

**ECONOMIC DEVELOPMENT GRANT PROPOSAL FOR THE  
DEVELOPMENT OF SHELTON LANE INDUSTRIAL PARK  
ENVIRONMENTAL ASSESSMENT  
Logan County, Kentucky (Russellville)**

**Prepared by:**  
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## 1.0 PROPOSED ACTION AND NEED

An integral part of the Tennessee Valley Authority's (TVA) mission is to promote economic development within the TVA service area. TVA provides financial assistance to help bring to market new/improved sites and facilities within the TVA service area and position communities to compete successfully for new jobs and capital investment. TVA proposes to provide an economic development grant through InvestPrep funds to the Logan Industrial Development Authority, Inc. (LIDAI) to assist with the development of a portion of the Shelton Lane Industrial Park (SLIP) in Logan County, Kentucky. The area of TVA's Proposed Action (herein referred to as the Project Area) encompasses 35.7 acres of open grassy land located 0.5 mile east and south of Highway 68, in Russellville, Kentucky (see Figure 1 below and Attachment 1, Figure 1-A). TVA funds would be used for grading to support a 100,000 square foot (sf) speculative building and an adjacent 100,000 sf dirt building pad, rock removal, and stabilization after grading. These activities, herein referred to as the Proposed Action, are further detailed in Section 3.2 below.

The proposed grant to the LIDAI would assist with grading, construction of a speculative building, and access to allow prospects to better envision the development potential of the site. The proposed improvements would lead to an increased probability of achieving TVA's core mission of job creation and capital investment. Multiple industrial or commercial sites are located near the Project Area with the closest facilities located to the northeast (Carpenter), east (Rubber and Gasket Company of America and Ventra Plastics Russellville), southeast (General Products Corporation and Russellville Engineered Castings), and south (Precision Soya of Kentucky, Hutson, and PAC Logistics and Warehousing, Inc.). Target industries include advanced manufacturers, suppliers to automotive and aluminum markets, agricultural technology, and food and beverage manufacturers. Pursuant to the National Environmental Policy Act (NEPA) and its implementing regulations 40 CFR 1500 – 1508 and TVA's implementing regulations 18 CFR 1318, this Environmental Assessment (EA) evaluates the environmental impacts that would potentially result from TVA's Proposed Action. TVA's decision is whether to provide the requested funding to the LIDAI.

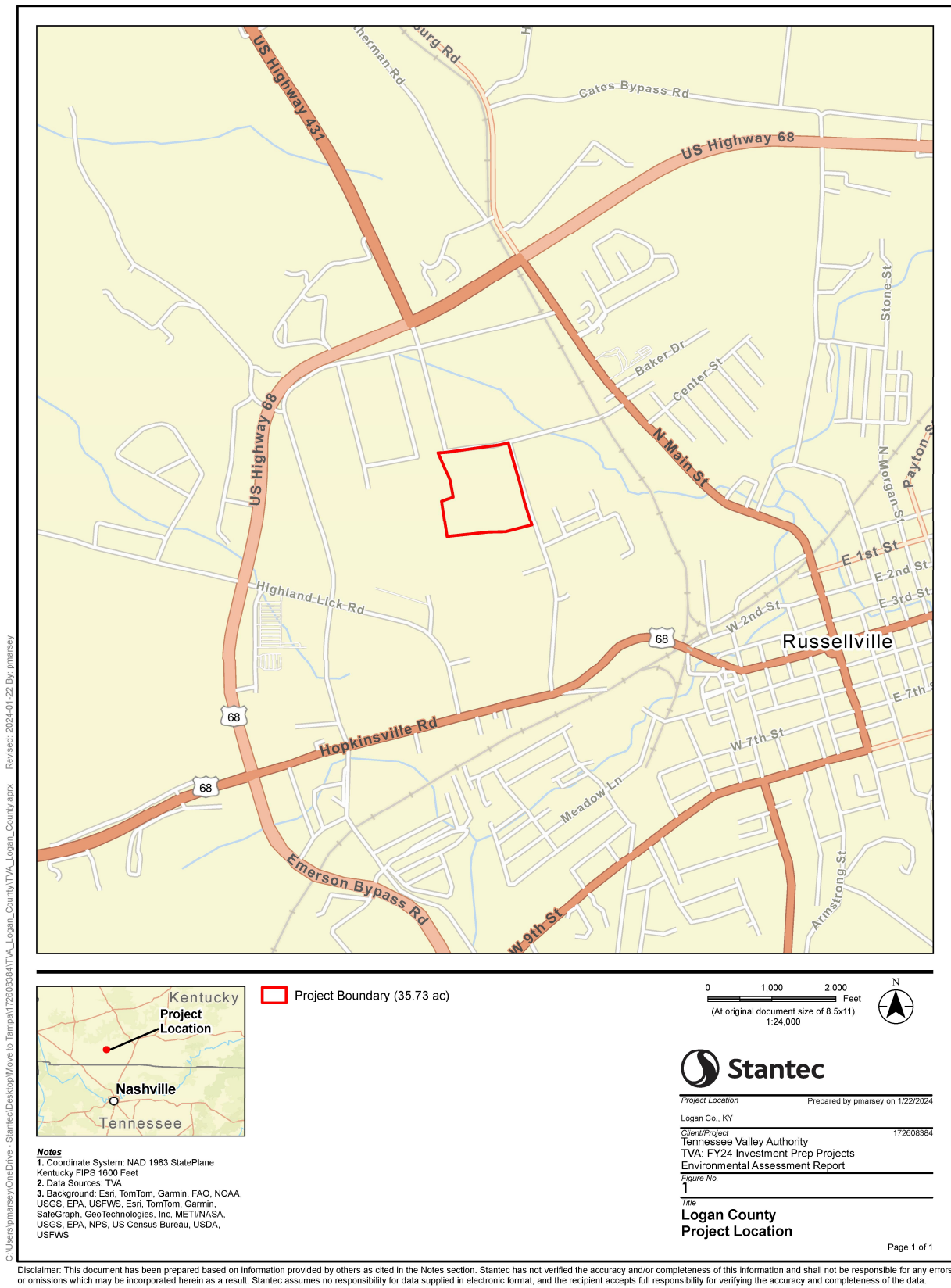


Figure 1. Project Location Map

## 2.0 OTHER ENVIRONMENTAL REVIEWS AND DOCUMENTATION

In preparation for site development, other studies have been performed for the LIDAI at the 35.7-acre Project Area. The various studies were performed at different times.

A Phase I Environmental Site Assessment (Phase I ESA) of a broader 85-acre area that encompasses the Project Area was performed consistent with the procedures included in ASTM E 1527-05 (Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process). The Phase I ESA was conducted by Arnold Consulting Engineering Services, Inc. (ACES) in September 2013 (ACES 2013). The purpose of the Phase I ESA was to identify the presence of recognized environmental conditions (RECs) or other environmental liabilities within the Project Area. No RECs or other environmental concerns were identified.

A Geotechnical Report for a portion of the Project Area was performed by Earth Science Engineering, LLC in March 2012 (ESE 2012). The study area for the Geotechnical Report encompassed roughly the northern one-half of the Project Area. The purpose of the geotechnical investigation was to obtain data regarding subsurface conditions to inform recommendations regarding site development, foundations, slabs, walls, and construction. Five geotechnical soil borings were performed. Findings included the presence of subsurface rock and recommended use of sufficient soils or compacted fill to support foundations, along with other recommendations relevant to grading, footings, slabs, and other features of construction.

A report called "Subsurface Investigation at Shelton Lane Spec Site" was prepared by ESE in March 2015 (ESE 2015). The study area was similar to the prior ESE study (ESE 2012) encompassing roughly the northern one-half of the Project Area. The purpose of the investigation was to further evaluate subsurface conditions relevant to grading and construction. Five soil borings were performed. Rock or rock fill was encountered, and additional subsurface assessments were recommended especially in areas subject to heavier loads for buildings and structures.

An Electrical Resistivity Survey was performed by NSG Innovations, LLC (NSG) in August 2023 in an area encompassing roughly the southern one-half of the Project Area (NSG 2023). Seven electrical resistivity lines were assessed to identify subsurface anomalies such as karst features and to assess potential associated impacts. The survey results indicated a relatively thin layer of soils over rock fragments with karst features present. NSG recommended additional test boreholes or similar investigations be performed and indicated that engineered solutions may be needed to address karst anomalies.

TVA staff performed a field survey for botanical resources in November 2023. Vegetation types observed during the field surveys were classified as herbaceous vegetation.

Stantec Consulting Services, Inc. (Stantec) performed a surface water and wetlands delineation of the Project Area on January 24, 2024. Ten presumed non-jurisdictional wet-weather conveyances were observed (Stantec 2024a) as discussed further below.

Stantec performed a survey for historic structures in the Project Area in January 2024. Based on the results of the historic structures study, no properties were recommended eligible for the National Register of Historic Places (NRHP) (Stantec 2024b).

Stantec performed a survey for archaeology resources in the Project Area in February 2024 (Stantec 2024c). Based on the results of the archaeology study, no sites were considered eligible for the NRHP and no further work was recommended.

The Phase I ESA, geotechnical report, subsurface investigation, electrical resistivity survey, TVA staff botany survey, and Stantec surveys for aquatic resources and wetlands, historic structures, and archaeology were used in the preparation of this EA.

### **3.0 ALTERNATIVES**

Based on internal scoping, TVA has determined that there are two reasonable alternatives to assess under NEPA: the No Action Alternative and the Action Alternative.

#### **3.1 The No Action Alternative**

Under the No Action Alternative, TVA would not provide InvestPrep funds to the LIDAI. TVA would not be furthering its mission of promoting economic development by assisting the local community to compete successfully for new jobs and capital investment through the Proposed Action. If the LIDAI were to obtain alternate funding and proceed with its current plans, the overall environmental consequences would be similar to those expected from implementing the Action Alternative. In the event the project is postponed, any environmental effects would be delayed for the duration of the postponement. If the project were cancelled, no direct environmental effects are anticipated, as environmental conditions on the site would remain essentially unchanged from the current conditions for the foreseeable future.

#### **3.2 The Action Alternative**

Under the Action Alternative, TVA would provide InvestPrep funds to the LIDAI for site improvements to the Project Area. These improvements would include the construction of a 100,000 sf speculative building with a ceiling height of 32 feet, grading of an adjacent 100,000 sf dirt building pad (no off-site borrow needed and with a finished floor elevation of approximately 633 feet above mean sea level (msl)), expansion of an existing drainage basin, rock removal (with blasting likely), and stabilization after grading is completed including seeding and mulch. The grading of the Project Area and development of a speculative building and associated features would improve the marketability of the SLIP. No trees would be cleared. Activities required for the Action Alternative would occur over approximately 13 months and would require a small workforce that would most likely be assigned from a local contractor. For ease of discussion in this EA, the proposed actions are collectively described as grading and/or construction.

The LIDAI, or its contractors, would obtain all required permits and authorizations, and in compliance with those permits take appropriate feasible measures, such as implementing best management practices (BMPs) and best construction practices, to minimize or reduce the potential environmental effects of the Proposed Action to insignificant levels. These practices would include the installation of sediment and erosion controls, (silt fences, sediment traps, etc. as discussed above) management of fugitive dust, and daytime work hours.

TVA's preferred alternative is the Action Alternative. The Action Alternative does not include the assessment of activities that may be directly or indirectly associated with adjacent lots already developed or under construction or the eventual build-out, occupation, and future use of the Project Area. The future use of the site has not been fully defined. Given this uncertainty, an analysis of the potential impacts for development of adjacent lots is beyond the scope of this EA.

## **4.0 AFFECTED ENVIRONMENT AND ANTICIPATED IMPACTS**

### **4.1 Site Description**

The 35.7-acre Project Area encompasses a portion of the SLIP in Logan County, Kentucky, on undeveloped uplands east and south of Highway 68, bordering Forest Park Drive to the north and Shelton Lane to the east in Russellville, Kentucky (Attachment 1, Figure 1-A).

The Project Area is situated within an industrial/commercial area (the SLIP) with some undeveloped, wooded, and light residential areas to the north, west, and south, and is located in zone I-2 (Heavy Industrial). Site access is from either Shelton Lane or Forest Park Drive, which connects to North Main Street/Highway 3519 leading to Highway 68. The land use surrounding the Project Area includes industrial or commercial areas to the northeast, east, and southeast, undeveloped lands and light residential to the south, west, and northwest. There are no permanent structures on-site. Utilities located adjacent to the Project Area include a 10-inch water line, 8-inch sewer line, overhead electric distribution lines, and a 4-inch natural gas line.

The Project Area ranges from approximately 620 to 677 feet above msl (Attachment 1, Figure 1-B). In the past, the Project Area was heavily wooded, with tree clearing occurring in about 2009 (ACES 2013), but now consists of undeveloped lands.

### **4.2 Impacts Evaluated**

As stated previously, a Phase I ESA was conducted in the Project Area. The Phase I ESA did not identify any RECs or current or historical chemical, petroleum, or hazardous substance operations or storage areas or locations within the Project Area that would indicate the presence of solid or hazardous wastes (ACES 2013). Based on the 2013 Phase I ESA, there is no evidence that historical use of pesticides/herbicides at the Project Area was conducted outside of standard practices. Therefore, the possible long-term use of agricultural grade pesticides or herbicides that may persist in the soils at the SLIP does not represent a REC. No demolition or construction waste activities are associated with the Action Alternative. Therefore, the Proposed Action is not expected to result in significant impacts from the creation or disposal of solid and hazardous wastes.

The Federal Emergency Management Agency (FEMA) flood insurance rate maps for Logan County, Kentucky (Attachment 1, Figure 1C), (panel numbers 21141C0256D and 21141C0257D effective October 2, 2012) indicate the Project Area would not be located within an identified 100-year floodplain. Therefore, the Proposed Action would be consistent with Executive Order 11988 and would have no impact on floodplains or their natural and beneficial values.

Stantec evaluated potential aquatic resources (i.e., waterbodies) and wetlands in the Project Area using the U.S. Fish and Wildlife Service's National Wetlands Inventory mapping (Attachment 1, Figure 1D) followed by a field survey in January 2024. The results of the field survey documented 10 ephemeral/wet-weather conveyances (Stantec 2024a). There are no perennial surface waterbodies or wetlands (Attachment 1, Figure 1E) located in the Project Area. Therefore, the Proposed Action would not result in impacts on wetlands or perennial surface waters. Consequently, because there is no aquatic habitat to support aquatic life, there would be no effects to aquatic zoology.

The Proposed Action would not cause alteration in land use. The Project Area is located within a property zoned as I-2 Heavy Industrial, with extensive existing industrial and/or commercial facilities located immediately adjacent to the northeast, east, and southeast. The Proposed Action would not result in clearing of forested land. There would be no alterations in land use.

Stantec identified that the Proposed Action could result in disturbance of 18.8 acres of mapped Prime Farmland and 8.9 acres of Farmland of Statewide Importance (Attachment 1, Figure 1F). However, coordination with the U.S. Department of Agriculture's Natural Resources Conservation Service (NRCS) determined the Project Area is located within an Urban Area as designated by the U.S. Census Bureau, so the area is considered exempt from the Farmland Protection Policy Act (Attachment 3).

Managed areas include lands held in public ownership that are managed by an entity (e.g., TVA, U.S. Department of Agriculture, U.S. Forest Service, Commonwealth of Kentucky) to protect and maintain certain ecological and/or recreational features. A review of the TVA Natural Heritage Project database identified four managed and natural areas within three miles of the Project Area, including one area located adjacent.

Four additional developed parks or outdoor recreation areas were identified within three miles of the Project Area based on a review of Google Earth imagery and data: Rhea Stadium (football or soccer field located 1.25 miles to the southeast), Rolling Hills Golf Course (located 2.5 miles to the southeast), Russellville High School and Middle School (ball fields located 1.5 miles south), and the Badgett Lodge and multiple campsites (Hazen Dean, Big Bear, Crow Hill, Wildcat Point, Apache Point, Bald Eagle, Fox Flats, Borden March, and Copperhead campsites, located 2.5 miles to the northwest). Given the distance to these areas from the Project Area, no impacts from the Proposed Action on developed parks or outdoor recreation areas are anticipated.

Stantec performed a survey for historic structures in the Project Area in January 2024. As discussed in more detail below, no evaluated properties in the Area of Potential Effects (APE) or viewshed were recommended as eligible for listing in the NRHP (Stantec 2024b). Stantec also performed a survey for archaeology resources in the Project Area in February 2024 and no sites were recommended eligible for the NRHP (Stantec 2024c).

TVA has determined that the Proposed Action, subsequent to TVA's selection of the Action Alternative, would have no impact on solid and hazardous wastes, floodplains, wetlands, aquatic zoology, land use, prime farmland, or recreation as discussed above. Therefore, potential impacts on these resources are not described in further detail in this EA.

Resources that could potentially be impacted (negatively or positively) by implementing the Action Alternative include air quality and climate change, groundwater, surface water, soils, terrestrial zoology, natural areas, botany, archaeology, and historic structures and sites. Implementation of the Action Alternative could create potential impacts on the human environment, including visual effects, noise, socioeconomics and environmental justice, and transportation issues. Potential impacts on resources and impacts on the human environment resulting from implementation of the Action Alternative are discussed in detail below.

#### **4.2.1 Air Quality and Climate Change**

Federal and state regulations protect ambient air quality. With authority granted by the Clean Air Act (CAA) 42 U.S. Code (USC) 7401 et seq. as amended in 1977 and 1990, the United States Environmental Protection Agency (USEPA) established National Ambient Air Quality Standards (NAAQS) to protect human health and public welfare. The USEPA codified NAAQS in 40 CFR 50 for the following “criteria pollutants:” nitrogen dioxide (NO<sub>2</sub>), carbon monoxide (CO), ozone, sulfur dioxide (SO<sub>2</sub>), lead, particulate matter (PM) with an aerodynamic diameter equal to or less than 10 microns (PM<sub>10</sub>), and PM with an aerodynamic diameter equal to or less than 2.5 microns (PM<sub>2.5</sub>). The NAAQS reflect the relationship between pollutant concentrations and health and welfare effects. Primary standards protect human health, including the health of sensitive populations such as asthmatics, children, and the elderly. Secondary standards are designed to protect public welfare, including visibility, animals, crops, vegetation, and buildings. These standards reflect the latest scientific knowledge and have an adequate margin of safety intended to address uncertainties and provide a reasonable degree of protection. The air quality in Logan County, Kentucky is designated as in attainment with respect to the criteria pollutants (USEPA 2024).

Other pollutants, such as hazardous air pollutants (HAPs) and greenhouse gases (GHGs) are also a consideration in air quality impact analyses. Section 112(b) of the CAA lists HAPs, also known as toxic air pollutants or air toxins, because they present a threat of adverse human health effects or adverse environmental effects. Although there are no applicable ambient air quality standards for HAPs, their emissions are limited through permit thresholds and technology standards as required by the CAA.

GHGs are gases that trap heat in the atmosphere, are non-toxic and non-hazardous at normal ambient concentrations. At this time, there are no applicable ambient air quality standards or emission limits for GHGs under the CAA. GHGs occur in the atmosphere both naturally and resulting from human activities, such as the burning of fossil fuels. GHG emissions due to human activity are the main cause of increased atmospheric concentration of GHGs since the industrial age and are the primary contributor to climate change. The principal GHGs are carbon dioxide (CO<sub>2</sub>), methane, and nitrous oxide.

Air quality impacts associated with activities under the Action Alternative include emissions from fossil fuel-fired equipment and fugitive dust from ground disturbances. Fossil fuel-fired equipment are a source of combustion emissions, including nitrogen oxides (NO<sub>x</sub>), CO, VOCs, SO<sub>2</sub>, PM<sub>10</sub>, PM<sub>2.5</sub>, GHGs, and small amounts of HAPs. Gasoline and diesel engines used as a result of the Action Alternative would be expected to comply with the USEPA mobile source regulations in 40 CFR Part 85 for on-road engines and 40 CFR Part 89 for non-road engines. These regulations are designed to minimize emissions and require a maximum sulfur content in diesel fuel of 15 parts per million (ppm). No trees would be cleared as part of the Proposed Action, so no burning of woody debris is anticipated.

Fugitive dust is a source of respirable airborne PM, including PM<sub>10</sub> and PM<sub>2.5</sub>, which could result from ground disturbances such as land clearing, grading, excavation, and travel on unpaved roads. The amount of dust generated is a function of the activity, silt and moisture content of the soil, wind speed, frequency of precipitation, vehicle traffic, vehicle types, and roadway characteristics. The LIDAI, or its contractors, would be expected to comply with applicable Kentucky Energy and Environment Cabinet regulations, which requires reasonable precautions

to prevent PM from becoming airborne. Such reasonable precautions include the use of water or chemicals for control of dust in construction operations on dirt roads and stockpiles, as needed.

Concerning climate change, the Project Area is not wooded land and no trees would be cleared as a part of the Proposed Action. Therefore, the project would have little contribution to climate change.

Implementation of the Action Alternative would result in some emissions as described above, but with the use of BMPs and other required measures described above to reduce emissions associated with the Action Alternative, air quality impacts would be minimal, temporary, and localized; and would not be anticipated to result in any violation of applicable ambient air quality standards or impact regional air quality.

Under the No Action Alternative, if the LIDAI were able to secure the funding for the proposed TVA-funded actions described in this EA from outside sources, similar emissions associated from equipment and ground disturbances would occur, resulting in similar air quality and climate change impacts as those described above for the Action Alternative. If the LIDAI were not able to secure the funding for the actions described in this EA, emissions associated with equipment and ground disturbances would not occur and there would be no impacts on air quality and climate change from the No Action Alternative.

#### **4.2.2 Groundwater**

The Project Area is located within the Highland Rim Section of the Interior Low Plateaus Province (National Park Service [NPS] 2017). The Highland Rim Section of the Interior Low Plateaus Province is characterized by Quaternary age unconsolidated sand and gravel deposits and Paleozoic sedimentary rocks consisting of consolidated limestone, dolomite, and sandstone. The Interior Low Plateaus Province extends from northern Alabama to southern Indiana and Illinois (USGS 1995).

The principal aquifers in the Interior Low Plateaus Province consist of carbonate rocks that are primarily Pennsylvanian, Mississippian, Silurian, Devonian, and Ordovician aged rocks (USGS 1995). The primary aquifer that underlies the Project Area is regionally referred to as the Mississippian Plateau aquifer system and consists of limestone (USGS 1995). The Mississippian Plateau aquifer system is typically overlain by weathered rock material or residuum consisting of clay, silt, sand and pebble of limestone and chert. The Mississippian Plateau aquifer system underlying the Project Area is comprised of Mississippian aged rocks, specifically the Girkin Formation which is comprised of the Paint Creek Limestone, Bethel Sandstone and Renault Limestone (Kentucky Geological Survey [KGS] 2019). The Girkin Formation is described as limestone, white to light gray, oolitic and crystalline ranging from sublithographic to coarse, contains thin shale beds and the limestone may be crossbedded when oolite is present. (USGS 1962).

Groundwater quality in the Mississippian Plateau aquifer system is highly variable and based on water residence time within the aquifer (KGS 2004). The water quality is characterized as hard and is either calcium magnesium bicarbonate or calcium carbonate based (USGS 1995). Median total dissolved solids and iron concentrations appear to be below USEPA drinking water secondary maximum contaminate standards (USGS 1995). Freshwater in this aquifer can circulate up to depths of 500 feet below land surface; however, the typical extent of freshwater is approximately 300 feet below land surface (USGS 1995). Percolation of rainwater infiltrates

downward to the water table; the groundwater moves through intergranular spaces in the consolidated materials of the overburden. Groundwater within the limestone bedrock flows through secondary permeability of dissolution features consisting of fractures and enlargement of bedding planes created by slightly acidic water. Water is stored via solution openings and is transmitted through limestone that discharges to wells, springs, and streams (USGS 1995). The regional flow pattern of groundwater within the Mississippian Plateau aquifer system is typically perpendicular to potentiometric contours. Locally, groundwater flows along bedding planes and existing fractures (USGS 1995).

NSG Innovations, LLC conducted a geophysical survey in 2023 across the Project Area and produced a report “Electrical Resistivity Survey – Shelton Lane Industrial Park, Russellville, KY” in which seven electrical resistivity transects were surveyed across the Project Area to establish the presence of karst terrain. The report summarized that the Bethel Sandstone is present within the Project Area and is not considered to be a well-defined confining layer resulting in the drainage of groundwater deeper into the subsurface. The report states that the drainage of groundwater may be causing development of karst features within the limestone underlying the Project Area. The report recommends that additional geotechnical borings be conducted at the Project Area to further study the underlying site conditions (NSG 2023).

Implementation of the Action Alternative would result in ground disturbance during construction activities. Site grading and construction of a 100,000 sf speculative building and an adjacent 100,000 sf dirt building pad with a finished floor elevation of approximately 633 feet above msl, expansion of an existing drainage basin, rock removal (with blasting likely), and stabilization may result in greater ground disturbance at moderate depths. The “Geotechnical Report for the Shelton Lane Property in Russellville, Kentucky” conducted by Earth Science Engineering LLC in 2012 indicates the overburden at the project site consists mostly of silty clay from land surface to 2.4 feet – 5.3 feet below land surface in five borings conducted at the Project Area. Borings were intended to be completed to a depth of 15 feet; however, auger refusal was encountered at shallower depths presumed to be caused by bedrock underlying the overburden. Groundwater was not encountered during any of the geotechnical borings (Earth Science Engineering LLC 2012). Ground disturbances are not anticipated to result in significant impacts on groundwater resources.

Shallow aquifers could sustain minor impacts from changes in overland water flow and recharge caused by grading and construction within the Project Area. Water infiltration, which is normally enhanced by vegetation, would be reduced until vegetation is re-established. In addition, near-surface soil compaction caused by heavy construction vehicles could reduce the ability of soil to absorb water. These minor impacts would be temporary and would not significantly affect groundwater resources.

A Phase 1 ESA was completed on-site by ACES, and their findings were provided in the report “Phase 1 Environmental Site Assessment – Shelton Lane Industrial Park.” The report categorized the site as undeveloped land and did not identify any current RECs associated with the Project Area (ACES 2013).

Historical land use of the Project Area was primarily wooded. As such, it is not anticipated that construction activities would encounter hazardous substances during the aforementioned site improvements. Furthermore, it is expected that the LIDAI, or its contractors, would conduct operations involving chemical or fuel storage or resupply and equipment and vehicle servicing with care to avoid leakage, spillage, and subsequent ground water contamination.

Under the No Action Alternative, if the LIDAI were able to secure the funding for the proposed TVA-funded actions described in this EA from outside sources, similar ground disturbance would occur, resulting in similar impacts on groundwater resources as those described above for the Action Alternative. If the LIDAI were not able to secure the funding for the actions described in this EA, ground disturbance associated with grading and construction would not occur and there would be no impacts on groundwater resources.

#### **4.2.3 Soils**

The Project Area is in Logan County, Kentucky and is located within the Highland Rim Section of the Interior Low Plateaus Province (NPS 2017, USGS 2023). The Project Area does not contain any perennial streams. Precipitation in the vicinity of the Project Area averages about 50.7 inches per year. The average monthly air temperature ranges from a high of 89 degrees Fahrenheit in July to a low of 26 degrees Fahrenheit in January (USClimateData.com 2024).

Soil types and descriptions were obtained from the Natural Resources Conservation Service (NRCS) Web Soil Survey (NRCS 2024) (see Attachment 1, Figure 1F). Soil types found within the Project Area include Crider silt loam (2 to 6 percent slopes), Crider silt loam (6 to 12 percent slopes), Fredonia rocky silty clay loam (2 to 12 percent slopes), Nicholson silt loam (2 to 6 percent slopes) and Talbott-Colbert rocky silt loams (2 to 20 percent slopes).

A geotechnical investigation was conducted on the Project Area in 2012 (ESE 2012). The 2012 investigation conducted five soil borings within the Project Area. The borings ranged from 2.4 feet to 5.3 feet below land surface. The soil borings encountered silty clays across the Project Area. The report recommended that initially the Project Area should be cleared of organics and topsoil down to six inches and all surficial paving materials be removed. Once the topsoil has been removed, the report recommended that the Project Area should be proof rolled under the supervision of the project geotechnical engineer (ESE 2012).

Under the Action Alternative, soils in the Project Area would be disturbed by widespread grading and construction of a 100,000 sf speculative building, an adjacent 100,000 sf dirt building pad (with a finished floor of approximately 633 feet above msl), expansion of an existing drainage basin, rock removal (with blasting likely) and site stabilization. The Proposed Action includes the stabilization of disturbed soils following grading as described in Section 3.2. Further, BMPs would be required as part of the Kentucky Pollutant Discharge Elimination System (KPDES) for discharge of pollutants in stormwater discharges associated with both small and large construction activities (KYR10 – Stormwater Construction). This permit requires the development and implementation of a Stormwater Pollution Prevention Plan (SWPPP). The SWPPP would identify specific BMPs to address construction-related activities that would be adopted to minimize erosion-related impacts. BMPs, as described in the Kentucky Erosion Prevention and Sediment Control: Field Guide (KDEP and UK 2009) would be used during site development to avoid contamination of surface water in the Project Area. These factors would effectively avoid or minimize impacts on soils and from soil erosion.

Under the No Action Alternative, if the LIDAI were able to secure the funding for the proposed TVA-funded actions described in this EA from outside sources, similar site activities would occur, resulting in similar impacts on soils as those described above for the Action Alternative. If the LIDAI were not able to secure the funding for the actions described in this EA, disturbance associated with the Proposed Action would not occur and there would be no impacts on soils or from soil erosion.

#### **4.2.4 Surface Waters**

The Project Area is located within the 8-digit hydrologic unit code (HUC) Middle Green River (HUC 05110003) and in the 12-digit HUC sub-watershed Headwaters Mud River (HUC 051100030204). Precipitation for Logan County, Kentucky averages 50.7 inches annually (USClimateData.com 2024).

Stantec performed field surveys of the entire Project Area on January 24, 2024, to document waterbodies (Stantec 2024a). A map of features based on the United States Fish and Wildlife Service (USFWS) National Wetland and Water Inventory is provided in Attachment 1, Figure 1-D. No streams potentially subject to USACE or the Kentucky Division of Water jurisdiction were identified during the field survey performed by Stantec. However, 10 presumed non-jurisdictional waterbody features (wet-weather conveyances) were documented (Attachment 1, Figure 1-E).

E001 is a presumed non-jurisdictional channel located in the northern portion of the Project Area. The channel begins near a road pull off from Forest Park Drive where the road and culvert were constructed altering flow patterns. The channel flows to the east through culverts and continues east on the edge of Forest Park Drive as a roadside ditch. No flowing water was observed in this channel. The channel substrate consists of silt and clay and is the same as the surrounding soil texture.

E002 is a presumed non-jurisdictional channel located in the northeast portion of the Project Area. The channel flows from south to north parallel to a roadway and terminates at an inlet culvert. Water was observed flowing due to recent rainfall. The channel bed consisted of upland vegetation.

E003 is a presumed non-jurisdictional channel located in the central portion of the Project Area. The channel flows from west to east. Water was observed flowing and occasionally pooling. A seep was located adjacent to the stream channel at the toe of the slope coming through a gravel patch. Channel substrate consisted of silt, clay, and bedrock in the high gradient areas.

E004 is a presumed non-jurisdictional channel located in the west portion of the Project Area. The channel flows from west to east. Water was observed flowing due to rainfall during the survey. Channel substrate consisted of bedrock in high gradient areas of the channel and upland vegetation.

E005 is a presumed non-jurisdictional channel located in the west portion of the Project Area. The channel flows from west to east. Slight alternations were observed on the channel due to ground disturbance. Water was observed flowing due to rainfall during the survey. Channel substrate consisted of bedrock in high gradient areas of the channel.

E006 is a presumed non-jurisdictional channel located in the west portion of the Project Area. The channel flows from west to east. The channel begins at a ground disturbance and continues through high gradient areas, then dissipates at the toe of the slope. Slight alternations were observed on the channel due to ground disturbance. Water was observed flowing due to rainfall during the survey. Channel substrate consisted of silt, clay, and bedrock in high gradient areas of the channel.

E007 is a presumed non-jurisdictional channel located in the west portion of the Project Area. The channel flows from south to north. Slight alternations were observed on the channel. Water was observed flowing due to rainfall during the survey. Channel substrate consisted of sand, silt, and clay with upland vegetation.

E008 is a presumed non-jurisdictional channel located in the east portion of the Project Area. The channel flows from south to north terminating at an inlet culvert. Moderate alternations were observed on the channel due to ground disturbance. Water was observed flowing and in standing pools due to rainfall during the survey. Channel substrate consisted of silt and clay with upland vegetation.

E009 is a presumed non-jurisdictional channel located in the southern portion of the Project Area. The channel flows from north to south. Moderate alternations were observed on the channel due to added riprap in the channel margins. Water was observed flowing in the channel due to rainfall during the survey. Channel substrate consisted of silt, clay, and riprap with upland vegetation.

E010 is a presumed non-jurisdictional channel located in the southern portion of the Project Area. The channel flows from west to east. Moderate alternations were observed on the channel due to artificial channel changes. Water was observed flowing in the channel due to rainfall during the survey. Channel substrate consisted of silt, clay, and riprap.

Under the Action Alternative, the presumed non-jurisdictional stream features could be disturbed by grading and construction of a 100,000 sf speculative building and an adjacent 100,000 sf dirt building pad, expanding an existing drainage basin, rock removal, and site stabilization. Consultation with the USACE and Kentucky Division of Water would not be required because the 10 wet-weather conveyances are presumed not jurisdictional. Site runoff would be managed to deter erosion and ensure adequate stormwater management. The Proposed Action would be consistent with the Clean Water (CWA) Act Sections 401 and 404.

Under the No Action Alternative, if the LIDAI were able to secure the funding for the proposed TVA-funded actions described in the EA from outside sources, similar site activities would occur, resulting in similar impacts on surface waters as those described above for the Action Alternative. If the LIDAI were not able to secure funding for the actions described in this EA, disturbance associated with the Proposed Action would not occur and there would be no impacts on surface waters.

## **4.2.5 Terrestrial Zoology**

### **4.2.5.1 Wildlife**

The Project Area is made up entirely of hay meadow and mowed grass and is directly surrounded by roads on the northern and eastern border, a narrow tree line on the southeastern border, additional hay meadow on the southwestern corner, and a forest edge on the northwestern border. The landscape in the surrounding area is predominately industrial and agricultural with some residential lots and fragments of deciduous hardwood forest.

Agricultural fields offer habitat to a multitude of avian species such as American kestrel (*Falco sparverius*), brown-headed cowbird (*Molothrus ater*), grackle (*Quiscalus quiscula*), common yellowthroat (*Geothlypis trichas*), eastern bluebird (*Sialia sialis*), eastern kingbird (*Tyrannus tyrannus*), eastern meadowlark (*Sturnella magna*), field sparrow (*Spizella pusilla*), grasshopper sparrow (*Ammodramus savannarum*), red-tailed hawk (*Buteo jamaicensis*), and red-winged blackbird (*Agelaius phoeniceus*), among others (National Geographic 2002) (Sargent and Carter 1999). Mammalian species likely present in this habitat include eastern cottontail (*Sylvilagus floridanus*), Hispid cotton rat (*Sigmodon hispidus*) long-tailed weasel (*Mustela frenata*), red fox (*Vulpes vulpes*), striped skunk (*Mephitis mephitis*), and white-tailed deer (*Odocoileus virginianus*) (Whitaker 1996). Reptilian species with the potential to occur in agricultural fields are gray rat snake (*Pantherophis spiloides*), eastern garter snake (*Thamnophis sirtalis*), eastern milk snake (*Lampropeltis triangulum*), prairie kingsnake (*Lampropeltis calligaster*), and southern black racer

(*Coluber constrictor priapus*). A variety of insects can be found in agricultural land (Jankielsohn 2018). Insect species such as American bumble bee (*Bombus pensylvanicus*), gulf fritillary (*Dione vanillae*), North American spur-throated grasshopper (*Melanoplus* spp.), and summer azure (*Celastrina neglecta*), among others have been observed in Russellville, Kentucky (iNaturalist Community 2023).

In addition, developed areas and areas otherwise previously disturbed by human activity such as residential lawns are home to many common species. American crow (*Corvus brachyrhynchos*), American robin (*Turdus migratorius*), black vulture (*Coragyps atratus*), Carolina wren (*Thryothorus ludovicianus*), common nighthawk (*Chordeiles minor*), eastern phoebe (*Sayornis phoebe*), northern cardinal (*Cardinalis cardinalis*), northern mockingbird (*Mimus polyglottos*), and turkey vulture (*Cathartes aura*) are birds commonly found along roads and in industrial complexes (National Geographic 2002). Mammals found in these locations include common raccoon (*Procyon lotor*), eastern gray squirrel (*Sciurus carolinensis*), and Virginia opossum (*Didelphis virginiana*) (Whitaker 1996). Roadside ditches provide potential habitat for amphibians including American toad (*Anaxyrus americanus*) and Fowler's toad (*Anaxyrus fowleri*) (Conant and Collins 1998).

According to the Kentucky Speleological Society, Inc. (KSS) database, five caves are known within three miles of the Project Area, the nearest of which occurs approximately 1.26 miles from the Project Area. No caves exist within the Project Area and known caves would not be impacted by the Proposed Action. No records of heronries or aggregations of other migratory birds have been documented within three miles of the Project Area. Review of the U.S. Fish and Wildlife Service's (USFWS) Information for Planning and Consultation (IPaC) project planning tool in October 2023 identified three migratory bird species of conservation concern (MBCC) having the potential to occur within the Project Area: chimney swift (*Chaetura pelagica*), field sparrow (*Spizella pusilla*), and prairie warbler (*Setophaga discolor*). Chimney swifts are associated with human settlement and primarily use chimneys as nesting habitat; they forage over a variety of habitats, including open terrain, forests, and residential areas (Steeves et al. 2020). Field sparrows prefer old fields for foraging and nesting with scattered vegetation for perching; this species avoids human habitation. Breeding habitat is primarily brushy pastures and second-growth scrub (Carey et al. 2020). Prairie warblers are forage gleaners that breed in early successional shrubby habitats (Nolan et al. 2020). Foraging habitat is present within the Project Area for these species. Suitable nesting habitat for these three species is not available within the Project Area. As such, all migratory birds in the Project Area would be mobile and expected to flush if disturbed. Similarly suitable foraging habitat is available outside of the Project Area in the surrounding landscape such that disturbed individuals could find alternative habitat nearby. Under the Action Alternative, activities would not significantly impact populations or aggregations of these migratory birds.

Under the Action Alternative, TVA would provide funding to assist with the development of the SLIP that includes the following proposed actions: grading and construction of a 100,000 sf speculative building and an adjacent 100,000 sf dirt building pad, expanding an existing drainage basin, rock removal, and site stabilization. The Project Area consists of approximately 35.7 acres. Proposed Actions would result in displacement of any wildlife (primarily common, habituated species) currently using the area. Direct effects to some individuals could occur if those individuals are immobile during the time of habitat modifications (e.g., during breeding/nesting or hibernation seasons). Habitat removal likely would disperse mobile wildlife into surrounding areas in attempts to find new food resources, shelter, and to reestablish territories. Due to the amount of similarly

suitable habitat in areas immediately adjacent to the Project Area, populations of common wildlife species likely would not be impacted by the proposed Project Action.

Under the No Action Alternative, if the LIDAI were able to secure funding for the proposed TVA-funded actions described in this EA from outside sources, similar site activities would occur, resulting in similar impacts on terrestrial wildlife or their habitats as those described above for the Action Alternative. If the LIDAI were not able to secure funding for the actions described in this EA, disturbance associated with the Proposed Action would not occur and there would be no impacts on terrestrial animals or their habitats.

#### **4.2.5.2 Threatened and Endangered Species (Wildlife)**

Review of the TVA Regional Natural Heritage database on October 13, 2023, resulted in records for one state-listed species (whitewashed rabdotus) within three miles of the Project Area. Records of two federally listed species (gray bat and Indiana bat), one species proposed for federal listing (tricolored bat), and one species recently (November 2023) delisted due to extinction (Bachman's warbler) have been recorded in Logan County, Kentucky. Review of the USFWS' IPaC project planning tool identified two additional federally listed species (northern long-eared bat and whooping crane) and one candidate species for federal listing (monarch butterfly) having the potential to occur within the Project Area. A full species list and conservation statuses can be found in Table 4-1. Species-specific information and habitat suitability within the Project Area are discussed below.

Monarch butterfly is a highly migratory species, with eastern United States (U.S.) populations overwintering in Mexico. Monarch populations typically return to the eastern U.S. in April (Davis and Howard 2005). Summer breeding habitat requires milkweed plant species, in which adults exclusively lay eggs for larvae to develop and feed on. Adults will drink nectar from other blooming wildflowers when milkweeds are not in bloom (NatureServe 2023a). The hay field within the Project Area may contain some flowering plant species that provide suitable foraging habitat for adult monarchs. Milkweed plants are toxic to livestock and are typically eradicated from pastures and hay fields (Waleign and Mekuriaw 2016); therefore, it is unlikely that significant amounts of this plant species are present within the Project Area. Though the monarch butterfly has not been historically tracked by state or federal heritage programs, the USFWS IPaC tool determined that this species could occur within the Project Area.

Whitewashed rabdotus is a small terrestrial snail species associated with glades and meadows with calcium rich soils. This species typically occupies a small area and does not disperse far, unless by passive migration (e.g., wind, water, or transport by animal or human activity) (NatureServe 2023b). The nearest record of a whitewashed rabdotus was documented approximately two miles from the Project Area. The Project Area is made up of a hay meadow with limestone soils providing suitable habitat for this species.

Bachman's warbler was declared extinct by the USFWS in November 2023. This species was known from moist deciduous woodland and swamps and wintered in open woodland and scrub habitat (USFWS 2023a). Bachman's warbler would not be present within the Project Area.

**Table 4-1. Federally Listed Terrestrial Animal Species Reported from Logan County, Kentucky and Other Species of Conservation Concern Documented within Three Miles of the Project Area**

Common Name	Scientific Name	Status <sup>1</sup>	
		Federal	State (Rank <sup>2</sup> )
Birds			
Bachman's warbler <sup>4</sup>	<i>Vermivora bachmanii</i>	D3A	--(SX)
Whooping crane <sup>5</sup>	<i>Grus americana</i>	EXPN	--(SNA)
Invertebrates			
Monarch butterfly <sup>3</sup>	<i>Danaus plexippus</i>	C	--(S4)
Whitewashed rabdotus	<i>Rabdotus dealbatus</i>	--	T(S1S2)
Mammals			
Gray bat <sup>4</sup>	<i>Myotis grisescens</i>	E	T(S2)
Indiana bat <sup>4</sup>	<i>Myotis sodalis</i>	E	E(S1S2)
Northern long-eared bat <sup>5</sup>	<i>Myotis septentrionalis</i>	E	E(S1)
Tricolored bat <sup>4</sup>	<i>Perimyotis subflavus</i>	PE	T(S2)

Source: TVA Regional Natural Heritage Database and USFWS Information for Planning and Consultation (IPaC) resource list (<https://ipac.ecosphere.fws.gov/>), extracted October 13, 2023.

<sup>1</sup> Status Codes: C = Candidate species; D3A = Delisted taxon, Evidently Extinct; EXPN = Experimental Population, Non-Essential; E = Endangered; PE = Proposed Endangered; T = Threatened.

<sup>2</sup> State Ranks: S1 = Critically Imperiled; S2 = Imperiled; S3 = Vulnerable; S4 = Apparently Secure; SNA = Status Not Applicable, No Status Rank; SX = Presumed Extirpated.

<sup>3</sup> Historically this species has not been tracked by state or federal heritage programs; USFWS has determined that this species could occur within the Project Area.

<sup>4</sup> Species that has not been documented within three miles of the Project Area but has been documented within Logan County, Kentucky.

<sup>5</sup> Species has not been documented within three miles of the Project Area or from Logan County, Kentucky; USFWS has determined this species has the ability to occur in the county.

Whooping crane is a large bird that once occurred throughout North America but has declined to one self-sustaining wild population that breeds in Canada and winters in coastal Texas. Whooping cranes from this population are listed as Endangered in the Southwest, USFWS Region 2 (USFWS 2023c). In the eastern United States, an additional population has been established from captive-raised birds that breed in Wisconsin and overwinter in Florida. This additional population found outside of the Southwest USFWS Region 2 is categorized as a non-essential experimental population (USFWS 2001). For the purposes of consultation, non-essential experimental populations are treated as threatened species on National Wildlife Refuge and National Park land and require consultation under 7(a)(2) of the Endangered Species Act (ESA). On private land, they are treated as a proposed species with no Section 7(a)(2) requirements, but Federal agencies must not jeopardize their existence (Section 7(a)(4)) (USFWS 2004). During migration, whooping cranes may be found in coastal marshes, estuaries, agricultural fields, and other wetland habitats (USFWS 2001); sightings of whooping cranes in Kentucky are rare. Suitable habitat for whooping crane does not exist in the Project Area.

Gray bats roost in caves year-round and migrate between summer and winter roosts during spring and fall (Tuttle 1976). Summer caves are typically located along large bodies of water. Bats disperse over these bodies of water at dusk where they forage for insects emerging from the surface of the water (USFWS 1982). Two gray bat records are known from Logan County, Kentucky, the nearest of which is a mist-net capture record 9.4 miles from the Project Area.

Indiana bats hibernate in caves in winter and use areas around them for swarming (mating) in the fall and staging in the spring, prior to migration back to summer habitat. During summer, Indiana bats roost under exfoliating bark of dead snags and living trees in mature forests with an open understory and a nearby source of water. Indiana bats are known to change roost trees frequently throughout the season, while still maintaining site fidelity, returning to the same summer roosting areas in subsequent years. Foraging occurs along riparian areas and along the tops of trees, forested edges, and tree lines (USFWS 2007). One historical record of Indiana bat is known from Logan County, Kentucky, approximately 7.2 miles from the Project Area; this record describes one individual observed roosting in a building in 1963. The USFWS IPaC tool has also determined that this species could occur within the Project Area.

Northern long-eared bats predominantly overwinter in large hibernacula such as caves, abandoned mines, and cave-like structures. During fall and spring, they utilize entrances of caves and surrounding forested areas for swarming and staging. In summer, northern long-eared bats roost individually or in colonies beneath exfoliating bark or in crevices of both live and dead trees (typically greater than or equal to three inches in diameter). Roost selection by northern long-eared bat is similar to that of Indiana bat; however, northern long-eared bats are thought to be more opportunistic in roost site selection. This species also roosts in abandoned buildings and under bridges. Northern long-eared bats emerge at dusk to forage below the canopy of mature forests on hillsides and roads, and occasionally over forest clearings and along riparian areas (USFWS 2022). Although no known records of northern long-eared bat have been documented from Logan County, Kentucky, the USFWS IPaC tool has determined that this species could occur within the Project Area.

Tricolored bats are generally solitary or found in small groups. They are associated with a variety of forested landscapes where they forage along forest edges and along waterways. Summer roosts are primarily in live and dead leaf clusters of live or recently dead deciduous hardwood trees, Spanish moss, and beard lichen. However, this species has also been documented roosting in clusters of dead pine needles, live cedars, and artificial structures such as bridges and culverts, and sometimes barns during summer months. In winter, this species is most commonly found in caves and mines but may also use culverts, abandoned wells, tree cavities and rock shelters (USFWS 2021). One record of tricolored bat is known from Logan County, Kentucky; this species was captured during mist-net surveys approximately 9.5 miles from the Project Area.

Suitable habitat is not present within the project footprint for Bachman's warbler or whooping crane. The Proposed Action Alternative would not affect Bachman's warbler and would not jeopardize the continued existence of whooping crane. An impact analysis has been completed for gray bat, Indiana bat, monarch butterfly, northern long-eared bat, tricolored bat, and whitewashed rabdotus based on the availability of suitable habitat within the Project Area.

As mentioned previously, five caves are known within three miles of the Project Area, the nearest of which was documented approximately 1.26 miles from the Project Area. Limited data is known about the potential for bat habitat within these caves. No known caves or suitable winter roosting structures for gray bat, Indiana bat, northern long-eared bat, or tricolored bat exist within the Project Area. One tree exists within the Project Area; however, based on analysis of Google Street View photographs and the 2023 Range-Wide Indiana Bat & Northern Long-Eared Bat Survey Guidelines (USFWS 2023b), it does not provide suitable habitat for summer roosting Indiana bat, northern long-eared bat, and tricolored bat. Additionally, tree removal is not within the scope of the Proposed Action. Vegetative foraging habitat is available along the forest edge at the northwestern border of the Project Area and on the tree line along the southeastern border of the Project Area. There are no perennial surface waterbodies or wetlands (Attachment 1, Figure 1E) located in the Project Area.

Under the Action Alternative, TVA would provide funding to assist with the development of the SLIP that includes the following Proposed Action: grading and construction of a 100,000 sf speculative building and an adjacent 100,000 sf dirt building pad, expanding an existing drainage basin, rock removal, and site stabilization. The hay field within the Project Area may contain some flowering plant species that provide suitable foraging habitat for adult monarch butterflies; however, abundant milkweed plants suitable for developing larvae are unlikely to be found in hay fields due to their toxicity to livestock (Waleign and Mekuriaw 2016). Monarch butterfly is currently listed under the ESA as a candidate species and is not subject to Section 7 consultation under the ESA. Proposed actions would not jeopardize the continued existence of monarch butterflies. This hay meadow is also comprised of limestone soils, providing suitable habitat for whitewashed rabdotus. The Proposed Action would result in habitat loss for this snail species; direct impacts on individuals may occur if they are present within the Project Area, however, impacts to populations of whitewashed rabdotus are not anticipated.

Activities associated with the Proposed Action (including blasting and grading) were addressed in TVA's programmatic consultation with the USFWS on routine actions and federally listed bats in accordance with Endangered Species Act Section 7(a)(2). For those activities with potential to affect bats, TVA committed to implement specific conservation measures when impacts on federally listed bat species are expected. These activities and associated conservation measures must be reviewed and implemented as part of the Proposed Action. With adherence to the identified conservation measures, implementation of the Action Alternative would not significantly impact gray bat, Indiana bat, and northern long-eared bat and would not jeopardize the continued existence of tricolored bat.

Under the No Action Alternative, if the LIDAI were able to secure the funding for the proposed TVA-funded actions described in this EA from outside sources, similar site activities would occur, resulting in similar impacts on threatened and endangered terrestrial animals or their habitats as those described above for the Action Alternative. If the LIDAI were not able to secure the funding for the actions described in this EA, disturbance associated with the Proposed Action would not occur and there would be no impacts on threatened and endangered terrestrial animals or their habitats.

#### 4.2.6 *Managed and Natural Areas*

Managed areas include lands held in public ownership that are managed by an entity (e.g., TVA, U.S. Department of Agriculture, U.S. Forest Service, Commonwealth of Kentucky) to protect and maintain certain ecological and/or recreational features. Natural areas include ecologically significant sites; federal, state, or local park lands; national or state forests; wilderness areas; scenic areas; wildlife management areas; recreational areas; greenways; trails; Nationwide Rivers Inventory streams; and wild and scenic rivers. Ecologically significant sites are either tracts of privately owned land that are recognized by resource biologists as having significant environmental resources or identified tracts on TVA lands that are ecologically significant but not specifically managed by TVA's Natural Areas program.

Of the four managed and natural areas that occur within three miles of the Project Area, only one would potentially be impacted by the Proposed Action (Table 4-2). The Baker Natural Area, managed by the Logan County Conservation District, is located immediately adjacent to the west of the Project Area. There are numerous sensitive botanical species and habitat possibly present in this area. No direct impacts on this area are expected; however, there would be the potential for temporary, indirect impacts during any construction. These potential impacts, such as visual and noise impacts as discussed further below, could result from construction and site preparation. However, these potential impacts could be minimized through the use of standard BMPs, the temporary nature of construction, construction being limited to daylight hours, as well as intervening distance and forest buffers. The other three natural areas are a sufficient distance from the Project Area that no significant impacts are expected, given the nature of the Action Alternative.

**Table 4-2. Managed/Natural Areas That Occur Within, Adjacent To, or Within 3 Miles of the FY24 Logan County, Kentucky, InvestPrep Project Area**

Natural Area	Acres	Distance/Direction from Project Area
Logan County Glade State Nature Preserve	45.36	1.6 mi east
Katie White Barrens Registered Natural Area (Luckett)	13.99	2.5 mi southeast
Katie White Barrens Registered Natural Area (Webb)	13.23	2.4 mi southeast
Baker Natural Area	66.41	Adjacent (west)

Under the Action Alternative, there could be potential indirect impacts on the adjacent Baker Natural Area, however these impacts would be adequately minimized as described above.

Under the No Action Alternative, if the LIDAI were able to secure the funding for the proposed TVA-funded actions described in this EA from outside sources, similar site activities would occur, resulting in similar impacts on managed and natural areas as those described above for the Action Alternative. If the LIDAI were not able to secure the funding for the actions described in this EA, disturbance associated with the Proposed Action would not occur and there would be no impacts on managed and natural areas.

#### **4.2.7 Botany**

##### **4.2.7.1 Vegetation**

The project would occur in the Crawford Mammoth Cave Uplands (Woods et al. 2002). The Crawford Mammoth Cave Uplands IV Ecoregion is characterized as having a karst topography comprised of limestone and some sandstone and siltstone extending north to south from Indiana to Kentucky. The characteristic land vegetation type for this ecoregion is oak-hickory forest and savannas in the uplands that grades into more mesic forests and pockets of prairie and glades. Land cover is a mixture of cropland, forest, and pasture and land use is rural residential, urban, and industrial.

Field surveys were conducted in November 2023 by TVA biologists to document plant communities, infestations of invasive plants, and to search for possible threatened and endangered plant species in areas where work would occur. All of the Project Area was visited during the surveys. Using the National Vegetation Classification System (Grossman et al. 1998), vegetation types observed during field surveys can be classified as herbaceous vegetation. The plant communities observed on-site are common and well represented throughout the region.

Herbaceous vegetation is characterized by greater than 75 percent cover of forbs and grasses and less than 25 percent cover of other types of vegetation and occurs on about 100 percent of the Project Area. Most of this habitat type occurs along roadsides and heavily manipulated pastures also support herbaceous vegetation. Most of these sites are dominated by plants indicative of early successional habitats including many native prairie species. Early successional areas with naturalized vegetation contain herbaceous species like barrens silky aster, big bluestem, common elephant's-foot, giant plume grass, giant ragweed, Indian grass, Johnson grass, late goldenrod, little blue stem, meadow-grass, purple-top grass, split bluestem, switch grass, three-lobed beggarticks, and yellow foxtail grass. In addition to this description, these species of importance were found in the immediate surrounding area and represent a nexus endemism for the region; pale purple coneflower, prairie-dock, straggling St. Johnswort, and whorled rosinweed. This area falls immediately outside of the Project Area (Centroid 36.850058, -86.909017) and should remain undisturbed by the Proposed Action.

Executive Order (EO) 13112 directed TVA and other federal agencies to prevent the introduction of invasive species (both plants and animals), control their populations, restore invaded ecosystems, and take other related actions. EO 13751 amends EO 13112 and directs actions by federal agencies to continue coordinated federal prevention and control efforts related to invasive species. This order incorporates considerations of human and environmental health, climate change, technological innovation, and other emerging priorities into federal efforts to address invasive species; and strengthens coordinated, cost efficient federal action. Some invasive plants have been introduced accidentally, but most were brought to the United States as ornamentals or for livestock forage. Because these robust plants arrived without their natural predators (insects and diseases) their populations spread quickly across the landscape displacing native species and degrading ecological communities or ecosystem processes (Miller et al. 2010). No federal-noxious weeds were observed, and only one invasive species of plant, yellow foxtail grass, was observed in the Project Area. During field surveys, invasive plants were prevalent in sections of herbaceous vegetation types.

Adoption of the Action Alternative would not significantly affect the terrestrial ecology of the region. Project-related work would temporarily affect herbaceous plant communities, but these areas would likely recover to their pre-project condition in less than one year. Adoption of the Action Alternative would not significantly affect the extent or abundance of these species at the county, regional, or state level.

Similar to the Action Alternative, under the No Action Alternative, if the LIDAI were able to secure the funding for the proposed TVA-funded actions described in this EA from outside sources, there would be no direct or indirect impacts on plant species. If the LIDAI were not able to secure the funding for the actions described in this EA, the proposed disturbances would not occur and existing site conditions would likely be unchanged, also resulting in no impacts on plant species.

#### **4.2.7.2 Threatened and Endangered Species (Plants)**

Review of the TVA Regional Natural Heritage database indicated there are no federally listed plant species previously reported within a five-mile vicinity of the Project Area; however, there are 20 state-listed plant species reported (Table 4-3). No federally listed plant species are known from Logan County. One state-listed plant (Barrens silky aster) was observed in the proposed Project Area during field surveys. No designated critical habitat for plants occurs in the proposed Project Area.

Adoption of the Action Alternative would have no effect on federally listed plant species because no federally listed plant species occur in the Project Area. One population of a state-listed species was found within the Project Area. Avoidance of this species could be achieved by avoiding the furthest northwestern portion of the proposed Project Area as it intersects into a right-of-way corridor. In addition, one other species was found immediately outside of the Project Area to the west and would be avoided by staying within the Project Area. Given the nature of these species lifecycles and the project's limited effect on herbaceous communities, avoidance would mean no direct, indirect, or cumulative impacts on endangered and threatened plant species and their critical habitats are anticipated as a result of implementing the Action Alternative.

Similar to the Action Alternative, under the No Action Alternative, if the LIDAI were able to secure the funding for the proposed TVA-funded actions described in this EA from outside sources, there would be no direct or indirect impacts on state and federally listed threatened and endangered plant species. If the LIDAI were not able to secure the funding for the actions described in this EA, the proposed disturbances would not occur and existing site conditions would likely be unchanged, also resulting in no impacts on state and federally listed threatened and endangered plant species.

**Table 4-3. Plant Species of Conservation Concern Previously Reported from within 5 Miles of the Proposed InvestPrep - Shelton Lane Industrial Park, Logan County, Kentucky, Project Area**

Common Name	Scientific Name	Federal Status	State Status	State Rank
Barrens Silky Aster	<i>Symphyotrichum pratense</i>	-	S	S3
Broadwing Sedge	<i>Carex alata</i>	-	T	S1S2
Carolina Larkspur	<i>Delphinium carolinianum</i>	-	T	S1S2
Eastern Prairie Blue Wild Indigo	<i>Baptisia aberrans</i>	-	E	S1
Eggleston's Violet	<i>Viola egglestonii</i>	-	S	S3
Epiphytic Sedge	<i>Carex decomposita</i>	-	T	S2
Great Plains Ladies'-tresses	<i>Spiranthes magnicamporum</i>	-	T	S2
Hairy Fimbristylis	<i>Fimbristylis puberula</i>	-	T	S2
Hispid Falsemallow	<i>Malvastrum hispidum</i>	-	T	S2?
Limestone Fame-flower	<i>Phemeranthus calcaricus</i>	-	E	S1
Muhly	<i>Muhlenbergia glabrifloris</i>	-	S	S2S3
Necklace Glade-cress	<i>Leavenworthia torulosa</i>	-	T	S2
Nemophila	<i>Nemophila aphylla</i>	-	T	S2?
Plain's Rush	<i>Juncus filipendulus</i>	-	T	S2?
Prairie-dock	<i>Silphium pinnatifidum</i>	-	S	S3
Purple Prairie-clover	<i>Dalea purpurea</i>	-	S	S3?
Sundrops	<i>Oenothera triloba</i>	-	T	S1S2
Upland Swamp Privet	<i>Forestiera ligustrina</i>	-	T	S2S3
White Heath Aster	<i>Symphyotrichum priceae</i>	-	E	S1
White Prairie-clover	<i>Dalea candida</i>	-	S	S3

Source: TVA Regional Natural Heritage database and Kentucky Natural Heritage database, queried January 2024

Status Codes:

E = Endangered

T = Threatened; S = Special Concern

State Ranks:

S1 = Critically Imperiled

S2 = Imperiled

S3 = Vulnerable

S? = Inexact or uncertain

S#S# = Denotes a range of ranks because the exact rarity of the element is uncertain (e.g., S1S2)

#### **4.2.8 Archaeology and Historic Structures and Sites**

Historic and cultural resources, including archaeological resources, are protected under various federal laws, including: the Archaeological Resources Protection Act, the Native American Graves Protection and Repatriation Act, and the National Historic Preservation Act (NHPA). Section 106 of the NHPA requires federal agencies to consult with the respective State Historic Preservation Officer (SHPO) when proposed federal actions could affect these resources.

TVA determined that the Proposed Action Alternative is an “undertaking” as defined by the regulations under NHPA. Once an action is determined to be an undertaking, the regulations require agencies to consider whether the proposed activity has the potential to impact historic properties. If the undertaking is such an activity, then the agency must follow the following steps: (1) involve the appropriate consulting parties; (2) define the Area of Potential Effect (APE); (3) identify historic properties in the APE; (4) evaluate possible effects of the undertaking on historic properties in the APE; and (5) resolve adverse effects (36 CFR § 800.4 through 800.13). An APE is defined as the “geographic area or areas within which the undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist” (36 CFR § 800.16). TVA recommends that the APE be considered as the total area within which the proposed grading would take place (35.7 acres), where physical effects could occur as well as areas within a half-mile radius of the project within which the project would be visible where visual effects on historic structures could occur.

TVA contracted with Stantec to carry out archaeological and historic architectural surveys for the project APE, which were conducted in January and February 2024, and to write the reports titled, *Phase I Cultural Resources Survey for the Shelton Lane Industrial Park, Russellville, Logan County, Kentucky* (Stantec 2024c) and *Cultural Historic Survey InvestPrep Round 11: Shelton Lane Industrial Park, Logan County, KY (Russellville)* (Stantec 2024b). TVA determined that the surveys and the reports are consistent with the *Secretary of Interior’s Standards and Guidelines for Identification* (NPS 1983).

##### **4.2.8.1 Archaeology**

Stantec’s background research did not identify any previously known archaeological sites within the APE (Stantec 2024c). The Phase I archaeological survey completed of the APE identified one new archaeological site (15LO419) and two isolated finds (1F1 and 1F2). A total of 369 shovel tests were pre-plotted for excavation within the APE; 136 shovel tests were negative for cultural material, 222 shovel tests were disturbed, five shovel tests were not excavated due to surface visibility greater than 50 percent, and six shovel tests were positive for cultural material.

Site 15LO419 is a low density precontact lithic scatter (i.e., waste produced during the production of stone tools or weapons) of indeterminate age or cultural affiliation. Both 1F1 and 1F2 consisted of a single piece of debitage (i.e., waste produced during the production of tools or weapons) each. All artifacts were recovered from the plow zone with no evidence of sub-plow deposits or features observed. Overall, these cultural resources are not likely to provide additional information regarding precontact occupations of western Kentucky.

Stantec recommends sites 15LO419, 1F1, and 1F2 not eligible for the NRHP. Stantec recommended no further archaeological work within the APE. TVA agrees with the findings and recommendations of Stantec’s survey report. TVA received concurrence from the Kentucky Heritage Council (KHC) on May 7, 2024, with the report’s findings.

Under the Action Alternative, no eligible archaeological resources would be disturbed by proposed activities because no eligible archaeology resources are present in the APE.

Under the No Action Alternative, if the LIDAI were able to secure the funding for the proposed TVA-funded actions described in this EA from outside sources, similar site activities would occur, also resulting in no impacts on archaeological resources as those described above for the Action Alternative. If the LIDAI were not able to secure the funding for the actions described in this EA, disturbance associated with the Proposed Action would not occur and there also would be no impacts on archaeological resources.

#### **4.2.8.2 Historic Structures and Sites**

Stantec performed a cultural historic survey of the Project Area in January 2024 (Stantec 2024b). One previously recorded property is located within a half-mile of the Project Area; however, this property is not within the viewshed. Stantec's field survey documented 21 sites with potential to be eligible for listing in the NRHP. After further evaluation, the 21 sites were all recommended not eligible for listing in the NRHP because they lack significance and integrity and they are not notable examples of mid-twentieth century architecture in Russellville, Logan County, Kentucky.

TVA agrees with the findings and recommendations of Stantec's survey report. TVA received concurrence from the Kentucky Heritage Council on May 7, 2024, with the report's findings. TVA therefore finds that the proposed undertaking would result in no effects to historic properties included in, or eligible for inclusion in, the NRHP.

Under the Action Alternative, no NRHP-eligible historic properties are present in the APE. As such, no historic properties would be disturbed or impacted by grading of a 100,000 sf dirt building pad, construction of a 100,000 sf speculative building, rock removal, and site stabilization.

Under the No Action Alternative, if the LIDAI were able to secure the funding for the proposed TVA-funded actions described in this EA from outside sources, similar site activities would occur, also resulting in no impacts on historic structures and sites as those described above for the Action Alternative. If the LIDAI were not able to secure the funding for the actions described in this EA, disturbance associated with the Proposed Action would not occur and there would be no impacts on historic structures and sites.

#### **4.2.9 Visual Resources**

The Project Area is approximately 35.7 acres consisting mainly of open undeveloped land. The Project Area is bordered by forested and open land to the north, forested land to the west, and open land and industrial development to the south and east. The visual landscape consists of rural, relatively flat areas with forested and open land, as well as industrial development areas adjacent to the Project Area.

The Project Area would be directly adjacent to Shelton Lane to the east and Forest Park Drive to the north. There is virtually no visual screening between the two roads and the Project Area. Some residences, both single family homes and apartments, occur to the southwest and northwest beyond the forested areas adjacent to the Project Area. There is moderate to dense visual screening by forest and patchy trees between the residences and the Project Area and an intervening distance of approximately 0.1 to 0.2 mile. The commercial businesses along Shelton Lane and Forest Park Drive would have a direct line of sight to the Project Area.

Construction vehicles and equipment visible during construction activities would have a minor visual impact over the temporary construction period as well as a minor permanent impact due to grading. Drivers along Shelton Lane and Forest Park Drive would have direct views of the Project Area; however, there are other industrial areas along the roadway within 0.5 mile, and any changes to the views would be similar to other areas along the road. The lands along the roads are dominated by a combination of open land, forested land, and commercial/industrial development. While motorists using the roads may notice a slight change in the viewshed, this change would be minor given the brief period that drivers would be in the area and the nearby commercial/industrial setting. Current views from those areas would change from open agricultural land including pasture to prepared industrial land available for development, but with other industrial facilities already located in the immediate vicinity. The Project Area would be, depending on the vantage point, fully or partially screened from the Baker Natural Area and nearby residences by dense or patchy forest. Implementation of the Action Alternative would result in a minor decrease in visual quality for residents in the viewshed.

Under the No Action Alternative, if the LIDAI were able to secure the funding for the proposed TVA-funded actions described in this EA from outside sources, the proposed work would occur, resulting in similar direct and indirect visual quality impacts as described above for the Action Alternative. If the LIDAI were not able to secure the funding for the actions described in this EA, the proposed work would not occur, and existing site conditions would likely be maintained resulting in no visual quality impacts.

#### **4.2.10 Noise**

Existing ambient noise levels, or background noise levels, are the current sounds from natural and artificial sources at noise sensitive receptors. The magnitude and frequency of background noise at any given location may vary considerably over the course of a day or night and throughout the year. The variations are caused in part by weather conditions, seasonal vegetative cover, wildlife, and human activity. Existing sources of noise in the vicinity of the Project Area are primarily associated with traffic along the surrounding roads and the surrounding businesses and residences.

Noise impacts associated with construction activities under the Action Alternative would be primarily from the heavy equipment used. Construction activities would involve operation of an excavator, bulldozer, dump truck, or similar vehicles and heavy machinery over the temporary duration of construction. Heavy equipment noise levels would fluctuate depending on the number and type of vehicles and equipment in use at any given time and would occur during the approximate 13-month duration of work. In addition, construction-related sound levels experienced by a noise sensitive receptor in the vicinity of construction activity would be a function of distance, other noise sources, and the presence and extent of vegetation, structures, and intervening topography between the noise source and receptor.

Primary sensitive noise receptors in the Project Area include single-family residences northwest and single-family residences and multi-family apartments southwest of the Project Area, and the businesses east and southeast of the Project Area (Carpenter Co., Rubber and Gasket Company of America – Russellville, Ventra Plastics Russellville, Precision Soya of Kentucky, etc.). The noise would be localized and temporary, and no receptor would be exposed to significant noise levels for an extended period of time. Construction activities would be conducted during daylight hours when ambient noise levels are often higher, and most individuals are less sensitive to noise.

Construction activities in the Project Area may also require blasting. Sensitive receptors to sound and ground vibrations from blasting may include residences, infrastructure, Baker Natural Area, and commercial/industrial facilities. Residences are located at a minimum 300 feet from the Project Area, and business infrastructures are at minimum 100 feet from the Project Area. In addition to the time of day, the frequency and intensity of blasting actions can be selected to minimize potential noise and vibration disturbance to nearby resources. Implementation of the Action Alternative on noise sensitive receptors are anticipated to be temporary and minor.

Under the No Action Alternative, if the LIDAI were able to secure the funding for the proposed TVA-funded actions described in this EA from outside sources, there would be impacts on noise receptors similar to those described above for the Action Alternative. If the LIDAI were not able to secure the funding for the actions described in this EA, the proposed disturbances would not occur and existing site conditions would likely be unchanged, resulting in no impacts on noise receptors.

#### **4.2.11 Socioeconomics and Environmental Justice**

This section evaluates the potential impact of the Action Alternative on socioeconomic resources. It also considers the range of communities impacted to determine whether the Action Alternative is likely to have a disproportionate and adverse impact on minority and low-income populations.

This analysis focuses on the state, county, and locality within which the Action Alternative would occur. Publicly available statistics generated by the U.S. Census Bureau and the U.S. Bureau of Labor Statistics were used to characterize socioeconomic conditions in the host state (Kentucky), county (Logan), and locality (City of Russellville, Kentucky) (Table 4-4). Details of the Action Alternative were then used to evaluate likely effects on existing socioeconomic resources. The demographics and income of the host county and locality were considered, relative to the demographics and wealth levels at the state level, to identify the potential for a disproportionate and adverse impact on minority and low-income populations, which is commonly referred to as an evaluation of Environmental Justice.

**Table 4-4. Population, Demographics, Income, and Employment in the Host State, County and Locality**

	Kentucky	Logan County	City of Russellville, Kentucky
<b>Population <sup>1</sup></b>			
July 2022 Population	4,511,563	27,877	7,282
April 2020 Population	4,505,836	27,432	7,165
Population, Percent Change	0.1%	1.6%	1.6%
Population per Square Mile	114.1	49.7	660.8
<b>Demographics <sup>1</sup></b>			
White Alone, not Hispanic or Latino	83.2%	88.2%	79.7%
Black or African American Alone	8.7%	6.1%	14.0%
American Indian and Alaska Native Alone	0.3%	0.5%	0.0%
Asian Alone	1.8%	0.4%	0.9%
Native Hawaiian and Other Pacific Islander Alone	0.1%	0.1%	0.0%
Two or More Races	2.3%	2.1%	1.8%

	Kentucky	Logan County	City of Russellville, Kentucky
Hispanic or Latino (of any race)	4.3%	3.5%	4.2%
<b>Income <sup>1</sup></b>			
Median Household Income	\$60,183	\$58,869	\$45,484
Per Capita Income	\$33,515	\$27,741	\$22,996
Percent with Income Below the Poverty Level	16.5%	15.4%	19.3%
<b>Employment (Not Seasonally Adjusted): April 2023 <sup>2</sup></b>			
Labor Force	2,0109,568	12,239	NA
Employed	1,942,066	11,737	NA
Unemployed	77,502	502	NA
Unemployment Rate (%)	3.8%	4.1%	NA

Notes: NA=Not available

<sup>1</sup> Source: United States Census Bureau (2024)

<sup>2</sup> Source: United States Bureau of Labor Statistics (2024)

The evaluation of Environmental Justice determined the following:

- Relative to the average Kentucky resident, the residents of Logan County live at a lower population density and higher population growth. Relative to the average Kentucky resident, the residents of the City of Russellville, Kentucky, live at a higher population density and higher population growth.
- Relative to the average Kentucky resident, the residents of Logan County are less likely to self-identify as a minority race or ethnicity. Relative to the average Kentucky resident, the residents of the City of Russellville, Kentucky, are more likely to self-identify as a minority race or ethnicity.
- Per capita income and median household income are both lower in Logan County than in Kentucky. Per capita income and median household income are both lower in the City of Russellville, Kentucky than in Kentucky as a whole. Residents of Logan County are less likely to live below the poverty level than residents of Kentucky as a whole. Residents of the City of Russellville, Kentucky, are more likely to live below the poverty level than residents of Kentucky as a whole.
- The unemployment rate in Logan County is higher than the unemployment rate in Kentucky.

There are several residential subdivisions within 0.5 mile of the Project Area. EPA's EJScreen Tool identified the following demographic characteristics for this area. Relative to the state, these neighborhoods in aggregate have a lower percentile population of color, a higher level of low-income population, a lower rate of linguistic isolation, and a higher level of population with less than high school education.

As described in Section 1.0 (Proposed Action and Need), the Action Alternative would include grading to support construction of a 100,000 sf speculative building, an adjacent 100,000 sf dirt building pad, expansion of a drainage basin, rock removal, and site stabilization. Erosion prevention, sediment control, and stabilization measures such as seeding and straw mulch would be implemented after grading is complete.

This effort is expected to take place over an approximate 13-month period and would require a small workforce, likely drawn from a local contractor. Implementation of the Action Alternative is not anticipated to materially impact the local economy nor the local workforce. In addition, no negative socioeconomic impacts are anticipated from the Proposed Action; therefore, no disproportionate negative impacts are anticipated to minority or economically disadvantaged populations as a result of the Action Alternative. Minor positive indirect impacts may be noted through the increase in employment as a result of the Action Alternative.

There is minimal potential that the Action Alternative would result in a disproportionate and adverse impact on minority and low-income populations. This conclusion is based on two observations. First, the Action Alternative would have a minor positive effect on the local economy. Second, as described throughout this document, environmental effects associated with the Action Alternative would be minor, temporary, and would generally be constrained to the approximate 35.7-acre Project Area.

Under the No Action Alternative, if LIDAI was able to secure the funding for the actions described in this EA from outside sources, similar activities would occur resulting in socioeconomic impacts similar to those described in the preceding paragraphs. If LIDAI was not able to secure the funding for the action, the economic activity and socioeconomic changes would not occur.

#### **4.2.12      *Transportation***

The Project Area will be accessed during construction activities from Industrial Drive (also known as Shelton Lane). The site entrances would be located on the east side of the Project Area. Industrial Drive runs approximately north to south and provides access to Forest Park Drive to the north and East Jefferson Davis Highway to the south. Forest Park Road provides access to Highway 3519 to the east and transitions to Woodland Drive to the west. Woodland Drive provides access to Highway 68 and Highway 431 to the north of the Project Area.

Industrial Drive is a local road that provides access to one residential and multiple industrial properties to the east and south of the Project Area. Industrial Drive is a two-lane paved road and is sufficiently wide for a single lane of traffic in each direction. Based on preliminary review of Google Street View images (recorded April 2023), the road is in good condition with narrow grassy verges. General road conditions were considered acceptable based on observations during Stantec's field surveys. Industrial Drive is listed as a major collector on the Functional Classification System by the Kentucky Transportation Cabinet (KTC) (KTC 2024a). The site entrance location and configuration should consider safe sight distances and other safety concerns for the traffic that would enter Industrial Drive from the property. Necessary precautions would be taken during mobilization and de-mobilization such as reduced speed in areas of poor visibility or poor road condition, with other precautions such as a flagman or traffic control to be considered if required.

East Jefferson Davis Highway is a two-lane paved highway with a dedicated traffic light at Industrial Drive and transitions into Hopkinsville Road west of Industrial Drive. Based on preliminary review of Google Street View images (recorded October 2018), the road is in good condition with narrow shoulders. General road conditions were considered acceptable based on observations during Stantec's field surveys. East Jefferson Davis Highway is listed as a minor arterial on the Functional Classification System by KTC (KTC 2024a). Normal care would be taken by workers entering East Jefferson Davis Highway (east) or Hopkinsville Road (west) with regards to traffic safety.

Forest Park Drive is a local road that provides access to multiple industrial properties north of the Project Area. Forest Park Drive is a two-lane paved road and is sufficiently wide for a single lane of traffic in each direction. Based on preliminary review of Google Street View images (recorded March 2021), the road is in good condition with wide grassy verges. General road conditions were considered acceptable based on observations during Stantec's field surveys. Forest Park Drive is listed as a major collector west of the intersection with Industrial Drive and is not listed east of the intersection on the Functional Classification System by the KTC (KTC 2024a). Normal care would be taken by workers entering East Jefferson Drive with regards to traffic safety.

Woodland Drive is a local road that does not provide access to properties along its length. Woodland Drive is a two-lane paved road and sufficiently wide for a single lane of traffic in each direction. Based on preliminary review of Google Street View images (recorded April 2023), the road is in good condition with narrow grassy verges. General road conditions were considered acceptable based on observations during Stantec's field surveys. Woodland Drive is listed as a major collector on the Functional Classification System by the KTC (KTC 2024a). Normal care would be taken by workers entering Woodland Drive with regards to traffic safety. Woodland Drive terminates at the intersection of Highway 68 and Highway 431.

Highway 68 and Highway 431 are four-lane paved roads with dedicated turning lanes and a traffic light at the intersection with Woodland Drive. Based on preliminary review of Google Street View images (recorded April, June, August, and September of 2023), the roads are in good condition with paved shoulders. General road conditions were considered acceptable based on observations during Stantec's field surveys. Highway 68 is listed as a principal arterial and Highway 431 is listed as a minor arterial on the Functional Classification System by KTC (KTC 2024a). Normal care would be taken by workers entering Highway 68 or Highway 431 with regards to traffic safety.

Highway 3519 is a two-lane paved road which provides access to multiple residential properties. Based on preliminary review of Google Street View images (recorded April 2023), the road is in good condition with wide grassy verges. General road conditions were considered acceptable based on observations during Stantec's field surveys. Highway 3519 is listed as a principal arterial on the Functional Classification System by KTC (KTC 2024a). Normal care would be taken by workers entering Highway 3519 with regards to traffic safety.

There is one traffic count station located on Industrial Drive south of the Project Area. Based on the available data, it is anticipated that current traffic volumes for Industrial Drive would be moderate. Because of the anticipated limited volume of workers on the site required for grading and construction, and the timeframe of the proposed work, direct or indirect impacts on local traffic are anticipated to be temporary and minor.

Based on a review of KTC historical traffic data (KTC 2024b) the nearest traffic count stations are located on Industrial Drive/Shelton Lane, Forest Park Drive, Woodland Drive, East Jefferson Highway, and Highway 68. The 2022 annual average daily traffic count (AADT) for the relevant stations are presented in Table 4-5 below.

**Table 4-5. Kentucky Transportation Cabinet Traffic Count Data for the Project Area**

Route Description	Location ID	Distance from Project Area (Miles)	Year	AADT
Industrial Drive/Shelton Lane	071B59	0.2	2022	2,302
Forest Park Drive	071B36	0.3	2022	1,413
Woodland Drive	071B58	0.5	2022	1,412
East Jefferson Davis Highway	071A92	0.7	2021	7,976
Highway 68	071B54	1.0	2022	9,204

Source: Kentucky Transportation Cabinet ([Traffic Counts \(ky.gov\)](https://www.ky.gov/traffic-counts)), extracted 2/28/2024.

In the context of the existing AADT road volumes, the anticipated traffic generated by the proposed activities would be minor. It is anticipated that implementation of the Action Alternative would generate minor traffic associated with construction activities and have a temporary and negligible impact on overall traffic volumes and level of service for each roadway.

Under the No Action Alternative, if the LIDAI were to obtain alternate funding and proceed with its current plans, the grading and construction activities would also result in temporary and negligible impact on overall traffic volumes and level of service. In the event the project is postponed, any effects would be delayed for the duration of the postponement. If LIDAI were not able to secure any funding for the actions described in this EA, there would be no impact on overall traffic volumes and level of service.

## **5.0 PERMITS, LICENSES, AND APPROVALS**

The Action Alternative would result in greater than one acre of earth disturbing activities; therefore, it would be necessary for the LIDAI, or its contractors, to obtain local, state, or federal permits, licenses, and approvals necessary for the project for coverage under the applicable NPDES General Permit for Discharges Associated with Construction Activity (KYR10 – Stormwater Construction). Coverage would require submittal of a Notice of Intent (NOI) and development of a site-specific SWPPP.

## **6.0 BEST MANAGEMENT PRACTICES AND MITIGATION MEASURES**

To minimize or reduce the environmental effects of site activities associated with the Action Alternative, the LIDAI, or its contractors, would ensure all grading activities conducted are in compliance with stormwater permitting requirements and would use applicable BMPs to minimize and control erosion and fugitive dust during these actions.

Operations involving chemical or fuel storage or resupply and vehicle servicing would be handled outside of riparian areas and in such a manner as to prevent these items from reaching a watercourse. Earthen berms or other effective means would be installed to protect nearby stream channels from direct surface runoff. Servicing of equipment and vehicles would be done with care to avoid leakage, spillage, and subsequent surface or groundwater contamination. Oil waste, filters, and other litter would be collected and disposed of properly.

Specific avoidance and conservation measures would be implemented as a part of the Action Alternative to reduce effects to Indiana bat and NLEB. These measures are identified in the TVA Bat Strategy Project Screening Form (Attachment 2).

## 7.0 LIST OF PREPARERS

Table 7-1 summarizes the expertise and contribution made to the EA by the Project Team.

**Table 7-1. Environmental Assessment Project Team**

Name/Education	Experience	Project Role
<b>TVA</b>		
Brittany Kunkle <i>B.S. Environmental and Soil Science</i>	5 years in Project Management, Managing and Performing NEPA Analyses	Economic Development Grant Project NEPA Compliance Manager
Shelton, John Hunter Lewis Shelton <i>M.S. Environmental Science</i> <i>B.S. Biology</i>	4 years of experience with native and invasive vegetation in the southeast, habitat delineation, and threatened and endangered plant monitoring. 3 years in NEPA and Endangered Species Act Compliance	Botany, Threatened and Endangered Species
Derek Reaux <i>Ph.D. and M.A. Anthropology</i> <i>B.A. Anthropology</i>	12 years of experience in archaeological research, cultural resource management, and Section 106 compliance	Cultural resources, NHPA Section 106 compliance
Matthew Reed <i>M.S. Wildlife and Fisheries Science; QHP</i>	13 years working with threatened and endangered aquatic species in the southeastern United States; 7 years in ESA, NEPA, and CWA compliance and stream assessments	Aquatic Ecology, Aquatic T&E Species
Carrie Williamson, P.E., CFM <i>B.S. and M.S., Civil Engineering</i>	11 years in Floodplain and Flood Risk; 11 years in Compliance Monitoring; 3 years in River Forecasting	Floodplains QA/QC
Maria Aguirre <i>B.S. Environmental Science, Belmont University</i>	2 years of laboratory assistance work, 2 years of wildlife surveys, Biological Compliance, NEPA compliance, and ESA consultation for T&E terrestrial animals	Terrestrial Zoology, Threatened and Endangered Species
Sara McLaughlin-Johnson <i>B.S. Wildlife &amp; Fisheries Science, University of Tennessee</i>	11 years in Biological Compliance, NEPA compliance, and ESA consultation for T&E terrestrial animals. 18 years in biological field studies	Terrestrial Zoology, Threatened and Endangered Species
Chloe Sweda <i>B.S. Earth and Environmental Sciences</i>	5.5 years in Natural Resource Management	Managed and Natural Areas
Fallon Parker Hutcheon <i>M.S. Environmental Studies</i> <i>B.S., Biology</i>	5 years in wetland delineation, wetland impact analysis, and NEPA and CWA compliance	Wetlands
<b>Stantec</b>		
Douglas Mooneyhan <i>M.S. Biology, Tennessee Technological University</i> <i>B.S. Wildlife and Fisheries Science, University of Tennessee</i>	34 years in managing and performing environmental studies, Project Manager for a variety of different project types including NEPA, construction monitoring, natural resources, water resources, and fisheries biology.	EA Program Manager QA/QC

Name/Education	Experience	Project Role
<p>Jaclyn Martin</p> <p><i>M.S. Environmental Sciences, Swedish University of Agricultural Sciences, Uppsala, Sweden</i></p> <p><i>M.S. Environmental Sciences, University of Natural Resources and Life Sciences, Vienna, Austria</i></p> <p><i>B.S. Biology, Winthrop University, South Carolina</i></p>	<p>8 years in environmental consulting in the preparation and review of NEPA compliance reports, environmental assessments, and permitting for a variety of telecommunication, alternative energy, and FERC-regulated projects</p>	<p>Air Quality and Climate Change, Visual</p>
<p>Duane Simpson</p> <p><i>M.A. Anthropology, University of Arkansas</i></p> <p><i>B.A. Anthropology, Ohio University</i></p>	<p>27 years in archaeological consulting including management of projects across the southeast and Mid-Atlantic regions. Principal Investigator for over 15 years.</p>	<p>Archaeology</p>
<p>Rachel Kennedy</p> <p><i>M.H.P. Historic Preservation, University of Kentucky</i></p> <p><i>B.A. Political Science and History, University of Kentucky</i></p>	<p>21 years of experience working in non-profit, governmental, and private sectors with all aspects of preservation planning, from interpretation of the Secretary of the Interior's Standards for the Treatment of Historic Properties to cultural landscape examinations to identifying, evaluating, and listing properties to the NRHP. Meets the Secretary of the Interior's Professional Qualifications Standards for History and Architectural History, per 36 Code of Federal Regulations (CFR), Part 61.</p>	<p>Historic Structures and Sites</p>
<p>Josh Yates, P.G.</p> <p><i>M.S. Geology, University of South Florida</i></p> <p><i>B.S. Natural Resources Management and Engineering, University of Connecticut</i></p>	<p>16 years of hydrogeologic assessments and water resources permitting experience. This experience includes water supply planning, hydrogeologic investigations, groundwater modeling, water use permitting, well construction oversight, EIS and EA preparation, minimum flow and level (MFL) impact analysis, monitoring well network design, aquifer performance tests, and GIS analysis.</p>	<p>Groundwater</p>
<p>Ellen Mullins</p> <p><i>M.S. Forestry, Mississippi State University, Starkville, Mississippi, 2015</i></p> <p><i>B.S. Forestry, University of Kentucky, Lexington, Kentucky, 2011</i></p>	<p>Ms. Ellen Mullins is a project manager with 14 years of experience in environmental consulting and government. Ellen currently provides support and leadership for environmental planning and the NEPA permitting process. She prepares application packages and manages agency coordination efforts related to Threatened and Endangered Species, Clean Water Act (CWA) Section 404/401, and Section 106 Cultural Resources. She serves as a technical expert for natural resource projects for documents that are used in regulatory submissions.</p>	<p>Prime Farmland, Air Quality and Climate Change, Noise</p>

Name/Education	Experience	Project Role
<p>James Kiser  <i>B.S. Biology, Morehead State University</i></p>	<p>Mr. Kiser is a Senior biologist and has over three decades of ecological and environmental services experience. He has conducted numerous endangered species surveys and habitat assessments throughout the eastern United States. He understands how the Endangered Species Act is implemented and how to streamline the process while maintaining integrity and ensuring protection of listed species. He has completed both informal and formal consultation with the US Fish and Wildlife Service on projects involving Indiana bats, gray bats, northern long-eared bats, endangered freshwater mussels, and numerous listed plant species.</p>	<p>Botany</p>
<p>Chris Knabel, TN-QHP  <i>B.S. Natural Resources and Environmental Science, University of Kentucky</i></p>	<p>Mr. Knabel is a biologist with six years of experience conducting wetland delineations, hydrologic determinations, threatened and endangered species surveys, and various other ecological and biological field surveys. He has personally conducted numerous Hydrologic Determinations throughout Tennessee and conducted thousands of acres of wetland delineations throughout Tennessee and Kentucky. Additionally, he has extensive knowledge of USACE Section 404 permitting and Section 7 protected species consultation.</p>	<p>Aquatics, Wetlands</p>
<p>Shane Kelley, TN-QHP  <i>B.S. Natural Resources &amp; Environmental Science, University of Kentucky</i></p>	<p>Mr. Kelley is a biologist with ten years of experience in multiple areas of the environmental field with a particular focus on USACE Section 404 permitting, Section 7 protected species consultation, and various ecological and biological field surveys. He is a Qualified Hydrologic Professional and has personally conducted numerous Hydrological Determinations throughout Tennessee and North Carolina and completed thousands of acres of wetland delineations throughout Kentucky, Tennessee, and Mississippi. Mr. Kelley has conducted various endangered plant species surveys throughout Kentucky, Tennessee, and North Carolina including Short's goldenrod (<i>Solidago shortii</i>), Virginia spiraea (<i>Spiraea virginiana</i>), and small whorled pogonia (<i>Isotria medeoloides</i>). Additionally, he is a federally permitted bat biologist for all listed bat species throughout the TVA service area.</p>	<p>Aquatics, Wetlands</p>

Name/Education	Experience	Project Role
Iris Eschen <i>Heald Business College, San Francisco, California</i>	As Document Production Manager, Ms. Eschen has more than 30 years of experience coordinating the production of large, complex documents for engineering and environmental consulting firms in California. She has overseen the technical editing, quality assurance, quality check, and production, submission, and distribution of countless reports and written products, including environmental impact statements/reports (EISs/EIRs), license applications, pre-application documents (PADs), wetland delineations, initial studies, mitigated negative declarations (MNDs), biological opinions (BOs), environmental assessments (EAs), and habitat conservation plans (HCPs).	Editor, Document Production
Brenton Jenkins, P.E. <i>B.S. Environmental Engineering, Louisiana State University</i>	9 years in environmental consulting for various private and public sector clients, including engineering design, permitting, and assessments, primarily in the oil and gas sector.	Transportation

## 8.0 AGENCIES AND OTHERS CONSULTED

The following federal and state agencies and federally recognized Indian Tribes were consulted.

- Natural Resources Conservation Service
- Kentucky Heritage Council / State Historic Preservation Office

## 9.0 REFERENCES

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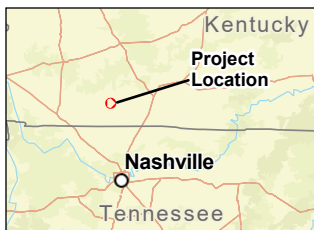
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## Attachment 1

### **Project Figures**

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 Project Boundary (35.73 ac)

0 100 200 Feet  
(At original document size of 8.5x11)  
1:3,600



Project Location

Prepared by pmarsey on 1/22/2024

Logan Co., KY

Client/Project 172608384

Tennessee Valley Authority  
TVA: FY24 Investment Prep Projects  
Environmental Assessment Report

Figure No.

1A

Title  
**Logan County  
Project Aerial**

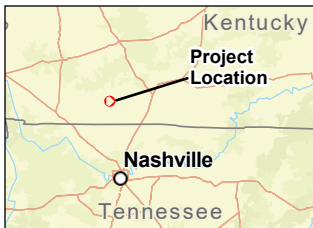
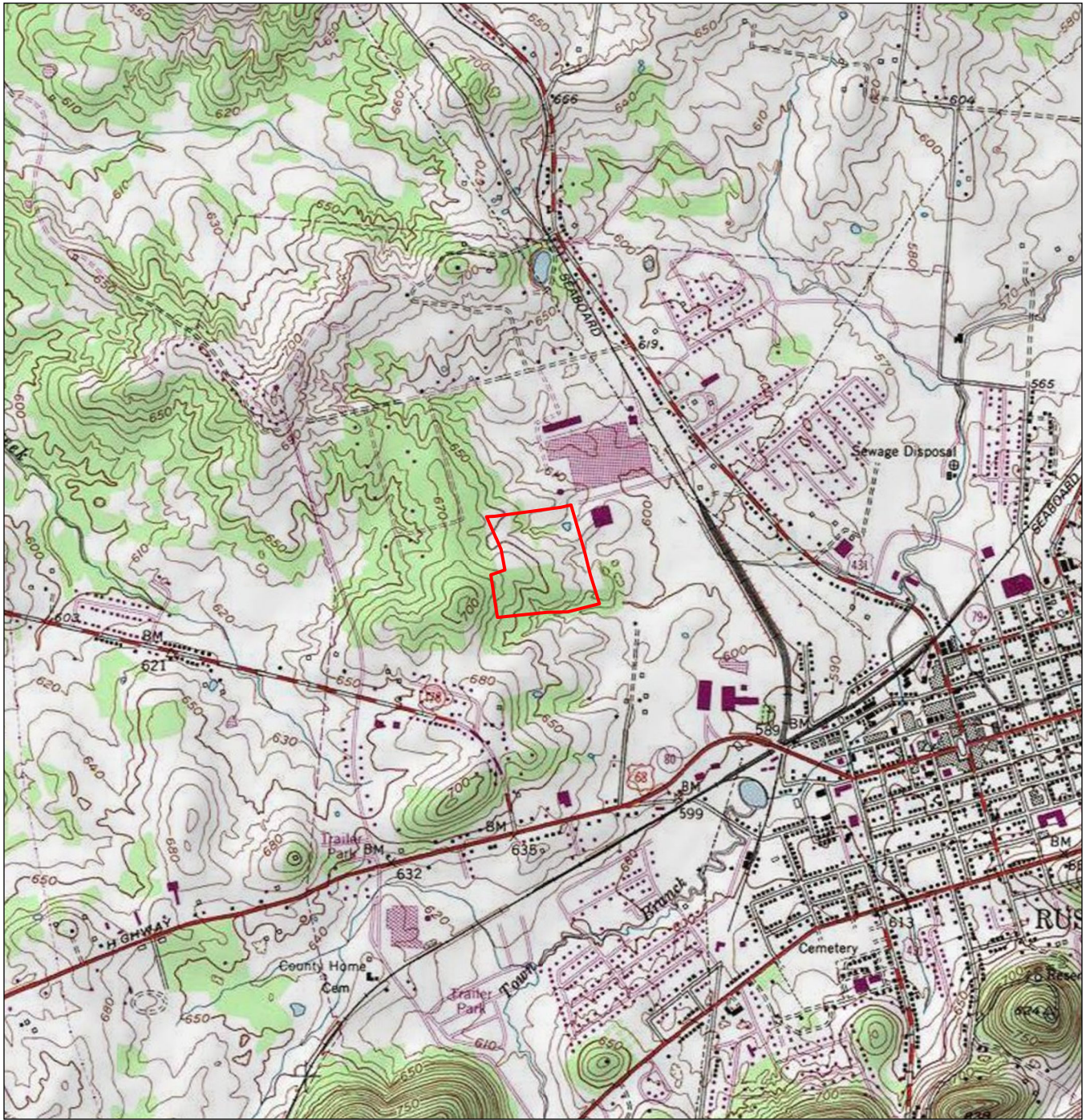
Page 1 of 1


#### Notes

1. Coordinate System: NAD 1983 StatePlane  
Kentucky FIPS 1600 Feet
2. Data Sources: TVA
3. Background: Esri, TomTom, Garmin, FAO, NOAA,  
USGS, EPA, USFWS, Esri Community Maps  
Contributors, © OpenStreetMap, Microsoft, Esri,  
TomTom, Garmin, SafeGraph, GeoTechnologies,  
Inc, METI/NASA, USGS, EPA, NPS, US Census

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 Project Boundary (35.73 ac)

0 1,000 2,000 Feet  
(At original document size of 8.5x11)  
1:24,000



Project Location

Prepared by pmarsey on 1/22/2024

Logan Co., KY

Client/Project  
Tennessee Valley Authority  
TVA: FY24 Investment Prep Projects  
Environmental Assessment Report

172608384

Figure No.

1B

Title

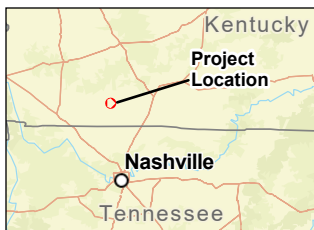
Logan County  
USGS Quadrangle

Page 1 of 1

#### Notes

1. Coordinate System: NAD 1983 StatePlane  
Kentucky FIPS 1600 Feet
2. Data Sources: TVA
3. Background: Esri, TomTom, Garmin, FAO, NOAA,  
USGS, EPA, USFWS, Copyright© 2013 National  
Geographic Society, i-cubed

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- Project Boundary (35.73 ac)
- FEMA Floodplain

0 200 400 Feet  
(At original document size of 8.5x11)  
1:7,200



Project Location Prepared by pmarsey on 3/20/2024

Logan Co., KY

Client/Project Tennessee Valley Authority 172608384

TVA: FY24 Investment Prep Projects  
Environmental Assessment Report

Figure No.

1C

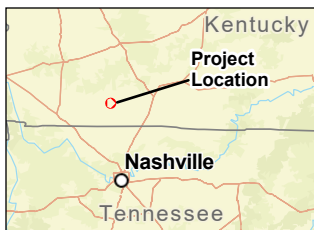
Title  
**Logan County  
FEMA Floodplain**

Page 1 of 1

**Notes**  
1. Coordinate System: NAD 1983 StatePlane  
Kentucky FIPS 1600 Feet  
2. Data Sources: TVA, FEMA  
3. Background: Esri, TomTom, Garmin, FAO, NOAA,  
USGS, EPA, USFWS, Esri Community Maps  
Contributors, © OpenStreetMap, Microsoft, Esri,  
TomTom, Garmin, SafeGraph, GeoTechnologies,  
Inc, METI/NASA, USGS, EPA, NPS, US Census

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- Project Boundary (35.73 ac)
- NHDFlowline
- NWI Wetlands
- Freshwater Pond

0 200 400 Feet  
(At original document size of 8.5x11)  
1:4,800



Project Location Prepared by pmarsey on 1/22/2024

Logan Co., KY

Client/Project Tennessee Valley Authority 172608384

TVA: FY24 Investment Prep Projects  
Environmental Assessment Report

Figure No.

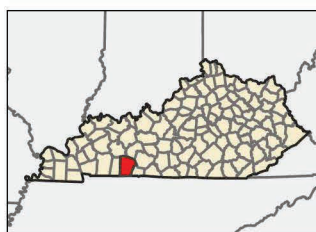
1D

Title  
**Logan County  
USFWS NWI and Water Inventory**

Page 1 of 1

**Notes**  
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Kentucky FIPS 1600 Feet  
2. Data Sources: TVA, USFWS  
3. Background: Esri, TomTom, Garmin, FAO, NOAA,  
USGS, EPA, USFWS, Esri Community Maps  
Contributors, © OpenStreetMap, Microsoft, Esri,  
TomTom, Garmin, SafeGraph, GeoTechnologies,  
Inc, METI/NASA, USGS, EPA, NPS, US Census

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**Notes**  
1. Coordinate System: NAD 1983 StatePlane  
Kentucky FIPS 1600 Feet  
2. Data Sources: TVA, Stantec  
3. Background: Esri Aerial Imagery Basemap

#### Legend

- Project Boundary
- ◆ Stream Points
- Wet Weather Conveyance
- Culverts**
- Inlet
- Outlet

0 150 300 Feet  
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1 inch = 300 feet



**Project Location**  
Logan County,  
Kentucky

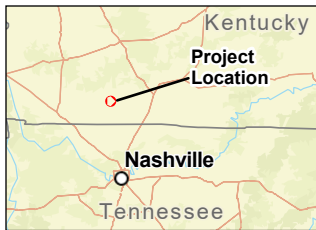
Prepared by MNA on 2024-02-15  
TR by KD on 2024-02-20  
IR by SPK on 2024-02-20

**Client/Project**  
Tennessee Valley Authority  
TVA FY24 InvestPrep Projects  
Wetland and Aquatics Report

172608384

**Figure No.**  
1E  
**Title**  
**Wetland and Waterbody Delineation  
Map**

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**Notes**  
1. Coordinate System: NAD 1983 StatePlane Kentucky FIPS 1600 Feet  
2. Data Sources: TVA, USDA-NRCS  
3. Background: Esri, TomTom, Garmin, FAO, NOAA, USGS, EPA, USFWS, Esri Community Maps Contributors, © OpenStreetMap, Microsoft, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census

- Project Boundary (35.73 ac)
- CrB - Crider silt loam, 2 to 6 percent slopes (12.43 ac)
- CrC - Crider silt loam, 6 to 12 percent slopes (6.28 ac)
- FeC - Fredonia rocky silty clay loam, 2 to 12 percent slopes (2.62 ac)
- NhB - Nicholson silt loam, 2 to 6 percent slopes (6.37 ac)
- TcD - Talbott-Colbert rocky silt loams, 2 to 20 percent slopes (caneyville rocky) (8.03 ac)
- All areas are prime farmland (18.80 ac)
- Farmland of statewide importance (8.90 ac)
- Not prime farmland (8.03 ac)

0 100 200 Feet  
(At original document size of 8.5x11)  
1:3,600



Project Location Prepared by pmarsey on 1/22/2024

Logan Co., KY 172608384

Client/Project Tennessee Valley Authority  
TVA: FY24 Investment Prep Projects  
Environmental Assessment Report

Figure No. 1F

Title

Logan County  
NRCS Soils

## Attachment 2

### **TVA Bat Strategy Project Screening Form**

**Project Review Form - TVA Bat Strategy (06/2019)**

This form should **only** be completed if project includes activities in Tables 2 or 3 (STEP 2 below). This form is not required if project activities are limited to Table 1 (STEP 2) or otherwise determined to have no effect on federally listed bats. If so, include the following statement in your environmental compliance document (e.g., add as a comment in the project CEC): "Project activities limited to Bat Strategy Table 1 or otherwise determined to have no effect on federally listed bats. Bat Strategy Project Review Form NOT required." This form is to assist in determining required conservation measures per TVA's ESA Section 7 programmatic consultation for routine actions and federally listed bats.<sup>1</sup>

**Project Name:** InvestPrep - Shelton Lane Industrial Park, Logan County, KY **Date:** 09-26-2023  
**Contact(s):** Bess Hubbard/Lori Whitehorse **CEC#:** 51116 **Project ID:** \_\_\_\_\_  
**Project Location (City, County, State):** Logan County, KY  
**Project Description:**

In order to put the Shelton Lane Industrial Park in a more marketable position, a 100,000 SF speculative building and an adjacent 100,000 SF dirt building pad are needed.

**SECTION 1: PROJECT INFORMATION - ACTION AND ACTIVITIES**

**STEP 1) Select TVA Action. If none are applicable, contact environmental support staff, Environmental Project Lead, or Terrestrial Zoologist to discuss whether form (i.e., application of Bat Programmatic Consultation) is appropriate for project:**

- |   |  |
|---|--|
| <input type="checkbox"/> 1 Manage Biological Resources for Biodiversity and Public Use on TVA Reservoir Lands | <input type="checkbox"/> 6 Maintain Existing Electric Transmission Assets        |
| <input type="checkbox"/> 2 Protect Cultural Resources on TVA-Retained Land                                    | <input type="checkbox"/> 7 Convey Property associated with Electric Transmission |
| <input type="checkbox"/> 3 Manage Land Use and Disposal of TVA-Retained Land                                  | <input type="checkbox"/> 8 Expand or Construct New Electric Transmission Assets  |
| <input type="checkbox"/> 4 Manage Permitting under Section 26a of the TVA Act                                 | <input checked="" type="checkbox"/> 9 Promote Economic Development               |
| <input type="checkbox"/> 5 Operate, Maintain, Retire, Expand, Construct Power Plants                          | <input type="checkbox"/> 10 Promote Mid-Scale Solar Generation                   |

**STEP 2) Select all activities from Tables 1, 2, and 3 below that are included in the proposed project.**

**TABLE 1. Activities with no effect to bats. Conservation measures & completion of bat strategy project review form NOT required.**

<input type="checkbox"/> 1. Loans and/or grant awards	<input type="checkbox"/> 8. Sale of TVA property	<input type="checkbox"/> 19. Site-specific enhancements in streams and reservoirs for aquatic animals
<input type="checkbox"/> 2. Purchase of property	<input type="checkbox"/> 9. Lease of TVA property	<input type="checkbox"/> 20. Nesting platforms
<input type="checkbox"/> 3. Purchase of equipment for industrial facilities	<input type="checkbox"/> 10. Deed modification associated with TVA rights or TVA property	<input type="checkbox"/> 41. Minor water-based structures (this does not include boat docks, boat slips or piers)
<input type="checkbox"/> 4. Environmental education	<input type="checkbox"/> 11. Abandonment of TVA retained rights	<input type="checkbox"/> 42. Internal renovation or internal expansion of an existing facility
<input type="checkbox"/> 5. Transfer of ROW easement and/or ROW equipment	<input type="checkbox"/> 12. Sufferance agreement	<input type="checkbox"/> 43. Replacement or removal of TL poles
<input type="checkbox"/> 6. Property and/or equipment transfer	<input type="checkbox"/> 13. Engineering or environmental planning or studies	<input type="checkbox"/> 44. Conductor and overhead ground wire installation and replacement
<input type="checkbox"/> 7. Easement on TVA property	<input type="checkbox"/> 14. Harbor limits delineation	<input type="checkbox"/> 49. Non-navigable houseboats

**TABLE 2. Activities not likely to adversely affect bats with implementation of conservation measures. Conservation measures and completion of bat strategy project review form REQUIRED; review of bat records in proximity to project NOT required.**

<input checked="" type="checkbox"/> 18. Erosion control, minor	<input type="checkbox"/> 57. Water intake - non-industrial	<input type="checkbox"/> 79. Swimming pools/associated equipment
<input type="checkbox"/> 24. Tree planting	<input type="checkbox"/> 58. Wastewater outfalls	<input type="checkbox"/> 81. Water intakes – industrial
<input type="checkbox"/> 30. Dredging and excavation; recessed harbor areas	<input type="checkbox"/> 59. Marine fueling facilities	<input type="checkbox"/> 84. On-site/off-site public utility relocation or construction or extension
<input type="checkbox"/> 39. Berm development	<input type="checkbox"/> 60. Commercial water-use facilities (e.g., marinas)	<input type="checkbox"/> 85. Playground equipment - land-based
<input type="checkbox"/> 40. Closed loop heat exchangers (heat pumps)	<input type="checkbox"/> 61. Septic fields	<input type="checkbox"/> 87. Aboveground storage tanks
<input type="checkbox"/> 45. Stream monitoring equipment - placement and use	<input type="checkbox"/> 66. Private, residential docks, piers, boathouses	<input type="checkbox"/> 88. Underground storage tanks
<input type="checkbox"/> 46. Floating boat slips within approved harbor limits	<input type="checkbox"/> 67. Siting of temporary office trailers	<input type="checkbox"/> 90. Pond closure
<input type="checkbox"/> 48. Laydown areas	<input type="checkbox"/> 68. Financing for speculative building construction	<input type="checkbox"/> 93. Standard License
<input type="checkbox"/> 50. Minor land based structures	<input type="checkbox"/> 72. Ferry landings/service operations	<input type="checkbox"/> 94. Special Use License
<input type="checkbox"/> 51. Signage installation	<input type="checkbox"/> 74. Recreational vehicle campsites	<input type="checkbox"/> 95. Recreation License
<input type="checkbox"/> 53. Mooring buoys or posts	<input type="checkbox"/> 75. Utility lines/light poles	<input type="checkbox"/> 96. Land Use Permit
<input type="checkbox"/> 56. Culverts	<input type="checkbox"/> 76. Concrete sidewalks	

**Table 3: Activities that may adversely affect federally listed bats. Conservation measures AND completion of bat strategy project review form REQUIRED; review of bat records in proximity of project REQUIRED by OSAR/Heritage eMap reviewer or Terrestrial Zoologist.**

<input type="checkbox"/> 15. Windshield and ground surveys for archaeological resources	<input type="checkbox"/> 34. Mechanical vegetation removal, includes trees or tree branches > 3 inches in diameter	<input type="checkbox"/> 69. Renovation of existing structures
<input type="checkbox"/> 16. Drilling	<input type="checkbox"/> 35. Stabilization (major erosion control)	<input type="checkbox"/> 70. Lock maintenance/ construction
<input type="checkbox"/> 17. Mechanical vegetation removal, does not include trees or branches > 3" in diameter (in Table 3 due to potential for woody burn piles)	<input checked="" type="checkbox"/> 36. Grading	<input type="checkbox"/> 71. Concrete dam modification
<input type="checkbox"/> 21. Herbicide use	<input type="checkbox"/> 37. Installation of soil improvements	<input type="checkbox"/> 73. Boat launching ramps
<input type="checkbox"/> 22. Grubbing	<input type="checkbox"/> 38. Drain installations for ponds	<input type="checkbox"/> 77. Construction or expansion of land-based buildings
<input type="checkbox"/> 23. Prescribed burns	<input type="checkbox"/> 47. Conduit installation	<input type="checkbox"/> 78. Wastewater treatment plants
<input type="checkbox"/> 25. Maintenance, improvement or construction of pedestrian or vehicular access corridors	<input type="checkbox"/> 52. Floating buildings	<input type="checkbox"/> 80. Barge fleeting areas
<input type="checkbox"/> 26. Maintenance/construction of access control measures	<input type="checkbox"/> 54. Maintenance of water control structures (dewatering units, spillways, levees)	<input type="checkbox"/> 82. Construction of dam/weirs/ levees
<input type="checkbox"/> 27. Restoration of sites following human use and abuse	<input type="checkbox"/> 55. Solar panels	<input type="checkbox"/> 83. Submarine pipeline, directional boring operations
<input type="checkbox"/> 28. Removal of debris (e.g., dump sites, hazardous material, unauthorized structures)	<input checked="" type="checkbox"/> 62. Blasting	<input type="checkbox"/> 86. Landfill construction
<input type="checkbox"/> 29. Acquisition and use of fill/borrow material	<input type="checkbox"/> 63. Foundation installation for transmission support	<input type="checkbox"/> 89. Structure demolition
<input type="checkbox"/> 31. Stream/wetland crossings	<input type="checkbox"/> 64. Installation of steel structure, overhead bus, equipment, etc.	<input type="checkbox"/> 91. Bridge replacement
<input type="checkbox"/> 32. Clean-up following storm damage	<input type="checkbox"/> 65. Pole and/or tower installation and/or extension	<input type="checkbox"/> 92. Return of archaeological remains to former burial sites
<input type="checkbox"/> 33. Removal of hazardous trees/tree branches		

**STEP 3) Project includes one or more activities in Table 3?**☒ **YES (Go to Step 4)**☐ **NO (Go to Step 13)**

**STEP 4) Answer questions a through e below (applies to projects with activities from Table 3 ONLY)**

- a) Will project involve continuous noise (i.e.,  $\geq 24$  hrs) that is greater than 75 decibels measured on the A scale (e.g., loud machinery)? ☒ **NO** (NV2 does not apply) ☐ **YES** (NV2 applies, subject to records review)
- b) Will project involve entry into/survey of cave? ☒ **NO** (HP1/HP2 do not apply) ☐ **YES** (HP1/HP2 applies, subject to review of bat records)
- c) If conducting **prescribed burning (activity 23)**, estimated acreage:  and timeframe(s) below: ☒ **N/A**

STATE	SWARMING	WINTER	NON-WINTER	PUP
GA, KY, TN	<input type="checkbox"/> Oct 15 - Nov 14	<input type="checkbox"/> Nov 15 - Mar 31	<input type="checkbox"/> Apr 1 - May 31, Aug 1 - Oct 14	<input type="checkbox"/> Jun 1 - Jul 31
VA	<input type="checkbox"/> Sep 16 - Nov 15	<input type="checkbox"/> Nov 16 - Apr 14	<input type="checkbox"/> Apr 15 - May 31, Aug 1 - Sept 15	<input type="checkbox"/> Jun 1 - Jul 31
AL	<input type="checkbox"/> Oct 15 - Nov 14	<input type="checkbox"/> Nov 15 - Mar 15	<input type="checkbox"/> Mar 16 - May 31, Aug 1 - Oct 14	<input type="checkbox"/> Jun 1 - Jul 31
NC	<input type="checkbox"/> Oct 15 - Nov 14	<input type="checkbox"/> Nov 15 - Apr 15	<input type="checkbox"/> Apr 16 - May 31, Aug 1 - Oct 14	<input type="checkbox"/> Jun 1 - Jul 31
MS	<input type="checkbox"/> Oct 1 - Nov 14	<input type="checkbox"/> Nov 15 - Apr 14	<input type="checkbox"/> Apr 15 - May 31, Aug 1 - Sept 30	<input type="checkbox"/> Jun 1 - Jul 31

- d) Will the project involve vegetation piling/burning? ☒ **NO** (SSPC4/SHF7/SHF8 do not apply) ☐ **YES** (SSPC4/SHF7/SHF8 applies, subject to review of bat records)

- e) If **tree removal (activity 33 or 34)**, estimated amount:  ☐ **ac** ☒ **trees** ☐ **N/A**

STATE	SWARMING	WINTER	NON-WINTER	PUP
GA, KY, TN	<input checked="" type="checkbox"/> Oct 15 - Nov 14	<input checked="" type="checkbox"/> Nov 15 - Mar 31	<input checked="" type="checkbox"/> Apr 1 - May 31, Aug 1 - Oct 14	<input checked="" type="checkbox"/> Jun 1 - Jul 31
VA	<input type="checkbox"/> Sep 16 - Nov 15	<input type="checkbox"/> Nov 16 - Apr 14	<input type="checkbox"/> Apr 15 - May 31, Aug 1 - Sept 15	<input type="checkbox"/> Jun 1 - Jul 31
AL	<input type="checkbox"/> Oct 15 - Nov 14	<input type="checkbox"/> Nov 15 - Mar 15	<input type="checkbox"/> Mar 16 - May 31, Aug 1 - Oct 14	<input type="checkbox"/> Jun 1 - Jul 31
NC	<input type="checkbox"/> Oct 15 - Nov 14	<input type="checkbox"/> Nov 15 - Apr 15	<input type="checkbox"/> Apr 16 - May 31, Aug 1 - Oct 14	<input type="checkbox"/> Jun 1 - Jul 31
MS	<input type="checkbox"/> Oct 1 - Nov 14	<input type="checkbox"/> Nov 15 - Apr 14	<input type="checkbox"/> Apr 15 - May 31, Aug 1 - Sept 30	<input type="checkbox"/> Jun 1 - Jul 31

If warranted, does project have flexibility for bat surveys (May 15-Aug 15): ☐ **MAYBE** ☐ **YES** ☒ **NO**

\*\*\* For **PROJECT LEADS** whose projects will be reviewed by a Heritage Reviewer (Natural Resources Organization only), **STOP HERE**. Click File/Save As, name form as "ProjectLead\_BatForm\_CEC-or-ProjectIDNo\_Date", and submit with project information. Otherwise continue to Step 5. \*\*\*

**SECTION 2: REVIEW OF BAT RECORDS (applies to projects with activities from Table 3 ONLY)****STEP 5) Review of bat/cave records conducted by Heritage/OSAR reviewer?**

- ☒ **YES** ☐ **NO** (Go to Step 13)

Info below completed by: ☐ **Heritage Reviewer** (name)  Date   
☐ **OSAR Reviewer** (name)  Date   
☒ **Terrestrial Zoologist** (name) Maria Aguirre Date Oct 13, 2023

Gray bat records: ☐ None ☐ Within 3 miles\* ☒ Within a cave\* ☒ Within the County

Indiana bat records: ☐ None ☒ Within 10 miles\* ☐ Within a cave\* ☒ Capture/roost tree\* ☒ Within the County

Northern long-eared bat records: ☒ None ☐ Within 5 miles\* ☐ Within a cave\* ☐ Capture/roost tree\* ☐ Within the County

Virginia big-eared bat records: ☒ None ☐ Within 6 miles\* ☐ Within the County

Caves: ☐ None within 3 mi ☒ Within 3 miles but > 0.5 mi ☐ Within 0.5 mi but > 0.25 mi\* ☐ Within 0.25 mi but > 200 feet\*  
☐ Within 200 feet\*

Bat Habitat Inspection Sheet completed? ☒ **NO** ☐ **YES**

Amount of **SUITABLE** habitat to be removed/burned (may differ from STEP 4e):  (☐ **ac** ☒ **trees**)\* ☐ **N/A**

**STEP 6) Provide any additional notes resulting from Heritage Reviewer records review in Notes box below then . . . . .**  
 . . . . . **Go to Step 13**

**Notes from Bat Records Review** (e.g., historic record; bats not on landscape during action; DOT bridge survey with negative results):

APE is a hay field. One unsuitable tree may be removed due to necessary grading. 5 caves within three miles, nearest is 1.26 miles from APE (data from Kentucky Speleological Society).

**STEPS 7-12 To be Completed by Terrestrial Zoologist (if warranted):**

**STEP 7) Project will involve:**

- ☐ Removal of suitable trees within 0.5 mile of P1-P2 Indiana bat hibernacula or 0.25 mile of P3-P4 Indiana bat hibernacula or any NLEB hibernacula.
- ☐ Removal of suitable trees within 10 miles of documented Indiana bat (or within 5 miles of NLEB) hibernacula.
- ☐ Removal of suitable trees > 10 miles from documented Indiana bat (> 5 miles from NLEB) hibernacula.
- ☐ Removal of trees within 150 feet of a documented Indiana bat or northern long-eared bat maternity roost tree.
- ☐ Removal of suitable trees within 2.5 miles of Indiana bat roost trees or within 5 miles of Indiana bat capture sites.
- ☐ Removal of suitable trees > 2.5 miles from Indiana bat roost trees or > 5 miles from Indiana bat capture sites.
- ☐ Removal of documented Indiana bat or NLEB roost tree, if still suitable.
- ☒ N/A

**STEP 8) Presence/absence surveys were/will be conducted:** ☐ YES ☒ NO ☐ TBD

**STEP 9) Presence/absence survey results, on**  ☐ NEGATIVE ☐ POSITIVE ☒ N/A

**STEP 10) Project** ☐ WILL ☐ WILL NOT require use of Incidental Take in the amount of  ☐ acres or ☐ trees proposed to be used during the ☐ WINTER ☐ VOLANT SEASON ☐ NON-VOLANT SEASON ☒ N/A

**STEP 11) Available Incidental Take (prior to accounting for this project) as of**

TVA Action	Total 20-year	Winter	Volant Season	Non-Volant Season
9 Promote Economic Development				

**STEP 12) Amount contributed to TVA's Bat Conservation Fund upon activity completion:** \$  OR ☒ N/A

**TERRESTRIAL ZOOLOGISTS, after completing SECTION 2, review Table 4, modify as needed, and then complete section for Terrestrial Zoologists at end of form.**

**SECTION 3: REQUIRED CONSERVATION MEASURES**

**STEP 13) Review Conservation Measures in Table 4 and ensure those selected are relevant to the project. If not, manually override and uncheck irrelevant measures, and explain why in ADDITIONAL NOTES below Table 4.**

Did review of Table 4 result in ANY remaining Conservation Measures in **RED**?

- ☐ **NO** (Go to Step 14)
- ☒ **YES** (STOP HERE; Submit for Terrestrial Zoology Review. Click File/Save As, name form as "ProjectLead\_BatForm\_CEC-or-ProjectIDNo\_Date", and submit with project information).

Table 4. TVA's ESA Section 7 Programmatic Bat Consultation Required Conservation Measures

The Conservation Measures in Table 4 are automatically selected based on your choices in Tables 2 and 3 but can be manually overridden, if necessary. To Manually override, press the button and enter your name.

Manual Override

Name: Maria Aguirre

Check if Applies to Project	Activities Subject To Conservation Measure	Conservation Measure Description
		<b>NV1</b> - Noise will be short-term, transient, and not significantly different from urban interface or natural events (i.e., thunderstorms) that bats are frequently exposed to when present on the landscape.
		<b>SSPC5 (26a, Solar, Economic Development only)</b> - Section 26a permits and contracts associated with solar projects, economic development projects or land use projects include standards and conditions that include standard BMPs for sediment and contaminants as well as measures to avoid or minimize impacts to sensitive species or other resources consistent with applicable laws and Executive Orders.
		<b>L1</b> - Direct temporary lighting away from suitable habitat during the active season.
		<b>L2</b> - Evaluate the use of outdoor lighting during the active season and seek to minimize light pollution when installing new or replacing existing permanent lights by angling lights downward or via other light minimization measures (e.g., dimming, directed lighting, motion-sensitive lighting).

<sup>1</sup>Bats addressed in consultation (02/2018), which includes gray bat (listed in 1976), Indiana bat (listed in 1967), northern long-eared bat (listed in 2015), and Virginia big-eared bat (listed in 1979).

Hide All Unchecked Conservation Measures

- ☒ HIDE
- ☐ UNHIDE

Hide Table 4 Columns 1 and 2 to Facilitate Clean Copy and Paste

- ☒ HIDE
- ☐ UNHIDE

NOTES (additional info from field review, explanation of no impact or removal of conservation measures).

No suitable winter or summer habitat for T&E bat species.

**STEP 14) Save completed form (Click File/Save As, name form as "ProjectLead\_BatForm\_CEC-or-ProjectIDNo\_Date") in project environmental documentation (e.g. CEC, Appendix to EA) AND send a copy of form to [batstrategy@tva.gov](mailto:batstrategy@tva.gov)**  
**Submission of this form indicates that Project Lead/Applicant:**

Lori Whitehorse

(name) is (or will be made) aware of the requirements below.

- Implementation of conservation measures identified in Table 4 is required to comply with TVA's Endangered Species Act programmatic bat consultation.
- TVA may conduct post-project monitoring to determine if conservation measures were effective in minimizing or avoiding impacts to federally listed bats.

***For Use by Terrestrial Zoologist Only***

☒ Terrestrial Zoologist acknowledges that Project Lead/Contact (name) Lori Whitehorse has been informed of any relevant conservation measures and/or provided a copy of this form.

☐ For projects that require use of Take and/or contribution to TVA's Bat Conservation Fund, Terrestrial Zoologist acknowledges that Project Lead/Contact has been informed that project will result in use of Incidental Take  ☐ ac ☐ trees and that use of Take will require \$  contribution to TVA's Conservation Fund upon completion of activity (amount entered should be \$0 if cleared in winter).

For Terrestrial Zoology Use Only. Finalize and Print to Noneditable PDF.

## Attachment 3

### **Agency Correspondence**



**ANDY BESHEAR**  
GOVERNOR

**TOURISM, ARTS AND HERITAGE CABINET  
KENTUCKY HERITAGE COUNCIL  
THE STATE HISTORIC PRESERVATION OFFICE**

**LINDY CASEBIER**  
SECRETARY

**JACQUELINE COLEMAN**  
LT. GOVERNOR

410 HIGH STREET  
FRANKFORT, KENTUCKY 40601  
(502) 564-7005  
[www.heritage.ky.gov](http://www.heritage.ky.gov)

**CRAIG A. POTTS**  
EXECUTIVE DIRECTOR &  
STATE HISTORIC PRESERVATION OFFICER

May 7, 2024

Derek Reaux  
Tennessee Valley Authority  
400 West Summit Hill Drive  
Knoxville, TN 37902  
[dreaux@tva.gov](mailto:dreaux@tva.gov)

RE: TVA, CRMS 82391275631, Proposed Shelton Lane Industrial Park,  
Near the Intersection of Forest Park Drive and Shelton Lake Industrial Park  
Russellville, Logan County, Kentucky

Determination of Effect, Cultural Historic, and

*Phase I Cultural Resources Survey for the Shelton Lane Industrial Park,  
Russellville, Logan County, Kentucky by Elise Hargiss*

Dear Mr. Reaux:

Thank you for your submittal of a Determination of Effect, Archaeology Report, and Cultural Historic for the above-referenced undertaking. We understand the Applicant is proposing to construct a 100,000 square foot building in Russellville, Kentucky. Proposed work includes the construction of the roughly 32-foot tall building, as well as an adjacent 100,000 square foot dirt building pad, access, and associated infrastructure.

Stantec Consulting Services, Inc. (Stantec) conducted an archaeological survey of the 37.5-acre area of potential effect (APE) in January and February of 2023. We understand methods included pedestrian survey and shovel testing. One new archaeological site (15Lo419) and two isolated finds were documented as a result of this survey.

Stantec recommends that Site 15Lo419 is not eligible for listing in the National Register of Historic Places (NRHP). We concur with this recommendation.

We understand materials will be curated at Erskine Ramsey Archaeological Repository at the University of Alabama unless the landowner wishes to retain the artifacts. We accept the archaeology report without revision.



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2 RE: TVA, CRMS 82391275631, Proposed Shelton Lane Industrial Park,  
Near the Intersection of Forest Park Drive and Shelton Lake Industrial Park,  
Russellville, Logan County, Kentucky

The Cultural Historic identified and evaluated resources within the half mile visual APE, which was further refined through viewshed modeling. 21 newly recorded resources were identified within the APE. Our office concurs with the following recommendations:

- LO-387, 389-400, and LO-402-407, all residential structures, are Ineligible for the NRHP.
- LO-388 and LO-401, both commercial structures, are Ineligible for the NRHP.

Furthermore, our office concurs with the finding of **No Historic Properties Affected**. This concurrence is conditional upon receipt of KHC survey forms for all resources identified in the Cultural Historic within three months of the date of this letter. Survey forms should be submitted as separate PDF files labeled by resource number to [khc.section106@ky.gov](mailto:khc.section106@ky.gov).

Should you have any questions, please contact Gabrielle Fernandez or Patti Hutchins of my staff at [Gabrielle.Fernandez@ky.gov](mailto:Gabrielle.Fernandez@ky.gov) or [Patricia.Hutchins@ky.gov](mailto:Patricia.Hutchins@ky.gov).

Sincerely,



Craig A. Potts,  
Executive Director and  
State Historic Preservation Officer

CP: gf, peh  
KHC # 240855, prev. 240721  
e-cc: Philip Mink, OSA, [pbmink2@uky.edu](mailto:pbmink2@uky.edu)  
Emily Belilies, TVA, [ebelilies@tva.gov](mailto:ebelilies@tva.gov)  
Michaelyn S. Harle, TVA, [mharle@tva.gov](mailto:mharle@tva.gov)



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February 14, 2024

Ellen Mullins  
Stantec  
3052 Beaumont Centre Circle  
Lexington, KY 40513

**RE:** Logan County TVA Project

Dear Ellen:

In response to your request regarding the above referenced project the Natural Resources Conservation Service (NRCS) is mandated to provide information on the soils and/or impact to farmland according to the Farmland Protection Policy Act (P.L. 97-98) for projects that will be utilizing federal funding.

As outlined in FPPA Rule 7cfr658, lands that are classified on Census Bureau maps as an **Urbanized Area** are exempt from FPPA Provisions. Therefore, an AD-1006/CPA-106 form is not needed, and this office has no concerns at this time.

**7CFR658—Code of Federal Regulations**  
**Part 523-Farmland Protection Policy Act Manual**  
**Subpart B-Program Activities and Requirements**

**A. Lands Subject to Provisions of FPPA**

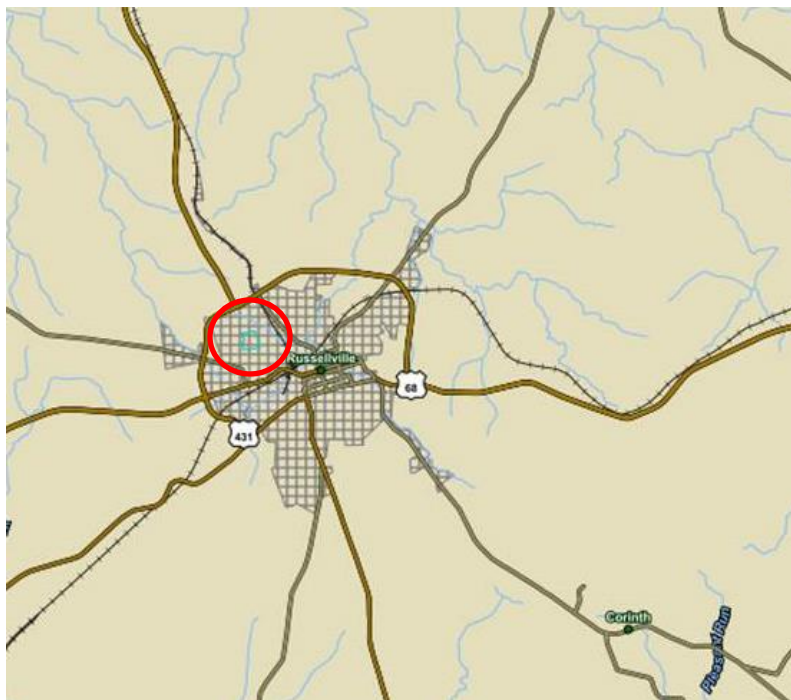
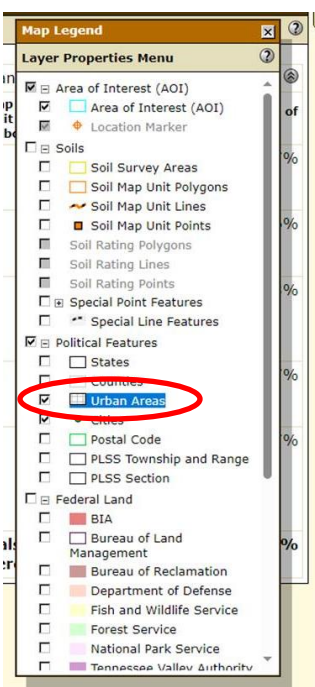
*Important farmlands, including lands identified with soils that are prime, unique, or statewide or locally important farmland, are subject to the provisions of the Farmland Protection Policy Act.*

**B. Lands Not Subject to Provisions of FPPA**

*The following lands are not covered by the act:*

- (1) Lands that receive a combined score of less than 160 points from the LESA criteria*
- (2) Lands identified as “urbanized area” (UA) on Census Bureau maps*
- (3) Land with a “tint overprint” on the USGS topographical map*
- (4) Areas shown as white (not farmland) on USDA Important Farmland Maps (These are sites that do not contain prime, unique, statewide important or locally important farmland.)*
- (5) Areas shown as “urban-built up” on USDA Important Farmland Maps (This is consistent with the guidance of the National Resources Inventory [NRI] for mapping urban built-up areas. Note: Areas 10 acres or larger without structures are not considered urban built-up and are subject to FPPA.)*

- (6) Land in water storage, including lands that have been acquired or planned for water storage prior to August 5, 1984 (See Section 523.11C.)
- (7) Lands that are used for national defense purposes during a National Emergency (See U.S. Code – Title 7 – Section 4208)
- (8) Private land where no Federal funds or technical assistance is utilized



If I may be of additional assistance, please do not hesitate to contact me.

Sincerely,

*Perri P. Brown*

**Perri P. Brown**  
Resource Soil Scientist  
[Perri.Brown@usda.gov](mailto:Perri.Brown@usda.gov)