUST) "Ky. Petroleum Storage Tank Fund"	0
Voluntary Cleanup Program (VCP)	0
State/Tribal Underground Storage Tank (UST)/ Aboveground Storage Tank (AST)	0
State/Tribal Delisted Storage Tank	0
State/Tribal LUST	0
State/Tribal Brownfields	0
State Other	0
State Department of Solid and Hazardous Waste (DSHW)	0
State ENG	0
State INST	0
Brownfields INV	0
Tribal ILST	0
Tribal IUST	0

#### 5.1.1 **Database Listings at the Site**

One Site location was identified in the ERIS database as follows:

- > SPILLS is a list of incidents reported to the Kentucky Department of Environmental Protection (KDEP) where hazardous materials may have been spilled or otherwise released. The ERIS database indicated a location on the east side of the Site, south of Crider Spur Road, was identified in the SPILLS (Incident ID #2291778) for an Air Program incident involving open burning on February 19, 2009. The case was handled by the KDEP Paducah Regional Office and the incident status is listed as closed. As discussed in Section 6.2, Cardno observed no visible ashes, staining, stressed vegetation, or other visual indication of environmental contamination at this location on April 14, 2020. This historical release does not appear to represent REC.

#### 5.1.2 **Database Listings Surrounding the Site**

The ERIS database lists one SPILLS result (Intersection of Crider Spur and Pleasant Valley Roads, Incident ID #2289215, at a location adjoining the north side of the Site. On January 13, 2009, a potable water line break resulted in a boil water advisory. As described in Section 6.2, Cardno conducted an inspection of the water line break site on April 14, 2020. No visual indication of a release (i.e. staining or stressed vegetation) was observed. This historical release is not considered a REC for the Site.

#### 5.1.3 **Database Listings Near the Site and Orphans**

None of the nine unplotable "orphan" facilities were identified at or adjoining the Site.

## **5.2 Additional Environmental Records**

No additional environmental records were identified.

## **5.3 Physical Setting**

### **5.3.1 Topography**

Cardno has reviewed the most current USGS Topographic Maps covering the subject property (*Figure 1*). The purpose of this review is to evaluate the hydraulic conditions at the Site and surrounding properties. It is not the purpose of this report to evaluate the geotechnical condition of the subject property; therefore, no geotechnical documents were examined.

The Kentucky Almanac shows that Caldwell County is within the Pennyroyal Plateau region of Kentucky. The terrain features rolling hills, caves, and karst topography. According to the USGS topographic maps (Crider and Fredonia, Kentucky Quadrangles), local topography appears to be rolling with upland areas across the north side of the Caldwell Solar Site. Topography generally slopes to the southwest. Skinframe Creek flows southwestward across the east side of the Caldwell Solar Site. Hewlett Creek flows northeastward across the southeastern corner of the Site toward Skinframe Creek. Unnamed intermittent tributaries of Skinframe Creek flow southwestward across the central area of the Caldwell Solar Site.

### **5.3.2 Local Geology**

Local geology is summarized based on an examination of the William B. Rogers and R.D. Trace, Geologic Map of the Crider Quadrangle, Caldwell County, Kentucky and the William B. Rogers and W.H. Hayes, Geologic Map of the Fredonia Quadrangle, Western Kentucky. The Caldwell Solar Site is underlain primarily by the Late Mississippian Period, Meramecian Series, Fredonia Limestone Member of the Ste. Genevieve Limestone Formation. The Fredonia Limestone Member typically consists of light gray and light to medium gray finely crystalline, commonly dolomitic, limestone occasionally oolitic with rare chert nodules. Its basal unit is composed of cherty limestone that weathers to reddish brown.

According to E. Glynn Beck, Generalized Geologic Map for Land-Use Planning: Caldwell County, Kentucky, the Caldwell Solar Site is in an area underlain by limestone prone to karst development. Planning guidance indicates that, depending on topography, this area has slight to moderate limitations for light industrial development. The area is characterized as excellent for foundations, severely limited for septic systems, with locally fast drainage through fractures and danger of groundwater contamination. Locally, the upper few feet may be rippable and sinkholes are possible.

### **5.3.3 Hydrogeology**

According to the Groundwater Atlas of the United States and the USGS, the Interior Low Plateaus aquifers and confining units are sandstone and limestone aquifers in rocks of Pennsylvanian age, limestone aquifers in rocks of Mississippian age, and limestone and dolomite aquifers in rocks of Devonian, Silurian, and Ordovician age. A large part of the Interior Low Plateaus Province is underlain by limestone aquifers in Mississippian rocks. These aquifers have been called the Mississippian Plateau aquifers in Kentucky and the Highland Rim aquifer system in Tennessee. They are present in limestone that is either flat lying or gently dipping and are capped by a layer of regolith that varies greatly in thickness. In general, the limestone aquifers that yield the largest quantities of water to wells and springs are the Upper Mississippian Ste. Genevieve, and the underlying St. Louis Limestones.

In most places, the Mississippian aquifers are covered by regolith, which mostly consists of weathered material or residuum. This material consists of clay, silt, sand, and pebble-sized particles of limestone or chert, which are derived mostly from weathering of the underlying bedrock. In the southwestern part of central Tennessee, the regolith might consist mostly of chert left from the weathering of the Fort Payne Formation. Where thick and saturated, this chert rubble constitutes a productive local aquifer. The regolith can store large quantities of water that subsequently percolate slowly downward to recharge aquifers in the underlying consolidated rock.

Precipitation infiltrates the land surface and percolates downward to the water table, which marks the top of the zone of saturation. The water moves through intergranular spaces in the unconsolidated material of the regolith. However, in the underlying limestone bedrock, the water moves through zones of secondary permeability created by dissolution enlargement of bedding planes and fractures by the slightly acidic water. The solution openings store and transmit most of the water that moves through the limestone and discharges to streams, springs, and wells. Little water passes through the blocks of limestone between the bedding planes and fractures. Freshwater circulates through the limestone aquifers to depths as great as 500 feet below land surface. However, most of the circulation is at depths of less than 300 feet. All other factors being equal, the freshwater circulation is deepest where the local topographic relief and attendant hydraulic gradients are greatest.

The altitude of the potentiometric surfaces in the Ste. Genevieve and the St. Louis Limestone ranges from less than 400 feet above sea level in the west to more than 900 feet above sea level in three small areas in the east. However, little, if any, regional ground-water flow occurs. Most of the flow is local, toward springs and the few streams that drain the area. An escarpment that bounds the aquifer on the north is aptly named the "Dripping Springs Escarpment" because of the many small seeps and springs that discharge water along it. The water locally moves along fractures and bedding planes that might be nearly perpendicular to one another. Consequently, the arrows that show ground-water flow direction indicate only the general direction of water movement in a complex flow system that has many local horizontal and vertical components.

The hydraulic characteristics of the Mississippian aquifers vary greatly over short distances. For example, the ability of limestone with large, interconnected solution openings to transmit and yield water is several orders of magnitude greater than that of the almost impermeable blocks of limestone between solution openings, fractures, and bedding planes. These large differences are reflected in the yield and specific capacity of wells completed in the limestone aquifers and the discharges of springs that issue from these aquifers.

Site-specific groundwater information is not available. Data concerning the direction of groundwater flow at the site are not available; however, groundwater is expected to mimic the surface topography.

According to the Water Resource Development Commission by the Kentucky Geological Survey's Groundwater Resources of Caldwell County, Kentucky, water in Caldwell County is obtained from Mississippian through Pennsylvanian sedimentary rocks and from unconsolidated Cretaceous and Quaternary sediments.

#### **5.3.4      Soils**

According to the National Cooperative Soil Survey, Site soils consist of approximately 69% Crider silt loam that is well drained, with moderately low runoff potential when the soil is thoroughly wet. Approximately 2% is Crider-Pembroke Silt Loam that is well drained, with moderately low runoff potential. Approximately 2% is Crider-Baxter Silt Loam that is well drained, with moderately high runoff potential. Approximately 3% is Elk Silt Loam that is well drained, with moderately low runoff potential. Approximately 2% is Lindside Silt Loam that is moderately well drained, with moderately high runoff potential. Approximately 11% is Nicholson Silt Loam that is moderately well drained with moderately high runoff potential. Approximately 7% is Nolin Silt Loam that is moderately well drained with moderately low runoff potential. Approximately 2% is Ottwood Silt Loam that is moderately well drained with moderately high runoff potential. Small percentages of silt loam soils are also present.

#### **5.3.5      Wetlands and Floodplains**

According to the U.S Fish and Wildlife Service National Wetlands Inventory, six areas of Freshwater Forested/Shrub Wetland (PSS1C) totaling 1.78 acres, two areas of Freshwater Emergent Wetland (PEM1A) totaling 0.78 acres, and 21 freshwater ponds totaling 15.46 acres occur across the Site. A copy of the National Wetlands Inventory maps is included in *Appendix F*.

Federal Emergency Management Agency (*FEMA*) Flood Insurance Rate Map (*FIRM*) Numbers 21033C0150D (effective 04/19/2019) and 21033C0125D (effective 04/19/2019) were researched to evaluate flood potential at the Site. Results indicate that almost the entire Site is located in Zone X, an

area of minimal flooding. Relatively narrow Zone A (having 1% annual chance of flooding) areas immediately surround Skinframe Creek and the lower (northwest) area of Hewlett Creek across the east side of the Site, an unnamed intermittent tributary of Skinframe Creek across the central area of the Site and a small downhill area on the southwest side of Bugg Farms on the southwest corner of the Site. Copies of the FEMA maps are included in *Appendix F*.

## **5.4 Historical Use Information on the Site and Adjoining Properties**

The following sources of information were reviewed to determine the historical use of the Site: historic topographic maps, aerial photographs. The ERIS Database searched for Sanborn® Fire Insurance maps; however, coverage was not provided. Historical research documentation is included in *Appendix C*.

### **5.4.1 Historic Topographic Maps**

Topographic maps of the Crider and Fredonia Quadrangles dated 1908, 1910, 1928, 1931, 1936, 1954, 1955, 1967, and 2016 were reviewed. The 1908 and 1910 maps show only the east side of the Site. These maps show the Illinois Central railroad track north of the Site. The primary east-west thoroughfare (now Marion Road) appears to be south of its current location. Rural residential and agricultural structures appear along Skinframe Creek Road and south of Marion Road.

The 1928 and 1931 maps show only the west side of the Site. These maps show that Marion Road reconstructed north of the Illinois Central railroad tracks. There appear to be two buildings at Charline, where unimproved dirt roads intersect at the railroad track. A large structure (possibly a house or barn) is located on the west side of the Site where Bugg Farms is currently located. No detail is shown on the 1936 map.

The 1954 map shows Marion Road north of the Site and north of the Illinois Central railroad tracks. Skinframe Creek (formerly named White Sulphur Creek) appears to flow southwestward across the east side of the Site. A southwest to northeast electrical power line extends across the center of the Site. Between 1910 and 1954, a quarry began adjacent to the northwest Site boundary, Fredonia Quarry Road was improved on the west side of the Site, Pleasant Valley, Crider Spur, and Adamson Roads were constructed on the north and across the central area of the Site. Rural residential and agricultural structures appear south of Crider Spur Road. Less detail is shown on later maps.

No RECs were identified based on the information provided on the maps.

### **5.4.2 Aerial Photographs**

Aerial photographs obtained from ERIS for 1952, 1967, 1983, 1998, 2006, 2008, 2010, 2014, and 2018 were reviewed.

The 1952 photo shows northeast-southwest trending Skinframe Creek and Pleasant Valley Roads across the eastern side of the Site and Marion Road along the northeast side of the Site. Adamson Road and Crider Spur Roads appear to follow the former route of Marion Road. Adamson Road appears to be improved from Pleasant Valley Road only as far west as the Illinois Central railroad track. Crider Spur Road appears to extend east from Pleasant Valley Road and continues east of its present day dead end, all the way to Crider Road. Fredonia Quarry Road appears to be on the west side of the Site.

The 1952 photo shows farm structures on the south side of the Site located north of a bend in Skinframe Creek Road and northeast of Hewlett Creek; farm structures south of Crider Spur Road on the east side of the Site; and farm structures at the Bugg Farms location on the west side of the Site.

Between 1952 and 1967, Crider Spur Road appears to be improved from Pleasant Valley Road only as far east as the location of its present day dead end. A large electrical transmission line extending southwest to northeast was constructed across the central area of the Site between 1952 and 1967.

Between 1967 and 1983, the house and barn at the Bugg Farms no longer appear occupied and may be in use for storage. At this same time, sheds and barns were added in a complex in a wooded area on the east side of Bugg Farms.

Between 1998 and 2006, most of the structures south of Crider Spur Road appear to be abandoned. At this same time, a metal equipment shed was added on the southwest side of the ponds located south of the end of Crider Spur Road. Also during this time interval, most of the farm structures appear abandoned on the south side of the Site located north of the bend in Skinframe Creek Road. Between 2014 and 2018, all of the farm structures north of the bend in Skinframe Creek Road appear abandoned.

No RECs were identified based on the information provided on the photographs.

#### **5.4.3 Sanborn® Fire Insurance Maps**

Sanborn® Fire Insurance maps were not available for the Site and surrounding area (*Appendix C*).

## **6 Site Reconnaissance**

---

A primary objective in a site inspection for a Phase I ESA is to determine if there is any obvious evidence of hazardous substances or petroleum products that were disposed of or used on the subject property at any time in the past that may create potential liability for an owner of the property. This evidence can be circumstantial, such as the observation of stressed vegetation, staining, unlabeled or suspicious containers or structures, unidentified oily substances, pooled liquids, and/or odors.

### **6.1 Methodology and Limiting Conditions**

On April 13-14, 2020, Mr. George Robertson of Cardno, performed a site reconnaissance of the Site and surrounding properties. The observations made during the site reconnaissance are provided in the following sections. This Phase I ESA did not include sampling or screening of any materials. Photographs of the subject property taken during the site visit are included in *Appendix D*.

### **6.2 Site Visit/Reconnaissance**

This section discusses general observations made during Site reconnaissance. The Site was developed as agricultural cropland. No ASTs or USTs appear to be located at the Site.

Structures in use at the Site include a metal equipment shed and equipment lay down area located on the east side of the Site, south of Crider Spur Road. Abandoned structures remaining at the Site include a small pump house, a concrete feed trough and driveway, and a barn on the southeast side of the Site, northwest of Skinframe Creek Road; a barn and silo, an equipment shed and a small house on the east side of the Site, south of Crider Spur Road; and a barn at Bugg Farms on the west side of the Site, north of Fredonia Quarry Road.

#### **On-Site:**

- > No staining, stressed vegetation or other visible signs of a spill were observed at the concrete feed trough and driveway, abandoned barn, and abandoned water supply well pump house located on the southeast side of the Site, northwest of Skinframe Creek Road (*Photos 3 and 4*).
- > Hewlett and Skinframe Creeks were observed on the southeast side of the Caldwell Solar Site following rainfall on April 13, 2020 (*Photos 5 and 6*). Although Hewlett Creek flows northwestward to its confluence with Skinframe Creek, which flows to the southwest, the lower end of Hewlett Creek and Skinframe Creek at the confluence of Hewlett Creek appeared to be dry. A swallow was located along the northwest (downstream) reach of Hewlett Creek. Another swallow is suspected along Skinframe Creek, upstream of the Site.
- > A dry pond that appears to be a sinkhole was observed in the disced field on the northwest side of Skinframe Creek Road on the southwest side of the Site (*Photo 8*). In general, tree clusters observed across fields appear to occur where sinkholes develop.

- > No hazardous materials, staining, stressed vegetation, or other visible signs of a spill were observed at the metal equipment shed and equipment lay down area located on the east side of the Site, south of Crider Spur Road (*Photos 13 and 14*).
- > No staining, stressed vegetation, or other visible signs of a spill were observed at the abandoned barn/silo, equipment shed, and small house on the east side of the Site, south of Crider Spur Road (*Photo 12*).
- > No visible ashes, staining, stressed vegetation or other visual indication of environmental contamination at the location of open burning, SPILLS Incident ID #2291778, south of Crider Spur Road on the east side of the Site (*Photo 12*).
- > No staining, stressed vegetation, or other visible signs of a petroleum or hazardous material spill were observed at an abandoned barn at Bugg Farms on the west side of the Site, north of Fredonia Quarry Road (*Photos 22 and 23*).
- > An abandoned car was observed inside the dilapidated wooden barn located at Bugg Farms, north of the gravel extension of Fredonia Quarry Road on the west side of the Site. No staining or stressed vegetation was observed.
- > Overgrown stone, concrete, and brick remains of a former house were observed at Bugg Farms, north of the gravel extension of Fredonia Quarry Road. No staining or stressed vegetation was observed. (*Photo 25*).

**Off-Site:**

- > No visual indication of a release (i.e. staining or stressed vegetation) was observed at the location of SPILLS Incident ID #2289215 at Intersection of Crider Spur and Pleasant Valley Roads, adjoining the north side of the Site.
- > Overgrown limestone stockpiles were observed at the adjacent Fredonia Quarry along the northwest Site boundary (*Photo 26*). No staining or stressed vegetation was observed.
- > An agricultural complex was observed at Bugg Farms, adjacent to the west side of the Caldwell Solar Site. The complex is not considered part of the Site. This complex included five large silos, a water supply well pump shed, a cattle barn, feed yard with a concrete trough, equipment garage, storage semi-trailer, and equipment laydown yard (*Photo 28*). An approximately 220-gallon polyethylene tote containing water was located in the feed area. An empty, rusted 55-gallon drum and a five-gallon bucket of engine oil were observed next to the water supply well. Two empty, portable, approximately 100-gallon, steel ASTs were located near the cattle barn (*Photo 29*). An empty, trailer-mounted, approximately 500-gallon AST, two empty, approximately 110-gallon, yellow polyethylene ASTs, and a semi-trailer with an approximately 255-gallon poly tote containing Degree Xtra™ herbicide, old windows, and other construction type materials were observed on the east side of the equipment garage (*Photo 30*). Junk mechanical parts, metal pipe, wire, and other scrap metal was observed around the semi-trailer. Out of use farm equipment, tires, and lawn equipment was staged at the edge of the woods on the east side of the equipment garage (*Photos 31 and 32*). Fence posts and other farm implements were observed in the laydown area surrounding the equipment garage.
- > Three 55-gallon drums of engine oil, a 55-gallon drum of lube oil, batteries, an oil drip pan, an open five-gallon bucket of used oil, an air compressor, maintenance equipment, and a tractor were located inside of the equipment garage at the Bugg Farms agricultural complex. Some oil staining was present on the floors; however, the staining appeared to be minor and contained on the concrete slab floor. No floor drains were observed.

### **6.3 Hazardous Substances in Connection with Identified Uses**

A review of Federal and Kentucky regulatory databases revealed no violations for the use of agricultural chemicals (i.e. fertilizer, herbicides, and pesticides) at the Site. No other hazardous substances were observed in use at the Site.

### **6.4 Petroleum Products and Containers**

No petroleum containers were observed at the Site.

### **6.5 Unidentified Substance Containers**

No unidentified containers were observed at the Site.

### **6.6 Storage Tanks – USTs / ASTs**

No ASTs or indications of USTs were observed at the Caldwell Solar Site.

### **6.7 Solid Waste Disposal**

Except for an abandoned car located in an abandoned barn at Bugg Farms on the west side of the Site, discussed in *Section 6.2*, no open dumping or indications of permitted solid waste disposal were identified on the Site.

### **6.8 Evidence of Polychlorinated Biphenyls**

Two pole-mounted transformers belonging to **Kentucky Utilities Company (KU)** were observed at or adjacent to the Site. The on-Site transformer was observed adjacent to a pond and metal equipment shed south of Crider Spur Road on the east side of the Site (*Photo 15*). The off-site transformer was at a house and shed adjacent to the northeast Site boundary. Blue non-PCB stickers were not visible on the pole-mounted transformers. All of the pole-mounted transformers appeared to be in good condition with no staining on the utility pole or surrounding surfaces.

### **6.9 Floor Drains / Sumps**

No buildings were entered and no drains or sumps were observed at the Site.

### **6.10 Other Environmental Concerns**

No other environmental conditions were observed at the Site.

## **7 Interviews**

---

No property owners were encountered and no interviews were conducted.

## **8 Conclusions**

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Cardno has performed this Phase I ESA in conformance with the scope and limitations of ASTM Practice E 1527-13. Any exceptions to, or deletions from, this practice are described in *Sections 2.4* and *9.0* of this report.

This assessment has revealed no evidence of RECs in connection with the Site.

The following non-ASTM concern was identified for the Site:

- > An abandoned car inside a dilapidated wooden barn located at Bugg Farms, north of the gravel extension of Fredonia Quarry Road on the west side of the Site.

Conclusions and opinions presented in this assessment are based solely on the information derived from the study sources and references cited in this document. Conclusions drawn from the results of this assessment should be made while recognizing the limitations of the sources and methods used. Except as specified herein, this Phase I Environmental Site Assessment report was produced for the exclusive use of the Client, its officers, directors, employees, and authorized representatives as well as its insurers and lenders.

## 9 Deviations

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No significant deviations or deletions were made to the scope as defined by ASTM E-1527-13.

## 10 Significant Data Gaps

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Cardno did not encounter any significant data gaps during this assessment.

## 11 Additional Services

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No additional services were provided for this assessment.

## 12 References

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American Society for Testing and Materials International (ASTM) Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process, Designation: E1527-13.

American Society for Testing and Materials International (ASTM) Standard Practice for Limited Environmental Due Diligence: Transaction Screen Process, Designation: E1528-06.

Beck, E. Glynn, D.A. Williams, and D.I. Carey, Generalized Geologic Map for Land-Use Planning: Caldwell County, Kentucky.

Flood Insurance Rate Map Numbers 21033C0150D (effective 04/19/2019) and 21033C0125D (effective 04/19/2019). FEMA. <<http://gis1.msc.fema.gov/Website/newstore/Viewer.htm>>.

Groundwater Atlas of the United States. February 9, 2009. United States Geological Survey. <<http://pubs.usgs.gov/ha/ha730/index.html>>.

National Wetlands Inventory. October 6, 2011. U.S. Fish & Wildlife Service. <<http://www.fws.gov/wetlands/Data/Mapper.html>>.

USEPA, Standards and Practices for All Appropriate Inquiries; Final Rule. 40 Code of Federal Regulations, Part 312. Federal Register Volume 70, Number 210. December 23, 2008.



## 13 Signature of Environmental Professional

---

This Phase I ESA was overseen and/or performed by Cardno Senior Project Manager, Mr. George Robertson, a Professional Geologist (P.G.) with over 30 years of experience in environmental practice. He has managed and/or otherwise been directly involved in hundreds of environmental site assessments during this period (*Appendix E*).

I declare that, to the best of my professional knowledge and belief, I meet the definition of an Environmental Professionals (EP) as defined in 40 CFR § 312.10. I have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the subject property. I have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312 and ASTM 1527-13.



George A. Robertson  
Senior Project Manager

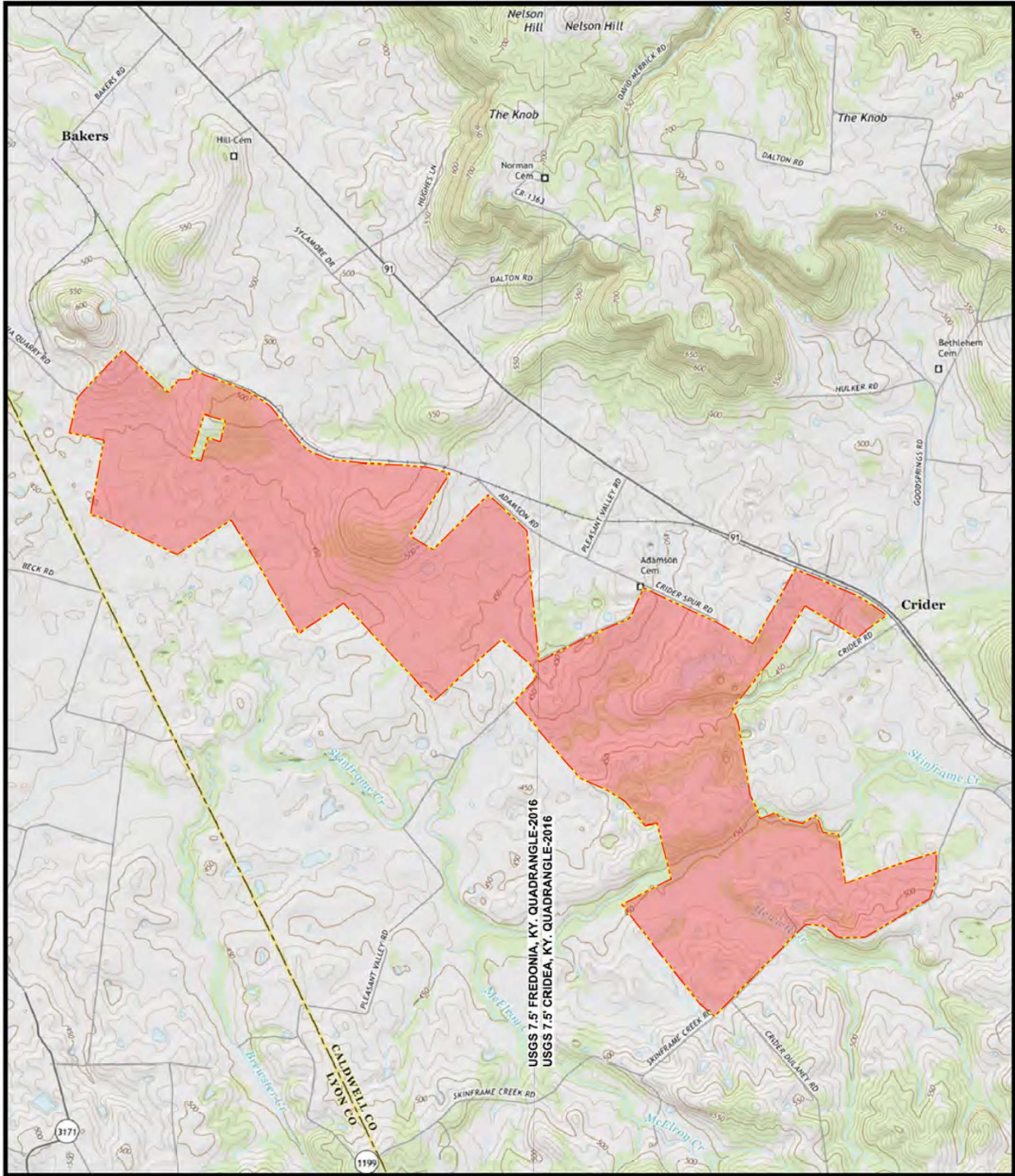
06/04/2020

Date

Phase I Environmental  
Site Assessment  
Caldwell Solar Site  
Fredonia, Kentucky



FIGURES  
SITE LOCATION MAP – TOPO  
AERIAL SITE LAYOUT



GERONIMO ENERGY  
CALDWELL SOLAR SITE  
FREDONIA, KENTUCKY



E320201000  
5/20/2020  
Bluefield, Virginia

2,000' 0 2,000'

**SCALE 1:24,000**

### Topographic Property Location Map

**FIGURE 1**



**KENTUCKY  
QUADRANGLE LOCATION**



GERONIMO ENERGY  
CALDWELL SOLAR SITE  
FREDONIA, KENTUCKY



DESIGNED	OR	NO DATE	REVISION
DRAWN			
CHECKED			
DATE			
SCALE			
FILE NO.			
PROJECT NO.			
OFFICE LOC.			

Phase I Environmental  
Site Assessment  
Caldwell Solar Site  
Fredonia, Kentucky

APPENDIX

A

AAI USER QUESTIONNAIRE

**ALL APPROPRIATE INQUIRY (AAI)  
PHASE I ENVIRONMENTAL SITE ASSESSMENT (ESA)  
USER QUESTIONNAIRE**

**Caldwell Solar Site  
Caldwell County  
Fredonia, Kentucky 42421**

**Completed By:** \_\_\_\_\_  
(Please Print)

**Date:** \_\_\_\_\_

**Signature:** \_\_\_\_\_

**Representing:** \_\_\_\_\_

**ASTM Questions to Address User Responsibilities:**

In order to qualify for one of the Landowner Liability Protections (LLPs) offered by the Small Business Liability Relief and Brownfields Revitalization Act of 2001 (the "Brownfields Amendments") the user should provide the following information (if available) to the environmental professional (EP). Failure to provide this information could result in a determination that All Appropriate Inquiry (AAI) is not complete.

**1) Environmental cleanup liens that are file or recorded against the site (40 CFR 312.25).**

Based on the results of a **chain of title and title restriction** review, are there any environmental cleanup liens against the property that are filed or recorded under federal, tribal, state or local law?

**2) Activity and land use limitation (AUL) that are in place on the site or that have been filed or recorded in a registry (40 CFR 312.26).** Based on the results of a **chain of title and title restriction review**, are there any activity and land use limitations, such as engineering controls, land use restrictions or institutional controls that are in place at the site and/or have been filed or recorded in a registry under federal, tribal, state or local law? If yes, explain:

**3) Specialized knowledge or experience of the person seeking to qualify for the LLP (40 CFR 312.28).** As the user of this ESA do you have any specialized knowledge or experience related to the property or nearby properties? For example, are you involved in the same line of business as the current or former occupants of the property or an adjoining property so that you would have specialized knowledge of the chemicals and processes used by this type of business? If yes, please explain:

**4) The relationship of the purchase price to the fair market value of the property if it were not contaminated (40 CFR 312.29).** Does the purchase price being paid for this property reasonably reflect the fair market value of the property? If you conclude that there is a difference, have you considered whether the lower purchase price is because contamination is known or believed to be present at the property?

**5) Commonly known or reasonably ascertainable information about the property (40 CFR 312.30).** Are you aware of commonly known or reasonably ascertainable information about the property that would help the environmental professional to identify conditions indicative of releases or threatened releases?

If yes, please answer the following questions:

- What were the past uses of the property?
- What chemicals are present or once were present at the property?
- What spills or other chemical releases that have taken place at the property?
- Explain any environmental cleanups that have taken place at the property.

**6) The degree of obviousness of the presence of likely presence of contamination at the property, and the ability to detect the contamination by appropriate investigation (40 CFR 312.31).** As the user of this ESA, based on your knowledge and experience related to the property are there any obvious indicators that point to the presence or likely presence of contamination at the property?

**Other Questions:**

**7) What is the purpose for this Phase I ESA?**

**8) As the user of this ESA, are you aware of any pending, threatened, or past litigation relevant to hazardous substances or petroleum products in, on, or from the property? If so, explain:**

**9) As the user of this ESA, are you aware of any pending, threatened, or past administrative proceedings relevant to hazardous substances or petroleum products in, on, or from the property? If yes, explain:**

**10) As the user of this ESA, are you aware of any notices from any governmental entity regarding any possible violation of environmental laws or possible liability related to hazardous substances or petroleum products? If yes, explain:**

**11) As the user of this ESA, do you have any of the following reports in your possession.** Please place an "X" next to each report that is available. Please provide copies of each report or make these reports available for inspection.

- ☐ Environmental site assessment reports
- ☐ Environmental compliance audit reports
- ☐ Environmental permits
- ☐ Underground storage tank notification forms
- ☐ Registrations for underground injection systems
- ☐ Material safety data sheets
- ☐ Community right to know plans
- ☐ Safety plans, preparedness and prevention plans, spill prevention, countermeasure and control plans
- ☐ Reports regarding hydrogeologic conditions on the property or surrounding area
- ☐ Notices or other correspondence from any governmental agency relating to past or current violations of environmental laws
- ☐ Hazardous waste generator notices or reports
- ☐ Geotechnical studies
- ☐ Risk assessments
- ☐ Activity and use restrictions

Phase I Environmental  
Site Assessment  
Caldwell Solar Site  
Fredonia, Kentucky

APPENDIX

B

ERIS RADIUS REPORT





# DATABASE REPORT

<b>Project Property:</b>	<i>Caldwell Solar Site n/a Fredonia KY</i>
<b>Project No:</b>	<i>E320201000</i>
<b>Report Type:</b>	<i>Database Report</i>
<b>Order No:</b>	<i>20200323045</i>
<b>Requested by:</b>	<i>Cardno Inc.</i>
<b>Date Completed:</b>	<i>March 27, 2020</i>

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## Executive Summary

### Property Information:

**Project Property:** *Caldwell Solar Site  
n/a Fredonia KY*

**Project No:** *E320201000*

**Coordinates:**

<b>Latitude:</b>	<i>37.15376775</i>
<b>Longitude:</b>	<i>-88.00323245</i>
<b>UTM Northing:</b>	<i>4,112,587.73</i>
<b>UTM Easting:</b>	<i>411,017.90</i>
<b>UTM Zone:</b>	<i>UTM Zone 16S</i>

**Elevation:** *439 FT*

### Order Information:

**Order No:** *20200323045*

**Date Requested:** *March 23, 2020*

**Requested by:** *Cardno Inc.*

**Report Type:** *Database Report*

### Historicals/Products:

<b>Aerial Photographs</b>	<i>Historical Aerials Photographs</i>
<b>ERIS Xplorer</b>	<a href="#"><i>ERIS Xplorer</i></a>
<b>Excel Add-On</b>	<i>Excel Add-On</i>
<b>Fire Insurance Maps</b>	<i>US Fire Insurance Maps</i>
<b>Physical Setting Report (PSR)</b>	<i>Physical Setting Report (PSR)</i>
<b>Topographic Map</b>	<i>Topographic Maps</i>

## Executive Summary: Report Summary

Database	Searched	Search Radius	Project Property	Within 0.12mi	0.125mi to 0.25mi	0.25mi to 0.50mi	0.50mi to 1.00mi	Total
<b><u>Standard Environmental Records</u></b>								
<b>Federal</b>								
NPL	Y	1	0	0	0	0	0	0
PROPOSED NPL	Y	1	0	0	0	0	0	0
DELETED NPL	Y	0.5	0	0	0	0	-	0
SEMS	Y	0.5	0	0	0	0	-	0
SEMS ARCHIVE	Y	0.5	0	0	0	0	-	0
ODI	Y	0.5	0	0	0	0	-	0
IODI	Y	0.5	0	0	0	0	-	0
CERCLIS	Y	0.5	0	0	0	0	-	0
CERCLIS NFRAP	Y	0.5	0	0	0	0	-	0
CERCLIS LIENS	Y	PO	0	-	-	-	-	0
RCRA CORRACTS	Y	1	0	0	0	0	0	0
RCRA TSD	Y	0.5	0	0	0	0	-	0
RCRA LQG	Y	0.25	0	0	0	-	-	0
RCRA SQG	Y	0.25	0	0	0	-	-	0
RCRA CESQG	Y	0.25	0	0	0	-	-	0
RCRA NON GEN	Y	0.25	0	0	0	-	-	0
FED ENG	Y	0.5	0	0	0	0	-	0
FED INST	Y	0.5	0	0	0	0	-	0
ERNS 1982 TO 1986	Y	PO	0	-	-	-	-	0
ERNS 1987 TO 1989	Y	PO	0	-	-	-	-	0
ERNS	Y	PO	0	-	-	-	-	0
FED BROWNFIELDS	Y	0.5	0	0	0	0	-	0
FEMA UST	Y	0.25	0	0	0	-	-	0
REFN	Y	0.25	0	0	0	-	-	0
BULK TERMINAL	Y	0.25	0	0	0	-	-	0
SEMS LIEN	Y	PO	0	-	-	-	-	0
SUPERFUND ROD	Y	1	0	0	0	0	0	0

Database	Searched	Search Radius	Project Property	Within 0.12mi	0.125mi to 0.25mi	0.25mi to 0.50mi	0.50mi to 1.00mi	Total
<b>State</b>								
BROWNFIELDS	Y	0.5	0	0	0	0	-	0
SHWS	Y	1	0	0	0	0	0	0
DSHW	Y	1	0	0	0	0	0	0
SWF/LF	Y	0.5	0	0	0	0	-	0
SB193	Y	0.5	0	0	0	0	-	0
PSTEAF	Y	0.5	0	0	0	0	-	0
UST	Y	0.25	0	0	0	-	-	0
DELISTED STORAGE TANK	Y	0.25	0	0	0	-	-	0
ENG	Y	0.5	0	0	0	0	-	0
INST	Y	0.5	0	0	0	0	-	0
VCP	Y	0.5	0	0	0	0	-	0
BROWNFIELD INV	Y	0.5	0	0	0	0	-	0
<b>Tribal</b>								
INDIAN LUST	Y	0.5	0	0	0	0	-	0
INDIAN UST	Y	0.25	0	0	0	-	-	0
DELISTED ILST	Y	0.5	0	0	0	0	-	0
DELISTED IUST	Y	0.25	0	0	0	-	-	0
<b>County</b>								
<i>No County standard environmental record sources available for this State.</i>								
<b><u>Additional Environmental Records</u></b>								
<b>Federal</b>								
PFAS NPL	Y	0.5	0	0	0	0	-	0
FINDS/FRS	Y	PO	0	-	-	-	-	0
TRIS	Y	PO	0	-	-	-	-	0
PFAS TRI	Y	0.5	0	0	0	0	-	0
PFAS WATER CONTAM	Y	0.5	0	0	0	0	-	0
HMIRS	Y	0.125	0	0	-	-	-	0
NCDL	Y	0.125	0	0	-	-	-	0
TSCA	Y	0.125	0	0	-	-	-	0
HIST TSCA	Y	0.125	0	0	-	-	-	0
FTTS ADMIN	Y	PO	0	-	-	-	-	0
FTTS INSP	Y	PO	0	-	-	-	-	0
PRP	Y	PO	0	-	-	-	-	0
SCRD DRYCLEANER	Y	0.5	0	0	0	0	-	0

Database	Searched	Search Radius	Project Property	Within 0.12mi	0.125mi to 0.25mi	0.25mi to 0.50mi	0.50mi to 1.00mi	Total
ICIS	Y	PO	0	-	-	-	-	0
FED DRYCLEANERS	Y	0.25	0	0	0	-	-	0
DELISTED FED DRY	Y	0.25	0	0	0	-	-	0
FUDS	Y	1	0	0	0	0	0	0
MLTS	Y	PO	0	-	-	-	-	0
HIST MLTS	Y	PO	0	-	-	-	-	0
MINES	Y	0.25	0	0	0	-	-	0
ALT FUELS	Y	0.25	0	0	0	-	-	0
SSTS	Y	0.25	0	0	0	-	-	0
PCB	Y	0.5	0	0	0	0	-	0

**State**

SPILLS

Y 0.125 1 1 - - - 2

**Tribal**

*No Tribal additional environmental record sources available for this State.*

**County**

*No County additional environmental record sources available for this State.*

---

**Total:** 1 1 0 0 0 2

\* PO – Property Only

\* 'Property and adjoining properties' database search radii are set at 0.25 miles.

## Executive Summary: Site Report Summary - Project Property

<i>Map Key</i>	<i>DB</i>	<i>Company/Site Name</i>	<i>Address</i>	<i>Direction</i>	<i>Distance (mi/ft)</i>	<i>Elev Diff (ft)</i>	<i>Page Number</i>
<a href="#">2</a>	SPILLS	Caldwell County	Crider Spur Road Princeton KY	E	0.00 / 0.00	43	<a href="#">15</a>
<i>INC ID   Status: 2291778   Env. Closed</i>							

## Executive Summary: Site Report Summary - Surrounding Properties

<i>Map Key</i>	<i>DB</i>	<i>Company/Site Name</i>	<i>Address</i>	<i>Direction</i>	<i>Distance (mi/ft)</i>	<i>Elev Diff (ft)</i>	<i>Page Number</i>
<a href="#">1</a>	SPILLS	Caldwell Co Water District (AI ID: 33819)	Intersection of Crider Spur & Pleasant Valley Rd. Caldwell KY <b>INC ID   Status:</b> 2289215   Env. Closed	ENE	0.01 / 38.67	22	<a href="#">15</a>



## Executive Summary: Summary by Data Source

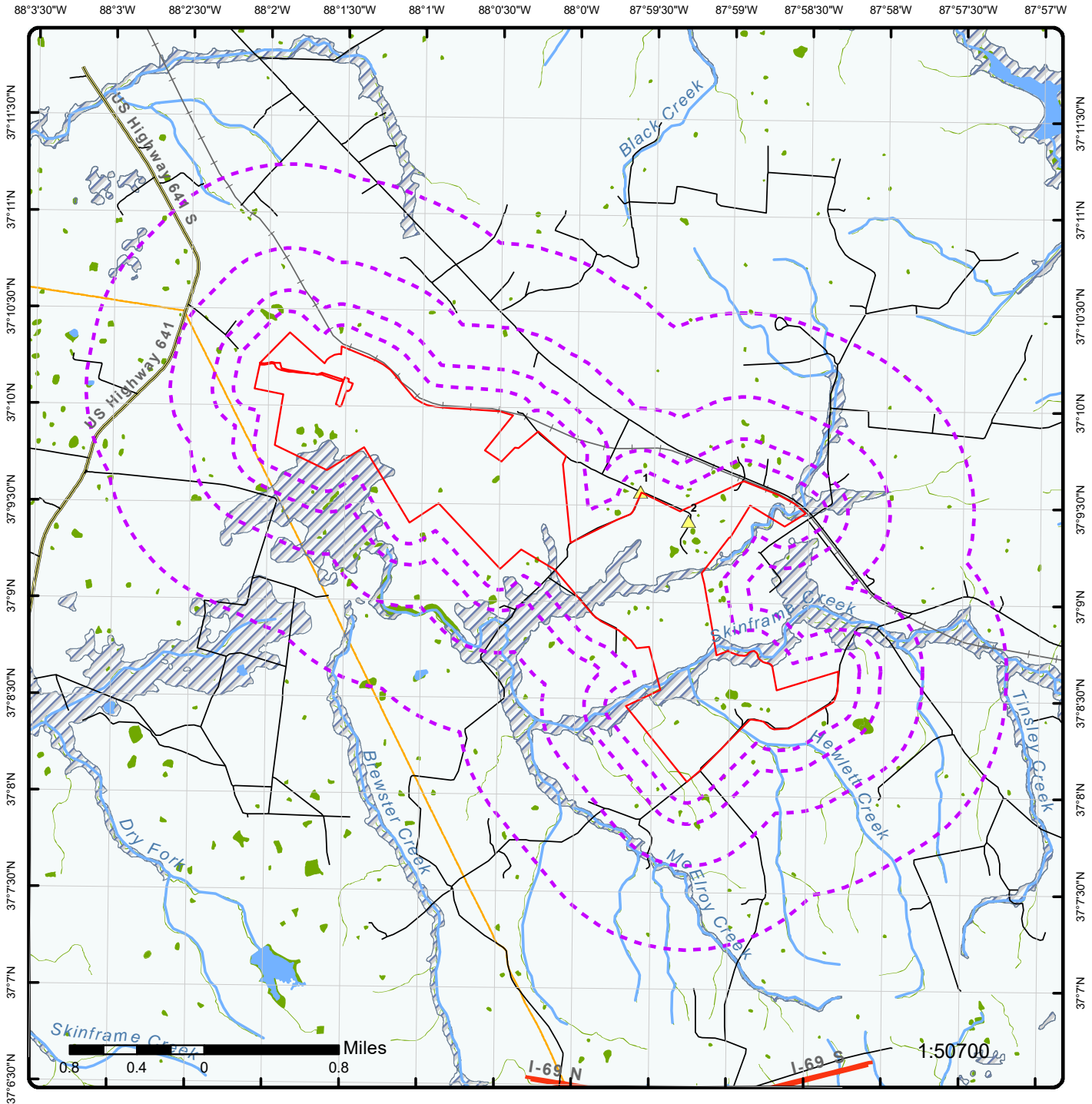
### **Non Standard**

#### **State**

#### **SPILLS - Incidents**

A search of the SPILLS database, dated Feb 19, 2020 has found that there are 2 SPILLS site(s) within approximately 0.12 miles of the project property.

<b><u>Equal/Higher Elevation</u></b>	<b><u>Address</u></b>	<b><u>Direction</u></b>	<b><u>Distance (mi/ft)</u></b>	<b><u>Map Key</u></b>
Caldwell Co Water District (AI ID: 33819)	Intersection of Crider Spur & Pleasant Valley Rd. Caldwell KY <b>INC ID   Status:</b> 2289215   <i>Env. Closed</i>	ENE	0.01 / 38.67	<a href="#"><u>1</u></a>
Caldwell County	Crider Spur Road Princeton KY <b>INC ID   Status:</b> 2291778   <i>Env. Closed</i>	E	0.00 / 0.00	<a href="#"><u>2</u></a>



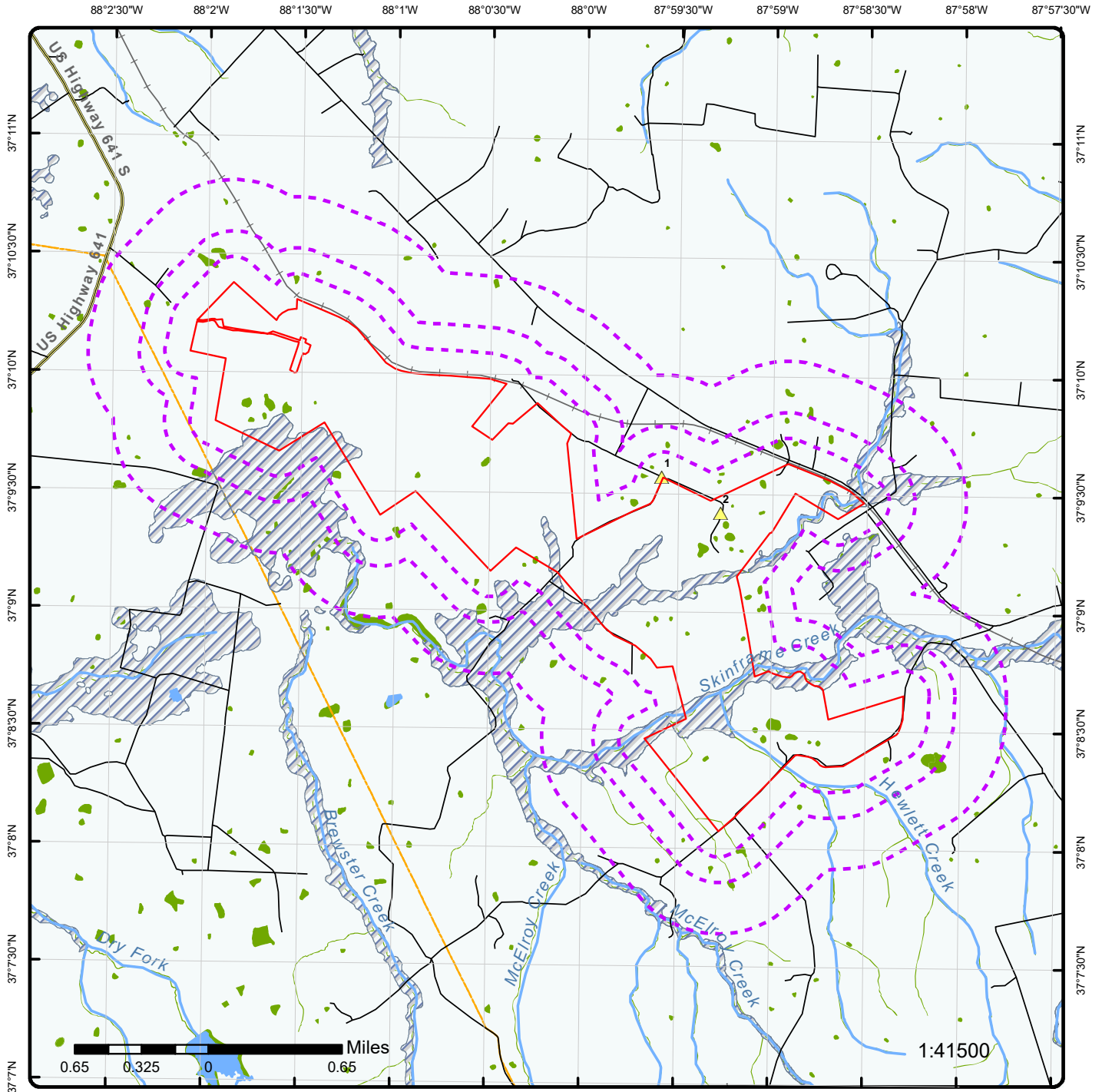
## Map : 1.0 Mile Radius

Order Number: 20200323045

Address: n/a, Fredonia, KY



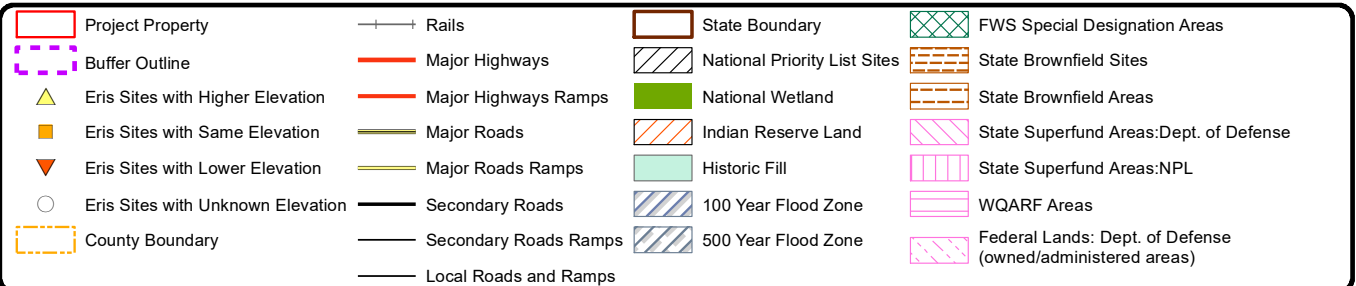
<span style="border: 1px solid red; display: inline-block; width: 20px; height: 10px;"></span> Project Property	<span style="color: blue;">—+—</span> Rails	<span style="border: 1px solid brown; display: inline-block; width: 20px; height: 10px;"></span> State Boundary	<span style="background-color: #d3d3d3; border: 1px solid black; display: inline-block; width: 20px; height: 10px;"></span> FWS Special Designation Areas
<span style="border: 2px dashed purple; display: inline-block; width: 20px; height: 10px;"></span> Buffer Outline	<span style="color: red;">—</span> Major Highways	<span style="background-color: #d3d3d3; border: 1px solid black; display: inline-block; width: 20px; height: 10px;"></span> National Priority List Sites	<span style="background-color: #f0f0f0; border: 1px solid black; display: inline-block; width: 20px; height: 10px;"></span> State Brownfield Sites
<span style="color: green;">▲</span> Eris Sites with Higher Elevation	<span style="color: red;">—</span> Major Highways Ramps	<span style="background-color: #90ee90; border: 1px solid black; display: inline-block; width: 20px; height: 10px;"></span> National Wetland	<span style="background-color: #f0f0f0; border: 1px solid black; display: inline-block; width: 20px; height: 10px;"></span> State Brownfield Areas
<span style="color: orange;">■</span> Eris Sites with Same Elevation	<span style="color: brown;">—</span> Major Roads	<span style="background-color: #fffacd; border: 1px solid black; display: inline-block; width: 20px; height: 10px;"></span> Indian Reserve Land	<span style="background-color: #fffacd; border: 1px solid black; display: inline-block; width: 20px; height: 10px;"></span> State Superfund Areas:Dept. of Defense
<span style="color: red;">▼</span> Eris Sites with Lower Elevation	<span style="color: brown;">—</span> Major Roads Ramps	<span style="background-color: #d3d3d3; border: 1px solid black; display: inline-block; width: 20px; height: 10px;"></span> Historic Fill	<span style="background-color: #fffacd; border: 1px solid black; display: inline-block; width: 20px; height: 10px;"></span> State Superfund Areas:NPL
<span style="color: grey;">○</span> Eris Sites with Unknown Elevation	<span style="color: black;">—</span> Secondary Roads	<span style="background-color: #d3d3d3; border: 1px solid black; display: inline-block; width: 20px; height: 10px;"></span> 100 Year Flood Zone	<span style="background-color: #fffacd; border: 1px solid black; display: inline-block; width: 20px; height: 10px;"></span> WQARF Areas
<span style="border: 1px dashed orange; display: inline-block; width: 20px; height: 10px;"></span> County Boundary	<span style="color: black;">—</span> Secondary Roads Ramps	<span style="background-color: #d3d3d3; border: 1px solid black; display: inline-block; width: 20px; height: 10px;"></span> 500 Year Flood Zone	<span style="background-color: #fffacd; border: 1px solid black; display: inline-block; width: 20px; height: 10px;"></span> Federal Lands: Dept. of Defense (owned/administered areas)
	<span style="color: black;">—</span> Local Roads and Ramps		

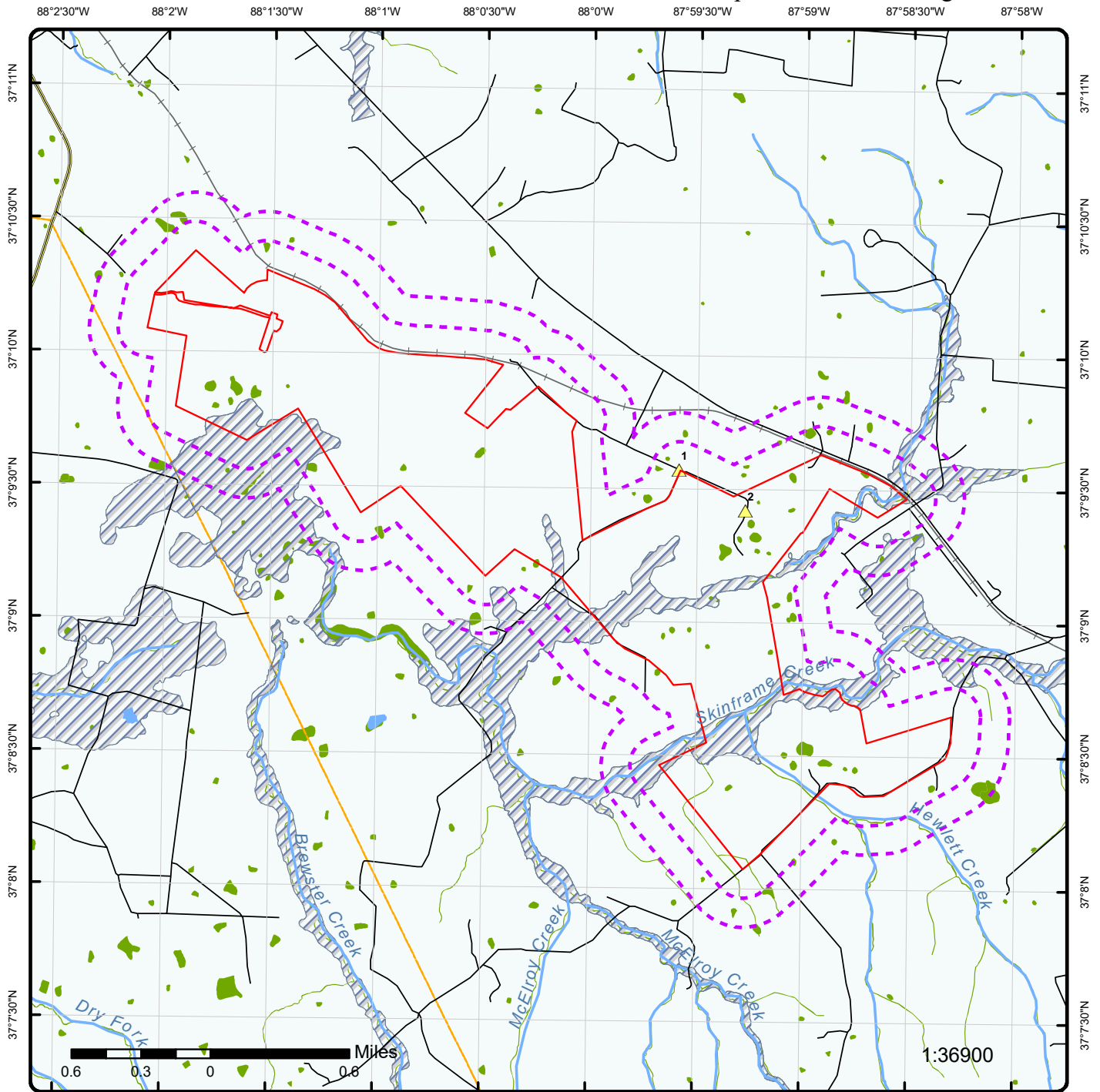


## Map : 0.5 Mile Radius

Order Number: 20200323045

Address: n/a, Fredonia, KY

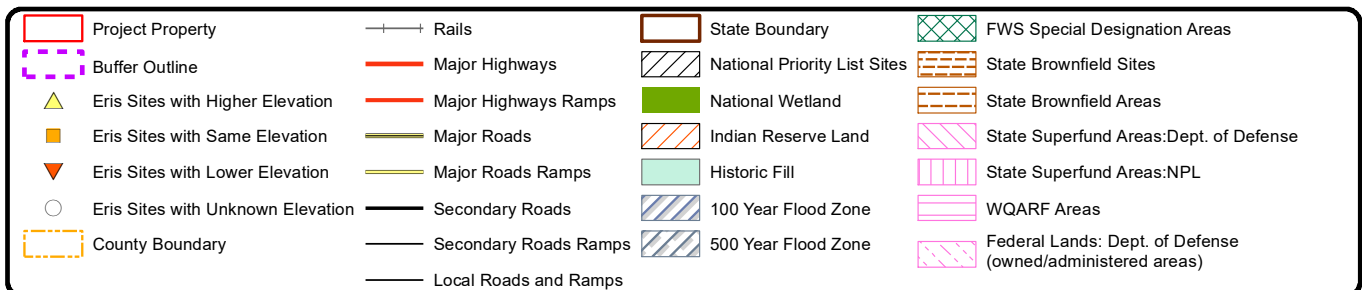




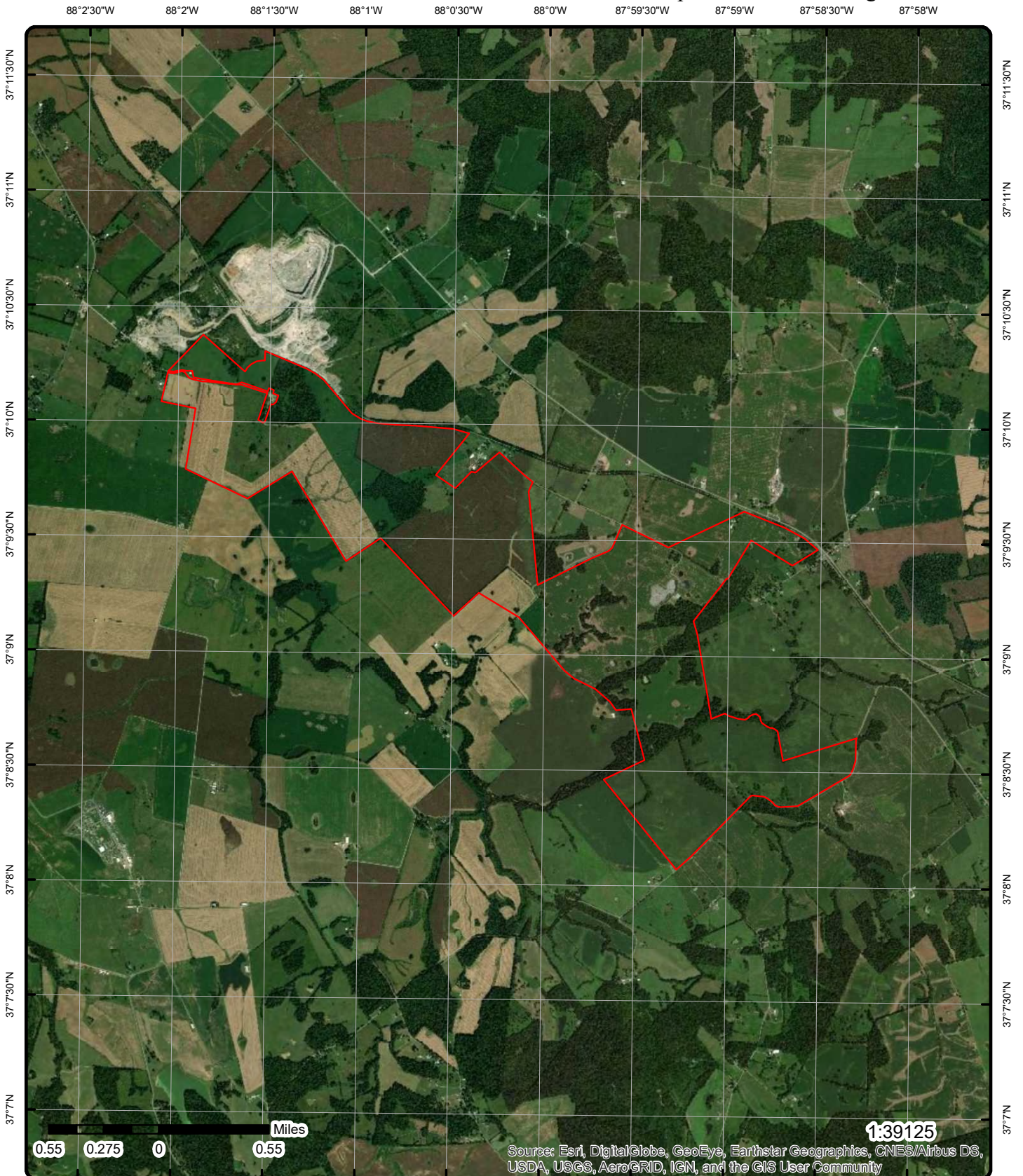
## Map : 0.25 Mile Radius

Order Number: 20200323045

Address: n/a, Fredonia, KY







**Aerial** Year: 2016

Address: n/a, Fredonia, KY

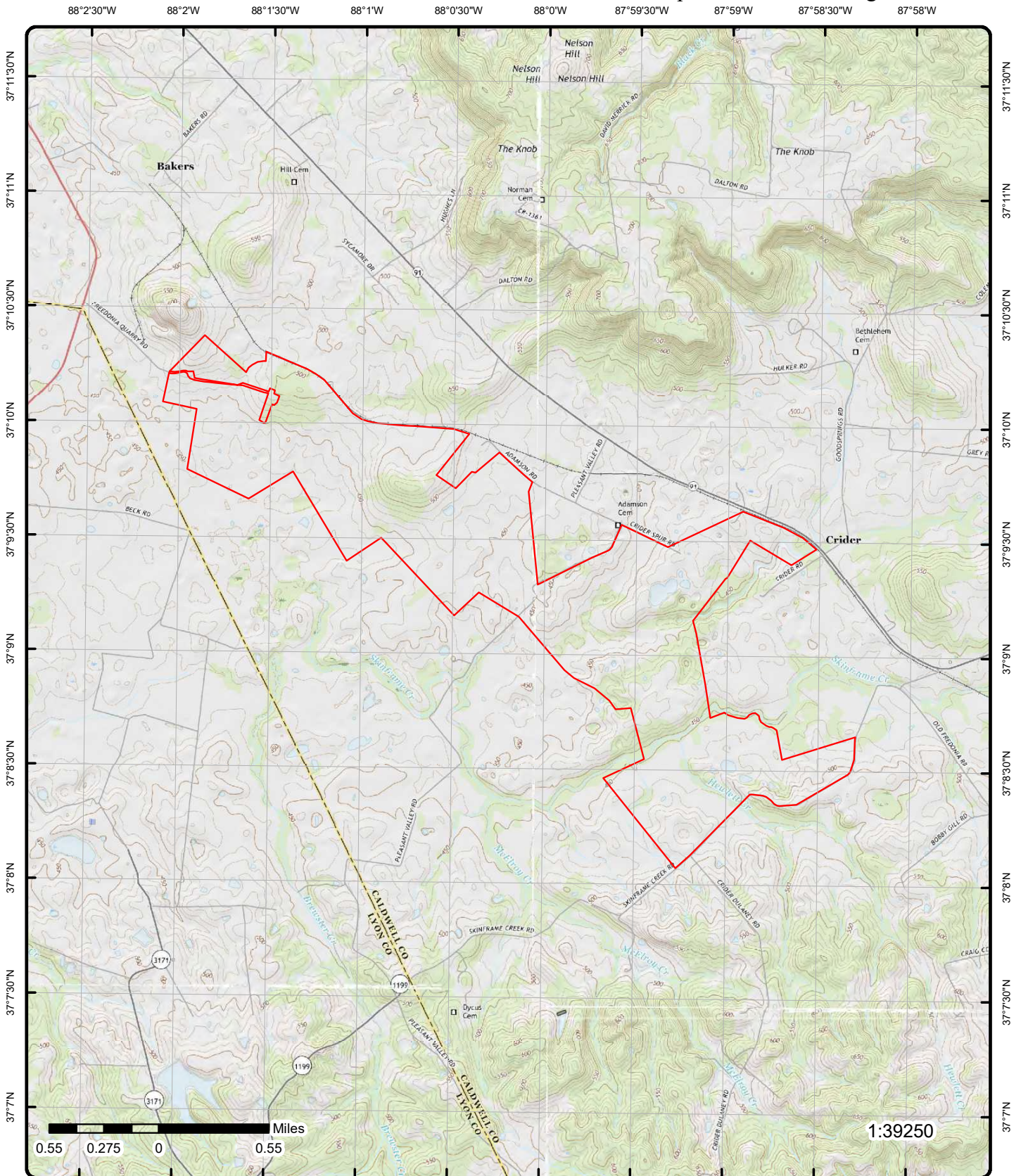
Source: ESRI World Imagery

Order Number: 20200323045



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## Topographic Map Year: 2016

Address: n/a, KY

Quadrangle(s): Princeton West,KY; Fredonia,KY; Crider,KY; Eddyville,KY

Source: USGS Topographic Map

Order Number: 20200323045



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## Detail Report

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
<a href="#">2</a>	1 of 1	E	0.00 / 0.00	481.95 / 43	Caldwell County Crider Spur Road Princeton KY	SPILLS
<div> <div> <b>INC ID:</b> 2291778  <b>MARS Function Code:</b>  <b>Status:</b> Env. Closed  <b>Priority:</b> Routine  <b>Program Code:</b> 01  <b>Program:</b> Air  <b>Substances:</b> PM10 (Particulate Matter - 10 Microns Or Less):  <b>Closure Type Desc:</b> Env. Closed-Mitigated  <b>Incident End Date:</b>  <b>Begin Emerg Dt:</b>  <b>End Emerg Dt:</b>  <b>Record Date:</b>  <b>First Report Date:</b> 2/19/2009  <b>Completed:</b> No  <b>Source:</b> Caldwell County  <b>Incident Type S:</b> OPEN BURNING  <b>Incident Desc:</b> Storm Debris Site  <b>Location Desc:</b> Crider Spur Road  <b>Other Substance Desc:</b>  <b>Z Coordinate Method Desc:</b> Handheld GPS - Not Differentially Corrected </div> <div> <b>Notification:</b> Yes  <b>Date:</b> 2/19/2009  <b>Lead Invest ID:</b> 37395  <b>Lead Investigator:</b> Saunier, Kathleen  <b>Flw Up Prior Desc:</b> Routine  <b>Recen Cpl Eval Act:</b>  <b>Recent ENF Act:</b>  <b>Locked Flag:</b> Yes  <b>Waterbody:</b>  <b>Regional Office:</b> Paducah Regional Office  <b>County:</b> Caldwell  <b>Lat Dac Degrees:</b> 87.987917  <b>Long Dec Degrees:</b> -37.157028 </div> </div>						
<a href="#">1</a>	1 of 1	ENE	0.01 / 38.67	461.66 / 22	Caldwell Co Water District (AI ID: 33819) Intersection of Crider Spur & Pleasant Valley Rd. Caldwell KY	SPILLS
<div> <div> <b>INC ID:</b> 2289215  <b>MARS Function Code:</b>  <b>Status:</b> Env. Closed  <b>Priority:</b> Routine  <b>Program Code:</b> 03  <b>Program:</b> Drinking Water  <b>Substances:</b> Population Affected:2  <b>Closure Type Desc:</b> Env. Closed-No Action/Managed  <b>Incident End Date:</b> 1/13/2009  <b>Begin Emerg Dt:</b>  <b>End Emerg Dt:</b>  <b>Record Date:</b>  <b>First Report Date:</b> 1/13/2009 12:21:00 PM  <b>Completed:</b> No  <b>Source:</b> Caldwell Co Water District (AI ID: 33819)  <b>Incident Type S:</b> DW-LINE BREAK/LEAK  <b>Incident Desc:</b> Boil Water Advisory  <b>Location Desc:</b> Intersection of Crider Spur &amp; Pleasant Valley Rd.  <b>Other Substance Desc:</b>  <b>Z Coordinate Method Desc:</b> </div> <div> <b>Notification:</b> Yes  <b>Date:</b> 1/9/2009  <b>Lead Invest ID:</b> 6161  <b>Lead Investigator:</b> Logsdon, Jackie  <b>Flw Up Prior Desc:</b>  <b>Recen Cpl Eval Act:</b>  <b>Recent ENF Act:</b>  <b>Locked Flag:</b> Yes  <b>Waterbody:</b>  <b>Regional Office:</b> Madisonville Regional Office  <b>County:</b> Caldwell  <b>Lat Dac Degrees:</b> 37.116262  <b>Long Dec Degrees:</b> -87.895209 </div> </div>						



## Unplottable Summary

Total: 10 Unplottable sites

DB	Company Name/Site Name	Address	City	Zip	ERIS ID
FINDS/FRS	GUESS TRUCKING & CONSTRUCTION	KY HWY 91 S	PRINCETON KY	42445	815412970
RCRA NON GEN	CALDWELL CO. AGRICULTURAL CHEMICAL SITE	HWY GARAGE, RT 2, BX 86 OLD FREDONIA RD. <i>EPA Handler ID:</i> KYD985082353	PRINCETON KY	42445	810121716
RCRA NON GEN	CALDWELL CO. AREA VOCATIONAL CTR.	RT 1, MARION ROAD <i>EPA Handler ID:</i> KYD981476419	PRINCETON KY	42445	862164827
SPILLS	Caldwell County;	Rock quarry access road near Marion Road (Hwy 91), Caldwell County, near Fredonia. <i>INC ID   Status:</i> 2308120   Env. Closed	Fredonia KY		827176430
SPILLS	Unnamed or Unknown	Along Hwy 91 from Princeton, site may be into Christian County. <i>INC ID   Status:</i> 2345314   Env. Closed	Princeton KY		827218249
SPILLS	Rodney Heaton Property (AI ID: 118654)	The lot the debris is being dumped in is across the street from Heaton's BBQ, at the Hwy 91 Princeton exit off the WK Pkwy (now I-69). <i>INC ID   Status:</i> 2399260   Dispatched Call Coordinator	Princeton KY		858133175
SPILLS	Chris Hooks	Water well located behind house at 2034 Marion Rd., Fredonia. Coming from Eddyville on Hwy. 641 N into Fredonia, turn right on Hwy 91N and go about 1/4 <i>INC ID   Status:</i> 2358724   Env. Closed	mile., Fredonia KY		827163082
SPILLS	Fredonia Food & More (AI ID: 62929)	KY 91 & KY 641 *The Fredonia Food & More gas station at this corner. <i>INC ID   Status:</i> 2420179   Env. Closed	Fredonia KY		859670806
SPILLS	Orica Mining Services	KY 91 in the 12000 block 3 miles outside of Princeton headed towards Fredonia.	Princeton KY		865732995



**INC ID / Status:** 2433177 | Response/Investigate

SPILLS

Demarius Hook Farm

Princeton KY

861617552

**INC ID / Status:** 2425343 | Response/Investigate

## Unplottable Report

**Site:** GUESS TRUCKING & CONSTRUCTION  
KY HWY 91 S PRINCETON KY 42445

FINDS/FRS

**Registry ID:** 110010768981  
**FIPS Code:** 21033  
**HUC Code:**  
**Site Type Name:** STATIONARY  
**Location Description:**  
**Supplemental Location:**  
**Create Date:** 01-MAR-2000 00:00:00  
**Update Date:** 05-MAR-2013 09:59:11  
**Interest Types:** FORMAL ENFORCEMENT ACTION  
**SIC Codes:** 1771  
**SIC Code Descriptions:** CONCRETE WORK  
**NAICS Codes:**  
**NAICS Code Descriptions:**  
**Conveyor:**  
**Federal Facility Code:**  
**Federal Agency Name:**  
**Tribal Land Code:**  
**Tribal Land Name:**  
**Congressional Dist No:**  
**Census Block Code:**  
**EPA Region Code:** 04  
**County Name:** CALDWELL  
**US/Mexico Border Ind:**  
**Latitude:**  
**Longitude:**  
**Reference Point:**  
**Coord Collection Method:**  
**Accuracy Value:**  
**Datum:** NAD83  
**Source:**  
**Facility Detail Rprt URL:** [http://ofmpub.epa.gov/frs\\_public2/fii\\_query\\_detail.disp\\_program\\_facility?p\\_registry\\_id=110010768981](http://ofmpub.epa.gov/frs_public2/fii_query_detail.disp_program_facility?p_registry_id=110010768981)  
**Program Acronyms:**

**Site:** CALDWELL CO. AGRICULTURAL CHEMICAL SITE  
HWY GARAGE, RT 2, BX 86 OLD FREDONIA RD. PRINCETON KY 42445

RCRA NON GEN

**EPA Handler ID:** KYD985082353  
**Gen Status Universe:** No Report  
**Contact Name:** STEPHEN COLEMAN  
**Contact Address:** 691 TETON TRAIL , COALITION FOR THE ENVIRONMENT , FRANKFORT , KY, 40601 , US  
**Contact Phone No and Ext:** 502-564-3080  
**Contact Email:**  
**Contact Country:** US  
**County Name:** CALDWELL  
**EPA Region:** 04  
**Land Type:** State  
**Receive Date:** 19920619

### Violation/Evaluation Summary

**Note:** VIOLATION or UNDETERMINED: There are VIOLATION or UNDETERMINED details or records associated with this facility (EPA ID) in the Compliance Monitoring and Enforcement table dated November, 2019.

### Violation Details

**Citation:** SR - 32:040  
**Violation Short Description:** Generators - Records/Reporting  
**Violation Type:** 262.D  
**Violation Determined Date:** 19920323  
**Scheduled Compliance Date:** 19920410  
**Return to Compliance:** Observed  
**Actual Return to Compl:** 19920612  
**Violation Responsible Agency:** State

**Enforcement Details**

**Enforcement Type:** 120  
**Enforcement Type Description:** WRITTEN INFORMAL  
**Enforcement Action Date:** 19920324  
**Enf Disposition Status:**  
**Disposition Status Date:**  
**Enforcement Lead Agency:** State  
**Proposed Penalty Amount:**  
**Final Amount:**  
**Paid Amount:**

**Violation Details**

**Citation:** SS - krs 224.46-580  
**Violation Short Description:** Generators - General  
**Violation Type:** 262.A  
**Violation Determined Date:** 19920311  
**Scheduled Compliance Date:**  
**Return to Compliance:** Observed  
**Actual Return to Compl:** 19930514  
**Violation Responsible Agency:** State

**Enforcement Details**

**Enforcement Type:** 310  
**Enforcement Type Description:** FINAL 3008(A) COMPLIANCE ORDER  
**Enforcement Action Date:** 19921001  
**Enf Disposition Status:**  
**Disposition Status Date:**  
**Enforcement Lead Agency:** State  
**Proposed Penalty Amount:**  
**Final Amount:**  
**Paid Amount:**

**Enforcement Type:** 120  
**Enforcement Type Description:** WRITTEN INFORMAL  
**Enforcement Action Date:** 19920317  
**Enf Disposition Status:**  
**Disposition Status Date:**  
**Enforcement Lead Agency:** State  
**Proposed Penalty Amount:**  
**Final Amount:**  
**Paid Amount:**

**Enforcement Type:** 151  
**Enforcement Type Description:** REFERRAL TO ENFORCEMENT  
**Enforcement Action Date:** 19920429  
**Enf Disposition Status:**  
**Disposition Status Date:**  
**Enforcement Lead Agency:** State  
**Proposed Penalty Amount:**  
**Final Amount:**  
**Paid Amount:**

**Evaluation Details**

**Evaluation Start Date:** 19950918

**Evaluation Type Description:** COMPLIANCE EVALUATION INSPECTION ON-SITE  
**Violation Short Description:**  
**Return to Compliance Date:**  
**Evaluation Agency:** State

**Evaluation Start Date:** 19941215  
**Evaluation Type Description:** COMPLIANCE SCHEDULE EVALUATION  
**Violation Short Description:** Generators - General  
**Return to Compliance Date:** 19930514  
**Evaluation Agency:** State

**Evaluation Start Date:** 19920612  
**Evaluation Type Description:** COMPLIANCE SCHEDULE EVALUATION  
**Violation Short Description:** Generators - Records/Reporting  
**Return to Compliance Date:** 19920612  
**Evaluation Agency:** State

**Evaluation Start Date:** 19920428  
**Evaluation Type Description:** COMPLIANCE SCHEDULE EVALUATION  
**Violation Short Description:** Generators - General  
**Return to Compliance Date:** 19930514  
**Evaluation Agency:** State

**Evaluation Start Date:** 19920323  
**Evaluation Type Description:** NON-FINANCIAL RECORD REVIEW  
**Violation Short Description:** Generators - Records/Reporting  
**Return to Compliance Date:** 19920612  
**Evaluation Agency:** State

**Evaluation Start Date:** 19920311  
**Evaluation Type Description:** NON-FINANCIAL RECORD REVIEW  
**Violation Short Description:** Generators - General  
**Return to Compliance Date:** 19930514  
**Evaluation Agency:** State

#### Handler Summary

**Importer Activity:** No  
**Mixed Waste Generator:** No  
**Transporter Activity:** No  
**Transfer Facility:** No  
**Onsite Burner Exemption:** No  
**Furnace Exemption:** No  
**Underground Injection Activity:** No  
**Commercial TSD:** No  
**Used Oil Transporter:** No  
**Used Oil Transfer Facility:** No  
**Used Oil Processor:** No  
**Used Oil Refiner:** No  
**Used Oil Burner:** No  
**Used Oil Market Burner:** No  
**Used Oil Spec Marketer:** No

#### Hazardous Waste Handler Details

**Sequence No:** 1  
**Receive Date:** 19920301  
**Handler Name:** CALDWELL CO. AGRICULTURAL CHEMICAL SITE  
**Generator Status Universe:** No Report  
**Source Type:** Annual/Biennial Report

#### Hazardous Waste Handler Details

**Sequence No:** 1  
**Receive Date:** 19920619  
**Handler Name:** CALDWELL CO. AGRICULTURAL CHEMICAL SITE  
**Generator Status Universe:** No Report  
**Source Type:** Notification

**Waste Code Details**

**Hazardous Waste Code:** NONE  
**Waste Code Description:** DESCRIPTION

**Owner/Operator Details**

<b>Owner/Operator Ind:</b>	Current Owner	<b>Street No:</b>	
<b>Type:</b>	State	<b>Street 1:</b>	STATE OFFICE BUILDING
<b>Name:</b>	COMMONWEALTH OF KENTUCKY TRANSPORTATION	<b>Street 2:</b>	
<b>Date Became Current:</b>		<b>City:</b>	FRANKFORT
<b>Date Ended Current:</b>		<b>State:</b>	KY
<b>Phone:</b>	502-564-3080	<b>Country:</b>	
<b>Source Type:</b>	Notification	<b>Zip Code:</b>	40622

**Historical Handler Details**

**Receive Dt:** 19920301  
**Generator Code Description:** Large Quantity Generator  
**Handler Name:** CALDWELL CO. AGRICULTURAL CHEMICAL SITE

**Site:** CALDWELL CO. AREA VOCATIONAL CTR.  
RT 1, MARION ROAD PRINCETON KY 42445

RCRA NON GEN

**EPA Handler ID:** KYD981476419  
**Gen Status Universe:** No Report  
**Contact Name:** ARTHUR DUNN  
**Contact Address:** P.O. BOX 350 , , PRINCETON , KY, 42445 , US  
**Contact Phone No and Ext:** 502-365-5563  
**Contact Email:**  
**Contact Country:** US  
**County Name:** CALDWELL  
**EPA Region:** 04  
**Land Type:** State  
**Receive Date:** 20170606

**Violation/Evaluation Summary**

**Note:** VIOLATION or UNDETERMINED: There are VIOLATION or UNDETERMINED details or records associated with this facility (EPA ID) in the Compliance Monitoring and Enforcement table dated November, 2019.

**Violation Details**

**Citation:**  
**Violation Short Description:** Universal Waste - Small Quantity Handlers  
**Violation Type:** 273.B  
**Violation Determined Date:** 20160404  
**Scheduled Compliance Date:** 20160504  
**Return to Compliance:** Documented  
**Actual Return to Compl:** 20160511  
**Violation Responsible Agency:** State

**Enforcement Details**

**Enforcement Type:** 120  
**Enforcement Type Description:** WRITTEN INFORMAL  
**Enforcement Action Date:** 20160412  
**Enf Disposition Status:**  
**Disposition Status Date:**  
**Enforcement Lead Agency:** State  
**Proposed Penalty Amount:**  
**Final Amount:**  
**Paid Amount:**

**Evaluation Details**

<b>Evaluation Start Date:</b>	20160620
<b>Evaluation Type Description:</b>	COMPLIANCE SCHEDULE EVALUATION
<b>Violation Short Description:</b>	Universal Waste - Small Quantity Handlers
<b>Return to Compliance Date:</b>	20160511
<b>Evaluation Agency:</b>	State
<b>Evaluation Start Date:</b>	20160404
<b>Evaluation Type Description:</b>	COMPLIANCE EVALUATION INSPECTION ON-SITE
<b>Violation Short Description:</b>	Universal Waste - Small Quantity Handlers
<b>Return to Compliance Date:</b>	20160511
<b>Evaluation Agency:</b>	State
<b>Evaluation Start Date:</b>	20110708
<b>Evaluation Type Description:</b>	COMPLIANCE EVALUATION INSPECTION ON-SITE
<b>Violation Short Description:</b>	
<b>Return to Compliance Date:</b>	
<b>Evaluation Agency:</b>	State
<b>Evaluation Start Date:</b>	20081027
<b>Evaluation Type Description:</b>	COMPLIANCE EVALUATION INSPECTION ON-SITE
<b>Violation Short Description:</b>	
<b>Return to Compliance Date:</b>	
<b>Evaluation Agency:</b>	State
<b>Evaluation Start Date:</b>	20080620
<b>Evaluation Type Description:</b>	COMPLIANCE EVALUATION INSPECTION ON-SITE
<b>Violation Short Description:</b>	
<b>Return to Compliance Date:</b>	
<b>Evaluation Agency:</b>	State
<b>Evaluation Start Date:</b>	19950918
<b>Evaluation Type Description:</b>	COMPLIANCE EVALUATION INSPECTION ON-SITE
<b>Violation Short Description:</b>	
<b>Return to Compliance Date:</b>	
<b>Evaluation Agency:</b>	State

**Handler Summary**

<b>Importer Activity:</b>	No
<b>Mixed Waste Generator:</b>	No
<b>Transporter Activity:</b>	No
<b>Transfer Facility:</b>	No
<b>Onsite Burner Exemption:</b>	No
<b>Furnace Exemption:</b>	No
<b>Underground Injection Activity:</b>	No
<b>Commercial TSD:</b>	No
<b>Used Oil Transporter:</b>	No
<b>Used Oil Transfer Facility:</b>	No
<b>Used Oil Processor:</b>	No
<b>Used Oil Refiner:</b>	No
<b>Used Oil Burner:</b>	No
<b>Used Oil Market Burner:</b>	No
<b>Used Oil Spec Marketer:</b>	No

**Hazardous Waste Handler Details**

<b>Sequence No:</b>	1
<b>Receive Date:</b>	19890601
<b>Handler Name:</b>	CALDWELL CO. AREA VOCATIONAL CTR.
<b>Generator Status Universe:</b>	No Report
<b>Source Type:</b>	Notification

**Waste Code Details**

<b>Hazardous Waste Code:</b>	D001
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**Waste Code Description:** IGNITABLE WASTE

**Hazardous Waste Code:** F003

**Waste Code Description:** THE FOLLOWING SPENT NONHALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NONHALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NONHALOGENATED SOLVENTS, AND A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

**Hazardous Waste Handler Details**

**Sequence No:** 2  
**Receive Date:** 20170606  
**Handler Name:** CALDWELL CO. AREA VOCATIONAL CTR.  
**Generator Status Universe:** No Report  
**Source Type:** Notification

**Owner/Operator Details**

<b>Owner/Operator Ind:</b>	Current Owner	<b>Street No:</b>	
<b>Type:</b>	State	<b>Street 1:</b>	UNKNOWN
<b>Name:</b>	KENTUCKY DEPARTMENT OF EDUCATION	<b>Street 2:</b>	
<b>Date Became Current:</b>		<b>City:</b>	UNKNOWN
<b>Date Ended Current:</b>		<b>State:</b>	KY
<b>Phone:</b>	502-365-5563	<b>Country:</b>	
<b>Source Type:</b>	Notification	<b>Zip Code:</b>	00000

<b>Owner/Operator Ind:</b>	Current Operator	<b>Street No:</b>	
<b>Type:</b>	State	<b>Street 1:</b>	UNKNOWN
<b>Name:</b>	KENTUCKY DEPARTMENT OF EDUCATION	<b>Street 2:</b>	
<b>Date Became Current:</b>		<b>City:</b>	UNKNOWN
<b>Date Ended Current:</b>		<b>State:</b>	KY
<b>Phone:</b>	502-365-5563	<b>Country:</b>	US
<b>Source Type:</b>	Notification	<b>Zip Code:</b>	00000

<b>Owner/Operator Ind:</b>	Current Owner	<b>Street No:</b>	
<b>Type:</b>	State	<b>Street 1:</b>	UNKNOWN
<b>Name:</b>	KENTUCKY DEPARTMENT OF EDUCATION	<b>Street 2:</b>	
<b>Date Became Current:</b>		<b>City:</b>	UNKNOWN
<b>Date Ended Current:</b>		<b>State:</b>	KY
<b>Phone:</b>	502-365-5563	<b>Country:</b>	US
<b>Source Type:</b>	Notification	<b>Zip Code:</b>	00000

**Historical Handler Details**

**Receive Dt:** 19890601  
**Generator Code Description:** Very Small Quantity Generator  
**Handler Name:** CALDWELL CO. AREA VOCATIONAL CTR.

**Site:** Caldwell County;  
Rock quarry access road near Marion Road (Hwy 91), Caldwell County, near Fredonia. Fredonia KY

SPILLS

<b>INC ID:</b>	2308120	<b>Notification:</b>	No
<b>MARS Function Code:</b>		<b>Date:</b>	2/17/2010
<b>Status:</b>	Env. Closed	<b>Lead Invest ID:</b>	45875
<b>Priority:</b>	Routine	<b>Lead Investigator:</b>	Jewell, Laura
<b>Program Code:</b>	01	<b>Flw Up Prior Desc:</b>	
<b>Program:</b>	Air	<b>Recen Cpl Eval Act:</b>	
<b>Substances:</b>	PM2.5 (Particulate Matter - 2.5 Microns Or Less):	<b>Recent ENF Act:</b>	
<b>Closure Type Desc:</b>	Env. Closed-Mitigated	<b>Locked Flag:</b>	Yes
<b>Incident End Date:</b>		<b>Waterbody:</b>	
<b>Begin Emerg Dt:</b>		<b>Regional Office:</b>	Paducah Regional Office
<b>End Emerg Dt:</b>		<b>County:</b>	Caldwell
<b>Record Date:</b>		<b>Lat Dac Degrees:</b>	

**First Report Date:** 2/17/2010 10:00:40 AM  
**Completed:** Yes  
**Source:** Caldwell County;  
**Incident Type S:** AIR RELEASE, FUGITIVE EMISSIONS  
**Incident Desc:** Fugitive from new access road to a rock quarry, perhaps Martin Marietta.  
**Location Desc:** Rock quarry access road near Marion Road (Hwy 91), Caldwell County, near Fredonia.  
**Other Substance Desc:**  
**Z Coordinate Method Desc:**

**Long Dec Degrees:**

**Site:** **Unnamed or Unknown**  
**Along Hwy 91 from Princeton, site may be into Christian County. Princeton KY**

SPILLS

<b>INC ID:</b> 2345314	<b>Notification:</b> No
<b>MARS Function Code:</b>	<b>Date:</b> 4/1/2012
<b>Status:</b> Env. Closed	<b>Lead Invest ID:</b> 48620
<b>Priority:</b> Routine	<b>Lead Investigator:</b> Bibbee, Lindsey
<b>Program Code:</b> 13	<b>Flw Up Prior Desc:</b>
<b>Program:</b> Water Resources	<b>Recen Cpl Eval Act:</b>
<b>Substances:</b>	<b>Recent ENF Act:</b>
<b>Closure Type Desc:</b> Env. Closed-Unfounded	<b>Locked Flag:</b> Yes
<b>Incident End Date:</b> 4/18/2012	<b>Waterbody:</b>
<b>Begin Emerg Dt:</b>	<b>Regional Office:</b> Madisonville Regional Office
<b>End Emerg Dt:</b>	<b>County:</b> Caldwell
<b>Record Date:</b>	<b>Lat Dac Degrees:</b>
<b>First Report Date:</b> 4/3/2012 1:36:00 PM	<b>Long Dec Degrees:</b>
<b>Completed:</b> Yes	
<b>Source:</b> Unnamed or Unknown	
<b>Incident Type S:</b> STREAM DEGRADATION; FLOODPLAIN	
<b>Incident Desc:</b> An anonymous caller has stated that while driving along Hwy 91 in Caldwell county, Princeton to Hopkinsville, a farm was observed to have various large equipment engaged in excavation of a stream. There were various piles of burning debris and alleged clear cutting of a riparian zone. The farm workers were driving red trucks with the farms logo on the side.	
<b>Location Desc:</b> Along Hwy 91 from Princeton, site may be into Christian County.	
<b>Other Substance Desc:</b>	
<b>Z Coordinate Method Desc:</b>	

**Site:** **Rodney Heaton Property (AI ID: 118654)**  
**The lot the debris is being dumped in is across the street from Heatons BBQ, at the Hwy 91 Princeton exit off the WK Pkwy (now I-69). Princeton KY**

SPILLS

<b>INC ID:</b> 2399260	<b>Notification:</b> No
<b>MARS Function Code:</b>	<b>Date:</b> 7/22/2015
<b>Status:</b> Dispatched Call Coordinator	<b>Lead Invest ID:</b>
<b>Priority:</b> Routine	<b>Lead Investigator:</b>
<b>Program Code:</b> 08	<b>Flw Up Prior Desc:</b>
<b>Program:</b> Solid Waste	<b>Recen Cpl Eval Act:</b>
<b>Substances:</b>	<b>Recent ENF Act:</b>
<b>Closure Type Desc:</b>	<b>Locked Flag:</b> No
<b>Incident End Date:</b>	<b>Waterbody:</b>
<b>Begin Emerg Dt:</b>	<b>Regional Office:</b> Madisonville Regional Office
<b>End Emerg Dt:</b>	<b>County:</b> Caldwell
<b>Record Date:</b>	<b>Lat Dac Degrees:</b> 37.12585
<b>First Report Date:</b> 7/22/2015 12:45:00 PM	<b>Long Dec Degrees:</b> -87.8897
<b>Completed:</b> Yes	
<b>Source:</b> Rodney Heaton Property (AI ID: 118654)	
<b>Incident Type S:</b> OPEN DUMPING	
<b>Incident Desc:</b> Caller stated a building is being torn down in Princeton and all the debris is being dumped at a lot.	
<b>Location Desc:</b> The lot the debris is being dumped in is across the street from Heatons BBQ, at the Hwy 91 Princeton exit off the WK Pkwy (now I-69).	
<b>Other Substance Desc:</b>	
<b>Z Coordinate Method Desc:</b> Handheld GPS - Not Differentially Corrected	

**Site:** **Chris Hooks**  
**Water well located behind house at 2034 Marion Rd., Fredonia. Coming from Eddyville on Hwy. 641 N into Fredonia, turn right on Hwy 91N and go about 1/4 mile., Fredonia KY**

SPILLS



<b>INC ID:</b>	2358724	<b>Notification:</b>	No
<b>MARS Function Code:</b>		<b>Date:</b>	3/12/2013
<b>Status:</b>	Env. Closed	<b>Lead Invest ID:</b>	58732
<b>Priority:</b>	Routine	<b>Lead Investigator:</b>	Carroll, Christopher
<b>Program Code:</b>	06	<b>Flw Up Prior Desc:</b>	
<b>Program:</b>	Groundwater	<b>Recen Cpl Eval Act:</b>	
<b>Substances:</b>	Water:	<b>Recent ENF Act:</b>	
<b>Closure Type Desc:</b>	Env. Closed-No Action Necessary	<b>Locked Flag:</b>	Yes
<b>Incident End Date:</b>	3/19/2013	<b>Waterbody:</b>	
<b>Begin Emerg Dt:</b>		<b>Regional Office:</b>	Madisonville Regional Office
<b>End Emerg Dt:</b>		<b>County:</b>	Caldwell
<b>Record Date:</b>		<b>Lat Dec Degrees:</b>	
<b>First Report Date:</b>	3/12/2013 10:45:00 AM	<b>Long Dec Degrees:</b>	
<b>Completed:</b>	Yes		
<b>Source:</b>	Chris Hooks		
<b>Incident Type S:</b>	ODOR		
<b>Incident Desc:</b>	Sewer-type odor suspected to originate from sulfur water well being used in irrigation system.		
<b>Location Desc:</b>	Water well located behind house at 2034 Marion Rd., Fredonia. Coming from Eddyville on Hwy. 641 N into Fredonia, turn right on Hwy 91N and go about 1/4 mile.		
<b>Other Substance Desc:</b>			
<b>Z Coordinate Method Desc:</b>			

**Site:** Fredonia Food & More (AI ID: 62929)  
KY 91 & KY 641 \*The Fredonia Food & More gas station at this corner. Fredonia KY

SPILLS

<b>INC ID:</b>	2420179	<b>Notification:</b>	No
<b>MARS Function Code:</b>	Q468	<b>Date:</b>	12/24/2016
<b>Status:</b>	Env. Closed	<b>Lead Invest ID:</b>	9467
<b>Priority:</b>	Emergency, Immed. Resp.	<b>Lead Investigator:</b>	Tichenor, Larry
<b>Program Code:</b>	08	<b>Flw Up Prior Desc:</b>	
<b>Program:</b>	Solid Waste	<b>Recen Cpl Eval Act:</b>	AI: 62929 CIV20170001
<b>Substances:</b>		<b>Recent ENF Act:</b>	
<b>Closure Type Desc:</b>	Env. Closed-Restored	<b>Locked Flag:</b>	Yes
<b>Incident End Date:</b>		<b>Waterbody:</b>	
<b>Begin Emerg Dt:</b>	2/6/2017 8:17:00 AM	<b>Regional Office:</b>	Madisonville Regional Office
<b>End Emerg Dt:</b>	12/27/2016 10:45:00 AM	<b>County:</b>	Caldwell
<b>Record Date:</b>		<b>Lat Dec Degrees:</b>	37.209675
<b>First Report Date:</b>	12/24/2016 9:01:00 AM	<b>Long Dec Degrees:</b>	-88.05723
<b>Completed:</b>	Yes		
<b>Source:</b>	Fredonia Food & More (AI ID: 62929)		
<b>Incident Type S:</b>	FACILITY SPILL		
<b>Incident Desc:</b>	Spill - Fuel involving a overfill of a passenger car fuel tank and a spill of 22 gallons to the ground that has flowed down the parking lot and then down between the roadway and the sidewalk.		
<b>Location Desc:</b>	KY 91 & KY 641 *The Fredonia Food & More gas station at this corner.		
<b>Other Substance Desc:</b>			
<b>Z Coordinate Method Desc:</b>	Paper or Internet Map Interpolation		

**Site:** Orica Mining Services  
KY 91 in the 12000 block 3 miles outside of Princeton headed towards Fredonia. Princeton KY

SPILLS

<b>INC ID:</b>	2433177	<b>Notification:</b>	Yes
<b>MARS Function Code:</b>	R394	<b>Date:</b>	12/19/2017
<b>Status:</b>	Response/Investigate	<b>Lead Invest ID:</b>	9467
<b>Priority:</b>	Emergency, Immed. Resp.	<b>Lead Investigator:</b>	Tichenor, Larry
<b>Program Code:</b>	08	<b>Flw Up Prior Desc:</b>	
<b>Program:</b>	Solid Waste	<b>Recen Cpl Eval Act:</b>	
<b>Substances:</b>		<b>Recent ENF Act:</b>	
<b>Closure Type Desc:</b>		<b>Locked Flag:</b>	No
<b>Incident End Date:</b>		<b>Waterbody:</b>	
<b>Begin Emerg Dt:</b>	12/19/2017	<b>Regional Office:</b>	Madisonville Regional Office
<b>End Emerg Dt:</b>	12/19/2017	<b>County:</b>	Caldwell
<b>Record Date:</b>		<b>Lat Dec Degrees:</b>	
<b>First Report Date:</b>	12/19/2017 1:22:00 PM	<b>Long Dec Degrees:</b>	
<b>Completed:</b>	No		
<b>Source:</b>	Orica Mining Services		
<b>Incident Type S:</b>	TRANSPORTATION ACCIDENT - TRUCK		

**Incident Desc:** CMV overturned carrying ammonia nitrate, blasting caps, and other items. The CMV is leaking some diesel and hydraulic fluid. They have placed out booms. Responded to.  
**Location Desc:** KY 91 in the 12000 block 3 miles outside of Princeton headed towards Fredonia.  
**Other Substance Desc:**  
**Z Coordinate Method Desc:**

**Site:** Demarius Hook Farm  
Princeton KY

SPILLS

**INC ID:** 2425343  
**MARS Function Code:**  
**Status:** Response/Investigate  
**Priority:** Routine  
**Program Code:** 11  
**Program:** Wastewater  
**Substances:** Pesticides/Herbicides:  
**Closure Type Desc:**  
**Incident End Date:**  
**Begin Emerg Dt:**  
**End Emerg Dt:**  
**Record Date:**  
**First Report Date:** 5/8/2017 11:17:13 AM  
**Completed:** No

**Notification:** Yes  
**Date:** 5/8/2017  
**Lead Invest ID:** 67342  
**Lead Investigator:** Littlepage, Tommy  
**Flw Up Prior Desc:**  
**Recen Cpl Eval Act:**  
**Recent ENF Act:**  
**Locked Flag:** No  
**Waterbody:**  
**Regional Office:** Madisonville Regional Office  
**County:** Caldwell  
**Lat Dac Degrees:**  
**Long Dec Degrees:**

**Source:** Demarius Hook Farm  
**Incident Type S:** STREAM DEGRADATION; NPS-AWQA  
**Incident Desc:** In Princeton, KY the complainant states the crop farm owned by Ms. Demarius Hooks was recently herbicided. Herbiciding took place along the tributary to McElroy Creek. The tributary is spring fed. The complainant is very concerned, too, about groundwater contamination. EEC-DEP-DOW-Groundwater Section has been asked (by the complainant) to test two wells previously labeled as unsafe due to high nitrate content. The caller's primary concerns are: surface water contamination due to misuse of unknown herbicides, and groundwater contamination due to misuse of all pesticides (herbicides, insecticides, fungicides) and fertilizers used at this corn crop farm.  
**Location Desc:** Demarius Hooks Farm @ 8051 Old Fredonia Road: From Princeton, KY follow US62 towards Eddieville, KY for about 8 miles. When get into Lyon County turn right onto Pleasant Valley Road and travel about 2.5 miles. The road then becomes Highway 1199. Turn right onto Sells Road. Follow Sells Road to where it becomes Old Fredonia. First mailbox on the right  
**Other Substance Desc:** nitrates  
**Z Coordinate Method Desc:**

## Appendix: Database Descriptions

*Environmental Risk Information Services (ERIS) can search the following databases. The extent of historical information varies with each database and current information is determined by what is publicly available to ERIS at the time of update. ERIS updates databases as set out in ASTM Standard E1527-13, Section 8.1.8 Sources of Standard Source Information:*

*"Government information from nongovernmental sources may be considered current if the source updates the information at least every 90 days, or, for information that is updated less frequently than quarterly by the government agency, within 90 days of the date the government agency makes the information available to the public."*

### Standard Environmental Record Sources

#### Federal

##### National Priority List:

NPL

National Priorities List (Superfund)-NPL: EPA's (United States Environmental Protection Agency) list of the most serious uncontrolled or abandoned hazardous waste sites identified for possible long-term remedial action under the Superfund program. The NPL, which EPA is required to update at least once a year, is based primarily on the score a site receives from EPA's Hazard Ranking System. A site must be on the NPL to receive money from the Superfund Trust Fund for remedial action.

**Government Publication Date: Jan 30, 2020**

##### National Priority List - Proposed:

PROPOSED NPL

Includes sites proposed (by the EPA, the state, or concerned citizens) for addition to the NPL due to contamination by hazardous waste and identified by the Environmental Protection Agency (EPA) as a candidate for cleanup because it poses a risk to human health and/or the environment.

**Government Publication Date: Jan 30, 2020**

##### Deleted NPL:

DELETED NPL

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

**Government Publication Date: Jan 30, 2020**

##### SEMS List 8R Active Site Inventory:

SEMS

The Superfund Program has deployed the Superfund Enterprise Management System (SEMS), which integrates multiple legacy systems into a comprehensive tracking and reporting tool. This inventory contains active sites evaluated by the Superfund program that are either proposed to be or are on the National Priorities List (NPL) as well as sites that are in the screening and assessment phase for possible inclusion on the NPL. The Active Site Inventory Report displays site and location information at active SEMS sites. An active site is one at which site assessment, removal, remedial, enforcement, cost recovery, or oversight activities are being planned or conducted.

**Government Publication Date: Nov 25, 2019**

##### SEMS List 8R Archive Sites:

SEMS ARCHIVE

The Superfund Enterprise Management System (SEMS) Archived Site Inventory displays site and location information at sites archived from SEMS. An archived site is one at which EPA has determined that assessment has been completed and no further remedial action is planned under the Superfund program at this time.

**Government Publication Date: Nov 25, 2019**

##### Inventory of Open Dumps, June 1985:

ODI

The Resource Conservation and Recovery Act (RCRA) provides for publication of an inventory of open dumps. The Act defines "open dumps" as facilities which do not comply with EPA's "Criteria for Classification of Solid Waste Disposal Facilities and Practices" (40 CFR 257).

**Government Publication Date: Jun 1985**

**EPA Report on the Status of Open Dumps on Indian Lands:**

[IODI](#)

Public Law 103-399, The Indian Lands Open Dump Cleanup Act of 1994, enacted October 22, 1994, identified congressional concerns that solid waste open dump sites located on American Indian or Alaska Native (AI/AN) lands threaten the health and safety of residents of those lands and contiguous areas. The purpose of the Act is to identify the location of open dumps on Indian lands, assess the relative health and environment hazards posed by those sites, and provide financial and technical assistance to Indian tribal governments to close such dumps in compliance with Federal standards and regulations or standards promulgated by Indian Tribal governments or Alaska Native entities.

**Government Publication Date: Dec 31, 1998**

**Comprehensive Environmental Response, Compensation and Liability Information System -**

[CERCLIS](#)

**CERCLIS:**

Superfund is a program administered by the United States Environmental Protection Agency (EPA) to locate, investigate, and clean up the worst hazardous waste sites throughout the United States. CERCLIS is a database of potential and confirmed hazardous waste sites at which the EPA Superfund program has some involvement. It contains sites that are either proposed to be or are on the National Priorities List (NPL) as well as sites that are in the screening and assessment phase for possible inclusion on the NPL. The EPA administers the Superfund program in cooperation with individual states and tribal governments; this database is made available by the EPA.

**Government Publication Date: Oct 25, 2013**

**CERCLIS - No Further Remedial Action Planned:**

[CERCLIS NFRAP](#)

An archived site is one at which EPA has determined that assessment has been completed and no further remedial action is planned under the Superfund program at this time. The Archive designation means that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list this site on the National Priorities List (NPL). This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

**Government Publication Date: Oct 25, 2013**

**CERCLIS Liens:**

[CERCLIS LIENS](#)

A Federal Superfund lien exists at any property where EPA has incurred Superfund costs to address contamination ("Superfund site") and has provided notice of liability to the property owner. A Federal CERCLA ("Superfund") lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. This database is made available by the United States Environmental Protection Agency (EPA).

**Government Publication Date: Jan 30, 2014**

**RCRA CORRACTS-Corrective Action:**

[RCRA CORRACTS](#)

RCRA Info is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. At these sites, the Corrective Action Program ensures that cleanups occur. EPA and state regulators work with facilities and communities to design remedies based on the contamination, geology, and anticipated use unique to each site.

**Government Publication Date: Nov 18, 2019**

**RCRA non-CORRACTS TSD Facilities:**

[RCRA TSD](#)

RCRA Info is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. This database includes Non-Corrective Action sites listed as treatment, storage and/or disposal facilities of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA).

**Government Publication Date: Nov 18, 2019**

**RCRA Generator List:**

[RCRA LQG](#)

RCRA Info is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. RCRA Info replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System (RCRIS) and the Biennial Reporting System (BRS). A hazardous waste generator is any person or site whose processes and actions create hazardous waste (see 40 CFR 260.10). Large Quantity Generators (LQGs) generate 1,000 kilograms per month or more of hazardous waste or more than one kilogram per month of acutely hazardous waste.

**Government Publication Date: Nov 18, 2019**

**RCRA Small Quantity Generators List:**

[RCRA SQG](#)

RCRA Info is the EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. RCRA Info replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System (RCRIS) and the Biennial Reporting System (BRS). A hazardous waste generator is any person or site whose processes and actions create hazardous waste (see 40 CFR 260.10). Small Quantity Generators (SQGs) generate more than 100 kilograms, but less than 1,000 kilograms, of hazardous waste per month.

**Government Publication Date: Nov 18, 2019**

**RCRA Conditionally Exempt and Very Small Quantity Generators List:**

[RCRA CESQG](#)

RCRA Info is the EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. A hazardous waste generator is any person or site whose processes and actions create hazardous waste (see 40 CFR 260.10). Conditionally Exempt and Very Small Quantity Generators (VSQG and CESQG) generate 100 kilograms or less per month of hazardous waste, or one kilogram or less per month of acutely hazardous waste. Additionally, VSQG and CESQG may not accumulate more than 1,000 kilograms of hazardous waste at any time.

**Government Publication Date: Nov 18, 2019**

**RCRA Non-Generators:**

[RCRA NON GEN](#)

RCRA Info is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. RCRA Info replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System (RCRIS) and the Biennial Reporting System (BRS). A hazardous waste generator is any person or site whose processes and actions create hazardous waste (see 40 CFR 260.10). Non-Generators do not presently generate hazardous waste.

**Government Publication Date: Nov 18, 2019**

**Federal Engineering Controls-ECs:**

[FED ENG](#)

Engineering controls (ECs) encompass a variety of engineered and constructed physical barriers (e.g., soil capping, sub-surface venting systems, mitigation barriers, fences) to contain and/or prevent exposure to contamination on a property. This database is made available by the United States Environmental Protection Agency (EPA).

**Government Publication Date: Jun 11, 2019**

**Federal Institutional Controls- ICs:**

[FED INST](#)

Institutional controls are non-engineered instruments, such as administrative and legal controls, that help minimize the potential for human exposure to contamination and/or protect the integrity of the remedy. Although it is EPA's (United States Environmental Protection Agency ) expectation that treatment or engineering controls will be used to address principal threat wastes and that groundwater will be returned to its beneficial use whenever practicable, ICs play an important role in site remedies because they reduce exposure to contamination by limiting land or resource use and guide human behavior at a site.

**Government Publication Date: Jun 11, 2019**

**Emergency Response Notification System:**

[ERNS 1982 TO 1986](#)

Database of oil and hazardous substances spill reports controlled by the National Response Center. The primary function of the National Response Center is to serve as the sole national point of contact for reporting oil, chemical, radiological, biological, and etiological discharges into the environment anywhere in the United States and its territories.

**Government Publication Date: 1982-1986**

**Emergency Response Notification System:**

[ERNS 1987 TO 1989](#)

Database of oil and hazardous substances spill reports controlled by the National Response Center. The primary function of the National Response Center is to serve as the sole national point of contact for reporting oil, chemical, radiological, biological, and etiological discharges into the environment anywhere in the United States and its territories.

**Government Publication Date: 1987-1989**

**Emergency Response Notification System:**

[ERNS](#)

Database of oil and hazardous substances spill reports controlled by the National Response Center. The primary function of the National Response Center is to serve as the sole national point of contact for reporting oil, chemical, radiological, biological, and etiological discharges into the environment anywhere in the United States and its territories. This database is made available by the United States Environmental Protection Agency (EPA).

**Government Publication Date: Nov 25, 2019**

**The Assessment, Cleanup and Redevelopment Exchange System (ACRES) Brownfield Database:**

[FED BROWNFIELDS](#)

Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties protects the environment, reduces blight, and takes development pressures off greenspaces and working lands. This database is made available by the United States Environmental Protection Agency (EPA).

**Government Publication Date: Sep 3, 2019**

**FEMA Underground Storage Tank Listing:**

[FEMA UST](#)

The Federal Emergency Management Agency (FEMA) of the Department of Homeland Security maintains a list of FEMA owned underground storage tanks.

**Government Publication Date: Dec 31, 2017**

**Petroleum Refineries:**

REFN

List of petroleum refineries from the U.S. Energy Information Administration (EIA) Refinery Capacity Report. Includes operating and idle petroleum refineries (including new refineries under construction) and refineries shut down during the previous year located in the 50 States, the District of Columbia, Puerto Rico, the Virgin Islands, Guam, and other U.S. possessions. Survey locations adjusted using public data.

**Government Publication Date: Oct 8, 2019**

**Petroleum Product and Crude Oil Rail Terminals:**

BULK TERMINAL

List of petroleum product and crude oil rail terminals made available by the U.S. Energy Information Administration (EIA). Includes operable bulk petroleum product terminals located in the 50 States and the District of Columbia with a total bulk shell storage capacity of 50,000 barrels or more, and/or the ability to receive volumes from tanker, barge, or pipeline; also rail terminals handling the loading and unloading of crude oil that were active between 2017 and 2018. Petroleum product terminals comes from the EIA-815 Bulk Terminal and Blender Report, which includes working, shell in operation, and shell idle for several major product groupings. Survey locations adjusted using public data.

**Government Publication Date: Jan 13, 2020**

**LIEN on Property:**

SEMS LIEN

The EPA Superfund Enterprise Management System (SEMS) provides LIEN information on properties under the EPA Superfund Program.

**Government Publication Date: Nov 25, 2019**

**Superfund Decision Documents:**

SUPERFUND ROD

This database contains a listing of decision documents for Superfund sites. Decision documents serve to provide the reasoning for the choice of (or) changes to a Superfund Site cleanup plan. The decision documents include Records of Decision (ROD), ROD Amendments, Explanations of Significant Differences (ESD), along with other associated memos and files. This information is maintained and made available by the US EPA (Environmental Protection Agency).

**Government Publication Date: Jan 30, 2020**

**State**

**Brownfield Redevelopment Program:**

BROWNFIELDS

A list of sites in the Brownfield Redevelopment Program. This list is made available by the Kentucky Energy and Environment Cabinet (EEC).

**Government Publication Date: Jan 8, 2020**

**State Leads Priority List:**

SHWS

State Leads Priority List that contains a listing of State Hazardous Waste sites. This list is maintained by The Kentucky Department of Environmental Protection (DEP). This database is state equivalent CERCLIS.

**Government Publication Date: Mar 3, 2020**

**Delisted State Leads Priority List:**

DSHW

This database contains a list of closed State Hazardous Waste sites that were removed from the Kentucky Department of Environmental Protection (DEP).

**Government Publication Date: Mar 3, 2020**

**Solid Waste Facilities and Landfills:**

SWF/LF

A list of Solid Waste Facilities (SWF) and Landfills (LF) made available by the Kentucky Department of Environmental Protection (DEP). This list includes registered contained landfills, construction/demolition debris landfills, residual landfills and special waste landfills.

**Government Publication Date: Feb 11, 2020**

**SB193 Branch Site Inventory List:**

SB193

This list is comprised of sites that have performed permanent closure activities at regulated underground storage tank facilities and have known soil and/or groundwater contamination. Historical listing made available by the underground storage tank branch in the Department of Environmental Protection (DEP) of Kentucky State.

**Government Publication Date: Apr 30, 1985**

**Ranking List for UST Facilities:**

PSTEAF

A list of UST facilities under site investigation which are eligible to receive reimbursement from Financial Responsibility Account (FRA) and Petroleum Storage Tank Account (PSTA) of the Petroleum Storage Tank Environmental Assurance Fund (PSTEAF). Reimbursements from the FRA and PSTA are determined by this ranking system. This list is maintained by the Kentucky Department of Environmental Protection (DEP).

**Government Publication Date: Mar 1, 2020**



**Underground Storage Tanks:**

UST

A list of registered Underground Storage Tanks (USTs) maintained by the Underground Storage Tank Branch in the Kentucky Department of Environmental Protection (DEP).

*Government Publication Date: Mar 2, 2020*

**Delisted Storage Tank:**

DELISTED STORAGE TANK

This database contains a list of closed storage tank sites that were removed from the Underground Storage Tank Branch in the Kentucky Department of Environmental Protection (DEP).

*Government Publication Date: Mar 2, 2020*

**Sites with Engineering Controls:**

ENG

Sites on the Institutional Controls and State Leads Lists that have engineering controls in place; both lists made available by the Kentucky Department of Environmental Protection (DEP).

*Government Publication Date: Mar 3, 2020*

**Sites with Institutional Controls:**

INST

Sites with institutional controls in place, provided by the Kentucky Department of Environmental Protection (DEP). Institutional controls are put in place to regulate activities on the property, such as a requirement that the property never be used for residential development or to prohibit the use of groundwater from below the property.

*Government Publication Date: Mar 3, 2020*

**Voluntary Cleanup Program Sites:**

VCP

The Kentucky Department of Environmental Protection (DEP) maintains an inventory of sites that are in the Voluntary Cleanup Program.

*Government Publication Date: Oct 7, 2019*

**Kentucky Brownfield Inventory:**

BROWNFIELD INV

Kentucky Brownfield Inventory consists primarily of properties that are receiving, or have received, assessments and/or cleanups under federal brownfield funding to states or local government entities. This list is managed by the Kentucky Department for Environmental Protection (DEP).

*Government Publication Date: Jul 31, 2019*

**Tribal**

**Leaking Underground Storage Tanks (LUSTs) on Indian Lands:**

INDIAN LUST

LUSTs on Tribal/Indian Lands in Region 4, which includes Kentucky. There are no LUST records in Kentucky at this time.

*Government Publication Date: Oct 14, 2017*

**Underground Storage Tanks (USTs) on Indian Lands:**

INDIAN UST

USTs on Tribal/Indian Lands in Region 4, which includes Kentucky. There are no UST records in Kentucky at this time.

*Government Publication Date: Oct 14, 2017*

**Delisted Tribal Leaking Storage Tanks:**

DELISTED ILST

Leaking Underground Storage Tank facilities which have been removed from the Regional Tribal LUST lists made available by the EPA.

*Government Publication Date: May 2, 2019*

**Delisted Tribal Underground Storage Tanks:**

DELISTED IUST

Underground Storage Tank facilities which have been removed from the Regional Tribal UST lists made available by the EPA.

*Government Publication Date: May 2, 2019*

**County**

*No County standard environmental record sources available for this State.*

## ***Additional Environmental Record Sources***

### **Federal**

#### **PFOA/PFOS Contaminated Sites:**

[PFAS NPL](#)

List of sites where PFOA or PFOS contaminants have been found in drinking water or soil. Made available by the Federal Environmental Protection Agency (EPA).

**Government Publication Date: Nov 15, 2019**

#### **Facility Registry Service/Facility Index:**

[FINDS/FRS](#)

The US Environmental Protection Agency (EPA)'s Facility Registry System (FRS) is a centrally managed database that identifies facilities, sites or places subject to environmental regulations or of environmental interest. FRS creates high-quality, accurate, and authoritative facility identification records through rigorous verification and management procedures that incorporate information from program national systems, state master facility records, data collected from EPA's Central Data Exchange registrations and data management personnel.

**Government Publication Date: Nov 6, 2019**

#### **Toxics Release Inventory (TRI) Program:**

[TRIS](#)

The EPA's Toxics Release Inventory (TRI) is a database containing data on disposal or other releases of over 650 toxic chemicals from thousands of U. S. facilities and information about how facilities manage those chemicals through recycling, energy recovery, and treatment. One of TRI's primary purposes is to inform communities about toxic chemical releases to the environment.

**Government Publication Date: Dec 31, 2017**

#### **Perfluorinated Alkyl Substances (PFAS) Releases:**

[PFAS TRI](#)

List of Toxics Release Inventory (TRI) facilities at which the reported chemical is a Per- or polyfluorinated alkyl substance (PFAS) included in the Environmental Protection Agency (EPA)'s consolidated PFAS Master List of PFAS Substances. The EPA's Toxics Release Inventory (TRI) is a database containing data on disposal or other releases of over 650 toxic chemicals from thousands of U.S. facilities and information about how facilities manage those chemicals through recycling, energy recovery, and treatment.

**Government Publication Date: Dec 31, 2017**

#### **Perfluorinated Alkyl Substances (PFAS) Water Contamination:**

[PFAS WATER CONTAM](#)

The Water Quality Portal (WQP) is a cooperative service sponsored by the United States Geological Survey (USGS), the Environmental Protection Agency (EPA), and the National Water Quality Monitoring Council (NWQMC). This listing includes records from the Water Quality Portal where the characteristic (environmental measurement) is in the Environmental Protection Agency (EPA)'s consolidated PFAS Master List of PFAS Substances.

**Government Publication Date: Dec 20, 2019**

#### **Hazardous Materials Information Reporting System:**

[HMIRS](#)

US DOT - Department of Transportation Pipeline and Hazardous Materials Safety Administration (PHMSA) Incidents Reports Database taken from Hazmat Intelligence Portal, U.S. Department of Transportation.

**Government Publication Date: Jan 8, 2020**

#### **National Clandestine Drug Labs:**

[NCDL](#)

The U.S. Department of Justice ("the Department") provides this data as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy.

**Government Publication Date: Sep 26, 2019**

#### **Toxic Substances Control Act:**

[TSCA](#)

The Environmental Protection Agency (EPA) is amending the Toxic Substances Control Act (TSCA) section 8(a) Inventory Update Reporting (IUR) rule and changing its name to the Chemical Data Reporting (CDR) rule.

The CDR enables EPA to collect and publish information on the manufacturing, processing, and use of commercial chemical substances and mixtures (referred to hereafter as chemical substances) on the TSCA Chemical Substance Inventory (TSCA Inventory). This includes current information on chemical substance production volumes, manufacturing sites, and how the chemical substances are used. This information helps the Agency determine whether people or the environment are potentially exposed to reported chemical substances. EPA publishes submitted CDR data that is not Confidential Business Information (CBI).

**Government Publication Date: Jun 30, 2017**

#### **Hist TSCA:**

[HIST TSCA](#)



The Environmental Protection Agency (EPA) is amending the Toxic Substances Control Act (TSCA) section 8(a) Inventory Update Reporting (IUR) rule and changing its name to the Chemical Data Reporting (CDR) rule.

The 2006 IUR data summary report includes information about chemicals manufactured or imported in quantities of 25,000 pounds or more at a single site during calendar year 2005. In addition to the basic manufacturing information collected in previous reporting cycles, the 2006 cycle is the first time EPA collected information to characterize exposure during manufacturing, processing and use of organic chemicals. The 2006 cycle also is the first time manufacturers of inorganic chemicals were required to report basic manufacturing information.

**Government Publication Date: Dec 31, 2006**

**FTTS Administrative Case Listing:**

[FTTS ADMIN](#)

An administrative case listing from the Federal Insecticide, Fungicide, & Rodenticide Act (FIFRA) and Toxic Substances Control Act (TSCA), together known as FTTS. This database was obtained from the Environmental Protection Agency's (EPA) National Compliance Database (NCDB). The FTTS and NCDB was shut down in 2006.

**Government Publication Date: Jan 19, 2007**

**FTTS Inspection Case Listing:**

[FTTS INSP](#)

An inspection case listing from the Federal Insecticide, Fungicide, & Rodenticide Act (FIFRA) and Toxic Substances Control Act (TSCA), together known as FTTS. This database was obtained from the Environmental Protection Agency's (EPA) National Compliance Database (NCDB). The FTTS and NCDB was shut down in 2006.

**Government Publication Date: Jan 19, 2007**

**Potentially Responsible Parties List:**

[PRP](#)

Early in the cleanup process, the Environmental Protection Agency (EPA) conducts a search to find the potentially responsible parties (PRPs). EPA looks for evidence to determine liability by matching wastes found at the site with parties that may have contributed wastes to the site.

**Government Publication Date: Oct 25, 2019**

**State Coalition for Remediation of Drycleaners Listing:**

[SCRD DRYCLEANER](#)

The State Coalition for Remediation of Drycleaners (SCRD) was established in 1998, with support from the U.S. Environmental Protection Agency (EPA) Office of Superfund Remediation and Technology Innovation. Coalition members are states with mandated programs and funding for drycleaner site remediation. Current members are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

**Government Publication Date: Nov 08, 2017**

**Integrated Compliance Information System (ICIS):**

[ICIS](#)

The Integrated Compliance Information System (ICIS) is a system that provides information for the Federal Enforcement and Compliance (FE&C) and the National Pollutant Discharge Elimination System (NPDES) programs. The FE&C component supports the Environmental Protection Agency's (EPA) Civil Enforcement and Compliance program activities. These activities include Compliance Assistance, Compliance Monitoring and Enforcement. The NPDES program supports tracking of NPDES permits, limits, discharge monitoring data and other program reports.

**Government Publication Date: Nov 18, 2016**

**Drycleaner Facilities:**

[FED DRYCLEANERS](#)

A list of drycleaner facilities from the Integrated Compliance Information System (ICIS). The Environmental Protection Agency (EPA) tracks facilities that possess NAIC and SIC codes that classify businesses as drycleaner establishments.

**Government Publication Date: May 29, 2018**

**Delisted Drycleaner Facilities:**

[DELISTED FED DRY](#)

List of sites removed from the list of Drycleaner Facilities (sites in the EPA's Integrated Compliance Information System (ICIS) with NAIC or SIC codes identifying the business as a drycleaner establishment).

**Government Publication Date: May 29, 2018**

**Formerly Used Defense Sites:**

[FUDS](#)

Formerly Used Defense Sites (FUDS) are properties that were formerly owned by, leased to, or otherwise possessed by and under the jurisdiction of the Secretary of Defense prior to October 1986, where the Department of Defense (DoD) is responsible for an environmental restoration. This list is published by the U.S. Army Corps of Engineers.

**Government Publication Date: Oct 23, 2018**

**Material Licensing Tracking System (MLTS):**

[MLTS](#)

A list of sites that store radioactive material subject to the Nuclear Regulatory Commission (NRC) licensing requirements. This list is maintained by the NRC. As of September 2016, the NRC no longer releases location information for sites. Site locations were last received in July 2016.

**Government Publication Date: Nov 1, 2018**

**Historic Material Licensing Tracking System (MLTS) sites:**

**HIST MLTS**

A historic list of sites that have inactive licenses and/or removed from the Material Licensing Tracking System (MLTS). In some cases, a site is removed from the MLTS when the state becomes an "Agreement State". An Agreement State is a State that has signed an agreement with the Nuclear Regulatory Commission (NRC) authorizing the State to regulate certain uses of radioactive materials within the State.

**Government Publication Date: Jan 31, 2010**

**Mines Master Index File:**

**MINES**

The Master Index File (MIF) contains mine identification numbers issued by the Department of Labor Mine Safety and Health Administration (MSHA) for mines active or opened since 1971. Note that addresses may or may not correspond with the physical location of the mine itself.

**Government Publication Date: Nov 6, 2019**

**Alternative Fueling Stations:**

**ALT FUELS**

List of alternative fueling stations made available by the US Department of Energy's Office of Energy Efficiency & Renewable Energy. Includes Biodiesel stations, Ethanol (E85) stations, Liquefied Petroleum Gas (Propane) stations, Ethanol (E85) stations, Natural Gas stations, Hydrogen stations, and Electric Vehicle Supply Equipment (EVSE). The National Renewable Energy Laboratory (NREL) obtains information about new stations from trade media, Clean Cities coordinators, a Submit New Station form on the Station Locator website, and through collaborating with infrastructure equipment and fuel providers, original equipment manufacturers (OEMs), and industry groups.

**Government Publication Date: Jan 8, 2020**

**Registered Pesticide Establishments:**

**SSTS**

List of active EPA-registered foreign and domestic pesticide-producing and device-producing establishments based on data from the Section Seven Tracking System (SSTS). The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) Section 7 requires that facilities producing pesticides, active ingredients, or devices be registered. The list of establishments is made available by the EPA.

**Government Publication Date: May 31, 2019**

**Polychlorinated Biphenyl (PCB) Notifiers:**

**PCB**

Facilities included in the national list of facilities that have notified the United States Environmental Protection Agency (EPA) of Polychlorinated Biphenyl (PCB) activities. Any company or person storing, transporting or disposing of PCBs or conducting PCB research and development must notify the EPA and receive an identification number.

**Government Publication Date: Oct 9, 2019**

**State**

**Incidents:**

**SPILLS**

A list of incidents reported to the Kentucky Department of Environmental Protection (Kentucky DEP) where hazardous materials may have been spilled and/or released.

**Government Publication Date: Feb 19, 2020**

**Tribal**

**No Tribal additional environmental record sources available for this State.**

**County**

**No County additional environmental record sources available for this State.**

## Definitions

**Database Descriptions:** This section provides a detailed explanation for each database including: source, information available, time coverage, and acronyms used. They are listed in alphabetic order.

**Detail Report:** This is the section of the report which provides the most detail for each individual record. Records are summarized by location, starting with the project property followed by records in closest proximity.

**Distance:** The distance value is the distance between plotted points, not necessarily the distance between the sites' boundaries. All values are an approximation.

**Direction:** The direction value is the compass direction of the site in respect to the project property and/or center point of the report.

**Elevation:** The elevation value is taken from the location at which the records for the site address have been plotted. All values are an approximation. Source: Google Elevation API.

**Executive Summary:** This portion of the report is divided into 3 sections:

'Report Summary'- Displays a chart indicating how many records fall on the project property and, within the report search radii.

'Site Report Summary'-Project Property'- This section lists all the records which fall on the project property. For more details, see the 'Detail Report' section.

'Site Report Summary-Surrounding Properties'- This section summarizes all records on adjacent properties, listing them in order of proximity from the project property. For more details, see the 'Detail Report' section.

**Map Key:** The map key number is assigned according to closest proximity from the project property. Map Key numbers always start at #1. The project property will always have a map key of '1' if records are available. If there is a number in brackets beside the main number, this will indicate the number of records on that specific property. If there is no number in brackets, there is only one record for that property.

The symbol and colour used indicates 'elevation': the red inverted triangle will dictate 'ERIS Sites with Lower Elevation', the yellow triangle will dictate 'ERIS Sites with Higher Elevation' and the orange square will dictate 'ERIS Sites with Same Elevation.'

**Unplottables:** These are records that could not be mapped due to various reasons, including limited geographic information. These records may or may not be in your study area, and are included as reference.



## Property Information

Order Number:	20200323045p
Date Completed:	March 27, 2020
Project Number:	E320201000
Project Property:	Caldwell Solar Site n/a Fredonia KY
Coordinates:	
Latitude:	37.15376775
Longitude:	-88.00323245
UTM Northing:	4112587.72646 Meters
UTM Easting:	411017.90414 Meters
UTM Zone:	UTM Zone 16S
Elevation:	439.33 ft
Slope Direction:	SW

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The ERIS **Physical Setting Report - PSR** provides comprehensive information about the physical setting around a site and includes a complete overview of topography and surface topology, in addition to hydrologic, geologic and soil characteristics. The location and detailed attributes of oil and gas wells, water wells, public water systems and radon are also included for review.

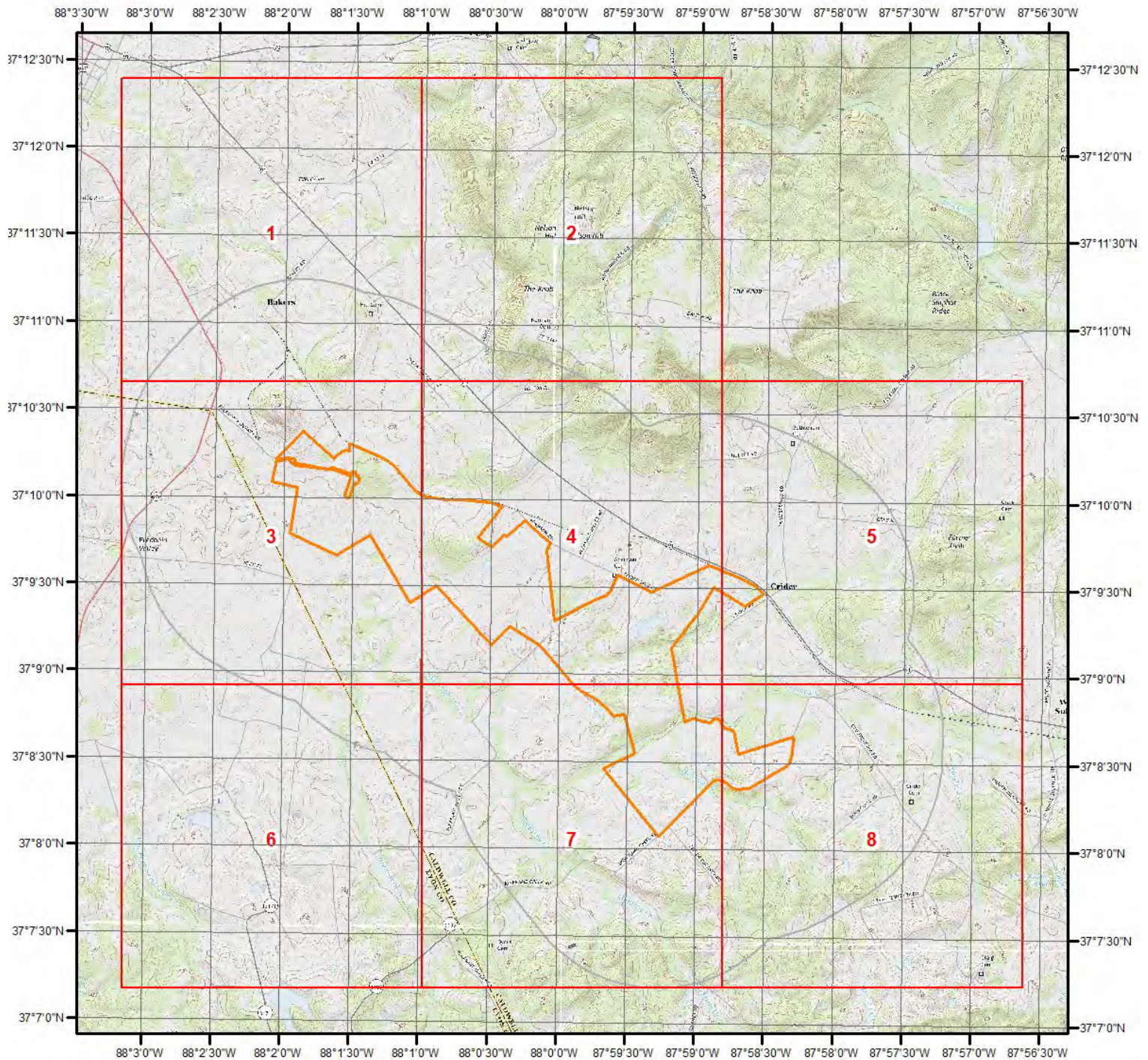
The compilation of both physical characteristics of a site and additional attribute data is useful in assessing the impact of migration of contaminants and subsequent impact on soils and groundwater.

### Disclaimer

This Report does not provide a full environmental evaluation for the site or adjacent properties. Please see the terms and disclaimer at the end of the Report for greater detail.



## Topographic Information



### Current USGS Topo

0 0.2 0.4 0.8 1.2 1.6 2 2.4 Miles



**Quadrangle(s):** Crider,KY; Dycusburg,KY; Eddyville,KY; Fredonia,KY;  
Marion,KY; Princeton West,KY; Salem,KY; Shady Grove,KY

Source: USGS 7.5 Minute Topographic Map

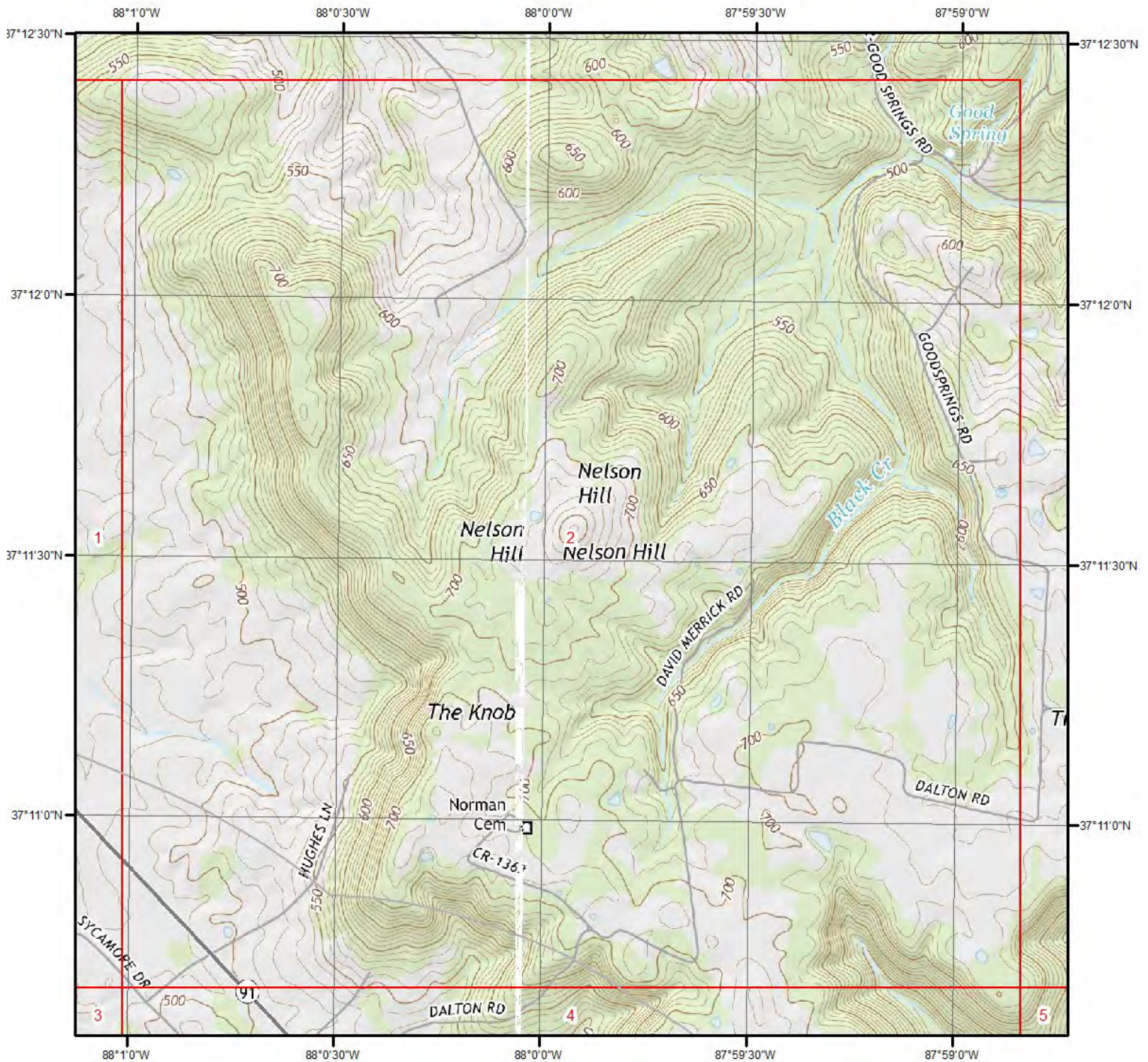




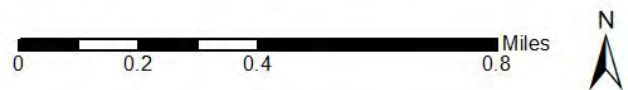




## Topographic Information



**Current USGS Topo - Page 2**



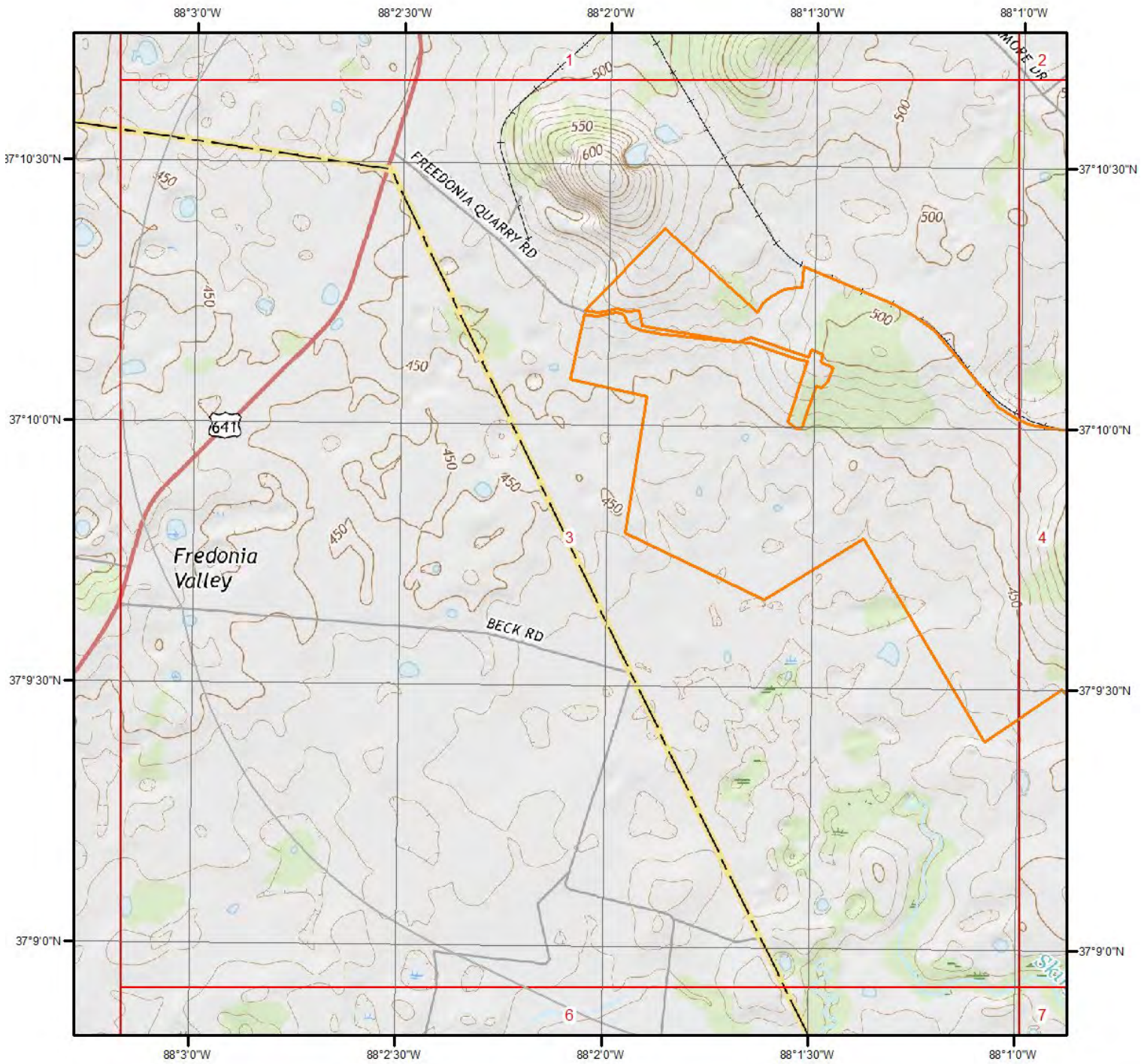
**Quadrangle(s): Crider,KY; Fredonia,KY**

Source: USGS 7.5 Minute Topographic Map

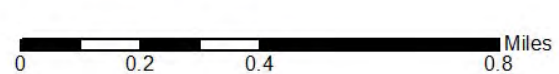




## Topographic Information



**Current USGS Topo - Page 3**



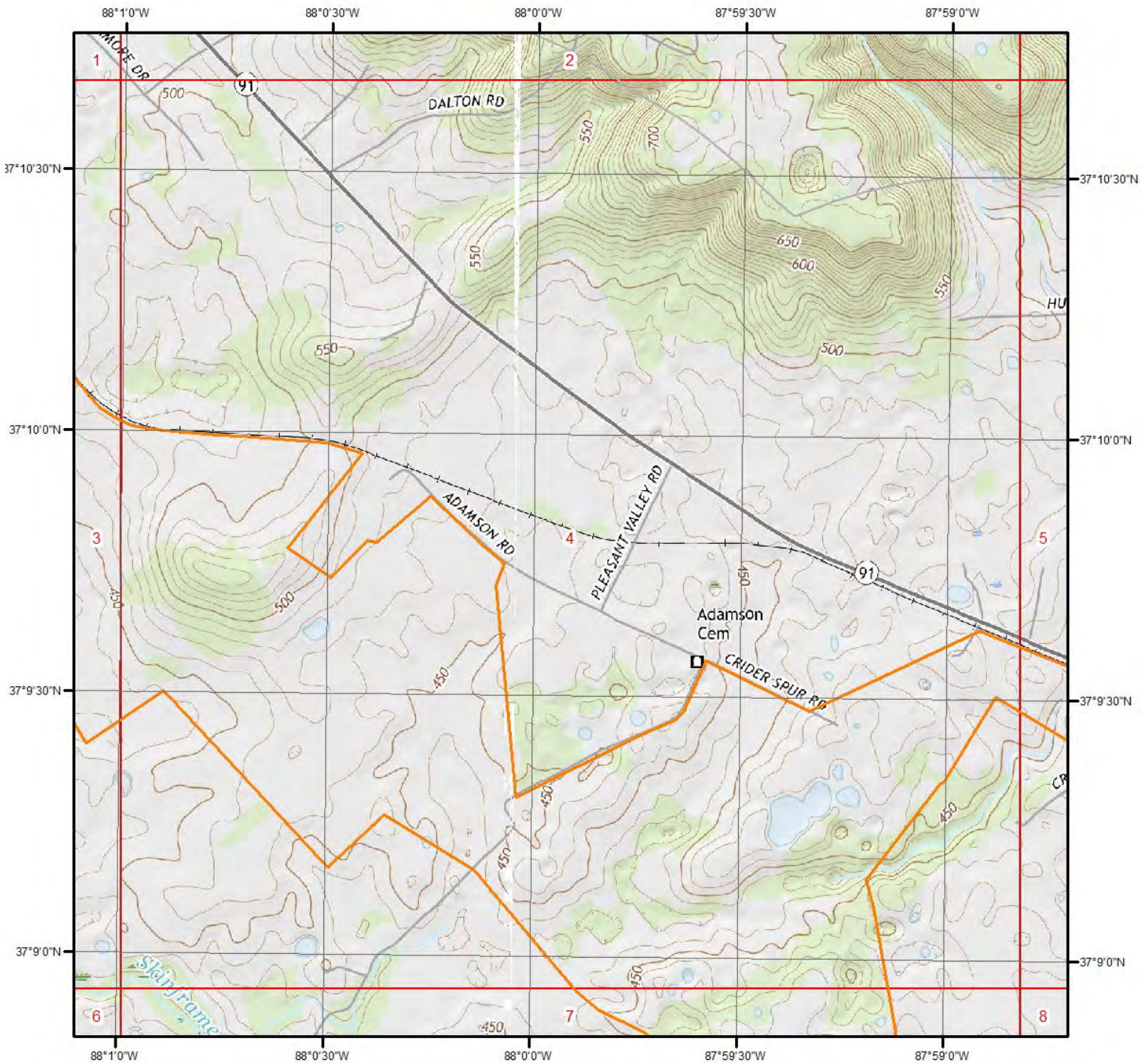
**Quadrangle(s): Fredonia, KY**

Source: USGS 7.5 Minute Topographic Map





## Topographic Information



**Current USGS Topo - Page 4**

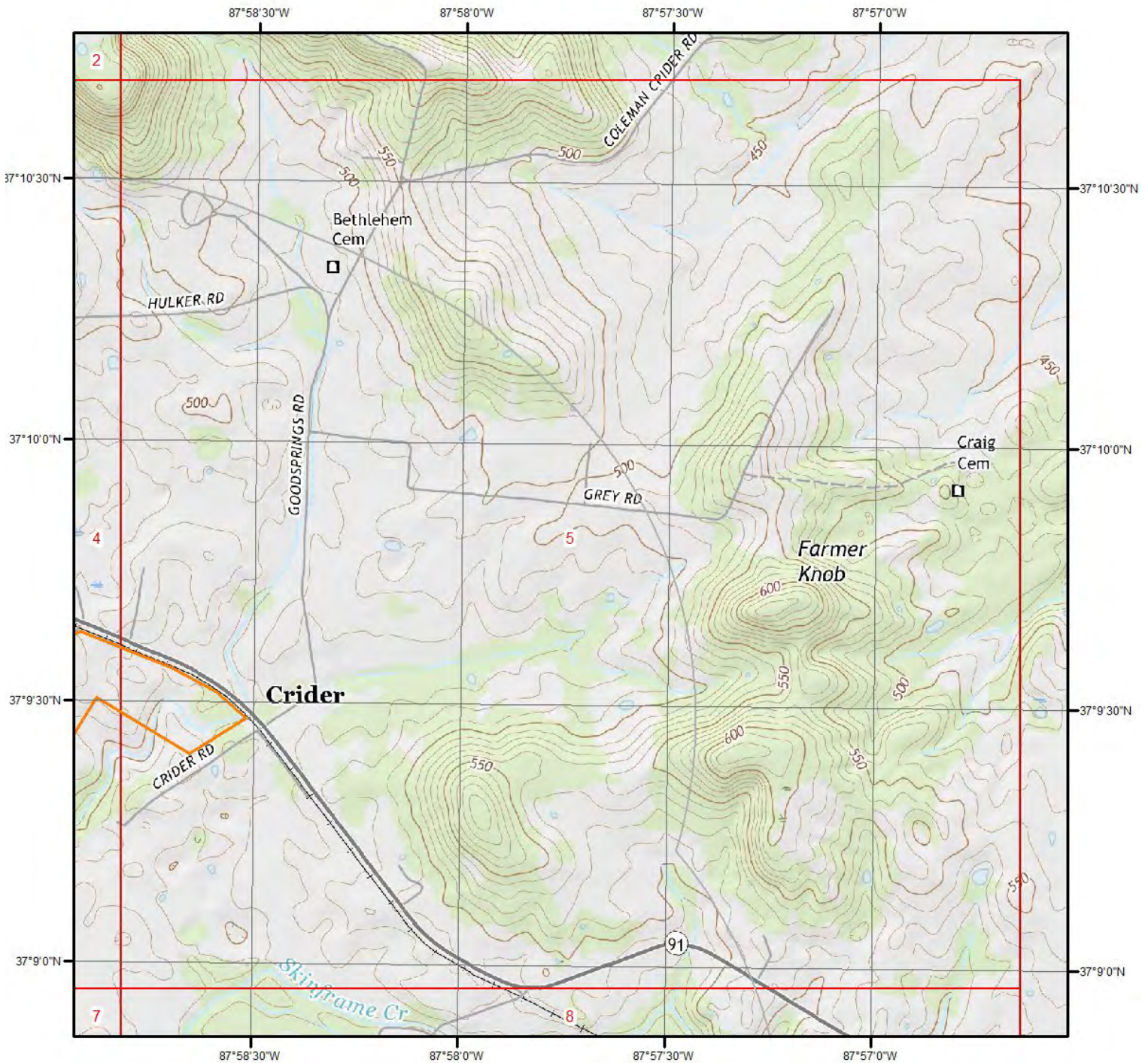
**Quadrangle(s): Crider,KY; Fredonia,KY**

Source: USGS 7.5 Minute Topographic Map





## Topographic Information



**Current USGS Topo - Page 5**

**Quadrangle(s): Crider, KY**

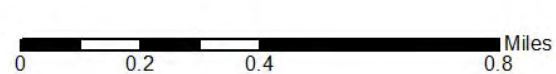
Source: USGS 7.5 Minute Topographic Map



## Topographic Information



**Current USGS Topo - Page 6**



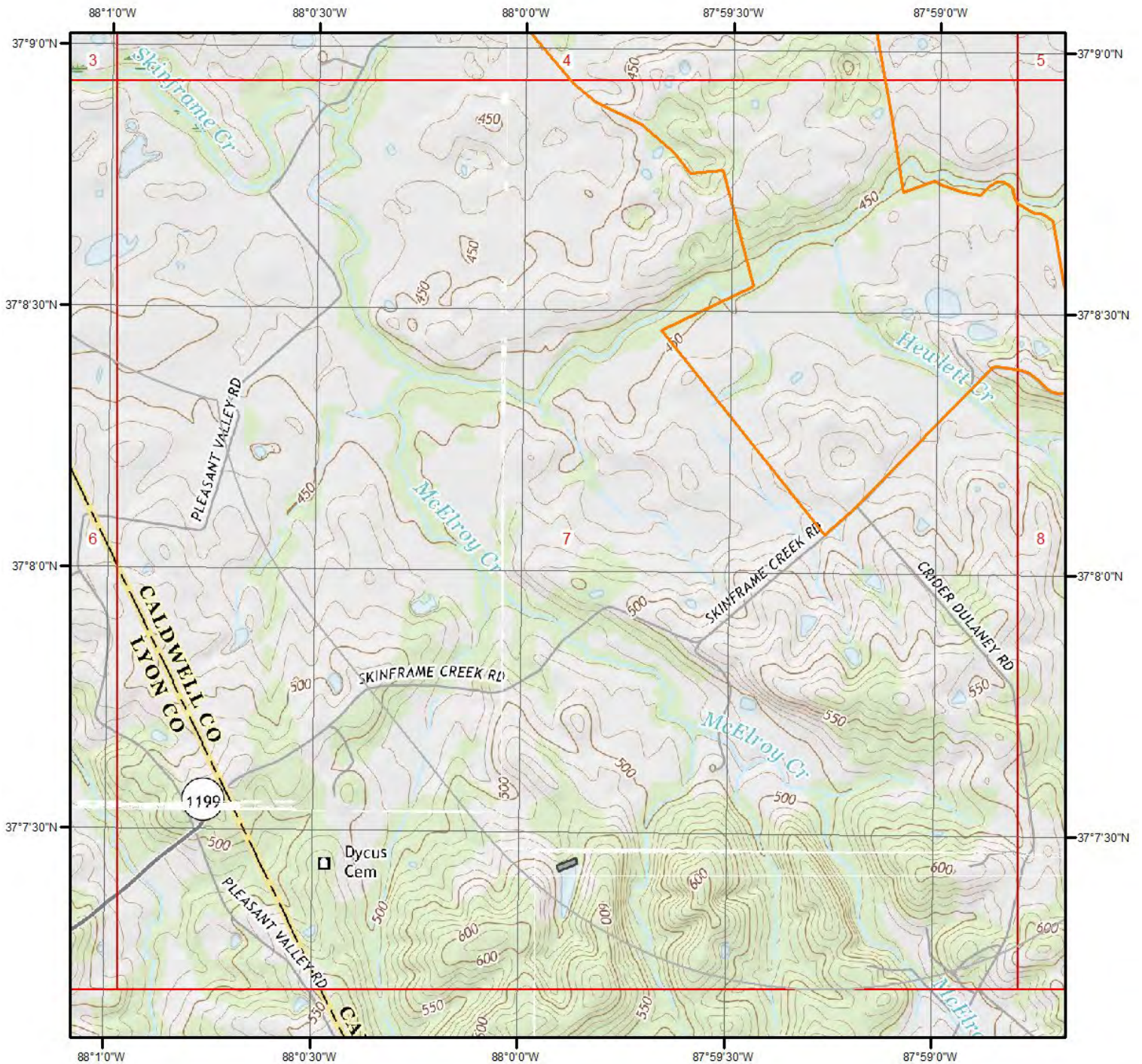
**Quadrangle(s): Eddyville, KY; Fredonia, KY**

Source: USGS 7.5 Minute Topographic Map





## Topographic Information



**Current USGS Topo - Page 7**

0 0.2 0.4 0.8 Miles



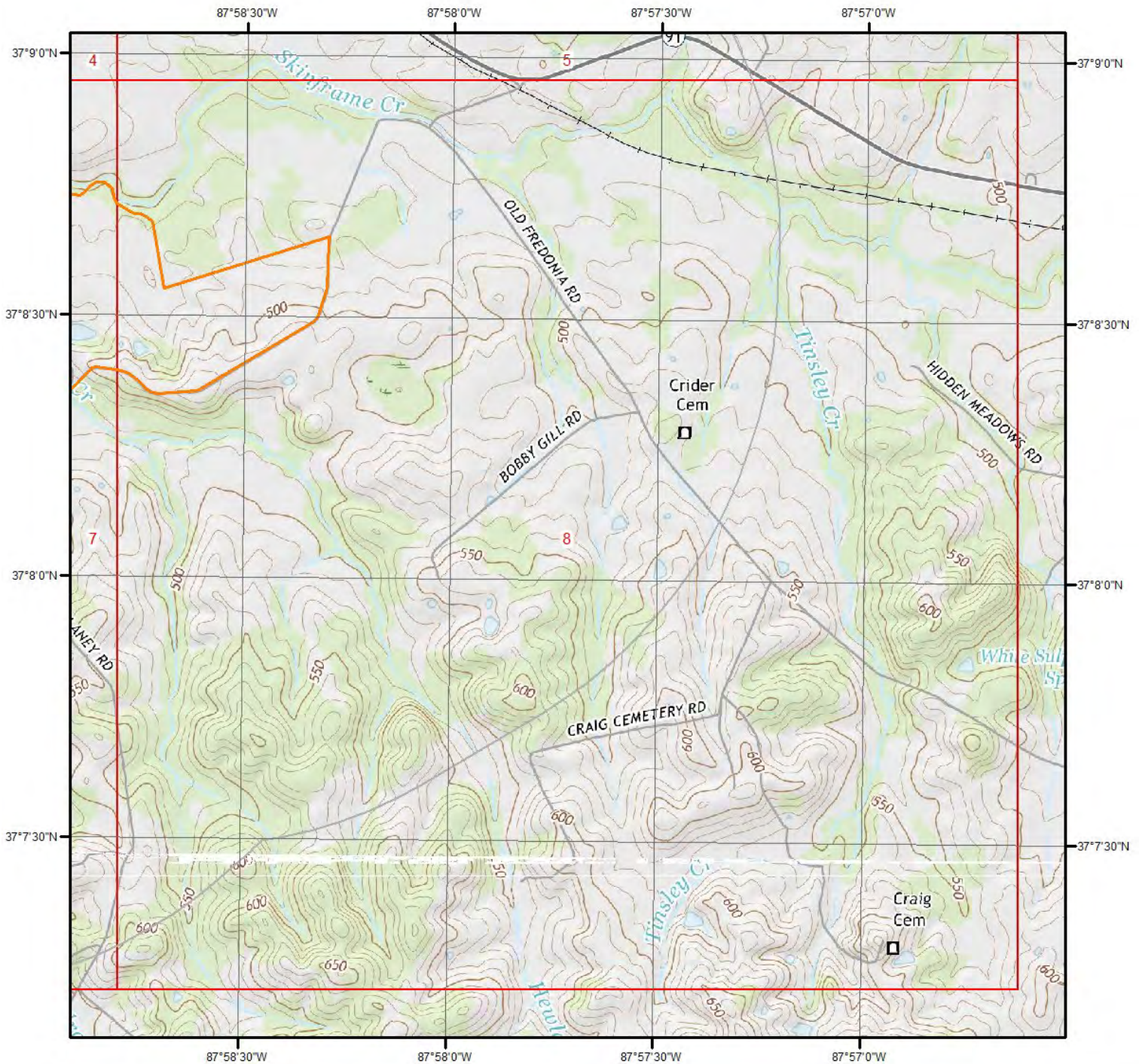
**Quadrangle(s): Crider,KY; Eddyville,KY; Fredonia,KY; Princeton West,KY**

Source: USGS 7.5 Minute Topographic Map

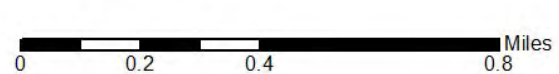




## Topographic Information



**Current USGS Topo - Page 8**



**Quadrangle(s): Crider,KY; Princeton West,KY**

Source: USGS 7.5 Minute Topographic Map



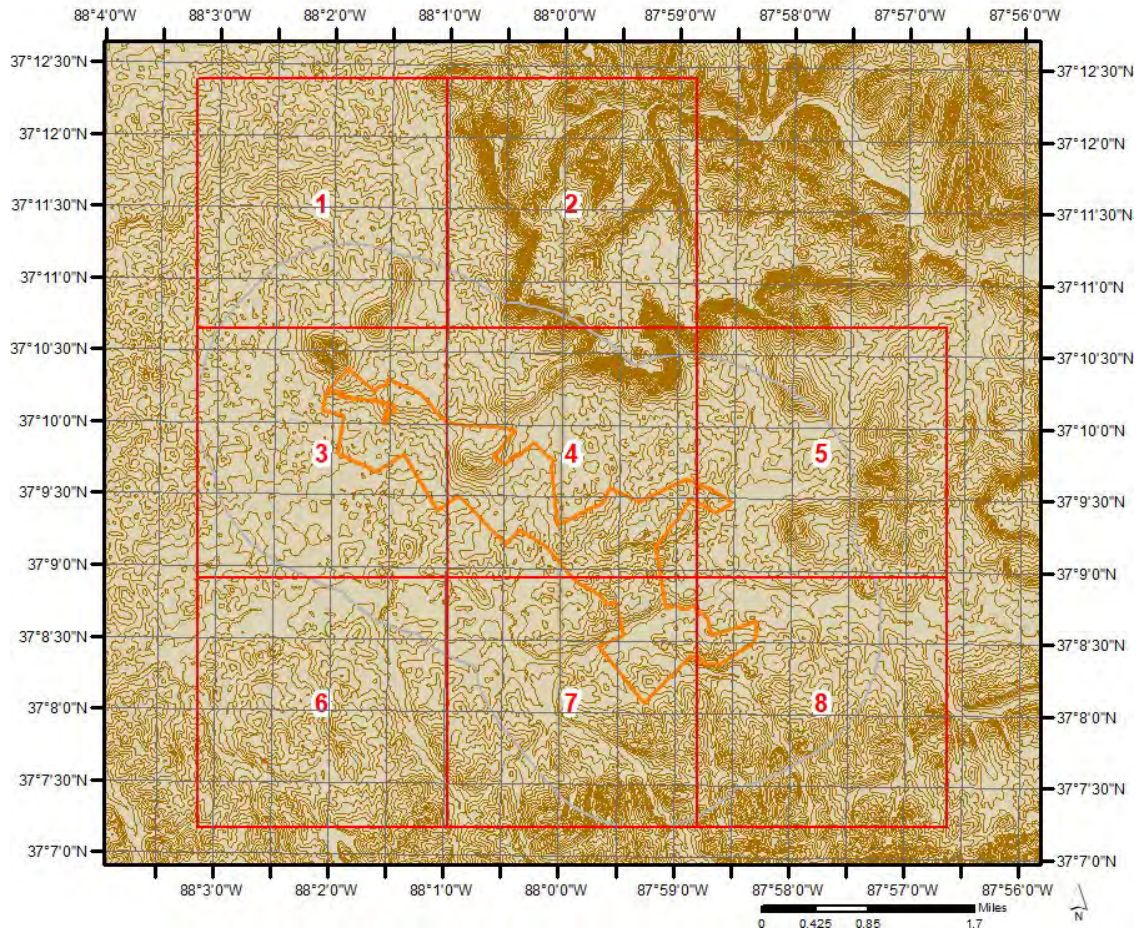


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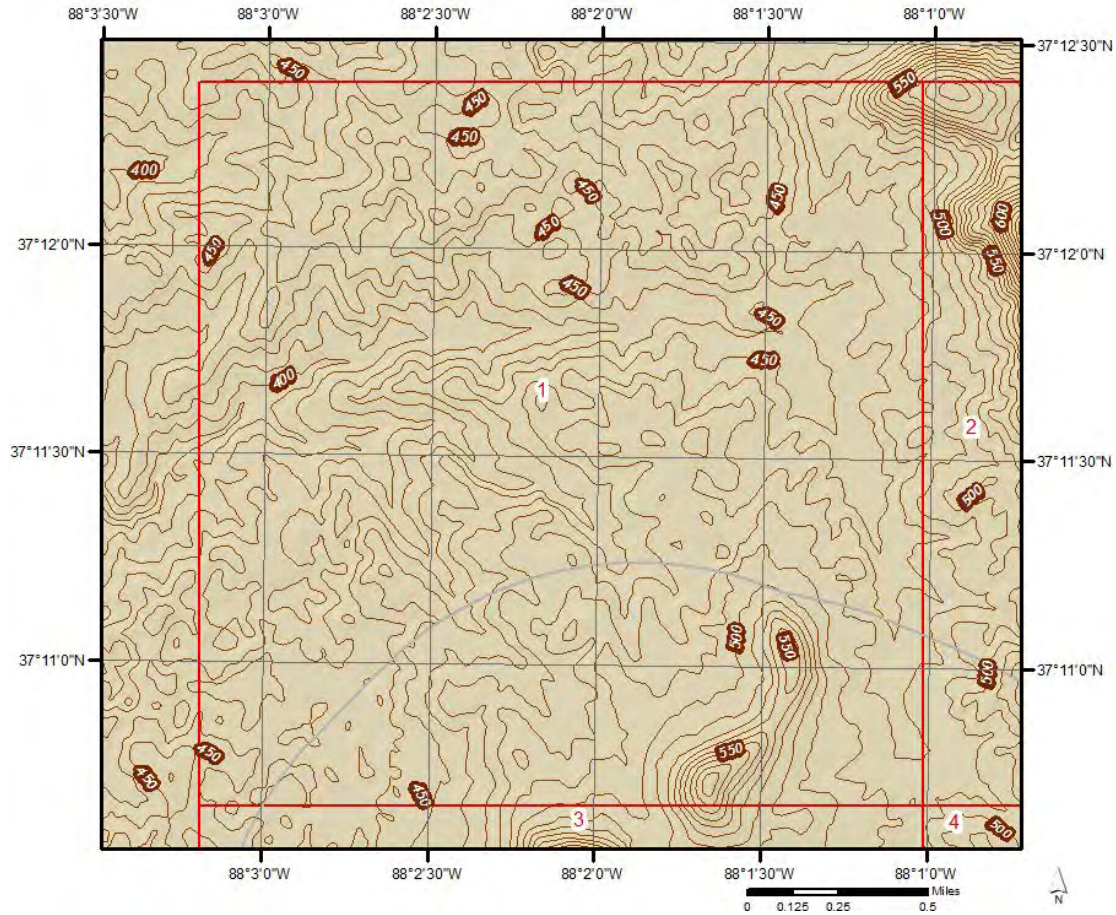
The previous topographic map(s) are created by seamlessly merging and cutting current USGS topographic data. Below are shaded relief map(s), derived from USGS elevation data to show surrounding topography in further detail.

Topographic information at project property:

Elevation: 439.33 ft  
Slope Direction: SW

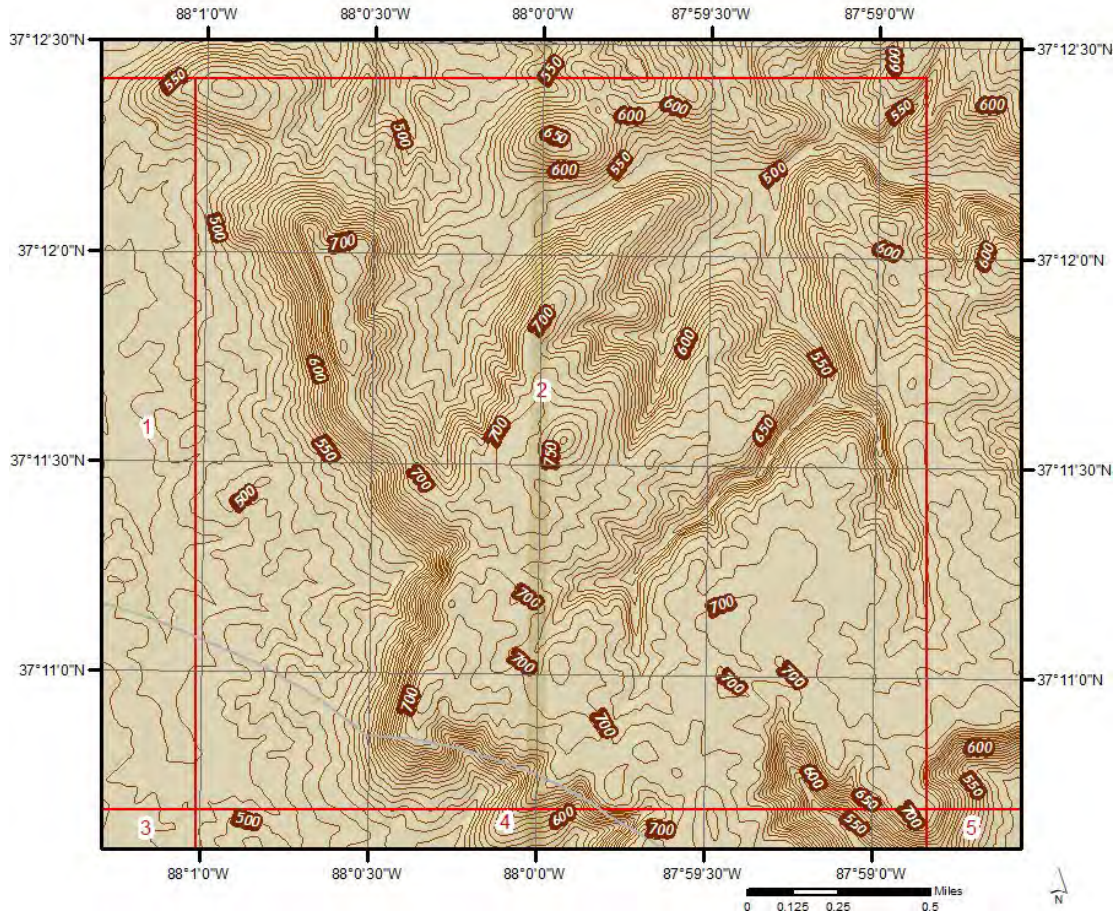


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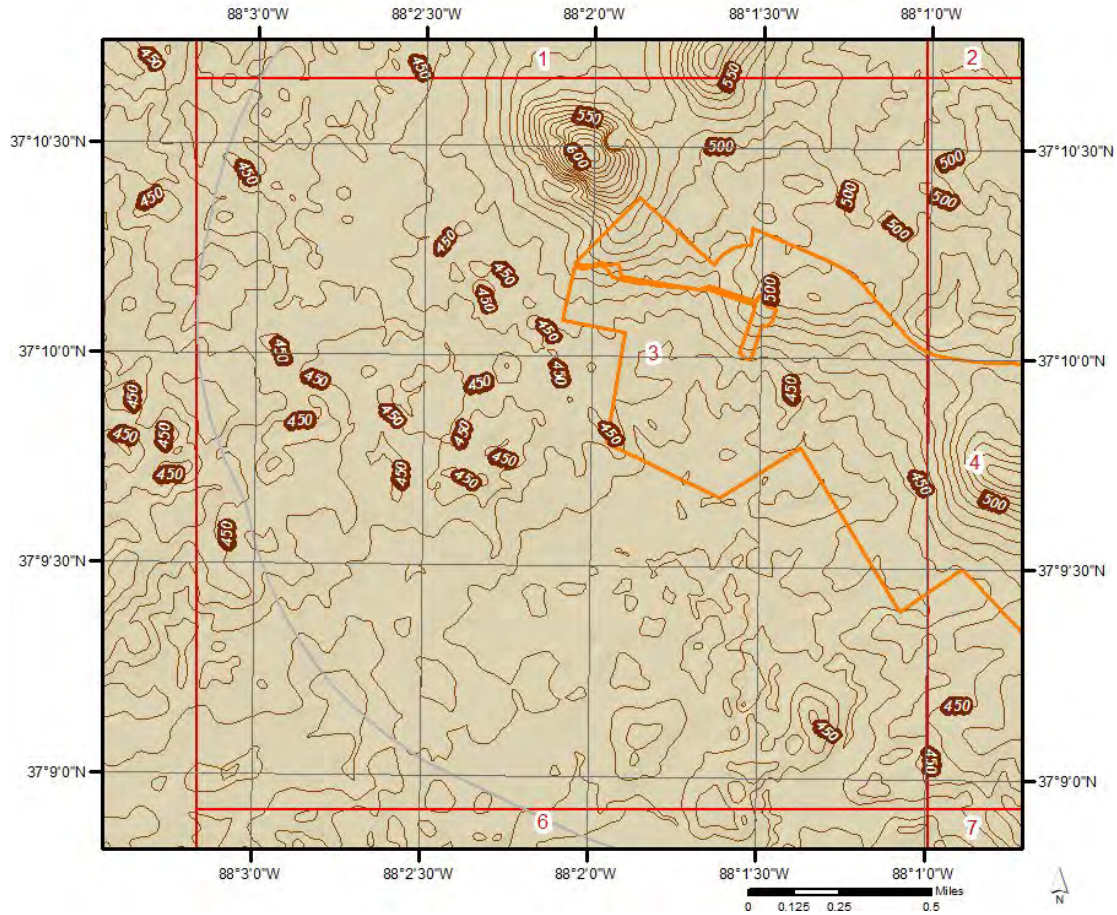


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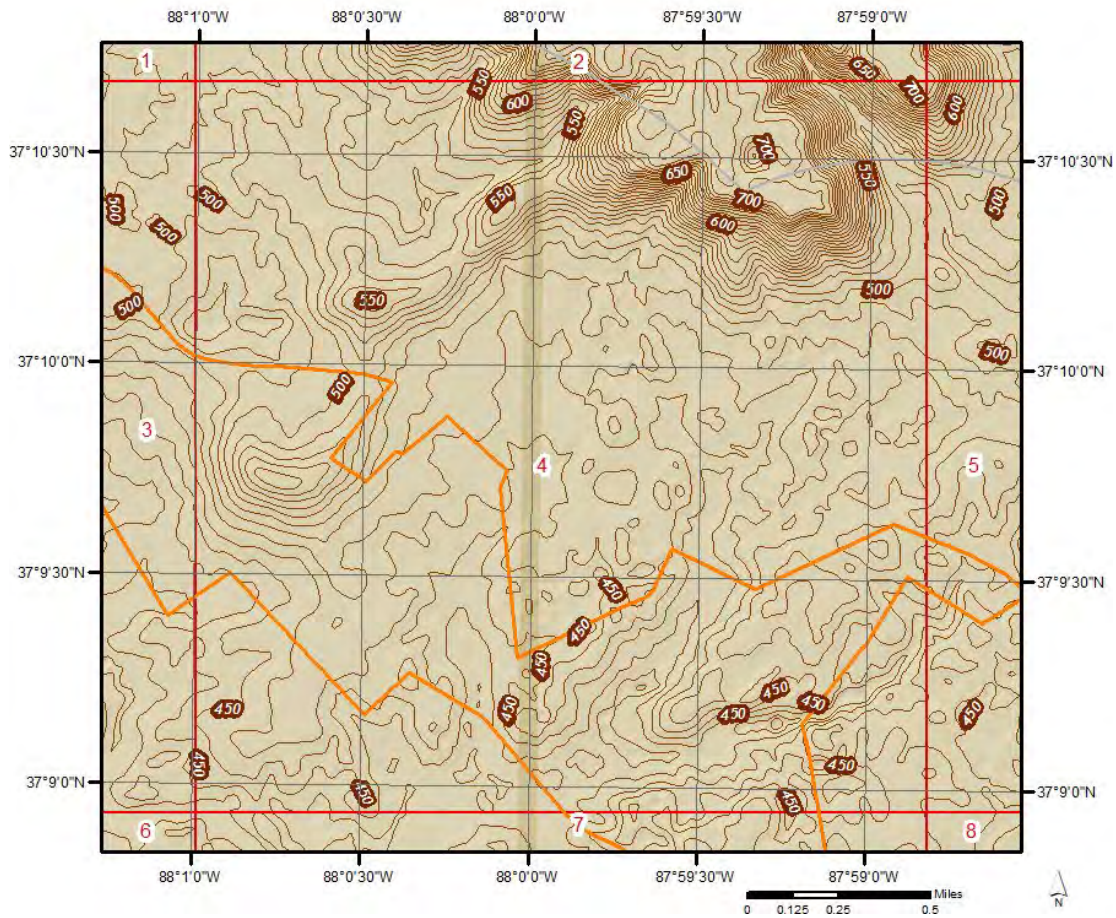




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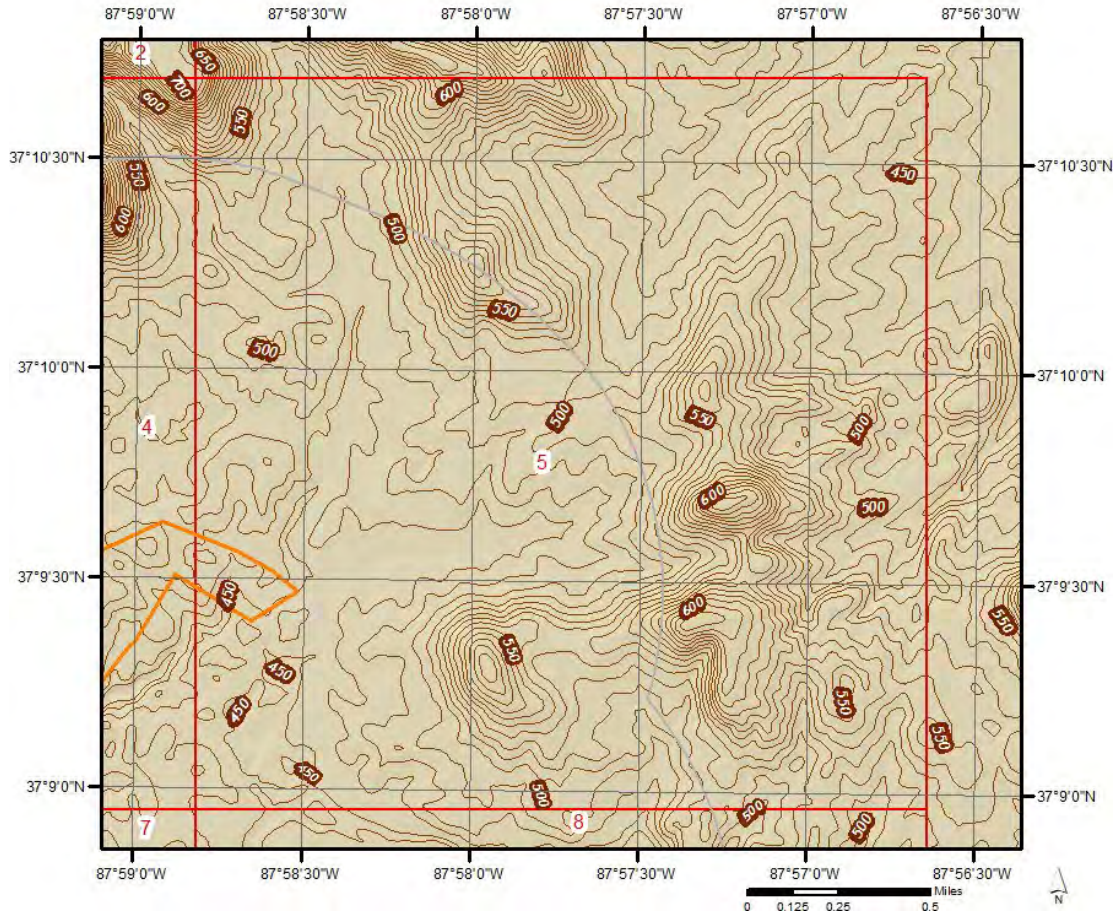


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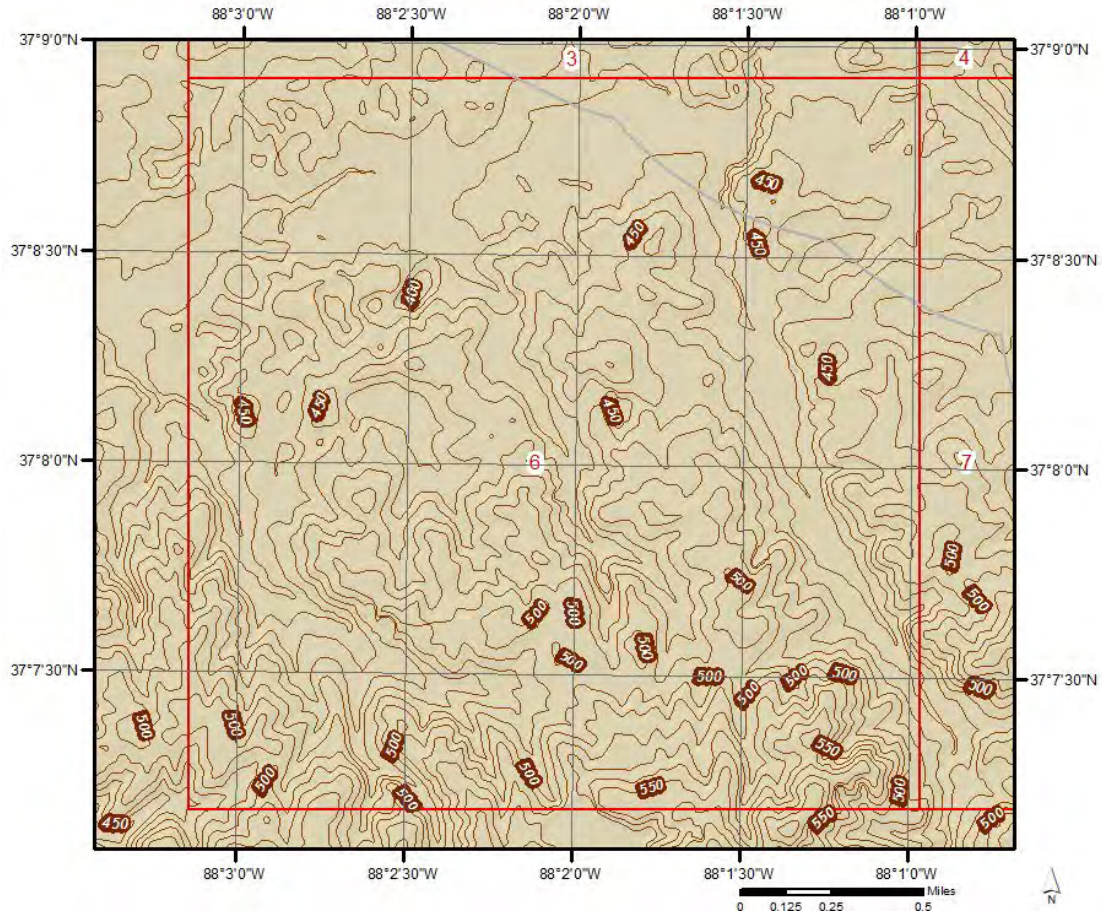




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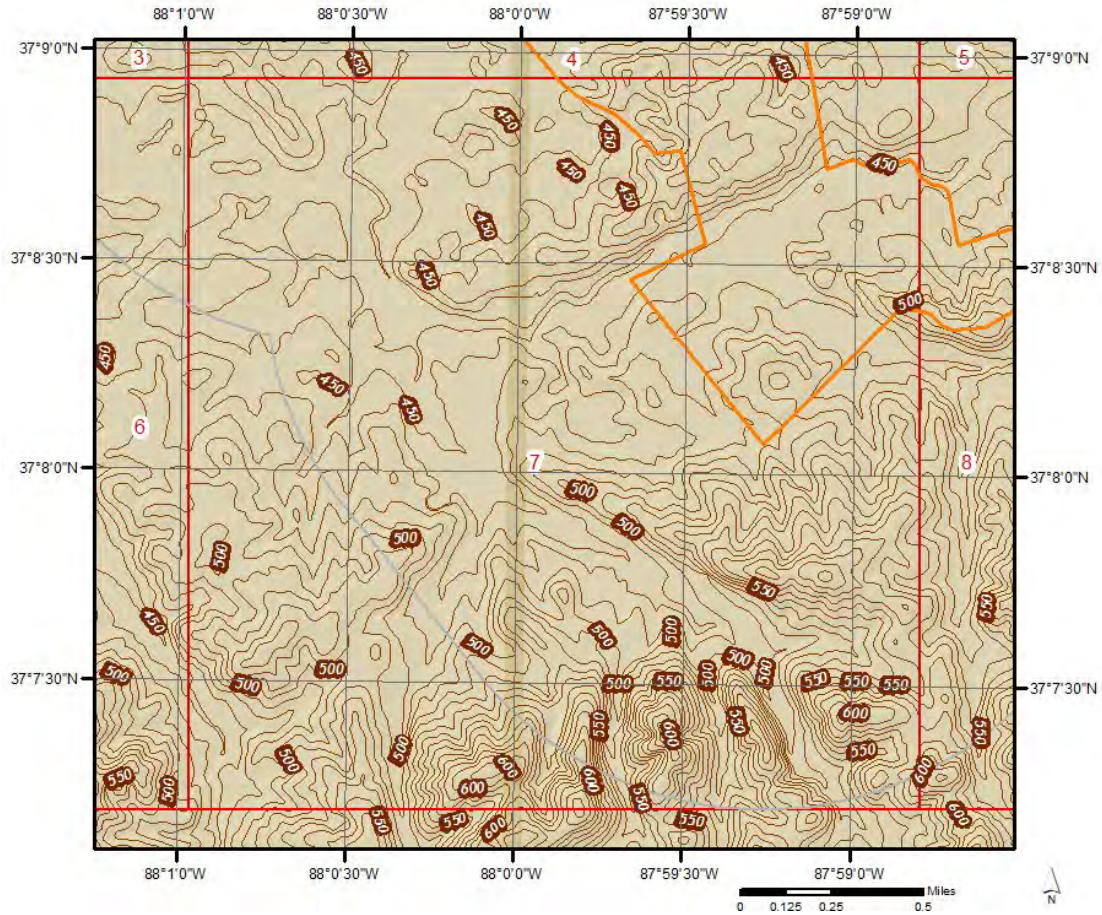


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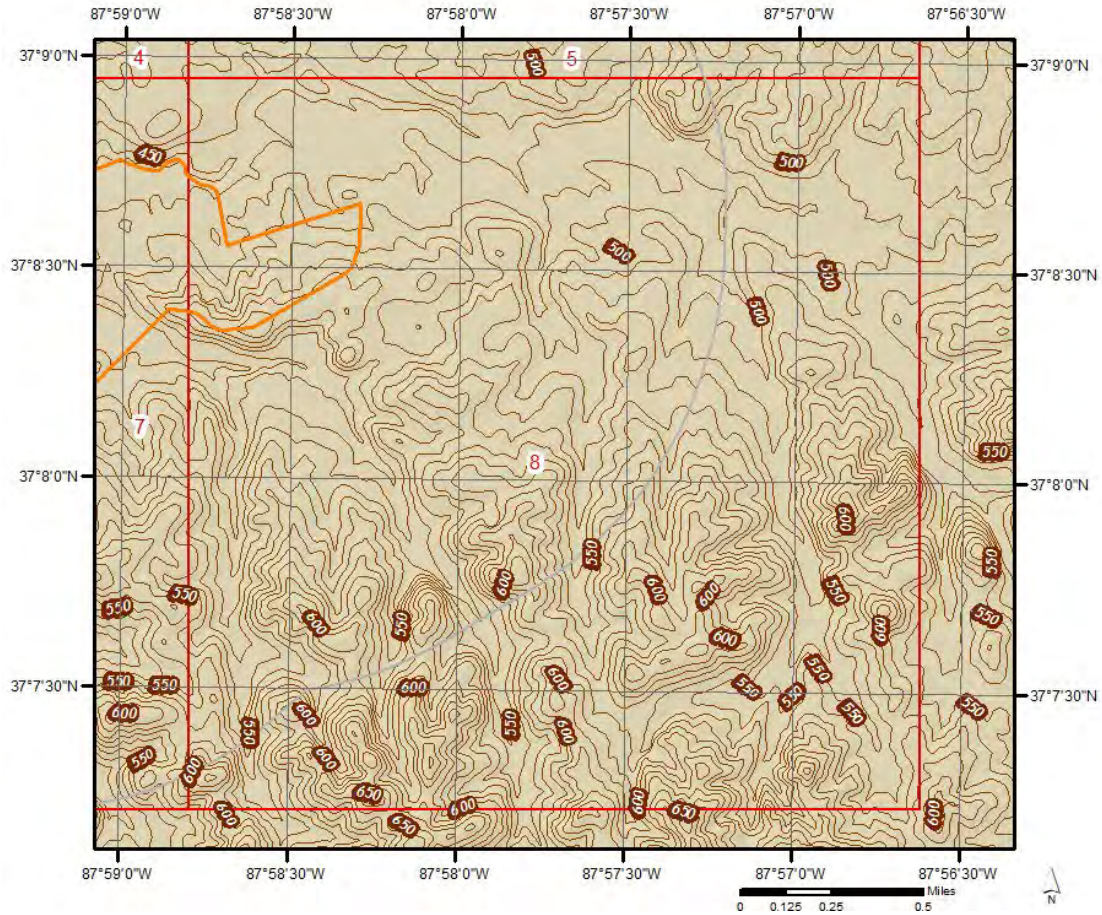




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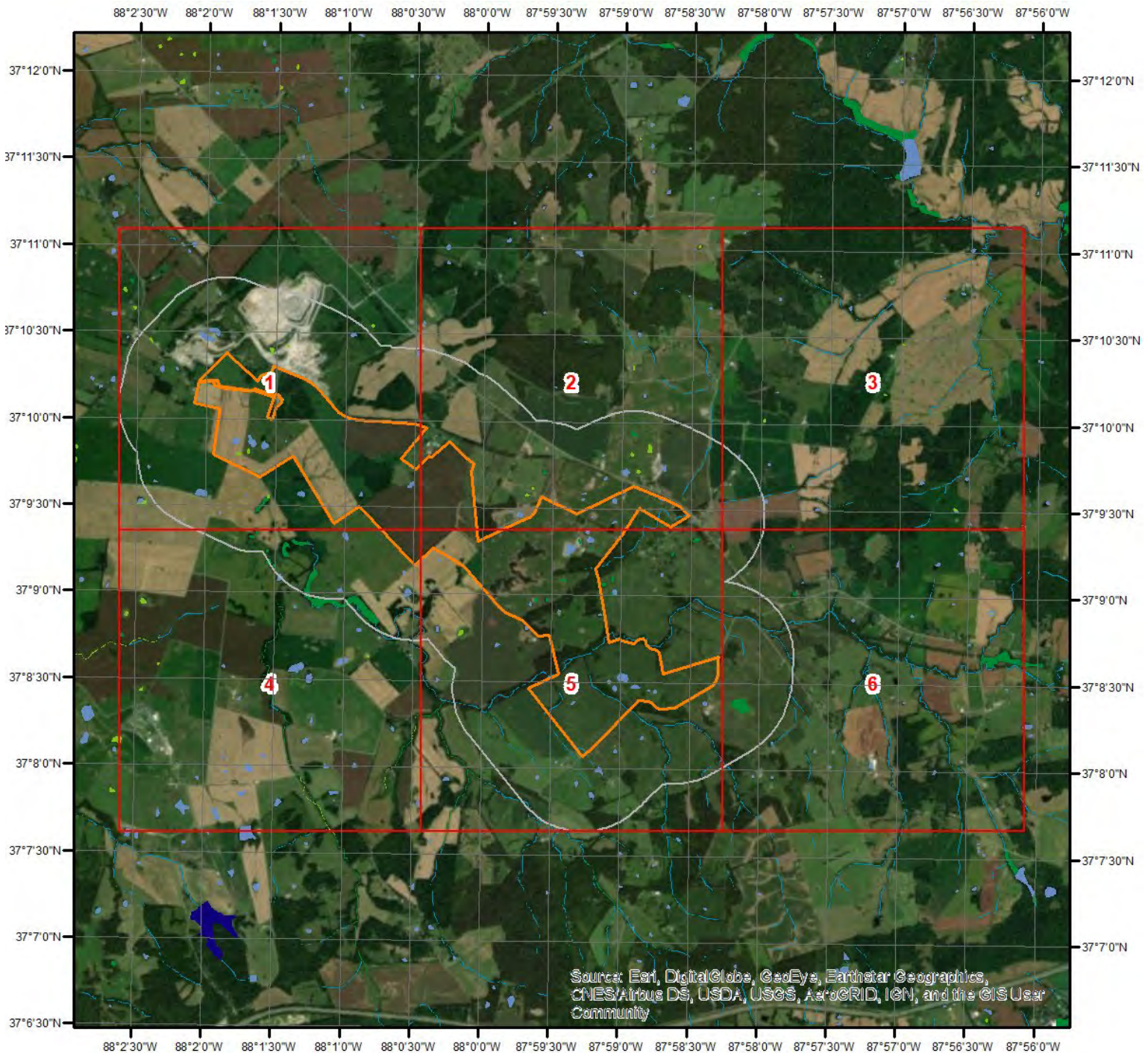


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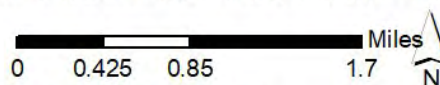




## Hydrologic Information



## Wetland



This map shows wetland existence using data from US Fish & Wildlife. Data coverage is shown to the right. Gray indicates no data available in the area.

- |                                   |                 |
|-----------------------------------|-----------------|
| Estuarine and Marine Deepwater    | Freshwater Pond |
| Estuarine and Marine Wetland      | Lake            |
| Freshwater Emergent Wetland       | Other           |
| Freshwater Forested/Shrub Wetland | Riverine        |



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ENVIRONMENTAL RISK INFORMATION SERVICES





## Hydrologic Information



### Wetland Type - Page 1

This map shows wetland existence using data from US Fish & Wildlife.  
Data coverage is shown to the right. Gray indicates no data available in the area.

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland

- Freshwater Pond
- Lake
- Other
- Riverine

0 0.125 0.25 0.5 Miles





## Hydrologic Information



### Wetland Type - Page 2

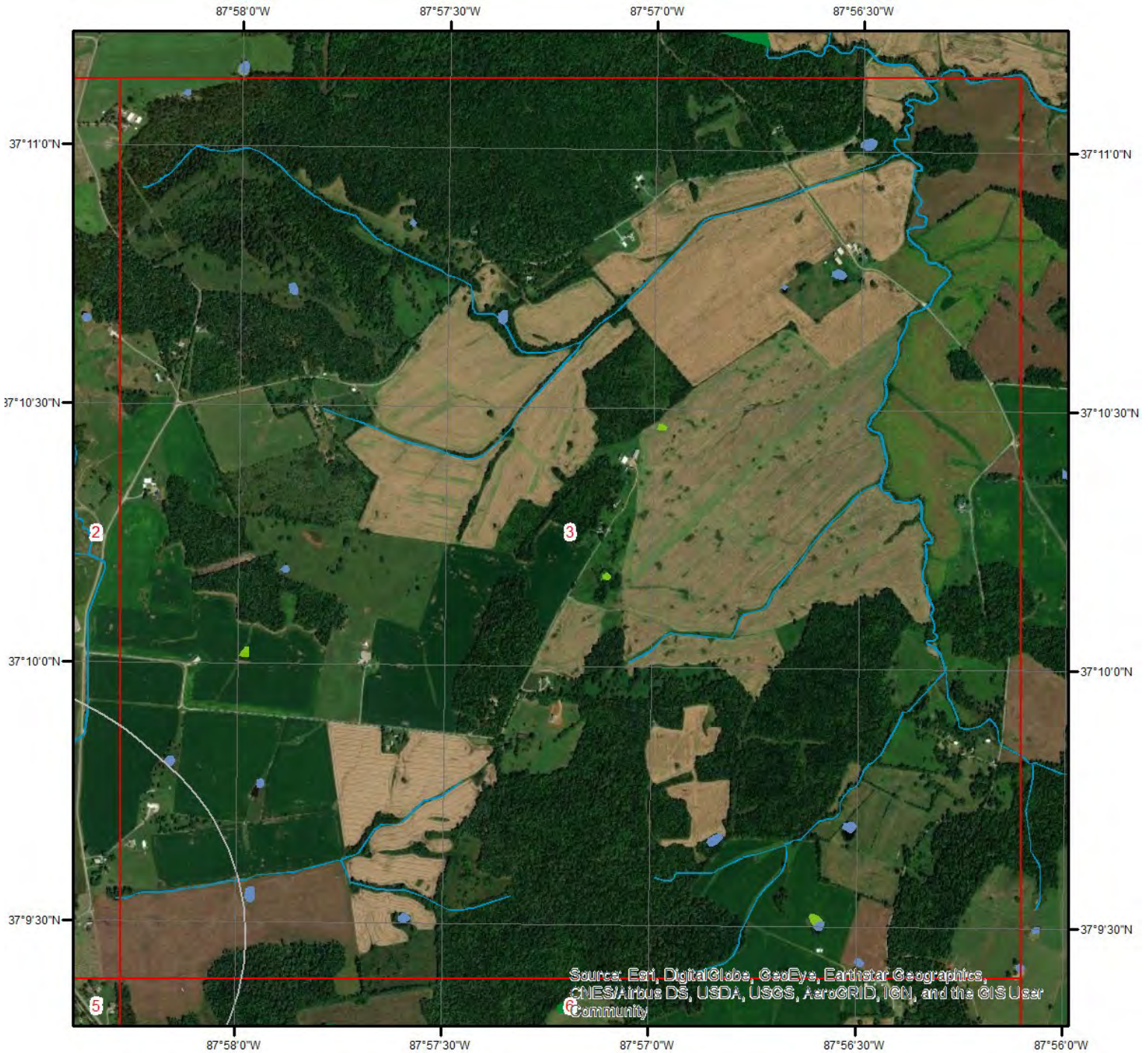
This map shows wetland existence using data from US Fish & Wildlife.  
Data coverage is shown to the right. Gray indicates no data available in the area.

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland

- Freshwater Pond
- Lake
- Other
- Riverine











## Hydrologic Information



### Wetland Type - Page 3

This map shows wetland existence using data from US Fish & Wildlife.  
Data coverage is shown to the right. Gray indicates no data available in the area.

- |   |   |
|---|---|
|  Estuarine and Marine Deepwater    |  Freshwater Pond |
|  Estuarine and Marine Wetland      |  Lake            |
|  Freshwater Emergent Wetland       |  Other           |
|  Freshwater Forested/Shrub Wetland |  Riverine        |

0 0.125 0.25 0.5 Miles





## Hydrologic Information

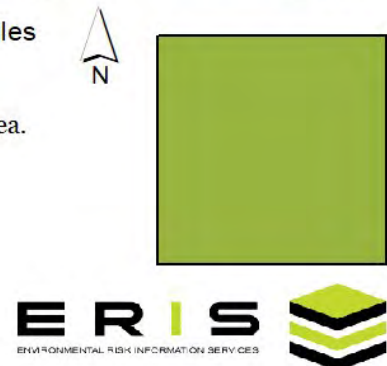


### Wetland Type - Page 4

This map shows wetland existence using data from US Fish & Wildlife.  
Data coverage is shown to the right. Gray indicates no data available in the area.

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland

- Freshwater Pond
- Lake
- Other
- Riverine













## Hydrologic Information



### Wetland Type - Page 5

This map shows wetland existence using data from US Fish & Wildlife.  
Data coverage is shown to the right. Gray indicates no data available in the area.

- |   |   |
|---|---|
|  Estuarine and Marine Deepwater    |  Freshwater Pond |
|  Estuarine and Marine Wetland      |  Lake            |
|  Freshwater Emergent Wetland       |  Other           |
|  Freshwater Forested/Shrub Wetland |  Riverine        |

0 0.125 0.25 0.5 Miles





## Hydrologic Information



### Wetland Type - Page 6

This map shows wetland existence using data from US Fish & Wildlife.  
Data coverage is shown to the right. Gray indicates no data available in the area.

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland

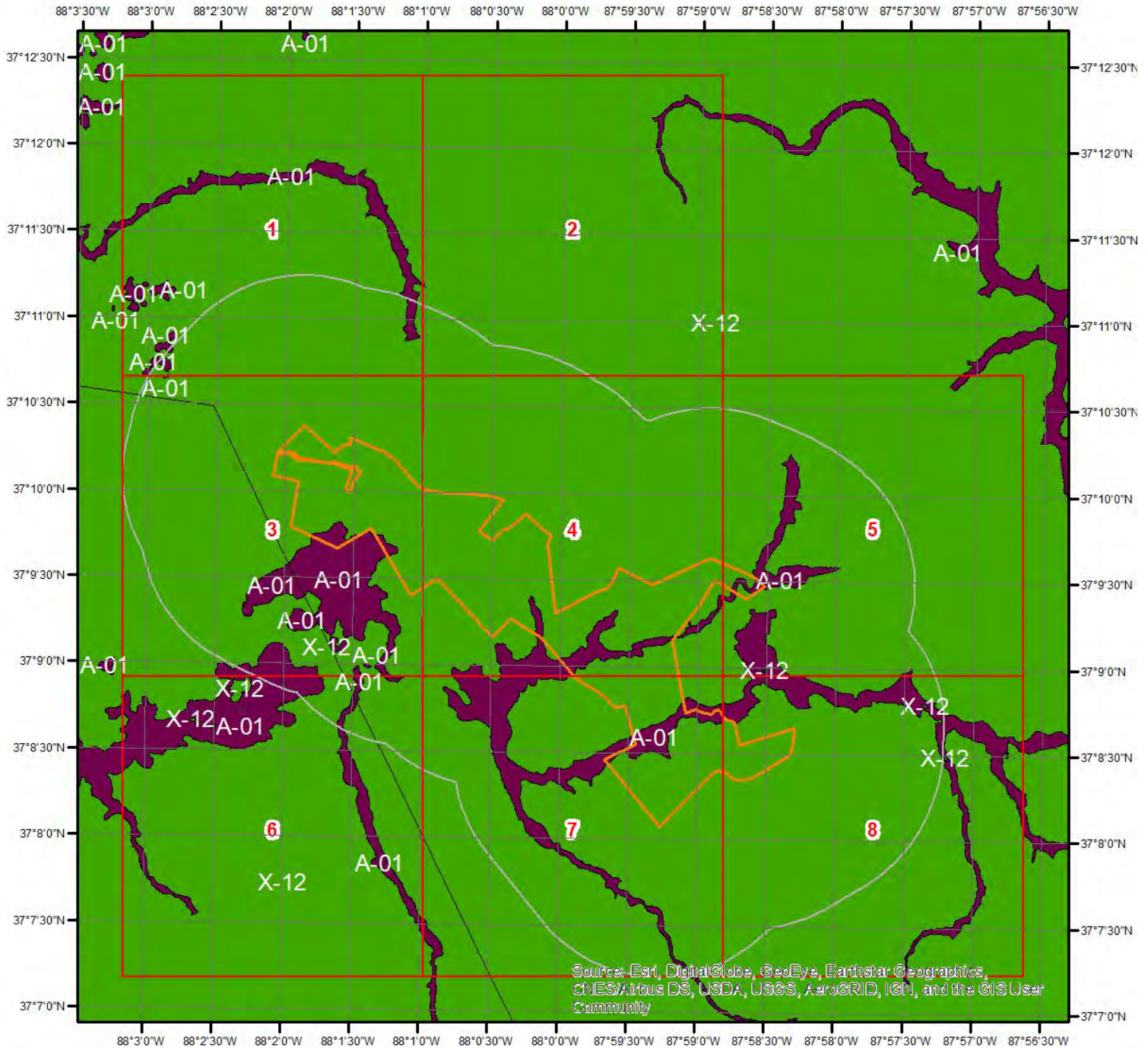
- Freshwater Pond
- Lake
- Other
- Riverine

0 0.125 0.25 0.5 Miles





## Hydrologic Information



## Flood Hazard Zones

This map shows FEMA flood hazard zones. FIRM panels are shown to the right, and blank indicates no data is available.

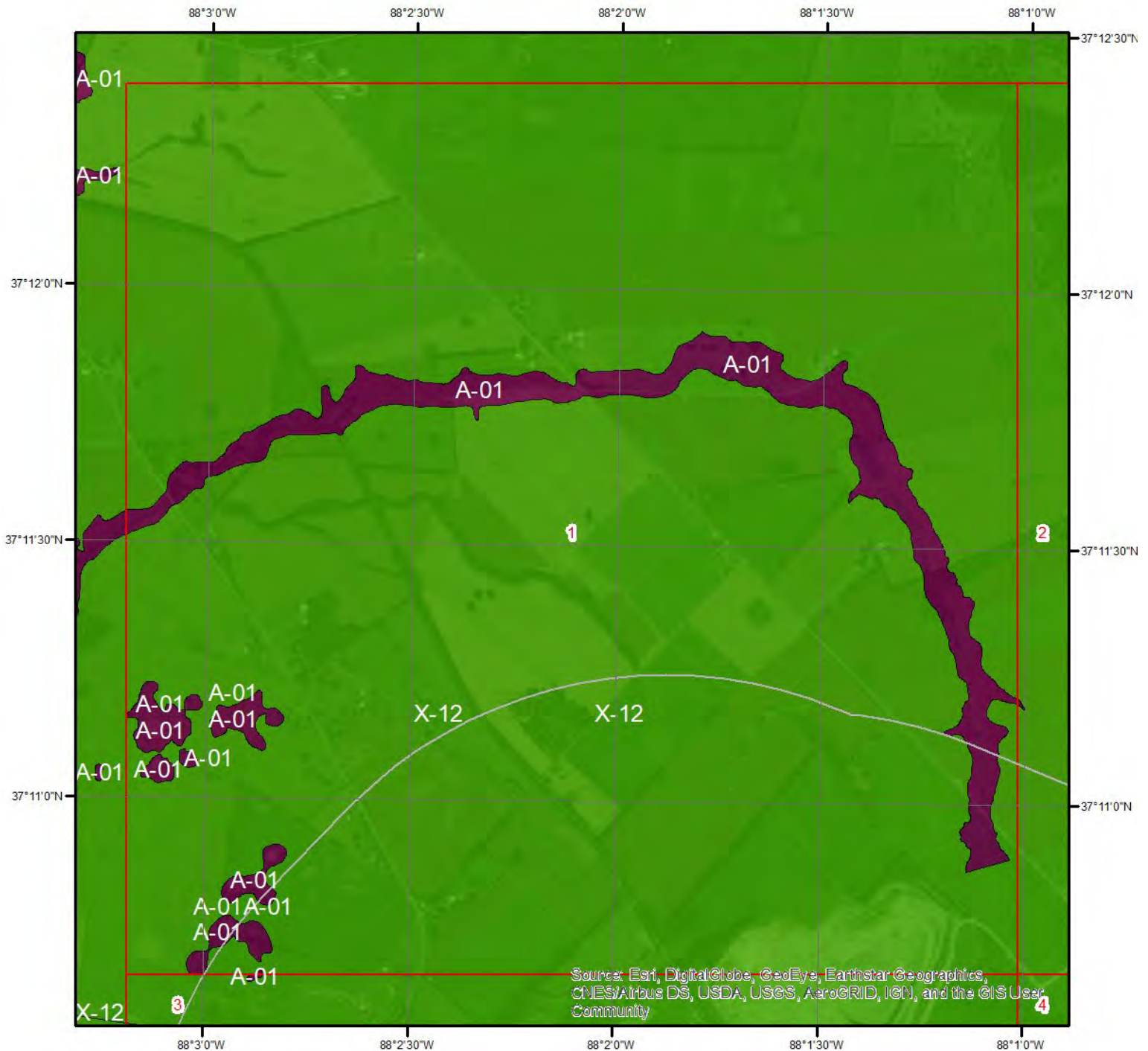
A	AO	X
A99	V	OPEN WATER
AE	VE	NOT POPULATED
AH	D	AREA NOT INCLUDED

21143C0050A	21033C0150C
21065C0350C	
21033C0125C	



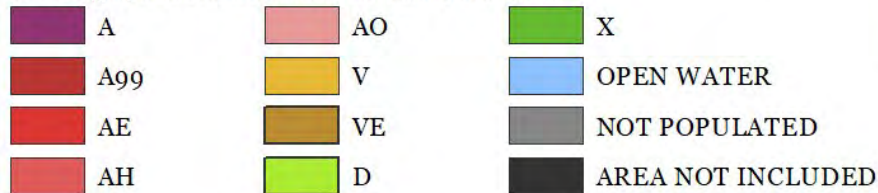


## Hydrologic Information

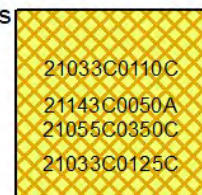


### Flood Hazard Zones - Page 1

This map shows FEMA flood hazard zones. FIRM panels are shown to the right, and blank indicates no data is available.

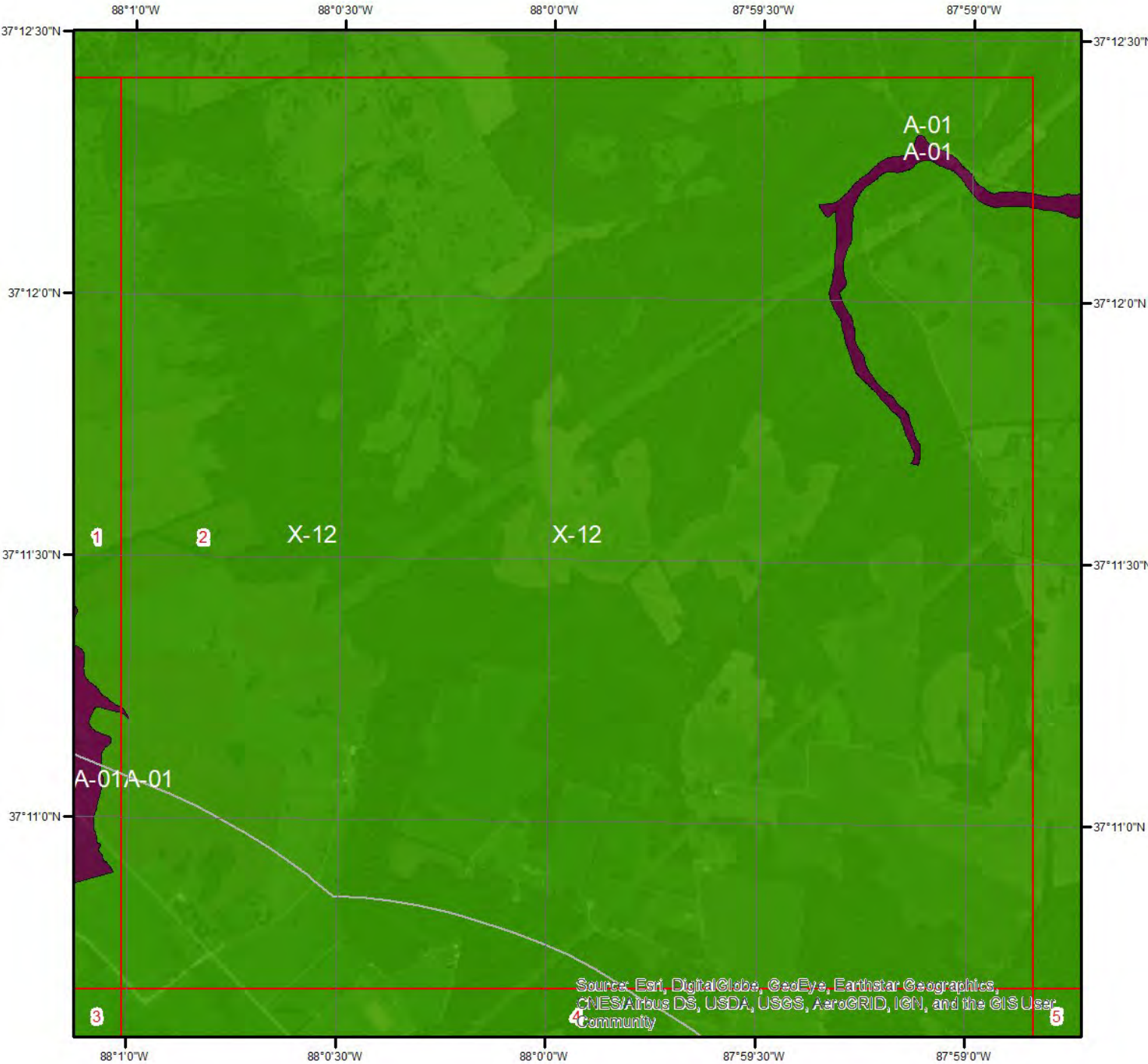


0 0.2 0.4 Miles





Hydrologic Information



Flood Hazard Zones - Page 2

This map shows FEMA flood hazard zones. FIRM panels are shown to the right, and blank indicates no data is available.

- |     |    |                   |
|-----|----|-------------------|
| A   | AO | X                 |
| A99 | V  | OPEN WATER        |
| AE  | VE | NOT POPULATED     |
| AH  | D  | AREA NOT INCLUDED |

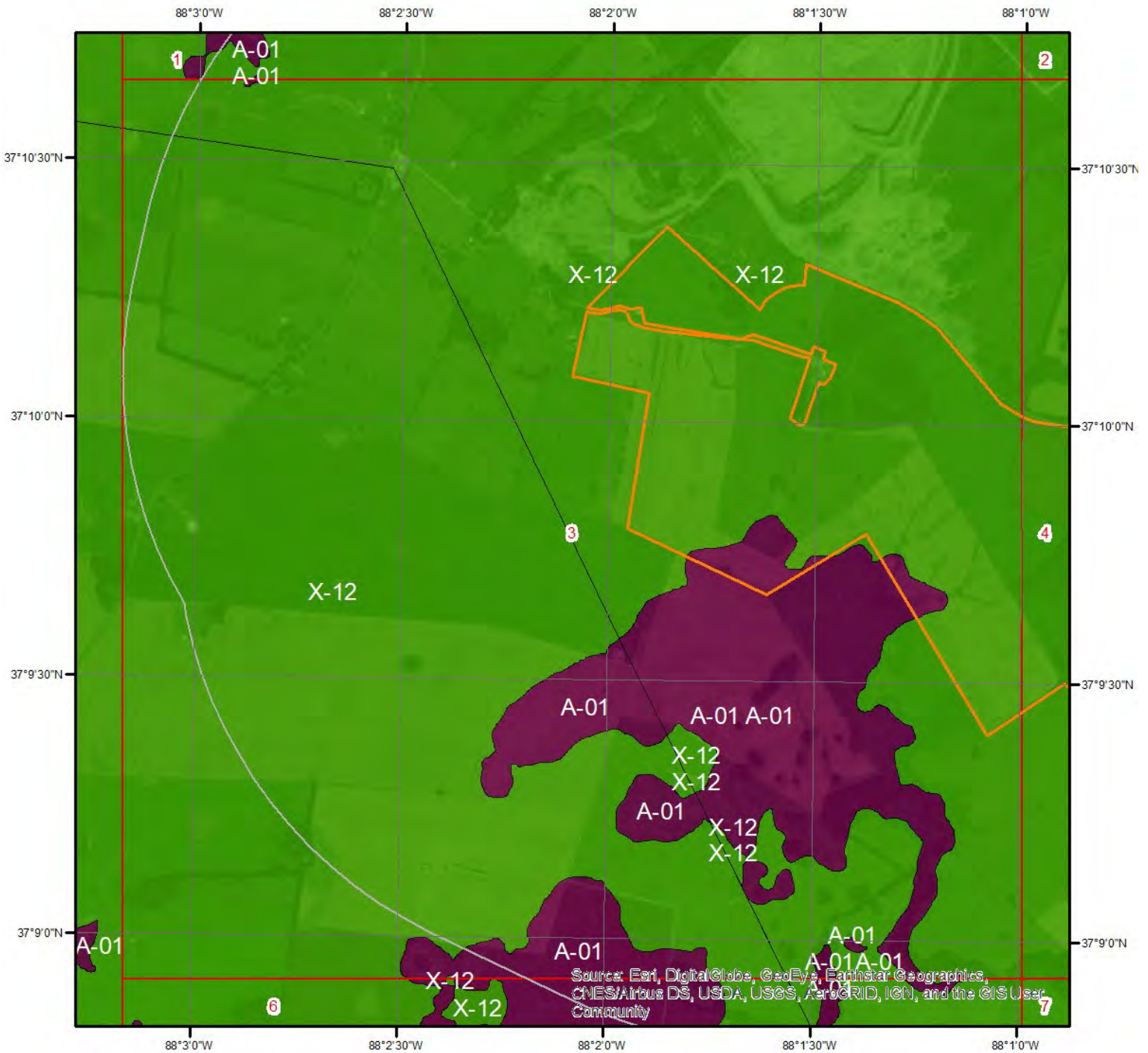
0 0.2 0.4 Miles



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## Hydrologic Information

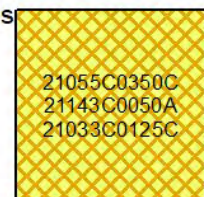


### Flood Hazard Zones - Page 3

This map shows FEMA flood hazard zones. FIRM panels are shown to the right, and blank indicates no data is available.

A	AO	X
A99	V	OPEN WATER
AE	VE	NOT POPULATED
AH	D	AREA NOT INCLUDED

0 0.2 0.4 Miles

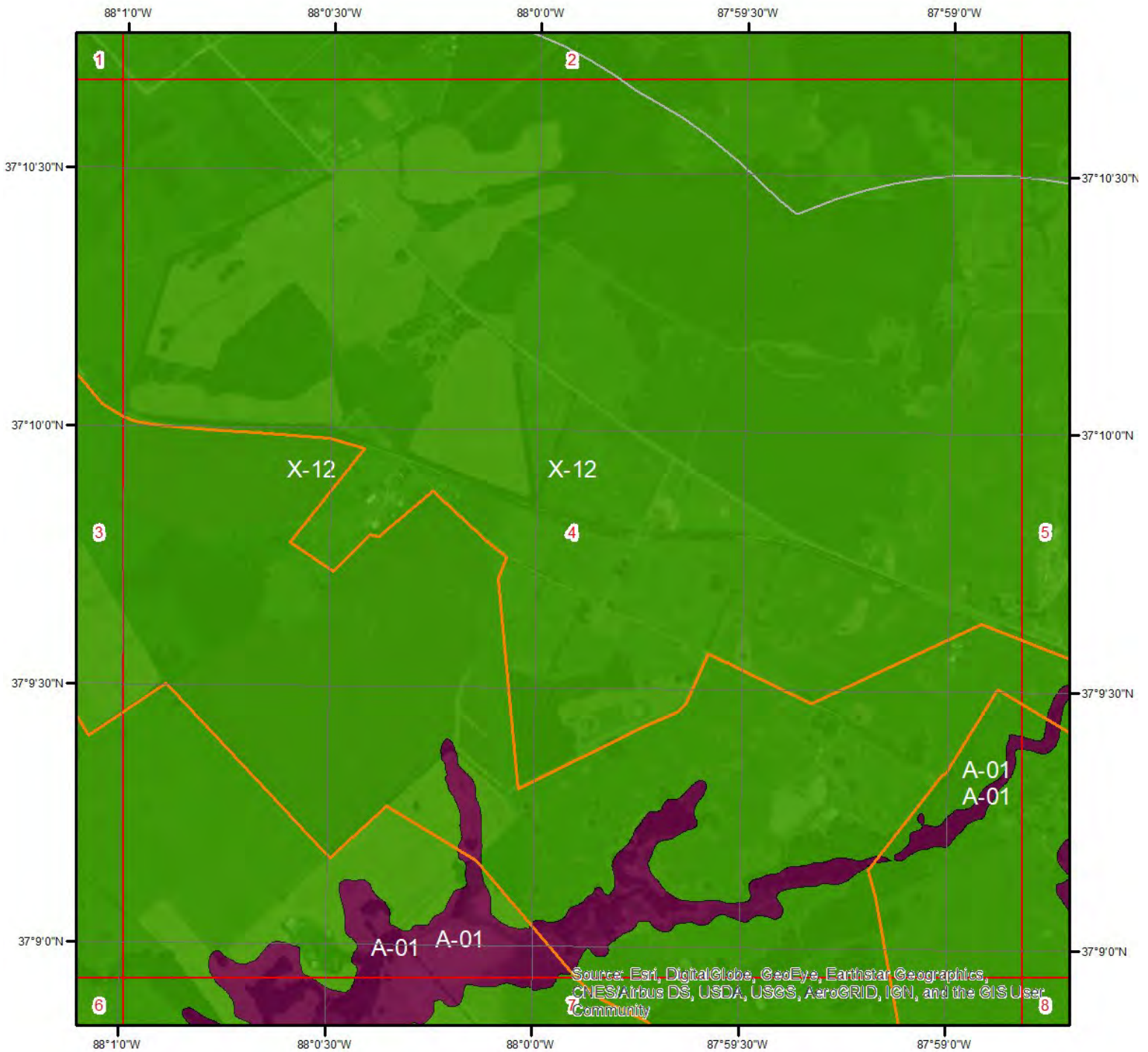


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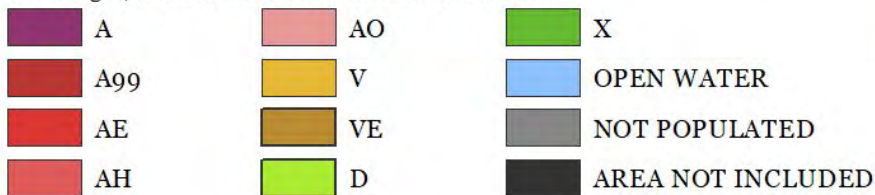


## Hydrologic Information

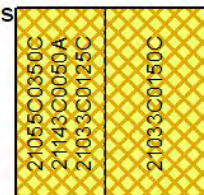


### Flood Hazard Zones - Page 4

This map shows FEMA flood hazard zones. FIRM panels are shown to the right, and blank indicates no data is available.



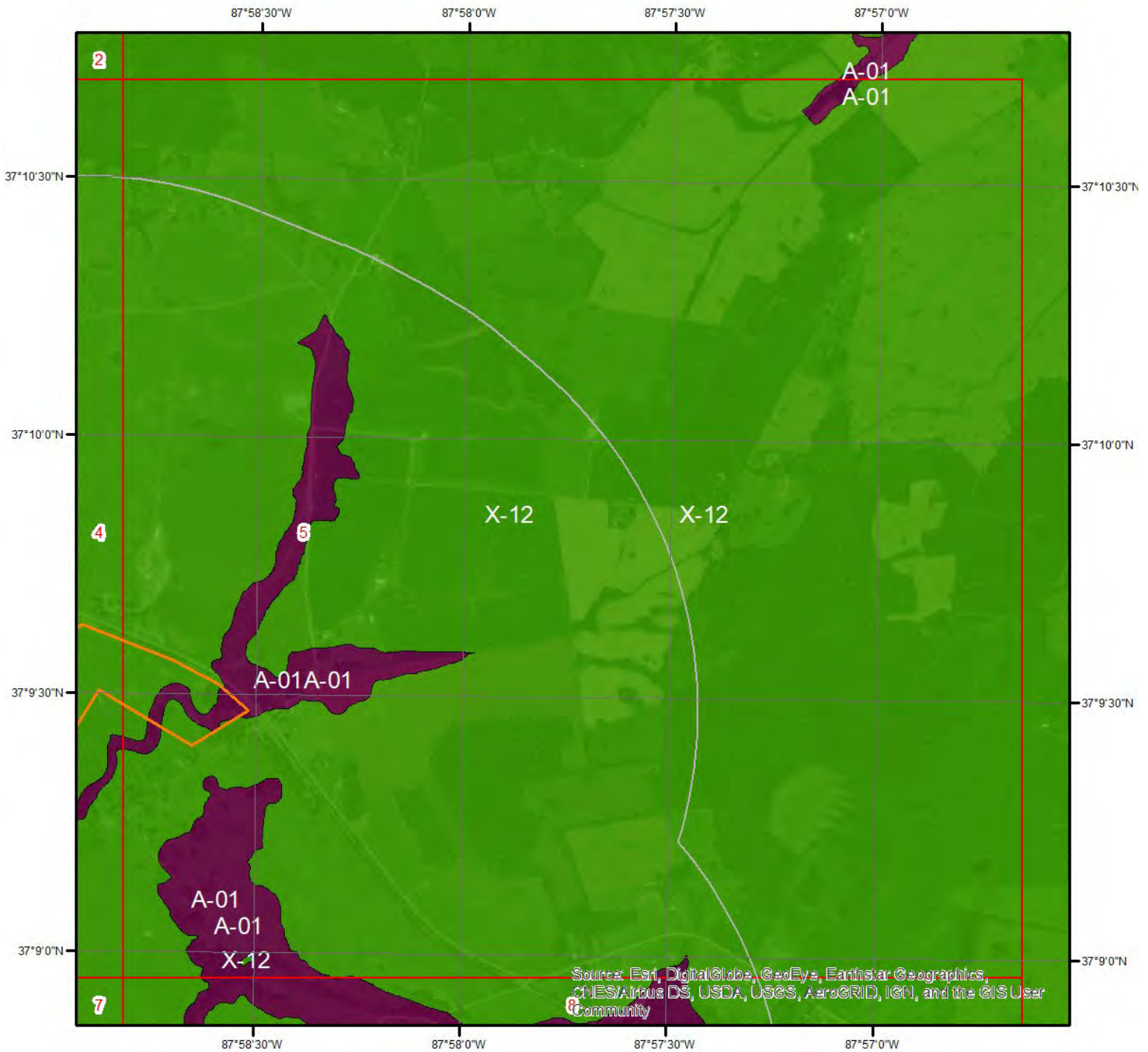
0 0.2 0.4 Miles



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## Hydrologic Information

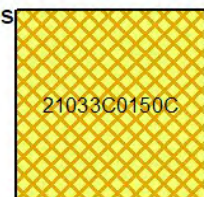


### Flood Hazard Zones - Page 5

This map shows FEMA flood hazard zones. FIRM panels are shown to the right, and blank indicates no data is available.

A	AO	X
A99	V	OPEN WATER
AE	VE	NOT POPULATED
AH	D	AREA NOT INCLUDED

0 0.2 0.4 Miles

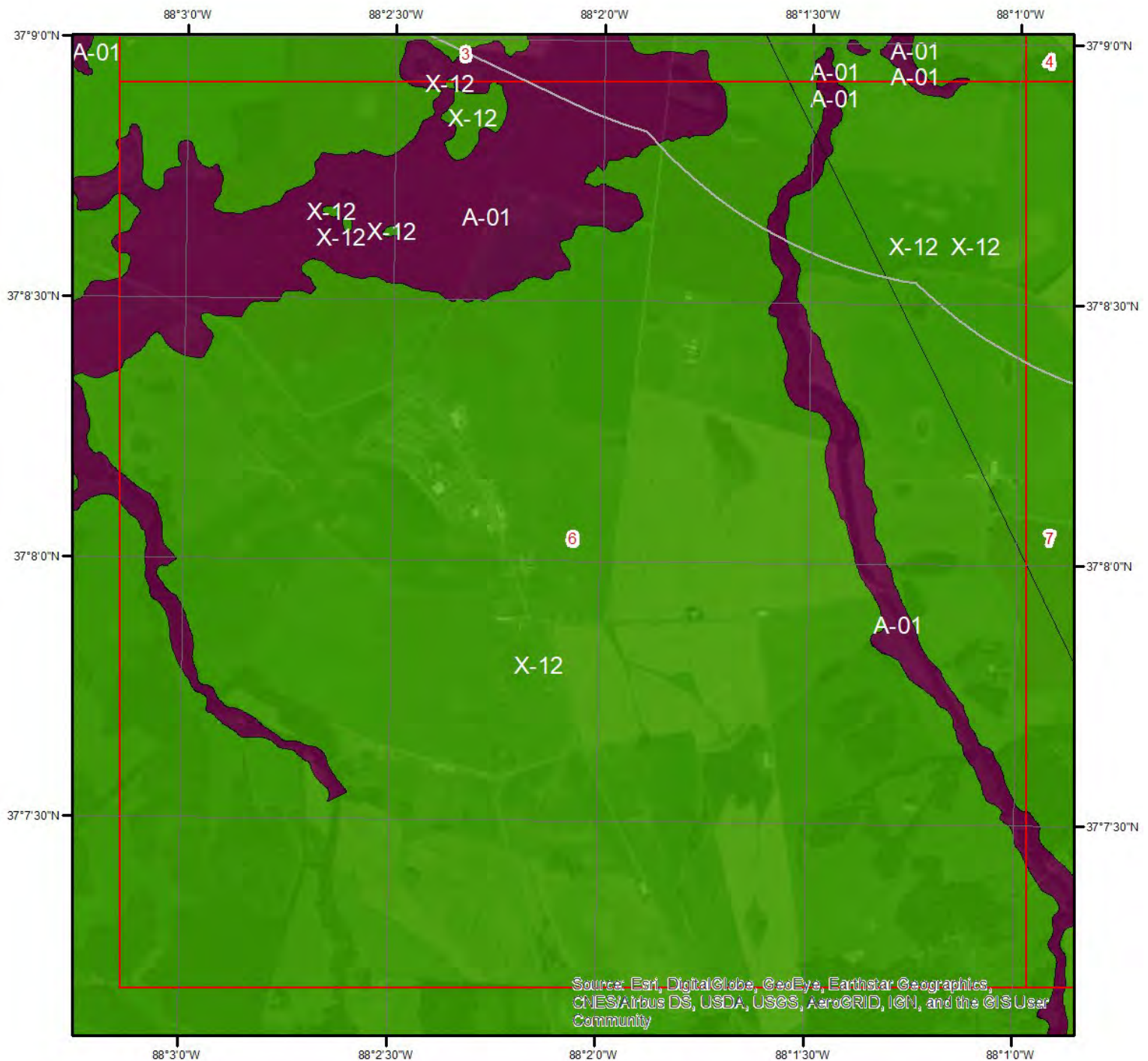


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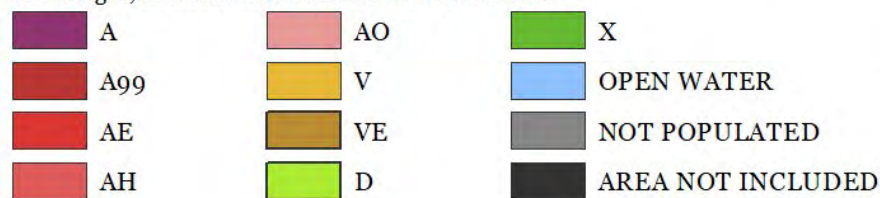


**Hydrologic Information**



**Flood Hazard Zones - Page 6**

This map shows FEMA flood hazard zones. FIRM panels are shown to the right, and blank indicates no data is available.



0 0.2 0.4 Miles



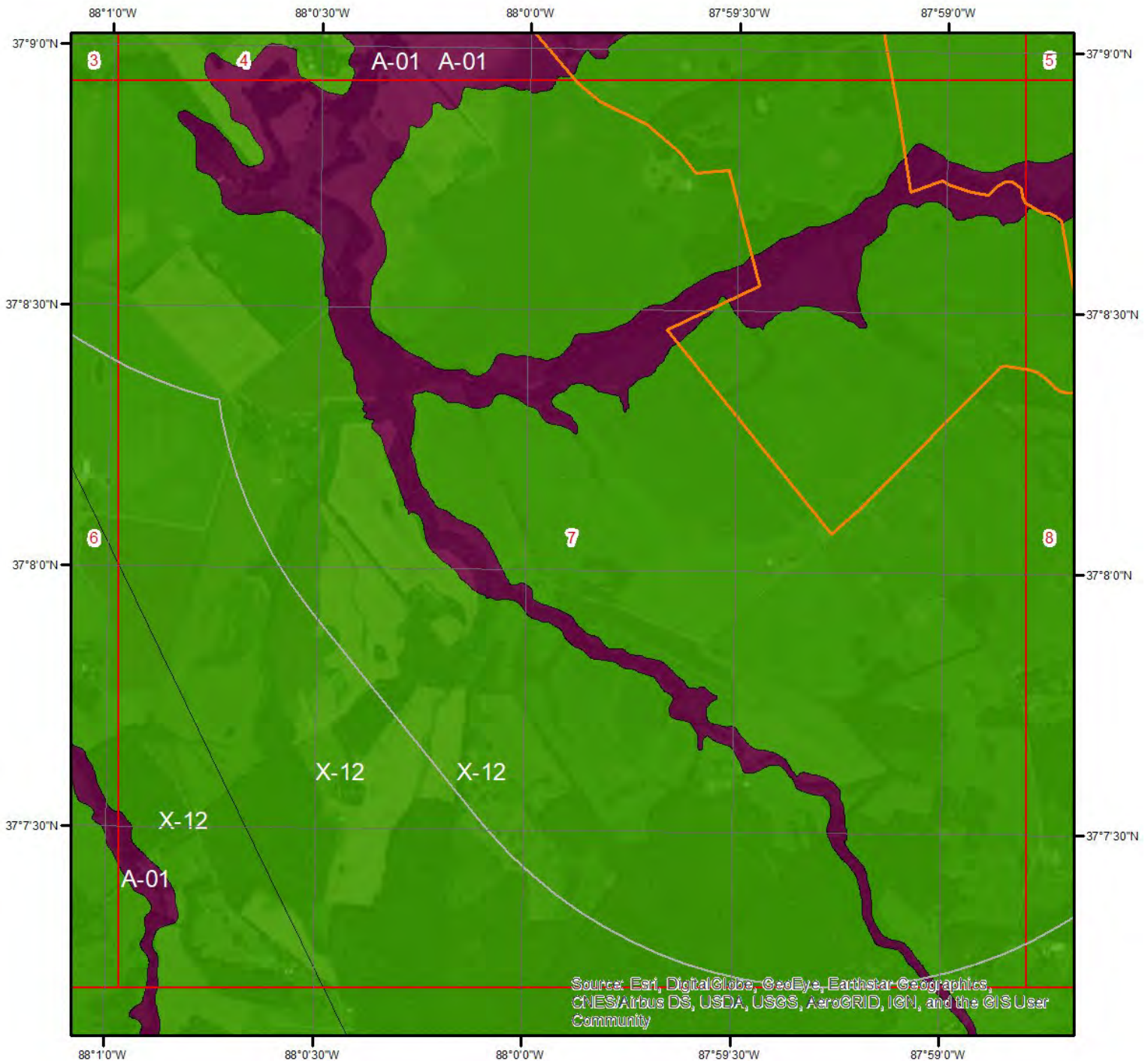
21033C0125C
21143C0050A
21055C0350C
21033C0225C
21143C0085A

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## Hydrologic Information



### Flood Hazard Zones - Page 7

This map shows FEMA flood hazard zones. FIRM panels are shown to the right, and blank indicates no data is available.

A	AO	X
A99	V	OPEN WATER
AE	VE	NOT POPULATED
AH	D	AREA NOT INCLUDED

0 0.2 0.4 Miles

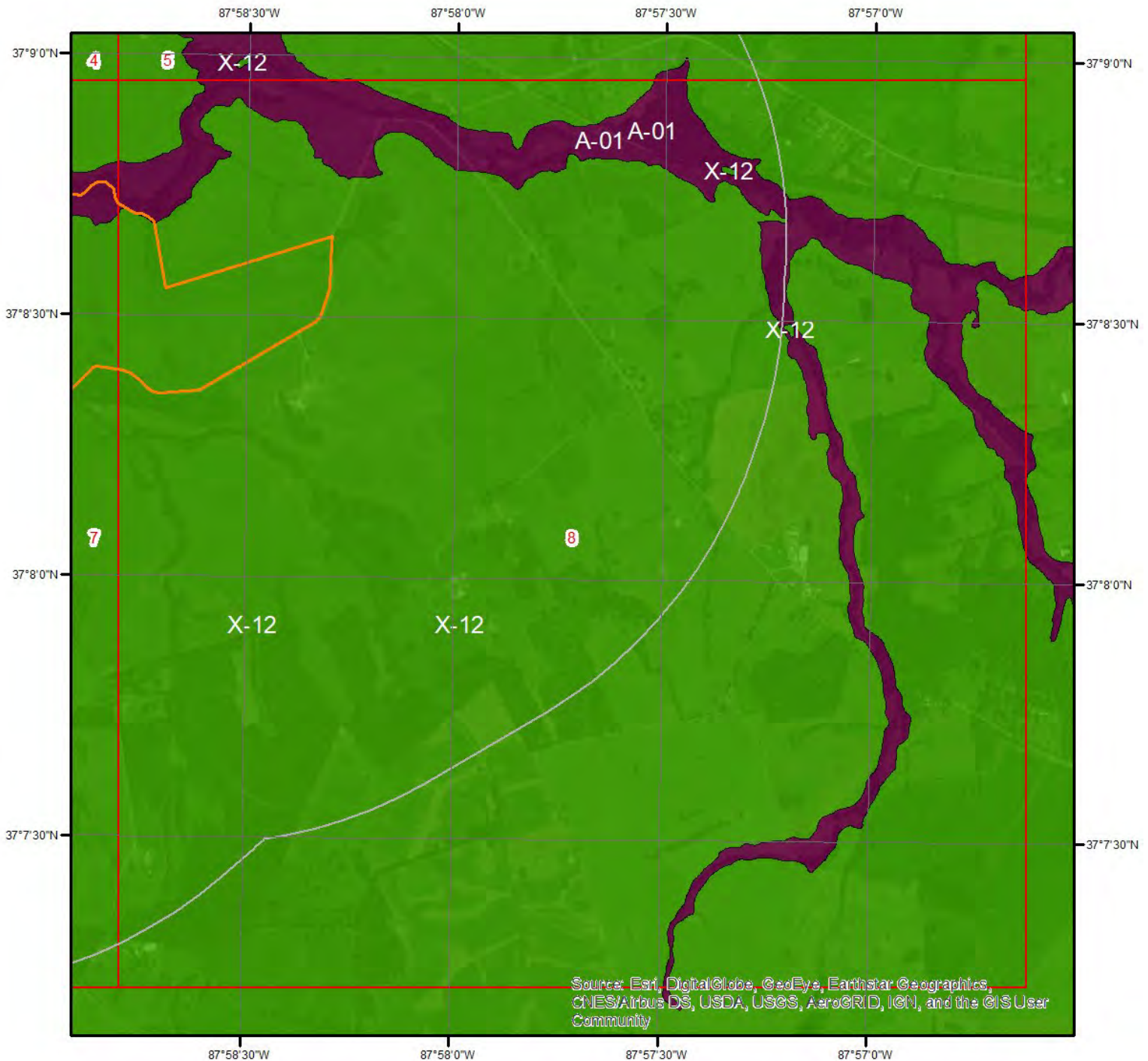


21055C0350C	21033C0150C
21143C0050A	21143C0125A
21033C0125C	

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## Hydrologic Information

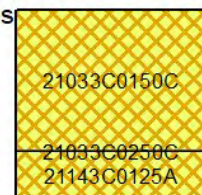


### Flood Hazard Zones - Page 8

This map shows FEMA flood hazard zones. FIRM panels are shown to the right, and blank indicates no data is available.

A	AO	X
A99	V	OPEN WATER
AE	VE	NOT POPULATED
AH	D	AREA NOT INCLUDED

0 0.2 0.4 Miles



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## Hydrologic Information

The Wetland Type map shows wetland existence overlaid on an aerial imagery. The Flood Hazard Zones map shows FEMA flood hazard zones overlaid on an aerial imagery. Relevant FIRM panels and detailed zone information is provided below.

---

Available FIRM Panels in area:

21033C0225C(effective:2009-10-16) 21033C0150C(effective:2009-10-16)  
21033C0250C(effective:2009-10-16) 21033C0125C(effective:2009-10-16)  
21143C0085A(effective:2012-08-16) 21143C0050A(effective:2012-08-16)  
21143C0125A(effective:2012-08-16) 21033C0250C(effective:2009-10-16)  
21033C0125C(effective:2009-10-16) 21033C0225C(effective:2009-10-16)  
21033C0150C(effective:2009-10-16) 21055C0350C(effective:2009-06-16)  
21055C0350C(effective:2009-06-16)

---

### Flood Zone A-01

Zone: A

Zone subtype:

---

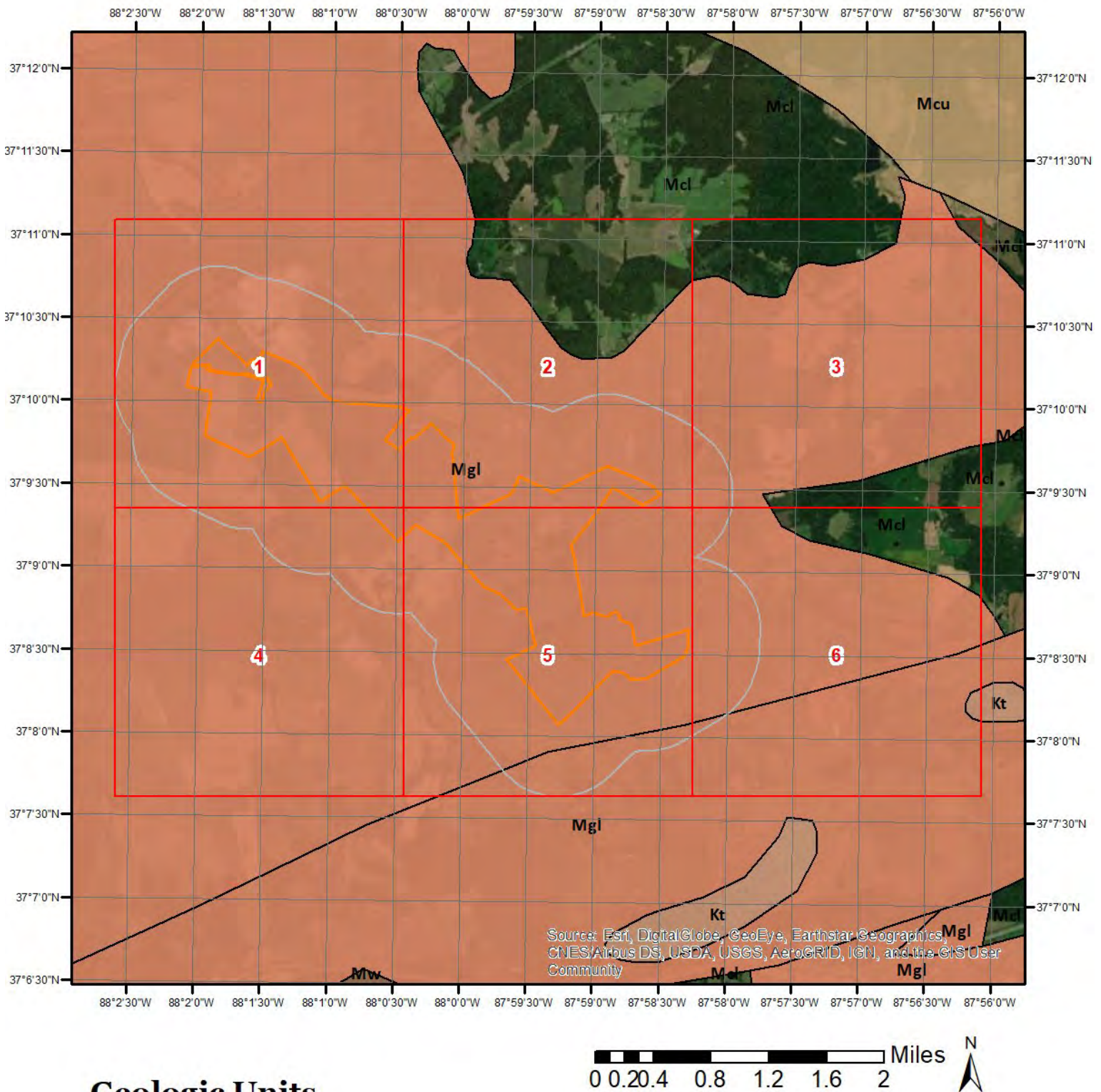
### Flood Zone X-12

Zone: X

Zone subtype: AREA OF MINIMAL FLOOD HAZARD



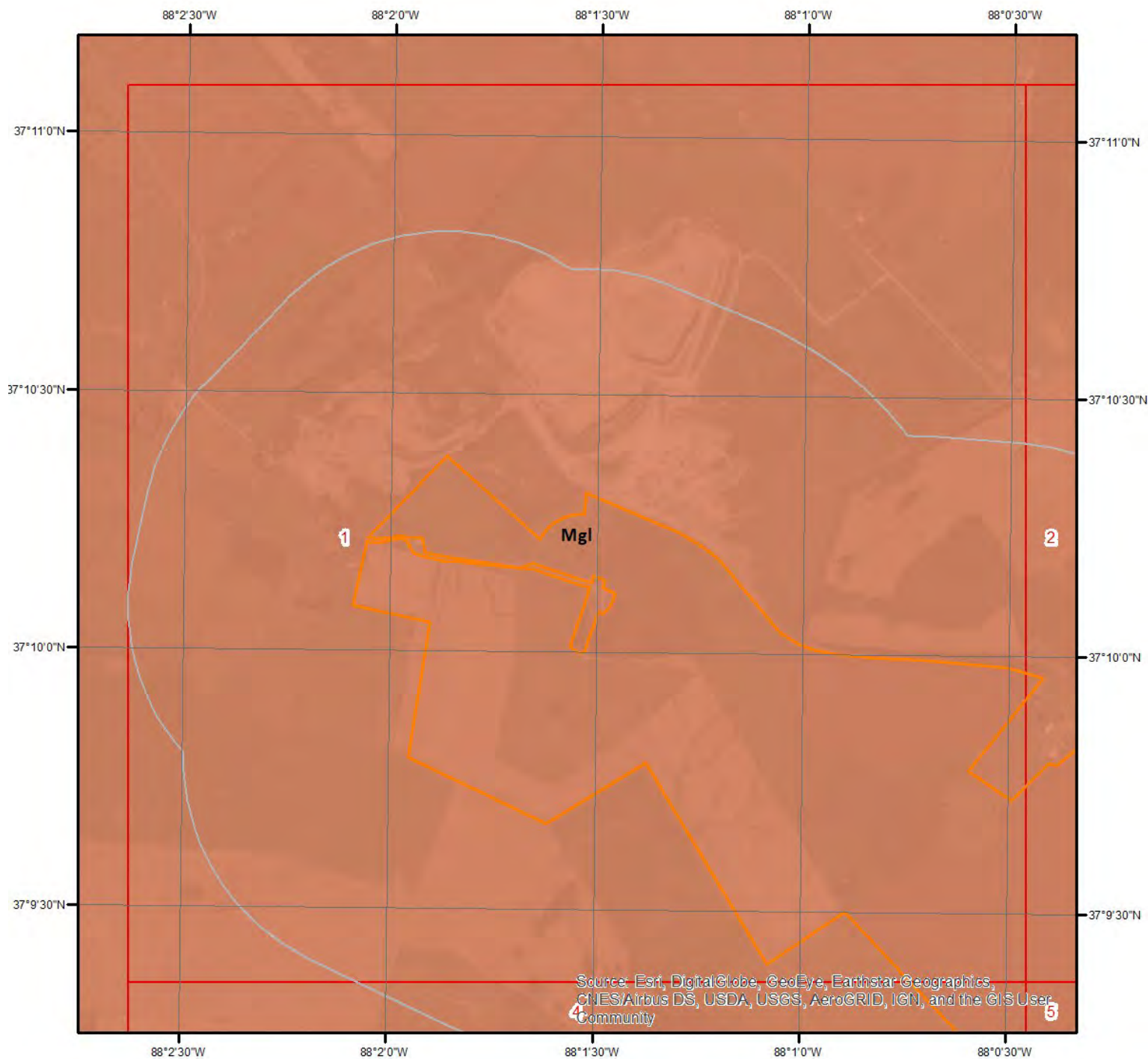
## Geologic Information



## Geologic Units

This maps shows geologic units in the area. Please refer to the report for detailed descriptions.

## Geologic Information

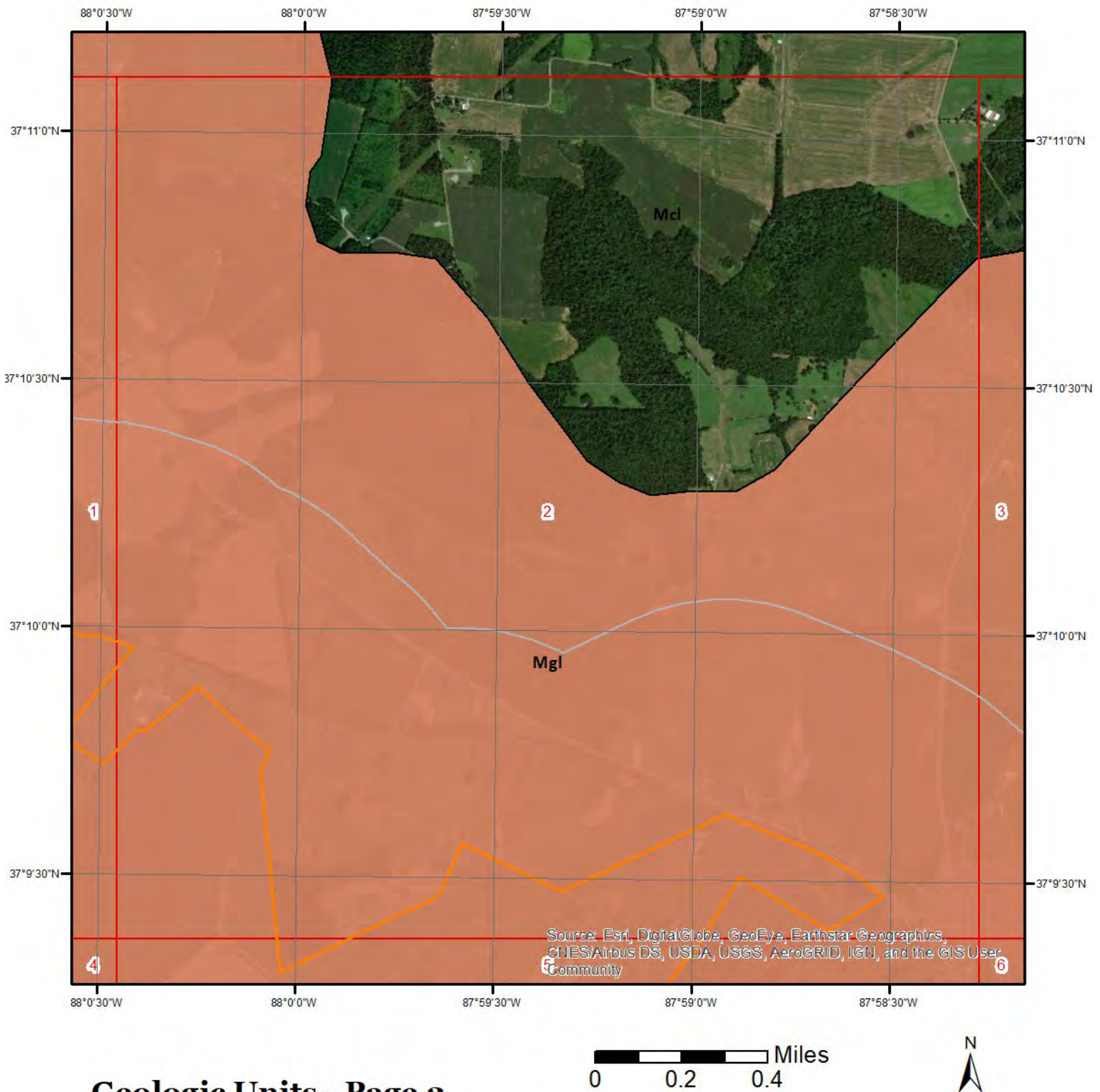


### Geologic Units - Page 1

This maps shows geologic units in the area. Please refer to the report for detailed descriptions.



## Geologic Information

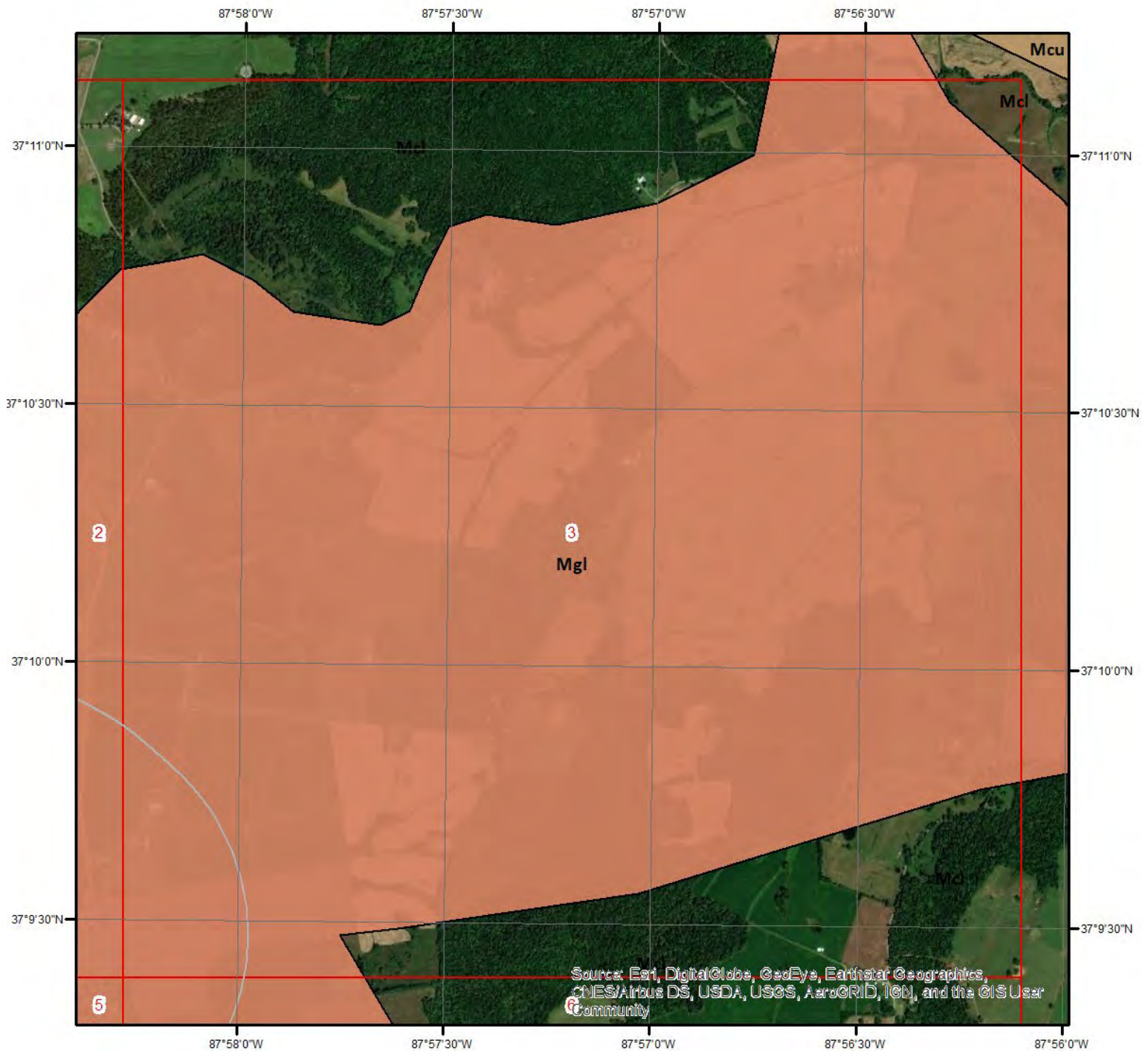


### Geologic Units - Page 2

This maps shows geologic units in the area. Please refer to the report for detailed descriptions.



## Geologic Information



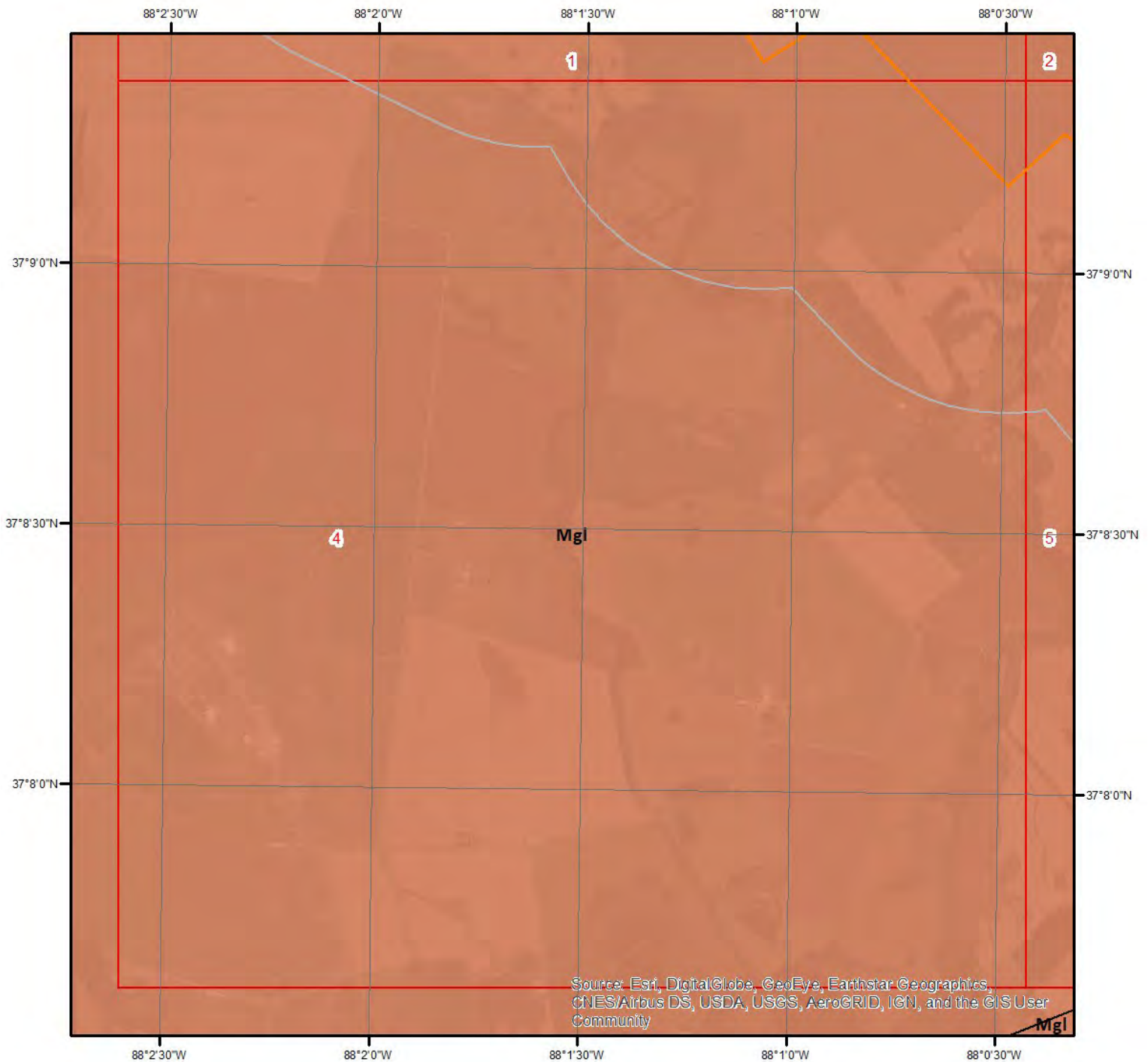
### Geologic Units - Page 3

This maps shows geologic units in the area. Please refer to the report for detailed descriptions.

0 0.2 0.4 Miles



## Geologic Information

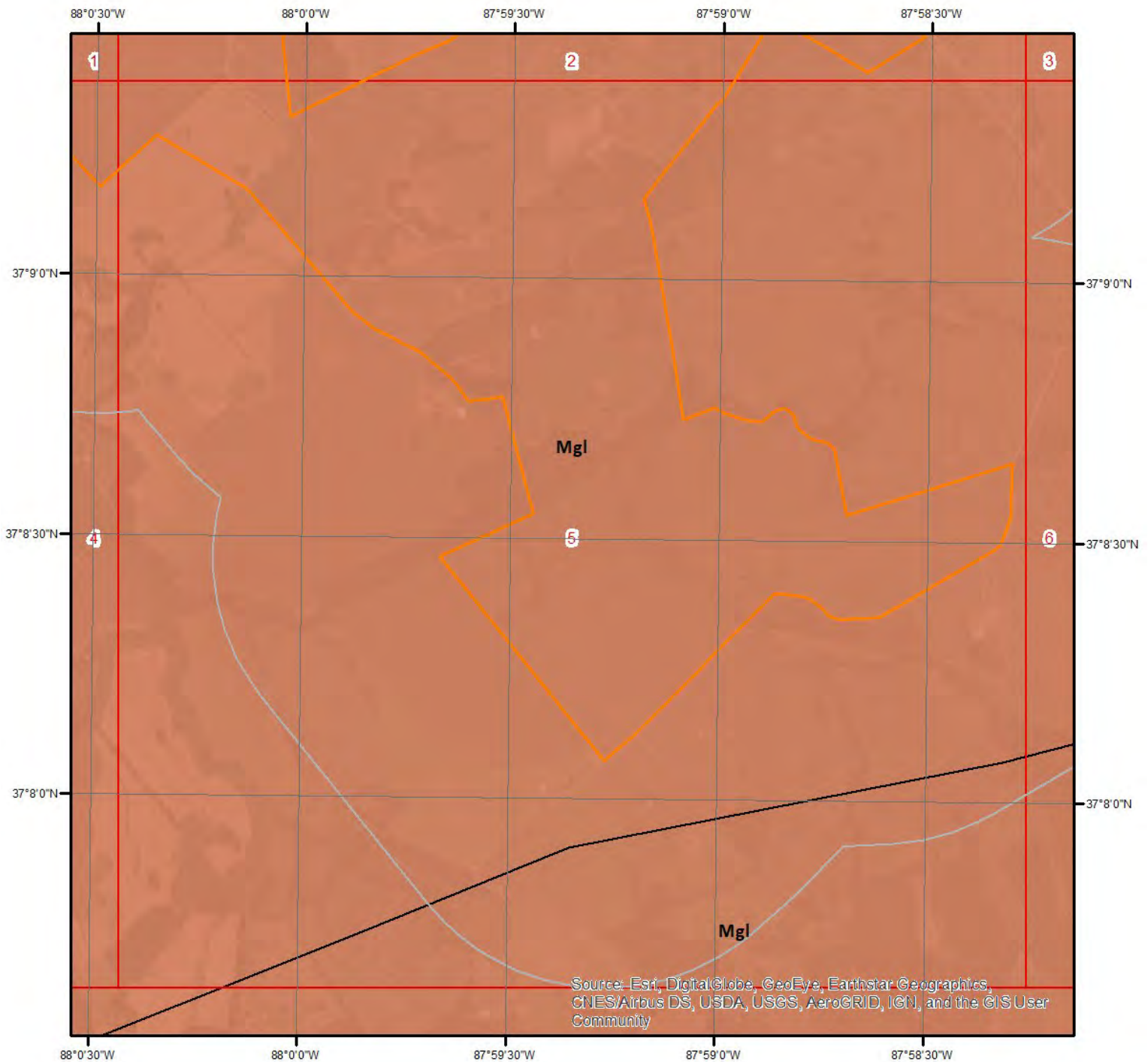


### Geologic Units - Page 4

This maps shows geologic units in the area. Please refer to the report for detailed descriptions.



## Geologic Information



### Geologic Units - Page 5

This maps shows geologic units in the area. Please refer to the report for detailed descriptions.

0 0.2 0.4 Miles

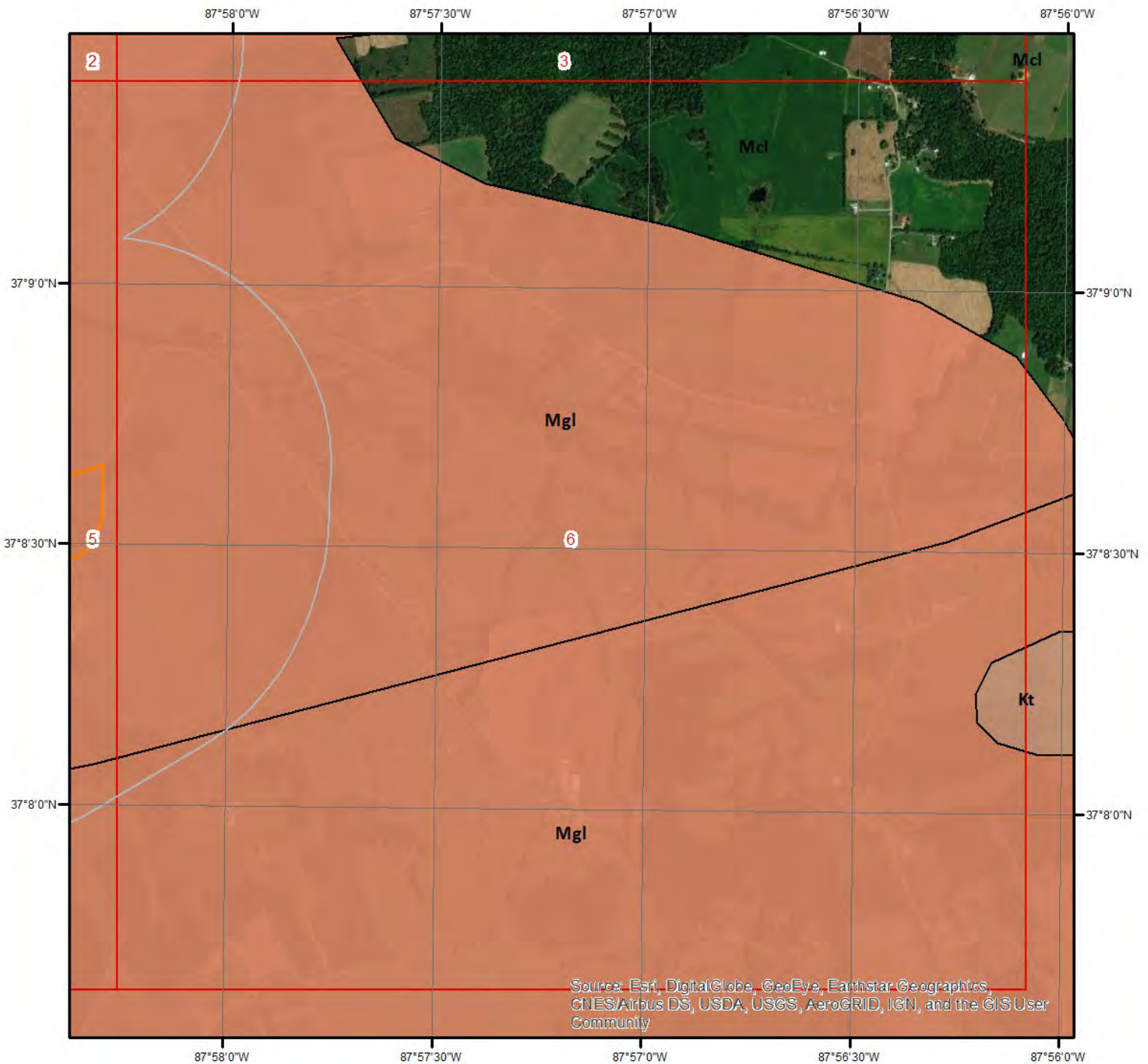


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## Geologic Information



### Geologic Units - Page 6

This maps shows geologic units in the area. Please refer to the report for detailed descriptions.

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## Geologic Information

The previous page shows USGS geology information. Detailed information about each unit is provided below.

---

### Geologic Unit Mgl

Unit Name:	Ste. Genevieve and St. Louis Limestones, undivided
Unit Age:	Mississippian
Primary Rock Type:	limestone
Secondary Rock Type:	dolostone (dolomite)
Unit Description:	Ste. Genevieve and St. Louis Limestones, undivided; includes Salem Limestone west of Christian County

---

### Geologic Unit Mgl

Unit Name:	Ste. Genevieve and St. Louis Limestones, undivided
Unit Age:	Mississippian
Primary Rock Type:	limestone
Secondary Rock Type:	dolostone (dolomite)
Unit Description:	Ste. Genevieve and St. Louis Limestones, undivided; includes Salem Limestone west of Christian County





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## Soil Information



### SSURGO Soils - Page 1

0 0.2 0.4 Miles



This maps shows SSURGO soil units around the target property. Please refer to the report for detailed soil descriptions.







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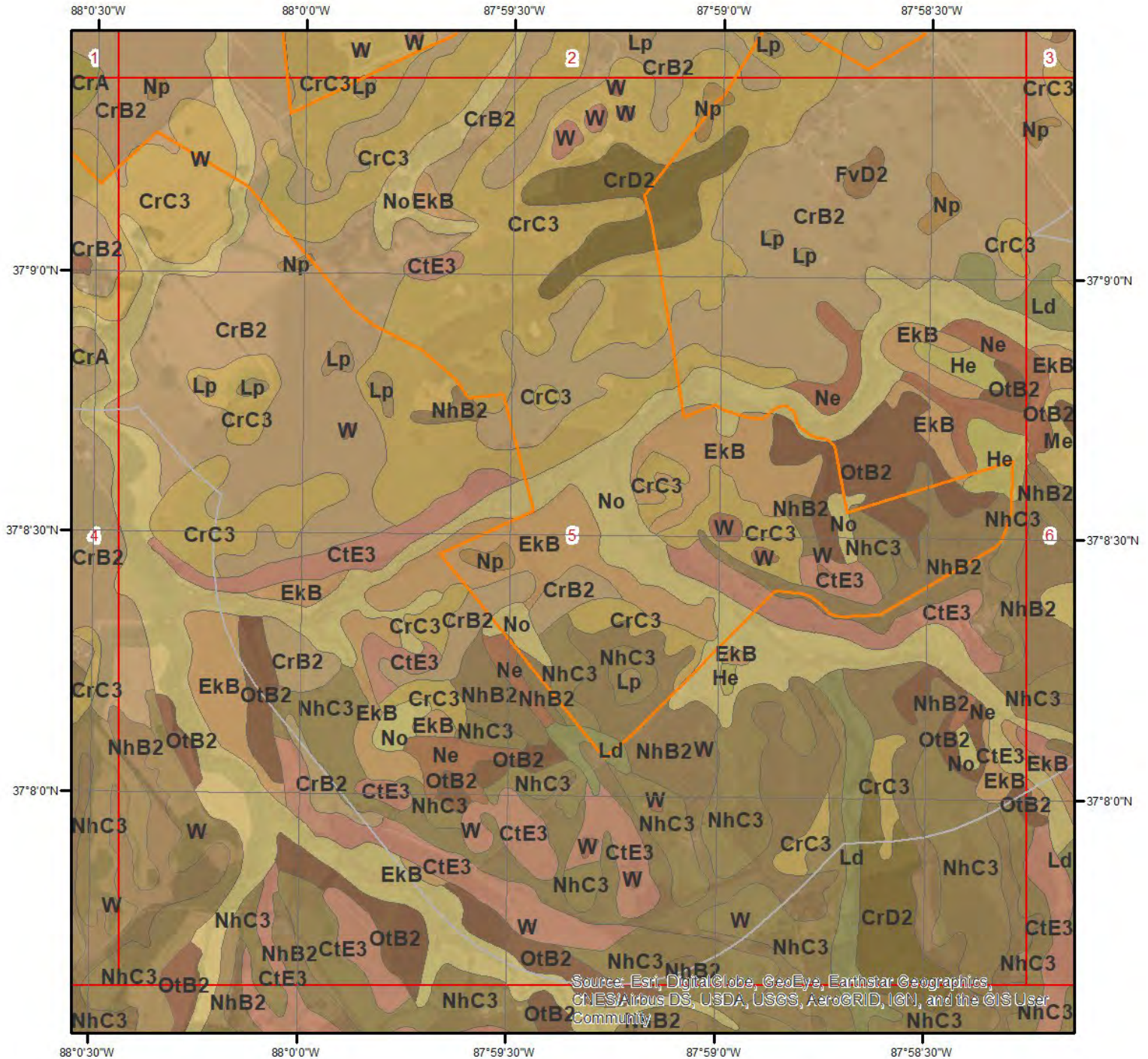




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## Soil Information



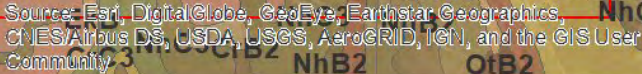
### SSURGO Soils - Page 5

0 0.2 0.4 Miles



This maps shows SSURGO soil units around the target property. Please refer to the report for detailed soil descriptions.





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## Soil Information

The previous page shows a soil map using SSURGO data from USDA Natural Resources Conservation Service. Detailed information about each unit is provided below.

---

### Map Unit CrA (0.45%)

Map Unit Name:	Crider silt loam, 0 to 2 percent slopes
Bedrock Depth - Min:	null
Watertable Depth - Annual Min:	null
Drainage Class - Dominant:	Well drained
Hydrologic Group - Dominant:	B - Soils in this group have moderately low runoff potential when thoroughly wet. Water transmission through the soil is unimpeded.
Major components are printed below	
Crider(95%)	
horizon H1(0cm to 25cm)	Silt loam
horizon H2(25cm to 63cm)	Silt loam
horizon H3(63cm to 132cm)	Silty clay loam
horizon H4(132cm to 178cm)	Silty clay

---

### Map Unit CrB (9.12%)

Map Unit Name:	Crider silt loam, 2 to 6 percent slopes
Bedrock Depth - Min:	null
Watertable Depth - Annual Min:	null
Drainage Class - Dominant:	Well drained
Hydrologic Group - Dominant:	B - Soils in this group have moderately low runoff potential when thoroughly wet. Water transmission through the soil is unimpeded.
Major components are printed below	
Crider(80%)	
horizon H1(0cm to 20cm)	Silt loam
horizon H2(20cm to 102cm)	Silty clay loam
horizon H3(102cm to 168cm)	Silty clay loam

---

### Map Unit CrB2 (42.88%)

Map Unit Name:	Crider silt loam, 2 to 6 percent slopes, eroded
Bedrock Depth - Min:	null
Watertable Depth - Annual Min:	null
Drainage Class - Dominant:	Well drained
Hydrologic Group - Dominant:	B - Soils in this group have moderately low runoff potential when thoroughly wet. Water transmission through the soil is unimpeded.
Major components are printed below	
Crider(85%)	
horizon H1(0cm to 13cm)	Silt loam
horizon H2(13cm to 61cm)	Silt loam
horizon H3(61cm to 155cm)	Silty clay loam
horizon H4(155cm to 196cm)	Silty clay

---

## Soil Information

### Map Unit CrC2 (0.65%)

Map Unit Name:	Crider silt loam, 6 to 12 percent slopes, eroded
Bedrock Depth - Min:	null
Watertable Depth - Annual Min:	null
Drainage Class - Dominant:	Well drained
Hydrologic Group - Dominant:	B - Soils in this group have moderately low runoff potential when thoroughly wet. Water transmission through the soil is unimpeded.
Major components are printed below	
Crider(90%)	
horizon H1(0cm to 13cm)	Silt loam
horizon H2(13cm to 61cm)	Silt loam
horizon H3(61cm to 155cm)	Silty clay loam
horizon H4(155cm to 196cm)	Silty clay

### Map Unit CrC3 (12.94%)

Map Unit Name:	Crider silt loam, 6 to 12 percent slopes, severely eroded
Bedrock Depth - Min:	null
Watertable Depth - Annual Min:	null
Drainage Class - Dominant:	Well drained
Hydrologic Group - Dominant:	C - Soils in this group have moderately high runoff potential when thoroughly wet. Water transmission through the soil is somewhat restricted.
Major components are printed below	
Crider(85%)	
horizon H1(0cm to 8cm)	Silt loam
horizon H2(8cm to 56cm)	Silty clay loam
horizon H3(56cm to 188cm)	Silty clay

### Map Unit CrD2 (2.01%)

Map Unit Name:	Crider silt loam, 12 to 20 percent slopes, eroded
Bedrock Depth - Min:	null
Watertable Depth - Annual Min:	null
Drainage Class - Dominant:	Well drained
Hydrologic Group - Dominant:	B - Soils in this group have moderately low runoff potential when thoroughly wet. Water transmission through the soil is unimpeded.
Major components are printed below	
Crider(90%)	
horizon H1(0cm to 13cm)	Silt loam
horizon H2(13cm to 61cm)	Silt loam
horizon H3(61cm to 155cm)	Silty clay loam
horizon H4(155cm to 196cm)	Silty clay

### Map Unit CsC (2.28%)

Map Unit Name:	Crider-Pembroke silt loams, 6 to 12 percent slopes
Bedrock Depth - Min:	null
Watertable Depth - Annual Min:	null

## Soil Information

Drainage Class - Dominant:	Well drained
Hydrologic Group - Dominant:	B - Soils in this group have moderately low runoff potential when thoroughly wet. Water transmission through the soil is unimpeded.
Major components are printed below	
Crider(60%)	
horizon H1(0cm to 20cm)	Silt loam
horizon H2(20cm to 102cm)	Silty clay loam
horizon H3(102cm to 168cm)	Silty clay loam
Pembroke(30%)	
horizon H1(0cm to 15cm)	Silt loam
horizon H2(15cm to 86cm)	Silty clay loam
horizon H3(86cm to 117cm)	Silty clay
horizon H4(117cm to 190cm)	Clay

---

### Map Unit CtE3 (1.54%)

Map Unit Name:	Crider-Baxter complex, 12 to 30 percent slopes, severely eroded
Bedrock Depth - Min:	null
Watertable Depth - Annual Min:	null
Drainage Class - Dominant:	Well drained
Hydrologic Group - Dominant:	C - Soils in this group have moderately high runoff potential when thoroughly wet. Water transmission through the soil is somewhat restricted.
Major components are printed below	
Crider(50%)	
horizon H1(0cm to 8cm)	Silt loam
horizon H2(8cm to 56cm)	Silty clay loam
horizon H3(56cm to 188cm)	Silty clay
Baxter(30%)	
horizon H1(0cm to 13cm)	Gravelly silt loam
horizon H2(13cm to 30cm)	Gravelly silty clay loam
horizon H3(30cm to 155cm)	Gravelly clay
horizon H4(155cm to 206cm)	Very gravelly clay

---

### Map Unit EkB (2.58%)

Map Unit Name:	Elk silt loam, 1 to 4 percent slopes, rarely flooded
Bedrock Depth - Min:	null
Watertable Depth - Annual Min:	null
Drainage Class - Dominant:	Well drained
Hydrologic Group - Dominant:	B - Soils in this group have moderately low runoff potential when thoroughly wet. Water transmission through the soil is unimpeded.
Major components are printed below	
Elk(90%)	
horizon H1(0cm to 20cm)	Silt loam
horizon H2(20cm to 38cm)	Silt loam
horizon H3(38cm to 180cm)	Silt loam
horizon H4(180cm to 206cm)	Silt loam



## Soil Information

### Map Unit FvD2 (0.59%)

Map Unit Name:	Fredonia-Vertrees complex, 12 to 20 percent slopes, eroded, rocky
Bedrock Depth - Min:	79cm
Watertable Depth - Annual Min:	null
Drainage Class - Dominant:	Well drained
Hydrologic Group - Dominant:	D - Soils in this group have high runoff potential when thoroughly wet. Water movement through the soil is restricted or very restricted.
Major components are printed below	
Fredonia(47%)	
horizon H1(0cm to 10cm)	Silt loam
horizon H2(10cm to 69cm)	Silty clay
horizon H3(69cm to 79cm)	Clay
horizon R(79cm to 104cm)	Bedrock
Vertrees(40%)	
horizon H1(0cm to 8cm)	Silt loam
horizon H2(8cm to 38cm)	Silty clay
horizon H3(38cm to 203cm)	Clay

### Map Unit He (0.33%)

Map Unit Name:	Henshaw silt loam
Bedrock Depth - Min:	null
Watertable Depth - Annual Min:	40cm
Drainage Class - Dominant:	Somewhat poorly drained
Hydrologic Group - Dominant:	C/D - These soils have moderately high runoff potential when drained and high runoff potential when undrained.
Major components are printed below	
Henshaw(85%)	
horizon H1(0cm to 22cm)	Silt loam
horizon H2(23cm to 104cm)	Silty clay loam
horizon H3(104cm to 208cm)	Silt loam

### Map Unit Ld (1.1%)

Map Unit Name:	Lindside silt loam, occasionally flooded
Bedrock Depth - Min:	null
Watertable Depth - Annual Min:	61cm
Drainage Class - Dominant:	Moderately well drained
Hydrologic Group - Dominant:	C - Soils in this group have moderately high runoff potential when thoroughly wet. Water transmission through the soil is somewhat restricted.
Major components are printed below	
Lindside(90%)	
horizon H1(0cm to 20cm)	Silt loam
horizon H2(20cm to 91cm)	Silt loam
horizon H3(91cm to 152cm)	Silt loam

### Map Unit Ln (0.21%)

Map Unit Name:	Lindside silt loam
----------------	--------------------

## Soil Information

Bedrock Depth - Min:	null
Watertable Depth - Annual Min:	46cm
Drainage Class - Dominant:	Moderately well drained
Hydrologic Group - Dominant:	B/D - These soils have moderately low runoff potential when drained and high runoff potential when undrained.
Major components are printed below	
Lindside(90%)	
horizon H1(0cm to 18cm)	Silt loam
horizon H2(18cm to 119cm)	Silt loam
horizon H3(119cm to 152cm)	Silty clay loam

---

### Map Unit Lp (0.33%)

Map Unit Name:	Lindside silt loam, ponded
Bedrock Depth - Min:	null
Watertable Depth - Annual Min:	61cm
Drainage Class - Dominant:	Moderately well drained
Hydrologic Group - Dominant:	C - Soils in this group have moderately high runoff potential when thoroughly wet. Water transmission through the soil is somewhat restricted.
Major components are printed below	
Lindside(90%)	
horizon H1(0cm to 20cm)	Silt loam
horizon H2(20cm to 91cm)	Silt loam
horizon H3(91cm to 152cm)	Silt loam

---

### Map Unit LwE2 (0.25%)

Map Unit Name:	Lowell-Faywood complex, 12 to 30 percent slopes, eroded, very stony
Bedrock Depth - Min:	76cm
Watertable Depth - Annual Min:	null
Drainage Class - Dominant:	Well drained
Hydrologic Group - Dominant:	C - Soils in this group have moderately high runoff potential when thoroughly wet. Water transmission through the soil is somewhat restricted.
Major components are printed below	
Lowell(45%)	
horizon H1(0cm to 15cm)	Silt loam
horizon H2(15cm to 107cm)	Clay
horizon H3(107cm to 132cm)	Clay
horizon R(132cm to 157cm)	Bedrock
Faywood(30%)	
horizon H1(0cm to 15cm)	Silty clay loam
horizon H2(15cm to 76cm)	Clay
horizon R(76cm to 101cm)	Bedrock

---

### Map Unit Me (0.17%)

Map Unit Name:	Melvin silt loam, occasionally flooded
Bedrock Depth - Min:	null
Watertable Depth - Annual Min:	15cm

## Soil Information

Drainage Class - Dominant:	Poorly drained
Hydrologic Group - Dominant:	B/D - These soils have moderately low runoff potential when drained and high runoff potential when undrained.
Major components are printed below	
Melvin(92%)	
horizon H1(0cm to 15cm)	Silt loam
horizon H2(15cm to 53cm)	Silt loam
horizon H3(53cm to 157cm)	Silt loam

### Map Unit Ne (0.81%)

Map Unit Name:	Newark silt loam, occasionally flooded
Bedrock Depth - Min:	null
Watertable Depth - Annual Min:	40cm
Drainage Class - Dominant:	Somewhat poorly drained
Hydrologic Group - Dominant:	B/D - These soils have moderately low runoff potential when drained and high runoff potential when undrained.
Major components are printed below	
Newark(90%)	
horizon H1(0cm to 15cm)	Silt loam
horizon H2(15cm to 91cm)	Silt loam
horizon H3(91cm to 152cm)	Silt loam

### Map Unit NhB2 (5.85%)

Map Unit Name:	Nicholson silt loam, 2 to 6 percent slopes, eroded
Bedrock Depth - Min:	null
Watertable Depth - Annual Min:	51cm
Drainage Class - Dominant:	Moderately well drained
Hydrologic Group - Dominant:	C/D - These soils have moderately high runoff potential when drained and high runoff potential when undrained.
Major components are printed below	
Nicholson(85%)	
horizon H1(0cm to 20cm)	Silt loam
horizon H2(20cm to 63cm)	Silt loam
horizon H3(63cm to 164cm)	Silt loam
horizon H4(164cm to 183cm)	Silty clay loam

### Map Unit NhC3 (4.54%)

Map Unit Name:	Nicholson silt loam, 6 to 12 percent slopes, severely eroded
Bedrock Depth - Min:	null
Watertable Depth - Annual Min:	46cm
Drainage Class - Dominant:	Moderately well drained
Hydrologic Group - Dominant:	D - Soils in this group have high runoff potential when thoroughly wet. Water movement through the soil is restricted or very restricted.
Major components are printed below	
Nicholson(85%)	
horizon H1(0cm to 5cm)	Silt loam



## Soil Information

horizon H2(5cm to 41cm)	Silt loam
horizon H3(41cm to 127cm)	Silt loam
horizon H4(127cm to 183cm)	Silty clay loam

---

### Map Unit No (5.91%)

Map Unit Name:	Nolin silt loam, occasionally flooded
Bedrock Depth - Min:	null
Watertable Depth - Annual Min:	null
Drainage Class - Dominant:	Well drained
Hydrologic Group - Dominant:	B - Soils in this group have moderately low runoff potential when thoroughly wet. Water transmission through the soil is unimpeded.
Major components are printed below	
Nolin(92%)	
horizon H1(0cm to 20cm)	Silt loam
horizon H2(20cm to 152cm)	Silt loam
horizon H3(152cm to 203cm)	Loam

---

### Map Unit Np (0.73%)

Map Unit Name:	Nolin silt loam, ponded
Bedrock Depth - Min:	null
Watertable Depth - Annual Min:	null
Drainage Class - Dominant:	Well drained
Hydrologic Group - Dominant:	B - Soils in this group have moderately low runoff potential when thoroughly wet. Water transmission through the soil is unimpeded.
Major components are printed below	
Nolin(90%)	
horizon H1(0cm to 20cm)	Silt loam
horizon H2(20cm to 152cm)	Silt loam
horizon H3(152cm to 203cm)	Loam

---

### Map Unit OtB2 (1.23%)

Map Unit Name:	Otwood silt loam, 2 to 6 percent slopes, eroded
Bedrock Depth - Min:	null
Watertable Depth - Annual Min:	51cm
Drainage Class - Dominant:	Moderately well drained
Hydrologic Group - Dominant:	D - Soils in this group have high runoff potential when thoroughly wet. Water movement through the soil is restricted or very restricted.
Major components are printed below	
Otwood(95%)	
horizon H1(0cm to 13cm)	Silt loam
horizon H2(13cm to 51cm)	Silt loam
horizon H3(51cm to 168cm)	Silt loam
horizon H4(168cm to 198cm)	Silt loam

---

### Map Unit Pq (3.28%)

## Soil Information

Map Unit Name: Pits, quarry  
No more attributes available for this map unit

---

### Map Unit RcE (0.04%)

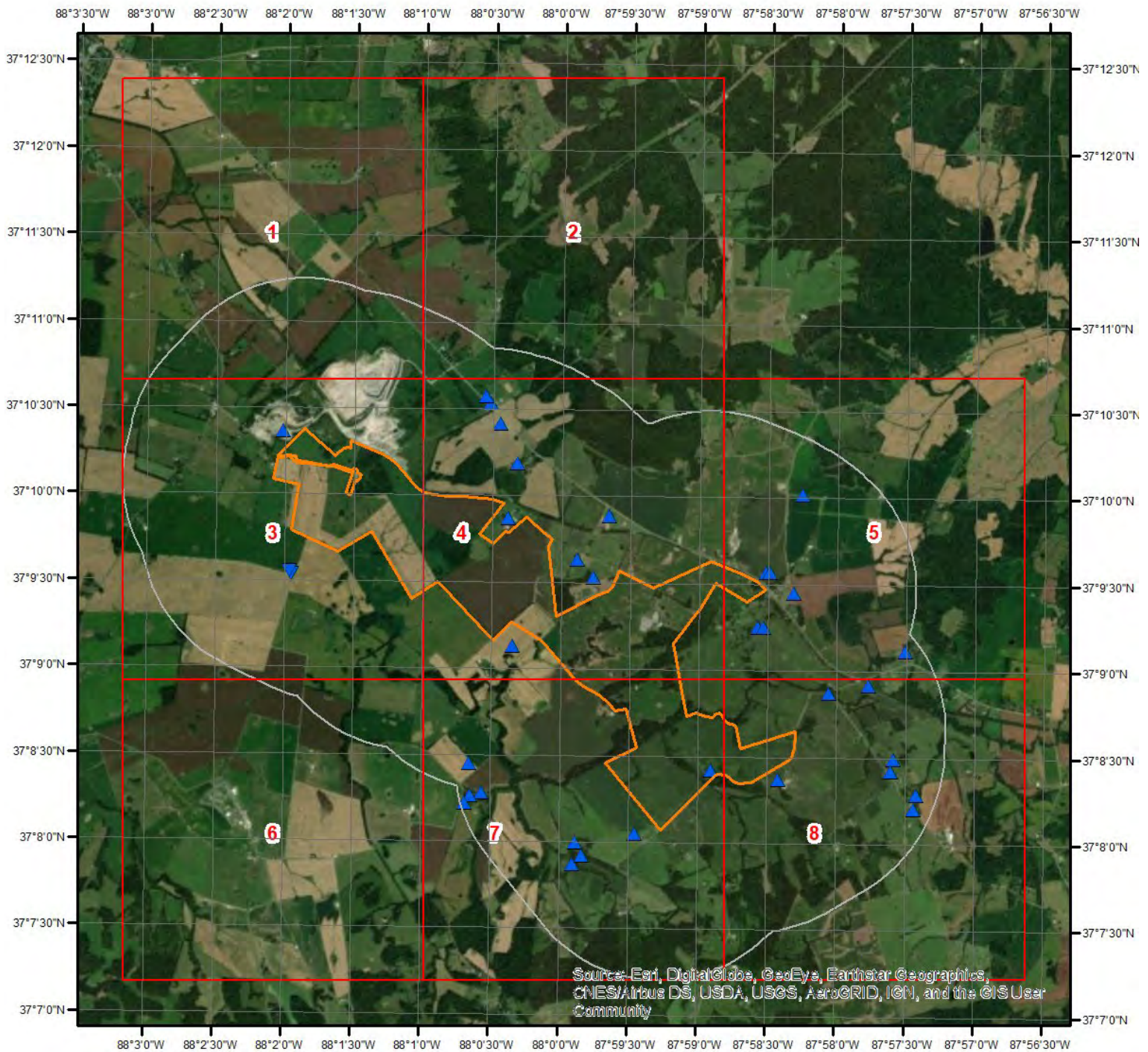
Map Unit Name: Rock outcrop-Cynthiana complex, 20 to 40 percent slopes  
Bedrock Depth - Min: 46cm  
Watertable Depth - Annual Min: null  
Drainage Class - Dominant: null  
Hydrologic Group - Dominant: null  
Major components are printed below  
Cynthiana(30%)  
    horizon H1(0cm to 10cm) Silty clay loam  
    horizon H2(10cm to 46cm) Flaggy clay  
    horizon R(46cm to 71cm) Unweathered bedrock

---

### Map Unit W (0.19%)

Map Unit Name: Water  
No more attributes available for this map unit

## Wells and Additional Sources



## Wells & Additional Sources

- ▲ Sites with Higher Elevation
- Sites with Same Elevation
- ▼ Sites with Lower Elevation
- Sites with Unknown Elevation



0 0.45 0.9 1.8 Miles

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## Wells and Additional Sources



### Wells & Additional Sources - Page 1

- ▲ Sites with Higher Elevation
- Sites with Same Elevation
- ▼ Sites with Lower Elevation
- Sites with Unknown Elevation

0 0.15 0.3 0.6 Miles



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## Wells and Additional Sources



### Wells & Additional Sources - Page 2

- ▲ Sites with Higher Elevation
- Sites with Same Elevation
- ▼ Sites with Lower Elevation
- Sites with Unknown Elevation

0 0.15 0.3 0.6 Miles



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## Wells and Additional Sources



### Wells & Additional Sources - Page 3

- ▲ Sites with Higher Elevation
- Sites with Same Elevation
- ▼ Sites with Lower Elevation
- Sites with Unknown Elevation

0 0.15 0.3 0.6 Miles



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## Wells and Additional Sources



### Wells & Additional Sources - Page 4

- ▲ Sites with Higher Elevation
- Sites with Same Elevation
- ▼ Sites with Lower Elevation
- Sites with Unknown Elevation

0 0.15 0.3 0.6 Miles



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## Wells and Additional Sources



### Wells & Additional Sources - Page 5

- ▲ Sites with Higher Elevation
- Sites with Same Elevation
- ▼ Sites with Lower Elevation
- Sites with Unknown Elevation

0 0.15 0.3 0.6 Miles



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## Wells and Additional Sources



### Wells & Additional Sources - Page 6

- ▲ Sites with Higher Elevation
- Sites with Same Elevation
- ▼ Sites with Lower Elevation
- Sites with Unknown Elevation

0 0.15 0.3 0.6 Miles

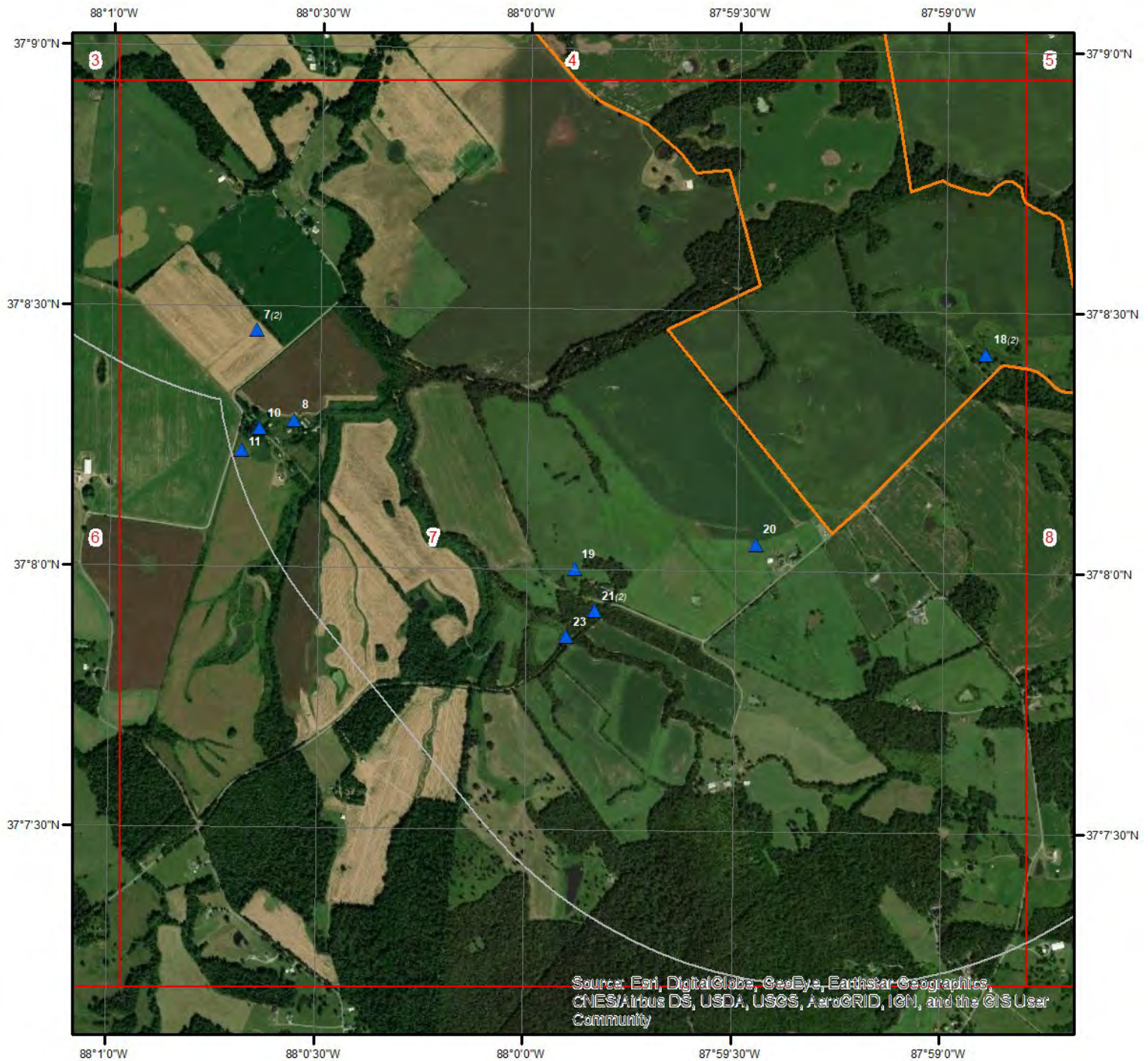


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## Wells and Additional Sources



### Wells & Additional Sources - Page 7

- ▲ Sites with Higher Elevation
- Sites with Same Elevation
- ▼ Sites with Lower Elevation
- Sites with Unknown Elevation

0 0.15 0.3 0.6 Miles



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## Wells and Additional Sources



### Wells & Additional Sources - Page 8

- ▲ Sites with Higher Elevation
- Sites with Same Elevation
- ▼ Sites with Lower Elevation
- Sites with Unknown Elevation

0 0.15 0.3 0.6 Miles



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## Wells and Additional Sources Summary

### Federal Sources

#### Public Water Systems Violations and Enforcement Data

Map Key	ID	Distance (ft)	Direction
No records found			

#### Safe Drinking Water Information System (SDWIS)

Map Key	ID	Distance (ft)	Direction
No records found			

#### USGS National Water Information System

Map Key	Monitoring Loc Identifier	Distance (ft)	Direction
3	USGS-370938087595301	951.21	NNE
4	USGS-370952088002301	375.79	NNW
5	USGS-370953087593901	1,956.70	NE
6	USGS-371011088001901	1,457.81	N
7	USGS-370827088003901	4,396.88	SSW
13	USGS-371032088003101	3,364.73	NNW
17	USGS-370934087582901	571.72	E
18	USGS-370825087585401	0.00	-
21	USGS-370755087595001	2,715.67	S
23	USGS-370752087595400	3,157.45	S
24	USGS-370932088015701	1,407.28	W
25	USGS-370933088015801	1,349.92	W
26	USGS-371001087581501	3,459.98	ENE
27	USGS-370822087582501	411.96	SE
28	USGS-370852087580300	1,777.51	ESE
30	USGS-370855087574601	3,037.58	ESE
31	USGS-370907087573001	4,792.00	E
33	USGS-370825087573601	3,498.72	ESE
34	USGS-370817087572501	4,576.31	ESE
35	USGS-370812087572601	4,678.66	ESE

### State Sources

#### Kentucky Groundwater Data Repository

Map Key	AKGWA No	Distance (ft)	Direction
1	60002065	614.14	SW
2	60002063	654.51	NE
7	40001277	4,396.88	SSW
8	00067013	4,464.69	SSW
10	00067012	4,879.56	SSW
11	30007530	5,150.96	SSW
12	30007306	997.89	E
14	60001941	1,082.02	E
15	30007324	3,586.45	NNW
16	60002032	456.68	E
18	40004596	0.00	-
19	60002029	2,589.32	S



## Wells and Additional Sources Summary

20	60002072	769.78	SSE
21	40002034	2,715.67	S
22	60002031	982.90	E
32	30007293	3,509.81	ESE

### Oil and Gas Wells

Map Key	API	Distance (ft)	Direction
9	16033001760000	2,671.70	NNW
29		480.75	NW

### Public Water Supply Wells

Map Key	ID	Distance (ft)	Direction
No records found			

## Wells and Additional Sources Detail Report

### USGS National Water Information System

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
3	NNE	0.18	951.21	460.12	FED USGS

Organiz Identifier:	USGS-KY	Formation Type:	
Organiz Name:	USGS Kentucky Water Science Center	Aquifer Name:	
Well Depth:	200	Aquifer Type:	
Well Depth Unit:	ft	Country Code:	US
Well Hole Depth:	200	Provider Name:	NWIS
W Hole Depth Unit:	ft	County:	CALDWELL
Construction Date:		Latitude:	37.1606068
Source Map Scale:	24000	Longitude:	-87.9980744
Monitoring Loc Name:	I08A0037		
Monitoring Loc Identifier:	USGS-370938087595301		
Monitoring Loc Type:	Well		
Monitoring Loc Desc:			
HUC Eight Digit Code:	05130205		
Drainage Area:			
Drainage Area Unit:			
Contrib Drainage Area:			
Contrib Drainage Area Unit:			
Horizontal Accuracy:	1		
Horizontal Accuracy Unit:	seconds		
Horizontal Collection Mthd:	Interpolated from MAP.		
Horiz Coord Refer System:	NAD83		
Vertical Measure:	430		
Vertical Measure Unit:	feet		
Vertical Accuracy:	5		
Vertical Accuracy Unit:	feet		
Vertical Collection Mthd:	Interpolated from topographic map.		
Vert Coord Refer System:	NGVD29		

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
4	NNW	0.07	375.79	481.20	FED USGS

Organiz Identifier:	USGS-KY	Formation Type:	
Organiz Name:	USGS Kentucky Water Science Center	Aquifer Name:	
Well Depth:	200	Aquifer Type:	
Well Depth Unit:	ft	Country Code:	US
Well Hole Depth:	200	Provider Name:	NWIS
W Hole Depth Unit:	ft	County:	CALDWELL

## Wells and Additional Sources Detail Report

Construction Date:	1948	Latitude:	37.1644958
Source Map Scale:	24000	Longitude:	-88.006408
Monitoring Loc Name:	I07B0029		
Monitoring Loc Identifier:	USGS-370952088002301		
Monitoring Loc Type:	Well		
Monitoring Loc Desc:			
HUC Eight Digit Code:	05130205		
Drainage Area:			
Drainage Area Unit:			
Contrib Drainage Area:			
Contrib Drainage Area Unit:			
Horizontal Accuracy:	1		
Horizontal Accuracy Unit:	seconds		
Horizontal Collection Mthd:	Interpolated from MAP.		
Horiz Coord Refer System:	NAD83		
Vertical Measure:	482		
Vertical Measure Unit:	feet		
Vertical Accuracy:	5		
Vertical Accuracy Unit:	feet		
Vertical Collection Mthd:	Interpolated from topographic map.		
Vert Coord Refer System:	NGVD29		

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
5	NE	0.37	1,956.70	463.79	FED USGS

Organiz Identifier:	USGS-KY	Formation Type:	
Organiz Name:	USGS Kentucky Water Science Center	Aquifer Name:	
Well Depth:	33	Aquifer Type:	
Well Depth Unit:	ft	Country Code:	US
Well Hole Depth:	33	Provider Name:	NWIS
W Hole Depth Unit:	ft	County:	CALDWELL
Construction Date:		Latitude:	37.1647734
Source Map Scale:	24000	Longitude:	-87.9941853
Monitoring Loc Name:	I08A0035		
Monitoring Loc Identifier:	USGS-370953087593901		
Monitoring Loc Type:	Well		
Monitoring Loc Desc:			
HUC Eight Digit Code:	05130205		
Drainage Area:			
Drainage Area Unit:			
Contrib Drainage Area:			
Contrib Drainage Area Unit:			
Horizontal Accuracy:	1		
Horizontal Accuracy Unit:	seconds		



## Wells and Additional Sources Detail Report

Horizontal Collection Interpolated from MAP.  
Mthd:  
Horiz Coord Refer NAD83  
System:  
Vertical Measure: 458  
Vertical Measure Unit: feet  
Vertical Accuracy: 5  
Vertical Accuracy Unit: feet  
Vertical Collection Mthd: Interpolated from topographic map.  
Vert Coord Refer System: NGVD29

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
6	N	0.28	1,457.81	540.48	FED USGS

Organiz Identifier:	USGS-KY	Formation Type:	
Organiz Name:	USGS Kentucky Water Science Center	Aquifer Name:	
Well Depth:	175	Aquifer Type:	
Well Depth Unit:	ft	Country Code:	US
Well Hole Depth:	175	Provider Name:	NWIS
W Hole Depth Unit:	ft	County:	CALDWELL
Construction Date:	1938	Latitude:	37.1697735
Source Map Scale:	24000	Longitude:	-88.0052968
Monitoring Loc Name:	I07B0005		
Monitoring Loc Identifier:	USGS-371011088001901		
Monitoring Loc Type:	Well		
Monitoring Loc Desc:			
HUC Eight Digit Code:	05130205		
Drainage Area:			
Drainage Area Unit:			
Contrib Drainage Area:			
Contrib Drainage Area Unit:			
Horizontal Accuracy:	1		
Horizontal Accuracy Unit:	seconds		
Horizontal Collection	Interpolated from MAP.		
Mthd:			
Horiz Coord Refer	NAD83		
System:			
Vertical Measure:	485		
Vertical Measure Unit:	feet		
Vertical Accuracy:	5		
Vertical Accuracy Unit:	feet		
Vertical Collection Mthd:	Interpolated from topographic map.		
Vert Coord Refer System:	NGVD29		

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
7	SSW	0.83	4,396.88	440.00	FED USGS

## Wells and Additional Sources Detail Report

Organiz Identifier:	USGS-KY	Formation Type:	St. Louis Limestone
Organiz Name:	USGS Kentucky Water Science Center	Aquifer Name:	
Well Depth:	200	Aquifer Type:	
Well Depth Unit:	ft	Country Code:	US
Well Hole Depth:	200	Provider Name:	NWIS
W Hole Depth Unit:	ft	County:	CALDWELL
Construction Date:	1946	Latitude:	37.1408849
Source Map Scale:	24000	Longitude:	-88.010853
Monitoring Loc Name:	I07B0028		
Monitoring Loc Identifier:	USGS-370827088003901		
Monitoring Loc Type:	Well		
Monitoring Loc Desc:			
HUC Eight Digit Code:	05130205		
Drainage Area:			
Drainage Area Unit:			
Contrib Drainage Area:			
Contrib Drainage Area Unit:			
Horizontal Accuracy:	1		
Horizontal Accuracy Unit:	seconds		
Horizontal Collection Mthd:	Interpolated from MAP.		
Horiz Coord Refer System:	NAD83		
Vertical Measure:	453.00		
Vertical Measure Unit:	feet		
Vertical Accuracy:	5		
Vertical Accuracy Unit:	feet		
Vertical Collection Mthd:	Interpolated from topographic map.		
Vert Coord Refer System:	NGVD29		

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
13	NNW	0.64	3,364.73	522.06	FED USGS

Organiz Identifier:	USGS-KY	Formation Type:	
Organiz Name:	USGS Kentucky Water Science Center	Aquifer Name:	
Well Depth:	65.5	Aquifer Type:	
Well Depth Unit:	ft	Country Code:	US
Well Hole Depth:	65.5	Provider Name:	NWIS
W Hole Depth Unit:	ft	County:	CALDWELL
Construction Date:		Latitude:	37.1756069
Source Map Scale:	24000	Longitude:	-88.0086302
Monitoring Loc Name:	I07B0032		
Monitoring Loc Identifier:	USGS-371032088003101		
Monitoring Loc Type:	Well		
Monitoring Loc Desc:			
HUC Eight Digit Code:	05130205		

## Wells and Additional Sources Detail Report

Drainage Area:  
Drainage Area Unit:  
Contrib Drainage Area:  
Contrib Drainage Area Unit:  
Horizontal Accuracy: 1  
Horizontal Accuracy Unit: seconds  
Horizontal Collection Mthd: Interpolated from MAP.  
Horizontal Coord Refer System: NAD83  
Vertical Measure: 522  
Vertical Measure Unit: feet  
Vertical Accuracy: 5  
Vertical Accuracy Unit: feet  
Vertical Collection Mthd: Interpolated from topographic map.  
Vert Coord Refer System: NGVD29

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
17	E	0.11	571.72	469.48	FED USGS

Organiz Identifier:	USGS-KY	Formation Type:	
Organiz Name:	USGS Kentucky Water Science Center	Aquifer Name:	
Well Depth:	32	Aquifer Type:	
Well Depth Unit:	ft	Country Code:	US
Well Hole Depth:	32	Provider Name:	NWIS
W Hole Depth Unit:	ft	County:	CALDWELL
Construction Date:	1948	Latitude:	37.1594953
Source Map Scale:	24000	Longitude:	-87.9747402
Monitoring Loc Name:	I08A0004		
Monitoring Loc Identifier:	USGS-370934087582901		
Monitoring Loc Type:	Well		
Monitoring Loc Desc:			
HUC Eight Digit Code:	05130205		
Drainage Area:			
Drainage Area Unit:			
Contrib Drainage Area:			
Contrib Drainage Area Unit:			
Horizontal Accuracy:	1		
Horizontal Accuracy Unit:	seconds		
Horizontal Collection Mthd:	Interpolated from MAP.		
Horizontal Coord Refer System:	NAD83		
Vertical Measure:	460		
Vertical Measure Unit:	feet		
Vertical Accuracy:	5		
Vertical Accuracy Unit:	feet		



## Wells and Additional Sources Detail Report

Vertical Collection Mthd: Interpolated from topographic map.  
Vert Coord Refer System: NGVD29

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
18	-	0.00	0.00	492.24	FED USGS

Organiz Identifier:	USGS-KY	Formation Type:	Ste. Genevieve-St Louis Limestones, Undifferentiated
Organiz Name:	USGS Kentucky Water Science Center	Aquifer Name:	
Well Depth:	240	Aquifer Type:	
Well Depth Unit:	ft	Country Code:	US
Well Hole Depth:	240	Provider Name:	NWIS
W Hole Depth Unit:	ft	County:	CALDWELL
Construction Date:	1969	Latitude:	37.1403289
Source Map Scale:	24000	Longitude:	-87.9816851
Monitoring Loc Name:	I08A0018		
Monitoring Loc Identifier:	USGS-370825087585401		
Monitoring Loc Type:	Well		
Monitoring Loc Desc:			
HUC Eight Digit Code:	05130205		
Drainage Area:			
Drainage Area Unit:			
Contrib Drainage Area:			
Contrib Drainage Area Unit:			
Horizontal Accuracy:	1		
Horizontal Accuracy Unit:	seconds		
Horizontal Collection Mthd:	Interpolated from MAP.		
Horiz Coord Refer System:	NAD83		
Vertical Measure:	495		
Vertical Measure Unit:	feet		
Vertical Accuracy:	5		
Vertical Accuracy Unit:	feet		
Vertical Collection Mthd:	Interpolated from topographic map.		
Vert Coord Refer System:	NGVD29		

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
21	S	0.51	2,715.67	484.40	FED USGS

Organiz Identifier:	USGS-KY	Formation Type:	
Organiz Name:	USGS Kentucky Water Science Center	Aquifer Name:	
Well Depth:	90	Aquifer Type:	
Well Depth Unit:	ft	Country Code:	US
Well Hole Depth:	90	Provider Name:	NWIS
W Hole Depth Unit:	ft	County:	CALDWELL

## Wells and Additional Sources Detail Report

Construction Date:	1963	Latitude:	37.1319959
Source Map Scale:	24000	Longitude:	-87.9972414
Monitoring Loc Name:	I08A0019		
Monitoring Loc Identifier:	USGS-370755087595001		
Monitoring Loc Type:	Well		
Monitoring Loc Desc:			
HUC Eight Digit Code:	05130205		
Drainage Area:			
Drainage Area Unit:			
Contrib Drainage Area:			
Contrib Drainage Area Unit:			
Horizontal Accuracy:	1		
Horizontal Accuracy Unit:	seconds		
Horizontal Collection Mthd:	Interpolated from MAP.		
Horiz Coord Refer System:	NAD83		
Vertical Measure:	485		
Vertical Measure Unit:	feet		
Vertical Accuracy:	5		
Vertical Accuracy Unit:	feet		
Vertical Collection Mthd:	Interpolated from topographic map.		
Vert Coord Refer System:	NGVD29		

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
23	S	0.60	3,157.45	462.87	FED USGS

Organiz Identifier:	USGS-KY	Formation Type:	
Organiz Name:	USGS Kentucky Water Science Center	Aquifer Name:	
Well Depth:		Aquifer Type:	
Well Depth Unit:		Country Code:	US
Well Hole Depth:		Provider Name:	NWIS
W Hole Depth Unit:		County:	CALDWELL
Construction Date:		Latitude:	37.1311626
Source Map Scale:		Longitude:	-87.9983525
Monitoring Loc Name:	MCELROY CREEK		
Monitoring Loc Identifier:	USGS-370752087595400		
Monitoring Loc Type:	Stream		
Monitoring Loc Desc:			
HUC Eight Digit Code:	05130205		
Drainage Area:			
Drainage Area Unit:			
Contrib Drainage Area:			
Contrib Drainage Area Unit:			
Horizontal Accuracy:	Unknown		
Horizontal Accuracy Unit:	Unknown		

## Wells and Additional Sources Detail Report

Horizontal Collection Interpolated from MAP.  
Mthd:  
Horiz Coord Refer NAD83  
System:  
Vertical Measure:  
Vertical Measure Unit:  
Vertical Accuracy:  
Vertical Accuracy Unit:  
Vertical Collection Mthd:  
Vert Coord Refer System:

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
24	W	0.27	1,407.28	420.87	FED USGS

Organiz Identifier:	USGS-KY	Formation Type:	
Organiz Name:	USGS Kentucky Water Science Center	Aquifer Name:	
Well Depth:	45	Aquifer Type:	
Well Depth Unit:	ft	Country Code:	US
Well Hole Depth:	45	Provider Name:	NWIS
W Hole Depth Unit:	ft	County:	LYON
Construction Date:		Latitude:	37.1589406
Source Map Scale:	24000	Longitude:	-88.0325204
Monitoring Loc Name:	I07B0022		
Monitoring Loc Identifier:	USGS-370932088015701		
Monitoring Loc Type:	Well		
Monitoring Loc Desc:			
HUC Eight Digit Code:	05130205		
Drainage Area:			
Drainage Area Unit:			
Contrib Drainage Area:			
Contrib Drainage Area Unit:			
Horizontal Accuracy:	1		
Horizontal Accuracy Unit:	seconds		
Horizontal Collection	Interpolated from MAP.		
Mthd:			
Horiz Coord Refer	NAD83		
System:			
Vertical Measure:	424		
Vertical Measure Unit:	feet		
Vertical Accuracy:	5		
Vertical Accuracy Unit:	feet		
Vertical Collection Mthd:	Interpolated from topographic map.		
Vert Coord Refer System:	NGVD29		

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
25	W	0.26	1,349.92	422.13	FED USGS



## Wells and Additional Sources Detail Report

Organiz Identifier:	USGS-KY	Formation Type:	
Organiz Name:	USGS Kentucky Water Science Center	Aquifer Name:	
Well Depth:	104	Aquifer Type:	
Well Depth Unit:	ft	Country Code:	US
Well Hole Depth:	104	Provider Name:	NWIS
W Hole Depth Unit:	ft	County:	LYON
Construction Date:		Latitude:	37.1592184
Source Map Scale:	24000	Longitude:	-88.0327982
Monitoring Loc Name:	I07B0023		
Monitoring Loc Identifier:	USGS-370933088015801		
Monitoring Loc Type:	Well		
Monitoring Loc Desc:			
HUC Eight Digit Code:	05130205		
Drainage Area:			
Drainage Area Unit:			
Contrib Drainage Area:			
Contrib Drainage Area Unit:			
Horizontal Accuracy:	1		
Horizontal Accuracy Unit:	seconds		
Horizontal Collection Mthd:	Interpolated from MAP.		
Horiz Coord Refer System:	NAD83		
Vertical Measure:	440		
Vertical Measure Unit:	feet		
Vertical Accuracy:	5		
Vertical Accuracy Unit:	feet		
Vertical Collection Mthd:	Interpolated from topographic map.		
Vert Coord Refer System:	NGVD29		

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
26	ENE	0.66	3,459.98	476.16	FED USGS

Organiz Identifier:	USGS-KY	Formation Type:	
Organiz Name:	USGS Kentucky Water Science Center	Aquifer Name:	
Well Depth:	210	Aquifer Type:	
Well Depth Unit:	ft	Country Code:	US
Well Hole Depth:	210	Provider Name:	NWIS
W Hole Depth Unit:	ft	County:	CALDWELL
Construction Date:		Latitude:	37.1669952
Source Map Scale:	24000	Longitude:	-87.9708511
Monitoring Loc Name:	I08A0036		
Monitoring Loc Identifier:	USGS-371001087581501		
Monitoring Loc Type:	Well		
Monitoring Loc Desc:			
HUC Eight Digit Code:	05130205		

## Wells and Additional Sources Detail Report

Drainage Area:  
Drainage Area Unit:  
Contrib Drainage Area:  
Contrib Drainage Area Unit:  
Horizontal Accuracy: 1  
Horizontal Accuracy Unit: seconds  
Horizontal Collection Mthd: Interpolated from MAP.  
Horiz Coord Refer System: NAD83  
Vertical Measure: 477  
Vertical Measure Unit: feet  
Vertical Accuracy: 5  
Vertical Accuracy Unit: feet  
Vertical Collection Mthd: Interpolated from topographic map.  
Vert Coord Refer System: NGVD29

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
27	SE	0.08	411.96	510.61	FED USGS

Organiz Identifier:	USGS-KY	Formation Type:	
Organiz Name:	USGS Kentucky Water Science Center	Aquifer Name:	
Well Depth:	250	Aquifer Type:	
Well Depth Unit:	ft	Country Code:	US
Well Hole Depth:	250	Provider Name:	NWIS
W Hole Depth Unit:	ft	County:	CALDWELL
Construction Date:	1969	Latitude:	37.1394954
Source Map Scale:	24000	Longitude:	-87.9736293
Monitoring Loc Name:	I08A0021		
Monitoring Loc Identifier:	USGS-370822087582501		
Monitoring Loc Type:	Well		
Monitoring Loc Desc:			
HUC Eight Digit Code:	05130205		
Drainage Area:			
Drainage Area Unit:			
Contrib Drainage Area:			
Contrib Drainage Area Unit:			
Horizontal Accuracy:	1		
Horizontal Accuracy Unit:	seconds		
Horizontal Collection Mthd:	Interpolated from MAP.		
Horiz Coord Refer System:	NAD83		
Vertical Measure:	510		
Vertical Measure Unit:	feet		
Vertical Accuracy:	5		
Vertical Accuracy Unit:	feet		

## Wells and Additional Sources Detail Report

Vertical Collection Mthd: Interpolated from topographic map.  
Vert Coord Refer System: NGVD29

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
28	ESE	0.34	1,777.51	459.98	FED USGS

Organiz Identifier:	USGS-KY	Formation Type:	
Organiz Name:	USGS Kentucky Water Science Center	Aquifer Name:	
Well Depth:		Aquifer Type:	
Well Depth Unit:		Country Code:	US
Well Hole Depth:		Provider Name:	NWIS
W Hole Depth Unit:		County:	CALDWELL
Construction Date:		Latitude:	37.1478286
Source Map Scale:		Longitude:	-87.9675179
Monitoring Loc Name:	SKINFRAME CREEK NEAR CRIDER, KY		
Monitoring Loc Identifier:	USGS-370852087580300		
Monitoring Loc Type:	Stream		
Monitoring Loc Desc:			
HUC Eight Digit Code:	05130205		
Drainage Area:			
Drainage Area Unit:			
Contrib Drainage Area:			
Contrib Drainage Area Unit:			
Horizontal Accuracy:	Unknown		
Horizontal Accuracy Unit:	Unknown		
Horizontal Collection Mthd:	Interpolated from MAP.		
Horiz Coord Refer System:	NAD83		
Vertical Measure:			
Vertical Measure Unit:			
Vertical Accuracy:			
Vertical Accuracy Unit:			
Vertical Collection Mthd:			
Vert Coord Refer System:			

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
30	ESE	0.58	3,037.58	491.07	FED USGS

Organiz Identifier:	USGS-KY	Formation Type:	
Organiz Name:	USGS Kentucky Water Science Center	Aquifer Name:	
Well Depth:	76	Aquifer Type:	
Well Depth Unit:	ft	Country Code:	US
Well Hole Depth:	76	Provider Name:	NWIS
W Hole Depth Unit:	ft	County:	CALDWELL



## Wells and Additional Sources Detail Report

Construction Date:	1964	Latitude:	37.1486618
Source Map Scale:	24000	Longitude:	-87.9627955
Monitoring Loc Name:	I08A0016		
Monitoring Loc Identifier:	USGS-370855087574601		
Monitoring Loc Type:	Well		
Monitoring Loc Desc:			
HUC Eight Digit Code:	05130205		
Drainage Area:			
Drainage Area Unit:			
Contrib Drainage Area:			
Contrib Drainage Area Unit:			
Horizontal Accuracy:	1		
Horizontal Accuracy Unit:	seconds		
Horizontal Collection Mthd:	Interpolated from MAP.		
Horiz Coord Refer System:	NAD83		
Vertical Measure:	492		
Vertical Measure Unit:	feet		
Vertical Accuracy:	5		
Vertical Accuracy Unit:	feet		
Vertical Collection Mthd:	Interpolated from topographic map.		
Vert Coord Refer System:	NGVD29		

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
31	E	0.91	4,792.00	500.86	FED USGS

Organiz Identifier:	USGS-KY	Formation Type:	
Organiz Name:	USGS Kentucky Water Science Center	Aquifer Name:	
Well Depth:	100	Aquifer Type:	
Well Depth Unit:	ft	Country Code:	US
Well Hole Depth:	100	Provider Name:	NWIS
W Hole Depth Unit:	ft	County:	CALDWELL
Construction Date:		Latitude:	37.1519951
Source Map Scale:	24000	Longitude:	-87.9583508
Monitoring Loc Name:	I08A0034		
Monitoring Loc Identifier:	USGS-370907087573001		
Monitoring Loc Type:	Well		
Monitoring Loc Desc:			
HUC Eight Digit Code:	05130205		
Drainage Area:			
Drainage Area Unit:			
Contrib Drainage Area:			
Contrib Drainage Area Unit:			
Horizontal Accuracy:	1		
Horizontal Accuracy Unit:	seconds		

## Wells and Additional Sources Detail Report

Horizontal Collection Interpolated from MAP.  
Mthd:  
Horiz Coord Refer NAD83  
System:  
Vertical Measure: 502  
Vertical Measure Unit: feet  
Vertical Accuracy: 5  
Vertical Accuracy Unit: feet  
Vertical Collection Mthd: Interpolated from topographic map.  
Vert Coord Refer System: NGVD29

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
33	ESE	0.66	3,498.72	514.53	FED USGS

Organiz Identifier:	USGS-KY	Formation Type:	
Organiz Name:	USGS Kentucky Water Science Center	Aquifer Name:	
Well Depth:	109	Aquifer Type:	
Well Depth Unit:	ft	Country Code:	US
Well Hole Depth:	109	Provider Name:	NWIS
W Hole Depth Unit:	ft	County:	CALDWELL
Construction Date:	1966	Latitude:	37.1403285
Source Map Scale:	24000	Longitude:	-87.9600177
Monitoring Loc Name:	I08A0030		
Monitoring Loc Identifier:	USGS-370825087573601		
Monitoring Loc Type:	Well		
Monitoring Loc Desc:			
HUC Eight Digit Code:	05130205		
Drainage Area:			
Drainage Area Unit:			
Contrib Drainage Area:			
Contrib Drainage Area Unit:			
Horizontal Accuracy:	1		
Horizontal Accuracy Unit:	seconds		
Horizontal Collection	Interpolated from MAP.		
Mthd:			
Horiz Coord Refer	NAD83		
System:			
Vertical Measure:	518		
Vertical Measure Unit:	feet		
Vertical Accuracy:	5		
Vertical Accuracy Unit:	feet		
Vertical Collection Mthd:	Interpolated from topographic map.		
Vert Coord Refer System:	NGVD29		

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
34	ESE	0.87	4,576.31	521.88	FED USGS

## Wells and Additional Sources Detail Report

Organiz Identifier:	USGS-KY	Formation Type:	
Organiz Name:	USGS Kentucky Water Science Center	Aquifer Name:	
Well Depth:	150	Aquifer Type:	
Well Depth Unit:	ft	Country Code:	US
Well Hole Depth:	150	Provider Name:	NWIS
W Hole Depth Unit:	ft	County:	CALDWELL
Construction Date:	1968	Latitude:	37.1381062
Source Map Scale:	24000	Longitude:	-87.956962
Monitoring Loc Name:	I08A0029		
Monitoring Loc Identifier:	USGS-370817087572501		
Monitoring Loc Type:	Well		
Monitoring Loc Desc:			
HUC Eight Digit Code:	05130205		
Drainage Area:			
Drainage Area Unit:			
Contrib Drainage Area:			
Contrib Drainage Area Unit:			
Horizontal Accuracy:	1		
Horizontal Accuracy Unit:	seconds		
Horizontal Collection Mthd:	Interpolated from MAP.		
Horiz Coord Refer System:	NAD83		
Vertical Measure:	540		
Vertical Measure Unit:	feet		
Vertical Accuracy:	5		
Vertical Accuracy Unit:	feet		
Vertical Collection Mthd:	Interpolated from topographic map.		
Vert Coord Refer System:	NGVD29		

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
35	ESE	0.89	4,678.66	520.83	FED USGS

Organiz Identifier:	USGS-KY	Formation Type:	
Organiz Name:	USGS Kentucky Water Science Center	Aquifer Name:	
Well Depth:	75	Aquifer Type:	
Well Depth Unit:	ft	Country Code:	US
Well Hole Depth:	75	Provider Name:	NWIS
W Hole Depth Unit:	ft	County:	CALDWELL
Construction Date:	1973	Latitude:	37.1367173
Source Map Scale:	24000	Longitude:	-87.9572398
Monitoring Loc Name:	I08A0028		
Monitoring Loc Identifier:	USGS-370812087572601		
Monitoring Loc Type:	Well		
Monitoring Loc Desc:			
HUC Eight Digit Code:	05130205		



## Wells and Additional Sources Detail Report

Drainage Area:  
Drainage Area Unit:  
Contrib Drainage Area:  
Contrib Drainage Area Unit:  
Horizontal Accuracy: 1  
Horizontal Accuracy Unit: seconds  
Horizontal Collection Method: Interpolated from MAP.  
Mthd:  
Horiz Coord Refer System: NAD83  
Vertical Measure: 525  
Vertical Measure Unit: feet  
Vertical Accuracy: 5  
Vertical Accuracy Unit: feet  
Vertical Collection Method: Interpolated from topographic map.  
Vert Coord Refer System: NGVD29

### Kentucky Groundwater Data Repository

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
1	SW	0.12	614.14	447.48	WATER WELLS

AKGWA No:	60002065	Surface Elev:	
ALT ID:		County:	Caldwell
Site Name:		Quad Name:	Fredonia
Type:	W	Latitude:	37.152222
Usage:	Agriculture - Livestock Watering	Longitude:	-88.005833
Physiograph Region:		Lat Long Method:	

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
2	NE	0.12	654.51	464.62	WATER WELLS

AKGWA No:	60002063	Surface Elev:	
ALT ID:		County:	Caldwell
Site Name:		Quad Name:	Crider
Type:	W	Latitude:	37.158889
Usage:	Domestic - Single Household	Longitude:	-87.996111
Physiograph Region:		Lat Long Method:	

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
7	SSW	0.83	4,396.88	440.00	WATER WELLS

AKGWA No:	40001277	Surface Elev:	453
ALT ID:	370827088003901	County:	Caldwell
Site Name:		Quad Name:	Fredonia
Type:	W	Latitude:	37.140888
Usage:	Domestic - Single Household	Longitude:	-88.010857

## Wells and Additional Sources Detail Report

Physiograph Region: Western Pennyroyal Lat Long Method: UNKN

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
8	SSW	0.85	4,464.69	460.81	WATER WELLS

AKGWA No:	00067013	Surface Elev:	460
ALT ID:		County:	Caldwell
Site Name:	Sammy Williams Property	Quad Name:	Fredonia
Type:	W	Latitude:	37.13802
Usage:	Unused	Longitude:	-88.00931
Physiograph Region:	Mississippian Plateau	Lat Long Method:	GIS Generated - Aerial Photograph (DOQ)

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
10	SSW	0.92	4,879.56	454.14	WATER WELLS

AKGWA No:	00067012	Surface Elev:	475
ALT ID:		County:	Caldwell
Site Name:	Sammy Williams Property	Quad Name:	Fredonia
Type:	W	Latitude:	37.13774
Usage:	Unused	Longitude:	-88.01069
Physiograph Region:	Mississippian Plateau	Lat Long Method:	GIS Generated - Aerial Photograph (DOQ)

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
11	SSW	0.98	5,150.96	451.83	WATER WELLS

AKGWA No:	30007530	Surface Elev:	
ALT ID:		County:	Caldwell
Site Name:		Quad Name:	Fredonia
Type:	W	Latitude:	37.137054
Usage:	Domestic - Single Household	Longitude:	-88.011421
Physiograph Region:	Western Pennyroyal	Lat Long Method:	UNKN

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
12	E	0.19	997.89	457.48	WATER WELLS

AKGWA No:	30007306	Surface Elev:	
ALT ID:		County:	Caldwell
Site Name:		Quad Name:	Crider
Type:	W	Latitude:	37.154148
Usage:	Domestic - Single Household	Longitude:	-87.976212
Physiograph Region:	Western Pennyroyal	Lat Long Method:	UNKN

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
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## Wells and Additional Sources Detail Report

14	E	0.20	1,082.02	454.59	WATER WELLS
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AKGWA No:	60001941	Surface Elev:	
ALT ID:		County:	Caldwell
Site Name:		Quad Name:	Crider
Type:	W	Latitude:	37.154167
Usage:	Domestic - Single Household	Longitude:	-87.975556
Physiograph Region:		Lat Long Method:	

<b>Map Key</b>	<b>Direction</b>	<b>Distance (mi)</b>	<b>Distance (ft)</b>	<b>Elevation (ft)</b>	<b>DB</b>
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15	NNW	0.68	3,586.45	521.01	WATER WELLS
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AKGWA No:	30007324	Surface Elev:	
ALT ID:		County:	Caldwell
Site Name:		Quad Name:	Fredonia
Type:	W	Latitude:	37.17625
Usage:	Domestic - Single Household	Longitude:	-88.009224
Physiograph Region:	Western Pennyroyal	Lat Long Method:	UNKN

<b>Map Key</b>	<b>Direction</b>	<b>Distance (mi)</b>	<b>Distance (ft)</b>	<b>Elevation (ft)</b>	<b>DB</b>
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16	E	0.09	456.68	463.42	WATER WELLS
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AKGWA No:	60002032	Surface Elev:	
ALT ID:		County:	Caldwell
Site Name:		Quad Name:	Crider
Type:	W	Latitude:	37.159444
Usage:	Domestic - Single Household	Longitude:	-87.975278
Physiograph Region:		Lat Long Method:	

<b>Map Key</b>	<b>Direction</b>	<b>Distance (mi)</b>	<b>Distance (ft)</b>	<b>Elevation (ft)</b>	<b>DB</b>
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18	-	0.00	0.00	492.24	WATER WELLS
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AKGWA No:	40004596	Surface Elev:	495
ALT ID:	370825087585401	County:	Caldwell
Site Name:		Quad Name:	Crider
Type:	W	Latitude:	37.140328
Usage:	UNKNOWN	Longitude:	-87.981684
Physiograph Region:	Western Pennyroyal	Lat Long Method:	TOPO

<b>Map Key</b>	<b>Direction</b>	<b>Distance (mi)</b>	<b>Distance (ft)</b>	<b>Elevation (ft)</b>	<b>DB</b>
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19	S	0.49	2,589.32	489.68	WATER WELLS
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AKGWA No:	60002029	Surface Elev:	
ALT ID:		County:	Caldwell



## Wells and Additional Sources Detail Report

Site Name:		Quad Name:	Crider
Type:	W	Latitude:	37.133333
Usage:	Domestic - Single Household	Longitude:	-87.998056
Physiograph Region:		Lat Long Method:	

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
20	SSE	0.15	769.78	476.61	WATER WELLS

AKGWA No:	60002072	Surface Elev:	
ALT ID:		County:	Caldwell
Site Name:		Quad Name:	Crider
Type:	W	Latitude:	37.134167
Usage:	Domestic - Single Household	Longitude:	-87.990833
Physiograph Region:		Lat Long Method:	

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
21	S	0.51	2,715.67	484.40	WATER WELLS

AKGWA No:	40002034	Surface Elev:	485
ALT ID:	370755087595001	County:	Caldwell
Site Name:		Quad Name:	Crider
Type:	W	Latitude:	37.131992
Usage:	Domestic - Single Household	Longitude:	-87.997246
Physiograph Region:	Western Pennyroyal	Lat Long Method:	UNKN

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
22	E	0.19	982.90	463.36	WATER WELLS

AKGWA No:	60002031	Surface Elev:	
ALT ID:		County:	Caldwell
Site Name:		Quad Name:	Crider
Type:	W	Latitude:	37.1575
Usage:	Domestic - Single Household	Longitude:	-87.971944
Physiograph Region:		Lat Long Method:	

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
32	ESE	0.66	3,509.81	496.40	WATER WELLS

AKGWA No:	30007293	Surface Elev:	
ALT ID:		County:	Caldwell
Site Name:		Quad Name:	Crider
Type:	W	Latitude:	37.141548
Usage:	Domestic - Single Household	Longitude:	-87.959717
Physiograph Region:	Western Pennyroyal	Lat Long Method:	UNKN

## Wells and Additional Sources Detail Report

### Oil and Gas Wells

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
9	NNW	0.51	2,671.70	513.27	OGW

KGS Rec No:	134671	FNS:	2517
KGS Permit:	102800	NS:	S
API:	16033001760000	FEW:	2170
ORG Well No:	1-21	EW:	E
Bore Type:	V	Latitude:	37.173631
No:	18	Longitude:	-88.007467
Section:	21	Rec Lat NAD1927:	37.173579
Surface Elevation:	512	Rec Lon NAD1927:	-88.007446
County:	CALDWELL	ELOG:	ELOG
USGS Quad:	FREDONIA	Letter:	I
ORG Operator:	STEPHENS PRODUCTION COMPANY		
ORG Farm:	FREDONIA		
Bore Type Desc:	Conventional vertical well bore (not intentionally deviated)		
Images:	<a href="https://kgs.uky.edu/kygeode/services/oilgas/wellReport.asp?id=134671">https://kgs.uky.edu/kygeode/services/oilgas/wellReport.asp?id=134671</a>		

Map Key	Direction	Distance (mi)	Distance (ft)	Elevation (ft)	DB
29	NW	0.09	480.75	527.70	OGW

KGS Rec No:	2665	FNS:	2200
KGS Permit:		NS:	S
API:		FEW:	75
ORG Well No:		EW:	E
Bore Type:	V	Latitude:	37.172761
No:	18	Longitude:	-88.033611
Section:	23	Rec Lat NAD1927:	37.172708
Surface Elevation:	525	Rec Lon NAD1927:	-88.03359
County:	CALDWELL	ELOG:	
USGS Quad:	FREDONIA	Letter:	I
ORG Operator:	KGS-USGS MAPPING PROGRAM		
ORG Farm:	FREDONIA VALLEY QUARRY		
Bore Type Desc:	Conventional vertical well bore (not intentionally deviated)		
Images:	<a href="https://kgs.uky.edu/kygeode/services/oilgas/wellReport.asp?id=2665">https://kgs.uky.edu/kygeode/services/oilgas/wellReport.asp?id=2665</a>		

## Radon Information

This section lists any relevant radon information found for the target property.

Federal EPA Radon Zone for *LYON* County: **2**  
Federal EPA Radon Zone for *CALDWELL* County: **2**

*Zone 1: Counties with predicted average indoor radon screening levels greater than 4 pCi/L*

*Zone 2: Counties with predicted average indoor radon screening levels from 2 to 4 pCi/L*

*Zone 3: Counties with predicted average indoor radon screening levels less than 2 pCi/L*

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### Federal Area Radon Information for *CALDWELL* County

No Measures/Homes:	5
Geometric Mean:	1.1
Arithmetic Mean:	1.3
Median:	1.3
Standard Deviation:	0.6
Maximum:	2
% >4 pCi/L:	0
% >20 pCi/L:	0
Notes on Data Table:	TABLE 1. Screening indoor radon data from the EPA/State Residential Radon Survey of Kentucky conducted during 1986-87. Data represent 2-7 day charcoal canister measurements from the lowest level of each home tested.

### Federal Area Radon Information for *LYON* County

No Measures/Homes:	3
Geometric Mean:	2
Arithmetic Mean:	3.4
Median:	3.3
Standard Deviation:	3.1
Maximum:	6.5
% >4 pCi/L:	33
% >20 pCi/L:	0
Notes on Data Table:	TABLE 1. Screening indoor radon data from the EPA/State Residential Radon Survey of Kentucky conducted during 1986-87. Data represent 2-7 day charcoal canister measurements from the lowest level of each home tested.



## Appendix

### **Federal Sources**

#### **FEMA National Flood Hazard Layer**

**FEMA FLOOD**

The National Flood Hazard Layer (NFHL) data incorporates Flood Insurance Rate Map (FIRM) databases published by the Federal Emergency Management Agency (FEMA), and any Letters Of Map Revision (LOMRs) that have been issued against those databases since their publication date. The FIRM Database is the digital, geospatial version of the flood hazard information shown on the published paper FIRMs. The FIRM Database depicts flood risk information and supporting data used to develop the risk data. The FIRM Database is derived from Flood Insurance Studies (FISs), previously published FIRMs, flood hazard analyses performed in support of the FISs and FIRMs, and new mapping data, where available.

#### **Indoor Radon Data**

**INDOOR RADON**

Indoor radon measurements tracked by the Environmental Protection Agency (EPA) and the State Residential Radon Survey.

#### **Public Water Systems Violations and Enforcement Data**

**PWSV**

List of drinking water violations and enforcement actions from the Safe Drinking Water Information System (SDWIS) made available by the Drinking Water Protection Division of the US EPA's Office of Groundwater and Drinking Water. Enforcement sensitive actions are not included in the data released by the EPA. Address information provided in SWDIS may correspond either with the physical location of the water system, or with a contact address.

#### **Radon Zone Level**

**RADON ZONE**

Areas showing the level of Radon Zones (level 1, 2 or 3) by county. This data is maintained by the Environmental Protection Agency (EPA).

#### **Safe Drinking Water Information System (SDWIS)**

**SDWIS**

The Safe Drinking Water Information System (SDWIS) contains information about public water systems as reported to US Environmental Protection Agency (EPA) by the states. Addresses may correspond with the location of the water system, or with a contact address.

#### **Soil Survey Geographic database**

**SSURGO**

The Soil Survey Geographic database (SSURGO) contains information about soil as collected by the National Cooperative Soil Survey at the Natural Resources Conservation Service (NRCS). Soil maps outline areas called map units. The map units are linked to soil properties in a database. Each map unit may contain one to three major components and some minor components.

#### **U.S. Fish & Wildlife Service Wetland Data**

**US WETLAND**

The U.S. Fish & Wildlife Service Wetland layer represents the approximate location and type of wetlands and deepwater habitats in the United States.

#### **USGS Current Topo**

**US TOPO**

US Topo topographic maps are produced by the National Geospatial Program of the U.S. Geological Survey (USGS). The project was launched in late 2009, and the term "US Topo" refers specifically to quadrangle topographic maps published in 2009 and later.

#### **USGS Geology**

**US GEOLOGY**

Seamless maps depicting geological information provided by the United States Geological Survey (USGS).

#### **USGS National Water Information System**

**FED USGS**

The U.S. Geological Survey (USGS)'s National Water Information System (NWIS) is the nation's principal repository of water resources data. This database includes comprehensive information of well-construction details, time-series data for gage height, streamflow, groundwater level, and precipitation and water use data.

### **State Sources**

#### **Kentucky Groundwater Data Repository**

**WATER WELLS**

List of records in the Kentucky Geological Survey's Water Well & Spring Records database. The Kentucky

## Appendix

Groundwater Data Repository was initiated in 1990 by the Kentucky Geological Survey under mandate from the Kentucky legislature (KRS 151:035). The repository was established to archive and disseminate groundwater data collected by State agencies, other organizations, and independent researchers.

### **Oil and Gas Wells**

**OGW**

Oil and Gas Wells Data made available by the Kentucky Geological Survey.

### **Public Water Supply Wells**

**PWSW**

The Public Water Supply Wells (PWSW) data consist of community water supply wells in Kentucky. This data was made available by Kentucky Department for Environmental Protection, Division of Water.

## Liability Notice

**Reliance on information in Report:** The Physical Setting Report (PSR) DOES NOT replace a full Phase I Environmental Site Assessment but is solely intended to be used as a review of environmental databases and physical characteristics for the site or adjacent properties.

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Phase I Environmental  
Site Assessment  
Caldwell Solar Site  
Fredonia, Kentucky

APPENDIX

C

HISTORICAL RESEARCH  
DOCUMENTATION



# HISTORICAL AERIALS

<b>Project Property:</b>	Caldwell Solar Site n/a Fredonia KY
<b>Requested By:</b>	Cardno Inc.
<b>Order No:</b>	20200323045
<b>Data Completed:</b>	March 30,2020



Date	Source	Source Scale	Comments
2018	National Agriculture Information Program	1" to 1700'	
2014	National Agriculture Information Program	1" to 1700'	
2010	National Agriculture Information Program	1" to 1700'	
2008	National Agriculture Information Program	1" to 1700'	
2006	National Agriculture Information Program	1" to 1700'	
1998	US Geological Survey	1" to 1700'	
1982	National High Altitude Photography	1" to 1700'	
1967	US Geological Survey	1" to 1700'	
1952	US Geological Survey	1" to 1700'	

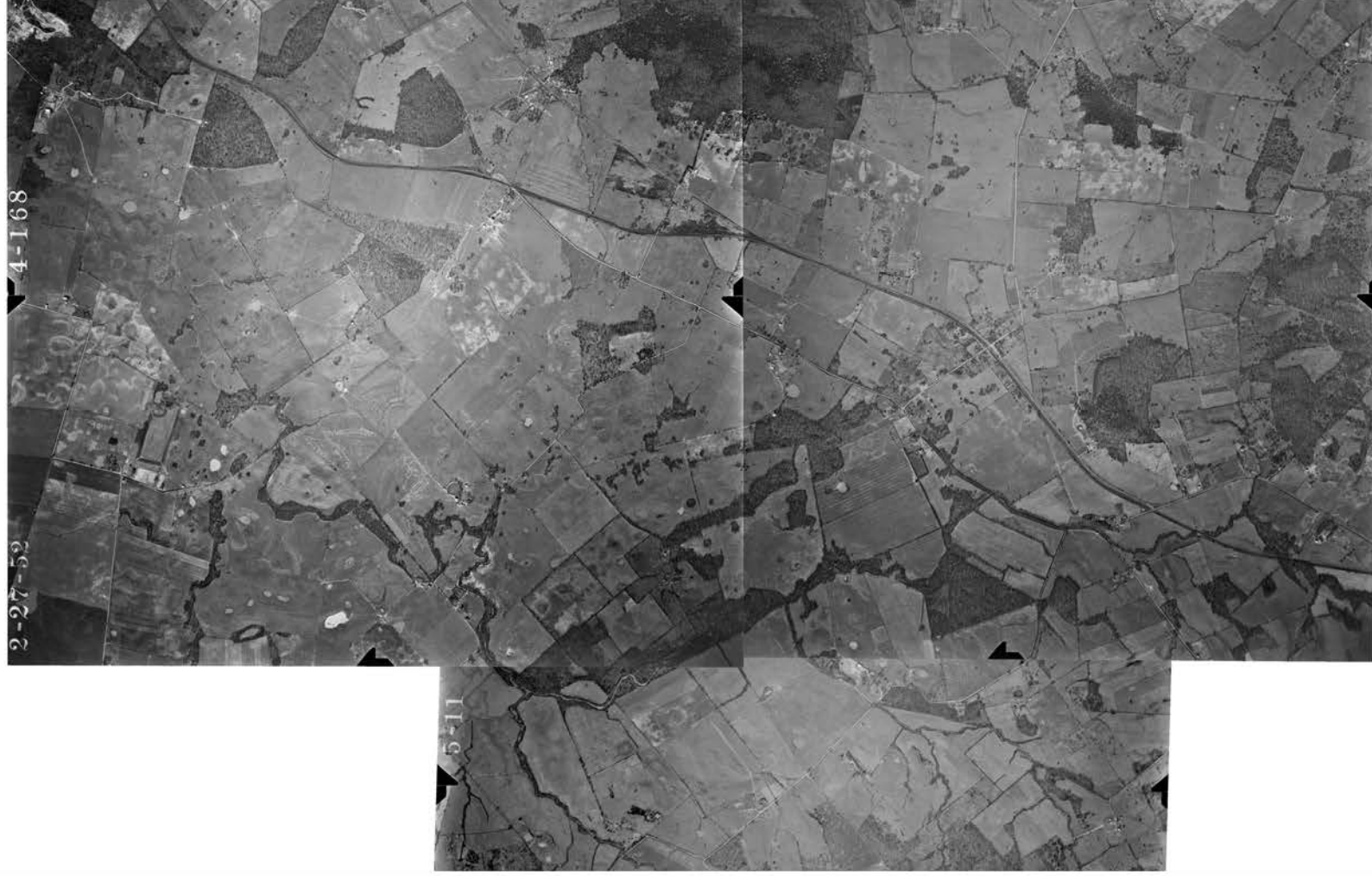
**Environmental Risk Information Services**

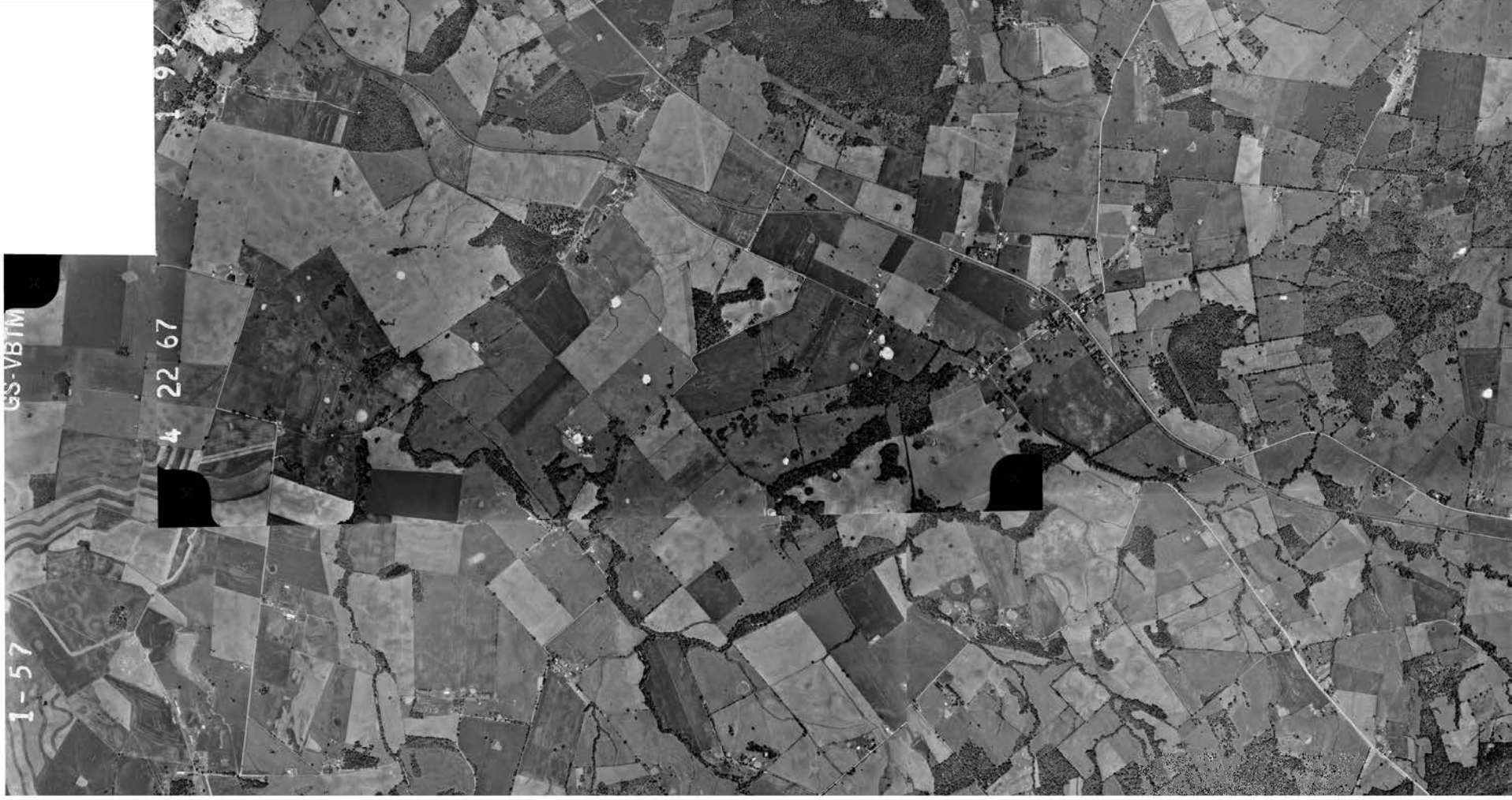
A division of Glacier Media Inc.

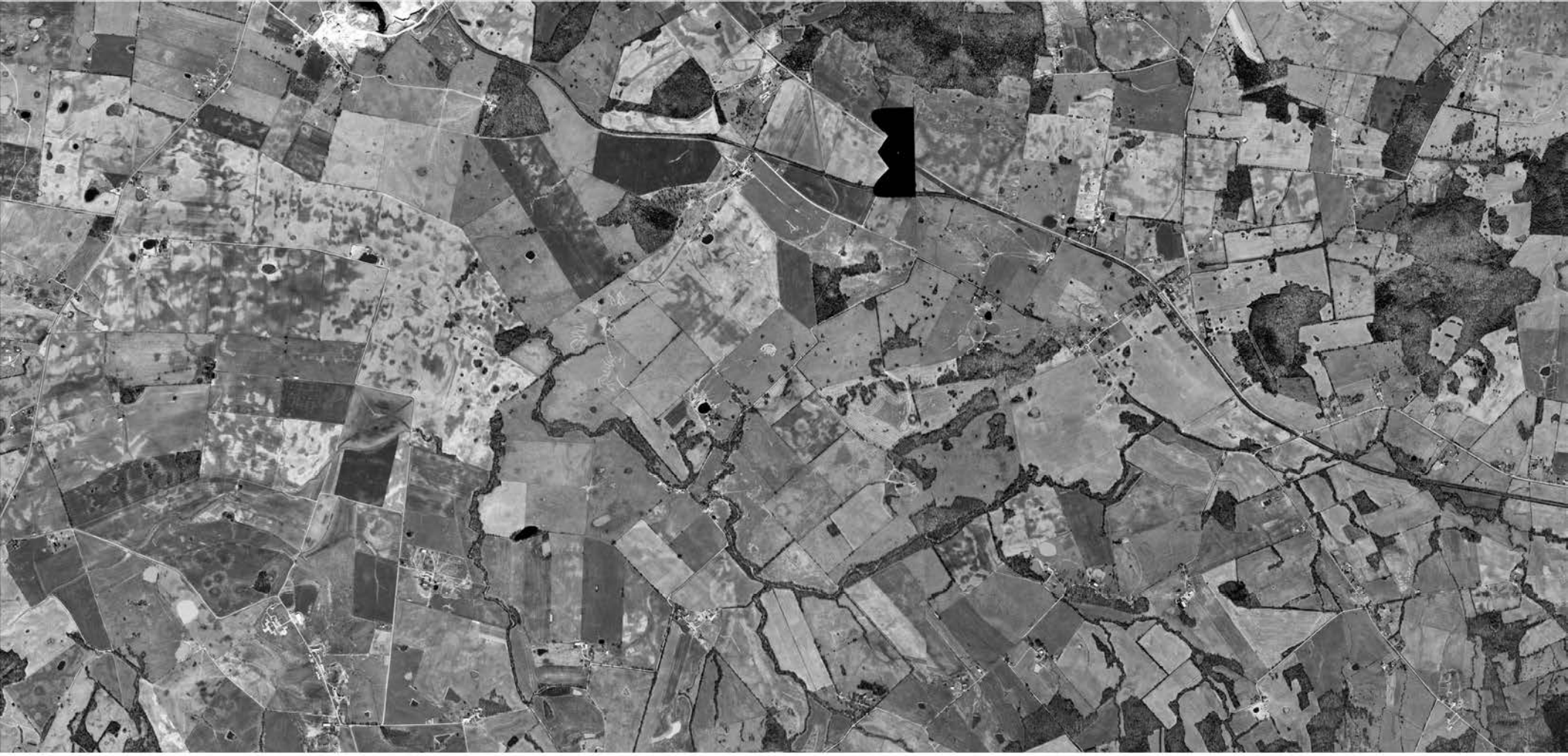
1.866.517.5204 | [info@erisinfo.com](mailto:info@erisinfo.com) | [erisinfo.com](http://erisinfo.com)



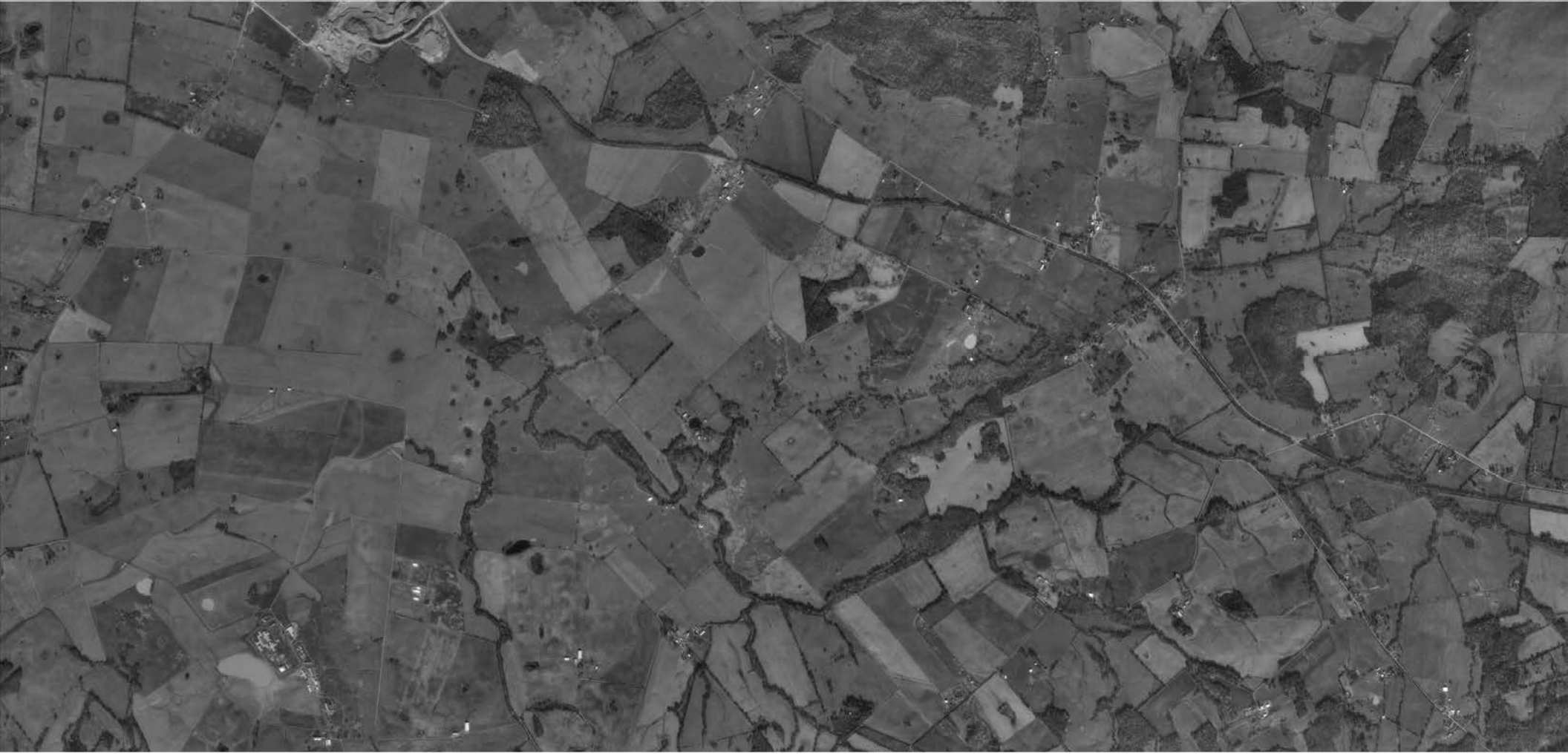




























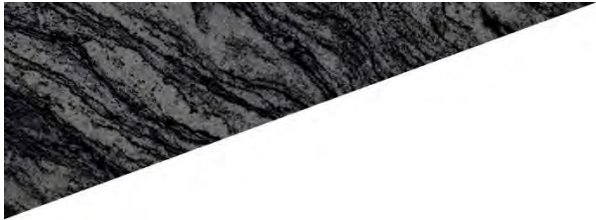






# TOPOGRAPHIC MAPS

**Project Property:** Caldwell Solar Site  
n/a  
Fredonia KY  
**Project No:** E320201000  
**Requested By:** Cardno Inc.  
**Order No:** 20200323045  
**Date Completed:** March 27, 2020



We have searched USGS collections of current topographic maps and historical topographic maps for the project property. Below is a list of maps found for the project property and adjacent area. Maps are from 7.5 and 15 minute topographic map series, if available.

Year	Map Series
2016	7.5
1967	7.5
1954	7.5
1955	15
1936	15
1931	15
1928	15
1910	15
1908	15

Topographic Maps included in this report are produced by the USGS and are to be used for research purposes including a phase I report. Maps are not to be resold as commercial property.

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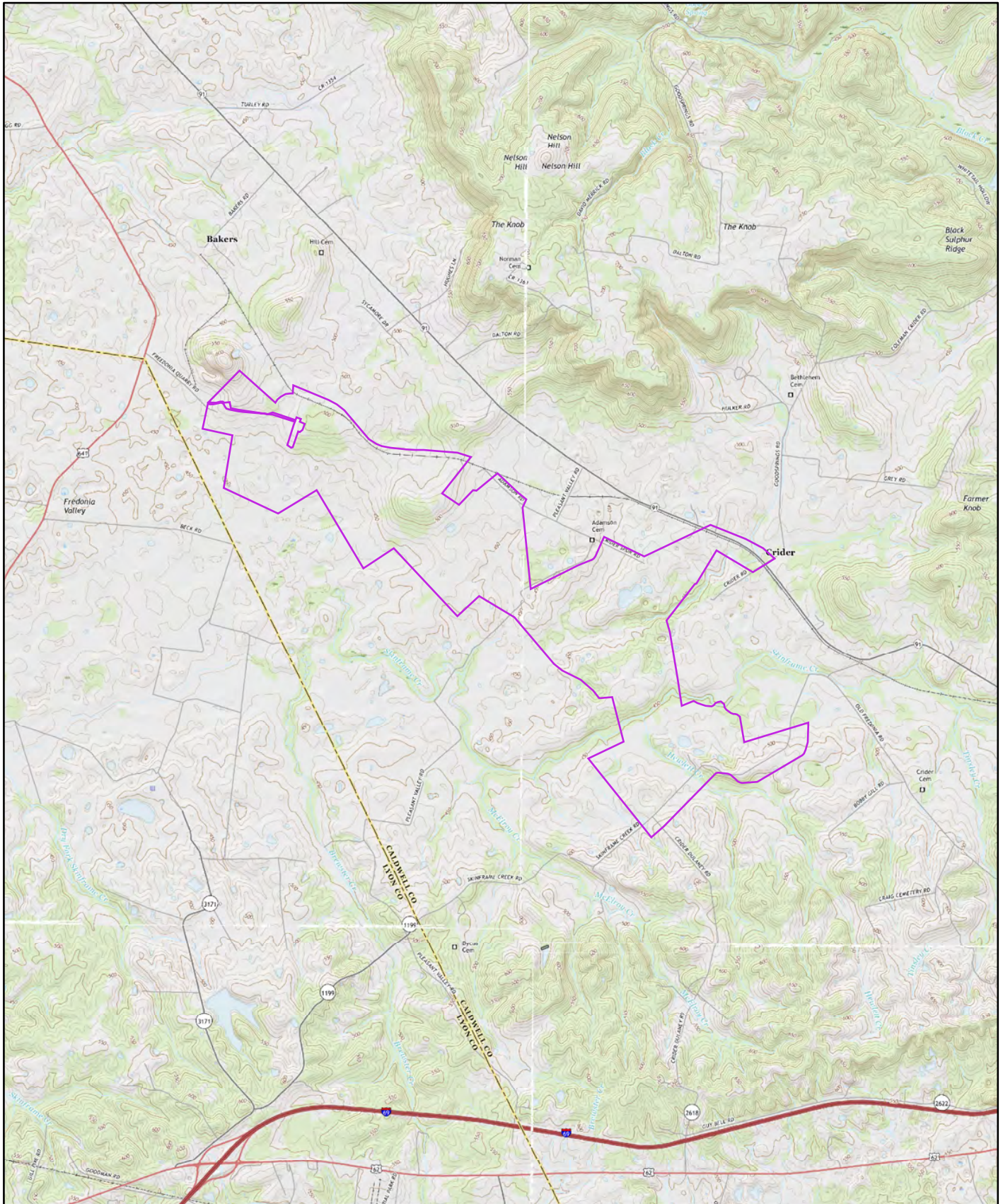
**Environmental Risk Information Services**

A division of Glacier Media Inc.

1.866.517.5204 | [info@erisinfo.com](mailto:info@erisinfo.com) | [erisinfo.com](http://erisinfo.com)







2016

0 0.2 0.4 0.8 1.2 1.6 Miles

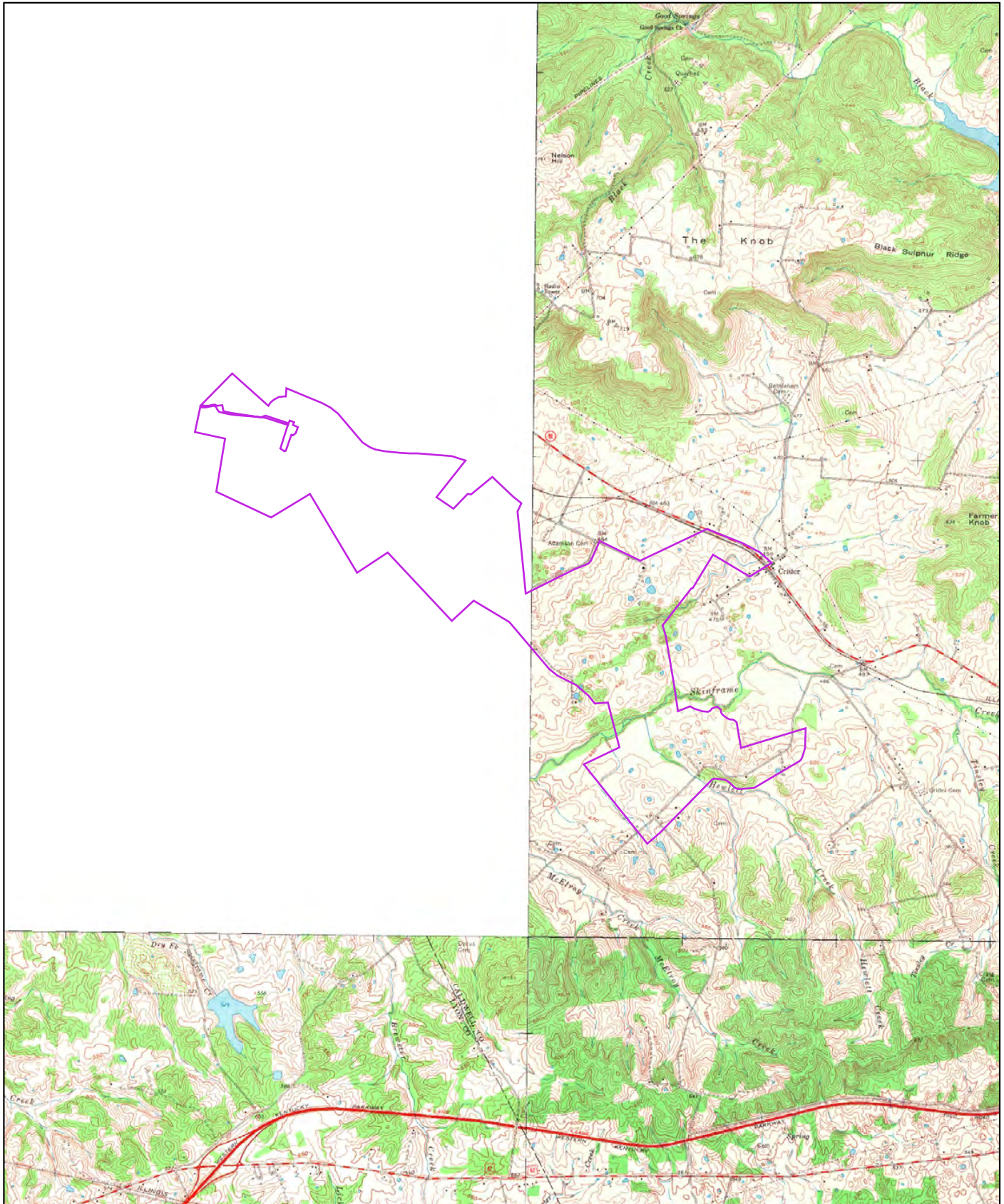
Order No. 20200323045

Quadrangle(s): Crider, KY; Fredonia, KY

Source: USGS 7.5 Minute Topographic Map







1967

0 0.2 0.4 0.8 1.2 1.6 Miles

Order No. 20200323045

Quadrangle(s): Crider, KY

Source: USGS 7.5 Minute Topographic Map







1954

0 0.2 0.4 0.8 1.2 1.6 Miles

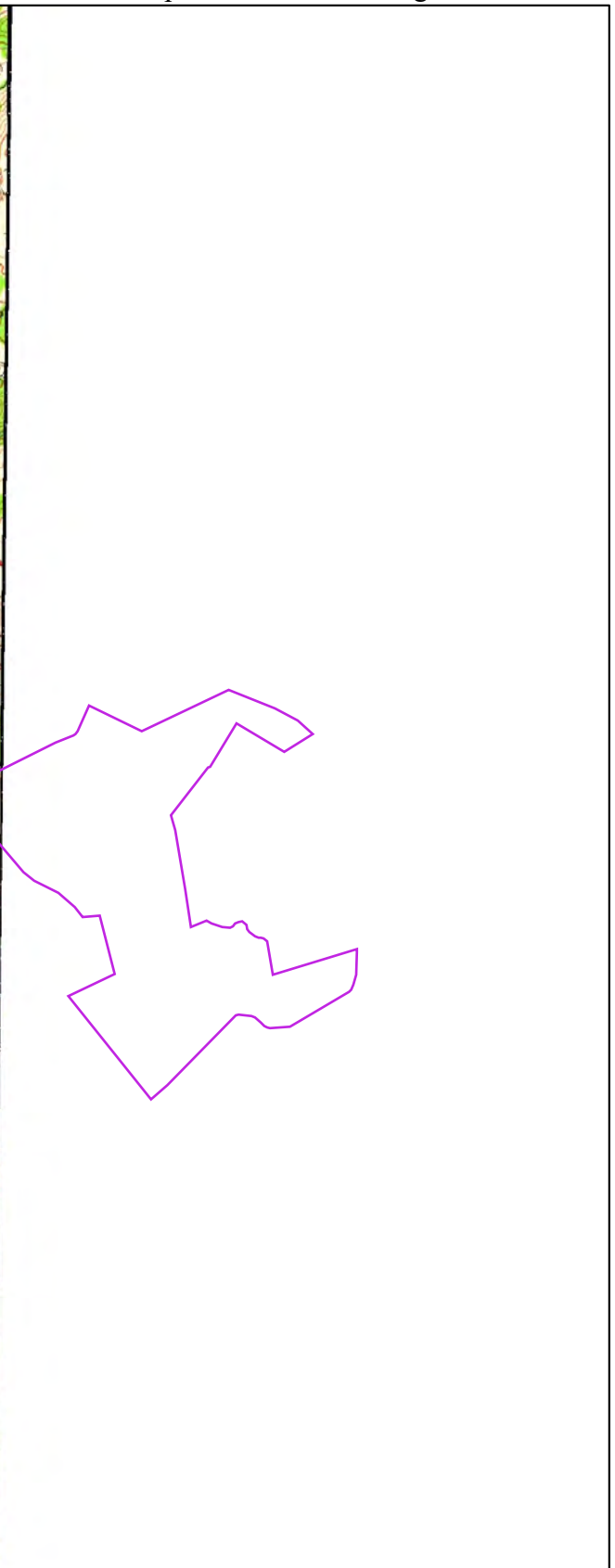
Order No. 20200323045

Quadrangle(s): Crider, KY; Fredonia, KY

Source: USGS 7.5 Minute Topographic Map







1955

0 0.2 0.4 0.8 1.2 1.6 Miles

Order No. 20200323045

Quadrangle(s): Eddyville, KY

Source: USGS 15 Minute Topographic Map





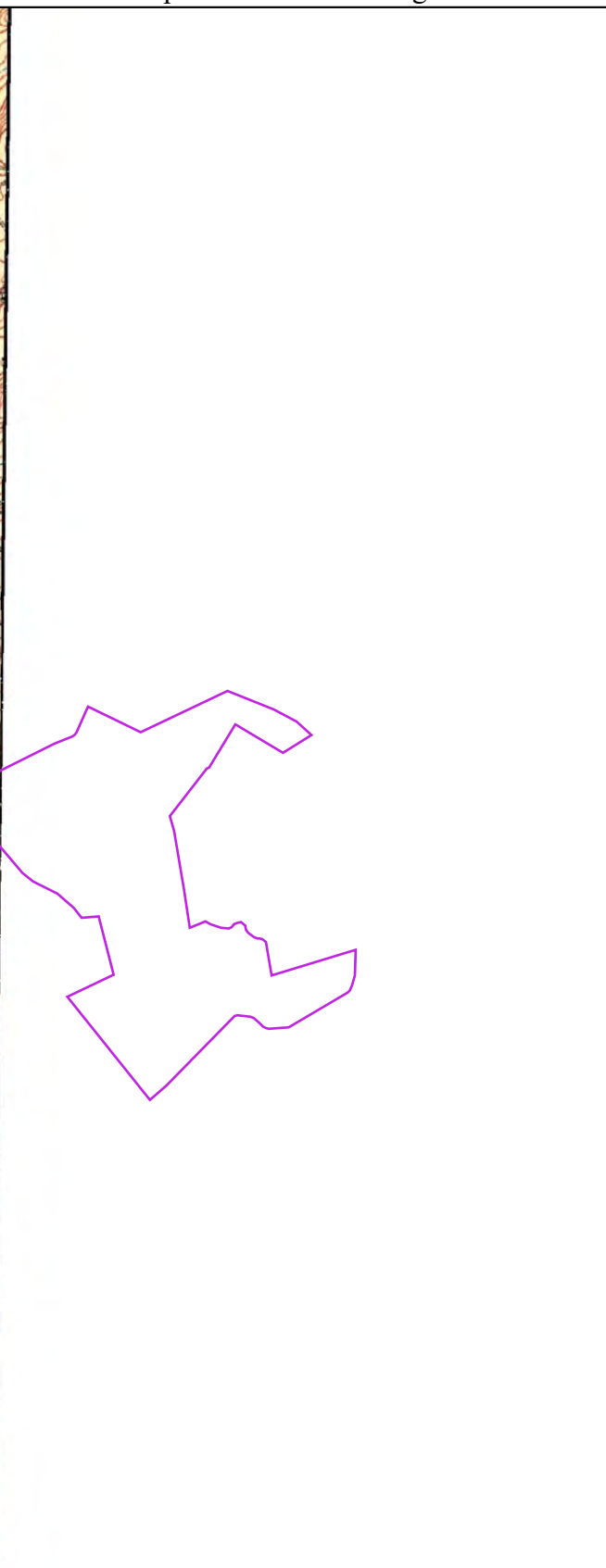
1936

0 0.2 0.4 0.8 1.2 1.6 Miles

Order No. 20200323045

Quadrangle(s): Eddyville, KY

Source: USGS 15 Minute Topographic Map

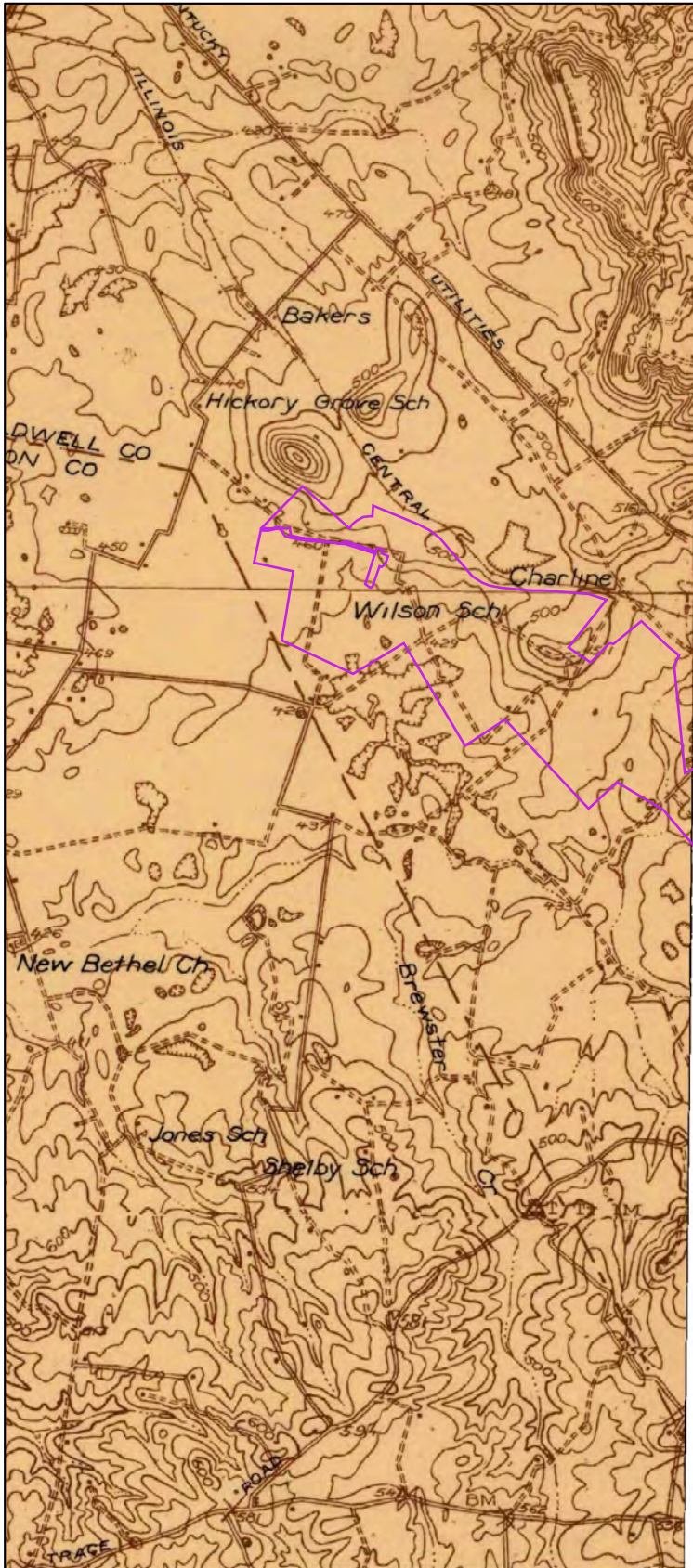


Order No. 20200323045

Quadrangle(s): Eddyville, KY

Source: USGS 15 Minute Topographic Map





1928

0 0.2 0.4 0.8 1.2 1.6 Miles

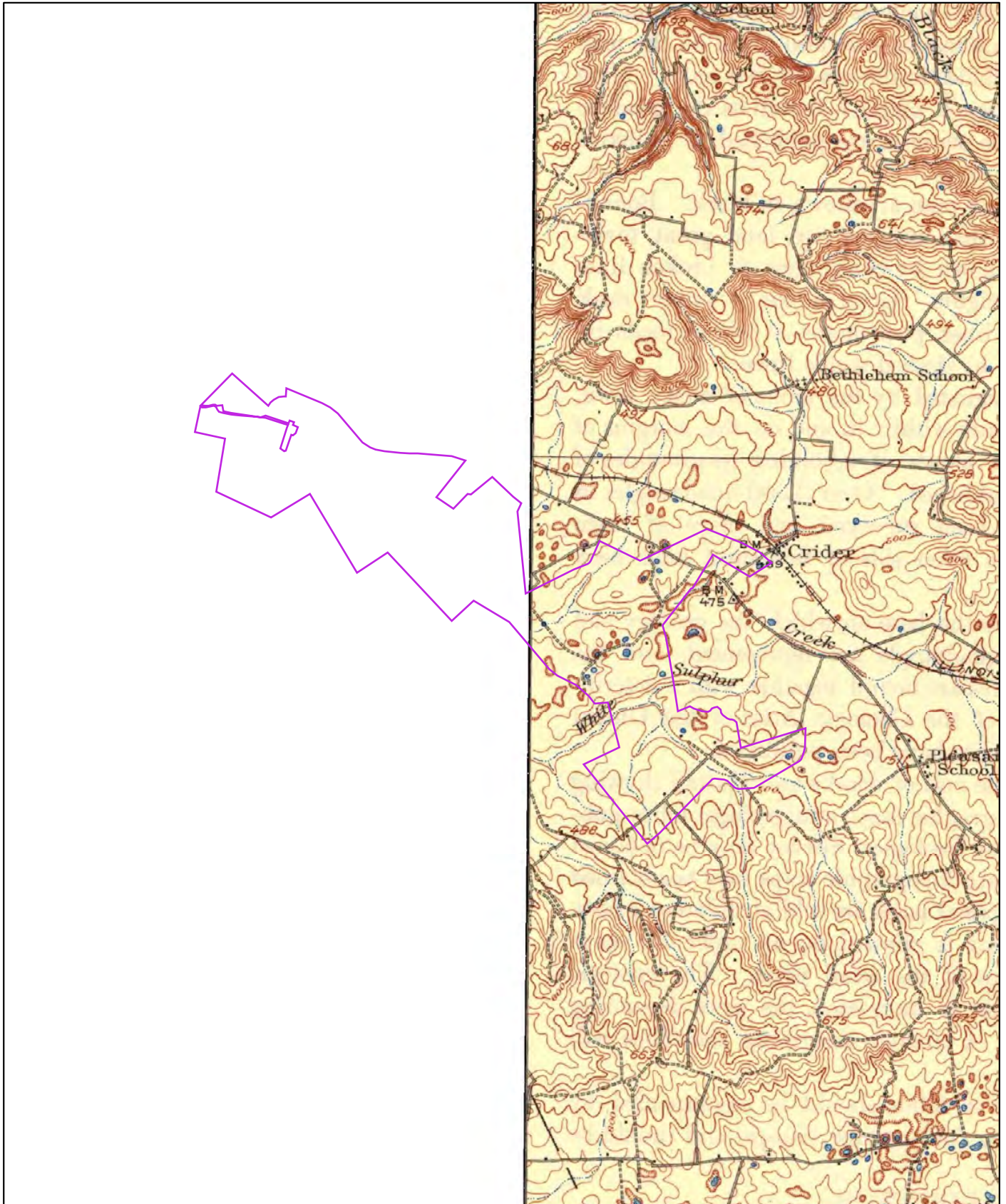
Order No. 20200323045

Quadrangle(s): Eddyville, KY

Source: USGS 15 Minute Topographic Map







1910

0 0.2 0.4 0.8 1.2 1.6 Miles

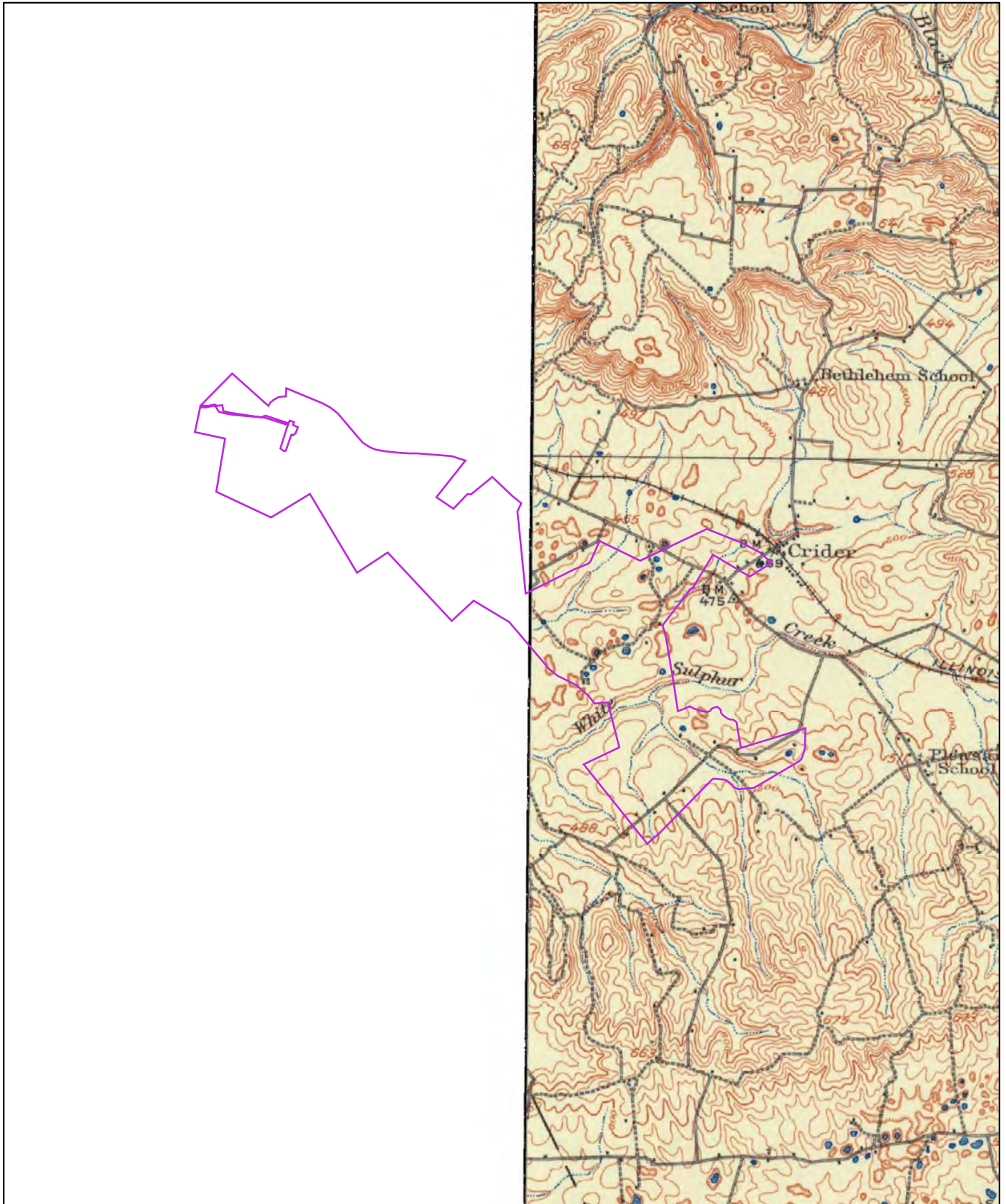
Order No. 20200323045

Quadrangle(s): Princeton, KY

Source: USGS 15 Minute Topographic Map







1908

0 0.2 0.4 0.8 1.2 1.6 Miles

Order No. 20200323045

Quadrangle(s): Princeton, KY

Source: USGS 15 Minute Topographic Map





# FIRE INSURANCE MAPS

**Project Property:** Caldwell Solar Site  
n/a  
Fredonia KY  
**Project No:** E320201000  
**Requested By:** Cardno Inc.  
**Order No:** 20200323045  
**Date Completed:** March 27, 2020

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**Please note that no information was found for your site or adjacent properties.**





Phase I Environmental  
Site Assessment  
Caldwell Solar Site  
Fredonia, Kentucky

APPENDIX

D



SITE PHOTOGRAPHS



<b>Client:</b> Geronimo® Energy		<b>Site Location:</b> Fredonia, Kentucky	
<b>Site Name:</b> Caldwell Solar Site		<b>Project Number:</b> E320201000	
<b>Date:</b> April 13, 2020  <b>Description:</b> Disced field northwest of Skinframe Creek Road at south corner of Caldwell Solar Site (facing northwest away from the intersection of Skinframe Creek and Crider Dulaney Roads).		<b>Photo 1</b>	
			
<b>Date:</b> April 13, 2020  <b>Description:</b> Disced field northwest of Skinframe Creek Road at south corner of Caldwell Solar Site (facing north away from Skinframe Creek Road). Two closed dips near the center of this field appear to be possible surface expressions of sinkholes.		<b>Photo 2</b>	
			







<b>Client:</b> Geronimo® Energy	<b>Site Location:</b> Fredonia, Kentucky
<b>Site Name:</b> Caldwell Solar Site	<b>Project Number:</b> E320201000
<p><b>Date:</b> April 13, 2020</p> <p><b>Description:</b> Disced field on either side of concrete feed trough and concrete slab driveway located northwest of Skinframe Creek Road on south side of Solar Site (facing northeast). Remnant of a small barn is to the right in the background.</p>	<b>Photo 3</b>
	 A photograph showing a concrete driveway and a concrete feed trough in a disced field. The field is brown and dry, with some green grass visible in the background. A small barn is visible to the right in the background.
<p><b>Date:</b> April 13, 2020</p> <p><b>Description:</b> Apparent former home site located northwest of Skinframe Creek Road on south side of Solar Site (facing north). A cinderblock water supply well pump house is in the center background.</p>	<b>Photo 4</b>
	 A photograph showing a dirt road and a cinderblock water supply well pump house. The road is dirt and gravel, and the pump house is a small, rectangular structure made of cinderblocks. There are trees and grass in the background.







<b>Client:</b> Geronimo® Energy		<b>Site Location:</b> Fredonia, Kentucky	
<b>Site Name:</b> Caldwell Solar Site		<b>Project Number:</b> E320201000	
<b>Date:</b> April 13, 2020  <b>Description:</b> Hewlett Creek, a tributary of Skinframe Creek (facing north-northwest). Hewlett Creek appears to flow into a swallow before reaching Skinframe Creek.		<b>Photo 5</b>	
			
<b>Date:</b> April 13, 2020  <b>Description:</b> Dry bed of Skinframe Creek and mouth of unnamed tributary on south side of Solar Site (facing northwest).		<b>Photo 6</b>	
			







<b>Client:</b> Geronimo® Energy		<b>Site Location:</b> Fredonia, Kentucky	
<b>Site Name:</b> Caldwell Solar Site		<b>Project Number:</b> E320201000	
<b>Date:</b> April 13, 2020  <b>Description:</b> Disced field northwest of Skinframe Creek Road on south side of Solar Site (facing east).		<b>Photo 7</b>	
			
<b>Date:</b> April 13, 2020  <b>Description:</b> Dry pond at sinkhole in disced field northwest of Skinframe Creek Road on south side of Solar Site (facing east). Three other similar features were visible across the south side of this field. Tree clusters in the field also appear to be at sinkholes on the north side of this field. Note the small cluster of trees in the upper left side of photo appears to be a sinkhole.		<b>Photo 8</b>	
			







<b>Client:</b> Geronimo® Energy		<b>Site Location:</b> Fredonia, Kentucky	
<b>Site Name:</b> Caldwell Solar Site		<b>Project Number:</b> E320201000	
<b>Date:</b> April 13, 2020  <b>Description:</b> Disced field northwest of Skinframe Creek Road on southeast side of Solar Site (facing west).		<b>Photo 9</b>	
			
<b>Date:</b> April 13, 2020  <b>Description:</b> Rye grass field southwest of railroad track and Marion Road on northeast side of Solar Site (facing southwest).		<b>Photo 10</b>	
			








<b>Client:</b> Geronimo® Energy		<b>Site Location:</b> Fredonia, Kentucky	
<b>Site Name:</b> Caldwell Solar Site		<b>Project Number:</b> E320201000	
<b>Date:</b> April 13, 2020  <b>Description:</b> Rye grass field southeast and east of the end of Crider Spur Road on northeast side of Solar Site (facing southeast).		<b>Photo 11</b>	
			
<b>Date:</b> April 14, 2020  <b>Description:</b> Dilapidated barn, silo, equipment shed, and small house along gravel driveway located south of Crider Spur Road (facing west). Site of February 19, 2009 open burning event investigated under the Kentucky Department of Environmental Protection (KDEP) Air Program.		<b>Photo 12</b>	
			







<b>Client:</b> Geronimo® Energy		<b>Site Location:</b> Fredonia, Kentucky	
<b>Site Name:</b> Caldwell Solar Site		<b>Project Number:</b> E320201000	
<b>Date:</b> April 13, 2020  <b>Description:</b> Equipment shed located south of Crider Spur Road.		<b>Photo 13</b>	
			
<b>Date:</b> April 13, 2020  <b>Description:</b> Farm equipment stored at edge of woods, adjacent to equipment shed located south of Crider Spur Road.		<b>Photo 14</b>	
			





<b>Client:</b> Geronimo® Energy		<b>Site Location:</b> Fredonia, Kentucky	
<b>Site Name:</b> Caldwell Solar Site		<b>Project Number:</b> E320201000	
<b>Date:</b> April 13, 2020  <b>Description:</b> Pole-mounted, Kentucky Utility Company (KU) electrical transformer adjacent to pond and equipment shed located south of Crider Spur Road.		<b>Photo 15</b>	
			
<b>Date:</b> April 13, 2020  <b>Description:</b> Rye grass field and pond located south of Crider Spur Road (facing southwest).		<b>Photo 16</b>	
			







<b>Client:</b> Ecoplexus		<b>Site Location:</b> Fredonia, Kentucky	
<b>Site Name:</b> Caldwell Solar Site		<b>Project Number:</b> E320201000	
<b>Date:</b> April 13, 2020  <b>Description:</b> Rye grass fields on south side of Solar Site (facing southwest).		<b>Photo 17</b>	
			
<b>Date:</b> April 13, 2020  <b>Description:</b> Rye grass fields southeast of Pleasant Valley Road on the south side of Solar Site (facing southeast).		<b>Photo 18</b>	
			



<b>Client:</b> Geronimo® Energy		<b>Site Location:</b> Fredonia, Kentucky	
<b>Site Name:</b> Caldwell Solar Site		<b>Project Number:</b> E320201000	
<b>Date:</b> April 13, 2020  <b>Description:</b> Disced field between Pleasant Valley Road and County Route 1364, at the middle of the Solar Site (facing north).		<b>Photo 19</b>	
			
<b>Date:</b> April 13, 2020  <b>Description:</b> Disced field between northwest of Pleasant Valley Road and southwest of County Route 1364, on west side of the Solar Site (facing north).		<b>Photo 20</b>	
			







<b>Client:</b> Ecoplexus		<b>Site Location:</b> Fredonia, Kentucky	
<b>Site Name:</b> Caldwell Solar Site		<b>Project Number:</b> E320201000	
<b>Date:</b> April 14, 2020  <b>Description:</b> Disced field located west of Adamson Road and south of railroad track on north side of Solar Site (facing west).		<b>Photo 21</b>	
			
<b>Date:</b> April 14, 2020  <b>Description:</b> Grass field used for cattle grazing on Bugg Farms at northwest corner of Solar Site (facing north). Dilapidated barn in background. Stone and brick old house ruins are in tree area to left (see Photo 25).		<b>Photo 22</b>	
			







<b>Client:</b> Geronimo® Energy		<b>Site Location:</b> Fredonia, Kentucky	
<b>Site Name:</b> Caldwell Solar Site		<b>Project Number:</b> E320201000	
<b>Date:</b> April 14, 2020  <b>Description:</b> Junk car in dilapidated barn at Bugg Farms.		<b>Photo 23</b>	
			
<b>Date:</b> April 14, 2020  <b>Description:</b> Idle field on west side of Solar Site (facing southeast).		<b>Photo 24</b>	
			



<b>Client:</b> Geronimo® Energy		<b>Site Location:</b> Fredonia, Kentucky	
<b>Site Name:</b> Caldwell Solar Site		<b>Project Number:</b> E320201000	
<b>Date:</b> April 14, 2020  <b>Description:</b> Stone, brick, and concrete ruins of old house at northwest corner of Solar Site.		<b>Photo 25</b>	
			
<b>Date:</b> April 14, 2020  <b>Description:</b> Partly overgrown stone stockpile at the Fredonia Quarry is adjacent to pasture, woods, and crop fields on the northwest side of the Solar Site (facing northeast)		<b>Photo 26</b>	
			






<b>Client:</b> Geronimo® Energy		<b>Site Location:</b> Fredonia, Kentucky	
<b>Site Name:</b> Caldwell Solar Site		<b>Project Number:</b> E320201000	
<b>Date:</b> April 14, 2020  <b>Description:</b> Pasture fields at Bugg Farms on northwest side of Solar Site (facing east). Silos, cattle barn, and equipment garage complex is in background.		<b>Photo 27</b>	
			
<b>Date:</b> April 14, 2020  <b>Description:</b> Silos and water supply well pump shed at Bugg Farms (facing southwest). Empty, rusted 55-gallon drum, empty five-gallon engine oil bucket, fire hydrant, and junk surround the small pump shed.		<b>Photo 28</b>	
			







<b>Client:</b> Geronimo® Energy		<b>Site Location:</b> Fredonia, Kentucky	
<b>Site Name:</b> Caldwell Solar Site		<b>Project Number:</b> E320201000	
<b>Date:</b> April 14, 2020  <b>Description:</b> Two empty, portable, steel ASTs for agricultural chemicals near cattle barn at Bugg Farms.		<b>Photo 29</b>	
			
<b>Date:</b> April 14, 2020  <b>Description:</b> Approximately 500-gallon, empty, trailer-mounted, poly AST and two empty yellow, 110-gallon poly ASTs for agricultural chemicals were located east of equipment garage at Bugg Farms. Semi-trailer east of equipment garage contained an approximately 255-gallon poly tote labeled Degree Xtra™ herbicide, old windows and other construction type materials.		<b>Photo 30</b>	
			







<b>Client:</b> Geronimo® Energy		<b>Site Location:</b> Fredonia, Kentucky	
<b>Site Name:</b> Caldwell Solar Site		<b>Project Number:</b> E320201000	
<b>Date:</b> April 14, 2020  <b>Description:</b> Discarded equipment, machines, and tires at edge of woods near equipment garage at Bugg Farms on northwest side of Solar Site.		<b>Photo 31</b>	
		 A photograph showing a large, rusted metal structure, possibly a piece of heavy machinery or a shed, partially obscured by dense green foliage and trees. The structure is situated in a wooded area with tall grass in the foreground.	
<b>Date:</b> April 14, 2020  <b>Description:</b> Antique farm implements in woods located east of equipment garage at Bugg Farms.		<b>Photo 32</b>	
		 A photograph showing various antique farm implements, including a large, rusted metal wheel and a chain-link structure, lying on the ground in a wooded area. The implements are surrounded by green grass and trees.	







<b>Client:</b> Geronimo® Energy		<b>Site Location:</b> Fredonia, Kentucky	
<b>Site Name:</b> Caldwell Solar Site		<b>Project Number:</b> E320201000	
<b>Date:</b> April 14, 2020  <b>Description:</b> Wooded area located east of silo and equipment garage at Bugg Farms on northwest side of Solar Site.		<b>Photo 33</b>	
			
<b>Date:</b> April 14, 2020  <b>Description:</b> Pasture located south of wooded area at Bugg Farms. Tree clusters appear to be in sinkhole depressions.		<b>Photo 34</b>	
			





<b>Client:</b> Geronimo® Energy		<b>Site Location:</b> Fredonia, Kentucky	
<b>Site Name:</b> Caldwell Solar Site		<b>Project Number:</b> E320201000	
<b>Date:</b> April 14, 2020  <b>Description:</b> Idle field located southeast of woods at Bugg Farms (facing southeast). Small sinkhole appears to be located on the right side of the photo.		<b>Photo 35</b>	
			
<b>Date:</b> April 14, 2020  <b>Description:</b> Idle fields on north side of Solar Site (facing southeast).		<b>Photo 36</b>	
			

Phase I Environmental  
Site Assessment  
Caldwell Solar Site  
Fredonia, Kentucky

APPENDIX

E

RESUME OF ENVIRONMENTAL  
PROFESSIONAL (EP)



## George A. Robertson

### Current Position

Senior Project Manager  
Senior Geologist

### Profession

Geologist

### Years' Experience

35

### Joined Cardno

2008

### Education

MS – Fluvial  
Geomorphology,  
Louisiana State  
University, Baton  
Rouge, Louisiana

BS – Geology, James  
Madison University,  
Harrisonburg, Virginia

### Professional Registrations

PG – VA, KY, NC

LRS – WV

Certified Monitoring  
Well Driller - WV

Class B UST  
Certification - WV

OSHA 40-hour Health &  
Safety

OSHA 8 Hour  
Management &  
Supervisory

E-Rail Safe

Power Safe

### Affiliations

National Groundwater  
Association Member

### Summary of Experience

Mr. Robertson serves as a senior consultant and senior geologist for Cardno. His experience includes working with federal, state, municipal, and private sector clients in Virginia and the surrounding states. Mr. Robertson is a licensed professional geologist with extensive project level management and field experience. Mr. Robertson has managed a wide range of environmental projects including soil and groundwater remediation, subsurface investigations, waste characterization and disposal, underground storage tank closures, air source emissions monitoring, Phase I and II site assessments, and environmental permitting. Additionally, Mr. Robertson is an experienced safety and quality control professional.

Specifically, he has:

- > Planned and conducted Phase I and II environmental assessments at commercial and industrial sites.
- > Planned remedial efforts providing cost effective solutions to environmental problems and achieve regulatory closure.
- > Coordinated staff, procured equipment and materials, directed subcontractors, and managed budgets to achieve successful environmental site closures and ultimate client satisfaction.
- > Composed and reviewed numerous technical documents including work plans, site assessments, remedial action work plans, risk assessments, and final reports for regulatory compliance.
- > Effectively served as liaison to negotiate land use covenants with regulatory agencies achieving and sustaining environmental closures.

### Significant Projects

- > **Project Manager for West Virginia Department of Environmental Protection (WVDEP) Voluntary Remediation Program (VRP) Sites:** Planning and oversight of assessments, remediation, and risk assessments for large petroleum bulk storage facilities in Charleston and Huntington and an abandoned railroad property in Bramwell. Negotiated institutional controls for complex environmental problems including land use covenants and city ordinances for institutional control of environmental risks to human health in sensitive areas. Achieved certificate of completion for these sites.
- > **Project Scientist for Phase I and II Site Assessments, Norton Industrial Authority Tipple and Railroad Tracks:** Planned and conducted field inspections and soil, groundwater and surface water assessments focusing on a railroad bed and wetland at an abandoned coal mine. Prepared reports in accordance with ASTM E 1527-13 and ASTM Standard Practice for Environmental Due Diligence: Transaction Screen Process, Designation: E1528-06.





- > **Project Scientist for Phase I and II Site Assessments, City of Bluefield, West Virginia:** Assisted with team planning, conducting field inspections and investigating soil, groundwater and surface water assessments, and preparing reports focusing on abandoned commercial and industrial properties including large multi-story buildings in accordance with ASTM E 1527-13 and ASTM Standard Practice for Environmental Due Diligence: Transaction Screen Process, Designation: E1528-06
- > **Project Scientist for Phase I and II Site Assessments, Town of Bluefield, Virginia:** Assisted with team planning and conducting field inspections and soil, groundwater and surface water assessments focusing on abandoned commercial and industrial properties including a large industrial scrap yard involving VOCs, SVOCs, PCBs and metals. Reporting was in accordance with ASTM E 1527-13 and ASTM Standard Practice for Environmental Due Diligence: Transaction Screen Process, Designation: E1528-06.
- > **Project Scientist for Phase I and II Site Assessment, Virginia Department of Environmental Quality:** Assisted with team planning and conducting field inspections and records research focusing on abandoned commercial and industrial properties including a large furniture factory, textile mills, a hotel, a theater, an office building. Planning and conducting soil, groundwater and surface water assessments for former phosphate and hydrazine plants, former service stations and a former campground. Reports were in accordance with ASTM E 1527-13 and ASTM Standard Practice for Environmental Due Diligence: Transaction Screen Process, Designation: E1528-06.
- > **Project Scientist for Phase I and Phase II Brownfields Sites in West Virginia and Virginia:** Planned and conducted Phase I and II Site Assessments for former commercial and industrial facilities for reuse as commercial/industrial, public and recreational use facilities. Reports were prepared in accordance with ASTM E 1527-13 and ASTM Standard Practice for Limited Environmental Due Diligence: Transaction Screen Process, Designation: E1528-06.
- > **Project Scientist for Phase I Coal Mines in West Virginia and Pennsylvania:** Conducted Phase I Site Assessments for former surface and subsurface mining facilities. Prepared reports in accordance with ASTM E 1527-13 and ASTM Standard Practice for Limited Environmental Due Diligence: Transaction Screen Process, Designation: E1528-06.
- > **Project Manager for WVDEP Uniform Environmental Covenant Act (UECA) Sites:** Managed environmental assessment, remediation (including oversight of soil excavation and off-site disposal/recycling) and risk assessment at four petroleum facilities in Bluewell, Marlinton, and Princeton achieving risk-based closure and no further action status.
- > **Project Manager for Phase I and II ESAs for Large Petroleum Bulk Storage Facility in Charleston, West Virginia:** Planned, conducted and reported Phase I and II Site Assessments for a petroleum bulk storage facility in accordance with ASTM E 1527-13.
- > **VDOT, Explore Park Voluntary Remediation Program, Roanoke, Virginia.** Senior scientist for design and implementation of a cost-effective remedial action with in-house personnel for VDOT at a soil waste dump slope right-of-way site. Accomplishments included a quantitative risk assessment, remedial plan design with permit approvals, corrective action, such as solid waste removal and a cover placement, post-implementation monitoring, and preparation of Voluntary Remediation Program Certification of Satisfactory Completion of Remediation, including the Declaration of Restrictive Covenants.



- > **Route 1/123 and Route 277 Environmental Site Assessments, Woodbridge, Virginia.** Senior scientist for Phase I and Phase II environmental site assessments for a road/utility corridor improvement project. Tasks included non-intrusive determinations of recognized environmental conditions on the 1.5 mile corridor, intrusive subsurface investigations to sample/test soil, groundwater, and vapors at over 20 sites, including a dry cleaner voluntary remediation program release, and preparing specifications for managing contaminated media. Additional tasks included removing underground storage tanks and asbestos monitoring services.
- > **Transmodal Facility, Harrisburg, Pennsylvania.** Mr. Robertson served as hydrogeologist and project manager for the successful closure of a former locomotive fueling facility impacted with petroleum LNAPL, dissolved- and adsorbed-phases within PADEP's Act 2 Program. Closure was achieved using a combination of risk assessment, product mobility assessment, and short-term active remediation.
- > **Construction Debris Landfill, Roanoke, Virginia.** Senior Scientist for a Construction Debris Landfill at a railroad facility planning and reporting groundwater monitoring and facility maintenance. Conducted groundwater modeling and statistical analysis to meet regulatory requirements for CDL closure.
- > **Pipeline, Northern West Virginia.** Mr. Robertson planned, managed, and supervised Phase I and Phase II environmental assessments for pumping stations and storage facilities along the Eureka Pipeline in West Virginia. He also supervised initial abatement actions for spills at two locations. Membrane interface probe technology was utilized to expedite Phase II assessments at two pumping and bulk storage stations. He prepared work plans and assessment reports. The primary project activities included comprehensive studies of previous site activities, preparation of site-specific health and safety plans, site visits with regulatory agents, delineation of source areas, preparation of sampling and remediation work plans, quality assurance/quality control planning, and reporting and liaison with the WVDEP.
- > **Petroleum Bulk Storage Terminal on Elk River, Charleston, West Virginia.** Mr. Robertson served as licensed remediation specialist, hydrogeologist, and project manager entering the facility into the West Virginia Voluntary remediation program (VRP). Prepared VRP applications and agreements. Planned and oversaw implementation of site assessments, risk assessment, soil and groundwater remediation, and report preparation. Project tasks included comprehensive studies of previous site activities, delineation of source areas, identification of contaminants of potential concern and contaminants of concern, evaluation of data gaps, preparation of sampling and remediation work plans, quality assurance/quality control planning and reporting, preparation of human health and ecological risk assessments, groundwater modeling, preparation of information for public notice, and liaison with the regulatory agency. Certificate-of-completion was achieved.
- > **Electrical Power Generation Plants, North Carolina.** Senior Scientist assisting team in stormwater permit compliance planning, stormwater sampling, outfall inspections, corrective action planning, data management and reporting. Assisted in developing matrices for tracking permit compliance.
- > **Metal Fabrication Facility, Princeton, West Virginia.** Senior Scientist and Project Manager for stormwater, Tier II and TRI planning and management. Researched, planned and prepared Storm Water Pollution Prevention Plan and Groundwater Protection Plan, and prepared NPDES Permit application. Managed storm water sampling and reporting. Researched, prepared and submitted Tier II and Toxic Release Inventory annual reports.

Phase I Environmental  
Site Assessment  
Caldwell Solar Site  
Fredonia, Kentucky

APPENDIX

F

OTHER INFORMATION



