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ECONOMIC DEVELOPMENT GRANT PROPOSAL FOR THE KEITH PROPERTY

ENVIRONMENTAL ASSESSMENT

Graves County, Kentucky (Hickory)

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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 Graves County Economic Development (GCED) to assist with the development of the Keith Property in Graves County, Kentucky. The area of TVA's Proposed Action (herein referred to as the Project Area) encompasses approximately 50 acres of mostly open grassy land with some forested areas located immediately north of Hickory Road, 0.5 mile west of Highway 45, and about 1 mile northwest of Hickory, Kentucky (see Figure 1 below and Attachment 1, Figure 1-A). TVA funds would be used for tree clearing, demolition of existing structures, drain and fill of a pond, grading of a 500,000 square foot (SF) dirt building pad, and site stabilization after grading is complete. These activities, herein referred to as the Proposed Action, are further detailed in Section 3.2 below.

The proposed grant to the GCED would assist with site development 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 exist within 1 mile southeast, east, and northeast of the Project Area, including Youngblood Excavation and Contracting, AgRevolution, LLC, Applegate Insulation, Silverline Trailers, PRCO-America, MCP, Pilgrim's Pride Plant, Ingram's Water and Air Equipment, HVAC Distributing, LLC, TLC Lighting, and Centrifugal Technologies, Inc. Target industries include lumber, consumer products, industrial maintenance, food processing, and advanced manufacturing. Pursuant to the National Environmental Policy Act (NEPA) and its implementing regulations 40CFR 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 GCED.

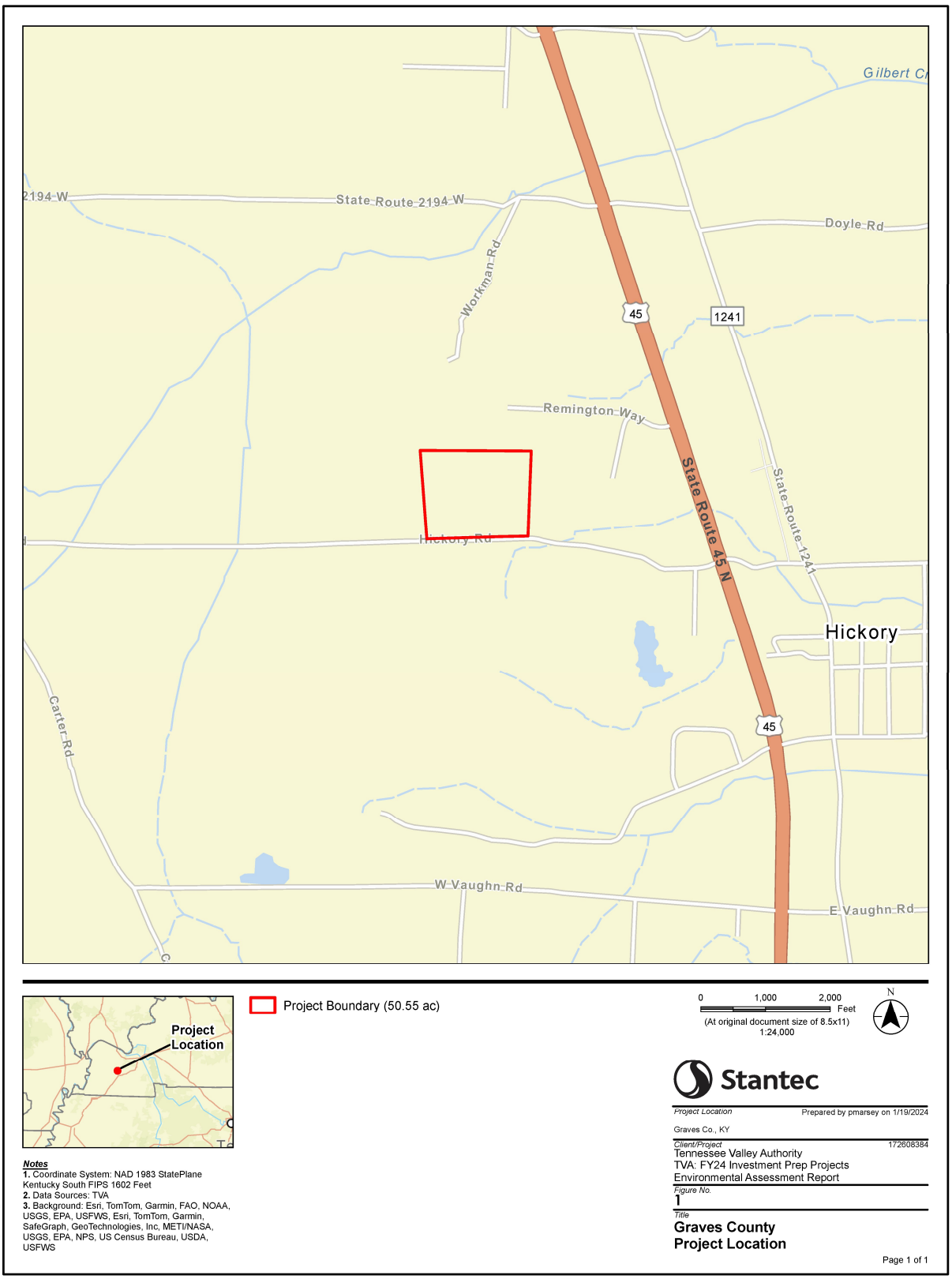

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Figure 1. Project Location Map

2.0 OTHER ENVIRONMENTAL REVIEWS AND DOCUMENTATION

In preparation for site development, other studies have been performed for GCED at the 50-acre Project Area. The various studies were performed at different times.

A Phase I Environmental Site Assessment (Phase I ESA) of the Project Area was performed consistent with the procedures included in ASTM E 1527-13 (Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process). The Phase I ESA was conducted by Bacon Farmer Workman Engineering and Testing, Inc. (BFW 2022) for the 50-acre Keith Property including the Project Area in March 2022. The purpose of the Phase I ESA was to identify the presence of recognized environmental conditions (REC) or other potential sources of environmental risk or liabilities within the Project Area. The results of the Phase I ESA indicated that no RECs were identified at or near the Project Area.

A geotechnical investigation report for the 50-acre Project Area was prepared by BFW (2023) in June 2023. The purpose of the geotechnical investigation was to explore subsurface conditions at the site to inform engineering considerations related to earthwork, building foundations, and construction. The report included recommendations for construction design, foundations and slabs, and site preparation for the Project Area.

A Categorical Exclusion Checklist (CEC) was prepared by TVA in 2019 for a TVA InvestPrep grant to GCED (TVA 2019). The grant was for funds to assist with development of a 105,000 SF speculative building, grading, utility extensions, paved parking and driveways, and signage in the Hickory Industrial Park located 0.1 mile northeast of the Project Area. The CEC was approved in March 2019 and the site is now the home of HVAC Distributing.

Stantec Consulting Services, Inc. (Stantec) performed a surface water and wetlands delineation of the Project Area on January 25, 2024. Both presumed jurisdictional waterbodies and presumed non-jurisdictional waterbodies, one wetland, and two ponds were observed (Stantec 2024a) as discussed in more detail below.

Stantec performed a botanical survey of the Project Area on February 2, 2024. Native plants and significant amounts of non-native species were observed due to the past and present farming practices. No federally- or state-listed species were observed as discussed below (Stantec 2024b).

Stantec performed a survey for historic structure resources 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 2024c).

Stantec performed an evaluation for archaeology resources within the Project Area from February 5 – 8, 2024 (Stantec 2024d). Based on the results of the archaeology study, no sites were considered eligible for the NRHP and no further work was recommended.

TVA staff performed a field survey of the Project Area for terrestrial zoology in October 2023. Common wildlife species and habitats were observed, but no rare or listed species were documented.

The Phase I ESA, geotechnical investigation, CEC, TVA staff wildlife survey, and Stantec aquatic resources, wetlands, botany, historic structures, and archaeology survey reports 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 GCED. 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 GCED 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 Alterative. In the event the project is postponed, any environmental effects would be delayed for the duration of the postponement. If the project were canceled, no direct environmental effects would be 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 GCED for site improvements to the Project Area. These improvements would include tree clearing of 5.1 acres with trees and stumps burned on-site and demolition and removal to a permitted landfill of an old home, barn/outbuilding, silo, and associated debris. Proposed activities would also include filling of a pond near the southern boundary of the site, grading of a 500,000 SF dirt building pad (with approximately 160,000 cubic yards of cut and fill needed with no off-site borrow necessary), and three detention ponds. The finished floor elevation would be approximately 494 feet above mean sea level (msl). Erosion prevention, sediment control, and stabilization measures, such as seeding and straw mulch would be implemented after grading is complete. Activities required for the Action Alternative would occur over approximately 12 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 GCED, 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 the adjacent lots is beyond the scope of this EA.

4.0 AFFECTED ENVIRONMENT AND ANTICIPATED IMPACTS

4.1 Site Description

The 50-acre Project Area encompasses a portion of the vacant, undeveloped Keith Property in Graves County, Kentucky, on mostly agricultural uplands (with some forest) adjacent to Hickory Road, just west of Highway 45, 1 mile northwest of Hickory, Kentucky and 5 miles north of Mayfield, Kentucky (Attachment 1, Figure 1-A).

The Project Area is situated within a mixed agricultural, industrial/commercial, and light residential area of Hickory, Kentucky, and is not currently zoned. The land use surrounding the Project Area includes agriculture and pasture, patchy forest to the west and south, agricultural areas, patchy forest, Highway 45, and industrial and commercial areas to the east, and agricultural areas and patchy forest to the north. Permanent structures or utilities located adjacent to the Project Area include a 12-inch water line, 8-inch sewer line and lift station, overhead electric distribution lines, and a four-inch natural gas line.

The Project Area ranges from approximately 469 to 500 feet above msl (Attachment 1, Figure 1-B). In the past, the Project Area has been used for farming or pasture since at least 1968 (BFW 2022), but now consists of undeveloped farmland, patchy forest, and pasture, along with a few scattered buildings. Small strips or patches of trees occur in the south-central part of the Project Area along with a farm pond, to the northeast, and to the northwest along with another farm pond. The Project Area appears similar over time based on historical aerial photography dating to 1968, but tree patches have increased somewhat.

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 (BFW 2022). Based on the 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 subject property does not represent a REC. Demolition of an old home, barn/outbuilding, silo, and associated debris piles are part of the Action Alternative, but all debris would be disposed of at a permitted landfill. 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 Graves County, Kentucky (Attachment 1, Figure 1-C), (panel number 21083C0150C, effective 12/03/2009) 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 performed a field assessment of the Project Area for aquatic resources (i.e., waterbodies) and wetlands on January 25, 2024 (Stantec 2024a). A map of features based on the U.S. Fish and Wildlife's (USFWS) National Wetlands Inventory and Waters Inventory is provided as Attachment 1, Figure 1-D. As discussed in more detail below, presumed jurisdictional waterbodies (i.e., potentially subject to the U.S. Army Corps of Engineers (USACE) or the State of Kentucky jurisdiction) and presumed non-jurisdictional waterbodies and a wetland were identified during

Stantec's survey (Attachment 1, Figure 1-E). Therefore, the Proposed Action could result in impacts on surface waters and wetlands. Because the Proposed Action would affect surface waters, there could be effects on aquatic zoology resources.

The Proposed Action would result in a change from agricultural land to a site developed to support a future undefined industrial development. However, because the Project Area is not currently zoned and multiple industrial and commercial developments already occur in the immediate vicinity, there would not be a change in land use zoning or the land use setting of the Project Area's vicinity.

The Proposed Action would result in clearing of forested land, demolition of a home, barn and silo, and development of an access road, detention basins, and a dirt building pad designed for industrial use. The Proposed Action could result in irreversible conversion of 24.2 acres of Prime Farmland and 13.2 acres of Farmland of Statewide Importance (Attachment 1; Figure 1-F).

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.

A review of the TVA Natural Heritage Project database revealed no managed or natural areas within 3 miles of the Project Area. No impacts on natural areas are expected as a result of the Proposed Action.

There are no developed parks or outdoor recreation areas within 3 miles of the Project Area based on a review of Google Earth imagery. Implementation of the Action Alternative would not result in significant impacts on recreational opportunities near the Project Area.

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, land use, natural areas, 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, soils, surface waters, wetlands, aquatic zoology, terrestrial zoology, botany, and archaeology and historic structures and sites. Implementation of the Action Alternative could create potential impacts on the human environment, including prime farmland, 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 United States 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_2), carbon monoxide (CO), ozone, sulfur dioxide (SO_2), lead, particulate matter (PM) with an aerodynamic diameter equal to or less than 10 microns (PM_{10}), and PM with an aerodynamic diameter equal to or less than 2.5 microns ($PM_{2.5}$). 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 Graves 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_2), methane, and nitrous oxide. Burning of woody debris would produce smoke containing CO, CO_2, PM, NO_2, and VOCs (ORCAA 2024). Smoke inhalation can cause irritation, breathing issues, and respiratory diseases.

Air quality impacts associated with activities under the Action Alternative include emissions from fossil fuel-fired equipment, fugitive dust from ground disturbances, and burning of trees and stumps. Fossil fuel-fired equipment is a source of combustion emissions, including nitrogen oxides (NO_X), CO, VOCs, SO_2, PM_{10}, $PM_{2.5}$, GHGs, and small amounts of HAPs. Gasoline and diesel engines used as a result of the Action Alternative are expected to be in compliance 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). Burning would occur on-site for the 5.1 acres of trees and stumps to be cleared.

Fugitive dust is a source of respirable airborne PM, including PM_{10} and $PM_{2.5}$, 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 GCED, 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 grading of roads, clearing of land, and the use of water or chemicals for control of dust in construction operations on dirt roads and stockpiles, as needed.

Concerning climate change, trees, like other green plants, are carbon sinks that use photosynthesis to convert CO_2 into sugar, cellulose, and other carbon-containing carbohydrates that they use for food and growth. Carbon sequestration is the process by which carbon sinks remove CO_2 from the atmosphere. Although forests do release some CO_2 from natural processes such as decay and respiration, a healthy forest typically stores carbon at a greater rate than it releases carbon. Trees would be cleared as a part of the Proposed Action and since the Project Area is largely wooded land, it contributes as a carbon sink. However, on a national or global scale, the Proposed Action of clearing 5.1 acres of trees 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 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 GCED 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 GCED 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 East Gulf Coastal Plain Section of the Coastal Plain Province (National Park Service [NPS] 2017 and USGS 2023). The East Gulf Coastal Plain Section extends from Eastern Louisiana and includes parts of Mississippi, Alabama, western Kentucky, western Tennessee, western Georgia and the Florida panhandle. The East Gulf Coastal Plain Section in the vicinity of the project site is characterized by unconsolidated to semi-consolidated sediments, silts and clay. (USGS 1995).

In western Kentucky, the principal aquifer system in the East Gulf Coastal Plain Section is the Mississippi embayment aquifer system and consists of sediments that include sand, silt, lignite and clay that are primarily Late Cretaceous through late Eocene (USGS 1995). The Mississippi embayment aquifer system is comprised of several named aquifers. The local aquifer systems underlying the project site include: (in descending order) Middle Wilcox aquifer, lower Wilcox aquifer and the McNairy-Nacatoch aquifer (USGS 1995). The middle Wilcox aquifer is made up of thin, interbedded silt, fine sand and clay layers. The lower Wilcox aquifer consists primarily of fluvial deposited sands. The bottom most aquifer that comprises the Mississippi embayment aquifer system is the McNairy-Nacatoch aquifer which consists of a single thick sand bed or two or more sand beds separated by thinner marl or clay layers (USGS 1995).

The groundwater quality in the Mississippi embayment aquifer system is considered soft to moderately hard with a calcium bicarbonate type near outcrop areas of the aquifer and transitions to a sodium bicarbonate type as it flows deeper into the aquifers. The dissolved solids concentrations for the Mississippi embayment aquifer system are typically less than 250 milligrams per liter (mg/L) in the vicinity of the project site. The principal aquifers used for water supply in the Mississippi embayment aquifer system are the middle Claiborne, lower Wilcox and the McNairy-Nacatoch aquifers. The lower Wilcox receives recharge via precipitation in aquifer outcrops and downward leakage from the above overlying aquifers. The McNairy-Nacatoch receives recharge primarily from precipitation infiltration in aquifer outcrop areas and a small portion of recharge is upward from the underlying aquifers (USGS 1995).

Shallow aquifers could sustain minor impacts from changes in overland water flow and recharge caused by clearing, grading and construction of temporary sediment basins 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.

The Phase I Environmental Site Assessment was completed in March 2023 by BFW Engineering and Testing, Inc. and it indicated that the Project Area was used for agricultural purposes and there was no discovery of adverse environmental conditions on the Project Area. Historical land use of the Project Area was primarily farmland. As such, it is not anticipated that construction activities would encounter hazardous substances during the aforementioned site improvements. Furthermore, it is expected that GCED, 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.

Implementation of the Action Alternative would result in ground disturbance during construction activities. Tree clearing, removal of an old home, barn/outbuilding, silo and associated debris would result in minor ground disturbance at shallow depths. Site grading and compaction for development of a dirt building pad, filling a pond, and construction of three detention basins would result in greater ground disturbance at moderate depths. Ground disturbances are not anticipated to be at depths that would intersect public groundwater supplies (approximately 100 feet beneath the land surface) (USGS 1995). The “Geotechnical Exploration Report – Hickory Industrial Park – Keith Property” conducted by BFW Engineering and Testing, Inc. indicates the overburden at the project site consists mostly of clay, sandy clay, clayey sand, poorly graded gravelly sand, well graded sand and poorly graded sand from depths ranging 0 to 31.4 feet below land surface (maximum depth of conducted borings). Groundwater was not encountered during any of the geotechnical borings. These minor impacts would be temporary and would not significantly affect groundwater resources.

Under the No Action Alternative, if GCED 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 GCED were not able to secure the funding for the actions described in this EA, ground disturbance associated with tree clearing, grading, and demolition and removal of structures would not occur and there would be no impacts on groundwater resources.

4.2.3 Soils

The Project Area is in Graves County, Kentucky within the East Gulf Coastal Plain Section of the Coastal Plain Province (NPS 2017 and USGS 2023). Precipitation in the vicinity of the Project Area averages about 51.8 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 (United States Climate Data 2024).

Soil types and descriptions were obtained from the Natural Resources Conservation Service (NRCS) Web Soil Survey (NRCS 2024) (see Attachment 1, Figure 1-F). Soil types found within the Project Area include: Collins silt loam (0 to 2 percent slopes), Grenada silt loam (2 to 6 percent slopes), Loring silt loam (2 to 6 percent slopes), Purchase-Loring complex (4 to 6 percent slopes) and Purchase-Loring complex (6 to 12 percent slopes).

A geotechnical investigation was conducted on the Project Area in 2023 (BFW 2023). The 2023 investigation found clay, sandy clay, clayey sand, poorly graded gravelly sand, well graded sand and poorly graded sand from approximately 0 to 30 feet below land surface within the Project Area (borings within the Project Area ranged from 15.9 to 31.4 feet below land surface). The report recommends that initially the Project Area should be grubbed, stripped and cleared of organics/topsoil, old foundations/footings, floors/walls, asphalt, historic septic systems, deleterious materials and unsuitable/soft soils. Once the topsoil has been removed, the report recommends that if the Project Area contains extensive soft soil deposits, those areas should be proof rolled and or have shallow excavations conducted in an effort to understand the area/amount where undercutting may be required. (BFW 2023).

Under the Action Alternative, soils in the Project Area would be disturbed by widespread grading of a 500,000 SF dirt building pad (with approximately 160,000 cubic yards of cut and fill needed), construction of three detention ponds, 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 National Pollutant and Discharge Elimination System (NPDES) 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 GCED 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 GCED 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 Prime Farmland

Prime farmland is defined by the U.S. Department of Agriculture NRCS as land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses. Of the five soil map units in the Project Area, three (Loring silt loam, Grenada silt loam, and Collins silt loam) are considered prime farmland and one (Purchase-Loring complex) is considered farmland of statewide importance (See Attachment 1, Figure 1-F for soil unit descriptions and locations) and account for approximately 48 percent and 26 percent, respectively, of the Project Area (USDA NRCS 2024).

The Farmland Protection Policy Act (FPPA) discourages federal activities that would convert farmland to nonagricultural purposes (7 CFR Part 658). The Proposed Action would result in tree clearing, demolition of existing structures, drain and fill of a pond, grading of a 500,000 SF dirt building pad, and site stabilization after grading is complete. The Proposed Action would result in conversion of 24.2 acres of Prime Farmland and 13.2 acres of Farmland of Statewide Importance (Attachment 1; Figure 1-F).

Completion of NRCS Form AD-1006, “Farmland Conversion Impact Rating”, Parts VI and VII would be required prior to proceeding with the project (Attachment 3). Form AD-1006's impact rating serves as a reporting mechanism to track loss of prime farmland by projects funded by federal dollars. For project sites where the total points equal or exceed 160, NRCS may prompt consideration of alternative actions, as appropriate, that could reduce adverse impacts (e.g., alternative sites, modifications or mitigation).

Under the Action Alternative, 24.2 acres of prime farmland in the Project Area could be disturbed by tree clearing, demolition of existing structures, draining and filling of a pond, grading of a 500,000 SF dirt building pad, and site stabilization. The completion of the NRCS documentation described above would be required. The impacts to prime farmland would be considered minor on a county level, as the NRCS indicated that the Action Alternative would convert only 0.02 percent of the prime farmland in Graves County, Kentucky.

Under the No Action Alternative, if the GCED 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 prime farmland as those described above for the Action Alternative. If the GCED 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 prime farmland.

4.2.5 Surface Waters

The Project Area is located within the 8-digit HUC Bayou de Chien-Mayfield watershed (HUC 08010201) and in the 12-digit HUC watershed Gilbert Creek – Mayfield Creek (HUC 080102010105). Precipitation for Graves County, Kentucky averages 51.8 inches annually (USClimateData.com 2024).

Stantec performed field surveys of the entire Project Area on January 25, 2024, to document waterbodies (Stantec 2024a). A map of features based on the United States Fish and Wildlife Service (USFWS)’ Wetland Inventory and Water Inventory is provided in Attachment 1, Figure 1-D. Five intermittent streams presumed subject to USACE or the State of Kentucky jurisdiction were identified. Additionally, 15 presumed non-jurisdictional waterbody features were documented, including 13 ephemeral channels / wet-weather conveyances and two ponds (Attachment 1, Figure 1-E).

S001 is a presumed jurisdictional intermittent stream located in the northeast portion of the Project Area. Water was actively flowing from west to east at an average depth of 3 inches. Channel substrate consisted of sand, cobble, and gravel that transitioned to silt along its banks.

S002 is a presumed jurisdictional intermittent stream located in the northeast portion of the Project Area. Water was actively flowing from north to southeast with an average depth of 3 inches. Substrate of this channel consists mostly of cobble and gravel.

S003 is a presumed jurisdictional intermittent stream located in the northeast portion of the Project Area. Water was actively flowing from north to south with an average depth of 4 inches. Substrate of this channel consists of gravel and cobble.

S004 is a presumed jurisdictional intermittent stream located in the eastern portion of the Project Area. The stream was observed flowing in an eastern direction out of the Project Area. Substrate of this channel consists of sand, gravel, and cobble. Water depth was approximately 1 inch.

S005 is a presumed jurisdictional intermittent stream located in a centralized portion of the Project Area. The stream was observed flowing in a southern direction to a culvert under Hickory Road just outside the southern extent of the Project Area. Substrate of this channel consists of sand and cobble. Water depth was approximately 3 inches.

E001 is a presumed non-jurisdictional, ephemeral channel located in the south-central portion of the Project Area. This channel is a roadside ditch flowing west to east into a culvert along Hickory Road located outside the Project Area. Substrate consists of silt and clay and upland vegetation. There is standing water present in pools but no flow was observed.

E002 is a presumed non-jurisdictional, ephemeral channel located in the northwestern portion of the Project Area. The channel was observed beginning from agricultural runoff. Water was observed in puddles along the reach. Channel substrate consists of silt and clay.

E003 is a presumed non-jurisdictional, ephemeral channel located in the northeastern portion of the Project Area. This channel begins as agricultural runoff and has been altered by agriculture usage in the upper sections of the reach. This channel flows in a northern direction in S001. Channel substrate consisted of silt and clay.

E004 is a presumed non-jurisdictional, ephemeral channel located in the northeastern portion of the Project Area. This channel begins as agricultural runoff and has been altered by agriculture usages in the upper sections of the reach. This channel flows into S001. Channel substrate consists of silt and clay.

E005 is a presumed non-jurisdictional, ephemeral channel located in the northeastern portion of the Project Area. Although geomorphic development shows water flow, hydrologic and biological factors are nearly missing entirely from this channel. This channel flows downhill until it dissipates to S002. Substrate consists of silt and clay.

E006 is a presumed non-jurisdictional, ephemeral channel located in the northeastern portion of the Project Area. This channel is located in a U-shaped valley of a forested area and transports the water downhill until it dissipates into S002. Channel substrate consists of silt and clay.

E007 is a presumed non-jurisdictional, ephemeral channel located in the northeastern portion of the Project Area. This channel is caused by runoff from nearby hills into the U-shaped valley. Channel substrate consists of silt, clay, and upland vegetation.

E008 is a presumed non-jurisdictional, ephemeral channel located in the eastern portion of the Project Area. This channel is caused by sheet flow runoff of the nearby farm field that flows into the forested area. Channel substrate consists of silt, clay, and upland vegetation.

E009 is a presumed non-jurisdictional, ephemeral channel located in the eastern portion of the Project Area. This channel is moderately altered due to agricultural field usage near the origin of the stream channel which obstructs natural stream channelization. Substrate consists of upland vegetation.

E010 is a presumed non-jurisdictional, ephemeral channel located in the south-central portion of the Project Area. Flow was observed and was received from nearby agriculture field sheet flow. Substrate consists of silt, clay, and upland vegetation.

E011 is a presumed non-jurisdictional, ephemeral channel located in the south-central portion of the Project Area. Flow is received by nearby agricultural field sheet flow from the east. Substrate consists of silt and clay.

E012 is a presumed non-jurisdictional, ephemeral channel located in the south-central portion of the Project Area. Flow is received by nearby agricultural field sheet flow from the west and wetland W001 at the base of the hill. Substrate consists of silt and clay.

E013 is a presumed non-jurisdictional, ephemeral channel located in the south portion of the Project Area. This channel is a roadside ditch flowing west to east into the same culvert as E001 along Hickory Road. Flow was observed in the watercourse coming out of a seep near the culvert. Substrate consists of silt and clay.

P001 is a presumed non-jurisdictional 0.45-acre pond located in the northwestern portion of the Project Area. Although this pond is documented in NWI as palustrine unconsolidated bottom, permanently flooded, diked impounded (PUBHh), this pond was surrounded by upland plants and trees. No outfalls from the pond were identified and the pond receives hydrology from E002 and direct rainfall.

P002 is a presumed non-jurisdictional 0.38-acre pond located in the southern portion of the Project Area. Although this pond is documented in NWI as PUBHh, this pond was surrounded by upland plants and trees. No outfalls from the pond were identified and the pond does not receive hydrology from any other hydrologic features.

Under the Action Alternative, the presumed jurisdictional and non-jurisdictional stream features could be disturbed by tree clearing, demolition of existing structures, draining and filling a pond, grading of a 500,000 SF dirt building pad, and site stabilization. Based on a conceptual activities drawing provided by the GCED, which is preliminary and subject to change, tree clearing, grading and/or development of detention ponds could overlap with all of the ephemeral channels, intermittent streams, and ponds listed above, except possibly E002, S004, and P001. If potential impacts on jurisdictional features cannot be avoided, construction would impact these waterbodies by disturbance, modification or removal, and consultation with the USACE and State of Kentucky would be required. Unavoidable potential impacts to jurisdictional features would be addressed through implementation of measures required by agency permitting, including use of BMPs during construction, restoration, and/or compensatory mitigation as required. Unavoidable potential impacts to non-jurisdictional features would result in impacts to waterbodies, by disturbance, modification or removal. These features capture and drain runoff only during rain events. Site planning would be designed to account for site runoff and ensure stormwater is adequately held or

conveyed off-site. BMPs, such as revegetation and erosion controls in accordance with a project specific construction general permit/stormwater pollution prevention plan, would be implemented to further ensure site runoff does not impact downstream water quality.

Under the No Action Alternative, if the GCED 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 surface waters as those described above for the Action Alternative. If the GCED 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 surface waters.

4.2.6 Wetlands

As noted above for surface waters, Stantec also performed field surveys of the entire Project Area on January 25, 2024, to document wetlands (Stantec 2024a). A map of features based on the USFWS National Wetland Inventory and Waterbody Inventory is provided in Attachment 1, Figure 1-D. One presumed non-jurisdictional wetland was identified during the field delineation (Attachment 1, Figure 1-E).

W001 is a presumed non-jurisdictional palustrine emergent wetland (<0.1 acre) located in the southeastern portion of the Project Area. A TVA - Rapid Assessment Methodology score of 26 was given to this wetland, which indicates that this is a wetland of “low resource value.” The wetland is not connected through surface waters to S005; therefore, it is isolated from the surrounding watercourse.

Under the Action Alternative, the presumed non-jurisdictional wetland feature W001 could be disturbed by tree clearing, grading and/or development of detention ponds. The estimated disturbance is based on a conceptual activities drawing provided by the GCED, which is preliminary and subject to change. However, the palustrine emergent wetland was small and determined to be of low resource value. Other similar wetlands would occur in the vicinity of the Project Area and regionally. Given these findings, we conclude that impacts to wetlands would be insignificant. Erosion control measures would be implemented, in accordance with a project specific construction general permit/stormwater pollution prevention plan, to sufficiently reduce sedimentation to resources on- or off-site. No presumed jurisdictional wetlands are located in the Project Area so there would be no impacts to regulated wetlands. W001 would be unavoidably impacted due to its location relative to grading and development of a proposed detention basin, based on the conceptual activities plan provided by the GCED. Avoidance of W001 would be impractical based on the scope and nature of disturbance presented in the conceptual activities plan. Due to avoidance of presumed jurisdictional wetlands, this TVA-funded Proposed Action would be compliant with the Clean Water Act (CWA) Sections 401 and 404 and EO 11990.

Under the No Action Alternative, if the GCED 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 the wetland as described above for the Action Alternative. If the GCED 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 wetlands.

4.2.7 Aquatic Zoology

As noted in Section 4.2.5, no perennial stream habitat occurs within the Project Area, and the lone identified wetland was not inundated at the time of survey. The five intermittent and 13 ephemeral streams would not provide suitable habitat for aquatic fauna. No fish, crayfish, bivalves/mussels, amphibians, or macrobenthos were observed in the intermittent or ephemeral streams. Two ponds, P001 and P002, are located within the Project Area. Generalist fish species such as mosquitofish (*Gambusia affinis*) and sunfish (*Lepomis spp.*) could potentially occur in the ponds.

The Action Alternative could involve potential impacts on aquatic fauna if P001 or P002 were disturbed but given the habitat present and species likely to occur, impacts would not be significant. The species potentially present are widely distributed and abundant in adjacent and regional ponds.

Under the No Action Alternative, if the GCED 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 aquatic fauna as those described above for the Action Alternative. If the GCED 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 aquatic fauna.

4.2.7.1 Threatened and Endangered Species (Aquatic Species)

TVA biologists queried the Natural Heritage Database for rare, threatened, and endangered aquatic species on October 4, 2023. Two state-listed aquatic species were identified from the HUC boundary containing the Project Area: lake chubsucker (*Erimyzon sucetta*) listed as state threatened and the swamp darter (*Etheostoma fusiforme*) listed as state endangered. One federally-listed aquatic species, the threatened relict darter (*Etheostoma chienense*) was identified from Graves County, Kentucky.

The lake chubsucker prefers low gradient streams and vegetated backwaters and oxbows (Etnier and Starnes 1993). Spawning occurs in gravel substrate in streams but may also occur in still waters with vegetation. This habitat type is not present in the Project Area.

The swamp darter prefers sluggish or still streams with clear water and vegetation (Etnier and Starnes 1993). Substrate typically includes detritus or mud habitats (Page 1983). This habitat type is not present in the Project Area.

The relict darter was downlisted by the USFWS in 2023 from endangered to threatened (USFWS 2023a). The relict darter prefers streams with still water or gently flowing pools. Substrate includes gravel and sand near cover such as tree branches, undercut banks, or vegetation that overhangs the stream (USFWS 1994). This habitat type is not present in the Project Area.

The Action Alternative would not result in impacts on rare, threatened, and endangered aquatic species due to their absence from the Project Area.

Under the No Action Alternative, if the GCED 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 rare, threatened, and endangered aquatic fauna. If the GCED 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 rare, threatened, and endangered aquatic fauna.

4.2.8 Terrestrial Zoology

The Project Area is located on 50 acres of land which will be purchased by GCED in 2024. The Project Area is composed primarily of agricultural fields with narrow tree lines and riparian forest along the margins. Two man-made ponds exist on the property. Various man-made structures including remnants of an old home, a barn, and a silo will be demolished and disposed of at a permitted landfill. Features surrounding the Project Area consist of a variety of croplands (i.e., pasture and agricultural), and developed or otherwise disturbed areas. A field survey was conducted of the Project Area on October 30, 2023, by TVA terrestrial zoologists.

Approximately 35 acres of the project footprint consists of harvested agricultural fields. At the time of field survey, the soil was tilled, with little regenerative vegetation. Early successional plant communities have begun to colonize the area. Common inhabitants of previously disturbed fields and early successional habitats include brown-headed cowbird, common grackle, brown thrasher, dickcissel, eastern bluebird, eastern kingbird, eastern meadowlark, red-tailed hawk, field sparrow, and grasshopper sparrow (National Geographic 2002). Mammals such as bobcat, coyote, eastern cottontail, groundhog, Hispid cotton rat, striped skunk, and white-tailed deer are likely to utilize such habitat in this region (Whitaker 1996). Common amphibian and reptile species also use similarly disturbed habitat, including American toad, eastern box turtle, eastern garter snake, Fowler's toad, and gray ratsnake (Conant and Collins 1998). White-tailed deer and eastern gray squirrel were observed during field survey. When this habitat type is bordered by forested areas, a more diverse array of common wildlife species can be found using edge habitat.

Forested riparian areas comprised of one wetland, two ponds, and several intermittent and ephemeral streams exist along the edges of the Project Area. One thin riparian area containing a small pond exists at the south-central border. A second pond is in the northwest corner of the Project Area. Another riparian area along a stream borders the field in the northeast corner of the property. The riparian areas are composed of mixed hardwood forest consisting of American sycamore, black walnut, hackberry, Osage orange, and red and white oak. Approximately 5.1 acres of tree removal is proposed in this habitat. Common species such as Carolina chickadee, golden-crowned kinglet, tufted titmouse, and white-throated sparrow may utilize this habitat (National Geographic 2002). Blue jay, common crow, downy woodpecker, golden-crowned kinglet, mourning dove, northern cardinal, and tufted titmouse were observed during field survey. A wood duck nesting box was also observed at one of the pond sites, indicating the possible presence of cavity nesting avian species. Mammals found in riparian forests include common raccoon, eastern gray squirrel, and Virginia opossum (Whitaker 1996). Ponds and riparian areas on-site may serve as habitat for species such as American bullfrog, common watersnake, green frog, northern cottonmouth, red-eared slider, ring-necked snake, rough greensnake, and upland chorus frog (Conant and Collins 1998). Indication of amphibian activity was observed during the field survey.

Review of the TVA Natural Heritage database on October 18, 2023, indicated no colonial wading bird colonies or caves within 3 miles of the Project Area. No caves were observed during field survey of the Project Area. Review of the U.S. Fish and Wildlife Service's (USFWS) Information for Planning and Consultation (IPaC) tool in October 2023, identified eight migratory bird species of conservation concern that have the potential to occur within the Project Area: American kestrel, bald eagle, chimney swift, Kentucky warbler, prairie warbler, prothonotary warbler, rusty blackbird, and wood thrush.

American kestrel is a year-round resident of Kentucky. This small falcon has experienced widespread population declines across its range in North America (Bird and Smallwood 2023). These birds utilize cavities for nesting and inhabit open areas containing short vegetation, like grasslands and agricultural fields (Smallwood and Bird 2020). Habitat for American kestrel exists within the project footprint.

Bald eagles are federally protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d). This species is associated with large mature trees capable of supporting their nests, which can weigh several hundred pounds and are typically built near larger waterways where they forage primarily for fish (USFWS 2007a). No bald eagle nests were observed during field surveys. No suitable foraging or breeding habitat for bald eagle exists within the Project Area. Proposed Actions are in compliance with National Bald Eagle Management Guidelines.

Chimney swifts are summer residents in Kentucky and use chimneys in urban areas as nesting sites and communal roosts (Palmer-Ball 1996). Although structures exist in the Project Area that may be suitable for chimney swift nesting sites, no evidence of nesting was observed during field survey.

Kentucky warbler and prairie warbler are summer residents in Kentucky. Kentucky warbler nest in bottomland hardwood forests or other mesic forested areas (McDonald 2020). Prairie warblers typically use pine forests, pastures, or strip-mine spoil prairie to nest or forage (Nolan 1978). Breeding habitat is not present within the Project Area for Kentucky warbler or prairie warbler.

Prothonotary warbler are a summer resident in Kentucky and are typically found near water where nests are built in cavities over or near slow moving water (Petit 2020). Suitable breeding habitat for prothonotary warbler is present within the Project Area over the riparian corridor and pond areas.

Rusty blackbirds are winter residents in Kentucky and utilize forested wetland habitats (Greenberg & Matsuoka 2010). Suitable winter foraging habitat may be present within the Project Area for rusty blackbird.

Wood thrush are summer residents in Kentucky associated with larger tracts of mature mixed-deciduous forests with open forest floors. This species breeds in the understory of woodlands and is more numerous in damp forest and near streams. Nests are built in the lower branches of saplings and shrubs (Evans et al. 2020). Suitable breeding habitat for wood thrush exists within the project footprint, especially near riparian forests and open waters.

American kestrel, chimney swift, prothonotary warbler, and wood thrush may be impacted by the Proposed Actions due to proposed timing of tree removal within suitable habitat. American kestrel and prothonotary warbler utilize cavities for nesting. While most tree cavities exist immediately outside of the tree removal area some trees with cavities exist where tree removal would occur. Wood thrush build nests in saplings and shrubs. If nests are active at the time of proposed tree removal, activities may destroy nests, eggs, or juveniles. Tree removal is currently proposed for May 2024, while these species will be actively nesting. Nesting habitat for chimney swift exists in structures slated for demolition. All structures were surveyed outside of nesting season, in October 2023, at which time no nests were observed. If chimney swifts build nests between the time of field survey and structure demolition, chimney swift may be impacted by the Proposed Actions. Non-nesting individuals present on the landscape are expected to flush from the Project Area to nearby suitable habitat during disturbance events, including potential winter residents (rusty blackbird) if disturbance events continue beyond breeding season. Due to the relatively small size of the

proposed tree removal area and abundance of similarly suitable habitat in adjacent areas, the Proposed Action Alternative is not expected to impact populations of migratory birds.

As mentioned previously, no caves have been documented within 3 miles of the Project Area and none were observed during field surveys. The Proposed Action Alternative is unlikely to affect unique or important karst habitat.

Under the Action Alternative, TVA would provide funding for grading, grubbing, tree clearing and burning, demolition of current structures, and stormwater management within the Project Area. Up to 500,000 SF of pasture and farmland may be graded. This would result in the displacement of wildlife (primarily common, habituated species) currently using the area. Direct effects to some individuals may occur if those individuals are immobile during the time of habitat removal. This could be the case if activities took place during breeding/nesting/hibernation seasons. Habitat removal likely would disperse mobile wildlife into surrounding areas in an attempt to find new food sources, shelter, and to reestablish territories. However, the actions are not likely to affect populations of species common to the area, as the amount of habitat to be removed is relatively small, of lower quality, and similar herbaceous habitats and forested fragments exist in the surrounding landscape.

Under the No Action Alternative, if GCED 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 terrestrial wildlife or their habitats as those described above for the Action Alternative. If GCED 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 terrestrial animals or their habitats.

4.2.8.1 Threatened and Endangered Species (Wildlife)

Review of the TVA Regional Natural Heritage Database on October 18, 2023, resulted in one state-listed species (Bachman's sparrow) within 3 miles of the Project Area. Additionally, the USFWS has determined that one candidate species (monarch butterfly), four federally-listed species (gray bat, Indiana bat, northern long-eared bat, and whooping crane), and one species proposed for listing (tricolored bat) could occur within the Project Area. Table 4-1 contains species of conservation concern (state-listed or state ranked) within 3 miles of the Project Area, federally-listed species within Graves County, and USFWS' IPaC species results for the Project Area. Species-specific information and habitat suitability within the Project Area are discussed below.

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

Common Name	Scientific Name	Status[1]	
		Federal	State (Rank[2])
Birds			
Bachman's sparrow	*Peucaea aestivalis*	-	E(S1B)
Whooping crane[3]	*Grus americana*	EXPN	-(SNA)
Invertebrates			
Monarch butterfly[4]	*Danaus plexippus*	C	-(SNR)

Common Name	Scientific Name	Status[1]	
		Federal	State (Rank[2])
Mammals			
Gray bat[3]	*Myotis grisescens*	E	T(S2)
Indiana bat[3]	*Myotis sodalis*	E	E(S1S2)
Northern long-eared bat[3]	*Myotis septentrionalis*	E	E(S1)
Tricolored bat[3]	*Perimyotis subflavus*	PE	T(S2)

Source: TVA Regional Natural Heritage Database; USFWS Ecological Conservation Online System (ECOS: Home (fws.gov) extracted October 18, 2023.

[1] Status Codes: C = Candidate Species; E = Endangered; EXPN = Experimental Population, Non-essential; PE = Proposed Endangered; T = Threatened.

[2] State Ranks: S#B = Rank of breeding population in Kentucky; S#N = Rank of non-breeding population in Kentucky, SNA/SNR = Not ranked in Kentucky. S1 = Critically Imperiled; S2 = Imperiled.

[3] Federally listed or protected species that has not been documented within 3 miles of the Project Area or within Graves County, Kentucky; USFWS has determined this species has the potential to occur within the Project Area.

[4] Candidate species for listing under the Endangered Species Act. Historically this species has not been tracked by state or federal heritage programs.

Bachman's sparrow is a fire dependent species that primarily occupies longleaf pine woodlands but has been observed using powerline corridors where grassy conditions still exist (Dunning et al. 2020). One record of Bachman's sparrow was documented 2.6 miles from the Project Area. This occurrence is historical, having been documented in 1951. The Project Area no longer falls within the current known range of the species (Cornell 2024). Suitable habitat for Bachman's sparrow does not exist in the Project Area.

Whooping cranes are a large bird that once occurred throughout North America but have declined to three populations that breed in Canada and winter in coastal Texas. In the Eastern United States, a small captive-raised population breeds in Wisconsin and overwinters in Florida. Migration habitat includes marshes, shallow lakes, lagoons, and grain fields. The whooping crane is listed as Endangered in the Southwest (USFWS Region 2). Outside of this region (including Kentucky), the whooping crane is categorized as a non-essential experimental population. For the purposes of consultation, non-essential experimental populations are treated as threatened species on National Wildlife Refuge and National Park land (require consultation under 7(a)(2) of the Endangered Species Act) and as a proposed species on private land (no Section 7(a)(2) requirements, but federal agencies must not jeopardize their existence (Section 7(a)(4)))(USFWS 2024). The Project Area does not provide suitable habitat for whooping crane and no records are known from the Project Area.

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 species, on which adults exclusively lay eggs and where larvae develop and feed. Adults will drink nectar from other blooming wildflowers when milkweeds are not in bloom (NatureServe 2023). Though this species has not been historically tracked by state or federal heritage programs, USFWS has determined this species could occur within the Project Area. The field within the Project Area has been used for agriculture in the past and the plants present are not typically used for monarch foraging. Though some flowering plants may occur in the field, significant breeding and foraging habitat is not present within the Project Area. Monarchs were not observed during field survey of the Project Area in October 2023.

Gray bats are restricted to caves or cave-like habitat where they roost, breed, rear young, and hibernate year-round. They migrate between summer and winter caves and use transient or stopover caves along the way. Summer caves are typically located close to rivers or lakes (Brady et al. 1982, Tuttle 1976a,b). This species has also been documented roosting in abandoned buildings and under bridges. Bats disperse over bodies of water at dusk to feed, primarily on flying insects (Harvey 1993). While the USFWS has determined the gray bat has the potential to occur within Graves County, no records of gray bat have been documented from Graves County to date.

Indiana bats hibernate in caves in winter and use areas around them in fall and spring (for swarming and staging), prior to migration back to summer habitat. During summer, Indiana bats roost under exfoliating bark of dead and living trees in mature forests with an open understory, often near sources of water. Indiana bats are known to change roost trees frequently throughout the season, yet still maintain site fidelity, returning to the same summer roosting areas in subsequent years. This species has also been documented roosting in abandoned buildings, under bridges, and within culverts. This species forages over forest canopies, along forest edges and tree lines, and occasionally over bodies of water (Kurta et al. 2002, USFWS 2007b, USFWS 2022). Although there are no known records of Indiana bats in Graves County, Kentucky, the USFWS has determined this species has the potential to 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. 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 has also been documented roosting in abandoned buildings, under bridges, and within culverts. 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 2014). Although there are no known records of northern long-eared bats in Graves County, Kentucky, the USFWS has determined this species has the potential to occur within the Project Area.

Tricolored bats have been proposed for federal listing and are generally solitary or found in small groups. They are associated with forested landscapes where they forage near trees and along waterways, especially riparian areas. Maternity and other summer roosts are typically in clumps of dead or live tree foliage or tree cavities. Caves, mines, culverts, and rock crevices may also be used as roosts and winter hibernacula (McCoshum et al. 2023). Personal communication between the TVA and USFWS conveyed identified records of tricolored bats from Graves County, Kentucky.

No caves are known within 3 miles of the Project Area and no caves were observed during field review in October 2023. Wooded areas where tree removal is proposed were assessed for potential summer roosting and foraging habitat for state- and federally-listed bat species following the 2023 Range-Wide Indiana Bat and Northern Long-eared Bat Survey Guidelines (USFWS 2023b). Habitat quality ranged from low to moderate based on the presence of trees with exfoliating bark, cracks, crevices, or holes, and an open understory. Suitable summer roosting areas were comprised of mixed-deciduous hardwood patches dominated by a mixture of black walnut, hackberry, red oak, sycamore, white oak, and snag trees. Areas with low suitability were comprised of very dense, young saplings unsuitable for roosting or foraging. Within the Project Area, 5.1 acres of trees would be

removed of which 0.98 acre are suitable for use by summer roosting Indiana bat, northern long-eared, and tricolored bat. Tree removal is currently scheduled to take place during the month of May. Suitable habitat also exists within remnants of an old home, a barn, and a silo, all of which are slated for demolition. No threatened and endangered bat species were observed roosting within these man-made structures during a field survey performed in October 2023. Foraging habitat also exists within the Project Area for gray bat, Indiana bat, northern long-eared bat, and tricolored bat along wooded edges within the Project Area, and over and along riparian corridors and ponds.

Activities associated with this approval were addressed in TVA's programmatic consultation with the U.S. Fish and Wildlife Service on routine actions and federally-listed bats in accordance with Endangered Species Act Section 7(a)(2), originally completed in April 2018, and updated in May 2023. For activities with the potential to affect listed bats, TVA committed to implement specific conservation measures. Relevant conservation measures to this project are identified in the bat strategy form (Attachment 2) and must be reviewed and implemented as part of the approved project. With the use of identified conservation measures and BMPs, the Action Alternative would not significantly impact gray bats, Indiana bats, or northern long-eared bats. Additionally, with these conservation measures in place, the Action Alternative would not jeopardize the continued existence of tricolored bats.

The Project Area is not in the current range of Bachman's sparrow and suitable habitat for this species does not occur in the Project Area. The Action Alternative would have no effect on Bachman's sparrow.

Monarch butterfly foraging habitat may exist within margins along field edges that have not been impacted by agricultural crop production. However, these impacts are expected to be minor due to the small quantity of habitat potentially present. This species is currently listed under the Endangered Species Act as a candidate species and is not subject to Section 7 consultation. Suitable habitat for whooping crane does not exist in the Project Area and no known records of this species have been documented from Graves County. The Action Alternative would not jeopardize the continued existence of monarch butterfly or whooping crane.

Under the No Action Alternative, if GCED 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 rare, threatened and endangered terrestrial animals or their habitats as those described above for the Action Alternative. If the GCED 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.

4.2.9 Botany

4.2.9.1 Vegetation

The Project Area is located in the Mississippi Valley Loess Plains Level III Ecoregion and the Loess Plain Level IV Ecoregion. This area is characterized by rolling hills, irregular plains with loess and alluvium soils. This area historically contained bluestem prairies and oak-hickory forest. Prairies and forested wetlands were once frequent in this region. A botanical assessment was conducted by Stantec biologists to delineate vegetation types within the Project Area and to determine the habitat suitability for state- or federally-listed plant species.

Based on the vegetation assessment for the Project Area, the majority of the Project Area has been in use for soybean and corn production. Outside of the farmed areas, nine vegetated sub-areas were evaluated to document plant communities, infestations of invasive plants, and to search for possible threatened and endangered plant species in areas where work would occur.

These vegetated sub-areas included five patches of early successional deciduous forest : sub-areas-01 (0.1 acre), -02 (1.6 acres), -03 (0.4 acre), -06 (0.8 acre), and -08 (5.5 acres). Typical species in the forested areas included overcup oak (*Quercus lyrata*), red maple (*Acer rubrum*), hackberry (*Celtic occidentalis*), and American elm (*Ulmus americana*)]. All five sub-areas were upland forest, with one sub-area (sub-area-03) also described as riparian. Tree stand size generally ranged from 4 to 8 inches at diameter breast height (dbh) in sub-area 08 (with a few larger trees present) to up to 18 inches dbh in sub-areas 02 and 06, both of which surrounded man-made ponds. Sub-area-08, located in the northeastern corner of the Project Area, was by far the largest forested patch documented.

Other sub-areas included: a palustrine emergent isolated wetland as described in Section 4.2.6 [typical species include Franks's sedge (*Carex frankii*) and shallow sedge (*Carex lurida*)]; an upland vegetated swale [typical species include tall fescue (*Schedonorus arundinaceus*)]; a vegetated fence row [typical species include black cherry (*Prunus serotina*) and shingle oak (*Quercus imbricaria*)]; and a small (approximately 0.2 acre) wet, but non-wetland area (dominated by tall fescue) in an disturbed soybean field with butterweed (*Packera glabella*) and purple deadnettle (*Lamium purpureum*) also present.

Many of the plant species identified in the field were listed as invasive or introduced based on the Kentucky Exotic Pest Plant Council Severe or Significant Threat Lists (KYEPPC 2013). These invasive or introduced species include, but were not limited to: Chinese privet (*Ligustrum sinense*), Japanese honeysuckle (*Lonicera japonica*), common chickweed (*Stellaria media*), tall fescue, Johnson grass (*Sorghum halepense*), and multiflora rose (*Rosa multiflora*).

Implementation of the Action Alternative would not result in negative impacts on native vegetation on any appreciable scale. Tree clearing of 5.1 acres is part of the Proposed Action, but the forested areas that would be cut are comprised of common species and are also found in other numerous locations both in the immediate vicinity of the Project Area and regionally. Adoption of this alternative would result in disturbance of most of the Project Area. Vegetation would be removed, and the area would be graded. Impacts on vegetation may be permanent, but the vegetation found within the Project Area is comprised mostly of agricultural crops, non-native weeds and early successional plants that have little conservation value.

Under the No Action Alternative, if GCED 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 vegetation as those described above for the Action Alternative. If GCED 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 vegetation.

4.2.9.2 Threatened and Endangered Species (Botany)

Review of the TVA Regional Natural Heritage Database on October 4, 2023, resulted in one state-listed as threatened plant species located within 5 miles of the Project Area: compass-plant (*Silphium laciniatum*). Additional review of the Office of Kentucky State Nature Preserves (OKNP) rare plant database indicated an additional 12 species could be present in Graves County, Kentucky. These species are listed in Table 4-2 (Stantec 2024b).

Table 4-2. Federally and State-listed Species Known to Occur in Graves County, Kentucky

Scientific Name	Common Name	Habitat	Status
Apios priceana	Price's Potato Bean	open wooded areas, often in forest gaps or along forest edges	FT
Hydrocotyle ranunculoides	Floating Pennywort	Mucky shores, ditches, sloughs	SE
Rudbeckia subtomentosa	Sweet Coneflower	Prairies and low grounds, open stream terrace woodlands	SE
Carex seorsa	Weak Stellate Sedge	Alluvial and wet woods	SS
Chelone obliqua var. *speciosa*	Rose Turtlehead	Floodplain and alluvial forests, swamps, and slough	SS
Gleditsia aquatica	Water Locust	River swamps and slough margins	SS
Najas gracillima	Thread-like Naiad	Muddy or sandy ponds and shores	SS
Paspalum boscianum	Bull Paspalum	Moist or wet soil and also noted from disturbed areas	SS
Hieracium longipilum	Hairy Hawkweed	Dry prairies, open woods and fields, particularly on sandy soil	SS
Limnobium spongia	American Frog's-bit	Ponds, bayous, stagnant water	ST
Prenanthes crepidinea	Nodding Rattlesnake-Root	Calcareous forests and thickets usually in alluvial areas	ST
Ptilimnium capillaceum	Mock Bishop's-weed	Marshes, wet meadows, open wetlands	ST
Silphium laciniatum	compass-plant	Full sun in well drained soils, can be found in prairies, meadows, and roadside ditches	ST

Key: FE = Federally-listed endangered
FT = Federally-listed threatened
SE = State-listed endangered
SS = State sensitive (species of concern)
ST = State-listed threatened

No state- or federally-listed species were observed during the botanical survey. Overall, habitat suitability for listed species in the Project Area was low due to past agricultural activity, site disturbance, and the presence of invasive or introduced species. However, some potential habitat was observed. The sub-area-06 near the pond in the northwestern corner of the Project Area may provide marginal habitat for the state threatened American frog's bit, the state endangered floating pennywort, and the state-sensitive thread-like naiad. The wetland may provide marginal habitat for the state-sensitive plant bull paspalum, which is a wetland plant that has been observed in disturbed areas.

Area-08, especially along the edges of forest and along the stream channels, does provide some marginal habitat for Price's Potato Bean. This portion of Project Area is the least disturbed of all the areas observed. Area-08 is a larger tract of upland forest in northeastern corner of the Project Area.

Implementation of the Action Alternative would not affect federally-listed plant species or designated critical habitat because neither occurs in the proposed Project Area and due to past agricultural activity, site disturbance, and the presence of invasive or introduced species. While marginal habitat for some species was observed, no state- or federally-listed species were observed during the botanical survey.

Similar to the Action Alternative, under the No Action Alternative, if GCED 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 GCED 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.

4.2.10 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 (50.1 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 architectural surveys for the project APE, which were conducted in January and February 2024, and to write reports titled, *Phase I Archaeological Survey of the Keith Property for the Tennessee Valley Authority InvestPrep 2024 Program, Graves County, Kentucky* (Stantec 2024d) *and Cultural Historic Survey InvestPrep Round 11: Hickory Industrial Park, Graves County, Kentucky (Hickory)* (Stantec 2024c). TVA determined that the survey and the report are consistent with the *Secretary of Interior's Standards and Guidelines for Identification* (National Park Service [NPS] (1983).

Stantec's background research did not identify any previously known archaeological sites within the APE. The Phase I archaeological survey completed of the APE did not identify any archaeological sites; however, two non-site locales were identified in the southern portion of the APE (Stantec 2024d). A total of 527 shovel tests were pre-plotted for excavation within the APE. A total of 477 shovel tests negative for culture material, 34 were not excavated, 15 had disturbed profiles, and one was positive for cultural material. The 34 shovel tests not excavated were due to obvious disturbances including ponds and drainages, as well as extant architecture and pavement.

Two non-site locales were identified in the APE. Non-site Locale 1 consists of the remains of a mid-20th century house and a farm complex. Based on the lack of archaeological deposits, this resource is not considered to represent an archaeological site. Non-site Locale 2 represents a mobile home pad that was in use during the 1980s. Given the recent age of this resource, this resource is not considered to represent an archaeological site.

Stantec recommended no further archaeological work within the APE. TVA received concurrence from the Kentucky Heritage Council (KHC) on May 3, 2024, with the report's findings (Attachment 3).

Under the Action Alternative, archaeological resources would not be disturbed by proposed activities because no archaeology resources are present in the APE.

Under the No Action Alternative, if GCED 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 described above for the Action Alternative. If GCED 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.

4.2.10.1 Historic Structures and Sites

Stantec prepared a cultural historic survey of the Project Area with the field surveying performed in January 2024 (Stantec 2024c). No previously recorded documented historic resources were identified within the APE. Stantec's field survey documented one site with potential to be eligible for listing in the NRHP, field site 1 (FS 1/GV-230). FS 1 consisted of a farmstead that appears to date to the mid-twentieth century based on exterior survey and research. After further evaluation, FS 1 was recommended Not Eligible for listing in the NRHP because it is not a notable example of a mid-twentieth century farmstead in Graves County, lacks distinctive characteristics of a building design that are rare or innovative, and is not associated with a significant person. No NRHP districts were identified.

TVA agrees with the findings and recommendations of Stantec's survey reports. TVA received concurrence from the KHC on May 3, 2024, with the report findings (Attachment 3). 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 by tree clearing, demolition of existing structures, draining and filling a pond, grading of a 500,000 SF dirt building pad, and site stabilization.

Under the No Action Alternative, if GCED 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 described above for the Action Alternative. If GCED 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.

4.2.11 Visual Resources

The Project Area is approximately 50 acres consisting mainly of agricultural land. The Project Area is bordered by Hickory Road and agricultural/pasture areas to the south, forested areas and industrial/commercial areas to the east, and agricultural lands, patchy forest, and a few residences to the north and west. The visual landscape consists of rural, flat areas with primarily agricultural land, as well as industrial development and some minor rural residential areas adjacent to the Project Area.

There are sparse trees and little visual screening between Hickory Road and the Project Area. Residences occur sporadically, primarily to the west and north of the Project Area with patchy forest providing some visual screening. Development of the site for potential industrial purposes would match the existing commercial and industrial setting northeast, east, and southeast of the Project Area.

Under the Action Alternative, 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 rough grading. Drivers along Hickory Road 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 land along nearby Remington Way, Rifle Trail, and Highway 45 is dominated by agricultural/pastureland, commercial areas, and rural residential areas. While motorists using these three roads may notice a change in the viewshed, this change would be minor given the brief period that drivers would be in the area. The views from the residences west and north of the Project Area would experience a minor change. Current views from those areas would change from open agricultural land including pasture and row crops to developed industrial land available for development. However, with other industrial facilities already located in the immediate vicinity, 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 GCED 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 minor direct and indirect visual quality impacts as described above for the Action Alternative. If GCED 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.

4.2.12 Noise

Existing ambient noise levels, or background noise levels, are the current sounds from natural and artificial sources at 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, 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 for approximately

1 year. 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.

Under the Action Alternative, primary sensitive noise receptors in the area include the businesses directly northeast adjacent to the Project Area (HVAC Distributing, TLC Lighting, and Centrifugal Technologies, Inc.). The nearest residences are located approximately 0.4 mile to the west and 0.3 mile to the north. The noise would be localized and temporary, and no receptor would be exposed to significant noise levels for an extended period of time. Distance along with intervening topography and patchy forest would tend to minimize construction noise to potential receptors. Further, construction activities would be conducted during daylight hours when ambient noise levels are often higher, and most individuals are less sensitive to noise. Thus, noise-related impacts resulting from implementation of the Action Alternative are anticipated to be temporary and minor.

Under the No Action Alternative, if GCED 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 GCED 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.

4.2.13 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 United States Census Bureau and the United States Bureau of Labor Statistics were used to characterize socioeconomic conditions in the host state (Kentucky), county (Graves), and locality (Hickory/Mayfield, Kentucky (Table 4-3). 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 4-3. Population, Demographics, Income, and Employment in the Host State, County and Locality

	Kentucky	Graves County	Cities of Hickory/Mayfield, Kentucky
Population [1]			
July 2022 Population	4,511,563	36,412	9,894
April 2020 Population	4,505,836	36,649	10,017
Population, Percent Change	0.1%	-0.7%	-1.3%
Population per Square Mile	114.1	66.4	1,369.8

	Kentucky	Graves County	Cities of Hickory/Mayfield, Kentucky
Demographics [1]			
White Alone, not Hispanic or Latino	83.2%	85.0%	69.3%
Black or African American Alone	8.7%	4.3%	12.2%
American Indian and Alaska Native Alone	0.3%	0.6%	0.6%
Asian Alone	1.8%	0.6%	0.4%
Native Hawaiian and Other Pacific Islander Alone	0.1%	0.1%	0.0%
Two or More Races	2.3%	2.7%	9.7%
Hispanic or Latino (of any race)	4.3%	7.8%	13.3%
Income [1]			
Median Household Income	$60,183	$52,526	$42,589
Per Capita Income	$33,515	$28,978	$26,291
Percent with Income Below the Poverty Level	16.5%	18.8%	32.7%
Employment (Not Seasonally Adjusted): April 2022 [2]			
Labor Force	2,0109,568	15,326	NA
Employed	1,942,066	14,740	NA
Unemployed	77,502	586	NA
Unemployment Rate (%)	3.8%	3.8%	NA

N/A=Not available
[1] Source: United States Census Bureau (2024)
[2] 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 Graves County live at a lower population density and lower population growth. Relative to the average Kentucky resident, the residents of the Cities of Hickory/Mayfield, Kentucky, live at a higher population density, but a lower population growth.
- Relative to the average Kentucky resident, the residents of Graves County are less likely to self-identify as a minority race or ethnicity. Relative to the average Kentucky resident, the residents of Cities of Hickory/Mayfield, Kentucky, are more likely to self-identify as a minority race or ethnicity.
- Per capita income and median household income are both lower in Graves County than in Kentucky. Per capita income and median household income are both lower in the Cities of Hickory/Mayfield, Kentucky than in Kentucky as a whole. Residents of Graves County are more likely to live below the poverty level than residents of Kentucky as a whole. Residents of the Cities of Hickory/Mayfield, Kentucky, are more likely to live below the poverty level than residents of Kentucky as a whole.
- The unemployment rate in Graves County is equal to 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 lower level of low-income population, a lower rate of linguistic isolation and a lower level of population with less than high school education.

As described in Section 1.0 (Proposed Action and Need), the Action Alternative would include tree clearing, demolition of existing structures, drain and fill of a pond, grading of a 500,000 SF dirt building pad, and site stabilization after grading is complete.

This effort is expected to take place over a 12-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.

Under 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 50-acre Project Area.

Under the No Action Alternative, if GCED 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 for the Action Alternative. If GCED was not able to secure the funding for the action, the economic activity and socioeconomic changes would not occur.

4.2.14 Transportation

The Project Area will be accessed during construction activities from Hickory Road. The site entrances would be located on the southeast and southwest side of the Project Area. Hickory Road runs approximately east to west and provides access to Highway 45 to the east of the Project Area. Highway 45 runs approximately north to south and provides access to Mayfield, Kentucky, to the south and Paducah, Kentucky, to the north.

Hickory Road is a local road that provides access to multiple rural and residential properties to the west of the Project Area and seven industrial sites to the east of the Project Area. Hickory Road is an unmarked paved road and sufficiently wide for a single lane of traffic in each direction. Based on preliminary review of Google Street View images (recorded July 2023, August 2019, and September 2018), the road is in good condition with narrow grassy verges. General road conditions were considered acceptable based on observations during Stantec's field surveys. Hickory Road is not listed 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 Hickory Road 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. Hickory Road intersects Highway 45 to the east of the Project Site.

Highway 45 is a four-lane paved highway with dedicated turning lanes. Based on preliminary review of Google Street View images (recorded September 2023), the road is in good condition with paved shoulders. General road conditions were considered acceptable based on observations during Stantec's field surveys. Highway 45 is listed as a principal arterial on the Functional Classification System by KTC (KTC 2024a). Normal care would be taken by workers entering Highway 45 with regards to traffic safety.

There is one traffic count station located on Hickory Road west of the Project Area. Based on the available data, it is anticipated that current traffic volumes for Hickory Road would be negligible as it provides access to a limited number of other sites. Because of the anticipated limited volume of workers on the site required for tree clearing activities, grading, 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 Highway 45 and Hickory Road. The 2022 annual average daily traffic count (AADT) for the relevant stations are presented in Table 4-4 below.

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

Route Description	Location ID	Distance from Project Area (Miles)	Year	AADT
Highway 45 (2 way count)	042012	0.9	2022	13,652
Hickory Road	042811	1.0	2009	151

Source: Kentucky Transportation Cabinet (Traffic Counts (ky.gov)), extracted February 27,2024.

Under the Action Alternative, in the context of the existing AADT road volumes of Hickory Road and Highway 45, 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 Highway 45.

Under the No Action Alternative, if GCED 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 GCED 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 1 acre of earth disturbing activities; therefore, it would be necessary for GCED, or its contractors, to obtain local, state, or federal permits, licenses, and approvals necessary for the project for coverage under the applicable KYDES General Permit for Discharges Associated with Construction Activity (KYR10). Coverage would require submittal of a Notice of Intent (NOI) and development of a site-specific SWPPP.

The presumed jurisdictional and non-jurisdictional stream features and wetland could be disturbed by tree clearing, demolition of existing structures, draining and filling a pond, grading of a 500,000 SF dirt building pad, and site stabilization. If potential impacts cannot be avoided, permitting with the USACE and State of Kentucky would be required and GCED's, or its contractors' responsibility.

6.0 BEST MANAGEMENT PRACTICES AND MITIGATION MEASURES

To minimize or reduce the environmental effects of site activities associated with the Action Alternative, GCED, or its contractors, would ensure all grading activities conducted are in compliance with stormwater permitting requirements and 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. Work activities would occur during daylight hours.

Unavoidable potential impacts to presumed jurisdictional surface water features would be addressed through implementation of measures required by agency permitting, including use of BMPs during construction, restoration, and/or compensatory mitigation as required.

Specific avoidance and conservation measures would be implemented as a part of the Action Alternative to reduce effects to Indiana bat and northern long-eared bat (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
TVA		
Brittany Kunkle *B.S. Environmental and Soil Science*	5 years in Project Management, Managing and Performing NEPA Analyses	Economic Development Grant Project NEPA Compliance Manager
David Mitchell *M.S. Soil and Water Science* *B.S. Horticulture*	18 years in ecological restoration and plant ecology, 6 years of environmental program management	Botany, Threatened and Endangered Species QA/QC
Derek Reaux *Ph.D. Anthropology, University of Nevada, Reno* *M.A. Anthropology, University of Nevada, Reno* *B.A. Anthropology, University of Kentucky*	12 years of experience in archaeological research, cultural resource management, and Section 106 compliance	Cultural resources, NHPA Section 106 compliance

Name/Education	Experience	Project Role
Craig Phillips *M.S. and B.S. Wildlife and Fisheries Science*	17 years Sampling and Hydrologic Determinations for Streams and Wet-Weather Conveyances; 10 years in Environmental Reviews	Aquatic Ecology
Carrie Williamson, P.E. CFM *B.S. and M.S. Civil Engineering*	11 years in Floodplain and Flood Risk; 11 years in Compliance Monitoring; 3 years in River Forecasting	Floodplains QA/QC
Emily E. Doub *M.S. Comparative Biomedical Science, University of Georgia* *B.S. Wildlife & Fisheries Science* *B.S. Animal Science, University of Tennessee*	6 years in biological field studies, 1 year in NEPA compliance and ESA consultation for T&E terrestrial species	Terrestrial Zoology, Threatened and Endangered Species
Sara McLaughlin-Johnson *B.S. Wildlife & Fisheries Science, University of Tennessee*	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
Fallon Parker Hutcheon *M.S. Environmental Studies* *B.S. Biology*	5 years in wetland delineation, wetland impact analysis, and CWA and NEPA compliance	Wetlands
Stantec		
Douglas Mooneyhan *M.S. Biology, Tennessee Technological University* *B.S. Wildlife and Fisheries Science, University of Tennessee*	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
Jaclyn Martin *M.S. Environmental Sciences, Swedish University of Agricultural Sciences, Uppsala, Sweden* *M.S. Environmental Sciences, University of Natural Resources and Life Sciences, Vienna, Austria* *B.S. Biology, Winthrop University, South Carolina*	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	Air Quality and Climate Change, Visual
Duane Simpson *M.A. Anthropology, University of Arkansas* *B.A. Anthropology, Ohio University*	27 years in archaeological consulting including management of projects across the southeast and Mid-Atlantic regions. Principal Investigator for over 15 years.	Archaeology
Rachel Kennedy *M.H.P. Historic Preservation, University of Kentucky* *B.A. Political Science and History, University of Kentucky*	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.	Historic Structures and Sites

Name/Education	Experience	Project Role
Josh Yates, P.G. *M.S. Geology, University of South Florida* *B.S. Natural Resources Management and Engineering, University of Connecticut*	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.	Groundwater
Ellen Mullins *M.S. Forestry, Mississippi State University, Starkville, Mississippi, 2015* *B.S. Forestry, University of Kentucky, Lexington, Kentucky, 2011*	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.	Prime Farmland, Air Quality and Climate Change, Noise
James Kiser *B.S. Biology, Morehead State University*	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.	Botany
Chris Knabel, TN-QHP *B.S. Natural Resources and Environmental Science, University of Kentucky*	Mr. Knabel is a biologist with 6 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.	Aquatics, Wetlands

Name/Education	Experience	Project Role
Shane Kelley, TN-QHP *B.S. Natural Resources & Environmental Science, University of Kentucky*	Mr. Kelley is a biologist with 10 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 (*Solidago shortii*), Virginia spiraea (*Spiraea virginiana*), and small whorled pogonia (*Isotria medeoloidies*). Additionally, he is a federally permitted bat biologist for all listed bat species throughout the TVA service area.	Aquatics, Wetlands
Iris Eschen *Heald Business College, San Francisco, CA*	As Document Production Manager, Ms. Iris 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. *B.S. Environmental Engineering, Louisiana State University*	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

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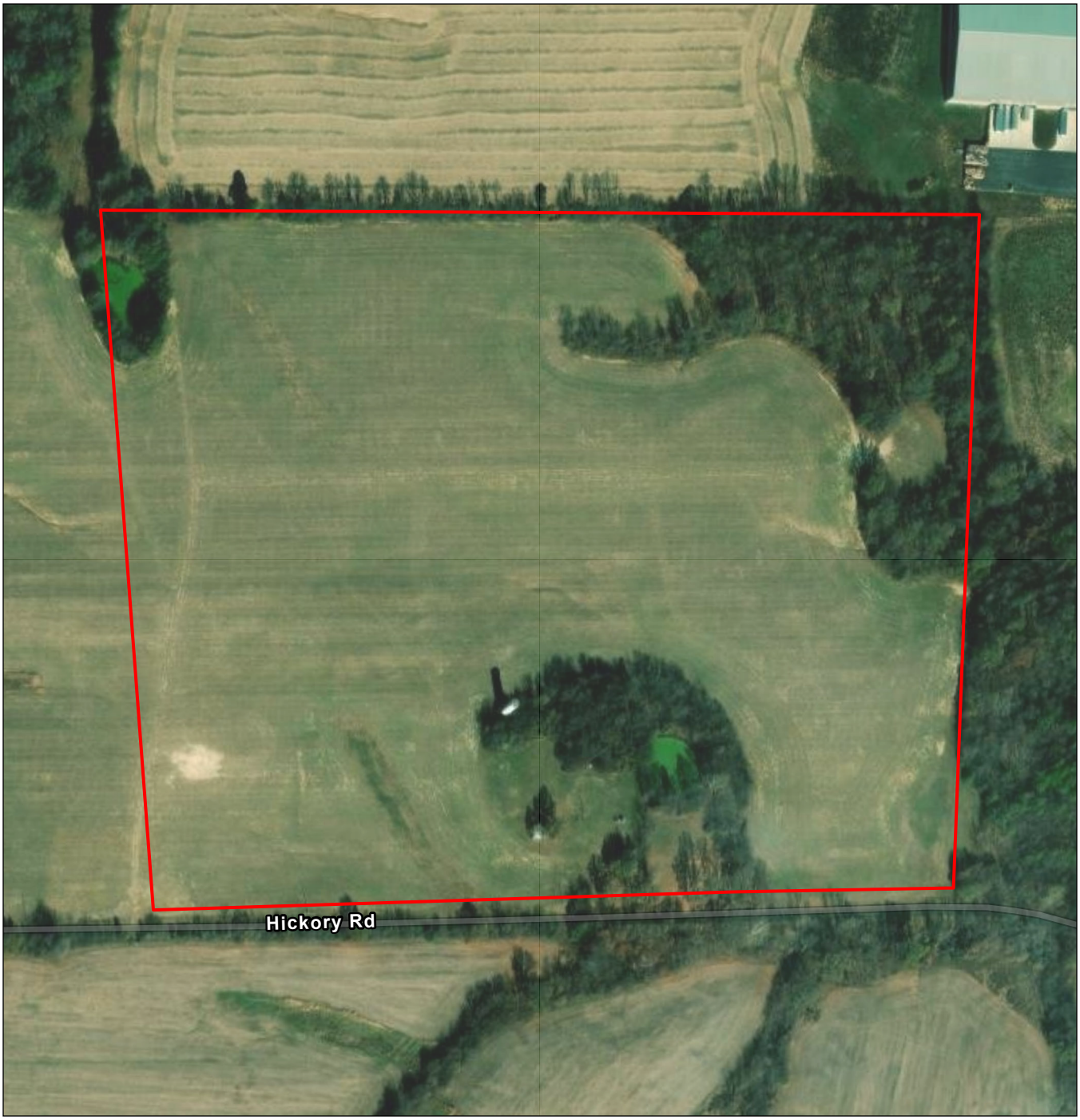
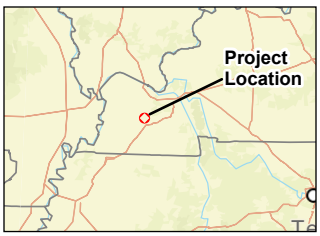
Attachment 1

Project Figures





Project Boundary (50.55 ac)

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Notes
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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

Stantec

Project Location
Graves Co., KY

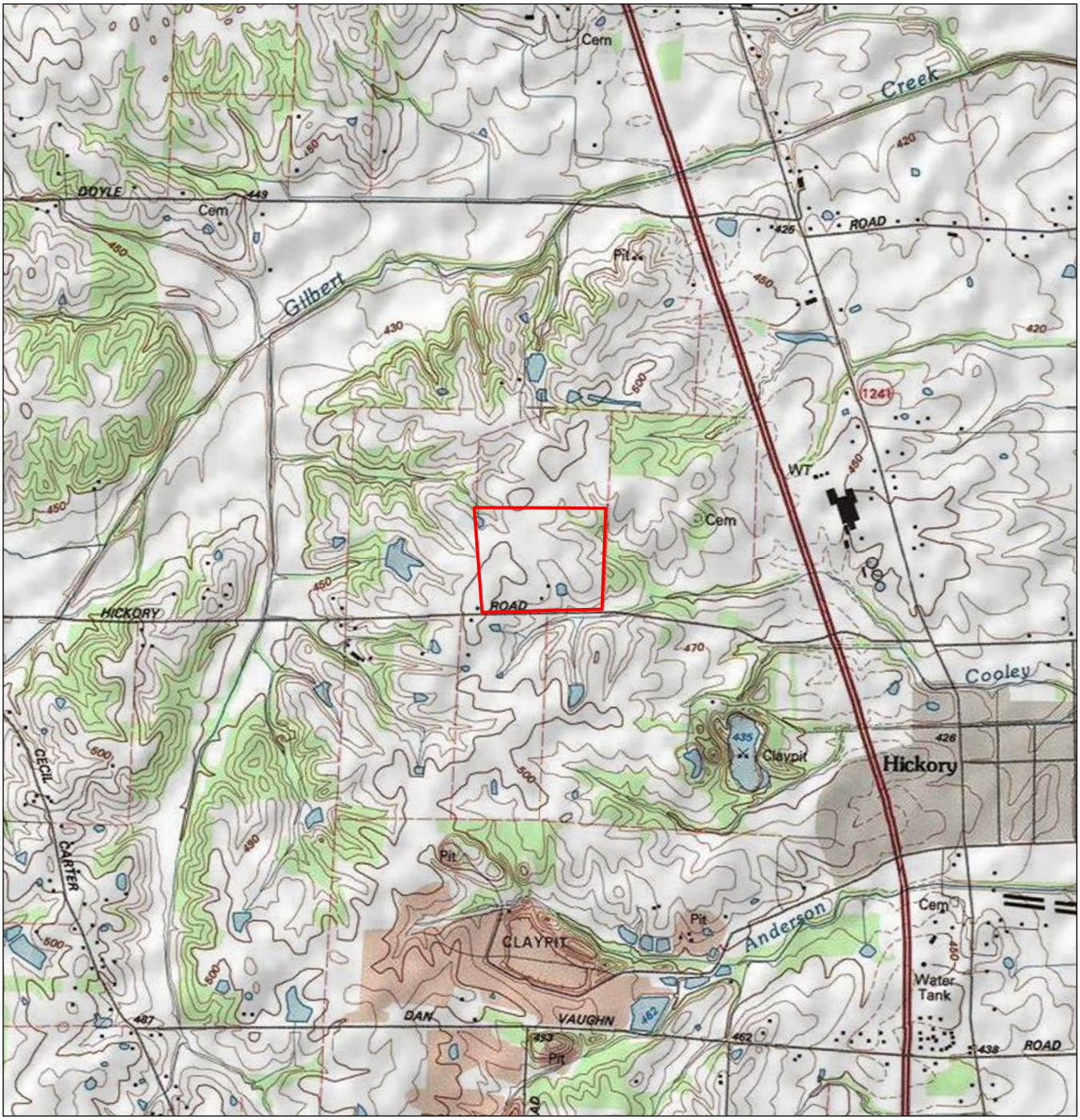
Prepared by pmarsey on 1/19/2024

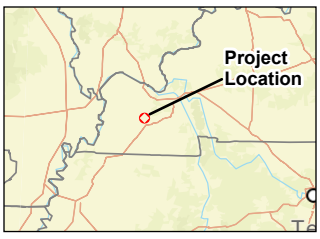
Client/Project
Tennessee Valley Authority
TVA: FY24 Investment Prep Projects
Environmental Assessment Report

172608384

Figure No.
1A

Title
Graves County
Project Aerial





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Stantec

Project Location
Graves Co., KY

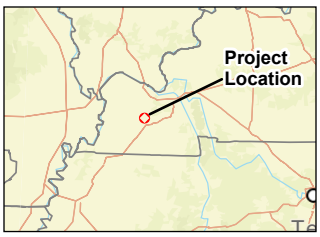
Prepared by pmarsey on 2/20/2024

Client/Project
172608384
Tennessee Valley Authority
TVA: FY24 Investment Prep Projects
Environmental Assessment Report

Figure No.
1B

Title
Graves County
USGS Quadrangle

Notes
1. Coordinate System: NAD 1983 StatePlane Kentucky South FIPS 1602 Feet
2. Data Sources: TVA
3. Background: Esri, TomTom, Garmin, FAO, NOAA, USGS, EPA, USFWS, Copyright:© 2013 National Geographic Society, i-cubed



Project Boundary (50.55 ac)
FEMA Floodplain

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Stantec

Notes
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2. Data Sources: TVA, FEMA
3. Background: Esri, TomTom, Garmin, FAO, NOAA, USGS, EPA, USFWS, Esri Community Maps Contributors, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS, Maxar

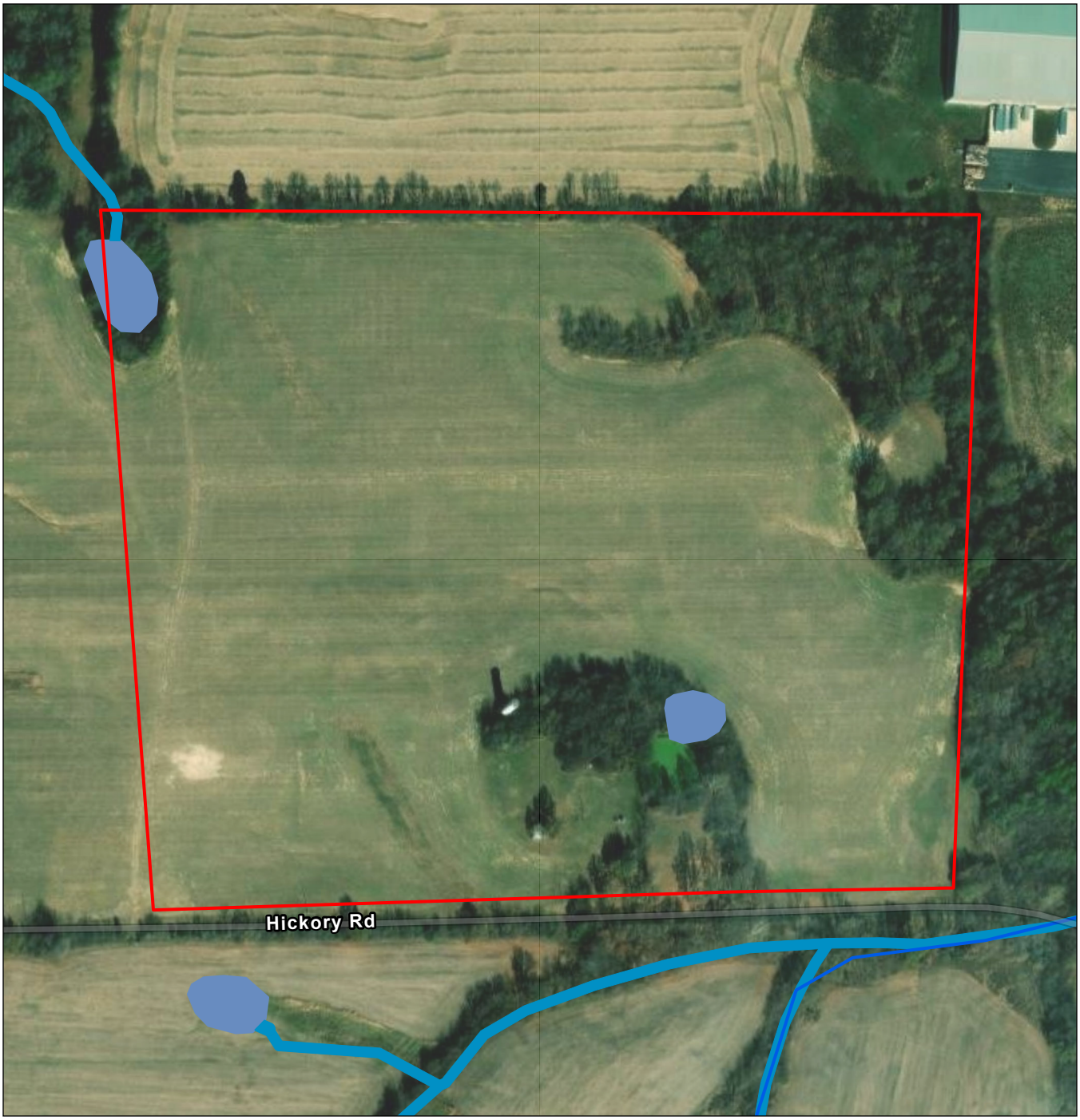
Project Location
Graves Co., KY

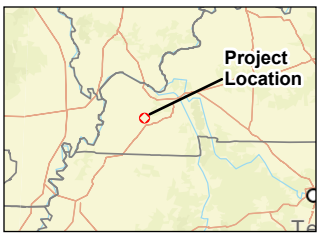
Prepared by pmarsey on 3/20/2024

Client/Project 172608384
Tennessee Valley Authority
TVA: FY24 Investment Prep Projects
Environmental Assessment Report

Figure No.
1C

Title
Graves County
FEMA Floodplain





Project Boundary (50.55 ac)
NHDFlowline

NWI Wetlands

Freshwater Pond
Riverine

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Notes

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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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Project Location
Graves Co., KY

Prepared by pmarsey on 2/20/2024

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

172608384

Figure No.
1D

Title
Graves County
USFWS NWI and Water Inventory

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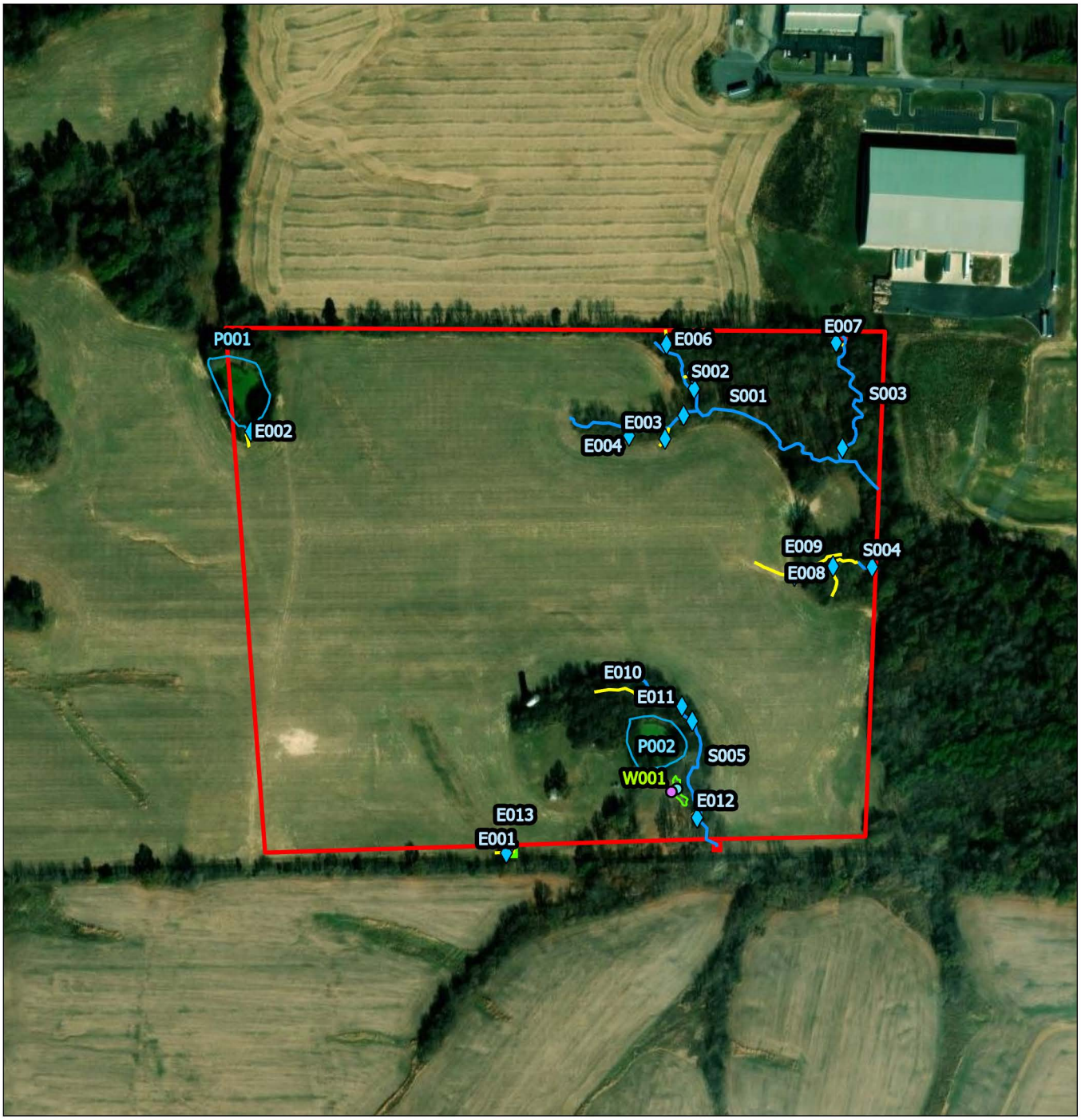

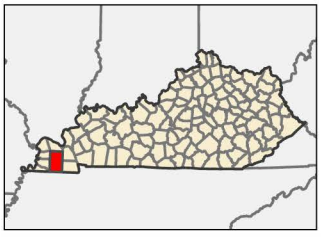

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2. Data Sources: TVA, Stantec
3. Background: Esri Aerial Imagery Basemap

Legend
- Project Boundary
- Stream Points
- Stream
- Wet Weather Conveyance
- Delineated Wetlands
- Delineated Open Water

Soil Data Points
- Upland
- Wetland

Culverts
- Inlet
- Outlet

0 200 400 Feet
(At original document size of 8.5x11)
1 inch = 400 feet

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Stantec

Project Location
Graves County, Kentucky

Prepared by MNA on 2024-02-14
TR by KD on 2024-02-16
IR by SPK on 2024-02-16

Client/Project
172608384
Tennessee Valley Authority
TVA FY24 InvestPrep Projects
Wetland and Aquatics Report

Figure No.
1E

Title
Wetland and Waterbody Delineation Map

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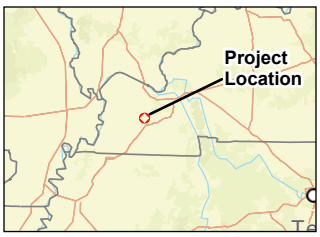

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2. Data Sources: TVA, USDA-NRCS
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- Project Boundary (50.55 ac)
- Cn - Collins silt loam, 0 to 2 percent slopes, occasionally flooded, very brief duration (0.18 ac)
- GrB2 - Grenada silt loam, 2 to 6 percent slopes, eroded (3.62 ac)
- LoB2 - Loring silt loam, 2 to 6 percent slopes, eroded (20.44 ac)
- PuB3 - Purchase-Loring complex, 4 to 6 percent slopes, severely eroded (13.18 ac)
- PuC3 - Purchase-Loring complex, 6 to 12 percent slopes, severely eroded (13.13 ac)
- All areas are prime farmland (24.24 ac)
- Farmland of statewide importance (13.18 ac)
- Not prime farmland (13.13 ac)

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(At original document size of 8.5x11)
1:3,600

N

Stantec

Project Location
Graves Co., KY

Prepared by pmarsey on 1/19/2024

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

172608384

Figure No.
1F

Title
Graves County
NRCS Soils

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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.*[1]

Project Name: FY24 InvestPrep - Graves County, KY **Date:** Sep 28, 2023

Contact(s): Brittany Kunkle **CEC#:** **Project ID:** 2024-4

Project Location (City, County, State): Hickory, Graves County, KY

Project Description:

Utilize TVA InvestPrep funds matched with Non-TVA funds to assist with costs associated with developing a 500,000 SF dirt building pad on the Keith Property, including clearing, grubbing, grading, and stormwater management.

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:

- ☐ 1 Manage Biological Resources for Biodiversity and Public Use on TVA Reservoir Lands
- ☐ 2 Protect Cultural Resources on TVA-Retained Land
- ☐ 3 Manage Land Use and Disposal of TVA-Retained Land
- ☐ 4 Manage Permitting under Section 26a of the TVA Act
- ☐ 5 Operate, Maintain, Retire, Expand, Construct Power Plants
- ☐ 6 Maintain Existing Electric Transmission Assets
- ☐ 7 Convey Property associated with Electric Transmission
- ☐ 8 Expand or Construct New Electric Transmission Assets
- ■ 9 Promote Economic Development
- ☐ 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.

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

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

☐ 15. Windshield and ground surveys for archaeological resources	■ 34. Mechanical vegetation removal, includes trees or tree branches > 3 inches in diameter	☐ 69. Renovation of existing structures
☐ 16. Drilling	■ 35. Stabilization (major erosion control)	☐ 70. Lock maintenance/ construction
☐ 17. Mechanical vegetation removal, does not include trees or branches > 3" in diameter (in Table 3 due to potential for woody burn piles)	■ 36. Grading	☐ 71. Concrete dam modification
☐ 21. Herbicide use	☐ 37. Installation of soil improvements	☐ 73. Boat launching ramps
■ 22. Grubbing	☐ 38. Drain installations for ponds	☐ 77. Construction or expansion of land-based buildings
☐ 23. Prescribed burns	☐ 47. Conduit installation	☐ 78. Wastewater treatment plants
☐ 25. Maintenance, improvement or construction of pedestrian or vehicular access corridors	☐ 52. Floating buildings	☐ 80. Barge fleeting areas
☐ 26. Maintenance/construction of access control measures	☐ 54. Maintenance of water control structures (dewatering units, spillways, levees)	☐ 82. Construction of dam/weirs/ levees
☐ 27. Restoration of sites following human use and abuse	☐ 55. Solar panels	☐ 83. Submarine pipeline, directional boring operations
☐ 28. Removal of debris (e.g., dump sites, hazardous material, unauthorized structures)	☐ 62. Blasting	☐ 86. Landfill construction
☐ 29. Acquisition and use of fill/borrow material	☐ 63. Foundation installation for transmission support	■ 89. Structure demolition
☐ 31. Stream/wetland crossings	☐ 64. Installation of steel structure, overhead bus, equipment, etc.	☐ 91. Bridge replacement
☐ 32. Clean-up following storm damage	☐ 65. Pole and/or tower installation and/or extension	☐ 92. Return of archaeological remains to former burial sites
☐ 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., ≥ 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	[ ] Oct 15 - Nov 14	[ ] Nov 15 - Mar 31	[ ] Apr 1 - May 31, Aug 1- Oct 14	[ ] Jun 1 - Jul 31
VA	[ ] Sep 16 - Nov 15	[ ] Nov 16 - Apr 14	[ ] Apr 15 - May 31, Aug 1 – Sept 15	[ ] Jun 1 - Jul 31
AL	[ ] Oct 15 - Nov 14	[ ] Nov 15 - Mar 15	[ ] Mar 16 - May 31, Aug 1 - Oct 14	[ ] Jun 1 - Jul 31
NC	[ ] Oct 15 - Nov 14	[ ] Nov 15 - Apr 15	[ ] Apr 16 - May 31, Aug 1 - Oct 14	[ ] Jun 1 - Jul 31
MS	[ ] Oct 1 - Nov 14	[ ] Nov 15 - Apr 14	[ ] Apr 15 - May 31, Aug 1 – Sept 30	[ ] 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: [5.1] (•)**ac** ( )**trees** ( )**N/A**

STATE	SWARMING	WINTER	NON-WINTER	PUP
GA, KY, TN	[ ] Oct 15 - Nov 14	[ ] Nov 15 - Mar 31	[■] Apr 1 - May 31, Aug 1- Oct 14	[ ] Jun 1 - Jul 31
VA	[ ] Sep 16 - Nov 15	[ ] Nov 16 - Apr 14	[ ] Apr 15 - May 31, Aug 1 – Sept 15	[ ] Jun 1 - Jul 31
AL	[ ] Oct 15 - Nov 14	[ ] Nov 15 - Mar 15	[ ] Mar 16 - May 31, Aug 1 - Oct 14	[ ] Jun 1 - Jul 31
NC	[ ] Oct 15 - Nov 14	[ ] Nov 15 - Apr 15	[ ] Apr 16 - May 31, Aug 1 - Oct 14	[ ] Jun 1 - Jul 31
MS	[ ] Oct 1 - Nov 14	[ ] Nov 15 - Apr 14	[ ] Apr 15 - May 31, Aug 1 – Sept 30	[ ] 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)	Emily Doub	Date	Oct 18, 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): [0.98] **(**(•)**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):

Acoustic results in county for gray bat. IPAC results for Gray bat, Northern long-eared bat, Indiana bat

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 0.98 ◉ **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 Dec 18, 2023

TVA Action	Total 20-year	Winter	Volant Season	Non-Volant Season
9 Promote Economic Development		11,301.85	1,137.72	0

STEP 12) Amount contributed to TVA's Bat Conservation Fund upon activity completion: $ 735 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: Emily Doub

Check if Applies to Project	Activities Subject To Conservation Measure	Conservation Measure Description
		NV1 - 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.
		SHF4 - If burns need to be conducted during April and May, when there is some potential for bats to present on the landscape and more likely to enter torpor due to colder temperatures, burns will only be conducted if the air temperature is 55° or greater, and preferably 60° or greater.
		TR4* - Removal of suitable summer roosting habitat within potential habitat for Indiana bat or northern long-eared bat will be tracked, documented, and included in annual reporting. Project will therefore communicate completion of tree removal to appropriate TVA staff.
		TR9 - If removal of suitable summer roosting habitat occurs when bats are present on the landscape, a funding contribution (based on amount of habitat removed) towards future conservation and recovery efforts for federally listed bats would be carried out. Project can consider seasonal bat presence/absence surveys (mist netting or emergence counts) that allow for positive detections without resulting in increased constraints in cost and project schedule. This will enable TVA to contribute to increased knowledge of bat presence on the landscape while carrying out TVA's broad mission and responsibilities.

AR1 - Projects that involve structural modification or demolition of buildings, bridges, and potentially suitable box culverts, will require assessment to determine if structure has characteristics that make it a potentially suitable unconventional bat roost. If so a survey to determine if bats may be present will be conducted. Structural assessment will include:

- Visual check that includes an exhaustive internal/external inspection of building to look for evidence of bats (e.g., bat droppings, roost entrance/exit holes); this can be done at any time of year, preferably when bats are active.
- Where accessible and health and safety considerations allow, a survey of roof space for evidence of bats (e.g., droppings, scratch marks, staining, sightings), noting relevant characteristics of internal features that provide potential access points and roosting opportunities. Suitable characteristic may include: gaps between tiles and roof lining, access points via eaves, gaps between timbers or around mortise joints, gaps around top and gable end walls, gaps within roof walling or around tops of chimney breasts, and clean ridge beams.
- Features with high-medium likelihood of harboring bats but cannot be checked visually include soffits, cavity walls, space between roof covering and roof lining.
- Applies to box culverts that are at least 5 feet (1.5 meters) tall and with one or more of the following characteristics. Suitable culverts for bat day roosts have the following characteristics:
    - Location in relatively warm areas
    - Between 5-10 feet (1.5-3 meters) tall and 300 ft (100 m) or more long
    - Openings protected from high winds
    - Not susceptible to flooding
    - Inner areas relatively dark with roughened walls or ceilings
    - Crevices, imperfections, or swallow nests
- Bridge survey protocols will be adapted from the Programmatic Biological Opinion for the Federal Highway Administration (Appendix D of USFWS 2016c, which includes a Bridge Structure Assessment Guidance and a Bridge Structure Assessment Form).
- Bat surveys usually are NOT needed in the following circumstances:
    - Domestic garages /sheds with no enclosed roof space (with no ceiling)
    - Modern flat-roofed buildings
    - Metal framed and roofed buildings
    - Buildings where roof space is regularly used (e.g., attic space converted to living space, living space open to rafters) or where all roof space is lit from skylights or windows. Large/tall roof spaces may be dark enough at apex to provide roost space

SSPC2 - Operations involving chemical/fuel storage or resupply and vehicle servicing will be handled outside of riparian zones (streamside management zones) in a manner to prevent these items from reaching a watercourse. Earthen berms or other effective means are installed to protect stream channel from direct surface runoff. Servicing will be done with care to avoid leakage, spillage, and subsequent stream, wetland, or ground water contamination. Oil waste, filters, other litter will be collected and disposed of properly. Equipment servicing and chemical/fuel storage will be limited to locations greater than 300-ft from sinkholes, fissures, or areas draining into known sinkholes, fissures, or other karst features.

SSPC5 (**26a, Solar, Economic Development only**) - 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.

L1 - Direct temporary lighting away from suitable habitat during the active season.

	L2 - 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).

[1]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).

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
Submission of this form indicates that Project Lead/Applicant:

Brittany Kunkle (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) Brittany Kunkle 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 0.98 ◉ ac ○ trees and that use of Take will require $ 735 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

JACQUELINE COLEMAN
LT. GOVERNOR

TOURISM, ARTS AND HERITAGE CABINET
KENTUCKY HERITAGE COUNCIL
THE STATE HISTORIC PRESERVATION OFFICE
410 HIGH STREET
FRANKFORT, KENTUCKY 40601
(502) 564-7005
www.heritage.ky.gov

LINDY CASEBIER
SECRETARY

CRAIG A. POTTS
EXECUTIVE DIRECTOR &
STATE HISTORIC PRESERVATION OFFICER

May 3, 2024

Derek Reaux
Tennessee Valley Authority
400 West Summit Hill Drive
Knoxville, TN 37902
djreaux@tva.gov

RE: TVA, CRMS 82397469191, Proposed Hickory Industrial Park Expansion – Keith Property, Along Hickory Road, Hickory, Graves County, Kentucky

Determination of Effect, Cultural Historic, and

Phase I Archaeological Survey of The Keith Property for the Tennessee Valley Authority Invest Prep 2024 Program, Graves County, Kentucky by Michael Loughlin

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 purchase a 50.1-acre parcel for future development in Hickory, Kentucky. Also associated with this undertaking is clearing 5.1 acres of trees; clearing, grubbing, and grading the property; and building a 500,000 square foot building pad. The area of potential effect (APE) for the current undertaking was limited to the 50.1-acre project footprint where physical effects may occur.

The above-ground report identified one newly identified resource within the direct APE: GV-230, a former farmstead. The consultant recommends GV-230 as Ineligible for the National Register of Historic Places (NRHP), and our office concurs with this recommendation.

Stantec Consulting Services Inc. (Stantec) conducted an archaeological survey of the 50.1-acre APE in February of 2024. We understand methods included pedestrian survey and shovel testing. No archaeological sites were documented as a result of this survey.

We understand documents will be curated at the Office of Archaeological Research at the University of Alabama. We accept the archaeology report without revision.

Please note that this correspondence does **not** constitute Section 106 clearance for construction on or for any further development of this property.

However, for planning purposes our office concurs with the finding of **No Historic Properties Affected**. This concurrence is conditional upon receipt of a completed KHC survey form for GV-230 within three months of the date of this letter. Please submit the form to khc.section106@ky.gov.

Should you have any questions, please contact Gabrielle Fernandez or Patti Hutchins of my staff at Gabrielle.Fernandez@ky.gov or Patricia.Hutchins@ky.gov.

Sincerely,

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

CP: gf, peh
KHC # 241159 prev. 240764
e-cc: Philip Mink, OSA, pbmink2@uky.edu
Michaelyn Harle, TVA, mharle@tva.gov
Emily Beliles, TVA, ebeliles@tva.gov

USDA United States Department of Agriculture

Farm Production and Conservation

Natural Resources Conservation Service

Owensboro Service Center
3100 Alvey Park Drive W
Owensboro, KY 42303

February 13, 2024

Ellen Mullins
Stantec
3052 Beaumont Centre Circle
Lexington, KY 40513

RE: Graves County TVA Project

Dear Ellen:

Enclosed is the Farmland Protection Policy Act (FPPA) site assessment for the proposed project in Graves County, Kentucky. 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 monies. Based on the information contained in your request, it was determined that the proposed project has the potential to impact *Prime* and/or *Statewide Important Farmland*.

The proposed project site has a relative LESA value of **71**, as based on a scale of 0 to 100 points *(see AD-1006)*. The percentage of farmland in Graves County having the same or higher value is 56.51%. The percentage of Graves County farmland to be converted as a result of the proposed action is 0.02%.

Please do not hesitate to contact me if I may be of additional assistance.

Sincerely,

Perri P. Brown

Perri P. Brown
Resource Soil Scientist
Perri.Brown@usda.gov

Enclosures

U.S. Department of Agriculture

FARMLAND CONVERSION IMPACT RATING

PART I *(To be completed by Federal Agency)*		Date Of Land Evaluation Request 01/25/2024	
Name of Project InvestPrep Graves Co. Economic Devel.		Federal Agency Involved Tennessee Valley Authority	
Proposed Land Use industrial development		County and State Graves County, Kentucky	
PART II *(To be completed by NRCS)*		Date Request Received By NRCS 1/25/2024	Person Completing Form: Perri Brown
Does the site contain Prime, Unique, Statewide or Local Important Farmland? *(If no, the FPPA does not apply - do not complete additional parts of this form)*	YES ☑ NO ☐	Acres Irrigated	Average Farm Size
Major Crop(s) Corn	Farmable Land In Govt. Jurisdiction Acres: 84.69 % 295,337 ac.	Amount of Farmland As Defined in FPPA Acres: 63.43 % 221,110 ac.	
Name of Land Evaluation System Used	Name of State or Local Site Assessment System	Date Land Evaluation Returned by NRCS 2/13/2024	

PART III *(To be completed by Federal Agency)*	Alternative Site Rating			
	Site A	Site B	Site C	Site D
A. Total Acres To Be Converted Directly	42.94			
B. Total Acres To Be Converted Indirectly	7.61			
C. Total Acres In Site	50.55			
PART IV *(To be completed by NRCS)* Land Evaluation Information				
A. Total Acres Prime And Unique Farmland	24.20			
B. Total Acres Statewide Important or Local Important Farmland	13.20			
C. Percentage Of Farmland in County Or Local Govt. Unit To Be Converted	0.02			
D. Percentage Of Farmland in Govt. Jurisdiction With Same Or Higher Relative Value	56.51			
PART V (To be completed by NRCS) Land Evaluation Criterion Relative Value of Farmland To Be Converted (Scale of 0 to 100 Points)	71			

PART VI *(To be completed by Federal Agency)* Site Assessment Criteria *(Criteria are explained in 7 CFR 658.5 b. For Corridor project use form NRCS-CPA-106)*	**Maximum Points**	Site A	Site B	Site C	Site D
1. Area In Non-urban Use	(15)	14			
2. Perimeter In Non-urban Use	(10)	10			
3. Percent Of Site Being Farmed	(20)	17			
4. Protection Provided By State and Local Government	(20)	0			
5. Distance From Urban Built-up Area	(15)	5			
6. Distance To Urban Support Services	(15)	0			
7. Size Of Present Farm Unit Compared To Average	(10)	0			
8. Creation Of Non-farmable Farmland	(10)	1			
9. Availability Of Farm Support Services	(5)	5			
10. On-Farm Investments	(20)	1			
11. Effects Of Conversion On Farm Support Services	(10)	0			
12. Compatibility With Existing Agricultural Use	(10)	0			
TOTAL SITE ASSESSMENT POINTS	160	53	0	0	0
PART VII ***(To be completed by Federal Agency)***					
Relative Value Of Farmland *(From Part V)*	100	71	0	0	0
Total Site Assessment *(From Part VI above or local site assessment)*	160	53	0	0	0
TOTAL POINTS ***(Total of above 2 lines)***	260	124	0	0	0

Site Selected: Graves County	Date Of Selection 5/8/2024	Was A Local Site Assessment Used? YES ☐ NO ☑

Reason For Selection:

Graves County Economic Development identified this site for industrial development and applied for TVA funding for site improvements. This site was chosen for funding and will support local/TVA economic development efforts.

Name of Federal agency representative completing this form: Ellen Mullins (Stantec) on behalf of TVA	Date: 05/14/2024

(See Instructions on reverse side)

Form AD-1006 (03-02)

STEPS IN THE PROCESSING THE FARMLAND AND CONVERSION IMPACT RATING FORM

Step 1 - Federal agencies (or Federally funded projects) involved in proposed projects that may convert farmland, as defined in the Farmland Protection Policy Act (FPPA) to nonagricultural uses, will initially complete Parts I and III of the form. For Corridor type projects, the Federal agency shall use form NRCS-CPA-106 in place of form AD-1006. The Land Evaluation and Site Assessment (LESA) process may also be accessed by visiting the FPPA website, http://fppa.nrcs.usda.gov/lesa/.

Step 2 - Originator (Federal Agency) will send one original copy of the form together with appropriate scaled maps indicating location(s)of project site(s), to the Natural Resources Conservation Service (NRCS) local Field Office or USDA Service Center and retain a copy for their files. (NRCS has offices in most counties in the U.S. The USDA Office Information Locator may be found at http://offices.usda.gov/scripts/ndISAPI.dll/oip_public/USA_map**,** or the offices can usually be found in the Phone Book under U.S. Government, Department of Agriculture. A list of field offices is available from the NRCS State Conservationist and State Office in each State.)

Step 3 - NRCS will, within 10 working days after receipt of the completed form, make a determination as to whether the site(s) of the proposed project contains prime, unique, statewide or local important farmland. (When a site visit or land evaluation system design is needed, NRCS will respond within 30 working days.

Step 4 - For sites where farmland covered by the FPPA will be converted by the proposed project, NRCS will complete Parts II, IV and V of the form.

Step 5 - NRCS will return the original copy of the form to the Federal agency involved in the project, and retain a file copy for NRCS records.

Step 6 - The Federal agency involved in the proposed project will complete Parts VI and VII of the form and return the form with the final selected site to the servicing NRCS office.

Step 7 - The Federal agency providing financial or technical assistance to the proposed project will make a determination as to whether the proposed conversion is consistent with the FPPA.

INSTRUCTIONS FOR COMPLETING THE FARMLAND CONVERSION IMPACT RATING FORM

(For Federal Agency)

Part I: When completing the "County and State" questions, list all the local governments that are responsible for local land use controls where site(s) are to be evaluated.

Part III: When completing item B (Total Acres To Be Converted Indirectly), include the following:

1. Acres not being directly converted but that would no longer be capable of being farmed after the conversion, because the conversion would restrict access to them or other major change in the ability to use the land for agriculture.
2. Acres planned to receive services from an infrastructure project as indicated in the project justification (e.g. highways, utilities planned build out capacity) that will cause a direct conversion.

Part VI: Do not complete Part VI using the standard format if a State or Local site assessment is used. With local and NRCS assistance, use the local Land Evaluation and Site Assessment (LESA).

1. Assign the maximum points for each site assessment criterion as shown in § 658.5(b) of CFR. In cases of corridor-type project such as transportation, power line and flood control, criteria #5 and #6 will not apply and will, be weighted zero, however, criterion #8 will be weighed a maximum of 25 points and criterion #11 a maximum of 25 points.

2. Federal agencies may assign relative weights among the 12 site assessment criteria other than those shown on the FPPA rule after submitting individual agency FPPA policy for review and comment to NRCS. In all cases where other weights are assigned, relative adjustments must be made to maintain the maximum total points at 160. For project sites where the total points equal or exceed 160, consider alternative actions, as appropriate, that could reduce adverse impacts (e.g. Alternative Sites, Modifications or Mitigation).

Part VII: In computing the "Total Site Assessment Points" where a State or local site assessment is used and the total maximum number of points is other than 160, convert the site assessment points to a base of 160.
Example: if the Site Assessment maximum is 200 points, and the alternative Site "A" is rated 180 points:

$$\frac{\text{Total points assigned Site A}}{\text{Maximum points possible}} = \frac{180}{200} \text{ X } 160 = 144 \text{ points for Site A}$$

For assistance in completing this form or FPPA process, contact the local NRCS Field Office or USDA Service Center.

NRCS employees, consult the FPPA Manual and/or policy for additional instructions to complete the AD-1006 form.

Mooneyhan, Douglas

From: Mullins, Ellen
Sent: Tuesday, May 14, 2024 10:26 AM
To: Brown, Perri - FPAC-NRCS, KY
Cc: Mooneyhan, Douglas; brkunkle@tva.gov
Subject: RE: [External Email]RE: Average farm size Graves Co, KY

Sounds great, much appreciated Perri.

Thanks!

Ellen Mullins
Environmental Project Manager

Phone: (859) 948-5664
Ellen.Mullins@stantec.com

Stantec
3052 Beaumont Centre Circle
Lexington KY 40513-1703

From: Brown, Perri - FPAC-NRCS, KY <Perri.Brown@usda.gov>
Sent: Tuesday, May 14, 2024 10:23 AM
To: Mullins, Ellen <Ellen.Mullins@stantec.com>
Subject: RE: [External Email]RE: Average farm size Graves Co, KY

Good Morning Ellen,

I apologize for not responding, I have been working in the field and didn't have email access. 228 acres is correct, I usually include that from the 2017 Census. My apologies.

Correspondence with NRCS is complete, the form is for your record to be submitted as part of the environmental review process or however you need it for funding purposes.

Thank You,

Perri P. Brown

Resource Soil Scientist
USDA-NRCS
Owensboro, KY
(270) 684-9286 Ext. 115

From: Mullins, Ellen <Ellen.Mullins@stantec.com>
Sent: Tuesday, May 14, 2024 8:11 AM

To: Brown, Perri - FPAC-NRCS, KY <Perri.Brown@usda.gov>
Cc: Mooneyhan, Douglas <douglas.mooneyhan@stantec.com>; brkunkle@tva.gov
Subject: [External Email]RE: Average farm size Graves Co, KY

Good Morning Perri,

Please find attached the completed AD-1006 submittal for TVA's project in Graves County, KY. I have attached copy of emails of our past correspondence regarding this project for reference.
Note that I used the attached 2017 Agricultural Census to answer Factor 7; please confirm that 228 acres as average farm size value for Graves County, KY is correct.

We appreciate your review of this AD-1006 form submittal and request that you notify us when the coordination is complete.

Best,

Ellen Mullins
Environmental Project Manager

Phone: (859) 948-5664
Ellen.Mullins@stantec.com

Stantec
3052 Beaumont Centre Circle
Lexington KY 40513-1703

From: Mullins, Ellen
Sent: Wednesday, May 8, 2024 10:37 AM
To: Brown, Perri - FPAC-NRCS, KY <Perri.Brown@usda.gov>
Subject: Average farm size Graves Co, KY

Hi Perri,

I am working on completing the AD-1006 for the TVA project in Graves County, KY.
Can you please provide the average farm size for Graves County?

Thanks!

Ellen Mullins
Environmental Project Manager

Phone: (859) 948-5664
Ellen.Mullins@stantec.com

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3052 Beaumont Centre Circle
Lexington KY 40513-1703